

R44

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SERVICE BULLETIN SB-4

**DATE:** 24 January 1995

**TO:** R44 Owners, Operators, and Service Centers

**SUBJECT:** Replacement of Guides for C121-7 Push-Pull Tubes

**ROTORCRAFT AFFECTED:** R44 Helicopters S/N 0001 thru 0150

**TIME OF COMPLIANCE:** Within the next 50 flight hours or by 31 March 1995, whichever occurs first.

**BACKGROUND:** Excessive wear at the guides for the C121-7 push-pull tubes has been found on several aircraft. A damaged guide or push-pull tube sleeve could cause binding in the control system. This Service Bulletin requires that the guides be replaced with roller guides which greatly reduce the wear rate.

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**COMPLIANCE PROCEDURE:**

- 1) Order one KI-88 push-pull tube guide kit for each helicopter to be reworked. Order must include helicopter serial number.
- 2) Remove main and auxiliary fuel tanks per section 12.110 and 12.140 of R44 Maintenance Manual (MM). Support middle mast fairing rib to avoid damage to aft push-pull tube at guide when moving controls. Remove vertical and horizontal panels between rear seats and remove rear belly panel. Peel back interior foam on vertical bulkhead for access to rivets attaching push-pull tube guide. (Use putty knife or razor blade to reduce tearing of foam.)
- 3) Mark C121-7 push-pull tubes left and right for reference during reinstallation. Remove access hole plug in right rear baggage compartment and remove bolt through lower push-pull tube rod ends. Remove bolts through rod ends at swashplate and remove tubes. Do not adjust or remove rod ends from tubes to avoid re-rigging after assembly.
- 4) Remove rivets attaching push-pull tube guide to bulkhead and braces. Avoid kinking pitot line by sliding guide up to remove. To locate new guide, draw a line on bulkhead 0.50 inch above three rivet holes as shown in Figure 1. Position new guide with line on bulkhead centered on holes in guide flange and match drill three 0.128 inch diameter holes through bulkhead. Attach new guide using temporary fasteners.
- 5) Set guide at a 90 degree angle to bulkhead below guide (see figure 1). Using pilot holes in guide, match drill six 0.128 inch diameter holes through vertical braces. Remove guide assembly and de-burr holes. Rivet bulkhead three places at old guide location using supplied rivets. Insert pitot line through grommet in guide and rivet guide assembly to bulkhead and vertical braces using supplied rivets (9 places).

(OVER)

- 6) Before replacing C345-1 strut, verify that torque stripe is intact between D173-1 rod end and nuts at aft jackshaft support (see Figure 3). Add torque stripe if required to assure no rotation between rod end and nuts during disassembly.
- 7) To remove C345-1 strut, remove NAS6604-8 bolt through rod end at forward right hand main rotor gearbox mount and NAS6605-25 bolt from aft jackshaft support (see Figure 3). Remove D173-1 rod end at aft jackshaft support without unlocking nuts from rod end. Remove A650-2 fitting from forward right hand gearbox mount and remove C345-1 strut.
- 8) Install C345-1 strut supplied in KI-88 kit (see Figure 3 and figure 8-9 of MM). Torque all fasteners per Section 1.320 of MM. Unlock nuts from D173-1 rod end at aft jackshaft support if required to rotate for alignment and retorque.
- 9) Verify clearance between C337-1 jackshaft and push-pull tube guide hardware with flight controls in critical position (collective up, cyclic forward). If there is no clearance, shorten C121-3 push-pull tube (and lengthen C121-5 push-pull tube same amount) per Section 10.002 of MM to obtain 0.12 inch clearance.
- 10) If C121-7 push-pull tube sleeves show wear, replace sleeves per section 8.163 of MM using sleeves and adhesive supplied in KI-88 kit.
- 11) Install push-pull tubes in helicopter, being careful not to damage sleeves when passing them through guide. Install swashplate attach bolts and cyclic pivot assembly bolt. Torque per Section 1.320 of MM. Verify clearance between C337-1 jackshaft and right hand C121-7 push-pull tube and check for smooth operation of main rotor controls.
- 12) Install main and auxiliary fuel tanks per sections 12.130 and 12.150 of MM. Before closing mast fairing, center C665-2 guide on C121-5 aft push-pull tube by loosening NAS6603 guide mounting bolts and retorquing to 50 in.-lb (includes nut self-locking torque). Install all panels and glue interior foam to bulkhead with B270-7 adhesive or equivalent. If an adjustment was made in Step 9, check main rotor rigging per Section 10.120 of MM.
- 13) Record compliance with R44 SB-4 in aircraft maintenance record (log book).

**KI-88 KIT CONTENTS:**

<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>
A143-1	Sleeve	2
B270-3	Adhesive (1.0 oz)	1
C345-1	Strut Weldment	1
C439-7	Guide Assembly	1
MS20470AD3-3	Rivet	6 (3 required, 3 spare)
MS20470AD4-4	Rivet	15 (9 required, 6 spare)

**APPROXIMATE COST:**

Labor: 12 manhours

Material: No charge for KI-88 kit (order must include helicopter serial number).

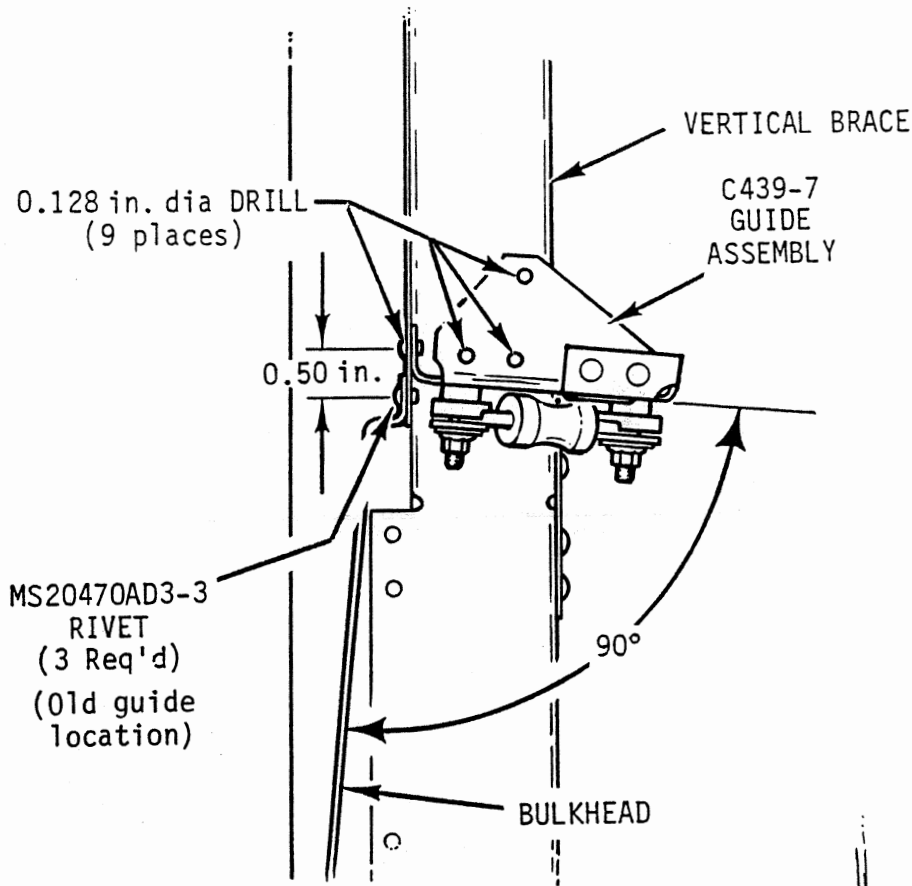


FIGURE 1

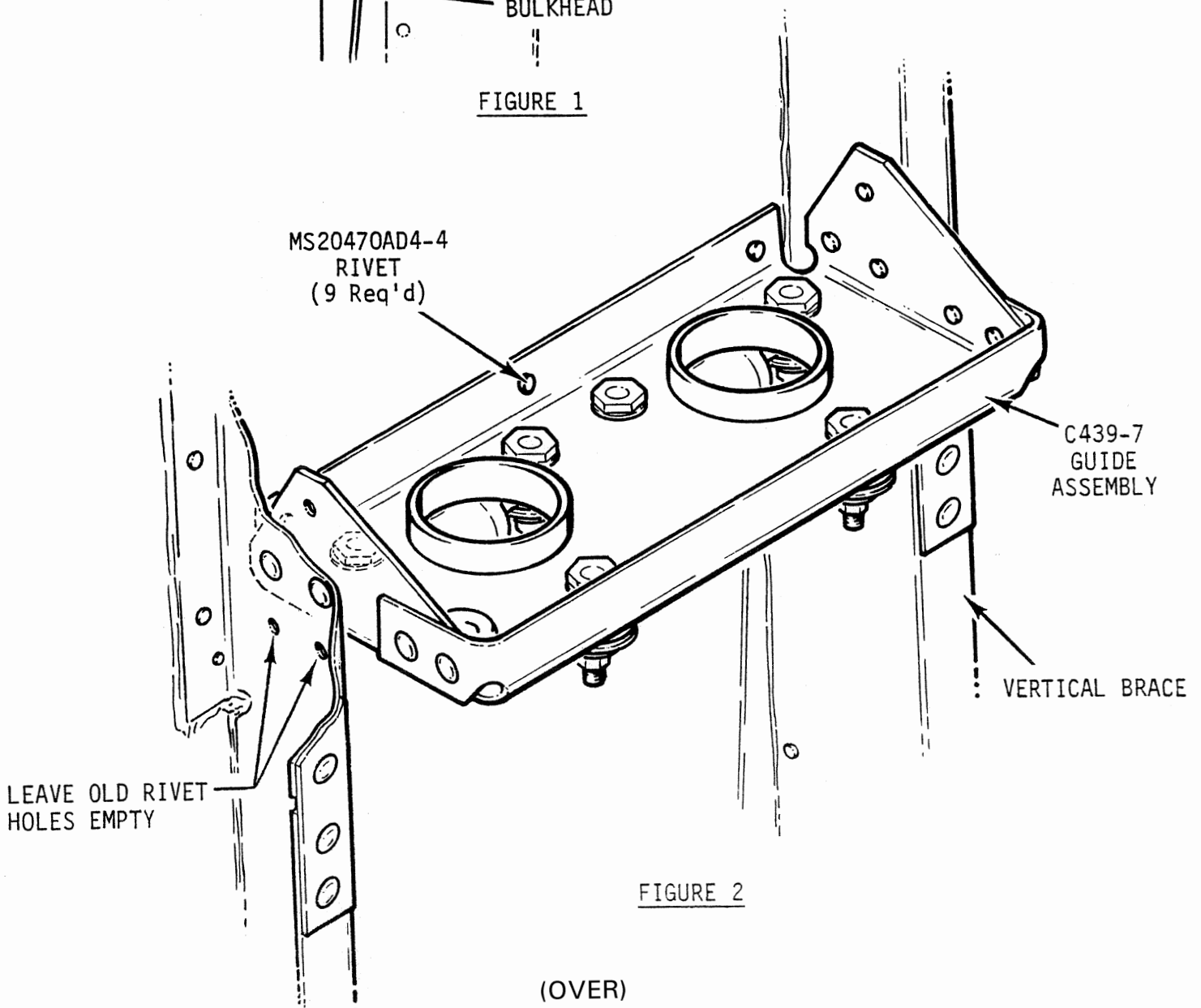


FIGURE 2

(OVER)

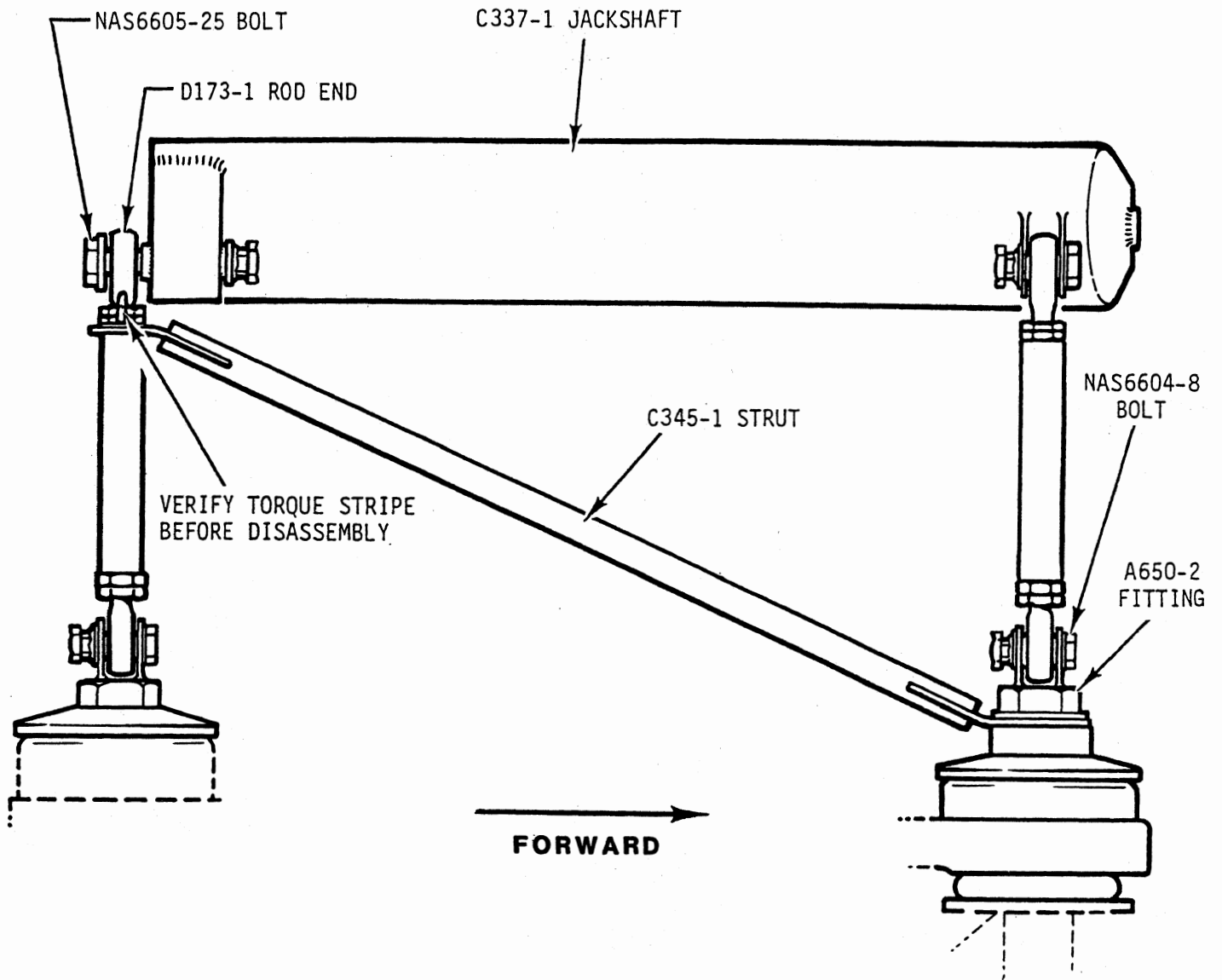


FIGURE 3