

TECHNICAL INSTRUCTION

TI 028

Issue 3

18/01/2011

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NETWORK RAIL - SIGNAL ENGINEERING

'Triple-Path' Surge Arresters Used in Aster21, U-Type & SF15 Track Circuits

Relevant Standard: NR/L3/SIG/11303 Module 2P40, NR/L2/SIG/11752

Background

A common practice has emerged of not making an earth connection to the centre electrode of Type 26A gas-discharge surge arresters used with jointless track circuits. This is due to the mistaken belief that short-circuit faults, which can occur with these devices, could 'by-pass' sections of track.

This precaution is not necessary because, when arresters are provided in the positions shown on design drawings, they are electrically isolated from the rails by transformer arrangements within the tuning units. By not connecting the centre electrode to earth, the track circuit equipment is made more vulnerable to damage and failure during lightning storms, etc. This is especially undesirable in the case of the obsolete U-Type and SF15 equipment because spares are scarce.

Changes in Issue 3

Issue 3 of this TI now excludes the requirements for TI21 track circuits; these can be found in NR/L2/SIG/11761 issue 2

Compliance Requirements

This TI is mandatory and shall be complied with by Network Rail and its contractors if applicable from 18/01/2011.

(Surge) Arresters in the context of this document

Throughout this document, the arresters referred to shall be taken to be those fitted at the apparatus case or equipment housing end to the incoming cable terminations from the external tuner unit.

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Action Required

For Aster21 (limited trial currently in progress), U-Type and SF15 track circuit installations only, a suitable earth connection shall be made / re-instated to the centre electrode of Type 26A gas-discharge arresters, where these are shown to be provided in standard circuit arrangements. Where site diagrams carry a note stating that an earth connection shall not be made, this may be disregarded. The note should be crossed through on the site diagrams and treated as a Minor Records Update when subsequent alterations are made to the Master records.

Note that where Type 26A gas-discharge arresters are fitted to other types of track circuit, they are probably in direct connection with the rails. In these cases an earth connection shall not be provided (NR/L2/SIG/11752 C 1.6 applies). Be aware that an earth connection might be made inadvertently through the mounting screw of the holder.

Staff to be Briefed

The following table shows who needs to be briefed and who has responsibility for briefing:-

Role	Responsible for Briefing
Head of Asset Management (S&T) Senior Programme Engineering Manager (S&T)	Author
Route Asset Managers (S&T)	Head of Asset Management (S&T)
Signal & Telecoms Maintenance Engineer	Route Asset Managers (S&T)
Section Manager (Signals)	Signal & Telecoms Maintenance Engineer
Signal Technicians Signalling Technical Support Staff	Section Manager (Signals)
Signal Project Engineers Testing & Commissioning Engineers	Senior Programme Engineering Manager (S&T)

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