



The New Piper Aircraft, Inc.
 2926 Piper Drive
 Vero Beach, Florida, U.S.A. 32960

SERVICE No. 1051B BULLETIN

**PIPER CONSIDERS
 COMPLIANCE MANDATORY**

Date: November 5, 2002 (M)

Service Bulletin No. 1051B replaces Service Bulletin 1051A, dated October 9, 2001. Aircraft that have incorporated SB 1051A meet the requirements and are in compliance with SB 1051B. This revision incorporates criteria for inspection of the torque tube for corrosion and introduces a repetitive inspection for installations having the aluminum torque tube. This revision also replaces the pre-drilled torque tube 104622-002 with an undrilled torque tube 104622-004 and provides instructions for drilling the cross holes during installation to avoid misalignment with the mating parts.

SUBJECT: FLAP TORQUE TUBE REPLACEMENT

MODELS AFFECTED: SERIAL NUMBERS AFFECTED:

PA-23 / PA-23-160 Apache PA-23-235 Apache PA-23-250 Aztec PA-23-250 (6 place) Aztec PA-E23-250 Aztec	23-1 through 23-2046 27-505 through 27-622 27-1 through 27-504 27-2000 through 27-8154030 27-2505 through 27-4916 and 27-7304917 through 27-7554168
--	--

NOTE: The inspection and reinforcement requirements of Piper Service Bulletin 671 and FAA Airworthiness Directive 81-04-05R1 must also be accomplished on the affected aircraft.

COMPLIANCE TIME: Aircraft which have accumulated 2,500 hours or more total operating time, within the next one hundred (100) hours of operation, or at the next scheduled inspection whichever occurs first.

APPROVAL: The alteration to the affected aircraft described in the Instructions section has been shown to comply with the applicable Federal Aviation Regulations and is FAA approved.

PURPOSE: Field reports indicate that some high time aircraft have been found with severe corrosion, wear, and cracks in the flap control torque tube. This Service Bulletin provides for inspection of the torque tube for acceptable limitations (which will require periodic inspection) or the replacement of the torque tube.

Left uncorrected, these conditions could cause distortion or failure of the torque tube, leading to possible operational interference or a split flap condition.

INSTRUCTIONS:

1. Review the aircraft inspection records to determine if the requirements of Piper Service Bulletin 671 and FAA AD 81-04-05R1 have been accomplished. [Does not apply to PA-23-250, (6 place) Aztec, s/n 27-8154001 through 27-8154030].

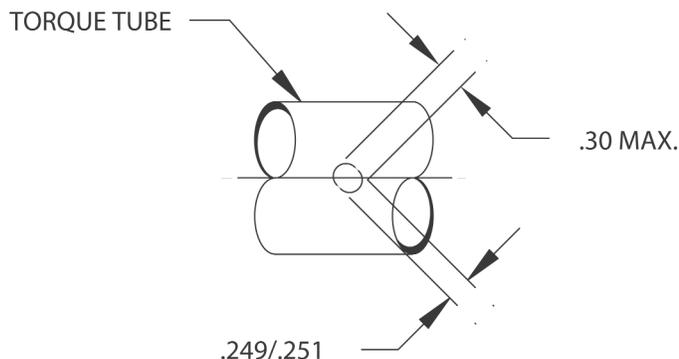
(OVER)
 ATA: 2755

INSTRUCTIONS: (continued)

2. If Piper Service Bulletin 671 and FAA AD 81-04-05R1 have not been previously accomplished, proceed with the inspection and replacement requirements of those documents in conjunction with these instructions. If Piper Service Bulletin 671 and FAA AD 81-04-05R1 have been previously accomplished, proceed with the following instructions.

NOTE: If the aircraft inspection records show compliance with FAA AD 81-04-05R1 **and** installation of bellcrank, p/n 16423-06, **and** replacement of the flap control torque tube (aluminum), p/n 17634-00, with a flap control torque tube (steel), p/n 17634-02, no further action or repetitive inspection is required. Make a logbook entry indicating compliance with this service bulletin.

3. Remove the flap torque tube assembly as follows:
- Disconnect the flap control rods allowing both flaps to hang freely.
 - Remove the left and right rear wing root fairing and left and right flap torque tube access panels at station 123.75. (Refer to Sketch A.)
 - Remove the locknut from the sender unit rod installed through the torque tube and remove the rod. (Refer to Sketch A.)
 - Remove the bellcrank assembly from the right side of the flap torque tube assembly by first removing the bolt, washers and nut attaching the flap actuating cylinder to the bellcrank arm. Next, remove the two bolts, washers, nuts and cotter pins installed through the bellcrank housing and torque tube. Then remove the bellcrank assembly from the flap torque tube. (Refer to Sketch A.)
 - Cut the safety wire from the bearing block bolts and remove the bolts, washers, bearing blocks, bearings, and shims, if installed, from each side. (Refer to Sketch B.)
 - Remove the torque tube assembly by withdrawing it from the aircraft toward the left side (opposite side from bellcrank location). If the stabilator trim and flap interconnect system is installed (s/n 27-7654001 and up), slide the pulley from the torque tube by removing attachment hardware and retaining pulley in the fuselage while withdrawing the torque tube assembly.
4. Inspection of Flap Torque Tube for acceptable limits.
- After the flap torque tube has been removed from the aircraft and prior to removing the end plugs, examine the area of the torque tube that comes in contact with the torque tube bearing blocks for wear and distortion. If wear or distortion is noted on the tube and the depth exceeds .005 inches, proceed to Instruction 5 for replacement.
 - Examine the holes for the attachment bolts for the Flap Control Horn and the Flap Bellcrank for cracks originating out of the hole using Fluorescent Penetrant procedure per FAA AC43.13 Repair Manual, Nondestructive Testing. Also, inspect for elongation of the subject holes. Elongation up to .050 (see sketch) is acceptable provided that when the horn or bellcrank is mounted on the tube with the attachment bolts (without nuts) installed, there is no relative motion between the horn or bellcrank and the torque tube with a light load applied in a radial direction simulating a flap air load. Proceed to Instruction 5 if cracks are noted in the subject holes or elongation exceeds limits.



Acceptable Limits for Oblong Hole
(Angle to Center Line is not Critical)

INSTRUCTIONS: (continued)

- c. Remove the end plugs and inspect and remove any corrosion present on the inside diameter of the torque tube, specifically in the area that contacts the wooden end plug (17631-00). Reference: FAA AC43.13-1A Aircraft Inspection and Repair Manual for corrosion removal and corrosion protection processes. If severe cleaning is required, including the mechanical removal of all the corrosion, the resultant wall thickness must be measured and cannot be less than .063 inches. Proceed to Instruction 5 if corrosion cannot be repaired, or if wall thickness does not meet minimum thickness.
 - d. Inspect the wooden end plugs (17631-00) for deterioration and close fit with the inside diameter of the torque tube. The maximum acceptable clearance between the inside diameter of the torque tube and the outside diameter of the plug is .015 inches. The plugs should be treated with a wood preservative product such as "tung oil" prior to reinstalling in the torque tube. If replacement of the plugs is required, order new plug 17631-002 which is manufactured with Acetal (Delrin) rod.
 - e. If the torque tube meets the inspection requirements of paragraphs 4. a. thru d, the torque tube can be re-installed following, in reverse order, the disassembly instructions listed in paragraph 3. above or in accordance with the installation instructions given in the applicable Maintenance Manual.
 - f. Re-installation of the aluminum torque tube will require a repetitive inspection per paragraph 4 a. thru d. every 100 hrs or annually, whichever ever comes first. The inspection requirement is eliminated upon installation of the steel torque tube P/N 17634-002, 104622-002, or 104622-004.
5. Install the replacement p/n **104622-004** flap torque tube assembly as follows: (Refer to Sketch A).
- a. Install the flap bellcrank on the right end of the replacement tube. Rotate the bellcrank until the scarf on the bellcrank matches the scarf on the tube. With the use of a transfer punch, mark the centerline of one of the .249/.251 holes in the bellcrank on the tube and drill an .189/.191 diameter hole thru one side only of the tube. Repeat the same process for the same hole on the opposite side of the bellcrank. Ream the .189/.191 diameter holes to .249/.251 diameter using the bellcrank as a guide. Temporarily install a .250 diameter bolt and nut. Repeat the same steps for the other hole in the bellcrank. After completing the reaming operation, remove the flap bellcrank from the replacement tube to allow it to be installed in the aircraft.
 - b. On aircraft requiring the stabilator trim/flap interconnect pulley (PA-23-250, s/n 27-7640001 and up), slide the pulley bracket over the left end of the replacement tube and toward the right until the .249/.251 holes in the pulley bracket align with the .189/.191 pilot holes in the replacement tube located approximately 3.75 inches to the right of the replacement tube center. Using the pulley bracket as a guide, ream the .189/.191 holes to .249/.251 diameter holes. Attach the pulley bracket to the replacement tube using the appropriate hardware as shown in Sketch A.
 - c. Install the flap horn assembly on the left end of the replacement tube. Rotate the horn until the scarf on the horn matches the scarf on the tube. With the use of a transfer punch, mark the centerline of one of the .249/.251 holes in the horn on the tube and drill an .189/.191 diameter hole thru one side only of the tube. Repeat the same process for the same hole on the opposite side of the horn. Ream the .189/.191 diameter holes to .249/.251 diameter using the horn as a guide. Temporary install a .250 diameter bolt and nut. Repeat the same steps for the other hole in the horn. Attach the horn bracket to the left end of the replacement torque tube using the appropriate hardware shown in Sketch A.
6. Reassemble and reinstall the replacement P/N 104622-04 flap torque tube assembly, including the reinstalled flap horn assembly and stabilator trim pulley (if required) in reverse order to the disassembly instructions listed in item 3. above or in accordance with the installation instructions in the Piper Apache or Piper Aztec Service Manuals.
7. Lubricate the flap torque tube bearings per the lubrication chart, section II, of the service manual.
8. Check the rigging and adjustment of the flaps and adjustment of the flap position sender in accordance with instructions listed in the appropriate service manual. Check for full travel of stabilator trim.
9. Safety the bearing block bolts with MS20995-C32 safety wire and reinstall the left and right rear wing root fairing and left and right flap torque tube access panels.
10. Make a logbook entry indicating compliance with this Service Bulletin.

MATERIAL REQUIRED: One (1) each, steel flap torque tube assembly, P/N 104622-004.

AVAILABILITY OF PARTS: Your Piper Field Service Facility.

EFFECTIVITY DATE: This Service Bulletin is effective upon receipt.

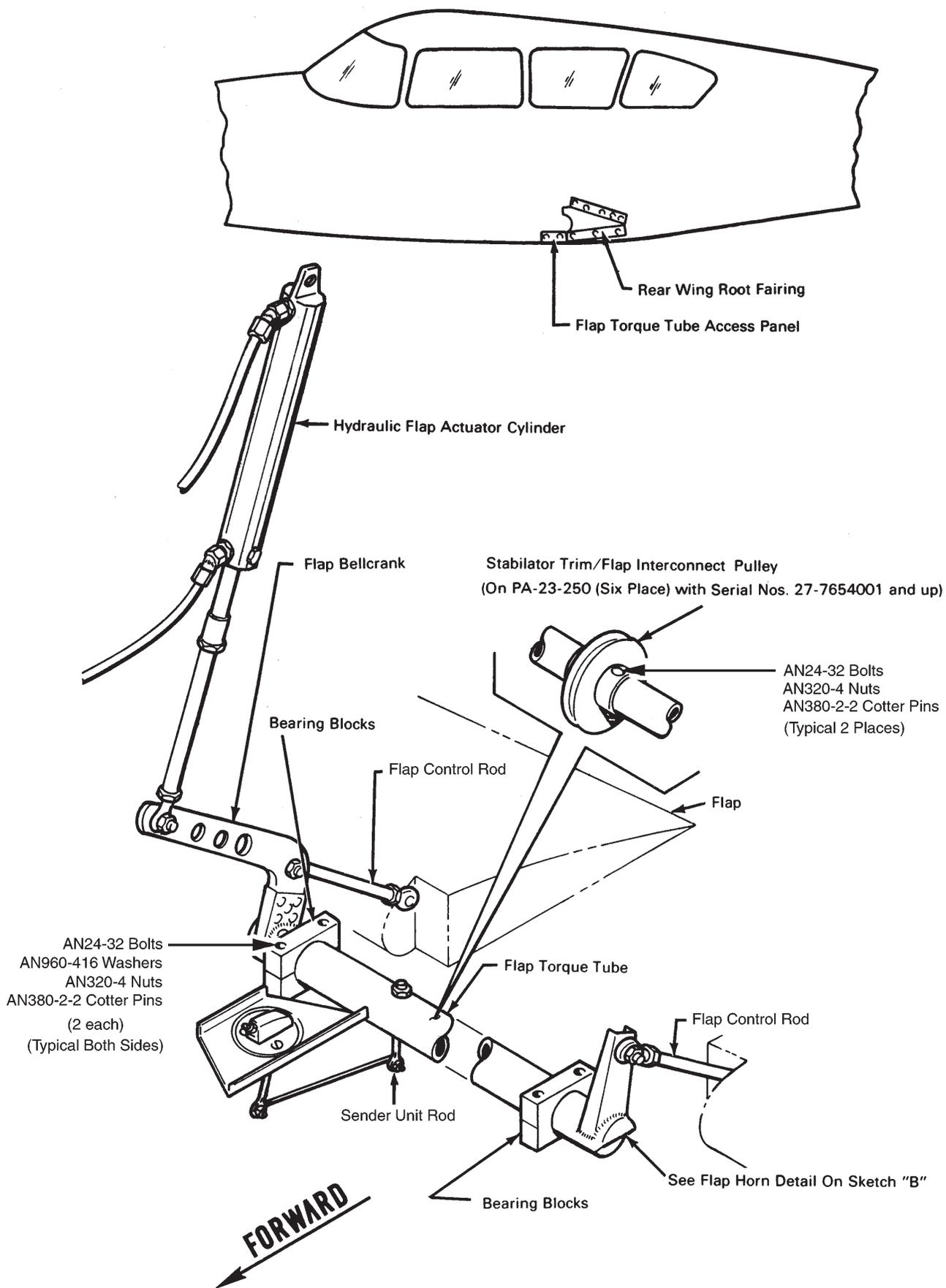
SUMMARY: There is no factory participation for this service bulletin.

Please contact your Factory Authorized Piper Service Facility to make arrangements for compliance with this Service Bulletin in accordance with the compliance time indicated.

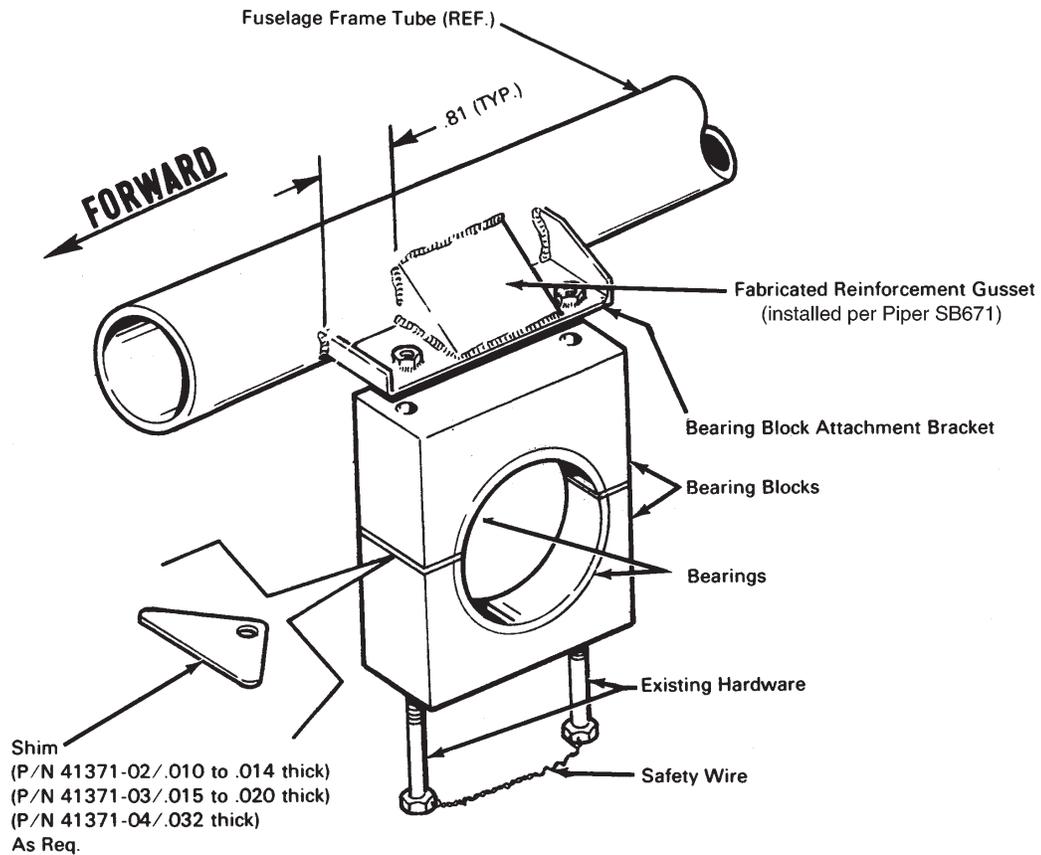
NOTE: If you are no longer in possession of this aircraft, please forward this information to the present owner/operator and notify the factory of address/ownership corrections. Changes should include aircraft model, serial number, current owner's name and address.

Corrections/changes should be directed to:

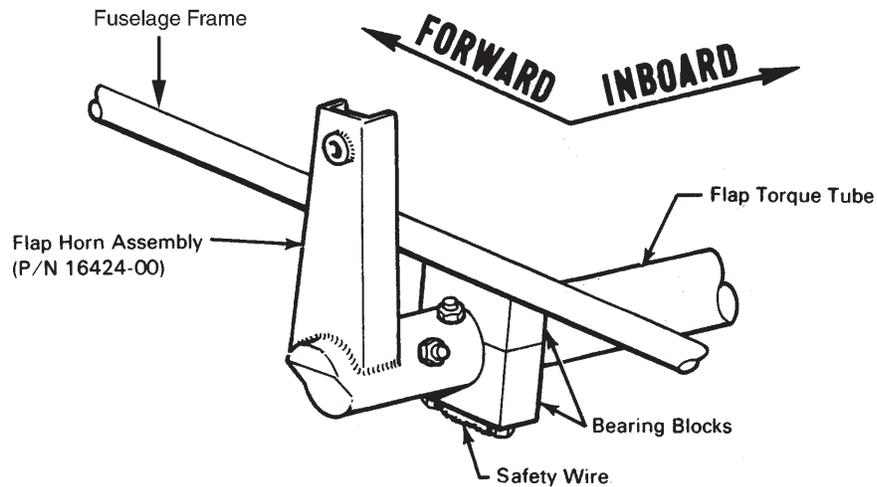
THE NEW PIPER AIRCRAFT, INC.
Attn: Customer Care
2926 Piper Drive
Vero Beach, FL 32960



Flap Control System Detail
SKETCH A



REINFORCEMENT GUSSET INSTALLATION DETAIL
(Right Side Only)



FLAP HORN DETAIL
(View Looking In From Left Side)

Flap Horn and Reinforcement Gusset Detail
SKETCH B