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SERVICE BULLETIN

No. SB-AG-55

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S2R-T660 VERTICAL FIN AND RUDDER INSPECTION

AIRPLANES AFFECTED: All S2R-T660 Models

MODEL	SERIAL NUMBERS
S2R-T660	T660-101 through T660-125 and T660-127

REASON FOR THIS PUBLICATION:

A recent annual inspection of a Thrush S2R-T660 aircraft revealed several bolts that hold the vertical fin attach fitting to the horizontal stabilizer were missing, and both the vertical fin and rudder spars were seriously cracked. Which condition came first isn't known, nor is the root cause known, but the result could be severe airplane damage or loss of control.

Thrush Aircraft, Inc. is attempting to determine what caused this combination of problems so they can be prevented in the future, but in the meantime all T660 owners and operators should inspect their aircraft to be sure they do not have similar problems.

This Service Bulletin requires an immediate external inspection of the vertical fin and rudder for cracks, loose fasteners and general security, and a periodic detailed inspection of the entire horizontal stabilizer, vertical fin and rudder structure and the security of the fasteners holding the vertical fin and horizontal stabilizer attach fittings to the structure and to each other.

COMPLIANCE

This Service Bulletin is mandatory for all S2R-T660 airplanes.

BY WHOM WORK WILL BE ACCOMPLISHED:

The inspections must be accomplished by an FAA licensed A&P mechanic, or foreign equivalent. The action must be recorded in the airplane log book and signed off by the mechanic.

APPROVAL:

This Service Bulletin is approved by Thrush Aircraft, Inc. Proper execution of this Service Bulletin assures that the horizontal stabilizer, vertical fin, rudder and their attachments conform to FAA approved Type Design Data.

MAN HOURS:

The initial security inspection will require less than one hour. The in-depth periodic inspection will require a full day.

SPECIAL TOOLS:

None. Requires only standard mechanic's tools necessary to gain access to and view the vertical fin and rudder structure.

INSPECTION:

BEFORE NEXT FLIGHT: (see Figure 55-1, -2, -3 & -4)

1. Visually inspect the vertical fin skin for cracks immediately aft of the dorsal fin in the vicinity of the screws attaching the dorsal fin to the vertical fin (see Figure 55-1). If cracks are detected, proceed immediately to the periodic inspection, page 5.

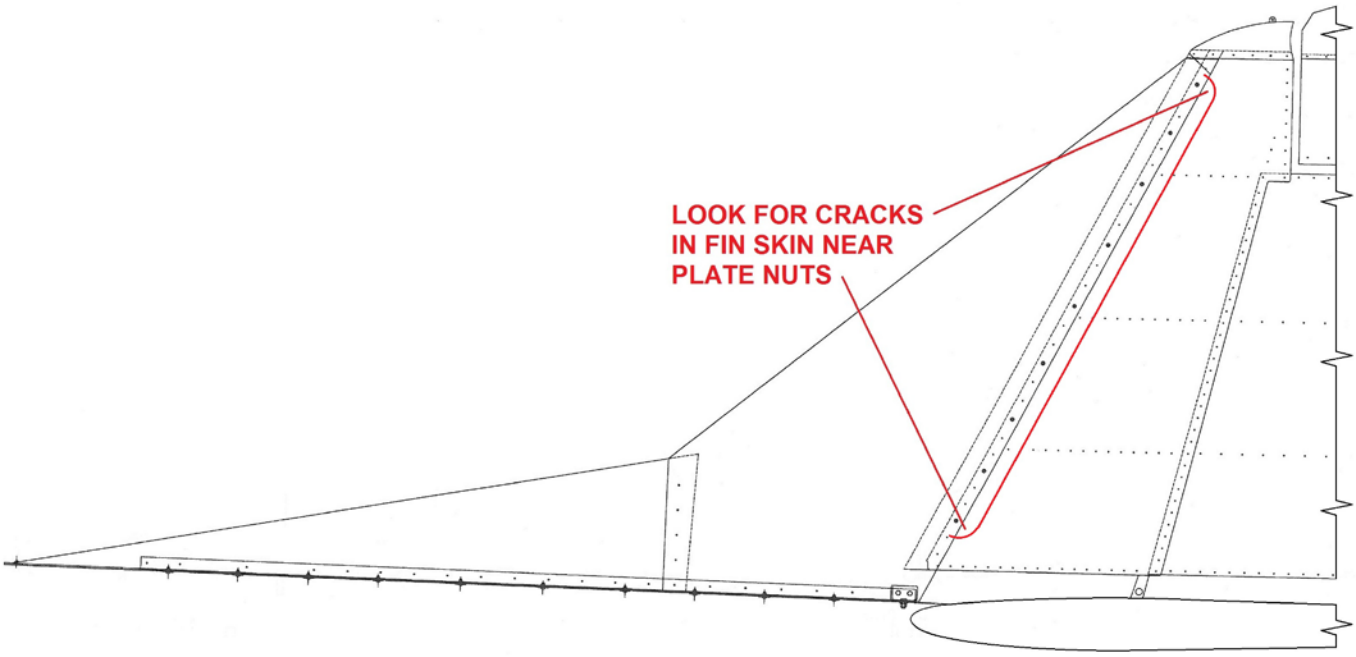

Figure 55-1: Vertical Fin Leading Edge Skin Inspection Area

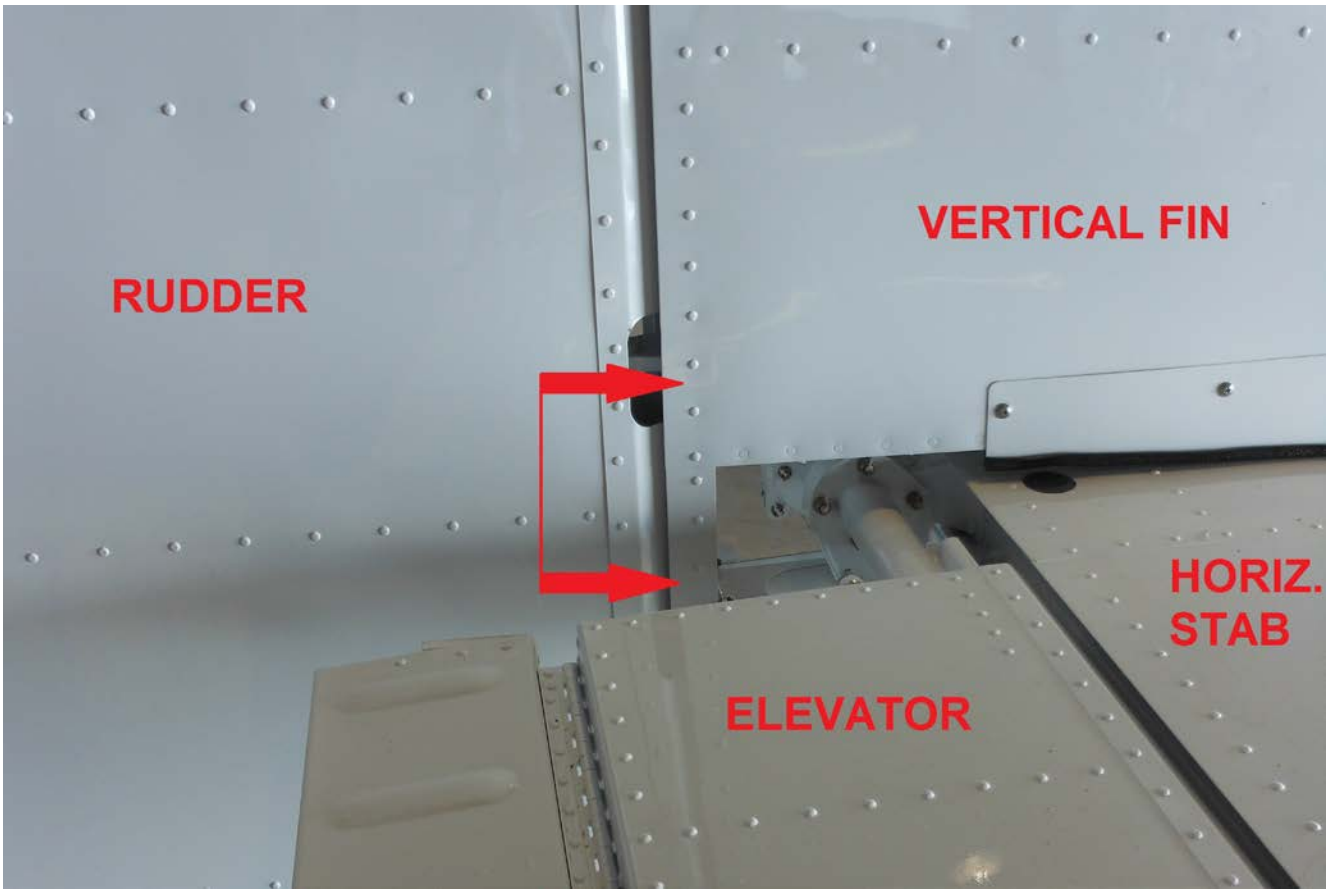

Figure 55-2: Vertical Fin Spar Inspection Area

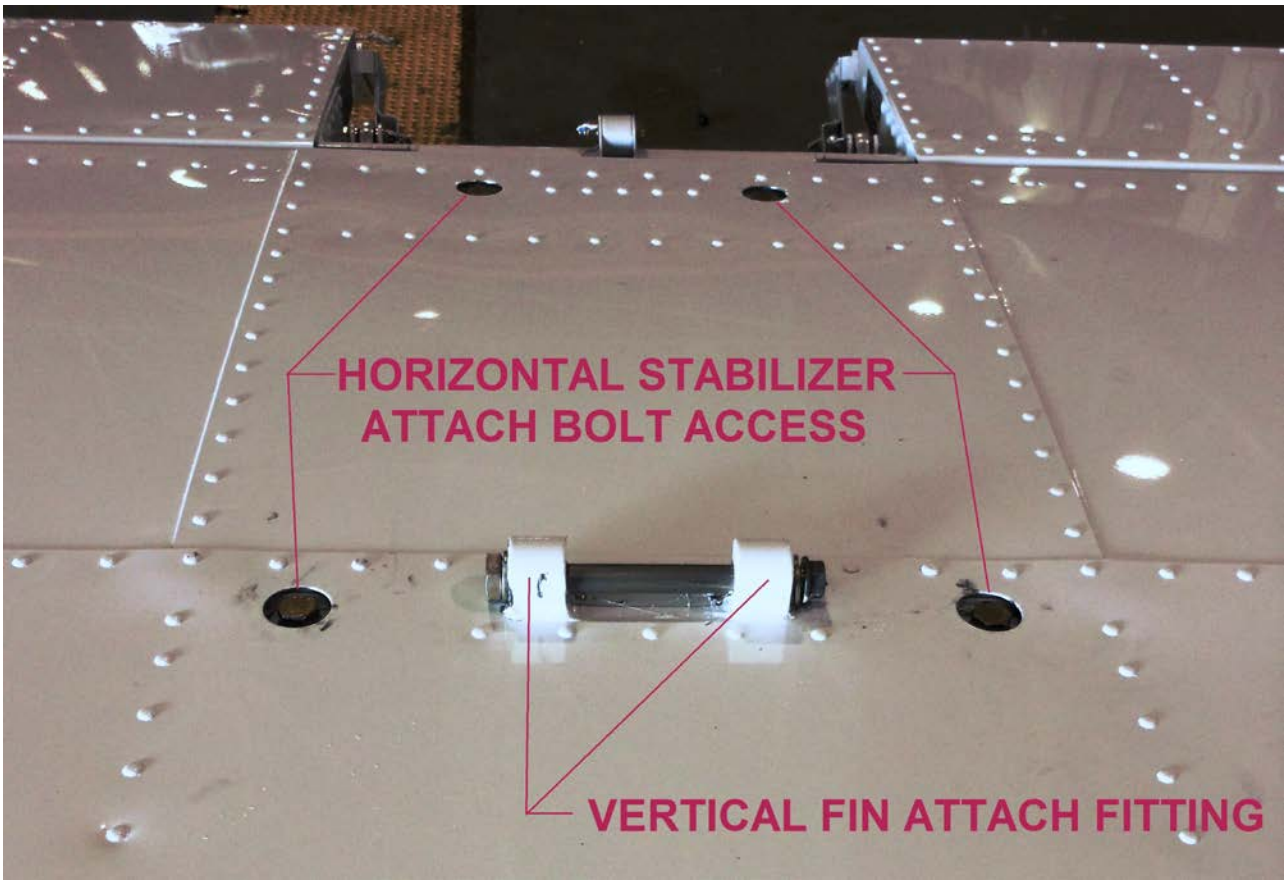

Figure 55-3: Horizontal Stabilizer with Vertical Fin Attach Fitting

2. Manually exert a force of 25 to 30# sideways on the vertical fin, in both directions near the top, to ensure that there is no motion between it and the horizontal stabilizer. If motion is detected, proceed immediately to the periodic inspection, page 5.
3. If no motion is detected, visually inspect the vertical fin spar immediately below the second hinge from the bottom for cracks in the web or doubler angles (see Figure 55-2). If cracks are detected, proceed immediately to the periodic inspection, page 5.
4. Inspect the vertical fin attach fitting (see Figure 55-3) on the horizontal stabilizer for bolt security and any relative motion between the fitting and the horizontal stabilizer when force is applied to the vertical fin as above. If motion is detected, proceed immediately to the periodic inspection, below.
5. If no cracks are detected, manually exert a force of 15 to 20# on the rudder near the hinge line, in both directions at both top and bottom, to ensure that there is no relative motion laterally between the rudder and the vertical fin (the force should be exerted close enough to the rudder hinge line that rudder rotation is minimal). If any lateral motion is detected, proceed immediately to the periodic inspection, page 5.
6. If no lateral motion is detected, use a flash light and inspection mirror to inspect the rudder spar assembly immediately below the rudder horn (see Figure 55-4). If any cracks are detected, proceed immediately to the periodic inspection, page 5.

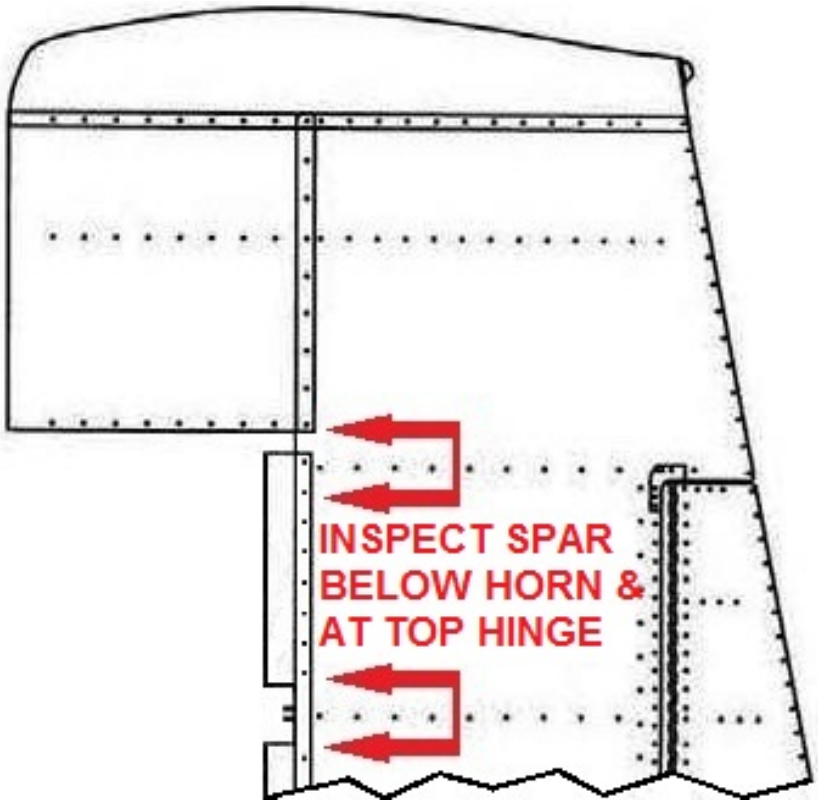

Figure 55-4: Rudder Spar Inspection Area

7. If you have not found any problems during this inspection, the following periodic inspection must be performed in 300 flight hours and every 300 flight hours thereafter.

8. Proceed to page 7 and follow the instructions.

PERIODIC INSPECTION:

Immediately, if any discrepancies are found during the "Before Next Flight" inspection, and every 300 flight hours thereafter, until further notice, perform the following detailed inspection of the vertical fin, rudder, and their attachments to each other and to the fuselage and horizontal stabilizer.

- ✓ Remove the rudder from the airplane and inspect for cracks and loose hinges (Be sure to disconnect the navigation light power wire).
- ✓ Use a flashlight and mirror as necessary to inspect the rudder spar immediately below the horn and around the top hinge for cracks. Check all hinge brackets for condition and security.
- ✓ Make a general inspection of the rudder skins and fasteners for cracks or looseness.
- ✓ Repair the rudder as required following AC 43.13B.
- ✓ Remove the fasteners holding the aft edge of the dorsal fin to the front of the vertical fin. Remove the fairing at the base of the vertical fin.
- ✓ Remove the vertical fin from the airplane by removing the six quarter inch bolts in

the lower aft spar and the 7/16" bolt through the vertical fin-to-horizontal stabilizer attachment.

- ✓ Inspect vertical fin skins and the vertical fin aft spar for cracks and fastener security. Inspect the horizontal stabilizer attach fitting for hole size and condition and for any signs of motion relative to the fin forward spar. Using a 24" piece of 7/16" diameter bar, carefully attempt to move the attach fitting relative to the vertical fin. If the attach fitting moves relative to the fin forward spar, proceed as follows:
    - o Remove the forward and aft bottom fin ribs to gain access to the horizontal stabilizer attach fitting. . If loose or missing fasteners are found, remove the stabilizer attach fitting and inspect the fastener holes in the fin forward spar. Repair holes larger than .130 diameter per AC 43.13B.
- ✓ Inspect the vertical fin attach fitting on the horizontal stabilizer for hole size and condition and for any signs of motion relative to the stabilizer forward spar. Using a 24" piece of 7/16" diameter bar, carefully attempt to move the attach fitting relative to the stabilizer. If the attach fitting moves relative to the fin forward spar, proceed as follows:
    - o Remove the four bolts holding the horizontal stabilizer to the fuselage and the bolts holding the struts to the fuselage. Place the stabilizer on a work bench up-side-down and remove the two access plates in the center skins. Inspect the vertical fin attach fitting thoroughly for condition and Loose or missing fasteners. If loose or missing fasteners are found, remove the fin attach fitting and inspect the fastener holes in the forward spar. Repair holes larger than .192 diameter per AC 43.13B.
- ✓ To finish compliance with this Service Bulletin, follow the instructions on the next page.

PARTS LIST:

No parts are required for the inspections. If an inspection determines that replacement parts are required, they are available through your local Approved Thrush Repair Center.

RECORD OF COMPLIANCE:

Make the appropriate entry in the airplane maintenance records. Suggested entries are:

If during the initial inspection **NO** problems are found**:**

"The Before Next Flight inspection was conducted per Service Bulletin SB-AG-55 Rev. IR at _____ total hours on aircraft S/N _____ and no problems were found. Inspection accomplished by:

_____ _____
(name & certificate #) (date)

If, after the initial inspection, problems **WERE** found:

"The "Before Next Flight" inspection and "Periodic Inspection" were conducted per Service Bulletin SB-AG-55 Rev. IR at _____ total hours on aircraft S/N _____ and the following problems were found and repaired:

_____

_____

_____

_____

Inspection and repairs accomplished by:

_____ _____
(name & certificate #) (date)

COMPLIANCE CONFIRMATION:

The final step in compliance with Service Bulletin SB-AG-55 is to notify Thrush Aircraft, Inc. that it has been complied with. Please fill in the applicable form above, or copy, scan or photograph the record of compliance from the maintenance log book, and send it as follows:

FAX to:	Greg Moreland, QC Manager	229-439-9790
E-mail to:	Greg Moreland, QC Manager	gmoreland@thrushaircraft.com

NOTE: If cracks or loose or missing fasteners are found during a subsequent periodic inspection, Thrush Aircraft, Inc. would appreciate being notified of the particulars. The above form can be used for that purpose or a copy of the maintenance log can be sent in.

THRUSH AIRCRAFT FACTORY CONTACT:

Questions about this Service Bulletin should be directed to:

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