Sydney Trains

Engineering System Integrity Engineering Procedure Signalling and Control Systems



PR S 43021

Set to Work, Test and Certify Track Circuit (SCP21)

Version 1.1

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Approved	Professional Head
by:	Signalling and Control Systems
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Document control

Version	Date	Author/Prin. Eng.	Summary of change
1.0	29 May 2018	Mark Albrecht	First issue as Sydney Trains document
1.1	13 December 2022	David Mulley	3 year review: no changes to technical content. Date and version number updated.

Summary of changes from previous version

Summary of change	Section
TMG 1352 updated to MN S 41352, TMG 1353 updated to MN S 41353, TMG 1354 updated to MN S 41354, TMG 1355 updated to MN S 41355, TMG 1356 updated to MN S 41356, TMG 1357 updated to MN S 41357 to reflect the latest version of the standard	1.2

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Set to Work, Test and Certify Track Circuit (SCP21)

This unit covers the procedure and the current requirements for the authorisation of personnel to lead a team carrying out commissioning set to work, test and certification of track circuits.

1.1 Item	1.2 Details
1. Prerequisites	Candidate will have satisfied the following prerequisites, or approved equivalents
Qualification	Signal Electrician Team Leader or Work Group Leader, or Signal Engineer (experienced or Field)
Training course	Qualified in appropriate TfNSW Track Circuit training course
Requirements	For each type of track circuit for which accreditation is sought, the candidate should:
	 Understand the critical nature of track circuits and their correct operation
	 Understand the role of track circuits and bonding in DC traction current return areas
	 Be able to read track plan/signalling plan and track insulation plan and interpret their details on the ground
	 Have practical experience in setting to work and adjusting
	 Know and understand how the track circuit operates
	 Know the track circuit's normal range of operating levels for various track lengths and configurations
	 Recognise when the track circuit is not operating correctly
	 Know how to set up and adjust the track circuit
	Recognise basic types of failure, and suggest the probable cause

1.	l Item	1.2 Details
2.	Application	 Candidate submits request for authorisation stating the type/s of track circuits for which authorisation is sought and also giving details of their appropriate knowledge and experience showing where, when and how these were gained Prior to assessment, candidates will submit: Portfolio of documentary evidence of appropriate training and qualifications held
		• Copies of log book pages showing relevant on-track experience (or in default, a verified CV extract showing when the relevant experience was achieved)
3.	Assessment requirements	For each type of track circuit, the candidate shall be able to:
		 Demonstrate familiarity with track circuit equipment and adjustments
		 Answer questions on track circuit operation, characteristics and faults
		 Demonstrate ability to analyse and identify defects in traction bonding arrangements.
		 Demonstrate ability to select appropriate test equipment and use it correctly
		 Demonstrate ability to set up the track circuit in correct operating condition
		 Demonstrate ability to recognise non- compliant operation and apply appropriate corrective action
4.	Assessment	The assessment is in two parts:
	Desktop assessment	 Candidate demonstrates knowledge and understanding of track circuit fundamentals and operation by evidence of completed training and work experience, and by responses to questioning by the assessor
	Hands-on assessment	 Candidate demonstrates ability to perform the required setup, adjustment and testing activities under actual conditions, on working track or an off-track training facility Demonstration is performed on at least two different track circuit types or configurations

1.1 Item	1.2 Details
Tools and equipment	• Candidate presents for the assessment fully equipped to lead a track circuit commissioning team. (I.e. with all equipment and documentation as detailed in the commissioning procedure/s for the type of track circuit under assessment.)
5. Competence Assessor	These requirements shall be assessed and certified by the Principal Engineer Signal System or by delegated persons having the requisite technical and assessment competencies
6. Assessment Outcomes	Based on the evidence provided in the documentary materials provided, the desktop assessment and the hands-on assessment, the candidate is assessed to be:
	Not ready for assessment
	The candidate was not adequately prepared for the assessment, lacks prerequisites or requires significant additional training and experience.
	These deficits should be addressed
	 Not yet competent
	The candidate lacks one or more elements to be assessed competent
	The candidate may be reassessed on the missing elements as soon as they can be prepared
	Competent to work under supervision
	The candidate has demonstrated all prerequisites and skills at a basic level, but has not shown a sufficient level of mastery to be able to perform effectively without guidance.
	Competence can be granted on the basis of a satisfactory supervisor's report, following a period of work under supervision:
	Competent
	The candidate has satisfied all requirements
7. Candidate debriefing	Assessor debriefs the candidate on the outcomes of the assessment, the elements (if any) in which they were found to be not yet competent, and their options for future re-assessment or appealing the outcome

1.1 Item	1.2 Details
8. Reporting & records	Assessor notifies candidate and candidate's supervisor by forwarding to each a copy of the Competency Assessment Record Sheet, which is part of the Assessment Tool and, if the candidate was assessed competent, a copy of the Record Sheet to the Principal Engineer Signalling Integrity for updating of RG S 41415
9. Reference Documents	 ST S 43021 Engineering Standard Signalling & Control Systems Competency Standard – Set to Work, Test and Certify Track Circuit
	 MN S 43021 Engineering Manual Signalling & Control Systems Competency assessment tool - Set to Work, Test and Certify Track Circuit (with appropriate question set)
	Track Circuits training course notes
	Set-to-work manuals for the type of track circuit being assessed:
	 MN S 41352 J/S SR & DR Track circuits setup, test and certify
	 MN S 41353 AC S/R Track circuits - setup, test and certify
	 MN S 41354 AC D/R Track circuits - setup, test and certify
	 MN S 41355 CSEE UM71 AF Track circuits - setup, test and certify
	 MN S 41356 WBS FS2500 AF Track circuits - setup, test and certify
	 MN S 41357 ML TI21 AF Track circuits - setup, test and certify
	 PR S 41500 EB1 Track 200 AF Track Circuit set to work and Certification
	Equipment Manuals for the type of track circuit being assessed