

# GERT8000-TS10 Rule Book



## ERTMS level 2 train signalling regulations

### Issue 4






## Module TS10

September 2018  
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## Conventions used in the Rule Book

	Example
A black line in the margin indicates a change to that rule and is shown when published in the module for the first time.	
Green text in the margin indicates who is responsible for carrying out the rule.	
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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Regulations for train signalling by the European rail traffic management system (ERTMS).

You will need this module if you carry out the duties of a signaller in an ERTMS area.

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# ERTMS level 2 train signalling regulations

# 1

## Definitions

The following terms are used in these regulations and apply to signallers in ERTMS level 2 areas.

### 1.1 Types of route-setting positions

#### Controlled route-setting positions (RSPs)

RSPs which are operated by you or a crossing keeper. Some controlled RSPs can be set to work automatically.

Automatic route setting is provided at some signal boxes.

A controlled RSP is normally indicated on the lineside by a block marker.

#### Automatic RSPs

RSPs which are operated by the passage of trains.

### 1.2 Lineside marking of RSPs

#### Block marker

A block marker can only be passed by a train with a movement authority (MA) or with your authority as shown in the rules.

#### Unmarked RSP

An RSP which is not indicated on the lineside can be passed by a train with an MA or with your authority as shown in the rules.

#### Signals

On lines where signals are provided, controlled signals are also route setting positions (RSPs).

### **1.3 Block section**

The line between two RSPs.

### **1.4 Overlap**

An overlap, where provided, is the distance beyond an RSP up to which the line must be clear before an MA can be issued from the previous RSP.

# 2

## Principle

ERTMS permits a Full Supervision MA to be issued to a train when:

- all track circuits required for the movement are clear
- all necessary points for the route are detected in the correct position for a train to pass safely
- the train's onboard ERTMS assembly has requested the MA
- the signalling system has correctly identified the train and its position and no other train is in the same block section or has been authorised to use the same block section as the train.

All required information, such as speed and condition of the line ahead, is communicated directly and continuously to a driver via a driver machine interface (DMI) in the driving cab.

On ERTMS fitted lines where signals are provided, ERTMS allows a signal to show a proceed aspect for a train on which ERTMS is not in operation when:

- all track circuits, up to and including the overlap of the next signal section are clear
- all necessary points within the route are detected in the correct position for a train to pass safely.



# 3

## Method of signalling

### 3.1 Operating signals and issuing MAs

#### 3.1.1 Before clearing signals or issuing MAs

Before you operate a signalling control to allow a train to proceed, you must make sure that:

- no other movement that may conflict is to be made first
- the route is set or is free to be set by the interlocking
- if necessary, you have been given a release by another signaller.

#### 3.1.2 Changing signal aspects or shortening an MA

Before you allow a movement to occupy a track circuit which would change the aspect shown at any signal or shorten an MA, you must first close the route concerned to protect the movement.

If another signaller controls that route, you must not allow the movement to take place until that signaller tells you the route has been closed.

#### 3.1.3 Obstructing or occupying an overlap

You must not allow the line within the overlap of a signal or EoA to be obstructed or to be occupied by an unsignalled movement until:

- any approaching train has been stopped at that signal or EoA, or
- if no train is approaching that signal or EoA, you have closed the route from the previous RSP.

#### 3.1.4 Emergency alarm

If you receive the **emergency alarm** from an adjacent signal box, you must close the route on the affected lines. You must then find out whether it is necessary to carry out regulation 4, regulation 5 or general signalling regulation 19.

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### 3.2 Train requiring to stop in section

If a train that is to stop in the block section is to enter an area controlled by another signaller, you must tell that signaller:

- the type of train
- where the train is to stop and why
- the approximate time the train will occupy the section.

### 3.3 Permissive working

#### 3.3.1 When permissive working can be used

You must carry out these regulations where permissive working is authorised in the *Signal Box Special Instructions*.

You do not need to carry out these regulations for shunting movements that are being made with a traction unit into an occupied section, to attach, detach or remove vehicles.

#### 3.3.2 Types of permissive working

You must only allow the following classes of train to be in, or enter, a section when permissive working is taking place:

##### Type of line Classes of train

Goods	3 to 8 and 0
Passenger (other than platform lines)	3 to 8 and 0
Platform lines	1, 2, 3 ECS, 5, 9 and 0 Any class of train formed only of MPV vehicles when operating as a railhead treatment or inspection train

### **3.3.3 Poor visibility**

You must not allow permissive working to take place during poor visibility, except on platform lines.

### **3.3.4 Additional regulations for permissive working on platform lines**

You must not signal a second train into an occupied platform if you have already issued an MA or, on a line where main aspect signals are provided, cleared a signal for the first train to leave that platform.

If you are not sure there is enough room for the second train, you must get an assurance that there is enough room before you issue an MA or, on a line where main aspect signals are provided, clear the signal for the second train.

If a movement has already been authorised on that platform line, you must get an assurance from the person in charge of the movement, that it has been completed before you issue an MA or clear the signal for the second train.

Once you have signalled a second train into an occupied platform, you must wait until the second train has stopped in the platform before you allow the first train to leave.

If a train is not booked to call at a station, you must tell the driver what is happening before you signal that train into an occupied platform line.

## **3.4 Emergency permissive working**

In an emergency, you can allow a train conveying passengers to enter an occupied section to reach a station platform, as long as you have been authorised to do so by the signal box supervisor or Operations Control.

You must make sure there is enough room to safely deal with the train at the platform.

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Before you allow a train to proceed, you must tell the driver what has happened, and instruct the driver to pass the EoA without an MA or pass the signal at danger if the train is not fitted with ERTMS or if ERTMS is not in operation on the train.

You must also tell the driver that when the train has arrived at the station platform, no further movement is to be made without the authority of the signaller.

## 3.5 Signalling by bell or telephone

### 3.5.1 When this regulation must be used

You must use this regulation when it is necessary to signal trains by bells or telephone when signalling equipment is being worked on or has failed.

You must also use this regulation when an out-of-gauge train is to travel between two signal boxes.

### 3.5.2 When signalling by bell or telephone

You must use the standard code of bell signals and, if possible, you must also use the train describer.

If bells are not available, you must send the necessary bell signals as messages on the telephone and, if possible, use the train describer.

You must record the times at which all bell signals are sent or received in the Train Register. This includes bell signals sent as messages on the telephone.

You must record these times in the Train Register even if you do not normally have to record times.

### 3.5.3 Method of signalling by bells or telephone

**Note:** For the purpose of this part of the regulation, A and B represent two signallers. Trains are to be signalled by bell or telephone between their areas of control.

Before you allow a train to proceed, you must:

- make sure that the last train has passed clear of the line concerned
- send **call attention** to signaller B
- send the appropriate **is line clear**.

signaller A

You can accept the train as long as no conflicting movement has been authorised, and the line on which the train is to run must be clear up to and including the overlap of the second RSP in your area of control.

signaller B

If for any reason, you cannot accept the train, you must not acknowledge **is line clear**.

If the line is clear and **is line clear** has been acknowledged, you may allow the train to proceed.

signaller A

When the train departs, you must send **train entering section** to signaller B.

The conditions under which you accept the train must not be changed until one of the following applies.

signaller B

- The train has been stopped at the first block marker.
- The train has passed beyond the point to which the line has been kept clear.
- You have received **cancelling** from signaller A for that train.

When the train, complete with tail lamp, has passed beyond the overlap of the second RSP, you must send **train out of section** to signaller A.

## ERTMS level 2 train signalling regulations

### 3.5.4 Signalling trains by telephone

signaller A  
and B

If there are no bells, or the bells are not working, you must send all bell signals as messages on the telephone, for example:

Signaller A	'Is Up Main line clear for one alpha two seven'?
Signaller B	'Up Main line <b>is</b> clear for one alpha two seven'.
Signaller A	'One alpha two seven train entering section on Up Main line'.
Signaller B	'One alpha two seven train out of section on Up Main line'.

signaller B

If for whatever reason you cannot accept a train that is offered, you must state the refusal as follows:

Signaller B	' <b>No</b> , one alpha two seven refused'.
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### 3.5.5 When normal working is to resume

signaller A  
and B

Before returning to normal working, you must both agree how this is to be done.

## 3.6 Working in wrong direction to provide assistance

**Note:** 'multiple unit' in this regulation means a train that can be driven from either end and can assist the failed train. The multiple unit may be loaded or empty.

### **3.6.1 When this regulation must be used**

You must use this regulation when it is necessary for a light locomotive or multiple-unit train to proceed through one or more sections in the wrong direction:

- over the unaffected line to assist a failed train from the front, or
- over the unaffected line to assist a failed train that is beyond a train that cannot provide assistance.

You must first get permission from the signal box supervisor or Operations Control.

You must agree what is to happen with everyone involved in the movement.

### **3.6.2 When the crossover used to return the train to the affected line is facing**

If the movement will return to the affected line through points that are facing to the wrong-direction movement, you must make sure that one of the following applies.

- You have operated the points to the correct position to return the movement to the affected line.
- You have got confirmation from any other signaller involved that the points have been set to the correct position to return the movement to the affected line.
- You have got confirmation from the ground-frame operator that the points have been set to the correct position to return the movement to the affected line.

### **3.6.3 When the crossover used to return the train to the affected line is trailing**

If the crossover where the wrong-direction movement will return to the affected line is trailing to the wrong-direction movement, you must make sure one of the following applies.

- You have operated the points for the safety of the wrong-direction movement.
- You have got confirmation from any other signaller involved that the points have been correctly set.
- You have got confirmation from the ground-frame operator that the points have been correctly set.



# 4

## Obstruction of the line

### 4.1 Stopping trains because of an emergency

#### 4.1.1 Protection

If you need to stop trains because of an obstruction or other emergency, you must do this in the quickest and most effective way.

This includes:

- making a railway emergency call
- sending emergency stop
- withdrawing MAs which have been issued
- closing the route to protect the affected line.

If you cannot stop a train proceeding towards the obstruction or other emergency, you must carry out the instructions shown in regulation 5.

#### 4.1.2 Placing a release to normal

You must also place or keep any release, slot or acceptance switch in the normal position.

#### 4.1.3 Obstruction within the overlap

If the obstruction or other emergency is within the overlap of the protecting RSP, you must close the route at the previous RSP unless there are facing points that you have set for a route that is clear of the affected section.

#### 4.1.4 Train detained at an RSP on the approach

If a train is detained at an RSP on the approach to the affected block section, you must instruct the driver to stay there until you give permission for the train to proceed even if an MA is received.

## 4.2 If another signaller is involved

If another signaller controls the RSP that will protect the obstruction or other emergency, you must immediately tell that signaller what is happening.

If this signaller is in another signal box, you must first send the emergency alarm.

If you are the signaller receiving this message or **emergency alarm**, you must carry out the instructions shown in regulations 4.1 and 4.3.

You must then tell the signaller giving you the message or **emergency alarm** whether you have been able to stop a train proceeding towards the obstruction or other emergency.

## 4.3 Allowing a train into the affected section

You must not allow a train into the affected block section until the line is again clear and safe for the passage of trains unless it is necessary to:

- examine the line
- allow an assisting train into an occupied section
- work to and from the point of obstruction, or serve an intermediate station or siding, but only if this can be done safely
- allow a train to pass through a diverging junction before reaching the obstruction.

If more than one signaller is involved, you must both come to a clear understanding as to what is to be done before allowing a train into the affected block section.

# 5

## **Train or vehicles proceeding without authority or train divided**

### **5.1 Immediate actions**

If you become aware, or you suspect, that a train or vehicle is proceeding without authority, or a train is running in two or more portions, you must:

- make a railway emergency call
- send emergency stop
- withdraw MAs which have been issued to the train concerned or any other trains which could be put in danger
- close the route to protect any line that could be affected
- if possible, alter the position of any points to divert trains and prevent collisions
- if possible, arrange for the line on which the train or vehicle is proceeding without authority to be cleared
- take the necessary action for any level crossings
- take any other possible action to reduce the risk of a collision.

### **5.2 If another signaller is involved**

If a train or vehicle that is proceeding without authority, or a portion of a divided train, will enter a block section controlled by another signaller, you must immediately tell that signaller what is happening.

If this signaller is in another signal box, you must first send the **emergency alarm**.

### **5.3 Making sure the line is clear**

If it cannot be confirmed that an adjacent line is not obstructed, you must arrange for that line to be examined.

If a train or vehicle that has proceeded without authority, or all of a divided train, has stopped intact and it is confirmed that no other line is affected, you may resume normal working on the other lines.

You must not allow any train to pass over the line where a train or vehicle has proceeded without authority, or a portion of a divided train has passed, until you are sure that the line is clear.

You must signal the next train normally.

## 6 Tail lamp out or missing

If you become aware that a train has the tail lamp out or missing, you must find out whether the train is complete. You must also tell the driver of that train that the tail lamp is out or missing.

During darkness or poor visibility, where permissive working is authorised and you are aware that the tail lamp is out or missing, you must not signal another train into the same block section until you have been told a red light has been placed on the rear of the train.

If the train enters an area controlled by another signaller before you can find out if the train is complete, or before you are told the tail lamp has been replaced or relit, you must tell that signaller.

# 7

## **Allowing an assisting train into an occupied section**

### **7.1 Before allowing an assisting train into the occupied section**

You may allow an assisting train into an occupied block section in either direction to:

- proceed to, and assist, a failed train
- evacuate passengers from a failed train
- remove the rear portion of a divided train
- remove vehicles which have proceeded without authority.

If there is a tunnel in the affected block section, you must instruct the driver of any train proceeding on an adjacent line to proceed through the tunnel at caution. You do not need to do this if you know the tunnel is clear and the person carrying out any protection is not in the tunnel.

If another signaller is involved, you must come to a clear understanding with that other signaller as to what is to happen.

### **7.2 Occupying or obstructing the line within the overlap**

If you are told that the train has failed and will not be moved, you may allow the overlap of the RSP immediately beyond the failed train to be occupied, fouled or obstructed. You may continue to do this until:

- the failed train is ready to proceed, or
- the assisting train has entered the section and the failed train is to be assisted forward.

### **7.3 When the line is again clear**

When the line is again clear, you must signal the next train normally.

If the assisted train is to enter a block section controlled by another signaller, you must tell that signaller the train is being assisted and how it is being assisted.

# 8

## **Failure or disconnection of train describers or bells**

### **8.1 Describing trains**

If the train describer equipment fails or is disconnected, you must keep a record of the trains within your area of control.

If a train enters an area controlled by another signaller, you must tell that signaller the identity of the train. If that signaller is at another signal box, you must send the train description by either bell or telephone.

If it is not possible to pass on a train description, you may allow trains to proceed and issue MAs in the normal way.

If you become aware of a train within your area of control for which you have not received a train description, you must find out its identity, if necessary by stopping the train.

### **8.2 Loss of communication on a single line**

If you cannot communicate with the signaller in an adjacent signal box but the signalling equipment is working normally, you must use whatever means are available to find out the order in which trains will proceed over the single line.



# 9 **Not used**

# 10

## Opening and closing signal boxes

### 10.1 Opening

When you are to open a signal box, you must find out if the adjacent signal boxes are open and tell the signallers there that your signal box is now open.

### 10.2 Closing

When you are to close a signal box, you must:

- make sure there are no more train movements required
- make sure that all controlled RSPs in your area of control are closed
- tell the signallers in the adjacent signal boxes that your signal box is closed.





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