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Ref	NR/WI/SIG/00105
Issue	2
Date	August 2004

AzLM Axle Counter System Risk Based Maintenance (formerly RT/E/WI/00105)

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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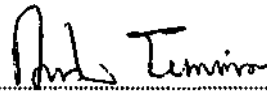
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Company Work Instruction

AzLM Axle Counter System Risk-Based Maintenance

Endorsement & Authorisation

Endorsed by:



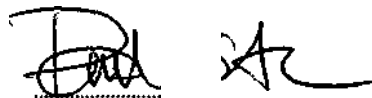
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Authorised by:



A McNaughton, Chief Engineer

Accepted for issue by:



P McAleer, Head of Standards Development Process

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Issue record

Issue	Date	Comments
1	Feb 2004	First Issue
2	Aug 2004	Updated to include Axle Counter Record Card and to amend minor typographical error.

Implementation

This Work Instruction is mandatory where the implementation of Risk Based Maintenance for AzLM Axle Counter has been authorised in accordance with RT/E/S/I0662, 'Process for the Introduction of New or Revised Maintenance Regimes for Signalling Assets'.

RT/E/C/I0099, 'Risk Based Maintenance – Implementation', provides guidance on how to meet the implementation requirements of RT/E/S/I0662.

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1 Purpose

To detail the maintenance tasks required for the AzLM Axle Counter System risk-based maintenance regime.

2 Scope

This maintenance specification applies to the Alcatel AzLM type Axle Counter system.

This maintenance specification DOES NOT include tasks associated with the following:

- Testing activities for earth leakage detection.
- Cable testing.
- Maintenance of power supply equipment.

This maintenance specification shall be applied where implementation of Risk-Based Maintenance has been authorised in accordance with Network Rail Company Specification RT/E/S/I0662 'Process for the Introduction of New or Revised Maintenance Regimes for Signalling Assets'.

The frequency of application of the tasks defined in this specification is defined in the RT/E/S/I0661, 'Signalling Maintenance Task Intervals'.

3 Requirements

3.1 Safe System of Work

Before undertaking any work, a safe system of work shall be set up in accordance with the Rule Book.

3.2 Test Failures and Infrastructure Defects

Test failures / defects shall be rectified or reported to the appropriate manager as soon as reasonably practicable unless other specific instructions are provided with the task.

3.3 Tools

The following tools are required to perform the maintenance activities:

- A calibrated meter that can read AC and DC voltage;
- A calibrated axle counter test box (Alcatel part number: I9982 28201);
- A dummy wheel (Alcatel part number: I9982 3100X);
- A laptop containing Alcatel Diagnostic Software (Alcatel part number: 3CR 53506 AAAA);
- A calibrated torque wrench (0 – 50Nm min);

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- A potentiometer trimmer (RS part number: 543-434); and
- 13mm and 19mm sockets.

Additional tools may be required to undertake remedial work.

3.4 Checklists

To ensure all tasks are completed a Checklist (see Appendix E) shall be completed during each maintenance visit.

3.5 Record Card

There are Axle Counter Record Cards located at each REB and detection point, the card must be completed as part of any maintenance activity (see appendix F).

3.6 Indications

The AzLM Axle Counter System contains a number of useful indications. For reference, these have been included in Appendix C.

4 Definitions

EAK30H	Detection point electronics (yellow mushroom)
SK30H	Detection sets (TX/RX heads mounted on the rail)
ZP30H	Detection point (EAK30H and SK30H)

5 Maintenance Activities

5.1 Detection Point Inspection

5.1 Detection Point Inspections		Service	
5.1.1	Visually inspect the rail mounted detection heads, ensure that: • The heads and insulation are not damaged or deteriorated such that a failure might occur prior to the next schedule maintenance visit; • The heads are not obstructed by lineside debris up to 2m either side of the rail mounted heads; • The area is free from any obvious P/Way defects; • The heads are clear of metallic debris (e.g. swarf following rail grinding); • There are no traction bonds close to the SK30H detection set; and • The heads are clear of ballast shoulder. NOTE: If metallic objects cannot be removed (e.g. rails), this should be reported.	A	

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5.1 Detection Point Inspections		Service	
5.1.2	Visually inspect the pads and clips for three sleepers either side of the detection point, ensuring that: - The pads are installed correctly, not damaged or deteriorated; and - The clips are not damaged or missing. NOTE: Damaged pads or rail fastening insulators may cause incorrect operation of the detection point and arrangement should be made for replacement.	A	
5.1.3	Visually inspect the SK30H detection set, ensuring that: - The TX heads are secure (four M8 mounting nuts); and - The rails mounting bracket is secure (three M12 nuts / bolts). NOTE: If the TX head or rail mounting bracket nuts are loose, the heads will require setting-up in accordance with Appendix A. NOTE: The SK30H Setup Procedure will cause the associated section(s) to become disturbed. Therefore, the appropriate protection / possession shall be agreed prior to work commencing.	A	
5.1.4	Visually inspect the TX / RX cables between the heads and the EAK to ensure that: - Cables are clear of any heavy obstructions; - Cables are secure and not damaged or deteriorated; - Cable protection arrangements are sufficient; - Cable bracket and 'Pirelli Python' is fitted correctly (see Figure 1 and Figure 4); - Blanking plates are fitted to unused cable entry points; - The cable labelling is clear and correct; and - The cable and 'Pirelli Python' do not show any sign of damage such that the integrity of the cable is in question. 	A	

Figure 1 SK30H Detection Set Cabling

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5.1 Detection Point Inspections		Service	
5.1.5	Visually inspect the communications cable between EAK and troughing route to ensure that: • Cables are clear of any heavy obstructions; • Cables are secure and not damaged or deteriorated; • Cable protection arrangements are sufficient; • The cable labelling is clear and correct; • Communications cable glands and jubilee clips are secure; • TX / RX head cable glands, 'Pirelli Python' hose and jubilee clips are secure; • Blanking plates are fitted to unused cable entry points; • EAK identification markings are clean and legible; and • The cable and 'Pirelli Python' do not show any sign of damage such that the integrity of the cable is in question.	A	
5.1.6	Visually inspect the Earth bonding, ensuring that: • The bonding has been installed correctly; and • The bonding is secure. NOTE: If necessary the bonding should be verified against the appropriate signal bonding plans.	A	
5.1.7	Remove EAK cover and visually inspect the seal and anti-vandal protection (where fitted) to ensure it is not damaged or deteriorated such that a failure may occur prior to the next scheduled maintenance visit. NOTE: The EAK cover should not be removed during inclement weather, unless an approved inclement weather cover is available, as rain or snow may damage the electronic equipment.	A	
5.1.8	Inspect the Axle Counter Record Card to ensure that in the last 12 months, the following activities have taken place (e.g. at a previous maintenance visit, as part of corrective maintenance or as required by SMTH following P/Way maintenance activities): • The three M12 rail mounting nuts have been torqued to 45Nm; • The four M8 TX head mounting nuts have been torqued to 25Nm; and • Using a multi-meter set to ohms(Ω), the resistance between each of the rail mounted RX heads and the running rail, and RX heads to the M12 bolts has been measured. NOTE: Where the Axle Counter Record Card indicates that these activities have not taken place in the last 12 months, the above activities should be undertaken in accordance with Appendix A (A1.1), and recorded on the Axle Counter Record Card.	A	

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