



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

# SERVICE No. 998A BULLETIN

## PIPER CONSIDERS COMPLIANCE MANDATORY

DATE: August 4, 1997

(M)

(Service Bulletin No. 998A supercedes and voids Service Bulletin No. 998 February 7, 1997)

**REASON FOR REVISION:**

To Revise Repetitive Inspection Requirements.

**SUBJECT:**

**Elevator Spar Inspection**

**MODELS AFFECTED:**

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

**SERIAL NUMBERS AFFECTED:**

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

**COMPLIANCE TIME:**

Upon reaching 2500 hours time in service, or at the next regularly scheduled maintenance event not to exceed one hundred (100) hours time in service and at each one hundred (100) hours time in service thereafter. (Aircraft above 2500 hours time in service must make initial compliance at the next regularly scheduled maintenance event not to exceed one hundred (100) hours time in service.)

*Note:*

*The repetitive requirement of the compliance time above may be relieved by installation of new elevator or elevator spar assemblies as identified below.*

**APPROVAL:**

The technical content of this Service Bulletin has been approved by the Federal Aviation Administration.

**PURPOSE:**

Reports have been received of small cracks developing in the elevator spar outboard end and at the reinforcement doubler just inboard of the outboard elevator hinge attachment point. The condition is aggravated by poor field installation or maintenance of replacement elevator horn ice protection boots.

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

This Service Bulletin provides instructions for the installation of access holes for the inspection of the elevator spar and requires repetitive inspections thereafter. In addition, instructions are included to assure proper installation and if necessary the replacement of the elevator horn ice protection boot.

**INSTRUCTIONS:**

**Inspection Hole Installation:** (Refer to the appropriate Sketch and Figure as required.)

1. Determine the applicable left and right elevator part numbers. Refer to the appropriate Piper Parts Catalog for specific part numbers.
2. Refer to Sketch A or B and use the figure for the left and right elevator which matches the part number determined in Instruction 1 above.

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**INSTRUCTIONS:** (CONT'D)**Inspection Hole Installation:** (Cont'd)

3. Using the dimensions given on the proper sketch and figure, lay out and mark the location for the installation of the two inspection access holes. (**Two** inspection access holes on the bottom of **each** elevator.)
4. Cut a 7/8 inch (2.22 cm) hole using a sharp high quality hole cutter. Do not use a fly cutter.
5. Deburr the hole and touch up the edge with zinc chromate or equivalent paint.
6. Continue with the inspection section below prior to installing the access hole covers.

**Elevator Spar Inspection:** (Refer to Sketch C Fig. 1)

1. Using a boroscope inspect the area inboard of the outboard hinge on the elevator spar for cracks. If cracks are not observed, continue with these instructions.
2. Using a boroscope inspect the area at the outboard end of the elevator spar for cracks in the flange and cracks that start along the flange bend radius. If cracks are not observed, proceed to Instruction 3.
3. If cracks are not present per Instructions 1 or 2 above, proceed to Instruction 5 below.
4. If the elevator spar is cracked, in either one or both locations as identified in Instructions 1 or 2 above, the elevator spar must be replaced. A new elevator may be installed in lieu of replacing the elevator spar. (See Materials Required Table on page 4)

*Note:*

*If replacing the elevator spar only, the following Piper Service Bulletins must be complied with prior to installation: SB 323, 361, 500, 687, 690, and 864. In addition the following Service Letters should be observed: SL 609, 681, 696, 778, 789, and 916. Check each Publication for Model and Serial number applicability.*

*Note:*

*The requirements of the compliance time above may be relieved by installation of new elevator assemblies as listed in the materials required section.*

*Caution:*

*If the installation of new elevator assemblies is chosen, all standard practices must be observed. Some components such as the elevator tip assemblies, balance weights and associated hardware are not included with the new elevator, assure these components are removed and installed on the new elevator prior to installation of the elevator onto the aircraft. New elevator must be painted, balanced and rigged before returning aircraft to service. Refer to the applicable sections of the airplane Maintenance Manual for removing, installing, rigging, painting and balancing elevators.*

5. Upon successful completion of the elevator spar crack inspection, install the two cover plates, Piper Part Number 481-095 on each elevator.

*Note:*

*The repetitive inspection requirement noted in the compliance time above remains for elevators which have been inspected but which have no cracks. Replacement of the elevator spar (new or old p/n's) will relieve the repetitive inspection requirements.*

6. Paint the access covers to match the elevator. Please note, a balance check of the elevators is not required for installation of the inspection access covers and touch-up paint.
7. Make an appropriate logbook entry of compliance with this Service Bulletin.

**INSTRUCTIONS:** (CONT'D)**Elevator Ice Protection Boot Inspection and Installation:** (Refer to Sketch C Fig.2)

1. Locate the flexible boot (required installation on all PA-31 series aircraft) installed on each elevator horn tip and examine it for general condition. If the boot is torn, damaged, deteriorating, or in any manner unfit, the boot must be replaced. (Piper P/N 44322-02.)
2. If the boot is loose but otherwise in serviceable condition the boot must be tightened. Looseness may be defined by the condition where the boot may be pulled up off the underlying surface or pinched between the fingers.
3. Remove the screws and washers retaining the boot assembly and remove. The assembly consists of an elastic boot and a fiberglass shell.
4. Remove and discard the old boot. Clean the fiberglass edge of old glue and silicone lubricant. Generally clean and prepare the fiberglass tip for the boot installation.
5. Try the new boot over the fiberglass tip with the shiny side out. The boot should fit snugly with no wrinkles.
6. With the new boot fit, but prior to the addition of silicone, follow the glue manufacturers instructions and glue one edge of the boot to the inside edge of the fiberglass tip using 3M 1300L glue (or equivalent). Let the glue cure. Carefully fold back the boot and spread a very thin coat of silicone lube such as Sil-Glyde or Dow Corning DC-4. Do not allow the silicone to contaminate the remaining edge of the boot or the inside edge of the fiberglass tip to be glued.
7. Glue the remaining edge of the boot so there is no evidence of wrinkles or looseness. (A soft edge clamp should be used to hold glued edge in place to cure.) *Note: A loose boot in good condition may use the above instructions.*
8. Install the tips onto the elevator. Care must be taken when installing the screws so the new boot is not torn.
9. If a new boot is installed or an existing boot re-installed, make an appropriate log book entry.

**MATERIAL REQUIRED:** Four (4) each, Cover Plate, Piper Part Number 481-095, per airplane. As required by inspection two (2) each, Boot, Piper Part Number 44322-02, per airplane. If desired to relieve the repetitive inspection order the following: One (1) each Elevator Assembly (**See the Material Required Table on page 4.**)

**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.

**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 Services  
2926 Piper Drive  
Vero Beach, FL 32960

Material Required Table

Model	Serial Number Effectivity	Existing Elevator P/N	Replacement Elevator P/N	Existing Spar P/N	Replace Spar P/N
PA-31-300 PA-31	31-5 TO 31-148	40140-0, -28 LH	40140-30 LH	40075-2	40075-18
		40140-1, -29 RH	40140-31 RH	40075-3	40075-19
PA-31-300 PA-31	31-149 TO 31-7612039 (NO WING LOCKERS)	43757-180 LH	43757-186 LH	40075-9	40075-20
		43757-171 RH	43757-185 RH	40075-11	40075-21
PA-31-300 PA-31-	31-149 TO 31-7612039 (WITH WING LOCKERS)	43757-182 LH	43757-186 LH	40075-9	40075-20
		43757-173 RH	43757-185 RH	40075-11	40075-21
PA-31	31-7612040 & UP (NO WING LOCKERS)	54232-20 LH	54232-38 LH	40075-14	40075-20
		54232-31 RH	54232-39 RH	40075-16	40075-21
PA-31	31-7612040 & UP (WITH WING LOCKERS)	54232-26 LH	54232-38 LH	40075-14	40075-20
		54232-37 RH	54232-39 RH	40075-16	40075-21
PA-31-325	ALL	54232-22 LH	54232-38 LH	40075-14	40075-20
		54232-33 RH	54232-39 RH	40075-16	40075-21
PA-31-350	31-5001 TO 31-7652070	43757-184 LH	43757-186 LH	40075-9	40075-20
		43757-175 RH	43757-185 RH	40075-11	40075-21
PA-31-350	31-7652071 & UP	54232-24 LH	54232-38 LH	40075-14	40075-20
		54232-35 RH	54232-39 RH	40075-16	40075-21
PA -31P-350	31P-8414001 & UP	54232-14 LH	54232-38 LH	40075-14	40075-20
		01140-3 RH	01140-10 RH	01131-2	01131-7

## CAUTION:

Replacement New Elevator assemblies are delivered without elevator tips, boots, balance weights and associated hardware. For replacement of these parts, consult the applicable Parts Catalog. The existing elevator trim tabs must also be used.

## SKETCH A

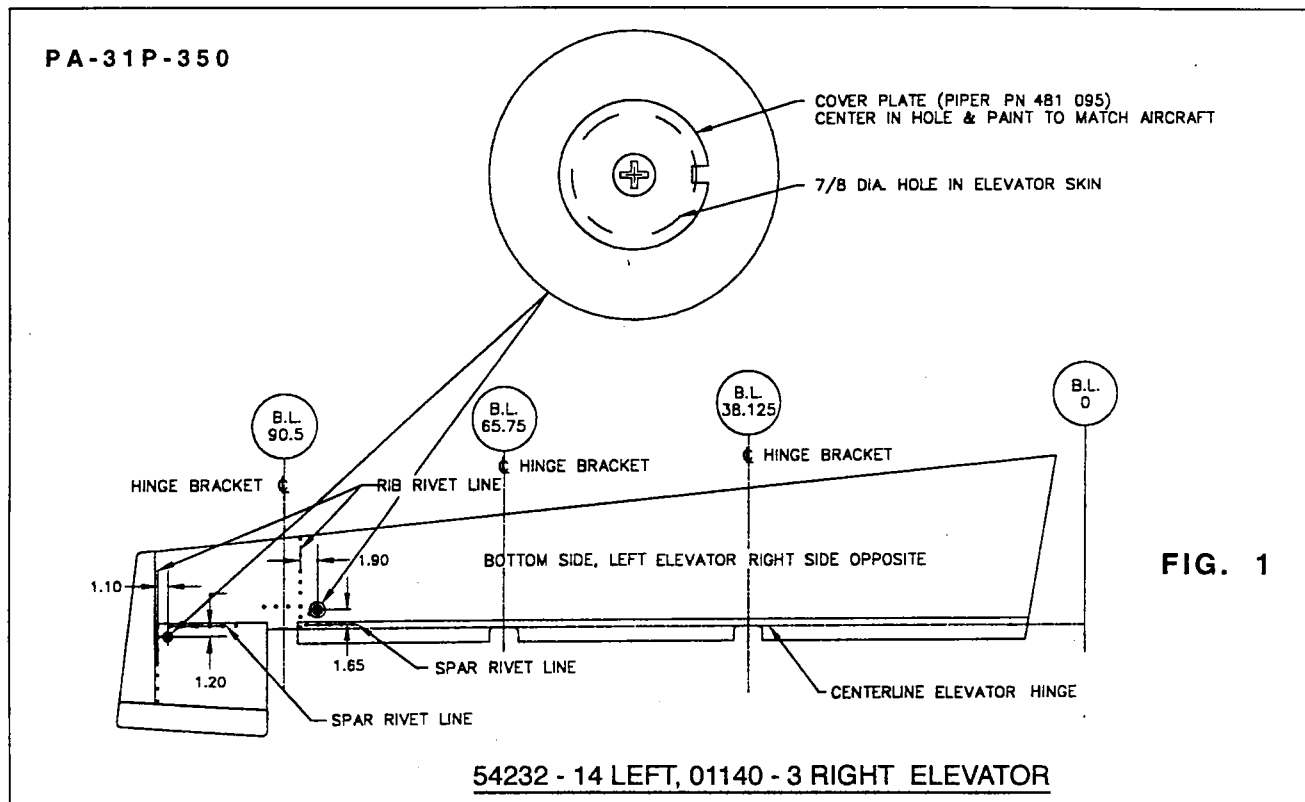


FIG. 1

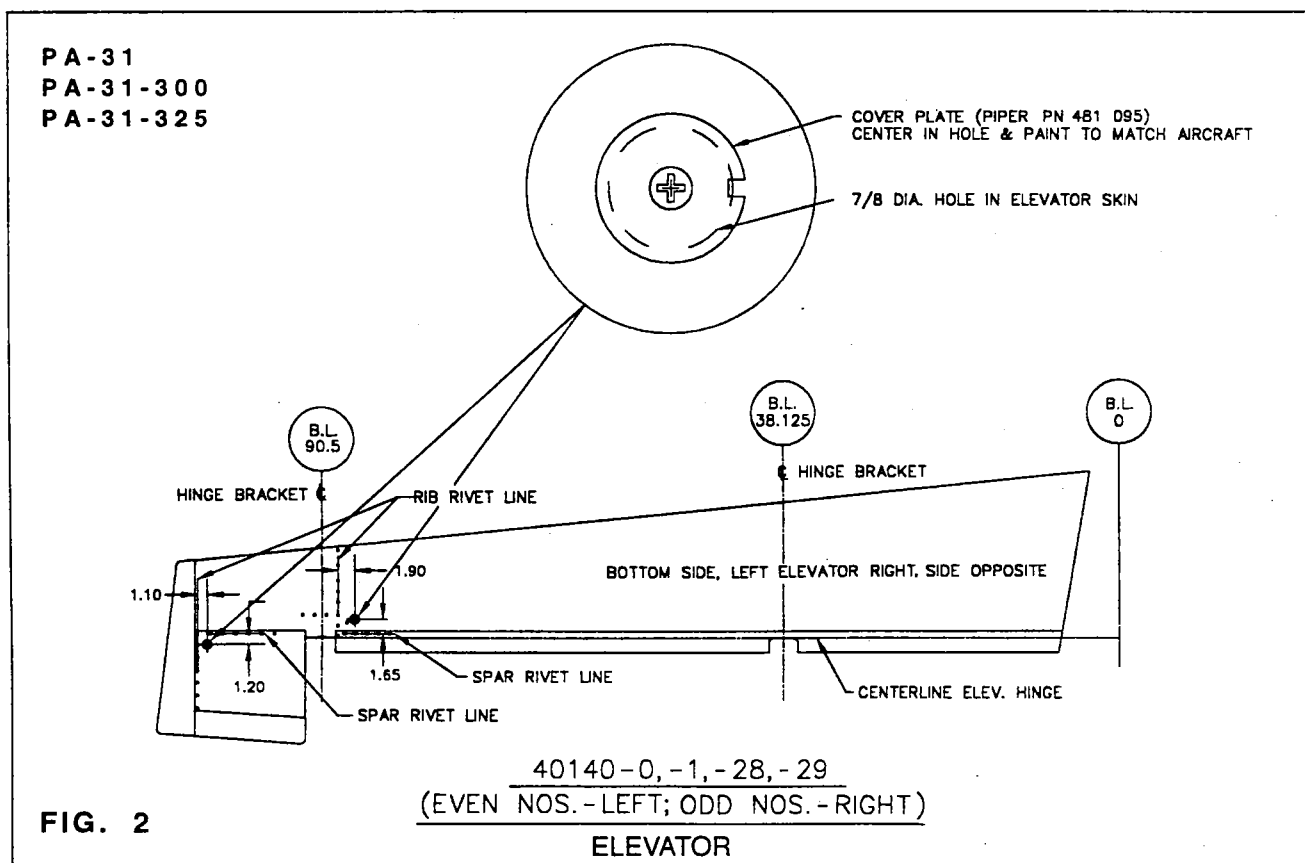


FIG. 2

## SKETCH B

PA-31  
PA-31-300  
PA-31-325  
PA-31-350

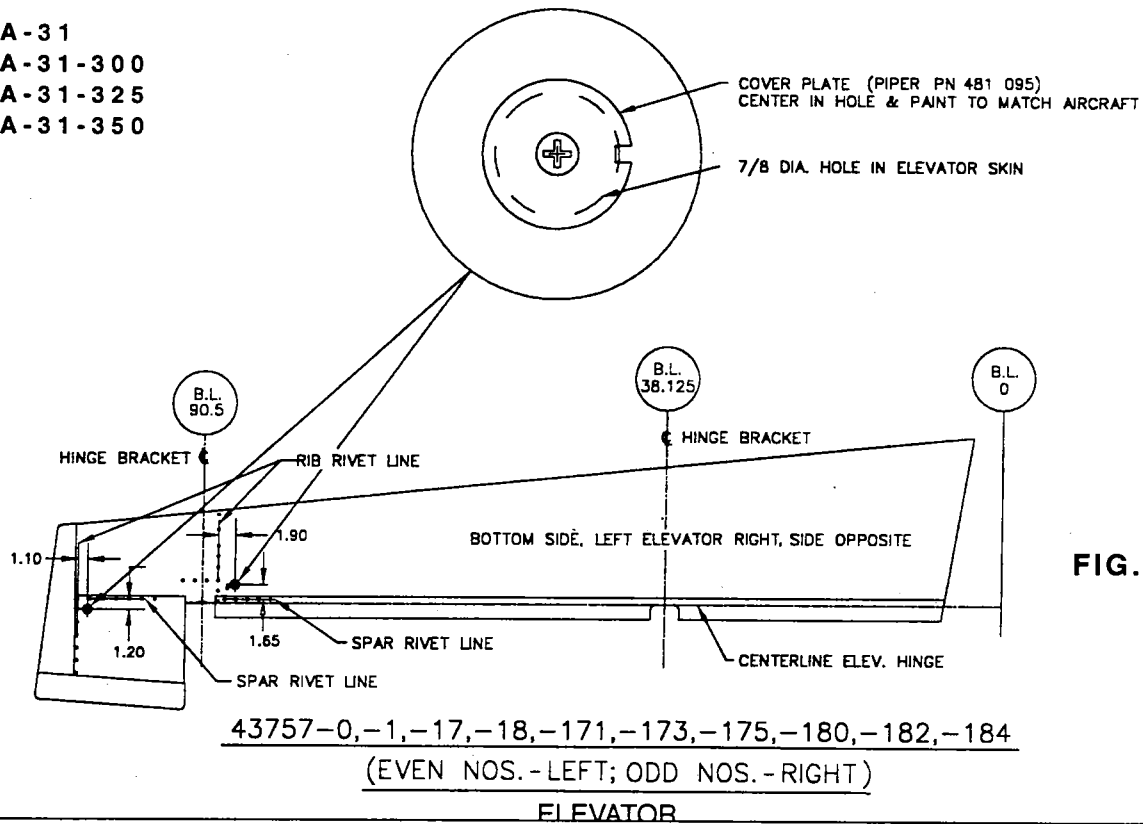


FIG. 3

PA-31  
PA-31-300  
PA-31-325  
PA-31-350  
PA-31-350 T1020  
PA-31P-350

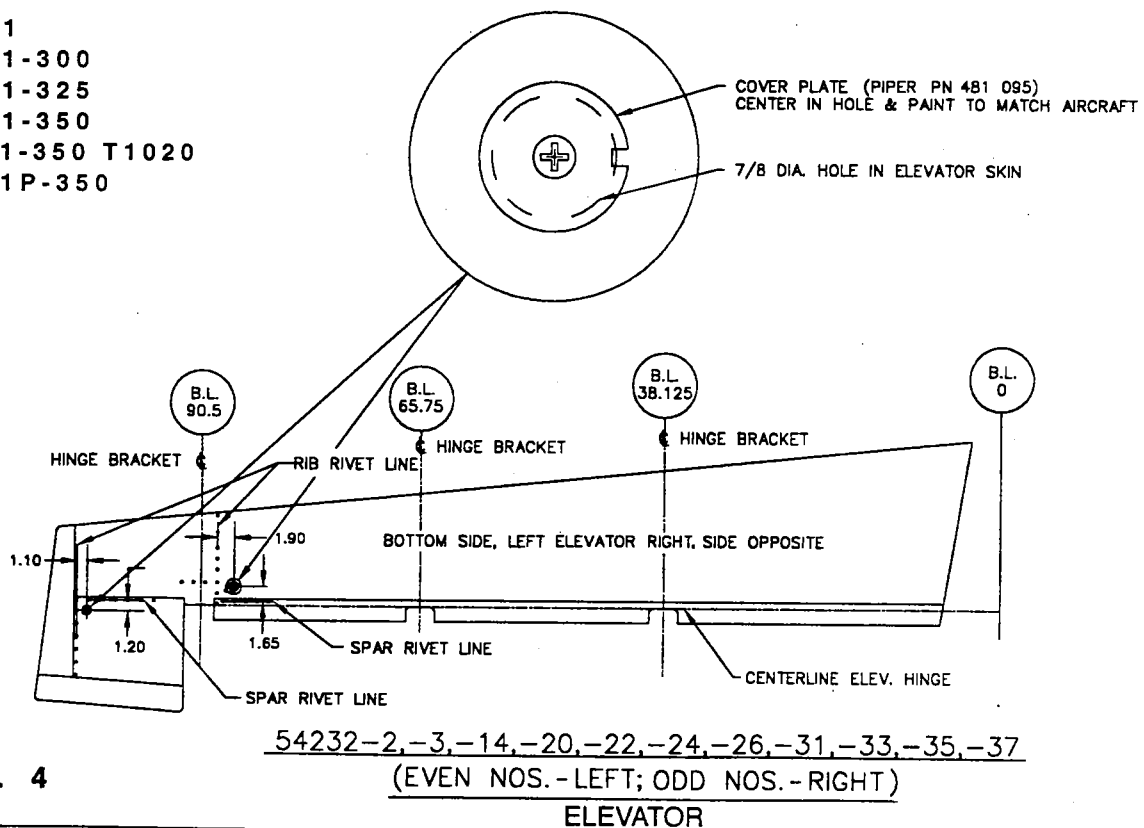


FIG. 4

SKETCH C

