SCHWEIZER 269 SERIES

SCHWEIZER SERVICE NOTICE

NOTICE NO. N-76.2*
DATE March 22, 1971

Supersedes Service Information Notice No. N-76.1

MANDATORY MANDATORY MANDATORY

SUBJECT: KIT INSTALLATION - MAIN ROTOR THRUST BEARING (P/N M10044)

MODELS AFFECTED:
269A Helicopter Serial Nos. 0011 through 1109
269A-1 Helicopter Serial Nos. 0001 through 0041
269B Helicopter Serial Nos. 0001 through 0444

TIME OF COMPLIANCE: At owners and operators discretion

PREFACE:

The information given in this Service Information Notice lists a procedure for installing a new P/N 269A5050-73 main rotor thrust bearing providing greater reliability and considerably longer service life (1800 hours) than existing P/N 269A5050-50 or -51 bearings (300 hours). Instructions are also included for field modification of the main rotor mast to accommodate the new -73 bearing, and to seal the bearing housing agains moisture accumulation.

Incorporation of the M10044 kit installation lifts the requirements of Hughes Service Information Notice N-59, dated October 9, 1968, for inspection and 300-hour retiremer of the main rotor thrust bearing, and field modification of the main rotor mast.

(▌) Denotes portion of text added or revised.

Reference

269 Series - Basic Handbook of Maintenance Instructions, Issued 1 September 1970
269 Series - HMI Supplement A/A-1, Issued 1 September 1970
269 Series - HMI Supplement B, Issued 1 September 1970
269 Series - HMI Supplement TH-55A, Issued 1 September 1970

PARTS LIST

Nomenclature	Part Number	Qty.	Mfgr.
Kit Installation - Main Rotor Thrust Bearing	M10044	1	HTC-AD
Pin (oversize)	HL63PB-6-8 or HL63PB-6-7	A/R	Hi-Shear Corp.
* Oil Strainer - Main Rotor Gear Drive	269A5192	1	HTC-AD

* Optional

MATERIALS

Chrome pickle solution	Dow 7, Dow Chem. Co. or equiv. MIL-M-3171
Primer-zinc chromate	W. P. Fuller or equiv.
Dry ice	Commercial
Thread lube	Alcoa or equiv.
Grease	Aeroshell No. 7 (MIL-G-23827A)
Rags, cloth-clean	Commercial

TOOLS AND EQUIPMENT

Drill bit - #42 (0.0935 in. dia.)
Drill bit - #23 (0.1540 in. dia.)
Drill bit - #13 (0.1850 in. dia.)
Stub Reamer - (0.1895/0.1905 in. dia.)
Spot face tool - 3/8 (0.375 in. dia.) with 5/32 (0.1562) pilot
Lamp, heat
Drill motor - portable, with right angle extension
Wrench, torque - 0 to 100 in. lbs. range
C-Clamps
Dial indicator, or equivalent
Reamer - 13/64 (0.2031 in. dia.)

PROCEDURE

a. Remove main rotor drive shaft and thrust bearing, per Method 1 in HMI.

b. Stuff clean rags inside mast below flange of thrust bearing housing, then tape cardboard cup or equivalent container flush to I.D. of mast over rags to prevent entry of foreign objects and metal particles into mast and transmission.

c. Remove existing sixteen (16) P/N MS20426B5 rivets securing bearing housing to main rotor mast. Use #42 pilot drill and #23 drill.

CAUTION

Use extreme care to minimize rivet hole enlargement.

d. Remove bearing housing from main rotor mast. Clean inside diameter mast of residue zinc chromate primer; inspect for evidence of corrosion, using mirror.

NOTE

If required, mast may be heated to 180^{O} maximum using heat lamp, and housing cooled with dry ice, to facilitate removal.

e. Coat new bearing housing with zinc chromate primer; install new housing in place in mast.

CAUTION

1. Proper seating of bearing housing in mast is extremely important. Ensure that shoulder of bearing housing is seated absolutely flush with top of mast.

2. Carefully align existing holes in mast with predrilled holes in new housing; clamp housing in place.

3. As required, ream exisiting holes in mast to match holes in new bearing housing; enlarge holes in housing for the HL19 (HI-LOK) pins. Ensure that housing remains seated flush with top of mast.

f. Use #13 drill with right angle drill extension to enlarge holes in mast to 0.1850 in. dia. Drill from inside of mast housing. (Use stub ream and drill bits to accommodate limited work area inside mast and housing).

g. Using stub reamer with right angle drill extension, enlarge existing mast holes to 0.1895/0.1905 in. diameter to accommodate HL19 type pins. Hand ream from ID of housing to OD of mast.

h. Spot face holes (16 places) on OD of main rotor mast (See Figure 1); treat mast holes with chrome pickle solution.

i. Insert first Hi-Shear pin from inside mast; install with wet zinc chromate primer. Press or tap pin until firmly seated and flush fit or better is obtained in countersink.

CAUTION

1. Do not turn pin during installation or torquing.

2. Do not mar or damage head of pin, if tapping is required.

3. Pin must be seated flush fit or better in countersink, to prevent interference with thrust bearing or threads of thrust bearing nut.

NOTE

If any holes do not clean up for close fit of Hi-Lok pins, holes in both bearing housing and mast may be line reamed oversize using 13/64 (0.2031 in. dia.) reamer and an oversize Hi-Lok pin, P/N HL63PB-6-8 or HL63PB-6-7 as required.

j. Repeat steps g. and h. for all remaining pins.

NOTE

Install second Hi-Shear pin approximately 180° from first pin.

k. Position new thrust bearing and new thrust bearing nut in place in housing. Check that all pin heads clear the bearing and bearing nut. Remove bearing and bearing nut.

l. Install locking collars, and NAS620-10L washers under collars if required. Torque each collar until nut portion shears.

NOTE

A minimum of two pin threads should be engaged by the collar before wrenching.

m. Install new 269A5050-73 thrust bearing on drive shaft bearing shoulder by pressing on inner race of bearing only.

CAUTION

Install thrust bearing with open end up. Pressing on outer race of bearing during installation will damage bearing. If available, use same bearing installation tool and press as presently used for the 269A5050-51 bearing. Check bearing for grease; handpack bearing, as required, using Aeroshell No. 7 grease or equivalent.

n. Vacuum chips or foreign matter from top of cup or container; remove rags and cup with tape from inside of mast; remove any metal particles and foreign matter.

CAUTION

Use extra caution to prevent metal chips or other foreign objects from dropping into gearbox

o. Coat outside diameter of bearing with zinc chromate primer; install shaft and bearing in main rotor mast. Make sure spline end is properly seated.

CAUTION

1. Do not apply sharp forces (tapping or hammering) to shaft or bearing during installation.

2. Install and tighten down on new 269A1306-5 nut to ensure that bearing is fully seated in housing.

3. Remove nut and visually inspect that bearing is properly seated.

4. Check for proper alignment of bearing by attaching dial indicator to main rotor shaft, with indicator plunger contacting upper surface of thrust bearing outer race on a diameter of 3.09 inches approximately. (See Figure 2).

NOTE

(a) If bearing runout is less than 0.008 TIR, bearing service life of 1800 hours is applicable.

(b) If bearing runout is 0.008 TIR to 0.011 TIR, bearing must be replaced at each 300 hours of operation, until bearing alignment is corrected per (c) below.

(c) If bearing runout is more than 0.011 TIR, bearing must be realigned prior to next flight. Remove bearing housing and reinstall per above instructions, except enlarge rivet holes in mast and housing as required, to ensure proper alignment and seating of housing in mast. Use larger size HL19 type pins.

p. Position new spacer tube in place; make sure that chamfered end of tube is down.

q. Pack cavity between spacer tube and bearing housing 75% full with Aeroshell No. 7 or equivalent; do not apply grease to threads of housing. (See Fig. 1)

r. Install seal in new thrust bearing nut.

NOTE

1. Seal is a light press fit. Use small round 3 inch diameter block of wood or equivalent tool to seat seal in place in the nut.

2. Prelubricate seal at rotating surface.

s. Coat threads of thrust bearing nut with Alcoa thread lube or equivalent; install new thrust bearing nut lock washer under nut, and install nut in mast over spacer tube.

NOTE

Thrust bearing nut lockwasher must be replaced with new lockwasher each time it is removed.

t. Using special wrench, P/N 269A9228, in conjunction with torque wrench, torque thrust bearing nut 900 to 1200 inch-pounds.

NOTE

Torque wrench must be at right angle to special wrench to obtain correct torque value.

u. Bend alternate four tangs of thrust bearing lockwasher down into mast castellations and remaining four tangs up into thrust bearing nut castellations.

v. Plug existing 0.25 inch drain hole in mast, using zinc chromate paste.

w. Install remaining components of main rotor installation (swashplate assembly, rotor hub, pitch bearing assemblies and main rotor blades) per HMI.

NOTE

It is recommended that a P/N 269A5192 oil strainer be installed at aft end of gear-box housing to strain oil to aft pinion bearing. Remove existing P/N AN814-6DL plug, install oil strainer and reinstall plug.

x. Inspect main rotor mast modification and thrust bearing installation for discrepancies.

y. Record installation of new P/N 269A5050-73 main rotor thrust bearing in Components Record of Helicopter Log Book.

NOTE

Inspection of P/N 269A5050-73 main rotor thrust bearing is to be accomplished at 600 hour intervals; bearing is to be replaced at 1800 hours time in service, if bearing tir is less than 0.008". (Refer to step o.)

WEIGHT & BALANCE DATA

Weight and balance not affected.

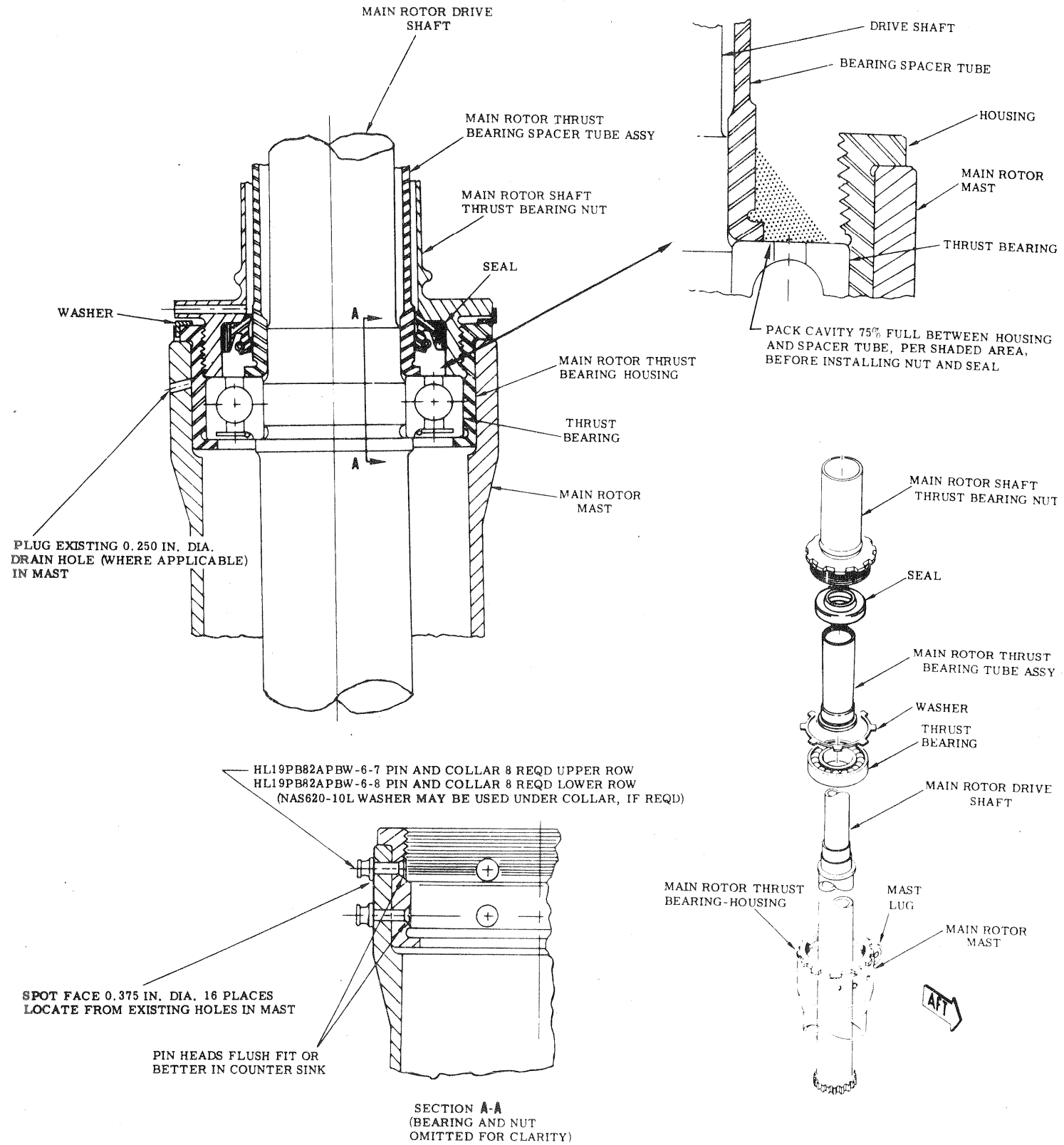

FIGURE 1. BEARING INSTALLATION-MAIN ROTOR THRUST

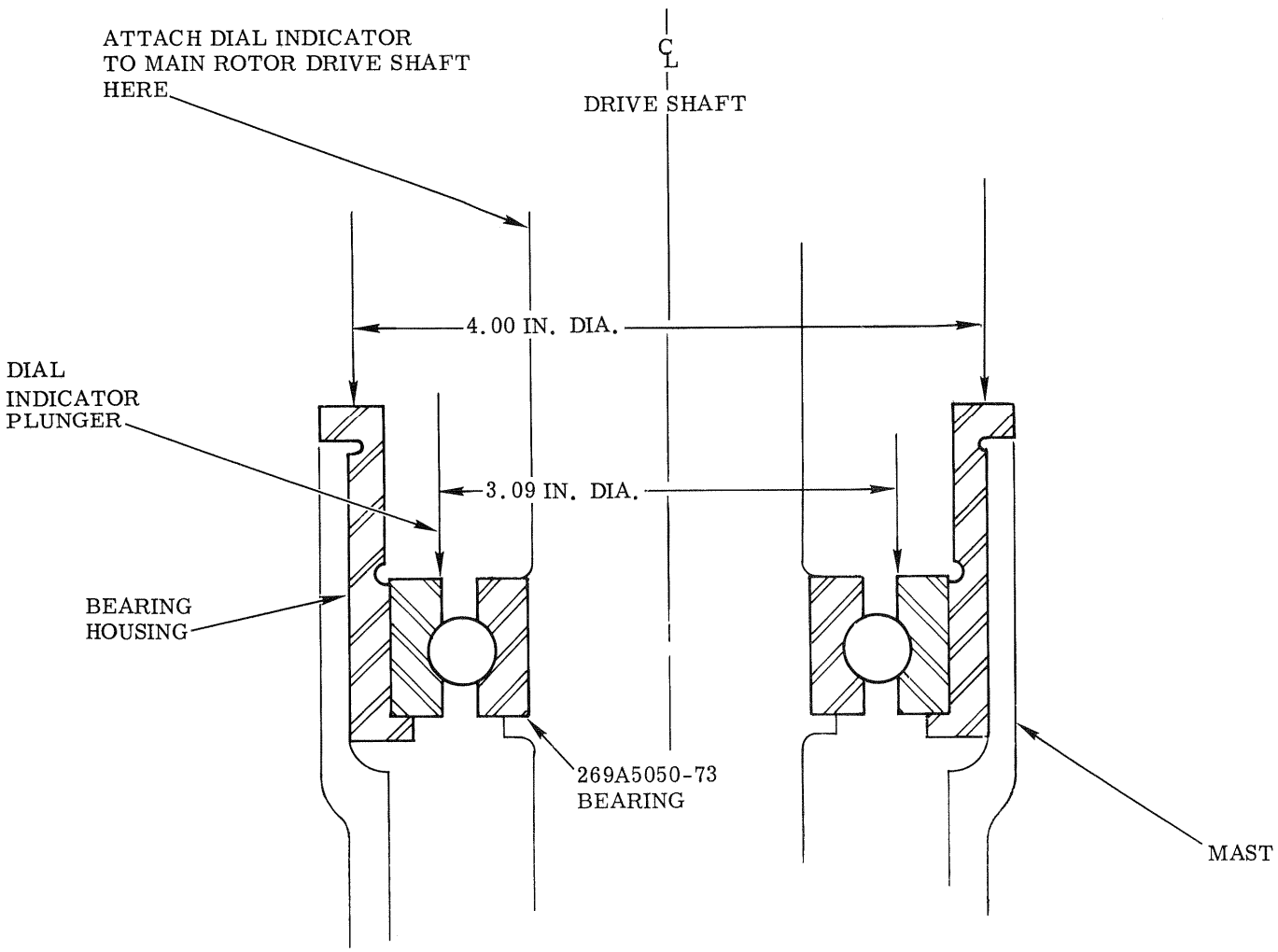

FIGURE 2. TIR CHECK - MAIN ROTOR THRUST BEARING