TRANSNET
freight rail

prasa
PASSENGER RAIL AGENCY
OF SOUTH AFRICA

ELECTRICAL ENGINEERING INSTRUCTION

PROCEDURES FOR ENERGISING / DE-ENERGISING OF HIGH-VOLTAGE ELECTRICAL EQUIPMENT

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1.0 INTRODUCTION

1.1 This instruction describes the procedures to be followed before and during the energising and de-energising of high-voltage equipment.

2.0 PRECEDING NOTICE

2.1 The Project Manager must submit the design information of the installation to the Maintenance Manager (Electrical) / Technical Manager responsible for the maintenance of the asset who will arrange for the calculation of protection settings and calibration of the protection equipment by Technology Management.

2.2 The Project Manager responsible for the construction of the equipment must notify the Maintenance Manager (Electrical) / Technical Manager responsible for the maintenance of the asset concerned at least 21 calendar days in advance of the proposed date of energising of the equipment.

3.0 STEPS TO BE TAKEN PRIOR TO ENERGISING

3.1 The Project Manager must provide the Maintenance Manager (Electrical) with the circuit and switching diagrams 21 calendar days in advance to allow maintenance and control personnel to familiarise themselves with the circuits and switching procedures.

3.2 Where possible the construction work must be completed seven days before the proposed energising date to allow sufficient time to inspect, test and calibrate the equipment.

3.3 Inspection of the equipment by all parties performing energising procedures:

3.3.1 Authorised persons of the maintenance personnel must inspect all the equipment and where necessary the responsible electrical engineer from Central / Head Office must provide the required assistance.

3.3.2 The primary purpose of the inspection is to ensure that all the equipment complies with the statutory electrical safety requirements and special attention must therefore be given to the following aspects:

3.3.2.1 Clearances.

3.3.2.2 Earthing and negative return circuits.

3.3.2.3 Correct placing of all the required warning signs.

3.3.2.4 Correctness of switching diagrams, switch designations, energising notices and whether the installation in general complies with the requirements laid down in the Electrical Safety Instructions.

3.4 The secondary purpose of the inspection is to ensure that the installation complies with the design as shown on drawings and in manuals and that the equipment complies with the operating requirements.

3.5 Protection equipment settings and functionality:

3.5.1 The responsible electrical engineer in Operational Maintenance (Infrastructure) / Regional Engineer must ensure that all protection equipment has been inspected and where applicable calibrated.

3.6 The Maintenance / Technical Manager (Infrastructure Electrical) must arrange for the calibration of track breakers where applicable.

4.0 ENERGISING / DE-ENERGISING NOTICES

4.1 The Maintenance Manager Infrastructure (Electrical) / Regional Engineer concerned must compile an energising / de-energising notice and arrange the issue to all controlling officers of personnel affected by the existence of the equipment to be energised. Controlling officers must ensure personnel under their control are notified and their signatures in this regard are obtained.

4.1.1 The notice must reflect details of the equipment concerned as well as the date and time of energising / de-energising

4.1.2 The energising / de-energising notices must be printed in black on a white background with the content framed and with warning notice, sign WW7, as a heading. The notice must be faxable. See appendix 1 for the de-energising and appendix 2 for the energising notice formats.

4.2 Circuits and switching diagrams.

4.2.1 In Transnet Freight Rail, the Maintenance Manager Infrastructure (Electrical) must arrange for the preparation and amendment of switching diagram drawings as per engineering instruction CEE-GI_052 and that switching diagrams are mounted in switching rooms, sub and tie -stations, signal cabins, etc.

4.2.2 In Metrorail, the Regional Engineer (Electrical) must arrange for the preparation or amendment of switching and control diagrams and for diagrams to be mounted in switching rooms, sub and tie-stations, signal cabins, etc.

4.3 Where new equipment is to be energised the Project Manager shall arrange for the public to be advised and made aware of the dangers by means of the local press, visits to schools in the vicinity etc.

5.0 CONDITIONS FOR ENERGISING

5.1 Energising may only proceed after all the foregoing and following conditions have been met:

5.1.1 Before energising, the Project Manager must certify that all earthing that was applied for construction purposes has been removed.

5.1.2 All aspects of clause 3 have been adhered to.

5.1.3 On acceptance of the equipment by the Maintenance / Technical Manager it must be placed under the jurisdiction of emergency, temporary or permanent Electrical Control if required as per the Electrical Safety Instructions.

6.0 PROCEDURES DURING ENERGISING

6.1 All automatic re-closing relays of breakers must be left on single shot lock-out when initially closed until the maintenance personnel have tested the operation of all switches in accordance with clause 6.2 hereof.

6.2 Authorised electrical maintenance personnel must test operate and confirm the functionality concerning circuit sectioning of all switches immediately after energising and before train operating or station personnel are allowed to operate any switches.

6.3 Where equipment is energised for the very first time it must be operated on local control until such time as the energising is completed and only thereafter may it be selected to remote / Telecontrol and the functionality thereof tested.

7.0 INSPECTION AND HANDING OVER

7.1 Refer to Engineering Instruction CEE-GI_018 regarding the inspection and handing over of equipment.

8.0 ASSOCIATED PUBLICATIONS AND INSTRUCTIONS

8.1 Electrical Safety Instructions.

8.2 Engineering Instruction CEE-GI_018: Inspection and Handing Over of Electrical Equipment.

8.2 Engineering Instruction CEE-GI_052: Electrical Switching Diagram Preparation and Approval.

8.3 Appendix 1: De-energising Notice format. (Document No. BBB3070)

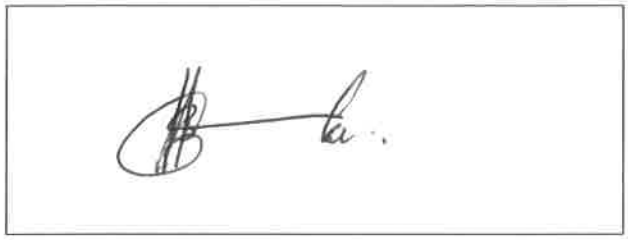
8.4 Appendix 2: Energising Notice format. (Document No. BBB3071)

9.0 AMENDMENT

9.1 This instruction has been revised and updated.

9.2 This instruction replaces Engineering Instruction CEE-GI_019 Issue 2 of December 2003.

END



Principal Engineer (Electrical)
Rail Network



Chief Engineer (Electrical) (Acting)
RME Rehabilitation and Construction



Principal Engineer (Electrical Technology)
Technology Management

APPENDIX 1



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PRASA PASSENGER RAIL AGENCY OF SOUTH AFRICA

NOTICE: DE-ENERGISING

From: (Grade)		Name:	
Depot:		Address:	
Notice No.:		Telephone No.:	
File No.:		Cell phone No.:	
Reference No.:		Fax No.:	
Date:		Note: Leave space/s void where not applicable.	

DE-ENERGISING OF ELECTRICAL EQUIPMENT : _____ kV

Place: _____

Date: _____ Time: _____

All concerned are hereby notified that the following electrical equipment will be de-energised and removed on the indicated date and time, or on cancellation of the work permit. (whichever is later):

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

and all associated equipment according to drawing / sketch no: _____

_____

Signature: Maintenance Manager / Regional Engineer (Electrical)

_____

Name in print

Document No. BBB3070



TRANSNET freight rail

PRASA PASSENGER RAIL AGENCY OF SOUTH AFRICA

NOTICE: ENERGISING

From: (Grade)		Name:	
Depot:		Address:	
Notice No.:		Telephone No.:	
File No.:		Cell phone No.:	
Reference No.:		Fax No.:	
Date:		Note: Leave space/s void where not applicable.	

ENERGISING OF ELECTRICAL EQUIPMENT : _____ **kV**

Place: _____

Date: _____ Time: _____

All concerned are hereby notified that the following electrical equipment will be energised and commissioned on the indicated date and time, or on cancellation of the work permit. (whichever is later):

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

and all associated equipment according to drawing / sketch no: _____

AFTER THIS TIME AND DATE THIS EQUIPMENT MUST BE TREATED AS 'LIVE' AND SAFE WORK PROCEDURES IN TERMS OF THE ELECTRICAL SAFETY INSTRUCTIONS MUST BE FOLLOWED FOR ALL WORK TO BE UNDERTAKEN THEREON.

_____ **Signature: Maintenance Manager / Regional Engineer (Electrical)**	_____ Name in print

Document No. BBB3070