MANDATORY

SEL-27-02

TITLE

FLIGHT CONTROLS - DETAILED VISUAL INSPECTION OF RUDDER HORN FOR CORROSION

EFFECTIVITY

All airplane serials that have a service kit installed as follows:

- SK152-24 Rudder Stop Modification - Sheet Metal Bulkhead (Revision B or previous versions)
- SK152-25 Rudder Stop Modification - Forged Bulkhead (Revision B or previous versions)

MODEL	SERIAL NUMBERS
150	649, 15061533 thru 15079405
A150	A1500001 thru A1500734, 15064970
A-150	A-1501001 thru A-1501039
A-A150	A-A1500001 thru A-A1500009
F150	F150-001 thru F150-0529, F15000530 thru F15001428
FA150	FA1500001 thru FA1500120
FRA150	FRA1500121 thru FRA1500336
152	15279406 thru 15286033
A152	A15200681, A1500433, A1520735 thru A1521049
F152	F15201429 thru F15201980
FA152	FA1520337 thru FA1520425

REASON

Airplanes that have a listed service kit installed, corrosion due to dissimilar metals has been found between the rudder horn and bumpers. The corrosion, if not found and corrected, can cause failure of the rudder horn, loss of rudder control and subsequently loss of airplane control.

DESCRIPTION

This service document provides instructions to do a general visual inspection of the rudder horn for evidence of corrosion around the bumpers. The service document also provides instructions to do a detailed visual inspection with removal of the bumpers from the rudder horn. The reassembly will introduce corrosion resistant sealant and corrosion inhibiting compound.

Textron Aviation Customer Service, P.O. Box 7706, Wichita, KS 67277, U.S.A. 1-316-517-5800

COMPLIANCE

MANDATORY: This service document must be accomplished as follows:

- Steps 1-2 **General Visual Inspection** must be accomplished in the next 10 flight hours or 30 days, whichever occurs first, and then every 6 months until Steps 3-17 are accomplished.
- Steps 3-17, **Detailed Visual Inspection/Bumper Removal** must be accomplished at the next annual inspection and no later than March 31, 2020.

NOTE: At the owners discretion, steps 3-17, Detailed Visual Inspection/Bumper Removal can be accomplished at the initial inspection. It is a more intrusive inspection and during the reassembly the corrosion resistant sealant, anodized rivets, epoxy primer, polyurethane paint, and application of corrosion inhibiting compound will provide additional corrosion protection.

A service document published by Textron Aviation may be recorded as *completed* in an aircraft log only when the following requirements are satisfied:

1) The mechanic must complete all of the instructions in the service document, including the intent therein.

2) The mechanic must correctly use and install all applicable parts supplied with the service document kit. Only with written authorization from Textron Aviation can substitute parts or rebuilt parts be used to replace new parts.

3) The mechanic or airplane owner must use the technical data in the service document only as approved and published.

4) The mechanic or airplane owner must apply the information in the service document only to aircraft serial numbers identified in the *Effectivity* section of the document.

5) The mechanic or airplane owner must use maintenance practices that are identified as acceptable standard practices in the aviation industry and governmental regulations.

No individual or corporate organization other than Textron Aviation is authorized to make or apply any changes to a Textron Aviation-issued service document or flight manual supplement without prior written consent from Textron Aviation.

Textron Aviation is not responsible for the quality of maintenance performed to comply with this document, unless the maintenance is accomplished at a Textron Aviation-owned Service Center.

CONSUMABLE MATERIAL

You must use the consumable materials that follow, or their equivalent, to complete this service document.

NAME	NUMBER	MANUFACTURER	USE
Cor-Ban 23	COR-BAN-23 (U074098) (12oz aerosol)	Textron Aviation Parts Distribution 7121 Southwest Boulevard Wichita, KS 67215	Corrosion Inhibiting Compound coating
Formit-18 Fan	Formit-18	Textron Aviation Parts Distribution	Nozzle for Cor-Ban 23 application
Type X Sealant	U544067S	Textron Aviation Parts Distribution	For fay and shank sealing during assembly
Corrosion Resistant Primer	K000574 (2oz Kit)	Textron Aviation Parts Distribution	Preferred corrosion resistant epoxy primer
Color Chemical Film Treatment	1445846 (Alodine 1132 Touch n Prep Pen)	Textron Aviation Parts Distribution	To prepare aluminum surface for intermediate primer.
Isopropyl Alcohol	TT-I-735	Commercially Available	Type I Cleaning Solvent for surface cleaning prior to painting
Aluminum oxide paper or cloth (high purity) - 180 and 220 or 320 grit		Commercially Available	To remove paint before inspection and surface preparation before painting
Extreme Simple Green Aircraft and Precision Cleaner		Commercially Available	To be used for cleaning soiled surface
Paint, Polyurethane (Top Coat)	Matterhorn White No. 54–19232 (or equivalent that meets MIL-C-83286 or MIL-P-85285)	Commercially available	Paint top coat
Rivets (Qnty 6)	MS20470AD4-7A	Commercially available	Anodized rivets to install the bumpers on the rudder horn

CAUTION: Do not use any other Simple Green products other than Extreme Simple Green as some have been found to be corrosive.

NOTE: Textron Aviation has also tested and approved Cor-Ban 35 and ARDROX AV-8. These products may be used in place of Cor-Ban 23 at the owners discretion.

TOOLING

No specialized tooling is required to complete this service document.

REFERENCES

Cessna Model 150 Series Service Manual

Cessna Model 152 Series Service/Maintenance Manual

SEL-51-01 Standard Practices - Structures - Use of Corrosion Inhibiting Compounds (Original Issue or later revision)

SEB01-1 Rudder Stop Modification (Revision 1 or later revision)

SK152-24 Rudder Stop Modification - Sheet Metal Bulkhead (Revision B or later revision)

SK152-25 Rudder Stop Modification - Forged Bulkhead (Revision B or later revision)

PUBLICATIONS AFFECTED

None

ACCOMPLISHMENT INSTRUCTIONS

GENERAL VISUAL INSPECTION

NOTE: For illustrations of the rudder horn and bumpers, refer to SK152-24, or SK152-25.

1. Clean dirt and grime from the bumpers and rudder horn with an approved aircraft cleaner, such as listed in Consumable Material section of this service letter.
2. Do a general visual inspection of the rudder horn for corrosion, cracked, bubbled or peeling paint. Pay particular attention to the area where the bumpers contact the rudder horn and the area around each rivet.

NOTE: A general visual examination of an interior or exterior area, installation or assembly to detect obvious damage, failure, or irregularity. This level of inspection is made from within touching distance, unless otherwise specified. A mirror may be necessary to enhance visual access to all surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight, or drop-light and may require removal or opening of access panels or doors. Stands, ladders, or platforms may be required to gain proximity to the area being checked

A. If there is corrosion, cracked, bubbled, or peeling paint, go to Step 3, Detailed Visual Inspection/Bumper Removal.

B. If there is no indication of corrosion, cracked, bubbled, or peeling paint, go to Step 17.

DETAILED VISUAL INSPECTION/BUMPER REMOVAL

NOTE: For illustrations of the rudder horn and bumpers, refer to SK152-24, or SK152-25.

3. Prepare the airplane for maintenance.

A. Make sure that the airplane is electrically grounded.

B. Make sure that all switches are in the OFF/NORM position.

C. Disconnect electrical power from the airplane.

(1) Disconnect external electrical power.

(2) Disconnect the airplane battery.

D. Attach maintenance warning tags to the battery and external power receptacle that have **"DO NOT CONNECT ELECTRICAL POWER - MAINTENANCE IN PROGRESS"** written on them.

E. Attach maintenance warning tag in a suitable location that has a clear view of the pilot and co-pilot seat that has **"DO NOT MOVE RUDDER PEDALS - RUDDER CABLES DISCONNECTED AND MAINTENANCE IN PROGRESS"** written on it.

F. Attach maintenance warning tag to the nose landing gear that has **"DO NOT ROTATE NOSE LANDING GEAR - RUDDER CABLES DISCONNECTED AND MAINTENANCE IN PROGRESS"** written on it.

4. At the discretion of the technician, remove the rudder. (Refer to the appropriate Model 150 or 152 Series Service/Maintenance Manual.)

NOTE: It is recommended to remove the rudder for easier access to the rudder horn and bumpers. The removal is at the discretion of the technician. The steps that follow can be completed with the rudder installed although access will be limited.

5. Carefully remove the six MS20470AD4-7A Rivets and remove the two 0433142-2 Bumpers from the rudder horn. Keep the bumpers.

6. Clean dirt and grime from the bumpers and rudder horn with an approved aircraft cleaner, such as listed in Consumable Material section of this service letter.

7. Remove the paint and primer to expose the bare metal of the rudder horn and bumpers as follows:

   CAUTION: Do not use low carbon steel brushes on aluminum, magnesium, copper, stainless steel, or titanium surfaces. Steel particles may become embedded in the surfaces and later rust or cause galvanic corrosion of the metal surfaces.

   A. Use 180 grit or finer aluminum oxide abrasive paper, cloth, or pads to remove all paint and primer from the bumpers.

   B. Use 180 grit or finer aluminum oxide abrasive paper, cloth, or pads to remove all paint and primer from the rudder horn in the area the bumpers attach and extend 2 inches forward and Aft.

   C. Use clean dry air to blow off dust and debris.

   D. Use a clean cloth wet with isopropyl alcohol to clean the surface.

      (1) Let the parts dry.

8. Do a detailed visual inspection of the rudder horn for corrosion, look closely at the area where the bumpers contact the rudder horn and in the rivet holes.

   NOTE: A detailed visual inspection is described as an intensive visual examination of a specific structural area, system, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate by the inspector. Inspection aids such as mirrors, magnifying lenses, etc. may be used.

   A. If the rudder horn has moderate or severe corrosion more than 0.010 inch, the rudder horn must be replaced.

   B. If the rudder horn show signs of light surface corrosion, the area can be reworked as follows:

      (1) Use 180 grit or finer aluminum oxide abrasive paper, cloth or pads to remove surface corrosion.

      (2) Remove no more than 0.010 inch of material. If more than 0.010 inch of materiel is removed, the rudder horn must be replaced.

      (3) If the corrosion cannot be removed without removal of more than 0.01 inch of material, the rudder horn must be replaced.

9. Apply primer to the horn and bumpers as follows:

   A. Use 220 grit or finer aluminum oxide abrasive paper, cloth, or pads to remove all oxidation from the bumper and rudder horn and prepare the surface for good adhesion of the primer.

      NOTE: Removal of naturally occurring oxidation on removed or new parts, even the stainless steel bumper, is necessary for good primer adhesion.

   B. Use a clean cloth wet with isopropyl alcohol to clean the surface.

      (1) Let the parts dry.

   C. Apply Color Chemical Film Treatment to the bare aluminum surface.

   D. Apply Corrosion Resistant Primer following the manufacture directions for application and dry time. (Refer to the applicable Model 150 or 152 Series Service/Maintenance Manual.)

10. Install the bumpers with six MS20470AD4-7A Rivets as follows: (Refer to the appropriate service kit, SK152-24B or SK152-25B or later revision.)

    NOTE: The MS20470AD4-7A Rivets are anodized to help prevent dissimilar metal corrosion. The use of non-anodized rivets can cause dissimilar metal corrosion.

    A. Fay seal parts before assembly with U544067S (Type X Sealant) with sufficient quantity that when the parts are assembled there is a slight squeeze out completely around the part.

    B. Immediately before the joint is closed, sealant must be applied to one mating surface of the joint with a sealant gun, spatula, knife, roller, or other applicable tool. Sufficient sealant must be applied so that the space between the assembled faying surfaces is fully filled with sealant and a small quantity is pushed out in a continuous bead around the periphery of the joint when the joint is attached.

    C. A fillet seal is required around the periphery of a fay sealed joint, it is not necessary to remove the sealant pushed out if the material which was pushed out is made into a small fillet configuration shape before the expiration of the application time.

    D. Install the fasteners wet with U544067S (Type X Sealant) sufficient so a small quantity is pushed out in a continuous bead around the periphery of the fastener.

    E. The entire shank must have a layer of sealant and there is to be a small quantity of sealant pushed out around the complete periphery of each end of the fastener when installed.

    F. Unwanted sealant at the fastener ends can be removed. However, to make sure the seal is correct, a small, continuous quantity of sealant must stay at the periphery of the fastener ends.

       NOTE: Type X - Corrosion Inhibitive Sealants are a two-part, synthetic rubber compounds, that cure at room temperature. They are used to seal and coat metal components for protection against corrosion.

    G. Touch-up the exposed rivet surface with Corrosion Resistant Primer following the manufacture directions for application and dry time. (Refer to the applicable Model 150 or 152 Series Service/Maintenance Manual.)

11. Apply polyurethane top coat as follows:

    A. Wipe the surface with clean wiping cloths wet with solvent.

       (1) Let the parts dry.

    B. Apply polyurethane top coat to a dry film thickness of 2.0 to 3.0 mils, follow the manufacture's directions for application and dry time.)

       NOTE: The top coat must meet specification of MIL-C-83286 or MIL-P-85285.

12. Apply Corrosion Inhibiting Compound (CIC) to the bumpers and rudder horn as follows: (Refer to SEL-51-01 Standard Practices - Structures - Use of Corrosion Inhibiting Compounds.)

    NOTE: SEL-51-01 is a resource that provides additional detailed information about the application process of CIC such as equipment, facility, cleaning, masking, and application processes.

    A. Apply the CIC in accordance with the instructions for Application of Corrosion Inhibiting Compounds in SEL-51-01, from the end of the rudder horn, all exposed surfaces of the bumpers and 2 inches past the bumpers.

    B. Mask areas around the rudder horn, rudder cable connection areas to prevent over spray the CIC.

       CAUTION: Do not allow CIC to get into the rudder cable connections. The rudder cable can become sticky if CIC gets into the connection.

    C. Spray aerosol with extension tube to minimize over spray.

    D. Apply the corrosion inhibiting compound in one full wet coat.

    E. Apply CIC to all surfaces of the bumpers and two inches forward and aft of the bumpers.

    F. Make sure the underside of the bumpers is completely coated with CIC.

G. Some sag/run is acceptable. A spot of significant sag/run needs to be cleaned by MPK (methyl propyl keton) wiping and the corrosion inhibiting compound shall be reapplied.

H. Wet film thickness of CIC is approximately 1 to 2 mils for Cor-Ban 23.

NOTE: The coating should be tack-free after two to three hours.

I. After the coating is tack-free, remove the masking from around the application area.

J. Let the coating cure with a minimum cure temperature no less than 50 degrees F.

13. If removed, install the rudder. (Refer to the appropriate Model 150 or 152 Series Service Manual.)
14. Do a check of the rudder travel limits and adjust as necessary. (Refer to the appropriate Model 150 or 152 Series Service Manual.)
15. Connect the airplane battery.
16. Complete the Rudder Horn Inspection Report and email to: *csstructures@txtav.com*.
17. Make an entry in the airplane logbook that states compliance and method of compliance with this service document.

MATERIAL INFORMATION

Refer to the Consumable Material section for parts.

RUDDER HORN INSPECTION REPORT	
Return to: csstructures@txtav.com	Page: 1 of _____ Pages
From:	
Date:	Airplane Total Hours:
Airplane Serial Number:	Date/Hours SK152-24 or SK152-25 (original issue, revision A or B) was installed:
Airplane Registration:	
Owner's Name:	
Owner's Address:	
Owner's Phone Number:	
Facility Name:	
Facility Address:	
Facility Phone Number:	
Corrosion: Yes No (Circle One)	
Provide detailed and dimensional descriptions of corrosion.	

OWNER ADVISORY

SEL-27-02

TITLE

FLIGHT CONTROLS - DETAILED VISUAL INSPECTION OF RUDDER HORN FOR CORROSION

TO:

Cessna Model 150 and 152 Series Aircraft Owner

REASON

Airplanes that have a listed service kit installed, corrosion due to dissimilar metals has been found between the rudder horn and bumpers. The corrosion, if not found and corrected, can cause failure of the rudder horn, loss of rudder control and subsequently loss of airplane control.

All airplane serials that have a service kit installed as follows:

- SK152-24 Rudder Stop Modification - Sheet Metal Bulkhead (Revision B or previous versions)
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COMPLIANCE

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- Steps 3-17, **Detailed Visual Inspection/Bumper Removal** must be accomplished at the next annual inspection and no later than March 31, 2020.

NOTE: At the owners discretion, steps 3-17, Detailed Visual Inspection/Bumper Removal can be accomplished at the initial inspection. It is a more intrusive inspection and during the reassembly the corrosion resistant sealant, anodized rivets, epoxy primer, polyurethane paint, and application of corrosion inhibiting compound will provide additional corrosion protection.

LABOR HOURS

For planning purposes only:

WORK PHASE	LABOR-HOURS
Inspection	10.0

MATERIAL AVAILABILITY

Refer to the Consumable Material section of SEL-27-02.

WARRANTY

None

NOTE: As a convenience, service documents are now available online to all our customers through a simple, free-of-charge registration process. If you would like to sign up, please visit the Customer Access link at www.txtavsupport.com to register.

Textron Aviation Customer Service, P.O. Box 7706, Wichita, KS 67277, U.S.A. 1-316-517-5800