ELECTRICAL ENGINEERING INSTRUCTION

INSPECTION AND HANDING OVER OF ELECTRICAL EQUIPMENT

Date: May 2024

Distribution: A and B

1.0 INTRODUCTION

1.1 Whenever new or major electrical construction work is to be handed over to Maintenance Managers/Regional Engineers responsible for the operation and maintenance of electrical equipment, certificates as per Appendix 1 must be completed in full and thereafter submitted in terms of clause 5.0 of this instruction.

1.2 This instruction is intended to cover minor and major alterations or additions to existing High and Low voltage installations.

1.3 For all minor works on existing equipment, there is no need to complete any handing over certificates. It shall be the responsibility of the Electrical Officer in charge on site to ensure compliance with all safety instructions and relevant regulations before cancelling the work permit, returning equipment to service or leaving the site.

Examples of minor alterations -

- **Substations**: Replacement of any of the following components:

  Primary breakers, high speed track breakers, rectifiers, current transformers, etc.

- **Overhead Track Equipment**: Conductor replacement, bonding, spot replacement of steelwork, etc.

Examples of Major works

- **Substations**: large scale refurbishment involving the replace of multiple components (e.g., Primary circuit breaker, rectifier, control panels etc), repair work after fire damage or theft and the construction of new substations or rebuild.
- **Overhead Track Equipment**: construction of new lines.

2.0 DETAILS OF CERTIFICATES

2.1 Each certificate is divided into six portions, viz.:

Portion A: Description of equipment.

Portion B: Preliminary inspection of equipment.

Portion C: Withdrawal of staff.

Portion D: Authority to commission equipment.

Portion E: Acceptance of equipment for service and maintenance.

Portion F: Defects still requiring attention.

3.0 COMPILATION AND COMPLETION OF CERTIFICATES

3.1 An original certificate must be compiled and completed in terms of the following:

3.1.1 Each certificate must be given serial and file reference numbers by the Project Manager concerned.

3.1.2 Portion A: Description of equipment. An adequate description of the electrical equipment and its location, together with any relevant drawing number(s) must be reflected in portion A of the certificate.

3.1.3 Portion B: Preliminary inspection of the equipment. Such inspection must be carried out by both the Project Manager and the Production Manager/Maintenance Manager, or this inspection must be delegated to a competent official who has been specifically briefed. This official shall sign portion B

of the certificate. Each shall sign and date this portion of the certificate together with portion E listing all defects on completion of the inspection.

The remarks of the Project Manager in respect of items tabulated in portion F of the certificate which do not comply with the relevant instructions or specifications must be included under “Action Taken to Rectify”.

3.1.4 Portion C: Withdrawal of staff. This portion must be completed, dated and signed by both the Project Manager and the Production Manager/ maintenance manager (or delegated competent official).

3.1.5 Portion D: Authority to commission equipment. No electrical equipment may be placed in service before this portion has been completed.

3.1.6 Portion E: Acceptance of Equipment for Service and Maintenance. This portion must be completed and signed personally by the Project Manager (Transnet Freight Rail / Prasa) and Depot Engineer concerned. This portion should, where possible, be signed before equipment is placed in service but no later than seven days after the equipment has been placed in service. Equipment, that is not acceptable for maintenance, must not be placed in service.

3.1.7 Where the Depot Engineer is not in a position to provide the necessary personnel from his maintenance organisation as laid down in subparagraphs 3.1.3 and 3.1.4 hereof, the circumstances should be presented timeously to the senior responsible electrical engineer.

3.1.8 Portion F: Defects still requiring attention. This portion must be completed in conjunction with portion B. All defects still requiring attention must be allocated a consecutive number and listed under the heading “DESCRIPTION”. The action taken/to be taken to rectify the defects must be listed against the same number as the defect to which it refers.

4.0 AUTHORITY TO COMMISSION ELECTRICAL EQUIPMENT

4.1 Regarding portion D, the Project Manager and the Maintenance Manager/Depot Engineer Electrical concerned must either inspect the equipment personally, or each must delegate this inspection to a competent official who has been specifically briefed. This official shall sign portion D of the certificate. Such inspection in the case of High Voltage equipment must be independent of the preliminary inspection of portion B and the emphasis must be independent of the preliminary inspection of portion of the installation.

The defect list, Portion F, must be studied, and the rectification of defects checked. In cases where the defects will not adversely affect the safety or satisfactory operation of the equipment, these may be accepted subject to later rectification. It must be confirmed that protective devices and circuits have been checked and passed by protection staff where applicable and settings have been entered into test book provided for the purpose. Where the telecontrol devices have been replaced or repaired, the correct remote operation and indication must be checked with Control.

4.2 Inspection of the low voltage equipment by the Project Manager and Maintenance Manager/Production Manager (or each must delegate this inspection to a competent official who has been specifically briefed) will be accepted for the purpose of this certificate as the only inspection necessary. Checking and setting of protection devices by protection staff is not necessary except in special cases, but circuit breakers, fuses, earth leakage relays must be checked for correct ratings. The installation must comply with the stipulations of SANS 10142-1

4.3 Whenever an installation has been handed over with an undertaking to rectify certain defects, the Maintenance Manager/Regional Engineer concerned and the Project Manager (Transnet / Prasa must maintain a record to ensure that the defects are in fact rectified within a reasonable time. Any omission in this respect must be referred to the senior responsible electrical engineer (Technical Office).

4.4 This certificate is intended to cover mainly complete installations where the whole installation is placed in service at the same time. A separate certificate should, however, be used each time a reasonable portion of an installation is placed in service independently.

5.0 DISTRIBUTION OF CERTIFICATES

5.1 Immediately on completion of the certificate, a copy must be made and distributed by the Project Manager as follows:

- Original to be handed over to the Maintenance Manager
- Hard copy to be kept by the Protect Manager concerned.
- Both the Maintenance and Project Manager must keep electronic copies as backup.

6.0 INITIAL ENERGISING OR COMMISSIONING OF HIGH VOLTAGE ELECTRICAL EQUIPMENT.

6.1 For instructions regarding the initial energising or commissioning of High Voltage Electrical Equipment by construction and/or maintenance personnel see Electrical Engineering Instruction CEE-GI_019.

6.2 For instructions regarding the commissioning procedures where Contractors (including Transnet Capital Projects, RNC) do installations see Electrical Engineering Instruction CEE-GI_065.

7.0 RELATED APPENDICES AND INSTRUCTIONS

7.1 The following Appendices form part of the instruction:

Appendix 1: Certificate Portions A and B.

Appendix 2: Certificate Portions C and D

Appendix 3: Certificate Portion E

Appendix 4: Certificate Portion F

7.2 The following engineering instructions are referred to herein:

CEE-GI_019: Procedures for Energising / De-Energising of High-Voltage Electrical Equipment.

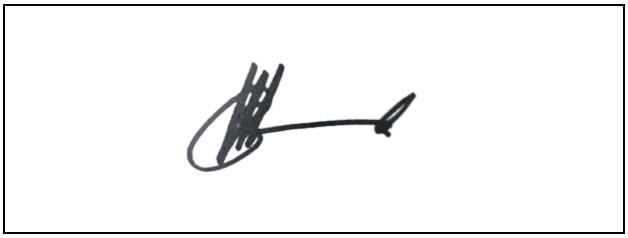
CEE-GI_065: Contracts for Electrical Installations: Commissioning Procedures.

8.0 AMENDMENT

8.1 This engineering instruction has been updated and is inclusive of CEE-GI_013

8.2 This instruction replaces Engineering Instruction CEE-GI_018 Issue 4 of June 2019.

END

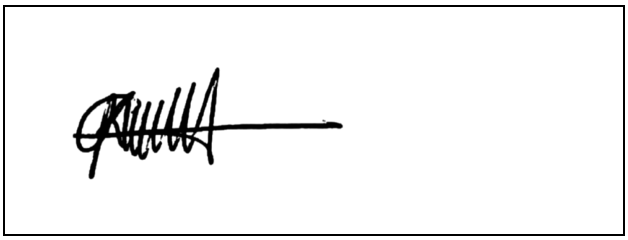


Principal Engineer (Electrical)

Rail Network

Chief Engineer (Electrical)

Rail Network Construction



Principal Engineer (Energy and Electrical Technology)

Technology Management

Chief Engineer (Electrical)

Prasa Technical

Appendix 1

SPECIMEN OF CERTIFICATE PORTIONS A AND B:

TRANSNET/PRASA

INSPECTION AND HANDING OVER OF ELECTRICAL EQUIPMENT

CERTIFICATE No.: ……..…….. **REFERENCE No.: ….**……

PORTION A

DESCRIPTION OF EQUIPMENT: ……

……

……

……

……

……

LOCATION: ……..……..

……

SHOWN ON DRAWINGS: ……..

……

PRELIMINARY INSPECTION OF EQUIPMENT

PORTION B

The equipment specified in Portion A has been inspected and except for the items of Portion F, it complies with the relevant regulations and instructions and may be handed over and accepted for service.

……. …..……..……

PROJECT MANAGER
(TRANSNET / PRASA)

PRODUCTION/TECHNICAL MANAGER

DEPOT:…….

DEPOT:..……..….

DATE OF INSPECTION.……

DATE OF INSPECTION …….

END

Appendix 2

SPECIMEN OF CERTIFICATE PORTIONS C AND D:

TRANSNET /PRASA

WITHDRAWAL OF STAFF

CERTIFICATE No.: …….. **REFERENCE No.:** ……

PORTION C

All members of the staff have been withdrawn and the equipment specified in portion A hereof will be treated as **"LIVE".**

…… ……..

PROJECT MANAGER
MANAGER

(TRANSNET / PRASA)

PRODUCTION/MAINTENANCE

DEPOT: ……. DEPOT: ……..

DATE: ……. DATE: …….

AUTHORITY TO COMMISSION EQUIPMENT

PORTION D

We, the undersigned, certify:

(1) that the equipment specified in portion A has been inspected and is safe and satisfactory for service,

(2) All protective devices have been checked/tested and calibrated where necessary and supporting test sheets/reports have been received and verified to be acceptable, and

(3) All switches have been checked and operated.

(4) All tele-controlled devices have been checked for correct operation and indication with Control.

The equipment may be commissioned.

……..…… ……...……

PROJECT MANAGER

(TRANSNET / PRASA)

MAINTENANCE MANAGER

DEPOT ENGINEER

DEPOT: …… DEPOT: ……..……..…

DATE: …… DATE: ……..……..……

END

Appendix 3

SPECIMEN OF CERTIFICATE PORTION E:

TRANSNET/PRASA

ACCEPTANCE OF EQUIPMENT FOR SERVICE AND MAINTENANCE

PORTION E

The equipment specified in portion A hereof is handed over and accepted for maintenance purposes, with the undertaking that all defects as listed in Portion F will be rectified as soon as possible.

……	……
PROJECT MANAGER	MAINTENANCE MANAGER
(TRANSNET / PRASA)	DEPOT ENGINEER
DEPOT: ……..……..	DEPOT: ……..……

DATE OF FINAL HANDING OVER: ……..

DATE OF FINAL ACCEPTANCE: ……..……...

END

Appendix 4

SPECIMEN OF CERTIFICATE PORTION F:

TRANSNET /PRASA

DEFECTS STILL REQUIRING ATTENTION

CERTIFICATE No: ……..

PORTION F

DEFECT No.	**DESCRIPTION**	**ACTION REQUIRED TO RECTIFY**

…… ……..

PROJECT MANAGER PRODUCTION /MAINTENANCE MANAGER

(TRANSNET / PRASA)

DATE: …… DATE: ……

ABOVE DEFECTS HAVE BEEN RECTIFIED

…… ……..

PROJECT MANAGER DEPOT / REGIONAL ENGINEER.

(TRANSNET / PRASA)

DATE: …… DATE:……..…

END