



Piper Aircraft Corporation  
2926 Piper Drive  
Vero Beach, Florida, U.S.A. 32960

# SERVICE *No. 974* BULLETIN

## PIPER CONSIDERS COMPLIANCE MANDATORY

DATE: October 19, 1994

(M)

**SUBJECT:**

Aileron Hinge Inspection and Replacement

**MODELS AFFECTED:**

PA-31, 31-300, 31-325 Navajo  
PA-31-350 Navajo Chieftain  
PA-31-350 T1020  
PA-31P-350 Mojave  
PA-31T3 T1040

**SERIAL NUMBERS AFFECTED:**

31-2 through 31-8312019  
31-5001 through 31-8452021  
31-8253001 through 31-8553002  
31P-8414001 through 31-8414050  
31T-8275001 through 31T-5575001

**COMPLIANCE TIME:**

At the next regularly scheduled maintenance event, but not to exceed the next one hundred (100) hours of operation and at each one hundred (100) hours thereafter until reaching one thousand (1000) hours cumulative time in service, at which time the aileron hinge must be replaced.

**APPROVAL:**

The technical contents of this Service Bulletin has been approved by the F.A.A.

**PURPOSE:**

Reports have been received of small cracks developing in the aileron spar and reinforcement doubler beneath the inboard aileron hinge attachment point.

Left uncorrected, the structural integrity of the aileron will be compromised to such a degree that aircraft flight characteristics may be affected.

This Service Bulletin provides instructions for inspection and replacement of the inboard aileron hinges. Installation of the replacement hinge will relieve the repetitive requirements of the Compliance Time above.

**INSTRUCTIONS:** (REFER TO SKETCH "A" AS REQUIRED)

1. Remove left and right ailerons. Refer to the appropriate Maintenance Manual for specific instructions.
2. Remove existing inboard aileron hinge bracket exposing spar and doubler.

**CAUTION:** Do not confuse the aileron hinge with push/pull rod hinges.

(OVER)  
ATA: 5750

**INSTRUCTIONS:** (CONT'D)

3. Inspect the area beneath the inboard hinge on the aileron spar for cracks. If cracks are not visually observed, use a suitable dye penetrant method for inspection.
4. If no cracks are found, re-inspect in accordance with the compliance time indicated. If a crack is found, proceed to Instruction 5. If the time limit of one thousand (1000) hours time in service is reached with no cracks, proceed to Instruction 7.

**NOTE:** A new hinge may be installed at any time. Installation of the replacement hinge will relieve the repetitive requirements of the Compliance Time above.

5. If the aileron spar is cracked, inspect the rib just behind the hinge for signs of cracking. If the spar assembly and/or rib are cracked, replace them before proceeding further. Refer to the appropriate Parts Catalog for applicable part numbers.

**NOTE:** New replacement aileron spar assemblies will have holes and nutplates installed to accommodate the new aileron hinge bracket.

6. Install the new Hinge Bracket, Piper Part Number 74461-02 (left) and 74461-03 (right), utilizing three (3) each AN3-5A Bolts, Piper Part Number 401-266, three (3) each AN960-10 Washers, Piper Part Number 407-564, and one (1) each MS24694S53 Flush Screw, Piper Part Number 410-035, per Hinge Bracket.

**NOTE:** The flush screw location is at the bottom outboard corner of each hinge bracket.

Burnish the area around the upper, outboard hole on the hinge brackets for ground strap installation. Add one (1) each MS35338-43 Lock Washer, Piper Part Number 407-043, between the bolt head and washer, place ground strap terminal against hinge bracket and install bolt. Apply standard torque to each fastener.

7. If no cracks are present, it will be necessary to drill additional holes and add two (2) additional nutplates to the existing aileron spar assembly. Temporarily install the new hinge bracket to the aileron spar. Using the new hinge bracket as a template, drill two (2) new .191 inch holes in the spar to match.

**NOTE:** Installation of the replacement hinge will relieve the repetitive requirements of the Compliance Time above.

8. Remove enough rivets from the aileron skin to gain access to the inside of the aileron.
9. Inspect the aileron rib flange for cracks at the original hinge bracket attachment point and replace if cracked. Install two (2) each NAS687A3 Nutplates, Piper Part Number 406-816, using two (2) each MS20426AD3 rivets to attach each nutplate. Seal the open nutplate which was previously used for the static ground strap attachment with RTV-106 sealant. Close the aileron skin using MS20470AD3 rivets as were originally installed.

**INSTRUCTIONS (CONT'D):**

10. Install the new hinge brackets, utilizing three (3) each AN3-5A Bolts, Piper Part Number 407-266, three (3) each AN960-10 Washers, Piper Part Number 407-564, and one (1) each MS24694S53 Flush Screw, Piper Part Number 410-035, per hinge bracket. Burnish the area around the upper outboard hole on the hinge brackets for ground strap installation. Add one (1) each MS35338-43 Lock Washer, Piper Part Number 407-043, between the bolt head and washer. Place the ground strap terminal against the hinge bracket and install the bolt. Apply standard torque to each fastener.
11. Touch-up the paint as required and check the balance of each aileron per the instructions contained in the appropriate aircraft Maintenance Manual.
12. Reinstall the ailerons on the aircraft, check rigging, travels and clearances. Refer to the appropriate aircraft Maintenance Manual as required.
13. Make appropriate logbook entry of compliance with this Service Bulletin.

**MATERIAL REQUIRED:** One (1) each Aileron Hinge Bracket, Piper Part Number 74461-02 (left) and one (1) each Aileron Hinge Bracket, Piper Part Number 74461-03 (right); four (4) each NAS 687A3 Nutplates, Piper Part Number 406-816; six (6) each AN3-5A Bolts, Piper Part Number 401-266; six (6) each AN960-10 Washers, Piper Part Number 407-564; two (2) each MS24694S53 Flush Screws, Piper Part Number 410-035; and two (2) each MS35338-43 Lock Washers, Piper Part Number 407-043.

**AVAILABILITY OF PARTS:** Your Piper Field Service Facility.

**EFFECTIVITY DATE:** This Service Bulletin is effective upon receipt.

**SUMMARY:** There is no applicable factory participation for this Service Bulletin.

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

**SUMMARY (CONT'D):**

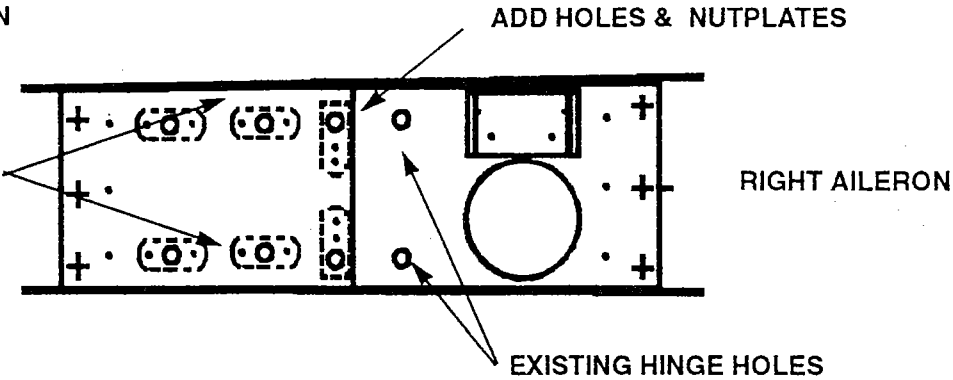
**NOTE:** If you are no longer in possession of this aircraft, please forward this information to the present Owner/Operator and notify the factory of address/ownership corrections. Changes should include aircraft model, serial number, current owner's name and address.

Corrections/Changes should be directed to:

PIPER AIRCRAFT CORPORATION  
ATTN: Customer Services  
2926 Piper Drive  
Vero Beach, FL 32960

TYPICAL AILERON

INSPECT:  
CRACKS WILL  
APPEAR ALONG  
SPAR FLANGE  
AND AT ATTACH  
HOLES.

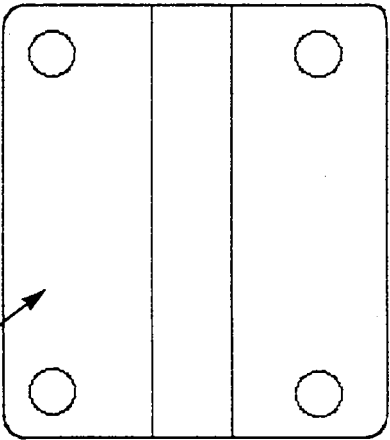
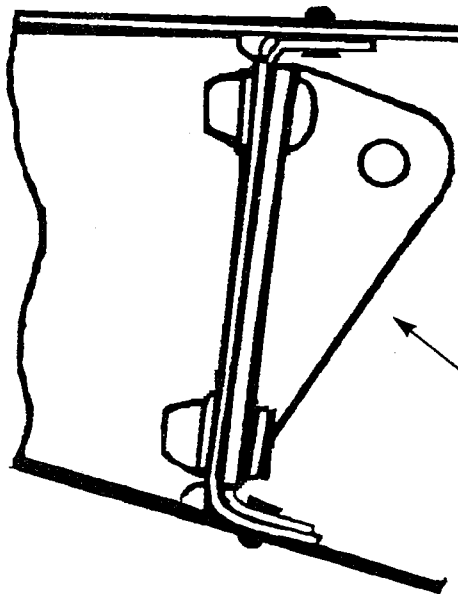
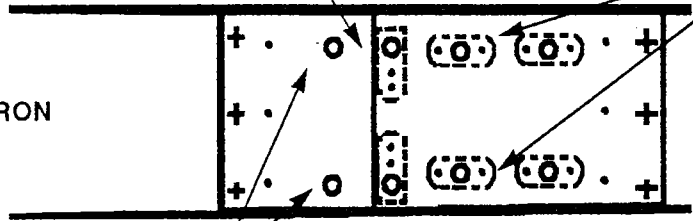


ADD HOLES & NUTPLATES

LEFT AILERON

EXISTING HINGE HOLES

INSPECT:  
CRACKS WILL  
APPEAR ALONG  
SPAR FLANGE  
AND AT ATTACH  
HOLES.



INSTALL NEW HINGE  
P/N'S 74461-02 (LEFT)  
AND 74461-03 (RIGHT)

SKETCH A