

Title: **Technical Specifications for
Helicopters Purchased by NTCSA
for Live Line operations**

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1. Introduction

This document is required to clearly set out NTCSA's requirements for the selection and purchase of suitable new Helicopters for the replacement of its Bell 407 and Airbus H125 fleet. Eskom Aviation currently has five Bell 407 and two Airbus H125 helicopters in service. The need for the replacement of the current fleet of Bell 407 and H125 helicopters, stems from the demanding power line environment these helicopters are operating in.

Tenderers will be required to offer trade in values for the five Bell 407 and two Airbus H125 helicopters which Eskom Aviation is currently operating as part of their submission. Helicopter serial numbers and related details are supplied in an attached Annexure.

2. Supporting Clauses

2.1 Scope

2.1.1 Purpose

This specification covers the requirements for the selection and purchase of Helicopters which best suit the strategic goals and objectives of the National Transmission Company of South Africa and Eskom Aviation. To meet these goals the helicopters to be supplied for live line operations must be able to perform all the tasks listed below in consideration of the health and safety of NTCSA employees, the reliability and efficiency in the execution of live line operations, conformance to specifications, ergonomics, and value for money.

- High Voltage Power Line maintenance.
 - General Power Line Maintenance, Re-Insulation, Close Proximity and Insulator Spray Washing.
- Power Line Inspections.
 - Low level fast, slow, and detailed inspections.
 - Infrared – and Corona scanning and High Definition FLIR Camera video and photography.
- Telecommunication and Construction flying.
 - Helicopter Ad-lash installation and removal.
 - Line Stringing
 - Pole Planting.
- Transportation of Personnel and Flight Instruction in the Power Line Environment.

2.1.2 Safety.

Controls have been put in place to ensure the safest operation possible during NTCSA / Eskom Power Line maintenance – and other flying tasks. The Occupational Health and Safety Risk Assessment Procedure and Live Work Risk Assessment Standard was used to evaluate and quantify the risk associated with helicopter Live Line work and is summarized below:

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Task Description	Hazard	Risk	Existing Cautions and Controls	RCE	Likelihood	Consequence	Risk Rating
Person working on conductor	Unsteady work platform	Linemen can lose balance and fall	Fall protection plan be attached at all times	FE	C	5	II
Person working on conductor	Electrically alive at line potential	Cutting Clearance resulting in electrocution	Compliance to safe approach distances	ME	C	5	II
Person working on tower	At ground potential	Can bridge air gap resulting in flashover	Compliance to safe approach distances	FE	C	5	II
Helicopter and skid work	Mount and dismount from underslung	Falling serious injury	Double Hook system Minimize time hooked and make before break	FE	B	4	III
Helicopter and skid work	Snag Hook when lifted	Tearing harness, breaking equipment, injuring linesman	All tools free before linesmen give signal to lift. Visual Confirmation feet off	FE	C	4	II
Helicopter and skid work	Engine Failure whilst attached to tower	Tearing harness, injuring linesman, crashing	Use double hook system, minimize time hooked, make before break and fall arrest system	FE	B	5	II

Notes: FE Nothing to be done except review and monitor existing controls which are largely preventative and address root causes.

ME Most controls are in place and effective, some improvement possible and management has doubts about operational effectiveness and effectiveness.

C Possible – May occur shortly, but distinct probability it will not, or 20 – 70 % probability.

B Unlikely – Exceptionally unlikely, less than 5% probability.

4 Loss time injury, irreversible health effects or occupational disease with permanent consequences.

5 Fatality or life-threatening health effects.

II High – Strong mandatory action required and these risks to be captured on on IRM

III Medium – Action required, possibly at administrative level.

Conclusion of assessment.

All risks and associated hazards have been addressed. Awareness and understanding of these risks are critical and should be highlighted during training, task planning, annual assessments, and management interventions. Falling from heights is a fundamental risk associated with Live Line Maintenance. Current precautions are generally effective thus controlling risk to an acceptable level.

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It is clear that a combination of actions, controls, procedures, planning, training, and standardization has contributed to a Live Line environment which is as safe as possible. It is imperative that the status quo is maintained unless it can be improved. The helicopter must therefore at a minimum be able to perform all of the operational tasks in line with existing controls, standards, and measures. The requirements and specifications related to these tasks are set as mandatory requirements in this document and must be met during the initial phases of the tender process. Should the Tenderer's technical offer not meet the mandatory requirements; the tender shall not be further evaluated.

2.1.3 Applicability

This document shall apply throughout Eskom Holdings Limited Divisions/ National Transmission Company South Africa SOC Ltd Reg No 2021/539129/30.

2.1.4 Effective date

31 July 2024

2.2 Normative/Informative References

2.2.1 Normative

- [1] ISO 9001 Quality Management Systems
- [2] EASA, FAA, and CAA Certification Standards
- [3] OEM Specifications, Options, Flight Manual and Maintenance Manuals.

2.2.2 Informative

Helicopter Replacement Standard	Doc:240-95114063
ORHVS Technical Instructions	
NTCSA Life Saving Rules	
Task Manual: Removing/Replacing/Installing Surge Arrestors	Doc: 240-111092724
Standard: Transmission High Voltage Live Working	Doc: 240-60725816
Standard: Aerial Live Working	Doc: 240-60725817
Standard: Live Work Risk Assessment and Fall Protection Plan	Doc: 240-105015449
Task Manual: Changing Strain Insulators	Doc: 240-60725486
Task Manual: Changing a Suspension Insulator String	Doc: 240-60725487
Task Manual: Full Tension Repairs to Earth Wire, Replacing Earth Wire Damper, Installing Spheres and Bird flapper on energized line using Helicopter Skid	Doc:240-60725488
Inspecting Hardware and Jumper Connections and replacing minor Hardware on energized lines using the underslung method.	Doc:240-60725489

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Installing Full Tension Compression Joint on energized Line using helicopter step.	Doc:240-60725490 Doc:240-74698789
Part 127 Flight Operations Manual	
Civil Aviation Regulations 2011, Part 91, 127 and 133.	
Helicopter Operating Manual	

2.3 Definitions

Turbine Engine	Provides Shaft power through the process of thermodynamics which involves the compression, ignition and expansion of air which drives turbine wheels and an output shaft which provides a rotational driving force to the transmission system.
Airframe Fuel Filter	An additional filter which removes particles from fuel before it is supplied to the fuel control system
Crash-Resistant Fuel Tank	A fuel tank which is designed and manufactured to counter-act external impact threats and minimize the risk of failure or rupture.
Rotor System	The Rotating components on a helicopter which is responsible for the creation of lift and consists of the mast, hub and rotor blades.
Maximum-All-Up-Weight	The maximum weight at which the helicopter may be operated and considers various inputs which includes engine performance and skid load.
Human External Cargo (HEC)	Persons who are part of the aerial live line maintenance process (Linespersons), who hang from a line underneath the helicopter as part of their duties.
Non-HEC	No-human cargo and includes equipment and line hardware or spares.
Full Authority Digital Electronic Control	A computer-managed ignition and engine control system which receives multiple input variables to control engine and rotor rpm performance.
Helicopter Skids	Most light helicopters are fitted with tubular landing gear instead of wheels, which are referred to as skids.
Vertical Reference Live Power Line Technique	A flying technique used during Power Line Maintenance operations, which involves the transport of HEC and Non-HEC to and from the required positions on powerlines using a sling from which the HEC and Non-HEC are suspended under the helicopter. The pilot exclusively uses direct, uninterrupted visual cues and hand signals from the HEC and lines personnel on the tower and conductor. The technique does not allow the pilot to make use of normal underslung cues such as radio patter, mirrors views or helicopter crew patter.
Dual Control	The controls are a duplication of the main flight controls and are fitted or removed from the Co-pilots / Instructor flight position. The controls allow the Co-pilot / instructor to fly take control and fly the helicopter.
Power Line Spray Washing Machine	Machine which is attached to the underside of the helicopter and incorporates a water tank, independent compressor and pump and spray lance. The machine is used to wash polluted insulator strings.
FLIR Camera	A gyroscopically stabilized digital camera which allows high-definition photography, filming, and Infrared scanning. The camera is attached to a boom on the nose of the helicopter and control by an operator who is seated in the back of the helicopter.
Hydraulic Pump	A pump which provides hydraulic pressure to actuators which in turn reduces feedback forces on the flight controls.
Wire Cutters	Reinforced blades which are fitted to the front of the helicopter to cut conductors in the event that the pilot inadvertently flies into a conductor. One cutter is positioned above the windscreen roof line and another below the helicopter chin.

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Cargo Load Indicator	A device measures the weight of the load which is suspended from the underslung and provides the information to the pilot in the cockpit.
Radar Altimeter	A radar device which provides the pilot with the actual height of the helicopter above the ground.

2.4 Abbreviations

Abbreviation	Explanation
HEC	Human External Cargo
MAUW	Maximum All Up Weight
PIC	Pilot in Command
KIAS	Knots Indicated Airspeed
FADEC	Full Authority Digital Engine Control
OGE	Out of Ground Effect
IGE	In Ground Effect
AFM	Aircraft Flight Manual

2.5 Roles and Responsibilities

This document will be reviewed by the Aviation management team when required or before the expiry date thereof. The review must be accepted and signed off by the Accountable Manager NTCSA Aviation.

2.6 Process for Monitoring

None.

2.7 Related/Supporting Documents

Not Applicable

3. Requirements for Helicopters used in the Eskom Power Line environment.

The mandatory requirements below are derived from Live Work Standards and Procedures, Training Manuals, Operating Manuals, Legislation, SMS systems, OHS Risk assessment, Fleet Standardization and more than thirty years of Live Line operations experience and are considered best operating practices by NTCSA Aviation. The requirements enable the use of existing controls to ensure safety, functionality, operational efficiency, cost containment, procedural - and legal compliance and pilot workload reduction. The Mandatory Requirements are mutually inclusive. Evidence must be submitted during the initial phase of tendering, that all of the mandatory requirements are met, failing which the Tenderer will be disqualified.

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3.1 Mandatory Requirements

3.1.1 Cabin Volume

- The helicopter's total interior cabin volume must be equal to or greater than three cubic meters.
- The helicopter must offer a minimum of six seats (pilot plus five).

3.1.2 Fuel System

- The Main Tank must be a crash resistant unit.
- The fuel system must include an airframe fuel filter.
 - The helicopters are mostly operated in the countryside which increases the risk of fuel contamination.
- The helicopter must be supplied with an auxiliary fuel tank.
 - The tank is required to provide additional range, when the helicopter is used for Power Line Inspection operations and over-border power line flights.

3.1.3 Engine

- The Helicopter engine must be a single engine Turbine powered unit.
- Fitted with an engine intake barrier filter.
 - The helicopters are mostly operated in the countryside, the barrier filters are required to reduce dust ingestion by the engine and subsequent engine component damage.
- The helicopter must be fitted with a Dual – Channel FADEC system, to provide engine control redundancy.

3.1.4 Rotor System

- The main rotor must be a semi-rigid or fully articulated multibladed system.
- The system must incorporate elastomeric or bearingless design.
- The tail rotor must be a conventional two bladed design.

3.1.5 Maximum All Up Weight

- The helicopter must be provided in the highest certified Maximum All Up Weight (MAUW) configuration where the OEM provides an option for this configuration.
- Should such an option not be an available OEM option, it must be indicated in writing. The OEM will not be negatively affected in this case.

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3.2 Operation Specific Mandatory Requirements

3.2.1 Operation in vicinity of Power Lines

- There must be no prohibition of the helicopter operating within close proximity of high voltage power lines (within one meter). A written declaration to this effect must be submitted with the tender.

Serves as an assurance that electrical interference will not negatively affect the electronic systems of the helicopter and/or flight safety.

3.2.2 Human External Cargo (HEC Operations) and Normal External Cargo (Non-HEC).

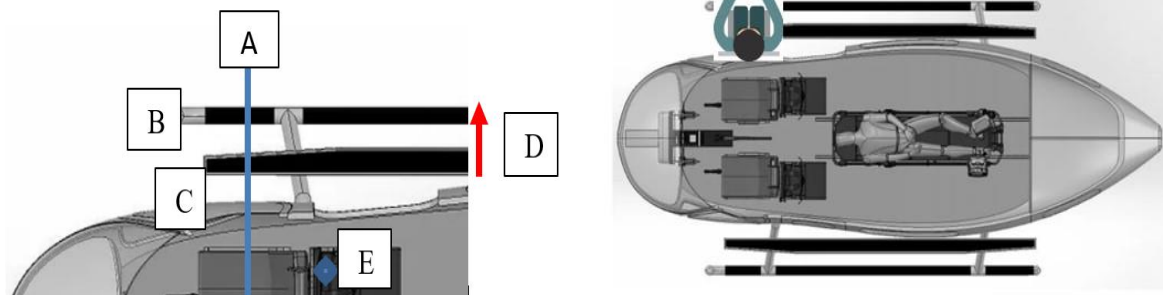
- The helicopter must be fitted with an OEM approved Dual Cargo Hook System. The system must be approved for Human External Cargo operations. The HEC Supplemental Type Certificate for the specific helicopter must be submitted with the tender.
- The dual hook system must allow the use of the primary hook for Normal operations (non-HEC), whilst the HEC hook is in place.
- The primary hook must allow the carriage of a load equal to or greater than 1000 Kilograms when used for Normal (Non-HEC) operations.
- The system must allow for the simultaneous release of the primary and secondary hooks, by activating controls or switches which are located on the cyclic and collective respectively. The pilot must be able to effect a complete load release without removing his/her hands from the flight controls.

3.2.3 Helicopter Skids

- The helicopter must be supplied with High Skid landing gear.
- Close proximity work requires the linesman to sit on the skid during maintenance operations, therefore the skids must incorporate a full-length skid step (C). The forward length of the skid step must allow a Live Line linesperson to sit on the step, in line with the pilot at a right angle (A). Looking from above the skid track must be wider than the distance between the skid steps and allow the linesperson a foothold for balance during close proximity flying operations (D). The skid must therefore end in line with the skid step or extend further forward than the skid step (B).
- An attachment point inside the cabin (installed hook or safety belt point) must be available to secure a safety line, which will be connected to the linesman's harness (E).

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Figure 3.2.4.1



3.2.4 Tail Rotor position

- Close Proximity operations require that the helicopter fuselage be placed near the conductor at an angle of 20 – 30 degrees.
- To reduce the risk of a tail rotor strike and subsequent tail rotor failure, the helicopter design must place the tail rotor on the opposite side of the fuselage to the Pilot in Command (PIC). If the helicopter is certified with the PIC in the Right-Hand seat, the tail rotor must be positioned on the Left-Hand side of the tail boom.

Figure 3.2.4.1

Tail Rotor Opposite Side of Conductor

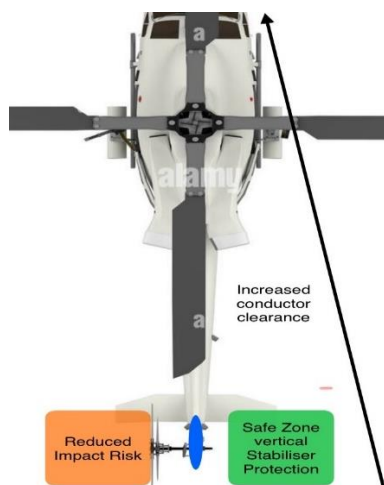


Figure 3.2.4.2

Tail Rotor on Same side Side as Conductor

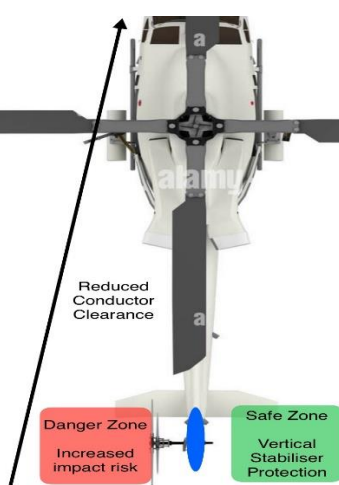
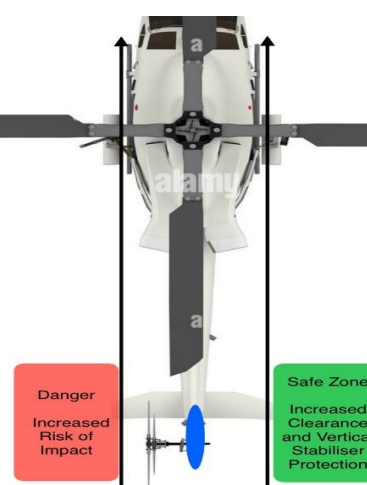


Figure 3.2.4.3

Loss of directional control placing helicopter parallel to Conductor



3.2.5 Doors and door limitations

The Pilot and Co-pilot door design must allow for quick release / removal (no tools required) by one person. The right rear door must be a sliding door and allow opening and closing during flight. The helicopter doors must allow flight for all of the following configurations:

- I. Only pilot door removed; other doors closed.

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Vertical reference flying operations often require the pilot to operate between various towers, with the linesman leaving hardware / spares in the rear of the helicopter to use as they progress. The pilot may also leave the removed pilot door on the back seat as per standard Eskom Live Line procedure. The rear door is therefore closed in these cases to prevent loose objects falling from the helicopter. Wind interference through the cockpit and cabin is reduced to a minimum by leaving the other doors closed, this reduces noise through the headsets during communication and offers a partial means of controlling the temperature inside the cabin in cold conditions.

II. Pilot and Co-pilot doors removed; other doors closed.

The Live Work Standards and Instructions, Helicopter Operating Manual and Air Navigation Regulations Part 133 clearly state that the pilot and Instructor must have an uninterrupted view of the HEC or Non-HEC at all times during operations, further that the pilot must be able to see all other linesman on the tower for effective guidance. The vertical reference technique thus requires both the Pilot and Instructor to remove their doors to adhere to the visual requirements. The reasons for the closed rear doors remain the same as described above.

III. Pilot door and RH rear sliding door open; other doors closed.

This configuration is mostly used during Close Proximity – skid work. The pilot door is removed to ensure that the pilot has the linesman visual on the skid and to enable the pilot to release the linesman's safety line. During bird diverter fitment multiple diverters are loaded in the aft cabin and the LH rear door therefor has to be closed to prevent the diverters falling from the helicopter. The RH rear door is left open to allow a linesman seated on the right rear seat, to pass diverters to the linesman on the skid.

IV. RH rear sliding door open; other doors closed.

This configuration is mostly used during visual Power Line Inspections and Manual scanning. The inspector will open the door as and when required during flight to allow a better view of a fault, allow clear photographs and accurate infrared scanning. The towers may be far apart and opening and closing the rear door allows for increases ferry speeds between flights, improving efficiency and decreasing maintenance cost.

3.2.6 Vertical Reference Live Power Line Operations Visibility

NTCSA Aviation uses the vertical reference technique for underslung Live Power Line maintenance operations, which requires views of the underslung, Live loads, cargo carried and surrounding work area. Artificial means are not used to improve visibility. The vertical reference technique implies the following about the pilot's seating position:

- The pilot rotates his/her shoulders 30 degrees towards the door opening. Maintaining the rotation, the pilot bends over forward at an angle of approximately 35 – 40 degrees and then establishes the relevant direct outside visual ques.

The helicopter design must allow the Pilot and Instructor unobstructed / uninterrupted direct views during all Live Line Maintenance operations which, will require the following -:

- The underslung load must be directly visible to the pilot - as well as the "Grapple Hook", which is a point approximately two meters below the helicopter.
- The HEC and Non-HEC must be visible during the hover and complete flight range of 0 KIAS to 60 KIAS.

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- It must be possible to keep the load visual during final approach to the tower, simultaneously scanning the ground ahead and below, the HEC and Non-HEC, the approach path to the tower ahead, and the linespersons on the ground and tower giving hand signals.
- It must be possible to simultaneously keep the linesmen on the conductor, tower peak and other positions on the tower visual when lowering, lifting, or placing the cargo or people.
- That the helicopter design be such, that the floor, cockpit frame and / or instrument panel does not interrupt or obstruct the visual requirements set out above for both the pilot and instructor.

3.2.7 Cabin Structure Design

- The helicopter must have a door-frame structure around the LH and RH front doors, which offers added protection during an accidental side impact and adds additional support to the pilot seated in the vertical reference position.

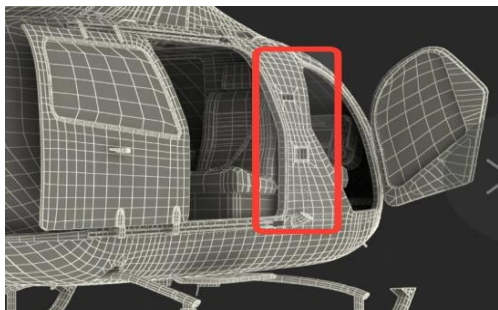


Figure 3.2.7.1

- The structure must offer a means of separation between the cockpit and aft cabin to prevent hardware entering the cockpit during Live Line Maintenance operations.

3.2.8 Pilot Dual Controls

- The helicopters often have to perform various tasks within the same week, which may include instruction, followed by Power Line Inspection or Passenger transportation which require dual control reconfiguration. For this reason, the helicopter must be supplied with quick release Co-Pilot / Instructor Dual Controls (no tools required for installation or removal).
- Fuel throttles must be available on both the pilot and co-pilot collectives and offer fuel modulation.
- Should the Co-pilot pedals not be removable, the pedals must offer a means of disconnecting or locking in place to prevent inadvertent passenger interference.
- The OEM must have no prohibition on the dual controls being installed or removed by the Pilot in Command.

3.2.9 Power Line Spray Washing Machine

Power Line maintenance includes insulator spray washing. Evidence must be provided that the helicopter is approved for the fitment of a certified Power Line Spray Washing machine.

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3.2.10 FLIR 350 Camera Nose Mount

- Evidence must be provided that the helicopter is approved for the fitment of a certified FLIR 350 Camera Nose Mount.
- The Helicopter must be available with the Camera Nose Mount fitted.

3.2.11 Hover Performance.

The hover performance of the helicopter must be such, that it will allow a continuous hover in all wind directions with windspeed of 17 Knots or less, for a period of ≥ 30 minutes, assuming that all the engine cockpit indications are in the normal operating ranges.

Should any OEM limitation exist in this regard it must be stated.

Any supplier who does not meet the above Mandatory Requirements will be disqualified and not evaluated further.

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3.3 Scored Requirements

The scored requirements will be evaluated on a sliding scale. **A total score of 80% or more must be achieved during this phase of the tender process. Failure to meet the 80% threshold will result in disqualification.**

3.3.1 Hydraulic Pump

- The hydraulics pump must preferably be gear driven.
 - The helicopters are mostly operated in the countryside where dust, sand and small stones increase degradation and the risk of hydraulic drive belt failure, which will result in the loss of hydraulic assistance.
- The Hydraulic Failure emergency procedure contained in the Aircraft Flight Manual (AFM) must not prohibit a zero - speed hover.
 - The HEC carried must be safely landed, before the underslung can be released and the helicopter landed. The inability to hover and conduct the maneuvers at walking pace, will result in injury or death.

3.3.2 Electrical

- The helicopter must be supplied with the highest specification generator for the model range and be fitted with a 28 Amp hour battery.
 - The helicopters mostly operate away from base and in all weather conditions. Multiple starts and cold weather places high demands on the battery used.

3.3.3 Windows

- The helicopter doors must incorporate sliding windows for the Pilot, Co-pilot and LH and RH rear passengers.
- The supplier must be able to provide tinted windows, the type and color of tint will be selected from the options provided.

3.3.4 Wire Cutters

- The helicopter must be supplied with Type Certified Upper and Lower wire cutters. Certification evidence must be provided.
 - The helicopters are primarily used in the wires environment and the cutters are required as an added safety precaution to minimize the effects of a wire strike.

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3.3.5 Cargo System

- A transversely mounted cargo HEC system which does not incorporate a swing provides greater ground clearance in rough terrain and less load movement during the release of one of the hooks, when used in the HEC configuration. Being able to provide a cargo hook in this configuration would be safer for Live Line operations.

3.3.6 Communication and Navigation System

- The helicopter must be supplied with the following components which may be part of an integrated or multi-component system.
- Two VHF Radios with secondary frequency swop on cyclic.
- Two GPS Units.
- Mode S Transponder
- Traffic Alert or similar collision avoidance system.
- GPS/Nav system must provide built-in wireless connectivity, data upload and download and remote position tracking of the helicopter.
- An Integrated Communications Control Panel.
- The helicopter must be supplied with a certified helicopter headset for each seat. The headsets must provide passive noise reduction of 24 dB or more, weigh 600 grams or less, be fitted with a noise reduction microphone which is fitted to a flexible boom and provide comfort ear seals or similar and headset adjustable volume control.

3.3.7 Cargo Load Indicator

- The unit must be a digital underslung load weighing system. Evidence must be provided that the system is certified for fitment and use on the helicopter.
- The system must have a cockpit display and be able to provide Data Monitoring information to suitable connected devices.
 - The indicator is required to minimize the risk of overloading the cargo hook or exceeding the helicopter's performance and load limitations.

3.3.8 Radar Altimeter

- Evidence must be provided that the unit is certified for fitment and use on the helicopter.
- The unit must offer C-Band interference resistance or similar, to prevent signal interference.
- The unit must provide interface capability.
 - The unit assists the pilot in maintaining safe operating altitudes over undulating terrain.

3.3.9 Rotor Brake

- The helicopter must be fitted with a rotor brake.

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- In case of high winds or an emergency the pilot must be able to stop the rotor as quickly as possible to minimize or prevent damage.

3.3.10 Accessibility

- The helicopter must incorporate suitable steps to ensure that pilots can reach all the components which need to be inspected during pre-flight.
 - The pilot does not have inspection platforms available when operating away from base and the steps assists the pilot in being to conduct the necessary inspections.

3.3.11 Interior

The minimum interior specification must provide:

- Airframe close-outs.
- Roof headlining and interior lighting.
- Leather covered seats.
- Seat covers / protectors for the Pilot and front passenger seats.
- Carpeted floors.
- Preformed plastic carpet / floor protectors or similar.

3.3.12 Cabin Heating and Cooling

- The helicopters must be fitted with a cabin air-conditioner cooling system. If the system is not an integrated part of the standard helicopter, evidence of certification must be provided.
- The helicopter must be fitted with a cabin heating system. If the system is not in integrated part of the standard helicopter evidence of certification must be provided.
 - Heating and cooling are necessary to provide a temperate cabin environment, which reduces fatigue and improves concentration.

3.3.13 Paint Scheme and Design

- It must be confirmed in writing that the helicopters will be delivered in the colors and design specified by NTCSA. A selection of minimum two standard designs from which NTCSA may choose will be acceptable.

3.3.14 Mooring Equipment

- The helicopter must be provided with an Ultra-Violet (UV) resistant full fuselage cover, engine intake plugs or covers and blade tie-downs. Specification and / or description to be provided.

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3.3.15 Maintenance.

- Excluding unplanned maintenance, the helicopter must be able to operate away from base for a minimum of 40 hours airframe time and /or two weeks, without requiring additional maintenance engineer's inspections between MPI's. Details must be provided in this regard and will be rated on a sliding scale.

NTCSA utilizes seven helicopters at various locations in South Africa which are often remote and time consuming to reach by road. Additional inspections will require an increase in maintenance services, as well as reduced operational efficiency, which will increase operational costs and decrease power line maintenance output.

4. Acceptance

This document has been seen and accepted by:

Name	Designation
Siyabulela Sishuba	Senior Manager Grids Apollo & CS
Muzikayise Skenjana	Accountable Manager Eskom Aviation
Stephan Bosman	Acting Flight Operations Manager and Chief Pilot Eskom Aviation
Themba Masemola	Manager Aircraft Maintenance Eskom Aviation
Stefan Grobler	Chief Pilot Live Line Eskom Aviation

5. Revisions

Date	Rev.	Compiler	Remarks
25/07/2024	001		New Document

Annexure – Bell 407 and Airbus H125 Helicopter Fleet.

- The following helicopters must be traded in against the purchase of the five new helicopters proposed.
- Trade-in value must be provided during the tender process.
- The current helicopter data is reflected below.
- Component times and detailed spec will be provided at time of tender advertisement.

A/C REG	S/N	TOTAL AIRFRAME Hrs	TOTAL ENGINE Hrs	YEAR MODEL	STATUS	COMMENTS
1.ZS-RYH	53950	7708.4	7467.9	June 2009	"S"	In Operation
2.ZS-RXI	53918	7667.8	7563.8	Jan2009	"S"	In Operation
3.ZS-RXE	53917	7946.6	7539.5	Dec 2008	"S"	In Operation

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4.ZS-RXO	53922	8092.3	8014.3	Jan 2009	"S"	In Operation
5.ZS-RYL	53952	8433.4	7638.5	June 2009	U/S	In Maintenance
6.ZT-RCB	8330	3476.3	3476.3	Dec 2016	"S"	In Operation
7.ZT-RCA	8290	3768.1	3768.1	Sep 2016	"S"	In Operation

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