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**REPORT NO. PR-407SX-900M
INSTALLATION INSTRUCTIONS**

**SEARCHLIGHT INSTALLATION
BELL 407**

REVISIONS

<u>REV.</u>	<u>DATE</u>	<u>DESCRIPTION</u>	<u>BY</u>
N/C		Original	
A	11/22/02	Included TB 206/407SX-00-1 mod. to Support Plate	

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LIST OF REFERENCE DOCUMENTS

- 1) Drawing 407SX-100; 407SX System Configuration
Drawing 407SX-103; Mount Installation
Drawing 407SX-203; Junction Box Installation
Drawing 407SX-303; Electrical Installation

- 2) BHT-407-MM-3, BHT-407-MM-5, BHT-ALL-SPM

A. INTRODUCTION

Searchlight installation incorporates a Quick-Mount Bracket installation attached to the Cargo compartment floor, which extends through the aft fairing, and the electrical system to power and control searchlight operation.

This document presents a procedure for installation of the Searchlight system to supplement the information contained on the installation drawings.

The Supplemental Type Certificate is contained in Section II of this document, and must be placed in the Aircraft Flight Manual when the installation has been completed.

The Rotorcraft Flight Manual supplement is contained in Section III. When the searchlight system has been installed, the supplement should be placed in the Aircraft Flight Manual.

B. SEARCHLIGHT GIMBAL ASSEMBLY INSTALLATION

After initial installation of the Searchlight kit, the Gimbal/Lamp Assembly (Gimbal) can be installed and removed from the aircraft as follows:

- (i) Unscrew the Lock Knob located at the open end of the mounting bracket assembly.
- (ii) Slide the Searchlight Support Plate into the channels inside the mounting bracket fully, to the back plate and align.
- (iii) Re-install the Lock Knob and hand-tighten.
- (iv) Insure that the BATtery switch is OFF. Install Power/Control cables to their proper receptacles.

NOTE: Refer to SPECTROLAB, Inc. installation instructions for cable installation.

- (v) Refer to Weight and Balance Data, in the Rotorcraft Flight Manual Supplement and in the basic Flight Manual for calculation of allowable aircraft loading.

C. GIMBAL REMOVAL

For removal of the Searchlight Lamp/Gimbal Assembly, assure that the BATtery switch is OFF. Reverse the installation procedure and document Weight and Balance change.

INSTALLATION PROCEDURE

I. SEARCHLIGHT MOUNT BRACKET INSTALLATION

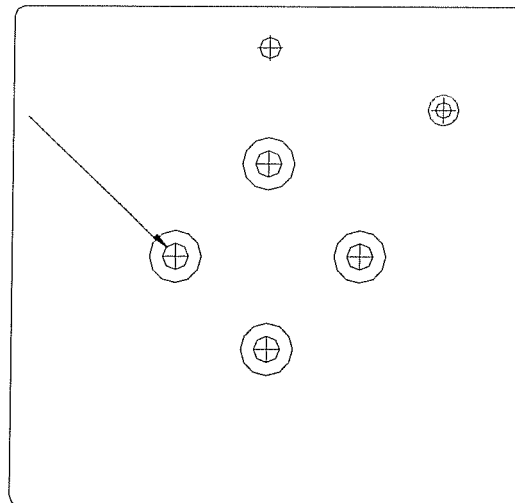
1. Reference drawing 407SX-103, temporarily assemble the Support Bracket Assembly (Items 2, 3, 4, 5) using the indicated hardware.
2. Place the Support Bracket Assembly, upside down on the Cargo Compartment floor at the indicated location, as shown from below. This location is equivalent to centering the bracket assembly on the Cargo floor fore-aft and moving it against the aft tie down (footman) loops.
3. Match drill $\phi 0.188$ through the Cargo floor at the pre-drilled locations in the Support Bracket.
4. Using the indicated mounting screws to pin the support bracket in place, temporarily install the searchlight Mount Assembly (Item 1) in the Support Assembly.
5. Using a long $\phi 0.250$ drill, choose two diagonally opposite holes in the top of the searchlight Mount Assembly and match-drill through the Cargo floor and the belly fairing, use caution to drill perpendicular to Cargo floor.
6. Disassemble the Mount Assembly and Support Bracket and remove from the Cargo compartment.
7. Temporarily locate the Mount Assembly to the underside of the belly, using the drilled holes.
8. Mark the outline of the Mount Assembly on the fairing, remove the Mount Assembly, and cut a square opening through the fairing.
NOTE: Initially cut the opening smaller than necessary for Mount Assembly.
9. Enlarge the $\phi 0.188$ and $\phi 0.250$ holes in the top of the Cargo floor to $21/64$ inch ($\phi 0.328$), and $25/64$ inch ($\phi 0.391$) respectively. Do not enlarge holes through the bottom skin of the floor.
10. Reference BHT-ALL-SPM using Metalset A-4 or equivalent at mating surfaces and in the holes in the Cargo floor with the spacers, install the Support Assembly components to the underside of the Cargo Floor.
11. The indicated drain lines must be moved as shown, and their original locations plugged to avoid draining on the lamp.
12. Trim the hole in the belly fairing to place the Mount Assembly in the Support Bracket, and install the bracket using indicated hardware.
NOTE: Tighten the Mount Assembly to the cargo floor before tightening the bolts through support angles.
NOTE: The Mount Assembly may be sealed to the fairing using MIL-S 8802F Class B2 sealant or equivalent.
13. Install the Weight Limitations Placard (Item 17) on the inside of the cargo door, replacing the previous placard.

14. Install the 407SX-2200-1 plate assembly on the searchlight assembly using supplied hardware. Certain searchlight arms are drilled and tapped for 5/16 screws. In this case the 407SX-2200-1 plate will need to be modified per Technical Bulletin 206/407SX-00-1.

MODIFICATION INSTRUCTIONS

Enlarge and countersink 4 ea. Holes in Paravion P/N 206SX-2200-1 support plate as shown in figure below. Prime bare surfaces with Zinc Epoxy Polyimide primer or equivalent primer. Complete installation using 4 ea. MS24693-318 screws to replace the MS24693-296 screws provided.

DRILL $\varnothing 0.320 \pm 0.005$
C'SINK $100^\circ \times \varnothing 0.635$
(TYP. 4 PLCS)



II. JUNCTION BOX INSTALLATION

1. Reference drawing 407SX-203, temporarily install the Mount Beam Assemblies (Item 5) to the Junction Box.
2. Locate the Junction Box Assembly on the equipment shelf near the DC Equipment Panel.
3. Mark the location of the Beam Assemblies on the equipment shelf.
4. Remove the Junction Box from the Beams and match-drill the equipment shelf ($\text{\O} 0.098$) to the Beams. Remove de-burr and complete mounting Beam Assemblies installation using indicated fasteners.
5. Complete Junction Box installation using indicated hardware.

III. ELECTRICAL SYSTEM INSTALLATION

NOTE: Assure that the aircraft battery is disconnected during electrical system installation.

1. Reference drawing 407SX-303, locate the DC Equipment Panel and remove the cover.
2. Remove P/N 407-375-014-001 or equivalent Buss bar and install replacement Buss Bar (Item 9) using existing hardware.
3. Locate and install Current Limiter (Item 19) near the DC Equipment Panel as illustrated using indicated hardware. Assemble the Power Cable (Item 27) and terminal ends (Items 2, 3) and install.
4. Install Power Cable Assembly (Diamond Item 6) to Buss Bar using indicated hardware. NOTE: Refer to Searchlight system manufacturer's data to assure proper power cable connection to the junction box.
5. Reference Searchlight manufacturer's installation data install the Ground Power Cable (Diamond Item 7) to the Junction Box and route to aircraft ground.
6. Reference indicated drawing details, route the Searchlight Power/Control Cable Assembly (Diamond Item 4) behind the right-side cargo panel and through the lower honeycomb panel instructions for penetration. Protect the cable and clamp as indicated.
7. Reference the indicated drawing details, route the Control Panel Cable Assembly (Diamond Item 3) from the Warning Horn panel to the Junction Box. This cable is routed aft through the Circuit Breaker Panel, following the existing right-hand cable harness.

NOTE: This completes aircraft electrical system modification for searchlight installation. Refer to the Searchlight manufacturer's data to assure proper connection of the searchlight and control panel when installed.

SECTION II: SUPPLEMENTAL TYPE CERTIFICATE

SECTION III: ROTORCRAFT FLIGHT MANUAL SUPPLEMENT