Eskom	Task Manual	Technology

Title: **OPERATING JACK HAMMERS**

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Compiled by	Approved by	Authorized by
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Date:	Date: 11 Sept 15	Date: 29/9/2015

Supported by SCOT/SC

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SCOT/SC Chairperson

Date: 11 Sept 15

PCM Reference: **Execute Work**

SCOT Study Committee Number/Name: **Maintenance**

Content

1. Introduction

The document was compiled to conform or align with NRS082 and OHSAct requirements in ensuring that procedures for “OPERATING JACK HAMMERS” tasks are available. The task manual stipulates a procedure which seeks to ensure that personnel carrying out OPERATING JACK HAMMERS tasks are doing it in a safe manner and the associated risks and hazards are minimised.

2. Supporting clauses

2.1 Scope

2.1.1 Purpose

The purpose of this document is to provide persons carrying out “OPERATING JACK HAMMERS” with a step by step description of how to do the task, including the most critical hazards and technical specifications associated with the task

2.1.2 Applicability

This document shall apply throughout Eskom Holdings Limited, its Divisions, subsidiaries, contractors and entities wherein it has a controlling interest.

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] Occupational Health and Safety Act and Regulations (OHSAct),

[2] EPC_32-846: Rev 0, Operating Regulations for High Voltage Systems;

[3] ISO 9001, Quality Management Systems,

[4] EPL_32-727: Rev 0, Safety, Health, Environment, And Quality (SHEQ) Policy,

[5] 240-44175132: Rev. 0, Eskom Personal Protective Equipment Specification,

[6] EPC_32-520, Rev. 2, Occupational Health & Safety Risk Assessment Procedure,

[7] DPC_34-227: Rev. 0, Pre-Task Planning and feedback process,

[8] DPC_34-380: Rev 0, Identifying, Analysing, Documenting and observing dangerous/hazardous tasks,

[9] 240-86100853: Rev. 0, Standard for Barricading Prohibited Area and Live Chamber,

[10] DPC_34-925: Rev 0. Procedure for refusal to work on the grounds of health, safety and environmental concerns, and

[11] Manufacturers manual.

2.2.2 Informative

[12] DPC_34-04: Rev 3, Procedure For The Preparation And Administration Of Distribution Standards,

[13] EPC_32-247: Rev 0, Procedure for Vegetation Clearance and Maintenance within Overhead Power Line Servitudes and on Eskom Owned Land, and

[14] DGL_34-190: Rev 0, Access to Farms (includes Strategy on dealing with game farms).

[15] DPC_34-333: Rev 1, OHS Act requirements to be met by principal contractors employed by Eskom Distribution;

[16] CDP TO 087: Module for equipontential earthing; and

[17] Relevant Critical task analysis documents:

2.3 Definitions

All definitions appropriate to the document should be included here. Refer to definitions listed in recognised industry glossaries such as NRS 000 and the IEV, and use these wherever appropriate.

2.3.1 General

All definitions in EPC_32-846 and OHSAct 85 of 1993 including the following are applicable:

Definition	Description
Authorised person	means a person, whether an employee or another person, who has been authorised in terms of these regulations
Responsible person	means a person, who has been authorised to be responsible for ensuring that the work on the apparatus covered by work permit can be, carried out with safety and within the terms of these regulations
Task Analysis	the systematic examination of all dangerous/hazardous tasks (work) in order to identify and quantify all the potential and existing inherent hazards that employees are exposed to while the tasks are being executed.
Risk Assessment	this process involves the combined functions of hazards identification, risk analysis, risk evaluation, determining the risk control strategy/s and the identification of the risk control measures that will be implemented during the task execution.
Dangerous/hazardous task	means a specific element of work, which has produced and/or which possesses the potential to produce major loss or harm to people, assets, processes/production and/or the environment when performed properly.
Directive	means a document which sets out a management objective, the appropriate policy if deemed necessary, as well as the functional accountability for activities to achieve that objective and the interface between functions affected by, or responsible for the execution of, such activities.
Authorized	means a person who is trained and has been proven competent to carry out rotten pole replacement in terms of this standard. This authorization shall be in writing.
Shoring	means a system used to support the sides of an excavation and which is intended to prevent the cave-in or the collapse of the sides of an excavation.
Note: Only persons who have satisfied the designated person on terms of the Occupational Health and Safety Act (Act 85 of 1993) (General Machinery Regulation 2(1)) that their knowledge is adequate to perform specific duties on specified plant and that their knowledge of these regulations is sufficient may be authorised.	

2.3.2 Disclosure classification

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

2.4 Abbreviations

Abbreviation	Description
CDP	Career Development Programme
CNC	Customer Network Centre
CO	Construction Official
GMR	General Machinery Regulation
ORHVS	Operating regulations for high voltage systems
OTS	Officer Technical Support
PCO	Principal Construction Official
PPE	Personal Protective Equipment
PTO	Principal Technical Officer
SCO	Senior Construction Official
STO	Senior Technical Officer
TCIF	Technology Change Information Forum
TO	Technical Officer
TSU	Technical Services Unit
WCO	Works-Coordinator

2.5 Roles and responsibilities

2.5.1 Plant Managers shall be responsible for:

a) Ensuring that equipment job plans are available and issued for specific maintenance.

b) Ensuring that the maintenance feedback information that is available in the maintenance management system is analysed.

2.5.2 Sector Manager shall be responsible for:

a) Ensuring that staff carrying out maintenance tasks is trained, competent and authorized to perform maintenance on the specific equipment.

b) Ensuring that instructions are implemented and adhered to and equipment is maintained in accordance to relevant work instructions.

c) Ensuring that the maintenance feedback information / data is captured and recorded into the system for future maintenance planning.

2.6 Process for monitoring

Document number	Document title
240-45920887	Process Control Manual (PCM) for Manage Maintenance Base.

Document number	Document title
240-52380420	Steering Committee of Technologies (SCOT) Standards Development and Change Implementation Procedure

2.7 Related/supporting documents

Not applicable.

3. Requirements

3.1 Pre-job Planning

NOTE 1: Ensure that the personnel are trained and competent to perform the task allocated to them and they are familiars to the area or environment: Lack of knowledge (area, environment, equipment) will lead to damage to equipment and injuries to staff.

NOTE 2: Job pressure – During planning it must be ensured that all parts of work are allocated time enough to avoid unnecessary job pressures.

NOTE 3: Ensure that appropriate PPE and safety equipment are identified and inspected.

NOTE 4: Conduct a pre-use inspection on all equipment and tools before they are used and ensure that they are serviceable and of good standards**.**

NOTE 5: Ensure that all material and spares used on the installation complies with specification**s**

a) Do an assessment at the site to determine the scope of work and the resources that would be required (people, equipment, PPE, etc.) - also to determine the cause of loss, upgrade/down grade, cable fault etc

b) Plan work and resources required for the task

3.1.1 Tools and Equipment

a) Jack Hammer

b) Crow bar (Also known as Tommy bar or Wrecking bar)

c) Shovel

d) Pick

e) Jack hammer bits

f) Air hoses

g) Lubricator

h) Non-conductive tape measure

i) Compressor

j) Electric Generator

k) Fuel

l) Barricading Material / demarcation tape

3.1.2 Personal Protective Equipment

a) All personal protective equipment shall be in accordance with 240-44175132 and those identified by risk assessment (DPC34-227).

b) Head protection – Hard Hats;

c) Eye/face protection – Impact resistant eye glasses/face shields;

d) Hearing protection – Ear plugs and/or ear muffs;

e) Shirt/Pants – Cotton;

f) Foot protection – Safety boots/shoes and socks (cotton);

g) Spats;

h) Hand protection – Appropriate leather gloves;

i) Leather Apron;

j) Respirator for dust, gas or fumes; and

k) Gumboots

3.1.3 Safety and Preparation

NOTE 1: Maintain and ensure that light / lighting is sufficient during task execution

a) Where required ensure the apparatus is opened, isolated and earthed, handed over (work permit) in accordance with EPC_32-846.

b) Barricading shall be erected in accordance with 240-86100853 where necessary / required.

c) At all times the correct Personal Protective Equipment shall be used.

d) Ensure that all tools and equipment to be used have been inspected by a competent person before they are used.

e) The responsible person on site will continually supervise, direct and observe all activities.

f) Work men to be reminded that they have “the right to refuse” if they consider the work is too dangerous or do not have the correct equipment or skills to safely complete the activity as per DST_34-925.

g) Responsible and authorized person must ensure that the work site is prepared and made safe.

h) Responsible person to sign the permit to work and complete workers register.

NOTE 2: Ensure that when a trench of more than 1.2m deep is made the escape routes at the work area and tool and equipment complies with OHSA.

3.2 Work Instruction

3.2.1 On Site Risk Assessment

NOTE 1: Perform a proper risk assessment before task commencement and continuously during task execution in accordance with the prescribed procedure.

a) Conduct an on-site risk assessment prior to commencement of work and continuous during the task execution as per DPC -34-227.

NOTE 2: Ensure good visibility with additional lights/lighting where necessary**.**

NOTE 3: Identify and analyse risks and hazards associated with the task, eliminate, minimise, develop measures against – i.e. compile procedures or provide PPE to safeguard maintenance staff**.**

b) Ensure that when material handling is carried out in the electrically hazardous locations the correct level of supervision is applied.

3.2.2 Operating Petrol Jack hammers

3.2.2.1 Preparation

a) Off-load the jack hammer, spare fuel and accessories from the load body.

b) Check that the bit-shank is the correct size to fit the machine.

c) Fit the bit.

NOTE 1: Do not attempt to refill while the machine is running**.**

d) Pre- mix the fuel as for all 2 stroke machines. The ratio needs to be strictly mixed as prescribed by Manufacturer.

e) Fill the machine with fuel and oil.

NOTE 2: Refer to manufacturers operating manual**.**

f) Check the hammer mechanism oil-level before starting the machine. Task Wrap Up

3.2.2.2 Cold starting the petrol jack hammer

NOTE 1: When operating the jack hammer ensure that a balanced / correct stance or position is adopted.

NOTE 2: Ensure that when jack hammer is used in confined / closed spaces ensure that there is adequate ventilation and applicable PPE is used.

a) Ensure that the fuel cap is securely fitted / closed.

b) Ensure that the fuel valve is open.

c) Select on / off switch to ON position.

d) Close the choke.

e) Press the prime pump where applicable.

f) Push in decompression knob

g) Depress throttle lever to full speed position and pull the starter handle, straight backwards.

h) Make sure nothing or no-body in line of pull and

i) When the engine starts, open the choke.

j) Allow the engine to warm-up before commencing with work.

k) Warm start the machine by:

l) Push in de-compression knob where applicable.

m) Check that the choke is open and pull the starting handle.

n) Commence with work

3.2.2.3 Stopping the Petrol jack hammer

a) Stopping the jack hammer for short periods by:

- Selecting the on / off switch to OFF position.
- Allowing the machine to cool down.

b) Stopping the jack hammer for longer periods by:

- Close fuel line valve.
- Allow the machine to run dry.
- Select the on / off switch to OFF position.
- Allow the machine to cool down.
- Remove chisels and store the jack hammer.

NOTE 1: Ensure that the hot machine is free standing while cooling down**.**

3.2.3 Operating Electric Jack hammer jack hammer

a) Off-load the jack hammer, generator, spare fuel and accessories from the load body.

b) Check that the bit-shank is the correct size to fit the machine.

c) Fit the bit / chisel.

d) Fill the generator with fuel and oil (where applicable / required).

NOTE 1: Refer to manufacturers operating manual for jack hammers / generator operations**.**

e) Check the hammer mechanism before switching it on.

NOTE 2: Ensure that electrical leads are not damaged during task performance**.**

f) Check the output voltage of the generator to be correct (where applicable).

g) Switch the jack hammer ON and commence with work.

h) On completion of work switch OFF the jack hammer and unplug it.

i) Switch OFF the Generator and close the fuel line.

NOTE 3: Do not attempt to refill the generator while it is running**.**

3.2.4 Operating Pneumatic Jack hammer

NOTE 1: Under no circumstances will the compressed air be used to dust-off one another**.**

NOTE 2: No damaged air hoses and accessories will be used on the compressor for compressed air**.**

3.2.4.1 Preparation

a) Off-loading the jack hammer and accessories from the load body;

b) Check the bit-shank to be the correct size to fit the machine and fit the bit.

NOTE 1: Refer to manufacturers operating manual for jack hammer / compressor operations.

c) Check the hammer mechanism before starting it.

d) Check the in-line lubricator is coupled and filled with hydraulic oil.

e) Ensure that pipe fittings and pipes are serviceable / in good condition.

f) Carry the jack hammer to the work place.

g) Ensure that the compressor engine oil, fuel, water levels and compressor hydraulic oil level are correct.

h) Ensure that air receiver is drained (where applicable) regularly / after every use.

i) Remove seal / cover on air pipes ends and the in line lubricator.

3.2.4.2 Starting the Jack hammer

a) Open the air valve before starting the compressor.

b) Start the compressor engine and close the air valve.

NOTE 1: No person shall stand in front of the compressed air pipes when they are being purged**.**

c) Connect air pipes onto compressor, open the valve to clear the pipe while someone is holding (controlling) the other end of the air pipe.

d) Close compressor air valve and connect the air pipe to the jack hammer.

NOTE 2: ONLY open compressed air valve when compressor hoses are connected to the compressor and the jack hammer**.**

e) Slowly open the compressor air valve feeding the jack hammer to full extend.

f) Hold and support the jack hammer in an upright position.

g) Depress the jack hammer trigger to start operating and commence with work.

NOTE 3: Note 6: Do not disconnect the compressed air hoses while the compressor outlet valve is open or the hose pipes are under pressure.

NOTE 4: Note 7: Ensure not to damage the air hoses when performing wor**k.**

h) When the work is completed, stop the Compressor by:

- Switching OFF the compressor;
- Closing air valves;
- Depressing the trigger on the jack hammer to release the air pressure in pipes;
- Disconnecting the air pipes from the compressor and the jack hammer; and
- Sealing / covering air pipes at open ends.

3.2.5 Wrap up

a) Clean the work site.

b) Load the equipment, unused material and transport to storage site.

c) Store the equipment, material and tools in designated places

d) Complete / process the necessary documentation and submit.

3.2.6 Testing

Not applicable.

3.3 Related/Supporting Documents

3.3.1 Related Documents

a) Specifications;

b) Critical task analysis; and

c) Training module.

3.3.2 Forms and Records

The completed reports / forms must be returned to respective departments for record keeping:

a) Works order;

b) Operating Instruction form / Workers register / Permit (where applicable);

c) Risk Assessment;

d) In / Out commission sheet / Stores return; and

e) Written Pre-planning form.

4. Authorization

This document has been seen and accepted by:

Name and surname	Designation
Prince Moyo	Power Delivery Engineering GM
Colin Smith	Design Base Maintenance Manager
Archie Jaykaran	SCOT/SC Chairperson
Solly Matebula	Specialized and Maintenance Manager (GOU)
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5. Revisions

This revision “240-100176182”supersedes and replaces all revisions of DMN_34-2073.

Date	Rev	Compiler	Remarks
Nov 2015	1	C Nuttall	Register a 240 number for the document, reviewed and formatted into the new format. No content changed. The document is published as 240-100176182
March 2010	0	DM Ntombela & F Lötter	One document was original issues as DMN_34-2073

6. Development team

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

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7. Acknowledgements

Not applicable.

Annex A – - Task Observation

(Normative)

Eskom Distribution	FORM TITLE	OBSERVATION FORM		
	FORM NUMBER	240-100176182	REV DATE	November 2020
	DOCUMENT TITLE	OPERATING JACK HAMMERS		

1. OBSERVER'S PARTICULARS

Task observer's name: _____

Task observed: <Click here to enter the title>

Section / department: _____

Location: _____

Occupation: _____

Is there a procedure / task manual for this task? YES ☐ NO ☐

Date: _____

Task Manual ref. __ 240-100176182 _____

Time with task: _____

Work order no.: _____

2. REASON FOR OBSERVATION

Planned: ☐ Follow-up: ☐

Name of employee being observed:

3. TASK OBSERVATION

Did employee adhere to the procedure/practice requirements?

	Yes	No	N/A		Yes	No	N/A
Preplanning carried out correctly				5. Use of correct PPE			
Emergency contacts numbers Obtained				6. Ensure that the panel / equipment to be commissioned is isolated and earthed in accordance with EPC_32-846			

	Tools equipment:				7. Carry out the task as per task manual (240-100176182)			
	Used correctly							
	In good and safe condition							
	Test instrument calibrated							
	Toolbox Talk:							
	Task manuals used							
	Complete Worker's register							
	Risk Assessment been done							
	Valid work permits available							
	Could observed practices / conditions lead to:							
	Injury:				Illness (fumes, gas, etc.)			
	Risk of getting caught by				Costs (delays)			
	Risk of striking against/get struck by				Poor quality (non-conformance)			
	Risk of fall from same level							
	Risk of fall from different level							
	Risk of slip, trips and falls							
	Risk of electrocution							
4.	NON COMPLIANCE PRACTICE OBSERVATION							
		Yes	No	N/A		Yes	No	N/A
	1. Working at unsafe speed				7.Failure to warn			
	2. Using unsafe equipment				8. Taking chances			
	3. Using equipment unsafely				9. Failure to identify hazards			
	4. Unsafe loading, placing & lifting				10.Failure to secure lock-out			

	5. Taking unsafe position				11. Safety signs ignored				
	6. Safety rules ignored								
	NOTE: ALL OBSERVED CLASS HAZARDS SHALL REQUIRE IMMEDIATE INTERVENTION								
5.	OBSERVED DEVIATIONS / NON-CONFORMANCES								
6.	RISK BEHAVIOURS								
7.	PROPOSED CONTROLS								
	Compile a procedure for this task				Issue a standing instruction				
	Revise present procedure				Change work methods				
	Retraining of employees				Professional referral				
	Engineering revision				Coaching				
8.	ANALYSIS								
	IAC – inadequate capability		ABU – abuse or misuse / equip / drugs or alcohol		MAIN – inadequate maintenance				
	KNO – lack of knowledge		NAT – natural factors		EQU – inadequate equipment				
	SKI – lack of skill		LEA – inadequate leadership		STA – inadequate work / train Standards				
	STR – stress		ENG – inadequate engineering		WEA – wear & tear				
	MOT – improper motivation		PUR – inadequate purchasing		CON – inadequate control				

9.	DISCUSSION BETWEEN SUPERVISOR/OBSERVER AND EMPLOYEE	
	1. EMPLOYEE EXPLANATION FOR RISK BEHAVIOUR:	
	2. AGREEMENT TO CHANGE AT RISK BEHAVIOUR:	
10.	FOLLOW-UP ACTIONS	WHEN / WHO

Person being Observed signature: _____ Date: _____

Signature (Task Observer): _____ Date: _____

Signature Chairperson Safety Committee: _____
Date:_____
(if deviations were found)