



HUGHES SERVICE INFORMATION NOTICE

NOTICE NO. N-1.4*

DATE September 15, 1971

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*Supersedes Service Information Notice No. N-1.3, Dated January 29, 1968

FAA APPROVED

SUBJECT: FIELD MODIFICATION - IDLER PULLEY ASSEMBLY,
P/N 269A5514

MODELS AFFECTED: 269A Helicopter Serial No. 0011 thru 0415
269A-1 Helicopter Serial No. 0004 thru 0034
269B Helicopter Serial No. 0001 thru 0224

TIME OF COMPLIANCE: Shall be accomplished within next 50 hours of helicopter operation, unless already accomplished.

PREFACE:

The information given in this Service Information Notice lists a procedure to provide an improved shaft and bearing assembly in the belt drive idler pulley assembly. Also included are procedures to ensure proper installation to prevent preloading and misalignment of press fit bearings when modifying the idler pulley assembly.

The modification kit contains a steel shaft, high-speed and heat-resistant bearings and attaching hardware.

No field modification is required, if compliance with Service Information Notice No. N-1, N-1.2, N-1.3, 2A-60.1, 2A-1-26.1, or 2B-26.1 has already been accomplished.

(█) Denotes portion of text added or revised.

Reference

269 Series - Basic Handbook of Maintenance Instruction, Revised 1 August 1971

PARTS LIST

| <u>Nomenclature</u> | <u>Part No.</u> | <u>Quantity</u> |
|---------------------|-----------------|-----------------|
| Bearing | 269A5050-58 | 2 |
| Shaft | 269A5438 | 1 |
| Washer | 269A5444-5 | 2 |
| Washer | 269A5444-3 | 4 |
| Nut | AN310-7 | 2 |
| Washer | AN960PD716 | 2 |
| Cotter Pin | AN381-3-14 | 2 |
| Washer | AN960PD716L | 2 minimum |

Tools and Equipment

Sleeve, Installation - Aluminum, Steel or Phenolic Tube -
1-3/8-inch OD by 1/2-inch ID by 2-inch length
Caliper - Micrometer
Arbor Press, Flat Bed
Spring Scale
Torque Wrench - 0 to 500 inch-pounds
Dial Indicator
C-Clamp
Vise
Ball, Steel, 5/8-inch diameter approximately

Materials

Primer, Zinc Chromate
Solvent - Applicable Naphtha or equivalent
Blocks, Wood

CAUTION

The idler pulley is dynamically balanced. To prevent idler pulley imbalance, do not disturb balancing screw, washer and nut (when installed) on idler pulley aft end.

NOTE

Retain all attaching hardware and parts removed for reinstallation, unless specified otherwise.

- a. Remove upper belt drive cover. (Refer to Section 10 of Basic HMI.)
- b. Disconnect clutch spring assembly from belt drive transmission; remove clutch spring assembly through cutout in lower belt cover.
- c. Remove frame strut assembly and lower belt drive cover.
- d. Using calipers, measure and record dimension between inner faces of idler pulley arms adjacent to idler pulley clutch shaft.

NOTE

Dimension taken in step d. should be approximately 5.125 inches. Upon reassembly, new 269A5444-3 and 269A5444-5 shimming washers will be added to the idler pulley shaft to meet the measured dimension.

- e. Remove cotter pin, nut, washers, tube, spacers and clutch spring assembly attachment bolt from idler pulley arms.
- f. Remove cotter pin, nut and washer securing forward end of pulley shaft to pulley arm. (See Figure 1.)
- g. Remove nut, washers and bolt securing aft arm to idler pulley clutch shaft.
- h. Rotate idler pulley assembly on clutch shaft toward engaged position far enough for pulley to clear "H" frame; insert wooden block between forward pulley arm and stop on "H" frame.
- i. Disengage belts from idler pulley grooves; withdraw aft idler pulley arm complete with pulley from forward arm; remove and discard shimming washer from forward end of shaft.

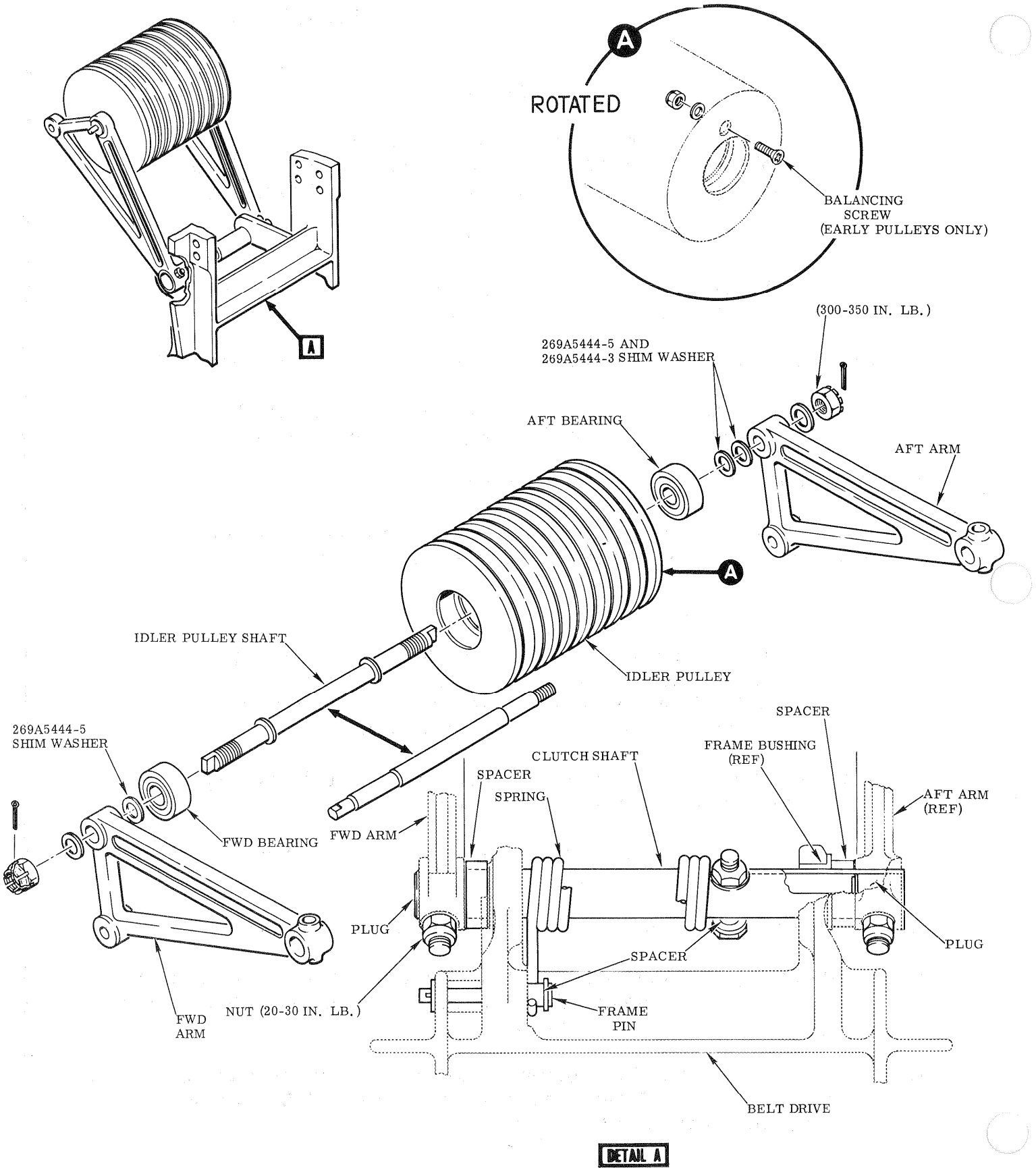


FIGURE 1. IDLER PULLEY CLUTCH ASSEMBLY (SHAFT-MOUNTED DUAL ARM SUPPORT)

- j. Remove cotter pin, nut and washer securing idler pulley to aft arm; remove and discard shimming washers from aft end of shaft.

CAUTION

Clutch shaft is loaded to approximately 50 pounds tension.

- k. Insert a punch or other appropriate tool in open aft bolt hole in clutch shaft. Rotate shaft CW (clockwise) (viewed from aft end) far enough to release spring tension from forward idler arm. Remove wood block from between forward arm and "H" frame.

NOTE

Clutch shaft must be held in position noted above, when performing steps l. and m. below.

- l. Remove nut, washer and bolt securing forward arm to clutch shaft.
- m. Remove forward arm from clutch shaft.
- n. Ease clutch shaft CCW (counterclockwise) to relaxed position to release spring tension. Remove end spacers, nut, washers, spacer and bolt securing spring to clutch shaft.
- o. Disconnect spring from spacer on attachment pin.
- p. Remove clutch shaft, two end plugs, and spring from frame assembly.
- q. Press the idler pulley shaft and one attached bearing from idler pulley.
- r. Press the second bearing from idler pulley, using idler pulley shaft as a tool to press out bearing.
- s. Mutilate and destroy the aluminum idler pulley shaft (P/N 269A5440) and the two removed bearings to prevent possible reuse.
- t. Remove zinc chromate coating where previously applied to idler pulley assembly components; visually inspect all components for wear, damage, corrosion, flaking and cracks.

- u. Inspect other components of belt drive transmission per above criteria; in addition, check upper and lower pulley bearings for damage, looseness and smooth operation.
- v. Lightly coat both bearing bores in idler pulley with wet zinc chromate primer.
- w. Using arbor press, lightly press first 269A5050-58 bearing on 269A5438 shaft until inner race is flush with shaft shoulder. Insert shaft and bearing into pulley; press shaft and bearing into pulley until outer race of bearing is fully seated in pulley bore. (See Steps I and II, Figure 1.)

CAUTION

When installing any press fit bearings, the following precautionary procedures should be used.

1. Determine that the bore or shoulder is free of dirt, contamination, old coating of Loctite or zinc chromate sealant, etc.
 2. When initially installing the bearing, verify that the bearing is not cocked.
 3. Use a seating tool which makes full contact with both inner and outer races of the bearing being pressed into a bore or onto a shaft.
 4. Use steady pressure when seating the bearing. If binding occurs, check for the cause.
- x. Support installed bearing and pulley on bed of arbor press; slip second 269A5050-58 bearing and installation sleeve on opposite end of shaft. (See Step III, Figure 1.)
 - y. Press bearing into pulley, using installation sleeve which fully contacts both inner and outer races of bearing.
 - z. Check pulley for smooth, non-binding rotation, after installation of both bearings.
 - aa. Install one 269A5444-5 (0.063 inch) washer on each end of shaft against bearing inner race.
 - ab. Add 269A5444-3 (0.016 inch) washers as required on one end of shaft to meet dimension recorded in step d. ± 0.015 inch.

NOTE

Step d. dimension will be approximately 5.125 inches as measured with washers using outside calipers.

- ac. Lightly coat all exposed bores of idler pulley arms with zinc chromate primer.
- ad. Install forward and aft idler pulley arms on shaft; secure each arm with AN960PD716(L) washer and nut. Torque nuts 300 to 350 inch-pounds; secure with cotter pin both ends.

NOTE

The addition of AN960PD716 or AN960PD716L washers, on an as required basis, may be necessary in order to attain the desired degree of torque on the nuts and proper installation of cotter pins. When torquing shaft nuts, use wrench flats provided on each end of shaft to prevent rotation of shaft in arm.

- ae. Position pulley in vise as shown in Figure 3.
- af. Using dial indicator, check for 0.0012 inch maximum TIR runout at outer race of both bearings.

NOTE

If tolerance is exceeded in step af. or ag., reseal and recheck bearing. It may be necessary to invert one or both bearings to obtain minimum end play. If TIR is exceeded, press bearing halfway out and reseal. Reseat bearings as required.

- ag. With pulley in vise and dial indicator plunger on outer race of bearing, apply a 10-pound axial load to pulley. Check that a minimum of 0.002 inch end play exists.
- ah. Remove idler pulley assembly from vise.
- ai. Position idler pulley assembly on belt drive frame and install clutch shaft, end spacers and spring.

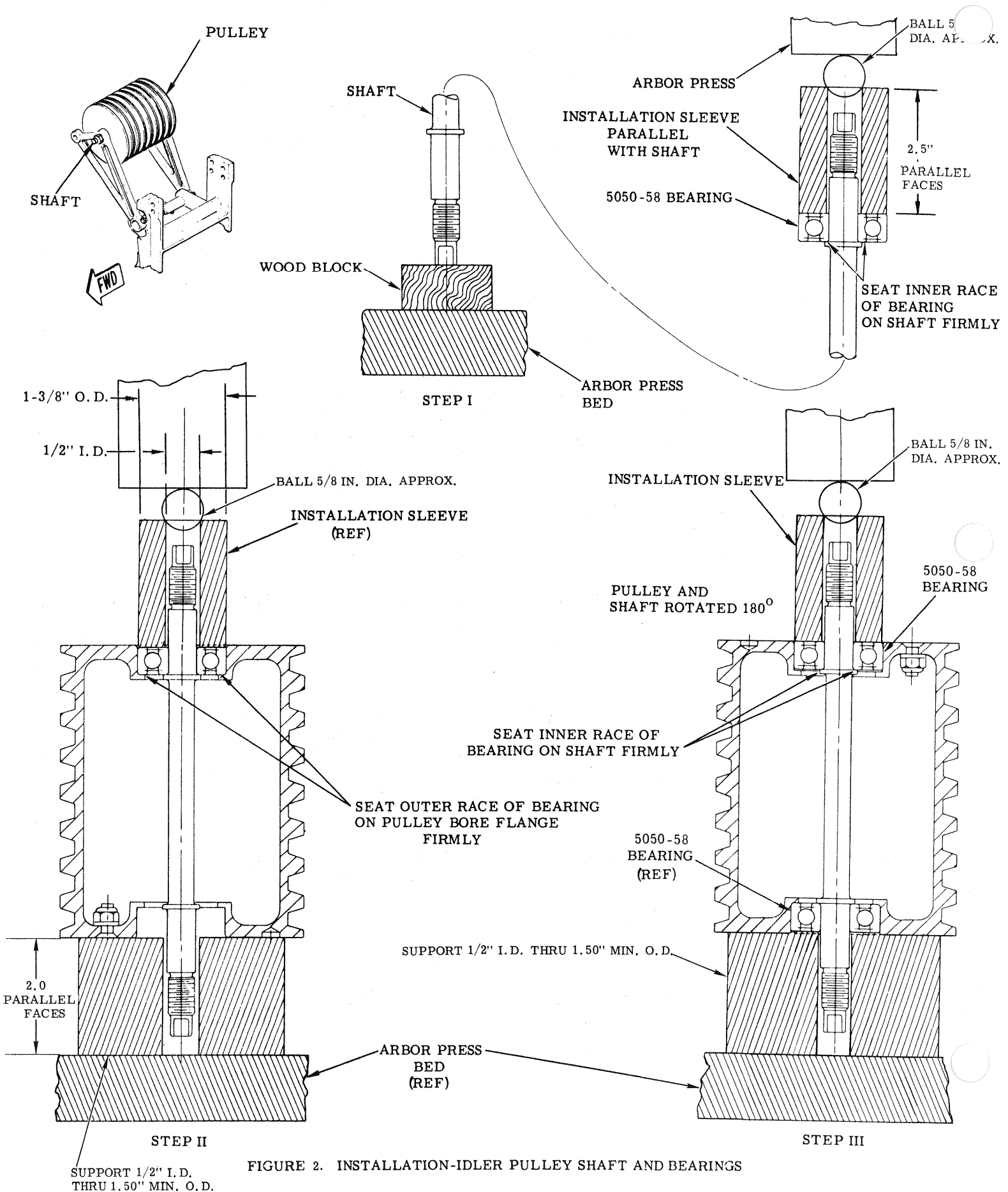
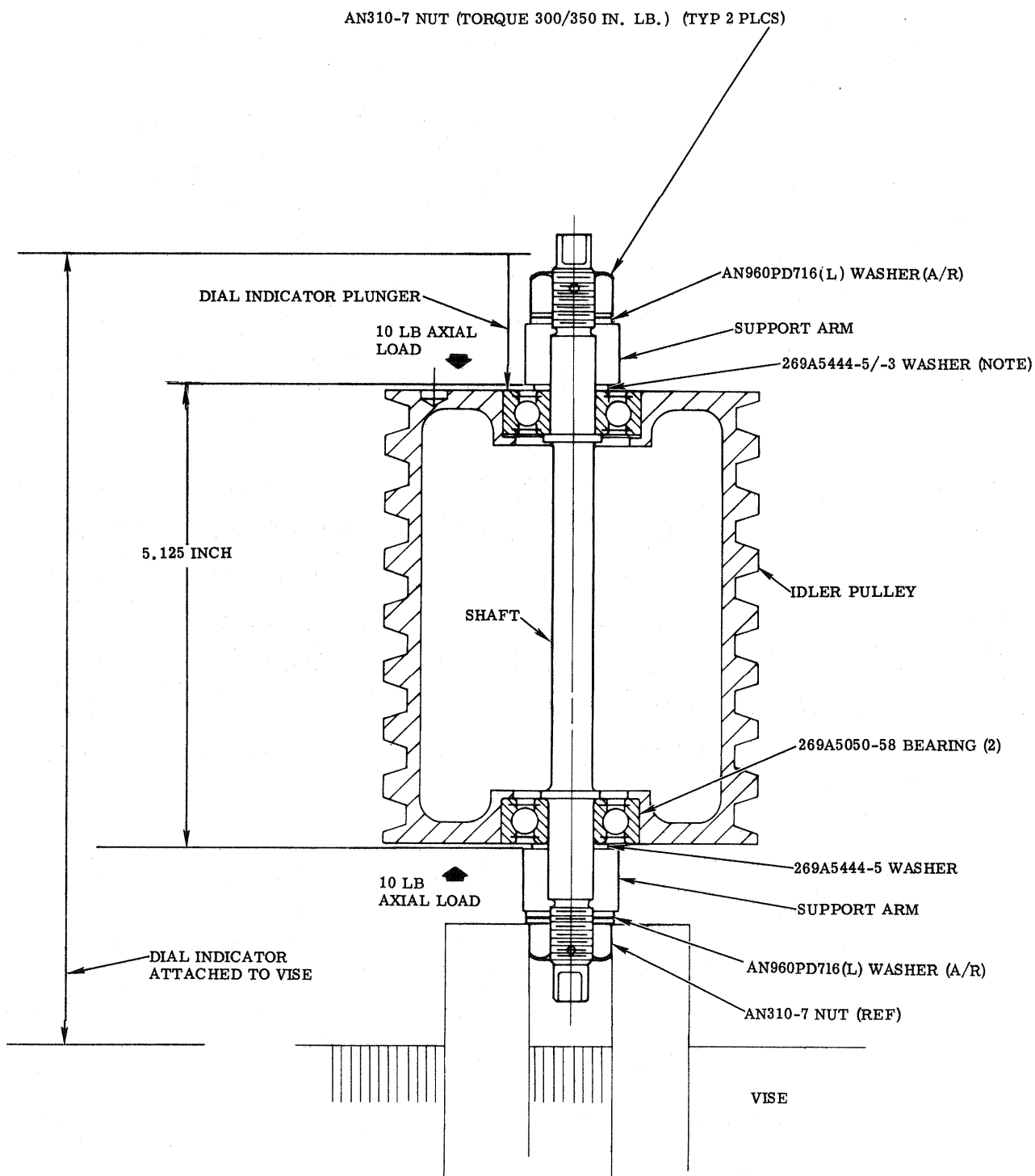


FIGURE 2. INSTALLATION-IDLER PULLEY SHAFT AND BEARINGS



NOTE: COMBINE 269A5444-5 AND -3 WASHERS (A/R)
TO OBTAIN 5.125 INCH DIMENSION. POSITION
-5 WASHER NEXT TO BEARING.

FIGURE 3. IDLER PULLEY SHIMMING, ALIGNMENT, END PLAY AND BEARING RUNOUT

- aj. Install two end plugs with wet zinc chromate primer. Install bolts (heads outboard), washers and nuts to secure arms to clutch shaft. Torque nuts to 20 to 30 inch-pounds.
- ak. Install bolt, two washers, spacer and nut in center of clutch shaft. Place aft hook of spring on spacer.
- al. Spread belts as necessary for access to forward end of spring. Hold pulley arms against frame stops and compress spring so that forward hook is in alignment with hole for frame pin. Install pin, washer and spacer into belt drive frame so that hook is around spacer and release spring tension. Install washer and cotter pin to retain frame pin.
- am. Measure dimension between inner faces of idler pulley arms on clutch shaft. Be sure that dimension equals 5.125 ± 0.015 inches.
- an. Install clutch control spring assembly. Measure between outer face of washers at end of assembled clutch spring assembly spacers. Be sure that the dimension is within 0.010 inch of final measurement in step am. above.
- ao. Engage belts in idler pulley grooves.
- ap. Check that idler pulley still has noticeable end play after final installation.
- aq. Reinstall lower belt drive cover, frame strut and clutch spring assembly.
- ar. Inspect bearing and idler pulley installation for discrepancies.
- as. Perform operational check of belt drive transmission assembly.
- at. Reinstall upper belt drive cover.
- au. Record compliance with this Service Information Notice in Compliance Record of helicopter Log Book.

NOTE

Idler pulley bearings shall be replaced at each and every 200 hours of helicopter operation. Refer to Hughes Service Information Notice No. N-95, dated September 15, 1971.

WEIGHT AND BALANCE DATA

Weight and balance not affected.