



GERT8000

Rule Book

Train Driver Manual

TRAIN DRIVER MANUAL

GE/RM8000/traindriver

RSSB has produced this manual to provide end-users with access to the content of GE/RT8000 (The Rule Book) that is relevant to the role of Driver as defined in the [Rule Book Matrix](#) published by RSSB.

The manual is intended to be read electronically and on a device of your choice. To facilitate navigation, the manual includes bookmarks and the contents page includes links enabling you to find the information you require quickly. The content can also be searched using keywords or phrases, for example, Single Line Working. It is not intended for printing.

If you require individual copies of the modules or handbooks contained within this manual, then these can be downloaded from [Railway Group Standards](#) or ordered in hardcopy from Willsons Printers: Newark.

Any party wishing to apply for a deviation or to propose a change should apply referencing the individual handbook(s) and/or module(s) and not this manual. The manual will be updated and re-issued as individual handbooks and modules are revised.

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CONTENTS Contd

GE/RT8000/AC	issue 4	AC electrified lines
GE/RT8000/DC	issue 4	DC electrified lines
GE/RT8000/G1	issue 6	General safety responsibilities and personal track safety for non-track workers
GE/RT8000/M1	issue 3	Dealing with a train accident or train evacuation
GE/RT8000/M2	issue 4	Train stopped by train failure
GE/RT8000/M3	issue 2	Managing incidents, floods and snow
GE/RT8000/OTM	issue 7	Working of on-track machines (OTM)
GE/RT8000/P1	issue 6	Single line working
GE/RT8000/P2	issue 4	Working single and bi-directional lines by pilotman
GE/RT8000/PoSA	issue 3	Proceed-on-Sight Authority (PoSA)
GE/RT8000/S4	issue 5	Trains or shunting movements detained on running lines
GE/RT8000/S5	issue 6	Passing a signal at danger or an end of authority (EoA) without a movement authority (MA)
GE/RT8000/S7	issue 2	Observing and obeying signalling indications Train warning systems Reporting signalling failures and irregularities
GE/RT8000/SP	issue 5	Speeds
GE/RT8000/SS1	issue 4	Station duties and train dispatch
GE/RT8000/SS2	issue 5	Shunting
GE/RT8000/T3	issue 6	Possession of a running line for engineering work
GE/RT8000/T3 ERTMS	issue 3	Possession of an ERTMS running line for engineering work where lineside signals are not provided
GE/RT8000/TW1	issue 10	Preparation and movement of trains
GE/RT8000/TW5	issue 6	Preparation and movement of trains Defective or isolated vehicles and on-train equipment
GE/RT8000/TW7	issue 6	Wrong-direction movements
GE/RT8000/TW8	issue 7	Level crossings - drivers' instructions
RS/516	issue 1	Cab secure radio (CSR) Handbook

Inforce dates are set out in the individual modules within this manual.

CONTENTS

RS/520	issue 1	GSM-R (IVRS) Radio system Handbook
RS/521	issue 3	Signals, handsignals, indicators and signs Handbook
RS/522	issue 3	AWS and TPWS Handbook
Glossary of railway terminology	issue 2	Glossary of railway terminology

GE/RT8000/AC
Rule Book



AC electrified lines

Issue 4

September 2015

Comes into force 05 December 2015



Conventions used in the Rule Book	Example
A black line in the margin indicates a change to that rule and is shown when published in the module for the first time.	
Green text in the margin indicates who is responsible for carrying out the rule.	driver
A white i in a blue box indicates that there is information provided at the bottom of the page.	
<div style="border: 2px solid red; padding: 5px;">A rule printed inside a red box is considered to be critical and is therefore emphasised in this way.</div>	

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You will need this module if you carry out the duties of a:

- train driver
- guard
- shunter
- designated person (DP)
- signaller
- crossing keeper
- person in charge of sidings

in AC electrified areas.

Section

1

Definitions

2

Competence

3

Dangers of the system

- 3.1 Treating the OLE as being live
- 3.2 Objects on or near to the OLE
- 3.3 Reporting objects and defects to the ECO

4

Personal safety

- 4.1 When not working on traction units or other vehicles
- 4.2 When working on traction units or other vehicles
- 4.3 Using long items

5

Communicating with the ECO

- 5.1 Directly or by another person
- 5.2 Identifying yourself and the location

6

Emergency switch-off

- 6.1 Immediate actions
- 6.2 Further actions
- 6.3 Managing the emergency switch-off

Section

7 Rescuing a person from the OLE

8 Isolation of the OLE

9 Overhead Line Permits

- 9.1** Issuing an overhead line permit
- 9.2** During the work
- 9.3** Changes of personnel within the work group
- 9.4** When the work is suspended or completed

10 Blocking sidings to electric trains if local isolation is not allowed

- 10.1** Blocking sidings to electric trains
- 10.2** When the isolation is no longer needed

11 Electric trains moving to or from non-electrified lines or lines blocked to electric trains

- 11.1** Towards an isolated section
- 11.2** To and from non-electrified lines
- 11.3** To and from a line blocked to electric trains

Section

12 **Driver's instructions following a loss of line light, ADD operation or damage to the OLE**

- 12.1 When the train must be stopped as soon as possible
- 12.2 When the train can coast to a stand
- 12.3 When the train can continue normally
- 12.4 Examining the train
- 12.5 Providing electric train supply when the train cannot proceed
- 12.6 Telling the signaller about problems or incidents with the OLE
- 12.7 Sequential tripping
- 12.8 Isolating the ADD

13 **Signaller's instructions following a report of a defect or tripping of the OLE**

- 13.1 If sequential tripping has taken place
- 13.2 If a loss of line light, ADD operation or suspected damage to the OLE is reported
- 13.3 If the driver reports a fault on the train
- 13.4 Resuming normal working

14 **Instructions for examining the OLE**

- 14.1 When the OLE must be examined
- 14.2 Examining the OLE using a train
- 14.3 Responsible person arriving on site
- 14.4 OLE personnel examining the OLE

Section

15

Moving trains after an OLE incident

- 15.1** When a pantograph has been damaged and there is no other pantograph available
- 15.2** When a pantograph has been damaged but another is available
- 15.3** When a damaged pantograph cannot be dealt with or there is evidence that the train has contacted the OLE
- 15.4** Allowing trains to coast at 20 mph (30 km/h) with pantographs lowered
- 15.5** Allowing trains to coast at up to permissible speed with pantographs lowered

16

Preventing damage or danger from on-train equipment overheating

17

Traction unit driven off the contact wire

18

Defective automatic power control (APC) track inductor

- 18.1** Signaller's actions
- 18.2** Driver's actions

1

Definitions

Emergency switch-off

An emergency switch-off is carried out by the electrical control operator (ECO) when it is essential to switch off the electrical supply immediately, when someone is in danger from live overhead line equipment (OLE).

The ECO will switch off the electrical supply to all lines:

- between neutral sections, or
- between a neutral section and the end of an electrified line.

In certain locations, equipment is provided to shorten the area of the emergency switch-off.

Overhead line permit

A permit (known as form C) that is signed and issued by the nominated person (NP) and given to a designated person (DP), who is to carry out work on or near to the OLE.

This permit states exactly what electrical equipment is isolated and earthed and on which, or near to which it is safe for the specified work to begin.

If an overhead line permit has been issued, it does not mean train movements have been stopped.

Sequential tripping

Sequential tripping is when consecutive electrical sections along a route trip. This is normally caused by a fault on a moving train.

2 Competence

The people responsible: all concerned

You must not go on or near the line in an area with OLE unless your regular competence assessment also contains the track-safety rules that relate to lines electrified by the AC overhead system as shown in this module.

**all
concerned**

Table A of the *Sectional Appendix* shows which lines are electrified by the AC overhead system.

If new OLE is being installed, or an electrified area is being extended, the instructions in this module will not apply until the equipment has been declared live.

You will be told about this in an energisation warning notice.

If you are not sure whether the OLE is live, you must treat it as live and dangerous to life.

3

Dangers of the system

The people responsible: all concerned, driver

3.1 Treating the OLE as being live

**all
concerned**

OLE, pantographs and all roof-mounted electrical equipment on trains are extremely dangerous. It may be fatal if you touch or go near any of them, or if you allow anything to touch or go near them.

You must treat these items as being live at all times unless they have been made safe as shown in the instructions in this module.

Except for the mast or structures, you must treat all parts shown in diagram AC.1 as being live at all times and dangerous to life, unless one of the following applies.

- An overhead line permit has been issued to the DP.
- The OLE has been isolated and earthed and an assurance has been received as shown in local isolation instructions.
- The OLE has been made safe to approach, but not touch, by an emergency switch-off and the ECO gives this assurance.

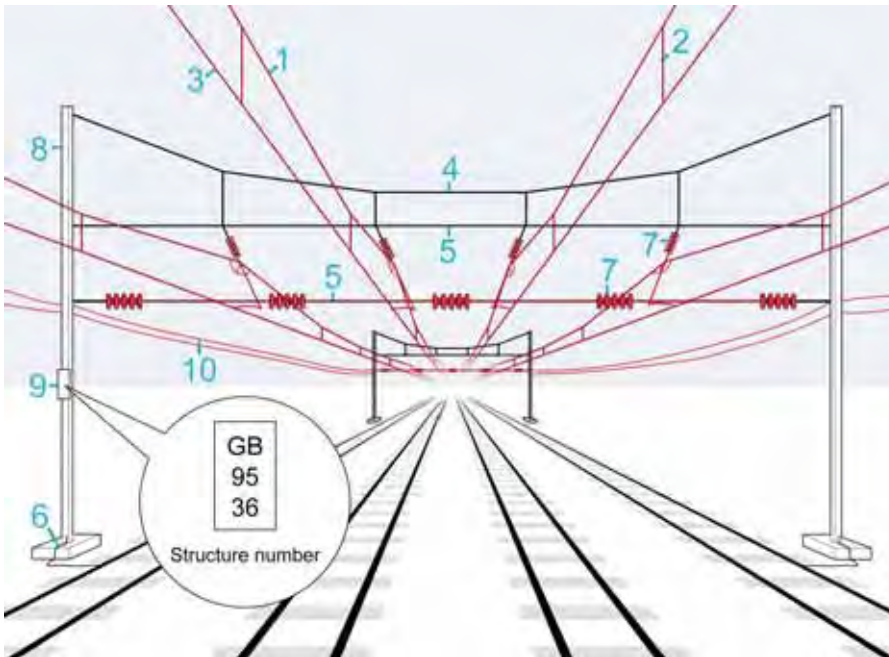
3.2 Objects on or near to the OLE

**all
concerned**

You must treat broken or displaced wires and anything attached to, or near to, the OLE as live and dangerous to life.

You must not remove or approach anything attached to, or near to, the live OLE.

You must not try to remove or approach an object hanging from, in contact with or close to the OLE, unless you have been specially trained and authorised to do so.



- | | | | |
|---|------------------|----|------------------------|
| 1 | Catenary wire | 6 | Structure bond |
| 2 | Dropper | 7 | Insulators |
| 3 | Contact wire | 8 | Mast or structure |
| 4 | Headspan wire | 9 | Structure number plate |
| 5 | Cross span wires | 10 | Along-track conductors |

Diagram AC.1
Typical OLE construction

driver

If you see anything in the OLE that could cause damage if it comes into contact with the pantographs on your train, you must immediately lower the pantographs.

You must stop the train as soon as possible and report the incident to the signaller.

When you have told the signaller, you will not have to tell the ECO, as the signaller will do this.

3.3 Reporting objects and defects to the ECO

all concerned

You must immediately make sure the following are reported to the ECO.

- Objects that have been thrown onto, are hanging from, or are otherwise touching the OLE.
- Damage to the OLE.
- OLE that is smoking, excessively flashing or fusing.
- Broken or displaced along-track conductors.
- Broken or displaced wires connected to the OLE.
- Damaged or loose automatic power control (APC) track inductors.
- A broken or parted rail.
- A broken or defective bond, in which case you must tell the ECO the colour of the bond.

You must not touch the rails if they are broken or parted, neither must you touch a broken or defective bond if it is marked red, nor any equipment connected to the bond.

If the damage or defect will affect the safe operation of trains, you must first report this to the signaller.

4 Personal safety

The people responsible: all concerned

4.1 When not working on traction units or other vehicles

You must make sure, you and anything you are carrying are no nearer than 2.75 metres (9 feet) from live OLE.

all
concerned

4.2 When working on traction units or other vehicles

You must never go above the cant rail or climb above the floor level of the driving cab, or climb on the roof or open upper deck of a vehicle, or on the steps giving access to the roof of any vehicle unless one of the following applies.

all
concerned

- You are on a line where there is no OLE above or adjacent to the vehicle.
- The OLE has been isolated and earthed as shown in Network Rail instructions and the DP has been issued with an overhead line permit.
- The specific conditions in local instructions have been met.
- Local isolation is allowed and you are sure an isolation has been taken.

**all
concerned**

You must only carry out the following activities at authorised locations and for which local instructions have been issued.

- Cleaning the outside of carriages by hand.
- Cleaning vehicle ends, traction cab windows and destination indicators.
- Loading or unloading open rail wagons by hand.
- Loading or unloading single-deck car-carrying vehicles.

Hosepipes must not be used for cleaning purposes. Each brush or other appliance used for cleaning must have an electrification warning sign.

4.3 Using long items

**all
concerned**

You must take extreme care when using or carrying long items. You must make sure they do not come within 2.75 metres (9 feet) of the OLE.

You must carry long items horizontally and, if necessary, get other people to help you.

If you are using a brake stick or shunting pole, you must make sure you do not allow it to get near to the OLE.

When using ladders near OLE, you must only use ladders that are made of wood or other safety-approved non-conducting material.

You must not use ladders that are reinforced with metal attachments running along the sides.

5

Communicating with the ECO

The people responsible: all concerned

5.1 Directly or by another person

You can contact the ECO, or you can ask another person, such as the signaller, to contact the ECO on your behalf.

all
concerned

If another person asks you to contact the ECO, you must make sure that you get the necessary information from that person before speaking to the ECO. You must also get any other information that the ECO asks for.

5.2 Identifying yourself and the location

When contacting the ECO, you must state:

- your name, job title and employer
- the line or lines concerned
- the location (for example, the nearest bridge, station, signal, block marker or other structure)
- the number on the nearest OLE structure or identifying plate (this will tell the ECO exactly where you are)
- the telephone number or radio call number (whichever you are using) so that the ECO can contact you, if necessary.

all
concerned

If the ECO gives you a message identification number, you must state it each time you speak to the ECO.

6

Emergency switch-off

*The people responsible: **all concerned, driver, guard, PICEE, signaller,***

Note: An emergency switch-off of the OLE does not mean that train running has been stopped.

6.1 Immediate actions

6.1.1 Types of incident

**all
concerned**

You must immediately contact the ECO (or arrange for this to be done) if you become aware of:

- a derailment
- a lineside fire
- a fire on a vehicle or train
- a person in contact with or in danger of coming into contact with the OLE
- an incident or other emergency requiring, or likely to require, the electricity supply to be switched off.

If you receive a message from another person about an emergency, you must pass on all this information to the ECO.

6.1.2 Reporting the emergency

When you contact the ECO, you must first say, '**This is an emergency call**'.

all
concerned

You must tell the ECO:

- the reason why you want the electricity to be switched off
- whether any person is in danger from live OLE
- whether the emergency services are waiting to give assistance.

If you are not at the site, you must relay information from the ECO to the site and from the site to the ECO.

6.1.3 Additional instructions for train crew

If it is necessary to protect an obstruction on a line other than the one your train is travelling on as shown in section 43 of module TW1 *Preparation and movement of trains*, you must do this before asking for the electricity to be switched off.

driver,
guard

6.1.4 Additional instructions for signallers

If you become aware of an emergency, you must carry out the appropriate train signalling regulations before asking for the electricity to be switched off.

signaller

6.2 Further actions

all concerned

You must stay in contact with the ECO or, if you have reported the incident through another person, stay in contact with that person until you have been assured that:

- the electricity has been switched off and the OLE has been made safe to be approached but not touched, or
- other arrangements have been made.

If the ECO agrees to the emergency switch-off, the ECO will decide who will be regarded as the person in charge of electrical emergency (PICEE).

If you are a person passing on this information on behalf of someone else, you must stay in contact with the ECO until an assurance has been given that one of these arrangements has been put in place.

6.3 Managing the emergency switch-off

PICEE

If you are appointed by the ECO as the PICEE, the ECO will tell you the limits of the emergency switch-off.

You must identify yourself to anyone arriving on site.

If the emergency services arrive on site, you must tell the officer in charge from each emergency service about the presence of the OLE and which parts have been switched off.

The ECO will tell you before shortening the area of the emergency switch-off. You must tell everyone at the site about the new limits.

If passengers are to get out of a train which is not at a platform, you must make sure that all passengers are kept clear of the OLE.

If you hand over the responsibility of the emergency switch-off to someone else, you must tell the ECO immediately. You must give the name, job title and employer of the person taking over from you.

When you take over the responsibility of the emergency switch-off, you must immediately confirm the arrangements with the ECO.

As soon as the emergency is over and the affected section can be switched on, you must warn everyone involved that the electricity is about to be switched on and make sure they are clear of the OLE.

You must then tell the ECO that the emergency is over and wait for further instructions.

If the emergency will go on for a long time or it will be necessary to issue an overhead line permit, the nominated person (NP) will contact you when arriving on site.

You and the NP must both contact the ECO so that responsibility for the emergency switch-off can be transferred from you to the NP.

PICEE

7

Rescuing a person from the OLE

*The people responsible: **all concerned***

all concerned

You must make sure the electricity is switched off before you approach a person who:

- is above the live OLE, or
- is within 2.75 metres (9 feet) of the live OLE.

If you become involved in rescuing a person after an emergency switch-off has been taken, you may have to come into contact with the OLE, or the person touching the OLE.

In either case, you must make sure your hands are covered with something dry which will not conduct electricity. This is because a residual voltage may be present even though the electricity has been switched off.

8

Isolation of the OLE

*The people responsible: **all concerned***

Note: An isolation of the OLE does not mean that train running has been stopped.

When a section or sub-section of OLE has been isolated, you must continue to treat it as being live until:

- an overhead line permit has been issued, or
- where local isolation instructions allow this, the OLE has been isolated and earthed and an assurance received as shown in the local instructions.

**all
concerned**

9 Overhead line permits

The person responsible: DP

9.1 Issuing an overhead line permit

DP

When the NP has made sure that the OLE has been isolated and earthed, the NP will hand you an overhead line permit.

You must understand:

- the working limits on the overhead line permit
- where live equipment is adjacent to, or crosses over, earthed equipment, which equipment is live and which is earthed
- the issue of the overhead line permit does not mean that train movements are stopped on the lines concerned.

You must sign the overhead line permit to show that you understand the conditions. You must then make sure that each person you are responsible for fully understands the conditions shown above before you allow work to start.

9.2 During the work

DP

You must keep the overhead line permit until:

- work is completed and you and those you are responsible for are clear of the line, or
- you are relieved by another DP, in which case you must hand the overhead line permit to that person and both sign it.

You must tell the new DP about the conditions shown in section 9.1 of this module.

If you are the new DP, you must tell the NP (either directly or through the ECO) that you have taken over the duties of the DP.

You must immediately tell the NP if you have lost your overhead line permit. The NP will arrange to issue you with another overhead line permit, endorsed 'Duplicate'.

DP

9.3 Changes of personnel within the work group

If other personnel for whom you are responsible come on duty, you must make sure that each person coming onto the site of work after the overhead line permit has been issued, fully understands the conditions shown below before allowing them to start work.

DP

- The working limits on the overhead line permit.
- Where live equipment is adjacent to, or crosses over, earthed equipment, which equipment is live and which is earthed.
- Whether trains are continuing to run on the lines concerned and, if so, the arrangements that have been made for the protection of staff.

9.4 When the work is suspended or completed

When the work is suspended or completed, you must make sure all personnel and materials are removed from, and are no closer than 2.75 metres (9 feet) from, the OLE.

DP

You must then:

- instruct each person for whom you are responsible to treat the OLE as live and dangerous to life
- complete the overhead line permit
- give the overhead line permit to the NP who will countersign it.

If you have lost your OLE permit, you must tell the NP. You must carry out a visual inspection with the NP to make sure that all personnel and materials are clear of the OLE.

10

Blocking sidings to electric trains if local isolation is not allowed

The person responsible: person in charge of sidings

10.1 Blocking sidings to electric trains

person in charge of sidings

When an isolation is needed in the sidings, you must consult Operations Control or the signal box supervisor or signaller as shown in the local instructions.

You must then arrange with the ECO for the isolation to take place.

Operations Control, the signal box supervisor or the signaller will contact you and tell you:

- the numbered message received from the ECO
- the electrical sections or sub-sections to be blocked as shown in the isolation instructions
- the agreed time of the isolation.

You must record the message in Part 1 of Form AS.

You must make sure all personnel working in the sidings are told about the limits of electric train movements.

You must make sure that either:

- reminder appliances are placed on or adjacent to levers of hand points that control access to the sidings to be isolated
- hand points controlling access to the sidings to be isolated are clipped and padlocked for other routes that are not affected by the isolation
- the protection arrangements shown in isolation instructions are applied.

If the points are controlled from a shunting frame or panel, you must place reminder appliances on the appropriate levers and make a suitable entry in the authorised document.

person in
charge of
sidings

You must complete Part 2 of Form AS and attach it to the authorised document.

You must then tell Operations Control or the signal box supervisor or signaller as shown in the local instructions, when you have done this.

10.2 When the isolation is no longer needed

When the isolation is no longer needed and all personnel working in the sidings have been told that normal working will be resumed, you must arrange with the ECO to cancel the isolation.

person in
charge of
sidings

Operations Control, the signal box supervisor or signaller as shown in the local instructions will contact you to complete Part 3 of Form AS.

You may then remove the protection applied to the sidings.

If the points are worked from a shunting frame or panel, you must remove any reminder appliances and make a suitable entry in the authorised document.

11

Electric trains moving to or from non-electrified lines or lines blocked to electric trains

The people responsible: driver, signaller

11.1 Towards an isolated section

signaller

You may authorise the movement of an electric train if it becomes necessary to:

- go beyond the signal or block marker protecting an isolated section or sub-section towards the limiting point as shown in isolation instructions
- make an unsignalled movement towards the limiting point as shown in isolation instructions.

However, you must be sure that the approach to the isolated section is protected by a possession limit board (PLB) and three detonators, 20 metres (approximately 20 yards) apart at the limiting point.

11.2 To and from non-electrified lines

driver

You must make sure that all pantographs are lowered before moving an electric train to or from a non-electrified line or through a non-electrified crossover.

11.3 To and from a line blocked to electric trains

If it is necessary for your electric train to be assisted to, through or from a section of line blocked to electric trains, you must:

driver

- lower all pantographs
- tell the driver of the assisting train when this has been done
- keep all pantographs in the lowered position throughout the movement.

12

Driver's instructions following a loss of line light, ADD operation or damage to the OLE

The person responsible: driver

12.1 When the train must be stopped as soon as possible

driver

If any of the circumstances shown in 12.1 a), b) or c) of this module apply, you must:

- operate the pantograph down button
- stop the train as soon as possible
- report the incident to the signaller.

a) Damage to the OLE

If you become aware of:

- something in the OLE that could cause damage if it comes into contact with the pantograph on your train
- any damage to or anything irregular with the OLE
- any unusual movement of the OLE
- any unusual noises from the OLE.

b) ADD operation

If the automatic dropping device (ADD) on your train has operated.

c) The line light goes out

If the line light goes out and you have made one attempt to reset, which was not successful, and either of the following applies.

- The only pantograph in use is not on one of the first three vehicles.
- There is more than one pantograph in use on the train.

12.2 When the train can coast to a stand

If the line light goes out you can, if possible, coast to a suitable location to report the incident to the signaller.

driver

You may do this if:

- there is only one pantograph in use and it is on one of the first three vehicles
- the ADD is available but has not operated
- there is no unusual movement of, or noises from, the OLE
- you have made one attempt to reset, which was not successful.

12.3 When the train can continue normally

If the line light goes out, you can continue normally if:

driver

- the ADD is available but has not operated
- there is no unusual movement of, or noises from, the OLE
- you can reset at the first attempt, or the line light is restored
- you can regain power.

12.4 Examining the train

If you have stopped your train because the line light has gone out, the ADD has operated, or you have observed damage to the OLE, you must visually examine all the pantographs and tell the signaller whether there appears to be any damage to any of them.

driver

If you have stopped your train as a result of the line light going out or the ADD operating, but at any stage you find a fault on the train other than damage to a pantograph, you must tell the signaller so that normal working can be resumed.

12.5 Providing electric train supply when the train cannot proceed

driver

If the train cannot proceed because of damage to the pantograph but the damage is not severe, the pantograph may be raised to supply electrical power. This is so that equipment such as train heating and lighting will be available while waiting for an assisting train.

Immediately after raising the pantograph, you must check that it is correctly in contact with the OLE and that there is no arcing.

No movement of the train is allowed with the pantograph raised. You must make sure the pantograph is lowered before the assisting train is attached.

12.6 Telling the signaller about problems or incidents with the OLE

driver

In all cases when you have stopped the train, you must tell the signaller:

- what has happened
- where the incident happened
- the location where the train has stopped
- the nearest overhead line structure number
- the extent of any damage to the OLE
- if there is any damage to a pantograph
- whether the primary means of support of the OLE is by headspan or not.

12.7 Sequential tripping

If you have been told by the signaller that your train has caused sequential tripping, you must visually examine all the pantographs on your train and the OLE for signs of damage.

driver

If there is evidence that something other than a pantograph has been in contact with the OLE or a pantograph is damaged, you must tell the signaller.

12.8 Isolating the ADD

If it becomes necessary to isolate the ADD, you must:

driver

- isolate the ADD as shown in the instructions for the type of traction concerned and your company instructions
- tell the signaller
- carry out the instructions you are given.

When the train is to proceed with the affected pantograph raised, you must not exceed 100 mph (160 km/h) until the pantograph has been examined and the ADD reset.

13

Signaller's instructions following a report of a defect or tripping of the OLE

The person responsible: signaller

13.1 If sequential tripping has taken place

signaller

If the ECO tells you that sequential tripping has taken place, you must:

- stop the train involved (or arrange for this to be done if the train is no longer in your area of control)
- tell the driver to examine the train for evidence of contact with the OLE or damage to a pantograph.

If there is evidence that something other than a pantograph has been in contact with the OLE or a pantograph is damaged, you must instruct the driver to:

- visually examine the OLE immediately behind the train
- tell you if there appears to be any damage.

You must tell the ECO the outcome of the driver's examination and carry out the instructions you are given.

13.2 If a loss of line light, ADD operation or suspected damage to the OLE is reported

If you receive a report of a loss of line light, ADD operation, or possible damage to the OLE, you must:

signaller

- protect any line that may be affected, as shown in the train signalling regulations
- find out whether there is damage to the OLE or to a pantograph on a train
- come to a clear understanding with the ECO about the lines on which the OLE is to be examined and the type of examination that is to take place (see section 14 of this module)
- report the incident to Operations Control.

If the driver tells you that the ADD has operated and has been isolated, you must pass on this information to Operations Control.

13.3 If a driver reports a fault on the train

If tripping has taken place or a driver reports a loss of line light or ADD operation, but at any stage confirms there is a fault on the train, you may resume normal working.

signaller

This does not apply if the driver reports there is damage to a pantograph.

13.4 Resuming normal working

signaller

If tripping has taken place or a driver stops to report a loss of line light, you can resume normal working if the ECO tells you that no further action is needed.

However, if the ECO tells you that examination of the OLE is needed, you must:

- protect the affected lines as shown in the train signalling regulations
- come to a clear understanding with the ECO about the lines on which the OLE is to be examined and whether examination will be carried out by train or on foot
- arrange for the OLE to be examined as shown in section 14 of this module.

14

Instructions for examining the OLE

The people responsible: driver, responsible person, signaller

14.1 When the OLE must be examined

The OLE must be examined following:

signaller

- a tripping of the OLE when the ECO asks you to arrange examination of the OLE - the OLE must be examined between the locations the ECO gives you
- a sequential tripping of the OLE - each affected electrical section must be examined up to the location where the train came to a stand
- a driver reporting an ADD operation - the OLE must be examined from the location where the ADD operated to the location where the train came to a stand
- a report of damage to the OLE involving a train - the OLE must be examined from the location of the reported damage to the location where the train came to a stand
- a report of damage to the OLE with no train involved - the OLE must be examined at the location of the reported damage.

14.2 Examining the OLE using a train

14.2.1 How the OLE is to be examined

The OLE can be examined from a train on the affected line or an adjacent line.

signaller

If it is examined from an adjacent line and no defect is found, you must tell the driver of the next electric train over the affected line to proceed at caution and not to exceed 20 mph (30 km/h).

If the main type of support is not headspan, only the affected line needs to be examined.

signaller

Where the main type of support is by headspan, the OLE must be examined on all lines following:

- a sequential tripping of the OLE
- tripping of electrical sections on more than one line
- a driver reporting an ADD operation
- damage to the OLE being reported.

If a train on an adjacent line is used for this, you must also ask the driver to establish whether it is safe for trains to coast with pantographs lowered over the affected line.

driver

If you are asked to examine the OLE, you must:

- be accompanied by a competent person during darkness, poor visibility or where there is a tunnel in the affected section
- proceed at caution and not exceed 20 mph (30 km/h) and look out for any damage or other problem with the OLE.

The signaller may also ask you to establish whether it is safe for trains over the affected line to coast under the OLE with pantographs lowered.

In this case, you must check that:

- any obstruction is not more than 150 mm (6 inches) below the contact wire
- not more than two consecutive droppers have come off
- the object or defect is more than three OLE structures away from a tunnel or overbridge
- no other defect is obvious.

14.2.2 If a train can coast with pantographs lowered

If you are sure that all of these apply, you must tell the signaller that you believe it is safe for a train over the affected line to coast under the OLE.

If the driver considers that a train can coast through the affected area, you must get an assurance from the driver that:

- any obstruction is not more than 150 mm (6 inches) below the contact wire
- not more than two consecutive droppers have come off
- the object or defect is more than three OLE structures away from a tunnel or overbridge
- no other defect is obvious.

You must get a clear description from the driver of the exact location name or description that can be used so a driver, who is to coast under the defective OLE, can recognise it.

You must then deal with following trains, that are to pass over the affected line, as shown in section 15.4 of this module.

14.2.3 If after the examination trains cannot pass

If after the examination it is found that trains cannot pass through the affected area, you must arrange for the OLE to be examined by OLE personnel.

14.2.4 If no object or defect is found

If after the examination it is reported there is no obvious damage to the OLE, you may allow normal working to resume on all lines with the exception of the following.

- If the examination was carried out from a train on an adjacent line, you must tell the driver of the next electric train on the affected line to proceed at caution and not exceed 20 mph (30 km/h).
- If the examination was as a result of an ADD operation or reported damage to the OLE, you must stop each train on the affected line and instruct the driver to proceed at caution and not to exceed 20 mph (30 km/h).

You must continue to do this until the OLE has been examined by OLE personnel, as shown in section 14.4 of this module.

signaller

14.3 Responsible person arriving on site

responsible person

When you arrive on site, you must establish whether the object or defect to the OLE is such that trains, including trains with pantographs lowered, can run or continue to run safely through the affected area.

If trains can run or continue to run but electric trains must coast with the pantographs lowered, you must decide whether the driver can easily identify the location. You must take account of the weather conditions and any other factor that may make this difficult.

If you believe it will be difficult for the driver of each train to easily identify the exact location, you must make sure that the following boards are erected.

20 mph (30 km/h) coasting signs



Lower
pantograph



Raise
pantograph

14.4 OLE personnel examining the OLE

signaller

When the OLE is to be examined by OLE personnel, you must not resume normal working until the examination has been completed and this person tells you it is safe to do so.

15

Moving trains after an OLE incident

The people responsible: driver, signaller

15.1 When a pantograph has been damaged and there is no other pantograph available

If, after you have lowered the pantograph, it cannot be used because of damage, the train may be assisted forward at reduced speed to the first location where the pantograph can be dealt with.

driver

You must give the signaller an assurance that the damaged pantograph is clear of any possible contact with the OLE.

However, you must not move the train until a competent person has carried out the necessary repairs if:

- the clearance between the damaged pantograph and the OLE cannot be assured, or
- the damaged pantograph is foul of the loading gauge.

15.2 When a pantograph has been damaged but another is available

If the train has an undamaged pantograph, you may allow the train to proceed after any damaged pantograph has been dealt with as shown in section 15.1 of this module.

driver

15.3 When a damaged pantograph cannot be dealt with or there is evidence that the train has contacted the OLE

driver,
signaller

If the damaged pantograph cannot be dealt with as shown in section 15.1 or any part of the train or its load has been in contact with the OLE, you must only allow the train to move if one of the following applies.

- The OLE has been switched off and you have received authority from a member of OLE personnel for the train to be moved to a location away from the OLE for the defect or damage to be repaired.
- You have been told that the defect has been repaired or made safe for the train to move.
- The train must be moved in an emergency.

15.4 Allowing trains to coast at 20 mph (30 km/h) with pantographs lowered

signaller

Following an examination of the OLE, if you receive an assurance that it is safe to do so, you may allow all trains, including electric trains with pantographs lowered, to pass under objects or defect to the OLE as shown in section 14.2.2.

You must identify a signal that can be maintained at danger or a block marker at which the route can be closed, which is a sufficient distance from the affected area that will allow a train to reach 20 mph (30 km/h) before arriving at the affected area.

Trains already beyond this signal or block marker must be dealt with individually. You must ask the driver of any electric train if they can reach enough speed to coast with pantographs lowered through the affected area.

You must stop each train at this signal or block marker and explain to the driver:

- there is a problem with the OLE
- the location name and description of the affected area
- if the affected area will be identified by 20 mph (30 km/h) coasting signs.

You must then instruct the driver:

- to lower pantographs if fitted, in enough time to make sure that the train coasts through the affected area at not more than 20 mph (30 km/h) with the pantographs lowered
- that the pantographs, if fitted, must not be raised until the driver is sure all pantographs on the train are clear of the affected area
- to obey all signals or indications on the driver machine interface (DMI).

When the driver has confirmed that all instructions have been understood, you may clear the signal or issue a Movement Authority (MA).

You must make sure that the route is clear through the affected area so that the driver will not encounter any signal at danger or an end of authority.

Following an examination of the OLE, the signaller may allow all trains, including electric trains with pantographs lowered, to pass under objects or defect to the OLE.

The signaller will tell you:

- there is a problem with the OLE
- the location name and description of the affected area
- if the affected area will be identified by 20 mph (30 km/h) coasting signs.

signaller

driver

driver

The signaller will then instruct you:

- to lower pantographs, if fitted, in enough time to make sure that the train coasts through the affected area at no more than 20 mph (30 km/h) with the pantographs lowered
- that the pantographs, if fitted, must not be raised until you are sure all pantographs on the train are clear of the affected area
- to obey all signals or indications on the DMI.

When the signaller is sure that you have understood all the instructions, the signaller will clear the signal or issue an MA for you to proceed.

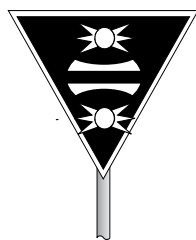
You must make sure that all pantographs, if fitted, are lowered before coasting through the affected area.

You can raise the pantographs when you are sure all the pantographs have passed the affected area.

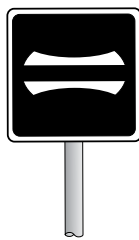
You may then proceed normally.

15.5 Allowing trains to coast at up to permissible speed with pantographs lowered

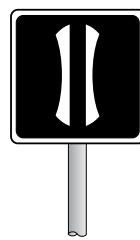
High-speed coasting signs



**Advance lower
pantograph**



**Lower
pantograph**



**Raise
pantograph**



**Do not raise
pantograph**

Conditions for using high-speed coasting

When there is planned engineering work, damage to the OLE or a failure of the power supply preventing the normal passage of electric trains, but the line is otherwise suitable for trains to pass, you may allow electric trains to coast through the affected area, as long as the following conditions are met.

- You have been given authority to use high-speed coasting by the competent person appointed by Operations Control to oversee this procedure.
- You will be able to make sure the line is clear throughout the affected area before allowing each coasting movement to start.
- The electric train is not planned to stop within the affected area.
- There are no high wind conditions.
- There is no poor visibility.

Allowing trains to coast

When you have been told that all the high-speed coasting signs are in position and you know the locations of the 'lower pantograph' and 'raise pantograph' signs, you may allow trains to proceed towards the affected section as long as you have told the driver of each electric train:

- high-speed coasting of electric trains is taking place between the two locations concerned
- the location of the 'lower pantograph' sign
- the location of the 'raise pantograph' sign.

You may continue to do this until the damaged or isolated section is again in order and you have been told the high-speed coasting signs have been removed.

signaller

Driver's actions

driver

When the signaller has told you that electric trains are to coast and you are aware of the location of the 'lower pantograph' sign and the 'raise pantograph' sign, you may proceed normally towards the 'lower pantograph' sign.

An 'advance lower pantograph' sign will be positioned approximately 400 metres (440 yards) on the approach to the 'lower pantograph' sign. You must lower all pantographs before reaching the 'lower pantograph' sign.

You may lower pantographs at any speed.

You must not then raise the pantograph until you are sure all pantographs on the train have passed beyond the raise pantograph sign.

You may raise pantographs at any speed up to 80 mph (130 km/h) or at a higher speed if authorised by your company instructions.

A 'do not raise pantograph' sign will be placed at the end of the safe pantograph raising area. If, for whatever reason, you have not raised the pantograph by the time you pass the 'do not raise pantograph' sign, you must reduce the speed of your train to 20 mph (30 km/h) before attempting to raise the pantograph.

High-speed coasting signs missing or defective

You must tell the signaller immediately after passing through the affected area, if necessary stopping the train specially, if you see any of the high-speed coasting signs are missing or any light is out on the 'advance lower pantograph' sign.

signaller

You must report the defect to Operations Control.

Until the defect has been put right, you must warn drivers of all electric trains that are to approach the affected section.

16 Preventing damage or danger from on-train equipment overheating

The person responsible: **driver**

If you become aware of any serious defect or the electrical equipment overheating, you must immediately lower the pantograph and stop the train.

driver

If lowering the pantograph cures the fault, you must:

- isolate the defective equipment, or
- if this is not possible and the train has more than one traction unit, isolate the pantograph on the defective unit and raise the pantograph on the other unit.

If you cannot lower the pantograph and there is still a fault, you must tell the ECO or arrange for this to be done so that the electricity can be switched off on the appropriate section of OLE.

17

Traction unit driven off the contact wire

*The person responsible: **driver***

driver

If a traction unit has been driven off the contact wire with the pantograph raised, you must arrange for the incident to be reported to the ECO.

You must not move the traction unit back under the OLE until a competent person has examined the pantograph and, if necessary, it has been secured in a safe position.

18

Defective automatic power control (APC) track inductor

The people responsible: driver, signaller

18.1 Signaller's actions

If you have seen, or are told about, a loose, defective or broken APC track inductor, you must immediately report it to the ECO.

signaller

If the defective APC track inductor is on the approach side to a neutral section, you must stop each affected train and tell the driver to shut off power when passing through the neutral section.

18.2 Driver's actions

When you have been told about a defective APC track inductor, you must make sure you shut off power immediately before entering the neutral section.

driver



GE/RT8000/DC
Rule Book

Module DC



DC electrified lines

Issue 4

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Conventions used in the Rule Book	Example
A black line in the margin indicates a change to that rule and is shown when published in the module for the first time.	
Green text in the margin indicates who is responsible for carrying out the rule.	driver
A white i in a blue box indicates that there is information provided at the bottom of the page.	
A rule printed inside a red box is considered to be critical and is therefore emphasised in this way.	

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You will need this module if you carry out the duties of a:

- train driver
- guard
- shunter
- designated person (DP)
- signaller
- crossing keeper

in DC electrified areas.

Note: This module does not apply in the Merseyrail area or between Drayton Park and Moorgate. Network Rail publishes local instructions separately for these.

Section

1

Definitions

2

Competence

3

Dangers of the system

3.1 Treating the CRE as being live

3.2 Reporting damage, defects, snow fall and flood water

4

Personal safety

4.1 Precautions that must be taken

4.2 Moving materials or equipment

4.3 Attending to vehicles

4.4 Conducting train crew over DC lines

5

Communicating with the ECO

5.1 Directly or by another person

5.2 Identifying yourself and the location

6

Emergency switch-off

6.1 Immediate actions

6.2 Further actions

6.3 Using a short-circuiting bar

6.4 Detraining passengers

6.5 When the line stays open

6.6 Managing the emergency switch-off

Section

7 Rescuing a person from the CRE

8 Types of isolation

8.1 Planned isolation

8.2 Temporary isolation

8.3 Local isolation

9 Protecting isolated sidings where there is no local instruction

10 Track isolating switches and hook switches

11 Short circuits

11.1 Finding out the cause of a short circuit

11.2 Examining the conductor rail

11.3 When the cause of the short circuit has been removed

12 Moving electric trains between live and isolated sections

12.1 Moving an electric train towards an isolated section

12.2 Electric train entering or leaving an isolated section

12.3 Taking a possession around a train

12.4 Train entering a possession

1

Definitions

Emergency switch-off

An emergency switch-off is carried out by the electrical control operator (ECO) when it is essential to switch off the electrical supply immediately, when someone is in danger from live conductor rail equipment (CRE).

The ECO will switch off the electrical supply to:

- the electrical section affected
- the abutting electrical section either side.

Conductor rail permit

A permit that is signed and issued by the authorised person (AP) or engineering supervisor and given to a designated person (DP), who is to carry out work on or near to the CRE.

This permit states exactly what electrical equipment is isolated and on which, or near to which, it is safe for the specified work to begin.

If a conductor rail permit has been issued, it does not mean train movements have stopped.

2 Competence

*The people responsible: **all concerned***

You must not go on or near the line in an area with CRE unless your regular competence assessment also contains the track-safety rules that relate to lines electrified by the DC system as shown in this module.

**all
concerned**

Table A of the *Sectional Appendix* shows which lines are electrified by the DC system.

If new CRE is being installed, or an electrified area is being extended, the instructions in this module will not apply until the equipment has been declared live.

You will be told about this in an energisation warning notice.

If you are not sure whether the CRE is live, you must treat it as live and dangerous to life.

3

Dangers of the system

*The people responsible: **all concerned***

3.1 Treating the CRE as being live

**all
concerned**

CRE, shoe gear and under-floor mounted electrical equipment on trains are extremely dangerous. It may be fatal if you touch or go near any of them, or if you allow anything to touch or go near them.

Live CRE is dangerous to life. You must treat CRE as being live at all times unless one of the following applies.

- A conductor rail permit has been issued to the DP.
- The CRE has been isolated and an assurance has been received as shown in local isolation instructions.
- The ECO has given an assurance that the CRE has been switched off in an emergency.

You must not:

- touch or step on CRE
- step on guard boarding
- allow clothing, tools, equipment or any object you are carrying to touch CRE unless they are intended for this purpose
- step between the conductor rail and the adjacent running rail
- touch broken or displaced CRE
- touch the collector shoes on any train, whether or not the collector shoes are touching the conductor rail
- step into flood water which may be in contact with the CRE
- direct a jet of water or any other liquid onto the CRE.

You must treat cables running alongside and crossing under lines as being live. You must not interfere with these cables or their protective covers.

**all
concerned**

Traction return current passing through the running rail is not normally dangerous to life. However, you must not touch the running rail at the same time as touching any metalwork nearby that is not directly connected to the running rails.

You must not touch broken running rails or bridge the gap between them.

3.2 Reporting damage, defects, snow fall and flood water

You must immediately make sure the following are reported to the ECO:

**all
concerned**

- damage to cables, cable routes or connected equipment
- flashovers or electrical explosions seen or heard in any electrical equipment
- any leakage of oil from a cable or cable oil tank
- damage to a conductor rail
- burning, smoking or excessive flashing of conductor rails or cables connected to them
- a broken or parted rail or broken conductor rail
- a broken or defective bond
- a broken or defective insulator
- equipment or debris in contact with the conductor rail and running rail.

If the damage or defect will affect the safe operation of trains, you must first report this to the signaller.

all concerned

If you become aware that the line is flooded above sleeper level, you must report this to the ECO in the quickest way possible. You must state the depth and extent of the flooding.

You must also report to the ECO any change to the extent of the flooding.

You must report either of the following to operations control:

- heavy snowfalls, or
- ice forming on the conductor rail surface which may cause difficulty operating electric trains.

4 Personal safety

The people responsible: all concerned, driver, guard

4.1 Precautions that must be taken

You must always take care when working close to the CRE. You must also take special care if you or anything you are using or carrying will be nearer than 300 mm (1 foot) to the CRE.

If you are applying a track-circuit operating clip, or a track-circuit operating device (T-COD), you must always apply it to the running rail furthest from the conductor rail first and then to the running rail nearest to the conductor rail.

When removing a track-circuit operating clip or a T-COD, you must remove it from the rail nearest to the conductor rail first and then from the rail furthest from the conductor rail.

If you have to place detonators, you must attach them to the running rail which is furthest from the conductor rail.

If the emergency services need to go on or near the line, the person in charge at the site must tell the officer in charge from each emergency service about the presence of the conductor rail and which parts have been switched off.

If you are to manually operate or secure points and the conductor rail is not gapped or protected by guard boarding next to the motor or blade to be secured, you must place a conductor rail shield over the conductor rail before starting work.

4.2 Moving materials or equipment

You should avoid carrying materials or equipment over the conductor rail. If you need to carry an object over a conductor rail, you must make sure that it does not come into contact with a live conductor rail.

You must not drag objects across, or drop them on, a conductor rail.

all
concerned

all
concerned

4.3 Attending to vehicles

**all
concerned**

If possible, you must work on the side away from the conductor rail when performing tasks such as:

- operating handbrakes
- coupling vehicles
- uncoupling vehicles
- passing beneath the buffer level of coupled vehicles
- going underneath vehicles.

If it is not possible to do this on the side away from the conductor rail, other than when operating handbrakes, you must first place a conductor rail shield cover over the conductor rail.

If a conductor rail shield is not available, or cannot be fitted, arrangements must be made for the electricity to be switched off.

You may examine a vehicle without first getting the electricity switched off as long as you do not touch the conductor rail or overhead trolley wires, or any electrical equipment connected to them.

However, if severe arcing has taken place, you must get the electricity switched off before carrying out the examination.

4.4 Conducting train crew over DC lines

**driver,
guard**

If you are conducting another person over a route with DC electrified lines, you must tell that person about the presence and danger of the conductor rails.

5 Communicating with the ECO

The people responsible: all concerned

5.1 Directly or by another person

You can contact the ECO, or you can ask another person, such as the signaller, to contact the ECO on your behalf.

all
concerned

If another person asks you to contact the ECO, you must make sure that you get the necessary information from that person before speaking to the ECO. You must also get any other information that the ECO asks for.

5.2 Identifying yourself and the location

When contacting the ECO, you must state:

- your name, job title and employer
- the line or lines concerned
- the location (for example, the nearest bridge, station, signal, block marker or other structure)
- the telephone number or radio call number (whichever you are using) so that the ECO can contact you if necessary.

all
concerned

If the ECO gives you a message identification number, you must state it each time you speak to the ECO.

6

Emergency switch-off

*The people responsible: **all concerned, driver, guard, signaller, PICEE***

Note: An emergency switch-off of the CRE does not mean that train running has been stopped.

6.1 Immediate actions

6.1.1 Types of incident

all concerned

You must immediately contact the ECO (or arrange for this to be done) if you become aware of:

- a derailment
- a lineside fire
- a fire on a vehicle or train
- a person in contact with or in danger of coming into contact with the CRE
- an incident or other emergency requiring, or likely to require, the electricity supply to be switched off
- an emergency evacuation of passengers from a train.

If you receive a message from another person about an emergency, you must pass on this information to the ECO.

6.1.2 Reporting the emergency

When you contact the ECO, you must first say **'This is an emergency call'**.

all
concerned

You must tell the ECO:

- the reason why you want the electricity to be switched off
- whether any person is in danger from live CRE
- whether short-circuiting bars have been applied
- whether the emergency services are waiting to give assistance.

If you are not at the site, you must relay information from the ECO to the site and from the site to the ECO.

6.1.3 Additional instructions for train crew

If it is necessary to protect an obstruction on a line other than the one your train is travelling on as shown in section 43 of module TW1 *Preparation and movement of trains*, you must do this before asking for the electricity to be switched off.

driver,
guard

6.1.4 Additional instructions for signallers

If you become aware of an emergency, you must carry out the appropriate train signalling regulations before asking for the electricity to be switched off.

signaller

6.1.5 If you cannot contact the ECO

If you cannot contact the ECO direct or through another person, a competent person may apply an approved short-circuiting bar to the section of conductor rail concerned as shown in section 6.3 of this module.

all
concerned

6.2 Further actions

**all
concerned**

You must stay in contact with the ECO, or if you have reported the incident through another person, stay in contact with that person until you have been assured that:

- the electricity has been switched off, or
- other arrangements have been made.

If the ECO agrees to the emergency switch-off, the ECO will decide who will be regarded as the person in charge of electrical emergency (PICEE).

If you are the person passing on this information on behalf of someone else, you must stay in contact with the ECO until an assurance has been given that one of these arrangements has been put in place.

6.3 Using a short-circuiting bar

**all
concerned**

If it is not possible to use other ways to get the electricity switched off in an emergency, you may apply a short-circuiting bar but only if you are competent to do so and one of the following applies:

- a person is in danger through contact with the CRE
- passengers are alighting from a train which has been stopped by failure or accident
- a short circuit on a train cannot be isolated and there is severe arcing
- it is shown in a train operating company's instructions to train crew.

You must not use a short-circuiting bar where there is a guard board between the conductor rail and the adjacent running rail or a yellow plastic shroud is fitted to the underside of the conductor rail.

Before you use a short-circuiting bar, you must make sure there is no conductor-rail section gap between where you apply it and the section of conductor rail you need to be switched off.

**all
concerned**

You must consider any other portions of conductor rail to be live until the ECO gives an assurance they have been switched off.

Once you have applied the short-circuiting bar, you must leave it in position until it is no longer needed.

You must tell the ECO as soon as you have used a short-circuiting bar and give the exact location where it was applied.

You must get permission from the ECO before you remove a short-circuiting bar and then tell the ECO when you have removed it.

6.4 Detraining passengers

If it is necessary to evacuate passengers from a train as shown in module M1 *Dealing with a train accident or train evacuation*, the electricity must be switched off as shown below.

**all
concerned**

a) Emergency evacuation

In an emergency the electricity should be switched off, as shown in section 6.1 of this module, on any line where passengers may walk.

b) Controlled evacuation

Before a controlled evacuation takes place, a temporary isolation must be taken on any line where passengers may walk.

6.5 When the line stays open

signaller

When a line has been blocked to DC electric trains but is open for other trains, you must either:

- make sure any approaching train is not fitted with collector shoes
- get an assurance from the driver that the collector shoes are raised and are secured in this position.

If a train has stopped within the area of the emergency switch-off, before allowing it to proceed you must:

- make sure the train is not fitted with collector shoes, or
- get an assurance from the driver that the collector shoes are raised and are secured in this position.

6.6 Managing the emergency switch-off

PICEE

If you are appointed by the ECO as the PICEE, the ECO will tell you the limits of the emergency switch-off.

You must identify yourself to anyone arriving on site.

If the emergency services are called to site, you must tell the officer in charge from each emergency service about the presence of the CRE and which parts have been switched off.

The ECO will tell you before shortening the area of the emergency switch-off. You must tell everyone at the site about the new limits.

If passengers are to get out of a train which is not at a platform, you must make sure that all passengers are kept clear of the CRE.

If you hand over the responsibility of the emergency switch-off to someone else, you must tell the ECO immediately. You must give the name, job title and employer of the person taking over from you.

PICEE

If you take over the responsibility of the emergency switch-off, you must immediately confirm the arrangements with the ECO.

As soon as the emergency is over and the affected section can be re-energised, you must:

- warn everyone involved that the electricity is about to be switched on
- make sure everyone is clear of the CRE
- remove any short-circuiting bars or other materials used during the emergency switch-off and place them clear of the CRE.

You must then tell the ECO that the emergency is over and wait for further instructions.

If the emergency will go on for a long time or it is necessary for work to be carried out on or close to CRE, a planned or temporary isolation must be taken as shown in Network Rail company instructions.

When the planned or temporary isolation has been taken, the ECO will tell you that you are no longer required to carry out any further duties as the PICEE.

7 Rescuing a person from the CRE

*The people responsible: **all concerned***

all concerned

If it is necessary to rescue a person from live CRE, you must make sure that everyone is kept clear of the CRE until you, or another person in direct contact with the ECO, has been told that the electricity has been switched off as shown in section 6 of this module.

If it is not possible to get the electricity switched off immediately, you can try to rescue a person from live CRE as long as:

- you cover your hands with something which is dry and will not conduct electricity
- you stand on dry non-conducting material
- you do not use any metal objects.

If you cannot do this, you must only try to move the person using dry insulating material.

8

Types of isolation

The people responsible: all concerned, DP

Note: Isolation of the traction current does not mean that train running has been stopped.

8.1 Planned isolation

You must not allow work that requires an isolation to start until you have received a conductor rail permit (CRP).

DP

You must explain the limits of the isolation and any hazards or conditions specified on the CRP to anyone you are responsible for, before allowing them to start work.

You must keep the CRP until your group has finished working. You must then immediately return it to the person who issued it.

You must immediately tell the AP if you have lost your CRP. The AP will arrange to issue you with another CRP, endorsed 'Duplicate'.

If another DP is to take over from you before the work is completed, you must explain the limits of the isolation to the new DP. You must then give your CRP to the new DP.

If you are the new DP, you must make sure that you understand the limits of the isolation before taking the CRP.

If when your work is complete, you find that you have lost your CRP, you must tell the AP. You must carry out a visual inspection with the AP to make sure that all personnel and materials are clear of the CRE.

8.2 Temporary isolation

**all
concerned**

These isolations must be granted as shown in Network Rail instructions and only to a person who has been trained in those instructions.

8.3 Local isolation

**all
concerned**

A local isolation can only be taken where a local isolation instruction has been issued.

9

Protecting isolated sidings where there is no local instruction

*The person responsible: **signaller***

The person in charge of a siding possession (PICOS) must arrange for points to be placed and kept in position to prevent trains entering the area to be isolated. The points must be protected against movement by:

- the signaller or operator using reminder appliances if worked from a signal box, ground frame or shunt panel
- securing them if they are hand points.

You must place and keep any points leading to the siding to be isolated in a position to prevent trains entering the siding. You must use appropriate reminder appliances.

You must then make an entry in the Train Register.

signaller

10

Track isolating switches and hook switches

*The people responsible: **all concerned***

all concerned

You may only operate a track isolating switch or hook switch if you are competent to do so and have the authority of the ECO.

The ECO will give instructions to the person operating track isolating switches or hook switches on whether they are to be opened or closed and the order in which they are to be operated.

You must immediately tell the ECO when you have operated any switches.

You must replace the white sleeve to a normally open hook switch when restoring it to its normal position to prevent it from being operated accidentally.

You must keep a track isolating switch enclosed and locked to stop unauthorised interference. You must fit a caution notice to a normally open track isolating switch to prevent it being operated accidentally.

11

Short circuits

The people responsible: all concerned, driver, signaller

11.1 Finding out the cause of a short circuit

The ECO will tell you if it is not possible to restore the electricity supply following a short circuit. You must then agree what arrangements are to be made to find out what has caused the short circuit.

signaller

This must include arrangements to examine any train in the electrical section. Unless you are sure that the fault is with a train, you must also make arrangements for the section of line to be examined.

11.2 Examining the conductor rail

You must treat the conductor rail as being live at all times when it is being examined as the ECO may continue to try to restore the electricity supply.

all
concerned

If you see an object that is causing or is likely to be causing the short circuit, you must not try to remove it until the ECO tells you it is safe to do so.

You must not enter a tunnel until you have told the ECO that you are about to do so. You must tell the ECO immediately you have left the tunnel. When you are in the tunnel, the ECO will not try to restore the electricity supply.

11.3 When the cause of the short circuit has been removed

signaller

You must tell the driver of each train to proceed at caution over the location of the short circuit, until you have been told by a competent person that it is safe for normal working to be resumed.

driver

You must proceed at caution over any portion of line where the signaller tells you that there has been a short circuit.

12

Moving electric trains between live and isolated sections

The people responsible: driver, person authorising the movement, signaller

12.1 Moving an electric train towards an isolated section

You must be sure that the approach to the isolated section is protected by a possession limit board (PLB) and three detonators, 20 metres (approximately 20 yards) apart before you allow an electric train, including a train hauled by a dual-powered locomotive on electric power, to:

- pass the signal or block marker protecting an isolated section
- make an unsignalled movement towards an isolated section.

These movements must be driven from the leading cab. The movement must not be propelled.

signaller

driver

12.2 Electric train entering or leaving an isolated section

Before authorising the movement of a train that has collector shoes to enter or leave an isolated section, you must get confirmation from the driver that all collector shoes are secured in the raised position clear of the conductor rail.

Before you move a train that has collector shoes to or from an isolated section, you must make sure all collector shoes are secured in the raised position clear of any conductor rail.

person
authorising
the
movement

driver

12.3 Taking a possession around a train

signaller

If a possession is to be taken around a train that has collector shoes, you must not grant the possession until you have told the driver to secure the collector shoes in the raised position and the driver has told you that this has been done.

12.4 Train entering a possession

signaller

Before authorising a movement to proceed towards the detonator protection, or the points at an intermediate point leading to a possession in which the electricity has been isolated, you must get confirmation from the driver that all collector shoes are raised and are secured clear of any conductor rail.

If you do not know if the train has collector shoes, you must ask the driver.

driver

When the signaller tells you to do so, you must visually check that all collector shoes are secured in the raised position. You must then tell the signaller that you have done this.

You must keep the collector shoes in the raised position while you are in the possession.



GE/RT8000/G1
Rule Book

General safety responsibilities and personal track safety for non-track workers

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You will need this module if you carry out the duties of:

- a train driver
- a guard
- a shunter
- a designated person (DP)
- a signaller
- a crossing keeper
- platform staff.

Conventions used in the Rule Book	Example
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Green text in the margin indicates who is responsible for carrying out the rule.	driver
A white i in a blue box indicates that there is information provided at the bottom of the page.	
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Section

1

General instructions

- 1.1** Rules, regulations and instructions
- 1.2** Getting on and off rail vehicles
- 1.3** Mechanical and electrical plant or other equipment
- 1.4** Travelling in driving cabs
- 1.5** User-worked level crossings, other gates and lineside fences
- 1.6** Reporting lineside fires
- 1.7** Reporting trespassers
- 1.8** Defective rail vehicles
- 1.9** Overhead power lines, which belong to an electricity company, collapsing
- 1.10** Detonators

2

Danger to trains

3

Stopping a train in an emergency

4

Accidents

- 4.1** Reporting an accident
- 4.2** Calling the emergency services
- 4.3** Preserving evidence at a serious accident
- 4.4** Reporting a dangerous goods incident

Section

5

Communications procedure

- 5.1 Communicating clearly
- 5.2 Using communications equipment
- 5.3 Lead responsibility
- 5.4 Using phrases
- 5.5 Using the phonetic alphabet
- 5.6 Signaller instructing a driver

6

Trackside definitions

7

Going on the operational railway

- 7.1 General
- 7.2 Local knowledge
- 7.3 While walking

8

Limited clearances and related warning signs

- 8.1 Limited clearance signs
- 8.2 Limited clearance at telephones

1

General instructions

*The people responsible: **all concerned***

1.1 Rules, regulations and instructions

all concerned

Rules, regulations and instructions apply to the task being carried out and to those carrying out the task, no matter what grade or job title they have.

Unless you are being instructed by a competent person, you must be competent to correctly apply the rules, regulations and instructions to the tasks you are authorised to carry out.

Safety must always be your first concern. If there is no rule that allows or prevents you doing something you believe must be done, you must do it in the safest way you know taking into account your training and experience.

1.2 Getting on and off rail vehicles

all concerned

You must not:

- get off a moving rail vehicle unless it is designed for continuous slow-speed movement such as the high-output ballast cleaner
- get on a moving rail vehicle unless it is absolutely necessary, and then only if you can do so safely
- ride on the steps of a locomotive or vehicle
- ride on a hand trolley or any other vehicle not designed for this purpose.

1.3 Mechanical and electrical plant or other equipment

all concerned

You must not operate mechanical or electrical plant or any other equipment unless you have been trained and are authorised to do so. If necessary, you must also hold a certificate of competency in operating the plant or equipment.

1.4 Travelling in driving cabs

You must only travel in the driving cab of a train if it is in connection with your duties and you have authority to do so.

all
concerned

When travelling in the driving cab, you must not distract the driver.

1.5 User-worked level crossings, other gates and lineside fences

a) User-worked level crossings

You must lower or close barriers or gates at user-worked level crossings and report to the signaller or Operations Control if you see any barriers or gates that have been left open or not lowered properly.

all
concerned

b) Other gates and lineside fences

You must keep closed any other gates giving access to the railway and if you can, lock them to prevent people from trespassing and causing vandalism.

If you come across a damaged fence, you must secure it if you can, and report any defects to the signaller or Operations Control.

1.6 Reporting lineside fires

You must immediately report a lineside fire to the signaller or Operations Control.

all
concerned

1.7 Reporting trespassers

You must report anyone you believe to be trespassing to the signaller or Operations Control.

all
concerned

1.8 Defective rail vehicles

**all
concerned**

You must not remove or obscure a NOT TO GO or other repair label on a defective rail vehicle unless you are authorised to do so.

1.9 Overhead power lines, which belong to an electricity company, collapsing

**all
concerned**

If an overhead electric power line belonging to an electricity company falls onto or near the railway line, all affected lines must be protected. If necessary, you must carry out the instructions shown in section 3 of this module.

You must not go closer than 5 metres (approximately 5 yards) to the fallen power line or anything in contact with it, until it has been confirmed by the electricity company that it is safe to do so.

1.10 Detonators

**all
concerned**

If you have placed detonators on the line and you expect a train to pass over them, you must:

- stand at least 30 metres (approximately 30 yards) away from the detonators
- tell anyone else standing close by to also keep this distance away
- as the train passes over them, turn away.

If you have placed detonators on the line and you do not expect a train to pass over them, you can stay at the detonators if the rules require this.

2

Danger to trains

*The people responsible: **all concerned***

Whenever you can, you must check a moving train for anything that looks unsafe such as:

- a door not closed properly
- an insecure load
- a vehicle on fire
- a hot axle box
- the headlight not lit
- the tail lamp missing or not lit
- the driver sounding the train in distress warning (which is a continuous series of long blasts on the high/loud tone of the horn)
- the driver or guard displaying a red handsignal
- the hazard warning indicator (flashing headlights).

If you become aware of any of these hazards or warnings or other dangers, you must immediately tell the signaller, or if this is not possible, the person in charge.

**all
concerned**

3 Stopping a train in an emergency

*The people responsible: **all concerned***

all concerned

The following hazards might put approaching trains in danger.

- A track defect.
- A flood.
- An obstruction.
- A fire.
- Any light which is out at an emergency indicator.
- A cow, bull or other large animal within the boundary fence (even if it is not an immediate danger to trains).
- Any other animals on or near the line.

If you become aware of any of these hazards or other dangers, you must immediately tell the signaller. If this is not possible, you must tell the person in charge (who must tell the signaller).

As well as reporting the hazard, you must take any other necessary action, such as:

- stopping trains
- calling the emergency services.

If you have to stop a train in an emergency, you must show a hand danger signal clearly to the driver using one of the following methods.

During daylight

You must show a red flag. If you do not have a red flag, raise both arms above your head. If you are riding on a vehicle, raise one arm held out horizontally.

During darkness or in poor visibility

You must show a red light to the driver or wave your light violently.

4 Accidents

The people responsible: all concerned

4.1 Reporting an accident

You must report an accident as quickly as possible to the signaller or Operations Control.

all
concerned

When reporting an accident, you must first say '**This is an emergency call**'. This is important, as you will get the immediate attention of the person you are speaking to. You must then state:

- your name
- your job title
- your employer
- where you are speaking from
- your telephone or radio call number.

You must give the exact location and details of the accident including which lines:

- are definitely blocked, and
- those lines you think could be blocked.

You must also say which emergency services are needed.

You must report all accidents, including near misses, to your supervisor or manager.

A rail incident officer (if appointed) will take charge at a scene of an accident.

4.2 Calling the emergency services

**all
concerned**

You must make sure you know how to call the emergency services from your usual place of work. From most railway locations you should call 999.

You must use a fixed railway telephone if one is available (this helps the emergency services to locate where you are calling from).

If no fixed railway telephone is available, you may use a mobile or non-railway telephone.

In all cases, when calling the emergency services, you must:

- give the exact location of the accident
- give details of the accident.

4.3 Preserving evidence at a serious accident

**all
concerned**

Accident investigators will need to examine the site for evidence of the cause of the accident. You must not interfere with, disturb or remove any evidence of the possible cause of the accident except to help the injured or to prevent further injury or damage. This applies to equipment such as:

- driving controls
- signalling equipment
- rolling stock
- lineside equipment.

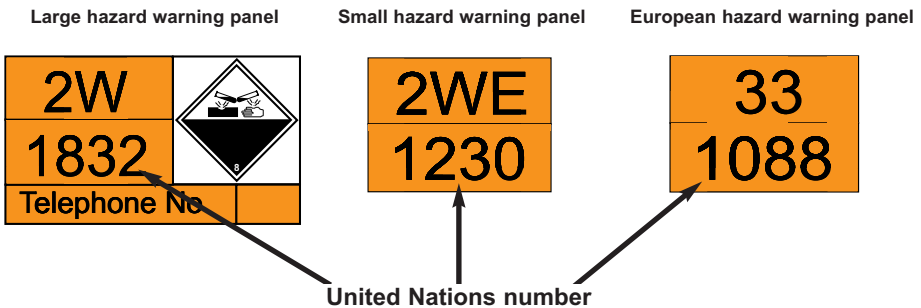
4.4 Reporting a dangerous goods incident

If there are dangerous goods on a train, you must tell the signaller, Operations Control or the local manager **'This is a rail dangerous goods emergency'** and give the following information (as well as the information set out in section 4.1).

all
concerned

United Nations number - this is displayed on the hazard warning panel on the side of a vehicle (or container).

A hazard warning panel will look like one of these:



You must:

- keep well clear
- keep the wind behind you as you face any affected vehicles or packages
- avoid low-lying places where gas may gather
- keep unauthorised people well clear
- try to put out any fire, without putting yourself or anyone else at risk
- keep naked lights and lamps well clear
- not smoke, use matches or pocket lighters
- not use a mobile phone near any vehicle carrying flammable loads.

**all
concerned**

You can tell if there are dangerous goods in a vehicle or in a package because it will carry a hazard warning label like one of these.



5

Communications procedure

The people responsible: all concerned, driver, signaller

5.1 Communicating clearly

You must make sure you properly understand the meaning of all messages whether they are communicated by phone, radio or face-to-face.

all
concerned

You must:

- make sure you are talking to the right person
- give your exact location, if you are using a phone or a radio
- give your name and that of your employer
- state what task you are carrying out
- if necessary, let the person know how you can be contacted
- use the phonetic alphabet to make sure names and locations that are difficult to pronounce are fully understood, and
- never use the words 'not clear' to describe a line that is obstructed, always use '**line blocked**'.

You must say numbers one at a time. You should say 8107 as 'eight, one, zero, seven'. There are exceptions to this such as when giving the time or when referring to a rule book module or handbook.

If you are receiving a message, make sure you fully understand it. You must repeat the message back so that the other person knows you correctly understand it.

**all
concerned**

To help make sure your message is fully understood when using a telephone or radio:

- speak with the mouthpiece close to your mouth and speak directly into the mouthpiece
- talk slightly slower than normal using a natural rhythm
- use your normal level of volume when speaking
- avoid using hesitation sounds for example 'um' and 'er'
- use clear sentences, and
- get the person to repeat your message back to you.

5.2 Using communications equipment

**all
concerned**

You must not use communications equipment if it may cause a distraction or affect safety.

If you are on or near the line, make sure you are in a position of safety before using mobile communications equipment.

Unless it is an emergency, you must not use the group call, general call or conference-call facility for passing instructions to do with:

- passing signals at danger
- passing an end of authority (EoA) without a movement authority (MA)
- protecting trains
- wrong-direction movements
- unsignalled movements.

5.3 Lead responsibility

During any conversation, one person must always take lead responsibility. The person who must take lead responsibility depends on the task being carried out. Examples are shown below.

all
concerned

Lead responsibility	When communicating with
Electrical control operator (ECO)	anyone
Signaller	anyone except the ECO
PICOP (person in charge of the possession)	anyone except the ECO or signaller
Route-setting agent	points operator
Shunter	driver
Pilotman	driver
Handsignaller	driver
Person conducting assisting train	driver of assisting train
Conductor driver	driver of train or machine being conducted
Designated person (DP)	members of the work group

If it is not clear who has lead responsibility, or if two people carrying out the same task are communicating with each other, the person who starts the conversation must always take lead responsibility.

5.4 Using phrases

all
concerned

a) Phrases to use when using a radio or telephone

Phrase	Meaning
This is an emergency call	This message provides information which needs immediate action to prevent death, serious injury or damage.
Repeat back	Repeat all of the message back to me.
Correction	I have made a mistake and will now correct the word or phrase just said.

b) Other phrases to use when using a radio and only one person can be heard at a time

Phrase	Meaning
Over	I have finished my message and am expecting a reply.
Out	I have finished my message no reply is expected.

5.5 Using the phonetic alphabet

You must use the phonetic alphabet:

- to identify letters of the alphabet
- to spell words and place names that are difficult to say, or may be misunderstood
- if there is interference on the radio or phone
- when quoting the identity of signals or points
- when quoting train descriptions.

all
concerned

This is the phonetic alphabet.

A - alpha	N - november
B - bravo	O - oscar
C - charlie	P - papa
D - delta	Q - quebec
E - echo	R - romeo
F - foxtrot	S - sierra
G - golf	T - tango
H - hotel	U - uniform
I - india	V - victor
J - juliet	W - whisky
K - kilo	X - x-ray
L - lima	Y - yankee
M - mike	Z - zulu

5.6 Signaller instructing a driver

signaller

You must give all instructions to a driver in one of the following ways:

- direct (face to face)
- direct (via telephone or radio)
- through the guard, shunter, pilotman, handsignaller
- through any other person who is competent in the relevant rules.

driver

You will receive all instructions from a signaller in one of the following ways:

- direct (face to face)
- direct (via telephone or radio)
- through the guard, shunter, pilotman, handsignaller
- through any other person who is competent in the relevant rules.

6

Trackside definitions

The people responsible: all concerned

Operational railway

The term operational railway includes the area called on the lineside and the area called on or near the line.

all
concerned

The lineside

You are on the lineside (shown green in diagram G1.1) if:

- you are between the railway boundary fence and the area called on or near the line, and
- you can be seen by the driver of an approaching train.

You are not on the lineside if you are on a station platform.

On or near the line

You are on or near the line (shown orange in diagram G1.1) if you are:

- within 3 metres (10 feet) of a line and there is no permanent fence or structure between you and the line
- on the line itself.

You are not on or near the line if you are on a station platform unless you are carrying out engineering or technical work within 1.25 metres (4 feet) of the platform edge.

You are not on or near the line if you are crossing the line at a level crossing.

A position of safety

If the maximum speed is 100 mph (160 km/h) or less, you are in a position of safety if you are at least 1.25 metres (4 feet) from the nearest line on which a train can approach.

If the maximum speed is over 100 mph (160 km/h), the distance increases to 2 metres (6 feet 6 inches).

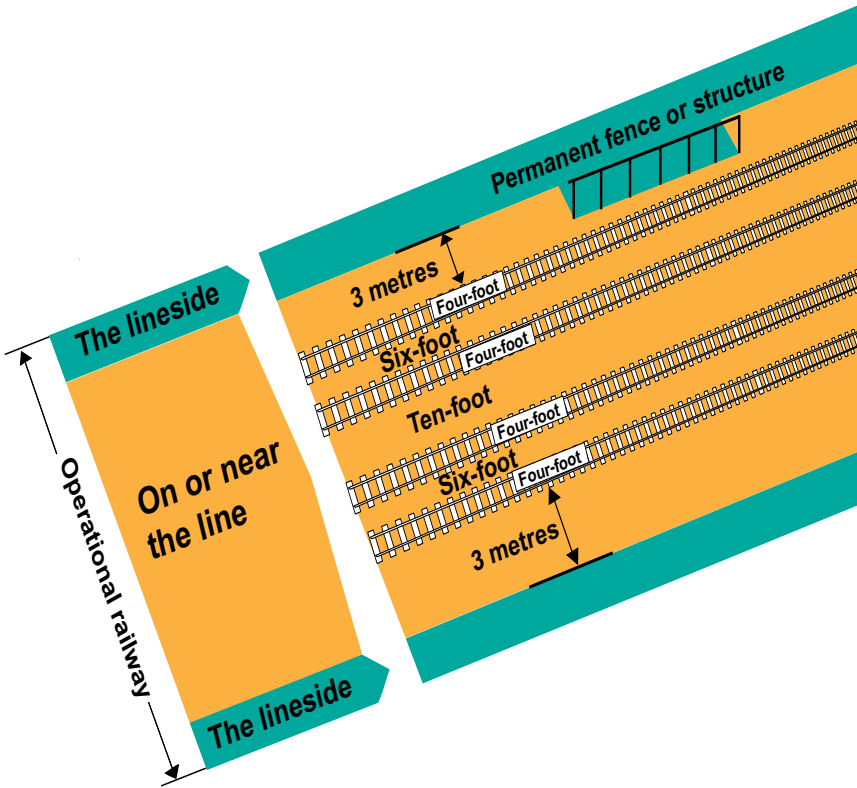


Diagram G1.1

7 Going on the operational railway

*The people responsible: **all concerned***

7.1 General

You do not need to carry a certificate showing that you are competent in the track-safety rules shown in this module as long as your regular assessment contains track-safety rules.

**all
concerned**

You must wear clean high-visibility clothing of an approved type in the correct way whenever you are on the operational railway.

You may carry small items with you. Any items you do carry with you must not affect your ability to walk safely or to see or hear and acknowledge approaching trains.

Make sure you have a suitable hand lamp with you during poor visibility, darkness, or if you are to enter a tunnel.

7.2 Local knowledge

Before you go on or near the line, you must know about all of the following for each line:

**all
concerned**

- the maximum speed
- the direction from which trains normally approach
- the location of any area where you must not go while trains are running
- any location with limited clearances.

7.3 While walking

all concerned

You must use authorised walking routes if they are provided.

If you have to cross the line, you must not step on rails or sleepers or between movable parts of points.

If you have to use a mobile phone, first move to a position of safety and then stand still until you have finished using the phone.

Do not wear anything that makes you less able to see or hear approaching trains.

Do not allow yourself to be distracted by anyone or anything.

Keep a good lookout for approaching trains.

Make sure you look up at least every 5 seconds so that you can reach a position of safety and be in it no less than 10 seconds before an approaching train arrives.

When a train approaches

When a train approaches you must immediately move to a position of safety or, if already in a position of safety, stay there.

If the driver sounds the warning horn, raise one arm above your head to show you have heard the warning.

You must stay in your position of safety until the train has passed clear or you are certain you will not be put in danger by that train or any other train.

8

Limited clearances and related warning signs

The people responsible: all concerned

8.1 Limited clearance signs

Limited clearance warning sign



There is no position of safety on this side of the railway for the length of the structure. You must not enter or stand at that location when a train is approaching.

**all
concerned**

No refuges warning sign



There is no position of safety on this side of the railway for the length of the structure. However, there are positions of safety, or refuges, on the opposite side of the railway line.

Prohibition sign



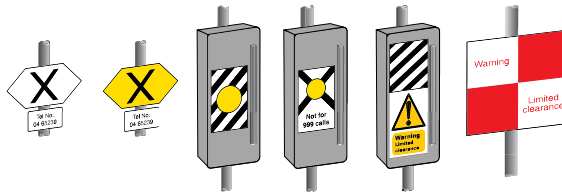
You must not pass beyond this sign while trains are running unless you are carrying out emergency protection. This is because you would not be able to reach a position of safety or refuge safely. If you are carrying out emergency protection, you must take extreme care.

8.2 Limited clearance at telephones

all
concerned

Some telephones are positioned where there is limited clearance between the telephone and the adjacent lines. You may use these telephones only in an emergency and then only if no other form of communication is available.

One or more of the following signs identifies these telephones.



Note: A driver of a train at a signal with any of the signs shown above is allowed to use the signal post telephone under specific arrangements.

Notes

Core operational aim

The core aim of the fundamental operational principles is to enable the safe and timely delivery of people and goods to their destination.

Fundamental operational principles

- 1** The method of signalling must maintain a space interval between trains that is safe.
- 2** Before a train is allowed to start or continue moving, it must have an authority to move that clearly indicates the limit of that authority.
- 3** Trains proceeding over any portion of line must not be obstructed in a way that threatens their safety.
- 4** Trains must be prevented from proceeding onto a portion of line if it is known or suspected that it would not be safe for them to pass.
- 5** Trains must not be allowed to begin or continue their journeys until it is clear that it is safe for them to do so.
- 6** Trains must only be allowed to operate over any portion of line as long as the rolling stock is compatible with the infrastructure on that portion of line.
- 7** Trains must not continue to operate after they have been found to be unsafe in any respect, until measures have been taken to allow them to continue safely.
- 8** People must be kept a safe distance from moving trains.
- 9** The workforce must be protected from the particular hazards associated with electrified railways.



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Dealing with a train accident or train evacuation

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carry out the duties of a:

- driver
- guard
- signaller.

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Section

1

Definitions

2

What to do after a train accident

- 2.1 Driver's actions
- 2.2 Guard's actions
- 2.3 Signaller's actions

3

Emergency protection

- 3.1 Providing emergency protection
- 3.2 Protecting a double-track line
- 3.3 Protecting a multi-track line
- 3.4 If a train approaches
- 3.5 Reaching a telephone or signal box
- 3.6 Reaching a tunnel entrance
- 3.7 Reaching a diverging junction
- 3.8 Protecting your own line

4

Fire on a train

- 4.1 Stopping the train
- 4.2 Safety of passengers
- 4.3 Separating burning vehicles
- 4.4 If the train cannot proceed
- 4.5 If the train can proceed

Section

5

Accidental train division

- 5.1** Passenger train - safety of passengers
- 5.2** Securing the divided train
- 5.3** If the two portions can be recoupled
- 5.4** If the two portions cannot be recoupled

6

Evacuating a train

- 6.1** Preconditions
- 6.2** Guard's immediate actions
- 6.3** Controlled evacuation
- 6.4** Emergency evacuation
- 6.5** Signaller's actions
- 6.6** Passenger safety

1

Definitions

Signal protection

This means placing or keeping signals at danger, and closing routes or keeping routes closed.

Train Accident

For the purposes of this module, the term train accident includes:

- a derailment
- a collision involving trains or rail vehicles
- a collision with an obstruction
- a collision with a road vehicle
- a collision with a person
- a fire on a train which might put other trains passing the location in danger
- a fire on a train which might mean that passengers are evacuated onto running lines
- an accidental train division which has caused another line to be obstructed.

2 What to do after a train accident

The people responsible: driver, guard, signaller

2.1 Driver's actions

You must immediately switch on the hazard warning indication where provided.

If you cannot do this, you must display a red light forward.

You must then check:

- if any other lines are obstructed (if in doubt, treat them as obstructed), and decide the quickest way to stop any approaching trains
- the exact location of your train.

You must tell the signaller about the accident in the quickest way possible and whether the electric traction current needs to be switched off.

When the signaller tells you that signal protection has been provided, you must place a track-circuit operating clip on:

- every other line that is obstructed, and
- the line on which the your train is standing if the whole train has been derailed.

You must carry out emergency protection if:

- the signaller cannot provide signal protection, or
- you have not been able to contact the signaller.

If you need help in carrying out emergency protection, you must reach a clear understanding with the guard or any other competent person as to which lines that person will protect.

driver

Dealing with a train accident or train evacuation

driver

If you are carrying out emergency protection alone, you must first protect other lines, then protect the line on which your train is standing, if necessary. You must decide which direction to protect first.

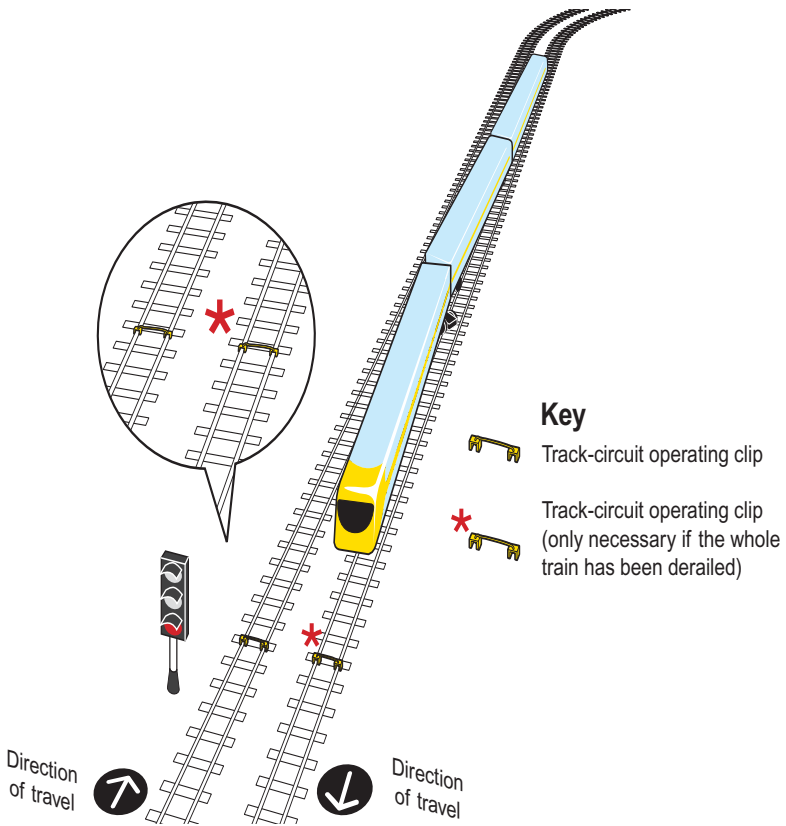


Diagram M1.1

2.2 Guard's actions

guard

You must check:

- if any other lines are obstructed (if in doubt, treat them as obstructed), and decide the quickest way to stop any approaching trains
- place a track-circuit operating clip on any lines that are obstructed.

You must then contact the driver.

You must agree with the driver whether you need to:

- help with carrying out emergency protection, or
- stay with the train.

You must carry out the instructions shown for the driver in this module if you:

- cannot contact the driver, or
- find that the driver is unavailable.

If the driver needs help in carrying out emergency protection, you must:

- provide the help personally, or
- arrange for any other competent person to help.

If you provide the help yourself, you must reach a clear understanding with the driver as to which lines you will protect.

2.3 Signaller's actions

signaller

If you are alerted to a train accident, you must:

- immediately protect each obstructed line or arrange for this to be done
- take any other action needed to prevent trains approaching the accident as shown in the appropriate Train Signalling Regulations
- make an emergency broadcast to trains in the area concerned, or arrange for this to be done
- if possible, tell the person involved that you have provided protection
- arrange for the emergency services to be called if they are needed.

3

Emergency protection

*The person responsible: **driver***

3.1 Providing emergency protection

You must:

- place a track-circuit operating clip on every line that is obstructed
- show a hand danger signal to any train that is approaching the obstruction
- protect with detonators as described in sections 3.2 to 3.8.

If the whole train is derailed, you must also place a track-circuit operating clip on the line on which your train was travelling before you carry out emergency protection on other affected lines. You must also carry out emergency protection on the line on which your train was travelling if temporary block working is in operation.

When you have completed emergency protection, you must:

- continue as far as necessary, if you still need to contact the signaller, or
- return to your train.

driver

Dealing with a train accident or train evacuation

3.2 Protecting a double-track line

driver

You must place three detonators 20 metres (approximately 20 yards) apart on the other obstructed line 2 kilometres (1¼ miles) from the obstruction.

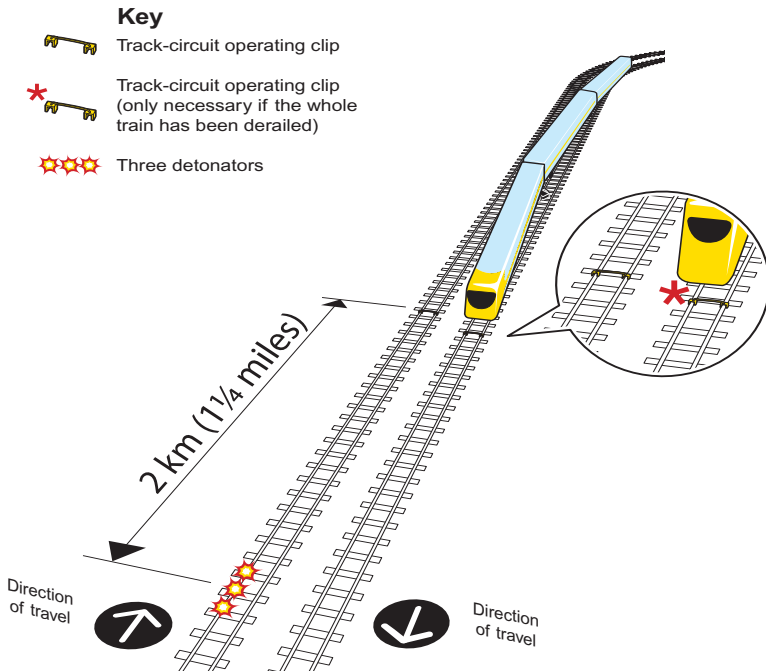


Diagram M1.2

3.3 Protecting a multi-track line

You must place three detonators 20 metres (approximately 20 yards) apart on every other line that is obstructed, 2 kilometres (1¼ miles) from the obstruction.

driver

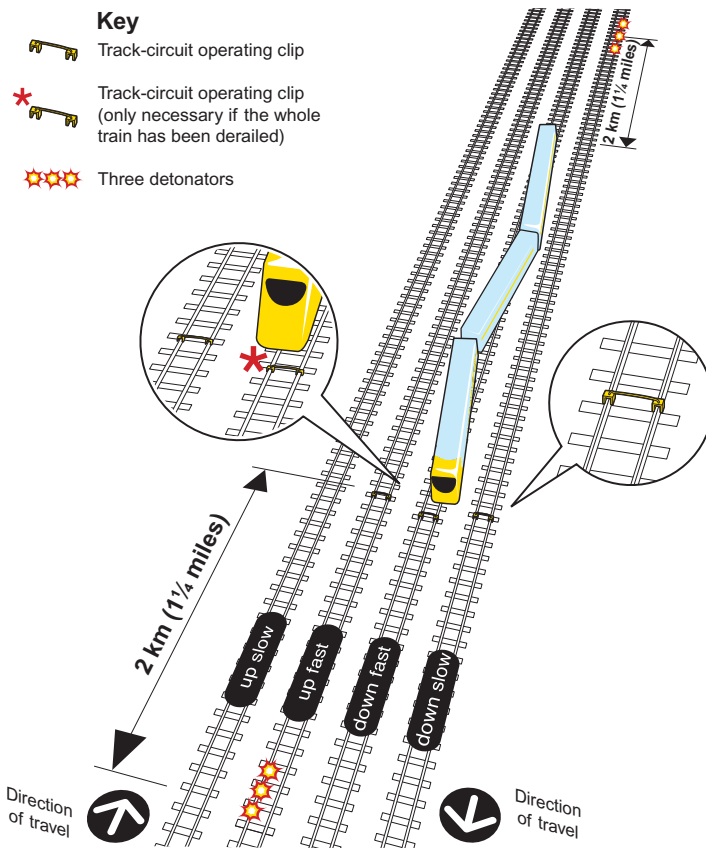


Diagram M1.3

Dealing with a train accident or train evacuation

3.4 If a train approaches

driver

If a train approaches before you reach the full protection distance of 2 kilometres (1¼ miles), you must place three detonators immediately and show a hand danger signal to the approaching train.

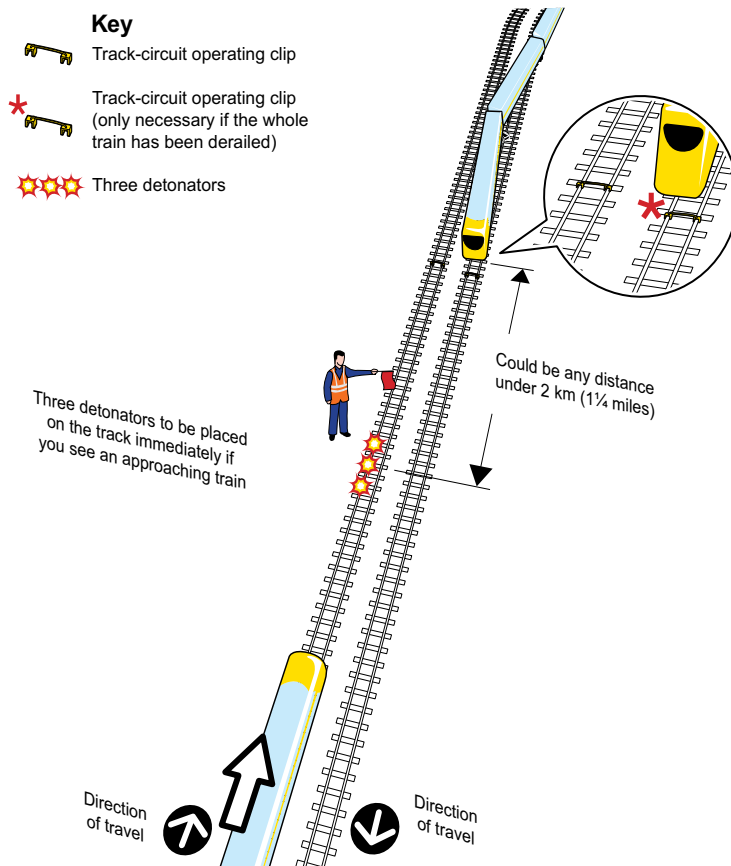


Diagram M1.4

3.5 Reaching a telephone or signal box

If you have not been able to contact the signaller and you reach a telephone linked to a signal box, or reach a signal box, within the full protection distance, you must:

- first place three detonators on the line at the telephone or at the signal box
- speak to the signaller.

You do not need to continue to the full protection distance if the signaller confirms that signal protection is being provided.

driver

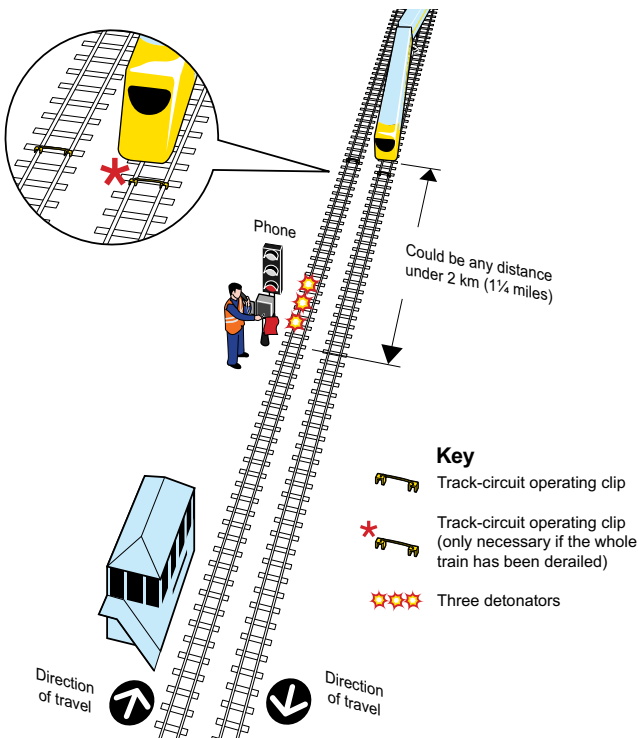


Diagram M1.5

3.6 Reaching a tunnel entrance

driver

If you reach a tunnel entrance before reaching the full protection distance, you must place three detonators at the tunnel entrance.

If the full protection distance is inside the tunnel, you must continue through the tunnel to the far end and place three detonators there.

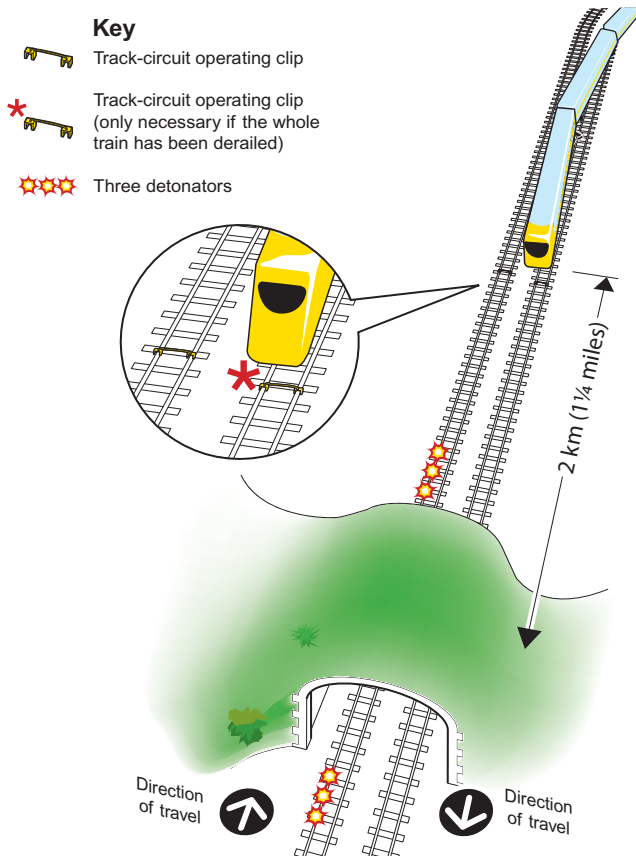


Diagram M1.6

3.7 Reaching a diverging junction

If you reach a diverging junction before reaching the full protection distance, you must:

driver

- place three detonators before you reach the junction, and then
- decide the order in which you protect each line.

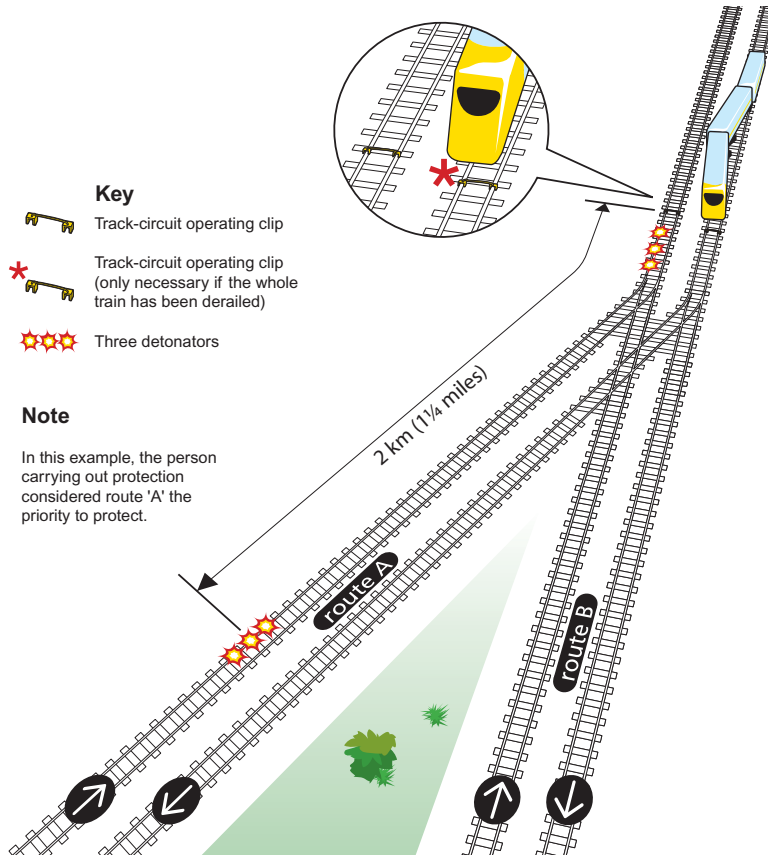


Diagram M1.7

Dealing with a train accident or train evacuation

3.8 Protecting your own line

driver

If temporary block working is in operation, after you have protected any other lines, you must then protect the line on which your train is standing.

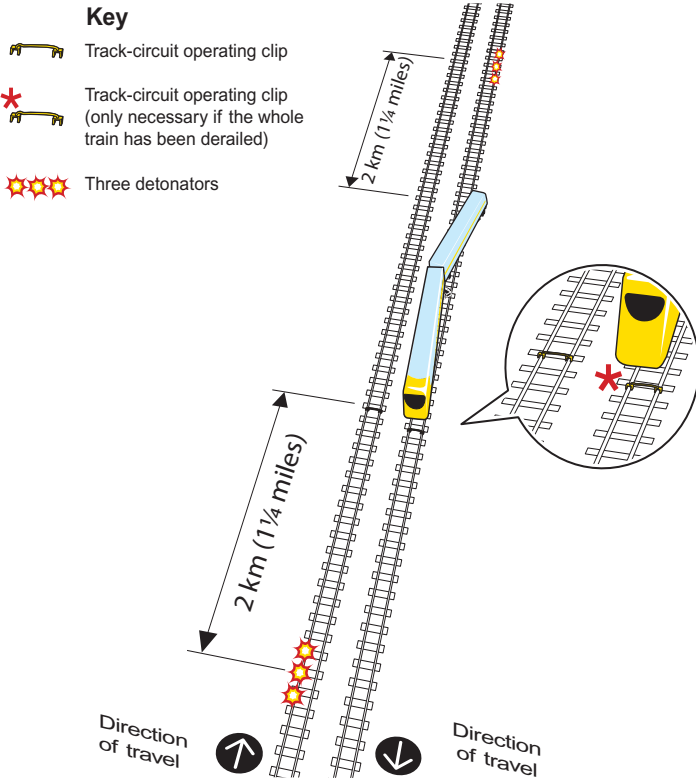


Diagram M1.8

4 Fire on a train

The people responsible: driver, guard

4.1 Stopping the train

You must try to put out any fire on the train. However, if it will not be possible to put the fire out within a few seconds, you must make sure the train is stopped immediately.

**driver,
guard**

Where possible you must not stop the train or allow it to remain:

- in a tunnel
- on a viaduct, or
- at any other unsuitable place.

If you stop the train, you must immediately:

guard

- tell the driver the reason
- if it is necessary, tell the driver to arrange for the emergency services to attend.

4.2 Safety of passengers

You must:

- tell passengers to move, if possible, to vehicles which are not affected by the fire
- if passengers have to leave the train, carry out an evacuation.

**guard (or
driver of a
DO train)**

4.3 Separating burning vehicles

If there is a risk of the fire spreading you must, if it can be done, separate the burning vehicles from the rest of the train.

driver

4.4 If the train cannot proceed

driver

If the fire is out but the train cannot proceed, you must:

- tell the signaller
- carry out any necessary protection.

guard (or driver of a DO train)

If any passengers are left on the train and they are safe, you must if it is necessary, carry out a controlled evacuation when this can be done.

If any passengers have left the train, you must make sure they are in a safe position and not at risk from electrified lines or trains continuing to run on any other lines.

You must make sure they stay in a safe position until arrangements can be made to escort them from the site.

4.5 If the train can proceed

driver

If the fire is out and the train can proceed safely, you must tell the signaller as soon as possible.

5

Accidental train division

The people responsible: driver, guard

5.1 Passenger train - safety of passengers

You must:

- find out whether anybody might have fallen from the train
- secure gangway end doors, if you can do this
- make sure passengers are in a safe position on the train.

guard (or
driver of a
DO train)

5.2 Securing the divided train

a) Driver's actions

You must make sure both portions of the train are secure and all the vehicles are accounted for.

driver

You must tell the guard (if provided) about the situation.

You must then check the couplings where the train has divided to see if:

- they might have damaged the track or lineside equipment (if so, tell the signaller)
- there is any damage to them which prevents recoupling the portions.

b) Guard's actions

If you are travelling in the rear portion, you must secure it if possible.

guard

You must then find out from the driver what action is to be taken with the train.

5.3 If the two portions can be recoupled

driver

If the two portions can be recoupled, you must get the personal authority of the signaller for the movement.

When the two portions have been recoupled, you must tell the signaller the train is again complete, stopping specially if necessary.

On a train on which ERTMS is in operation, you must get the signaller's authority to proceed.

5.4 If the two portions cannot be recoupled

driver

You must place three detonators 300 metres (approximately 300 yards) away from both ends of the rear portion.

You must then tell the signaller:

- that the rear portion is to be left in the section
- the exact location of the rear portion.

If you have not been able to tell the signaller, you must not go beyond the next stop signal or block marker until you have told the signaller.

You must not leave a single-line section until you have told the signaller.

You must put a tail lamp on the rear of the front portion if it is on a track circuit block or ERTMS line. If you are not on a track circuit block or ERTMS line, you must only do this when the front portion reaches:

- the next signal box, or
- a track circuit block or ERTMS line.

6 Evacuating a train

The people responsible: driver, guard, signaller

6.1 Preconditions

You must carry out an evacuation of a train only if it is absolutely necessary.

driver,
guard

6.2 Guard's immediate actions

You must tell the driver that an evacuation is necessary.

guard

6.3 Controlled evacuation

You must tell the signaller that the train is to be evacuated and ask the signaller to provide signal protection on all lines that may be affected. If necessary, you must also ask for the electric traction current to be switched off.

driver

When the signaller tells you all signal protection has been completed, you must tell the guard.

6.4 Emergency evacuation

You must tell the signaller that an emergency evacuation is taking place or is necessary and ask the signaller to provide immediate signal protection on all lines that may be affected. If necessary, you must also ask for the electric traction current to be switched off.

driver

If you cannot contact the signaller, or the signaller cannot provide signal protection, you must carry out emergency protection.

6.5 Signaller's actions

signaller

When told about the evacuation of a train, you must:

- block all lines that may be affected
- tell the driver when you have provided protection.

6.6 Passenger safety

guard (or driver of a DO train)

You must decide the best way to evacuate the train safely, taking into account:

- how the passengers will be moved from the site
- the need for passengers to cross the least number of lines, if possible, to reach a safe position.

You must warn passengers to stay in a safe position until they can be escorted from the line.



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Rule Book

Train stopped by train failure

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You will need this module if you
carry out the duties of a:

- driver
- signaller.

Conventions used in the Rule Book	Example
A black line in the margin indicates a change to that rule and is shown when published in the module for the first time.	
Green text in the margin indicates who is responsible for carrying out the rule.	driver
A white i in a blue box indicates that there is information provided at the bottom of the page.	
<div style="border: 2px solid red; padding: 5px;">A rule printed inside a red box is considered to be critical and is therefore emphasised in this way.</div>	

Section

1

If the train fails

- 1.1** Telling the signaller
- 1.2** Agreeing the arrangements
- 1.3** Making sure the failed train is safe
- 1.4** Telling the guard
- 1.5** Providing assistance protection

2

Protecting the failed train with emergency protection

- 2.1** When to place emergency protection
- 2.2** Providing emergency protection

3

Providing assistance

- 3.1** Waiting for the assisting train to arrive
- 3.2** Signaller allowing the assisting train to enter the section
- 3.3** Assisting train moving towards the failed train
- 3.4** Driver of the failed train conducting the assisting train
- 3.5** Coupling to the failed train
- 3.6** When the failed train is being assisted
- 3.7** On a single line worked by token

1

If the train fails

*The people responsible: **driver, signaller***

1.1 Telling the signaller

If your train is stopped by failure, you must immediately tell the signaller about the circumstances and whether you need an assisting train.

driver

1.2 Agreeing the arrangements

If an assisting train is needed, you must both agree:

- the exact location of the failed train
- that the failed train will not be moved
- the type of assisting train needed, and
- the direction from which it is needed.

**driver,
signaller**

1.3 Making sure the failed train is safe

After you have asked for assistance, you must not move your train until:

- the assisting train arrives, or
- you have agreed alternative arrangements with the signaller and anyone else concerned.

driver

You must make sure that:

- if assistance will be coming from the rear, a red light is displayed at the rear of your failed train
- if assistance will be coming from the front, a white light is displayed at the front of your failed train.

If you are on a single line and are in possession of the token, you must keep the token until the assisting train arrives.

1.4 Telling the guard

driver

Before you leave the failed train to carry out protection, you must tell the guard (if provided):

- that you are leaving the train to carry out protection
- the direction from which assistance will be provided, if known.

1.5 Providing assistance protection

driver

You do not need to provide assistance protection where permissive working is in operation.

Standard arrangement

You must place three detonators 20 metres (approximately 20 yards) apart on the line on which your failed train is standing 300 metres (approximately 300 yards) from your train in the direction from which the assistance will approach.

Protection involving a stop signal or block marker

You must place the protection at the stop signal or block marker in the direction from which the assisting train will approach, if:

- the signal or block marker is less than 300 metres (approximately 300 yards) from where your failed train is standing, and
- the signaller can confirm that this stop signal or block marker is protecting your failed train.

Change of direction for assistance

If you are carrying out assistance protection and the signaller tells you that the assisting train will be coming from the opposite direction, you must:

- pick up any detonators that you had placed on the line
- carry out assistance protection in the other direction.

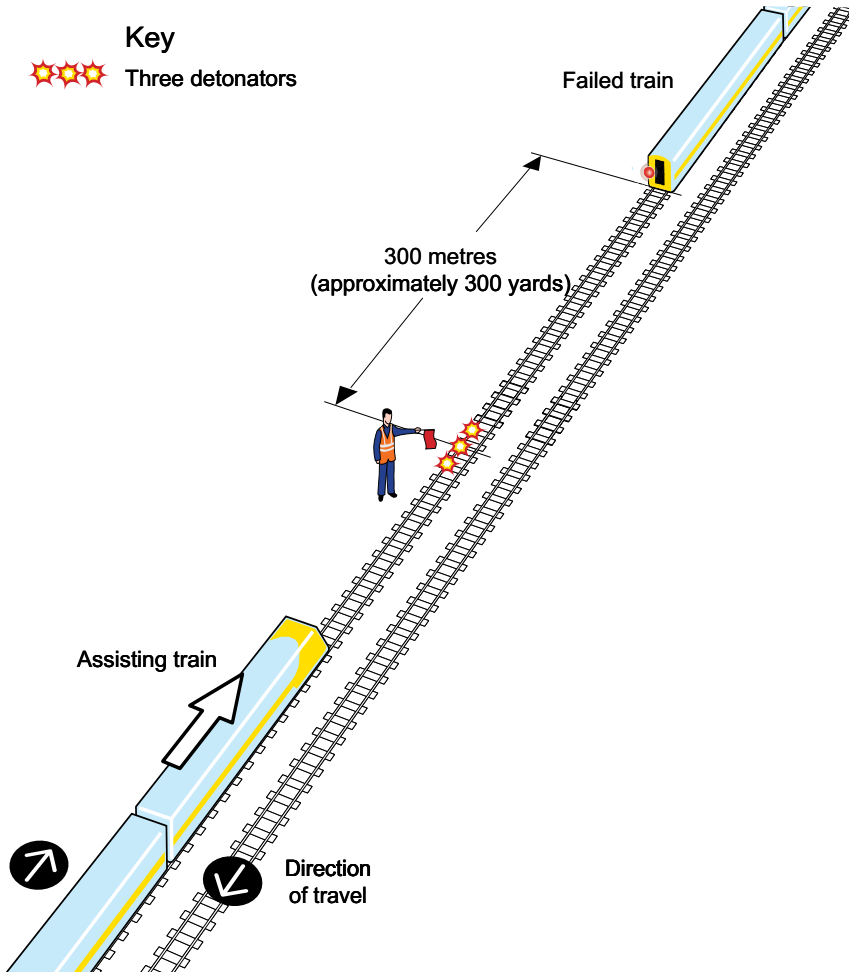


Diagram M2.1

Protection when assistance comes from the rear

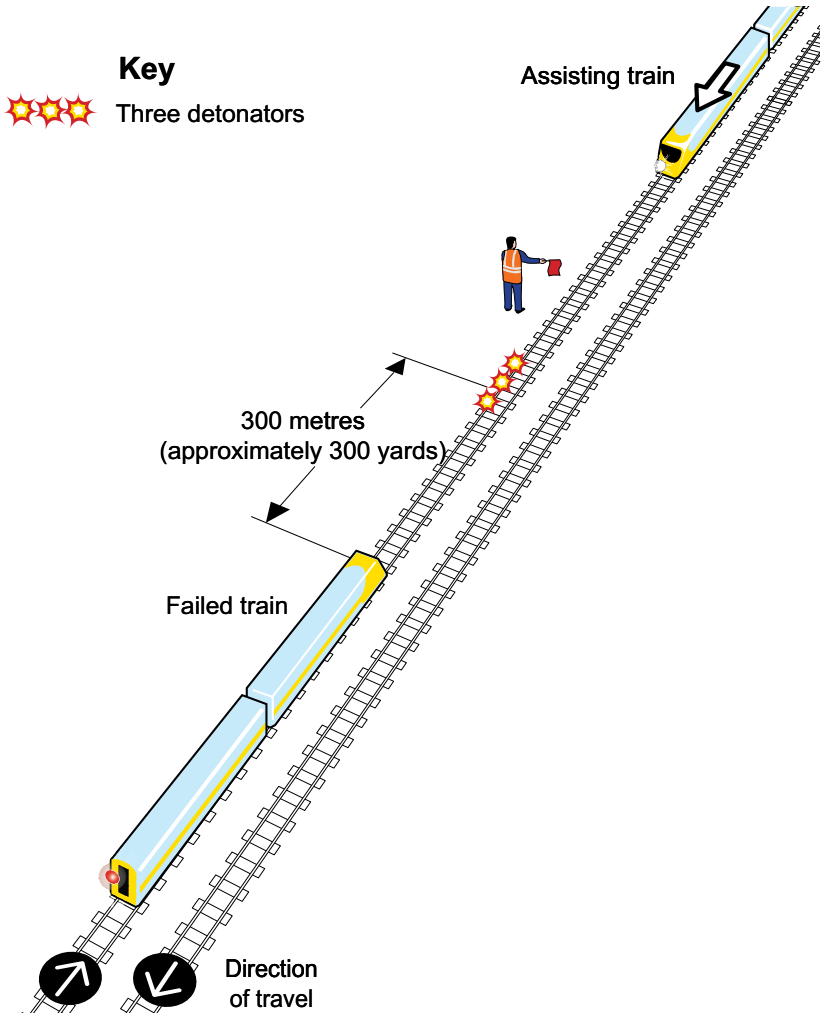


Diagram M2.2

Protection when assistance comes from the front

2

Protecting the failed train with emergency protection

The person responsible: driver

2.1 When to place emergency protection

You need to carry out emergency protection only if:

- the signaller cannot be contacted immediately, and
- your train has failed within a temporary block working section.

driver

2.2 Providing emergency protection

After placing standard assistance protection in rear of your train, you must continue until:

- you have reached the full protection distance of 2 kilometres (approximately 1¼ miles), where you must place three detonators on the line 20 metres (approximately 20 yards) apart, or
- you can communicate with the signaller.

driver

If a train approaches before you reach the full protection distance, you must immediately place three detonators on the line and show a hand danger signal to the driver.

If you reach a telephone linked to a signal box, or reach a signal box, within the full protection distance, you must:

- first place three detonators on the line at the telephone or at the signal box
- speak to the signaller.

If you reach a tunnel entrance before reaching the full protection distance, you must place three detonators at the tunnel entrance.

If the full protection distance then falls inside the tunnel, you must continue through the tunnel to the far end and place three detonators there.

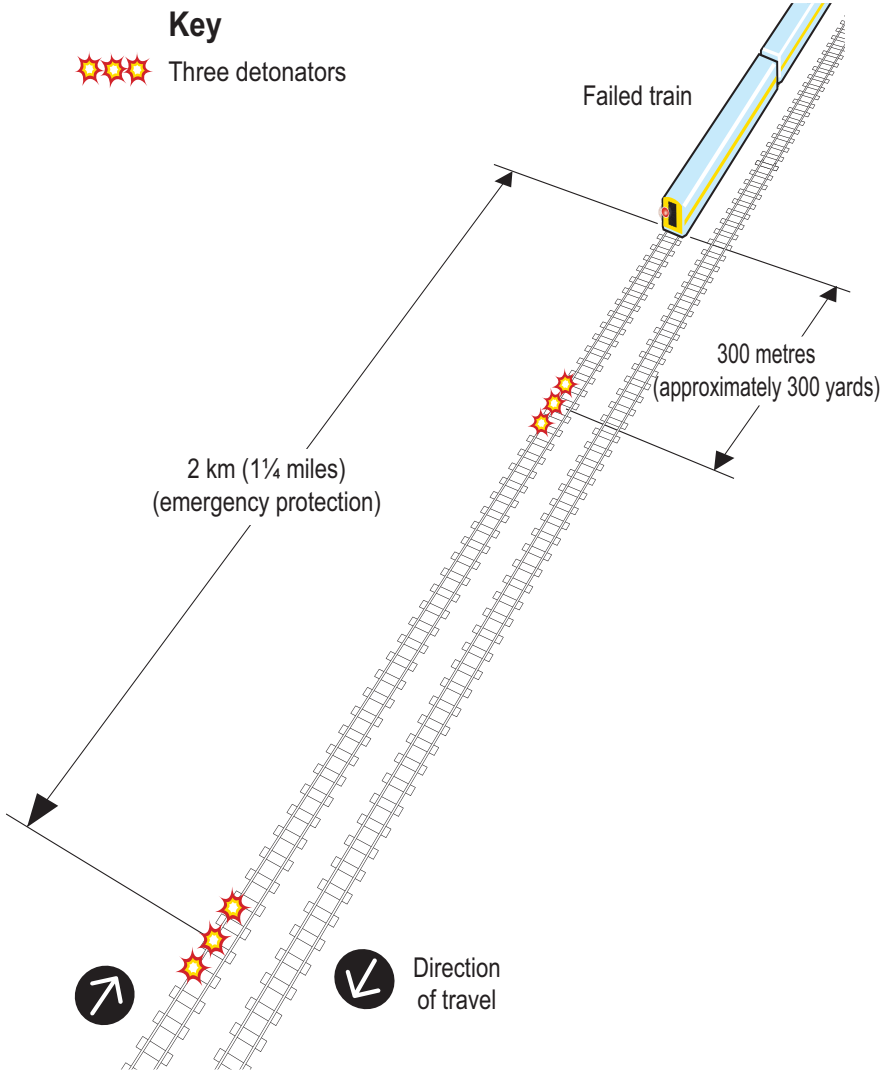


Diagram M2.3
Emergency protection

3

Providing assistance

The people responsible: driver, signaller

3.1 Waiting for the assisting train to arrive

a) Staying at the assistance protection point

You must stay at the assistance protection point and wait for the assisting train to arrive, except if:

driver

- you still need to speak to the signaller, in which case you must continue as far as necessary
- you have placed the assistance protection detonators within a tunnel, in which case you must continue through the tunnel to the far end and wait there
- you have to carry out emergency protection.

b) Displaying a hand danger signal

You must display a hand danger signal to the driver of the assisting train when it approaches.

3.2 Signaller allowing the assisting train to enter the section

signaller

You must make sure that the driver of the failed train is:

- conducting the assisting train, or
- waiting at the protection point to meet the assisting train, or
- proceeding immediately to the protection point.

If the driver is not at the protection point ready to meet the assisting train, you must:

- ask the driver of the failed train how long it will take to get to the protection point
- wait a suitable time before authorising the driver of the assisting train to enter the section.

You must tell the driver of the assisting train:

- the exact location of the failed train
- how the failed train is protected
- the point from which the assisting train will be met
- where the failed train must be taken to.

If necessary, you must instruct the driver to pass at danger the signal protecting the obstructed line or pass an end of authority (EoA) without a movement authority (MA).

3.3 Assisting train moving towards the failed train

During the movement towards the failed train, you must proceed at caution and keep a look out for, and stop to pick up, the driver of the failed train.

driver
(assisting
train)

You must only enter a tunnel if:

- you have already picked up the driver of the failed train, or
- you know that the driver of the failed train is not in the tunnel and that the tunnel is clear.

You must stop immediately on exploding detonators.

If you have not already picked up the driver of the failed train, or the driver is not waiting at the assistance protecting point, you must:

- stay at that location
- wait for the driver of the failed train to arrive.

After you have been told the exact location of the failed train, you must proceed at caution towards the train.

3.4 Driver of the failed train conducting the assisting train

You must get in the driving cab of the assisting train and tell the driver the exact location of the failed train.

driver

3.5 Coupling to the failed train

If you are the driver of the assisting train, you must make sure that:

- your train is coupled to the failed train
- the automatic brake, if compatible, is connected.

driver
(assisting
train)

3.6 When the failed train is being assisted

driver (assisting train)

If you are the driver of the train that is assisting at the rear of the failed train, you must:

- temporarily isolate the TPWS before the movement starts
- reinstate the TPWS when the movement is finished.

If you are the driver of an assisting train on which ERTMS is in operation, you must:

- before the movement starts, make sure that ERTMS is in the correct mode
- when the movement is finished, not make any further movement until you have the correct authority to do so.

3.7 On a single line worked by token

driver

If you are the driver at the leading end of the movement, you must keep the token until both trains are clear of the section.



GE/RT8000/M3
Rule Book

Module M3

Managing incidents, floods and snow

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You will need this module if you carry out the duties of:

- driver
- signaller.

You will also need this module if you are likely to be involved in, or reporting a serious accident.

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Section

1

Preserving evidence after a serious accident

- 1.1 Carrying out emergency action
- 1.2 Leaving evidence undisturbed
- 1.3 Entering a driving cab
- 1.4 Locking cab doors
- 1.5 Signalling equipment

2

Derailments, collisions or heavy impacts

- 2.1 Derailments
- 2.2 Collisions or heavy impacts with other vehicles or buffer stops
- 2.3 Trains colliding with obstructions on the line

3

Bodies on the line

- 3.1 Signaller's actions
- 3.2 Dealing with trains

4

Floods

- 4.1 Reporting procedure
- 4.2 Train running

5

Snow

- 5.1 Reporting procedure
- 5.2 Train running

6

Independent snow ploughs

- 6.1 Working on adjacent lines
- 6.2 Operating on electrified lines

1 Preserving evidence after a serious accident

The people responsible: anyone involved, signaller

1.1 Carrying out emergency action

As a priority over preserving and recording evidence, if it is your responsibility you must:

anyone
involved

- secure the train
- protect the line
- get the electric traction current switched off
- call the emergency services
- make sure the public and other personnel are safe.

1.2 Leaving evidence undisturbed

You must not disturb or interfere with evidence of the cause of a serious accident, unless told by:

anyone
involved

- a rail incident officer (RIO)
- a police incident officer
- a rail accident investigation branch (RAIB) investigator
- any other senior investigator.

You must immediately make a note of evidence that might be lost by the passage of time, such as wheel-tyre and brake-block temperatures, and brake-gauge readings.

1.3 Entering a driving cab

a) Reasons

anyone
involved

You must only enter a driving cab if you have to:

- secure the train
- carry out rescue operations
- use the cab radio to call the emergency services or speak to the signaller
- get equipment to carry out protection of the line or extinguish a fire
- make a note of short-life evidence.

If you enter a driving cab for any of these reasons, you must be careful not to disturb unnecessarily equipment, handles, buttons or switches, including ERTMS controls, displays and indications.

b) Noting information

After you have carried out any of the actions shown above, you must:

- make a detailed note of the original position or location of equipment and gauges
- before you leave the scene, give this information to an investigating officer such as, the RIO, police incident officer, RAIB investigator or other senior investigator.

1.4 Locking cab doors

You must arrange to prevent unauthorised entry to the cab from which the train was being driven and if possible:

anyone
involved

- lock the doors to that cab
- make sure other driving cab doors are locked.

1.5 Signalling equipment

a) Equipment not to be moved

You must not move, even for testing purposes, signalling equipment directly associated with the accident until you are authorised to do so.

anyone
involved

This does not apply to equipment that must be used to protect the accident.

b) Noting information

You must:

- make a detailed note of the position the relevant signalling equipment was in at the time of the accident
- record any subsequent changes to the position of the signalling equipment concerned.

signaller

2 Derailments, collisions or heavy impacts

The people responsible: driver, signaller

2.1 Derailments

**driver,
signaller**

If any vehicle has been derailed, you must not allow it, or any part of the train, to enter or continue in service until it has been examined by a rolling stock technician.

However, if the derailment was at slow speed, vehicles that were not derailed or coupled next to a derailed vehicle can be examined at the first suitable location.

2.2 Collisions or heavy impacts with other vehicles or buffer stops

**driver,
signaller**

If any vehicle has suffered a collision or heavy impact, you must not allow it, or any part of the train, to enter or continue in service until it has been examined by a rolling stock technician.

2.3 Trains colliding with obstructions on the line

a) Checking the train

driver

Following a collision with an obstruction on the line, you must bring your train to a stand and not move until you have checked for any damage that:

- might have been caused by the collision, and
- might affect its safe movement.

b) Detaching and moving a vehicle

If any part of a vehicle has become loose and cannot be secured, or might make contact with the track or lineside structures, you must arrange for the vehicle to be cleared from the running line at the first suitable location.

driver

Before moving the vehicle you must:

- get the signaller's permission
- get authority from a rolling stock technician if you are not sure the movement can be made safely
- if possible move passengers from the vehicle.

During the movement you must not exceed 10 mph (15 km/h) or 5 mph (10 km/h) over points and crossings.

Before you give permission for the vehicle to be moved, you must make sure trains are stopped on any adjacent lines that might be affected.

signaller

3 Bodies on the line

*The person responsible: **signaller***

3.1 Signaller's actions

signaller

If you are told about a body that is on or near the line, you must:

- find out the location of the body in relation to running lines
- if necessary arrange for an emergency switch-off of the electric traction current
- tell Operations Control about the circumstances.

3.2 Dealing with trains

signaller

You must arrange for trains to be stopped on all lines until you have found out where the body is.

You may allow trains to proceed if:

- you have been told that the body is clear of the line
- the body cannot be struck by a passing train
- the body parts are not recognisable.

You may allow a train to pass recognisable body parts if they are in a position where they cannot be seen by passengers on passing trains (for example when the remains are very close to the line but not foul of it).

You must tell each driver about the circumstances and get the driver's agreement to the movement.

4 Floods

The people responsible: driver, signaller

4.1 Reporting procedure

You must report to the signaller, stopping your train specially to do so if necessary, if you see any flood water that might affect the passage of trains. You must tell the signaller if you believe the flood water:

- is up to the bottom of the rail head
- is up to the top of the rail head
- is above the top of the rail head
- is moving and likely to dislodge the ballast
- has dislodged the ballast.

You must arrange for Operations Control to be told if vehicles are stabled in or pass through flood water above the bottom of the axle box.

driver

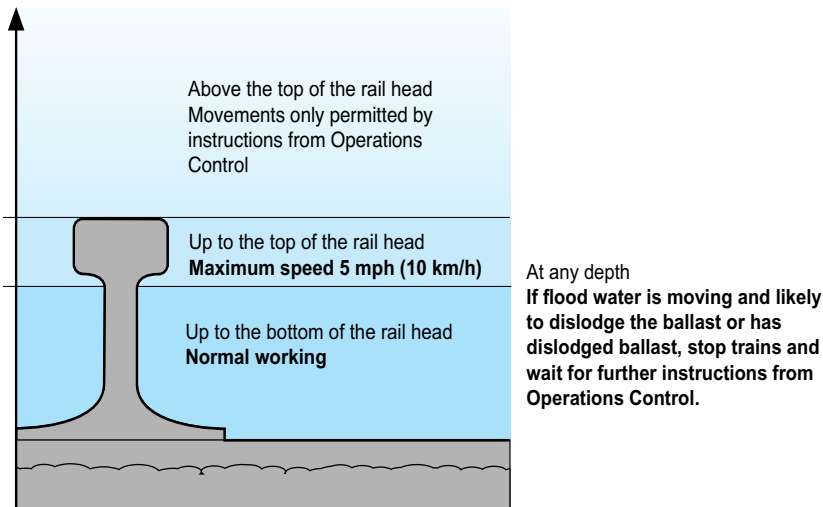


Diagram M3.1

4.2 Train running

signaller

When you receive a report of flood water, you must tell Operations Control immediately.

You must find out if the flood water:

- is up to the bottom of the rail head
- is up to the top of the rail head
- is above the top of the rail head
- is moving and likely to dislodge the ballast
- has dislodged the ballast.

As long as the flood water is not moving and likely to dislodge the ballast or the ballast has not been dislodged, you may allow trains to:

- continue normally if the water is up to the bottom of the rail head
- run at a maximum speed of 5 mph (10 km/h) if the water is no deeper than the top of the rail head.

If the water is deeper than the top of the rail head, you must:

- suspend the normal running of trains
- tell Operations Control and wait for further instructions.

5 Snow

The people responsible: driver, signaller

5.1 Reporting procedure

You must report to the signaller, stopping your train specially to do so if necessary, if you see any build up of snow that might affect the passage of trains. You must tell the signaller if you believe the snow is deeper than 200 mm (8 inches) above the top of the rail head.

driver

5.2 Train running

Normal running can take place unless you are told that snow is deeper than 200 mm (8 inches) above the top of the rail head.

signaller

If you are told that snow is deeper than 200 mm (8 inches) above the top of the rail head, you must:

- suspend the normal running of trains
- tell Operations Control and wait for further instructions.

6

Independent snow ploughs

*The person responsible: **signaller***

6.1 Working on adjacent lines

signaller

You must make sure that adjacent lines are clear of trains when ploughing is in progress.

You do not need to carry out this instruction when ploughs are set to push snow to the cess side only, as long as the person in charge of the ploughing has made sure that:

- there is no danger to trains on the other line, and
- you have been told about this arrangement.

6.2 Operating on electrified lines

signaller

Before ploughing starts on an electrified line, you must:

- tell the electrical control operator
- arrange for the electricity to be switched off on a line which has a conductor rail
- arrange for the electricity to be switched off on a line which has overhead line equipment, if the depth of snow is more than 900 mm (3 feet).



GE/RT8000/OTM
Rule Book

Working of on-track machines (OTM)

Issue 7

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Rail Safety and Standards Board

You will need this module if you carry out the duties of:

- a driver of an on-track machine
- an operator of an on-track machine
- a signaller.

Conventions used in the Rule Book	Example
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Section

1

When these instructions apply

2

Entering service

- 2.1 Before starting a journey
- 2.2 Carrying out a running brake test

3

OTM that cannot be relied upon to operate track circuits

- 3.1 Signalling the OTM
- 3.2 Reporting to the signaller
- 3.3 Passing over level crossings

4

Working outside a possession

- 4.1 Conditions for working outside a possession
- 4.2 Telling the signaller
- 4.3 Rail-grinding train

5

Working within a possession

- 5.1 Maintaining clearance from other lines
- 5.2 Driving position

1

When these instructions apply

*The people responsible: **driver, operator, signaller***

The instructions in this module apply to on-track machines (OTM) when under their own power. They are additional to all other instructions applying to train working shown in other modules.

**driver,
operator,
signaller**

These instructions also apply to OTM that is hauled into a possession by an engineering train, such as:

- track-relaying machines
- ballast cleaners
- rail-delivery trains
- rail cranes.

2 Entering service

*The person responsible: **driver***

2.1 Before starting a journey

driver

Before you start a journey on a running line, you must tell the signaller:

- the type of OTM
- its maximum speed
- whether it can be relied upon to operate track circuits.

2.2 Carrying out a running brake test

driver

You must test that the automatic brake is working effectively by carrying out a running brake test as shown in your train operating company instructions.

3

OTM that cannot be relied upon to operate track circuits

The people responsible: driver, signaller

3.1 Signalling the OTM

You must use the following special reporting numbers if the OTM cannot be relied upon to operate track circuits:

driver,
signaller

Reporting number	Maximum speed
6Z09	50 mph (80 km/h) or above
7Z09	40 (65 km/h) or 45 mph (70 km/h)
8Z09	35 mph (55 km/h) or less

3.2 Reporting to the signaller

If you are stopped at any stop signal when outside a possession, you must always tell the signaller immediately even though you may be able to see why the signal is at danger.

driver

You must tell the signaller when the OTM has passed clear of any location that the signaller has specified.

3.3 Passing over level crossings

Except for AHBC level crossings fitted with treadles, before passing over any automatic level crossing or a barrow or foot crossing with white light indications, you must:

driver

- approach the crossing at caution
- only pass over the crossing if it is safe to do so
- sound the horn until the OTM is on the crossing.

4 Working outside a possession

The people responsible: driver, signaller

4.1 Conditions for working outside a possession

**driver,
signaller**

This section does not apply to an OTM that is signalled as a normal train, such as track-recording vehicles and rail-head treatment trains.

You can allow an OTM to work outside a possession if all of the following apply.

- The OTM is a type that is allowed to work outside a possession.
- The work is a type that can be done outside a possession.
- The line is not a track circuit block line, an ERTMS line or an absolute block line where there is an intermediate block home signal.
- The work will not require wrong-direction movements (except as shown in 4.3).
- The work is not on the overhead line equipment.

4.2 Telling the signaller

driver

You must treat the OTM as a train requiring to stop in section as shown in section 40 of module TW1 *Preparation and movement of trains*.

You must tell the signaller the OTM will be working outside a possession.

signaller

If the driver of an OTM tells you that it will be working outside a possession, you must deal with this as a train requiring to stop in section.

4.3 Rail-grinding train

A rail-grinding train that is approved to work outside a possession can do this on any type of line.

If the rail grinding causes a lineside fire, you can make an unsignalled wrong-direction movement to return to put out the fire.

You can drive from a driving cab that is not the leading one when making this wrong-direction movement, as long as there is a competent person riding in the leading driving cab.

This competent person must keep a good look out and sound the horn as a warning to anyone on or near the line.

driver,
signaller

driver

5 Working within a possession

*The people responsible: **driver, operator***

5.1 Maintaining clearance from other lines

**driver,
operator**

You must make sure that the OTM, including any load, can work without fouling any other line on which a movement can take place.

If this is not possible the following will apply.

- If the line affected is a running line within a possession, you must make sure the affected portion of line is within a work site and the engineering supervisor (ES) or the safe work leader (SWL) for that work site has given you permission to foul that line.
- If the line affected is a running line not under possession, you must make sure that a controller of site safety (COSS) or SWL has arranged a blockage of the affected portion of line.
- If the line affected is a siding, you must make sure that the affected portion is under possession, and the person in charge of the siding possession (PICOS) has given you permission to foul that siding.

5.2 Driving position

**driver,
operator**

You can drive from another driving cab when an OTM is working within a work site as long as this forms part of the safe system of work shown in the method statement.

You must make sure that there is a competent person riding in the leading cab or controlling the movement from the ground.



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Single line working

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You will need this module if you
carry out the duties of a:

- driver
- pilotman
- signaller.

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Section

1

Principle

2

Setting up single line working

- 2.1 Appointment and identification of pilotman
- 2.2 Agreeing the arrangements
- 2.3 Pilotman's form
- 2.4 Signaller's form

3

After the forms have been dictated

- 3.1 Adjusting the protection for the obstructed line
- 3.2 Arranging additional protection for the obstructed line
- 3.3 When the obstructed line is protected by a line blockage
- 3.4 Controlling right-direction movements
- 3.5 Controlling wrong-direction movements
- 3.6 Dividing the single line
- 3.7 Securing points
- 3.8 Telling personnel affected

4

Completing the arrangements

- 4.1 Signaller confirming the arrangements
- 4.2 Pilotman allowing single line working to start

Section

5

Authority for movements

- 5.1 Pilotman's authority
- 5.2 Signaller's authority

6

Pilotman instructing drivers

- 6.1 Authorising movements in either direction
- 6.2 Additional instructions for wrong-direction movements
- 6.3 Driver's single line working ticket
- 6.4 Train worked by more than one locomotive at the front

7

Pilotman's duties during single line working

- 7.1 Travelling with the driver
- 7.2 Opening an intermediate signal box
- 7.3 Moving secured power-operated points

8

Signaller's duties during single line working

- 8.1 Clearing the controlling signal for right-direction movements
- 8.2 Speed restrictions
- 8.3 Moving secured power-operated points

Section

9

Driver's duties during single line working

- 9.1 Before entering the single line
- 9.2 Obeying handsignals
- 9.3 Right-direction movements
- 9.4 Wrong-direction movements
- 9.5 First train over the single line
- 9.6 Disposing of the driver's single line working ticket

10

Working of trains to and from the point of obstruction

- 10.1 Method
- 10.2 Protection arrangements
- 10.3 Travelling with the driver

11

Single line working on track circuit block lines where more than one running line is available

- 11.1 Method
- 11.2 Wrong-direction movements
- 11.3 Where conflicting movements can be avoided
- 11.4 Where conflicting movements cannot be avoided
- 11.5 Telling the driver

Section

12

Dealing with a failed train

- 12.1 If the pilotman is on the failed train
- 12.2 If the pilotman is not on the failed train
- 12.3 Getting permission from the pilotman

13

Change of pilotman or signaller

- 13.1 Change of pilotman
- 13.2 Change of signaller

14

Withdrawing single line working

- 14.1 Pilotman's authority
- 14.2 When the last train is clear of the single line
- 14.3 Resuming normal working
- 14.4 First train through the section

1

Principle

When one line of a double line becomes blocked, single line working by pilotman allows trains to travel over the other line in either direction.

2 Setting up single line working

The people responsible: pilotman, signaller

2.1 Appointment and identification of pilotman

You will be appointed by the Network Rail area operations manager to take charge of the arrangements for single line working.

pilotman

You must wear on your left arm a red armband with PILOTMAN in white letters.

2.2 Agreeing the arrangements

2.2.1 Before single line working can be introduced

Before single line working can be introduced, you must reach a clear understanding with each other and any other signaller involved about the arrangements which will apply.

pilotman,
signaller

You must agree with each other the time when the Pilotman's Single Line Working Form (RT3191) will be completed.

2.2.2 Information for the pilotman

You must remind the pilotman about any of the following and agree what arrangements will be applied, if they will be affected by the single line working:

signaller

- controlled level crossings which are protected by signals
- automatic level crossings
- barrow or foot crossings with white light indications
- unworked points
- intermediate signal boxes which are closed and at what time they will open.

signaller

You must tell the pilotman about any temporary or emergency speed restrictions that affect the single line or any train returning to the proper line.

You must also tell the pilotman if the obstructed line is:

- protected by a line blockage as shown in module TS1 *General signalling regulations*, regulation 13.2, or
- under possession as shown in module T3 *Possession of a running line for engineering work*, or
- occupied by a failed train which has been protected as shown in module M2 *Train stopped by train failure*.

2.2.3 Dealing with points

You must make sure that points worked by or released from your signal box are secured for the safety of facing movements if they are not fitted with a facing point lock.

You may ask the pilotman to have these points secured if they are remote from your signal box.

2.3 Pilotman's form

pilotman

At the agreed time, and only if the line to be used for single line working is clear, you must complete and sign a pilotman's single line working form.

You must then dictate your form to:

- the signaller controlling each crossover between which single line working is to apply
- the signaller at any intermediate signal box which is open.

You must enter the name of each signaller on your pilotman's form.

2.4 Signaller's form

You must complete a Signaller's Single Line Working Form (RT3192) when the pilotman dictates the details to you.

signaller

You must make a suitable entry in the Train Register.

3

After the forms have been dictated

The people responsible: pilotman, signaller

3.1 Adjusting the protection for the obstructed line

pilotman

If trains are to draw forward or set back at either end of the single line, you must make sure there is enough room between the crossover and any protection placed to protect the obstructed line.

If necessary, you must arrange for the position of the protection to be adjusted.

You must make sure that the position of any protection does not allow an electric train to reach a section which is isolated.

3.2 Arranging additional protection for the obstructed line

pilotman

You must also arrange for a possession limit board, or a red flag during daylight, or red light during darkness, to be placed in the four-foot of the obstructed line:

- at the exit end of a line under emergency protection
- on the approach to the obstruction where it is in the same signal section as the crossover and is protected only by the signal.

3.3 When the obstructed line is protected by a line blockage

pilotman

When the obstructed line is protected under a line blockage as shown in module TS1 *General signalling regulations*, regulation 13.2, you must not introduce single line working if the line blockage protection is in the same signal section as the crossover at either end.

This does not apply if the line blockage is beyond the facing crossover that will be used for single line working.

pilotman

3.4 Controlling right-direction movements

You must arrange for signals on the unobstructed line to be worked normally, wherever possible.

signaller

3.5 Controlling wrong-direction movements

3.5.1 Signaller controlling wrong-direction movements

You must control trains in the wrong direction by giving instructions to the pilotman and to handsignalers, if appointed. You must make sure these individuals clearly understand what to tell drivers and to work only to your instructions.

signaller

You must tell the handsignaller if the instructions for the train movement have already been given to the driver.

3.5.2 Arranging handsignalers

You must arrange for handsignalers to be positioned to control wrong-direction movements over the single line (see the table on page 12 and diagrams P1.1 and P1.2 on pages 13 and 14).

pilotman

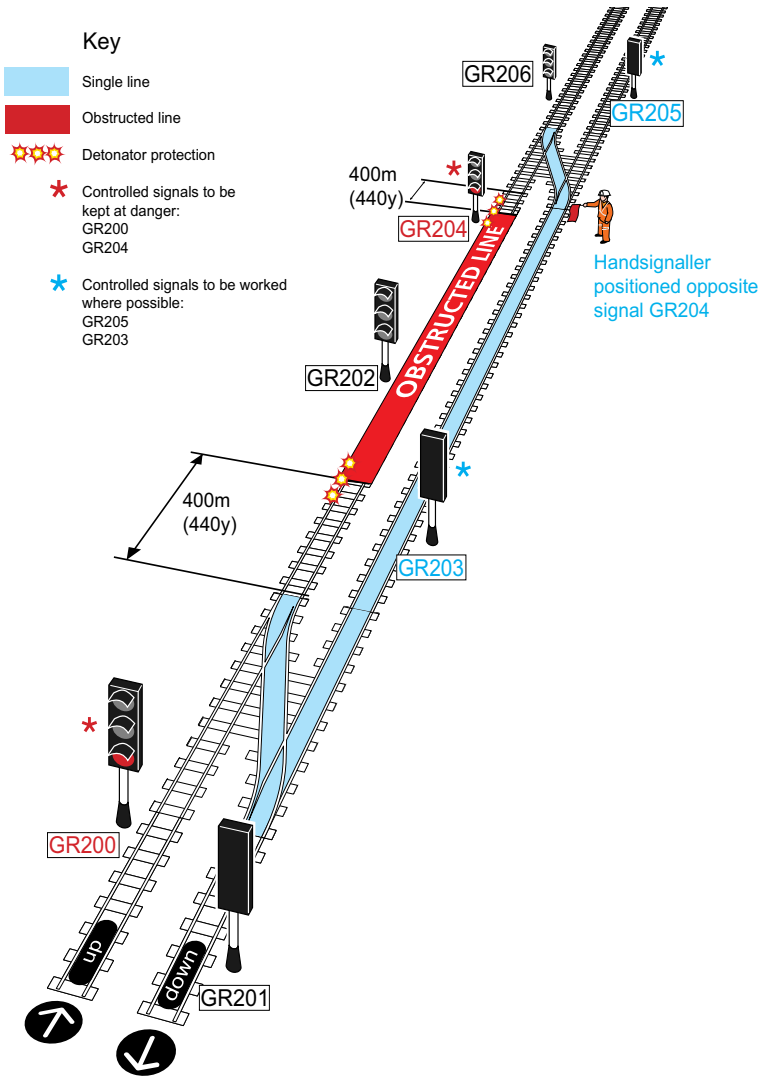
3.5.3 When a handsignaller is not required

You do not need to position a handsignaller to control wrong-direction movements back to the proper line if:

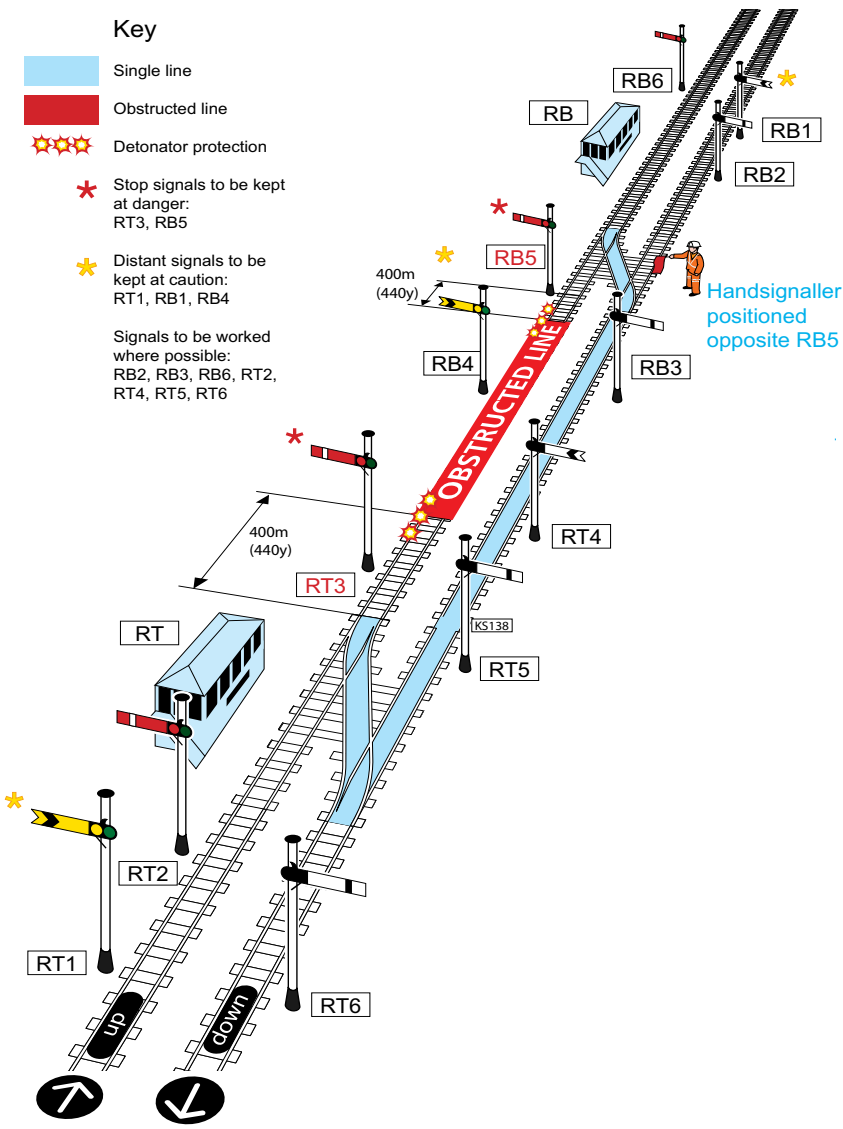
- a main aspect signal which applies to trains leaving the single line is provided at the crossover, or
- you travel with every train over the single line in the wrong direction.

You do not need to position a handsignaller at an intermediate signal box that is open, if you have agreed with the signaller that the handsignal will be displayed from the signal box.

Location		Handsignal for driver to proceed
Signals	On a track circuit block line - opposite the signal protecting the crossover where trains return to the proper line. (See diagram P1.1 on page 13.)	Yellow (Only if a handsignaller is provided.)
	On an absolute block line - opposite the home signal which is worked from the same signal box that controls the crossover where trains return to the proper line. (See diagram P1.2 on page 14.)	Yellow (Only if a handsignaller is provided.)
	Opposite any other signal where trains might have to stop.	Yellow
Level crossing	At an AHBC under local control.	Green
	At a CCTV, OD or RC level crossing where an attendant is appointed.	Green
	At any manned level crossing protected by signals.	Green
	At any controlled level crossing protected by signals where the handsignal is shown opposite the signal protecting the level crossing.	Yellow
	Note: No handsignal will be given at: <ul style="list-style-type: none"> • a CCTV, OD or RC level crossing where an attendant is not appointed • any manned level crossing protected by signals where the normal position of the barriers or gates is across the road. 	
Signal box	At an intermediate signal box unless it is closed.	Yellow
Points	At unworked points when approaching in the facing direction.	Green (Placed on the ground next to the points.)



Example of typical possession with single line working arrangements - track circuit block line
Diagram P1.1



Example of typical possession of single line working arrangements - absolute block line
Diagram P1.2

3.5.4 During poor visibility

Unless a main aspect signal is provided, you must always position a handsignaller to control wrong-direction movements back to the proper line during poor visibility.

pilotman

3.5.5 Shunting signals and position-light signals

If possible, you must work these signals normally to control wrong-direction movements.

signaller

You must find out if any of these signals will not be able to be worked for movements over the single line.

pilotman

3.6 Dividing the single line

a) In a track circuit block area

You may divide the single line into two sections for wrong-direction movements as long as:

pilotman

- this arrangement is authorised in the *Signal Box Special Instructions*
- this arrangement is authorised by the Network Rail area operations manager
- an intermediate handsignaller is appointed as shown in the *Signal Box Special Instructions*.

b) In an absolute block area

You may divide the single line for wrong-direction movements at each intermediate signal box that is open.

3.7 Securing points

3.7.1 Unworked points on the single line

pilotman

You must make sure that these points:

- are secured and padlocked for the safety of movements over them
- have a green flag or green light placed alongside them which is clearly visible to the drivers of all wrong-direction movements.

3.7.2 Points worked from a closed intermediate signal box

If any points worked from an intermediate signal box which is closed are facing to movements, you must make sure they are secured and padlocked for the safety of trains travelling over the single line in the wrong direction.

3.7.3 Remote points

You must arrange to secure any points which become facing, that are remote from the signal box.

You must arrange to secure and padlock any power-operated points on the single line over which movements are to be authorised at a greater speed than 15 mph (25 km/h), as shown in section 6.2.

3.7.4 Checking points secured by anyone else

If anyone else has secured points, you must personally check that they have been properly secured before the first train passes over them in the facing direction.

You may do this while accompanying the first train over the single line. If you do, you must tell the driver to stop the train before each set of points.

3.8 Telling personnel affected

3.8.1 Person in charge of any station

You must arrange to tell the person in charge of any station where the platform working will be affected that you are introducing single line working.

pilotman

3.8.2 Personnel working on or near the line used for single line working

You must tell anyone working on or near the line which is being used for single line working that single line working is in operation and which line is being used. You must do this:

- while accompanying the first train over the single line, or
- if you are not accompanying that train, by instructing the driver to stop and tell them.

You do not need to do this if the single line working is published in the *Weekly Operating Notice* and the details have not changed.

3.8.3 Crossing keepers

You must make sure that crossing keepers are told about the arrangements for the single line working and for the working of block indicators, where provided. If necessary, you may do this while accompanying the first train.

4 Completing the arrangements

*The people responsible: **signaller, pilotman***

4.1 Signaller confirming the arrangements

signaller

You must tell the pilotman when you have made all your arrangements.

When the pilotman tells you that single line working can start, you must make a suitable entry in the Train Register.

4.2 Pilotman allowing single line working to start

pilotman

You must make sure all arrangements have been made before you allow single line working to start.

You must tell each signaller:

- when you have made all your arrangements
- the precise location of each handsignaller
- that single line working can start.

5 Authority for movements

The people responsible: pilotman, signaller

5.1 Pilotman's authority

You must:

- be present and personally authorise movements which will enter or foul the single line (except as shown in section 5.2)
- before authorising the movement, get permission from the signaller who controls the entrance to the single line
- get the signaller's permission before authorising a driver to pass any signal at danger.

pilotman

5.2 Signaller's authority

You may authorise a movement to pass to and from an unaffected route at a junction at the end of the single line. In this case:

- you may work signals normally
- you do not need to tell the driver that single line working applies.

signaller

You may authorise a train to pass through a trailing crossover which is on the approach to the obstruction.

You may authorise an assisting train to enter or foul the single line without the pilotman being present, as long as you have the pilotman's permission.

If you are the signaller at an intermediate signal box, you must not allow a train to enter or foul the single line unless the pilotman is present.

6

Pilotman instructing drivers

The person responsible: pilotman

6.1 Authorising movements in either direction

pilotman

Before authorising a movement to enter the single line in either direction, you must tell the driver:

- over which line the single line working applies, and
- between which crossovers.

If there is more than one crossover at either end of the section, you must make sure the driver clearly understands which crossover is being used for single line working.

You must instruct the driver to pass over any AHBC that is under local control only if authorised by a green handsignal shown at the crossing.

6.2 Additional instructions for wrong-direction movements

pilotman

Before authorising a movement over the single line in the wrong direction, you must also tell the driver about any of the following that apply.

a) Signalling arrangements

You must tell the driver:

- the location of any intermediate handsignaller
- if a main aspect signal will be used to control movements back to the proper line
- the location of any handsignaller placed to control movements back to the proper line.

If there is no main aspect signal or handsignaller to control movements back to the proper line, you must accompany the train and instruct the driver to stop the train and contact the signaller:

pilotman

- on a TCB line, opposite the signal which applies to the obstructed line protecting the crossover where trains return to the proper line
- on an absolute block line, opposite the home signal worked from the signal box controlling that crossover.

b) Level crossing arrangements

CCTV, OD or RC level crossing at which no attendant has been appointed

You must instruct the driver to:

- approach the crossing at caution
- pass over the crossing only if it is safe to do so.

Manned level crossing

You must instruct the driver to pass over any manned level crossing only if either of the following conditions apply.

- Crossing protected by signals - pass over only when authorised by a handsignal shown at the crossing.
- Crossing where the normal position of the barriers or gates is across the road - pass over when the driver is sure that the crossing is closed to road traffic.

Level crossing with red and green warning lights

Unless wrong-direction controls are provided, you must instruct the driver to:

- stop short of the level crossing
- sound the horn
- pass over the crossing only if it is safe to do so.

pilotman

Barrow or foot crossing with white-light indications

Unless wrong-direction controls are provided, you must instruct the driver to approach at caution and not pass over the crossing unless it is safe to do so.

c) Points and crossings arrangements

You must tell the driver of each train to approach at caution all points, switch diamonds and swing-nose crossings and to check, if possible, they are in the correct position and not to exceed 15 mph (25 km/h) over them if:

- the points are mechanically operated
- the points are unworked
- power-operated points have not been secured and padlocked.

Where power-operated points have been secured and padlocked

You must tell the driver of the first train to approach at caution all points, switch diamonds and swing-nose crossings and check, if possible, they are in the correct position and not to exceed 15 mph (25 km/h) over them.

You must tell the driver of each subsequent train about the location of any points, switch diamonds or swing-nose crossings over which speed must be reduced below 50 mph (80 km/h) (including the crossovers leading to and from the single line) and what speed is to apply.

d) Other information

You must remind the driver about any temporary speed restrictions.

You must tell the driver about:

- emergency speed restrictions
- intermediate signal boxes which are closed.

6.3 Driver's single line working ticket

After you have given the driver all the necessary instructions, you must give the driver a completed Driver's Single Line Working Ticket (RT3193).

pilotman

You do not need to do this if the train is to enter the single line to:

- assist a failed train
- evacuate passengers from a failed train
- remove a portion of a divided train
- remove a train or vehicles that have proceeded without authority.

6.4 Train worked by more than one locomotive at the front

If the train is worked by more than one locomotive at the front, you must:

pilotman

- give the necessary instructions to each driver
- show the driver's ticket to each driver
- give the ticket to the driver of the leading locomotive.

7

Pilotman's duties during single line working

The person responsible: pilotman

7.1 Travelling with the driver

pilotman

Unless there is another train to follow, you must ride with the driver in the leading cab.

When you arrive at the other end of the single line, you must:

- collect the cancelled driver's ticket
- immediately tell the signaller that you have arrived.

7.2 Opening an intermediate signal box

pilotman

Before allowing an intermediate signal box to open, you must dictate a single line working form to the signaller.

7.3 Moving secured power-operated points

pilotman

If the signaller tells you that it is necessary to move power-operated points that have been secured and padlocked to permit movements at greater than 15 mph (25 km/h), you must arrange to release them.

When the points have again been secured, you must treat the next train to proceed in the wrong direction as the first train, as shown in section 6.2 c).

8

Signaller's duties during single line working

*The person responsible: **signaller***

8.1 Clearing the controlling signal for right-direction movements

Before you clear the signal controlling the entrance to the single line for right-direction movements, you must make sure the pilotman has given the driver the necessary instructions.

signaller

8.2 Speed restrictions

You must tell the pilotman about any temporary or emergency speed restrictions that are introduced during single line working that will:

signaller

- apply on the single line
- affect any train returning to the proper line.

8.3 Moving secured power-operated points

If it becomes necessary to move power-operated points which have been secured and padlocked to permit movements at greater than 15 mph (25 km/h), you must tell the pilotman.

signaller

9 Driver's duties during single line working

The person responsible: driver

9.1 Before entering the single line

driver

Before entering the single line, you must make sure that you:

- can properly identify the pilotman who will wear the PILOTMAN armband
- clearly understand all the instructions the pilotman has given you
- have the personal authority of the pilotman to enter the single line.

You must also make sure the pilotman has given you a Driver's Single Line Working Ticket (RT3193). However, you do not need this ticket if your train is to enter the single line to:

- assist a failed train
- evacuate passengers from a failed train
- remove a portion of a divided train
- remove a train or vehicles that have proceeded without authority.

If the train is being worked by more than one locomotive at the front, the pilotman will show the driver's ticket to each driver and then give the ticket to the driver in the leading cab.

9.2 Obeying handsignals

driver

When instructed by the pilotman, you must make sure you clearly understand at which locations your train will be controlled by a handsignal (see table on page 12).

You must stop at each of these locations unless a proceed handsignal is shown.

9.3 Right-direction movements

You must obey each signal when travelling over the single line in the right direction.

driver

You do not need to travel at any reduced speed, other than at locations where you must proceed at caution or as described in section 9.5.

9.4 Wrong-direction movements

9.4.1 Controlling movements

Your train movement in the wrong direction will be controlled by handsignals, except where it is possible for shunting or position light signals to be worked. A handsignaller will not be provided if there is a main aspect signal to return the train to the proper line at the end of the single line.

driver

9.4.2 Train speed

You must not exceed 50 mph (80 km/h), or the permissible speed if lower.

9.4.3 Signals on the obstructed line

You must disregard fixed signals on the obstructed line, except:

- on a TCB line, the signal protecting the crossover where trains return to the proper line
- on an absolute block line, the home signal worked from the signal box controlling that crossover.

9.4.4 Level crossings

When approaching any level crossing, not fitted with wrong-direction controls, you must carry out the pilotman's instructions (see section 6.2 b).

9.4.5 Returning to the proper line

driver

If there is no main aspect signal or handsignaller to control wrong-direction movements returning to the proper line, the pilotman will accompany you and will instruct you to stop the train:

- on a TCB line, opposite the signal which applies to the obstructed line protecting the crossover where trains return to the proper line
- on an absolute block line, opposite the home signal worked from the signal box controlling that crossover.

If the crossover where trains return to the proper line is facing to movements, you must:

- get the signaller's permission for your train to proceed over the crossover, or
- if a signal is provided for the movement, proceed when the signal is cleared.

If the crossover is trailing to movements, you must ask the signaller for instructions about drawing forward and then setting back over the crossover to return to the proper line.

9.5 First train over the single line

a) When accompanied by the pilotman

driver

If you are the driver of the first train over the single line, you must stop, if instructed to do so, to allow the pilotman to:

- tell anyone who is working on or near the line used for the single line working that single line working has been introduced
- tell any crossing keeper about the single line working arrangements
- check that points are properly secured.

b) When not accompanied by the pilotman

If you are the driver of the first train over the single line you must, if instructed by the pilotman before you entered the single line, stop and tell anyone who is working on or near the line used for single line working:

driver

- that single line working has been introduced, and
- the line over which it applies.

9.6 Disposing of the driver's single line working ticket

a) When accompanied by the pilotman

On reaching the end of the single line you must:

driver

- cancel your ticket by writing 'CANCELLED' across it
- give the ticket to the pilotman.

b) When not accompanied by the pilotman

You do not need to stop at the end of the single line to give up the ticket unless specially instructed to do so. However, you must:

- as soon as possible, cancel the ticket by writing 'CANCELLED' across it
- hand in the ticket as shown in your company's instructions.

10

Working of trains to and from the point of obstruction

The person responsible: pilotman

10.1 Method

pilotman

When both lines of a double line are blocked and trains are required to work to and from the point of obstruction, you must introduce single line working arrangements over one line only.

You must make sure the single line working forms and tickets are amended to reflect this method of working.

If there is another signaller involved on the other side of the obstruction, you must tell that signaller when arrangements for working trains to and from the point of obstruction have been introduced and withdrawn.

This arrangement can be introduced on both sides of the obstruction, but separate pilotmen will need to be appointed for each side.

10.2 Protection arrangements

pilotman

You must make sure one of the following is provided at the place where trains will have to stop on the approach to the obstruction.

- A signal kept at danger.
- Emergency protection as described in module M1 *Dealing with a train accident or train evacuation* or handbook 2 *Instructions for track workers who use emergency protection equipment*.
- Possession protection as described in module T3 *Possession of a running line for engineering work*.

If the emergency protection or possession protection has already been placed, you must, if necessary, arrange for that protection to be moved to a more suitable location.

10.3 Travelling with the driver

For each train to travel over the single line, you must:

- issue a driver's ticket to the driver
- accompany the driver.

pilotman

11

Single line working on track circuit block lines where more than one running line is available

The people responsible: pilotman, signaller

Note: the locations, signal numbers and point numbers given in this section refer to the example of typical arrangements shown in diagram P1.3 on page 33.

11.1 Method

pilotman

You may introduce single line working over one of the unobstructed lines if all the following apply.

- There are more than two running lines.
- All lines in one direction are blocked.
- Two or more lines in the opposite direction remain open.

You must arrange for:

- trains running in the normal direction to travel over an unobstructed line that is not being used for single line working
- trains that cannot run in the normal direction, because of the blockage, to travel over the single line under single line working arrangements as set out in this module.

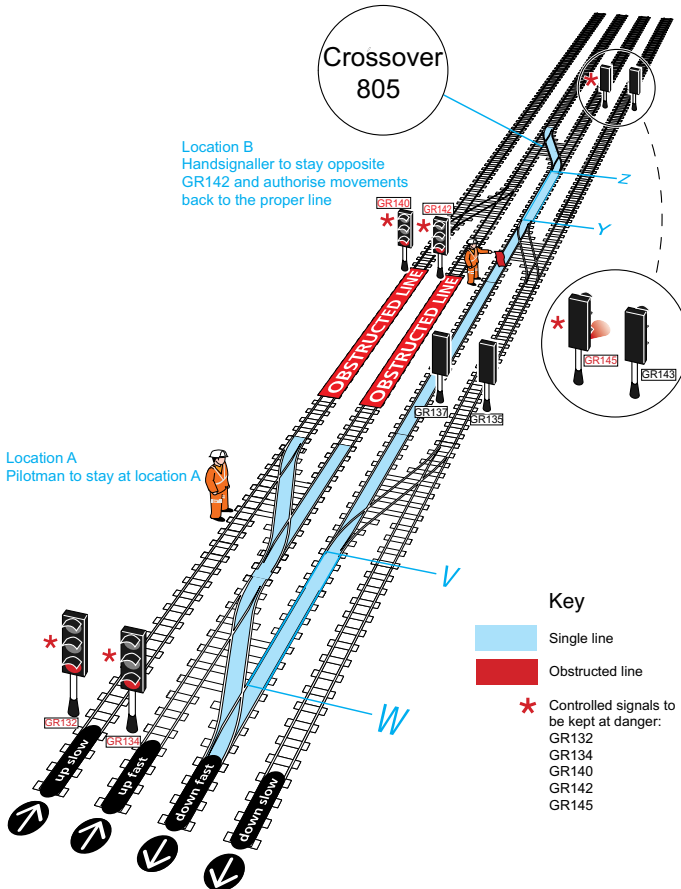
You must arrange for single line working forms and tickets to be amended to reflect the method of working.

11.2 Wrong-direction movements

pilotman

You must arrange for trains arriving at location A on the up fast or up slow line, to proceed under your authority over the down fast line under single line working arrangements, as far as crossover 805 at location B where they must return to the proper line.

- Up trains** Must pass over the down fast line under single line working on the authority of the pilotman at location A.
- Down trains** Must pass normally over the down slow line.



Example of typical single line working arrangements on TCB lines where more than one running line is available

Diagram P1.3

11.3 Where conflicting movements can be avoided

signaller

Whenever possible, to avoid trains travelling in the right direction conflicting with trains travelling in the wrong direction, you must:

- divert trains travelling in the right direction to another line before they reach the single line working
- allow these trains to continue on that line beyond the single line working.

You must not give permission to the pilotman to authorise an up train to leave location A, unless:

- the crossover is set, and where necessary, secured in the correct position
- the line is clear up to the overlap of the next signal beyond crossover 805 at location B.

11.4 Where conflicting movements cannot be avoided

pilotman, signaller

Where conflicting movements cannot be avoided, the following arrangements must be applied.

a) Positioning a handsignaller

pilotman

You must position a handsignaller opposite GR142 signal at location B.

b) Giving permission for up trains to leave location A

signaller

You must not give permission to the pilotman to authorise an up train to leave location A unless:

- the line is clear to a point 183 metres (200 yards) beyond the handsignaller located opposite GR142
- you have not authorised any conflicting movement within this distance.

c) Giving permission for up trains to pass GR142 at location B

You may give permission for the handsignaller located opposite signal GR142 to authorise an up train to return to the proper line as long as:

signaller

- the crossover is set, and where necessary, secured in the correct position
- the line is clear up to the overlap of the next signal beyond crossover 805
- you have not authorised any conflicting movement.

d) Authorising the movement of down trains at location B

You do not need to be present at location B to authorise movements of trains between Z and Y.

pilotman

You do not need permission from the pilotman before you authorise a down train to pass signal GR145 at danger to proceed between Z and Y to cross to the down slow line.

signaller

e) Authorising down trains at location A

You do not need permission from the pilotman before you authorise a down train to cross from the down slow line to the down fast line between V and W.

11.5 Telling the driver

If the single line working arrangements have not been published in the *Weekly Operating Notice*, you must tell the driver of each train travelling in the normal direction that trains on the adjoining line may be running in the opposite direction.

signaller

12 Dealing with a failed train

The people responsible: pilotman, signaller

12.1 If the pilotman is on the failed train

pilotman

You must tell the signaller about the circumstances, giving the location of the failed train.

If assistance is required, you must arrange with the signaller for this to be provided. If the driver asks you to do so, you may carry out the appropriate protection as shown in module M2 *Train stopped by train failure*.

You must get the signaller's permission before making any movement if the train is to return to the same end of the single line from which it entered.

12.2 If the pilotman is not on the failed train

pilotman

You must travel with the assisting train if:

- the assistance is to come from the rear, and
- the failed train is to be withdrawn to the rear.

12.3 Getting permission from the pilotman

signaller

You must get permission from the pilotman before authorising an assisting train to proceed onto the single line.

13

Change of pilotman or signaller

*The people responsible: **pilotman, signaller***

13.1 Change of pilotman

When you are relieved, you must:

- make sure the new pilotman understands the arrangements for single line working
- tell each signaller the name of the new pilotman.

pilotman

Once you have been relieved, you must not ride in the driving cab of any train over the single line.

If you are the new pilotman, you must sign the pilotman's form.

You must record the name of the new pilotman and the time on your signaller's form.

signaller

13.2 Change of signaller

When you are relieved, you must make sure the new signaller understands the arrangements for single line working, and signs the signaller's form in your presence.

signaller

If you are the new signaller, you must tell the pilotman your name as soon as possible.

You must record the new signaller's name and the time on your pilotman's form.

pilotman

14

Withdrawing single line working

The people responsible: driver, pilotman, signaller

14.1 Pilotman's authority

pilotman

Only you can authorise the withdrawal of single line working.

You can authorise single line working to be withdrawn before the obstructed line is clear if:

- the arrangements have been published, or
- you have agreement from Operations Control.

You must tell each signaller immediately when single line working is to be withdrawn.

14.2 When the last train is clear of the single line

pilotman

You must withdraw the arrangements for single line working that apply as follows:

a) Protection and signalling

You must arrange for any:

- handsignalers to be withdrawn
- secured points to be released
- green flags or green lights to be removed
- red flags or red lights provided under section 3.2 of this module to be removed.

b) Station working

You must arrange to tell the person in charge at any station where the platform working was affected:

- that single line working has been withdrawn
- whether the obstructed line is open or is to stay blocked.

c) Level crossings

You must arrange to tell any crossing keeper affected:

- that single line working has been withdrawn
- whether the obstructed line is open or is to stay blocked.

If the crossing keeper cannot be told, you must arrange for the driver of the first train through the section to be instructed to stop at the crossing and tell the crossing keeper.

pilotman

d) Personnel working on or near the line used for single line working

You must arrange for the driver of the first train that is to proceed after single line working is withdrawn, to stop and tell anyone who is working on or near the line which is being used for single line working:

- that single line working has been withdrawn
- whether the obstructed line is open or is to stay blocked.

You do not need to do this if the single line working is published in the weekly operating notice and the details, including the time single line working is withdrawn, have not changed.

e) Obstructed line

You must tell the individual working alone (IWA), controller of site safety (COSS) or safe work leader (SWL), as appropriate, that single line working has been withdrawn, if work on the obstructed line is to continue:

- under line blockage as shown in module TS1 *General signalling regulations* regulation 13.2, Handbook 8 *IWA, COSS or PC blocking a line* or Handbook 21 *Safe work leader (SWL) blocking a line*, or
- under possession as shown in module T3 *Possession of a running line for engineering work*.

14.3 Resuming normal working

pilotman

When the single line working arrangements have been withdrawn, you must:

- tell each signaller involved to cancel their form
- confirm with each signaller that they have done this
- cancel your pilotman's form.

signaller

You can allow normal working to resume when you have cancelled your signaller's form and told the pilotman.

Where single line working had been introduced on both sides of an obstruction, you must not resume normal working until you have been told by the pilotmen on both sides of the obstruction that single line working is withdrawn.

You must make a suitable entry in the Train Register.

pilotman, signaller

You must forward your cancelled single line working forms and driver's tickets as shown in company instructions.

14.4 First train through the section

driver

If you are the driver of the first train through the section, if instructed by the signaller to do so, you must stop to tell anyone working on or near the line that was used for single line working:

- that single line working has been withdrawn
- whether the obstructed line is open or is to stay blocked.

If instructed, you must also stop and tell any crossing keeper.



GE/RT8000/P2
Rule Book

Working single and bi-directional lines by pilotman

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You will need this module if you
carry out the duties of a:

- driver
- pilotman
- signaller.

Conventions used in the Rule Book	Example
A black line in the margin indicates a change to that rule and is shown when published in the module for the first time.	
Green text in the margin indicates who is responsible for carrying out the rule.	driver
A white i in a blue box indicates that there is information provided at the bottom of the page.	
<div style="border: 2px solid red; padding: 5px;">A rule printed inside a red box is considered to be critical and is therefore emphasised in this way.</div>	

Section

1

When working by pilotman must be introduced

- 1.1 Circumstances
- 1.2 Exceptions

2

Setting up working by pilotman

- 2.1 Appointment and identification of the pilotman
- 2.2 Agreeing the arrangements
- 2.3 Completing the pilotman's and signaller's forms
- 2.4 Where there is no communication between signal boxes
- 2.5 Putting the token out of use
- 2.6 Working of ground frames
- 2.7 Completing the arrangements

3

During working by pilotman

- 3.1 Authority for movements
- 3.2 Pilotman instructing drivers
- 3.3 Entering the single-line section
- 3.4 Train worked by more than one locomotive at the front
- 3.5 Pilotman travelling with the driver
- 3.6 Travelling over the single line
- 3.7 Arriving at the other end of the single line
- 3.8 Recording in the Train Register
- 3.9 Change of pilotman or signaller

Section

4

Working by pilotman to and from the point of obstruction

5

Dealing with a failed train

- 5.1 If the pilotman is on the failed train
- 5.2 If the pilotman is not on the failed train
- 5.3 Getting permission from the pilotman

6

Withdrawing working by pilotman

- 6.1 Pilotman's actions
- 6.2 Signaller's actions

7

Modified working arrangements

- 7.1 Where modified working can be used
- 7.2 Before introducing modified working
- 7.3 If more than one signaller is involved
- 7.4 Signaller instructing the driver
- 7.5 Completing a driver's ticket
- 7.6 When the train enters the single line
- 7.7 Travelling over the single line
- 7.8 Train failure on the single line
- 7.9 Arriving at the other end of the single line
- 7.10 When another train is to pass
- 7.11 Intermediate signal boxes or sidings
- 7.12 Changing to working by pilotman

1

When working by pilotman must be introduced

1.1 Circumstances

Except as shown in section 1.2, working by pilotman must be introduced when any of the following applies.

- a) **The token has been lost.**
- b) **Trains have to work to and from the point of obstruction.**
- c) **The signal controlling the entrance to a single or bi-directional line cannot be cleared or a movement authority (MA) cannot be received by a train for any of the following reasons.**
 1. The signal or signalling equipment has failed or has been disconnected.
 2. A track circuit has failed.
 3. Level-crossing equipment has failed.
 4. The token instrument has failed.

1.2 Exceptions

1.2.1 Modified working

Working by pilotman is not needed in any of the circumstances listed in sections 1.1 a) and 1.1 c) if modified working arrangements are authorised.

1.2.2 Other exceptions

The exception to section 1.1 b) is as follows.

Working by pilotman is not needed on one side of the obstruction on a line worked with a token if a token is available and trains can be worked under the instructions for a single line with a train staff.

The exceptions to section 1.1 c) are as follows.

1. The signal or signalling equipment has failed or has been disconnected

Working by pilotman is not needed on:

- lines where a token is provided and the driver has the token
- track circuit block lines or ERTMS lines if all the track circuits relating to the affected portion of single line are clear.

2. A track circuit or signalling equipment has failed

Working by pilotman is not needed:

- on lines where a token is provided and the driver has the token
- on bi-directional lines if trains are allowed to proceed in one direction only
- on track circuit block or ERTMS lines if authorised in the *Sectional Appendix*.

3. Level-crossing equipment has failed

Working by pilotman is not needed:

- on lines where a token is provided and the driver has the token
- on track circuit block or ERTMS lines if authorised in the *Sectional Appendix*
- on track circuit block or ERTMS lines if all track circuits relating to the affected portion of single line are clear.

4. The token instrument has failed

Working by pilotman is not needed on a line worked with a token if a token is available and trains can be worked under the instructions for a single line with a train staff.

2 Setting up working by pilotman

*The people responsible: **pilotman, signaller***

2.1 Appointment and identification of the pilotman

pilotman

You will be appointed by the Network Rail area operations manager.

You must wear on your left arm a red armband with PILOTMAN in white letters.

2.2 Agreeing the arrangements

pilotman, signaller

Before introducing working by pilotman, you must reach a clear understanding with each other and any other signaller concerned about:

- the arrangements which will apply
- the time when the Pilotman's Form for Working Single and Bi-directional Lines by Pilotman (RT3154 or RT3154 ERTMS) will be completed
- which signals will need to be passed at danger
- which signals must be obeyed
- which ends of authority (EoA) will need to be passed without an MA
- the EOAs at which an MA must be received
- any instructions about level crossings
- any other relevant instructions.

2.3 Completing the pilotman's and signaller's forms

a) Pilotman's form

At the agreed time, and only when the line is clear, you must:

- complete and sign your pilotman's form
- dictate it to each signaller who controls an entrance to the single-line section
- enter the name of each signaller on your form.

pilotman

b) Signaller's form

You must complete your Signaller's Form for Working of Single and Bi-directional Lines by Pilotman (RT3155 or RT3155 ERTMS), as dictated by the pilotman.

signaller

2.4 Where there is no communication between signal boxes

Where another signal box is involved and there is no means of communicating with it, you must tell the pilotman.

signaller

You must go to each signal box to dictate the pilotman's form. You must not use a train for this purpose.

pilotman

After the forms for working by pilotman have been dictated at one end of the single-line section, normal working must not resume until these forms have been cancelled by the pilotman. This applies even if the equipment has been repaired or found to be in working order.

pilotman,
signaller

2.5 Putting the token out of use

pilotman

Where the line is worked with a token, you must get an assurance from the signallers at both ends of the section that the token has been restored to the token instrument.

You must get the token from the signaller if it is needed to operate a ground frame.

If the token is at the signal box at the other end of the section, you must get an assurance from the signaller at that end that the token has been secured in a safe place. You must get the token as soon as you arrive.

If you have the token, you must keep it with you until one of the following applies:

- you are relieved by another pilotman
- the signalling technician needs it
- normal working is resumed.

2.6 Working of ground frames

a) Ground frames released by the token

pilotman

You must get the token from the signaller if it is needed to operate a ground frame.

If a token is not available, the signaller will arrange for the signalling technician to attend to release it. You must show the signalling technician your pilotman's form.

You must keep the token until normal working is to be resumed or the signalling technician needs it.

b) Other ground frames

If a ground frame needs to be released, the signaller will arrange for the signalling technician to unlock it.

pilotman

You must be present at the ground frame when it is unlocked and stay at the ground frame until the signalling technician has locked it.

2.7 Completing the arrangements

You must make sure all of the requirements of this section have been completed before authorising the first train to travel over the single-line section.

pilotman

You must make a suitable entry in the Train Register.

signaller

You may then start working by pilotman.

**pilotman,
signaller**

3 During working by pilotman

The people responsible: driver, pilotman, signaller

3.1 Authority for movements

a) Pilotman's authority

pilotman

You must:

- be present and personally authorise movements which will enter or foul the single-line section (except as shown in section 3.1 b)
- before authorising the movement, get permission from the signaller who controls the entrance to the single-line section
- get the signaller's permission before authorising a driver to pass any signal at danger or any EoA without an MA.

b) Signaller's authority

signaller

As long as you have the permission of the pilotman, you may authorise a movement of an assisting train to enter an occupied single-line section without the pilotman being present.

3.2 Pilotman instructing drivers

pilotman

When the signaller has given permission for the train to enter the single-line section, you must:

- tell the driver why working by pilotman has been introduced
- give the driver any necessary instructions
- give the driver a completed Driver's Ticket for Working of Single and Bi-directional lines by Pilotman (RT3156 or RT3156 ERTMS)
- instruct the driver to pass at danger the signal controlling the entrance to the single-line section, or to pass an EoA at the entrance to the single-line section without an MA.

You do not need to complete a driver's ticket if the train is to enter a one-train working line, or is to enter the single-line section to:

pilotman

- assist a failed train
- evacuate passengers from a failed train
- remove a portion of a divided train
- remove a train or vehicles that have proceeded without authority.

3.3 Entering the single-line section

a) Before entering the single-line section

Before entering the single-line section, you must make sure:

driver

- you can properly identify the pilotman who will wear the PILOTMAN armband
- you clearly understand all the instructions the pilotman has given to you
- you have the personal authority of the pilotman to enter the single-line section
- the pilotman has given you a Driver's Ticket for Working Single and Bi-directional Lines by Pilotman (RT3156 or RT3156 ERTMS), except as shown in section 3.3 b).

b) Entering the single-line section without a driver's ticket

You do not need a driver's ticket if your train is to enter a one-train working line, or is to enter the single-line section to:

- assist a failed train
- evacuate passengers from a failed train
- remove a portion of a divided train
- remove a train or vehicles that have proceeded without authority.

The signaller will authorise you to enter the occupied single-line section if the pilotman is not present.

3.4 Train worked by more than one locomotive at the front

pilotman

If the train is worked by more than one locomotive at the front, you must:

- give the necessary instructions to each driver
- show the driver's ticket to each driver
- give the driver's ticket to the driver of the leading locomotive.

3.5 Pilotman travelling with the driver

pilotman

You must ride with the driver in the leading cab, unless you are to travel on a following train.

If you need the train to stop at the end of the single-line section, you must instruct the driver to do so.

You must accompany every train:

- during a complete block failure if there is no communication between signal boxes
- on a one-train working line
- where you are told that the signaller cannot make sure that the single-line section is clear after the passage of each train.

3.6 Travelling over the single line

driver

You must carry out the instructions shown on your driver's ticket.

You may travel at the permissible speed except when the driver's ticket states otherwise.

The arrangements for working by pilotman must continue to apply until the train reaches the end of the pilotman working section even if you receive an MA during the movement.

3.7 Arriving at the other end of the single line

When you reach the other end of the single-line section, you must cancel your driver's ticket by writing 'CANCELLED' across it and then hand it to the pilotman.

driver

If the pilotman is not with you, you do not have to stop unless the pilotman has instructed you to do so. If you have been instructed to stop, you must tell the signaller that your train has arrived complete with tail lamp.

If you do not have to stop, you must cancel your driver's ticket at the first opportunity, and hand it in as shown in your company instructions.

You must collect the cancelled driver's ticket from the driver and immediately tell the signaller that you have arrived.

pilotman

On a one-train working line where it is not normally necessary to ask the signaller's permission to start the return journey, you do not need to tell the signaller that you have arrived.

3.8 Recording in the Train Register

You must record the time that the train enters and leaves the single-line section in the Train Register, even if you do not normally record these times.

signaller

Working single and bi-directional lines by pilotman

3.9 Change of pilotman or signaller

a) Change of pilotman

pilotman

When you are relieved, you must:

- make sure the new pilotman understands the arrangements for working by pilotman
- tell each signaller the name of the new pilotman
- not ride in the driving cab of any train over the single-line section.

If you are the new pilotman, you must sign the pilotman's form.

signaller

You must record the name of the new pilotman and the time on your signaller's form.

b) Change of signaller

When you are relieved, you must make sure the new signaller understands the arrangements for working by pilotman and signs the signaller's form in your presence.

If you are the new signaller, you must tell the pilotman your name as soon as possible.

pilotman

You must record the new signaller's name and the time on your pilotman's form.

4

Working by pilotman to and from the point of obstruction

The person responsible: pilotman

If you are required to introduce working by pilotman to and from the point of obstruction, you must do so between the obstruction and the nearest appropriate:

- signal box, or
- junction, or
- other place.

You must make sure one of the following is provided at the place where trains will have to stop on the approach to the obstruction.

- A signal kept at danger.
- An EoA at which the signaller has closed the route.
- Emergency protection as described in module M1 *Dealing with a train accident or train evacuation* or in handbook 2 *Instructions for track workers who use emergency protection equipment*.
- Possession protection as described in module T3 *Possession of a running line for engineering work* or module T3 *ERTMS Possession of an ERTMS running line for engineering work where line side signals are not provided*.

If the emergency protection or possession protection has already been placed, you must, if necessary, arrange for that protection to be moved to a more suitable location so that trains can reach the place where they are required to stop.

You must tell the signaller controlling the entrance to the single-line section on the other side of the obstruction when working by pilotman has been introduced and withdrawn.

pilotman

Working single and bi-directional lines by pilotman

pilotman

You must not complete a driver's ticket.

You must accompany every train over the single-line section.

These arrangements may be introduced on both sides of the obstruction, but separate pilotmen will need to be appointed on each side.

5

Dealing with a failed train

The people responsible: pilotman, signaller

5.1 If the pilotman is on the failed train

You must tell the signaller about the circumstances, giving the location of the failed train.

pilotman

If assistance is required, you must arrange with the signaller for this to be provided. If the driver asks you to do so, you may carry out the appropriate protection as shown in module M2 *Train stopped by train failure*.

You must get the signaller's permission before making any movement if the train is to return to the same end of the single-line section from which it entered.

5.2 If the pilotman is not on the failed train

You must travel with the assisting train if:

- the assistance is to come from the rear, and
- the failed train is to be withdrawn to the rear.

pilotman

5.3 Getting permission from the pilotman

You must get permission from the pilotman before authorising an assisting train to proceed into the occupied single-line section.

signaller

6

Withdrawing working by pilotman

The people responsible: pilotman, signaller

6.1 Pilotman's actions

pilotman

Only you can authorise the withdrawal of working by pilotman.

When the last train is clear of the single-line section, you must tell each signaller that working by pilotman has been withdrawn and then:

- cancel your pilotman's form
- instruct each signaller to cancel their signaller's form
- get an assurance from each signaller that this has been done.

If you have a token, you must hand it to the signalling technician who will take it away or restore it to the token instrument.

You must hand in the cancelled pilotman's form and any driver's tickets as shown in company instructions.

6.2 Signaller's actions

signaller

When instructed to do so by the pilotman, you must cancel your signaller's form, and tell the pilotman when this has been done.

You must make a suitable entry in the Train Register.

Where working by pilotman had been introduced on both sides of an obstruction, you must not resume normal working until you have been told by the pilotmen on either side of the obstruction that working by pilotman is withdrawn.

You must hand in the cancelled signaller's form as shown in company instructions.

7

Modified working arrangements

The people responsible: driver, signaller

7.1 Where modified working can be used

Modified working arrangements may be used to allow a train to pass through a single-line section without introducing working by pilotman.

signaller

You may only use modified working arrangements where it is authorised in the *Sectional Appendix* and *Signal Box Special Instructions*.

An authority to use modified working arrangements applies to one train movement only.

7.2 Before introducing modified working

Where it is authorised, you may only use modified working arrangements if all the following conditions are met.

signaller

- Direct communication is available with any other signaller concerned and you both reach a clear understanding of what is to happen.
- You have made sure the single-line section is clear.
- The responsible person as shown in the *Signal Box Special Instructions* has personally given you and any other signaller concerned authority to use the modified working arrangement for that train.

You must record the name of the responsible person and the time authority is received in the Train Register.

7.3 If more than one signaller is involved

signaller

The responsible person will speak to any other signaller involved before speaking to you again to authorise modified working.

After you receive the authority from the responsible person, you must get permission from any other signaller involved for the train to pass through the single-line section.

If you are the other signaller involved, you may give permission for the train to approach as long as:

- the responsible person has told you that the modified working arrangement has been authorised for this train, and
- the line is clear as shown in the relevant train signalling regulations.

You must pass messages by telephone as follows.

'From _____ signal box to _____ signal box:

Is line clear for train _____ to pass through the single-line section from _____ to _____ under modified working arrangements?'

'From _____ signal box to _____ signal box:

Line **is** clear for train _____ to pass through the single-line section from _____ to _____ under modified working arrangements.'

7.4 Signaller instructing the driver

When you have the authority of the responsible person and where necessary, the permission of another signaller, for a train to enter the single-line section, you must:

signaller

- tell the driver what is happening
- dictate or give to the driver a completed Modified Working Arrangements Driver's Ticket (RT3177)
- instruct the driver to stop at the end of the single-line section, if necessary
- instruct the driver to pass at danger the signal controlling the entrance to the single-line section, or to pass the EoA at the entrance to the single-line section without an MA.

7.5 Completing a driver's ticket

You must complete a driver's ticket, if necessary, at the signaller's dictation.

driver

If the train is worked by more than one locomotive at the front, you must show the completed driver's ticket to each other driver.

You must not enter the single-line section until you have a completed modified working arrangements driver's ticket.

You do not need a driver's ticket if your train is to enter the single-line section to:

- assist a failed train
- evacuate passengers from a failed train
- remove a portion of a divided train
- remove a train or vehicles that have proceeded without authority.

7.6 When the train enters the single line

signaller

You must record in the Train Register the time the train enters the single-line section, even if you do not normally record these times.

If there is more than one signaller involved, you must tell the other signaller when the train enters the section. Where block bells are provided, you must send **train entering section**.

7.7 Travelling over the single line

driver

You must carry out the instructions on your driver's ticket .

You must not exceed 50 mph (80 km/h), or the permissible speed if lower.

7.8 Train failure on the single line

signaller

You must get the permission of the responsible person before allowing an assisting train to enter an occupied single-line section.

You must not dictate or give a driver's ticket to the driver of the assisting train.

7.9 Arriving at the other end of the single line

driver

When the train arrives at the other end of the single-line section, you must stop if the signaller has instructed you to do so. You must cancel your driver's ticket by writing 'CANCELLED' across it. You must then tell the signaller that the train has arrived complete with tail lamp.

If you do not have to stop, you must cancel your driver's ticket at the first opportunity.

You must hand in the ticket as shown in company instructions.

driver

On a one-train working line where it is not normally necessary to ask the signaller's permission to start the return journey, you do not need to tell the signaller that your train has arrived.

You must record in the Train Register the time the train leaves the single-line section, even if you do not normally record these times.

signaller

If there is more than one signaller involved, you must tell the other signaller when the train leaves the section. If block bells are provided, you must send **train out of section**.

7.10 When another train is to pass

You must get another authority from the responsible person each time a train is to pass through the single-line section under modified working arrangements.

signaller

7.11 Intermediate signal boxes or sidings

You must not:

- allow an intermediate signal box to switch in until the train carrying a modified working arrangements ticket has arrived at the other end of the single-line section, complete with tail lamp
- give permission for an intermediate siding to be used.

signaller

7.12 Changing to working by pilotman

You must get authority from the responsible person to change from modified working arrangements to working by pilotman.

signaller



GE/RT8000/PoSA
Rule Book

Proceed-on-Sight Authority (PoSA)

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These instructions are additional to all other Rule Book modules. They apply only where PoSA signals are provided.

You will need this module if your duties require you to identify and understand the meaning of PoSA signals.

Conventions used in the Rule Book	Example
A black line in the margin indicates a change to that rule and is shown when published in the module for the first time.	
Green text in the margin indicates who is responsible for carrying out the rule.	driver
A white i in a blue box indicates that there is information provided at the bottom of the page.	
<div style="border: 2px solid red; padding: 5px;">A rule printed inside a red box is considered to be critical and is therefore emphasised in this way.</div>	

Section

1

Definitions

2

Observing and obeying PoSA signals

- 2.1 Train stopped or nearly stopped at a signal at danger
- 2.2 If you see anything wrong at the PoSA signal
- 2.3 During the movement
- 2.4 If there is a level crossing in the section
- 2.5 Using the driver's reminder appliance (DRA)
- 2.6 AWS indications
- 2.7 On arrival at the next signal

3

Conditions of use for the PoSA

4

Use of the PoSA during repair, renewal, or maintenance work on signalling equipment

Section

5

Failure of signalling equipment where a PoSA control is provided

- 5.1** Train approaching a defective main aspect signal
- 5.2** Passing a defective or disconnected stop signal or EoA when an FS MA cannot be issued
- 5.3** Authorising a train to pass a signal not displaying a main aspect
- 5.4** Failure of track circuits
- 5.5** When a TPWS failure at the signal ahead prevents a signal from showing a proceed aspect

6

Platform starting signals provided with PoSA signals - starting trains

7

Working of signals provided with PoSA routes

8

Reminder appliances used with PoSA signals

9

Using PoSA controls where a closed circuit television (CCTV) or remote control (RC) level crossing is in the route

- 9.1** Before local control is taken
- 9.2** After local control is taken

Section

10

Using PoSA controls where an obstacle detection (OD) level crossing is in the route

10.1 Before local control is taken

10.2 After local control is taken

11

Using PoSA controls where a level crossing worked by a crossing keeper is in the route

1 Definitions

The people responsible: all concerned

In this module the term 'all concerned' means anyone who needs to understand what signals look like and their meaning.

Proceed-on-Sight Authority

A Proceed-on-Sight Authority (PoSA) is a signal aspect that can be associated with a stop signal. When it displays two flashing white lights at 45° this means:

- the signal itself, or the signalling equipment, has failed
- the points are in the correct position for the train
- the driver is authorised to proceed at caution
- the driver must obey other signals or indications on the driver machine interface (DMI).

Normal aspect of a PoSA signal associated with a main aspect



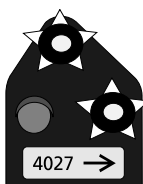
The normal aspect of a PoSA signal associated with a main aspect is unlit. This means obey the aspect that is displayed at that signal.

Proceed aspect of a PoSA signal associated with a main aspect



The proceed aspect of a PoSA signal is two flashing white lights at 45°.

Independent position-light signals



A PoSA aspect may also be given at an independent position-light signal.

ERTMS movement authority at a PoSA

If a PoSA aspect is displayed to a train on which ERTMS is in operation, an on sight (OS) mode will normally be shown on the DMI. This has the same meaning as a PoSA aspect displayed to a train on which ERTMS is not in operation.

2

Observing and obeying PoSA signals

The people responsible: driver (or person controlling train movement)

2.1 Train stopped or nearly stopped at a signal at danger

If you have stopped or nearly stopped at a signal at danger and the PoSA is displayed, you may proceed past the signal even though the main aspect is at danger or is unlit.

driver

The signaller may need to give you instructions before clearing a PoSA signal. You must carry out these instructions.

On a train on which ERTMS is in operation, you must acknowledge the change to OS before proceeding.

2.2 If you see anything wrong at the PoSA signal

You must tell the signaller immediately, stopping the train specially if necessary, if you see any of the following failures or irregularities at a PoSA signal.

driver

- Only one white light is showing.
- When it is illuminated, it is not flashing.
- A route indicator is not displayed when one should be.
- On a train on which ERTMS is in operation, a PoSA aspect is displayed without an OS movement authority (MA) being shown on the DMI.
- On a train on which ERTMS is in operation, an OS MA being shown on the DMI without a PoSA aspect being displayed.

driver

You must complete a Reporting a signal/AWS//TPWS/ERTMS/ATP/ TVM Failure or Irregularity form (RT3185) at the first convenient opportunity without causing delay and send or hand it to the person shown in your company's instructions before leaving duty.

2.3 During the movement

driver

You must proceed at caution throughout the section to the next stop signal (or buffer stops if there is no stop signal ahead) unless full supervision (FS) mode is received before the next stop signal.

2.4 If there is a level crossing in the section

driver

You must not pass over any controlled level crossing until you are sure it is safe to do so.

You must check it is safe before passing over any of the following level crossings that the signaller has told you will not operate normally for the movement.

- An automatic level crossing.
- A barrow or foot crossing with white light indications.
- A crossing equipped with miniature warning lights.

2.5 Using the driver's reminder appliance (DRA)

You must set the driver's reminder appliance (DRA) when stopping, or stopped at a station platform after having passed a PoSA aspect.

driver

You must only reset the DRA when:

- there is a platform starting signal and it shows a proceed aspect
- there is a platform starting signal and you have been given permission to pass it at danger
- you have authority to start the train where there is no platform starting signal.

2.6 AWS indications

On lines signalled in both directions, due to the nature of the signalling failure, the AWS equipment may not be suppressed for movements in the opposite direction to your train and you may receive a warning indication. You must cancel and disregard this AWS indication.

driver

2.7 On arrival at the next signal

After passing through the affected section, when you arrive at the next signal, you must obey the aspect displayed.

driver

If no main aspect is shown at this signal but a PoSA aspect is displayed, you may obey the PoSA aspect.

3

Conditions of use for the PoSA

*The person responsible: **signaller***

signaller

You may only operate a PoSA control if it is specifically authorised in this module.

You must only operate a PoSA control if the previous train has passed clear of the affected section.

Before operating the control to set a PoSA route you must:

- make sure the barriers or gates at any controlled level crossing within the route are closed to road traffic, unless the movement is to be made with the barriers raised, as shown in sections 9.1 or 10.1
- come to a clear understanding with any other signaller involved about what is to be done
- except where shown in this module, tell the driver what is happening and to wait for the PoSA to be displayed and, for a train on which ERTMS is in operation, an OS MA to be received.

4

Use of the PoSA during repair, renewal, or maintenance work on signalling equipment

*The people responsible: **signaller, signalling technician***

Before starting work on any signalling equipment as shown in module TS11 *Failure of, or work on, signalling equipment - signallers' regulations* or handbook 19 *Work on signalling equipment - duties of the signalling technician*, you must both agree which PoSA routes can be used during the work.

**signaller,
signalling
technician**

You must both record the details on the Signal Engineering Work form (RT3187) of any PoSA routes that you have agreed can be operated during the work.

5

Failure of signalling equipment where a PoSA control is provided

*The person responsible: **signaller***

5.1 Train approaching a defective main aspect signal

signaller

You may operate a PoSA control to allow a train to approach a signal with a defective main aspect.

You must make sure that the line is clear:

- up to and including the overlap of the stop signal next ahead of the defective signal, or
- up to and including the overlap of the second stop signal ahead of a defective distant signal, or
- to the buffer stops on a dead-end line.

You must tell the driver what is happening and that the signal or signals ahead are defective, unless you are sure the defective signal is:

- showing a red aspect, or
- showing the correct aspect.

5.2 Passing a defective or disconnected stop signal or EoA when an FS MA cannot be issued

a) Trains on which ERTMS is not operating

You may operate a PoSA control to authorise a train to pass a defective or disconnected stop signal when the main aspect is held at danger.

You must make sure the line is clear:

- up to and including the overlap of the next stop signal, or
- to the buffer stops on a dead-end line.

You do not need to tell the driver what is happening.

b) Trains on which ERTMS is operating

You may operate a PoSA control to allow a train on which ERTMS is in operation to pass an EoA when you cannot issue an FS MA.

You must make sure the line is clear:

- up to and including the overlap of the next EoA which is at a stop signal, or
- to the buffer stops on a dead-end line.

You do not need to tell the driver what is happening.

signaller

5.3 Authorising a train to pass a signal not displaying a main aspect

You may operate a PoSA control to allow a train on which ERTMS is not in operation to pass a signal that is defective and unable to show a main aspect.

You must make sure the line ahead is clear under the same conditions as it would be for the main aspect to be cleared.

You must have told the driver what is happening.

signaller

5.4 Failure of track circuits

signaller

You may operate a PoSA control to allow a train to examine the line in a section that is affected by a track circuit that has failed to clear or shows occupied for some other reason.

You must carry out the instructions shown in regulation 20 of module TS1 *General signalling regulations* and tell the driver what is happening.

If the line is reported clear, you may operate a PoSA control without telling the driver what is happening, to allow following trains to proceed through the affected section as long as one of the following applies.

- You can make sure the portion of line is clear after the passage of each train.
- A competent person has been appointed to report that the train has passed complete with tail lamp.
- You have seen the previous train occupy and clear the track circuit ahead of the signal or block marker beyond the affected portion of line.
- If the affected track circuit is beyond the last stop signal, or block marker in your area of control, you have introduced working as shown in regulation 3.5 of module TS2 *Track circuit block regulations* or TS10 *ERTMS level 2 train signalling regulations*.

5.5 When a TPWS failure at the signal ahead prevents a signal from showing a proceed aspect

signaller

You may operate a PoSA control to allow a train to approach a signal ahead where the TPWS equipment has failed and is preventing the main aspect of the signal fitted with a PoSA from showing a proceed aspect.

You must make sure the line ahead is clear under the same conditions as it would be for the main aspect to be cleared.

You must tell the driver what is happening and that the TPWS equipment at the signal ahead has failed.

6

Platform starting signals provided with PoSA signals - starting trains

The people responsible: driver, guard, person dispatching train

Where a platform starting signal is provided with a PoSA signal which is showing a proceed aspect, the train may be dispatched as shown in module SS1 *Station duties and train dispatch*.

Where an 'OFF' indicator is provided, this will also show 'off' when a PoSA signal has been cleared.

**driver,
guard,
person
dispatching
train**

7

Working of signals provided with PoSA routes

*The person responsible: **signaller***

signaller

You may only operate a PoSA control when the train has stopped or nearly stopped at the signal or block marker.

If the failure of signalling equipment is affecting two or more successive signals or block markers provided with PoSA controls, you do not need to stop or nearly stop the train again at each affected signal or block marker.

8

Reminder appliances used with PoSA signals

*The person responsible: **signaller***

You must place a reminder appliance on a PoSA control as soon as the PoSA signal has been returned to danger after a train has passed it.

signaller

You may remove the reminder appliance when you are sure that the train has passed beyond the affected section, and where necessary, you have given the driver of the next train any instructions required.

9

Using PoSA controls where a closed circuit television (CCTV) or remote control (RC) level crossing is in the route

The person responsible: signaller

9.1 Before local control is taken

signaller

You may operate a PoSA control where there is a defective CCTV or RC crossing in the route and an attendant has not yet arrived to take local control if:

- you cannot get a satisfactory view or picture of the crossing
- the barriers have failed in the lowered position and the red road-traffic signals are not working
- the barriers have failed in the raised position and the red road-lights indicator is lit.

You must tell the driver what is happening and not to proceed over the crossing unless they are sure it is safe to do so.

If the barriers have failed in the raised position and the red road signals are not working, you must not operate a PoSA control or authorise any train to pass over the crossing until an attendant has taken local control.

9.2 After local control is taken

signaller

Before you operate a PoSA control, you must get an assurance from the attendant that the barriers are lowered and that the crossing is clear.

You do not need to tell the driver what is happening.

10

Using PoSA controls where an obstacle detection (OD) level crossing is in the route

The person responsible: signaller

10.1 Before local control is taken

You may operate a PoSA control if there is a defective OD crossing in the route and an attendant has not yet arrived to take local control if:

- you have received an OD failed alarm
- the barriers have failed in the lowered position and the red road-traffic signals are not working
- the barriers have failed in the raised position and the red road-lights indicator is lit.

You must tell the driver what is happening and not to proceed over the crossing unless they are sure it is safe to do so.

If the barriers have failed in the raised position and the red road signals are not working, you must not operate a PoSA control or authorise any train to pass over the crossing until an attendant has taken local control.

10.2 After local control is taken

When the crossing is being operated by the local-control unit (LCU), before you operate a PoSA control, you must get an assurance from the attendant that the barriers are lowered and that the crossing is clear.

You do not need to tell the driver what is happening.

signaller

signaller

11

Using PoSA controls where a level crossing worked by a crossing keeper is in the route

*The person responsible: **signaller***

Failure of equipment

signaller

Before you operate a PoSA control where there is a level crossing worked by a crossing keeper in the route, you must get the crossing keeper's confirmation that the crossing is closed to road traffic and that the crossing is clear.

You do not need to tell the driver what is happening.



GE/RT8000/S4
Rule Book

Trains or shunting movements detained on running lines

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You will need this module if you carry out the duties of a:

- driver
- shunter
- signaller.

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Green text in the margin indicates who is responsible for carrying out the rule.	driver
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<div style="border: 2px solid red; padding: 5px;"><p>A rule printed inside a red box is considered to be critical and is therefore emphasised in this way.</p></div>	

Section

1

Contacting the signaller - standard arrangements

- 1.1 When to contact the signaller
- 1.2 How to contact the signaller
- 1.3 When speaking to the signaller
- 1.4 When speaking to the driver
- 1.5 Driver being conducted

2

Contacting the signaller - non standard arrangements

- 2.1 Number displayed on telephone sign
- 2.2 White diamond sign with a telephone number displayed
- 2.3 During poor visibility
- 2.4 Trains conveying sensitive traffic

3

Limited clearance at signal post telephones

- 3.1 Limited clearance warning sign
- 3.2 Yellow or white diamond with the letter X, or yellow roundel on the telephone cabinet

4

Shunting movement detained on a running line

1

Contacting the signaller - standard arrangements

The people responsible: driver, signaller

1.1 When to contact the signaller

When your train is detained on a running line at a signal at danger, or without a movement authority (MA), you must contact the signaller as soon as possible.

driver

However, you may wait for up to two minutes before contacting the signaller if you can see an obvious reason for the signal being at danger, or not having an MA such as:

- the section ahead being occupied by a train
- a conflicting movement being made.

If the signaller has told you to wait for the signal to clear, or for an MA, you must contact the signaller again every five minutes unless the signaller has given you other instructions.

1.2 How to contact the signaller

You must contact the signaller by using the train radio.

driver

If it is not possible to use the train radio and a signal post telephone is provided, you must use it to contact the signaller, unless limited clearance at the telephone prevents this. If a signal post telephone is not provided, or the signal post telephone has failed, you must contact the signaller by mobile phone, if available.

If you still cannot contact the signaller, you must either:

- use the telephone at another signal
- use a lineside telephone
- go to the signal box.

1.3 When speaking to the signaller

driver

You must first make sure:

- you are speaking to the correct signaller
- the signaller clearly understands at which signal or block marker your train is standing and on which line.

If you are detained without an MA and you are not at a signal or block marker, you must reach a clear understanding with the signaller of the location of your train and the line on which it is standing.

You must tell the signaller your train reporting number.

1.4 When speaking to the driver

signaller

If the train is required to wait at the signal, or block marker, you must:

- tell the driver the reason for the delay
- instruct the driver to 'wait for the signal', or 'wait for an MA'.

1.5 Driver being conducted

driver

If you do not have the required route knowledge and are accompanied by a conductor driver, the conductor driver must contact the signaller. The conductor driver must pass on to you any instructions given by the signaller.

2

Contacting the signaller - non standard arrangements

The people responsible: **driver, signaller**

2.1 Number displayed on telephone sign

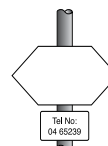
If there is a number on the telephone sign associated with the signal, or a waiting time is shown in the *Sectional Appendix* for signals in a specified area, instead of contacting the signaller as soon as possible, you must do so within the number of minutes shown.



driver

2.2 White diamond sign with a telephone number displayed

If a white diamond sign has a telephone number displayed and you cannot contact the signaller by any means from the driving cab, you must only leave your cab to use another telephone:



driver

- in an emergency, or
- if the driver of a train on another line, or a competent person has told you that the signaller has blocked the adjacent line and it is safe to get down from your cab to use another telephone.

If the driver cannot contact you and you are not able to clear the signal or issue an MA, you must instruct the driver of a train which is to pass on another line to:

- stop opposite the driving cab of the detained train
- relay your message to the driver of the detained train.

signaller

signaller

If no train is available for the driver to relay your message, you must arrange for trains on the adjacent line to be stopped and then for a competent person to tell the driver of the detained train that:

- the (named) line is blocked
- it is safe to get down from the cab to use another telephone.

You must not resume normal working on the adjacent line until you are sure that the train has proceeded from the signal at which it was detained.

2.3 During poor visibility

driver

On other than TCB or ERTMS lines, if the signal does not have a white diamond sign and visibility is less than 180 metres (approximately 200 yards), you must contact the signaller immediately.

If the signal has a white diamond sign and you have to use another telephone or go to the signal box, you must do so within 10 minutes.

2.4 Trains conveying sensitive traffic

driver

If your train is a block train of dangerous goods or a mail or postal train, you must contact the signaller immediately. You should only use a signal post telephone to do this if you have been unable to contact the signaller by the train radio or mobile telephone.

signaller

If you cannot identify the reason for the signal being at danger or an MA not being received, and the train is a block train of dangerous goods or a mail or postal train, you must treat this as suspicious and call the police immediately.

3 Limited clearance at signal post telephones

The people responsible: **driver, signaller**

3.1 Limited clearance warning sign

Where there is a limited clearance warning sign at the signal but no white or yellow diamond sign with the letter 'X' shown, you may use the telephone because:



driver

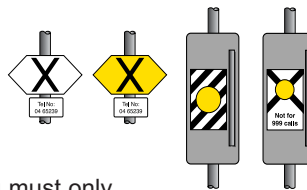
- it is in a position of safety in relation to the adjacent running line
- protection is provided by the presence of your train.

3.2 Yellow or white diamond with the letter X, or yellow roundel on the telephone cabinet

You must not normally leave your cab to use a signal post telephone where there is a:

driver

- yellow or white diamond sign with the letter 'X' at the signal
- yellow roundel on the telephone cabinet.



If one of these signs are displayed you must only leave your cab to use the telephone:

- in an emergency, or
- if the driver of a train on another line, or a competent person has told you that the signaller has blocked the line adjacent to the telephone, and it is safe to get down from your cab to use the telephone.

signaller

If the driver cannot contact you and you are not able to clear the signal or issue an MA, you must instruct the driver of a train which is to pass on another line to:

- stop opposite the driving cab of the detained train
- relay your message to the driver of the detained train.

If no train is available for the driver to relay your message, you must arrange for trains on the line adjacent to the telephone to be stopped and then for a competent person to tell the driver of the detained train that:

- the (named) line is blocked
- it is safe to get down from the cab to use the telephone.

You must not resume normal working on the line adjacent to the telephone until you are sure that the train has proceeded from the signal at which it was detained.

4 Shunting movement detained on a running line

*The people responsible: **driver, shunter***

If your shunting movement has been detained an unusually long time, you must remind the signaller in the quickest way possible. This may mean that you have to go to the signal box or send the shunter to do this.

driver

You must go to the signal box to remind the signaller if your shunting movement has been detained on a running line for an unusually long time and the driver instructs you to do so.

shunter



GE/RT8000/S5
Rule Book

Passing a signal at danger or an end of authority (EoA) without a movement authority (MA)

Issue 6

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You will need this module if you carry out the duties of a:

- driver
- guard
- shunter
- signaller.

You will also need this module if you carry out the duties of a competent person for temporary block working.

Conventions used in the Rule Book	Example
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Section

1

When a signal can be passed at danger or an EoA passed without an MA

- 1.1 Signaller's authority
- 1.2 Driver getting authority

2

Signaller's precautions before authorising the movement

- 2.1 Making sure the line is safe
- 2.2 Setting the route correctly on a panel or workstation
- 2.3 Setting the route correctly where there is a lever frame
- 2.4 If the interlocking is out of order

3

Authorising the movement

- 3.1 Instructions from the signaller
- 3.2 Instructions through a pilotman or handsignaller
- 3.3 Passing a signal at danger or an EoA without an MA for shunting purposes
- 3.4 Dealing with TPWS

4

During the movement

- 4.1 Points and crossings
- 4.2 Train speed
- 4.3 Level crossings
- 4.4 Next stop signal ahead
- 4.5 Signaller protecting the movement

Section

5

Not used

6

Temporary block working

- 6.1 Principles
- 6.2 Arranging temporary block working
- 6.3 Before allowing a train to enter the temporary block section
- 6.4 Authorising a train to enter the temporary block section
- 6.5 At the entrance signal
- 6.6 During the movement
- 6.7 When the train arrives at the exit signal

7

Passing an intermediate block home signal at danger

- 7.1 If the driver cannot contact the signaller
- 7.2 Before starting
- 7.3 During the movement
- 7.4 At the next stop signal

Passing a signal at danger or an end of authority (EoA) without a movement authority (MA)

Section

8

Passing a signal at danger controlled from a signal box that is closed

- 8.1 Preconditions
- 8.2 Before starting
- 8.3 During the movement
- 8.4 At the next stop signal
- 8.5 At the next signal box

9

Driver passing a signal at danger or an EoA without authority

- 9.1 Passing a signal at danger or an EoA without authority
- 9.2 Seeing a SPAD indicator illuminated
- 9.3 Signaller's actions

1

When a signal can be passed at danger or an EoA passed without an MA

*The people responsible: **driver, signaller***

1.1 Signaller's authority

You may authorise a signal to be passed at danger or an end of authority (EoA) to be passed without a movement authority (MA) only in the following circumstances.

signaller

- 1 The signal is defective or disconnected.
- 2 ERTMS equipment is defective or disconnected and is preventing an MA from being issued.
- 3 The signal cannot be cleared or an MA cannot be sent because signalling or level crossing equipment has failed.
- 4 The signal is to be passed at danger or an EoA passed without an MA for shunting purposes.
- 5 The signal cannot be cleared because a train or movement which has reversed is then required to start from beyond that signal.
- 6 An electric train is to pass the signal or EoA protecting an isolated section and proceed towards the limiting point.
- 7 A train has been accepted using restricted acceptance because the line is clear only up to the home signal of the next signal box and the section signal cannot be cleared.
- 8 In an emergency, and then only when authorised by the signal box supervisor or Operations Control, on a TCB or ERTMS line a signal or EoA is to be passed, so that a train carrying passengers can enter an occupied section to use a station platform.

signaller

- 9 An engineering train is to:
 - move towards a possession, or
 - leave a line under possession at an intermediate point.
- 10 A train is to pass the signal or EoA protecting engineering work under the requirements of module TS1 *General Signalling Regulations*, regulation 13.2 to gain access to:
 - a station where the train is required to start back
 - a line under single line working
 - a siding.
- 11 The line is to be examined to check that it is clear.
- 12 A train is to proceed at caution through an absolute block section from the signal box in rear when a failed train has been removed.
- 13 A train is to enter the section after:
 - a train or vehicle that has proceeded without authority has been removed, or
 - the front portion of a divided train has passed through the section.
- 14 A train is to enter the section to:
 - assist a failed train
 - evacuate passengers from a failed train
 - remove a portion of a divided train
 - remove a train or vehicles that have proceeded without authority.
- 15 Single line working applies.
- 16 Working by pilotman or modified working applies.

1.2 Driver getting authority

You can only pass a signal at danger or an EoA without an MA in any of the circumstances described in section 1.1 of this module.

Before passing a signal at danger or an EoA without an MA, you must get the personal authority of:

- the signaller, or
- the shunter acting on the signaller's instructions when making a shunting movement, or
- the pilotman or handsignaller acting on the signaller's instructions, or
- another competent person where authorised in the rules.

You must clearly understand what is required and how far the movement can go.

driver

2 Signaller's precautions before authorising the movement

*The person responsible: **signaller***

2.1 Making sure the line is safe

signaller

You must make sure:

- the portion of line concerned is clear and safe for the movement as required by the train signalling regulations
- the barriers or gates at any controlled level crossings are closed to road traffic
- all points are in the required position and are locked by facing point locks, where provided
- any ground frame release giving access to the route is 'normal' unless it is to be operated for the movement.

2.2 Setting the route correctly on a panel or workstation

a) Operating individual point controls

signaller

You must:

- operate the points to the position shown on the route card
- check that you have the correct 'normal' or 'reverse' indications
- ask a competent person, if present, to check the route setting.

b) Calling the route

After you have set the route, you must call the route, if you can.

signaller

However, you must not call the route if you need to keep the entrance signal at danger or the route closed for any reason unless the signalling technician has:

- disconnected the signal
- disconnected the means of issuing MAs or told you the signalling equipment is unable to issue an MA.

You must also not call the route if there is a track circuit failure in the route concerned.

c) When it is not possible to call the route

Before you authorise the movement, you must stop any train on an adjacent or opposite line that could be fouled by the movement if the route is set incorrectly.

When one train has passed safely over the affected route, you may allow trains to run without restriction on other lines.

However, you must not do this if you have changed the position of any points in the route.

2.3 Setting the route correctly where there is a lever frame

signaller

You must check that you have the correct 'normal' or 'reverse' indications, where provided.

If mechanical point detection is provided, you must arrange for the points to be secured if a movement is to be made over them in the facing direction. You do not need to do this where there is a facing point lock and you have checked that it is properly engaged.

If you can, you must operate the signal lever concerned if the signal to be passed at danger:

- is defective
- is disconnected
- cannot be cleared because signalling equipment has failed.

If you cannot operate the lever or the signal is to be passed at danger for any other reason, you must:

- reverse all levers that usually release the signal lever concerned
- normalise all levers that usually lock the signal lever concerned.

2.4 If the interlocking is out of order

signaller

If the interlocking is out of order, you must make sure:

- the facing points on any other line are set to avoid conflicting movements normally prevented by the interlocking
- the signals for these conflicting movements are at danger
- routes for any conflicting movements are closed.

3 Authorising the movement

The people responsible: driver, shunter, signaller

3.1 Instructions from the signaller

You must tell the driver:

- why the signal needs to be passed at danger or the EoA passed without an MA
- how far the movement can proceed.

On an ERTMS line where lineside signals are not provided, you must also tell the driver:

- the location and speed of any permissible speed lower than the ceiling speed
- the location and speed of any temporary or emergency restriction lower than the ceiling speed.

You must instruct the driver to proceed at caution.

Unless the train is to enter the section as an assisting train or to examine the line, you do not have to instruct the driver to proceed at caution when:

- the train is to enter an absolute block section during a failure of a block instrument
- single line working, working by pilotman, or temporary block working is in operation.

You must tell the driver to pass any SPAD indicator which may be illuminated by the movement.

You must instruct the driver to approach at caution and check it is safe before passing over any:

- controlled level crossing
- automatic level crossing that will not operate normally for the movement
- barrow or foot crossing with white-light indications that will not operate normally for the movement.

signaller

3.2 Instructions through a pilotman or handsignaller

signaller

You must make sure that the pilotman or handsignaller clearly understands:

- what the driver must be told
- to work only to your instructions.

You must tell the handsignaller if the instructions have already been given to the driver.

driver

You may accept a yellow handsignal shown at a signal as authority to pass a signal at danger only if one of the following applies.

- You have stopped your train at the signal and the handsignaller has given you the necessary instructions.
- The signaller or pilotman has already told you about the circumstances and has instructed you to obey the handsignal shown at the signal. In this case you do not need to stop your train if a yellow handsignal is shown at the signal.

Unless you have been instructed to pass the signal at danger, you must stop at it.

3.3 Passing a signal at danger or an EoA without an MA for shunting purposes

If you need to pass a signal at danger or an EoA without an MA for shunting purposes, you must get the authority of the signaller.

If you get authority to pass a signal at danger or an EoA without an MA from the signaller, you must tell the driver.

When you have completed the shunting, you must not proceed on the journey until the signal is cleared or you receive an MA, unless the signaller gives authority.

driver,
shunter

shunter

driver

3.4 Dealing with TPWS

You must operate the TPWS temporary isolation switch when you are authorised to enter:

- a section of line where temporary block working is in operation
- a single-line section when working by pilotman or modified working is in operation, and you have to pass more than one signal at danger
- a line which is under possession as described in module T3 *Possession of a running line for engineering work.*

Before leaving that section of line, you must re-instate the TPWS.

You must operate the TPWS train-stop override button when you are authorised to pass a signal at danger in all other circumstances.

driver

4 During the movement

The people responsible: driver, signaller

4.1 Points and crossings

signaller

If possible, you must make sure that any points, switch diamonds or swing-nose crossings are in the correct position for your train.

You must not pass over these points or crossings at more than 15 mph (25 km/h).

You may pass over points or crossings at up to 50 mph (80 km/h) if they have been secured and padlocked and details have been recorded on the driver's ticket:

- during temporary block working
- when making wrong-direction movements during single line working.

4.2 Train speed

a) Proceeding at caution

driver

Except as shown in sections 4.2 b) and 4.2 c), you must proceed at caution, even if the line appears to be clear.

b) Proceeding at up to 50 mph (80 km/h)

You may travel at a speed not exceeding 50 mph (80 km/h), other than locations where you are told to proceed at caution, in any of the following circumstances.

- During single line working when travelling in the wrong direction.
- During modified working on single lines.
- During temporary block working.
- During a failure of a block instrument on an absolute block line.

c) Proceeding at up to permissible speed

You may proceed at up to permissible speed, other than at locations where you are told to proceed at caution, in any of the following circumstances.

driver

- During single line working when travelling in the right direction.
- On single lines where a token is provided and you have the token.
- During working by pilotman on single or bi-directional lines.

4.3 Level crossings

You must approach at caution and check it is safe before passing over any:

driver

- controlled level crossing
- automatic level crossing that the signaller has told you will not operate normally for the movement
- barrow or foot crossing with white-light indications that the signaller has told you will not operate normally for the movement.

4.4 Next stop signal ahead

If you can see that the next stop signal ahead is displaying a proceed aspect, you must not assume the line ahead is clear for your train.

driver

4.5 Signaller protecting the movement

You must not work any signalling control that has been operated to protect the movement.

signaller

Until you are sure that the movement has passed clear of any points in the route involved, or the track circuit controlling these points, you must not allow any points that have been secured to be released.

5 Not used

6 Temporary block working

*The people responsible: **competent person, driver, signaller***

6.1 Principles

If there is a failure or disconnection of signalling equipment on a TCB line other than a single line and it is necessary to authorise the driver at one time to pass at danger two or more consecutive main running signals, temporary block working must be introduced.

Temporary block working must be authorised by the Network Rail area operations manager, who will appoint a competent person to take charge of the arrangements.

6.2 Arranging temporary block working

You must arrange for temporary block working to apply between:

- a signal kept at danger on the approach to the affected area
- a signal beyond the affected area that can be replaced to danger from the signal box.

competent person

You may divide the line over which temporary block working is to take place into two or more sections. In this case, the signals dividing the sections must be at locations easily identifiable by drivers.

Where it is necessary to move points within the area affected by the failure or disconnection, you must make sure that two temporary block working sections are established, the first ending at a stop signal on the approach to those points and the second starting at a stop signal beyond those points.

competent person

You must arrange for:

- all points within the temporary block section to be secured by clip, scotch and padlock, or by other authorised means
- a handsignaller to be positioned at the entrance and exit signals of the temporary block section.

You must tell the signaller when these arrangements have been made.

Before you authorise temporary block working to start, you must agree with the signaller that the temporary block section to be used is clear.

signaller

You must arrange for the signal at the entrance to the temporary block section to be kept at danger.

If the entrance signal is to be placed to danger by operating a signal post replacement switch, you must arrange for this to be done.

6.3 Before allowing a train to enter the temporary block section

signaller

Before allowing a train to enter the temporary block section, you must be sure that:

- the route has been set and secured throughout the temporary block working section
- the temporary block working ticket carried by the driver of the previous train has been received by the handsignaller at the end of the section
- the line is clear up to and including 200 metres (220 yards) beyond the exit signal.

6.4 Authorising a train to enter the temporary block section

You must tell the handsignaller at the entrance to the section to:

signaller

- fill in a Temporary Block Working Ticket (RT3184)
- read back the train reporting number entered on the ticket
- give the necessary instructions to the driver
- hand the ticket to the driver
- give the driver the authority for the train to enter the temporary block section.

If the train is the first to enter the temporary block section, you must arrange for the driver to be told to:

- approach all points, switch diamonds and swing-nose crossings at caution
- check if possible that they are in the correct position
- not pass over any of these points or crossings at more than 15 mph (25 km/h).

You must record the time that you instruct the handsignaller to issue the ticket to the driver.

You must not allow a temporary block working ticket to be issued if a train is to enter the section as an assisting train.

6.5 At the entrance signal

driver

Before entering the temporary block working section you must have been given a Temporary Block Working Ticket (RT3184) which is valid for your train.

If the train is being worked by more than one locomotive at the front, the handsignaller will show the ticket to each driver and then give the ticket to the driver in the leading cab.

You will not be given a temporary block working ticket if your train is to enter the section to:

- assist a failed train
- evacuate passengers from a failed train
- remove a portion of a divided train
- remove a train or vehicles that have proceeded without authority.

You must tell the guard (if provided) that temporary block working is in operation.

You must not move your train until the handsignaller shows a yellow handsignal.

You must operate the TPWS temporary isolation switch before entering the section.

6.6 During the movement

You must carry out the instructions shown on your temporary block working ticket.

driver

If you are told that your train is the first to enter the temporary block section, you must:

- approach all points, switch diamonds and swing-nose crossings at caution
- check if possible that they are in the correct position
- not pass over any of these points or crossings at more than 15 mph (25 km/h).

You must not exceed 50 mph (80 km/h).

You must proceed at caution if you have to:

- examine the line
- assist a failed train
- evacuate passengers from a failed train
- remove a portion of a divided train
- remove a train or vehicles that have proceeded without authority.

6.7 When the train arrives at the exit signal

driver

When your train arrives at the exit signal, you must:

- hand the temporary block working ticket to the handsignaller
- reinstate the TPWS.

You must not move your train, even if the signal clears, unless the handsignaller has given you permission to do so.

If you are required to pass this signal at danger, the handsignaller will authorise you to do this and show a yellow handsignal.

signaller

As long as you are sure the handsignaller is in possession of the correct temporary block working ticket, you may clear the exit signal for the train to proceed.

Where the exit signal is also the entrance signal to another temporary block working section, you must keep this signal at danger.

You must record the time that the handsignaller tells you the train complete with tail lamp has passed 200 metres (220 yards) beyond the exit signal.

7

Passing an intermediate block home signal at danger

The person responsible: **driver**

7.1 If the driver cannot contact the signaller

If you cannot contact the signaller by any means, you may pass an intermediate block home signal at danger on your own authority.

driver

7.2 Before starting

You must operate the TPWS train stop override button.

driver

7.3 During the movement

You must proceed at caution, even if the line appears to be clear.

driver

You must not exceed 10 mph (15 km/h) through any tunnel.

You must pass over any automatic level crossing only if you are sure it is safe to do so.

7.4 At the next stop signal

You must stop at the next stop signal and contact the signaller even if the signal is displaying a proceed aspect.

driver

If the signal is displaying a proceed aspect and you are not able to contact the signaller by any means, you may proceed at caution towards the next stop signal or signal box.

If the signal is at danger, you must contact the signaller in the quickest possible way before proceeding.

8

Passing a signal at danger controlled from a signal box that is closed

The person responsible: driver

8.1 Preconditions

driver

You may only pass a controlled signal at danger on your own authority if you have confirmed that the controlling signal box is closed.

8.2 Before starting

driver

You must make sure that any points, switch diamonds or swing-nose crossings worked from the signal box that is closed are set correctly for the movement.

You must operate the TPWS train stop override button.

8.3 During the movement

driver

You must proceed at caution, even if the line appears to be clear.

You must not pass over any points, switch diamonds or swing-nose crossings at more than 15 mph (25 km/h).

You must not exceed 10 mph (15 km/h) through any tunnel.

You must pass over any automatic level crossing only if you are sure it is safe to do so.

8.4 At the next stop signal

You must repeat the requirements of sections 8.2 and 8.3 of this module at any other controlled signal at danger that is operated from the same signal box.

driver

8.5 At the next signal box

When you reach the next signal box, you must contact the signaller there at the first opportunity.

driver

9

Driver passing a signal at danger or an EoA without authority

The people responsible: driver (or person controlling the movement), signaller

9.1 Passing a signal at danger or an EoA without authority

driver (or person controlling the movement)

If you pass a signal at danger or an EoA without authority, you must:

- stop the train immediately
- tell the signaller that the signal has been passed at danger or the EoA has been passed without authority.

driver

You must answer the questions the signaller asks you.

You must not proceed until the signaller gives permission.

9.2 Seeing a SPAD indicator illuminated

driver (or person controlling the movement)

If you see a SPAD indicator illuminated, you must:

- stop the train immediately
- contact the signaller.

You must carry out this instruction even if the SPAD indicator applies to a signal on another line.

9.3 Signaller's actions

When a train has stopped after any of the following, the driver should contact you immediately.

- A signal has been passed at danger.
- A train has been subject to an ERTMS trip.
- A train has passed an EoA without authority.
- Any other unauthorised movement has taken place.

You must make sure the driver is aware of the circumstances.

In the case of a train being subject to an ERTMS trip, you do not need to carry out the rest of this instruction if:

- you and the driver are sure the trip was not caused by the train exceeding its movement authority
- the tripping was not caused by a failure of the trackside equipment.

You must get the driver's answers to the questions on form RT3189 (SPAD) or (ERTMS Train trip or unauthorised movement) as appropriate.

You may allow the train to be moved to a more convenient place to complete the form as long as:

- the driver is prepared to make the movement
- the movement will not proceed beyond another main aspect stop signal or block marker
- you make sure the route is correctly set for the movement.

signaller

signaller

You must:

- complete the rest of the RT3189 form
- report the incident and send the form electronically, or dictate it, to Operations Control.

You must not allow the train involved to proceed until authorised by Operations Control. If the driver reports that the SPAD resulted from exceptional railhead conditions, you must also carry out the instructions in section 28 of module TW1 *Preparation and movement of trains*.

If you have any doubt about the correct working of any signal involved in a SPAD, you must treat it as defective and tell Operations Control.

You must also tell Operations Control about, and treat as defective, any points that may have been 'run through' during the incident, whether or not damage is obvious.



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Rule Book

Observing and obeying signalling indications

Train warning systems

Reporting signalling failures and irregularities

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carry out the duties of a:

- driver
- person controlling train movements
- shunter
- signaller.

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Section

1

General duties

- 1.1** Obeying signals, the ERTMS driver machine interface (DMI) and block markers
- 1.2** Train signalled towards a wrong route
- 1.3** Signals that control the exit from sidings
- 1.4** Entering an ERTMS area from a siding
- 1.5** Signal not showing or not showing correctly
- 1.6** Train stopped or nearly stopped at a signal at danger

2

Starting a train after stopping

- 2.1** Train stopped on the approach to a signal or end of authority (EoA)
- 2.2** Train stopped before the whole train has passed a signal that is showing 'proceed'

3

Movements made on the authority of a position-light, subsidiary or shunting signal

- 3.1** Passenger train at a position-light or semaphore shunting signal
- 3.2** Route indication not shown
- 3.3** Returning to the approach side of a signal

Section

4

When a train or shunting movement is required to reverse

- 4.1 Authority for the movement to be made
- 4.2 Train standing beyond a signal

5

Automatic warning system (AWS)

- 5.1 Cancelling an AWS warning indication
- 5.2 AWS warning when a semaphore distant signal shows clear
- 5.3 AWS warning when there is no AWS track equipment

6

Train protection and warning system (TPWS)

- 6.1 TPWS operation other than approaching buffer stops
- 6.2 TPWS operation when approaching buffer stops
- 6.3 Temporary isolation of TPWS train equipment
- 6.4 TPWS train stop override
- 6.5 TPWS operation other than a SPAD

Section

7

Reporting signalling failures and irregularities

- 7.1** Signalling equipment
- 7.2** Boards and indicators
- 7.3** Signals difficult to see because of sunlight, streetlights or reflections
- 7.4** Signals, lineside boards or signs becoming difficult to see because of trees, foliage or other obstructions
- 7.5** Shunting movements
- 7.6** ERTMS failures or irregularities
- 7.7** Reporting a signal/AWS/ERTMS/TPWS failure or irregularity

8

ERTMS failures

- 8.1** If the train fails to transition when entering an ERTMS area
- 8.2** If the train fails to transition when leaving an ERTMS area

1 General duties

The person responsible: driver (or person controlling train movements)

1.1 Obeying signals, the ERTMS driver machine interface (DMI) and block markers

a) Trains on which ERTMS is operating

You must obey the indications on the driver machine interface (DMI), except when it is necessary as shown in the rules to travel at a lower speed than that indicated.

On lines with lineside signals if you have received an MA that extends beyond a signal at danger, you must stop the train as quickly as possible and immediately tell the signaller.

You must observe ERTMS cab signalling boards.

b) Trains on which ERTMS is not operating

You must obey each signal which applies to the movement of your train.

1.2 Train signalled towards a wrong route

If a train has been signalled towards a wrong route, you must:

- stop the train as soon as it is possible to do so safely
- tell the signaller.

driver

driver (or
person
controlling
train
movements)

driver (or
person
controlling
train
movements)

1.3 Signals that control the exit from sidings

driver

If the signal applies to more than one siding and there are other trains standing in these sidings, you must not move forward and foul any of these sidings when the signal clears, until the person in charge of movements gives you permission to do so.

1.4 Entering an ERTMS area from a siding

driver

While waiting for an MA or other authority at the exit from sidings, if possible, you must not allow the front of the train to stand foul of any other siding. This applies unless the person in charge of movements gives you permission to do so.

1.5 Signal not showing or not showing correctly

driver (or
person
controlling
train
movements)

If a signal is not showing or not showing correctly, you must treat:

- a stop signal as being at danger
- a distant signal as being at caution
- a position-light signal, subsidiary signal or shunting signal as being at normal.

You must do this if any of the following applies.

- No signal is shown when there should be one.
- The aspect of a colour light signal is not clear or obvious.
- There is no light at all.
- A white light is showing instead of a red, yellow or green.
- A semaphore signal is not showing correctly.
- One light is showing at a position-light signal or subsidiary signal when there should be two.

1.6 Train stopped or nearly stopped at a signal at danger

If you have stopped or nearly stopped at either of the following types of signal at danger and that signal changes to a proceed aspect or indication, you must be prepared to stop at the next stop signal worked by the same signalbox.

- A colour light signal that cannot display a yellow aspect.
- A semaphore signal.

This does not apply to the signal controlling the entrance to an intermediate block section.

driver

2 | Starting a train after stopping

*The person responsible: **driver (or person controlling train movements)***

2.1 Train stopped on the approach to a signal or end of authority (EoA)

driver (or person controlling train movements)

If you have to stop the train on the approach to a signal that is showing 'proceed', you must make sure the signal still shows 'proceed' before you re-start the train.

If you have to stop a train on which ERTMS is in operation before the end of the movement authority (MA), you must make sure you still have a valid MA to proceed before you re-start the train.

If the train cannot continue, you must tell the signaller immediately.

2.2 Train stopped before the whole train has passed a signal that is showing 'proceed'

driver (or person controlling train movements)

If you have stopped the train before the whole train has passed a signal that is showing 'proceed', you may act on the aspect or indication that was being displayed when you passed the signal. This applies unless you are instructed that the train is not to proceed.

3

Movements made on the authority of a position-light, subsidiary or shunting signal

*The person responsible: **driver (or person controlling train movements)***

3.1 Passenger train at a position-light or semaphore shunting signal

Unless authority is published or you are instructed to do so by the signaller or another person acting on the signaller's instructions, you must not proceed with a passenger train on the authority of:

driver

- a semaphore shunting signal
- a position-light signal.

However, you may proceed with a passenger train on the authority of a position-light or semaphore subsidiary signal if you are entering a permissive platform line.

3.2 Route indication not shown

If a position-light or subsidiary signal is cleared but the normal route indication is not shown, you must:

- make sure the movement is made at caution
- be prepared to stop before you reach any obstruction.

driver (or person controlling train movements)

3.3 Returning to the approach side of a signal

driver (or person controlling train movements)

If you have made a shunting movement on the authority of a position-light signal, a shunt-ahead signal or a semaphore shunting signal, you must not proceed on your journey until:

- the movement has returned to the approach side of a signal
- the signal displays the appropriate proceed aspect or indication for the movement.

If the shunting movement cannot return to the approach side of the signal, you must carry out the instructions shown in section 4.2.

4

When a train or shunting movement is required to reverse

The person responsible: driver (or person controlling train movements)

4.1 Authority for the movement to be made

a) Trains on which ERTMS is NOT operating

When a train or shunting movement is required to reverse, you must only allow the movement to take place when one of the following applies.

- The signal controlling the movement is cleared.
- The signaller gives you permission to move towards a signal which will control the further movement of the train.
- The leading end of the train is standing beyond the signal controlling the movement and the signal cannot be cleared, and the movement is to proceed in accordance with section 4.2 b).
- There is no signal for the movement and the signaller gives you permission to make a wrong-direction movement.

b) Trains on which ERTMS is operating

When a train or shunting movement is required to reverse, you must only allow the movement to take place when one of the following applies.

- An MA is received.
- There is no signalled route for the movement and the signaller gives you permission to make a wrong-direction movement.

driver (or
person
controlling
train
movements)

4.2 Train standing beyond a signal

a) When the signal can be cleared for the reverse movement

driver

If any part of your train is standing beyond the signal controlling the movement, you must not start the movement until the signal is cleared.

If you cannot see the signal, you must ask the guard, shunter or driver at the other end of the movement to tell you when the signal is cleared.

person controlling train movements

If any part of your train is standing beyond the signal controlling the movement, you must not give the signal to the driver to start the movement until the signal is cleared.

If you cannot see the signal, you must check the signal yourself or ask the driver to tell you when the signal is cleared.

b) When the signal cannot be cleared for the reverse movement

driver (or person controlling train movements)

If the signal cannot be cleared, you must:

- find out whether a movement can be made which will allow the whole train to be positioned on the approach side of the signal
- if necessary ask the signaller for permission to do this.

driver

If it is not possible for the train to return to the approach side of the signal, you must ask the signaller for permission to proceed beyond the signal in the direction to which it applies.

5 Automatic warning system (AWS)

The people responsible: driver, signaller

5.1 Cancelling an AWS warning indication

You must immediately cancel each warning indication and:

driver

- obey the signal aspect or indication, or
- control the speed of the train to no more than the speed shown on the warning board, emergency indicator or other indicator.

If you do not immediately cancel the AWS warning indication, the brakes will be automatically applied. In this case you must:

- make sure the train comes to a stand
- tell the signaller what has happened.

If you are both sure that it was not TPWS on track equipment that caused the brake application, the train can proceed normally.

driver,
signaller

5.2 AWS warning when a semaphore distant signal shows clear

You must treat a semaphore distant signal as being at caution if you receive an AWS warning indication when the signal is showing a clear indication.

driver

You do not need to treat the signal as being at caution if:

- the signal changes to a clear indication after the train has passed over the AWS magnet
- a warning board or emergency indicator is positioned at the signal.

5.3 AWS warning when there is no AWS track equipment

driver

If you receive an AWS warning indication and you are certain that the train has not passed over any AWS on track equipment, you must:

- proceed normally
- report this to the signaller at the earliest opportunity.

6 Train protection and warning system (TPWS)

The person responsible: driver, signaller

6.1 TPWS operation other than approaching buffer stops

If an automatic brake application is initiated as a result of the operation of TPWS, you must:

driver

- acknowledge the TPWS brake demand
- make sure the train comes to a stand
- tell the signaller what has happened
- carry out the instructions you are given by the signaller
- not make any further movement of the train until instructed.

If you and the signaller are sure that TPWS on track equipment did not cause the brake application, the train can proceed normally.

6.2 TPWS operation when approaching buffer stops

If an automatic brake application is initiated as a result of the operation of TPWS when approaching buffer stops, you must:

driver

- acknowledge the TPWS brake demand
- after the train has come to a stand, move forward to the normal stopping point if it is safe to do so
- tell the signaller what has happened
- carry out the instructions you are given by the signaller.

6.3 Temporary isolation of TPWS train equipment

driver

You must only isolate TPWS equipment when:

- you are authorised in the rules
- you are specifically authorised due to a TPWS fault.

6.4 TPWS train stop override

driver

You must only use the TPWS train stop override when authorised in the rules.

6.5 TPWS operation other than a SPAD

signaller

When a train is stopped by the TPWS, the driver will contact you.

If you and the driver are sure the TPWS was not activated by on track equipment, the train may be allowed to proceed normally.

If TPWS was activated by on track equipment, you must:

- get the driver's answers to the questions on form Activation of TPWS (RT3188)
- complete the rest of the form
- report the incident and send the form electronically, or dictate it, to Operations Control.

You may allow the train to proceed to a more convenient place so that you can get the driver's answers to the questions.

You may allow the train involved to continue its journey when all the necessary information has been obtained and the driver is fit to continue.

If you have any doubt about the correct working of any TPWS on track equipment involved in a TPWS activation, you must treat it as defective and tell Operations Control.

7

Reporting signalling failures and irregularities

The people responsible: driver, shunter, signaller

7.1 Signalling equipment

You must tell the signaller immediately, stopping the train specially if necessary, if you become aware of a signalling failure or irregularity on any line. This may include:

- the failure in the working of a signal
- an irregularity in the working of a signal
- an irregular aspect sequence
- no signal shown when there should be one
- the aspect of a colour light signal not being distinct or obvious
- a semaphore signal not showing correctly
- a white light showing instead of a red, yellow or green
- a failure or irregularity in the working of the on-board ERTMS equipment
- an MA beyond a signal at danger
- a signal showing a proceed indication but no MA received
- a signal or associated indicator difficult to see because of sunlight, streetlights or reflections
- a signal difficult to see because of trees, foliage or other obstructions.

However, you must tell the signaller at the first opportunity without causing delay if you see any failures or irregularities of the following signals which apply to another line.

- A position-light signal.
- A subsidiary signal.
- A shunting signal.

You do not need to stop the train specially to do this.

driver

7.2 Boards and indicators

driver

You must tell the signaller at the first opportunity if any of the following is missing, difficult to see, or unlit when it should be lit.

- A block marker.
- A limit of shunt signal or indicator.
- A shunt entry board.
- A 'start of cab signalling' board.
- An 'end of cab signalling' board.
- A stop board.
- Any other lineside board or sign.

You do not need to stop the train specially to do this.

signaller

You must tell Operations Control. If possible you must tell the driver about the defective limit of shunt signal or indicator, or stop board before allowing a movement towards it.

7.3 Signals difficult to see because of sunlight, streetlights or reflections

signaller

If a driver reports that a signal is difficult to see because of sunlight, streetlights or reflections, you must:

- tell Operations Control
- tell the driver of the next approaching train what has happened
- instruct that driver to report the state of the signal
- signal the train normally.

If the driver you have instructed to check the signal reports to you that the signal is not difficult to see, you may signal the following trains normally.

However, if that driver reports that the signal is difficult to see because of sunlight, streetlights or reflections, you must treat the signal as defective.

7.4 Signals, lineside boards or signs becoming difficult to see because of trees, foliage or other obstructions

If a signal, lineside board or sign is becoming difficult to see because of trees, foliage or other obstructions, you must tell the signaller at the first convenient opportunity. You do not need to stop the train specially to do this.

You must tell Operations Control but you do not need to treat the signal, board or sign as being defective.

driver

signaller

7.5 Shunting movements

If you become aware of signalling failures or irregularities when you are shunting, you must immediately tell the driver. You do not need to tell the signaller.

shunter

7.6 ERTMS failures or irregularities

If a driver reports an ERTMS failure or irregularity, you must:

- tell Operations Control
- tell the driver of the next train on which ERTMS is in operation what has happened
- instruct that driver to report whether the expected ERTMS indications are received
- signal the train normally.

If the driver reports back that the ERTMS signalling is working normally, you may signal following trains normally.

If the driver reports that the expected ERTMS indications were not received, you must treat the signalling equipment concerned as defective.

signaller

7.7 Reporting a signal/AWS/ERTMS/TPWS failure or irregularity

a) Completing form RT3185

driver,
signaller

When a signal, AWS, ERTMS or TPWS failure or irregularity is reported, you must both complete form RT3185 with all the required details.

Completed RT3185 forms must be handed in as shown in your company instructions.

b) Reporting to Operations Control

signaller

You must tell Operations Control and make a suitable entry in the Train Register.

c) Exceptions

signaller

You do not need to complete form RT3185 if:

- the fault is clearly a right-side failure, or
- you can explain the failure or irregularity to be a right-side failure and you are fully aware of the circumstances of the failure.

You must still tell Operations Control and make a suitable entry in the Train Register.

driver

You do not need to immediately complete form RT3185 if the signaller:

- can tell you the fault or irregularity is clearly a right-side failure, or
- can explain why it is a right-side failure and can confirm the circumstances of the failure.

You must then complete RT3185 at the first convenient opportunity.

d) Reporting AWS faults

You must immediately tell the signaller, stopping the train specially if necessary, if:

driver

- you receive an AWS clear indication when a warning indication should have been received (fault code 5)
- you do not receive any AWS indication when a warning indication should have been received (fault code 7).

Other AWS faults where the failure is to give a clear indication must be reported to the signaller at the first convenient opportunity.

8

ERTMS failures

The people responsible: driver, signaller

8.1 If the train fails to transition when entering an ERTMS area

a) On a line where lineside signals are not provided

driver

If the train fails to transition automatically after the train has passed the 'start of cab signalling' board, you must:

- make sure the train comes to a stand
- tell the signaller.

driver,
signaller

You must then carry out the instructions shown in module TW5 *Preparation and movement of trains Defective or isolated vehicles and on-train equipment.*

b) On a line where lineside signals are provided

driver

If the train fails to transition automatically after the train has passed the 'start of cab signalling' board, you must check that the train is operating at a ERTMS level compatible with lineside signals and continue to obey signals.

You must tell the signaller at the first convenient opportunity that the train did not transition unless you had been advised of a reason why the train might not transition.

If the train is not operating at a ERTMS level compatible with lineside signals, you must:

- make sure the train comes to a stand
- tell the signaller.

driver,
signaller

You must then carry out the instructions shown in module TW5 *Preparation and movement of trains Defective or isolated vehicles and on-train equipment.*

8.2 If the train fails to transition when leaving an ERTMS area

If the train fails to transition, you must:

- make sure the train comes to a stand
- tell the signaller.

You must then carry out the instructions shown in module TW5 *Preparation and movement of trains Defective or isolated vehicles and on-train equipment*.

driver

driver,
signaller



GE/RT8000/SP
Rule Book

Module SP

Speeds

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You will need this module if you
carry out the duties of a:

- driver
- signaller
- train preparer.

Conventions used in the Rule Book	Example
A black line in the margin indicates a change to that rule and is shown when published in the module for the first time.	
Green text in the margin indicates who is responsible for carrying out the rule.	driver
A white i in a blue box indicates that there is information provided at the bottom of the page.	
<div style="border: 2px solid red; padding: 5px;">A rule printed inside a red box is considered to be critical and is therefore emphasised in this way.</div>	

Section

1

Definitions

2

Permissible speeds

- 2.1 Permissible speeds and enhanced permissible speeds
- 2.2 Locomotives running light or hauling trains

3

Temporary speed restriction (TSR)

- 3.1 Driving over a TSR
- 3.2 Normal arrangements with lineside equipment
- 3.3 Arrangements on ERTMS lines
- 3.4 Where there is a fixed AWS magnet
- 3.5 TSRs on single and bi-directional lines
- 3.6 Consecutive TSRs
- 3.7 One TSR inside another
- 3.8 TSRs at a diverging junction
- 3.9 TSRs beyond a station or siding connection
- 3.10 TSR at a location where trains can reverse or change drivers
- 3.11 TSR across an ERTMS transition
- 3.12 When a TSR is to be moved
- 3.13 When a TSR is not introduced
- 3.14 When a TSR is eased or removed early

4 **Emergency speed restriction (ESR)**

- 4.1 Signaller's actions
- 4.2 Driver's actions
- 4.3 Normal arrangements
- 4.4 Where there is a fixed AWS magnet
- 4.5 Emergency indicator to stay in position

5 **Defective or missing ESR or TSR equipment**

- 5.1 Speed restriction boards or indicators missing or incorrect
- 5.2 Speed restriction boards or indicators that are, or are becoming, difficult to see
- 5.3 Defective or missing emergency indicator

6 **Blanket speed restrictions**

1

Definitions

Blanket speed restriction

A speed restriction which applies to an area rather than a geographical location.

Differential speeds

If there is a differential permissible speed, or a differential temporary or emergency speed restriction, the higher speed applies to passenger, parcels and postal trains (loaded or empty) and light locomotives. The lower speed applies to all other trains.

Emergency speed restriction

A speed restriction on an ERTMS line without lineside signals which has been imposed without ERTMS supervision.

A speed restriction on an ERTMS line with lineside signals which:

- has been imposed without ERTMS supervision
- has not been published in the *Weekly Operating Notice*
- has been published, but the times, speed or limits are different from those published
- has been imposed again after being withdrawn early
- has been shown in an amendment to the *Weekly Operating Notice*.

On any other line a speed restriction which:

- has not been published in the *Weekly Operating Notice*
- has been published, but the times, speed or limits are different from those published
- has been imposed again after being withdrawn early
- has been shown in an amendment to the *Weekly Operating Notice*.

Enhanced permissible speeds

These speeds apply to class 221 and class 390 trains in tilting mode. Where differential signs are provided, the bottom figure shows the higher speed and applies to class 390 trains in tilting mode. The top figure applies to class 221 trains in tilting mode.

Permissible speed

The speed which is published in Table A of the *Sectional Appendix*.

Temporary speed restriction

A speed restriction on an ERTMS line without lineside signals which has been imposed by means of ERTMS supervision.

A speed restriction on an ERTMS line with lineside signals which has been imposed by means of ERTMS supervision and the details of which have been published in the *Weekly Operating Notice*.

On any other line a speed restriction, the details of which have been published in the *Weekly Operating Notice*.

2

Permissible speeds

The people responsible: driver, train preparer

2.1 Permissible speeds and enhanced permissible speeds

driver

You must:

- control the speed of your train to no more than the permissible speeds, or any enhanced permissible speed that applies to your train, on all sections of the line
- make sure the whole of your train has passed clear of a section of line with a lower speed before increasing your speed.

Where there are differential permissible speeds, you must control the speed of your train to no more than the speed that applies to that train.

Where permissible speeds are shown with letters, they apply only to the trains shown by the letters. You can allow your train to travel at no more than that speed, providing it is a train of the type to which the permissible speed applies.

This is what the letters mean.

HST	High speed trains
MU	Multiple-unit trains
DMU	Diesel multiple-unit trains
EMU	Electric multiple-unit trains
SP	Sprinter multiple-unit trains
CS	Class 67 locomotives

The classes of train that can travel at these speeds are shown in the *Sectional Appendix*.

2.2 Locomotives running light or hauling trains

You must make sure that locomotive-hauled trains in the formation shown, or locomotives running light, do not exceed the speeds shown in the table below where the permissible speed is more than 60 mph (95 km/h).

Train formation	Permissible speed	
	90 mph (145 km/h) or above	85 mph (135 km/h) or less
Any number of locomotives running light, or one or two locomotives with one, two or three coaching stock vehicles, or three or more locomotives and any number of coaching stock vehicles.	75 mph (120 km/h)	60 mph (95 km/h)

You must make sure that locomotive-hauled trains conveying any mark 1 or mark 2 coaching vehicles, postal or parcels vehicles, or mark 3 sleeper coaching stock vehicles do not exceed the speeds shown in the table below where the permissible speed is more than 75 mph (120 km/h).

Train formation	Permissible speed		
	100 mph (160 km/h) or above	90 or 95 mph (145 or 155 km/h)	80 or 85 mph (130 or 135 km/h)
A locomotive with four, five or six vehicles, or two locomotives and from four to 10 vehicles.	90 mph (145 km/h)	80 mph (130 km/h)	75 mph (120 km/h)

You do not need to apply any of the restrictions in this section to some classes of locomotives, if shown in your train operating company instructions.

driver,
train
preparer

3

Temporary speed restriction (TSR)

The person responsible: driver

3.1 Driving over a TSR

driver

When driving over a TSR, you must:

- control the speed of your train to no more than the speed shown on the warning board or the speed shown on the DMI
- make sure the whole of your train has passed clear of a section of line with a lower speed before increasing your speed.

Where there are differential speeds shown on the warning board you must control the speed of your train to no more than the speed that applies to that train.

3.2 Normal arrangements with lineside equipment

The following equipment is used in connection with a TSR.

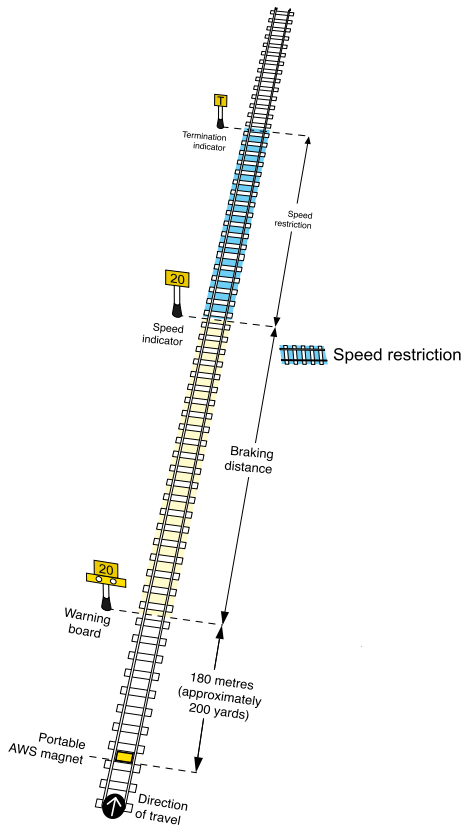
A portable AWS magnet is normally placed 180 metres (approximately 200 yards) on the approach to the warning board.

A warning board is placed on the approach to the speed indicator. The distance between the warning board and the speed indicator is normally the appropriate braking distance for the permissible speed at that location.

A speed indicator is placed at the start of the TSR.

A termination indicator is placed at the end of the TSR.

Diagram SP.1 on page 9 shows a normal TSR.



TSR normal arrangements
Diagram SP.1

signaller

3.3 Arrangements on ERTMS lines

On lines where lineside signals are not provided, AWS magnets and lineside equipment are not provided.

On lines where lineside signals are provided, the arrangements for the provision of AWS magnets and lineside equipment also apply.

You must make sure that planned TSRs are programmed into the system in enough time before they become active.

If available, a second competent person must check that each TSR is correctly:

- programmed into the system
- activated at the required time
- removed or changed at the required time.

3.4 Where there is a fixed AWS magnet

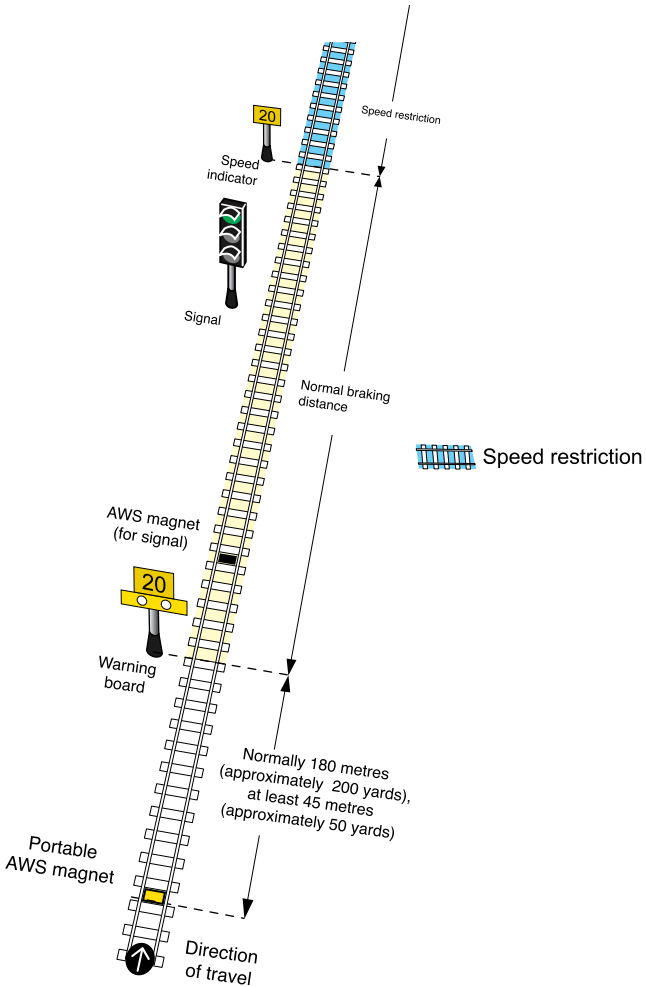
Diagram SP.2 on page 11 shows a TSR where there is already a fixed AWS magnet associated with a:

- signal
- permissible speed indicator
- level crossing warning board.

The warning board is not placed between a fixed AWS magnet and the equipment to which it applies.

If possible, the portable AWS magnet and the warning board are kept at the normal distance apart, but may be placed at a reduced distance of not less than 45 metres (approximately 50 yards).

The warning board may be placed at the signal, in which case the associated electro-magnet is disconnected and a temporary AWS magnet is not provided. The driver will always receive an AWS warning indication, no matter what aspect is displayed at the signal.



Where there is already a fixed AWS magnet

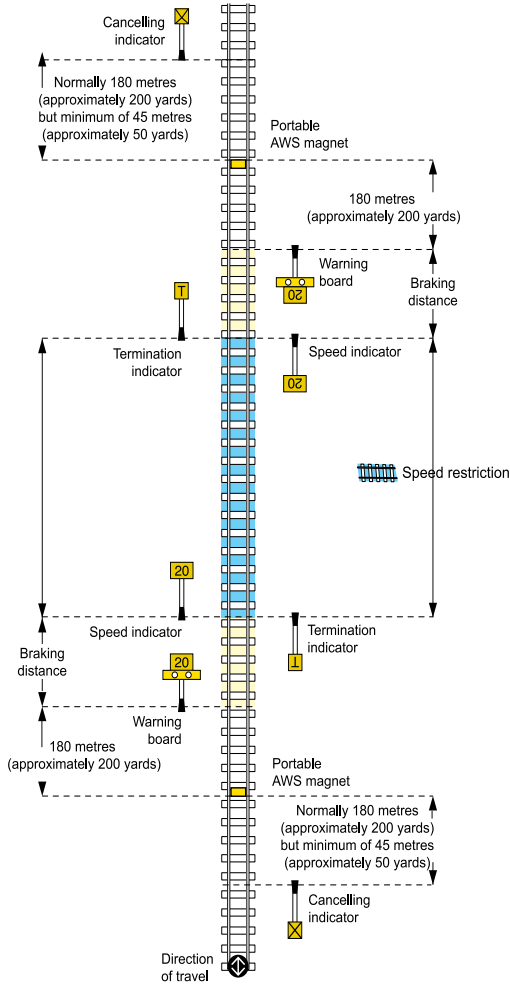
Diagram SP.2

| 3.5 TSRs on single and bi-directional lines

On a single or bi-directional line, equipment for a TSR is provided in both directions.

Diagram SP.3 on page 13 shows an example of the arrangements.

A cancelling indicator is normally placed 180 metres (approximately 200 yards) beyond the AWS magnet at each end of the restriction facing trains that have already passed through the speed restriction, but may be placed at a reduced distance of not less than 45 metres (approximately 50 yards).



Single and bi-directional lines

Diagram SP.3

3.6 Consecutive TSRs

a) If there is a lower speed restriction beyond a higher speed restriction

If there are two TSRs with a lower speed restriction immediately beyond a higher speed restriction, a termination indicator is not placed at the end of the higher speed TSR. Instead a speed indicator is placed showing the speed for the lower speed TSR.

Diagram SP.4 a) on page 15 shows two TSRs like this.

b) If there is not sufficient distance to position the boards and indicators in the normal way

If there is not sufficient distance to position the warning boards and indicators in the normal way, then:

- the second warning board is placed at least 45 metres (approximately 50 yards) beyond the first warning board
- the second portable AWS magnet is placed immediately beyond the first warning board.

Diagram SP.4 b) on page 15 shows two TSRs like this.

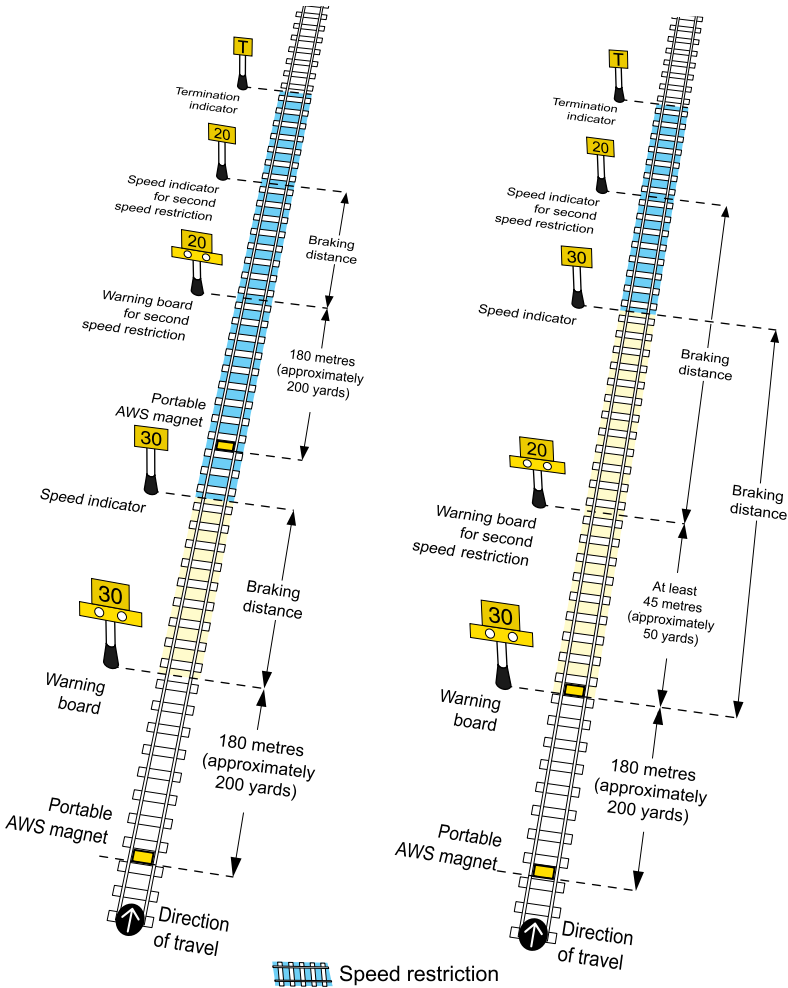
c) If there is a higher speed restriction beyond a lower speed restriction

If there are two TSRs with a higher speed restriction immediately beyond a lower speed restriction, a warning board is not provided for the second TSR. A termination indicator is not placed at the end of the lower speed TSR. Instead a speed indicator is placed showing the speed for the higher speed TSR.

Diagram SP.5 on page 16 shows two TSRs like this.

d) Termination indicator

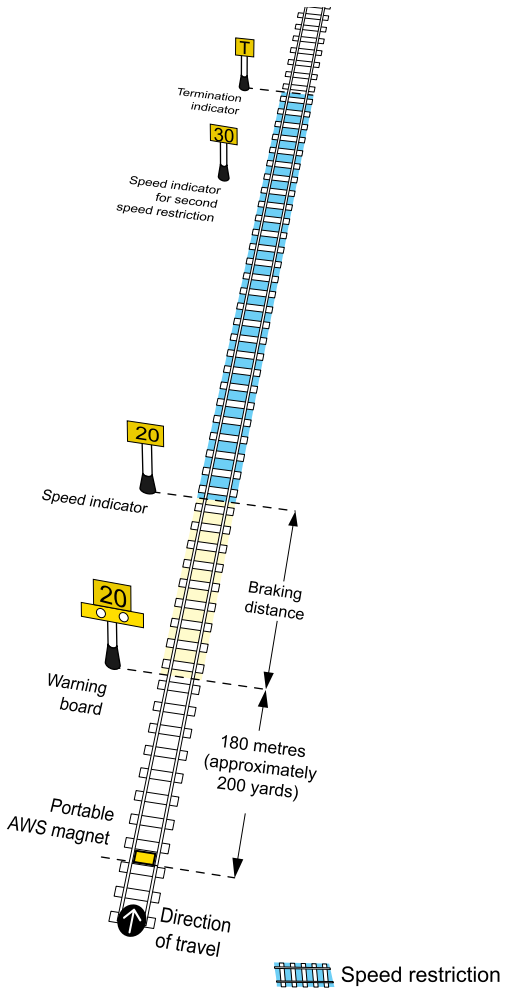
Only one termination indicator is provided. This is located at the end of the second TSR.



Consecutive TSRs

Diagram SP.4 a)

Diagram SP.4 b)



Consecutive TSRs
Diagram SP.5

3.7 One TSR inside another

a) If there is a lower speed restriction inside a higher speed restriction

If there are two TSRs with the lower speed restriction inside the higher speed, equipment is provided in the normal way except that the termination indicator is not placed at the end of the lower speed TSR. Instead a speed indicator is placed showing the speed of the higher speed TSR.

Diagram SP.6 a) on page 18 shows outer and inner TSRs like this.

b) If there is not enough distance to position the boards and indicators in the normal way

If there is not enough distance to position the warning boards and indicators in the normal way, then:

- the second warning board is placed at least 45 metres (approximately 50 yards) beyond the first warning board
- the second portable AWS magnet is placed immediately beyond the first warning board.

Diagram SP.6 b) on page 18 shows two TSRs like this.

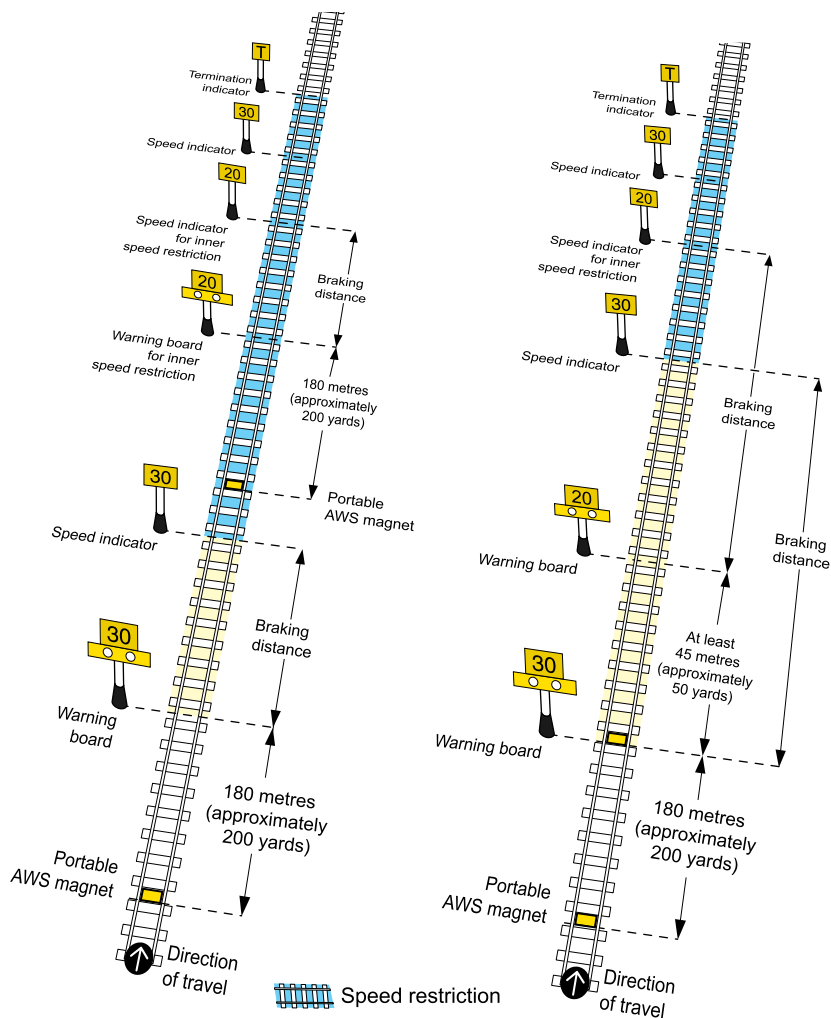
c) If there is a higher speed restriction inside a lower speed restriction

If there are two TSRs with the higher speed restriction inside the lower speed, a warning board is not provided for the higher speed TSR. A termination indicator is not placed at the end of the lower speed TSR. Instead a speed indicator is placed showing the speed for the higher speed TSR.

Diagram SP.7 on page 19 shows two TSRs like this.

d) Termination indicator

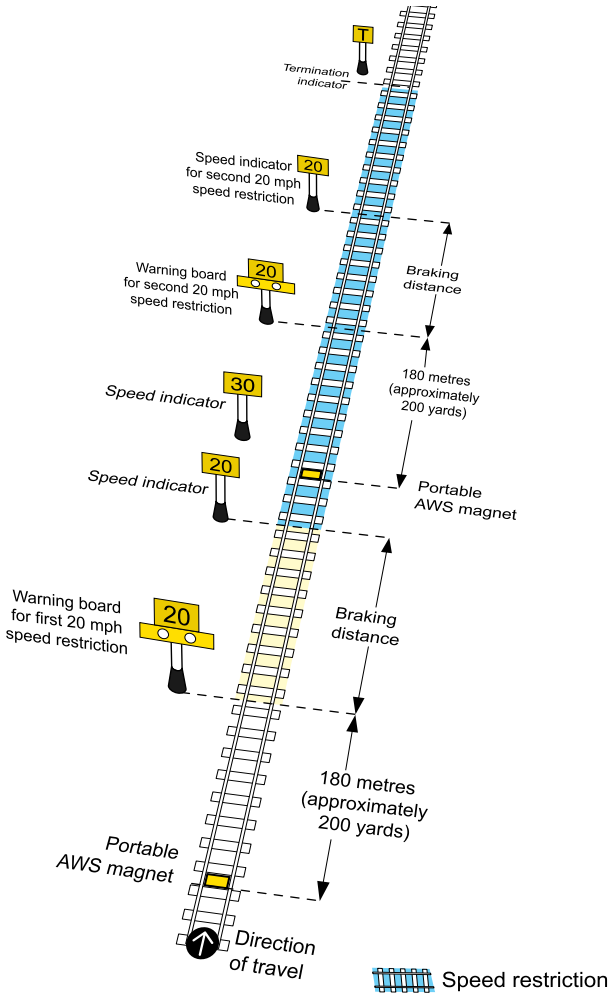
Only one termination indicator is provided. This is located at the end of the second TSR.



One TSR inside another

Diagram SP.6 a)

Diagram SP.6 b)



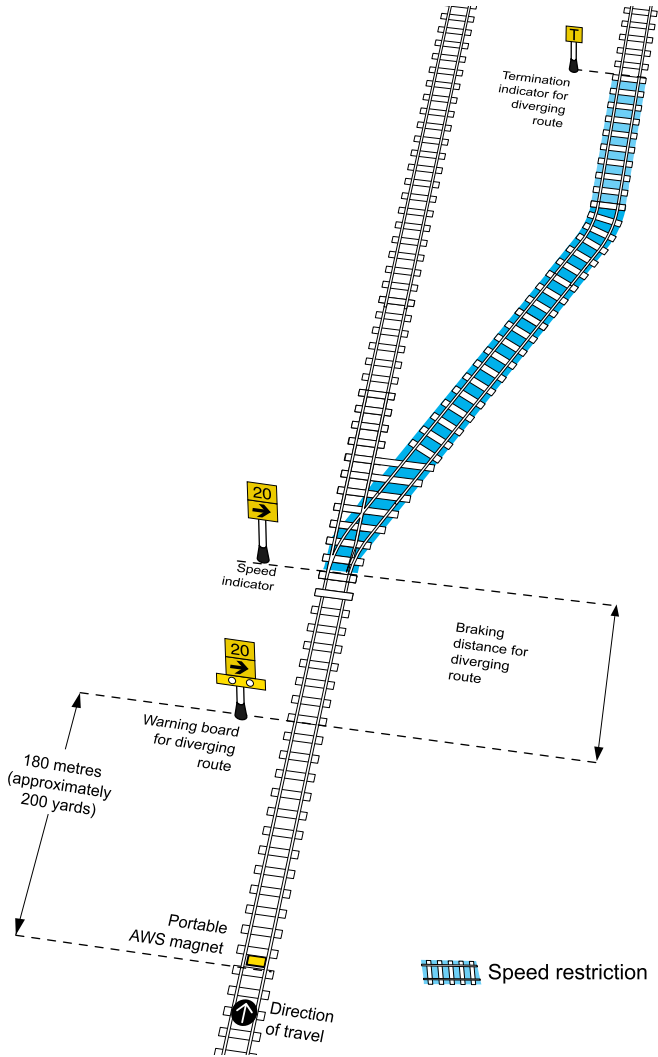
One TSR inside another
Diagram SP.7

3.8 TSRs at a diverging junction

a) TSR on diverging route only

Diagram SP.8 on page 21 shows a TSR on the diverging route only.

Equipment is provided in the normal way except that the warning board and speed indicator have a direction indicator to show that the TSR applies to the diverging route only.



TSR on diverging route only

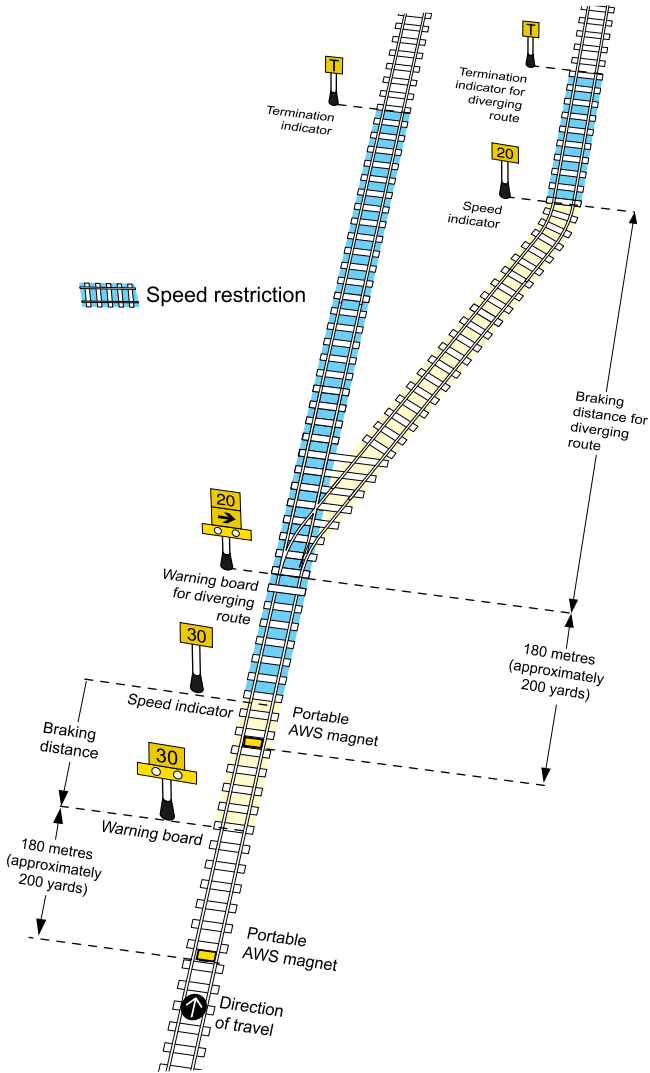
Diagram SP.8

b) TSR on one route commences beyond the junction

Diagram SP.9 on page 23 shows a TSR on one route which commences before the diverging junction, and a TSR on the other route commences beyond the junction.

The warning boards for both TSRs are positioned on the approach to the junction, but only the speed indicator on the diverging route is beyond the junction.

Equipment is provided in the normal way except that one warning board has a direction indicator to show that the TSR applies to the diverging route only.



TSR on one route commences beyond the junction

Diagram SP.9

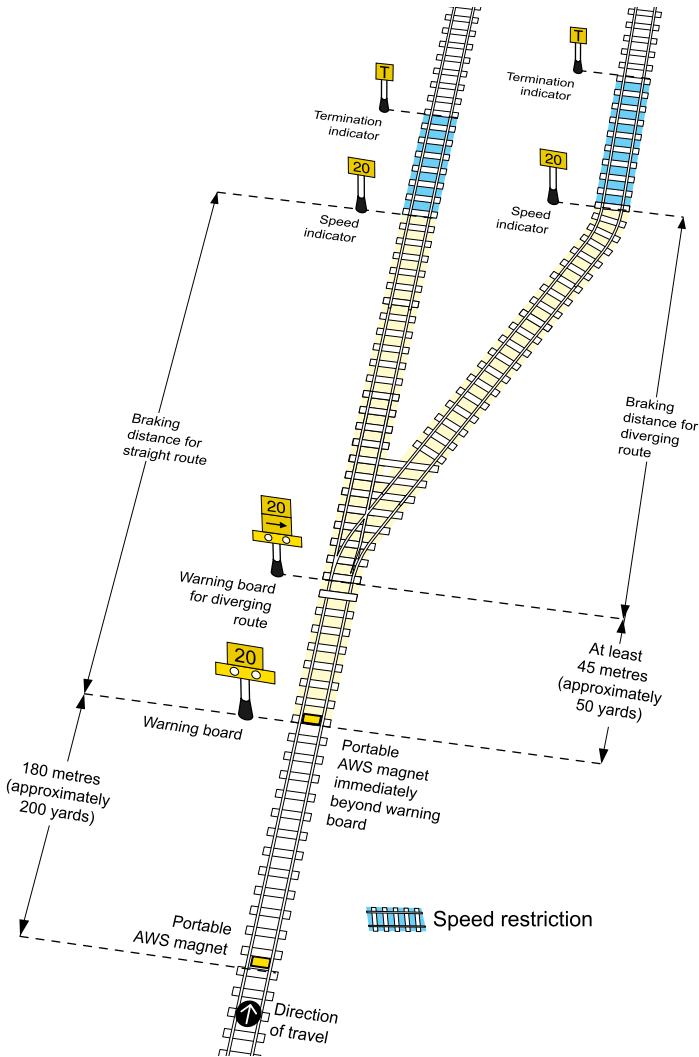
c) TSRs on both routes commencing beyond the junction

Diagram SP.10 on page 25 shows TSRs on both routes which both commence beyond a diverging junction. The warning boards for both TSRs are positioned on the approach to the junction, but the speed indicators on both routes are beyond the junction.

Equipment is provided using the normal arrangement except that one warning board has a direction indicator to show that the TSR applies to the diverging route only.

However, if there is not sufficient distance to position the warning boards and indicators in the normal way, then:

- the warning board for the straight route is positioned on the approach side of the second warning board
- the second warning board is placed at least 45 metres (approximately 50 yards) beyond the first warning board
- the second portable AWS magnet is placed immediately beyond the first warning board.



TSR on both routes commencing beyond the junction

Diagram SP.10

3.9 TSRs beyond a station or siding connection

These instructions apply to a TSR if the warning board is on the approach to a:

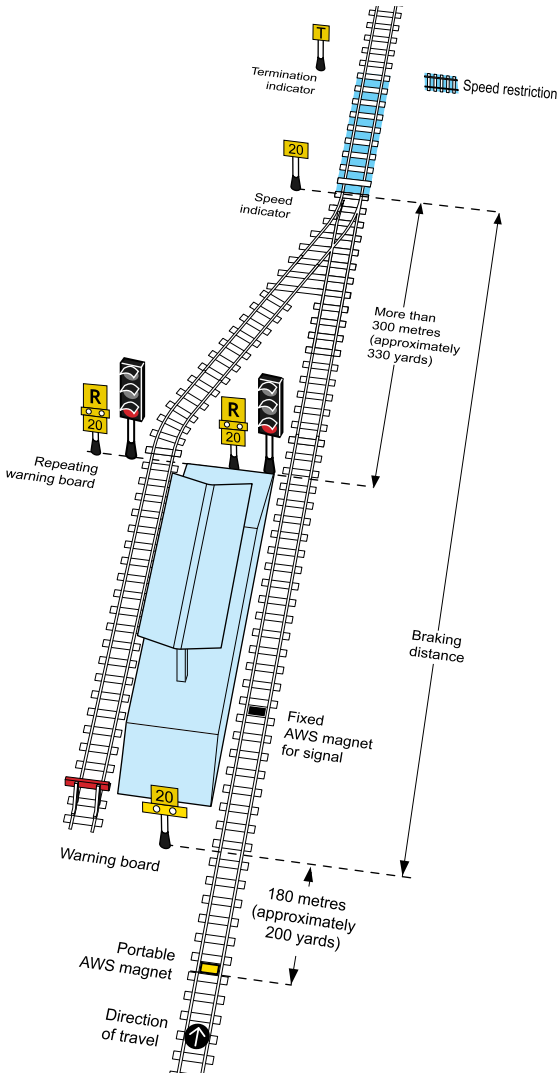
- passenger station
- connection from a siding
- connection from a dead-end platform line.

If the speed indicator is more than 300 metres (approximately 330 yards) beyond the station or sidings connection, a repeating warning board is placed as a reminder of the TSR as shown in diagram SP.11 on page 27.

The repeating warning board is placed at one of the following locations.

- Next to the platform starting signal (if there is one).
- Next to the siding exit signal.
- Immediately ahead of the station, siding connection or dead-end platform line.

A portable AWS magnet is not provided on the approach to the repeating warning board.



TSR beyond a station or siding connection

Diagram SP.11

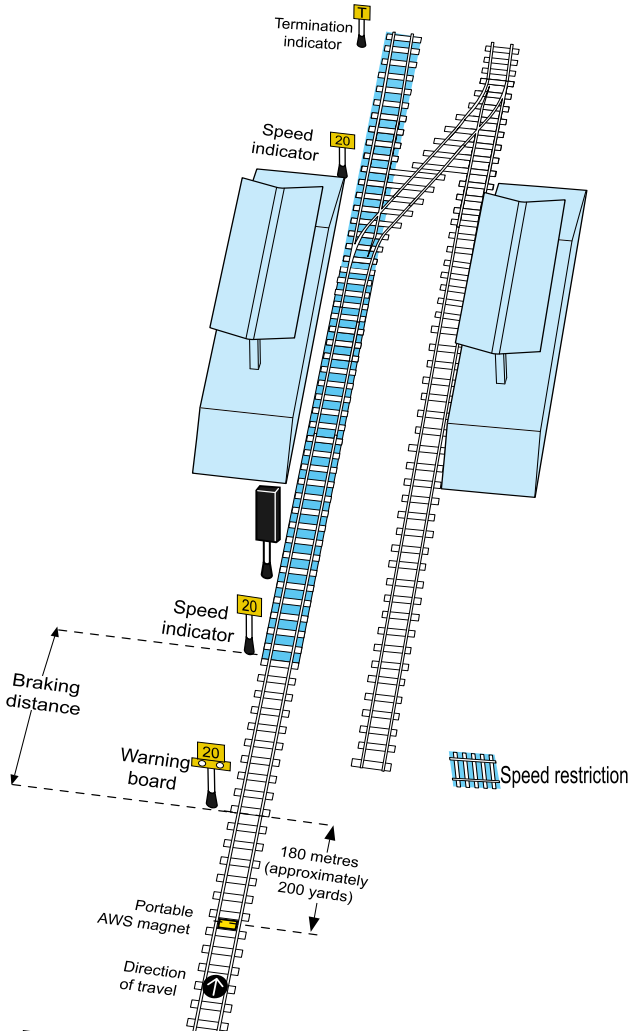
3.10 TSR at a location where trains can reverse or change drivers

These instructions apply to a TSR at a location where trains can reverse or regularly change drivers.

An additional speed indicator is placed within the TSR as a reminder of the TSR as shown in diagram SP.12 on page 29.

The additional speed indicator is placed at one of the following locations.

- Next to the starting signal.
- Immediately ahead of the station.



TSR at a location where trains can reverse or change drivers

Diagram SP.12

3.11 TSR across an ERTMS transition

On lines where lineside signals are provided, if the TSR starts within an ERTMS area but ends outside the ERTMS area, an additional speed indicator will be placed at the end of cab signalling board. See diagram SP.13 on page 31.

This arrangement also applies on a single or bi-directional line.

3.12 When a TSR is to be moved

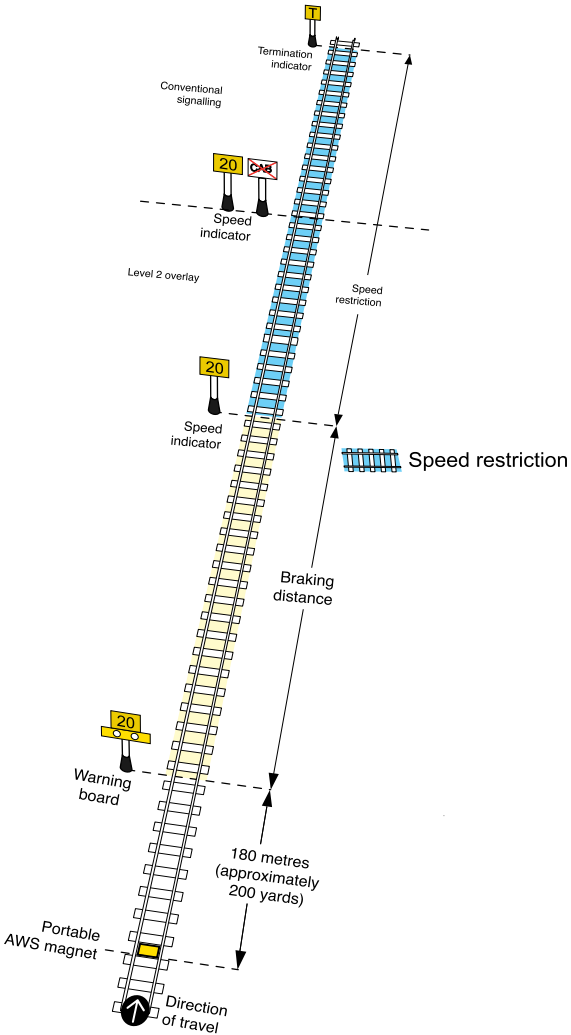
A TSR can be moved if the arrangements have been published in the *Weekly Operating Notice* and one of the following is applied.

- The warning board, speed indicator and termination indicator are all moved in the direction of travel.
- The warning board and speed indicator are moved towards the termination indicator.
- The termination indicator is moved towards the speed indicator.

3.13 When a TSR is not introduced

When a TSR has been published in the *Weekly Operating Notice* but the restriction is no longer needed, the details are published in a special notice at least 24 hours before the TSR is due to start. However, the warning boards and indicators are not provided.

If it is not possible to do this at least 24 hours before the TSR is due to start, the TSR is set up as planned but the normal permissible speed will apply. The warning boards and speed indicator show either the permissible speed or a SPATE indicator.



TSR across an ERTMS transition

Diagram SP.13

3.14 When a TSR is eased or removed early

When a TSR is eased to allow a higher speed earlier than that shown in the *Weekly Operating Notice*, the warning boards and speed indicator are changed to show the higher speed.

When a TSR is removed earlier than the time shown in the *Weekly Operating Notice*, the warning boards and speed indicator show either the permissible speed or a SPATE indicator.

4

Emergency speed restriction (ESR)

The people responsible: driver, signaller

4.1 Signaller's actions

If it is necessary to allow trains to pass over the ESR before the equipment is in place, you must stop each train which will travel over the ESR and tell the driver:

- the location where the ESR begins and ends
- the speed limit imposed.

You must continue with these arrangements until the equipment has been set up, and on an ERTMS line, the signalling system is supervising the speed restriction.

signaller

4.2 Driver's actions

When driving over an ESR before the equipment is in place, you must:

- control the speed of your train to travel over the affected portion of line at no more than the speed the signaller tells you
- make sure the whole of your train has passed clear of a section of line with a lower speed before increasing your speed.

After the equipment has been provided, you must control the speed of your train to no more than the speed shown on the warning board.

Where there are differential speeds shown on the warning board, you must control the speed of your train to no more than the speed that applies to that train.

driver

4.3 Normal arrangements

When an ESR is to last for more than a short time, equipment is provided as soon as possible. The normal equipment for a TSR is provided, and in addition an emergency indicator.

A portable AWS magnet is normally placed 180 metres (approximately 200 yards) on the approach to the emergency indicator.

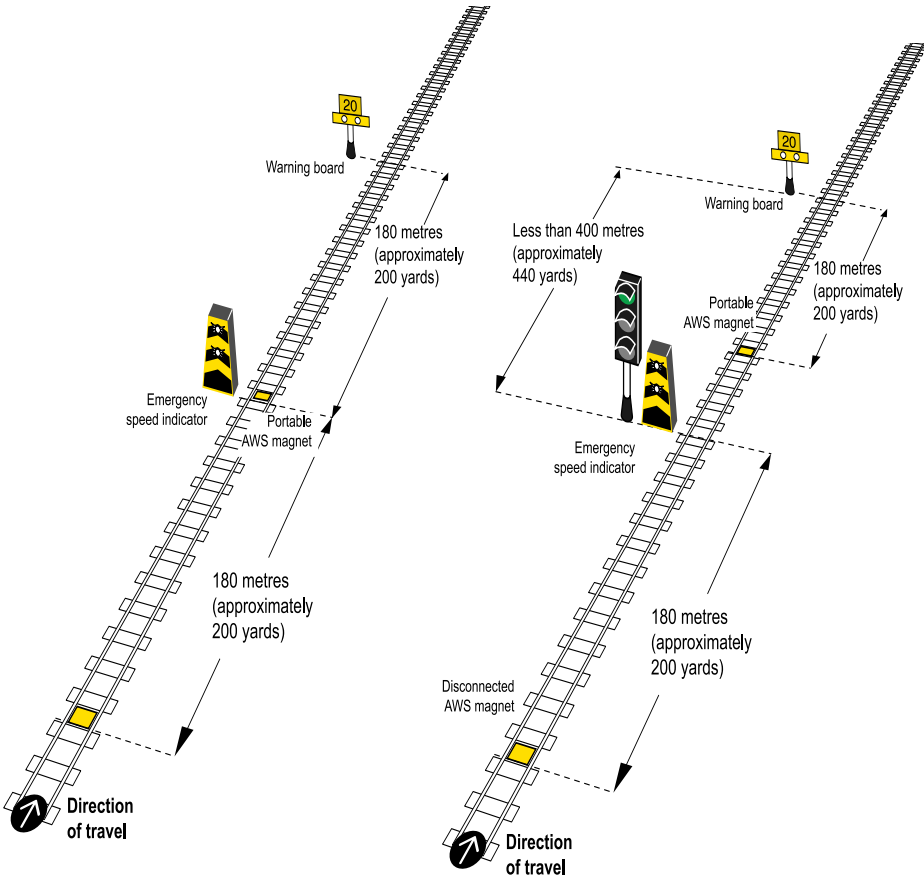
The emergency indicator is placed at least 180 metres (approximately 200 yards) and not more than 400 metres (approximately 440 yards) on the approach to the warning board.

The portable AWS magnet for the warning board is placed at or beyond the emergency indicator.

Diagram SP.14 a) on page 35 shows the normal arrangements for an emergency indicator.

signaller

On an ERTMS line you must make arrangements for the ESR to be programmed into the system.



Emergency indicator

Diagram SP.14 a)

Diagram SP.14 b)

4.4 Where there is a fixed AWS magnet

Diagram SP.14 b) on page 35 shows how an ESR is set up where there is already a fixed AWS magnet associated with a:

- signal
- permissible speed indicator
- level crossing warning board.

The emergency indicator is not placed between a fixed AWS magnet and the equipment to which it applies.

If possible, the portable AWS magnet and the warning board are kept at the normal distance apart, but may be placed at a reduced distance of not less than 45 metres (approximately 50 yards).

The emergency indicator may be placed at the signal, in which case the associated electro-magnet is disconnected and a portable AWS magnet is not provided. The driver will always receive an AWS warning indication, no matter what aspect is displayed at the signal.

4.5 Emergency indicator to stay in position

The emergency indicator will stay in position until:

- details of the speed restriction appear in the *Weekly Operating Notice*, or
- the speed restriction is withdrawn.

5

Defective or missing ESR or TSR equipment

The people responsible: driver, signaller

5.1 Speed restriction boards or indicators missing or incorrect

You must tell the signaller immediately if you see that a warning board, a repeating warning board or a speed indicator is:

driver

- missing
- in a different place from the one published in the *Weekly Operating Notice*
- is more restrictive than that shown in the *Weekly Operating Notice*.

You must also tell the signaller immediately if the speed shown on the DMI is different to that shown on lineside equipment or the *Weekly Operating Notice*.

If necessary you must stop your train specially.

You do not have to tell the signaller if you have already been told about this.

signaller

You must report the defect the driver has told you about to Operations Control.

You must tell the driver of each train which will travel over the restriction about the irregularity until it has been put right.

5.2 Speed restriction boards or indicators that are, or are becoming, difficult to see

driver

If you see a warning board, repeating warning board or speed indicator that is, or is becoming, difficult to see, you must tell the signaller at the first opportunity.

signaller

You must report this to Operations Control.

If the driver has reported that a warning board or indicator is difficult to see, you must also stop each train approaching the warning board or indicator and tell the driver about the difficulty until it has been put right.

5.3 Defective or missing emergency indicator

driver

You must tell the signaller immediately, if necessary stopping the train specially, if you see anything wrong with the emergency indicator.

signaller

You must report this to Operations Control.

You must stop each train approaching the emergency indicator and tell the driver about the ESR until the irregularity has been put right.

6

Blanket speed restrictions

*The people responsible: **driver, signaller***

If a blanket speed restriction is imposed over an area, emergency indicators and other track equipment are not provided.

If you are told by Operations Control that a blanket speed restriction is to be imposed, you must arrange for the driver of each affected train to be told about the speed restriction and the locations between which it is to be observed.

signaller

You do not need to do this if Operations Control has arranged to tell drivers by other means.

When a blanket speed restriction is imposed over an area, you must control the speed of your train to no more than the speed restriction throughout that defined area.

driver



GE/RT8000/SS1
Rule Book

Station duties and train dispatch

Issue 4

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You will need this module if you carry out the duties of:

- a driver
- a guard
- a person in charge (PIC) of platform
- staff responsible for train dispatch or the safety of the public and staff on stations.

Conventions used in the Rule Book	Example
A black line in the margin indicates a change to that rule and is shown when published in the module for the first time.	
Green text in the margin indicates who is responsible for carrying out the rule.	driver
A white i in a blue box indicates that there is information provided at the bottom of the page.	
<div style="border: 2px solid red; padding: 5px;">A rule printed inside a red box is considered to be critical and is therefore emphasised in this way.</div>	

Section

1

Definitions

2

Safety at station platforms

- 2.1 Equipment on platforms
- 2.2 Defective driver only (DO) equipment
- 2.3 Items falling onto the line
- 2.4 Station barrow crossings
- 2.5 Moving a train before station work is complete
- 2.6 Moving a train where permissive platform working is authorised
- 2.7 Maintenance and servicing to be completed
- 2.8 Defective slam doors
- 2.9 Opening doors before a train has stopped at the platform

3

Train dispatch

- 3.1 The 'station work complete' and 'train safety check complete' signal
- 3.2 The 'train safety check'
- 3.3 The 'ready-to-start' signal
- 3.4 Checking the platform starting signal
- 3.5 Dispatching a train with power-operated doors with a guard from a staffed platform
- 3.6 Dispatching a train with power-operated doors with a guard from an unstaffed platform

- 3.7** Dispatching a DO train with power-operated doors from a staffed platform
- 3.8** Dispatching a DO train from an unstaffed platform
- 3.9** Dispatching a train with central door locking from a staffed platform
- 3.10** Dispatching a train with central door locking from an unstaffed platform
- 3.11** Dispatching a DO train with central door locking from a staffed platform
- 3.12** Dispatching a train with slam doors without central door locking from a staffed platform
- 3.13** Dispatching a train with slam doors without central door locking from an unstaffed platform
- 3.14** Dispatching a DO train with slam doors without central door locking from a staffed platform

1

Definitions

Permissive working

Permissive working allows more than one train at a time to be on the same platform line.

Person in charge of platform

If more than one person is involved in train dispatch on any platform, one person must be designated the person in charge of the platform (PIC of platform).

Platform staff

For the purpose of this module the term platform staff includes the person in charge of the platform and the guard when they are alone.

Rolling stock technician

A person who is authorised and has the necessary technical competence to examine or repair specified items of equipment forming part of a train or vehicle.

Unstaffed platform

An unstaffed platform includes a platform when platform staff are not in attendance.

2 Safety at station platforms

The people responsible: driver, guard, PIC of platform, platform staff

2.1 Equipment on platforms

You must make sure that any trolleys or mobile station equipment left unattended are placed at least 1.8 metres (6 feet) from the platform edge and are properly secured.

platform
staff

2.2 Defective driver only (DO) equipment

If you see a defective platform-monitoring screen or mirror, you must tell the signaller at the first convenient opportunity. You do not need to do this if the screen or mirror is marked with an 'X' which shows that repairs are being carried out.

driver

2.3 Items falling onto the line

If anything falls onto the line which you consider is a danger to trains, you must immediately tell the signaller.

platform
staff

If you need to go onto a platform line to retrieve a dropped item, you must:

- have been trained to do so at the location concerned
- tell the signaller your name and your employer and why you need to go onto the line
- make sure that the signaller clearly understands on which line trains are to be stopped, including any adjacent line
- only go onto the line when the signaller gives you permission.

When you have retrieved the item, you must tell the signaller that you have returned to the platform, that the line is clear and trains can run as normal.

2.4 Station barrow crossings

platform
staff

If you need to take anything with small wheels over a barrow crossing and there is any possibility that the wheels could become trapped, you must:

- ask the signaller for permission before you use the crossing, even if warning lights are provided
- tell the signaller as soon as the equipment is clear of the crossing.

2.5 Moving a train before station work is complete

driver,
guard,
PIC of
platform

Before any movement is made towards a signal at danger, one of you must have the signaller's permission.

You must make sure the signaller is told when the movement has been completed.

guard,
PIC of
platform

If it is necessary to move a train before station work is complete, you must make sure all the doors are closed before instructing the driver to make any movement.

2.6 Moving a train where permissive platform working is authorised

driver,
guard,
PIC of
platform

On a permissive platform line, you must not allow any further movement after the train has come to a stand, other than for coupling or uncoupling, unless:

- a signal is cleared for the movement
- the movement is authorised by the signaller
- unless the train has received a movement authority (MA) to proceed beyond the next end of authority (EoA).

If the signaller gave authority for the movement, you must make sure the signaller is told when the movement has been completed.

2.7 Maintenance and servicing to be completed

If the train has been examined by a rolling stock technician, or other servicing has been carried out, you must make sure, before allowing the train to start that:

- the work has been completed
- no water pipes or NOT TO BE MOVED boards are attached
- all vehicles are fit to travel.

guard,
platform
staff

2.8 Defective slam doors

If a slam door is defective and you have locked and labelled it out of use, you must tell the guard or driver of a DO train.

platform
staff

2.9 Opening doors before a train has stopped at the platform

You must not open a door to allow a passenger to get in or out of a moving train.

platform
staff

3 Train dispatch

The people responsible: driver, guard, PIC of platform, platform staff

3.1 The ‘station work complete’ and ‘train safety check complete’ signal

platform staff

You must give the ‘**station work complete**’ or ‘**train safety check complete**’ signal by:

- raising one arm or a dispatch bat above your head during daylight, or
- holding a white light steadily at night or during poor visibility.

PIC of platform

You must give the ‘**station work complete**’ signal to the driver of a DO train by using a close doors (**CD**) indicator if there is one.

3.2 The ‘train safety check’

platform staff

When the train doors have been closed (and on trains fitted with central door locking, the central door locking has been locked), you must carry out the ‘train safety check’ by making sure that:

- the train doors are properly closed
- nobody is trapped in the doors, for example by clothing
- it is safe to start the train.

You must do this by positioning yourself on the platform, if necessary with another member of platform staff, so that the full length of the train can be seen.

You must also check that the exterior hazard lights have gone out on trains fitted with central door locking.

You must, where necessary, assist platform staff to carry out the 'train safety check'.

guard

You must carry out the 'train safety check' if there are no platform staff.

You must carry out the 'train safety check' on a DO train if there are no platform staff, using monitors or mirrors where provided.

driver

If you are unable to carry out the 'train safety check' from the cab because of defective monitors or mirrors or poor visibility, you must position yourself on the platform.

3.3 The 'ready-to-start' signal

You must give the '**ready-to-start**' signal to the driver by using the bell or buzzer communication.

guard

If there is no bell or buzzer communication, you must give the '**ready-to-start**' signal to the driver by displaying a green handsignal.

For a DO train, you must give the '**ready-to-start**' signal to the driver by displaying a green handsignal or using a right away (**RA**) indicator.

PIC of
platform

When a train is assisted in the rear, you must give the '**ready-to-start**' signal to the driver of the assisting locomotive.

You must relay the guard's '**ready-to-start**' signal to the driver if the driver cannot see the guard's '**ready-to-start**' signal, or if the train concerned is required to start by using the '**RA**' indicator.

If you receive the '**ready-to-start**' signal and the platform starting signal is at danger, or on an ERTMS line you have not received an MA to proceed beyond the next EoA, you must not move your train unless the signaller gives you permission to do so.

driver

Station duties and train dispatch

3.4 Checking the platform starting signal

guard,
platform
staff

Before you begin the train dispatch procedure you must make sure that:

- the platform starting signal, if there is one, is showing a proceed aspect, or an associated '**OFF**' indicator is illuminated, or
- the driver has received an MA, or
- the driver has the signaller's permission to pass the signal at danger or permission to pass the EoA without an MA.

You must carry out this check again before giving the '**ready-to-start**' signal to the driver.

driver

Before you start your train, you must check that:

- the platform starting signal, if there is one, is showing a proceed aspect, or an associated '**OFF**' indicator is illuminated, or
- you have received an MA to clear the platform, or
- you have the signaller's permission to pass the signal at danger or to pass the EoA without an MA.

3.5 Dispatching a train with power-operated doors with a guard from a staffed platform

platform
staff

You must first make sure all passengers are clear of the train doors.

You must then give the '**station work complete**' signal to the PIC of platform.

PIC of
platform

When you receive the '**station work complete**' signal you must then give the '**station work complete**' signal to the guard.

guard

When you receive the '**station work complete**' signal from the PIC of platform, you may close the train doors.

If the driver operates the doors, you must give the '**close doors**' signal to the driver.

When you receive the '**close doors**' signal, you must close the doors then acknowledge the '**close doors**' signal.

driver

When the doors are closed, you must carry out the 'train safety check' and if it is safe for the train to start, give the '**train safety check complete**' signal to the PIC of platform.

platform
staff

When you receive the '**train safety check complete**' signal, you must then give the '**train safety check complete**' signal to the guard.

PIC of
platform

When you receive the '**train safety check complete**' signal you must then:

guard

- close the local door
- where appropriate, check the door interlock light is illuminated
- give the '**ready-to-start**' signal to the driver, or if the signal is to be relayed to the driver, give the '**ready-to-start**' signal to the PIC of platform
- stay at the door controls until the train has passed clear of the platform.

You must relay the guard's '**ready-to-start**' signal to the driver if the driver cannot see the guard's '**ready-to-start**' signal, or if the train concerned is required to start by using the '**RA**' indicator.

PIC of
platform

When you receive the '**ready-to-start**' signal, you must, where appropriate, check the door interlock light is illuminated and acknowledge the '**ready-to-start**' signal before starting the train.

driver

You must start the train only if safe to do so.

3.6 Dispatching a train with power-operated doors with a guard from an unstaffed platform

guard

You must first make sure all passengers are clear of the train doors.

You may then close the train doors.

If the driver operates the doors, you must give the '**close doors**' signal to the driver.

driver

When you receive the '**close doors**' signal, you must close the doors then acknowledge the '**close doors**' signal.

guard

When the doors are closed, you must carry out the 'train safety check'.

If it safe for the train to start, you must then:

- close the local door
- where appropriate, check the door interlock light is illuminated
- give the '**ready-to-start**' signal to the driver
- stay at the door controls until the train has passed clear of the platform.

driver

When you receive the '**ready-to-start**' signal, you must, where appropriate, check the door interlock light is illuminated and acknowledge the '**ready-to-start**' signal before starting the train.

You must start the train only if safe to do so.

3.7 Dispatching a DO train with power-operated doors from a staffed platform

You must first make sure all passengers are clear of the train doors.

platform
staff

You must then give the '**station work complete**' signal to the PIC of platform.

When you receive the '**station work complete**' signal, you must then give the '**station work complete**' signal or '**CD**' indication to the driver.

PIC of
platform

When you receive the '**station work complete**' signal or '**CD**' indication from the PIC of platform, you may close the train doors.

driver

After you have closed the doors, you must check that the door interlock light is illuminated.

When the doors are closed, you must carry out the 'train safety check' and if it is safe for the train to start, give the '**train safety check complete**' signal to the PIC of platform.

platform
staff

When you receive the '**train safety check complete**' signal, you must give the driver the '**ready-to-start**' signal or '**RA**' indication.

PIC of
platform

When you receive the '**ready-to-start**' signal or '**RA**' indication, you must start the train only if safe to do so.

driver

3.8 Dispatching a DO train from an unstaffed platform

You must first:

driver

- check that the platform starting signal, if there is one, is showing a proceed aspect or an MA has been received
- make sure all passengers are clear of the train doors.

Station duties and train dispatch

driver

You must check the whole length of the train to make sure that it is safe to close the doors, using the monitor or mirror, if provided.

After you have closed the doors, you must check the door interlock light is illuminated.

You must then carry out the 'train safety check' and only start the train if it is safe to do so.

If the signal cannot be cleared or an MA issued, you must get the signaller's permission to pass the signal at danger or to pass the EoA without an MA before beginning dispatch arrangements.

3.9 Dispatching a train with central door locking from a staffed platform

platform staff

You must first:

- make sure all passengers are clear of the train doors
- make sure all the doors are closed.

You must then give the '**station work complete**' signal to the PIC of platform.

PIC of platform

When you receive the '**station work complete**' signal, you must then give the '**station work complete**' signal to the guard.

guard

When you receive the '**station work complete**' signal, you must lock the central door locking.

platform staff

You must then carry out the 'train safety check'.

If it is safe for the train to start, you must give the '**train safety check complete**' signal to the PIC of platform.

PIC of platform

When you receive the '**train safety check complete**' signal, you must give the '**train safety check complete**' signal to the guard.

When you have received the **'train safety check complete'** signal, you must:

guard

- close the local door
- give the **'ready-to-start'** signal to the driver, or if the signal is to be relayed to the driver, give the **'ready-to-start'** signal to the PIC of platform
- stay at the door controls until the train has passed clear of the platform.

When you receive the **'ready-to-start'** signal, you must only start the train if safe to do so.

driver

3.10 Dispatching a train with central door locking from an unstaffed platform

You must first:

guard

- make sure all passengers are clear of the train doors
- make sure all the doors are closed.

You must then lock the central door locking and carry out the 'train safety check'.

When it is safe for the train to start, you must:

- close the local door
- give the **'ready-to-start'** signal to the driver
- stay at the door controls until the train has passed clear of the platform.

When you receive the **'ready-to-start'** signal, you must only start the train if safe to do so.

driver

3.11 Dispatching a DO train with central door locking from a staffed platform

platform staff

You must first:

- make sure all passengers are clear of the train doors
- make sure all the doors are closed.

You must then give the '**station work complete**' signal to the PIC of platform.

PIC of platform

When you receive the '**station work complete**' signal, you must lock the central door locking.

platform staff

You must carry out the 'train safety check'.

If it is safe for the train to start, you must then give the '**train safety check complete**' signal to the PIC of platform.

PIC of platform

When you receive the '**train safety check complete**' signal, you must:

- close the door from where the central door locking is being operated
- give the '**ready-to-start**' signal to the driver.

driver

You must start the train only if safe to do so.

3.12 Dispatching a train with slam doors without central door locking from a staffed platform

You must first make sure:

- all passengers are clear of the train doors
- all the doors are closed.

platform
staff

If it is safe for the train to start, you must then give the '**train safety check complete**' signal to the PIC of platform.

When you receive the '**train safety check complete**' signal, you must then give the '**train safety check complete**' signal to the guard.

PIC of
platform

When you have received the '**train safety check complete**' signal, you must:

guard

- give the '**ready-to-start**' signal to the driver, or if the signal is to be relayed to the driver, give the '**ready-to-start**' signal to the PIC of platform
- stay at the door until the train has passed clear of the platform.

You must start the train only if safe to do so.

driver

3.13 Dispatching a train with slam doors without central door locking from an unstaffed platform

guard

You must first:

- make sure all passengers are clear of the train doors
- make sure all the doors are closed.

When it is safe for the train to start, you must:

- give the **'ready-to-start'** signal to the driver
- stay at the door until the train has passed clear of the platform.

driver

You must start the train only if safe to do so.

3.14 Dispatching a DO train with slam doors without central door locking from a staffed platform

platform staff

You must first make sure:

- all passengers are clear of the train doors
- all the doors are closed.

If it is safe for the train to start, you must then give the **'train safety check complete'** signal to the PIC of platform.

PIC of platform

When you receive the **'train safety check complete'** signal, you must give the **'ready-to-start'** signal to the driver.

driver

You must start the train only if safe to do so.



GE/RT8000/SS2
Rule Book

Shunting

Issue 5

September 2015

Comes into force 05 December 2015



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You will need this module if you carry out the duties of a:

- driver
- shunter
- signaller.

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Section

1

Definitions

2

Prohibitions and restrictions

- 2.1 Using a traction unit
- 2.2 Moving vehicles using a chain, a rope or pushing with a road vehicle
- 2.3 Loose shunting

3

Shunter's personal safety

- 3.1 Riding on the step of a locomotive or vehicle
- 3.2 Coupling or uncoupling
- 3.3 Dealing with the automatic brake
- 3.4 Dealing with the electrical train supply (ETS) connections

4

Precautions before shunting

- 4.1 Reaching a clear understanding
- 4.2 Safety checks before making any movement

Section

5

Safeguards while shunting

- 5.1 General
- 5.2 Controlling movements
- 5.3 Controlling movements not driven from a cab at the leading end of the movement
- 5.4 After each movement
- 5.5 Shunting beyond a limit of shunt signal or indicator
- 5.6 Shunting beyond a home signal
- 5.7 Entering a shed or building
- 5.8 Operating ground frames

6

Driving a traction unit from the leading cab

7

Attaching and detaching vehicles

- 7.1 Passenger and postal trains
- 7.2 Attaching a traction unit to a train or vehicles
- 7.3 Detaching a traction unit or vehicle from a train
- 7.4 Detaching traction units that are coupled together on a running line

8

Movements over points worked from a signal box

- 8.1 Getting the signaller's permission
- 8.2 Signaller giving permission
- 8.3 When the signaller's permission is not needed
- 8.4 When the movement is clear of points

Section

9

When shunting is completed

- 9.1 Leaving vehicles in a safe position
- 9.2 Securing vehicles and traction units
- 9.3 Leaving vehicles or traction units on a running line
- 9.4 Leaving vehicles or traction units on a dead-end line
- 9.5 Protecting running lines
- 9.6 Checking that all running lines are clear

10

Additional instructions for shunting within a possession

- 10.1 Headlight on propelling movements
- 10.2 Before giving a signal to move
- 10.3 Propelling outside a work site

11

Loading and unloading rail vehicles during engineering work

- 11.1 Agreeing the requirements
- 11.2 During the movement

1

Definitions

Loose shunting

Shunting of vehicles that do not remain attached to the traction unit during the movement.

Points worked from a signal box

For the purpose of this module this includes points worked from a ground frame.

Propelling

Pushing vehicles by a traction unit. This does not include push-pull trains.

Shunter

The person in control of a specific shunting movement.

Shunting movement

Any movement of a train or vehicle other than a train passing normally along a running line.

Signaller

For the purpose of this module this includes a ground frame operator.

Unaccompanied driver

For the purpose of this module, a driver carrying out a shunting movement without an accompanying shunter.

2 Prohibitions and restrictions

*The people responsible: **driver, shunter***

2.1 Using a traction unit

**driver,
shunter**

Unless authorised in section 2.2, you must start a shunting movement with a traction unit.

2.2 Moving vehicles using a chain, a rope or pushing with a road vehicle

**driver,
shunter**

You may only move vehicles using a chain or rope, or by pushing with a road vehicle, where it has been specially authorised in local instructions.

You must never move vehicles using a prop or pole against a locomotive or any rail or road vehicle.

2.3 Loose shunting

**driver,
shunter**

You may carry out loose shunting only where specially authorised in local instructions.

You must not loose shunt coaching stock vehicles.

You must not loose shunt other vehicles against coaching stock vehicles.

3

Shunter's personal safety

The person responsible: shunter

3.1 Riding on the step of a locomotive or vehicle

You must not ride on the step of a locomotive or vehicle.

shunter

If one is provided, you may ride on the special platform on a shunting locomotive.

3.2 Coupling or uncoupling

You must never go between vehicles unless you are sure they will not move.

shunter

If you have to go between vehicles, you must:

- wait until the vehicles have stopped completely
- display a hand danger signal to the driver or instruct the driver not to move.

You must never remain between vehicles during an ease-up movement.

If you have to go between vehicles to deal with automatic couplers, you must first stop the vehicles at least 2 metres (6 feet 6 inches) apart.

If there is any possibility that other vehicles might be shunted against those you are going to work between, you must instruct the other shunters not to make any movements towards them.

shunter

If you have to go between vehicles to couple or uncouple multiple units, you must:

- make sure the driver is present
- reach a clear understanding with the driver as to what is to be done.

3.3 Dealing with the automatic brake

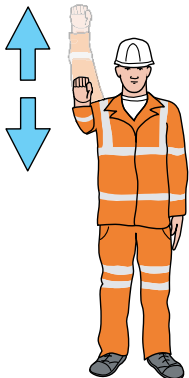
shunter

When going between vehicles to uncouple, you must disconnect the brake pipes before any other connections.

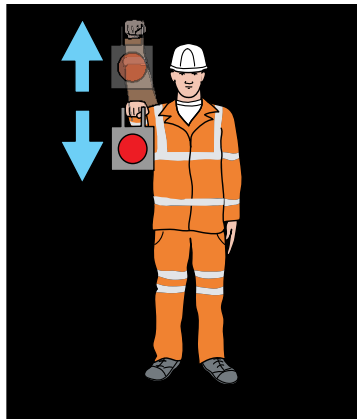
When dealing with the other connections (including the automatic couplers), you must prevent any movement of the vehicles by leaving the air-brake pipe cocks open.

When going between vehicles to couple, you must connect the brake pipes after any other connections.

You must use the handsignals shown in diagram SS2.1 to tell the driver to create brake-pipe pressure.



Handsignal during daylight



Handsignal during darkness

Diagram SS2.1
Create brake-pipe pressure

3.4 Dealing with the electrical train supply (ETS) connections

You must make sure the ETS is switched off or the shore supply is disconnected before:

shunter

- opening the dust caps on cable sockets
- coupling or uncoupling the ETS.

If you can safely reach the connections from alongside the vehicles, you may couple or uncouple them before dealing with the brake pipes.

When coupling or uncoupling the connections, you must make sure:

- the cables do not trail on the ground
- you take special care if there is conductor rail equipment.

4 Precautions before shunting

The people responsible: driver, shunter

4.1 Reaching a clear understanding

**driver,
shunter**

Before starting any shunting, you must reach a clear understanding with each other about:

- what exactly needs to be done
- how the shunting movements will be controlled.

4.2 Safety checks before making any movement

**shunter,
unaccompanied
driver**

You must make sure that:

- the vehicles can be moved safely
- no NOT TO BE MOVED boards are placed on the vehicles
- other vehicles are not foul of the movement to be made
- any road vehicle or equipment is clear
- anyone who could be put in danger is warned to move to a safe position
- anyone who is working on the outside of vehicles on an adjacent line is warned to keep clear
- any derailer or scotch block has been removed.

You must check that any hand points the movement will go over in the facing direction are fitting correctly and that any locking mechanism has engaged.

5 Safeguards while shunting

*The people responsible: **driver, shunter***

5.1 General

You must work only to the shunter's instructions.

driver

You must only make a movement, even when a signal has been cleared, if the shunter has:

- authorised the movement, or
- operated a shunting or other indicator which authorises the movement.

Except where specifically authorised, you must not:

- pass a signal at danger, a block marker or shunt marker when making a movement
- exceed 5 mph (10 km/h) in a siding.

Unless specifically authorised, you must not allow a shunting movement to pass a signal at danger, a block marker or shunt marker without authority.

shunter

5.2 Controlling movements

a) By handsignals

You must use the handsignals shown in diagram SS2.2 on page 12 and diagram SS2.3 on page 13 to control a movement.

shunter

You must make sure the driver can see your handsignals at all times.

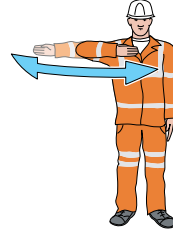
You must make sure no other driver acts on your handsignals.

You must work only to the handsignals shown in diagram SS2.2 on page 12 and diagram SS2.3 on page 13.

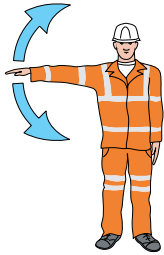
driver



**Move away from
the shunter**



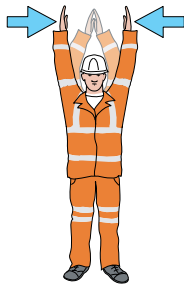
**Move towards
the shunter**



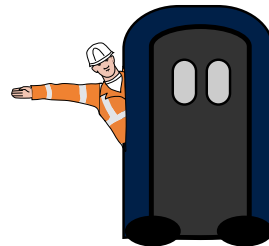
Slow down



Stop immediately



Ease up



**Stop immediately
when on a vehicle**

**Diagram SS2.2
Handsignals during daylight**

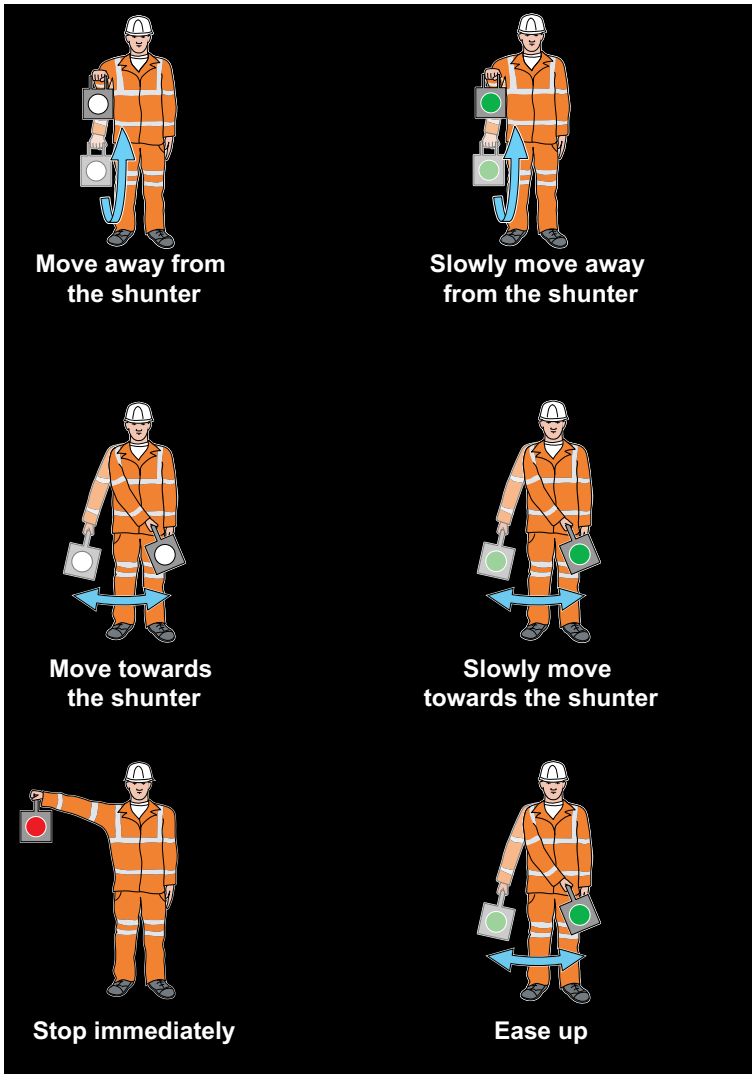


Diagram SS2.3
Handsignals during darkness

driver

You must not start or continue with a movement unless:

- you clearly understand the shunter's handsignal
- you are sure that the handsignal applies to you.

You must:

- stop the movement immediately if you lose sight of the shunter or the shunter's handsignals
- restart only when the shunter has given you the correct handsignal.

b) By radio

shunter

You must:

- clearly identify the correct train and driver
- speak continuously or transmit a continuous bleep signal throughout each movement
- instruct the driver to stop immediately if you notice the transmission is failing.

driver

If there is a break in transmission, you must stop immediately and restart only when the shunter tells you.

5.3 Controlling movements not driven from a cab at the leading end of the movement

a) General

When a traction unit making a propelling movement or shunting movement is not being driven from a cab at the leading end of the movement, you must:

shunter

- ride in the leading cab, if this is at the leading end of the movement, or
- ride in the vehicle at the leading end of the movement, if this is suitable, from which you can control the movement and apply the automatic brake, or
- control the movement from a safe place on the ground, ahead of the movement, where you are in contact with the driver or where the driver can see you.

During the movement, you must:

- keep a good lookout
- obey all signals unless you are specifically authorised to pass a signal at danger
- not pass a block marker or shunt entry board without authority
- warn anyone on or near the line about the approaching movement
- if anyone on or near the line appears to be in danger, stop the movement.

You must control the movement so that it is made at a safe speed which will allow you to instruct the driver to stop the movement within the distance that you can see the line is clear.

shunter

b) Riding in the leading cab or at the leading end

If you are riding in the leading cab or at the leading end of the movement, you must signal to the driver as necessary by:

- using the bell or buzzer code
- cab-to-cab telephone
- driver-guard communication equipment
- radio
- handsignal.

You must use the warning horn or a portable horn as necessary.

In an emergency you must stop the movement by using the automatic brake.

c) Movements over level crossings

You must make sure you have a clear view of the crossing and if provided, you know how to operate the plunger, if it is necessary to make a propelling movement over:

- an automatic barrier crossing locally monitored (ABCL)
- an automatic open crossing locally monitored (AOCL)
- an open crossing (OC).

5.4 After each movement

shunter, unaccompanied driver

After each movement, you must make sure vehicles are secured, where necessary, by handbrakes.

You must scotch vehicles which have no handbrake or on which the handbrake is not working. You do not have to do this if the vehicle is attached to other vehicles:

- on which handbrakes can be applied
- which are capable of holding the unbraked vehicle.

If you are shunting vehicles against stationary vehicles, you must secure any vehicles which are to remain at a stand before you make a draw-away movement.

shunter,
unaccompanied
driver

You must not rely on the automatic brake to secure any vehicle.

5.5 Shunting beyond a limit of shunt signal or indicator

You must make sure no part of the movement passes a limit of shunt signal or indicator unless the signaller has given permission.

shunter,
unaccompanied
driver

5.6 Shunting beyond a home signal

You must not allow a wrong-direction shunting movement to go beyond a home signal unless the signaller has given permission.

shunter,
unaccompanied
driver

If there is a falling gradient towards the next signal box, you must not make the movement unless:

- the automatic brake is working throughout the train, or
- the locomotive is at the end nearer to the next signal box.

5.7 Entering a shed or building

Before you allow a movement to enter a shed or building, you must:

- stop the movement at the entrance
- proceed only when you have checked it is safe to do so
- sound the horn as a warning before restarting, unless otherwise authorised in your company instructions.

shunter,
unaccompanied
driver

5.8 Operating ground frames

shunter, unaccompanied driver

Before operating a ground frame which controls movements to a siding, you must reach a clear understanding with the signaller about:

- the movements required
- whether the train will be shut in the siding.

If you shut the train in the siding, you must confirm to the signaller that the train is clear of the running line before you restore the ground frame to normal.

shunter

If a ground frame on a single-line section is to be unlocked by a train staff or token for shunting purposes, you must:

- get the train staff or token from the driver
- when shunting is completed, lock the points in the correct position for trains to pass on the running line
- return the train staff or token to the driver.

6 Driving a traction unit from the leading cab

The person responsible: driver

You must always drive a light locomotive (single or in multiple), on-track machine, multiple-unit or push-pull train from the leading cab when a shunting movement is:

- within a depot or stabling siding
- entering a shed or building
- proceeding onto vehicles
- approaching buffer stops.

However, you can drive from another cab, as long as a shunter is controlling the movement by radio, and it is not necessary for you to observe signals or handsignals.

You must drive from the leading cab whenever possible when making any other shunting movement. If you cannot do so, you may drive from another cab, providing a shunter can control the movement, as shown in section 5.3 of this module.

driver

7

Attaching and detaching vehicles

The people responsible: driver, shunter

7.1 Passenger and postal trains

driver

You must make sure the automatic brake is in use on movements which involve attaching to or detaching from a passenger or postal train.

7.2 Attaching a traction unit to a train or vehicles

driver

You must:

- always stop the traction unit 2 metres (6 feet 6 inches) from the vehicle
- stop again at any distance set out in the instructions for the class of traction unit involved
- if the movement is being controlled by a shunter, move forward only when authorised by the shunter.

7.3 Detaching a traction unit or vehicle from a train

shunter

Before detaching a traction unit, you must secure the train. If the train is on a gradient, you must secure it at the lower end.

Before detaching a vehicle from a train, you must secure the vehicle.

You must not rely on the automatic brake to secure the train or vehicle.

driver

Before a dead traction unit is detached from a train, you must make sure it is properly secured.

7.4 Detaching traction units that are coupled together on a running line

You must not uncouple a traction unit from another traction unit on a running line except:

- at a signal box
- at a signal
- on a platform line.

Before uncoupling traction units at a location where this does not happen routinely, you must tell the signaller what movements need to be made.

driver

8

Movements over points worked from a signal box

The people responsible: driver, shunter, signaller

8.1 Getting the signaller's permission

shunter,
unaccompanied
driver

Before authorising a movement over points worked from a signal box, you must:

- get the signaller's permission either verbally or by a handsignal as described in section 8.2
- check the points are fitting correctly, where possible.

8.2 Signaller giving permission

signaller

You must give the shunter or driver permission by speaking directly to the shunter or driver, where appropriate, or by these handsignals.

- During daylight - arm raised above the head.
- During darkness - white light twisted quickly.

8.3 When the signaller's permission is not needed

shunter,
unaccompanied
driver

You do not need the signaller's permission if either of the following apply.

- The signaller has cleared a signal for the movement.
- The movement will pass a shunting or position-light signal which has a yellow 'stop' indication, and the points are set for a route to which the signal does not apply when it is cleared.

signaller

Before moving these points, you must check that no shunting movement will be affected.

8.4 When the movement is clear of points

If you need to indicate to the signaller that a movement is clear of points that need to be moved, you must do so as follows.

shunter,
unaccompanied
driver

Shunter

During daylight - arm raised above the head.

During darkness - white light twisted quickly.

Unaccompanied driver

During daylight or darkness - one short blast on the horn.

You must not move the points concerned after a movement has been made until the shunter or driver has given you the correct hand or audible signal.

signaller

9 When shunting is completed

The people responsible: driver, shunter, signaller

9.1 Leaving vehicles in a safe position

**shunter,
unaccompanied
driver**

You must make sure that vehicles are:

- not left on a running line, except as shown in section 9.3
- not fouling any other line
- clear of any points which need to be moved
- left within the protection of any trap points, derailleurs or scotch blocks.

You must also make sure that there is enough room at fouling points for anyone to pass safely between:

- the vehicles which are to be left
- any movement on the adjoining line or siding.

9.2 Securing vehicles and traction units

shunter

You must make sure that vehicles are properly secured to prevent them moving.

driver

You must make sure that traction units are properly secured to prevent them moving.

9.3 Leaving vehicles or traction units on a running line

shunter

When leaving vehicles on a running line, you must:

- first tell the signaller, unless the method of working is routine at that location or for that movement
- place a red light on the rear end of the vehicles, or on both ends when on a single or bi-directional line.

When leaving traction units on a running line, you must:

driver

- first tell the signaller, unless the method of working is routine at that location or for that movement
- place a red light on the rear end of the traction units, or on both ends when on a single or bi-directional line.

9.4 Leaving vehicles or traction units on a dead-end line

When leaving vehicles on a dead-end line which has a red or white light on the buffer stops, you must make sure a light of the same colour is placed on the end of the vehicles which faces approaching movements.

shunter

When leaving a traction unit on a dead-end line which has a red or white light on the buffer stops, you must make sure a light of the same colour is placed on the end of the traction unit which faces approaching movements.

driver

9.5 Protecting running lines

To protect running lines, you must make sure that:

shunter

- ground-frame operated points and derailleurs are left in the normal position
- scotch blocks, where provided, are placed across the rails.

9.6 Checking that all running lines are clear

If necessary, you must ask the shunter or driver to confirm that all running lines are clear.

signaller

10

Additional instructions for shunting within a possession

The people responsible: driver, shunter

10.1 Headlight on propelling movements

shunter

If there is no fixed headlight on the leading vehicle of a propelling movement, you must place a portable headlight on the leading vehicle before the movement starts.

10.2 Before giving a signal to move

shunter

Before giving the driver a signal to move, you must make sure that the driver has been given authority to make the movement from:

- the person in charge of the possession (PICOP), or
- the engineering supervisor (ES) or safe work leader (SWL) if within a work site.

10.3 Propelling outside a work site

driver,
shunter

You must not make propelling movements outside a work site unless the details have been published in the *Weekly Operating Notice* or *Engineering Notice*.

shunter

If it is necessary to propel outside a work site when details have not been published, you must ask the PICOP if permission to propel has been given by Operations Control.

Before a movement begins, you must sound a warning by horn or whistle.

11

Loading and unloading rail vehicles during engineering work

The people responsible: driver, shunter

11.1 Agreeing the requirements

You must come to a clear understanding with the person in charge who is appointed for the safe loading or unloading of moving or stationary vehicles:

**driver,
shunter**

- when the person in charge will take over control of movements
- how the movement will be controlled
- when the control of movements will be handed back to the driver or shunter.

11.2 During the movement

You must carry out the instructions given by the person in charge.

driver



GE/RT8000/T3
Rule Book

Module T3

Possession of a running line for engineering work

Issue 6

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carry out the duties of:

- a driver
- a signaller.

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Section

1

Possession details

- 1.1 Possession details to be published
- 1.2 Changing the possession limits
- 1.3 Changes to the published details

2

Taking the possession

- 2.1 PICOP confirming the details
- 2.2 Taking possession around one or more engineering trains
- 2.3 Arranging to block the line
- 2.4 Arranging detonator protection at the standard distance
- 2.5 If the standard distance is not available
- 2.6 When detonator protection is in place
- 2.7 Using the token as protection

3

Arrangements at level crossings

4

Train movements

- 4.1 Movements towards the possession
- 4.2 Propelling
- 4.3 Entering the possession at the detonator protection
- 4.4 Entering the possession at an intermediate point
- 4.5 Entering the possession from an adjacent siding under possession
- 4.6 Leaving the possession

Section

- 4.7 Leaving the possession directly into a siding under possession
- 4.8 Movements towards the detonator protection when the standard distance is not available
- 4.9 Leaving the possession when there is no detonator protection

5

Movements over level crossings

- 5.1 When these instructions apply
- 5.2 Before making a movement
- 5.3 AHBC locally controlled
- 5.4 AHBC that is not locally controlled
- 5.5 CCTV, OD or RC locally controlled
- 5.6 CCTV, OD or RC that is not locally controlled
- 5.7 AOCL and ABCL not switched off
- 5.8 AOCL and ABCL that has been switched off
- 5.9 Manned level crossing
- 5.10 Crossing with red and green warning lights (R/G)
- 5.11 Barrow or foot crossing with white light indicators

6

Change of personnel

- 6.1 Change of PICOP
- 6.2 Change of signaller

Section

7

Giving up the possession

- 7.1** Giving up the possession around an engineering train
- 7.2** Removing the protection
- 7.3** Signaller being told when the possession is no longer needed
- 7.4** Confirming the possession is given up

8

Resuming normal working

- 8.1** Restoring signals and block indicator
- 8.2** Telling personnel the possession is given up
- 8.3** AHBC, CCTV, OD or RC level crossings
- 8.4** Possession given up around an engineering train
- 8.5** First train over the affected portion of line

9

Driver's duties

- 9.1** Authority for movement of engineering trains
- 9.2** Reaching a clear understanding with others
- 9.3** Headlights and tail lamps
- 9.4** Detonator protection
- 9.5** Indicating each work site
- 9.6** During the movement
- 9.7** When a possession is to be taken around one or more engineering trains
- 9.8** When a possession is to be given up around an engineering train

1 Possession details

*The person responsible: **signaller***

1.1 Possession details to be published

Except where a possession must be taken in an urgent situation, details of the possession must be published in the *Weekly Operating Notice* or *Engineering Notice*.

signaller

1.2 Changing the possession limits

The limits of the possession may be shortened or lengthened as long as:

signaller

- the details of the changed limits, including the planned time, are published in the *Weekly Operating Notice* or *Engineering Notice*, or
- in exceptional circumstances, it is agreed by Operations Control.

You must record the details in the Train Register.

1.3 Changes to the published details

Operations Control will let you and the person in charge of the possession (PICOP) know if it is necessary for any of the published details to be changed.

signaller

2 Taking the possession

*The person responsible: **signaller***

2.1 PICOP confirming the details

signaller

The PICOP will contact the signaller, who controls the signal leading to the section of line that is to be taken under possession, and will state the published possession reference if there is one.

If you are that signaller, you and the PICOP must agree:

- the line that will be taken under possession
- whether possession is to be taken around one or more trains
- the signals leading to the possession that will be kept at danger or the block markers leading to the possession from which the route will be kept closed
- the details of any points or crossings that may be used for trains outside the possession
- the position that points within the possession must be placed in
- the arrangements to be applied for each level crossing within the possession
- the exact location of the detonator protection and whether this is less than the standard distance
- the time the possession is to be taken.

2.2 Taking possession around one or more engineering trains

signaller

When the possession is to be taken or lengthened around an engineering train, you must signal the engineering train concerned normally to the signal specified in the notices.

When the engineering train arrives at the specified signal or block marker, you must tell the driver not to move the train again until given instructions by the PICOP, engineering supervisor (ES) or safe work leader (SWL) after the possession has been granted.

When every engineering train is at its specified signal, you must tell the PICOP.

signaller

You must record the details in the Train Register.

2.3 Arranging to block the line

When the section of line concerned is clear other than any trains at a stand as shown in section 2.2, or where the possession is to be taken for the purpose of removing derailed vehicles or any other obstruction, the following must apply.

signaller

You must make sure the signals that you agreed with the PICOP will protect the possession have been placed to danger or the routes have been closed.

If a protecting signal needs to be placed to danger by operating a signal post replacement switch (SPRS), you must arrange for this to be done.

You must also make sure all points are in the position necessary to protect the possession.

You must record the details in the Train Register.

You must arrange for the following signals to be placed to danger or routes to be closed:

- all controlled signals or routes within the possession, and
- all other signals or routes which lead to or across the possession.

If any protecting signals or routes are controlled by another signaller, you must get confirmation from that signaller that the protecting signals are at danger and will be kept at danger or the routes have been closed and will be kept closed until the possession is given up.

If another signaller is involved with the possession arrangements, you must:

- tell them what the possession arrangements are
- get their assurance that they will keep to these arrangements.

signaller

If you are another signaller and are told about the possession arrangements, you must record in the Train Register:

- which line is blocked
- the limits of the possession
- the signals you must keep at danger or the routes you must keep closed to protect the possession
- the points you must operate to protect the possession
- the position that points within the possession must be placed in.

If it applies, you must place the block indicator for the affected line to **train on line**.

When all protecting signals are at danger or when the routes have been closed, you must tell the PICOP who will then complete section 1 of the possession arrangements form (RT3198). The PICOP will then read the details back to you.

When you are satisfied that all the details on the PICOP's RT3198 form are correct, you must tell the PICOP that the possession protection can be placed.

If any unworked points need to be secured, the PICOP is responsible for arranging for this to be done.

2.4 Arranging detonator protection at the standard distance

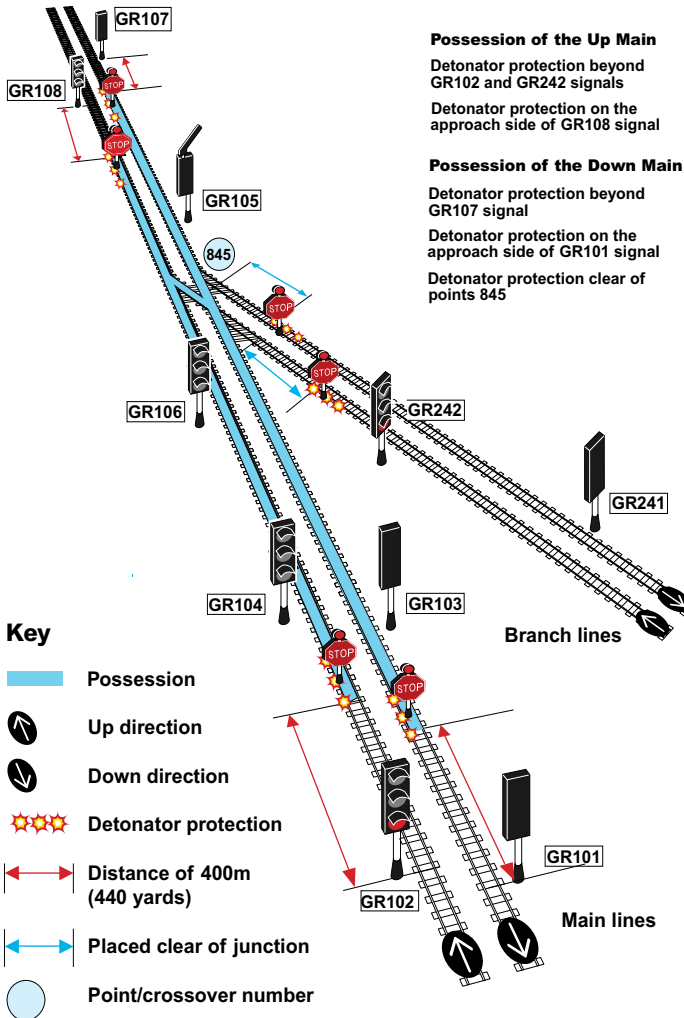
signaller

The PICOP will arrange for detonator protection to be placed as shown in diagram T3.1, or where points are involved, diagram T3.2.

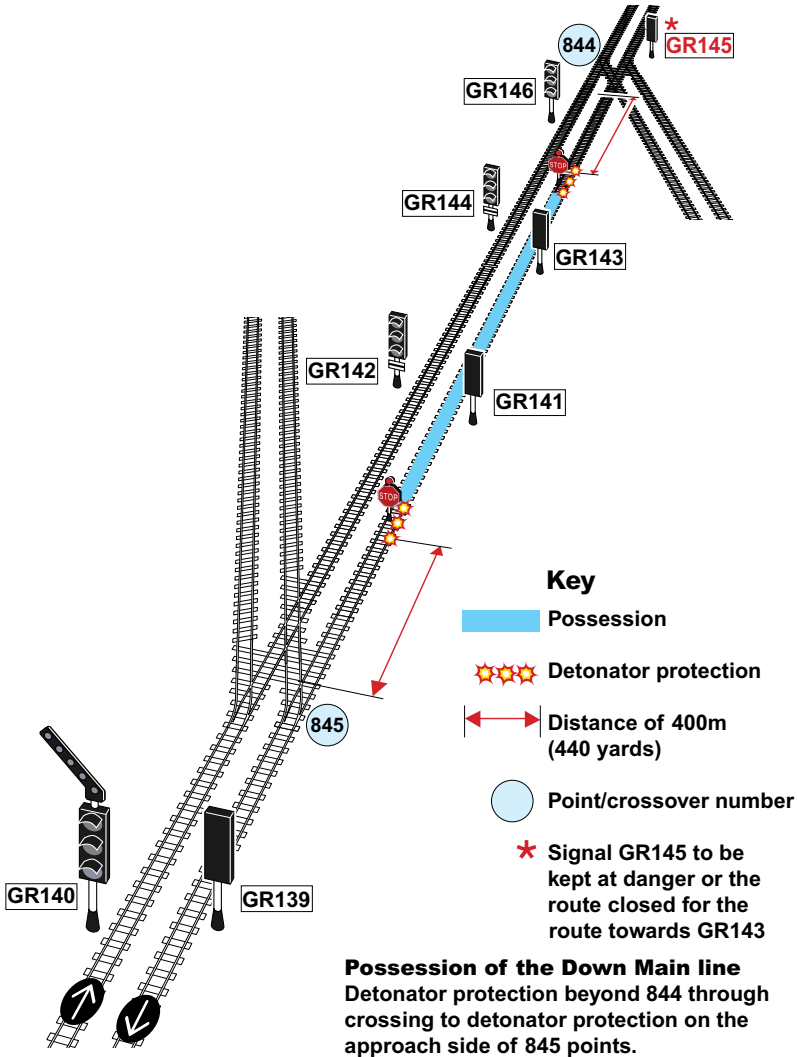
You must record in the Train Register that standard detonator protection has been provided.

The PICOP will not provide detonator protection:

- at a crossover, siding or loop where it joins the line under possession, or
- on a single line where the PICOP has the token as protection.



Standard detonator protection
Diagram T3.1



Standard detonator protection - points involved

Diagram T3.2

2.5 If the standard distance is not available

If, due to the work that is to take place, it is not possible to place the detonator protection at the standard distance as shown in diagram T3.1 or diagram T3.2, the following must apply.

- The detonator protection must be placed as close to the standard distance as possible.
- Any train movement approaching the detonator protection from within the possession must be made as shown in section 4.8.

You must record in the Train Register that the standard distance for detonator protection is not available.

signaller

2.6 When detonator protection is in place

The PICOP will tell you when all detonator protection is in place.

When you are sure that the line concerned is correctly protected, you may grant the possession to the PICOP.

You must enter these details in the Train Register.

signaller

2.7 Using the token as protection

If the token is used as protection, the PICOP does not need to arrange detonator protection on a single line.

You must give the token to the PICOP or give a release so that it can be obtained from a token instrument that is not at the signal box. You may then grant the possession to the PICOP.

You must enter these details in the Train Register.

The PICOP must keep the token until the possession is given up.

signaller

3 Arrangements at level crossings

*The person responsible: **signaller***

signaller

The PICOP must not allow any train or OTP movement to take place, or any work to be carried out, that will affect the operation of any level crossing until the necessary arrangements have been put in place for that level crossing.

You must reach a clear understanding with the PICOP about the arrangements that will apply at each level crossing.

You must record in the Train Register the arrangements that are applied for each level crossing within the possession.

In addition to the instructions shown in module TS9 *Level crossings - signallers' regulations*, you must:

- tell any crossing keeper who will be affected by the possession arrangements
- tell the PICOP when an attendant is appointed or withdrawn at a level crossing.

4 Train movements

*The person responsible: **signaller***

4.1 Movements towards the possession

You must keep the route closed and not clear any signal leading to the possession.

When an engineering train is to enter the possession, you must authorise the driver to pass the signal at danger or pass an end of authority (EoA) without a movement authority (MA) and proceed to the detonator protection.

You must get permission from the PICOP before doing this.

If there is no detonator protection because the token is being used as protection, you must agree with the PICOP the exact location you must authorise the driver to proceed to.

4.2 Propelling

You must not allow any of the following movements to be propelled unless the details are published in the *Weekly Operating Notice* or *Engineering Notice*.

- Movements entering the possession.
- Movements leaving the possession.

If it is necessary to propel when details have not been published, you must get authority from Operations Control before you can allow any of the above movements to be propelled.

signaller

signaller

4.3 Entering the possession at the detonator protection

signaller

Before you give the driver permission to proceed towards the detonator protection, you must make sure:

- the PICOP has given you permission
- you have not authorised a conflicting movement.

When the engineering train has entered the possession, the PICOP will tell you when the detonator protection has been replaced.

4.4 Entering the possession at an intermediate point

signaller

Before you give the driver permission to proceed from the protecting signal or protecting block marker towards the possession, you must make sure:

- the PICOP has given you permission
- the PICOP has positioned someone at the intermediate point to give instructions to the driver
- you have not authorised a conflicting movement to take place.

You must tell the driver to stop and get instructions from the person at the intermediate point.

The PICOP will tell you when the engineering train has entered the possession and is clear of the points or crossings at the intermediate point.

You must then return the points to the agreed position.

4.5 Entering the possession from an adjacent siding under possession

If a movement is to enter the possession from an adjacent siding under possession, you must first agree with the PICOP and the person in charge of the siding possession (PICOS) how this is to be done.

signaller

4.6 Leaving the possession

When the PICOP tells you that an engineering train is ready to leave the possession, you must personally authorise the driver to pass:

signaller

- beyond the protecting detonators out of the possession, or
- through points or crossings that are protecting the possession at an intermediate point.

You must make sure that the line is clear and safe for the movement to proceed before you authorise the driver to pass beyond the detonators.

If you can, you must signal the train normally beyond the protecting detonators.

To protect the possession, after the movement has left it, you must restore to their original position all points that you have operated for the movement.

4.7 Leaving the possession directly into a siding under possession

If a movement is to leave the possession directly into an adjacent siding under possession, you must first agree with the PICOP and the PICOS how this is to be done.

signaller

4.8 Movements towards the detonator protection when the standard distance is not available

signaller

If the detonators have not been placed at the standard distance from points or crossings, the PICOP will not allow a movement to approach the detonator protection from within the possession without your permission.

You must give this permission only when any previous movement you have authorised through those points or crossings has passed clear.

After giving permission for the movement towards the detonator protection to be made, you must not allow a train to pass over the points or crossings until the movement has passed clear or has been completed.

4.9 Leaving the possession when there is no detonator protection

signaller

When the PICOP is using the token as protection, you must agree with the PICOP how each movement is to leave the possession.

5

Movements over level crossings

*The person responsible: **signaller***

5.1 When these instructions apply

You must apply the instructions shown in sections 5.2 to 5.11 as appropriate when authorising a movement to enter or leave the possession.

signaller

If the ES, PICOP or SWL is responsible for authorising the movement, the following will apply.

AHBC

The ES, PICOP or SWL will get your permission before allowing an engineering train to pass over an AHBC that is not being locally controlled.

You must not give this permission if you are aware of any reason why the train must not pass over the level crossing.

OTP will not be allowed to pass over an AHBC level crossing unless it is being locally controlled.

CCTV, OD or RC

If the crossing is not being locally controlled, the ES, PICOP or SWL will get confirmation from you that the barriers have been lowered and the crossing is clear before they authorise the movement to pass over the level crossing.

5.2 Before making a movement

Before the movement takes place, you must give details of the movement to those personnel operating:

signaller

- any CCTV, OD or RC level crossing
- other level crossings, if possible.

5.3 AHBC locally controlled

signaller

You must tell the driver that the movement must not pass over the level crossing unless the crossing attendant is displaying a green handsignal.

5.4 AHBC that is not locally controlled

signaller

Only an engineering train that is to pass normally over the level crossing and in a direction that has controls, may be allowed to proceed over the level crossing.

You must tell the driver not to stop specially before passing over the level crossing.

5.5 CCTV, OD or RC locally controlled

signaller

You must tell the driver that the movement must not pass over the level crossing unless the crossing attendant is displaying a green handsignal.

5.6 CCTV, OD or RC that is not locally controlled

signaller

You must not allow any movement in the wrong direction to pass over the level crossing.

For other movements, you must not authorise the driver to pass the signal or block marker protecting the level crossing until the barriers have been lowered for the movement.

You must then tell the driver not to stop specially at the level crossing.

5.7 AOCL and ABCL not switched off

If the level crossing has not been switched off as shown in module TS9 *Level crossings - signallers' regulations*: regulation 4.1, the following must apply.

signaller

You must instruct the driver of a train that is to pass over the level crossing normally, to proceed over the level crossing only when it is safe to do so.

For any train movements not passing normally over the level crossing, you must not allow the movement to take place unless:

- the level crossing has been closed to road traffic, or
- a competent person is positioned at the level crossing and has stopped road traffic by displaying a red handsignal on both sides of the level crossing.

You must instruct the driver to stop at the level crossing, sound the horn and then pass over the level crossing only when it is safe to do so.

5.8 AOCL and ABCL that has been switched off

If the level crossing has been switched off as shown in module TS9 *Level crossings - signallers' regulations*: regulation 4.1, the following must apply.

signaller

During daylight

You must instruct the driver of a train that is to pass over the level crossing to stop the train at the level crossing, sound the horn and then pass over the level crossing only when it is safe to do so.

Possession of a running line for engineering work

During darkness

signaller

The movement of a train over the level crossing must not take place unless:

- the level crossing has been closed to road traffic, or
- a competent person is positioned at the level crossing and has stopped road traffic by displaying a red handsignal on both sides of the level crossing.

You must instruct the driver to stop at the level crossing, sound the horn and then pass over the level crossing only when it is safe to do so.

5.9 Manned level crossing

signaller

You must instruct the driver to pass over the level crossing only if the level crossing barriers or gates are closed to road traffic.

If it is a traincrew operated (TMO) level crossing, you must make sure that a competent person is available to operate the level crossing before authorising the driver to proceed.

5.10 Crossing with red and green warning lights (R/G)

signaller

You must instruct the driver to stop at the level crossing, sound the horn and then pass over the level crossing only when it is safe to do so.

5.11 Barrow or foot crossing with white light indicators

signaller

You must instruct the driver to pass over the level crossing only when it is safe to do so.

6

Change of personnel

*The person responsible: **signaller***

6.1 Change of PICOP

The PICOP will tell you the name of the new PICOP if there is a change. You must record the details in the Train Register.

signaller

6.2 Change of signaller

If you are the new signaller taking duty, you must countersign the entries in the Train Register.

signaller

7

Giving up the possession

The person responsible: signaller

7.1 Giving up the possession around an engineering train

signaller

The PICOP may give up the possession with an engineering train standing at a stop signal or block markers on the line under possession, as long as all of the following apply.

- The line is signalled by track circuit block (TCB) or ERTMS and the train is standing at a location where the train detection is by means of track circuits and not by axle counters.
- The movement, after the possession is given up, will be in the normal signalled direction and will be driven from the leading cab.
- You have agreed with the PICOP the stop signal or block marker to be used.

When the engineering train arrives at the agreed stop signal or block marker, you must:

- tell the driver to make no further movement until you have given verbal permission for the engineering train to proceed, then
- tell the PICOP the train has arrived at the agreed stop signal or block marker and will not be moved.

You must not start the arrangements to give up the possession until the engineering train has arrived at the agreed signal or block marker.

7.2 Removing the protection

signaller

When the possession is no longer needed, the PICOP will:

- if single line working is still in operation, tell the pilotman that the possession is being given up
- arrange to release any unworked points or train-operated points that have been secured
- arrange for the detonator protection to be removed.

If the token is being used as the protection and the possession is no longer needed, the PICOP will:

- return the token to the signal box at either end of the section, or
- place it in an instrument that is not at a signal box after reaching a clear understanding with you about what is to be done.

signaller

7.3 Signaller being told when the possession is no longer needed

The PICOP will tell you that the line is clear and safe for trains to run on (or if section 7.1 applies, clear and safe other than the train standing at the agreed signal or block marker) when:

- any unworked points or train-operated points that had been secured have been released
- the detonator protection has been removed.

signaller

7.4 Confirming the possession is given up

You must record the details in the Train Register. You must read the entry back to the PICOP.

When the entry has been made in the Train Register and if the PICOP agrees with the entry, this is confirmation that the possession has been given up.

signaller

8

Resuming normal working

*The person responsible: **signaller***

8.1 Restoring signals and block indicator

signaller

When the PICOP has given up the possession, you must arrange for all signals that have been kept at danger or all routes which have been kept closed to be restored to normal working.

If it applies, you must arrange for the block indicator to be restored to **normal**.

8.2 Telling personnel the possession is given up

signaller

You must tell the following that the possession has been given up:

- any other signaller concerned
- any crossing keeper concerned.

If you are another signaller who is told the possession has been given up, you must write the details in the Train Register.

8.3 AHBC, CCTV, OD or RC level crossings

signaller

You must arrange for normal working to be restored at any AHBC, CCTV, OD or RC level crossing at which an attendant has been appointed.

8.4 Possession given up around an engineering train

If the possession was given up with an engineering train standing at a stop signal or block marker, you must tell the driver of that train that the possession has been given up and to proceed obeying all signals or in-cab indications.

signaller

8.5 First train over the affected portion of line

a) Checking the operation of track circuits

You must specially watch the operation of the track circuits during the passage of the first train over the line that was affected by the possession.

signaller

b) On a TCB line

On a TCB line, you must not allow a second train to pass over the line that was affected by the possession unless there is a controlled signal which you have replaced to danger between the first and second trains.

c) On an ERTMS line

On an ERTMS line, you must not allow a second train to pass over the line that was affected by the possession unless there is an EoA at which the route is closed between the first and second trains.

d) Intermediate block signals

If there are intermediate block signals, you must not clear the section signal for a second train until the first train has arrived at the signal box ahead.

9 Driver's duties

The person responsible: driver

9.1 Authority for movement of engineering trains (See diagram T3.3)

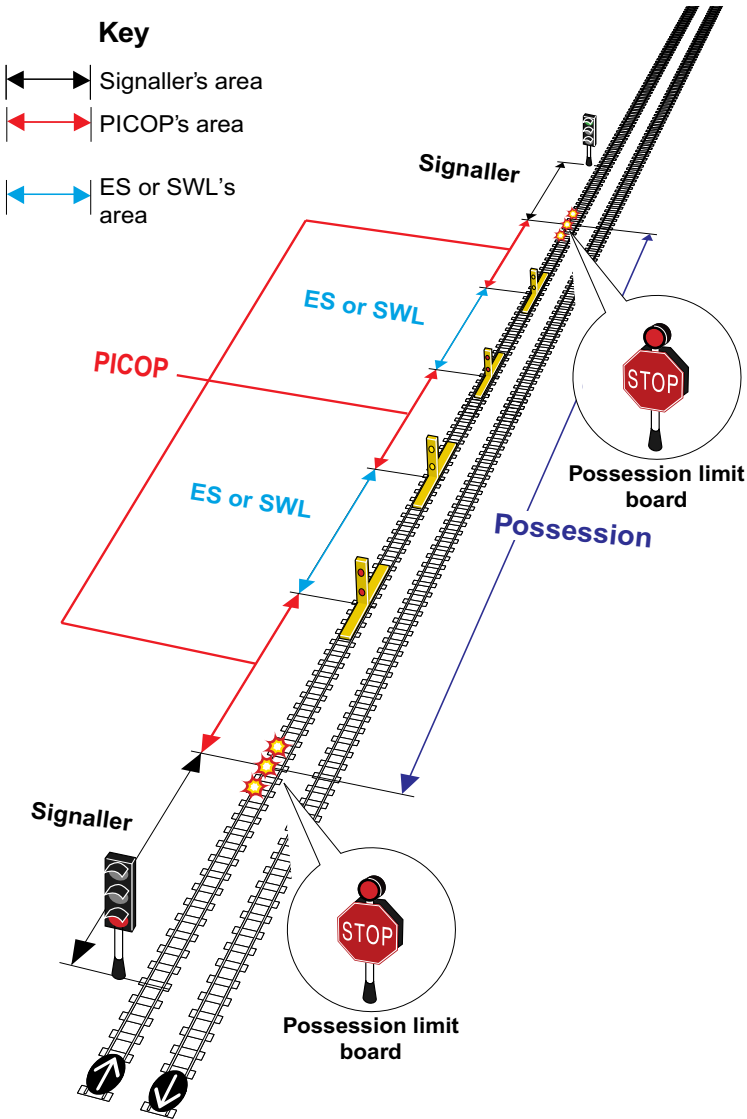
driver

You must make movements only if you have the authority of the following personnel.

a) Signaller

The signaller will personally authorise you to make a movement that is required to:

- proceed from either end towards the detonator protection for the possession
- proceed to the location where your train will be met when entering the possession when the PICOP has the token on a single line
- enter the possession at an intermediate point where your train will be met
- pass through points or crossings that are protecting the possession at an intermediate point when leaving the possession
- proceed past the location of the detonator protection when leaving the possession
- proceed from the location agreed between the PICOP and signaller when the train is leaving the possession when the PICOP has the token on a single line.



**Areas of responsibility
 Diagram T3.3**

b) PICOP

driver

The PICOP (or competent person on the PICOP's behalf) will authorise you to make a movement that is required to:

- go past the location of the detonator protection into the possession
- pass through points or crossings that are protecting the possession at an intermediate point when entering the possession
- enter or leave the possession from a siding that is also under possession
- move between the detonator protection at each end of the possession and the nearest work site
- pass the work-site marker board (WSMB) at the exit from a work site, this will be showing two yellow flashing lights
- move between work sites.

The PICOP will wear an armband on the left arm, or a badge on the upper body, with PERSON I.C. POSSESSION in red letters on a yellow background.

c) ES or SWL

The ES or SWL (or a competent person on the ES's or SWL's behalf) will authorise you to make a movement:

- past a WSMB into a work site, this will be showing two red flashing lights
- within a work site.

The ES or SWL can permit a person to travel in your cab to give you instructions about the working of your train while loading and unloading, as shown in module SS2 *Shunting*.

The ES will wear an armband on the left arm, or a badge on the upper body, with ENGINEERING SUPERVISOR in blue letters on a yellow background.

The SWL will wear an armband on the left arm, or a badge on the upper body, with SWL in blue letters on a yellow background.

9.2 Reaching a clear understanding with others

You must reach a clear understanding with the person authorising the movement as to:

driver

- what you must do
- how far the movement is to proceed.

9.3 Headlights and tail lamps

If the train is detained outside a work site, you must make sure that:

driver

- a red light is showing at both ends of the train
- the headlights are switched off.

9.4 Detonator protection

Detonator protection is three detonators placed on the same rail, 20 metres (approximately 20 yards) apart with a possession limit board (PLB) placed at the centre detonator.

driver

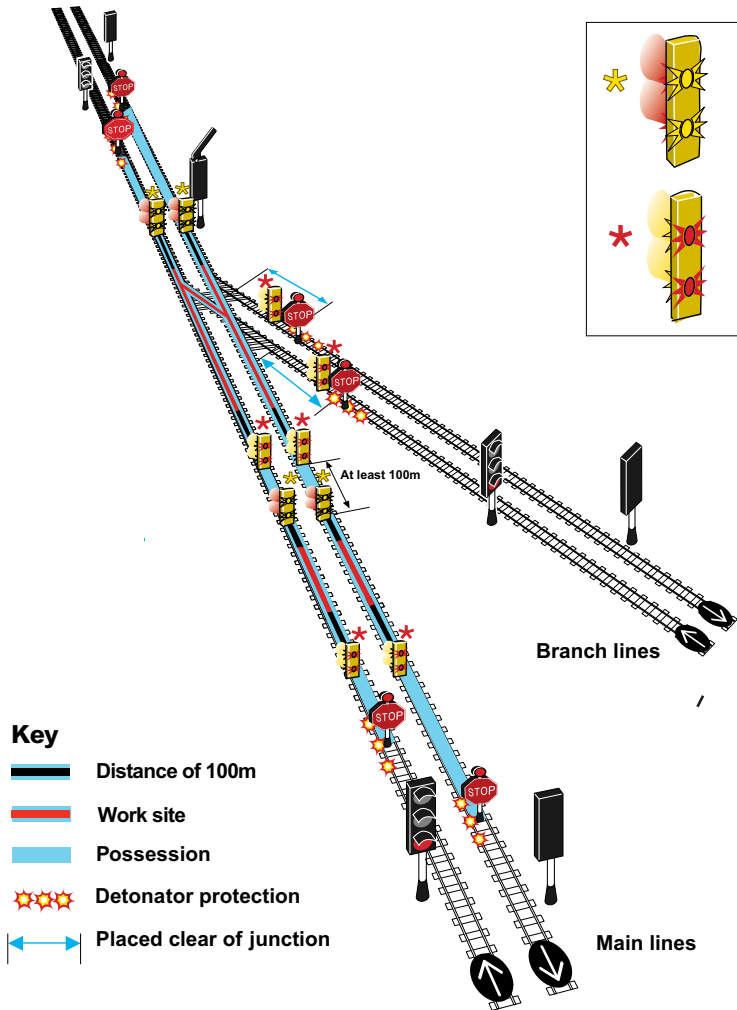
9.5 Indicating each work site

A work-site marker board (WSMB) will be placed in the 'four-foot' at each end of the work site. See diagram T3.4.

driver

The WSMB for one work site will be no closer than 100 metres (approximately 100 yards) from the WSMB of another work site.

WSMBs are not needed if there will be no engineering trains or OTP movements within the possession.



**Indication of work sites
 Diagram T3.4**

Only the ES or SWL can give authority for your train to pass the WSMB displaying two red lights and enter the work site.

driver

Only the PICOP can give authority for your train to pass the WSMB displaying two yellow lights and leave a work site.

9.6 During the movement

a) Making the movement

You must:

driver

- make the movement at caution
- not exceed 40 mph (65 km/h) at any point in the journey when entering, making a movement within, or leaving the possession
- make any movement in a work site at no greater than 5 mph (10 km/h) unless you are given specific instructions by the ES or SWL on the maximum speed to be applied
- be prepared to stop before reaching a handsignal that is being displayed.

You must also carry out the instructions shown in module S5 *Passing a signal at danger or an end of authority (EoA) without a movement authority (MA)* or TW7 *Wrong-direction movements* until your train is brought under the control of a signal after you leave the possession.

When vehicles are being loaded or unloaded, you must also carry out the instructions shown in module SS2 *Shunting*.

b) Passing a signal or block marker within the possession

driver

You must not pass a signal at danger or a block marker within the possession unless you are authorised to do so by the PICOP, or by the ES or SWL if it is inside a work site.

You can pass without authority a signal showing a proceed aspect or indication, but you must disregard the normal meaning of that signal.

c) Level crossings

You must not pass over any level crossing unless you have been given instructions to do so.

When you pass over the crossing, you must carry out the relevant instructions regarding level crossings shown in module S5 *Passing a signal at danger or an end of authority (EoA) without a movement authority (MA) or TW7 Wrong-direction movements*.

9.7 When a possession is to be taken around one or more engineering trains

a) Conditions

driver

If the arrangements have been published, the signaller can grant possession to the PICOP when your train is standing at a signal or block marker on the line on which the possession is to be taken.

The signal or block marker this applies to will be shown in the *Weekly Operating Notice* or *Engineering Notice*.

b) Proceeding to the specified signal or block marker

Your movement to the specified signal or block marker will be signalled under normal arrangements.

c) Arriving at the specified signal or block marker

When your train arrives at the specified signal or block marker, the signaller will instruct you to make no further movement until you are authorised by the PICOP, ES or SWL, as appropriate.

driver

9.8 When a possession is to be given up around an engineering train

a) Conditions

The PICOP can give up the possession with one engineering train standing at a specified stop signal or block marker on the line under possession, as long as:

driver

- the movement, after the possession is given up, will be in the normal signalled direction
- the movement is driven from the leading cab.

If the possession is to be given up around your train, the PICOP will tell you the location and identity of the signal or block marker you must stop at.

This signal or block marker will be agreed between the PICOP and signaller and must not be within a work site.

The PICOP will also tell you, and anyone else on the train, that the line on which you are standing must be considered as no longer under possession.

b) Arriving at the signal or block marker

When your train arrives at the signal or block marker, you must immediately contact the signaller. You must make no further movement with the train until the signaller tells you to proceed.

c) When the possession has been given up

When the possession has been given up, the signaller will tell you this and the conditions under which the train may proceed.



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Rule Book

Module T3 ERTMS

Possession of an ERTMS running line for engineering work where lineside signals are not provided

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You will need this module if, on ERTMS lines, you carry out the duties of a:

- driver
- signaller.

Conventions used in the Rule Book	Example
A black line in the margin indicates a change to that rule and is shown when published in the module for the first time.	
Green text in the margin indicates who is responsible for carrying out the rule.	driver
A white i in a blue box indicates that there is information provided at the bottom of the page.	
<div style="border: 2px solid red; padding: 5px;">A rule printed inside a red box is considered to be critical and is therefore emphasised in this way.</div>	

Section

1

Possession details

- 1.1 Possession details to be published
- 1.2 Changing the possession limits
- 1.3 Changes to published details

2

Taking the possession

- 2.1 PICOP confirming the details
- 2.2 Taking the possession around one or more engineering trains
- 2.3 Arranging to block the line
- 2.4 When signalling protection has been provided
- 2.5 Possession procedure T3-A (using a track circuit operating device T-COD)
- 2.6 Possession procedure T3-D (disconnecting signalling equipment)
- 2.7 Possession procedure T3-P (PICOP or PICOP's agent going to the signal box)
- 2.8 Possession procedure T3-E (barring the route)
- 2.9 Granting the possession
- 2.10 Changing the limits of the possession after the possession has been granted
- 2.11 Carrying out signalling work in the possession

3

Arrangements at level crossings

4

Train movements

- 4.1 Passing the protecting block marker
- 4.2 Propelling
- 4.3 Entering the possession at the first WSMB
- 4.4 Entering the possession at an intermediate point
- 4.5 Entering the possession from an adjacent siding under possession
- 4.6 Leaving the possession
- 4.7 Leaving the possession directly into a siding under possession

5

Movements over level crossings

- 5.1 When these instructions apply
- 5.2 Before making a movement
- 5.3 AHBC locally controlled
- 5.4 AHBC that is not locally controlled
- 5.5 CCTV, OD or RC locally controlled
- 5.6 CCTV, OD or RC that is not locally controlled
- 5.7 AOCL or ABCL not switched off
- 5.8 AOCL or ABCL that has been switched off
- 5.9 Manned level crossing
- 5.10 Crossing with red and green warning lights (R/G)
- 5.11 Barrow or foot crossing with white light indicators

6

Change of personnel

- 6.1 Change of PICOP
- 6.2 Change of signaller

Section

7

Giving up the possession

- 7.1** Giving up the possession around an engineering train
- 7.2** Removing the protection
- 7.3** Signaller being told when the possession is no longer needed
- 7.4** Confirming the possession is given up

8

Resuming normal working

- 8.1** Restoring the signalling to normal working
- 8.2** Telling personnel the possession is given up
- 8.3** AHBC, CCTV, OD or RC level crossings
- 8.4** Possession given up around an engineering train
- 8.5** First train over the affected portion of line

9

Driver's duties

- 9.1** Authority for movement of engineering trains
- 9.2** Reaching a clear understanding with others
- 9.3** Headlights and tail lamps
- 9.4** Indicating work sites within the possession
- 9.5** During the movement
- 9.6** When a possession is to be taken around one or more engineering trains
- 9.7** When a possession is to be given up around an engineering train

1 Possession details

The person responsible: signaller

1.1 Possession details to be published

Except when a possession must be taken in an urgent situation, details of the possession must be published in the *Weekly Operating Notice* or *Engineering Notice*.

signaller

1.2 Changing the possession limits

The limits of the possession may be shortened or lengthened as long as:

signaller

- the details of the changed limits, including the planned time, are published in the *Weekly Operating Notice* or *Engineering Notice*, or
- in exceptional circumstances, it is agreed by Operations Control.

You must record the details in the Train Register.

1.3 Changes to published details

Operations Control will let you and the person in charge of the possession (PICOP) know if it is necessary for any of the published details to be changed.

signaller

2 Taking the possession

The person responsible: signaller

2.1 PICOP confirming the details

signaller

The PICOP will contact the signaller who controls the block marker leading to the section of line that is to be taken under possession and will state the published possession reference if there is one.

If you are that signaller, you and the PICOP must agree:

- the line that will be taken under possession
- the possession procedure to be used
- whether the possession is to be taken around one or more trains
- the locations between which the possession will be taken including the protecting block markers or points
- the details of any points or crossings that may be used for trains outside the possession
- the position that points within the possession must be placed in
- the arrangements to be applied for each level crossing within the possession
- the exact location of the first work-site marker board (WSMB) in the normal direction of travel
- the exact location of the last WSMB in the normal direction of travel
- the time the possession is to be taken and the time it will be given up.

2.2 Taking the possession around one or more engineering trains

When the possession is to be taken or lengthened around an engineering train, you must signal the train concerned normally to the block marker specified in the notices.

signaller

When the engineering train arrives at the specified block marker, you must tell the driver not to move the engineering train again until given instructions by the PICOP, engineering supervisor (ES) or safe work leader (SWL) after the possession has been granted.

When every engineering train is at its specified block marker you must tell the PICOP.

You must record the details in the Train Register.

2.3 Arranging to block the line

Protecting the line with block markers

Each entrance to the section of line on which the possession is taken must be protected by a block marker in the normal direction of travel.

signaller

On a single or bi-directional line, each exit from the section of line on which the possession is taken must be protected by a block marker.

On a line that is not single or bi-directional, each exit from the line on which a possession is taken must be protected by a block marker in the normal direction of travel.

The distance between the block marker or points used to protect the entrance to the possession and the first WSMB must not be less than 200 metres.

The block marker immediately beyond the last WSMB must be no closer than 200 metres. This must be the point where normal working starts for train movements in the right direction.

signaller

Closing the route

When the section of line concerned is clear other than any trains at a stand, as shown in section 2.2 or when the possession is to be taken for the purpose of removing derailed vehicles or any other obstruction, the following must apply.

You must make sure the routes are closed from the block markers you have agreed will protect the possession.

You must also make sure all points are in the position necessary to protect the possession.

You must record the details in the Train Register.

You must also close:

- all routes within the possession
- all other routes which lead to or across the possession.

You must then ask a competent person, if present in the signal box, to check that this has been done correctly.

If another signaller is involved

If any protecting block markers are controlled by another signaller, you must get confirmation from that signaller that the routes from the protecting block markers have been closed and will be kept closed until the possession is given up.

If any signallers at other signal boxes are involved with the possession arrangements, you must:

- tell them what the possession arrangements are
- get their assurance that they will keep to these arrangements.

If you are the signaller at another signal box and you are told about the possession arrangements, you must record in the Train Register:

signaller

- which line is blocked
- the limits of the possession
- the block markers at which you must keep the routes closed to protect the possession
- the points you must operate to protect the possession
- the position that points within the possession must be placed in.

Telling the PICOP

When all the routes have been closed to protect the possession, you must tell the PICOP who will then complete section 1 of the Possession Arrangements Form (RT3198 ERTMS). The PICOP will then read the details back to you.

When you are satisfied that all the details on the PICOP's RT3198 ERTMS form are correct, you must tell the PICOP that the possession protection procedure can be carried out.

If any unworked points need to be secured, the PICOP is responsible for arranging for this to be done.

2.4 When signalling protection has been provided

When protection by block markers and points has been provided as shown in section 2.3 of this module, one of the following possession procedures must be carried out before the possession can be granted.

signaller

The only exception to this is possession procedure T3-A. This procedure must be carried out after the possession is granted.

You must record in the Train Register which possession procedure has been used.

2.5 Possession procedure T3-A (using a track circuit operating device T-COD)

You may use procedure T3-A only if all of the following apply.

signaller

- Use of a T-COD is authorised at the location concerned.
- The signalling equipment is working normally at the time the T-COD is to be placed on the line.
- The work within the possession will not affect the correct operation of the track circuit concerned.

The PICOP will arrange for the T-COD to be placed after the possession has been granted.

Before giving the PICOP permission to place the T-COD, you must make sure the track circuit concerned is showing clear. You must tell the PICOP when the track circuit concerned shows occupied.

2.6 Possession procedure T3-D (disconnecting signalling equipment)

a) When this procedure can be used

signaller

You may use procedure T3-D only if it is authorised at the particular location.

b) Arranging for a disconnection to be made

When you have told the PICOP all routes leading towards the possession have been closed, as shown in section 2.3 of this module, the PICOP will arrange for the signalling controls of these routes to be disconnected.

The PICOP will tell you when this has been done.

2.7 Possession procedure T3-P (PICOP or PICOP's agent going to the signal box)

a) When this procedure may be used

signaller

You may use procedure T3-P only if it is authorised at the particular location.

b) PICOP going to the signal box

When you have told the PICOP all routes protecting the entrances and exits from the possession have been closed as shown in section 2.3 of this module, the PICOP will check that this has been done and that the possession is being correctly protected.

If the PICOP cannot personally attend the signal box that controls the routes protecting the entrances to and exits from the possession, the PICOP will arrange for a PICOP's agent to be in the controlling signal box to check that the correct routes have been closed.

If possession procedure T3-P is being used, you must not grant the possession until the PICOP or the PICOP's agent is present and the PICOP is satisfied that the possession is correctly protected.

2.8 Possession procedure T3-E (barring the route)

Possession procedure T3-E **must** always be used except when it is not possible to do so and one of the alternative procedures has been agreed at the planning meeting.

signaller

In exceptional circumstances, this may be agreed by Operations Control.

When you have told the PICOP all routes leading towards the possession have been closed as shown in section 2.3 of this module, the PICOP will arrange for the signalling controls of these routes to be barred.

The PICOP will tell you when this has been done.

2.9 Granting the possession

You must only grant possession when:

signaller

- signalling protection has been provided
- any additional protection required under possession procedure T3-D or T3-E has been carried out and the PICOP has recorded the details in section 2 of the Possession Arrangements Form (RT 3198 ERTMS)
- the necessary entries have been made in the Train Register.

When you are sure all these requirements have been carried out, you may tell the PICOP the possession is granted.

2.10 Changing the limits of the possession after the possession has been granted

signaller

If it is necessary to set up another work site on the approach to the first WSMB or beyond the last WSMB, the PICOP will first ask your permission to do so.

The PICOP must tell you the exact location (mileage or kilometres and metres) of the new WSMB before allowing any further train movements.

You must not give the PICOP permission to set up another work site until any movement already authorised has passed clear of the area concerned.

You must record the details of the new WSMB in the Train Register.

If possession procedure T3-A is being used, the PICOP must make sure a T-COD is placed on the line at the same time and at the same place as the new first WSMB, as shown in section 2.5.

The PICOP will also, if necessary, arrange to remove the T-COD placed at the previous first WSMB.

2.11 Carrying out signalling work in the possession

signaller

You must not allow signalling work to be carried out if it would affect the route barring or the functioning of the balises protecting the exits from a possession.

3 Arrangements at level crossings

*The person responsible: **signaller***

The PICOP must not allow any train or OTP movements to take place, or any work to be carried out, that will affect the operation of any level crossing until the necessary arrangements have been put in place for that level crossing.

signaller

You must reach a clear understanding with the PICOP about the arrangements that will apply at each level crossing.

You must record in the Train Register the arrangements that are applied for each level crossing within the possession.

As well as the instructions shown in module TS9 *Level crossings - signallers' regulations*, you must:

- tell any crossing keeper who will be affected by the possession arrangements
- tell the PICOP when an attendant is appointed or withdrawn at a level crossing.

4 Train movements

The person responsible: **signaller**

4.1 Passing the protecting block marker

signaller

You must not set any route leading to the possession.

You must not allow any train other than an ERTMS-fitted train to make a movement from either end towards the first or last WSMB.

When an engineering train is to enter a possession, you must dictate written order No.1 (RTWO01) and authorise the driver to pass the block marker and proceed to the first WSMB.

You must get permission from the PICOP before doing this.

4.2 Propelling

signaller

You must not allow any of the following movements to be propelled unless the details are published in the *Weekly Operating Notice* or *Engineering Notice*.

- Movements entering the possession.
- Movements leaving the possession.

If it is necessary to propel when details have not been published, you must get authority from Operations Control before you can allow any of the above movements to be propelled.

4.3 Entering the possession at the first WSMB

signaller

Before you give the driver permission to proceed towards the first WSMB, you must make sure:

- the PICOP has given you permission, and
- you have not authorised a conflicting movement.

When the engineering train has entered the possession, the PICOP will tell you when the first WSMB has been replaced.

signaller

4.4 Entering a possession at an intermediate point

Before you give the driver permission to proceed from the protecting block marker towards the possession, you must make sure:

signaller

- the PICOP has given you permission
- the PICOP has positioned someone at the intermediate point to give instructions to the driver
- you have not authorised a conflicting movement to take place.

You must tell the driver to stop and get instructions from the person at the intermediate point.

The PICOP will tell you when the engineering train has entered the possession and is clear of the points or crossings at the intermediate point.

You must then return the points to the agreed position.

4.5 Entering the possession from an adjacent siding under possession

If a movement is to enter the possession from an adjacent siding under possession, you must first agree with the PICOP and the person in charge of the siding possession (PICOS) how this is to be done.

signaller

4.6 Leaving the possession

signaller

You must not allow any engineering train other than an ERTMS-fitted engineering train to make a movement between the last WSMB and the block marker protecting the exit from the possession.

When the PICOP tells you that an engineering train is ready to leave the possession, you must reach a clear understanding with the PICOP about the instructions to give the driver about the movement:

- beyond the WSMB out of the possession, or
- through points or crossings that are protecting the possession at an intermediate point.

You must make sure that the line is clear throughout to the next block marker and safe for the movement to proceed before you give the PICOP instructions to authorise the driver to pass beyond the WSMB and out of the possession.

To protect the possession, after the movement has left it, you must:

- restore to their original position all points that you have operated for the movement
- close the route protecting the exit from the possession.

4.7 Leaving the possession directly into a siding under possession

signaller

If a movement is to leave the possession directly into an adjacent siding under possession, you must first agree with the PICOP and the PICOS how this is to be done.

5

Movements over level crossings

*The person responsible: **signaller***

5.1 When these instructions apply

You must apply the instructions shown in sections 5.2 to 5.11 as appropriate when authorising a movement to enter or leave the possession.

signaller

Where the ES, PICOP or SWL is responsible for authorising the movement, the following will apply.

AHBC

The ES, PICOP or SWL will get your permission before allowing an engineering train to pass over an AHBC that is not being locally controlled.

You must not give this permission if you are aware of any reason why the train must not pass over the level crossing.

OTP will not be allowed to pass over an AHBC level crossing unless it is being locally controlled.

CCTV, OD or RC

If the crossing is not being locally controlled, the ES, PICOP or SWL will get your confirmation that the barriers have been lowered and the crossing is clear before they authorise the movement to pass over the level crossing.

5.2 Before making a movement

Before the movement takes place you must give details of the movement to those personnel operating:

signaller

- any CCTV, OD or RC level crossing
- other level crossing, if possible.

5.3 AHBC locally controlled

signaller

You must tell the driver that the movement must not pass over the level crossing unless the crossing attendant is displaying a green handsignal.

5.4 AHBC that is not locally controlled

signaller

Only an engineering train that is to pass normally over the level crossing in a direction that has controls may be allowed to proceed over the level crossing.

You must tell the driver not to stop specially before passing over the level crossing.

5.5 CCTV, OD or RC locally controlled

signaller

You must tell the driver that the movement must not pass over the level crossing unless the crossing attendant is displaying a green handsignal.

5.6 CCTV, OD or RC that is not locally controlled

signaller

You must not allow any movement in the wrong direction to pass over the level crossing.

For other movements, you must not authorise the driver to pass the block marker protecting the level crossing until the barriers have been lowered for the movement.

You must then tell the driver not to stop specially at the level crossing.

5.7 AOCL or ABCL not switched off

If the level crossing has not been switched off as shown in module TS9 *Level Crossings - signallers' regulations*, regulation 4.1, the following must apply.

signaller

You must instruct the driver of a train that is to pass over the level crossing normally, to proceed over the crossing only when it is safe to do so.

For any train movements not passing normally over the level crossing, you must not allow the movement to take place unless:

- the level crossing has been closed to road traffic, or
- a competent person is positioned at the level crossing and has stopped road traffic by displaying a red handsignal on both sides of the level crossing.

You must instruct the driver to stop at the level crossing, sound the horn and then pass over the level crossing only when it is safe to do so.

5.8 AOCL or ABCL that has been switched off

If the level crossing has been switched off as shown in module TS9 *Level crossings - signallers' regulations*, regulation 4.1, the following must apply.

signaller

During daylight

You must instruct the driver of a train that is to pass over the level crossing to stop the train at the level crossing, sound the horn and then pass over the level crossing only if it is safe to do so.

During darkness

signaller

The movement of a train over the level crossing must not take place unless:

- the level crossing has been closed to road traffic, or
- a competent person is positioned at the level crossing and has stopped road traffic by displaying a red handsignal on both sides of the level crossing.

You must instruct the driver to stop at the level crossing, sound the horn and then pass over the level crossing only when it is safe to do so.

5.9 Manned level crossing

signaller

You must instruct the driver to pass over the level crossing only if the level crossing barriers or gates are closed to road traffic.

If it is a traincrew-operated (TMO) level crossing, you must make sure that a competent person is available to operate the level crossing before authorising the driver to proceed.

5.10 Crossing with red and green warning lights (R/G)

signaller

You must instruct the driver to stop at the level crossing, sound the horn and then pass over the level crossing only when it is safe to do so.

5.11 Barrow or foot crossing with white light indicators

signaller

You must instruct the driver to pass over the level crossing only when it is safe to do so.

6

Change of personnel

*The person responsible: **signaller***

6.1 Change of PICOP

The PICOP will tell you the name of the new PICOP if there is a change. You must record the details in the Train Register.

signaller

6.2 Change of signaller

If you are the new signaller taking duty you must countersign the entries in the Train Register.

signaller

7 Giving up the possession

The person responsible: signaller

7.1 Giving up the possession around an engineering train

signaller

The PICOP may give up the possession with an engineering train standing at a block marker on the line under possession, as long as all of the following apply.

- The train is standing at a location where the train detection is by means of track circuits and not by axle counters.
- The movement, after the possession is given up, will be in the normal signalled direction and will be driven from the leading cab.
- You have agreed with the PICOP the block marker to be used.

When the train arrives at the agreed block marker, you must:

- tell the driver to make no further movement until you have given verbal permission for the engineering train to proceed, then
- tell the PICOP the train has arrived at the agreed block marker and will not be moved.

You must not start the arrangements to give up the possession until the engineering train has arrived at the agreed block marker.

7.2 Removing the protection

signaller

When the possession is no longer needed the PICOP will:

- if single line working is in operation, tell the pilotman that the possession is being given up
- arrange to release any unworked points or train-operated points that have been secured
- arrange for any disconnection made under possession procedure T3-D to be reconnected or for any route barring carried out under possession procedure T3-E to be restored
- arrange for the first and last WSMBs to be removed.

7.3 Signaller being told when the possession is no longer needed

The PICOP will tell you that the line is clear and safe for trains to run on (or if section 7.1 applies, clear and safe other than the train standing at the agreed block marker) when:

signaller

- any unworked points or train-operated points that had been secured have been released
- any disconnection made under possession procedure T3-D has been reconnected or any route-barring carried out under possession procedure T3-E has been restored
- the first and last WSMBs have been removed.

7.4 Confirming the possession is given up

You must record the details in the Train Register. You must read the entry back to the PICOP.

signaller

When the entry has been made in the Train Register and if the PICOP agrees with the entry, this is confirmation that the possession has been given.

8 Resuming normal working

The person responsible: signaller

8.1 Restoring the signalling to normal working

signaller

When the PICOP has given up the possession, you must arrange for all routes which have been closed to be restored to normal working.

8.2 Telling personnel the possession is given up

signaller

You must tell the following that the possession has been given up.

- Any other signaller concerned.
- Any crossing keeper concerned.

If you are the signaller at an adjacent signal box, you must record the details in the Train Register.

8.3 AHBC, CCTV, OD or RC level crossings

signaller

You must arrange for normal working to be restored at any AHBC, CCTV, OD or RC level crossing at which an attendant is appointed.

8.4 Possession given up around an engineering train

signaller

If the possession was given up with an engineering train standing at a block marker, you must tell the driver of that train that the possession has been given up and the conditions under which the train may proceed.

8.5 First train over the affected portion of line

You must specially watch the operation of the track circuits during the passage of the first train over the line that was affected by the possession.

signaller

You must not allow a second train to pass over the line that was affected by the possession unless there is a route setting position (RSP) at which the route is closed between the first and second trains.

9

Driver's duties

The person responsible: driver

9.1 Authority for movement of engineering trains

driver

You must make movements only on the authority of the following personnel.

a) Signaller

The signaller will **personally** authorise you to make a movement that is required to:

- proceed from either end towards the first WSMB
- enter the possession at an intermediate point where your train will be met.

The signaller will give the PICOP the necessary instructions to pass on to you when you are to make a movement that must:

- pass through points or crossings that are protecting the possession at an intermediate point when leaving the possession
- proceed beyond the last WSMB when leaving the possession.

All movements described in section 9.1 a) are restricted to engineering trains fitted with ERTMS and operating in SR mode.

Any engineering train not fitted with ERTMS, or with ERTMS not working, must be operated by a traction unit that is fitted with ERTMS.

b) PICOP

The PICOP (or competent person on the PICOP's behalf) will authorise you to make a movement that is required to:

driver

- pass through points or crossings that are protecting the possession at an intermediate point when entering the possession
- enter or leave the possession from or to a siding that is also under possession
- pass the WSMB at the exit from a work site; this will be showing two yellow flashing lights
- move between work sites
- proceed beyond the last WSMB after passing on the signaller's instructions when leaving the possession.

You do not need a written order to leave a possession at a WSMB or at an intermediate point. However, you must be prepared to stop at the next block marker unless an MA is received.

The PICOP will wear an armband on the left arm, or a badge on the upper body, with PERSON I.C. POSSESSION in red letters on a yellow background.

Within the protection of the first and last WSMBs, all movements may be made by any engineering train or OTP.

c) ES or SWL

The ES or SWL (or a competent person on the ES's or SWL's behalf) will authorise you to make a movement:

driver

- past a WSMB into a work site; this will be showing two flashing red lights
- within a work site.

The ES can permit a person to travel in your cab to give you instructions about the working of your train while loading or unloading.

The ES will wear an armband on the left arm, or a badge on the upper body, with 'ENGINEERING SUPERVISOR' shown in blue letters on a yellow background.

driver

The SWL will wear an armband on the left arm, or a badge on the upper body, with SWL in blue letters on a yellow background.

9.2 Reaching a clear understanding with others

driver

You must reach a clear understanding with the person authorising the movement as to:

- what you must do
- how far the movement is to proceed.

9.3 Headlights and tail lamps

driver

If the train is detained between two work sites, you must make sure that:

- a red light is showing at both ends of the train
- the headlights are switched off.

9.4 Indicating work sites within the possession

driver

A WSMB will be placed in the 'four-foot' at each end of the work site. See diagram T3.1 ERTMS.

The WSMB for one work site will be no closer than 100 metres from the WSMB of another work site.

WSMBs are not needed if there will be no engineering train or OTP movements within the possession.

Only the ES can give authority for your train to pass the WSMB displaying two red lights and enter the work site.

Only the PICOP can give authority for your train to pass the WSMB displaying two yellow lights and leave a work site.

9.5 During the movement

a) Making the movement

You must make the movement at caution and not exceed 40 km/h (25 mph) at any point in the journey when entering, making a movement within, or leaving the possession.

driver

The PICOP, when authorising the movement between work sites, will tell you the location of any permissible or temporary speed restriction lower than 40 km/h (25 mph) on the portion of line concerned and you must not exceed these speeds.

You must:

- make any movement in a work site at not more than 10 km/h (5 mph) unless you are given specific instructions by the ES or SWL on the maximum speed to be applied
- be prepared to stop before reaching a handsignal that is being displayed.

You must also carry out the instructions shown in module S5 *Passing a signal at danger or an end of authority (EoA) without a movement authority (MA)* or TW7 *Wrong-direction movements*.

When vehicles are being loaded or unloaded, you must also carry out the instructions shown in module SS2 *Shunting*.

b) Passing a block marker within the possession

You must not pass a block marker within the possession unless you are authorised to do so by the PICOP or by the ES or SWL if it is within a work site. In this case you do not need a written order.

c) Level crossings

driver

You must not pass over any level crossing unless you have been instructed to do so.

When you pass over the crossing, you must carry out the relevant instructions regarding level crossings shown in module S5 *Passing a signal at danger or an end of authority (EoA) without a movement authority (MA)* or TW7 *Wrong-direction movements*.

9.6 When a possession is to be taken around one or more engineering trains

a) Conditions

driver

If the arrangements have been published, the signaller can grant a possession to the PICOP when your train is standing at a block marker on the line on which the possession is to be taken.

The block marker this applies to will be shown in the *Weekly Operating Notice* or *Engineering Notice*.

b) Proceeding to the specified block marker

Your movement to the specified block marker will be signalled under normal arrangements.

c) Arriving at the specified block marker

When your train arrives at the specified block marker, the signaller will instruct you to make no further movement until you are authorised by the PICOP, ES or SWL, as appropriate.

9.7 When a possession is to be given up around an engineering train

a) Conditions

The PICOP can give up the possession with one engineering train standing at a specified block marker on the line under possession as long as:

- the movement, after the possession is given up, will be in the normal signalled direction, and
- the movement must be driven from the leading cab.

If the possession is to be given up around your train, the PICOP will tell you the location and identity of the block marker you must stop at.

This block marker will be agreed between the PICOP and the signaller and must not be within a work site.

The PICOP will also tell you and anyone else on the train, that the line on which you are standing must be considered as no longer under possession.

b) Arriving at the block marker

When your train arrives at the block marker, you must immediately contact the signaller. You must make no further movement with the train until the signaller tells you to proceed.

c) When the possession has been given up

When the possession has been given up, the signaller will tell you this and the conditions under which the train may proceed.

driver

Notes

Notes



GE/RT8000/TW1
Rule Book

Preparation and movement of trains

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You will need this module if you carry out the duties of a:

- driver
- guard
- shunter
- signaller
- train preparer.

Conventions used in the Rule Book	Example
A black line in the margin indicates a change to that rule and is shown when published in the module for the first time.	
Green text in the margin indicates who is responsible for carrying out the rule.	driver
A white i in a blue box indicates that there is information provided at the bottom of the page.	
<div style="border: 2px solid red; padding: 5px;">A rule printed inside a red box is considered to be critical and is therefore emphasised in this way.</div>	

Section

1

Abnormal brake applications

2

Assisting failed locomotive-hauled trains in the rear

2.1 General

2.2 Failed air-braked train

3

Attending for and leaving duty

4

Brake system requirements

4.1 Making sure brakes are working correctly

4.2 Carrying out a brake continuity test on locomotive-hauled trains or HSTs

4.3 Carrying out a brake continuity test on multiple-unit passenger trains

4.4 Coaching stock vehicles with isolated brakes

4.5 Isolated vehicle brakes

4.6 Carrying out a running brake test

5

Broken rails and bridge strikes

5.1 Broken, distorted or damaged rails and broken fishplates

5.2 Bridge strikes

Section

6

Classification of trains

7

Dead locomotives

- 7.1 General
- 7.2 As a formation of light locomotives
- 7.3 In a passenger train (loaded or empty), postal or parcels train
- 7.4 In a freight train

8

Doors on passenger, postal and parcels trains

- 8.1 Door open or not completely closed
- 8.2 Treating and reporting doors as defective
- 8.3 Passenger falling from the train during the journey

9

Driver-guard communication

10

Driver's reminder appliance (DRA)

- 10.1 When entering or leaving the driving cab
- 10.2 When stopping at a station platform or at a signal at danger
- 10.3 When stopping at a station platform where no signal is provided

Section

11 Driving-cab equipment

12 Examining the line

- 12.1** How to carry out an examination of the line
- 12.2** If the headlight has failed
- 12.3** Being accompanied by a competent person

13 Exploding detonators

- 13.1** At a signal box or when a hand danger signal is shown
- 13.2** Other situations

14 Lights on trains

- 14.1** Headlights and marker lights
- 14.2** Tail lamps
- 14.3** Lights on shunting locomotives
- 14.4** Lights when making a wrong-direction movement

15 Locomotive assisting in the rear of a train

- 15.1** Before the movement begins
- 15.2** Assisting locomotive leaving the train

Section

16 Locomotives at both ends of the train or in tandem

- 16.1 Trains with locomotives at both ends of the train
- 16.2 Trains hauled by locomotives in tandem
- 16.3 If a locomotive is not the leading one

17 Locking doors on passenger trains

18 Looking out along a train

19 Passenger communication apparatus (PCA)

20 Permissive working

- 20.1 Definition
- 20.2 Authority for permissive working
- 20.3 Proceeding towards the rear of another train on permissive-worked lines
- 20.4 Following another train which is moving on a permissive-worked line
- 20.5 Setting-back movements where permissive working is authorised
- 20.6 Emergency permissive working

Section

21 Personal equipment

22 Poor visibility

23 Preparing a train

24 Proceeding after being stopped because of an accident or other exceptional cause

25 Proceeding at caution

26 Propelling movements

26.1 Authority for propelling

26.2 Controlling the movement

26.3 Before the movement starts

26.4 During the movement

27 Public address system

Section

28

Rail-head adhesion

- 28.1 Experiencing exceptional rail-head conditions
- 28.2 Arranging a controlled test stop
- 28.3 Resuming normal working
- 28.4 Serious wheel slip

29

Route and traction knowledge requirements

- 29.1 Driver's responsibilities
- 29.2 Guard's responsibilities

30

Sidings and goods lines

31

Single line working

- 31.1 In the wrong direction
- 31.2 Single line working where more than one running line is available

32

Single lines worked with a token, or with or without a train staff

- 32.1 Principle
- 32.2 Entering or fouling a single line worked with a token or train staff
- 32.3 Handling the token or train staff
- 32.4 One-train working without a train staff

Section

33 Snow conditions

34 Starting a train

34.1 Starting a train from a siding, depot or yard

34.2 Starting a train assisted in the rear

35 Stopping a train at stations

35.1 At a station where a train is booked to stop

35.2 At a station where a train is not booked to stop

36 Stopping or stabling a train

36.1 Train shunted clear of the line or entering loop lines on other than track circuit block (TCB) or ERTMS lines

36.2 Traction unit left unattended

36.3 Standing foul of any other line

37 Stopping short of, or overrunning a platform

37.1 If the train is stopped incorrectly at a station platform

37.2 Returning to the platform after an overrun

38 Train in distress

39 Train radio equipment

- 39.1 Using the train radio safely
- 39.2 Communicating with the signaller
- 39.3 Signaller unable to call the driver
- 39.4 Radio area boundaries
- 39.5 Making an emergency call
- 39.6 Railway emergency group call (REC)

40 Train requiring to stop in section

- 40.1 General
- 40.2 Level crossings
- 40.3 Changing direction

41 Train stopped out of course

42 Traincrew being relieved

43 Trains put in danger

- 43.1 When other trains are put in danger
- 43.2 When a following train is put in danger
- 43.3 When your train is put in danger
- 43.4 When trains will not be put in immediate danger

44 Vehicles labelled for repair or with a NOT TO BE MOVED board attached

- 44.1 Trains or vehicles with a NOT TO BE MOVED board attached
- 44.2 Vehicles labelled for repair

45 Warning horn

- 45.1 General
- 45.2 Warning tones to use
- 45.3 Sounding the horn as a warning

46 Working on the outside of a train

1 Abnormal brake applications

*The person responsible: **driver***

If your train has been brought to a stand by a brake application which you did not make, you must immediately check the in-cab equipment indications, such as automatic warning system (AWS), ERTMS or train protection and warning system (TPWS), to see if this has intervened.

If AWS, ERTMS or TPWS equipment has intervened, you must immediately contact the signaller, unless TPWS caused the brake application when the train was approaching buffer stops.

If AWS, ERTMS or TPWS did not cause the brake application, you must find out if the brake was applied by the guard or by the passenger communication apparatus.

If none of these caused the brake application, you must check if the train is complete.

You must agree with the signaller what actions will be taken to find out whether the train has become divided and whether any other line is affected.

You must assume that your train has become divided if:

- the tail lamp is missing
- the brake pipe is open at the rear.

driver

2

Assisting failed locomotive-hauled trains in the rear

The person responsible: driver

2.1 General

driver failed train

If your train has failed, it may be assisted in the rear if you can apply the automatic brake in an emergency.

You must only allow the movement to proceed to the next place where the train can be moved clear of the running line, or a locomotive can be attached to the front.

You must make sure that you can fully control the train throughout the movement.

You must reach a clear understanding with the driver of the assisting locomotive about how the movement is to be started, stopped and controlled.

driver assisting train

Before the movement begins, you must temporarily isolate the TPWS.

Immediately after your train is detached from the failed train, you must reinstate the TPWS.

If you are the driver of an assisting train on which ERTMS is in operation, you must make sure that ERTMS is in the correct mode both before the movement starts, and immediately after your train is detached from the failed train.

You must not make any further movement without the signaller's authority.

2.2 Failed air-braked train

An air-braked train can only be assisted in the rear by:

- a light locomotive
- an air-braked train
- a vacuum-braked train hauled by a dual-braked locomotive.

You must not exceed 25 mph (40 km/h).

However, if the brake pipe is operative throughout the train, a light locomotive may assist:

- a passenger train (loaded or empty)
- a postal or parcels train
- any other train running with passenger brake timings.

You must not exceed 40 mph (65 km/h).

A single-piped air-braked train can be assisted in the rear if the failed locomotive is:

- capable of maintaining its own main reservoir pressure, or
- fitted with an assistance to failed train (AFT) cock.

A two-pipe air-braked train can be assisted in the rear if the main reservoir pipe is:

- coupled and operative throughout the failed train
- coupled to the assisting locomotive.

driver
failed
train

3

Attending for and leaving duty

*The people responsible: **driver, guard***

**driver,
guard**

When attending for duty, you must read the notices that apply to you.

Before leaving duty, you must hand in a full written report of the circumstances of any irregularity or exceptional incident.

4 Brake system requirements

The people responsible: driver, guard, train preparer

4.1 Making sure brakes are working correctly

The automatic brake must normally be in use on every vehicle in a passenger, parcels or postal train. You must make sure that the brakes are working correctly before allowing a train to enter service.

driver,
guard,
train
preparer

4.2 Carrying out a brake continuity test on locomotive-hauled trains or HSTs

You must carry out a brake continuity test:

- when a locomotive is coupled to the train
- after a brake defect has been repaired
- after a train has been left unattended and the traction unit shut down (except where authorised in local instructions)
- when a vehicle is uncoupled from the train, unless it is uncoupled from the extreme rear
- when a vehicle is coupled to the train.

driver,
guard,
train
preparer

If the train is assisted by a locomotive coupled in the rear, you must ask the driver of the assisting locomotive to carry out the brake continuity test.

driver

4.3 Carrying out a brake continuity test on multiple-unit passenger trains

You must make sure a brake continuity test is carried out as shown in train operating company instructions.

driver,
guard,
train
preparer

4.4 Coaching stock vehicles with isolated brakes

driver,
guard,
train
preparer

You may allow a train to enter service from somewhere other than a maintenance depot with one vehicle on which the automatic brake has been isolated, if the following conditions are met.

- The train is formed of at least five coaching stock vehicles.
- The automatic brake is working on the last vehicle.
- On multiple-unit trains the automatic brake is operative on the first and last vehicle (except when the vehicle is fitted with a rigid bar coupling).
- The speed of the train is restricted to 10 mph (15 km/h) below the permitted speed for that train over the line concerned. However, the speed need not be reduced below 35 mph (55 km/h).

You may allow more vehicles on which the automatic brake has been isolated to be conveyed in the train as shown below.

Total number of coaching stock vehicles in the train	Number of vehicles with brakes isolated
10 to 14	2
15 to 19	3
20 to 24	4
25 or more	5

4.5 Isolated vehicle brakes

driver,
guard,
train
preparer

You must treat a vehicle with two air-brake distributors, one of which is isolated, as having isolated brakes.

If it is necessary to isolate the automatic brake on any vehicle, you must:

- carry out any necessary instructions for the type of vehicles concerned
- tell the driver
- make sure the train document is amended
- make sure the train meets the requirements of section 4.4.

driver,
guard,
train
preparer

4.6 Carrying out a running brake test

You must test that the automatic brake is working properly by carrying out a running brake test.

driver

When you carry out a running brake test, you must do so from a speed that is high enough for you to be sure that:

- the brake is operating effectively
- the speed of the train is being reduced.

Locomotive-hauled trains and HSTs

You must carry out the running brake test at the first opportunity after beginning the journey.

You must, if possible, also carry out a running brake test in good time before approaching:

- the first stopping place
- a crossing place on a single line
- a steep falling gradient
- a terminus or dead-end platform line.

Multiple-unit trains

When working multiple-unit trains you must carry out the running brake test as shown in your train operating company instructions.

5

Broken rails and bridge strikes

The person responsible: driver

5.1 Broken, distorted or damaged rails and broken fishplates

driver

If there is a broken or defective rail or broken fishplates on the line on which your train is to travel, the signaller will tell you what is happening and the location of the rail defect.

When you are told to proceed, you must do so at no more than the speed the signaller tells you.

5.2 Bridge strikes

driver

If a bridge is reported as having been struck by a road vehicle on the line on which your train is to travel, the signaller will tell you what has happened and the location of the bridge.

When you are told to proceed, you must do so at no greater speed than the signaller tells you. You must not increase speed until the whole of your train has passed beyond the bridge concerned.

If it is an overline bridge that has been struck, the signaller may ask you to check the bridge before passing under it. In this case you must:

- stop your train before passing under the bridge
- check for any obvious damage, including debris on the line
- tell the signaller whether the line appears to be safe for the passage of trains.

If there is no obvious damage or debris, you may pass under the bridge at a speed not exceeding 5 mph (10 km/h).

6 Classification of trains

The people responsible: driver, train preparer

The following table shows the classification used to identify the types of train.

You must tell the signaller if the classification of the train is different, or has been changed, from that published.

**driver,
train
preparer**

Description	Class
Express passenger train Nominated postal or parcels train Breakdown or overhead line equipment train going to clear the line (1Z99) Traction unit going to assist a failed train (1Z99) Snow plough going to clear the line (1Z99)	1
Ordinary passenger train Officers' special train (2Z01)	2
Freight train if specially authorised A parcels train Autumn-railhead treatment train Empty coaching stock train if specially authorised	3
Freight train which can run up to 75 mph (120 km/h)	4
Empty coaching stock train	5
Freight train which can run up to 60 mph (95 km/h)	6
Freight train which can run up to 45 mph (70 km/h)	7
Freight train which can run up to 35 mph (55 km/h)	8
Class 373 train Other passenger train if specially authorised	9
Light locomotive or locomotives	0

7

Dead locomotives

The people responsible: driver, train preparer

7.1 General

driver,
train
preparer

You can allow dead locomotives to be worked as part of a formation of light locomotives, or conveyed in a train.

If a dead locomotive has an operational automatic brake, you must make sure that it is used even when it is partially defective, This means the number of brakes isolated reduces the brake force by no more than 25%.

You must make sure that the brake timings are compatible throughout the train, including the locomotives.

7.2 As a formation of light locomotives

driver,
train
preparer

Unless authorised otherwise, you must not allow more than a total of five hauling and dead locomotives to be worked as a formation of light locomotives.

You must not haul a locomotive on which the automatic brake is totally inoperative.

If any locomotive has a partially defective automatic brake, you must not allow the speed to exceed 50 mph (80 km/h).

7.3 In a passenger train (loaded or empty), postal or parcels train

driver,
train
preparer

Unless authorised otherwise, you can only convey one hauling and one dead locomotive, except that you can allow two dead class 20 or class 73 locomotives to be formed at the rear of the train.

You can convey more locomotives when an electric locomotive in service is being hauled over a non-electrified line, or an electrified line on which the traction current has been isolated.

When preparing the train, you must make sure that a dead locomotive is formed:

- immediately behind the hauling locomotive, or
- immediately inside the powering locomotive on a push-pull train, or
- at the rear of the train.

You must make sure that the automatic brake is fully operative on a dead locomotive.

driver,
train
preparer

7.4 In a freight train

Unless authorised otherwise, you must not convey more than a total of five hauling and dead locomotives.

When preparing the train, you must make sure that dead locomotives are formed:

- immediately behind the hauling locomotive, or
- at the extreme rear of the train.

If the dead locomotives have only a through pipe available, you must make sure that:

- not more than three locomotives are hauled
- the automatic brake is operating on the three vehicles behind the dead locomotives.

You can only allow one locomotive (or two class 20 or class 73 locomotives) to be formed at the rear of the train.

You must not convey a dead locomotive at the rear of a train unless the automatic brake is operating fully.

If a dead locomotive is formed at the rear of a single-piped air-braked train, you must make sure that it is fitted with an AFT cock or equivalent. If not fitted with an AFT cock, a locomotive cannot be hauled dead, but can be conveyed with the engine under power but not supplying traction power.

driver,
train
preparer

8

Doors on passenger, postal and parcels trains

The people responsible: driver, guard, signaller

8.1 Door open or not completely closed

guard

If a door comes open or is not completely closed while the train is moving, you must not try to close or secure the door, but immediately stop the train before doing so.

8.2 Treating and reporting doors as defective

driver of a DO train, guard

You must treat a door as defective and carry out the instructions in module TW5 *Preparation and movement of trains: Defective or isolated vehicles and on-train equipment* if any of the following applies.

- A power-operated door closes other than through normal operation.
- The train starts with someone or something trapped in a door.
- A power-operated door remains open when it should be shut.
- A door comes open during the journey.
- Someone is injured when opening or closing the door and it is possible that the condition of the door may have contributed to the accident.
- Someone falls from the door during the journey.
- The power-operated door controls become inoperative.
- The central door locking becomes defective.
- The internal passenger 'door open' buttons become lit when the train is moving.

You must also treat a door as defective and carry out the instructions in module TW5 *Preparation and movement of trains: Defective or isolated vehicles and on-train equipment* if any of the following applies.

- A slam door is found on the safety catch, unless it is known that the door was not properly closed before the train started.
- A door handle does not return to the horizontal position when closed.
- A door is stiff in its frame.

You must tell the driver what has happened.

If it is necessary to stop the train, you must do so immediately.

You must tell the signaller what has happened and give details of:

- the vehicle number
- the location of the door
- the position of all door controls
- the position of the traction interlock switch at the time of the incident.

You must not move your train until instructed to do so by the signaller.

You must instruct the driver not to make any further movement until you have been given specific instructions from Operations Control.

driver of a
DO train,
guard

guard

driver

signaller

8.3 Passenger falling from the train during the journey

guard If you know or suspect that someone has fallen from the train, you must tell the driver.

driver You must tell the signaller if:

- someone has fallen from the train
- you cannot be certain whether anyone has fallen from the train.

You must also tell the signaller if it is known or suspected that someone has fallen from the train, but it is not known which door was involved.

driver of a DO train, guard You must, if possible, transfer passengers to another vehicle and place the vehicle out of use.

driver You must not move your train until instructed to do so by the signaller.

signaller You must instruct the driver not to make any further movement until you have been given specific instructions from Operations Control.

9 Driver-guard communication

The people responsible: driver, guard

When using the bell or buzzer to communicate, you must use the following codes.

**driver,
guard**

Code	Meaning
1	Stop
1-2	Close power-operated doors
2	Ready to start
2-2	Do not open doors (driver and guard to speak to one another)
3	Set back
3-1	Lock central door locking
3-2-1	Testing doors
3-3	Guard required by driver, or guard or driver to speak on the telephone
3-3-1	Release central door locking
4	Slow down
6	Draw forward
9	Police assistance required

You must make sure that all codes are made carefully, clearly and distinctly, with pauses clearly marked and acknowledged by repetition (except for code '3-2-1').

If you receive a code '9', you must get police assistance at the next suitable stopping point. You must arrange this by telling the signaller in the quickest way possible.

You must use the cab-to-cab telephone only for essential conversations about the working of the train.

You must not use the cab-to-cab telephone instead of the bell or buzzer codes to control movements of trains.

10 Driver's reminder appliance (DRA)

The person responsible: driver

Note: On a train on which ERTMS is in operation, the use of the DRA will be as shown in train operating company instructions.

10.1 When entering or leaving the driving cab

driver

When you enter a driving cab before starting a journey, or when taking over the train from another driver, you must:

- make sure that the DRA is set
- reset the DRA only when the platform starting signal has been cleared, or if there is no platform starting signal, when you have authority to start the train.

You must set the DRA when you leave the driving cab at the end of a journey or when another driver is to take over the train.

10.2 When stopping at a station platform or at a signal at danger

driver

You must set the DRA when your train:

- stops at a station platform where the starting signal is at danger
- is stopped at any signal at danger.

You must only reset the DRA when:

- the signal has cleared
- you have been given authority to pass the signal at danger
- you are allowed to pass the signal at danger on your own authority.

You may set the DRA before your train stops at the platform.

10.3 When stopping at a station platform where no signal is provided

You must set the DRA when your train stops at a station platform after having:

driver

- passed a signal displaying a single yellow aspect or a semaphore distant signal at caution
- been authorised to pass at danger the signal on the approach to the platform
- entered the platform under the authority of a position light signal or subsidiary signal.

You may set the DRA before your train stops at the platform.

You must only reset the DRA when you receive the **'ready-to-start'** signal.

11

Driving-cab equipment

*The people responsible: **driver, train preparer***

**driver,
train
preparer**

When preparing a train for service, you must check that the following equipment is available in each driving cab or other location, as shown in train operating company instructions for the type of rolling stock concerned.

- At least 10 detonators.
- Two track-circuit operating clips.
- Two red flags.
- A spare tail lamp or hand lamp when working locomotive-hauled DO trains.
- Any other equipment shown in the instructions for the type of train concerned.

On a multiple-unit train, one red flag must be available in each cab.

If any equipment is not available, you must not allow the train to enter service.

12 Examining the line

The person responsible: driver

12.1 How to carry out an examination of the line

If instructed by the signaller to examine the line, you must:

- reach a clear understanding with the signaller as to which portion of line is to be examined
- proceed over the affected portion of the line at caution
- carry out any other instructions.

If the affected portion of line is within a tunnel, you must not exceed 10 mph (15 km/h) through the tunnel.

If the signaller has told you that the examination of the line is because of a suspected track defect, you must not exceed 20 mph (30 km/h) over the affected portion of line.

You must report the state of the affected line from an agreed location beyond the affected portion of line.

driver

12.2 If the headlight has failed

During darkness, poor visibility or if there is a tunnel in the section, you must not use a train to examine the line if the headlight has failed completely, unless a portable headlight is fitted.

driver

12.3 Being accompanied by a competent person

During darkness, poor visibility, or if the affected portion of line is within a tunnel, while examining the line, you must be accompanied by the guard or other competent person (if one is immediately available).

driver

13 Exploding detonators

The person responsible: driver

13.1 At a signal box or when a hand danger signal is shown

driver

If your train explodes one or more detonators at a signal box or when a hand danger signal is being shown, you must:

- stop your train immediately
- not proceed until given permission to do so.

13.2 Other situations

driver

If your train explodes one or more detonators in any other situation, you must:

- stop your train immediately
- proceed at caution towards the obstruction, or any signal, end of authority (EoA) or handsignal.

14 Lights on trains

The people responsible: driver, guard, train preparer

14.1 Headlights and marker lights

You must make sure that any marker lights at the front of your train are switched on when the train is:

driver

- on a running line
- moving on any line or in a depot, yard or siding
- being propelled in the right direction.

You must make sure that the headlight (fixed or portable) at the front of your train is:

- switched on when the train is moving on a running line
- displaying the correct day or night beam.

You must make sure that the headlight (fixed or portable) is switched off:

- in a depot, yard or siding
- when stabled on a running line.

14.2 Tail lamps

You must make sure there is a tail lamp that is lit at the rear of the train when it is:

**driver,
guard,
train
preparer**

- on a running line
- on a through or reception siding
- being propelled in the right direction.

When two built-in electric tail lights are provided, you must make sure both are lit where possible.

You must make sure that no other tail lamp is displayed at any other position.

14.3 Lights on shunting locomotives

driver

You must make sure there is at least one red and one white light displayed at each end of a shunting locomotive (where these are fitted) when it is being used for shunting purposes.

14.4 Lights when making a wrong-direction movement

driver

When making a wrong-direction movement of less than 400 metres (440 yards), you need not change the normal head or marker lights or the tail lamp.

When making a wrong-direction movement of more than 400 metres (440 yards), you must make sure that the headlights and marker lights are lit on the leading end of the movement and a tail lamp is lit at the rear end of the movement.

When making a wrong-direction movement as an assisting train towards a failed train, you must make sure you display normal headlights at both ends of your train and have switched off the tail lamp.

You can use a portable headlight or a handlamp if the above lights or lamps are not available.

15 Locomotive assisting in the rear of a train

The person responsible: driver

15.1 Before the movement begins

You must reach a clear understanding with the driver of the assisting locomotive about how the movement is to be started, stopped and controlled.

driver

You must only assist a train in the rear where authorised in the *Sectional Appendix*.

driver
assisting
locomotive

You must make sure that the assisting locomotive is always coupled to the train except where authorised in the *Sectional Appendix*.

Whenever an assisting locomotive is attached to the rear of the train, you must tell the signaller.

Before the movement begins, you must temporarily isolate the TPWS or make sure that ERTMS is in the correct mode.

15.2 Assisting locomotive leaving the train

Immediately after the locomotive is detached from the train, you must reinstate the TPWS, or make sure that ERTMS is in the correct mode.

driver
assisting
locomotive

You must only detach the assisting locomotive at a location authorised in the *Sectional Appendix*.

You must not pass a signal which has been cleared for the train that was assisted, until the signal has been returned to danger and then cleared again.

If ERTMS is operative on the assisting locomotive, you must not make any further movement without the signaller's authority.

16

Locomotives at both ends of the train or in tandem

The person responsible: driver

16.1 Trains with locomotives at both ends of the train

driver

You can operate a train with powered locomotives at both ends of the train in the following circumstances.

- When the rear locomotives are providing traction power.
- When the rear locomotives are providing an electrical train supply only.

You must make sure that the automatic brake is connected and operative throughout the train.

driver locomotive on rear

You must reach a clear understanding with the driver of the leading locomotive as to what is required before the journey or movement begins.

During the journey, you may disregard any signal which reverts to danger or caution before your locomotive passes it.

16.2 Trains hauled by locomotives in tandem

If ERTMS is in operation on the leading locomotive, you must make sure that suitable communication is available between each of the drivers.

If you are the driver of the leading locomotive, you are responsible for observing signals or in-cab indications and operating the brake.

If you are the driver of the second locomotive, you must:

- observe all signals affecting the working of the train, where possible
- observe any signals or follow other communication given by the driver of the leading locomotive
- apply the brake if it becomes necessary.

driver

16.3 If a locomotive is not the leading one

If you are the driver of any locomotive that is not the leading one, you must:

- temporarily isolate TPWS before the movement starts, if it is required to be in operation during any part of the journey
- reinstate the TPWS after the movement has been completed, or before the train reverses, if it will then be required to be in operation
- make sure that ERTMS is in the correct mode throughout any part of the journey when it is required to be in operation.

driver

17

Locking doors on passenger trains

*The people responsible: **guard, train preparer***

**guard,
train
preparer**

Before any train enters service, you must make sure that the following doors are locked.

- Gangway doors at each end of the train.
- Gangway doors at each side of any gangway connection which cannot be made.
- A door leading to any accommodation or vehicle which is not for public use.

You must make sure that all other doors (internal and external) are kept unlocked at all times.

18

Looking out along a train

*The people responsible: **driver, guard***

When starting away, if it is safe and possible to do so, you must look out to make sure everything is in order.

**driver,
guard**

When working a freight train, if it is safe and possible to do so, you must look out from time to time to make sure the train is following in a safe and correct way.

19

Passenger communication apparatus (PCA)

The people responsible: driver, guard

driver

If the PCA is operated, you must, if possible, avoid stopping the train:

- in a tunnel
- on a viaduct
- in any other unsuitable location.

If an emergency brake application is not automatically made when the warning alarm sounds on a train fitted with a PCA, you must:

- if possible, contact the person who has operated the apparatus
- ask the person why the PCA has been used
- take the necessary action
- if necessary, bring the train to a stand as soon as possible at a suitable location.

However, you must stop the train immediately if:

- you have reason to believe that the train may be in danger, or
- the apparatus is operated as the train is leaving a station.

driver of a DO train, guard

You must reset the PCA before the train restarts.

20 Permissive working

The person responsible: driver

20.1 Definition

Permissive working allows a second train to be signalled onto a running line that is already occupied so that more than one train at a time can be on the same line in a:

- block section
- signal section
- dead-end platform line.

20.2 Authority for permissive working

You must only make a permissive movement where authorised in the *Sectional Appendix*.

driver

However, you can make a shunting movement to a portion of line that is already occupied, even though permissive working is not authorised, as long as this is for the purpose of attaching, detaching or removing vehicles.

20.3 Proceeding towards the rear of another train on permissive-worked lines

When proceeding towards another train which is at a stand, you must:

driver

- approach at caution
- stop your train at least 2 metres (6 feet 6 inches) short of the train in front.

20.4 Following another train which is moving on a permissive-worked line

driver

When it is permitted to drive a train towards the rear of another train which is moving forward, you must:

- proceed at caution
- keep sufficient distance from the train in front to prevent your train colliding with that train in case it stops
- not pass a signal which has been cleared for the train in front until the signal has been returned to danger and then cleared again.

20.5 Setting-back movements where permissive working is authorised

driver

You must not make any movement, other than for coupling or uncoupling, once the train has come to a stand unless one of the following applies.

- A signal is cleared for the movement.
- The movement is authorised by the signalling system.
- The movement is authorised by the signaller.

If the movement was made on the authority of the signaller, you must tell the signaller when the movement has been completed.

If making a setting-back movement when coupling or uncoupling, you must make sure that the movement is not greater than a distance of 600 mm (2 feet).

If it is necessary for the movement to be greater than this distance, you must get the authority of the signaller.

20.6 Emergency permissive working

driver

You can also make a permissive movement when the signaller tells you that in an emergency situation on a TCB or ERTMS line your train is authorised to enter an occupied section to use a station platform.

21 Personal equipment

*The people responsible: **driver, guard***

When on duty, you must have with you:

- a handlamp
- high-visibility clothing
- a watch
- up-to-date notices for all lines over which you are required to work
- any other equipment as shown in your train operating company instructions.

**driver,
guard**

You must also have with you a supply of Form RT3185 Reporting a Signal/AWS/TPWS/ERTMS/ATP/TVM failure or irregularity

driver

You must also have with you:

- a red flag and a green flag
- 10 detonators when working a locomotive-hauled passenger train that is not a push-pull train.

guard

22

Poor visibility

*The person responsible: **driver***

driver

If you cannot see signals, block markers or lineside indicators soon enough to react to them during poor visibility, you must reduce the speed of your train as you consider necessary.

You must not exceed 40 mph (65 km/h) during poor visibility on a line where AWS is not provided as shown in Table A of the *Sectional Appendix*.

23 Preparing a train

The people responsible: guard, train preparer

Before a train enters service, you must check all of the following.

- All vehicles are properly coupled, including the brake-pipe and electrical connections.
- The necessary lamps are provided on the trains.
- The load and formation of the train meet the relevant rules and instructions.
- Before moving any locomotive or vehicle in the train that is not registered with Network Rail, that special authorisation has been received from Network Rail.
- All vehicles appear safe to travel.
- All handbrakes are released (unless it is the driver's responsibility on multiple units).
- All the doors are properly closed on a passenger or empty coaching stock train.
- Two track-circuit operating clips are available for use in or next to each brake compartment on a train of coaching stock.

You must make sure the driver is aware of any items of defective or isolated on-train equipment.

You must give the driver any necessary instructions to do with the safe working of the train.

You must test power-operated doors as shown in your train operating company instructions. You must carry out this test before a train enters service, unless your train operating company instructions allow the test to be done before entering passenger service.

If you are working a train on which ERTMS is in operation, you must not enter data into the DMI when a train or vehicle is standing between your train and the signal or block marker at the EoA ahead.

**guard,
train
preparer**

24

Proceeding after being stopped because of an accident or other exceptional cause

The people responsible: driver, guard

driver

When your train has been stopped because of an accident or other exceptional cause, you must not restart until:

- you have received a **'ready-to-start'** signal from the guard, if the train is worked by a guard
- you have made sure it is safe to do so, if you are working a driver only (DO) train.

guard

You must only give a **'ready-to-start'** signal to the driver after you have made sure it is safe to do so when the train has been stopped by an accident or other exceptional cause.

driver

If your train has stopped over unworked points, you must:

- only restart when it is safe to do so
- if necessary, arrange for the points to be secured before restarting.

25 Proceeding at caution

The person responsible: driver

If instructed to proceed at caution, you must, as well as not exceeding any specified speed, proceed at a speed which takes account of conditions (such as the distance you can see to be clear), that will allow you to stop the train short of any train, vehicle or other obstruction, or the end of your movement authority.

driver

26 Propelling movements

*The people responsible: **driver, shunter, signaller,***

26.1 Authority for propelling

**driver,
shunter,
signaller**

You may allow a propelling movement to take place as follows.

- At locations shown in the *Sectional Appendix*.
- Within the station limits of the same signal box.
- A shunting movement on a track circuit block line that is not required to proceed beyond more than one main aspect signal.
- A shunting movement on an ERTMS line that is not required to proceed beyond more than one main aspect signal or block marker.
- Through points worked from a ground frame.
- An officers' special train in the right direction.
- A wrong-direction movement that has been authorised after taking a wrong route at a junction.
- When a wrong-direction movement has been authorised after overrunning a station.
- A movement that is in connection with single line working.
- A movement that is in connection with working to or from the point of obstruction.
- A movement of a breakdown train.
- A movement in connection with clearing a disabled train or portion of it from the section.
- A wrong-direction movement with the front portion of a divided train to the rear portion.

26.2 Controlling the movement

You must not make a propelling movement unless it is controlled by a person acting as a shunter as shown in Rule Book module SS2 *Shunting*.

driver

26.3 Before the movement starts

Before the movement starts, you must both reach a clear understanding about:

driver,
shunter

- the movement
- the limits of the movement
- how it will be controlled.

If the movement is to be made along a running line, you must:

shunter

- make sure the automatic brake is in use
- tell the signaller that the movement will be propelled, except when the movement is being made through points worked by a ground frame.

You must:

driver

- temporarily isolate the TPWS before the propelling movement starts
- reinstate the TPWS when the movement has been completed
- make sure that ERTMS is in the correct mode before the propelling movement starts.

26.4 During the movement

driver

If you are making a propelling movement, you must drive from the leading cab unless either of the following applies.

- You have to look out for signals or handsignals and you will have a better view from another cab.
- A shunter is controlling the movement by radio and you do not have to look out for signals or handsignals during the movement.

Throughout the movement you must:

- observe all signals
- not pass any block marker, signal or stop board without authority
- not exceed 20 mph (30 km/h), except for an officers' special train
- sound the warning horn when approaching a level crossing.

27 Public address system

*The person responsible: **driver***

If your train operating company's instructions tell you to make announcements using the public address system, you must not do so when the train is moving if you may become distracted and put the safe operation of the train in danger.

driver

28 Rail-head adhesion

The people responsible: **driver, signaller**

28.1 Experiencing exceptional rail-head conditions

driver

You must tell the signaller immediately if you experience either of the following.

Low rail adhesion Likely to cause difficulties in stopping at a location not listed in the *Sectional Appendix*.

Exceptionally poor rail adhesion Likely to cause more than anticipated difficulties in stopping at a location listed in the *Sectional Appendix*.

signaller

If you are told about low or exceptionally poor rail adhesion conditions, you must tell Operations Control and take the following action.

Location where conditions apply	Action to be taken
Approach to a stop signal or an End of Authority (EoA)	Arrange for the driver of each train to be told about the circumstances unless the signal is showing a proceed aspect or an MA has been issued beyond the EoA
Controlled level crossing within the overlap of a signal or EoA	Close the crossing to road traffic before each train approaches
AHBC level crossing	Select the non-stopping mode (where provided)
Approach to a platform	Arrange for the driver of each train booked to call to be told about the circumstances
Dead-end platform	Arrange, if possible, for the platform to be taken out of use

28.2 Arranging a controlled test stop

You must arrange for a train to make a controlled test stop at the location concerned, if one of the following applies.

- Operations Control tell you that the rail head has been inspected and nothing unusual has been found.
- Operations Control tell you that the rail head has been inspected, and improvement treatment carried out.
- At least 30 minutes have passed since the poor conditions were reported.

In the case of a dead-end platform, you must not arrange for a test stop to be made unless you have been told that the rail head has been treated.

If possible, you must arrange for the test stop to be performed by a similar type of train to that which reported the conditions.

Before a controlled test stop is made, you must:

- arrange for the signal, where provided, to be cleared
- arrange for an MA to be issued beyond the EoA, if there is one
- where permissive working is authorised, make sure the platform line is clear.

When the signaller tells you to make a controlled test stop, you must brake the train using the technique that you would normally use for the weather and rail adhesion conditions at the location, rather than that used for the low or exceptionally poor rail-head adhesion conditions.

signaller

driver

Preparation and movement of trains

driver Immediately after the controlled test stop, you must tell the signaller:

- the results of the test
- whether the rail-head adhesion conditions should still be considered as low or exceptionally poor.

signaller If the driver who made the controlled test stop reports that the conditions are still low or exceptionally poor, you must tell Operations Control, who will tell you when to arrange a further controlled test stop.

28.3 Resuming normal working

signaller Until you are told that drivers are being notified by other means, you must continue to advise drivers.

You must continue to take any other action shown in section 28.1.

You must not resume normal working until a controlled test stop has been carried out and the rail-head conditions are no longer reported as low or exceptionally poor.

28.4 Serious wheel slip

driver You must tell the signaller the location where serious or prolonged wheel slip is experienced. However, if you suspect the rail to be damaged, you must stop the train specially and tell the signaller immediately.

signaller You must arrange for the affected portion of line to be inspected.

29

Route and traction knowledge requirements

The people responsible: driver, guard

29.1 Driver's responsibilities

When working a train, you must have the necessary knowledge for the entire route over which you are to work, or be accompanied by a competent conductor driver.

driver

If the conductor driver is not familiar with the type of traction concerned, you must explain before starting the journey:

- how to stop the train in an emergency
- where the emergency equipment is kept
- how to shut down the traction unit in an emergency.

If you are being conducted over a portion of line you are not familiar with, you must take note of signals, speed restrictions and other features about the line.

If you are the conductor driver, you must:

- take responsibility for the safe working of the train
- observe all signals and speed restrictions
- drive the train if authorised and competent to do so.

conductor driver

If you are not driving the train, you must give the driver the necessary instructions concerning:

- signals
- speed restrictions
- gradients
- curves
- other features of the line the driver needs to know.

29.2 Guard's responsibilities

guard

When working a train, you must have the necessary knowledge for the entire route over which you are to work, or be accompanied by a person who has.

30 Sidings and goods lines

*The person responsible: **driver***

You must not allow a passenger train to enter a siding, a goods line or a goods loop unless:

driver

- the arrangements have been published, or
- in an emergency, when authorised by the signaller.

31

Single line working

The people responsible: driver, guard

31.1 In the wrong direction

driver

If your train is to travel over the single line in the wrong direction, you must tell the guard.

**driver,
guard**

You must consider the effect on:

- station working, releasing doors and passenger safety
- protection arrangements if you have to carry out the requirements of Rule Book module M1 *Dealing with a train accident or train evacuation*.

31.2 Single line working where more than one running line is available

driver

If your train is to travel over the single line in the wrong direction and the single line working arrangements have not been published in the *Weekly Operating Notice*, you must tell the guard.

**driver,
guard**

If protection needs to be carried out as shown in Rule Book module M1 *Dealing with a train accident or train evacuation*, you must take into account the altered direction of train working under single line working arrangements.

32

Single lines worked with a token, or with or without a train staff

The person responsible: **driver**

32.1 Principle

Only one train at a time is allowed in a single-line section.

32.2 Entering or fouling a single line worked with a token or train staff

You must always stop your train when you need to get, deliver or exchange a token or train staff.

driver

Before you take a train onto the single line, you must make sure you get the correct token or train staff for the section you are about to enter from the signaller or person authorised in the *Sectional Appendix*.

Where a no-signaller token instrument is provided, you must ask the signaller or authorised person to release the token.

If you are the driver at the leading end of the train, you must show the token or train staff to the driver of any other locomotive at the leading end of the train before you enter the single line section.

You do not need to have the token or train staff, if any of the following apply.

- The line is under possession.
- Working by pilotman is in operation.
- Modified working arrangements are in operation.
- You are authorised to pass the section signal on an electric token line at danger for shunting purposes.
- Your train is to enter the single-line section as an assisting train.

32.3 Handling the token or train staff

driver

You must keep the token or train staff with you in the cab from which the train is being driven until it is needed by a shunter.

If the token or train staff has been given to the shunter for shunting purposes, you must not continue with the journey until:

- shunting is completed
- the points have been locked in the correct position for trains to pass on the single line
- the shunter has returned the token or train staff to you.

When the train has reached the end of the section, you must:

- give the token or train staff to the signaller or the person authorised in the *Sectional Appendix*, or
- where a no-signaller token instrument is provided, place the token in the instrument or give the token to the authorised person to do this.

If your train has failed and an assisting train is to enter the section from a ground frame which is released by the token, the signaller will instruct you to take the token to the ground frame.

When you arrive at the ground frame, you must:

- contact the signaller
- not place the token in the instrument
- come to a clear understanding with the signaller about what is to be done
- hand the token to the driver of the assisting train.

If any portion of the train is left in the single-line section, you must tell the signaller before you leave the single-line section. You must keep the token or train staff until the whole train is clear of the single-line section.

If the signaller tells you that the front portion of the train is to continue on its journey, leaving the rear portion in the single-line section, you must then give up the token or train staff.

driver

If the signaller has told you that, because of a failure of token instruments, trains will be run as if on a one-train working line where a train staff is provided, you must:

- handle the token as if it is a train staff
- not place the token in any instrument.

On a no-signaller token line, you must not transfer the token from one train to another unless it has been passed through a token instrument, except when:

- a train is to enter the section to assist, from the front, a portion of a train which has been left in the section
- you are told that due to a failure of token instruments, the single-line section will be worked as a one-train working line with train staff.

32.4 One-train working without a train staff

You must not enter or foul the single-line section until the controlling signal is cleared unless one of the following applies.

driver

- The line is under possession.
- Working by pilotman is in operation.
- Modified working arrangements are in operation.
- Your train is to enter the single-line section as an assisting train.

If any portion of the train is left in the single-line section, you must tell the signaller. You must not leave the single-line section until you have told the signaller.

33

Snow conditions

The person responsible: driver

driver

When snow is falling, or fallen snow is being disturbed by the passage of trains, you must carry out running brake tests as frequently as necessary to make sure that the automatic brake is operating effectively.

You must also carry out any other train operating company instructions.


34 Starting a train

The people responsible: driver, person in charge

34.1 Starting a train from a siding, depot or yard

Before you give permission to the driver of a train leaving a siding, depot or yard to start the train, you must make sure it is safe to do so.

person in charge


Before you start a train from a siding, depot or yard, you must make sure it is safe to do so, and get permission from the person  in charge, if there is one.

driver

34.2 Starting a train assisted in the rear

If a train is assisted in the rear, you must also give permission to the driver of the assisting locomotive for the train to start.

person in charge

 Person in charge in this section means the person in charge of movements at the location concerned.

35 Stopping a train at stations

The people responsible: driver, guard

35.1 At a station where a train is booked to stop

driver

You must stop your train at the platform as indicated by the car stop markers, where provided.

Unless you are authorised to do otherwise, you must stop your train so that all doors used by passengers are at the platform.

driver of a DO train, guard

If your train is to stop at a station where it is longer than the platform, you must, if possible, tell passengers leaving the train at that station to move along the train before reaching the station, or wait for the train to be drawn forward.

driver, guard

You must make sure you do not release the doors until the train has stopped and is at the correct position at the platform.

You must make sure that you release the doors at the correct side of the train.

If the whole of the train will not be at a platform, you must make sure that you only release those doors that will be alongside the platform.

35.2 At a station where a train is not booked to stop

If you are working a passenger or empty coaching stock train which for any reason stops in a station platform where it is not intended that passengers should board or alight from the train, you must not release the doors or the central door locking.

driver,
guard

You must not restart until:

driver

- you have received a **'ready-to-start'** signal from the guard, if the train is worked by a guard and is not formed of power-operated door stock
- you have made sure it is safe to do so, if you are working a DO train or the train is formed of power-operated door stock.

36 Stopping or stabling a train

The person responsible: driver

36.1 Train shunted clear of the line or entering loop lines on other than track circuit block (TCB) or ERTMS lines

driver

If your train has not already passed the controlling signal box, you must tell the signaller immediately that your train has arrived complete with tail lamp and is clear of the running line when your train has:

- entered a loop or siding, or
- been shunted clear of the line on which it arrived.

36.2 Traction unit left unattended

driver

You must only leave your traction unit unattended when you are:

- handing it over to another competent person who is to take charge of it
- stabling the traction unit in either a depot, siding or other authorised place
- required to leave your traction unit unattended as instructed in the rules.

Each time you leave your traction unit unattended, you must make sure it is properly secured.

36.3 Standing foul of any other line

driver

When stopping your train on a reception line or siding, you must make sure that the train does not stand foul of any other line.

37

Stopping short of, or overrunning a platform

The people responsible: driver, guard

37.1 If the train is stopped incorrectly at a station platform

When the guard is responsible for releasing the doors and you have stopped your train incorrectly at a station so that the whole of the train is not at the platform, you must tell the guard immediately using the bell or buzzer communication.

driver

You must immediately tell passengers not to get out of the train until it has been moved to the correct stopping position.

driver of a
DO train,
guard

If the doors have been released by mistake, you must check that no one has fallen from the train before moving the train.

If someone has fallen from the train or you are not sure whether someone has fallen from the train, you must tell the driver.

guard

You must tell the signaller if someone has fallen from the train, or you cannot be certain whether anyone has fallen from the train.

driver

You must make arrangements, including where necessary with the person in charge of the platform, for the train to be moved so that those passengers who want to get off can do so safely.

driver,
guard

If the train is to draw forward or return in the wrong direction, you must only do this when all doors are closed and are no longer released.

driver

You must get the signaller's permission before you make a wrong-direction movement.

Before you make the movement, you must make sure you can do this without endangering anyone who has got off the train.

37.2 Returning to the platform after an overrun

driver

If your train overruns a platform, it can only return to the platform if all of the following apply.

- The overrun is no more than 400 metres (440 yards) beyond the platform.
- You have received permission from the signaller.
- The movement does not need to pass over an automatic half-barrier crossing (AHBC), unless the crossing is being locally operated.

You must tell the guard when permission has been given for the train to return to the platform.

If the train has to pass over a level crossing, you must make sure that the crossing is clear.

38 Train in distress

*The people responsible: **driver, guard***

If you cannot control the speed of your train or you need to alert anyone about some other emergency, you must:

driver

- sound the 'train in distress' warning (a continuous series of long blasts on the high/loud tone of the horn)
- switch on the hazard warning indication if provided
- display a red light.

If you become aware that the 'train in distress' warning is being sounded, you must:

guard

- try to stop the train immediately
- contact the driver.

39 Train radio equipment

The people responsible: driver, guard, signaller

39.1 Using the train radio safely

driver

You must not use the train radio when a train is moving if you might become distracted.

If you receive a text message, you must only read that message when it is safe to do so.

39.2 Communicating with the signaller

driver

You must use the train radio (if available) as the normal method of communicating with the signaller.

You must only use a signal-post telephone if it is not possible to communicate using the train radio.

39.3 Signaller unable to call the driver

signaller

If you cannot call the driver on the train radio, you must not send messages to the driver through anyone else. Instead, you must arrange for the driver to contact you direct.

39.4 Radio area boundaries

driver

When your train passes a sign indicating the start of a GSM-R radio section, you must check that the GSM-R radio is operating and connected to the GSM-R network.

When your train passes a sign indicating the end of a GSM-R radio section, you must check that the alternative radio system is operational.

39.5 Making an emergency call

You must only use the emergency call facility when it is necessary to give immediate advice for trains to be stopped or cautioned, or to call the emergency services, in connection with an accident, obstruction or other exceptional incident.

driver

You must only use the emergency call facility when it is necessary to do so to stop the movement of trains, as shown in the train signalling regulations.

signaller

39.6 Railway emergency group call (REC)

a) Receiving a REC

If you receive a REC, you must:

- bring your train to a stand immediately
- listen to the message.

driver

b) During the REC

During the REC, you must:

- identify all trains that must remain at a stand
- instruct the drivers of those trains to remain at a stand
- get confirmation from the driver of each train that must remain at a stand that the message has been received and understood.

signaller

c) Ending the REC

When you are sure the emergency has been protected, you must end the REC with the phrase 'End of railway emergency group call'.

You must not consider the REC to be ended until the signaller has said this.

driver

d) Restarting trains

driver

After the REC has been ended, you may restart your train as long as:

- you are sure your train is not affected by the emergency
- the signaller has not instructed you to remain at a stand.

| You must proceed at caution as far as the next stop signal or proceed as indicated by the movement authority displayed.

In all other situations you must get authority from the signaller before you restart your train.

40 Train requiring to stop in section

The person responsible: driver

40.1 General

You must tell the signaller, if necessary stopping the train at a signal or the signal box, before reaching the section of line in which the train has to work, if you are working:

driver

- an engineering train that is required to work on a running line which is not under possession
- a freight train that is required to make an unscheduled call at an intermediate siding
- an officers' special train that is required to stop at a location that is not shown in the published notice.

You must:

- agree with the signaller a time when the section must be clear
- make sure your train has left the section by the agreed time.

40.2 Level crossings

You must not stop the train within the controls of:

driver

- an AHBC, unless it is under local control
- an automatic barrier crossing locally monitored (ABCL) or an automatic open crossing locally monitored (AOCL) level crossing.

40.3 Changing direction

If the train is returning to the same end of the section at which it entered on a single or bi-directional line, you must ask the signaller for permission before the returning movement starts.

driver

41 Train stopped out of course

*The person responsible: **driver***

driver

If your train stops out of course for any reason, you must tell the signaller as soon as possible.

42 Traincrew being relieved

*The people responsible: **driver, guard***

You must give the new driver or guard all necessary instructions and information about the safe operation of the train.

**driver,
guard**

This must include:

- any operational requirements affecting the safe working of the train
- any defects with the train which the new driver or guard needs to know about
- any instructions given by the signaller.

43 Trains put in danger

The people responsible: driver, guard

43.1 When other trains are put in danger

driver

You must carry out the instructions in this section if you see:

- an obstruction on the line which could cause danger to other trains
- a cow, bull or other large animal within the boundary fence, even if it is not an immediate danger to trains
- any other animal on or near the line which might be a danger to trains
- something wrong with another train.

You must use the emergency call facility on the train radio equipment.

You must warn the driver of any approaching train, if possible, by:

- sounding the horn
- switching on the hazard warning indication where provided.

If you cannot switch on the hazard warning indication, you must display a red light forward.

You must:

- place a track-circuit operating clip and three detonators 20 metres (approximately 20 yards) apart on each affected line, at least 2 km (1¼ miles) from the obstruction
- tell the signaller in the quickest way possible.

guard

If you see something wrong which could put another train in danger, you must, if possible, alert the driver of the other train by the most appropriate means.

43.2 When a following train is put in danger

If you see an obstruction or something wrong which could put a following train in danger, you must not proceed beyond the next stop signal until you have told the signaller.

driver

43.3 When your train is put in danger

If you become aware of something which could put the safety of your train in danger, you must stop your train as soon as possible.

**driver,
guard**

You must, if possible, avoid stopping the train:

- in a tunnel
- on a viaduct
- at any other unsuitable place.

43.4 When trains will not be put in immediate danger

If you see something wrong which will not put trains in immediate danger, you must tell the signaller at the first available opportunity.

driver

44

Vehicles labelled for repair or with a NOT TO BE MOVED board attached

The people responsible: driver, guard, train preparer

44.1 Trains or vehicles with a NOT TO BE MOVED board attached

driver,
guard,
train
preparer

If a train or vehicle has a NOT TO BE MOVED board attached, you must not allow:


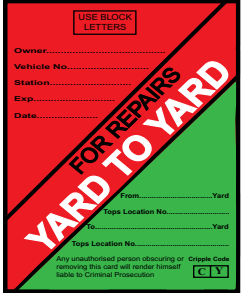
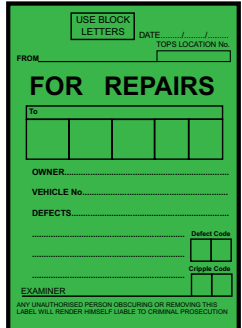
- it to enter service
- it to be moved
- another vehicle to make contact with it
- the controls on a traction unit to be interfered with.

44.2 Vehicles labelled for repair


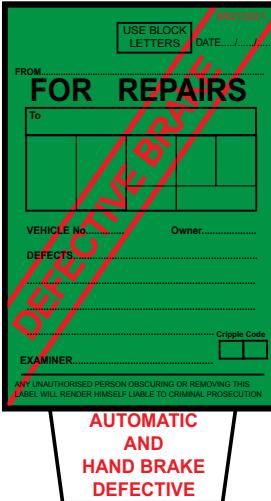
driver,
guard,
train
preparer

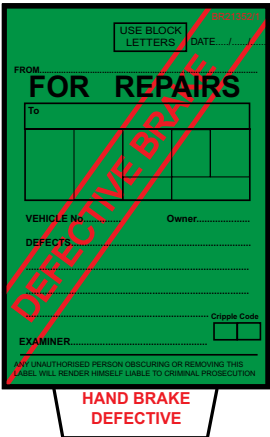
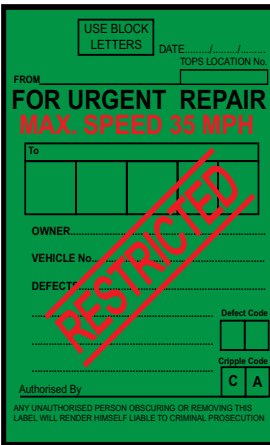
If a train or vehicle has a repair label attached, you must make sure the movement restrictions on the label are carried out.

The meaning of each type of label is shown in the following table.

Label	Meaning	Example
<p>NOT TO GO</p>	<p>Must not:</p> <ul style="list-style-type: none"> • be worked away from the station, depot, yard or siding, or • be moved within the station, depot, yard or siding unless authorised by a rolling stock technician 	 <p>The image shows a 'NOT TO GO' label. It is a rectangular card with a red background on the left and a tan background on the right. A diagonal red banner with the words 'NOT TO GO' in white, bold, sans-serif capital letters runs from the top-left to the bottom-right. At the top left, it says 'USE BLOCK LETTERS'. Below that, a warning states: 'Any unauthorised person obscuring or removing this card will render himself liable to Criminal Prosecution.' The form includes fields for 'Station', 'Date', 'Exp.', 'Vehicle No.', 'Owner', and 'Defects.'. At the bottom, there are checkboxes for 'Crippler Code' and 'Defect Code', with 'C' and 'R' in boxes next to the Crippler Code label.</p>
<p>YARD TO YARD FOR REPAIRS</p>	<p>Must only make the journey to a maintenance depot shown on the label</p>	 <p>The image shows a 'YARD TO YARD FOR REPAIRS' label. It is a rectangular card with a red background on the top-left and a green background on the bottom-right. A diagonal red banner with the words 'FOR REPAIRS' and 'YARD TO YARD' in white, bold, sans-serif capital letters runs from the top-left to the bottom-right. At the top left, it says 'USE BLOCK LETTERS'. Below that, a warning states: 'Any unauthorised person obscuring or removing this card will render himself liable to Criminal Prosecution.' The form includes fields for 'Owner', 'Vehicle No.', 'Station', 'Exp.', 'Date', 'From', 'Yard', 'Tops Location No.', 'To', 'Yard', and 'Tops Location No.'. At the bottom, there are checkboxes for 'Crippler Code' and 'Defect Code', with 'C', 'R', and 'D' in boxes next to the labels.</p>
<p>FOR REPAIRS</p>	<p>May complete the journey and then be dealt with as shown in train operating company instructions</p>	 <p>The image shows a 'FOR REPAIRS' label. It is a rectangular card with a green background. At the top left, it says 'USE BLOCK LETTERS'. Below that, a warning states: 'ANY UNAUTHORISED PERSON OBSCURING OR REMOVING THIS LABEL WILL RENDER HIMSELF LIABLE TO CRIMINAL PROSECUTION.' The form includes fields for 'DATE', 'TOPS LOCATION No.', 'FROM', 'TO', 'OWNER', 'VEHICLE No.', 'DEFECTS.', 'Defect Code', 'Crippler Code', and 'EXAMINER'. At the bottom, there are checkboxes for 'Defect Code' and 'Crippler Code', with 'D' and 'C' in boxes next to the labels.</p>

Preparation and movement of trains

Label	Meaning	Example
<p>AUTOMATIC BRAKE DEFECTIVE (PIPE OPERATIVE)</p>	<p>Must be treated as a piped-only vehicle</p>	
<p>AUTOMATIC AND HAND BRAKE DEFECTIVE</p>	<p>Must be treated as a piped-only vehicle and must be coupled to another vehicle unless suitably secured</p>	

Label	Meaning	Example
<p>HAND BRAKE DEFECTIVE</p>	<p>Must be coupled to another vehicle unless suitably secured</p>	 <p>The image shows a green rectangular label with a white border. At the top, it says 'USE BLOCK LETTERS' and 'DATE'. Below that, it says 'FROM' and 'TO'. The main text in the center is 'FOR REPAIRS'. There are several empty boxes for 'VEHICLE No.' and 'Owner'. Below that, it says 'DEFECTS:'. At the bottom, it says 'EXAMINER'. A large red diagonal stamp across the label reads 'DEFECTIVE BRAKE'. Below the label is a white trapezoidal sign with a black border that says 'HAND BRAKE DEFECTIVE' in red text.</p>
<p>FOR URGENT REPAIRS/ RESTRICTED MOVEMENT</p>	<p>Vehicle must be worked to a maintenance depot and must not exceed 35 mph (55 km/h)</p>	 <p>The image shows a green rectangular label with a white border. At the top, it says 'USE BLOCK LETTERS' and 'DATE'. Below that, it says 'FROM' and 'TO'. The main text in the center is 'FOR URGENT REPAIR' and 'MAX. SPEED 35 MPH'. There are several empty boxes for 'OWNER', 'VEHICLE No.', and 'DEFECT'. At the bottom, it says 'Authorised By' and 'ANY UNAUTHORISED PERSON OBSCURING OR REMOVING THIS LABEL WILL RENDER HIMSELF LIABLE TO CRIMINAL PROSECUTION'. A large red diagonal stamp across the label reads 'RESTRICTED'.</p>

45 **Warning horn**

*The person responsible: **driver***

45.1 General

driver

You must only use the horn as much as is necessary to give an effective warning or to make sure safe working takes place.

45.2 Warning tones to use

driver

If two tones are provided, you must use the horn as shown below.

If the horn has no soft/loud setting, you must use the setting provided.

Circumstances	Tones you must use
To give a warning to anyone on or near a running line	High and low tones - use the loud setting
To give an urgent warning to anyone on or dangerously near to the line	High tone - use the loud setting
When passing a whistle board	Low tone - use the loud setting
To give a warning when in a depot or siding	Low tone - use the soft setting
To sound a local or special code	High tone - use the loud setting
Wrong-direction movements	High tone - use the loud setting

45.3 Sounding the horn as a warning

a) Anyone on or near the line

You must sound the horn to warn anyone who is on or near the line on which you are travelling.

driver

Give a series of short, urgent danger warnings to anyone who is on or dangerously near the line who does not:

- acknowledge your warning by raising one arm above the head, or
- appear to move clear out of the way of the train.

b) Whistle boards

You must sound the horn when passing a whistle board only between 0700 and 2300, except in an emergency or when anyone is on or near the line.

c) Within a possession

You must sound the horn on starting your train when making a movement within a possession.

d) Wrong-direction movements

When making a wrong-direction movement on a running line for which there is no signal provided, you must sound a series of short blasts at frequent intervals.

e) Train movements


You must sound the horn at any other time you consider necessary.

46 Working on the outside of a train

The person responsible: driver

driver

You must ask the signaller to stop trains on any adjacent line which could put you, another member of traincrew, or anyone else whose duties mean that person has to be with you, in danger if one of the following applies.

- You or the other person needs to work on the outside of your train after it has stopped because of a failure or other exceptional incident. 
- You or the other person has to walk alongside your train.
- You or the other person needs to check that the working equipment on an on-track machine (OTM) is correctly positioned.

You must do this before you or the other person starts working or walking.

To arrange for trains to be stopped, you must:

- ask the signaller to stop the passage of trains on the lines concerned
- get an assurance from the signaller that this has been done
- reach a clear understanding about which lines have been blocked
- reach a clear understanding about which lines will stay open to traffic
- ask the signaller to read back to you the details that have been recorded.

If you are satisfied that the details recorded by the signaller are correct, you must confirm you understand the arrangements.



Work includes checks or examinations for defects or damage which must be carried out to meet the rules, and minor repairs to your train that your employer has authorised you to carry out.

If you have arranged to stop the passage of trains for another person to work on the outside of your train or walk alongside it, you must explain the arrangements to that person.

driver

When the work on the outside of the train has finished or you, or the other person have finished walking, you must tell the signaller that the normal passage of trains can be resumed.



GE/RT8000/TW5
Rule Book

Preparation and movement of trains

Defective or isolated vehicles and on-train equipment

Issue 6

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You will need this module if you
carry out the duties of a:

- driver
- guard
- signaller
- train preparer.

Conventions used in the Rule Book	Example
A black line in the margin indicates a change to that rule and is shown when published in the module for the first time.	
Green text in the margin indicates who is responsible for carrying out the rule.	driver
A white i in a blue box indicates that there is information provided at the bottom of the page.	
<div style="border: 2px solid red; padding: 5px;">A rule printed inside a red box is considered to be critical and is therefore emphasised in this way.</div>	

Section

1

Reporting defective or isolated on-train equipment

- 1.1** Driver reporting a defect
- 1.2** Guard reporting a defect
- 1.3** Signaller receiving a report from a driver
- 1.4** Signaller receiving instructions from Operations Control
- 1.5** Giving instructions to the driver

2

Competent person travelling with driver

- 2.1** General instructions
- 2.2** Defective or isolated AWS or TPWS
- 2.3** Broken or obscured windscreen
- 2.4** Defective or isolated DSD or driver's vigilance equipment

3

Air suspension

- 3.1** Entering service from a maintenance depot
- 3.2** Entering service from somewhere other than a maintenance depot
- 3.3** When in service

Section

4

Automatic warning system (AWS)

- 4.1 Entering service from a maintenance depot
- 4.2 Entering service from somewhere other than a maintenance depot
- 4.3 If the AWS becomes defective when in service
- 4.4 Isolating the AWS when in service
- 4.5 If the AWS is defective or isolated

5

Brake defects

- 5.1 Brake not working correctly
- 5.2 Brake-pipe parting
- 5.3 Coaching stock train with brakes no longer operating on more vehicles than is allowed
- 5.4 Brake no longer operating on the leading vehicle of a multiple-unit train
- 5.5 Brake no longer operating on the last vehicle

6

Door defects on passenger vehicles

- 6.1 Vehicles which must be placed out of use
- 6.2 Taking defective doors out of use
- 6.3 If the doors on one or both sides cannot be released
- 6.4 If the train has to be worked forward with a door open

7

Driver's reminder appliance (DRA)

- 7.1 Entering service from a maintenance depot
- 7.2 Entering service from somewhere other than a maintenance depot
- 7.3 When in service

8

Driver's safety device (DSD) and driver's vigilance equipment

- 8.1 Entering service from a maintenance depot
- 8.2 Entering service from somewhere other than a maintenance depot
- 8.3 Isolating the driver's vigilance equipment
- 8.4 When in service

9

Driving cab windows - broken or obscured

- 9.1 Entering service from a maintenance depot
- 9.2 Entering service from somewhere other than a maintenance depot or when in service

10

Driving controls defective

- 10.1 When in service
- 10.2 Duties of the competent person

11 **Emergency bypass switch (EBS)**

- 11.1 Entering service from a maintenance depot
- 11.2 Entering service from somewhere other than a maintenance depot
- 11.3 Operating the EBS when in service

12 **ERTMS on-train equipment**

- 12.1 Entering service from a maintenance depot
- 12.2 Entering service from somewhere other than a maintenance depot
- 12.3 When in service
- 12.4 If ERTMS is not in operation when it should be
- 12.5 If a train fails to transition to ERTMS

13 **External orange hazard lights**

- 13.1 Signaller becoming aware of an illuminated orange hazard light
- 13.2 Guard becoming aware of an illuminated orange hazard light
- 13.3 Train continuing in service

Section

14 Headlights, marker lights and tail lamps

- 14.1** Entering service from a maintenance depot
- 14.2** Entering service from somewhere other than a maintenance depot
- 14.3** When in service

15 Hot axle boxes and activation of lineside hot axle box detectors

- 15.1** Entering service
- 15.2** Vehicle developing a hot axle box
- 15.3** Vehicle activating a lineside hot axle box detector or receiving a report of a hot axle box from another source
- 15.4** Checking for evidence of overheating
- 15.5** No evidence of overheating
- 15.6** If there is evidence of overheating
- 15.7** Activation of a built-in hot axle box detector

16 Lifeguards

- 16.1** Entering service
- 16.2** When in service

17 On-train data recorder (OTDR)

- 17.1** Entering service
- 17.2** When in service

Section

18

Public address system on DO trains

- 18.1 Entering service
- 18.2 When in service

19

Sanding equipment to assist train braking

- 19.1 Entering service from a maintenance depot
- 19.2 Entering service from somewhere other than a maintenance depot or when in service

20

Selective door-opening

21

Speedometer

- 21.1 Entering service
- 21.2 When in service

22

Track circuit actuators (TCA)

- 22.1 Entering service from a maintenance depot
- 22.2 Entering service from somewhere other than a maintenance depot
- 22.3 When in service

Section

23 Traction interlock switch (TIS)

- 23.1** Entering service from a maintenance depot
- 23.2** Entering service from somewhere other than a maintenance depot
- 23.3** Operating the TIS
- 23.4** Before the movement begins
- 23.5** When the journey is over

24 Train protection and warning system (TPWS)

- 24.1** Entering service from a maintenance depot
- 24.2** Entering service from somewhere other than a maintenance depot
- 24.3** When in service
- 24.4** Failure to activate
- 24.5** If the TPWS is defective

25 Train radio equipment

- 25.1** Entering service
- 25.2** When in service

Section

26

Vehicles with locked wheels, wheel flats, shifted tyres or dragging brakes

- 26.1** Entering service
- 26.2** When in service
- 26.3** Detaching the defective vehicle
- 26.4** Moving vehicles with wheelskates

27

Warning horn

- 27.1** Entering service from a maintenance depot
- 27.2** Entering service from somewhere other than a maintenance depot
- 27.3** When in service

28

Wheel slide protection (WSP) equipment

- 28.1** Entering service from a maintenance depot
- 28.2** Entering service from somewhere other than a maintenance depot or when in service

1

Reporting defective or isolated on-train equipment

The people responsible: driver, guard, signaller

1.1 Driver reporting a defect

a) Stopping the train immediately

driver

You must stop your train and tell the signaller as soon as you become aware of a defect with the:

- air suspension
- • automatic warning system (AWS) - if in operation on the train
- axle boxes
- brakes
- doors if they cannot be closed
- driver's safety device (DSD)
- driver's vigilance equipment
- driving cab window - broken or obscured
- driving controls
- emergency bypass switch (EBS)
- • ERTMS on-train equipment - if in operation on the train
- external orange hazard lights
- headlights or tail lights
- lifeguards
- sanding equipment - if you believe you may have difficulty stopping the train if it continues in service
- selective door-opening - if you consider this may be due to defective lineside equipment
- speedometer
- track circuit actuators (TCA) - if the train cannot continue normally
- traction interlock switch (TIS)

- train protection and warning system (TPWS) - if in operation on the train
- warning horn - complete failure
- wheel slide protection - if you believe you may have difficulty stopping the train if it continues in service

If possible, you must avoid stopping the train:

- on a viaduct
- in a tunnel
- at the entrance to a station
- on or near points until the last vehicle of the train is clear
- on a level crossing
- at any other place where it might be difficult to deal with the situation.

b) Stopping the train at the first convenient opportunity

You must tell the signaller at the first convenient opportunity, stopping the train specially if necessary, when you become aware of a defect with the train radio equipment.

You must stop your train at the first convenient opportunity and tell the train operators control when you become aware of a defect with the:

- automatic warning system (AWS) - if not in operation on the train
- axle boxes
- doors unless they cannot be closed
- driver's reminder appliance
- ERTMS on-train equipment - if not in operation on the train
- on-train data recorder
- public address system on DO trains
- sanding equipment - unless you believe you may have difficulty stopping the train if it continues in service

driver

driver

- selective door-opening - unless you consider this may be due to defective limeside equipment
- track circuit actuators (TCA) - if the train can continue normally
- train protection and warning system (TPWS) - if not in operation on the train
- warning horn - partial failure
- wheel slide protection - unless you believe you may have difficulty stopping the train if it continues in service.

c) General

If you isolate an item of defective on-train equipment that will affect the movement of the train, you must tell the signaller immediately.

If the train stops out of course or might not be able to depart on time, you must tell the signaller immediately.

After reporting the defect you must make sure you receive instructions on how the defect is to be dealt with and the arrangements for further movement.

If reporting the defect to the train operator's control will cause delay, you must tell the signaller the reason for the delay.

signaller

If the train has stopped in a position which prevents the movement of other trains, you may, if the circumstances allow, authorise the driver to move the train to clear points or junctions.

1.2 Guard reporting a defect

If you become aware that on-train equipment is defective and this may affect normal movement of the train, you must tell the driver immediately. **i**

guard

If you become aware that on-train equipment is defective, but this will not affect normal movement of the train, you must tell the train operator's control.

If you do not have a way to contact the train operator's control, you must ask the driver to do this.

1.3 Signaller receiving a report from a driver

If a driver tells you about defective or isolated on-train equipment, you must:

signaller

- if necessary take action to stop trains and protect any line affected
- tell Operations Control
- make a suitable entry in the Train Register.

1.4 Signaller receiving instructions from Operations Control

When you receive instructions from Operations Control about the action to be taken with the train, you must:

signaller

- pass the instructions to the driver immediately
- make sure the driver understands clearly what action to take
- make a suitable entry in the Train Register.



In this module the term 'normal movement of the train' means that the train can accelerate, travel and stop in the normal way without speed restriction or special travel conditions

1.5 Giving instructions to the driver

signaller

You must give directly to the driver any instructions from Operations Control relating to the movement of the train.

driver

Any instruction relating to the movement of the train will be given to you directly by the signaller.

**driver,
signaller**

In exceptional circumstances, instructions may be given to vary the conditions shown in this module. The conditions shown in this module cannot be varied for AWS, ERTMS or TPWS equipment.

2

Competent person travelling with driver

*The people responsible: **competent person, driver***

2.1 General instructions

If the automatic warning system (AWS), train protection and warning system (TPWS), driver's safety device (DSD) or driver's vigilance equipment fails, or if the windscreen becomes broken or obscured, a competent person may be provided to travel with you.

driver

When you are accompanied by a competent person, you must tell the competent person which equipment is defective and what to do.

2.2 Defective or isolated AWS or TPWS

When approaching a signal, you must:

driver

- call out the signal aspect or indications to the competent person
- give a commentary on the speed reduction on the approach to cautionary and stop aspects.

On the approach to speed restrictions, you must tell the competent person that you are applying the brakes to observe the restriction.

You must:

competent person

- have the required route knowledge for the entire route over which you have to accompany the driver
- acknowledge the driver's reaction to signal aspects, sequences or indications
- if necessary, remind the driver of a signal displaying a cautionary or stop aspect
- acknowledge the driver's reaction to speed restrictions
- if necessary, remind the driver of the speed restriction ahead.

2.3 Broken or obscured windscreen

competent person

You must:

- have the required knowledge for the entire route over which you have to accompany the driver
- help and advise the driver with sighting signals, speed restrictions, lineside signs, stations, level crossings and anything else on the line which the driver needs to be aware of.

2.4 Defective or isolated DSD or driver's vigilance equipment

driver

If necessary you must point out and explain to the competent person the relevant equipment needed for stopping the train in an emergency.

competent person

You must confirm to the driver that you understand how to stop the train in an emergency.

If the driver becomes unable to drive, you must stop the train immediately, and tell the signaller.

3

Air suspension

The people responsible: driver, train preparer

3.1 Entering service from a maintenance depot

You must not allow a train to enter service if the air suspension is not inflated on any bogie.

**driver,
train
preparer**

3.2 Entering service from somewhere other than a maintenance depot

If the air suspension is deflated on any bogie, you must tell the train operator's control.

**driver,
train
preparer**

If the train operator's control gives authority to enter service, you must comply with any speed or route restrictions given. You must make sure that the signaller is aware of these restrictions.

3.3 When in service

If the air suspension becomes deflated on any bogie, you must:

- stop your train immediately
- tell the signaller
- not move the train until instructed to do so
- carry out the instructions given.

driver

4

Automatic warning system (AWS)

The people responsible: driver, train preparer

4.1 Entering service from a maintenance depot

driver,
train
preparer

You must not allow a train or traction unit to enter service if, in any cab which is to be driven from when AWS is required to be in operation.

- The AWS is defective.
- The AWS is isolated.
- The seal is broken on an AWS isolating handle.

4.2 Entering service from somewhere other than a maintenance depot

driver,
train
preparer

You can allow a train or traction unit to enter service with the AWS defective, isolated or with the seal broken on the isolating handle in the cab to be driven from, as long as AWS will not be required to be in operation during the journey.

You must:

- tell the train operator's control at the first convenient opportunity
- carry out any instructions given.

You can allow a train or traction unit to enter service (but not passenger service) with AWS defective, isolated or with the seal broken on the isolating handle in the cab which is to be driven from when AWS is required to be in operation, to travel to a maintenance depot for repair as long as you:

- tell the signaller
- get permission for the train to enter service in this condition.

4.3 If the AWS becomes defective when in service

If you become aware that the AWS has become defective when it is required to be in operation, you must:

- stop your train immediately
- tell the signaller
- not move the train until instructed to do so
- carry out the instructions given.

If you become aware that the AWS has become defective when it is not required to be in operation, you must:

- tell the train operator's control at the first convenient opportunity
- carry out any instructions given.

driver

4.4 Isolating the AWS when in service

You may isolate the AWS when it is required to be in operation only when:

- cancelling the AWS warning indication does not stop the horn sounding or the brakes applying
- successive or intermittent failures suggest that the AWS equipment is defective
- the train stops directly over the track equipment.

If the AWS has been isolated because the train stopped with the receiver directly over the track equipment, you must if possible, make sure the AWS is made operative again immediately when restarting the train.

If it becomes necessary to isolate the AWS, you must:

- stop your train immediately
- tell the signaller
- not move the train until instructed to do so
- carry out the instructions given.

driver

driver

4.5 If the AWS is defective or isolated

If permission is given for a train or traction unit to enter service or proceed after the AWS has become defective, been isolated or the seal is broken on an AWS isolating handle, you must follow the conditions in the table below during any part of the journey where AWS would normally be in operation.

Competent person not provided	Competent person is provided
Proceed at a speed not exceeding 40 mph (65 km/h), or any lower permissible speed that may apply, to the location where a competent person is available or to the location where the train can be dealt with.	Proceed at normal permissible speed to the location where the train can be dealt with. During poor visibility, the train speed must not exceed 40 mph (65 km/h).

5 Brake defects

The people responsible: driver, guard

5.1 Brake not working correctly

If you suspect that the automatic brake is not working correctly, you must:

driver

- if necessary, stop the train
- report the circumstances to the signaller immediately
- carry out the instructions given
- if permission is given to proceed, travel at reduced speed as necessary to maintain full control of the train.

5.2 Brake-pipe parting

If the train comes to a stand because the brake-pipe coupling heads separate, you must try to recouple them if they are undamaged.

driver

If this can be done, you may continue normally as long as you:

- tell the signaller
- carry out a brake continuity test.

5.3 Coaching stock train with brakes no longer operating on more vehicles than is allowed

If the brakes are no longer operating on more vehicles than is allowed, as shown in module TW1, section 4.4, if the train is to continue, you must travel at a speed which will allow you to keep full control of the train.

driver

5.4 Brake no longer operating on the leading vehicle of a multiple-unit train

driver

If the brake is no longer operating on the leading vehicle, you must tell the signaller immediately and carry out the instructions given.

The train must be assisted from the front unless one of the following applies.

- The line ahead is rising.
- The leading vehicle is fitted with a parking brake which can be applied in an emergency, in which case the movement must not exceed 5 mph (10 km/h).
- The leading vehicle is coupled by a bar coupling to the next vehicle on which the brake is operating.

driver of a DO train, guard

You must transfer passengers to a vehicle on which the brake is operating unless:

- this is not possible, or
- the vehicle is coupled by a bar coupling to the next vehicle on which the brake is operating.

guard

You must travel in other than the leading vehicle to secure the train in an emergency unless:

- the train is being assisted from the front
- the leading vehicle is coupled by a bar coupling to the next vehicle on which the brake is operating.

driver

On a DO train a competent person must be provided to travel in a vehicle other than the leading vehicle to secure the train in an emergency unless:

- the train is being assisted from the front
- the leading vehicle is coupled by a bar coupling to the next vehicle on which the brake is operating.

Loss of brake continuity

If control of the automatic brake is no longer continuous throughout the train, you must drive the train from a cab where you have control of the automatic brake. You must apply the instructions shown in section 10 of this module, making sure that:

- the leading cab, in which a competent person must ride, has a hand or parking brake operating on the first vehicle
- the train does not exceed 5 mph (10 km/h).

driver of a
DO train,
guard

5.5 Brake no longer operating on the last vehicle

If the brake is no longer operating on the last vehicle, you must tell the signaller immediately and carry out the instructions given.

driver

The train must be assisted in rear unless one of the following applies.

- The line ahead is level or falling.
- The last vehicle, is provided with a hand or parking brake operating on that vehicle.
- The last vehicle is coupled by a bar coupling to the next vehicle on which the brake is operative.

You must transfer passengers to a vehicle on which the brake is operating unless:

- this is not possible, or
- the vehicle is coupled by a bar coupling to the next vehicle on which the brake is operating.

driver of a
DO train,
guard

You must travel in the rear vehicle to apply the hand or parking brake in an emergency unless:

- the train is being assisted from the rear
- the rear vehicle is coupled by a bar coupling to the next vehicle on which the brake is operating.

guard

driver

On a DO train, a competent person must be provided to travel in the rear vehicle to secure the train in an emergency unless:

- the train is being assisted from the rear
- the rear vehicle is coupled by a bar coupling to the next vehicle on which the brake is operating.

Loss of brake continuity

If control of the automatic brake is no longer continuous throughout the train, you must not exceed 5 mph (10 km/h).

driver, guard

You must make sure, as often as possible, that the train is still complete.

6 Door defects on passenger vehicles

The people responsible: driver, guard, signaller, train preparer

6.1 Vehicles which must be placed out of use

You must place a vehicle out of public use and arrange to transfer passengers to another vehicle if the following doors are defective:

- all doors including those only available to the public for use as an emergency exit on one or both sides of the vehicle and also the nearest door on the next vehicle
- a door only used as an emergency exit at the leading end of the first passenger vehicle or the trailing end of the last one.

You must not allow a vehicle to enter or continue in public use unless your train operator's control has given permission, and you have carried out any necessary instructions they have given you if the following doors are defective:

- all doors including those only available to the public for use as an emergency exit on one or both sides of the vehicle but the nearest door on the next vehicle is available for use
- a door at the leading end of the first passenger-carrying vehicle
- a trailing-end door of the last passenger-carrying vehicle.

Leading and trailing in all cases also applies to vehicles where there is no gangway between vehicles, or when the adjacent vehicle is out of use due to defective bodyside doors.

The following colours show:

Yellow door - Door out of use.

Black door - An emergency door that is out of use.

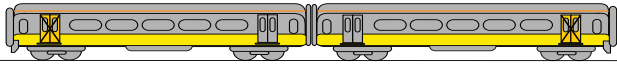
Red coach - Passengers cannot use this vehicle.

Yellow coach - Permission needed for passengers to use vehicle.

Green coach - Passengers can use this vehicle.

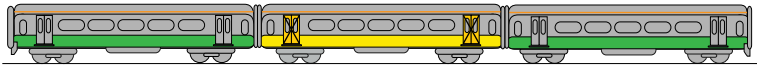
driver,
guard,
train
preparer

The following are examples of some possible arrangements.

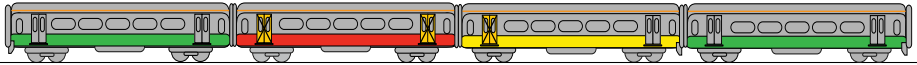


Leading end door

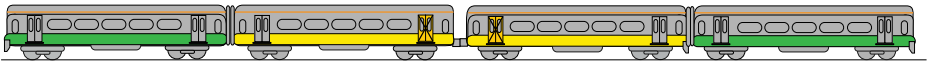
Trailing end door



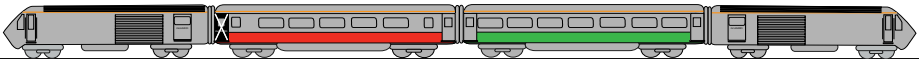
All doors out of use on one vehicle - nearest door on next vehicle available



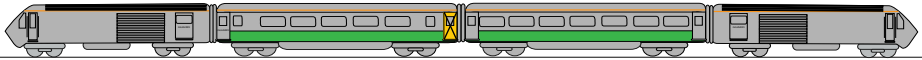
All doors out of use on one vehicle - nearest door on next vehicle not available



End doors out of use at a vehicle end with no gangway



Emergency door at leading or trailing end out of use



Door out of use, emergency door is available

6.2 Taking defective doors out of use

driver,
guard,
train
preparer

You must make sure that any door which is defective is locked or made inoperative and that there is a label or indication that it is out of use.

You must do the same to any door which is not being locked or released by the central door locking.

6.3 If the doors on one or both sides cannot be released

driver

If all the doors on one or both sides cannot be released, you must:

- report the circumstances to the signaller immediately
- carry out the instructions given.

6.4 If the train has to be worked forward with a door open

If the train has to be worked forward with a door open, it must be taken out of passenger service.

driver of a
DO train,
guard

If the train is not at a station, you must:

- transfer passengers to another vehicle
- close and lock the vestibule doors on the affected vehicle.

If you are not able to do both of these, passengers must be kept as far away from the open door as possible. If a guard or other competent person is available, they must travel in the affected vehicle. The train must be taken out of passenger service at the next station. Exceptionally if the next station cannot deal with the detained passengers, or during severe weather, the train operator can give permission for the train to continue to a more suitable station.

You must tell the signaller that the door cannot be closed and get permission to make a movement with the door open. If the open door increases the width of the train, you must tell the signaller.

driver

If the open door increases the width of the train, you must make sure that you do not allow the train to pass, or be passed by, any moving train on an line adjacent to the open door.

signaller

When it is safe for the train to start, you must give the '**ready-to-start**' signal to the driver after the doors have been checked.

guard

If the bell or buzzer communication does not work, you must give the '**ready-to-start**' signal to the driver by either:

- handsignal, or
- by speaking to the driver to reach a clear understanding.

After receiving the '**ready-to-start**' signal, you must proceed at caution and take special care when passing any structure or vehicle where clearance with the open door is limited.

driver

7

Driver's reminder appliance (DRA)

The people responsible: driver, train preparer

7.1 Entering service from a maintenance depot

**driver,
train
preparer**

You must not allow a train or traction unit to enter service if you are aware that the DRA is defective in any cab that will be driven from when the DRA is required to be in use.

7.2 Entering service from somewhere other than a maintenance depot

driver

If you are aware that the DRA is defective in any cab that will be driven from when the DRA is required to be in use, you must tell the train operator's control.

If the train operator's control gives authority to enter service, you must carry out any instructions given.

7.3 When in service

driver

If the DRA becomes defective on a train which is in service, you must:

- tell the train operator's control at the first convenient opportunity
- carry out the instructions given.

8

Driver's safety device (DSD) and driver's vigilance equipment

The people responsible: driver, train preparer

8.1 Entering service from a maintenance depot

You must not allow a train or traction unit to enter service if you are aware the DSD or vigilance equipment is defective or isolated in any cab which is required to be driven from.

driver,
train
preparer

8.2 Entering service from somewhere other than a maintenance depot

A train can enter service (but not passenger service) with DSD or vigilance equipment defective or isolated in the cab to be driven from, to travel to a maintenance depot for repair as long as you:

- tell the signaller
- get permission for the train to enter service in this condition.

driver,
train
preparer

If permission is given for the train to enter service, you must apply the conditions for travel shown in section 8.4.

8.3 Isolating the driver's vigilance equipment

You must only isolate the driver's vigilance equipment if the equipment cannot be reset.

driver

8.4 When in service

driver

a) If AWS or TPWS is working correctly

If the DSD becomes defective, or you need to isolate the vigilance equipment and the AWS or TPWS is operating correctly, you must:

- stop the train immediately
- tell the signaller
- not move the train until instructed to do so
- carry out the instructions given.

If permission is given for the train to proceed, you must apply the following conditions.

If no competent person is immediately available, and AWS is working but TPWS is not working, you can proceed at a speed not exceeding 40 mph (65 km/h) to the location where a competent person is available or to the location where the train can be dealt with.

If no competent person is immediately available, and TPWS is working whether AWS is working or not, you can proceed at a speed not exceeding 60 mph (100 km/h) to the location where a competent person is available or to the location where the train can be dealt with.

When a competent person has been provided, you can proceed at normal permissible speed to the location where the train can be dealt with.

b) If AWS and TPWS are not working correctly

If the DSD becomes defective or you need to isolate the vigilance equipment and the AWS and TPWS are not working correctly, you must:

- stop the train immediately
- tell the signaller
- not move the train until a competent person is provided
- carry out the instructions given.

When the competent person has been provided, you must proceed at a speed not exceeding 40 mph (65 km/h), to the location where the train can be dealt with.

c) If ERTMS is working correctly

If the DSD becomes defective, or you need to isolate the vigilance equipment and ERTMS is working correctly, you must:

- stop the train immediately
- tell the signaller
- not move the train until instructed to do so*
- carry out the instructions given.

If permission is given for the train to proceed, you must proceed at the normal permissible speed to the location where the train can be dealt with.

d) If ERTMS is not working correctly

If the DSD becomes defective or you need to isolate the vigilance equipment and ERTMS is not working correctly, you must:

- stop the train immediately
- tell the signaller
- not move the train until a competent person is provided
- carry out the train instructions given.

When the competent person has been provided, you must proceed at a speed not exceeding 40 mph (65 km/h) to the location where the train can be dealt with. On an ERTMS line where lineside signals are not provided you must not allow the speed to exceed 25 mph (40 km/h).

driver

9

Driving cab windows - broken or obscured

The people responsible: driver, train preparer

9.1 Entering service from a maintenance depot

**driver,
train
preparer**

You must not allow a train or traction unit to enter service if you do not have a clear view of:

- the line ahead, or
- train dispatch equipment through any window which may need to be used.

9.2 Entering service from somewhere other than a maintenance depot or when in service

driver

If you have not got a clear view of the line ahead because the windscreen is broken or obscured, you must take appropriate action. This may include reducing speed and using the warning horn more frequently to make sure that the train, or anyone on or near the line, is not placed in any danger.

If the train cannot proceed safely, you must:

- stop the train immediately
- tell the signaller
- if necessary, ask for a competent person to assist you
- not move the train until instructed to do so
- carry out the instructions given.

10 Driving controls defective

*The people responsible: **competent person, driver***

10.1 When in service

If the driving controls become defective in the leading cab, you must:

driver

- stop the train immediately
- tell the signaller
- not move the train until instructed to do so
- carry out the instructions given.

A competent person must be provided to ride in the leading cab, if permission is given for the train to proceed, driven from another cab, which must be forward-facing if one is available.

If the automatic brake cannot be applied by the competent person because only a hand or parking brake is available in the leading cab, the train must not exceed 5 mph (10 km/h).

10.2 Duties of the competent person

If you are to travel in the leading driving cab in which the driving controls are defective and the train is being driven from another cab you must:

competent person

- have the required knowledge for the entire route over which you have to travel
- keep a good lookout
- use the warning horn as necessary
- observe all signals and block markers.

competent person

You must give instructions to the driver as necessary by:

- cab-to-cab telephone
- driver-guard communication equipment
- radio
- bell or buzzer
- handsignal.

You must be prepared to stop the movement in an emergency.

11

Emergency bypass switch (EBS)

*The people responsible: **competent person, driver, guard, train preparer***

11.1 Entering service from a maintenance depot

You must not allow a train to enter service if the EBS has been operated in any driving cab.

**driver,
train
preparer**

11.2 Entering service from somewhere other than a maintenance depot

A train can enter service (but not passenger service) with the EBS operated in any driving cab to travel to a maintenance depot for repair as long as you:

- tell the signaller
- get permission for the train to enter service in this condition
- tell the guard, if there is one, about the circumstances.

driver

If the train is formed of more than one unit, a guard or competent person must be provided.

You must travel in the rear unit.

guard

You must travel in the rear driving cab of the rear unit and if necessary, carry out the instructions in Rule Book module M1 *Dealing with a train accident or train evacuation*.

**competent
person**

11.3 Operating the EBS when in service

driver

If you need to operate the EBS, you must:

- tell the signaller immediately
- not move the train until instructed to do so
- carry out the instructions given.

If the train is to be moved, you must tell the guard, if there is one, about the circumstances.

driver of a DO train, guard

If the train is formed of more than one multiple unit you must:

- transfer all passengers to the leading unit, if it is possible
- lock the remaining units out of use.

guard

You must travel in the rear unit.

driver

If a guard is not able to travel in the rear unit, if possible you must arrange for a competent person to travel in the rear unit.

competent person

You must travel in the rear driving cab of the rear unit and, if required, carry out the instructions in Rule Book module M1 *Dealing with a train accident or train evacuation*.

12 ERTMS on-train equipment

The people responsible: driver, signaller, train preparer

Note: In this section, ERTMS equipment also includes GSM-R data radio.

12.1 Entering service from a maintenance depot

You must not allow a train or traction unit to enter service if ERTMS is not working in any cab which is to be driven from when ERTMS is required to be in operation.

driver,
train
preparer

12.2 Entering service from somewhere other than a maintenance depot

You can allow a train or traction unit to enter service with ERTMS not working in the cab to be driven from, as long as ERTMS will not be required to be in operation during the journey.

driver,
train
preparer

You must:

- tell the train operator's control at the first convenient opportunity
- carry out any instructions given.

You can allow a train or traction unit to enter service with ERTMS not working in the cab to be driven from when ERTMS is required to be in operation as long as one of the following applies.

- On a line where lineside signals are provided, both AWS and TPWS are operating.
- On a line where lineside signals are not provided, to travel (not in passenger service) to a maintenance depot for repair.

You must:

- tell the signaller
- get permission for the train to enter service in this condition.

12.3 When in service

driver

If ERTMS becomes defective when it should be in operation, you must:

- stop your train immediately
- tell the signaller
- not move the train until instructed to do so
- carry out the instructions given.

If ERTMS becomes defective when it is not required to be in operation, you must:

- tell the train operator's control at the first convenient opportunity
- carry out any instructions given.

12.4 If ERTMS is not in operation when it should be

driver

If permission is given for a train or traction unit to enter service or proceed as shown in sections 12.2 and 12.3, you must follow these conditions during any part of the journey where ERTMS would normally be in operation.

a) On an ERTMS line where lineside signals are provided

If AWS and TPWS are operating, and you have been authorised to do so, you may proceed at normal permissible speed, obeying all lineside signals.

signaller

You must signal the train normally as though it is a train on which ERTMS is not operating.

You must tell the next signaller who is to signal the train about the defective ERTMS.

driver

If AWS and TPWS are not operating, the signaller will authorise you to pass each end of authority without a movement authority, as shown in module S5 *Passing a signal at danger or an end of authority (EoA) without a movement authority (MA)*.

You must make sure that the train does not proceed beyond the EoA on the approach to the EoA that protects any conflicting or converging movements ahead of it.

signaller

You must tell the next signaller who is to signal the train that ERTMS is not in operation.

b) On an ERTMS line where lineside signals are not provided

If you are authorised to proceed, the signaller will authorise you to pass each end of authority without a movement authority, as shown in module S5 *Passing a signal at danger or an end of authority (EoA) without a movement authority (MA)*.

driver

You must make sure that the train with defective ERTMS does not proceed beyond the EoA on the approach to the EoA that protects any conflicting or converging movements ahead of it.

signaller

You must tell the next signaller who is to signal the train about the defective ERTMS.

12.5 If a train fails to transition to ERTMS

If your train fails to transition automatically when entering an ERTMS area where lineside signals are provided, as long as AWS and TPWS are operating, you may proceed at normal permissible speed, obeying all lineside signals.

driver

You must:

- tell the signaller at the first convenient opportunity, unless you have already been told that the train will not transition
- tell the train operator's control at the first convenient opportunity
- carry out any instructions given.

You must signal the train normally as though it is a train on which ERTMS is not operating.

signaller

You must tell the next signaller who is to signal the train that ERTMS is not in operation on the train.

13

External orange hazard lights

The people responsible: driver, guard, signaller

13.1 Signaller becoming aware of an illuminated orange hazard light

signaller

You must arrange for the driver to be told if you become aware of a train with an illuminated orange hazard light and you have not been told the reason.

You must not stop the train specially unless you notice anything else unusual affecting the train.

13.2 Guard becoming aware of an illuminated orange hazard light

guard

If you become aware that an external orange hazard light is irregularly illuminated on your train, you must tell the driver.

13.3 Train continuing in service

driver

If the train is to continue in service with an orange hazard light illuminated, you must tell the signaller immediately.

signaller

On receiving advice from the driver about the circumstances, you must tell Operations Control immediately and arrange for any other signaller concerned to be told.

14

Headlights, marker lights and tail lamps

The people responsible: driver, signaller, train preparer

14.1 Entering service from a maintenance depot

You must not allow a traction unit to enter service if any headlight, tail lamp or marker light is not working on any vehicle that is required to be at the front or rear of a train.

driver,
train
preparer

14.2 Entering service from somewhere other than a maintenance depot

You must not allow a traction unit to enter service without a working headlight or tail lamp on any vehicle that is required to be at the front or rear of a train.

driver,
train
preparer

If the headlight has failed and there is no other headlight, the train can enter service if a portable headlight is provided and the speed of the train is restricted to 75 mph (120 km/h).

A train can enter service with a defective tail lamp if the train is fitted with two built-in tail lamps, one of which is working, or a portable tail lamp is provided.

14.3 When in service

If you become aware that a train is proceeding without a headlight illuminated on the front, you must arrange for the driver to be told in the quickest way possible.

signaller

If the train has to be stopped specially to tell the driver, but you cannot do this without stopping it suddenly, you must tell the next signaller.

driver

You must deal with any headlight or tail lamp failure as shown in the following table.

Type of failure	Action the driver must take
A failure of one headlight beam	Use the other day or night beam Report the circumstances to the train operator's control at the first convenient opportunity The train may proceed normally
The headlight has completely failed	<ul style="list-style-type: none"> • Stop the train immediately • Arrange for a white light to be displayed at the front of the train • Tell the signaller • Not move the train until instructed to do so • Carry out the instructions given • Not allow the speed of the train to exceed 20 mph (30 km/h) • Sound the warning horn frequently so as to warn anyone on or near the line If a portable headlight is provided, you must not allow the speed of the train to exceed 75 mph (120 km/h)
Complete failure of tail lamp	<ul style="list-style-type: none"> • Report the circumstances to the signaller immediately • Arrange for a handlamp with a red aspect to be displayed at the rear of the train • Report the circumstances to the train operator's control at the first convenient opportunity
Failure of one tail lamp where two built-in lamps are provided	Report the circumstances to the train operator's control at the first convenient opportunity The train may proceed normally

15

Hot axle boxes and activation of lineside hot axle box detectors

The people responsible: driver, guard, signaller

15.1 Entering service

You must not allow a train, traction unit or vehicle to enter service with a hot axle box.

driver

15.2 Vehicle developing a hot axle box

If you become aware that a vehicle on your train has developed a hot axle box, you must:

driver

- stop the train immediately
- tell the signaller
- if your train is carrying dangerous goods, tell the signaller
- not move the train until instructed to do so
- carry out the instructions given.

You must if possible, arrange for passengers to be transferred from the affected vehicle.

driver of a DO train, guard

If you have any doubt about whether the movement can be made safely, you must get the authority of a rolling stock technician.

driver

During the movement, you must not allow the speed of the train to exceed:

- 10 mph (15 km/h)
- 5 mph (10 km/h) over any points and crossings.

You must stop all trains on the adjacent line or lines before giving the driver authority for the movement to be made.

signaller

15.3 Vehicle activating a lineside hot axle box detector or receiving a report of a hot axle box from another source

a) When the alarm operates

signaller

When the alarm operates in the signal box, or you receive a report of a hot axle box from another source, you must:

- stop the train concerned immediately
- stop any trains on the adjacent line or lines
- advise Operations Control.

b) After the train has been stopped

When the train has been stopped, you must tell the driver:

- which axle box is affected by identifying the axle number (counting from the front of the train including the locomotive where appropriate)
- on which side of the train (in the direction of travel) the affected axle box is
- to examine the vehicle concerned.

If you do not know which axle box is affected, you must:

- give the driver as much information as possible
- tell the driver the approximate location of the defective vehicle
- tell the driver to examine the whole train if necessary.

You must ask the driver if the adjacent line or lines need to stay blocked while the examination is carried out.

You must also ask the driver to tell you if the adjacent line or lines are obstructed.

If the driver tells you that the adjacent line or lines are clear, you can allow any other train which has been stopped to proceed.

c) Delay in carrying out an examination

If you are unable to carry out the examination within 10 minutes of stopping, you must:

driver

- tell the signaller
- carry out the instructions given
- if the train is to be moved, proceed at no more than 20 mph (30 km/h).

15.4 Checking for evidence of overheating

If one is available, a rolling stock technician must carry out the examination.

driver

However, if one is not available, you must immediately examine the vehicle concerned for evidence of overheating.

After examining the axle box concerned, if there is no evidence of overheating, you must continue to check the other axle boxes to see if they are at similar temperatures, as follows.

- All axle boxes on both sides of the vehicle concerned.
- All the axle boxes on the vehicles on either side of the vehicle concerned.

When you have examined the affected vehicle, you must tell the signaller if you have found any defects.

15.5 No evidence of overheating

driver

If the examination reveals no evidence of overheating to any axle box and all the vehicles examined have roller bearings, the train must proceed normally.

If the train is stopped because of another hot axle box detector activation within 50 miles (80 kilometres), or any of the vehicles examined have other than roller bearings you must:

- not move the train until instructed to do so
- carry out the instructions given
- if the train is to be moved, proceed at no more than 20 mph (30 km/h).

If the train has not passed over another hot axle box detector within 50 miles (80 kilometres), arrangements will be made for it to be stopped and you must then carry out another examination.

15.6 If there is evidence of overheating

driver

If an axle box is obviously hot, or hotter than those on the same vehicle or on a vehicle on either side, you can move the train to the next location where it can be dealt with.

If you have any doubt about whether the movement can be made safely, you must get the authority of a rolling stock technician.

If the train is to be moved, you must get authority from the signaller for the movement to be made.

driver of a DO train, guard

You must if possible, arrange for passengers to be transferred from the affected vehicle.

driver

During the movement, you must not allow the speed of the train to exceed:

- 10 mph (15 km/h)
- 5 mph (10 km/h) over any points and crossings.

You must stop all trains on the adjacent lines before giving the driver authority for the movement to be made.

signaller

15.7 Activation of a built-in hot axle box detector

When a built-in hot axle box detector is activated, you must:

driver

- tell the signaller immediately
- unless a rolling stock technician is immediately available, examine the axle box concerned to check whether it is overheated.

If the train is to be moved, you must get authority from the signaller.

If you have any doubt about whether the movement can be made safely, you must get the authority of a rolling stock technician.

You must if possible, arrange for passengers to be transferred from the affected vehicle.

driver of a DO train, guard

During the movement, you must not allow the speed of the train to exceed:

driver

- 10 mph (15 km/h)
- 5 mph (10 km/h) over any points and crossings.

You must stop all trains on the adjacent lines before giving the driver authority for the movement to be made.

signaller

16 Lifeguards

*The people responsible: **driver, train preparer***

16.1 Entering service

**driver,
train
preparer**

You must not allow a train or traction unit to enter service with a loose or damaged lifeguard.

A train or traction unit must not enter service with a missing lifeguard at any cab which requires to be used.

16.2 When in service

driver

If you become aware that a lifeguard is missing, loose or damaged, you must:

- tell the signaller immediately
- not move until instructed to do so
- carry out the instructions given.

If you have any doubts about whether the movement can be made safely, you must get the authority of a rolling stock technician.

17 On-train data recorder (OTDR)

The people responsible: driver, train preparer

Note: OTDR includes the recorder legally required on trains on which ERTMS is in operation when operating on ERTMS lines.

17.1 Entering service

You must not allow a train or traction unit to enter service if you are aware that the OTDR that records activity in the leading cab is defective. This applies unless a working OTDR is provided elsewhere on the train.

driver,
train
preparer

You must tell the train operator's control at the first convenient opportunity.

17.2 When in service

If you become aware of an OTDR becoming defective on a train which is in service, you must:

driver

- tell the train operator's control at the first convenient opportunity
- carry out the instructions given.

18

Public address system on DO trains

The people responsible: driver, train preparer

18.1 Entering service

**driver,
train
preparer**

On a DO train, passengers must not be allowed to travel in vehicles on which the public address is not working.

Before entering service you must place any of these vehicles out of public use by:

- locking or making the external doors inoperative and making sure that there is a label or indication that they are out of use
- closing and locking the vestibule doors leading to any of these vehicles.

18.2 When in service

driver

If you become aware that the public address system is not working on a vehicle, you must:

- tell the train operator's control at the first convenient opportunity
- carry out the instructions given
- if possible move the passengers to an unaffected vehicle and lock and label any defective vehicle out of use.

19 Sanding equipment to assist train braking

The people responsible: driver, train preparer

19.1 Entering service from a maintenance depot

You must not allow a traction unit to enter service if:

- the sanding equipment is defective
- there is no sand in the sand box.

driver,
train
preparer

19.2 Entering service from somewhere other than a maintenance depot or when in service

If the sanding equipment is defective or becomes defective on a train or there is no sand in the sand box, you must:

- tell the train operator's control at the first convenient opportunity
- carry out the instructions given.

driver

However, if you believe you may have difficulty in stopping the train, you must:

- tell the signaller immediately
- not move the train until instructed to do so
- carry out the instructions given.

20

Selective door-opening

*The people responsible: **driver, signaller***

driver

If selective door operation does not operate correctly and you consider that this may be due to defective lineside equipment, you must tell the signaller immediately.

signaller

If you become aware of the failure of lineside equipment provided for selective door operation, you must:

- tell Operations Control
- tell the driver of any following train which would use the equipment, about the circumstances.

21

Speedometer

The people responsible: driver, train preparer

21.1 Entering service

You must not allow a train or traction unit to enter service unless there is a working speedometer in any driving cab which is required to be driven from.

**driver,
train
preparer**

21.2 When in service

If a speedometer fails or cannot be read and there is no other working speedometer in the driving cab, you must:

- tell the signaller immediately
- not move the train until instructed to do so
- carry out the instructions given.

driver

If the train is to be moved, you must proceed at a speed that will make sure you are keeping to all speed restrictions.

22

Track circuit actuators (TCA)

The people responsible: driver, signaller, train preparer

Note: The instructions in this section do not apply to an on-track machine (OTM) which is being hauled dead.

22.1 Entering service from a maintenance depot

driver,
train
preparer

You must not allow a train to enter service if the TCA:

- is isolated on any vehicle
- isolating switch is unsealed
- warning light indicates a system fault.

22.2 Entering service from somewhere other than a maintenance depot

driver,
train
preparer

You can allow a train to enter service with one or more defective or isolated TCAs, as long as:

- for a train formed of one or two vehicles, there is at least one TCA working on the train
- for a train formed of three or more vehicles, there is at least one TCA working on either of the first two vehicles and at least one TCA working on either of the last two vehicles.

You must first tell the train operator's control.

You may also allow a train that does not meet the requirements shown in this section to enter service as long as:

- there is at least one working TCA on the train
- you have received authority to do so from the train operator's control.

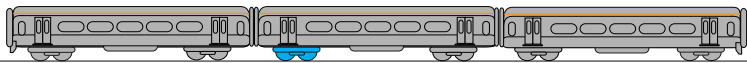
The following are some examples of some possible arrangements.

driver,
train
preparer

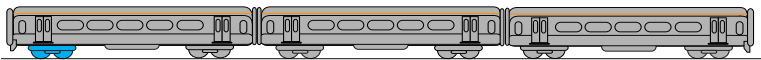


TCA working

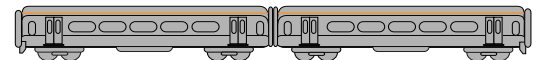
Train can continue normally



Train can continue normally



Train can continue with authority



Train cannot continue normally

You can allow an OTM to enter service with a defective TCA but only to:

- travel to a maintenance depot for repair, or
- travel directly, to or return from, an engineering possession.

driver,
train
preparer

You must tell the signaller that the OTM cannot be relied upon to operate track circuits.

22.3 When in service

a) When the train can continue normally

driver

You can allow the train to proceed normally if one or more TCAs become defective when the train is in service, as long as:

- for a train formed of one or two vehicles, there is at least one TCA working on the train
- for a train formed of three or more vehicles, there is at least one TCA working on either of the first two vehicles and at least one TCA working on either of the last two vehicles.

You must:

- tell the train operator's control at the first convenient opportunity
- carry out the instructions given.

b) When the train can continue normally with authority

driver

If one or more TCAs become defective when the train is in service, and the train does not meet the requirements of section 22.3 a), you must:

- tell the signaller immediately which vehicle is defective
- not move the train until instructed to do so
- carry out the instructions given.

You can allow the train to continue in service as long as:

- there is at least one working TCA on the train
- you are told that the train operator's control has given permission.

c) When the train cannot continue normally

You must carry out these instructions if a TCA becomes defective on any vehicle which does not meet the requirements of section 22.3 a) and cannot be given authority to continue in service as shown in section 22.3 b).

signaller

You must:

- not move the train until instructed to do so
- carry out the instructions given.

driver

When you are told about the defective TCA, you must make sure the signal protecting the train is at danger or, on an ERTMS line, you keep the route closed to protect the train.

signaller

You must signal the train as shown in regulation 12 of Rule Book module TS1 *General signalling regulations*.

Except for an automatic half-barrier crossing (AHBC) provided with treadles, you must instruct the driver to approach at caution and not pass over until sure it is safe to do so, any:

- automatic level crossing
- barrow or foot crossing with white light indications.

When given authority to proceed, you can do so at normal speed.

driver

If you are told to approach any level crossing at caution, you must sound the warning horn continuously until the front of your train is on the crossing.

23

Traction interlock switch (TIS)

The people responsible: driver, guard, train preparer

23.1 Entering service from a maintenance depot

**driver,
train
preparer**

You must not allow a train to enter service if the TIS has been operated or is unsealed in any cab.

23.2 Entering service from somewhere other than a maintenance depot

**driver,
train
preparer**

You must not allow a train to enter passenger service if the TIS has been operated.

23.3 Operating the TIS

driver

If it becomes necessary to operate the TIS, you must only do this:

- when the train is at a stand
- when you cannot get traction power
- after you have checked that all the doors on both sides of the train are securely closed.

When you have operated the TIS, you must:

- tell the signaller immediately
- not move the train until instructed to do so
- tell the guard
- carry out the instructions given.

23.4 Before the movement begins

Before the movement begins, you must check all doors on both sides of the train to make sure they are securely closed.

driver of a
DO train,
guard

On each occasion that the doors are released, you must check all doors on that side of the train to make sure they are securely closed.

23.5 When the journey is over

You must restore the TIS to the normal position before shutting down the driving controls when the train is:

driver

- stabled
- reversed
- coupled to another train and you are driving the train from another cab.

You must not leave a switch in the isolate position in any driving cab other than the cab from which the train is being driven.

This does not apply to a TIS which can only be restored by a rolling stock technician.

24

Train protection and warning system (TPWS)

The people responsible: driver, signaller, train preparer

24.1 Entering service from a maintenance depot

**driver,
train
preparer**

You must not allow a train or traction unit to enter service if the TPWS is not working in any cab which is to be driven from when TPWS is required to be in operation.

24.2 Entering service from somewhere other than a maintenance depot

**driver,
train
preparer**

You can allow a train or traction unit to enter service with the TPWS defective in the cab to be driven from, as long as TPWS will not be required to be in operation during the journey.

You must:

- tell the train operator's control at the first convenient opportunity
- carry out any instructions given.

You can allow a train or traction unit to enter service (but not passenger service) with TPWS defective in the cab to be driven from when TPWS is required to be in operation to travel to a maintenance depot for repair as long as you:

- tell the signaller
- get permission for the train to enter service in this condition.

24.3 When in service

If the TPWS becomes defective when it should be in operation, you must:

- stop your train immediately
- tell the signaller
- not move the train until instructed to do so
- carry out the instructions given.

If the TPWS becomes defective when it is not required to be in operation, you must:

- tell the train operator's control at the first convenient opportunity
- carry out any instructions given.

driver

24.4 Failure to activate

If you become aware that TPWS has failed to activate when it should have done, you must:

- stop your train immediately
- tell the signaller
- not move the train until instructed to do so
- carry out the instructions given.

driver

24.5 If the TPWS is defective

If permission is given for a train or traction unit to enter service or proceed after the TPWS has become defective, you must follow the conditions in the table below during any part of the journey where TPWS would normally be in operation.

driver

driver

Competent person not provided	Competent person is provided
Proceed at a speed not exceeding 40 mph (65 km/h), or any lower permissible speed that may apply, to the location where a competent person is available or to the location where the train can be dealt with	Proceed at normal permissible speed to the location where the train can be dealt with

signaller

You must tell the next signaller who is to signal the train about the defective TPWS.

If permission is given for the train to proceed, you must apply the following signalling conditions.

a) On a track circuit block (TCB) line or an ERTMS line where lineside signals are provided

You must make sure that there are at least two controlled signals which are being kept at danger between the train with defective TPWS and any conflicting or converging movements ahead of it.

b) On an absolute block (AB) line

You must not accept a train with defective TPWS until the line is clear to your section signal.

If your home signal is also the section signal, you must not accept a train with defective TPWS until it has been accepted by the next signal box.

c) On a non-TCB single line

You must not allow a train with defective TPWS to approach a crossing loop if a train is approaching the crossing loop in the opposite direction.

At a junction you must not allow a train with defective TPWS to approach if any conflicting or converging movements are taking place.

25 Train radio equipment

The people responsible: driver, signaller, train preparer

25.1 Entering service

You must not allow a train or traction unit to enter service with a defective radio unless operative transportable, or portable radio equipment has been provided in the cab to be driven from.

driver,
train
preparer

25.2 When in service

If the radio becomes defective on a train which is in service, you must:

- tell the signaller at the first convenient opportunity, stopping the train specially if necessary
- not move the train until instructed to do so
- carry out the instructions given.

The train can stay in service as long as an operative transportable, or portable radio has been provided in the cab to be driven from.

driver

26

Vehicles with locked wheels, wheel flats, shifted tyres or dragging brakes

The people responsible: driver, guard, signaller, train preparer

26.1 Entering service

driver,
train
preparer

You must not allow a train or vehicle to enter service with:

- locked wheels
- shifted tyres
- dragging brakes
- serious wheel flats.

26.2 When in service

a) Dragging brakes

driver,
guard

If you believe that the brakes on a vehicle may be dragging, you must:

- attempt to release the brakes on the vehicle locally
- examine the brakes, tyres and wheels for evidence of damage or overheating.

If the brakes cannot be fully released, they must be isolated.

You must check to see that the wheels rotate freely before you proceed.

driver

If there is evidence of damage to the wheels, you must carry out the instructions shown in section 26.2 c) of this module.

If the brakes are still not fully released, you must not allow the speed of the train to exceed:

- 10 mph (15 km/h)
- 5 mph (10 km/h) over points and crossings.

b) Checking for wheel rotation

After freeing locked wheels, you must make sure that the wheels will rotate freely before you proceed.

driver,
guard

c) Following an examination

If the train has been examined for locked or hot wheels, it must only continue as shown in the following table.

driver

Can wheels be freed?	Condition of wheels	Action to be taken
Yes	Slight flats or no evidence of damage	The train can proceed normally
Yes	More serious flats but no other obvious damage	<ul style="list-style-type: none"> • Report the circumstances to the signaller immediately • Not move the train until instructed to do so • Carry out the instructions given • If the train is to be moved, proceed at no more than 20 mph (30 km/h)
Yes	Serious damage such as: <ul style="list-style-type: none"> • a flat greater than 60 mm (2½ inches) in length • a flat which has formed a flange on the outside of the wheel • evidence that a tyre may have shifted 	<ul style="list-style-type: none"> • Report the circumstances to the signaller immediately • Not move the train until it has been examined by a rolling stock technician • Carry out the instructions given
No	Any condition	<ul style="list-style-type: none"> • Report the circumstances to the signaller immediately • Not move the train until it has been examined by a rolling stock technician • Carry out the instructions given

d) If there is doubt the train can proceed safely

driver

You must:

- tell the signaller immediately
- not move the train until it has been examined by a rolling stock technician.

e) If the damage to the vehicle is serious

driver

You must tell the signaller immediately.

signaller

If Operations Control tells you that the portion of line needs to be examined by an engineer, you must instruct the driver of each subsequent train to proceed at caution until it is safe to resume normal working.

26.3 Detaching the defective vehicle

**driver,
guard**

If the damage to the wheels or brake gear is such that the brakes may not adequately secure the vehicle, you must:

- not detach the vehicle from the train until the vehicle has been properly secured
- let the signaller or person in charge of that location know the condition of the vehicle and where the vehicle is located.

26.4 Moving vehicles with wheelskates

**driver,
signaller**

Before the movement starts, you must find out the conditions of travel.

driver

If fitting the wheelskate results in 50% or more of the brake force of the vehicle being unavailable, you must treat the vehicle as being piped only.

A traction unit fitted with a wheelskate can only be moved under its own power as long as at least 50% of the brake force of the traction unit is available and the parking brake is fully operative.

27

Warning horn

The people responsible: driver, train preparer

27.1 Entering service from a maintenance depot

You must not allow a train to enter service if you are aware the warning horn is defective in any cab which is required to be driven from.

driver,
train
preparer

27.2 Entering service from somewhere other than a maintenance depot

A train can enter service if the warning horn is partially defective (for example, one tone not working) in a cab which is required to be driven from, as long as you:

- tell the train operator's control at the first convenient opportunity
- carry out the instructions given.

driver,
train
preparer

27.3 When in service

a) Complete failure

If the warning horn becomes completely defective on a train, you must:

- tell the signaller immediately
- not move the train until instructed to do so
- carry out the instructions given.

driver

If permission is given to proceed, you must make sure the train does not exceed 20 mph (30 km/h).

b) Partial failure

driver

If the warning horn becomes partially defective (for example, one tone not working) on a train, you must:

- tell the train operator's control at the first convenient opportunity
- carry out the instructions given.

28

Wheel slide protection (WSP) equipment

The people responsible: driver, train preparer

28.1 Entering service from a maintenance depot

You must not allow a train to enter service if you are aware the WSP equipment is defective.

driver,
train
preparer

28.2 Entering service from somewhere other than a maintenance depot or when in service

If the WSP equipment is defective or becomes defective on a train, you must:

driver

- tell the train operator's control at the first convenient opportunity
- carry out the instructions given.

However, if you believe you may have difficulty in stopping the train, you must:

- tell the signaller immediately
- not move the train until instructed to do so
- carry out the instructions given.



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Rule Book

Wrong-direction movements

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You will need this module if you
carry out the duties of a:

- driver
- signaller.

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Section

1

When a wrong-direction movement can be made

- 1.1 Authority for a wrong-direction movement
- 1.2 Driver getting authority

2

Signaller's responsibilities

- 2.1 Making sure the line is safe
- 2.2 Individual point controls
- 2.3 Clearance distance

3

Signaller instructing the driver

4

During the movement

- 4.1 Points and crossings
- 4.2 Level crossings
- 4.3 Train speed
- 4.4 Automatic warning system (AWS) indication

1

When a wrong-direction movement can be made

The people responsible: driver, signaller,

1.1 Authority for a wrong-direction movement

A wrong-direction movement for which no signal or signalled route is provided may be authorised only in the following circumstances.

- A train is to return after overrunning a platform as long as the overrun is not more than 400 metres (440 yards) beyond the platform.
- A train is to return after taking a wrong route at a junction.
- A train is to make a movement to return from or proceed towards a line blocked by an accident, failure, obstruction, or other exceptional incident.
- A train cannot continue forward and has to return because it has failed, or it cannot be driven from the cab at the leading end.
- A light locomotive or multiple-unit train (loaded or empty) is to proceed over the affected or unaffected line to assist a failed train.
- The front portion of a divided train is to return to the rear portion.
- An engineering train is to move towards or from a line under possession.
- A shunting movement is to be made through points that are worked from a ground frame.
- Single line working is in operation.
- A rail-grinding train is to return to extinguish a lineside fire.

signaller,
driver

1.2 Driver getting authority

driver

Before you make the movement, you must get the authority of:

- the signaller, or
- the pilotman or handsignaller acting on the signaller's instructions.

If you are authorised to make a wrong-direction movement, you must drive the train from the cab at the leading end of the movement, if there is one.

If there is no cab at the leading end of the movement, you can drive from another cab as long as a competent person is available to control the movement.

2 Signaller's responsibilities

*The person responsible: **signaller***

2.1 Making sure the line is safe

Before you authorise a wrong-direction movement for which no signal or signalled route is provided, you must make sure that:

- the barriers or gates at any controlled level crossings are closed to road traffic
- any automatic half-barrier crossing (AHBC) without wrong-direction controls is locally operated
- all points are in the required position and locked by facing point locks (where provided)
- any unworked points are secured
- any ground-frame release giving access to the route is 'normal' unless it needs to be operated for the movement.

signaller

2.2 Individual point controls

On a route-setting panel or work station, you must:

- use the individual point controls to set points in the required position
- ask a competent person, if present, to check the route setting.

signaller

Before you authorise the movement, you must stop any train on an adjacent line which could be fouled by the movement if the route is set incorrectly.

When one train has passed safely over the affected route, you may allow trains to run without restriction on other lines. However, you must not do this if you have changed the position of any points in the route.

2.3 Clearance distance

signaller

Before the movement takes place, you must make sure the line is clear for 400 metres (440 yards) beyond the signal or place to which the movement is required to proceed.

You must not allow any conflicting movement to take place within this distance until the movement has cleared the section of line involved.

You do not need to carry out this instruction if the movement is proceeding:

- to a stationary train or vehicle
- to the point of obstruction
- to the detonators protecting a possession
- to the first or last work-site marker board protecting a T3 ERTMS possession
- beyond the point at which it will return to a line in the right direction.

3

Signaller instructing the driver

*The person responsible: **signaller***

You must tell the driver:

signaller

- what is required
- how far the movement can go
- to check, where possible, that points and crossings are set correctly for the movement
- that any unworked points have been secured
- to proceed at caution
- the arrangements at level crossings.

4 During the movement

The people responsible: driver, signaller

4.1 Points and crossings

driver

Unless you have been given specific instructions by the pilotman during single line working, you must:

- approach at caution any points, switch diamonds or swing-nose crossings and make sure, if possible, that they are in the correct position
- not pass over any of these points or crossings at more than 15 mph (25 km/h).

You must not pass over any unworked points unless:

- you have been told by the signaller that they are secured for the safety of the movement, or
- during single line working, there is a green handsignal next to the points.

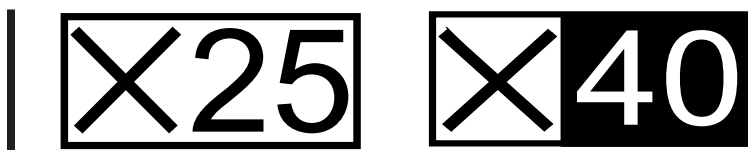
signaller

Until you are sure the movement has passed clear of any points in the route involved, or the track circuit controlling these points, you must not allow any points which have been secured to be released.

4.2 Level crossings

driver

Wrong-direction speed restriction boards (see the examples below) are positioned on the approach to level crossings that have wrong-direction controls. You must control the speed of the train to comply with the speed shown between the board and the crossing.



Automatic half-barrier crossing (AHBC)

If the signaller tells you that the crossing is being locally operated, you must approach the crossing at caution and not pass over it unless authorised by a green handsignal shown at the crossing.

driver

Automatic barrier crossing locally monitored (ABCL) and automatic open crossing locally monitored (AOCL)

If there are no wrong-direction controls, you must stop before reaching the crossing.

If an emergency plunger is provided, you must use this to operate the crossing controls.

Whether or not an emergency plunger has been operated, you may pass over the crossing as long as you:

- make sure it is safe to do so
- sound the horn continuously until the front of your train is on the crossing.

Barrier crossing with closed-circuit television (CCTV), obstacle detection (OD) or remotely controlled crossing with barriers (RC)

a) if there is no attendant at the crossing

You must stop opposite the signal protecting the crossing on the other line and get further instructions from the signaller.

If single line working is in operation the pilotman will tell you to:

- approach the crossing at caution
- not pass over the crossing until you are sure if it is safe to do so.

Wrong-direction movements

driver

b) if there is an attendant at the crossing

If you have been told that an attendant is on duty at the crossing, you must:

- approach the crossing at caution
- only pass over the crossing when authorised by a green handsignal.

Manned crossing

You must approach at caution any manned level crossing and not pass over it until you are sure it is safe to do so.

Crossing with red and green warning lights

You must:

- approach the crossing at caution
- stop short of the crossing
- sound the horn
- pass over the crossing only if it is safe to do so.

If the crossing has wrong-direction controls, you do not need to carry out these instructions unless the movement starts between the wrong-direction speed restriction board and the crossing.

Barrow or foot crossing

If you are told that any barrow or foot crossing with white-light indications will not operate normally for the movement, you must approach the crossing at caution and check it is safe before passing over.

4.3 Train speed

Except during single line working, you must always be able to stop within the distance you can see to be clear.

driver

4.4 Automatic warning system (AWS) indication

You must disregard the AWS indication and cancel any warning indication.

driver



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Level crossings - drivers' instructions

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Section

1

Types of level crossing

2

Drivers' general instructions

2.1 Reporting equipment failure

2.2 Carrying out the signaller's instructions

2.3 Vehicle gates left open

2.4 Passing over level crossings that are under local control

3

AHBC crossings and crossings operated by a crossing keeper

4

ABCL and AOCL crossings

4.1 If a train is not required to stop at the crossing

4.2 If a train is required to stop at the crossing

4.3 Train delayed or stopped out of course when approaching the crossing

4.4 If the crossing is not working correctly

5

Open crossings

5.1 If a train is not required to stop at the crossing

5.2 If a train is required to stop at the crossing

1 Types of level crossing

Automatic crossings

Automatic half-barrier crossing	AHBC
Automatic barrier crossing locally monitored	ABCL
Automatic open crossing locally monitored	AOCL
Crossing with red and green warning lights (also included as a user-worked crossing)	R/G

Controlled crossings

At the location:

Manned crossing with barriers	MCB
Manned crossing with gates	MG

Remotely:

Remotely controlled crossing with barriers	RC
Barrier crossing with closed-circuit television	CCTV
Barrier crossing with obstacle detection	OD

Traincrew operated	TMO
---------------------------	-----

Open

Crossing without barriers, gates or road warning lights	OC
---	----

Barrow or foot crossing with white light indicators

User-worked

Crossing with red and green warning lights (also included as an automatic crossing)	R/G
Occupation and accommodation (including bridleway) crossing	UWC

The locations of controlled, automatic, open and traincrew-operated level crossings are shown in Table A of the *Sectional Appendix*.

Some automatic level crossings can also be operated by trains making wrong-direction movements. These crossings are identified in the *Sectional Appendix* by the letter X (for example AHBC-X).

2 Drivers' general instructions

2.1 Reporting equipment failure

You must report to the signaller, in the quickest way possible, any defect or irregularity with level crossing equipment.

2.2 Carrying out the signaller's instructions

If the signaller tells you to approach a crossing at caution, you must not pass over it until you have made sure it is safe to do so.

If the signaller tells you to do so, you must report back whether the crossing is safe for the passage of trains.

If the signaller asks you to do so, you must tell the signaller whether or not:

- the barriers are fully lowered
- the crossing is clear.

2.3 Vehicle gates left open

You must report to the signaller, in the quickest way possible, any level crossing gates which have been left open.

2.4 Passing over level crossings that are under local control

You must approach the crossing at caution and pass over it only if a green handsignal is shown at the crossing when you have been told:

- an AHBC is under local control
- to make a wrong-direction movement over a CCTV, OD or RC that is under local control
- to make a movement in either direction over a CCTV, OD or RC that is under local control on a line under possession.

3

AHBC crossings and crossings operated by a crossing keeper

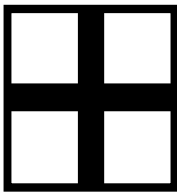
If your train has failed and the signaller reminds you about the presence of the level crossing, you must assure the signaller that you will make no further movement with your train until the signaller authorises it.

4

ABCL and AOCL crossings

4.1 If a train is not required to stop at the crossing

On passing the warning board, you must control the speed of your train to not more than the speed shown on the speed restriction board or driver machine interface (DMI).



Warning board



Speed restriction board



Sighting board

If differential speeds are shown on the speed restriction board, they have the meanings shown in module SP *Speeds*. You must control the speed of your train to comply with the speed shown between this board and the crossing.

On passing the speed restriction board or sighting board, you must make sure you can see that the crossing is clear, and the white light next to the crossing is flashing.

You may then:

- proceed to the crossing at a speed which is not more than that shown on the speed restriction board or DMI.
- accelerate as soon as the front of the train is on the crossing.

4.2 If a train is required to stop at the crossing

On passing the warning board, you must control the speed of your train to stop at the stop board.

After you have stopped at the stop board, you must:

- if there is a plunger, operate it to activate the road-traffic signals but not before you are ready to restart your train
- make sure you can see the crossing is clear and that the white light next to the crossing is flashing
- sound the horn (except between 2300 and 0700), restart your train and proceed over the crossing.

4.3 Train delayed or stopped out of course when approaching the crossing

If your train is delayed or stopped out of course on the approach to a crossing after the white light has started flashing, you must approach the crossing at caution even if the white light continues to flash.

If the white light is still flashing when your train reaches the crossing, you may pass over the crossing without stopping.

If the white light has stopped flashing when your train reaches the crossing, you must:

- stop short of the crossing
- carry out the instructions shown in section 4.4 of this module.

4.4 If the crossing is not working correctly

You must stop before reaching the crossing if:

- the white light next to the crossing is not flashing, or the red light is flashing
- the crossing is obstructed
- you cannot see if the crossing is clear
- the signaller has told you the crossing has failed
- you have been told that the road-traffic signals have been switched off and at an ABCL the barriers have been left raised.

You may then pass over the crossing as long as you:

- make sure it is safe to do so
- sound the horn continuously until the front of your train is on the crossing.

Where an emergency plunger is provided

If an emergency plunger is provided, you must use this to operate the crossing controls when:

- the level crossing equipment has failed, or
- the equipment has stopped working because it has been operating for an unusually long time.

After you have operated the plunger, you may pass over the crossing but before doing so, you must:

- make sure it is safe to do so
- sound the horn continuously until the front of your train is on the crossing.

Passage of trains during darkness

If the white light at the crossing is not flashing, you must not pass over the crossing during darkness unless one of the following conditions applies.

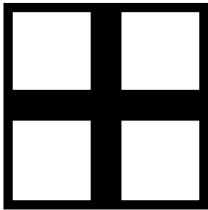
- The train is a passenger or empty coaching stock train and the interior lights are lit.
- Arrangements have been made to prevent road traffic from passing over the crossing.
- At an ABCL the barriers are in the lowered position and the lights on the barriers are lit.

5 Open crossings

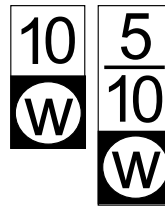
5.1 If a train is not required to stop at the crossing

On passing the warning board, you must control the speed of your train to comply with the restriction of speed that applies between the combined speed and whistle board, and the crossing.

On a train where ERTMS is in operation you must control the speed of your train to not more than that displayed on the DMI.



Warning board



Combined speed and whistle board

If differential speeds are shown on the combined speed and whistle board, they have the meanings shown in module *SP Speeds*.

On passing the combined speed and whistle board, you must make sure you can see the crossing is clear.

You may then:

- proceed to the crossing at a speed which is not more than that shown on the combined speed and whistle board or the speed displayed on your DMI
- accelerate as soon as the front of the train is on the crossing.

You must stop before reaching the crossing if:

- the crossing is obstructed
- you cannot see if the crossing is clear.

You may then pass over the crossing as long as you:

- make sure it is safe to do so
- sound the horn continuously until the front of your train is on the crossing.

5.2 If a train is required to stop at the crossing

On passing the warning board, you must control the speed of your train to stop at the stop board.

Before passing the stop board, you must make sure it is safe to pass over the crossing.



Supersedes GERM8000-traindriver Iss 1 on 05/12/2015.
Superseded by GERM8000-traindriver Iss 3 with effect from 03/12/2016
Please refer to specific modules for issue and in-force dates.
Printing of this document is not permitted.



Cab secure radio (CSR) Handbook

RS/516 Issue 1 June 2008



Content

Approved by the Train Operation and Management Standards Committee.
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Application

This handbook is intended to help drivers and signallers carry out their
duties.

CSR Handbook

RS/516 Issue1 (June 2008)

Published by



Rail Safety & Standards Board

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You will need this CSR handbook if you use cab secure radio and carry out the duties of a:

- signaller
- driver.



This symbol indicates extra information or guidance regarding the instructions.

Contents

1

Principle

- 1.1 Local instructions
- 1.2 General information
- 1.3 How CSR works
- 1.4 Types of radio call

2

Cab radio equipment

- 2.1 Equipment
- 2.2 Radio buttons
- 2.3 Radio display

3

Signal box radio equipment

- 3.1 Signaller's terminal
- 3.2 Visual display unit (VDU)
- 3.3 Keyboard
- 3.4 Audio equipment

4

Testing and setting up the cab radio

- 4.1 Radio test
- 4.2 CSR set up - general
- 4.3 Set up procedure

5

Making and receiving CSR calls

- 5.1 Signaller calling driver
- 5.2 Driver calling signaller
- 5.3 Driver making a CSR call to an internal railway telephone
- 5.4 Signaller calling the driver of a train going in the wrong direction
- 5.5 Signaller making announcements directly to passengers using the public address system
- 5.6 Passing a signal at danger
- 5.7 Providing assistance to a failed train

6

Making and receiving emergency calls

- 6.1 Emergency call - driver to signaller
- 6.2 Signaller sending an individual STOP text message
- 6.3 Signaller sending a general STOP text message
- 6.4 Automatic warning system (AWS) false emergency tone detection

7

Making and receiving general calls

- 7.1 Making general calls
- 7.2 General call - emergencies
- 7.3 General call - advisory
- 7.4 Failure of recording equipment affecting a general call

8

Failure of CSR to automatically change area

- 8.1 Passing an area change marker
- 8.2 Changing the area code manually
- 8.3 Receiving an 'out of area' call

9

Trains detained at signals

10

Driver's safety device (DSD) alarm

11

Failure of CSR equipment

- 11.1 Failure of cab radio equipment
- 11.2 Failure of lineside radio equipment
- 11.3 Partial set up after passing an area affected by a radio equipment failure

1.1 Local instructions

These general operating instructions apply to the most common cab secure radio (CSR) equipment in both trains and signal boxes. Instructions that give details of any variations are published locally and support these general operating instructions.

1.2 General information

CSR allows direct radio communication between the driver and the controlling signaller and must be used as the normal method of communication between the driver and signaller.

CSR can be used for normal speech or to send certain preset text messages from signaller to driver and from driver to signaller.

The signaller is also able to transmit a general call to all trains in the signaller's area which will be heard up to three times in each driving cab with CSR set up.

In this case, it is normal for only the message from the nearest channel to be clearly audible and poor quality reception does not mean the equipment is defective.

The signaller can send emergency STOP text messages to one train or to all trains in the area concerned.

CSR also allows the signaller to speak directly to passengers through the train public address system.

The signaller can use CSR to connect the driver of a train to the railway telephone network.

1.3 How CSR works



The area controlled by each signaller is allocated a two-digit area code. Each area code is displayed on a lineside sign, known as a change channel marker, where trains enter that area. The locations of these markers are also shown in table A of the Sectional Appendix.

As a train passes the marker, provided the CSR on-train equipment is set up, the equipment changes automatically to the correct area. However, if the driver is making a call at the time, the driver will need to manually change the area code at the end of the call.

CSR uses the train reporting number to identify each train. Therefore, there must be no duplication of a train reporting number within a defined area at the same time.

Each train is also identified automatically by the six-digit traction unit number which will be displayed on the CSR visual display unit in the signal box, when the driver requests a call.

This traction unit number is associated with the on-train radio equipment. If the on-train radio equipment is changed for any reason, the replacement radio must have the traction unit number correctly entered.

Each call may last a maximum of six minutes.

While a speech call is being made, the driver of any other train in the same area will not be able to speak to the signaller until that speech call is completed.

It is not possible for the driver of one train to speak to, or be heard by, the driver of another train on CSR.

The signaller and driver can, where appropriate, send a preset text message.

All conversations and exchange of telegram messages are recorded automatically.

1.4 Types of radio call

The following types of call can be made and received using CSR.

Normal speech call

Either the driver or signaller can initiate a speech call. However, the signaller is the only one who can open the speech circuit.

If the signaller needs to speak to a driver of a train in the signaller's area of control the train radio must be called. To do this, the signaller will use the train reporting number or, if the CSR cab equipment is not fully set up, the traction unit number.

If the driver requests a speech call the signaller must call the train radio concerned before conversation can take place.

Emergency call

The driver can press the **EM** button on the radio to initiate an emergency call. However, this must be done only in one of the following circumstances:

- When it is necessary to give immediate advice of the need to stop or caution trains in connection with an accident, obstruction or other exceptional incident.
- During training or assessment under the conditions shown in local instructions.

STOP message

A 'STOP message' is a preset text message sent by the signaller using the CSR equipment to one or all trains with CSR set up in that signaller's area of control.

General call

A 'general call' is a speech call made by the signaller and is received by all trains with CSR set up in that signaller's area of control.

Telegram call

As well as a STOP text message, there are other preset text messages that a driver or signaller can use to communicate with each other. These allow certain messages to be passed without the need for a speech call.

2.1 Equipment

The driving cab is equipped with:

driver

- a radio unit with push buttons for setting up the CSR and for the selection of operating modes and text messages
- a telephone handset
- a loudspeaker.

The radio will only work if it is switched on in the cab where you have inserted the master key and the master switch is moved away from the 'off' position.

The button on the handset does not need to be operated.

2.2 Radio buttons



ON: This powers up the radio. This will only work when the driving desk has been opened.

driver



Test: This performs a test function by transmitting data to and from the signal box control system.



Standing at signal: This sends a text message to remind the signaller of your train's presence.



Call clear: Clears the call request to the signal box. This will not clear an emergency call message.

driver



C

Call: Sends a call request to the controlling signal box. The message will include the six-digit traction unit number.



LT

Lamp test: Illuminates all the lamps to confirm the display is working.



EM

Emergency: Sends an emergency call message to the signaller. It will time out after 30 seconds if delivery fails and must then be pressed again.



Blank: Unmarked button when pressed will display the six-digit traction unit number stored in the radio.



AR

Enter area code: Allows you to enter the two-digit area code into the radio that corresponds to the area of the controlling signaller.



SU

Set up: Allows you to enter the four-digit code which identifies the signal the train is standing at during the set up procedure.



ST

Stop acknowledge: You must press this as soon as your train has been brought to a stand after receiving a 'STOP' instruction.



SP

Speak: You must press this to answer an incoming speech call. This does not apply to a general call or an emergency call.



Star: Used to register characters into the radio.



#

Hash: Used to cancel entries made into the radio.

Examples of the driver's CSR radio

Stornophone 6000 in-cab radio. This radio has been correctly set up and shows area code 45 in the alpha numeric display along with train reporting number 2W85.



Siemens in-cab radio



2.3 Radio display

driver

The radio display panel is capable of showing alphanumeric characters and several standard messages as follows:

42 1B74 (example)	This is displayed after successfully setting up the radio. It shows the area code and the train reporting number.
AREA NOT SET	This indicates that no area code has been set in the radio.
RADIO LOST	The radio will display this if: <ul style="list-style-type: none">• you manually set an incorrect area code• the radio fails to change area automatically• trainbourne radio equipment fails• lineside radio equipment fails• the train is no longer in a CSR area.
SPEAK (flashing)	An alert tone will sound and you may hear the signaller speaking. You must press the SP button to answer the the call from the signaller.
SPEAK (steady)	A speech call is in progress.
CHECK SIGNAL	This shows if your attempt to set up the radio has failed. The most likely cause is that you have entered the wrong information.
CHECK STOCK NUMBER	This shows if the radio has been incorrectly installed. You must press the blank button. If the number then displayed is different to the six-digit traction unit number, you must tell the signaller or maintenance depot staff. You will still be able to make an emergency call by entering the area code as normal then pressing the EM button.
EMERG	This message is displayed when you press the EM button.

driver

CALL FAIL or TEST FAIL or SET-UP FAIL	These messages mean that the action has not been correctly acknowledged by the radio system.
STOP (flashing)	You must immediately stop your train and then press the ST radio button. This message will be accompanied by an alert tone.
GENERAL STOP (flashing)	You must immediately stop your train and then press the ST radio button. Every train with CSR set up in the signaller's area of control will also receive this message.
GENERAL CALL	This message is displayed when the signaller is making a general call to all CSR trains in the area of control. The speech message will be 'receive only' It is sent out up to three times by the radio system, of which only one may be clearly audible. You must listen to the message and act upon the information given.
PA CALL	When PA CALL is displayed, the signaller will be broadcasting a message that can also be heard by passengers on the train. This is a 'receive only' message. You must listen to the message and act upon the information given.
DSD ALARM	This message will be displayed for 30 seconds after operation of the driver's safety device (DSD). If you do not deactivate the DSD within this 30 seconds, the message will be transmitted automatically to the signaller. In this case the signaller will immediately try to call you.
SET-UP WAIT	Your attempt to set-up the radio has been acknowledged.
CALL BUSY or SET-UP BUSY	These messages mean that the radio system is engaged in another call in the area.

3.1 Signaller's terminal

signaller

Each controlling signaller's position is equipped with:

- a visual display unit
- a keyboard
- a telephone handset which may have a 'push to talk' button
- a loudspeaker.

3.2 Visual display unit (VDU)

signaller

The VDU displays any call that is currently in progress. It also displays a list of all incoming calls and a list of previous completed non-speech calls.

Incoming calls requiring action by you are shown in a numbered queue on the left hand side of the screen. Calls in progress and completed non-speech calls are listed on the right hand side of the screen.

The lower left hand side of the screen displays keyboard entries you have made and other prompts.

'Trains calling' queue

Incoming calls, other than emergency calls, are numbered and added to the trains calling queue in order of arrival. A second call from a train already in this queue automatically overwrites the previous entry and is not added to the end of the queue.

You can answer incoming calls in any order.

Each entry in the trains calling queue will normally show:

signaller

- the queue number
- the train reporting number
- the signal number corresponding to the berth shown occupied by the train describer equipment at the time the call request was made
- a word or phrase describing the type of message.

The following is an example of a 'trains calling' queue entry:

Q2 2G26 R28 STANDING AT SIGNAL

If a train reporting number is not available, the traction unit number will be displayed in place of the train reporting number and signal number as follows:

Q2 165001 STANDING AT SIGNAL

If during the driver set up procedure, the train transmits a location code and there is no train reporting number in the corresponding signal berth, the following type of entry will be displayed with the words and background colour reversed, for example:

Q4 165001 (0478) NO DESCRIPTION

If during the driver set up procedure, the driver enters a train reporting number that has already been allocated to another train, the following type of entry will be displayed with the words and background colour reversed, for example:

Q4 165001 (0478) DESCRIPTION REPEAT

The following entries will also have the colours reversed on the screen:

- the train reporting number of a call where the train reporting number has been cancelled within the last 20 minutes
- the signal number if the driver is calling from outside your area of control.

signaller

To cancel an entry from the trains calling queue, using the keyboard (see section 3.3 for keyboard layout), you must:

- press the **CNCL** key
- press the **Q SEL** or **Q** key (as appropriate)
- enter the queue number
- press the **ENTER** key.

Train instruction list

The train instruction list shows any call in progress at the bottom of the list. Previously completed non-speech messages are kept until you cancel them.

When you make a call, the keyboard entries appear initially at the lower left hand side of the screen and then transfer to the train instruction list when the operation is completed.

To cancel an entry from the train instruction list, using the keyboard, you must:

- press the **CNCL** key
- enter the list number
- press the **ENTER** key.

'Call technician' alarm

The VDU will display a 'call technician' alarm when a fault occurs. To acknowledge this alarm, using the keyboard, you must press the **ENTER** key.

The audible alarm will be cancelled but the fault indication will remain. You must not cancel the fault indication until the technician tells you the fault has been rectified. To cancel the fault indication, using the keyboard, you must:

- press the **CNCL** key
- enter the alarm code
- press the **ENTER** key.

Emergency call

When a driver operates the emergency button in the cab, **EMERGENCY** will be displayed on your screen immediately above the trains calling queue.

signaller

When you answer the emergency call, the word **EMERGENCY** will transfer to the right hand side of the screen, where it will be displayed with the train reporting number and signal number, if they are available.

However, the train and signal number will not be displayed until you have acknowledged the call.

Train list

You can display a list of all trains that are set up in your area of control by using the keyboard key marked **TRAIN LIST**.

If the number of trains exceeds the display capacity of the VDU, each press of **TRAIN LIST** will display further trains that are set up in your area.

The train list is not updated while it is displayed. To get an updated list, using the keyboard, you must:

- press the **CNCL LIST**
- press the **TRAIN LIST** key.

You can cancel any train that is in the train list. To do this, using the keyboard, you must:

- press the **CNCL** key
- enter the list number
- press the **ENTER** key; **ARE YOU SURE (Y/N)** will then be displayed
- press the **Y** key
- press the **ENTER** key.

You must then press **CNCL LIST** to return to the normal display.

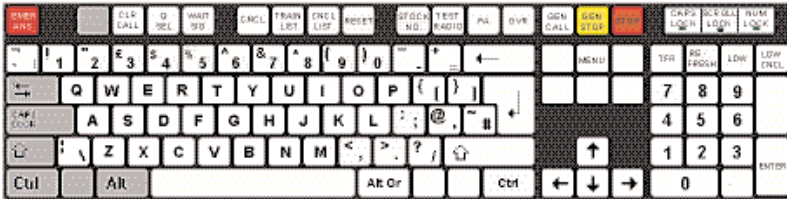
3.3 Keyboard

signaller

The keyboard is used to enable contact with drivers via speech calls and to send general calls and preset text messages.

You can also use it to make on-train announcements over a train's public address equipment.

Example of the signaller's CSR keyboard



The keyboard has the following special functions:

signaller

Key	Full title	Function
CLR CALL	Clear call	Use this key to close down a call.
CNCL	Cancel	Use this key to cancel a line in a VDU list.
LDW CNCL	Cancel dual working	Use this key to separate control of two or more signalling areas. This also cancels call transfer from a box which has closed to one that is open.
CNCL LIST	Cancel list	Use this key to cancel a train list and restore the normal display.
DVR or DVC	Driver	Use this key to call a driver.
EMER ANS	Emergency answer	Use this red key to answer an emergency call.
ENTER	Enter	Use this key to start a call sequence or to restart a call sequence that resulted in a 'not answering' response.
GEN CALL	General call	Use this key to broadcast a message to all CSR set up trains in your area of control.
GEN STOP	General stop	Use this yellow key to send a STOP message to all trains with CSR set up in your area of control.

signaller

KEY	Full title	Function
LDW	Dual control	Use this key to merge two or more signalling control areas.
PA	Public address	Use this key to make an announcement direct to passengers on a train.
Q SEL	Queue select	Use this key to select a call from the trains calling list.
RE FRESH	Refresh	Use this key to restore the normal VDU display.
RESET	Reset	Use this key to cancel an incorrectly keyed entry.
STOCK NO	Stock number	Use this key when you need to call a driver using the traction unit number.
STOP	Stop	Use this red key to send a STOP instruction to a specified train radio.
TEST RADIO	Test radio	Use this key to send a radio test to a train radio.
TRAIN LIST	Train list	Use this key to display a list of train reporting numbers and traction unit numbers of all trains set up in your area of control.
WAIT SIG	Wait at signal	Use this key to send a WAIT instruction in response to the driver of a train who has sent you a STANDING AT SIGNAL message.

If you make an error while using the keyboard, you can correct it by using the **BACKSPACE** key (left facing arrow towards the top of the keyboard).

You can cancel an entry sequence at any time before pressing the **ENTER** key, by pressing the **RESET** key. This will restore the keyboard to its initial state.

You must complete a keyboard entry within 10 seconds, otherwise **INPUT TIMED OUT** will be displayed and the entry will be ignored. On restarting the entry, the previous keyboard entry will be deleted automatically.

signaller

3.4 Audio equipment

Telephone handset

You must use the telephone handset for speech calls using CSR. You must press the 'push to talk' button, where there is one, for the driver (or passengers during PA call) to hear you.

signaller

When you replace the telephone handset in its holder, the call in progress will be ended. This is an alternative to using the **CLR CALL** key.

Loudspeaker

The loudspeaker will sound an alert tone when any one of the following applies:

- There is an incoming **EMERGENCY** message.
- There is an incoming call request or text message from a driver.
- A **CALL TECHNICIAN** message appears on the VDU.
- Any warning message such as **DESCRIPTION REPEAT; CHANGE AREA FAIL; LDW REQUEST** or **LDW CANCEL** appears on the VDU.

You may press the **ENTER** key or any other function key to silence the tone.

The loudspeaker will allow you to hear speech from an incoming call until you lift the telephone handset.

You will also hear the conversation when you have established a call between a driver and a telephone network extension. This is so you know when the call has been completed and you can disconnect the call.

4.1 Radio test

driver

You must test the CSR cab equipment before the train leaves a depot or siding. To do this you must:

1. Insert the master key and move the switch away from 'OFF'.
2. Press the **RADIO ON** button, holding it in for at least 2 seconds. **RADIO LOST** or **AREA NOT SET** will be displayed and an alert tone will be heard.
3. Press the **BLANK** button, where provided on the radio, and check the traction unit number displayed matches the actual traction unit number.
4. Press the **LT** button and check that all lamps and display segments light up.
5. Press the **AR** button **ENTER AREA** will be displayed.
6. Enter the two-digit area code covering your location.
7. Press the ***** button.

The display should then change to **WAIT**. This will then be replaced by the area code on the left hand side of the display.

If after approximately 25 seconds, instead of the area code being displayed, **RADIO LOST** or **CHECK AREA** appears and an alert sounds, repeat steps 5 to 7, using the correct area code.

When the area code is displayed, you must:

8. Press the **T** button, **TEST** should then be displayed.
9. If the CSR system is being used, **BUSY** will be displayed. You may need to wait a few moments.
10. If **TEST OK** is then displayed (this will be displayed for about 5 seconds), the radio is in full working order. If **TEST FAIL** is displayed, press the **#** button to clear the display and then repeat the test from step 8.

If this further test also displays **TEST FAIL**, you must press the **#** button and treat the CSR radio as defective. You must contact the signaller by another means.

driver

If you need to test a cab radio, you must:

signaller

- press the **TEST RADIO** key on the keyboard
- enter the train reporting number of the train concerned, or press the **STOCK NO** key and enter the six-digit traction unit number
- press the **ENTER** key.

If the train concerned is not in your area, or the train radio has failed or is not switched on, **NOT ANSWERED** or **NOT IN SYSTEM** will be displayed on your VDU. You can repeat the test call by pressing the **ENTER** key again.

If the cab radio is working correctly, **TEST OK** will be displayed on the right hand side of the VDU.

4.2 CSR set up - general

The procedure shown in section 4.3 must be carried out before the start of each journey and when it has been necessary to change cabs during a journey. It must also be carried out each time the master switch has been moved to "OFF" and then away from 'OFF' (for example, when changing drivers).

driver,
signaller

To fully set up CSR the train must be on the approach side of the signal and must not proceed until the train reporting number is correctly displayed on the train radio.

driver

The full set up procedure must also be carried out after passing through an area affected by a train describer equipment failure.

driver,
signaller

driver

Before you can correctly set up the CSR, the signaller must have correctly entered a valid train reporting number into the train describer equipment.

Where two or more trains are sharing a platform, and your train is not the first to depart, you must not set up CSR until any train in front of your train has departed and the platform signal has returned to danger.

signaller

You must enter the correct train reporting number into the train describer berth where the train is standing, before the driver can set up the CSR correctly.

Where the train reporting number changes during the journey, you must enter the new train reporting number. This will automatically update the train radio.

If a train reporting number is not available to allow the set up procedure to be completed, you must record the 6 digit traction unit number so that you can call the driver if you need to. You will find the traction unit number in the 'trains calling' queue or train list.

driver

At certain locations the train reporting number is changed during the journey. When the signaller enters the new train reporting number into the train describer equipment the radio display will be automatically updated. Although you will hear an alert tone you do not need to take any action.

4.3 Set up procedure

To set up the CSR, you must:

driver

- press the **AR** button on
- enter the correct area code
- press the ***** button
- press the **SU** button, **ENTER SIG NO.** should then be displayed
- enter the correct four-digit signal number (this may need you to add a leading zero or use an alias number, this will be shown in local instructions)
- press the ***** button, **WAIT** should then be displayed.

After a short delay, the train reporting number should replace the word **WAIT** in the display. This confirms the radio is set up correctly. If the set up does not complete successfully, the signaller will contact you.

If the radio correctly sets up but displays the wrong train reporting number, you must request a speech call with the signaller. To do this you must:

- press the **C** button and wait for the signaller to answer
- tell the signaller the correct reporting number for your train.

You must make sure the correct train reporting number has been entered into the train describer berth at the signal where the CSR is being set up.

signaller

Normally, during the time the driver is setting up the CSR, there will be no message relating to this on your VDU.

signaller

If, while the driver is setting up the cab radio, **NO DESCRIPTION** is displayed on your VDU, you must check that you have entered the correct train reporting number and that the driver has entered the correct signal or alias number.

If necessary, you must call the driver using the six-digit traction unit number and arrange for the driver to correctly input the signal or alias number. You must:

- Press the **Q SEL** or **Q** key (as appropriate)
- enter the queue number for the train concerned
- press the **ENTER** key.

If the train reporting number is now available, the message will transfer to the right hand side of the VDU and the driver's cab radio set up procedure is complete.

If **NO DESCRIPTION** is still shown, the driver will request a speech call with you.

Starting from depots or sidings

driver

Where the train starts from a depot or siding, it may not be possible to fully set up the CSR. If full set up is not possible, you must partially set up the CSR before departing the exit signal.

To do this you must press the **AR** button and enter the correct area code followed by the ***** button. This will allow emergency messages to be exchanged, along with some other types of message.

You must carry out the full set up procedure at the next suitable location.

5.1 Signaller calling driver

When it is necessary for you to talk to a driver, you must:

signaller

- press the **DVR** key
- enter the train reporting number, or press the **STOCK NO.** key and enter the six-digit train unit number
- press the **ENTER** key.

If there is no answer, **NOT ANSWERING** will be displayed. You can repeat the call by pressing the **ENTER** key again.

When the driver answers your call, the train details including the train's last reported position, will transfer to the right hand side of the VDU, the speech circuit is now open. You must lift the handset, and press the 'push to talk' button where there is one, to talk to the driver.

When it is necessary for the signaller to talk to you, **SPEAK** will appear and will be flashing on the radio display. You may also hear the signaller's speech from the loudspeaker.

driver

To answer the call you must lift the handset and press the **SP** button on the radio, the flashing **SPEAK** on the radio display will change to being steady.

When you have finished the conversation, you must replace the handset. **SPEAK** will be replaced in the radio display by the area code and the train reporting number.

When you have completed the call to the driver, you can clear the call by either placing the handset in its holder or by pressing the **CLR CALL** key on your keyboard.

signaller

5.2 Driver calling signaller

signaller If the message **NOT IN SYSTEM** is displayed on your VDU when you try to call a driver, this could mean that the driver has not set up the cab radio correctly. You should make a general call and request the driver concerned to call in.

driver It is important that you check the radio is displaying the correct area code so that you talk to the correct signaller.

When it is necessary for you to call the signaller, you must press the **C** button on the radio, **CALL** will then be displayed.

If the system is in use, **BUSY** will be displayed instead. When the system is again free, **BUSY** will be replaced with your train reporting number.

If **FAIL** is displayed, you must press the **#** button, and then press the **C** button again.

When your call is successful, **CALL SENT** will be displayed, you must wait for the signaller to answer your call.

signaller When a driver requests a call, the train details including its last reported location will be displayed along with the word **DRIVER** on the VDU 'trains calling' queue.

To answer the call, you must lift the handset and:

- press the **Q SEL** or **Q** key (as appropriate)
- type the queue number of the train concerned
- press the **ENTER** key.

If you do not enter the queue number, the first entry in the 'trains calling' queue will be selected.

driver When the signaller opens the speech circuit, an alert tone will sound and the word **SPEAK** will flash in the radio display. When you lift the handset you must press the **SP** button on the radio, **SPEAK** will then stop flashing and you can then talk with the signaller.

When you have finished the conversation, you must replace the handset. **SPEAK** will be replaced in the radio display by the area code and the train reporting number.

driver

When you and the driver have completed the call, you can clear the call by either placing the handset in its holder or by pressing the **CLR CALL** key on your keyboard.

signaller

When you have pressed the **C** button but the need for the call no longer applies, you can cancel the call request. To do this you must press the **CC** button on your radio, **CANCEL** should then be displayed.

driver

If **BUSY** is displayed the system is in use. Your cancel message will be acted upon when the system becomes free.

If **FAIL** is displayed your cancel message has failed. You must press the **#** button and then press the **CC** button again.

When the cancel message has been successful, **CANCEL** will be replaced on the radio display by the area code and the train reporting number.

If a driver cancels a call, the entry will be deleted from the 'trains calling' queue.

signaller

A driver cannot cancel an emergency call.



5.3 Driver making a call to an internal railway telephone

If it is necessary for you to talk to someone on an internal railway telephone for operational reasons, you must request a call as shown in section 5.2.

driver

You must then tell the signaller the extension number you wish to be connected to and ask to be connected.

signaller

To connect a driver to an internal telephone extension, you must:

- enter **HOLD** or select 'Telephone/PABX', **PHONE** appears in the status box on the VDU
- dial the requested extension number.

When the call is answered, enter **CONNECT** or where provided, operate the switch to the Connect position and advise the driver and the person being called that the call is now connected.

You will hear the conversation in the handset. If you replace the handset the conversation will be heard over the loudspeaker.

driver

When you have finished the conversation, you must replace the handset in its receiver.

signaller

When you are sure the conversation is completed, you must press the **CLR CALL** key or select 'Radio/Normal'.

If for some reason the call could not be connected to the required telephone extension, you must select 'Radio/Normal' and tell the driver the call could not be connected.



Remember there is a six minute maximum time for each call. If necessary, the signaller can redial the extension number and then call the driver back.

5.4 Signaller calling the driver of a train going in the wrong direction

When a train is making a wrong-direction movement, for example, during single line working, the CSR equipment will remain set up for approximately 20 minutes.

signaller,
driver

You will still be able to use the train reporting number to make a call to the driver even though the train description does not move with the train's progress.

signaller

When the train returns to moving in the right direction, you must insert the train reporting number into the correct train describer berth.

However, if the 20 minute limit is exceeded, it will be necessary for you to make a general call and ask the driver to call in. You must then ask the driver to carry out the set up procedure at the next suitable signal beyond the point where normal working resumes.

You must carry out the CSR set up procedure at the next signal beyond the point where normal working resumes if the signaller asks you to.

driver

5.5 Signaller making announcements directly to passengers using the public address system

If it is necessary for you to give information to the passengers on a train as shown in section 10 of these instructions, you must:

signaller

- press the **PA** key on the keyboard
- type the train reporting number, or press the **STOCK NO** key and type the six-digit traction unit number, for the train concerned
- press the **ENTER** key.

signaller

When the call to the PA system is established, the VDU entry will transfer to the right hand side of the screen and the speech circuit will open. You must lift the handset, press the 'push to talk' button where there is one, and talk. Your message will be heard by the the passengers on the train concerned.

The call will be ended when you replace the handset or press the **CLR CALL** key on the keyboard.

driver

You will be able to hear on the loudspeaker any call the signaller makes to the public address system on the train.

5.6 Passing a signal at danger

signaller

When a train is to pass a signal at danger, it may be necessary for you to manually interpose the correct train reporting number so that the CSR system will update the location of the train.

5.7 Providing assistance to a failed train

driver

If a failed train is being assisted, both drivers must make sure that CSR is used only in the cab from which the train is being driven.

These instructions do not replace the requirements shown in Rule Book module M1 regarding emergency protection or module TW1 section 20, which must not be delayed waiting for the signaller to answer.

The signaller must carry out the instructions shown in the relevant train signalling regulation 4 when an emergency call is received.



6.1 Emergency call - driver to signaller

You must use the emergency call facility **only** in one of the following circumstances:

- When it is necessary to give immediate advice of the need to stop or caution trains in connection with an accident, obstruction or other exceptional incident.
- During training or assessment under the conditions shown in local instructions.

When it is necessary for you to make an emergency call to the signaller you must press the **EM** button on the radio. **EMERG** or **EMERGENCY** will be displayed on the radio.

If after 30 seconds the call times out, you must press the **EM** button again.

When the driver of a train in your area of control operates the **EM** button on the CSR radio, **EMERGENCY** will be displayed in the top left corner of the CSR VDU and an audible alarm will be sounded.

driver

signaller

signaller

You must immediately press the **EMER ANS** key on the CSR keyboard. This will automatically close any CSR call you are currently making.

EMERGENCY will then be transferred to the right hand side of the VDU and alongside it will be displayed the train reporting number and the word **DRIVER**. If the system fails to identify the train calling details, a speech call will still be established.

driver

When the signaller opens the speech circuit, **EMERG** will be replaced by **SPEAK** and an alert tone will sound. You may then speak to the signaller, you do not need to press the **SP** button.

signaller

You must replace the handset or press the **CLR CALL** key when the conversation is completed.

6.2 Signaller sending an individual STOP text message

signaller

To send a 'STOP' text message to one train you must:

- press the **STOP** key on the keyboard
- enter the train reporting number, or press **STOCK NO** and type the six-digit traction unit number
- press the **ENTER** key.

The **STOP** instruction will transfer to the right hand side of the VDU.

If **NOT ANSWERING** displays on the VDU, you can repeat the 'STOP' text message by again pressing the **ENTER** key.

If you receive a 'STOP' text message, a flashing **STOP** will appear in the radio display and an alert tone will sound.

driver

You must immediately bring your train to a stand and then press the **ST** button to acknowledge the "STOP' text message. The flashing **STOP** will then become steady in the radio display. You must wait for the signaller to contact you. You must not move the train without permission from the signaller.

When the driver has acknowledged the 'STOP' text message, **ACKNOWLEDGE** will appear on the right hand side of the VDU next to the **STOP** instruction. You must then contact the driver to explain why you sent the 'STOP' text message.

signaller

To clear the **STOP** instruction from the display you must press the **#** button. **STOP** will be replaced by the area code and the train reporting number.

driver

6.3 Signaller sending a general STOP text message

To send a general 'STOP' text message to all CSR set up trains, in a specified area as shown in local instructions, you must:

signaller

- press the **GEN STOP** key on the keyboard. **GEN STOP** will be displayed on the VDU
- press the **ENTER** key; **ARE YOU SURE (Y/N)** will then be displayed
- press the **Y** key
- press the **ENTER** key.

The word **CALLING** will be displayed and will be flashing. **GEN STOP** will then transfer to the right hand side of the VDU.

Some types of CSR equipment will not display the **ARE YOU SURE (Y/N)** message, in this case when the **ENTER** key is pressed the general 'STOP' text message will be sent.



driver

If you receive a general 'STOP' text message, a flashing **GEN STOP** will appear in the radio display and an alert tone will sound.

You must immediately bring your train to a stand and then press the **ST** button to acknowledge the message. The **GEN STOP** text message will then become steady in the radio display. You must wait for the signaller to contact you. You must not move the train without permission from the signaller.

signaller

When each driver has acknowledged the general 'STOP' text message, you must explain why the message was sent. The general call facility may be used to do this.

driver

To clear the **GEN STOP** instruction from the display you must press the **#** button. **GEN STOP** will be replaced by the area code and the train reporting number.

6.4 Automatic warning system (AWS) false emergency tone detection

signaller

All radio calls, except for the emergency call, are set up using radio data telegrams. The emergency call is set up by the CSR equipment detecting an emergency tone transmitted by the train radio.

This emergency tone can also be detected during a speech call when the AWS warning tone is sounded in the cab for more than three seconds.

You must answer the emergency call, but in this case there will be no train information displayed on the VDU, neither will any audio communication be established.

When you have established that there is no emergency, you must cancel the emergency call by pressing the **CLR CALL** key. You must report the false emergency call to Fault Control.

7.1 Making general calls

When it is necessary to give information to the driver of each train in your area of control, you can use the general call facility of the CSR system. To use this you must:

- press the **GEN CALL** key
- press the **ENTER** key.

One of the following will then be displayed on the right hand side of the VDU:

- **GENERAL AUTO**
- **GENERAL MAN OP GROUP NO.**

If **GENERAL AUTO** is displayed, you must make your announcement using the handset. You will only have 15 seconds to do this. A countdown timer is displayed.

Your announcement will broadcast as you speak, and will then be repeated via all of the radio groups. You will hear these repeat announcements over the loudspeaker.

If **GENERAL MAN OP GROUP NO.** is displayed, you must make your announcement using the handset. You will only have 15 seconds to do this. A count down timer is displayed.

At the end of the first count down another will start again. You must again repeat your message. You must do this for each countdown that is displayed. However, this will not happen more than three times.

When the signaller makes a general call, **GEN CALL** will be displayed on the radio. You must listen to the general call and take notice of what the signaller is announcing. It is not necessary for you to speak to the signaller unless the signaller asks you to.

signaller

driver

7.2 General call - emergencies

signaller

If you need to broadcast emergency information using the general call facility, you may do this at any time. You must start each message with the following:

“This is an emergency general call”

You must then state the message.

7.3 General call - advisory

signaller

Advisory messages must only be given under the situations as shown below.

To advise drivers approaching an area affected by a CSR system failure

You must use the following advisory message:

“This is an advisory general call. There is currently a CSR system failure within area..... drivers do not need to acknowledge this call”.

To advise drivers approaching an area affected by a blanket speed restriction

You must use the following advisory message:

“This is an advisory general call. This is confirmation of a blanket speed restriction in force between..... and of mph. Drivers do not need to acknowledge this call”.

Or

“This is an advisory general call. The blanket speed restriction in force between..... and of mph, to be lifted athours has now been withdrawn. Drivers do not need to acknowledge this call”.

To advise drivers approaching an area affected by exceptional railhead conditions outside known sites

You must use the following advisory message:

signaller

“This is an advisory general call. Due to poor railhead conditions between..... and drivers are reminded to drive according to the prevailing conditions. Drivers do not need to acknowledge this call”.

To advise drivers approaching an area affected by infrastructure failures or incidents

You must use the following advisory message:

“This is an advisory general call. Due to operating difficulties between..... and you may experience delay. Drivers do not need to acknowledge this call”.

7.4 Failure of recording equipment affecting a general call

If the recording equipment has failed, you must repeat the general call over each group of radio transmitters in turn.

signaller

Failure of CSR to automatically change area

8.1 Passing a channel change marker

driver

When a train passes a channel change marker the CSR on-train equipment should automatically change to the new area channel. The train radio will confirm that this has happened and the radio will then display the new area code.

signaller

If on-train CSR equipment fails to automatically change when the train passes a channel change marker you will be alerted to this by an audible alarm and the following type of message being displayed on the CSR VDU.

1R22 0029 AREA CHANGE FAIL

You must call the train concerned and ask the driver if the train radio did automatically change to the new area channel when the train passed the channel change marker.

If the train radio did change area

driver

If the train radio automatically changed correctly, there could be a fault with the train radio. You must report the failure as shown in your train operating company instructions.

If the train radio did not change area

signaller

If the train radio did not change automatically, you must record the six-digit train unit number and report the failure to Fault Control.



The process of calling the train should automatically drag the train's details into the new area causing the train radio to a change to the new area code.

8.2 Changing the area code manually

If the area code does not change automatically when in the area of the lineside channel change marker, you must as soon as possible without causing yourself distraction, input the correct area code manually as follows:

driver

- press the **AR** button
- enter the two-digit area code
- press the ***** button.

If the radio is not set to the new area code and the train moves out of radio coverage, **RADIO LOST** will be displayed on the radio and an audible alarm will sound to remind you to manually change the area code.

8.3 Receiving an 'out of area' call

An 'out of area' call is usually caused by the driver manually inserting an incorrect area code, or by the radio failing to change area automatically.

signaller

When you receive an 'out of area' call the VDU will display the call in the trains calling list as normal but the signal number will be shown with the text and background colours reversed.

You can either:

- call the driver in the normal manner and tell the driver to change the area code manually to the correct area and then to request a call to the correct signaller, or
- not answer the call yourself but tell the correct signaller and request that signaller to call the train concerned. The correct signaller calling the train will automatically reset the train radio to the correct area code.

9 Trains detained at signals



driver

These instructions supplement those shown in Rule Book module S4.

When your train has stopped at a signal at danger, you must press the **SG** button on the radio, the display will show **AT SIG**.

signaller

When the driver presses the **SG** button on the cab radio, the last reported location of the train and the message **STANDING AT SIGNAL** will be added to the 'trains calling' queue. If you do not need to speak to the driver you must send the 'wait at signal' text message to the driver. To do this you must:

- press the **WAIT SIG** key
- press the **Q SEL** key or the **Q** key
- type the queue number of the train concerned
- press the **ENTER** key.

If you need to speak to the driver, you must:

- press the **Q SEL** key or the **Q** key
- type the queue number of the train concerned
- press the **ENTER** key.

driver

If the signaller needs to speak to you, the signaller will call your train in the normal manner. If the signaller does not need to speak to you but wants you to wait for the signal to change, you will receive a 'wait at signal' text message. In this case, the **AT SIG** display will be replaced by the area code, the train reporting number and the word **WAIT**.

If the signal does not change within five minutes you must press the **SG** button again.

To clear the **WAIT** message from the display you must press the **#** button.

If the master switch is away from the off position but not in the neutral position and pressure is released from the DSD pedal or holdover button for a period in excess of 30 seconds an alert tone will sound and **DSD** will show flashing in the radio display.

driver

If the DSD pedal or holdover button is not operated within the next 30 seconds, the alert tone will stop, the flashing **DSD** will become steady and an alarm message will automatically be sent to the controlling signaller.

If **DSD ALARM** becomes displayed next to a train reporting number and last reported position in the 'trains calling' queue, you must immediately try to contact the driver by calling the train radio.

signaller

If you are unable to contact the driver you must try to find out what has happened. To do this you must, where practicable, arrange for a responsible person to be sent to the train or you can ask the driver of a train on an adjacent line to investigate.

You should use the PA system to keep passengers on the train informed about what is happening.

11 Failure of CSR equipment



These instructions supplement those shown in Rule Book module TW1 and Rule Book module TW5.

11.1 Failure of cab radio equipment

driver

When any indication lamps on the radio or segments of the radio display fail you must report this as shown in your train operating company instructions. You do not need to treat the radio as defective.

Certain faults with the CSR cab equipment will not result in loss of communications. If such a fault does occur, you must tell the signaller. You must then act in accordance with the instructions the signaller will give you.

signaller

If a driver tells you about a failure of the CSR cab equipment, you must tell Operations Control, who will liaise with the train operating company concerned. You must then pass on the instructions given by Operations Control to the driver.

driver

Operations Control and the train operating company control will agree how the train with the radio failure will be dealt with.

If it is agreed that the train can be worked forward with a fully defective radio, you must, if it is necessary to speak to the signaller, use signal post telephones or other lineside telephones.

Unless authorised, you must not use a mobile telephone as a substitute for a defective CSR cab radio when working a CSR designated service within a CSR fitted area.

You must report and record all CSR cab equipment faults as shown in your train operating company instructions.

11.2 Failure of lineside radio equipment

When there is a complete or partial failure of the CSR lineside equipment, trains may enter service and continue in service.

driver,
signaller

Operations Control and the train operator's control will arrange for the method of working to be reviewed by the relevant on-call managers if a failure lasts, or is expected to last, longer than two hours.

The person responsible for maintaining the equipment will tell you the extent of the failure and whether any back up is or will be available.

signaller

During a failure of CSR lineside equipment you must use signal post telephones or other lineside telephones or NRN if available if it is necessary to speak to the signaller.

driver

You must record the details of a failure of CSR lineside equipment in the Train Register and report the failure to Operations Control.

signaller

If there is a failure that affects a radio base station, you may experience difficulty in sending and receiving messages in the area concerned.

If there is a failure between the processors at adjacent signal boxes, or if there is a failure of the train describers, you must make frequent general calls to let all drivers know they need to set up the cab radio at the first suitable point beyond the affected area.

You must tell any other signaller involved about the CSR failure, who must also carry out these instructions.

Partial system failure

If the CSR lineside equipment throughout a geographical area has partially failed, it may still be possible for you to make a call using the traction unit number of the train concerned.

signaller

signaller

You must ask Operations Control to provide a list of traction unit numbers matched with train reporting numbers.

Complete system failure

signaller in area adjacent to failed area

If there is a complete failure of CSR lineside equipment throughout a geographical area, you must broadcast frequent general calls to advise drivers:

- there is a CSR system failure
- the limits of the area that has failed
- to set up the cab radio at a suitable location beyond the affected area.

signaller

Where trains normally set up the CSR cab equipment in the area that has failed, you must make alternative arrangements to make sure the driver of each train starting its journey is made aware of the system failure.

You may need to arrange for a competent person to tell each driver, or where possible, get a signaller in another area to make general calls so drivers are aware of the system failure in your area.

11.3 Partial set up after passing an area affected by a radio equipment failure

driver

If, after passing through an area affected by a CSR lineside equipment failure, there is no booked stopping point with a suitable signal berth to allow a full set up of the CSR cab radio, you should attempt to gain a partial set up.

Partial set up is also called 'comfort mode'.

To partially set up the cab radio, you must make sure the radio is switched on and then:

driver

- press the **AR** button
- press the ***** button
- enter the correct two-digit area code.

You must always observe your train operating company driving instructions when making any changes to the radio while the train is moving. You must not let yourself become distracted.

If necessary, you must wait until the next booked stopping point and then carry out either a full or partial set up there.

Partial set up to the area code will restore the ability to make and receive emergency calls and certain speech calls only. You must make sure the signaller knows the 6-digit traction unit number of your train.

Until the radio can be fully set up at a recognised signal, the train radio will not update the train's position to the signaller. You must take extra care to identify your train and its location in any call.

Whilst in partial set up you must manually change the area code whenever the train passes a lineside area channel change marker.

During a failure of CSR, or when a train is not fully set up, you must take extra care to identify the train's identity and its location whenever a CSR call is made.

signaller

Supersedes GERM8000-traindriver Iss 1 on 05/12/2015.
Superseded by GERM8000-traindriver Iss 3 with effect from 03/12/2016
Please refer to specific modules for issue and in-force dates.
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GSM-R (IVRS) Radio system

Handbook

RS/520 Issue 1



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GSM-R (IVRS) Radio system Handbook

RS/520 Issue1 (December 2010)



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Rail Safety & Standards Board**

You will need this GSM-R (IVRS)
handbook if you use the IVRS radio
system and carry out the duties of a:

- signaller
- driver.



This symbol indicates extra information
or guidance regarding the instructions.

1

Introduction

2

Functionality of GSM-R (IVRS)

3

Provision and use of an OPH

- 3.1 When a driver must have an OPH
- 3.2 When the OPH must be switched on
- 3.3 When the OPH must be used
- 3.4 Turning the OPH on
- 3.5 Using the keypad lock
- 3.6 Switching between loudspeaker and earpiece
- 3.7 Altering the OPH volume
- 3.8 Turning the OPH off

4

Signaller's terminal

- 4.1 Signal box equipment
- 4.2 Using the signaller's terminal

5

Driver making an emergency call

- 5.1 Initiating a railway emergency call
- 5.2 Routing of emergency calls
- 5.3 Talking to the signaller
- 5.4 Ending a railway emergency call
- 5.5 Accidental emergency call

6

Driver receiving an emergency call

- 6.1 Railway emergency call configuration
- 6.2 Railway emergency call is received
- 6.3 Railway emergency call is received but is not understood or is terminated early

7

Signaller receiving an emergency call

- 7.1 Railway emergency call is received
- 7.2 Railway emergency call is received by more than one signaller
- 7.3 Railway emergency call is received from an OPH in a fringe area
- 7.4 Second railway emergency call is received
- 7.5 Unable to establish the location of a railway emergency call

Contents

8

Clearing down a railway emergency call

- 8.1 When a call may be cleared down
- 8.2 Driver clearing down a call

9

System testing

- 9.1 Weekly tests
- 9.2 Other periodical tests

10

Faults and failure reporting

- 10.1 Faulty or lost OPH
- 10.2 Faults to IVRS system

GSM-R (IVRS) is the acronym used for Global System for Mobile Communications - Railways (Interim Voice Radio System).

IVRS has been introduced to provide emergency communications between the driver and signaller in areas where axle counter train detection has replaced conventional track circuits.

IVRS makes early use of the GSM-R network currently being introduced across Great Britain.

Signalboxes in an IVRS area are provided with a 'dispatcher' radio terminal. Drivers are provided with a portable handset known as an 'Operational Portable Handheld' (OPH) or may make use of fixed GSM-R equipment provided in train cabs.

Areas fitted with IVRS are shown in table A of the Sectional Appendix and it is within these areas that these instructions must be applied.

Lineside signs will indicate to the driver the entry to and the exit from each IVRS radio network area. No action is required on passing the signs.



Lineside sign placed at entrance to an area where IVRS should be used



Lineside sign placed at exit from an area where IVRS should be used

2 Functionality of GSM-R (IVRS)

IVRS provides basic voice communication from a driver to a signaller in the form of a group call in the event of an emergency by pressing a single 'emergency' button on an OPH.

The signaller cannot send an emergency call to a driver.

The IVRS system is not designed to support point-to-point calls between OPHs and individual numbers are not revealed to users.

IVRS cannot connect to the public mobile telephone network (GSM-P), neither can it connect to public or railway fixed networks for point to point calls. It can be used for 999/112 emergency calls: such calls are routed to the Railway Emergency Operator.

IVRS does not support the sending of text messages.

The SIM card provided with an OPH provides information for the system to identify the caller and it must not be removed or swapped with any other SIM card.

Routes fitted with IVRS are provided with Base Transceiver Stations (BTS) at intervals of approximately 3 miles or 5 km. The location of a BTS defines a 'cell' or area of radio coverage. Each BTS can handle up to 6 calls at the same time.

All calls made via IVRS are recorded.

IVRS must only be used for railway emergency calls. It must not be used for any other form of train control or movement authority.



Example of Sagem OPH 940



Example of Sagem TiGR 350



Example of Selex ROG 100

3.1 When a driver must have an OPH

driver

You must have a working OPH when driving a train that is to pass through an IVRS area unless the train is fitted with working GSM-R radio, or a cab secure radio (CSR) and the train will remain in a CSR area.

3.2 When the OPH must be switched on

driver

You are responsible for charging the OPH and you must check the battery level is sufficient.

You must make sure the OPH is switched on at the start of your journey and not just before you enter an IVRS area. You must make sure that the OPH is kept in a position in the cab where it can be heard. It must not be kept in a pocket or bag.

As the OPH is not designed to be safe to use in hazardous areas, you must not operate it within locations such as fuel depots and traction unit engine rooms.

3.3 When the OPH must be used

driver

You must use the OPH whenever there is a requirement to give immediate advice to the signaller of the need to stop or caution trains in connection with an accident, obstruction or other emergency.

The IVRS equipment must not be used in any other circumstances or by unauthorised users.

3.4 Turning the OPH on

After being turned on the display will power up after about 5 seconds and the message '**loading please wait**' appears. The handset will immediately perform a self test of the display and battery.

When switched on the display screen may display the words '**Unknown Identity**' - this is normal and you need not take any action.

If, when you switch on the OPH a message '**Group 299 call disabled**' appears on the display, you must press the cancel button **C**. The OPH will then switch on in the normal way.

In an area without IVRS coverage, the handset display will normally show the battery condition along with an indication that there is no available signal and a red flashing light located on the top of the handset.

When within an IVRS area, the display will normally show the battery condition, the signal strength along with a green flashing light located on the top of the handset. The screen will also display the words '**Network Rail IVRS GB**' or **234 12** depending on the location.



Typical default display

driver

3.5 Using the keypad lock

driver

The keypad must be kept locked at all times to prevent inadvertent operation of buttons, unless the handset is being turned off. According to the type of handset, the keypad lock can be applied automatically or it may have to be set manually.

The keypad lock does not prevent operation of the emergency button or incoming calls being received or answered.

3.6 Switching between loudspeaker and earpiece

driver

You may change an incoming call from loudspeaker (handsfree) to earpiece operation by pressing the **green telephone button**.

3.7 Altering the OPH volume

driver

The incoming speech volume can be altered by using the buttons on the right hand side of the handset while a call is being made.

3.8 Turning the OPH off

driver

The OPH must not be turned off until you have completed your turn of duty.



Example of Dicora S

Signaller's terminal

4.1 Signal box equipment

signaller

Each signaller's position in an IVRS area will be equipped with a dedicated desk-top terminal incorporating:

- a lift-off handset
- a volume control
- a loudspeaker device.

Where a GSM-R fixed terminal is provided, IVRS emergency calls can be received on it.

4.2 Using the signaller's terminal

signaller

You must only use the signaller's terminal for the purposes of emergency communication with train crews.

You must not use the signaller's terminal for point-to-point calls except for the purpose of testing as described in section 9 of this handbook.

5.1 Initiating a railway emergency call

You must first visually check that the OPH is operational by observing the flashing green LED and the network code '**234 12**' or '**Network Rail IVRS GB**' is displayed. It may be necessary for you to leave the cab and go to track level, away from the train, in order to receive a network signal.

driver

You must use the **emergency** button to send the emergency call in accordance with the individual handset instructions, either by pressing and holding the button until a double 'beep' is heard or by two separate presses of the button. Observe that the display indicates '**EMERGENCY**' or '**Emergency Call**'.

You must wait until the signaller answers the emergency call. You will not hear a ring tone while you are waiting.

If there is a delay in connecting the call, the screen will change and the following words will be displayed '**Emergency call in progress**'.

If you are not connected to the signaller within 40 seconds, you must end the call as shown in 5.4 and contact the signaller by the quickest possible alternative means. You must not attempt a second railway emergency call using IVRS.

5.2 Routing of emergency calls

Railway emergency calls made from a registered OPH within the IVRS area will normally be routed automatically to the correct signaller.

driver

If the call originates in the overlap between signaller boundaries it will be routed to more than one signaller. In this case either signaller could answer.

5.3 Talking to the signaller

driver

When the signaller answers your emergency call, you must press the push-to-talk (PTT) button on the left hand side of the handset to talk to the signaller. The display will prompt you with an icon of a pointing finger. Wait one second after pressing the PTT before speaking to allow PTT to be established on the network.

You will not be able to use the PTT button if any numbers are displayed in the screen. Remove the numbers by using the cancel button **C**.

Speak using standard railway radio protocols and end your phrase with 'over'.

You must then release the PTT button to hear the signaller.



Do not press the PTT button if you are not the person who initiated the railway emergency call, as doing so will prevent the driver who did from talking to the signaller.

5.4 Ending a railway emergency call

driver

You must only end an emergency call that has been established when instructed to do so by the signaller.

When communication with the signaller is over, or you need to end the call as shown in 5.1, you must clear down the call as shown in 8.2.

5.5 Accidental emergency call

driver

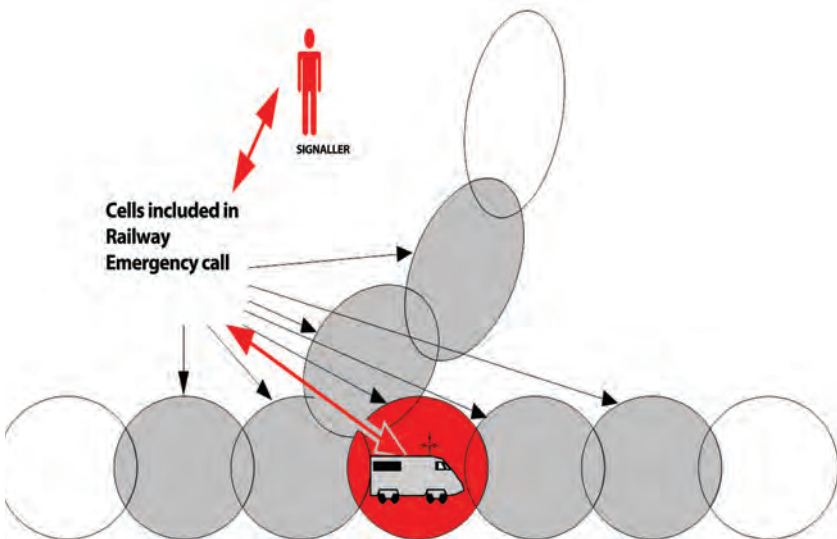
If an accidental railway emergency call is made from your OPH you must not clear down the call or switch off the OPH. Instead you must complete the call to the signaller explaining the circumstances and that there is no railway emergency taking place.

6.1 Railway emergency call configuration

The IVRS network is divided up into cells which may vary in size.

In the event of a railway emergency call being initiated, it will be received by the signaller and any other OPH that is registered on the IVRS network and is within the 'service area' of the call.

The 'service area' is the cell in which the call originates plus additional adjacent cells as determined by geography and permissible speeds.



Railway emergency call configuration

Any OPH registered on the network which subsequently enters the area after an emergency call has been established will automatically be included in the ongoing call.



6.2 Railway emergency call is received

driver

When a railway emergency call is received you will hear the unique 'emergency call' tone on the OPH and the display will illuminate with '**EMERGENCY CALL**'.

After approximately three seconds the OPH will automatically answer the railway emergency call in loudspeaker mode and at maximum volume.

In most circumstances the first voice that you will hear will be that of the signaller.

You do not need to immediately stop your train upon receipt of an emergency call but you must listen carefully and follow the instructions given by the signaller.

You must not attempt to talk to the signaller if you did not initiate the emergency call unless the signaller specifically requests it. This is because you may prevent the originator from speaking to the signaller and may prevent you hearing the signaller's instructions.

6.3 Railway emergency call is received but is not understood or is terminated early

driver

If you receive an emergency call which is not understood for any reason, such as:

- no speech received
 - poor reception
 - call dropped out or timed out before any understanding reached
- you must immediately reduce to a speed that will enable your train to be stopped short of any obstruction.

You must then proceed to the next location where you can contact the signaller.

7.1 Railway emergency call is received

When a driver initiates a railway emergency call you will hear the unique emergency call tone on your terminal and the display will illuminate with the message **'EMERGENCY CALL'**.

The name of the BTS in the cell where the call originated will also be displayed, for example **'HEM HEATH'**.

The name of the BTS will not be updated on the display if the train moves into another cell during the call.

You must answer the emergency call by lifting the handset and waiting one second to make sure the call is established.

You are expected to speak first, as soon as possible after connecting the call, as the driver will abandon the call if they do not hear you within 40 seconds.

Speak using standard railway radio protocols, clearly identifying your signalbox and end your phrase with 'over'.

You do not need to use the PTT button to speak as its function is disabled on the signaller's terminal.

You must establish the details from the call originator which as a minimum will include:

- train reporting number
- location
- nature of emergency
- lines affected.

You must immediately take the necessary action to protect the line in accordance with the relevant rule book modules. If for any reason you cannot provide signal protection you must instruct all trains that can hear the emergency call to stop immediately.

signaller



signaller

You must as soon as possible inform Operations Control of the incident including the details that you received from the driver, and request that an emergency NRN broadcast be made in the area concerned. Operations Control will determine in which NRN base station areas to broadcast based on the location that you give them.

7.2 Railway emergency call is received by more than one signaller

signaller

If a train is in the overlap area between cells or at a boundary between signallers' areas then the emergency call could be routed to more than one signaller.

Both signallers, who may be in different signalboxes, will receive the emergency call tone and both can answer the call. The call will remain active on both signallers' terminals unless action is taken to clear it.

If you are the first signaller to answer the emergency call and you determine that the call has been made from an OPH which is outside your area of control, you must immediately contact the correct signaller by the quickest possible means, sending the emergency alarm if necessary.

If you have made sure that the emergency does not involve you and that the correct signaller has received the call, you may exclude yourself from the emergency call.

7.3 Railway emergency call is received from an OPH in a fringe area

signaller

If a railway emergency call originates from an OPH in a fringe area which is provided with IVRS coverage but is not within your area of control, you must immediately contact the signaller concerned, sending the emergency alarm if necessary and give the relevant details.

7.4 Second railway emergency call is received

It is possible that while a railway emergency call is being dealt with, a second call is received. You will receive an audible alert and the display will show the location of the second call with a small mobile phone icon that tilts from side to side.

You must answer the second call within 30 seconds or the system will discard the call.

You must therefore finish the first call and answer the second call, or inform the driver who made the first call that they will be placed on hold whilst you answer another emergency call.

You can only place a call on hold for five minutes, after which time the system will clear it down.

signaller



7.5 Unable to establish the location of a railway emergency call

If you are unable to establish where a railway emergency call has originated from, you may use the navigation button to display the list of calls received. This will show the BTS that the call was received from.

If a driver with a connected call moves out of the area of IVRS coverage or moves out of the service area of the connected call then the call will be ended suddenly.

signaller



8.1 When a call may be cleared down

driver,
signaller

A railway emergency call may be cleared down by either the driver who originated the call, or by the signaller.

A driver must not clear down a railway emergency call that has been established unless instructed to do so by the signaller.

A railway emergency call cannot be cleared down by any other OPH user included in the call.

8.2 Driver clearing down a call

driver

After you have been instructed to clear down the railway emergency call by the signaller you must press the **red telephone button** once, or press the appropriate softkey as detailed in individual handset operating instructions.

Do not hold the button in or you may turn off your OPH.

You must check that your OPH is still switched on after clearing down a call.

9.1 Weekly tests

Weekly testing will take place to prove the functionality of the system by a point-to-point call being made to a signaller's terminal. The call will be made from a different Base Transceiver Station area each week according to local instructions. You must co-operate with these tests.

signaller

9.2 Other periodical tests

You must co-operate with any other periodical testing as shown by local instructions or any other exceptional testing as required.

signaller

10 Faults and failure reporting

10.1 Faulty or lost OPH

driver

A lost, stolen or faulty OPH must be reported to the Help Desk at Network Rail Telecomms Support Centre Doncaster, telephone internal **085 32196** or external **01904 382184** which will make the necessary arrangements.

10.2 Faults to IVRS system

signaller

You must report revealed faults such as partial or complete loss of the IVRS system to Operations Control and any adjacent signalbox, if required.

You must also report incidents of system misuse.

You must implement any local instructions concerning train movements through the affected area.

The Operations Control will advise the Help Desk at Network Rail Telecomms Support Centre Doncaster, telephone internal **085 32196** or external **01904 382184**, and train operators' controls.

Supersedes GERM8000-traindriver Iss 1 on 05/12/2015.
Superseded by GERM8000-traindriver Iss 3 with effect from 03/12/2016
Please refer to specific modules for issue and in-force dates.
Printing of this document is not permitted.

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Signals, handsignals, indicators and signs **Handbook**

**RS/521 Issue 3
December 2015**



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**Contents approved by Traffic Operation and Management
Standards Committee.**

**Enquiries on this document can be forwarded to:
enquirydesk@rssb.co.uk**

Signals, handsignals, indicators and signs Handbook

RS/521 Issue 3 (December 2015)



You will need this handbook if you need to understand the meaning of signals, handsignals, indicators and signs.

1

Definitions and identification of signals

- 1.1 Definitions
- 1.2 Signal types - identification

2

Colour light signals

- 2.1 Three-aspect signalling - normal sequence
- 2.2 Four-aspect signalling - normal sequence
- 2.3 Junction indicators
- 2.4 Route indicators
- 2.5 Flashing yellow aspects
- 2.6 Position-light signals
- 2.7 Colour light signals not in use

3

Semaphore signals

- 3.1 Distant signals
- 3.2 Stop signals
- 3.3 Route indications
- 3.4 Semaphore subsidiary signals
- 3.5 Semaphore shunting signals that display a red aspect
- 3.6 Semaphore shunting signals that display a yellow aspect
- 3.7 Route indications by shunting signals
- 3.8 Semaphore signals not in use

4

ERTMS boards

- 4.1 Block markers
- 4.2 ERTMS lines where lineside signals are provided
- 4.3 Cab signalling boards
- 4.4 Shunt entry boards

5

Other signals and indicators

- 5.1 Limit of shunt signals or indicators
- 5.2 Stop boards
- 5.3 Possession limit boards (PLB)
- 5.4 Work-site marker boards
- 5.5 Signal passed at danger (SPAD) indicator
- 5.6 Points indicators
- 5.7 Banner repeating and co-acting signals
- 5.8 'Off' indicators
- 5.9 'Close-doors' indicator
- 5.10 'Right-away' indicators
- 5.11 Rear clear marker
- 5.12 Mid-platform train berth marker
- 5.13 Whistle boards
- 5.14 Preliminary route indicators
- 5.15 Automatic warning system (AWS) cancelling indicators
- 5.16 AWS gap indicators

6

Level crossing signs and indicators

- 6.1 Level crossing signs
- 6.2 Level crossing indicators

7

Speed indicators

- 7.1 Permissible speed indicators
- 7.2 Warning indicators
- 7.3 Permissible speed indicators at diverging junctions
- 7.4 Differential permissible speed indicators
- 7.5 Permissible speed indicators with letters
- 7.6 Enhanced permissible speed (EPS) indicators

8

Speed restriction signs

- 8.1 Temporary speed restriction signs
- 8.2 Emergency indicator

9

AC electrified line signs

- 9.1 Neutral section signs
- 9.2 Coasting signs

10

Radio signs

11

Telephone signs

- 11.1 Telephones
- 11.2 Limited clearance telephones
- 11.3 Signals without telephones

12 Other lineside signs

- 12.1 Low adhesion hazard signs
- 12.2 Sandite markers
- 12.3 Signal reminder signs
- 12.4 Countdown markers
- 12.5 Coasting boards
- 12.6 Car stop markers
- 12.7 Mile posts
- 12.8 Gradient signs
- 12.9 Spring catch points sign
- 12.10 Bridge identity plates
- 12.11 Safety signs

13 Lineside handsignals

1.1 Definitions

Stop signal

A stop signal is a signal that can show a stop aspect or indication.

It also includes:

- position-light signals
- shunting signals
- limit of shunt signals or indicators
- stop boards
- possession limit boards
- work-site marker boards.

Distant signal

A distant signal is a signal which cannot show a stop aspect or indication.

Some colour light distant signals are identified by a white triangle or the letters 'R' or 'RR' on the signal identification plate.

Automatic signal

A signal operated by the passage of trains. The signaller or a person operating a signal post replacement switch can place some automatic signals to danger.

Controlled signal

A signal operated by the signaller, some of which may be set by the signaller to work automatically.

Semi-automatic signal

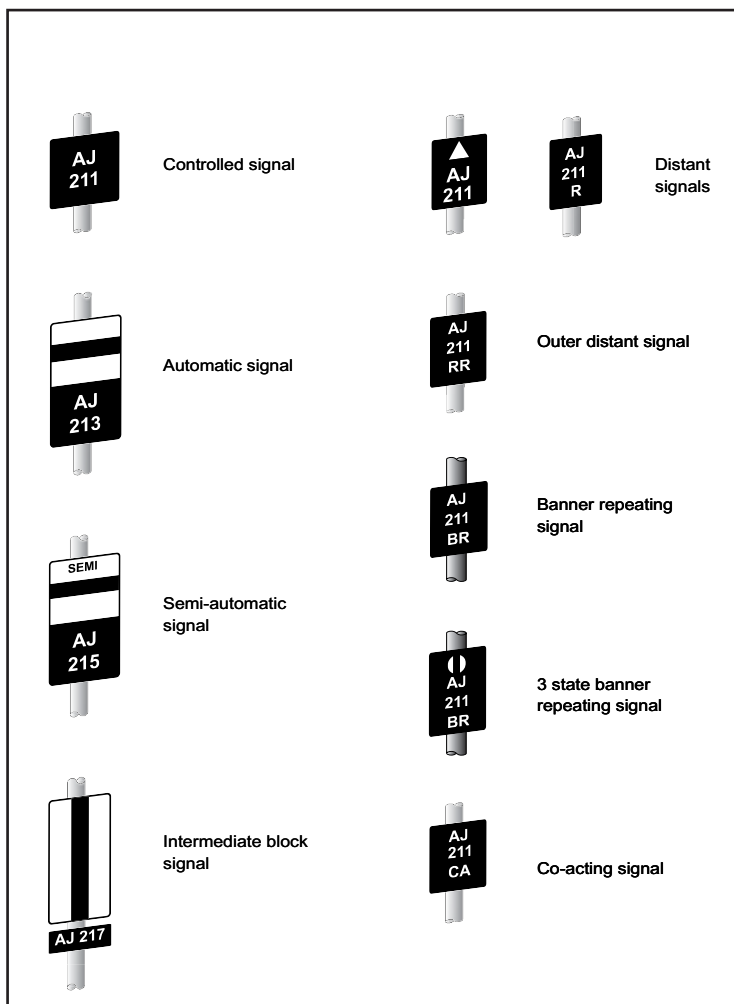
A signal normally operated by the passage of trains, but can also be controlled from a signal box or a ground frame.

Intermediate block home signal

A stop signal that controls the exit from an intermediate block section, and the entrance to an absolute block section or another intermediate block section.

1.2 Signal types - identification

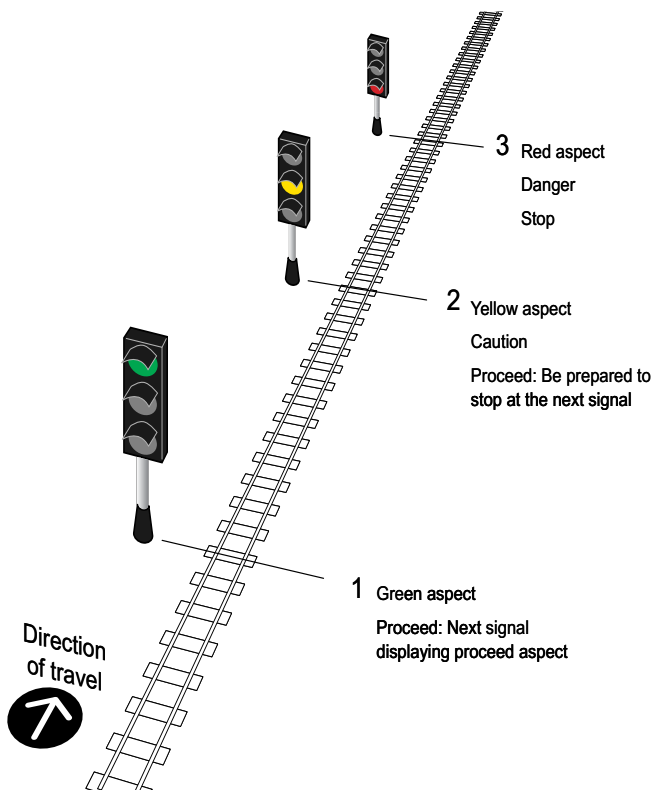
The meanings of signal identification plates are as follows:



2 Colour light signals

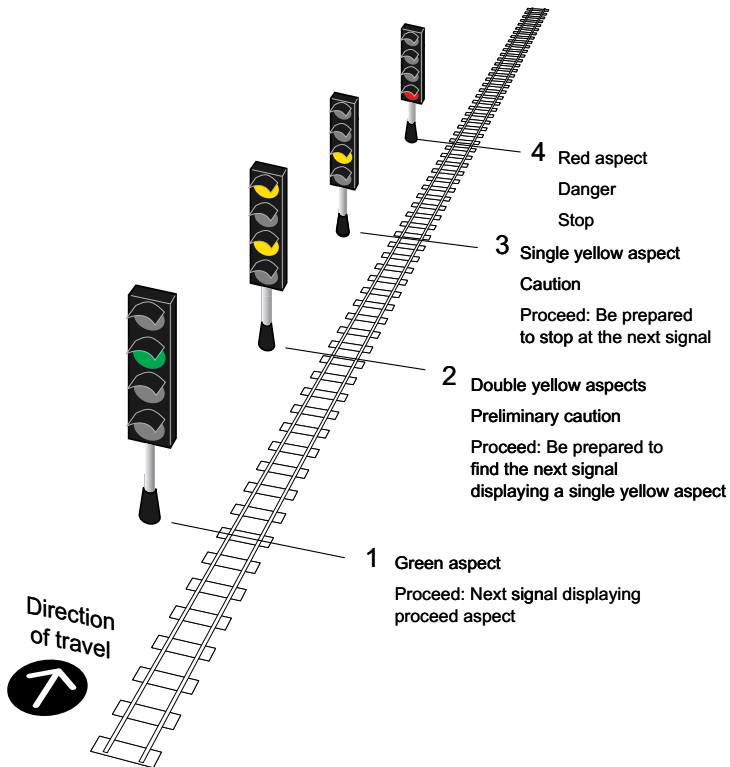
2.1 Three-aspect signalling - normal sequence

The normal sequence of three-aspect signalling is:



2.2 Four-aspect signalling - normal sequence

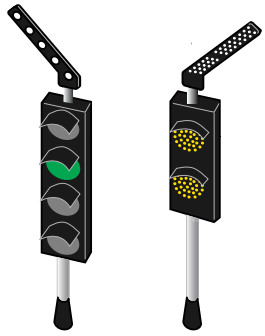
The normal sequence of four-aspect signalling is:



2.3 Junction indicators

Junction indicators are provided to show that a train is being signalled to a route to the left or right of the straight route.

A junction indicator is normally located above the signal, and will display a line of white lights when a proceed aspect is displayed.

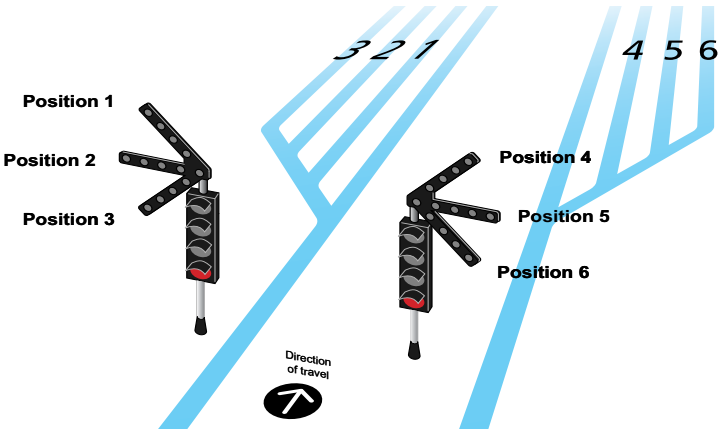


When the straight route is obvious, there is normally no junction indicator provided for this route.

Where there is no obvious straight route, a junction indicator will be provided for all signalled routes.

Where the straight route is not the highest-speed route, the junction indicator will normally apply to the lower-speed route.

Where the diverging routes ahead are both of equal speed, a junction indicator will be provided for each route.



2.4 Route indicators

At some locations a route indicator is provided at the signal. The indicator will display either a letter or a number to show the route onto which the movement is being signalled.

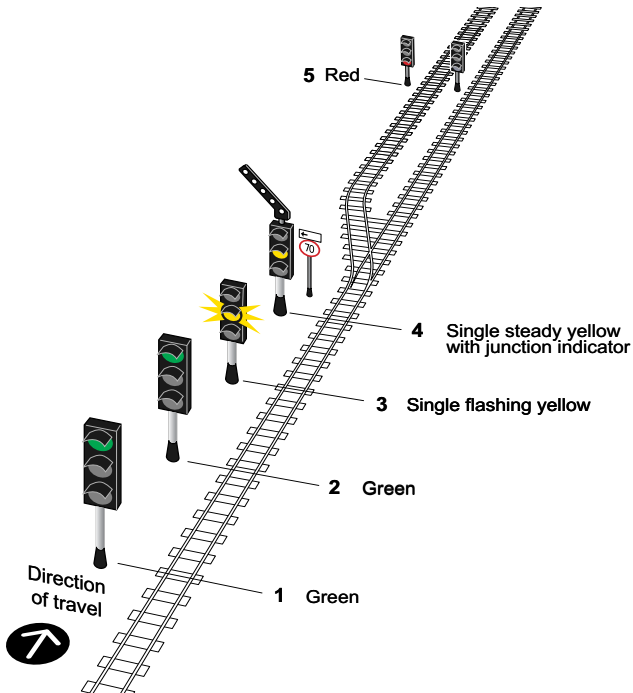
Route indicators may also be associated with a junction indicator.



2.5 Flashing yellow aspects

A flashing yellow aspect means facing points at a junction ahead are set for a diverging route and the speed of the train must be reduced.

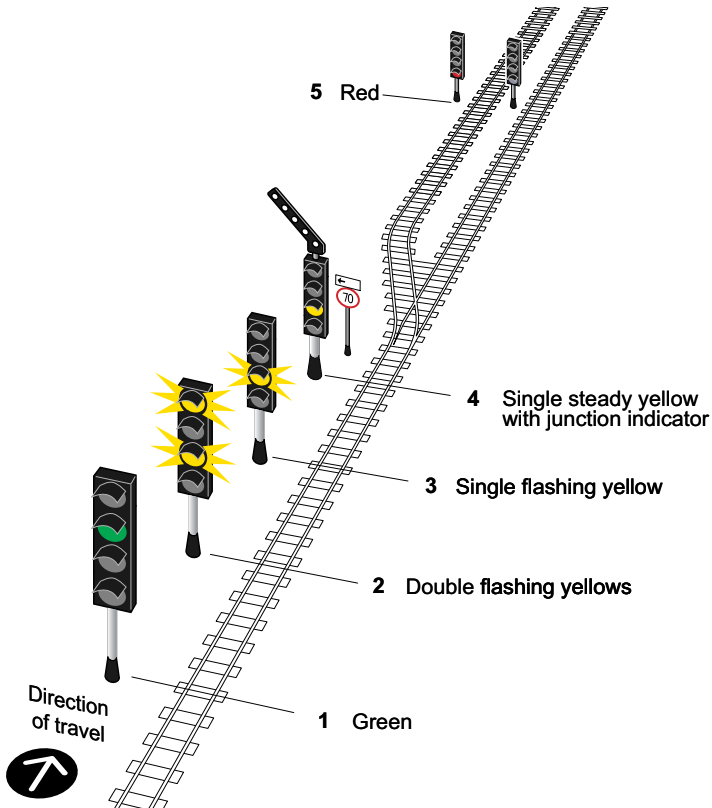
The normal sequence of three-aspect flashing yellow signalling is:



Three-aspect flashing yellow signalling

When a single steady yellow aspect is displayed together with a junction indicator at signal 4, the driver must obey the caution aspect and be prepared to stop at signal 5. This applies even though a flashing aspect may have been displayed at signal 3.

The normal sequence of four-aspect flashing yellow signalling is:



Four-aspect flashing yellow signalling

If the train is between signals 2 and 3 when signal 4 is cleared for the diverging route, signal 3 may then display one flashing yellow aspect. This applies even though a steady aspect has been displayed at signal 2.

When a single steady yellow aspect is displayed together with a junction indicator at signal 4, the driver must obey the caution aspect and be prepared to stop at signal 5. This applies even though a flashing aspect may have been displayed at signal 3.

Flashing yellow signalling in ERTMS areas

For trains on which ERTMS is operating the ability of approaching signals to display flashing aspects will be disabled. Only standard aspect sequences will be displayed to these trains. Route or junction indicators will continue to operate.

2.6 Position-light signals

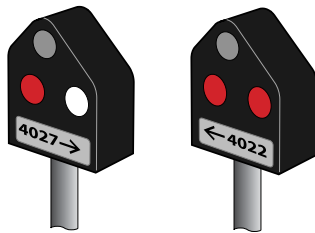
Position-light signals that display a red aspect

These position-light signals are normally positioned at ground level independent of a main aspect.

When proceeding on the authority of a main aspect, any position-light signals along the route between main running signals will show a proceed aspect.

The signal identification plate may also have a direction arrow showing the line to which the signal applies.

This indicates stop.



Position-light signals that display a yellow aspect

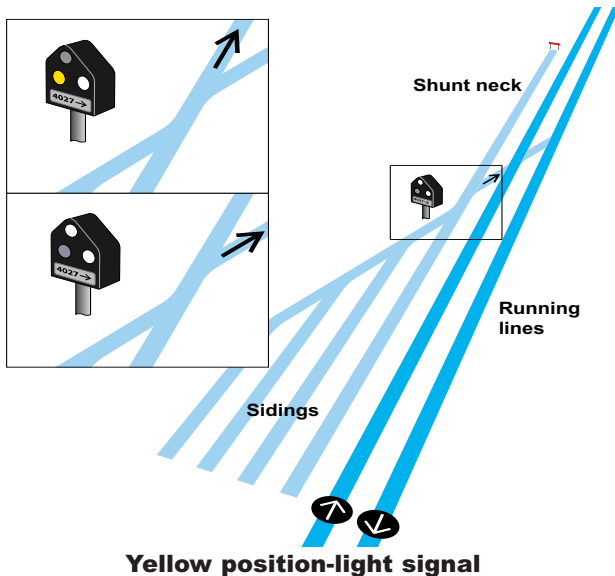
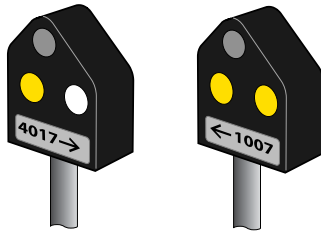
Position-light shunting signals that display a yellow aspect are stop signals applying only to movements in the direction to which the signal can be cleared. Other movements can pass the signal without it being cleared.

The signal identification plate may also have a direction arrow showing the line to which the signal applies.

This indicates stop.

The driver may pass the signal in the 'stop' position when the movement is being made towards the shunt neck or siding and not the running line.

The driver must be prepared to stop short of any train, vehicle or obstruction.



Position-light signals that display a proceed aspect

If any position-light signal displays two white lights at 45°, this authorises the driver to proceed at caution towards the next stop signal.

If there is no stop signal, it authorises the driver to proceed at caution towards a buffer stop.

The driver must be prepared to stop short of any train, vehicle or obstruction.



Position-light signals associated with a main aspect

These are normally positioned below the main aspect they are associated with, and often on the same signal post.

The normal aspect for a position-light signal is unlit. This means 'obey the main signal'.



The train or movement may proceed past the signal when the position-light signal shows proceed.

The driver must be prepared to stop short of any train, vehicle or obstruction.



Position light signal that has an associated route indicator

Route indicators associated with position-light signals are of miniature design, and display a letter or a number that shows the route onto which the train is being signalled.



2.7 Colour light signals not in use

When not in use, main and position-light signals are covered up.

Main aspects may also have a large 'X' displayed over the cover.



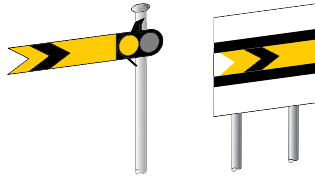
3 Semaphore signals

3.1 Distant signals

These signals show the following indications.

Caution

Indication by day: arm horizontal.



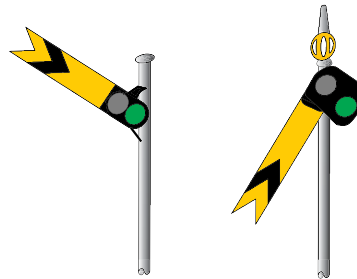
Indication by night: yellow light or reflectorised indication.

Meaning: be prepared to stop at the next stop signal, or other specified place to which the distant signal applies.

Clear

Indication by day: arm raised or lowered 45°.

Indication by night: green light.



Meaning: all associated stop signals worked from the same signal box are clear.

If there is only one distant signal provided for a diverging junction, this signal applies to all trains that approach it.

3.2 Stop signals

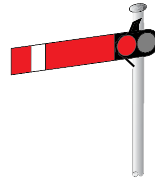
These signals show the following indications.

Danger

Indication by day: arm horizontal.

Indication by night: red light.

Meaning: stop.

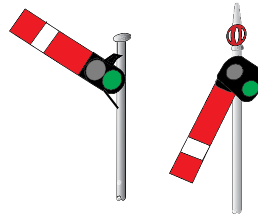


Clear

Indication by day: arm raised or lowered 45°.

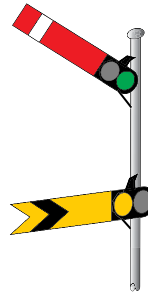
Indication by night: green light.

Meaning: proceed.



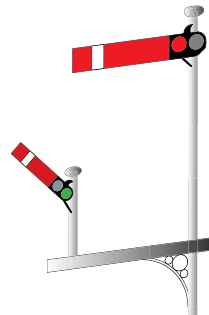
If there is a distant signal on the same post as a stop signal:

- the stop signal is worked by the signal box at that location, and
- the distant signal is normally worked by the signal box ahead.



The stop signal that controls movements into a loop, siding or no-block line may be a miniature semaphore arm.

Meaning when cleared: proceed at caution and be prepared to stop short of any train, vehicle or any obstruction.



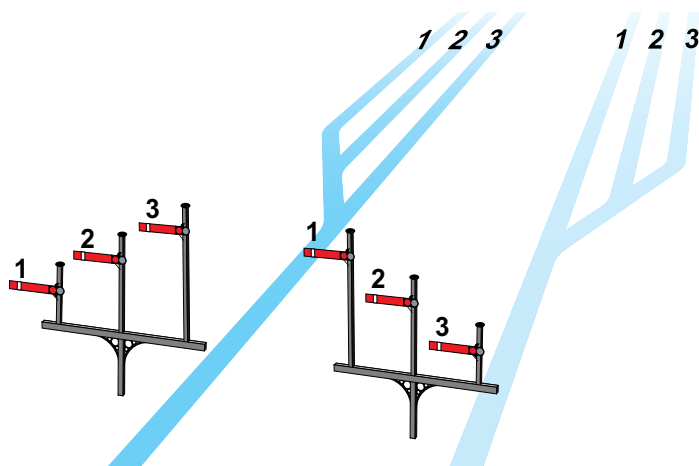
3.3 Route indications

Indications of route within semaphore-signalled areas may be given by one of the following methods.

- 'Stepping'.
- 'Stacking'.
- A route indicator.

The diagram below shows the 'stepping' arrangement of signals. This arrangement is the normal method of route indication on running lines in semaphore areas.

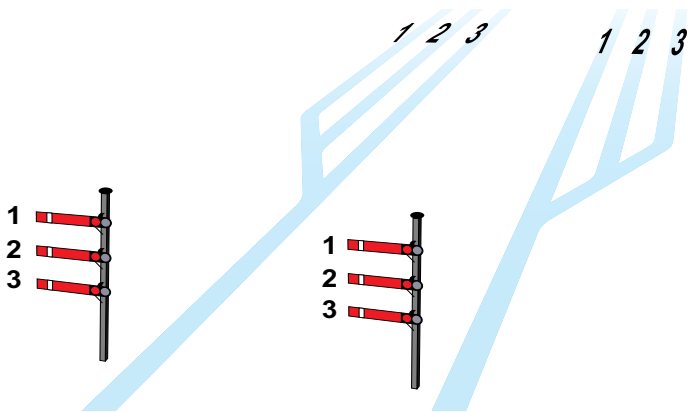
Signal 1 applies to the route on the extreme left. Signals 2 and 3 apply to successive routes to the right.



Stepping

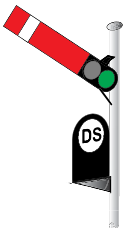
The diagram below shows the 'stacking' arrangement. This arrangement is the normal method of route indication for shunting signals in yards and sidings, and also on running lines where there is little gantry space.

Signal 1 applies to the route on the extreme left. Signals 2 and 3 apply to successive routes to the right.



Stacking

At some locations a route indicator is provided at the signal. The indicator will display a figure or letter to show the route onto which the movement is being signalled.



Route Indicator

3.4 Semaphore subsidiary signals

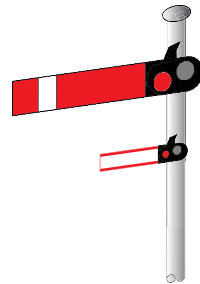
Semaphore subsidiary signals are always associated with the main arm of a semaphore stop signal.

The subsidiary signal will always be positioned below the main semaphore arm with which it is associated, and on the same signal post.

When the subsidiary signal is in the 'normal' position, the driver must obey the main signal.

The 'normal' indication is:

- the arm in the horizontal position
- a red, white or no light displayed.

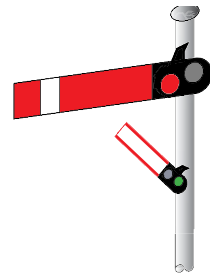


The proceed indication is:

- the arm raised or lowered 45°
- a green light displayed.

When the signal is cleared, it authorises the driver to:

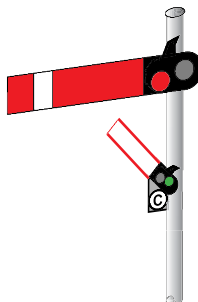
- pass the main aspect at danger
- proceed at caution towards the next train, signal or buffer stop, and be prepared to stop short of any obstruction.



At some locations, clearing the subsidiary signal will also show an indicator displaying either the letter 'C' or 'S'.

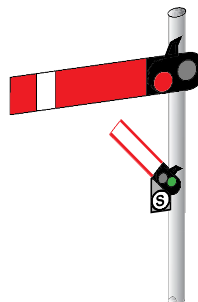
Calling-on

When this signal is cleared with the letter 'C' showing, it authorises the driver to proceed at caution towards the next train, signal or buffer stop, and be prepared to stop short of any obstruction.



Shunt-ahead

When this signal is cleared with the letter 'S' showing, it authorises the driver to proceed for shunting purposes only.



3.5 Semaphore shunting signals that display a red aspect

Semaphore shunting signals that display a red aspect are stop signals.

Shunting signals have a:

- white disc with a red horizontal bar, or
- miniature semaphore arm with a vertical white stripe.

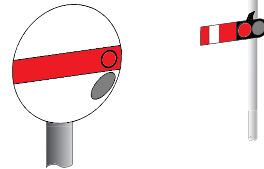
These signals show the following indications.

Danger

Indication by day: arm or bar horizontal.

Indication by night: red light.

Meaning: stop.

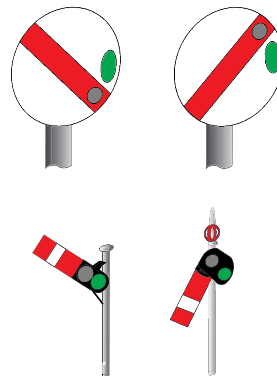


Proceed

Indication by day: disc turned 45° or arm raised or lowered 45°.

Indication by night: green light.

Meaning: proceed at caution as far as the line is clear.



3.6 Semaphore shunting signals that display a yellow aspect

Semaphore shunting signals that display a yellow aspect are stop signals applying only to movements in the direction to which the signal can be cleared. Other movements can pass the signal without it being cleared.

Shunting signals have a:

- white disc with a yellow bar
- black disc with a yellow bar
- miniature semaphore arm with a vertical black stripe.

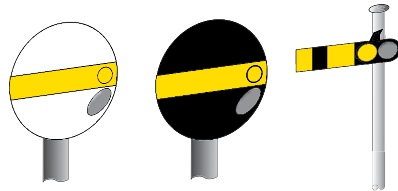
These signals show the following indications.

Stop

Indication by day: bar or arm horizontal.

Indication by night: yellow light.

Meaning: stop. The driver may pass the signal in the 'stop' position when the movement is being made towards the shunt neck or siding and not the running line.

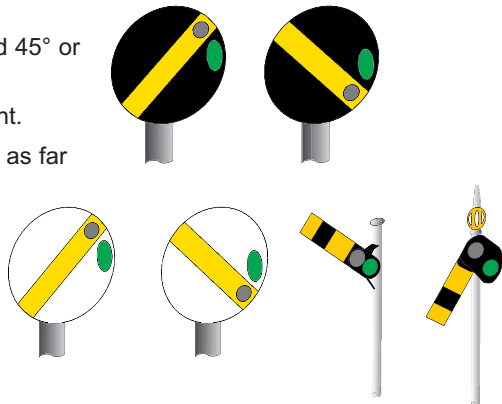


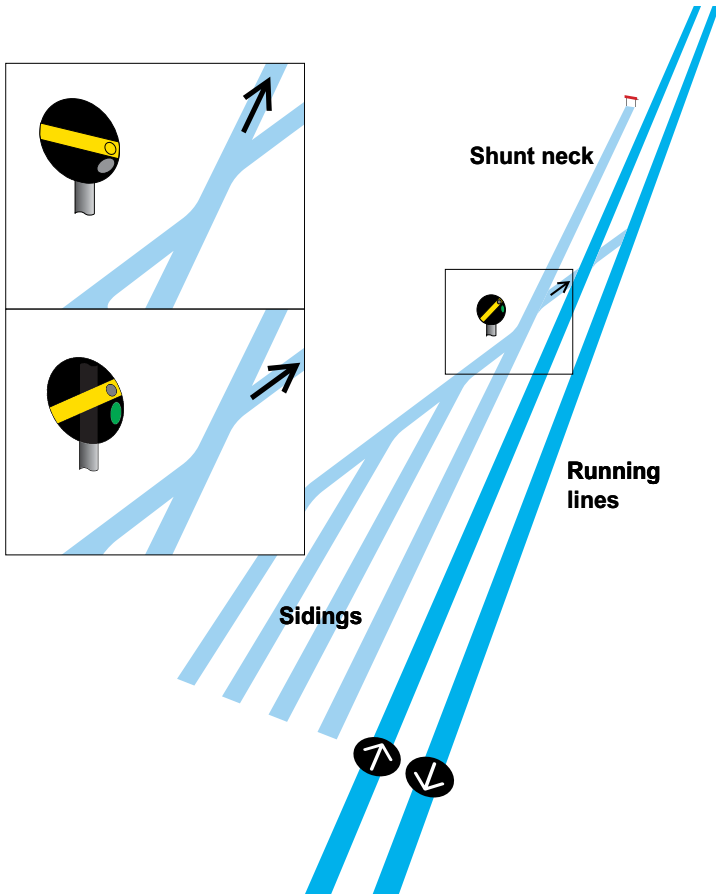
Proceed

Indication by day: disc turned 45° or arm raised or lowered 45°.

Indication by night: green light.

Meaning: proceed at caution as far as the line is clear.



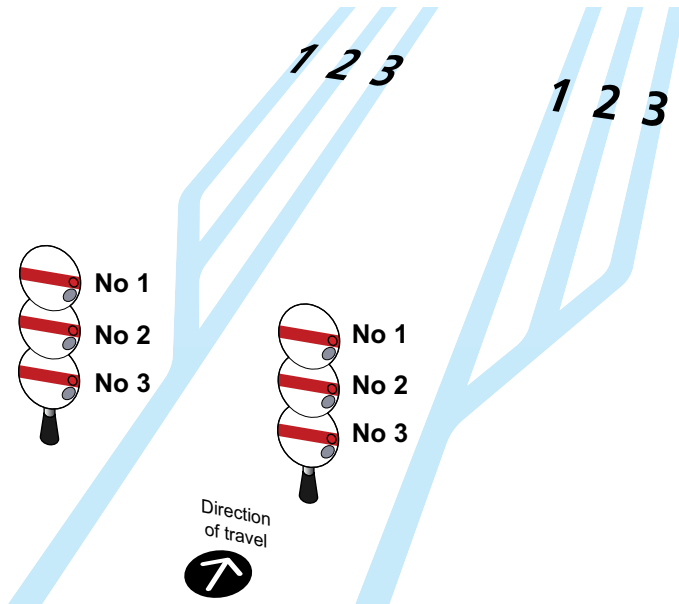


Yellow shunt signal

3.7 Route indications by shunting signals

These signals show the following indications.

Signal 1 applies to the route on the extreme left. Signals 2 and 3 apply to successive routes to the right.



3.8 Semaphore signals not in use

When semaphore signals are not in use, they have:

- a large X fixed on the signal arm, or
- the disc covered over.

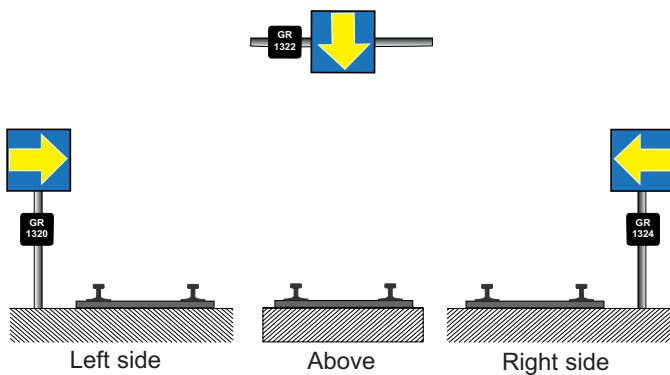


4.1 ERTMS boards

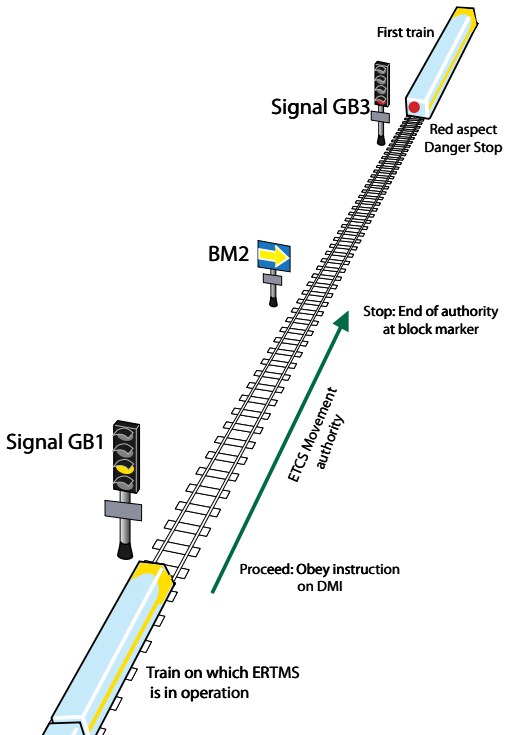
4.1 Block markers

A block marker consists of a reflective square sign showing a yellow arrow on a blue background. The arrow shows which line the marker applies to.

Each block marker is provided with a unique identification plate, of white characters on a black background.



4.2 ERTMS lines where lineside signals are provided



A train on which ERTMS is operating can be issued with a movement authority (MA) to any intermediate block marker. In this case signal GB1 will display a yellow aspect.

If a train is not fitted with ERTMS or a train on which ERTMS is operating in other than full supervision (FS) or on sight (OS), then even if the route is set to block marker BM2 signal GB1 will display a red aspect.

4.3 Cab signalling boards

Warning of start of cab signalling board

This board indicates that ERTMS signalling is about to start.



Start of cab signalling board

This board indicates the start of ERTMS signalling.



End of cab signalling board

This board indicates the end of ERTMS signalling.



4.4 Shunt entry boards

Shunt entry boards consist of a reflective board showing a white chevron on a violet background. The chevron points toward the line to which the shunt entry board applies.

Shunt entry boards mark the entry of a shunt route on ERTMS cab signalled lines where lineside signals are not provided.



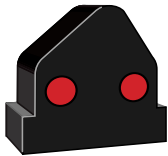
The identity of a shunt entry board is shown on an identification plate in white characters on a black background.

5.1 Limit of shunt signals or indicators

Limit of shunt signals or indicators are either:

- instructions on illuminated signs, or
- two red lights horizontally displayed.

No part of the train may pass a limit of shunt signal or indicator unless authorised by the signaller.



If a limit of shunt signal or indicator is passed without authority, it is a signal passed at danger.

5.2 Stop boards

A stop board shows the word 'Stop' and may also:

- show other instructions
- be illuminated.

The driver or person controlling the movement must stop the train at the stop board and may only proceed:

- when the instructions on the stop board have been carried out, or
- when given permission to do so by the authorised person.



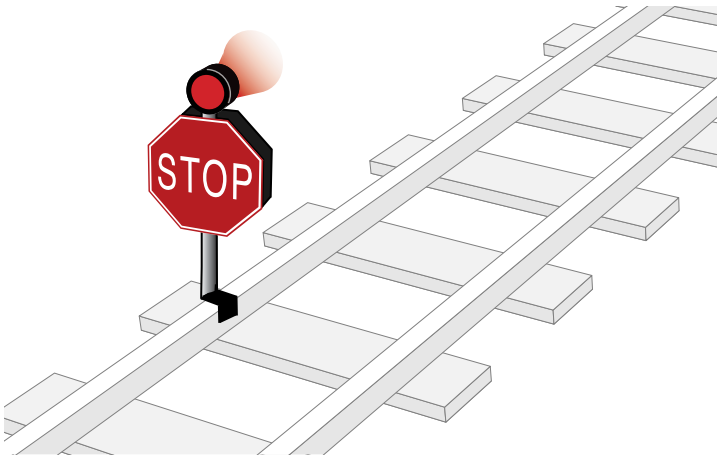
If a stop board is passed without authority, it is a signal passed at danger.

5.3 Possession limit boards (PLB)

A PLB identifies the boundary of a possession. They may also be used as part of the protection for a line blockage.

The board is red, double-sided and is visible along the line in both directions.

It will also have a steady or flashing red light visible along the line in both directions.



If a PLB is passed without authority, it is a signal passed at danger.

5.4 Work-site marker boards

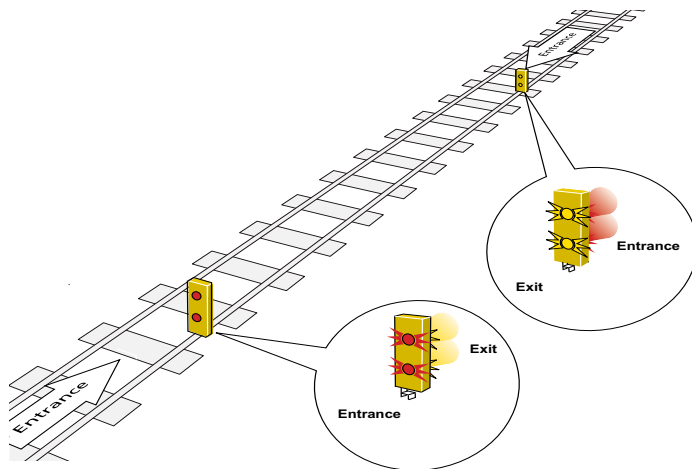
Work-site marker boards may be provided within a possession of a running line.

The board is yellow, double-sided and is visible along the line in both directions.

It has two red flashing lights which indicate an entrance to a work site. The authority of the Engineering Supervisor or Safe Work Leader is needed to pass it.

It has two yellow flashing lights which indicate an exit from a work site. The authority of the PICOP is needed to pass it.

Both indications must be treated as a stop signal.



If a work-site marker board is passed without authority, it is a signal passed at danger.

5.5 Signal passed at danger (SPAD) indicator

Where provided, SPAD indicators are normally positioned about 50 metres (55 yards) beyond certain signals.

The indicator has a three-aspect signal head which is fitted with a blue backplate.

Indications and meanings

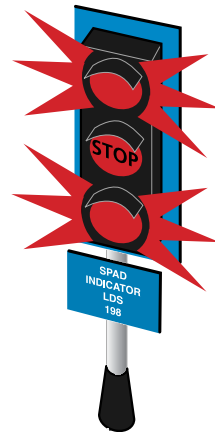
The indicator is not normally lit. If a signal is passed at danger, the indicator will be activated. It will then display:

- a flashing red light in the top and bottom aspect
- a steady red light with the word STOP in the centre aspect.

When the indicator is activated, the driver or person in charge of any movement who sees the indicator must:

- stop the train immediately
- contact the signaller.

This applies to any movement on the line to which the signal applies or any other line.



5.6 Points indicators

A points indicator is associated with hydro-pneumatic and certain other types of points and is identified by a sign showing the words 'Points indicator'.

They display the following indications.

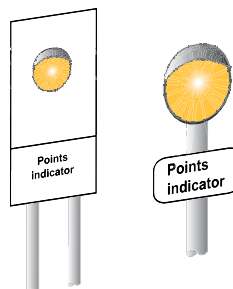
Indication: A red light that may be steady or flashing or no light is showing.

Meaning: Stop at the points indicator and contact the signaller unless otherwise authorised.



Indication: A steady yellow light.

Meaning: The points to which it applies are fitting correctly.



If a points indicator is passed without authority, it is a signal passed at danger.

5.7 Banner repeating and co-acting signals

Banner repeating signals

Banner repeating signals are provided on the approach to certain signals which have restricted sighting (for example because of curvature of the line, buildings or tunnels), to give advance information of the signal aspect.

Position: On

Meaning: distant signal to which it applies is at caution.



Position: Off

Meaning: distant signal to which it applies is showing clear.



Position: On

Meaning: the signal to which it applies is at danger.



Position: Off

Meaning: the signal to which it applies is displaying a proceed aspect.



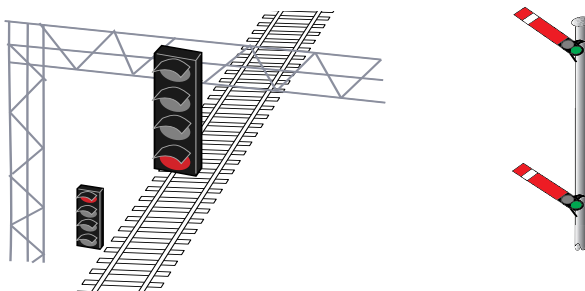
Position: Off

Meaning: the signal to which it applies is displaying a green aspect.



Co-acting signals

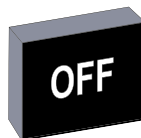
Co-acting signals are provided to give both short and long distance sighting of the signal. A co-acting signal repeats the exact aspect or indication of the main signal. Co-acting signals are always the same type (colour light or semaphore) as the main signal.



5.8 'Off' indicators

If an 'OFF' indicator is provided at a platform, it will:

- show the word 'OFF' when the signal to which it applies shows a proceed aspect
- allow a guard or platform staff to check the signal is clear before commencing the train despatch procedure
- show no indication when the signal to which it applies is at danger.



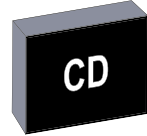
On a bi-directional platform line, the 'OFF' indication may be accompanied by an 'UP' or 'DN' or other indication to show which route has been set.

An 'OFF' indication does not always mean the line ahead is clear as the signal to which it applies may have been cleared for another train standing ahead in the same platform.

'OFF' indicators may be provided at locations other than platforms to show the driver that the signal to which they apply is displaying a proceed aspect.

5.9 'Close-doors' indicator

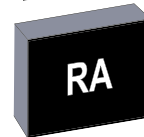
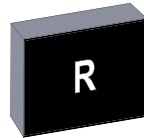
Close-doors indicators display the letters 'CD' when illuminated, and let the driver know that it is safe to close the power-operated doors on the train.



5.10 'Right-away' indicators

Right-away indicators display the letters 'R' or 'RA'.

If this indicator is illuminated, it tells the driver that station duties are complete, the train is secure and that it is safe to proceed.



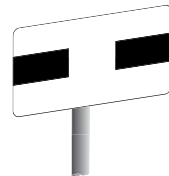
5.11 Rear clear marker

This sign informs the driver that the train has cleared a defined location to the rear.



5.12 Mid-platform train berth marker

This sign informs the driver of the sub-divisions along a station platform to permit its use by more than one train.



5.13 Whistle boards

A whistle board may be provided on the approach to some level crossings.

The whistle board can be a retro-reflective round sign or a cut out.











5.14 Preliminary route indicators

A preliminary route indicator is provided where it is necessary for a driver to receive advance information about the route that has been set beyond a junction signal ahead of the train.

A preliminary route indicator displays an arrow pointing in the same direction as any junction indicator displayed at the junction signal that the preliminary route indicator applies to. If the junction signal is displaying a proceed aspect without a junction indicator, the associated preliminary route indicator will display an arrow pointing straight up.

If the junction signal is at danger, the preliminary route indicator is not illuminated.

The table below gives examples of the preliminary route indicator display which depends on what is displayed on the junction signal concerned.

Junction signal ahead showing:	Preliminary route indicator	Junction signal ahead showing:	Preliminary route indicator
Proceed with position 1 JI		Proceed with position 4 JI	
Proceed with position 2 JI		Proceed with position 5 JI	
Proceed with position 3 JI		Proceed with position 6 JI	
Proceed with no JI		Stop aspect	

5.15 Automatic warning system (AWS) cancelling indicators

On single and bi-directional lines, the AWS magnet will normally be suppressed for movements for which it does not apply, this means the AWS will not operate.

However, there are some locations where the AWS magnet is not suppressed.

In these cases a cancelling indicator is provided to tell the driver that the AWS warning indication does not apply to trains travelling in that direction.

Where the AWS magnet is permanently installed. The indicators look like this.



Where the AWS magnet is provided in connection with a temporary or emergency speed restriction on a single or bi-directional line. The indicators look like this.



The cancelling indicator is normally positioned 180 metres (approximately 200 yards) after passing over the AWS magnet.

5.16 AWS gap indicators

In some AWS fitted areas AWS equipment is not provided throughout. These areas are identified with the following signs.

Where AWS is not provided at a station on a line equipped with AWS.



Start of AWS gap



End of AWS gap

Where AWS is not provided in the opposite direction on a bi-directional line.



Start of the relevant
section of line
concerned



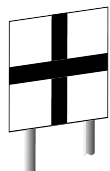
End of the section normal
arrangements resume

For a temporary or emergency speed restriction, AWS will be provided in both directions.

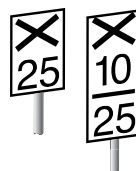
6.1 Level crossing signs

Automatic barrier crossing locally monitored and automatic open crossing locally monitored crossings

On passing the warning board, the train must be controlled so that the speed shown on the speed restriction board is complied with between the board and the crossing.



Warning board

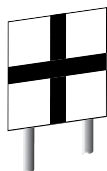


Speed restriction board

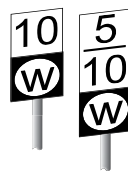
If differential speeds are shown on the speed restriction board, they have the meanings shown in section 7.4.

On ERTMS lines, on passing the warning board, the train must be controlled so that the speed on the driver machine interface (DMI) is complied with.

Open crossings



Warning board



Combined speed and whistle board

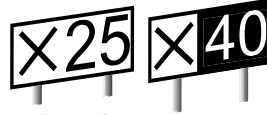
On passing the warning board, the train must be controlled to comply with stop board or the combined speed and whistle board.

If differential speeds are shown on the combined speed and whistle board, they have the meanings shown in section 7.4.

On ERTMS lines, on passing the warning board, the train must be controlled so that the speed on the DMI is complied with.

Wrong-direction boards

Wrong-direction speed restriction boards are positioned on the approach to level crossings that have wrong-direction controls.



The speed of the train must be controlled so that the train complies with the speed shown, between the board and the crossing. Black numerals on a white background denote mph and white numerals on a black background denote km/h.

Sighting board on ERTMS lines

This sign indicates the point at which the driver is required to ensure that the level crossing is clear and to observe the driver's level crossing indicator.



6.2 Level crossing indicators

A level crossing indicator is associated with locally monitored level crossings.

They display the following indications.

Indication: A red light that may be steady or flashing or no light is showing.



Meaning: Stop before reaching the level crossing and ensure it is safe before passing over it.

Indication: A flashing white light.

Meaning: The level crossing is working correctly, and providing the crossing is clear, it is safe to proceed over it.



7 Speed indicators

7.1 Permissible speed indicators

Permissible speed indicators show the start of the permissible speed.

Black text on a white background and cut-out signs show the speed in mph. White text on black background shows the speed in km/h.

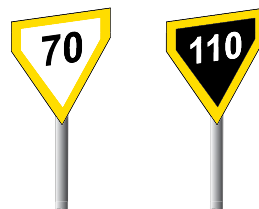


In limited clearance areas the indicators are sometimes oval-shaped.



7.2 Warning indicators

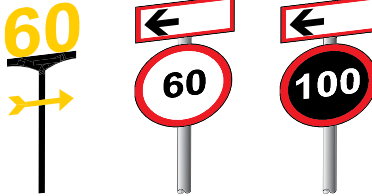
Warning indicators are provided on the approach to certain speed indicators and give a warning of a reduction in permissible speed ahead. Black text on a white background shows the speed in mph. White text on black background shows the speed in km/h.



There may also be a fixed AWS magnet on the approach to the indicator.

7.3 Permissible speed indicators at diverging junctions

These show the speed to the left or right of the straight route at a diverging junction.



If there are diverging junctions to both the left and right and the permissible speed is the same, there is only one indicator.

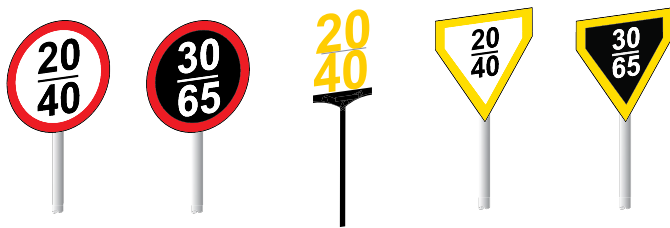


7.4 Differential permissible speed indicators

The bottom figure always shows the higher speed. It applies to:

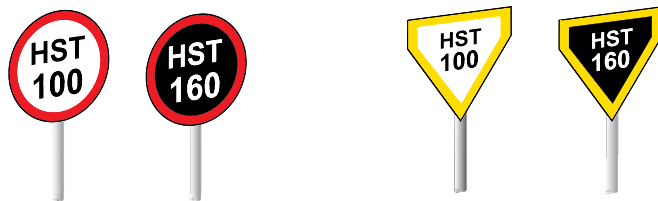
- passenger trains (loaded or empty)
- parcels and postal trains (loaded or empty)
- light locomotives.

The top figure applies to all other trains.



7.5 Permissible speed indicators with letters

These show the permissible speed and apply only to the trains shown by the letters.



This is what the letters mean.

- HST** High speed trains.
- MU** Multiple-unit trains.
- DMU** Diesel multiple-unit trains.
- EMU** Electric multiple-unit trains.
- SP** Sprinter multiple-unit trains.
- CS** Class 67 locomotives.

The classes of train that can travel at these speeds are shown in the *Sectional Appendix*.

7.6 Enhanced permissible speed (EPS) indicators

These show the enhanced permissible speed in mph and apply to tilting trains in tilting mode.



Where differential signs are provided, the bottom figure always shows the higher speed and applies to class 390 trains in tilting mode. The top figure applies to class 221 trains in tilting mode.



Warning indicators are provided on the approach to certain EPS speed indicators and give a warning of a reduction in the enhanced permissible speed ahead.



8 Speed restriction signs

8.1 Temporary speed restriction signs

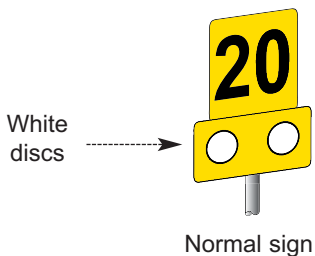
Warning boards

A warning board is placed on the approach to a temporary speed restriction ahead.

An AWS magnet is provided on the approach to a warning board.



There will be no AWS in AWS gap areas.



Speed indicator

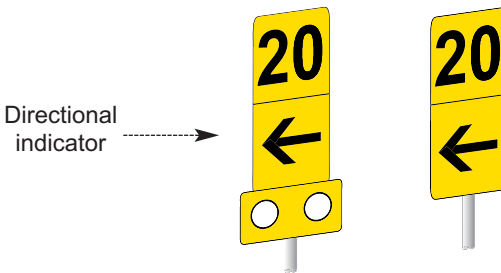
A speed indicator shows the start of the speed restriction and the permitted speed over the restriction.



On ERTMS lines where lineside signals are provided, if the speed restriction starts within an ERTMS area but ends outside the ERTMS area, an additional speed indicator will be placed at the end of cab signalling board.

Directional indicators

A directional indicator on a warning board or speed indicator shows that there is a speed restriction ahead on a portion of line that goes off to the left or right of the straight route at a diverging junction.



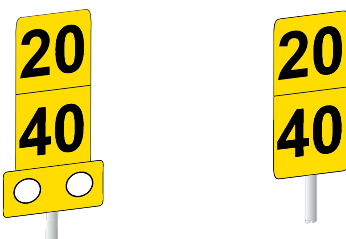
Differential temporary speed restrictions

A temporary speed restriction can show different speeds which apply to different types of trains.

The bottom figure always indicates the higher speed. It applies to:

- passenger trains (loaded or empty)
- parcels or postal trains (loaded or empty)
- light locomotives.

The top figure applies to all other trains.



Termination indicator

The termination indicator shows the end of the speed restriction.



SPATE indicator

The SPATE indicator shows the speed restriction has been withdrawn or will not be imposed.

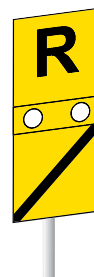
SPATE is an abbreviation of 'Speed Previously Advised Terminated Early'.



Repeating warning board

A repeating warning board is placed on the end of a platform or a connection from a siding or dead-end platform line to remind the driver there is a temporary speed restriction ahead.

The board will also have the associated speed indicator or a spate indicator below the board.



8.2 Emergency indicator

When an emergency speed restriction is to be imposed an emergency indicator will also be used.

The indicator has flashing white lights that must be working at all times.

An AWS magnet is provided on the approach to an emergency indicator for an emergency speed restriction ahead.



There will be no AWS in AWS gap areas.

9 AC electrified line signs

9.1 Neutral section signs

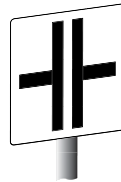
Neutral section warning board

This sign provides advance warning of a neutral section.



Neutral section indication board

This sign identifies the commencement of a neutral section.



9.2 Coasting signs

This 'advance lower pantograph' sign provides warning of a lower pantograph sign ahead.

The sign also has flashing white lights.



This sign means 'lower pantograph'.



This sign means 'raise pantograph'.



This sign means 'do not raise pantograph'.



GSM-R radio area

This sign indicates the start of a GSM-R radio section.



Areas where GSM-R radio is not provided

This sign indicates the end of a GSM-R radio section.



GSM-R alias plate

In places where there is no signal or where there may be confusion over the number to enter when registering the cab radio, an alias plate may be provided.



GSM-R signalbox phone number plate

At certain signals the GSM-R network may not be able to automatically route calls from the driver to the signaller who controls the area. This sign is a reminder to drivers of the signaller's GSM-R phone number.



GSM-R signalbox short code plate

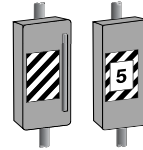
An alternative method has been developed to avoid a driver having to dial the long 8-digit number. This is achieved by dialling a short code number. This sign displays the correct signaller's GSM-R short code number.



11.1 Telephones

Signal post telephones

Telephones associated with a signal are similar to these. If the telephone has a number on the cabinet the number states the maximum amount of minutes that can elapse before the signaller is contacted by the driver.



Lineside telephones

These telephones are provided to contact the signaller.

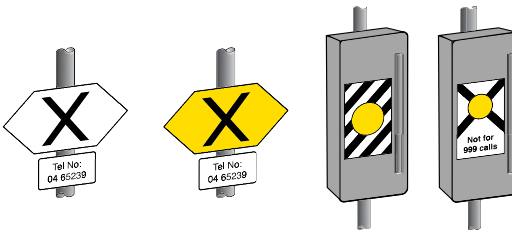


11.2 Limited clearance telephones

Telephones with yellow or white diamonds with the letter X or a yellow roundel.

If any of these signs are displayed it means that the signal post telephone is not in a position of safety. It may only be used to contact the signaller:

- in an emergency
- if told that the adjacent line has been blocked.



Telephone with limited clearance warning signs

These signs mean that a train driver may use the signal post telephone because it is in a position of safety in relation to the adjacent line and protection is provided by the presence of the train.



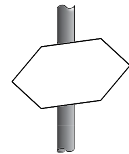
The telephone may only be used by other staff to contact the signaller:

- in an emergency
- if told that the line to which it applies has been blocked.

11.3 Signals without telephones

White diamond sign

This sign means that a telephone is not provided but the presence of the train or shunting movement is indicated to the signaller.



White diamond sign with a telephone number displayed

This sign means that a telephone is not provided but the presence of the train or shunting movement is indicated to the signaller. If GSM-R or CSR is not available the signaller may be contacted using the telephone number on the plate.



A driver may only leave the cab in order to use a lineside telephone to contact the signaller:

- in an emergency
- if told that the adjacent line(s) has been blocked.

12.1 Low adhesion hazard signs

Entrance to a low adhesion area

This sign informs the driver of the entrance to a low adhesion area.



Exit from a low adhesion area

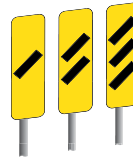
This sign informs the driver of the exit from a low adhesion area.



12.2 Sandite markers

These signs inform the driver of sites where Sandite should be applied. There are three signs.

- Three marks - advance warning of Sandite application site.
- Two marks - start applying Sandite.
- One mark - stop applying Sandite.



12.3 Signal reminder signs

This sign informs the driver of a particular signal ahead.

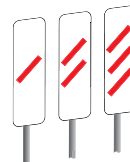


12.4 Countdown markers

These signs inform the driver of the distance between the sign and the signal concerned.

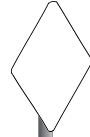
There are three signs.

- Three marks - distance to signal normally 300m.
- Two marks - distance to signal normally 200m.
- One mark - distance to signal normally 100m.



12.5 Coasting boards

This board advises that the driver may coast to a stopping point or significant speed reduction beyond the board.



12.6 Car stop markers

These signs inform the driver of the correct stopping point for the train.



12.7 Mile posts

These signs are situated on the lineside and used to identify locations. The number denotes the mileage and each mark under the number denotes quarter of a mile.



12.8 Gradient signs

These signs are situated on the lineside and used to identify the change in gradient at that particular location. Gradients are expressed as a ratio. e.g '1 in 460' means the track rises (or falls) one unit in every 460 units. The angles of the gradient signs indicate the direction of the slope.



12.9 Spring catch points sign

These signs are placed on the approach to spring catch points.



12.10 Bridge identity plates

These signs identify the location of bridge structures.



12.11 Safety signs

Limited clearance sign

This sign means there is no position of safety on this side of the railway for the length of the structure. No-one must enter or stand at that location when a train is approaching.



No refuges warning sign

This sign means there is no position of safety on this side of the railway for the length of the structure. However, there are positions of safety, or refuges, on the opposite side of the railway line.



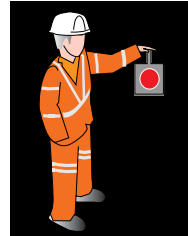
Prohibition sign

This sign means you must not pass beyond this sign while trains are running unless you are carrying out emergency protection. This is because you would not be able to reach a position of safety or refuge safely. If you are carrying out emergency protection, you must take extreme care.



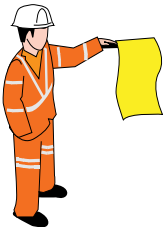
Red handsignal

A red flag during daylight or a red light during darkness or poor visibility means 'STOP'.



Yellow handsignal

A yellow flag during daylight or a yellow light during darkness or poor visibility is used when giving authority to pass a signal at danger.



Green handsignal

A green flag during daylight or a green light during darkness or poor visibility is used to give authority to pass over a level crossing.



Lookout handsignal

A blue and white chequered flag is used between lookouts to inform of an approaching train. Drivers can ignore this handsignal.



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AWS and TPWS Handbook

RS/522 Issue 3 December 2015



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AWS and TPWS Handbook

RS/522 Issue 3 (December 2015)



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You will need this AWS and TPWS
handbook if you carry out the duties
of a:

- driver
- signaller.



This symbol indicates extra information
or guidance regarding the instructions.

Contents

1

Automatic warning system

- 1.1** General information
- 1.2** Track equipment
- 1.3** Train equipment
- 1.4** AWS indications and their meanings
- 1.5** Areas where AWS is not provided
- 1.6** AWS suppression and AWS cancelling indicators

2

Train protection and warning system

- 2.1** General information
- 2.2** Track equipment
- 2.3** Train equipment
- 2.4** Signalbox equipment

3

Failures and irregularities

1.1 General information

1.1.1 Background

The Automatic Warning System (AWS) has been implemented as the national warning system on the UK main line passenger railway network since the 1950s.

1.1.2 The purpose of AWS

The original concept of AWS was to provide the driver with an audible and visual indication of whether the distant signal was clear or at caution.

Should the driver fail to respond to a warning indication, an emergency brake application will be initiated.

Since the introduction of multi-aspect signalling, the majority of signals are fitted with AWS.

It should be noted that AWS does not relieve the driver of the responsibility of observing and obeying lineside signals and indicators.

1.1.3 Provision of AWS

AWS consists of track and train equipment. The track equipment consists of an AWS magnet that is normally provided 180 metres (approximately 200 yards) on the approach to a signal. The AWS magnet may be positioned at a greater distance from the signal on high-speed lines or at a lesser distance from the signal on lower speed and platform lines.

This system works by the train detecting sequences and polarities of magnetic fields passing between the track equipment and the train equipment via a receiver under the train.

At through stations where the permitted speed is 30 mph or less and the layout is complex, AWS track equipment need not be provided. Where this occurs, these are called AWS gap areas.

AWS magnets are not provided at semaphore stop signals. Where a distant signal is mounted on the same post as a semaphore stop signal then AWS is provided for the distant signal.

Where a line is not fitted with AWS, this is shown in the *Sectional Appendix*.

Where a reduction in permissible speed is provided with a warning indicator (i.e. the permissible speed on the approach is 60 mph or more and the reduction in the permissible speed is at least one third) an AWS permanent magnet is provided 180 metres (approximately 200 yards) on the approach to the warning indicator. These are sometimes referred to as 'Morpeth magnets'.

AWS magnets are also used to alert the driver to the following.

- Level crossing warning boards or indicators.
- Temporary speed restriction warning boards.
- Emergency speed restriction warning boards and emergency indicators.

1.2 Track equipment

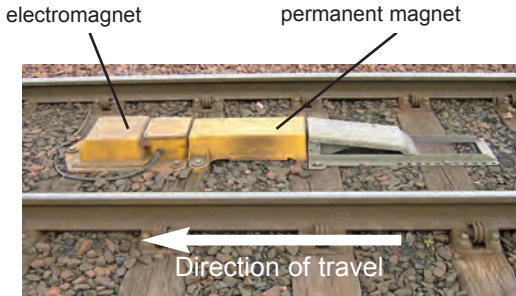
The AWS track equipment comprises various components mounted in the centre of the four-foot.

Permanent magnet

The train will first encounter a permanent magnet. Following the train passing over a permanent magnet where an electromagnet is either not provided or not energised, the AWS gives a warning indication to the driver.

Electromagnet

An energised electromagnet, when presented after the permanent magnet, gives the driver a 'clear' indication when approaching a green signal or a semaphore distant signal showing 'clear'.



An example of AWS track equipment

Suppressor magnet

Suppressor magnets are used to suppress permanent magnets when they are not required to apply to a train movement (for example, magnets applicable to the opposite direction on a single or bi-directional line).

Depot test magnet

A permanent magnet, used to test the operation of a train's AWS equipment, may be provided at the exit of certain maintenance depots.

Portable magnet

Portable AWS magnets are provided to give a warning to the driver, on the approach to temporary and emergency speed restrictions.



An example of a portable magnet

1.3 Train equipment

The following equipment is provided on each fitted traction unit.

AWS receiver

The AWS receiver is located under a traction unit and detects the sequences and polarities of magnetic fields from the AWS track magnets.

AWS audible indicator

The audible indicator gives a **warning** or a **clear** indication that is distinguishable from all other audible cab indications. The audible indication is either:

- a **clear** indication (bell or electronic equivalent), or
- a **warning** indication (horn or electronic equivalent).

AWS visual indicators

The visual indications are as follows.



The black indication advises the driver that the associated signal is showing a green aspect or 'all clear'. It also advises the driver that the audible warning has not been acknowledged and, if not acknowledged, the brakes will be applied.



The yellow and black indication advises the driver that a warning indication has been acknowledged.

AWS/TPWS acknowledgement button

The AWS/TPWS acknowledgement button is used to acknowledge an AWS audible warning. If an AWS audible warning is not acknowledged within two to three seconds an emergency brake application will occur.

AWS isolation/fault indicator

Some traction units are fitted with a visual indicator to advise the driver of a fault with the AWS, and when the AWS has been isolated. The yellow isolation/fault indicator gives three indications.

- Off AWS state is normal.
- Flashing A fault has been detected in the train AWS equipment.
- On (steady) The train AWS equipment has been isolated.

1.4 AWS indications and their meanings

1.4.1 Warning indication

The driver will receive a **warning** indication in the driving cab on the approach to a:

- colour light signal displaying a single or double yellow (steady or flashing) or a red aspect
- semaphore distant signal displaying a caution indication
- warning indicator provided for some permissible speed reductions
- warning board provided for an automatic barrier crossing locally monitored (ABCL), an automatic open crossing locally monitored (AOCL) or an open crossing (OC)
- warning board or emergency indicator for a temporary or emergency speed restriction
- cancelling indicator for an AWS warning which does not apply to the train.

The driver will also receive a warning indication when passing over an AWS depot test magnet.

AWS is not capable of distinguishing between a red, double yellow or single yellow aspect.

1.4.2 Clear indication

The driver will receive a **clear** indication in the driving cab when approaching:

- a colour light signal showing a green aspect, or
- a semaphore distant signal displaying a clear indication.

The driver does not have to acknowledge a clear indication.

1.5 Areas where AWS is not provided

In some AWS fitted areas AWS equipment is not provided throughout. These areas are identified with the following signs.

Where AWS is not provided at a station on a line equipped with AWS.

Start of AWS gap



End of AWS gap



Where AWS is not provided in the wrong direction on a bi-directional line (if a wrong-direction movement approaches a temporary or emergency speed restriction, AWS will be provided).

Start of relevant section of line concerned



End of the section normal arrangements resume



1.6 AWS suppression and AWS cancelling indicators

On single and bi-directional lines, the AWS magnet is normally suppressed for movements for which it does not apply and the AWS will not operate.

However, where the AWS magnet is not suppressed, a cancelling indicator is provided to advise the driver that the AWS warning indication does not apply to trains travelling in that direction.

The following signs are used:

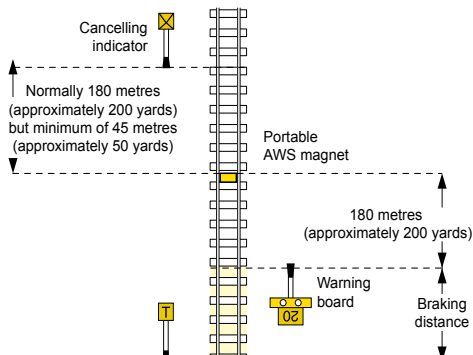
Where the AWS magnet is permanently installed.



Where the AWS magnet is provided in connection with a temporary or emergency speed restriction.



The cancelling indicator is normally positioned 180 metres (approx. 200 yards) after passing over the AWS magnet.



Single and bi-directional lines

2.1 General information

2.1.1 Background

Widespread fitment of the Train Protection and Warning System (TPWS) began in early 2000, in order to meet the requirements of the Railway Safety Regulations 1999.

2.1.2 The purpose of TPWS

The purpose of TPWS is to stop the train by automatically initiating a brake demand, where TPWS track equipment is fitted, if the train has:

- passed a signal at danger without authority
- approached a signal at danger too fast
- approached a reduction in permissible speed too fast
- approached buffer stops too fast.

TPWS is not designed to prevent SPADs but to mitigate against the consequences of a SPAD, by preventing a train that has had a SPAD from reaching a conflict point ahead of the signal.

TPWS does not relieve the driver of responsibility for observing signals and speed restrictions.

2.1.3 Provision of TPWS

TPWS is provided at certain signals, approaching some speed restrictions and all buffer stops on platform lines. Not all signals are provided with TPWS equipment as fitment is dependent on the risk involved.

The TPWS system consists of track and train equipment. The track equipment creates an electro-magnetic field which an aerial under the train detects.

TPWS is provided:

- on passenger lines, at all main running signals capable of showing a stop aspect (including some stop boards) which protect crossing or converging movements
- at any signal capable of showing a stop aspect on a non-passenger line, where that signal that protects a crossing of, or convergence with, a passenger line
- at stop signals where conflicting movements could take place in the overlap of the next stop signal ahead
- on the approach to the buffer stops at the end of passenger platforms. These are fitted approximately 65 metres (70 yards) from the buffer stops, and will trigger a brake application at speeds greater than 10 mph
- on the approach to permissible speed reductions, where the permissible speed on the approach is 60 mph or more and the reduction in the permissible speed is at least one third.

2.2 Track equipment

2.2.1 Components and positioning

TPWS track equipment consists of a train stop system (TSS) and overspeed sensor system (OSS).

The provision and positioning of TPWS track equipment takes into account the:

- braking performance of trains
- attainable speed of trains on the approach to the signal or other location
- distance from the stop signal to the point of conflict at the crossing or convergence ahead
- gradient of the line on the approach to the signal or other location.

2.2.2 Train Stop System (TSS)

The TSS is mounted in the four-foot at the associated signal. It is energised when the signal is at danger. It is de-energised when the signal is showing a proceed aspect or indication.



Typical TSS loops

2.2.3 Overspeed Sensor System (OSS)

An OSS comprises two transmitters: an arming loop and a trigger loop. When a train passes over an arming loop, the on-train equipment detects it and starts an internal timer. If the train passes over a trigger loop within a designated time period, indicating that the train is exceeding the 'set speed', then the on-train TPWS equipment will initiate a brake demand.

The timer on a freight locomotive is calibrated so that the speed at which a brake demand is initiated at an OSS is 20% lower than that for a passenger train. This is to take into account the different braking characteristics of passenger and freight trains.

The 'set speed', over which a brake demand will be initiated, is determined by the distance between the arming loop and the trigger loop. The 'set speed' is based on factors such as permissible speed, gradient, distance to conflict point and braking characteristics.

Where OSS loops are provided on the approach to stop signals, they are only energised when the signal is at danger, whereas those on the approach to reductions in permissible speed and buffer stops are always energised.

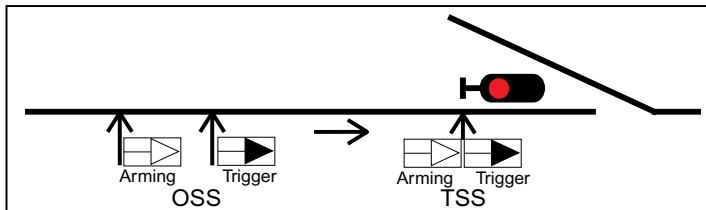
OSS loops may also be provided for some temporary speed restrictions.



Typical OSS loops

2.2.4 TPWS fitment

Signals fitted with TPWS have a TSS and may also have an OSS. Some signals have more than one OSS.



TPWS fitment

2.3 Train equipment

2.3.1 On-train TPWS equipment

The following equipment is provided on each fitted traction unit.

- TPWS receiver.
- TPWS control panel (standard or enhanced version).
- AWS/TPWS acknowledgement button.
- TPWS temporary isolation switch.
- AWS/TPWS full isolation switch.

2.3.2 TPWS receiver

The TPWS receiver is located at the front of a train. It senses the train's passage over TPWS loops and sends this information to the control unit.

2.3.3 TPWS control panel (standard version)



Examples of standard TPWS control panels

The TPWS control panel is found in the driving cab and has two indicators and one illuminated button as follows:

Brake demand indicator

The red brake demand indicator gives three indications.

- Off No brake demand has been initiated.
- Flashing TPWS or AWS has initiated a brake demand that has yet to be acknowledged by the driver.
- On (steady) The brake demand has been acknowledged by the driver.

Temporary isolation/fault indicator

The yellow temporary isolation/fault indicator gives three indications.

- Off TPWS state is normal.
- Flashing A fault has been detected in the train TPWS equipment, or the start-up test has not been completed successfully.
- On (steady) The train TPWS equipment has been temporarily isolated.

The on-train TPWS carries out a self-test whenever the driving cab is opened, to check that the equipment is functioning correctly. When this test starts, all three indicators illuminate.

If the test is completed successfully, then the indicators extinguish.

If a fault is detected during the power-up test, or the test is not successful, then the 'Temporary Isolation/Fault' light flashes. This might happen if the TPWS receiver is over an active loop, in which case the test cannot be completed while the train remains over the loop.

The driver's instructions in respect of defective TPWS can be found in Rule Book module TW5.

Train stop override button

Where authority has been given in accordance with the rules to pass a signal at danger, the yellow button is used to override the brake demand from the TSS loop for approximately 20 seconds (generally for passenger trains) or 60 seconds (generally for slower accelerating freight trains).

Once pressed the Train Stop Override button will illuminate. It will extinguish when the train passes over the TSS.

AWS/TPWS acknowledgement button

In driving cabs fitted with the standard TPWS control panel, the AWS/TPWS acknowledgement button is used to acknowledge TPWS brake demands.

If the TPWS system initiates a brake demand, the TPWS brake demand indicator will flash and the brakes will apply. Note that there will be no audible warning.

Once the AWS/TPWS acknowledgement button is pressed and released, the TPWS brake demand indicator will go on (steady). The brakes will release and the indicator will clear, 60 seconds after the brake demand was initiated.

It is important to note that there is a potential for confusion over the cause of the emergency brake demand if the AWS/TPWS acknowledgement button is pressed 60 seconds or more after the initial brake demand. In these circumstances the brake demand indicator will immediately be extinguished.

2.3.4 TPWS control panel (enhanced version)



Example of enhanced TPWS control panel

Some driving cabs are fitted with an enhanced version of the TPWS control panel. This comprises the following indicators/buttons.

Brake demand indicators

Enhanced versions of the TPWS control panel are fitted with three illuminated brake demand indicator buttons, labelled as follows.

- SPAD (red).
- OVERSPEED (yellow).
- AWS (yellow).

Each of these indicator buttons has three states:

- Off No brake demand has been initiated.
- Flashing A brake demand has been initiated and is awaiting driver's acknowledgement. When the button is pressed and released, the indicator will go on (steady).
- On (steady) The brake demand has been acknowledged by the driver.

Whenever a brake demand is initiated because of a SPAD or an overspeed, the flashing indicator is accompanied by a spoken message, preceded by an 'alert' tone. This states 'SPAD alert, contact signaller' or 'Overspeed, contact signaller' as appropriate. The message is repeated until the brake application has been acknowledged.

Temporary isolation/fault indicator

The yellow temporary isolation/fault indicator gives three indications.

- Off TPWS state is normal.
- Flashing A fault has been detected in the train TPWS equipment, or the start-up test has not been completed successfully.
- On (steady) The train TPWS equipment has been temporarily isolated.

The on-train TPWS carries out a self-test whenever the driving cab is opened, to check that the equipment is functioning correctly. When this test starts, all three indicators illuminate and TPWS applies the brakes. If the test is completed successfully, then the indicators extinguish and TPWS no longer applies the brakes.

If a fault is detected during the power-up test, or the test is not successful, then the 'Temporary Isolation/Fault' light flashes and the TPWS keeps the brakes applied. This might happen if the TPWS receiver is over an active loop, in which case the test cannot be completed while the train remains over the loop.

The on-train TPWS also carries out a self-test periodically when in service. If a fault is detected during this test, then the 'Temporary Isolation/Fault' light flashes, but the brakes are not applied automatically.

The driver's instructions in respect of defective TPWS can be found in Rule Book module TW5.

Train stop override button

Where authority has been given in accordance with the rules to pass a signal at danger, the yellow button is used to override the brake demand from the TSS loop.

This is effective for approximately 20 seconds (generally for passenger trains) or approximately 60 seconds (generally for slower accelerating freight trains). Once pressed the Train Stop Override button will illuminate. It will extinguish when the train passes over the TSS.

Brake release button

The brake release button is used in conjunction with the brake demand indicator/button to release the brakes after acknowledging the brake demand. The brakes are released by pressing the brake release button at the same time as pressing the appropriate brake demand indicator/button.

If the brake demand was initiated by both an overspeed and by AWS, then pressing the overspeed brake demand indicator/button with the brake release button also releases the AWS-initiated brake demand.

AWS/TPWS acknowledgement button

In driving cabs fitted with the enhanced TPWS control panel, the AWS/TPWS acknowledgement button is used solely to acknowledge AWS warnings, and has no involvement with TPWS.

2.3.5 TPWS temporary isolation switch

The TPWS temporary isolation switch is generally mounted in the driver's cab but out of reach of the normal driving position.



TPWS temporary isolation switch

TPWS protection and warning system

The operation of the TPWS temporary isolation switch allows the driver to perform certain operational movements, which would otherwise cause an unintentional brake demand, such as movements during temporary block working, propelling or within T3 possessions.

The rules and regulations detail when the TPWS temporary isolation switch may be operated.

If the TPWS is temporarily isolated, this will not affect the AWS.

2.3.6 AWS/TPWS full isolation switch

Traction units are fitted with AWS and TPWS full isolation switches. These may be separate, or combined, switches. They cannot be reached from the driving position. Some traction units are fitted with a visual indicator to advise the driver that the on-board AWS equipment is isolated.



Examples of AWS/TPWS full isolation switches

It may be necessary to operate the AWS/TPWS full isolation switch when there is a fault with the AWS system.

If a train stops directly over an AWS magnet, then the driver will not be able to cancel the AWS. If no other option is available (for example, changing ends), it may be necessary for the driver to operate the AWS/TPWS full isolation switch.

In cabs fitted with the standard TPWS control panel, if the driver isolates the AWS, the TPWS will be isolated automatically.

2.4 Signal box equipment

2.4.1 Power signal boxes

In recent signalling installations, TPWS track equipment faults are indicated by a blue 'fault' indication on the signalling panel or VDU workstation. On other signalling panels, a TPWS track equipment fault at a signal is indicated via a simulated 'lamp out' fault in the signal lamp indication repeater circuit.

During a failure of the TPWS track equipment, the signal indication on the panel will appear blank, whilst the signal is displaying a red aspect.

Initially the signaller will not know whether the TPWS track equipment or the signal lamp has failed. It may be necessary to ask the driver to confirm if the signal is lit or not.

In colour light areas, if there is a TPWS fault at a signal, the signal in rear will usually be held at danger until the affected signal displays a proceed aspect and its TPWS is no longer required to be energised.

2.4.2 Mechanical signal boxes

In mechanical signal boxes, the position of the lever in the frame determines the operational condition of the TPWS at that signal. If the lever is in the normal position, then the signal will be at danger and therefore the TPWS equipment for that signal will be armed.

In mechanical signalling, it is considered too restrictive to hold the signal in rear at danger should there be a TPWS fault and therefore a failure indication unit (FIU) is provided to monitor the status of the TPWS.

In the event of a TPWS failure at an individual signal, an audible alarm will sound and a blue light will flash. Once the audible alarm has been acknowledged and cancelled, the blue light remains as a reminder, but stops flashing.

3

Failures and irregularities



Example of a failure indication unit

The signaller performs a test to establish that the FIU is capable of detecting a fault. This test is performed at least every 12 hours and is carried out by signallers at each shift change and when the signal box opens. It is important that faults and failures of the AWS or TPWS equipment are reported fully and promptly. This is essential as it prevents important data about the performance of the equipment becoming lost.

The prompt reporting of wrong-side failures allows the signaller to advise any subsequent drivers of the defective equipment at a specific location and enables defective on-train equipment to be investigated without delay.

The signaller is required to carry out appropriate instructions when any failure of TPWS occurs.

List of fault codes to be reported

Required Indication	Actual Indication	Fault Code
Clear (Bell)	Horn & Bell	1
	Horn instead of Bell	2
	None	3
Warning (Horn)	Bell & Horn	4
	Bell instead of Horn	5
	Brake without Horn	6
	None	7
	Indicator did not change to Yellow and Black (<i>this is not a fault if it occurs after cancelling the AWS indication received when setting a driving cab into service</i>)	7a
None	Horn	8
	Bell	9
	Unable to cancel	10
	Indicator did not change to all black	11
	AWS failed to arm	12
	AWS failed to disarm	13
	ATP/TVM failed to arm	14
	ATP/TVM failed to disarm	15
	TPWS failed to activate	16
	TPWS operated when not required	17

Notes

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Introduction

To meet the requirements of the European Rail Agency, the glossary is now presented by two methods - by subject matter and by alphabetical listing.

Terms by subject matter **Page 2 to 15**

Terms in alphabetical order **Page 16 to 30**

Terms by subject matter

Electrified Lines

Conductor rail	A rail through which electricity is supplied to electric-powered trains.
Earthed	The term 'earthed' when applied to the overhead line equipment which is normally live, means connected to the traction return running rail either directly or to a structure which is itself connected thereto.
Electrified line	A line that is electrified either by 25,000 volts AC overhead lines or by 750 volts DC conductor rails. Local instructions are issued for certain sections of route electrified by 1500 volts DC overhead lines.
Isolated	Electrical equipment is isolated when it is disconnected from all sources of electricity supply in a secure way.
Isolation	Isolation is the action of causing electrical sections or sub-sections of the OLE or CRE to be isolated. For AC it includes the entire process of switching off, securing, testing and earthing and issue of the overhead line permit. For DC it includes the entire process of switching off, securing and testing and issue of the conductor rail permit.
Live	Connected to an electrical supply.
Overhead line equipment	Wires and associated equipment, suspended over or adjacent to the railway line for supplying electricity to electric trains.
Switched off	Electrical equipment that is disconnected and separated from all sources of supply.

Engineering Work

Affect the normal passage of trains	Any activity or event that allows train working to continue but causes diversion, inability to call at a planned destination or introduction of degraded-mode operations such as passing signals at danger, handsignalling, manual route setting or single line working arrangements.
Affect the safety of train working	Any activity or event that may, during its course, render a movement control or interlocking system unusable for the signalling of trains.
Engineering train	Includes an on-track machine.
Engineering Possession Reminder (EPR)	A reminder applied by the signaller to one or more axle counter sections in advance of pre-planned engineering works in order to indicate the area affected. When removed from an axle counter section indicating occupied, this initiates an unconditional reset/restoration of the axle counter without aspect restriction.
Intermediate point to a possession	A location other than the limits at the ends of the possession where an engineering train can enter or leave the possession to: <ul style="list-style-type: none">• an open line• a siding not under possession.
On-track plant	A road-rail vehicle (RRV) or rail mounted maintenance machine (RMMM) also known as 'in possession only' vehicles.
Possession Limit Board (PLB)	A double-sided board, red on both sides, with a red light (which may be steady or flashing). The board also has the word STOP printed on both sides.

Terms by subject matter

Track circuit operating device (T-COD) A special device that can be placed on the line to provide protection by operating the track circuit, to hold a signal at danger.

Incidents & Emergencies

Controlled evacuation The evacuation of passengers from a train after the signaller has confirmed that all lines have been protected.

Detonator A small disc-shaped warning device, designed to be placed on the railhead for protection and emergency purposes. It explodes when a train passes over it.

Detonator Protection Detonator protection consists of three detonators placed 20 metres (approx 20 yards) apart on the same rail with a possession limit board at the first detonator in the direction of travel.

Emergency evacuation The evacuation of passengers from a train if the signaller states that protection cannot be given or the signaller cannot be contacted.

Emergency protection The means of protecting a train by track circuit operating clips, hand danger signals and detonators when:

- a driver or guard cannot contact the signaller, or
- the signaller cannot provide signal protection.

Protection Ways of making sure that a line is protected. This includes keeping signals at danger, placing detonators on the line, using a track circuit operating clip and showing a hand danger signal.

Track circuit operating clip A device which, in an emergency can be placed on top of each running rail to operate the track circuit and protect an obstruction.

Level crossings

Automatic level crossing	Any of the following level crossings: <ul style="list-style-type: none">• Automatic half-barrier (AHBC)• Automatic barrier crossing, locally monitored (ABCL)• Automatic open crossing, locally monitored (AOCL)• Crossing with red and green warning lights (R/G).
Barrow crossing	A crossing (often at the end of a platform) for railway personnel to use. Some barrow crossings have white-light indicators which, when lit, indicate to the user that it is safe to cross.
Controlled crossing	Any of the following level crossings. <ul style="list-style-type: none">• Manned crossing with barriers (MCB).• Manned crossing with gates (MG).• Remotely controlled crossing with barriers (RC).• Barrier crossing with closed-circuit television (CCTV).• Barrier crossing with obstacle detection (OD).
Level crossing	Any manned, automatic, controlled, or open crossing shown in Table A of the Sectional Appendix.
Manned level crossing	A level crossing that is operated locally by a signaller or crossing keeper (MCB or LC).
Open level crossing	An unmanned level crossing that has no barriers, gates or road traffic signals. It has a 'Give Way' sign on each road approach.

Lines, Stations and Depots

Adjacent line	A line or siding next to the line you are on.
Bi-directional line	A line on which the signalling allows trains to run in both directions.

Terms by subject matter

Goods line	A line that has not been signalled to the standard required for running passenger trains.
Maintenance depot	A location defined in a train operator's Contingency Plan with the facilities to repair or replace specified items of defective on-train equipment.
No-block line	A line on which the signaller does not monitor the condition of the block section.
Running line	A line as shown in Table A of the Sectional Appendix as a passenger line or as a non-passenger line.
Siding	A line on which vehicles are marshalled, stabled, loaded, unloaded or serviced clear of a running line.
Single line	One line is available for movements in both directions.
Station	Terminal, depot, yard or halt.

Lineside Equipment

Aspect	The indication of a colour light signal that the driver sees.
ATWS	Automatic track warning system. An individual or lineside warning system that can be installed at a site of work to: <ul style="list-style-type: none">• detect an approaching train• alert personnel who are on or near the line. It may be installed temporarily for the period of work or it may be installed permanently at a location. This definition does not include TOWS or LOWS.
Automatic Signal	A signal operated by the passage of trains. The signaller or a person operating a signal post replacement switch can place some automatic signals to danger.

Axle counter	A method of detecting the presence of a train or vehicle on a line. Track-mounted equipment, at each end of a portion of line, counts the number of axles passing over. This is used to identify when a portion of line is occupied or clear.
Axle counter head	A device that detects the passage of a wheel passing over a running rail.
Block marker	Reflective board that serves as a physical indication of signalling sections within ERTMS. Used when degraded working is required.
Home signal	The first stop signal on the approach to a signal box on a line not signalled by the track circuit block system of signalling.
Interlocking	A general term applied to equipment that controls setting and releasing signals and points to prevent an unsafe condition of the signalling system arising during the passage of trains.
Intermediate block home signal	A stop signal that controls the exit from an intermediate block section. (Although an intermediate block home signal controls the entrance to an absolute block section, it is referred to as the intermediate block home signal).
Junction signal	A signal that controls more than one running route and can display an indication of route.
LOWS	Lookout operated warning system. A lineside warning system, used to warn personnel on or near the line about an approaching train. It is operated by a lookout.
Main aspect	The following aspects of a colour light signal: <ul style="list-style-type: none">• red• yellow• two yellows• flashing yellow• two flashing yellows• green.

Terms by subject matter

PoSA	Proceed-on-sight authority. A signal used for controlling movements into a section affected by a failure of signalling equipment.
Right-side failure	A failure that does not reduce the protection given by signalling equipment.
Section signal	A stop signal that controls the entrance to a block section or intermediate block section ahead.
Semi-automatic signal	A signal normally operated by the passage of trains, but can also be controlled from the signal box or from a ground frame, or by a person operating a signal post replacement switch.
Shunt entry board	A lineside indicator board that indicates the entry of a shunt route on ERTMS cab signalled lines where lineside signals are not provided.
Shunting signal	A signal that is provided for shunting purposes only.
Signal post replacement key	The key used to operate a signal post replacement switch.
Signal post replacement switch	A switch on the post of an automatic or semi-automatic colour light signal that can be operated by a key to turn it to, and keep it at, danger.
Stop signal	A signal that can show a stop aspect or indication.
Subsidiary signal	A semaphore signal used for controlling shunting movements and movements onto occupied tracks. It is always positioned below the main semaphore arm with which it is associated.

TOWS	Train operated warning system. An audible warning system at locations listed in the Sectional Appendix. When switched on, it is used to warn personnel on or near the line about an approaching train.
TPWS	Train protection and warning system. A system by which a train is stopped by an automatic application of the brakes when activated by lineside equipment.
Wrong-side failure	A failure that reduces or removes the protection given by signalling equipment.
Points	
Catch points	Points designed to derail vehicles running back on a gradient in the wrong direction. These points may be unworked if trains normally pass over them in one direction only.
Derailer	A device at an exit from a siding or bay platform that derails an unauthorised movement.
Detection	An electrical or mechanical indication that points are set in the correct position.
Facing point lock (FPL)	Equipment that physically locks facing points so that they cannot move.
Facing points	Points where two routes diverge.
Ground frame	A control point containing levers or switches to allow points in running lines and sidings, and any associated signals, to be operated locally. This local operation is only possible when the signaller at the controlling signal box gives a release. Also includes a ground-switch panel.
Hand points	Points that are worked manually by lever independent of any other signalling controls.
Mechanical points	Points that are mechanically operated without any other form of power operation.

Terms by subject matter

Power-operated points	Points that are operated by means other than mechanically.
Run through (of points)	An incident where a movement runs through a trailing set of points that are not set in the correct position for the movement.
Token	Any single line token, staff or tablet.
Track circuit	A method of detecting the presence of a train or vehicle on a line. An electrical device, using the rails as an electrical circuit, detects the absence of a train or vehicle. If these rules refer to track circuits, this also includes detection by axle counters unless specially excluded.
Trailing points	Points where two routes converge.
Train-operated points	Points that are continuously driven to one position such that facing movements always pass through them in the same direction. Trains themselves operate the points in the trailing reverse direction.
Trap points	Facing points at an exit from a siding or converging route that derail an unauthorised movement, so protecting the adjacent line.
Unworked points	Points that are not operated from a signal box or ground frame.
Worked points	Points that are operated from a signal box or ground frame.

Train Signalling Regulations

Absolute block	A signalling system that allows only one train to be in a block section at the same time. The block indicator is used to indicate whether the line between adjacent signal boxes is clear or occupied.
Block section	The section of the line between the section signal of one signal box and the home signal of the next signal box ahead.

ERTMS	European rail traffic management system. A signalling system that uses in-cab indications as opposed to external track----side signals.
Intermediate block section	The line between the section signal and the intermediate block home signal worked by the same signal box in the same direction of travel.
Overlap	The distance beyond a stop signal up to which the line must be clear before the previous signal can show a proceed aspect.
Route setting position	Location on a signalling control panel or workstation from which a route can be set or closed.
Station limits	The line between the home signal and the section signal worked by the same signal box and in the same direction of travel. This does not apply on a track circuit block line.
Track circuit block	A method of signalling trains in a section of line using track circuits or other means of automatic train absence detection and without using block instruments.
Train signalling regulations	Instructions for use by the signaller that give details of the rules, regulations and instructions relating to each different kind of signalling system.
Transition	The process of the onboard ERTMS signalling system transferring from one signalling system to another. This process has to be acknowledged by the driver.

Train Working

Braking distance	The distance a train needs in which to stop or reduce speed, from travelling at a given speed.
Coupled in multiple	Traction units coupled to allow through controls by one driver.

Terms by subject matter

Coupled in tandem	Each traction unit is separately controlled by its own driver, with through control of the automatic brake only.
Driver only (or DO) train	A train that is worked only by a driver and does not have a guard.
In service	A train is in service from the time it starts its journey until the time it completes its journey. A vehicle is in service when it forms part of a train which is in service.
End of authority (EoA)	The location to which a train is permitted to proceed. The boundary of a movement authority.
Full supervision	The normal movement used by ERTMS, an authority that gives comprehensive protection to all trains.
Journey	<p>The route between the depot, siding, platform line or other authorised place where the train enters service and the depot, siding, platform line or other authorised place where the train reaches its destination, or:</p> <ul style="list-style-type: none">• is required to reverse before continuing to its destination• is required to have vehicles attached or detached• is required to terminate short of its destination, as a result of<ul style="list-style-type: none">- infrastructure fault- line blockage- defective on-train equipment- any other operational reason. <p>This also applies to short-distance shunting movements.</p>
Movement authority (MA)	Permission for a train to run to a specific location as a signalled move.
On sight	A type of movement authority used by ERTMS that allows entry into an occupied section. The driver will be presented with a maximum speed and must ensure that the train is stopped short of any obstruction.

One-train working	Method of signalling on a single line, with or without a train staff, where only one train at a time is permitted.
Out of service	A train is out of service between the time that it completes its journey and the time it is ready to start another journey.
Out of service	A vehicle is out of service when it forms part of a train that is out of service, or when it has been detached from a train in a depot, siding, platform line or other authorised place. The detraining of passengers does not in itself mean a train has been taken out of service.
Passenger service	A train that is in service carrying passengers.
Permissible speed	The maximum permitted speed as shown in the Sectional Appendix.
Shunting movement	Any movement of a train or vehicle other than a train passing normally along a running line.
Tail lamp	Includes an illuminated built-in red light or blind.

Trains

Brake van	Any vehicle with a brake compartment.
Cant rail	The point on the side of a locomotive or coach where the bodyside meets the roof (sometimes marked by an orange stripe).
Central door-locking (CDL)	A secondary locking system fitted to certain slam-door passenger vehicles and controlled by the guard that prevents passengers from opening the doors.
Defective on-train equipment	On-train equipment that: <ul style="list-style-type: none">• is not performing its intended safety function, either fully or partly• is isolated• is missing.

Terms by subject matter

Driver machine interface (DMI)	The device used by a driver to interact with onboard equipment. Typically a computer screen located in the driving cab.
Driver's reminder appliance (DRA)	A device in a driving cab that allows the driver to set a reminder that the signal ahead is at danger. While the DRA is set, the driver cannot take power.
Power-operated doors	Doors on a train where the opening and closing are controlled by the driver or guard.
TASS	Tilt authorisation and speed supervision. A system on tilting trains that controls: <ul style="list-style-type: none">• the operation of the tilt system• the speed of the train on routes where enhanced permissible speeds apply on TASS fitted lines.
TPWS	Train protection and warning system. A system by which a train is stopped by an automatic application of the brakes when activated by lineside equipment.
Track circuit actuator (TCA)	Equipment provided on certain trains to improve the operation of track circuits.
Traction unit	Locomotive, multiple unit, self-propelled rail vehicle or road-rail vehicle operating in rail mode.
Train	Light locomotive, self-propelled rail vehicle or road-rail vehicle in rail mode.

Workforce

Competent person	A person who is passed as being qualified and has the required knowledge and skills to carry out a particular rule, regulation, instruction or procedure.
Operations control	The term used for Network Rail Operations Control Offices.

Pilotman	A person who has been appointed to manage the passage of trains over a single line during a failure of equipment, during repairs or due to an obstruction.
Rolling stock technician	A person who is authorised and has the necessary technical competence to examine or repair specified items of equipment forming part of a train or vehicle.
Traincrew	Driver and guard.
Train operator	The company responsible for operating a train.
Your employer	The company, or subsidiary of a larger organisation for whom you work.

Terms in alphabetical order

A

- Absolute block** A signalling system that allows only one train to be in a block section at the same time. The block indicator is used to indicate whether the line between adjacent signal boxes is clear or occupied.
- Adjacent line** A line or siding next to the line you are on.
- Affect the normal passage of trains** Any activity or event that allows train working to continue but causes diversion, inability to call at a planned destination or introduction of degraded-mode operations such as passing signals at danger, handsignalling, manual route setting or single line working arrangements.
- Affect the safety of the line** Any activity or event that may, during its course, render the track, the formation or a structure unsafe for the passage of trains, or unsafe for the passage of trains at normal speed.
- Affect the safety of train working** Any activity or event that may, during its course, render a movement control or interlocking system unusable for the signalling of trains.
- Aspect** The indication of a colour light signal that the driver sees.
- ATWS** Automatic track warning system.
An individual or lineside warning system that can be installed at a site of work to:
- detect an approaching train
 - alert personnel who are on or near the line.
- It may be installed temporarily for the period of work or it may be installed permanently at a location. This definition does not include TOWS or LOWS.

Automatic level crossing Any of the following level crossings:

- Automatic half-barrier (AHBC)
- Automatic barrier crossing, locally monitored (ABCL)
- Automatic open crossing, locally monitored (AOCL)
- Crossing with red and green warning lights (R/G).

Automatic Signal A signal operated by the passage of trains. The signaller or a person operating a signal post replacement switch can place some automatic signals to danger.

Axle counter A method of detecting the presence of a train or vehicle on a line. Track-mounted equipment, at each end of a portion of line, counts the number of axles passing over. This is evaluated to identify when a portion of line is occupied or clear.

Axle counter head A device that detects the passage of a wheel passing over a running rail.

B

Barrow crossing A crossing (often at the end of a platform) for railway personnel to use. Some barrow crossings have white-light indicators which, when lit, indicate to the user that it is safe to cross.

Bi-directional line A line on which the signalling allows trains to run in both directions.

Block marker Reflective board that serves as a physical indication of signalling sections within ERTMS. Used when degraded working is required.

Block section The section of the line between the section signal of one signal box and the home signal of the next signal box ahead.

Brake van Any vehicle with a brake compartment.

Terms in alphabetical order

Braking distance

The distance a train needs in which to stop or reduce speed, from travelling at a given speed.

C

Catch points

Points designed to derail vehicles running back on a gradient in the wrong direction. These points may be unworked if trains normally pass over them in one direction only.

Cant rail

The point on the side of a locomotive or coach where the bodyside meets the roof (sometimes marked by an orange stripe).

Central door-locking (CDL)

A secondary locking system fitted to certain slam-door passenger vehicles and controlled by the guard that prevents passengers from opening the doors..

Competent person

A person who is passed as being qualified and has the required knowledge and skills to carry out a particular rule, regulation, instruction or procedure.

Conductor rail

A rail through which electricity is supplied to electric-powered trains.

Controlled crossing

Any of the following level crossings.

- Manned crossing with barriers (MCB).
- Manned crossing with gates (MG).
- Remotely controlled crossing with barriers (RC).
- Barrier crossing with closed-circuit television (CCTV).
- Barrier crossing with obstacle detection (OD).

Controlled evacuation

The evacuation of passengers from a train after the signaller has confirmed that all lines have been protected.

Coupled in multiple

Traction units coupled to allow through controls by one driver.

Coupled in tandem

Each traction unit is separately controlled by its own driver, with through control of the automatic brake only.

D

Defective on-train equipment

On-train equipment that:

- is not performing its intended safety function, either fully or partly
- is isolated
- is missing.

Derailer

A device at an exit from a siding or bay platform that derails an unauthorized movement, so protecting the adjacent line.

Detection

An electrical or mechanical indication that points are set in the correct position.

Detonator

A small disc-shaped warning device, designed to be placed on the railhead for protection and emergency purposes. It explodes when a train passes over it.

Detonator Protection

Detonator protection for a line blockage consists of three detonators placed 20 metres (approx 20 yards) apart on the same rail with a possession limit board at the first detonator in the direction of travel.

Driver only (or DO) train

A train that is worked only by a driver and does not have a guard.

Driver machine interface (DMI)

The device used by a driver to interact with onboard equipment. Typically a computer screen located in the driving cab.

Driver's reminder appliance (DRA)

A device in a driving cab that allows the driver to set a reminder that the signal ahead is at danger. While the DRA is set, the driver cannot take power.

Terms in alphabetical order

E

Earthed	The term 'earthed' when applied to the overhead line equipment which is normally live, means connected to the traction return running rail either directly or to a structure which is itself connected thereto.
Electrified line	A line that is electrified either by 25,000 volts AC overhead lines or by 750 volts DC conductor rails. Local instructions are issued for certain sections of route electrified by 1500 volts DC overhead lines.
Emergency evacuation	The evacuation of passengers from a train if the signaller states that protection cannot be given or the signaller cannot be contacted.
End of authority (EoA)	The location to which a train is permitted to proceed. The boundary of a movement authority.
Engineering Possession Reminder (EPR)	A reminder applied by the signaller to one or more axle counter sections in advance of pre-planned engineering works in order to indicate the area affected. When removed from an axle counter section indicating occupied, this initiates an unconditional reset/restoration of the axle counter without aspect restriction.
ERTMS	European rail traffic management system. A signalling system that uses in-cab indications as opposed to external trackside signals.

F

Facing point lock (FPL)	Equipment that physically locks facing points so that they cannot move.
Facing points	Points where two routes diverge.
Full supervision	The normal movement used by ERTMS, an authority that gives comprehensive protection to all trains.

G

- Goods line** A line that has not been signalled to the standard required for running passenger trains.
- Ground frame** A control point containing levers or switches to allow points in running lines and sidings, and any associated signals, to be operated locally. This local operation is only possible when the signaller at the controlling signal box gives a release. Also includes a ground-switch panel.

H

- Hand points** Points that are worked manually by lever independent of any other signalling controls.
- Home signal** The first stop signal on the approach to a signal box using the absolute block system of signalling.

I

- In service** A train is in service from the time it starts its journey until the time it completes its journey. A vehicle is in service when it forms part of a train which is in service.
- Interlocking** A general term applied to equipment that controls setting and releasing signals and points to prevent an unsafe condition of the signalling system arising during the passage of trains.
- Intermediate block home signal** A stop signal that controls the exit from an intermediate block section. (Although an intermediate block home signal controls the entrance to an absolute block section, it is referred to as the intermediate block home signal).

Terms in alphabetical order

Intermediate block section

The line between the section signal and the intermediate block home signal worked by the same signal box in the same direction of travel.

Intermediate point to a possession

A location other than the limits at the ends of the possession where an engineering train can enter or leave the possession to:

- an open line
- a siding not under possession.

Isolated

Electrical equipment is isolated when it is disconnected from all sources of electricity supply in a secure way.

Isolation

Isolation is the action of causing electrical sections or sub-sections of the OLE or CRE to be isolated. For AC it includes the entire process of switching off, securing, testing and earthing and issue of the overhead line permit. For DC it includes the entire process of switching off, securing and testing and issue of the conductor rail permit.

J

Journey

The route between the depot, siding, platform line or other authorised place where the train enters service and the depot, siding, platform line or other authorised place where the train reaches its destination, or:

- is required to reverse before continuing to its destination
- is required to have vehicles attached or detached
- is required to terminate short of its destination, as a result of
 - infrastructure fault
 - line blockage
 - defective on-train equipment
 - any other operational reason.

This also applies to short-distance shunting movements.

Junction signal A signal that controls more than one running route and can display an indication of route.

L

Level crossing Any manned, automatic, controlled or open crossing shown in Table A of the Sectional Appendix.

Lever Includes a switch, button or workstation control.

Live Connect to an electrical supply.

LOWS Lookout operated warning system. A lineside warning system, used to warn personnel on or near the line about an approaching train. It is operated by a lookout.

M

Main aspect The following aspects of a colour light signal:

- red
- yellow
- two yellows
- flashing yellow
- two flashing yellows
- green.

Maintenance depot A location defined in a train operator's Contingency Plan with the facilities to repair or replace specified items of defective on-train equipment.

Manned level crossing A level crossing that is operated locally by a signaller or crossing keeper (MCB or LC).

Mechanical points Points that are mechanically operated without any other form of power operation.

Movement authority (MA) Permission for a train to run to a specific location as a signalled move.

Terms in alphabetical order

N

No-block line A line on which the signaller does not monitor the condition of the block section.

O

On sight A type of movement authority used by ERTMS that allows entry into an occupied section. The driver will be presented with a maximum speed and must ensure that the train is stopped short of any obstruction.

One-train working Method of signalling on a single line, with or without a train staff, where only one train at a time is permitted.

On-track plant A road-rail vehicle (RRV) or rail mounted maintenance machine (RMMM) also known as 'in possession only' vehicles.

Open level crossing An unmanned level crossing that has no barriers, gates or road traffic signals. It has a 'Give Way' sign on each road approach.

Operations control The term used for Network Rail Operations Control Offices.

Out of service A train is out of service between the time that it completes its journey and the time it starts another journey.

Out of service A vehicle is out of service when it forms part of a train that is out of service, or when it has been detached from a train in a depot, siding, platform line or other authorised place. The detraining of passengers does not in itself mean a train has been taken out of service.

Overhead line equipment Wires and associated equipment, suspended over or adjacent to the railway line for supplying electricity to electric trains.

Overlap The distance beyond a stop signal up to which the line must be clear before the previous signal can show a proceed aspect.

P

Passenger service A train that is in service carrying passengers.

Permissible speed The maximum permitted speed as shown in the Sectional Appendix.

Pilotman A person who has been appointed to manage the passage of trains over a single line during a failure of equipment, during repairs or due to an obstruction.

PoSA Proceed-on-sight authority. A signal used for controlling movements into a section affected by a failure of signalling equipment.

Possession Limit Board A double-sided board, red on both sides, with a red light (which may be steady or flashing). The board also has the word STOP printed on both sides. It is placed in the four foot at the detonator protection for a possession.

Power-operated doors Doors on a train where the opening and closing are controlled by the driver or guard.

Power-operated points Points that are operated by means other than mechanically.

Protection Ways of making sure that a line is protected. This includes keeping signals at danger, placing detonators on the line, using a track circuit operating clip and showing a hand danger signal.

R

Reminder appliance A device or control used to remind the signaller that a particular lever, button or switch must not be operated at all, or used only under certain conditions.

Terms in alphabetical order

Repeater (in a signal box)	A dial or indicator in a manual signal box that shows the position of a signal arm and whether the signal lamp is lit.
Right-side failure	A failure that does not reduce the protection given by signalling equipment.
Rolling stock technician	A person who is authorised and has the necessary technical competence to examine or repair specified items of equipment forming part of a train or vehicle.
Route setting position	Location on a signalling control panel or workstation from which a route can be set or closed.
Running line	A line as shown in Table A of the Sectional Appendix as a passenger line or as a non-passenger line.
Run through (of points)	An incident where a movement runs through a trailing set of points that are not set in the correct position for the movement.

S

Section signal	A stop signal that controls the entrance to a block section or intermediate block section ahead.
Semi-automatic signal	A signal normally operated by the passage of trains, but can also be controlled from the signal box or from a ground frame, or by a person operating a signal post replacement switch.
Shunt entry board	A lineside indicator board that indicates the entry of a shunt route on ERTMS cab signalled lines where lineside signals are not provided.
Shunting movement	Any movement of a train or vehicle other than a train passing normally along a running line.

Shunting signal	A signal that is provided for shunting purposes only.
Siding	A line on which vehicles are marshalled, stabled, loaded, unloaded or serviced clear of a running line.
Signal post replacement key	The key used to operate a signal post replacement switch.
Signal post replacement switch	A switch on the post of an automatic or semi-automatic colour light signal that can be operated by a key to turn it to, and keep it at, danger.
Single line	One line is available for movements in both directions.
Station	Terminal, depot, yard or halt.
Station limits	The line between the home signal and the section signal worked by the same signal box and in the same direction of travel. This does not apply on a track circuit block line.
Stop signal	A signal that can show a stop aspect or indication.
Subsidiary signal	A semaphore signal used for controlling shunting movements and movements onto occupied tracks. It is always positioned below the main semaphore arm with which it is associated.
Switched off	Electrical equipment that is disconnected and separated from all sources of supply.

T

Tail lamp	Includes an illuminated built-in red light or blind.
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Terms in alphabetical order

TASS	Tilt authorisation and speed supervision. A system on tilting trains that controls: <ul style="list-style-type: none">• the operation of the tilt system• the speed of the train on routes where enhanced permissible speeds apply on TASS fitted lines.
Token	Any single line token, staff or tablet.
TOWS	Train operated warning system. An audible warning system at locations listed in the Sectional Appendix. When switched on, it is used to warn personnel on or near the line about an approaching train.
TPWS	Train protection and warning system. A system by which a train is stopped by an automatic application of the brakes when activated by lineside equipment.
Track circuit	A method of detecting the presence of a train or vehicle on a line. An electrical device, using the rails as an electrical circuit, detects the absence of a train or vehicle. If these rules refer to track circuits, this also includes detection by axle counters unless specially excluded.
Track circuit actuator (TCA)	Equipment provided on certain trains to improve the operation of track circuits.
Track circuit block	A method of signalling trains in a section of line using track circuits or other means of automatic train detection and without using block instruments.
Track circuit operating clip	A device which, in an emergency can be placed on top of each running rail to operate the track circuit and protect an obstruction.
Track circuit operating device (T-COD)	A special device that can be placed on the line to provide protection by operating the track circuit, to hold a signal at danger.

Traction unit	Locomotive, multiple unit, self-propelled rail vehicle or road-rail vehicle operating in rail mode.
Trailing points	Points where two routes converge.
Train	Light locomotive, self-propelled rail vehicle or road-rail vehicle in rail mode.
Traincrew	Driver and guard.
Train-operated points	Points that are continuously driven to one position such that facing movements always pass through them in the same direction. Trains themselves operate the points in the trailing reverse direction.
Train operator	The company responsible for operating a train.
Train signalling regulations	Instructions for use by the signaller that give details of the rules, regulations and instructions relating to each different kind of signalling system.
Transition	The process of the onboard ERTMS signalling system transferring from one signalling system to another. This process has to be acknowledged by the driver.
Trap points	Facing points at an exit from a siding or converging route that derail an unauthorised movement, so protecting the adjacent line.

U

Unworked points	Points that are not operated from a signal box or ground frame.
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Terms in alphabetical order

W

Worked points Points that are operated from a signal box or ground frame.

Wrong-side failure A failure that reduces or removes the protection given by signalling equipment.

Y

Your employer The company, or subsidiary of a larger organisation for whom you work.

Notes

