

	<b>Task Manual</b>	<b>Group Technology</b>
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Title: **OPERATING A HYDRAULIC AUGER ATTACHED TO A VEHICLE MOUNTED CRANE**

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## Foreword

The document was compiled to conform or align with NRS 082 in ensuring that equipment in our network is maintained and to ensure that OHSAct requirements are met.



**Figure 1: Auger secured on the boom**

## Revision history

This is a new document.

Date	Rev.	Compiled By	Clause	Remarks
Nov 2012	1	F van Jaarsveld D Ntombela	Clause no.	Replaced / changed figures.
Sept 2012	0	F van Jaarsveld D Ntombela	Clause no.	First issue.

## Acceptance

This document has been seen and accepted by:	
Name	Designation
P Moyo	Power Delivery Engineering GM (Acting)
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This Task Manual shall apply throughout Eskom Holdings Limited, its divisions, subsidiaries and entities wherein Eskom has a controlling interest.

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## Keywords

Hydraulic Auger, Vehicle, Crane, Document, Manual, Equipment and Network

## 1 Scope

### 1.1 Purpose

The purpose of this document is to provide persons OPERATING A HYDRAULIC AUGER ATTACHED TO A VEHICLE MOUNTED CRANE, with a step by step description of how to do the task, including the most critical hazards and technical specifications associated with the task, thereby ensuring that work is performed safely and risks and hazards are minimised.

### 1.2 Applicability

This task manual is applicable to persons OPERATING A HYDRAULIC AUGER ATTACHED TO A VEHICLE MOUNTED CRANE in Eskom Holdings (Pty) Limited, its divisions or Eskom wholly owned subsidiaries.

## 2 Normative/Informative references

### 2.1 Normative

#### South African national document(s)

Document number	Document title	Preparer/author	Revision or date of issue
OHS Act No. 85	Occupational health and safety act and regulations	-	1993
NRS 082	Recommended maintenance policy for electricity networks	Eskom	Latest

#### Eskom national document(s)

Document number	Document title	Preparer/author	Revision or date of issue
EPC_32-93	Vehicle and driver safety management	Eskom	0
EPC_32-846	Operating regulations for high voltage systems	Eskom	0
EPC_32 829	Wildlife interaction guideline (draft)	Eskom	0
DISASAAN0	Standard for the labelling of high voltage equipment	Eskom	Latest

**Eskom divisional document(s)**

<b>Document number</b>	<b>Document title</b>	<b>Preparer/author</b>	<b>Revision or date of issue</b>
DGL_34-256	Scheduling of driving activities	Eskom	1
DMN_34-2208	Access to work sites	Eskom	0
DPC_34-145	Assessment Procedure for HV Authorisation	Eskom	0
DST_34-1146	Risk of trip assessment	Eskom	1
DST_34-1131	Distribution Standard On Fall Arrest Systems;	Eskom	2
DPC_34-1402	Procedure For Using A Fall Arrest System;	Eskom	0
DST_34-1454	Clearing and maintenance of servitude routes	Eskom	0
DST_34-1150	Lifting machine operators training	Eskom	0

**2.2 Informative references**

<b>Document number</b>	<b>Document title</b>	<b>Preparer/author</b>	<b>Revision or date of issue</b>
32-9	Definition of Eskom documents	Eskom Document Centre	Latest
32-644	Eskom documentation management standard	Eskom Document Centre	Latest
474-65	Operating manual of the Steering Committee of Technologies (SCOT)	Vinod Singh	Latest
DST_34-1710	Provision and use of personal protective equipment	Eskom	0
DPC_34-380	Identifying, analyzing, documenting and observing tasks according to criticality	Eskom	0
DPL_32-727	Safety, health, environment, and quality (SHEQ) policy	Eskom	0
DPC_34-227	Pre-task planning and feedback process	Eskom	0
DST_34-1005	Environmental management policy	Eskom	0
DPC_34-925	Procedure for refusal to work on the grounds of health, safety and environmental concerns	Eskom	0
DST_34-4	Procedure for the Preparation and Administration of Distribution Standards	Eskom	3

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## **3 Definitions and abbreviations**

### **3.1 Definitions**

All definitions in EPC32-846 and OHSAct 85 of 1993 including the following are applicable:

**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:** 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:** 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.

### **3.2 Abbreviations**

**PTO:** Principal Technical Officer;

**STO:** Senior Technical Officer;

**TO:** Technical Officer; and

**CCC:** Change Control Committee.

**PPE:** Personal protective equipment

**ORHVS:** Operating Regulations for High Voltage Systems

## **4 Responsibility**

### **4.1 Responsibilities**

The designated person or his delegate shall ensure that this procedure is implemented and adhered to. The authorised / responsible person is responsible for the safe execution of all work and activities as set out in this procedure.

### **4.2 Tools and Equipment**

a) Auger

b) VMC

## **4.3 Personal Protective Equipment**

All personal protective equipment shall be in accordance with DST34-1710.

## **4.4 Work Instruction**

### **4.4.1 Pre-job Planning**

**NOTE 1: Ensure that the personnel are trained and competent to perform the task allocated to them and they are familiar to the area or environment they required to work in.**

**NOTE 2: Ensure that appropriate PPE, safety equipment and tools are identified and inspected.**

**NOTE 3: Substances which can contaminate the environment during maintenance must be identified – i.e oil contamination and PPE be provided for where risks and hazards could not be minimised or removed.**

- a) Do an assessment at the site to determine the scope of work and the resources that would be required (people, equipment, PPE, etc.)
- b) Plan work and resources required for the task

**NOTE 4: When planning the route, take in consideration high crime areas and access to worksite.**

### **4.4.2 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.**

The on-site risk assessment shall be conducted prior to commencement of work and continuous during the task execution as per DPC34-380.

- a) 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 all workers present are able to communicate properly – ie in language, instructions, signals, etc.
- c) Ensure that the surfaces where the VMC will be used are firm and stable.
- d) Ensure that all overhead services (trees, overhead power lines, etc.) are identified.
- e) Ensure that the required footplates are used as prescribed.
- f) Ensure that the public is controlled.
- g) Ensure that the vehicle is properly bonded to the earth mass (Only one earth electrode per worksite).

#### 4.4.3 Worksite Preparation

- a) Position the truck as close as possible to the work area (see Figure 2).



**Figure 2: VMC in position**

**NOTE 1: When positioning truck, take into account wind and exhaust fumes direction**

- a) Select gearbox to neutral and apply the handbrake.  
b) Place wheel chocks under the wheels.  
c) Engage the Power Take Off (PTO).  
d) Place equal-potential foot plates on ground and connect vehicle to earth mass as per DST\_34-445.

**NOTE 2: Not all extending outriggers fully will render the VMC unstable when it is being used.**

- e) Extend all outriggers legs fully (see Figure 3).



**Figure 3: Outriggers extended**

- f) Place the required outrigger stabilizing supports in position.  
g) Lower all outrigger legs fully.

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**NOTE 3:** Ensure that earth leads to earth foot plates and electrode do not obstruct operations.

#### 4.4.4 Connecting one piece type auger

**NOTE 1:** Ensure that the auger is secured to the crane with a manufacturer supplied securing pin and safety clip

- a) Unfold the crane and position crane the hook over the auger.
- b) Detach the lifting hook from the crane and store it in a safe place.
- c) Lower the boom and secure the auger to the crane with securing pin and safety clip (see Figure 5).

**NOTE 2:** Remove dust covers from hydraulic quick-couplers and ensure couplers are clean

- d) Connect the hydraulic pipes to the rotator (see Figure 4).



**Figure 4: Auger hydraulic pipes being connected**

- e) Release the auger holding device.
- f) Lift the boom slowly and raise the auger vertically out of the holding bracket (see Figure 5).



**Figure 5: Auger being raised**

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- g) Lift the auger clear of the holding bracket and lower to ground (see Figure 5).

**NOTE 3: When using a two / three piece auger assembly, first attach rotator to crane, then connect extension section, and then the auger**

**NOTE 4: Do not fit the auger on the extension booms for drilling, and keep boom the length as short as possible during drilling to ensure stability (see Figure 1: Auger secured on the).**

- h) Position the auger above the marker where the hole is to be drilled

#### **4.4.5 Drilling of Hole**

- a) Use the auxiliary control lever to start the auger.

**NOTE 1: Ensure auger to rotate in a clockwise direction.**

- b) Use the main boom control lever to slowly lower the auger into the ground.

**NOTE 2: Exercise supervision during drilling activity.**

**NOTE 3: Lower the auger in small steps and adjust the speed thereof to minimize the effect of torque on the crane**

- c) Drill short lengths at a time into the ground (see Figure 6).



**Figure 6: Drilling holes**

- d) Use the crane controls to ensure that the auger, during drilling is kept vertical.
- e) Use the auxiliary control lever to stop the Auger.
- f) Raise the auger out of the hole, move it sideways and remove the soil or gravel from the blades.

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- g) Repeat the drilling operation / process until desired depth has been reached (see Figure 7).



**Figure 7: Repeated drilling process**

- h) Ensure that all un-used holes shall not be left open when the worksite is left un-attended.

**NOTE 4: Ensure that the holes / excavation left open and barricaded are inspected prior to the commencement of work and the inspection results thereof are registered.**

#### **4.4.6 Stowing the Auger**

**NOTE: When travelling short distances with the auger still attached to the crane, ensure that the auger is stabilized in rest position.**

- a) Once all the holes have been drilled, the auger must be disconnected and stowed correctly (see Figure 8).



**Figure 8: Auger hydraulic pipes being stowed**

- b) For both types, follow the procedure for connecting, but obviously in reverse

#### **4.4.7 Task Wrap Up**

- a) Remove all personnel, equipment and redundant material from site.
- b) Complete and submit required documentation.

### **4.5 Forms and records**

#### **4.5.1 Record Keeping**

The attached report shall form the record of work done.

The completed report must be returned to the Work Co-ordinator together with the work order and a copy to the Technical Services Group.

#### **4.5.2 Forms and Records**

The completed report shall be returned to the Work Management Centre together with the work order via Work co-ordinator.

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

- a) Works order
- b) Operating Instruction form / Workers register / Permit
- c) Risk Assessment
- d) In / Out commission sheet / Stores return

## **Annex A - Impact assessment** (Normative)

### **1 Guidelines**

- All comments must be completed.
- Motivate why items are N/A (not applicable)
- Indicate actions to be taken, persons or organisations responsible for actions and deadline for action.
- Change control committees to discuss the impact assessment, and if necessary give feedback to the compiler of any omissions or errors.

### **2 Critical points**

**2.1 Importance of this document. E.g. is implementation required due to safety deficiencies, statutory requirements, technology changes, document revisions, improved service quality, improved service performance, optimised costs.**

Comment: Statutory requirements and document revisions.

**2.2 If the document to be released impacts on statutory or legal compliance - this need to be very clearly stated and so highlighted.**

Comment: The document is compiled from the task analysis conducted for the task and it stipulates the procedure to follow in carrying out the task, this document was compiled to satisfy the OHSA requirements

**2.3 Impact on stock holding and depletion of existing stock prior to switch over.**

Comment: NONE

**2.4 When will new stock be available?**

Comment: N/A

**2.5 Has the interchangeability of the product or item been verified - i.e. when it fails is a straight swap possible with a competitor's product?**

Comment: N/A

**2.6 Identify and provide details of other critical (items required for the successful implementation of this document) points to be considered in the implementation of this document.**

Comment: This document implementation must be complemented by ORHVS and any regional or local safety publication

**2.7 Provide details of any comments made by the OUs regarding the implementation of this document.**

Comment: (N/A during commenting phase)

**Annex A**  
(continued)

**3 Implementation timeframe**

**3.1 Time period for implementation of requirements.**

Comment: The document has only been reviewed, there are no technical changes in the document.

**3.2 Deadline for changeover to new item and personnel to be informed of DX wide change-over.**

Comment: N/A

**4 Buyers Guide and Power Office**

**4.1 Does the Buyers Guide or Buyers List need updating?**

Comment: N/A

**4.2 What Buyer's Guides or items have been created?**

Comment: N/A

**4.3 List all assembly drawing changes that have been revised in conjunction with this document.**

Comment: NONE

**4.4 If the implementation of this document requires assessment by CAP, provide details under 5**

Comment: N/A

**4.5 Which Power Office packages have been created, modified or removed?**

Comment: NONE

**5 CAP / LAP Pre-Qualification Process related impacts**

**5.1 Is an ad-hoc re-evaluation of all currently accepted suppliers required as a result of implementation of this document?**

Comment: NO

**5.2 If NO, provide motivation for issuing this specification before Acceptance Cycle Expiry date.**

Comment: See 3.1

**5.3 Are ALL suppliers (currently accepted per LAP), aware of the nature of changes contained in this document?**

Comment: N/A

## **Annex A**

(continued)

**5.4 Is implementation of the provisions of this document required during the current supplier qualification period?**

Comment: N/A

**5.5 If Yes to 5.4, what date has been set for all currently accepted suppliers to comply fully?**

Comment: See 5.4

**5.6 If Yes to 5.4, have all currently accepted suppliers been sent a prior formal notification informing them of Eskom's expectations, including the implementation date deadline?**

Comment: See 5.4

**5.7 Can the changes made, potentially impact upon the purchase price of the material/equipment?**

Comment: N/A

**5.8 Material group(s) affected by specification: (Refer to Pre-Qualification invitation schedule for list of material groups)**

Comment: N/A

## **6 Training or communication**

**6.1 Is training required?**

Comment: (If NO then 6.2 – 6.6 will be N/A) Yes and is already taking place

**6.2 State the level of training required to implement this document. (E.g. awareness training, practical / on job, module, etc.)**

Comment: Awareness training, Practical / on job and / or Module

**6.3 State designations of personnel that will require training.**

Comment: Supervisor, PTO, STO and TO

**6.4 Is the training material available? Identify person responsible for the development of training material.**

Comment: Yes, Training dept. is responsible

**6.5 If applicable, provide details of training that will take place. (E.G. sponsor, costs, trainer, schedule of training, course material availability, training in erection / use of new equipment, maintenance training, etc).**

Comment: Training as per regional arrangements

**Annex A**  
(continued)

**6.6 Was Technical Training Section consulted w.r.t module development process?**

Comment: Yes

**6.7 State communications channels to be used to inform target audience.**

Comment: As per regional communication processes

**7 Special tools, equipment, software**

**7.1 What special tools, equipment, software, etc will need to be purchased by the OU to effectively implement?**

Comment: NONE

**7.2 Are there stock numbers available for the new equipment?**

Comment: N/A

**7.3 What will be the costs of these special tools, equipment, software?**

**8 Finances**

**8.1 What total costs would the OUs be required to incur in implementing this document? Identify all cost activities associated with implementation, e.g. labour, training, tooling, stock, obsolescence**

Comment: The document has already been implemented there current status is not going to change.

Impact assessment completed by:

Name: \_\_\_\_\_David Ntombela\_\_\_\_\_

Designation: \_\_\_\_\_Consultant\_\_\_\_\_