



# SERVICE *No. 997* LETTER

Piper Aircraft Corporation  
Vero Beach, Florida, U.S.A.

Date: May 14, 1987 S

SUBJECT:

Wing Removal and Reinstallation:  
Reference Airworthiness Directive  
87-08-08

MODELS AFFECTED:

PA-28-140 Cherokee  
PA-28-150/160/180 Cherokee  
PA-28-151 Warrior  
PA-28-161 Warrior II  
  
PA-28-181 Archer II  
  
PA-28R-180 Arrow  
PA-28R-200 Arrow/Arrow II  
PA-28R-201 Arrow III  
PA-28R-201T Turbo Arrow III  
PA-28RT-201 Arrow IV  
PA-28RT-201T Turbo Arrow IV  
  
PA-28-235 Cherokee  
  
PA-32-260 Cherokee Six  
PA-32-300 Cherokee Six 300

SERIAL NUMBERS AFFECTED:

28-20000 through 28-7725290  
28-1 through 28-7505259 and 28-E13  
28-7415001 through 28-7715314  
28-7716001 through 28-8616057,  
2816001 and up  
28-7690001 through 28-8690056,  
28-8690061, 28-8690062, 2890001 and  
up  
28R-30001 through 28R-7130013  
28R-35001 through 28R-7635545  
28R-7737001 through 28R-7837319  
28R-7703001 through 28R-7803374  
28R-7918001 through 28R-8218026  
28R-7931001 through 28R-8631005,  
2831001 and up  
28-10001 through 28-7710089 and  
28-E11  
32-1 through 32-7800008  
32-40001 through 32-7840202

COMPLIANCE TIME:

In accordance with Airworthiness  
Directive 87-08-08

PURPOSE:

This Service Letter is intended to supplement  
Airworthiness Directive 87-08-08 by providing instructions for removal and  
reinstallation of wings on Piper PA-28 and PA-32 Model aircraft.

APPROVAL:

The technical contents of this Service Letter have  
been F.A.A. approved.

INSTRUCTIONS:

NOTE: FOR DETAILED INSTRUCTIONS REGARDING CABLE TENSIONS,  
CONTROL SURFACE TRAVELS, TORQUE VALUES, HYDRAULIC  
AND FUEL SYSTEM SERVICING PROCEDURES, REFER TO THE  
APPROPRIATE SERVICE/MAINTENANCE MANUAL.

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ATA: 5711

INSTRUCTIONS: (Cont'd)Wing Removal:

1. Disconnect battery.
2. Completely drain fuel system.
3. Completely drain brake lines and reservoir.
4. On PA-28R, drain hydraulic lines by separating lines at the main landing gear actuators.
5. Remove access plates and wing to fuselage seals at wing butt rib.
6. Remove seats forward and aft of spar carrythrough.
7. Remove seatboard (if applicable), spar carrythrough carpet and left and right interior side panels aft and forward of the spar carrythrough.
8. Place aircraft on jacks.

NOTE: TO FACILITATE REINSTALLATION OF CONTROL CABLES, FUEL AND HYDRAULIC LINES, MARK CABLE AND LINE ENDS AND/OR ATTACH A LINE WHERE APPLICABLE TO CABLES BEFORE DRAWING THEM THROUGH FUSELAGE OR WING.

9. Disconnect aileron balance and control cables at turnbuckles within fuselage aft of spar or at bellcranks in wing as applicable.
10. Remove cotter pins and/or cable guards from pulley bracket assemblies to allow cable ends to pass between pulleys and brackets.
11. Disconnect flaps from the torque tube by fully lowering flaps and removing the bolt and bushing from the bearing at the aft end of the control rod.
12. Disconnect fuel lines at fittings located at or near the wing butt line.

CAUTION: TO PREVENT DAMAGE AND CONTAMINATION OF FUEL, HYDRAULIC AND OTHER LINES, CAP OR PLUG ALL LINE ENDS WHICH ARE SEPARATED DURING WING REMOVAL.

13. Remove clamps and/or ties as required to release the electrical harness assembly. Disconnect applicable electrical leads from the terminal strip assembly, (located on the aft spar frame, left side within the fuselage), by removing cover and appropriate nuts and washers.
14. Access brake line fittings by removing lower forward air vent assemblies, if applicable.
15. Disconnect brake lines at fittings located within the cockpit at the leading edge of the wing on the left and right sides.
16. On PA-28R, disconnect hydraulic lines within the cockpit aft of the spar carrythrough.
17. On the left side it will be necessary to disconnect the pitot tubes within the cockpit at the wing butt line.
18. Arrange a suitable fuselage cradle and supports for both wings.
19. Remove wing jacks.
20. Remove the front and rear spar to fuselage attach nuts, washers and bolts, discard nuts. (Note number and position of washers at each attach point for reinstallation.)
21. Remove eighteen (per wing) main spar to spar carrythrough attach nuts, washers and bolts, discard nuts. (Note position of shims at top spar cap for reinstallation.)

INSTRUCTIONS: (Cont'd)

**WARNING:** USE EXTREME CARE IN REMOVING BOLTS TO PRECLUDE DAMAGE TO THE BOLT HOLES IN MAIN SPAR AND SPAR CARRYTHROUGH. NUMBER EACH BOLT AND BOLT HOLE UPON REMOVAL OF BOLT TO ASSURE REINSTALLATION OF BOLTS IN ORIGINAL LOCATIONS.

22. Slowly and very carefully extract wing from fuselage being certain all electrical leads, cables and lines are disconnected and that no undue upward or downward pressure is exerted upon the inboard spar within the spar carrythrough.

**NOTE:** INSPECT WING SPAR IN ACCORDANCE WITH AIRWORTHINESS DIRECTIVE 87-08-08.

Wing Installation:

**WARNING:** IF REPLACEMENT OF BOLTS IS REQUIRED, ENSURE PROPER GRIP LENGTH IS MAINTAINED. INSTALL NEW NUTS ON MAIN SPAR AND FORWARD AND AFT SPAR ATTACH BOLTS, SEE THE APPROPRIATE PARTS CATALOG FOR PROPER HARDWARE.

1. Ascertain that the fuselage is solidly positioned on the support cradle.
2. Place wing in position for installation a few inches away from the fuselage.
3. Prepare the various lines, cables and electrical leads for inserting into the wing or fuselage when the wing is slid into place. Insure that the front wing fitting bushing is installed.
4. Slide the wing into position in the fuselage, assuring that the lines, cables and electrical leads are fed into place.
5. Install the eighteen (per wing) main spar to spar carrythrough attach bolts. (Note: Top spar cap shims must be in position prior to installing bolts.)

**NOTE:** IF REINSTALLING ORIGINAL BOLTS MARKED PER REMOVAL INSTRUCTIONS, REINSTALL IN CORRESPONDING HOLES. IF NEW BOLTS ARE USED, INSTALL IN ACCORDANCE WITH THE BOLT LEGEND IN THE APPLICABLE SERVICE/MAINTENANCE MANUAL.

6. Install front and rear spar to fuselage attach bolts. Refer to applicable Service/Maintenance Manual for correct installation of washers.
7. Torque the eighteen (per wing) main spar bolts and front and rear spar bolts to proper torque values.
8. Install wing jacks and tail support to tail skid with sufficient ballast to anchor tail, and remove fuselage cradle and wing supports.
9. At left wing, connect pitot tubes at wing butt line. If heated, the plus lead must be connected at the fuselage.
10. Connect the brake lines to fittings within the cockpit at the leading edge of the wing and torque "B" nuts.

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**INSTRUCTIONS:** (Cont'd)

11. On PA-28R Models, connect the hydraulic lines within the fuselage aft of the spar carrythrough and torque "B" nuts.
12. Connect the electrical leads to the appropriate posts on the terminal strip, reinstall clamps and ties to secure harness, reinstall terminal strip dust cover.
13. Connect fuel lines at wing butt line and torque "B" nuts.
14. Connect aileron balance and drive cables at point of disassembly, install cotter pins and cable guards at pulley brackets.
15. Connect flaps by placing flap handle in the full UP position, place the bushing on the outside of the rod end bearings, insert and tighten bolts.
16. Check the rigging and control cable tension of the ailerons and flaps.
17. Refill and service the brake system to assure proper operation.
18. On PA-28R, refill and service the hydraulic system and perform a gear function check.
19. Refill and service the fuel system, check for leaks.
20. Check the operation of all electrical equipment.
21. Perform a leak and function check on the pitot system.
22. Remove aircraft from jacks.
23. Install interior side panels, spar carrythrough carpet, seatboard (if applicable), front and aft seats and seat track stops as required.
24. Check pilot's and co-pilot's seat operation.
25. Install wing to fuselage seal, and wing access panels.
26. Ground run aircraft to verify proper operation of fuel and brake systems.
27. Make appropriate logbook entry of compliance with Airworthiness Directive 87-08-08.

**MATERIAL REQUIRED:**

To be determined by model applicability and inspection. Refer to the appropriate Parts Catalog.

**AVAILABILITY OF PARTS:**

Your Piper Field Service Facility or shop stock.

**EFFECTIVITY DATE:**

This Service Letter is effective upon receipt.

**SUMMARY:**

Please contact your Factory Authorized Piper Field Service Facility to make arrangements for compliance with this Service Letter in accordance with the Compliance Time of Airworthiness Directive 87-08-08.

**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, and current owner's name and address.

Corrections/Changes should be directed to:

Piper Aircraft Corporation  
Attn: Product Support  
P.O. Box 1328  
Vero Beach, FL 32961-1328