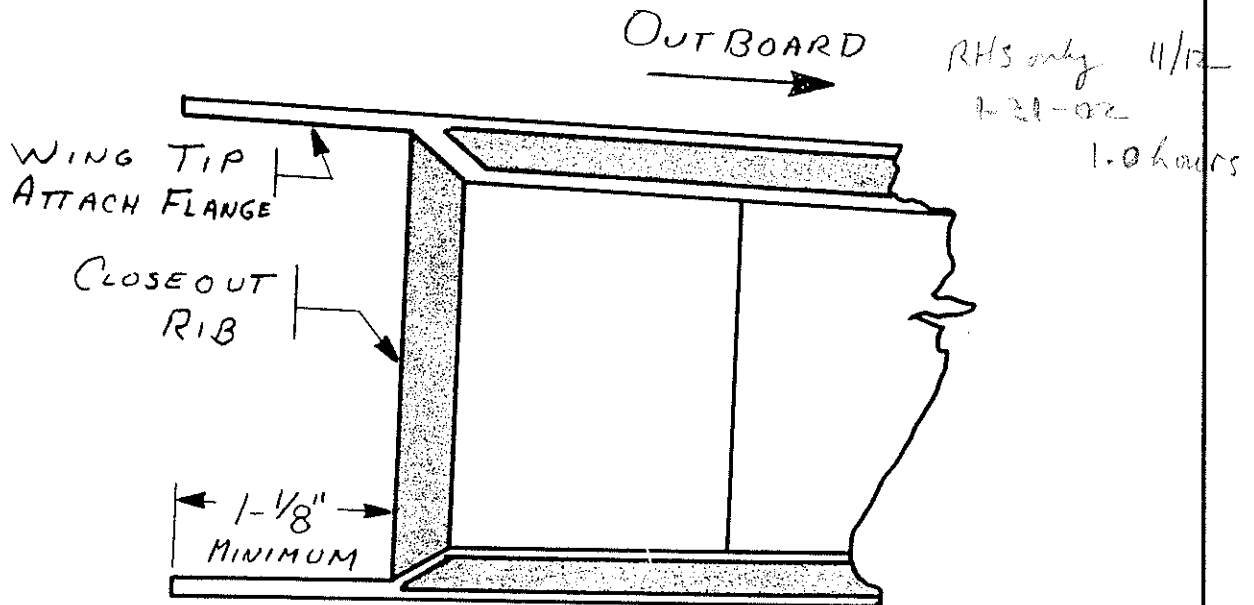


STEP 11 FITTING THE INBOARD CLOSEOUT RIB

✓ Completed Steps 11+12 LHS only  
10-29-01 1.5 hours



RHS only 4/12  
1-21-02  
1.0 hours

FIGURE (12)

A tip extension closeout rib is installed in the inboard end of the tip extension, as shown in FIGURE (12). The closeout rib is required for strength and is also used as a mounting point for the tip extension fuel fittings and fuel tank vent fitting.

The rib will initially be cut and fit in one piece but will then be cut into three pieces: a forward, an aft, and a center section. The center section of the closeout rib is installed first, and the forward and aft sections will be installed after the upper and lower tip extension panels have been bonded together. Installing the inboard rib in three pieces facilitates the assembly process.

Using the closeout rib template provided, mark the outline of the closeout rib on a piece of 1/4" thick 4.5 lb. foam and cut out. Shape the edges of the closeout rib to fit within the tip extension panels, as shown in FIGURE (12). A minimum distance of 1-1/8" is required between the inboard end of the tip extension attach flange and the inboard face of the closeout rib to permit the wing tip attach flange to fit into the tip extension. The closeout rib must fit against the inboard foam core bevel of the wing tip, as shown in FIGURE (12), to avoid forming low spots in the tip extension fuel bay.

Trim the edges of the closeout rib to its final contour so that the airfoil of the wing tip extension matches the airfoil of the existing wing end.



MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 21
------------------	--	----------	------	--------	------------

STEP 12 SECTIONING THE CLOSEOUT RIB ✓

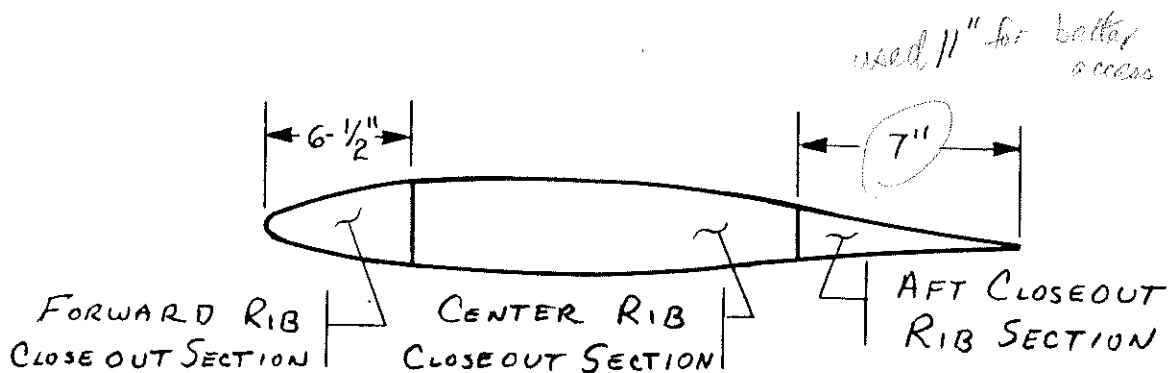


FIGURE (13)

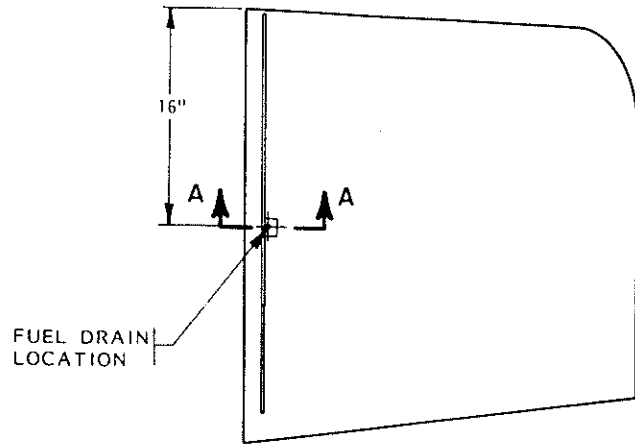
The closeout rib is cut into three sections to provide access for applying the inside leading edge laminates and the aft shear web forward laminates. The forward and aft closeout rib sections will not be installed until the upper and lower wing tip panels have been joined; the open areas provide access to the leading edge and the trailing edge shearweb. The center section of the rib will be installed in the lower tip extension panel, and the fuel transfer fitting, vent fittings, and electrical conduit will be installed in the center section of the rib prior to bonding the upper panel to the lower panel. This sequence permits the fuel and vent lines and electrical wire conduit to be sealed against fuel leakage prior to installing the upper wing tip extension panel.

Mark and cut the closeout rib into three sections using the dimensions shown in FIGURE (13).

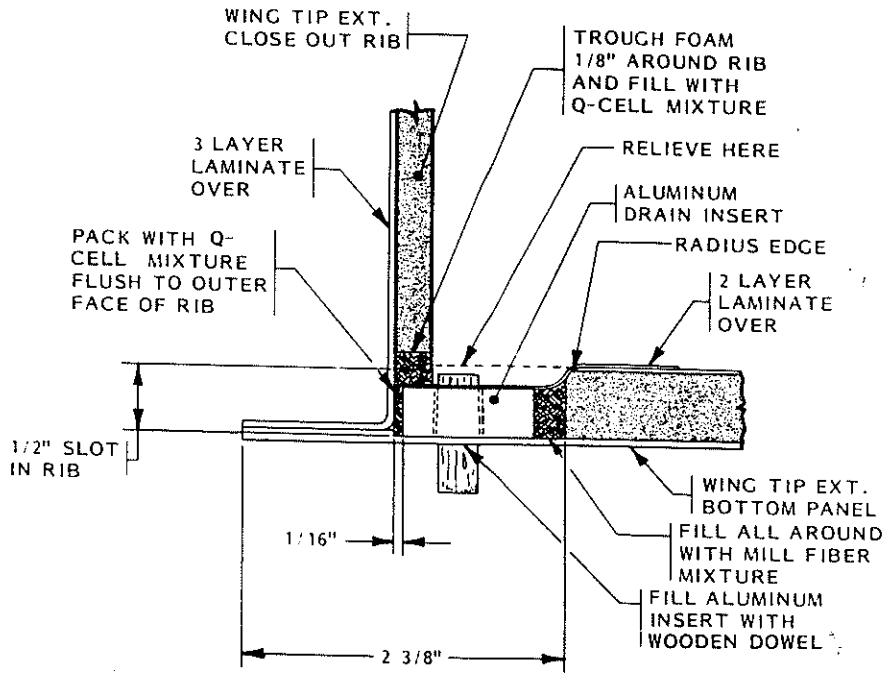
**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 22
------------------	--	----------	------	--------	------------

STEP 13 INSTALLING THE WING TIP EXTENSION FUEL DRAIN FITTING




PLAN VIEW  
(WING TIP EXT. BOTTOM PANEL)



VIEW A-A

FIGURE (14)



**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 23
------------------	--	----------	------	--------	------------

To create a sump drain for the wing tip extensions, the supplied threaded aluminum insert is installed into the lower panel 16" aft of the leading edge, as shown in FIGURE (14).

First, relieve the inside skin and foam core of the lower tip extension panel. Roughen all sides of the aluminum insert with sandpaper in preparation for bonding. Fit the insert in place, mark the location of the fuel drain hole on the inside of the lower panel, and drill a 7/16" diameter hole through the lower panel for the (320-0334-001) fuel drain to protrude. Make sure the insert is oriented properly, with the large end of the tapered pipe threads down. Wax the threads of the insert and thread a waxed wooden dowel up into the threads so that it protrudes 1/8" above the top of the insert, as shown, to prevent resin or Q-cell from contaminating the threads. Make sure that no wax gets on the bonding surfaces of the insert.

Bond the insert to the lower panel by packing with mill-fiber mixture on the forward, aft, and outboard sides. The Q-cell mixture on the inboard side of the insert (the side closest to the centerline of the airplane) will be applied at the time that the closeout rib is installed. The mill fibers should form a smooth transition from the inside skin of the lower panel to the upper side of the insert. Before the mill fibers have cured, apply a 2 layer laminate over the insert area, as shown, cutting holes in the laminates to fit around the protruding wooden dowel. (The laminates are easier to apply before the mill-fiber has cured.) Trim the laminates flush to the inboard edge of the insert when green cured.

*Insert 320-334-001 reduced in thickness from 3/8" to 1/4" and skinned up to reduce amount of 'out of contour' of drain plugs.*

*LHS completed 11-6-01 2 hours*

*RHS completed 11-16-01 1.5 hours*



MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 24
------------------	--	----------	------	--------	------------

STEP 14 PREPARING CLOSEOUT RIB FOR FUEL FITTINGS

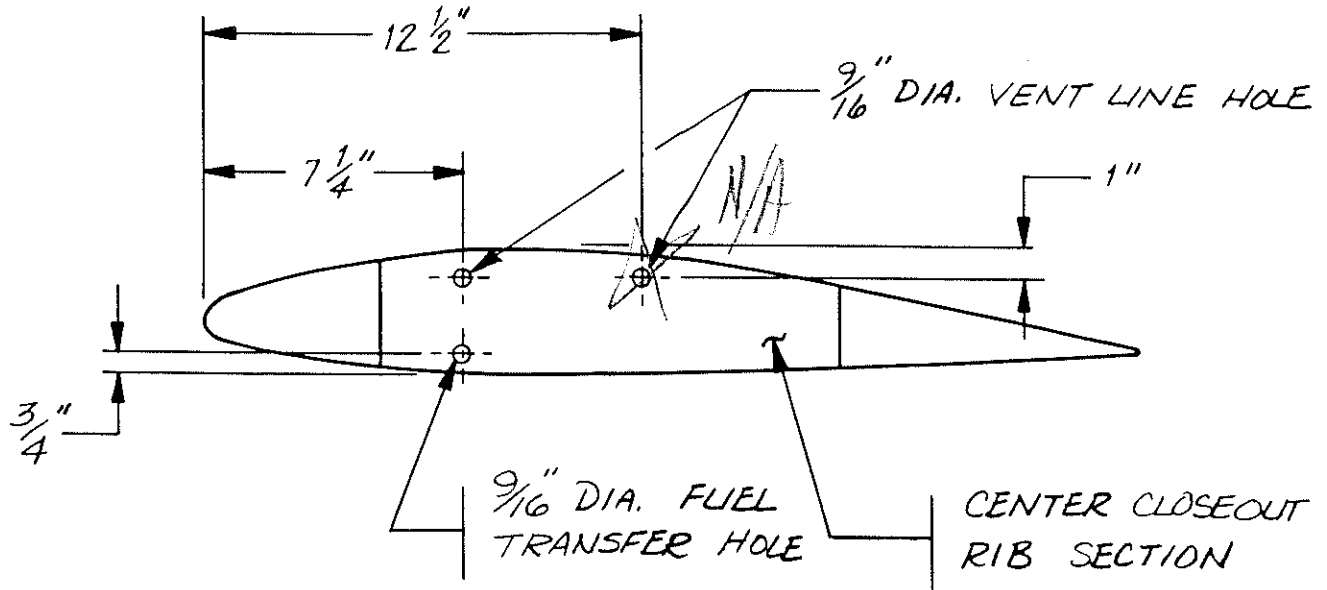


FIGURE (15)

Locate and mark the (3)  $\frac{9}{16}$ " diameter holes for the vent line fittings and fuel transfer fitting on the centersection of the inboard rib, as shown in FIGURE (15), using a dark felt tip marker.

Locations

Conduit on fwd face of shearweb.

F. Vent line on Aft of shearweb.

F. Collector at  $13\frac{1}{2}$ " aft of L/E

- with fitting facing aft.

- with fitting facing aft



MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 25
------------------	--	----------	------	--------	------------

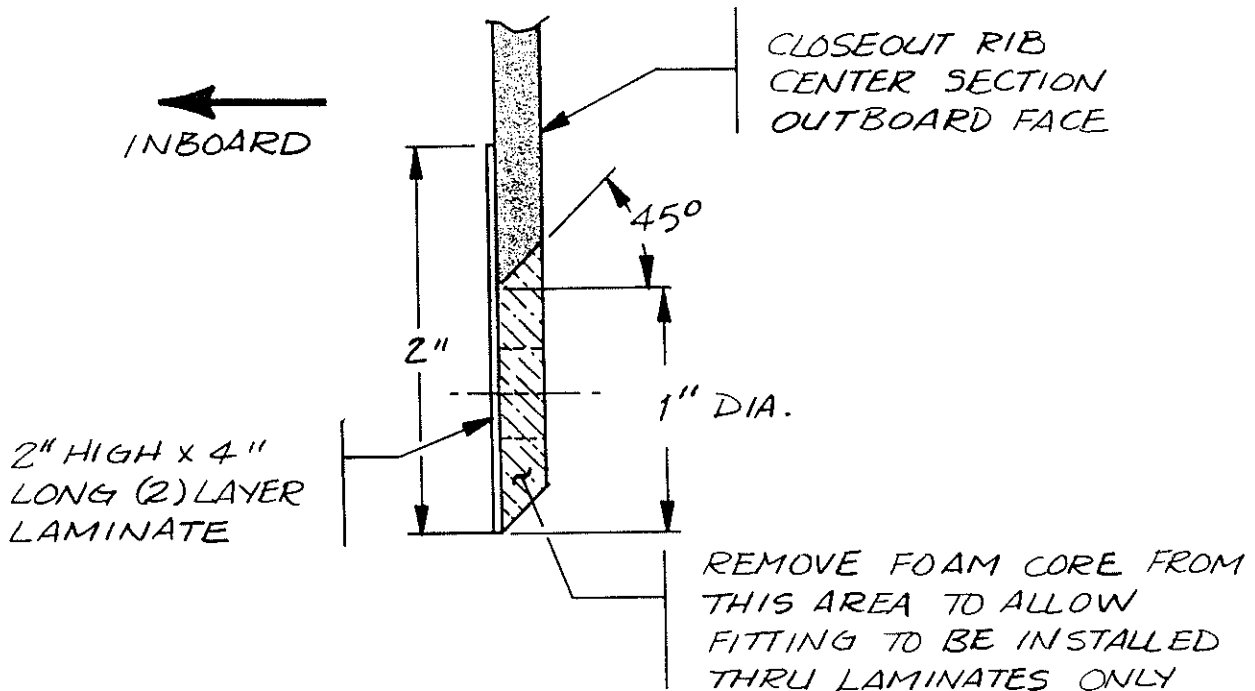


FIGURE (16)

Apply 4" x 2" (2) layer laminates on the inboard face of the rib center-section, centered over the vent and fuel line hole locations, as shown in FIGURE (16). Let cure.

Use the marked vent and fuel transfer fitting hole locations in the closeout rib (visible through the previously applied laminates) as guides to locate and drill 9/16" diameter holes through the (2) layer laminates and the center rib section.

Remove 1" diameter circular sections from the outboard face of the rib's foam core centered on the 9/16" diameter holes, as shown in FIGURE (16), to provide a space for filling with mill fibers around the fuel fittings. Take care when dishing out the foam section to bevel the foam at a 45° angle to facilitate the installation of the later outboard laminates.

**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 26
------------------	--	----------	------	--------	------------

✓ STEP 15 CLOSEOUT RIB LAMINATES

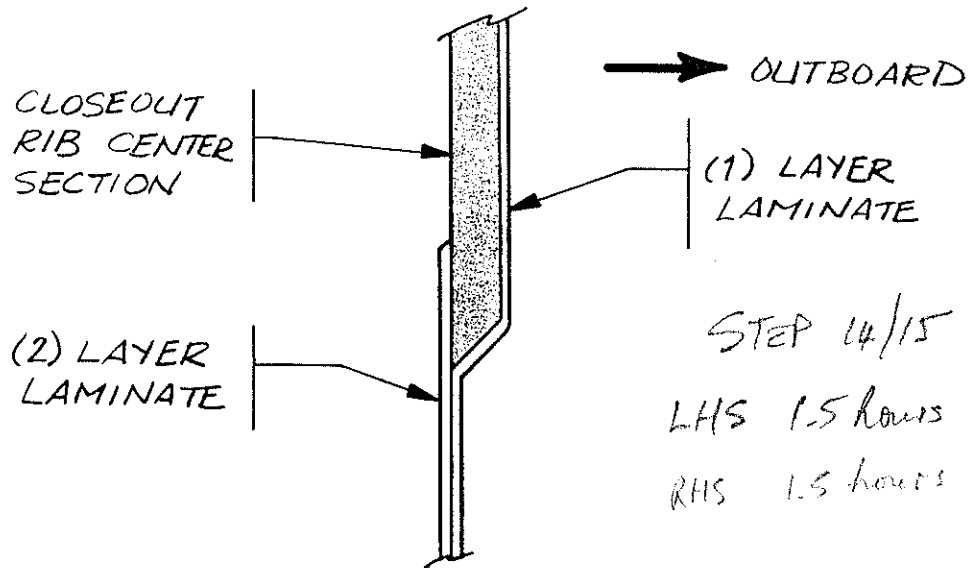


FIGURE (17)

Seal the outboard face of each of the three rib sections with a thin Q-cell mixture, taking care to seal the 45° beveled edges of the foam around the fuel fitting holes in the closeout rib center section.


Apply a (1) layer laminate over the outboard face of each of the inboard rib sections, as shown in FIGURE (17). Mold the laminate into the relieved sections for the fuel fittings in the center rib section. Let cure.

Use the holes in the (2) layer inboard laminate as guides to drill matching 9/16" diameter holes in the (1) layer outboard laminate to allow installation of the vent and fuel transfer fittings.

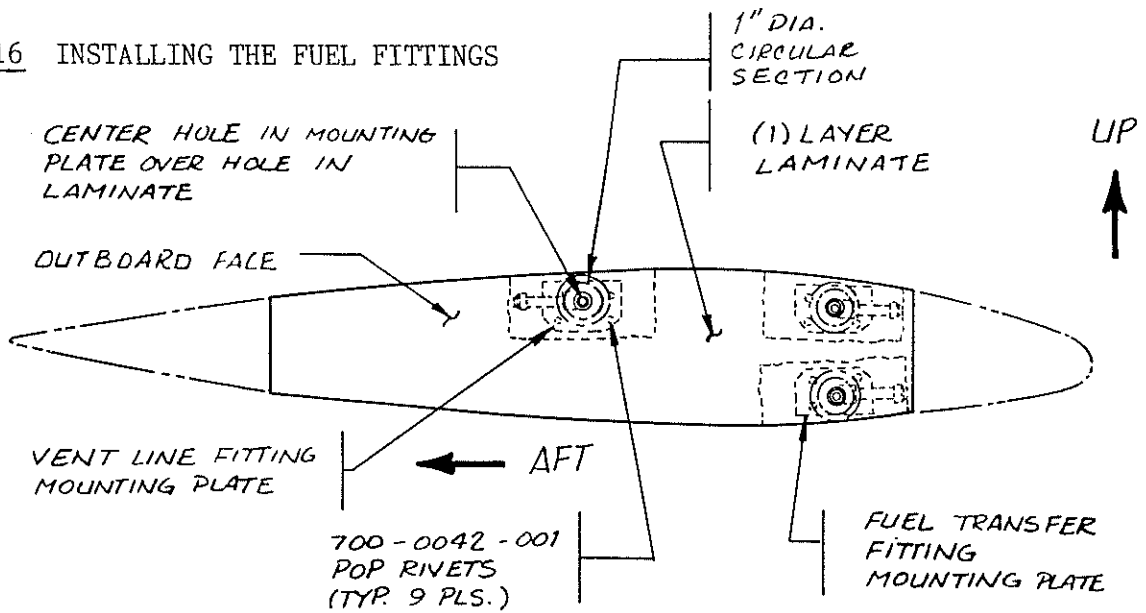
STEP 15A

Make (4) fuel fittings from AN 833-6D welded to .125 Al plate in lieu of (4) fittings supplied by kit P/N 322-460-101

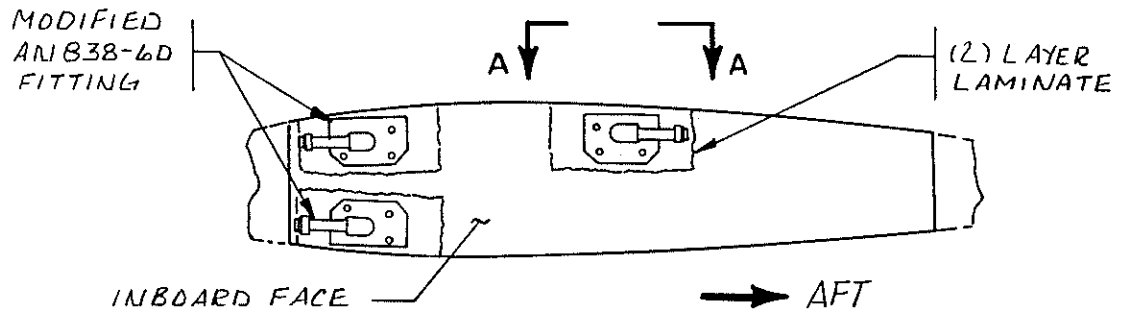
✓ 10-6-01 6.0 hours.

 <b>STODDARD-HAMILTON</b> AIRCRAFT, INCORPORATED				
MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	PAGE 27

**STEP 16** INSTALLING THE FUEL FITTINGS



LEFT-HAND CLOSEOUT RIB CENTERSECTION  
VIEW LOOKING INBOARD



LEFT-HAND CLOSEOUT RIB CENTERSECTION  
VIEW LOOKING OUTBOARD

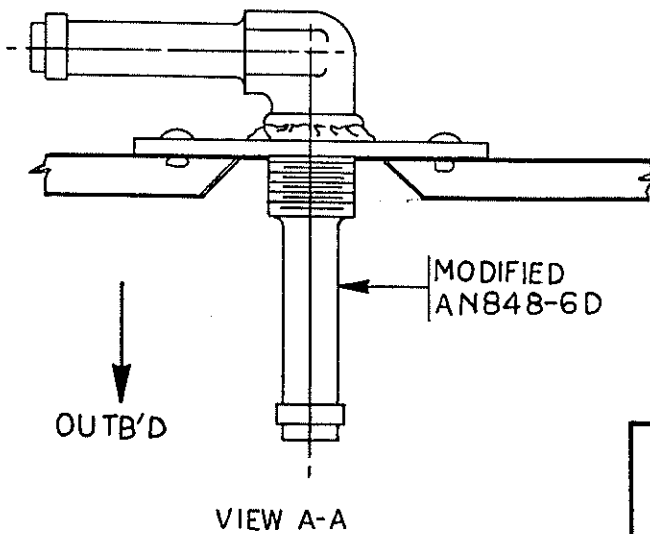


FIGURE (18)

**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION A	DATE 9/16/88	VOLUME	PAGE 28
------------------	--	---------------	-----------------	--------	------------



Drill three #30 rivet holes through each of the vent and fuel transfer fitting flanges, as shown in FIGURE (18). Drill the holes so that, when the fittings are positioned in their holes in the closeout rib, the rivet holes will be positioned over areas of the rib that still have the full thickness of foam core.

Position the fuel fittings with their aluminum mounting plates against the inboard face of the inboard rib.

NOTE: Early tip extension fuel kits include (3) left and (3) right modified AN838-6D fuel fittings (threaded for a flared tube fitting on one end) and (1) left and (1) right modified AN848-6D fitting (with slip-on hose connections on both ends). The modified AN848-6D fittings are replaced by modified AN838-6D fittings in later kits. If your kit includes the modified AN848-6D fittings, use them for the aft tip extension vent lines, as shown in FIGURE (18). The threaded AN838 fittings must be used for the forward vent lines to provide connections for the internal tip extension vent lines; they must also be used for the tip extension fuel transfer fittings to permit complete drainage of fuel from the tip extensions; and, finally, they must be used for the wing tip end rib fuel transfer fittings on the Glasair II to provide connections for the fuel transfer lines between ribs H and I.

NOTE: Carefully align the modified AN838-6D and AN848-6D elbows to face directly aft or forward, as shown in FIGURE (18), to avoid low or high points in the fuel lines connecting the tip extension tank and the main fuel tank.

Use the #30 holes in the mounting plates as guides to drill #30 mounting plate installation holes through the inboard laminate only of the center rib section.

NOTE: The holes must be drilled only through the 2" x 4" laminates applied on the inboard face of the closeout rib center section. If the drill were to penetrate the outboard laminate a possible fuel leak could develop.

Install the mounting plates to the inboard rib 2" x 4" laminates using (700-0042-001) "pop" rivets.

*Completed LHS w/ 1 vent line + 1 fuel collector fitting*

*11-11-01 2.0 hours*

*RHS similar 2.0 hours 2-4-02*



MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION A	DATE 9/16/88	VOLUME	PAGE 29
------------------	--	---------------	-----------------	--------	------------

STEP 17 PREPARING CLOSEOUT RIB SECTIONS FOR BONDING

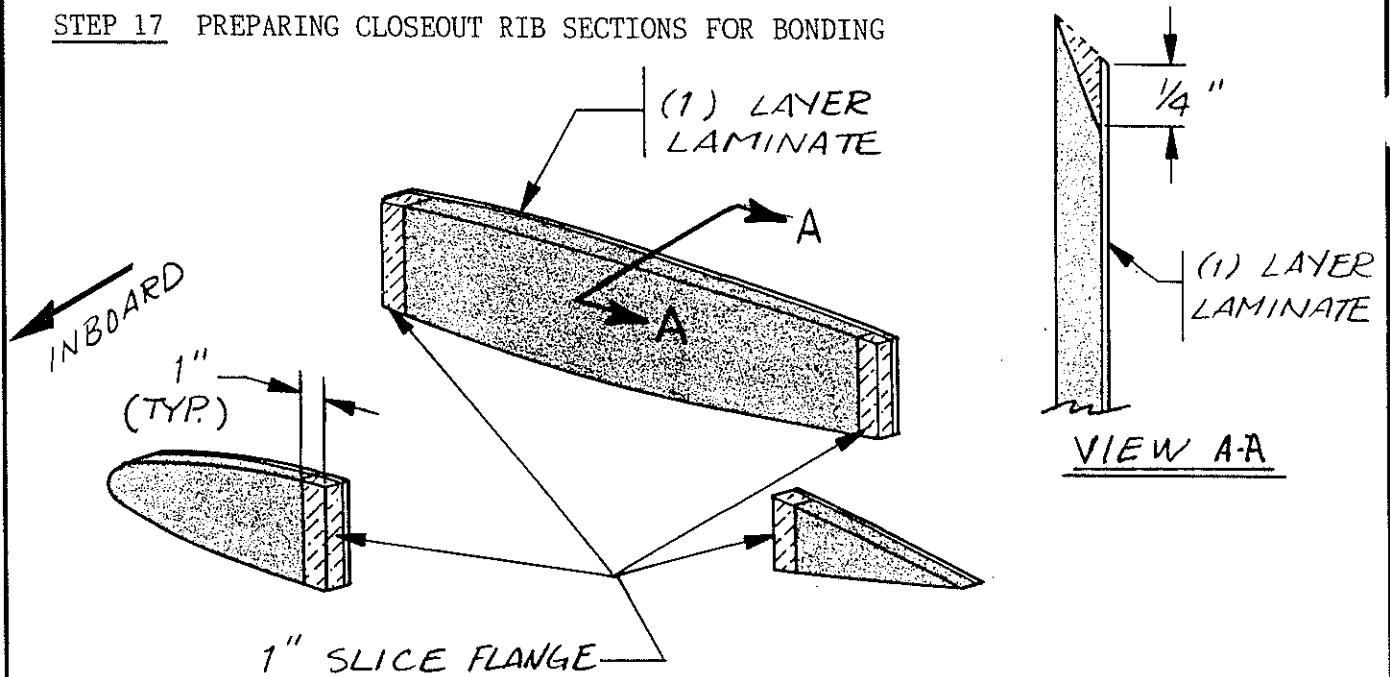


FIGURE (19)

Mark 1" wide splicing flanges at the edges where the three inboard rib sections will be joined. Carefully remove the foam core of each of the rib sections in the rib splice areas, taking care not to damage the (1) layer laminates on the outboard surfaces of the three rib sections.

Form 1/4" deep troughs along the upper and lower edges of the three rib sections, as shown in View A-A of FIGURE (19).



MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 30
------------------	--	----------	------	--------	------------

STEP 18 BONDING THE CLOSEOUT RIB CENTER SECTION TO THE LOWER TIP PANEL

✓

Completed LH/RH

01-23-02

1.5 hours

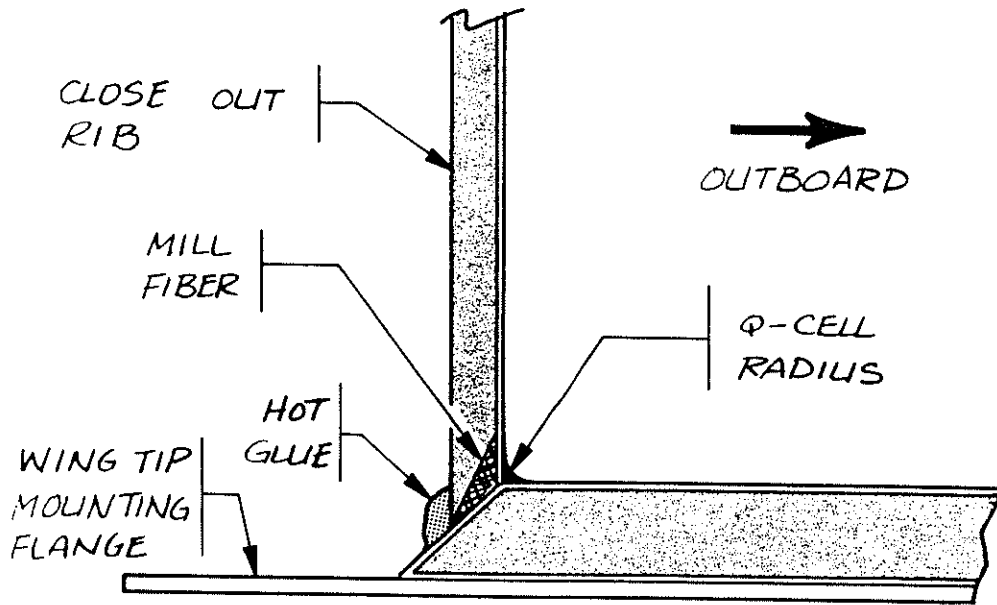


FIGURE (20)

Fill the lower center rib section trough with mill fiber mixture, as shown in FIGURE (20), and place the center section in place on the lower tip extension panel. Use dabs of hot glue along the inboard edge of the rib to hold the center section in place. Tape the upper tip extension panel in place on the lower panel, and tape or hot glue the upper edge of the center rib section to the upper panel, making sure that the rib section fits properly to the upper panel's foam core bevel. Carefully slip the tip extension assembly onto the end of the wing, secure it with screws, and support it by the sawhorse to hold the assembly in the proper position while the mill fiber mixture cures.



MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 31
------------------	--	----------	------	--------	------------

STEP 19 SEALING FUEL FITTINGS

✓ Completed 2-6-02  
2 fittings LH & RH  
1.0 hour

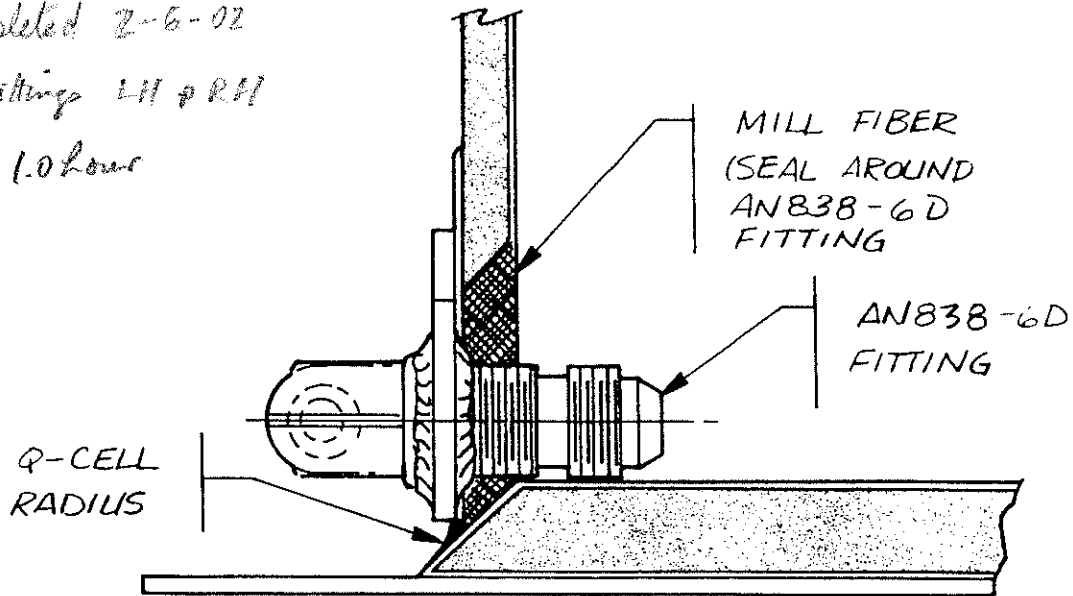


FIGURE (21)

Use a mill fiber mixture to fill the cavities around the vent and fuel transfer fittings, as shown in FIGURE (21).

NOTE: Be careful when potting around the AN838-6D forward vent line fitting to keep mill fiber mixture off the flared tube threads to which the 3/8" O.D. 5052-0 vent tube will be fastened. Mask the threads with tape to prevent resin contamination.

STEP 20 CLOSEOUT RIB OUTBOARD LAMINATES

✓ LH/RH 2/11/02 1.5 hours.

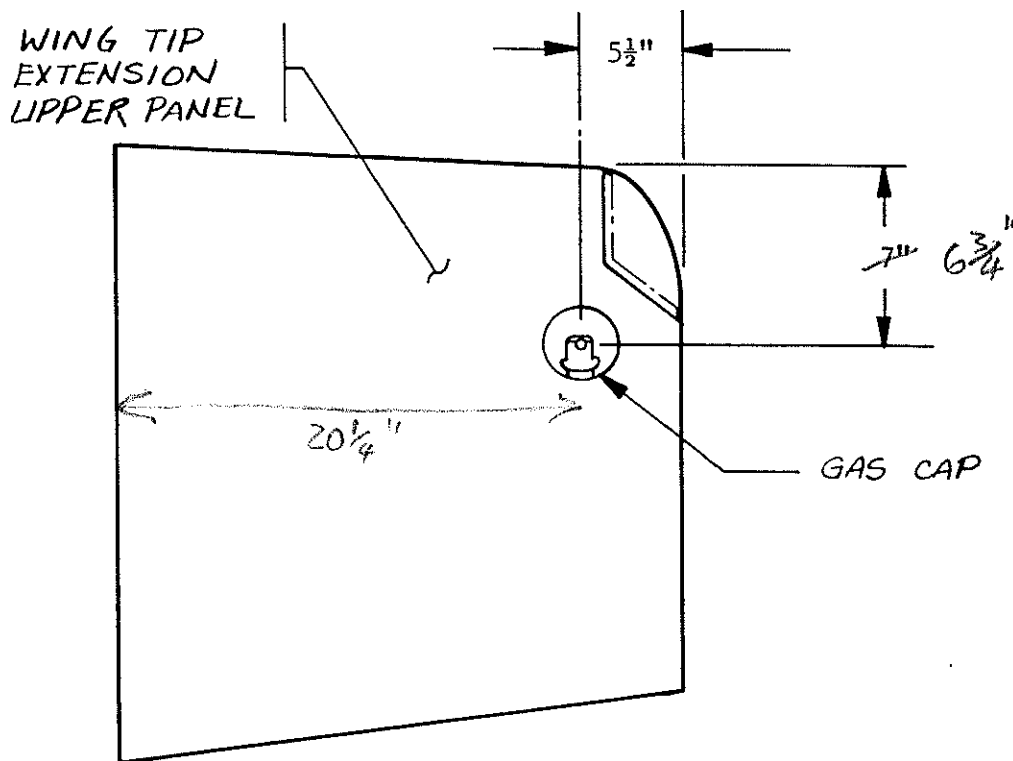
Use a Q-cell resin mixture to form a radius along the inboard and outboard lower edges of the center rib section.

Lay up a (2) layer laminate on the outboard face of the center rib section lapping the laminates 1" onto the lower wing panel. Cut the laminates locally to fit around the vent and drain line fittings.

**H**  
**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION A	DATE 9/16/88	VOLUME	PAGE 32
------------------	--	---------------	-----------------	--------	------------

✓ STEP 21 INSTALLING THE FUEL VENT LINE AND FUEL CAP



PLAN VIEW

FIGURE (22)

Install the fuel cap sleeve in the upper panel at the location shown in FIGURE (22). Refer to the FUEL FILLER CAP INSTALLATION of the WING ASSEMBLY SECTION of the aircraft INSTRUCTION MANUAL for the installation procedures for the fuel filler cap assembly.

✓ Completed LHS/RHS Fuel cap install<sup>n</sup>. 1.5 hours. 11-19-01



MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 33
------------------	--	----------	------	--------	------------

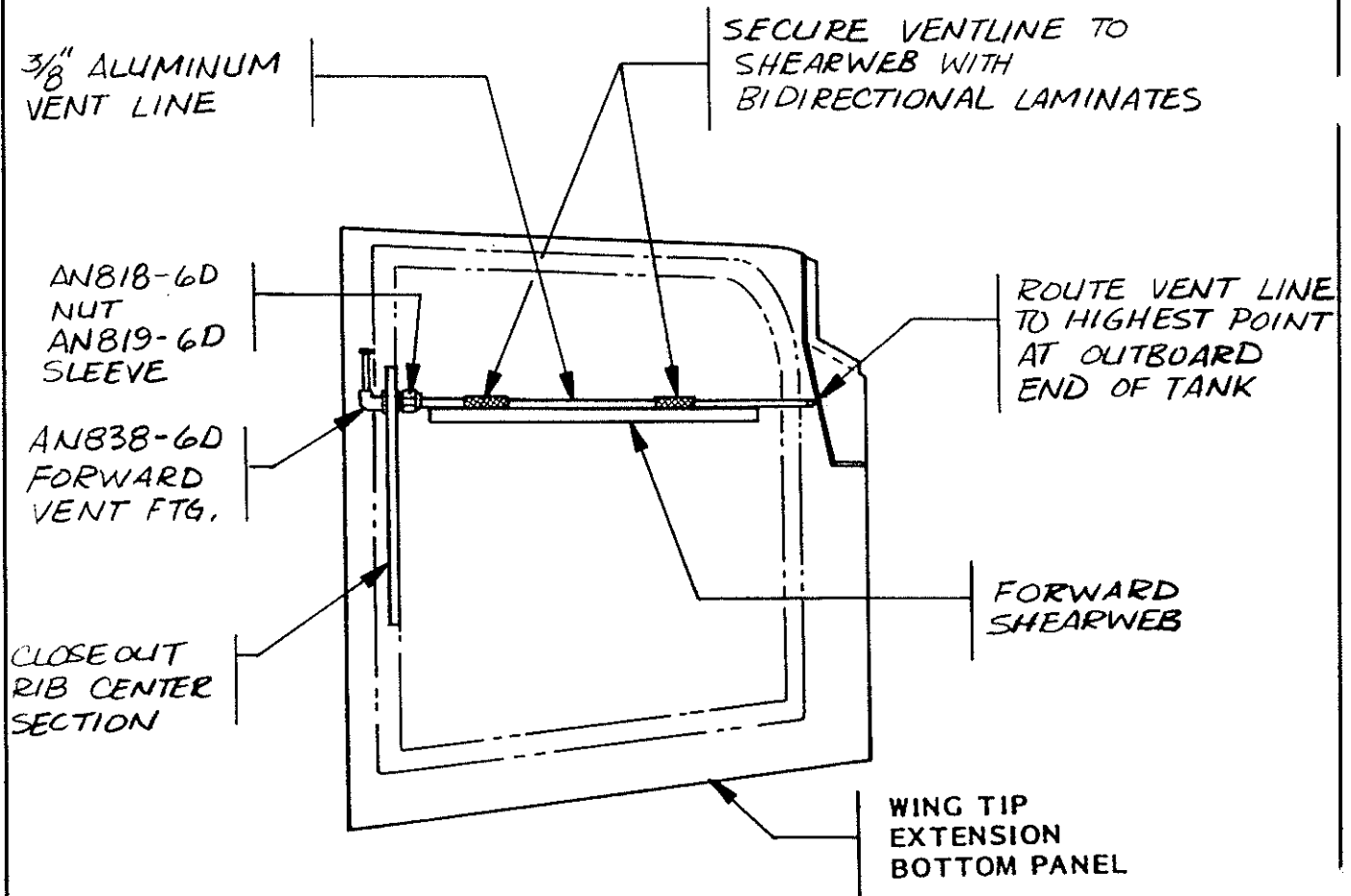


FIGURE (23)

Cut, bend, and flare a 3/8" O.D. x .035" wall 5052-0 aluminum tube for the vent line and attach the vent line to the forward modified AN838-6D fitting with the AN818-6D nut and AN819-6D sleeve. Shape the vent line such that the vent line is routed along the forward face of the forward shearweb. The outboard end of the vent line should be located at the highest point possible in the outboard end of the wing tip.

Secure the vent line to the forward edge of the forward shearweb and the inboard face of the tip light bulkhead with several 1/2" x 1-1/2" 1-layer strip laminates.

*Fuel vent line fitted & secured. to front side of shearweb*

*LHS 11-15-01 75 hour*  
*RHS 2-11-02 75 hour*

**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION A	DATE 9/16/88	VOLUME	PAGE 34
------------------	--	---------------	-----------------	--------	------------

STEP 22 (RESERVED)

INTENTIONALLY LEFT BLANK



MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 35
------------------	--	----------	------	--------	------------

STEP 23 WIRING CONDUIT INSTALLATION

✓ LHS + RHS

2-13-02 3 1/2 ROWS.

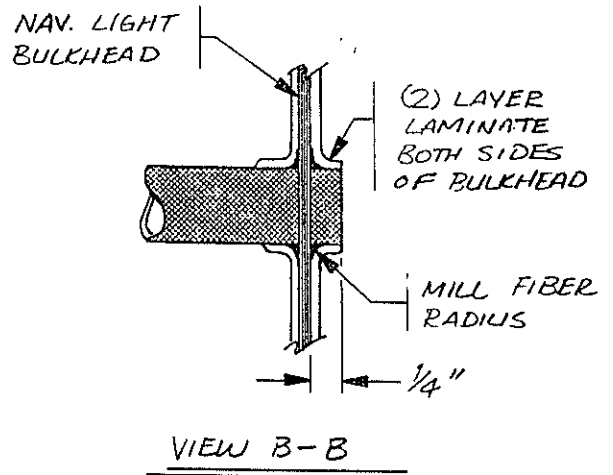
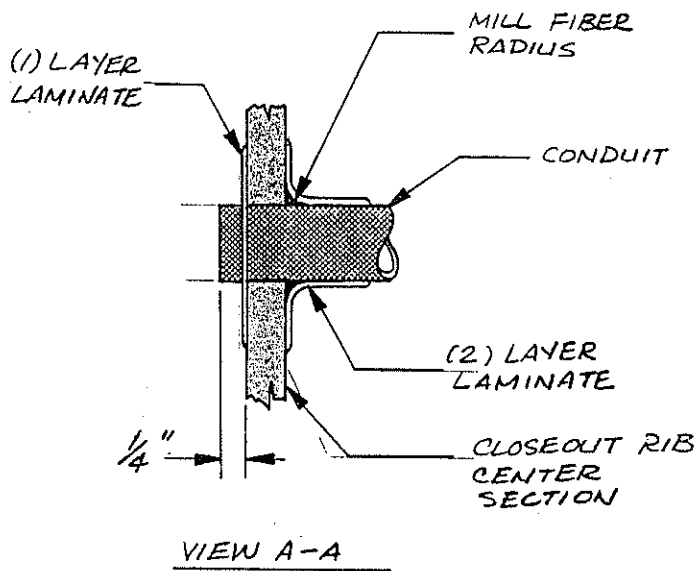
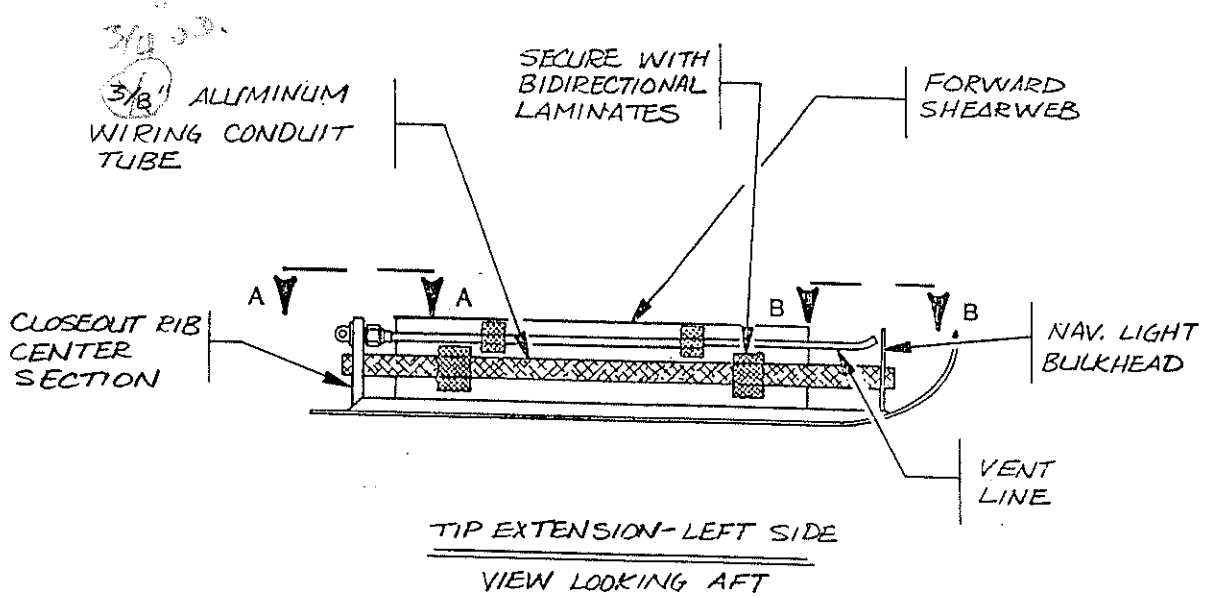


FIGURE (25)

**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 36
------------------	--	----------	------	--------	------------



The electrical wires to operate the wing tip lights must be routed through a sealed aluminum tubing conduit in the tip extension. The conduit is installed halfway up along the forward side of the forward shearweb, as shown in View A-A, FIGURE (25), to allow fuel flow all along the closeout rib to the low point fuel transfer fitting, and to avoid air pockets near the upper panel.

Cut a length of the 3/4" OD x .058" wall 6061-T6 aluminum tubing for the strobe/navigation light wiring conduit. Cut the tubing long enough to extend 1/4" beyond the inboard surface of the inboard closeout rib and 1/4" beyond the outboard surface of navigation light box bulkhead #2. Deburr and round the inside edges of each end to avoid damage to the wires.

Apply a one layer laminate on the inboard surface of the closeout rib centersection in the area the wiring conduit will pass through, as shown in FIGURE (25). Let cure.

Drill 3/4" diameter holes for the wiring conduit through the closeout rib and through navigation light box bulkhead #2. Position the holes so that, when installed, the conduit contacts the forward side of the tip extension forward shearweb and is positioned halfway between the upper and lower tip extension panels.

Use coarse sandpaper to roughen the entire length of the wiring conduit tube. Clean the tube with acetone and apply a one layer laminate around the entire tube, overlapping where necessary to completely seal it. Let cure. Position the conduit through the holes in the closeout rib and navigation light bulkhead #2. Build up a mill fiber mixture radius around the conduit tube on both sides of navigation light bulkhead and the outboard side of the closeout rib, as shown in FIGURE (25). Before the mill fiber mixture cures, apply 2-layer laminates on both sides of the nav light bulkhead #2 and on the outboard side of the closeout rib, lapping onto the wrapped wiring conduit.

**WARNING:** Be sure to seal the conduit where it passes through the closeout rib and the navigation light box thoroughly so that there is no possibility of leaks occurring. After the 2-layer laminates have cured, paint a generous coating of resin over them to protect them further from fuel leaks.

Secure the laminated conduit tube to the forward side of the forward shearweb with one layer laminates, as shown in FIGURE (25).

STEP 24 BONDING UPPER TIP EXTENSION PANEL TO LOWER PANEL

✓ LHS/RH

**NOTE:** If the trailing edges of the tip extension panels are too short to match the trailing edge line of the ailerons, a strip of 2-layer precured laminate can be fabricated and installed between the upper and lower tip extension panel trailing edges extending the length of the tip extension. When wing tip bonding is completed, the precured laminate strip can be faired into the tip extension panels with a Q-cell/resin mixture, and the trailing edge can be sanded to the exact length to match the aileron trailing edge.

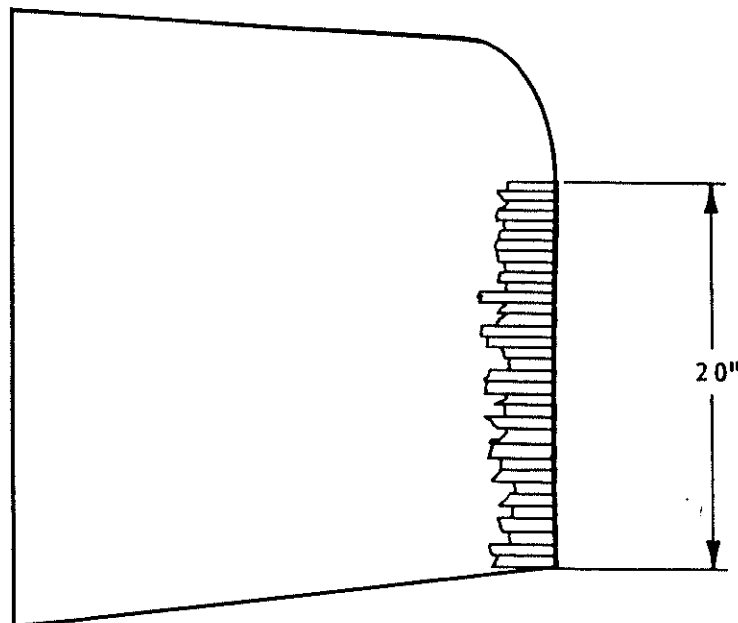


MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 37
------------------	--	----------	------	--------	------------

NOTE: Trial fit the upper tip extension panel to the lower tip extension panel. Verify that the mill fiber fillet around the fuel filler cap does not interfere with the forward shearweb or upper attach flange. If interference exists, relieve the forward shearweb and upper attach flange as necessary to provide clearance. If relieving the shearweb exposes any of the foam core, seal these areas with two-layer laminates.

Remove the .040" layer of duct tape on the inside of the upper tip extension panel.

Sand the top of the forward shearweb upper attach flange with 80 grit sandpaper. Also sand a 1" wide area around the circumference of the inside edges of both upper and lower panels to prepare them for application of the closeout laminates. Cut (1) piece of 2 oz. mat to the dimensions of the forward shearweb upper attach flange.



PLAN VIEW

FIGURE (26)

Tape the outboard mating edges of the upper and lower panels together from the trailing edge to a point 20" forward of the trailing edge, as shown in FIGURE (26). Using a stick, prop the upper tip panels open wide enough to laminate the inside of the outboard edge. Cut (3) pieces of bidirectional cloth 2" x 20", on a 45° bias. This material will be used to form a (3) layer closeout laminate on the inside of the outboard wing tip seam.

***H***  
**STODDARD-HAMILTON**  
 AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 38
------------------	--	----------	------	--------	------------

NOTE: Lay some wax paper under the shearweb cap to catch the resin that oozes out after the upper panel is layed in place.

CAUTION: The following (3) layer laminate, installed on the inside surface of the outboard aft trailing edge must be completed in one uninterrupted sequence. Time is of the essence. Read through this section and thoroughly prepare before bonding the tip extension halves together. If the resin starts to cure before the two tip halves are joined and clamped together the bond will be damaged and will have to be pulled apart and started over before the resin cures. A helper is recommended during this bonding step to mix up the mill-fiber mixture while the (3) layer laminate is being applied.

NOTE: The cusp area cannot be laminated from the inside. By opening the panels a little wider, access to this area can be gained from the trailing edge.

Lay up the (3) layer wing tip outboard edge closeout laminate. Begin by butting the closeout laminate against the navigation light aft bulkhead and then evenly moving aft onto the inside of the outboard wing tip seam. Once the (3) layer closeout laminate is in place and saturated, quickly apply a generous bead of mill-fiber mixture to the aft 2" of the cusp area and along the entire trailing edge of both panels in a similiar fashion as the aileron and flap trailing edges. Now saturate the mat cloth on the shearweb cap. Fill the upper edge trough in the inboard closeout rib center section with mill-fiber mixture. Close the wing tip halves together and tape both the leading and trailing edges with a liberal amount of duct tape. Clean up any excess mill-fiber mixture before taping. To hold the trailing edges together tightly in the cusped area, use small C-clamps cushioned with tongue depressors. Temporarily install and support the tip extension on the wing while curing to ensure that the extensions will match the wing when cured. Let cure.

Completed 24 - LHS 3.0 hours 15 Jan 02  
RHS 3.0 5 Mar 02



MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 39
------------------	--	----------	------	--------	------------

STEP 25 LEADING EDGE LAMINATES

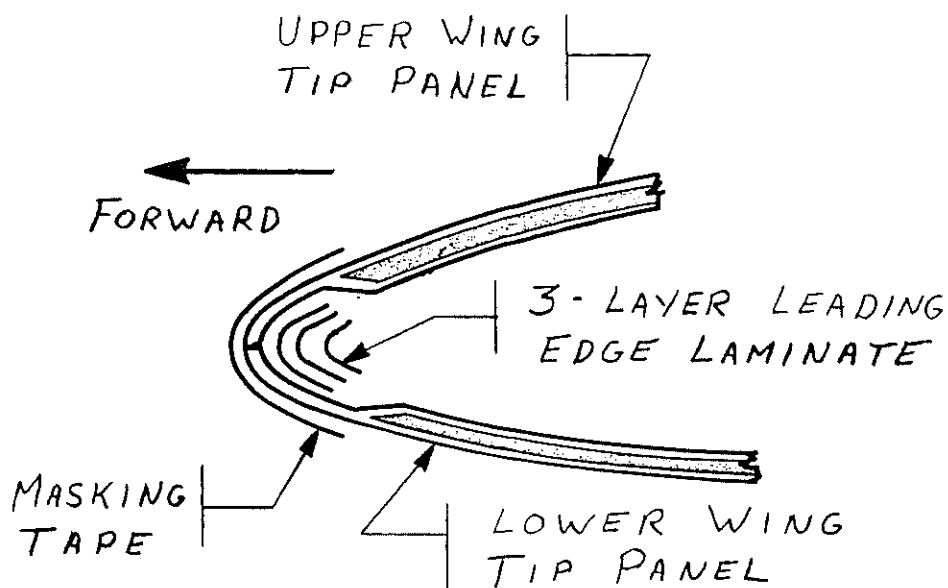


FIGURE (27)

Remove the bonded wing tip panel from the wing. Cut (3) 2" x 26" bidirectional cloth strips on the 45° bias for the (3) layer leading edge laminate. Use these strips to apply a (3) layer inside leading edge laminate evenly between the upper and lower tip extension panels. Extend the leading edge laminates from the inboard end of the leading edge, along the inside of the leading edge seam, and lap them onto the navigation light bulkhead. With the wing tip panels still taped together, use a brush attached to a stick to laminate the seam inside the leading edge and inside the remaining portion of the outboard edge.

LHS Complete  
 RHS Complete  
 3/7/02  
 Feb. 02  
 2.0 hours  
 2.0



MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 40
------------------	--	----------	------	--------	------------

✓ STEP 26 OUTBOARD NAVIGATION LIGHT BOX SEALING LAMINATES

Completed 3/19/02

LH/RH  
2.5 hours.

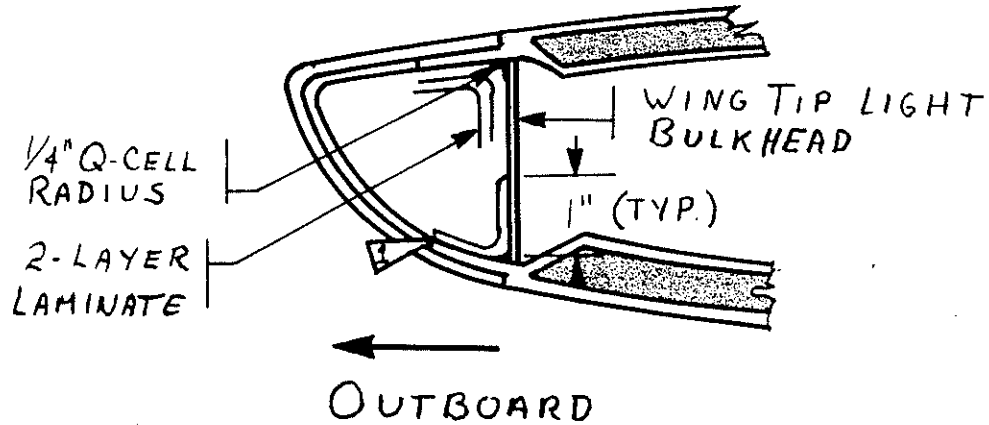


FIGURE (28)

Reaching through the wing tip light opening, use a Q-cell/resin mixture to form a 1/4" radius between the navigation light bulkheads and the upper and lower tip extension panels.

Seal the wing tip light box seams with 2" wide strips of bidirectional cloth cut on the 45° bias. The sealing laminates should all be (2) layers thick and all seams joints should be staggered to reduce possibilities of leaks. Trim the laminates flush with the outboard edges of the lens installation flange.

**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 41
------------------	--	----------	------	--------	------------

STEP 27 REAR SHEARWEB INSTALLATION

✓ Completed 3-18-02

LH good  
RH struggle, OK  
2.5 hours

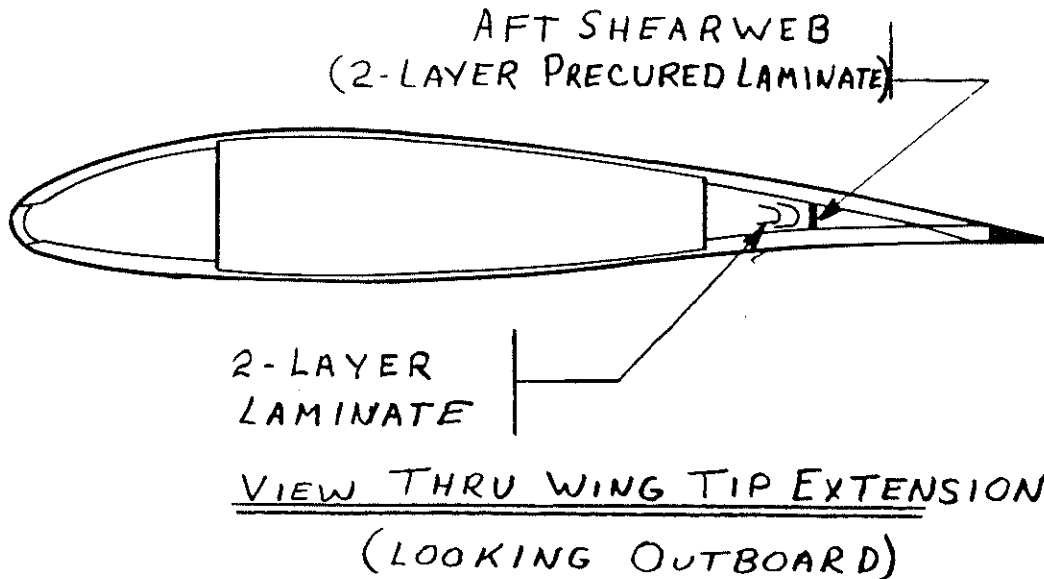


FIGURE (29)

Cut a 3/4" x 20" strip from a piece of (2) layer precured laminate. This strip will be used as a support for the aft shearweb laminates. Trim the 3/4" width as necessary so the aft shearweb fits against the inside laminates of the upper and lower tip extension panels when parallel to the forward shearweb.

When locating the aft shearweb allow a 1" gap between its inboard end and the outboard surface of the closeout rib. A clear passage must exist between the closeout rib and the shearweb to allow free flow of fuel around the inboard end of the aft shearweb.

**NOTE:** Take care not to press the aft shearweb so firmly into place that the original distance between the upper and lower panels is changed at this point.

Cut (2) 2" x 20" strips of bidirectional cloth on the 45° bias, and use these strips to apply a (2) layer laminate on the forward side of the aft shearweb, as shown in FIGURE (29). Use a brush mounted on a stick to apply the laminates taking care to evenly lap them onto the upper and lower panels.

Trim any excess cloth while the laminate is in the "green" cure condition. Let cure.

**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 42
------------------	--	----------	------	--------	------------

LHS only 3/30/02 6.0 hours

RHS only 4/11/02 5.0 hours

STEP 28 INSTALLATION OF THE CLOSEOUT RIB FORWARD AND AFT SECTIONS

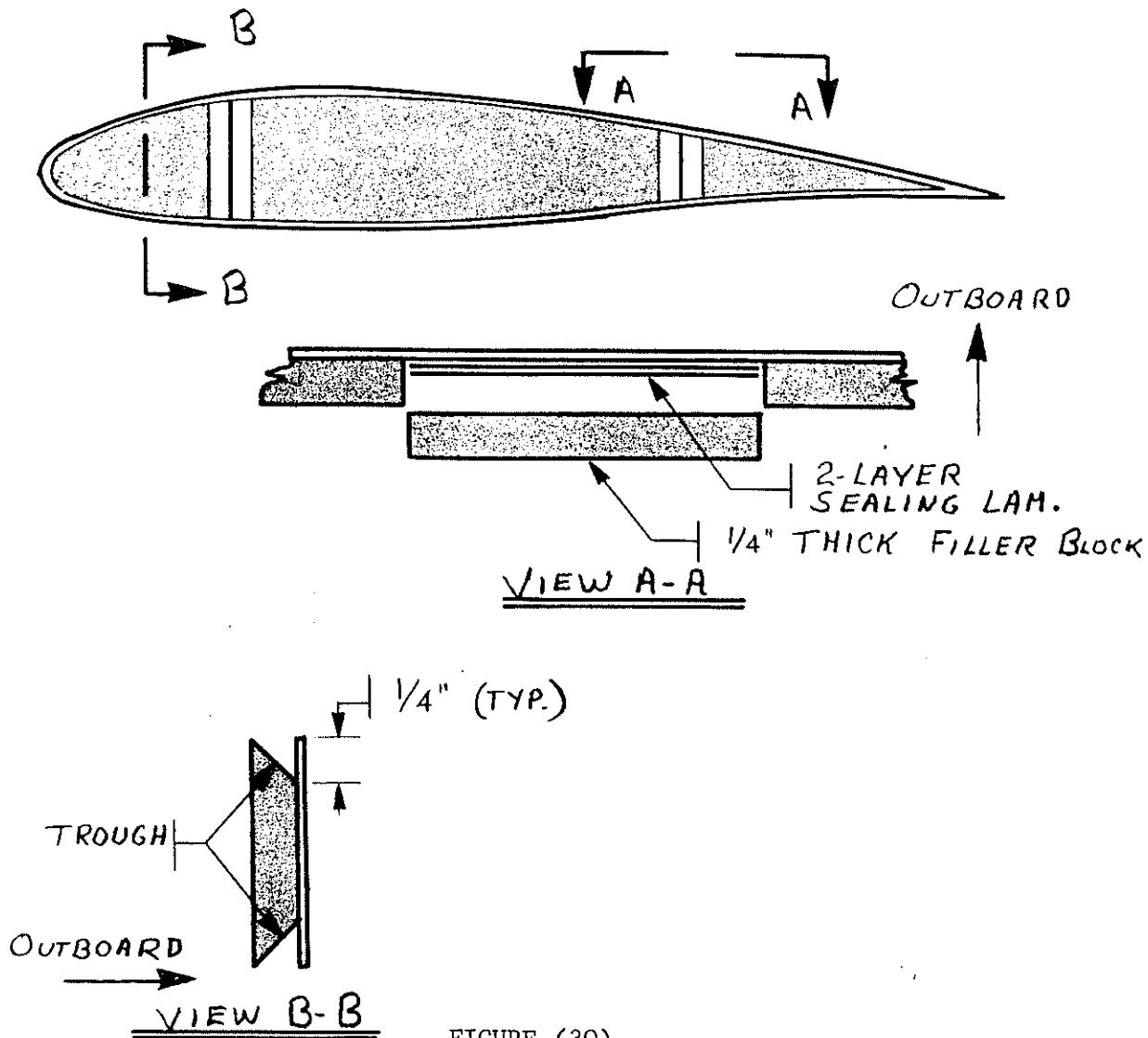


FIGURE (30)

The forward and aft closeout rib sections can be installed at the same time. Verify that the laminates have been applied on the inside leading edge seam and the forward surface of the aft shearweb, that the fuel feed and vent fittings are secured in place and sealed with a mill fiber mixture.

Temporarily position the forward and aft rib sections in the tip extension and verify that they are properly aligned (a straight edge will fit flat against the inboard surfaces of all three rib sections). Trim the edges of the forward and aft rib sections as required to achieve the proper fit.

The joints between the forward and aft closeout rib sections are spliced to the center closeout rib section with 2-layer laminates, and then foam blocks are installed at the joints, as shown in FIGURE (30).



MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 43
------------------	--	----------	------	--------	------------

To install the forward and aft closeout rib sections, fill the troughed edges of the forward and aft rib sections with a mill-fiber resin mixture, as shown in FIGURE (30) View B-B, and press into place. Hold the rib sections in place with dabs of hot glue until the mill-fiber mixture has cured.

Use 2" wide strips of bidirectional cloth cut on the 45° bias to form (2) layer sealing laminates along the joints between the rib sections, as shown in FIGURE (30) View A-A. Lap the 2" wide sealing strips onto the attach flanges by approximately 1".

Cut 2" wide pieces of 1/4" thick 4.5 lb. foam and trim these to fit into the joint areas between the forward and aft rib sections and the center rib section, as shown in View A-A FIGURE (30).

Use a Q-cell/resin mixture to bond the 1/4" thick foam filler pieces into position between the forward and aft rib sections and the center rib section. Let cure.

Sand the inboard surfaces of the 1/4" foam filler pieces as required to form a flat surface with the existing inboard face of the center rib section.

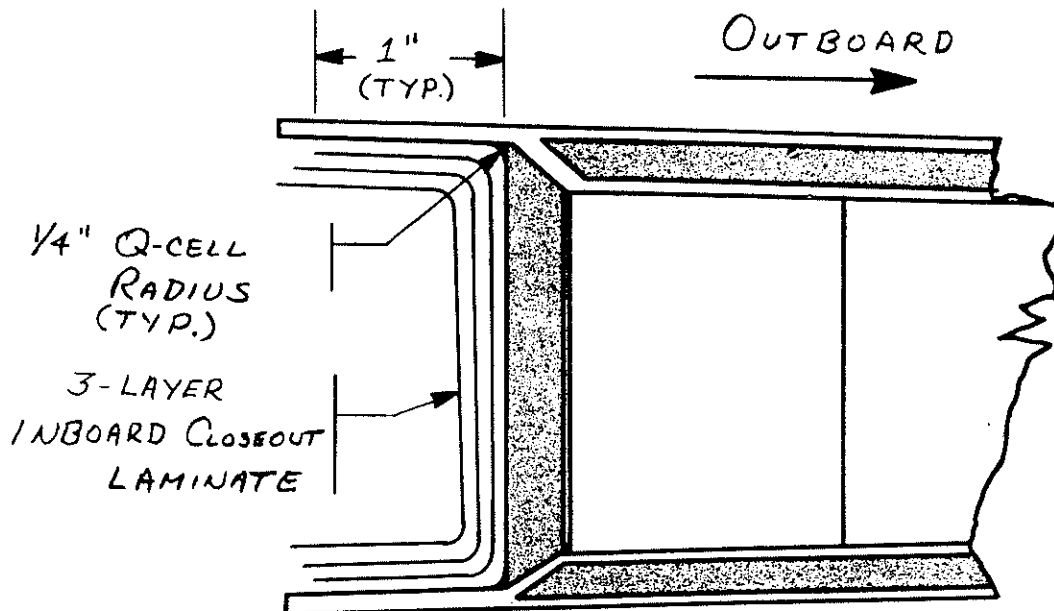


FIGURE (31)

Seal the entire inboard surface of the three rib sections and filler pieces with a thin Q-cell/resin mixture. Use a thick Q-cell mixture to fill any gaps between the foam sections and to form a radius where the closeout rib meets the tip extension panels, as shown in FIGURE (31). Let cure.

**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 44
------------------	--	----------	------	--------	------------



Use the full size template provided to cut (3) pieces of bidirectional cloth on the 45° bias, and use these pieces to apply a (3) layer closeout laminate on the inboard surface of the closeout rib. Cut the laminates to fit around the drain and vent line fittings and wrap onto the wing wiring conduit. Let cure.

#### STEP 29 FUEL TANK PRESSURE TEST

After the final tip extension laminates have cured for at least (4) days at 74° (or longer at lower temperatures) to enable the resin in the laminates to reach its full strength, pressure test the fuel tank for leaks using only the amount of pressure that can be generated by a person's lungs (approximately 1.5 psi maximum).

Tightly tape over the fuel caps with wide mylar tape, thoroughly pressing down the edges of the tape to assure an air tight seal. Cap the fuel feed line on the inboard side of the closeout rib. Install the quick drain in the fuel drain fitting. Affix a balloon to one of the vent lines and a flexible tube to the other.

Inflate the balloon by blowing into and then clamping the tube. If no leaks are present, the balloon will not deflate. If the balloon deflates, check for leaks by using a flexible tube as a stethoscope to listen for escaping air, or by brushing a soap and water solution over areas of suspected leaks and looking for bubbles.

NOTE: Be sure to check all fittings and connections first, including the mylar taped areas over the fuel caps, as these are the most likely sources of leaks.

CAUTION: Temperature or atmospheric pressure changes can greatly affect the accuracy of the pressure test.

NOTE: An alternative (and more accurate) method is to attach an altimeter to one of the vent fittings and to blow into the tank enough to change the altimeter setting by 1,000 - 1,500 feet.

CAUTION: Do not over pressurize the tip extension fuel tank, as damage could occur. After pressurizing the tank, allow 5 minutes for the pressure and temperature to stabilize before beginning a timed pressure test. The tank should not show any indication of pressure loss for 15 minutes (room temperature must remain constant).

It is best to check for leaks at this stage of construction because the wing can more easily be positioned to find and repair leaks. Also, the presence of fuel, or even fuel vapor, can inhibit the resin from curing and prevent adequate resin bonds when repairing leaks.

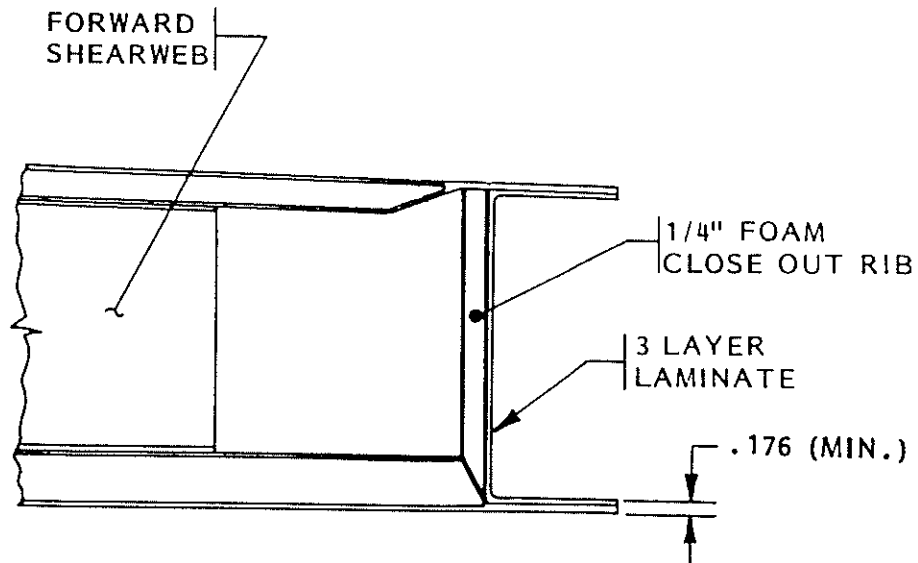
  
**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 45
------------------	--	----------	------	--------	------------

Leaks are relatively rare and are most likely to occur where the fuel and vent fittings and the wiring conduit penetrate the inboard closeout rib, at the seams between the upper and lower panels, and in the navigation light box structure. Leaks in the tip extension tanks should also be fairly easy to repair, as all of the structure is accessible from the outside.

**NOTE:** If soap and water are used to detect leaks, thoroughly rinse away the soap and allow to dry after the test is complete. Then sand and wipe with acetone to insure proper bonding of any future laminates.

STEP 30 TIP EXTENSION FASTENER INSTALLATION



VIEW THRU WING TIP EXTENSION  
(LOOKING FWD.)

FIGURE (32)

The attach flange of the tip extension assembly should have a uniform thickness of 0.176" when complete, as shown in FIGURE (32). Add 1-1/4" wide laminates to the inside of the wing tip attach flanges only where needed, to bring the thickness up to 0.176".

**NOTE:** One layer of bidirectional cloth when installed is approximately 0.015" thick.

If only the (4) assembly mounting holes exist through the upper and lower attach flanges (the standard wing tips have not previously been installed), redrill the (4) holes through the upper and lower tip extension attach flanges. Remove the tape used to shim the wing tip attach flanges in Step 1.



MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 46
------------------	--	----------	------	--------	------------

NOTE: The three layer laminate applied in the previous step should equal the thickness of the tape shim applied in Step 1.

If the standard (short) wing tips have previously been installed, additional holes evenly spaced between the existing holes are required in the wing tip attach flange to provide the (26) fasteners needed for the extended tip.

Fit the tip extensions to the end of the wing. Where necessary, sand and relieve the tip extensions and the attach flanges to insure that the tips fit snug to the wing tip attach flanges. A gap of 1/64" or less, measured between the outboard edge of the wing and the inboard edge of the tip extension, is desired when the wing tip extensions are installed. Lay out the remainder of the mounting screw hole pattern on the upper and lower tip extension panels, as shown in FIGURE (2).

With the hole locations layed out and the assembly mounting screws supporting the tip extension, use a 3/16" bit to drill the remainder of the holes. Place a screw into each of the holes to maintain alignment.

NOTE: These holes must be drilled very carefully so there will be no play in the fasteners when the tip extensions are installed.

Install the MF1000-03 nutplates to the wing tip attach flanges, using the AN426AD3-6 rivets provided. Countersink the holes in the extensions so that the AN509-10R12 screws will fit flush to the primed surface. Use a machine stop countersinking tool. Do not countersink too deeply.

Install the wing tip extensions with the screws provided. Tighten the screws and give the tips a good shake to check for solid mounting.

CAUTION: The AN509-10R12 screws must be fully tightened before flight or else the flight loads will cause high bearing loads in the areas of the screw holes in the tip extension attach flanges.

**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 47
------------------	--	----------	------	--------	------------

STEP 31 FITTING NAVIGATION LIGHT LENS AND OPTIONAL STROBE LIGHT

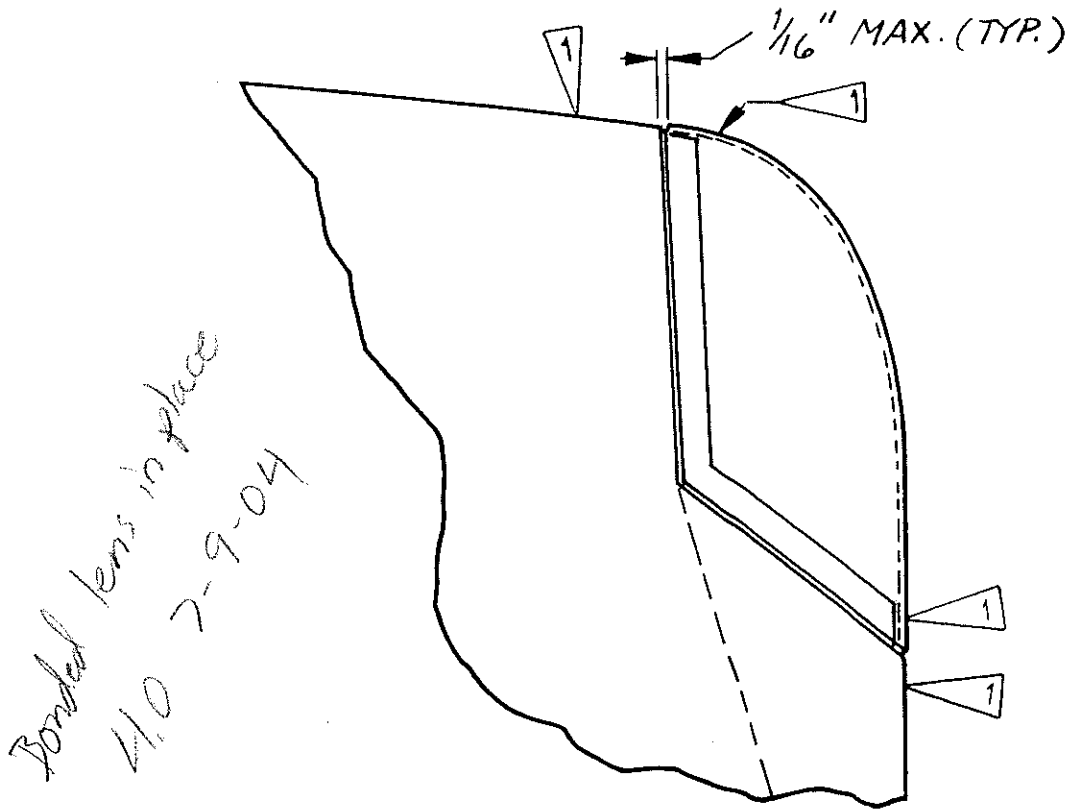


FIGURE (33)

The left and right navigation light lenses are supplied premolded to the proper shape but must be trimmed to fit into the navigation light lens openings on the tip extensions.

**CAUTION:** The navigation light lenses are molded of light plastic and care must be taken when trimming and drilling them to avoid breaking or cracking.

The most satisfactory method of cutting the navigation lenses is to first trim them oversize, using a thin abrasive wheel cutter mounted in a drill motor or die grinder, and then sand the edges to the final size.

Fit the lenses so that the lens contour matches the contour of the tip extension, as indicated by Flag #1, FIGURE (33), and a maximum gap of 1/16" exists between the edges of the lens and the lens mounting flange joggle when the lens is firmly in place on the lens mounting flange.

**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 48
------------------	--	----------	------	--------	------------

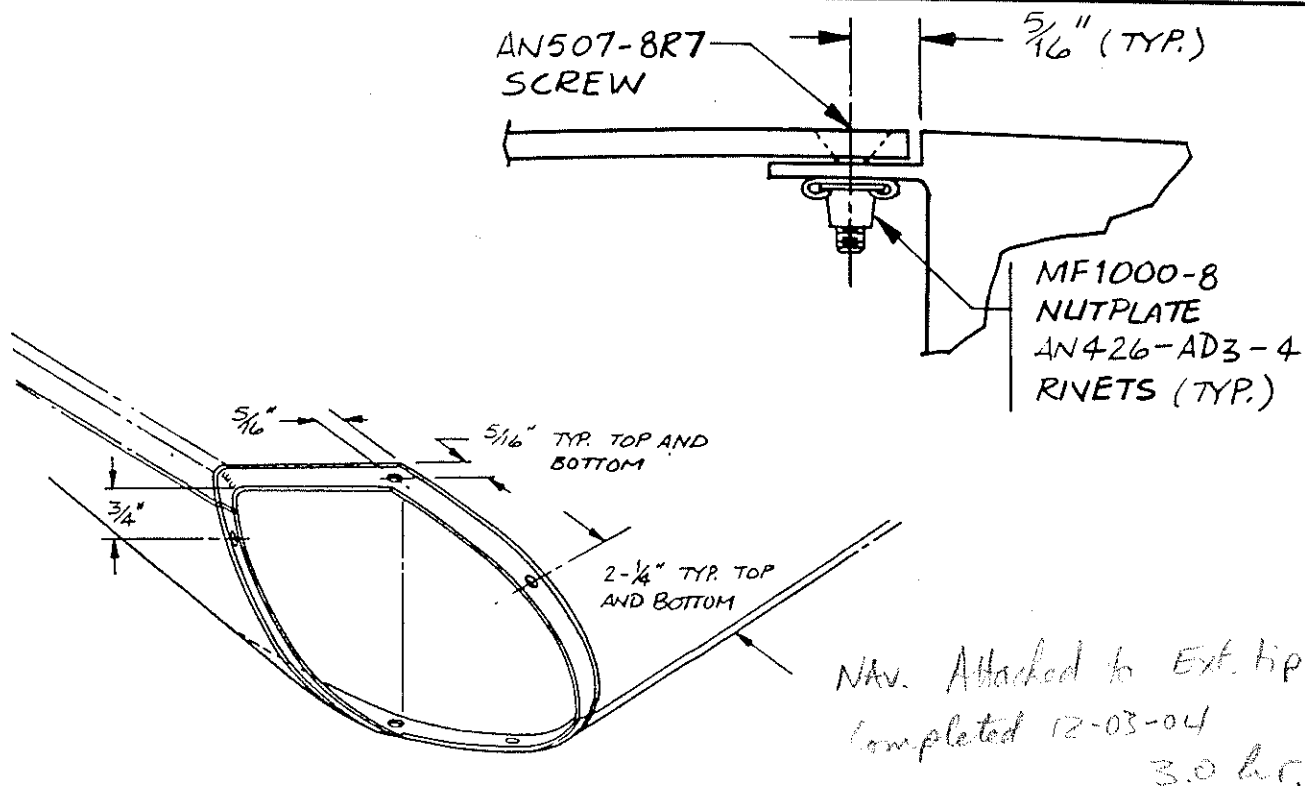


FIGURE (34)

With the navigation light lens in place firmly on the wing tip extension, mark the hole pattern shown in FIGURE (34) onto the outside surface of the lens.

**NOTE:** Drilling the holes in the plexiglass requires great care to avoid cracking or chipping. Special plexiglass drill bits are available (or can be made by grinding a small lip angle about 30° from the axis of the drill) that reduce the risk somewhat. Always back up the hole being drilled with a piece of hardwood to help prevent the plexiglass from chipping.

Remove the navigation light lens from the wing tip and, using a block of wood to back up each hole as it is being drilled, drill the mounting holes in the plexiglass using the special #20 drill. Reinstall the navigation light lens on the wing tip and use the mounting holes in the lens as a guide to drill matching holes in the lens attach flange.

Using a machine stop countersink tool, countersink the navigation light lens for the AN507-8R7 lens installation screws. Use only a very light pressure when countersinking the lens installation holes to avoid cracking the plexiglass.

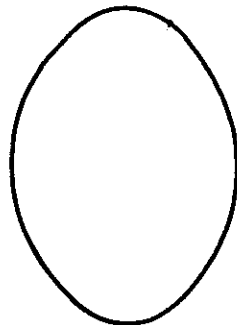
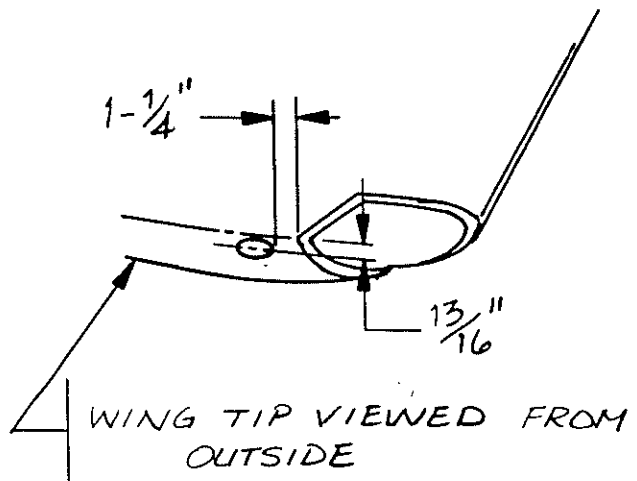
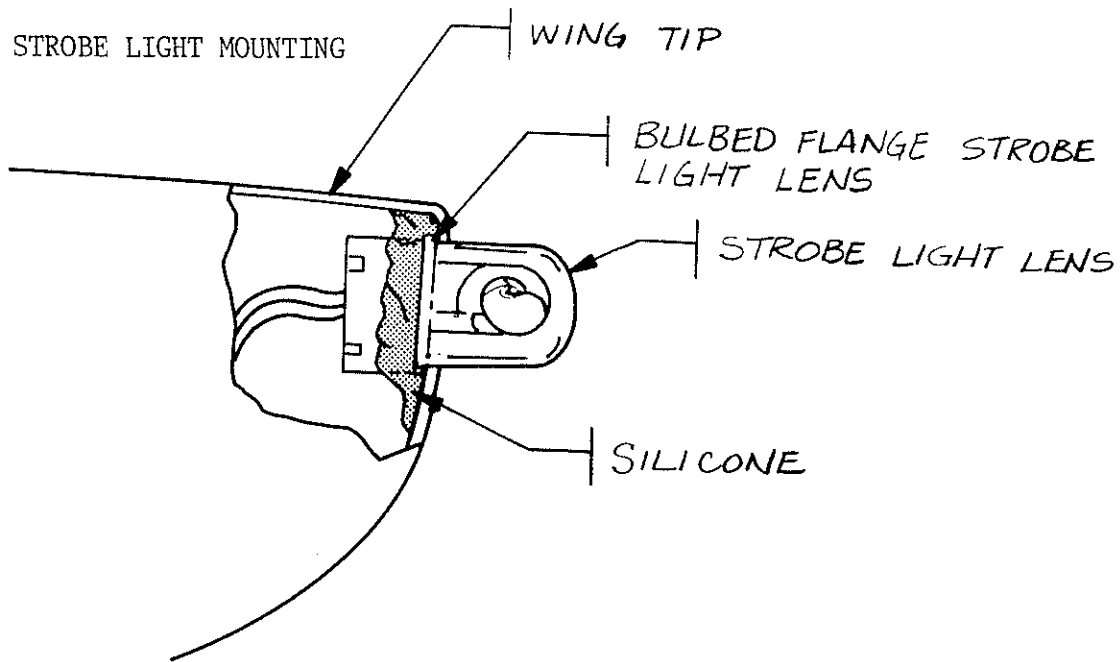
Use AN426AD3-4 rivets to install a MF1000-08 nutplate at each of the navigation light lens mounting holes on the lens mounting flange, as shown in FIGURE (34).

**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 49
------------------	--	----------	------	--------	------------

STEP 32 MOUNTING NAVIGATION AND STROBE LIGHT

A. STROBE LIGHT MOUNTING



STROBE HOLE CUT-OUT FOR  
NEW WING TIP

FIGURE (35)

**H**  
**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 50
------------------	--	----------	------	--------	------------

An anticollision strobe light kit is available from the Glasair Options Catalog. The strobe light lens and strobe light are installed from within the navigation light box. An opening is required of sufficient size to allow the strobe light lens to pass through the wing tip outer end. The strobe light lens should fit tightly in the opening and the inboard flanged end of the lens should rest against the inboard surface of the outer wing tip, as shown in FIGURE (35).

Using the dimensions and the hole template supplied in FIGURE (35), locate and cut the strobe light lens clearance hole. Use a half round file to enlarge the opening as required to allow the strobe light lens to fit tight.

Install the strobe light unit in the strobe light lens and install the unit in the wing tip. Use silicone sealant to secure it in place.

32A Completed 4/26/02 1.0 lower



MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 51
------------------	--	----------	------	--------	------------

B. NAVIGATION LAMP RECEPTACLE INSTALLATION

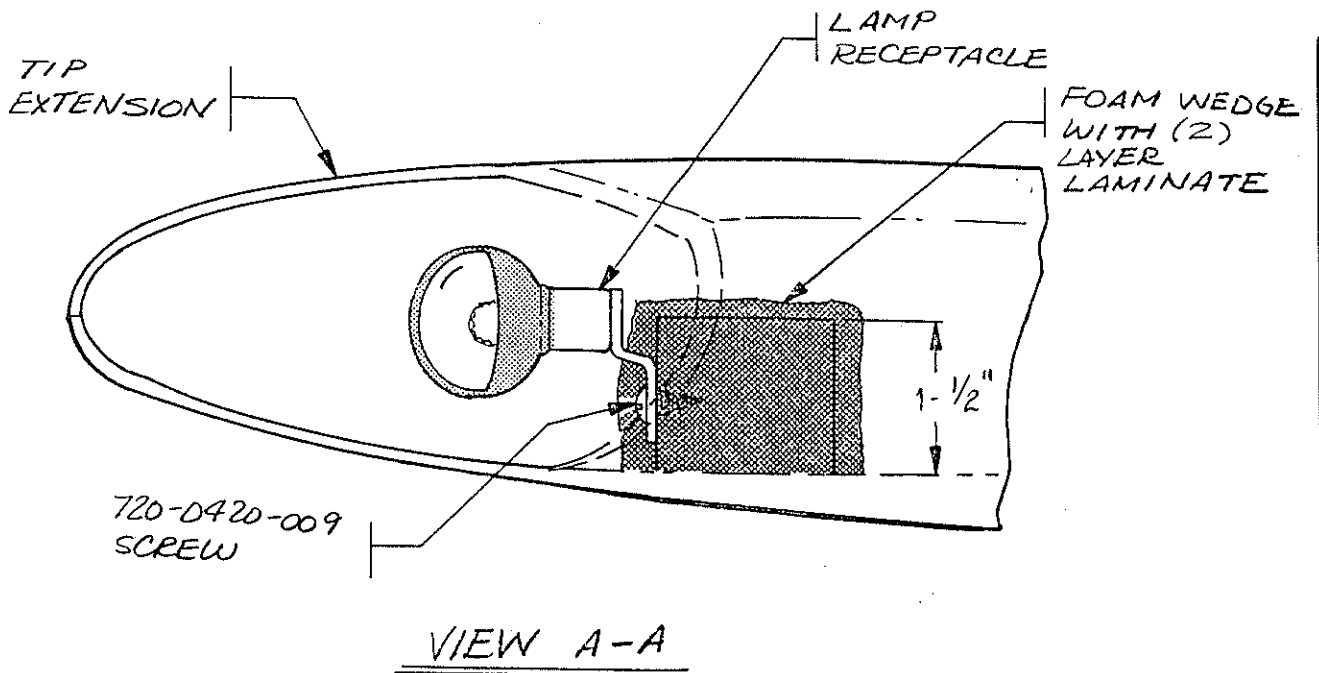
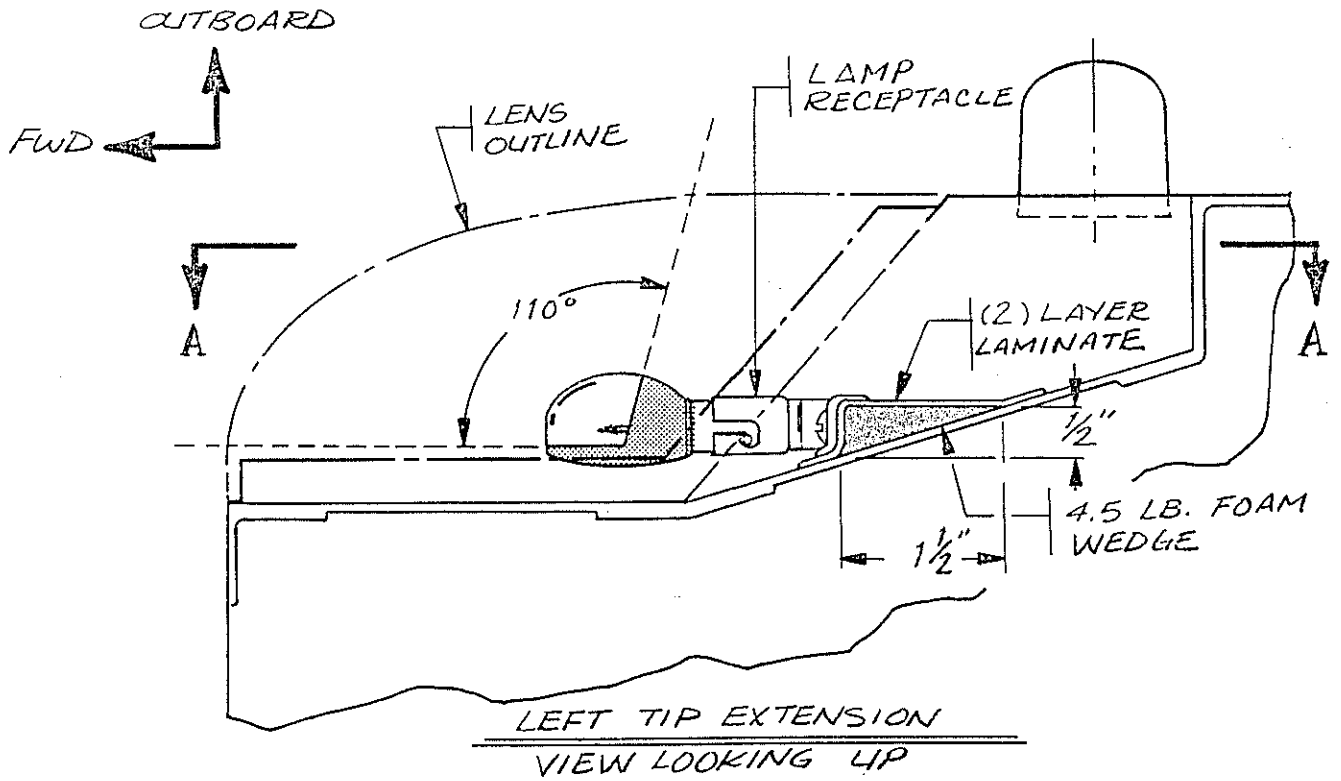


FIGURE (36)

**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 52
------------------	--	----------	------	--------	------------



NOTE: The navigation light bulbs and mounting receptacles are supplied with the Nav Lamp Kit available from the Glasair Options Catalog.

The navigation lamp bulb must be mounted to provide the 110° angle of coverage shown in FIGURE (36).

Fabricate a small wedge from 1/2" thick 4.5 lb. foam, as shown in FIGURE (36). Insert the navigation lamp bulb into the mounting receptacle and use the assembly to determine the optimum position of the wedge on navigation light bulkhead #2, as shown.

NOTE: The lamp receptacle will probably have to be repositioned relative to its mounting bracket to position the lamp properly relative to the lens. To change the position of the lamp receptacle relative to the bracket, clamp the bracket in a vise and twist the socket with a screwdriver.

When the proper position of the foam wedge has been determined, use body putty or hot glue to bond the wedge to nav light bulkhead #2. Apply a two layer bidirectional laminate over the wedge, as shown in FIGURE (36). Let cure.

Mount the lamp receptacle to the wedge, using a 10 x 1/2 TRPHTA sheet metal screw (720-0420-009), as shown.

  
**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 53
------------------	--	----------	------	--------	------------

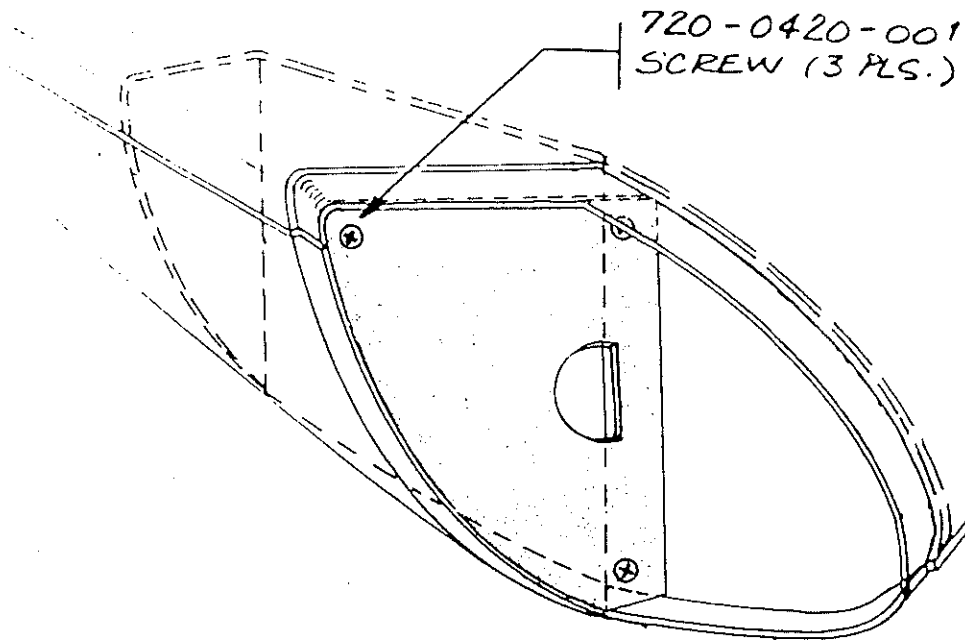
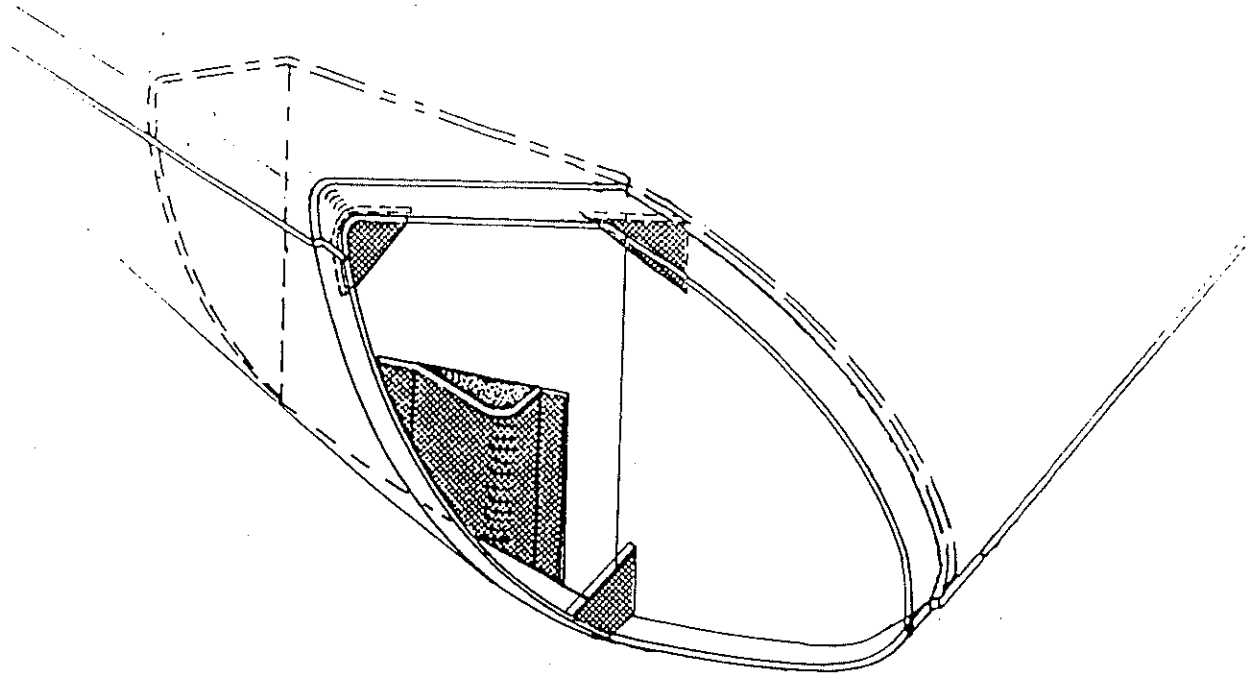


FIGURE (37)

  
**STODDARD-HAMILTON**  
 AIRCRAFT, INCORPORATED

MODEL <b>GLASAIR</b>	ASSEMBLY NAME <b>EXTENDED TIP FUEL TANK OPTION</b>	REVISION	DATE	VOLUME	PAGE 54
-------------------------	---	----------	------	--------	------------

To improve the appearance of the finished navigation light installation, fabricate the optional navigation light box closeout panel, as shown in FIGURE (37). Fabricate the panel from a precured two layer laminate to fit inside the navigation light box parallel to the angled lens attach flange joggle, as shown, and make a cutout in the panel for the light bulb. Use hot glue to bond small precured laminate tabs in the corners to support the closeout panel, as shown. Fasten the closeout panel to the support tab with small sheet metal screws. Paint the inside of the navigation light box white to increase its reflectivity.



MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 55
------------------	--	----------	------	--------	------------

STEP 33 WIRE ROUTING AND WIRE CONNECTIONS

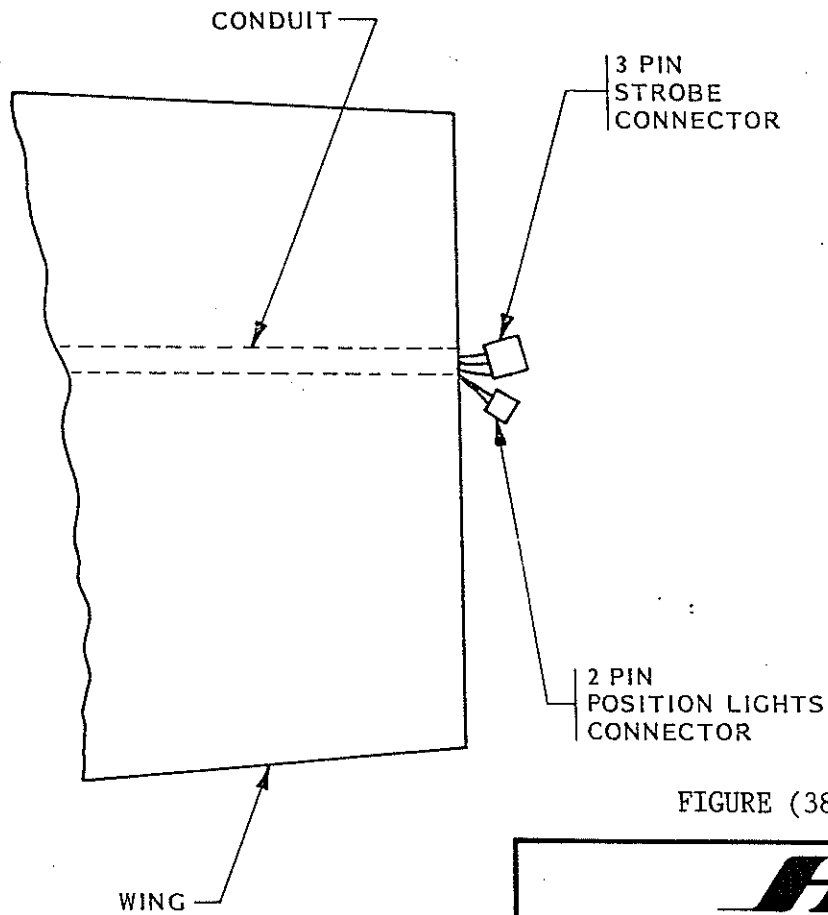
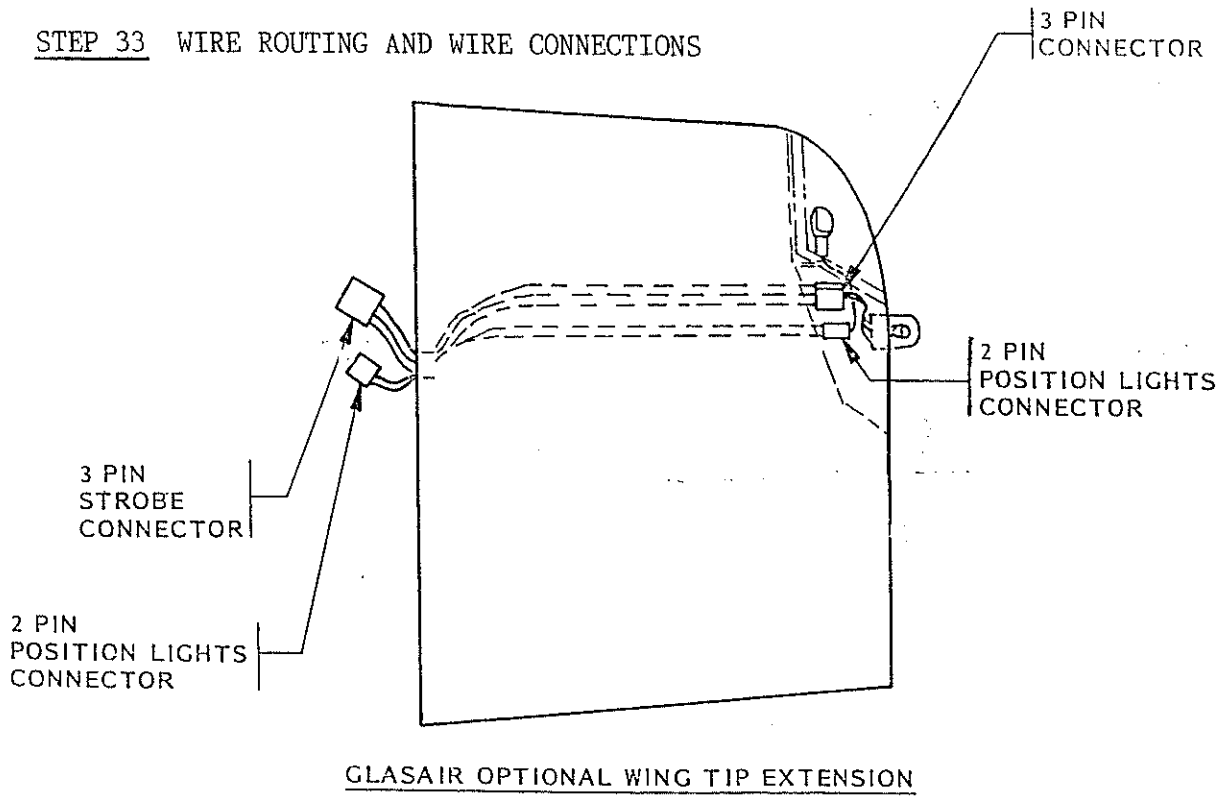


FIGURE (38)

**H**  
**STODDARD-HAMILTON**  
 AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 56
------------------	--	----------	------	--------	------------

A Nav/Strobe Light Installation Kit, which includes the wiring and connectors for both the navigation and strobe light kits, is available from the Glasair Options Catalog. We suggest that two-pin quick disconnect plugs be used at the junction points of the wing navigation light wires at the inboard ends of the tip extensions. Also, if strobe lights have been installed in the extended tips, we suggest that a three-pin quick disconnect plug be installed on the inboard ends of the tip extension strobe light wires. This will allow the extended wing tip and the regular wing tip to be interchanged more easily.

Clearly mark the wires routed through the wing tip wiring tunnel to avoid errors in connecting the wires to the navigation and strobe lights.

Use two-pin connectors to connect the wires in the navigation light boxes.

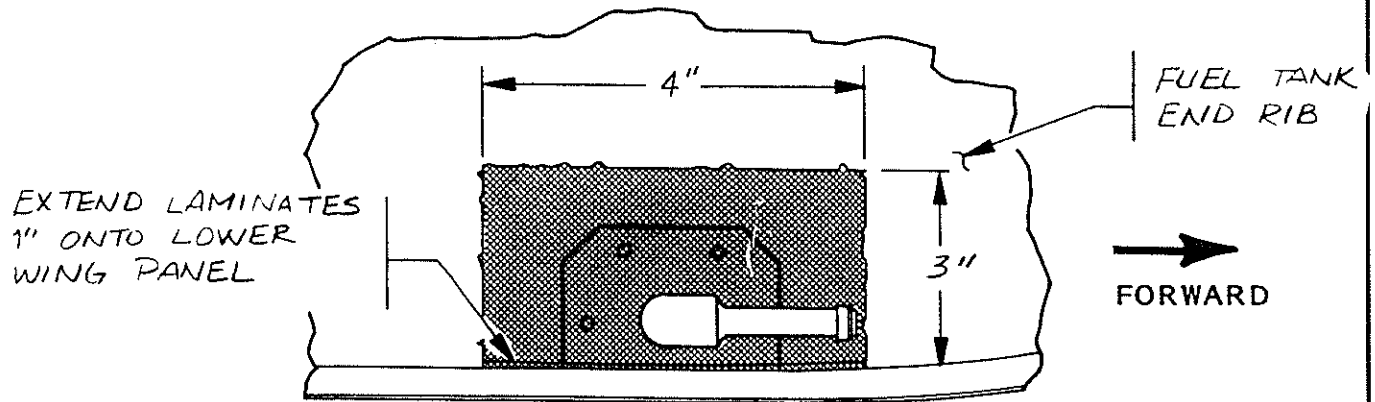
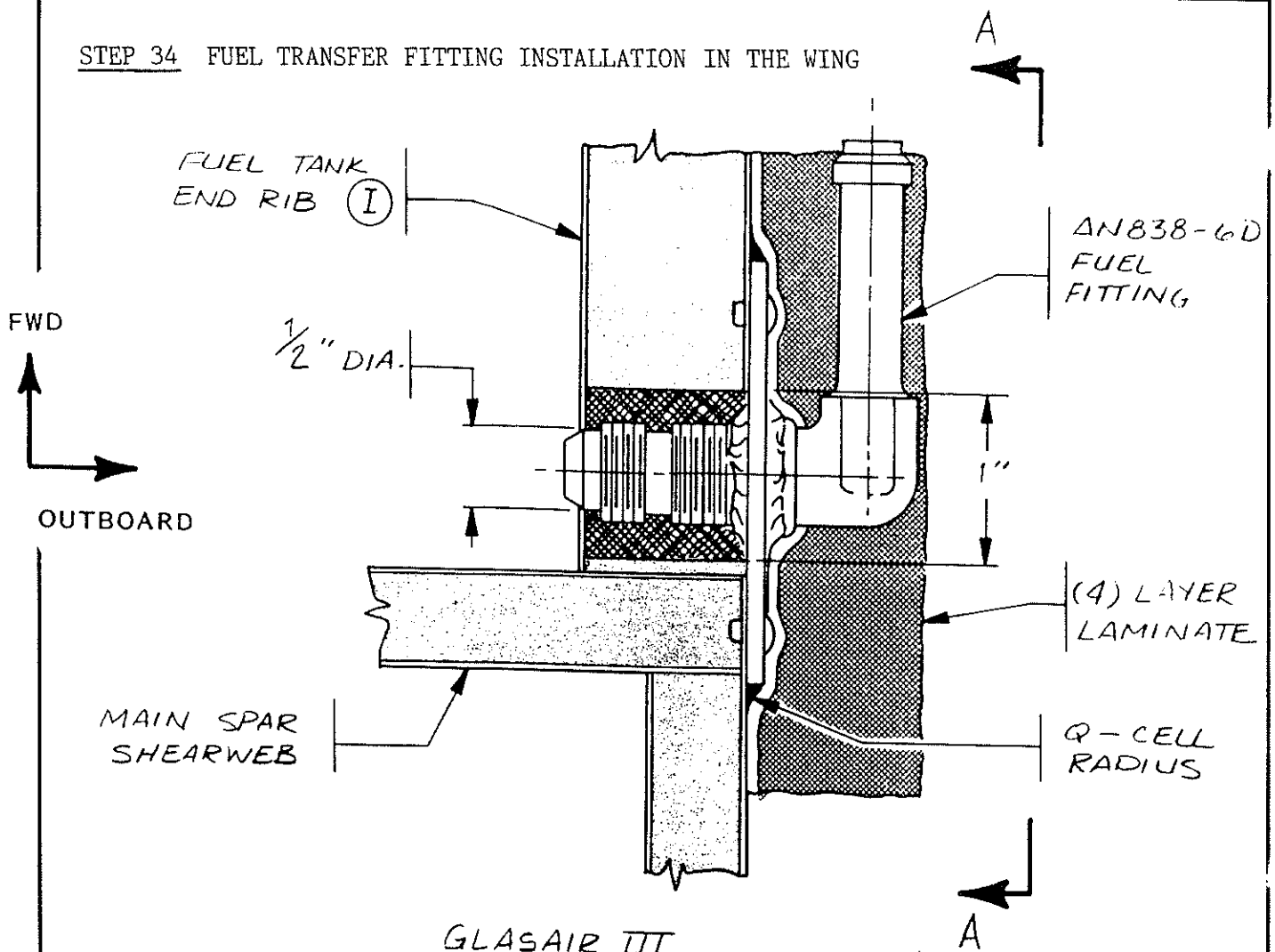
Install the navigation light lens on the wing tip, using the AN507-8R7 screws provided.

The extended tips are now ready to install on the wing.



MODEL	ASSEMBLY NAME	REVISION	DATE	VOLUME	PAGE
GLASAIR	EXTENDED TIP FUEL TANK OPTION				57

STEP 34 FUEL TRANSFER FITTING INSTALLATION IN THE WING



**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION A	DATE 9/16/88	VOLUME	PAGE 58
------------------	--	---------------	-----------------	--------	------------

The fuel from the tip extension flows out of the tip extension fuel transfer fitting to a similar modified AN838-6D fitting mounted on the outboard rib in the leading edge of the wing. On the Glasair III, the outboard wing leading edge rib (rib I) is the outboard end of the fuel tank, as shown in FIGURE (39). For the Glasair II, the fitting in the outboard leading edge rib (rib I) is connected to an aluminum tube bonded into the fuel tank end rib (rib H), as shown in FIGURE (39A).

The fuel transfer fitting installed in the outboard wing leading edge rib must be mounted slightly lower than the tip extension transfer fitting to avoid low spots in the lines. The fuel line connecting the tip extension transfer fitting and the wing tank transfer fitting must also have a gradual downward slope from the tip without any dips or rises.

### GLASAIR III

Use a 1" diameter hole saw to cut a 1" clearance hole in the outboard laminates only and the 1" foam core of the leading edge fuel tank's outboard end rib at the location shown in FIGURE (39). Do not cut through the inboard rib laminates with the 1" hole saw. Use the hole saw pilot hole as a guide to drill a 9/16" diameter hole through the inboard rib laminates, as shown.

NOTE: If the upper wing panels have already been bonded on, hold a vacuum cleaner nozzle near the drill bit and hole saw, when drilling in the fuel tank rib, to minimize the amount of fiberglass and foam dust deposited inside the main fuel tank. It is inevitable that some foreign material will end up inside the tank; do your best to remove this material using a vacuum cleaner nozzle inserted through the fuel filler opening in the wing.

Carefully scrape the foam and Q-cell residue off the exposed rib laminates in the 1" diameter cavity around the fuel transfer fitting hole to prepare a good surface for bonding.

Drill three #30 holes through the main tank transfer fitting flange in a similar manner as described for the tip extension fittings in Step 16.

Mix a mill fiber/resin mixture and use it to fill the cavity around the fuel transfer fitting hole. Be careful not to place any of the mixture in the center of the cavity so that the fitting can be inserted without getting resin in its end. Also apply a generous portion of the mill fiber mixture around the end of the fitting that fits into the rib, again being careful to keep the mixture out of the fitting. The idea is to use enough mill fiber mixture in the cavity and on the fitting to overfill the cavity (with some squeeze-out) but not enough mixture that the fitting cannot be inserted without getting the mixture inside. Carefully insert the fitting into the cavity in the end fuel tank rib. Use the holes in the transfer fitting flange as guides to drill matching holes through the outboard laminates of the rib. Use (700-0042-001) rivets to rivet the fitting to the rib. Remove any mill fiber mixture that might have gotten inside the fitting, being careful to keep debris out of the fuel tank. Clean up excess mill fiber mixture that has squeezed out from around the fittings, and let cure.

  
**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION A	DATE 9/16/88	VOLUME	PAGE 59
------------------	--	---------------	-----------------	--------	------------

Use a thick Q-cell mixture to form a fillet around the fuel transfer fitting flange in preparation for laminating.

Cut (4) 4" x 4" pieces of bidirectional cloth on the 45° bias and cut a 1/2" hole in the center of each piece. Use these to apply four layer laminates over the fuel tank end rib fuel transfer fitting, as shown in FIGURE (39). Let cure.

## GLASAIR II

**NOTE:** If at all possible, install the fuel transfer fitting in the wing leading edge outboard rib and the fuel transfer line between ribs H and I before bonding on the upper wing panel. Access for installing the transfer line is very difficult otherwise.

### Glasair II Fuel Transfer Line Installation--Wing Not Yet Closed

Use a 1" diameter hole saw to cut a 1" clearance hole in the outboard laminates only and the 1/2" foam core of the wing leading edge outboard end rib (rib I) at the location shown in FIGURE (39A). Do not cut through the inboard rib laminates with the 1" hole saw. Use the hole saw pilot hole as a guide to drill a 9/16" diameter hole through the inboard rib laminates, as shown.

Carefully scrape the foam and Q-cell residue off the exposed rib I laminates in the 1" diameter cavity around the fuel transfer fitting hole to prepare a good surface for bonding.

Drill three #30 holes through the main tank transfer fitting flange in a similar manner as described for the tip extension fittings in Step 16.

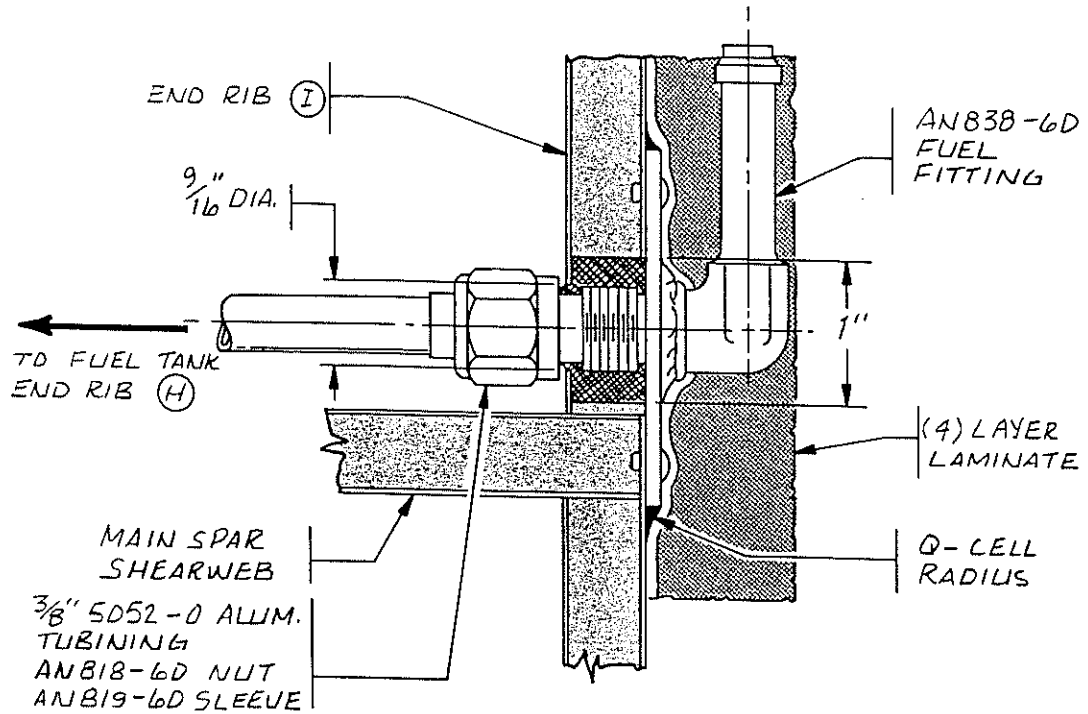
Drill a 3/8" diameter hole through the wing leading edge fuel tank outboard end rib (rib H) at a point lower than the modified AN838-6D fitting in rib I, as shown in FIGURE (39A). Use a sharp knife or a rotary file to cut the outboard rib H laminates in the area indicated in FIGURE (39A), being careful not to damage the lower spar cap or spar shearweb when cutting. Remove the foam core to form a 3/4" x 3/4" x 1" cavity, in a similar manner as for the vent line described in the Fuel Vent System Installation in the WING ASSEMBLY section of the Instruction Manuals.

Temporarily place the modified AN838-6D fuel transfer fitting into the hole in rib I and use the holes in the transfer fitting flange as guides to drill matching holes through the outboard laminates of the rib. Cleco the fitting in place. Cut a length of 3/8" O.D. x .035" 5052-0 aluminum tubing to fit between the transfer fitting and rib H, as shown in FIGURE (39A), trimming the inboard end about 3/8" inboard of rib H. Flare the outboard end of the tube and install the AN818-6D nut and the AN819-6D sleeve, as shown. Bend the tube to fit against the forward surface of the main spar, as was done for the vent line previously installed. Roughen the inboard 2" of the aluminum tube with sandpaper and apply a (2) layer laminate around the roughened end of the tube. Let cure.

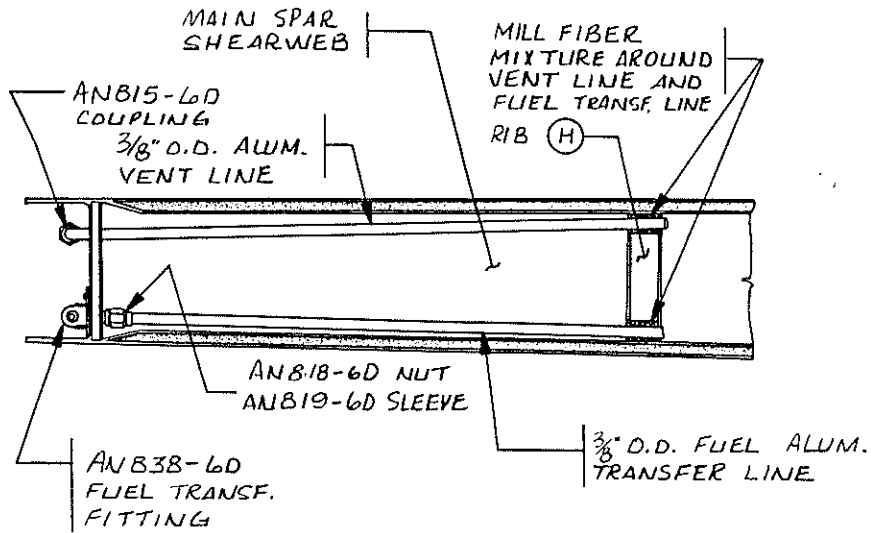
  
**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION A	DATE 9/16/88	VOLUME	PAGE 60
------------------	--	---------------	-----------------	--------	------------





GLASAIR II  
FUEL TRANSFER FITTING INSTL.



VIEW LOOKING AFT  
TOP WING SKIN SHOWN ATTACHED FOR CLARITY

FIGURE (39A)

**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION A	DATE 9/16/88	VOLUME	PAGE 60A
------------------	--	---------------	-----------------	--------	-------------

Remove the fuel transfer fitting from rib I. Mix a mill fiber/resin mixture and use it to fill the cavity around the fuel transfer fitting hole in rib I. Be careful not to place any of the mixture in the center of the cavity so that the fitting can be inserted without getting resin in its end. Also apply a generous portion of the mill fiber mixture around the end of the fitting that fits into the rib, again being careful to keep the mixture out of the fitting. The idea is to use enough mill fiber mixture in the cavity and on the fitting to overfill the cavity (with some squeeze-out) but not enough mixture that the fitting cannot be inserted without getting the mixture inside. Carefully insert the fitting into the cavity in rib I. Use (700-0042-001) rivets to rivet the fitting to the rib. Remove any mill fiber mixture that might have gotten inside the fitting or on the threads.

Insert the inboard end of the 3/8" aluminum fuel transfer line through the hole in rib H and thread the outboard end of the line onto the inboard end of the modified AN838-6D fitting, as shown in FIGURE (39A). Pack mill fiber/resin mixture into the cavity in rib H around the inboard end of the aluminum tube, being careful to fill all the voids around the tube to provide a fuel-tight installation. Let cure.

Use (2) layer laminates to secure the aluminum fuel transfer line to the forward side of the main spar in a similar manner as for the main fuel tank vent line.

Cut (4) 4" x 4" pieces of bidirectional cloth on the 45° bias and cut a 1/2" hole in the center of each piece. Use these to apply four layer laminates over the rib I fuel transfer fitting, as shown in FIGURES (39) and (39A). Let cure.

### Glasair II Fuel Transfer Line Installation--Wing Closed

If the upper wing panels on a Glasair II have already been bonded on, follow similar procedures as described above to install the outboard wing rib fuel transfer fitting and fuel transfer line, with these exceptions: install the modified AN838-6D fuel transfer fitting in rib J just aft of the main spar shearweb, route the fuel transfer line along the aft side of the shearweb, cut a hole for the inboard end of the fuel transfer line through the main spar shearweb just above the main spar cap 1" outboard of rib D, and bend the inboard end of the fuel transfer line to a 90° angle to fit through the hole.

**NOTE:** If the ribs were installed as shown on page C-26 in the WING ASSEMBLY section of the Instruction Manuals, the hole through the spar shearweb for the fuel transfer line will be just inboard of rib H in the leading edge fuel cell.

Access for cutting the hole in the spar shearweb and installing the line is gained through the outboard inspection panel in the wing. Also, cut an additional access hole through rib J to provide access to connect the outboard end of the fuel transfer line to the inboard end of the fuel transfer fitting. The additional access hole can either be left open or closed with a simple patch of 4.5 lb. foam and bidirectional laminates.

  
**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION A	DATE 9/16/88	VOLUME	PAGE 60B
------------------	--	---------------	-----------------	--------	-------------

STEP 35 CONNECTING FUEL LINES AND VENT LINES BETWEEN TIPS AND WING

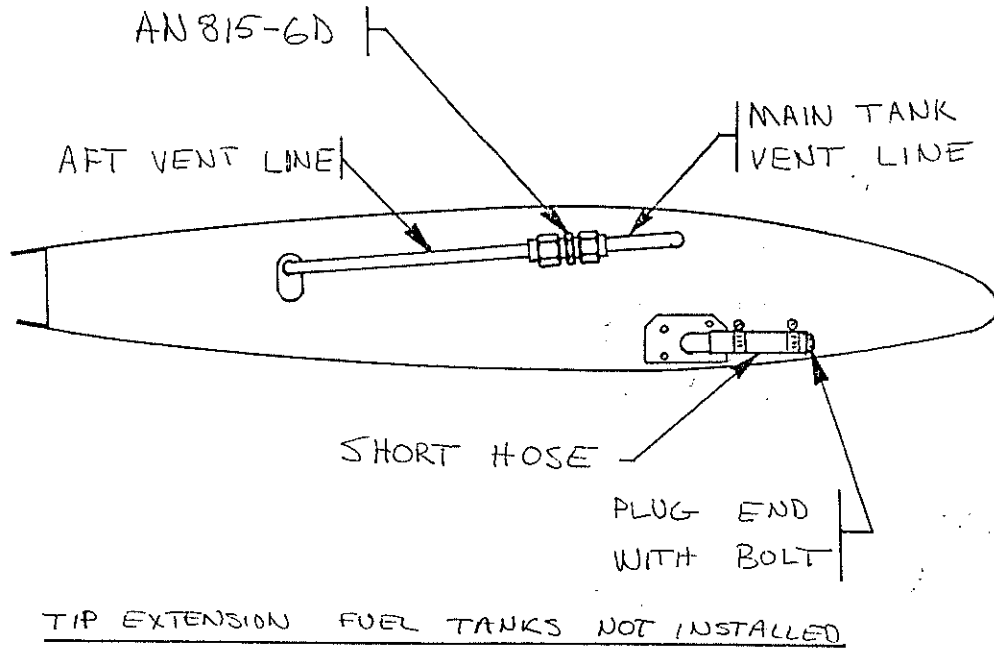
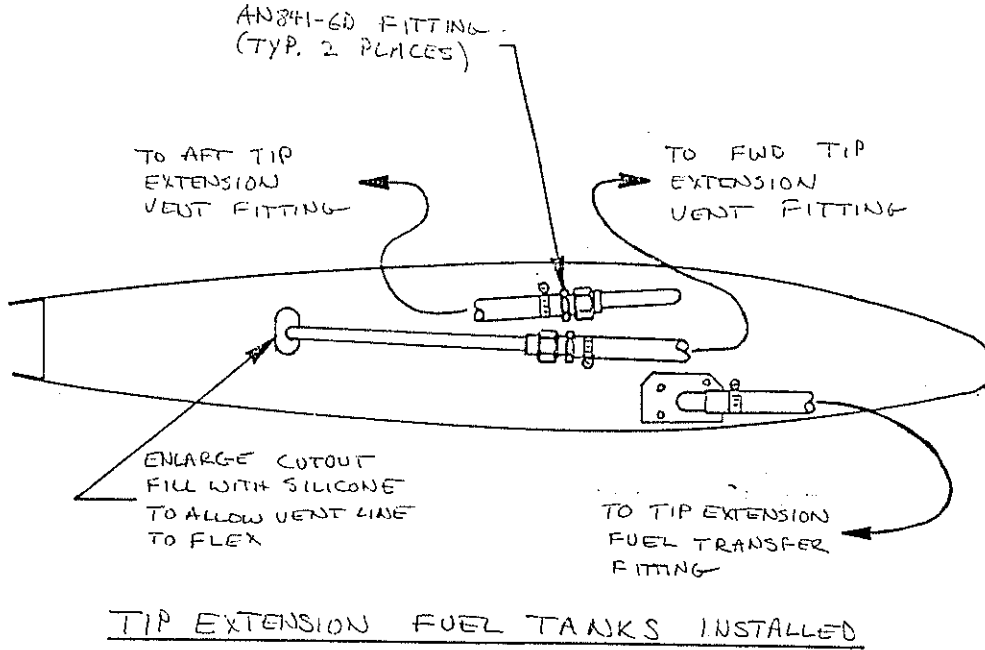


FIGURE (40)

**STODDARD-HAMILTON**  
AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION	DATE	VOLUME	PAGE 61
------------------	--	----------	------	--------	------------

The vent and fuel transfer fittings on the wing tip extension are connected to the fittings on the outboard end of the wing, as shown in FIGURE (40). The existing wing leading edge fuel tank vent is connected to the aft vent fitting in the tip extension, allowing the entire main fuel tank to be filled without trapped air. The forward tip extension vent line is connected to the aft wing vent line which provides a free flow of air into the outermost point of the wing tip extension. The fuel transfer fittings on the tip extension and on the wing's leading edge fuel tank end rib are connected together to allow all the fuel in the tip extension to drain into the main fuel tank.

To provide the maximum possible space for connecting the aft wing vent line to the forward tip extension vent line, install the aft vent line so it passes through the wing's end rib as far aft as possible (limited by the need to provide adequate clearance from the aileron counterweights). Also, enlarge the wing vent pass-through hole in the end rib to allow the vent line to flex vertically. Pack the hole with silicone sealant to prevent the vent line from contacting the inside edges of the hole. Flexing the vent line downward allows it to be connected to the wing tip extension hoses when converting from the short tip configuration.

To install the tip extension fuel tanks, remove the check valve (or AN815-6D union) that connects the main tank vent fitting to the aft vent line, and thread AN841-6D fittings into both the main tank vent line and the aft vent line to provide an attachment for the hoses.

Make all connections between the tip extension fittings and the wing end fittings using heat-formed (830-0045-001) hose with (771-0026-015) springs inserted in the bends to prevent them from collapsing. To heat-form the bends in the (830-0045-001) hose, cut each hose to length and insert a section of 3/8" O.D. spiral wrap into it. Bend the hose to the required radius, and hold it in position by tying the ends with a rubberband. Immerse the radius (with the spiral wrap inside) into boiling water and let stand for about 5 minutes (until the hose softens). Remove the hose from the hot water and immerse it in cold water for about 5 minutes or until the hose returns to its original hardness. Remove the hose from the cold water, and withdraw the spiral wrap from inside the hose. Insert a (771-0026-015) spring into the hose, positioning the spring at the sharpest part of the bend. Use the spiral wrap to push the spring into the bend; a bit of oil or some WD-40 eases insertion.

Use (450-0190-004) hose clamps to secure the ends of the hose to the fittings.

**WARNING:** Make absolutely certain that the hoses do not interfere with the aileron counterweights. The builder may wish to fabricate boxes around the counterweight arms to eliminate the possibility of interference.

When the tip extensions are removed, replace the fuel transfer hose attached to the fuel transfer fitting in the end of the wing with a short length of hose, plug the end of the hose with a 3/8" bolt or a short length of 3/8" diameter solid metal rod, and clamp it with a hose clamp.

COMPLETED [ ]

***H***  
**STODDARD-HAMILTON**  
 AIRCRAFT, INCORPORATED

MODEL GLASAIR	ASSEMBLY NAME EXTENDED TIP FUEL TANK OPTION	REVISION B	DATE 4/13/89	VOLUME	PAGE 62
------------------	--	---------------	-----------------	--------	------------