



**AUSTRALIAN RAIL TRACK CORPORATION LTD**

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**Discipline**  
**Engineering Standard - NSW**

**Category**  
**Electrical**

**Title**  
**Operating Work - Low Voltage Distribution System**

**Reference Number**  
**POP 06 - (RIC Standard: EP 95 30 00 03 SI)**

**Document Control**

<b>Status</b>	<b>Date</b>	<b>Prepared</b>	<b>Reviewed</b>	<b>Endorsed</b>	<b>Approved</b>
Issue 1 Revision 1	Mar 05	Standards and Systems	Signalling Standards Engineer	GM Infrastructure Strategy & Performance	Safety Committee
		Refer to Reference Number	T Moore	M Owens	Refer to minutes of meeting 24/01/05

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## **About This Standard**

This instruction sets out the mandatory requirements for isolating and proving dead Low Voltage Distribution Equipment. It also sets out the additional requirements that apply when the isolation of low voltage equipment is affected by the operation of high voltage switches.

Aspects of Operating Work that a maintenance contractor must document and include in its Electrical Safety System are also listed.

This publication applies to ARTCs low voltage distribution system. It also applies to low voltage installations associated with operationally critical ARTC equipment, such as signalling locations, train monitoring equipment and other essential supplies.

## Document History

**Primary Source** – RIC Standard EP 95 30 00 03 SI Version 1.0

### List of Amendments –

ISSUE	DATE	CLAUSE	DESCRIPTION
1.1	11/03/2005	Disclaimer	Minor editorial change

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## **1 Isolation of Low Voltage Equipment**

### **1.1 General**

Low voltage equipment must be isolated from all points of supply by providing at least one break in each active conductor through which the equipment could be made live.

Breaks must be such as that provided by opening a circuit breaker, removing fuses, opening isolating switches or disconnecting conductors. The devices providing these breaks must be Danger Tagged and where practicable locked open.

When such an isolating device can also be operated by remote control, the remote control must be rendered inoperative, and the means of making it inoperative Danger Tagged.

#### **WARNING**

**An isolating device with a Danger Tag attached must not be operated.**

### **1.2 Isolation by the Operation of High Voltage Switches**

When the isolation of low voltage equipment is achieved by the operation of a switch on the high voltage side of a transformer and the low voltage neutral of the transformer will not be disconnected from earth, high voltage earths are not required.

If the low voltage neutral is to be disconnected from earth, earths are to be placed on the high voltage side, and an appropriate Permit must be issued to ensure that the earths are not removed until work is completed.

In the case of an unearthed low voltage system, there will be an earthed screen within the transformer. High voltage earths are not required in that case.

### **1.3 Isolation by the Breaking of Connections**

When isolation of low voltage equipment is achieved by the breaking of connections the active conductors must be disconnected first, followed by the neutral conductor and the earth conductor last. The reverse procedure must be followed for connection on restoration of supply.

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## **2 Danger Tags**

### **2.1 General**

Danger Tags must be attached to all devices used to provide isolating breaks and to the means of making inoperative any remote controls for these devices.

When work is being done by an Authorised Person and a Permit has not been issued for the work, a separate Danger Tag must be used by each person unless that person is under the control of another Authorised Person who is working on the same equipment. In this case the Danger Tag for the controlling Authorised Person may be used and the controlling person is then responsible for the electrical safety of the other persons.

If a Permit has been issued, a separate Danger Tag must be used for each Permit for which the isolating break is required. Subsequent Danger Tags must not obscure Danger Tags which are already in place.

### **2.2 Attachment of Danger Tag**

The Danger Tag must be:

- placed so that it cannot be removed other than deliberately, and
- positioned so that it is obvious to any person who may attempt to operate the device.

If it is impracticable or unsafe to attach a Danger Tag to a device, the Danger Tag must be attached as close as practicable to the device.

### **2.3 Information to be shown**

The Danger Tag must show:

- the name, depot or company and contact phone number of the person who attached the Danger Tag,
- the location of the work, and
- the Permit number, or
- the name of the Authorised Person for whom the Danger Tag was attached, and
- the date and time attached.

## **2.4 Removal of Danger Tag**

### **2.4.1 General**

When the Danger Tag is not removed by the person who attached it, authority to remove it must first be obtained from one of the following persons:

- the person who affixed the Danger Tag, or
- the recognised relief of the person who affixed the Danger Tag, or
- the Controlling Officer of the person who affixed the Danger Tag.

### **WARNING**

**When there is more than one Danger Tag attached to a device, care must be taken that the correct Danger Tag is removed.**

### **2.4.2 Removal when a Permit was Issued**

The Danger Tag must only be removed by the Authorised Person who is cancelling the Permit.

### **2.4.3 Removal when a Permit was Not Issued**

The Danger Tag must only be removed by an Authorised Person who is responsible to ensure that it is safe to do so.

## **3 Proving Dead Low Voltage Distribution Equipment**

Low voltage equipment that has been isolated must be proved dead by a voltage testing device to confirm that the equipment is dead.

The tester must be checked immediately prior to proving dead and at the completion of the test, to ensure that it has not failed during the test. This checking must be done on known live equipment or by means of a self check facility of the tester.

Before proving dead a low voltage overhead line, any oxide coating must first be removed from the point at which the test equipment is to be applied. Live low voltage work methods must be used while removing the coating.