



George Stephenson House  
York  
YO1 6JT

14<sup>th</sup> April 2010

Our Ref: VC/F2/2009/Class379/NXEA/001

Dear

**Vehicle Change Notice**

**NXEA Class 379 EMUs on Stansted Express and other National Express East Anglia Routes**

This Vehicle Change notice is issued in accordance with Condition F2.3.1 (c) of the Network Code and constitutes a formal proposal for a Vehicle Change by Network Rail on behalf of National Express East Anglia under Condition F2.

National Express East Anglia wishes to implement the Vehicle Change described above and has, pursuant to Condition F2.1(c), given permission to Network Rail to consult on its behalf with the parties shown on the attached distribution list. Conditions F2.3.1(b) and F2.3.1(c) enable all affected train operators to consider the Vehicle Change and bring to Network Rail's attention any matters that concern them regarding the change. Train operators may also assess the impact of the proposed change on their business and inform Network Rail what the direct costs and benefits of implementing the change are likely to be (if any).

This Vehicle Change notice outlines National Express East Anglia's proposal to allow the introduction of Class 379 EMUs on Stansted Express and other National Express East Anglia Routes. A detailed specification is set out in Appendix A.

National Express East Anglia is proposing the change as part of the HLOS programme of enhancements to its services on the West Anglia routes as detailed in Appendix A.

Network Rail has detailed in Appendix B its estimate of the likely impact of the change on the operation of the network and its own proposals in relation to various matters relating to the proposed Vehicle Change as required under F2.3.1(c) (iv) and (v).

(c) - Vehicle change notice to consultees

Network Rail must respond to this proposed Vehicle Change by 13th June 2010 as required under F2.3.1 (c) (i). Network Rail is seeking comments from you and the persons listed in the attached distribution list to establish whether or not you are content for the change to be implemented. We invite you to consider the proposed Vehicle Change and forward your comments to us by **3<sup>rd</sup> June 2010**. If a formal response is not received by this date, you will be deemed to have accepted the proposal (including any offer of compensation) and to have no issues to raise with regard to the proposed Vehicle Change.

Please respond to this notice using the appropriate standard form (e), (f) or (g), each of which can be found on Network Rail's website.

Train Operators who may be materially affected by the change should, if compensation is being claimed, provide evidence of the impact of the proposed change on their business and inform Network Rail what the costs, direct losses, expenses (minus the benefits) of implementing the change are likely to be, in line with condition F3.2 and F 3.3, other than any such costs which are attributable to National Express East Anglia improving its ability to compete with other operators of railway assets. Such response should be of sufficient detail to enable Network Rail to provide a comprehensive response to National Express East Anglia on your behalf as required under Condition F3.

Respondents should clearly indicate if they consider that all or part of their response is "sensitive information" as defined in Part A of the Network Code.

Wherever practically possible, please send all responses electronically. Please also send a signed hard copy of your response to the above address, or by fax to the fax number shown at the top of this letter.

Please let me know if you require any further details to enable you to respond formally to this notice.

If you feel that only National Express East Anglia will be able to answer your queries, please contact:

Track Access Manager, National Express East Anglia, Floor 1, Oliver's Yard, 55 City Road, London, EC1Y 1HQ.

I would appreciate a copy of any correspondence entered into. I look forward to receiving your response to enable the progression of this proposal.

Yours faithfully

**, Network Change Coordinator,LNE**

## Vehicle Change Distribution List

<b>Organisation</b>	<b>Name(s)</b>
National Express East Coast	Adrian Caltieri
Colas Rail	Andrew McCall
Babcock Rail	Andrew McLaren
First Group Rail Division	Andy Wylie
Freightliner Heavy Haul	Andrew Wijeyewardena
Freightliner Ltd	Robin Nelson
Freightliner Group	Tom Jones
Cross London Rail Links Ltd	Charles Devereux
DRSL	Chris Connelly
Volker Rail/Grantrail	Chris Hext
First Capital Connect	Geoff Brison and John Beer
Hull Trains	James Adeshiyan
Cross Country Trains	James Carter
West Coast Railway Co	James Shuttleworth
London Midland	John Czyrko
Amey Group Services	John Gribble
GB Railfreight	Kevin Crane
DRS	Kevin Eccleston
DRSL	Tom Curry
Serco Rail Operations	Matthew Crump
C2C	Catherine Rowe
HS1 Ltd	Naina Mistry
Fastline	Paul Orchard
DB Schenker (UK) Ltd	Pawel Nowak
Balfour Beatty	Peter Hoare
LOROL	Rob Brighthouse
ATOC	David Smith
ORR	Valentina Licata
DfT	Steven Alderson

## Appendix A

The following information has been provided by National Express East Anglia:

### Technical Acceptance

The Class 379 will be introduced to the UK Railway System under the following Regulations and Standards:

#### **Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS)**

NXEA will be satisfied that its Safety Management System supports the introduction of the Class 379 Units to its passenger service fleet in compliance with the Office of Rail Regulation (ORR) issued Safety Certification. NXEA, in compliance with its Safety Manual, will put in place a Safety Verification Scheme for the new rolling stock.

**Railways (Interoperability) Regulations 2006 and the Railways (Interoperability) (Amendment) Regulations 2007** Bombardier have procured the services of a Notified Body to review the engineered systems and issue a Technical File for the Class 379. The Technical File and Certificate of Verification will be issued to the ORR in support of passenger service introduction.

**GE/RT8270 Issue 2 - Assessment of Compatibility of Rolling Stock and Infrastructure** NXEA will convene the Class 379 Compatibility Review Forum, if required, with all identified stakeholders and when the assessment is complete, will issue the Class 379 Statement of Compatibility with the managed infrastructure over which the units will operate.

### Reasons for proposed change

The new trains are to provide extra capacity for in and out of London Liverpool Street using new and cascaded trains. This is to meet the Government's target to increase the passenger capacity in and out of London in line with the High Level Output Statement which is a commitment by Network Rail and Train Operators. The new trains will also increase the quality of service on this important link to Stansted Airport.

### Specification of Vehicle

Each unit will consist of four x 20 metre long vehicles, operating on 25kV AC overhead line supplies. All vehicles within a unit will be semi-permanently coupled together with inter-vehicle gangways throughout. Driving cabs, incorporating a front end gangway, will be provided at the outer ends of each unit. Auto-couplers at the end of each unit will allow the units to operate together in normal service. Three standard 4-car units can be combined for multiple working in configurations up to a maximum of 12 vehicles.

Standard vehicle features include:

- Aluminium monocoque body-shell featuring bolt on steel crashworthy ends
- Traction and braking equipment based on proven technology

- Proven bogies
- Modern ergonomic cab design including cab air conditioning
- Saloon air conditioning
- Passenger Information System
- 2 toilets per 4-car unit (one suitable for use by disabled persons)
- Amenity area with provision for two wheelchairs
- Front end gangway
- Saloon CCTV surveillance system
- Databus fault monitoring system

### Technical Specification

The following section provides an overview of the Stansted Express Electrostar unit, its systems and subsystems. It is intended as a summary only, for further detail please refer to NXEA.

### Vehicle General

Number of seats: 189 standard class, 20 first class in 4-car configuration (plus 12 vestibule tip-up seats and 4 saloon tip-up seats)

Configuration: 4-car units, each car nominally 20 m long, comprising: DMOS(A) – MOSL – PTOSL(W) – DMOC(B)

### Performance

Max. speed	100 mph
Service braking rate	0.9 m/s <sup>2</sup>
Emergency brake rate	1.2 m/s <sup>2</sup>

### Overall Dimensions

Unit length 4 car	80.77m – 20m per vehicle
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### Gauging and Curving

Track gauge	1435 mm
Min. horizontal curve	90 m

### Fire Retardancy

Assessed and approved against BS 6853:1999 Category 1b.

## Car Body

Structure	Aluminium monocoque construction with bolt on steel ends.
Crashworthiness	Energy absorption and override protection.
Equipment mounting	Rafted assembly to T-slot for equipment and T-slots for interior equipment.
Coupler	Automatic mechanical coupling between units, semi-permanent within units. Dellner type 12 autocoupler.
Passenger access doors	1/3 + 2/3 powered bi-parting sliding plug.
Cab access doors	Manual single leaf sliding plug. Power assisted.
Gangways	Front end gangway to allow throughway between units.  Inter-vehicle gangways enclosing the intermediate couplings provide access between vehicles in a unit.
Windows	Saloons have double glazed mechanically retained windows. Cab windscreens are laminated and incorporate electric element de-misting.
Body Additions	Air operated warning horns.  Windscreen wash/wipe exterior lights and indicators.

## Bogies

Bogie types	Series 3 power (P3-27) and trailer (T3-27) All power bogies fitted with 2 traction motors.
Suspension	Primary suspension - radius arm. Secondary suspension - air / rubber spring.

## Power Supply

Configuration	25 kV AC Single Voltage.
Power Collection	Pantograph mounted on the PTOSL(W) for AC collection.

## Propulsion

Technology	Bombardier IGBT propulsion.
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Configuration	6 motors per 4 car unit (37.5% axle motored).
Motors	200kW, AC 'squirrel cage'.
Unit power	1.2 MW
Acceleration rate	0.65 Metres per second squared

### Auxiliary Power

Auxiliary Converters	2 static converters providing 400V 3 phase AC auxiliary supply & 110 V DC control and battery charging supply.
Batteries	2 x 110 V, 90Ah Ni-Cad batteries providing back-up auxiliary control and emergency circuit supply. 1 per DMOS, DMOC vehicle.

### Braking

Control	Electro pneumatic.
Additions	Wheel slide prevention. Automatic multi-shot sanding (in brake notches 2 + 3 and emergency) for use during braking. Sanding in traction is manually operated by the driver
Dynamic braking	Regenerative

### Interior Environment

Architecture	2+1 First Class seating 2+2 Standard Class seating.
Seat layout & design	DMOS(A) 60 standard seats with 4 vestibule tip-up seats MOSL 62 standard seats with 4 vestibule tip-up seats PTOSL(W) 43 standard seats with 2 vestibule tip-up seats and 4 saloon tip-up seats DMOC (B) 20 first class, 24 standard class with 2 tip-up seats
Cab	Full width with LH driving position and

ergonomic driving controls per DMOS.

## Control & Communication

Databus	Databus system monitoring of sub-systems to display fault information on screen in driving cab and download to Service control Centre.
PIS	Passenger information displays in each saloon. External passenger information displays on each vehicle. Front end train displays. Train splitting and joining functionality.
CCTV	4 colour cameras per saloon feeding into recording unit on each vehicle. Forward facing CCTV camera to be fitted to each Driving Vehicle Infrastructure monitoring cameras to be fitted for rail and pantograph monitoring. Monitoring screens allowing scrolling between cameras in the driving cab.
Seat Reservation	Manual system provision at every seat and an electronic system in first class.
Radio	To be advised. Will be either CSR or GSM-R fitted, dependent upon status of GSM-R infrastructure.
Public Address	Cab to saloon announcements including automatic announcements linked to visual displays. Announcements from Guards.
PA talk-back	Talk back with Driver provided at each door position, each wheelchair position and in the toilets.
Cab to Cab	Cab to cab and cab to Guards Panel communication via handsets.
Selective Door Opening	GPS based SDO system with beacon system at certain stations
Other Systems	Automatic Warning System (AWS) and Train Protection and Warning System (TPWS). Driver Safety Device Vigilance



On Train Monitor and Recorder (OTMR)

WiFi

Driver Only Operation

Driver monitored train borne system utilising two externally mounted cameras per vehicle and 2 monitors per cab.

Capable of operating in any unit configuration up to 12 car length.

### **Details of where new rolling stock will operate**

National Express East Anglia will be operating the new Class 379 Electrostar vehicles to deliver its Stansted Express and West Anglia services between London Liverpool Street, Stansted Airport and Cambridge/King's Lynn. They will be maintained at Ilford Depot. They will also be cleared for all other electrified routes operated by National Express East Anglia.

**Details of Network and associated works required to facilitate Vehicle Change**  
Fitment of beacons at Broxbourne Railway Station only to allow for GPS selective door operating system to be undertaken by Network Rail.

**Proposed timescales**

Key milestones are as follows:

1. SPZ Infrastructure and Type Testing 15 November 2010 – 19 December 2010.
2. Testing and route proving on NXEA routes (exact route details to be confirmed) 20 December 2010 – 2 March 2011.
3. Provisional Acceptance and into service (unit 1) 3 March 2011.
4. Provisional Acceptance and into passenger service (unit 2 through to 30) 10 March 2011 – 20 June 2011.

**Costs and compensation**

If any valid claim for compensation is submitted as a consequence of this Vehicle Change notice NXEA will comply with the Network Code in all regards.

**Additional terms and conditions**

None applicable.

**Any other material facts**

None applicable.

## **Appendix B**

**The following are Network Rail's proposals in respect of the proposed Vehicle Change:**

### **Network Rail's Assessment of the Impact and Proposals to Facilitate Vehicle Change**

Fitment of beacons at Broxbourne Railway Station only to allow for GPS selective door operating system is required. Network Rail is minded to pay on the condition the type 3 beacons become product approved pending the trial in April 2010, subject to formal internal investment approval and any necessary regulated change consents.

Network Rail's assessment of this proposed Vehicle Change has concluded that it will support this proposal for the West Anglia Route between Stansted Airport and London Liverpool Street including the Southbury Loop. The route between Kings Lynn and London Liverpool Street & Cambridge and London Liverpool Street is supported by Network Rail, subject to a limit of three round trips per hour in the morning and evening peaks operating between Cambridge and London, with a maximum of one of these round trips operating through to Kings Lynn as single four coach unit. These limits are due to constraints on power supply capacity

Network Rail is subject to funding restrictions under HLOS and the CP4 Delivery Plan Enhancements Programme. Therefore, for all other electrified routes operated by National Express East Anglia, Network Rail's support for Vehicle Change is conditional on any infrastructure work being met by the proposer of the Vehicle Change.

### **Additional Terms and Conditions**

Network Rail has no further proposals which vary from those outlined in Appendix A.

### **Network Rail's proposals for the division of costs and compensation**

Compensation will be paid in line with Part F of the Network Code

### **Additional Terms and Conditions**

If, following confirmation from Network Rail that this Vehicle Change has become an Established Vehicle Change (as defined in Part F of the Network Code), and the Sponsor wishes to make modifications to the terms or conditions (including as to the specification of the works to be done, their timing, the manner of their implementation, the costs to be incurred and their sharing, and the division of risk) on which the Established Vehicle Change is to be carried out the following variation procedure will be used:

Network Rail shall ensure the specific variation (or variations) is formally communicated to all parties to this notice (the original consultation notice) for consideration. The parties to the consultation shall consider the variation (or variations) in accordance with the procedures set out in Conditions F2 and F3 allowing for the changes in detail, that must follow as a result of the procedure applying only to the proposed variation. It shall not be necessary for Network Rail, on behalf of (Insert Sponsors Name), to re-issue the entire Vehicle Change notice for consultation.