

Ref	NR/GN/SIG/I 9025
Issue	2
Date	February 2001

SIGTAN 025 - Electric Lever Locks (formerly RT/E/C/I9025)

This temporary front sheet facilitates change to the new Network Rail Standards referencing nomenclature.

The Ref above will be formally allocated to this standard when it is next changed in the meantime the contents, date and issue number of this Network Rail Standard are UNCHANGED and with immediate effect it should be referred to as “(new ref) formerly (old ref)”.

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Published & Issued by: Network Rail; 40 Melton Street, London NW1 2EE



RAILTRACK LINE CODE OF PRACTICE

SIGNALLING EQUIPMENT TECHNICAL ADVICE NOTICE (SIGTAN025) ELECTRIC LEVER LOCKS & CIRCUIT CONTROLLERS

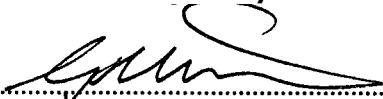
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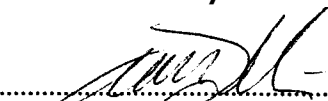
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Published & Issued by

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Summary

This code of practice summarises technical information and advice on problems relating to Electric Lever Locks and Circuit Controllers that form part of Railtrack's Signalling Infrastructure.

Issue/Revision Record

This code of practice will be updated when necessary by the distribution of a complete document. Subsequent amendments will be marked by vertical black line in the adjacent right hand margin.

Issue	Date	Comments
1	April 1999	Original Issue
2	Feb 2001	Re-write incorporating RT/E/C/19022 and updated GK/RC0741 Appendix LV00

Implementation

This code of practice highlights issues arising for operational experience, concerning the installation and maintenance of signalling equipment. Where appropriate, it gives current best practice for mitigating risk and is for implementation from 2 June 2001. Alternative practices may be accepted where they can be demonstrated to be as good or better than the contents of this document.

Superseded document reference number	Issue	Date
RT/E/C/19025	1	April 1999
RT/E/C/19022	1	April 1999
GK/RC0741 Appendix LV00	1	Sept 1996

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Supply

Paper copies of this document will be available by printing from electronic copy or, where this is not possible, may be issued on request to the Document Controller.

Safety

All persons are reminded that all appropriate safety precautions must be observed when undertaking the work covered by this document.

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1. PURPOSE

This document provides technical information and advice on problems affecting Electric Lever Locks and Circuit Controllers used on Railtrack's Signalling Infrastructure. It includes the measures necessary to control the risks presented by those failures.

It is anticipated that this document will develop to become a controlled repository for providing advice and information.

2. SCOPE

This document applies to electric lever locks and circuit controllers that form part of the railway infrastructure signalling control system.

3. REFERENCES

RT/E/S/10660	The Implementation of Signalling Maintenance Work Instructions
RT/E/S/10061	Signalling Maintenance Task Intervals
RT/E/S/10662	Signalling Maintenance Task Interval Change Process
RT/E/S/10047	Management of Safety related reports for Signalling and Operational Telecommunications Failures
RT/E/S/10064	General Instructions to Staff Working on S&T Equipment
RT/E/S/11231	Signalling Maintenance Testing

RT/E/WI/00014 Signalling Maintenance Work Instruction Lever Frames, Lever Locks and Circuit Controllers

LV11	Lever Frames, Locks and Circuit Controllers, Lever Frames
LV21	Lever Frames, Locks and Circuit Controllers, Lever Lock
LV31	Lever Frames, Locks and Circuit Controllers, Circuit Controller (Rotary Actuated)
LV41	Lever Frames, Locks and Circuit Controllers, Lever Lock and Circuit Controller (Combined)

4. DEFINITIONS

Lever Control Positions When designing signalling controls, it is necessary to have a system for describing the position of a signal box lever, within the lever frame. When the lever is in the Normal position in the frame, it is regarded to be in the N position. Similarly, R denotes the Reverse position. Five equally spaced intermediate positions are allocated between N and R. These are labelled A to E respectively when travelling N to R.

The setting of a contact is determined by its descriptive letters, hence, an N contact will only be made when the lever is fully Normal. Similarly an RE contact will be made

between the R and E positions whilst an NA will make between the N and A positions.

Lock Proving Contact

The purpose of the Lock Proving Contact is to detect when the lock pawl is engaged with an appropriate port in the lock slide; i.e. the lever is locked. A straight forward positional contact (e.g. a B contact) is not sufficient because, should the lock operating coil remain energised at this point, the lock may be ineffective and the designed security lost.

5. ABBREVIATIONS

LCC	Lock Proving Contact
SIGTAN	Signalling Equipment Technical Advice Notice
SMWI	Signalling Maintenance Work Instruction

6. PERSONAL SAFETY

All appropriate safety precautions must be observed when undertaking the work covered by this document.

Substances leaking from degraded cables and wiring do not normally present a hazard to health provided they are not swallowed or allowed to come into contact with the skin. Impermeable gloves and overalls should be worn when dealing with a leaking substance and should be disposed of correctly at the end of each shift. A local instruction including a COSHH assessment may be in operation for work of this nature, and will highlight the precautions that must be taken to control any health and safety concerns.

This document does not address general personal safety measures. Local instructions including a COSHH assessment may be in operation and these will highlight those measures which must be taken to control any Health and Safety concerns.

7. CAUTION

If this equipment is found to be operating incorrectly, inform the signaller and take the lever out of service immediately. Inform your manager as specialist attention may be required.

DO NOT attempt any repairs or adjustments unless you have had relevant training or are deemed competent by your manager to fit, adjust and test this equipment.

If signals have to be disconnected during any work to the locking they must not be reconnected until the relevant locking has been fully restored and tested. Any signals which have to be reconnected for testing purposes during the work must be disconnected on completion of the testing and must not be reconnected until all the relevant locking has been fully tested and restored to service.

Do not inform the signaller when only the work on the locking has been finished. The signaller must only be advised when the whole of the locking concerned has been fully restored and tested by a person deemed competent for this task. This is to avoid any confusion over the actual status of the work. A misunderstanding could result in the signaller attempting to set a route before all the relevant work is completed and tested.

8. ADJUSTMENTS

If any adjustments are made to this equipment it **MUST** be thoroughly tested for correct operation before being returned to service.

It cannot be stressed too strongly that unless you are fully competent in the setting up, adjustment and testing of this type of equipment you should never attempt to alter any settings.

An incorrect adjustment could cause a lever lock / circuit controller to be out of correspondence with the positions of the lever. Setting and checking of lever bands must always be done in association with the position of the lock on the lock slide and the position of the lever on the quadrant. Failure to ensure the correct position and correspondence of any of the associated components could result in a serious wrong side failure.

If you are not deemed competent to adjust this equipment, note the suspected fault, the location and as much detail as possible to ensure correct identification. Report the details to your manager so that specialist attention can be arranged.

9. REPLACEMENT OF PARTS

If any parts are in need of replacement, arrangements should be made for the correct parts to be fitted by staff competent to undertake the necessary fitting and testing. Ideally, this will be by replacement of a complete unit.

10. CONTACT SPRING PRESSURE

The optimum operating pressure for contact springs are not available. The spring pressure is determined by the design of the spring, its mounting and correct installation.

Some wear will be present due to the rubbing action of the contact face on the band or segment. However, if a band or segment has become excessively worn or grooved the spring pressure is probably incorrect. This can occur if a spring has been malformed or damaged. The appropriate remedial action should be arranged, see Adjustments and Replacement of Parts above and Metallic Dust and Short Circuits below.