GERT8000

Rule Book

Train Operations Staff Manual

Published by Rail Safety and Standards Board Limited
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 roles of Guard, Shunter, DP and Platform Staff as defined in the Rule Book Matrix published by RSSB.

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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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AC electrified lines

GE/RT8000/AC
Rule Book

Issue 4
September 2015
Comes into force 05 December 2015
Conventions used in the Rule Book

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.

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.

Example

driver

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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.
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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.

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.
Dangers of the system

The people responsible: all concerned, driver

3.1 Treating the OLE as being live

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

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.
Diagram AC.1
Typical OLE construction

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

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.

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.

- 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.
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

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.

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.

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

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’. 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.

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.
6.2 Further actions

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

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.
7

Rescuing a person from the OLE

The people responsible: 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.
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.
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’.

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.

• 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.

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.
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

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.

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.

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:

- 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

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.

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:

- 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.

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

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

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.

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:

- 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.
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

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:

• 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.

This does not apply if the driver reports there is damage to a pantograph.
**13.4 Resuming normal working**

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.
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:

- 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.

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.
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.

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.
14.3 Responsible person arriving on site

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](image)

14.4 OLE personnel examining the OLE

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.

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

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

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.
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.
### 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

**signaller**

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.

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.
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.

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.

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.
Diagram AC.2
Arrangement of signs and APC track inductors for a typical neutral section
DC electrified lines

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Conventions used in the Rule Book

A black line in the margin indicates a change to that rule and is shown when published in the module for the first time.

Example:

Green text in the margin indicates who is responsible for carrying out the rule.

Example: driver

A white i in a blue box indicates that there is information provided at the bottom of the page.

Example:

A rule printed inside a red box is considered to be critical and is therefore emphasised in this way.

Example:

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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.
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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.

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

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.

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:

- 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.
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.
4.3 Attending to vehicles

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

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. 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.

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

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'.

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.

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.

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.
6.2 Further actions

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 (PIC EE).

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

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.

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.

#### 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

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

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.

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.
Rescuing a person from the CRE

The people responsible: 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).

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.
10 Track isolating switches and hook switches

*The people responsible: 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.

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.

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.
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.

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>A black line in the margin indicates a change to that rule and is shown when published in the module for the first time.</td>
<td><img src="image" alt="black_line" /></td>
</tr>
<tr>
<td>Green text in the margin indicates who is responsible for carrying out the rule.</td>
<td><strong>driver</strong></td>
</tr>
<tr>
<td>A white <code>i</code> in a blue box indicates that there is information provided at the bottom of the page.</td>
<td><img src="image" alt="information" /></td>
</tr>
<tr>
<td>A rule printed inside a red box is considered to be critical and is therefore emphasised in this way.</td>
<td><img src="image" alt="red_box" /></td>
</tr>
</tbody>
</table>
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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
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General instructions

The people responsible: all concerned

1.1 Rules, regulations and instructions

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

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

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. 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.

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.

1.7 Reporting trespassers

You must report anyone you believe to be trespassing to the signaller or Operations Control.
1.8 Defective rail vehicles

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

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

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.
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.
Stopping a train in an emergency

The people responsible: 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 any 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.

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

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

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).

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.

Telephone No

Large hazard warning panel

Small hazard warning panel

European hazard warning panel

United Nations number
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.
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.

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.
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

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.

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

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

#### a) Phrases to use when using a radio or telephone

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

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

<table>
<thead>
<tr>
<th>Phrase</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over</td>
<td>I have finished my message and am expecting a reply.</td>
</tr>
<tr>
<td>Out</td>
<td>I have finished my message no reply is expected.</td>
</tr>
</tbody>
</table>
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.

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

supersedes GERM8000-trainoperationsstaff Iss 1 on 05/12/2015.
Superseded by GERM8000-trainoperationsstaff 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.
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.

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

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.

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:

- 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

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.
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.

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

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.
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.
Dealing with a train accident or train evacuation
You will need this module if you carry out the duties of a:

- driver
- guard
- signaller.

**Conventions used in the Rule Book**

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Green text in the margin indicates who is responsible for carrying out the rule.

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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.
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.
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**

- **Track-circuit operating clip**
- **Track-circuit operating clip**
  (only necessary if the whole train has been derailed)

**Key**
2.2 Guard’s actions

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

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.
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.
3.2 Protecting a double-track line

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

Key
- Track-circuit operating clip
- Track-circuit operating clip (only necessary if the whole train has been derailed)
- Three detonators

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.

Key

- Track-circuit operating clip
- Track-circuit operating clip (only necessary if the whole train has been derailed)
- Three detonators

Diagram M1.3
3.4 If a train approaches

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.

**Key**

- Track-circuit operating clip
- Track-circuit operating clip (only necessary if the whole train has been derailed)
- Three detonators

Three detonators to be placed on the track immediately if you see an 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.

Diagram M1.5
3.6 Reaching a tunnel entrance

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:

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

**Key**

- Track-circuit operating clip
- Track-circuit operating clip (only necessary if the whole train has been derailed)
- Three detonators

**Note**

In this example, the person carrying out protection considered route ‘A’ the priority to protect.

**Diagram M1.7**
3.8 Protecting your own line

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.

**Key**
- Track-circuit operating clip
- Track-circuit operating clip (only necessary if the whole train has been derailed)
- Three detonators

**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.

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:
- 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.

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.
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.

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.

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.

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

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

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.

6.2 Guard’s immediate actions

You must tell the driver that an evacuation is necessary.

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.

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.

If you cannot contact the signaller, or the signaller cannot provide signal protection, you must carry out emergency protection.
6.5 **Signaller’s actions**

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**

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.
Trains or shunting movements detained on running lines
You will need this module if you carry out the duties of a:

- driver
- shunter
- signaller.

**Conventions used in the Rule Book**

<table>
<thead>
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<th>Example</th>
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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
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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.

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.

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

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

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

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.

### 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:

- 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.
Trains or shunting movements detained on running lines

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.
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:

- 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:

- 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.
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.
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.

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.
Supersedes GERM8000-trainoperationsstaff Iss 1 on 05/12/2015.
Superseded by GERM8000-trainoperationsstaff 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.
Passing a signal at danger or an end of authority (EoA) without a movement authority (MA)
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.

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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
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5 Not used

6 Temporary block working

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Passing a signal at danger controlled from a signal box that is closed

8.1 Preconditions
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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
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.

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.
An engineering train is to:
- move towards a possession, or
- leave a line under possession at an intermediate point.

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.

The line is to be examined to check that it is clear.

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.

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.

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.

Single line working applies.

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.
Signaller’s precautions before authorising the movement

The person responsible: signaller

2.1 Making sure the line is safe

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

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.

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

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

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.
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.
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.

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.
4 During the movement

The people responsible: driver, signaller

4.1 Points and crossings

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

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.

- 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:

- 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.

### 4.5 Signaller protecting the movement

You must not work any signalling control that has been operated to protect the movement.

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.

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.
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.

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

You must arrange for:

- 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:

- 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

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.

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.

7.2 Before starting

You must operate the TPWS train stop override button.

7.3 During the movement

You must proceed at caution, even if the line appears to be clear.
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.

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.
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.

8.5 At the next signal box

When you reach the next signal box, you must contact the signaller there at the first opportunity.
9.1 Passing a signal at danger or an EoA without authority

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.

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

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**

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.
Observing and obeying signalling indications
Train warning systems
Reporting signalling failures and irregularities
You will need this module if you carry out the duties of a:

- driver
- person controlling train movements
- shunter
- signaller.

**Conventions used in the Rule Book**

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.

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.
Section

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8 ERTMS failures

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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.
1.3 Signals that control the exit from sidings

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

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

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.
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)

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’

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:

- 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.
3.3 Returning to the approach side of a signal

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.
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.
### 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:

- 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.

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.

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:

• 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:

• 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.
### 7.2 Boards and indicators

**driver**
You must tell the signaller at the first opportunity if any of the following is missing, difficulty 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.

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.

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.
7.7 Reporting a signal/AWS/ERTMS/TPWS failure or irregularity

a) Completing form RT3185

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

You must tell Operations Control and make a suitable entry in the Train Register.

c) Exceptions

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.

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:

- 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.
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

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.

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

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.

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.*
Station duties and train dispatch
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**

<table>
<thead>
<tr>
<th>Convention</th>
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</table>
1 Definitions

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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
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.
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.

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.

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.

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

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

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.

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

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.

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.

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.
Train dispatch

The people responsible: driver, guard, PIC of platform, platform staff

3.1 The ‘station work complete’ and ‘train safety check complete’ signal

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.

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’

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’.

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.

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.

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.

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.
3.4 Checking the platform starting signal

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.

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

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.

When you receive the ‘station work complete’ signal you must then give the ‘station work complete’ signal to the 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.

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.

When you receive the ‘train safety check complete’ signal, you must then give the ‘train safety check complete’ signal to the guard.

When you receive the ‘train safety check complete’ signal 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, 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.

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.
3.6 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.

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.

When you receive the 'station work complete' signal or 'CD' indication from the PIC of platform, you may close the train doors.

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.

When you receive the 'train safety check complete' signal, you must give the driver the 'ready-to-start' signal or 'RA' indication.

When you receive the 'ready-to-start' signal or 'RA' indication, you must start the train only if safe to do so.

3.8 Dispatching a DO train from an unstaffed platform

You must first:

- 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.
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

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.

When you receive the ‘station work complete’ signal, you must then give the ‘station work complete’ signal to the guard.

When you receive the ‘station work complete’ signal, you must lock the central door locking.

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.

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:

• 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.

3.10 Dispatching a train with central door locking from an unstaffed platform

You must first:

• 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.
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.

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.

When you have received the ‘train safety check complete’ signal, you must:

• 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.
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.
Shunting

Issue 5
September 2015

Comes into force 05 December 2015
You will need this module if you carry out the duties of a:

- driver
- shunter
- signaller.

**Conventions used in the Rule Book**

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<th>Example</th>
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<tr>
<td>![i]</td>
<td>A black line in the margin indicates a change to that rule.</td>
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<td>driver</td>
<td>Green text in the margin indicates who is responsible for carrying out the rule.</td>
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<td>i</td>
<td>A white i in a blue box indicates that there is information provided at the bottom of the page.</td>
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<td>A rule printed inside a red box is considered to be critical and is therefore emphasised in this way.</td>
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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.

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.

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.
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

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.

**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:

- 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.
Precautions before shunting

The people responsible: driver, shunter

4.1 Reaching a clear understanding

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

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.

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.

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.

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.
Shunting

Diagram SS2.2
Hands SIGS during daylight

Move away from the shunter
Move towards the shunter
Slow down
Stop immediately
Ease up
Stop immediately when on a vehicle

Supersedes GERM8000-trainoperationsstaff Iss 1 on 05/12/2015.
Superseded by GERM8000-trainoperationsstaff 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.
Diagram SS2.3

Handsignals during darkness

- Move away from the shunter
- Slowly move away from the shunter
- Move towards the shunter
- Slowly move towards the shunter
- Stop immediately
- Ease up
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

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.

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:

• 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.
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

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.

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.

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.

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.
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.
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 hand signals.

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.
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.
8 Movements over points worked from a signal box

The people responsible: driver, shunter, signaller

8.1 Getting the signaller’s permission

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

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

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.

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**
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.

**shunter, unaccompanied driver**

**signaller**
When shunting is completed

The people responsible: driver, shunter, signaller

9.1 Leaving vehicles in a safe position

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:

- 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.

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.

9.5 Protecting running lines

To protect running lines, you must make sure that:

- 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.
Additional instructions for shunting within a possession

The people responsible: driver, shunter

10.1 Headlight on propelling movements

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

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

You must not make propelling movements outside a work site unless the details have been published in the Weekly Operating Notice or Engineering Notice.

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:

- 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**
Duties of a designated person (DP) and people working on rail vehicles
You will need this module if you carry out the duties of a:

- designated person
- person working on a rail vehicle.

**Conventions used in the Rule Book**

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1 Definitions

2 Competence

3 Duties of people working on rail vehicles
   3.1 Working alone
   3.2 Before starting work on a rail vehicle
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   3.5 During the work
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4 General duties of a DP
   4.1 Before allowing work to start
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5 DP arranging line protection for a siding
   5.1 Before placing line protection on a siding
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6  DP arranging to block an adjacent running line

6.1 Blocking an adjacent running line
6.2 Agreeing the arrangements
6.3 When the signaller has stopped trains
6.4 During the work
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7  DP walking with a group to or from a failed train on a running line

7.1 Deciding which line to block
7.2 When trains have been stopped
7.3 Arriving at the failed train
7.4 Returning from the failed train
7.5 Arriving at the access point
1 Definitions

The following definitions are used in this module.

**Depot**
A depot is a building or buildings in which train maintenance, servicing or repair takes place. This also includes any sidings within the depot boundary.

**Designated person**
A designated person (DP) is the person who is responsible for setting up line protection so that people working on rail vehicles will be protected from train movements.

A DP can be in charge of a group of people or can work alone. When working alone, a DP must also carry out the duties of a person working on rail vehicles.

**Local instructions**
Local instructions may be published by Network Rail in the Sectional Appendix, or by the operator of the depot.

These local instructions may modify the arrangements shown in this module for the protection of staff.

**Working on rail vehicles**
The instructions within this module must be applied when people who are working on rail vehicles may be in danger from train movements.

Examples of working on rail vehicles may include:

- maintenance work
- repair work, or
- servicing.
2 Competence

The person responsible: designated person

To act as a DP you must have with you a valid DP certificate of competence issued by your employer.
3

Duties of people working on rail vehicles

The person responsible: person working on a rail vehicle

3.1 Working alone

You must not work alone on a rail vehicle unless a DP has made the arrangements for your protection.

3.2 Before starting work on a rail vehicle

You must get confirmation from the DP that line protection has been provided for the line or siding and that it is safe to start work.

You must not start any work that may foul an adjacent line or siding until you have confirmation from the DP that line protection has also been applied to that line or siding.

3.3 If vehicle protection is not in place

If you are the first person to start work on a rail vehicle, you must arrange to apply vehicle protection to that vehicle or vehicles.

The vehicle protection must consist of a NOT TO BE MOVED board or a red flag or red light.

You must place this vehicle protection at the end of the last vehicle in the direction from which any other vehicle might approach.

If vehicle protection is to be placed at both ends, you must place it on diagonally opposite corners. However, if there is a running line immediately adjacent to the vehicle, you must place the vehicle protection on the side furthest from the running line.

The instructions in this section 3.3 do not apply on running lines including platform lines where it will be the DP who places the vehicle protection as shown in section 4.3.
If the vehicle or vehicles are within a building, you may place the vehicle protection at the entrance to the building.

After applying the vehicle protection, you must place your personal identification on it.

3.4 If vehicle protection is already in place

If you are not the first person to work on the rail vehicle, before you start work, you must place your personal identification on the vehicle protection already in place.

3.5 During the work

You must not move the vehicle or allow any other vehicle to make contact with it. If you need the vehicle to be moved, you must tell the DP.

3.6 When the work is suspended or has been completed

You must tell the DP when work that may foul an adjacent line or siding has been completed.

When you have suspended or completed your work on the vehicle, you must remove your personal identification from the vehicle protection.

You must not remove anyone else’s personal identification.

You must tell the DP that your work is suspended or has been completed.

If you are the last person to remove your personal identification, you must also remove the vehicle protection.
3.7 Walking to or from a failed train on a running line

You may be asked to walk along a running line where there is no safe walking route so you can reach or return from a failed train.

You must not do this unless a DP, a controller of site safety (COSS) or a safe work leader (SWL) is present to take charge of the arrangements for your safety and you have received a briefing from them.
4 General duties of a DP

The person responsible: designated person

4.1 Before allowing work to start

Before allowing work to take place on the outside of a rail vehicle or ladders to be erected within a vehicle, you must have arranged line protection as described in this module.

If the work will foul an adjacent siding, you must also arrange line protection for that siding.

If the work will foul an adjacent running line, you must arrange protection with the signaller for that running line.

You must brief anyone under your control about the arrangements that you will make for their safety.

4.2 Moving a vehicle that is being worked on

If it is necessary to move a vehicle that is being worked on, you must first make sure:

• the vehicle is safe to be moved
• everyone who is affected is told
• everyone is in a safe position
• all vehicle protection placed on that vehicle is removed.
4.3 Working on a train on a running line including at a station platform

**DP**

On your arrival, you must report to the driver and guard (if present) and reach a clear understanding about the actions to be taken.

You must place vehicle protection, consisting of a NOT TO BE MOVED board or a red flag or red light, on the side of the train at the end from which the train is being driven.

You must place the vehicle protection at both ends of the train if:

- the driver is not present and the train can be driven from either end
- vehicles might be shunted from that end onto those on which work will take place.

When at a station you must place the vehicle protection on the platform side of the train.

You must not remove the vehicle protection until the work is completed.

When the work has been completed, you must tell the driver and guard (if present).
5

DP arranging line protection for a siding

The person responsible: designated person

5.1 Before placing line protection on a siding

You must get permission from the person in charge of the siding or, where necessary, the signaller, before arranging line protection. If movements can enter the siding from either end, you must arrange the line protection at both ends.

5.2 Line protection for all of a siding

You must make sure that the points giving access to the siding are clipped and padlocked to prevent movements entering the siding. You must keep the key to the padlock. If the points are worked from a signalbox or ground frame, you must not clip the points but you must get confirmation from the signaller or ground frame operator that the points will be kept in the position to prevent movements entering the siding.

5.3 Line protection for part of a siding

If it is not possible to arrange line protection for all of the siding as shown in section 5.2, you must place a red flag or red light or a possession limit board in the four-foot of the siding concerned, so that it can be clearly seen by an approaching movement.

5.4 Withdrawing the line protection

You must not withdraw the line protection arrangements that have been put in place until you are sure that the work has been suspended or completed. Only you may withdraw the line protection.
DP arranging to block an adjacent running line

The person responsible: designated person

6.1 Blocking an adjacent running line

DP
You must make sure any adjacent running line is blocked to train movements if:

• the distance between the outside rail of the line the vehicle is on and the nearest rail of the adjacent running line is less than 3 metres (approximately 10 feet), and

• work needs to be carried out on the side of the vehicle nearest to the adjacent running line.

6.2 Agreeing the arrangements

DP
You must agree with the signaller what you want to do. The arrangements must include:

• the exact location

• the line to be blocked

• how long will be needed.
6.3 When the signaller has stopped trains

When the signaller tells you that the line is blocked, you will also be told which other lines will stay open to traffic.

You must not allow anyone under your control to start work until you have briefed them about:

- the arrangements you have made
- any known hazards
- the task.

6.4 During the work

You must take care that neither you nor anyone under your control moves out of the safe area. You must tell the signaller if your work will take longer than agreed.

6.5 When the work is suspended or has been completed

When the work is suspended or is completed, you must:

- make sure everyone is in a safe position, and then
- tell the signaller that you no longer need the line to be blocked.
DP walking with a group to or from a failed train on a running line

The person responsible: designated person

7.1 Deciding which line to block

DP

If you need to walk as a group along a running line to or from a failed train and there is no safe walking route available, you must arrange for trains to be stopped.

If you can clearly identify your location to the signaller and you are sure of the line the failed train is on, you will only need to block the line that will provide a safe walking route to the failed train.

If you are not sure of your location or that of the failed train, you must arrange for all lines to be blocked. If the signaller is not able to arrange for all lines to be blocked, you must ask for a COSS or SWL to attend, who will make alternative arrangements.

7.2 When trains have been stopped

DP

When the signaller tells you that the line is blocked, you will also be told which other lines will stay open to traffic.

You must not allow anyone under your control to start walking until you have briefed them about:

• the arrangements you have made
• the location of the failed train
• where to walk
• any other known hazards.
7.3 Arriving at the failed train

When you arrive at the failed train, you must report to the driver and agree what is to happen.

When you and your group are in a safe position, you must tell the signaller that you have arrived and no longer need the line to be blocked.

If you need an adjacent line to be blocked during the work, you must make separate arrangements with the signaller for the line concerned to be blocked, as described in section 6.

7.4 Returning from the failed train

You must decide whether the group is to travel on the failed train or will walk to the access point.

If you are to walk to the access point, you must carry out the instructions shown in sections 7.1 and 7.2.

7.5 Arriving at the access point

When everyone has reached the access point and all of your group are in a safe position, you must tell the signaller that you no longer need the line to be blocked.
Preparation and movement of trains

GE/RT8000/TW1
Rule Book

Issue 10
September 2015
Comes into force 05 December 2015
You will need this module if you carry out the duties of a:

- driver
- guard
- shunter
- signaller
- train preparer.

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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.
2

Assisting failed locomotive-hauled trains in the rear

*The person responsible: driver*

### 2.1 General

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.

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.
Attending for and leaving duty

The people responsible: 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.
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.

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
driver, guard, train preparer

• 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.

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

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.

<table>
<thead>
<tr>
<th>Total number of coaching stock vehicles in the train</th>
<th>Number of vehicles with brakes isolated</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 to 14</td>
<td>2</td>
</tr>
<tr>
<td>15 to 19</td>
<td>3</td>
</tr>
<tr>
<td>20 to 24</td>
<td>4</td>
</tr>
<tr>
<td>25 or more</td>
<td>5</td>
</tr>
</tbody>
</table>

4.5 Isolated vehicle brakes

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.

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.

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).
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.

<table>
<thead>
<tr>
<th>Description</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Express passenger train</td>
<td>1</td>
</tr>
<tr>
<td>Nominated postal or parcels train</td>
<td></td>
</tr>
<tr>
<td>Breakdown or overhead line equipment train going to clear the line (1Z99)</td>
<td></td>
</tr>
<tr>
<td>Traction unit going to assist a failed train (1Z99)</td>
<td></td>
</tr>
<tr>
<td>Snow plough going to clear the line (1Z99)</td>
<td></td>
</tr>
<tr>
<td>Ordinary passenger train</td>
<td>2</td>
</tr>
<tr>
<td>Officers’ special train (2Z01)</td>
<td></td>
</tr>
<tr>
<td>Freight train if specially authorised</td>
<td>3</td>
</tr>
<tr>
<td>A parcels train</td>
<td></td>
</tr>
<tr>
<td>Autumn-railhead treatment train</td>
<td></td>
</tr>
<tr>
<td>Empty coaching stock train if specially authorised</td>
<td></td>
</tr>
<tr>
<td>Freight train which can run up to 75 mph (120 km/h)</td>
<td>4</td>
</tr>
<tr>
<td>Empty coaching stock train</td>
<td>5</td>
</tr>
<tr>
<td>Freight train which can run up to 60 mph (95 km/h)</td>
<td>6</td>
</tr>
<tr>
<td>Freight train which can run up to 45 mph (70 km/h)</td>
<td>7</td>
</tr>
<tr>
<td>Freight train which can run up to 35 mph (55 km/h)</td>
<td>8</td>
</tr>
<tr>
<td>Class 373 train</td>
<td>9</td>
</tr>
<tr>
<td>Other passenger train if specially authorised</td>
<td></td>
</tr>
<tr>
<td>Light locomotive or locomotives</td>
<td>0</td>
</tr>
</tbody>
</table>
7

Dead locomotives

The people responsible: driver, train preparer

7.1 General

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

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

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.

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.
Doors on passenger, postal and parcels trains

The people responsible: driver, guard, signaller

8.1 Door open or not completely closed

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

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.
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.
Driver-guard communication

The people responsible: driver, guard

When using the bell or buzzer to communicate, you must use the following codes.

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stop</td>
</tr>
<tr>
<td>1-2</td>
<td>Close power-operated doors</td>
</tr>
<tr>
<td>2</td>
<td>Ready to start</td>
</tr>
<tr>
<td>2-2</td>
<td>Do not open doors (driver and guard to speak to one another)</td>
</tr>
<tr>
<td>3</td>
<td>Set back</td>
</tr>
<tr>
<td>3-1</td>
<td>Lock central door locking</td>
</tr>
<tr>
<td>3-2-1</td>
<td>Testing doors</td>
</tr>
<tr>
<td>3-3</td>
<td>Guard required by driver, or guard or driver to speak on the telephone</td>
</tr>
<tr>
<td>3-3-1</td>
<td>Release central door locking</td>
</tr>
<tr>
<td>4</td>
<td>Slow down</td>
</tr>
<tr>
<td>6</td>
<td>Draw forward</td>
</tr>
<tr>
<td>9</td>
<td>Police assistance required</td>
</tr>
</tbody>
</table>

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

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

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:

- 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

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.
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.

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.

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).
13 Exploding detonators

The person responsible: driver

13.1 At a signal box or when a hand danger signal is shown

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

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:

- 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:

- 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.

You must only assist a train in the rear where authorised in the Sectional Appendix.

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.

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

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.

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.

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.
17

Locking doors on passenger trains

The people responsible: 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.

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.
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.

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:

- 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.
Personal equipment

The people responsible: driver, guard

When on duty, you must have with you:

- a handlamp
driver, guard

- high-visibility clothing
driver, guard

- a watch
driver, guard

- up-to-date notices for all lines over which you are required to work
driver, guard

- any other equipment as shown in your train operating company instructions.
driver, guard

You must also have with you:

- a red flag and a green flag
guard

- 10 detonators when working a locomotive-hauled passenger train that is not a push-pull train.
guard
22 Poor visibility

The person responsible: 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.
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.
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.
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.
Propelling movements

The people responsible: driver, shunter, signaller,

26.1 Authority for propelling

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.

26.3 Before the movement starts

Before the movement starts, you must both reach a clear understanding about:

• 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:

• 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:

• 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

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.
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.
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.

<table>
<thead>
<tr>
<th>Location where conditions apply</th>
<th>Action to be taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach to a stop signal or an End of Authority (EoA)</td>
<td>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</td>
</tr>
<tr>
<td>Controlled level crossing within the overlap of a signal or EoA</td>
<td>Close the crossing to road traffic before each train approaches</td>
</tr>
<tr>
<td>AHBC level crossing</td>
<td>Select the non-stopping mode (where provided)</td>
</tr>
<tr>
<td>Approach to a platform</td>
<td>Arrange for the driver of each train booked to call to be told about the circumstances</td>
</tr>
<tr>
<td>Dead-end platform</td>
<td>Arrange, if possible, for the platform to be taken out of use</td>
</tr>
</tbody>
</table>
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.
**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.

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.

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

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:

• 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.

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

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.

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.

- 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.
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.

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.

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 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.

You must not restart until:

• 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.
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.
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.

You must immediately tell passengers not to get out of the train until it has been moved to the correct stopping position.

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.

You must tell the signaller if someone has fallen from the train, or you cannot be certain whether anyone has fallen from the train.

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.

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.

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**

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.
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:

- 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:

- try to stop the train immediately
- contact the driver.
Preparation and movement of trains

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.

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.

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.

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.

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.
d) Restarting trains

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.
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:

• 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:

• 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.
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.
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. 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.
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.

**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.

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.
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

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

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.
<table>
<thead>
<tr>
<th>Label</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT TO GO</td>
<td>Must not:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• be worked away from the station, depot, yard or siding, or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• be moved within the station, depot, yard or siding unless authorised by a rolling stock technician</td>
<td></td>
</tr>
<tr>
<td>YARD TO YARD FOR REPAIRS</td>
<td>Must only make the journey to a maintenance depot shown on the label</td>
<td></td>
</tr>
<tr>
<td>FOR REPAIRS</td>
<td>May complete the journey and then be dealt with as shown in train operating company instructions</td>
<td></td>
</tr>
<tr>
<td>Label</td>
<td>Meaning</td>
<td>Example</td>
</tr>
<tr>
<td>-------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>AUTOMATIC BRAKE DEFECTIVE (PIPE OPERATIVE)</td>
<td>Must be treated as a piped-only vehicle</td>
<td><img src="image1.png" alt="Diagram" /></td>
</tr>
<tr>
<td>AUTOMATIC AND HAND BRAKE DEFECTIVE</td>
<td>Must be treated as a piped-only vehicle and must be coupled to another vehicle unless suitably secured</td>
<td><img src="image2.png" alt="Diagram" /></td>
</tr>
<tr>
<td>Label</td>
<td>Meaning</td>
<td>Example</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>HAND BRAKE DEFECTIVE</td>
<td>Must be coupled to another vehicle unless suitably secured</td>
<td></td>
</tr>
<tr>
<td>FOR URGENT REPAIRS/REstricted MOVEMENT</td>
<td>Vehicle must be worked to a maintenance depot and must not exceed 35 mph (55 km/h)</td>
<td></td>
</tr>
</tbody>
</table>
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

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.

<table>
<thead>
<tr>
<th>Circumstances</th>
<th>Tones you must use</th>
</tr>
</thead>
<tbody>
<tr>
<td>To give a warning to anyone on or near a running line</td>
<td>High and low tones - use the loud setting</td>
</tr>
<tr>
<td>To give an urgent warning to anyone on or dangerously near to the line</td>
<td>High tone - use the loud setting</td>
</tr>
<tr>
<td>When passing a whistle board</td>
<td>Low tone - use the loud setting</td>
</tr>
<tr>
<td>To give a warning when in a depot or siding</td>
<td>Low tone - use the soft setting</td>
</tr>
<tr>
<td>To sound a local or special code</td>
<td>High tone - use the loud setting</td>
</tr>
<tr>
<td>Wrong-direction movements</td>
<td>High tone - use the loud setting</td>
</tr>
</tbody>
</table>
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.

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.
Working on the outside of a train

The person responsible: 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.

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.
Preparation and movement of trains
Defective or isolated vehicles and on-train equipment
You will need this module if you carry out the duties of a:

- driver
- guard
- signaller
- train preparer.

**Conventions used in the Rule Book**

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.

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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1.2 Guard reporting a defect
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1.4 Signaller receiving instructions from Operations Control
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2.3 Broken or obscured windscreen
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26 Vehicles with locked wheels, wheel flats, shifted tyres or dragging brakes

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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
• selective door-opening - unless you consider this may be due to defective lineside 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.

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.

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:

• 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:

• 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.

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:

• 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:

• 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

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

If necessary you must point out and explain to the competent person the relevant equipment needed for stopping the train in an emergency.

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.

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.

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, train preparer
4

Automatic warning system (AWS)

The people responsible: driver, train preparer

4.1 Entering service from a maintenance depot

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

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.

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.
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.

<table>
<thead>
<tr>
<th>Competent person not provided</th>
<th>Competent person is provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td>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).</td>
</tr>
</tbody>
</table>

Supersedes GERM8000-trainoperationsstaff Iss 1 on 05/12/2015. Superseded by GERM8000-trainoperationsstaff 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.
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:

• 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.

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.

09/15
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).

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.

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.

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.
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).

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.
The following are examples of some possible arrangements.

6.2 Taking defective doors out of use

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

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.

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 detrained 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.

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.

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.

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’s reminder appliance (DRA)

The people responsible: driver, train preparer

7.1 Entering service from a maintenance depot

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

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

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.

If permission is given for the train to enter service, you must apply the conditions for travel shown in section 8.4.

driver, train preparer

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

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).
Driving cab windows - broken or obscured

The people responsible: driver, train preparer

9.1 Entering service from a maintenance depot

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

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.
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:

- 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:

- 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.
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.
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.

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.

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.

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.
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*. 
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.

### 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.

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

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

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.

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).

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.

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.

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.

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.
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.

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.

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.

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.
You must deal with any headlight or tail lamp failure as shown in the following table.

<table>
<thead>
<tr>
<th>Type of failure</th>
<th>Action the driver must take</th>
</tr>
</thead>
<tbody>
<tr>
<td>A failure of one headlight beam</td>
<td>Use the other day or night beam&lt;br&gt;Report the circumstances to the train operator’s control at the first convenient opportunity&lt;br&gt;The train may proceed normally</td>
</tr>
<tr>
<td>The headlight has completely failed</td>
<td>• Stop the train immediately&lt;br&gt;• Arrange for a white light to be displayed at the front of the train&lt;br&gt;• Tell the signaller&lt;br&gt;• Not move the train until instructed to do so&lt;br&gt;• Carry out the instructions given&lt;br&gt;• Not allow the speed of the train to exceed 20 mph (30 km/h)&lt;br&gt;• Sound the warning horn frequently so as to warn anyone on or near the line&lt;br&gt;If a portable headlight is provided, you must not allow the speed of the train to exceed 75 mph (120 km/h)</td>
</tr>
<tr>
<td>Complete failure of tail lamp</td>
<td>• Report the circumstances to the signaller immediately&lt;br&gt;• Arrange for a handlamp with a red aspect to be displayed at the rear of the train&lt;br&gt;• Report the circumstances to the train operator’s control at the first convenient opportunity</td>
</tr>
<tr>
<td>Failure of one tail lamp where two built-in lamps are provided</td>
<td>Report the circumstances to the train operator’s control at the first convenient opportunity&lt;br&gt;The train may proceed normally</td>
</tr>
</tbody>
</table>
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.

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:

- 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.

If you have any doubt about whether the movement can be made safely, you must get the authority of a rolling stock technician.

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.
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

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:

• 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.

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
signaller authority for the movement to be made.

15.7 Activation of a built-in hot axle box
detector

When a built-in hot axle box detector is activated, you must:

• 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
driver of a DO
the affected vehicle.

train, guard

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.
16 Lifeguards

The people responsible: driver, train preparer

16.1 Entering service

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

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.
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.

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:

• 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

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

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.

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.

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.
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.
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.

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.

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

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

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.

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.

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).

You must:

• not move the train until instructed to do so
• carry out the instructions given.

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.

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.

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.

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:

- 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

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

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.

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.

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.
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.

<table>
<thead>
<tr>
<th>Competent person not provided</th>
<th>Competent person is provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>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</td>
<td></td>
</tr>
<tr>
<td>Proceed at normal permissible speed to the location where the train can be dealt with</td>
<td></td>
</tr>
</tbody>
</table>

**signaller**

**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.
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.

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.
26 Vehicles with locked wheels, wheel flats, shifted tyres or dragging brakes

The people responsible: driver, guard, signaller, train preparer

26.1 Entering service

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

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.

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.

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.

<table>
<thead>
<tr>
<th>Can wheels be freed?</th>
<th>Condition of wheels</th>
<th>Action to be taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Slight flats or no evidence of damage</td>
<td>The train can proceed normally</td>
</tr>
</tbody>
</table>
| Yes                 | More serious flats but no other obvious damage | • 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:  
• 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 | • 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 | • 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

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

You must tell the signaller immediately.

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

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

Before the movement starts, you must find out the conditions of travel.

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.
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.

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.

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.

If permission is given to proceed, you must make sure the train does not exceed 20 mph (30 km/h).
b) Partial failure

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.
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:

• 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.
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
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3 Semaphore signals

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6 Level crossing signs and indicators

6.1 Level crossing signs
6.2 Level crossing indicators
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   7.2 Warning indicators
   7.3 Permissible speed indicators at diverging junctions
   7.4 Differential permissible speed indicators
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8 Speed restriction signs
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9 AC electrified line signs
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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:

- Controlled signal
- Automatic signal
- Semi-automatic signal
- Intermediate block signal
- Distant signals
- Outer distant signal
- Banner repeating signal
- 3 state banner repeating signal
- Co-acting signal
2.1 Three-aspect signalling - normal sequence

The normal sequence of three-aspect signalling is:

1. Green aspect
   Proceed: Next signal displaying proceed aspect

2. Yellow aspect
   Caution
   Proceed: Be prepared to stop at the next signal

3. Red aspect
   Danger
   Stop
2 Colour light signals

2.2 Four-aspect signalling - normal sequence

The normal sequence of four-aspect signalling is:

1. Green aspect
   Proceed: Next signal displaying proceed aspect

2. Double yellow aspects
   Preliminary caution
   Proceed: Be prepared to find the next signal displaying a single yellow aspect

3. Single yellow aspect
   Caution
   Proceed: Be prepared to stop at the next signal

4. Red aspect
   Danger
   Stop

Direction of travel
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:

- **1 Green**
- **2 Double flashing yellows**
- **3 Single flashing yellow**
- **4 Single steady yellow with junction indicator**
- **5 Red**

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.
3.1 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 Semaphore signals

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.
Semaphore signals

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.

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.
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’.
Semaphore signals

**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.
Semaphore signals

Shunt neck

Running lines

Sidings

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 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.

![CAB board](image)

**Start of cab signalling board**

This board indicates the start of ERTMS signalling.

![CAB board](image)

**End of cab signalling board**

This board indicates the end of ERTMS signalling.

![CAB board](image)

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 Other signals and indicators

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.

<table>
<thead>
<tr>
<th>Junction signal ahead showing:</th>
<th>Preliminary route indicator</th>
<th>Junction signal ahead showing:</th>
<th>Preliminary route indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proceed with position 1 JI</td>
<td><img src="image" alt="Arrow pointing to the left" /></td>
<td>Proceed with position 4 JI</td>
<td><img src="image" alt="Arrow pointing straight up" /></td>
</tr>
<tr>
<td>Proceed with position 2 JI</td>
<td><img src="image" alt="Arrow pointing to the left" /></td>
<td>Proceed with position 5 JI</td>
<td><img src="image" alt="Arrow pointing to the right" /></td>
</tr>
<tr>
<td>Proceed with position 3 JI</td>
<td><img src="image" alt="Arrow pointing to the left" /></td>
<td>Proceed with position 6 JI</td>
<td><img src="image" alt="Arrow pointing to the right" /></td>
</tr>
<tr>
<td>Proceed with no JI</td>
<td><img src="image" alt="Arrow pointing straight up" /></td>
<td>Stop aspect</td>
<td><img src="image" alt="Blank" /></td>
</tr>
</tbody>
</table>

Supersedes GERM8000-trainoperationsstaff Iss 1 on 05/12/2015. Superseded by GERM8000-trainoperationsstaff 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.
5 Other signals and indicators

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.

![Indicator](Image)

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.

![Indicator](Image)

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](image1) ![End of AWS gap](image2)

Where AWS is not provided in the opposite direction on a bi-directional line.

![Start of the relevant section of line concerned](image3) ![End of the section normal arrangements resume](image4)

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.

![Speed indicator images]

7.5 **Permissible speed indicators with letters**

These show the permissible speed and apply only to the trains shown by the letters.

![Speed indicator images]

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.
8.1 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.

![Directional indicator](image)

**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.
9.1 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’.
10 Radio signs

**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 Telephone signs

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 Other lineside signs

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.
Linedside handsignals

**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.
Glossary of Railway Terminology

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September 2015

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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
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 then 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.

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.
**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:
- 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.
- 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.
**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:
- 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 head 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:
- red
- yellow
- two yellows
- flashing yellow
- two flashing yellows
- green.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>PoSA</td>
<td>Proceed-on-sight authority. A signal used for controlling movements into a section affected by a failure of signalling equipment.</td>
</tr>
<tr>
<td>Right-side failure</td>
<td>A failure that does not reduce the protection given by signalling equipment.</td>
</tr>
<tr>
<td>Section signal</td>
<td>A stop signal that controls the entrance to a block section or intermediate block section ahead.</td>
</tr>
<tr>
<td>Semi-automatic signal</td>
<td>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.</td>
</tr>
<tr>
<td>Shunt entry board</td>
<td>A lineside indicator board that indicates the entry of a shunt route on ERTMS cab signalled lines where lineside signals are not provided.</td>
</tr>
<tr>
<td>Shunting signal</td>
<td>A signal that is provided for shunting purposes only.</td>
</tr>
<tr>
<td>Signal post replacement key</td>
<td>The key used to operate a signal post replacement switch.</td>
</tr>
<tr>
<td>Signal post replacement switch</td>
<td>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.</td>
</tr>
<tr>
<td>Stop signal</td>
<td>A signal that can show a stop aspect or indication.</td>
</tr>
<tr>
<td>Subsidiary signal</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.
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.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERTMS</td>
<td>European rail traffic management system. A signalling system that uses in-cab indications as opposed to external track-side signals.</td>
</tr>
<tr>
<td>Intermediate block section</td>
<td>The line between the section signal and the intermediate block home signal worked by the same signal box in the same direction of travel.</td>
</tr>
<tr>
<td>Overlap</td>
<td>The distance beyond a stop signal up to which the line must be clear before the previous signal can show a proceed aspect.</td>
</tr>
<tr>
<td>Route setting position</td>
<td>Location on a signalling control panel or workstation from which a route can be set or closed.</td>
</tr>
<tr>
<td>Station limits</td>
<td>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.</td>
</tr>
<tr>
<td>Track circuit block</td>
<td>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.</td>
</tr>
<tr>
<td>Train signalling regulations</td>
<td>Instructions for use by the signaller that give details of the rules, regulations and instructions relating to each different kind of signalling system.</td>
</tr>
<tr>
<td>Transition</td>
<td>The process of the onboard ERTMS signalling system transferring from one signalling system to another. This process has to be acknowledged by the driver.</td>
</tr>
</tbody>
</table>

**Train Working**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braking distance</td>
<td>The distance a train needs in which to stop or reduce speed, from travelling at a given speed.</td>
</tr>
<tr>
<td>Coupled in multiple</td>
<td>Traction units coupled to allow through controls by one driver.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Coupled in tandem</strong></td>
<td>Each traction unit is separately controlled by its own driver, with through control of the automatic brake only.</td>
</tr>
<tr>
<td><strong>Driver only (or DO) train</strong></td>
<td>A train that is worked only by a driver and does not have a guard.</td>
</tr>
<tr>
<td><strong>In service</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>End of authority (EoA)</strong></td>
<td>The location to which a train is permitted to proceed. The boundary of a movement authority.</td>
</tr>
<tr>
<td><strong>Full supervision</strong></td>
<td>The normal movement used by ERTMS, an authority that gives comprehensive protection to all trains.</td>
</tr>
<tr>
<td><strong>Journey</strong></td>
<td>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:</td>
</tr>
<tr>
<td><strong>Movement authority (MA)</strong></td>
<td>Permission for a train to run to a specific location as a signalled move.</td>
</tr>
<tr>
<td><strong>On sight</strong></td>
<td>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.</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>One-train working</strong></td>
<td>Method of signalling on a single line, with or without a train staff, where only one train at a time is permitted.</td>
</tr>
<tr>
<td><strong>Out of service</strong></td>
<td>A train is out of service between the time that it completes its journey and the time it is ready to start another journey.</td>
</tr>
<tr>
<td><strong>Out of service</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Passenger service</strong></td>
<td>A train that is in service carrying passengers.</td>
</tr>
<tr>
<td><strong>Permissible speed</strong></td>
<td>The maximum permitted speed as shown in the Sectional Appendix.</td>
</tr>
<tr>
<td><strong>Shunting movement</strong></td>
<td>Any movement of a train or vehicle other than a train passing normally along a running line.</td>
</tr>
<tr>
<td><strong>Tail lamp</strong></td>
<td>Includes an illuminated built-in red light or blind.</td>
</tr>
<tr>
<td><strong>Trains</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Brake van</strong></td>
<td>Any vehicle with a brake compartment.</td>
</tr>
<tr>
<td><strong>Cant rail</strong></td>
<td>The point on the side of a locomotive or coach where the bodyside meets the roof (sometimes marked by an orange stripe).</td>
</tr>
<tr>
<td><strong>Central door-locking (CDL)</strong></td>
<td>A secondary locking system fitted to certain slam-door passenger vehicles and controlled by the guard that prevents passengers from opening the doors.</td>
</tr>
<tr>
<td><strong>Defective on-train equipment</strong></td>
<td>On-train equipment that: • is not performing its intended safety function, either fully or partly • is isolated • is missing.</td>
</tr>
<tr>
<td><strong>Driver machine interface (DMI)</strong></td>
<td>The device used by a driver to interact with onboard equipment. Typically a computer screen located in the driving cab.</td>
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</tr>
<tr>
<td><strong>Driver's reminder appliance (DRA)</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Power-operated doors</strong></td>
<td>Doors on a train where the opening and closing are controlled by the driver or guard.</td>
</tr>
<tr>
<td><strong>TASS</strong></td>
<td>Tilt authorisation and speed supervision. A system on tilting trains that controls:</td>
</tr>
<tr>
<td></td>
<td>• the operation of the tilt system</td>
</tr>
<tr>
<td></td>
<td>• the speed of the train on routes where enhanced permissible speeds apply on TASS fitted lines.</td>
</tr>
<tr>
<td><strong>TPWS</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Track circuit actuator (TCA)</strong></td>
<td>Equipment provided on certain trains to improve the operation of track circuits.</td>
</tr>
<tr>
<td><strong>Traction unit</strong></td>
<td>Locomotive, multiple unit, self-propelled rail vehicle or road-rail vehicle operating in rail mode.</td>
</tr>
<tr>
<td><strong>Train</strong></td>
<td>Light locomotive, self-propelled rail vehicle or road-rail vehicle in rail mode.</td>
</tr>
</tbody>
</table>

### Workforce

<table>
<thead>
<tr>
<th><strong>Competent person</strong></th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operations control</strong></td>
<td>The term used for Network Rail Operations Control Offices.</td>
</tr>
<tr>
<td><strong>Pilotman</strong></td>
<td>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.</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Rolling stock technician</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Traincrew</strong></td>
<td>Driver and guard.</td>
</tr>
<tr>
<td><strong>Train operator</strong></td>
<td>The company responsible for operating a train.</td>
</tr>
<tr>
<td><strong>Your employer</strong></td>
<td>The company, or subsidiary of a larger organisation for whom you work.</td>
</tr>
</tbody>
</table>
# 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
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- 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.
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  - Manned crossing with gates (MG).  
  - Remotely controlled crossing with barriers (RC).  
  - Barrier crossing with closed-circuit television (CCTV).  
  - Barrier crossing with obstacle detection (OD). |
<p>| Controlled evacuation | The evacuation of passengers from a train after the signaller has confirmed that all lines have been protected. |</p>
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| **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

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Earthed</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Electrified line</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Emergency evacuation</strong></td>
<td>The evacuation of passengers from a train if the signaller states that protection cannot be given or the signaller cannot be contacted.</td>
</tr>
<tr>
<td><strong>End of authority (EoA)</strong></td>
<td>The location to which a train is permitted to proceed. The boundary of a movement authority.</td>
</tr>
<tr>
<td><strong>Engineering Possession Reminder (EPR)</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>ERTMS</strong></td>
<td>European rail traffic management system. A signalling system that uses in-cab indications as opposed to external trackside signals.</td>
</tr>
</tbody>
</table>

### F

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facing point lock (FPL)</strong></td>
<td>Equipment that physically locks facing points so that they cannot move.</td>
</tr>
<tr>
<td><strong>Facing points</strong></td>
<td>Points where two routes diverge.</td>
</tr>
<tr>
<td><strong>Full supervision</strong></td>
<td>The normal movement used by ERTMS, an authority that gives comprehensive protection to all trains.</td>
</tr>
</tbody>
</table>
### 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).
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.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td></td>
</tr>
<tr>
<td>No-block line</td>
<td>A line on which the signaller does not monitor the condition of the block section.</td>
</tr>
<tr>
<td><strong>O</strong></td>
<td></td>
</tr>
<tr>
<td>On sight</td>
<td>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.</td>
</tr>
<tr>
<td>One-train working</td>
<td>Method of signalling on a single line, with or without a train staff, where only one train at a time is permitted.</td>
</tr>
<tr>
<td>On-track plant</td>
<td>A road-rail vehicle (RRV) or rail mounted maintenance machine (RMMM) also known as ‘in possession only’ vehicles.</td>
</tr>
<tr>
<td>Open level crossing</td>
<td>An unmanned level crossing that has no barriers, gates or road traffic signals. It has a ‘Give Way’ sign on each road approach.</td>
</tr>
<tr>
<td>Operations control</td>
<td>The term used for Network Rail Operations Control Offices.</td>
</tr>
<tr>
<td>Out of service</td>
<td>A train is out of service between the time that it completes its journey and the time it starts another journey.</td>
</tr>
<tr>
<td>Out of service</td>
<td>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.</td>
</tr>
<tr>
<td>Overhead line equipment</td>
<td>Wires and associated equipment, suspended over or adjacent to the railway line for supplying electricity to electric trains.</td>
</tr>
<tr>
<td><strong>Overlap</strong></td>
<td>The distance beyond a stop signal up to which the line must be clear before the previous signal can show a proceed aspect.</td>
</tr>
<tr>
<td><strong>Passenger service</strong></td>
<td>A train that is in service carrying passengers.</td>
</tr>
<tr>
<td><strong>Permissible speed</strong></td>
<td>The maximum permitted speed as shown in the Sectional Appendix.</td>
</tr>
<tr>
<td><strong>Pilotman</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>PoSA</strong></td>
<td>Proceed-on-sight authority. A signal used for controlling movements into a section affected by a failure of signalling equipment.</td>
</tr>
<tr>
<td><strong>Possession Limit Board</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Power-operated doors</strong></td>
<td>Doors on a train where the opening and closing are controlled by the driver or guard.</td>
</tr>
<tr>
<td><strong>Power-operated points</strong></td>
<td>Points that are operated by means other than mechanically.</td>
</tr>
<tr>
<td><strong>Protection</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Reminder appliance</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
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.

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.
<table>
<thead>
<tr>
<th><strong>Shunting signal</strong></th>
<th>A signal that is provided for shunting purposes only.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Siding</strong></td>
<td>A line on which vehicles are marshalled, stabled, loaded, unloaded or serviced clear of a running line.</td>
</tr>
<tr>
<td><strong>Signal post replacement key</strong></td>
<td>The key used to operate a signal post replacement switch.</td>
</tr>
<tr>
<td><strong>Signal post replacement switch</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Single line</strong></td>
<td>One line is available for movements in both directions.</td>
</tr>
<tr>
<td><strong>Station</strong></td>
<td>Terminal, depot, yard or halt.</td>
</tr>
<tr>
<td><strong>Station limits</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Stop signal</strong></td>
<td>A signal that can show a stop aspect or indication.</td>
</tr>
<tr>
<td><strong>Subsidiary signal</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Switched off</strong></td>
<td>Electrical equipment that is disconnected and separated from all sources of supply.</td>
</tr>
</tbody>
</table>

<p>| <strong>Tail lamp</strong>       | Includes an illuminated built-in red light or blind. |</p>
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TASS</strong></td>
<td>Tilt authorisation and speed supervision. A system on tilting trains that controls:</td>
</tr>
<tr>
<td></td>
<td>• the operation of the tilt system</td>
</tr>
<tr>
<td></td>
<td>• the speed of the train on routes where enhanced permissible speeds apply on TASS fitted lines.</td>
</tr>
<tr>
<td><strong>Token</strong></td>
<td>Any single line token, staff or tablet.</td>
</tr>
<tr>
<td><strong>TOWS</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>TPWS</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Track circuit</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Track circuit actuator (TCA)</strong></td>
<td>Equipment provided on certain trains to improve the operation of track circuits.</td>
</tr>
<tr>
<td><strong>Track circuit block</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Track circuit operating clip</strong></td>
<td>A device which, in an emergency can be placed on top of each running rail to operate the track circuit and protect an obstruction.</td>
</tr>
<tr>
<td><strong>Track circuit operating device (T-COD)</strong></td>
<td>A special device that can be placed on the line to provide protection by operating the track circuit, to hold a signal at danger.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>------------------------------</td>
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</tr>
<tr>
<td>Traction unit</td>
<td>Locomotive, multiple unit, self-propelled rail vehicle or road-rail vehicle operating in rail mode.</td>
</tr>
<tr>
<td>Trailing points</td>
<td>Points where two routes converge.</td>
</tr>
<tr>
<td>Train</td>
<td>Light locomotive, self-propelled rail vehicle or road-rail vehicle in rail mode.</td>
</tr>
<tr>
<td>Traincrew</td>
<td>Driver and guard.</td>
</tr>
<tr>
<td>Train-operated points</td>
<td>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.</td>
</tr>
<tr>
<td>Train operator</td>
<td>The company responsible for operating a train.</td>
</tr>
<tr>
<td>Train signalling regulations</td>
<td>Instructions for use by the signaller that give details of the rules, regulations and instructions relating to each different kind of signalling system.</td>
</tr>
<tr>
<td>Transition</td>
<td>The process of the onboard ERTMS signalling system transferring from one signalling system to another. This process has to be acknowledged by the driver.</td>
</tr>
<tr>
<td>Trap points</td>
<td>Facing points at an exit from a siding or converging route that derail an unauthorised movement, so protecting the adjacent line.</td>
</tr>
<tr>
<td>Unworked points</td>
<td>Points that are not operated from a signal box or ground frame.</td>
</tr>
</tbody>
</table>
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.