

CUSTOM KIT



P.O. Box 3149 Albany, GA 31706-3149
Phone: (229) 883-1440
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CUSTOM KIT No. CK-AG-35

LOWER RUDDER REPAIR

- MODELS AFFECTED:** Any S2R series aircraft with P/N 40226-100 (low speed) metal rudder.
- REASON FOR PUBLICATION:** To develop an economical rudder repair for either of the lowest 2 bays due to damage or corrosion.
- COMPLIANCE:** At owner's discretion
- BY WHOM WORK WILL BE ACCOMPLISHED:** A&P Mechanic or equivalent
- APPROVAL:** FAA DER Approved
- ESTIMATED MAN-HOURS:** 10-12
- PARTS DATA:** The parts required to comply with this custom kit may be obtained from your nearest Thrush dealer. A parts list is attached to this publication.

ACCOMPLISHMENT INSTRUCTIONS (refer to Figures A and B):

1. Remove rudder assembly (P/N 40226-100) from aircraft.
2. Remove leading edge skin (P/N 40298T001).
3. Remove rudder horn assembly (P/N 40250T003).
4. Remove lower rib assembly (P/N 40248T005).
5. Determine the extent of damage to the spar and at which point the spar should be spliced (Lower 2 bays only).
6. Determine if the skins and what ribs, if any, are to be replaced.
7. Remove damaged areas as required; be sure to leave approximately 1 3/8 inch of undamaged material below the row of rivets on a rib (Lower 2 bays only).
8. Cut section of spar assembly (P/N 40227T001) at spar station 6.5" or spar station 16.5" depending on damage or corrosion.
9. Install a section of new spar material (P/N 40228T003) equal to what was removed in step 8. (Note: repair spar is 17.50 inches in length; cut to length required).

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10. Locate Doubler (P/N 94384T005) for 6.5 inch repair or (P/N 94384T007) for 16.5 inch repair) across spar splice joint on rear side of spar. Drill the two #40 pilot holes and cleco to spar.
11. Locate Doubler (P/N 94384T001) for 6.5 inch repair or (P/N 94384T003) for 16.5 inch repair) to front side of spar by lining up #40 pilot holes with clecos installed in step #10.
12. Back drill spar and rear doubler with #30 drill using holes in front doubler as a drill template. Cleco #30 holes as necessary to hold perfect alignment. Remove #40 clecos and drill #40 pilot holes to #30 size.
13. Locate L/H angle (P/N40233T007) and R/H angle (P/N40233T008) on front side of spar, between the center and bottom hinges. Backdrill hole pattern from angles into spar and front doubler using #30 drill. Backdrill angles from existing angles (P/N 40229T001 & T002 "4 places") using #30 drill.
14. Remove clecos and deburr all spar splice parts.
15. Rivet spar splice, doublers, and angles together using MS20470AD4-X rivets.
16. Cut, trim and drill skin sections (P/N 40256T019 L/H and 40256T020 R/H), as necessary and make a single-lap slice under the rib section using acceptable methods, techniques, and practices as outlined in FAA AC43.13-1B Chapter 4 section 4.
17. Cleco and backdrill (P/N 10857T001) doubler, inspection port, to inboard side of R/H skin section.
18. After deburring all holes, reassemble rudder in reverse order using MS20470AD4-X and MS20470AD5-X rivets in accordance with FAA AC43.13-1B Chapter 4 section 4. (Note: FAA approved blind rivets, listed in the above said Chapter 4 section 4 may be substituted for solid rivets). Use Fuel Tank Sealer CS3204 B2 (AMS-S-8802, formerly MIL-S-8802), PR-1422, PR-1750, PR-1435, or equivalent, on all ferrous metal to aluminum faying surfaces.
19. Install clipnuts, gasket, and inspection cover to R/H inspection port.
20. Seal ALL seams with Fuel Tank Sealer CS3204 B2 or equivalent.
21. Prime and paint repaired section to match existing colors.
22. Check rudder balance. Balance should be within the range of 45 to 110 inch-pounds of imbalance from hinge line, trailing edge heavy.
23. Reinstall rudder on aircraft I/A/W appropriate maintenance manual.

WEIGHT AND BALANCE DATA: Weight and balance change negligible.

AIRCRAFT RECORDS:

Make appropriate entry in airframe permanent maintenance records as follows:

Thrush Aircraft Inc. Custom Kit No. CK-AG-35 dated 25 August 2004, entitled "Lower Rudder Repair", accomplished _____ (date) _____ by _____ (name) _____ .

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KIT PARTS LIST (Parts are available through your area dealer).

<u>QTY</u>	<u>P/N</u>	<u>DESCRIPTION</u>
1 ea.	40228T003	Spar, Field Repair
1 ea.	40256T019	Skin, L/H
1 ea.	40256T020	Skin, R/H
1 ea.	94384T005	Doubler, rear, at 6.5 inch station
1 ea.	94384T001	Doubler, front, at 6.5 inch station
1 ea.	94384T007	Doubler, rear, at 16.5 inch station
1 ea.	94384T003	Doubler, front, at 16.5 inch station
1 ea.	40233T007	Angle, L/H
1 ea.	40233T008	Angle, R/H
1 ea.	10857T001	Doubler, inspection port
1 ea.	10858T001	Cover, inspection
1 ea.	10858T002	Gasket, inspection cover
4 ea.	SL 213-08-1	Clipnut
4 ea.	AN526-832-R7	Screw

Optional parts that may be needed if original parts are damaged or corroded.

1 ea.	40248T005	Rib, lower closeout, with angle (T003 rib only, no angle)
1 ea.	40235T011	Rib, 1 st from bottom
1 ea.	40291T003	Rib, 2 nd from bottom
1 ea.	40252T001	Horn bracket, with nutplates
1 ea.	40250T003	Horn assy, Rudder
1 ea.	40256T015	Tab, Trim

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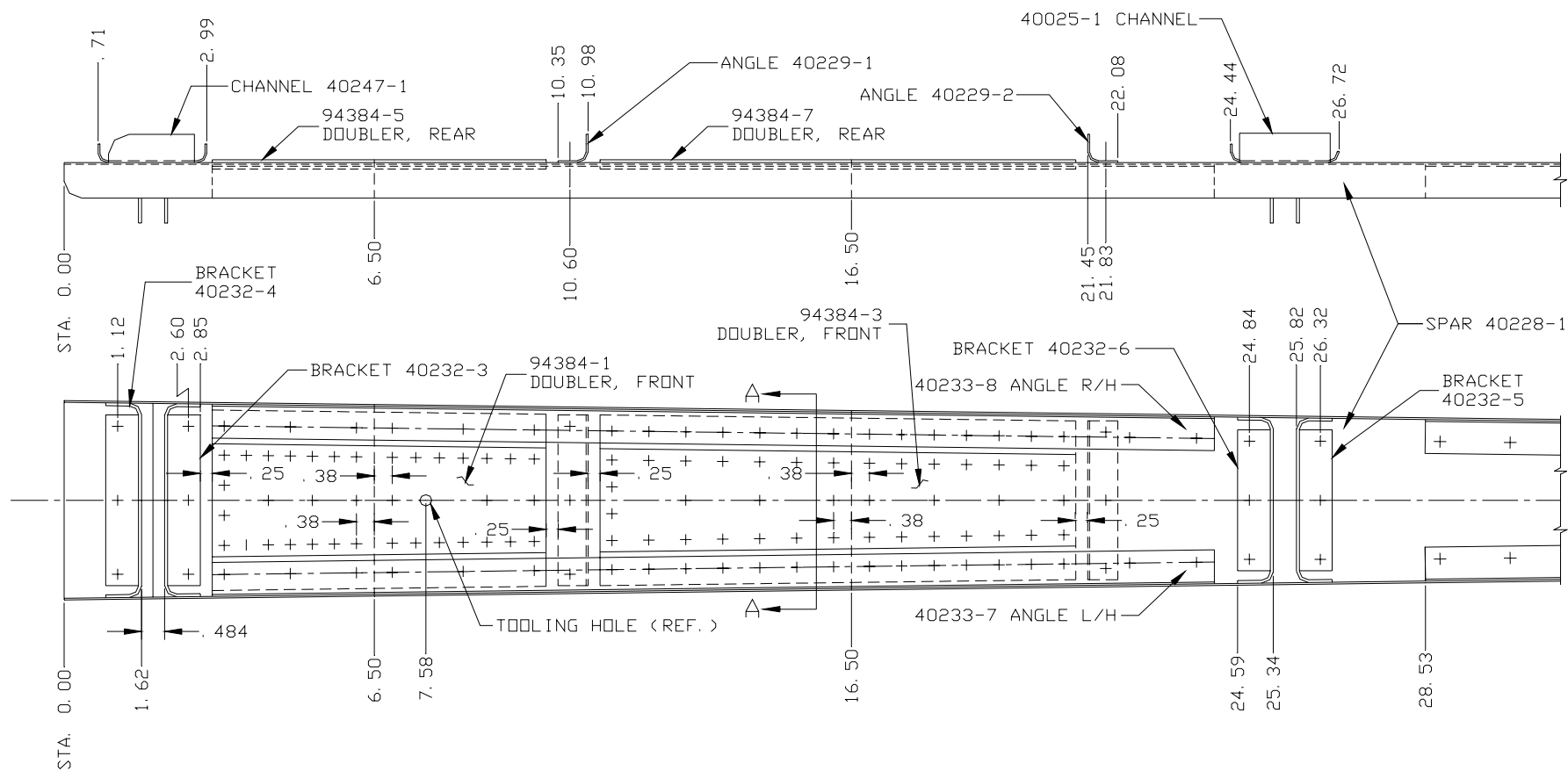
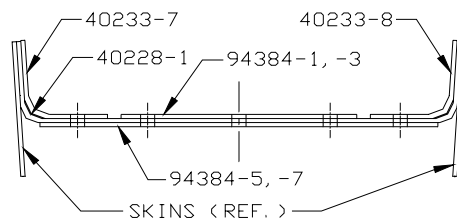
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SECTION "A-A"
ENLARGED AND ROTATED FOR
CLARITY



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