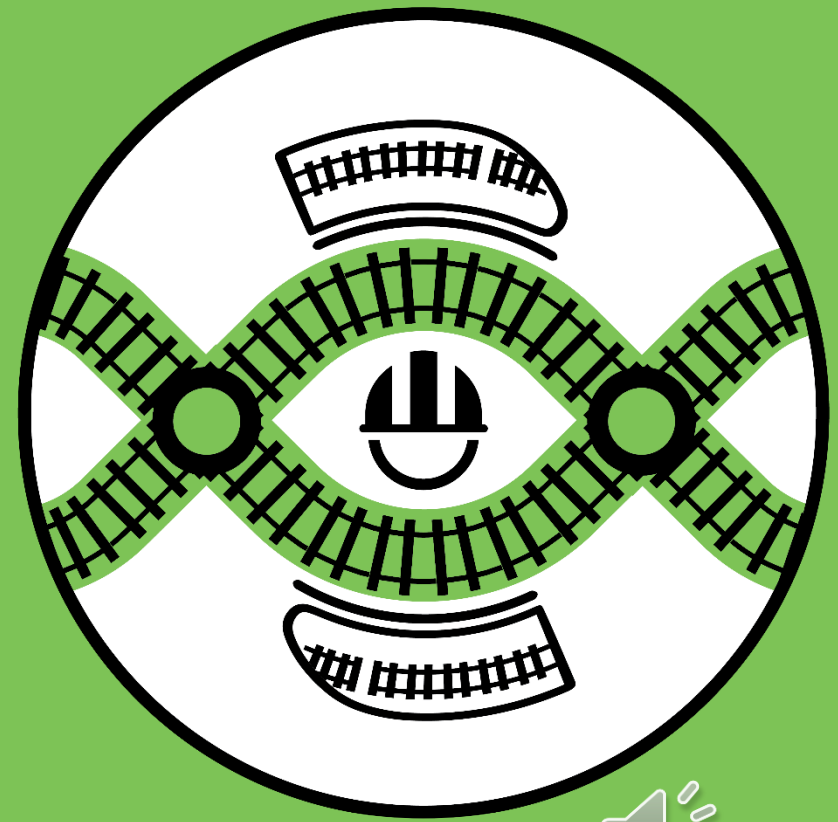
National Signal Maintenance Standards Briefing June 2025



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Standards covered by this briefing

This briefing pack is intended to act as the detailed briefing for the following standards:

- **NR/L3/SIG/10663 Signal Maintenance Specifications (SMS)**
- **NR/L3/SIG/10064 General Instructions for Staff working on S&T Equipment (GI's)**
- **NR/L3/SIG/11231 Signal Maintenance Testing Handbook (SMTH)**

Managing the Transition between App Versions

The current version of the S&T Maintenance App is:

SigMaint 2025/1 will be withdrawn 08/09/2025

The new S&T Maintenance App:

SigMaint 2025/2 is now available

It is Region/Route decision when to make the transition from 2025/1 to 2025/2
All colleagues must have transitioned to SigMaint 2025/2 by 06/09/2025

SMS – Summary of Changes

Section of Standard	Title	New Documents	Amended Documents	Withdrawn Documents	Total
Part B	Specified Tests	-	2	1	3
Part C	SMS Tasks	5	6	1	12
Part L	The Signal Maintenance “As Directed Policies”	-	1	-	1
Part R	Maintenance Record Cards	1	1	1	3
Part Z	Reference Values	-	1	-	1
Appendix	SMS Appendixes	-	1	-	1
Total		6	12	3	21

Documents changes are “side barred” for ease of identification except where changes have been made throughout.

GI's – Summary of Changes

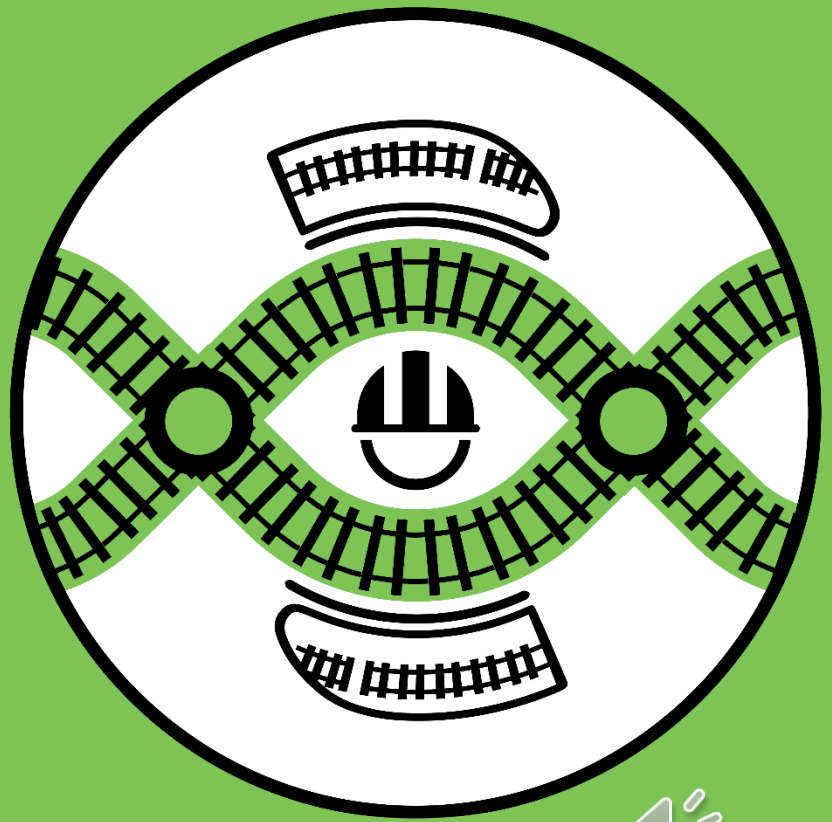
Section of Standard	Title	New Documents	Amended Documents	Withdrawn Documents	Total
Part R	Remote Maintenance – EBI Track 400 Calibration Guide	**1**	**-**	**-**	**1**
Total		**1**	**-**	**-**	**1**

SMTH – Summary of Changes

Section of Standard	Title	New Documents	Amended Documents	Withdrawn Documents	Total
Part 01	**Principles and Processes**	-	1	-	**1**
Part 03	**Defined Checks and Tests**	1	-	-	**1**
Part 04	**Test Plans**	6	12	3	**21**
Part 06	**Test Plans for Telecoms, DOO and RETB**	-	5	-	**5**
Part 08	**Wrong Side Failure Test Guides**		1	2	**3**
Part 10	**Faulting Guides**	1	-	-	**1**
Total		**8**	**19**	**5**	**32**

Documents changes are “side barred” for ease of identification except where changes have been made throughout.

New Documents and Associated Amendments



Track Circuits: EBI Track 400 RCM²

Why has it changed

We are extending the existing Reliability-Centred Maintenance (RCM²) approach—already applied to EBI Track 200—to now include EBI Track 400. This change aligns with the updated guidance in the new section of ROSE (NR/L3/SIG/10665, Section 7.19), provided that all specified pre-requisites are met.

What has changed

Module(s) / Test	Name	Summary of Changes	Type of Change
GI R004	Remote Maintenance – EBI Track 400 Calibration Guide	New guidance document for calibrating assets maintained under the RCM² regime.	New
SMS Part C TC17	Track Circuits: EBI Track 400	Introduction of Service C for circuits meeting the updated RCM² eligibility criteria in NR/L3/SIG/10665.	Amend

ElectroLogIXS

Why has it changed

Update requested by Alstom

What has changed:

Module(s) / Test	Name	Summary of Changes	Type of Change
SMS Part C IC18	ElectroLogIXS - Vital Logic Controller (VLC)	New step to check and report any visual alarms, CDU Identification image added.	Amend
SMS Appendix 22	General Information on the ElectrologIXS System	Section 5 CDU-1 identification image updated; Section 6 Title corrected.	Amend

ElectroLogIXS

Why has it changed

5 Test Plans have been updated to deal with subtle differences between Atkins-commissioned systems and Alstom-commissioned systems, as well as make some minor corrections and clarifications.

What has changed

- Minor wording changes.
- New steps.
- New bracketed exclusions (WHERE THERE IS A DIFFERENCE).
- Updated figures where appropriate.

Module(s) / Test	Name	Type of Change
SMTH Part4 IH01	Replace an ElectroLogIXS Central Power Supply (CPS) Module	Amend
SMTH Part4 IH02	Replace an ElectroLogIXS Chassis Information (CI) Module	Amend
SMTH Part4 IH04	Replace an ElectroLogIXS Input / Output (IO) Module	Amend
SMTH Part4 IH05	Replace an ElectroLogIXS Vital Peripheral Master (VPM) Module	Amend
SMTH Part4 IH08	Replace an ElectroLogIXS Chassis	Amend

EDS Power Operated Sliding Barrier

Why has it been introduced

This new SMS has been created for maintaining the EDS barriers at Redcar.

Module(s) / Test	Name	Summary of Changes	Type of Change
SMS PartC LC87	EDS Power Operated Sliding Barrier (POSB) Gates (Redcar Only)	New services A, B & PT1. For interval information refer to Local Policy Part L LP531.	New
LP351	The Signal Maintenance "As Directed Policies" – Middlesbrough, Sheffield, Leeds and York.	Local Clarifications updated to include scheduling requirements for SMS LC87	Amend

DiBLoC

Why has it been introduced

These new documents has been created for maintaining the new Park Signalling KT100 DiBloC Token instrument being introduced to the Network.

Standard Ref:	Name	Summary of Changes	Type of Change
SMS Part C LV61	Token Instrument – Park Signalling KT100 DiBloC	New Document	New
SMTH Part 03 B27	Defined Test: DiBloC Functional Test	New Document	New
SMTH Part 04 BL06	Replace a Token Instrument - DiBloC	New Document	New
SMTH Part 04 BL07	Replace a Set of DiBloC Configuration microSD card	New Document	New
SMTH Part 10 BL07	Faulting Guide: DiBloC	New Document	New

Infinity Workstation

Why has it been introduced

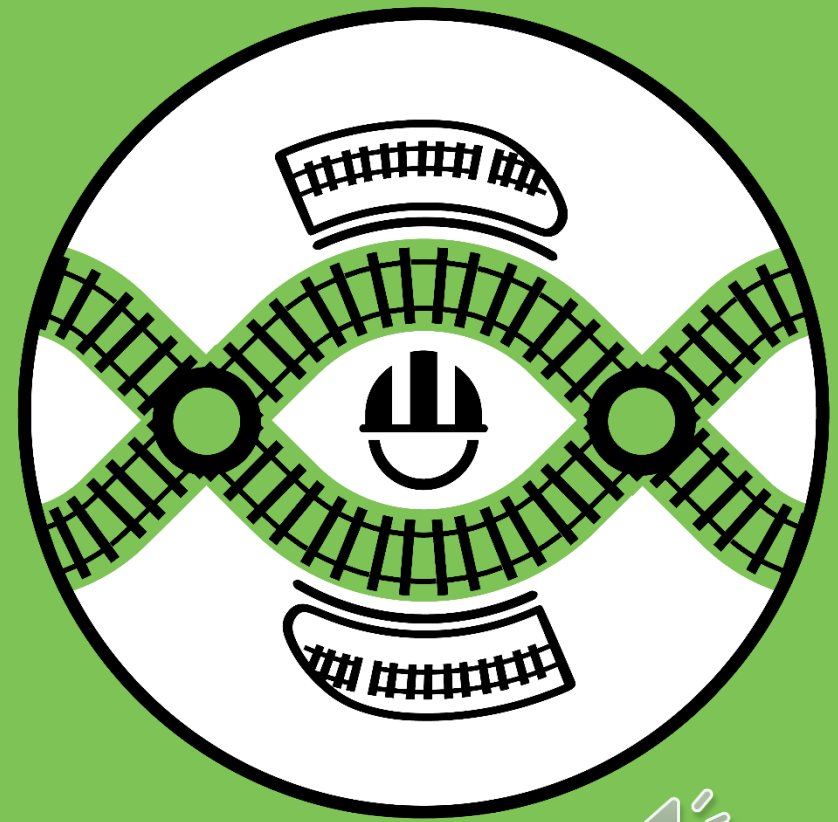
A new SMS and 3 new NR/SMTH Test plans have been created for the Alstom MCS Infinity Workstation being introduced on the network

Standard Ref:	Name	Summary of Changes	Type of Change
SMS Part C CS07	Control System – MCS Infinity	New Document	New
SMTH Part 04 IM09	Replace an Infinity Workstation PC	New Document	New
SMTH Part 04 IM10	Replace an Infinity Workstation Component	New Document	New
SMTH Part 04 IM11	Replace an Infinity Workstation Display	New Document	New

NR/L3/SIG/10663 – Issue 19

Signal Maintenance Specifications

Other New and Amended Documents.



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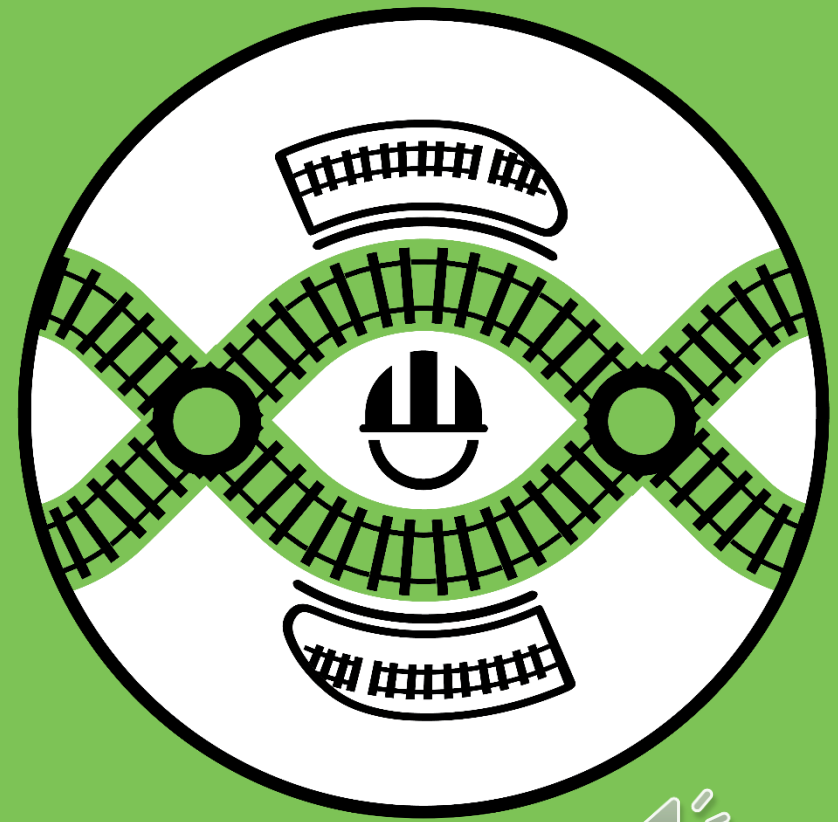
SMS PART B



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SMS - Changes in Part B

Module(s) / Test	Name	Type of Change
Test 41	Insulated Rail Joint (IRJ) Tests	Amended
Test 46	Level Crossing CCTV Camera Test	Amended

SMS PART B – TEST 041 - Insulated Rail Joint (IRJ) Tests

Why has it changed

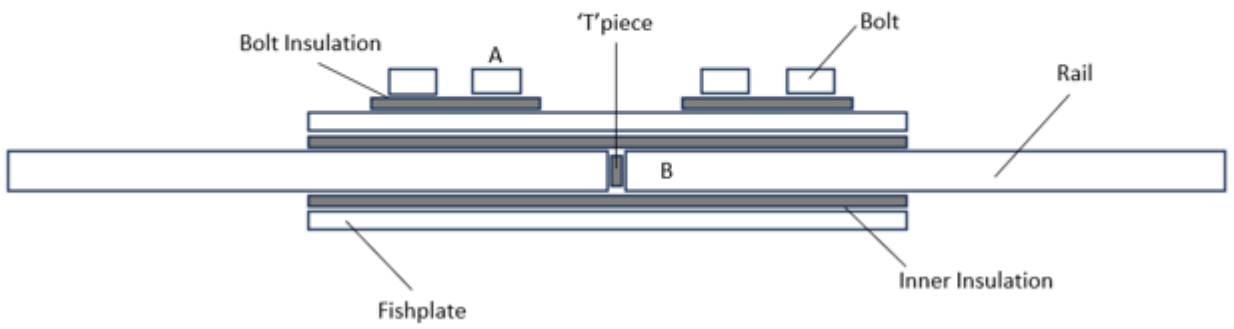
Clarified testing steps

What has changed

Separated clause 4, to check the resistance between each rail across the "T" piece is at least 150 Ohms.

Clarity added to 4.10 for where a site fitted IBJ is installed, a picture shows how to test resistance of the bolt to opposite rail.

NOTE: *Where a site fitted (not pre-fabricated) IBJ is installed, instead check the resistance between each fishplate bolt and the opposite polarity rail as depicted A-B in the below diagram. This shall be at least 150ohms.*



SMS PART B - Test 46
Level Crossing CCTV Camera Tests

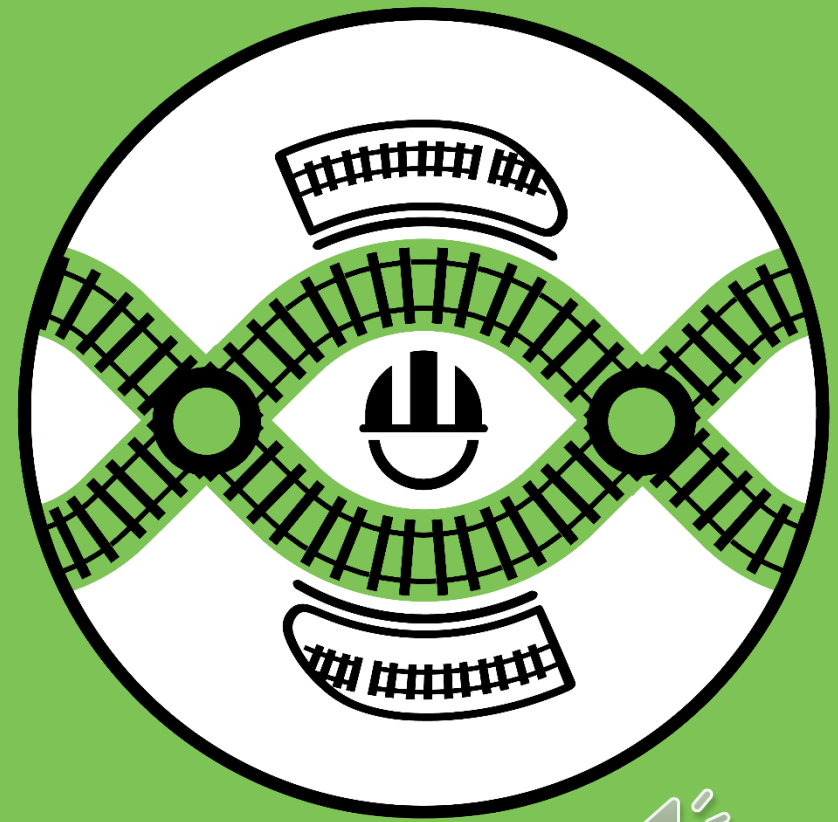
Why has it changed

Test has been updated to include the new Bosch Dinion IP Starlight CCTV Cameras

What has changed

New Steps added and Appendix C has been updated.

SMS PART C



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SMS - Changes in Part C

Module(s)	Name	Type of Change
LC21	Barrier Machine BR Spec 843	Amend
PB11	Clamp Lock Hydraulic Points	Amend
SG11	Main Colour Light Signal - Filament Type Head	Amend
SW04	SATWS : SATWS/ATWS Fixed/Semi-fixed System	Amend
TS04	Tripcock Tester - Merseyrail & Euston Area	New
TW03	Chalk Fence Trip Wires – Kent	New

SMS PART C LC21
Barrier Machine BR Spec 843

Why has it changed

To improve reliability and minor wording amendments

What has changed

Green Ragging added to note in 1.4

Change to step 6.1 c requires motor brushes to be replaced as a pair if either are less than 7mm long on a B Service

SMS PART C - PB11
Clamp Lock Hydraulic Points

Why has it changed

To improve reliability.

What has changed

A new Periodic Task has been introduced, to remove adjustable cam to clean, inspect and lubricate.

SMS Part C SG11
Main Colour Light Signal – Filament Type Head

Why has it changed

To improve reliability

What has changed

Minor wording changes

New steps

To include a lamp replacement for the normally lit lamp when undertaking Service R1

SMS PART C -SW04
SATWS : SATWS/ATWS Fixed/ Semi-fixed System

Why has it changed

Updated to include semi fixed SATWS systems.

What has changed

- Includes box updated.
- Steps 1.9, 2.1, 3 updated to reflect specific Fixed SATWS system tasks.

SMS PART C -TS04
Tripcock Tester – Merseyrail & Euston Area

Why has it been Introduced

New SMS for maintenance checks for the Tripcock testers located on Merseyrail and Euston only.

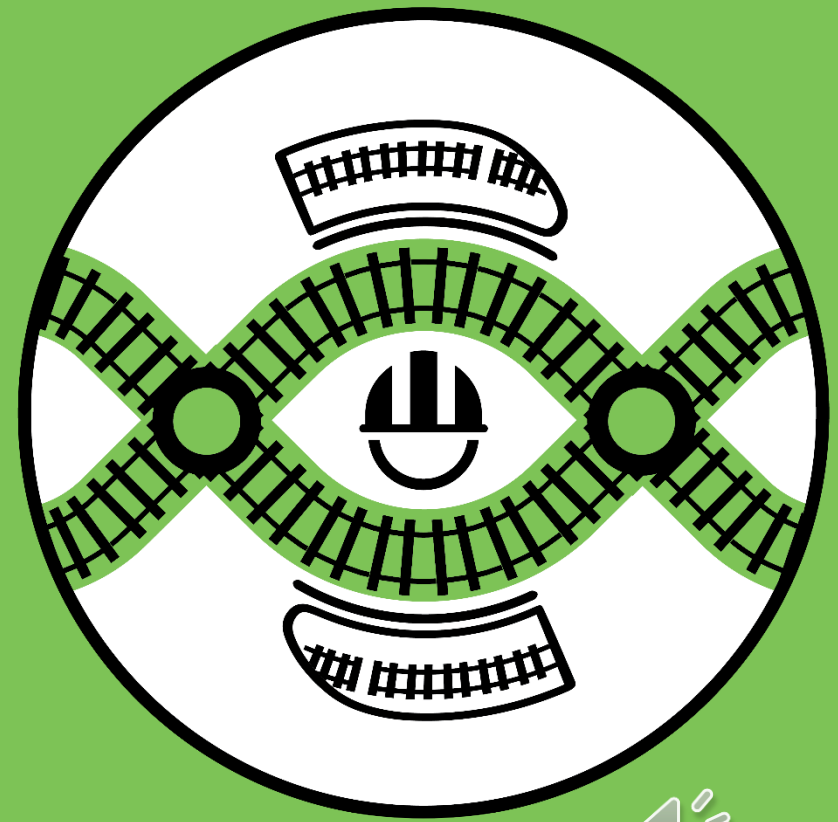
This is specifically for Merseyrail and Euston which steps within TS02 were impossible to conduct with the technology type.

SMS PART C - TW03
Chalk Fence Trip Wires - Kent

Why has it been introduced

New SMS for maintenance checks of the trip-wire associated with the chalk-fall fence at the base of the cliffs between Folkestone and Dover to replace a local technical instruction from which most of the content was generated.

SMS PART R



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SMS - Changes in Part R

Module(s)	Name	Type of change
EL34 RC01	Site Attendance Record Card - Modular Equipment Housing	New
T054 RC01	Cable Insulation Test	Amend

SMS PART R – EL34 RC01

Why has it been introduced

New Record card created for Modular Equipment Housings as no record card currently exists EL34

NetworkRail	Site Attendance Record Card Modular Equipment Housing	Form: NR/SMS/EL34/RC01 Date: 07/06/2025 Issue: 01

Signal Box: Location Name/Number:

Date	Time	Name (Print)	Signature	Company	Reason For Visit #	Temp on arrival (If Applicable)	Comments:

#: If applicable enter a code for the visit [1/Maintenance 2/Faulting 3/Inspection Visit 4/Engineering Work 5/Wire Degradation Checks]

SMS PART R - T054 RC01

Why has it changed

To capture details when authority is required to defer testing and for cable to remain in service with readings below 1MΩ

What has changed

Layout of form has improved; additional boxes added, minor wording change, all test results are captured on page 2 see next slide

Network Rail	Cable Insulation Maintenance Record	Form: NR/SMS/T054/Cable Insulation Date: June 2025 Issue: 04

Signal Box / Interlocking:	Cable Name/Number:	Cable From:	Cable To:
Cable Length:	Cable Type*: Lineside / Tail	Test Type*: Maintenance / Full / Partial#3	Cable Installation/Commissioning Date(s):
Number of Cores:	Cable Core Type: Diameter:	Number of Joints:	Type/Condition of Cable Route:
Weather Conditions:	Multi-Meter Type: Identity#1:	Insulation Resistance Tester Type: Identity#1:	Voltage Tested To:
Cable Carrying Reed FDM Transmissions*: Yes / No	Reed Cable Adaptor Identity#1:	Reed Earth Leakage Tester Identity#1:	Cable Running Parallel to FS2600 TC's or Routes Carrying Class 92 or 373 Trains*#2: Yes/No
Tested By:	Testers Signature:	Company:	Date:
#3 Authority to defer full test and carry out partial test given by: Name: Job Role: Date/Time:		If applicable, authority for cable to remain in service given by: Name: Job Role: Date/Time:	

#1: Fill in details as applicable to type of cable test #2: Applicable to cables carrying Reed FDM Transmissions only *: Delete as applicable

General Comments or Remarks:

SMS PART R – T054 RC01

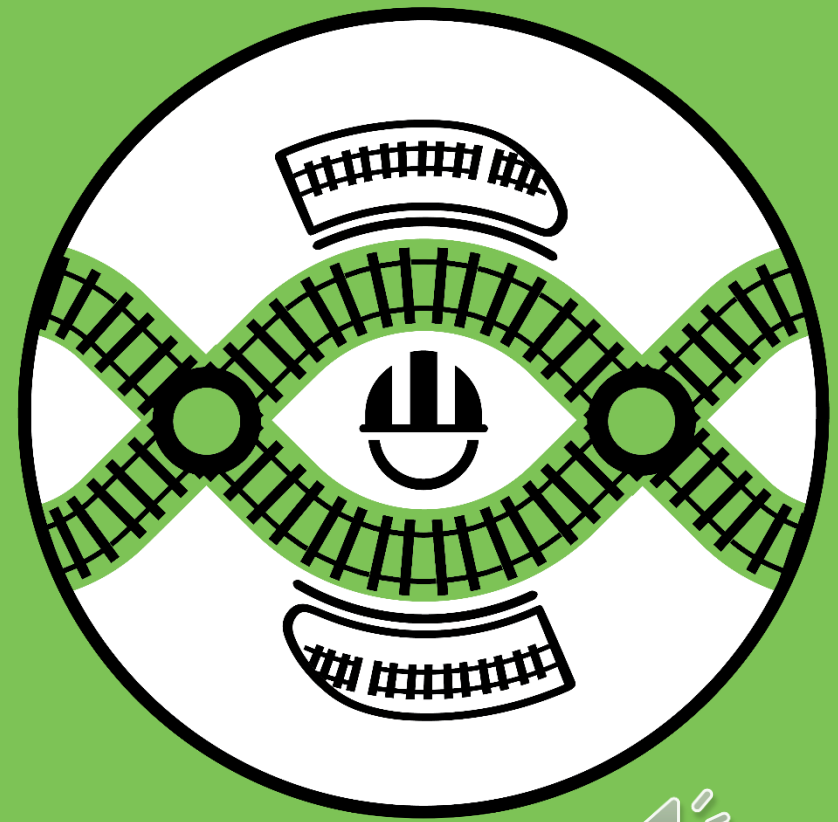
Network Rail	**Cable Insulation** Maintenance Record	**Form: NR/SMS/T054/Cable Insulation** **Date: March 2025** **Issue: 04**

1st Reference Core Number:	2nd Reference Core Number:	Polarity Correct: Yes / No / N/A

Insulation Resistance				Loop Resistance		
Core to Earth		Core to Core		Core to Core		
Core No.	M Ohms	Core Nos.	M Ohms	Core Nos.	Ohms	Cable Core Function

Insulation Resistance				Loop Resistance		
Core to Earth		Core to Core		Core to Core		
Core No.	M Ohms	Core Nos.	M Ohms	Core Nos.	Ohms	Cable Core Function

SMS PART Z



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SMS - Changes in Part Z

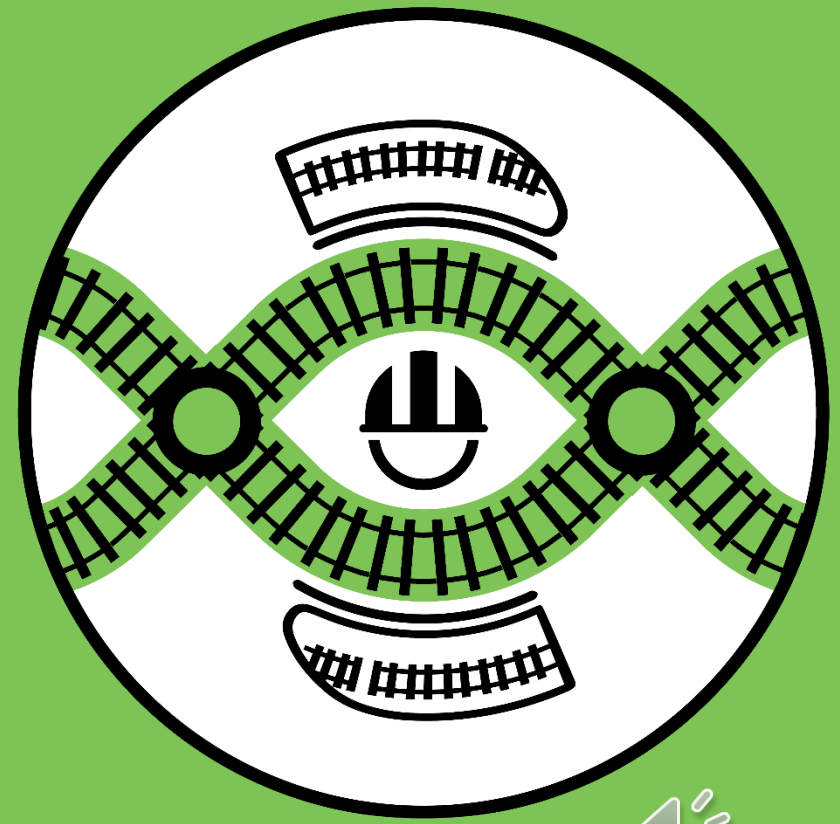
Module(s)	Name	Type of change
Z03	Train Detection - Reference Values Summary of change Table 1 updated to align with SMS appendix 10 and formatting error corrected.	Amend

NR/L3/SIG/11231 Issue 22

Signal Maintenance Testing Handbook

SMTH

Other New and Amended Documents.



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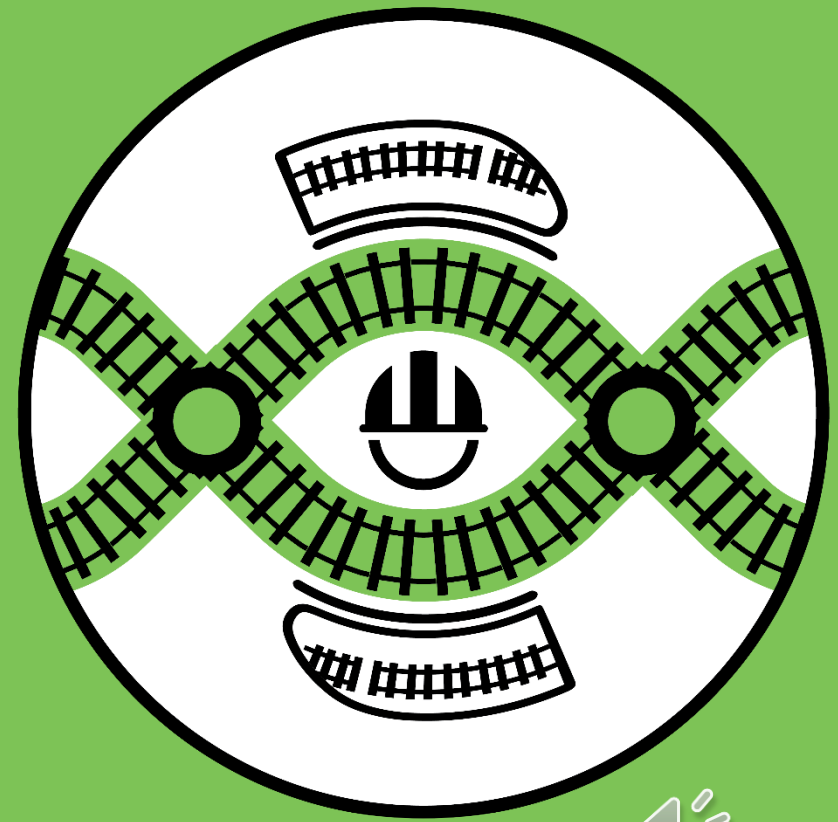
SMTH - Part 01



SMTH - Changes in Part 01

Module(s)	Name	Type of change
Module 12	The Diversion of a Circuit/Relay Contact or Emergency Equipment Relocation	Amend

SMTH - PART 01 - MODULE 12 –
The Diversion of a Circuit/Relay Contact or Emergency Equipment Relocation

Why has it changed

Lessons learnt from an SMTH irregularity applying diversion to WAGO links fitted with 2 wires. Formalises into standards what was written in NB226 and previous guidance.

What has changed

Opportunity taken to make a significant update to document.

General section updated including common cable termination methods of double terminal, WAGO and binding posts.

New instructions added to cable diversions on Wago links in line with current practices and training.

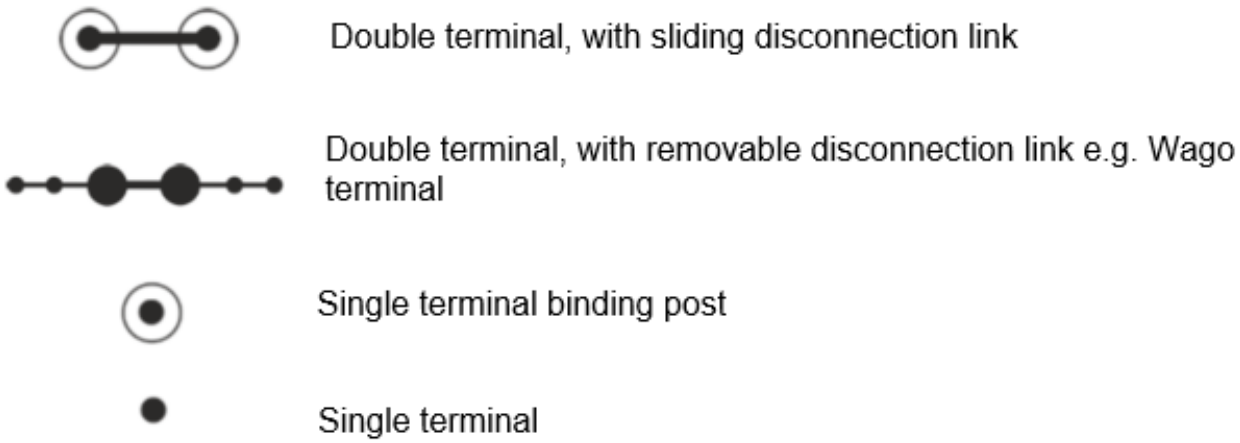
Updated Cables and diagrams labels in line with current practices.

•The document has been reformatted. This was to provide a dedicated section for each termination type. The intention was to make the document easier to follow for the end user.

• A minor update in the 'Guidance for all diversions' requiring the technician to provide a picture of the diversion and diagrams to the SM(S) as soon as possible following the diversion.

•References now to CA05 to bring the new cable maintenance testing standards in alignment.

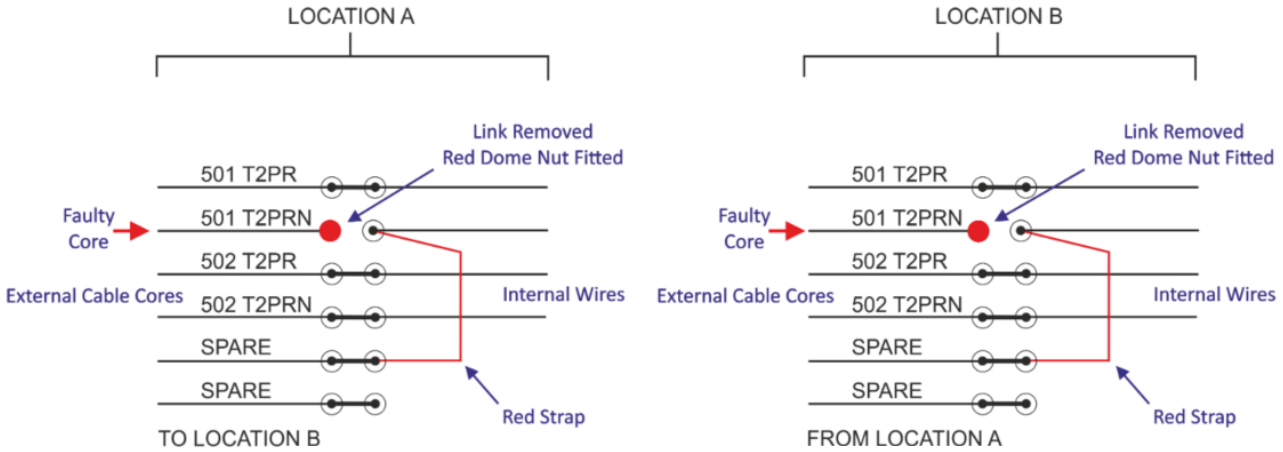
•The following symbols have been included in the module to allow for example schematics to be provided throughout the document.

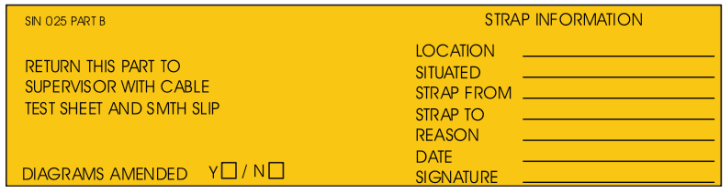


SMTH - PART 01 - MODULE 12 –
The Diversion of a Circuit/Relay Contact or Emergency Equipment Relocation

- Diversion of a faulty cable core using sliding links includes an example schematic and picture to provide improved guidance to the technician.

- An updated cable core temporary label has been added to the document to reflect current practice.



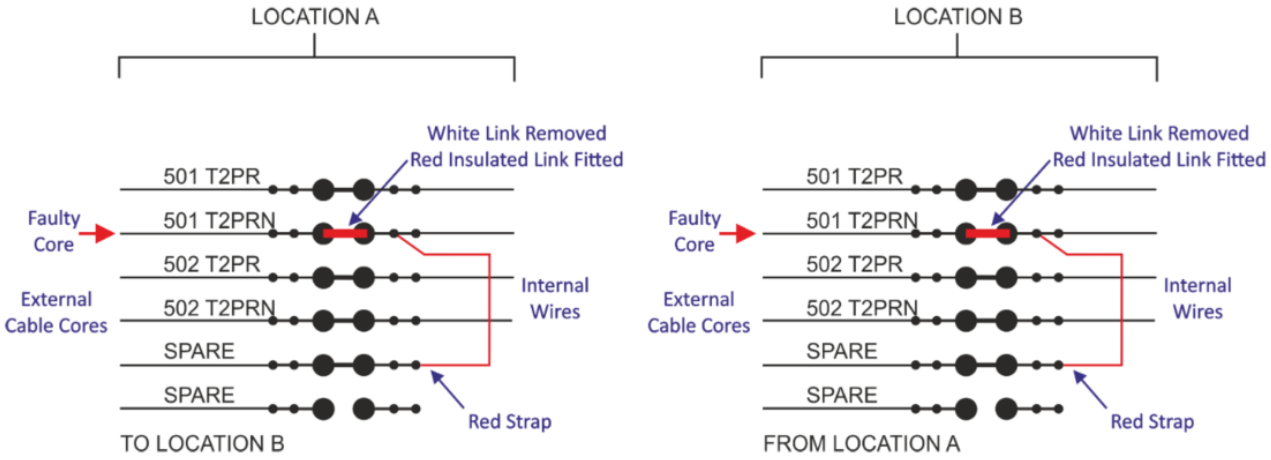


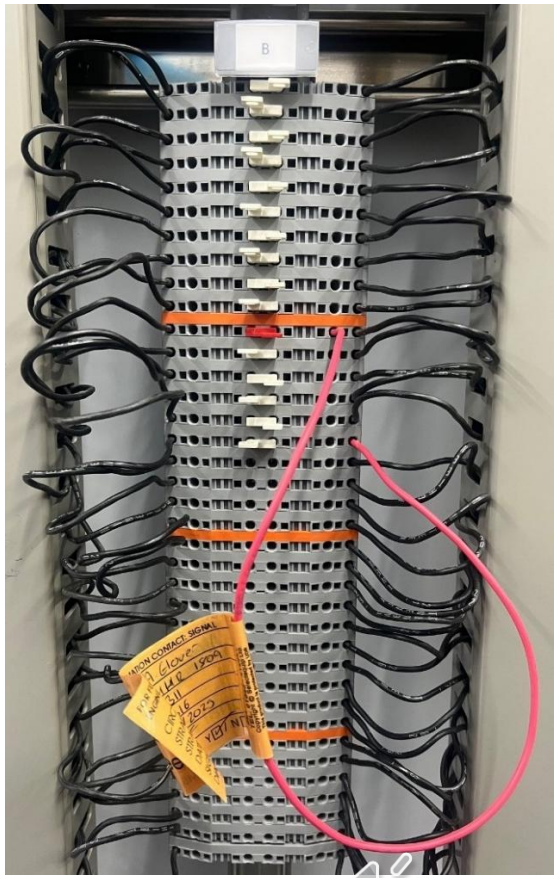
SMTH - PART 01 - MODULE 12 –
The Diversion of a Circuit/Relay Contact or Emergency Equipment Relocation

•Guidance on diversions on Wago terminals now included (previously missing).

•Diversion on Wago terminals has been given two methods (referred to in the
•document as Method 1 and Method 2).

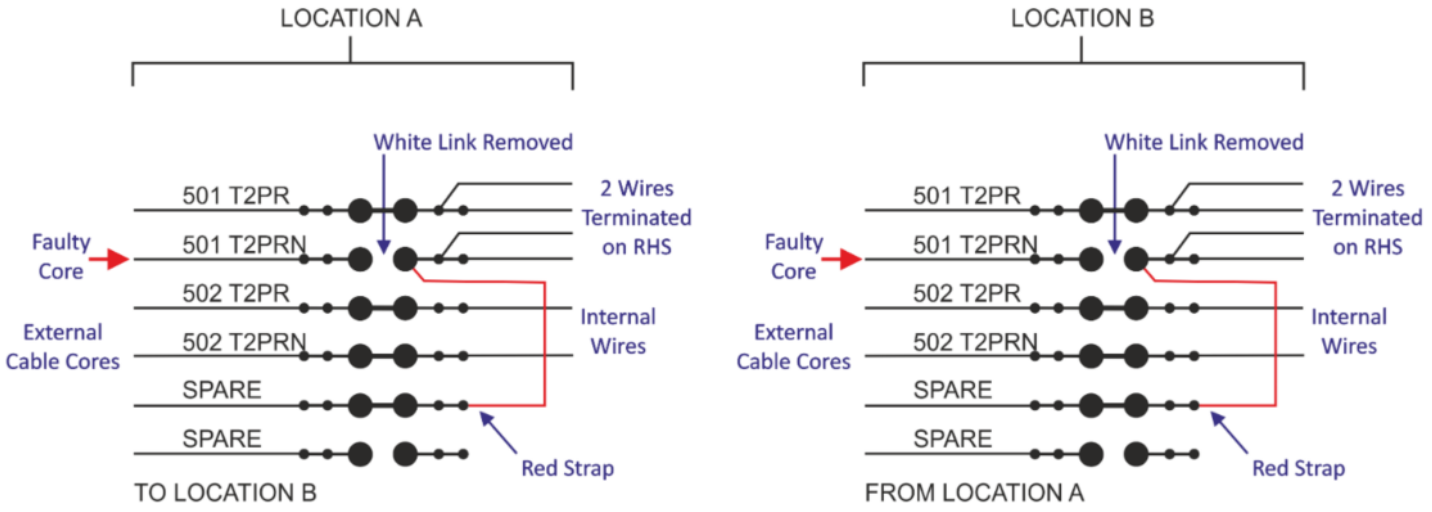
•Method 1 is where a red strap is to be terminated in the spare terminal (as per schematic and picture). In this instance a red insulation link is used.



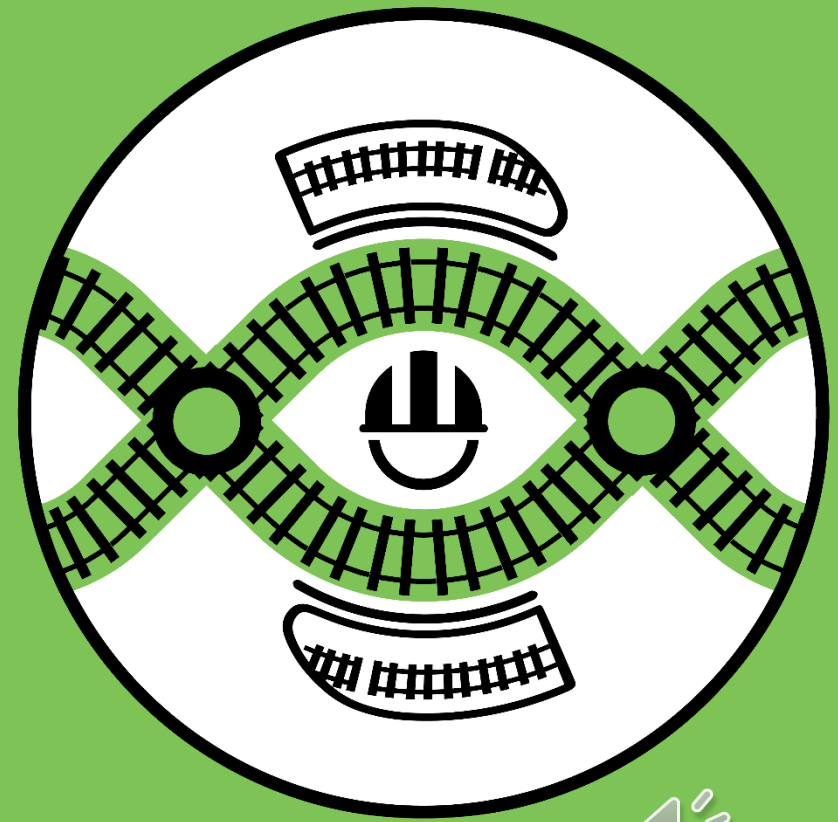


SMTH - PART 01 - MODULE 12 –
The Diversion of a Circuit/Relay Contact or Emergency Equipment Relocation

- Method 2 is utilised when a spare terminal is not available. For example, where two wires are terminated and the link terminal is to be used to implement the diversion.
- This is shown in the schematic and picture.
- In this instance, the red wire is acting as the red insulated link.



SMTH - Part 04



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SMTH Part 04 – New and Amended Test Plans

Module	Name	Type of change
EL26	Replace a Power Switch	Amend
EL34	Replace a Miniature Circuit Breaker	Amend
NW11	Replace a Network / Ethernet Switch	Amend
PA02	Replace or Adjust a Point Stretcher Bar	Amend
PW01	Replace a Transformer-Rectifier, Battery Charger/Back-Up Unit	Amend
SS01	Replace an SSI MPM or PPM	Amend
SS05	Replace an SSI TFM Plug Coupler complete with pre-wired harness	Amend
SS06	Replace an SSI TFM Plug Coupler WITHOUT pre-wired harness	New

SMTH PART 04 – EL26
Replace a Power Switch

Why has it changed

Test plan has been amended to include all simple power switches.

What has changed

No black bars as document has been rewritten.

SMTH PART 04 - EL34
Replace a Miniature Circuit Breaker

Why has it changed

Test Plan has been updated to include all types of Miniature Circuit Breakers (MCB).

What has changed

Includes and excludes box have been updated to include single and double pole MCB instead of listing manufacturers.

SMTH PART 04 – NW11
Replace a Network / Ethernet Switch

Why has it changed

CISCO 9200L switch has been added to NW11.

What has changed

Includes box updated and Asset Identification image added for the new CISCO 9200L

CISCO C9200L

SMTH PART 04 - PA02
Replace or Adjust a Point Stretcher Bar

Why has it changed

To allow a single fixed stretcher bar bracket to be replaced on a temporary basis in line with TRK6100 Mod 8 action tables.

What has changed

The general section has been updated to allow for change of a single bracket in line with TRK 6100

SMTH PART 04 – PW01
Replace a Transformer-Rectifier, Battery Charger/Back-Up Unit

Why has it changed

Test Plan Title has been amended to include Battery Backups

Minor amendments made to test plan**.**

SMTH PART 04 - SS01
Replace an SSI MPM or PPM

Why has it changed

To incorporate lessons learnt from a major interlocking failure by permitting a faster restoration of the train service.

What has changed

Independence exempt box updated and additional clause added to allow a tester to restart Interlocking or reapply Technicians' controls but must be independently checked within 24hrs in emergency situations.

SMTH PART 04 -SS05
SSI TFM Plug Coupler complete with pre-wired harness

Why has it changed

The title has been amended due to the introduction of New Test Plan, SS06 (next slide).

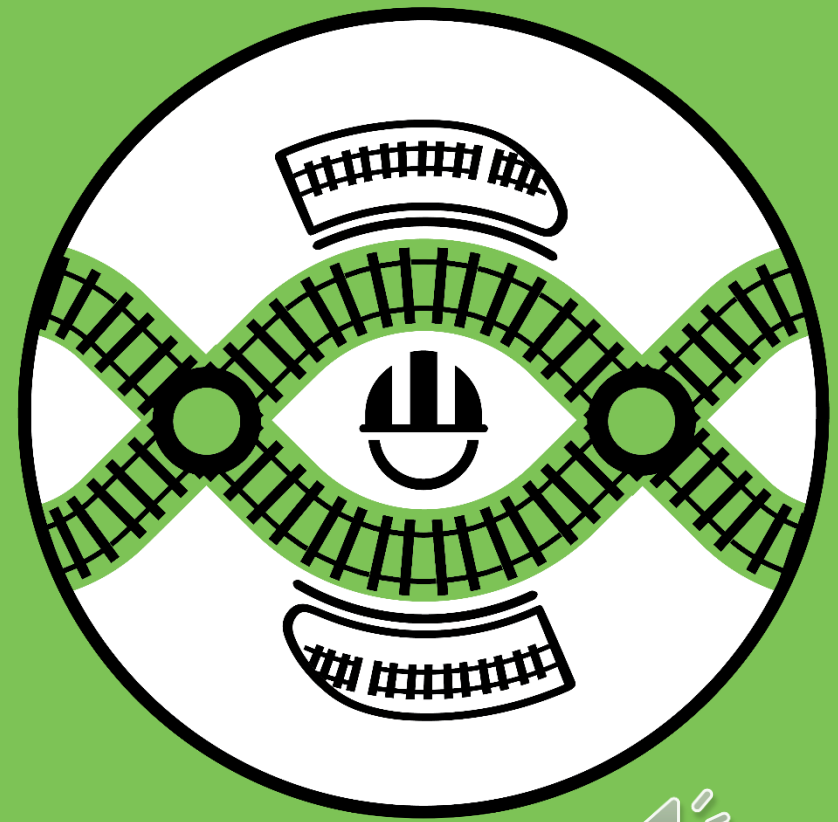
SS05 test plan is for SSI TFM Plug coupler complete with wiring harness.

SMTH PART 04 SS06
Replace an SSI TFM Plug Coupler pre-addressed but without pre-wired harness

Why has it been introduced

Following a major SSI signalling failure caused by faulty address pins in a SSI TFM plug coupler this SS06 test plan has been created, to enable replacing a pre-addressed plug coupler without pre-wired harness. Restrictions and conditions of use are in the test plan

SMTH - Part 06



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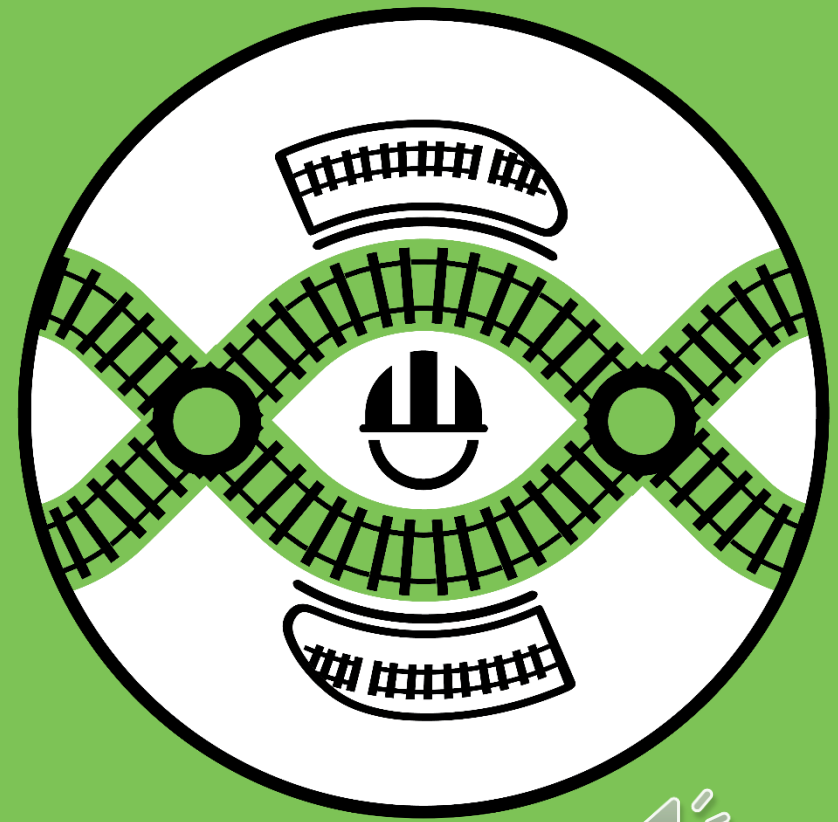
SMTH - Changes in Part 05

Module(s)	Name	Type of change
DOO 001	Removal, Replacement and Adjustment of a CCTV Camera	Amend
DOO 002	Realign a CCTV Camera	Amend
DOO 003	Remove and Replace a DOO CCTV Coaxial Cable	Amend
DOO 004	Removal, Replacement and Adjustment of a DOO CCTV Monitor	Amend
DOO 005	Remove and Replace a DOO CCTV Train Detection Unit	Amend

All above documents have had a minor amendment to include the Western Route

SMTH - Part 08



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SMTH - Changes in Part 08

Module(s)	Name	Type of change
T041	Wrong Side Failure Test Guide: Automatic Warning System (AWS) Reduced Testing of Extra-Strength (Green) AWS Magnet following Code 5 failure	Amend

SMTH PART 8 - T041

Wrong Side Failure Test Guide: Automatic Warning System (AWS) Reduced Testing of Extra-Strength (Green) AWS Magnet following Code 5 failure

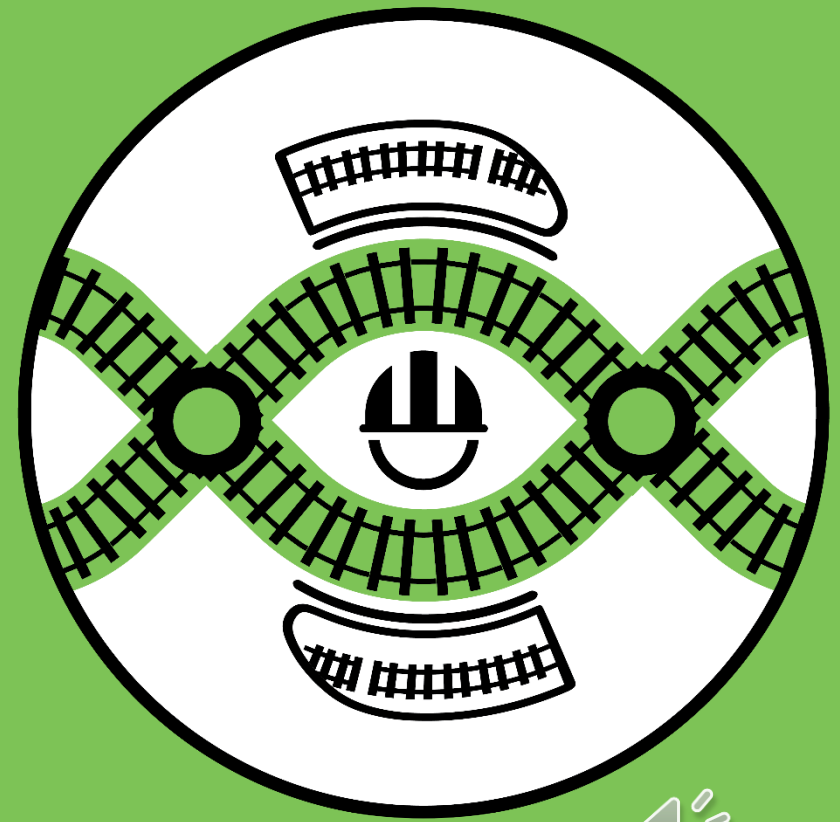
Why has it changed

It has been confirmed that Class 37, Class 59 and Class 70 Locos have Standard Strength AWS receivers and are therefore in scope of this reduced WSF test guide.

What has changed

Table 1 has been updated to include these classes of locomotives.

Withdrawn Documents



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Withdrawn documents

Standard Ref	Document Title	Reason for Withdrawal
SMS PartB 029	ATP Equipment (Chilterns) Loop Test	Chilterns ATP is no longer installed.
SMS PartC AP12	ATP Equipment (Chilterns)	Chilterns ATP is no longer installed.
SMS PartR T029 RC01	ATP (Chilterns) Record Card	Chilterns ATP is no longer installed.
SMTH Part04 AC01	Replace and Repair an ATP Loop (Chilterns)	Chilterns ATP is no longer installed.
SMTH Part04 AC02	Replace a ATP LEU (Chilterns)	Chilterns ATP is no longer installed.
SMTH Part04 AC03	Replace an ATP Interface (Chilterns)	Chilterns ATP is no longer installed.
SMTH Part08 T039	Wrong Side Failure Test Guide: Automatic Train Protection (ATP) (Chilterns)	Chilterns ATP is no longer installed.
SMTH Part08 T040	Wrong Side Failure Test Guide: ATP (Chilterns) Reported WSF of Signal, No Allegation Against ATP Equipment	Chilterns ATP is no longer installed.

Standard Job Number changes

The following table is provided to assist Implementation plan

Standard Job Task Description	Standard Job Description	New Std Job Number	Ellipse EGI	NR/L3/SIG/10661	NR/L3/SIG/10665
NR/SMS/PartC AP12 - B	ATP Equipment (Chilterns)	To be withdrawn	To be withdrawn	To be withdrawn	To be withdrawn
NR/SMS/PARTC/CS07 - DS	Control System – MCS Infinity	DS - 006409	EJ120RTK0003	TBC	NA
NR/SMS/PARTC/CS07 - A	Control System – MCS Infinity	A - 006410	EJ120RTK0003	TBC	NA
NR/SMS/PARTC/CS07 - B	Control System – MCS Infinity	B - 006411	EJ120RTK0003	TBC	NA
NR/SMS/PartC/LC87 - A	EDS Power Operated Sliding Barrier (POSB) Gates (Redcar Only)	TBC	TBC	TBC	NA
NR/SMS/PartC/LC87 - B	EDS Power Operated Sliding Barrier (POSB) Gates (Redcar Only)	TBC	TBC	TBC	NA
NR/SMS/PartC/LC87 - PT1	EDS Power Operated Sliding Barrier (POSB) Gates (Redcar Only)	TBC	TBC	TBC	NA

Standard Job Number changes

The following table is provided to assist Implementation plan

Standard Job Task Description	Standard Job Description	New Std Job Number	Ellipse EGI	NR/L3/SIG/10661	NR/L3/SIG/10665
NR/SMS/PartC/LV61 - A	Token Instrument - DiBloC	TBC	TBC	TBC	NA
NR/SMS/PartC/LV61 - B	Token Instrument - DiBloC	TBC	TBC	TBC	NA
NR/SMS/PartC/PB11 - PT	Clamp Lock Hydraulic Points	TBC	NA	TBC	NA
NR/SMS/PartC/TC17 - C	Track Circuits: EBI Track 400	031052	No change	Completed	Section 7.19
NR/SMS/PartC/TS04 - A	Tripcock Tester - Merseyrail & Euston Area	006412	ZE100RTK0001	TBC	NA
NR/SMS/PartC/TW03 - A	Chalk Fence Trip Wires - Kent	006014	No Change	TBC	NA

Any Questions?

For any future changes or queries please contact:

Route Employees: Your Regional Representative, as detailed below

Non-Route Employees: Email Signal.engineers@networkrail.co.uk

Region	Routes	Lead	Deputy
North West and Central (NW&C)	Central North West West Coast South	Owen Flanders	Andrew Witton
Wales & Western	Wales	Joshua Robinson	Jamie Pace
	Western	Matthew Redstone	Neil Pratten
Scotland's Railway	Scotland	Scott Paterson	Bhajaman Singh
Southern	Kent NR High Speed Sussex Wessex	Jude Parsons	Stephen Dapre
Eastern	Anglia East Coast East Midlands North and East	Richard Atkinson	Matthew Cook
Region	Routes	Lead	Deputy
Technical Authority	Signalling	Jeremy Morling	Samantha Jackson / Christine Shaul
Technical Authority	S&C	Stephen Franklin	Colin Durrans
Technical Authority	Level Crossing	Jonathan Evans	Darren Witts
Route Services		Scott Cadzow	

The End