



भारत सरकार - Govt of India
रेल मंत्रालय - Ministry of Railways
(केवल कार्यालयीन उपयोग हेतु)
(For official use only)

**POCKET BOOK ON TRAIN
PARTING OF FREIGHT STOCK
COVERING DO'S AND DONT'S**
फ्रेट स्टॉक की ट्रेन पार्टिंग पर पॉकेट बुक
(करें व न करें सहित)

CAMTECH/M/2002/M/Tr.PARTING/1.0

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Centre
for
Advanced
Maintenance
TECHnology



Excellence in Maintenance

Maharajpur, GWALIOR - 474 020

PREFACE

Railway Board asked CAMTECH to prepare a pocket booklet for staff on Train Parting of freight stock covering Do's, Don'ts. Accordingly this pocket book has been prepared.

The objective of pocket book is to provide a tool to the staff of IR. The end objective is to achieve an improvement in productivity and quality, thereby assisting to IR to avoid train parting of freight stock.

This pocket book is aimed at assisting concerned staff and does not supersede any existing instructions from Railway Board, R.D.S.O. or IRCA etc. If any changes are made, these will be used in the form of correction slips. For convenience this pocket book includes a proforma for entering all correction slips serially. Most of data and information mentioned here in are available in some form the other in various books or other printed matter.

We welcome any suggestion for addition and improvements from our readers.

CAMTECH, GWALIOR
Date 30.11.2002

(Anil Sharma)
Director/Mech.

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1.0 INTRODUCTION

1.1 Types of Draft and Buffing Gear on Freight Stock

- ◆ Screw Coupling with side Buffers, older design found on few wagons.
- ◆ Centre Buffer Coupler AAR Type adopted in BOX, BCX, BRH, BOXN, BCN, BRN, BTPGL, BTPGLN, BOM, etc. and other few design of wagons having Alliance II coupler.

1.1.1 Centre Buffer Couplers

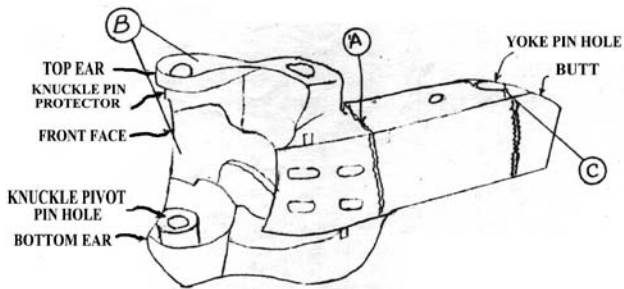
- ◆ Indian Railways used AAR type Centre Buffer Couplers having "E" type head and "F" type shank for Freight stock on Broad Gauge system.
- ◆ The draft capacity of the AAR coupler depends on the strength of knuckle, which is weakest link of the assembly. The yield strength of knuckle of material AAR-201G & Grade "E" is 132 ton and 180 ton respectively.
- ◆ The draft load transmitted through the knuckle, hub, pin-pulling lug, Coupler, yoke pin & draft gear.

- ◆ The Buffing forces are taken by the draft gear through the knuckle pin, Coupler, yoke pin takes the Buffing forces etc.
- ◆ Buffing forces and tensile forces are transmitted to under frame gradually through back stoppers and striker casting.

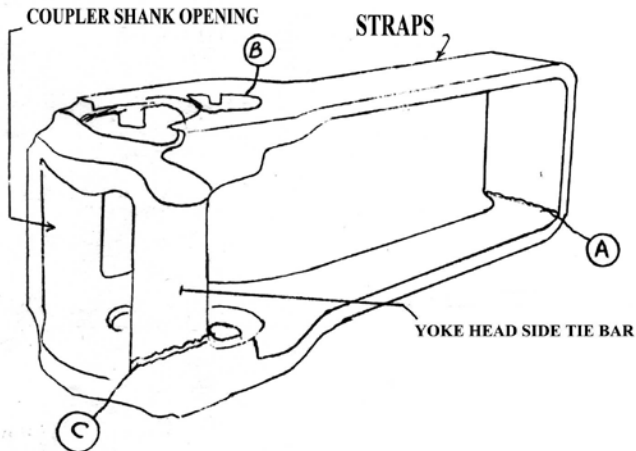
1.1.2 Brief description of CBC Component

Sl. No.	Transition type	Non transition type
1.	Coupler Body & Shank	Coupler Body & Shank
2.	Knuckle	Knuckle
3.	Knuckle pin	Knuckle pin
4.	Rotary lock lift lever	Rotary lock lift lever
5.	Cap	Cap
6.	Clevis	-
7.	Clevis pin	-
8.	Baby screw coupling	-
9.	Striker casting	Striker casting
10.	Yoke	Yoke
11	Yoke pin	Yoke pin
12.	Draft gear	Draft gear
13.	Operating handle with bearing piece.	Operating handle with bearing piece.

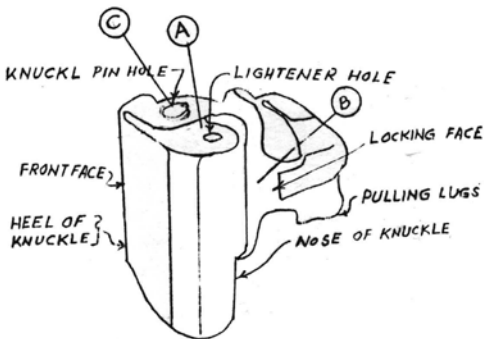
1.1.3 Sketches of various components of CBC are shown on the following pages. The usual location of breakage of the components are marked as A,B,C.



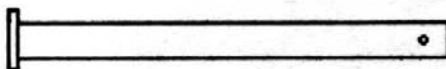
COUPLER BODY WITH SHANK



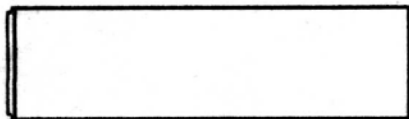
YOKE



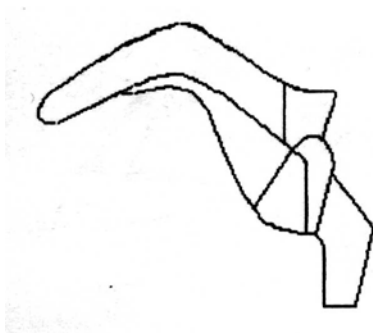
KNUCKLE



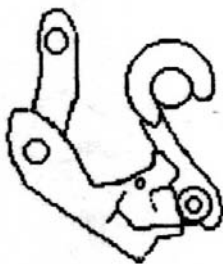
KNUCKLE



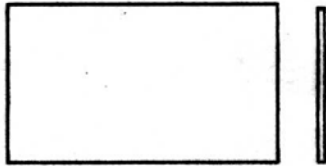
YOKE PIN



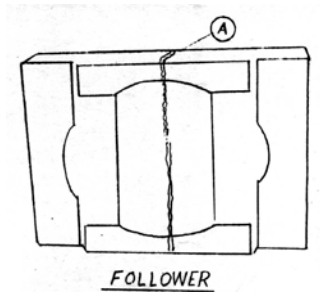
KNUCKLE THROWER

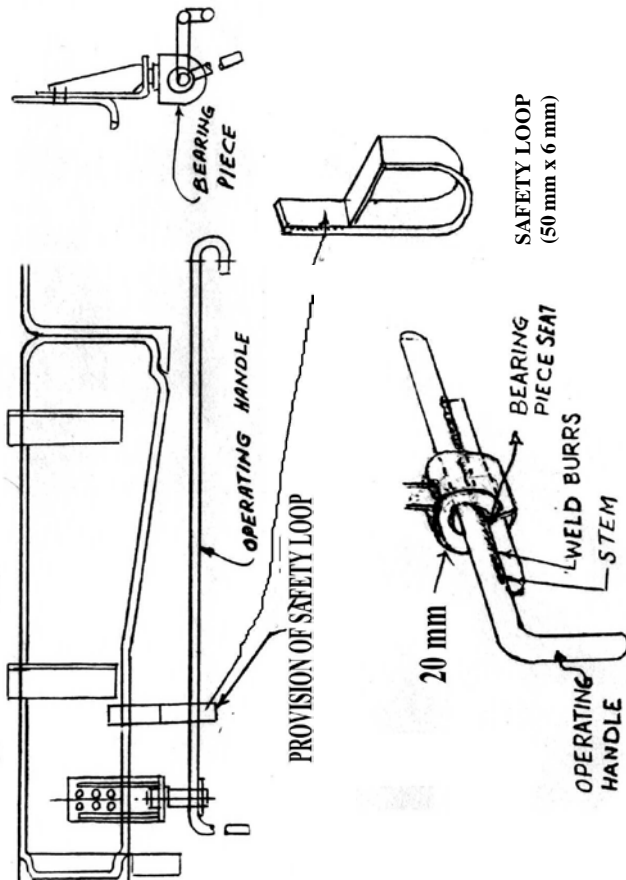


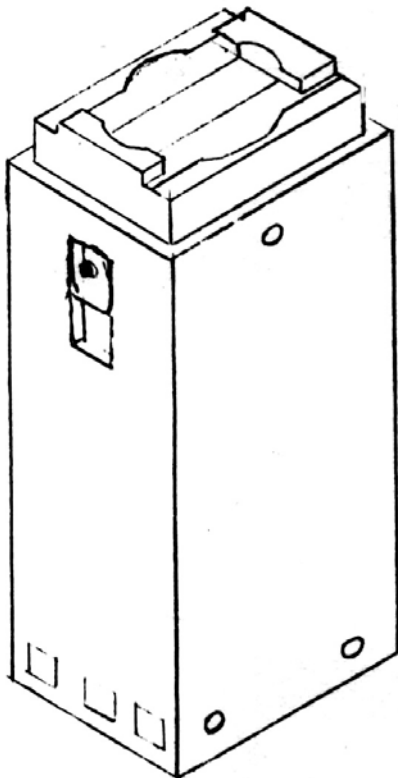
TOGGLE WITH LOCK LIFTER



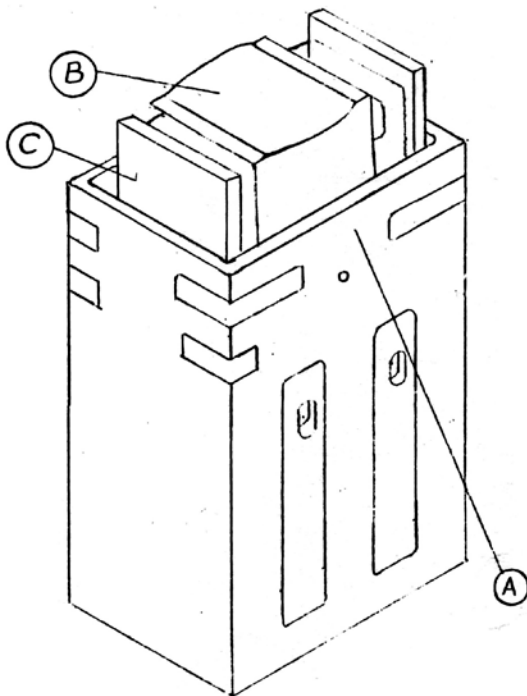
SHANK WEAR PLATE



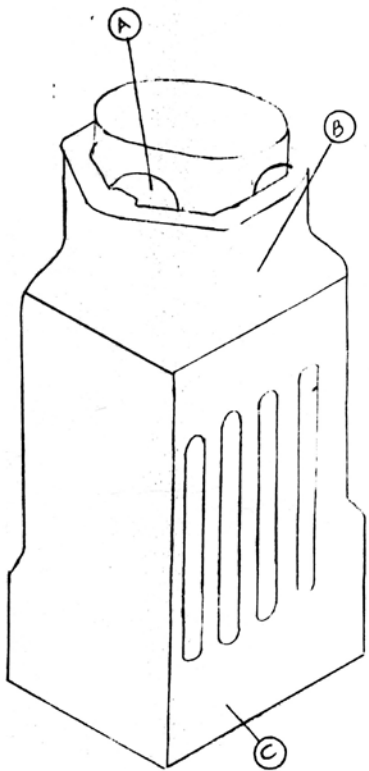




DRAFT GEAR HR-40

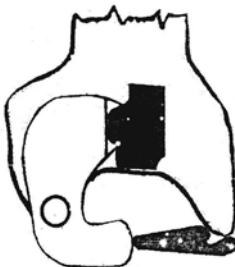


DRAFT GEAR MK-50

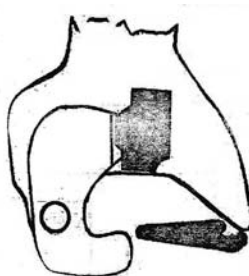


DRAFT GEAR RF-361

GAUGES & THEIR
APPLICATIONS
FOR
AAR & ALLIANCE-I
COUPLERS

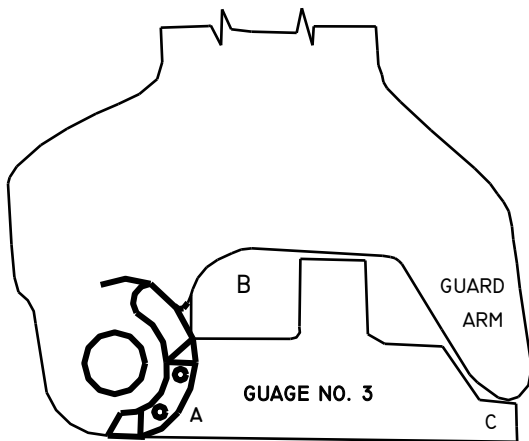
CHECKING OF GUARD ARM EXPANSION**GAUGE NO. 1**

- Apply the gauge no. 1 as shown.
- If gauge no. 1 passes, renew
 - 1) Knuckle
 - 2) Knuckle pin
 - 3) Lock

**GAUGE NO. 2**

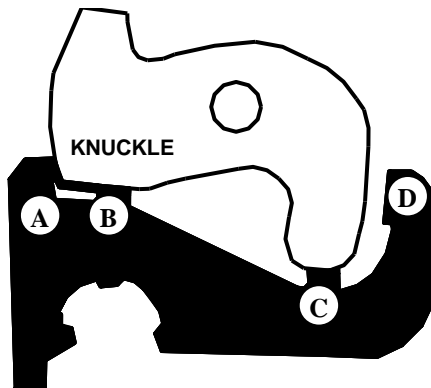
- After replacing the above, if gauge no. 2 passes, renew the coupler body.
- Reason - Guard arm expanded.

CHECKING OF GUARD ARM DISTORTION

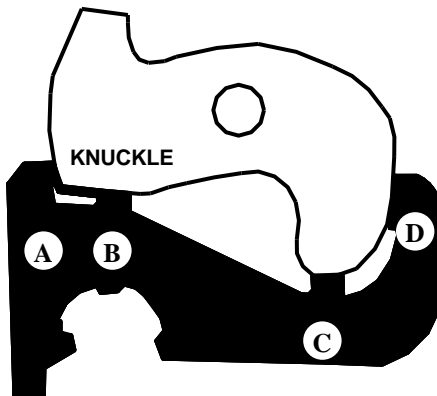


- Apply the gauge no. 3 as shown above.
When 'A' is in contact, if 'B' or 'C' touches renew the coupler body.
- Reason : Guard arm distorted.
- Note: If guard arm distortion is more than 4.8 mm, it should be closed into normal.

CHECKING OF STRETCHED KNUCKLE

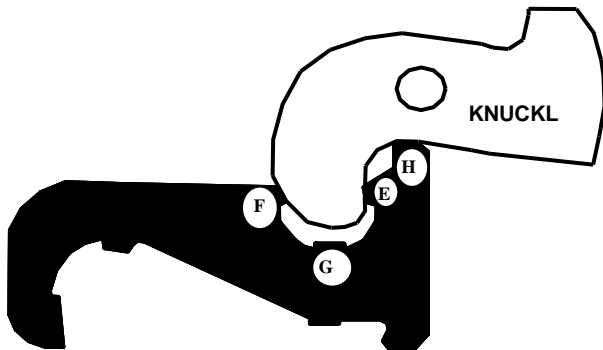


- Apply the gauge no. 4 as shown above.
- When A, B, C are in contact, there must be a clear gap at 'D'

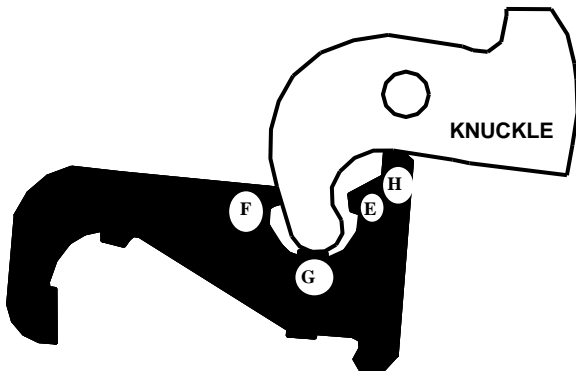


- If 'D' touches, renew the knuckle.
- Reason – Knuckle is stretched.

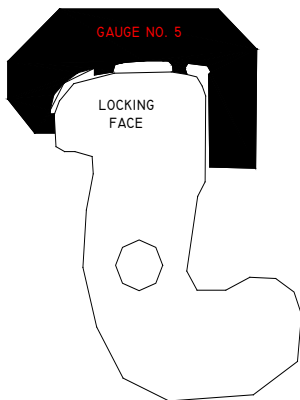
CHECKING THE KNUCKLE NOSE WEAR



- Apply the gauge no. 4 (alliance-II) as shown above.
- When E, F, G are in contact, 'E' must not pass.

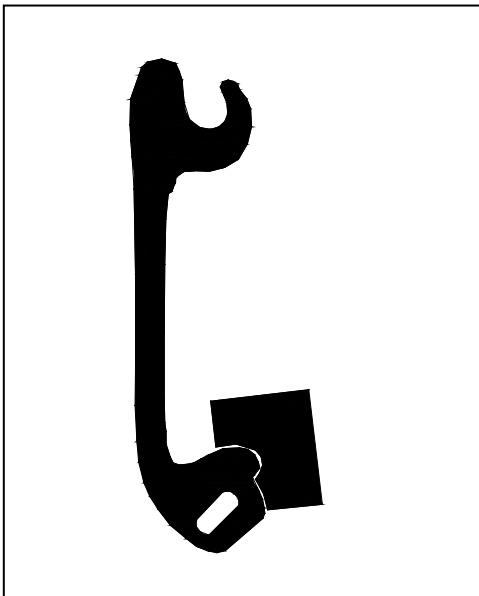


- If 'E' passes, renew the knuckle.
- Reason – Excessive knuckle nose wear.

CHECKING THE KNUCKLE LOCKING FACE

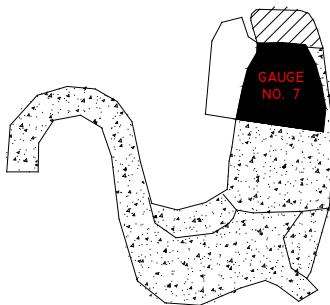
- Apply the gauge no. 5 as shown above.
- The gauge must not pass through vertically.
- If passes, renew the knuckle .
- Reason : Excessive wear at locking face of the Knuckle.

CHECKING OF ANTI-CREEP LEDGE OF BOTTON LIFTER



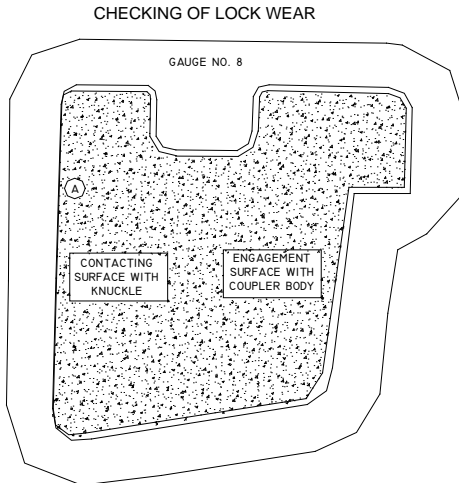
- Apply the gauge no. 6 as shown above.
- There should not be any clearance between gauge and bottom lifter.
- If there is a gap, renew the bottom lifter. .
- Reason : Ineffective anti -creep

CHECKING OF ANTI-CREEP LUG OF ROTARY LEVER



- Apply the gauge no. 7 as shown above.
- If gauge is not mating properly with the anti –creep lug (bridge) of rotary lever , renew the rotary lever .
- Reason : Ineffective anti -creep

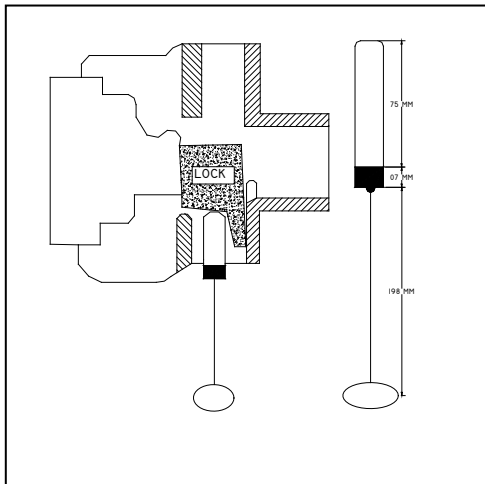
CHECKING OF LOCK WEAR



APPLY THE GAUGE NO. 8 AS SHOWN ABOVE

- Apply the gauge no. 8 as shown above.
- When the surface 'A' is in contact, if the gap is more than 3.2 mm at 'B', renew the lock.
- Reason : There is a combined wear of lock at knuckle contacting surface & engagement surface with coupler body.

GAUGE FOR CHECKING PROPER LOCKING ALLIANCEII)



- Apply the gauge as show above.
- The red marking on the gauge should be clearly visible ,if not attend to the lock for its proper locking.
- Reason : partial locking.

**DO,S
&
DON'TS**

For Train Examining Staff:

1. Do ensure proper locking of knuckles on CBCs.
2. Don't allow loose coupling on outgoing trains.
3. Use the special gauge for checking the alliance II CBC locks.
4. Don't allow uneven threaded screw of screw coupling.
5. Don't allow coupling with damaged components.
6. Do ensure the end washers of screw, trunion nuts and shackle pins are intact.
7. Do ensure for not loose or broken drawbar spring.
8. Don't allow the coupling if damaged.
9. Don't weld coupling handle with the screw, change it or rivet it tightly.
10. Don't allow dead buffers.
11. Don't use unmodified couplings.
12. Ensure that spare couplings are put on to suspension hooks.

13. Don't allow jammed pistons or brake binding, attend to it before dispatch.
14. Do ensure that the hand brakes are released and the levers are properly put on their brackets on wagons.
15. Do ensure for tightness of draw bar spindle nuts.
16. Do ensure the draft key cotters are in place properly.
17. Check for cracks on the coupler body and knuckle.
18. Don't allow excess wear on the knuckle.
19. Do ensure that all components of lock lift assembly are intact.
20. Don't allow damaged or bent operating lever on wagons.
21. Don't allow wagons having excess drooping Buffer.
22. Check the operating lever bracket and its bearing piece for damage.

23. Do ensure that the rivets of the yoke pin support are intact.
24. Don't allow excess wear or breakage of the yoke pin support plate.
25. Don't use incorrect size coupling pin.
26. Don't lubricate or paint any of the CBC components.
27. Check the rear stopper for damages.
28. Check the broken yoke.
29. Check for damages of draft gear.

For Sick Line /ROH Staff:

1. Do check the coupling for damages and replace if required.
2. Do ensure free and smooth working of coupling and oil it.
3. Do ensure the suspension hooks are intact.
4. Do ensure the draw bar projection is within limits, and draw bar springs are tight.
5. Do ensure the draw bar spindle nut is intact and the cotter is put on properly.
6. Do ensure to provide coupling on both side of the wagon.
7. Attend to dead buffer properly.
8. Check the draw bar for excess wear.
9. Do ensure that the drawbar draft key cotteners is intact and of correct size.
10. Carryout all the modifications on alliance CBC.
11. Provide all the component of the lock lifting assembly.

12. Check for damaged or bent operating lever, rectify it.
13. Check the knuckle and the CBC guard arm using proper gauges.
14. Check the anticreep mechanism, attend to it if required.
15. Check the shank and striker casting wearing plates, if worn-out.
16. Check the front and rear stoppers.
17. Check for damaged draft gear.
18. Check the yoke for excess wear or breakage.
19. Don't allow excess free slack, attend properly.
20. Check the yoke pin support rivets properly.
21. Renew work out or cracked/broken yoke pin support plate.
22. Test the vacuum cylinders, attend, if jammed.
23. Weld properly the bearing piece safety strap.
24. Check the securing of the bearing piece and rivets of the brackets.
25. Don't use improvised locks for CBCs, use the correct one.

For work shop staff

1. Since the board have already decided that all center buffer couplers should be removed from the wagons at every P.O.H. and also manual G-80 recommends the same practice.
2. All CBC. and draft gear must be removed from all incoming P.O.H. wagons.
3. Detailed inspection of all coupler component and draft gears also their reclamation to be undertaken.
4. No painting or lubrication of coupler to be done during assembly. After removal, the coupler to be operated a few times to ensure free movement of components.
5. Railway board ordered, not to reclaim any knuckle after December 2002
6. After assembly of the coupler in wagon body, anti creep to be checked meticulously and in every case to ensure its proper functioning according to method.
7. Free movement and articulation at the joints between the components of rotary lock lift gear to be ensured by proper riveting. No welding of joints to be restored to.

8. Proper attention to draft gear should be given during P.O.H.
9. Ensure that coupler height should be maintained as specified in IRCA part III, rule no.2.13.7 as excessive difference in two adjacent couplers would cause excessive wear and stress on knuckle.

For Running staff:

1. Do work the train with a free and relaxed mind.
1. Do attach the train engine with a little bump on to the formation.
2. Do ensure proper locking of 'CBC' knuckles by push back and pull ahead the formation for half - a wagon length.
3. Do ensure proper starting of train without jerks, smoothly.
4. Do maintain unit changeover speed smoothly.
5. Do maintain uniform speed, where the formation negotiates over Ups & Downs.
6. Don't open and close throttle frequently.
7. Don't put the train into traction mode suddenly, after brake application.
8. Don't increase speed without allowing sufficient time for the release of brakes.
9. Don't start and stop the train sudden, and also avoid sudden brake application.
10. Do ensure proper locking of 'CBC' knuckles, tampered with if any, before re-starting a train stopped at level crossings etc. push back the formation a little bit with a small jerk.

11. While re-starting a train stopped on up gradients, releasing of brakes and opening of throttles should be done simultaneously, to avoid rolling back.
12. Know the phenomenon of " Run-In's " and " Run-Out's " for lengthy trains, make the run-out very smoothly.
13. Do feel your train, master the engineman ship.
14. Do aware for the caution spot, and control your train well in advance.
15. Do ensure synchronize working, if banker engine is provided.
16. Control your train in case of wheel slip, by reducing the speed.
17. Don't apply brake suddenly from the rear brake van, apply it gradually.
18. Proceed with the front portion and stop after ensuring that the rear portion has come to a stop, to avoid the rear portion coming and colliding with the front portion.

FOR OPERATING AND YARD STAFF

1. Do not shunt with loose couplings.
2. Do not allow the spare coupling to hang loose, put it on the suspension hook.
3. After shunting tighten the coupling fully.
4. Centralize the coupling screw before use.
5. Use the modified coupling always.
6. Never use the transition coupling without the clevis.
7. Lock clevis inside the knuckles, before using T-couplings.
8. Do keep at least one of the matching knuckles in open position.
9. Keep both the knuckles in open position, while doing on curved lines.
10. During hump shunting keep both the knuckles in open position.
11. Couple CBC stocks with a little bump.
12. Do not shunt IRS type stock on to CBC stock having no side buffers and vise-versa.
13. Ensure the knuckles are locked, after shunting.

14. Marshal loaded stock in front and empty stock in rear always.
15. Do not allow empty stock in between loaded stock.
16. Form separately BOX, BCX, CRT and IRS stock formations.
17. Do not exceed the tonnage of the train than the authorized limit.
18. Reducing of train tonnage than the authorized limit may be considered during monsoon/bad weather on section where heavy wheel slip is experienced.
19. CBC stock should be marshaled in front and IRS stock in rear.
20. If any CBC or screw coupling defect is noticed in front of C&W staff, immediately for its rectification, without delay.
21. Avoid stopping of trains at unscheduled places, where cases of trespassing is possible.
22. Take off signals well in advance for approach of the train.
23. Avoid taking off or putting off signals, as soon as the train reaches the signals.
24. Avoid stopping the train at signals situated on up gradients.

OUR OBJECTIVE

To upgrade maintenance technologies and methodologies and achieve improvement in productivity and performance of all Railway assets and man power which inter-alia would cover reliability, availability, utilisation and efficiency.

If you have any suggestions and any specific comments, please write to us.

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