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# Instructions for Continued Airworthiness (ICA)

For the

LS400 Series Searchlight

on the

Airbus EC145/H145 Series Helicopter

**STC # SR04713NY**

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**RECORD OF REVISIONS**

This “Record of Revisions” identifies sequential revisions to this document. When changes to this document are needed, Sterling Helicopter will issue revisions.

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## 1. INTRODUCTION

These instructions contain the information necessary to inspect and maintain the Luminator LS400 Series Searchlight(s) installed on 14 CFR Part 29 Transport Category helicopters in accordance with this STC. Note that the installation of this STC **does not** constitute an NVIS approval.

By installation of this Supplemental Type Certificate (STC), the aircraft owner is obligated to now include the maintenance information and guidelines for this new installation in the aircraft maintenance requirements. Therefore, this document and the information within should be placed with the operator's Aircraft Maintenance Manual and the operator's Aircraft Scheduled Maintenance Program. The most current FAA approved ICA for this STC can be found at: [www.sterlinghelicopter.com](http://www.sterlinghelicopter.com).

## 2. PART NUMBERS

**Table 1     Applicable Part Numbers**

<b>PART NUMBER</b>	<b>MODEL</b>
0231674-102	LS400
0231687-101	LS400T
0231754-101	LS400NR-T
923-106-28-8	IR Annunciator

## 3. SPECIAL TOOLS

Special tools are not required for maintenance tasks on the LS400 series searchlights.

#### 4. AIRWORTHINESS LIMITATIONS

“The Airworthiness Limitations section is FAA approved and specifies maintenance required under §§ 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved”

This Type Design Change does not remove or affect any existing airworthiness limitations as defined in the Aircraft Maintenance Manual.

#### 5. REPLACEMENT INFORMATION

Line Replaceable Unit (LRU) part numbers found in this manual in section 2.0 should be placed into the aircraft Illustrated Parts Catalog (IPC). This allows replacement part numbers to be located and reordered if needed.

#### 6. MAINTENANCE INSTRUCTIONS

The following scheduled maintenance program tasks should be added to the aircraft operator’s appropriate aircraft maintenance program:

- 1) During any applicable inspection criteria that meets 600 hours or less, or once per year, inspect the LS400 series searchlight for mechanical and electrical integrity.
- 2) All fasteners that secure the LS400 series searchlight installation should be checked for tightness and security on the same schedule as item # 1.
- 3) The wiring harnesses (if provided with light from Sterling Helicopter) must be checked for frayed or damaged insulation, broken wires, or broken connectors. If any issues are discovered, the appropriate part must be replaced or repaired using acceptable means in the FAA Advisory Circular 43.13-2, as revised. If the harness installed is the OEM harness and wiring, then maintenance for that can be found in the aircraft maintenance manual, as stated above, this ICA does not replace the existing maintenance requirements, which cover this harness.
- 4) Check overall light unit, lens, reflectors, etc. for soundness in mechanical and electrical condition (unsealed items only). Any items that are sealed within the searchlight assembly shall not be tampered with. If the light unit stops working due to an issue within the sealed unit environment, Sterling can assist in repairing the searchlight assembly. Check to ensure the light lens, reflectors, etc. are not cracked or broken or unsealed to allow moisture immersion.
- 5) Check IR annunciator lens cap to ensure it is not damaged or cracked (for NVIS aircraft only)
- 6) Ensure IR annunciator is secured tightly into position and is not loose. If it is loose, torque to required specifications (20-inch lbs. max for socket and 3-inch lbs. max for lens cap) (for NVIS aircraft only).
- 7) Ensure that the IR annunciator illuminates when IR mode is active and illumination color is green (for aircraft powering IR lights only).

## 7. PREPERATION

Follow the aircraft maintenance manual procedures for steerable searchlight removal and installation. Ensure that the searchlight is fully retracted. Once it is confirmed that the searchlight remains in this position, please follow the Aircraft Maintenance Manual instructions for disconnecting battery power from the helicopter.

## 8. REMOVAL INSTRUCTIONS

Procedures contained herein are not intended to conflict with any procedures set forth by the aircraft OEM, nor do they supersede FAA approved manuals and FAA regulations.

### Step 1 Reference

Always reference the Aircraft Maintenance Manual (AMM) for specific instructions on removal and installation of the steerable searchlight.

### Step 2 Prepare

Prepare the aircraft for maintenance following the Aircraft Maintenance Manual (AMM) procedure.

### Step 3 Disconnect Power

Disconnect aircraft and/or ground power from aircraft.

### Step 4 Turn off Lights and Disengage Circuit Breakers

Ensure all light switches are turned “off” and all circuit breakers for searchlight power and searchlight control are disengaged.

### Step 5 Remove searchlight body panel

Remove aircraft body panel containing searchlight. Disconnect any cables attaching the aircraft to the panel before completely removing to ensure clean separation. (Searchlight cable/wires, antenna cables, etc.). If searchlight contains terminal block connections, label each wire, and carefully remove screws and washers that affix the electrical wires to the base of the light. Once the wires are removed, the panel can be separated from the aircraft.

### Step 6 Remove Dustcover

Remove screws and washers fixing dustcover to the body panel as well as any old sealant. Also remove any hardware (clamps, Ty-wrap, screws, etc.) and sealant fixing the searchlight cable to the dustcover

### Step 7 Remove Searchlight Cable Securement Hardware

Remove any further hardware securing the searchlight cable to the body panel.

### Step 8 Remove Searchlight

Remove screws securing searchlight to panel.

**Step 9 Record**

Record removal with an appropriate logbook entry.

**Removal Complete****9. INSTALLATION INSTRUCTIONS****Step 10 Reference**

Always reference the Aircraft Maintenance Manual (AMM) for specific instructions on removal and installation of the steerable searchlight.

**Step 11 Prepare**

Prepare the aircraft for Maintenance following the Aircraft Maintenance Manual.

**Step 12 Disconnect Power**

Disconnect aircraft and/or ground power from aircraft.

**Step 13 Turn off Lights and Disengage Circuit Breakers**

Ensure all light switches are turned “OFF” and all circuit breakers for landing lights and/or pulse lights are pulled (disengaged) and tagged for safety.

**Step 14 Prepare Hardware**

Prepare hardware and light housing for reinstallation. Replace any worn hardware with new hardware.

**Step 15 Install Searchlight**

Install the searchlight into the body panel. Apply sealants as required by the maintenance manual. Torque screws to 22 in lbs.

**Step 16 Secure Searchlight Cable or terminal block wires**

Secure the searchlight cable to the appropriate locations in the dustcover and body panel. For terminal block versions, reattach electrical wires and secure.

**Step 17 Reinstall Dustcover**

Attach dustcover to the access panel once more. Apply necessary sealants as required by the AMM.

**Step 18 Reinstall Access Panel back onto Aircraft**

Properly orient the panel assembly with the aircraft. Reconnect the searchlight cable and any other disconnected installations. Reattach the panel back onto the aircraft per the AMM.



**Step 21 Clean**

Clean all area of tooling and debris, as needed.

**Step 22 Engage Circuit Breakers**

Engage circuit breakers that were disengaged in the step 4.

**Step 23 Connect Power**

Connect power to aircraft by reversing what was done in step 3.

**Step 24 Power on the LS400 series Searchlight**

Turn on the searchlight power to evaluate the LS400 searchlight to ensure it is fully functional and operating properly. Reference the Rotorcraft Flight Manual and the Rotorcraft Flight Manual Supplement (RFMS) latest revisions for details specific to the helicopter model the searchlight(s) were installed on. Once powered on, test the searchlight to ensure it extends and retracts into the stowed position, as well as rotates both left and right, and the lights turns on and off. If the IR function is connected on the aircraft, activate the IR light on the searchlight to ensure the annunciator illuminates appropriately.

**Step 25 Return to Airworthiness**

Return the aircraft to airworthy condition by following the Aircraft Maintenance Manual

**Step 26 Record**

Record installation with an appropriate logbook entry.

**Installation Complete**

**10. WEIGHT AND BALANCE DATA**

The weight of the OEM steerable searchlight removed needs to be recorded in the weight and balance section of the aircraft paperwork and placed in the Rotorcraft Flight Manual (RFM) and/or RFMS (Rotorcraft Flight Manual Supplement).

**Table 2 Generic Weight & Balance Example**

Item	Weight (lb.)	Lo. Arm (in.)	Moment (in.-lbs.)	La. Arm (in.)	Moment (in.-lbs.)	
OEM Searchlight Removal	6.819	39.0	265.94	+ 19.0	+ 129.56	
LS400 Searchlight Installation	7.70	39.0	300.3	+ 19.0	+ 146.3	
<b>Totals</b>	$\Delta \rightarrow$	0.881	$\Delta \rightarrow$	34.36	$\Delta \rightarrow$	+16.74
	Longitudinal C.G. $\Delta \rightarrow$			Lateral C.G. $\Delta \rightarrow$		

**Use the W&B balance table below for your installation**

Complete the table below for your configuration of light changes:

**Table 3 US Weight & Balance Table to use for Installation**

Item	Weight (lb.)	Arm (in.)	Moment (in.-lbs.)	Arm (in.)	Moment (in.-lbs.)
OEM Light removal					
LS400 Light install					
<b>Totals</b>	$\Delta \rightarrow$		$\Delta \rightarrow$	$\Delta \rightarrow$	
	Longitudinal C.G. $\Delta \rightarrow$			Lateral C.G. $\Delta \rightarrow$	

## Use the W&B balance table below for your installation

Complete the table below for your configuration of light changes:

**Table 4 Metric Weight & Balance Table to use for Installation**

Item		Weight (kg)	Arm (mm)	Moment (Kg-mm)	Arm (mm)	Moment (Kg-mm)
OEM Light remove						
LS400 Light install		+ 3.49				
Totals	$\Delta \rightarrow$		$\Delta \rightarrow$		$\Delta \rightarrow$	
		Longitudinal C.G. $\Delta \rightarrow$		Lateral C.G. $\Delta \rightarrow$		

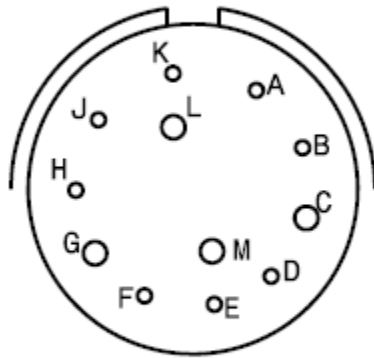
## 11. ELECTRICAL LOAD DATA

**Table 5 LED Searchlight Electrical Load Data**

Manufacturer	Model	Part Number	Nominal Volts	Max Watts	Max Amperes
Luminator Aerospace	LS400	0231674-102	28 VDC	234 W	8.36 A
Luminator Aerospace	LS400T	0231687-101	28 VDC	234 W	8.36 A
Luminator Aerospace	LS400NR-T	0231754-101	28 VDC	234 W	8.36 A

12. LS400 SERIES CONNECTIONS AND PIN ASSIGNMENTS

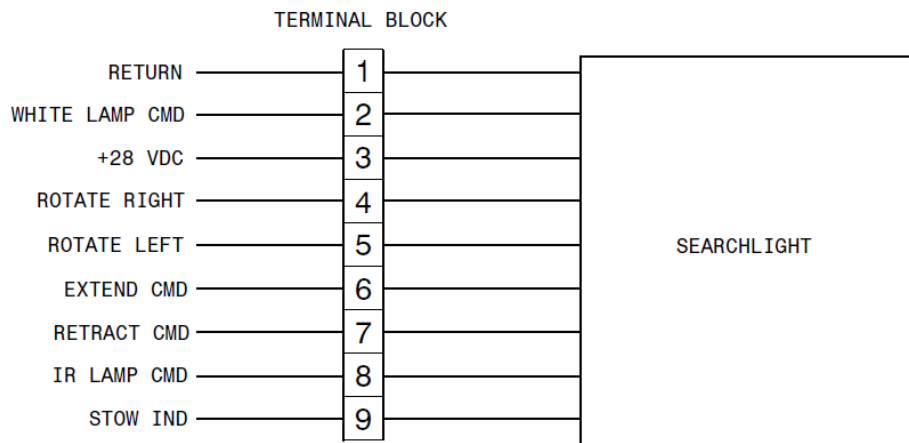
- LS400 (0231674-102, Connector Plug)



CONNECTOR PINS

0231674-102 PINOUT	
A	WHITE LAMP CMD
B	NOT USED
C	SYSTEM GROUND
D	ROTATE RIGHT
E	ROTATE LEFT
F	EXTEND CMD
G	LAMP GROUND
H	RETRACT CMD
J	STOW INDICATOR
K	IR LAMP CMD
L	+28 VDC
M	NOT USED

- LS400T (0231687-101, Terminal Block) and LS400NR-T (0231754-101, Terminal Block)



ELECTRICAL CONNECTIONS