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RAIL SAFETY AND STANDARDS BOARD

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Briefing Leaflet

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The following modules and handbooks will be re-issued and come into force on 06 June 2026:

Handbook 16 AC electrified lines

Handbook 17 DC electrified lines

Module AC AC electrified lines

Module DC DC electrified lines

Module M1 Dealing with a train accident or train evacuation

Module M2 Train stopped by train failure

Module TW1 Preparation and movement of trains

Handbook 16 AC electrified lines

KEY CHANGES

The modules and handbooks relating to AC and DC electrified lines have been reviewed to include a number of changes that had been proposed by the industry.

The changes that have been introduced include the following:

- Descriptions of electrification systems.
- Definitions and terminology.
- Emergency switch-off arrangements.
- Additional diagrams.
- Actions following an OLE-related incident.

Some of the changes reflect updating of Network Rail standards and others are go keep the publications up-to-date, and the changes are intended to improve the management of the risks from electric traction systems.

DETAIL OF CHANGES

Section headings in bold relate to issue 7 of Handbook 16.

1 Definitions

Automatic power changeover
A definition of this term has been added.

Discontinuous electrification
A definition of this term has been added.

Earthed
A definition of this term has been added.

Isolated
A definition of this term has been added.

Multi-mode train
A definition of this term has been added.

Nominated person
A definition of this term has been added.

2 General

The title of this section has been changed, as the content covers more than competence.

'Competency assessment' has been changed to 'competence' for simplicity.

To explain more clearly what is meant, the wording has been changed to say that Table A of the *Sectional Appendix* shows which 'lines of route' are electrified, with new items to say that along a line of route there may be lines or sidings that are not provided with overhead line equipment (OLE), and that there may be unwired sections.

3 Dangers of the system

3.1 Treating the OLE, pantographs and electrical equipment as being live

The title and wording have been changed as the section now refers additionally to any electrical equipment on a train that must be treated as live.

For consistency, the word 'dangerous' has been used in this section rather than variations such as 'extremely dangerous' and 'dangerous to life'.

A reference to 'train and locomotive pantographs' has been changed to 'pantographs' to simplify the wording without losing any meaning.

A new instruction has been added to say that a method statement can state that any along-track conductors equipped with 'green diamond' markers do not have to be treated as dangerous.

The wording relating to local isolations has been changed to that used in section 4.2 as this is clearer.

3.2 Objects on or near to the OLE

A new diagram HB16.1.2 has been included showing portal OLE construction, which is more common than headspan, and diagram HB16.1 has been renumbered HB16.1.1.

3.3 Reporting objects and defects

The wording concerning reporting to the ECO has been changed in the interests of clarity.

There is a new instruction concerning cables that form part of the electrification system, which are not normally dangerous, but could be if damaged.

A new instruction has been added concerning the need to take the same precautions for rails and bonds on an unwired section of electrified line, as the same risks arise.

4 Personal safety

4.2 When working on traction units or other vehicles

The words 'Network Rail's' have been changed to 'the infrastructure manager's' as there can be another infrastructure manager.

This section no longer refers to pantographs and associated roof-mounted electrical equipment, as this has already been referred to in section 3.1.

6 Emergency switch-off

6.1 Immediate actions

This has been changed as the types of incident listed would not necessarily always require an emergency switch-off.

9 Overhead line permits

9.1 Issuing an overhead line permit

A new requirement has been added to see the 'test before touch' process carried out.

9.2 During the work

There is a new instruction to say that it is not necessary to tell the new controller of site safety (COSS) about the conditions if the nominated person has already done so.

A new requirement has been included to have seen the 'test before touch' process before starting work on a different part of the OLE.

9.3 Changes of personnel within the work group

A new bullet point has been added for consistency with module AC *AC Electrified lines.*

10 Arranging coasting under the OLE

The conditions when coasting is permitted have been included for completeness.

These have been updated from those previously published in module AC AC *Electrified lines.*

Whilst coasting is not normally permitted within five OLE structures of a tunnel or overbridge, this is allowed if a competent engineer has given position.

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Handbook 17 DC electrified lines

KEY CHANGES

The modules and handbooks relating to AC and DC electrified lines have been reviewed to include a number of changes that had been proposed by the industry.

The changes that have been introduced include the following:

- Descriptions of electrification systems.
- Definitions and terminology.
- Emergency switch-off arrangements.
- Additional diagrams.

Some of the changes reflect updating of Network Rail standards and others are to keep the publications up-to-date, and the changes are intended to improve the management of the risks from electric traction systems.

DETAIL OF CHANGES
Section headings in bold relate to issue 6 of Handbook 17.

1 Definitions

As a result of updating of Network Rail instructions, this handbook now applies between Drayton Park and Moorgate and in the Merseyrail electrified area.

Authorised person
A definition of this term has been added.

Conductor rail equipment
A definition of this term has been added.

Emergency switch-off
This definition has been updated.

Isolated
A definition of this term has been added.

2 General

The title of this section has been changed, as the content covers more than competence.

'Competency assessment' has been changed to 'competence' for simplicity.

To explain more clearly what is meant, the wording has been changed to say that Table A of the *Sectional Appendix* shows which 'lines of route' are electrified.

3 Dangers of the system

3.1 Treating the CRE, shoegear and associated exposed live train-mounted equipment as being live

For consistency, the word 'dangerous' has been used in this section rather than variations such as 'extremely dangerous' and 'dangerous to life'.

In line with a recent change to Network Rail instructions, the CRE is now described as being 'safe to approach but not to touch'.

The wording has been changed to refer to using live line testing equipment or a short-circuiting bar, and to alternatives concerning actions in an emergency as a result of changes to Network Rail instructions.

the word 'assurance' is no longer used, as this can have a particular legal meaning.

The previous instruction about not touching running rails at the same time as any metalwork not directly connected to them has been removed, following engineering advice that this hazard is not significant enough to mention.

6 Emergency switch-off

6.1 Immediate actions

This has been changed as the types of incident listed would not necessarily always require an emergency switch-off.

7 Rescuing a person from the CRE

One of the precautions has been changed to a form of wording used in outside industry.

10 Track isolating switches and hook switches

The wording has been changed in the interests of accuracy as the sleeves are not always white.

11 Short circuits

The wording has been changed for completeness to refer to the requirement to take a line blockage.

Module AC AC Electrified Lines

KEY CHANGES

The modules and handbooks relating to AC and DC electrified lines have been reviewed to include a number of changes that had been proposed by the industry.

The changes that have been introduced include the following:

- Descriptions of electrification systems.
- Definitions and terminology.
- Emergency switch-off arrangements.
- Additional diagrams.
- Actions following an OLE-related incident.

Some of the changes reflect updating of Network Rail standards and others are to keep the publications up-to-date, and the changes are intended to improve the management of the risks from electric traction systems.

DETAIL OF CHANGES

Section headings in bold relate to issue 10 of module AC.

1 Definitions

For completeness, definitions have been added of 'automatic power changeover', 'discontinuous electrification', 'earthed', isolated' and 'nominated person'.

2 General

The title of this section has been changed, as the content covers more than competence.

'Competency assessment' has been changed to 'competence' for simplicity.

To explain more clearly what is meant, the wording has been changed to say that Table A of the *Sectional Appendix* shows which 'lines of route' are electrified, with new items to say that along a line of route there may be lines or sidings that are not provided with overhead line equipment (OLE), and that there may be unwired sections.

3 Dangers of the system

3.1 Treating the OLE, pantographs and electrical equipment as being live

The wording concerning reporting to the ECO has been changed in the interests of clarity.

For consistency, the word 'dangerous' has been used in this section rather than variations such as 'extremely dangerous' and 'dangerous to life'.

A reference to 'train and locomotive pantographs' has been changed to 'pantographs' to simplify the wording without losing any meaning.

A bullet point concerning access to a train roof has been removed, as the isolation and earthing of the OLE would mean the pantographs and associated roof-mounted electrical equipment can be regarded as safe.

The wording referring to local isolations has been changed to that which was shown in section 4.2 as this is clearer. This also avoids using the word 'assurance' which can have a particular legal meaning.

3.2 Objects on or near to the OLE

A new diagram AC1.2 has been included showing portal OLE construction, which is more common than headspan, and diagram AC1 has been renumbered AC1.1.

3.3 Reporting objects and defects

The wording concerning reporting to the ECO has been changed in the interests of clarity.

There is a new instruction concerning cables that form part of the electrification system, which are not normally dangerous, but could be if damaged.

A new instruction has been added concerning the need to take the same precautions for rails and bonds on an unwired section of electrified line, as the same risks arise.

4 Personal safety

4.2 When working on traction units or other vehicles

The words 'Network Rail's' have been changed to 'the infrastructure manager's' as there can be another infrastructure manager.

The words 'train and locomotive pantographs' have been changed to 'pantographs' which simplifies the wording without losing any meaning.

This section no longer refers to pantographs and associated roof-mounted electrical equipment, as this has already been referred to in section 3.1.

6 Emergency switch-off

6.1.1 Types of incident

This has been changed, as the types of incident listed would not necessarily always require an emergency switch-off.

6.2 Further actions

The wording has been changed to avoid using the word 'assurance' which can have a particular legal meaning.

9 Overhead line permits

9.1 Issuing an overhead line permit

A new requirement has been included to have seen the 'test before touch' process.

9.2 During the work

There is a new instruction to say that it is not necessary to tell the new designated person (DP) about the conditions if the nominated person has already done so.

A new requirement has been included to have seen the 'test before touch' process before starting work on a different part of the OLE.

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

12.7 Providing electric train supply when the train cannot proceed

This has been changed to say that if a driver cannot be sure that the damaged pantograph is in contact with the OLE and that there is no arcing, this must be confirmed by a person competent to do so.

14 Instructions for examining the OLE

14.2.1 How the OLE is to be examined

The existing conditions for allowing trains to proceed under their own traction power, or to coast, were based on the permitted minimum contact wire height. In some locations this is now allowed to be lower, and to permit the procedure to be applied in all locations while still providing clearance from a train, the minimum distance from a tunnel or overbridge has been increased to five OLE structures.

14.2.2 If a train can operate using its own traction power or coast with pantographs lowered

The existing conditions for allowing trains to proceed under their own traction power, or to coast, were based on the permitted minimum contact wire height. In some locations this is now allowed to be lower, and to permit the procedure to be applied in all locations while still providing clearance from a train, the minimum distance from a tunnel or overbridge has been increased to five OLE structures. This minimum distance does not apply as long as a competent engineer has given permission.

The wording has been changed to avoid the word 'assurance' which can have a particular legal meaning.

14.2.4 If no object or defect is found

This section has been changed in three ways to provide greater clarity.

- Normal working can resume on any line after the OLE on that line has been examined, apart from the exceptions shown.
- it is only necessary for trains to continue to run at caution and no more than 20 mph (30 km/h) on the line on which the ADD operated or the damage was reported.
- That restriction applies only to trains with raised pantographs.

15 Moving trains after an OLE incident

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

The names of the signs have been changed to be consistent with how they are referred to in section 14.1.

Module DC DC Electrified Lines

KEY CHANGES

The modules and handbooks relating to AC and DC electrified lines have been reviewed to include a number of changes that had been proposed by the industry.

The changes that have been introduced include the following:

- Descriptions of electrification systems.
- Definitions and terminology.
- Emergency switch-off arrangements.
- Additional diagrams.

Some of the changes reflect updating of Network Rail standards and others are to keep the publications up-to-date, and the changes are intended to improve the management of the risks from electric traction systems.

DETAIL OF CHANGES
Section headings in bold relate to issue 8 of module DC.

1 Definitions

As a result of updating of Network Rail instructions, this module now applies between Drayton Park and Moorgate and in the Merseyrail electrified area.

Authorised person
A definition of this term has been added.

Automatic power changeover
A definition of this term has been added.

Conductor rail equipment
A definition of this term has been added.

Emergency switch-off
This definition has been amended to explain correctly the extent of the area affected.

Isolated
A definition of this term has been added.

2 General

The title of this section has been changed, as the content covers more than competence.

'Competency assessment' has been changed to 'competence' for simplicity.

To explain more clearly what is meant, the wording has been changed to say that Table A of the *Sectional Appendix* shows which 'lines of route' are electrified.

3 Dangers of the system

3.1 Treating the CRE, shoegear and associated exposed live train-mounted equipment as being live

For consistency, the word 'dangerous' has been used in this section rather than variations such as 'extremely dangerous' and 'dangerous to life'.

In line with a recent change to Network Rail instructions, the CRE is now described as being 'safe to approach but not to touch'.

The wording has been changed to refer to using live line testing equipment or a short-circuiting bar, and to alternatives concerning actions in an emergency as a result of changes to Network Rail instructions.

The word 'assurance' is not used, as this can have a particular legal meaning.

The previous instruction about not touching running rails at the same time as any metalwork not directly connected to them has been removed, following engineering advice that this hazard is not significant enough to mention.

6 Emergency switch-off

6.1.1 Types of incident

This section has been changed as the types of incident listed would not necessarily always require an emergency switch-off.

It has also been changed to describe more accurately the extent of a switch-off.

6.1.3 Additional instructions for train crew

This has been changed as a result of changes to emergency protection rules that affect those in section 45.1 of module TW1 *Preparation and movement of trains.*

6.4 Detraining passengers

This has been changed to say that if a temporary isolation cannot be taken of the whole area affected, alternative measures must be taken.

7 Rescuing a person from the CRE

The description of the type of protective material that can be used has been changed to a form of wording used by an outside industry body.

10 Track isolating switches and hook switches

The wording has been changed in the interests of accuracy as the sleeves are not always white.

11 Short circuits

11.2 Examining the conductor rail

The wording has been changed for completeness to refer to the requirement to take a line blockage.

12 Moving electric and multi-mode trains between live and isolated sections

12.3 Taking a possession around a train

This section is intended to refer to an engineering train which has entered the limits of a possession before the possession has been taken, but not to any trains that have been stabled there. As this has not been fully understood, the wording has been changed to make this clear.

Module M1 Dealing with a train accident or train evacuation

KEY CHANGES

The actions following a train accident in sections 1 and 2 have been extensively revised. Greater emphasis has now been placed on the use of available means of telling the signaller, and the ability to alert drivers by using GSM-R radio. The sooner the signaller, and other drivers can be made aware, the more likely it is that further consequences can be avoided.

The methods of contacting the signaller are now set out in the order in which they are most likely to be effective as quickly as possible, and in which they are to be used.

- A railway emergency group call (REC) from the driving cab.
- Any other means of direct communication available from the driving cab.
- A REC from any other driving cab on the train.
- Leaving the train to speak to the signaller.

After leaving the train, a hand danger signal is used to warn drivers of approaching trains. If it is possible to stop an approaching train, the driver of that train is asked to tell the signaller.

The requirements concerning tunnels and diverging junctions have been changed so that the maximum warning can be given to the driver of any approaching train.

Track-circuit operating clips are not required to be placed after the signaller has been spoken to unless the signaller asks the driver to do so. They must be placed before leaving the driving cab to use the GSM-R radio in another cab, or to speak to the signaller.

More detail is given on the actions to be taken if lines used in both directions are affected.

The use of detonators will be retained for a trial period in some situations when a driver has left the train to contact the signaller.

The requirement for emergency protection on the line the train had been travelling during extended block working has been removed, as the risk this guards against is considered to be extremely small.

DETAIL OF CHANGES
Section headings in bold relate to issue 9 of module M1.

1 Definitions

The definition of 'signal protection' has been removed, as this term is no longer referred to.

2 What to do after a train accident

2.1 Driver's actions

This section has been completely revised and includes two sub-sections 'Telling the signaller from the train' and 'Leaving the train to speak to the signaller'.

Having told the signaller about the accident, the driver must stay in the cab until the signaller confirms that all trains have stopped in response to a REC, or that no train is approaching. The driver then finds out if any other line is obstructed. If the signaller says that a train is approaching the driver must proceed on foot towards it showing a hand danger signal.

More detail is given on deciding what to do if lines used in both directions are obstructed and the signaller has not been spoken to, including a sub-section 'Getting help from others' which explains this is a situation in which that might be necessary.

2.2 Guard's actions

This section has been revised to be consistent with the revised actions for the driver.

For consistency with those actions, the requirements to find out whether any other line is obstructed and place a track-circuit operating clip before contacting the driver have been removed.

2.3 Signaller's actions

The requirement to make a REC is now the first action for the signaller, and a more specific one.

There is a new requirement to tell the driver of the train involved in the accident whether trains approaching that location have been stopped.

3 After leaving the train

The title of this section has been changed, as tit now entirely concerns the actions to be taken after leaving the train to contact the signaller.

There is a new instruction that if successful in stopping an approaching train, that driver is to be asked to tell the signaller what has happened.

The use of detonators is retained in some circumstances for a trial period. These are:

- If a train approaches
- On reaching a telephone or signal box before speaking to the signaller.
- On reaching a tunnel it is not safe to pass through.
- On reaching a diverging junction.

Placing track-circuit operating clips is now referred to in section 2.1.

Placing a track-circuit operating clip following complete derailment is no longer required.

There are no additional requirements during extended block working.

On reaching a tunnel the options are to proceed through a tunnel if it is a short one and it is safe to do so, while still being able to warn any approaching train, or to remain at the entrance, place detonators and show a hand danger signal.

On reaching a diverging junction, the requirement is now to stay at the junction, place detonators and show a hand danger signal.

6 Evacuating a train

6.3 Controlled evacuation

This section has been changed as a result of other changes made to the module, and now requires the signaller to be told about the controlled evacuation and to stop any train approaching on any line that might be affected.

6.4 Emergency evacuation

As the definition of a train accident includes a train evacuation, this has been changed to refer to carrying out the instructions in section 2.1 for consistency.

To avoid ambiguity, it is now stated that 'proceed' means 'proceed on foot'.

6.6 Uncontrolled evacuation

As the definition of a train accident includes a train evacuation, this has been changed to refer to carrying out the instructions in section 2.1 for consistency.

Module M2 Train stopped by train failure

KEY CHANGES

Changes have been made to this module as a result of those made to module M1 *Dealing with a train accident or train evacuation.*

There is no longer any requirement to place emergency protection if a train has failed during extended block working and all references have been removed from this module.

As a result, the number of locations where the assisting train might meet the driver of the failed train has been reduced.

DETAIL OF CHANGES

Section headings in bold relate to issue 9 of module M2.

1 If the train fails

1.4 Telling the guard

This section has been changed to remove any reference to carrying out emergency protection.

2 Not used

As there is no longer any requirement to place emergency protection during extended block working, the whole of section 2 has been withdrawn.

3 Providing assistance

3.2 Signaller allowing the assisting train to enter the section

As it is no longer necessary to carry out emergency protection during extended block working, the driver of the failed train is no longer required to proceed on foot to the emergency protection point, or beyond it to speak to the signaller. The section has been changed as the driver of the failed train will no longer be required to meet the assisting train at either of those locations.

Module TW1 Preparation and movement of trains

KEY CHANGES

The rules concerning emergency protection following a train accident, and when other trains are put in danger have been reviewed. Changes have been made to section 45.1 of this module that correspond to similar changes made to module M1 *Dealing with a train accident or train evacuation.*

The actions of a driver on exploding detonators have been changed to include making a REC to tell the signaller and other drivers about a possible hazard. A new rule has been added to state that this also applies if a hand danger signal is seen unexpectedly when not already bringing a train to a stand as a result of receiving a REC.

Section 45.1 now includes revised versions of the existing instructions in a new sub-section 'a) When trains in the opposite direction are put in danger' as they are only relevant to that situation. A new sub-section 'b) When trains in the same direction are put in danger' has been introduced, as the question of a hazard to a train on another running line used in the same direction has not previously been catered for.

Section 45.1 a) now includes a requirement to use any other means of direct communication available within to driving cab to tell the signaller if unable to make a REC.

To avoid any ambiguity, it is now stated that in moving forward to the 1 1/4 mile point, a driver must not pass any signal at danger unless already having been authorised to do so.

Having stopped at the 1 1/4 mile point, the rule now states that the signaller can allow the train to proceed on its journey normally if the signaller can confirm no train is approaching. Whilst this can be the case under the existing rules, it is not made clear.

Placing a track-circuit operating clip having stopped at this location is only required if the signaller has not yet been spoken to, or if requested by the signaller.

Using GSM-R from another driving cab has been added as another means of contacting the signaller from that location.

Section b) is completely new, and requires the driver to stop the train as soon as possible and to contact the signaller as soon as possible. The driver's actions are then similar to those in module M1, and if it is necessary to leave the train before the signaller has been spoken to, the driver must show the hazard warning indication at the rear of the train.

The requirement to place detonators is retained for a trial period in three situations.

DETAIL OF CHANGES
Section headings in bold relate to issue 22 of module TW1.

13 Exploding detonators or observing a hand danger signal

The title has been changed as a result of introducing a new section 13.2.

13.1 Exploding detonators

This instruction will now apply whenever a detonator is exploded. There is a new requirement to make a REC, and if unsuccessful to proceed at caution as under the previous rule.

13.2 Observing a hand danger signal

This is a new instruction on the driver's actions when a hand danger signal is encountered unexpectedly on a running line. This balances the changes made to module M1 that will lead to situations when this is the case, and the driver must make a REC to advise the signaller that there is probably a danger to approaching trains.

45 Trains put in danger

45.1 When other trains are put in danger

This section has been revised in line with changes made to module M1 and now contains instructions that apply when trains traveling in the same direction are put in danger.

In some cases where 'proceed' means proceeding on foot, this has been stated to avoid ambiguity.

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