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NR/L3/ELP/29987

Module 8

Local Isolation and Earthing of Overhead Line Equipment

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1 Purpose

Compliance with this module will promote safe operation of the 25 kV a.c. electrification system and produce consistent implementation of secure isolation procedures at locally controlled sidings and depots.

NOTE: Further requirements for working on or about the electrified lines are contained in the Rule Book Module AC (GE/RT8000/AC) and Handbook HB16 (GE/RT8000/HB16).

2 Scope

This module states the requirements for the isolation and earthing of overhead line equipment where local isolations are specified in the isolation instructions.

It is applicable to Network Rail personnel and to Network Rail's contractors. It is also applicable in relevant part to Train Operating Companies having locally controlled 25 kV a.c. overhead lines which abut those controlled by Network Rail.

To provide a consistent approach to working on or about 25 kV a.c. electrified lines, Train Operating Companies may, as best practice, apply this standard in full on infrastructure they control.

This Standard also includes:

- Work on or about any future sections of electrification on Network Rail controlled infrastructure and areas required to adopt a process for securing points of disconnection to form points of isolation to use the Supplementary Isolation Process (Module X).
- Planning of isolations, testing and earthing of overhead line equipment on Network Rail controlled infrastructure equipped with 750V d.c. overhead line system (Sheffield Tram Train - Module Y).
- Planning of isolations, testing and earthing of overhead line equipment on Network Rail controlled infrastructure equipped with 1500V d.c. overhead line system (Sunderland Metro Systems Operating Area – Module Z).

3 Management of Staff Training and Competence

Isolation and earthing in accordance with local isolation instructions shall only be undertaken by a Nominated Person trained in, and certificated to carry out, the isolation and earthing procedure for the electrical subsection(s) in the siding(s) concerned and as prescribed in the local isolation instructions.

Isolation, earthing and issue of overhead line permits in accordance with the procedures described in Module 7 shall only be undertaken by staff trained in, and certificated to carry out, the isolation and earthing procedure prescribed in Module 7.

4 Local Isolations in Sidings

4.1 Principles

The electrical subsections where permitted local isolations are specified in the isolation instructions and, where such a local isolation is required, local isolation

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instructions shall be written in accordance with the requirements of Module 12 and the requirements described in this module.

In those sidings where local isolation is permitted, the OLE shall be isolated and earthed in one of the following two ways:

- a) **either** by adopting the procedures specified in the local isolation instructions, and then only on the permission of the ECO; **or**
- b) by adopting the procedures specified in Module 7, local isolations shall be suspended and the OLE isolated, earthed and an overhead line permit is issued.

NOTE: Sidings that do not permit local isolations are to be planned in accordance with Module 6 and the planning process

4.2 Carrying Out a Local Isolation

When a local isolation and earthing of a siding is to be carried out:

- a) The Nominated Person for the siding shall confirm that it is safe to isolate the OLE in the siding and then block it to electric trains, arranging that:
 - i) a reminder appliance is fitted on, or adjacent to, the lever(s) operating the hand points controlling access to the siding; or alternatively,
 - ii) the points are clipped and padlocked for an alternative route that is not isolated.
- b) If the points are controlled from a signal box, the Signaller shall place reminder appliances on the appropriate levers or devices and make a suitable entry in the train register.
- c) The Nominated Person shall advise the ECO confirming that there are no pantographs raised in the siding and obtain permission to isolate and earth the OLE.
- d) When this permission has been granted the Nominated Person for the siding shall:
 - i) obtain the key to the siding disconnecter, unlock the disconnecter and operate it to and lock it in the 'Open' position, or, where fitted, the 'Earth' position; and
 - ii) apply short portable earth(s), using approved insulated earthing poles in accordance with Module 10, to the OLE at the designated earth points identified in the local isolation instructions.

The portable earths shall be in duplicate in accordance with Module 7.

NOTE: Where an overhead line disconnecter already provides a fixed earth. The portable earth may be an additional earth at that end of the subsection as identified in the local isolation instructions.

- e) The Nominated Person shall return the disconnecter key(s) to the place provided for safe custody, except that, where specified in the local isolation instructions, the key(s) may be handed to the person directing the work

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requiring the isolation, in place of the separate personal safety padlock key referred to in f).

- f) The Nominated Person shall inform the person directing the work to:
- i) **either** fit a personal safety padlock, which will be issued to them, to prevent operation of the siding disconnecter and retain the key in their possession until the isolation is cancelled, whereupon the padlock and key shall be returned to the Nominated Person (or their relief) from whom received;
or retain the key(s) of the siding disconnecter in their possession until the isolation is cancelled, whereupon the key(s) shall be returned to the person (or their relief) from whom received;
 - ii) confirm that all persons for whom they are responsible fully understand the extent of the isolation before any work is commenced;
 - iii) sign the isolation record book;
 - iv) cease work when required to do so;
 - v) warn all persons for whom they are responsible that the isolation is about to be cancelled and that it is unsafe to carry out further work, before giving up their authority to work and then removing their safety padlock or returning the key(s) of the siding disconnecter; and
 - vi) if the isolation is of longer duration than their turn of duty, hand the key(s) to their relief, who shall accept all the above conditions. Both persons shall notify the Nominated Person (or the Nominated Person's relief) and sign the isolation record book.
- g) The Nominated Person for the siding shall enter the date and time of the isolation, the name and employer of the person requiring the isolation, and the identity number of any personal safety padlock(s) issued, in the isolation record book, which they and the person requiring the isolation shall both sign.

4.3 Cancelling a Local Isolation

The person for whom the isolation was undertaken shall:

- a) warn all persons for whom they are responsible that the isolation is about to be cancelled and that it is unsafe to carry out further work;
- b) return the personal safety padlock or the key(s) of the siding disconnecter to the person (or their relief) from whom received, and sign the isolation record book to the effect that all persons for whom they are responsible have been advised that it is no longer safe to work.

The Nominated Person for the siding shall:

- c) countersign the entry in the isolation record book and then obtain the permission of the ECO to make the OLE live;
- d) when this permission has been granted, remove all the short portable earths using approved insulated earthing poles in accordance with Module 10;

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- e) unlock the disconnecter, operate it to and lock it in the 'Closed' position;
- f) return the key(s), portable earths and earthing poles to the place provided for safe custody;
- g) advise the ECO that the OLE is live;
- h) remove reminder appliances or point clips from the hand points controlling access to the siding(s).

If the points are controlled from a signal box, the Signaller shall remove reminder appliances and make a suitable entry in the train register.

5 Combined Isolations In Sidings

When it is required for an isolation of electrical subsection(s) in sidings where local isolation is allowed, to be combined with an isolation of an abutting electrical subsection(s) where local isolation is not allowed, the local isolation procedure specified in this module shall be suspended. The combined isolation and earthing procedure shall be carried out by a Nominated Person in accordance with Module 7 and an overhead line permit issued.

6 Isolations In Electric Traction Depots, Traction Maintenance Depots, Electric Inspection and Cleaning Sheds, etc.

6.1 Isolations Entirely Within a Depot Boundary

Where a local isolation procedure is permitted, work shall be carried out in accordance with, and within the safe working limits specified in, the depot local isolation instructions. The isolation instructions specify where local isolations are permitted.

Where a local isolation procedure is not permitted and an overhead line permit is required, the permit shall be issued in accordance with the depot local procedures.

When an isolation of a subsection(s) where a local isolation procedure applies is to be combined with a subsection(s) where a local isolation procedure does not apply, the local isolation procedure shall be suspended and an overhead line permit issued.

6.2 Isolations Extending Beyond a Depot Boundary

When it is required to combine an isolation of a subsection(s) within a depot's boundary with a subsection(s) outside the depot boundary, the combined isolation and earthing and the limits thereof shall be agreed between the parties concerned and shall be carried out by a Nominated Person in accordance with Module 7.