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Signalling

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Work on Signalling Power Mains

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The technical content of this document has been approved by the relevant ARTC engineering authority and has also been endorsed by the ARTC Safety Committee.

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About This Standard

This Standard sets out safe working procedures for persons working on signalling power mains operating at voltages between 120v AC and 1000v AC.

Document History

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List of Amendments –

ISSUE	DATE	CLAUSE	DESCRIPTION
1.1	01/10/2004		▪ Reformatting to ARTC Standard
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Contents

About This Standard 3
Document History 4

1 GENERAL **6**

2 MAINTENANCE PROCEDURES **6**

2.1 ISOLATION OF MAINS 6
2.1.1 *Work being done by the person doing the isolation* 6
2.1.2 *Work being done by persons other than the person doing the isolation* 6

3 MAINTENANCE ACTIVITIES **7**

3.1 TESTING OF EARTH LEAKAGE DETECTORS 7
3.2 TESTING OF PROTECTIVE EARTHING 7
3.3 ENCLOSURE OF EQUIPMENT 7
3.4 APPENDIX A – FORM : AUTHORITY TO WORK ON SIGNALLING POWER MAINS 7

1 GENERAL

At certain locations, isolated power mains are worked at voltages exceeding 120v nominal but not exceeding 1000v. Signalling personnel must be aware of the location of these mains. Earth Leakage Detection with alarms is provided, however, this should never be relied upon and safe working practices must always be followed.

2 MAINTENANCE PROCEDURES

2.1 Isolation of Mains

The power must be isolated and secured before work is carried out on the cabling, surge protection, circuit breakers or transformers of signalling mains operating at voltages exceeding 120v nominal.

The same applies to all work involving jointing or termination of working mains cables irrespective of working voltage.

To isolate the circuit

- Open the supply-side circuit breaker or isolator.
- Secure the operating lever in the open position by affixing a tie through the holes provided for the purpose. The tie may be the same used to affix the label (see following).
- Identify the circuit breaker or isolator as having been deliberately isolated by attaching a label or danger tag showing the name of the person who affixed the tag, the date, and the reason for the isolation.
- Before work is commenced, test the circuit voltage at the actual work location to confirm that the power is off.

2.1.1 Work being done by the person doing the isolation

If the work to be carried out is being done by the person who does the isolation, then no further action is required.

2.1.2 Work being done by persons other than the person doing the isolation

If the work is to be carried out by persons other than the person who will be isolating and restoring the circuit, then before commencement of any work the signalling electrician or engineer in charge shall:

- Isolate, identify and test the circuit as above
- Complete an “Authority to work on Signalling power mains” form (Appendix A). This should be a duplicate form with the copy retained in the duplicate book.
- Hand the original copy of the form to the person performing the actual work, who signs the form to acknowledge its receipt.

While the work is ongoing the person performing the work shall:

- Keep the “Authority to work” form in a safe place at the work site.
- Where the work extends over two or more shifts, include the ‘Authority to work’ form with the written handover between shifts.

On completion of the work,

- The person doing the work signs off the work as being complete and returns the ‘Authority to work’ form to the signalling person in charge.
- The signalling person in charge countersigns the form, removes the danger tag, and restores the power.

3 MAINTENANCE ACTIVITIES

3.1 Testing of Earth Leakage Detectors

Earth Leakage Detectors must be tested by operation of the push button provided on the device at intervals specified in the Technical Maintenance Plan and Service Schedules.

The test shall include a check that the ELD alarms and indications function correctly.

3.2 Testing of Protective Earthing

All equipment is housed within a protective cover, any metal components of which are earthed.

The Technical Maintenance Plan and Service Schedules must include 12 monthly tests to ensure that the resistance from metal covers and enclosures to the earth busbar does not exceed 2 ohms.

3.3 Enclosure of Equipment

All equipment operating at voltages above 120v nominal must have the protective enclosures in position and correctly secured at all times.

Covers may be removed for testing purposes only, or when the equipment is has been isolated to permit work to take place.

Should work be required within an enclosure where only partial isolation has occurred, then any live parts are to be temporarily enclosed before work commences. Any arrangements of this nature are to have the approval of the ARTC General Manager ISP or nominated Signalling representative.

All covers are to be reinstated if the location is to be left unattended.

3.4 Appendix A – Form : Authority To Work On Signalling Power Mains

This should be a duplicate form, with the original issued to the person doing the work, and the copy retained in the duplicate book.

AUTHORITY TO WORK ON SIGNALLING POWER MAINS

_____ is authorised to work on power main from
_____ location to _____ location

To permit work to be carried out on the above signalling power mains,

the supply has been disconnected by myself at _____ location

and the circuit breaker / isolator has been secured in the “OFF” position and danger tagged.

Signal Engineer / Electrician I/C: _____
name signature

Section: _____

Date: _____ / _____ / _____ Time: _____

Received (signature) : _____ **Position :** _____
person receiving Authority to work on power mains

Work on power mains from _____ location to _____ location

has been completed, mains and equipment made safe and secured and all persons are clear.

Signed : _____ **Position :** _____
person authorised to work on power mains

Upon completion of the work power supply was restored to the above location

Signal Engineer / Electrician I/C: _____
name signature

Section: _____

Date: _____ / _____ / _____

Time: _____

To: Maintenance Supervisor _____