KiwiRail

Local Network Instructions:

L6.2 Midland Line Automatic Signalling Rules

Publication date 31 Oct, 2024

Table of Contents

Introduction

The Midland Automatic Signalling Rules apply between the following stations:

- Rolleston to Arthur's Pass, and
- Otira to Stillwater (including Stillwater station limits)

Rail Personnel must hold the required LTO to operate in the Midland Line Automatic Signalling Rules areas:

- M – Midland Line Automatic Signalling Rules
- M2 – Midland Line Automatic Signalling Rules – Infrastructure
- M3 – Train Control operating instructions cross check on the Midland Line

1. Trains not to Set Back

a. After leaving a station, trains must not set back unless authorised by a Mis.50/51 Operating Instruction.

- Before issuing any such authority, the Train Controller must ensure the section is clear and the Operator of any approaching train is aware of the setting back movement.
- Any approaching train may only be authorised by Mis.50/51 to the crossing station in the rear of the setting back movement.
- Departure signals controlled by the Train Controller must be held at Stop and control tagged until the setting back movement has been completed.

CAUTION

When setting back, trains must be able to stop clear of level crossings with automatic alarms as the alarms may not operate until the train is on the crossing.

b. When shunting at a station involves going outside station limits, setting back on the main line is permitted provided the shunting movement does not involve passing the Intermediate signal.

c. When a train becomes disabled, if it is decided that the disabled train is to be moved to the station in the rear then the setting back movement must be authorised by reissue of the Operating Instruction held by the disabled train.

d. When a train has:
   - followed another into the block section, and
   - is behind a disabled train, and
   - can assist it to the station in the rear only

then once the Train Controller has been advised of the circumstances and is satisfied that the Operators of both trains have come to an understanding, an Operating Instruction may then be issued authorising the movement to set back to the station in the rear.

e. If more than one train has followed the disabled train into the block section and it is necessary for all trains to set back to the station in the rear, individual Operating Instructions will be issued authorising the movement of each train to set back to the station in the rear to ensure safe working.

2. Crossing Station

A crossing station is an interlocked station or stations where the signals and points are protected by Arrival signals fitted with a short range 'L' light.

The points are electrically connected with the signals so that when the points at either end of a station are set for the loop (in reverse), both Arrival signals go to Stop and the ‘L’ light is illuminated at the end at which the points are in reverse and all points off the loop are in normal.

The points at a crossing station are secured by an AS padlocks.

Main line points may be left locked in reverse by crews of trains departing from the crossing loop.

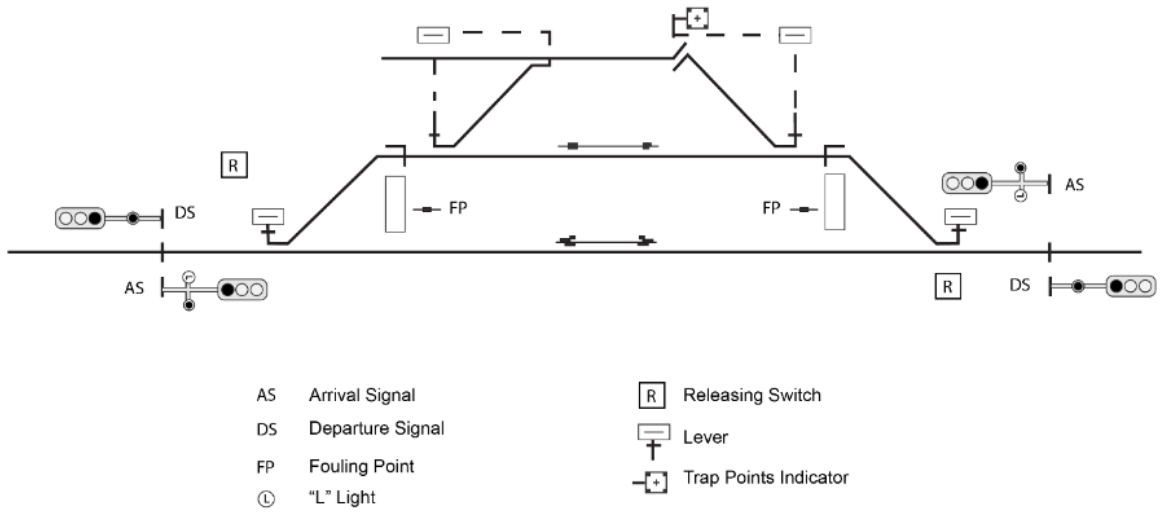


Figure 1: Diagram of a typical crossing station with siding shown in normal

2.1 Arrival Signals

Arrival Signal at	Means / Action
Red	One or both sets of points in reverse and track may be occupied
Red, and Departure at Red	One or both sets of points in reverse and track may be occupied. **OR** Two trains are approaching a crossing station from opposite directions within 400 metres to 1200 metres from the loop facing points
Red, ‘L’ illuminated	Facing points set for loop and track may be occupied
Caution or Clear	Both sets of points are set for the main line
Caution or Stop	When two trains are approaching a crossing station from opposite directions at the same time the permissive Intermediate will be at Caution, although the Arrival signals may be at Caution or Stop.

2.2 Officer in Charge

Unless otherwise arranged, the Operator is the Officer in Charge of the station until the departure of their train.

When two trains are at a station, the Operator of the first train to arrive will be the Officer in Charge.

The duties of the Officer in Charge and train crews may be varied by the Train Controller.

2.3 Sidings within Station Limits

Sidings connected to the crossing loop at stations are provided with trap points. The siding and associated trap points are operated by a frame lever / switch stand, secured by an AS padlock.

When it is necessary to use the siding, the lever must be unlocked, and the points operated as required.

After shunting is completed, the points must be secured in normal and secure by padlock.

2.4 Releasing Switch

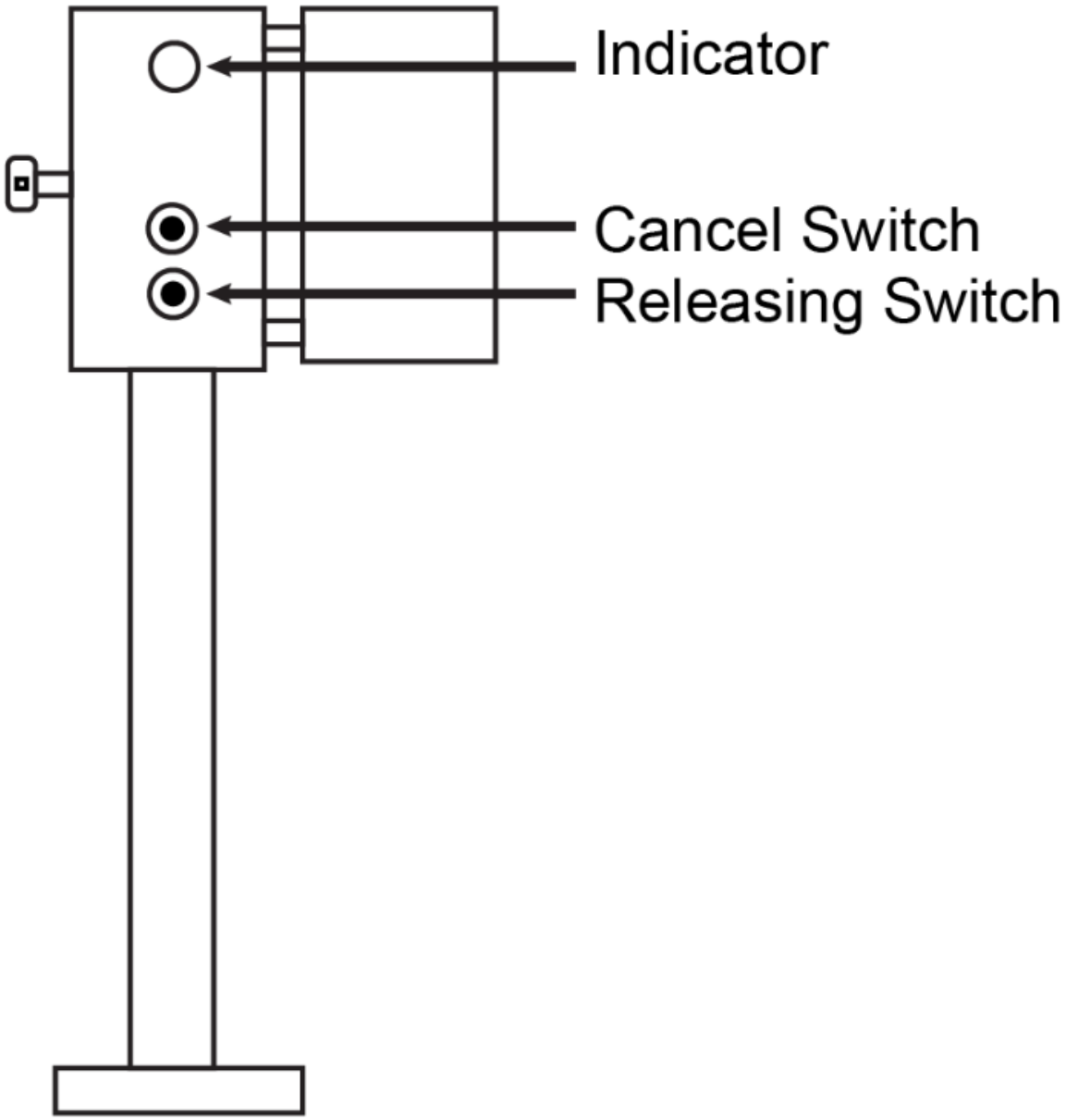


Figure 2: Diagram of a Releasing Switch Box

A releasing switch is provided close to the points lever, which, provided the block or intermediate section ahead is clear, is to be operated to set the Departure signal to Proceed,

Trains departing from the loop

Once the Departure signal is set at Proceed then:

- close and padlock the releasing switch door
- the points may then be set for the departure of a train from the loop.

NOTE
When an MTMV which does not activate the track circuitry has passed a Departure signal at Proceed, the cancel pushbutton in the releasing-switch box must be operated to put the Departure signal back to Stop.

3. Working of a Crossing Station

When a train that has been instructed to cross another train arrives at the crossing station before the opposing train, the Arrival and Departure signals may be at Proceed.

When this occurs, the Operator must be careful to observe the Mis.50/51 Operating Instructions issued by the Train Controller.

The train to arrive first will berth as instructed by

- Midland Line Automatic Signalling Rules,
- Mis.50/51 Operating Instruction or
- Bulletin.

IMPORTANT

When approaching a crossing station, the Operator must:

- check the Mis.50/51 they hold to ensure they do not overrun their crossing stations
- ascertain the location of the opposing train
- communicate and come to a clear understanding as to berthing arrangements and agree on which train will berth first.

Situation	Action
a. **The first train to arrive at a crossing station is required to enter the station and berth on the main line. Arrival signal is at Proceed.**	• The train may enter the station stopping short of the fouling point board. • When the train has come to a stop on the main line, the Operator must proceed to the main line points and reverse the points to enable the opposing train to enter the loop.
b. **Train required to cross another train at the station.** **Arrival signal at stop** If the 'L' light does not illuminate when the points are set for the loop	• Examine facing points and all the points off the loop, and • if correctly set, the train may then enter the loop. When the train has berthed on the loop, the opposing train may proceed to berth on the main line. If the Arrival Signal is at Stop then it may be passed at Stop in accordance with the above clause, being prepared to find the main line points in reverse.
c. **Arrival Signal at Stop** Train not required to cross another train at the station.	• The train must be stopped and the facing main line points restored for the main line if necessary. • If after the expiration of 10 seconds the signal is still at "Stop", the train may proceed cautiously past the signal. • The Operator must examine and ensure all other main line points are set and secure for the main line prior to passing over them. • The Operator must be prepared to find the line occupied or obstructed being prepared to stop short of any obstruction.
d. **Train required to cross another train at the station.** **The Departure signal is also at Proceed**	• When the train has berthed, the operator must immediately reverse the main line points. • This will automatically place the Departure signal at Stop and then allow the Departure signal at the station in advance to go to Proceed. • If the Departure Signal indication does not change, the Train Controller must be advised.

Situation	Action
e. **On arrival the Operator of the train required to berth on the loop observes the opposing train stopped at the Arrival signal, or arrives first**	• If the 'L' light is illuminated, the train instructed to berth on the loop will proceed into the loop. • If the 'L' light is not illuminated, then the Operator must go forward and reverse the points for the train to enter the loop. On ensuring that the 'L' light is illuminated the train will berth on the loop. • When directed by the Train Controller the points must be reset and secured for the main line once the train has berthed on the loop clear of the fouling point. • The Arrival signal for the opposing train will then go to Proceed.
f. **When both trains arrive at a crossing station at the same time both Arrival signals will be at Stop.**	The crossing of the trains will then take place in accordance with their agreed communications and instructions.
g. **The Operator of the train berthed on the main line:** **When the opposing train approaches**	• The Operator must immediately reverse the main line points. • The Operator of the train required to enter the loop, must ensure the 'L' light is illuminated before entering the loop. • When berthed on the loop clear of the fouling point, the points must be reset and secured in normal for the main line. • A proceed indication on the Departure signal will be obtained automatically.
h. **When a train has berthed on the loop and the Departure signal is displaying a Proceed indication.** This will hold the opposing Departure signal at stop, preventing the opposing train from being able to proceed from the station in advance.	• The Operator of the train in the loop must reverse the main line points. This will place the Departure signal to Stop at this station and then allow the opposing Departure signal to go to Proceed. • When the opposing train has departed the station in advance, the Operator must advise the Train Controller • The main line points at the crossing station reversed by the Operator must be returned to normal before the opposing train arrives. • This should be arranged with the Train Controller and preferably done as soon as the opposing train enters the block section.
i. **Train is side-tracked onto the loop or siding to allow another train to overtake it on the main line**	• Instructions will be given by the Train Controller regarding side-tracking of trains. • The side-tracked train must not foul the main line. If this is not possible, the Operator must arrange suitable protection of any fouled lines
j. **When a train is to depart from the main line**	The Departure signal works automatically provided the main line points are in normal. The Operator of the departing train must ensure the train berthed on the loop is clear of the main line.
k. **When a train is to depart from the main line**	If the Departure signal is at Caution or Clear, the Operator may proceed on signal indications.
l. **When a train is to depart from the main line** **Departure signal is at Stop**	The Operator must check the main line points and keep their train clear of the fouling point board until • the signal goes to Proceed, or • is authorised by Safe Working Authority, or • is authorised by Bulletin (suspension of signalling) and holds an Operating Instruction for the movement.
m. **When a train is waiting to depart from the loop or siding and a following train is approaching closely in the rear.**	• The train approaching from the rear must be stopped. • The Operator of the departing train must keep their train clear of the fouling point until the approaching train has stopped. The main line points can then be set to enable the train to depart the loop.

n. **When a train is to depart from the loop or siding and no train is approaching closely, nor stopped in the rear.**	• Operate the releasing switch
	• The Departure signal should go to Proceed
	
	If the Departure signal does not show a Proceed indication, contact the Train Controller.
	
	• After the Operator is satisfied that all other points are correctly set for the train to depart, the main line points may be set for the loop and secured.
	• The Operator may then start the train after being satisfied it is safe to proceed, and
	  • the signal goes to Proceed, or
	  • is authorised by Safe Working Authority, or
	  • is authorised by Bulletin (suspension of signalling) and holds an operating instruction for the movement.

4. Communication During Train Crossings

4.1 Approaching a Crossing Station

When approaching a crossing station, call on radio channel 1 to establish the whereabouts of the opposing train.

If radio contact cannot be established, either:

1. Attempt to make contact using the Midland Portable radio using channel 1, or
2. Confirm visually that the opposing train is not standing at the opposite end Arrival signal. If it is not the train can be berthed, or
3. Confirm berthing arrangements via the Train Controller if:
   a. the train cannot be reached by the Midland Portable radio, or
   b. it is not possible to view the train stopped at the opposite end Arrival signal.

4.2 Berthing

The first train to berth must be confirmed as being stationary before the second train commences berthing. Confirmation should be by channel 1.

In the event of radio contact not being established, the first train is to confirm that it is stationary by either:

1. Attempting to contact the second train using the Midland Portable radio using channel 1, or
2. Hand signal the opposing train if the locomotive is visible, or
3. Via the Train Controller if unable to contact the second train using the Midland Portable, or the opposing train’s locomotive is not visible.

5. Mandatory Calling of Limits

As a train approaches, calls must be made:

- a minimum of 1000 metres before the Arrival signal for a crossing station
- at the Intermediate signal before the Home signal for an Interlocked crossing station or boundary station in the Midland Line area (Rolleston, Arthurs Pass, Otira and Stillwater), when an Operating Instruction is held
- prior to departing a station after a crew change
- prior to departing a siding

  The Addressee of the Operating Instruction must call on radio channel 1 advising the:
- train number
- location being approached
- limit of the journey for the Operating Instruction held
- next crossing place and train being crossed (if applicable); and
- berthing arrangement for the train (if applicable).

Call Protocol	Example of Protocol
Who	845
Where	Approaching/At Staircase
Journey to	Journey to Arthurs Pass
Next crossing	Crossing 842 at Cora Lynn
Berthing arrangements for train	845 to enter crossing loop

Hi-Rail vehicles must also comply with this procedure, advising the vehicle identification number.

MTMVs operating with an Operating Instruction (Mis.51) must also comply with this procedure, advising the vehicle identification number if not operating with a train number.

WARNING

When calling on the radio, make sure there are no other transmissions on channel 1 otherwise your transmission will not be heard correctly.

6. Checking Train Crossings

The Operator must check all crossings to be made on the journey with any other Train Crew, when assisting on the train.

7. Operating Instructions

Train crossings are arranged by the Train Controller by the issue of Mis.50/51 Operating Instructions.

7.1 Operating Instructions – Principles

- Mis.50 is the Train Controller's copy
- Mis.51 is the Operator's copy
- The Addressee, location and date portions only may be pre completed
- The Train Controller issues and numbers Operating Instructions consecutively each day
- The Operator must repeat back to the Train Controller on receipt
- A valid Operating Instruction must be held before entering a Midland ASR area
- The Operator must hold only one Operating Instruction 'in effect' at any time
- Operating Instructions remain effective until fulfilled, or until cancelled by a further Operating Instruction
- Once fulfilled, the Operating Instruction is to be torn in half
- MTMVs running as a train - the Operating Instruction will be addressed to the Operator in Charge

NOTE

Exception: If the journey is to continue in the Midland ASR area, a second Operating Instruction may be issued at the terminating station of the first Operating Instruction.

This will not become operative until the first Operating Instruction has been fulfilled.

Operator’s Responsibilities

- Ensuring that crossings, or the provisions of an Operating Instruction are fulfilled.
- Ensuring all unfulfilled Operating Instructions are handed over when the train is handed over to another Operator.

CAUTION

Operating Instructions do not authorise the passing of signals at Stop. When signalling is suspended, the provisions of Instruction 8 will apply.

7.2 Each Operating Instruction

Will show the journey from and to locations as well as the crossings that will take place at crossing stations en route.

If any special arrangements are necessary at crossing stations, these will be detailed in the “Other instructions” portion of the Mis.50/51.

The train must not proceed beyond the fouling point in station limits of the terminating station until a further Operating Instruction is issued if the journey is to continue in Midland Line ASR area.

An Operating Instruction to or from a siding, will allow the train to berth or exit the siding from either end.

NOTE
For shunting at stations, the provisions of Automatic Signalling Rules will apply, and Train Controller authority must first be obtained.

7.3 Berthing of Trains

Location	Berthing:
Freight train crossing Freight train – Down train takes the loop	
Passenger train crossing Passenger train – Down train takes the loop	
Freight train crossing Passenger train:	
Staircase	Down train takes the loop
Craigieburn	Passenger train berths on the main
Cass	Down train takes the loop
Cora Lynn	Passenger train berths on the main
Aickens	Down train takes the loop
Jackson	Down train takes the loop
Rotomanu	Passenger train berths on the main
Moana	Passenger train berths on the main
Kokiri	Passenger train berths on the main
Stillwater	Down train takes the loop ##

Only for movements on the Midland Line.

When two passenger trains cross, the Down train will take the loop.

NOTE
If necessary, the Train Controller can change these berthing arrangements on a Mis.50/51.

At Darfield, Springfield, Arthur's Pass and Otira, trains will berth as directed by signals.

During berthing movements at Otira and Arthur's Pass, trains are permitted to set back into the loop back shunts in accordance with **SO01 Responding to Signals, 4.3 Authorising Passing of Signals at Stop** once permission has been obtained from the Train Controller.

TO09 Setting Back and Propelling and Rail Operating Code, Section 5. Operating Instructions for Yard and Allied Personnel are modified accordingly.

7.4 Work Trains

The Operating Instruction can be issued to the furthermost crossing station in the area and the Train Controller can include setting back instructions.

When the work train is to proceed into an area where it is to work in conjunction with other work authorised by a Mis.60, then the work train will also work under the authority of that Mis.60. If necessary, the Mis.60 is to include any instructions for the work train to work in either direction. Other approaching trains will receive an Operating Instruction to the crossing station at the commencement of the work area.

When working under a Mis.60, an Operating Instruction is not required for the area covered by the Mis.60.

7.5 Crossings

The Train Controller is the Signaller for Rolleston, Arthur's Pass and Otira. Stillwater is a compulsory call, and it is considered to be a sufficient safeguard instead of the Operating Instruction being sent to the short stopping train first.

However, the short stopping arrangements must apply if the original Operating Instruction were to change and both trains were in either the Rolleston - Arthur's Pass or the Otira - Stillwater areas.

7.6 Altering the Crossing Station After an Operating Instruction Has Been Issued

The original instruction is to be cancelled and a new one issued detailing the altered arrangements. An endorsement is to be made in the Other Instructions portion cancelling the original crossing instruction.

If a train is required to stop short of a terminating station due to track blockage or some other reason, then the Operating Instruction must be cancelled and reissued.

NOTE
If the crossings are changed to either Otira or Arthur’s Pass stations, then the Operating Instruction would not be cancelled as these stations are outside the Midland ASR area.

Special trains running at short notice will be advised verbally by the Train Controller to those concerned who must endorse the Information Bulletin.

Trains not identified by a train number will be identified by the lead locomotive number on Operating Instructions.

If locomotives are berthed on a back road at a crossing station and the Train Controller has sufficient advance information of this occurring, then it must be included in the Other Instructions portion of the Operating Instruction issued to trains passing through the station concerned. When not possible, the Train Controller will verbally advise Operators of passing trains before they arrive at the station concerned. These details must be endorsed on the Information Bulletin.

If a train will not make any crossings en route, an Operating Instruction form with the 'from' and 'to' particulars is still to be completed and issued.

8. Suspension of Automatic Signalling

When necessary to meet special conditions, or when a signal and / or communication failure is so extensive that normal working cannot be continued, the operation of Midland Line Automatic Signalling Rules may be suspended by the issue of a bulletin showing specified area(s).

During the time the operation of Automatic Signalling is suspended, trains may pass Permissive, Absolute and Departure signals within the area at Stop in accordance with the authority and subject to the exceptions shown in the Bulletin.

When the operation of Automatic Signalling is suspended as provided in this regulation, the following arrangements will apply:

a. The Operating Instruction is to be endorsed with the suspension of the signalling area.
b. A train standing at a crossing station in an area where Automatic Signalling has been suspended must not proceed outside the fouling point at the crossing station for any purpose until after the arrival of all trains to be crossed at the station concerned.
c. When a crossing is to take place in a suspended area the Operating Instruction for each train is to be completed to the crossing station only, then a further Operating Instruction will be issued at that station. This is to include the train crossing which is to take place at that station. With a following movement, the Operating Instruction will only be authorised to the station cleared by the train running ahead.
d. After an Operating Instruction has been issued and the Operator is travelling from an unsuspended area to a suspended area, the Operator must request permission before entering the suspended area.
e. After an Operating Instruction is issued at a suspended area boundary, no additional requirement to call for permission is required.
f. Operators must advise the Train Controller when main line points at a station have been locked in reverse.
g. Before entering the affected area, Operators must obtain particulars of stations at which main line points will be reversed from the Train Controller in accordance with **GR05 Operation of Points 4. Securing Points**.
h. Before passing over any main line points (including the first set of facing points at terminating stations), Operators must reduce the speed of their train to 15 km/h and must ensure that the points are correctly set for the passage of the train.
i. Speed over level crossings equipped with automatic alarms must be reduced to 10 km/h as the absence of power will affect their normal working. Once on the level crossing, a train can resume normal line speed.
j. A sharp lookout must be kept for hand signals.
k. When a train is locked in a siding, an Operating Instruction must be held to enter the main line.

8.1 Train Stalled, Divided or Disabled and Relief Required

In addition to the SWA-02 and protection requirements, the Train Controller must check and ensure the Operating Instruction for the disabled train covers the area in which the relief locomotive is to run.

Once the SWA-02 has been completed, the Train Controller may verbally authorise the relief locomotive to proceed after ensuring the Operators understand the intended movement.

8.2 Shunting Outside Departure Signals

Shunting outside the Departure signals at any station may only be carried out when the Operator is in possession of an Operating Instruction for that movement.

When the movement has been completed, the Operating Instruction for the movement must be cancelled by a new Operating Instruction.

8.3 Work Authorised by Track and Time Permit (Mis.60)

Work trains / MTMV working in conjunction with work authorised by Track and Time Permit (Mis.60)

When working under a Mis.60, an operating instruction is not required for the area covered by the Mis.60.

When Automatic Signalling is suspended and a Mis.60 has been issued for the block section and a work train or MTMV is required to enter the section.

The Train Controller must:

1. Confirm any points for the intended movement are correctly set.
2. Obtain the permission of the Rail Protection Officer holding the Mis.60.
3. Confirm with the Rail Protection Officer that it is safe for the movement to enter the section before verbally authorising the movement to pass the signal at the boundary of the Mis.60 area.

9. Form Examples

9.1 Mis.50 – Train Controller Use

KiwiRail

Mis 50

Operating Instructions – Midland Line

Number Day Date

To **Operator** of **Train** number At

Journey from To

Cross reference crossing instructions

(a) Will cross Number at

(b) Will cross Number at

(c) Will cross Number at

(d) Will cross Number at

(e) Will cross Number at

(f) Will cross Number at

(g) Other instructions

(h) This cancels Operating Instruction Number

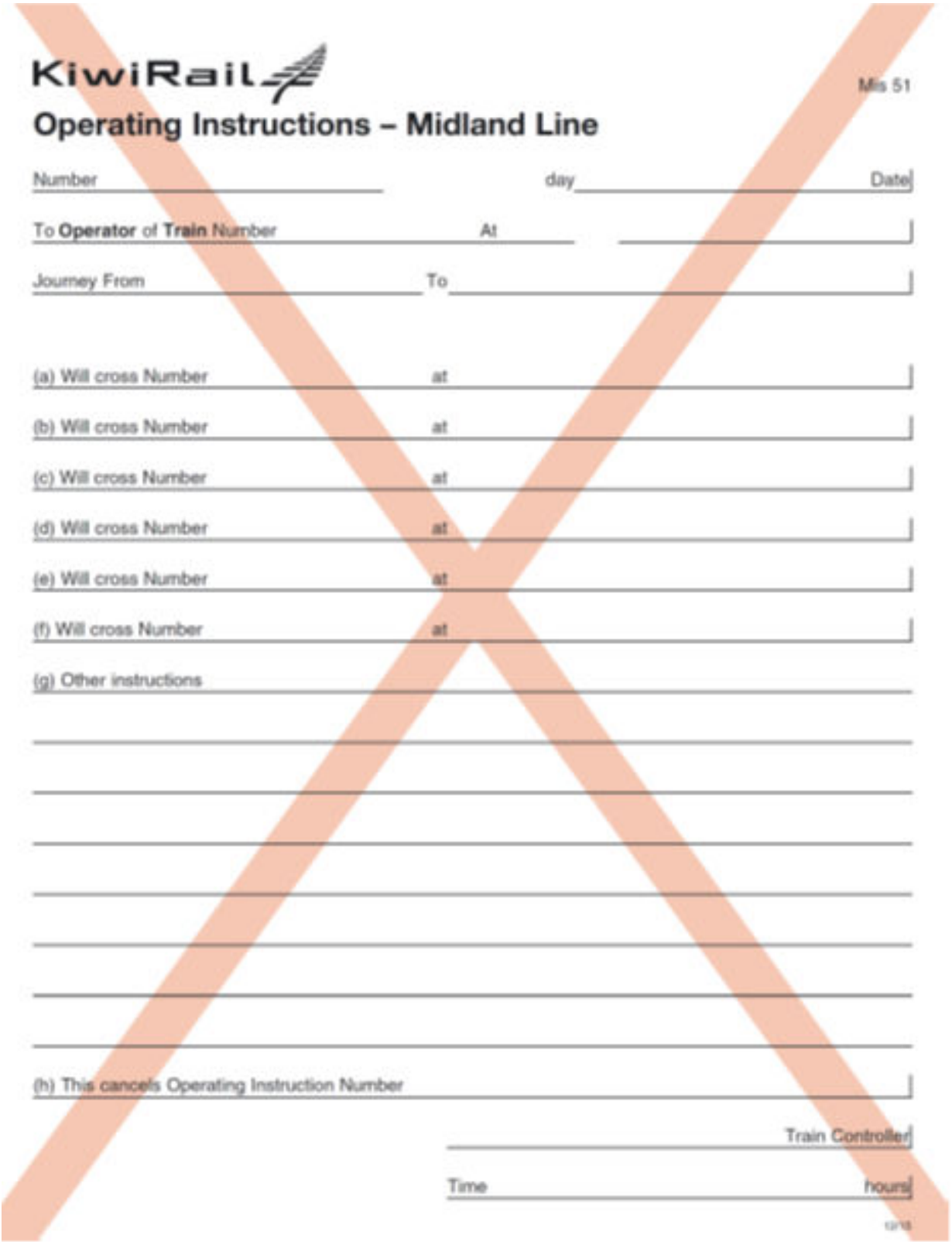
Repeat

Train Controller

Time hours

Example of Mis 50 form (Train Controller use)

9.2 Mis.51 – Operator Use



KiwiRail

Mis 51

Operating Instructions – Midland Line

Number _____ day _____ Date

To **Operator** of **Train** Number _____ At _____

Journey From _____ To _____

(a) Will cross Number _____ at _____

(b) Will cross Number _____ at _____

(c) Will cross Number _____ at _____

(d) Will cross Number _____ at _____

(e) Will cross Number _____ at _____

(f) Will cross Number _____ at _____

(g) Other instructions _____

(h) This cancels Operating Instruction Number _____

Train Controller

Time _____ hours

12/18

Example of Mis 51 form (Operator use)