

Track Circuit Assistor (TCA®)

The build-up of rust on rails can prevent the track circuit being activated when a train passes. This problem is overcome with the TCA® fitted to DMUs.



TCA® Mk II in position

TCA® Principle

GM/GN2576 states: “A TCA® is fitted between a pair of wheelsets on a vehicle. It assists the operation of a track circuit by raising the effective track circuit rail-to-rail voltage at the wheelsets either side of the TCA®; this enables a low voltage track circuit to operate as effectively as a higher voltage type.”

Track Circuit Failure

Track circuits affected by rust are not a problem for heavier trains, but lighter DMUs do not have enough weight to break through the rust layer, and in certain cases this can lead to a train not being detected by the signalling system.

The improved suspension, better wheel-rail profiles and widespread use of disc-brakes on DMUs also contribute to the problem as there is less abrasion to the rail and a resulting build-up of rust which effectively acts as an insulator.

Benefits of TCA®

- Improved track circuit shunting when wheels and rails are rusty
- Improved safety and reliability of train detection
- Reduced costly train delays
- Reduced likelihood of costs associated with delays caused by non-shunting of circuits
- Straight-forward, simple installation
- Low-maintenance system supported by Unipart Rail
- Spares and replacements available from Unipart Rail

The System

The TCA[®] aerial is suspended on the underside of the bogie and the system consists of:

- Continuous polyurethane waterproofed insulation on the whole aerial unit
- Full set of brackets and support legs (if required)
- Integrated tuner unit and harness
- Cab-mounted control box

The systems is supplied in Mk I and Mk II versions. Mk I is available for retro fit to existing fleet units, whilst Mk II is supplied for fitment to new fleet build.

The Service

Unipart Rail offers a comprehensive service including:

- Consultancy service to identify specific fleet requirements
- Customisation of the TCA[®] design for each fleet
- Compliant with rail group standards GM/RT2476, GM/RT2477 and GM/GN2576
- Customised test and maintenance equipment
- Delivery and commissioning of complete TCA[®] kits
- Training for installation and maintenance engineers
- Support and technical advice

Network Rail Requirement

In addition to reduced operating delays and associated costs, the TCA[®] system provides significant safety benefits by reducing the probability of loss of train detection. Network Rail requires that trains must reliably shunt track-circuits.

For certain types of train, particularly DMUs, this requirement can only be fulfilled through the fitting of the TCA[®] system.

Available from:

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