

APPLICABLE MODELS
PA-44-180, PA-44-180T

GEAR LOBE FAIRING

INSTALLATION MANUAL
ISSUE DATE 02/14/92

**KNOTS 2U, LTD.
709 AIRPORT ROAD
BURLINGTON, WI 53105
262 763-5100**

**✓ FAA
APPROVED**

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REVISIONS

REV. No.	DATE	PAGE	EFFECT
A	04/15/92	1,2,3,4,6	Changed table of contents, fairing installation procedures and Maintenance Manual
B	09/05/96	1,2,4	Moved Revisions to cover, changed installation procedures
C	06/01/97	COVER,3,6.	Changed name and address

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NOTE #1:

IF ADJUSTMENT OR RE-RIGGING OF THE FLAPS IS REQUIRED IT SHOULD BE COMPLETED, ACCORDING TO THE APPROPRIATE PIPER SERVICE MANUAL, PRIOR TO INSTALLATION OF THE GEAR LOBE FAIRINGS. THE REAR FAIRINGS ARE MOUNTED TO THE FLAP SURFACE AND ANY CHANGE IN THE FLAP RIGGING, AFTER THE INSTALLATION COULD MAKE IT NECESSARY TO REPOSITION THE REAR LOBES. IT IS SUGGESTED THAT THE FLAP RIGGING BE VERIFIED BEFORE THE INSTALLATION. IT IS ALSO IMPORTANT TO LIMIT THE DRILLING DEPTH FOR THE RIVNUT INSTALLATION TO THE REQUIRED DEPTH AND NOT TO DRILL UNNECESSARILY DEEP.

SECTION 1.0 = LEFT GEAR LOBE INSTALLATION =**1.1 -JACKING THE AIRCRAFT-**

Aircraft should be placed on jacks to enable a retraction test to assure proper tire clearance during retraction cycle. Further, the aircraft should be level for flap rigging verification.

1.2 -PRELIMINARY LOCATION OF LEFT GEAR LOBES-

Referring to Detail #1 Figure #1, #2 and #3 tape the left gear lobes P/Ns **28LOBF** and **28LOBR** together using masking tape, with guide pins holding them in proper mating position. Align fairings with the thrustline of the aircraft. With the top leading edge of fairing even with the trailing edge of the wheel well opening and the trailing edge even with the trailing edge of the flap the fairing should be aligned properly. The lower leading edge will be forward of the top edge when fairing is properly positioned. Tape fairing firmly in place and observe alignment of the fairing with the tire and the thrustline of the aircraft and confirm that the positioning is proper. Adjust as required. Next, cycle the landing gear to assure that the fairing clearance from any part of the tire is at least 1/2". With master switch off place gear switch in up position and toggle gear up slowly while someone observes the tire clearance. (An APU power supply is recommended for this operation) If the clearance is insufficient, move the fairing aft. With gear retracted, view the tire and fairing from the front of the aircraft. The fairing should be hidden by the tire and not protrude into the airstream.

1.3 -LOCATING MOUNTING HOLES FOR LEFT GEAR LOBES-

Using a punch or awl mark the hole locations through the countersunk positions on the fairings. Remove the fairings and using a #2 drill, drill holes in the skin at the marked locations. If any of the holes will fall on an existing rivet or screw, the hole must be relocated slightly on both the aircraft and the fairing and the existing hole on the fairing must be sealed, using bondo. Install 7 P/N **A8K-75** rivnuts at the hole locations.

NOTE #2:

IF AIRCRAFT IS EQUIPPED WITH FLAP GAP SEALS IT WILL BE NECESSARY TO TRIM THE GAP SEAL EVEN WITH THE TRAILING EDGE OF THE FRONT LOBE SO THAT IT WILL CLEAR THE REAR LOBE AS THE FLAP IS RETRACTED. DO NOT ATTEMPT TO RETRACT FLAPS UNTIL THIS IS ACCOMPLISHED. SEE DETAIL #1 FIGURE #3.

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1.4 -INSTALLING RUBBER SEAL ON GEAR LOBES-

At this point it may be desirable to paint the fairings before installing the rubber seal. See Detail #1 figure #4. The seal P/N **189-715** should be installed flush with the forward and side edges and at the point where the lobe fits against the trailing edge of the wing skin. Similarly, the rubber should be installed on the rear lobe so there are no edges which allow air or moisture leakage. Also, lay a strip of the rubber seal 1/2" in front and 1/2" aft of each row of screw holes to absorb the pressures of tightening the lobe down. Reinstall the gear lobes and recheck the flap operation. If the surfaces of the lobes do not mate properly when the lobes are tightened you may shim one or the other with extra rubber to correct the misalignment. When the lobes are securely fastened the mating line of the front and rear lobes should be as flush as possible. In no case should the leading edge of the rear lobe hang below the trailing edge of the front lobe! Prior to final installation of the fairings the flat upper surface should be cleaned using alcohol or MEK. Several beads of silicon should be applied to the skin where the lobe will contact it.

1.5 -CHECKING FLAP OPERATION AND CLEARANCES-

With both left fairings firmly attached run flap carefully up and down to full travel while someone observes the operation to confirm that the lobes are properly seating into each other and that they do not interfere with flap operation. If the guide pins tend to bind during flap operation they may be trimmed or removed.

1.6 INSTALLATION OF LEFT GEAR LOBES-

Referring to Detail #1 Figure #3 and Figure #4 secure P/N **28LOBLF** in place using 4 P/N **AN507-832-R24** screws. On P/N **28LOBLR** use 2 P/N **AN507-832-R20** screws in front holes and 2 P/N **AN507-832-R16** screws in rear holes. After installing all screws and confirming all facets of alignment and clearance remove the screws individually and apply a drop of loctite adhesive to the first 2 or 3 screw threads and reinstall tightly. This should be done one screw at a time to retain the proper positioning of the lobes. Do not over tighten screws!

1.7 -FINAL SEALING OF GEAR LOBES-

After lobes are installed it is suggested that a bead of RTV be installed at the screw locations and around the lobe edges to give a positive seal and to enhance the appearance and aerodynamics. This is best done with the part to be sealed masked off and after the sealant is applied it can be skived off, using a finger dipped in alcohol, to produce a clean joint.

SECTION 2.0 = RIGHT GEAR LOBE INSTALLATION =

Repeat steps 1.2 through step 1.7 on right side.

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SECTION 3.0 = PAPERWORK =

Perform paperwork (337 and log book entries). Place Supplemental Type Certificate and KNOTS 2U, LTD. Maintenance Manual with log books.

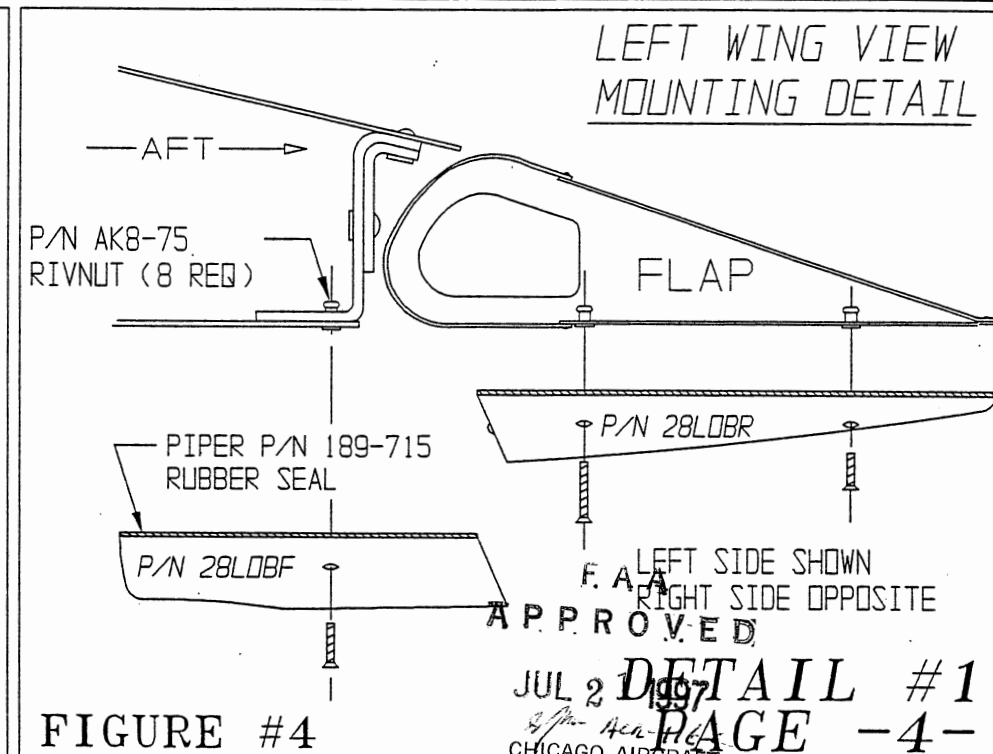
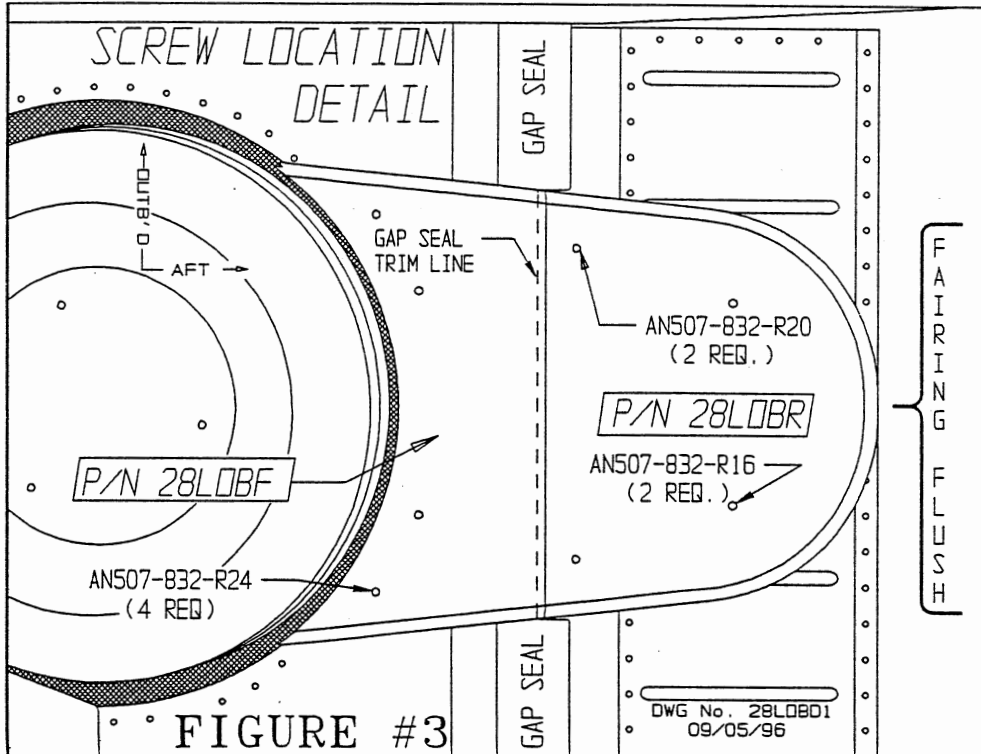
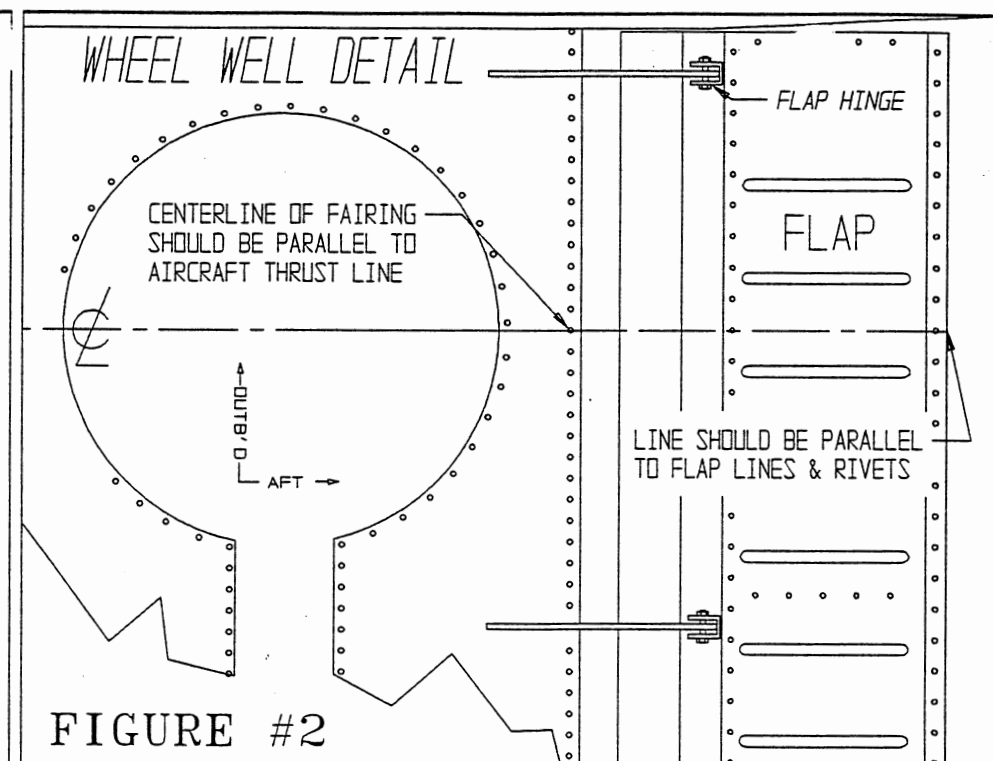
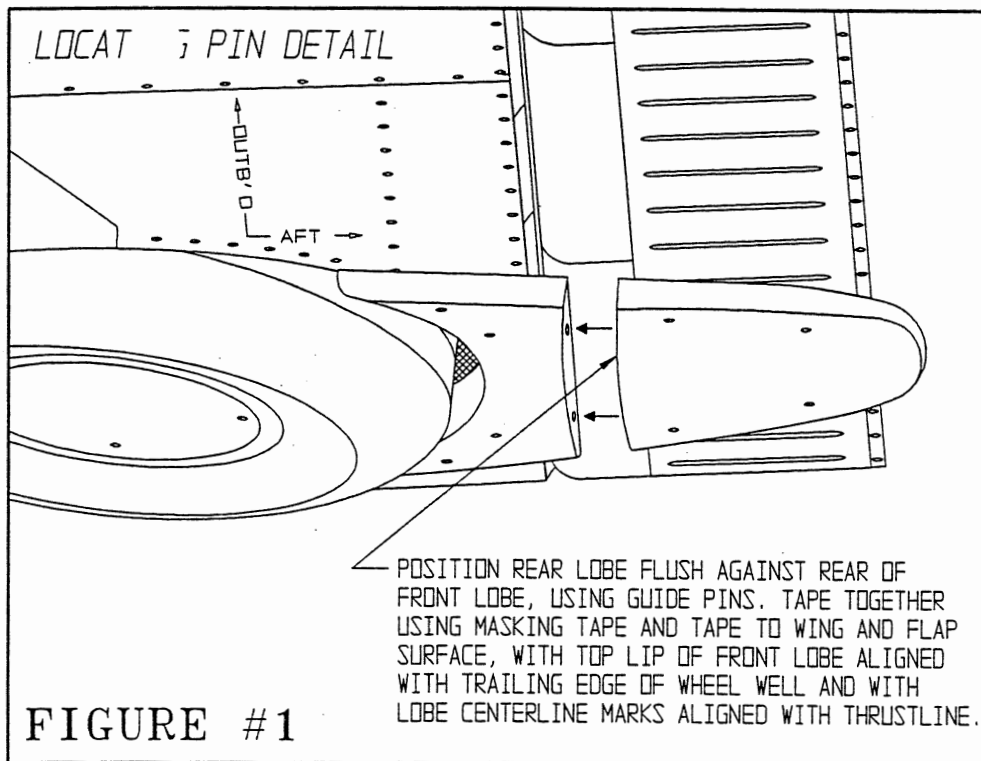
GEAR LOBE FAIRINGS AND HARDWARE WEIGHT = 2.2 LBS.
GEAR LOBE FAIRINGS AND HARDWARE ARM = 132.0 INCHES

SECTION 4.0 = PARTS LIST =

PART NUMBER	NO. REQ	DESCRIPTION
28LOBF	2	GEAR LOBE FRONT
28LOBR	2	GEAR LOBE REAR
AK8-75	16	RIVNUT
AN507-832-R16	4	SCREW
AN507-832-R20	4	SCREW
AN507-832-R24	8	SCREW
189715	35'	PIPER RUBBER SEAL
222-05	.05ML	LOCTITE ADHESIVE

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DETAIL #1

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= SECTION 7.0 MAINTENANCE MANUAL =**KNOTS 2U, LTD.****PIPER PA-44****GEAR LOBE FAIRINGS****PART A. INSPECTION**

1. During annual or 100 hour inspections, inspect Gear Lobe attachment hardware for excessive wear or looseness.

PART B. MAINTENANCE

1. There are no special tools required to maintain the Gear Lobes. Any tools needed are basic hand tools.
2. If the Gear Lobe attachment hardware is found to be excessively worn or loose during the 100 hour/annual inspection, it should be replaced.
3. If the tires are replaced, after the Gear Lobe Fairing installation, it is important to install tires which are at least as wide as the tires which were on the aircraft at the time of installation. If a narrower tire is installed it could change the performance by allowing the fairing to hang below the tire creating drag.

PART C. CRACKING OR DEFECTS

1. If a crack is found on a Gear Lobe, stop drill the crack and fill it with silicon and smooth the surface.
2. If any crack exceeds 1 inch in length; or, if a crack runs from an attachment hole to the outer edge of the Gear Lobe, remove the part and repair the crack according to FAR 43.13-1A Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair, Chapter 2.

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