

INSTALLATION INSTRUCTIONS SKID TUBE STEP FOR R44 AND R66 HELICOPTERS



LONGHORN AVIATION SERVICES LLC.

LOG OF REVISIONS

REVISION	DATE	PAGES AFFECTED	COMMENTS
N/C	06/25/2020	ALL	Initial Release
A	10/16/2020	2-6	Changed torque value and added sealant for NAS6606 bolts. Changed assembly description to "Skid Tube Step". Re-organized the sequence of when fasteners are torqued.
B	12/18/2020	5-6, 8	Changed References to Screw NAS517-5-4 to NAS517-5-3.

**Revision B
12/18/2020**

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INTRODUCTION AND DESCRIPTION:

The Longhorn Aviation Service LHA-44-1 Skid Tube Step allows for an easier entry into the cockpit and cabin of the R44, R44II, and R66 model helicopters. The step is universal between the models and can be installed on the left hand, right-hand, or both skids.

The Longhorn Aviation Skid Tube Step consists of a machined aluminum forward gear clamp and aft mounting bracket attached to an aluminum step that spans from the forward most portion of the skid tube to behind the forward landing gear cross tube. The forward bracket clamps to the nose of the skid tube and the aft mounting bracket utilizes existing bolt holes from the cross tube to skid tube connection bracket. The Skid Tube Step enables passengers and crew entry and exit with greater ease and stability.

After installation of the Skid Tube Step, calculate weight and balance for the installed items and check for proper loading of the aircraft.

The following document outlines the installation of the LHA-44-1 Skid Tube Step onto the R44, R44II and R66 series helicopters.

SKID STEP INSTALLATION:

The LHA-44-1 Skid Tube Step mounts to the landing gear on the forward portion of the skid tube and forward cross tube. The skid tube step spans between the forward and aft mounting points and allows easier access into the cabin.

CAUTION

The LHA-44-1 Skid Tube Steps are incompatible with Pop-Out Floats. Do not install on any aircraft with floats installed.

TOOLS AND MATERIALS:

1. LHA-44-1 Skid Tube Step Assembly
2. 5/16" Wrench and/or Ratchet
3. 3/16" Allen Wrench and/or Ratchet
4. 9/16" Wrench and/or Ratchet
5. Phillips #3 Screwdriver
6. Torque Wrench (capable 50-423 in-lbs)
7. CA1010 Mastinox Jointing Compound or equivalent.

LHA-44-1 SKID TUBE STEP INSTALLATION (LH and RH installations are similar)

1. Assemble the right-hand forward clamp half (LHA-44-002) to the clamp spacer (LHA-44-007) by sliding the clamp spacer into the pocket on the clamp half. Secure the clamp spacer by installing two screws (NAS514P440-8P) and torque to 2-3 in-lbs.

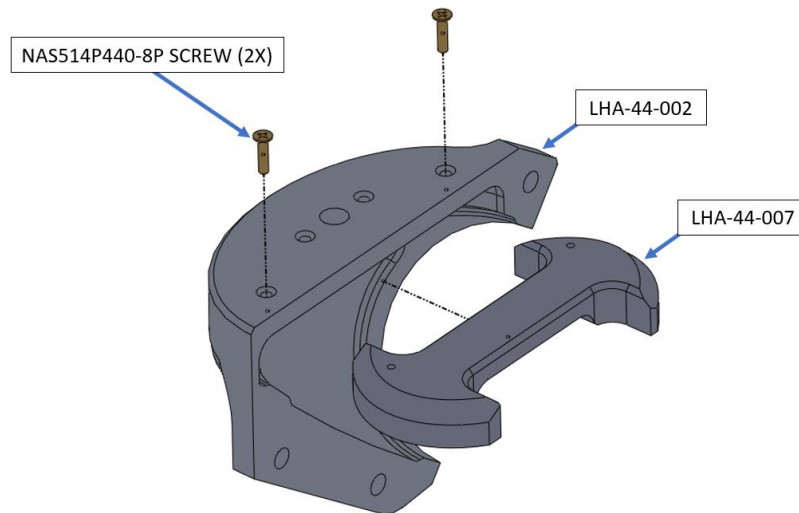


Figure 1 – Assembly of the Right-Hand Clamp Half to Clamp Spacer.

2. Assemble the two forward clamp halves using 3X NAS1351-4-12 socket head cap screws, 6X NAS620-416L washers, and 3X MS21043-4 locking nuts. Keep fasteners finger tight to allow movement of the clamp halves.

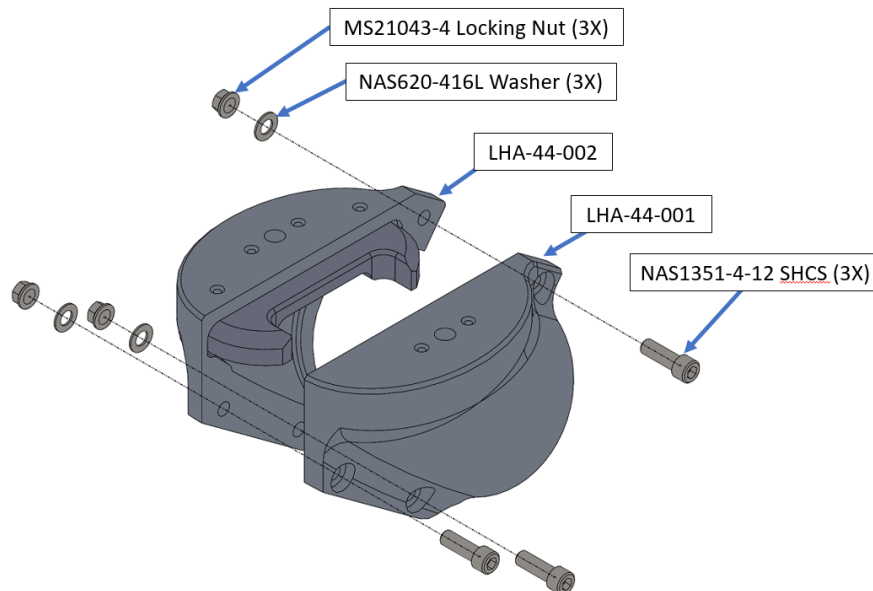


Figure 2. Assembly of the Forward Attachment Landing Gear Skid Clamp

3. With the forward mount clamping bolts loose, slide the loosened clamp over the top front of the helicopter skid and tighten the NAS1351-4-12 SHCS's to a snug fit. Torque the NAS1351-4-12 SHCS's to 50-70 in-lbs.

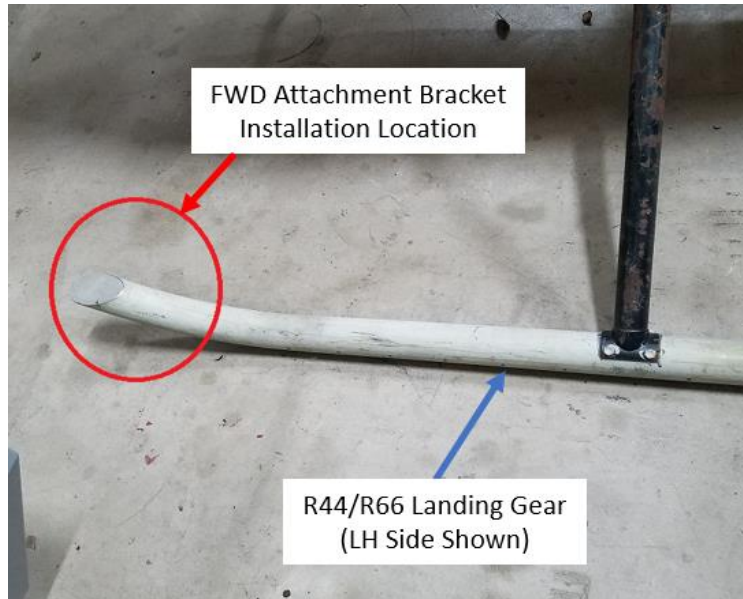


Figure 3. Forward Attachment Clamp Installation Location

4. Using 9/16" ratchet remove exterior two bolts from forward Landing Gear Cross Tube to Skid Tube attachment shown in Figure 4. They will be replaced with the NAS6606-7 hex bolts used to attach the LHA-44-005 Aft Attachment Bracket.

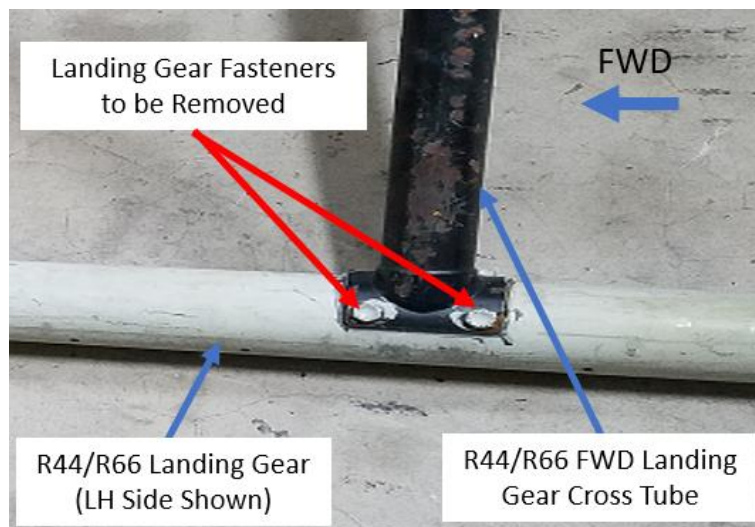


Figure 4. Exterior leg mounting bolts

5. Mount the LHA-44-005 Aft Attachment Bracket onto the Landing Gear Cross Tube bracket using the provided NAS6606-7 hex bolts and NAS1149-0632 washers. Install NAS6606-7 bolts wet with CA1010 (Mastinox Jointing Compound) or equivalent. Hand tighten bolts to snug, do not torque until all Skid Tube Step hardware is installed.

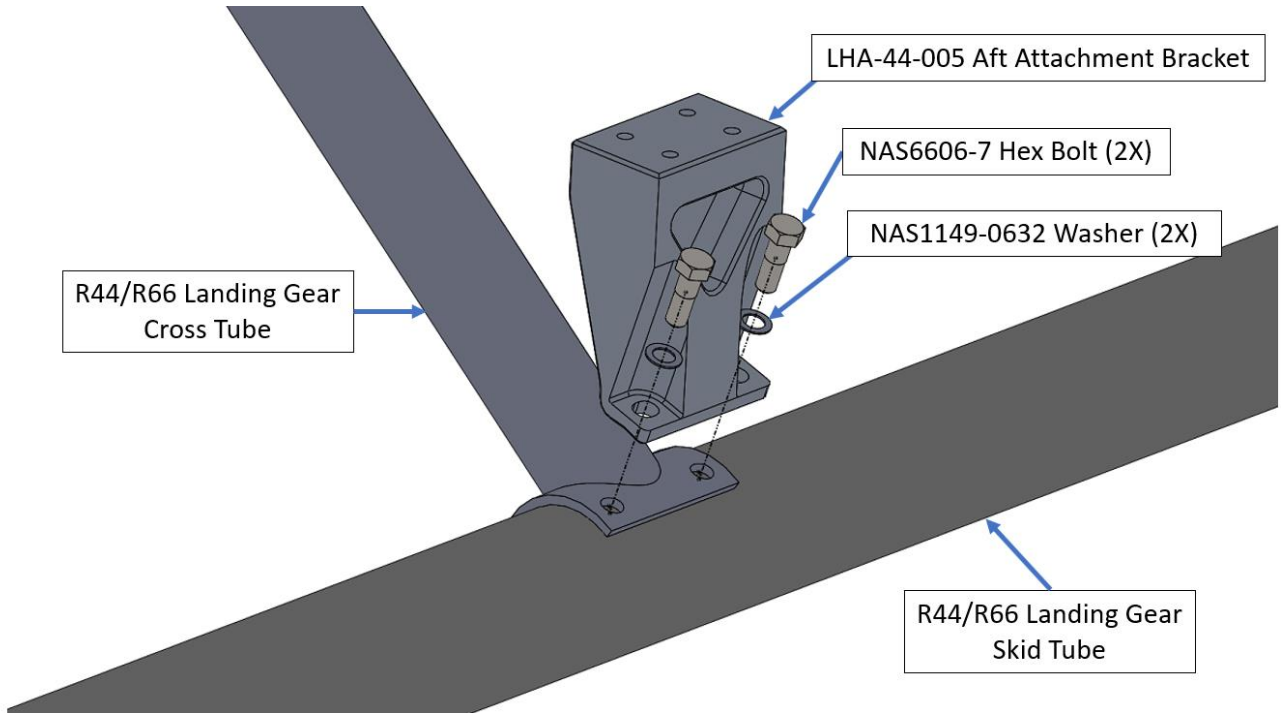


Figure 5. Installation of the LHA-44-005 Aft Attachment Bracket onto the R44/R66 Landing Gear

6. Attach the LHA-44-003 Step onto the Forward and Aft mounting brackets using the supplied NAS517-5-3 and NAS517-5-7 countersunk screws. Attach screws with Phillips Head Screwdriver. Install fasteners hand tight. Figure 6 shows the mounting locations on Skid Tube Step and unit as assembled.

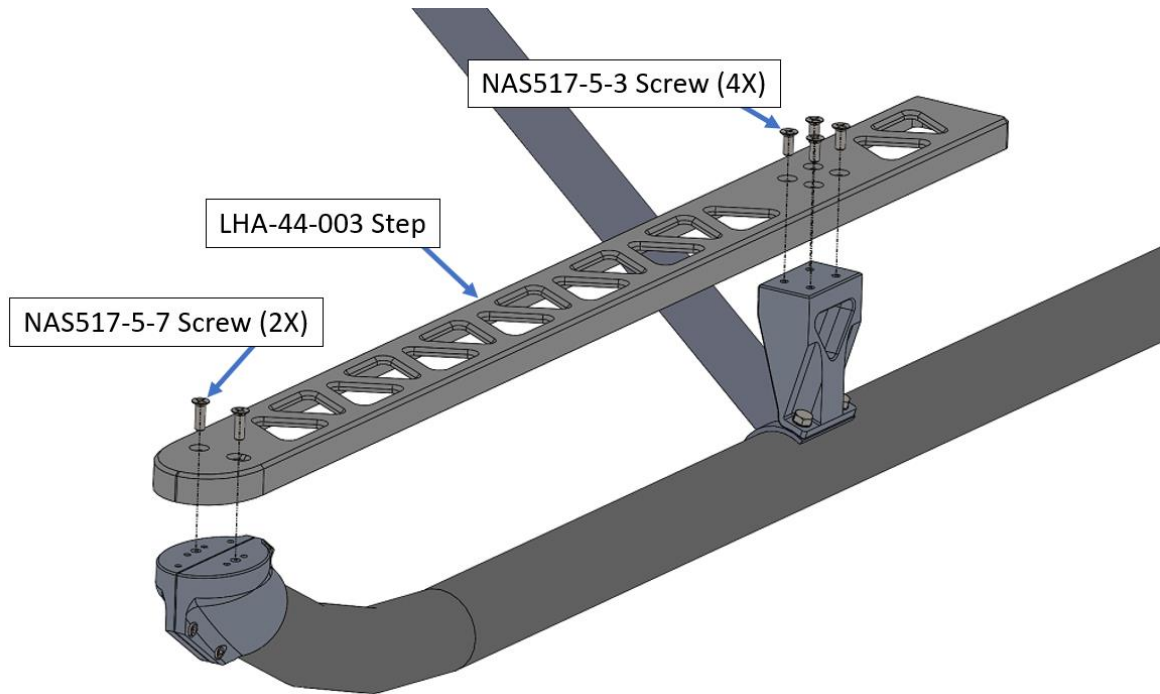


Figure 6. Installation of the LHA-44-003 Step onto the Forward and Aft Attachment Brackets

7. Tighten all hardware to the torque specs shown in the table below:

Table 1. Torque Values for LHA-44-1 Installation (per AC43.13-1B Chapter 7, Section 3.4)

Item	Fastener Description	Torque Value
2	NAS6606-7	347-423 in-lb
3	NAS517-5-7	50-70 in-lb
4	NAS517-5-3	50-70 in-lb

8. Update the Aircraft Weight and Balance as shown:

Table 2 Weight and Balance

Component Weight	Weight (lbs)	Long. Arm (in)	Long. Moment (in-lbs)	Lat. Arm (in)	Lat. Moment (in-lbs)
LH Skid Tube Step Assembly	8.1	49.08	397.6	40.75	330.1
RH Skid Tube Step Assembly	8.1	49.08	397.6	-40.75	-330.1

9. Update the Aircraft Instructions for Continued Airworthiness with Skid Tube Step ICA Supplement LHA-44-ICA.

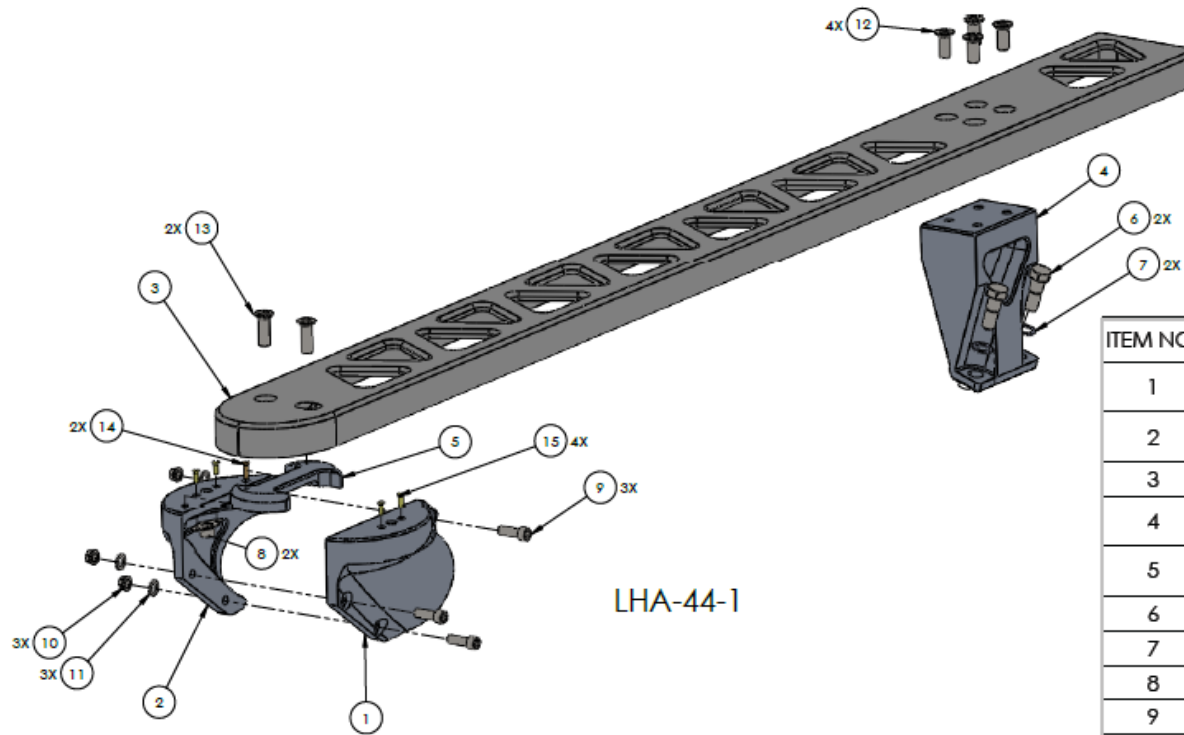
NOTE

A Rotorcraft Flight Manual (RFM) Supplement is NOT required for this installation. The basic RFM remains applicable and valid.

SKID TUBE STEP REMOVAL:

Skid Tube Step removal is opposite of installation.

1. Using screwdriver remove screws that attach the LHA-44-003 Step to the forward and aft mounting brackets. Remove Step from mounting brackets and set aside.
2. Using 9/16" wrench and/or ratchet remove hex bolts from LHA-44-005 Aft Attachment Bracket. Remove Aft Attachment Bracket from skid.
3. Replace bolts securing front cross tube leg to helicopter skid using original type bolts and torque per applicable aircraft maintenance manual.
4. Lastly use 3/16" Allen wrench and 5/16" wrench to loosen socket head cap screws on forward mounting bracket clamp. Remove clamp and removal is now complete.
5. Update Weight and Balance to account for the removed equipment.



LHA-44-1

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	LHA-44-001	FORWARD CLAMP, LH
2	1	LHA-44-002	FORWARD CLAMP, RH
3	1	LHA-44-003	STEP
4	1	LHA-44-005	AFT ATTACHMENT BRACKET
5	1	LHA-44-007	CLAMP SPACER
6	2	NAS6606-7	HEX BOLT
7	2	NAS1149F0632	WASHER
8	2	MS21059L5	NUTPLATE
9	3	NAS1351-4P12	SHCS, STRUCTURAL
10	3	MS21043-L4	LOCKING NUT
11	3	NAS620-416L	WASHER, REDUCED OD
12	4	NAS517-5-3	SCREW, COUNTERSUNK
13	2	NAS517-5-7	SCREW, COUNTERSUNK
14	2	NAS514P440-8P	SCREW, COUNTERSUNK
15	4	MS20426AD4-6	RIVET, COUNTERSUNK

Figure 7 Illustrated Parts Diagram of LHA-44-1 Skid Tube Step