

 Eskom National Transmission Company South Africa TM	Scope of Work	NTCSA Central Grid
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1. INTRODUCTION

Various activities are carried out within the Lines and Servitudes department in order to achieve its departmental outputs. These activities are generally mechanical in nature and thus require the use of various machines.

With the frequent use of various machinery, it is found that these machines require regular maintenance and repairs in order to keep them functioning optimally and extend the lifespan of each respective machine. Together with the use of various machinery, equipment and other items used within the department need to ensure that they are calibrated accordingly to ensure that results obtained are accurate and to ensure that weight bearing equipment is adequate for use.

The department is then faced with a challenge of not having means of repairing these machines as the cost to repair is usually high and cannot be accommodated in the current procurement processes which exist with NTCSA (Nation Transmission Company South Africa). Also, the large number of different machines and testing that is required in the department makes it difficult to obtain service providers that meet the NTCSA procurement requirements.

Thus, the need to establish a contract to enable a seamless procurement process

2. Supporting Clauses

2.1 Scope

Maintenance, repair and calibration of various machines used within the Lines and Servitudes department.

2.1.1 Purpose

The purpose of this document is to enable the establishment of a 2-year contract to enable the repair of machines.

2.1.2 Applicability

This document shall apply to NTCSA Central Grid, Lines and Servitudes

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2.1.3 Effective date

The effective date for this document will be similar to the authorisation date on the cover page of the report.

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

None

2.2.2 Informative

None

2.3 Definitions

None

2.4 Abbreviations

Abbreviation	Explanation
NTCSA	National Transmission Company South Africa

2.5 Roles and Responsibilities

- It shall be the responsibility of the compiler to ensure that the document is registered and/or signed off.
- It shall be the responsibility of Contract Manager to ensure that the recommendations stated in the report are forwarded to procurement department to request for quotations for the execution of the required maintenance and repairs.

2.6 Process for Monitoring

Not applicable.

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2.7 Related/Supporting Documents

- None

3. DOCUMENT CONTENT

3.1 Detailed Scope of Work

- The required scope of work for the contract is for maintenance, repair and calibration of various machines used within the Lines and Servitudes department as detailed but not limited to table 1 below.

Table 1: Activities Required the Repair, Calibrate and Maintenance of Various Machines

ITEM NAME	ITEM SHORT DISCRIPTION	CALIBRATION FREQUENCY	ITEMS TO BE REPAIRED	ITEMS TO BE SERVICED (Items to be serviced include but not limited to the lists below)
Izumi HPE-4 Engen driven Hydraulic pump	Diameter 200, Height 350mm, Ram Stroke – 22mm, Force at die face: 980 kN, Oil Volume required: 314cc	N/A	All possible defective components	a) Relay Switches b) Crimping Dies c) Hydraulic Hoses d) Pressure Plates e) Electric Pumps f) Micrometres g) Relay Switches h) Hydraulic oil i) Starter switch j) Starter pull cord
Izumi EP-100W 100Ton Hydraulic Crimping Head	• Crimping Force: 100 metric tons (980 kN) • Ram Stroke: 22 mm • Max Connector Diameter: Up to 75 mm • Dimensions: 200 mm (diameter) × 350–359 mm (height)	N/A	All possible defective components	a) Cylinder (100W-09) b) Ram (100W-16) c) Cylinder Cap (100W-22) d) Head Cap (100W-06)

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	- Weight: 32 kg - Oil Volume Required: 230–314 cc, depending on pump model - Hydraulic Pressure: 68.5 MPa (700 bar) rated pressure - Pump Type Required: Double-acting hydraulic pump			e) Trigger (100W-04) f) Grip (100W-07) g) Fasteners and Pins h) Seals and Rings i) Safety Valve Assembly (100W-18) j) Retaining Screw (100W-26) k) Nipple 3/8" PT-M (60-18) l) Female Coupler BI (E3-28) m) Male Coupler BI (E3-30) n) Cap Handle (100W-02) o) Spring (38A-06) p) Stopper (100W-11)
Hydraulic puncher	Throat Depth : 70 mm Max. Pressure : 700 bar Oil Required : 76 cc Max. Output : 34.20 tons / 304.3 kN capacity : Max. thickness : 15 mm Max. diameter : 20.5 mm 20.5 mm diameter hole with 13 mm thick mild steel. For angle iron, plates, beams and bus bars	N/A	All possible defective components	a) Puch & Die Sets b) Hand Pin c) Stripper Guide d) Steel Carrying Case e) Hydraulic seals and O-rings f) Ram assembly components g) Couplers and fittings h) Replacement hydraulic hoses i) Mounting bolts and fasteners
Hydraulic crimper hoses	3/8" X 20 FT 10,000 PSI HYDRAULIC JACK HOSE OTC ENERPAC MALE & FEMALE COUPLER	N/A	All possible defective components	a) O-Rings and Seals. b) Protective Sleeves c) Hydraulic Fluid
Hydraulic conductor cutter	Working pressure of 700 bar max TC series, 50 mm conductor, 331 mm crimping force (kN) 112 mm	N/A	All possible defective components	a) Cutting Blades b) Hydraulic Seals c) Hydraulic Hoses d) Pressure Gauges

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				e) Couplings and Fittings f) O-Rings
KITO RICO - Liver hoist 0.8T – 6,3T	Liver hoist 0.8T – 6,3T - 0.8 T , 1,6 T, 3,2T & 6,3T Standard lifting chain length of 1,5 meters & different test load ranging from 1200kg – 7900kg max	N/A	All possible defective components	a) Load Chain b) Hooks c) Brake System d) Gears and Bearings e) Lever Handle f) Safety Latches g) Chain Guide and Sprockets
Unleaded generators	16kVA, noise Level (7), no-load 72dB, rated power factor 0.8, Engine Type=twin cylinder air cooled petrol	N/A	All possible defective components	a) Air Filter b) Spark Plug c) Fuel Filter d) Oil Filter e) Battery f) Carburettor g) Exhaust System h) Control Panel i) Recoil pull starter j) On/off selector switch
Magnetic drilling machine	230v/50Hz, 1.8 KW (2.4 HP) power output, 75mm max cutting diameter, 260-460 RPM no-load speed, MT3 chuck	N/A	All possible defective components	a) Cutting Tools (Annular Cutters) b) Magnetic Base c) Motor Brushes d) Gearbox e) Coolant System f) Control Switches g) Feed Handles and Knobs
Hydraulic swage bolt machine	Hoffman HP78 Diesel Engen, 12 volts DC Trigger Operated pump	N/A	All possible defective components	a) Swaging Dies b) Hydraulic Seals

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	capacity 5.4min at 3000rpm			c) Hydraulic Hoses d) Pressure Gauges e) Couplings and Fittings f) O-Rings g) Gun nipples h) Battery i) Fuse j) Hydraulic oil k) Axel l) Solid wheels m) Collect lock n) Jaws o) Flexinol p) Electrical wiring q) Spider r) Release/ejector
Hydraulic swage bolt machine hoses	12.5kg hose and cord kit Hs14 15m length	N/A	All possible defective components	a) Wear and tear on the outer cover b) Fluid Incompatibility c) Tube Erosion d) Faulty hose couplings e) Protective Sleeves
Hydraulic swage bolt punching nose assembly	T104 hydraulic installation tool for pins & collars (pistol & cylinder)	N/A	All possible defective components	a) Punching Dies b) Hydraulic Seals c) Hydraulic Hoses d) Pressure Gauges e) Couplings and Fittings f) O-Rings
Drill Machine	800w Impact Drill (POWP2030)	N/A	All possible defective components	a) Chuck/Arbor and Chuck key b) Motor Brushes c) Power Cord d) Bearings

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				e) Switches f) Gearbox g) Drill Bit
Industrial grinder	2200W,230mm (SGRIND-230)	N/A	All possible defective components	a) Grinding Wheels b) Spindles c) Bearings d) Belts and Pulleys e) Coolant System f) Control Switches g) Dust Collection System h) Carbon Brushes
Brush Cutters: Husqvarna (MS194T, MS230, MS382, MS661), Stihl (26cc)	Petrol 7: d22w/2.2hp 7.7kg	N/A	All possible defective components	a) Air Filter b) Spark Plug c) Trimmer Head and Line d) Fuel Filter e) Blades f) Primer Bulb g) Throttle and Control Cables
Chainsaw: Husqvarna 365cc, 440cc, 535iXP, 460cc), Stihl (baby small, medium, large and monster)	Cylinder displacement=27 - 40.9cm ³ power output= 1.1 - 1.8 kw recommended bar length, max=12-18inch weight (excl. Cutting equipment)=2.7- 4.4 kg	N/A	All possible defective components	a) Chain b) Guide Bar c) Air Filter d) Spark Plug e) Fuel Filter f) Oil Filter g) Carburettor h) Recoil Starter i) Chain Tensioner j) Anti-Vibration Mounts
Polepruner:	Cylinder displacement=25.4 cm ³ Power output=1.0 kW	N/A	All possible defective components	a. Blade Assembly b. Clutch Drum &

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Hasqvarna(135 cc), Stihl (135cc)	Weight (excl. cutting equipment)=7 kg			c. Clutch Shoe d. Handle & Extension Tubes e. Bushings (Drive & Holder) f. Brackets & Clamps g. Shaft Inner Assembly h. Bolts, Screws, Circlips i. Cap Screws & Piston Pin Clips j. Magneto Starter k. Valve Guide / Push Rod Guide Plate l. Box Cover / Cleaner Cover
KUDU Lawnmowers grass cutting machines 850cc	• Engine: Honda GX390 OHV 4-stroke • Displacement: 389cc • Max Power Output: 11hp @ 3600rpm • Max Torque: 26.4 Nm @ 2500rpm • Ignition System: Transistor Electric / Inductive Firing • Starting System: Manual Pull Start • Fuel Tank Capacity: 6.1L • Oil Capacity: 1.1L • Fuel Consumption: 374g/kWh • Air Cleaner: Semi-dry, dual filter	N/A	All possible defective components	a) Drive Chain b) Sprocket Output (12 Teeth) c) Throttle Cable (K312) d) Gearbox V-belt (K515) e) Deck Belt (K432) f) Blades for Disc (Kudu 750/850) g) Deck Pulley / Spindle Pulley (K406) h) Cutter Housing Deck (K414) i) Cutter Clutch Bracket j) Cross Bar Cutter Support (K237) k) Grazer Brackets (Left/Right for Gearbox and Pulley) l) Bracket Slide (Kudu 660/750/850)

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				m) Bellcrank Handlebar (K325) n) Balance Spring o) Flail Plate (K422) p) Bearing SBPF204-12 (Flange 19.1mm) q) Brass Bush (K1752, 19mm) r) Bush Swivel Front Wheel Axle s) Chain Link 1/2 Master t) Guide Belt Pulley Jockey (K954T) u) Key for Engine Pulley (K100K)
Tractor falcon slashers (F80/2004)	• Model: Falcon F80/2004 Extra Heavy-Duty Slasher • Cutting Width: 2000 mm (2 meters) • Cutting Height Range: 10 mm to 140 mm • Blades: 4 heavy-duty swing blades • Mass: Approximately 559 kg • Gearbox: F80 series, rated for 80 kW • Blade Tip Speed: High-speed rotation for efficient cutting • Slip Clutch: Standard torque-limiting slip clutch included • PTO Shaft: Fully guarded, 70" PTO driven	N/A	All possible defective components	a. H1260 – Blade Disk (4-M22 PCD650) b. H1810 – Banana Blades (10x90x58 5mm) – Qty: 4 c. M52275 – Blade Bolt M22-10.9 Special – Qty: 4 d. H0422 – Skid Runner (8x90) – Qty: 4 e. H1400A – Gearbox F80 f. M1413 / M1412 – Bearings g. H1414 / H1423 – Bevel Gears h. H1409 / H1426 – Input & Output Shafts i. M1404 / M1432 /

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					M1433 – Lip Seals j. M1406 / M1403 – O-rings & Tabbed Washers k. M1439 – Dipstick Plug l. H1420A / M1421A – Gearbox Covers & Gaskets m. T600960C E112F22 – PTO Shaft (T60 960 112 F22) n. H0702 – PTO Guard o. M1416 – Split Pin B5x60 – Qty: 2 p. H0602 – Top Mast Cat2 q. H7115 / H0632 – Link Pins (Top & Bottom) r. M61919 / M62222 – Nyloc Nuts (3/4UNF & M22) s. M41650 / M41655 – Bolts M16x50HT / M16x55HT t. M81603 / M31612 – Washers & Nuts M16 u. FLP11 – Lynchpin 11mm – Qty: 3 v. M3170– M3178 – Safety &
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				Instruction Decals w. M8400 – Operator's Manual
Earth Resistance Tester	Low frequency tower footing impedance meters with flexible current sensors	As per manufacture's specification	All possible defective components	a) Test Leads b) Auxiliary Earth Bars c) Batteries d) Display Screen e) Control Buttons f) Protective Holster
High Voltage Earth Leads Tester	Tester:microhmmeter;100 -265 v;50/60 hz	As per manufacture's specification	All defective components	a) Test Leads b) Kelvin Probes c) Power Adapters d) Display Screen e) Control Buttons f) Internal Batteries
Voltage Detector	Multirange Voltage detector	As per manufacture's specification	All defective components	All defective components
Hot Stick Tester	Wet/Dry hot stick tester 230Volts	As per manufacture's specification	All defective components	a) Test Leads b) Batteries c) Display Screen d) Control Buttons e) Protective Holster
Super Ruler	Height meter	As per manufacture's specification	All defective components	a) Measurement Markings b) Protective Coating c) Edges d) Non-Slip Pads
Dynamometer	Dynamometer:electronic;0- 6.5 t; battery	As per manufacture's specification	All defective components	a) Load Cells b) Sensors c) Bearings d) Cooling System

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				e) Control Electronics f) Drive Belts and Pulleys g) Data Acquisition System
Camera : Canon, Nikon	Camera dgtl:8 gb;2x/4x zoom capability	As per manufacture's specification	All defective components	a) Lens and Lens Mount b) Sensor c) Shutter Mechanism d) Viewfinder e) Buttons and Dials f) Battery Compartment g) Ports and Connectors h) Firmware Updates
Binoculars : Canon, Nikon	Stabilizer: type: image; size: wd 152 x lg 193 x ht 81 mm	As per manufacture's specification	All defective components	a) Stabilization System b) Optics c) Focusing Mechanism d) Battery and Power System e) Housing and Seals f) Buttons and Controls

Conducting the required scope will be rate based on an hourly rate and the service provider will be required to submit a quotation for anticipated hours to repair or service. The quotation should include cost for the various parts that will be required to fully service or repair the machinery

4. RECOMMENDATION

Establish a contract for the repair, testing and calibration of various Lines and Servitudes machines

5. ACCEPTANCE

This document has been seen and accepted by:

Name	Designation
Patrick Thwala	Snr Supervisor Lines & Servitudes

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Collin Sibeko	Snr Supervisor Lines & Servitudes
Nathan Molapo	Snr Supervisor Lines & Servitudes

6. REVISIONS

Note: Start with the latest Revision History in the first row and go backwards.

Date	Rev.	Compiler	Remarks
	0	Z Zwane	Final Document

7. DEVELOPMENT TEAM

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

- Nathan Molapo
- Collin Sibeko
- Zandile Zwane

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