

SNOW ENGINEERING CO. WICHITA FALLS, TEXAS	ENGINEERING REPORT ORDER X		NUMBER 155
TITLE SERVICE LETTER #155	BY Leland Snow	CHK'D	MODEL See Below
	DATE 10/25/96		SERIAL See Below
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SUBJECT:

*Rev.09/28/00

**Rev.11/27/02

Vertical Fin Front Spar Fitting

MODELS:

All AT-402, AT-402A, AT-402B aircraft

Serial numbers 402-737 thru 402B-1015

*All serial numbers 401/402B-0737 thru 401B-1015 that have been converted to turbine power plants

All AT-502, AT502B aircraft serial no. 502-0031 thru 502B-0398

*All serial numbers 501-0031 and subsequent that have been converted to turbine power plants

*All 300 or 400 series aircraft with a turbine power plant and as a result of retrofit have a 1/4" thick aluminum vertical fin front spar fitting and all-metal rudder

ACTION REQUIRED:

This Service Letter should be incorporated before 2,000 hours total time is reached.

SUMMARY:

In 1994 and in 1995 the 3/16" thick aluminum vertical fin front spar fitting failed on an AT-402 and on an AT-502. The AT-402 had approximately 2,500 hours and the AT-502 had approximately 3,000 hours total time. In both cases the rear spar of the vertical fin later failed, causing the fin to lay over against the elevator causing difficulty in controlling the aircraft.

As a result, Air Tractor issued Service Letter #138 which called for a steel plate to be installed on the forward face of the fin front spar and also a steel doubler to be installed in the rear spar. The FAA has since issued an AD which makes compliance with S/L #138 mandatory.

Starting with 402-0737 and 502-0031 the fin front spar plate was changed to 1/4" thick aluminum, and all aircraft with the 1/4" thick plate did not require the S/L #138 rework.

However, it has recently been learned that in Australia an AT-502 was found to have a failure of the vertical fin front spar attach fitting even though the fitting was the 1/4" thick version. The rear spar had not yet failed, and the cracked fitting was found during a routine inspection. The aircraft had approximately 2,500 hours total time.

This Service Letter calls for the installation of a steel doubler to be installed on the forward side of the vertical fin front spar fitting, in a similar way as for S/L #138, except that a 1/4" spacer plate

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installed to allow the fin attach fitting to straddle the 1/4" thick steel fuselage fitting that the fin attaches to.

In some instances, the steel doubler plate may already be installed flush against the aluminum fitting rather than spaced forward as shown in the Service Letter. This is an acceptable alternate and a logbook entry should be made that Service Letter #155 has been complied with.

*For the purposes of this Service Letter, we will refer to this configuration as Type 2 with the configuration described previously referred to as Type 1. View A-A on page 4 illustrates the differences in the two, with Type 2 not having the rear attach plate.

INSPECTION REQUIREMENTS:

At or before reaching 2,000 hours total time, an inspection of the aluminum plate should be performed by a certified mechanic. This inspection should be repeated at 100 hour intervals until the steel doubler is installed according to this Service Letter. It will be necessary to remove the vertical fin from the airplane to perform this inspection adequately.

If the aluminum plate is found to be cracked or broken, it must be replaced before installing the steel doubler. The factory should be notified if this occurs.

The thickness of the aluminum plate should be checked during inspection. If a vertical fin with a 3/16-inch thick plate has been installed, the provisions of Service Letter #138 apply.

VERTICAL FIN REWORK INSTRUCTIONS: (Ref. Figure 1 & 2)

1. Remove the rudder from fin. Remove fin from aircraft.
2. Remove the lower 12 NAS1446 lockbolts that attach the front spar fitting to the front spar. Use a chisel to cut the lockbolt collars free from the lockbolts.
3. Remove excessive paint and/or sealer from the forward face of the 30197-1 plate. Prime with a suitable aircraft primer, as no bare aluminum should be permitted.
- *4. For Type 1, position the 30464-1 steel doubler and 30544-1 spacer on forward face of the 30197-1 plate.
For Type 2, position the 30464-1 steel doubler on the forward face of the 30197-1 plate.

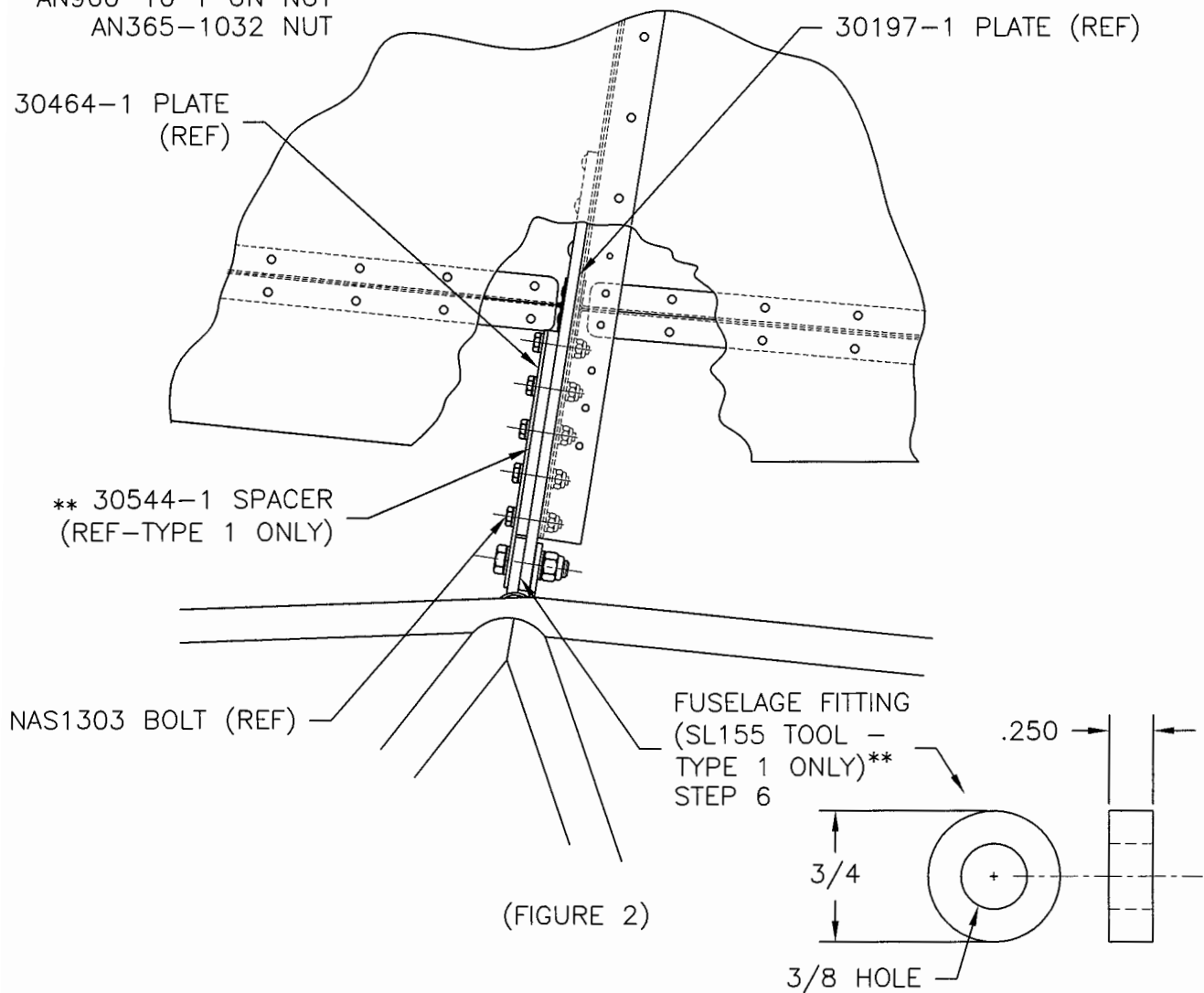
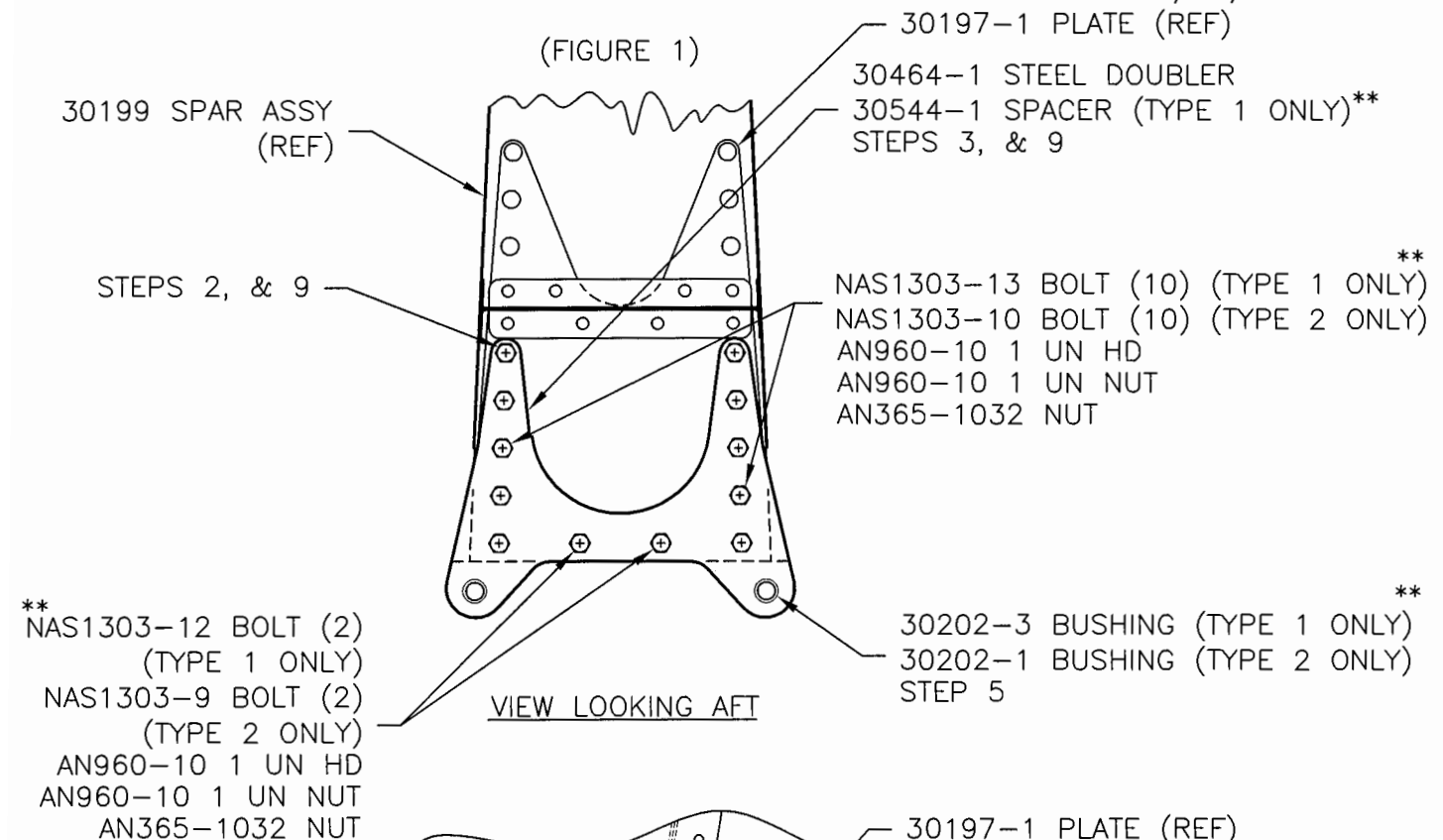
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- *5. For Type 1, insert 30202-3 bushings (2) into 30464-1 steel doubler. For Type 2, insert 30202-1 bushings (2) into 30464-1 steel doubler.
- *6. For Type 1, temporarily position the round SL155 spacer tool between the 30197-1 plate and 30464-1 steel doubler to represent fuselage fitting. Install original NAS1306 bolts and hardware thru mating parts and tighten bolts.
For Type 2, install original NAS1306 bolts and hardware thru mating parts and tighten bolts.
- 7. Back drill the 30544-1 spacer and the 30464-1 steel doubler to match the 30199 spar assy 3/16 dia. It may be necessary to use an angle drill to reach the top holes. Use care when drilling to assure good holes perpendicular to the plate.
- 8. Install the NAS1303 bolts and hardware, noting the different lengths shown in Figure 1. Torque to 60-70 inch-pounds.
- 9. Seal around doubler, spacer, and bolts with PR1422A-2 sealer to prevent moisture from entering joint.
- *10. Remove original NAS1306 bolts (and, for Type 1, SL155 tool).
- 11. Paint reworked area with a suitable paint to match the aircraft exterior color.

Reference: Figure 3

- 12. Reinstall vertical fin on aircraft.
- 13. Complete the vertical fin installation as shown in Views A-A, B-B, C-C. Torque for the NAS1306 bolts is 35 ft-lbs.
- 14. Reinstall rudder on fin, attach control cables and pushrod.
- 15. Fill out FAA form 337 and make Aircraft Logbook entry stating that Air Tractor Service Letter #155 has been complied with.



PARTS LIST (TYPE 1): **

1 ea. 30464-1 Steel Doubler
1 ea. 30544-1 Spacer
2 ea. 30202-3 Bushing
2 ea. NAS1306-13 Bolt
2 ea. MS20002C6 Washer
2 ea. AN365-624 Nut
10 ea. NAS1303-13 Bolt
2 ea. NAS1303-12 Bolt
12 ea. AN365-1032 Nut
24 ea. AN960-10 Washer
8 ea. AN960-616 Washer
2 ea. SL155 Spacer Tool

PARTS LIST (TYPE 2): **

1 ea. 30464-1 Steel Doubler
2 ea. 30202-1 Bushing
2 ea. NAS1306-10 Bolt
2 ea. MS20002C6 Washer
2 ea. AN365-624 Nut
10 ea. NAS1303-10 Bolt
2 ea. NAS1303-9 Bolt
12 ea. AN365-1032 Nut
24 ea. AN960-10 Washer
8 ea. AN960-616 Washer

