



- MANUFACTURERS OF WIPLINE FLOATS & SKIS
- SPECIALISTS IN AIRCRAFT MODIFICATION

1700 Henry Avenue - Fleming Field
South St. Paul, MN 55075
651-451-1205

SERVICE LETTER: #71

DATE: April 6, 2006

TITLE: AT-802 Inspection for Cracks

EFFECTIVITY: All AT-802 aircraft with Wipaire 10000 Floats installed.

COMPLIANCE: Inspection to be done immediately and repair as soon as is practical if required. If this Service Letter repair has been initially complied with, the gussets have been repaired and any cracks repaired as specified, a continuing inspection of the area every 100 hours is all that is required at this time.

BACKGROUND INFORMATION: Cracks were found after pilot noticed linseed oil leaking from the float fitting at the top of the left-hand pylon, shown in Fig. 1. The cracks were located on the weld, shown in Fig. 2, area D. Further investigation revealed other aircraft with similar cracks either in the same place or on the welds of the attach plate (Fig.3, items 2&3), shown in Fig. 2, area B and C. The cracks are believed to be caused by the welding process and aggravated by normal operations.

METHOD OF COMPLIANCE: Visually inspect lower longeron tube (Fig. 1) and the entire nearby welded tube cluster for signs of cracking on both sides of the aircraft. Pay special attention to areas A, B, C, and D on Fig. 2. If there is doubt about crack presence, strip paint from tubes for better visibility and consider dye penetrant or eddy current inspection. This service letter requires all aircraft to modify the gussets as shown in Fig. 3, Items 1 and 4 to match included drawings p/n 10A02491-006 and 10A02491-005 to alleviate the stress on the longeron tube without regard to crack presence. Figure 5 shows completed gusset modification. If cracks are found, their size and location will determine further action required.

If no cracks are found, modify both gussets as described above and return to normal operations. Inspect joint for crack presence located at Fig. 2, areas A, B, C and D at 100 hour intervals.

If cracks are found in areas B and C in Fig. 2, and they are smaller than 5/16 inch, and they do not depart the bead of the weld continue inspections on known cracks in locations B and C for growth every 25 hours until the aircraft is in for major repair. At that time, grind off the extended edge of the attach plates (Fig. 4, area 1) so that the doubler (Fig. 4, Item 4) is exposed enough to continue weld across the outboard edge and back inboard in between attach plates (Fig. 4, Items 2 and 3) at least ¼ to ½ inch. If cracks grow larger than 5/16 inch or depart the weld, perform repairs as specified above as soon as practical. Gussets must also be modified as stated earlier in this service letter. Inspect repair every 100 hours.

If there are cracks at the end of the rear gusset (Fig. 2, area D) and they are no longer than 5/16 inch and do not depart the bead of the weld around the edge of the gusset, modify the gussets as stated above, grind out the cracks and fill with weld. Continue visual inspections every 100 hours.

Detailed instructions are included at the end of this Service Letter.

If crack has progressed further than the edge of the weld (Fig. 2, area D) or the front gusset welds are cracked at all (Fig. 2, area A) consult Wipaire Engineering Department immediately for further instructions. A service kit will be issued promptly for these cases.

SHOP HOURS REQUIRED: Time for visual inspection – 1.5 Hours per airplane
Modifying Gussets ~ 3-4 Hours per airplane
Grinding and Welding Cracks ~ 1-2 Hours per airplane
Service Kit if Required - TBD

PARTS REQUIRED: Service Kit #50 (Pending Crack Severity)
Service Kit #51 – Kit for making Inspection Cover.
NO WARRANTY IS APPLICABLE

Please return the information below to Wipaire Engineering for each aircraft modified:
E-mail: cwiplinger@wipaire.com Subject: Service Letter 71 Completed
Or Fax: 651-451-1786 ATTN: Charlie Wiplinger Subject: Service Letter 71 Completed

AIRCRAFT MAKE AND MODEL: _____
AIRCRAFT SERIAL #: _____
AIRCRAFT REGISTRATION #: _____
FLOAT SERIAL NUMBER: _____ AND _____

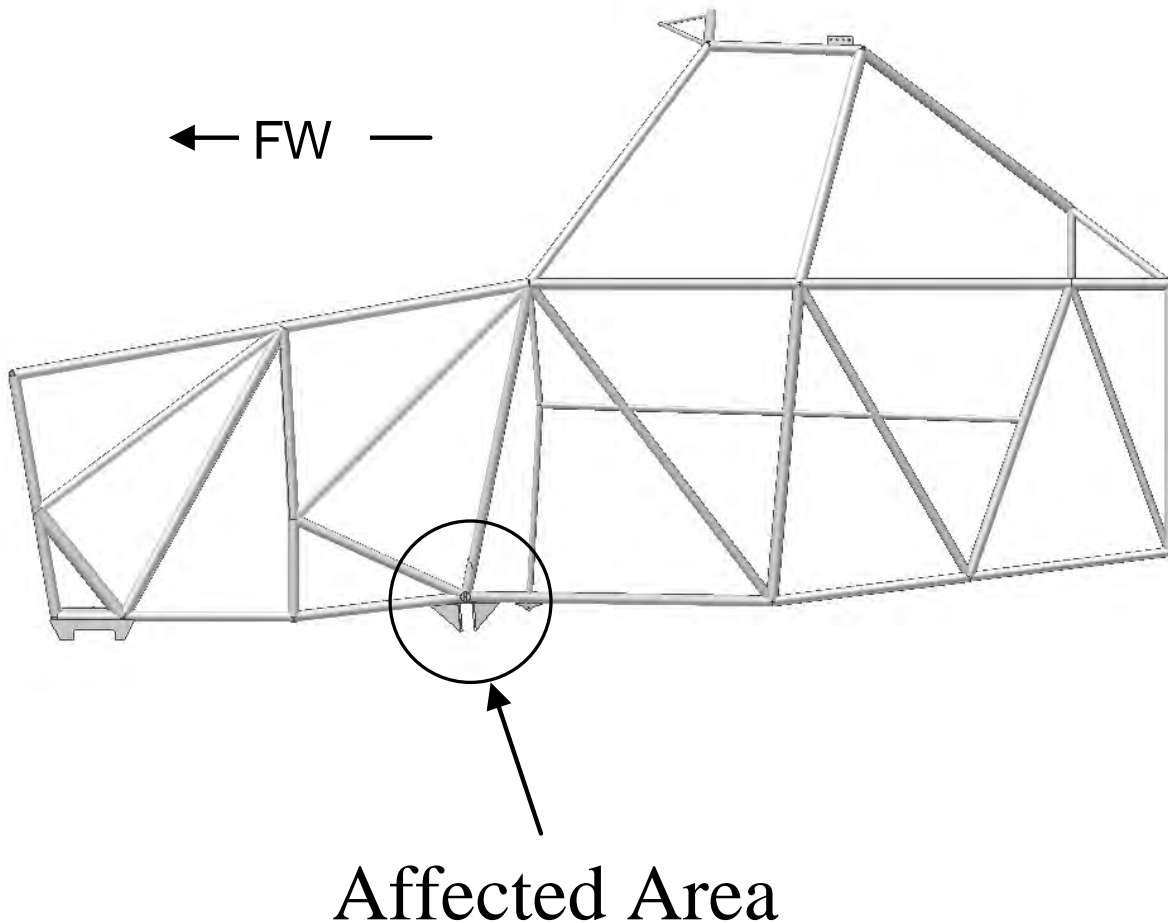


Figure 1

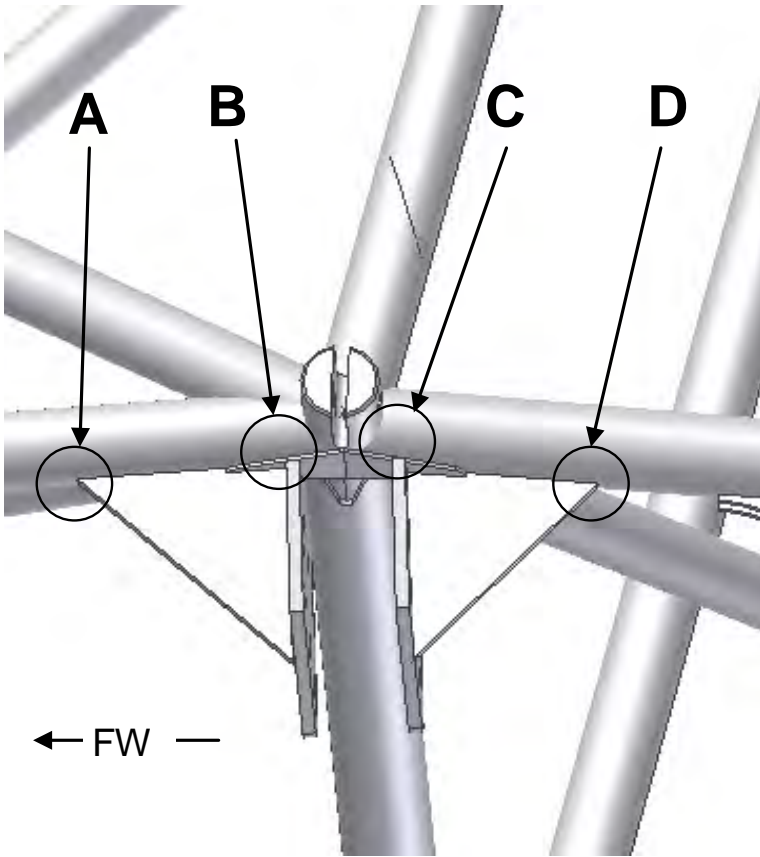


Figure 2

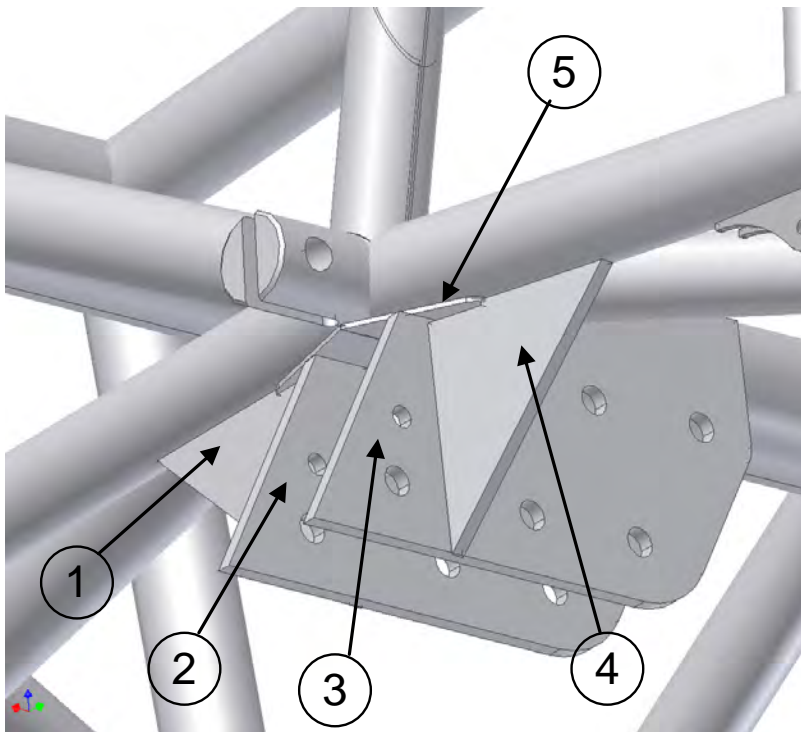


Figure 3

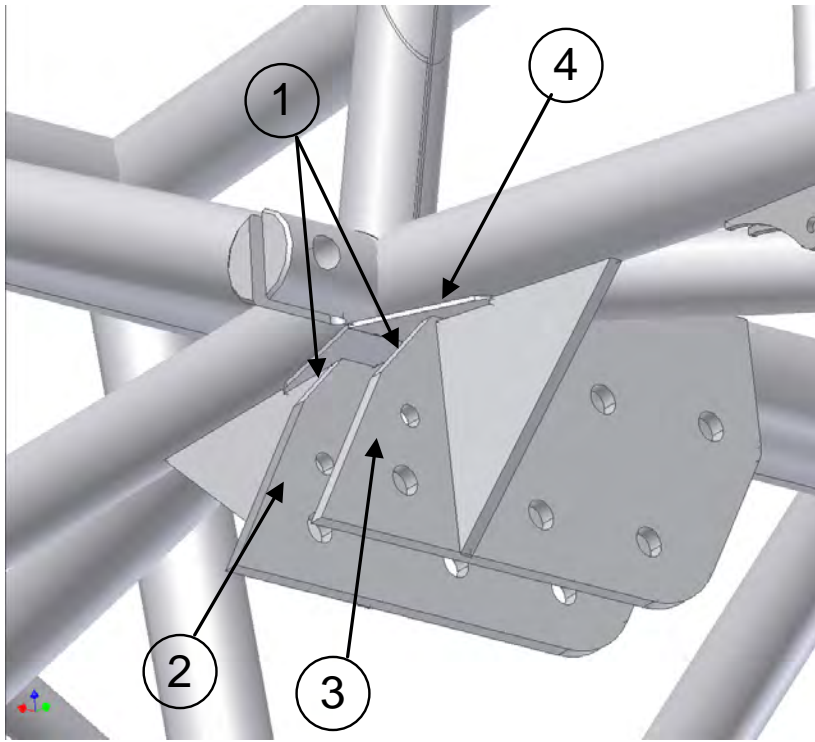


Figure 4

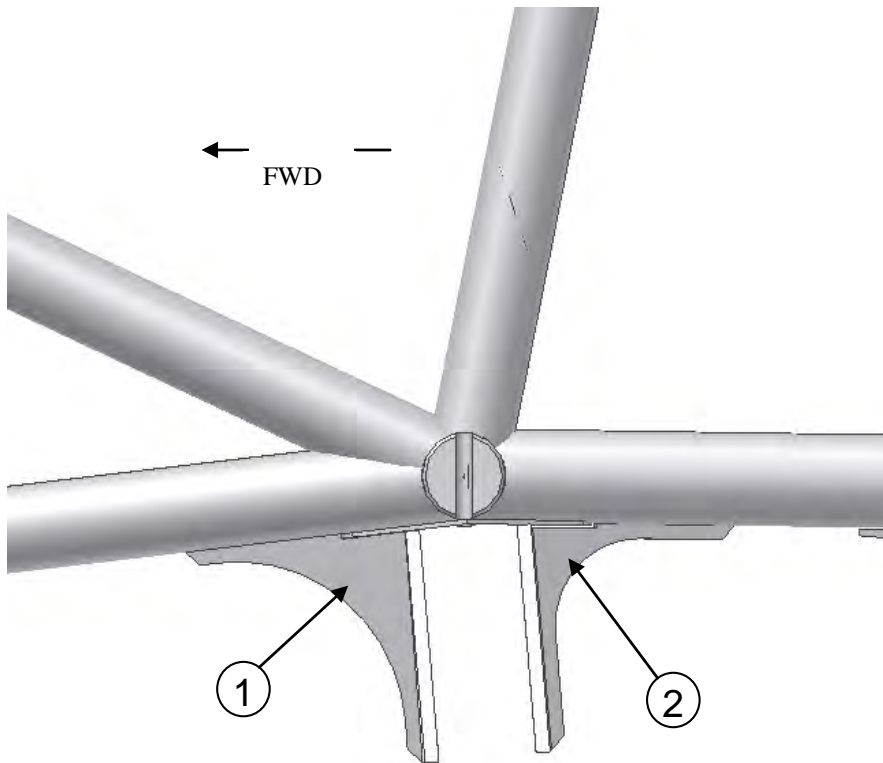


Figure 5

Inspection Instructions

Uncracked airframe and small crack procedures.

1. This airframe can be modified without removing the floats.
2. Drain fuel.
3. Remove fairings and fuel selector valve.
4. The sheet metal on the forward side can be cut away as required and a cover screwed on when complete.
5. Reshape aft Gusset by grinding out as shown in Fig. 5 using drawing p/n 10A02491-006 as a pattern.
6. The aft gusset can be cut from the top side without removing the bottom fairing or cutting any sheet metal away.
7. Reshape front gusset as shown in Fig. 5 using drawing p/n 10A02491-005 as a pattern.
8. Rough cut with abrasive wheel. Finish with carbide burrs. A 90 Degree angled high speed grinder and a straight high seed grinder will be required.
9. Clean prime and paint areas where paint is missing, chipped or damaged.

Cracked airframe procedures.

1. Remove floats.
2. Remove rear wing spar bolt.
3. Drain fuel.
4. Remove fairings and fuel selector valve.
5. Plug all hoses and fuel openings.
6. Clean and dry all fuel from the area.
7. Cut openings in fairings and fabricate new screw-on covers.
8. Remove Aluminum float attachment block.
8. Reshape both front and rear gussets as shown in Fig. 5 using drawings p/n 10A02491-006 and 10A02491-005 as a pattern.
9. Strip paint in all areas requiring welding or stress relieving.
10. Fill fuel tanks.
11. Groove out cracks (Fig. 2, area D) and re-weld.
12. If cracks are found on the ends of the attach plates (Fig. 4, area 4), cut the attach plates back to a location over the bottom doubler on the cluster (Fig. 4, areas 1 & 4). Re-weld attach plates to the doubler and wrap the weld around the inside $\frac{1}{4}$ to $\frac{1}{2}$ inch.
13. Stress-relieve areas at ends of the gussets.
14. Clean, prime and paint areas that have been stripped or where the paint has been chipped or damaged.
15. Reassemble (Reverse step 1-5).

Reference Included Air Tractor Instructions for stress relieving the metal and crack filling.

SNOW ENGINEERING CO. Wichita Falls, Texas		ENGINEERING REPORT <input checked="" type="checkbox"/> ORDER <input type="checkbox"/>	NUMBER 120
TITLE PROCESS SPECIFICATION	BY Leland Snow	CHK'D	MODEL
	DATE 6-2-03		SERIAL
			PAGE 1 OF 1

WELDING 4130N STEEL

1. Factory welding is accomplished with a hell-arc (Miller) welding machine. A foot control is used to control amperage within a given range, and Argon is used to shield the arc.
2. Welding rod used is 1/16 to 3/32 dia No. 1 H.T. This is black in color, the AWS spec is A5.2 and is classification RG60 or R60. Alternate welding rod is ER70S-2 (first option) or ER70S-6 (second option) or ER80S-D2 (third option). Any diameter welding rod may be used, as the thickness of the material being welded dictates the rod diameter. These numbers are generally present on the shipping container.
3. Welding rod is stored in a container that prevents build-up of moisture. Rust on the rod has to be sanded off before use.
4. Welds are to be smooth and uniform. Undercut is to be avoided as well as burn-through. Pin holes will require welding over, as there will be leaks when the structure is oiled internally. Sufficient filler should be added to provide the proper fillet.
5. Surfaces to be welded should be free of grease, oil, or other contaminants. A wire brush is sometimes required if there is rust or residue present.
6. Tubing clusters should have fits such that gaps between parts should not exceed 1/8" for tubes up to .083 wall thickness, and should not exceed 3/16" for tubes having .120 wall or greater. Larger gaps are permissible if the gaps are for no more than 25% of the perimeter of the tube, and the welder is confident that filling the gap can be done easily.
7. Welders are to be certified, and are to weld clusters for testing purposes every 12 months. See 4 & 5 of P.S. 121.
8. Welders are to be classified as Production welders or Trainees. Production welders are to weld primary structure or any other parts, as long as the material welded is the same type that was used in their certification test. Trainees may not weld primary structure, but can weld non-critical parts that are approved by Engineering. The Q.C. manager is to closely control the selection of parts welded by Trainees.

SNOW ENGINEERING CO. Wichita Falls, Texas		ENGINEERING REPORT ORDER <input checked="" type="checkbox"/>		NUMBER 125	
TITLE PROCESS SPECIFICATION		BY Leland Snow		CHKD	
		DATE 11/28/93		SERIAL	
		PAGE 1		CF 1	

STRESS RELIEVING-TORCH

1. Parts too large for oven stress relieving may be stress relieved with a torch. This would include certain clusters in the fuselage frame that have high or repeated loads.
2. A heating tip is installed on the welding torch and a fairly large flame with a slight feather edge is established. The cluster is heated gradually by moving the torch over the entire surface as rapidly as possible so that the cluster heats up as a unit. When the weld areas and the surrounding metal is just starting to turn red, the correct temperature has been reached, and heating should be discontinued. Avoid overheating to cherry red, or heating in spots.
3. When the correct temperature has been reached, allow the cluster to cool gradually at room temperature.