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Technical Note - TN 041: 2016

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Subject: Withdrawal of legacy RailCorp signalling maintenance manuals

This technical note is issued by the Asset Standards Authority (ASA) to notify that the following legacy RailCorp signalling maintenance manuals have been withdrawn:

- TMG E1083 *Lamp Proving Module Maintenance Manual*, version 1.1
- TMG E1340 *The Claw Lock Mechanism Description and Operation*, version 2.2
- TMG E1341 *Claw Lock Mechanism – Safety and Functional Tests – Routine Maintenance*, version 2.3
- TMG E1342 *The Claw Lock Mechanism – Overhaul*, version 3.0
- TMG E1360 *Jeumont Schneider Track Circuits*, version 1.1
- TMG E1400 *Electro-pneumatic Points – Style 'S' Control Valve*, version 1.2
- TMG E1401 *Pneumatic Points Control Valve Style 'A'*, version 1.4
- TMG E1402 *Pneumatic Points Control Valve Style 'N'*, version 1.3
- TMG E1403 *Pneumatic Points Control Valve Style 'T'*, version 1.4
- TMG E1580 *Electric Points Machine – Westinghouse 84M Mechanism*, version 1.1
- TMG E1585 *HLM Point Lock Detectors Maintenance Manual*, version 1.0
- TMG E1590 *Signal Structures – Examination and Maintenance*, version 1.2
- TMG E1630 *Signalling Compressed Air System*, version 1.0
- TMG E1632 *Pulsating Indications*, version 1.0

Note: All enquiries regarding the technical content of the manuals listed in this technical note should be directed to SydneyTrainsstandards@transport.nsw.gov.au

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TMG E1585

HLM POINT LOCK DETECTORS MAINTENANCE MANUAL

Version 1.0

Issued December 2010

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Engineering Manual

Owner: Chief Engineer Signals & Control Systems

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Document control

Version	Date	Summary of change
1.0	13 December 2010	New document.

Summary of changes from previous version

Summary of change	Section

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1 Background

The Westinghouse HLM point lock detector is used in a variety of applications:

- to replicate the switch locking function inherent in a wire detector, as a consequence of the conversion of mechanically worked shunt signals to colour light;
- to act as a facing point lock on mechanical points;
- to lock the clawlock drive bar for EP swing-nose crossings.
- To lock a mechanical ground frame or points lever in lieu of a releasing switch.

For additional information on the HDLMs in use at Chatswood refer to the VAE Asset Manual – Epping to Chatswood Project – Swing Nose Crossings.

2 Scope

While the listed applications of the HLM differ considerably, there is little variation in the HLM itself and consequently set-up and maintenance procedures are similar for all applications. Where there are differences, these will be noted.

Except where use as a wire detector replacement is specifically noted, such use is sufficiently similar to the facing points lock application that the facing point lock will be used to cover both situations.

3 Maintenance Frequency

The HLM is to be maintained on a 30-day cycle.

4 Set Up and Adjustment

The HLM lock slide has a fixed distance between the locking notches. This fixed distance is dependent on the particular application of the HLM.

4.1 Use as Facing Point Lock

4.2 Switch Opening

The HLM lock slide for mechanical points has locking notches spaced to match the switch opening, which for mechanical points is 115mm.

The switch opening is adjusted using the serrations on the front and back rods. A fine adjustment of 0.5mm steps is made by insertion or removal of shims between the switch rail and the front or back rod attachments.

The switch opening should be adjusted to be as close as possible (ie within 0.5mm) of 115mm.

4.2.1 HLM Set-up

The locking bar is designed to have notches that ensure the correct lock setting is always provided on both sides.

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Ensure the lock is adjusted so that the lock enters each notch centrally with clearance on either side. This clearance should be 1.1mm to 2.1mm and ideally 1.6mm, depending on the degree of accuracy with which the switch opening can be adjusted to be 115mm.

Test that the lock can enter with a 1.6mm gauge between the switch and stockrail, and fail with a 3.2mm gauge.

If the lock fouls on the non locking side, the switch travel is greater than 115mm and needs to be adjusted.

If the lock fouls on the locking side, the switch travel is insufficient.

4.2.2 Wire Detector Replacement

The locking bar has additional clearance provided on the non-locking side.

Ensure the lock rod is adjusted to provide equal clearance between the locking dog and the locking notch (on the locking side), at both normal and reverse switch positions.

For Lithgow only, the lock is permitted to enter at 3.2mm and foul at 4.8mm. Test the operation by using the gauge between the switch and stockrail.

4.3 Use with EP Swing-Nose Crossings

The lock slide in this application is designed to lock a clawlock drive bar at the extremities of its travel: 180mm.

Ensure the lock is adjusted so that the lock enters each notch centrally with clearance on either side.

For swing-nose drive bar locking, the lock cannot be tested by use of gauge blocks. The only test is visual confirmation that the lock enters the notches with clearance on both sides.

5 Maintenance Tasks

- The slides are stainless and operate through bronze liners are designed to operate without lubrication. This assists in preventing grit being embedded in the grease, and causing wear. Ensure the slides are clean of foreign material.
- Inspect the lock proving contacts. An aerosol spray cleaner for electrical use may be used to clean the contacts or blow off contamination. The contacts are not to be adjusted. Replace the contacts if there is serious evidence of pitting, or they are bent or deformed.
- Test the detector:
  - For facing point lock use, testing of the HLM detector is the same as for HMX, HM2 and HM4 types.
  - The detector is not used in the swing-nose application.
- Test the lock:
  - The lock must enter in the notches with clearance on both sides.
  - For facing point lock applications, the lock should enter at 1.6mm switch opening and foul at 3.2mm.

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  - As a wire detector replacement, the lock should enter at 3.2mm switch opening and foul at 4.8mm.
  - The lock is tested by inserting a gauge between the switch and stockrail and testing as per a facing point lock.
  - For swing-nose drive bar locking, the lock cannot be tested by use of gauge blocks. The only test is visual confirmation that the lock enters the notches with clearance on both sides.

- Inspect the unit for any signs of damage, or case cracking.
- Ensure all fastenings are tight, especially the sleeper and bedplate fixings, and rodding and the stockrails are secured. Ensure that double securing devices are in place on all pins.

6 Safeworking Arrangements

- Ensure the worksite is protected.
- Follow the procedures for testing of points during maintenance.
- Should the components require dismantling, book the points out of use.
- To operate the manual release to the release position before working on the points, first obtain the signallers permission.

7 Booking Out Of Service

7.1 Facing Point Lock

In a facing point lock application, in the event of a failure of the lock or detection, the HLM may be removed from service by:

- Strapping the lock in the energised position, or, if a manual release lever is provided, by operating this to the release position and securing it with a signalling Falcon pad lock.
- Booking out of use any facing signals over that end of the points.

Points will require clipping for train movements.

7.2 Swing-Nose Drive Bar Lock

When used for swing-nose drive bar locking, rail traffic cannot be signalled over the points in either direction with the lock raised. The HLM may be removed from service by:

- Operating the manual release lever to the release position;
- Operating the points to the preferred position by the EOL;
- Returning the manual release lever to the operating position, and securing it with a signalling Falcon pad lock;
- Booking the points out of use, and any signal routes which require the points in the opposite position.

Failure of the lock proving circuit in this application will prevent signals being cleared over the points.

8 Security

The manual release lever (if provided) must be secured in the operating position by a Falcon lock.

The HLM case lid must be secured by a Falcon Lock.

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9 Operating Coils

The HLM is fitted with two operating coils. The coils are not rated for continuous operation. For reliable operation, the coils are to be wired in parallel. Care is to be taken that, the polarity for each coil is the same, otherwise the magnetic fields will work against each other. The rectifier that feeds the coils should have a surge arrestor fitted.

10 Bronze Slide Liners

Care is to be taken that the bronze slide liners are correctly installed when slides are changed. Failure to do so may result in the lock not adequately clearing the slide when energized.

Appendix A Appendix – Drawings

Attached to this guideline are drawings that show the arrangement of the HLM Point Lock Detector.

- HLM / HDLM Lock & Detector Circuit

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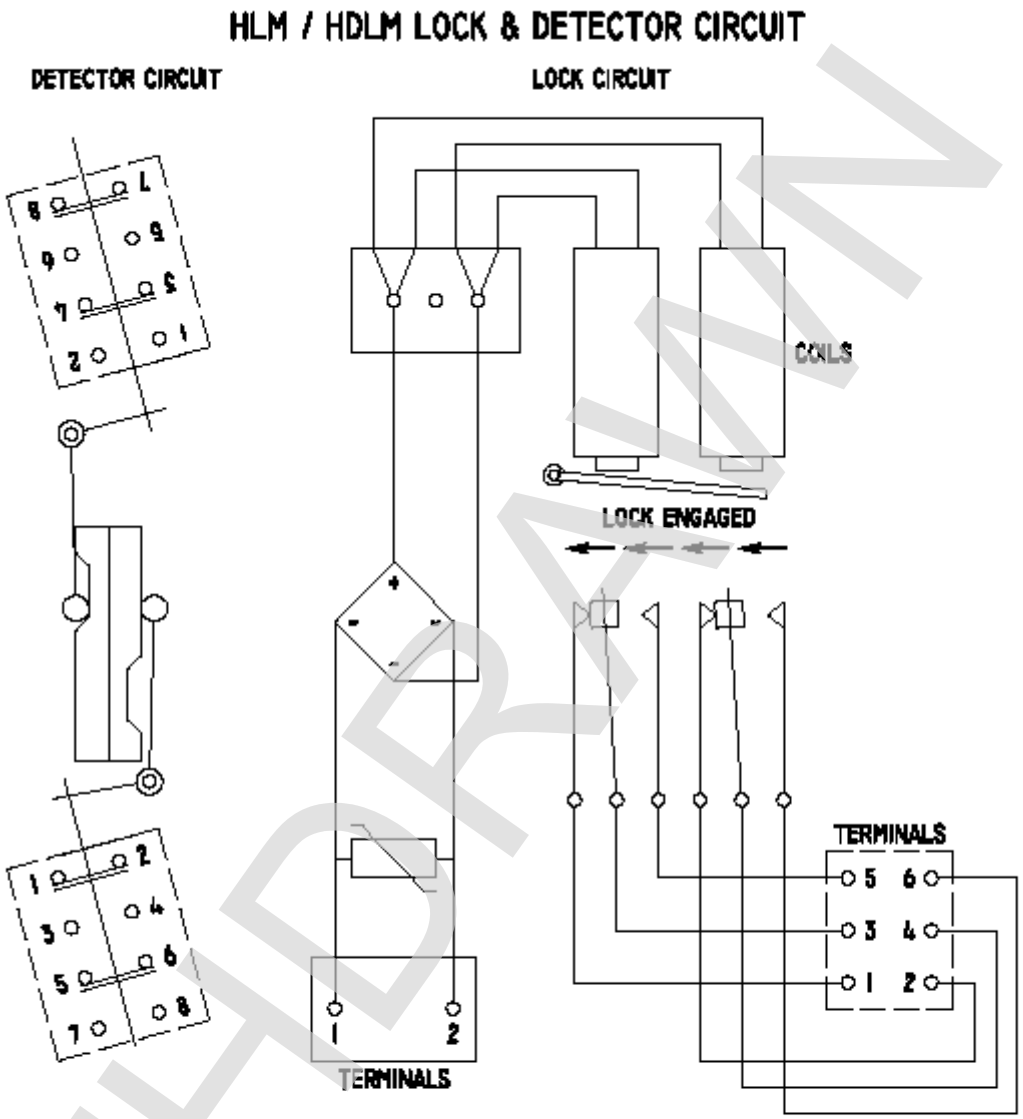

NOTES:

1. LOCK AND DETECTOR SLIDES ARE REVERSIBLE AND MAY BE INSERTED FROM EITHER SIDE OF CASE TO SUIT LAYOUT.
2. DROP LUG OF LOCK SLIDE MAY BE FITTED ON EITHER END OF SLIDE. IT SHOULD BE FITTED TO THE SHORT END IF SLIDE IS LOCKED IN THE "IN" POSITION OR TO THE LONG END IF SLIDE IS LOCKED IN THE "OUT" POSITION.
3. WHEN INSERTING SLIDES IT IS IMPORTANT TO ENSURE THAT THE SPACER IS BETWEEN DETECTOR SLIDES AND ON TOP OF LOCKSLIDE.
4. WHEN SETTING LOCK, BOLT MUST DROP IN CENTER OF SLOT IN LOCK SLIDE. IT MUST NOT RUB ON EDGE OF SLOT OR MAGNET WILL BE JAMMED.

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