



AUSTRALIAN RAIL TRACK CORPORATION LTD

Discipline: Engineering (Signalling)

Category: Standard

Testing and Certifying Equipment Worked on or Altered During Maintenance

SMP 10

Applicability

New South Wales	✓	CRIA (NSW CRN)	✓
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Primary Source

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Amendment Record

Version	Date Reviewed	Clause	Description of Amendment
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1.2	14 March 2005	Disclaimer	Minor editorial change
1.3	6 May 2005	All	Document reformatted.
1.4	24 June 2010	Various	Section 1 transferred to ESM-00-10. Updated references to superseded position titles. Document transferred to current template and edited for grammar and style.

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About This Standard

This document defines the signalling procedures to be followed for the testing and certifying of signalling equipment worked on or altered during maintenance.

1 General

Refer to Section 1 General – Take Adequate Precautions, Test on Completion in ESM-00-10 Testing and Certifying Equipment Worked on or Altered During Maintenance.

2 Alterations Not Affecting the Principle of Circuits

When it is necessary, owing to insulation defects or to other causes, for a signalling maintainer to connect a new wire, effect repairs, or make temporary alterations that do not affect the principle of the circuits, the Signal Maintenance Engineer must be notified at the earliest possible moment. In addition, the signalling maintainer must test the circuit thoroughly each time such an alteration is made, provide a documented report and call the Signal Maintenance Engineer's attention to the alterations so that he/she can check them throughout.

In the event of any relocation or alteration in the adjustment being necessary on any working contact, special reference of such alteration should be recorded and be brought to the attention of the Signal Maintenance Engineer.

Resistances, excepting track resistances, which are provided in certain portions of the equipment, should not be altered without authority from the Signal Engineer unless absolutely necessary to meet an emergency. In such cases the resistances must be replaced as soon as normal conditions are restored.

Resistances in track circuits may be altered as required, care being taken to see that the relays are not receiving more current than is necessary for their normal operation. A careful check must be made of the track circuit to ascertain the necessity for the alteration, and if possible, the cause removed and the resistance restored. All cases of alterations to resistances must be reported promptly to the Signal Maintenance Engineer.

In an emergency, a suitably accredited signalling maintainer may transfer a circuit from a defective contact or terminal to an equivalent spare contact or terminal or transfer a circuit from a defective cable core to a spare cable core provided the following procedure is also followed:

- The circuit is tested to prove that the circuit has not been altered in any way.
- The Signal Maintenance Engineer is notified promptly, in writing, of permanent changes.

Any rearrangement in vital signalling circuits to the existing wiring between terminals, although there may be no change to the principle of the circuit, and even though the terminals may not be detailed in the existing circuit book, shall constitute a wiring alteration and, other than in an emergency, require the prior approval of the Signal Maintenance Engineer.

Design drawings are required to be brought up to date with any permanent changes; the Signal Engineer shall be advised and make suitable arrangements.

Refer to SMP 11 Like For Like Replacements and SMP 12 Repair/Replacement of Signalling Wires for further information.

3 Alterations Affecting the Principle of Circuits

Alterations that affect the principle of the circuits shall be carried out only to approved design alterations authorised by the ARTC Executive Manager Standards, Systems and Performance or a nominated signalling representative.

A Signal Engineer shall be responsible for implementing and commissioning the alteration and hence shall be the commissioning engineer. Testing and certification shall be carried out by the commissioning engineer or by a Signal Engineer who did not install any part of the alteration under test and who has been nominated and instructed by the commissioning engineer.

4 Relocating or Moving Relay Racks

Moving, relocating or temporarily supporting relay racks with operational relays in service should be avoided wherever possible. Whenever it is unavoidable, precautions must be taken to ensure there is no possibility of irregular operation, otherwise all associated circuits are to be disconnected and booked out of use.

Similarly, when any abnormal activity could tilt or turn upside down vital signalling equipment which relies on gravity return, the work must not be carried out while the equipment or affected circuits are in operational service.

5 Authority to Interfere with Signalling Working Circuits

Suitably accredited signalling maintainers or Signal Engineers are authorised to interfere with vital signalling equipment and working circuits in the performance of their duties in accordance with standard practice. Other persons are not to interfere with vital signalling working circuits.

Non-accredited employees, for example signalling cadets, apprentices and non-accredited electrical mechanics, are not to connect, disconnect or reconnect wires to or from terminals on the installed signalling system equipment, nor do anything that affects or could affect the adjustment of that equipment, except as specifically instructed and under the direct scrutiny of the suitably accredited Signal Electrician or Signal Engineer who will take responsibility for the work performed under their instructions by the non-accredited employee.

Non-accredited signalling employees are not to remove fuses, terminal pins or open links of existing signalling circuits involving signal lights, level crossing warning equipment or power supplies, or where the equipment is being disconnected in association with booking it out of use, except as specifically instructed and under the direct and close supervision of the suitably accredited Signal Electrician or Signal Engineer who will take responsibility for the work performed under their instructions by the non-accredited employee.

Exception

Where signalling equipment and/or circuits are disconnected and booked out of use and where the precautions in place together with the inspection and testing activities to be conducted will adequately ensure that only the intended connections, disconnections and adjustments will occur, then non-accredited persons, suitably experienced and properly instructed, may be used to progress the work on the disconnected signalling equipment and circuits under a level of supervision commensurate with the attendant risks.

The precautions in place, the inspections and tests to be conducted, and the level of supervision are also required to safeguard against:

- the possibility of inadvertent or mistaken interference with working signalling equipment and circuits in the vicinity that are not disconnected and booked out of use.
- the possibility of wiring connections being made inadvertently or mistakenly to the wrong terminals (and then the correct connections being made with separate wiring) and the incorrect wiring being overlooked and left connected in a situation where it would not necessarily be detected in functional testing of the intended alterations. (When carrying out new work and alterations, any incorrect wiring run or wiring incorrectly terminated is to be removed as soon as it is discovered.)

The signalling maintainer in charge remains accountable for ensuring the non-accredited persons work within the required restrictions and remains accountable for the work of those persons.