TABLE OF CONTENTS

8.010	PITOT/STATIC SYSTEM (GENERIC)
8.020	WIRING SCHEMATICS (GENERIC)
8.100	FINAL FIREWALL INSTALLATION (GENERIC)
8.120	FRESH AIR CIRCULATION SYSTEM (GENERIC)
8.140A	ENGINE MOUNT (LYC. 360)
8.140B	ENGINE MOUNT (LYC. 540)
8.140C	ENGINE MOUNT (TCM)
8.300	WING MATING TO FUSELAGE
8.340	WING FAIRING
8.350	MAIN WHEEL ASSEMBLY AND ALIGNMENT
8.400	FLAP TORQUE TUBE INSTALLATION
8.450	NOSE GEAR ASSEMBLY
8.500A	ENGINE INSTALLATION (LYC. 360)
8.500B	ENGINE INSTALLATION (LYC. 540)
8.500C	ENGINE INSTALLATION (TCM)
8.600A	COWLING (LYC 360)
8.600B	COWLING (LYC 540)

8.600C	COWLING (TCM)
8.650	HOT AIR SYSTEM (GENERIC)
8.700	FUEL SYSTEM
8.750	FUEL TANK LEAK TEST
8.800	NOSE WHEEL FAIRING INSTALLATION
8.850	MAIN WHEEL FAIRING INSTALLATION
8.900	TRANSFER TO HANGAR
8.950	FINISH (GENERIC)
APPENDIX A	ASSEMBLY DRAWINGS

8.010 PITOT/STATIC SYSTEM:

DESCRIPTION:

The pitot head recommended by EDI is a blade type pitot- static unit manufactured by Piper Aircraft Company. The unit is heated to protect against icing. The unit will be mounted in the left wing, outboard of rib G in the wing tip access area.

MATERIAL NEEDED: (ALL BUILDER SUPPLIED)

1ea.	77938-0024	PIPER PITOT-STATIC W/GASKET
2ea.	AN526-632-18	SCREW
2ea.	AN960-6	WASHER
2ea.	AN364-6324	NUT
50ft.	1/4"	SEMI-RIGID TUBING
4ea.	MS3367-4-9	CABLE TIE

TOOLS NEEDED:

HAND DRILL WITH BITS
MEASURING TAPE

PROCEDURE:

STEP 1. MARK LOCATION FOR PITOT/STATIC UNIT:

Draw a line perpendicular to spar at BL170.2, and another parallel to the spar at STA83.1. See figure 8.010-1.

STEP 2. LAMINATE OVER PITOT/STATIC AREA:

Laminate three plies of 45 deg. BID 3" X 5" centered over point were the two lines cross. as per figure 8.010-1.

STEP 3. DRILL MOUNTING HOLES:

Drill mounting holes, as per figure 8.010-1. Use pitot/static unit to get the exact location and size.

STEP 4. MOUNTING:

Mount unit, as per figure 8.010-2.

The tubing and electrical will be fed through the wiring conduit in the wing to the fuselage.

Use wire ties to secure tubing to unit.

When connecting the wires to the heating coils, be careful not to bend or twist the leads coming out of pitot unit, they are very fragile and if broken the unit is ruined.

PROCEDURE COMPLETE: |_| DATE: _____

8.020 ELECTRICAL SCHEMATICS (GENERIC):

DESCRIPTION:

There is a multitude of ways that the EXPRESS can be wired. In this procedure you will be given a series of schematics that will show a simple but effective way to wire it. The following is a listing of the figures:

8.020-1	BASIC ENGINE INSTRUMENTS AND ENGINE
8.020-2	EXTERIOR LIGHTING
8.020-3	INTERIOR LIGHTING
8.020-4	FLAPS
8.020-5	TRIM TAB
8.020-6	LAMP DIMMER

NOTES:

1. Use the manufactures specifications for proper wire size.

2. Use shielded cable on the mags., Strobe power lines and alternator lines.

3. The redundant power source for the trim tab is optional. The variable supply can be used as the primary or redundant power source.

4. Use pull type circuit breakers on the flaps and trim tab.

5. The flap position switches are arranged on the torque tube as are the limit switches to switch at the proper position.

6. Where passable use led lamps, as they use far less power.

7. The switches on the switch panel are double pole single throw (dpst). The second half of switch is used to switch the lamp circuit.

8. Lamp dimmers can be purchased through radio systems technology (rst-533), or any dimmer that will handle the current. The circuit in figure 8.020-6 Works good.

9. Some starters have built in solenoids, if so the one shown can be eliminated.

8.100 FINAL FIREWALL INSTALLATION (GENERIC):

DESCRIPTION:

The firewall and firewall components will be installed in this procedure. There are many ways and locations that components can be installed on the firewall and this procedure will show a eneric method. The firewall consists of the fiberglass firewall, Duraboard, and an aluminum firewall plate. Lighter items ie. starter relay, battery relay etc. can be mounted directly to the aluminum firewall plate. The heavier items, ie. battery, fuel pump etc. will need to be mounted to the fiberglass firewall by way of spacers. Mounting bolts, washers, and nuts are not shown, as they are builder supplied.

MATERIAL NEEDED:

1ea.		DURABOARD (FIBERFAX)
1ea.		FIREWALL PLATE, ALUMINUM
4ea.	114-14-009	SPACER, ENG. MT. 1/8" X 1.75"X1.75"
2ea.	112-14-027-02	G-10 BLOCKS, 1/2" X 1.5" X 5"
1/8"		ALUMINUM PLATE
		HI-TEMP RTV (red)

TOOLS NEEDED:

HAND DRILL WITH BITS
1-1/4" HOLE SAW

PROCEDURE:

STEP 1. LAMINATE FIREWALL:

Laminate forward side of firewall with four (4) plies of 45 deg. BID, extending 1.5" onto the firewall and all of the forward fuselage skin. After cured, backdrill the 1/8" engine mount pilot holes.

STEP 2. FIREWALL COMPONENT LOCATION:

Trim Duraboard and aluminum firewall plate to fit on forward side of fiberglass firewall.

At this time you need to position all components located on the firewall. Figure 8.100-1 shows one possible position.

Locate the two G-10 blocks, sand the aft side to conform to the firewall. Bond in place using milled fiber/resin mix, as per figure 8.100-1. Fabricate two 1/8" aluminum plates, 1.5" X 5", and bond them over each G-10 block. Trim Duraboard to fit around G-10 blocks. See figure 8.100-1.

Locate the four engine mount plates (114-14-009), and trim to fit over each of the four engine mount locations, as per figure 8.100-1. Bond in place using milled fiber/resin mix.

All bolt holes that go through into the cabin area, should have an aluminum plate bonded to the firewall, and a spacer made as per figure 8.100-2.

The lighter components can be mounted to the aluminum firewall plate using anchor nuts riveted to the aft side. See figure 8.100-2.

After all components are mounted, hold the aluminum firewall plate tight against the Duraboard and use hi-temp. RTV to seal all edges, fuel lines, cables, mounts, hoses, etc. that go through the firewall. This is a messy job, so go slow.

PROCEDURE COMPLETE: |_| DATE: _____

8.120 FRESH AIR CIRCULATION SYSTEM (GENERIC):

DESCRIPTION:

The cabin fresh air system consists of two NACA scoops, one on each side of fuselage. The air is then tunneled back to each seat area byway of a fiberglass ducting.

MATERIAL NEEDED: (ALL BUILDER SUPPLIED)

4ea.	2230-1	EYEBALL AIR VENTS OR EQUIVALENT
16ea.	F5000-8	ANCHOR NUT
16ea.	AN507-832-R10	SCREW
		BID CLOTH
		RESIN
		SPRAY GLUE
		Q-CELL
		MOLD RELEASE
		PEEL PLY

TOOLS NEEDED:

SABER SAW
LAYUP TOOLS
MEASURING TAPE
HAND DRILL WITH BITS
DREMEL TOOL OR EQUIVALENT
HOT GLUE GUN

PROCEDURE:

STEP 1. MARK LOCATION FOR NACA SCOOP:

Make a copy and cutout each of the templates (figure 8.120- 2) and locate templates on each side of fuselage as per figure 8.120-1 (make sure the scoop centerline is at least 2" below instrument panel). Using the spray glue, glue each template in place.

STEP 2. CUTOUT NACA SCOOP:

CUT THROUGH THE OUTER SKIN ONLY.

Use the Dremel tool, and cutout the outer skin to the lines on template. You will be cutting through the upper to lower fuselage seam.

CUT THROUGH THE INSIDE SKIN ONLY.

Use the Dremel tool, and cutout inside skin, as per figure 8.120-2.

STEP 3. CONSTRUCT SCOOP:

Shape foam, as per figure 8.120-3. You may need to add some foam and or smooth holes with Q-cell.

Taper the circumference of scoop, as per figure 8.120-3, this will give an area to laminate to later.

Coat the foam area with a slurry of Q-cell/resin mix. After cured, sand to a smooth contour.

Laminate with three (3) plies 45 deg. BID, extending onto outer skin where sanded at least 1/2". After cured, sand outside skin to a smooth surface.

STEP 4. CONSTRUCT DUCTING:

You will need to mold each of the two side ductings. The easiest way to accomplish this is to use a wood mold the shape needed.

Shape a 3" X 1/2" X 62" piece of wood, as per figure 8.120-4. Use a router or sand the two top corners to a good radius.

Position mold on a flat table, and coat with a heavy coat of mold release.

Lay a layer of peel ply over mold first and then laminate three (3) plies of 45 deg. BID, and then top with another layer of peel ply.

After cured, remove and remove peel ply. Repeat process for the second duct.

STEP 5. MARK AND MOUNT EYEBALL VENTS:

Mark location for vents, as per figure 8.120-1. The position for the forward two ducts can be modified or mounted on instrument panel. Too far aft will interfere with the occupants legs.

Use the eyeball vents to locate the hold pattern.

Drill the four mounting holes and the 1-15/16" center hole in each, and rivet the anchor nuts over mounting holes.

STEP 6. MOUNT DUCTING:

Hot glue ducting in place, one end over cutout made on inside of fuselage, moving forward about 1/2". This will allow for a 1/2" piece of foam to be put in the end. If ducting does not fit the contour of fuselage side, make cuts in the side of ducting to allow for the curve. The cuts will be covered when laminated. Hot glue a 1/2" piece of foam in each end.

Apply a Q-cell radius on each side. Laminate two (2) plies of 45 deg. BID, extending 1" into ducting and 1" into fuselage skin, also laminate over each end.

PROCEDURE COMPLETE: ____ DATE:_____

8.140A ENGINE MOUNT INSTALLATION (LYC.)

DESCRIPTION:

The engine mount for the Lycoming IO 360 engine will be installed in this procedure. Procedure 8.100 should be completed before the engine mount is installed. That will consist of the firewall, fire barrier, firewall plate and all components mounted on firewall. The high temperature RTV (red) sealant is used to seal the firewall from allowing any engine gases from entering the cabin area, it is easier to apply before installation of engine mount. Some of the early engine mounts had 1/4" mounting holes, if your's does, you need to ream out to 3/8". Keep the reamer very perpendicular to the hole to be reamed. Use a drill press or drilling jig. Verify that five layers of BID (not two) attach the engine mount gussets (inside and outside the gusset) where they are bonded to the firewall and fuselage.

MATERIAL NEEDED:

1ea.	114-14-008	MOUNT, ENGINE, LYC
2ea.	114-14-003	ASSEMBLY, LOWER MOUNT PLATE
2ea.	AN310-5	NUT, CASTLE, 5/16"
6ea.	AN365-524	NUT, SELF LOCKING
4ea.	AN365-624	NUT, SELF LOCKING
6ea.	AN5-22	BOLT, 5/16" X 2-1/4"
4ea.	AN6-32	BOLT, 3/8" X 3-3/4"
2ea.	AN5-22	BOLT
12ea.	AN960-516	WASHER
8ea.	AN960-616	WASHER
6ea.	AN970-5	WASHER, LARGE AREA, 5/16"
4ea.	AN970-6	WASHER, LARGE AREA, 3/8"
2ea.	AN380-3-34	PIN, COTTER

TOOLS NEEDED:

HAND DRILL WITH BITS
3/8" REAMER

PROCEDURE:

STEP 1. DRILLING HOLES:

Using two AN5-22 bolts and AN365-516 nuts, bolt the two lower mount assemblies to the engine mount.

With Duraboard and the aluminum firewall plate in place, from the inside, backdrill the four 1/8" holes drilled in previous procedures (5.190, STEP 2., 7.030, STEP 1.), through the Duraboard and aluminum firewall plate.

Remove the aluminum firewall plate, and Duraboard.

Center the four engine mount holes over each of the 1/8" holes. Verify that all holes are aligned properly, including the six lower engine mount holes. See figure 8.140-2.

Using a hole saw, drill a 1-1/4" hole at each of the four locations, through the aluminum firewall plate, and Duraboard. Do not drill into the engine mount aluminum plate. See figure 8.140- 1.

Replace Duraboard and aluminum firewall plate.

Clamp the engine mount in position on the firewall. Align the four engine mount holes with the four 1/8" holes.

Drill the four (4) engine mount bolt holes with a 3/8" drill bit, through the engine mount aluminum plate and firewall/gusset. Keep it perpendicular to the firewall. Place bolt (AN6-32A) through each hole as drilled.

STEP 2. LOWER ENGINE MOUNT ASSEMBLY:

Drill the outer two holes for the lower engine mount assembly, using a 5/16" drill bit.

Remove engine mount and drill the remaining holes in the lower engine mount assembly. After drilling, bolt in place, as per figure 8.140-3.

Bolt engine mount into place, as per figure 8.140-1.

PROCEDURE COMPLETE: |_| DATE: _____

8.300 WING MATING TO FUSELAGE

DESCRIPTION:

In this procedure you will bolt the wings in their proper position, install fuselage/carry through plates, and install the flap actuator bracket.

Three AXES will be aligned.

Wing Sweep, is the fore and aft adjustment of the wing outboard centerline.

Wing Dihedral, is the amount the wing outboard centerline is above the wing inboard centerline.

Wing Incidence Angle, is the angle the wing cord centerline is to the fuselage waterline (2 deg.).

After the wings have been mated, they will be removed several times in the following procedures. It is advisable not to do the final drilling and bolting of the spar until the wings are to be put on for the last time.

MATERIAL NEEDED:

8ea.	111-14-020	SPACER, MAIN SPAR
1ea.	111-14-021	PLATE, CARRY THROUGH/FUSELAGE
6ea.	AN5-11A	BOLT
14ea.	AN365-524	NUT, SELF LOCKING
4ea.	AN426AD3-3	RIVET, CNTRSNK, 3/32 X 3/16
30ea.	AN960-516	WASHER, 5/16
16ea.	AN970-5	WASHER, LARGE AREA, 5/16
2ea.	K1000-5	NUT, ANCHOR, TWO LUG
		MILLED FIBER
		RESIN
4ea.	AN365-428	NUT, SELF LOCKING
2ea.	AN4-15A	BOLT
2ea.	AN4-16A	BOLT
4ea.	AN960-416	WASHER

4ea.	AN960-416L	WASHER, THIN
8ea.	112-14-004	PIN, WING - CARRY THROUGH
16ea.	AN8H-6A	BOLT
16ea.	AN970-8	WASHER, LARGE AREA, 1/2
1ea.	111-22-003	BRACKET, FLAP
1ea.	122-22-005	PLATE, BACKING, FLAP
2ea.	F5000-4	NUT, ANCHOR
4ea.	AN425AD3-4	RIVET
4ea.	BPS-4-3	RIVET, PULL
2ea.	AN4-12A	BOLT
2ea.	AN960-416L	WASHER, THIN

TOOLS NEEDED:

TAPE MEASURE
HAND DRILL (WITH 90 DEG. ANGLE DRIVE), WITH BITS
WATER LEVEL
STANDARD 3' LEVEL
SMART LEVEL (OPTIONAL)
SABER SAW
8ea. TEMPORARY 7/16" WING PINS (BUILDER SUPPLIED)
PLUMB BOB

PROCEDURE:

STEP 1. CUT FUSELAGE SIDE INTO WING CARRY THROUGH:

Cut fuselage side into wing carry through, by drilling into wing carry through and using a saber saw, cut along the inside edge of carry through sides and top.

Measure down 9" from top cutout and place horizontal mark, cut along this line. Sand cutout and trim any milled fiber from the factory squash.

Cut a 1/8" grove on each side of both fore and aft shear web ties, being careful not to cut too high. This can be trimmed a little at a time during the fitting process. See Figure 8.300-1.

Mark seat support as per Figure 8.300-1. Drill a 1/4" hole through center. From the control stick base pivot point, draw a line through the 1/4" hole and mark the fuselage side.

Drill a 1/4" hole through fuselage side.

From the outside, drill a 1-1/2" hole through the fuselage side and seat support, using the 1/4" hole as a guide. See Figure 8.300-1.

STEP 2. MOUNT FUSELAGE/CARRY THROUGH PLATES:

The fuselage/carry through plates (111-14-021), bolts the carry through to the fuselage, they are connected fore and aft of the carry through on both sides. On the forward side, the second bolt from the bottom is where the front seatbelts will be mounted and will need a anchor nut mounted to the outside bracket.

Drill 5/16" holes in plates, as per Figure 8.300-2.

From the inside of fuselage drill top hole as per Figure 8.300-2.

Bolt plate on the outside of fuselage align parallel with carry through and drill remaining holes, using plate as a guide.

Remove forward plates and rivet backing nuts to the second from the bottom hole, as per Figure 8.300-2.

STEP 3. FLAP ACTUATOR BRACKET INSTALLATION:

Extend fuselage centerline to back of wing carry through.

Mark center of forward actuator arm as per Figure 8.300-3.

Using center line mark, hold actuator bracket (111-22-003) centered on vertical line and actuator mounting holes centered on horizontal line.

With bracket held in position, and using bracket as a guide, drill the two mounting holes using a 1/4" drill bit.

Drill the two 1/4" mounting holes in the backing plate (122- 22-005), using the actuator bracket as a guide.

Rivet anchor nuts (F5000-4) to backing plate centered over the two holes, using the AN425AD3-4 rivets.

Bolt actuator bracket in place, as per Figure 8.300-3.

While still bolted together, reach in through the carry through and drill four 1/8" holes on each of the four sides of the backing plate, careful not to go all the way through to the forward side.

Using pull rivets (BPS-4-3), rivet backing plate to carry through.

STEP 4. LEVEL FUSELAGE:

Using water level, level fuselage to water line fore and aft, and side to side. Use same procedure as 6.010 STEP 1. Be as accurate as possible.

STEP 5. SET UP WING SWEEP:

Using plumb bob, drop a line and place marks on the floor, from the forward fuselage centerline, aft fuselage centerline, and each wing root.

Draw a line through each, extending forward at least 10', as per Figure 8.300-4.

From the fore and aft ten foot marks, swing a 20 foot arc in the area of each wing tip, four arcs in all. Make sure the arc intersections are outboard of the wing tip. If not, swing a larger arc. A line between the two arc intersections is the spar centerline on the floor. This will be used later. See Figure 8.300-4.

NOTE: The wing spars were sent out from the factory two different ways: 1. with only one pre-drilled hole in the spar. 2. with all four holes pre-drilled.

In the following, "Method 1" will refer to the single spar hole. "Method 2" will refer to all holes drilled.

Method 1: Select three wing spar spacers and shape to fit on all but the inboard forward side of the wing spar (thickest G-10 side toward the spar).

Position on spar where holes will be centered through spacer.

Bond to spar using milled fiber/resin mix, clamp in place, and let cure.

Method 2: Select two wing spar spacers and shape to fit on aft side of the wing spar (thickest G-10 side toward the spar).

Position on spar where holes will be centered through spacer.

Bond to spar using milled fiber/resin mix. Clamp in place, and let cure. See Figure 8.300-5.

Using hole in spar as a guide, drill top inboard hole through spacer (7/16"). Keep hole perpendicular and level.

Insert the wing spar in the pre-cut holes in the fuselage sides, trim the shear tie slots as necessary.

When wing is in its approximate position, drill aft side of carry through by inserting drill through forward inboard top hole and through spar web through spacer and drill through aft side of carry through.

Insert the inboard top temporary pin through the carry through and into its mating hole in the wing spar web, through to the aft side of the carry through.

Support the outboard end of the wing on a well anchored saw-horse with an upright plank or board clamped to it.

Move the wing tip fore and aft until a plumb line from the outboard spar centerline of the wing falls on the extended spar centerline on the floor. This establishes the wing sweep of 0 deg. relative to the fuselage centerline. Mark the wing and drill a 1/8" hole through the wing tip joggle into the upright board so this sweep position can be repeated and checked later.

STEP 6. SETTING WING DIHEDRAL:

Using water level, place a mark on the board holding wing tip, this mark will be level with the lower wing skin at the centerline root, this should be about 160".

Measure up from this mark 13.85" and set the lower wing skin tip at this mark, this gives you a 5 deg. dihedral. See Figure 8.300-6.

Make sure the weight of the wing doesn't change the levelness of the fuselage.

STEP 7. SETTING WING INCIDENCE ANGLE:

Attach the wing incidence template board to one wing at BL36.

Adjust the wing leading edge up/down for exact level of the "level" line on the template.

Lock the wing at the proper sweep, dihedral and incidence angle. Recheck that all are as accurate as you can measure them and that they cannot move.

Drill the forward and aft shear ties through bushings and through the G-10 hard points. Drill perpendicular to the shear tie and do not elongate the bushing. Back drill from each side of the hard point.

Build up layers of 2" X 2" BID forward and aft on the shear tie hard point until the plate fits without distorting, and redrill. See Figure 8.300-7.

Recheck sweep, dihedral and incidence angle. Drill the remaining holes, through spacers and through aft side of carry through. (Both method 1 and 2).

Method 1. Remove wing and fit remaining spacer and bond in place.

After cured, replace wing and back drill spacer from aft side.

Method 2. Remove wing and fit the forward spacers and bond in place.

After cured, replace wing and back drill spacers from aft side.

After drilling all holes, and with pins in place, put bolts in fore and aft shear ties. Recheck all measurements.

NOTE: WING SPAR SHOULD NOT MAKE CONTACT WITH FUSELAGE CUTOUT.

Repeat for opposite wing.

STEP 8. FINAL DRILLING AND PINING:

NOTE: THE WING WILL BE REMOVED MANY TIMES THROUGHOUT THE BUILDING PROCESS, THE NEXT STEP WILL BE THE FINAL ASSEMBLY OF THE WINGS AND SHOULD BE DONE AT THE AIRPORT WHEN ALL OTHER PROCEDURES ARE COMPLETE.

Insert the wings, bolts and pins and recheck the sweep, dihedral and incidence.

Using a 3/4" reamer with a 7/16" pilot, ream each spar hole to 3/4". Always keep three pins installed while drilling.

Insert the 3/4" steel pins in each hole as drilled.

Put the 7/16" bolts in the pins and torque to 80 inch pounds.

Torque the four bolts in the shear ties to 40 inch pounds.

Safety wire wing carrythrough bolts, both sides.

STEP 9. LAMINATES OVER SHEAR TIES:

Laminate nine (9) plies over wing shear ties, as per Figure 8,300-8.

PROCEDURE COMPLETE: |__| DATE: _____

8.340 WING FAIRING

DESCRIPTION:

The wing fairing will be installed in this procedure. The top fairing is furnished in the kit, the lower fairing will need to be fabricated by the builder. At the start of this procedure the wings will need to be put on, and after fairings are laminated the wings will need to be removed and fairings completed.

MATERIAL NEEDED:

1ea.	112-11-023	FAIRING, WING, UPPER, LEFT
1ea.	112-11-024	FAIRING, WING, UPPER, RIGHT
		1/2" FOAM
		Q-CELL
		RESIN
		MILLED FIBER

TOOLS NEEDED:

CLECOS
BAND SAW OR SABER SAW
LAY-UP TOOLS
HAND DRILL WITH BITS
SAND PAPER
HOT GLUE GUN
CLEAR 2" PACKAGING TAPE

PROCEDURE:

STEP 1. FITTING UPPER WING FAIRINGS:

With wings mated and in proper position, place upper wing fairing on appropriate side.

Push fairing against wing and fuselage until upper part of fairing moves away from fuselage.

At the point where the fairing touches the fuselage mark a trim line, as per Figure 8.340-1.

Trim within a 1/4" of this line. The part that is in contact with the wing will only need to be in contact for about an inch, the rest can be trimmed off.

Replace fairing on wing and check fit, if satisfied, drill 1/8" holes at about 18" intervals, through fairing and wing (being careful not to drill into anything ie. fuel line, wiring, etc.), place clecos into holes and recheck fit, if fairing still pushes away from fuselage trim to the point where it just touches. See Figure 8.340-2.

STEP 2. BONDING UPPER WING FAIRINGS:

Sand wing and fairing where contact is made between the two. Apply a liberal amount of milled fiber/resin mix to the wing, and place fairing in place using the clecos. There should be about a 1/2" of milled fiber push out on the inside of fairing. Let cure.

Repeat for opposite side.

STEP 3. LOWER WING FAIRINGS:

Using the clear tape, tape the fuselage in the area where the lower fairing will be in contact, tape past that point by 3 to 4 inches. This will prevent the lower fairing from being bonded to the fuselage.

Using the hot glue gun, glue pieces of foam to all areas where the lower fairing will be. Sand and shape to an aerodynamic clean shape.

Cover all foam with a slurry of Q-cell/resin mix.

Fill any voids with either Q-cell or feather weight Bondo.

When it is all smooth laminate with two (2) plies 45 deg. BID.

After curing, sand where fairing meets wing and where laminates overlap, use feather weight bondo and sand smooth. See Figure 8.340- 3.

Repeat for opposite side.

STEP 4. WING FAIRING COMPLETION:

Remove wings, careful not to damage fairing, pull slow until laminates release from tape. Carefully prying between tape and laminates will help to release it.

After removal, sand out all foam and trim outer edge of fairing.

PROCEDURE COMPLETE: |_| DATE: _____

8.350 MAIN WHEEL ASSEMBLY AND ALIGNMENT:

DESCRIPTION:

In this procedure you will assembly the main landing wheels, with brake assembly onto the landing gear leg.

MATERIAL NEEDED:

ITEMS LISTED IN FIGURE 8.350-2
AUTOMOTIVE TYPE AXLE GREASE

TOOLS NEEDED:

TORQUE WRENCH

PROCEDURE:

STEP 1. TIRE MOUNTING:

If you receive the tire, wheels and tube unassembled, follow this step.

Care should be taken when mounting the tire and tube on the wheel so as not to pinch the tube between the wheel halves.

Slightly inflate the tube after placing it in the tire. This will help kept it from being pinched between the halves. Some tire mounting soap also helps.

A strip of thin cardboard or poster paper wrapped around the wheel between the mating halves and the tube will help in preventing tube from getting pinched during assembly if it is unusually tight. Another idea that may help is a strand of fishing monofilament line placed between the axle. It can then be worked back and forth around the wheel as the nuts are tightened and pulled out when assembled.

NOTE: THE LIGHT-WEIGHT POINT OF THE TIRE IS MARKED WITH A RED DOT ON THE TIRE SIDEWALL AND THE HEAVY-WEIGHT POINT OF THE TUBE IS MARKED WITH A CONTRASTING COLOR LINE (USUALLY NEAR THE INFLATION VALVE STEM). WHEN INSTALLING TUBE, PLACE THESE MARKS ADJACENT TO EACH OTHER.

STEP 2. GREASE BEARINGS:

All bearings are oiled from factory for rust prevention, but not greased. Bearings should be cleaned and dried and then packed with suitable grease. Packing grease without first removing the oil will dilute the wheel grease and cause it to run out past the seal and not lubricate properly.

STEP 3. MOUNT WHEEL/BRAKE ASSEMBLY:

Mount wheel and brake assembly as per figure 8.350-1. The mounting position for brake caliper is trailing side of wheel at 270 degrees from vertical.

Tighten axle nut until all play is out of assembly.

Rotate wheel back and forth while tightening the nut to help seat the bearing. When all play is out of assembly, and wheel rotates freely, tighten to next castle slot and insert cotter pin.

The rubber seal on the tapered roller bearings will remain stationary while the wheel rotates around it. If the seal is spinning with the wheel it indicates that the inner bore of the bearing is spinning on the axle and the nut should be tightened further until the seal stops spinning with the wheel.

Torque bolts as indicated on figure 8.350-1.

Safety wire all drilled bolts.

Repeat for other side.

STEP 4. MAIN WHEEL ALIGNMENT:

Toe-in alignment (0 to 1 deg.):

Roll aircraft onto two greased plates, as per figure 8.350- 3.

Ensure floor is level in work area, and level aircraft. Suspend plumb bob from fuselage both forward and aft to establish a centerline (use a chock line or draw a line on the floor).

Obtain a couple of straight-edge strips of wood, and clamp one stright-edge against the outside rim of each wheel. If the tires hold the straight-edge away from the wheel rims,

use short wood blocks as spacers. Your straight-edge must contact the rim in two places. See figure 8.350-3.

Measure the distance A and a. If both of the distances are the same, the wheels are parallel with each other and at a 0 toe- in, but they may not be aligned with the aircraft centerline. It is necessary to measure B and b. When both measurements are identical, your alignment is correct. Both measurements must be made.

Shims can be used between wheel axle and gear leg, for proper alignment.

Camber alignment (0 at normal loading):

With aircraft still level and on the greased plates, use a protractor and measure angle of wheel, as per figure 8.350-4.

Shims can be used between wheel axle and gear leg, for proper alignment.

PROCEDURE COMPLETE: |__| DATE: _____

8.400 FLAP TORQUE TUBE INSTALLATION:

DESCRIPTION:

In this procedure you will install the flap actuator, flap torque tubes and connect torque tubes to flaps.

The forward flap actuator bracket should be installed before this procedure.

The wings should be mounted and correctly pinned.

The fuselage should be level.

MATERIAL NEEDED:

4ea.	AN490HT-8P	ROD ENDS
4ea.	AN316-4	NUT, CHECK
2ea.	111-24-007	TUBE, OUTBOARD PUSH-PULL, FLAP
2ea.	AN3-10A	BOLT
2ea.	AN3-11A	BOLT
8ea.	AN470AD3-11	RIVET
8ea.	AN960-10L	WASHER, THIN
4ea.	F34-14	BEARING, ROD END
6ea.	AN364-1032	NUT, SELF LOCKING
4ea.	122-22-006	BEARING, NON-METALIC 1.125" ID.
4ea.		FOAM, 1/2" 40 LB./CU. FT.
2ea.	121-22-003	TORQUE TUBE, OUTBOARD, FLAP
1ea.	122-22-003	TORQUE TUBE, CENTER, FLAP
2ea.	122-22-008	TUBE, CONNECTION, FLAP
16ea.	AN365-428	NUT, SELF LOCKING
8ea.	AN4-15A	BOLT
32ea.	AN960-416	WASHER
1ea.	111-22-006	ACTUATOR, FLAP
1ea.	AN3-17	BOLT
1ea.	AN3-23	BOLT
2ea.	AN320-3	NUT, CASTLE, SHEAR
2ea.	AN380-2-2	PIN, COTTER

12ea.	AN960-10	WASHER
2ea.	AN3-12	BOLT
		MILLED FIBER
		RESIN
8ea.	AN4-13A	BOLT
		FOAM (2 FOAM 2), 1/4"
		SWITCHES, MICRO (BUILDER SUPPLIED)
		SW. TRIGGER ARMS, (BLDER SUPPLIED)

TOOLS NEEDED:

LAY-UP TOOLS
HAND DRILL WITH BITS
DREMEL TOOL OR EQUIVALENT
HOLE SAW, 1-1/4"
SABER SAW

PROCEDURE:

STEP 1. BEARING SUPPORTS:

Using hole saw, drill a 1-1/4" hole in each of the four 40# foam blocks, as per Figure 8.400-2.

Sand the outside surface of each of the bearings (122-22- 006).

Center a bearing in each of the holes just drilled and bond using milled fiber/resin mix. let cure.

Cut aft end of middle console, as per Figure 8.400-3.

Cut a piece of 1/4" 40# foam and form to fit in cutout, hot glue in place.

Laminate four (4) plies 45 deg. BID on each side extending over the entire block and 1" into console sides and 1" into aft shear tie, let cure.

Drill 1-1/2" hole, and cut sides as per Figure 8.400-3.

STEP 2. DRILL HOLES IN FUSELAGE SIDE AND RIB "J":

Place a bearing (one that was just bonded to a foam block for the center torque tube) on each end of the center torque tube (122-22-003) and clamp in position as per Figure 8.400-4. Make sure its level, side to side. The "V" shaped pulley block may need to be sanded to clear torque tube, careful not to damage pulley.

Using a straight edge extend the centerline of the center torque tube to each side of the fuselage inside skin.

At that pointdrill a 1-1/4" hole through fuselage sides. Carry that centerline to rib "J" and drill the 1-1/4" hole all the way through rib "J", each side of fuselage.

STEP 3. CUT HOLE IN RIB "R":

Slide the connecting tube (122-22-008) into the center torque tube (122-22-003) and through the 1-1/4" holes.

Slide the outboard torque tube (121-22-003) onto the outboard end of the connecting tube, and slide all the way outboard to rib "R", do so for both sides.

Torque tubes should be level.

When the outboard torque tube horns, are in the up position, the top of the horn should clear the upper wing skin by 0.20" +/- .05", if not, readjust the center torque tube.

With outboard torque tube up against rib "R", mark that location. (One way accomplish this would be to use a spray can of paint and lightly spray around the tube, when removed an imprint of the tube will be there).

Make a 1-1/2" circle around the center of mark on rib "R".

Using a Dremel tool cut out the inboard side of rib "R" skin and foam. At the 1-1/2" mark, only go through inboard skin of rib "R".

STEP 4. MOUNT OUTBOARD BEARING BLOCKS:

Cut and sand blocks to fit over center of cutout in rib "R" and center of bearing in block.

Using sandpaper, taper the four sides of the two bearing blocks as per Figure 8.400-2.

Place one on each end of the outside torque tubes. Check for clearance of the horn to the upper wing skin with the torque tubes level, if not, readjust center torque tube. Bearing should clear the sides of the hole in rib "R", if not, trim hole to clear.

Bond each bearing block to rib "R" using milled fiber/resin mix. Hold firm against rib "R", any milled fiber that squeezes out use to make a fillet around blocks, let cure.

Laminate four (4) plies of 45 deg. BID extending 1-1/2" onto rib "R", on each side of blocks.

Cut holes in laminates for bearings, being careful not to get any resin on bearing, as per Figure 8.400-5.

STEP 5. FLAP OUTBOARD PUSH PULL TUBE:

Set flap on wing using hinge pins.

Clamp flap in up position (normal cruise).

Set outboard torque tube horn forward 45 degs.

Measure distance between the flap connect point and the holes in the horn.

Select two rod ends (AN490HT-8P), two rod end bearings (F34-14) and two check nuts (AN316-4).

Screw the check nuts onto each rod end.

Screw the rod ends onto the rod end bearings until they are halfway between bottomed and the witness hole; tighten the check nuts against the outboard rod end bearings. Select the push pull tube (111-24-007) onto one of the rod ends.

Lay the other rod end along side the tube at the distance measured in step 5. Mark tube

at flange of rod end. See Figure 8.400-6.

Cut the push pull tube at that mark.

STEP 6. ATTACH ROD ENDS:

Make sure rod end is pressed all the way into the tube.

Drill a No. 30 hole, .19" from one end of the tube, through the center of the tube and rod end.

Insert a rivet (AN470AD4-11) into hole and rivet in place.

Drill a second hole, 90 deg. to the first hole. .45" from the same end. Then install second rivet (AN470AD4-11). Do this for each end of assembly and for each wing. See Figure 8.400-6.

Place assembly through hole in wing shear web and connect to flap, using bolt (AN3-10A) washers (AN960-10L) and lock nut (AN364-1032).

Connect to outboard torque tube using bolt (AN3- 11A), washers (AN960-10L) and lock nut (AN364-1032). The hole in wing shear web will need to be filed for clearance of push pull tube.

File hole for proper clearance. See Figure 8.400-7.

STEP 7. MOUNT CENTER TORQUE TUBE:

Check all torque tubes for level and freeness of trivial.

Sand where needed.

When satisfied, drill four (4) holes in each side of the two bearing blocks through the middle console, as per Figure 8.400-8.

Using bolts (AN4-13), washers (AN960-416), and nuts (AN365-428A), bolt bearing blocks to middle console sides.

STEP 8. MOUNT FLAP ACTUATOR:

Mount flap actuator to forward bracket using bolt (AN3-17), washers (AN960-10), nut (AN320-3), and cotter pin (AN380-2-2).

Mount flap actuator to center torque tube horn, using bolt (AN3-23), washers (AN960-10), nut (AN320-3), and cotter pin (AN380-2-2). See Figure 8.400-9.

STEP 9. BOLT TORQUE TUBES:

With the actuator extended about 1/4", mark all bolt holes in the center torque tubes and outboard torque tubes.

Remove and drill on a drill press.

Reinstall, and using bolts (AN4-15A), washers (AN960-416), and nuts (AN365-428), bolt torque tubes to connecting tubes.

STEP 10. TORQUE TUBE HOUSING:

The torque tubes will need to be boxed in for their protection.

Cut two pieces of 1/4" foam (with BID on each side) to form the forward side of the box, as per Figure 8.400-10.

Hot glue in place and put a 1/4" radius of Q-cell/resin mix.

Laminate two (2) plies of 45 deg. BID. to each side.

Cut two pieces of 1/4" foam (2 foam 2) to form two ribs.

Cut notch to clear torque tubes, as per Figure 8.400-10.

Laminate with two (2) plies 45 deg. BID, both sides, extending 1.0" on all sides.

STEP 11. LIMIT SWITCHES:

The flaps will need to limited to the amount of travel. Two switches will be installed on the aft shear tie, and two switch trigger arms to the connecting tube on the right side.

Cut a piece of 1/4" foam, 2.5" X 5", mount switches (builder supplied), as per Figure 8.400-11.

Mount switch block using two (2) bolts (AN3-12A), washers (AN960-10L), and nuts (AN365-1032), as per Figure 8.400-11.

Mount switch trigger arms (builder supplied), as per Figure 8.400-12. Adjust to open switch contacts at 40 deg. down and up at normal cruise position.

STEP 12. FLAP ACTUATOR AND TORQUE TUBE COVERS:

The covers can be constructed several ways, and several shapes, this procedure will give you one method, the builder can use his or her imagination to come up with their own.

Using light cardboard or poster board, cover each side of the torque tubes, extending down the sides 1.0".

Tape down using 2" wide clear tape, making sure tape covers all of cardboard and down the sides to the bottom. See Figure 8.400-13.

Laminate three (3) plies 45 deg. BID, over taped area.

After cured, remove and trim to fit.

Braces can be constructed by hot gluing a 1/2" X 1/2" piece of foam on the under side of cover, making sure that it clears the sides, sand and laminate in place. Laminate as many as necessary to stiffen cover.

The actuator cover will be constructed in the same manner. Take another piece of cardboard and cover over actuator, and hot glue in place. Cover the cardboard with clear tape, taping onto the carrythrough top and sides, the console sides and aft to the aft shear tie. See Figure 8.400-14.

Laminate with three (3) plies 45 deg. BID, extending 1.0" down the sides, and forward over carrythrough. After cured, remove and trim to fit.

Cut a piece of 1/4" foam (with BID on each side) to fit in the aft end of cover. Laminate to end of cover with two (2) plies 45 deg. BID.

The covers can be screwed in place or if a tight fit, left as is.

Carpeting can be glued directly to covers.

PROCEDURE COMPLETE: |__| DATE: _____

8.850 MAIN WHEEL FAIRING INSTALLATION:

DESCRIPTION:

You will install the main wheel fairing in this procedure. The airplane should be on the wheels with engine installed. This will load the landing gear to a standing position.

MATERIAL NEEDED:

2ea.	115-11-001	FAIRING, MAIN, LEFT
2ea.	115-11-002	FAIRING, MAIN, RIGHT
8ea.	F5000-8	NUT, ANCHOR
6ea.	F5000-3	NUT, ANCHOR
8ea.	AN507-832-R10	SCREW
2ea.	AN3-AS REQUIRED	BOLT
2ea.	AN3-AS REQUIRED	BOLT
2ea.	AN3-AS REQUIRED	BOLT
2ea.	BUILDER SUPPLIED	BRACKET, STEEL
2ea.		NUT, AXLE, FAIRING,CESSNA.
		BUILDER SUPPLIED
28ea.	AN426AD3-4	RIVET
7" X 3"	1/4"	40# FOAM
		BID CLOTH
		RESIN
		Q-CELL
24" X 24"		FOAM, PLANE
16" X 24"		FOAM, (2 FOAM 2)

MATERIAL NEEDED:

LAY-UP TOOLS
HAND DRILL WITH BITS
CLEAR TAPE
JIG SAW, OR EQUIVALENT

PROCEDURE:

STEP 1. FAIRING BRACKET AND AXLE NUT:

Remove wheel and brake assembly, and place bracket (builder supplied) between landing gear leg and axle. Reassemble wheel using the fairing axle nut. See figure 8.850-1.

STEP 2. FITTING FAIRING HALVES:

Take two wheel fairing halves and sand to fit the dimensions, as per figure 8.850-2.

Cut wheel well as per figure 8.850-2.

Drill a 1/4" hole in the outside half, into the dimple provided.

Cut two pieces of 1/4" 40# foam 2" X 3", bevel all four edges and bond into place centered over the hole.

Laminate three (3) plies of 45 deg. BID, extending 1" on each side.

After cured, redrill hole.

Tape the two halves together and make a trial fit over wheel. You will need to cut out for landing gear leg at this time. Cut about a 1/2" larger hole, this will be covered in a later step.

Bolt outside to axle nut using a AN8-13 bolt. Check for proper clearance on wheel.

STEP 3. LAMINATE MAIN FAIRING:

After satisfied of a good fit, remove from wheel, but keep tape in place, laminate four (4) plies 45 deg. BID 2" wide over seam on the inside between halves.

STEP 4. RIB INSTALLATION:

Cut two piece of 2 foam 2 material to fit just aft of each wheel, as per figure 8.850.-2.

Laminate three (3) plies 45 deg. BID, extending 1" onto rib and 1" onto skin sides and top.

STEP 5. BOLT TO INSIDE BRACKET:

Place wheel pants back into position, but force the inside bracket to stay outside of wheel fairing.

Bolt fairing to axle.

Level the fairing fore and aft to the water line, tighten bolt.

Level fairing inboard and outboard.

Clamp fairing to bracket, and mark an outline of the bracket to the outside of fairing. Remove and replace with the bracket in the correct place.

Drill a 3/16" hole in each of the ends of the bracket through the fairing skin and through the bracket.

Remove fairing and rivet anchor nuts over each of the holes just drilled in the steel bracket.

STEP 6. FAIRING OVER BRAKE ASSEMBLY:

Place fairing on wheels and bolt in place. Use short bolts on the inside, they will be covered with foam and removed later.

Tape the landing gear leg with clear tape to prevent the laminates from bonding to the leg.

Sand the area on the inside of fairing. Using hot glue gun, glue on pieces of foam as per figure 8.850-3 (keep the location of each of the bolts).

Sand foam to a good aerodynamic shape, making each fairing the same on each side of airplane.

Cut through foam to each of the inside bolts, cut a 1/2" X 1-1/2" section of foam out, centered over each bolt hole, and bond in a piece of 1/2" X 1.5" 40# foam.

Shape the foam to the contour, and redrill the holes.

Make a flat area around the bolt holes. See figure 8.850-3.

Sand a flat area around the landing gear lag opening, as per figure 8.850-3. This will make a joggle for the inside cover.

Coat all foam areas with a slurry of Q-cell/resin mix. Let cure.

Laminate with two (2) plies 45 deg. BID. extending 1" onto fairing skin. You will need to laminate over the bolts, but they can be cut out after laminates are cured. This is the only way to hold the fairing in place and get a good fit around the gear leg.

STEP 7. INSIDE COVER CONSTRUCTION AND INSTALLATION:

Cover the joggle, gear leg and brake area with clear tape.

Cover this area with foam, gluing in place with the hot glue gun.

Sand to a good smooth shape.

Cover with a slurry of Q-cell/resin mix. Let cure.

Laminate with three (3) plies 45 deg. BID.

After cured, drill four (4) holes on each cover, using a #19 drill bit, as per figure 8.850-4. Remove and trim for good fit, the foam can be removed.

Remove wheel fairing, and smooth out foam on under side of brake fairing (between wheel fairing and brake fairing). This should be Q-celled and laminated with at least one ply of BID.

Rivet anchor nuts over each of the holes just drilled. See figure 8.850-4.

PROCEDURE COMPLETE: |__| DATE: _____

8.900 TRANSFER TO HANGAR:

DESCRIPTION:

A large number of homebuilt airplanes are damaged each year just moving to the airport, after working so hard on such a pretty airplane don't get in a hurry to get it to the airport. This is a good time for good planning.

This procedure will show how to construct a temporary fuselage support for transporting.

Some States require a permit for transporting oversize loads (elevator is 10') on the highways. It is advisable to check with your local authorities.

It is recommended to use a flat bed trailer with a low bed for easer loading, and large enough to support the fuselage on one trip and the wings on another.

Make two trips, one for the fuselage and one for the wings.

Make sure aircraft is secured properly. Use plenty of ropes, and heavy moving pads are ideal for protecting painted surfaces.

MATERIAL NEEDED:

1 ea.	4" X 8" X 8'	WOOD (BUILDER SUPPLIED)
2 ea.	4" X 4" X 31.5"	WOOD (BUILDER SUPPLIED)
20ea.	3/8" X 6"	BOLTS (BUILDER SUPPLIED)
20ea.	3/8"	NUTS (BUILDER SUPPLIED)
40ea.	3/8"	WASHERS (BUILDER SUPPLIED)
1 ea.	3/4" X 2' X2'	PLY WOOD (BUILDER SUPPLIED)
2 ea.		WHEELS/TIRES MOUNTED ON AXLE
2 ea.		TEMP. WING PINS (BLDR SUPPLIED)
2 ea.		WING SLINGS, FROM PROC. 4.010
	2" X 6"	WOOD, ENOUGH TO MAKE INBOARD WING SUPPORT.

NOTE: ALL WOOD MATERIAL SHOULD BE NO. 1 GRADE NO KNOTS.

PROCEDURE:

STEP 1. FUSELAGE SUPPORT:

The fuselage support will go through the wing carrythrough and be drilled and pined through the wing spar holes.

The wheels are the aircraft wheels and are bolted to the 4 x 4's. The spacing is set by the wheel base of the trailer used but should be as wide as possibly for stability.

Construct the support as per figure 8.900-1.

With fuselage supported high enough, push one side of support through wing carrythrough. Center in carrythrough and drill two 7/16" holes through 4 X 8, pin in place.

Bolt the other side on and mount both wheels.

NOTE: THIS SUPPORT WILL BE SUFFICIENT TO MOVE FUSELAGE AROUND THE WORK AREA AND MOVING ONTO THE TRAILER, BUT CARE MUST BE TAKEN NOT TO MOVE FUSELAGE UP OR DOWN ANY STEEP RAMPS, ie. MOVING ONTO OR OFF OF THE TRAILER.

STEP 2. WING SUPPORT:

Make a separate trip to the airport for the wings. It will be easer and safer in the long run.

The wing tips can be supported by the supports made in procedure 4.010. Bolt the supports to the bottom of trailer or secure with clamps. The inboard wing can be supported by constructing a large saw horse out of the 2 X 6 material. Because of the verity of trailers, the size and shape of the saw horse will be up to the builder. Bolts can be used through the spar mounting holes and through the saw horse. Be careful not to damage spar.

PROCEDURE COMPLETE: |__| DATE: _____

8.950 FINISH (GENERIC):

DESCRIPTION:

Interior:

Their is a vast number of options associated with the aircraft interior. Alexander Aeroplane Co. (1-800-831-2949) does have a drop in kit for the *Express*, also a good local aircraft upholstery shop may be a good way to go.

Some hints for interiors:

a. Keep upholstery as light as possible.
b. The use of Tempra Foam for the seats is desirable but very expensive.
c. Make sure all inspection points are accessible.
d. All material should be of aircraft quality.
e. The use of sound proofing will reduce cabin noise.

Exterior:

This procedure is only a brief description on the subject of aircraft finishing, and is not a substitute for a good book on the subject, or someone with some good experience. It is recommended that if you're going to finish your own airplane, that you read further on the subject and get some good experienced advice.

Some helpful hints for the exterior finish:

a. Use a light weight body filler.
b. When filling large areas, use a large putty knife or a large piece of metal 12" or so, this can be bent to conform with the contour. The smoother you get the body filler the less sanding is necessary.
c. Use a long sanding block (12" to 18") where ever possible.
d. By spraying a light mist of colored paint over the area to be sanded, will show the low or high points as you sand.
e. When doing the rough sanding; sand at a 45 deg. angle for awhile; then change to a 45 deg. angle the other way. (an X) This will allow the sanding block to hit all of the high points evenly.
f. Use your hand to measure whether a surface is smooth or contoured correctly. Close your eyes and use a thin cloth glove.
g. Paint does not cover blemishes, it magnifies them.

h. Use the same manufactures material and their recommended process throughout the painting process.

i. Stay away from the very soft primers, they sand great but you don't want a soft material under your paint.

PROCEDURE (GENERIC):

STEP 1. CONTOURING:

Sand factory primer, using large sanding blocks. Be careful not to sand into any glass cloth. No need to sand all primer off, only sand primer off of the high points. Use light weight body filler to fill all low areas.

STEP 2. PRIMER:

After factory primer has been sanded, clean surface and prime with a good sandable primer, one that's compatible with the paint to be used.

Use the wet sanding process for all remaining sanding. You can start with 100 grit sand paper, but you should end up with the final sanding with about a 400 grit paper.

STEP 3. PIN HOLES:

One easy way to cover pin holes or any small void, is to use a good finishing putty.This can be found at most auto paint stores. Cover the holes and wet sand. Let dry and look again. You can circle each one as you find them and fill later. After you think you have found and filled all of them, take the part out in the sun light and you will find more. Keep at it. It's a slow process, but extra time will pay off with a good paint job.

STEP 4. PAINT:

Follow all of the manufactures directions.

Use a paint booth. One can be constructed by using PVC pipe and cover with plastic. Use a blower with filter to keep the over spray at a minimum.

Water can be sprayed on floor and sides of paint booth to reduce the dust.

Apply paint with two or three coats; the first is a tack coat followed by a thin cover coat and third is the finish coat.

WARNING:

THE MODERN PAINTS ARE VERY TOXIC, WHEN USING THIS PAINT ALWAYS USE A GOOD FRESH AIR SUPPLY. THIS IS VERY IMPORTANT.

PROCEDURE COMPLETE: |__| DATE: _____

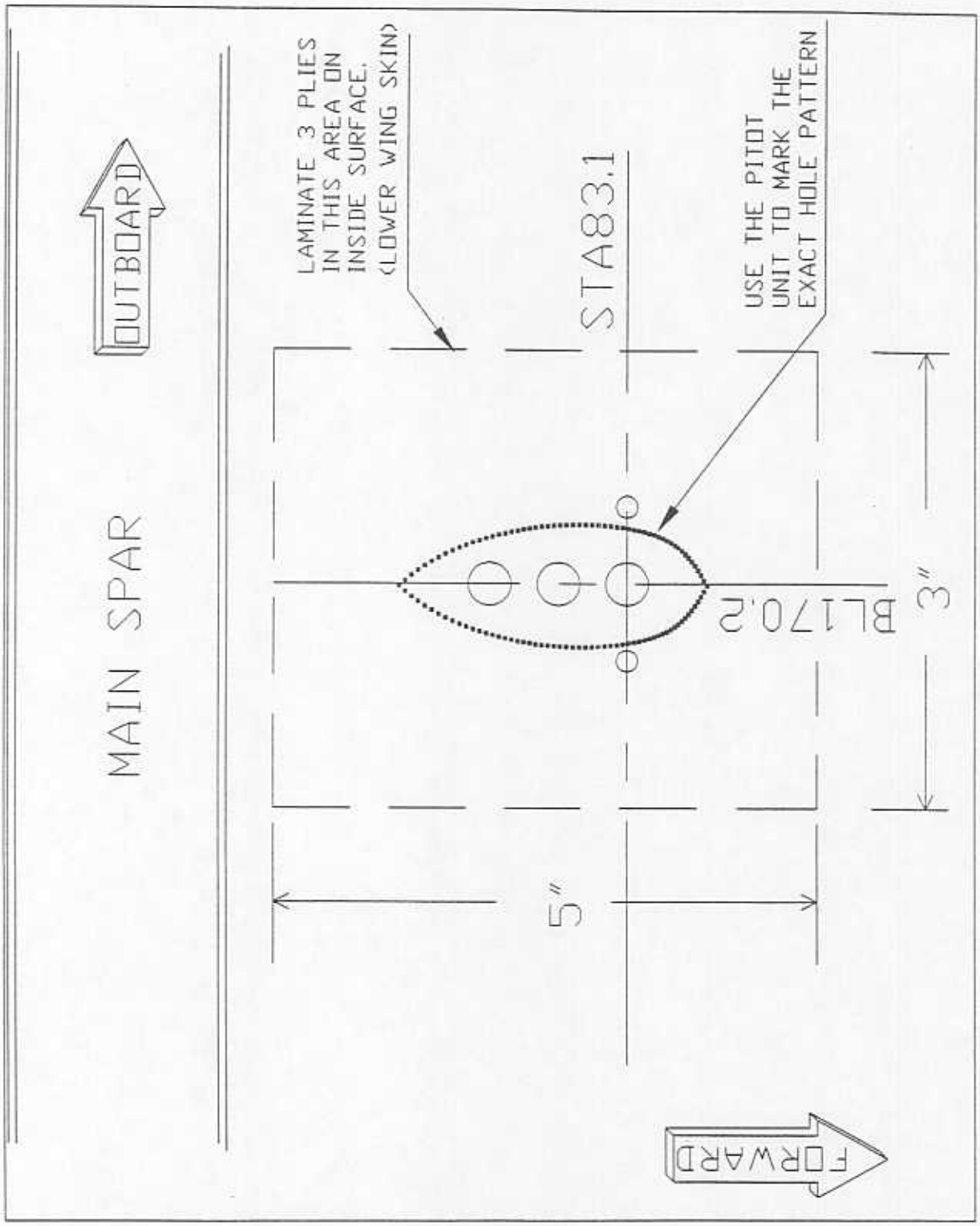


FIGURE 8.010-1

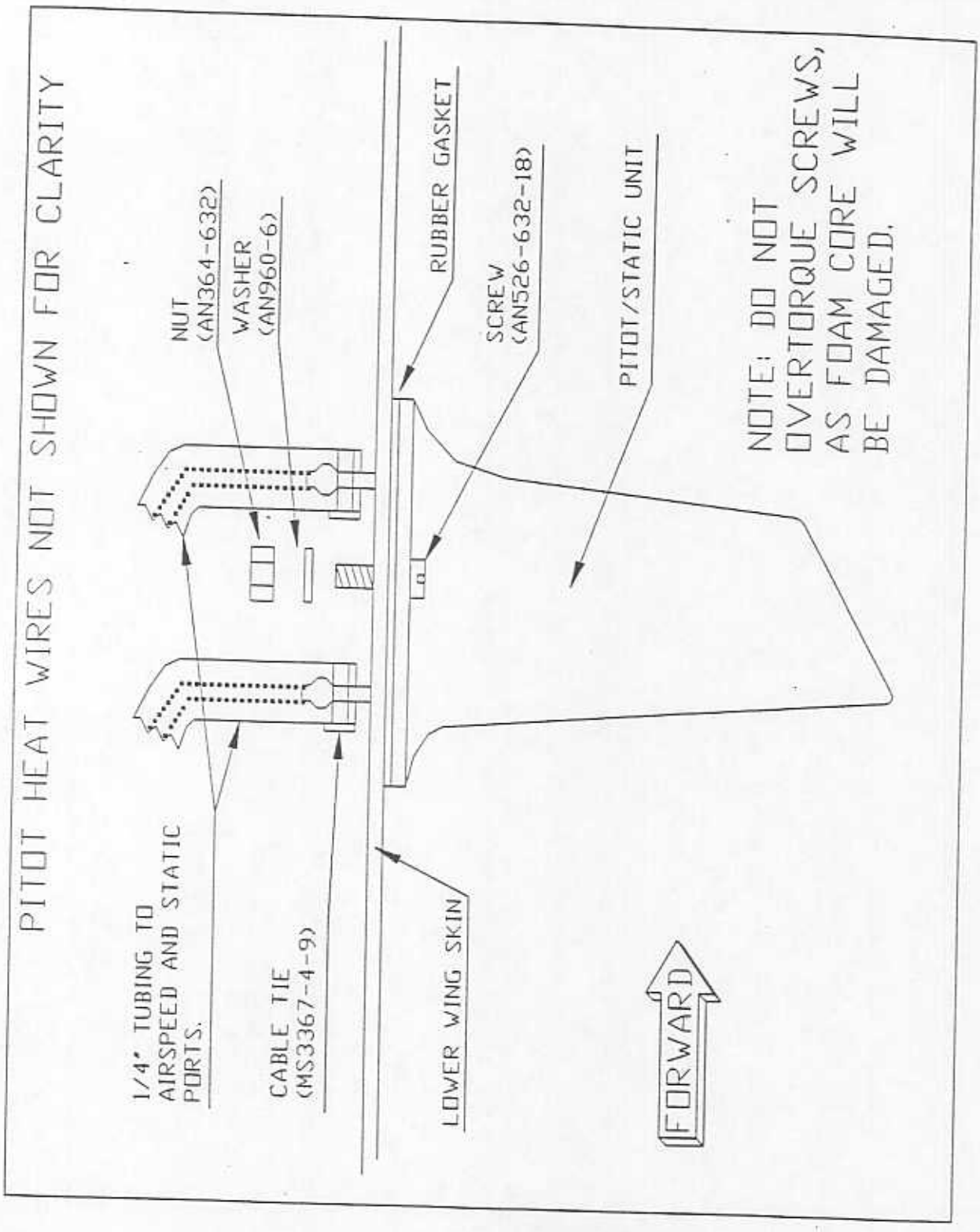


FIGURE 8.010-2

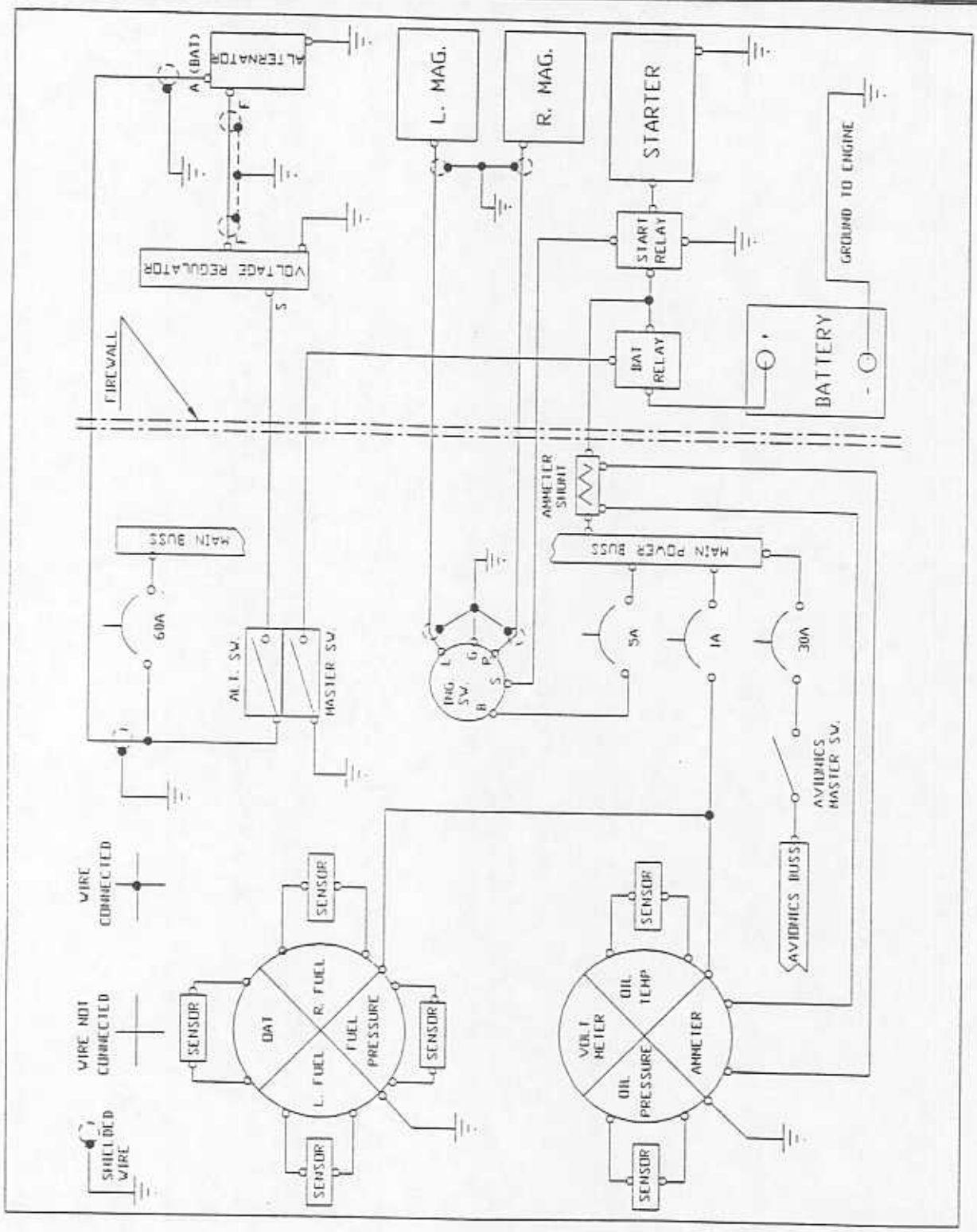


FIGURE 8.020-1

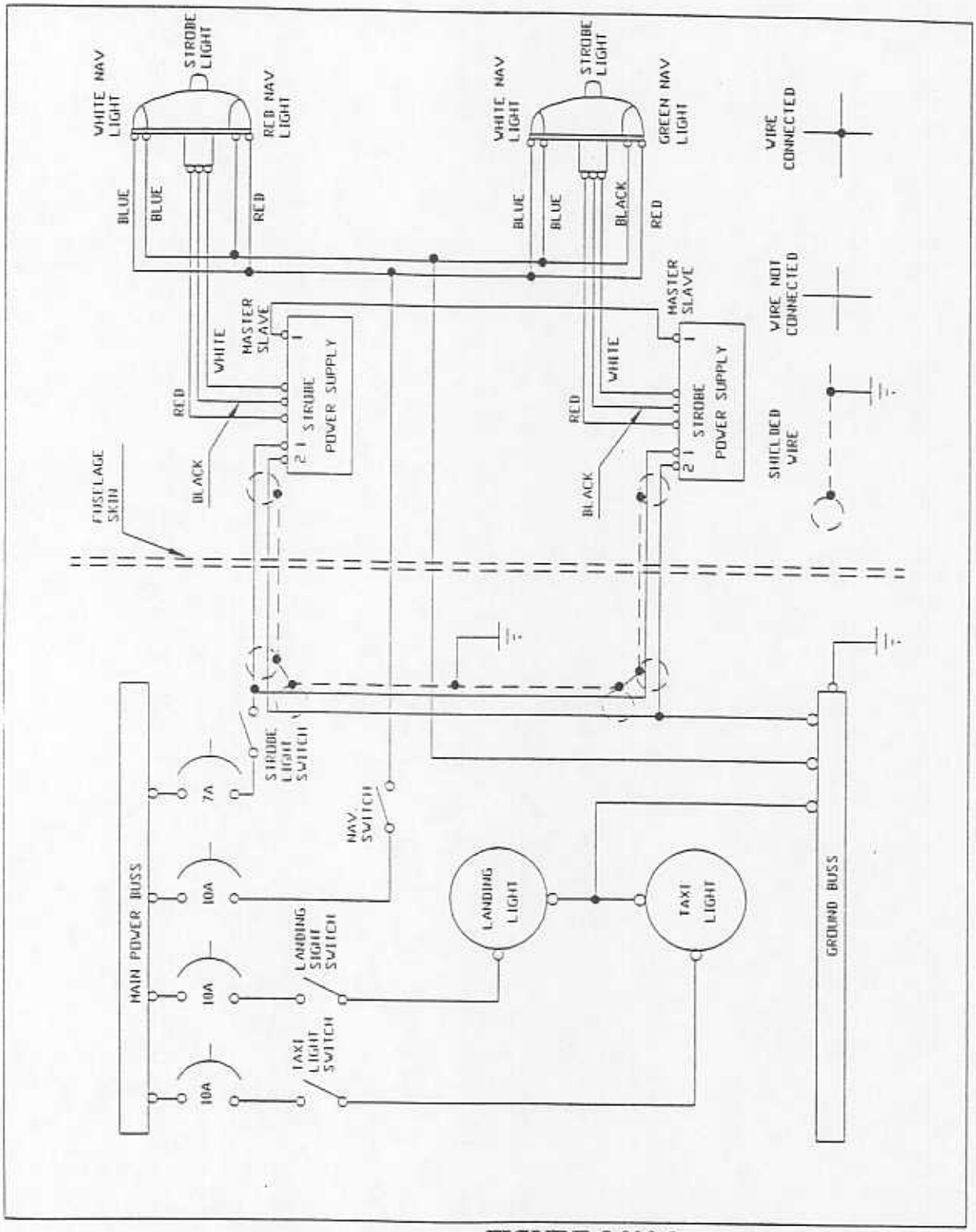


FIGURE 8.020-2

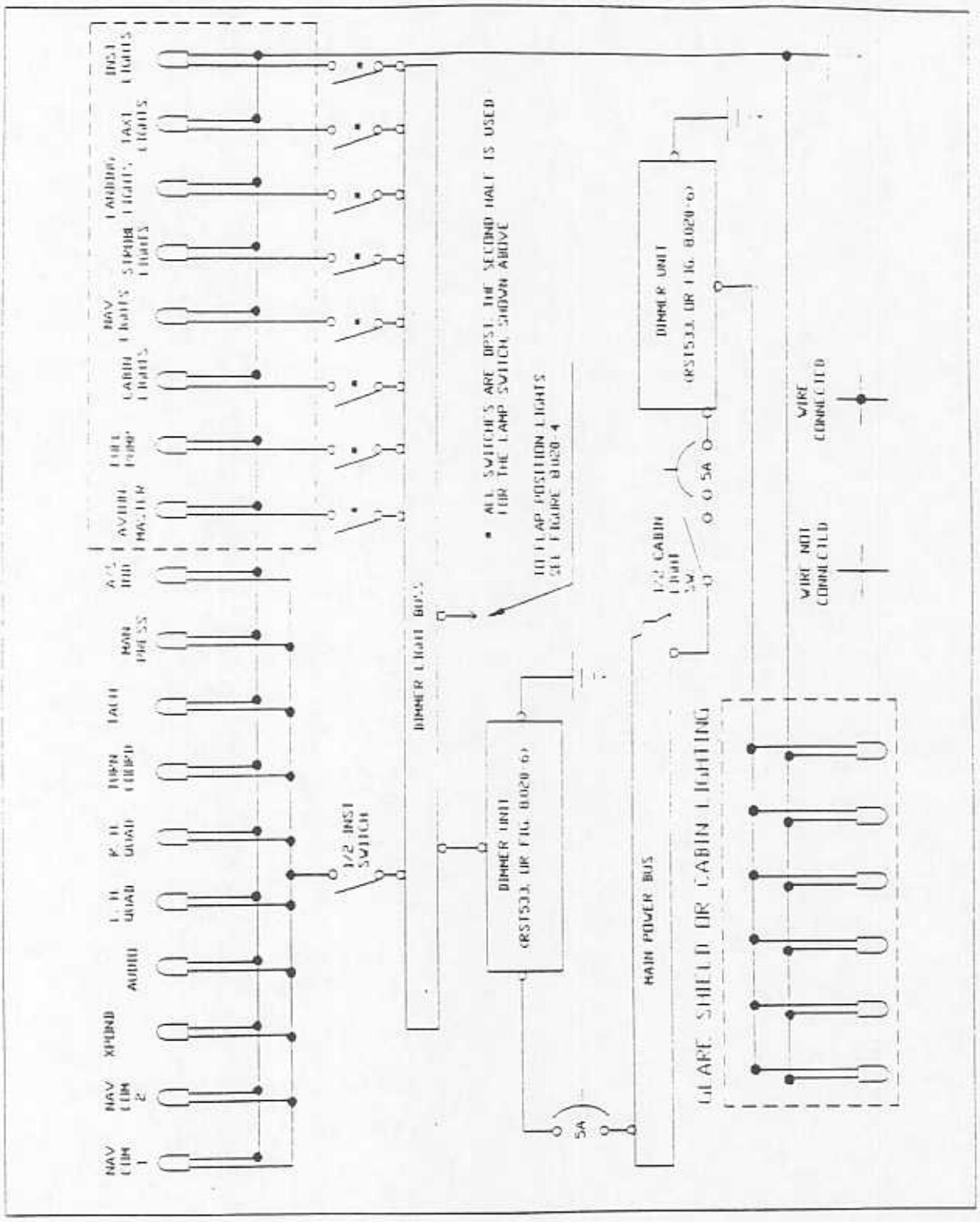


FIGURE 8.020-3

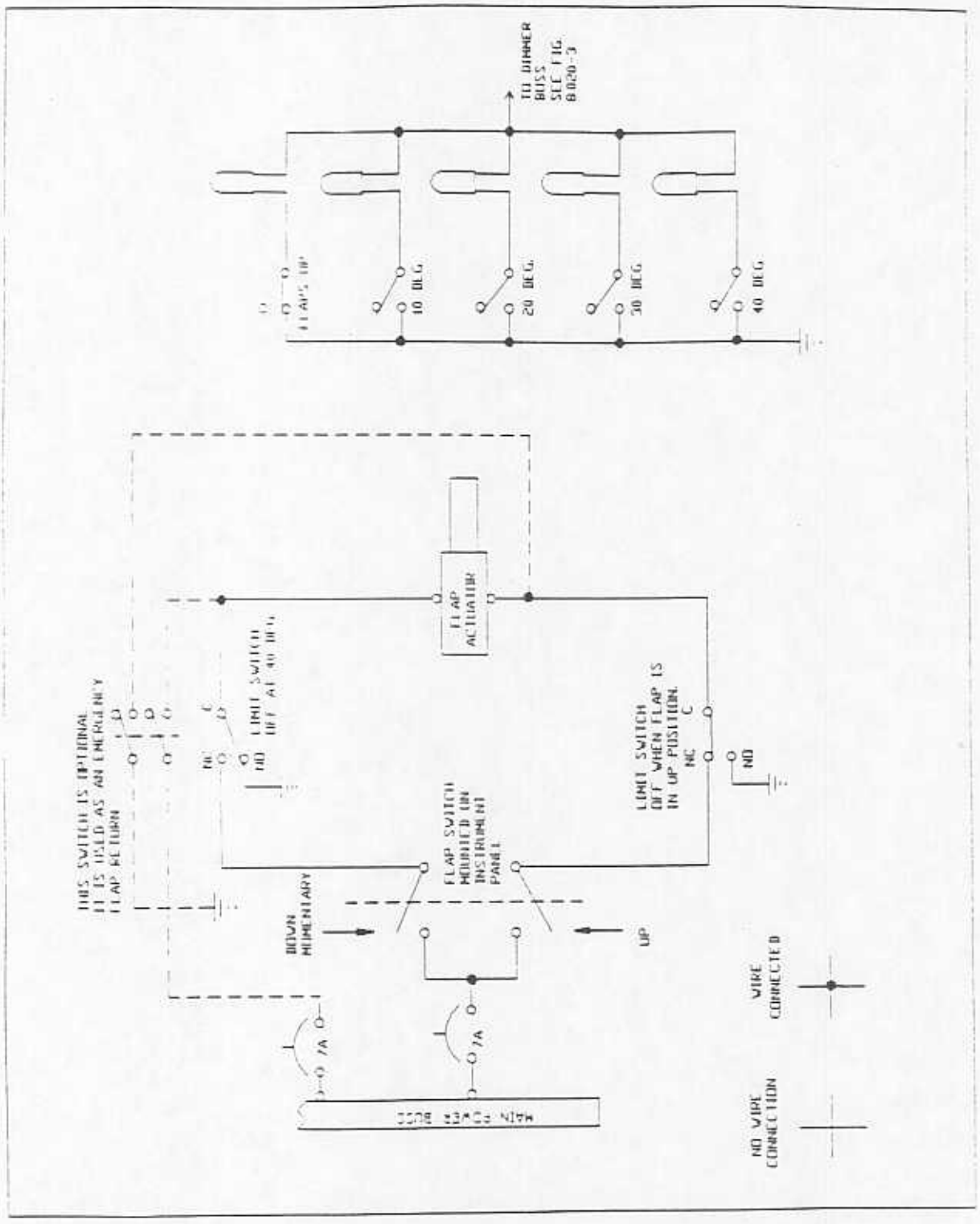


FIGURE 8.020-4

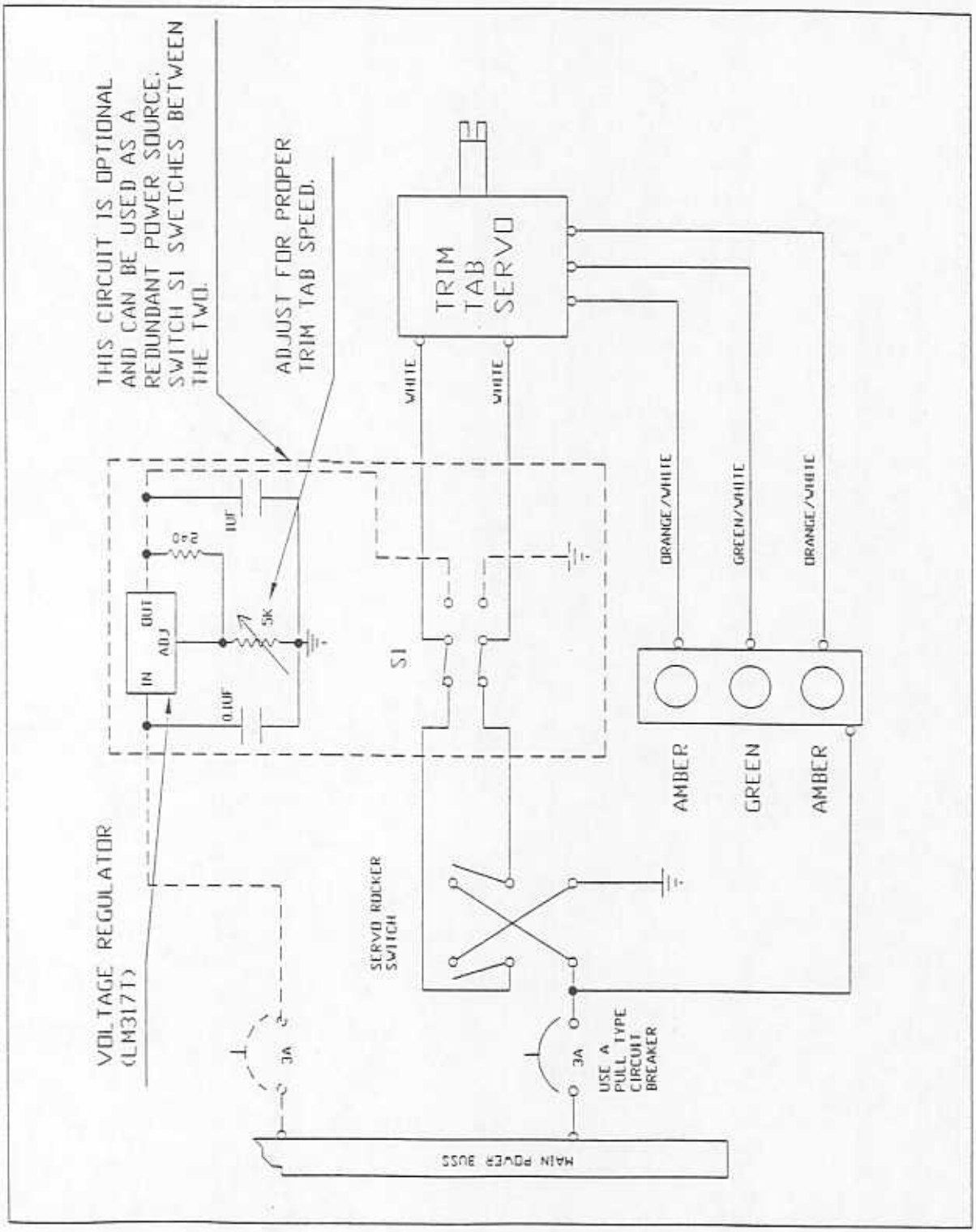


FIGURE 8.020-5

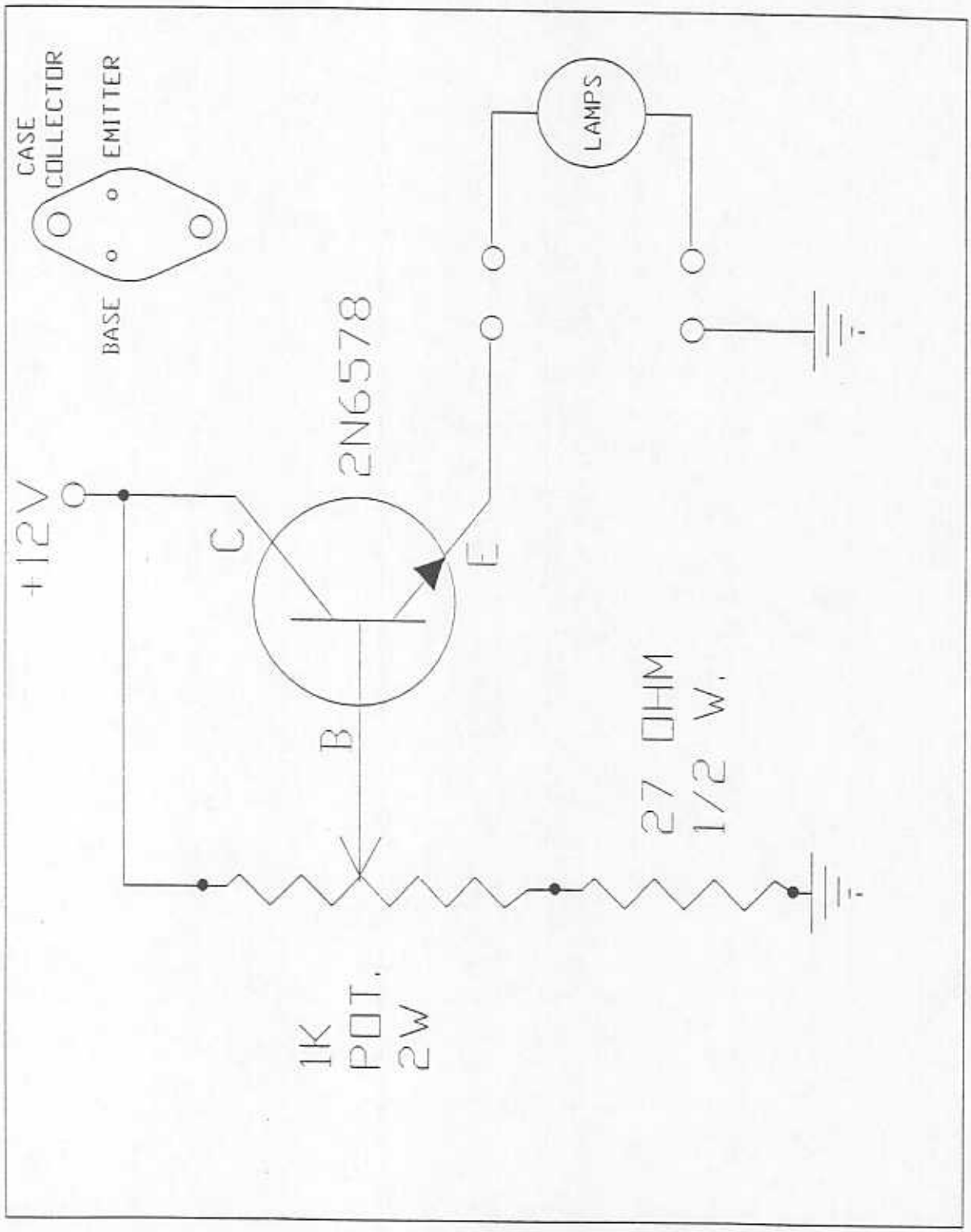


FIGURE 8.020-6

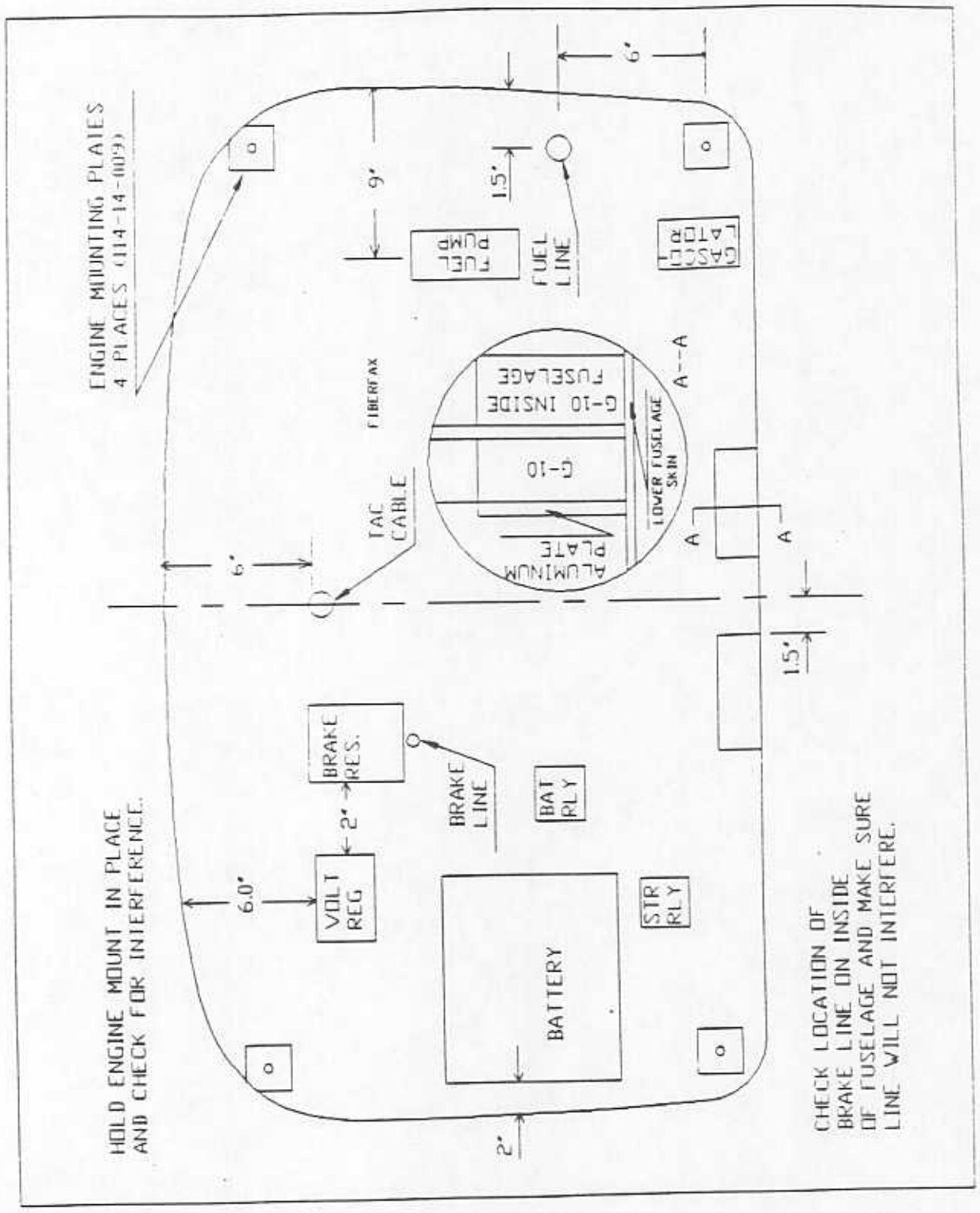


FIGURE 8.100-1

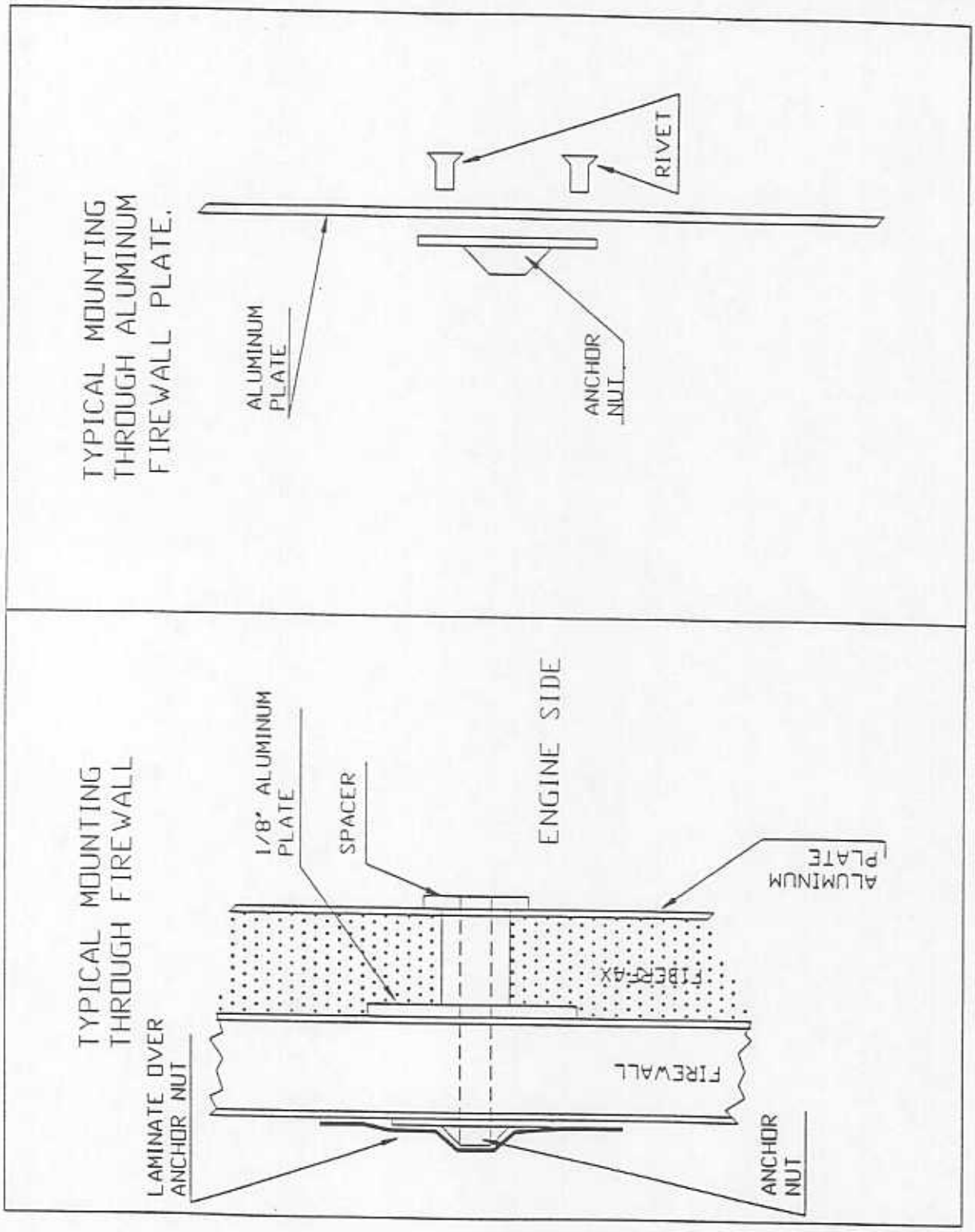


FIGURE 8.100-2

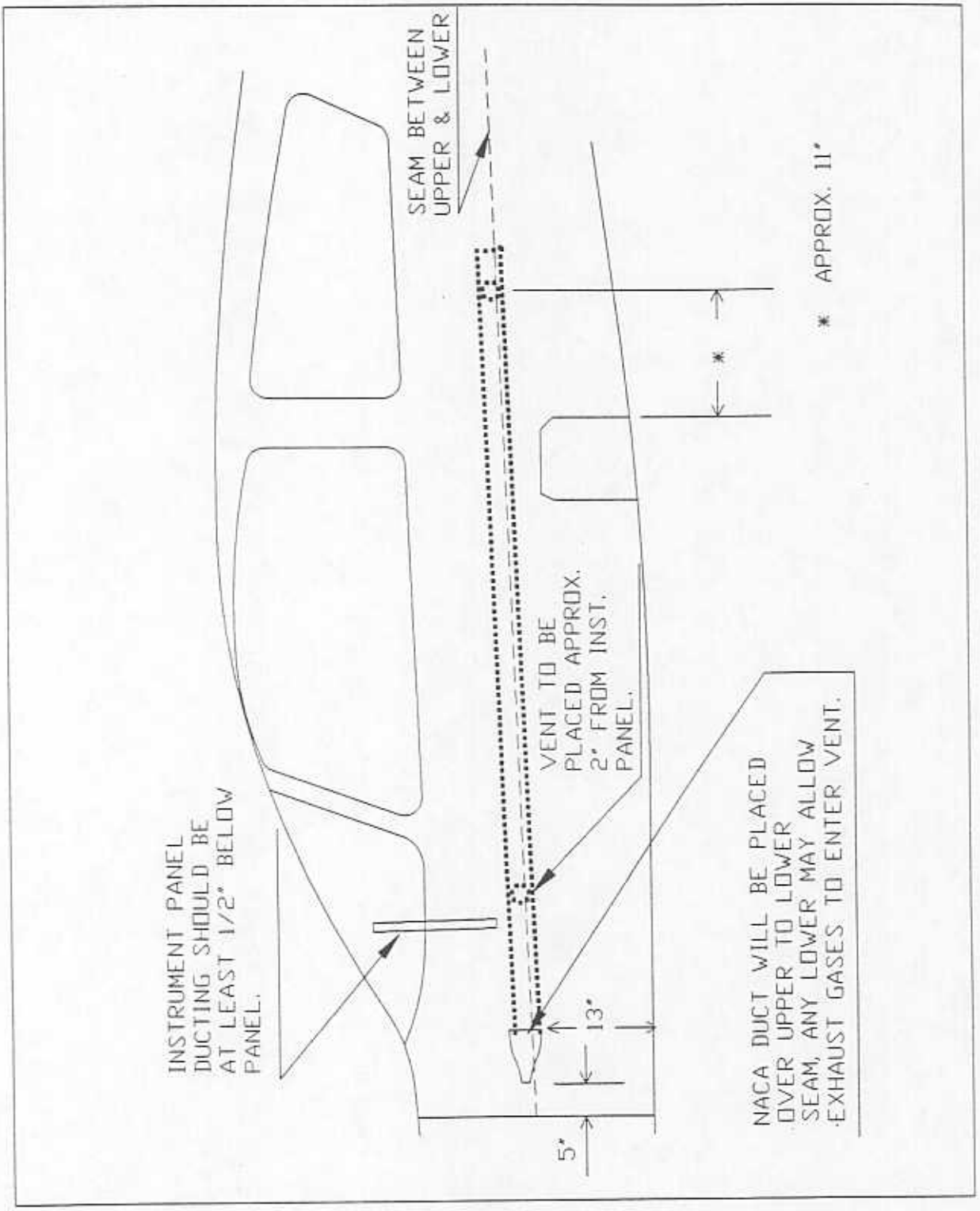


FIGURE 8.120-1

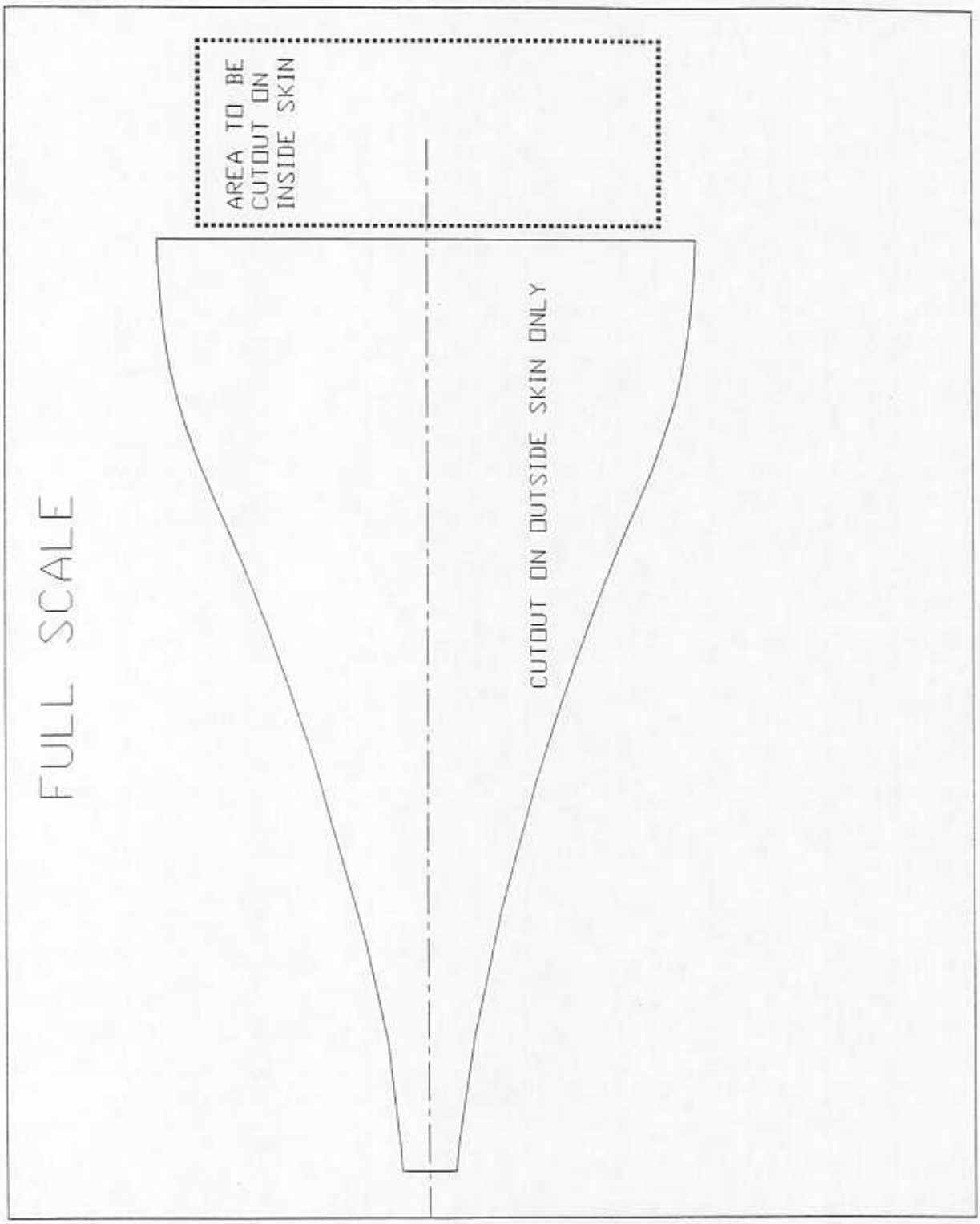


FIGURE 8.120-2

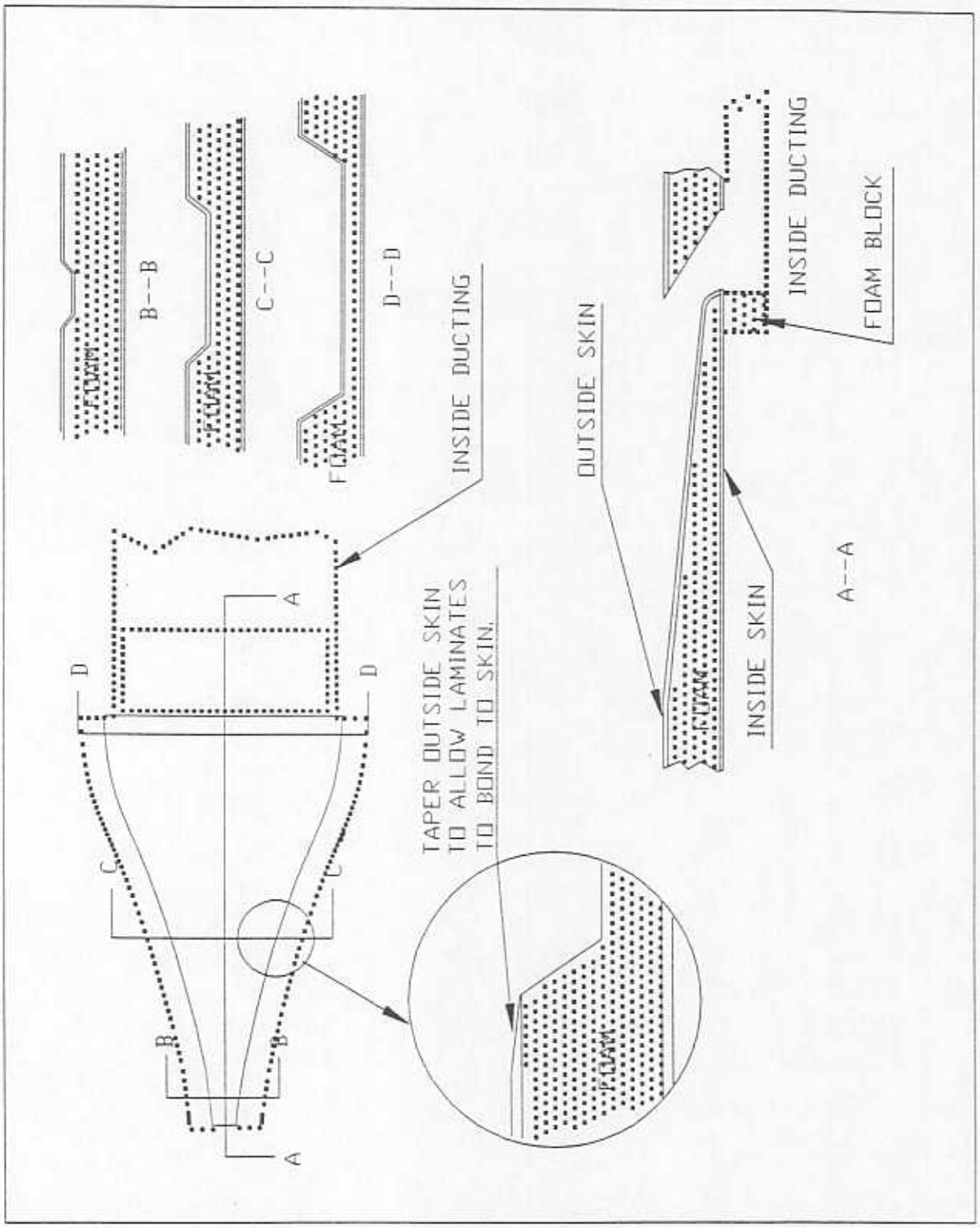
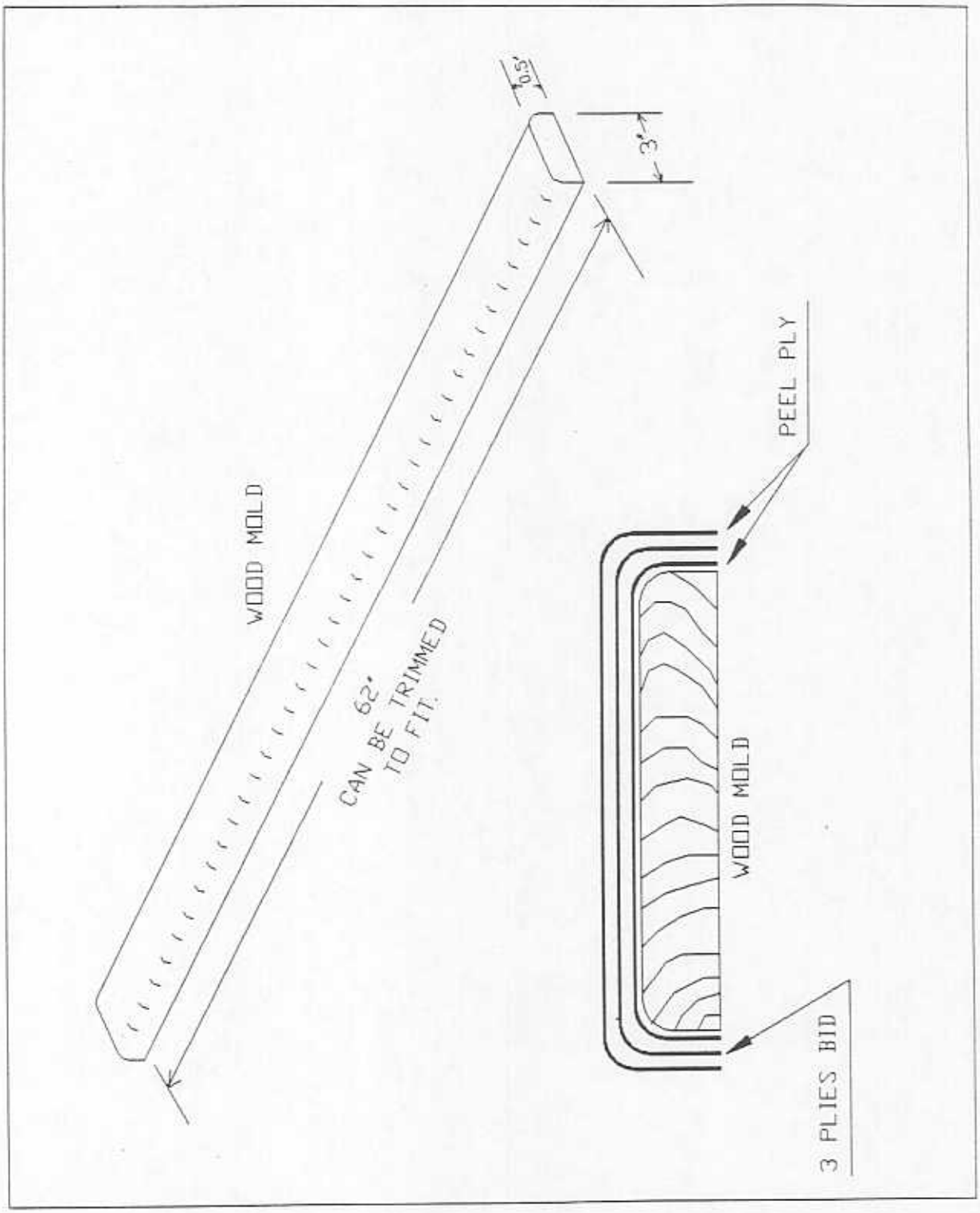


FIGURE 8.120-3


0.5"
3"
WOOD MOLD
62"
CAN BE TRIMMED
TO FIT.
PEEL PLY
WOOD MOLD
3 PLIES BID

8.120-4

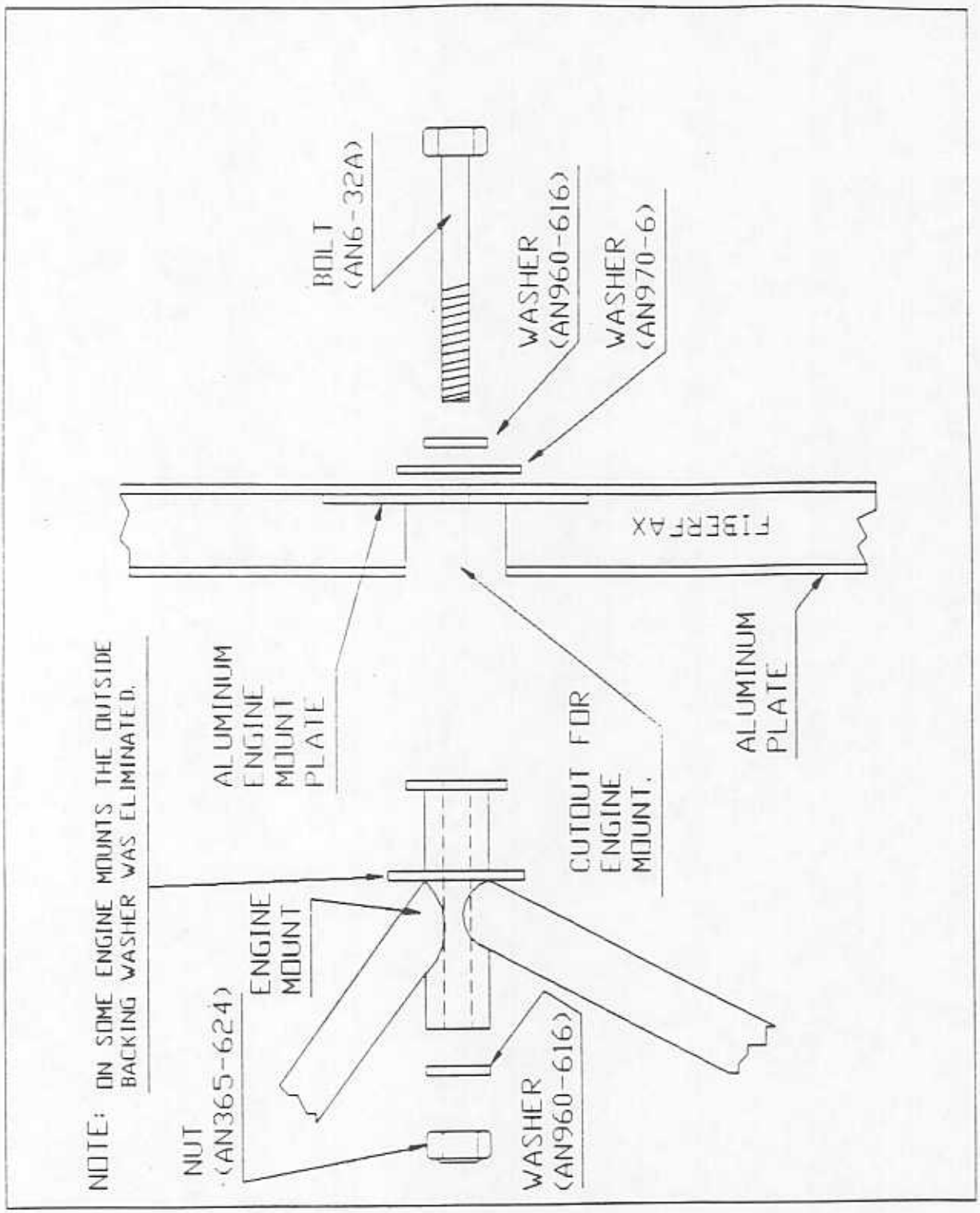


FIGURE 8.140-1

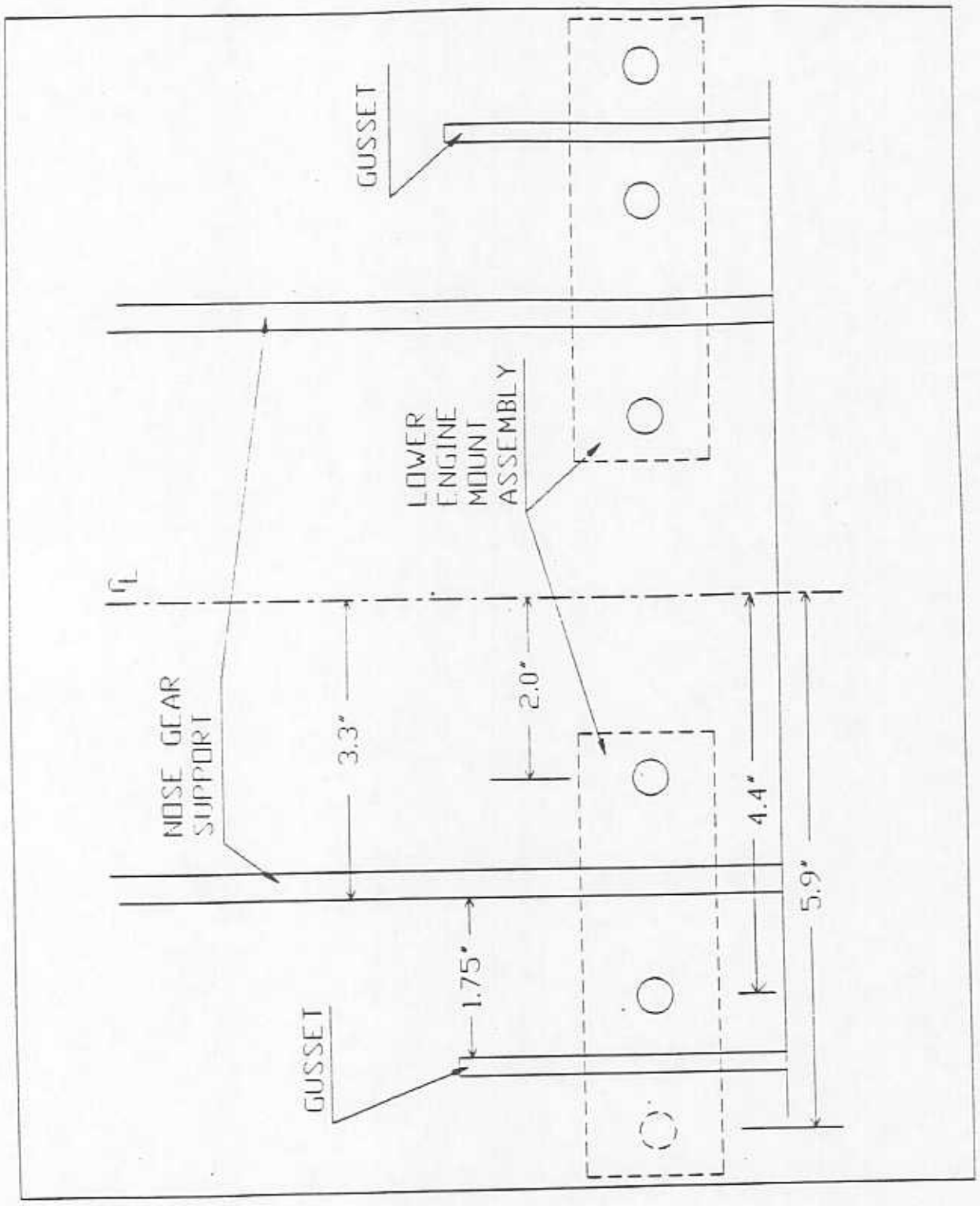


FIGURE 8.140-2

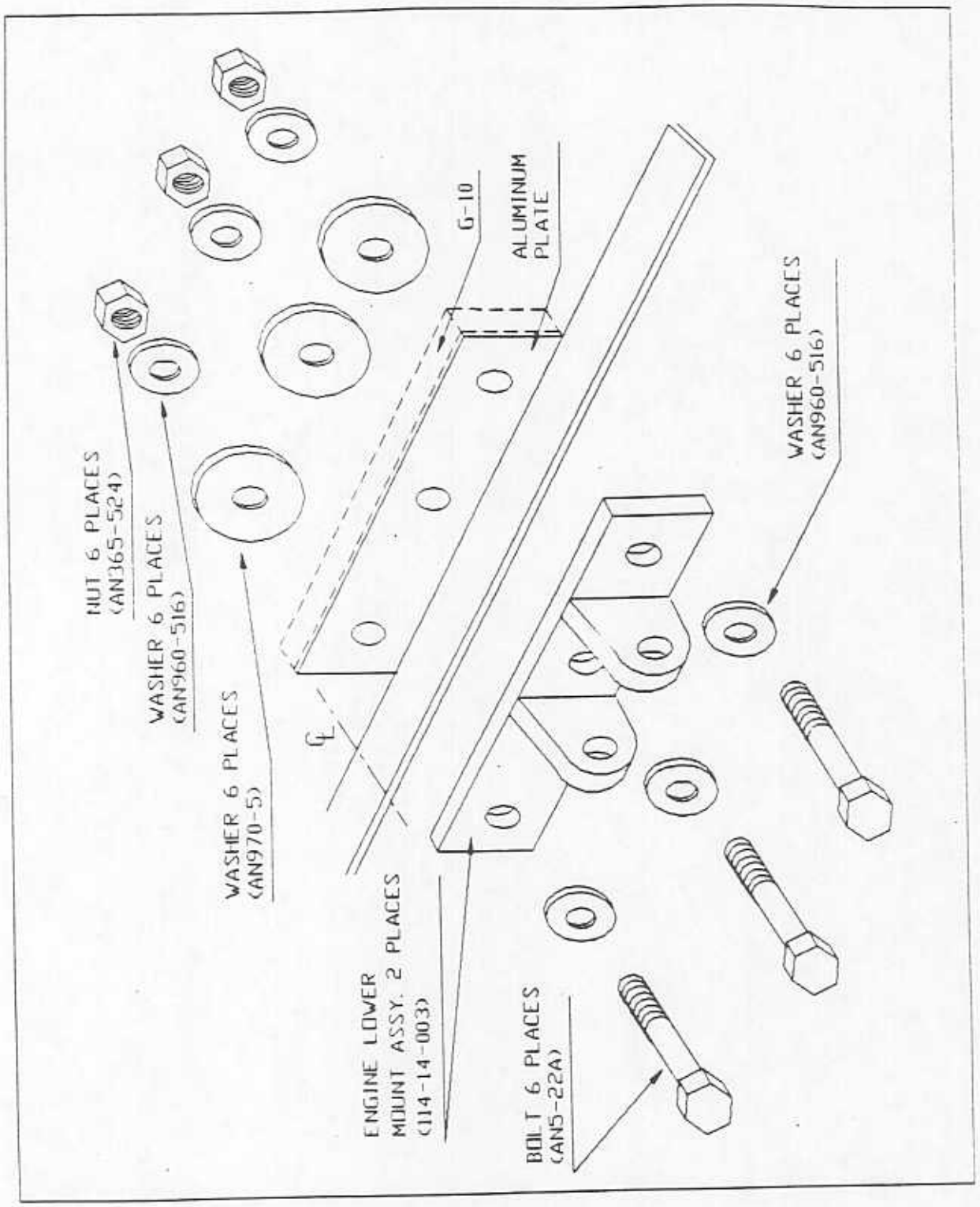


FIGURE 8.140-3

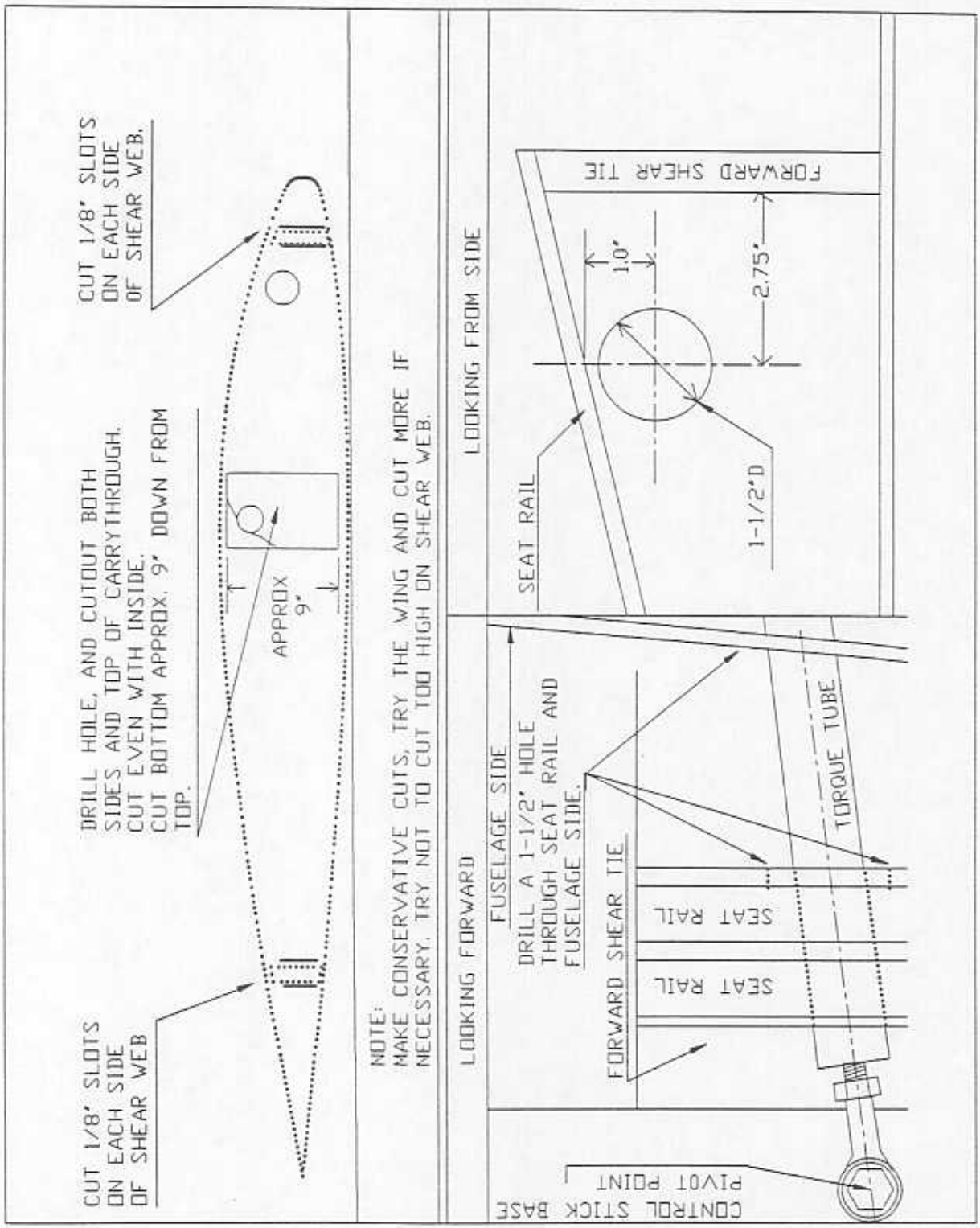


FIGURE 8.300-1

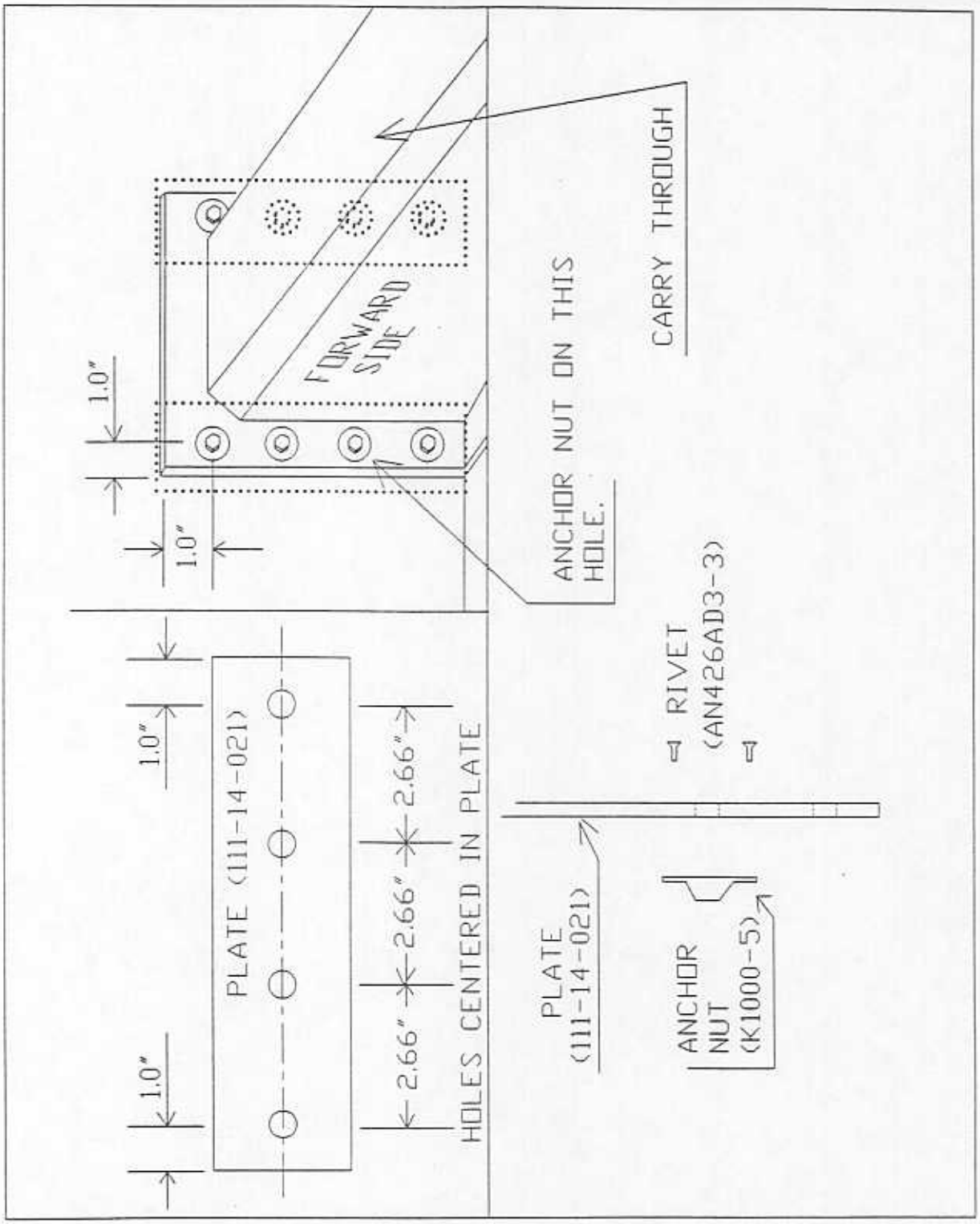


FIGURE 8.300-2

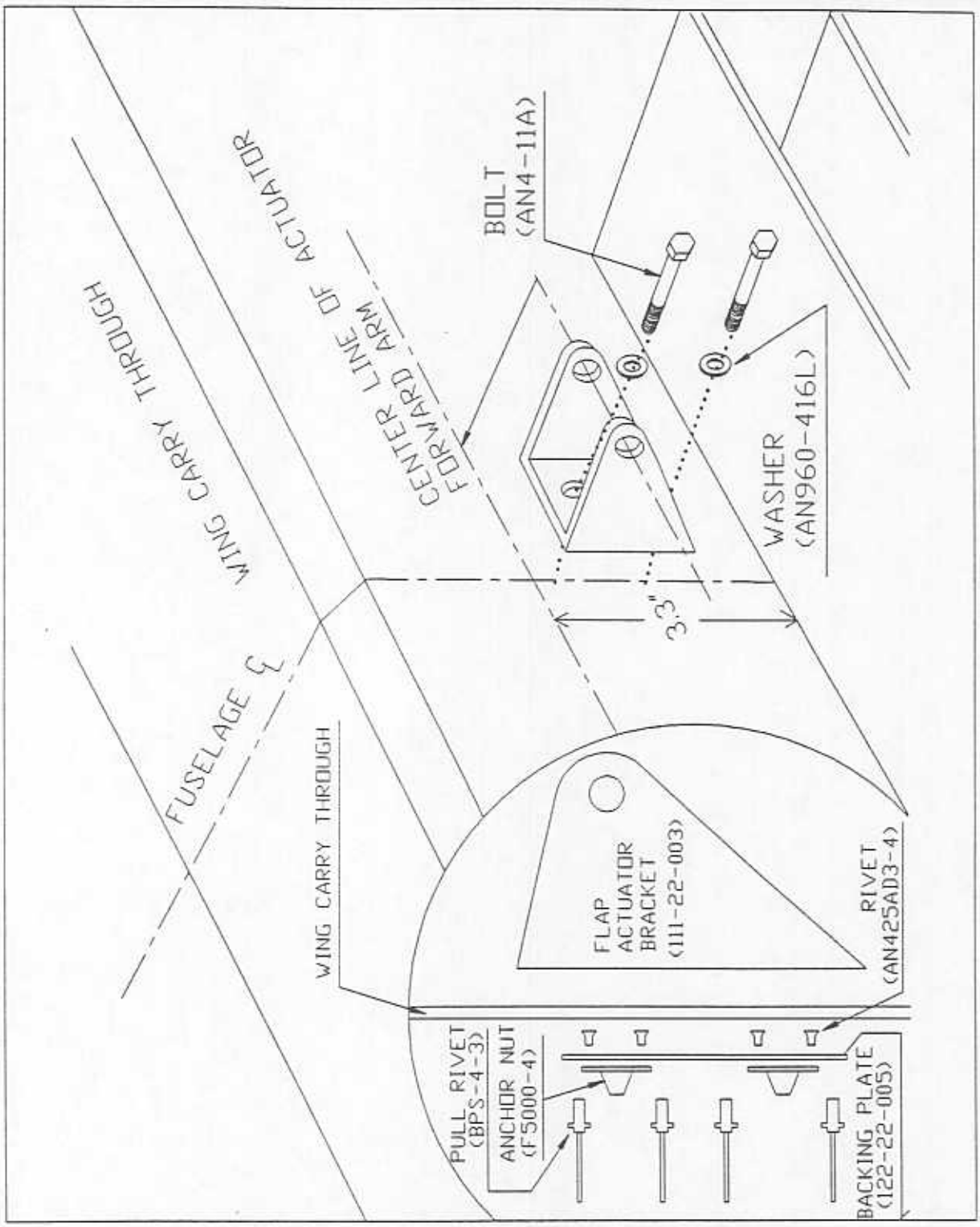


FIGURE 8.300-3

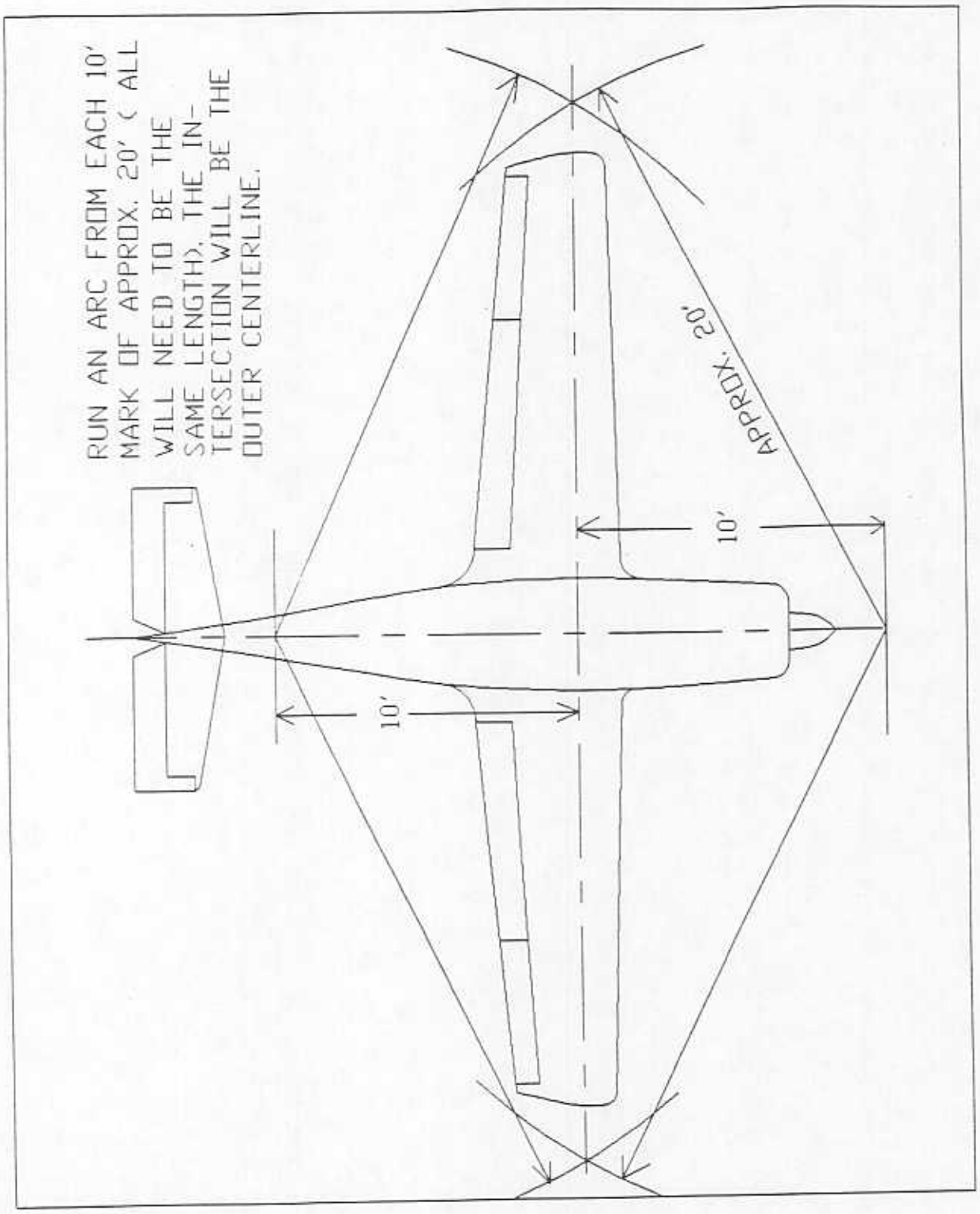


FIGURE 8.300-4

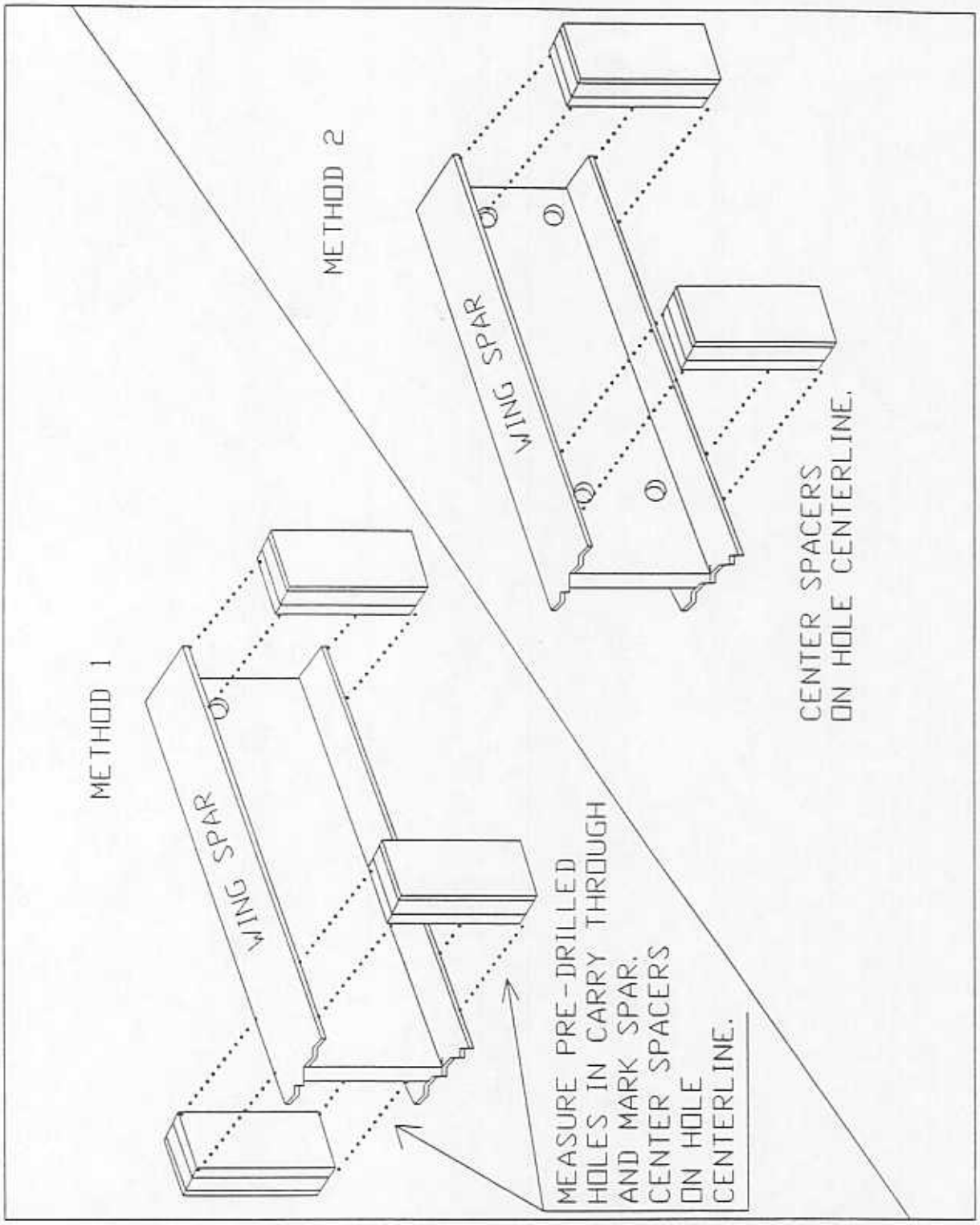


FIGURE 8.300-5

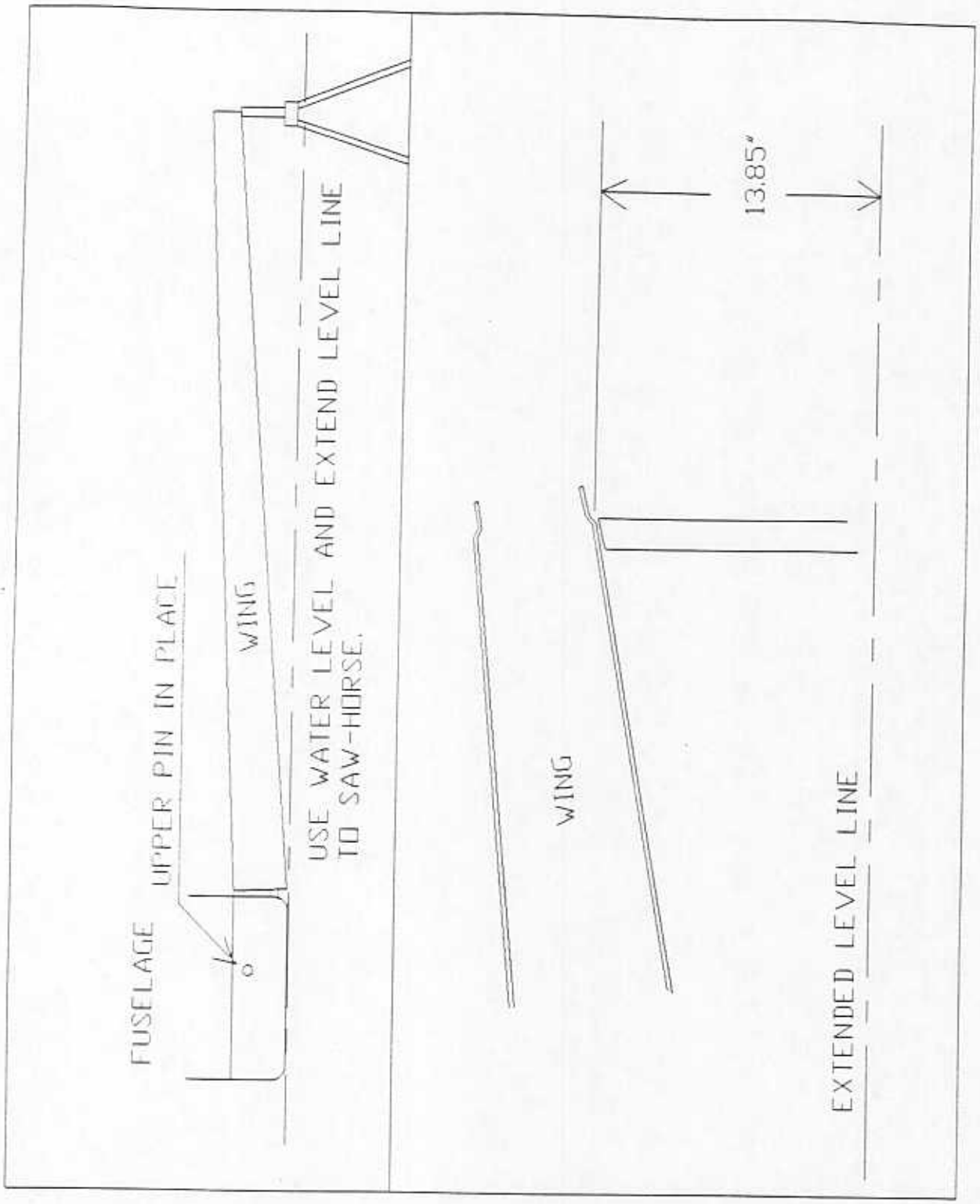


FIGURE 8.300-6

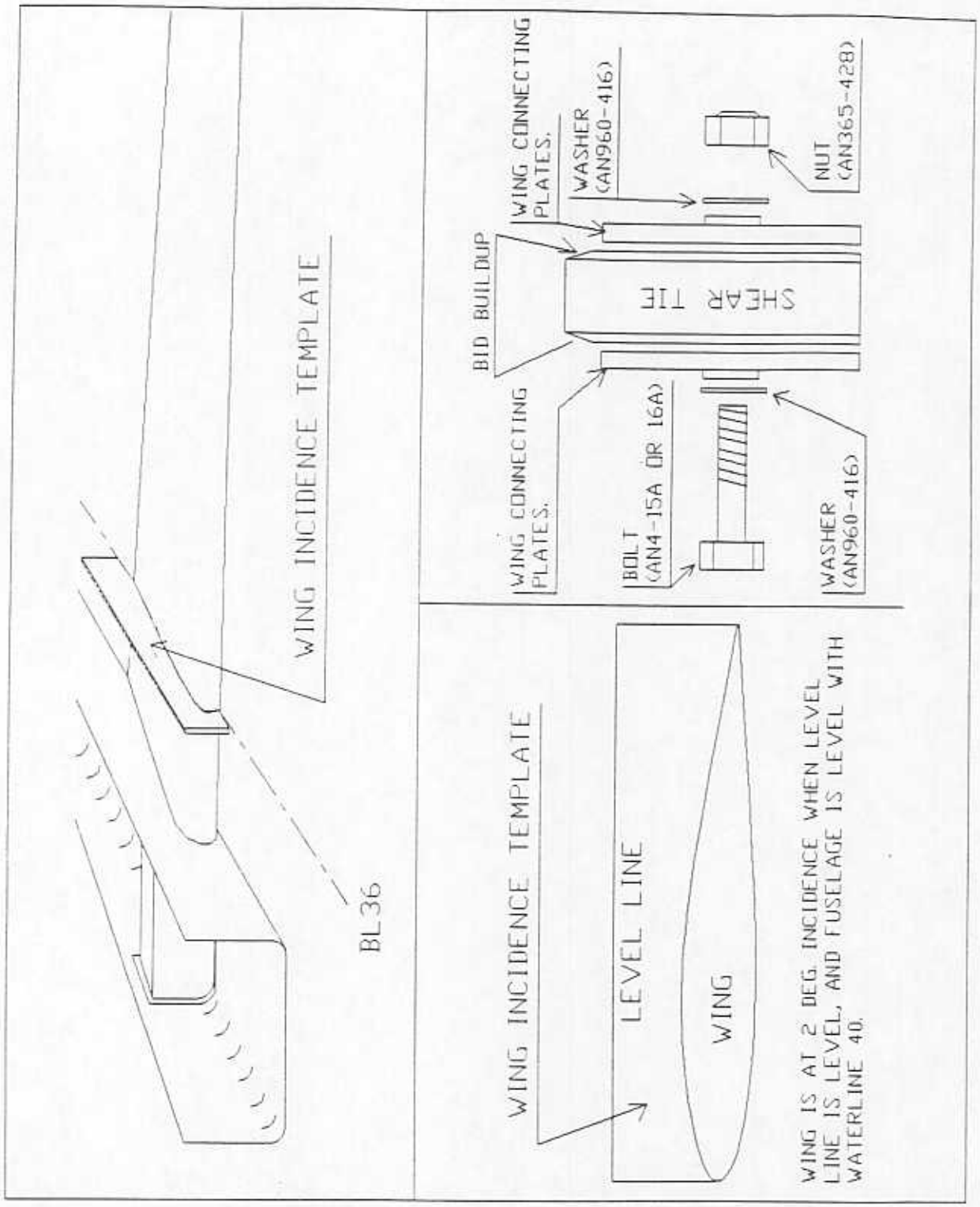


FIGURE 8.300-7

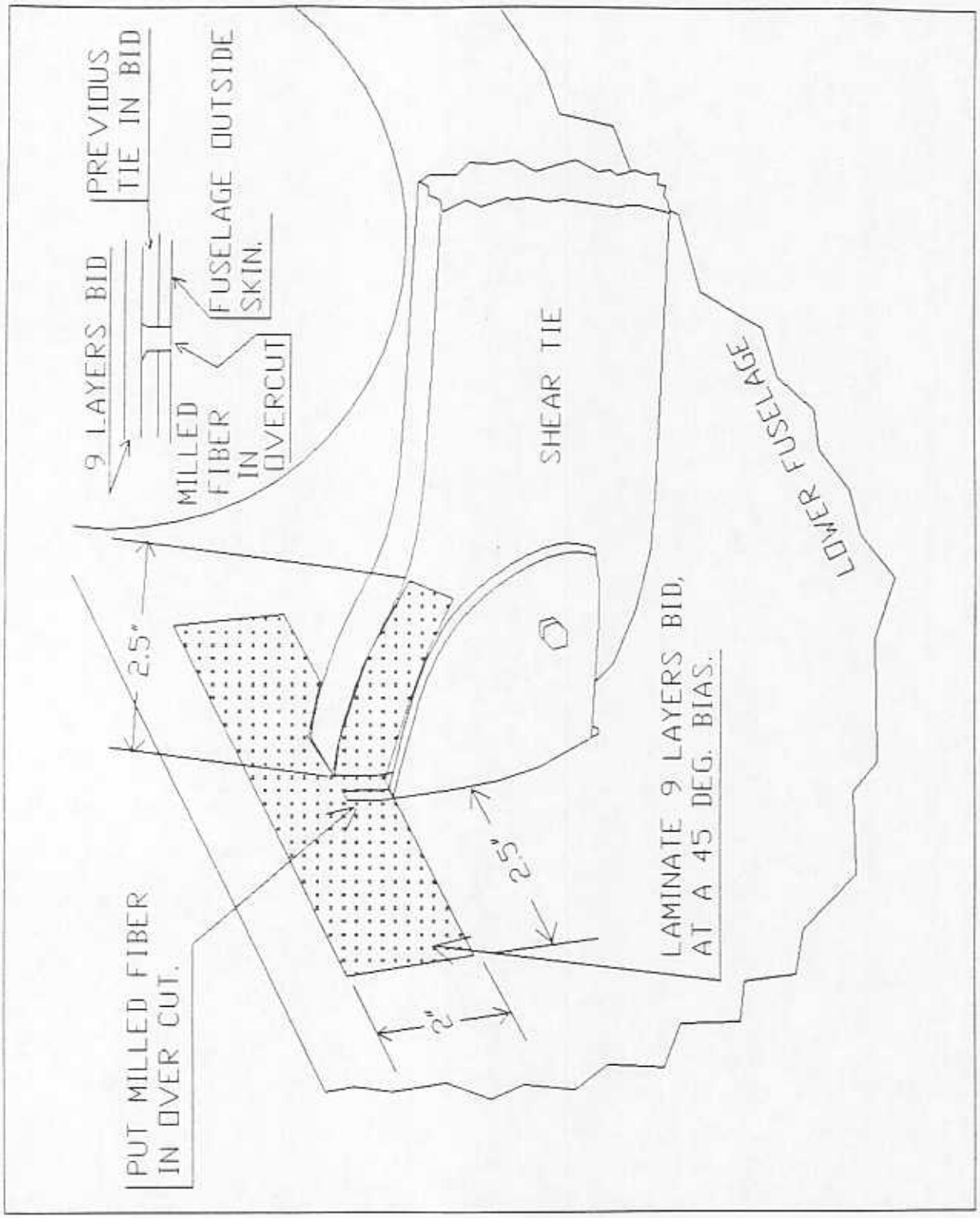


FIGURE 8.300-8

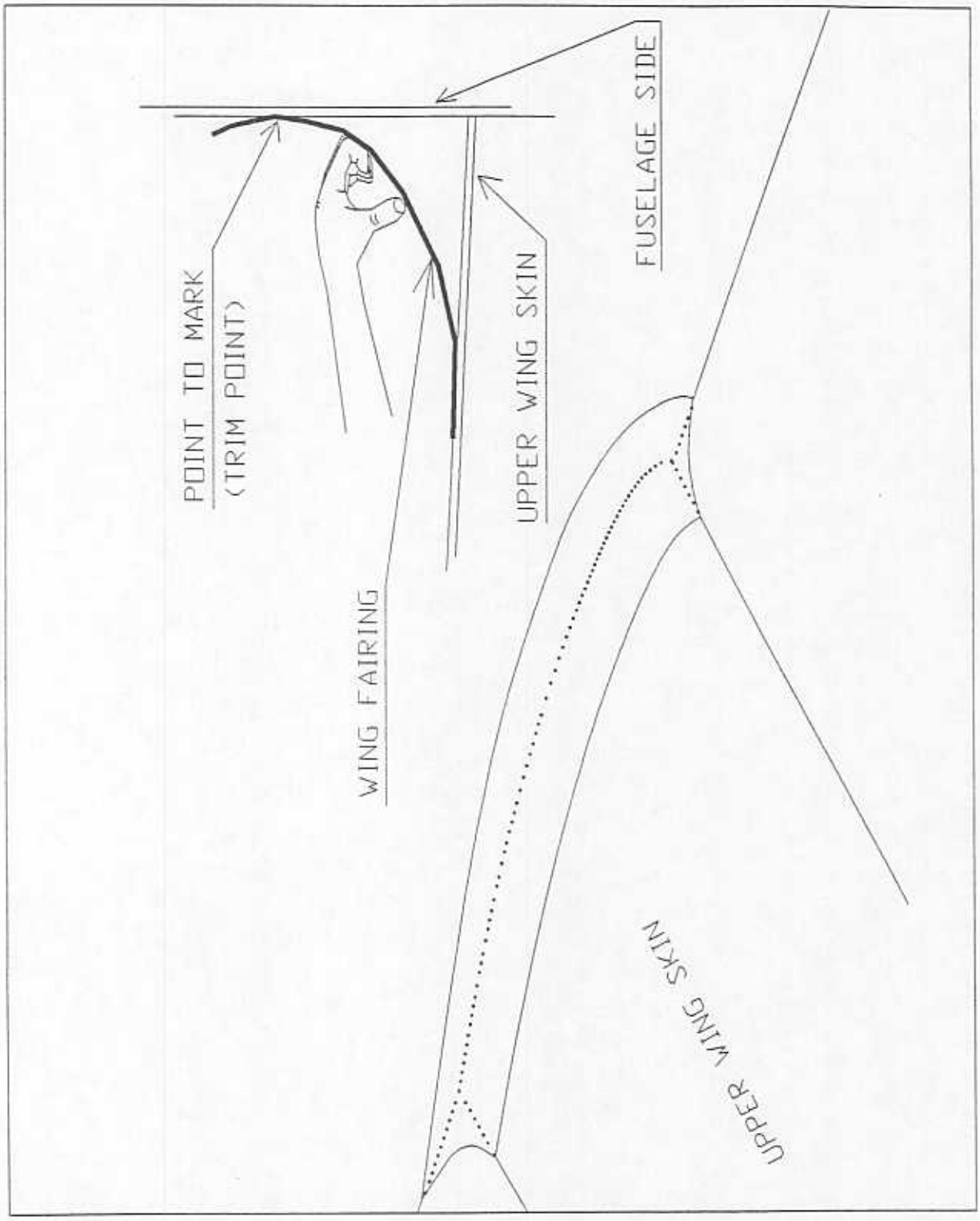


FIGURE 8.340-1

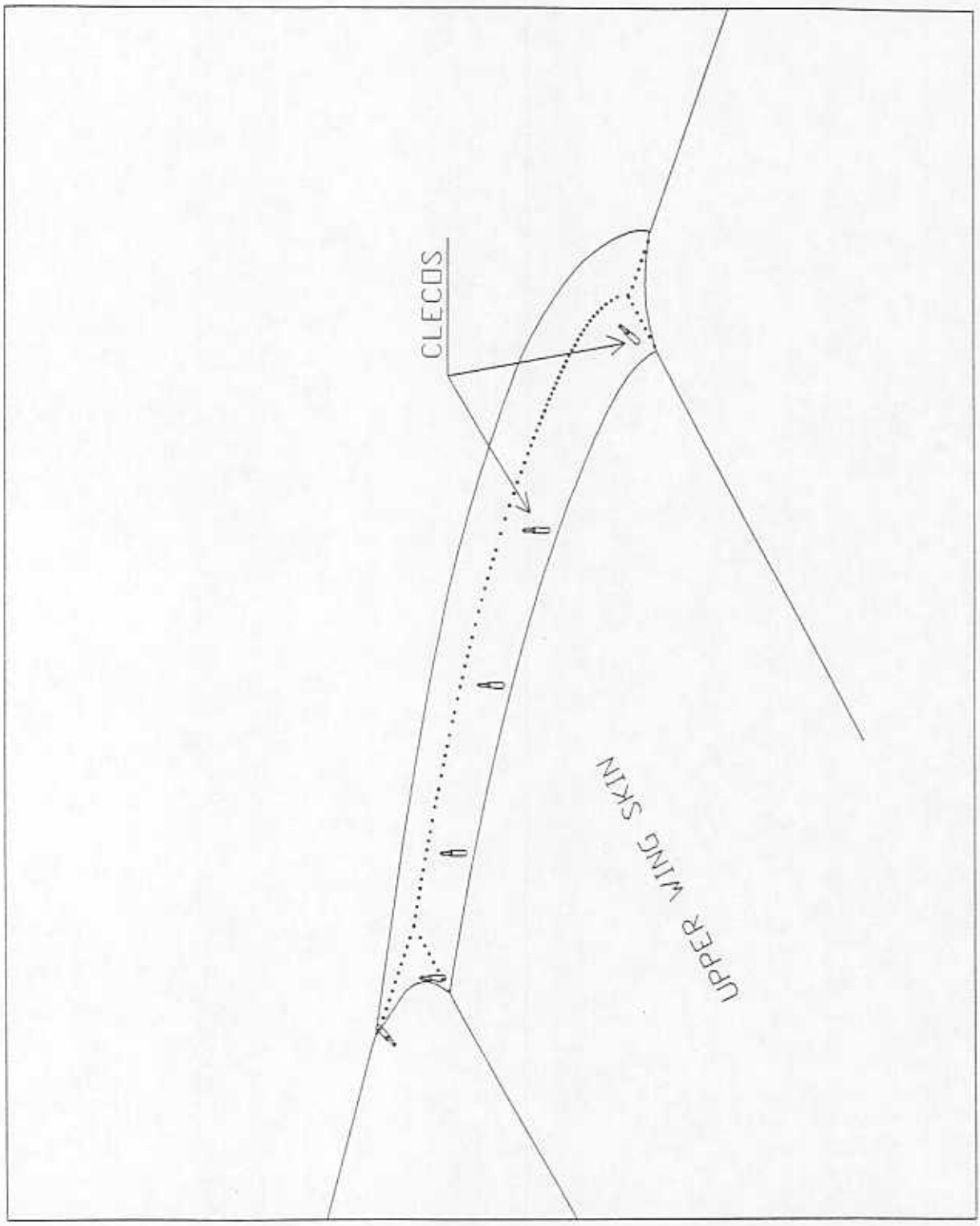


FIGURE 8.340-2

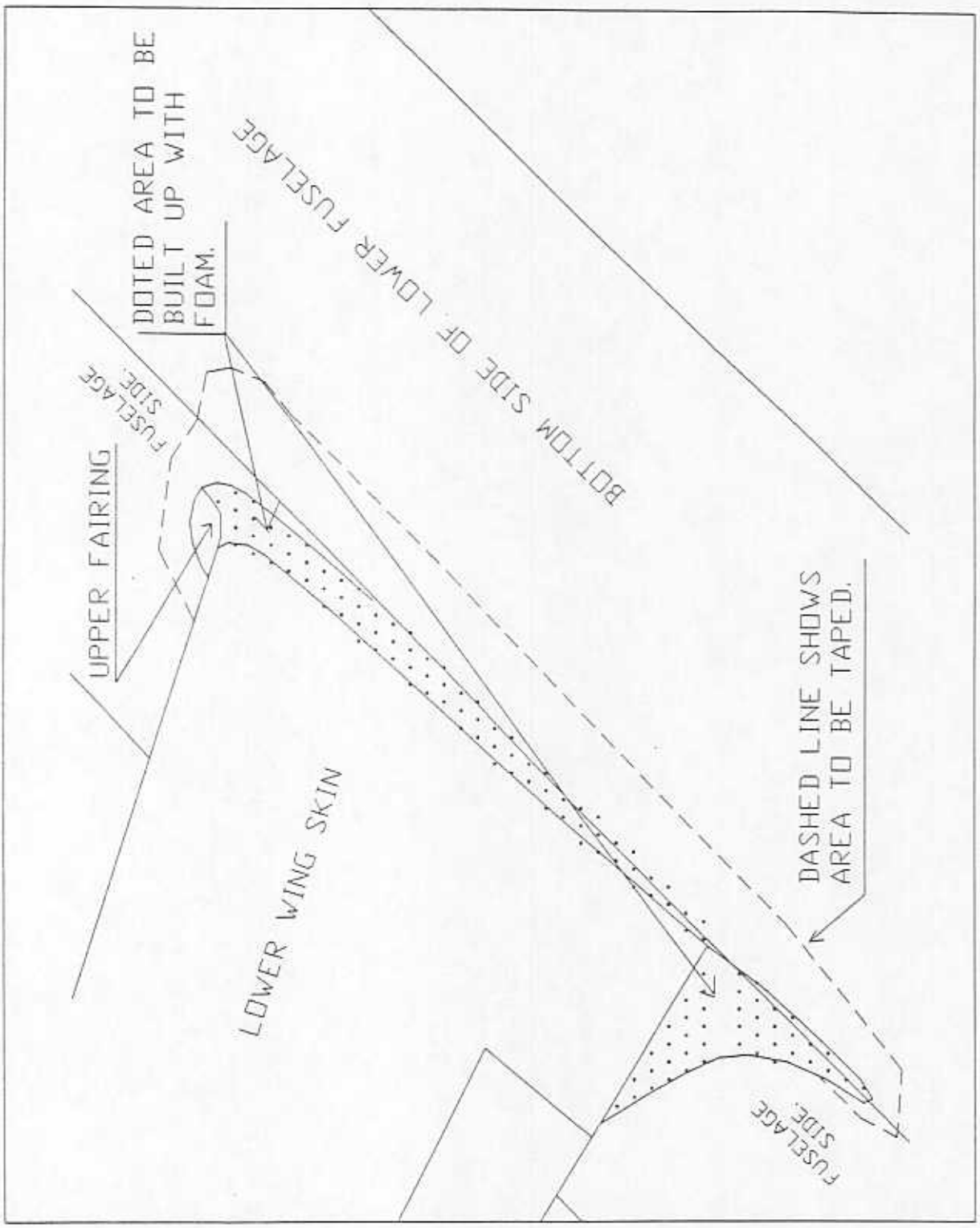


FIGURE 8.340-3

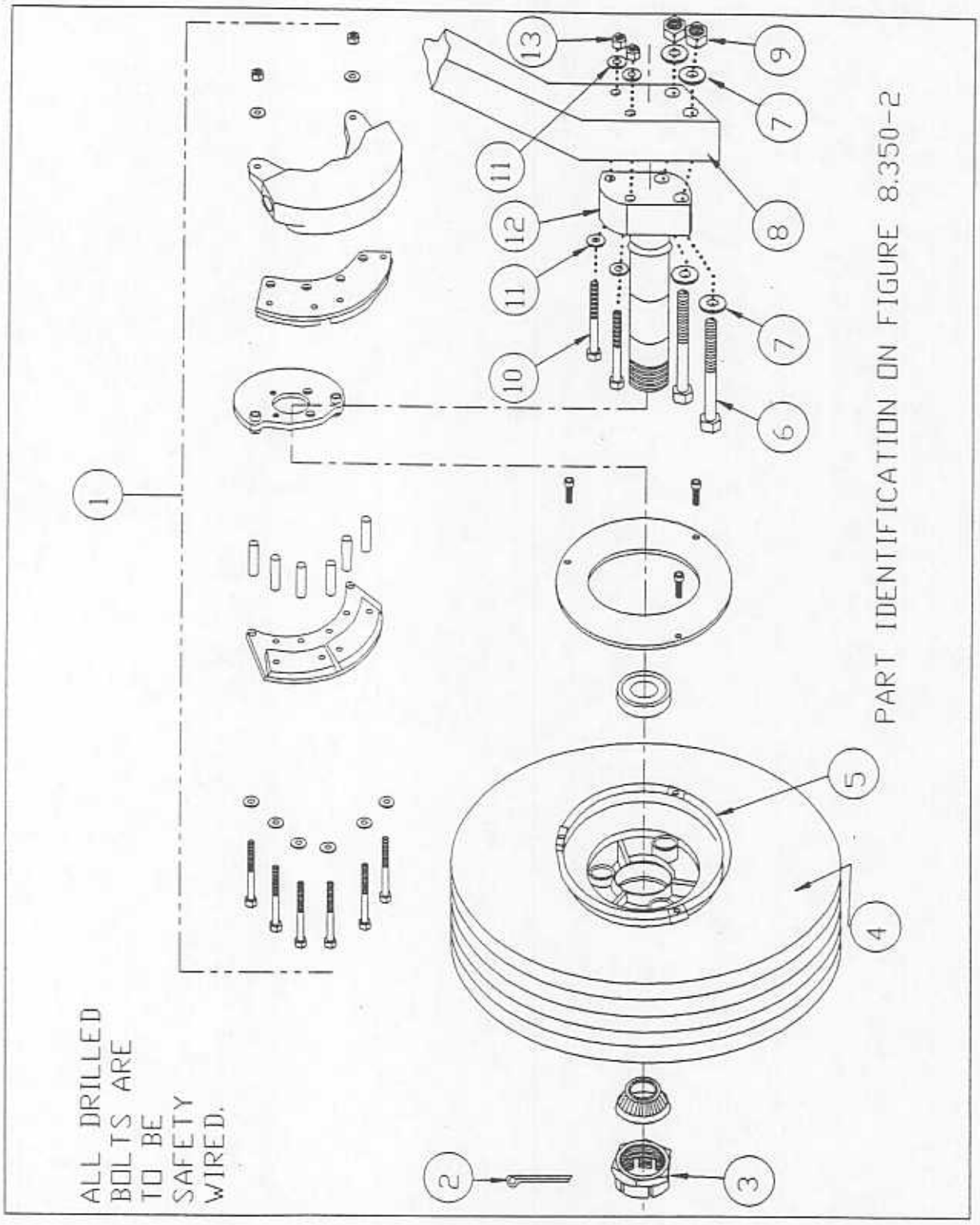
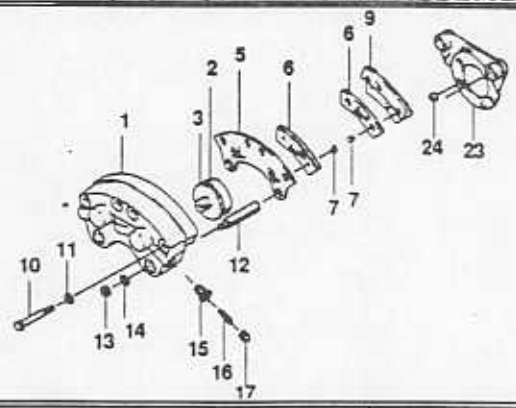


FIGURE 8.350-1

PARTS LIST FOR FIGURE 8.350-1

FIGURE	PART NUMBER	DESCRIPTION	QUANTITY
1	30-52	Brake Assembly (See Figure 8350-2A)	4
2	.125X2 Cotterpin	Cotter Pin Zinc	1
3	MS21025-24	Axle Nut, 1.50X16	1
4	15X6.00 6-6	Tire	1
5	40-75B	Wheel Assembly (See Figure 8.350-2B)	1
6	AN6-21A	Bolt (Torque to 170 +/- 1 Ft. Lbs.)	2
7	AN960-624	Washer	4
8	115-13-100	Leg, Main Gear	1
9	AN365-624	Nut	2
10	AN5-20A	Bolt (Torque to 110 +/- 10 Ft. Lbs.)	2
11	AN960-516	Washer	4
12	A6	Axle, 1.5X6.50, W600	1
13	AN365-524	Nut	2

FIGURE 8.350-2

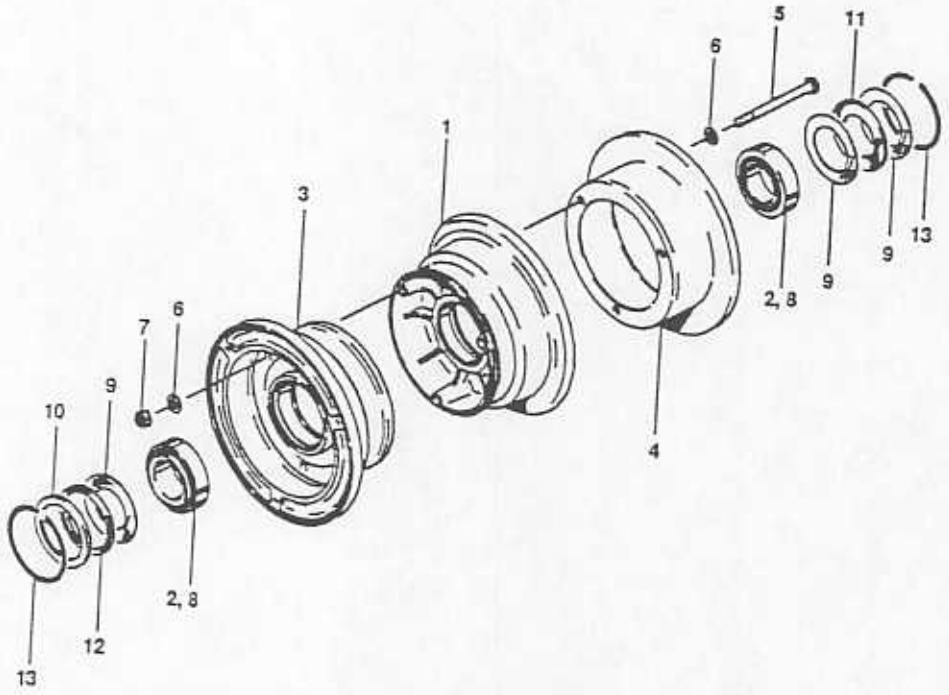


BRAKE ASSEMBLY 30-52

FIGURE	PART NUMBER	DESCRIPTION	QUANTITY
1	91-21	Cylinder Assembly	1
2	62-15	Piston	2
3	101-27	O-Ring (MS28775-222)	2
4	73-10	Press Plate Assembly	1
5	63-11	Plate-Press	1
6	66-105	Lining	2
7	105-2	Rivet (#561)	4
8	74-10	Back Plate Assembly	2
9	64-15	Plate-Back	2
6	66-105	Lining	2
7	105-2	Rivet (#561)	4
10	103-118	Bolt	4
11	95-104	Washer (AN960-416)	4
12	69-4	Bolt-Anchor	2
13	94-103	Nut-(AN365-428)	2
14	95-102	Washer	2
15	81-1	Seat-Bleeder	1
16	79-3	Screw-Bleeder	1
17	183-1	Cap-Bleeder	1
23	75-15	Torque Plate Assembly	1
24	145-10	Bushing	2

NOTE: When reordering specify LH or RH

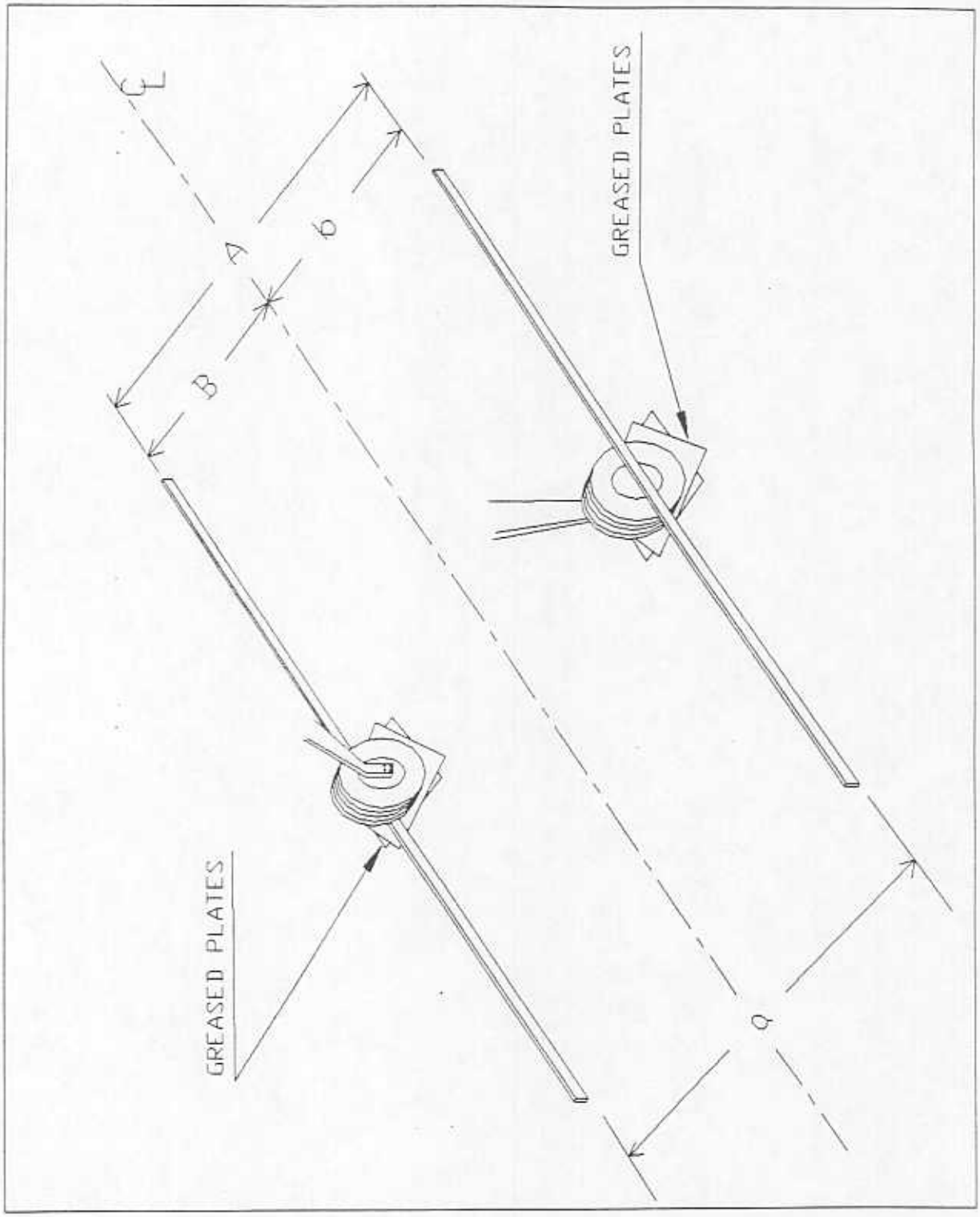
FIGURE 8.350-2A



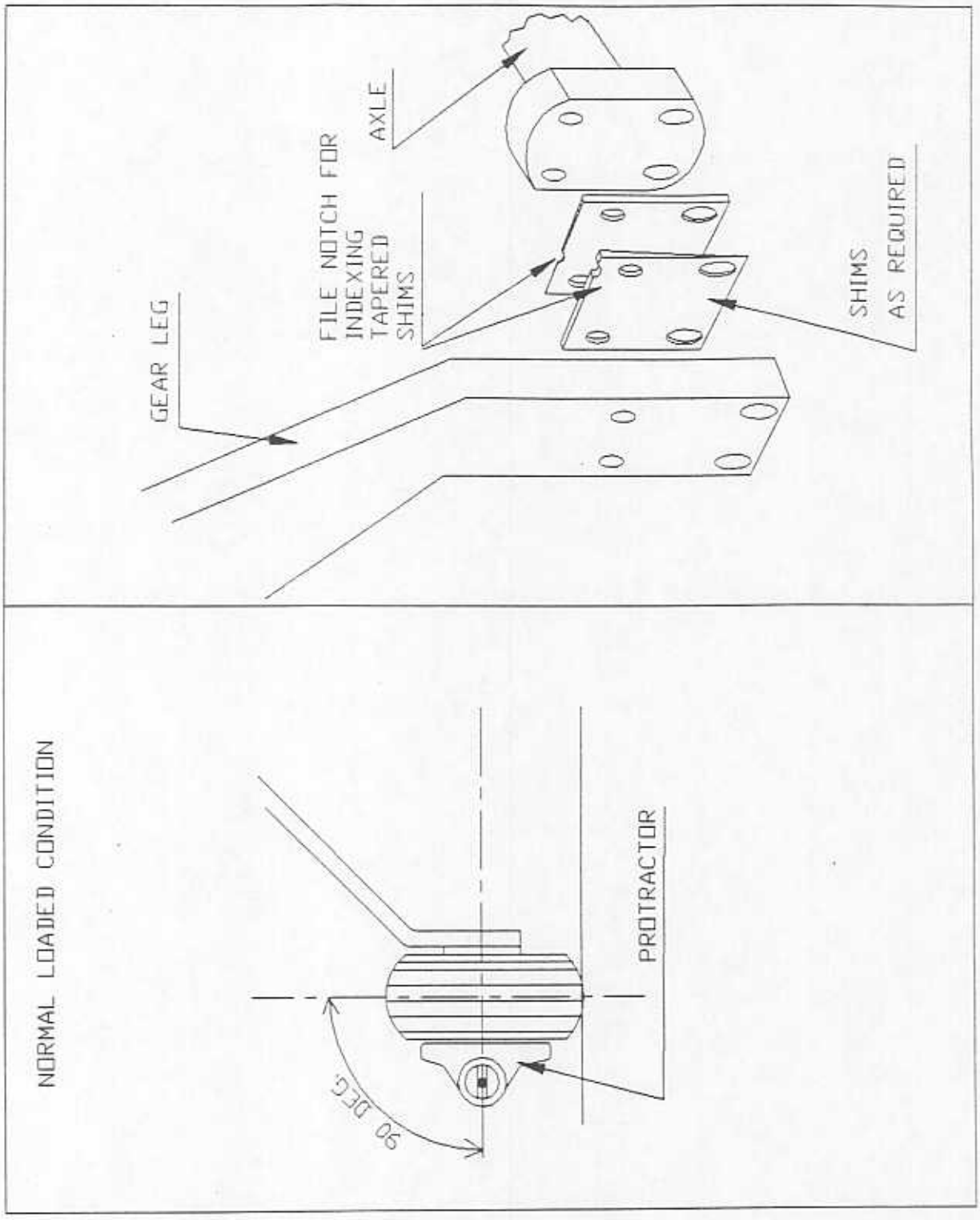
MAIN BRAKE ASSEMBLY 40-75B

FIGURE	PART NUMBER	DESCRIPTION	QUANTITY
1	161-30	Inner Wheel Half Assembly	1
2	214-1	Cup-Bearing	2
3	162-27	Outer Wheel Half Assembly	1
4	164-15A	Brake Disc Assembly	1
5	103-205	Bolt	3
6	95-107	Washer (AN960-516L)	3
7	94-104	Nut (MS21044-N5)	3
8	214-2	Cone-Bearing (13889)	2
9	153-4	Ring-Grease Seal	2
10	153-15	Ring-Grease Seal	1
11	154-3	Felt-Grease Seal	1
12	154-13	Felt-Grease Seal	1
13	155-1	Ring-Snap	2

FIGURE 8350-2B



8.350-3


AXLE
FILE NOTCH FOR INDEXING TAPERED SHIMS
SHIMS AS REQUIRED
GEAR LEG
NORMAL LOADED CONDITION
PROTRACTOR
90 DEG

8.350-4

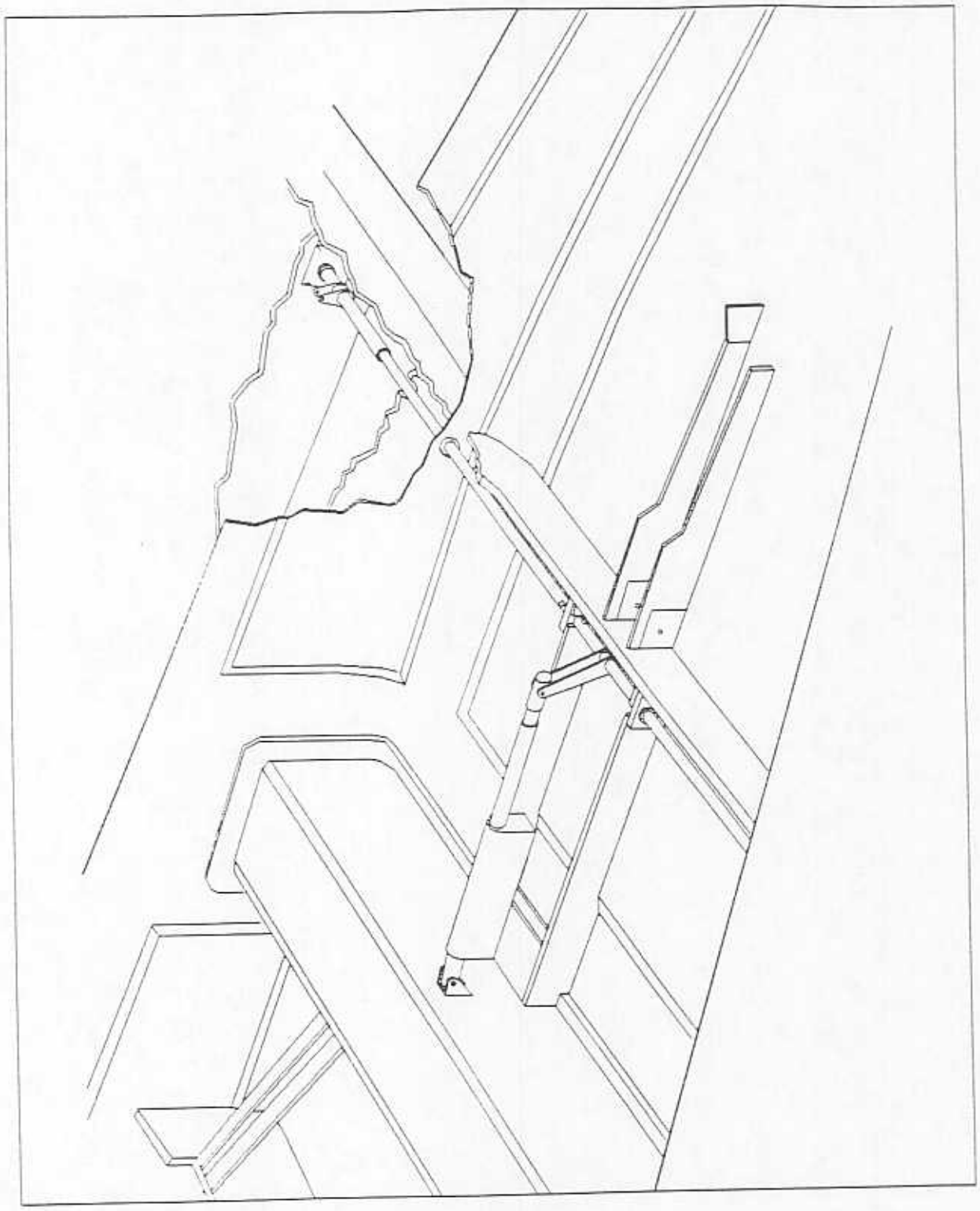


FIGURE 8.400-1

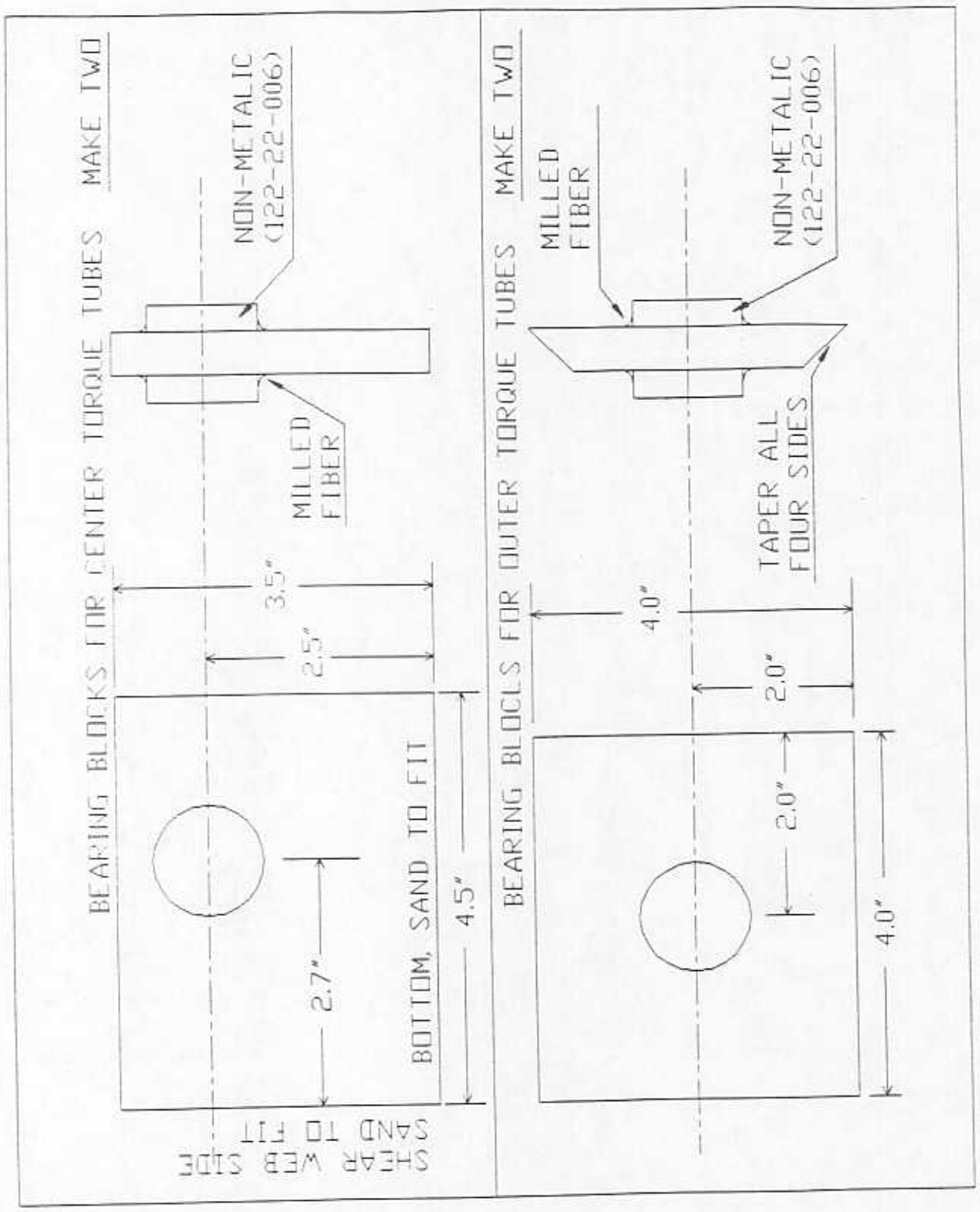


FIGURE 8.400-2

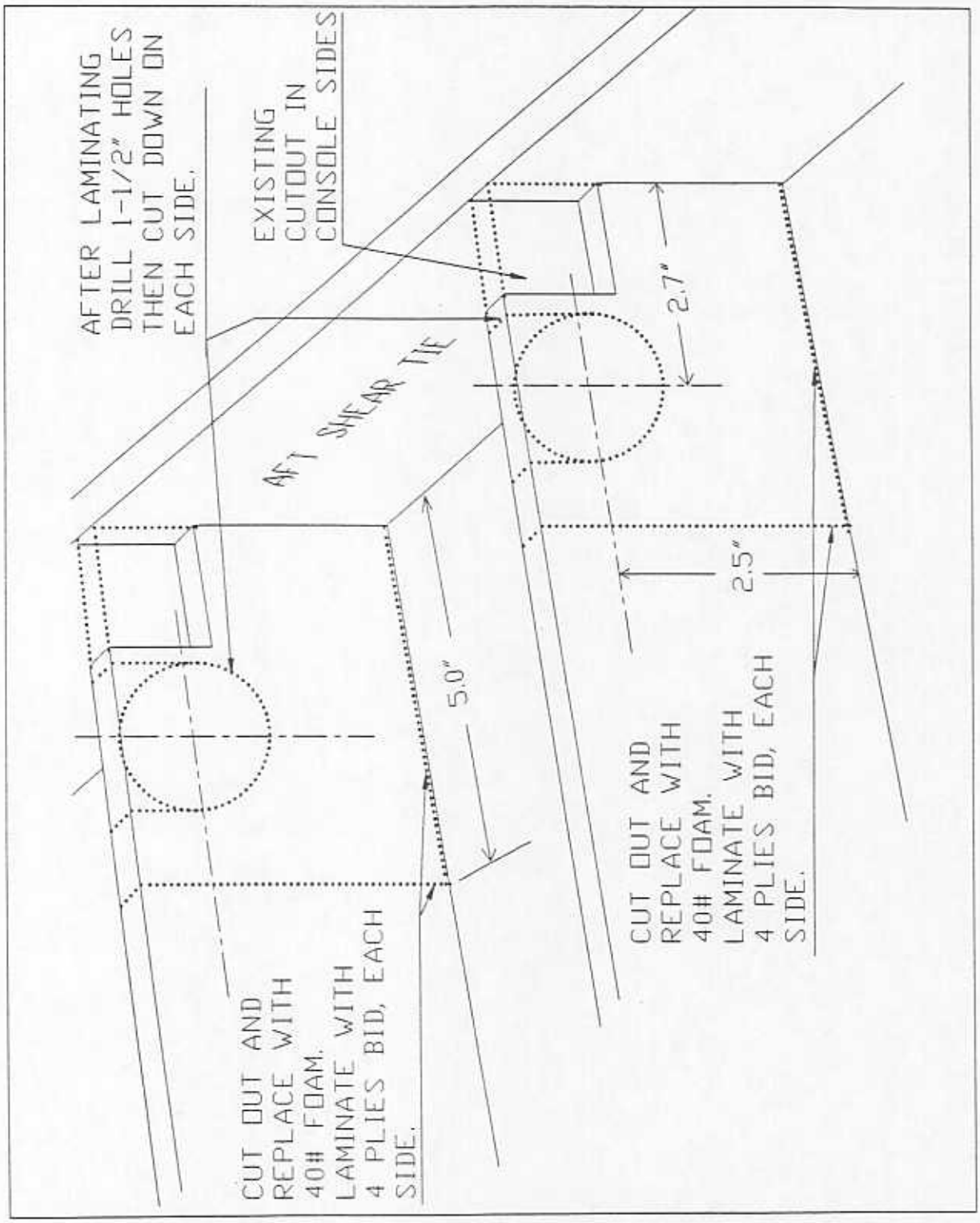


FIGURE 8.400-3

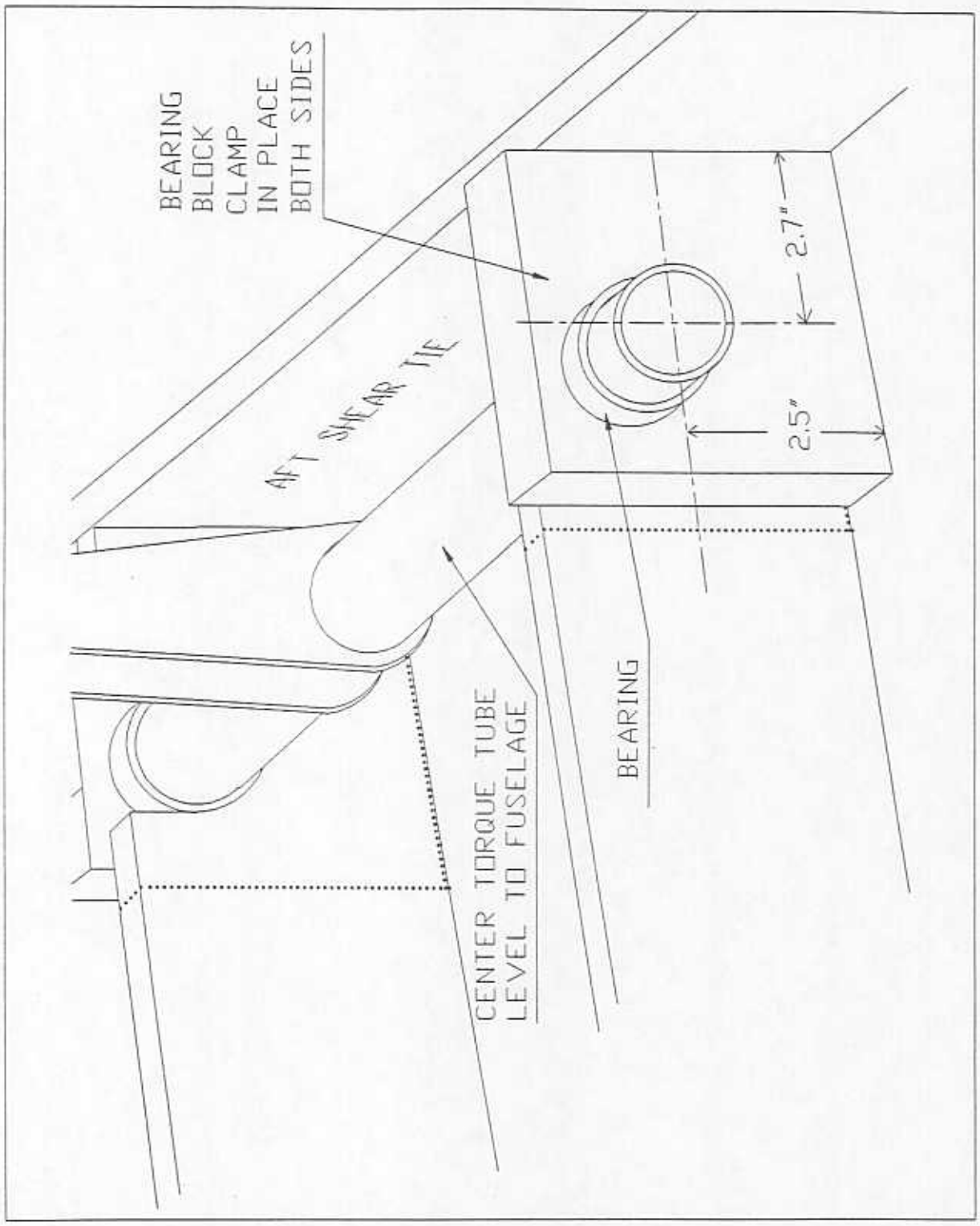


FIGURE 8.400-4

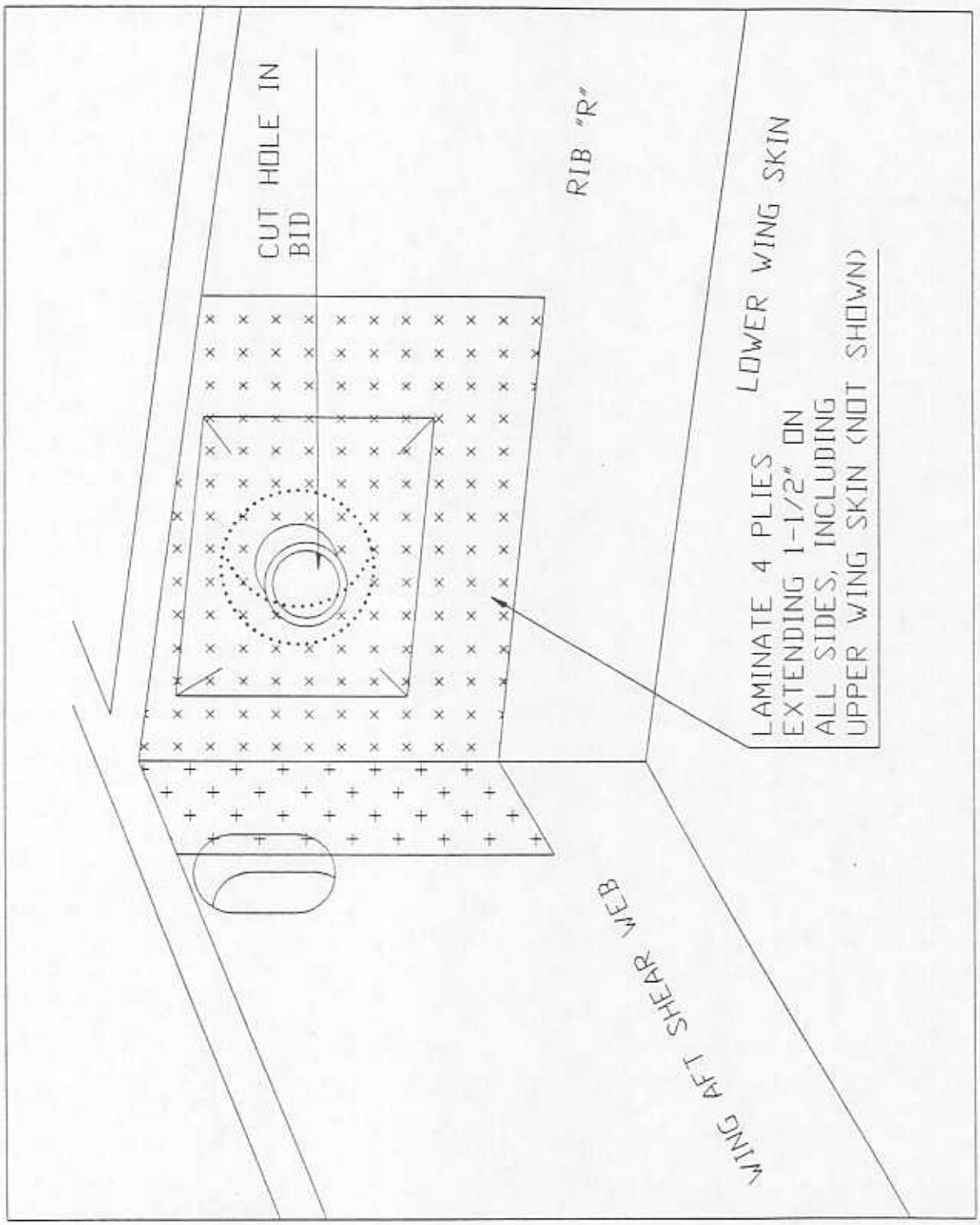


FIGURE 8.400-5

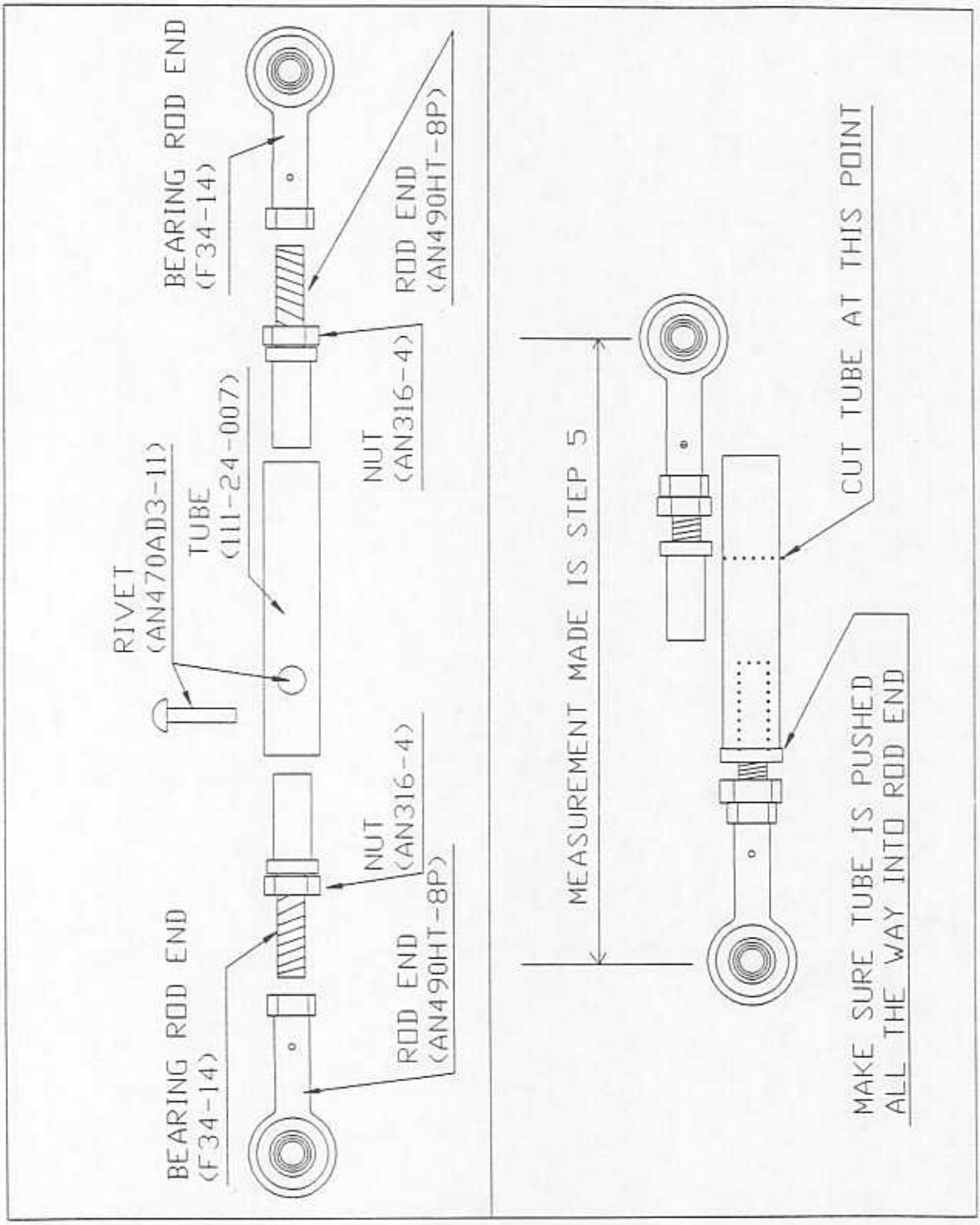


FIGURE 8.400-6

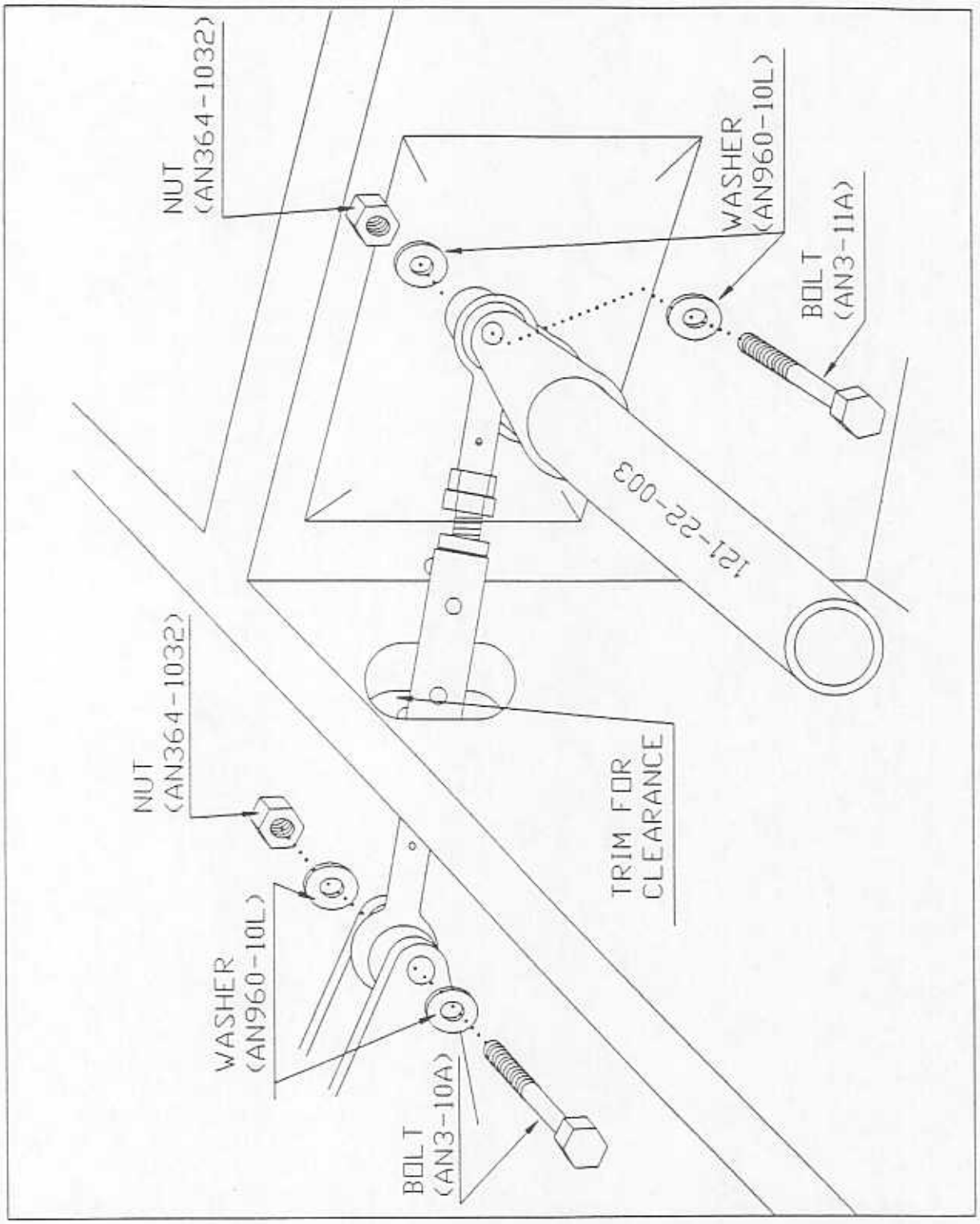


FIGURE 8.400-7

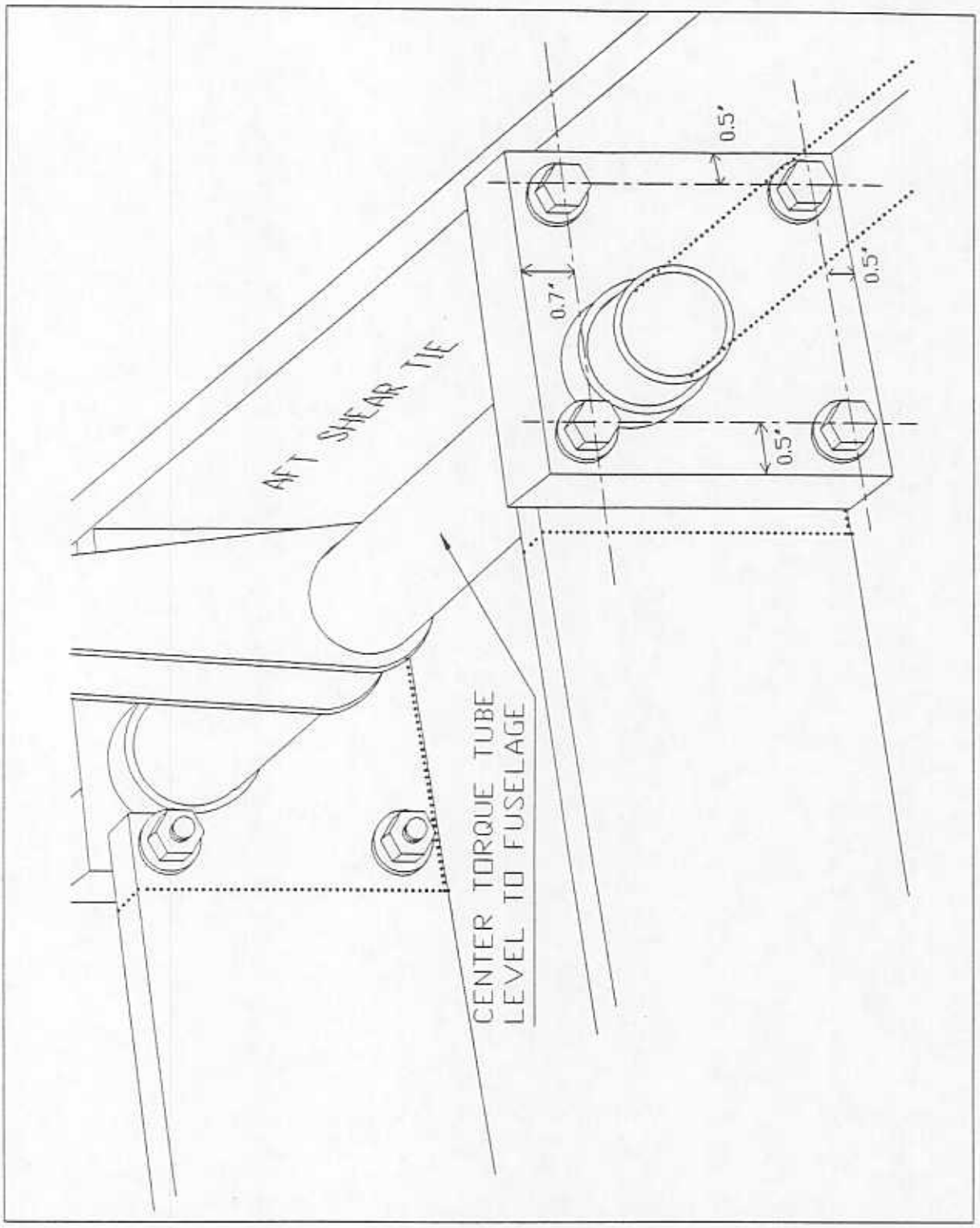


FIGURE 8.400-8

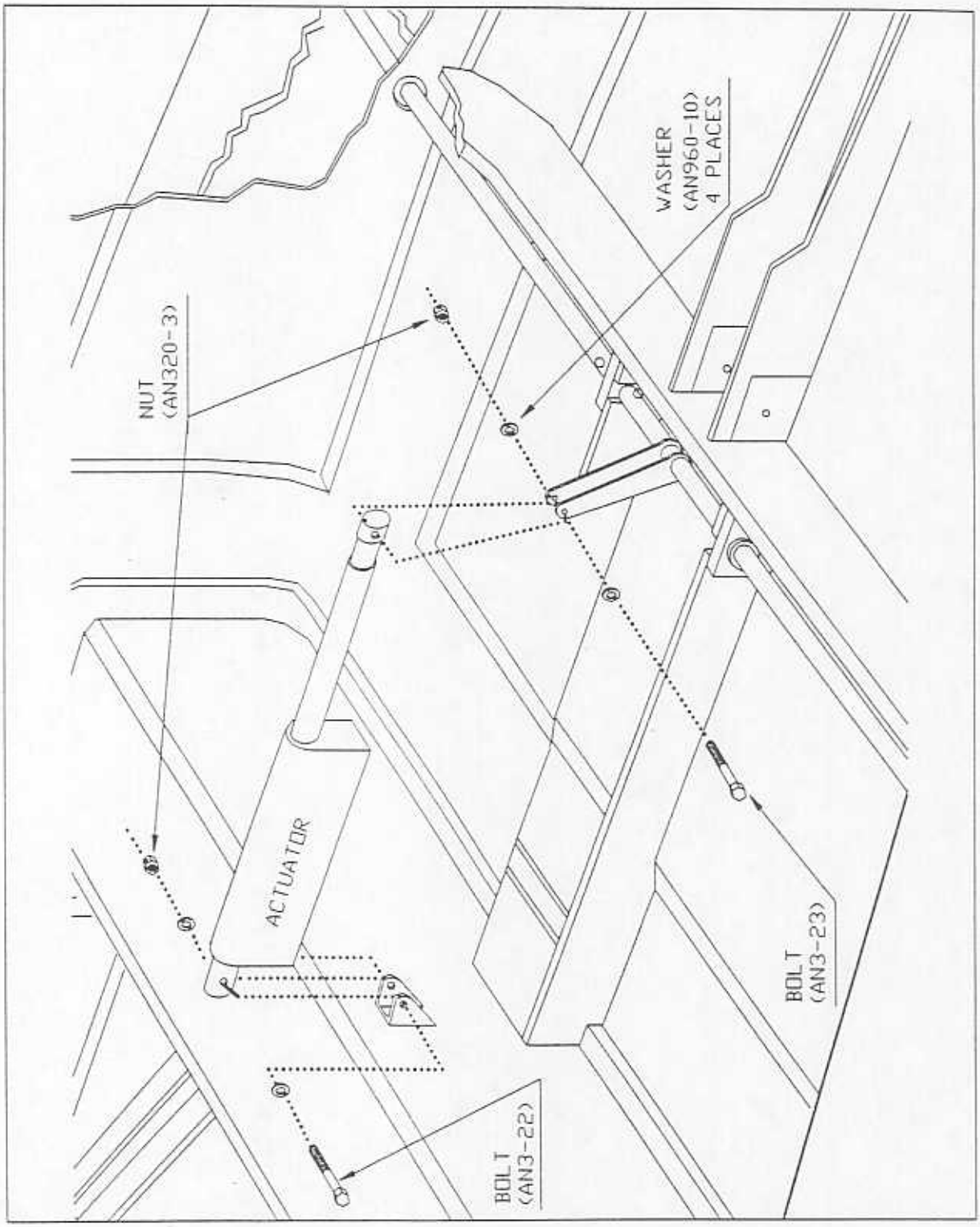


FIGURE 8.400-9

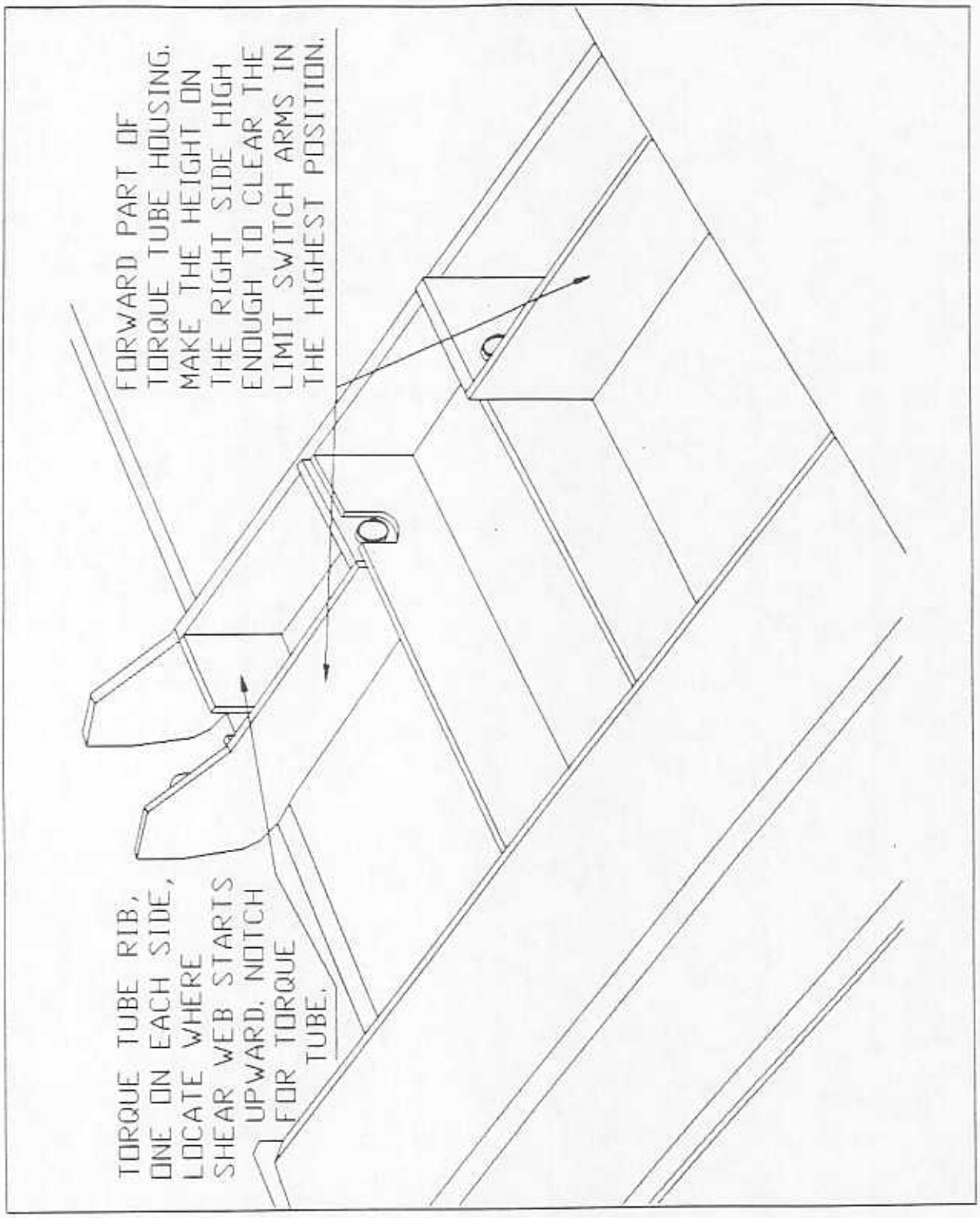


FIGURE 8.400-10

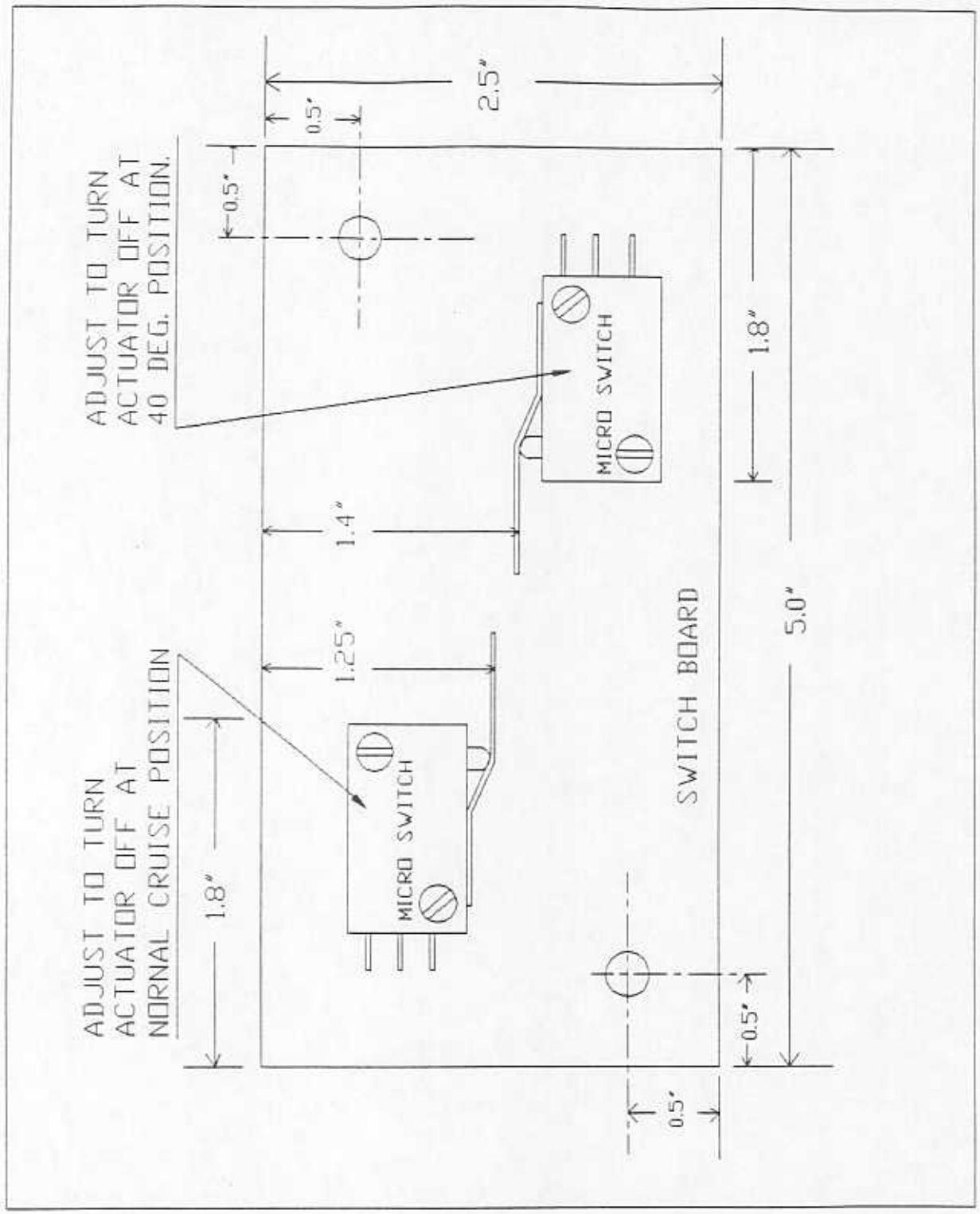


FIGURE 8.400-11

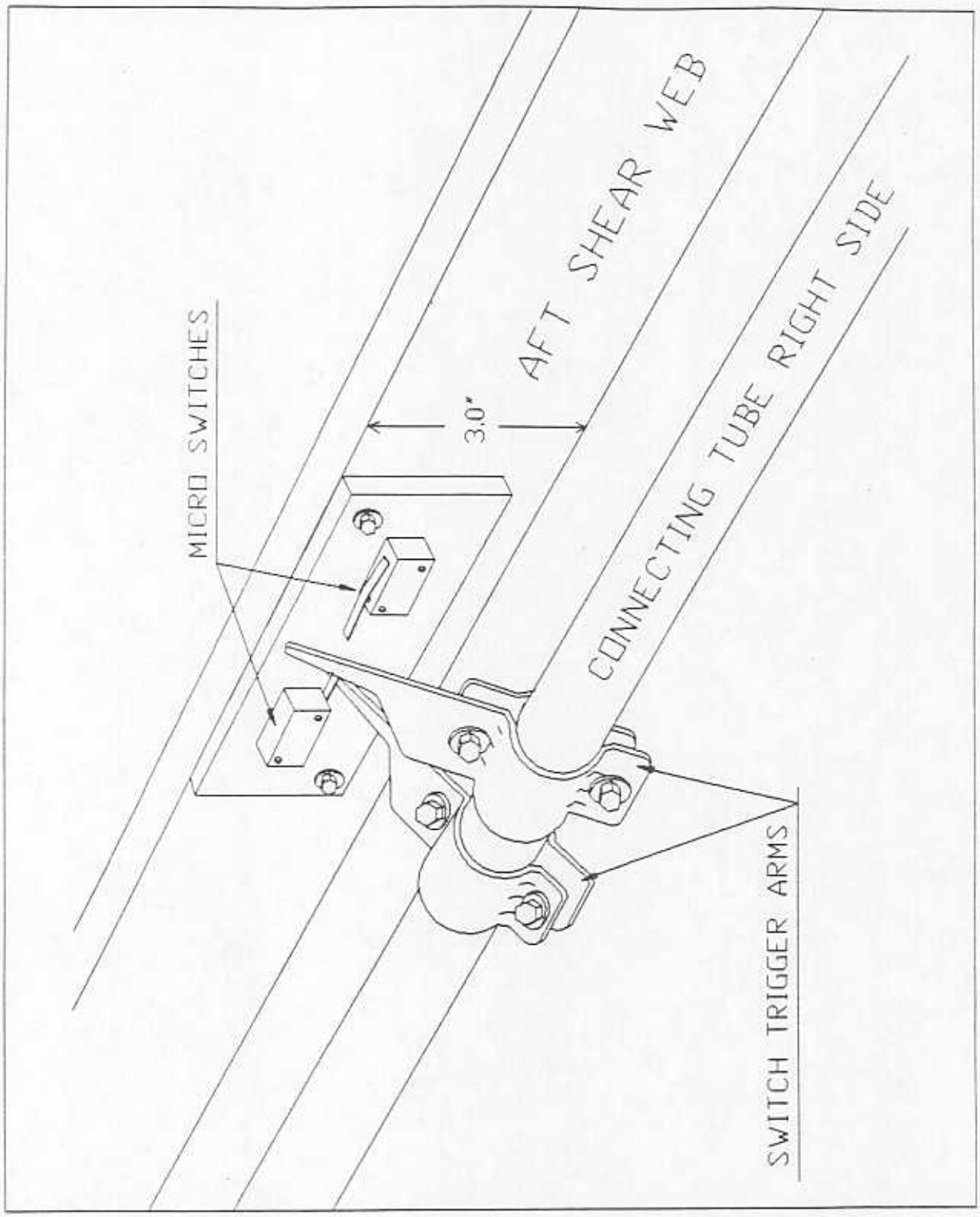


FIGURE 8.400-12

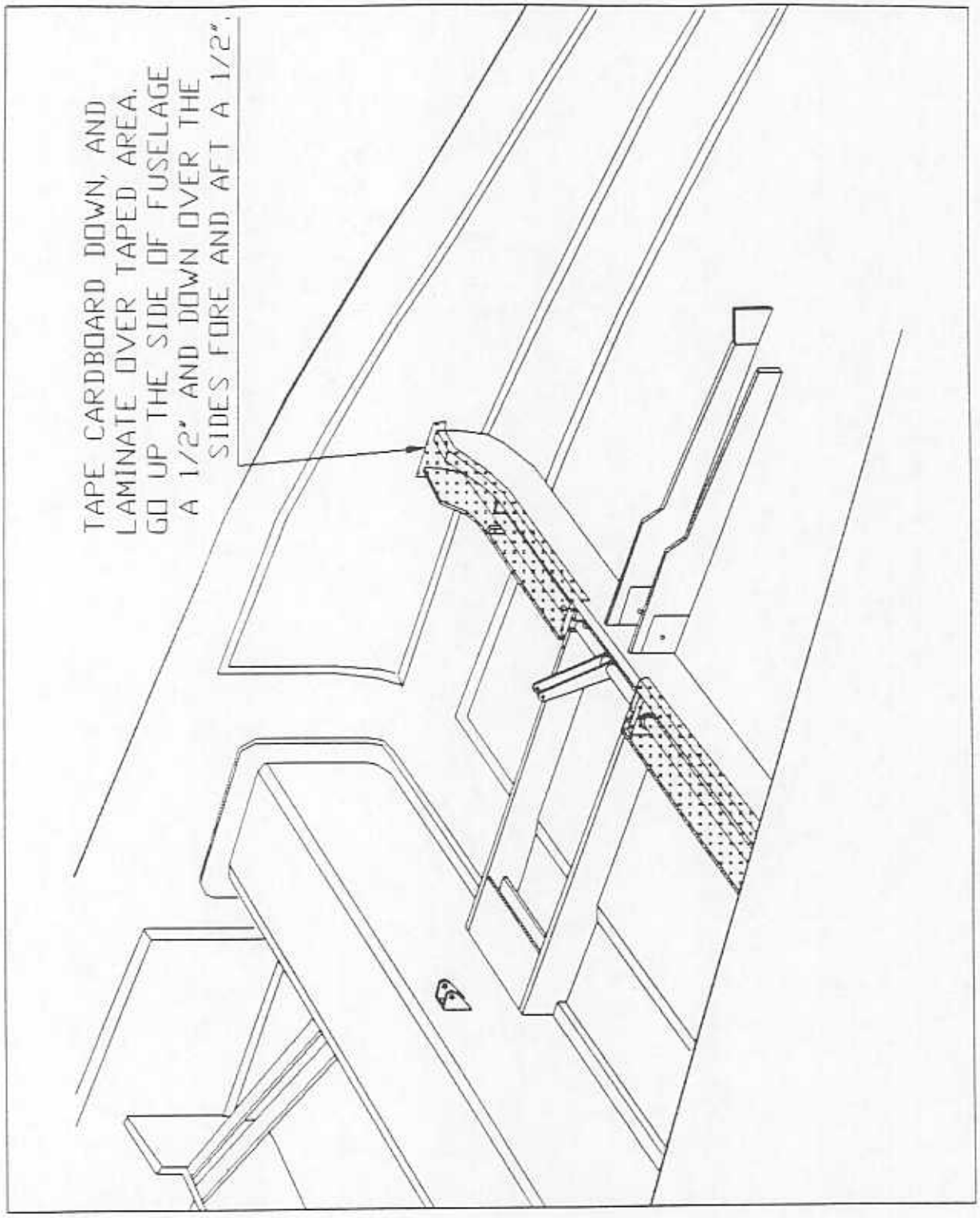


FIGURE 8.400-13

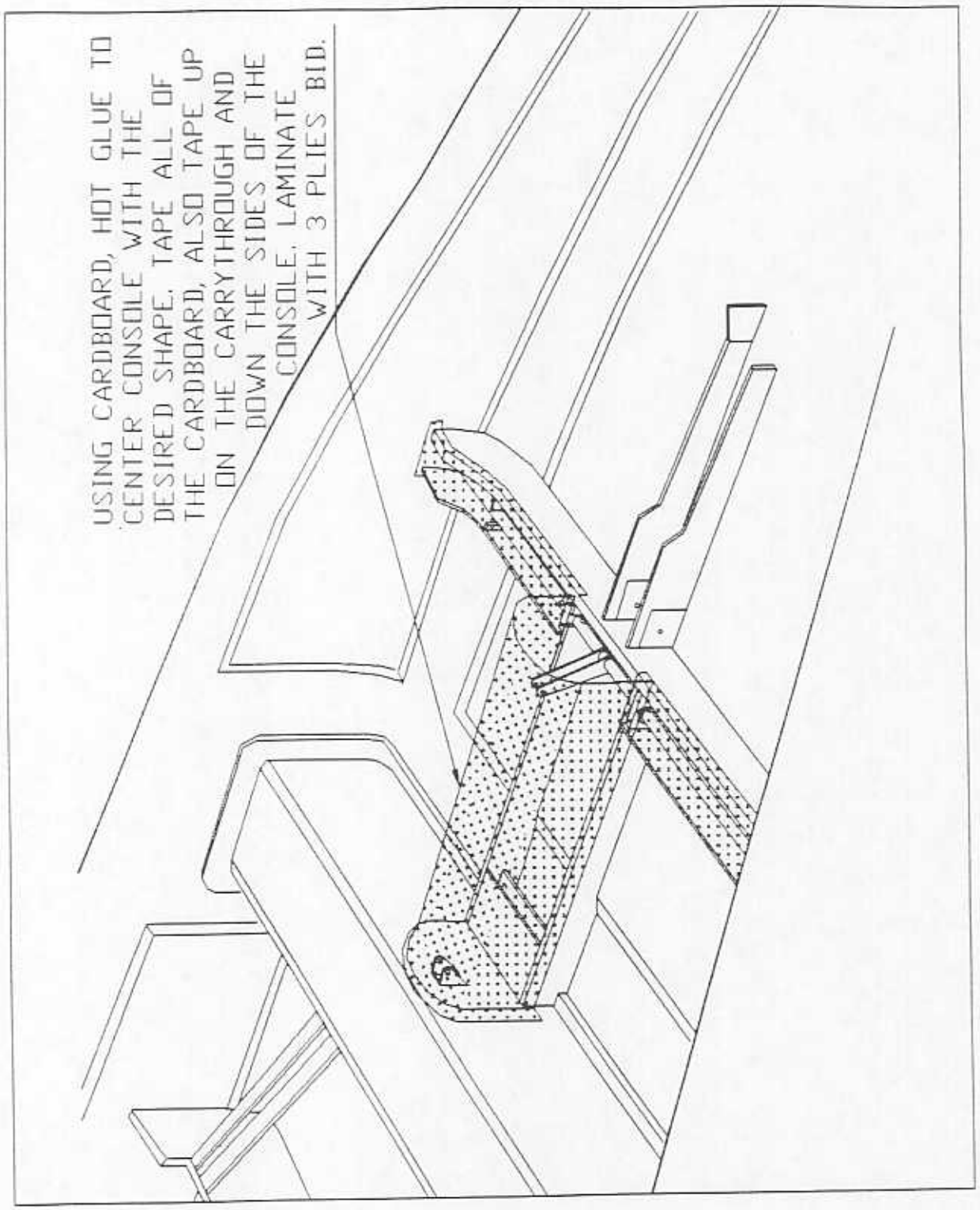


FIGURE 8.400-14

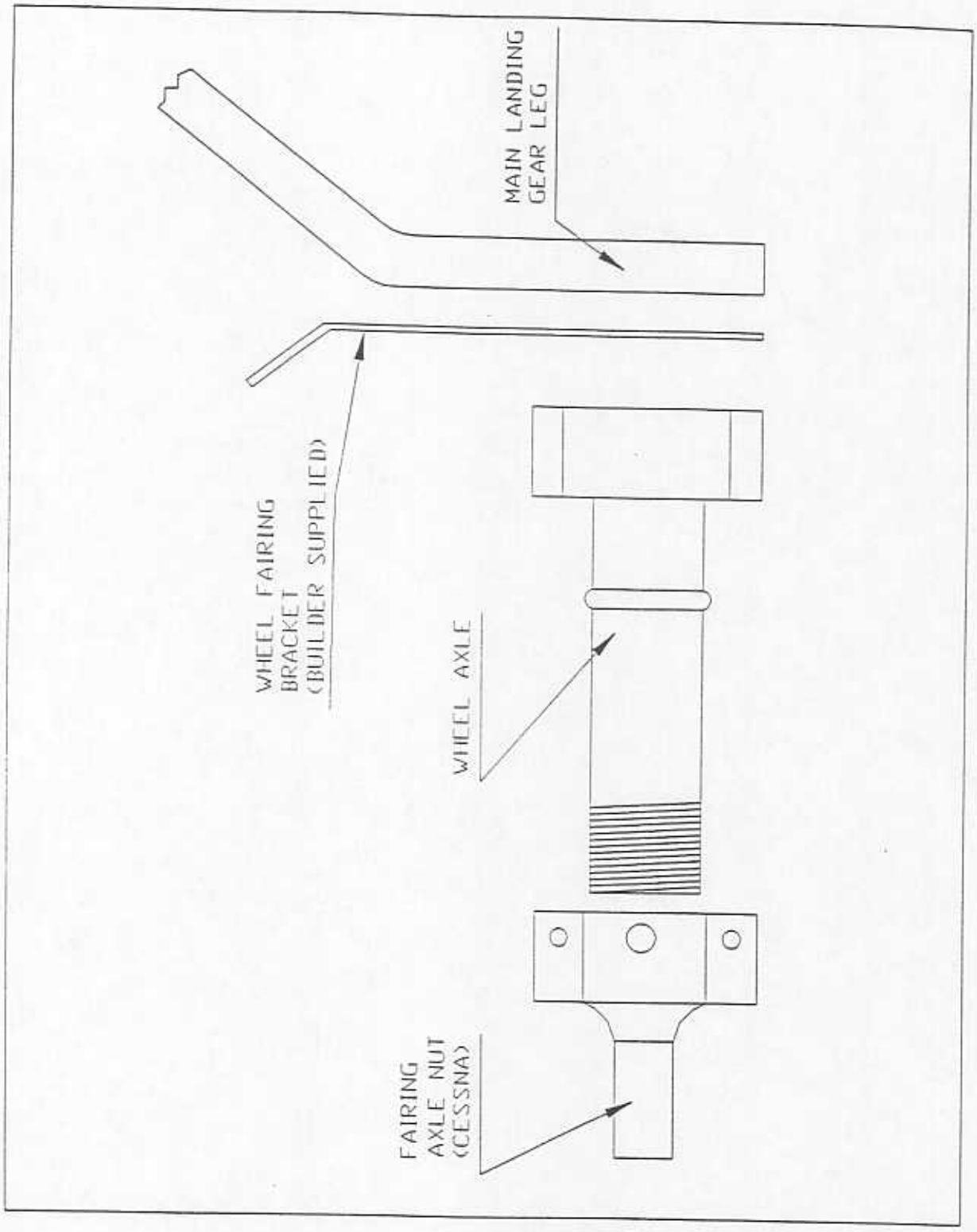


FIGURE 8.850-1

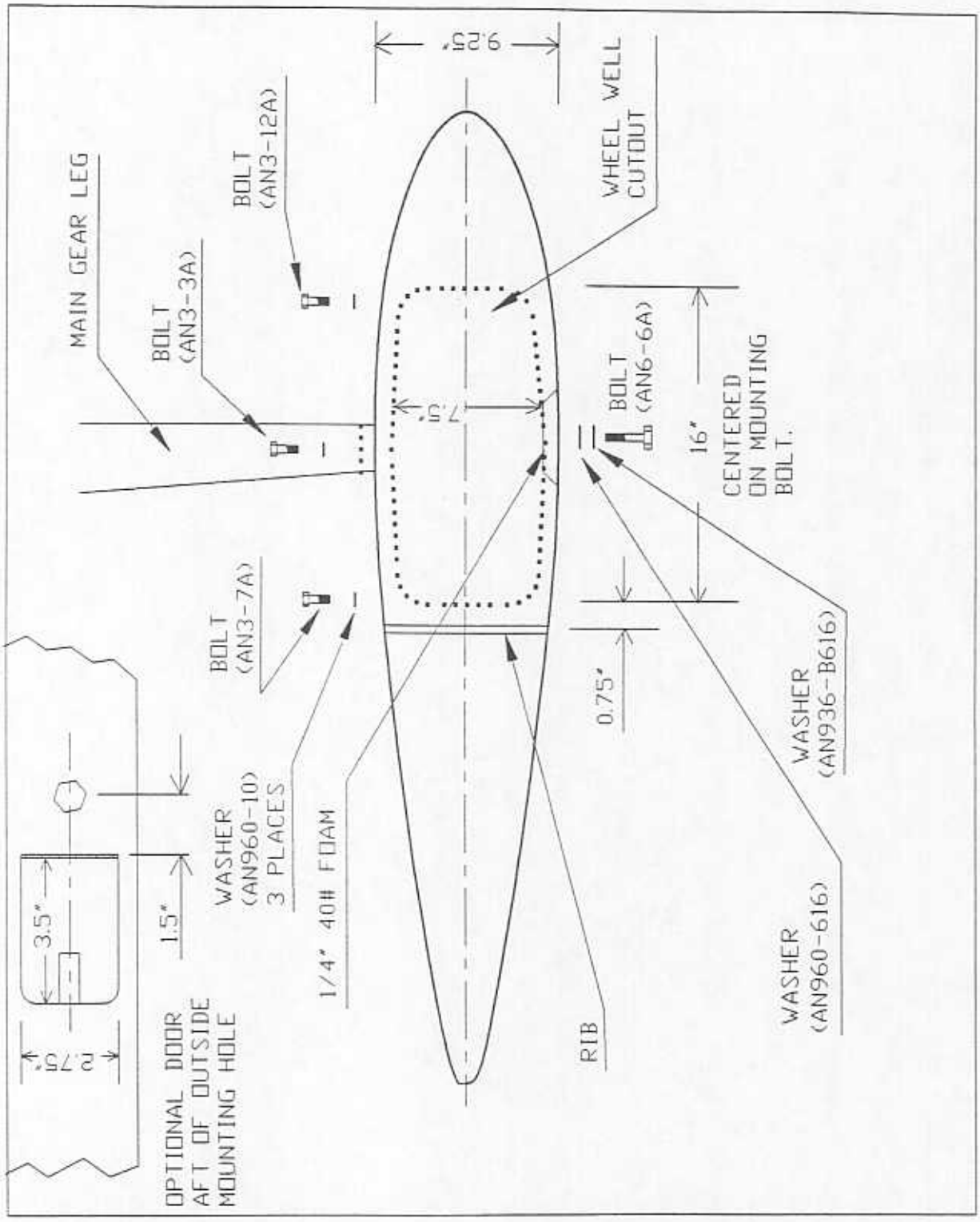


FIGURE 8.850-2

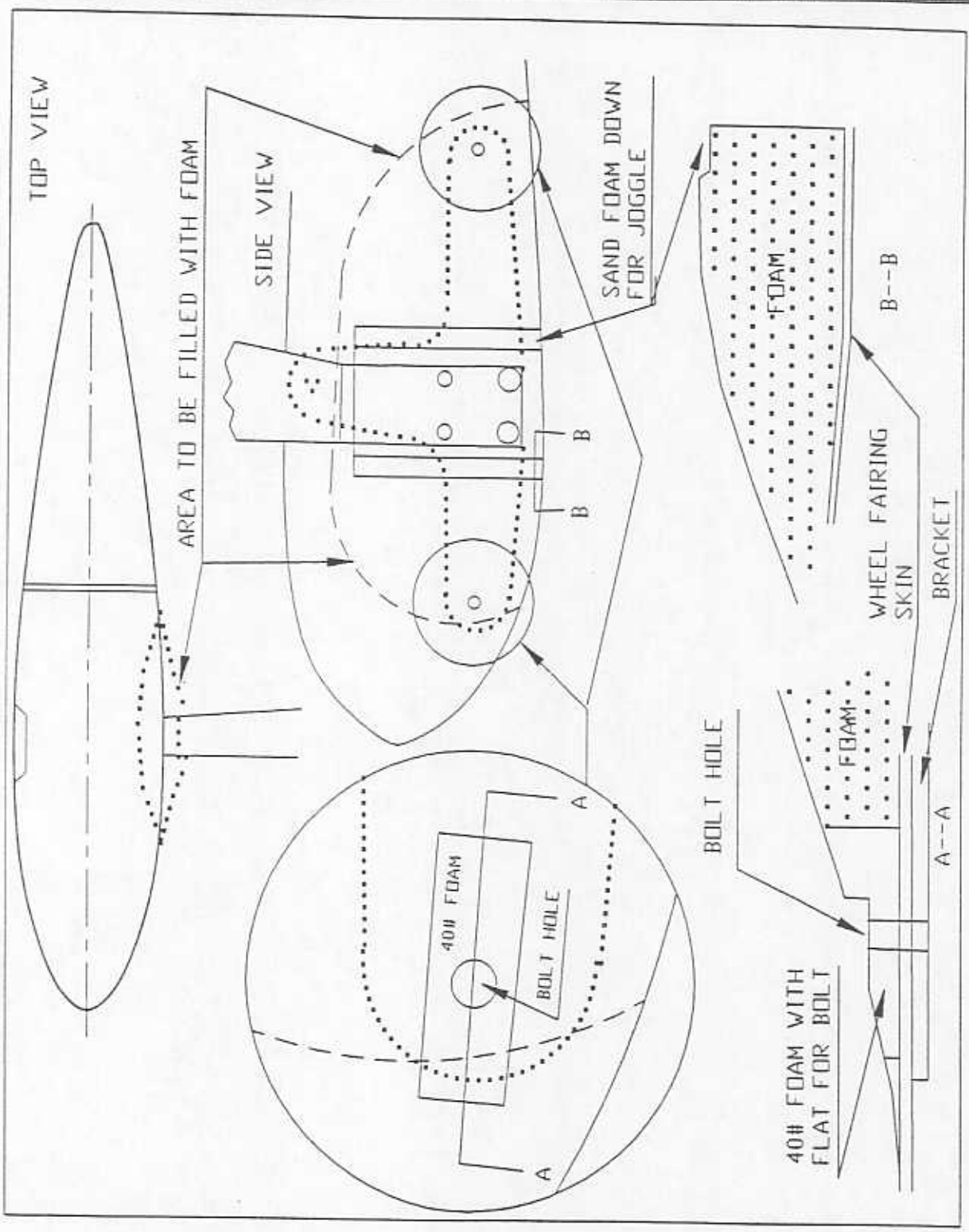


FIGURE 8.850-3

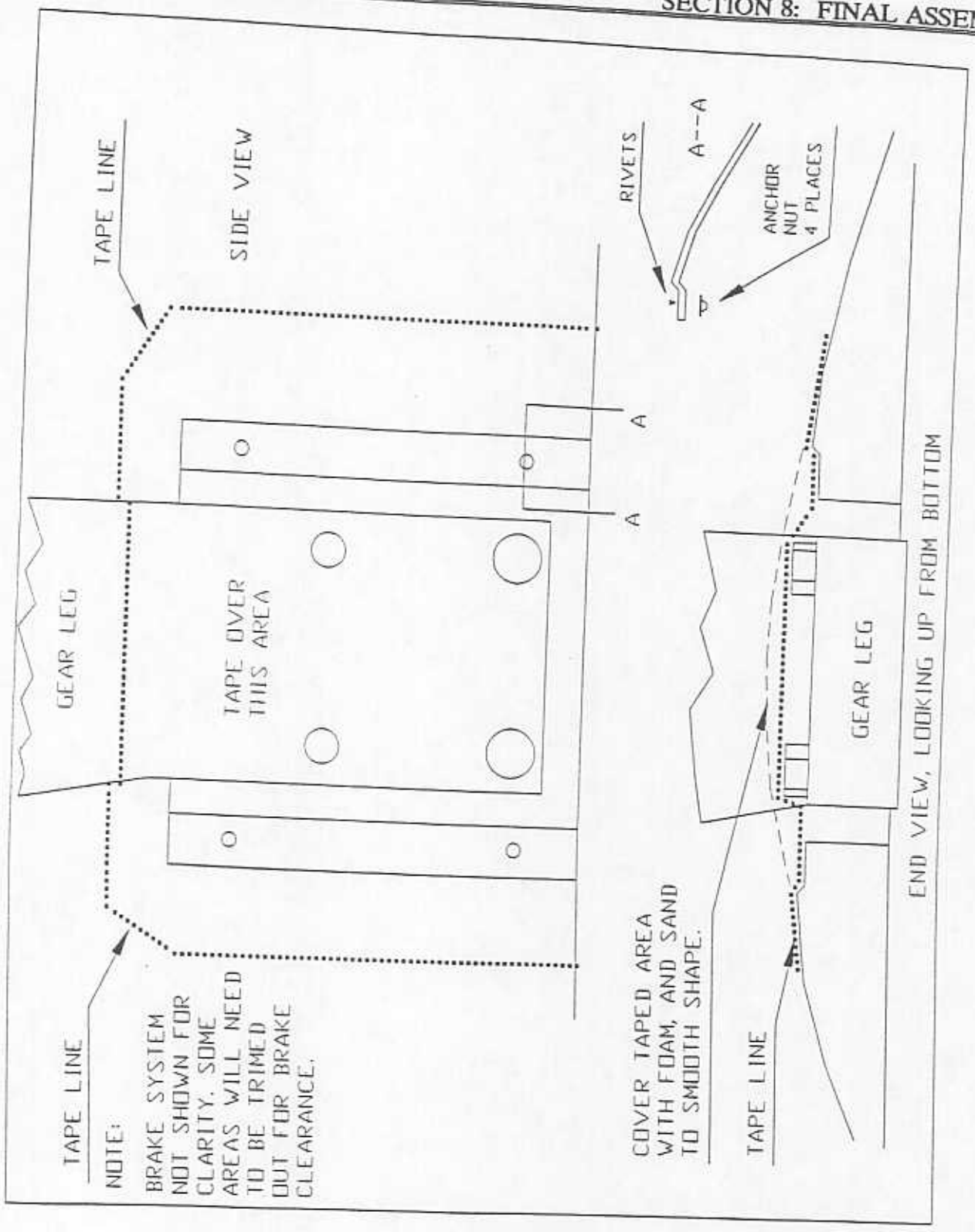


FIGURE 8.850-4

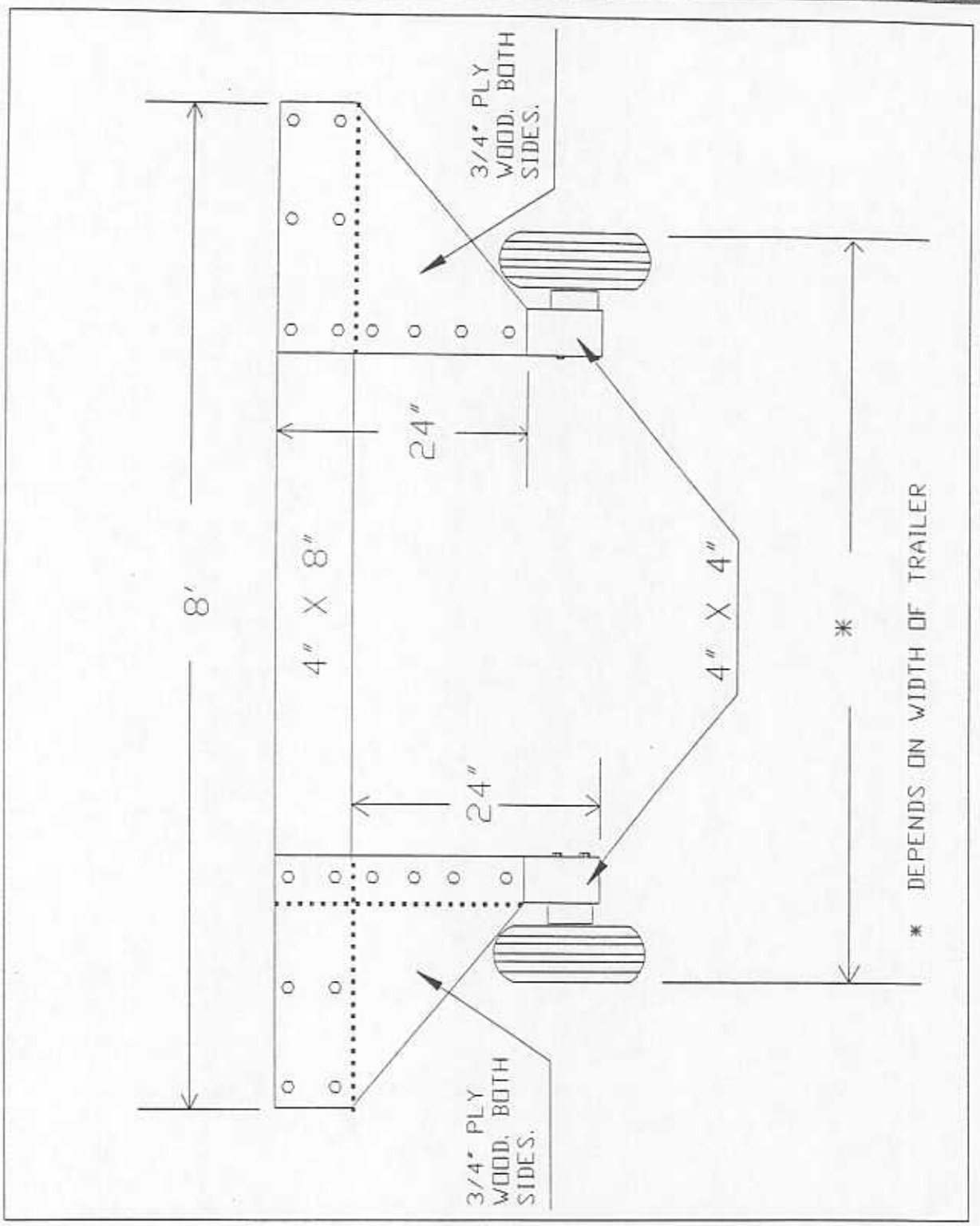


FIGURE 8.900-1

TABLE OF CONTENTS

9.100	FINAL RIGGING
9.200	FINAL CHECKS/TESTS
9.300	FLIGHT TESTS
APPENDIX A	ASSEMBLY DRAWINGS