

 Eskom	Standard	Technology
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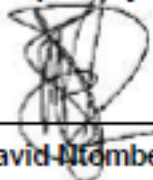
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Compiled by



David Mtombela
Consultant

Date: 18 / 11 / 2021

Approved by



Andre Bekker
Manager (M & O CoE)

Philip R Groenewald for
Date: 2022/03/31

Authorized by



Amelia Mtshali
Senior Manager (M & O)

Date: 31/03/2022

Supported by SCOT/SC



Dumisani Mtolo
SCOT/SC Chairperson

Date: 2022/03/31

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1. Introduction

The document was compiled to comply with the OHSAct and NRS 082 requirements and to ensure that control, application and issuing of master locks and master keys to personnel in Wires (Transmission and Distribution Business) is standardised.

The document seeks to ensure that the network is secured with approved locks and unauthorised access to network is restricted / controlled and only authorised personnel is issued with keys to access the area they are authorised for.

2. Supporting clauses

2.1 Scope

2.1.1 Purpose

The purpose of this standard is to set out in detail the application of the padlocking system and to set out the method of issue and control of the various master keys in order to safeguard access to electrical apparatus and to further the standardization process within the Wires.

2.1.2 Applicability

This standard is applicable to Eskom Wires and the contractors employed by the divisions. In the Environment where the standard has not been the requirement in the past an implementation plan shall be drawn and approved by relevant or responsible stakeholders.

2.2 Normative/informative references

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

- [1] DIN 17224, 1982 Stainless Steel Wire And Strip For Springs: Technical Delivery Conditions;
- [2] OHS Act No. 85, Occupational Health And Safety Act And Regulations;
- [3] NRS 000, Rationalized User Definitions For Use In The Electricity Supply Industry;
- [4] SANS 1533, Padlocks;
- [5] 240-114967625, Operating Regulations For High Voltage Systems;
- [6] 240-70413865, Authorisation Standard In Terms Of Regulations For High Voltage Systems;
- [7] DST_240-70500896, Standard For Master Locks And Master Keys For Electrical And Related Equipment;
- [8] DST_240-70413865, Authorization Standard In Terms Of Regulations For High Voltage Systems;
- [9] 240-704213865, Power Delivery Operating Assessment, Authorization and Training Standard;
- [10] DST_240-70413713, Assessment Procedure for authorization; and
- [11] DST_240-70413681, Portfolio of evidence for authorization.

2.2.2 Informative

- [12] 32-9, Definition of Eskom documents;
- [13] 32-644, Eskom documentation management standard; and
- [14] 474-65, Operating Manual of the Steering Committee of Wires Technologies (SCOT).

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2.3 Definitions

2.3.1 General

All definitions listed in recognised industry glossaries such as NRS 000, ORHVS, IEV and SANS1533 are applicable.

Definition	Description
Individually keyed	Descriptive of a padlock that can be opened by means of a specific key only. [SANS1533]
Master key	Key manufactured in such a way that it opens a set of locks that are all identically master keyed. [SANS1533]
Master locks	These are a range of locks that are opened by one key.
Key cabinet	Means a locked or sealed cabinet provided for safe custody of keys. Each key shall be adequately labelled. [ORHVS]
Key safe	Means an approved device for the secure retention of safety lock keys used to lock isolations, earthing or other safety devices necessary for the issue of a work permit. [ORHVS]
Safety or Non-standard lock	Means an approved lock for which only one unique key is available. [ORHVS]
Unique locks	These are locks that can only be opened by only its designated keys and it is kept in the key cabinet at the substation.

2.3.2 Disclosure classification

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

2.4 Abbreviations

None

2.5 Roles and responsibilities

It is the responsibility of the Designated Person or his delegate to ensure that the control, the application of master / unique locks on the system and the issuing of master / unique keys to personnel in Wires is carried out in accordance with this standard and ORHVS.

2.6 Process for monitoring

Document number	Document title
-	Process Control Manual (PCM) for Develop Operating Procedures .
32-644	Eskom documentation management standard

2.7 Related / supporting documents

Document number	Document title
240-70500880	Standard For The Control And Application Of Locks And Issue Of Master keys Annex A: General master keys register

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Document number	Document title
240-70500896	Standard For Master Locks And Master Keys For Electrical And Related Equipment.

3. Requirements

There shall be seven types of locks:

3.1 Types of Locks

3.1.1 Types of Master locks

- a) General Master locks;
- b) Restricted Area Master Locks;
- c) Prohibited area Master locks;
- d) Operating Master locks;

This operating lock system is the master lock system that is currently being used in the business (at sites / substations) to lock operating points as listed in section 3.1.6 below. The master key for these locks will not be kept in key cabinet as only one master key is required.

- e) Live chamber locks; and

3.1.2 Types of Unique locks

- a) Operating Master locks;

This operating lock system is the unique lock system that is also currently being used in some business sites (substations) and this unique locks system is also used to lock operating points at some substations, the unique lock keys shall be so labelled that they match or identify with the naming of the individual operating points they secure.

The unique keys shall be kept in the key cabinet as stipulated by ORHVS regulation 4.2 and this key cabinet shall be locked with a yellow master lock as referred to in d) above.

- b) Safety / Non Standard / Supervisor Locks.

3.2 Locks Application

3.2.1 General Master locks (White Lock)

The general locks shall be used to lock the following:

- a) Power line servitude gates.
- b) Substation perimeter fence gates.

3.2.2 Restricted Area Master Locks (Orange Lock)

The restricted locks shall be used to lock the following:

- a) Metering kiosks.
- b) LV side of mini substations.
- c) Pillar Boxes.
- d) Electric fence access gates.

- e) Any place where live exposed L.V Equipment exist.
- f) Substation building doors / Control room / Battery room / Carrier rooms.

3.2.3 Prohibited area Master locks (Green Lock)

The prohibited area locks shall be used to lock the following:

- a) Switch-house doors / GIS.
- b) Substation yards.

Note 1: Control rooms housing metal clad switchgear is regarded as prohibited area unless all switchgears are locked with operating locks which will mean it is now be restricted area (Orange lock).

Note 2: This is recommended due to the fact that contractors are not returning keys after completion of contract.

Note 3: Contractor (Authorised as per ORHVS) access to prohibited areas: A dual locking system shall be adopted, this comprises of a barrel, Green lock and a unique lock (Contractor).

3.2.4 Operating Master locks (Yellow)

The operating locks shall be used to lock the following:

- a) Line isolators and air-break switches;
- b) All isolators in substation yards;
- c) JB boxes and Marshalling kiosks in substation yards;
- d) All earth switches in substation yards;
- e) HV side of mini-substations;
- f) Earthing equipment (Including earthing gear carry bags / storage boxes)
- g) Switchgear Operating Mechanism;
- h) Off Circuit Tap changers and
- i) RMU switches.

3.2.5 Live chamber Master locks (Black Lock)

These locks shall be used for restricting access to any live chamber as defined in the "Operating regulations for high voltage systems, 240-114967625".

3.2.6 Operating Unique locks (Yellow)

The operating Unique locks shall be used to lock the following:

- a) Line isolators and air-break switches;
- b) All isolators in substation yards;
- c) JB boxes and Marshalling kiosks in substation yards;
- d) All earth switches in substation yards;
- e) HV side of mini-substations;
- f) Earthing equipment (Including earthing gear carry bags / storage boxes)
- g) Switchgear Operating Mechanism;
- h) Off Circuit Tap changers and
- i) RMU switches.

3.2.7 Safety / Non Standard / Supervisor Locks (Blue)

These locks shall be utilized to control the access to power system apparatus for a specific condition or reason or apparatus that is no longer a part of the network or installation reaches the stage at which the making of connections between the apparatus and the power system will enable some part of apparatus to be made alive.

3.3 Allocation of Keys

Keys may only be issued to persons in accordance to the table below:

Master Locks	Color	Authorisation
General Master Lock	White	No Authorisation Required
Restricted Area Master Lock	Orange	LV Authorisation as per ORLVS
Prohibited Area Master Lock	Green	Authorisation as per ORHVS
Operating Master Lock	Yellow	Authorisation as per ORHVS
Live Chamber Master Lock	Black	Authorisation as per ORHVS
Unique Locks	Color	Authorisation
Operating Unique Lock	Yellow	Authorisation as per ORHVS
Safety / Non Standard / Supervisor lock	Blue	Authorisation as per ORHVS

3.4 Storage of Master / Unique locks and Master / Unique keys**3.4.1 Locks**

- a) All locks shall be available in stores as a stock item.

3.4.2 Keys

- a) Designated Person or his delegate shall approve on the authorization form the possession of keys. Keys shall not be kept as a stock item instead shall be kept by the assigned person in the business.

3.4.2.1 Control and Issuing of keys

- a) All master / unique keys shall be numbered with a unique number in accordance with 240-70500896.
- b) A control register shall be maintained by the head of department (designated person's delegate) for master / unique keys in the area of control and the following shall be detailed:
- type(s) of master keys;
 - key number;
 - name of recipient;
 - recipient's unique number;
 - workplace of recipient;
 - date of issue;
 - signature of recipient; and
 - date and signature / return of master keys.

-
- c) Where master keys are to be issued to an Eskom contractor, a written receipt (stating the number of each key) shall be obtained from the contractor. On return of the master keys the original copy of the receipt shall be returned to the contractor.
- d) Master keys shall be delivered by hand.
- e) The head of department shall ensure that all keys are withdrawn if the authorization has been cancelled, suspended or expired.
- f) Authorizations shall be checked to ensure correct keys are issued.
- g) The spare unique key shall be kept in a safe location at the substation.
- h) In addition to the above the following documents shall be submitted to the local Designated Person or his delegate when a key is issued:
- For the FIRST KEY ISSUE to Eskom employees:
 - 1) Valid copy of Authorisation;
 - 2) Valid copy of ORHVS certificate; and
 - 3) Valid copy of First Aid certificate.
 - For the FIRST KEY ISSUE to Eskom Contractors:
 - 1) Acceptance letter from procurement
 - 2) Certified copy of I D / Passport from SAPS;
 - 3) Certified copy of ORHVS from SAPS;
 - 4) Certified copy of First Aid from SAPS; and
 - 5) Certified copy of Eskom Authorization from SAPS.

3.4.2.2 Lost / Damaged keys

- a) The loss / damage of keys by any employee or contractor shall immediately be reported in writing to the Designated Person or his delegate and the following minimum information shall be provided and captured in the key register:
- The name of the person who lost / damaged key;
 - The unique number of person that lost / damaged a key
 - Type, color or number of a key lost;
 - The date on which the key got lost / damaged;
 - In case of a lost key a signed sworn statement (Affidavit _description of how the key got lost);
- b) In addition to the above the following documents shall be submitted to the local Designated Person or his delegate when a key is issued:
- For a LOST / BROKEN KEY by Eskom Employee:
 - 1) Valid copy of Authorisation;
 - 2) Valid copy of ORHVS certificate;
 - 3) Valid copy of First Aid certificate; and
 - 4) the broken key (Where applicable).
 - For a LOST / BROKEN KEY by Contractors
 - 1) Acceptance letter from procurement;
 - 2) Certified copy of ID / Passport from SAPS;

- 3) Certified copy of ORHVS certificate from SAPS;
- 4) Certified copy of First Aid certificate from SAPS; and
- 5) Certified copy of Eskom Authorization from SAPS.

3.4.2.3 Duplication of Keys And Locks

Under no circumstances shall keys and locks be duplicated without authorization.

4. Authorization

This document has been seen and accepted by:

Name and surname	Designation
Amelia Mtshali	Senior Manager (DB & OUS)
Andre Bekker	Manager (AM & O Eng.)
Dumisani Mtolo	SCOT/SC Chairperson
David Ntombela	Consultant

5. Revisions

This revision of Task Manual DMN_ 240-70500880 **supersedes all revisions of this document.**

Date	Rev	Compiler	Remarks
April 2022	4	David Ntombela	Reviewed / restructured section 2.1.2, Added Normative and Informative references sections. Section 3.1 d) Updated Operating Lock with “Two operating lock systems are currently being used and they are master locks and unique locks systems: • Where master operating locks are being used to lock operating points at a site / substation, the keys will not be kept in key cabinet as only a master key is required. • Where unique operating locks are being used to lock operating points at a site / substation, the unique lock keys shall be so labelled that they match or identify with the naming of the individual operating points they secure. The unique keys shall be kept in the key cabinet as stipulated by ORHVS regulation 4.2 and this key cabinet shall be locked with a yellow master lock.” Supervisor's lock reference in the document is reviewed to “Safety / Non Standard / Supervisor lock” Relocated “Electric fence access gates” to 3.1.2 Reviewed section 3.3 and restructured a) to “Designated Person or his delegate shall approve on the authorization form the possession of keys. Keys shall not be kept as a stock item instead shall be kept by the assigned person in the business”

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Date	Rev	Compiler	Remarks
			Reviewed section 3.3.3 and added "The spare unique keys shall kept in a safe location at the substation." In the section.
March 2020	3	David Ntombela	Changed the date on the front page of this document, reviewed normative references and added the acknowledgement section.
Sept 2014	2	David Ntombela	"In Environment where the standard has not been the requirement in the past an implementation period of five years shall be allowed to phase it in"
April 2014	1	David Ntombela	All documents are being re-registered and allocated a 240 number. DST_34-616 has changed to DMN_240-70500880. A New format has been implemented and the document was also formatted.
March 2012	1	David Ntombela	Reformatted the document Document number changed to DST 34-616
Aug 2004	0	Ernest Mutloane	Reformatted the document Added Related documents Included the assessment form to the document Document reference number changed from SCS to DIS
Sept 2000		Colin Smith	Original issue as SCSASAAU1

6. Development team

The following people were involved in the development of this document:

Name	Designation	Region
C Makwe	Officer Technical Support Major Engineering Works	G OU
P van der Westhuizen	Senior Supervisor	EC OU
P Diedericks	SHE Manager	FS OU
DM Ntombela	Consultant	PDE-DBO
M Lakhan	Officer Technical Support	KZN OU
D Le Roux	Officer Technical Support	WC OU
JJN Steenkamp	Officer Technical Support	GOU
R Steenkamp	Principal Technical Official	GOU
FJ Brits	Senior Supervisor	FS OU

Name	Designation	Region
B Uys	Senior Supervisor	NC OU
J Van Wyngaard	Senior Supervisor	EC OU
Sifiso Maphalala	Senior Supervisor	MEW
Moses Mathonsi	Senior Supervisor	L OU
Rodney Pretorius	TS Manager	NW OU
Shorwane Komane	Senior Supervisor	MP OU
Samuel Meyer	Senior Supervisor	L OU
Raj Rajkumar	ORHVS	TX
David Strauss	Manager	EC OU
Andre Van Heerden	Training	EC OU
Henry Jordaan	Standards Implementation Manager	ECOU
Jason Blaauw	Senior Engineer, Standards Implementation	ECOU
Danie Du Plessis	Senior Manager (Special Projects)	Transmission Grids
Derik Sadler	Middle Manager HV Plant	TX WP&CS
Dumisani Mtolo	Chief Engineer	M&O CoE
Rodger Peense		
Johan Van Zyl	Officer Technical Support	NC OU
Nolan Ockhuis	TS Manager	WC OU
Andrew Haynes	Senior Advisor	TX WP&CS
Alan Durant	Officer Technical Support	Western Cape
Francois Du Toit	Training	TX

7. Acknowledgements

The Switchgear care group would like to thank the former WG members below for their contribution:

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Name	Designation	Department/OU
Ernest Mutloane	Senior Technician	IARC
Colin Smith	DB Maintenance & Operations Manager	IARC
S P de Bruin	Senior Supervisor	NW OU
F van Jaarsveld	Officer Technical Support	KZN OU
D F B Lötter	Officer Technical Support	WC OU
J J N Steenkamp	Officer Technical Support	G OU
P A Pretorius	Officer Technical Support Major Engineering Works	G OU
H C J Nuttall	Senior Supervisor	MP OU
S Delport	SHE Officer	MP OU
P Ramosili	Field Services Engineer	NW OU
M Mavuso	Officer Technical Training	TX CG HV Plant
A Haynes	Senior Advisor	TX WP&CS
A Toulson	Officer Technical Support	TS GOU
D Sadler	Middle Manager HV Plant	TX WP&CS
K Kraftt	Senior Consultant	PDE-DBO
L Van Der Westhuizen	Officer Technical Training	TX North
Pg De Jager	Officer Technical Training	HV Plant NE Grid
R Tee	Senior Engineering Assistant	TX South
T Marais	Chief Engineer Engineering	PDE-SSE

Annex A – General master keys register

(Normative)

			FORM TITLE		GENERAL MASTER KEYS REGISTER					
			FORM NUMBER		240-70500880		REV DATE		April 2027	
			DOCUMENT TITLE		Standard For The Control And Application Of Locks And Issue Of keys					
General Master Keys register										
Master key No:	Issued to: Name	Unique No:	Work station	Date issued	Issued to: Signature	Issued by: Signature	Returned		Lost / Damaged	
							Date	Signature	Date	Signature
I understand that these master keys are issued to me in accordance with section 4 of the “Operating regulations for high voltage system (240-114967625)”.										

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