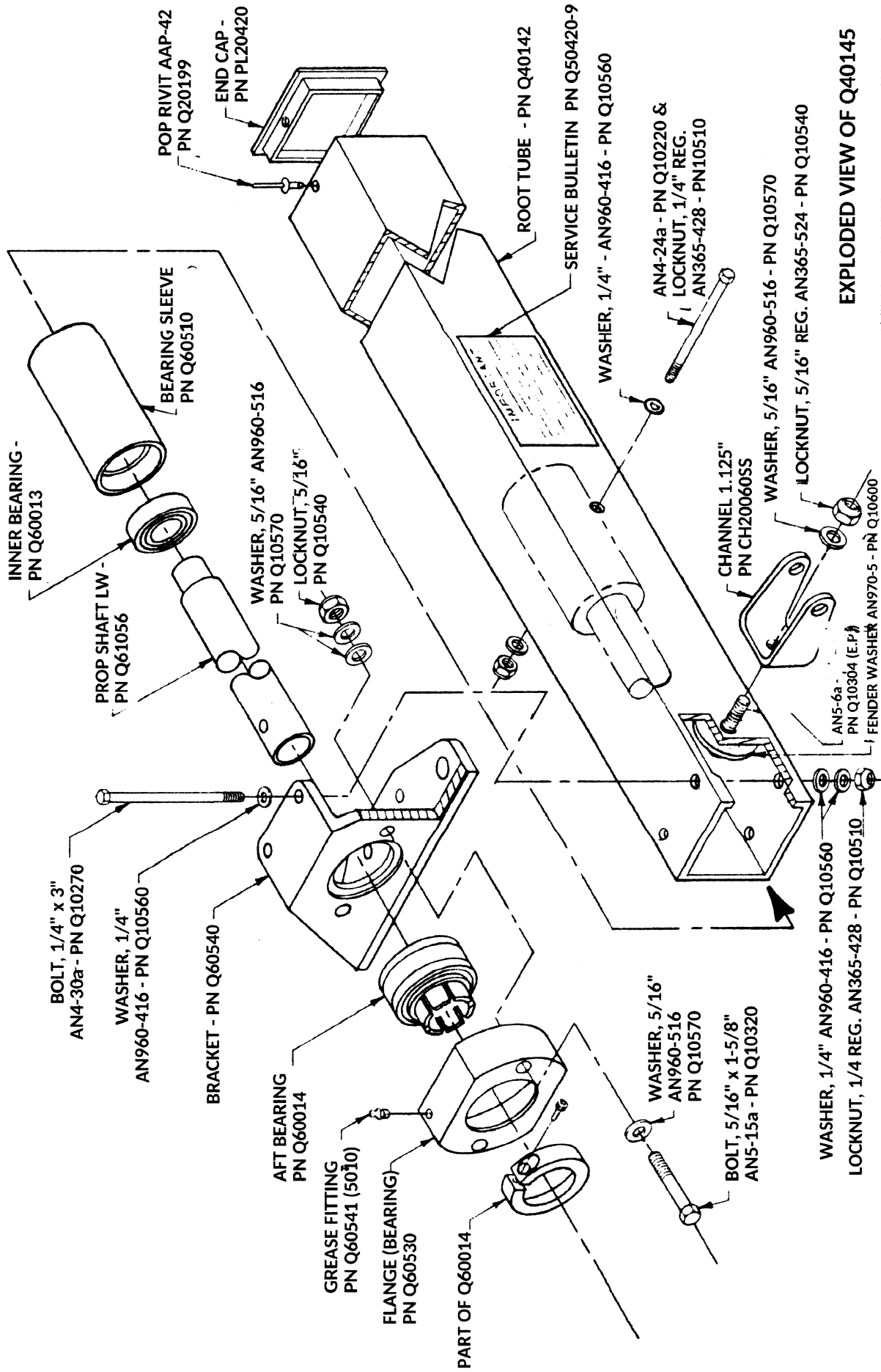


**ROOT TUBE REBUILD**



**EXPLODED VIEW OF Q40145**



## ROOT TUBE REBUILD

### MATERIALS NEEDED

- 3 Locknuts 1/4" PN 10510
- 5 Locknuts 5/16" PN 10540
- 2 Locknuts for the 6" pulley bolts (PN 10540 or PN 10507)
- 1 Loctite 242
- 2 Fender Washers 5/16" PN 10600

The following may need to be replaced or updated

- New solid PROP SHAFT PN 61056 (replaces old model hollow prop shaft)\*
- AFT BEARING (PN 60014 ER-16T)
- INNER BEARING (PN 60013)

\* note If you replace the PROP SHAFT you will need to drill a new hole in the Root Tube to secure the bearing sleeve.

### TEARDOWN PROCEDURE TO INSTALL 5/16" FENDER WASHERS ON THE ROOT TUBE CHANNEL BOLTS

1. Remove the propeller
2. Remove the drive belts and remove the adjusting bolts
3. Remove the 6" pulley (may require a puller) \* note If you have a hollow prop shaft you will have to reinstall the prop retaining bolt (An5-17a) to prevent the puller from pressing the propshaft insert plug into the prop shaft
4. Clean the rust and loctite off of the propshaft so that it is smooth enough for the AFT BEARING (PN 60014 ER-16T) to slide off of the shaft.
5. Loosen the set screw on the AFT BEARING from the LOCKING COLLAR (PN 60014)
6. Remove the LOCKING COLLAR
7. Remove the An4-24a bolt (PN 10220) located 13 inches forward of the root tube end. Check for wear grooves on the bolt.
8. Remove the An4-30a's (PN 10270) that hold the BEARING BRACKET in place
9. Remove the BEARING END BRACKET assembly (PN 60540). This may be difficult and require using a wooden block to strike the bracket. Do not strike the end of the prop shaft.

10. Put a rope through the prop shaft end hole and push the prop shaft into the Root Tube past the rear channel attach bolt holes.
11. Remove the 2 An5-6a rear spar channel bolts (PN 10304)
12. Pull the propshaft assembly out of the Root Tube
13. Perform a dye penetrate check on the rear of the Root Tube to check for invisible cracks around the bolt holes. If you find cracks you will need to replace the Root Tube (PN 40142).
14. Check the AFT BEARING ASSEMBLY (PN 60014) and the INNER BEARING (PN 60013) by rotating them with your fingers. If you feel any sign of roughness at all you will need to replace the bearing. Remember these bearings support the propeller turning at 3000 RPM. Any rough spots will generate heat which will eventually fail the bearing.
15. Check the press fit between the front of the PROP SHAFT (PN 61056) and the INNER BEARING (PN 60013). This is a light press fit which should not have any play from side to side.
16. Check that the prop shaft runs true in the INNER BEARING. If it wobbles visibly replace the shaft.
17. Put the prop shaft bearing assembly back into the Root Tube past the rear channel holes. Be sure to align the BEARING SLEEVE holes horizontally so they will align with the Root Tube holes to be used latter for the An4-24a (PN 10220).
18. Install the rear channel bolts with 5/16" FENDER WASHERS (PN 10600) under the head of the bolts on the inside. During the reassembly process be sure to use new locknuts on all of the bolts.
19. Pull the PROP SHAFT ASSEMBLY out slowly until the BEARING SLEEVE (PN 60510) holes line up with the holes in the Root Tube. Install the An4-24a (PN 10220) and remove the rope previously installed. If you have replaced the prop shaft you will need to position the prop shaft 4 7/8 inches from the locking collar to the center of the hole in the prop shaft. You will then drill the new root tube hole 7 1/2 inches forward of the rear edge of the root tube. The hole will be drilled through the root tube and the bearing sleeve (PN 60510).
20. Install the BEARING END BRACKET
21. Install and tighten the LOCKING COLLAR
22. Carefully align the 6" pulley with the drive shaft pulley and locktite it into place
23. Install the belts, adjusting bolts and propeller.