Hong Kong Transport Services Business Unit

Railway Safety Rules

Authorised for use by:

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Operations Director

January 2022

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Document Control

Second Issue: January 2022

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Railway Safety Rules

Introduction

1 Purpose

The intent of the *Railway Safety Rules* (*RSR*) is to document the high level safety objectives, principles and requirements of railway operations. In support of the RSR, detailed procedures and instructions are documented in the procedural manuals and local instructions.

The RSR has been written with the following objectives in mind:

- Adopting a risk-based approach: the risks that the Rules are devised to mitigate are described in beginning of each chapter;
- Providing user-friendly features, e.g. using simple language and clear format;
- Providing an optimum level of detail for easy reading and broader application.

2 Effective Date

31 January 2022

3 Documents Superseded

This issue supersedes the *Railway Safety Rules* – First Issue: August 2008.

4 Accessibility

4.1 Target Audience

This manual is targeted for staff whose duties are connected with working of the railway or who are involved with work on or near the track, structures or equipment. For details, refer to Section A1.

4.2 On-line Access

The most updated version of this document is available on-line, you should access it via:

OK Mall > IMS Documentation > Business Unit / Business Unit Railway Safety Document / Railway Safety Rules (RSR)

4.3 Printed Copy Distribution

Printed copies of this document are distributed only to selected work locations and eligible staff as approved by the Document Owner.

Note: The printed copies may not be timely updated since urgent amendments may be made through Traffic Notices and/or Online Amendments. You should refer to Traffic Notices and/or the online version of this document via OK Mall.

5 Notable Changes

5.1 General

Subsequent to the 3-yearly review, this document is re-issued to incorporate the necessary changes to reflect the current practices and the changes due to the implementation of Phase 3 Matrix Organisation structure.

5.2

The following amended sections/clauses which have taken effect via the publication of the Traffic Notice are incorporated into the Manual:

Section	Clause	TN No.	Effective Date
F2.2	F2.2.1, F2.2.2, F2.2.3, F2.2.4, and F2.2.5	15 / 21	23 April 2021
D7.4	D7.4.1	25 / 21	20 June 2021

5.3 Change of Terms

The following terms are changed:

Old Terms	New Terms
running tracks	mainline
reception tracks	connection tracks
~	Coupler Operator
Ambulance Services	Ambulance Command

5.4 The notable changes are listed below.

Section / Chapter	Notable changes
Glossary	
The following terms are added or updated: • Authorised staff • Connection track • Coupler Operator • Earth • Isolation Record Form • Lookoutman • Mainline • Mode, Traction Fallback ~ • Notice, Caution ~ • Open section • Person, Competent ~ (Depot Cleaning) • Place of Safety • Rail Potential • Reception track • Red flashing light • Running track • Siding • Signal	

Section / Chapter		Notable changes
Section A General Requirements		
A5	Track Safety	Updated the requirements on track access. (*A5.1*)
A7	Fire Precautions	Updated the exemption of conveying dangerous goods on trains. (*A7.1.3*)
A10	Security	• Updated the person to grant permission for entering non-public areas of railway and trains. (*A10.4.1*) • Updated the person to grant permission for charity collection and other activities. (*A10.6.1*)
Section B Station Working		
B2	Opening of Stations and Entrances	Updated the requirements on managing the station entrance during traffic hours. (*B2.3.2*)
B3	Inspections	Updated the requirements on passenger control. (*B3.3.1*)
Section C Signalling and Train Control		
C1	Signals and Indicators – Airport Express Line, Tung Chung Line, Disneyland Resort Line, Island Line, Kwun Tong Line, Tseung Kwan O Line and Tsuen Wan Line	• Updated the general information about Gap Hazard Detector Alarm Trackside Indicator. (*C1.22.1*) • Added a new section to state the rules relating to Limited Clearance Indicators. (*C1.25*)
C2	Signals and Indicators – East Rail Line	Added a new section to state the rules relating to Limited Clearance Indicators. (*C2.21*)
C3	Signals and Indicators – Tuen Ma Line	• Added a new section to state the rules relating to Passenger Detection Alarm Indicator. (*C3.15*) • Added a new section to state the rules relating to Limited Clearance Indicators. (*C3.16*)

Section / Chapter		Notable changes
C4	Signals and Indicators – Light Rail	• Updated the rules relating to fixed signals. (*C4.1.3*) • Updated the types of illustration of route indicators. (*C4.2.2*) • Updated the description of locations with Conflicting Movement Indicators. (*C4.8.1*) • Updated the meaning of Stop Indicators. (*C4.10.1*) • Updated the rules relating to Stop Indicator. (*C4.10.2*) • Added a new section to state the rules relating to Limited Clearance Indicators. (*C4.14*)
C10	Signals and Indicators – South Island Line	• Updated the graphic illustration of Stopping Mark. (*C10.9*) • Added a new section to state the rules relating to Limited Clearance Indicators. (*C10.14*)
Section D Train Working		
D3	Operation – General	• Updated the rules relating to the brake pipe continuity test and added the role of Coupler Operator. (*D3.9.2*) • Updated the rules relating to the display of lights or reflective plates. (*D3.11.3*)
D5	Train Despatching	Updated the general rules relating to train dispatching. (*D5.2.2*)
D7	Movements in Depots and Sidings	• Updated the list of permanent speed restrictions. (*D7.4.1*) • Updated the rules relating to shunting movement. (*D7.5.2*) • Updated the rules relating to loose shunting. (*D7.6.2*) • Updated the rules relating to removing target, red flag or light in emergency. (*D7.9.2*) • Introduced a new role “Coupler Operator” to take up the role of Handsignalman during coupling and uncoupling. (*D7.11 and D7.12*)
D8	Stabling and Securing	Updated the rules relating to stabling an electric multiple unit or Light Rail vehicle. (*D8.2.1*)
D9	Engineer’s Trains	• Updated the rules relating to riding Engineer’s train to worksite. (*D9.4.4*) • Updated the rules relating to train movements within worksite. (*D9.5.2*) • Updated the rules relating to securing of loads. (*D9.9.1*)

Section / Chapter		Notable changes
Section F Engineering Work		
F1	General Requirements	• Updated the general requirements for engineering work. (*F1.1.3*) • Revised the topic of *F1.3* from "Times of Work" to "Work Requiring Traffic Notice Publication".
F2	Stations, Ancillary Buildings and Depots	• Updated the list of control measures for works at platform edge. (*F2.1.2*) • Updated the rules and requirements for fire protection equipment. (*F2.2*) • Updated the requirements for portable fire extinguishers. (*F2.3.1*) • Updated the requirements for authorising hot work. (*F2.5.1*) • Updated the requirements for inspecting lifting appliances. *(F2.11.1*) • Updated the requirements for ladder. *(F2.13.1)*
F4	Track Access	• Updated the topic of the section. • Updated the responsible persons for authorising track access. (*F4.1.1*) • Updated the general requirements for track access. (*F4.1.2 and F4.1.4*)
F5	Depot Tracks	• Updated the general requirements for works in Engineer's Possession. (*F5.1.1*) • Added a new section to state the rules relating to works on or near tracks (except maintenance track or workshop track). (*F5.2*) • Revised the topic of *F5.3* to "Crossing Tracks (Road Vehicles, Cranes or other Mechanical Appliances)". • Revised the topic of *F5.4* to "Track Trolleys and other Objects on Track". • Updated the rules relating to Wayside Warning Indicator. *(F5.5.1)*

Section / Chapter		Notable changes
F6	Mainline – Traffic Hours	• Revised the section topic to "Mainline – Traffic Hours". • Updated the rules relating to work affecting signalling equipment. (*F6.2*) • Updated the exceptions to track access. (*F6.3.2*) • Updated the general requirements for track access. (*F6.3.6)* • Updated the rules relating to the arrangement of a standing train as protection for track access. (*F6.4.1, F6.4.4 and F6.4.5*) • Updated the rules relating to the arrangement of holding trains as protection for track access. (*F6.5.1, F6.5.5 and F6.5.6*) • Updated the rules relating to track access with unrestricted clearance. (*F6.6*)
F7	Mainline – Non-Traffic Hours	• Revised the Section topic to "Mainline – Non-Traffic Hours". • Updated the rules relating to protection for work requires traction current to be switched off. (*F7.4.1*) • Updated the rules relating to completion of work. (*F7.5.1*)
F8	Engineer's Possessions	• Updated the rules relating to pedestrian access work. (*F8.2.1 and F8.2.4*) • Updated the rules relating to taking possession in depots. (*F8.3.2*) • Updated the requirements before taking possession. (*F8.4.1 and F8.4.2*) • Updated the *Figure F8.5.1, Figure F8.5.2 and Figure F8.5.3.*
F9	Connection Track	Added a new Chapter to state the rules relating to connection tracks.
Section G Power Distribution and Traction Current		
G1	Safety Precautions	• Updated the rules relating to the switching. (*G1.2.1*) • Updated the rules relating to the handling of locking facilities. (*G1.6.2 and G1.6.3*) • Added a new section to state the statutory requirements on Electricity Ordinance. (*G1.8*)

Section / Chapter		Notable changes
G2	Earthing Devices	• Updated the rules relating to the application of earthing devices. (*G2.4.3 and G2.4.5*)
G3	Work on High Voltage and Traction Voltage Apparatus	• Updated the description of Purpose. • Updated the rules relating to the arrangement of system outage and switching. (*G3.2.3*) • Updated the rules relating to the safety arrangement for works on high voltage and traction voltage apparatus. (*G3.3.1, G3.3.2 and G3.3.4*)
G5	Traction Current Supply System	Updated the rules relating to emergency traction current switching. (G5.7)
Section H Mechanical Equipment, Trains and Vehicles		
H3	Forklift Truck / Cranes / Lifting Appliances	• Updated the responsible persons for lifting operations. (*H3.3.3, H3.3.4 and H3.3.5*) • Updated the responsible persons for handling maximum load. (*H3.4.1*, *H3.4.4*, *H3.4.5*) • Updated the responsible persons for handling appliance movement. (*H3.5*)
Section J Major Incidents		
J1	General	• Combined the original *Section J2* "Incidents Involving Corporation Only" to *Section J1*. • Updated the *People Involved, Purpose and Risk* of Section J1. • Updated the responsibilities of Incident Officer. (*J1.5.1 and J1.5.2*)
J2	Incidents Involving Corporation Only	Cancelled this section.
J3	Incidents Involving External Authorities	• Added a general requirement for handling incidents involving external authorities. (*J2.1.1*) • Updated the responsibilities of Duty Services Manager. (*J2.4.3*) • Updated the responsibilities of Incident Officer. (*J2.4.4*) • Updated the responsibilities of Incident Commander. *(J2.6.2)*

6 How to Locate Amendments

All amendments made are marked with a vertical line on the left side of the text, **except** those on drawings, or involving a whole chapter/ Section that is newly added or extensively revised.

Railway Safety Rules

Amendment Leaflet No. 5

1 Effective Date

1.1 This Amendment Leaflet will become effective on **all lines from 26 October 2024.**

2 Summary of Changes

2.1 This Amendment is issued to incorporate the necessary changes to reflect the current practices.

2.2 The following amended sections/clauses which have taken effect via the publication of the Traffic Notice are incorporated into the Manual.

Section	Clause	TN No.	Effective Date
G5	G5.6.3	TN No.18/24	3 May 2024

2.3 The notable changes are listed below.

Section / Chapter	Notable changes
Section A: General Requirements	
A8 Incidents and Irregular Occurrences	Added a new section to state the handling procedure for incident involving point damage. (*A8.3.2*)
Section C: Signalling and Train Control	
C1 Signals and Indicators – Airport Express Line, Tung Chung Line, Disneyland Resort Line, Island Line, Kwun Tong Line, Tseung Kwan O Line and Tsuen Wan Line	• Updated the descriptions of Cab Signals. *(C1.1.1)* • Updated the descriptions of fixed signals. *(C1.2.1)* • Added a new signal "Fixed (Twin) Yellow Signal". *(C1.3.2)* • Updated the pictures of LOS. *(C1.11.2)* • Updated the picture of LOP. *(C1.12.2)* • Updated the descriptions and pictures of Stop Indicators. *(C1.13)* • Updated the descriptions of Enhanced Restricted Manual and Enhanced Fallback Mode Boards. *(C1.19)*

Section / Chapter	Notable changes
C1, *cont'd*	• Added a new signal "Check Signal Indicator". (*C1.20.2)* • Updated the picture of 8-Car Mark. *(C1.23.1*) • Added a new signal "Depot Movement Indicators (Depot Limit)". (*C1.26)*
C2 Signals and Indicators – East Rail Line	• Updated the descriptions of Cab Signals. (*C2.1*) • Updated the descriptions of Fixed Signals. (*C2.2.1*) • Revised the "Note" of Distant Signal. (*C2.2.2)* • Revised the descriptions of Buffer Stop Signals. (*C2.3*) • Revised the descriptions of Subsidiary Signals. (*C2.4)* • Revised the descriptions of Position Light Ground Shunting Signals. (*C2.5*) • Updated the Related Persons for Junction Route Indicators. (*C2.6.1*) • Updated the descriptions of Signal Repeaters. (*C2.8 and C2.9*) • Updated descriptions of "Type B Limit of Absolute Movement Authority". (*C2.11.1*) • Updated the descriptions of Automatic Warning System Indicator. (*C2.17*) • Added a new signal "Stop Indicators". (*C2.18*) • Added a new signal "Stopping Position Indicator". (*C2.19*) • Added a new signal "Check Signal Indicator". (*C2.22)* • Added a new signal "Depot Movement Indicator (Depot Limit)". (*C2.28*) • Added 2 new signals "Limit of Shunt Indicator (LOS) and Freight Yard Limit Indicator". (*C2.29)*

Section / Chapter	Notable changes
C3 Signals and Indicators – Tuen Ma Line	• Updated the descriptions of Cab Signals. (*C3.1*) • Updated the descriptions of Buffer Stop Signals. (*C3.2.1*) • Updated the descriptions of Red bar on Point Position Indicator. (*C3.3.1)* • Updated the descriptions of Signal Repeater. (*C3.3.4)* • Updated the descriptions of Depot Movement Indicators (Deport Limit) and added a new signal "Limit of Shunt Indicator". *(C3.4*) • Updated the descriptions of Stop Indicators. (*C3.8*) • Updated the picture of 8-Car Mark. (*C3.11.1*) • Updated the descriptions of Passenger Detection Alarm Indicator. (*C3.15)*
C4 Signals and Indicators – Light Rail	• Updated the descriptions of Matrix Signals. (*C4.3.2*) • Added a new signal "Depot Movement Indicators (Depot Limit)". (*C4.15*) • Added a new signal "Limit of Shunt Indicator". (*C4.16*)
C6 Control of Signals and Points	Updated the requirements on change of signal aspects and point directions. (*C6.2.1 and C6.2.3*)
C10 Signals and Indicators – South Island Line	• Updated the descriptions of Cab Signals. (*C10.1*) • Added a new signal "Fixed (Twin)Yellow Signal. *(C10.3.2*) • Updated the descriptions of Signal Repeater. (*C10.7*) • Updated the descriptions and pictures of Stop Indicators. (*C10.8*) • Added a new signal "Depot Movement Indicators (Depot Limit)". (*C10.15*) • Added a new signal "Limit of Shunt Indicator". (*C10.16*) • Added a new signal "Check Signal Indicator". (*C10.17*)

Section / Chapter	Notable changes
Section D: Train Working	
D2 Crewing	Updated the general requirements on trains movement. (*D2.1.1*)
D3 Operation - General	Revised the requirements on train movement in RM mode. (*D3.3.3*)
D9 Engineer's Trains	Revised the requirements on train movements within worksite. (*D9.5.3, D9.5.5 and D9.5.7*)
Section F: Engineering Work	
F4 Track Access – General	• Updated the requirements on staff track access. (*F4.1.5*) • Updated the requirements on Lookoutmen arrangement. (*F4.3.1*)
Section G: Power Distribution and Traction Current	
G5 Traction Current Supply System	Updated the requirements on traction current switching in non-traffic hours. (*G5.6.3)*

3 How to Locate Amendments

3.1 All amendments made are marked with a vertical line on the left side of the text, **except** those on drawings, or involving a whole chapter/ Section that is newly added or extensively revised.

4 Your Actions

4.1 Removing / Inserting Pages

Please remove existing pages and insert new ones in accordance with the following table.

Section	Page	
	Remove	**Insert**
Contents	Contents-1~10	Contents-1~10
A8	A8-1~4	A8-1~4
C1	C1-1~14	C1-1~18
C2	C2-1~20	C2-1~22
C3	C3-1~14	C3-1~14
C4	C4-1~10	C4-1~10
C6	C6-1~2	C6-1~2
C10	C10-1~10	C10-1~12
D2	D2-1~2	D2-1~2
D3	D3-3~4	D3-3~4
D9	D9-3~6	D9-3~6
F4	F4-1~2	F4-1~2
G5	G5-5~8	G5-5~8

Note: On completion of the above actions, please also insert this Amendment Leaflet into your manual binder as a record.

5 Document Control

Editorial Team:	**Sharon Kwan,** Document Compiler **Flora Wong,** Information Officer
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Railway Safety Rules

Amendment Leaflet No. 4

1 Effective Date

1.1 This Amendment Leaflet will become effective on **all lines from 17 February 2024.**

2 Summary of Changes

2.1 This Amendment is issued to incorporate the necessary changes including new requirements on the following issues:

- Changed "Stopping Mark" to "Stopping Zone Indicator" and clarify its application. (*C1.16, C2.19, C3.13, C3.14, C4.13 and C10.9*)
- Revised the requirements on the safety precautions for works on high voltage and traction voltage apparatus. (*G3.3.1*) and removed the requirements in section *G3.3.4*.
- Revised the requirements on works conducting on lines where traction current is not switched off during non-traffic hours (*G5.3.2*) and merged the *G5.3.3* which was published in the TN No. 22/22 to *G5.3.2*.

2.2 The following amended sections/clauses which have taken effect via the publication of the Traffic Notice are incorporated into the Manual.

Section	Clause	TN No.	Effective Date
G5	G5.3.2 and G5.3.3	TN No. 22/22	13 June 2022

3 How to Locate Amendments

3.1 All amendments made are marked with a vertical line on the left side of the text, **except** those on drawings, or involving a whole chapter/ Section that is newly added or extensively revised.

4 Your Actions

4.1 Removing / Inserting Pages

Please remove existing pages and insert new ones in accordance with the following table.

Section	Page	
	Remove	**Insert**
Contents	Contents-3~8	Contents-3~8
C1	C1-9~10	C1-9~10
C2	C2-15~16	C2-15~16
C3	C3-11~12	C3-11~12
C4	C4-9~10	C4-9~10
C10	C10-5~6	C10-5~6
F8	F8-11~12	F8-11~12
G3	G3-1~4	G3-1~4
G5	G5-3~4	G5-3~4

Note: On completion of the above actions, please also insert this Amendment Leaflet into your manual binder as a record.

5 Document Control

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Endorsed by:	Operations Standards Committee

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Rico Wong

Winson Tse

Co-Chairman of Operations Standards Committee

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Railway Safety Rules

Amendment Leaflet No. 3

1 Effective Date

1.1 This Amendment Leaflet will become effective on **all lines from 24 June 2023**.

2 Summary of Changes

2.1 This Amendment is issued to incorporate the necessary changes including new requirements on accessing Platform Restricted Area and switching on traction current.

2.2 The following amended sections/clauses which have taken effect via the publication of the Traffic Notice are incorporated into the Manual.

Section	Clause	TN No.	Effective Date
G5	G5.6.3	TN No. 02/23	19 December 2022

2.3 The notable changes are listed below.

Section	Notable changes
Section F: Engineering Work	
F2 Stations, Ancillary Buildings and Depots	Added a new section to state the requirements on accessing Platform Restricted Area. (*F2.2*)
Section G: Power Distribution and Traction Current	
G5 Traction Current Supply System	Added a new requirement on switching on traction current. (*G5.6.3*)

3 How to Locate Amendments

3.1 All amendments made are marked with a vertical line on the left side of the text, **except** those on drawings, or involving a whole chapter/ Section that is newly added or extensively revised.

4 Your Actions

4.1 Removing / Inserting Pages

Please remove existing pages and insert new ones in accordance with the following table.

Section	Page	
	Remove	**Insert**
Contents	Contents-13~14	Contents-13~14
F2	F2-1~8	F2-1~8
G5	G5-5~8	G5-5~8

Note: On completion of the above actions, please also insert this Amendment Leaflet into your manual binder as a record.

5 Document Control

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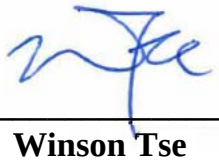
Document Owner:	**Rico Wong and Winson Tse,** Co-Chairman of Operations Standards Committee
Endorsed by:	Operations Standards Committee

Approved by:

Rico Wong



Winson Tse

Co-Chairman of Operations Standards Committee

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Railway Safety Rules

Amendment Leaflet No. 2

1 Effective Date

1.1 This Amendment Leaflet will become effective on **all lines after the official opening of the East Rail Line Cross-Harbour Extension**. The official date of which will be announced through Traffic Notice.

Remarks: The effective date of this Amendment Leaflet is on 15 May 2022.

2 Summary of Changes

2.1 This Amendment is issued to incorporate changes relating to the official opening of the East Rail Line Cross-Harbour Extension. The notable changes are listed below.

Section	Notable changes
Section C: Signalling and Train Control	
C2 Signals and Indicators – East Rail Line	• Deleted the description and pictogram relating to 12-car Number Plate. (*C2.18*) • Updated the pictogram of No-Entry Warning Indicators. (*C2.25)* • Added a new section to state the functions of Block Boundary Indicators. (*C2.26)* • Added a new section to state the functions of Neutral Section Indicators. (*C2.27)*

3 How to Locate Amendments

3.1 All amendments made are marked with a vertical line on the left side of the text, **except** those on drawings, or involving a whole chapter/ Section that is newly added or extensively revised.

4 Your Actions

4.1 Removing / Inserting Pages

Please remove existing pages and insert new ones in accordance with the following table **after the effective date of this Amendment Leaflet being announced through Traffic Notices**.

Section	Page	
	Remove	**Insert**
Contents	Contents-5~6	Contents-5~6
C2	C2-13~16, 19~20	C2-13~16, 19~20

Note: On completion of the above actions, please also insert this Amendment Leaflet into your manual binder as a record.

5 Document Control

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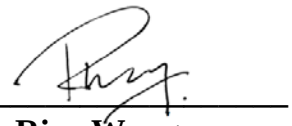

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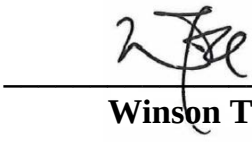

Winson Tse

Co-Chairman of Operations Standards Committee

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Railway Safety Rules

Amendment Leaflet No. 1

1 Effective Date

1.1 This Amendment Leaflet will become effective on **all** lines **on 31 January 2022**.

2 Summary of Changes

2.1 This Amendment is issued to incorporate changes relating to the trial running of the East Rail Line Cross-Harbour Extension.

2.2 Updates for the trial running of East Rail Line Cross-Harbour Extension are listed below.

Section	Notable changes
Glossary	Line: updated the definition of East Rail Line
Section C: Signalling and Train Control	
C2 Signals and Indicators – East Rail Line	• Updated the description about Fixed Signals. (*C2.2.1*) • Updated the types of fixed signals. (*C2.2.2*) • Updated the legends of Theatre-Type and Stencil-Type Route Indicators. (*C2.7.2*) • Updated the list of signal repeaters on mainline. (*C2.8.1*) • Updated the rules relating to the Stop Indicators and 9/12-car Number Plate. (*C2.18*) • Updated the locations of Stopping Marks. (*C2.19.1*) • Added a new section to state the functions of Signal Ahead indicators. (*C2.22*) • Added a new section to state the functions of End of Track Indicators. (*C2.23*) • Added a new section to state the functions of Floodgate Indicators. (*C2.24*) • Added a new section to state the functions of No-Entry Warning Indicators. (*C2.25)*

3 How to Locate Amendments

3.1 All amendments made are marked with a vertical line on the left side of the text, **except** those on drawings, or involving a whole chapter/ Section that is newly added or extensively revised.

4 Document Control

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Chairman of Operations Standards Committee

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Glossary

Term	Meaning
Ancillary Building	A railway building or structure on or in the vicinity of the line containing plant or equipment
Authorised Staff	Staff member who is exempted from being a Registered Electrical Worker under the Electricity Ordinance (Cap. 406) Exemption Order, and is authorised by the Corporation to conduct specific electrical work.
Automatic Fare Collection (AFC)	A system and associated equipment for the collection of fares, the issue, examination and collection of tickets, and for giving change
Automatic Train Control (ATC)	**Automatic Train Operation (ATO)** – a system which controls the regulation of acceleration, coasting, braking and station stopping of a train **Automatic Train Protection (ATP)** – a system which continuously compares actual train speed with maximum safe speed and ensures that there is always sufficient unoccupied track in event of an emergency brake application for a train to stop clear of any other train or object, and for limiting speed of trains to safe operating speed limits **Automatic Train Regulation (ATR)** – a centralised system for automatically regulating the operation of trains **Automatic Train Supervision (ATS)** – a centralised system for loading timetables and for setting routes accordingly
Automatic Warning System	A system comprising a track-mounted magnet and driving cab receiver for the purpose of giving warning when a train is approaching a fixed signal at danger or displaying a caution aspect
Axle Counter	A train detection device which counts the number of axles of trains and vehicles entering and leaving a section
Ballast	Stone chippings used to form the bed of sleeper track
Baseplate	The steel or cast-iron plate for supporting rails
Berth	The length of track occupied by a train
Bogie	The pivoted part of a vehicle which includes wheel-pairs

Term	Meaning
Bond	Electrical connection in the running rail traction current return circuit, or in a signalling track circuit **Continuity ~** – crosses the gap in the traction current return rails at points and crossings **Cross** ~ – joins traction current return rails of the same or adjacent tracks **Impedance** ~ – device which allows d.c. traction return current to flow freely, but which impedes flow of a.c. track circuit current at track circuit boundaries **Rail joint** ~ – provided across the joint between two running rails to ensure continuity of the traction current return circuit or track circuit, or both **Structure** ~ – connects steelwork of an overhead line equipment structure, or a bridge or other metal structure, to the earth return circuit **Track circuit** ~ – joins two running rail lengths to ensure continuity of track circuits where traction current is returned through another path **Transposition** ~ – connects two traction current return rails where the return path changes from one rail to the other
Brake	A device which slows or stops the movement of a vehicle **Air** ~ – one applied or released by compressed air **Dynamic/regenerative** ~ – one using traction motors as generators to supply power to the overhead line equipment **Electro-pneumatic** ~ – air brake controlled electrically **Hand ~** – a manually applied and released mechanical device **Parking** ~ – a mechanical device which applied brake automatically in the event of loss of main air brake pressure
Braking distance	Distance required by a train to stop under normal braking conditions, taking into account track gradient, train weight and speed
Buffer stop	A fixed or friction-sliding device at the end of a siding or overrun track to prevent a train running beyond
Busbar	A single heavy duty electrical conductor from which several other connections are made

Term	Meaning
Cant	Degree by which one running rail is raised above the other on curves
Car	An individual passenger vehicle
Catenary	Wires forming part of the overhead line equipment from which trains obtain power through contact by pantographs
Caution speed	Maximum speed at which a train may be operated so that it can be stopped short of any signal or obstruction, normally not more than 22km/h
Cess	Formation on either side of track ballast used for drainage purposes
Check rail	Additional rail placed within the track gauge parallel with a running rail adjacent to crossings to guide wheels passing the crossing nose
Circuit	Arrangement of conductors and electrical apparatus connected to a source of electricity supply **Open** ~ – incomplete circuit preventing flow of electric current, caused by opening of a switch or when a connection is missing **Short** ~ – fault condition caused by introduction of a path of low resistance to electric current between conductors
Circuit breaker	Switch arranged to open and interrupt the load and fault current flowing in a circuit **Track feeder** ~ – circuit breaker controlling supply of current to the overhead line equipment
Circuit Isolation Certificate/Circuit State Certificate	Form of declaration signed by an Authorised Person of a power company and countersigned by a Corporation Authorised Person when work is to be carried out on any earthed high voltage switchgear or apparatus directly connected to the power company supply. Its purpose is to make known to both parties exactly what apparatus is dead, isolated from all live conductors, and connected to earth
Clearance	Distance between structure and track or vehicle, or between vehicles
Coast	Action of running a train without power being fed to traction motors
Collar	Approved device or electronic facility provided to remind that a push button, switch or other control must not be operated
Conductor	Substance which permits flow of electricity

Term	Meaning
Confined space	Enclosed space in which there is a reasonably foreseeable risk and entry to which requires special safety precautions
Connection track	(Formerly "Reception track") Track connecting mainline with inlet signal of a depot
Consist	The number and specific identity of vehicles which comprise a train
Corporation	The MTR Corporation Limited or its delegate or representative as may from time to time be appointed for a specific purpose in connection with the operation and maintenance of the Railway
Coupler Operator	A person qualified to control and perform the coupling and uncoupling of train and vehicle. During coupling/uncoupling working, the Coupler Operator must have: ✓ means of communication; ✓ a handlamp or a set of flags (red and yellow flags) when required.
Crossing	An assembly or casting of rails which permits tracks to cross **Common** ~ – where tracks cross at an acute angle **Diamond** ~ – where two tracks cross at a scissors crossover **Level** ~ – place at which a road crosses a railway track on the same level **Obtuse** ~ – where tracks cross at an obtuse angle
Crossover	Combination of points and crossings which permits trains to cross from one track to another **Scissors** ~ – arrangement of two crossovers intersecting each other
Depot/Depot limits	A depot or the limits of a depot under sole control of a Yard Master, and a freight yard or the limits of a freight yard under sole control of a landlord or delegate
Designated Landmark	Specific location other than a station at which the limit of a worksite is defined
Detrainment	Process of having all passengers alight from a train
Driver's Safety Device	Device to ensure alertness when a train is driven manually which, when released, causes an emergency brake application
Duty Engineer In-Charge (DEIC)	Engineering Official on duty being responsible for management and control of rolling stock operations and landlord activities in a depot

Term	Meaning
Duty Services Manager	Designated senior Operations Official on duty responsible for attending and taking local charge at incidents
Earth	The general mass of the earth and any conductor in direct electrical connection with it **Circuit main** ~ – any earth, whether portable or integral with the equipment, which is applied prior to issue of a Permit-to-Work (High Voltage and Traction Voltage) or Sanction-for-Test **Temporary** ~ – additional earth applied after issue of a Permit-to-Work (High Voltage and Traction Voltage) or Sanction-for-Test and which must be removed prior to cancellation of either **Portable** ~ – earth lead of approved type
Electric Multiple Unit	A consist of semi-permanently coupled cars coupled and integrally controlled **~ Train** – two or more electric multiple units coupled to form a train
Electric train	Any train which requires traction current for movement
Empty train	A passenger train not carrying passengers on a running line
Engineer	An Operations Division Department Head or accredited representative
Engineer's train	Any train run to Engineer's requirements
Environmental Control System	System of ventilation of tunnels and ventilation and air-conditioning of stations, etc.
Environmental System Controller	Member of Operations Division staff on duty at an Operations Control Centre, responsible for supervision and control of environmental control system equipment
Feeder	Transmission line or cable in the electrical power distribution system
Fishbolt	Bolts used with fishplates for joining rail lengths
Fishplate	Steel plate, used in pairs, for joining rail lengths
Fitted vehicle	Vehicle fitted with an automatic air brake

Term	Meaning
Fouling point	The position, indicated by a fouling point marker or indicator, on a converging, diverging or crossing line beyond which the encroachment of any part of a vehicle would infringe the required passing clearance for a vehicle on the other line
Gantry	Rigid catenary or signal support across two or more tracks
Gauge	Standard measure to which dimensions of objects must conform, or a device for measurement of the standard **Kinematic envelope** – envelope containing the full cross-section of the largest vehicle to run on the track concerned under all normal conditions of operation and maintenance (applies to straight and level track only) **Structure** ~ – cross-section outline inside which no part of any fixed structure may extend except with specific authorisation **Track** ~ – distance between running rail faces in a single track
Gradient	Slope of a line measured against a level datum and usually quoted as a percentage
Handlamp	Approved portable lamp which is capable of displaying a red or yellow or green or white aspect
Handsignalman	Person qualified to control movement of trains by means of a handlamp or flags or other approved means, and to set and secure points. A Handsignalman must wear identity and have: ✓ means of communication; ✓ a handlamp or a set of flags (red, yellow and green flags) when required; ✓ other equipment such as a track circuit operating clip and point scotches and clamps when required
Headspan	Catenary support across two or more adjacent tracks comprising wires or other form of rope
Headwall	Departure end of a platform in the normal direction of service operation
Headway	Time interval between trains
Insulated rail joint	Insulated assembly between consecutive running rail lengths forming separate track circuits

Term	Meaning
Insulation	Material which offers extremely high resistance to the flow of electricity
Interlocking area	Area where points, fixed signals and signalled routes are controlled though an electrical interlock system
Irregularity	The performance or physical status of equipment which does not conform to normal operation or to design principles which may lead to an unsafe or potentially unsafe condition
Isolate	Disconnect the electrical supply, pneumatic supply or mechanical parts of equipment
Isolation Record Form	A form of declaration signed and issued by an Authorised Person to a Competent Person in-charge when a work is to be carried out within the minimum safe distance of any earthed 25kV traction voltage equipment which is not to be contacted by any persons, tools or materials. Its purpose is to make known to the Competent Person exactly which apparatus is isolated, discharged and earthed, so that people can work safely in the vicinity. The form can only be applied in non-traffic hours of the lines where the traction current is normally switched on.
Isolator	A switch used to isolate a part of the electrical system **By-pass** ~ – located near a traction substation for connecting adjacent overhead line equipment sections, and normally open **Manual** ~ – operated manually by means of a handle **Motorised** ~ – power-operated switch which can be operated remotely **Section** ~ – isolator for electrically sub-dividing an overhead line equipment section **Track feeder/Infeed** ~ – used for isolating overhead line equipment from a substation output or from overhead line equipment on another track
Joint	**Expansion** ~ – rail joint which allows for expansion or contraction of continuously welded rails according to prevailing ambient temperature **Movement** ~ – joint which allows for expansion or contraction of a structure according to prevailing ambient temperature
Jumper	**Continuity** ~ – length of cable provided with fastenings used as an electrical connection to bridge a gap **Overhead line** ~ – flexible conductor located in an overhead line circuit **Train** ~ – flexible insulated cable connecting the circuits of one vehicle to the circuits of another

Term	Meaning
Limitation-of-Access	~ **High Voltage and Traction Voltage** – Safety document issued by an Authorised Person defining the limits and nature of work which may be carried out in the vicinity of live high voltage and traction voltage equipment, which must be indicated on the form. The form may be used when a Permit-to-Work (High Voltage and Traction Voltage) or a Sanction-for-Test is not applicable and when verbal instructions are not considered sufficient ~ **Non-high Voltage and Non-traction Voltage** – Form issued by a Yard Master or Operations Official defining the limits and nature of work which may be carried out in the vicinity of non-high voltage and non-traction voltage equipment, which must be indicated on the form. The form may be used when other safety documents are not applicable and when verbal instructions are not considered sufficient
Limited Clearance	A place or area near a track where there is insufficient space for a person to stand or walk between a structure and a passing train
Line	**Airport Express** ~ – line operating between Hong Kong and Hong Kong International Airport/AsiaWorld-Expo **Disneyland Resort** ~ – line operating between Sunny Bay and Disneyland **East Rail** ~ – line operating between Admiralty and Lo Wu, including a branch to Lok Ma Chau **Light Rail** ~ – line operating within Tuen Mun, Tin Shui Wai and Yuen Long **Tung Chung** ~ – line operating between Hong Kong and Tung Chung **Urban** ~ – lines operating within the urban areas of Hong Kong and Kowloon, i.e. the Island Line, Kwun Tong Line, South Island Line, Tsuen Wan Line and Tsueng Kwan O Line **Tuen Ma** ~ – line operating between Wu Kai Sha and Tuen Mun

Term	Meaning
Line clear	A declaration made by a Competent Person, an Operations Official or Engineering Official that a section of track is clear of persons, tools and materials and that it is safe for trains to run
Line speed	Maximum allowable train speed of a section of track under normal train operation
Live	Electrically charged
Local control	Assumption of control of signalling, environmental control or power supply equipment or dealing with an incident by a person whose terms of authorisation give entitlement to do so
Locomotive	A single rail vehicle capable of moving under its own power itself and other rail vehicles ~ **in multiple** – two or more locomotives which are coupled mechanically and electrically and are driven from a single driving position ~ **in tandem** – two or more locomotives which are coupled mechanically and are driven from separate driving positions
Lookoutman	A person passed as competent to protect and warn staff working on or near a track. A Lookoutman must wear identity and have: ✓ a horn or whistle; ✓ a red flag or a handlamp When protecting a working party on an open section when trains are operating without a Train Operator, Lookoutmen must also be provided with a radio
Mainline	(Formerly “Running track”) Track outside depot limits, connection tracks or sidings on which trains operate in passenger service
Marker post	Post or plate which indicates the distance from a specified point

Term	Meaning
Mode	**Automatic** ~ – mode of operation of a train where acceleration, coasting and braking is controlled by the ATO system **Automatic Warning System** ~ – mode of operation of a train where movements are governed by fixed signals only with an electro-magnetic safety system for automatically applying brakes in the event of a Train Operator not responding to a danger or restrictive signal aspect **Coded Manual** ~ – mode of operation of a train where it is driven manually but remains subject to the maximum speed determined by ATP codes. Coded manual includes Protected manual mode **Fully Automatic Operation** ~ – mode of operation of a train where it is driven and controlled automatically by the ATC system without any Train Operator's manipulation **Remote Speed Restriction** ~ – mode of operation of a train where the Traffic Controller can give command to operate the Fully Automatic Operation engaged train to a maximum speed of 22 km/h imposed by on-board ATP equipment **Restricted Manual** ~ – mode of operation of a train where it is driven manually subject to a maximum speed of 22 km/h imposed by on-board ATP equipment. **Cut-out** ~ – mode of operation of a train where it is driven manually subject to a maximum speed of 22 km/h imposed by non-fail-safe on-board equipment (**Note**: For EAL, the maximum speed of Cut-Out Mode can reach 40 km/h for some vehicles) **Enhanced Fallback** ~ – mode of operation of a train where it is driven manually subject to a maximum speed of 40km/h imposed by non-fail-safe on-board equipment **Enhanced Restricted Manual** ~ – mode of operation of a train where it is driven manually subject to a maximum speed of 40km/h imposed by on-board ATP equipment but not subject to ATP codes

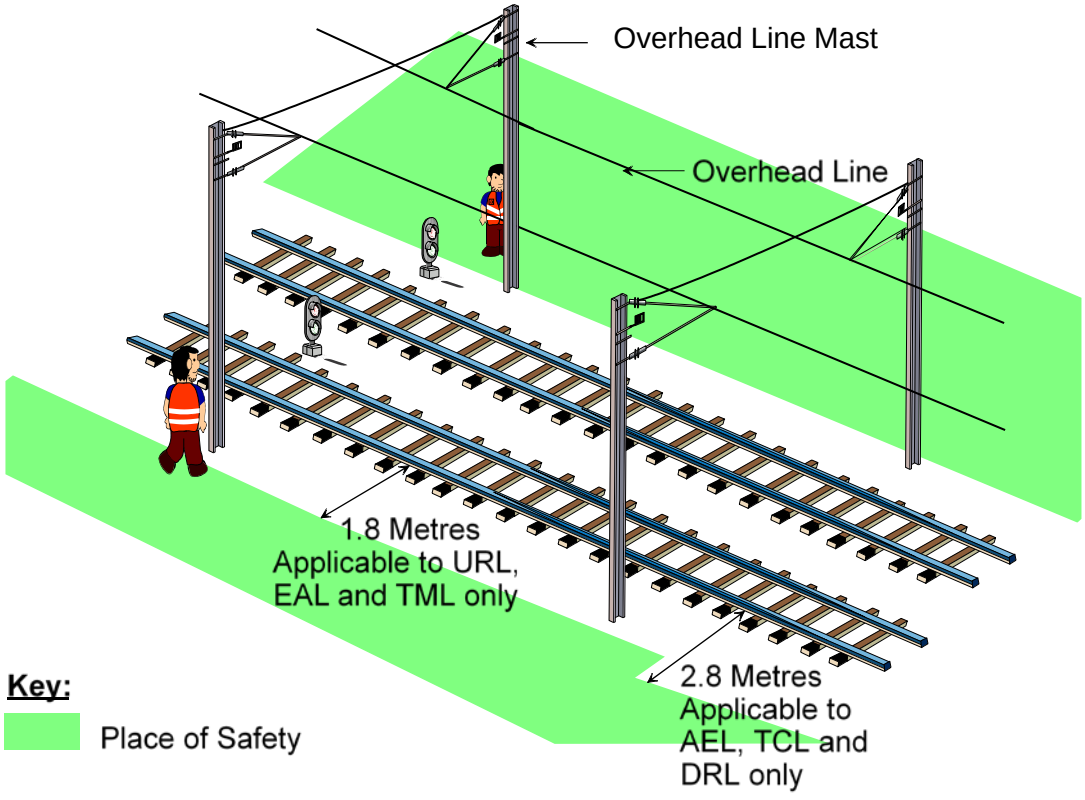
Term	Meaning
Mode, continued	**Low Speed Fallback** ~ – mode of operation of a train where it is driven manually subject to a maximum speed of 22 km/h imposed by non-fail-safe on-board equipment **Traction Fallback** ~ – mode of operation of a train where it is driven manually subject to a maximum speed of 22 km/h imposed by the on-board traction equipment Variable Voltage Veritable Frequency For the purposes of the Rules, Restricted Manual mode includes Cut-out, Fallback and Enhanced Restricted Manual mode(s) and operation of non-ATP equipped trains where Restricted Manual mode working is normally required by the Rules. Additional protection measure(s) required by the Rules must be taken for operation in Cut-out Mode, Enhanced Fallback and Enhanced Restricted Manual modes with a speed higher than 22km/h.
Motor car	Electric multiple unit car with traction motors
Neutral section	An arrangement of wires and insulators in a.c. overhead line equipment to ensure that adjacent traction current sections are not connected electrically during the passage of pantographs
Non-passenger train	Train consist entirely of non-passenger carrying vehicles, and any Engineer's train regardless of consist
Non-stop	Action of a train not calling at a station or stations
Non-traffic hours (see also "traffic hours")	**Lines where traction current is switched off after close of traffic** – period between the time traction current is actually switched off at close of traffic and the time of switching on traction current published in the Working Timetable, or amended in a Traffic Notice or other publication **Lines where traction current is not switched off after close of traffic** – period between the time of passage of the last train at close of traffic and the running of the first train published in the Working Timetable or amended in a Traffic Notice or other publication
Normal	Customary position of points, a switch or other control

Term	Meaning
Notice	**Caution** ~ – approved form attached to the isolation point indicating that persons are working on the circuit or apparatus which must not be made live or used **Danger** ~ – approved form attached to apparatus which is live or in use for maintenance purposes, calling attention to the danger of approaching or interfering with such apparatus **Traffic** ~ – publication issued weekly by the Operating Department giving details of any changes to normal working arrangements
Official	**Operations** ~ – member of Operating Department in Supervisory grade at S10 or higher **Senior Operations** ~ – member of Operating Department in Senior Supervisory grade at S30 or higher **Engineering** ~ – member of engineering staff of Supervisor grade or higher **Senior Engineering** ~ – member of engineering staff designated in an On Call Duty List
Open section	Section of mainline or connection track which is not in a tunnel
Overhead line equipment	An arrangement of wires above tracks for supplying traction current to trains, together with the associated fittings, insulators, structures, foundations, etc.
Overlap	Distance behind a train in which a train approaching at any speed can stop without collision
Pandrol™	**Clip** – steel spring clip inserted in a shoulder or baseplate, one part of which bears on the rail foot **Shoulder** – fixture in concrete sleeper or slab track into which a clip is driven
Pantograph	A retractable frame mounted on insulators on the roof of electric multiple units and electric locomotives which presses against the underside of the catenary, and through which traction current is collected
Pedestrian access work	A work, to be done on or near the track, which does not require possession.
Permanent way	The railway track, including rails, fastenings, rail supports and the formation

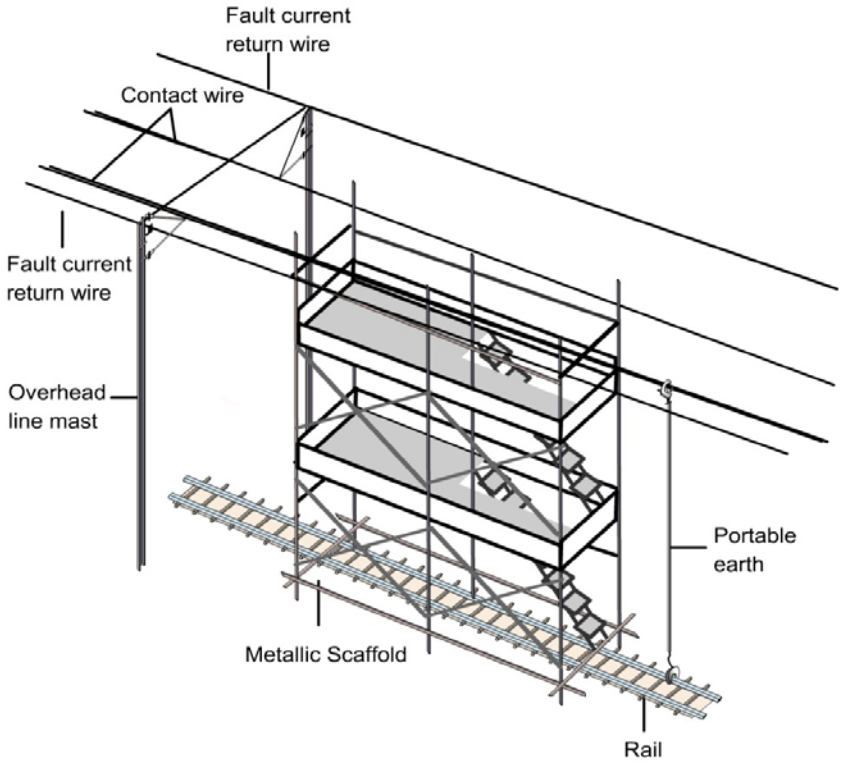
Term	Meaning
Permit-to-Work	**~ High Voltage and Traction Voltage** – form of declaration signed and given by an Authorised Person, with the consent of a Power System Controller, to a Competent Person in-charge when a work is to be carried out: • on any earthed high voltage or traction voltage equipment; or • within the minimum safe distance of any earthed high voltage or traction voltage equipment which cannot be avoided from being contacted by any person, tool or material. Its purpose is to make known to such person exactly what apparatus is isolated from all live conductors, has been discharged, is connected to earth, and on which it is safe to work **~ Hot Work** – form signed and given by a Fire Marshal to a Competent Person in charge of hot work to be carried out with details stated in the form for the purpose of making known to such person what safety precautions have been carried out and it is safe to work **~ Low Voltage Fixed Electrical Installation** – form signed and given by a Responsible Person (Low Voltage) to a Person-in-Charge (Low Voltage) of work to be carried out on any earthed low voltage equipment for the purpose of making known to such person exactly what apparatus is isolated from all live conductors, has been discharged and is connected to earth (if necessary), and on which it is safe to work **~ Mechanical** – form signed and given by an Authorised Person to a Competent Person in charge of work to be carried out on certain mechanical plant for the purpose of making known to such person exactly what apparatus is safe to work on or near

Term	Meaning
Person	**Authorised** ~ – person having written approval of the Engineer to effect and supervise isolations as required by the Rules, and to issue and cancel Permits-to-Work and Sanctions-for-Test. The Certificate of Proficiency and Qualification must state the class of work the person is authorised to carry out and the section of the system to which it applies **Competent** ~ – person having written approval of the Engineer to perform duties as defined in the Rules including working on the railway or fixed equipment, arranging protection for and supervising working parties, and accepting safety documents required by the nature of their duties. The person must wear an identification when supervising work on or near tracks except on workshop and maintenance tracks in depot. The Certificate of Proficiency and Qualification must state the class of work the person is competent to carry out and the section of the system to which it applies. **Competent ~ (Possession)** – may supervise working parties for works on or near tracks, including works which require possession, and may apply protection for any possession as directed **Competent ~ (Track)** – may supervise working parties for works on or near tracks which do not require possession, and works in a depot which require possession not involving Engineer's trains, and may apply protection for any possession as directed **Competent ~ (Non-track)** – may supervise working parties for works other than on or near tracks **Competent ~ (Depot Cleaning)** – may only supervise working parties for conducting cleaning work in a depot, provided that the work does not involve isolation of overhead line equipment. The scope of work is limited to the cleaning of rolling stocks, maintenance tracks and locations other than on or near tracks (except plant rooms) **Competent ~ (Platform Track Cleaning)** – may only supervise working parties for conducting track cleaning work on station platform tracks (excluding Light Rail), provided that the work does not involve isolation of overhead line equipment

Term	Meaning
Person, continued	**Engineer's ~ -in-Charge** – Competent Person having written approval of the Engineer to take and supervise possessions, who must wear an identification when work is in progress **Qualified ~** – person having written approval of the Engineer to operate specified equipment where formal qualification is required by the laws of Hong Kong. The Certificate of Proficiency and Qualification must state the type and grade of equipment the person is qualified to operate, test, inspect, examine, install or certify and, if appropriate, the environment in which it is located
Pilot Driver	A person qualified to perform piloting duty for Intercity through trains operated by mainland railways staff on East Rail Line
Pilotman	A person appointed to assist during degraded modes of operation to ensure the safety of train movement. During Single Line Working, the sole Pilotman must be readily identifiable
Piped vehicle	A vehicle equipped with through air brake pipes but with no brake mechanism

<table>
<tr><th>Term</th><th>Meaning</th></tr>
<tr><td>Place of Safety</td><td>A location where it is safe to stand while a train passes. On mainline and connection tracks, it is a position at or beyond the minimum clearance from the nearest running rail of any track on which a train may approach:
<table>
<tr><th>Line</th><th>Minimum Clearance (Metres)</th></tr>
<tr><td>Airport Express/Tung Chung/Disneyland Resort Lines</td><td>2.8</td></tr>
<tr><td>All others (except Light Rail)</td><td>1.8</td></tr>
</table>
These distances are determined by the positions of overhead line equipment masts, signal posts and signalling equipment cabinets. A station platform or a refuge in a tunnel section is a place of safety. In depots and on Light Rail, it is a position not on an adjacent track where a person is clear of any train or vehicle, including end and centre throw of vehicles on curves. On Light Rail at minimum radius curves, this distance can be up to 2.0 metre</td></tr>
<tr><td colspan="2"> 
</td></tr>
</table>

Term	Meaning
Platform Door	A door located near to and parallel with a platform edge operated in conjunction with train passenger doors via signalling system. There are 2 kinds of platform door being used on the railway. **Automatic Platform Gate** – it is a partial-height sliding gate. **Platform Screen Door** – it is a full-height sliding door.
Point clamp	An approved device for securing points in either Normal or Reverse position, which is capable of being locked by padlock
Points	Moveable rail sections by which vehicles are directed from one track to another **Clamplock** ~ – electro-hydraulic points secured in position by hydraulically operated clamps at point tips **Facing** ~ – locations at which a diverging movement can be made in the normal direction of travel for the track concerned **Hand-operated** ~ – points not fitted with a motor and operated manually **High Speed**™ ~ – points fitted with a rotary drive to several stretcher bars **Power-operated** ~ – points equipped with a powered point machine or motor **Secured** ~ – points on which a clamp and a scotch have been applied **Trailing** ~ – locations at which a converging movement can be made in the normal direction of travel for the track concerned **Trap** ~ – points provided in sidings or depot outlet tracks which prevent a train which overruns a signal at danger or proceeds beyond the limit of an authorised movement from reaching a fouling point **Twin trap** ~ – two trap points in one cast track assembly
Point detection	An electro-mechanical process by which the position to which points are set is proved
Possession	A specific section of track or tracks under the sole control of an Engineer's Person-in-Charge
Power System Controller	A member of Operations Division staff on duty at an Operations Control Centre, who is responsible for supervision and control of power distribution and traction current systems
Pressure vessel	A compressed air receiver or pressurised steam receiver

Term	Meaning
Protection	Methods by which a person or persons on or near a track are safeguarded from potential train movements, or a train is safeguarded from other train movements or obstructions, or persons or equipment are safeguarded from traction current
Publication	Any document published by the Corporation concerning operation of the railway, including information given in the Engineering Works and Traffic Information Management System or the Operations Information Dissemination System
Rail Potential	The voltage present on the rail or its connected equipment on lines where the overhead line is fed with d.c. traction current. Short-circuiting of the rail potential to the earth or earthed overhead line equipment via a conductive object may cause large current flow and thermal effect that may result in an injury and equipment damage.  **Illustration:** An example showing short-circuiting of rail potential to earthed overhead line via a metallic scaffold.

Term	Meaning
Railway	Premises and land in use for railway operation, maintenance and engineering and ancillary purposes where these are owned by, or are the responsibility of, the Corporation
Reception track	See "Connection track"
Rectifier	Apparatus for conversion of alternating current to direct current
Red flashing light	**~ (engineering work)** – approved flashing light applied for protection of engineering work, capable of displaying a red aspect in both directions along a track. These lights must be placed between the running rails or, if a magnetic fixture is provided, on top of either running rail  

Term	Meaning
Red flashing light, continued	**~ (pedestrian access work), or PA 燈**– approved flashing light applied for protection of pedestrian access work on or near tracks on mainline, capable of displaying a red aspect along the track to the approaching direction. These lights must be placed on top of either running rail 
Reverse	Position of points, a switch or other control opposite to Normal
Running track	See "Mainline".
Safety document	For the purpose of the Rules, safety documents include: • Circuit Isolation Certificate • Circuit State Certificate • Isolation Record Form • Limitation-of-Access (High Voltage and Traction Voltage) • Permit-to-Work (High Voltage and Traction Voltage) • Permit-to-Work (Hot Work) • Permit-to-Work (Low Voltage Fixed Electrical Installation) • Permit-to-Work (Mechanical) • Sanction-for-Test
Sanction-for-Test	Form of declaration signed and given by an Authorised Person specially appointed to do so to a Competent Person in charge of testing high voltage or traction voltage apparatus for the purpose of making known to such person exactly what apparatus is to be tested and the condition under which testing is to be carried out
Sand drag/trap	A length of track embedded in sand at the end of sidings or trap points to retard a train

Term	Meaning
Scotch block	Block used in securing vehicles or points to prevent movement
Section	Length of overhead line equipment between substations, or a specific length of track
Section insulator	Device in overhead line equipment allowing free passage of a pantograph from one section to another without interrupting current supply whilst isolating electrically the sections on either side
Shunting	Restricted movement of vehicles at caution speed or lower either to couple or uncouple or to move between tracks **Loose** ~ – movement of a vehicle or vehicles not attached to a locomotive
Siding	Length of track other than mainline or connection tracks on which rolling stock can be stabled
Signal	**~ aspect** – the indication displayed by a signal **Co-acting** ~ – a signal displaying the same aspect(s) as a fixed signal near to which it is located **Colour light** ~ – fixed signal, the aspects of which are shown by the colours of lights **Fixed** ~ – signal, controlling train movements, permanently installed at a specific location and forming part of the normal signalling system **Hand** ~ – a signal given by a lamp, flags, hand or an approved indication device
Signal Passed at Danger (SPAD)	A term used to describe an incident where any part of a train has passed a signal at danger without authority or exceeded the Limit of Movement Authority without authorisation
Sleeper	Horizontal concrete, timber or steel member laid at right angles under running rails to support them
Soleplate	Metal plate under point tips that holds the rails to gauge, and on to which point control, operation and detection equipment may be fitted
Stable	Action of switching off and isolating all electrical and pneumatic equipment and, where appropriate, applying handbrakes, on a train
Staff	For the purposes of the Rules, staff includes all persons working on or near the railway, including employees, contractors and agents

<table>
<tr><th>Term</th><th>Meaning</th></tr>
<tr><td>Stall</td><td>Stopping of a train owing to a defect either on the train itself or the one ahead, or owing to a failure or incident</td></tr>
<tr><td>Station Controller/ Station Supervisor</td><td>Member of Operations Division staff on duty at a station and responsible for supervision of station operations, for ancillary buildings, and also responsible for train operations when an interlocking area is under control from a station control room</td></tr>
<tr><td>Stretcher bar</td><td>Steel member which holds moveable rails of points in their correct relative positions</td></tr>
<tr><td>Substation</td><td>Building, room or compound containing electrical equipment for receiving and transforming high voltage a.c.
Traction ~ – substation or a part thereof containing equipment that provides supply to overhead line equipment</td></tr>
<tr><td>System Outage and Switching</td><td>Process by an Authorised Person, checked by a second appropriately qualified person and agreed by the Power System Controller setting out the operating sequence of switching, isolation and earthing arrangements required for the issue of Permits-to-Work, Sanctions-for-Test and Circuit Isolation Certificates</td></tr>
<tr><td>Tailwall</td><td>Arrival end of a platform in the normal direction of service operation</td></tr>
<tr><td>Target</td><td>A disc displayed on the headstock or driving controls of a vehicle to warn against movement of the vehicle or train concerned. There are 4 types of target.
<table>
<tr><td> 

Red</td><td> 

Blue</td></tr>
<tr><td> 

Yellow</td><td> 

Green</td></tr>
</table></td></tr>
</table>

Term	Meaning
Ticket	Valid authority to travel on the railway
Time Interval Clock	Indicator located near a headwall displaying information concerning working of individual trains
Track access point	An approved location, including stations, emergency platforms, ancillary buildings and gates in the railway boundary having street access, from where access to the tracks may be gained in accordance with the Rules or to which passengers may be detrained
Track circuit	An electrical or electronic circuit installed in running rails which detects the presence of a train ~ **operating clip** – approved device comprising clamps or clips and cables used for protection. Their characteristics differ for d.c. and a.c. electrified lines and the two types are **not** interchangeable
Traction current	Electricity required by an electric train or locomotive for movement
Traffic Controller	For the purposes of the Rules, the requirements stated for Traffic Controllers are also applicable to System Controllers and Senior Traffic Controllers
Traffic hours (see also "non-traffic hours")	**Lines where traction current is switched off after close of traffic** – period between the time traction current is switched on each morning and the time it is switched off at night **Lines where traction current is not switched off after close of traffic** – period between the time of the first train each morning and the actual time of the last train at night
Trailer	Car which does not have traction motors
Trailing load	Weight of a consist hauled by a locomotive, excluding the locomotive
Train	Any vehicle or combination of vehicles approved by the Engineer as being capable of satisfactorily operating track circuits or other train detection equipment
Train Operator	Member of staff qualified to operate a train or locomotive within the limits of a Certificate of Proficiency and Qualification
Transformer	Static apparatus for supplying an alternating current at one voltage when fed with alternating current at the same or different voltage

Term	Meaning
Trip	(1) A single train journey shown in a Working Timetable or publication (2) Emergency brake application caused by loss of train control codes or by exceeding the maximum speed determined by train control code or speed governing equipment (3) Opening of a circuit breaker by automatic or remote means
Tunnel section	Section of track enclosed within a tunnel, or enclosed within a structure where clearance is limited
Unfitted vehicle	Vehicle which is neither fitted nor piped
Voltage	Electromotive force in or potential difference between conductors or between conductors and earth, measured in volts (r.m.s. values for a.c.) and subject to permissible variations **High** ~ – apparatus, equipment and conductors normally operated at a voltage: • exceeding 1000V a.c. or 1500V d.c. between conductors • exceeding 600V a.c. or 900V d.c. between conductors and earth **Low** ~ – apparatus, equipment and conductors normally operated at a voltage exceeding extra low voltage, but normally: • not exceeding 1000V a.c. or 1500V d.c. between conductors • not exceeding 600V a.c. or 900V d.c. between conductors and earth **Extra-low** ~ – apparatus, equipment and conductors normally operated at a voltage not exceeding 50V a.c. or 120V d.c. between conductors or to earth **Traction** ~ – nominal voltage at which overhead line equipment is fed, ie 750V d.c., 1500V d.c., or 25kV a.c.

Term	Meaning
Wagon	Non-passenger vehicle used in Engineer's trains
Working party	Persons under direct supervision of an Engineer's Person-in-Charge, a Competent Person or Authorised Person, including such persons when working alone
Worksite Person-in-Charge	A person assigned for each working party who must: • supervise the working party to work according to the relevant method statements and work instructions; • ensure the work within the worksite is planned and carried out in a safe manner.
Yard Master	Member of Operations Division staff on duty at a depot or freight yard responsible for authorisations, management and supervision of train movements

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Section A

General Requirements

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A1	Instructions
People Involved	All Staff
Purpose	To state the importance of having, reading, understanding and complying with instructions to ensure personal safety and safety of others on or near the railway
Risk	Improper or incomplete understanding or application of safety requirements can endanger life and property

A1.1 Publications

A1.1.1 Staff whose duties are connected with working of the railway or who are involved with work on or near the track, structures or equipment must: All

- ✓ have a copy of these Railway Safety Rules;
- ✓ have ready access and make use of such access to other publications necessary for the conduct of duties;
- ✓ update all publications issued to them with relevant amendments issued from time to time and produce all such publications upon request.

A1.2 Compliance

A1.2.1 Compliance is an integral part of safety which is a prerequisite for railway operations. Staff must: All

- ✓ understand and abide by all Rules, Procedures and Instructions contained in the publications with which they are issued for their duties;
- ✓ obey legitimate instructions given by supervisors and officials.

A1.2.2 Staff will be disciplined for any case of non-compliance with legitimated Rules, Procedures and Instructions. All

A1.2.3	Specific responsibilities shown in the Rules must **not** be delegated except: ✓ where permitted in a Rule; ✓ by an Operations or Engineering Official to a qualified and responsible member of staff, when appropriate.	All
A1.2.4	Supervisors must instruct staff in the requirements contained in publications and ensure that they are acted on.	All

A1.3 Understanding

A1.3.1	In case of doubt as to understanding of any Rule, Procedure or Instruction, staff must seek guidance from their supervisors.	All

A2	Communications

People Involved	All Staff

Purpose	To describe use of communications systems to ensure their ready availability and the importance of priorities and mutual understanding for safety

Risk	Lack of immediate availability and lack of mutual understanding in communications can jeopardise efficiency and safety which may lead to serious incidents

A2.1 Use of Equipment

A2.1.1 Mobile telephones, communication equipment and mobile electronic devices, including mobile smart devices, must: — All

- ✓ be used for Corporation business purposes only;
- × **not** be used in the situation which may distract staff's attention from duty or affect proper performance of their duty;
- × **not** be used unnecessarily.

A2.2 Read Back Messages

A2.2.1 Messages must be read back by the recipient to the caller: — All

- ✓ when necessary for mutual understanding;
- ✓ **always** when a message concerns safety or emergency;
- ✓ to ensure that they are correctly received and action will be strictly compliant.

A2.3 Emergencies

A2.3.1 Communications pertaining to emergencies must be prefaced by the word "Emergency" and must be given priority over all others. — All

A2.3.2	Staff hearing the word “Emergency” must immediately clear the communications channel until the emergency message has been fully transmitted and acknowledged.	All

A2.4 Failures

A2.4.1	Failure or improper operation of any communications equipment must be reported and alternative means made available and other parties informed accordingly.	All

A3	Personal Safety

People Involved	All Staff

Purpose	To provide basic guidance in requirements for personal safety and the safety of others

Risk	Lack of awareness and application of safety requirements will jeopardize the individual and others on or near the railway

A3.1 General

A3.1.1 Staff must **not**: All

- × place themselves in danger or put others at risk from any cause;
- × do anything that may distract them from complete attention to and proper performance of duty.

A3.1.2 Staff must: All

- ✓ attend pre-work safety briefing before commencement of work;
- ✓ warn against and prevent others from placing themselves at risk;
- ✓ report to their supervisor any occurrence that can or does affect safe and proper working;
- ✓ wear adequate protective clothing and use protective equipment appropriate to the work being carried out;
- ✓ record all notable events in a register or other record keeping system;
- ✓ for work that affects safety, countersign the register before and after the work, or when relieved by other staff, to ensure complete mutual understanding of the safety requirements;
- ✓ use proper working platforms or scaffolding, or be anchored safely to a secure anchorage point when performing a task at a height of two metres or more above the ground and anywhere when safety belt or harness attachment facilities are provided;

- ✓ bring a torch when going into area without lighting or emergency lighting;
- ✓ wear a bump cap when working on mechanical equipment where headroom is restricted.

A3.2 Accident Prevention

A3.2.1 Every possible precaution must be taken to prevent accidents. Staff must: All

- ✓ immediately remove any hazard detected, provided that it is safe to do so;
- ✓ ensure adequacy of illumination at the worksite, entrance/exit and emergency escape route and maintain these places in good condition and free of obstructions;
- ✓ inform the Station Controller or the Yard Master of their destination, the estimated time of stay and means of communication, and report to such person upon completion. This is particularly important if they are to work alone in a plant room, ancillary building, etc;
- ✓ ensure that the maximum safe working load of a lifting appliance is not exceeded.

A3.2.2 Staff must make frequent inspections, particularly of areas to which the public may gain access, to ensure that precautions against accidents are in place, such as illumination, cleanliness, orderliness and freedom from obstruction. All

A4	Equipment Safety

People Involved	All Staff

Purpose	To draw attention to specific hazards associated with work on or using or approaching equipment of all types

Risk	Work on, near or using mechanical or electrical equipment can be hazardous if not properly controlled and inspected

A4.1 Work on Equipment

A4.1.1 Staff must be specifically qualified to work on the railway before approval of work anywhere is given. All work must be done in accordance with the Rules for Engineering Work. All

A4.1.2 The person in charge of the workplace must ensure that any work being carried out, particularly in areas which the public can access: All

- ✓ is protected by suitable accident preventive measures;
- ✓ causes minimum disturbance to the public.

A4.2 Tools and Equipment

A4.2.1 Staff must **not**: All

- × leave any items of equipment, loose materials, etc. unattended, in places where they may cause an accident risk, particularly on tracks or in places to which the public has access;
- × use tools or equipment that are not in good condition;
- × use equipment which is subject to periodic inspection if it is not labelled showing that it has been inspected within the required period;
- × misuse or remove any guard, fence, screen, goggles, machine control, governor or other device provided for a workpiece.

A4.2.2 Defective tools and equipment must be labelled and removed from the site. All

A4.3 Storage of Equipment

A4.3.1 Equipment must be placed so as to avoid accidents. Trolleys, ladders, scaffolding and other portable equipment which are **not** in use must be: All
- ✓ removed from any place where they may be a hazard;
- ✓ secured by chain and padlock or other locking device.

A4.3.2 Tools and materials must **not** be stored:
- × between or near running rails;
- × on station platforms or other places to which the public has access;
- × at any location where they may be affected by operation of ventilation equipment.

A4.3.3 When **not** in use, road vehicles and other appliances must be parked: All
- ✓ parallel with and clear of tracks and structures;
- ✓ in an approved position.

A4.3.4 No unauthorised storage is allowed. All

A4.4 Housekeeping

A4.4.1 Good housekeeping must be maintained at all times by: All
- ✓ proper storage of materials and flammable articles;
- ✓ removal of all flammable waste and sources of ignition;
- ✓ isolation of power supplies;
- ✓ leaving worksites in a safe and clean condition on completion of work.

A4.4.2 Articles must **not** be stored in switchrooms or other rooms containing electrical apparatus in any circumstances. All

A4.4.3 Flammable articles must **not** be stored at any location on the railway except where authorised by the Station Controller or Yard Master. All

A4.5 Loose Equipment

A4.5.1 Staff who find any loose equipment on the railway must: — All
- ✓ record where and when it was found;
- ✓ inform the Traffic Controller and the responsible department.

A4.5.2 Arrangements must be made for collection by the department concerned. — All

A4.6 Power Distribution and Overhead Line Equipment

A4.6.1 Power distribution and overhead line equipment must be regarded as live at all times, unless it has been properly isolated and earthed. — All

A4.6.2 Staff must **not**: — All
- × fix or attach objects to overhead line equipment unless authorised by the Engineer;
- × remove objects from overhead line equipment unless authorised by the Traffic Controller and appropriate protection is applied.

A4.6.3 Electrical bonds and connections must **not** be disconnected or removed except with prior approval of the Engineer. In particular, staff must: — All
- ✓ immediately report any bond, particularly those marked or painted red associated with 25kV a.c. overhead line equipment, which is loose or disconnected;
- ✓ ensure that before a running rail is removed or a break is to be made in the electrical continuity of a running rail when traction current is switched on, temporary bonds to maintain continuity are installed;
- ✓ ensure that temporary bonds are installed before cable sheaths forming part of a low resistance earthing system, gas, water or other metal pipes are removed.

A4.6.4 In the event of broken or displaced contact wire or other overhead line equipment cable, the member of staff seeing it must: All

- ✓ inform the Traffic Controller immediately;
- ✓ ensure that all persons and vehicles stay clear.

On Light Rail, traction current may **not** be automatically switched off if a wire touches the body of a train. Staff must ensure that passengers remain on board and do not touch the exterior of a vehicle or the ground until traction current is switched off.

A4.6.5 On lines where the overhead line is fed with d.c. traction current, a short-circuiting of rail potential to the earth or an earthed overhead line equipment or structure will cause large current flow and thermal effect. All

Staff must:

- ✓ beware of the existence of rail potential;
- ✓ take appropriate precautions to avoid any conductive object bridging the rail or its connected equipment to the earth or an earthed overhead line equipment or structure.

A5	Track Safety
People Involved	All Staff
Purpose	To describe basic requirements for safe access to and work on or near tracks where staff may be endangered by train movements
Risk	Moving trains are a significant hazard to a person on the track, which can lead to staff injury, fatality or damage to Corporation property

A5.1 Access to Track

A5.1.1 Staff must: All

- ✓ agree with Traffic Controller on the communication method during traffic hours;
- ✓ when **not** familiar with walking on or near tracks, be accompanied by a person familiar with local conditions;
- ✓ take particular care when not in a place of safety or where there is limited clearance.

A5.1.2 Staff must be qualified, except when the staff is authorised by the management and under close supervision of a Competent Person. All

A5.1.3 Staff must **not**: All

- × work on or gain access to track at any time, except authorisation is obtained and then in the course of their duties or on an authorised route for going to and from duty;
- × remove articles dropped on tracks during traffic hours unless safety is impaired or it is essential to do so.

A5.2 Safety on Track

A5.2.1 Staff working on or near tracks must: All

- ✓ wear approved high visibility clothing, except on workshop and maintenance tracks;
- ✓ ensure that poles, bars, brooms, etc. are not struck by passing trains, and that loose clothing is not caught on any equipment;
- ✓ face the direction from which trains normally approach when possible;
- ✓ ensure that there is sufficient clearance for their personal safety when on the ground alongside vehicles;
- ✓ take particular care on curved track sections where they may be exposed to risk from end and centre throw of vehicles;
- ✓ before crossing or walking along the track, look in both directions and be careful to avoid trains travelling in either direction;
- ✓ when a train approaches, immediately move clear of the track and then remain in a place of safety until there is no hazard from a train approaching on any track;
- ✓ when a Lookoutman is not provided, acknowledge audible warnings given by Train Operators by raising one arm above the head when in a safe place.

A5.2.2 Staff working on or near tracks must **not**: All

- × move onto any other track unless they know that they will be safe from trains;
- × stay in the space between two adjacent tracks unless it is safe to do so;
- × go between vehicles or between a buffer stop and the nearest vehicle when they are less than 20 metres apart without ensuring that the vehicles are not about to be moved and that no shunting is taking place;
- × remain, or leave tools, equipment or materials, within train or swept path clearance lines painted adjacent to tracks during passage of a train;
- × wear or use anything which make themselves less able to see or hear approaching trains.

A6	Travel on Trains, Vehicles and Appliances

People Involved	All Staff

Purpose	To describe requirements for safe travel on and access to trains, vehicles and appliances, stating in particular potentially dangerous activities

Risk	Improper use of or access to trains, vehicles and appliances exposes staff to serious injury or fatality

A6.1 General

A6.1.1 Staff must: All

- ✓ when not in a driving cab and it is necessary for shunting operations, ride only on the platform specially provided on locomotives and take particular care at converging points in sidings;
- ✓ when travelling on vehicles, sit on the floor or fixed seat and hold onto the side or railing or fixture or must wear fall protection equipment.

A6.1.2 Staff must **not**: All

- × ride in a baggage car or other non-passenger vehicle except where it is necessary or required for duty purposes;
- × convey long, bulky, heavy or odd-sized article by passenger train, except with authority from the Traffic Controller who must make appropriate arrangements with station or depot staff;
- × board or alight from any rail or road vehicle or appliance in motion;
- × ride on any part of a road or pedestrian-controlled appliance unless authorised to do so and the appliance is equipped with facilities for passenger conveyance;

- × ride or attempt to ride on a pedestrian-controlled appliance when operating the appliance.
- × ride on an Engineer's train to a worksite or return to a depot or siding, except when pre-approval is obtained according to the Rule of Engineer's train movement.

A6.2 Specific Hazards

A6.2.1 Staff must **not**: All

- × climb above floor level of any rail or road vehicle on any track provided with overhead line equipment unless the equipment has first been isolated and earthed;
- × lean out of any door or window of a vehicle unless it is absolutely necessary and before ensuring that they are safe to do so.

A6.3 Access to Driving Cab

A6.3.1 No person may enter a train's driving cab unless: All

- ✓ acting in the execution of duty; or
- ✓ when accompanied by a member of staff in uniform.

A6.3.2 In addition to the Train Operator and assisting qualified member of staff or Pilotman, not more than 2 persons may remain in a driving cab unless essential for duty purposes. All

A6.3.3 The Train Operator must **not** in any way be distracted from attention to duty. All

A7	Fire Precautions
People Involved	All Staff
Purpose	To state requirements for maximising precautions against fire, minimising fire risk, and for the prompt action to be taken in the event of a fire or fire alarm
Risk	The consequences of inadequate fire precautions, inspections and taking of prompt action to deal with fires can be catastrophic

A7.1 Staff Responsibilities

A7.1.1 Staff must: All

- ✓ be alert to prevent passengers depositing or bringing on to the Railway any material which might present a fire risk or unauthorised items or excessive quantities of flammable spirit or liquid;
- ✓ take action to prevent passengers interfering with electrical apparatus on trains and in stations;
- ✓ report any missing or damaged fire protection equipment;
- ✓ frequently inspect all rooms in stations to ensure that they are free of litter and that no flammable materials are being stored in unauthorised locations;
- ✓ familiarise themselves with local fire protection arrangements;
- ✓ ensure that they know which chemicals being used in fire protection systems may be dangerous if discharged into an occupied area;
- ✓ regularly check fire appliances to ensure they are clean, in a good condition and available for immediate use. SC YM SI

A7.1.2	Staff must **not** pose any fire risks in railway premises.	All
A7.1.3	Dangerous goods must **not** be conveyed on trains in passenger service and Category 1 items must **not** be conveyed by trains except: ✓ on Intercity through trains, the maximum authorised quantities of detonators in approved containers required for protection in accordance with mainland railway Rules; ✓ on Engineer's trains, the maximum number of aluminothermic welding igniters in approved containers required for work within one Engineer's possession; ✓ on empty trains, the smoke grenades for the purpose of smoke test; ✓ on Engineer's trains, other dangerous goods with agreed safety precautions and specific approval of the Chief of Railway Segment.	All

A7.2 Outbreaks of Fire

A7.2.1	Staff who notice a fire, smouldering or fusing anywhere on or near the railway must: ✓ take immediate action to extinguish it; ✓ request attendance by the Fire Services Department through the Traffic Controller.	All
A7.2.2	The preservation of life must always be regarded as the first principle of fire fighting.	All
A7.2.3	Flammable articles near a fire must be removed or physically separated.	All
A7.2.4	In the event of fire on a train, the Train Operator or the Traffic Controller who is controlling a train in Fully Automatic Operation mode, must: ✓ endeavour to run the train to the next station, where arrangements can be made for the incident to be handled; ✓ if a fire affects electrical circuits, lower pantographs only if absolutely necessary, bearing in mind that operation of air-conditioning equipment will be affected.	TC TO

A7.2.5	After any fire or after discharge of chemical fire suppressant: ✓ the enclosure must be ventilated thoroughly before entry; ✓ ventilation must be delayed to ensure no re-ignition is possible; ✓ if entry is necessary before thorough ventilation, suitable breathing apparatus must be worn.	All

A7.3 Electrical Apparatus

A7.3.1	Only dry chemical or carbon dioxide extinguishers can be used in the vicinity of live electrical apparatus provided that safety clearances are maintained during handling.	All
A7.3.2	During fire-fighting, water or electrical conductive fire retardant must **not** be directly sprayed into the area within the minimum safe distance of live high voltage, traction voltage or overhead line equipment.	All
A7.3.3	During fires, power supplies including traction current must be maintained unless safety is at risk. If the traction current supply system is affected in any way, every effort must be made to maintain supplies to all sections, if necessary by reducing the number of trains in service.	All
A7.3.4	Before any portable fire-fighting equipment is used on electrical apparatus, the apparatus must be disconnected from all sources of supply.	All

A7.4 Automatic Equipment

A7.4.1	Automatic extinguishing equipment protecting any enclosure must remain in automatic control at all times except when necessary for engineering work in accordance with the Rules.	All
A7.4.2	If a fire alarm link is required to be suspended for more than 12 hours, or if a fire alarm panel affecting a link is defective, the Operations Control Centre(s) must be informed.	SC SI

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A8	Incidents and Irregular Occurrences

People Involved	All Staff

Purpose	To advise staff to proactively prevent, detect and manage undesired events to minimise risks to safety and normal operations

Risk	Lack of prompt identification, reporting and management of an irregular occurrence can result in serious and major incidents which endanger safety and operations

A8.1 Reporting

A8.1.1 Staff becoming aware of damage to, defects or irregularities in the structure, permanent way, signalling or other equipment or of anything else such as flooding or obstruction likely to affect the safety of trains must: All

- ✓ act at once to stop any trains that may be affected;
- ✓ inform the Traffic Controller at once that there is an emergency;
- ✓ state clearly what must be done;
- ✓ wait until the Traffic Controller has made arrangements necessary for safety.

A8.1.2 Unusual incidents and accidents involving severe injury or fatality must be reported immediately to the Traffic Controller. All

A8.2 Management

A8.2.1 In the event of any incident: — All
- ✓ speed of response is vital;
- ✓ safety of passengers and staff is of primary concern;
- ✓ when safety is assured, priority must be given to restoration of normal services, if necessary using temporary measures until a permanent remedy is applied.

A8.2.2 The official in charge of dealing with an incident must be identified. Only those involved in handling an incident should attend, and they must agree with the official in charge on any course of action. — All

A8.2.3 Evidence and records of any significant incident, including suspected or reported crime, must be preserved confidentially pending subsequent enquiries and investigation. — All

A8.2.4 Normal operation must **not** be resumed after an incident until the person originally declaring it, or the official in charge or undertaking an inspection has: — All
- ✓ confirmed that it is safe;
- ✓ in the case of an incident affecting tracks, provided a Line Clear.

A8.3 Incidents Affecting Tracks

A8.3.1 In the event of any incident or suspected incident in which the safe operation of trains may be affected, the tracks concerned must be inspected immediately by an Operations Official: — OO
- ✓ on foot where the incident may require operation to be suspended; or
- ✓ by train travelling at caution speed.

A8.3.2 In the event of any incident or suspected incident involving point damage, the Train Operator must immediately: — TO TC YM
- ✓ stop the train;
- ✓ report to the Traffic Controller or the Yard Master.

A8.4 Incidents Affecting Signalling Equipment

A8.4.1 Staff must be alert to detect any incident in which operation of any part of signalling and train control equipment does not conform with normal operation or with design principles which may lead to an unsafe or potentially unsafe condition. All

A8.4.2 In the event of such an irregularity, staff must: All

- ✓ make every effort to continue to operate train services normally;
- ✓ as far as possible maintain the status of equipment and controls as at the time of the incident to enable subsequent formal investigation of the cause.

A8.5 Incidents Affecting Train Equipment

A8.5.1 Staff must be alert to detect any incident in which the performance or physical status of doors or door indicators of a train do not conform to the normal operation or with design principles which may lead to an unsafe or potentially unsafe condition. All

A8.5.2 In the event of such an irregularity:

- ✓ passengers must be detrained at the station concerned;
- ✓ the train must be worked empty to depot.

Doors and other equipment must **not** be operated pending formal investigation of the occurrence and its cause.

A8.6 Adverse Weather and Natural Events

A8.6.1 During adverse weather or other natural events, staff must be: All

- ✓ alert to detect any effect on the railway;
- ✓ prepared to implement control and safety measures, such as flood precautions, to protect the railway, members of the public and staff.

A8.7 Terrorism, Bombs, Gas and Arson

A8.7.1 Any threat against the Railway must be taken seriously. The person in charge of a location mentioned in a threat is responsible for: — All

- arranging or conducting a systematic search;
- cordoning an area around any suspicious object.

A8.7.2 When staff are going to handle any suspicious object, — All

- before entering the area within 25 metres of the suspicious object, they are not required to switch off the portable radio equipment and mobile telephone because they should listen to important radio messages and be aware of incoming phone call;
- after entering the area within 25 metres of the suspicious object, they must not operate the portable radio equipment and mobile telephone;

A8.7.3 Suspicious objects must be reported to Police. If gas is suspected: — All

- ✓ the Fire Services Department must also be informed;
- ✓ air movement must be minimised by stopping trains and by switching off air conditioning and ventilation systems;
- ✓ premises must be evacuated against any prevailing air flow.

A8.7.4 When appropriate, persons and clothing, etc, must be decontaminated.

A8.7.5 When appropriate, the Chief Controller must give instructions to adjust train working, working of environmental control systems, etc, according to the potential risk and for safety. — CC

A9	Treatment of Injuries

People Involved	All Staff

Purpose	To provide guidance on the actions that may be taken in the event of a person becoming injured

Risk	Lack of response, or inappropriate response, could result in the condition of an injured person deteriorating

A9.1 Electric Shock

A9.1.1 If a person is injured by electric shock from overhead line equipment or equipment that may be live at 750V or above, or equipment that may be live at an unknown voltage, staff must: All

- ✓ if the person is within one metre of a conductor, have current switched off before touching;
- ✓ if all parts of the person are further than one metre from a conductor, ensure that they do **not** get closer than that safety distance during removal.

A9.1.2 If it is known that the voltage is not above 750V and current cannot be switched off readily, the person moving the body must: All

- ✓ stand on dry non-conducting material such as wood, thick newspaper or rubber;
- ✓ remove the person using gloves, dry clothing or, if not available, dry rope or a wooden pole.

A9.2 First Aid

A9.2.1 The person in charge of any location at which a first aid box is provided is responsible for periodically checking that boxes are intact. All

A9.2.2 First aid must be provided by qualified staff only. For health and safety reasons, staff dealing with injured persons must use plastic or rubber gloves for personal protection. All

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A10	Security
People Involved	All Staff
Purpose	To ensure security of Railway premises and property is maintained at all times
Risk	Property may be damaged or stolen leading to, eg misuse of information by outsiders, or non-availability of an asset

A10.1 General

A10.1.1	Staff must be alert to detect unauthorised persons removing property from or damaging property on the Railway.	All
A10.1.2	Any person reasonably suspected of having committed an offence must be detained and police assistance sought.	All
A10.1.3	Staff must exercise caution when dealing with any person who may have committed an offence, is disorderly or refuses any reasonable request.	

A10.2 Security of Premises

A10.2.1	All high security areas, rooms in which there is a safety risk or hazard, and unoccupied rooms and offices must be kept private and locked at all times.	All
A10.2.2	When maintenance work is to be carried out in a room, the person in charge of the premises must make alternative arrangements for the security of the contents.	All

A10.3 Staffing of Rooms

A10.3.1	Control Centres and Control Rooms must be staffed at all times by a responsible person unless arrangements are in place for remote supervision. If the location is to be temporarily vacated, the Traffic Controller must be informed of the reason and the communication means.	All

A10.4 Access to Railway

A10.4.1	Only persons in the execution of duty or authorised by the Chief Operations Manager or delegate may be permitted to enter non-public areas of the railway and trains.	All
A10.4.2	Before permitting access to a room, ancillary building or other location, the person in charge of the premises must: ✓ verify identity of the person(s) concerned; ✓ verify the purpose of the visit or nature of the work; ✓ ensure that the visit or the work will not affect safety or interfere with normal operations; ✓ if prior notice has not been given, or if the person in charge does not have written authority, confirm approval from the appropriate department; ✓ issue identity passes, keys, access cards, etc., as necessary. Request for access by means of telephone must only be approved after the person in charge of the premises has verified the above by telephone.	All
A10.4.3	The person in charge of the premises must make periodic checks during the visit or work, particularly where the person is working alone.	All
A10.4.4	On completion of work, the person in charge of the premises must: ✓ check that the work area has been left in clean and safe condition; ✓ collect any keys or cards issued.	All

A10.5 Contractors and Visitors

A10.5.1	Staff must ensure that all contractors and visitors are issued with and wear Contractor/Visitor Passes at all times when working on the railway.	All

A10.6 Trespassers

A10.6.1	Charity collection and other activities are not permitted without prior consent from the Head of Line Group Management. Beggars, hawkers, wandering musicians, pamphlet distributors, loiterers or other persons who may cause nuisance to passengers are not permitted to remain on the railway.	All
A10.6.2	Any person who declines to leave the railway after reasonable request by staff must be informed that they are in breach of the By-laws and may be detained and dealt with by due process.	All

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A11	Safety of Train Operations

People Involved	Train Operators

Purpose	To describe the requirements on train operations on heavy railway and the Light Rail vehicles

Risk	Failure to meet the requirements during operating a train or Light Rail vehicle may jeopardise the safety of staff, passengers and the public

A11.1 Requirements

A11.1.1 When operating a train or a Light Rail vehicle, Train Operators must **not**: TO

- × use any mobile telephone, mobile smart device or mobile electronic device for any purpose not related to their duty;
- × do anything that may distract them from train operations or affect proper performance of the duty e.g. reading a book or operating a personal electronic device;
- × tamper with any equipment for performance monitoring or safety function of train or Light Rail vehicle;
- × commit any unsafe act which can put the staff, passengers or the public at risk.

A11.2 Non-compliance

A11.2.1 Unauthorised use of mobile devices during manual train driving is treated as wilful violation of safety rules and will result in termination of employment or even dismissal.

A11.2.2 Intentional non-compliance of the above requirements (other than unauthorised use of mobile devices) may lead to a result of termination of employment.

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Section B

Station Working

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B1	Management and Control
People Involved	All Staff
Purpose	To designate the person on duty who is responsible for management of a station and to state the principle customer service requirement for all staff when on stations
Risk	Lack of strict control of work at stations and lack of customer care can result in physical hazards and damage public image

B1.1 General Management

B1.1.1 All persons working at a station or associated ancillary building are subject to the authority and direction of: All

- the Station Controller at staffed stations;
- the Traffic Controller or Operations Officials at light rail system stations.

B1.2 Customer Care

B1.2.1 Station and other staff must assist any passenger who seems to be in difficulty. Particular attention should be paid to children, elderly and disabled who may require extra care. All

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B2	Opening of Stations and Entrances

People Involved	Station Controllers, Station Supervisors, Station Operators

Purpose	To describe basic pre-service safety verification requirements and availability of station (except Light Rail) access during traffic hours

Risk	Lack or improper placing of safety equipment and lack of access present risks to safe and convenient operation

B2.1 Safety Checks

B2.1.1 Before start of traffic, the Station Controller must ensure: SC

- ✓ all platform end gates/doors are fully closed and properly secured;
- ✓ all platform doors are properly closed;
- ✓ all fire protection equipment is in good condition and properly secured;
- ✓ all earthing rods are secured in their designated brackets;
- ✓ a handlamp is available in an appointed place convenient to each platform for use in emergency;
- ✓ all areas of stations are clear of hazards.

B2.1.2 Tunnel and trackside lighting must be switched off after passage of the first train.

B2.2 Opening Station Entrances

B2.2.1 Station entrances normally must be opened ten minutes before departure of the first passenger train. A longer period may be allowed where necessary for purchase of tickets, baggage handling, etc. SC SS SO

B2.3 Traffic Hours

B2.3.1 Stations and station entrances must be open throughout traffic hours except: SC SS SO

- ✓ temporary closure necessary for station control;
- ✓ in an emergency;
- ✓ in other authorised circumstances.

B2.3.2 When a station entrance must be closed, the Station Controller must: SC SS

- ✓ inform the Traffic Controller and all station staff;
- ✓ ensure relevant passenger information is displayed at entrances;
- ✓ ensure the requirements of evacuation and ventilation can still be fulfilled.

B3	Inspections
People Involved	Station Controllers, Station Supervisors, Station Operators, Traffic Officers
Purpose	To ensure that risks and hazards are not unduly created, and are detected and eliminated promptly
Risk	Undetected hazards and lack of care in taking safety precautions can result in dangerous occurrences including accidents and fires

B3.1 Public Areas

B3.1.1 Staff must: SC SS SO TrO

- ✓ regularly inspect all public areas of stations, with particular attention to the condition and lighting of platforms, adits, escalators and travelators;
- ✓ ensure any overcrowding is detected at the earliest possible moment and before a dangerous situation develops;
- ✓ quickly remove any obstruction of passenger flows;
- ✓ be prepared to evacuate the public in event of emergency.

B3.2 Hazard Elimination

B3.2.1 Staff must: SC SS SO TrO

- ✓ take immediate action to clear excess water, liquids, mud or similar substances from floor surfaces, particularly during periods of rainfall;
- ✓ avoid using sand on wet tiled surfaces and metal treads as the risk of slipping is thereby increased;
- ✓ place appropriate notices when minimal hazards, such as water, cannot be completely removed.

B3.3 Control of Passengers

B3.3.1 Station staff must: SC SS SO TrO

- ✓ prevent children from playing on railway premises;
- ✓ prevent passengers from bringing any dangerous goods and offensive or hazardous objects, such as metallic helium filled balloons and light-emitting diode balloons into the railway premises;
- ✓ prevent passengers from taking baggage trolleys onto escalators, travelators and trains;
- ✓ prevent passengers from conveying unauthorised articles and articles which due to their size, weight or condition, could cause accidents or annoyance to other passengers or damage to the Corporation's property;
- ✓ request passengers carrying heavy objects or luggage, or using trolleys or wheelchairs, to use lifts to avoid safety hazards caused by using escalators.

B3.4 Escalators and Travelators

B3.4.1 Before an escalator or travelator is stopped, except in emergency, staff must ensure that all persons are clear of steps, treads and comb plates. SC SS SO TrO

B3.5 Platforms

B3.5.1 Staff on platform duty must: SC SS SO TrO

- ✓ assist in the prompt dispatch of trains;
- ✓ ensure passengers are warned when the train doors and platform doors are about to close;
- ✓ be alert for any incident or irregularity, particularly to detect any potential hazards near a platform edge or train such as passengers falling or placing objects near or on a platform edge or automatic platform gate;
- ✓ pay particular attention to closing of train doors and platform doors, and the potential for passengers being trapped;

- ✓ take immediate action to stop a train in the event of an irregularity;
- ✓ observe as far as practicable that the required lights or indications required to be displayed on each train are in order and, if not, inform the Traffic Controller immediately.

B3.6 Worksites

B3.6.1 Staff must regularly inspect worksites at stations to ensure that agreed safety arrangements are in place. SC SS SO TrO

B3.7 Station Rooms

B3.7.1 Staff must check at frequent intervals the rooms to which they have access and ensure: SC SS SO

- ✓ all unwanted lights are switched off;
- ✓ they are clean and clear of rubbish.

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B4	Closure of Stations and Entrances

People Involved	Station Controllers, Station Supervisors, Station Operators

Purpose	To ensure that stations are clear of passengers at close of traffic and to prevent unauthorised persons from being in stations during non-traffic hours

Risk	Unauthorised persons can create nuisance, or cause vandalism and theft

B4.1 Last Trains

B4.1.1 Stations must **not** be closed before the last passenger trains depart. SC

B4.1.2 Before despatching the last trains, the Station Controller must ensure that: SC

- ✓ scheduled connections are maintained at interchange stations unless instructed otherwise by the Traffic Controller;
- ✓ all passengers in the station for the section of line concerned have boarded the last train;
- ✓ an all right handsignal is given to the Train Operator;
- ✓ verbal confirmation is given to the Traffic Controller when the last train is operated in Fully Automatic Operation mode.

B4.2 Clearing Premises

B4.2.1 Station premises must be cleared of persons, other than those authorised to remain, before being closed. SC SS SO

B4.2.2 If any doubt as to the authority of a person to remain on a station during non-traffic hours, advice must be obtained from the Traffic Controller. SC

B4.3 Closure of Station Entrances

B4.3.1	All station entrances must be closed and locked to prevent access after departure of the last train.	SC SS SO
B4.3.2	The Station Controller must ensure the last passenger has left the station before all entrances are finally locked.	SC

B4.4 Non-traffic Hours

B4.4.1	All entrances must be kept locked throughout non-traffic hours.	SC SS
B4.4.2	Staff or authorised working parties must enter or exit a station through a designated entrance by use of a key or access card personally issued or obtained from the authorised key holder.	SC SS

Section C

Signalling and Train Control

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C1	Signals and Indicators – Airport Express Line, Tung Chung Line, Disneyland Resort Line, Island Line, Kwun Tong Line, Tseung Kwan O Line and Tsuen Wan Line

People Involved	Traffic Controllers, Station Controllers, Yard Masters, Train Operators

Purpose	To state the requirements for compliance with cab signals, fixed signals and indicators governing the safe movement of trains and imposing restrictions on train movements for safety

Risk	Lack of attention to and compliance with cab signals, fixed signals and indicators can result in severe consequences. These may include full and irrecoverable emergency brake applications, derailments and collisions causing severe damage, injury and possible fatalities

C1.1 Cab Signals

C1.1.1 Train movements on mainline are normally governed by Automatic Train Protection and the target speed is displayed in driving cabs. Trains shall obey the target speed and any other applicable speed restrictions.

TC
SC
TO

C1.2 Fixed Signals

C1.2.1 Normal train movements in interlocking areas, including depots, are controlled by colour light fixed signals, which must be complied with at all times except when authorised in accordance with the Rules. TC SC YM TO

Where the sighting of a fixed signal may be restricted, a co-acting signal, which displays the same aspects as the fixed signal with which it is associated, is located laterally with the fixed signal on the opposite side of the track concerned.

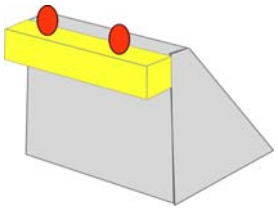
The aspects displayed and their meanings are:

Aspect	Meaning	Action
Red	Danger	Train must be brought to a stop on the approach side of the signal and must not proceed unless authorised
Blue	Route beyond the signal is set and locked	Train may proceed if a valid target speed is displayed or when authorised by the person responsible for control of train movements in the area
Green	Route beyond the signal is set and locked and all track circuits in the route are clear	Safe for a train to proceed as far as the next fixed signal or indicator

C1.3 Buffer Stop Signal and Fixed (Twin) Yellow Signal

C1.3.1 Buffer Stops fitted with 2 fixed red lights must be regarded as signals at danger. TO

Some Buffer Stops are also fitted with 2 yellow flashing lights which are lit to draw the Train Operator's attention when a train approaches.



C1.3.2 Fixed (Twin) Yellow Signals with a single yellow aspect on each side of the track is located at a specified distance before some Buffer Stops to remind Train Operators prepare to stop as the train is approaching toward a buffer stop ahead at the end of the track. TO

C1.4 Indicators - General

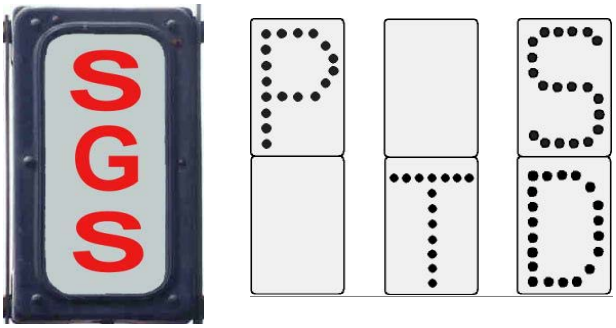
C1.4.1 Trackside indicators are located at fixed signals and other trackside locations to provide specific information and instructions to Train Operators. The indicators must not be passed except: TC SC YM TO

- ✓ in accordance with the instructions displayed on the indicator;
- ✓ in accordance with the Rules; or
- ✓ when specifically authorised by the person responsible for control of train movement in the area.

C1.5 Route Indicators

C1.5.1 Route Indicators are provided at fixed signals to indicate the routes from mainline to connection tracks, sidings, etc. The indicators are dot matrix or stencil type displaying these legends: TC SC YM TO

Display	To	Display	To
SGS or SD	Sidings	THR	Through track
DP	Depot	CTR	Centre track
P	Po Lam Station	T	Tseung Kwan O Depot or LOHAS Park Station
D	Tseung Kwan O Depot		
AE	Airport Express Line	TL	Tung Chung Line
TWL	Tsuen Wan Line		

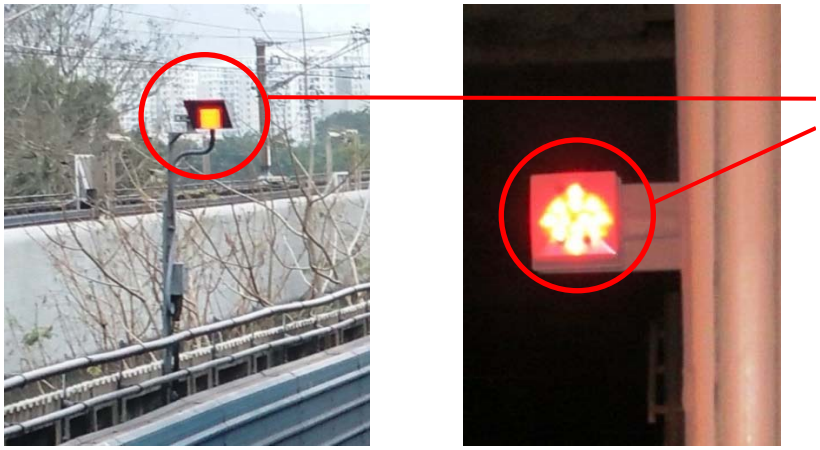


C1.5.2 When an incorrect indication is displayed, the Train Operator must obtain instructions from the person responsible for control of train movement in the area. TO

C1.6 Platform Door Status Indicators

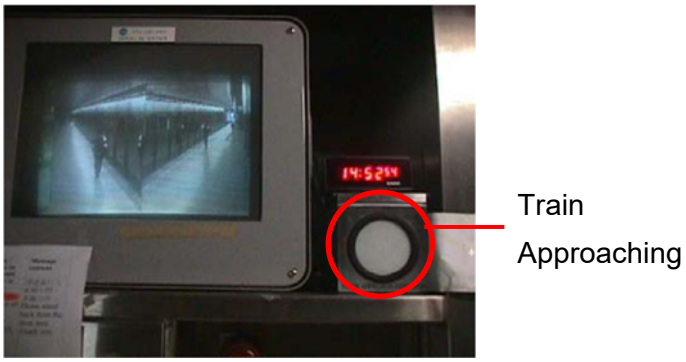
C1.6.1 Platform Door Status Indicators, including Platform Screen Door Status Indicators and Automatic Platform Gate Status Indicators, are provided beyond the headwall of platforms equipped with platform doors, which displays: TC SC TO

- a red aspect when any platform door is open;
- no aspect when all platform doors are closed or when platform doors have been isolated.



C1.7 Train Approaching Indicators

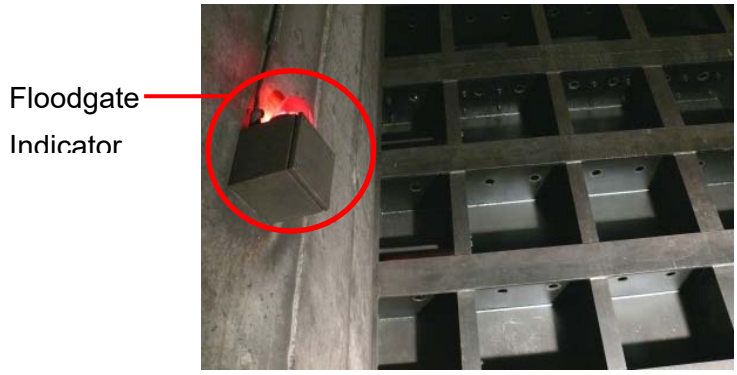
C1.7.1 Train Approaching Indicators are provided at the headwall of some interchange platforms, each comprises a white light which is illuminated when a train is occupying the track circuit on the approach to an adjacent platform. TC SC TO



C1.7.2 When the indicator is lit before a train departs, the Train Operator must extend dwell time to enable cross-platform interchange unless instructed otherwise by the Traffic Controller or station staff. TC TO

C1.8 Floodgate Indicators

C1.8.1 Floodgate Indicators are provided on the approaches to floodgates where there are no fixed signals. They display a flashing red aspect when the associated floodgate has been moved from its normal position. TC SC TO



C1.8.2 The Floodgate Indicator displaying a flashing red aspect must be regarded as a signal at danger. TO

C1.9 Block Boundary Indicators

C1.9.1 Block Boundary Indicators are provided on mainline and connection tracks: TC SC TO

- The front indicates the currently occupied track circuit number above the next track circuit number.

- The back shows a white cross on a black ground to indicate the wrong direction of train movement.

C1.9.2 Trains operating in Restricted Manual mode may pass a block boundary indicator with authorisation from the person responsible for control of train movement in the area only. TO

C1.10 Stopping Position Indicators

C1.10.1 Stopping Position Indicators are provided at some points to indicate the stopping position of trains when the rear is clear of the points. TO

- A white diamond on a black ground applies to all electric multiple unit trains.

- Black characters on a yellow ground apply to an electric multiple unit consist with the number of cars shown.

C1.10.2 Stopping Position Indicators are also provided at the headwall of some platforms to indicate the stopping position of electric multiple unit trains when 2 cars are clear of the headwall.

C1.10.3 Trains of the specified length should not normally pass an indicator when a stop is required. TO

C1.11 Limit of Shunt Indicators

C1.11.1 Limit of Shunt Indicators are provided on connection tracks (within depot limit) on the approach side of a section isolator at the boundary between traction current sections which are normally live at all times and those from which traction current is switched off during non-traffic hours. YM TO

C1.11.2 During shunting movements, trains must **not** pass an indicator without authorisation from the Yard Master.

C1.12 Limit of Protection Indicators

C1.12.1 Limit of Protection Indicators are provided in depot sidings at the boundary between unsignalled tracks and the first track circuit in a route. YM TO

C1.12.2 Trains must **not** pass the indicator without authorisation from the Yard Master.

C1.13 Stop Indicators

C1.13.1 Stop Indicators are provided in depots to show the locations where trains must stop before proceeding. A subsidiary plate is provided to: YM TO

- show the purpose of the Stop Indicator; or
- give instructions to Train Operators.

C1.13.2 Trains must **not** pass the Stop Indicator except that authorisation is given by the Yard Master, and the proceeding is feasible. TO

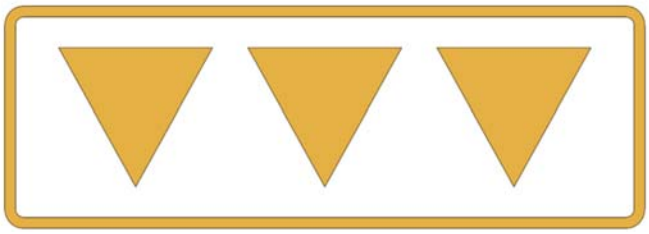
C1.14 Section Insulator Indicators

C1.14.1 Trackside Indicators are provided at section insulator locations where trains should not normally stop. TO

The type of train concerned is shown by the colour of the indicator border.

C1.15 Extended Trackway Extraction Zone Indicator

C1.15.1 Extended Trackway Extraction Zone Indicators are provided on the tunnel wall ahead of the headwall of Ho Man Tin Station up platform and Yau Ma Tei Station down platform of Kwun Tong Line. TO



C1.15.2 Whenever a train stops at the location where has this indicator installed on the train's right hand side of the normal running direction, it means that the train is located in the extended trackway extraction zone. TO

C1.16 Stopping Zone Indicator

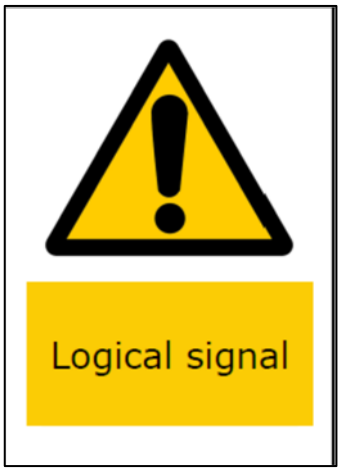
C1.16.1 The Stopping Zone Indicators are provided on platforms, sidings or turnaround tracks to indicate the locations where trains should stop. For the indicator provided on platforms, the yellow/black area is the tolerance area for stopping. TO

C1.17 High Speed Point Indicator

C1.17.1 High Speed Point Indicators are provided at the approach side of high speed points. TO

C1.18 Logical Signal Board

C1.18.1 Logical Signal Boards are installed at the location of logical signals. TO



C1.19 Enhanced Restricted Manual and Enhanced Fallback Mode Boards

C1.19.1 Enhanced Restricted Manual Mode Boards are installed at the start points and end points of the Enhanced Restricted Manual Mode Zones on the Airport Express Line and Tung Chung Line, where AEL or TCL trains may be operated in Enhanced Restricted Manual mode with authorisation of the Traffic Controller. TO

Start point

End point

C1.19.2 Enhanced Fallback Mode Boards are installed at the start points and end points of the Enhanced Fallback Mode Zones on the Airport Express Line and Disneyland Resort Line, where DRL trains may be operated in Enhanced Fallback mode with authorisation of the Traffic Controller. TO

Start point

End point

C1.20 Signal Ahead Indicator and Check Signal Indicator

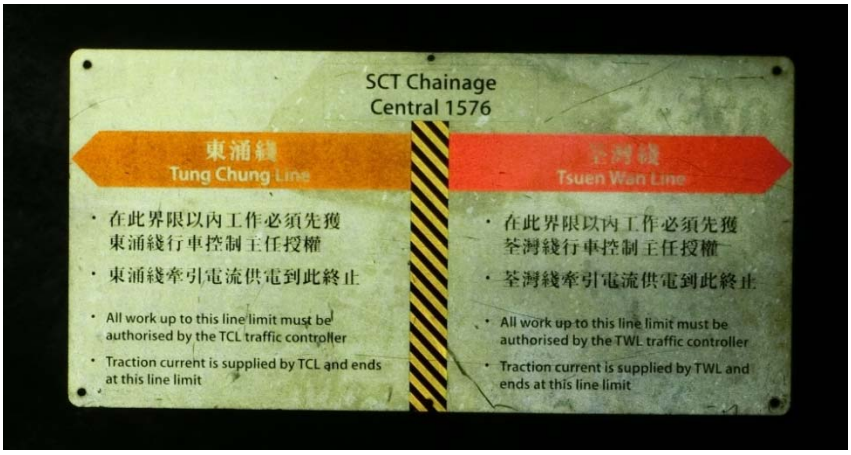
C1.20.1 Where the sighting of a fixed signal is restricted, a Signal Ahead Indicators are provided to show that a fixed signal is located at specified distance ahead. TO

C1.20.2 Where the close-view sighting of a fixed signal is restricted, a Check Signal Indicator is provided to show that: TO

- a fixed signal is located immediately before the Check Signal Indicator; or
- a fixed signal is located at the opposite side of the track parallel with the Check Signal Indicator.

C1.21 SCT Chainage Indicator

C1.21.1 SCT Chainage Indicator is provided at Lai King Service Connection Tunnel to indicate the common boundary of Tung Chung Line and Tsuen Wan Line. TO



C1.22 Gap Hazard Detector Alarm Trackside Indicator

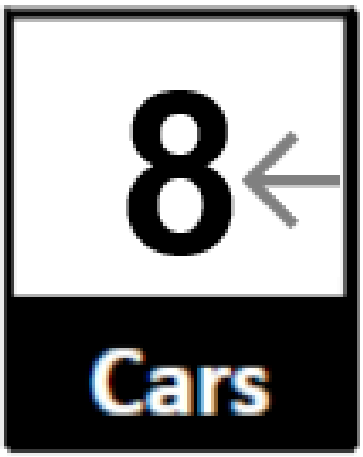
C1.22.1 Gap Hazard Detector Alarm Trackside Indicator is provided at platforms of designated stations. It displays a flashing red aspect when the associated gap hazard detector is activated. TO

C1.22.2 When a flashing red aspect is displayed, the Train Operator must: TO

- ✓ apply emergency brake;
- ✓ report to the Traffic Controller;
- ✓ check for any obstacles in the gap between the platform door and the train doors.

C1.23 8-Car Mark

C1.23.1 8-Car Marks are provided at some platforms to indicate that whenever a train stops before them, the rear of the train is clear of the platform. TO



C1.24 Rambler Channel Bridge Indicators

C1.24.1 The indicators “RCB 1”, “RCB 1-2” and “RCB 2” are provided on the Rambler Channel Bridge as landmarks for track check after activation of the Ship Impact Detection System. All

C1.25 Limited Clearance Indicators

C1.25.1 Limited Clearance Indicators are provided on a place or area near a track where there is insufficient space for a person to stand or walk between a structure and a passing train. All

C1.25.2 Before entering, passing, staying or working in the place or area with limited clearance, staff must agree with the Traffic Controller, the Engineer's Person-In-Charge or the Yardmaster on the protection arrangement. All

Exemption is provided for the following locations in a depot, given that staff have ensured no train is approaching before passing through the place with limited clearance.

- Maintenance or Workshop tracks
- Driving cab accessing path on depot tracks
- Stabling tracks with platform in non-Fully Automatic Operation area

C1.26 Depot Movement Indicator (Depot Limit)

C1.26.1 Depot Movement Indicators are provided on connection tracks to govern train movements in/out Depot Limits and to show the limit of movement under the control of the Yard Master。 All

C1.26.2 No trains or pedestrian is allowed to access beyond the point indicated by Depot Movement Indicators unless authorised by Traffic Controller. All

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C2	Signals and Indicators – East Rail Line

People Involved	Traffic Controllers, Station Controllers, Yard Masters, Train Operators

Purpose	To state the requirements for compliance with cab signals, fixed signals and indicators governing the safe movement of trains and imposing restrictions on train movements for safety

Risk	Lack of attention to and compliance with cab signals, fixed signals and indicators can result in severe consequences. These may include full and irrecoverable emergency brake applications, derailments and collisions causing severe damage, injury and possible fatalities

C2.1 Cab Signals

C2.1.1 Train movements on mainline are normally governed by Automatic Train Protection. Trains must not exceed the recommended speed which is displayed in Coded Manual Mode and Restricted Manual Mode and obey any other applicable speed restriction. TC SC TO

C2.2 Fixed Signals

C2.2.1 Normal trains movements in interlocking areas, including depot, sidings and yards, are controlled by colour light fixed signals, which must be complied with at all times except when authorised in accordance with the Rules. TC SC YM TO

Where sighting of a fixed signal is restricted, a co-acting signal, which displays the same aspects as the fixed signal with which it is associated, is located laterally with the fixed signal on the opposite side of the track concerned.

The aspects displayed and their meanings are:

Aspect	Meaning	Action
Red	Danger **Note:** 2-aspect Distant Signal does not include this aspect	Stop train on the approach to the signal and **not** proceed except in accordance with the Rules
Yellow	Caution – next fixed signal may be at danger	Proceed, prepared to stop train at the next fixed signal
Double Yellow	Caution – next fixed signal is at caution **Note:** 3-aspect Signal and Distant Signal do not include this aspect	Proceed, prepared to slow train at next fixed signal
Green	• Route beyond signal is set and locked and all track circuits in the route are clear • Distant signal – next signal displaying a green aspect	Proceed as far as the next fixed signal or indicator
Blue	Route beyond the signal is set and locked and the trainborne Automatic Train Protection equipment is in communication with trackside signalling equipment that cab signalling mode is in use	Proceed if proceed cab signal is displayed or in accordance with the Rules
Notes: • Red, yellow and green aspects are used for lineside fixed signalling mode. • Blue aspect is used for cab signalling mode.		

C2.2.2 Trackside fixed signals are identified by the number plates, i.e.: TC SC TO

Type	Illustration
Controlled Signal installed at the left hand side of the direction of train movement	
Controlled Signal installed at the right hand side of the direction of train movement **Note**: It is due to the space constraint where the controlled signal cannot be installed at left hand side.	
Distant Signal **Note:** When a train is occupying the track between the Distant Signal and the ending of its overlap track of next fixed signal, no aspect is displayed.	

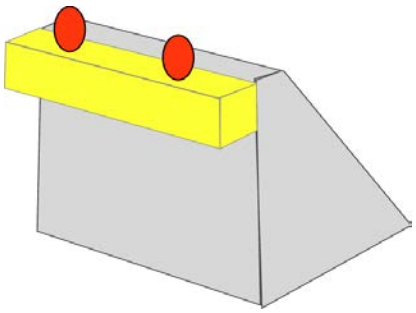
Type	Illustration	
Signal Repeater		
Co-acting Signal		

C2.3 Buffer Stop Signals

C2.3.1 Buffer Stops are normally fitted with 2 fixed red lights which: TO

- are permanently lit;
- may flash alternately.

They must be regarded as signals at danger.



C2.4 Subsidiary Signals

C2.4.1 Subsidiary Signals, which do not lit when no shunting is taking place, are placed below or adjacent to fixed signal main aspects where shunting movements may be made. TC SC YM TO

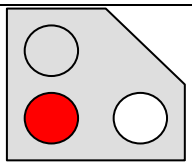
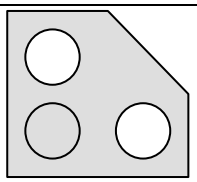
C2.4.2 When a proceed aspect is given by two white lights at an angle of 45 degrees, trains may proceed at a safe speed not exceeding 10 km/h or subject to any other applicable speed restrictions, and be prepared to stop short of any obstruction or the next signal or indicator. TO

C2.5 Position Light Ground Shunting Signals

C2.5.1 Position Light Ground Shunting Signals are provided to control train shunting movements: TC SC YM TO

- between mainline and sidings;
- between tracks on mainline.
- within depot, sidings and yards

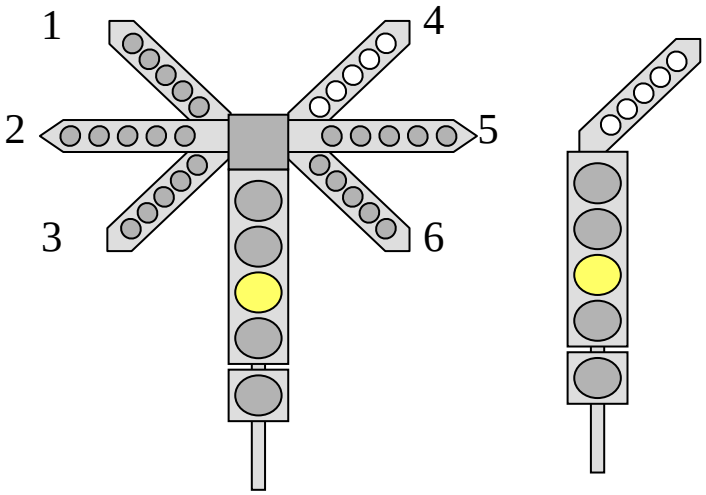
C2.5.2 The aspects displayed and their meanings are:

Aspect	Meaning	Illustration
One white light and one red light displayed horizontally	Danger (Stop)	
Two white lights at 45 degrees	Proceed	

C2.5.3 When a proceed aspect is displayed, trains may proceed at a safe speed not exceeding 10km/h or subject to any other applicable speed restrictions, and be prepared to stop short of any obstruction or the next signal or indicator. TO

C2.6 Junction Route Indicators

C2.6.1 Indications of routes to the left or right of the normal route at fixed signals on mainline are given by display of a line of white lights above the fixed signal aspects. TC SC TO



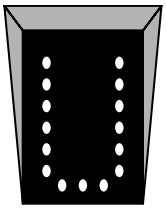
Junction Route Indications are also shown in cab signal displays:

Display	Meaning
D	Route set to Down Main Line
U	Route set to Up Main Line
/	Route set for diverging route

C2.6.2 When an incorrect indication is displayed, the Train Operator must obtain instructions from the Traffic Controller. TO

C2.7 Theatre-Type and Stencil-Type Route Indicators

C2.7.1 Theatre-type and Stencil-type Route Indicators above or adjacent to fixed signals give additional information concerning the route set when the signal is cleared. TC SC YM TO



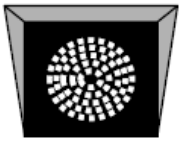
C2.7.2 These indicators display the legends below:

Display	To
D or DM	Down Main Line
U or UM	Up Main Line
Y or G or T or GS	Freight yard
DP	FOT Platform 4
UP	FOT Platform 1
D1	HTD M2-5 / SS2-4 / CWL
D2	HTD TT1
D3	HTD SS1
D5	HTD SN1
D6	HTD SN1
D8	HTD SN1-SN11
H	HUH Siding S1 and Siding S4, HUH Platform 5 and Platform 6, and HUH Track 7
RS	P-way Depot
B	LOW Platform 3/4
1	LOW Platform 1/2
2	SSG2
3 or S	SSG3
7	ADM Platform 7
8	ADM Platform 8
LMC	Lok Ma Chau **Note**: Adjacent to signal 2407, "LMC" will be displayed when point P6415 is at Reverse position (i.e. bifurcation junction is set for Lok Ma Chau). TO must check the target speed shown on the cab display and/or proceed aspect of the signal 2407.

C2.7.3 When an incorrect indication is displayed, the Train Operator must obtain instructions from the Traffic Controller. TO

C2.8 Signal Repeaters – Mainline

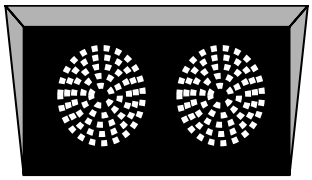
C2.8.1 Signal Repeaters are provided to display the same aspects as a fixed signal where the sighting of the associated fixed signal is restricted. TC SC TO

Aspect	Meaning	Illustration
"OFF"	The fixed signal located immediate before the Signal Repeater is clear.	
Blank	The fixed signal located immediate before the Signal Repeater is at danger.	
Circular disc	The fixed signal ahead is clear.	
Dark	The fixed signal ahead is at danger.	
Diagonal bar	The fixed signal ahead is clear.	
Horizontal bar	The fixed signal ahead is at danger.	

C2.8.2 Train Operators must act in accordance with the aspects of the signal repeater which are reproduced from the associated fixed signal. TO

C2.9 Signal Repeaters - Shunting

C2.9.1 Signal repeaters are provided behind the Position Light Ground Shunting Signals where the close-view sighting of the signal is restricted. No indication is displayed when the Ground Shunting Signal is at danger. TC SC YM TO

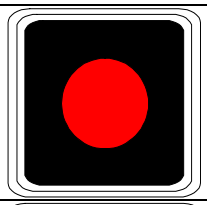
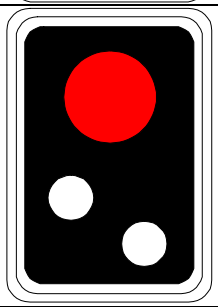


C2.9.2 When a Shunting Signal Repeater is displaying an aspect, Trains may proceed at a safe speed not exceeding 10km/h or subject to any other applicable speed restrictions, and be prepared to stop short of any obstruction or the next signal or indicator. TO

C2.10 *(Not Used)*

C2.11 Limit of Movement Authority Indicators

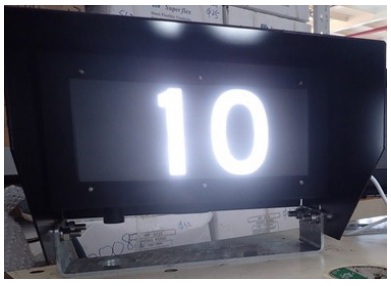
C2.11.1 Limit of Movement Authority Indicators are located at the end of the last cab signalled block before entering an area controlled by fixed signals or position light ground shunting signals. The indicators are of two types: TC SC YM TO

Type	Meaning	Illustration
Type A Limit of Movement Authority	Obey fixed signal and drive in accordance with the aspect displayed or stop when no fixed signal is provided	
Type B Limit of Absolute Movement Authority	Proceed at caution speed not exceeding 22km/h or proceed subject to any other applicable speed restriction when entering a depot, sidings or yards, be prepared to stop short of any obstruction	

C2.12 *(Not Used)*

C2.13 Permanent Speed Restriction Indicators

C2.13.1 Permanent Speed Restriction Indicators and Speed Indicator of the following types are provided: TO

Type	Location	Illustration
All trains	Mainline open sections	
	Mainline tunnel section or track-mounted indicating restriction on diverging route. An arrow beneath an indicator indicates the track on which the restriction applies.	
Trains in Restricted Manual / Cut-out mode	At the entrances of the following platforms where maximum speed is reduced: • Platforms 1 and 4 of HUH • Platforms 3 and 4 of LOW	
	Along the track of the following platforms where the maximum speed is reduced: • Platforms 1 and 4 of HUH • Platforms 3 and 4 of LOW The speed indicators will illuminate and flash automatically when the approaching train is driven under Restricted Manual or Cut-out mode.	 

C2.14 Close Door Indicators

C2.14.1 A LED indication will light on the platform door key switch panel and a buzzer will sound, when a platform signal is displaying a proceed aspect. SC TO

C2.14.2 A CDI icon will appear in the cab display when a control is operated by station staff indicating that platform duties may be completed, provided the platform signal is displaying a proceed aspect. TO

C2.15 Right Away Indicators

C2.15.1 Right Away indicators are installed adjacent to platform starting signals at certain terminus platforms. They are illuminated: SC TO

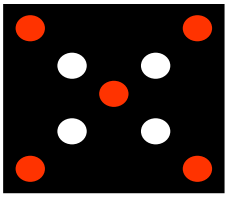
- when a platform plunger has been operated by station or train staff;
- when the starting signal displays a proceed aspect.

RA

C2.15.2 When an indicator is illuminated, Train Operators must prepare to depart. TO

C2.16 Emergency Stop Indicators

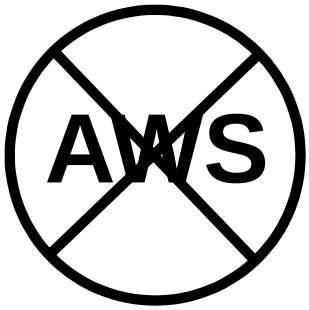
C2.16.1 Emergency Stop Indicators are located beyond station platforms to display a red/white flashing cross when a platform emergency plunger is operated. SC TO



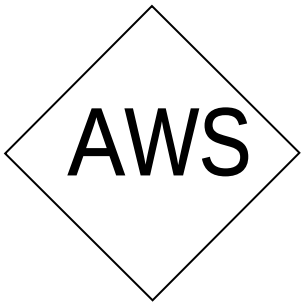
C2.16.2 When an indicator is illuminated, a Train Operator must stop the train immediately. TO

C2.17 Automatic Warning System Indicator

C2.17.1 For trains operated with Automatic Warning System, Train Operators must act in accordance with the system when the trains are running in a normal direction between Start of AWS indicator and End of AWS indicator which are installed on trackside. TC SC TO

Start of AWS	End of AWS
	

C2.17.2 Additional indicators are provided on trackside for movements not in the normal direction of running for the tracks concerned: TC SC TO

Start of No AWS	End of No AWS
	

Train Operators must be particularly aware that incorrect alarms or indications may be given. When the train is passing a Start of No AWS indicator, he/she must:

- ✓ be aware of any potential hazard that may exist before ignoring any alarm or incorrect indications;
- ✓ comply with fixed signal aspects;
- ✓ resume the working of Automatic Warning System after the train is passing the End of No AWS Indicator.

C2.17.3 When the train is approaching a fixed signal, Automatic Warning System indicators in driving cabs will show indications below: TO

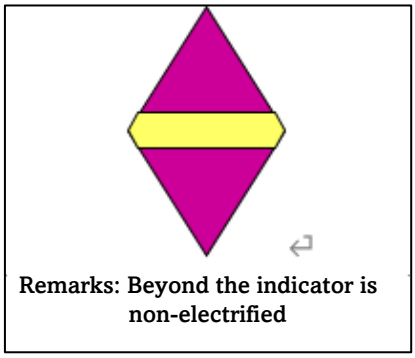
Fixed Signal Aspect	Cab Indication	Warning
Green	All black	Bell
Red, Yellow, or Double Yellow	Yellow and black spokes	Horn

Train Operators must acknowledge horn warnings in order to prevent an automatic emergency brake application. In addition, the aspects of the fixed signal associated shall be complied with.

C2.18 Stop Indicators

C2.18.1 Stop Indicators are provided in depots, sidings and yards to show the locations where trains must stop before proceeding. A subsidiary plate is provided below the Stop Indicators to : TC SC YM TO

- show the purpose of the Stop Indicator; or
- give instructions to Train Operators.



C2.18.2 Trains must **not** pass the Stop Indicators except that authorisation is given by Traffic Controller, Yard Master or the person responsible for control of train movements in the area, and the proceeding is feasible. TO

C2.19 Stopping Zone Indicator and Stopping Position Indicator

C2.19.1 Stopping Zone Indicators are provided on platforms and sidings to indicate the locations where trains should stop. For the indicators provided on platforms (and in parallel to the track), the yellow/black area is the tolerance area for stopping. TO

C2.19.2 9-car Marks provides an indication to the Train Operator: TO

- where the rear end of the train is clear of the platform;
- where the train can be started to accelerate on mainline.

C2.19.3 Stopping Position Indicators are provided at some locations to indicate the stopping positions of trains. TO

C2.20 Open / Close VCB Indicators

C2.20.1 Open / Close VCB Indicators are provided near the neutral sections on mainline to indicate the location where the vacuum circuit breaker of a mainland through train must be opened or closed to avoid causing damages to the overhead line equipment. TO

Open VCB Indicator

Close VCB Indicator

C2.20.2 The Pilot Driver must remind the Train Operator to: TO
- ✓ open the vacuum circuit breaker before passing the Open VCB Indicators;
- ✓ close the vacuum circuit breaker after passing the Close VCB Indicators.

C2.21 Limited Clearance Indicators

C2.21.1 Limited Clearance Indicators are provided on a place or area near a track where there is insufficient space for a person to stand or walk between a structure and a passing train. All

C2.21.2 Before entering, passing, staying or working in the place or area with limited clearance, staff must agree with the Traffic Controller, the Engineer's Person-In-Charge or the Yardmaster on the protection arrangement. All

Exemption is provided for the following locations in a depot, given that staff have ensured no train is approaching before passing through the place with limited clearance.
- Maintenance or Workshop tracks
- Driving cab accessing ladder on depot tracks
- Stabling tracks with platform in non-Fully Automatic Operation area

C2.22 Signal Ahead Indicator and Check Signal Indicator

C2.22.1 Where the sighting of a fixed signal is restricted, a Signal Ahead Indicator is provided to show that a fixed signal is located at a specified distance ahead. TO

C2.22.2 Where the close-view sighting of a fixed signal is restricted, a Check Signal Indicator is provided to show that: TO

- a fixed signal is located immediately before the Check Signal Indicator; or
- A fixed signal is located at the opposite side of the track paralle with the Check Signal Indicator.

C2.23 End of Track Indicators

C2.23.1 End of Track Indicators are located at a specified distance before a buffer stop at both tunnel wall sides of EAL ADM Siding to indicate that the train is approaching towards a buffer stop at the end of the track ahead. Therefore, Train Operators must prepare to stop. TO

C2.24 Floodgate Indicators

C2.24.1 Floodgate Indicators are provided on the approaches to floodgates where there are no fixed signals. They display a flashing red aspect when the associated floodgate has been moved from its normal position. TC SC TO

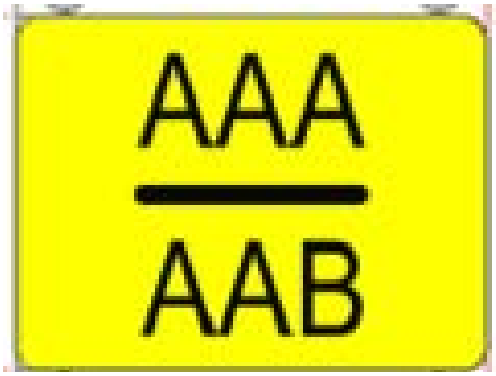
C2.24.2 The floodgate indicators displaying a flashing red aspect must be regarded as a signal at danger. TO

C2.25 No-Entry Warning Indicators

C2.25.1 No-Entry Warning Indicators are provided at a diverging track section on mainline to caution Train Operators of through trains not to enter the diverging track section ahead to avoid causing damages to the overhead line equipment. TO

C2.26 Block Boundary Indicators

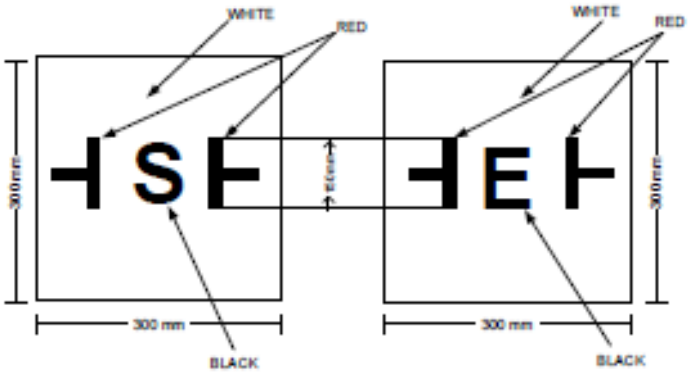
C2.26.1 Block Boundary Indicators are provided on mainline. They show the currently occupied track circuit number above the next track circuit number. TC SC TO



C2.26.2 Trains operated in Restricted Manual mode must **not** pass a block boundary indicator without authorisation given by the person responsible for controlling the train movement in the areas. TO

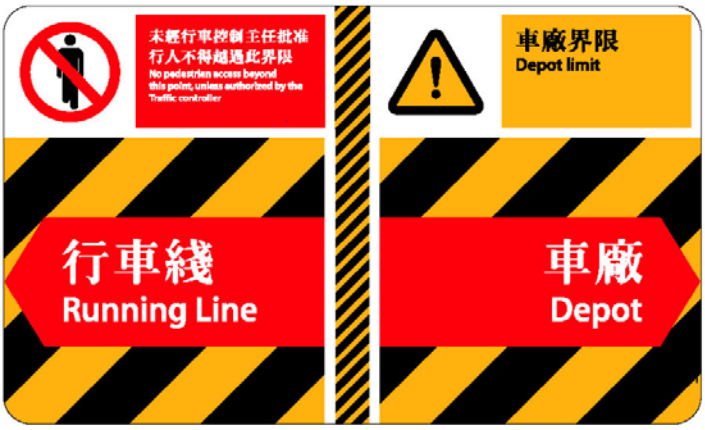
C2.27 Neutral Section Indicators

C2.27.1 Neutral Section Indicators are provided at the start and end of each neutral section. Trains must **not** be brought to a stand within these sections, except in emergency. TC SC TO



C2.28 Depot Movement Indicator (Depot Limit)

C2.28.1 Depot Movement Indicators are provided on connection tracks to govern train movements in/out Depot Limit and to show the limit of movements under the control of the Yard Master: All



C2.28.2 No trains or pedestrian is allowed to access beyond the point indicated by Depot Movement Indicators unless having authorisation from Traffic Controller. All

C2.29 Limit of Shunt Indicator and Freight Yard Limit Indicator

C2.29.1 Limit of Shunt Indicators or Freight Yard Limit Indicators are provided on connection tracks to show the limit of train movements under the control of the delegate of the landlord. YM TO

C2.29.2 Train movements beyond the indicators will affect the operations on mainline. Trains must not pass the indicators without authorisation given by Traffic Controller, Yard Master or the person responsible for the control of train movements beyond the limit. TO

C3	Signals and Indicators – Tuen Ma Line

People Involved	Traffic Controllers, Station Controllers, Yard Masters, Train Operators

Purpose	To state the requirements for compliance with cab signals, fixed signals and indicators governing the safe movement of trains and imposing restrictions on train movements for safety

Risk	Lack of attention to and compliance with cab signals, fixed signals and indicators can result in severe consequences. These may include full and irrecoverable emergency brake applications, derailments and collisions causing severe damage, injury and possible fatalities

C3.1 Cab Signals

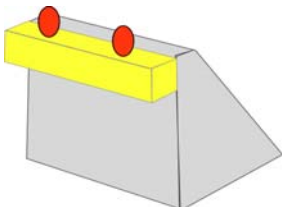
C3.1.1 Train movements on mainline are normally governed by Automatic Train Protection and the target speed is displayed in driving cabs. TC SC TO

- ✓ Trains must be brought to a stand immediately when a "zero" target speed is displayed;
- × When other than a "zero" target speed is displayed, train movements must **not** exceed the speed shown and must follow any other speed restrictions. Train Operator must prepare to stop the train when a "zero" target speed is displayed.

C3.2 Buffer Stop Signals

C3.2.1 Buffer stops fitted with two fixed red lights must be regarded as signals at danger. TO

In some cases, the fixed red lights flash or two additional yellow flashing lights are lit when a train approaches.



C3.3 Point Position Indicators

C3.3.1 Point position Indicators are provided at all points on mainline, connection tracks and in depots. The indications displayed are: TC SC YM TO

Display	Meaning	Illustration
Red bar	Points are either: • out of correspondence; or • not aligned for a safe route Trains must stop on the approach to the indicator and must **not** proceed except having authorisation in accord with the *Rules*.	
White arrow	Points are set and locked in the direction indicated	
Number	Route destination track number in depot	

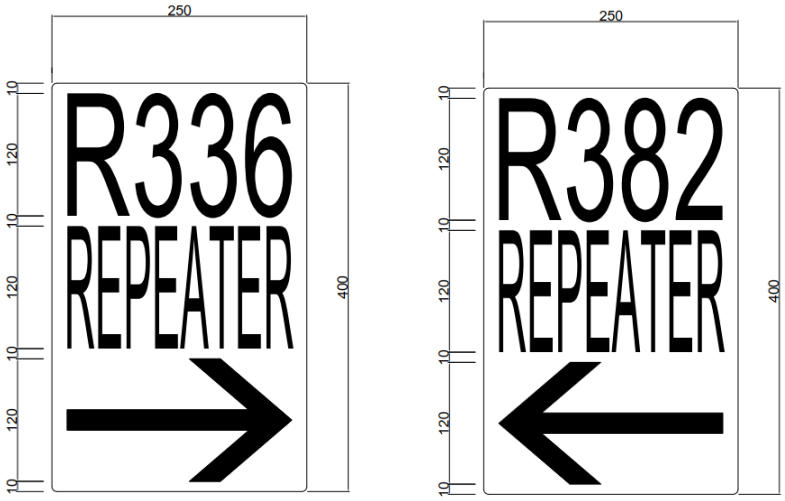
C3.3.2 When an incorrect indication is displayed, the Train Operator must obtain instructions from the person responsible for control of train movements in the area. TO

C3.3.3 Signal Repeaters are provided before the Point Position Indicators where the sighting of the aspects is restricted. TO

When the Signal Repeater displays…	Means the Point Position Indicators displaying
Horizontal White Bar 	Red Bar 
White Arrow 	White Arrow in the same direction 
Number 	Same route destination track number 

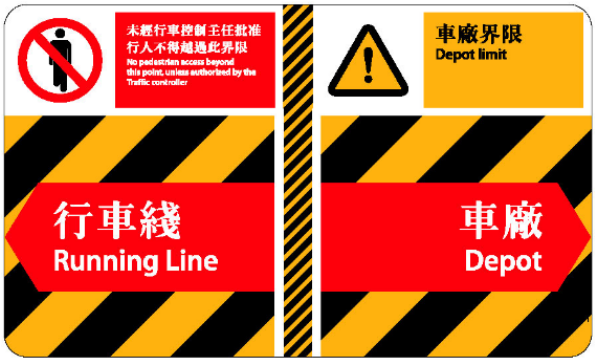
C3.3.4 Train Operators must act in accordance with the indications of the signal repeater which are reproduced from the associated Point Position Indicator. TO

C3.3.5 Label plates illustrated below will be provided on the signal repeaters to distinguish the signal repeater from the Point Position Indicator. TO



C3.4 Depot Movement Indicators (Depot Limit) and Limit of Shunt Indicators

C3.4.1 Depot Movement Indicators are provided on connection tracks to govern train movements in/out Depot Limit and to show the limit of movements under the control of the Yard Master: All



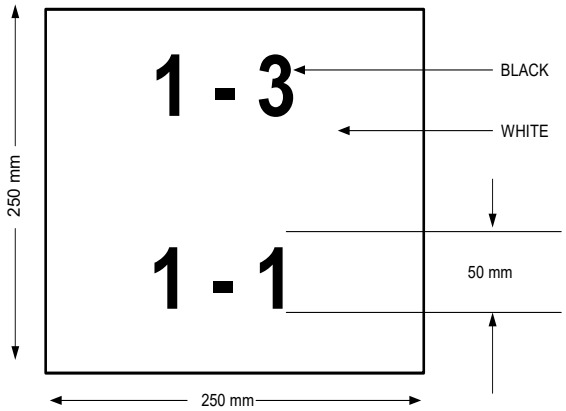
C3.4.2 No trains or pedestrian is allowed to access beyond the point indicated by Depot Movement Indicators unless authorised by Traffic Controller. All

C3.4.3 Limit of Shunt Indicators are provided on connection tracks to show the limit of shunting movements under the control of Yard Master · YM TO

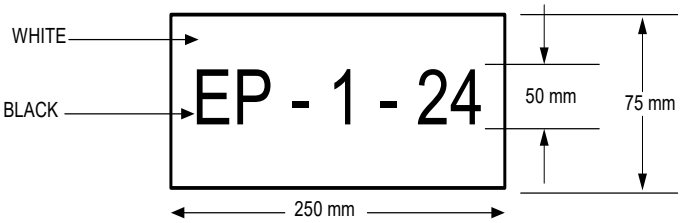
C3.4.4 Train movements beyond the indicators will affect the operations on mainline. Trains must **not** pass the indicator without authorisation given by the Yard Master. TO

C3.5 Loop Boundary Indicators

C3.5.1 Loop Boundary Indicators show the signalling control area and loop number ahead followed by the approach side signalling control area and loop number. TC SC YM TO



A subsidiary indicator bearing the legend EP shows the re-entry point for train initialisation.

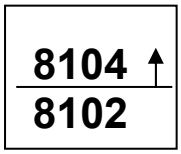


The "**C**" Clearance Indicator is located at the position where the rear of a train has passed the loop boundary indicator so that the train can be stopped and initialisation can be completed.

C3.5.2 Trains operating in Restricted Manual mode may pass a loop boundary indicator with authorisation given by the person responsible for control of train movement in the area only. TO

C3.6 Block Boundary Indicators

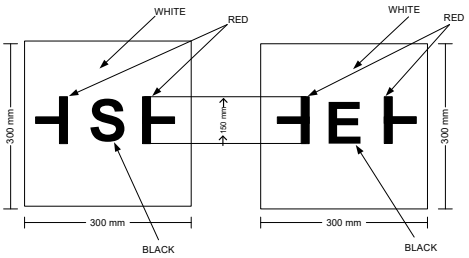
C3.6.1 Axle counter Block Boundary Indicators show the currently occupied block below the next block number. TC TO



C3.6.2 Trains operating in Restricted Manual mode may pass a block boundary indicator with authorisation given by the person responsible for control of train movement in the area only. TO

C3.7 Neutral Section Indicators

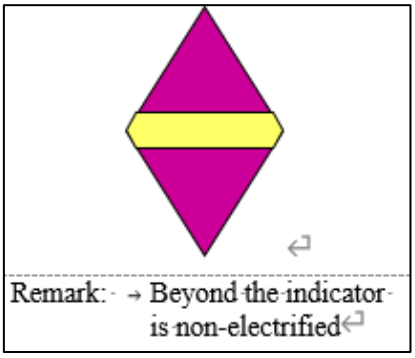
C3.7.1 Neutral Section Indicators are provided at the start and end of each neutral section. Trains must **not** be brought to a stand within these sections, except in emergency. TC SC TO



C3.8 Stop Indicators

C3.8.1 Stop Indicators are provided on sidings and in depots to show the locations where all trains must stop before proceeding. A subsidiary plate is provided below the Stop Indicators to: YM TC TO

- show the purpose of the indicator; or
- give instructions to Train Operators.

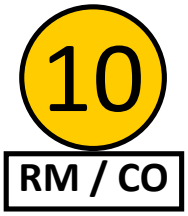


C3.8.2 Trains must **not** pass the Stop Indicators except that authorisation is given by Traffic Controller or Yard Master and the proceeding is feasible. TO

C3.9 *(Not Used)*

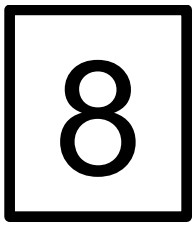
C3.10 Permanent Speed Restriction Indicators

C3.10.1 When trains are passing through the following locations in Restricted Manual/Cut-out mode, they must move according to the speed shown on the Permanent Speed Restriction Indicators. TO

Permanent Speed Restriction Indicator	Location
	Mainline between ETS and AUS where the maximum speed is reduced.
	• Launching, Retrieval and Emergency Tracks of HHS where the maximum speed is reduced. • Points HUH011 / HUH012/ HUH013 / HUH014 at the mainline between HOM and HUH where the maximum speed is reduced.
	• Mainline from WKS Platform 2 to Point Position Indicator 3930 where the maximum speed is reduced. • Stabling Tracks of HHS where the maximum speed is reduced. • All tracks in TAD where the maximum speed is reduced.

C3.11 8-Car Mark

C3.11.1 8-Car Marks are provided at some platforms to indicate that whenever a train stops before them, the rear of the train is clear of the platform. TO



C3.12 Tunnel Ventilation Fan Area Indicator

C3.12.1 Tunnel Ventilation Fan Area Indicators are provided at tunnel sections to indicate the boundary of the tunnel ventilation fan area, that the tunnel ventilation fan will be activated after a train has stopped within the area for 120 seconds or more. TO

C3.13 Stopping Zone Indicator – Depot

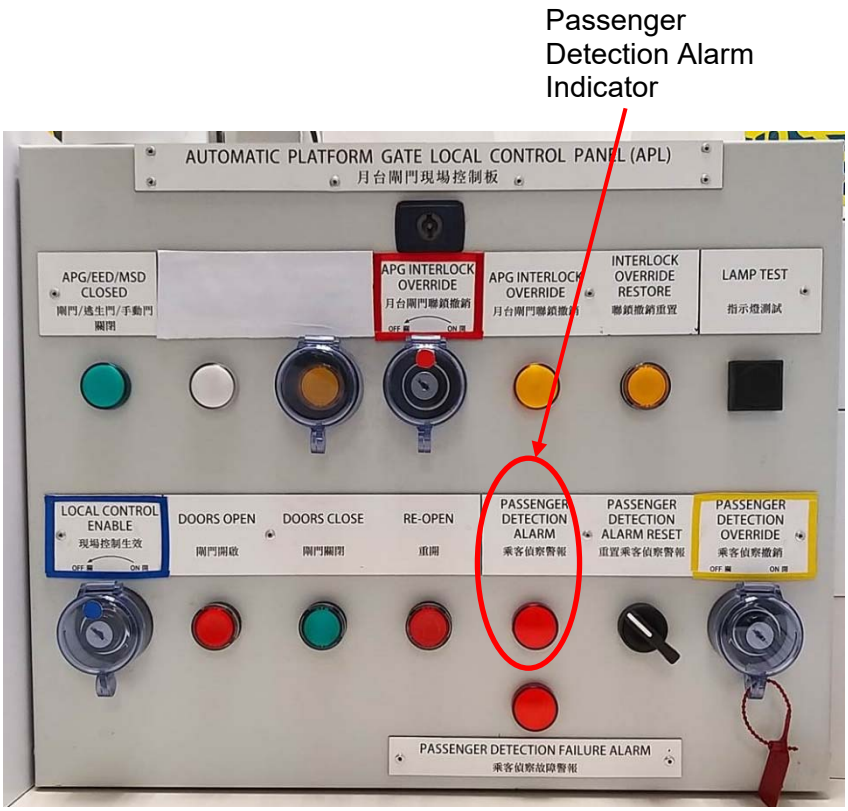
C3.13.1 The Stopping Zone Indicators are installed in Tai Wai Depot to indicate the locations where trains should stop. TO

C3.14 Stopping Zone Indicator – Station Platform

C3.14.1 Stopping Zone Indicators are provided on station platforms to indicate the locations where trains should stop. The yellow/black area is the tolerance area for stopping. TO

C3.15 Passenger Detection Alarm Indicator

C3.15.1 Passenger Detection Alarm Indicator is provided at platforms of designated stations. It displays a red aspect when the associated detector is activated. TO



C3.15.2 When a red aspect is displayed, the Train Operator must: TO

- ✓ apply emergency brake;
- ✓ report to the Traffic Controller;
- ✓ check for any obstacles in the gap between the platform door and the train doors.

C3.16 Limited Clearance Indicators

C3.16.1 Limited Clearance Indicators are provided on a place or area near a track where there is insufficient space for a person to stand or walk between a structure and a passing train. All

C3.16.2 Before entering, passing, staying or working in the place or area with limited clearance, staff must agree with the Traffic Controller, the Engineer's Person-In-Charge or the Yardmaster on the protection arrangement. All

Exemption is provided for the following locations in a depot, given that staff have ensured no train is approaching before passing through the place with limited clearance.

- Maintenance or Workshop tracks
- Driving cab accessing path on depot tracks
- Stabling tracks with platform in non-Fully Automatic Operation area

Intentionally Blank

C4	Signals and Indicators – Light Rail

People Involved	Traffic Controllers, Yard Masters, Train Operators, Operations Officials

Purpose	To state the requirements for compliance with fixed signals and indicators which indicate whether it is safe for a train to proceed and any restrictions on train movements

Risk	Lack of attention to and compliance with fixed signals and indicators can result in derailments, collisions and traffic accidents, causing severe damage, injury and possible fatalities

C4.1 Fixed Signals

C4.1.1 Fixed signals on Light Rail mainline and connection tracks are operated by the local traffic signal controller for the intersection(s) concerned. The aspects displayed and their meanings are: TC TO

Aspect	Meaning	Illustration
Red 'T'	Stop	
White chevron	Train may proceed in direction indicated	

C4.1.2 A fixed signal displaying a proceed aspect may be passed only if the associated point indicator, where provided, shows that the points have been set and locked for the route displayed by the fixed signal. TO

C4.1.3 A proceed aspect will flash for a pre-set period prior to changing to a stop aspect. TO

- If the proceed aspect has been flashing before a train passes the braking indicator, the Train Operator must stop the train at the fixed signal.
- If the proceed aspect flashes after the train passed the braking indicator and it is unsafe to pass the junction, the Train Operator must stop the train at his/her best efforts.

C4.1.4 A fixed signal displaying a stop aspect may be passed only when authorised by: TO TC OO

- ✓ the Traffic Controller and after ensuring that road vehicle or pedestrian traffic will not endanger or be endangered by the movement;
- ✓ an Operations Official or Police officer on Light Rail when local control has been taken.

C4.1.5 A fixed signal displaying no aspect must be treated as a signal at danger. TO

C4.2 Point and Route Indicators

C4.2.1 Point indicators are provided at junctions to show the route set through points. They are operated independently of fixed signals, which are driven by a traffic signal controller at road intersections. The aspects displayed and their meanings are: TC YM TO

Aspect	Meaning	Illustration
Red bar	Stop	
White bar	Points set for direction indicated or to selected platform at terminus	
White triangle	Train may proceed through points set and locked by Yard Master	

C4.2.2 At some point indicators, stencil type route indicators are provided together to display the route set. TC YM TO

Type	Meaning	Illustration
Platform	The route is set to the platform indicated.	
Stop	The route is set to the stop indicated.	

C4.2.3 A point indicator may be passed only: TO

- ✓ if it displays the correct route indication;
- ✓ where fixed signals are also provided, if both signals and the indicator are clear for the route;
- ✓ when it is at danger or not showing any aspect, the authorisation of Traffic Controller, Yard Master or Operations Official in the area under local control must be obtained.

C4.3 Matrix Signals

C4.3.1 Matrix signals are provided at points where multiple routes are available. The indications displayed are: TC YM TO

Aspect	Meaning	Illustration
Horizontal bar	Stop – no route selected	
	Stop – no route selected (depot)	
Number	Route set for entry to track or platform indicated	

C4.3.2 When a matrix signal is displaying a horizontal bar or an abnormal / incorrect display, or is not showing any aspect, trains may pass it only when having authorisation from: TO

- ✓ the Traffic Controller on mainline;
- ✓ the Yard Master in a depot;
- ✓ an Operations Official when an area is under local control.

C4.4 Pedestrian Warning Signals

C4.4.1 Pedestrian Warning Signals are provided at certain terminals where movements across tracks can be busy. These signals display a flashing amber aspect when a train approaches the crossing. All

C4.4.2 Train Operators must **not** assume that tracks are clear when signals are flashing. TO

C4.5 Give-way Indicators

C4.5.1 Give-way Indicators are provided at converging or crossover junctions. TO

C4.5.2 Train Operators must: TO

- ✓ check for a conflicting movement;
- ✓ stop the train before the fouling point and give way to the train approaching the junctions.

C4.6 Braking Indicators

C4.6.1 Braking Indicators are provided on the approach to road intersections, where a full view of the intersection is possible, to show the train speed limit. TO

When passing the braking indicator, if the train speed does not exceed the speed shown on the braking indicator, a service brake application can bring the train to stop in front of the fixed signal.

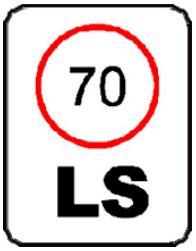
C4.6.2 Train Operators must: TO

- ✓ keep a sharp lookout for any road vehicle which has or may cross the stop line and reduce speed accordingly;
- × **not** pass an indicator at a higher speed than displayed.

C4.7 Speed Restriction Indicators

C4.7.1 Train Speed Restriction Indicators are provided at the starting point of special speed restriction section to show the maximum permitted speed of train. TO

C4.7.2 Line Speed Indicators are provided at the departure ends of junctions, pedestrian crossings and speed restriction sections to show the maximum permitted speed of train. TO



C4.7.3 When passing any speed restriction indicator, the train speed must not exceed the speed shown until it arrives at the next speed restriction indicator. TO

C4.8 Conflicting Movement Indicators

C4.8.1 Conflicting Movement Indicators are provided on the approaches to some Light Rail intersections where there are significant conflicting movement. TO

C4.8.2 Train Operators must ensure that extreme care is exercised before proceeding through the area concerned. TO

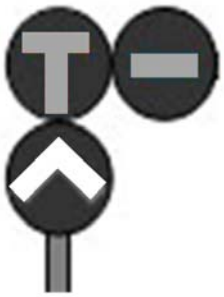
C4.9 Section Insulator Indicators

C4.9.1 Section Insulator Indicators are located on overhead line equipment masts near each section insulator. TO

C4.9.2 Trains must **not** be stopped within 4 metres at either side of the indicator unless essential for safety, to avoid damage to the section insulator. TO

C4.10 Stop Indicators

C4.10.1 A Stop Indicator is provided adjacent to the fixed signal S553 at Tuen Mun Ferry Pier Stop. The aspect displayed and its meaning are: TO

Aspect	Meaning	Illustration
Red bar	Stop	
Not lit (White chevron is displayed on fixed signal S553)	Train may proceed to the indicated direction	

C4.10.2 The Stop Indicator may be passed only: TO TC OO

- ✓ if the red bar is not lit and the fixed signal S553 is displaying proceed aspect;
- ✓ when the train movement is authorised by the Traffic Controller and after ensuring that the safety of the train movement, road vehicle or pedestrian traffic will not be endangered;
- ✓ when the train movement is authorised by an Operations Official who has taken local control.

C4.11 Train Ahead Indicators

C4.11.1 Train Ahead Indicators are provided at some diverging or crossing lines to remind Train Operators to keep a clearance from the train ahead so as to avoid a conflicting movement. TO

C4.11.2 On the conflicting route, a train cannot proceed until the train nearby has wholly passed the fouling point indicators, and the section of track ahead is clear. TO

C4.11.3 Train Operators must: TO
- ✓ check for any conflicting movement;
- ✓ stop the train at the fouling point marker to give way to other trains if required.

C4.12 Creepy Speed Indicator

C4.12.1 Creepy Speed Indicators are provided in depot. TO

C4.12.2 When passing the indicator, the Light Rail vehicle must be operated in creepy speed mode and the train speed must not exceed the speed shown until it has arrived at the next speed restriction indicator. TO

C4.13 Stopping Zone Indicator

C4.13.1 The Stopping Zone Indicators is provided in the depot to indicate the location at which all Light Rail vehicles must stop before proceeding with authorisation. Light Rail vehicles must **not** pass a stopping zone indicator except having the authorisation of the Yard Master. TO

C4.14 Limited Clearance Indicators

C4.14.1 Limited Clearance Indicators are provided on a place or area near a track where there is insufficient space for a person to stand or walk between a structure and a passing train. All

C4.14.2 Before entering, passing, staying or working in the place or area with limited clearance, staff must agree with the Traffic Controller, the Engineer's Person-In-Charge or the Yardmaster on the protection arrangement. All

Exemption is provided for the following locations in a depot, given that staff have ensured no train is approaching before passing through the place with limited clearance.

- Maintenance or Workshop tracks
- Driving cab accessing path on depot tracks
- Stabling tracks with platform in non-Fully Automatic Operation area

C4.15 Depot Movement Indicators (Depot Limit)

C4.15.1 Depot Movement Indicators are provided on connection tracks to govern train movements in/out Depot Limit and to show the limit of movements under the control of the Yard Master: YM TO

C4.15.2 **No** trains is allowed to access beyond the point indicated by Depot Movement Indicators unless having authorisation from Traffic Controller. TO

C4.16 Limit of Shunt Indicator

C4.16.1 Limit of Shunt Indicator is provided to show the limit of shunting movements in depot. YM TO

C4.16.2 During shunting movements, trains must **not** pass the indicators without authorisation from the Yard Master. TO

C5	Changes to Signals and Indicators

People Involved	Signal Engineers, Traffic Controllers, Yard Masters, Train Operators

Purpose	To describe controlled arrangements for safe additions, alterations and removals of signals and indicators

Risk	Unpublished changes to signals and indicators may lead to them being ignored or improperly treated, leading to equipment damage, possible derailment or collision, or injury to persons on or near tracks

C5.1 Additions and Alterations

C5.1.1 Signals and indicators must **not** be brought into use, added, removed or altered in any way before: TC YM SE

- they have been properly located through the approved signal sighting procedure;
- authorised by the Chief of Railway Segment;
- details, including changes to automatic train control arrangements, have been published in a Traffic Notice or other publication.

C5.2 Signal or Indicator Not in Use

C5.2.1 Signals and indicators which are not in use must be covered and marked with an "✖" symbol attached to the front of the housing or sign. SE TO

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C6	Control of Signals and Points
People Involved	Traffic Controllers, Station Controllers, Yard Masters, Engineer's Persons-in-Charge
Purpose	To provide for the safe control and operation of signals and points to prevent trains from making unsafe movements
Risk	Improper control and operation of a signal or points may result in a train passing the signal at danger or incorrectly set points, causing damage to track equipment, derailment or collision

C6.1 General

C6.1.1 Signals must be maintained at danger when necessary. TC SC YM

C6.1.2 When a route is set either automatically or manually, the automatic working control must be switched off if it is required to maintain the associated signals at danger. TC SC YM

C6.2 Change of Signal Aspects and Point Directions

C6.2.1 When a fixed signal has been cleared for a train, action must **not** be taken to change it to a signal at danger until the train has passed it, unless: TC SC YM

- ✓ it is necessary to stop the train owing to an emergency;
- ✓ the train cannot proceed; or
- ✓ an incorrect route has been set.

C6.2.2 When a point has been set for a train to proceed, the direction of the point must **not** be changed until the train has passed it, unless: TC SC YM

- ✓ the train has stopped in front of the point;
- ✓ the Train Operator is informed.

C6.2.3	When an incorrect route has been set, action must **not** be taken to change it to a signal at danger if there is a possibility that the train will pass the signal at danger.	TC SC YM
C6.2.4	When a signal in front of a train has been replaced to danger, the signal must **not** be cleared and the point associated with the signal must **not** be moved, unless: ✓ the train has stopped in front of the signal and the point; ✓ the Train Operator is informed.	TC SC YM

C6.3 Non-traffic Hours

C6.3.1	During non-traffic hours, all controlled fixed signals on mainline must: ✓ be maintained at danger except during testing of signalling controls; × **not** be cleared for the passage of Engineer's trains or special trains, unless specified in the Traffic Notice or other publication.	TC SC EPIC

C6.4 Controlled Trap Points

C6.4.1	Controlled trap points must be: ✓ left open when not required to be closed for the passage of trains; ✓ secured for train movements when located within an Engineer's Possession unless the train movements are governed by cab signals or fixed signals.	TC SC YM EPIC

C6.5 Light Rail

C6.5.1	The requirements in this Section do not apply to Light Rail signals and points.	All

C7	Approaching and Passing Signals and Indicators

People Involved	Train Operators

Purpose	To describe the need for caution when approaching a signal at danger or an indicator and to state what must be done before proceeding

Risk	Failure to control a train on the approach to a signal at danger or an indicator can result in it being passed incorrectly, causing track and equipment damage, derailment, collision or injury

C7.1 Approach

C7.1.1 When proceeding towards a signal at danger in a manual driving mode, the Train Operator must draw the train forward and stop as close to the signal or, on Light Rail where applicable, the stop line, with the signal aspects clearly visible from the driving position. TO

C7.1.2 When moving towards an indicator which is not associated with a fixed signal, the Train Operator must proceed with caution so that no part of the train passes beyond the indicator: TO

- ✓ unless specially authorised by the person responsible for the control of train movements in the area; or
- ✓ in accordance with the instructions shown on the indicator.

C7.2 Proceeding

C7.2.1 If for any reason a train does not immediately proceed when the controlling signal is cleared or authority is given, before starting the train the Train Operator must: TO

- ✓ check again by personal observation that the signal is displaying a proceed aspect;
- ✓ on mainline and connection tracks, check again that a proceed cab signal is displayed if applicable;
- ✓ obtain further authorisation, if required.

C8	Signal at Danger

People Involved	Traffic Controllers, Station Controllers, Yard Masters, Train Operators, Handsignalmen

Purpose	To describe requirements for safe working at and for passing a signal at danger

Risk	Passing a signal at danger without proper authority and control of the movement can cause damage to track equipment, derailment or collision, or cause injury to persons on or near the track

C8.1 Signal at Danger

C8.1.1 A fixed signal displaying: TO

- no aspect, an abnormal colour aspect, an abnormal shape aspect or a dual aspect must be regarded as a signal at danger, unless a proceed cab signal is displayed;
- a red aspect but with a proceed cab signal displayed must be regarded as a signal at danger and as a signalling irregularity.

C8.1.2 The Train Operator of a train detained by a red signal or absence of a proceed cab signal must inform the person responsible for the control of train movements in the area after waiting one minute. TO

C8.2 Passing Signal at Danger

C8.2.1 When a fixed signal remains at danger or when a train is detained by the continuous absence of a proceed cab signal, the signal at danger may be passed or the train may proceed with specific authorisation given by the person responsible for the control of train movements in the area. TC SC YM HS

C8.2.2 In order to ensure that train movements are fully protected against collision, before a train is authorised to pass a platform starting signal at a terminus, the Traffic Controller or Station Controller must ensure that all other trains in the area are stationary and will not be moved. TC SC

C8.3 Authorisation

C8.3.1 Before authorising a Train Operator to pass a signal at danger, the Traffic Controller, Station Controller or Yard Master must: TC SC YM

- ✓ cancel any automatic working of the signal concerned and of any signal for a conflicting route;
- ✓ operate and lock the appropriate point en-route in a correct position, if it is necessary to move any points in the affected route;
- ✓ remind the Train Operator to proceed with caution.

If required, a Handsignalman may be appointed for the purpose of instructing Train Operators.

C8.3.2 When a train is to be worked into a section which is known to be occupied or obstructed, the Train Operator must be warned accordingly. TC SC YM

C8.3.3 It must not be assumed that because the indications on a signalling panel show a section of track to be unoccupied, the track is unobstructed. TC SC YM

C8.4 Control by Handsignal

C8.4.1 When a Handsignalman is to be deployed to authorise a train to pass a signal at danger, or to proceed when no proceed cab signal is available, the Handsignalman must: HS

- ✓ be positioned at the signal or at the commencement of the first track circuit affected, or as near to it on the approach side as circumstances permit;
- ✓ exhibit a red handsignal to each approaching train until authority is received from the person responsible for the control of train movement of the area;

- ✓ give the Train Operator any verbal instruction which may be necessary and receive confirmation of understanding of such instruction;
- ✓ exhibit a yellow handsignal held steadily if there are people working at the trackside or any other risks;
- ✓ exhibit a green handsignal held steadily if there are no people working or no other risks.

C8.4.2 Authority to pass a signal at danger, or to proceed when no proceed cab signal is available, may be given by the Handsignalman prior to the arrival of the train at that signal or track circuit. When 2 or more signals remain at danger, authority to pass all the signals may be given at one time. TC SC HS

C8.5 Passing Signal

C8.5.1 When passing a signal at danger or proceeding when no proceed cab signal is displayed, the Train Operator must: TO

- ✓ obtain appropriate authorisation;
- ✓ sound one long blast on the horn, if necessary;
- ✓ drive the train in Restricted Manual mode at caution speed to the next fixed signal ahead, or as far as the track is clear, whichever is shorter;
- ✓ if the next fixed signal is clear, resume normal operation;
- ✓ if a proceed cab signal is displayed, resume normal operation;
- ✓ if the next fixed signal is at danger or no proceed cab signal is received on subsequent track circuits, obtain appropriate authorisation before proceeding.

C8.5.2 Automatic or Coded Manual mode operation must be resumed at the earliest practical opportunity after use of Restricted Manual mode. TO

C8.6 Light Rail

C8.6.1 On Light Rail, trains may pass signals at danger when authorised by the Traffic Controller, a Handsignalman at the site, or a Police officer controlling road traffic at an intersection. TO

C8.7 Signal Passed at Danger

C8.7.1 When there is any confirmed or suspected incident of Signal Passed at Danger, the Traffic Controller or Yard Master must: TC YM

- confirm with the Train Operator that the train has been stopped;
- stop other train movements in the vicinity of the scene where necessary;
- ascertain the likely cause and take appropriated safety measures;
- call for investigation of the incident of Signal Passed at Danger.

C8.7.2 When Train Operator has confirmed or suspected that there is an incident of Signal Passed at Danger, the Train Operator must: TO

- report the incident to the Traffic Controller or Yard Master immediately;
- obtain authorisation from the Traffic Controller or the Yard Master before moving the train.

C9	Handsignals - Train Movements

People Involved	Train Operators, Handsignalmen

Purpose	To describe the different types of handsignals used for safe control of train movements and requirements for their use

Risk	Failure to observe and to comply with handsignals given to control train movements may result in unsafe conditions, with catastrophic consequences

C9.1 General

C9.1.1 Handsignals are normally given by: HS

- flags;
- handlamp;
- other approved indication device.

C9.1.2 Staff using handlamps or flags as signals must hold them, and **not** place them on or fix them in the ground or elsewhere except where a red light or flag is used to indicate an obstruction or a vehicle which must not be moved. HS

C9.1.3 Handsignals must be given from a position: HS

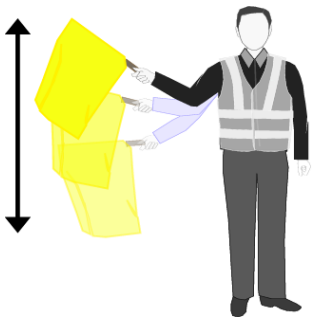
- ✓ where they can be seen clearly;
- ✓ at a distance enabling a train to safely stop at the signal.

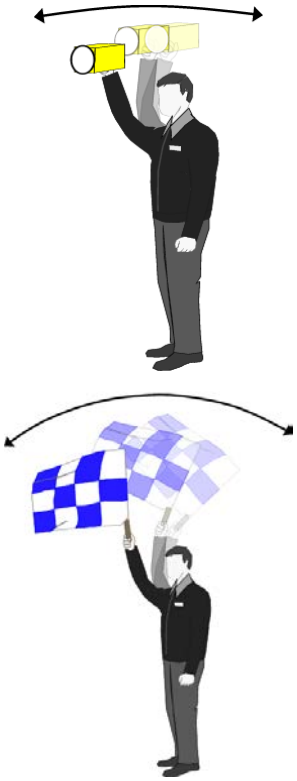
During shunting movements, the Train Operator must be able to see the controlling handsignal throughout the movement. HS

C9.2 Types – Railway

C9.2.1 The types of handsignal used for controlling train movements are: HS

Indication	Mode of Display	Meaning	Illustration
Red (Danger)	Waved violently (May also be given by waving any object violently)	Emergency: stop train immediately	
	Held steadily (May also be given by raising both arms above the head)	Train must stop at handsignal	

Indication	Mode of Display	Meaning	Illustration
Yellow (Caution)	Held steadily	Temporary speed restriction or staff working on track ahead **(Note:** when displayed at a signal at danger or when no proceed cab signal is displayed, verbal instruction must be given)	
	Moved slowly up and down vertically	• Move away from handsignal during shunting; or • ready to commence brake pipe continuity test	
	Moved slowly from side to side across body	• Move towards handsignal during shunting; or • brake pipe continuity test satisfactory	
Green (Proceed)	Held steadily	Train may proceed (**Note:** when displayed at a signal at danger or when no proceed cab signal is displayed, verbal instruction must be given)	

Indication	Mode of Display	Meaning	Illustration
White light; or blue/white chequered flag (Platform duties complete)	Waved slowly from side to side above head	• Passenger train doors may be closed; or • all staff and passengers are clear	
White light (All Right)	Held steadily above head (May also be given by holding one arm above the head)	• Train may proceed if proceed cab signal is available; or • signal is clear	

C9.3 Types - Police

C9.3.1 The types of handsignal used by Police to control Light Rail vehicles (and road traffic) are: TO

Indication	Mode of Display	Meaning	Illustration
Stop	One arm raised vertically from the elbow	Stop at handsignal	
Caution (Slow Down & Stop)	One arm raised horizontally pointing towards the vehicle concerned, and lowered slowly	Slow down and stop at the required stopping position	
Proceed	One hand raised and moved in a beckoning motion	Proceed when it is safe to do so	

C9.4 Incorrect or Unclear Handsignal

C9.4.1 A handsignal given incorrectly or a handsignal which is not clearly visible must be regarded as a danger signal and the Train Operator must stop the train immediately. The train must **not** proceed until a proper and clearly visible handsignal is displayed. TO

C9.5 Withdrawal of Danger Signal

C9.5.1 A proceed or caution speed handsignal, or verbal instructions, as appropriate, must be given when a danger handsignal has been withdrawn and it is safe for the train to proceed. HS

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C10	Signals and Indicators – South Island Line

People Involved	Traffic Controllers, Station Controllers, Yard Masters, Train Operators

Purpose	To state the requirements for compliance with cab signals, fixed signals and indicators governing the safe movement of trains and imposing restrictions on train movements for safety

Risk	Lack of attention to and compliance with cab signals, fixed signals and indicators can result in severe consequences. These may include full and irrecoverable emergency brake applications, derailments and collisions causing severe damage, injury and possible fatalities

C10.1 Cab Signals

C10.1.1 Train movements in the Fully Automatic Operation areas of mainline and depot are normally governed by Automatic Train Protection and the target speed is displayed in driving cabs.

TC
SC
YM
TO

- ✓ Trains must be brought to a stand immediately when a "zero" target speed is displayed;
- × When other than a "zero" target speed is displayed, train movements must **not** exceed the speed shown and must follow any other speed restrictions. Train Operator must prepare to stop the train when a "zero" target speed is displayed.

C10.2 Fixed Signals

C10.2.1 Normal train movements in interlocking areas, including depots, are controlled by colour light fixed signals, which must be complied with at all times except when authorised in accordance with the Rules. TC SC YM TO

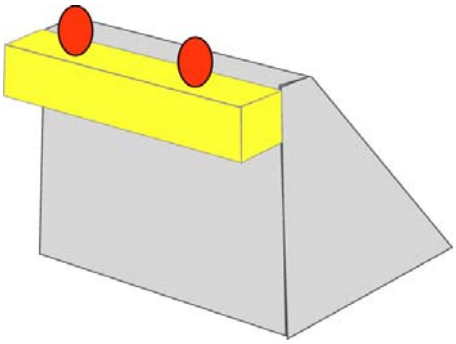
Where sighting of a fixed signal may be restricted, a co-acting signal, which displays the same aspects as the fixed signal with which it is associated, is located laterally with the fixed signal on the opposite side of the track concerned.

The aspects displayed and their meanings are:

Aspect	Meaning	Action
Red	Danger	Train must be brought to a stop on the approach side of the signal and must not proceed unless authorised
Blue	Route beyond the signal is set and locked	Train may proceed if a valid target speed is displayed or when authorised by the person responsible for control of train movements in the area

C10.3 Buffer Stop Signals and Fixed (Twin) Yellow Signal

C10.3.1 Buffer Stops fitted with 2 fixed red lights must be regarded as signals at danger. TO



C10.3.2 Fixed (Twin) Yellow Signals with a single yellow aspect on each side of the track is located at a specified distance before some Buffer Stops to reminded the Train Operators prepare to stop as the train is approaching toward a buffer stop ahead at the end of track. TO

C10.4 Block Boundary Indicators

C10.4.1 Block Boundary Indicators are provided on mainline and all depot shunting tracks. They show the currently occupied track number above the next track number. TC SC YM TO

C10.4.2 Trains operated in Restricted Manual mode must **not** pass a Block Boundary Indicator without authorisation given by the person responsible for controlling the train movement in the areas. TO

C10.5 Permanent Speed Restriction Indicators

C10.5.1 Permanent Speed Restriction Indicators are provided at the entrances of the following platforms where speed restriction is imposed for trains operated in Restricted Manual or Cut-out mode: TC SC YM TO

- Platform 1 and 2 of SOH
- Platform 5 and 6 of ADM

C10.6 Route Indicators

C10.6.1 Route Indicators are provided at fixed signals to indicate the routes from mainline to depot shunting tracks, and from depot shunting tracks to various depot tracks. The indicators are stencil type displaying these legends: TC SC YM TO

Display	To	Display	To
M1	Maintenance Track 1	WT	Wash Track
M2	Maintenance Track 2	ET	Engineering Track
ST	Shunting Track	xE	East Stabling Track x (x = 1, 2, 3, 4 or 5)
DP	Depot	xW	West Stabling Track x (x = 1, 2, 3, 4 or 5)
HE	Heavy Cleaning Track East	LT	Lifting Track
HW	Heavy Cleaning Track West		

C10.6.2 When an incorrect indication is displayed, the Train Operator must obtain instructions from the person responsible for control of train movement in the area. TO

C10.7 Signal Repeater – Mainline and Depot

C10.7.1 Signal Repeaters are provided before the fixed signals on mainline and in depot where the sighting of signal aspects is restricted. TC SC TO

Aspect	Meaning	Illustration
Horizontal bar	The fixed signal ahead is at danger	
Diagonal bar	The fixed signal ahead is clear	

C10.7.2 Train Operators must act in accordance with the aspects of the signal repeater which are reproduced from the associated fixed signal. TO

C10.8 Stop Indicators

C10.8.1 Stop Indicators are provided in depot to show the locations where trains must stop before proceeding. A subsidiary plate is provided below the Stop Indicators to: YM TO

- show the purpose of the Stop Indicator; or
- give instructions to Train Operators.

C10.8.2 Trains must **not** pass the Stop Indicators except that authorisation is given by the Yard Master and the proceeding is feasible, or the train is operated in Fully Automatic Operation mode. TO

C10.9 Stopping Zone Indicators

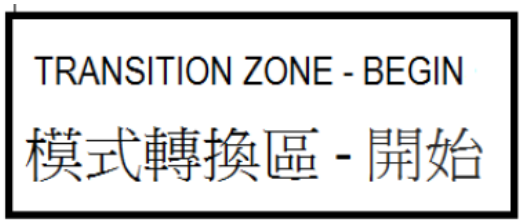
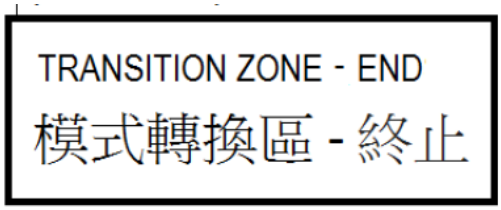
C10.9.1 The Stopping Zone Indicators are provided on station platforms and in depots to indicate locations where trains operated in manual driving mode should stop. For the indicators provided on platforms, the yellow/black area is the tolerance area for stopping. YM TO

C10.10 Stopping Position Indicators

C10.10.1 Stopping Position Indicators are provided at some points on mainline to indicate that whenever a train stops before them, the rear of the train is clear of the points. TO

C10.11 Transition Zone Indicators

C10.11.1 Transition Zone Indicators are provided in the depot to indicate the beginning point and the end point of transition zones where trains must pass it when moving between the Fully Automatic Operation area and the non-Fully Automatic Operation area. YM TO

Begin	End
	

C10.12 3-Car Marks

C10.12.1 3-Car Marks are provided at the departure side of platform headwall and depot shunting tracks to indicate that whenever a 3-car train stops before them, the rear of the train is clear of the platform or the point concerned for changing end. YM TO

C10.13 6-Car Marks

C10.13.1 6-Car Marks are provided in the depot shunting tracks to indicate that whenever a train stops before them, the rear of the train is clear of the point concerned for changing end. YM TO

C10.14 Limited Clearance Indicators

C10.14.1 Limited Clearance Indicators are provided on a place or area near a track where there is insufficient space for a person to stand or walk between a structure and a passing train. All

C10.14.2 Before entering, passing, staying or working in the place or area with limited clearance, staff must agree with the Traffic Controller, the Engineer's Person-In-Charge or the Yardmaster on the protection arrangement. All

Exemption is provided for the following locations in a depot, given that staff have ensured no train is approaching before passing through the place with limited clearance.

- Maintenance or Workshop tracks
- Driving cab accessing path on depot tracks
- Stabling tracks with platform in non-Fully Automatic Operation area

C10.15 Depot Movement Indicators (Depot Limit)

C10.15.1 Depot Movement Indicators are provided on connection tracks to govern train movements in/out Depot Limit and to show the limit of movements under the control of the Yard Master. All

C10.15.2 No train and pedestrian is allowed to access beyond the point indicated by Depot Movement Indicators unless authorised by Traffic Controller or Yard Master. All

C10.16 Limit of Shunt Indicator

C10.16.1 Limit of Shunt Indicators are provided on connection tracks to show the limit of shunting movements under the control of the Yard Master. YM TO

C10.16.2 Movements beyond the indicators will affect the operation on mainline. Trains must **not** pass the indicators without authorisation given by the Yard Master. TO

C10.17 Check Signal Indicator

C10.17.1 Where the close-view sighting of a fixed signal is restricted, a Check Signal Indicator is provided to show that TO

- a fixed signal is located immediate before the Check Signal Indicator; or
- a fixed signal is located at the opposite side of the track parallel with the Check Signal Indicator.

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Section D

Train Working

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D1	Scheduled and Unscheduled Working

People Involved	All Staff

Purpose	To describe normal working arrangements for trains and to make clear that staff must be prepared for train movements at any time on any track

Risk	Staff on or near tracks may be taken unaware by movement or direction of movement of trains, resulting in injury or fatality

D1.1 Scheduled Working

D1.1.1 Trains normally run in accordance with details published in Working Timetables, Traffic Notice or other publication. — All

D1.2 Unscheduled Working

D1.2.1 Staff must be: — All

- ✓ prepared for running of trains at any time;
- ✓ take special care on tracks where train may operate in either direction.

D1.3 Non-traffic Hours

D1.3.1 No trains may run after the last scheduled train shown in Working Timetables except: — CC TC

- ✓ when essential and details have been published in a Traffic Notice or publication; or
- ✓ in emergency when authorised by the Chief Controller.

D1.3.2 When an unscheduled train is to run, the Traffic Controller must first ensure that tracks are clear of staff, materials and equipment. — TC

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D2	Crewing
People Involved	Traffic Controllers, Yard Masters, Train Crew Officers, Train Operators, Intercity Chief Purser
Purpose	To describe the staffing requirements for train working during normal and degraded operations
Risk	Lack of compliance will result in safety impairment through operation by unqualified staff, at excessive speed, failure to comply with signal aspects, etc.

D2.1 General

D2.1.1 Trains must be: TC YM TCO TO

- ✓ moved, driven or operated only by staff who have been qualified specifically to do so, within the limits of their qualification shown in a Certificate of Proficiency and Qualification.
- ✓ controlled by Traffic Controller or Yard Master, if the train is operated in Fully Automatic Operation mode.

D2.2 Emergency

D2.2.1 In emergency, a person holding a restricted Certificate of Proficiency and Qualification may operate a passenger train to the next station, where passengers must be detrained, and then work the train empty to the next crew relief point, depot or siding. TC TCO TO

D2.3 Coded Manual Mode

D2.3.1 When a train is operated in Coded Manual mode in passenger service in a single-track tunnel section (except East Rail Line Tunnels 5/5A), a qualified member of staff must accompany the Train Operator from the first terminus or crew relief point. TC TO

D2.4 Restricted Manual Mode

D2.4.1 When it is necessary for a train to be operated in any Restricted Manual mode: TO

- ✓ the Train Operator must be alert for any person or obstruction or other hazard on or near the track and be prepared to stop the train immediately;
- ✓ at a speed higher than the Restricted Manual mode limit on mainline outside prescribed limits, or in a depot, a second Train Operator must accompany the Train Operator to ensure that train speed does not exceed 40 km/h; TC YM TO
- ✓ from other than the leading driving cab, a second Train Operator or a Handsignalman must be located at the leading end, prepared to stop the train in emergency by giving handsignals or using appropriate control device.

D2.5 Engineer's Trains

D2.5.1 Engineer's trains must be crewed by: TCO TO

Composition of Locomotives	Train Operators Required
Single	1
In multiple	
In tandem	1 on each locomotive

On locomotives where the Train Operator does not have a clear view of the side of the track opposite the driving position, a second qualified person must be provided to assist with signal sighting.

D2.5.2 Rail road vehicles on Light Rail must be crewed by: TCO TO

Composition of Rail Road Vehicles	Train Operators Required
Single	1
In multiple	
In tandem	1 on each vehicle

D2.6 *(Not Used)*

D2.7 Intercity Through Trains

D2.7.1 Each Intercity through train must be crewed by an Intercity Chief Purser who is: — TCO, ICCP, TO

- ✓ the person-in-charge of the train;
- ✓ responsible for giving and passing instructions concerning train working to the Train Operator;
- ✓ responsible for supervising on-board services.

D2.7.2 Intercity through trains operated by mainland railways staff must be crewed by a Train Operator acting as Pilot Driver in charge of all movements on Corporation lines, except where mainland railway staff have been trained and qualified to operate trains over specific sections of track. — TCO, TO

D2.7.3 In the event of failure or isolation of the equipment on trains working in the Automatic Warning System mode, the train can be driven at a speed higher than 22km/h and a qualified member of staff must travel with the Train Operator to ensure that the aspects of all fixed signals, all speed restrictions and all other requirements of the Rules are properly obeyed. — TC, TO

D2.8 Additional Requirements

D2.8.1 Where the Rules require a Train Operator to do specified activities and one is not normally on a train, the Traffic Controller must arrange appointment of a qualified member of staff to perform the requirements. — TC, TCO

D2.8.2 Train staff who are **not** certified as familiar with the alignment, track layout and signalling equipment arrangements on any track or section of track must be accompanied by a member of staff who is qualified, acting as Pilotman to give instructions for safe control of train movement. — TCO, TO

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D3	Operation - General
People Involved	Traffic Controllers, Yard Masters, Train Operators, Intercity Chief Purser, Operations Officials, Engineer's Persons-in-Charge, Competent Persons, Station Controller, Coupler Operator
Purpose	To describe the permitted modes of and safe working requirements for operation of trains
Risk	Improper control and operation of train movements, and failure to ensure safety of trains before entering into service and during movements can lead to serious incidents, derailments and collisions

D3.1 Mainline and Connection Tracks

D3.1.1 Trains on mainline and connection (out of depot limit) tracks are under supervision of the Traffic Controller and must be operated:

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- ✓ in Fully Automatic Operation or Automatic or Coded Manual mode or according to fixed signals or road traffic signals, as appropriate;
- ✓ in the forward or normal direction of running;
- ✓ from the leading driving position or in Fully Automatic Operation mode;

except when any of these conditions apply:

- ✓ specified in a Traffic Notice;
- ✓ authorised by the Traffic Controller;
- ✓ necessary for assisting a defective train;
- ✓ authorised by an Operations Official in emergency;
- ✓ within an Engineer's possession under authority of the Engineer's Person-in-Charge;
- ✓ in circumstances permitted by the Rules or Working Instructions.

D3.2 Coded Manual Mode

D3.2.1 On mainline and connection tracks, trains may be operated in Coded Manual mode only when authorised by the Traffic Controller. TO TC

Obtaining prior authorisation is not required if operating the train in Automatic mode or Fully Automatic Operation mode is not possible. In this case, the Train Operator must inform the Traffic Controller immediately after moving the train in Coded Manual mode.

D3.2.2 In depots, working of trains in Coded Manual mode is only possible on designated tracks. Trains may only be operated in Coded Manual mode on these tracks when authorised by the Yard Master. TO YM

Obtaining prior authorisation is not required in Wong Chuk Hang Depot, Tai Wai Depot and Pat Heung Depot where working of trains in Coded Manual mode is under control of the Yard Master.

D3.3 Restricted Manual Mode

D3.3.1 Trains may be operated in any Restricted Manual mode only when authorised by the Traffic Controller or Yard Master when either: TC YM TO

- no proceed cab signal is available; or
- it is necessary owing to trainborne equipment faults.

D3.3.2 Trains **not** fitted with automatic train protection equipment must not exceed the maximum Restricted Manual mode speed when the Rules require use of Restricted Manual mode. TO

D3.3.3 Before a train is operated in any Restricted Manual mode on a mainline and connection track, the Traffic Controller or Station Controller must: — SC TC TO

- ✓ ascertain the precise position of the train by confirming the track circuit or fixed signal number or nearest marker post or fixed structure;
- ✓ ensure that the section of track where the train movement is to be made is unoccupied;
- ✓ inform the Train Operator of the circumstances requiring the movement and the limit of movement;
- ✓ inform the Train Operator of the action to be taken on completion of the movement.

D3.4 Intercity Through Trains

D3.4.1 The Railway Safety Rules are applicable to all trains operating on Corporation lines. Through trains operating in the mainland are subject to the Rules, Regulations and publications issued by the appropriate railway authority or administration. — TC ICCP TO

D3.4.2 All staff on a through train must go through Customs and Immigration formalities and must comply with all requirements of the appropriate authorities. — ICCP TO

D3.5 *(Not Used)*

D3.6 Light Rail Vehicles

D3.6.1 Light Rail vehicles must be operated by Train Operators: — TO

- ✓ using defensive driving techniques;
- ✓ on line of sight;
- ✓ alert and prepared for an immediate stop within their range of vision.

D3.6.2 Train Operators must: TO

- ✓ anticipate and compensate for changes in rail conditions and range of vision owing to adverse weather conditions;
- ✓ assume that a preceding train may stop suddenly, regulate speed and keep a safe braking distance from it;
- ✓ keep a look out for persons or obstructions on or about the track;
- ✓ drive carefully and smoothly to ensure passenger comfort and avoid undue wear and tear on equipment;
- ✓ allow sufficient braking distance to stop a train not less than one metre from the end of a track, stop block, fouling point, obstruction, or other train or road vehicle;
- ✓ stop at least one train's length behind another train on mainline, where possible, except in a terminus;
- ✓ stop when approaching a crossing before the crossing if there is another train on an adjacent track and there are people on the crossing;
- ✓ when approaching a junction or crossing which is not controlled by fixed signals and where convergence indicators are not provided, establish clearly with other Train Operators in the vicinity which train should proceed first.

D3.6.3 Train Operators must **not** use sand over points or crossings except in emergency or when absolutely necessary to prevent wheelslip or slide. TO

D3.6.4 When crossing or working through a public road, Train Operators must comply with the Road Traffic Ordinance and its subsidiary Road Traffic (Traffic Control) Regulations which include requirements that Train Operators must: TO

- ✓ comply with all permanent and temporary signs and road markings;
- ✓ stop if a train is involved in an accident or when an accident obstructs the right of way;
- ✓ obey the instructions of Police or Traffic Wardens;
- ✓ give way to emergency vehicles;
- ✓ give precedence to pedestrians at a zebra crossing;
- ✓ give way to animals;
- × **not** stop within the limits of a zebra crossing except to let pedestrians cross;
- × **not** make unnecessary use of the horn or bell;
- × **not** permit a vehicle to cause an obstruction or danger to any other road user;
- × **not** drive or operate vehicles in a careless or dangerous manner;
- × **not** withhold information from a police officer where that officer suspects that a traffic offence has been committed;
- × **not** drive in excess of a speed limit;
- × **not** drive with alcohol above the prescribed limit.

D3.6.5 Train Operators must **not**: TO

- × admit or commit any liability on behalf of the Corporation upon occurrence of an accident without obtaining advice from their supervisor;
- × release information to any third parties (except Police) with regard to the details of a traffic accident.

D3.7 Consist Restrictions

D3.7.1 Electric multiple units operating in passenger service must comprise the normal scheduled maximum permitted consist for the line concerned in order to: TC

- ✓ ensure matching of train doors and platform doors;
- ✓ minimise platform dwell times.

D3.7.2 These requirements do **not** apply to: TC

- ✓ trains stopping only at stations without platform doors; or
- ✓ where isolation of train doors and platform doors are made appropriately in advance.

D3.8 Depots

D3.8.1 Trains within depot limits are worked to the instructions of the Yard Master and may be operated: YM TO

- ✓ in either direction under authority of the Yard Master;
- ✓ from other than the leading driving cab when necessary for shunting or for testing in reverse in accordance with Work Instructions.

D3.8.2 Trains entering or departing from a depot: TC YM TO

- ✓ must be brought to a stand at the connection track inlet or outlet signal except the following situation.

Location	Signal	Train Operator's Action
HTD and Lo Wu Marshalling Yard on East Rail Line	At inlet signal / Limit of Movement Authority Indicator	Press "ACK-Button" to change to RM and obey signal to proceed according to route set
Light Rail	At outlet signal	Obey signal to proceed

- × must **not** proceed until authorised by the person responsible for control of train movements in the area.

D3.8.3	When train formation is to be conducted on unsignalled tracks or sidings, the Train Operator must: ✓ ensure an intended movement will not conflict with any other; ✓ reach a complete mutual understanding with and keep the Yard Master informed.	CP TO
D3.8.4	When train washing is to take place, the Yard Master must instruct the responsible person to ensure that all doors and windows of the train have been closed.	YM

D3.9 Brake Test

D3.9.1	To ensure safety, train brakes must be tested on each occasion a train or vehicle: ✓ is to be moved after having been stabled or left unattended for a period; ✓ is coupled or uncoupled; ✓ is to depart from a depot, before passing a depot limit, outlet signal or fixed signal leading to mainline; ✓ has had any defect or irregularity affecting the brake system repaired. A brake test is not required when leading or rear vehicles **only** are uncoupled.	TO
D3.9.2	A brake pipe continuity test on Engineer's trains and other locomotive-hauled trains must be conducted by the Train Operator, assisted by another Train Operator or a Handsignalman or Competent Person. The brake pipe continuity test can be assisted by a Coupler Operator after coupling or uncoupling.	TO CO HS CP
D3.9.3	A brake test must be arranged by Traffic Controller or Yard Master when a train operated in Fully Automatic Operation mode is to be moved after having been stabled or left unattended for a period of time.	TC YM

D3.10 Defective Vehicles

D3.10.1 Trains or vehicles must **not** enter any mainline or connection track unless specifically authorised by the Chief of Railway Segment if: TC YM

- × any vehicle has no brakes, is unfitted or has a defective automatic air brake;
- × any vehicles are in any way unsafe to travel.

D3.10.2 Authorisation for a movement must **not** be given until the person in charge has confirmed that all agreed safety precautions are in place. TC YM

D3.11 Head and Tail Lights

D3.11.1 Trains must display at all times during train movements: TO

- two white headlights to the front;
- two red tail lights to the rear.

One headlight and one tail light (or reflective plate) may be used on mainland through trains or Engineer's trains.

D3.11.2 In the event of failure of head or tail lights: TO

- ✓ a handlamp (or reflective plate in place of tail lights) must be used;
- ✓ on Light Rail, to comply with the Road Traffic Regulations, a train must not operate in non-segregated road sections if the light cannot be readily replaced.

D3.11.3 Lights or reflective plates must **not** be displayed intermediately within a consist (except Light Rail Vehicles and Engineer's train on South Island Line). TO

D3.12 Traction Current Failure

D3.12.1 When there is a failure of the traction current supply to a train, the Train Operator must: TO

- ✓ coast to the next station or track access point, if possible;
- ✓ keep a sharp lookout for danger handsignals or any unusual circumstances;
- ✓ inform the Traffic Controller if traction current is not immediately restored, or if the train is stopped for any reason.

D3.13 Reporting Numbers/Destination Indicators

D3.13.1	Train Operators must ensure that reporting or trip numbers allocated in Working Timetables, the Traffic Notice or other publications are displayed at ends of a consist where displays or number plate brackets are available.	TO
D3.13.2	Train Operators must ensure that the correct destination, and route number where applicable, is displayed.	TO

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D4	Horns and Bells

People Involved	Train Operators

Purpose	To provide standardised warnings of train movements whilst minimising causing annoyance to the public

Risk	Lack of or improper warnings may result in serious incidents, particularly involving persons on or near tracks, or through failure to properly control unusual train movements

D4.1 Sounding

D4.1.1 To avoid nuisance to passengers and to residents near the railway, horns must be sounded only when absolutely necessary for safety, particularly between 2300 and 0700 hours. TO

D4.1.2 On Light Rail vehicles, bells must be used in preference to horns, to minimise noise nuisance and to be distinct from road traffic, except when essential.

D4.1.3 Except within a possession, horns and bells must be used when: TO

Situation	Horn	Bell (LRL)
starting from a station	N/A	1
passing a stationary train	N/A	1
passing a signal at danger	1 long	N/A
warning persons on or near track or platform edge, or warning that a stationary train is about to move	1 long	N/A
warning persons on platforms without platform doors of a non-stop train passing through	1 long	N/A
summoning assistance	1 long	N/A
acknowledging handsignal	1 short	2
starting an assisted train	2 short	2
calling for handsignals	3 short	3

Situation	Horn	Bell (LRL)
requiring either Train Operator during an assisting movement to stop	3 short	3
carrying out a Wrong Direction Movement	Intermittent short	3

D4.2 Repeating

D4.2.1 A warning must be repeated and the train brought to a stand if: TO

- ✓ persons on or near a track do **not** move clear;
- ✓ it is not acknowledged;
- ✓ it is acknowledged before persons move clear.

Movement must **not** resume until the area is safe.

D5	Train Despatching

People Involved	Traffic Controllers, Station Controllers, Train Operators, Intercity Operators, Station Operators

Purpose	To ensure timely operation of train services whilst assuring passenger safety

Risk	Passenger safety can be compromised if platform dwells are not properly supervised and controlled. Service regularity and safety can be affected by improper station stop procedures.

D5.1 General

D5.1.1 Traffic Controllers who are controlling a train in Fully Automatic Operation mode and Train Operators must endeavour generally to run trains according to Working Timetables or publications and Time Interval Clocks unless instructed. TC TO

D5.2 Passenger Safety

D5.2.1 Whilst it is important that passengers alight from and board trains as quickly as possible to avoid delays to the service, safety of passengers is always of paramount importance. TO

D5.2.2 Doors must **not** be opened until the Traffic Controllers who are controlling a train in Fully Automatic Operation mode or the Train Operator has ensured that it is safe to do so. TO

D5.2.3 To help ensure that passengers are not trapped in doors: TO

- ✗ doors must **not** be closed until passengers have been warned;
- ✓ if a cab or an outside door indicator does not confirm that doors are closed after a few seconds, doors must be reopened.

D5.3 Incorrect Stopping

D5.3.1	When a train comes to a stand at a platform and stops short of the prescribed stopping mark, it must be drawn forward in Coded Manual mode.	TO
D5.3.2	When a train has overrun a platform so that train passenger doors or platform doors cannot be opened safely, instructions must be obtained from the Traffic Controller.	TC TO
D5.3.3	The Traffic Controller must deploy a Train Operator to operate the train if the train is operated in Fully Automatic Operation mode and cannot be set back or drawn forward to the prescribed stopping mark automatically.	TC

D5.4 Intercity Through Trains

D5.4.1	After informed by a Train Operator or a Pilot Driver that train preparation is completed, the Intercity Operator must give an all right handsignal to the Station Operator.	ICOp
D5.4.2	When a through train is ready to be despatched, station staff must: ✓ check that an all right handsignal is given by the Intercity Operator; ✓ check that the fixed signal displays a proceed or caution aspect; ✓ switch on the Right Away indicator; ✓ be prepared to switch on the Emergency Stop indicator to stop the train in the event of any irregularity.	SO

D5.5 Last Trains

D5.5.1 Last trains to any destination, or connecting to or from a last train from any station at an interchange, must **not** depart until the Train Operator has: TC SC TO

- ✓ received an all right handsignal from the Station Controller;
- ✓ observed the Close Door Indicator (for East Rail Line); or
- ✓ been instructed by the Traffic Controller.

On Light Rail, these arrangements apply only at Tuen Ma Line interchanges where connections are maintained with last Light Rail trains.

D5.5.2 The above arrangements are not applicable to the last train operated in Fully Automatic Operation mode. The last train, which is operated in Fully Automatic Operation mode, must **not** depart until the Traffic Controller has received verbal confirmation from the Station Controller concerned. TC SC

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D6	Non-Stop Trains
People Involved	Traffic Controllers, Train Operators, Station Controllers, Operations Officials
Purpose	To describe arrangements for the safe operation of trains that will not stop at station platforms
Risk	Trains passing through platforms at line speed will cause safety hazards to passengers

D6.1 General

D6.1.1 Unless otherwise instructed by the Traffic Controller, the maximum speed of any non-stop train when passing a platform is confined as follows: TC TO

Train	Platform	Maximum speed*
Electric multiple unit/Light Rail vehicle	With platform doors	60km/h
	Without platform doors	22km/h
Intercity through trains	All platforms	60km/h
Engineer's trains	All platforms	40km/h

Note: * Under any circumstances, the maximum speed must **not** exceed the line speed.

If any potential hazard is observed when entering or passing through a platform, the speed must be reduced to 22km/h.

D6.1.2 Train Operators must pay particular attention when passing through a station where a platform door may be open. In such circumstances, the train speed must **not** exceed: TO

Door interlock or gate override switch	Guarded by station staff	Mode	Speed
Operated	Yes	Coded Manual	40km/h
	No		22km/h
Not operated	Yes	Restricted Manual	22km/h
	No		

D6.2 Unscheduled

D6.2.1 When it is necessary for a passenger train to be non-stop at a station where it is scheduled to call, the Traffic Controller must inform the Train Operator and the Station Controller, or for Light Rail, inform the Train Operator and the Operations Official in advance. Passengers must be informed accordingly. TC SC TO OO

D7	Movements in Depots and Sidings

People Involved	Duty Engineers In-Charge, Yard Masters, Train Operators, Competent Persons, Handsignalmen, Coupler Operator

Purpose	To specify the safe working requirements for trains and vehicles and restrictions on movements

Risk	Improperly authorised, controlled or conducted movements of trains and vehicles place persons and equipment on or near tracks at risk of injury or damage, which can be severe

D7.1 General Precautions

D7.1.1 Before any train or vehicle is moved, the Train Operator must ensure that: TO

- ✓ it is safe for movement;
- ✓ the Yard Master has authorised the movement.

D7.1.2 If the train or vehicle is operated in Fully Automatic Operation mode, the Yard Master must ensure that the tracks concerned are clear of obstructions, other vehicles and staff. YM

D7.1.3 When more than one Train Operator is required for a movement to be carried out safely, the Yard Master must appoint one Train Operator to be in overall charge. TO

D7.2 Restricted Qualifications

D7.2.1 Staff who have been issued with a restricted Certificate of Proficiency and Qualification may move trains or vehicles for test purposes on Workshop and Maintenance Tracks and on unsignalled sidings only subject to: YM CP TO

- ✓ the Yard Master and person making the movement must have a complete mutual understanding;
- ✓ the movement must be confined to the track on which the train is standing and within the limits of yellow line across Workshop and Maintenance Tracks;
- ✓ movements must not be made through points, except on unsignalled sidings;
- ✓ the train must not be moved within 15 metres of a fouling point, except on unsignalled sidings;
- ✓ the movement must be made by the person authorised only;
- ✓ the train must be driven from the leading end unless impracticable;
- ✓ the brakes must be operative on all vehicles;
- ✓ all Rules concerning movements in depots must be applied;
- ✓ when the movement is completed, the train must be properly stabled and secured.

D7.2.2 Observation of the train, equipment, etc, for which the movement is being made must be made by a second person, who must maintain close liaison with the person making the movement. CP TO

D7.3 Walkways and Crossings

D7.3.1 Trains must be brought to a stand before passing over a walkway or road level crossing and must **not** be re-started until it is safe to proceed. TO

This requirement is not applicable to the trains operated in Fully Automatic Operation mode.

D7.4 Permanent Speed Restrictions

D7.4.1 The speed of train or vehicle movements must **not** exceed the maximum speeds as follows: TO

Location / Train or Vehicle Movement		Maximum Speed
1	When coupling or uncoupling	3 km/h
2	Within 20 metres of a buffer or wheel stop, object or person on or near tracks	5 km/h
3	Over underfloor wheel lathe	5 km/h
4	Loading, unloading or laying cables	5 km/h
5	Through acid wash plant when carrying out train washing (except a speed restriction indicator is provided)	5 km/h
6	Through clear water wash plant when carrying out train washing (except a speed restriction indicator is provided)	8 km/h
7	Entering, departing or passing through maintenance and workshop tracks or unsignalled sidings (except moving on unsignalled tracks or sidings in KBD and SHD)	8 km/h
8	Propelling movement	8 km/h
9	At all times in East Rail Line depots and freight yards	10 km/h
10	At all times in TAD	10 km/h
11	Down end of Whampoa platform to Whampoa refuge siding	10 km/h
12	At all times on Stabling Tracks of HHS (except when the train is operated in Automatic Mode or Coded Manual mode)	10 km/h
13	At all times in HHS (except: • when the train is operated on Stabling Tracks; or • when the train is operated in Automatic Mode or Coded Manual mode)	15 km/h
14	Through Light Rail points and crossings	15 km/h
15	At all times in TMD and Light Rail sidings	15 km/h
16	Between 2300 and 0700 in KBD, TWD and CWD	15 km/h
17	At all times in WCD (except when the train is operated in Fully Automatic Operation Mode or Coded Manual mode)	15 km/h
18	Shunting movement	22 km/h

D7.4.2 The speed of train or vehicle movement on unsignalled tracks or sidings in Kowloon Bay Depot and Siu Ho Wan Depot must not exceed 8 km/h, except in a designated area supervised by a Rolling Stock person in-charge. The Rolling Stock person in-charge must: PIC YM

- ✓ has a mutual understanding with the Yard Master on the train or vehicle movements;
- ✓ seek the authorisation of Yard Master for the train or vehicle moving into or out of the designated areas;
- ✓ supervise the train or vehicle movements;
- ✓ ensure only one train or vehicle is allowed to move in the designated area at the same time;
- ✓ ensure the speed of the train or vehicle movements does not exceed 22 km/h;
- ✓ suspend the train or vehicle movements when being informed by the Yard Master that a road vehicle has to cross the track, unless proper protection is arranged.

D7.5 Shunting - General

D7.5.1 Before commencing a shunting movement: TO YM CP

- ✓ all persons involved must have a complete understanding of what is to be done;
- ✓ if there is a working party in the vicinity, the Competent Person must be informed and all persons must suspend work and move clear.

D7.5.2 If a Train Operator cannot be at the leading end: TO HS

- ✓ the movement must be controlled by a Handsignalman using flags, handlamp or other approved indication device;
- ✓ the Train Operator must be able to see clearly the handsignals throughout the movement. Otherwise, the movement must be carried out in stages or an additional Handsignalman must be deployed to relay the handsignals.

This requirement is not applicable to the train operated in Fully Automatic Operation mode.

D7.6 Shunting - Loose

D7.6.1 Loose shunting is permitted only: CP

- ✓ when the track concerned is clear of obstructions, other vehicles and staff;
- ✓ on workshop and maintenance tracks, including traversers;
- ✓ on an underfloor wheel lathe.

D7.6.2 Appliances must **not** be used for moving of wagons or other vehicles unless specifically: CP DEIC

- ✓ fitted for the purpose; or
- ✓ authorised by the Duty Engineer In-Charge;

Lifting gear must not be used except in the circumstances which are permitted by the Working Instructions.

D7.6.3	Wheel stops or a block must be used at the limit of the intended movement.	CP
D7.6.4	Movements must be made under supervision of a Competent Person and be controlled by a Handsignalman.	CP HS

D7.7 Workshop/Maintenance Tracks

D7.7.1	A Train Operator must **not** make any attempt to move a train, vehicle or car body until certain that: ✓ covers and all underframe equipment which could cause an obstruction are properly secured; ✓ the equipment is otherwise safe to be moved; ✓ there is nothing on or near the track which might cause an obstruction; ✓ depot folding doors or fencing gates are fully open; ✓ authorisation has been obtained from the Yard Master; ✓ all persons working in the vicinity have been warned, acknowledged the warning and moved clear.	TO

D7.8 Test Tracks

D7.8.1	When a depot test track is to be used for trains operating at speeds higher than 22km/h, the Competent Person in charge must: ✓ reach a complete understanding with the Duty Engineer In-Charge, Yard Master and Train Operator as to what is to be done; ✓ ensure that the track is properly protected; ✓ ensure that the track is clear before movement commences; ✓ ensure that any working party in the vicinity has been warned.	DEIC YM CP
D7.8.2	A working party on or near a track used for test purposes must be protected in accordance with the Rules for engineering work where clearance is not restricted on mainline and connection tracks.	CP

D7.9 Targets or Red Lights

D7.9.1 A train or vehicle on which a target, red flag or light is displayed must **not** be moved or have other trains or vehicles shunted against it. — TO, DEIC

D7.9.2 The target, red flag or light may be removed only by the person who displayed it or, in emergency, authorised by the Duty Engineer In-Charge after ensuring that it is safe to do so. — TO, CP, DEIC

D7.10 Brakes

D7.10.1 A train or vehicle or vehicle in a consist may be moved or shunted with express authority of the Duty Engineer In-Charge only when: — DEIC, YM, TO

- the brakes are **not** correctly functioning; or
- the brakes are isolated and **not** under direct control from the operative driving position.

D7.10.2 All persons involved in controlling or making the movement must have a complete mutual understanding of: — TO, HS

- ✓ the nature and extent of the defect or isolation;
- ✓ the effect of any incorrect equipment function;
- ✓ any additional precautions required to ensure safety of the intended movement.

D7.10.3 Vehicles on which no parking brake or handbrake is provided or on which the parking brake or handbrake is defective must **not** be moved unless coupled to a locomotive or other motive power unit. — CP, YM

D7.10.4 A winch or pinch bar may be used for accurate positioning provided that: — CP, YM

- ✓ a metal scotch curved to the wheel profile is bolted to the rail; or
- ✓ a block is secured cross the track at the limit of movement.

D7.10.5 The Yard Master must personally supervise all movements or arrange supervision by a responsible member of Rolling Stock staff. This person is responsible for removing targets and scotch blocks prior to the movement and for replacing them on completion. — YM

D7.11 Coupling

D7.11.1 If a Train Operator cannot be at the leading end or cannot see the coupler clearly, a Coupler Operator must be assigned to control the coupling. TO CO

D7.11.2 To avoid damage or displacement of scotch blocks, vehicles must be brought to a stand not more than 1 metre before contact when about to: TO CO

- ✓ couple to another vehicle;
- ✓ shunt against a vehicle which is scotched.

Coupling movements must be made at the minimum practicable speed.

D7.11.3 Vehicles must be coupled to a train before handbrakes are released and scotch blocks are removed. TO CO

D7.11.4 Vehicles must **not** be coupled or shunted against at both ends at the same time. TO CO

D7.11.5 After coupling, a visual and mechanical check must be made to ensure that: TO CO

- ✓ uncoupling levers are fully engaged, or the locking pins of the couplers are fully dropped with an appropriate tell-tale indication;
- ✓ there is no gap between coupler faces.

D7.12 Uncoupling

D7.12.1 If a Train Operator cannot be at the leading end or cannot see the coupler clearly, a Coupler Operator must be assigned to control the uncoupling. TO CO

D7.12.2 When uncoupling a vehicle on which no parking brake or handbrake is provided or on which the brake is defective, it must **not** be uncoupled until at rest in the position in which it is to be left and scotch blocks have been applied. TO CO

D8	Stabling and Securing
People Involved	Train Operators, Traffic Controllers, Station Controllers, Yard Masters
Purpose	To specify the method and means by which trains and vehicles are stabled and secured to ensure that they cannot or will not be moved in ways that will jeopardize operations or safety
Risk	Derailments, collisions and personal injuries can be caused by improper stabling and inadequate securing of trains and vehicles, particularly those with brake defects or no brakes

D8.1 General

D8.1.1 Before a train is stabled or is to be stopped for a period of time, the Train Operator must ensure that: TO

- ✓ the entire consist is clear of any walkway or level crossing;
- ✓ no part of the vehicle or consist is between a fouling point and the associated points;
- ✓ all windows and doors are closed.

D8.1.2 If a train is fit for operation in Fully Automatic Operation mode, the Yard Master must set it to sleep after the train is stabled in the Fully Automatic Operation area of depot. YM

D8.1.3 When a train operated in Fully Automatic Operation mode needs to be stabled at a station platform, the Traffic Controller must confirm with station staff that no person is on the train, and then arrange a Train Operator to set the train to sleep manually. TC SC

D8.2 Electric Multiple Units and Light Rail Vehicles

D8.2.1 When stabling an electric multiple unit or Light Rail vehicle: TO

- ✓ the Mode Selector, Hostler Master Switch must be in the Shut Down or Off position;
- ✓ the Emergency Switch, where provided, must be in the Normal position;
- ✓ scotch blocks and "SCOTCH BLOCK" targets must be applied if required;
- ✓ pantographs must be lowered unless instructed;
- ✓ if pantographs are raised, air-conditioning must be switched off to minimise noise nuisance.

D8.3 Locomotives

D8.3.1 When stabling a locomotive: TO

- ✓ the automatic air brake and handbrake or parking brake must be fully applied;
- ✓ the Mode Selector must be in the Shut Down position;
- ✓ pantographs of electric locomotives must be lowered and traction batteries isolated, except when battery charging is required.

D8.4 Wagons and Vehicles

D8.4.1 Wagons used in Engineer's trains which are not coupled to a locomotive must be stabled with at least half of the consist handbrakes applied, including those on the outermost vehicles. Additional handbrakes must be applied where practical or when there is a risk that the brake force may be inadequate. TO

D8.5 Scotch Blocks

D8.5.1 Scotch blocks must be applied on both sides of a wheel: TO

Consist		Depot	Other	No. of Wheels
Car	All times	✓	✓	1
Electric multiple unit or Light Rail vehicle	When air or parking brake defective	✓	✓	2 (i.e. at both ends of consist)
Locomotive, Wagon or Vehicle	When unattended	*	✓	1
	When air or handbrake defective	✓	✓	2 (i.e. at both ends of consist)
Note	* Scotch blocks must be applied if the track is on or if there is any doubt as to whether the track is on a gradient			

D8.5.2 Scotch blocks are provided on all locomotives and at other locations where individual unbraked vehicles may have to be stabled and: TO

- the Train Operator is responsible for placing them and "SCOTCH BLOCK" targets (or red light or flag, if no target is available) on the controls or at both ends of the consist;
- they may be removed by the person subsequently preparing the consist for movement.

D8.6 Defective Vehicles

D8.6.1	When stabling a vehicle on which no parking or handbrake is provided or on which the brake is defective, the vehicle must **not** be uncoupled until it is at rest and scotch blocks have been applied.	TO
D8.6.2	Targets bearing the legend “NO BRAKES” must be displayed at both ends of a consist containing an unbraked vehicle or a vehicle which has a defect which prevents normal response to the brake controls or affects normal action of the brakes.	TO
D8.6.3	Targets bearing the legend “NOT TO GO” must be placed on the driving controls or at both ends of a consist or vehicle which is not to be moved.	TO

D9	Engineer's Trains
People Involved	Traffic Controllers, Yard Masters, Engineer's Persons-in-Charge, Competent Persons, Train Operators, Handsignalmen, Station Controllers
Purpose	To describe safe working arrangements for trains and vehicles in depots, on mainline and connection tracks, and at worksites
Risk	Improper working exposes tracks, equipment and persons on or near them to risk of damage or injury from train movement

D9.1 General

D9.1.1 A mechanised Engineer's vehicle is permitted on a signalled track only if: TC YM EPIC CP TO

- ✓ it conforms to the definition of a train; or
- ✓ it forms part of the consist of a train; or
- ✓ the Engineer has possession of the track concerned.

D9.1.2 A track trolley may be used: TC YM EPIC CP

- ✓ in an Engineer's possession; or
- ✓ outside depot limits during non-traffic hours; or
- ✓ in a depot, with consent of the Yard Master, and if accompanied at all times by a Handsignalman responsible for its protection. Train movement in Fully Automatic Operation mode must be suspended on the section concerned by operating the protection keyswitches or local control panel.

D9.1.3 When not in use, track trolleys must be placed clear of all tracks and secured by chain and padlock. EPIC CP

D9.2 Motive Power

D9.2.1 Trains must be worked by one or more locomotives coupled at one or both ends of the consist. Where jumper receptacles are provided, locomotives must be worked in multiple, unless it is necessary for locomotives to work in tandem. TO

D9.3 Mode of Operation

D9.3.1 Except within depot limits and Engineer's possessions, trains must be operated in Coded Manual mode or according to fixed signals or road traffic signals, as appropriate, at all times. TO

D9.3.2 Engineer's trains on Light Rail tracks must **not** exceed: TO
- ✗ 22km/h if the consist includes hauled vehicles;
- ✗ 30km/h for self-propelled vehicles.

D9.4 Movements to Worksite

D9.4.1 Trains must be worked to the nearest siding or reversing point prior to running of the last passenger train, under direction of the Traffic Controller. TC TO

D9.4.2 Movements after the last passenger train must **not** affect traction current switching off times. TC

D9.4.3 Impulse fans must be switched off for the passage of Engineer's trains and while they are stabled or working at a worksite. TC

D9.4.4 Arrangement for any person (except the Rolling Stock staff and train staff who are in the course of their duties) to ride on an Engineer's train to worksite must be pre-approved at the Engineering Works meeting and published in the Traffic Notice. The person in charge must: All
- ✓ agree the means of communication with the Train Operator;
- ✓ if being the only team member on-board, stay in the driving cab with the Train Operator throughout the journey to worksite;

- ✓ if accompanied by other team members, ensure all persons boarded before departure and stay at a safe and appropriate place on the train throughout the journey to worksite;
- ✓ prohibit any person on-board from leaving the train before arriving at the worksite. If emergency recovery work for the train has to be carried out and track access is required, communicate with the Train Operator to obtain authorisation from the Traffic Controller or Yard Master and agree the protection arrangements.

D9.5 Movements within Worksite

D9.5.1 Trains must **not** be moved before protection is applied and possession is taken by Engineer's Person-in-Charge. EPIC CP TO

D9.5.2 Fixed signals must **not** be cleared nor must Automatic Train Protection codes be used for movements into, through, or out of a possession except when specified in a Traffic Notice or publication. EPIC CP

D9.5.3 When points are required to be used: TC SC YM EPIC CP

- the Engineer's Person-in-Charge and Traffic Controller, Station Controller or Yard Master must have a complete mutual understanding of what is to be done;
- they must be set and locked by making a request to the Traffic Controller, Station Controller or Yard Master; or
- the Engineer's Person-in-Charge must agree on the local manual operation of points with the Traffic Controller, Station Controller or Yard Master, and then give consent to the Competent Person.

D9.5.4 The Engineer's Person-in-Charge is responsible for all train movements within an Engineer's possession, regardless of the number of worksites. EPIC

D9.5.5	After reaching a complete understanding on the means of communication, arrangement of points, and the limit and route of vehicle movements, the Engineer's Person-in-Charge can delegate a Competent Person to authorise vehicle movements within the protection of an individual worksite.	EPIC CP
D9.5.6	Within a limit of movement, only one vehicle can be authorised to move at any one time, except when: • the vehicles are operated in Automatic mode or Coded Manual mode; or • two moving vehicles are required to carry out an overhead line replacement work. For the overhead line replacement work carried out by 2 moving vehicles, these vehicles must be: ✓ operated at a speed of 5 km/h or below; ✓ kept at least 20 metres apart; ✓ operated from the leading driving cab; ✓ travelling in the same direction.	EPIC
D9.5.7	Before instructing the Train Operator to move the vehicle each time, the Engineer's Person-in-Charge or Competent Person must ensure that: ✓ all staff on a vehicle have been warned; ✓ all staff near the vehicle have been warned and moved clear; ✓ the tracks concerned are clear of obstructions and staff; ✓ the points concerned are set at a correct position; ✓ the movement will not conflict with any other vehicles; ✓ the Train Operator is informed of the limit of movement and the action to be taken on completion of the movement.	EPIC CP HS TO
D9.5.8	The Rules concerning shunting of vehicles in depots and sidings also apply to Engineer's possessions.	EPIC CP HS

D9.6 Movements from Worksite

D9.6.1 Trains must not commence returning to a depot or siding: TC TO

- × before traction current is switched on on lines where it is normally switched off; or
- × until 5 minutes before the scheduled time of operation of the first train shown in the Working timetable or other publication;

unless specifically authorised by the Traffic Controller.

D9.6.2 The Rules concerning riding on an Engineer's train to the worksite also apply to riding on an Engineer's train to return to a depot or siding. All

D9.7 Securing Vehicles

D9.7.1 The air brake must be continuously available and applied on all trains standing at a worksite. When a train is to remain stationary for a period or is to be left unattended, handbrakes and scotch blocks must be applied. EPIC CP TO

D9.7.2 Vehicles must **not** be detached from a train on a mainline or connection track except within an Engineer's possession. All vehicles to be detached must be secured by fully applying the handbrakes on each vehicle and, where appropriate, by use of scotch blocks. TO

D9.8 Loading and Unloading

D9.8.1 Trains must not be loaded or unloaded on tracks with overhead line equipment unless traction current has been switched off and the equipment has been earthed except with specific authorisation from the Traffic Controller or Yard Master and provided: — TC YM EPIC CP TO

- × staff do not climb or stand on any material within vehicles and at all times stand on the floor;
- × no part of a tool used by staff projects above the top of the head;
- × the floor of the vehicle is not more than 1.5 metres above rail level;
- × access is not gained by climbing over the side of a vehicle and there is clear standing space;
- ✓ when visibility of the overhead line equipment is reduced, such as at night or in tunnels, suitable precautions such as lighting are taken to ensure safety of the operation.

D9.8.2 When it is necessary to load or unload or work on a train or vehicle in motion: — EPIC CP TO

- × speed must not exceed 5km/h;
- ✓ before instructing the Train Operator to move the train, the Engineer's Person-in-Charge or Competent Person must ensure that all persons are warned and are in a safe place.

D9.9 Securing of Loads

D9.9.1 Before a train is moved, the Engineer's Person-in-Charge or Competent Person must ensure that all materials are properly secured so that they will not be displaced by any movement of the train or by operation of tunnel ventilation equipment. If necessary, rope, tensioner or chain must be used, tied to the spigots on wagon solebars. — EPIC CP TO

D9.9.2 The Train Operator must personally check that loads are properly secured. Unsecured loads must be reported to the Yard Master in a depot or to the Engineer's Person-in-Charge. — TO

Section E

Special Train Working

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E1	Trains Stopped by Exceptional Cause

People Involved	Traffic Controllers, Station Controllers, Train Operators, Operations Officials

Purpose	To describe the actions to take to minimise the consequences of incidents in which trains are detained or delayed for extended periods

Risk	Extended delays can cause events which themselves can cause hazardous consequences

E1.1 General

E1.1.1 In the event of a train or vehicle being stopped by exceptional cause, the Train Operator or the Traffic Controller who is controlling the train in Fully Automatic Operation mode, must: TC TO

- ✓ immediately ascertain the cause;
- ✓ take immediate action to prevent a train approaching on an adjoining obstructed track;
- ✓ inform the Traffic Controller and request assistance if required;
- ✓ inform passengers appropriately;
- ✓ take any possible action to rectify the defect and clear the track.

E1.2 Signal Diagrams - Observation

E1.2.1 If a Station Controller observes from a signal diagram that a train is detained at or between stations for an unusually long time for no apparent reason, the Traffic Controller must be informed. SC

E1.2.2 Immediate action must be taken to determine the cause of any delay. SC

E1.3 Protection of Obstructed Line

E1.3.1 The Traffic Controller or Station Controller must make immediate arrangements to prevent any trains from approaching an obstruction on a track. — TC SC

E1.4 Detrainment

E1.4.1 Detrainment between stations must be authorised by the Traffic Controller, except in extreme emergency when a severe life-threatening hazard exists. — TC SC TO

E1.4.2 Every effort must be made to run trains to the next station or track access point to avoid detrainment to the track or: — TC TO

- ✓ if necessary, a wrong direction movement or assistance from the following train must be arranged;
- ✓ where cross-adits are available in tunnel sections or on open sections, detrainment should be made to an empty train on the adjacent track.

E1.4.3 If detrainment to the track is necessary: — TC SC TO

- ✓ train movements in the affected area must cease;
- ✓ whenever possible, passengers must be moved to the next track access point or egress point in the normal direction of travel for the track on which the train is standing;
- ✓ in case of extreme urgency such as fire or smoke or traction current failure, passengers may be moved to the next track access point or egress point in the wrong direction of travel for the track concerned;
- ✓ tunnel and trackside lighting must be switched on;
- ✓ assistance from Operations Officials (for Light Rail) or station staff must be available, except in extreme emergency;
- ✓ staff, if possible provided with handlamps, radios and loudhailers, must be posted at points, crossings, other hazardous locations and places where passengers may deviate from the selected route;
- ✓ impulse fans must be switched off for the safety of detrained passengers.

E1.4.4 Baggage left on a train must be removed and conveyed to the destination of the train or other designated collection point as soon as practicable. TC SC TO

E1.4.5 The track or tracks affected must be visually inspected to ensure that they are clear before trains are authorised to operate. TC SC

E1.5 Traction Current Switching

E1.5.1 To avoid rapid deterioration of the internal ambient conditions of cars and severe disruption, traction current must **not** be switched off except: TC

- to prevent arcing or if the overhead line equipment is seriously displaced;
- to enable work above car or vehicle floor level.

Preference must be given to lowering pantographs.

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E2	Flooding
People Involved	Traffic Controllers, Yard Masters, Train Operators
Purpose	To ensure that track flooding is detected and appropriate action taken
Risk	Flood water entering equipment under electric trains will cause severe damage

E2.1 Minor Flooding

E2.1.1 If water on tracks is above plinth or sleeper level but below the top of running rails, in order to avoid waves which may affect bogie- or underframe-mounted traction equipment: TC YM TO

- ✓ train speed must **not** exceed 22km/h;
- ✓ Light Rail vehicles must **not** exceed 40km/h.

E2.2 Significant Flooding

E2.2.1 If water on tracks has reached the top of running rails: TC YM

- ✓ train services must be stopped in the affected area;
- ✓ Light Rail vehicles may continue to operate at a maximum speed of 5km/h until water is 100mm above top of rail.

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E3	Track Circuit Reconfiguration
People Involved	Traffic Controllers, Station Controllers, Train Operators
Purpose	To define the method of and restrictions on working to minimise use of Restricted Manual mode in order to maintain scheduled services
Risk	Inadequate precautions before implementation and during working can cause collisions

E3.1 General

E3.1.1 In the event of failure of a reconfigurable track circuit, the Traffic Controller may introduce revised working under these conditions: TC

- ✓ a visual inspection is made by a Train Operator or Operations Official to determine if there is any obvious cause or hazard;
- ✓ all trackside and trainborne automatic train protection systems must be fully functioning;
- ✓ a temporary speed restriction of **not** exceeding 40km/h is instructed to all trains running over the failed track circuit and the track circuit(s) ahead until it is confirmed that the failure is not caused by a broken rail;
- × reversing movements are **not** authorised;
- × consists shorter than the maximum length electric multiple units, including Engineer's trains must **not** operate through the affected area.

E3.2 Withdrawal

E3.2.1 Reconfiguration working must be stopped when: TC

- ✓ normal working can be resumed;
- ✓ there is any other occurrence affecting train working.

E3.3 Implementation

E3.3.1 When tracks circuits are to be reconfigured, the Traffic Controller must: TC

- ✓ lock all points in the route;
- ✓ instruct an Operations Official to travel on a train in Restricted Manual mode to check if there are symptoms of track failure;
- ✓ instruct the Station Controllers at the commencement and termination points to place indicators at the headwalls;
- ✓ impose a temporary speed restriction in 40km/h over the failed track circuit until it is confirmed by Engineer that the failure is not caused by a broken rail.

E3.4 Indicators

E3.4.1 When instructed by the Traffic Controller, the Station Controllers at the commencement and termination points of the reconfigured area must place indicators at the headwalls. SC

E3.5 Train Working

E3.5.1 Train Operators of each train required to proceed through the reconfigured area must: TO

- ✓ obey the train hold command at the commencement station;
- ✓ depart the commencement station with a speed of **not** less than 30km/h when the rear of the train passes the headwall or takes no longer than 30 seconds to clear the platform track.

E4	Pilotman Working
People Involved	Traffic Controllers, Train Operators, Handsignalmen, Pilotmen
Purpose	To safely minimise headways during multiple track circuit or interlocking area failures
Risk	Lack of attention to track conditions, the alignment and failure to comply with line of sight operating techniques can result in collisions

E4.1 General

E4.1.1 Pilotman working may be introduced between stations when successive trains must be operated in Restricted Manual mode except through locations where points are required to be moved for trains when a track circuit has failed. TC

E4.2 Withdrawal

E4.2.1 Pilotman working must be stopped when: TC

- normal working can be resumed;
- there is any other occurrence affecting train working.

E4.3 Implementation

E4.3.1 When authorised by the Chief Controller to implement Pilotman Working, the Traffic Controller must: TC

- ✓ lock the controls of any points within the affected area;
- ✓ appoint a senior Operations Official to take local control;
- ✓ arrange for suitably qualified staff to be appointed as Pilotmen at the station at the commencement of the affected section(s);
- ✓ appoint a Handsignalman at the commencement point;
- ✓ appoint a Handsignalman at the termination point if there are limitations of the environmental control system or structures and instruct the Handsignalman to ensure that the number of trains entering and within the section does **not** exceed the limitations;
- ✓ instruct the Handsignalman at the commencement point to authorise Train Operators to pass specified fixed signals at danger or to proceed when no proceed cab signal is displayed in specified track circuits.

E4.4 Movement Control

E4.4.1 The Handsignalman appointed at the commencement point must: HS

- ✓ ascertain if there are any other conditions affecting train working, e.g. local handsignalmen;
- ✓ authorise each Train Operator and Pilotman to pass any fixed signals at danger or track circuits in which there is no proceed cab signal;
- ✓ ensure that trains depart at headways of not less than two minutes;
- ✓ maintain a register of each departing train reporting number and leading car number;
- ✓ record the arrival of each train at the termination point;
- ✓ ensure the number of trains within the affected section does **not** exceed limitations imposed by the environmental control system or structures;
- ✓ hold trains if instructed by the Traffic Controller.

E4.4.2 The Handsignalman at the termination point must: HS

- ✓ inform the Handsignalman at the commencement point of the train number and its leading car number of each train;
- ✓ record the movement in a register.

E4.5 Movement Supervision

E4.5.1 Pilotmen must be Train Operators, Operations Officials or qualified station staff familiar with the section affected. PL

E4.5.2 Pilotmen must: PL
- ✓ ascertain full details of train working arrangements from the senior Operations Official and Handsignalman;
- ✓ board each train and travel with the Train Operator;
- ✓ ensure the Train Operator drives at caution speed;
- ✓ keep a sharp look out for a train ahead or handsignals and be prepared to operate the emergency stop device.

E4.5.3 On arrival at the termination point of the movement, a Pilotman must return to the commencement point. PL

E4.6 Train Working

E4.6.1 Train Operators must: TO
- ✓ obtain authority to proceed in Restricted Manual mode;
- ✓ obtain authority to pass fixed signals at danger or proceed when no proceed cab signal is displayed;
- ✓ proceed at caution speed.

E5	Platform and Signal Overruns
People Involved	Traffic Controllers, Yard Masters, Train Operators
Purpose	To safely deal with trains which have overrun a platform or fixed signal
Risk	Unauthorised and improper train movements can result in collision or derailment.

E5.1 General

E5.1.1 The Train Operator must inform the Traffic Controller or Yard Master and act on instructions received when: TO TC YM

- ✓ a train has overrun a platform so that passenger doors cannot be opened safely;
- ✓ a train has passed a fixed signal at danger.

E5.1.2 The Traffic Controller or the Yard Master must deploy a Train Operator to operate the train when the train operated in Fully Automatic Operation mode: TC YM

- ✓ cannot be set back to the prescribed stopping mark of the platform automatically after overrunning a platform;
- ✓ has passed a fixed signal at danger.

E5.2 Implementation

E5.2.1 When a train has overrun a platform or fixed signal, before authorising a setting back movement, the Traffic Controller or Yard Master must: TC YM

- ✓ ensure that the track circuit behind the train is indicated as occupied by the train concerned;
- ✓ ensure that there are no trailing points within the length of the movement.

E5.2.2 If there are no trailing points in the vicinity of the train, the Traffic Controller or Yard Master must instruct the Train Operator to select Restricted Manual mode and to reverse the train to the correct stopping point. TC YM

E5.2.3 If there are trailing points in the vicinity, the Traffic Controller or Yard Master must: TC YM

- ✓ confirm that they are properly detected and set for the movement;
- × **not** authorise movement if the points are not properly set and locked or there is a possibility that the points may be damaged.

E5.2.4 If a train overruns a platform by more than 2 cars' length, the Train Operator must normally be instructed to proceed to the next station, except: TC TO

- ✓ when essential for customer service, without causing excessive delay to the train service;
- ✓ in the case of the last train at night.

E6	Wrong Direction Movements
People Involved	Traffic Controllers, Station Controllers, Train Operators
Purpose	To enable trains to proceed safely in the wrong direction of running not under the control of fixed signals owing to obstruction of the normal track
Risk	Incorrect protection and implementation can cause catastrophic collision

E6.1 General

E6.1.1 A wrong direction movement (ie any movement on a mainline or connection track **not** in the normal direction of running which is **not** controlled by fixed signals) must **not** be made except when a track is obstructed and it is necessary for one or more trains to carry out extended movements over a series of track circuits. TC SC TO

E6.1.2 Wrong direction movements must be authorised by the Traffic Controller. TC

E6.2 Withdrawal

E6.2.1 Wrong direction working arrangements must be stopped when: TC TO

- ✓ normal working can be resumed;
- ✓ communication between the Train Operator and Traffic Controller fails;
- ✓ there is any other occurrence which may affect train working.

E6.3 Protection

E6.3.1 A wrong direction movement must be protected by one or more of these methods: TC SC

- ✓ maintaining fixed signals at danger;
- ✓ a standing train or vehicles; or
- ✓ setting and locking, or securing, points giving access to the section affected to prevent other trains entering it.

E6.3.2 Emergency stop switches must be operated at the commencement and termination points and all intermediate stations, where available. SC

E6.4 Implementation

E6.4.1 When it is necessary for one or more trains to carry out a wrong direction movement, the Traffic Controller must: TC

- ✓ inform the Station Controllers at the commencement and termination points of the movement and at any intermediate stations;
- ✓ switch control of all interlocking areas affected to manual mode;
- ✓ protect the movement;
- ✓ ensure a danger handsignal is displayed at the termination point;
- ✓ ensure all track circuits over which movement is to be made are unoccupied;
- ✓ operate train hold functions for all platforms affected by the movement;
- ✓ ensure the Train Operator completely understands the arrangements and the termination point of the movement;
- ✓ instruct the Train Operator to change ends and to select the appropriate radio channel;
- ✓ when all is in order, set and clear the required routes, if applicable;
- ✓ authorise the Train Operator to proceed;
- ✓ ensure that fixed signals are restored to danger when the train has passed them;
- ✓ when the movement is complete, resume normal working.

E6.5 Train Working

E6.5.1 The Train Operator of a train required to move in the wrong direction must: TO

- ✓ reach a complete mutual understanding with the Traffic Controller of what is to be done;
- ✓ proceed to the driving cab which will be leading while travelling in the wrong direction;
- ✓ select the appropriate radio channel;
- ✓ select Restricted Manual mode and proceed as instructed at caution speed;
- ✓ sound the horn intermittently from time to time when possible without causing annoyance;
- ✓ stop and obtain instructions at the termination point or at any signal at danger.

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E7	Single Line Working
People Involved	Traffic Controllers, Station Controllers, Train Operators, Pilotmen, Handsignalmen
Purpose	To enable trains to operate in both directions on one track of mainline when the adjacent track is obstructed and normal signal control is not available
Risk	Incorrect protection and implementation can result in catastrophic head-on collision

E7.1 General

E7.1.1 Single line working **not** under control of fixed signalling may be introduced: TC

- ✓ under local control by a single Pilotman;
- ✓ between crossovers over the shortest possible distance.

E7.2 Withdrawal

E7.2.1 Single line working must be stopped when: TC

- ✓ normal working can be resumed;
- ✓ there is any other occurrence that may affect train working.

Single line working may be withdrawn by the Pilotman only.

E7.3 Implementation

E7.3.1 When authorised by the Chief Controller to implement Single Line Working, the Traffic Controller must: TC

- ✓ appoint a senior Operations Official to take local control as Pilotman;
- ✓ appoint Handsignalmen at the commencement and termination points;
- ✓ appoint Handsignalmen at any points in the single line which must be operated locally for train movements.

E7.4 Movement Control

E7.4.1 The Pilotman must: PL

- ✓ wear a red armband, or flag in the absence of an armband, on the left arm;
- ✓ ensure that the obstruction is properly protected as for an Engineer's possession;
- ✓ confirm with the Traffic Controller that all fixed signals are maintained at danger and will only be cleared on instructions from the Pilotman;
- ✓ check whether there are any temporary speed restrictions that will apply to any part of a train movement;
- ✓ check that there is room between the necessary protection on the obstructed track and the crossovers at each end of the single line;
- ✓ arrange for all wrong direction movements over the single line to be controlled by handsignals;
- ✓ inform the Station Controller at each station where platform working may be affected of the arrangements;
- ✓ inform the Traffic Controller when all arrangements have been made and the precise locations of Handsignalmen.

E7.4.2 The Pilotman must: PL TO

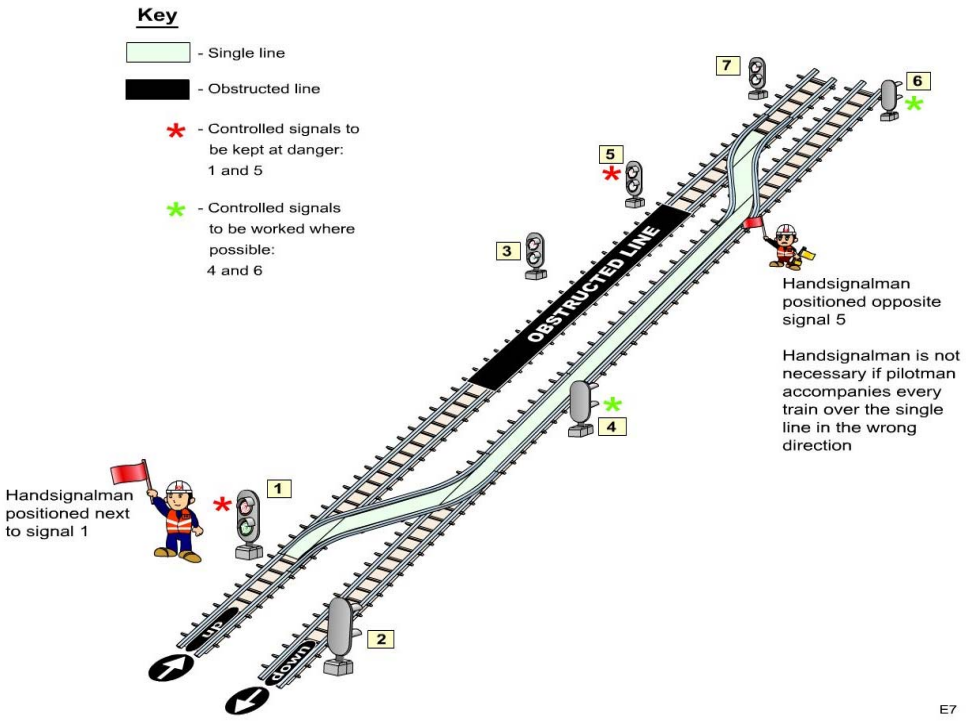
- ✓ be present and personally authorise movements that will enter or affect the single line;
- ✓ before authorising the movement, obtain permission from the Traffic Controller;
- ✓ instruct each Train Operator of the arrangements and of the crossovers to be used;
- ✓ inform each Train Operator of the precise locations where Handsignalmen are positioned to control wrong direction movements;
- ✓ inform Train Operators whether there is a Handsignalman to control wrong direction movements back to the proper line;
- ✓ before authorising a Train Operator to pass a signal at danger, obtain permission from the Traffic Controller.

E7.5 Movement Supervision

E7.5.1 The Pilotman must: PL

- ✓ if there is no Handsignalman to control movements back to the proper line, accompany each train and instruct the Train Operator to stop at the signal controlling movement through the crossover;
- ✓ if the crossover is facing, instruct the Train Operator to obtain authority from the Traffic Controller to proceed over the crossover;
- ✓ if the crossover is trailing, instruct the Train Operator to obtain instructions from the Traffic Controller about drawing forward and setting back over the crossover.

The Pilotman must travel with the Train Operator of a train proceeding through the single line unless consecutive trains are to operate, in which case the Pilotman must travel with the Train Operator of the last such train.



Protection Arrangements for Single Line Working

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E9	Temporary Speed Restrictions
People Involved	Engineering Officials, Operations Officials, Traffic Controllers, Station Controllers, Train Operators, Handsignalmen
Purpose	To cater for situations where, owing to track condition or other circumstances, trains are not permitted to run at the normally permitted maximum speed
Risk	Failure to apply correct protection, communicate details or failure of a train to comply with a speed restriction can result in derailment or damage

E9.1 Planned

E9.1.1 When it is necessary for trains to travel at reduced speed temporarily, Train Operators must be informed through the Traffic Notice or other publications, which must include details of Automatic Train Protection speed restriction.

EO
OO
TC
SC
TO

E9.2 Unplanned

E9.2.1 When advance notice of a temporary speed restriction cannot be given, the Engineering or Operations Official responsible for imposing it must:

- ✓ inform the Traffic Controller;
- ✓ inform the Station Controller;
- ✓ appoint a Handsignalman at the station or depot limit on the approach side of the section affected, except Light Rail.

EO
OO
TC
SC

E9.2.2	The Traffic Controller must immediately: ✓ arrange adjustment of the speed restriction, except Light Rail; ✓ inform Train Operators of the details of temporary speed restrictions; ✓ impose a restriction at the level recommended by the official requesting it or as appropriate to the circumstances.	TC
E9.2.3	Except on Light Rail, the Handsignalman must: ✓ display a danger handsignal to each approaching train; ✓ inform each Train Operator of the locations where the restriction starts and ends and the maximum speed permitted; ✓ give instructions to proceed in Coded Manual mode; ✓ display a caution handsignal to authorise the train to proceed.	HS
E9.2.4	Except on Light Rail, the Train Operator must: ✓ proceed in Coded Manual mode and ensure that the speed is reduced to the maximum speed permitted through the affected section; ✓ if the restriction is at a terminus or reversing point and no Handsignalman is provided, inform a relieving Train Operator.	TO
E9.2.5	On Light Rail, the Train Operator must act on the Operations Official's instruction when local control has been taken.	TO

E9.3 Indicators – All Lines (except East Rail Line and Light Rail)

E9.3.1 Temporary speed restrictions may be shown to Train Operators by means of indicators: SC TO HS

- A Warning Board displaying the maximum speed permitted and the track circuits affected at the headwall on the approach side.

(*or similar on yellow ground*)

- A Commencement Indicator bearing the speed limit at the location where the restriction commences.

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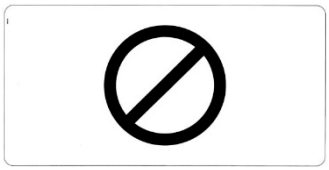
- A Termination Indicator at the end of the restriction. An indicator is also provided at the next station headwall.

 or 

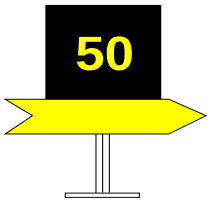
E9.3.2 Where indicators are used: TC TO HS

- ✓ a Handsignalman must be provided until the end of the traffic day on which the restriction is imposed, even if the restriction lasts longer;
- ✓ Train Operators are not required to obtain additional authorisation;
- ✓ Train Operators must be informed of the restriction by notice at the time of coming on duty.

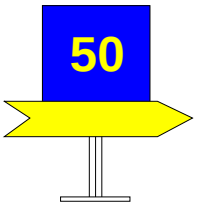
E9.4 Indicators – East Rail Line

E9.4.1 Temporary speed restrictions may be shown to Train Operators by means of indicators: TO

- Pre-warning indicator located 1000 metres on the approach to the restriction. The arrow shows the track on which the restriction applies.



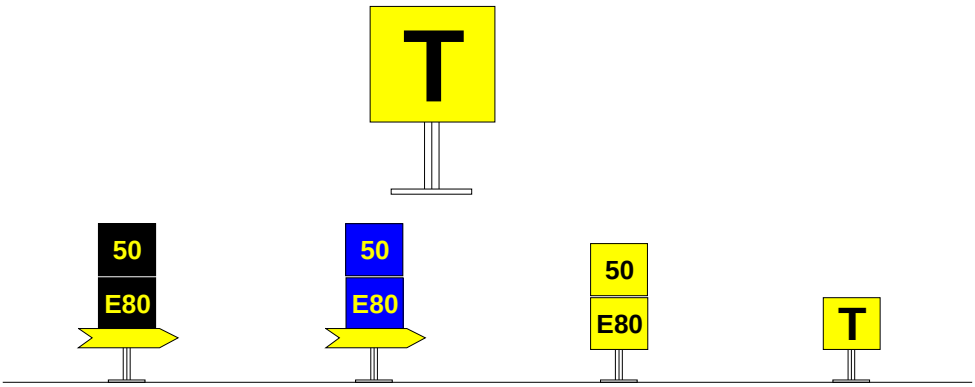
- Warning indicator located 500 metres on the approach to the restriction. The arrow shows the track on which the restriction applies.



- Commencement indicator at starting point of the restriction.

The speed shown is applicable to all trains unless a subsidiary indicator bearing a prefix ‘E’ is also displayed showing the maximum speed permitted by electric trains. TO

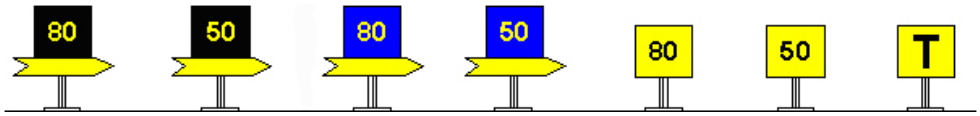
- Termination indicator located 300 metres beyond the end of the restriction.



Typical arrangement of Temporary Speed Restriction Indicators

Electric trains may resume normal operation at the indicator. Other trains with consists longer than 300 metres may resume speed from a distance beyond the indicator when the entire train consist length is clear of the restriction.

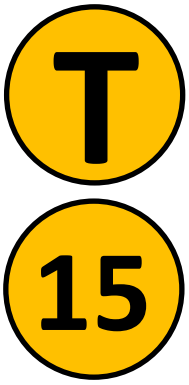
E9.4.2 Where there is a series of speed restrictions, indicators will be placed:



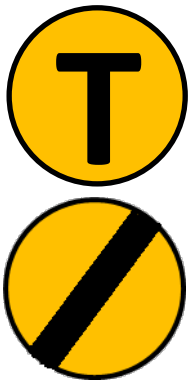
E9.5 Indicators – Light Rail

E9.5.1 Temporary speed restrictions may be shown to Train Operators by means of indicators: TO

- Commencement indicator located at the starting point of the speed restriction.



- Termination indicator located at the end point of the speed restriction.



E9.6 Removal

E9.6.1 When a temporary speed restriction is introduced for engineering reasons, it must **not** be removed except with authority of the Engineering Official concerned. TC EO

Section F

Engineering Work

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F1	General Requirements
People Involved	Engineer's Persons-in-Charge, Authorised Persons, Competent Persons, Traffic Controllers, Station Controllers, Yard Masters, Security Inspectors, Worksite Person-in-Charge
Purpose	To describe control measures required for engineering work, including requirements for approval, supervision, and time restrictions on certain types of work
Risk	Lack of prior approval, improper control, supervision and management of work can cause hazards to staff, including those not directly involved in the work, and to passengers, and place the safety of operations at risk

F1.1 Consent for Work

F1.1.1 When work is to be done at any location, details must normally be submitted for approval by the authorising parties. — EPIC AP CP

F1.1.2 Before starting work, the Competent Person must obtain consent from: — CP

- ✓ the person responsible for the premises;
- ✓ the person responsible for control or supervision of any equipment involved.

F1.1.3 The Competent Person must: — CP

- ✓ produce valid identity and evidence of qualification to do the work;
- ✓ provide evidence of authority for the work;
- ✓ explain the purpose and nature of the work;
- ✓ be aware that work will be permitted only if it will cause a minimum of interference with normal operation and will not affect safety;
- ✓ obtain identity cards, keys or access cards;
- ✓ agree a means of communication.

F1.1.4	If the person responsible for the premises is not satisfied, the matter must be referred to the maintenance section concerned or to the Traffic Controller, as appropriate.	SC YM SI
F1.1.5	Consent to the work may be refused if normal operations or safety may be adversely affected.	SC YM SI
F1.1.6	On completion, the Competent Person must: ✓ ensure the area concerned is clean and safe; ✓ inform the person responsible for the premises; ✓ inform the person responsible for control or supervision of any equipment involved.	CP

F1.2 Supervision

F1.2.1	When work is to be done on or near a section of track, at stations, ancillary buildings, depots or other railway premises a Competent Person and a Worksite Person-in-Charge must be appointed for each working party. The Competent Person can also be appointed to take up the role of the Worksite Person-in-Charge if fits to do so.	CP WPIC
F1.2.2	Before starting of work, the Competent Person and Worksite Person-in-Charge must agree the details of work.	CP WPIC
F1.2.3	An Engineer's Person-in-Charge must be appointed to take charge of each possession.	EPIC
F1.2.4	Where there are 2 or more worksites within one possession, one Engineer's Person-in-Charge must be appointed to take charge of the possession, and each worksite must then be supervised by a Competent Person and a Worksite Person-in-Charge, and where necessary, protected by a Competent Person.	EPIC CP WPIC

F1.3 Works Requiring Traffic Notice Publication

F1.3.1 Work must be done only when agreed and details, including measures required to mitigate risk, have been published in a Traffic Notice or other publication, which may include changes to previously published details, if it: EPIC CP

- affects the security or control of signalling equipment; or
- reduces available capacity of the power distribution or traction current systems; or
- interferes with the normal operation of telecommunications equipment; or
- interferes with the working of trains;
- makes the track physically unsafe for trains; or
- interferes with normal operation of any system controlling operations or service delivery; or
- requires possession of any track; or
- must be done within a set time period only.

F1.4 Limitation-of-Access (Non-high Voltage and Non-traction Voltage)

F1.4.1 A Limitation-of-Access (Non-high Voltage and Non-traction Voltage) may be issued for work in the vicinity of non-high voltage and non-traction voltage equipment when: All

- a safety document is not applicable;
- verbal instructions are not considered sufficient for safety.

F1.4.2 The Limitation-of-Access (Non-high Voltage and Non-traction Voltage Equipment) should be issued by: All

Location	Issued by
Depot	Yard Master
Station premises	Operations Official

F1.4.3	Limitation-of-Access (Non-high Voltage and Non-traction Voltage) is to define • the limits and nature of the work; • safety precautions which must be followed; • the status of the concerned equipment.	All
F1.4.4	The Competent Person in charge must read the Limitation-of-Access (Non-high Voltage and Non-traction Voltage) in the presence of the issuer and sign the receipt.	Issuer CP
F1.4.5	If the person-in-charge is relieved before the work is completed, the Limitation-of-Access (Non-high Voltage and Non-traction Voltage) must be cancelled and a new one must be issued.	Issuer CP
F1.4.6	Upon the completion of work for which a Limitation-of-Access (Non-high Voltage and Non-traction Voltage) has been issued, the Competent Person in charge must: ✓ ensure that all persons in the working party have been warned that it is no longer safe to work near the apparatus; ✓ all gear, tools and equipment used by the working party have been removed clear of the apparatus; ✓ sign the clearance on the Limitation-of-Access (Non-high Voltage and Non-traction Voltage); ✓ hand the Limitation-of-Access (Non-high Voltage and Non-traction Voltage) to the issuer.	Issuer CP
F1.4.7	The issuer must sign the cancellation.	Issuer

F2	Stations, Ancillary Buildings and Depots

People Involved	Competent Persons, Station Controllers, Yard Masters, Security Inspectors, Traffic Controller

Purpose	To describe safety restrictions on work, including physical separation and fire precautions, and use of equipment for work purposes to minimise hazards

Risk	Staff unaware of the hazards associated with work and safety precautions to be taken to minimise the possibility of undesired events, risk causing including personal injury and fires

F2.1 General Requirements

F2.1.1 Worksites, particularly those in public areas, must be: CP SC YM SI

- ✓ properly separated from other areas by barriers;
- ✓ enclosed where quantities of dust or fumes are generated.

F2.1.2 Except control measures has been applied as specified in the table below, work must **not** be permitted: TC SC CP

- × within 2 metres of a platform edge (except Light Rail);
- × between the yellow line and the platform edge (for Light Rail only).

Provision of Platform Doors on the Platform	Control Measures
Platform screen doors are provided on the platform and fully closed	A Competent Person (Non-track) must supervise the work and apply protection according to the Rules of work at station
Either one of the following provisions: • Platform screen doors are provided on the platform, and not fully closed • Automatic platform gates are provided on the platform • No platform screen doors and no automatic platform gates are provided on the platform	A Competent Person (Track) must supervise the work and apply protection according to the Rules of work on or near tracks

F2.2 Platform Restricted Area

F2.2.1 An area of station platform, where is behind a platform end door or a platform end gate, can be demarcated as Platform Restricted Area. All

F2.2.2 When any staff are required to access the platform restricted areas, the following control measures must be applied. All

Condition of access	Control measures
• During traffic hours; • During non-traffic hours (platform track is not taken as possession)	The person in charge must be a Competent Person (Non-track) and must: • obtain authorisation from the Station Controller and the Traffic Controller; • confirm with the Traffic Controller that there will be no train movement on the concerned platform track.
During non-traffic hours (platform track is taken as possession)	The person in charge must be a Competent Person (Non-track) and must: • obtain authorisation from the Station Controller and the Engineer's Person-in-Charge; • confirm with the Engineer's Person-in-Charge that there will be no train movement on the concerned platform track.

F2.2.3	After the working party have left the platform restricted areas or entered a place of safety, the Competent Person must inform the Traffic Controller or the Engineer's Person-in-Charge to withdraw the protection arrangement.	CP TC EPIC
F2.2.4	The following staff can access the platform restricted areas without required to carry out the above control measures: • Train Operators who are familiar with the areas and need to perform duties relating to train operation; • station staff who are familiar with the areas and need to perform duties relating to station operation; • maintenance staff who are familiar with the areas and obtain authorisation from the Station Controller to walk through the areas for performing their duties; • other persons who are accompanied by the above staff.	All
F2.2.5	Staff who walk through platform restricted areas to access tracks must follow the Rules of track access.	All
F2.2.6	Staff who conduct work in platform restricted areas must follow the Rules of work near track.	All

F2.3 Fire Protection Equipment

F2.3.1	Before carrying out any work which may actuate fire alarms, the Competent Person must request Station Controller, Yard Master or Security Inspector to arrange: • the isolation of relevant fire equipment or fire system; or • the suspension of fire link of the relevant fire system.	SC YM SI CP

F2.3.2 Gaseous fire protection system for protecting any room must remain in automatic control at all times. However, in the following situation, the system must be switched to manual mode (excluding standalone type gaseous fire protection equipment which no local control unit is provided): CP

- a person enters the protected room;
- work is being carried out inside the protected room and heat, smoke or fume is generated; or
- work is being carried out on the protection system.

F2.3.3 When the control of the gaseous fire protection system is switched to manual mode, the affected rooms must be guarded by a staff. In case of fire inside the affected rooms, the staff can extinguish the fire: CP

- with a portable fire extinguisher;
- by releasing the gaseous fire suppressant of fire protection system manually; or
- by restoring the system to automatic mode.

F2.3.4 Before work is done inside a fire protection system gas cylinder room, to prevent accidental release the Competent Person must ensure that: CP

✓ control is set to manual; and
✓ the safety pin is applied to the cylinder rack.

Precautions taken must be removed on completion of the work.

F2.4 Portable Fire Extinguishers

F2.4.1 Before carrying out work, the Competent Person must ensure that at least one 4.5kg dry chemical powder portable fire extinguisher, or portable fire extinguisher of appropriate type, must be available at the premise. Additional fire extinguishers must be available at the worksite according to the fire risk. CP

F2.5 Flammable and Dangerous Substances

F2.5.1 Flammable and dangerous substances must **not** be used or stored at a worksite except with written approval. CP

F2.5.2 If flammable material must be used: CP
- ✓ it must be in metal containers specially designed for the purpose;
- ✓ quantity must be minimised and must **not** exceed 35 litres in aggregate;
- ✓ it must be stored in a properly labelled closed lid metal container away from all sources of heat.

F2.5.3 Dangerous goods and substances must be: CP
- ✓ properly labelled to indicate classification, particular risks and safety precautions;
- ✓ kept in suitable containers;
- ✓ handled and stored with extreme care in accordance with prescribed safety precautions.

F2.6 Hot Work

F2.6.1 Welding, flame cutting or other hot work must **not** be done except with authorisation and when: CP
- ✓ a Fire Marshal has been appointed to attend throughout the period of work;
- ✓ appropriate fire safety precautions have been taken;
- ✓ a Permit-to-Work (Hot Work) has been issued by the Fire Marshal.

F2.6.2 When oxy-acetylene gas welding or flame cutting is to be done: CP
- ✓ only one set of gas cylinders must be at one work location;
- ✓ cylinders must be fitted with flashback arrestors;
- ✓ gas cylinder sets must be free of cracks and leaks;
- ✓ cylinders must be kept fastened upright and must be moved on wheeled trolleys only.

F2.7 Painting

F2.7.1 Spray painting using flammable substances must **not** be done. CP

F2.7.2 Painting and welding or flame cutting must **not** be done at the same time within a worksite. CP

F2.8 Electrical Connections, Tools and Temporary Wiring

F2.8.1 Temporary power supplies must be obtained through a proper distribution panel when use of small power tools from fixed power supply points is inadequate or impractical. CP

F2.8.2 Distribution panels must have: CP
- ✓ a main cut-off switch;
- ✓ an effective over-current protection device;
- ✓ an effective earth leakage circuit breaker.

F2.8.3 All electric tools and temporary wiring must: CP
- × **not** be frayed;
- × **not** have exposed live conductors;
- × **not** have improperly made or wrapped joints;
- ✓ be suitable for the environmental conditions;
- ✓ be suitable for the supply voltage and load current;
- ✓ be properly connected by adequately rated plugs and sockets;
- ✓ be properly protected against mechanical damage;
- ✓ be properly protected by use of earth leakage circuit breakers or earthing.

F2.9 Heavy and Bulky Articles

F2.9.1 Before handling heavy or bulky articles, the Competent Person must: CP
- ✓ conduct a risk assessment;
- ✓ instruct staff on safe handling techniques;
- ✓ provide suitable protective equipment and mechanical aids when appropriate.

F2.10 Dangerous Tools and Equipment

F2.10.1 Tools and equipment which have a high safety risk must **not** be used except with written authority, e.g.: CP

- × cartridge-operated fixing tools;
- × open-type welding transformers;
- × spray painting equipment;
- × products containing asbestos.

F2.11 Air Receivers

F2.11.1 Air receivers must: CP

- ✓ be labelled showing the date of the last examination and the due date of the next;
- ✓ have a valid certificate of fitness.

F2.12 Lifting Appliances

F2.12.1 Lifting appliances and gear must: CP

- × not be used in excess of the Safe Working Load marked on it;
- ✓ be used by qualified staff only;
- ✓ have been inspected within 7 days before use;
- ✓ have a valid certificate of inspection.

F2.13 Scaffolding and Working Platforms

F2.13.1 Scaffolding and working platforms must **not**: CP

- × be erected closer to any track than a place of safety except with the Traffic Controller's or Engineer's Person-in-Charge's confirmation that there will be no train movement through the scaffolding and working platforms concerned;
- × be erected closer to overhead line equipment than the prescribed safety distance except when traction current has been switched off and the overhead line equipment has been isolated and earthed;
- × obstruct any passageway or circulation area, except with the approval of Person-in-Charge of the location and suitable control measures are in place.

F2.13.2 The erection, substantial addition, alteration and dismantling of scaffolding and working platforms must be: CP
- ✓ carried by Qualified Persons who are trained in scaffold work;
- ✓ performed under an immediate supervision of a separate Qualified Person who must not engage in the work to ensure the safety of work and staff, and this Qualified Person must be competent to issue a scaffold certification.

F2.13.3 Scaffolding and working platforms must: CP
- ✓ be fitted with outriggers to guard against overturning;
- ✓ carry warning signs of the danger of falling objects;
- ✓ have closely planked working platforms;
- ✓ have guard rails between 900mm and 1150mm and between 450mm and 600mm above working platforms;
- ✓ have toe boards at least 200mm high;
- ✓ be certified in accordance with statutory requirements.

F2.13.4 Where guard rails or closely planked working platforms cannot be provided, staff must use safety belts and harnesses and, where possible, safety nets must be provided. CP

F2.13.5 At a location where rail potential may exist, insulated screens or barriers must be applied on metallic scaffolds and working platforms to avoid bridging the rail and overhead line equipment. CP

F2.14 Ladders

F2.14.1 Ladders must be: CP
- ✓ non-conductive;
- ✓ free of any metal attachments which may cause electric shock;
- ✓ labelled to show the date of the last and the due date of the next 6-monthly inspections.

F3	Confined Spaces
People Involved	Competent Persons, Qualified Persons
Purpose	To ensure that risks present when work is to be done in confined spaces are anticipated and minimised to provide safe working conditions
Risk	Hazards in confined spaces may cause fires, explosions, loss of consciousness, asphyxiation, drowning or fatality unless properly detected and controlled

F3.1 General Requirements

F3.1.1 When work is to be done in a confined space: CP QP

- ✓ the Competent Person in charge must also be a Qualified Person;
- ✓ each person who is to enter the confined space must be a Qualified Person.

F3.2 Safety Documentation

F3.2.1 A Certificate for Work (Confined Spaces) must be issued before any work in a confined space. The Qualified Person must: QP

- ✓ complete a Risk Assessment Report;
- ✓ take the prescribed safety precautions;
- ✓ when electrical or mechanical isolations are required for safety, obtain an appropriate Permit-to-Work;
- ✓ display a copy of the Certificate at the entrance to the confined space.

F3.2.2 The Qualified Person in charge of the work must: QP

- ✓ read the contents of the Certificate for Work aloud to the Qualified Person issuing it to ensure that it is clearly understood;
- ✓ ensure that all members of the working party are familiarised with the hazards, necessary safety precautions and emergency procedures.

F3.3 Safety Requirements

F3.3.1 The Qualified Persons must ensure ready availability of: CP QP

- ✓ two harnesses and lifelines;
- ✓ two sets of breathing apparatus;
- ✓ one resuscitator or revival equipment.

F3.3.2 The Qualified Person in charge must remain, or appoint a second Qualified Person to remain, outside the confined space to: QP

- ✓ maintain communications with the person or persons inside;
- ✓ use the ancillary safety equipment.

F3.4 Clearance and Cancellation

F3.4.1 On completion of the work or at the time shown on the Certificate for Work, whichever is earlier, the Qualified Person must: QP

- ✓ ensure that all persons and equipment are withdrawn from the confined space;
- ✓ sign the clearance section of the Certificate for Work and hand it to the Qualified Person who issued it.

F3.4.2 The Qualified Person responsible for issuing the Certificate for Work must ensure that all persons and equipment are clear of the confined space before cancelling it and any Permit-to-Work. QP

F4	Track Access - General
People Involved	All Staff
Purpose	To state the basic safety requirements for control and management of safe access to tracks, including protection against hazards
Risk	Lack of agreed safe access and protection arrangements will expose staff to extreme risk of injury or fatality

F4.1 Track Access

F4.1.1 Any person who requires access to a track must give details of the location and nature of the work to the: — All

- ✓ Traffic Controller and Station Controller for mainline and connection track (out of depot limit);
- ✓ Yard Master for depot tracks and connection track (within depot limit)

F4.1.2 Before gaining access, the person in charge of the work must: — EPIC CP

- ✓ agree the means for track access, the time when all persons, tools and materials must be clear, protection arrangements, any special instructions concerning safety, and the means of communication;
- ✓ conduct safety briefing and ensure that all members of the working party or parties are familiarised with safety issues such as limits of the worksite, access route, protection arrangements, potential hazards, means for stopping trains, evacuation route, assembly point, etc.

F4.1.3 Confirmation that all safety arrangements are understood must be given by: — All

- ✓ each member of a working party to the Competent Person;
- ✓ each Competent Person to the Engineer's Person-in-Charge.

F4.1.4 When track access is required on the route to or from the worksite, the Competent Person must: CP

- agree the route with the Traffic Controller or Yard Master;
- obtain authorisation of track access;
- arrange protection in accordance with the Rules for track access.

F4.1.5 Eligible staff must use and safekeep the authorised key/tool properly for track access where applicable. All

F4.2 *(Not Used)*

F4.3 Lookoutmen

F4.3.1 When a working party may be exposed to danger from moving vehicles or trains, the Competent Person must appoint Lookoutmen to provide protection at the following locations: CP LO

- ✓ At a suitable position where is not less than 600 metres away (a shorter distance, i.e. 50 meters, is permissible when all trains are operated in Restricted Manual mode under 22 km/h or on Light Rail) to give warnings of an approaching train;
- ✓ At a suitable position where is not less than 340 metres away from the depot test track boundaries to give warnings of an approaching train if there is trains movements in Automatic mode / Coded mode / Fully Automatic Operation mode or any modes with a speed higher than 22 km/h within depot test track areas, except that proper safety precautions have been arranged to prevent the working teams from accessing to the test track.
- ✓ At all locations from which trains may approach where there is a converging junction or on bi-directional lines.

A Lookoutman must **not** carry out any other duties.

F4.3.2 The Competent Person must: CP

- ✓ instruct each member of the working party of the position of each Lookoutman;
- ✓ demonstrate how each Lookoutman will give warnings of approaching trains.

F4.3.3	Each Lookoutman must: ✓ occupy the position specified by the Competent Person; ✓ watch for and give warning of approaching trains; ✓ display a danger handsignal so as to be clearly visible to approaching trains, if necessary, to stop them; ✓ give the working party warnings of approaching trains by sounding one long blast on the horn or whistle and by pointing or directing the working party to the place of safety; ✓ call out the track name or number loudly and clearly, if there is more than one track on which trains may approach; ✓ repeat warnings if persons do not move clear or do not acknowledge warnings; ✓ indicate to the Train Operator of an approaching train by giving an All Right Handsignal when all persons are in the place of safety.	LO
F4.3.4	Additional Lookoutmen must be appointed to relay warnings by sound or other means if there is any risk that approaching trains might not be seen or heard in time for a warning to be given or that a warning might not be heard.	CP
F4.3.5	All persons must acknowledge warnings by raising one arm above the head after they are in the place of safety.	All
F4.3.6	Unless properly relieved, a Lookoutman must **not**: × leave the designated position; × allow anything to distract attention.	LO
F4.3.7	If a Lookoutman considers that adequate protection cannot be given owing to reduced visibility of trains or the working party or other reasons, the working party must be warned to stand clear of the track and the Competent Person must be informed.	LO CP
F4.3.8	The Competent Person must: ✓ arrange for work to cease and for the track to be cleared of tools and materials; ✓ take immediate action to stop train movements, if safety of trains is at risk.	CP

F4.4 Work Near Mainline and Connection Tracks on Light Rail

F4.4.1 If the distance between the worksite and the nearest running rail of any mainline and connection track is less than 3 metres (unless the worksite is separated from the track by a permanent barrier or located on a platform), the Rules of work near tracks must be followed. CP

F5	Depot Tracks

People Involved	Yard Masters, Engineer's Persons-in-Charge, Competent Persons, Lookoutmen, Handsignalmen

Purpose	To describe restrictions on the type of work that can be done, and general safety precautions that must be taken when on or near tracks

Risk	Failure to have controlled access to tracks with specified safety precautions exposes staff to risk of injury, fatality, and equipment to severe damage

F5.1 General

F5.1.1 Works listed below must be undertaken by Engineer Possession, except use of wheel lathe: EPIC YM

- affects the signalling equipment and may endanger train operations; or
- makes the track physically unsafe for trains; or
- requires an Engineer's train to work; or
- involves the isolation of overhead line equipment (except Workshop and Maintenance tracks).

F5.2 Work on or near Tracks (Except Maintenance Track and Workshop Track)

F5.2.1 When staff are required to access track, the Competent Person and the Yard Master must agree the working area and the protection arrangement. CP YM

F5.2.2 When staff are required to work near a track in a place of safety, the following actions must be taken. CP

- ✓ Conspicuous temporary barricade tapes or plastic netting must be installed along the length of the worksite parallel with the track at the boundary of the place of safety; or
- ✓ If barricade tapes or plastic netting is not installed, appoint Lookoutmen while work is in progress.

F5.2.3 If work is to be done on or near track where is not a place of safety, the Competent Person must agree with the Yard Master to take the following actions. CP YM

- ✓ Arrange protection to prevent trains moving into or within the working area;
- ✓ Inform the Train Operators of the location of working area;
- ✓ Arrange protection at working area as below:

Work nature	Protection Arrangement
Track patrolling and inspection	Sufficient Lookoutmen must be appointed at working area.
Work (except patrolling and inspection)	Red flashing light (engineering work) must be placed at all boundaries of the working area, and one of the following protections must be arranged: • Appoint Lookoutmen at the working area; or • Install temporary barricade tapes or plastic netting at the boundary of working area; or • Agree with the Yard Master that no route setting and no train movement on the outermost track of both sides of the working area.

F5.2.4 If there is a need to route a train to approach the worksite where is closer to the track than a place of safety, the Yard Master must: YM

- ✓ confirm with the Competent Person that all persons, tools and material are in the place of safety;
- ✓ authorise the Competent Person to resume the work after the train movement is completed.

F5.2.5 The Yard Master must inform the Train Operators: YM

- ✓ the location of the working area;
- ✓ to be prepared for the working party and danger handsignal given by the Lookoutmen where applicable.

F5.2.6 The Train Operators must: TO

- ✓ ascertain the approximate location of the working area;
- ✓ proceed according to instructions given by Yard Master;
- ✓ be prepared for the working party and danger handsignal given by the Lookoutmen.

F5.2.7 When work is carried out inside the Fully Automatic Operation area, the Competent Person must agree with the Yard Master to suspend train movement in Fully Automatic Operation Mode on the section concerned by CP YM

- Operating the protection keyswitches; or
- Local control panel.

F5.2.8 When work is completed, the Competent Person must ensure that the track is clear and withdraw all protection arrangements. CP

F5.3 Crossing Tracks (Road Vehicles, Cranes or Other Mechanical Appliances)

F5.3.1 When road vehicles, cranes or other mechanical appliances have to cross the tracks, the person in charge must: YM CP LO HS

- ✓ obtain consent from the Yard Master before any crossing movement is attempted;
- ✓ arrange appropriate protection, e.g. Lookoutmen or Handsignalmen;
- ✓ confirm with Yard Master that all train movements are stopped at the Fully Automatic Operation area;
- ✓ inform the Yard Master when the crossing is complete and all tracks are clear.

This requirement is not applicable to the signalled level crossing or in the Light Rail depot.

F5.4 Track Trolleys and Other Objects on Track

F5.4.1 When a track trolley or other object which may endanger train movements is to be placed on a track when possession has not been taken, the Competent Person must: CP

- ✓ obtain approval from Yard Master;
- ✓ appoint a Handsignalman to be responsible for arranging protection, and to go with the trolley or other object at all times;
- ✓ suspend train movement in Fully Automatic Operation mode on the section concerned by operating the protection keyswitches or local control panel.

F5.5 Wayside Warning Indicator

F5.5.1 The Wayside Warning Indicators are provided in the Fully Automatic Operation area. When the Wayside Warning Indicator is flashing, staff must: All

- ✓ be aware that the route has been set for train movement;
- ✓ move clear of the concerned tracks immediately.

F6	Mainline – Traffic Hours
People Involved	All Staff
Purpose	To describe arrangements for arranging, controlling and managing safe access to and work on tracks, and the means for protection against train movement
Risk	Failure to have controlled access to tracks with specified safety precautions exposes staff to risk of injury, fatality, and equipment to severe damage

F6.1 General

F6.1.1 No person may go alone onto mainline during traffic hours for the purpose of engineering work, to ensure personal safety and proper and rapid action in the event of any incident. All

F6.1.2 Work must be done within an Engineer's possession if it will: All
- ✓ make the track physically unsafe for trains; or
- ✓ require isolation and earthing of overhead line equipment.

F6.2 Work Affecting Signalling Equipment

F6.2.1 Possession need not be taken for work affecting signalling equipment during or which will extend into traffic hours. All

F6.2.2 The Competent Person must: CP

- ✓ agree with the Traffic Controller and Station Controller or Yard Master on work details including signals, track circuits and points affected, the effect of any disconnection, and arrangements for working of trains;
- ✓ appoint Handsignalmen as necessary to authorise trains to pass signals or indicators disconnected or maintained at danger, occupied track circuits or closed tracks.
- ✓ arrange the safety measures referring to work nature below:

Work Nature	Safety Measure
Disconnect or repair fixed signalling equipment	Prevent train movement under Automatic Mode, Fully Automatic Operation Mode or Coded Manual Mode at the affected zone where appropriate, by: • maintaining the concerned signals or indicators at danger; • cancelling the concerned routes or computer-controlled routes; • occupying the concerned track circuits or closing the tracks; • locking the concerned points in appropriate direction.
Disconnect signalling equipment that may affect train operation in Fully Automatic Operation mode	Arrange with the Traffic Controller to deploy Train Operators to operate all trains.
Disconnect signalling remote control equipment	Arrange for local control of relevant interlocking areas.
Work on a Light Rail fixed signal but there is a possibility of conflicting movements at an associated road junction	Request Police to switch off the traffic signal controller and to direct traffic.
Work on Light Rail points indicator or motorised points	Switch off the affected indicators.

F6.2.3	The Traffic Controller, Station Controller or Yard Master must **not** operate equipment on which Engineer's staff are working unless requested by or with the consent of the Competent Person and must: ✓ place collars on controls of all equipment which is not to be operated or operated; ✓ if requested by Engineer's staff to operate controls on which collars have been placed, replace the collars on the equipment immediately after the operation.	TC SC YM
F6.2.4	When work is completed, the Competent Person must ensure that: ✓ all signalling equipment is properly tested before it is restored to normal use; ✓ when train control data has been modified, trainborne computers are reset on all trains in the area at the time; ✓ all protection is removed.	CP

F6.3 Track Access – General

F6.3.1	When staff are required to access a mainline during traffic hours, they must do so only from the track access point at the approach end, or from a depot, after obtaining authority of the Traffic Controller and advising the Station Controller or Yard Master and proper protection has been applied.	All
F6.3.2	Exceptions to track access point at the approach end are permitted: ✓ in the event of a signalling equipment failure requiring points to be secured; or ✓ when necessary for detrainment of passengers; or ✓ where there are places of safety adjacent to the track concerned; or ✓ when the track concerned has been taken as possession; or ✓ on Light Rail. In these cases, staff must ensure that they will not be affected by train movements, and, if practical, operate keyswitches to prevent train movements.	All
F6.3.3	When access is required for patrolling mainline which is signalled for bi-directional working, the Competent Person must: ✓ obtain consent from the Traffic Controller; ✓ appoint sufficient Lookoutmen to protect the working party. Where provided on any track, Train Approaching Warning Systems must be switched on.	All
F6.3.4	Staff must **not** alight from a train at a place where there is limited clearance from or cross an adjacent track unless protection against train movement has been applied, except when using an authorised walking route.	All

F6.3.5 Before accessing to mainline where trains are operating in Fully Automatic Operation mode, the Competent Person must agree with the Traffic Controller to suspend train movement in the Fully Automatic Operation mode between the two adjacent stations of the worksite, by operation of local protection keyswitches or Operations Control Centre control panel. CP

F6.3.6 If staff are required to access tracks where there is limited clearance or no place of safety, they must be protected by:

- a standing train on the approach side of the worksite (for all lines);
- holding a train at any platform from where trains can enter the worksite (except Light Rail).

All

For East Rail Line, the key of the standing train protection device (where provided) instead of the Train Operator's controller key, can be collected for arrangement of protection such that the train serves the function of a standing train.

F6.4 Track Access – Protection by a Standing Train on the Approach Side of the Worksite

F6.4.1 When staff are required to access tracks where there is limited clearance or no place of safety, and the Traffic Controller and the Competent Person agree to protect the worksite by a standing train, then: TC CP

- ✓ if the worksite is within a platform they must be protected by a standing train at the tailwall;
- ✓ if the worksite is **not** more than 50 metres from a station with no converging junction or crossover within that distance, they must be protected by a standing train at the headwall;
- ✓ if the worksite is more than 50 metres from a station or there is a converging junction or crossover within 50 metres from the station, they must be protected by a standing train at the worksite.

F6.4.2 The Traffic Controller must: TC CP
- ✓ state the maximum time the staff can stay on the track;
- ✓ impose additional protection such as temporary speed restriction on any adjacent track as agreed with the Competent Person.

F6.4.3 The Station Controller must ensure that: SC
- ✓ impulse fans are switched off;
- ✓ tunnel lighting is switched on;
- ✓ the Train Operator is informed of what is to be done;
- ✓ when assured by the Competent Person that all staff are clear of the track, restore normal arrangements.

F6.4.4 The Competent Person must: CP
- ✓ obtain the time limit on track access from the Traffic Controller;
- ✓ deploy Lookoutman if there is train movement on adjacent tracks;
- ✓ agree with the Traffic Controller on appropriate additional protection, such as temporary speed restriction on adjacent tracks;
- ✓ collect the Train Operator's controller key;
- ✓ complete the track access or when the allotted time is up, whichever is earlier, ensure the track is clear and return the controller key to the Train Operator;
- ✓ inform the Traffic Controller and the Station Controller.

F6.4.5 The Train Operator must: TO
- ✓ secure the train on the approach side of the worksite, ensuring that communications facilities are maintained;
- ✓ hand the controller key to the Competent Person;
- ✓ when the controller key has been returned and the Competent Person has given an assurance that the track is clear, resume operation.

F6.5 Track Access – Protection by Holding Trains at Any Platform from Where Trains Can Enter the Worksite

F6.5.1 When staff are required to access tracks where there is limited clearance or no place of safety, and the Traffic Controller and the Competent Person agree to protect the worksite by holding trains, then the train must be held: TC CP

- at the platform on the approach side of the worksite;
- at other platforms on adjacent tracks from where trains can enter the worksite.

F6.5.2 The Traffic Controller must: TC CP

- ✓ state the maximum time the staff can stay on the track;
- ✓ hold a train at any platform from where trains can enter the worksite;
- ✓ appoint a Handsignalman at the headwall of each platform to collect the controller key from the Train Operator;
- ✓ impose additional protection on any adjacent track as agreed with the Competent Person;
- ✓ when the Competent Person has given an assurance that the track is clear, instruct the Handsignalman to authorise the Train Operator to resume normal operation and return the controller key to the Train Operator.

F6.5.3 The Station Controller must ensure that: SC

- ✓ impulse fans are switched off;
- ✓ tunnel lighting is switched on;
- ✓ when assured by the Competent Person that all staff are clear of the track, restore normal arrangements.

F6.5.4 The Handsignalman must: HS

- ✓ inform the Train Operator of what is to be done;
- ✓ collect the Train Operator's controller key;
- ✓ when instructed by the Traffic Controller, authorise the Train Operator to resume normal operation and return the controller key to the Train Operator.

F6.5.5 The Competent Person must: CP

- ✓ obtain the time limit on track access from the Traffic Controller;
- ✓ deploy Lookoutman;
- ✓ agree with the Traffic Controller on appropriate additional protection on adjacent tracks, such as temporary speed restriction;
- ✓ complete the track access or when the allotted time is up, whichever is earlier, and ensure the track is clear;
- ✓ inform the Traffic Controller and the Station Controller.

F6.5.6 Train Operator must: TO

- ✓ secure the train at the platform, and ensure that communications facilities are maintained;
- ✓ hand the controller key to the Handsignalman;
- ✓ when the controller key has been returned, resume operation according to the instruction given by the Handsignalman.

F6.6 Track Access – Unrestricted Clearance

F6.6.1	When staff are required to access a track where there is room for them to remain in a place of safety while trains pass, a temporary speed restriction may be imposed if necessary for safety, by agreement between the Competent Person and Traffic Controller.	CP TC
F6.6.2	During work in tunnel sections, the Station Controller must ensure that: ✓ impulse fans are switched off; ✓ tunnel lighting is switched on.	SC
F6.6.3	When staff are required to access track in an area closer to the track than a place of safety, the Traffic Controller must confirm with the Competent Person that all persons, tools and materials are in the place of safety before instructing a train to approach the worksite.	TC
F6.6.4	When staff are required to access track in an area closer to the track than a place of safety: ✓ the Traffic Controller must implement a temporary speed restriction and appoint Handsignalmen at the platforms on the approach to the affected section; ✓ the Competent Person appoint a Lookoutman at the worksite ✓ the Traffic Controller must inform Train Operators of the location of worksite.	CP TC
F6.6.5	When staff are required to access track in a place of safety, the Competent Person must: ✓ install conspicuous barricade tapes or plastic netting along the length of the worksite parallel with the track at the boundary of the place of safety; or ✓ appoint Lookoutmen while work is in progress, and the Lookoutmen must warn the working party from leaving the worksite.	CP

F6.6.6 Train Operators must: TO
- ✓ ascertain the approximate location of the worksite;
- ✓ proceed according to instructions given by the Handsignalman or Traffic Controller;
- ✓ be prepared for the working party and danger handsignal given by the Lookoutmen.

F6.6.7 When work is completed, the Competent Person must ensure that the track is clear and withdraw all protection arrangements. CP

F6.7 Keyswitches

F6.7.1 Key-operated switches at stations may be used for signal protection when available. All

F6.7.2 The Traffic Controller must inform the Station Controller and Competent Person of the maximum period staff may be on the track. TC CP SC

F6.7.3 The Station Controller must ensure that: SC
- ✓ impulse fans are switched off;
- ✓ tunnel lighting is switched on;
- ✓ the appropriate keyswitch is operated and the key is handed to the Competent Person;
- ✓ when the Competent Person has confirmed that the track is clear, the key is collected and the keyswitch is set to the normal position;
- ✓ resume normal working.

F6.7.4 The Competent Person must: CP
- ✓ collect the key and proceed onto the track;
- ✓ complete the work or when the allotted time is up, whichever is earlier, ensure the track is clear and return to the platform;
- ✓ hand the key to station staff.

F6.8 Crossing Tracks (Except Light Rail)

F6.8.1	During traffic hours, if there is a need for a working party to cross the mainline in an open section in the course of work, the Competent Person must: ✓ ensure that there are places of safety at both the departure and destination points of crossing; ✓ obtain authorisation from the Traffic Controller.	CP TC
F6.8.2	The Competent Person must: ✓ be familiar with the route of crossing the track; ✓ inform the Traffic Controller the exact location of the working party from which they cross the track; ✓ state the reason(s) for crossing the track and the number of persons who require to cross the track; ✓ reach a complete understanding with the Traffic Controller on the protection arrangement; ✓ ensure that no more than 6 persons including himself cross the track each time.	CP
F6.8.3	The Competent Person must **not** allow the working party to cross the track until confirmation is received from the Traffic Controller that the agreed protection arrangement has been made.	CP TC
F6.8.4	Before authorising the working party to cross the track, the Traffic Controller must prevent trains from entering the concerned section of track by one or more of these methods, as appropriate: ✓ cancelling all routes over the section of track concerned; ✓ holding trains at the platforms from where they may enter the section of track concerned; ✓ holding trains at fixed signals / indicators from which they may enter the section of track concerned.	TC
F6.8.5	After the working party has crossed the track and arrived at a place of safety, the Competent Person must inform the Traffic Controller for removal of the protection arrangement.	CP

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F7	Mainline – Non-Traffic Hours
People Involved	Engineer's Persons-in-Charge, Competent Persons
Purpose	To specify arrangements required to gain safe access to tracks and to safeguard staff working on or near tracks from train movements and electrocution
Risk	Failure to control access, to apply protection, and to co-ordinate completion of work creates severe safety hazards, and may affect service operations

F7.1 General

F7.1.1 Work on mainline during non-traffic hours must be undertaken within an Engineer's possession only if it will: EPIC CP

- require a train or an Engineer's train to work;
- require traction current to remain switched on on lines where it is normally switched off;
- extend into traffic hours and make the track physically unsafe for trains or require isolation and earthing of overhead line equipment.

F7.2 Authorisation

F7.2.1 When a pedestrian access work is to be done, the Competent Person must obtain authorisation from: CP

- ✓ the Traffic Controller, if it is to be carried out outside any possession area; or
- ✓ the Engineer's Person-in-Charge concerned, if it is to be carried out within a possession.

F7.2.2 Before requesting authorisation for access to the track, the Competent Person must confirm that: CP

- ✓ traction current has been switched off on lines where it is normally switched off during non-traffic hours; or
- ✓ the last train has run on lines where traction current normally remains switched on.

All lines except Light Rail, confirm with the Station Controller or Infrastructure Engineering Control Centre, or be informed by the Traffic Controller.

For Light Rail, confirm with the Traffic Controller or Infrastructure Engineering Control Centre.

F7.3 Protection for Pedestrian Access Work in an Area Closer to Track than a Place of Safety

F7.3.1 When a pedestrian access work (excluding patrolling and inspection) is to be done in an area closer to track than a place of safety, the Competent Person in charge of the worksite must arrange to place a red flashing light (pedestrian access work), which can be seen from the approaching direction along the track at least 50 metres away, CP

- ✓ at each end of the working area, including the junction or crossover connecting other tracks; or
- ✓ at a suitable position beyond working area, if the visible distance of the red flashing light (pedestrian access work) at the end of working area is less than 50 meters.

Note: Working area is an area within a worksite and defined by Competent Person, where a working party is conducting works within a time period.

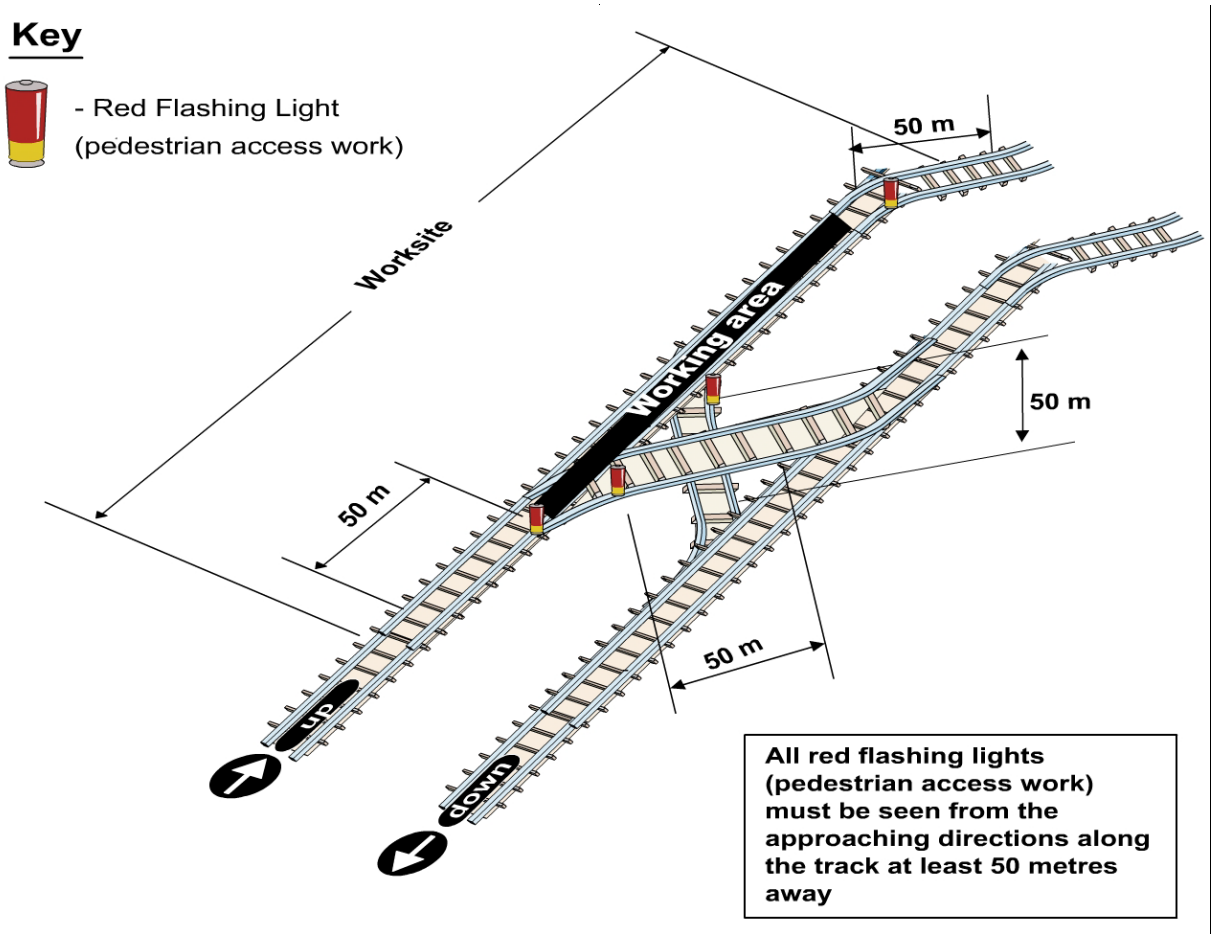

Figure F7.3.1 – Protection: Pedestrian Access Work

F7.4 Protection for Work Requires Traction Current to be Switched Off

F7.4.1 If traction current requires to be switched off for the work where traction current remains switched on in the adjacent section at one or both ends of the respective isolator(s), a distance of not less than 50 metres must be maintained between the worksite boundaries and the respective isolators to provide a safety buffer. CP

The worksite boundaries must be clearly indicated and made visible to working parties by placing red flashing lights (engineering work), reflective barricade tapes or plastic netting.

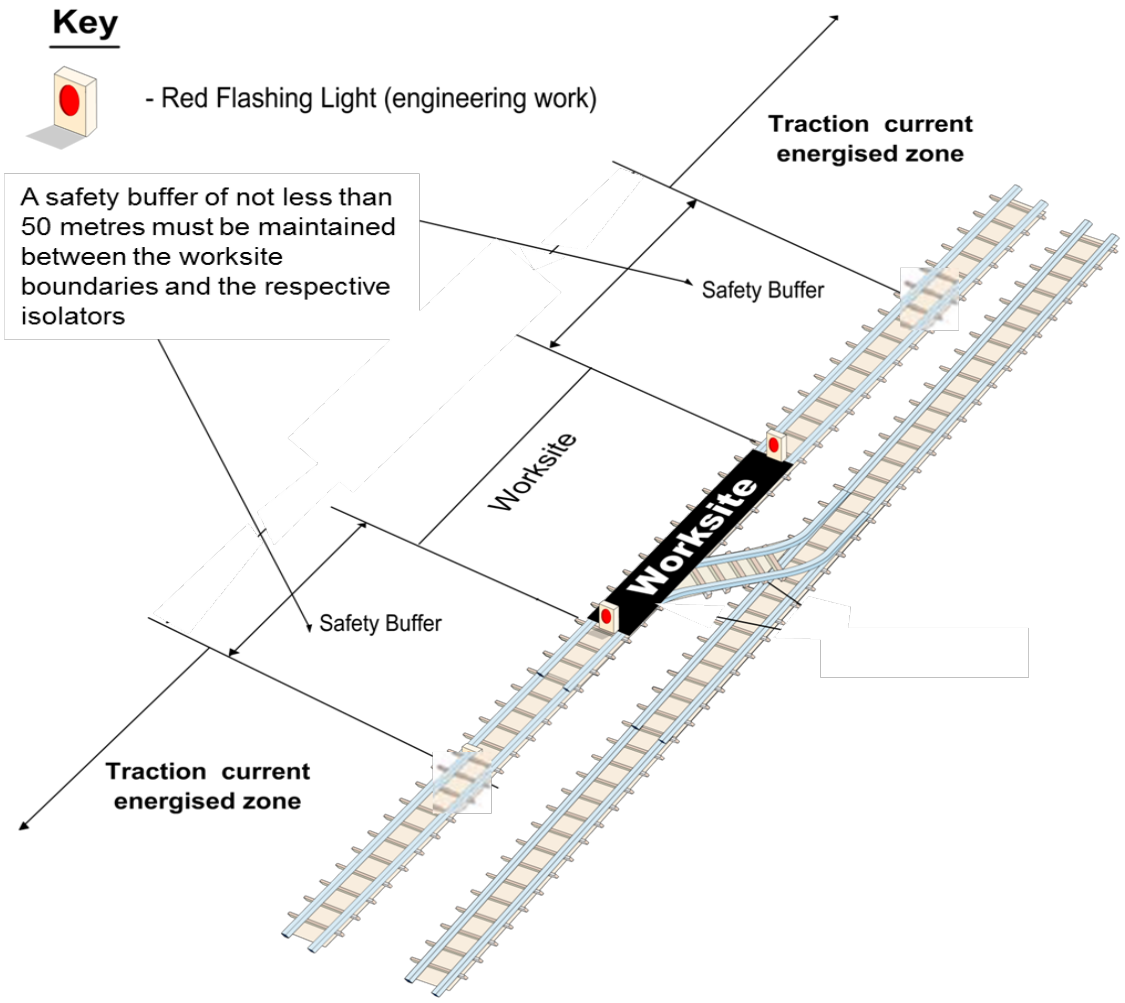

Figure F7.4.1 – Protection: Work Requires Traction Current to be Switched Off

F7.5 Completion of Work

F7.5.1 The Competent Person must: CP

- ✓ on completion, inform the Station Controller, and the Traffic Controller or the Engineer's Person-in-Charge when all persons, tools and materials are clear of the tracks;
- ✓ if completion of work may delay switching on of traction current or passenger train service, inform the Traffic Controller and agree on the estimated additional time required and any special arrangements.

F8	Engineer's Possessions
People Involved	Engineer's Persons-in-Charge, Competent Persons, Handsignalmen, Traffic Controllers, Station Controllers, Yard Masters, Train Operators, Authorised Person (Electrical), Power System Controller
Purpose	To specify the means and processes for taking possession of a track to ensure that no trains, and in some cases staff, will enter or leave the site
Risk	Failure to apply full and complete possession protection arrangements will endanger other staff or work parties

F8.1 General

F8.1.1 When work is to be done which requires the Engineer to have possession of the track affected, the Engineer's Person-in-Charge must: EPIC

- ✓ prepare a Possession Certificate;
- ✓ hold a formal safety briefing attended by all persons who will be involved in taking and managing the possession arrangements locally;
- ✓ in normal circumstances, take possession between track access points or designated landmarks;
- ✓ make arrangements to protect the possession in both directions (except where the possession boundary is located at the end of track), including all routes for trains and persons which lead to and from the worksite;
- ✓ ensure that train movements into, out of, through or within the possession are controlled safely.

F8.1.2	Details of all protection applied must be recorded in the Possession Certificate, which must be signed by the Station Controller(s) or Yard Master or, on Light Rail mainline, read back to and agreed verbally by the Traffic Controller.	EPIC SC YM
F8.1.3	Fixed signals must: × **not** be cleared for train movements unless specified in the Traffic Notice or other publication; ✓ be cleared only as requested by the Engineer's Person-in-Charge after reaching a complete mutual understanding of what is to be done.	TC SC YM EPIC
F8.1.4	All persons involved in applying protection within a possession and for controlling train movements must have a means of immediate communication.	EPIC CP HS

F8.2 Pedestrian Access Work

F8.2.1	When pedestrian access work must be carried out in a possession, the Engineer's Person-in-Charge must: ✓ decide whether the work can be done safely within the possession boundaries and in the time available; ✓ before surrendering the possession, confirm track clear with the Competent Person.	EPIC
F8.2.2	Pedestrian access work must not be conducted on the route of train movement.	EPIC CP
F8.2.3	Pedestrian access work must be individually protected in accordance with the Rules.	EPIC CP
F8.2.4	When pedestrian access work is to be done in a place of safety and the concerned track is part of the route of train movement, the Competent Person must: ✓ install conspicuous barricade tapes or plastic netting along the length of the worksite parallel with the track at the boundary of the place of safety; or ✓ appoint Lookoutmen while work is in progress, and the Lookoutmen must warn the working party from leaving the worksite.	EPIC CP

F8.3 Depots

F8.3.1 Immediately before taking possession, the Engineer's Person-in-Charge must: EPIC CP YM

- ✓ reach complete mutual understanding with the Yard Master and working party on the limit of train movements and arrangements for protection and isolation of overhead line equipment;
- ✓ note carefully instructions given concerning safety and the time by which work must be completed and all persons, tools and materials cleared from the track;
- ✓ obtain authorisation from the Yard Master to set up protection;
- ✓ arrange with the Yard Master for all points within the possession to be set to the appropriate position;
- ✓ confirm that collars are placed on controls for train movements into, out of, through or within the possession and, where available, the "Track Possession" function is actuated;
- ✓ arrange and confirm that red flashing lights (engineering work) are placed at both directions of the possession by a Competent Person or Handsignalman, except where the possession boundary is located at the end of track;
- ✓ secure points if work involves signalling equipment disconnection or work on points, except point replacement work;
- ✓ secure points if the points are hand-operated or required to be used for protection;
- ✓ complete a Possession Certificate which must be signed by the Yard Master.

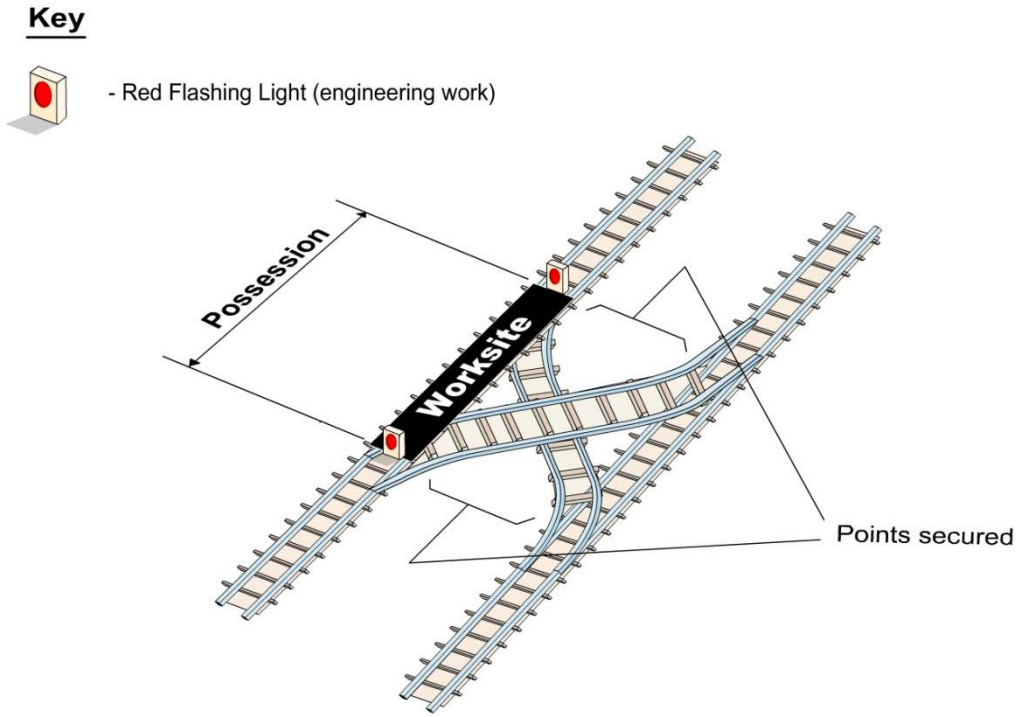

Figure F8.3.1 – Protection: Depots (do not require isolation and earthing of overhead line equipment)

F8.3.2 If any part of the Fully Automatic Operation area of depot is taken as possession and train operation in Fully Automatic Operation or Coded Manual mode is not allowed, the Engineer's Person-in-Charge must: EPIC YM

- ✓ arrange to suspend train movement in Fully Automatic Operation and Coded Manual mode by operating the protection keyswitches or local control panel;
- ✓ confirm with the Yard Master that appropriate protection measure has been taken and an indication of protection is shown on the local control panel.

F8.3.3 If any part of the Fully Automatic Operation area of depot is taken as possession and train operation in Fully Automatic Operation or Coded Manual mode is allowed, the Engineer's Person-in-Charge must ensure: EPIC

- ✓ the whole Fully Automatic Operation area is taken as possession;
- ✓ the track of the whole Fully Automatic Operation area has been clear before authorising train movement;
- ✓ a Train Operator is deployed at the leading end of the train which is operated in Fully Automatic Operation mode and the Train Operator shall prepare to stop the train in emergency.

F8.3.4 When isolation and earthing of overhead line equipment is required for the work, the Engineer's Person-in-Charge must ensure: EPIC YM PSC

- ✓ the possession area is same as the traction current isolated zone;
- ✓ the Yard Master has arranged with the Power System Controller to switch off traction current;
- ✓ a distance of not less than 5 metres is maintained between the worksite boundaries and the possession boundaries to provide a safety buffer;
- ✓ red flashing lights (engineering work) have been placed at both directions of the possession, except where the possession boundary is located at the end of track.

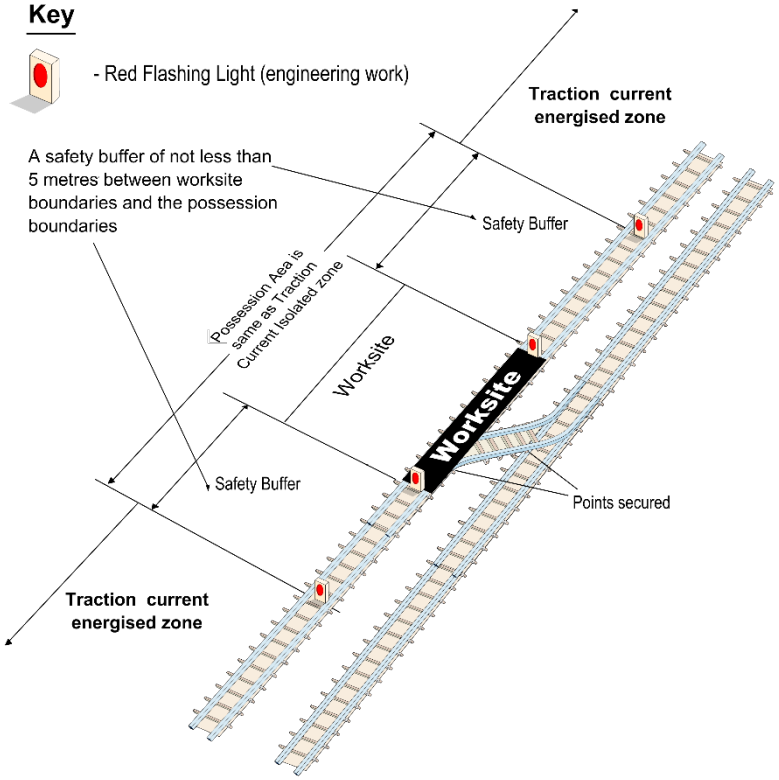

Figure F8.3.4 – Protection: Depots (require isolation and earthing of overhead line equipment)

F8.3.5 On completion of work, the Engineer's Person-in-Charge must: EPIC YM PSC

- ✓ ensure that the track is clear of all tools, materials and persons;
- ✓ request the Yard Master to arrange with the Power System Controller to switch on traction current, if necessary;
- ✓ arrange and confirm the removal of the protection arrangements;
- ✓ arrange with the Yard Master to test all points within the possession;
- ✓ cancel the Possession Certificate.

F8.4 Mainline and Connection Track – All Lines

F8.4.1 Before taking possession, the Engineer's Person-in-Charge must: EPIC TC SC

- ✓ agree on the detailed arrangements with the Traffic Controller;
- ✓ complete a Possession Certificate which must be signed by Station Controller(s);
- ✓ report to the station where safety briefing to be conducted;
- ✓ mutually agree with the Station Controller on what is required, and if the possession involves more than one station, mutually agree on what is required with each Station Controller;
- ✓ confirm with the Station Controller or be informed by the Traffic Controller that traction current has been switched off or that the last train has run;
- ✓ obtain authorisation from the Traffic Controller to set up protection;

- ✓ note carefully any additional instructions given concerning safety, the time by which work must be completed and all persons, tools and equipment must be clear of the track;
- ✓ where facilities are available, ensure that local control of the area has been taken and all points within the possession are set to the appropriate position;
- ✓ confirm that collars are placed on all relevant controls and, where appropriate, the "Track Possession" and "Close Track" functions or "Block Track against route setting" function are actuated;
- ✓ arrange and confirm that protection is applied by a Competent Person or Handsignalman.

F8.4.2 Before signing the Possession Certificate, the Station Controller and Engineer's Person-in-Charge must verify that all points within the possession are set to the appropriate position: SC EPIC

- ✓ by checking the local control panel;
- ✓ for points which could not be seen on the local control panel, by confirming with the Station Controller(s) of relevant station(s) verbally.

F8.4.3 After the protections of possession are applied and the Possession Certificate is signed, the Engineer's Person-in-Charge must confirm with the Traffic Controller to take the possession. EPIC TC

F8.5 Mainline and Connection Tracks – All Lines (Except Light Rail)

F8.5.1 When there is no train or mechanised vehicle within a possession, protection must be applied by placing red flashing lights (engineering work): EPIC CP

- ✓ one arranged by the Engineer's Person-in-Charge at all possession boundaries, except where the possession boundary is located at the end of track;
- ✓ if there is more than one worksite within a single possession, one arranged by the Competent Person at each boundary of an individual worksite.

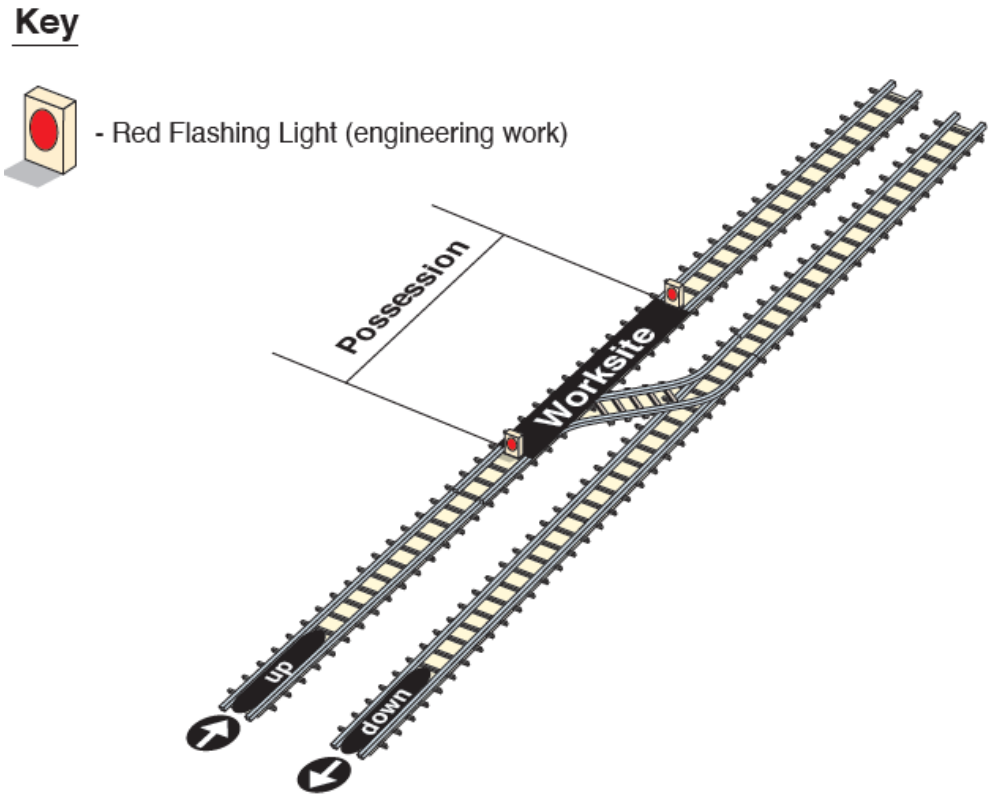

Figure F8.5.1 – Protection: No Train in Possession

F8.5.2 When there is no train or mechanised vehicle within a possession and traction current within that possession requires to be switched off where traction current remains switched on in the adjacent section at one or both ends of the respective isolator(s), a distance of not less than 50 metres must be maintained between the possession boundaries and the respective isolator(s) to provide a safety buffer. EPIC CP

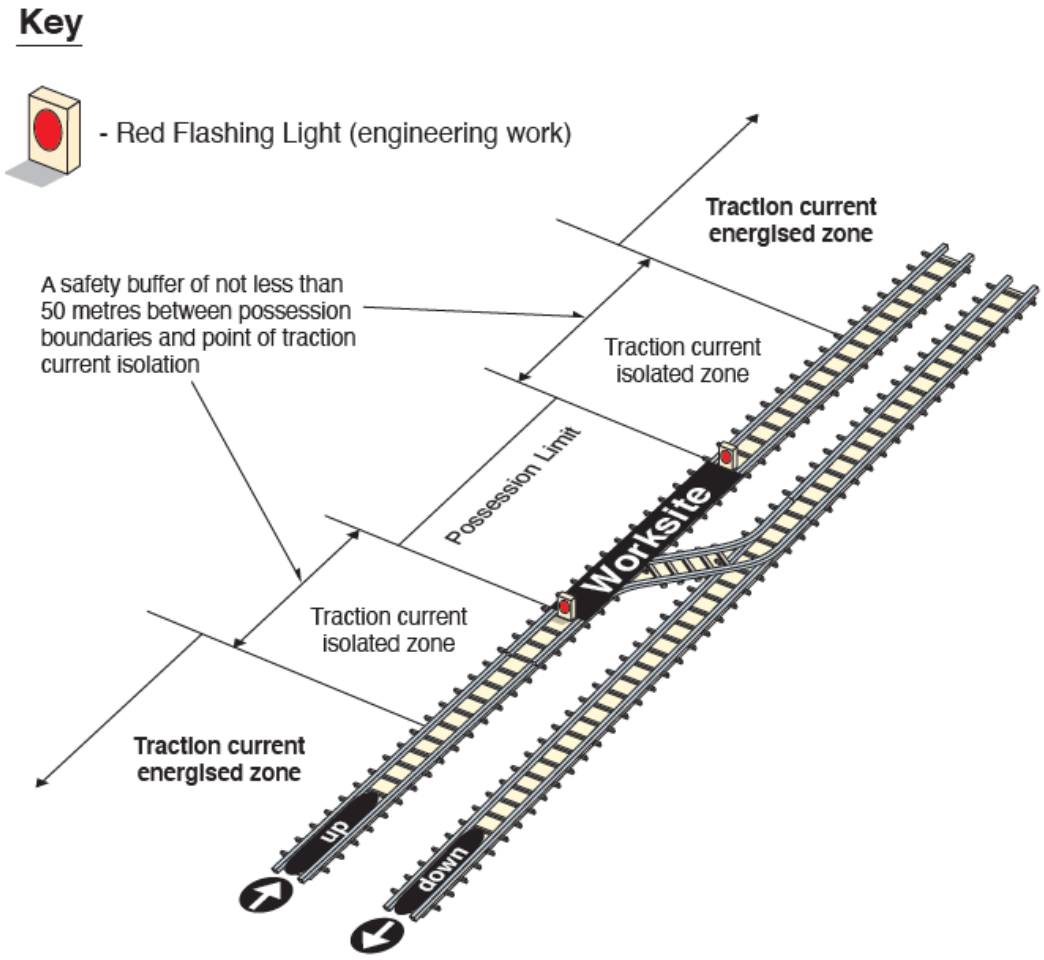

Figure F8.5.2 – Protection: No Train in Possession with De-energisation of Traction Current

F8.5.3 If any train or mechanised vehicle is to work within the possession, protection must be applied to provide a safe braking distance between the worksite boundary and possession boundary: EPIC

Train Mode / Range of train speed within worksite boundaries	Protection at worksite boundary	Protection at possession boundary	
		Equipment / Arrangement	Distance from worksite boundaries
Restricted Manual/ caution speed	Red flashing light (engineering work)	Red flashing light (engineering work)	At least 50m
23 – 40 km/h		Red flashing light (engineering work) and track circuit operating clip or "Close Track" or "Work Zone – FAO and CM modes forbidden" or "Block Track against route setting" function applied	At least 100m
41 – 60 km/h			At least 200m
61 – 80 km/h			At least 400m
81 – 100 km/h			At least 500m
＞100 km/h			At least 800m

The Engineer's Person-in-Charge must ensure that:

- ✓ when there are 2 or more worksites in which trains are to operate within a single possession, the worksites are separated by at least the minimum safe braking distances listed above;
- ✓ appropriate protection is applied at the specified distances from the worksite at both possession boundaries on tracks signalled for train operations in both directions, except where the possession boundary is located at the end of track.

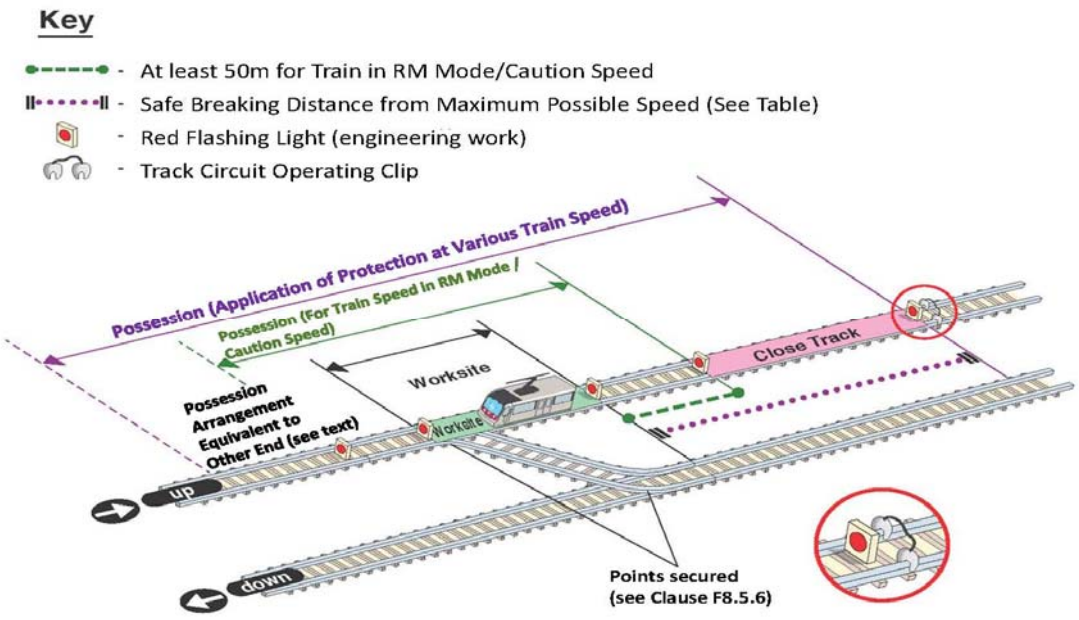

Figure F8.5.3 – Protection: Train in Possession

F8.5.4 When a track circuit operating clip is used, confirmation must be obtained that the track circuit concerned is shown as occupied: EPIC

- ✓ on the local control panel, where provided;
- ✓ on the Operations Control Centre signalling diagram where no local control panel is provided.

F8.5.5 When any train or mechanised vehicle is to work within a possession, the Engineer's Person-in-Charge: EPIC

- ✓ must ensure the concerned points within possession boundaries are locked, in order to avoid the train or mechanised vehicle moving out of the possession incorrectly;
- ✓ consider unlocking the locked point for a pedestrian access work within the possession if there will not have any train movement on the concerned point.

F8.5.6 Under any one of the following circumstances, points within the possession boundaries, including the corresponding points of a crossover, must be secured: EPIC

- ✓ there is an electric train in the possession and traction current is switched off on an adjacent track to which the points concerned give access, in order to avoid the train taking the incorrect route and bridging a section insulator;
- ✓ an electric train is to operate on an adjacent track from which the points concerned give access, in order to avoid a train taking the incorrect route and bridging a section insulator;
- ✓ a train or mechanised vehicle is to operate at a speed higher than the caution speed on an adjacent track from which the points concerned give access, in order to avoid the train taking the incorrect route;
- ✓ a train or mechanised vehicle is to move on points, when the point is disconnected from signalling system or work is being conducted on the point;
- ✓ they are controlled trap points within the boundaries of the possession unless the train movements are governed by cab signals or fixed signals.

The Engineer's Person-in-Charge must retain, or appoint a Competent Person or Handsignalman to retain the keys to the clamp padlocks until the work is completed.

F8.6 Mainline and Connection Tracks – Light Rail

F8.6.1 On the Light Rail, the boundaries of an Engineer's possession must not fall at junctions of Light Rail and road traffic. All

F8.6.2 When there is no train or mechanised vehicle within a possession, the protection of possession must be applied at the worksite boundaries by placing red flashing lights (engineering work), except where the possession boundary is located at the end of track. EPIC CP

F8.6.3 When there is no train or mechanised vehicle within a possession and traction current requires to be switched off where traction current remains switched on in the adjacent section at one or both ends of the respective isolator(s), a distance of not less than 50 metres must be maintained between the possession boundaries and the respective isolator(s) as a safety buffer. EPIC

F8.6.4 If any train or mechanised vehicle is to work in the possession, protection must be applied to provide a safe braking distance between the worksite boundary and possession boundary: EPIC

Ranges of train speed within worksite boundaries	Protection at worksite boundary	Protection at possession boundary	
		Equipment	Distance from worksite boundary
Caution speed	Red flashing light (engineering work)	Red flashing light (engineering work)	At least 50m
23 – 40 km/h			At least 100m
41 – 60 km/h			At least 200m
61 – 80 km/h			At least 400m

F8.6.5 The distance between the worksite and possession boundaries for the train speed over 22km/h may be reduced to 100 metres if the train can apply track brakes. EPIC

F8.6.6 When work is to be done on a paved track or at the locations to which road vehicles have access, the Engineer's Person-in-Charge must ensure that the worksite, staff, pedestrians and road traffic are protected by making arrangements in accordance with the Highways Department's Code of Practice for the Lighting, Signing and Guarding of Road Works. EPIC

For work which also requires road closure:

- ✓ arrangements must be agreed in advance with the Transport Department;
- ✓ the Traffic Controller must obtain consent or instructions from the Police concerning traffic control, when appropriate.

F8.7 Completion

F8.7.1 On completion of work, the Engineer's Person-in-Charge must: EPIC

- ✓ ensure that the track is clear of all tools, materials and persons;
- ✓ arrange for the removal of protection and for confirmation when this has been done;
- ✓ arrange with the Traffic Controller or Station Controller, or, on Light Rail, the Infrastructure Engineering Control Centre to test all points within the possession to ensure that detection and indications are obtained in both normal and reverse positions;
- ✓ cancel the Possession Certificate;
- ✓ inform the Station Controller and the Traffic Controller that possession is no longer required.

F8.8 Additional Requirements – Special Operations

F8.8.1 In addition to the standard possession protection arrangements, when taking possession for work that involves working of electric trains, test trains, rail grinding units, or of trains and mechanised vehicles at speeds higher than 22 km/h, etc., the Engineer's Person-in-Charge must: EPIC SC

- ✓ for an electric train or test train, be an Operations Official who must take possession for an electric train throughout the traction current sections or sub-sections involved;
- ✓ for an electric train and traction current is switched off in a section at one or both ends of the possession, arrange for earthing rods to be placed and protected by red flashing lights (engineering work) at the possession boundaries in the isolated sections. A distance of not less than 50 metres must be maintained to provide a safety buffer between the possession boundaries of an energised section and an isolated section;
- ✓ where there is a hazard created by train movement or operation, e.g. by electric trains or rail grinding units, and tracks are not separated by a physical barrier, take possession of any adjacent track;
- ✓ place "No Track Access" protection barriers at each possession boundary, except where the possession boundary is located at the end of track;
- ✓ arrange with the Station Controllers of stations within the possession boundaries to place "No Track Access" warning boards at each headwall and tailwall on the track or tracks concerned, and confirm that they have been placed;
- ✓ ensure that a Train Operator is at the leading end of the train which is operated in Fully Automatic Operation mode, and prepare to stop the train in case of emergency.

F8.8.2 During the work, while the boards and barriers are in place: EPIC

- ✓ when required, the Engineer's Person-in-Charge must arrange for points to be set and for fixed signals within the possession to be cleared by the Traffic Controller or Station Controller;
- ✓ where a signal cannot be cleared for movements through points, the points must be set and secured and movements must be controlled by a Handsignalman;
- ✓ no pedestrian access is permitted to the tracks affected unless the Engineer's Person-in-Charge has confirmed that it is safe to do so and necessary precautions have been taken;
- ✓ no other train may enter the possession.

F8.8.3 When all operations have been completed, the Engineer's Person-in-Charge must ensure that the "No Track Access" warning boards and protection barriers, and protection are removed. EPIC

F8.8.4 When pedestrian access work must be carried out in a possession involving the working of trains and mechanised vehicles at speeds higher than 22 km/h, the Engineer's Person-in-Charge must ensure that the Competent Person has arranged protection for the pedestrian access work as listed below. EPIC CP

Range of train speed within possession boundaries	**Protection of worksite of pedestrian access work**		
	Worksite boundary	**Within worksite**	
		Equipment / Arrangement	**Distance from worksite boundaries**
23 – 40 km/h	Red flashing light (engineering work) and track circuit operating clip or "Close Track" or "Work Zone – FAO and CM modes forbidden" or "Block Track against route setting" function applied	Red flashing light (engineering work)	At least 100m
41 – 60 km/h			At least 200m
61 – 80 km/h			At least 400m
81 – 100 km/h			At least 500m
＞100 km/h			At least 800m

If the train or vehicle is operated in Restricted Manual mode or at caution speed, the Competent Person must place red flashing lights (pedestrian access work) according to the Rules for pedestrian access work in non-traffic hours.

F8.9 Emergency Possession on Mainline and Connection Tracks – All Lines

F8.9.1	An emergency possession is always unscheduled. It is usually required as a result of a defect or an incident.	All
F8.9.2	Emergency possession must be approved by the Chief Controller.	CC
F8.9.3	An emergency possession is normally requested by a Senior Operations Official who takes local charge of the defect or incident at the scene. The Senior Operations Official, or delegate, will assume the role of Engineer's Person-in-Charge of the emergency possession.	SOO EPIC
F8.9.4	The Engineer's Person-in-Charge must agree with the Traffic Controller on the arrangements for the emergency possession.	EPIC TC
F8.9.5	The Rules for protection measures for an Engineer's possession must be followed in an emergency possession, except that the protection for a possession of overhead line recovery work is arranged by placing a red flashing light (engineering work) at a distance of not less than 50 metres beyond all worksite boundaries.	All

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F9	Connection Track
People Involved	Yard Masters, Competent Persons, Traffic Controller
Purpose	To describe arrangements for arranging, controlling and managing safe access to and work on connection tracks, and the means for protection against train movement
Risk	Failure to have controlled access to tracks with specified safety precautions exposes staff to risk of injury, fatality, and equipment to severe damage

F9.1 General

F9.1.1 All staff must observe the relevant Rules for accessing track, conducting work or undertaking possession on connection tracks of the following locations. All

Location	Rules
Out of Depot Limit	"Mainline – Traffic Hours" "Mainline – Non-Traffic Hours"
Within Depot Limit	"Depot Tracks"

F9.1.2 If a possession involves isolation and earthing of overhead line on the connection track, the possession area must be same as the traction current isolated zone.

F9.2 Track Access

F9.2.1	When it is required to access to connection track, the Competent Person must agree the work details with both Yard Master and Traffic Controller.	CP
F9.2.2	The Traffic Controller and Yard Master must apply protections to prevent train moving into the concerned connection track, such as prohibiting train operation in Automatic Mode or Fully Automatic Operation Mode, locking points or preventing route setting.	TC YM
F9.2.3	Before gaining access to connection track, the Competent Person must take the following actions. • Confirm with both the Traffic Controller and the Yard Master that the protection measures have been applied; • Obtain authorisation from both the Traffic Controller and the Yard Master.	CP

Section G

Power Distribution and Traction Current

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G1	Safety Precautions
People Involved	All Staff
Purpose	To state basic safety precautions to be taken at all times when near, using or working on electrical equipment
Risk	Failure to consider that electrical equipment is live at all times, even when it may not be, or to consider the hazards presented by electrical voltages, or to follow the requirements for switching, exposes staff to electrocution

G1.1 Equipment

G1.1.1 All electrical equipment, apparatus and conductors associated with the power distribution and traction current systems must be regarded as live at all times and dangerous to human life, unless the equipment has been properly isolated and earthed. All

G1.1.2 On lines where the overhead line is fed with d.c. traction current, appropriate precautions must be taken to avoid short-circuiting of rail potential to the earth or earthed overhead line equipment or structure. All

G1.2 Switching

G1.2.1 No switching of high voltage equipment, traction voltage equipment or 415V main switch boards may be carried out without the consent of the Power System Controller, except in emergency or when local control has been taken. All

G1.2.2 When traction current is switched off for any reason in emergency, arrangements must be made immediately to stop trains entering the isolated section. All

G1.3 Failures

G1.3.1 A power supply failure which may affect train or station operations, regardless of cause, must be reported to the Power System Controller. All

G1.3.2 During failures all apparatus must continue to be regarded as live unless properly isolated and earthed. All

G1.4 Dangerous Occurrences

G1.4.1 All dangerous occurrences on the railway power distribution or traction current supply system must be reported to the Traffic Controller immediately. All

G1.5 Equipment Defects

G1.5.1 When a switch or circuit breaker shows any sign of arcing or abnormality during or after operation: All

- ✓ its condition must be reported to the Power System Controller;
- ✓ it must be examined by maintenance staff before further operation unless authorised by the Power System Controller.

G1.6 Locking Facilities

G1.6.1 Enclosures containing high voltage or traction voltage apparatus, barriers (including plates on access ladders) cutting off access to enclosures, chambers, cubicles or cells containing exposed high voltage or traction voltage conductors must be kept locked and must **not** be opened except by an Authorised Person. All

G1.6.2 Circuit breakers must **not** be locked in the closed position except when they are used for earthing purpose. All

G1.6.3 Trackside switches and isolators must be locked to prevent unauthorised operations. All

G1.6.4 Personal padlock and interlocking systems must be used when work is in progress for protection. All

G1.7 Minimum Safe Distance

G1.7.1 For work near or when conducting tests on a high voltage or traction voltage fixed electrical installation, a minimum safe distance must be maintained between any part of a person or any conductive tool being directly handled and exposed live parts: All

Work	Voltage	Minimum Safe Distance
Near	High	2 metres
	Traction 25kV a.c.	2.75 metres
	Traction 1500V d.c.	2 metres
	Traction 750V d.c.	
Conducting Tests	750V d.c.	250mm
	1500V d.c.	
	3.3kV a.c.	
	11kV a.c.	600mm
	25kV a.c.	
	33 kV a.c.	

These minimum safe distances do **not** apply at authorised locations or on approved Engineer's train wagons and vehicles where adequate permanent protection or prominently visible physical separation is provided to prevent persons and equipment from coming into contact with the overhead line equipment.

G1.7.2 If the minimum safe distance cannot be maintained, work must **not** start until a Permit-to-Work (High Voltage or Traction Voltage), Sanction-for-Test or Isolation Record Form, as appropriate, is issued. All

G1.7.3 Before a safety document is issued, a complete understanding on the switching, isolation and earthing arrangements must be reached between the issuer and the recipient. The issue, transfer and cancellation of a safety document must be made in person except for Isolation Record Form of which the issue and cancellation may be made remotely. All

G1.8 Statutory Requirement

G1.8.1 Under the Electricity Ordinance, a person can conduct electrical work only if: All

- that person is holding a valid registered electrical worker certificate issued by Electrical and Mechanical Services Department; or
- that person is one of the authorised staff exempted from being a registered electrical worker by the exemption order issued by Electrical and Mechanical Services Department.

G1.8.2 Under the Electricity Ordinance, electrical work means work in relation to the installation, commissioning, inspection, testing, maintenance, modification or repair of a low voltage or high voltage fixed electrical installation and includes the supervision and certification of that work and the certification of design of that installation. All

G1.8.3 For the purpose of the Rules, electrical work refers to: All

- conducting live line testing and erection of earthing rods;
- issuance of safety documents for electrical work;
- receipt of safety documents for electrical work;
- operation of circuit breakers, isolators or electrical switches for the purpose of electrical work under the Electricity Ordinance;
- other work considered as electrical work under the Electricity Ordinance.

G1.8.4 When a staff member performs duties relevant to power distribution and traction current system, the staff member must be: All

- a Registered Electrical Worker or Authorised Staff; and
- an Authorised Person, Engineer's Person-in-Charge, Competent Person or Handsignalman as appropriate.

G2	Earthing Devices
People Involved	Authorised Persons, Engineer's Persons-in-Charge, Competent Persons, Handsignalmen
Purpose	To require systematic testing and application of earthing devices prior to work to ensure that it is safe to work on electrical circuits and that circuits cannot be made live
Risk	Failure to properly test and then securely apply earthing devices exposes staff to risk of electrocution

G2.1 Restrictions on Use

G2.1.1 Earthing devices must **not** be applied in any cell or compartment in which there is any exposed metal live at high voltage or traction voltage. AP CP

G2.2 Tests

G2.2.1 Before any earthing device is connected to high, low or traction voltage apparatus, it must be verified not to be live by using an approved test equipment prior to connection of the device. The test equipment must be tested before and after verification. AP CP

However, exemptions for the above requirement are as follows:

- The overhead line isolator is designed with only Service position and Earth position but without Intermediate position, so that the procedure of proving dead is not applicable.
- The high voltage switchgear is fully encapsulated with the original factory-fitted voltage indicators to indicate the circuit has been dead.

G2.3 General

G2.3.1	Earthing devices must be connected to the earth system before being secured to the phases or conductors. Care must be taken to ensure that good contact is made.	AP CP
G2.3.2	All phases of 3-phase apparatus, including the neutral phase, must be earthed, even if work is to be carried out on one phase only.	AP CP

G2.4 Application of Earthing Devices

G2.4.1	For work on or near overhead line equipment, approved earthing devices must be applied on each side of the worksite in each isolated section or sub-section.	AP EPIC CP HS
G2.4.2	Earthing rods and devices used on overhead line equipment must be placed and removed by staff qualified to do so only.	AP EPIC CP HS
G2.4.3	Any earthing rod or portable earthing cable applied on overhead line must be protected by a red flashing light (engineering work) which: ✓ must be placed on the track or overhead line equipment mast at the same location; ✓ the red aspect must be visible in both directions along the track. However, exceptions for protection by red flashing light are as follows: • the location of application of earthing rod or portable earthing cable is in a depot or between the possession boundary and worksite boundary; or • a circuit main earth is applied by an Authorised Person that will not affect train movements.	AP EPIC CP HS
G2.4.4	Any person who is assigned to place or remove an earthing device must complete it personally and must **not** transfer the task to anyone else.	AP EPIC CP HS

G2.4.5 Earthing devices must be placed: EPIC CP HS

- ✓ on either running rail on mainline and connection tracks (outside depot limit) except at points and crossings, on lines other than East Rail Line;
- ✓ on the traction return rail on East Rail Line;
- ✓ on the traction return rail in depots and points and crossings areas where single rail track circuits are used.

G2.5 Removal

G2.5.1 When removing an earthing device, phase ends or overhead line equipment cantilever or contact or feeder wire connections must be removed **before** earth end connections are removed. AP EPIC CP HS

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G3	Work on High Voltage and Traction Voltage Apparatus

People Involved	Power System Controllers, Authorised Persons, Competent Persons

Purpose	To state requirements for systematic control and management of switchgear and overhead line work to ensure safety of staff

Risk	Failure to take prescribed precautions may lead to circuits remaining live, or circuits being made live from another source, causing electrocution

G3.1 General

G3.1.1 Work on high voltage or traction voltage apparatus or near such apparatus must be carried out by working parties under the control of a Competent Person. PSC AP CP

G3.1.2 No person may work alone on high voltage or traction voltage equipment in any circumstances. AP CP

G3.2 System Outage and Switching

G3.2.1 All arrangements associated with the issue, transfer and cancellation of Permits-to-Work (High Voltage and Traction Voltage), Sanctions-for-Test and Circuit Isolation Certificates / Circuit State Certificates must be made through and with consent of the Power System Controller. The arrangements must be stated on a System Outage and Switching form. PSC AP CP

G3.2.2 In emergency, arrangements for switching may be made by telephone and without the use of a System Outage and Switching form. PSC AP CP

G3.2.3 The person in charge of the switching can nominate an Authorised Person to: PSC AP

- receive all the switching instructions from the Power System Controller;
- coordinate among and dispatch the switching instructions to other Authorised Persons who will execute the switching operations;
- confirm the execution of switching operations from other Authorised Persons and then report the completion of switching to the Power System Controller.

G3.3 Safety Precautions

G3.3.1 Work must **not** be carried out until the apparatus and all conductors which can be touched have been isolated and connected securely to earth. The Authorised Person must ensure that: AP CP

- ✓ all selector switches of the switches and isolators used for isolation purposes are set to local or manual control or are in the off position;
- ✓ the apparatus and conductors involved have been isolated and discharged and circuit main earths have been applied adjacent to all points of isolation or between the points of isolation and the worksite;
- ✓ all keys to switches and isolators or padlocks used for isolation purposes are placed in lockout box(es);
- ✓ the lockout boxes are secured by the Authorised Person who executed the switching operations and the Competent Person in charge of the work with personal padlocks and they should retain the keys of the padlocks throughout the period of the work;
- ✓ the lockout boxes at remote locations where the Competent Person in charge of work is not able to padlock are secured with personal padlocks by the Authorised Person's second person checker for the Competent Person in charge of the work;

- ✓ Caution Notices indicating that apparatus is serving as an isolation point which must not be disturbed, are displayed conspicuously at locations where persons may approach the apparatus;
- ✓ any live apparatus adjacent to the isolated apparatus is segregated by barriers or indicated conspicuously by Danger Notices or with the minimum safe distance maintained;
- ✓ a Permit-to-Work (High Voltage and Traction Voltage) is issued.

G3.3.2 Where work is to be undertaken: AP CP

- in such a position that the circuit main earths cannot be seen clearly, the person in charge of the work must test, or arrange to have tested, the equipment with an approved device and when it has been proved not to be live, must apply an additional temporary earth at the worksite;–
- on high level platform of an overhead line vehicle, the earthing pantograph can be raised and served as the additional temporary earth. If the overhead line vehicle is not fitted with an earthing pantograph, the additional temporary earth can be applied at the location where staff start working on the high level platform of the overhead line vehicle. If the movement route of the overhead line vehicle involves more than one overhead line section, additional temporary earth has to be applied before the overhead line vehicle reaches a point;
- involving the removal of equipment or conductor, or otherwise interfering with electrical continuity, the person in charge of the work must apply portable earths on each side of the break or a jumper across the break to maintain the continuity. The jumper must be not less than 70 square mini-metres copper or equivalent (d.c. electrified lines and a.c. electrified lines with parallel transformers operation) or 50 square mini-metres aluminium or equivalent (alternative current lines without parallel transformers operation).

G3.3.3 *(Not Used)*

G3.3.4 *(Not Used)*

G3.3.5 When more than one party is to work under the same isolation and earthing arrangements, each Competent Person in charge must be given an individual Permit-to-Work (High Voltage and Traction Voltage) and each must apply individual personal padlocks to the appropriate lockout box. AP CP

G3.3.6 The appropriate entries on the Permit-to-Work (High Voltage and Traction Voltage) must then be completed and the entries must be read back to the Authorised Persons concerned with confirmation that the entries are correct and sign the form as acknowledgement of receipt and complete understanding. AP CP

G3.3.7 The Competent Person in charge must: CP
- ✓ ensure that all members of the working party know which apparatus is live and which is isolated;
- ✓ do everything possible to ensure safety of the party.

G3.3.8 If the Authorised Person who is responsible for the isolation and earthing is also the person in charge, the Permit-to-Work (High Voltage and Traction Voltage) must be issued and retained by the Authorised Person. AP

G3.4 Interference with Isolation

G3.4.1 While a Permit-to-Work (High Voltage and Traction Voltage) is in force, the isolation of the apparatus must not be interfered with nor must the apparatus be connected to any source of supply, except for phase identification at a potential not exceeding 6 volts. AP CP

G3.4.2 When testing (except for phase identification) is to be done on high voltage or traction voltage apparatus:
- any Permit-to-Work (High Voltage and Traction Voltage) or other electrical safety form applicable to the apparatus must be cancelled;
- a Sanction-for-Test must be completed and signed by the Authorised Person who is in charge of the isolation and earthing of the apparatus;
- the precautions required for issue of a Permit-to-Work (High Voltage and Traction Voltage) must be applied.

G3.5 Temporary Removal of Earths

G3.5.1 When it is necessary to remove an earth connection temporarily for the purposes of the work: AP CP

- ✓ it may be done under supervision by an Authorised Person from one phase at a time only or only one circuit main earth may be removed at a time;
- ✓ the Authorised Person is responsible for replacement of the earth connection immediately after the work for which it was removed is completed.

G3.5.2 When a Sanction-for-Test is in force, earthing connections may be removed temporarily for the purpose of testing apparatus on the instructions of the Competent Person in charge. AP

G3.5.3 In all cases, the Competent Person in charge of testing must: CP

- ✓ ensure that all persons in the party know which apparatus is live and which is isolated;
- ✓ do everything possible to ensure safety of the party;
- ✓ if other persons are working in the area affected, warn them that the apparatus may be made live for test purposes.

G3.6 Change of Competent Person

G3.6.1 If the Competent Person in charge is relieved before work is complete: AP CP

- ✓ a Permit-to-Work (High Voltage and Traction Voltage) must be transferred to the person taking charge who must read it aloud to the Authorised Person;
- ✓ both Competent Persons and the Authorised Person must sign the transfer;
- ✓ the Authorised Person must inform the Power System Controller and ensure that personal padlocks are changed.

G3.6.2 If the Competent Person in charge is relieved before work is complete, a Sanction-for-Test must be cancelled and a new one issued.

G3.7 Clearance and Cancellation

G3.7.1 When work, for which a Permit-to-Work (High Voltage and Traction Voltage) or Sanction-for-Test has been issued, has been completed or suspended for testing the apparatus, or stopped with the apparatus in such a condition that it can be made live, the Competent Person in charge must: AP CP

- ✓ ensure that all persons in the party have been warned that it is no longer safe to work on the apparatus;
- ✓ ensure that all gear, tools and any earthing connections applied by the party have been removed clear of the apparatus;
- ✓ sign the clearance on the Permit-to-Work (High Voltage and Traction Voltage);
- ✓ hand the Permit-to-Work (High Voltage and Traction Voltage) to the Authorised Person.

G3.7.2 The Authorised Person must sign the cancellation and then remove or arrange to have removed the precautions specified on the Permit-to-Work (High Voltage and Traction Voltage) unless another Permit has been issued under cover of the same isolation and earthing. AP

G3.8 Circuit Isolation Certificate/Circuit State Certificate

G3.8.1 When work is to be done on high voltage or traction voltage apparatus which is directly connected to a power utility company supply, a Circuit Isolation Certificate or Circuit State Certificate must be issued prior to any Permit-to-Work (High Voltage and Traction Voltage) or, as applicable, Sanction-for-test which may be required by Corporation Rules or by the Rules of the power utility company to: AP

- ✓ confirm the circuits connecting both systems are isolated and earthed;
- ✓ ensure both parties know exactly what apparatus is de-energised, isolated from all live conductors and connected to earth.

G3.8.2 The Corporation Authorised Person must: AP

- ✓ carry out isolation and earthing of the equipment;
- ✓ issue a Circuit Isolation Certificate or Circuit State Certificate, as appropriate;
- ✓ hand the lockout box key to the Authorised Person concerned;
- ✓ issue the Permit(s)-to-Work (High Voltage and Traction Voltage) or, as applicable, Sanction-for-Test required for safety.

G4	Work Near High Voltage and Traction Voltage Apparatus

People Involved	All Staff

Purpose	To specify a safe method or working near electrical circuits or equipment that may be potentially dangerous and present an electric shock or other hazard

Risk	Lack of control of access for work near potentially dangerous circuits or equipment can result in injury or death

G4.1 Limitation-of-Access (High Voltage and Traction Voltage) - Issue

G4.1.1 When work is to be done in the vicinity of live high voltage and traction voltage equipment and: — All

- a Permit-to-Work (High Voltage and Traction Voltage) or a Sanction-for-Test is not applicable;
- verbal instructions are not considered sufficient for safety;

a Limitation-of-Access (High Voltage and Traction Voltage) must be issued by an Authorised Person to the Competent Person in charge.

G4.1.2 A Limitation-of-Access (High Voltage and Traction Voltage) is to define: — All

- the limits and nature of the work;
- safety precautions which must be followed;
- the status of the concerned live equipment.

G4.1.3 The Competent Person in charge must read the Limitation-of-Access (High Voltage and Traction Voltage) in presence of the issuer and sign the receipt. — Issuer CP

G4.2 *(Not Use)*

G4.3 Change of Competent Person

G4.3.1 If the person in charge is relieved before the work is completed, the Limitation-of-Access (High Voltage and Traction Voltage) must be cancelled and a new one issued. — Issuer CP

G4.4 Clearance and Cancellation

G4.4.1 Upon completion of work for which a Limitation-of-Access (High Voltage and Traction Voltage) has been issued, the Competent Person in charge must: — Issuer CP

- ✓ ensure that all persons in the party have been warned that it is no longer safe to work near the apparatus;
- ✓ all gear, tools and equipment used by the party have been removed clear of the apparatus;
- ✓ sign the clearance on the Limitation-of-Access (High Voltage and Traction Voltage);
- ✓ hand the Limitation-of-Access (High Voltage and Traction Voltage) to the issuer.

G4.4.2 The issuer must sign the cancellation. — Issuer

G5	Traction Current Supply System

People Involved	Power System Controllers, Traffic Controllers, Yard Masters, Authorised Persons, Engineer's Persons-in-Charge, Competent Persons

Purpose	To state requirements for systematic control and management of work and activities to ensure safety of staff

Risk	Failure to take prescribed precautions may lead to circuits remaining live or being made live, causing electrocution

G5.1 General

G5.1.1 Traction current must be switched off only: All

- ✓ to stop serious arcing or fusing;
- ✓ when a fault has occurred in overhead line equipment or associated cables and switchgear;
- ✓ in an emergency;
- ✓ for authorised engineering work; or
- ✓ in accordance with scheduled requirements shown in Working Timetables or other publications.

G5.1.2 Isolators must not be operated under on-load condition unless they are designed for on-load operation. All

All isolators fit for on-load operation must be affixed a label as depicted below.

This isolator can be operated under on-load condition

此隔離器能在
帶負載電流的情況下操作

G5.2 Mainline and Connection Track – Traffic Hours

G5.2.1 When work is to be done on or near mainline or connect track which requires isolation and earthing of overhead line equipment: EPIC

- ✓ the Engineer's Person-in-Charge must have possession of the track(s) concerned;
- ✓ a Permit-to-Work (High Voltage and Traction Voltage) must be issued;
- ✓ it is not necessary to use lockout boxes, but the Authorised Person(s) carrying out the isolations and earthing must personally retain the keys to switches, isolators or padlocks used for isolation purposes.

If an Authorised Person is **not** available, the responsibilities of an Authorised Person for isolation and earthing may be carried out by an Operations Official who is qualified to do so, in which case a Permit-to-Work (High Voltage and Traction Voltage) can be issued by the Power System Controller.

G5.2.2 Possession must **not** be surrendered until the Permit-to-Work (High Voltage and Traction Voltage) or Sanction-for-Test is cleared and cancelled and traction current has been switched on to the affected sections, to prevent trains from entering an isolated section. EPIC

G5.2.3 For work on overhead line equipment in an emergency possession, the circuit main earths: All

- must be applied for all sources of power supply;
- can be applied adjacent to the worksite.

G5.3 Mainline and Connection Track – Non-traffic Hours

G5.3.1 On lines where traction current is switched off during non-traffic hours, when work is to be done which may take place within the minimum safe distance but which does **not** involve overhead line equipment, the Competent Person in charge must: EPIC CP

- ✓ test and earth the section(s) concerned;
- ✓ inform the Traffic Controller, Station Controller and Yard Master of the exact locations of earthing devices.

On completion of work, the earthing devices must be removed.

G5.3.2 On lines where traction current is **not** switched off during non-traffic hours, when work is to be done which may take place within the minimum safe distance but which does **not** involve overhead line equipment, it can be done under the arrangements of Isolation Record Form. EPIC CP AP PSC TC

- ✓ Prior to issue of an Isolation Record Form, the Authorised Person must confirm with the Power System Controller that the overhead line equipment concerned have been isolated and earthed;
- ✓ The Authorised Person must issue the Isolation Record Form to the Competent Person in charge by the following means:
  - Issue the Isolation Record Form to the Competent Person in charge in person. If the Authorised Person and the Competent Person in charge are not at the same location, the Isolation Record Form must be sent to the concerned station from which the Competent Person in charge must collect it from the Station Controller in person; or
  - Issue the Isolation Record Form in electronic format to the Competent Person in charge via corporate mobile application.

- ✓ On receipt of the Isolation Record Form, the Competent Person in charge must reach a complete understanding with the Authorised Person on the isolation and earthing arrangements and the limit of work as stated in the form;
- ✓ The Competent Person in charge must obtain the Isolation Record Form number from the Authorised Person.
- ✓ When requesting authorisation for the work that requires issuance of the Isolation Record Form, the Competent Person in charge must provide the Isolation Record Form number to the Traffic Controller or Engineer's Person-in-Charge for verifying the issuance of the form;
- ✓ The Competent Person in charge must test and earth the section(s) concerned, unless the circuit main earth can be seen clearly;
- ✓ The overhead line equipment concerned must not be switched on at any time until all Competent Persons in charge have signed on the Isolation Record Forms for clearance and confirmed with the Authorised Person for the cancellation.

Note: The Competent Person in charge must be a Competent Person (Possession) or Competent Person (Track).

G5.4 Depots (except Workshop and Maintenance Tracks)

G5.4.1 When work is to be done on a track within depot limits, other than a Workshop or Maintenance Track, which requires isolation and earthing of overhead line equipment, the procedures for work on mainline and connection tracks during traffic hours must be applied. YM EPIC CP

G5.5 Depots (Workshop and Maintenance Tracks)

G5.5.1	No work may be carried out on or near overhead line equipment or equipment mounted on or under electric trains on Workshop and Maintenance Tracks until the overhead line has been isolated and earthed, except for approved tests on live equipment under specific direction of the relevant Supervisor of the Section concerned.	YM EPIC CP
G5.5.2	In no circumstances may persons work under the security of another's padlock or interlock key except as a member of a working party under control of a Competent Person. Each Competent Person in charge must individually apply a personal padlock to the appropriate interlock rack or bar.	CP
G5.5.3	Before starting work, the Competent Person in charge must: ✓ obtain consent to the work from the Yard Master; ✓ obtain instructions from the Yard Master concerning protection, the method of isolation and placing of earthing devices; ✓ apply the prescribed protection before opening any isolator and placing of earthing rods at the feed ends of tracks; ✓ ensure that personal padlock and interlock systems provided for safety are used in all circumstances.	YM CP
G5.5.4	The Competent Person in charge must: ✓ receive the Permit-to-Work (High Voltage and Traction Voltage) for work on overhead line equipment; or ✓ complete the Overhead Line Isolation/Energisation Record for work near overhead line equipment, or work on or near equipment mounted on or under electric trains.	YM AP CP
G5.5.5	On completion of work, each Competent Person must: ✓ remove the applied personal padlock; ✓ complete the Isolation/Energisation Record or cancel the Permit-to-Work (High Voltage and Traction Voltage); ✓ obtain instructions from the Yard Master concerning removal of other protection.	YM AP CP

G5.6 Traction Current Switching – Non-traffic Hours

G5.6.1 The Traffic Controller must inform the Power System Controller when traction current may be switched off from mainline and connection tracks (outside depot limit): TC PSC

- ✓ in accordance with instructions contained in Working Timetables, as amended in the Traffic Notice or other publication; or
- ✓ after the last scheduled train.

G5.6.2 If an electric train is to run after the normal time for switching off traction current, the Traffic Controller must not instruct the Power System Controller to switch off traction current until: TC PSC

- ✓ the last such train has passed through each section; or
- ✓ if the train is scheduled to work or to stable, until confirmation has been received from the Engineer's Person- in-Charge, or Train Operator when no Engineer's Person-in-Charge is provided, that traction current is no longer required.

If traction current remains switched on for a possession involving use of an electric train, normally it must remain switched on when the possession is surrendered.

G5.6.3 Traction current must not be switched on at any time after it has been switched off until: CC TC PSC

- ✓ any or all working parties have confirmed that the tracks concerned are clear of all tools, materials and persons;
- ✓ all safety documents have been cancelled.

If all working parties have confirmed that the overhead line equipment are clear of tools, materials and persons, and all safety documents have been cancelled, the traction current can be switched on for:

- ✓ testing of the points on Light Rail which are powered by the OHL;
- ✓ necessary train preparation;
- ✓ planned train test.
- ✓ planned electrical test on traction system within possession.

Chief Controller's consent is needed for the above works before switching on the traction current and he/she must satisfy him/herself that it will not result in inadvertent movement of electric trains. CC

G5.6.4 On lines where traction current is switched off during non-traffic hours, traction current must be switched on **no earlier than 5 minutes before** the scheduled time for switching on traction current shown in the Working Timetable, as amended in the Traffic Notice or other publication. TC PSC

G5.7 Traction Current Switching – Emergency

G5.7.1 In the event of an emergency requiring traction current to be switched off immediately in a depot Workshop or Maintenance track, staff must: All

Provision of Emergency Trip Push Button	Staff's Action
Available	✓ Operate an Emergency Trip push button provided on columns or walls beside the track; ✓ Inform the Yard Master.
Not available	✓ Contact the Yard Master or the Power System Controller for switching off the traction current; ✓ If the Yard Master or the Power System Controller cannot be contacted, an Authorised Staff can obtain the isolator key from emergency key box and open the isolator under off load condition

Every effort must be made to prevent trains from entering the section, e.g. by display of danger handsignals.

G5.7.2 In the event of an emergency requiring traction current to be switched off immediately, a request must be made to the following persons for switching off traction current: All

Location	Person
Mainline and connection track (outside depot limit)	• Traffic Controller; or • Power System Controller
Depot track (other than Workshop or Maintenance Track) and connection track (within depot limit)	• Yard Master; or • Power System Controller

G5.7.3 The person requesting to switch off the traction current must: All
- ✓ state that there is an **emergency**;
- ✓ give their name, grade, department and location;
- ✓ state clearly the section to be switched off and the reason;
- ✓ wait until an assurance is received from the Traffic Controller, Yard Master or Power System Controller that traction current is switched off.

G5.7.4 Upon the request of emergency traction current switching, the Traffic Controller or Yard Master must immediately instruct the Power System Controller to switch off traction current. TC YM

G5.7.5 Upon the request of emergency traction current switching from any staff, the Power System Controller must switch off the traction current immediately and then inform the Traffic Controller or the Yard Master. PSC

G5.7.6 The Traffic Controller or Yard Master must take appropriate action to prevent trains from entering the isolated section by maintaining signals at danger and, if necessary, switching off traction current on the approach section. TC YM

G5.7.7 Traction current must **not** be switched on until the Traffic Controller or Yard Master has received an assurance from person in-charge that all persons, tools, equipment and materials are cleared from the safe distance of overhead line equipment. TC YM

G5.8 Removal of Foreign Object on Live Overhead Line Equipment of Light Rail

G5.8.1	The Traffic Controller must agree with the Power System Controller before authorising the removal of the object.	TC PSC
G5.8.2	The Competent Person must: ✓ obtain authorisation from the Traffic Controller; ✓ ensure that appropriate protective equipment is used by the working party; ✓ take additional protective measures during rainfall; ✓ remove the object with approved insulated tools.	CP
G5.8.3	It is not necessary to isolate the overhead line equipment and issue a Permit-to-Work (High Voltage and Traction Voltage) for the work.	CP

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G6	Work on Low Voltage Apparatus

People Involved	Authorised Persons, Competent Persons, Person-in-Charge, Responsible Assessor, Responsible Person

Purpose	To state requirements for systematic control and management of work to ensure safety of staff

Risk	Failure to take prescribed precautions may lead to circuits remaining live, or circuits being made live, causing electrocution

G6.1 General

G6.1.1 When work is to be done on low voltage fixed electrical installation except traction voltage equipment, the Person-in-Charge (Low Voltage) of the work must ensure that: All

- ✓ a Permit-to-Work (Low Voltage Fixed Electrical Installation) is issued, by a Responsible Person (Low Voltage), with the equipment isolated, proved dead and earthed (if necessary);
- ✓ an Electrical Safety Assessment is conducted, by a Responsible Assessor (Low Voltage), when work on potentially live or live low voltage equipment is required.

G6.2 Main Switch Boards

G6.2.1 When work is to be done on low voltage main switch boards, including the low voltage incomer cables and cable end box, which requires isolation of high voltage or traction voltage equipment, an Authorised Person must: AP CP

- ✓ prepare a System Outage and Switching form;
- ✓ isolate and earth the appropriate high voltage or traction voltage transformer on the feeder and circuit sides;
- ✓ issue a Permit-to-Work (High Voltage and Traction Voltage) to the Competent Person in charge.

G6.2.2 When work is completed, the Competent Person must: AP CP

- ✓ request the Authorised Person to cancel the Permit-to-Work (High Voltage and Traction Voltage);
- ✓ carry out an insulation test on the busbar.

G6.3 Other Equipment

G6.3.1 When work is to be done on low voltage apparatus, conductors or equipment controlled by a circuit breaker or switch or supplied through a fuse, the Competent Person in charge must: CP

- ✓ isolate and lock off, where possible, the circuit breaker or switch or remove the fuse;
- ✓ display a Caution Notice;
- ✓ retain the padlock key or fuse;
- ✓ verify that the circuit is not live using an approved device.

On completion, these precautions must be removed.

Section H

Mechanical Equipment, Trains and Vehicles

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H1	General Requirements
People Involved	Authorised Persons, Competent Persons, Qualified Persons
Purpose	To state safe systems for controlling the use of various types of mechanical equipment
Risk	Use of mechanical equipment without proper care and precautions can result in mishandling, causing damage to equipment and harm to the occupational health and safety of staff involved in such operations

H1.1 Use of Equipment, etc.

H1.1.1	Mechanical equipment may be operated by Qualified Persons only.	AP CP QP
H1.1.2	Work on equipment must be carried out by working parties under the control of a Competent Person. For work covered by Hong Kong Government Ordinance or Regulations, the person responsible must be a Qualified Person.	AP CP QP
H1.1.3	Equipment that is not in use must be switched off, isolated, and warnings placed concerning unauthorised operation.	AP CP QP

H1.2 Safety Documentation

H1.2.1	When a Permit-to-Work (Mechanical) is required for work on mechanical equipment, it must be issued to the Competent Person in charge by an Authorised Person responsible for taking the prescribed safety precautions.	AP CP
H1.2.2	If work is to be carried out on the environmental control system, the consent of the Environmental System Controller or Security Inspector must be obtained.	AP CP

H1.2.3 The Competent Person in charge of the work must read the contents of the Permit-to-Work (Mechanical) aloud to the person issuing it. AP CP

H1.2.4 When more than one party is working under the authority of the same isolation and protection, each Competent Person in charge of each working party must be given a copy of the Permit-to-Work (Mechanical) and each must apply individual personal padlocks to the appropriate lockout box. AP CP

H1.2.5 The Competent Person in charge must ensure the safety of the working party. If the Authorised Person who is responsible for the isolation and protection is also the Competent Person in charge, the Permit-to-Work (Mechanical) must be issued in accordance with the foregoing and must be retained by the Authorised Person. CP

H1.3 Change of Competent Person

H1.3.1 If the Competent Person in charge is relieved, the Permit-to-Work (Mechanical) must be transferred and: AP CP

- ✓ the person taking charge must read it aloud in the presence of the Authorised Person;
- ✓ both Competent Persons and the Authorised Person must sign the form;
- ✓ the Authorised Person must inform the Environmental System Controller or Security Inspector when appropriate.

H1.4 Clearance and Cancellation

H1.4.1 Upon completion of work for which a Permit-to-Work (Mechanical) has been issued, the Competent Person must: CP

- ✓ warn all persons in the working party that it is no longer safe to work on the apparatus;
- ✓ ensure that all gear, tools and blocks used or fixed by the working party are removed clear of the apparatus;
- ✓ sign the Permit-to-Work (Mechanical) and hand it to the Authorised Person.

H1.4.2	When more than one Permit-to-Work (Mechanical) has been issued under the same isolation or precautionary measures, the apparatus must remain isolated and all other safety precautions must be maintained until all such Permits-to-Work (Mechanical) have been cancelled.	AP
H1.4.3	When all such Permits-to-Work (Mechanical) have been cleared, the Authorised Person must: ✓ remove the isolation or precautionary measures; ✓ cancel the Permit-to-Work (Mechanical); ✓ inform the Environmental System Controller or Security Inspector when appropriate.	AP

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H2	Pressure Pumps, Vessels, Pipework, etc.

People Involved	Competent Persons

Purpose	To state safety requirements to be made for work to ensure that staff are not exposed to hazard from equipment or sources of fluids, gases or electricity

Risk	Lack of safety precautions exposes staff to injury or fatality caused by movement of equipment or pressurisation

H2.1 Pressure Pumps and Rotating Machines

H2.1.1 Before starting work on pressure pumps and rotating machines, the Competent Person must ensure: CP

- ✓ the device concerned is out of service and at rest;
- ✓ all suction, discharge, leak off and other valves connected to external sources of supply are locked shut and a Caution Notice is displayed;
- ✓ the electrical supply point isolator is opened and locked so that it is inoperative and a Caution Notice is displayed;
- ✓ the machine is drained and vented, until atmospheric conditions prevail.

A Permit-to-Work (Mechanical) for the work must then be obtained (except for work on Rolling Stock Equipment).

H2.2 Pressure Vessels and Pipework

H2.2.1 Before starting work on pressure vessels and pressure pipework etc., the Competent Person must: CP

- ✓ ensure all supply and delivery sources are isolated, locked shut and a Caution Notice is displayed;
- ✓ ensure the vessels and pipework are de-pressurised by draining and venting, until atmospheric conditions prevail;
- ✓ take care to prevent backfeeds of drainage.

A Permit-to-Work (Mechanical) must then be obtained (except for work on Rolling Stock equipment).

H3	Forklift Truck / Cranes / Lifting Appliances

People Involved	Competent Persons

Purpose	To state safety requirements to be made for work on or when using lifting equipment to ensure that staff are not exposed to hazards

Risk	Lack of safety precautions exposes staff to injury or fatality caused by movement, instability or overloading of equipment

H3.1 Safety Precautions

H3.1.1 When working on crane, hoist or lifting equipment: CP

- × no person may climb onto any crane rail, crane, hoist, or other lifting machine, unless approval from the person operating the lifting device has been obtained;
- × no person may work on or near the wheel track of an overhead or travelling crane, unless effective measures have been taken by warning the operator of the crane and making sure the crane does not approach within 7 metres of the workplace;
- ✓ where possible, electrical and mechanical isolations must be made and Danger/Caution Notices must be put at places of work and isolation.

A Permit-to-Work (Mechanical) must be issued.

H3.2 Mobile Cranes

H3.2.1 No work may be carried out on the crane jib of a mobile crane unless it is resting on the ground or in the stowed position, and the controls have been isolated. CP

H3.3 Operation

H3.3.1 Mobile appliances must **not** be used on or near tracks equipped with overhead line equipment unless: CP

- ✓ traction current has been switched off;
- ✓ the equipment has been isolated and earthed;
- ✓ care must be taken to ensure that no damage is caused to the overhead line equipment.

H3.3.2 Care must be taken at all times to: CP

- ✓ prevent any part of a lifting appliance or its load from obstructing any track or roadway unless protection is applied;
- ✓ ensure that mobile appliance outriggers are fully extended;
- ✓ ensure that all persons are clear of the appliance and crane hooks or empty forks which may not be readily seen;
- ✓ ensure that any load is securely suspended and supported;
- ✓ ensure that chains, ropes, etc. are in good condition;
- ✓ ensure the parking handbrake is applied before a load is lifted or slewed;
- ✓ sound the warning device, where applicable, a few seconds before moving the appliance in any direction;
- ✓ obtain guidance from a responsible member of staff when there is not a clear view in the direction of travel;
- ✓ keep the jib or mast clear of any overhead or other structure.

H3.3.3 During lifting operations, staff must **not**: CP

- × expose themselves to danger;
- × stand where the load may fall, be lowered or where there is a risk of injury;
- × touch a load to guide it or prevent it from swinging except for final positioning.

Special attention must be paid to loads which by their nature may tend to turn over, twist or tilt when they are raised.

H3.3.4 No person may climb out on an elevated pallet or stillage for any purpose, except: CP
- ✓ when specifically authorised;
- ✓ a safety barrier fixed to the appliance is provided.

H3.3.5 Operators must not reach through the masts of fork-lift trucks, etc, to adjust the load or for any other purpose. CP

H3.4 Maximum Load

H3.4.1 The maximum permitted load (Safe Working Load) marked clearly on an appliance must never be exceeded. CP

H3.4.2 The Competent Person must take care when handling a load of which the weight is not known and can only be estimated, and full allowance must be made for possible variation. If there is any doubt about whether the weight of a load is within the rating of the appliance: CP
- × the load must **not** be lifted;
- ✓ skilled advice must be obtained.

H3.4.3 Allowance must be made for reductions in maximum permitted load owing to: CP
- angle or camber of the ground or road on which the appliance is standing;
- use of special attachments, eg extension sleeves or squeeze clamps on fork trucks;
- variable operating radius of a crane jib.

H3.4.4 Mobile appliances must **not** be used on platforms, floors or roadways unless the Engineer has previously confirmed that the construction is sufficiently strong to bear the weight of the appliance with its maximum permitted load. CP

H3.4.5 When an appliance is working on a platform or raised floor: CP
- ✓ care must be taken to keep as far away from the edge as practicable;
- ✓ turning movements must be made away from the edge.

H3.5 Appliance Movement

H3.5.1	When the jib is in line with the chassis, an appliance may travel with a load suspended from the jib at a maximum speed of 3km/h.	CP
H3.5.2	A slewing crane must **not** carry a load overside unless specifically authorised.	CP
H3.5.3	Side-loading fork trucks may carry loads over any distance provided that: ✓ the mast is fully retracted; ✓ the load is resting on the appliance platform.	CP
H3.5.4	Fork trucks must **not** be taken on to wagons or road vehicles unless specifically authorised.	CP
H3.5.5	Movements across tracks must be made with caution.	CP

H4	Ventilation and Air Conditioning Equipment

People Involved	Authorised Persons, Competent Persons

Purpose	To state safety requirements to be made for work to ensure that staff are not exposed to hazard from movement of equipment

Risk	Lack of safety precautions exposes staff to injury or fatality caused by movement of equipment

H4.1 Safety Precautions

H4.1.1 Before starting work on any equipment which will affect the operation of an Environmental Control System, the Authorised Person and Competent Person must: AP CP

- ✓ isolate the electrical supply to the equipment by opening the main isolator and placing a Caution Notice on it;
- ✓ where dampers are fixed to the ducting, close them before starting work;
- ✓ where dampers are not fixed to the fan ducting, secure the fan blades to a brace or cross-member of the fan structure using a rope or by inserting a piece of timber between the blades and the fan structure.

A Permit-to-Work (Mechanical), if required, will be issued.

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H5	Lifts
People Involved	Station Controllers, Duty Engineers In-Charge, Competent Persons, Qualified Persons, Yard Masters
Purpose	To state safety requirements to be made for work to ensure that staff and passengers are not exposed to hazards from equipment or its movement
Risk	Lack of safety precautions exposes staff and passengers to injury or fatality caused by movement of equipment

H5.1 Safety Precautions

H5.1.1 Before a lift is made inoperative for maintenance work, the Competent Person must: CP SC YM

- ✓ obtain the prior agreement of the Station Controller or Yard Master;
- ✓ place “No Entry” barriers across entrances to the lifts concerned at all landings;
- ✓ isolate the electrical supply to the equipment by opening and locking the main isolator in the machine room and place a Caution Notice on it;
- ✓ fill in the Lifts and Escalators Log Book.

H5.2 Completion

H5.2.1 After completing the maintenance work, and the lift has been run for several trips, provided everything is in order, the Competent Person must: CP SC YM

- ✓ sign the Lifts and Escalators Log Book;
- ✓ inform the Station Controller or Yard Master;
- ✓ obtain approval to remove the Caution Notice and the “No Entry” barriers.

H5.3 Access to Lift Pits

H5.3.1	Access to lift pits is permitted only by: ✓ Qualified Persons; ✓ other persons accompanied by a Qualified Person who will be responsible for their safety.	QP SC DEIC
H5.3.2	Before accessing a lift pit, the Competent Person must: ✓ ensure the lift in the shaft concerned is inoperative; ✓ follow appropriate Rules before entrance into the lift pit; ✓ complete a "Certificate of Presence of Person in Lift Pit" form.	CP

H5.4 Certificate

H5.4.1	The Certificate of Presence of Person in Lift Pit must be made out in duplicate, with one copy retained by the Competent Person and the other by the Station Controller or Yard Master.	QP SC YM
H5.4.2	If either the Station Controller or Duty Engineer In-Charge or the Competent Person is relieved before the work is completed, the appropriate parts of the form must be completed.	CP QP SC DEIC
H5.4.3	A new form must be completed for each day or period of booking out of service, if less than one day.	CP QP SC DEIC

H5.5 During Work

H5.5.1 During working in lift pits, the Competent Person must: CP QP

- ✓ identify a safe location in the lift pit that can allow person to stay such that no danger exists from the movement of the lift or other apparatus;
- ✓ ensure any person who works in the lift pit know the safe location;
- ✓ have direct control of the movement of the lift;
- ✓ ensure all persons have left the lift pit or stay at a safe location in the lift pit, if it is necessary to operate the lift;
- ✓ warn persons at work of any movement of the lift;
- ✓ persons must enter or leave lift pits by the lowest landing entrance only.

When work is completed, the person in charge of the premises must sign and keep the Certificate.

H5.6 Lift Car Top

H5.6.1 When staff must work on a lift car top, control must be effected from the car top. CP

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H6	Escalators and Travelators
People Involved	Station Controllers, Competent Persons
Purpose	To state safety requirements to be made for work to ensure that staff and passengers are not exposed to hazard from equipment or its movement
Risk	Lack of safety precautions exposes staff and passengers to injury or fatality caused by movement of equipment

H6.1 Safety Precautions

H6.1.1 Before an escalator or travelator is made inoperative for maintenance work, the Competent Person must: SC CP

- ✓ obtain the prior agreement of the Station Controller;
- ✓ place “No Entry” barriers across both escalator/travelator landings;
- ✓ when it is for work of a major nature, erect special hoardings and barriers before starting the work;
- ✓ isolate the electrical supply to the equipment by opening and locking the main isolator in the machine room and place a Caution Notice on it;
- ✓ fill in the Lifts and Escalators Log Book.

H6.2 During Work

H6.2.1 When working on escalators or travelators, the Competent Person must ensure that: CP

- ✓ when the escalator or travelator cannot be used as a fixed stairway, barriers are provided at both landings;
- ✓ the escalator or travelator is stopped before removing an obstruction from a comb plate;
- ✓ when working inside an escalator or travelator structure, staff move clear of the escalator or travelator before it is operated;
- ✓ when it is necessary to operate an escalator or travelator with a step or pallet missing, arrange for staff to guard both landings and use the “inching” control **only**.

H6.3 Completion

H6.3.1 When work is complete and the escalator/ travelator has been run for test, provided everything is in order, the Competent Person must: CP

- ✓ sign the Lifts and Escalators Log Book;
- ✓ inform the Station Controller;
- ✓ obtain approval to remove the Caution Notice and the “No Entry” barriers.

H7	Baggage Handling Equipment
People Involved	Station Controllers, Competent Persons
Purpose	To state safety requirements to be made for work to ensure that staff are not exposed to hazard from equipment or its movement
Risk	Lack of safety precautions exposes staff to injury or fatality caused by movement of equipment

H7.1 Safety Precautions

H7.1.1 Before baggage handling equipment is made inoperative for any reason, the Competent Person must: SC CP

- ✓ obtain the prior agreement from the Station Controller;
- ✓ open and lock the isolator and place a Caution Notice on it;
- ✓ ensure a hoist is not used to convey persons;
- ✓ fill in the "Mechanism Disarranged" column in the Baggage Handling Equipment Log Book.

H7.2 Completion

H7.2.1 On completion of work, the Competent Person must: CP SC

- ✓ sign the "Mechanism Restored" columns in the Baggage Handling Equipment Log Book;
- ✓ inform the Station Controller;
- ✓ remove the Caution Notice.

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H8	Fuel Equipment
People Involved	Competent Persons
Purpose	To state safety requirements to be made for work to ensure that staff are not exposed to hazard from equipment or sources of fluids or gases, and fire risk is minimised
Risk	Lack of safety precautions exposes staff to injury or fatality caused by movement of equipment and risk of fires and explosions

H8.1 Safety Precautions

H8.1.1 Before starting work on fuel equipment or engine, the Competent Person must: CP

- ✓ check that there is no leakage of fluids or gases;
- ✓ ensure that fire fighting equipment is available at the site;
- ✓ lock off the starting equipment;
- ✓ open and lock off the isolators of any associated generator and attach a Caution Notice on it;
- ✓ where the engine is an integral part of a locomotive, fix a “NOT TO GO” target in accordance with the Rules.

A Permit-to-Work (Mechanical) must be issued (except for work on rolling stock).

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H9	Depot Fixed Plant

People Involved	All Staff

Purpose	To describe safety arrangements for use of and work on depot fixed rolling stock plant

Risk	Staff and equipment may be placed in danger, causing injury and damage

H9.1 Train Wash Plant

H9.1.1 Staff must **not** be on or near the platform staging of a train wash plant when: All

- ✗ it is in operation;
- ✗ overhead line equipment is live except with express permission of the Duty Engineer In-Charge and subject to the Rules for electrical safety.

H9.1.2 When engineering work is to be done on a train wash plant, the Competent Person must have possession of the track concerned. CP

H9.2 Traverser

H9.2.1 When a traverser is not in use it must be left: CP

- ✓ in its designated stabling position;
- ✓ with the latches at both ends fully engaged;
- ✓ with the main motor, control and lighting switches off.

H9.2.2 Vehicles must be moved onto and off a traverser under their own power when possible. When necessary, vehicles may be moved by: CP

- ✓ a locomotive;
- ✓ a tractor; or
- ✓ use of the winch provided.

Before any movement, the Competent Person must ensure that the tracks are aligned with the running rails.

H9.2.3	A vehicle approaching a traverser must be brought to a stop before proceeding on to it. It must be secured during movement of the traverser.	All
H9.2.4	Road vehicles or equipment which are not designed to run on rails must **not** use the traverser in any circumstances.	All

H9.3 Underfloor Wheel Lathe

H9.3.1	When an underfloor wheel lathe is not in use, it must be secured properly to allow safe movement of vehicles over it.	CP
H9.3.2	Before an underfloor wheel lathe is used, the Competent Person must: ✓ inform the Yard Master; ✓ protect it by installing metal wheel stops and red flashing lights (engineering work) on the approaches to them; ✓ ensure that the vehicle pantograph or battery switch, as appropriate, has been isolated and padlocked; ✓ place wheel stop and pantograph isolating cock padlock keys in a lockout box; ✓ retain the key to the lathe and any other keys to padlocks used for equipment isolation.	CP
H9.3.3	On completion of work, the Competent Person must: ✓ ensure the lathe has been secured to allow safe movement of vehicles over it; ✓ remove the protection; ✓ return all keys to their original locations; ✓ inform the Yard Master.	CP

H10	Trains and Vehicles
People Involved	Competent Persons, Yard Masters, Train Operators
Purpose	To state safety requirements to be made for work to ensure that staff are not exposed to hazard from movement of or from making live equipment
Risk	Lack of safety precautions exposes staff to injury or fatality caused by movement of equipment or connection to an electrical supply

H10.1 Safety Precautions

H10.1.1	Staff must **not** work on any train or vehicle without prior agreement with the Yard Master.	CP YM
H10.1.2	Staff must **not** begin work on any vehicle unless it is properly secured. Vehicles on the same track and close to the vehicle on which work is to be done must also be secured.	CP
H10.1.3	If access is required to any train or vehicle on which a target is displayed, consent must be obtained from the person responsible for placing it.	CP
H10.1.4	Before boarding a train in the Fully Automatic Operation area for work, the working party must ensure that appropriate protection has been taken to suspend the train movement in Fully Automatic Operation mode.	All

H10.2 Targets

H10.2.1 When work is to be done on trains or vehicles which must not be moved, or training is to be done on trains or vehicles, targets bearing the name of the individual doing the work or the name of the Competent Person in charge of a working party must be displayed in a conspicuous position: CP

When	Targets placed
working or training on any vehicle	at each end of the vehicle
a vehicle is coupled	at each end of the consist
the vehicle is standing close to other vehicles on the same track	on the outermost ends of adjacent vehicles

H10.2.2 Targets bearing legends indicating the reason a vehicle must **not** be moved may also be used. CP

H10.2.3 When more than one person or working party is working on the same vehicle or train, each must place targets and must **not** rely on any other protective measures which may have been taken. CP

H10.2.4 On completion of work or training, each person may remove only the target they previously placed. CP

H10.3 Vehicles with Train Operators

H10.3.1 Staff who are to work on a vehicle under the control of a Train Operator must: CP

- ✓ inform the Train Operator of what is to be done;
- ✓ where necessary for safety, obtain an assurance that the vehicle will not be moved;
- ✓ obtain the Controller Key from the Train Operator.

H10.3.2 The Train Operator must ensure that train radio facilities are available at all times, where provided. TO

H10.4 Brake Equipment

H10.4.1 Before starting work, the Competent Person must secure a vehicle by scotch block when: CP

- ✓ work is to be done on the handbrake or parking brake equipment;
- ✓ work requires release or disconnection of any part of the handbrake or parking brake equipment.

H10.4.2 Before starting work on brake blocks or rigging, staff must: CP

Brake Type	Safety Requirement
Automatic air	close the triple or graduated release valve isolating cock
Electro-pneumatic	close the brake isolating cock

H10.4.3 A brake test must be carried out by an independent person after completion of any work on brake equipment. CP

H10.5 Electrical Equipment

H10.5.1 Before starting work on electrical train equipment, staff must ensure that current is switched off from the particular equipment on which work is to be done and, where appropriate, temporary earths have been applied. CP

H10.5.2 Under no circumstances must a person make live an electrical circuit on a vehicle by connecting it with another vehicle which may have live circuits without first ensuring that no person is working underneath, upon or near any part of the electrical equipment. CP

H10.5.3 Any person who may be affected by equipment being made live from any source must be told individually and clearly what is to be done, and the person giving the warning must obtain an acknowledgement from each person. CP

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H11	Handsignals - Lifting and Load Transfer

People Involved	Qualified Persons, staff involved in operation of mechanical appliances

Purpose	To describe the different types of handsignals used for safe control of lifting and load transfer operations and requirements for their use

Risk	Failure to observe and to comply with handsignals given to control lifting and load transfer operations may result in unsafe conditions, with catastrophic consequences

H11.1 General

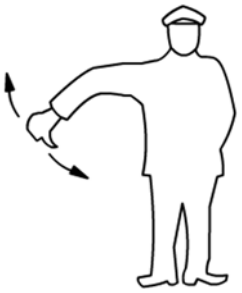
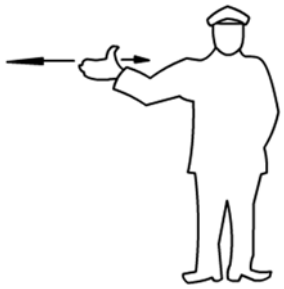
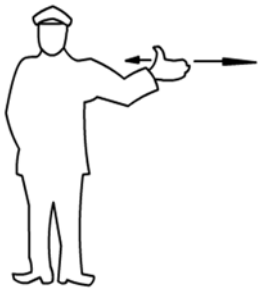
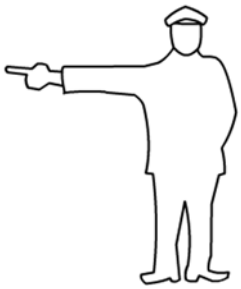
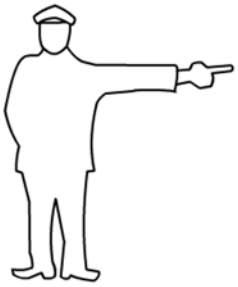
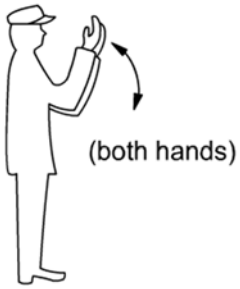
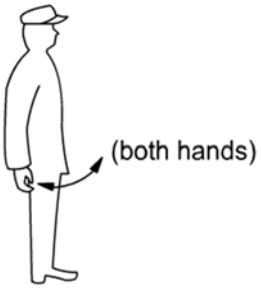
H11.1.1 The prescribed handsignals must be used on every occasion by all staff directing the operation of lifting or load-transfer equipment of any kind. No other handsignals are to be used in any circumstances. QP Others

H11.2 Supervision

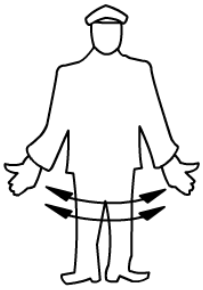
H11.2.1 A member of Corporation staff responsible for supervision of lifting, etc, operations must ensure that all persons engaged in the work are familiar with the standard handsignals before the work commences. QP

H11.3 Standard Handsignals

H11.3.1 The standard handsignals to be used during lifting, etc, operations are: QP Others

1 – Stop	2 – Inch or Take the Strain	3 - Hoist
	 *(clench/unclench fingers only – no arm movement)*	
4 - Lower	**5 – Jib Up/Tilt Mast Back**	**6 – Jib Down/Tilt Mast Forward**
		
7 – Slew/Side-shift Left	**8 – Slew/Side-shift Right**	**9 – Travel Left**
		
10 – Travel Right	**11 – Travel to Me**	**12 – Travel from Me**
		

13 – Rotate Load Left	14 – Rotate Load Right	15 – Telescope Out/Cross-travel/Traverse as indicated
		

16 – Telescope In/Cross-travel/Traverse as indicated	17 – Operation Completed	
		

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Section J

Major Incidents

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J1	General
People Involved	Chief Controllers, Duty Services Managers, Duty Engineers In-Charge, Station Controllers, Security Staff, Incident Officers, Incident Engineers, other staff involved
Purpose	To define what constitutes a major incident, and to describe the general incident management and control arrangements during major incidents
Risk	Inappropriate response may lead to more serious consequences, difficulties in determining the cause, delay management of a major incident, causing recovery and restoration work to be extended and resulting in loss to the Corporation

J1.1 Definition

J1.1.1 Major incidents are occurrences which involve: All

- a derailment affecting track on mainline;
- a collision rendering any vehicles occupying or obstructing a track on mainline immobile under their own power;
- a collision causing injury or loss of life to any person;
- a fire which is not extinguished by automatic equipment and which seriously endangers life or structures;
- any fire in a tunnel where trains are involved, until proved to be other than a major incident;
- a defect or failure considered by a senior Operations Official to be likely to curtail service on a track on mainline for more than 20 minutes;
- closure of a station for more than 20 minutes, other than for crowd control.

On Light Rail, incidents which are treated as traffic accidents are **not** considered to be major incidents unless service is likely to be curtailed for more than 20 minutes.

J1.1.2 The Fire Services Department must be informed immediately of all fires which occur on the railway regardless of their extent or degree. All

J1.1.3 Requests for attendance by emergency services must be made only when required by the senior Operations or Engineering Official at the site, unless reports of an incident indicate that immediate response is necessary. All

J1.2 Declaration

J1.2.1 The Chief Controller is responsible for declaring major incidents and informing the Incident Officer and the Incident Engineer of the occurrence of major incident. CC

J1.2.2 Prior to the arrival of the Duty Services Manager to take up the role of Incident Officer, the Chief Controller is also responsible for assigning a staff member as the Incident Officer. CC

J1.3 Incident Control

J1.3.1 The Duty Services Manager must take local control on site. The Duty Services Manager must decide whether to introduce Incident Control and, if so, set up the Incident Control Post as close to the incident site as possible. This will enable effective coordination with all rescue parties, including the Fire Services Department officers, on track access, traction current isolation and earthing, and rescue and recovery actions. DSM

J1.3.2 The Duty Services Manager will proceed to the site to: DSM

- act as local co-ordinating authority;
- take local control of operation responsibilities;
- provide information to the Chief and Traffic Controllers;
- deal with the Corporate Relations Department through a representative on site.

J1.3.3 The Duty Engineer In-Charge will proceed to the site to: DEIC
- act as a report reception and dissemination centre for all technical decisions taken by maintenance staff;
- liaise with the senior Operations Official on site.

J1.3.4 When the Incident Control organisation is introduced, the Duty Engineer In-Charge will be appointed Incident Engineer. DEIC

J1.4 Duty Services Manager

J1.4.1 When informed by the Chief Controller of a major incident, the Duty Services Manager must decide whether to introduce Incident Control and, if so, arrange for: DSM
- telecommunications technicians to proceed to the site;
- assume the responsibilities of Incident Officer;
- a Station Supervisor or member of Security staff to be appointed as the Incident Officer's Assistant;
- the Chief Controller to be informed accordingly.

J1.5 Incident Officer

J1.5.1 On arrival at the nearest station or depot, the Incident Officer must: IO
- inform the Chief Controller that local control has been taken, the location of the Incident Control Post, and the means of communication to be used;
- request an emergency possession if necessary;
- ascertain whether traction current is switched on and which other electrical equipment and cables are live;
- proceed to the incident site and confirm attendance by the Incident Engineer;
- if necessary, instruct technicians to install a temporary telephone line, and inform the Chief Controller when this has been done.

J1.5.2 The Incident Officer must take complete local control of these arrangements regardless of the presence of any other Corporation officials: IO

- detrainment of passengers on trains in the vicinity, in conjunction with the Traffic Controller;
- co-ordination of train service requirements with engineering work required by the Incident Engineer;
- co-ordination of requirements for traction current and power supply switching, and for operation of the environmental control system;
- co-ordination of phasing of restoration of normal services;
- keeping the Chief Controller informed of the local situation.

J1.5.3 The Incident Officer must consult the Incident Engineer to agree upon a timescale for resumption of through services. A Line Clear must be given before traction current or any power supply is switched on or trains are authorised to run. IO

J1.6 Incident Engineer

J1.6.1 On arrival at the nearest station or depot, the Incident Engineer must: IE

- confirm attendance by and with the Incident Officer;
- take exclusive responsibility for all technical work;
- inform the Incident Officer of any facts discovered or decisions taken;
- agree with the Incident Officer a timescale for resumption of service.

J1.6.2 All engineering teams attending the site or intending to take action of any nature must consult and agree with the Incident Engineer before proceeding. Others

J1.7 Preservation of Evidence

J1.7.1	In all cases of major incidents, every effort must be made to preserve evidence which may be used during investigations into the cause.	All
J1.7.2	Failure to preserve evidence will create problems in identifying the cause of an incident and thereby create risks that important lessons to be learned are lost.	All

J1.8 Organisation

J1.8.1	In the event of a major incident or simultaneous major incidents having implications which in the opinion of the Chief of Railway Segment requires it, in addition to the Duty Services Managers or Incident Officers on site, a senior Operations Official must attend the Communications Coordination Centre, Operations Control Centre, or other appropriate location to co-ordinate overall system strategy and operations.	SOO

J1.9 Restoration of Service

J1.9.1	Prior to restoration of service, the Incident Engineer must issue a Service Restoration Certificate to the Incident Officer.	IE IO

J1.10 Media Facilities

J1.10.1	Representatives of newspapers, news agencies, broadcasting companies, photographic and newsreel agencies must be allowed such reasonable facilities and access to the incident site as may be expedient for obtaining factual information in regard to any incident.	DSM IO
J1.10.2	The Incident Officer must use discretion in permitting movements of the accredited representatives of the Press and other news services, having regard to the prevailing conditions. The representatives must be informed that they enter upon Railway premises at their risk, and that in no circumstances may they attempt to interview other staff, or proceed on to the track unless accompanied by an Operations Official.	DSM IO

J1.10.3	When available, a representative of the Corporate Relations Department must assume responsibility for all Press and other news services facilities in consultation with the Incident Officer. If not available, Press and news services representatives must be informed that they must obtain information from the Corporate Relations Department in the Headquarters Offices. Staff must **not** give statements to the Press or news services until they have obtained permission from the Corporate Relations Department.	CRD

J3	Incidents Involving External Authorities

People Involved	Corporation Staff and Emergency Services attending a major incident

Purpose	To describe the roles and functions of the agencies participating in rescue and recovery from a major incident

Risk	Lack of co-ordination will impede rapid clearance of and recovery from a major incident leading to loss to the Corporation and unnecessarily extended deployment of resources by all parties

J3.1 General

J3.1.1 The general Rules for handling major incidents are also applicable to incident involving external authorities. All

J3.2 Participating Authorities

J3.2.1 The authorities which will participate in the major incident organisation are: All

- the Corporation;
- Hong Kong Police (HKP);
- Fire Services Department (FSD);
- Ambulance Command (AMB);
- Hospital Authority (HA);
- Highways Department (HyD);
- District Office (DO);
- Food & Environmental Hygiene Department (FEHD);
- Immigration Department (ID);
- Custom and Excise Department (C&ED);
- Railways Branch/EMSD (RB);
- Marine Department (MD).

J3.2.2 Each authority is responsible for providing a representative at the Joint Control and Liaison Centre established by the Fire Services Department to co-ordinate rescue and recovery activities. All

J3.2.3 In general, the Fire Services Department will assume their usual responsibilities in fire-fighting and rescue operations. In general, the Fire Services Department will control the fire-fighting and rescue services engaged in the area of the incident site, while Police will control the surroundings and access to the area. FSD

J3.3 Command Posts

J3.3.1 Fire Services and Police will establish command posts at or near the incident site which will maintain the closest possible liaison. Fire Services will normally operate from a Mobile Command Unit which may be designated as a Joint Control and Liaison Centre to co-ordinate rescue and recovery efforts of each participating authority. All

J3.3.2 When a Joint Control and Liaison Centre is set up, each participating authority must appoint an official at the centre to provide liaison between their staff working at the site, the Centre and their own control organisations. All

J3.4 Corporation

J3.4.1 Chief Controller

The Chief Controller must instruct the Traffic Controller to arrange evacuation of stations directly affected and to make appropriate adjustments to train working and inform: CC

- the Railway District Police Control Room;
- for Light Rail, the Police Regional Command and Control Centre;
- the Fire Services Communication Centre;
- the Duty Services Manager;
- the Duty Engineer In-Charge;
- the Rolling Stock and Infrastructure Maintenance Departments;
- the Corporate Relations Department.

All parties must be given the telephone numbers on which the Incident Officer can be contacted. The Railway District Police Control Room must be informed of:

- the names and grades of Corporation officials proceeding to the site, together with registration numbers of road vehicles used;
- the location and registration numbers of emergency vehicles which will require police escort to the site.

J3.4.2 Incident Officer/Incident Engineer

The Incident Officer or Incident Engineer must: IO IE

- consider to arrange immediate evacuation of the station or affected area;
- arrange to place barriers and signs indicating the route to the incident site from the access point designated for use by emergency services;
- appoint a member of staff to wait adjacent to the designated access point to direct emergency services personnel;
- arrange temporary telephone connection between the Mobile Command Unit and Corporation system;
- arrange access by Fire Services staff to the Police Room, Post and Equipment Room for connecting radio equipment;
- arrange to place barriers and signs indicating the shortest possible egress route from the incident site to the designated entrance. The egress route should be separated from the access route.

J3.4.3 Duty Services Manager

When informed by the Chief Controller of a major incident, the Duty Services Manager must introduce Incident Control and must: DSM

- appoint a senior Operations Official by name as Liaison Officer to proceed to the site to work in the Joint Control and Liaison Centre;
- appoint an Operations Official by name as Casualty Liaison Officer to liaise with the Ambulance Incident Officer of the Ambulance Service.

J3.4.4 Incident Officer

On arrival at the nearest station or depot, the Incident Officer must: IO

- ensure that access and egress arrangements are in place;
- if communication is by means of a telephone remote from the incident site, instruct the Incident Officer's Assistant to designate a member of staff to answer the telephone and to convey messages to and from the site;
- inform the Incident Engineer and Liaison Officer of the arrangements;
- if necessary, direct technicians to install temporary telephones and assist with Fire Services radio connections;
- contact Fire Services and Police officials on site and inform them of the liaison arrangements;
- arrange for any necessary traction current or power supply switching, or alterations in operation of the environmental control system.

IO

The Incident Officer must take complete local charge of these arrangements, regardless of the presence of other Corporation officials:

- detrainment of passengers, as necessary, in the immediate vicinity of the incident. The Incident Officer must confer with the Traffic Controller and instruct a responsible member of staff to proceed with detrainment;
- co-ordination of train service requirements with engineering work directed by the Incident Engineer and with fire-fighting and rescue operations carried out by Fire Services and Police. The Incident Engineer and officials in charge of persons involved in these operations will remain responsible exclusively for their own technical work, but must inform the Incident Officer of any facts discovered or decisions taken;
- keeping the Chief Controller frequently informed of the local situation;
- informing Corporation departments not represented at the site of progress;
- co-ordination of phasing of restoration of normal services after consultation with the senior Operations Official on duty and the Chief and Traffic Controllers.

TC

The Traffic Controller must **not** authorise, nor may the Power System Controller carry out, any switching of traction current or power supply within the affected area without the agreement of the Incident Officer.

J3.4.5 Safety

The Incident Officer will remain responsible for: IO

- safety of passengers and staff;
- safety of personnel of external agencies;
- ensuring minimum disruption of train services and station or depot operation.

Fire Services and Police will liaise with the Incident Officer on potential hazards where access is restricted or prevented. IO

The necessity for personnel of any external agency to go onto the tracks must be assessed by the Incident Officer. Before such personnel go onto any tracks: IO

- traction current must be switched off if there is any danger of close proximity to the overhead line equipment;
- if traction current is to remain on, suitable advice and safety instructions must be given;
- appropriate protection must be applied, whether traction current is on or off;
- protection arrangements are made for access to lift shafts or escalator and travelator machine rooms.

If Fire Services request switching of traction current or power supplies, or if it is necessary to alter operation of the environmental control system, the Incident Officer must decide on the action to be taken, if necessary after consultation with the Traffic Controller.

J3.4.6 Liaison Officer

The Liaison Officer must: LO

- proceed to the Fire Services Mobile Command Unit or Joint Control and Liaison Centre;
- maintain liaison between external agencies and the Incident Officer;
- inform the Corporate Relations Department or its representative on site of restrictions on access to the site by media representatives and on photography and filming;
- refer all requests from Press or news service representatives to the Corporate Relations Department representative on site.

J3.4.7 Incident Engineer

The Incident Engineer must: IE

- report to the Incident Officer;
- assume responsibility for co-ordinating the work of all Corporation engineering work and for all technical matters;
- inform the Incident Officer of any facts discovered or decisions taken;
- agree with the Incident Officer a timetable for resumption of through services.

J3.4.8 Casualty Liaison Officer

The Casualty Liaison Officer must: CLO

- approach the Ambulance Incident Officer of the Ambulance Service;
- facilitate the Ambulance Incident Officer in setting up the triage area;
- maintain close communication with the Ambulance Incident Officer throughout the incident;
- obtain information from the Ambulance Incident Officer, including the number and condition of casualties, and the hospitals to which they are sent;
- regularly update the Incident Officer on the casualty figures and other related information.

J3.4.9 Corporate Relations Department

The Chief Controller or Manager – Operations Communication will inform the Corporate Relations Department of all incidents which seriously affect normal train services. The Department must: CRD

- send a representative to the incident site;
- advise the Press and other news services of the details and effects of the incident;
- obtain and declare details of restrictions on access to the incident site and photography from the Incident Officer or Liaison Officer;
- liaise with external agency public relations departments on site to establish an area at a convenient point not adjacent to the Joint Control and Liaison Centre for use by the Press and news services;
- obtain current information from the Liaison Officer, Chief Controller, Manager – Operations Communication, or Incident Officer, as appropriate,.

J3.5 Police

J3.5.1 General

The Police are responsible for: HKP

- cordoning and control of entry to the area affected by the incident;
- control of persons in the area not engaged in dealing with the incident;
- co-ordination of all agencies and services not actively engaged in fire-fighting, rescue, recovery, etc;
- prevention of theft and supervision of found property;
- recording of dead and injured;
- dealing with enquiries from relatives and others by establishing an enquiry office at or near the incident site or elsewhere;

- road traffic control; HKP
- arranging escort of Corporation breakdown vehicles to site;
- transporting Casualty Teams, Medical Control Officers, and their equipment, to the incident site.

J3.5.2 Railway District Police Control Room

The first-hand information of major incidents on the railway will be normally given by the Chief Controller to the Railway District Police Control Room for disseminating to other Police offices as necessary. HKP

J3.5.3 Entry to Incident Site

No persons are to be permitted to enter the cordoned area except those actively engaged in fire-fighting, rescue, medical and associated duties. Members of the Press and other news services must be referred to the Joint Control and Liaison Centre. No person may enter any train which has been involved in a major incident except for fire-fighting or rescue and nothing must be removed from a train except under instructions from the Incident Officer. Extreme care must be taken to avoid touching controls, switches, etc. which may form evidence during subsequent investigations and enquiries. All

J3.6 Fire Services Department

J3.6.1 General

The Fire Services Department comprises the Fire Service and Ambulance Service, which will appoint an Incident Commander and an Ambulance Incident Officer respectively. FSD AMB

J3.6.2 Operational Fire Command

The Incident Commander is responsible for: FSD

- directing all necessary fire-fighting and rescue equipment appliances to the incident site;
- establishing a Mobile Command Unit on site and a radio network if necessary;
- directing all fire-fighting and rescue operations in liaison with the Corporation Incident Officer;
- all matters concerning buildings, demolition and evacuation, so far as they affect fire-fighting or rescue work;
- all matters concerning the use of water, etc., for fire-fighting purposes;
- where necessary, for utility company electricity and gas supplies to be cut off;
- obtaining assistance from other agencies, e.g. Hospital Authority, Civil Aid Service, when required;
- informing the Emergency Monitoring and Support Centre of Security Bureau.

J3.6.3 Ambulance Command

The Ambulance Command is responsible for: AMB

- directing ambulances to the incident site;
- clearing casualties to a first aid post or hospital.

J3.7 Hospital Authority

J3.7.1 The Hospital Authority is responsible for: HA

- sending a Casualty Team to the site by FSD Ambulance;
- sending a Medical Control Officer by police vehicle;
- setting up a First Aid Post within the police cordon in conjunction with the Fire Services Department;
- temporary hospitals and casualty units;
- temporary mortuary facilities near the incident site.

J3.8 Food & Environmental Hygiene Department

J3.8.1 The Food & Environmental Hygiene Department is responsible for moving the contents of temporary mortuary facilities to the Public Mortuary. FEHD

J3.9 Highways Department

J3.9.1 The Highways Department is responsible for: HD

- sending an official to the Joint Control and Liaison Centre;
- the supply of water by the Water Supplies Department for fire-fighting purposes;
- sending rescue equipment to the incident site, if required;
- requesting plant and equipment from civilian companies;
- arranging with the Civil Engineering and Development Department for Port Works divers and floating equipment to assist in rescue operations if the incident involves a breach in a cross-harbour tunnel and serious flooding;
- arranging for the Buildings Department to advise on the stability of affected buildings and, where required, giving guidance on entering and working on damaged buildings and structures;
- if the incident is on a surface or open section, arranging for general clearance of non-railway property or wreckage, immediate repair of damage to roads, water mains, drains or buildings (only to the extent of making them safe), and co-ordination of repairs to electric cables, telephone wires and gas mains by the utility companies concerned.

J3.10 District Office

J3.10.1 The local District Office is responsible for co-ordination of relevant authorities providing relief to residents affected by the incident. DO

J3.11 Immigration Department

J3.11.1 The Immigration Department is responsible for co-ordinating contingency measures in case of an incident or cross-boundary train service disruption which affects their operations, including; ID

- sending an official to the Joint Operation Centre comprising representatives from the Corporation and various government departments, located at Lo Wu Boundary Control Point or Lok Ma Chau Boundary Control Point;
- overseeing the implementation of joint contingency measures;
- co-ordinating evacuation or crowd control measures at Lo Wu or Lok Ma Chau Terminal Building;
- handling issues in relation to border processing;
- maintaining liaison with relevant government authorities of Mainland China.

J3.12 Custom and Excise Department

J3.12.1 The Custom and Excise Department is responsible for co-ordinating contingency measures in case of an incident which affects their operations at Lo Wu or Lok Ma Chau Terminal Building. C&ED

J3.13 Railways Branch, EMSD

J3.13.1 The Railways Branch, EMSD may participate in investigations and enquiries into an incident and, if so, may also be the body authorising resumption of services. RB

J3.14 Marine Department

J3.14.1 The Marine Department is responsible for investigating marine incidents of ship impact against a bridge with train service. MD