SX-16 Nightsun® Searchlight
Safety and Service Bulletin # SL 0899-01

Date: 08/25/99

WARNING: TO AVOID A POTENTIALLY DANGEROUS SITUATION WHICH COULD CAUSE PROPERTY DAMAGE, ENSURE THAT THE GIMBAL ASSEMBLY IS INSPECTED AND / OR REPLACED AS DESCRIBED IN THIS BULLETIN.

Subject: Gimbal Arm Corrosion

Affected Products:

All SX-16 Nightsun® and SX-5 Starburst® Searchlight gimbal arm assemblies. The gimbal arm assembly is the portion of the searchlight system which is the (U-shaped) mechanical mount between the searchlight and aircraft mount. It provides movement of the searchlight via two motorized gearbox assemblies.

Dear Nightsun® and/or Starburst® Searchlight Product User:

Under certain environmental conditions, portions of the gimbal arm assembly may lose their protective finish and become corroded. Corroded gimbal arms may not have sufficient mechanical strength to carry the loads of your searchlight.

Weakened gimbal assemblies may eventually fracture or break, causing a separation between the gimbal arm and the doubler plate. This situation would leave the searchlight and/or gimbal assembly suspended by the safety cables.

What you should do:

Perform the service procedure described within 50 flight hours or 30 days from receipt of this notification. Document # SL 0899-01A which follows, will guide you through the inspection and rework process.

What is included with this bulletin:

1. Document #SL 0899-01 – (This letter)

2. Document # SL 0899-01A – ***SX-16 and SX-5 GIMBAL INSPECTION , FINISH TOUCH-UP INSTRUCTIONS and LIFE LIMITS***

If you want Spectrolab to perform this service for you, please call our Customer Service Department at 1-800-936-4888 for instructions and a return authorization number.

If you have any questions or comments, please contact me at any of the numbers below.

Sincerely,

Shawn Mitschelen
Customer Service Manager
Spectrolab, Inc.

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Bulletin # SL0899-01A
SX-16 and SX-5 GIMBAL INSPECTION , FINISH TOUCH-UP INSTRUCTIONS and LIFE LIMITS

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APPLICABILITY:

SX-16 aluminum Gimbals - P/N 019059 and P/N 021716, all dash numbers and all serial numbers
SX-16 IFCO and SX-16P steel Gimbals P/N 022955, all dash- and serial numbers.
SX-5 Gimbals – P/N 030040, all dash numbers and all serial numbers

SUMMARY:

All SX-16 and SX-5 gimbals must be inspected within 50 flight hours or 30 days from receipt of this notification. This procedure will help you determine if there is evidence of corrosion or cracks in the area of the doubler rivets on your gimbal arm assembly. Subsequent inspections must take place every 6 months or 300 flight hours, whichever is less.

Corrosion of the gimbal arm in the area of the rivets can lead to weakening, cracks, and ultimately failure. Weakened gimbal assemblies may eventually fracture or break. This situation would leave the searchlight and/or gimbal assembly suspended by the safety cables.

The gimbal's paint or powder coat finish must also be inspected for evidence of peeling, chips, or nicks which can expose the surface or interior sections to corrosive salt spray or other atmospheric corrosives. Of particular concern is the finish in the area of the rivets. Here, the finish prevents corrosives from seeping in around the rivets.

Regardless of the environmental conditions, the maximum service life of aluminum gimbal arms is seven (7) years. The maximum service life of a steel gimbal arm is ten (10) years.

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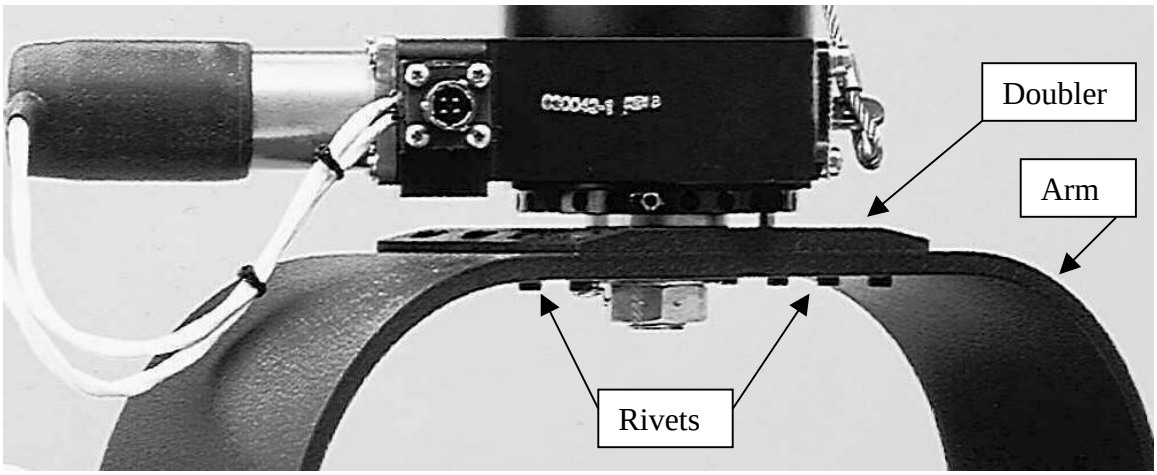

Figure 1. Upper portion of gimbal arm with doubler and rivets identified. See text for inspection procedure and criteria.

1. INSPECTION INTERVAL, PROCEDURE AND CRITERIA:

1.1. INSPECTION INTERVAL:

1.1.1. Initial inspection: All gimbals which have been in service for 2 years or more must be inspected within 50 flight hours or 30 days of receipt of these instructions.

1.1.2. Subsequent ongoing inspections: All gimbals must be inspected every 6 months or 300 flight hours, whichever is less.

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1.2. INSPECTION PROCEDURE AND CITERIA:

1.2.1 Remove the searchlight from the gimbal and remove the gimbal from the aircraft.

1.2.2. To clean the gimbal, use a general purpose aircraft cleaner, a mild solvent such as isopropyl alcohol, or a soapy water solution. Remove all traces of dirt, grease, debris or salt buildup from the gimbal arm. Let dry thoroughly.

1.2.3. In a well lighted area, examine the entire gimbal arm for signs of cracks, corrosion and chipped or peeling paint. Pay particular attention to the area of the doubler and the rivets, indicated in ***Figure 1.*** This inspection must be carried out by a qualified airframe mechanic trained in the visual inspection of rivets and mechanical structures. If any cracks or loose or broken rivets are found, the arm must be replaced.

If evidence of corrosion, peeling, or chipped paint is found, identify the area(s) for further inspection under magnification. There may also be isolated areas of corrosion under the powder coating which may have initiated at the site of a pinhole in the coating. This type of corrosion may manifest itself as a lump in the paint or powder coat. If a lump in the coating is found, it should be removed locally with a sharp blade to determine if there is corrosion underneath.

1.2.4. Continue the inspection using a hand held 5x to 10x magnifier. If any corrosion spots were identified with the unaided eye, examine them under magnification to determine their extent. If they are surface level only, they may be cleaned off and painted per **Section 2 - TOUCH-UP PROCEDURE (below)**. Inspect for evidence of separation or peeling of the aluminum. Corrosion and / or pitting which is more than .010" (0.25 mm) deep or over 0.125" (3.2 mm) in diameter should not be repaired. In this instance, the gimbal arm must be replaced.

1.2.5. Take a 0.005" x 1/2" wide (0.125 mm x 10 mm wide) feeler gauge and try to insert it between each of the ends of the doubler and the gimbal arm. If it can be inserted over 0.25" (6 mm), this indicates there is separation between the gimbal arm and the doubler, and the arm assembly must be replaced.

1.2.6. **Return to service:** If the inspection does not reveal any corrosion, cracks, loose rivets, or peeling or chipped paint, the gimbal arm may be returned to service if it is not over 7 or 10 years old, as described in *Section 3, LIFE LIMITS* (below). **Ensure that all safety cables are reattached when the gimbal is installed on the aircraft.**

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2. TOUCH-UP PROCEDURE:

2.1. Repairing paint chips: If the inspection shows only a few spots of chipped or peeling paint or powder coat, the finish may be touched up with an **aircraft exterior rated** flat black or semi-gloss black paint. Light sanding around the chips or peeling areas may be required for blending and good adhesion of the new finish. Follow the paint manufacturer's instructions.

2.2. Removing corrosion and repainting

2.2.1. Removing Corrosion: If the inspection revealed only a few spots of superficial corrosion, and it is not in the area of the doubler rivets, it may be removed locally either by sandpaper or other mechanical abrasion, airbrush-sandblasting or aircraft approved chemical corrosion removers.

For gimbal P/N 019059 and P/N 030040, use an aircraft rated aluminum corrosion remover appropriate for use on 7075 aluminum alloy. Follow the manufacturer's instructions. Be sure to remove all residue before painting.

For gimbal P/N 022955, use an aircraft rated steel corrosion / rust remover appropriate for use on 4130 alloy steel. Follow the manufacturer's instructions. Be sure to remove all residue before painting.

2.2.2. Preparing for painting: After removal of the surface trace corrosion, those areas (or the whole arm) may be sanded lightly with medium 120 or 220 grit sandpaper, then wiped clean of sanding residue. If the primer and/or paint which is going to be used requires any further surface preparation before application, follow the manufacturer's instructions. If the entire arm is going to be repainted, it is recommended the gearboxes and other attaching hardware, wiring, etc., be removed from the arm.

2.2.3. Touch-up Painting: The arm should be primed as required and touched up with aircraft exterior rated primer and flat black or semi-gloss black paint, per the manufacturer's instructions. Use a primer rated for aluminum if your gimbal P/N is 019059 or P/N 030040. Use a primer rated for steel if your gimbal P/N is 022955. If the area around the ID tag is anticipated, be sure to mask the tag to preserve its data.

2.2.4. Return to Service: Reassemble per instructions in the Service manual. **Ensure that all safety cables are reattached when the gimbal is installed on the aircraft.**

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3. LIFE LIMITS and REPLACEMENT PARTS:

3.1. If the gimbal arm fails the inspections as described in **Section 1** (corrosion, cracking, loose rivets, or separation between the arm and the doubler), **the arm must be replaced.**

3.2. The maximum service life of an aluminum gimbal arm is seven years.

3.3. Removal and Replacement information - Removal and replacement of the gearboxes, mechanical attachments, wiring and electrical connector from the arm can be performed at your local maintenance facility. Instructions for this procedure are located in the Searchlight Maintenance Manual. Contact the Customer Service department for further information.

3.4. ID Tag information and serial numbering. When the gimbal arm is replaced, it is important to affix a new identification tag to ensure traceability of the hardware. Have the serial number and gimbal part number ready when ordering replacement parts and ask the Customer Service representative to include the identification tag with your order.

For additional information contact:

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Sylmar, California
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