

TECHNICAL INSTRUCTION

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NETWORK RAIL - SIGNAL ENGINEERING Procedure for Degraded Operation of HPSS Points in the Event of a Toe LVDT Failure

Relevant Standard: NR/L2/SIG/11400 & NR/L3/SIG/11231

Purpose

This procedure is to be implemented where HPSS points have a failed toe LVDT and due to the volume of traffic it is not possible to obtain access to replace the failed toe LVDT.

Currently where this occurs general practice is to clip and scotch the failed points for the predominant direction of travel. All trains on the affected line are then stopped and talked by a red signal.

Scope

This procedure shall be applied in this scenario and is intended to allow trains to be signalled normally thus reducing operational risk and also with the additional benefit of eliminating the delays incurred by talking past the protecting junction signal. The application of this procedure shall be at the discretion of the local STME or equivalent on-call Signalling Engineer and will be restricted to a maximum period of 36 hours (48 hours in areas with 3rd rail DC traction).

Restrictions

1. This procedure can only be applied to one Toe LVDT where the opposite Toe LVDT is functioning within specification. Under no circumstances can this be applied to both toe LVDTs.
2. This procedure is only to be applied to HPSS points that have one or more pairs of Supplementary detectors
3. This procedure is not to be applied where the points have any other current LVDT failures.
4. The application of the procedure shall be restricted to a maximum duration of 36hours, with the following exception.

In areas with 3rd rail DC traction where an isolation is required in order for the LVDT to be changed, the 36 hour timescale may be increased to 48 hours. This shall be approved by the PMSE[S&T] (or equivalent)

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Responsibility

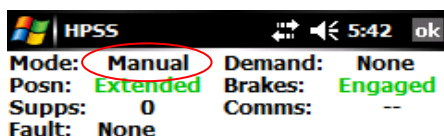
The STME is responsible for the correct application of this procedure and for ensuring that the required timescales are met.

The STME shall register the application of this procedure to the PMSE(S&T) organisation at the earliest opportunity within normal working hours.

The Operations staff (Mobile Operations Manager or nominated Agent / Points Operator decreed by the Local Operations Manager) are responsible for the application of Rule Book Module T5 with regard to the clipping and scotching of the points. The Operations staff will hold the keys for the point clips for the duration of the procedure.

Procedure for the technician on site

1. Arrange for Operations staff to set the point controls for Manual operation and then to clip, padlock and scotch the points in the position required by the signaller. (As per the requirements of Module T5 of the Rule Book).
2. Arrange with the signaller a safe system of work to carry out the following steps (3 to 13).
3. Connect TDS RECON handheld and confirm the points are set for Manual Operation (to isolate the HPSS motor power).



4. Use the TDS RECON handheld to identify if there is a toe LVDT failure. The latest handset software version (2.04) has a LVDT Test function that can be used to confirm a loss of continuity.
5. Plug a spare known good LVDT in to the same port on the ECU as the toe LVDT that has been identified as having failed.
6. If the ECU detects movement of the spare LVDT correctly this confirms that replacement of the toe LVDT will be required.
7. If the ECU does not detect movement of the spare LVDT correctly, replacement of the ECU will be required.
8. Obtain suitable access for the replacement of the failed toe LVDT. If unable to obtain access, apply for permission to apply steps 9 to 14 of this procedure from the on-call Signalling Engineer (STME or equivalent). Once permission is obtained proceed to step 9.
9. Confirm the following through visual inspection:
 - The closed switch rail is correctly fitting up to the stock rail
 - The integrity of all stretcher bars and associated fixings
10. Using the spare LVDT connected directly to the ECU and whilst monitoring the reading for it on the TDS RECON handset, move it to a position that would give detection at the toe of the points.
11. Secure the LVDT using cable ties and a jubilee clip (as shown in figures 1 & 2). Check for possible movement.