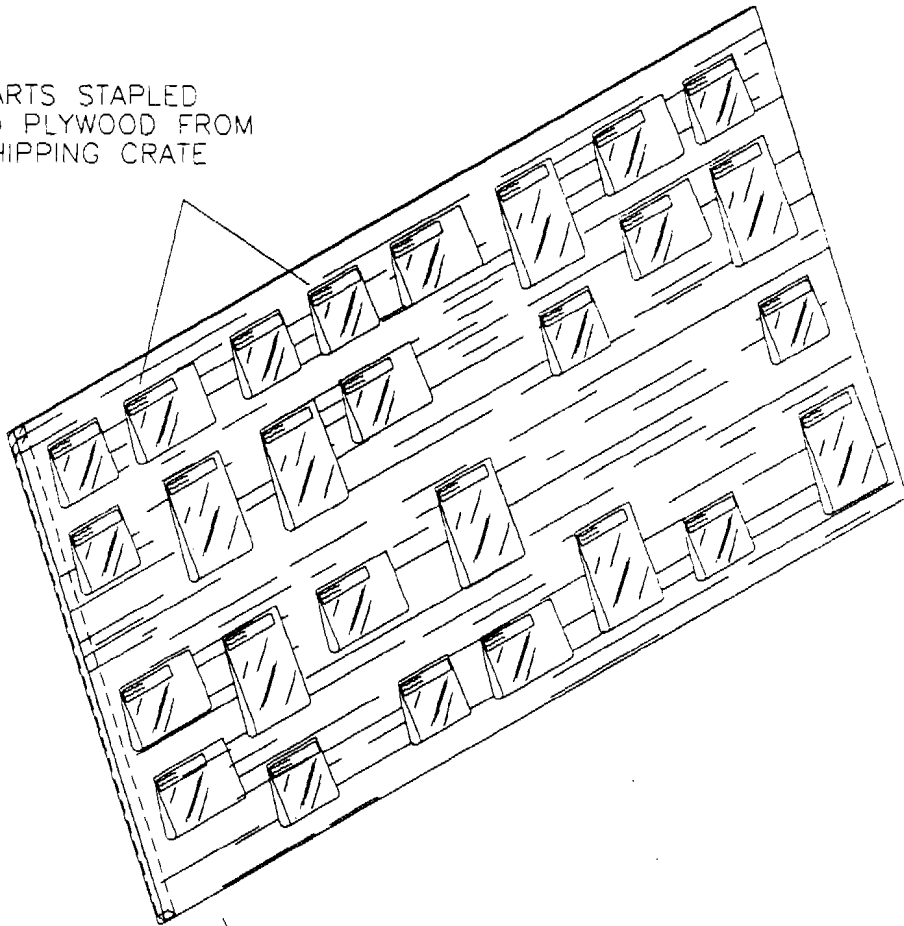




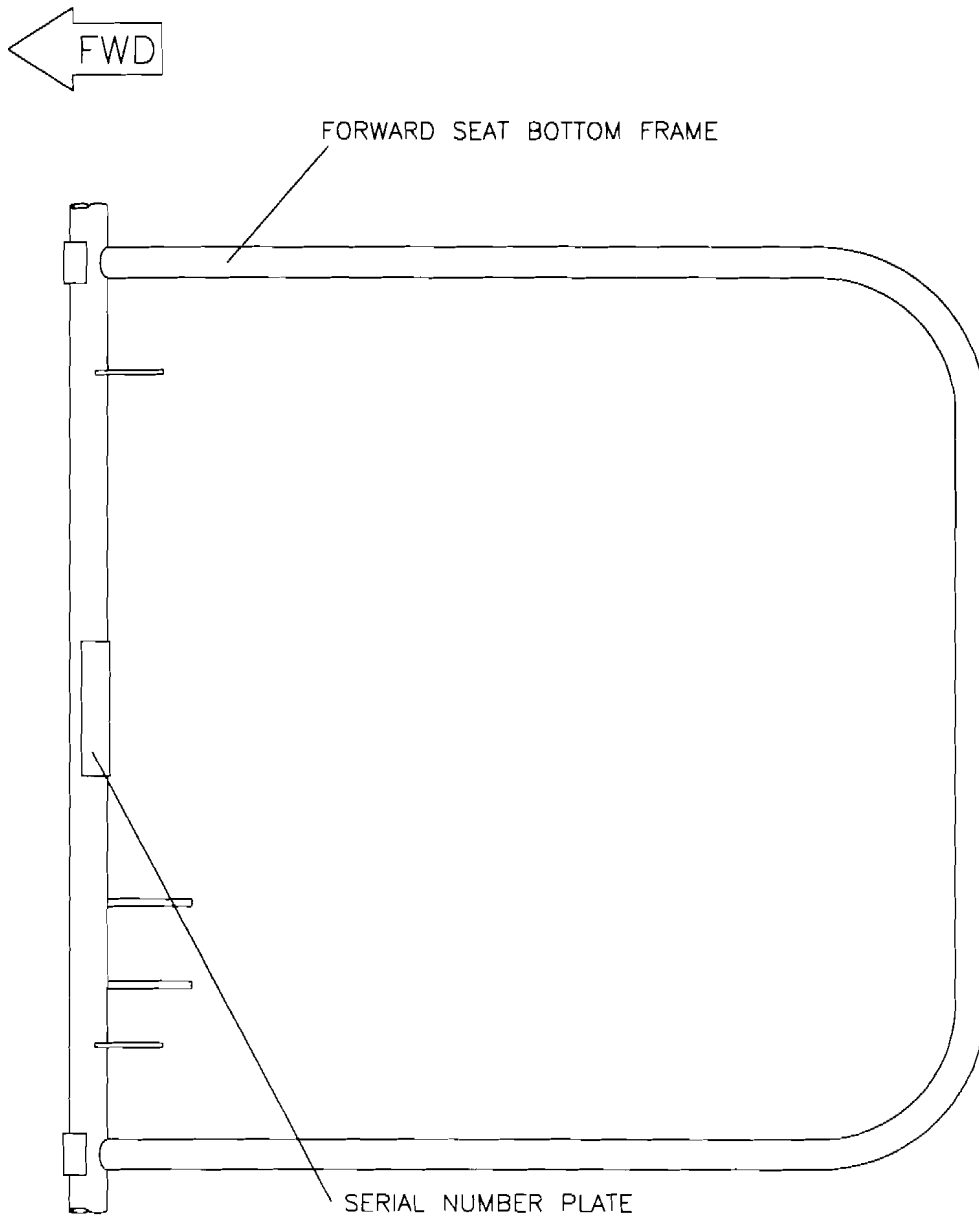
PARTS STAPLED  
TO PLYWOOD FROM  
SHIPPING CRATE



NAIL BOARD TO  
SHOP WALL

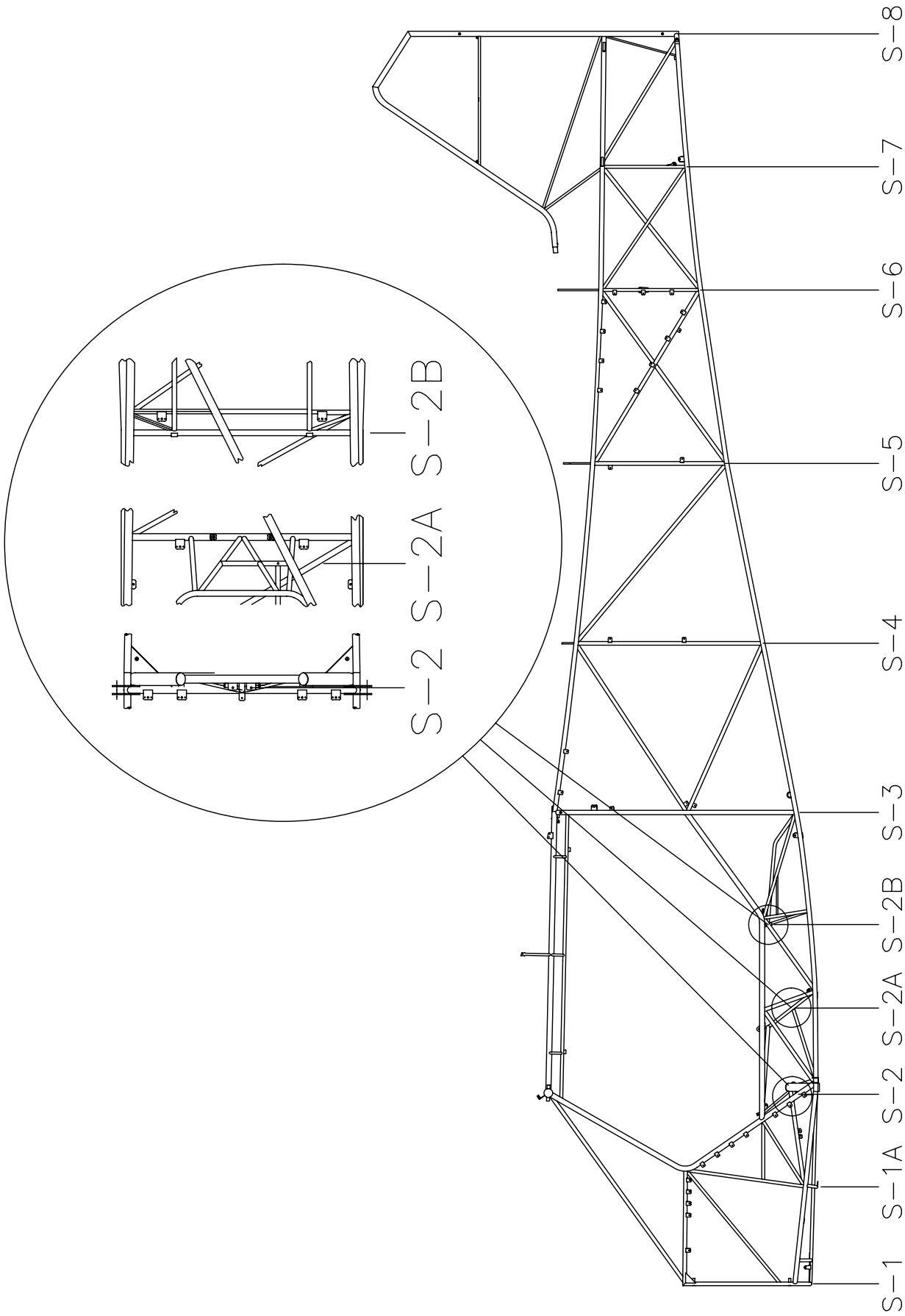
MD4363

**RANS S-7S**  
ORGINIZATION FIGURE 00-01



MD4293

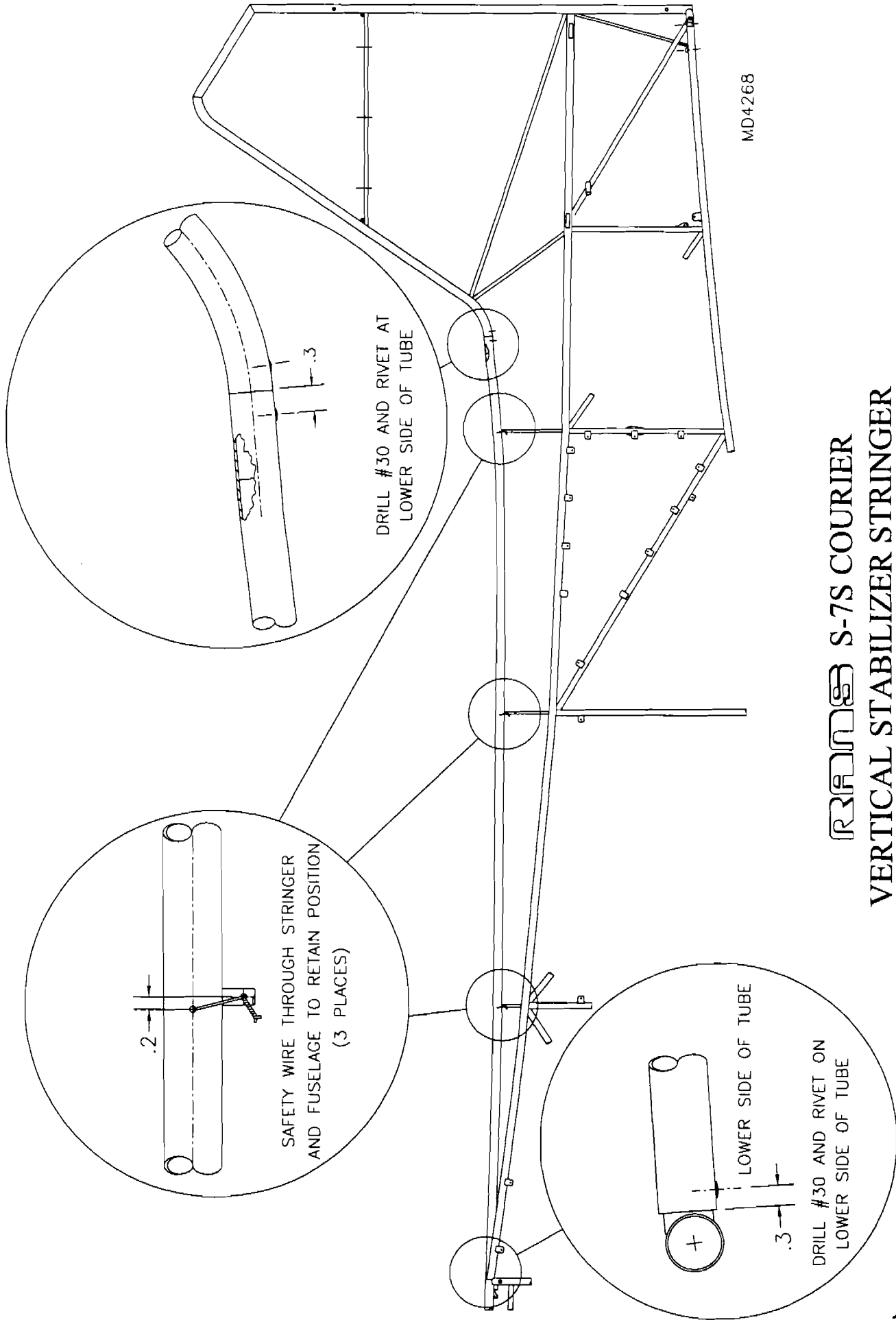
**RAMS S-7S**  
**SERIAL PLATE LOCATION FIGURE 00-02**



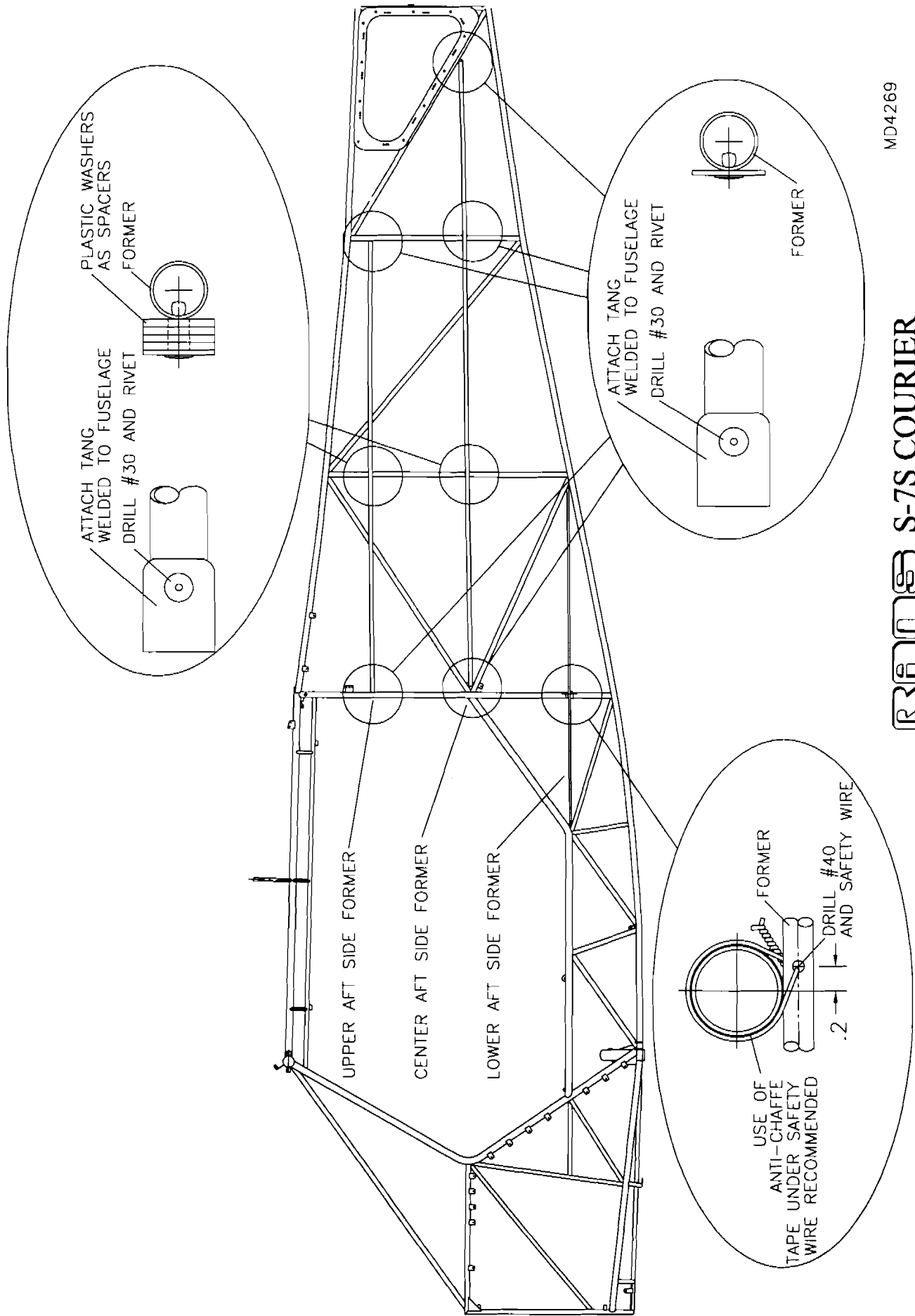
MD4295

**RAMS** S-7S

FUSELAGE STATION IDENTIFICATION FIGURE 00-03

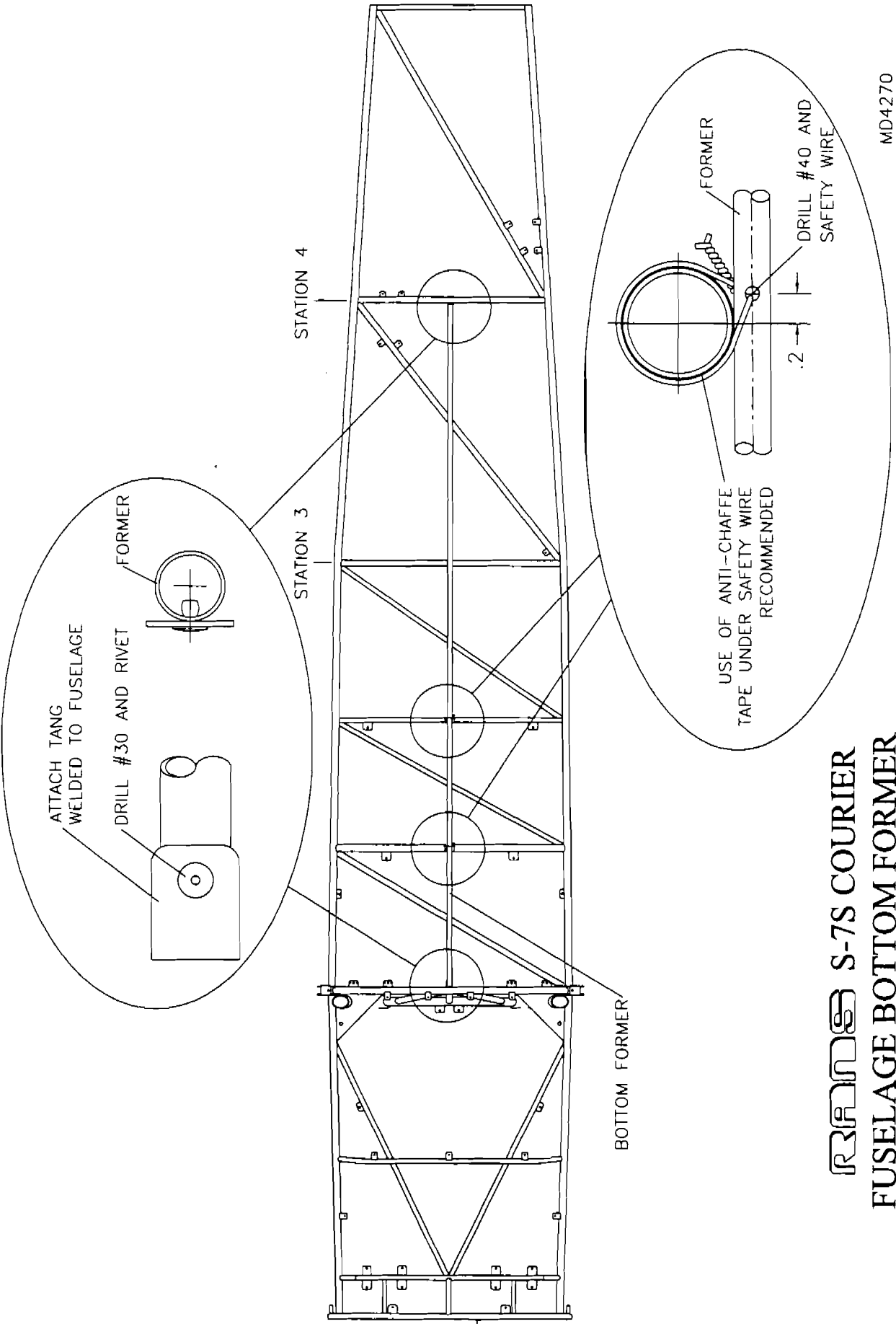


**RRAMES S-7S COURIER**  
**VERTICAL STABILIZER STRINGER**  
**FIGURE 01-01**



MD4269

**RRR S-7S COURIER**  
**FUSEALAGE SIDE FORMER FIGURE 01-02**



ATTACH TANG  
WELDED TO FUSELAGE

DRILL #30 AND RIVET

FORMER

STATION 4

STATION 3

BOTTOM FORMER

FORMER

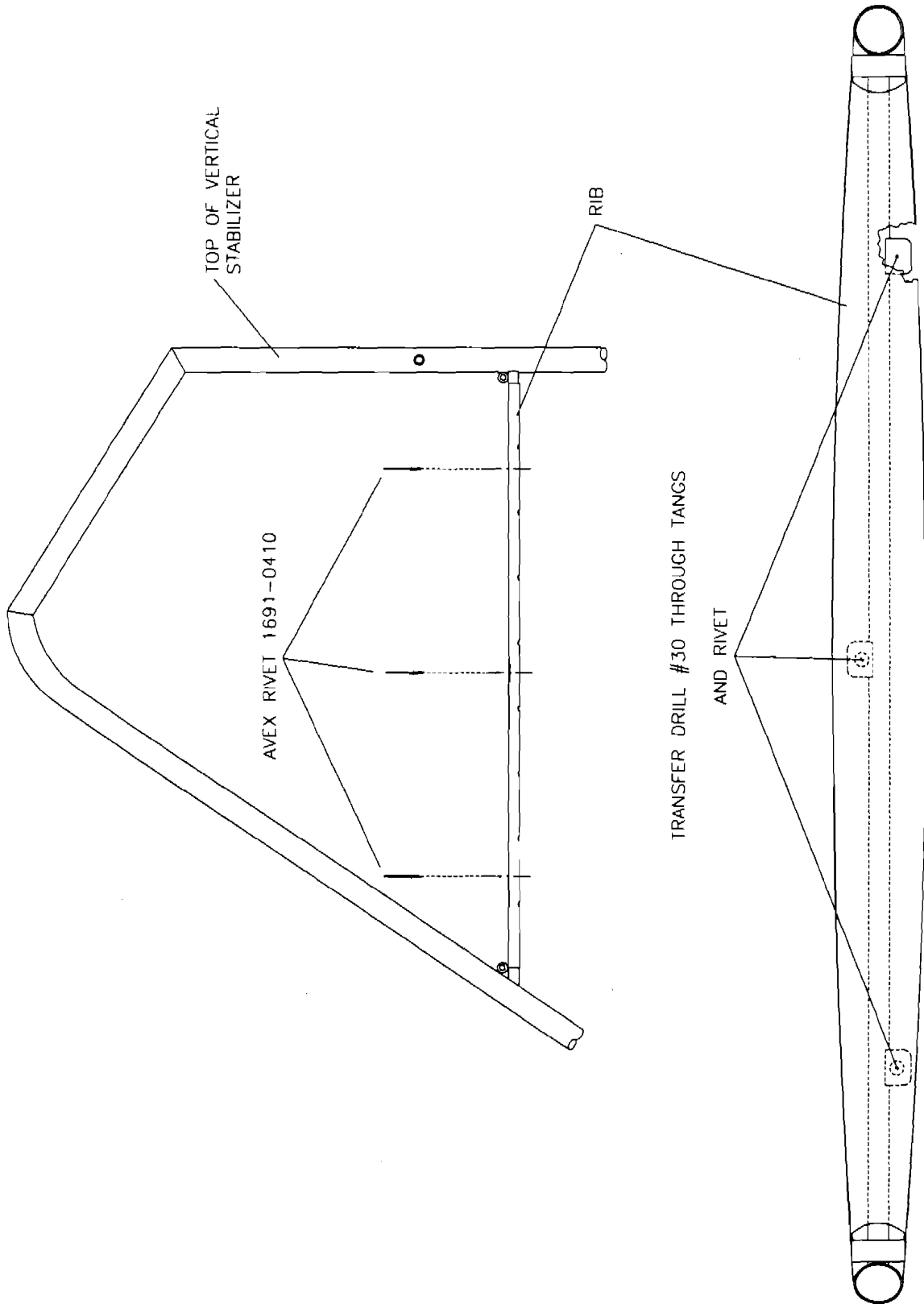
USE OF ANTI-CHAFFE  
TAPE UNDER SAFETY WIRE  
RECOMMENDED

.2

DRILL #40 AND  
SAFETY WIRE

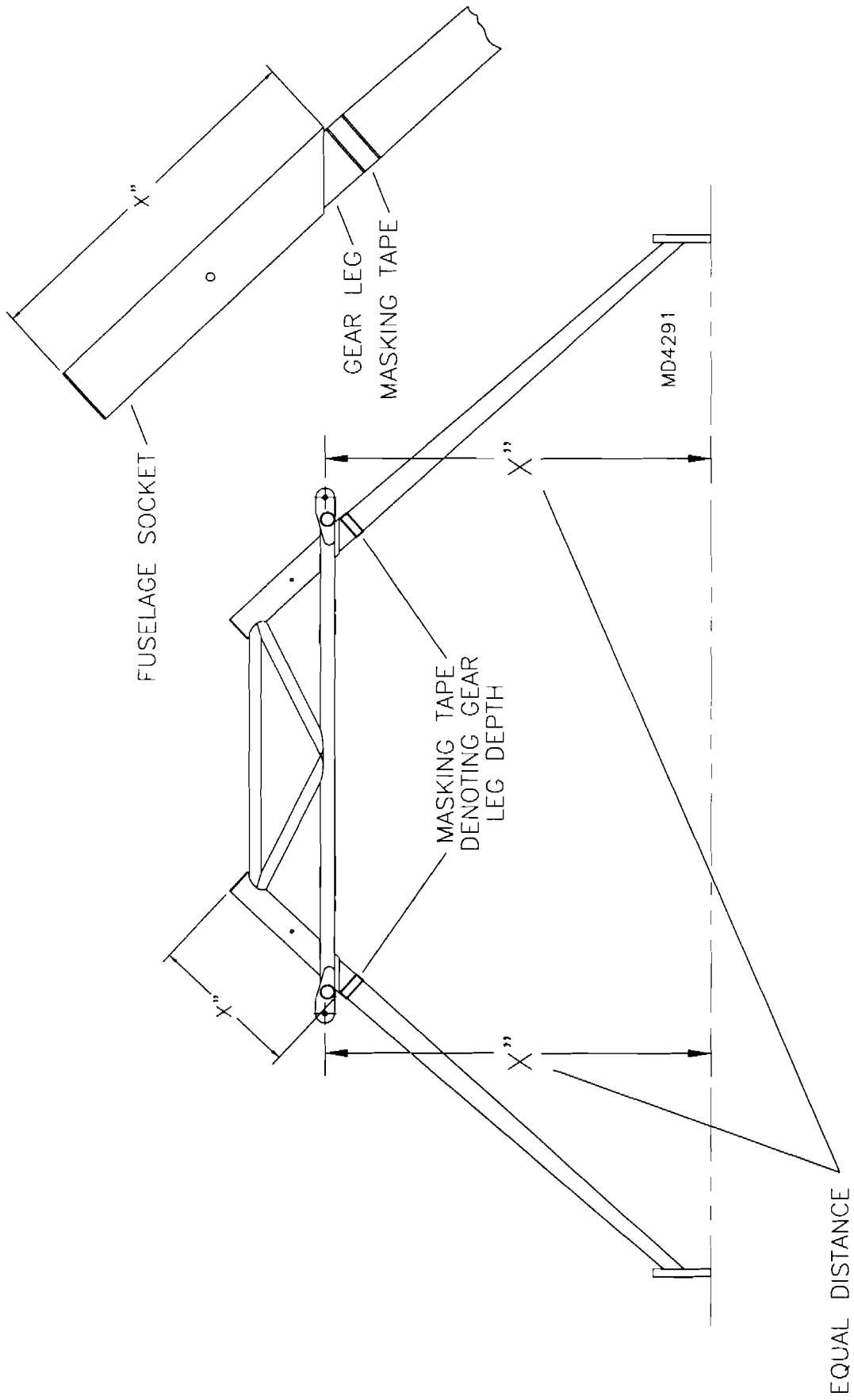
**RRANES S-7S COURIER**  
**FUSELAGE BOTTOM FORMER**  
**FIGURE 01-03**

MD4270



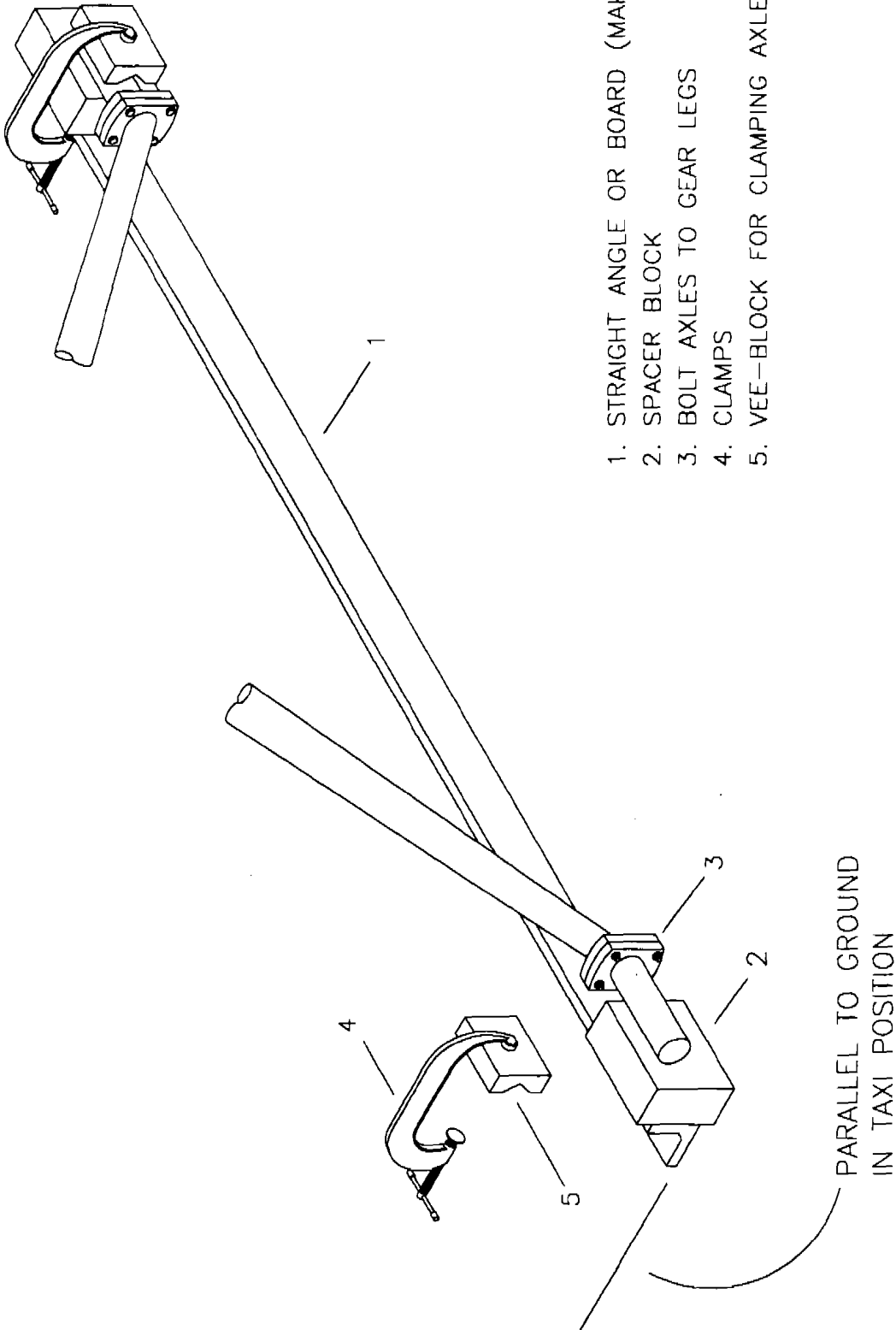
MD4282

**RRR** S-7S  
 VERTICAL STABILIZER RIB FIGURE 01-04



**RRR S-7S**  
**GEAR LEG INSTALLATION FIGURE 01-05**



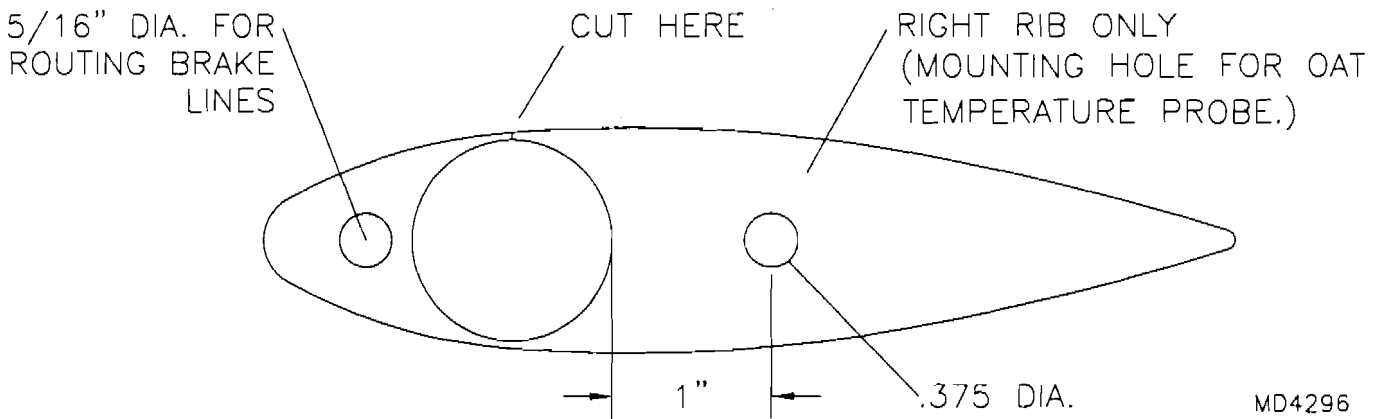
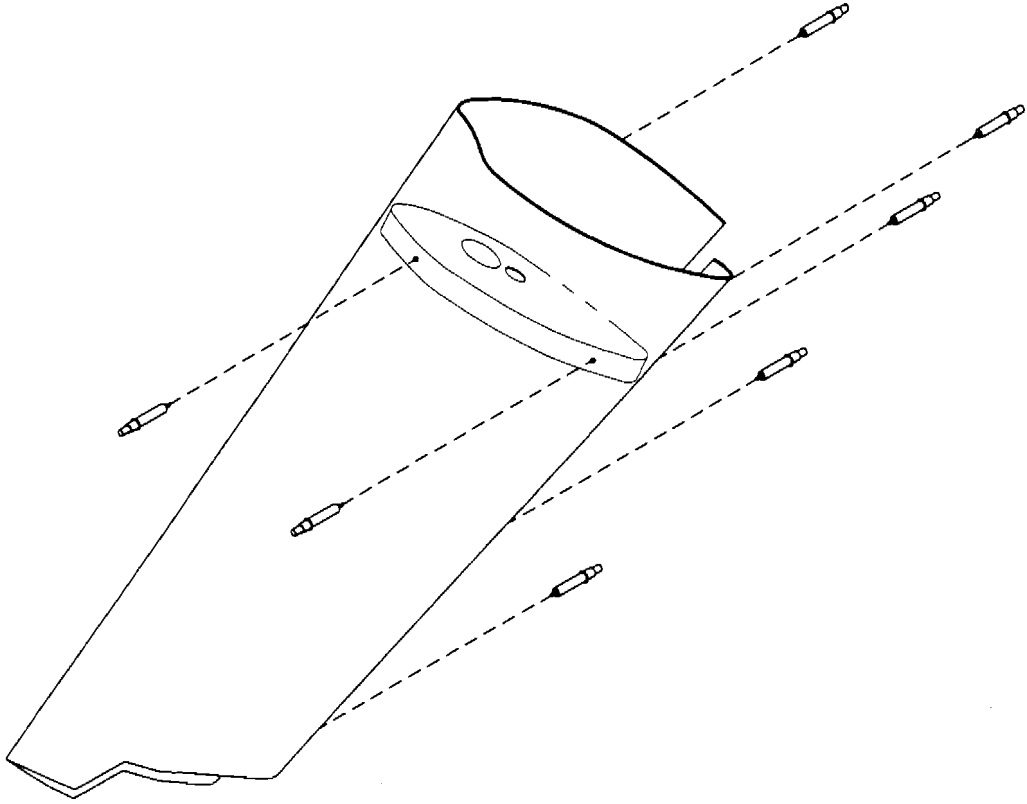


1. STRAIGHT ANGLE OR BOARD (MAKE SURE IT IS STRAIGHT!)
2. SPACER BLOCK
3. BOLT AXLES TO GEAR LEGS
4. CLAMPS
5. VEE-BLOCK FOR CLAMPING AXLE

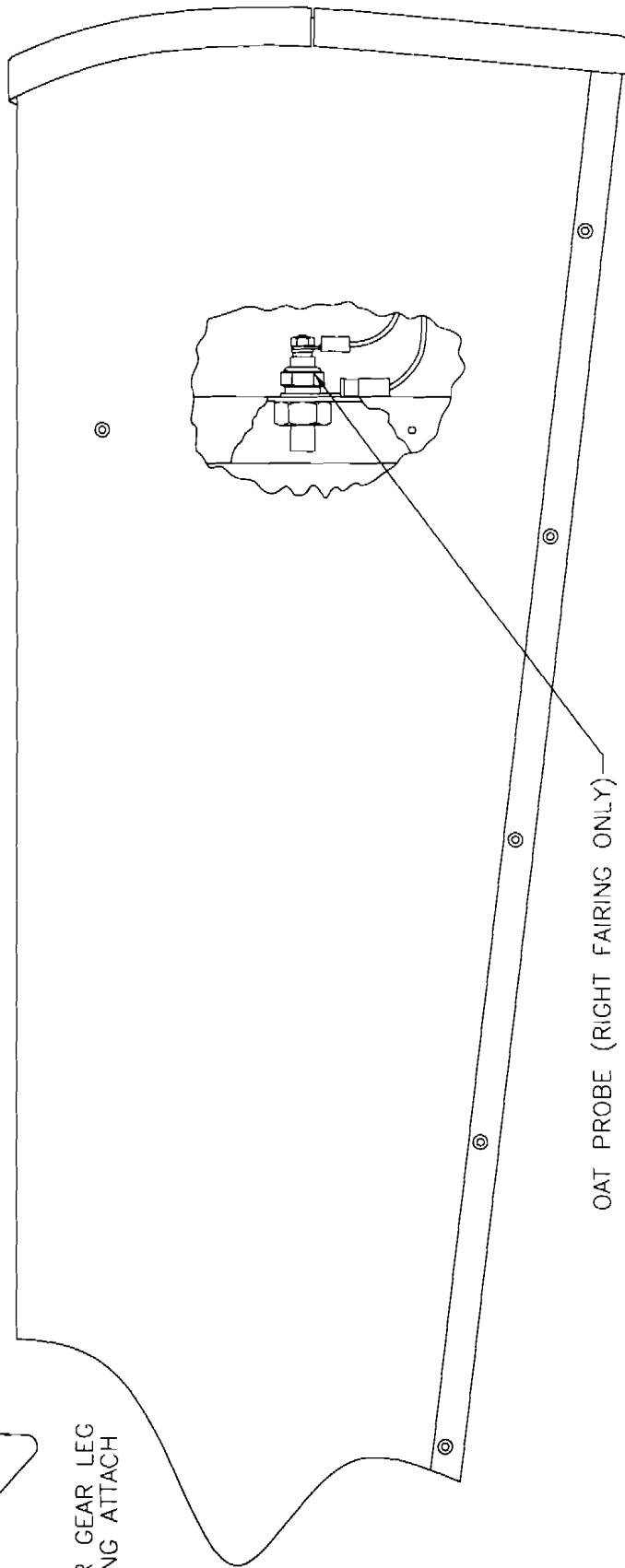
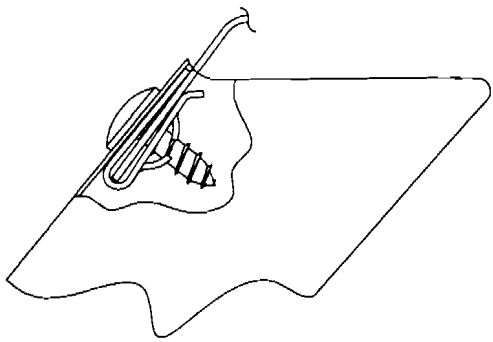
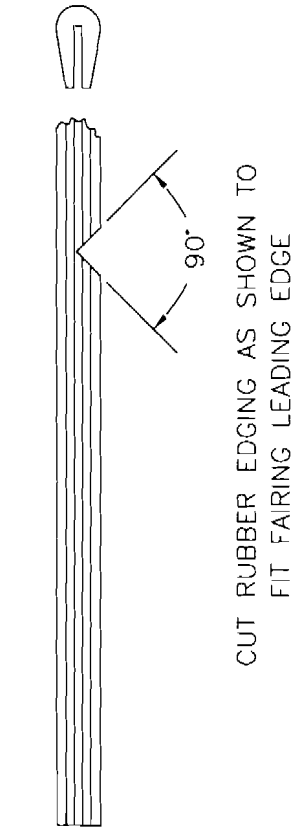
PARALLEL TO GROUND  
IN TAXI POSITION

MD4290  
REV. A

**RRRMS S-7S**  
**GEAR LEG ALIGNMENT JIG FIGURE 01-06**

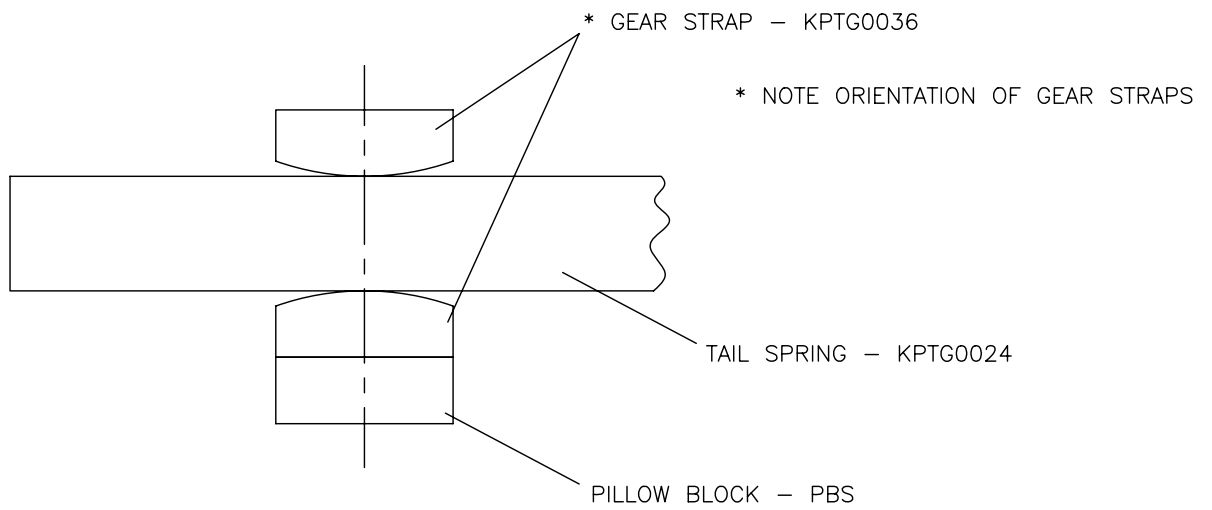


**RANS S-7S**  
**GEAR LEG FAIRING FIGURE 01-07**



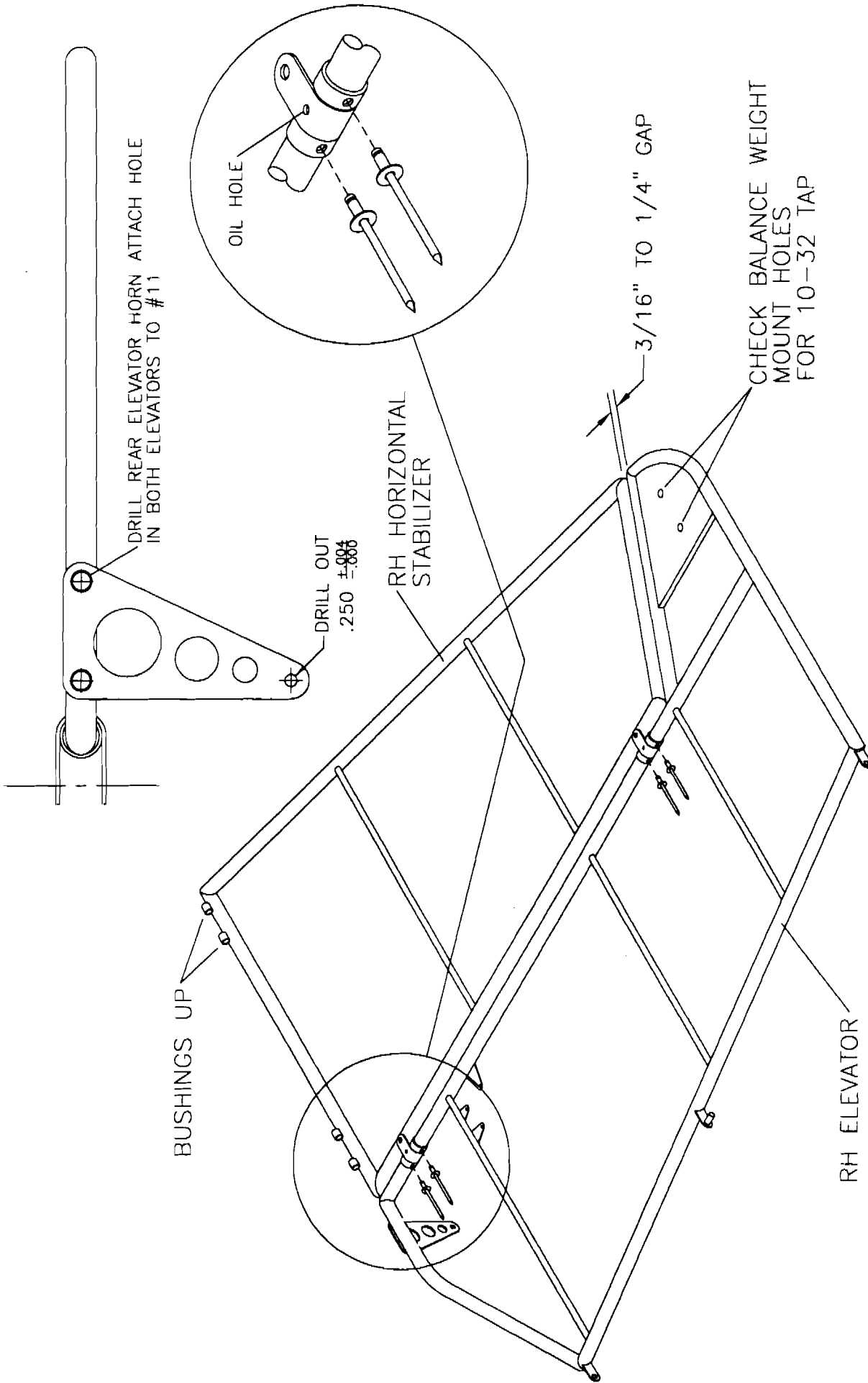
MD4272

**RAMS S-7S COURIER**  
**GEAR LEG FAIRING FIGURE 01-08**



MD5054

**RANS S-7S**  
**TAIL SPRING INSTALLATION FIG. 01-08A**



DRILL REAR ELEVATOR HORN ATTACH HOLE  
IN BOTH ELEVATORS TO #11

OIL HOLE

DRILL OUT  
.250 ±.004

RH HORIZONTAL  
STABILIZER

3/16" TO 1/4" GAP

CHECK BALANCE WEIGHT  
MOUNT HOLES  
FOR 10-32 TAP

BUSHINGS UP

RH ELEVATOR

**RAM S-7S**

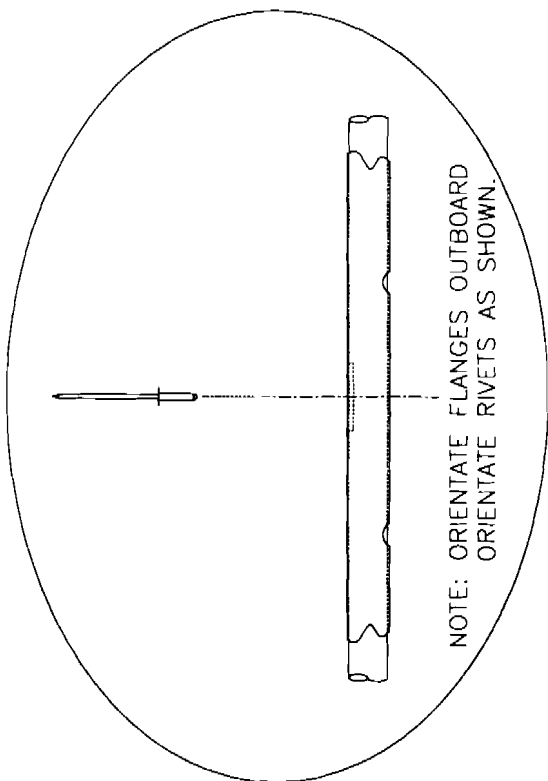
MD4286  
REV. A

**ELEVATOR HINGE ALIGNMENT FIGURE 01-09**

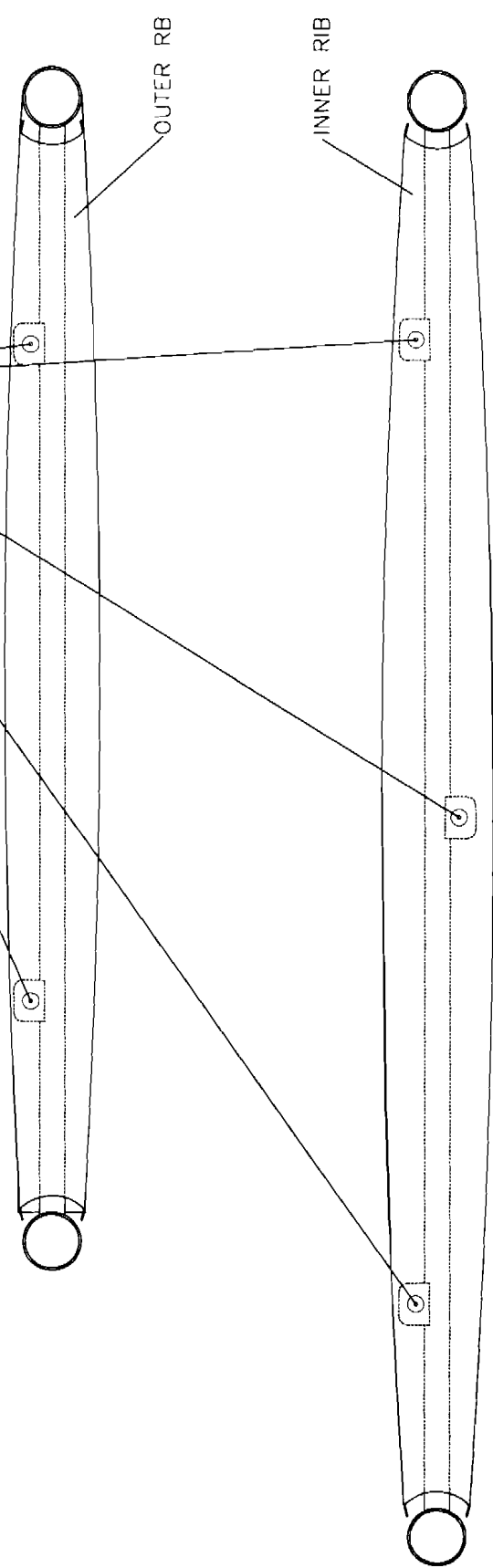
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 S-7S  
FIGURE 01-10

MD4318



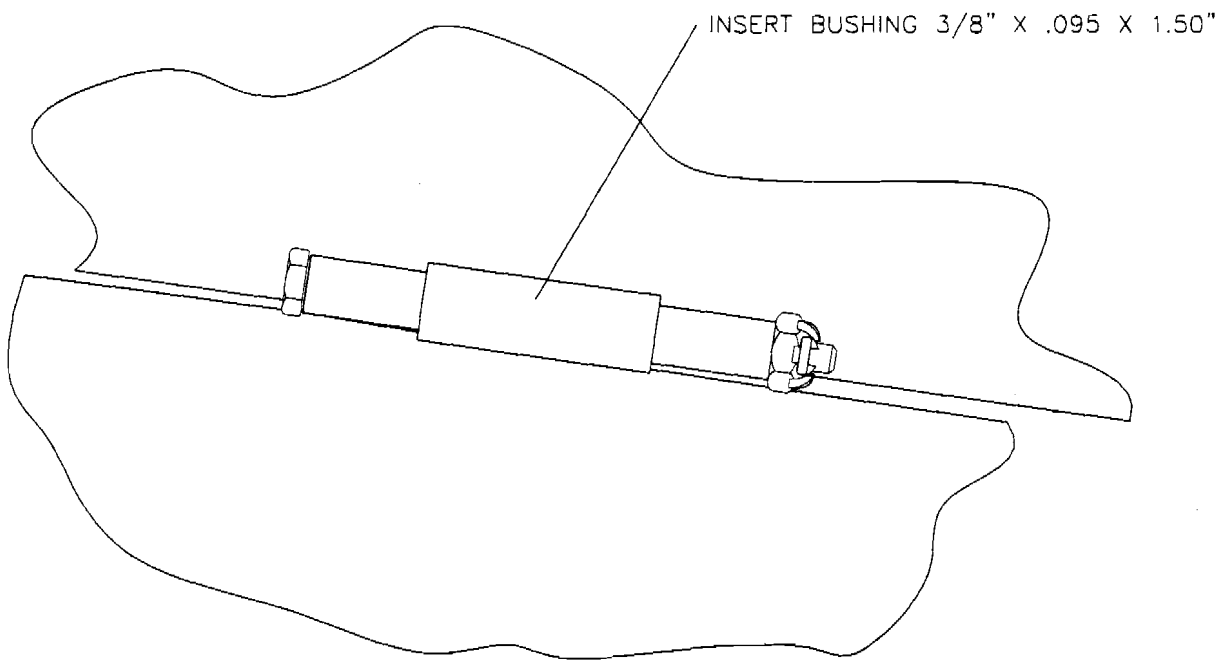
TRANSFER DRILL #30 THROUGH TABS



MD4285

RRAN S-7S

HORIZONTAL STABILIZER RIBS FIGURE 01-11

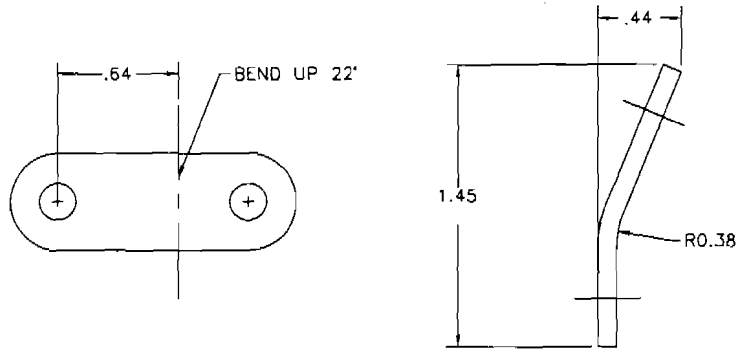


MD4308

**RANS S-7S**  
**HORIZONTAL TAIL TO FUSELAGE**  
**ATTACH (TYPICAL) FIGURE 01-12**



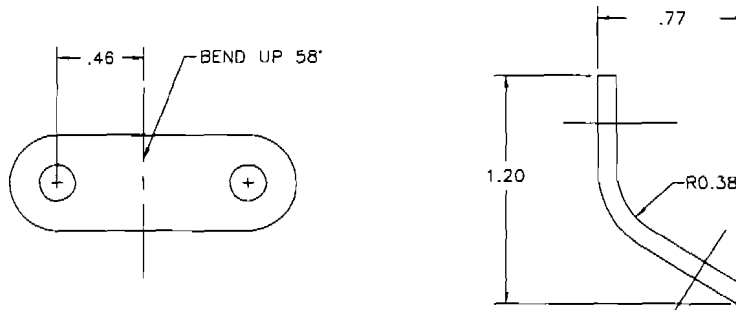
1:1



BEND PROFILE

ATTACH TANG  
HORIZONTAL STABILIZER BOTTOM  
MAKE (6)

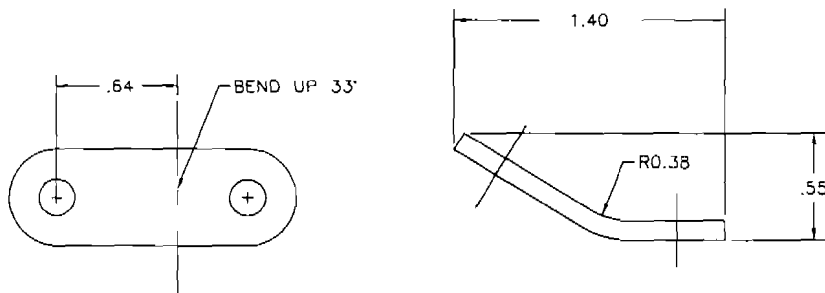
1:1



BEND PROFILE

ATTACH TANG  
VERTICAL FIN MAKE (4)

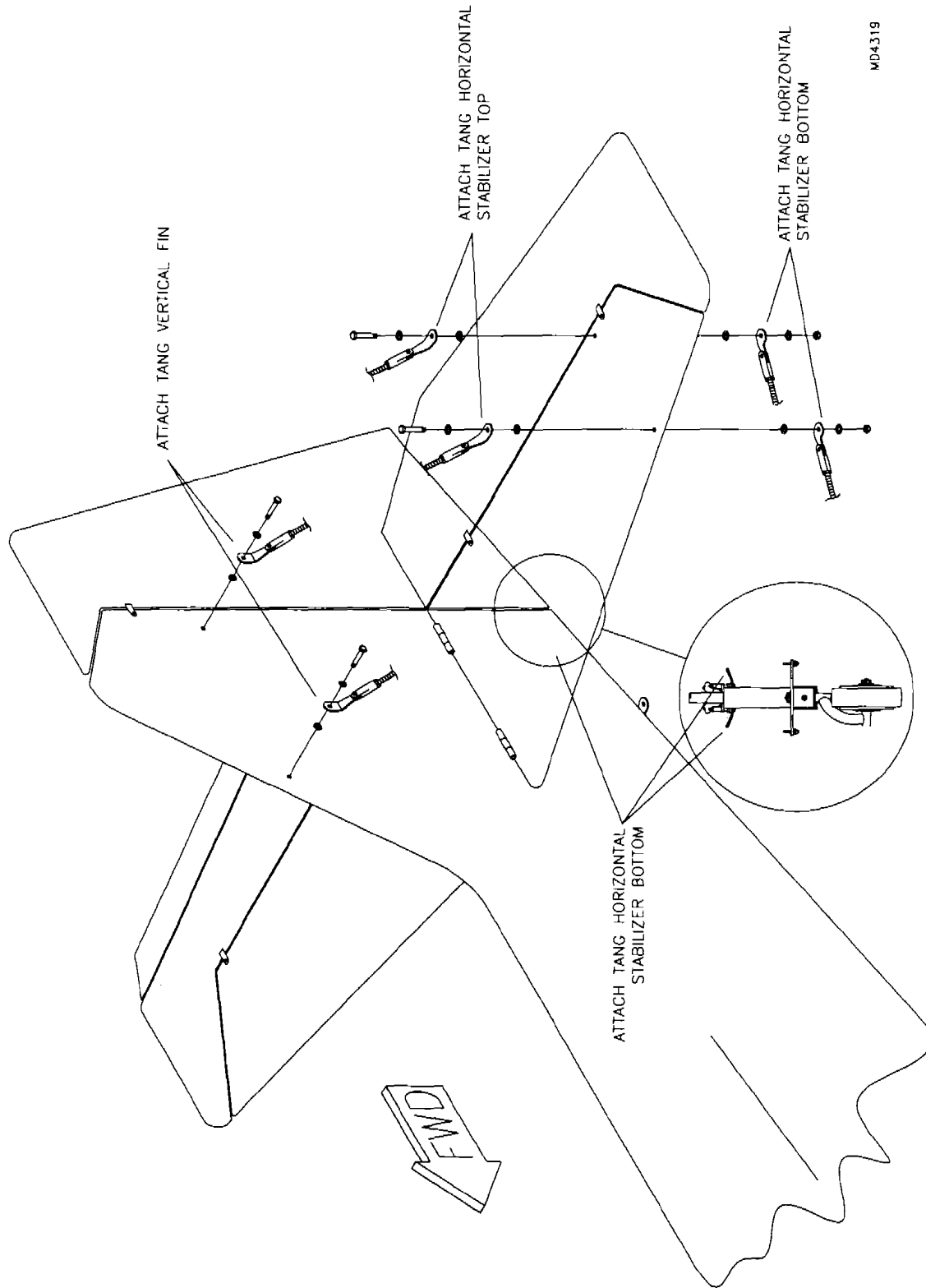
1:1



ATTACH TANG  
HORIZONTAL STABILIZER TOP  
MAKE (4)

MD4313

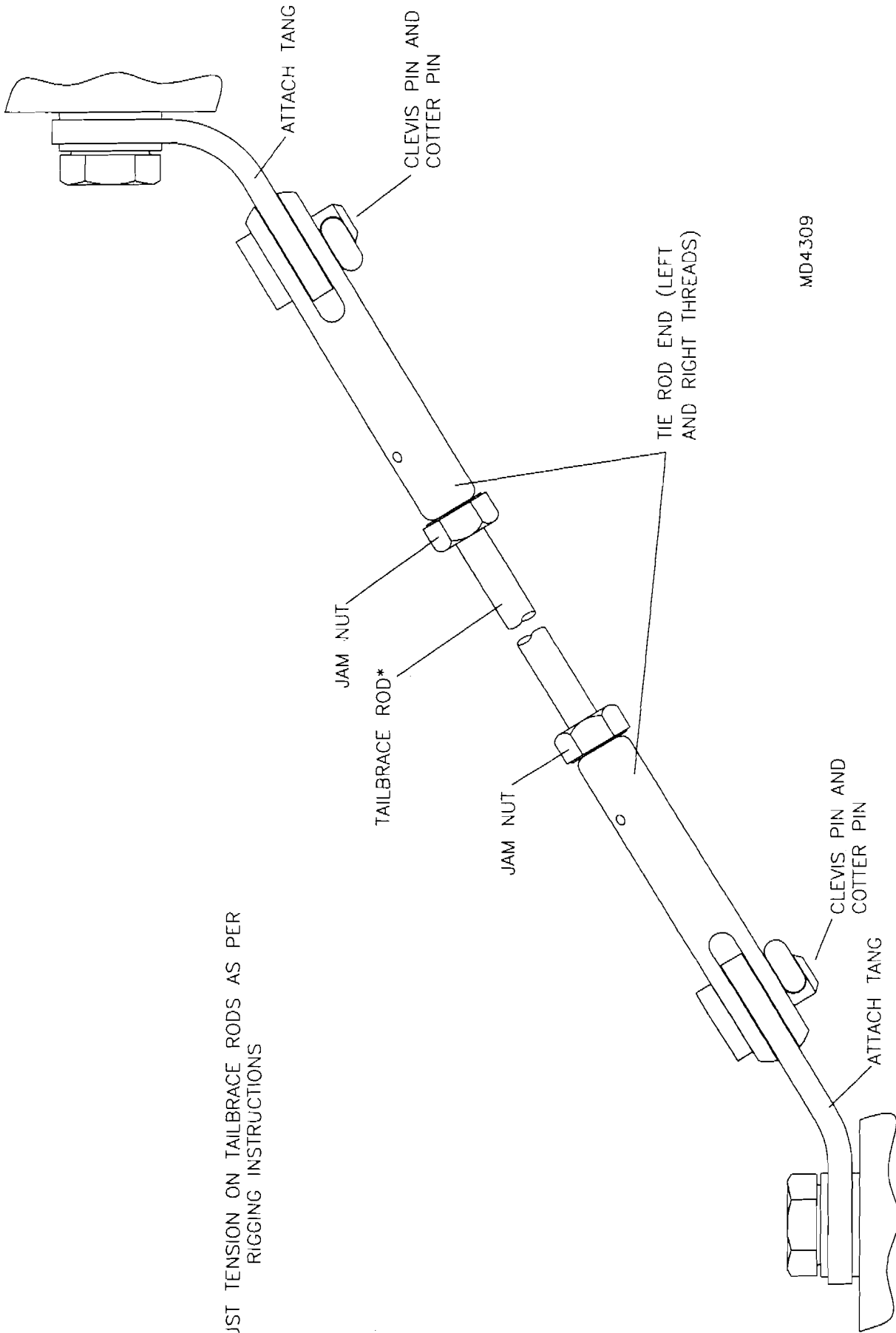
**RAMS S-7S**  
**MODIFIED TANGS FOR TAIL BRACE**  
**ROD ATTACH FIGURE 01-13**



MD4319

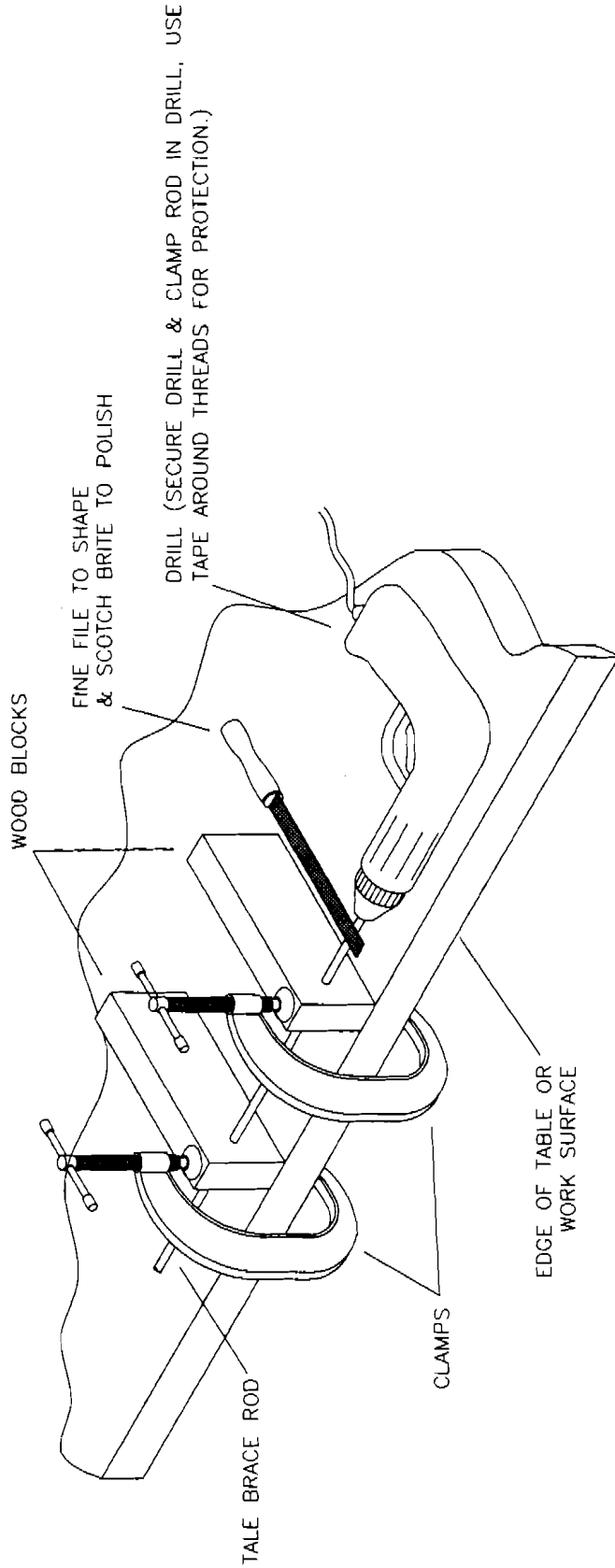
**RRAMES S-7S**  
**TANG LOCATIONS FOR TAIL BRACE RODS**  
**FIGURE 01-14**

\* ADJUST TENSION ON TAILBRACE RODS AS PER RIGGING INSTRUCTIONS

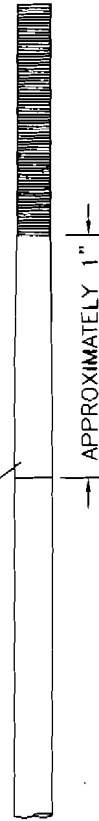


MD4309

**RRR S-7S**  
**HORIZONTAL TAIL BRACING (TYPICAL) FIGURE 01-15**



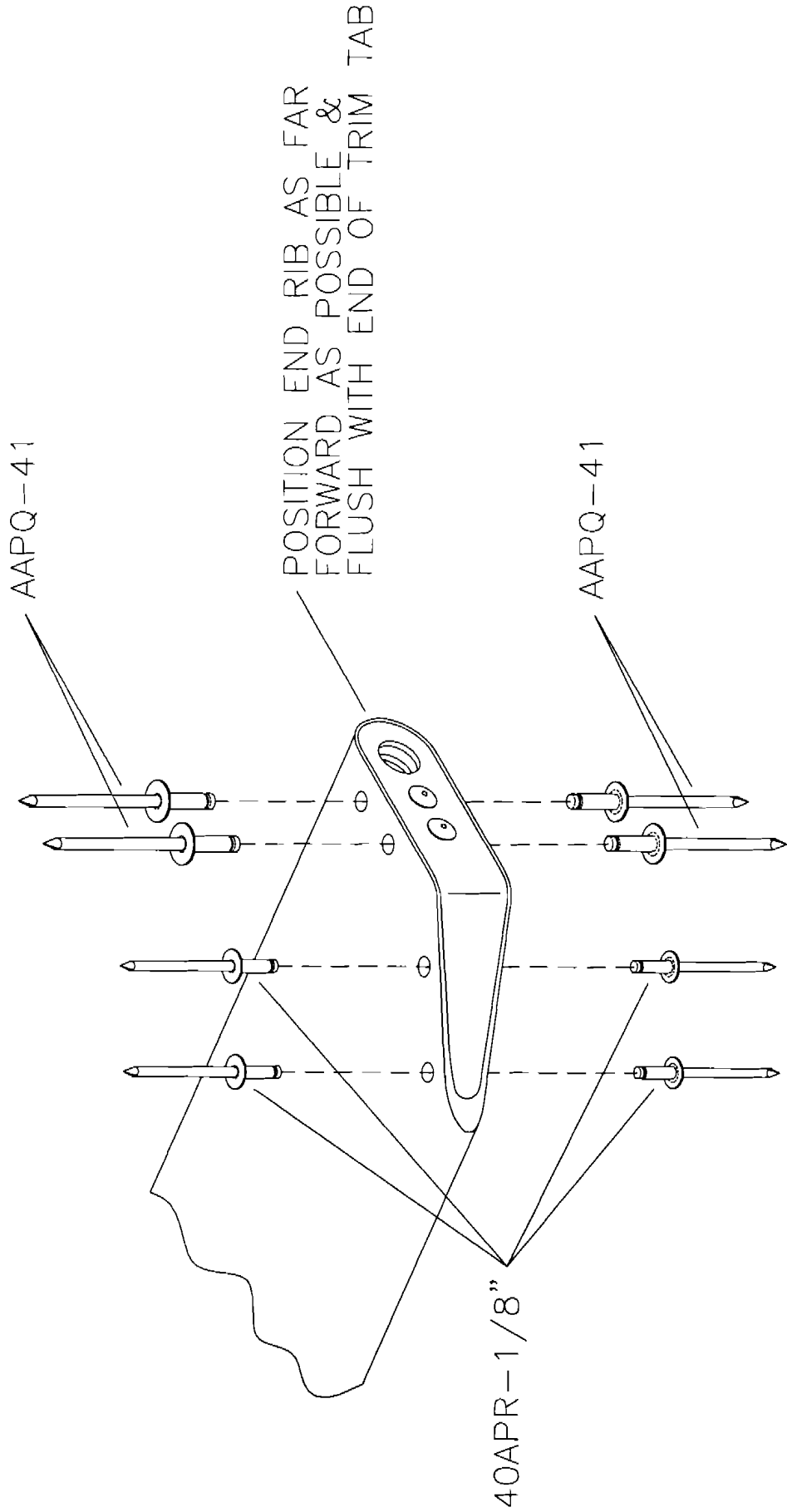
SMOOTH TRANSITION AREA FROM FULL DIA. TO THREAD DIA. - NO ABRUPT CHANGES IN CROSS SECTION.



MD4464

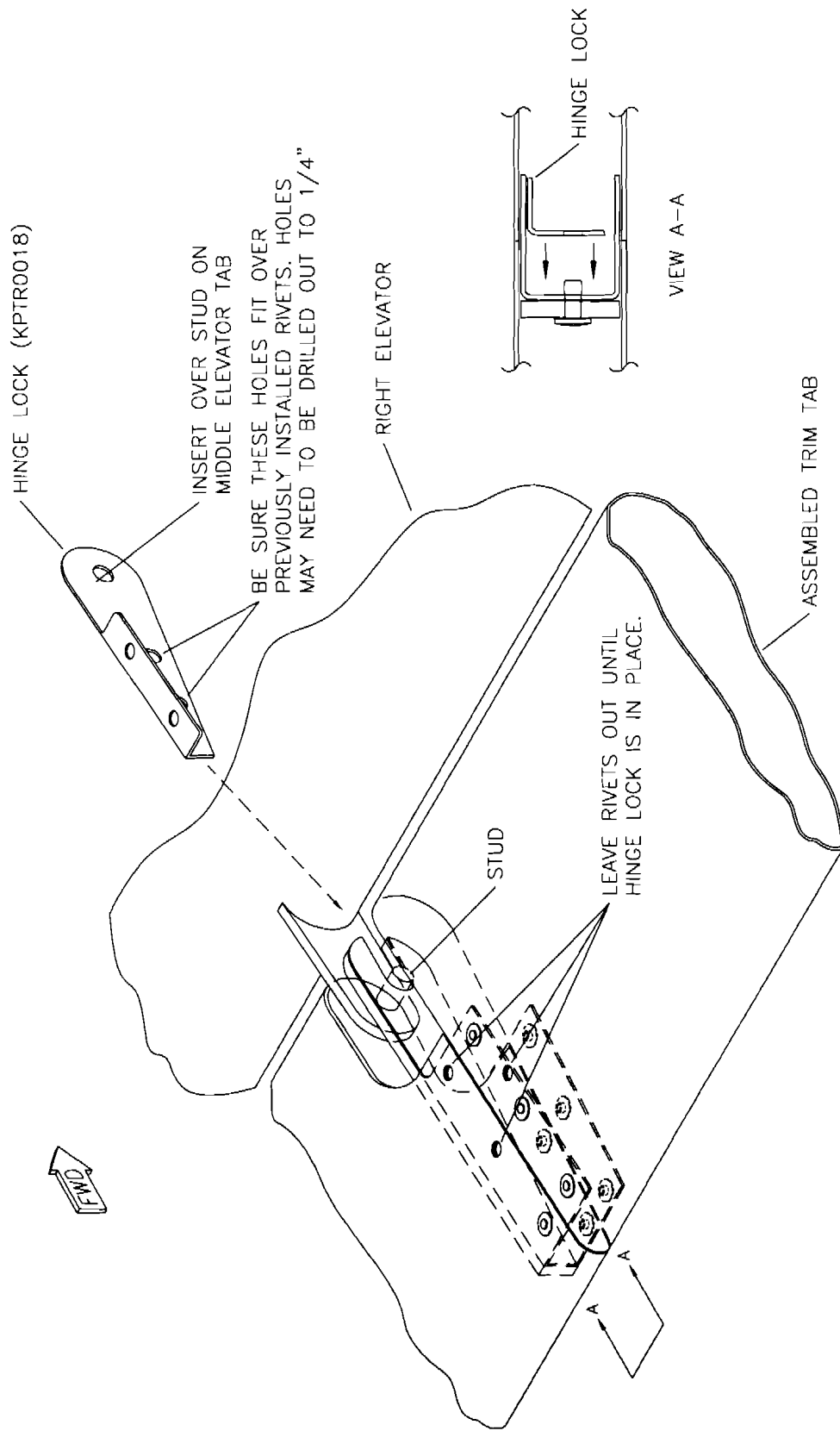
RRR S-7S

TAIL BRACE ROD MODIFICATION FIGURE 01-15A



MD4306

**RRANES S-7S**  
**TRIM TAB AND RIBS FIGURE 01-16**

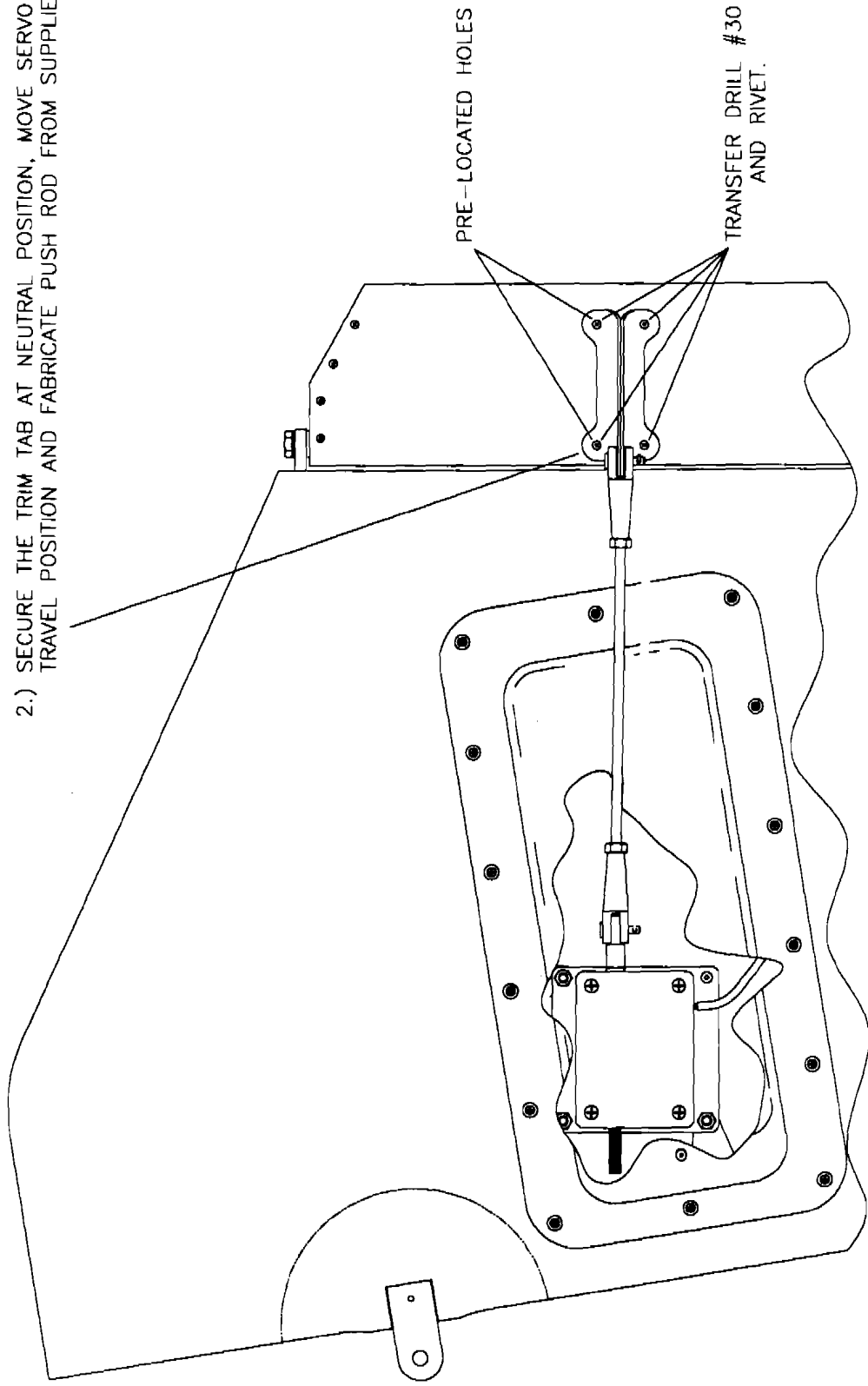


MD4297

**RRANOS S-7S**

**TRIM TAB CENTER RIB AND HINGE LOCK FIGURE 01-17**

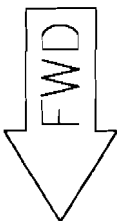
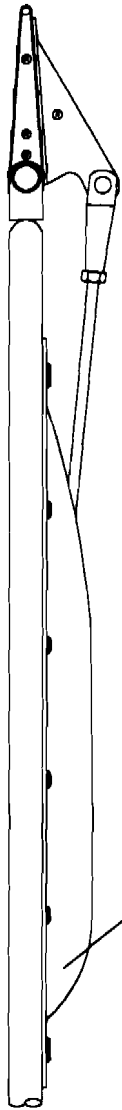
- 1.) LOCATE TRIM TAB HORNS USING TWO (2) PRE-LOCATED HOLES IN INBOARD TRIM TAB. TRANSFER DRILL ALL HOLES #30 AND RIVET.
- 2.) SECURE THE TRIM TAB AT NEUTRAL POSITION, MOVE SERVO TO HALF TRAVEL POSITION AND FABRICATE PUSH ROD FROM SUPPLIED MATERIAL.



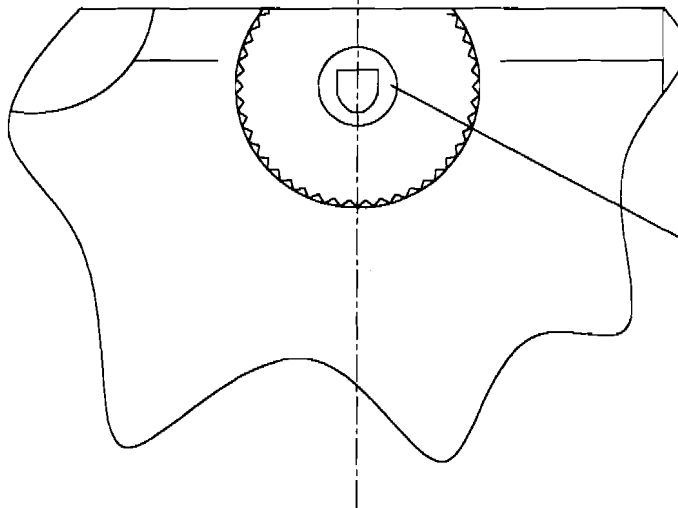
MD4317

**RAMS** S-7S

### TRIM TAB HORN INSTALLATION FIGURE 01-18

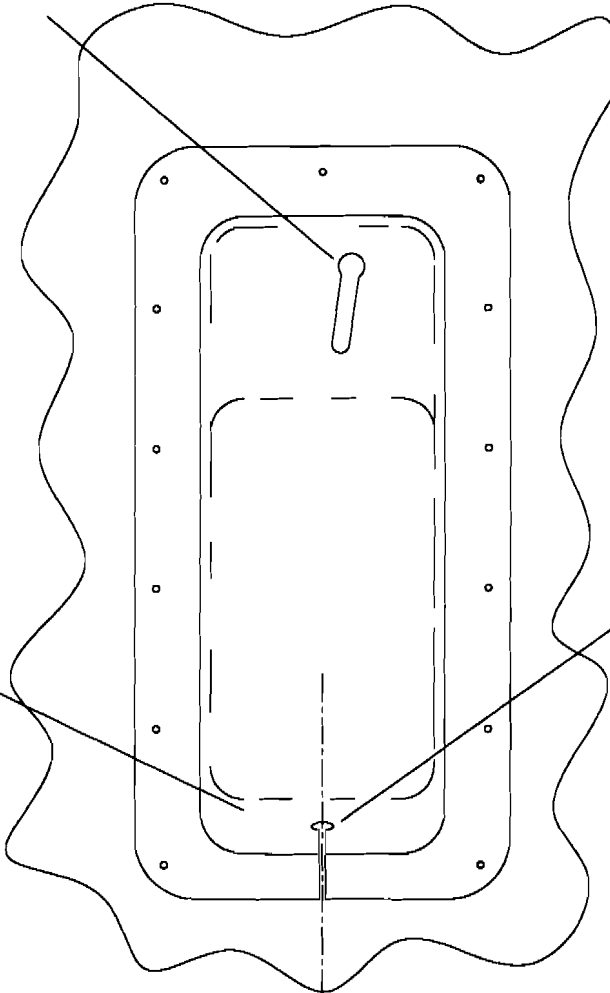


ROUND PART OF FAIRING IS FORWARD.



SERVO WIRING EXIT  
ON HORIZONTAL STAB  
(SEAPLANE GROMMET)

SERVO PUSH ROD EXIT  
LOCATE HOLE TO ALLOW  
FULL SERVO TRAVEL EACH  
WAY. (USE 1:1 TEMPLATE)



SERVO WIRING EXIT

LOCATE AND DRILL 1/4" FOR BEST FIT WITH SERVO WIRING  
AND SEAPLANE GROMMET ON HORIZONTAL STABILIZER.  
SLOT FAIRING IF DESIRED FOR EASY REMOVAL.  
INSTALL RUBBER GROMMET IN FINAL INSTALLATION.

**RAMMS** S-7S

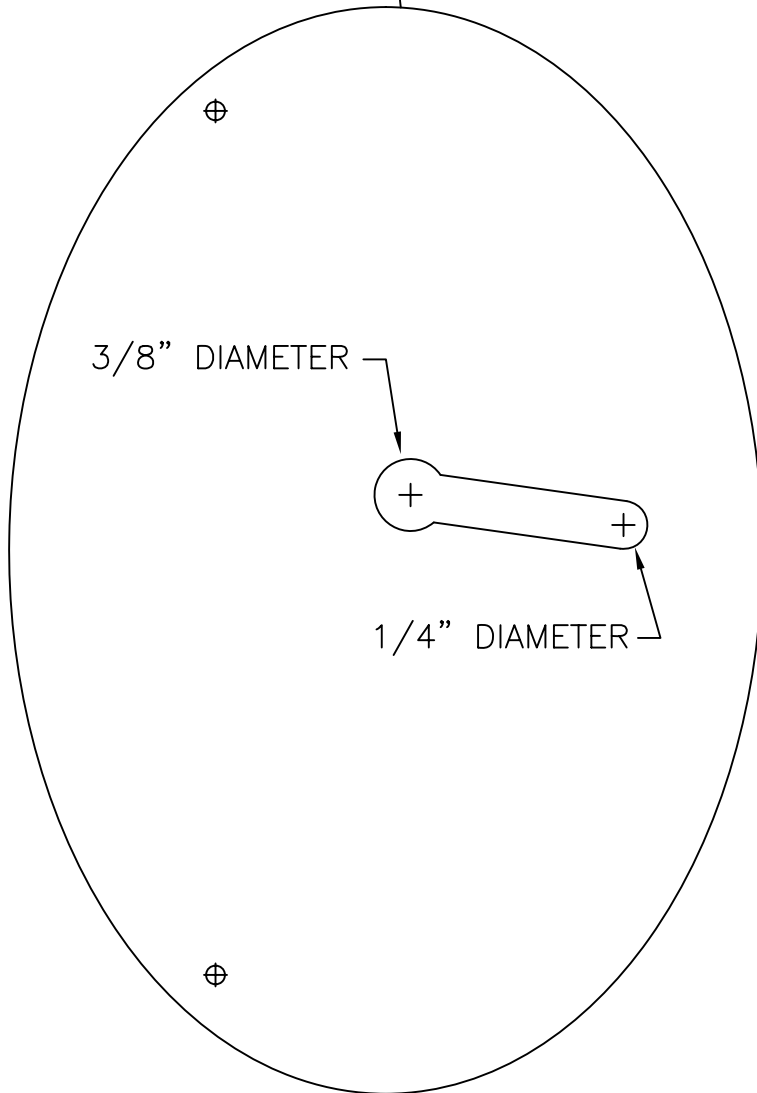
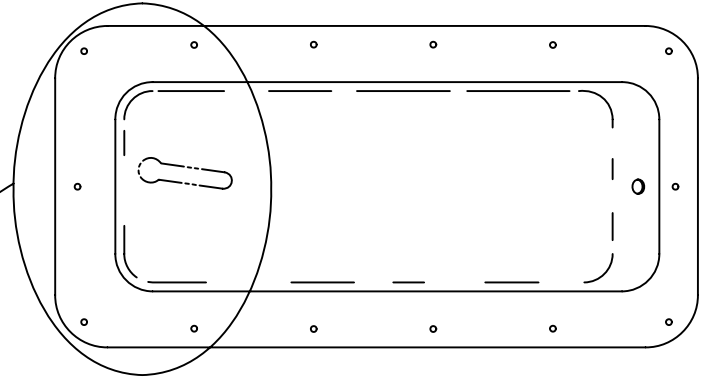
MD4316

## INSTALLATION OF TRIM EXIT

### FAIRING FIGURE 01-19

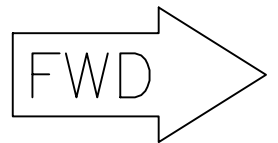


USE 1:1 TEMPLATE TO  
LOCATE CUT-OUT AS SHOWN



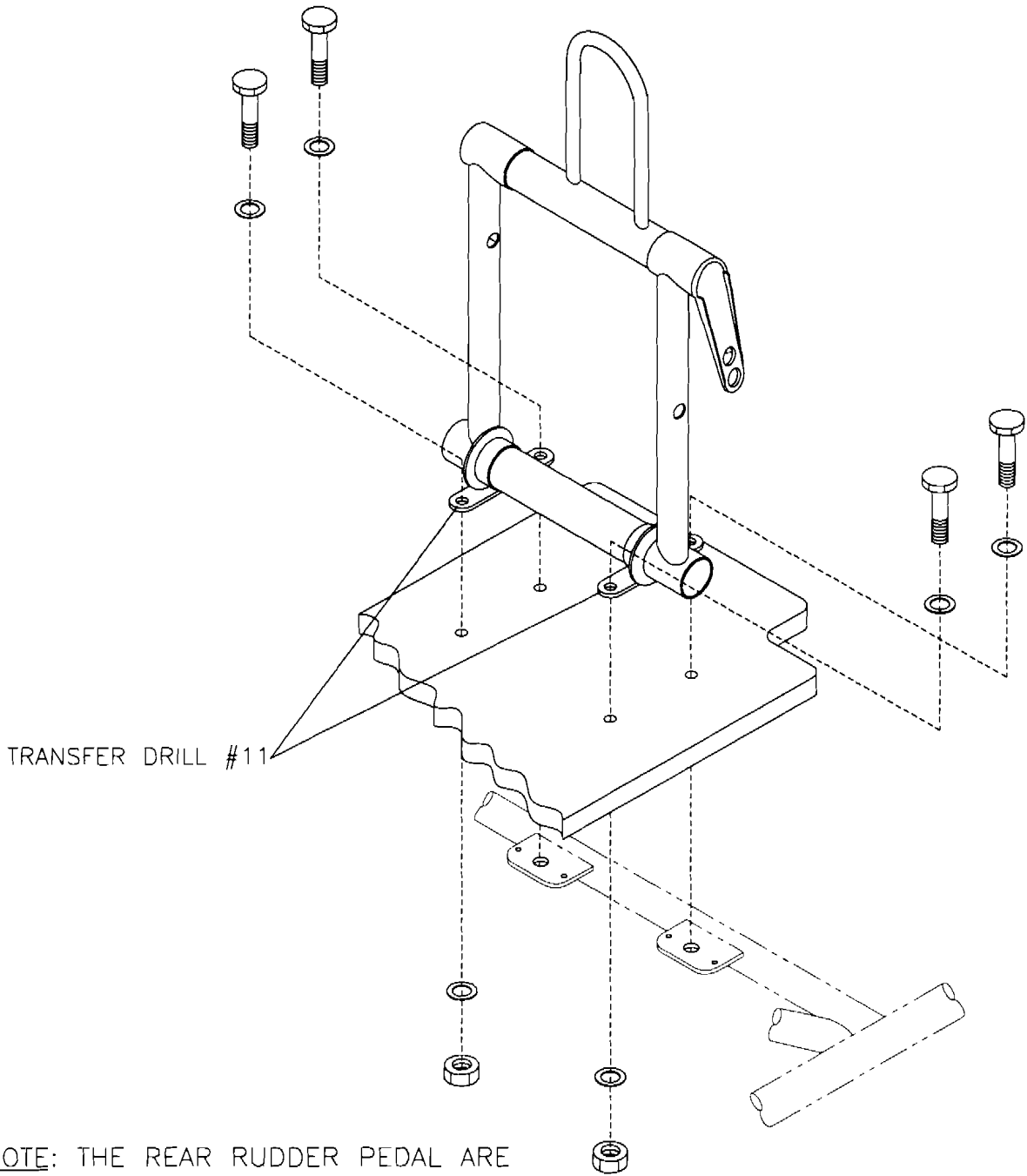
1:1 TEMPLATE

MD4487  
REV. A



**RANS S-7S**  
**TRIM EXIT FAIRING - SERVO PUSH ROD EXIT**  
**FIGURE 01-19A**

04/07/2010

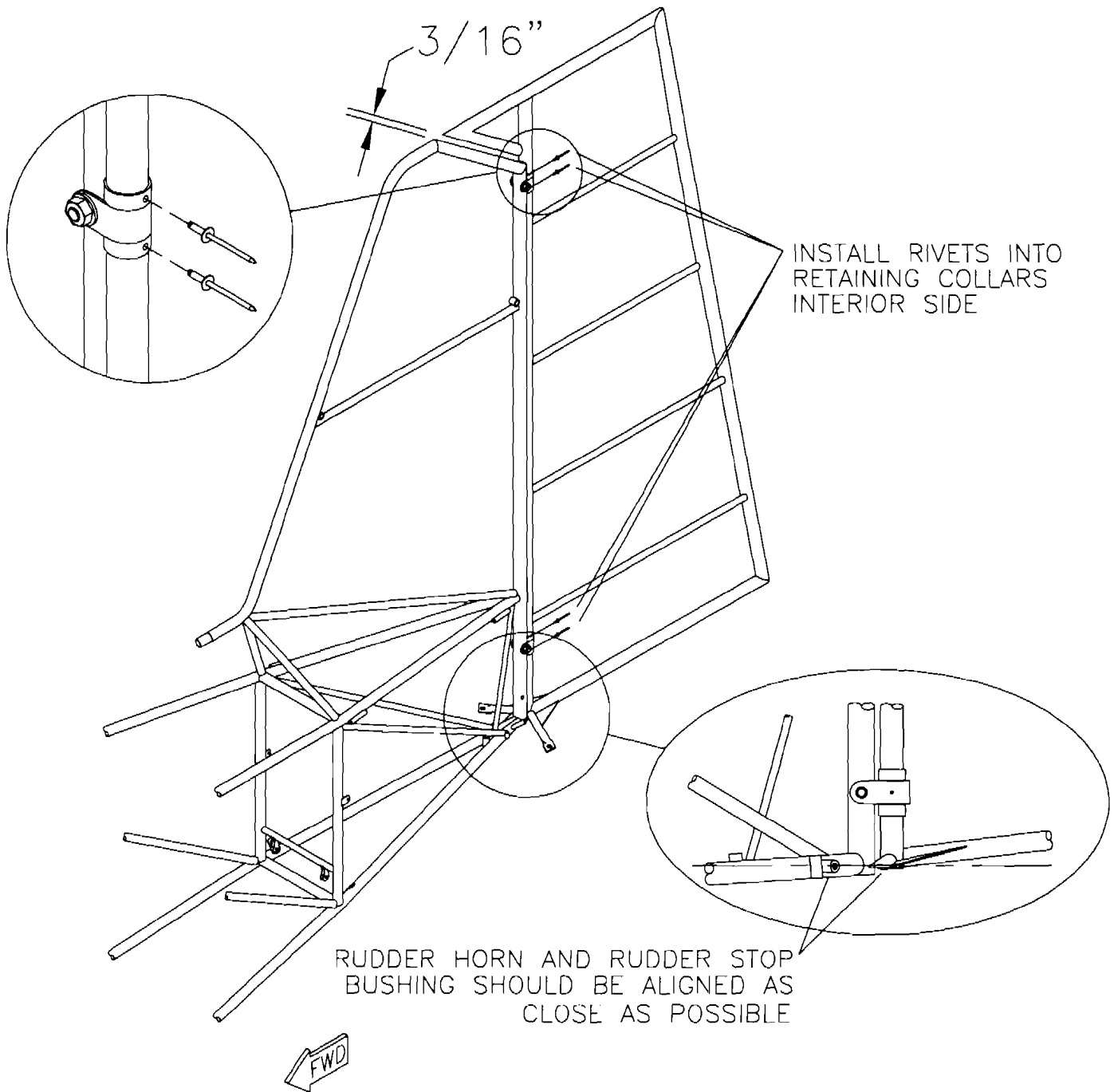


TRANSFER DRILL #11

NOTE: THE REAR RUDDER PEDAL ARE BOLTED AT THE FRONT TO THE WELDED TABS AND AT THE AFT TO THE FLOORBOARD ONLY.

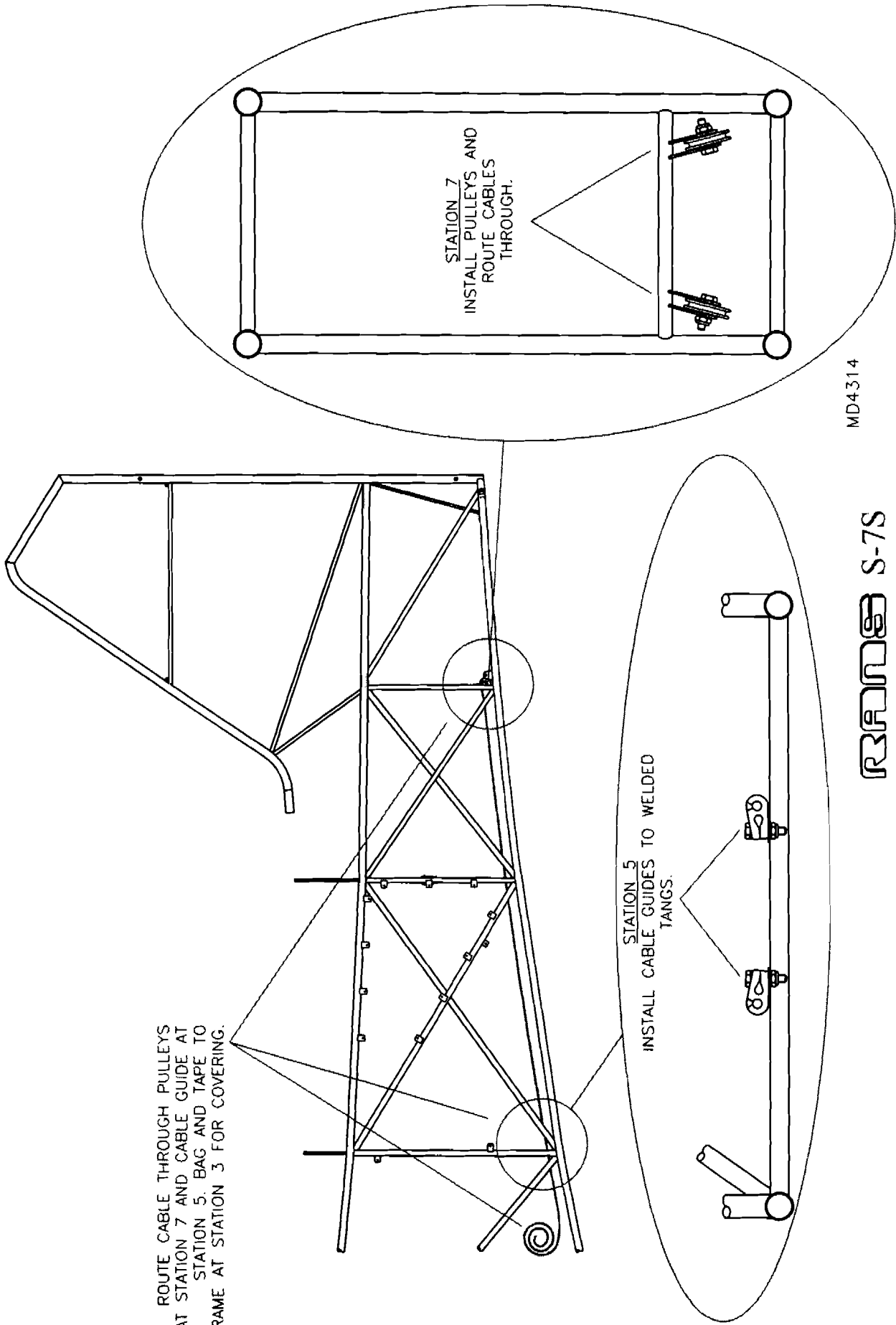
MD4305

**RANS S-7S**  
**REAR RUDDER PEDAL AND FLOORBOARD FIGURE 01-20**



MD4294

**RANS S-7S**  
**RUDDER HINGE ALIGNMENT FIGURE 01-21**



ROUTE CABLE THROUGH PULLEYS  
AT STATION 7 AND CABLE GUIDE AT  
STATION 5. BAG AND TAPE TO  
FRAME AT STATION 3 FOR COVERING.

STATION 7  
INSTALL PULLEYS AND  
ROUTE CABLES  
THROUGH.

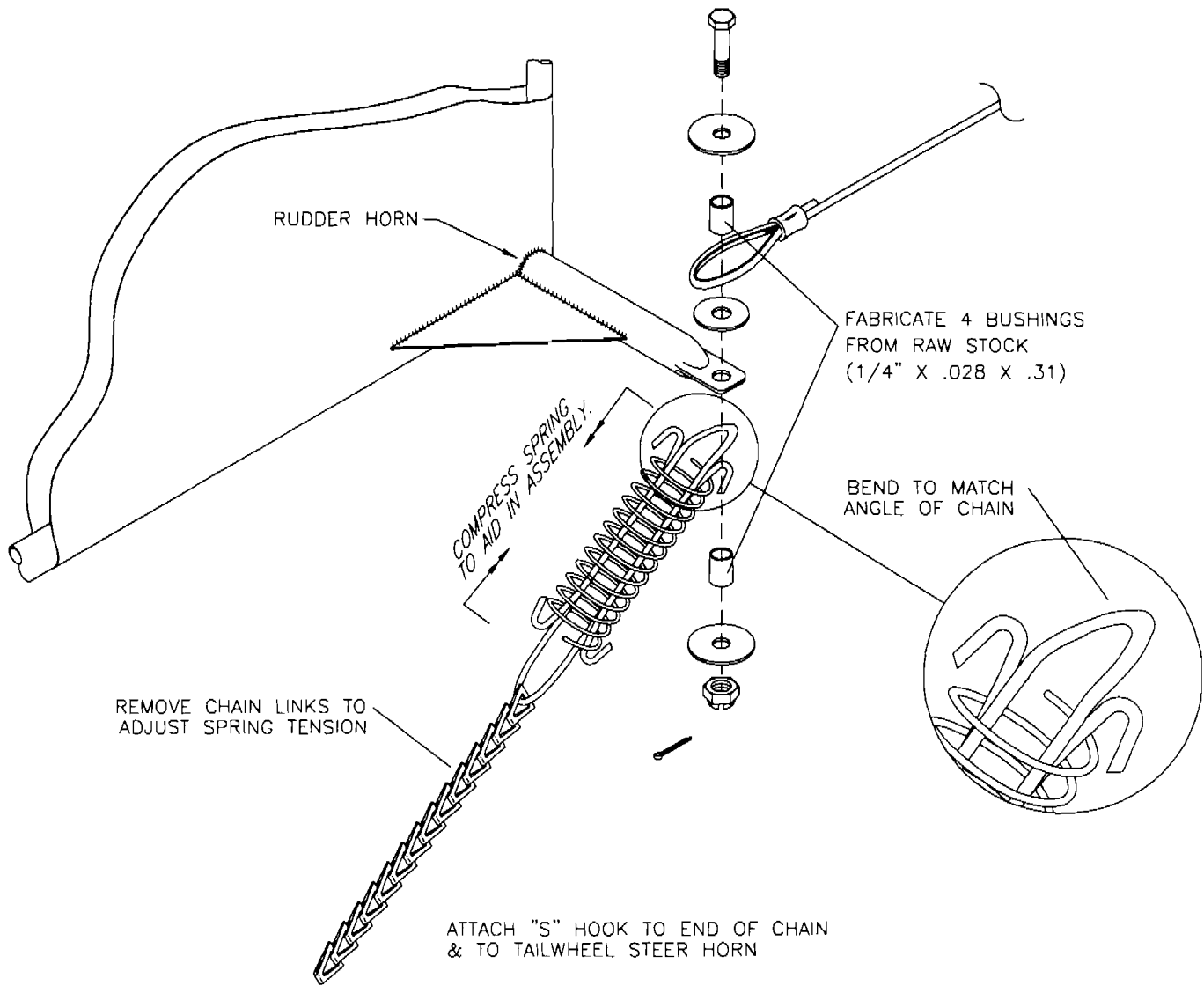
STATION 5  
INSTALL CABLE GUIDES TO WELDED  
TANGS

MD4314

**RRANES** S-7S

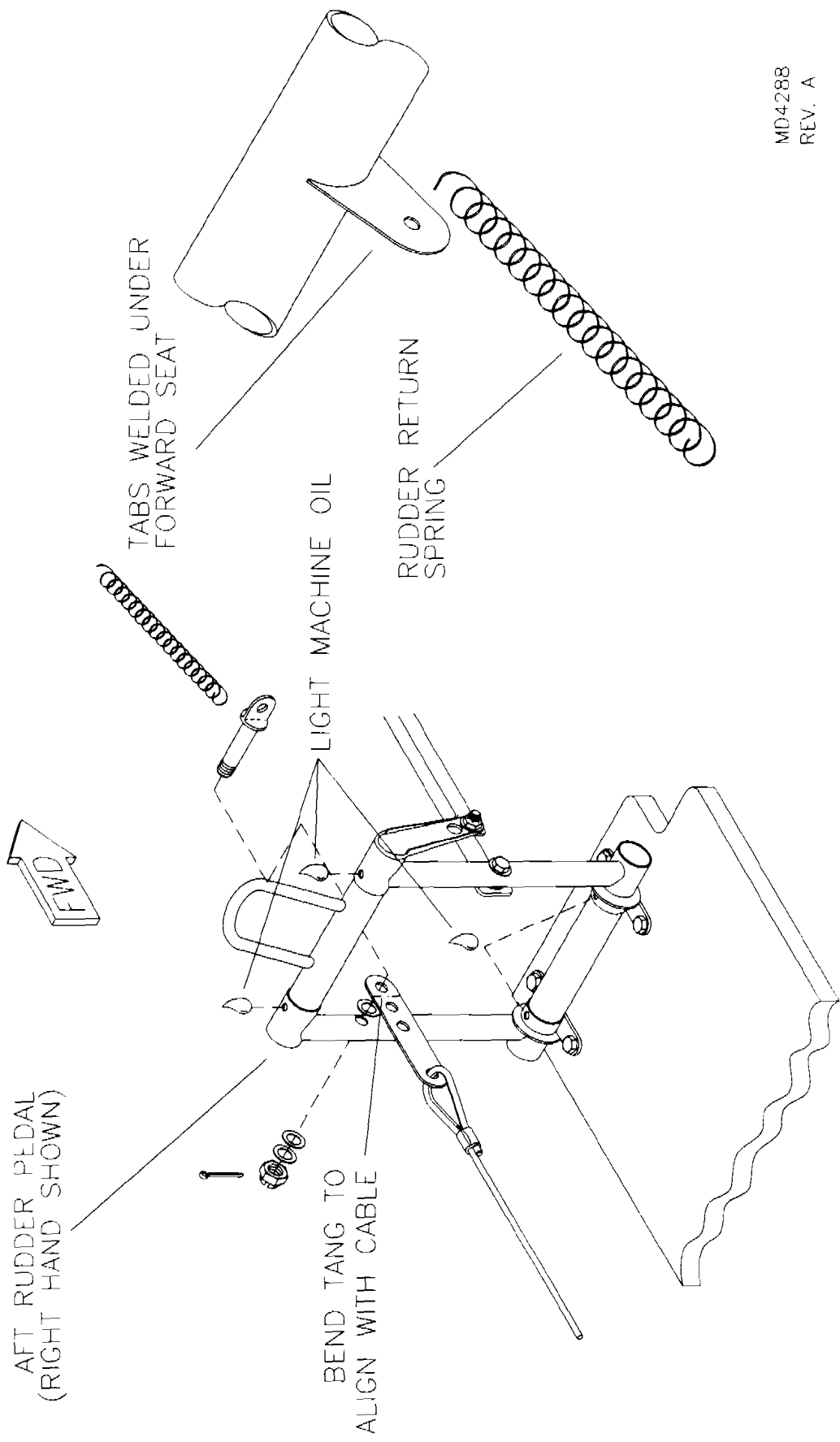
RUDDER CABLE GUIDES AT STATION 5 AND PULLEYS AT STATION 7

FIGURE 01-22



MD4287

**RANS S-7S**  
**RUDDER CABLE TO RUDDER ATTACH FIGURE 01-23**

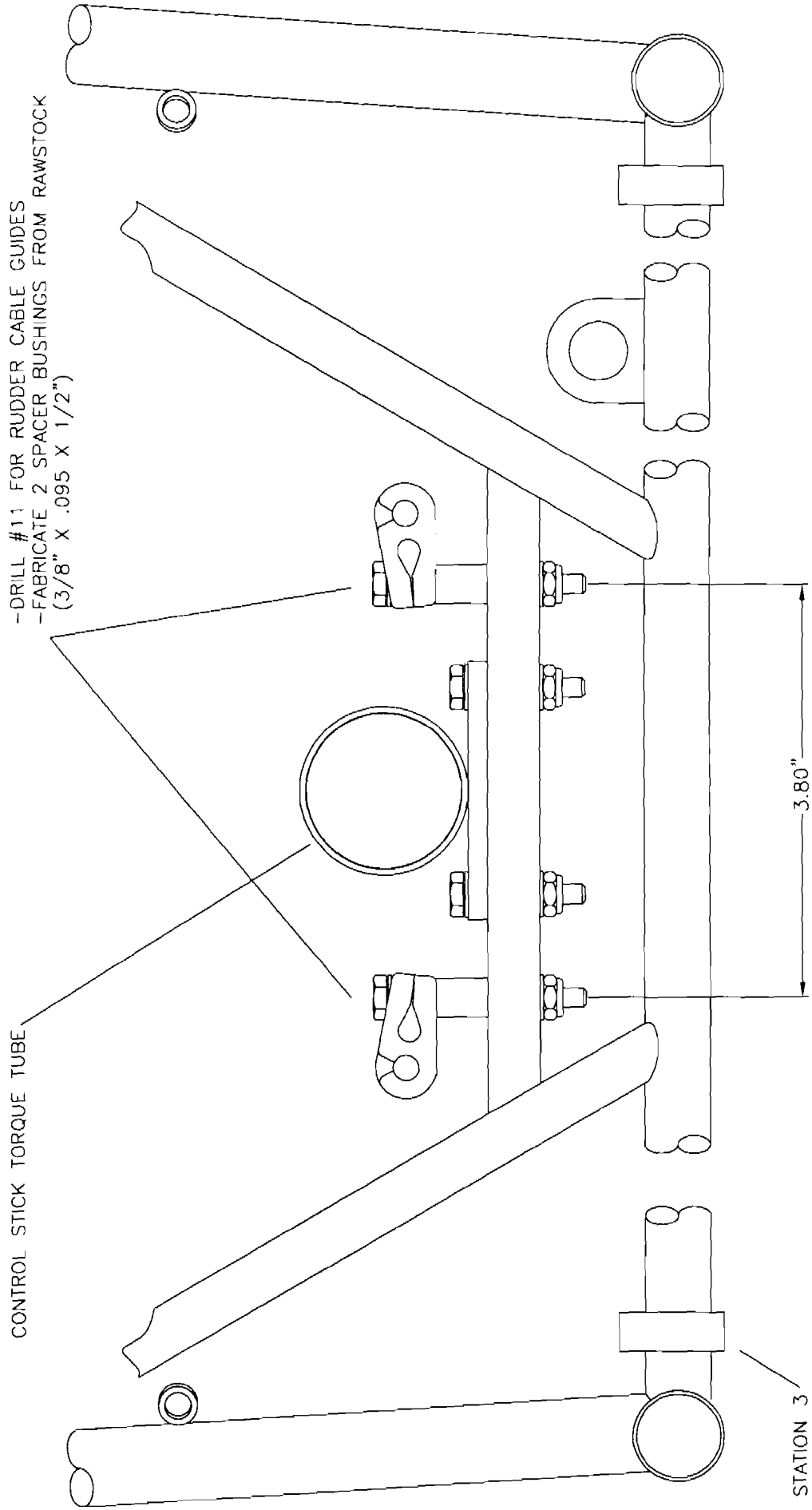


MD4288  
REV. A

RRAMES S-7S

RUDDER CABLE AND RETURN SPRING TO RUDDER PEDAL ATTACH

FIGURE 01-24



-DRILL #11 FOR RUDDER CABLE GUIDES  
 -FABRICATE 2 SPACER BUSHINGS FROM RAWSTOCK  
 (3/8" X .095 X 1/2")

CONTROL STICK TORQUE TUBE

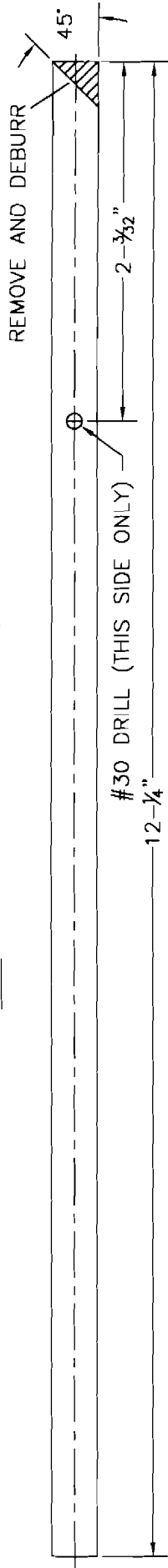
STATION 3

3.80"

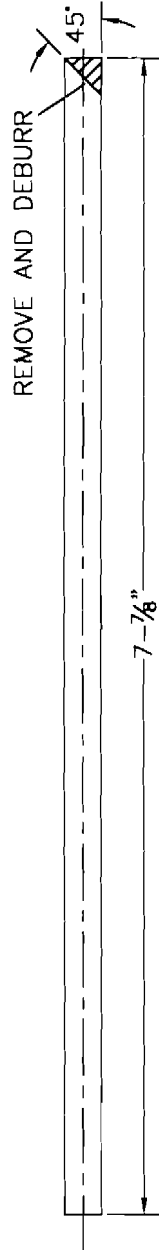
MD4312

**RRRAMES S-7S**  
**RUDDER CABLE GUIDES AS STATION 3**  
**FIGURE 01-25**

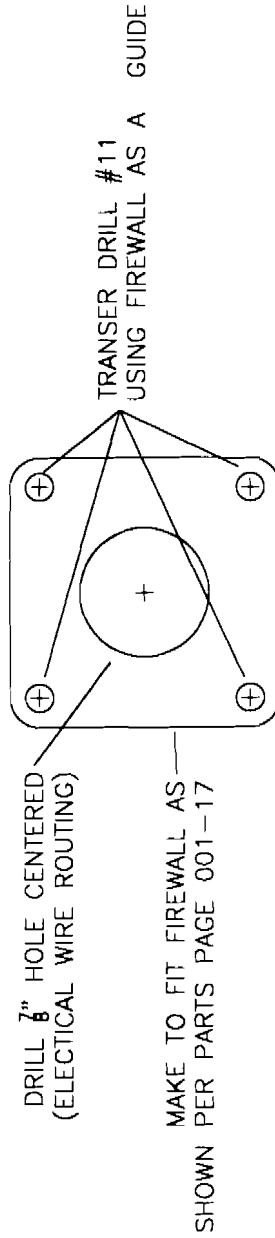
NOTE: FABRICATE FROM RAW STOCK



OIL BOTTLE VENT OVERFLOW TUBE (.375 DIA. X .035 TUBING) - MAKE 1



FUEL OVERFLOW TUBE (.25 DIA. X .028 TUBING) - MAKE 2



FIREWALL CLOSEOUT(.025 ALUMINUM SHEET) - MAKE 1

MD4421

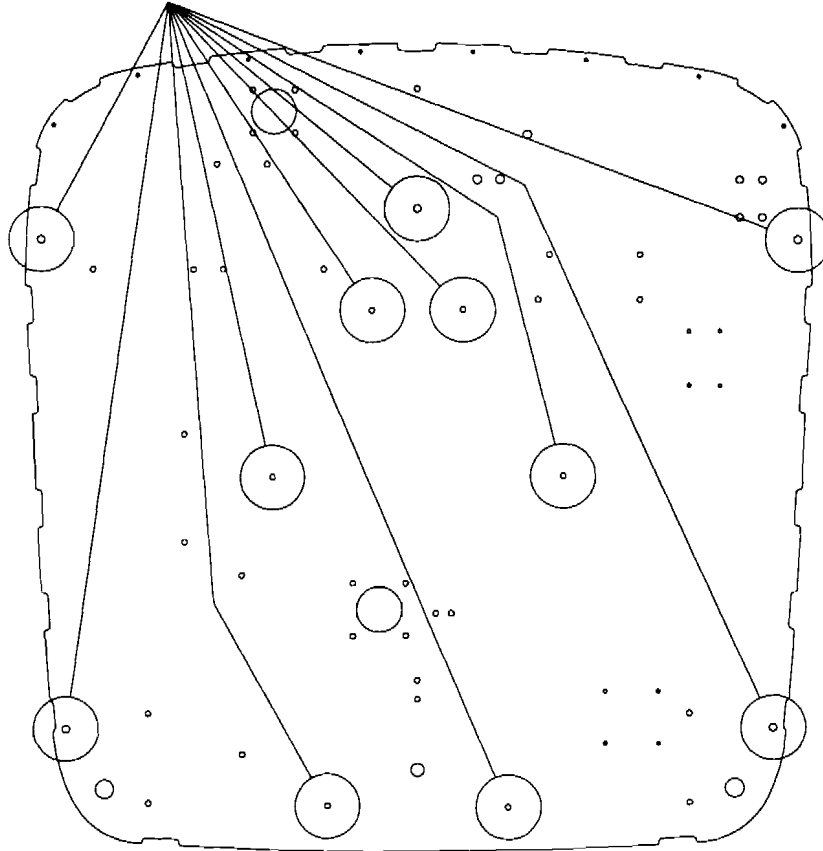
**RAMBO** S-7S

ENGINE COMPARTMENT DRAIN TUBES

FIGURE 01-26



CHECK FIREWALL FIT WITH THESE  
CORRESPONDING FUSELAGE ATTACH  
POINTS, MODIFY IF NECESSARY

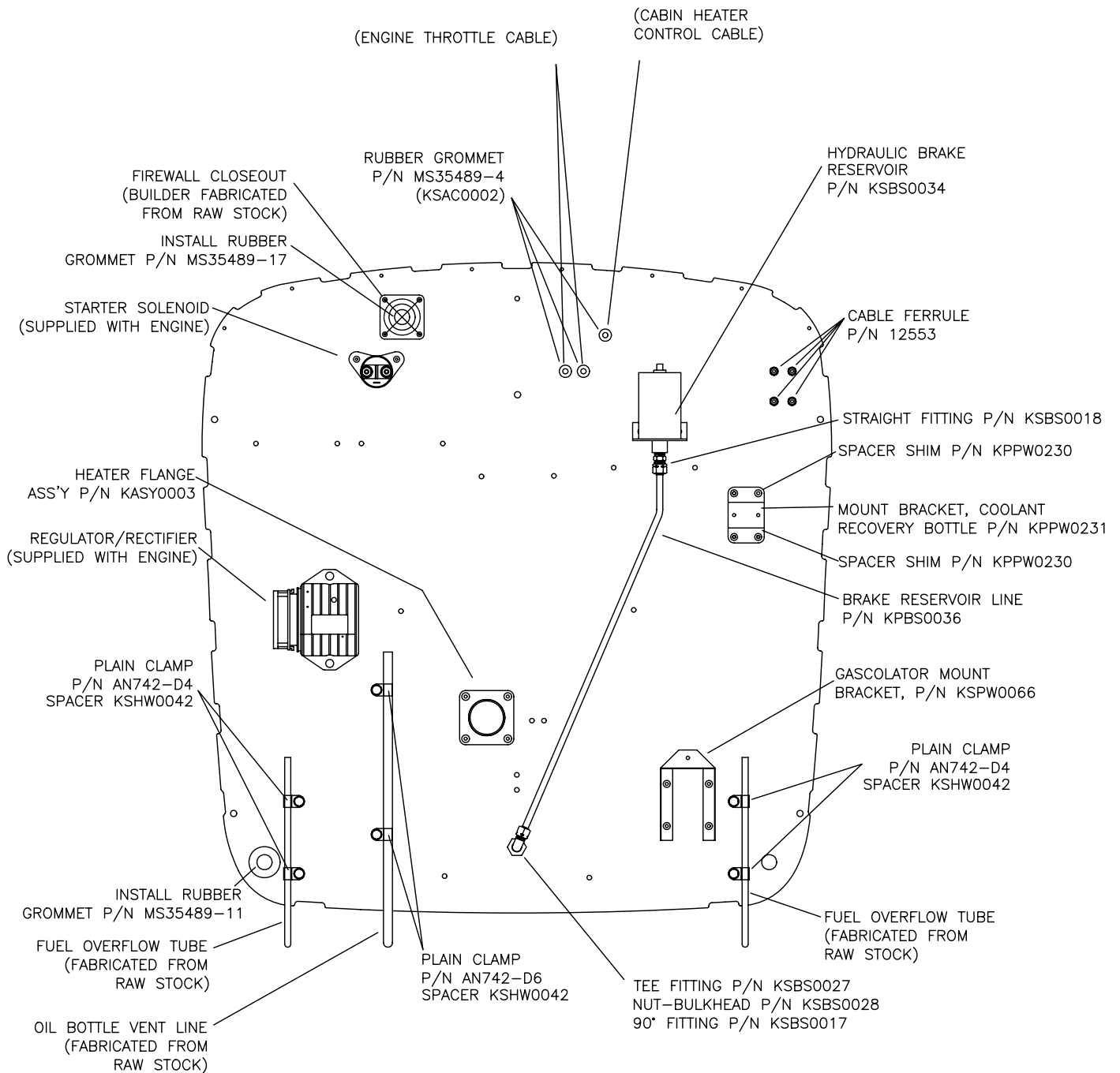


FRONT VIEW

MD4422

**RANS S-7S**  
**FIREWALL FIT UP FIGURE 01-27**

NOTE: ALL HOLES IN FIREWALL  
ARE PRE-LOCATED

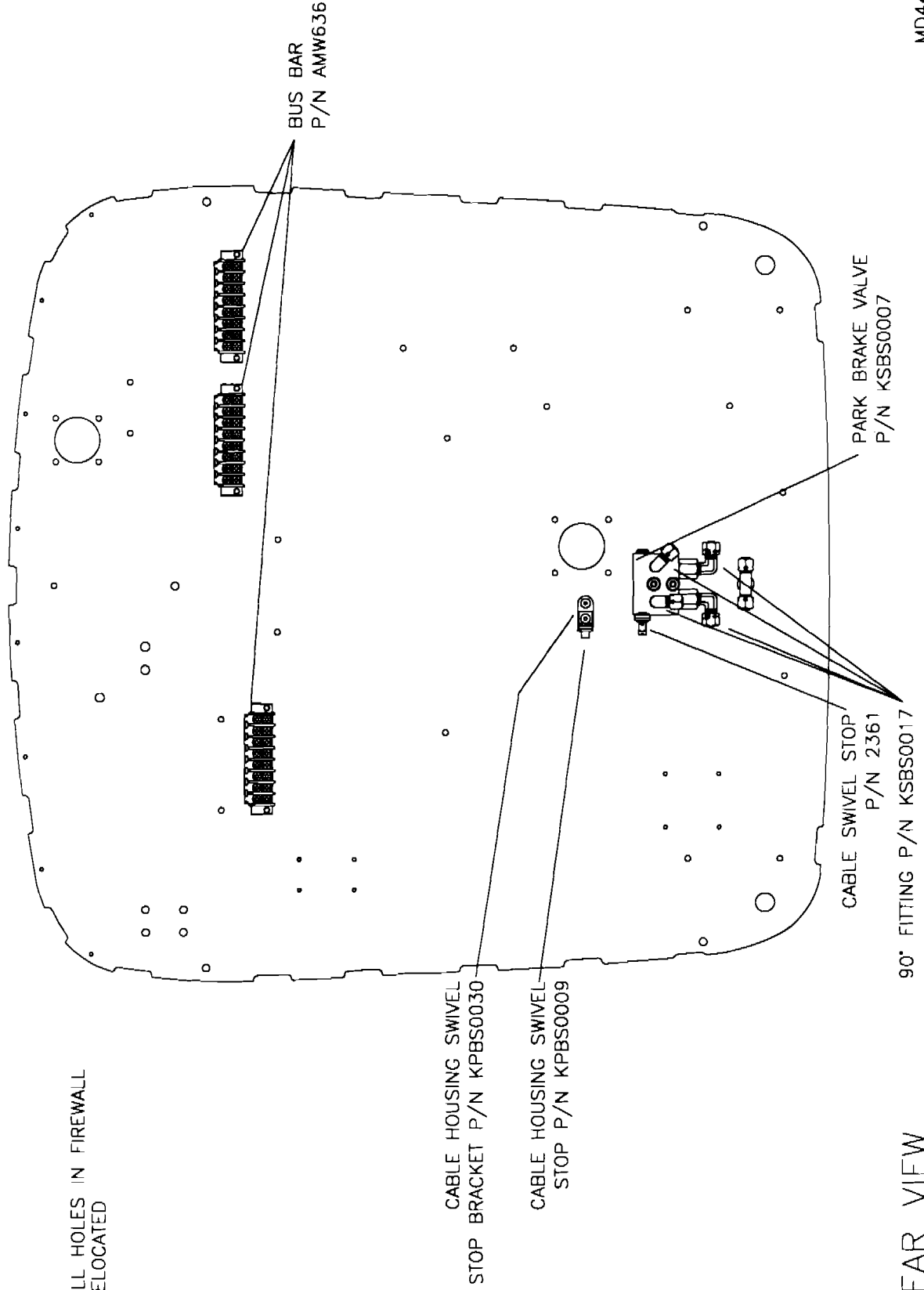


FRONT VIEW

MD4420  
REV. B

**RANS S-7S**  
**FIREWALL ATTACHMENTS FIGURE 01-28**

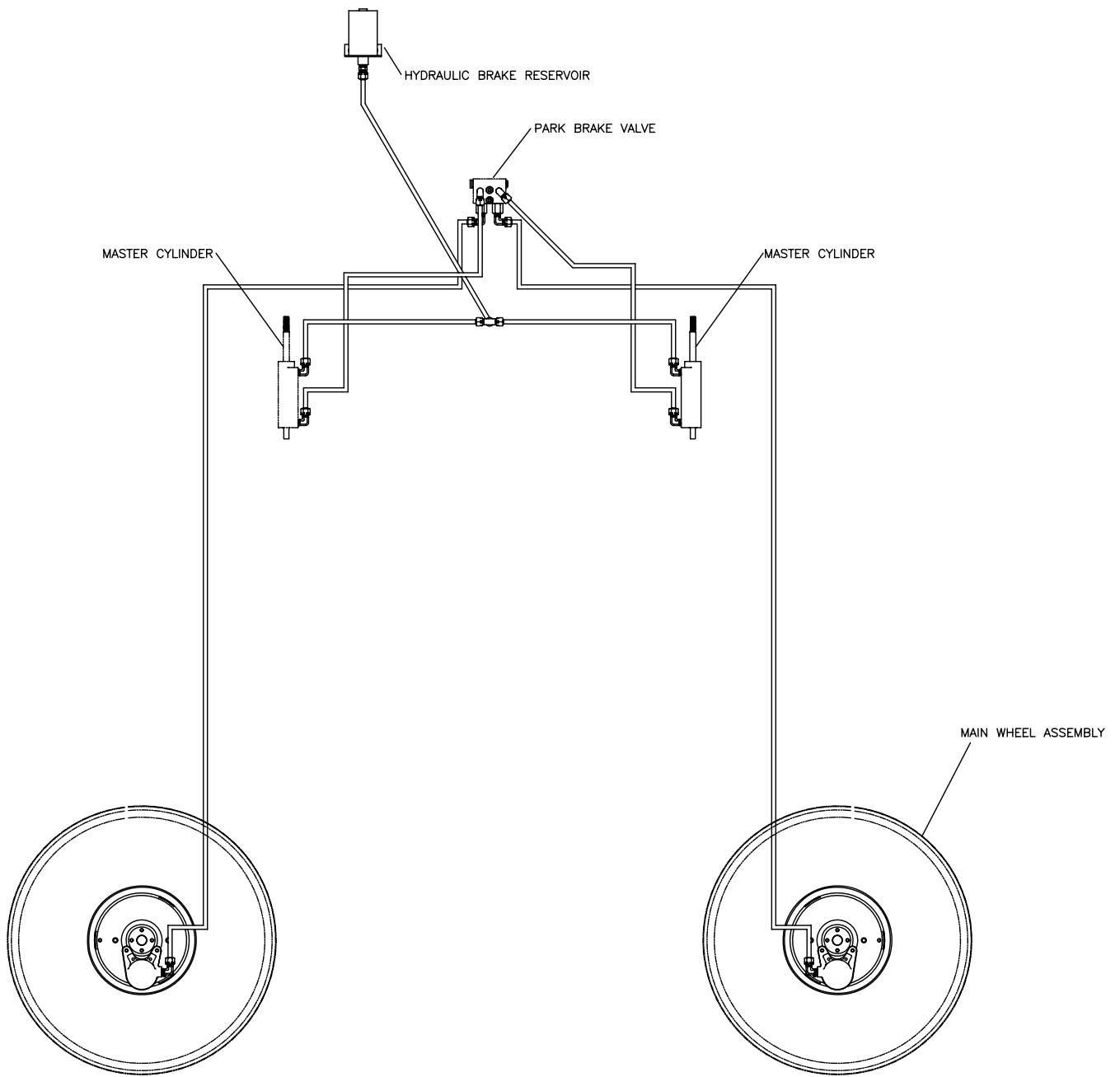
NOTE: ALL HOLES IN FIREWALL  
ARE PRELOCATED



REAR VIEW

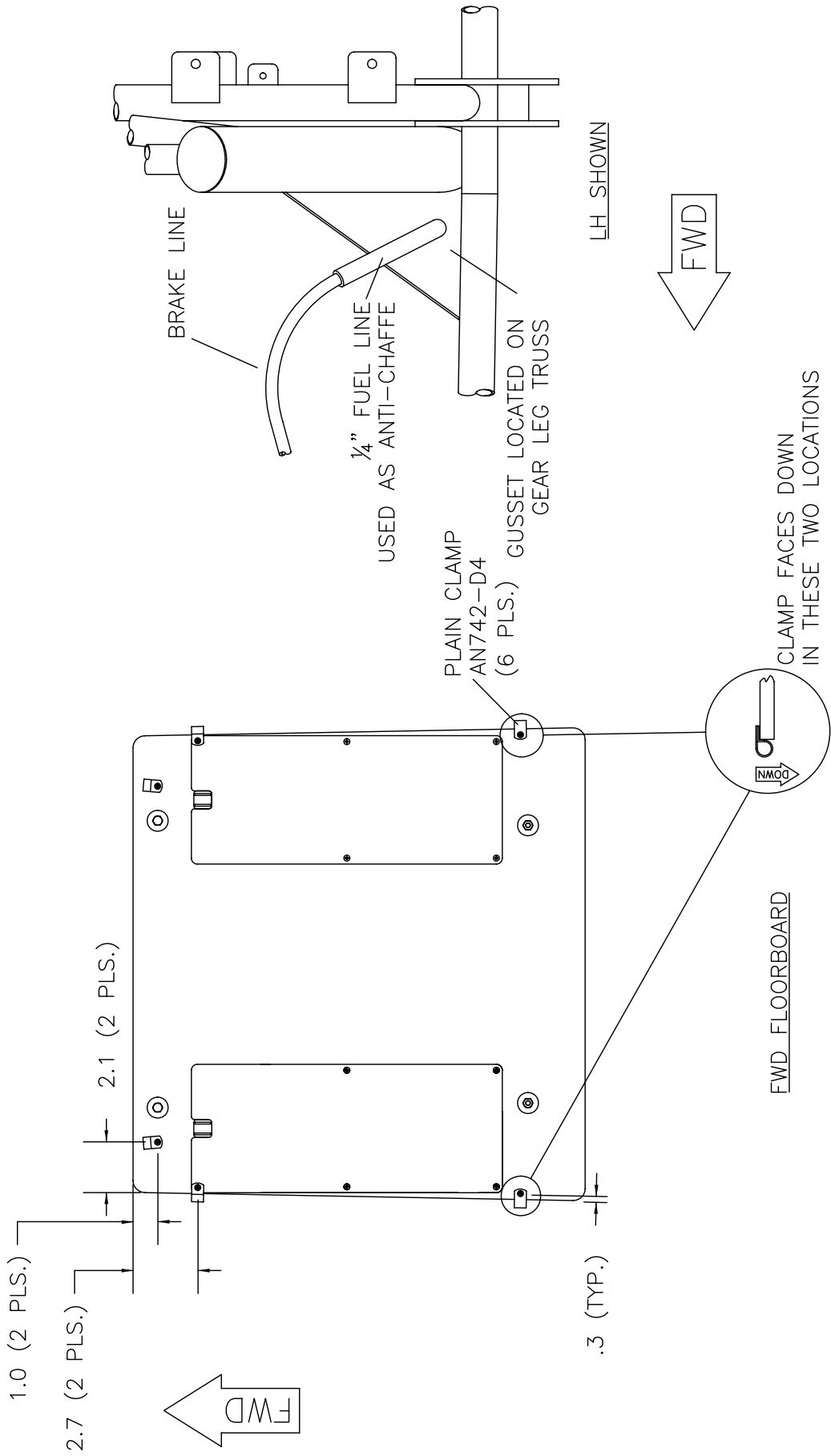
MD4420  
REV. A

**RAMS S-7S**  
**FIREWALL ATTACHMENTS FIGURE 01-29**



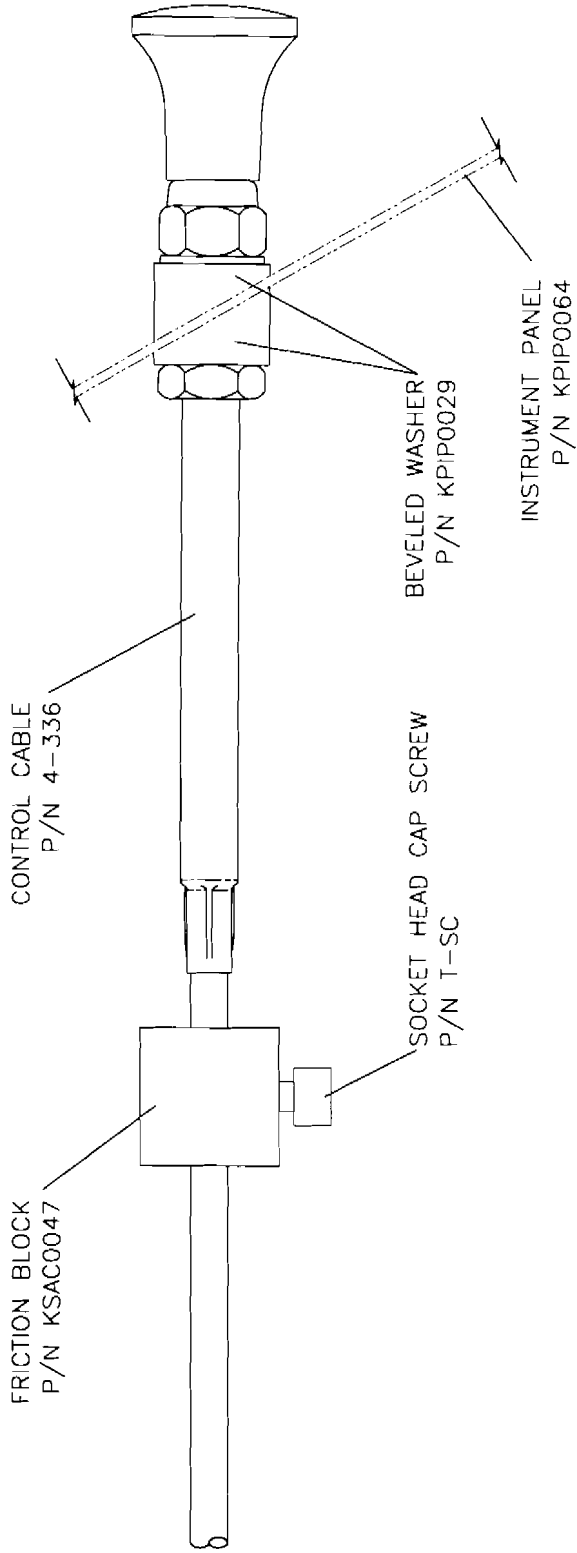
MD4424  
REV. A

**RANS S-7S**  
**BRAKE SYSTEM SCHEMATIC FIGURE 01-30**



MD4425  
REV. A

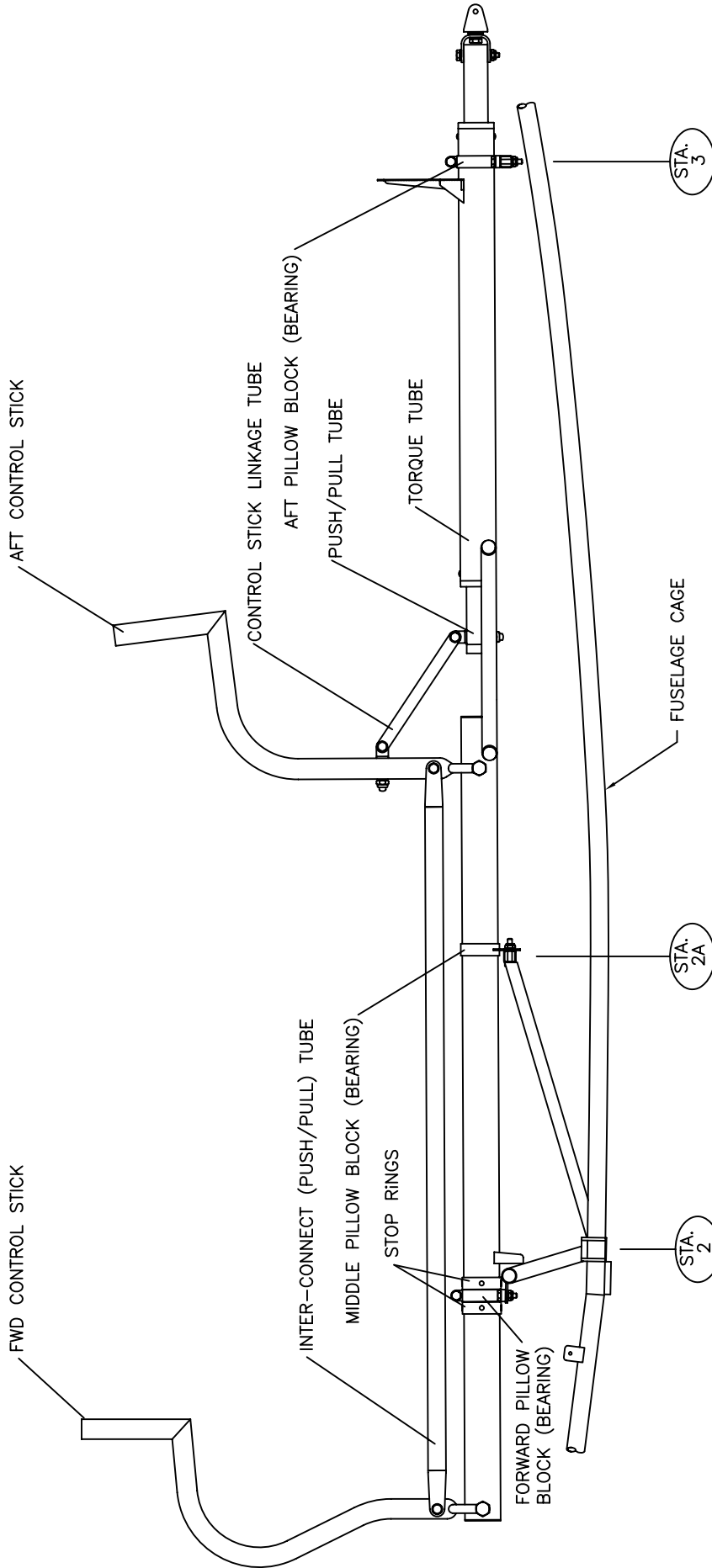
**RAMMS S-7S**  
**BRAKE LINE ROUTING FIGURE 01-31**



MD4423

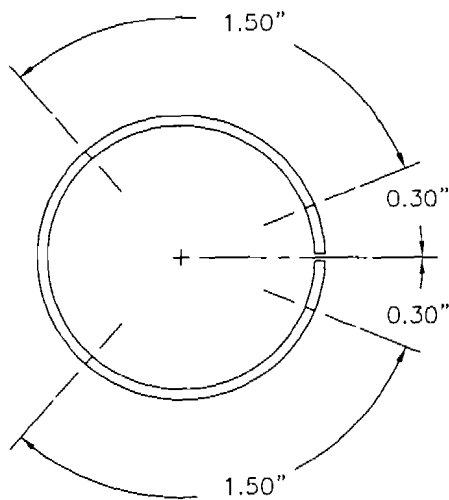
**RAMS** S-7S

**PULL KNOB INSTALLATION FIGURE 01-32**



MD4303  
REV. B

**RRANES S-7S**  
**CONTROL STICK ASSEMBLY FIGURE 02-01**



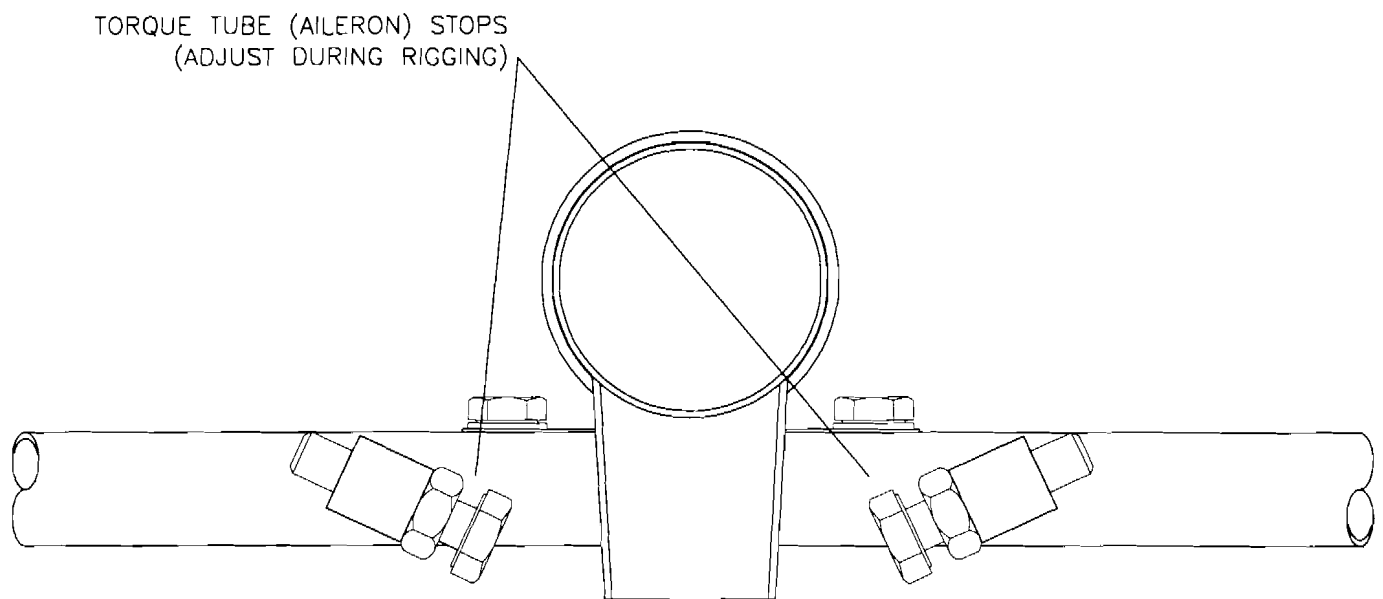
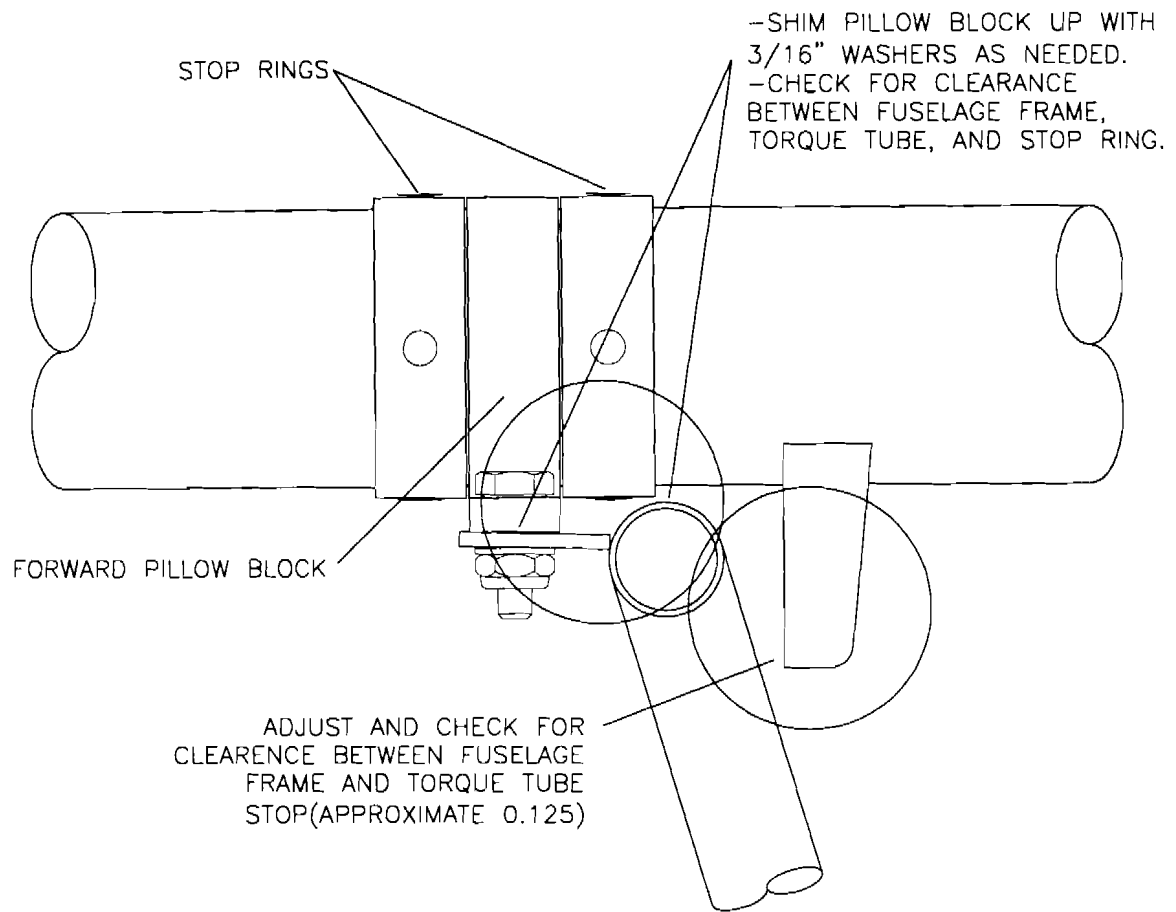
DRILL 4 #40 HOLES ON CENTERLINE OF RING.  
TRANSFER DRILL #30 AT TIME OF ASSEMBLY AND RIVET CCPQ-42

MD4496

**RANS S-7S**  
**STOP RING MODIFICATION FIGURE 02-01A**

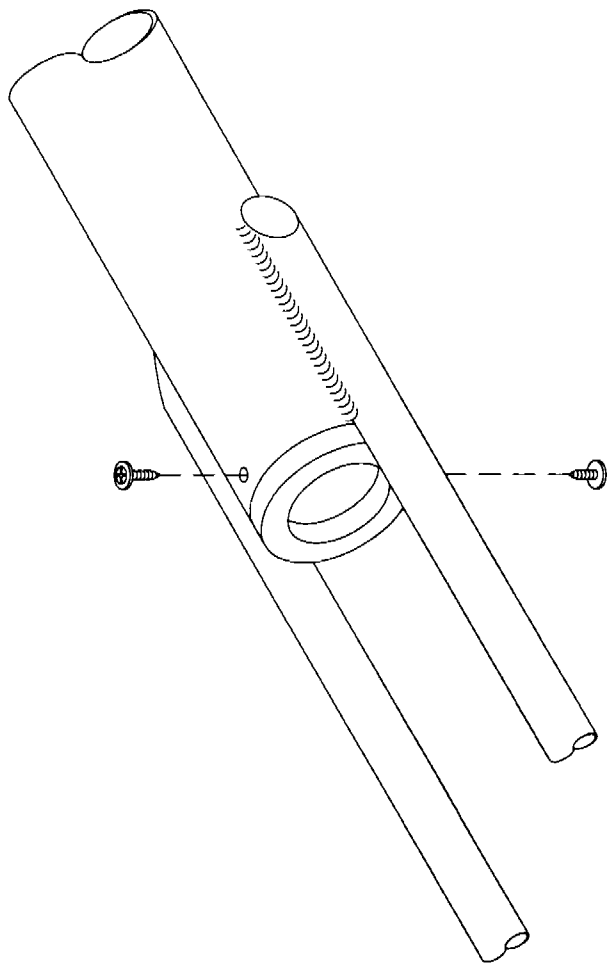
06/24/05





MD4304

**RANS S-7S**  
**FORWARD TORQUE TUBE MOUNT FIGURE 02-02**

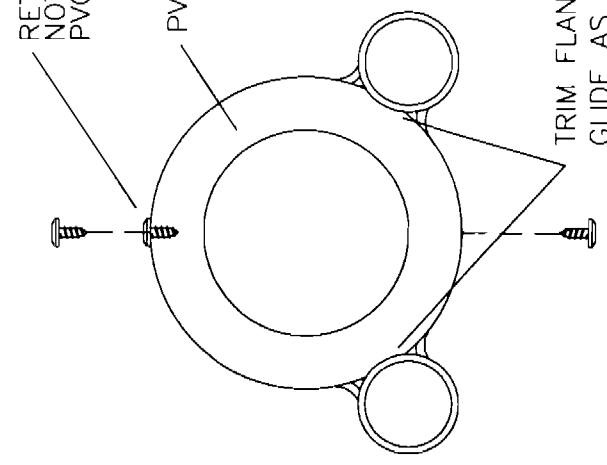


RETAINING SCREWS MUST NOT PROTRUDE THROUGH PVC GLIDE

PVC GLIDE

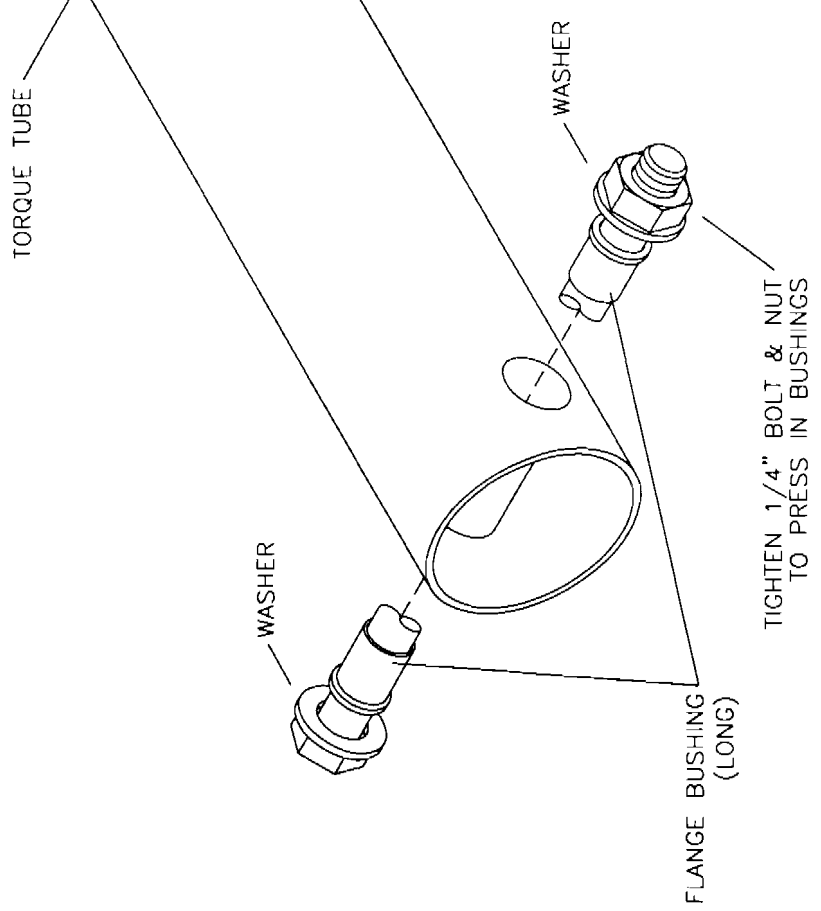
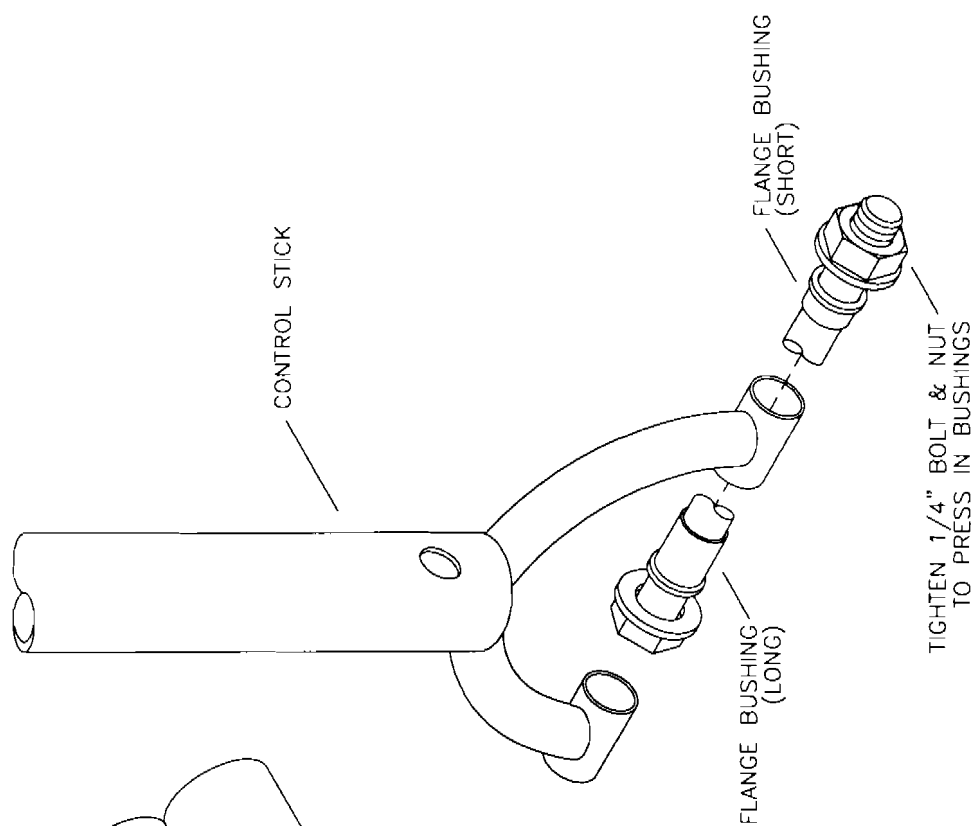
TUBE END VIEW

TRIM FLANGE ON PLASTIC GLIDE AS REQUIRED



MD4300

**RRR S-7S**  
**TORQUE TUBE GLIDE INSTALLATION FIGURE 02-03**



MD4299

**RRAMES S-7S**

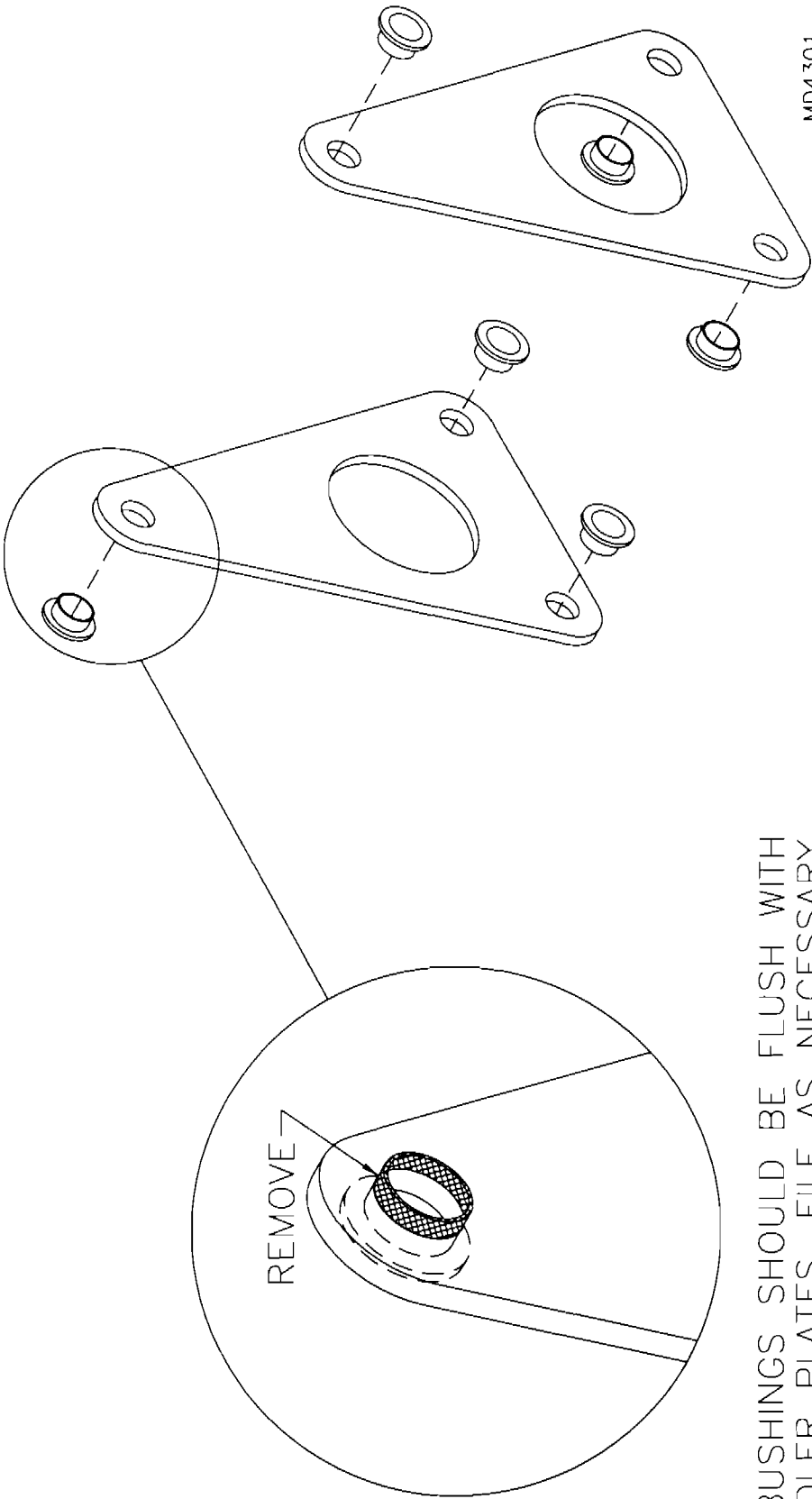
**CONTROL STICK/TORQUE TUBE FLANGE BUSHING INSTALLATION**  
**FIGURE 02-04**

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**RRANES S-7S**

**FIGURE 02-05**

MD4302



\*NOTE: BUSHINGS SHOULD BE FLUSH WITH IDLER PLATES, FILE AS NECESSARY.

**RAM S-7S**  
**IDLER BRACKET FLANGE BUSHING**  
**INSTALLATION FIGURE 02-06**

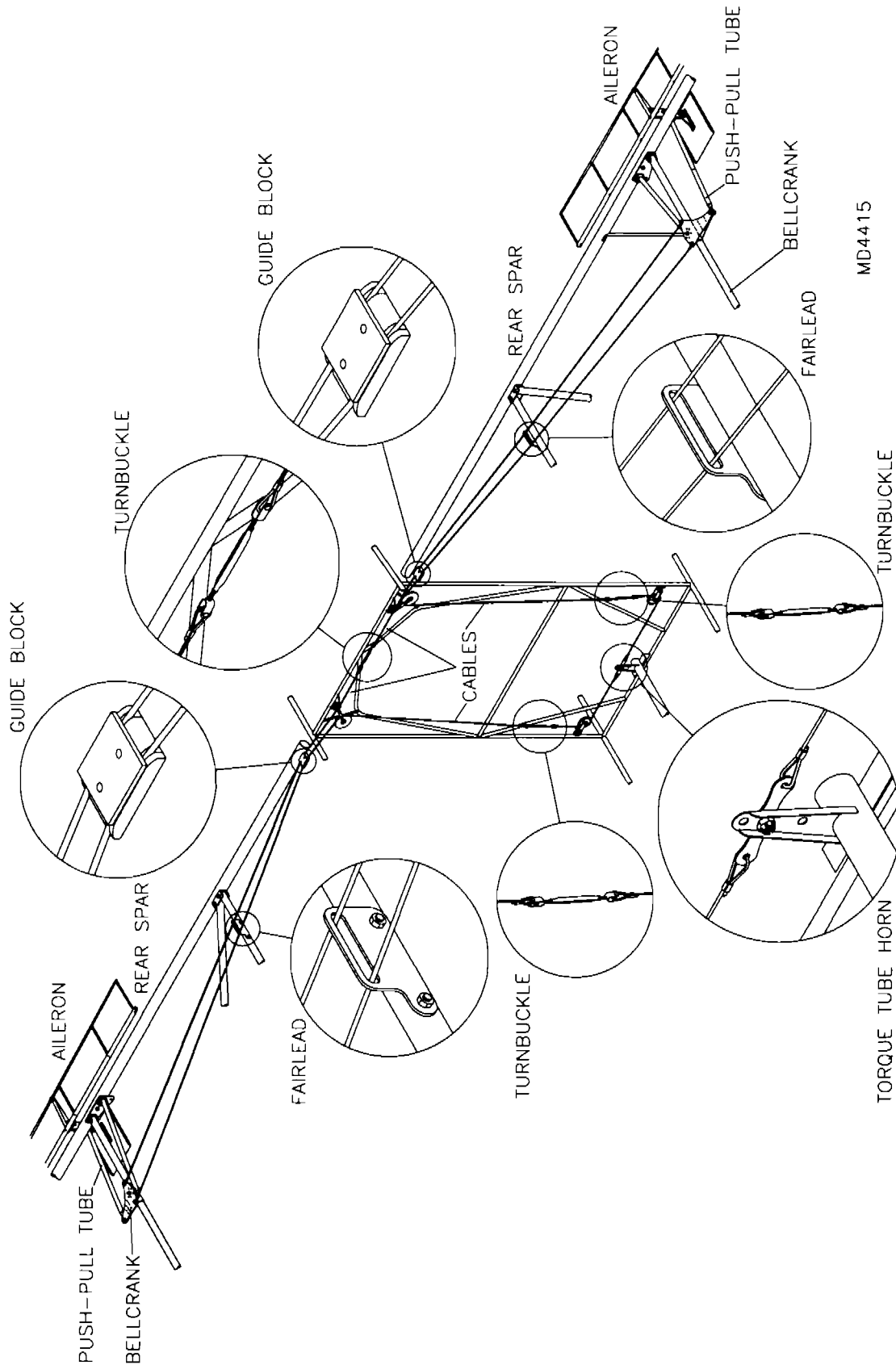
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**RANS S-7S**

MD4307

FIGURE 02-07

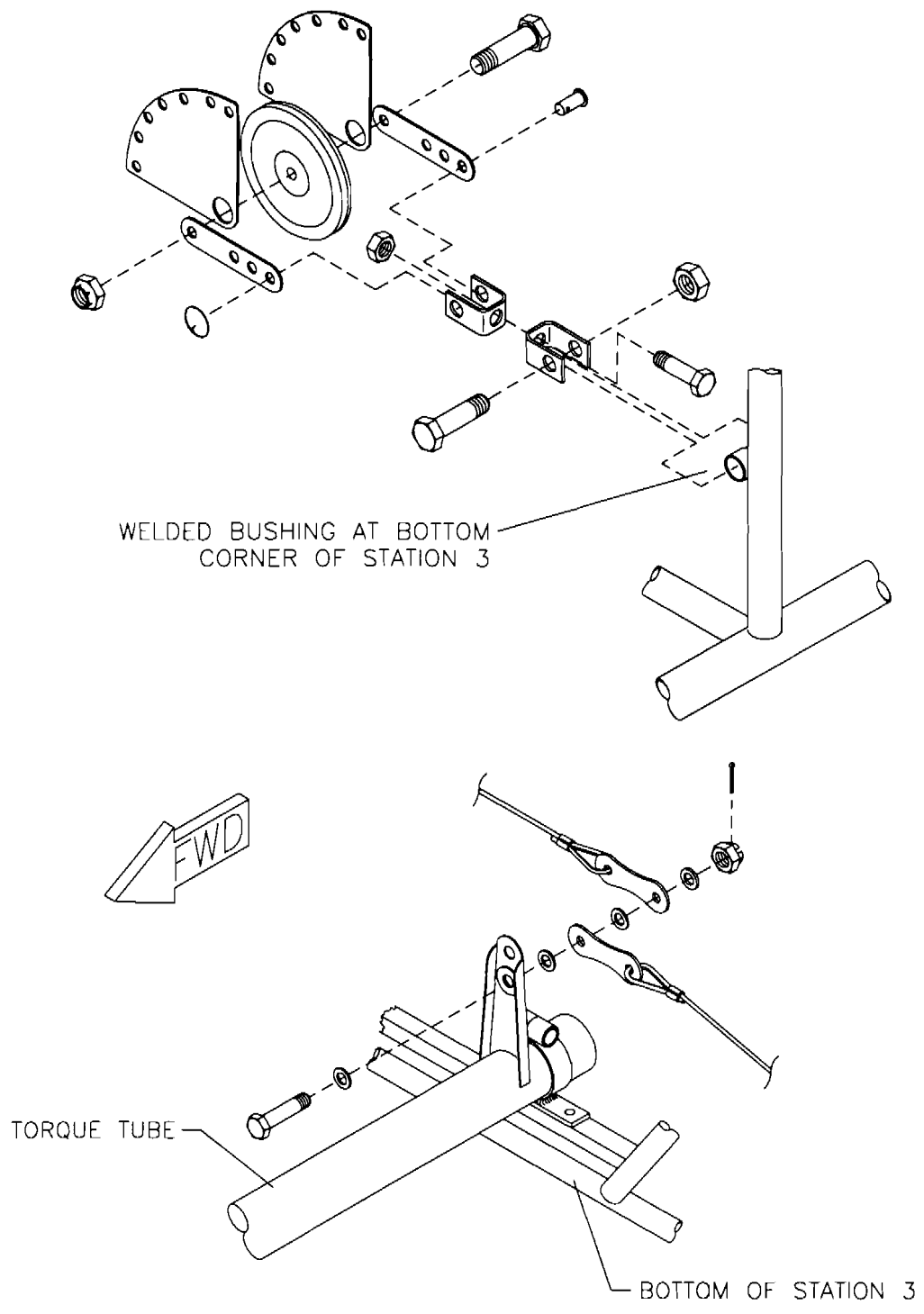
01/03/05



MD4415

**RRAMES S-7S**

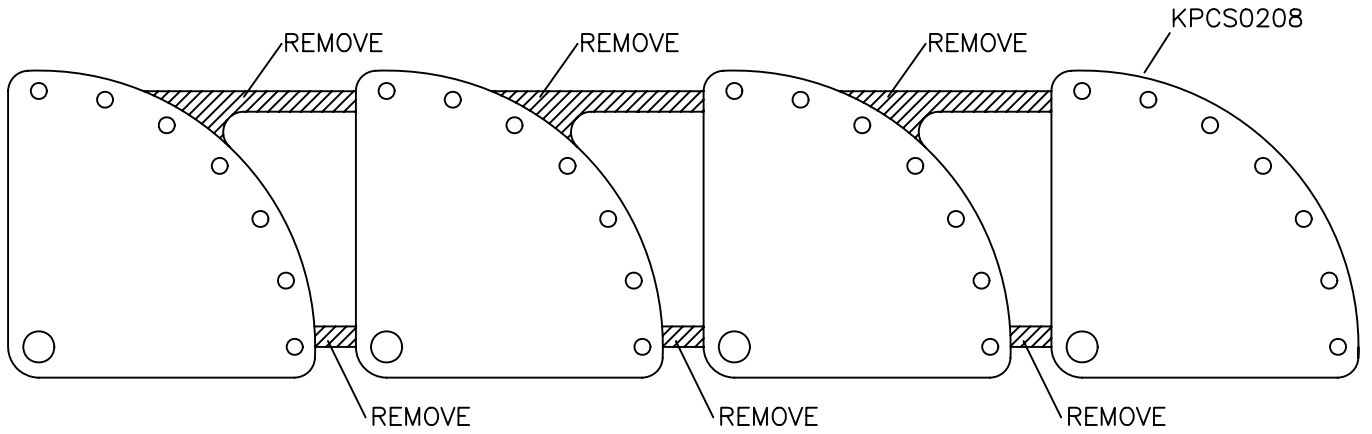
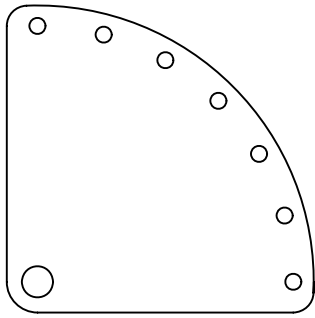
**AILERON CONTROL SYSTEM OVERVIEW FIGURE 02-08**



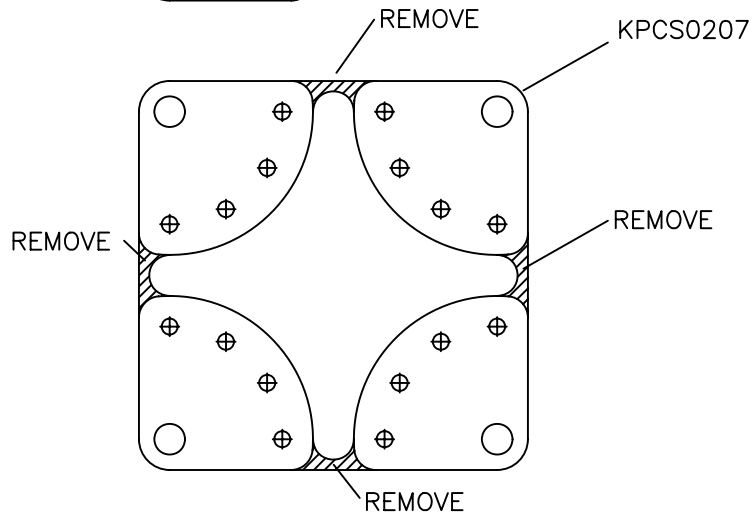
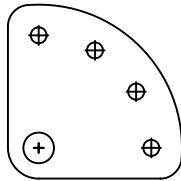
MD4417

**RANS S-7S**  
**AILERON CABLE SYSTEM FIGURE 02-09**





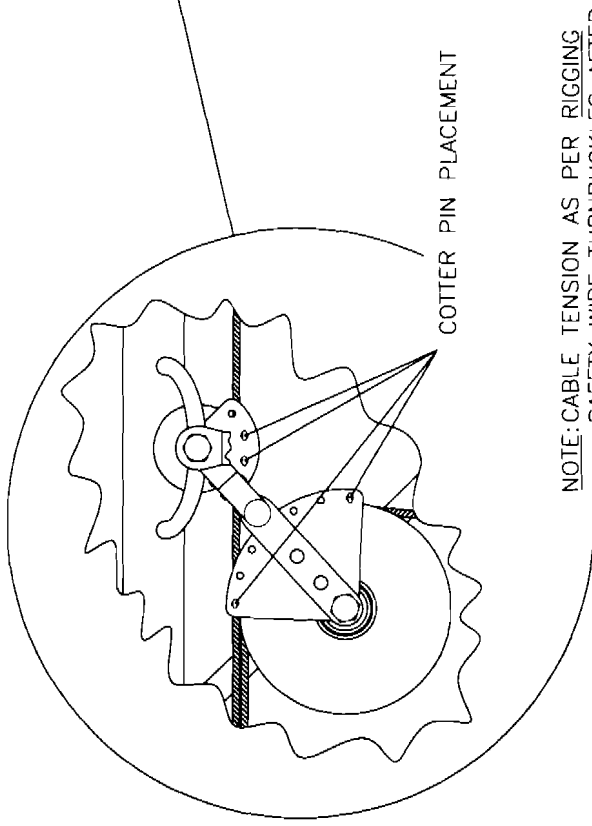
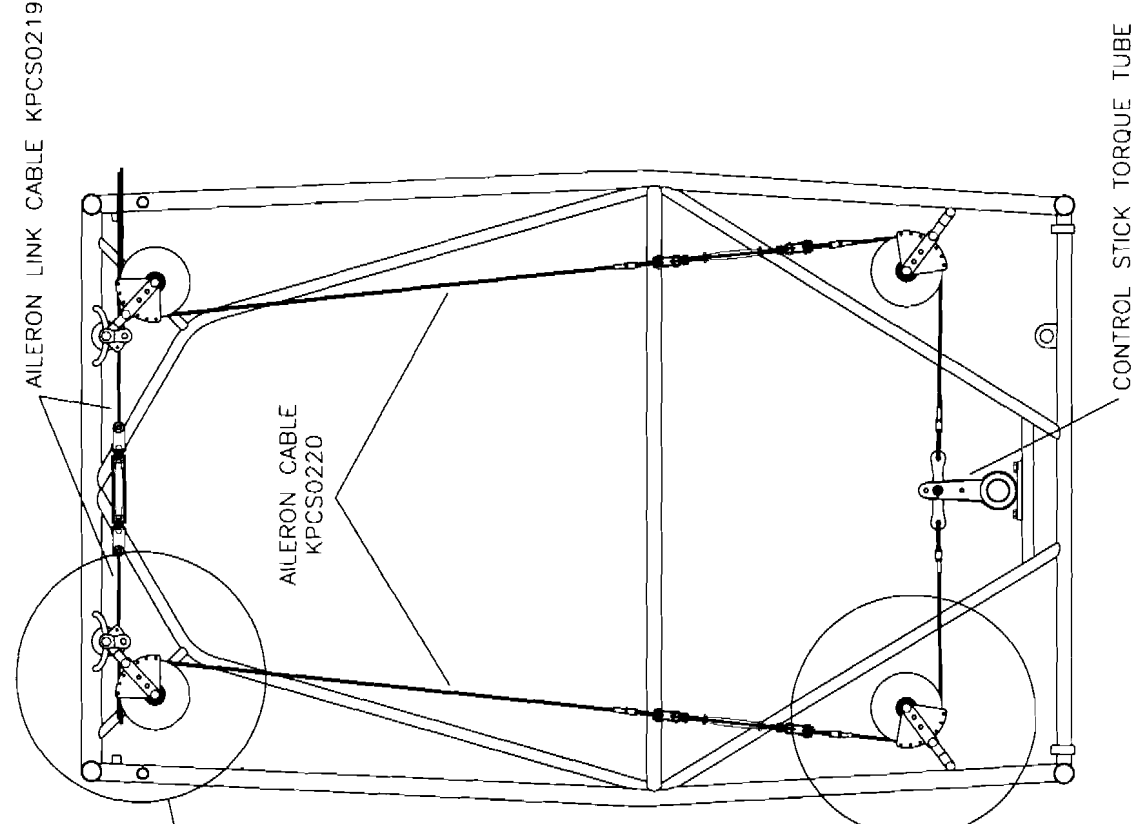
REMOVE SHADED AREA, MAKES 4 PARTS



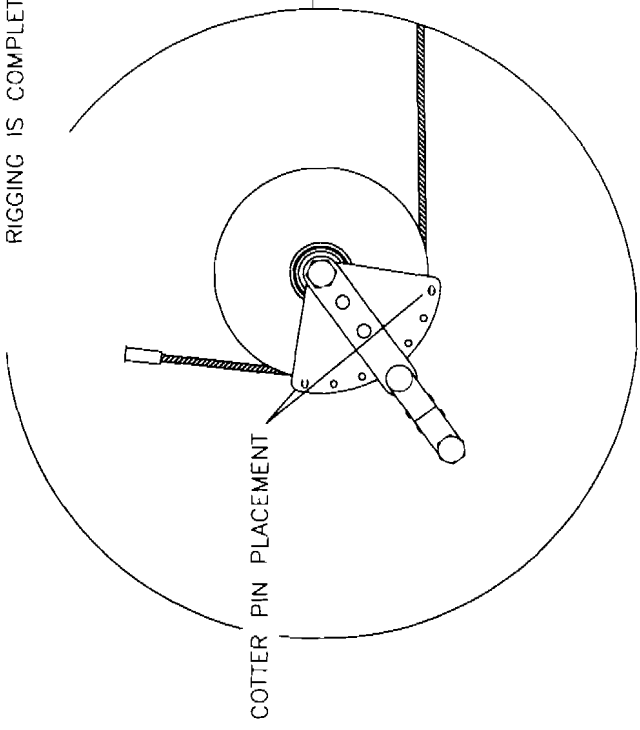
REMOVE SHADED AREA, MAKES 4 PARTS

MD4390

# RANS S-7S CABLE KEEP MODIFICATION FIGURE 02-10



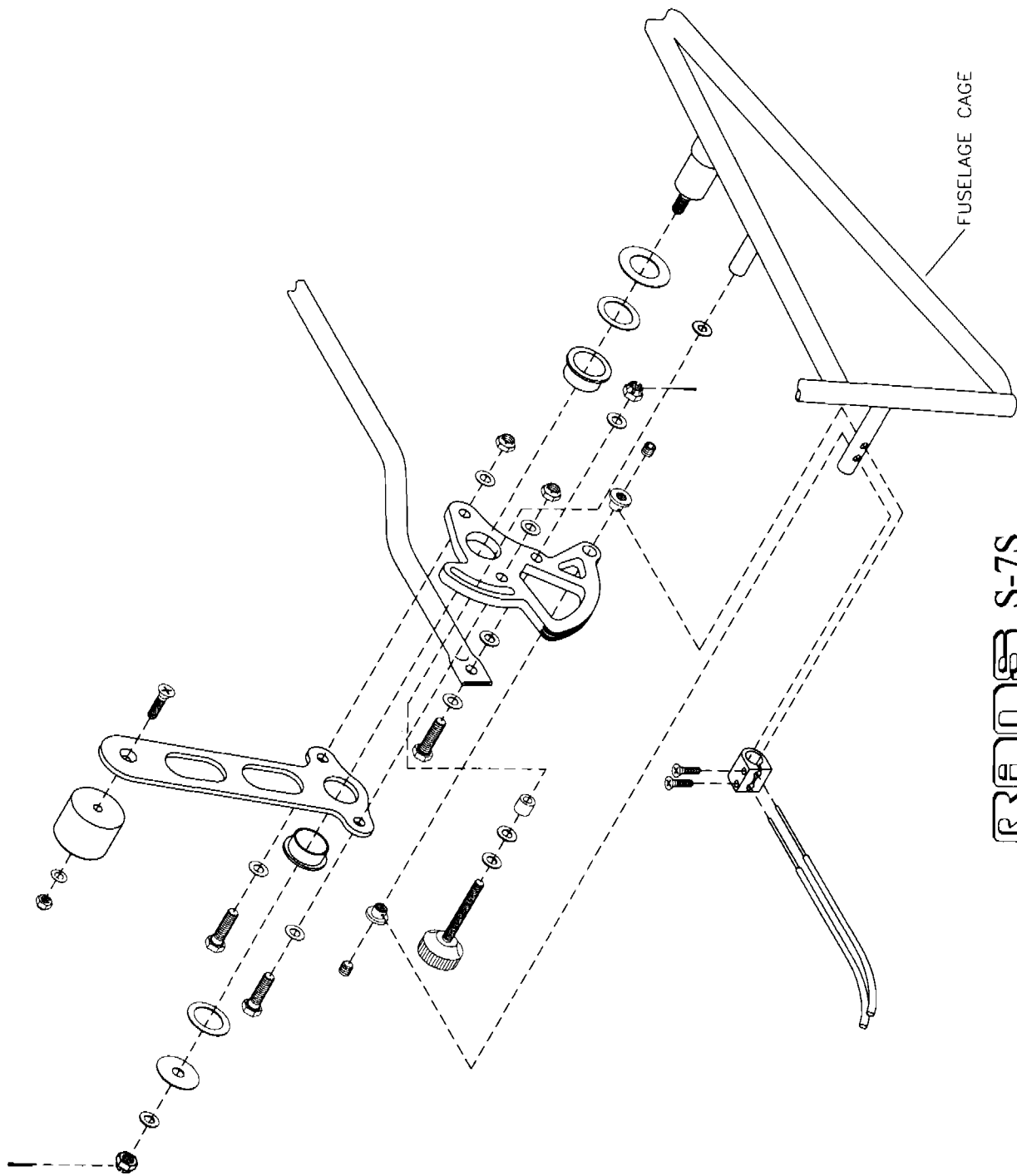
NOTE: CABLE TENSION AS PER RIGGING SAFETY WIRE TURNBUCKLES AFTER RIGGING IS COMPLETED.



MD4416

**RAMS** S-7S

**AILERON CONTROL SYSTEM FIGURE 02-11**

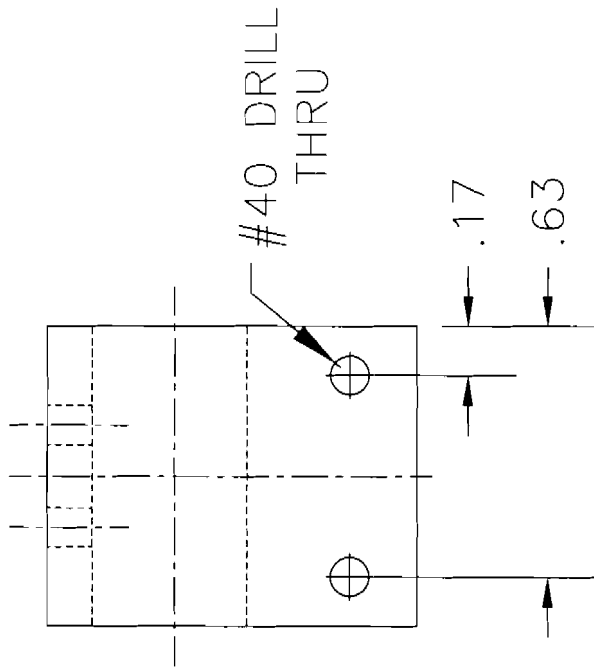


FUSELAGE CAGE

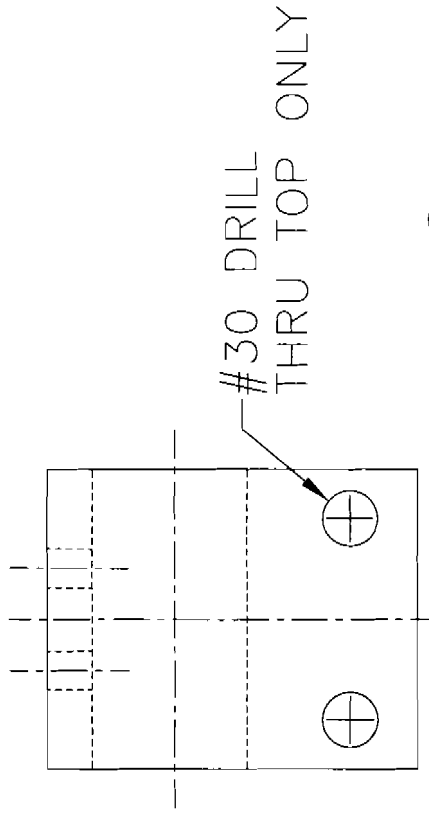
**RAMMS S-7S**

# FORWARD THROTTLE LEVER INSTALLATION FIGURE 02-12

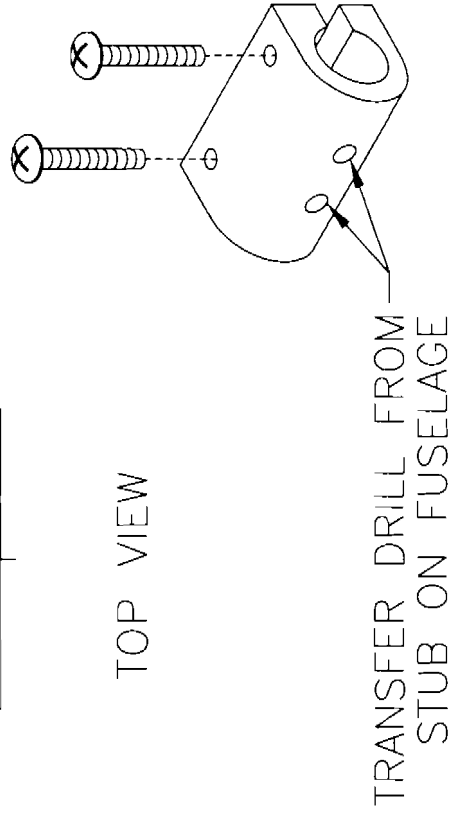
MD4323



BOTTOM VIEW

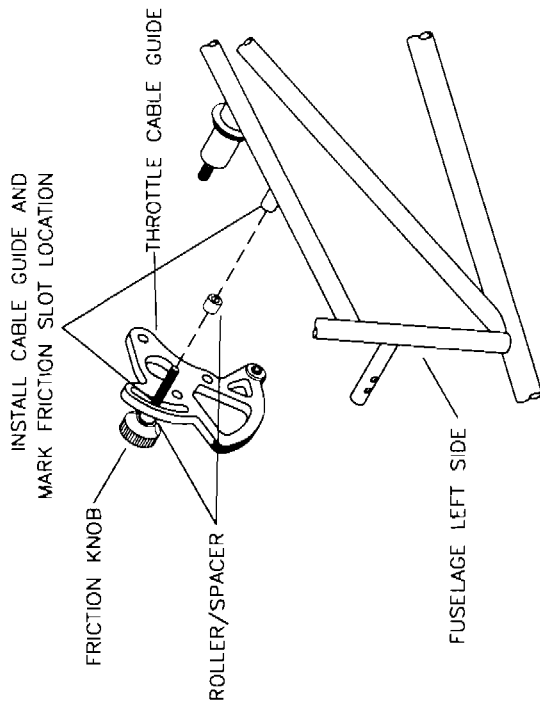


TOP VIEW

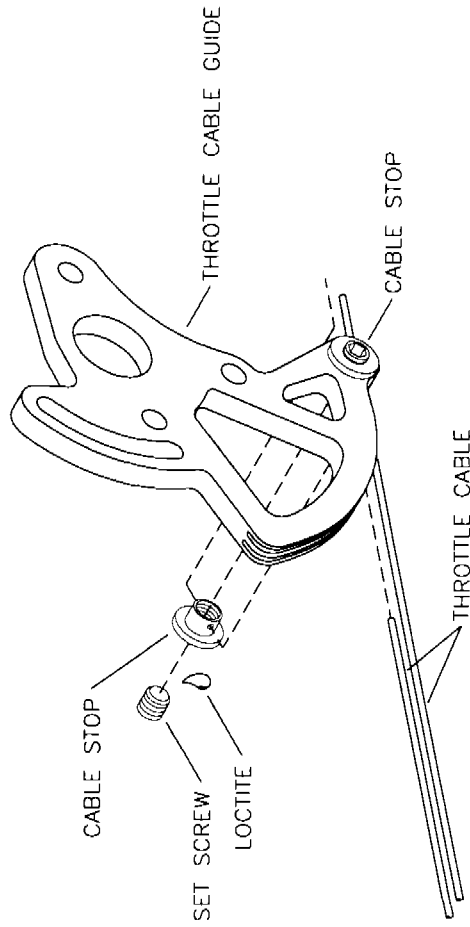


**RRR S-7S**  
**THROTTLE CABLE RETENTION**  
**BLOCK FIGURE 02-13**

MD4321



FRICTION\_KNOB

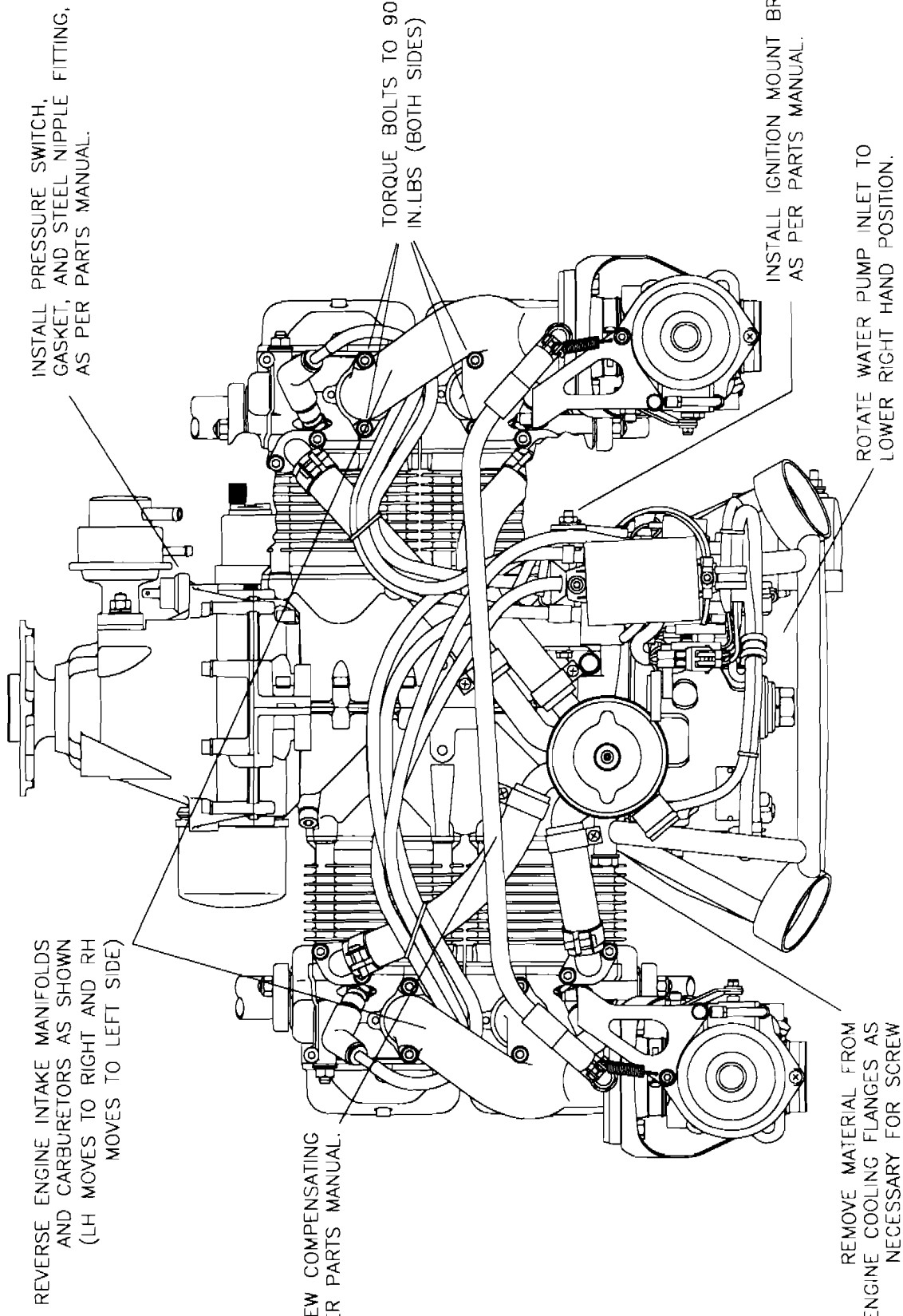


CABLE\_STOP

MD4322

# RAMS S-7S

## THROTTLE FRICTION KNOB AND CABLE STOP INSTALL FIGURE 02-14



REVERSE ENGINE INTAKE MANIFOLDS AND CARBURETORS AS SHOWN (LH MOVES TO RIGHT AND RH MOVES TO LEFT SIDE)

INSTALL PRESSURE SWITCH, GASKET, AND STEEL NIPPLE FITTING, AS PER PARTS MANUAL.

INSTALL NEW COMPENSATING TUBE AS PER PARTS MANUAL.

TORQUE BOLTS TO 90 IN. LBS (BOTH SIDES)

INSTALL IGNITION MOUNT BRACKET AS PER PARTS MANUAL.

REMOVE MATERIAL FROM ENGINE COOLING FLANGES AS NECESSARY FOR SCREW CLEARANCE. (TOP LH SIDE OF ENGINE ONLY.)

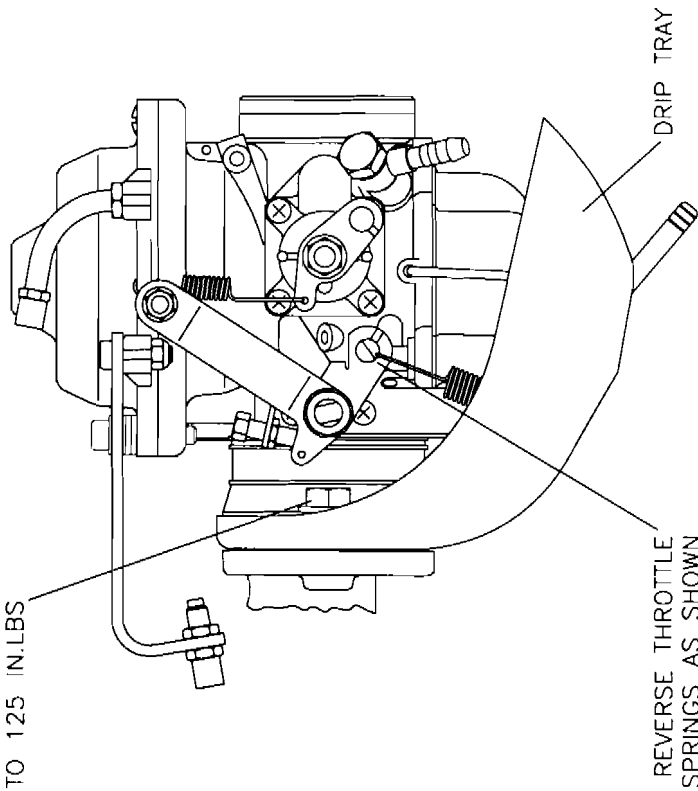
ROTATE WATER PUMP INLET TO LOWER RIGHT HAND POSITION.



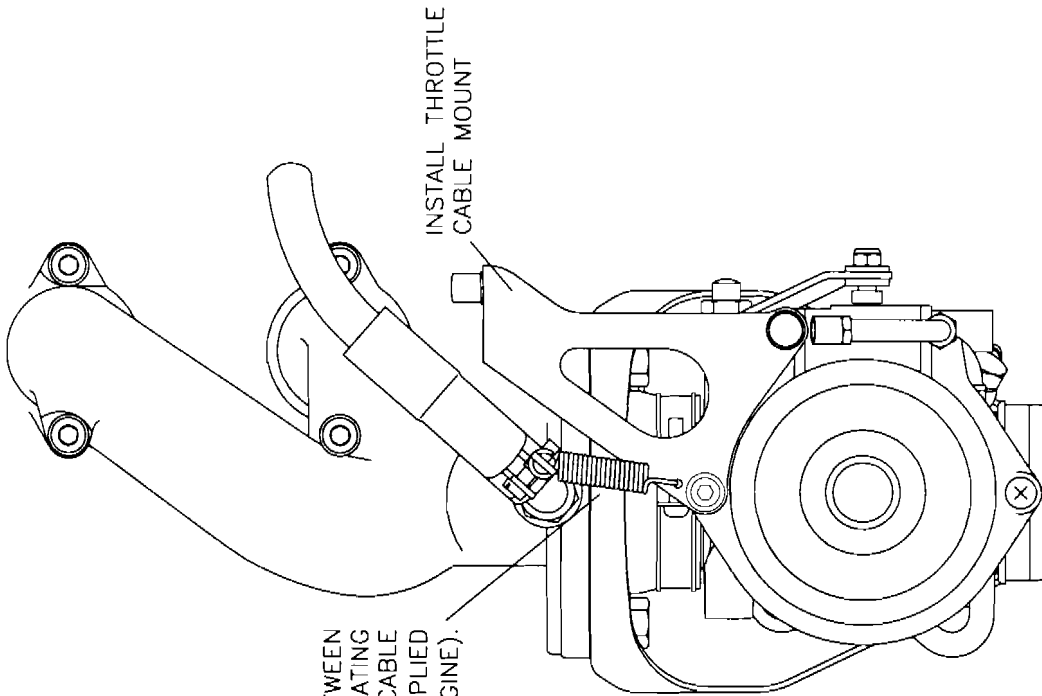
ENGINE MODIFICATION FIGURE 03-01

MD4445  
REV. A

REMOVE CARBURETOR.  
INSTALL DRIP TRAY.  
REUSE HARDWARE,  
AND TORQUE BOLTS  
TO 125 IN.LBS



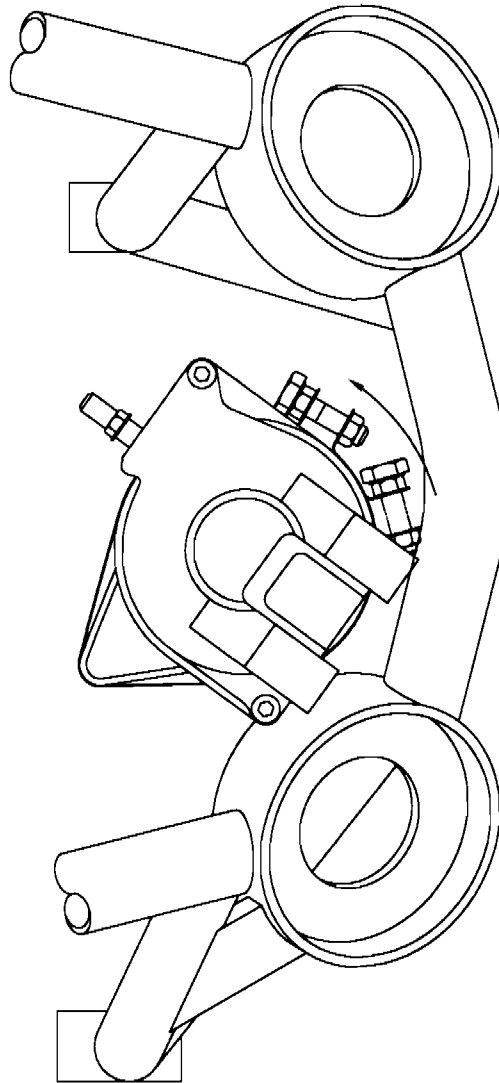
INSTALL SPRING BETWEEN  
CLAMP ON COMPENSATING  
TUBE AND THROTTLE CABLE  
MOUNT(SPRING IS SUPPLIED  
WITH ENGINE).



MD4444

**RAMBO** S-7S

## CARBURETOR MODIFICATION FIGURE 03-02



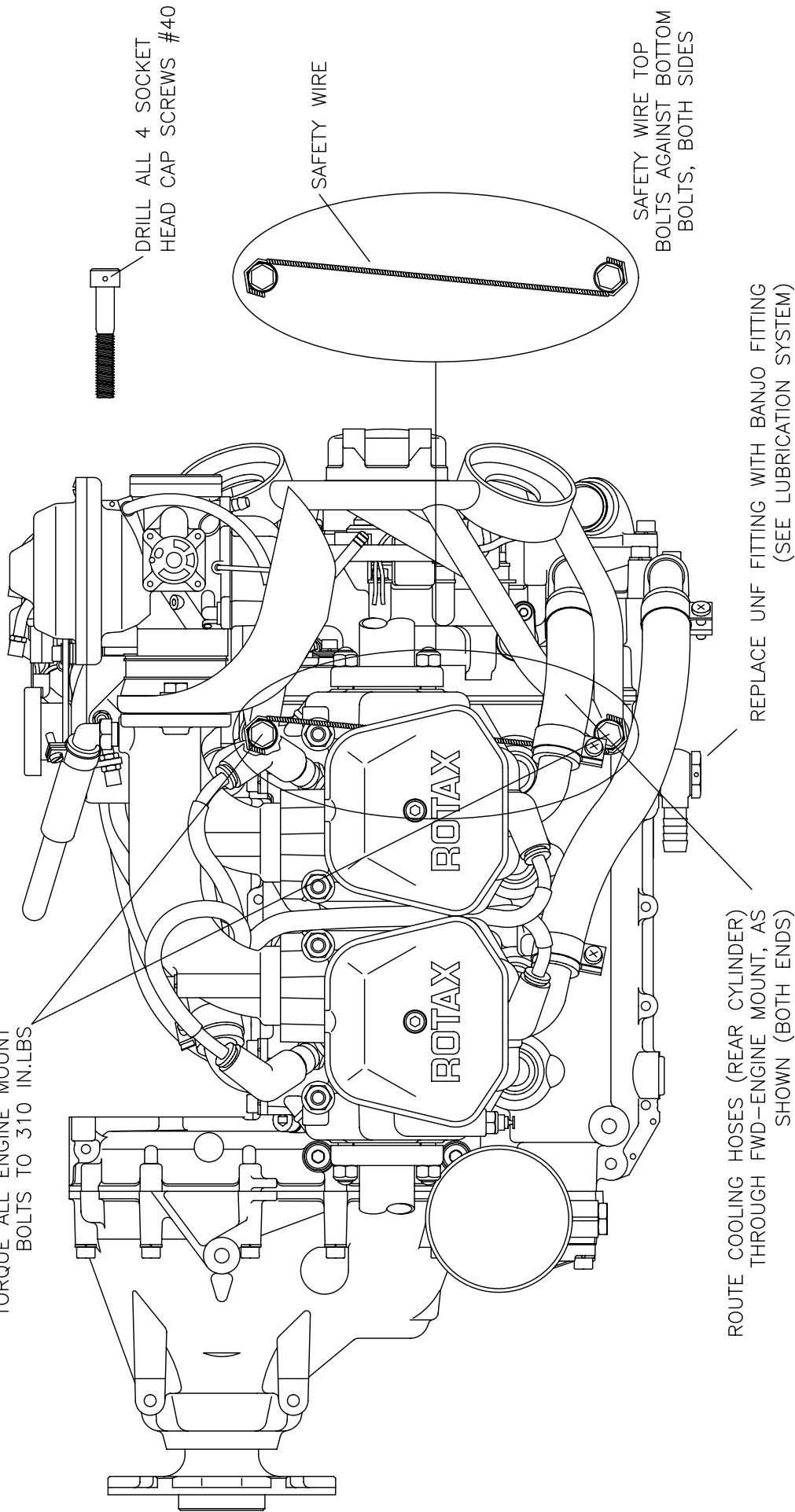
ROTATE MOUNT STRAP TO  
CLEAR ENGINE MOUNT

MD4481

**RANS S-7S**  
**STARTER MOUNT STRAP MODIFICATION**  
**FIGURE 03-02A**



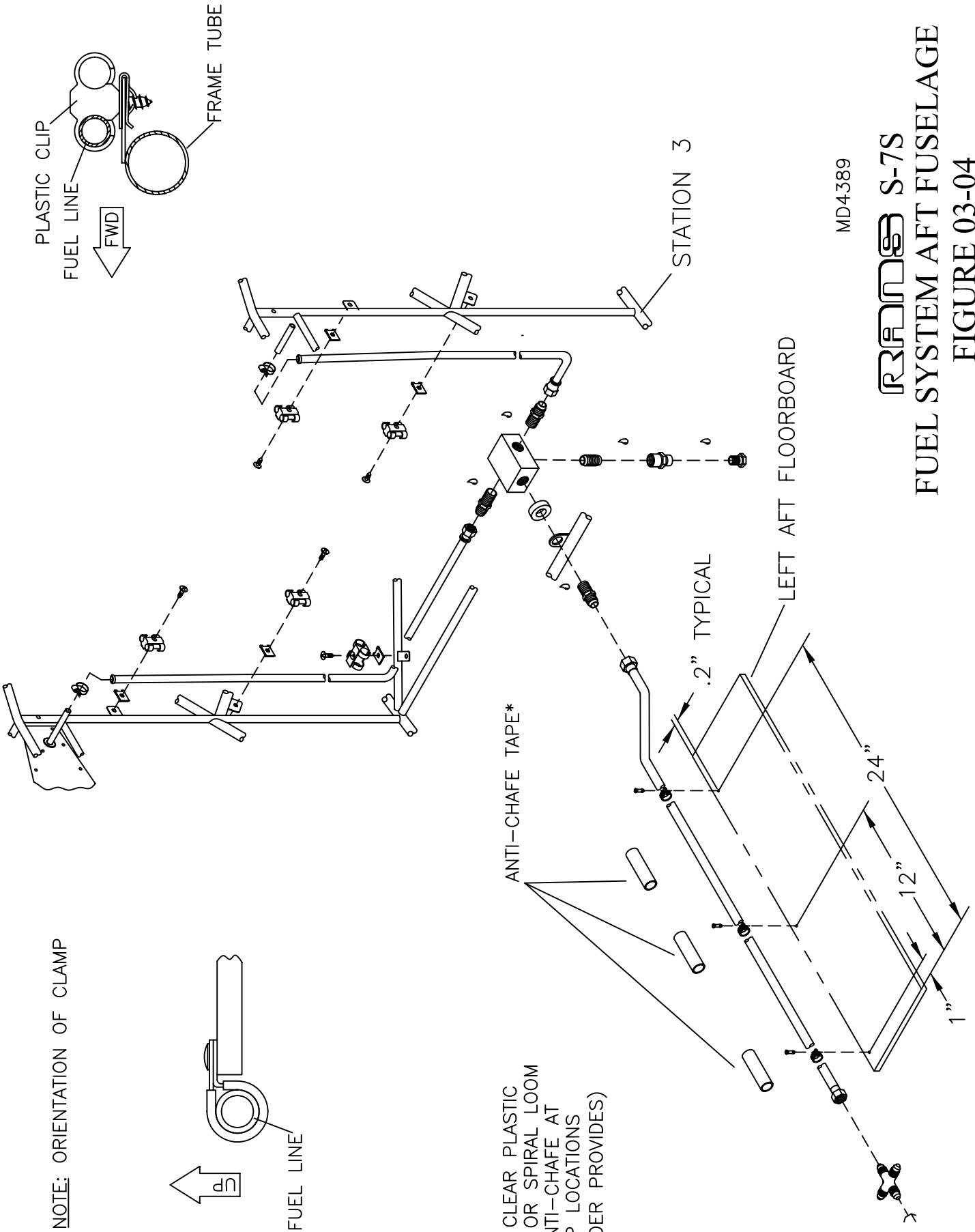
TORQUE ALL ENGINE MOUNT  
BOLTS TO 310 IN.LBS



MD4446  
REV. A

# RAMS S-7S

## ENGINE MOUNT ATTACH DETAILS FIGURE 03-03

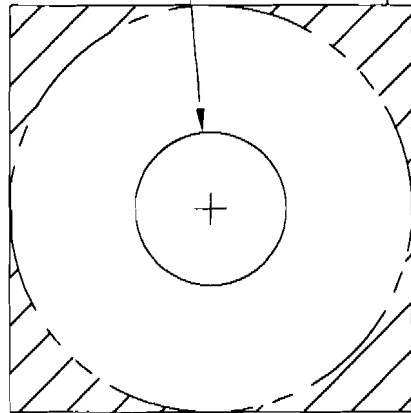


MD4389

**R-7S**  
**FUEL SYSTEM AFT FUSELAGE**  
**FIGURE 03-04**

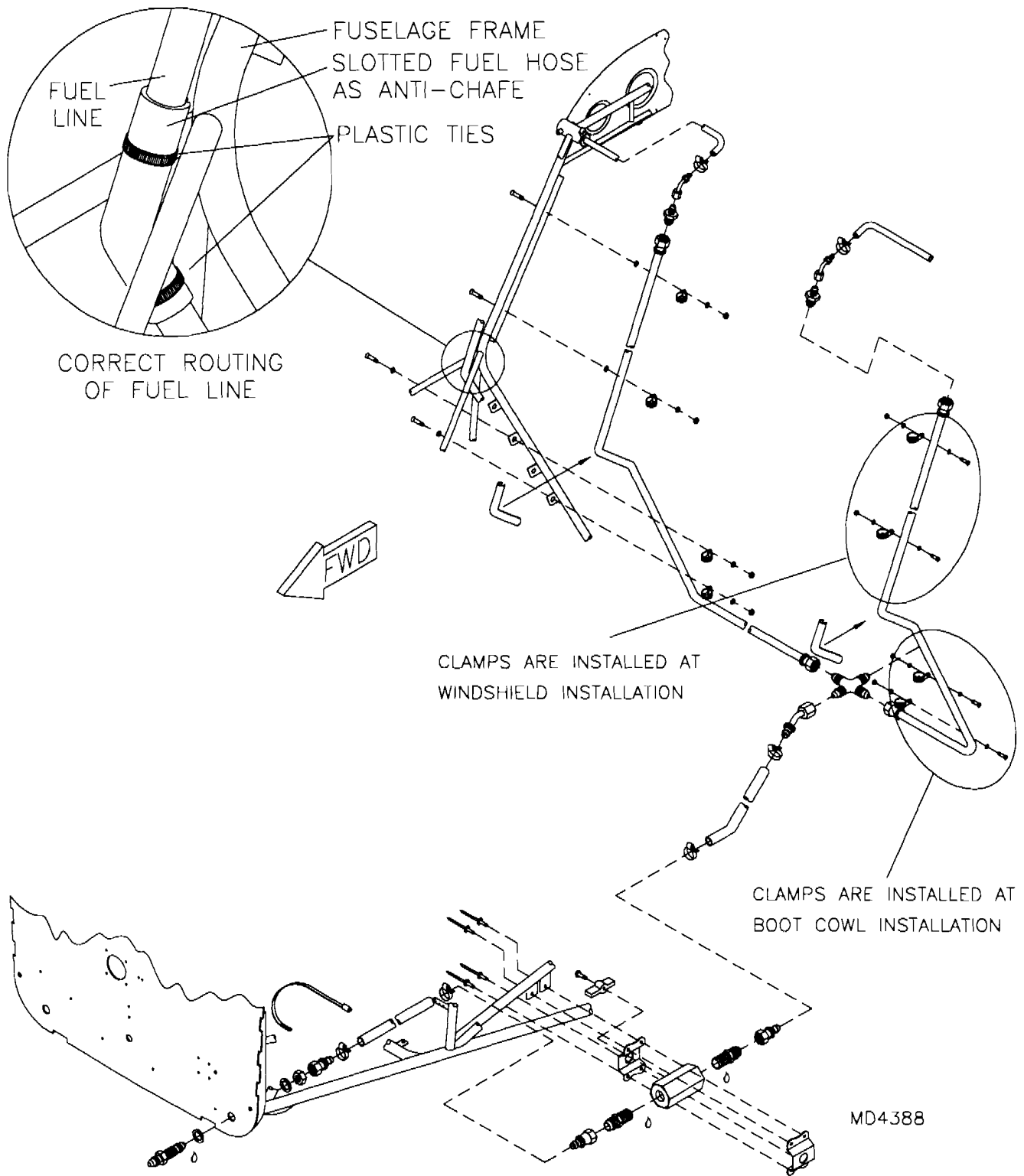
MARK AND CUT  
9/16" HOLE

REMOVE EXCESS MATERIAL  
AROUND THE EDGES



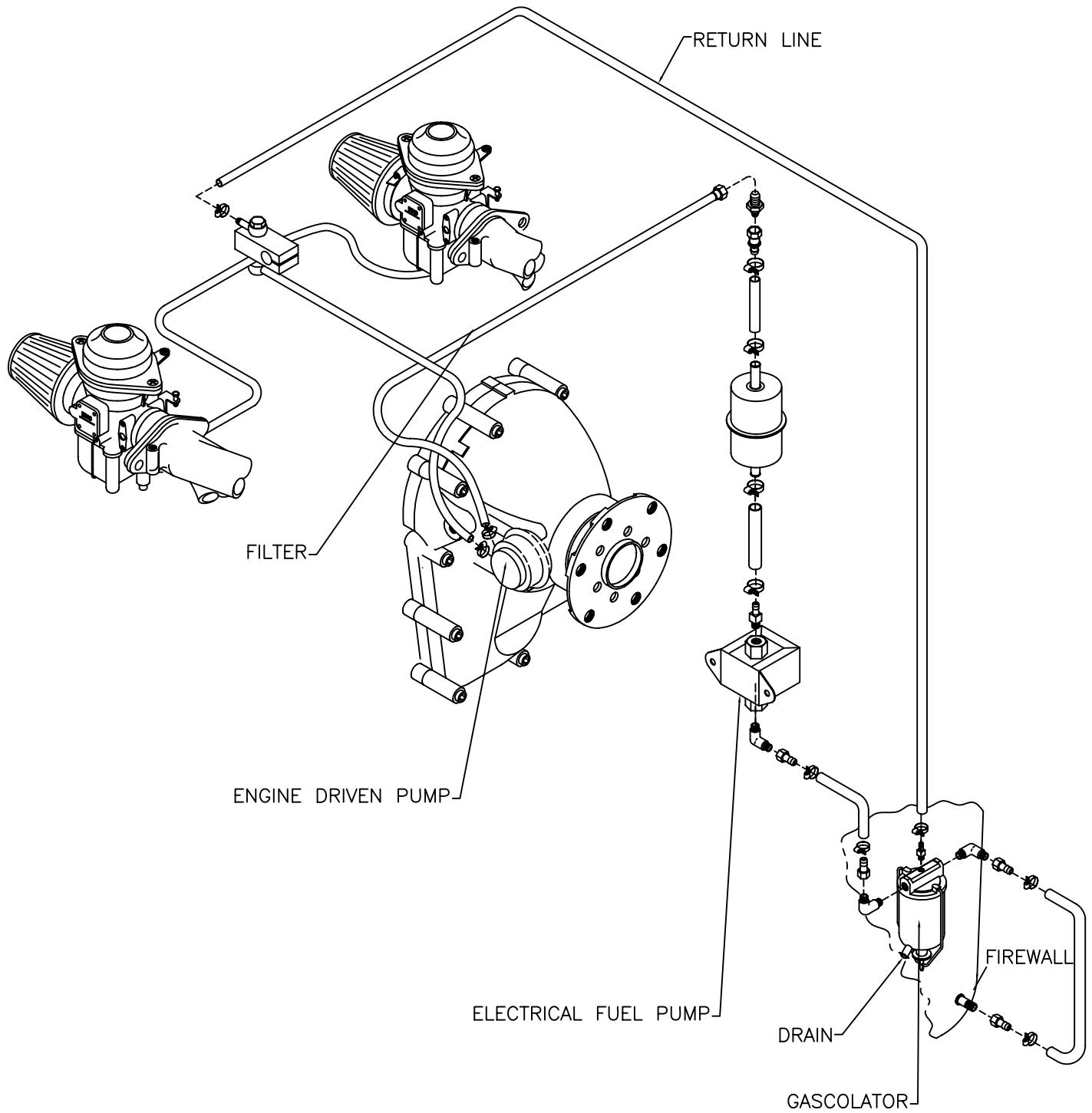
KPAC0172

**RANS S-7S** MD4482  
**RUBBER WASHER MODIFICATION FIGURE 03-04A**



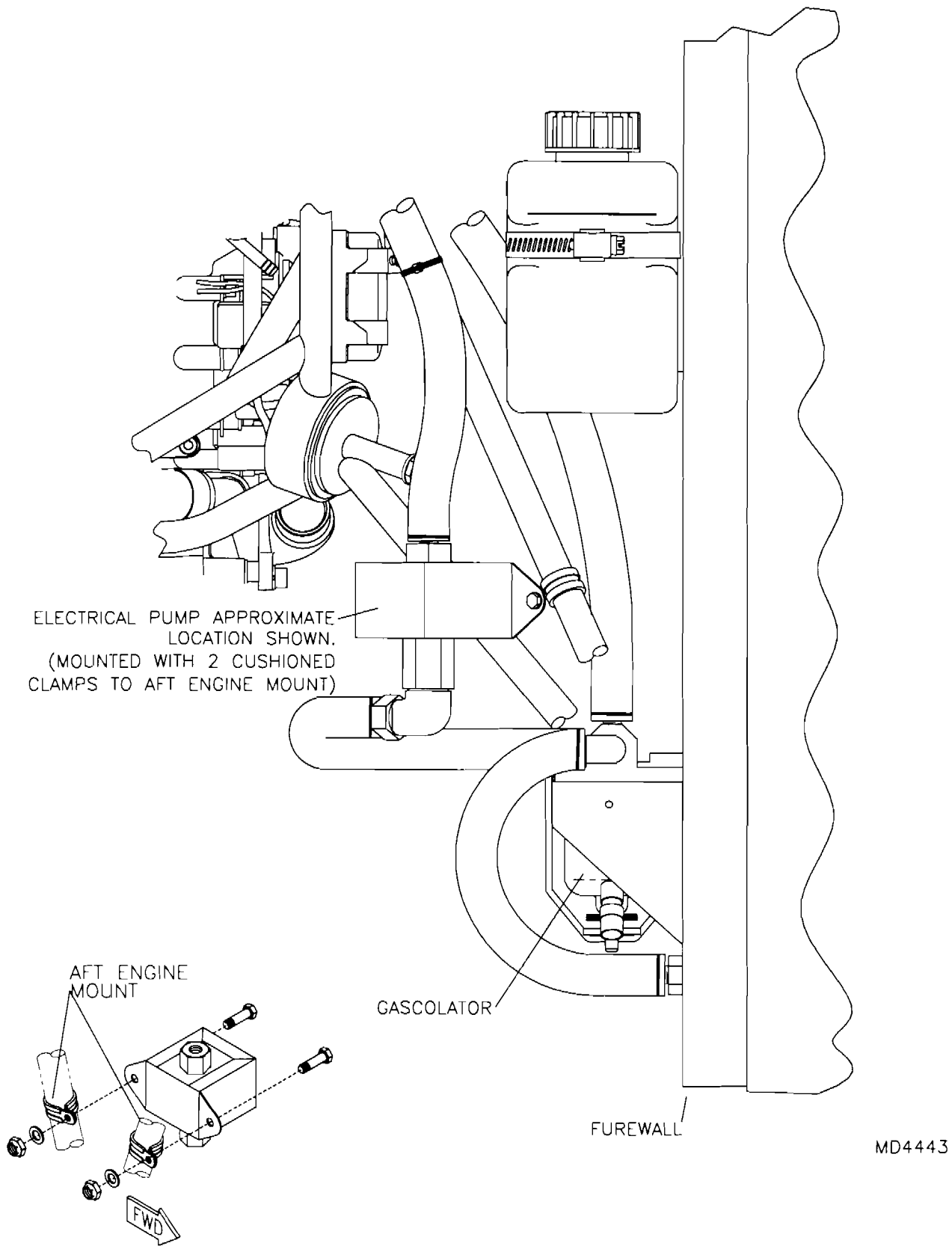
**RANS S-7S**  
**FUEL SYSTEM - FWD FUSELAGE**  
**FIGURE 03-05**

NOTE: IT IS RECOMMENDED TO USE  
FIRE SLEEVE OVER ALL FUEL LINES.

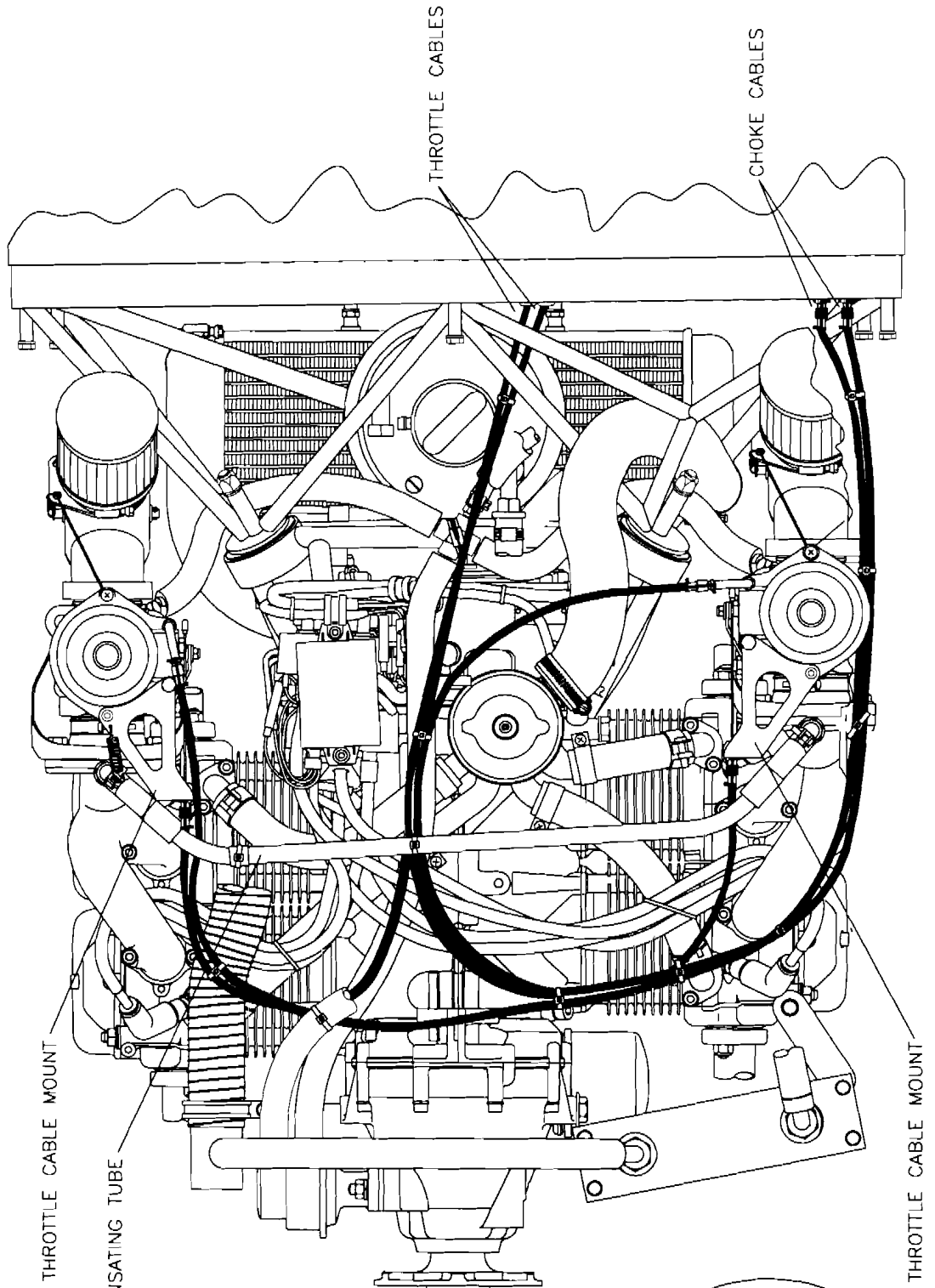


**RANS S-7S**  
**FUEL LINE INSTALL - FIREWALL**  
**FORWARD FIGURE 03-06**

MD4442



**RANS S-7S**  
**ELECTRICAL FUEL PUMP MOUNTING FIGURE 03-07**



THROTTLE CABLE MOUNT

COMPENSATING TUBE

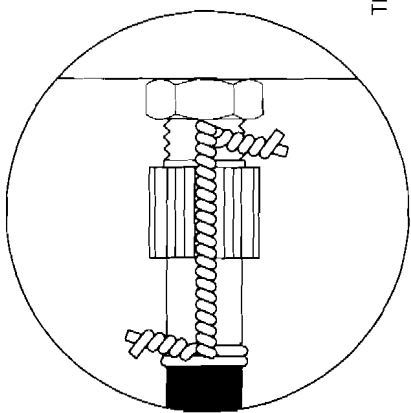
THROTTLE CABLES

CHOKE CABLES

THROTTLE CABLE MOUNT

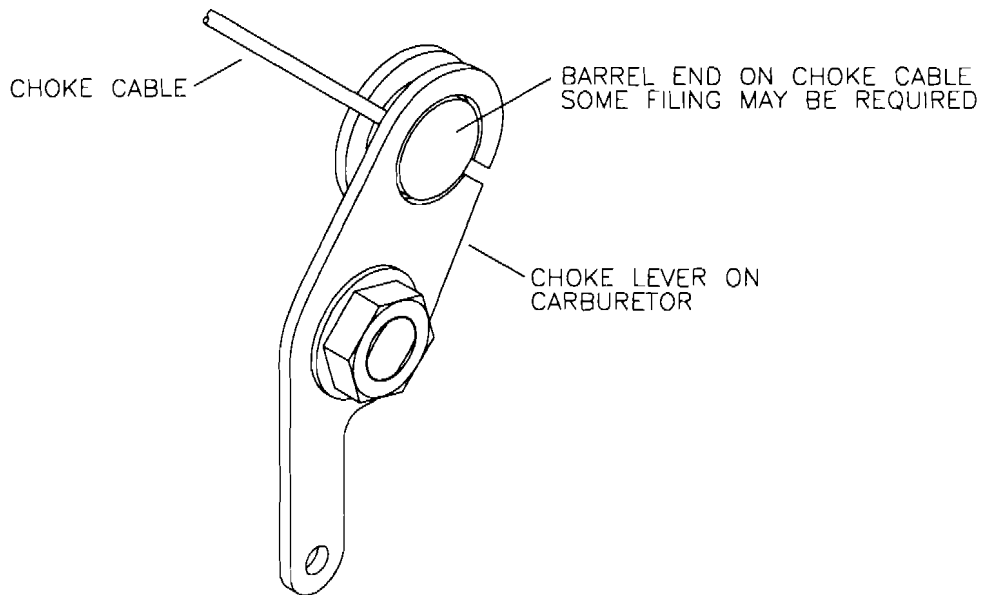
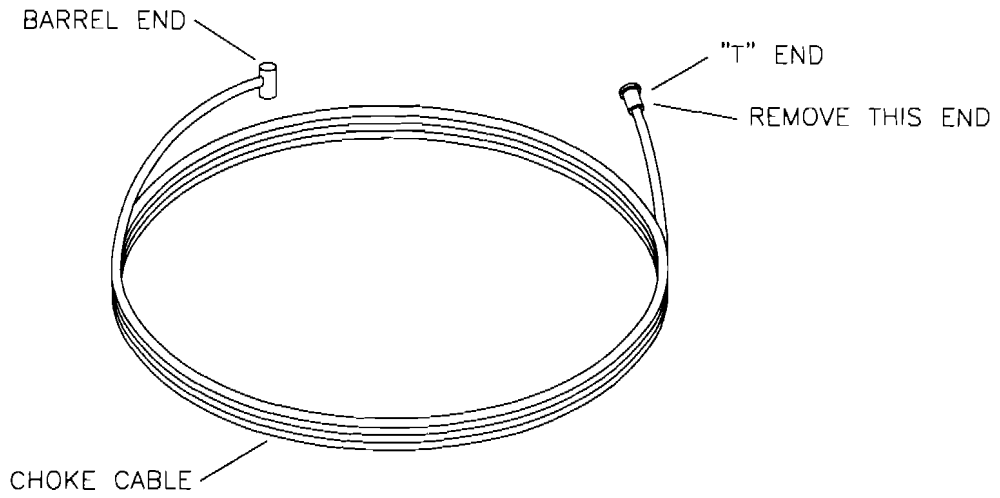
SECURE CONTROL CABLES  
WITH ZIP TIES AS NECESSARY.

SAFETY WIRE ALL CABLE ENDS  
TO FERRULES AS SHOWN



**RAMMS S-7S**  
**THROTTLE AND CHOKE CONTROL**  
**CABLE ROUTING FIGURE 03-08**

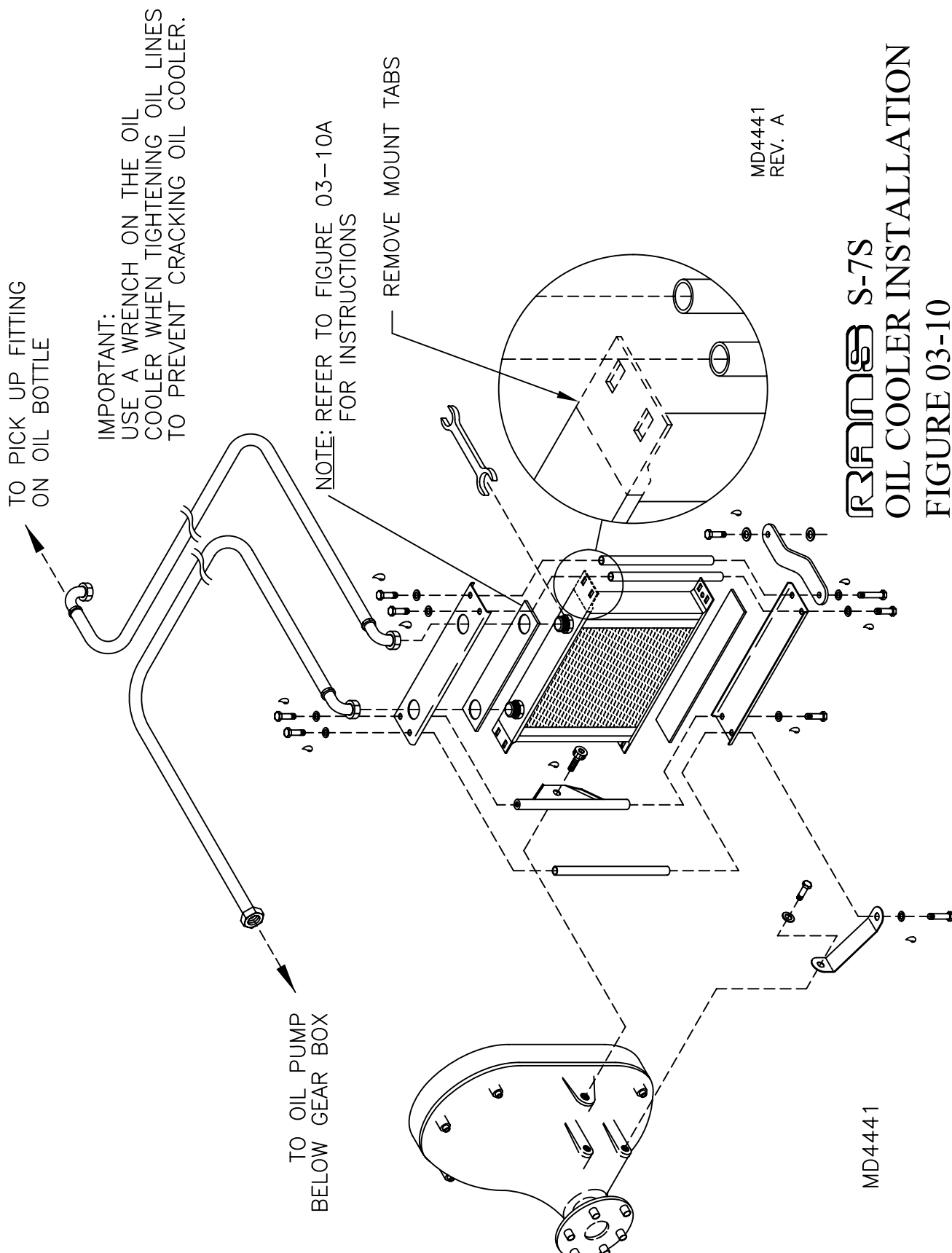
MD4438



MD4440

**RANS S-7S**  
**CHOKE CABLE INSTALLATION FIGURE 03-09**





TO PICK UP FITTING  
ON OIL BOTTLE

IMPORTANT:  
USE A WRENCH ON THE OIL  
COOLER WHEN TIGHTENING OIL LINES  
TO PREVENT CRACKING OIL COOLER.

NOTE: REFER TO FIGURE 03-10A  
FOR INSTRUCTIONS

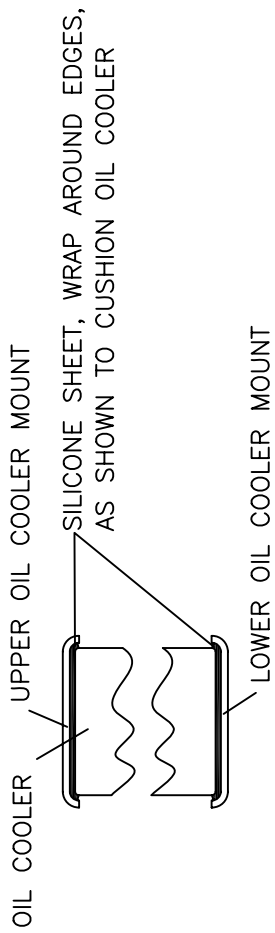
REMOVE MOUNT TABS

TO OIL PUMP  
BELOW GEAR BOX

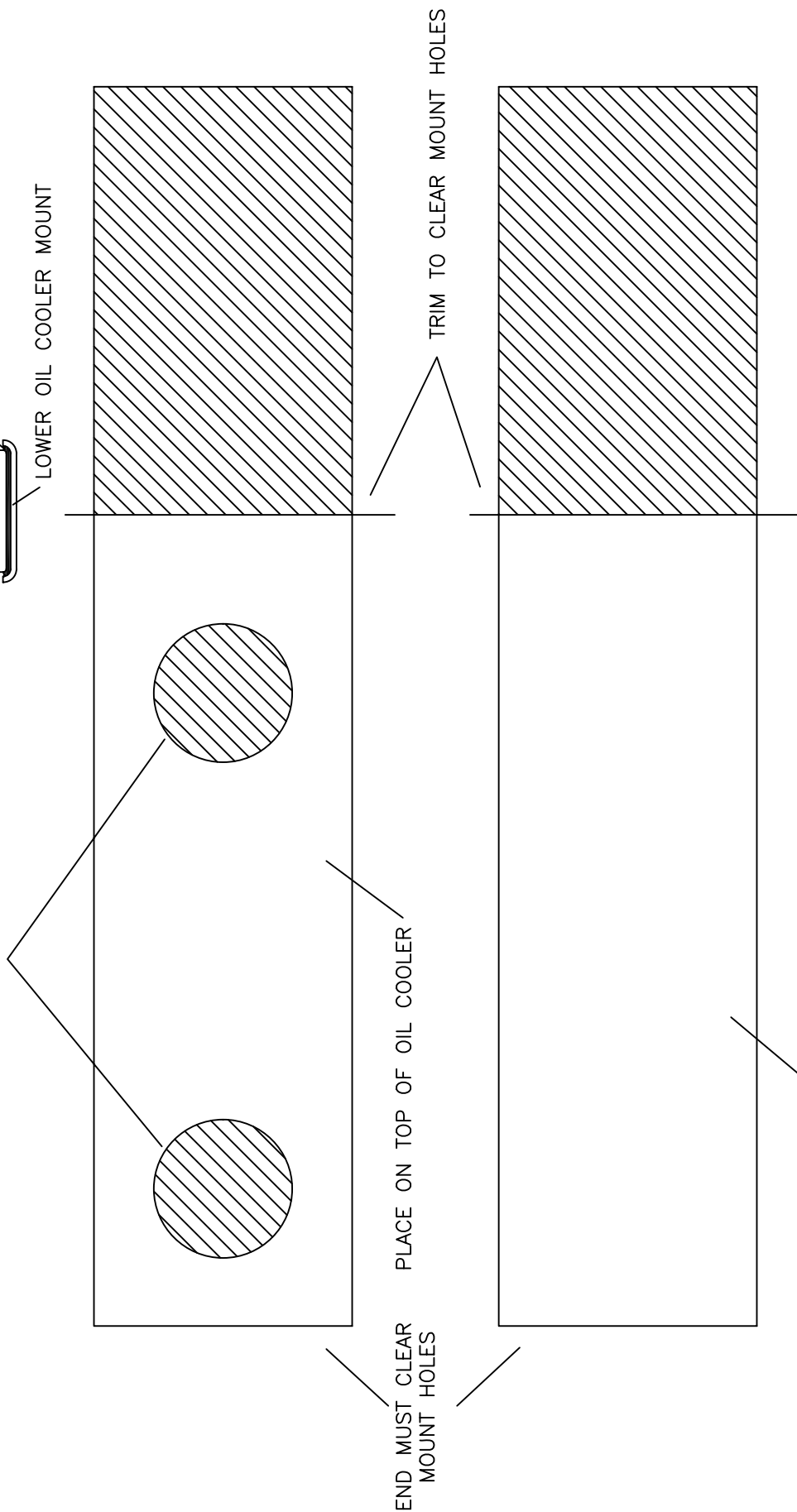
MD4441  
REV. A

**RAMMS S-7S**  
**OIL COOLER INSTALLATION**  
**FIGURE 03-10**

MD4441

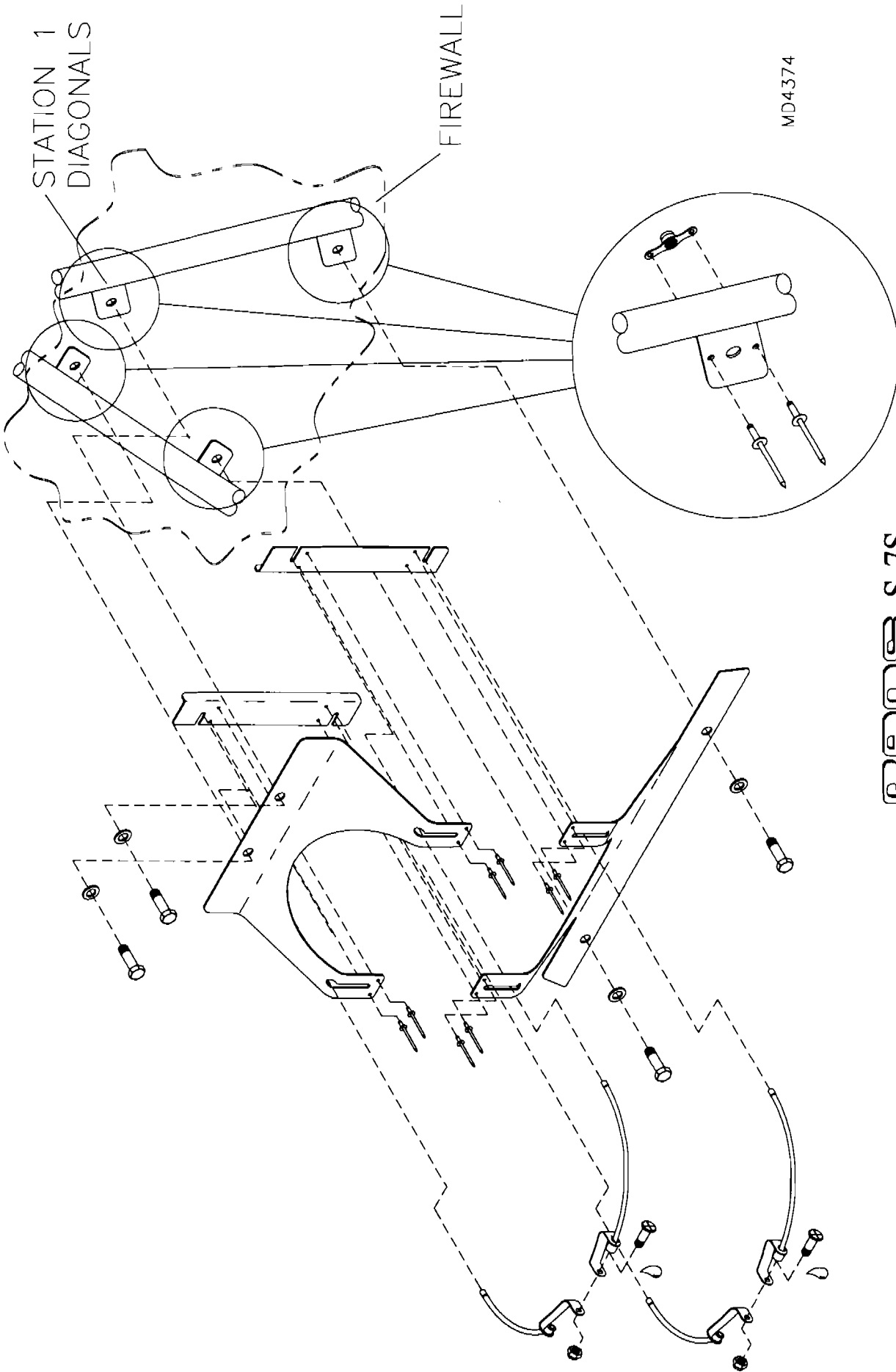


CUT HOLES TO ALLOW FOR FITTINGS. USE UPPER OIL COOLER MOUNT AS A TEMPLATE

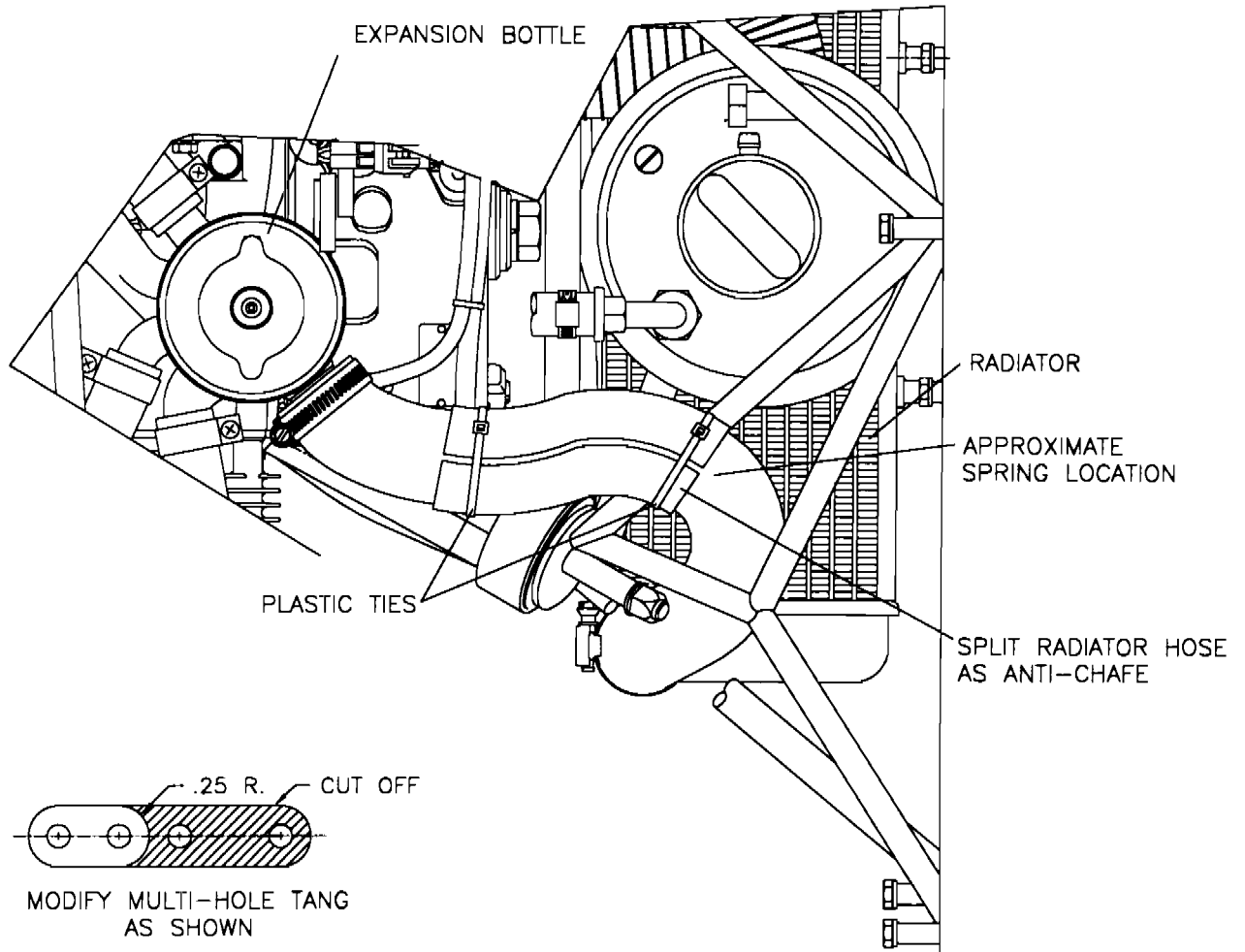


MD4449

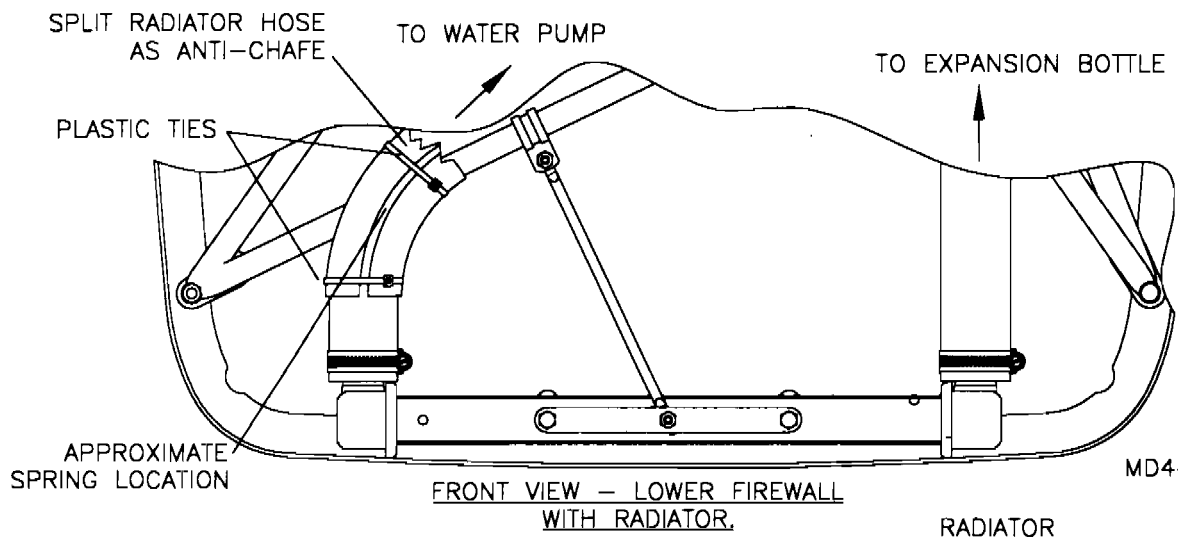
**RAMOS S-7S**  
**OIL COOLER INSTALLATION**  
**FIGURE 03-10A**



**RAMS S-7S**  
**OIL TANK SUPPORT INSTALLATION**  
**FIGURE 03-11**



TOP VIEW - ENGINE (LEFT REAR)

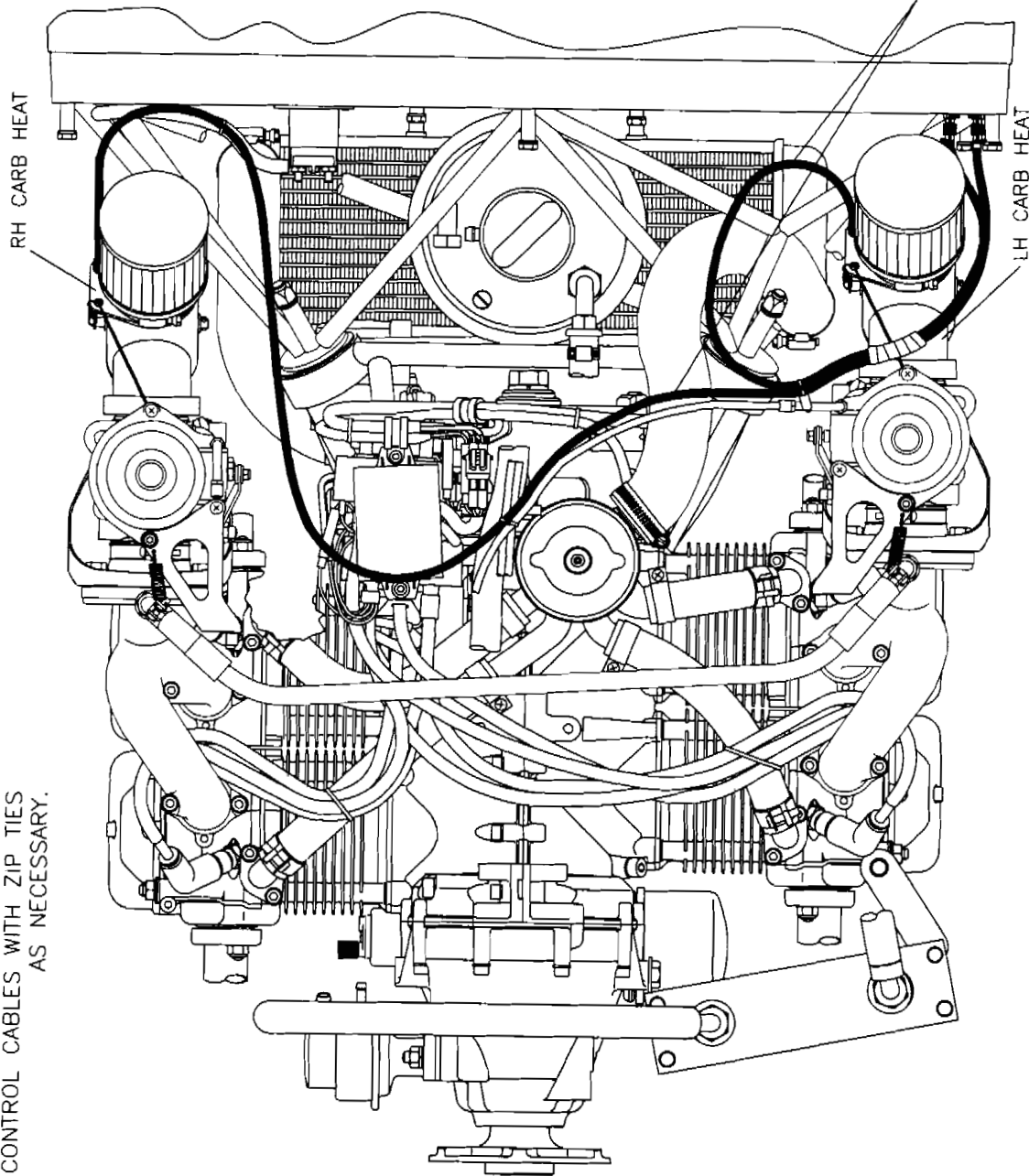


FRONT VIEW - LOWER FIREWALL WITH RADIATOR.

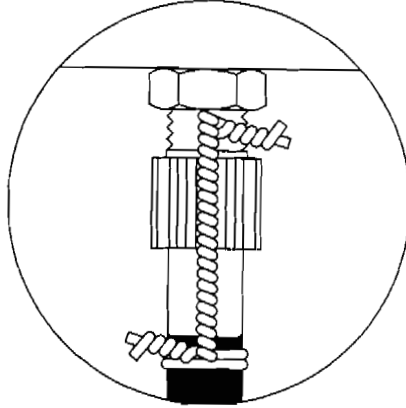
MD4439

**RANS S-7S**  
**RADIATOR HOSE INSTALLATION FIGURE 03-12**

SECURE CONTROL CABLES WITH ZIP TIES  
AS NECESSARY.



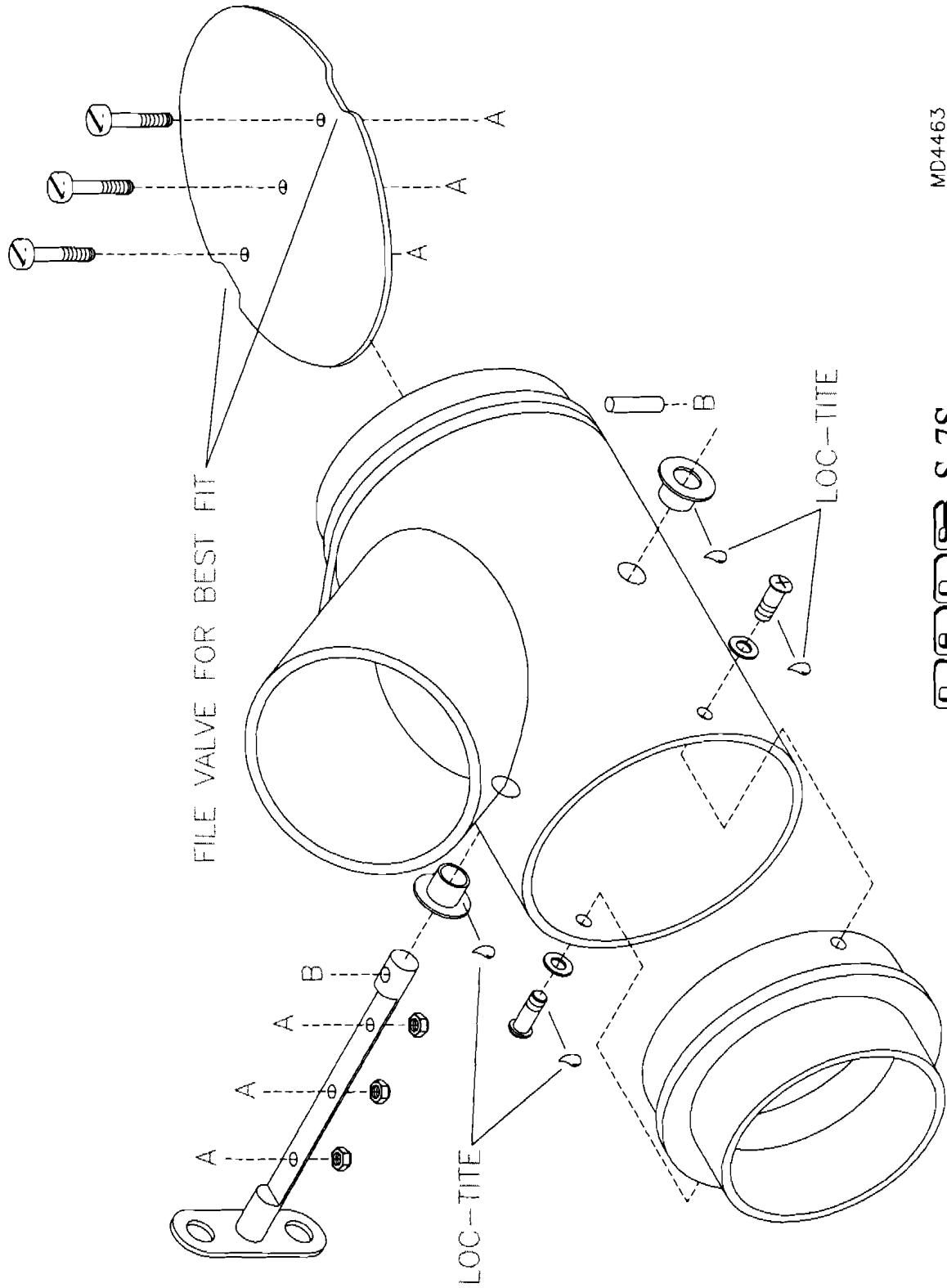
SAFETY WIRE ALL CABLE HOUSING ENDS  
TO FERRULES AS SHOWN



CARB HEAT CONTROL CABLES

**RAMBO S-7S**  
**CARBURETOR HEAT CONTROL**  
**CABLE ROUTING FIGURE 03-13**

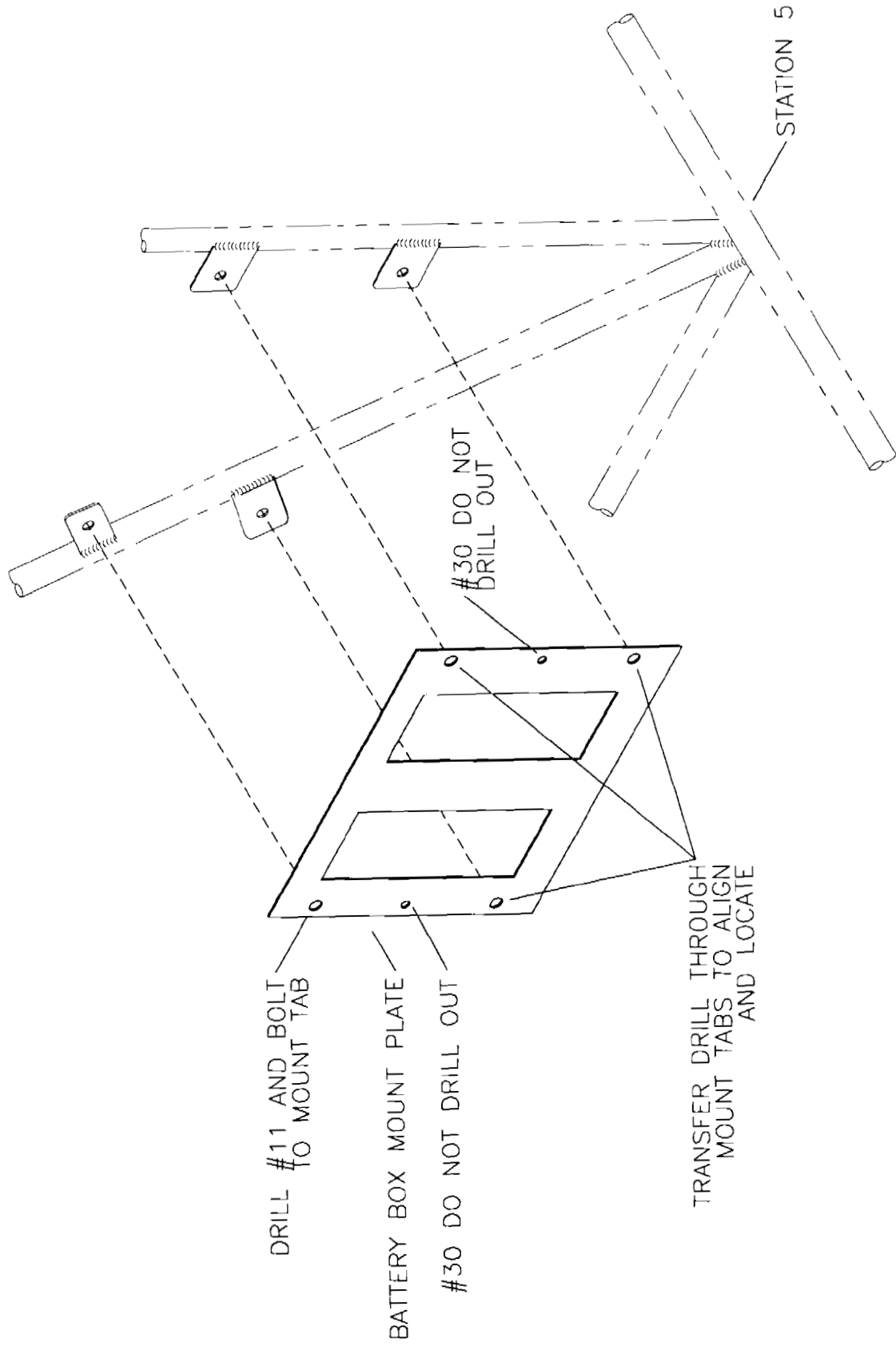
MD4436



MD4463

**RAM S-7S**

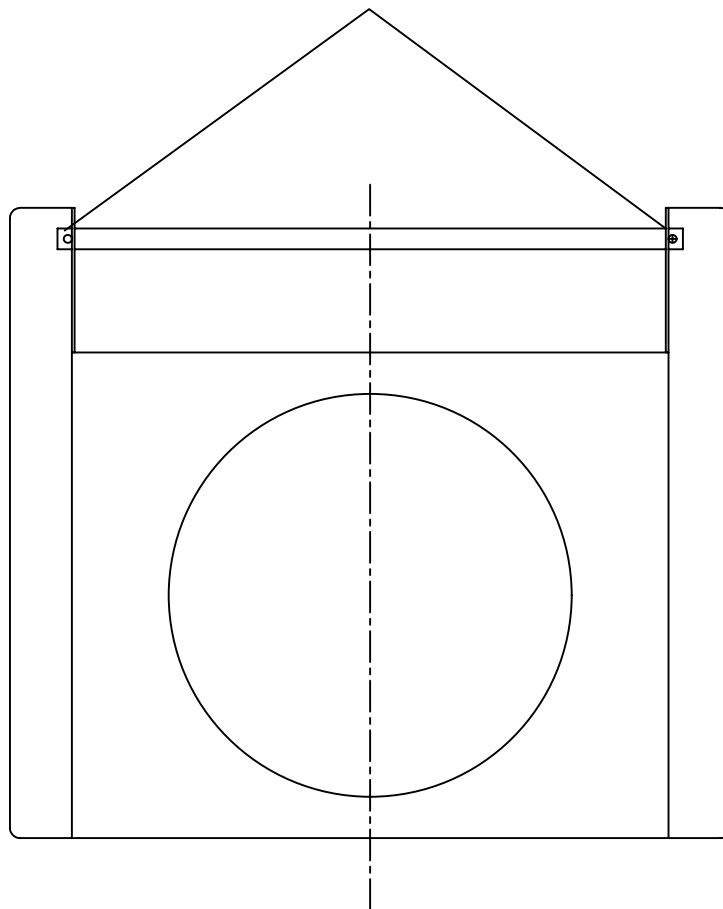
**CARB HEAT ASSEMBLY FIGURE 03-14**



MD4-289

**RRAMES S-7S**  
**BATTERY BOX PLATE FIGURE 04-01**

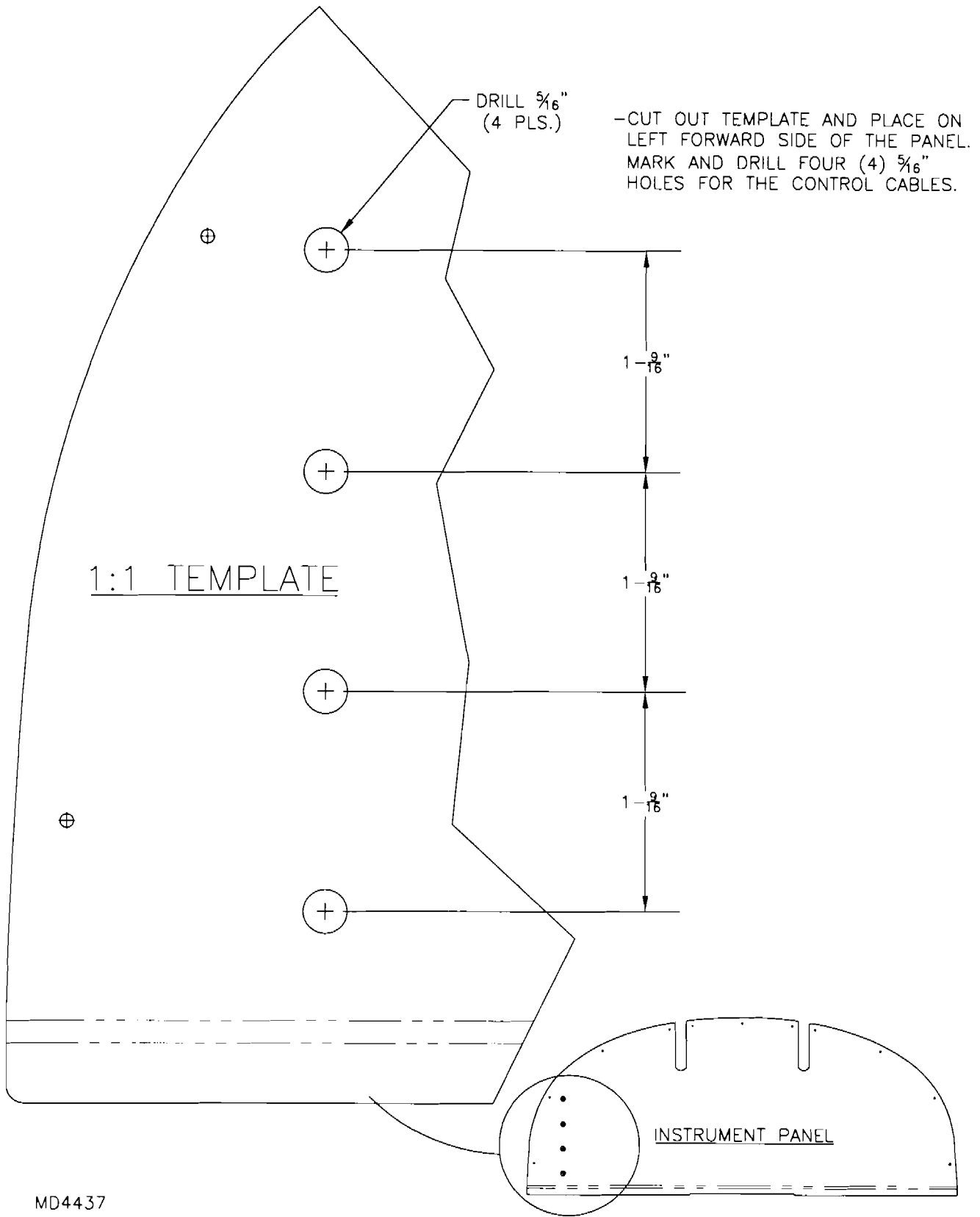
CENTER BATTERY BAR AND DRILL #40  
AS NECESSARY



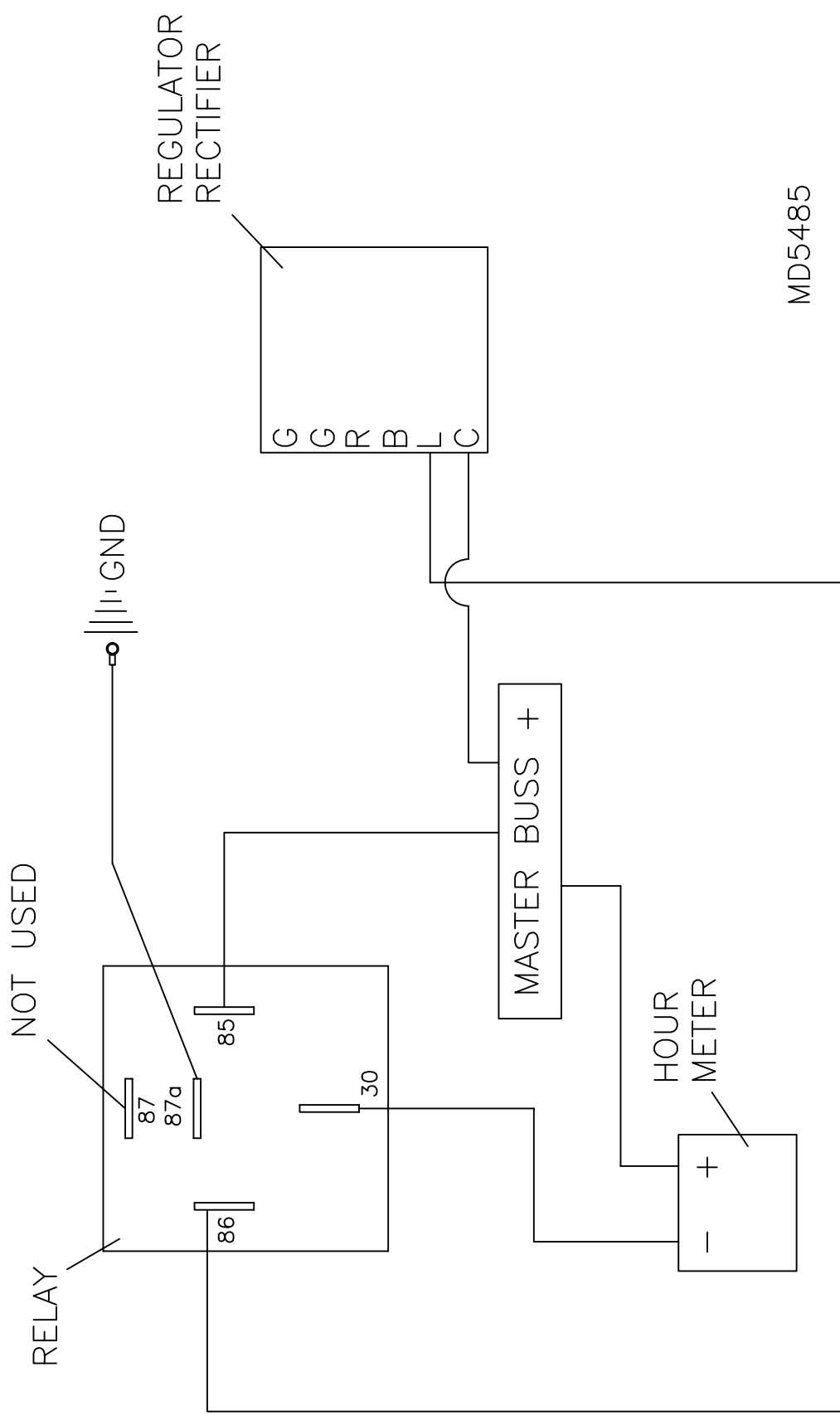
**RANS S-7S**  
**BATTERY BAR MODIFICATION**  
**FIGURE 04-01A**

MD5468



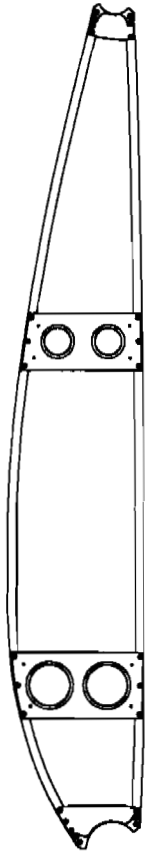


**RANS S-7S**  
**INSTRUMENT PANEL - DRILL TEMPLATE**  
**FIGURE 04-02**

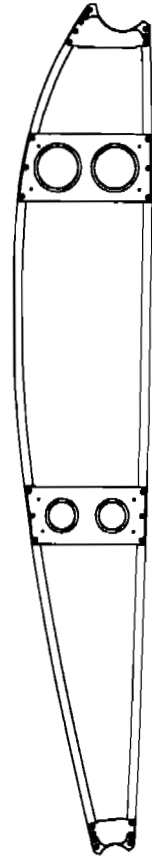


MD5485

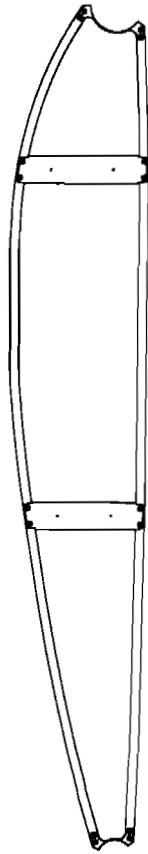
**RAMON S-7S**  
**HOUR METER RELAY**  
**FIGURE 04A-01**



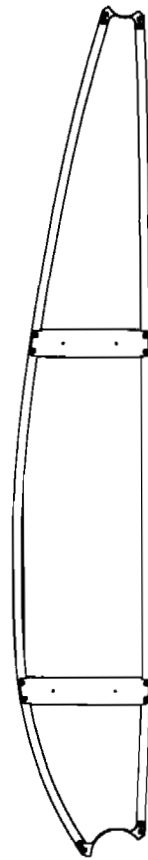
MAIN RIB, LEFT HAND - (9) REQ'D.  
(3 USED IN THE LEFT HAND WING,  
POSITIONS #6, 8 & 11,  
6 USED IN THE RIGHT HAND WING  
POSITIONS #3, 4, 5, 7, 9 & 10)



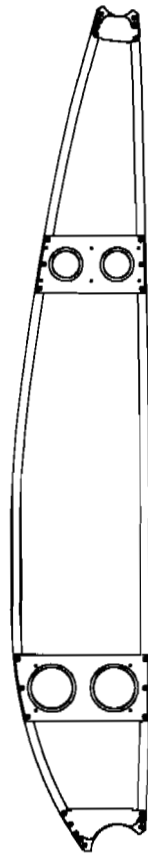
MAIN RIB, RIGHT HAND - (9) REQ'D.  
(3 USED IN THE RIGHT HAND WING,  
POSITIONS #6, 8 & 11,  
6 USED IN THE LEFT HAND WING  
POSITIONS #3, 4, 5, 7, 9 & 10)



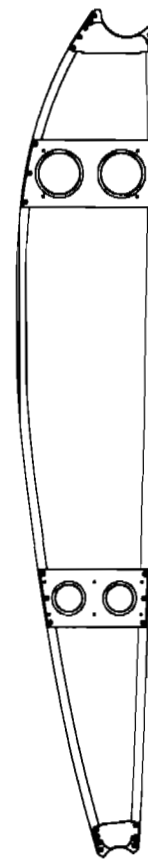
ROOT RIB, LEFT HAND - (1) REQ'D.



ROOT RIB, RIGHT HAND - (1) REQ'D.



#2 RIB, LEFT HAND - (1) REQ'D.



#2 RIB, RIGHT HAND - (1) REQ'D.

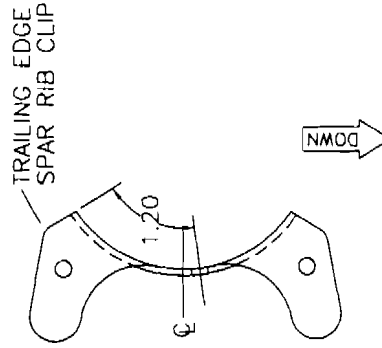
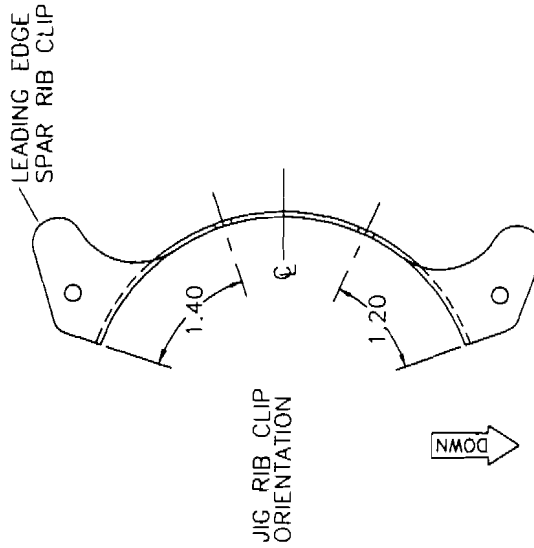
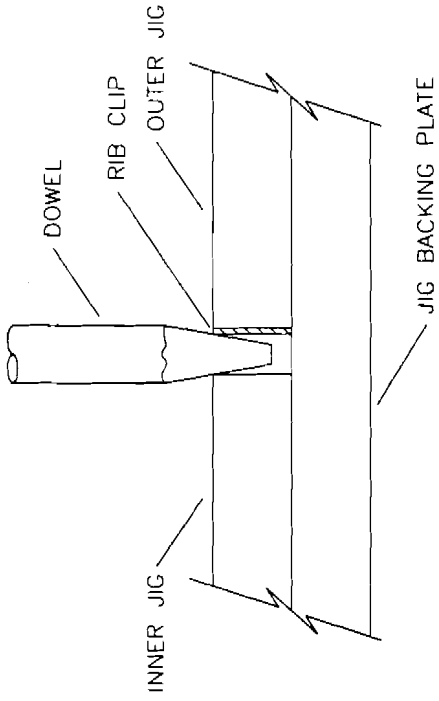
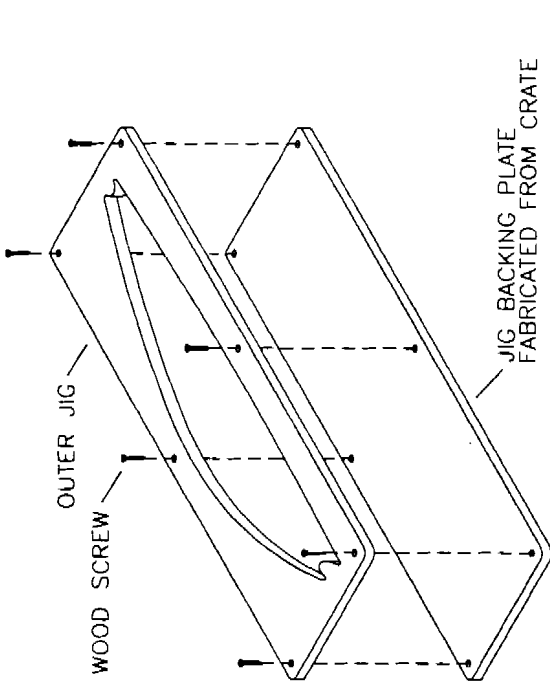


TIP RIB - (2) REQ'D. (FACTORY ASSEMBLED)

**RAMS** S-7S

MD4343

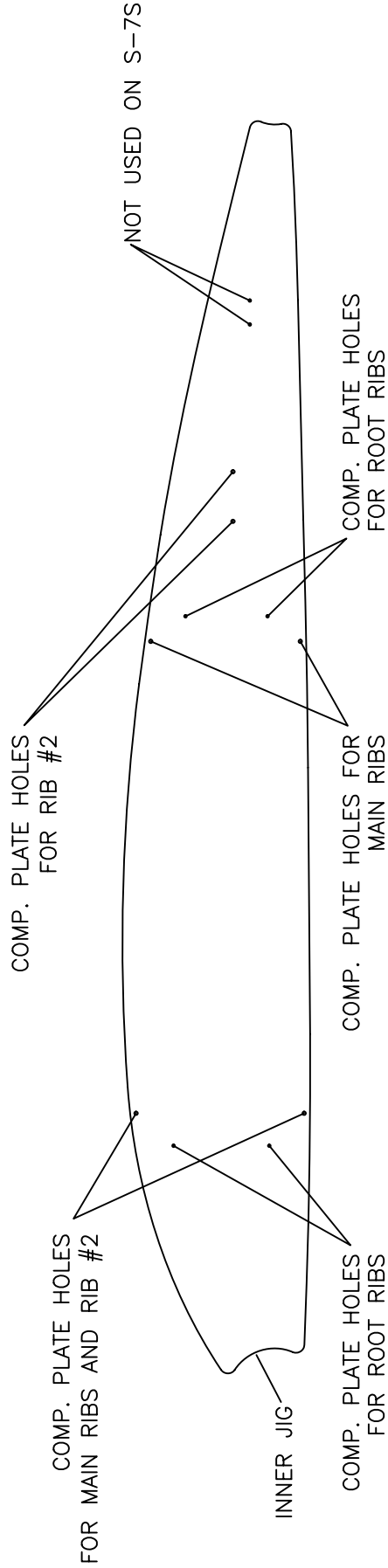
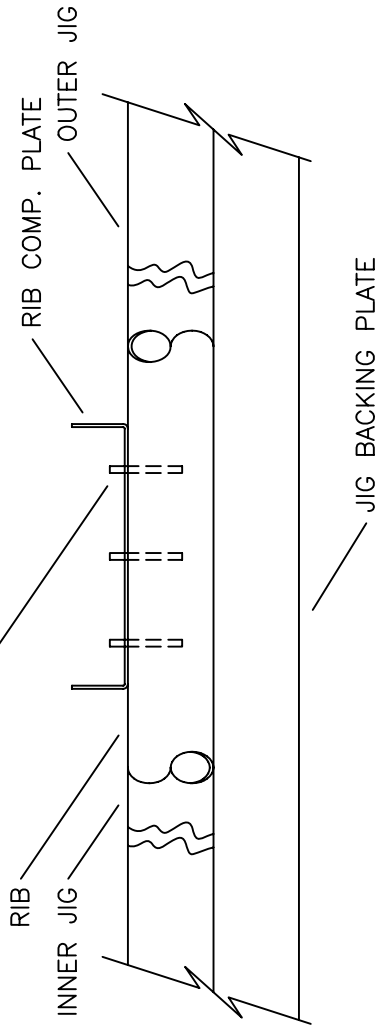
# WING RIB CHART FIGURE 05-01



**RRAD S-7S**  
**RIB CLIP ORIENTATION AND**  
**ALIGNMENT JIG FIGURE 05-02**

MD4344

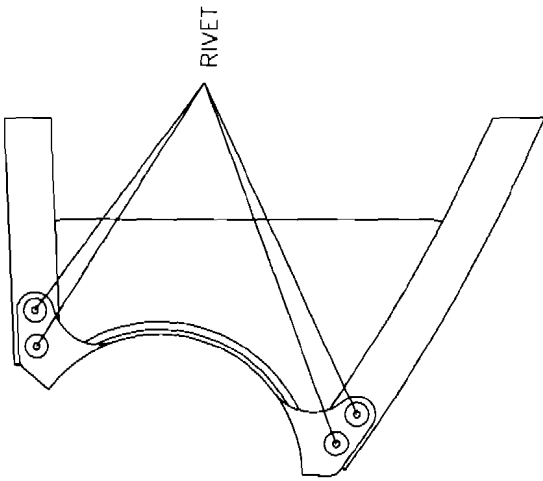
1/8" STAINLESS STEEL PINS



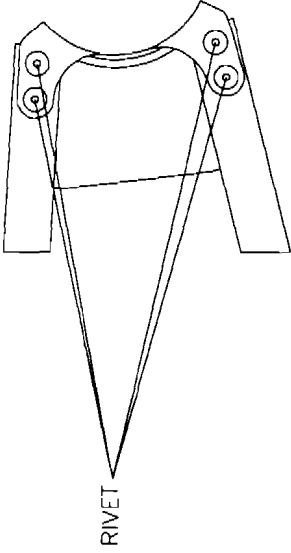
MD4346

**RAMBER** S-7S

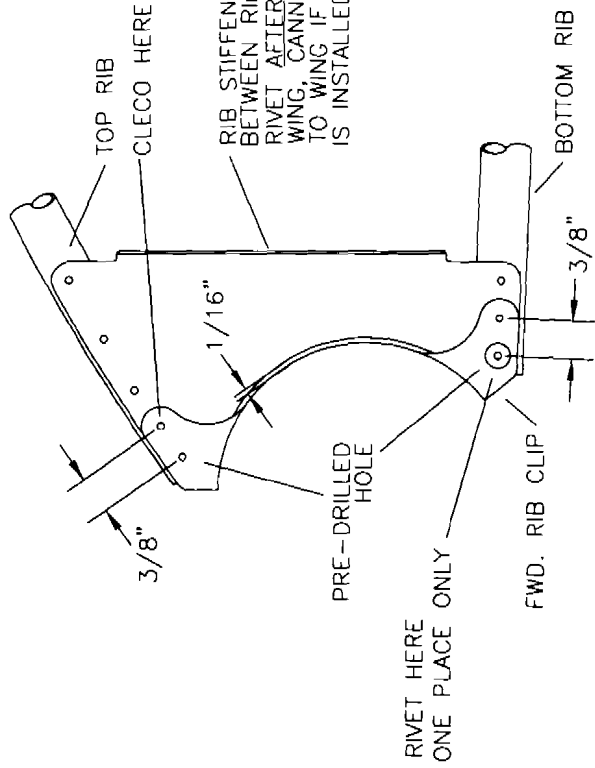
# INNER RIB JIG TOOLING HOLES FOR LOCATING OF COMPRESSION PLATES FIGURE 05-03



RIVET



RIVET



TOP RIB

CLECO HERE

RIB STIFFENER SANDWICHES BETWEEN RIB AND CLIP. CLECO NOW; RIVET AFTER INSTALLED TO WING, CANNOT RIVET RIB TO WING IF STIFFENER IS INSTALLED.

RIVET HERE ONE PLACE ONLY

PRE-DRILLED HOLE

RIVET HERE ONE PLACE ONLY

FWD. RIB CLIP

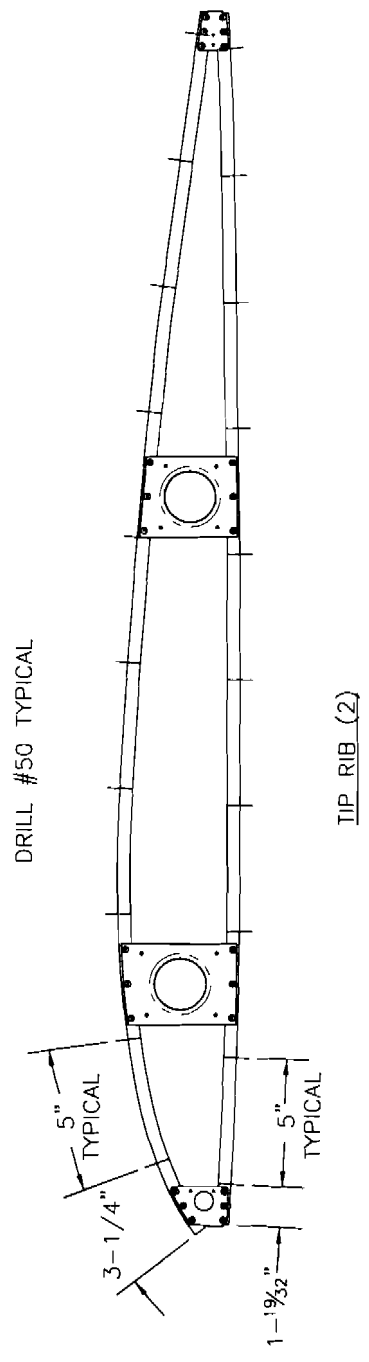
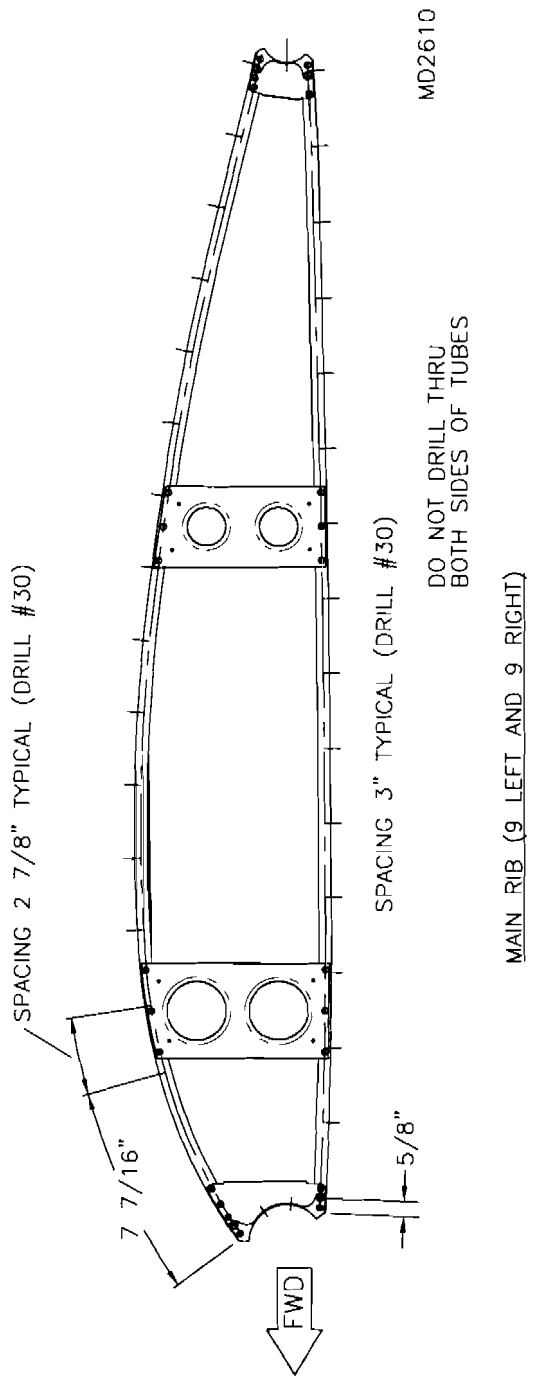
BOTTOM RIB



# RIB STIFFENER AND RIB RIVETING

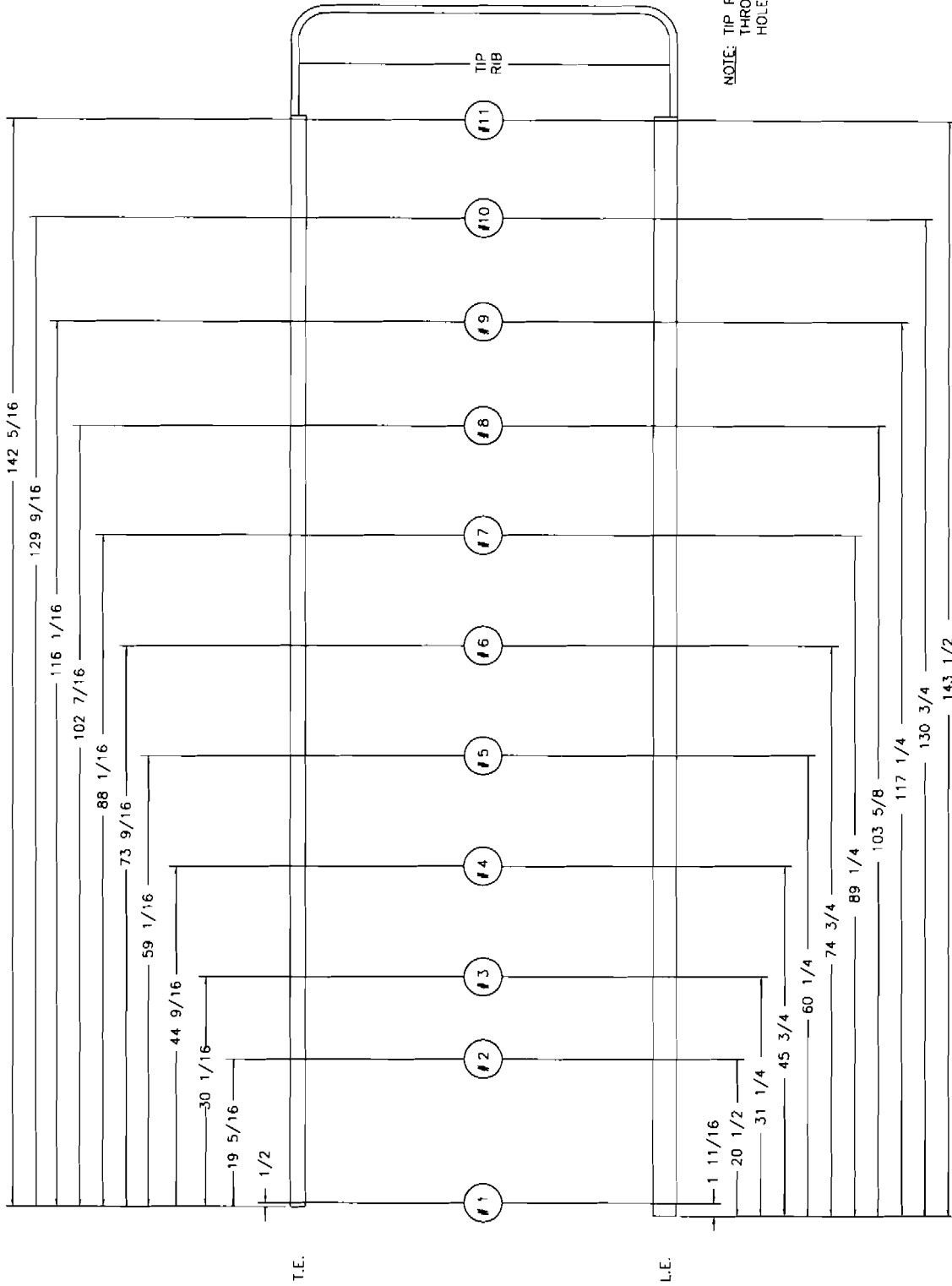
FIGURE 05-04

MD4345



MD4347

**RAMS S-7S**  
**RIB DRILLING FIGURE 05-05**



NOTE: DIMENSIONS ARE TO THE CENTERLINE OF THE RIBS

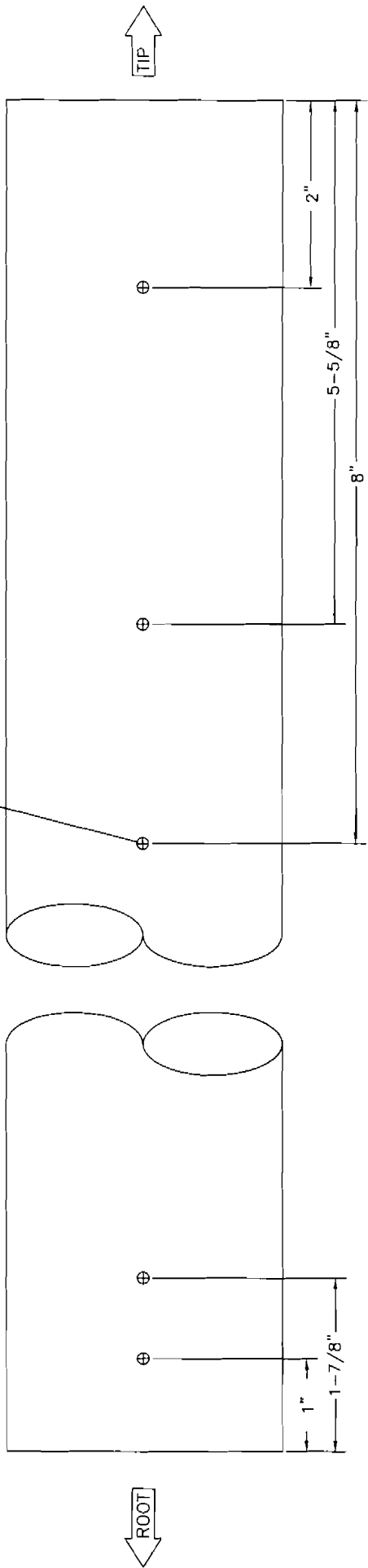
**RIPCORD** S-7S

RIB LOCATIONS FIGURE 05-06

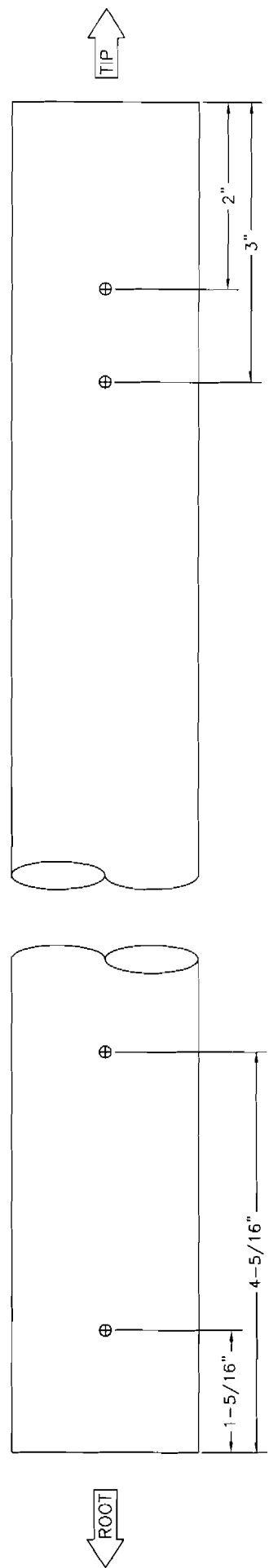
MD4348



LH SPAR ONLY (STEP DRILL TO 5/8" ON BOTH SIDES; THIS HOLE ONLY)



LEADING EDGE SPAR (FWD SIDE SHOWN)



TRAILING EDGE SPAR (FWD SIDE SHOWN)

MD4351

**RRR** S-7S  
WING SPAR ORIENTATION  
FIGURE 05-07

UP

TIP

FWD

TRANSFER DRILL ROOT DOUBLER #30 (2) THROUGH (2) PRE-DRILLED HOLES IN SPAR AND CLECO.

③ TRANSFER DRILL ROOT DOUBLER #30 THROUGH (2) PRE-DRILLED HOLES IN SPAR.

④ DRILL OUT TO #30 AND CLECO TO SPAR.

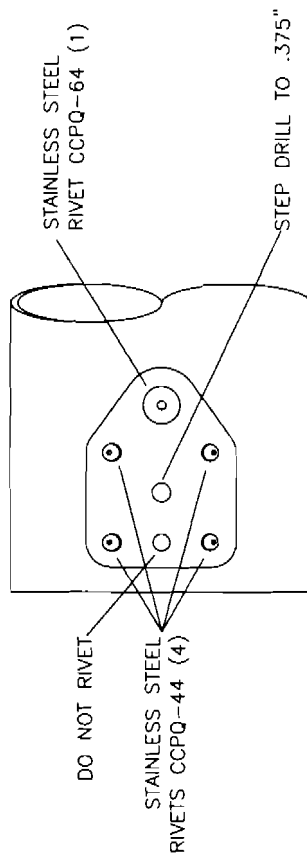
⑤ -TRANSFER DRILL THROUGH SPAR AND ROOT DOUBLER #40 AND CLECO (4) -REMOVE ONE CLECO AT A TIME AND DRILL OUT TO #30 AND CLECO

⑥ -DRILL OUT TO #11 (ONE HOLE ONLY) -REMOVE ALL CLECOS AND DEBUR

⑦ -RIVET (5) -STEP DRILL CENTER HOLE TO .375"

① LEADING EDGE SPAR ROOT DOUBLER. (SLIDE IN ROOT END OF LEADING EDGE SPAR UNTIL FLUSH WITH SPAR END. ORIENTATE WITH SLOT FACING DOWN.)

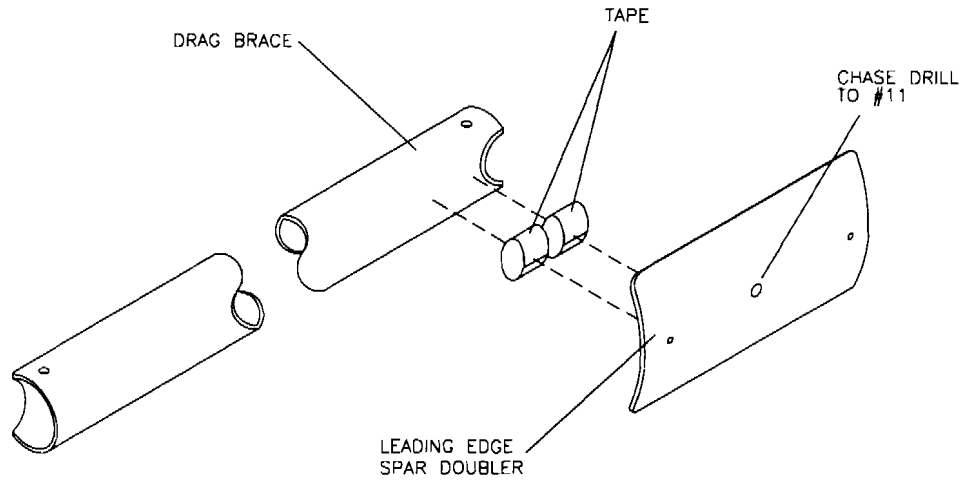
DO NOT DRILL



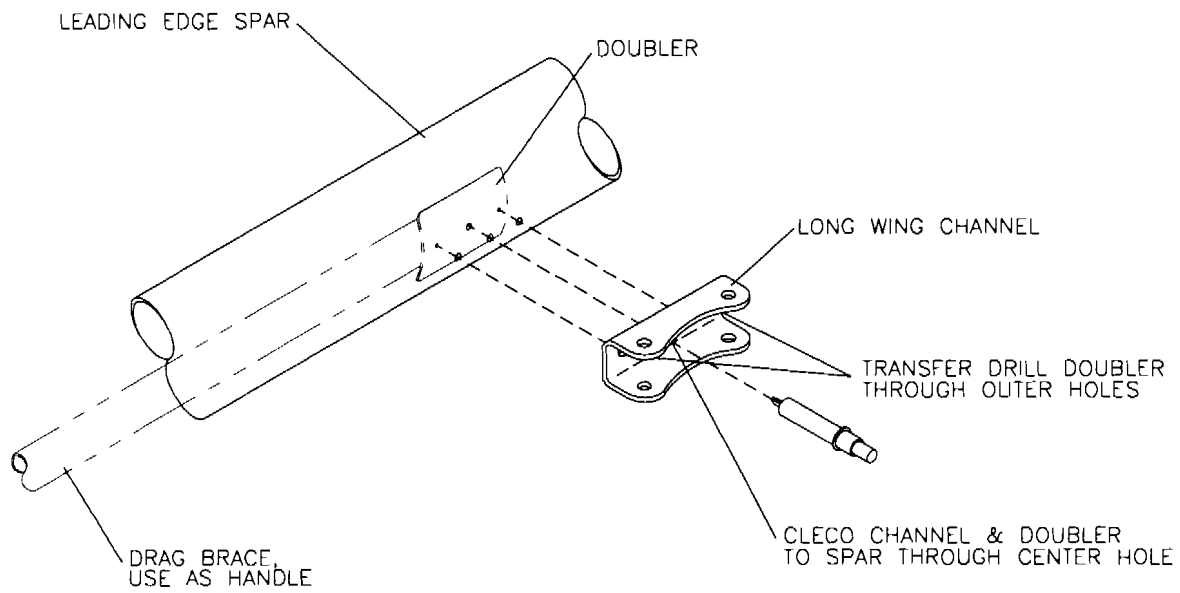
MD4.352

**RAMS** S-7S

# LEADING EDGE SPAR ROOT DOUBLER AND LEADING EDGE SPAR PATCH INSTALLATION FIGURE 05-08

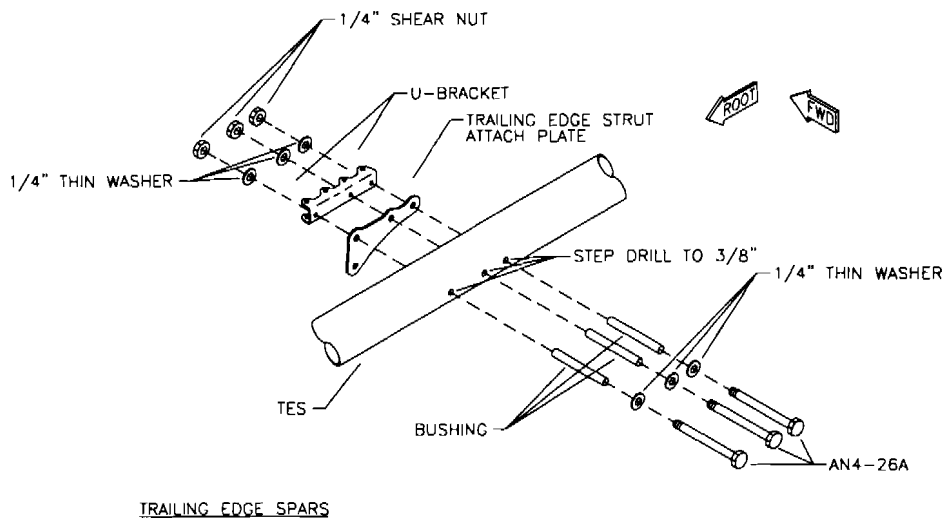
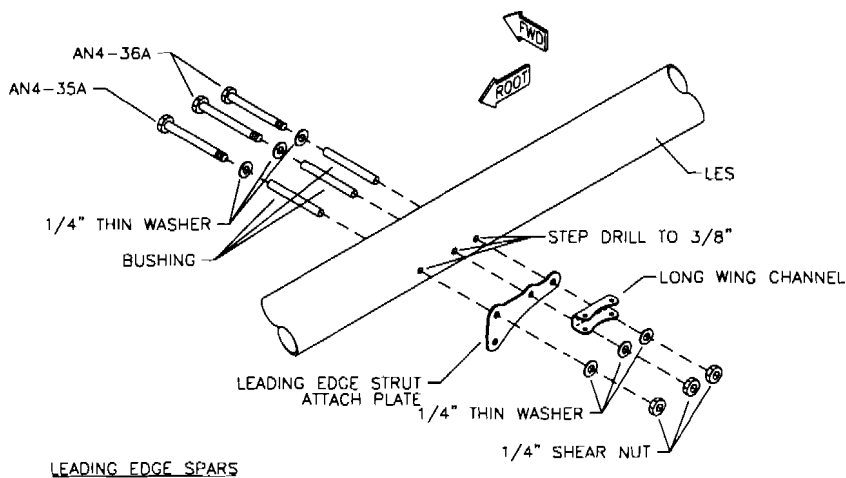
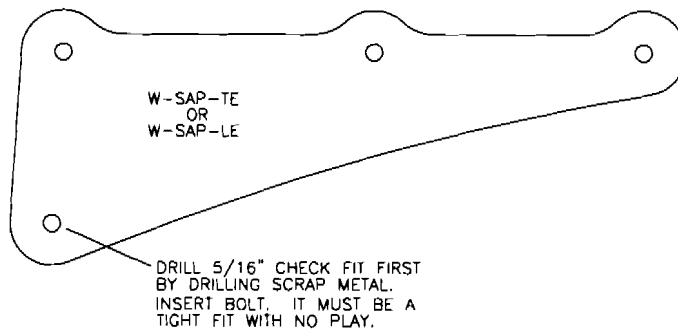


NOTE: USE DRAG BRACE TO POSITION DOUBLER INSIDE THE LEADING EDGE SPAR.



MD4353

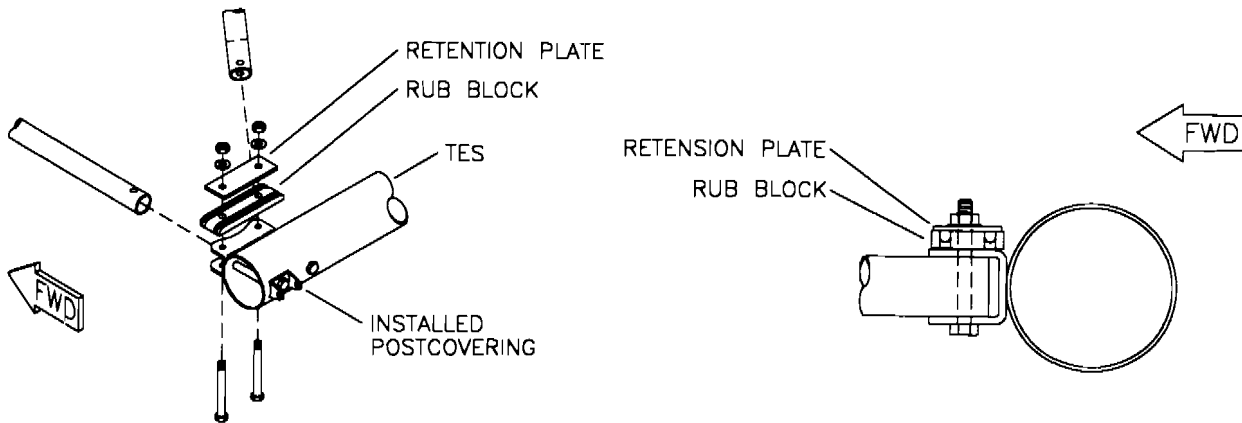
**RANS S-7S**  
**LEADING EDGE SPAR DOUBLER**  
**INSTALLATION FIGURE 05-09**



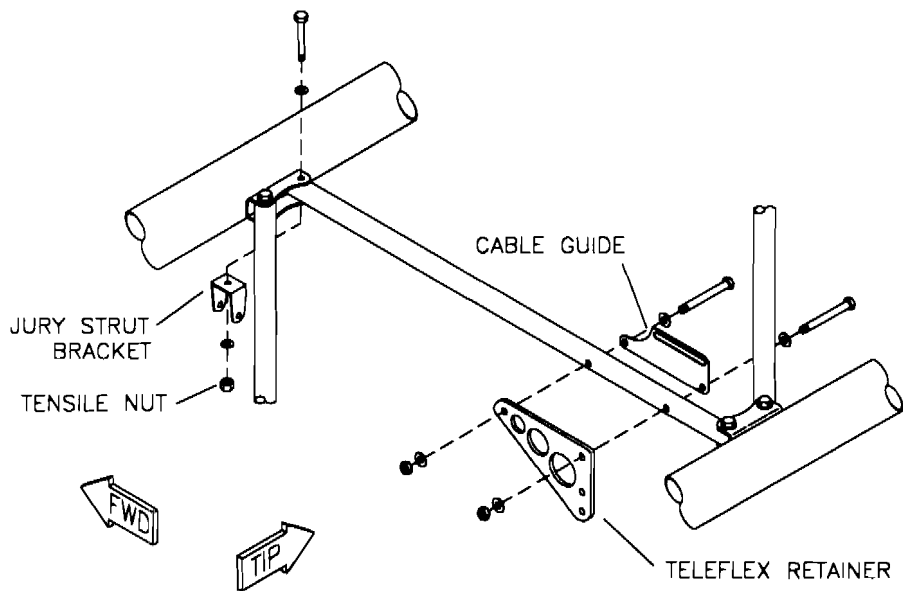
MD4354

# RANS S-7S

## STRUT ATTACH PLATE INSTALLATION - LEADING AND TRAILING EDGE SPARS FIGURE 05-10



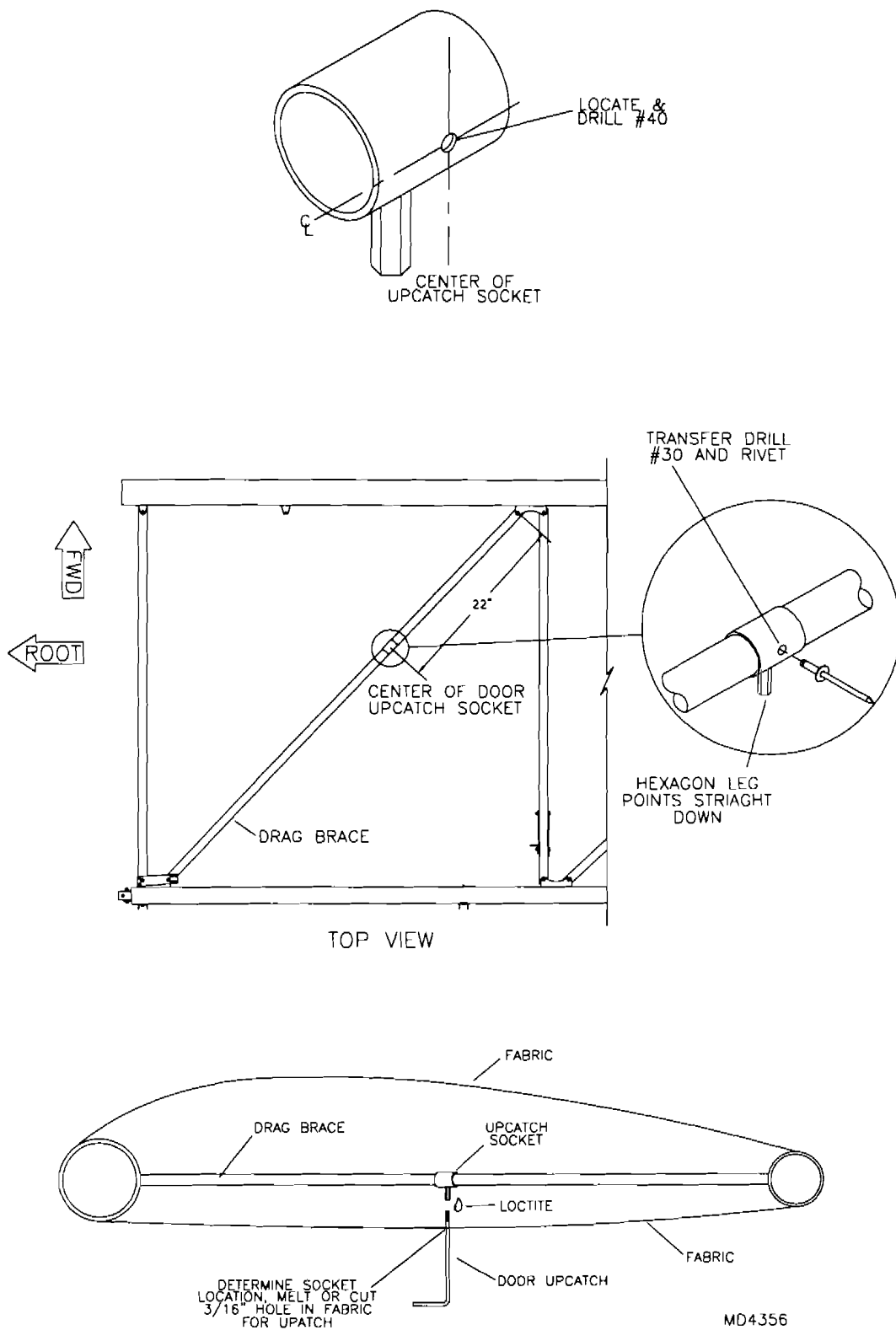
AILERON CABLE RUB BLOCK



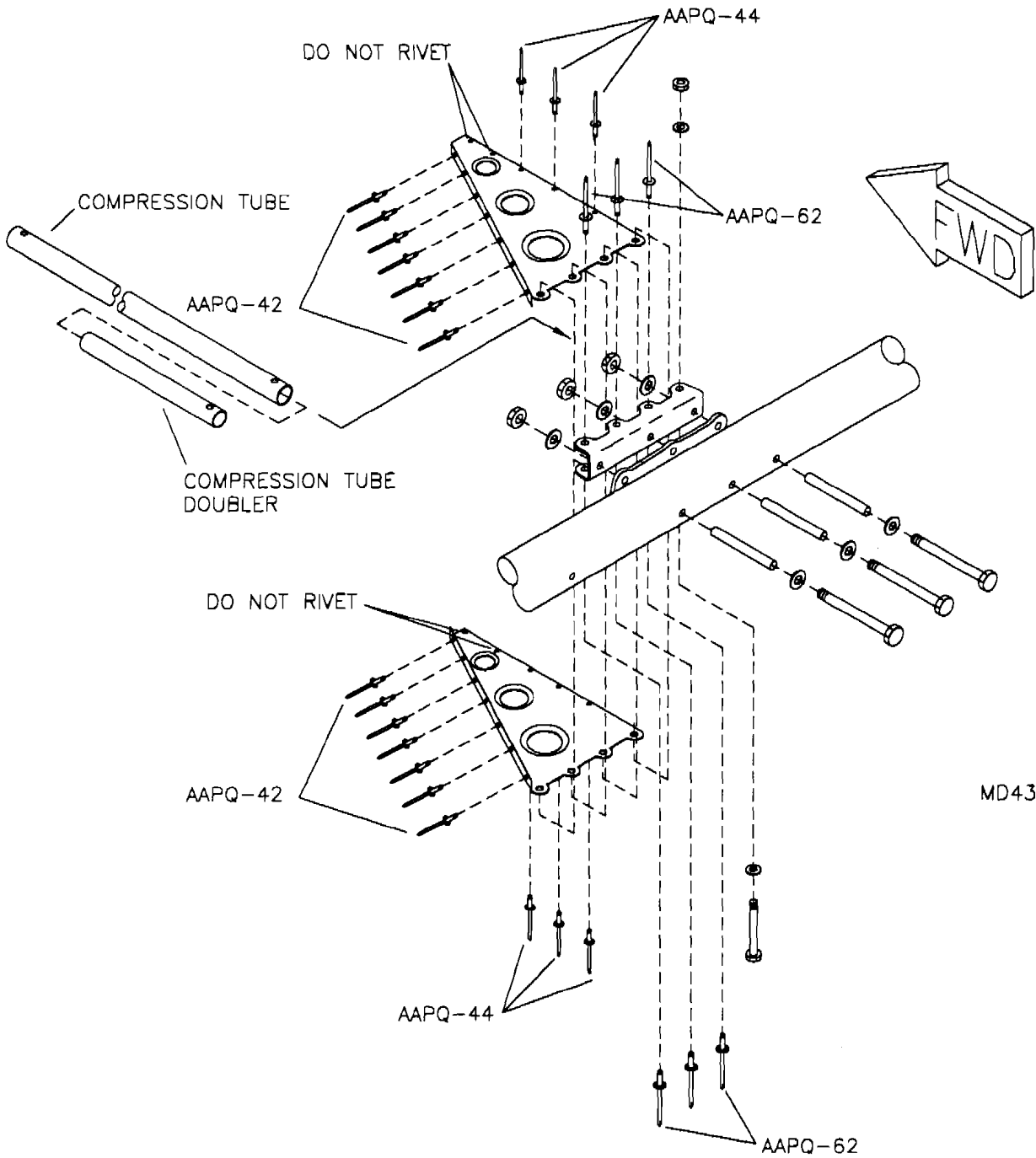
MD4355

JURY STRUT BRACKET, CABLE GUIDE AND TELEFLEX RETAINER

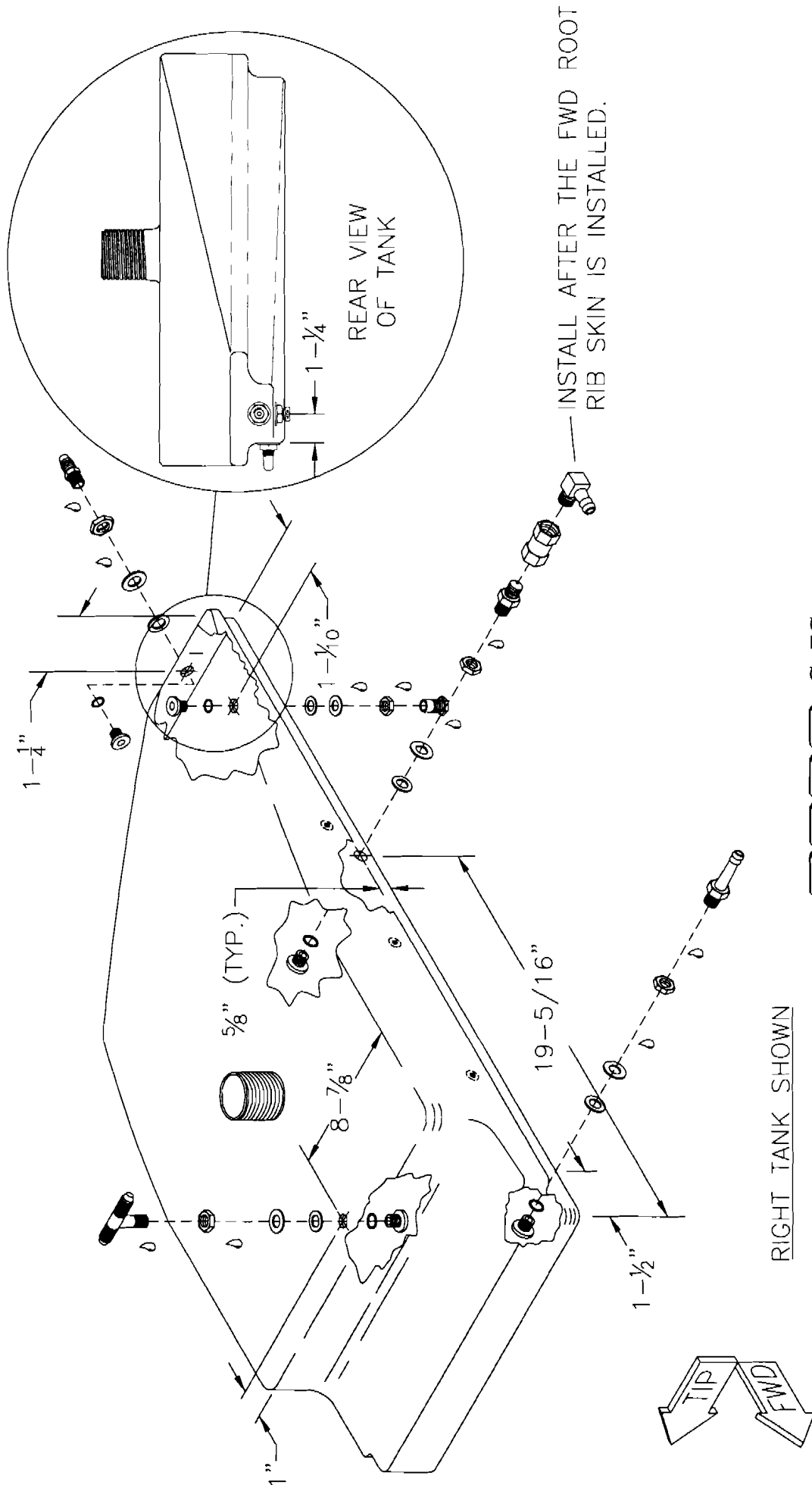
**RAANS S-7S**  
**WING FRAME ASSEMBLY DETAILS**  
**FIGURE 05-11**



**RANS S-7S**  
**DOOR UPCATCH INSTALLATION**  
**FIGURE 05-12**



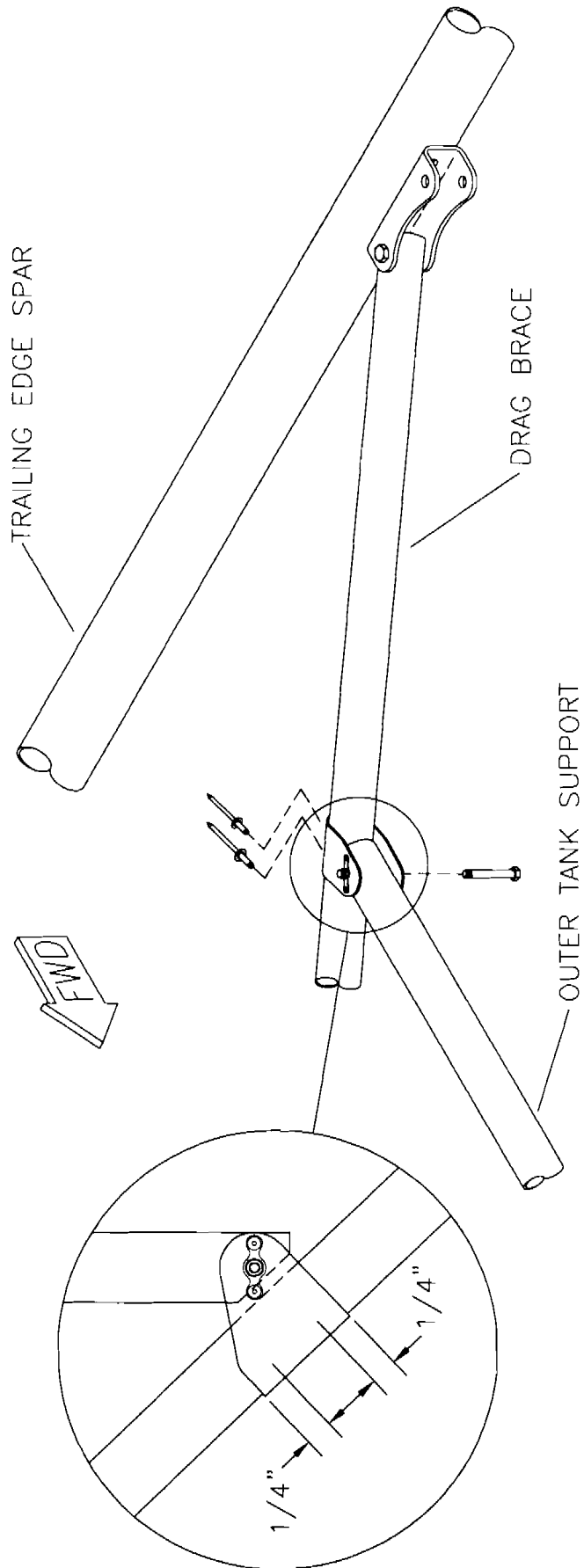
**RANS S-7S**  
**BELLCRANK BRACE INSTALLATION**  
**FIGURE 05-13**



**RA-7S**  
**WING FUEL TANK ASSEMBLY**  
**FIGURE 05-14**

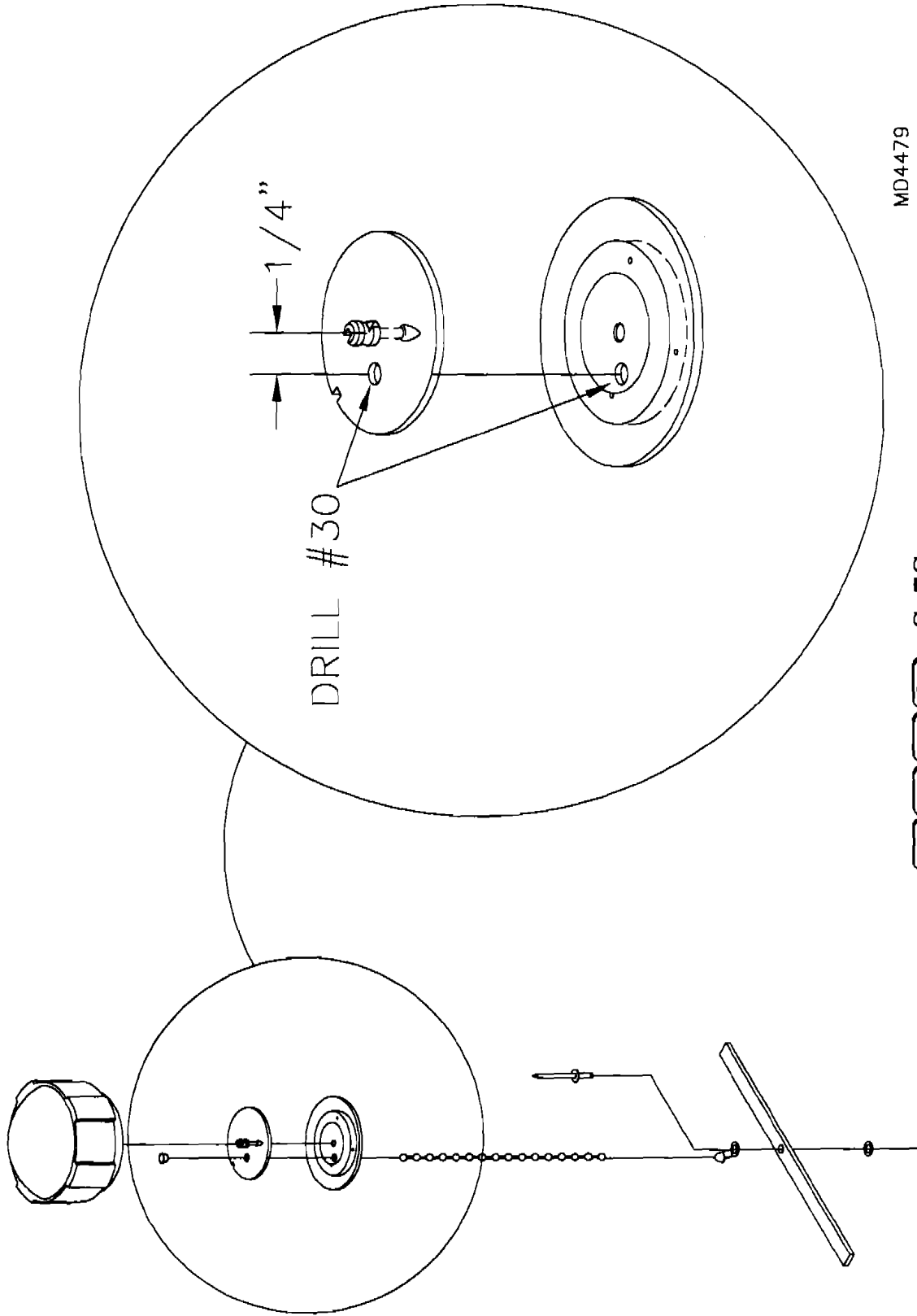
MD4358





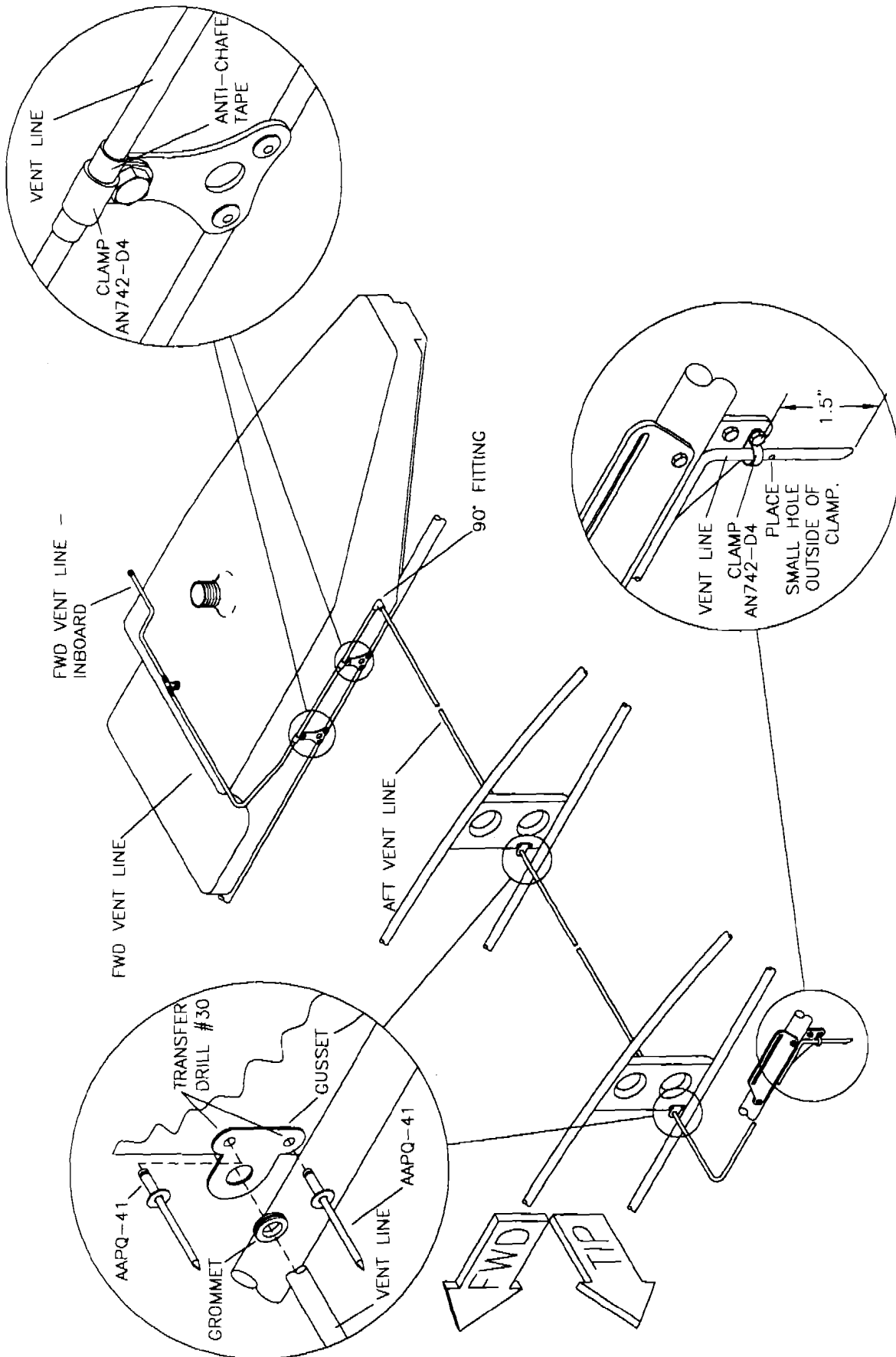
MD4359

**Beechcraft S-7S**  
**WING TANK SUPPORT TUBE**  
**INSTALLATION FIGURE 05-15**



MD4479

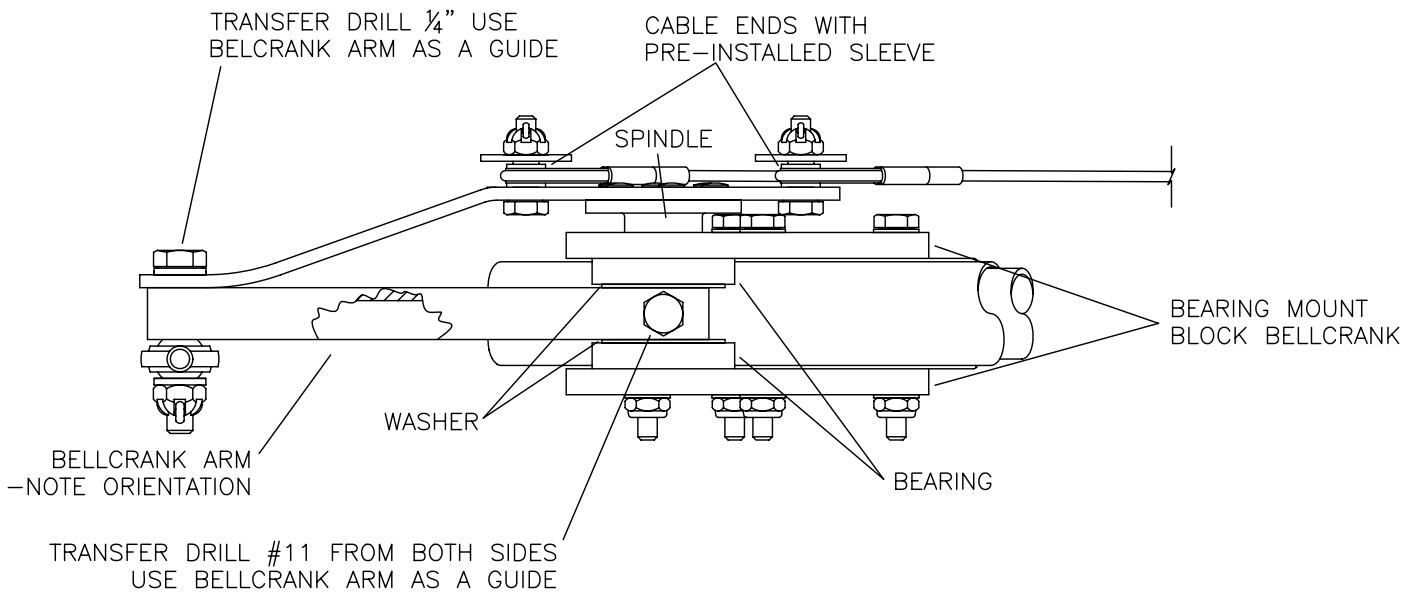
**RAMBO S-7S**  
**FUEL CAP ASSEMBLY**  
**FIGURE 05-15A**



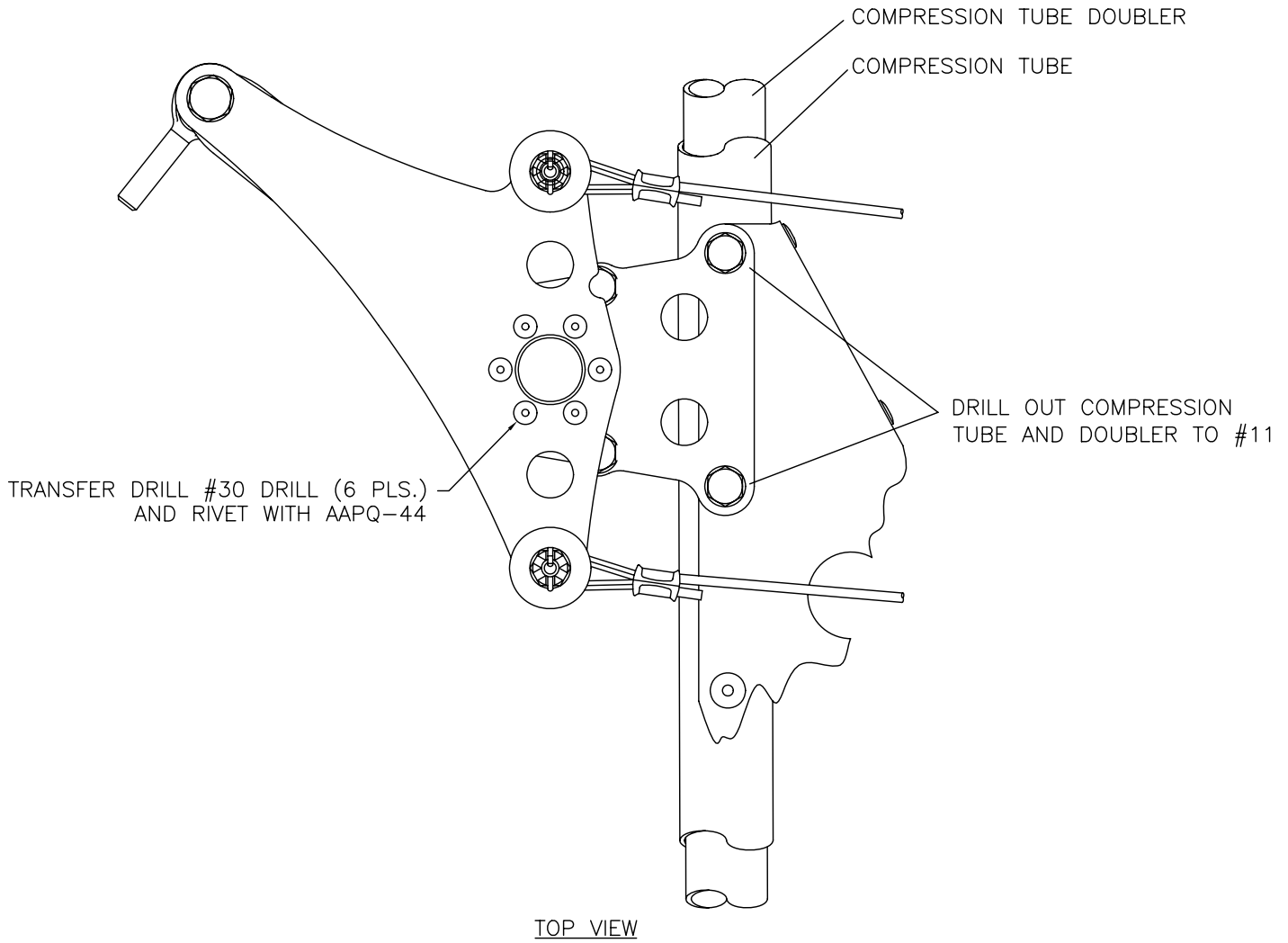
MD4360  
REV. A

**RRANES S-7S**  
**FUEL SYSTEM VENT LINE**  
**INSTALLATION FIGURE 05-16**

LH WING SHOWN

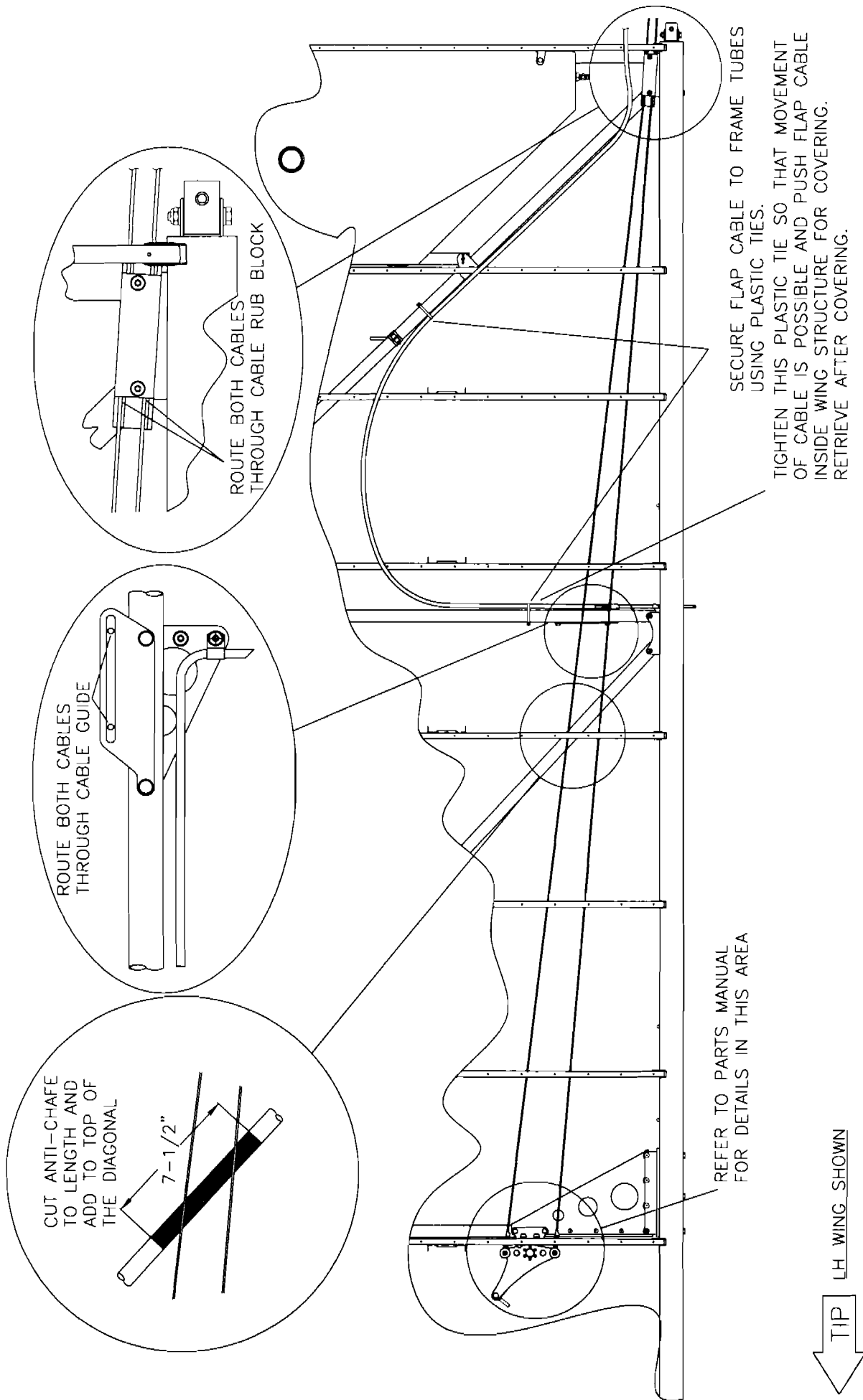


SIDE VIEW



**RANS S-7S**  
**WING BELL CRANK ASSEMBLY AND**  
**INSTALLATION FIGURE 05-17**

MD4397



REFER TO PARTS MANUAL FOR DETAILS IN THIS AREA

SECURE FLAP CABLE TO FRAME TUBES USING PLASTIC TIES.

TIGHTEN THIS PLASTIC TIE SO THAT MOVEMENT OF CABLE IS POSSIBLE AND PUSH FLAP CABLE INSIDE WING STRUCTURE FOR COVERING. RETRIEVE AFTER COVERING.

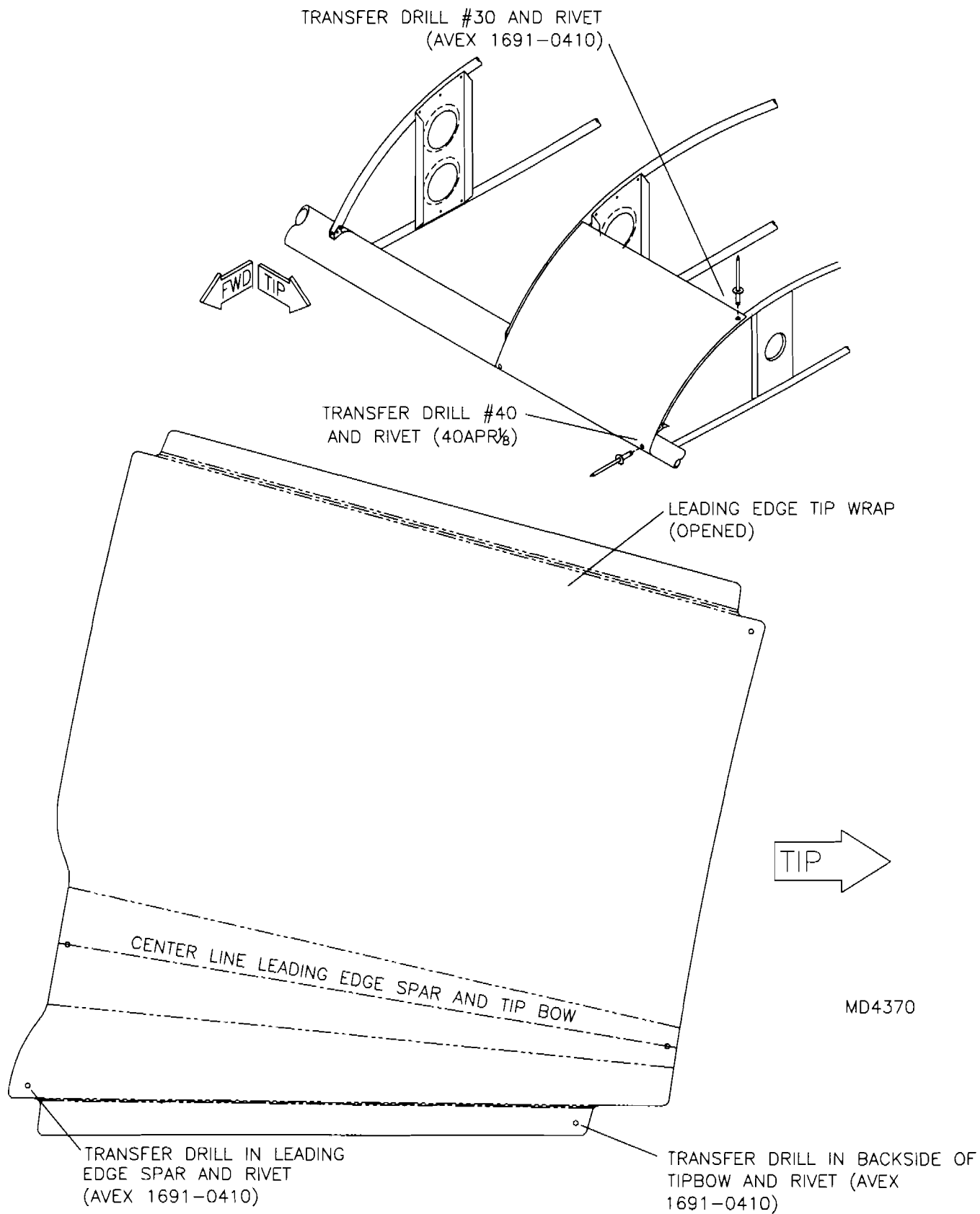
TIP → LH WING SHOWN

**RAN S-7S**

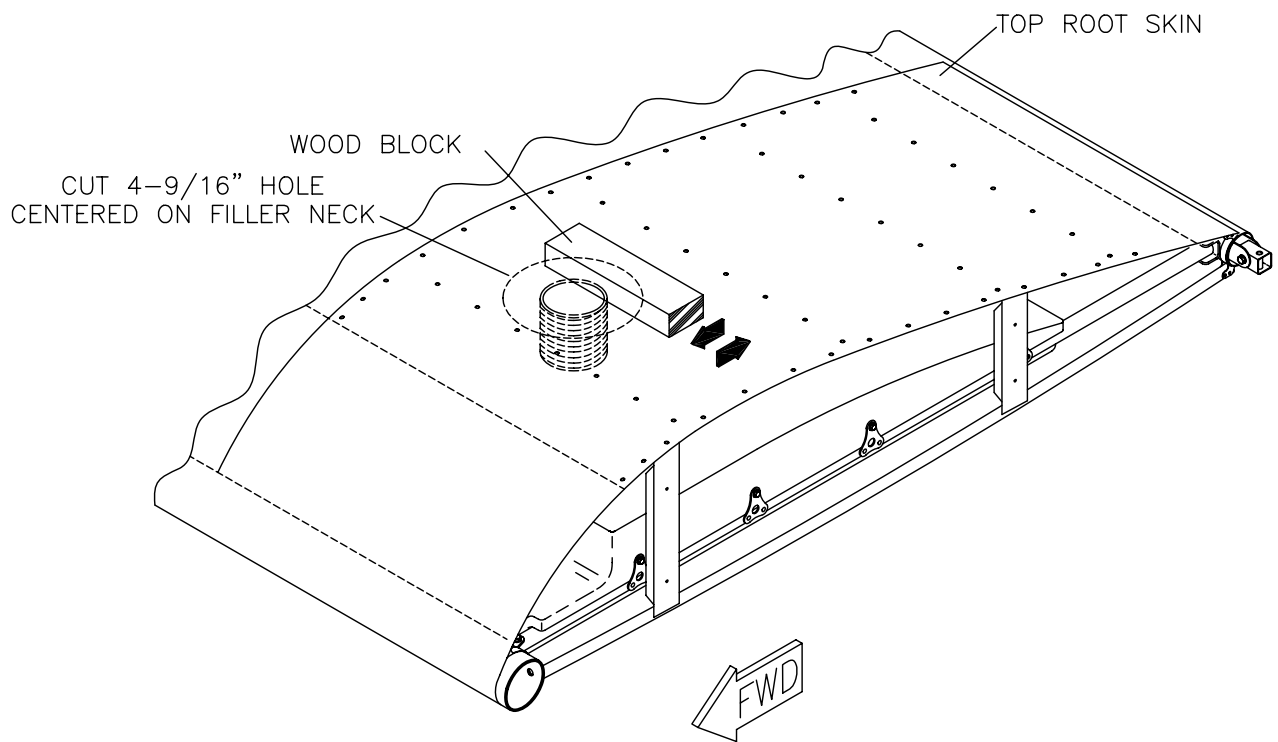
**FLAP AND AILERON CABLE INSTALLATION-WING**

**FIGURE 05-18**

MD4-365

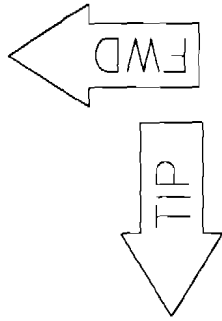


**RANS S-7S  
LEADING EDGE TIP WRAP  
INSTALLATION FIGURE 05-19**



**RANS S-7S**  
**TOP ROOT SKIN MODIFICATION**  
**FIGURE 05-19A**

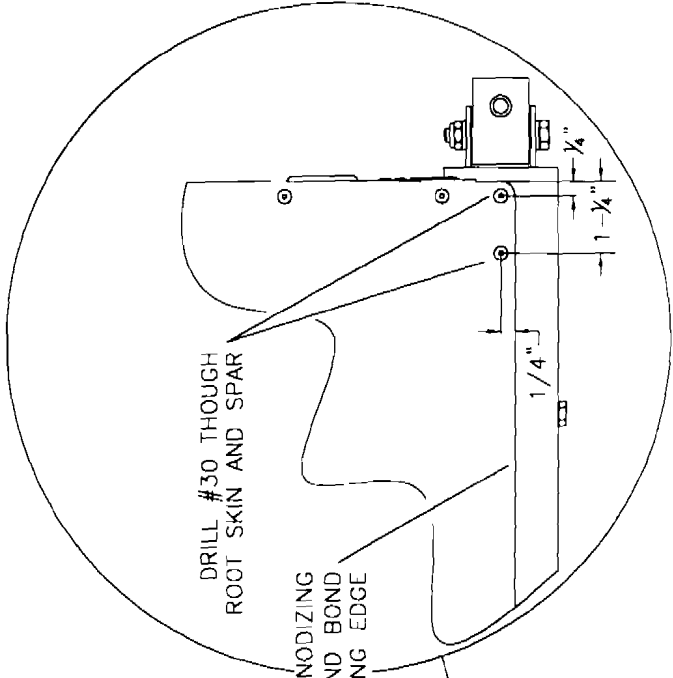
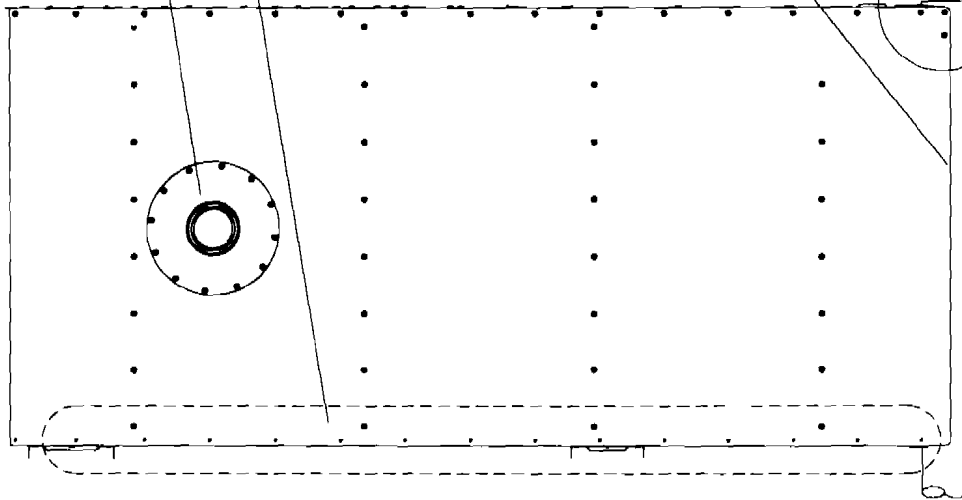
MD5119



NOTE: USE DRILL STOP WHEN DRILLING. DO NOT DRILL INTO FUEL TANK.

CENTER SCUPPER ON FUEL TANK FILLER NECK AND TRANSFER DRILL #30 (DO NOT RIVET - SCUPPER IS INSTALLED AFTER COVERING)

APPLY DOUBLE STICK TAPE TO TOP OF RIB (DO NOT RIVET ALONG SECOND RIB, RIVETS ARE INSTALLED DURING COVERING)



REMOVE ANODIZING (1/8" CONTACT AREA) AND BOND WHEN BONDING LEADING EDGE

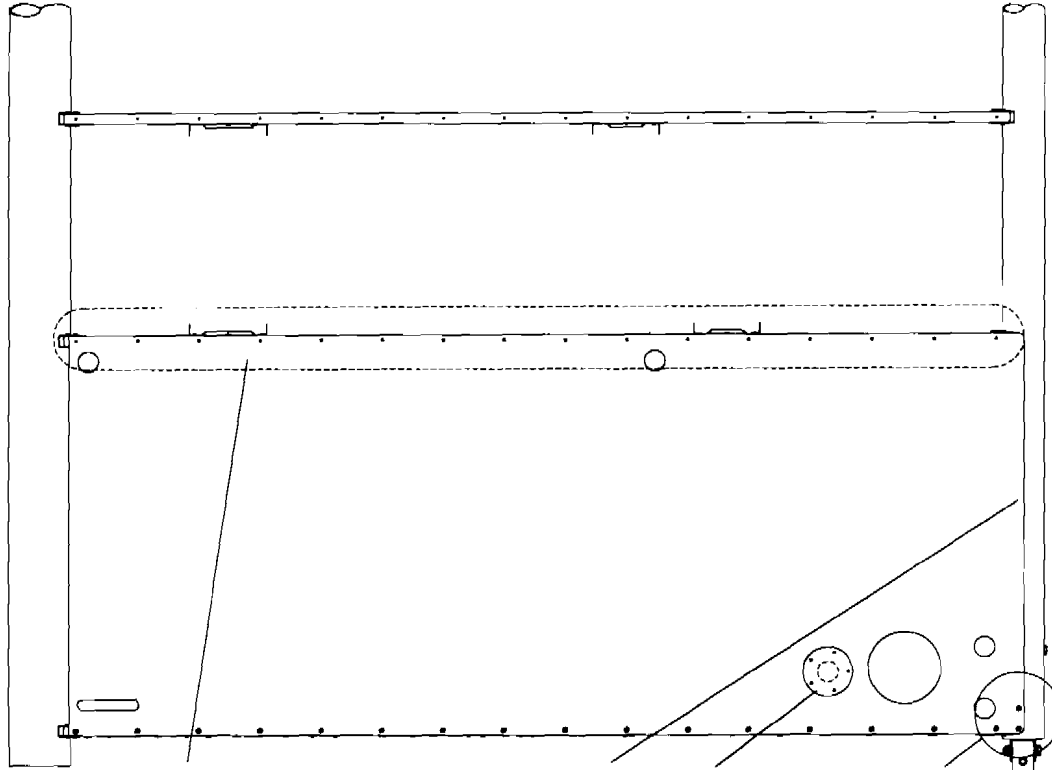
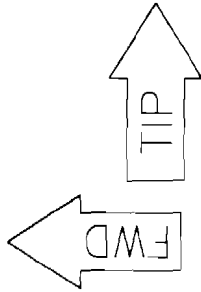
MD4.366

**RRR** S-7S

TOP ROOT SKIN INSTALLATION FIGURE 05-20



NOTE: USE DRILL STOP  
WHEN DRILLING.  
DO NOT DRILL  
INTO FUEL TANK.



APPLY DOUBLE STICK TAPE TO TOP OF RIB (DO NOT RIVET ALONG SECOND RIB,  
RIVETS ARE INSTALLED DURING COVERING)

REMOVE ANODIZING  
(1/8" CONTACT AREA) AND BOND  
WHEN BONDING LEADING EDGE

CENTER DRAIN COVER ON DRAINFITTING AND TRANSFER DRILL #30. MODIFY HOLES  
AS NEEDED. DO NOT RIVET. DRAIN COVER WILL BE INSTALLED AFTER COVERING.

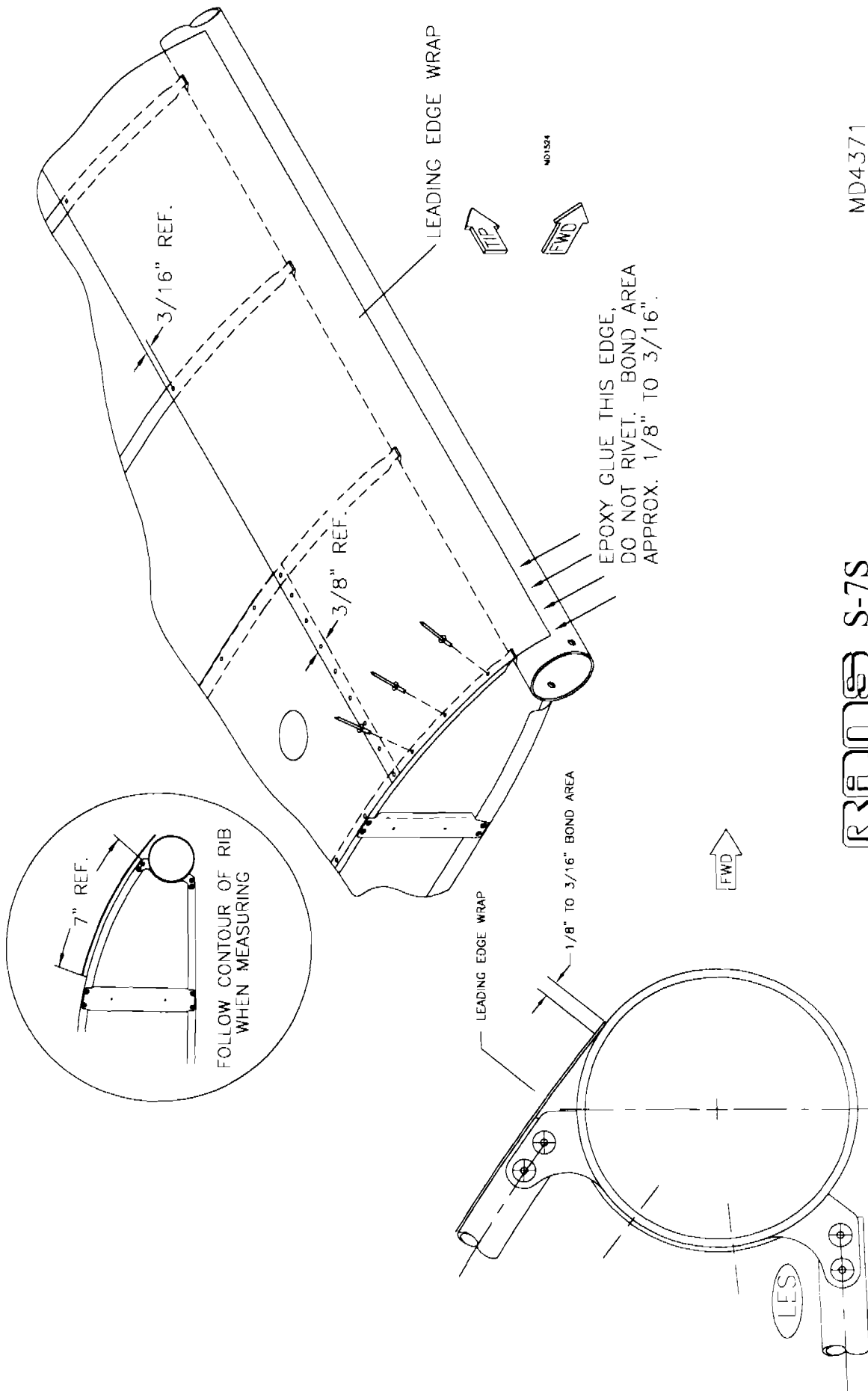
REFER TO TOP ROOT SKIN INSTALLATION FOR RIVET DIMENSIONS

**RRR** S-7S

**BOTTOM ROOT SKIN**

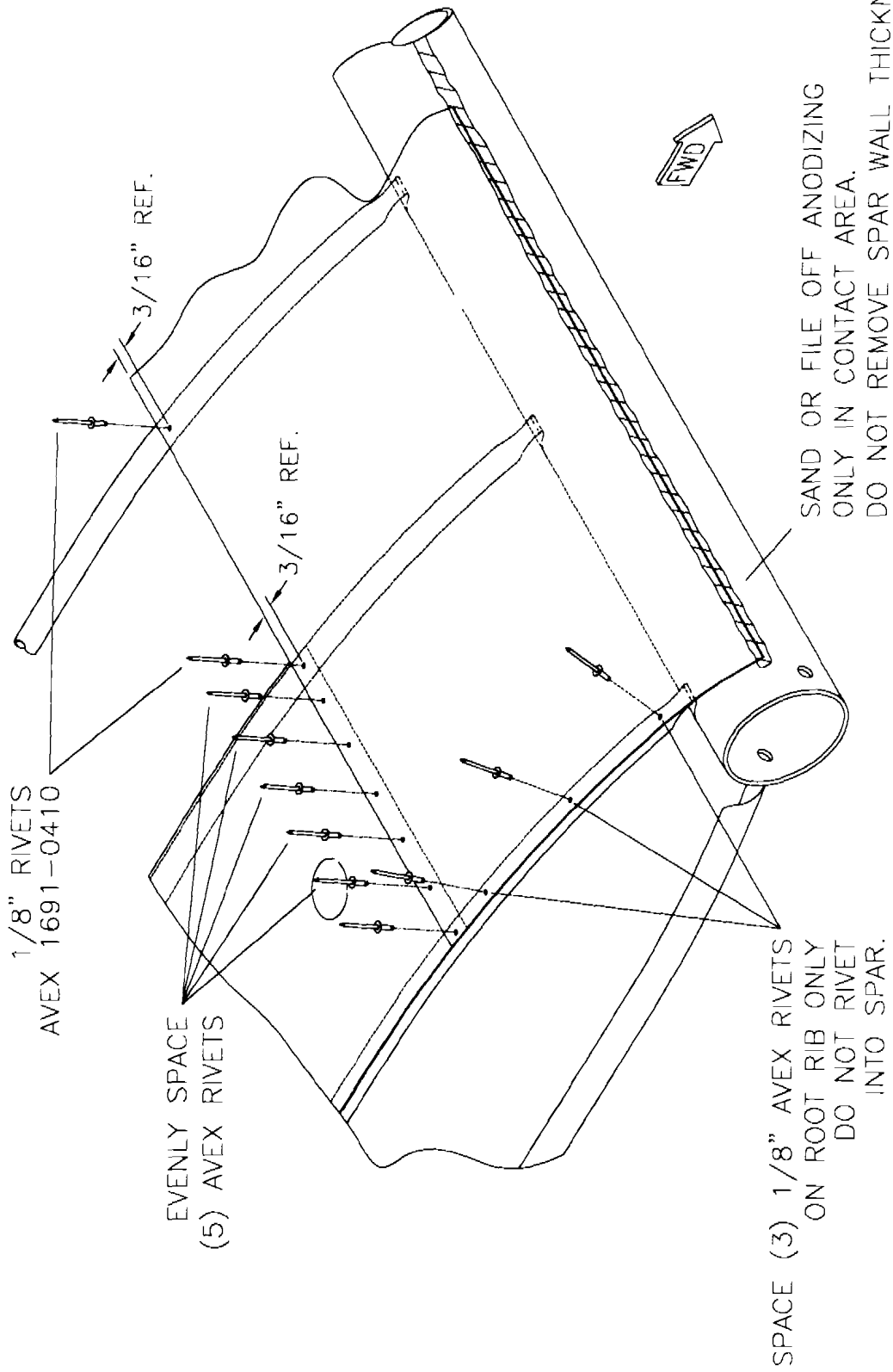
**INSTALLATION FIGURE 05-21**

MD4367



MD4371  
REV. A

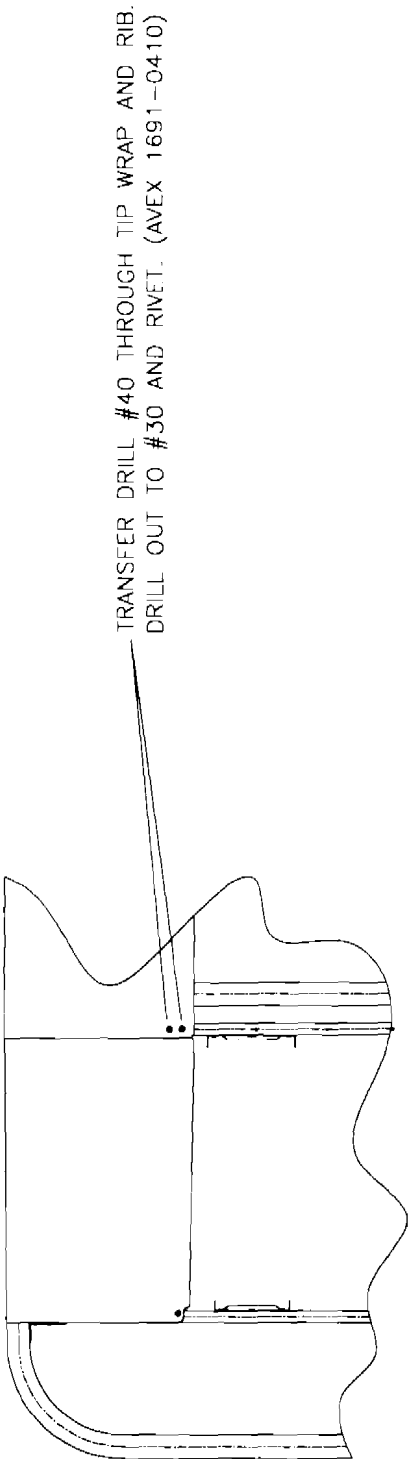
**RAMMS S-7S**  
**LEADING EDGE WRAP POSITIONING**  
**FIGURE 05-22**



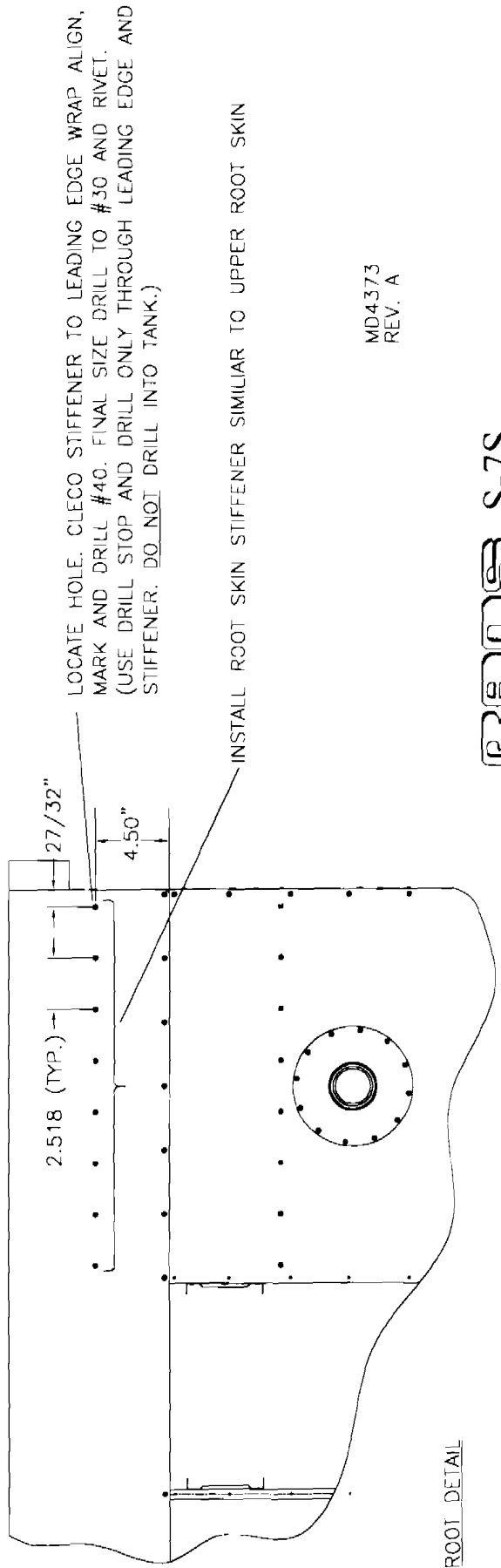
**RRRMS S-7S**

MD4372

**LEADING EDGE WRAP INSTALLATION - WRAP INSTALLATION TO LE SPAR**  
**FIGURE 05-23**



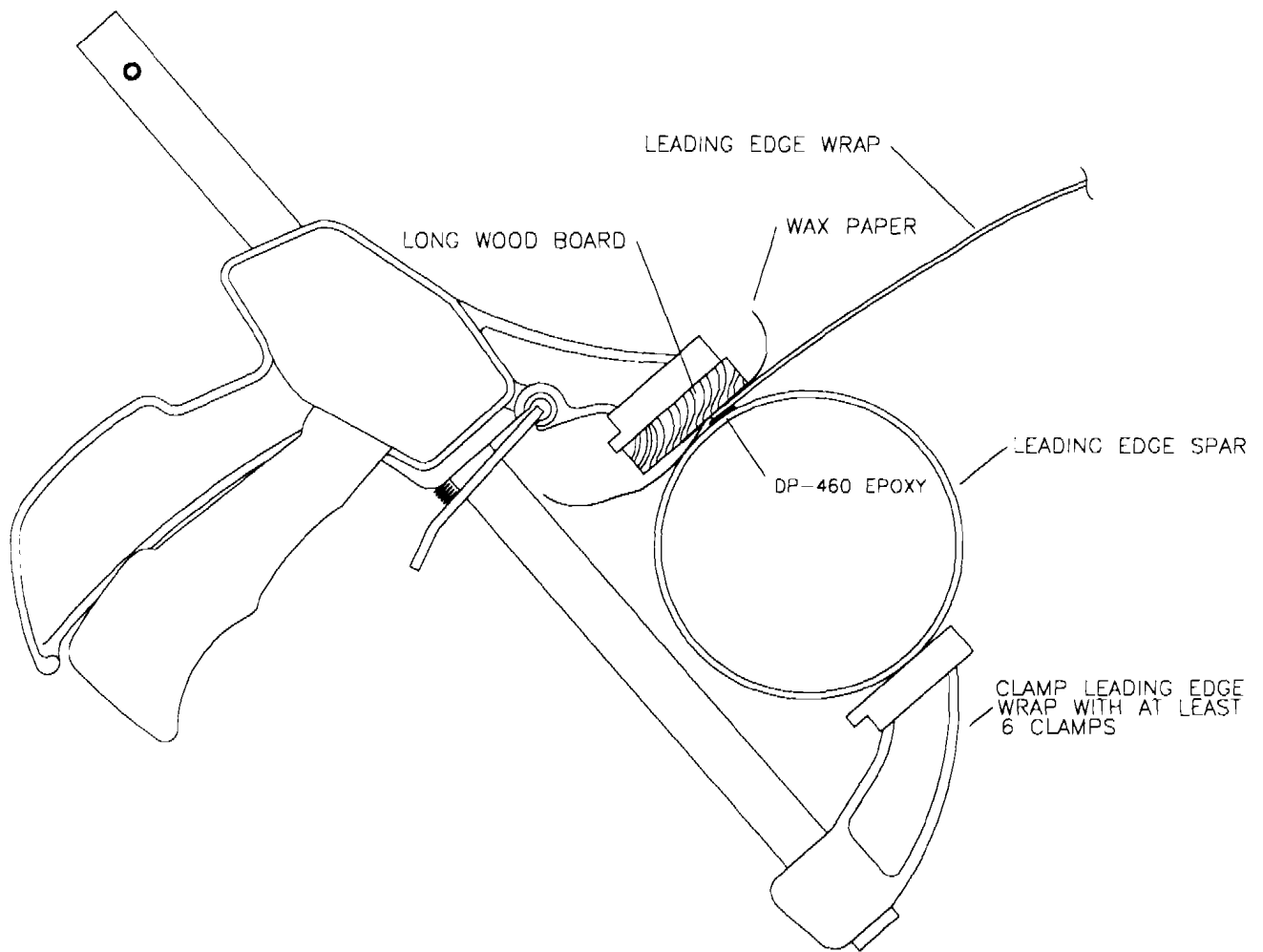
TIP DETAIL



ROOT DETAIL

MD4373  
REV. A

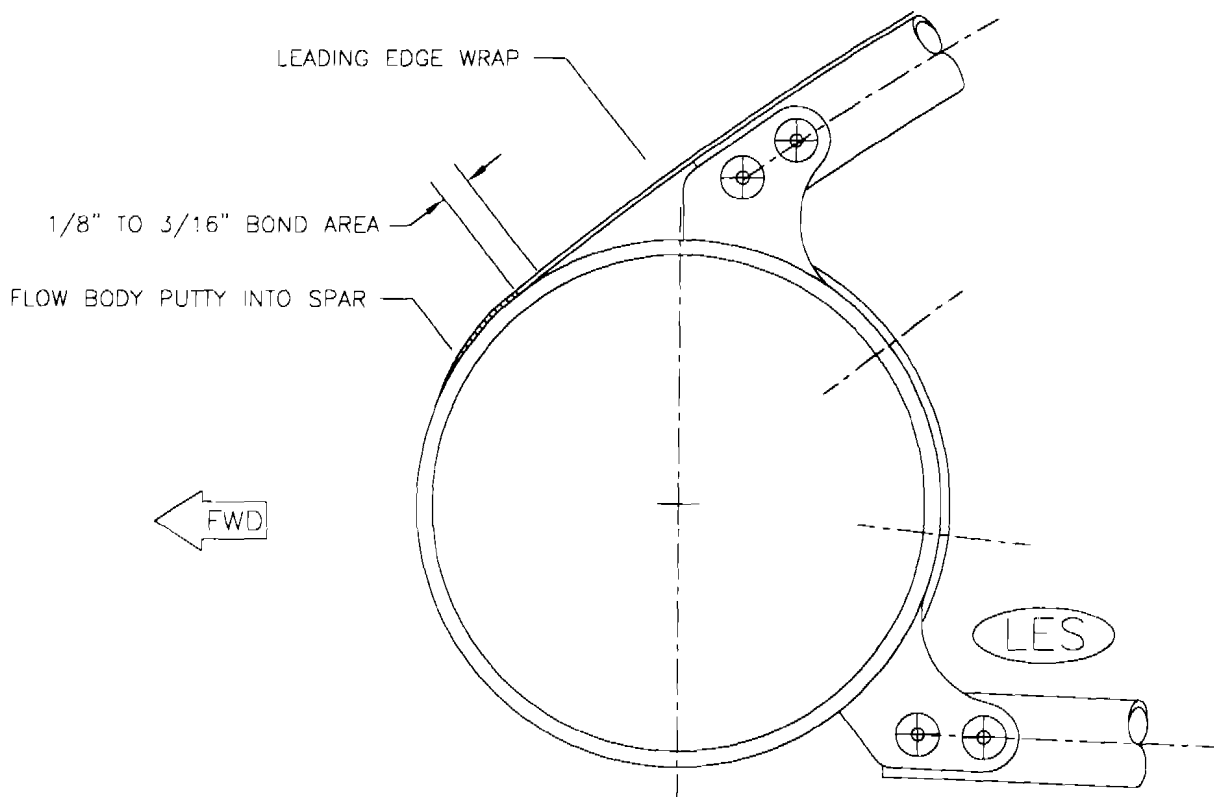
**RRAMES S-7S**  
**LEADING EDGE WRAP INSTALLATION - TOP OF WING**  
**FIGURE 05-24**



MD1525

**RANS S-7S**  
**LEADING EDGE WRAP CLAMPING**  
**FIGURE 05-24A**

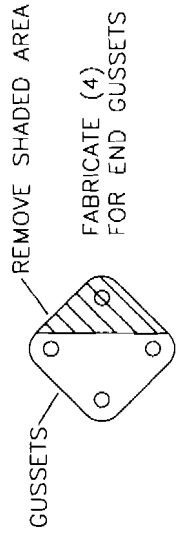
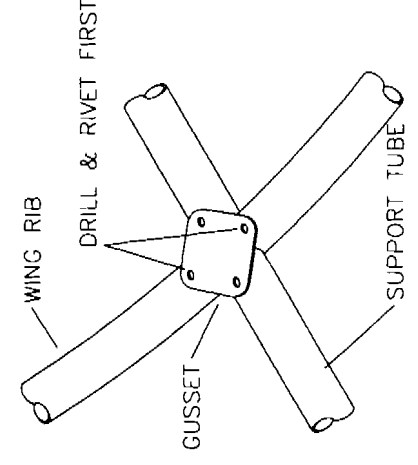
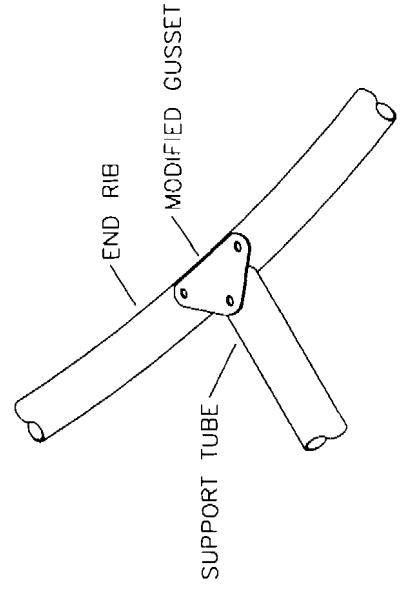
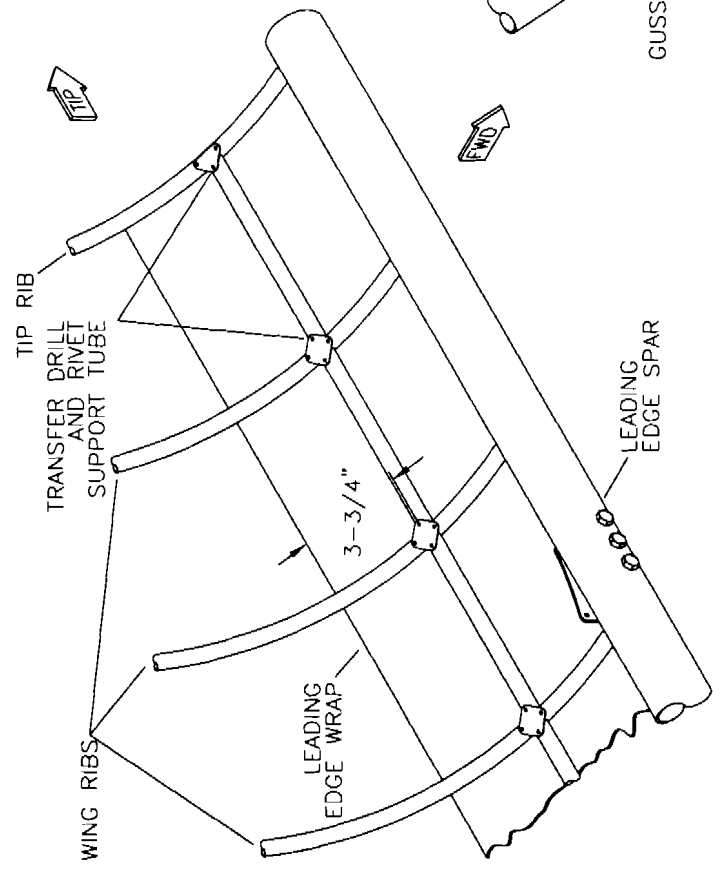
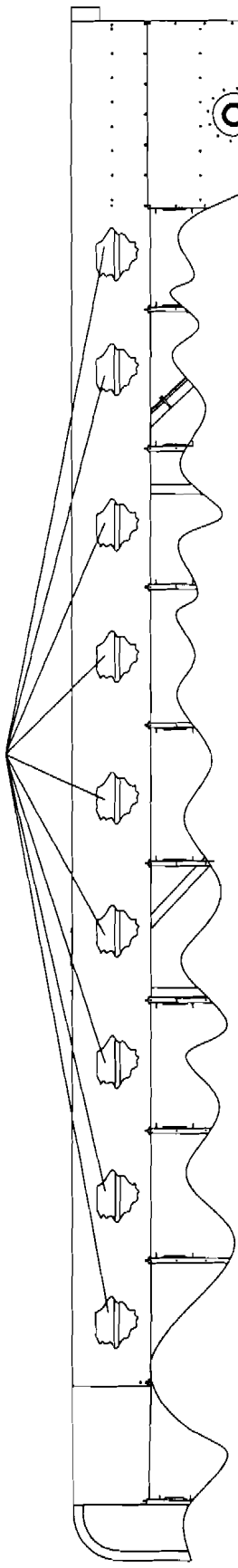
01/17/05



MD1525

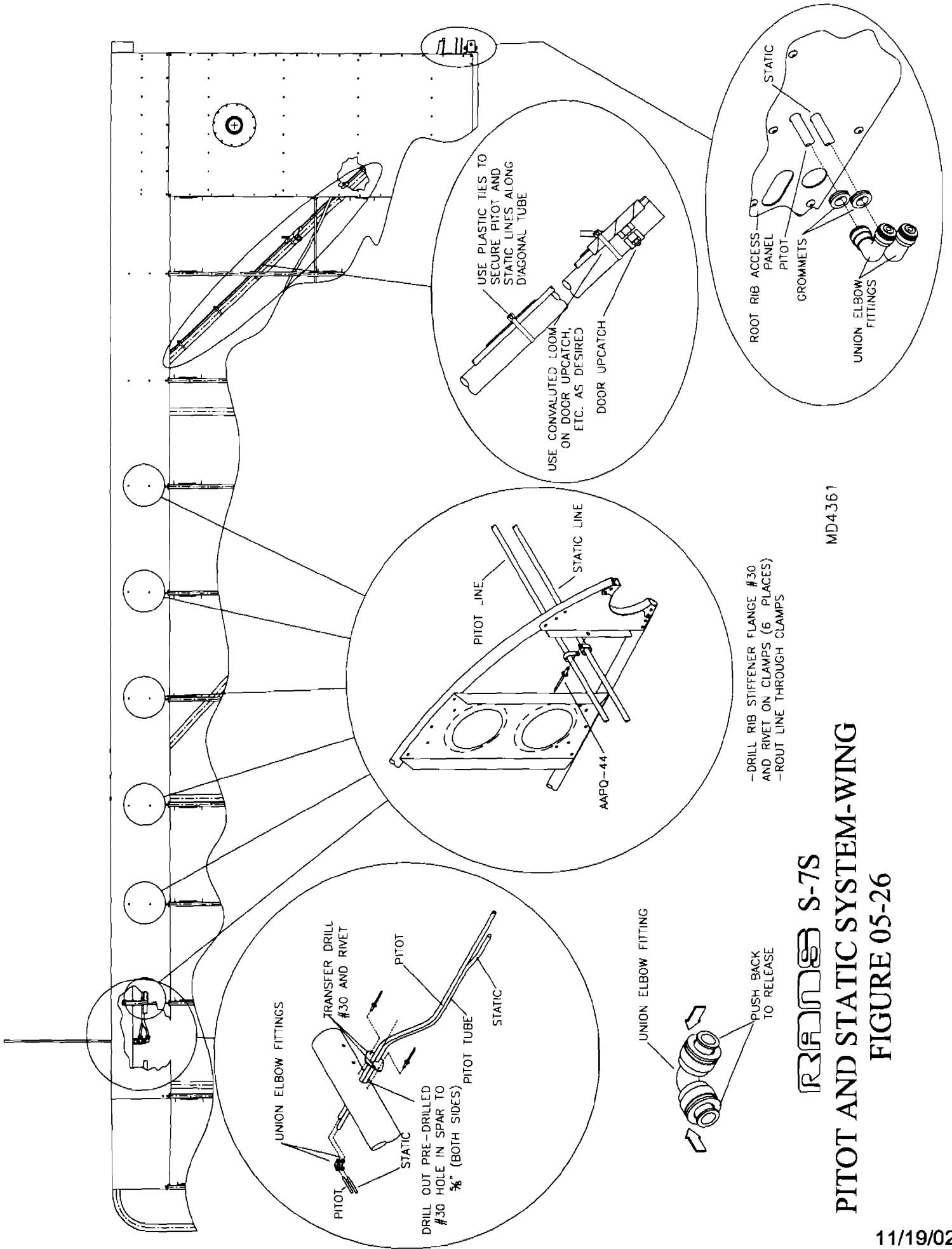
**RAMS S-7S**  
**LEADING EDGE WRAP FILLET**  
**FIGURE 05-24B**

INSTALL LEADING EDGE  
SUPPORT TUBES AS SHOWN BELOW.



**RRAMES S-7S**  
**LEADING EDGE SKIN SUPPORT**  
**TUBE INSTALLATION FIGURE 05-25**

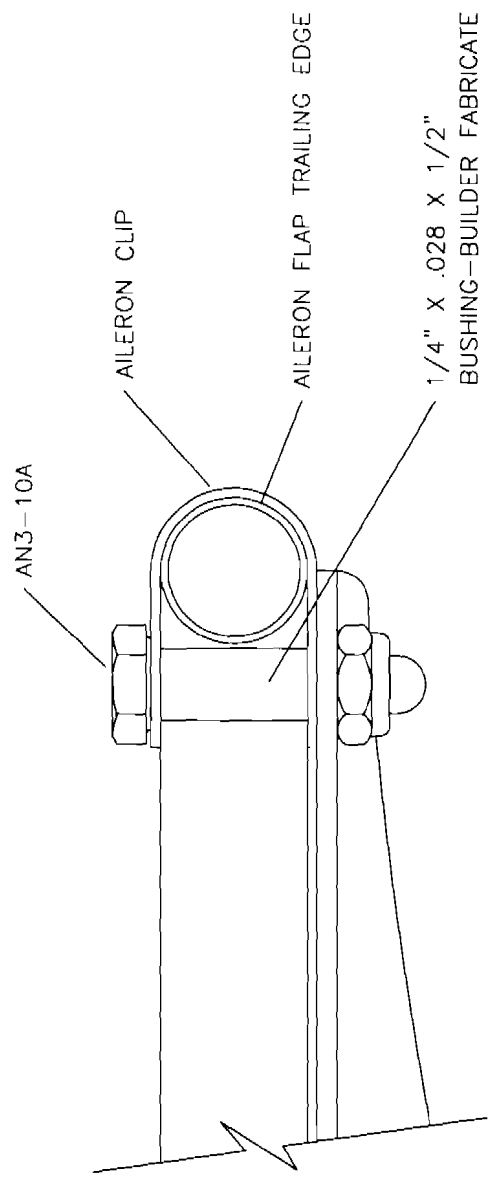
MD4368



**RAMS S-7S**

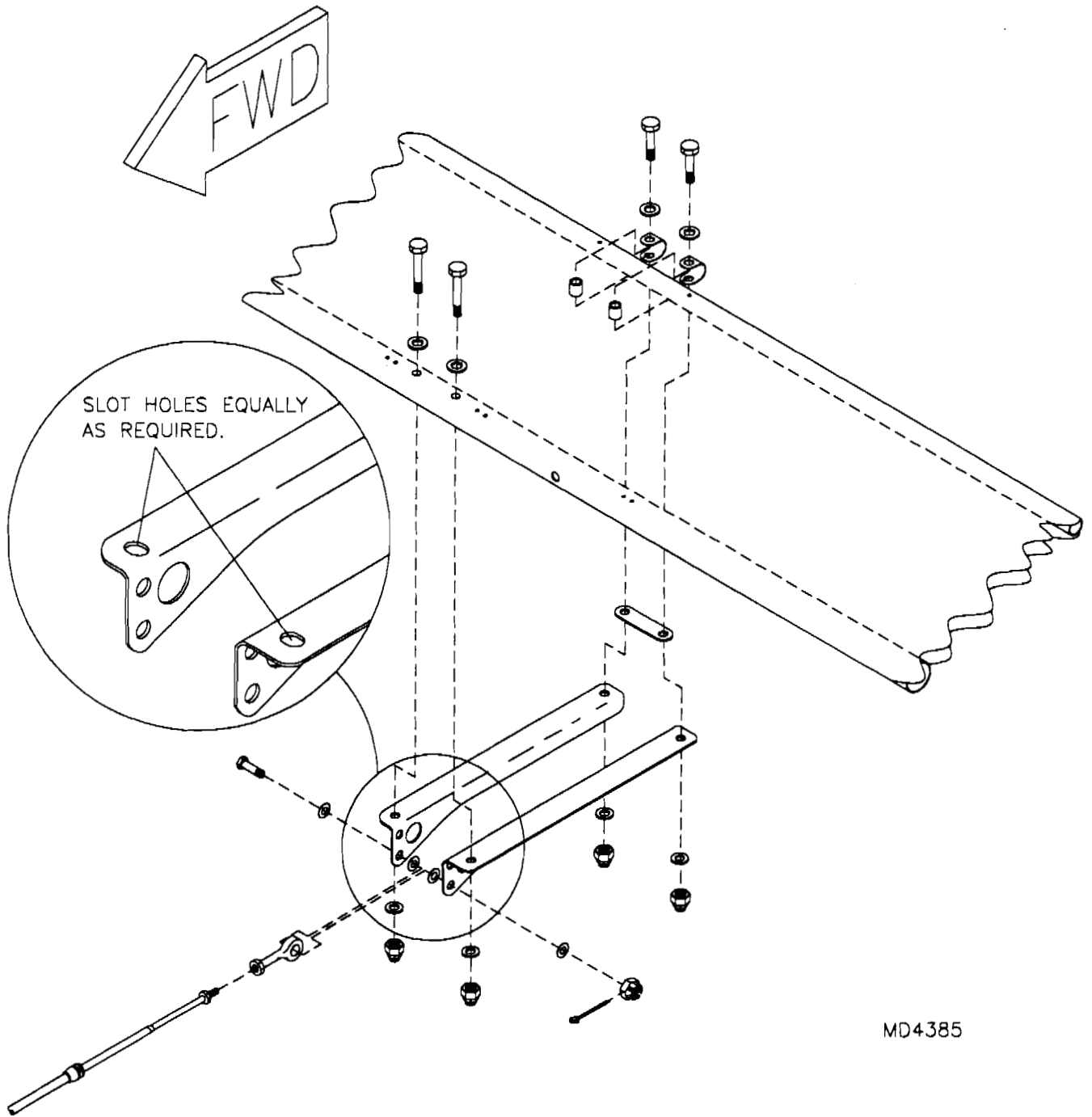
**PITOT AND STATIC SYSTEM-WING**  
**FIGURE 05-26**





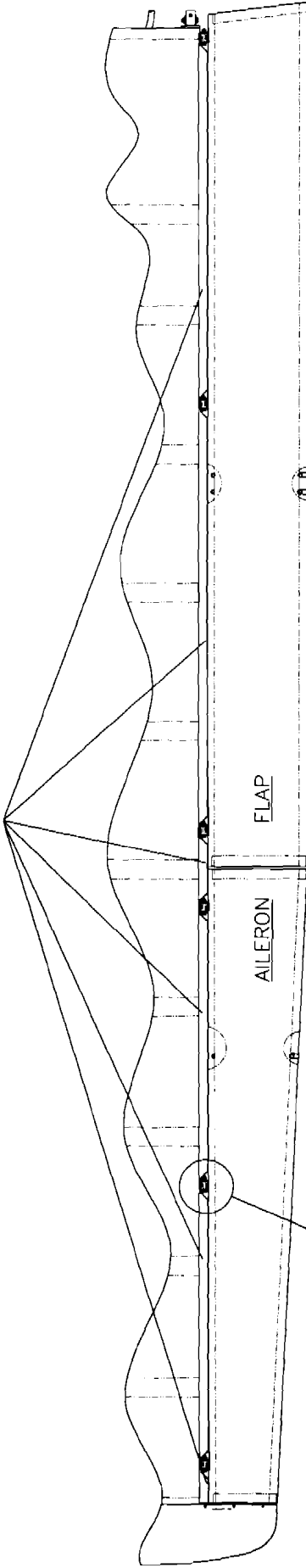
MD4349

**RAVEN S-7S**  
**AILERON AND FLAP HORN ATTACH**  
**(TRAILING EDGE) FIGURE 05-27**

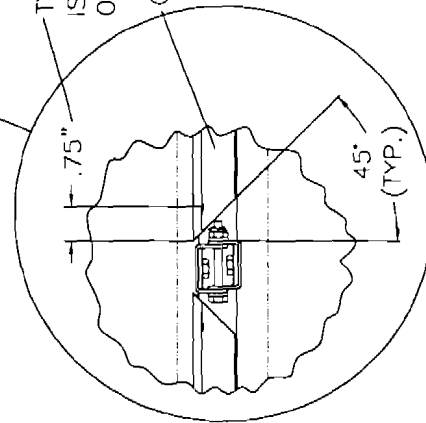


RANS S-7S  
 FLAP HORN INSTALLATION FIGURE 05-28

CONTROL SURFACE GAPSEAL (6 PIECES PER WING)

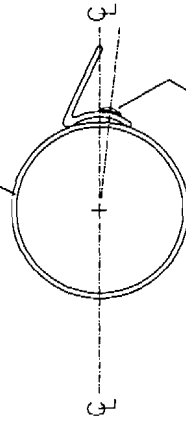


TYPICAL EDGE DISTANCE FOR RIVETS IS  $\frac{3}{4}$ ". TYPICAL DISTANCE BETWEEN OTHER RIVETS IS 8" TO A MAX. OF 10."



DETAIL FOR CUTTING AND RIVETING OF GAPSEAL

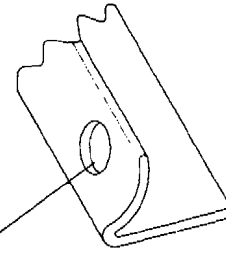
TRAILING EDGE SPAR



#30 DRILL (TYP.) LOCATE BELOW CENTERLINE OF TRAILING EDGE SPAR.

ORIENTATION OF GAPSEAL ON TRAILING EDGE SPAR

DRILL  $\frac{5}{8}$ " OR AS REQ'D FOR BOLT HEAD CLEARANCE



DETAIL GAPSEAL AT STRUT ATTACH PLATE

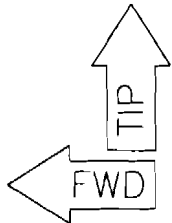
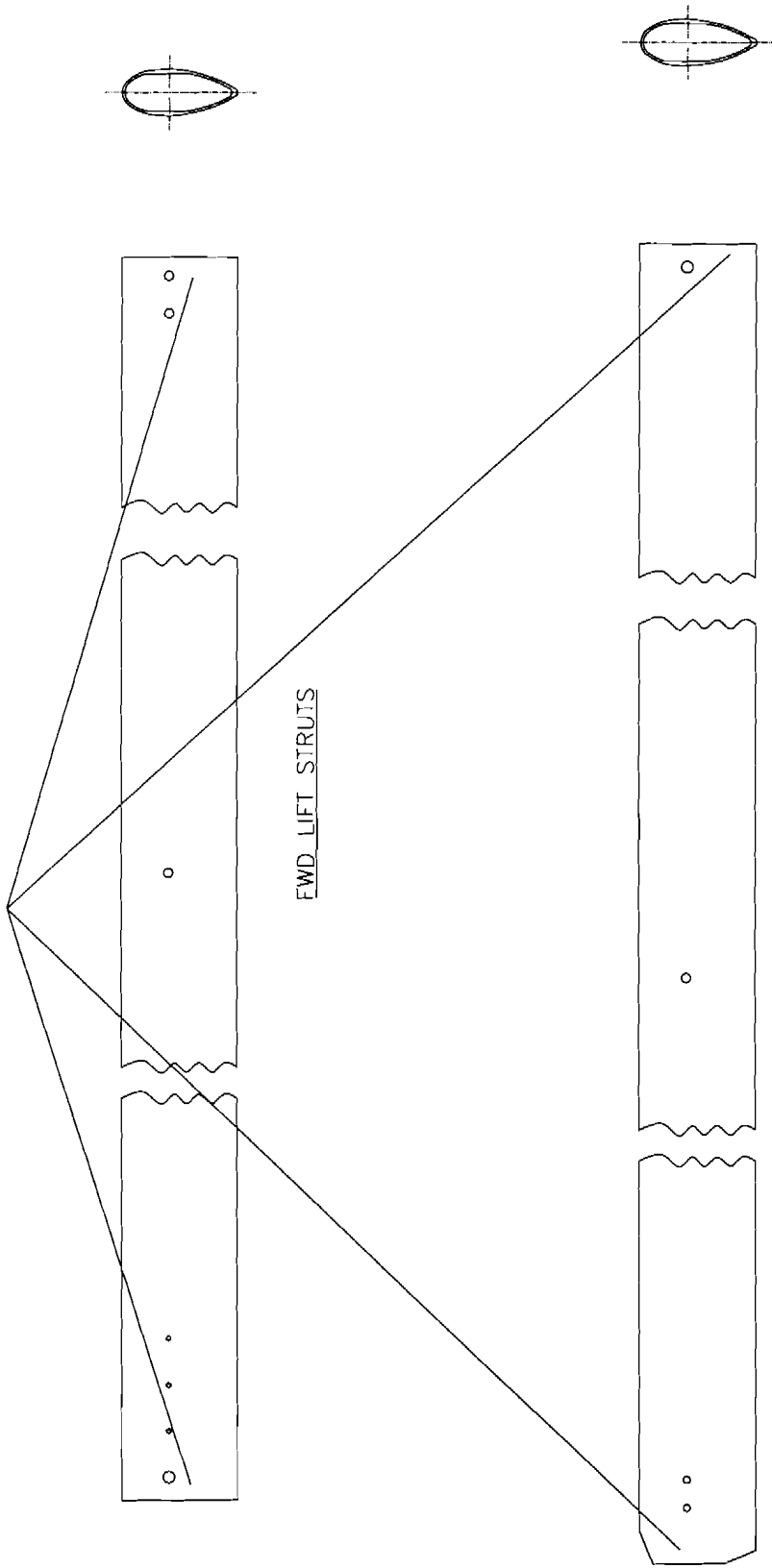
NOTE: TRIM GAPSEAL DOWN TO PROVIDE .060" CLEARANCE (MIN.) BETWEEN GAPSEAL AND AILERON OR FLAP LEADING EDGE.



**S-7S**  
**GAPSEAL INSTALLATION FIGURE 05-29**

MD4382

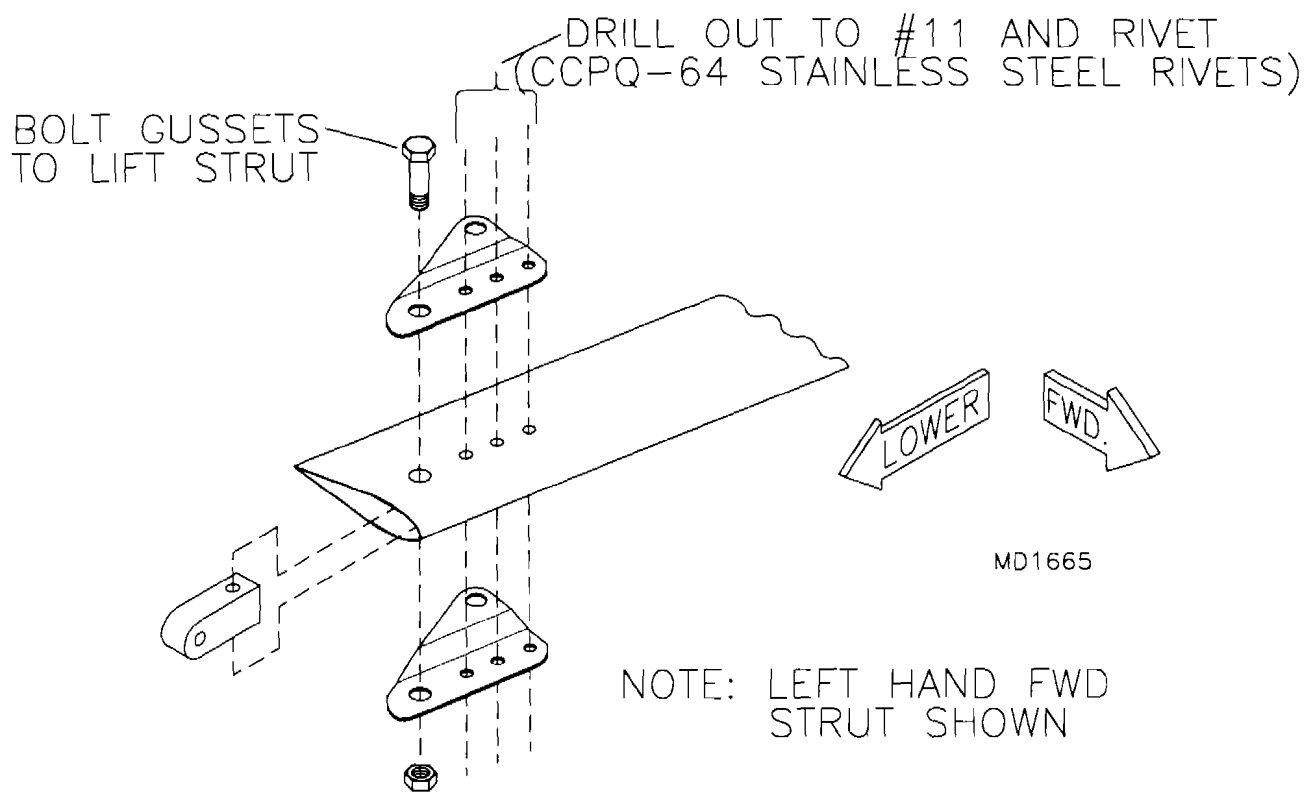
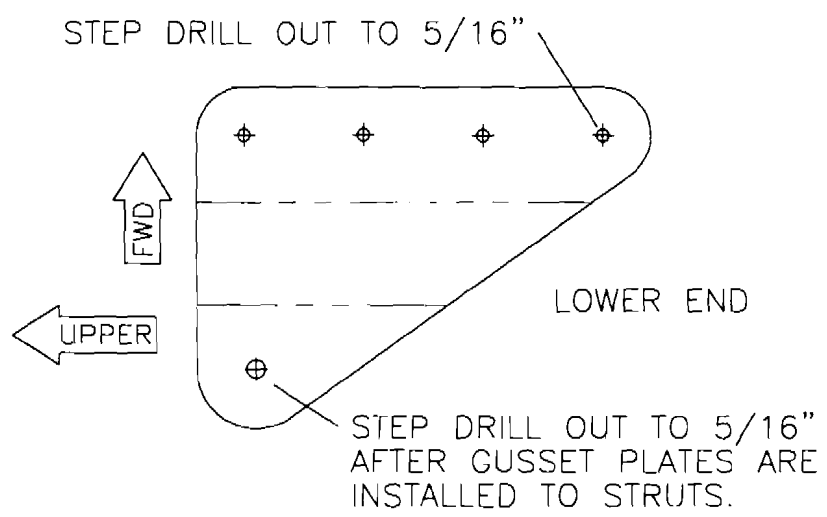
SMOOTHEN ENDS WID FINE SANDPAPER AND DEBUR



MD4383

**RRR** S-7S

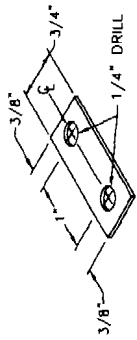
**LIFT STRUT ORIENTATION FIGURE 05-30**



MD4376

**RANS S-7S**  
**LIFT STRUT GUSSET PLATES**  
**FIGURE 05-31**

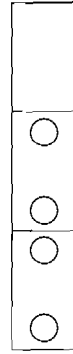
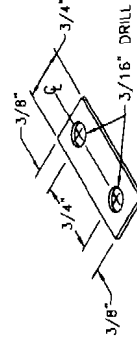
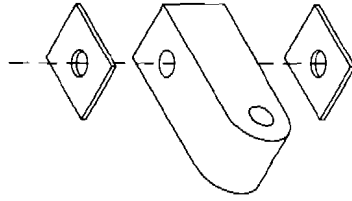
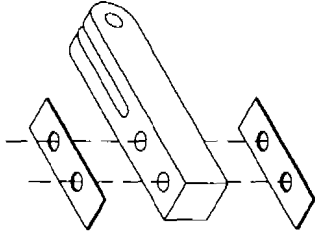
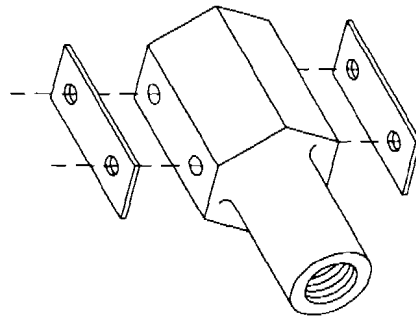
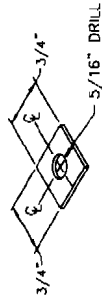
UPPER FWD STRUT SHIM



HINT DRILL HOLES IN SHIM STRAP THEN CUT TO LENGTH. MAKE

AS REQUIRED.

LOWER FWD STRUT SHIM

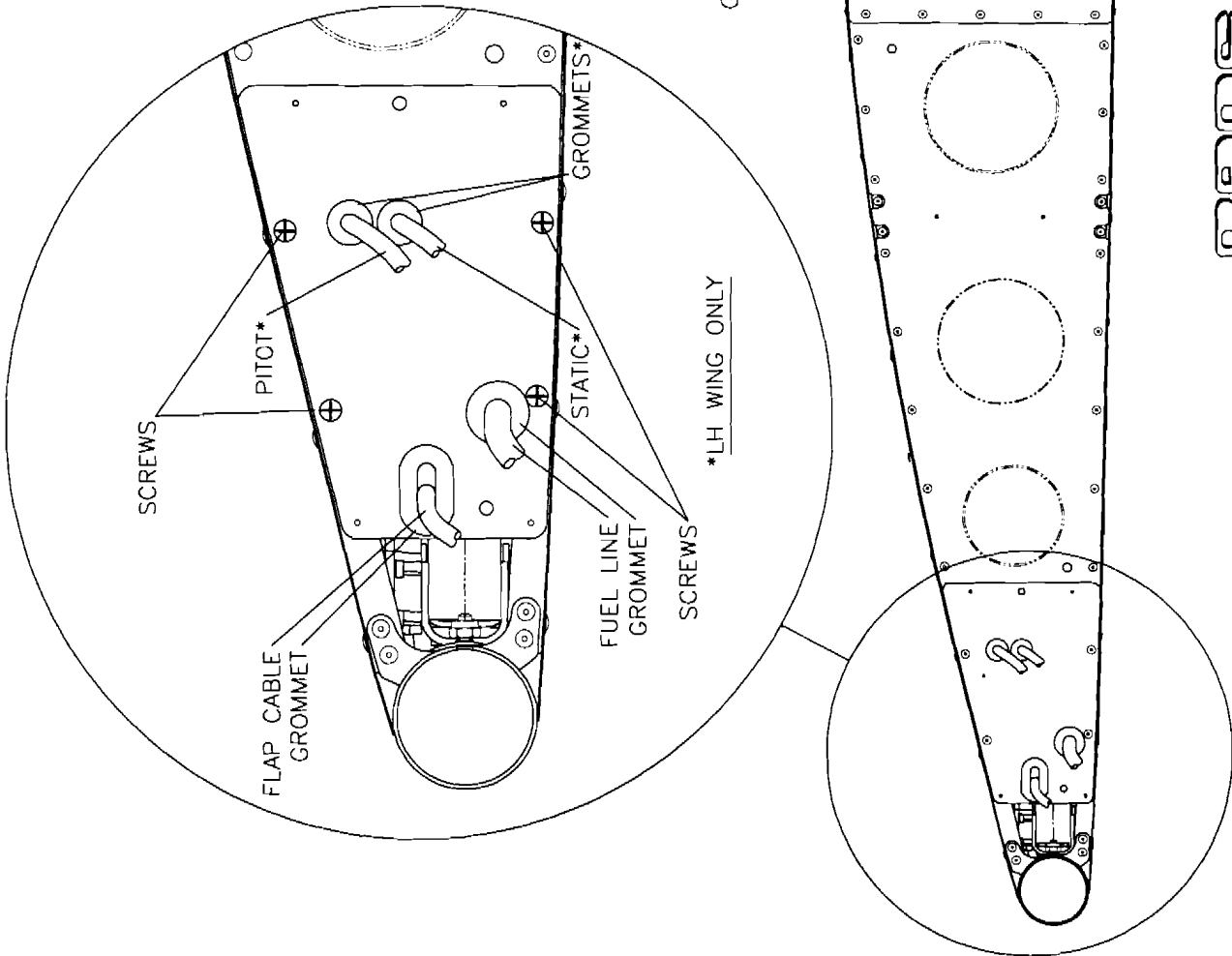


MD4375

**RAMB** S-7S

**LIFT STRUT SHIMS FIGURE 05-32**

LH WING SHOWN  
TYPICAL FOR BOTH WINGS  
UNLESS OTHERWISE STATED



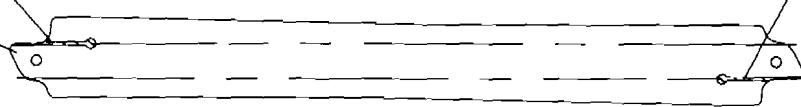
MD4381

**RRAMES S-7S**

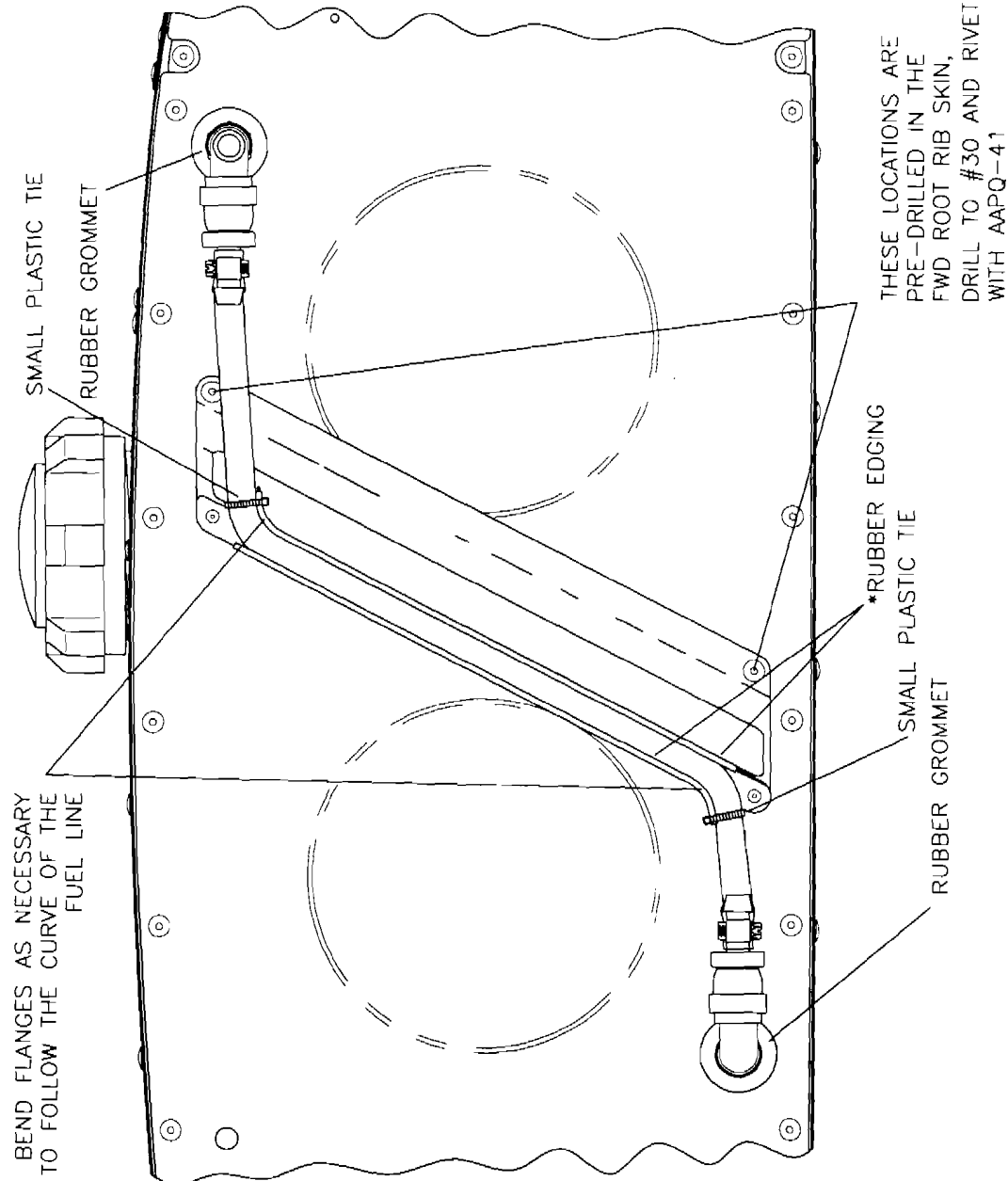
**ROOT RIB PANELS DETAIL FIGURE 05-33**

FUEL SIGHT GAUGE  
(FLAT PATTERN SHOWN  
FOR CLARITY)

CUT ALONG CENTERLINE  
OF BEND TO PRE-LOCATED  
HOLE AND DEBURR.  
THE RESULTING FLANGE WILL  
BE BENT AT TIME OF  
INSTALLATION TO MATCH  
THE CURVE OF THE FUEL  
LINE AS SHOWN.



CUT ALONG CENTERLINE  
OF BEND TO PRE-LOCATED  
HOLE AND DEBURR.  
THE RESULTING FLANGE WILL  
BE BENT AT TIME OF  
INSTALLATION TO MATCH  
THE CURVE OF THE FUEL  
LINE AS SHOWN.



BEND FLANGES AS NECESSARY  
TO FOLLOW THE CURVE OF THE  
FUEL LINE

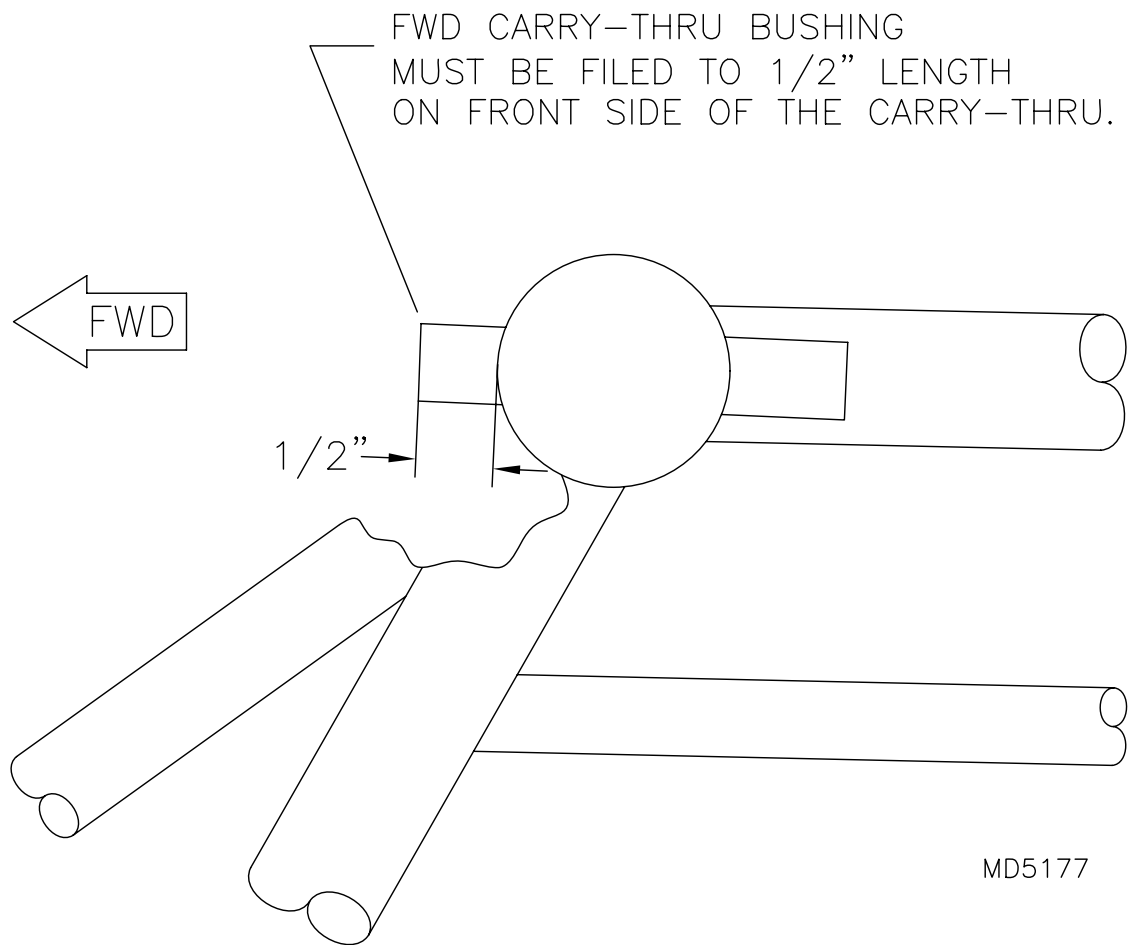
\* APPLY ADHESIVE AND  
RUBBER EDGING PRIOR TO  
INSTALLING ON MOUNT  
BRACKET

MD4414

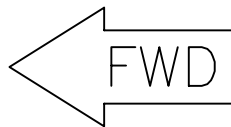
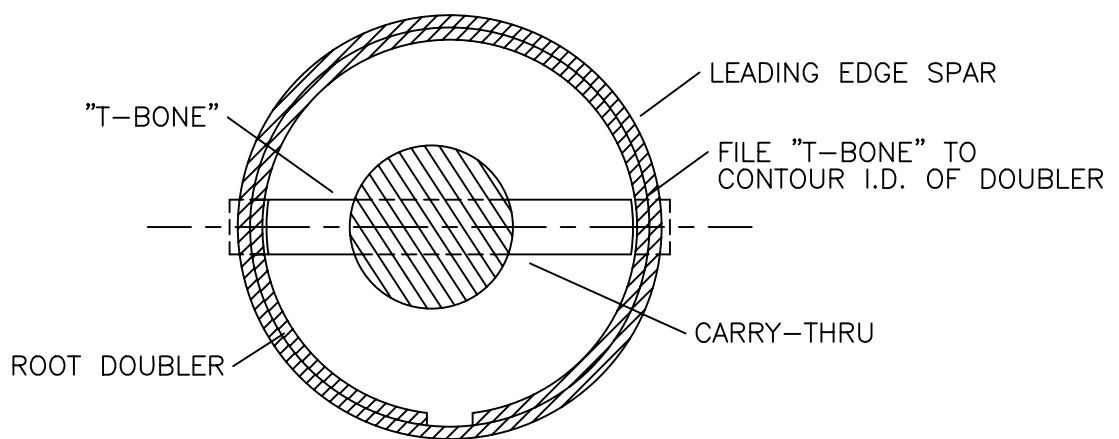


FUEL SIDE GAUGE INSTALLATION FIGURE 05-34



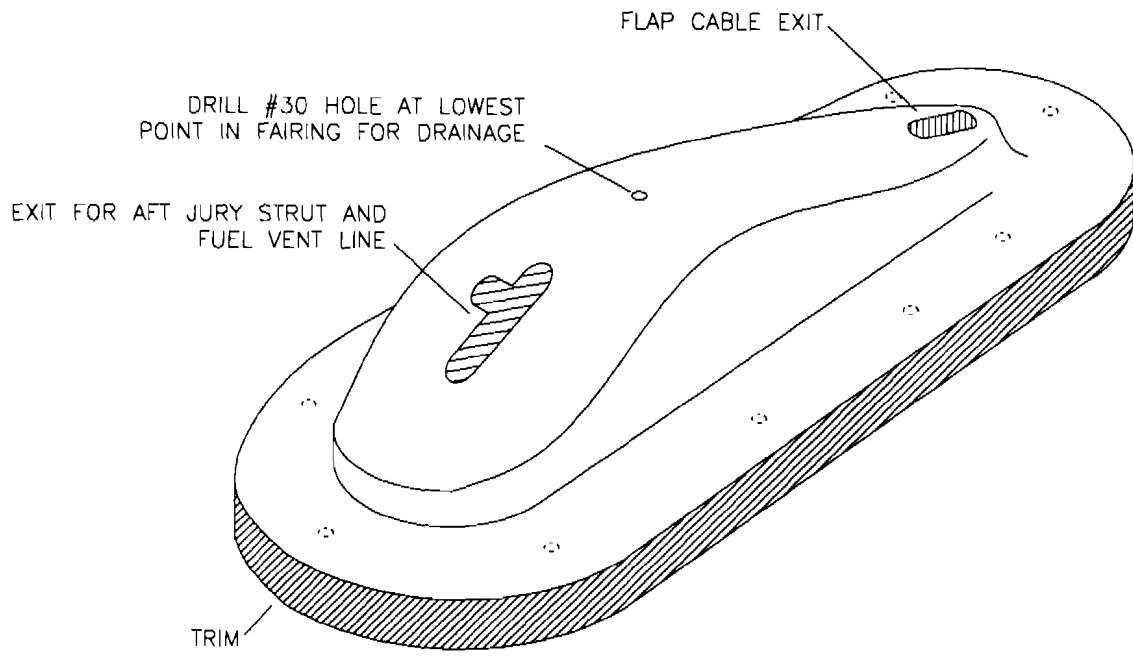


**RANS S-7S**  
**WING ATTACHMENT MODIFICATION FIGURE 05-35**

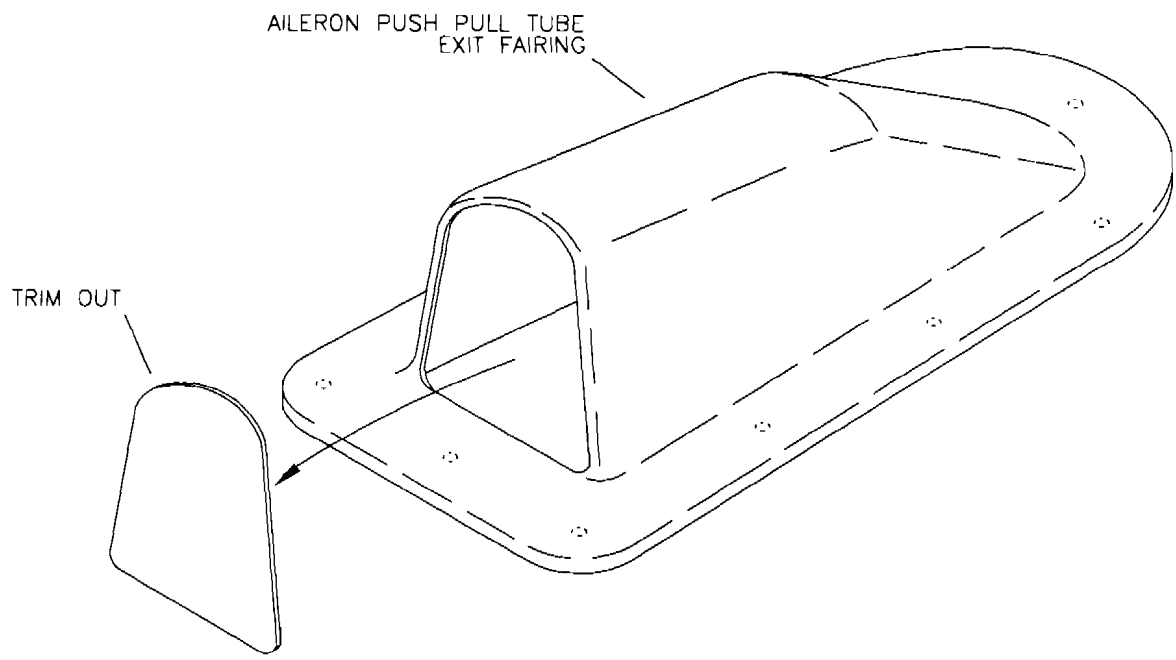


MD4405

**RANS S-7S**  
WING ATTACHMENT FIGURE 05-35A



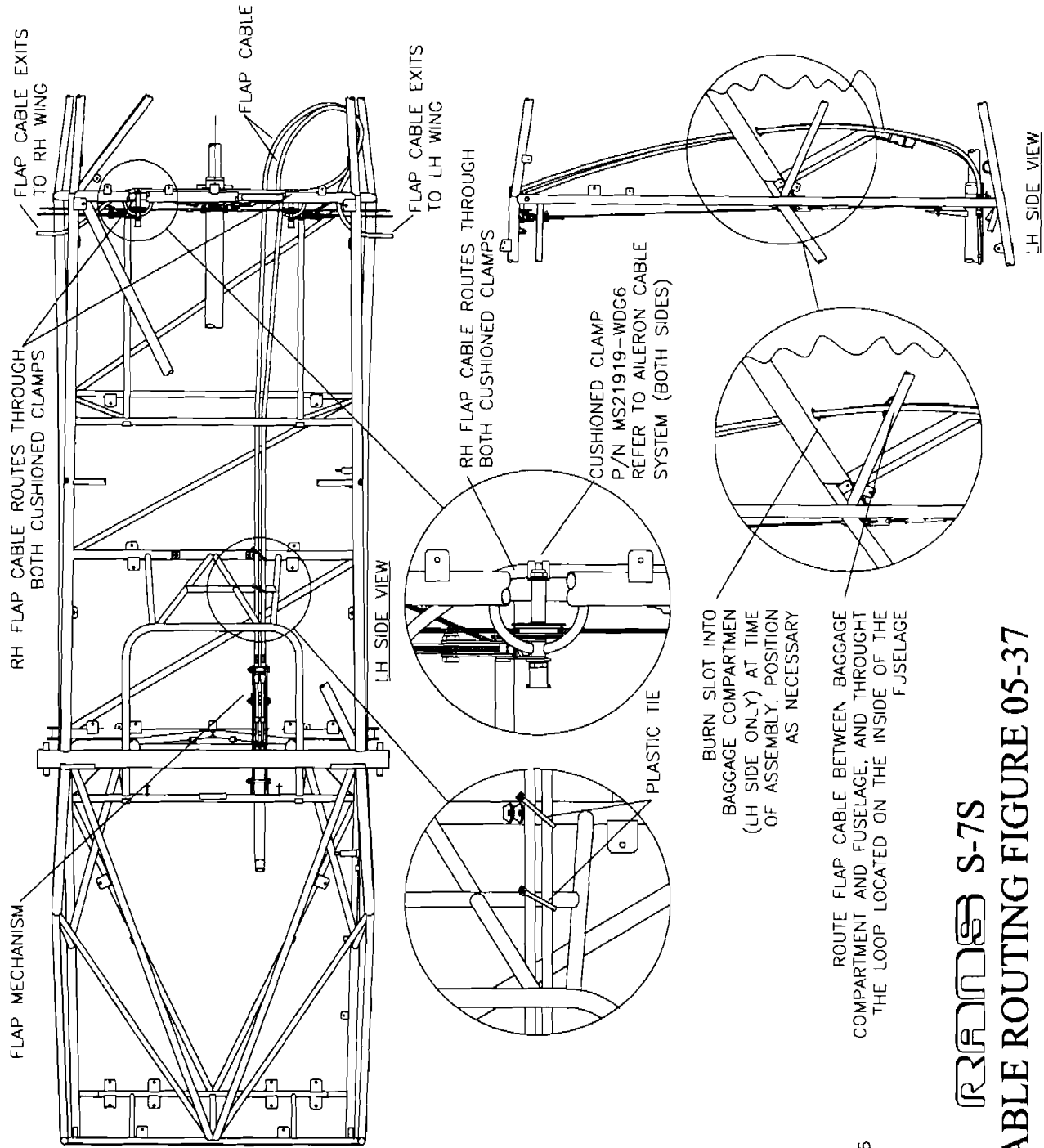
FLAP CABLE EXIT



AILERON PUSH PULL TUBE EXIT

MD4418

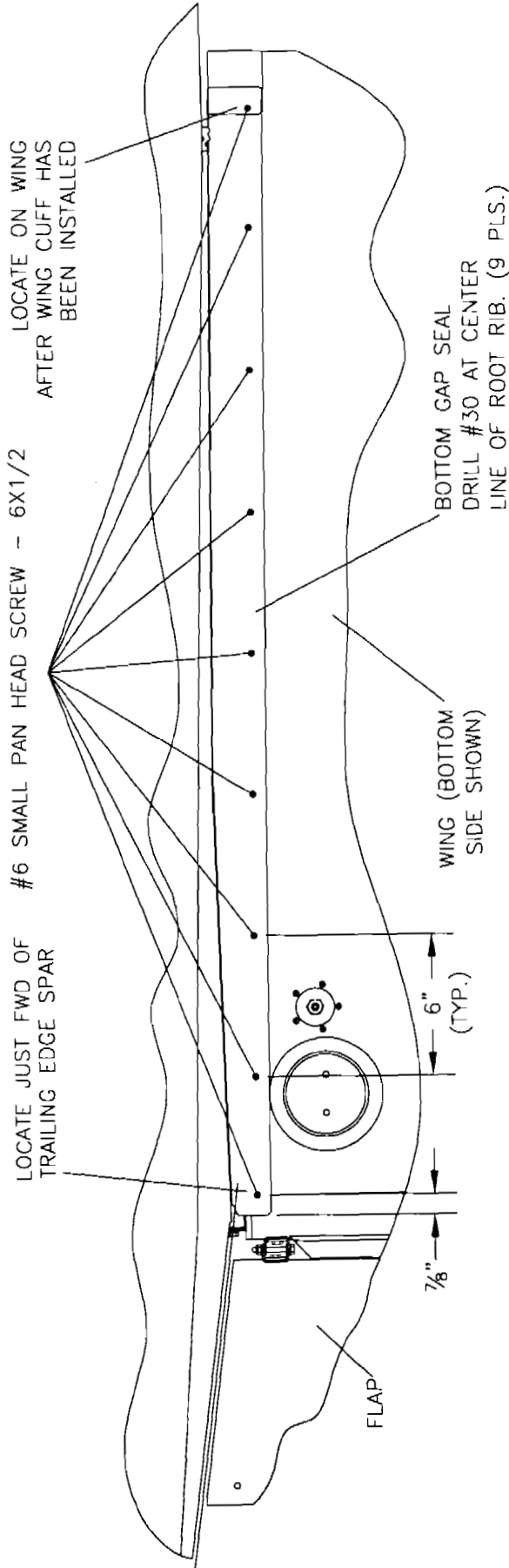
**RANS S-7S**  
**EXIT FAIRING MODIFICATION FIGURE 05-36**



MD4406

**RAMB S-7S**

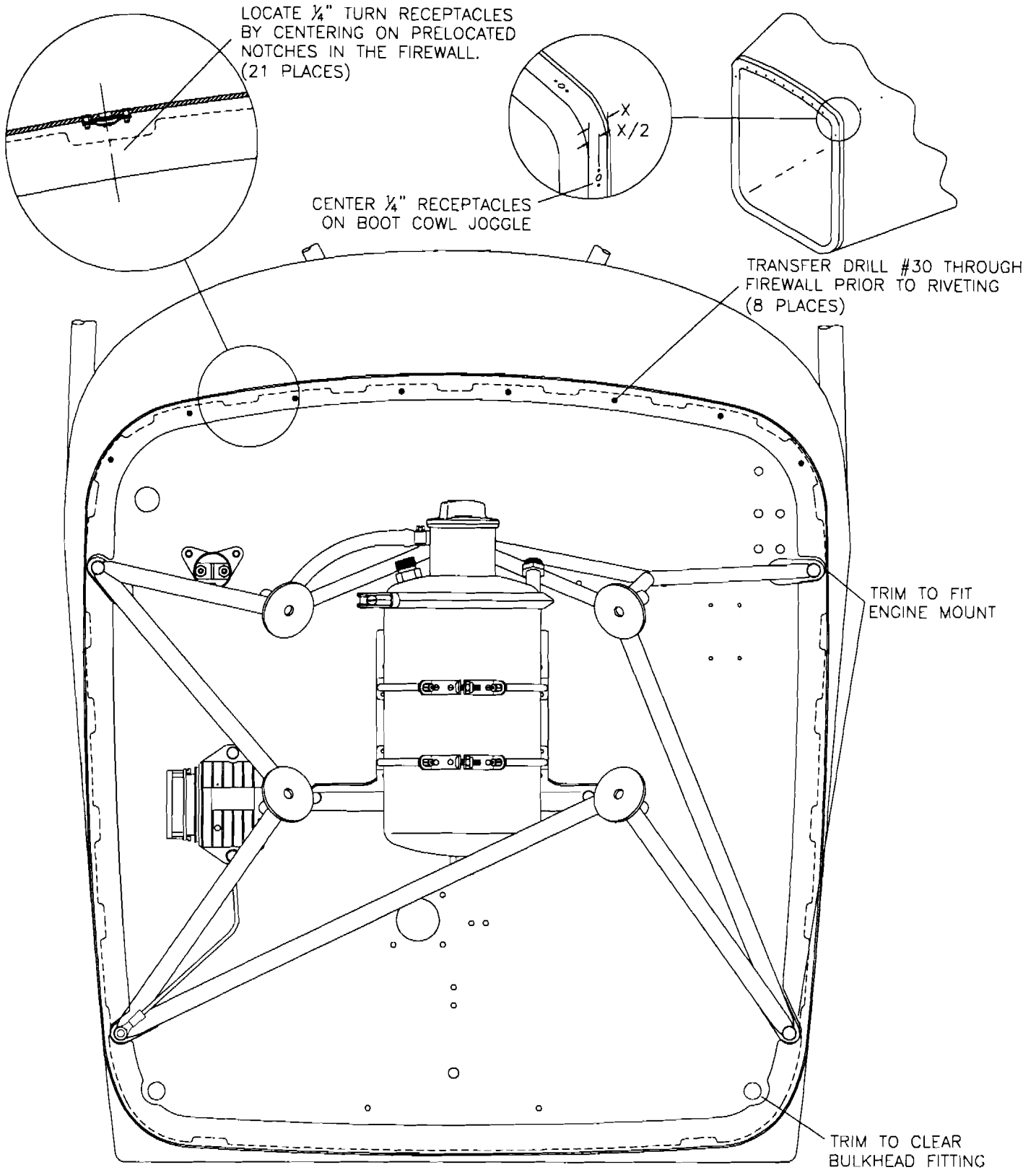
**FLAP CABLE ROUTING FIGURE 05-37**



MD4407

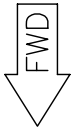
**RRR** S-7S

**BOTTOM GAP SEAL ATTACH FIGURE 05-38**

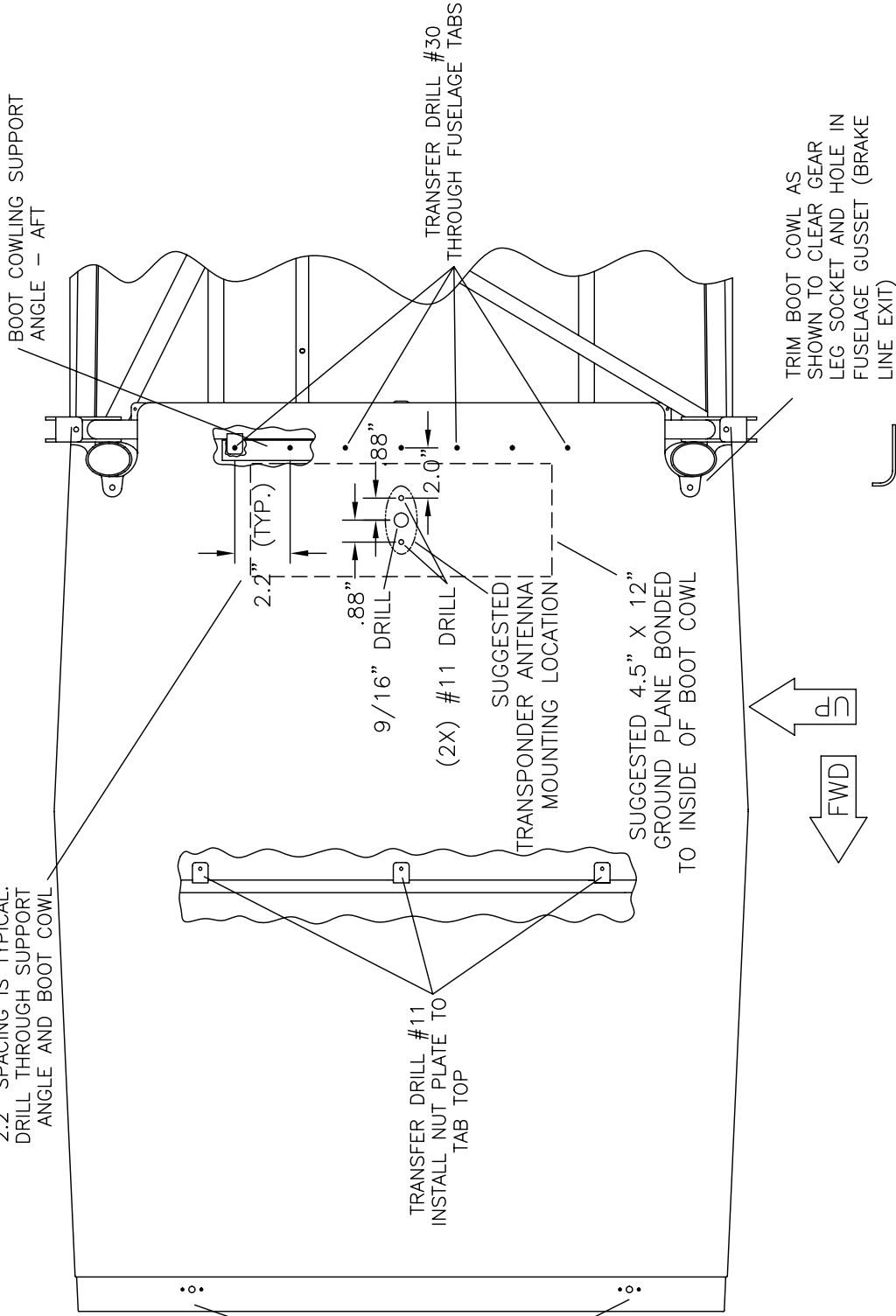


**RANS S-7S**  
**BOOT COWL, FRONT DETAILS FIG. 06-01**

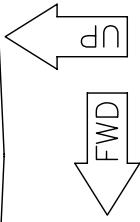
MD4396



2.2" SPACING IS TYPICAL;  
DRILL THROUGH SUPPORT  
ANGLE AND BOOT COWL



POSITION (2) 1/4-TURN  
RECEPTACLES  
CENTERED ON FIREWALL CUT  
OUTS AND CENTERED IN JOGGLE.



BOOT COWL SUPPORT ANGLE ORIENTATION

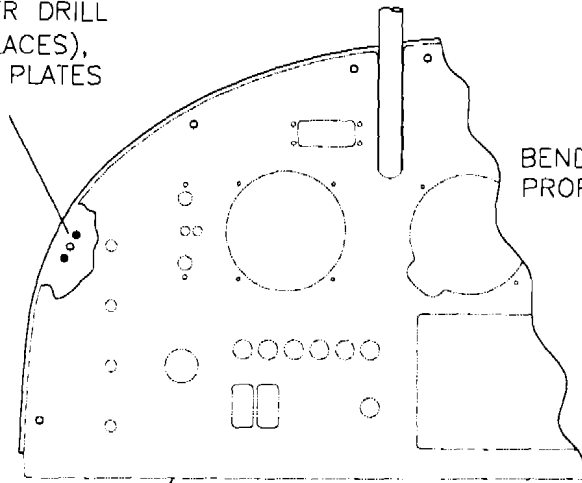
**RAMS S-7S**

**BOOT COWL BOTTOM DETAIL FIGURE 06-02**

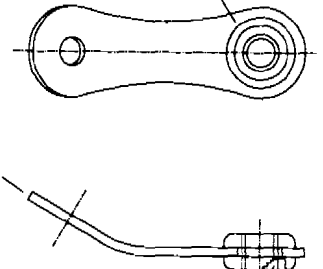
MD4398  
REV. A

SECURE INSTRUMENT  
 PANEL IN PLACE  
 AND TRANSFER DRILL  
 #11 (11 PLACES),  
 INSTALL NUT PLATES

DRILL PRE-EXISTING HOLE  
 IN TANG OUT TO  $\frac{5}{16}$ "

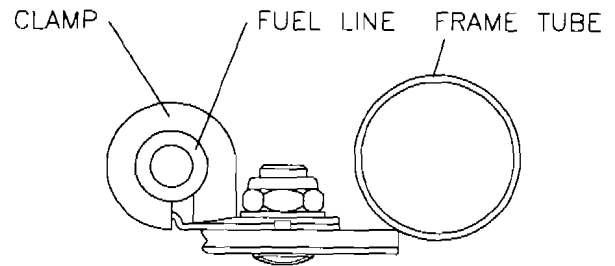


BEND AS NECESSARY FOR  
 PROPER FIT WITH STATION  
 1 DIAGONALS



FROM  $\frac{1}{4}$ " X .028 RAW STOCK  
 CUT BUSHING AS NECESSARY  
 TO FIT FLUSH WITH THE OUTER  
 EDGES OF THE GROMMET

INSTRUMENT PANEL



RIVETS TOGETHER WITH  
 FRONT TRIM  
 STRIP-WINDSHIELD

THESE TABS (2 EACH SIDE) ARE  
 USED TO SECURE THE FUEL LINE.

TRIM BOOTCOWL SHORT  
 OF TUBE CENTERLINE

TRANSFER DRILL  
 #30 THROUGH  
 TABS LOCATED  
 ON FUSELAGE.

TRIM TO CLEAR  
 STRUT FITTING

MD4399

# RANS S-7S

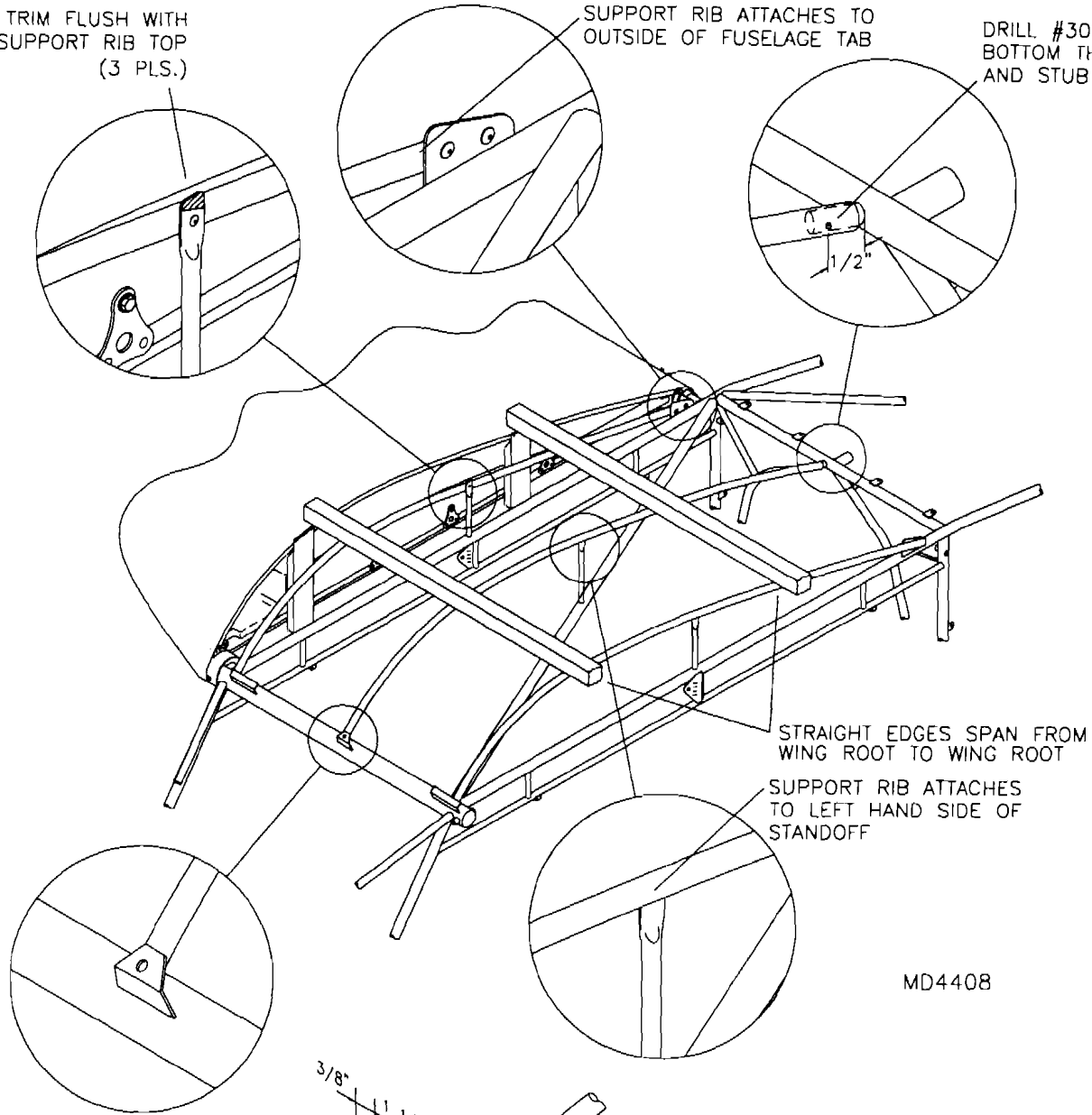
## BOOTCOWL SIDE DETAIL FIGURE 06-03



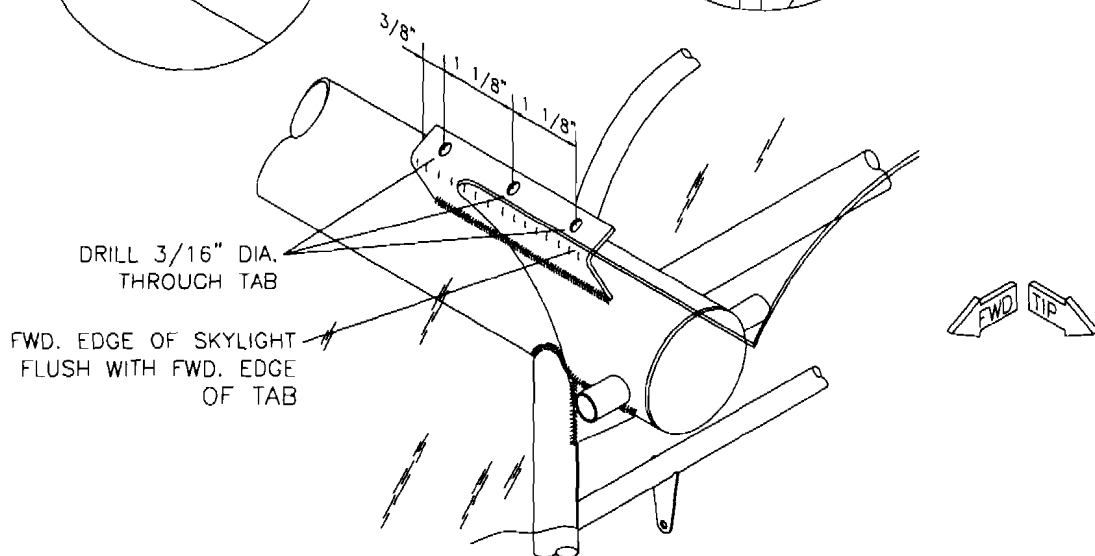
TRIM FLUSH WITH  
SUPPORT RIB TOP  
(3 PLS.)

SUPPORT RIB ATTACHES TO  
OUTSIDE OF FUSELAGE TAB

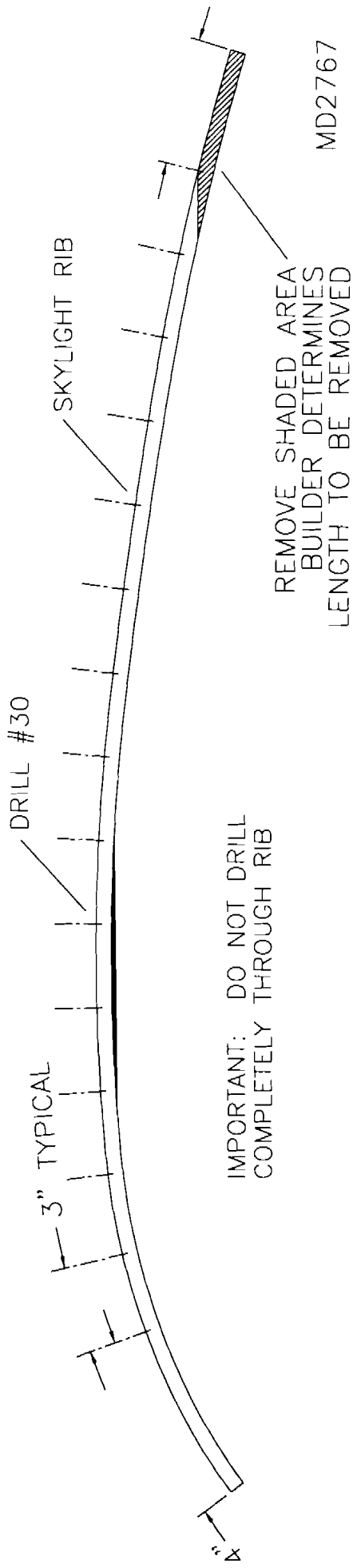
DRILL #30 FROM THE  
BOTTOM THROUGH RIB  
AND STUB



MD4408



**RANS S-7S**  
**WINDSHIELD INSTALLATION FIGURE 06-04**

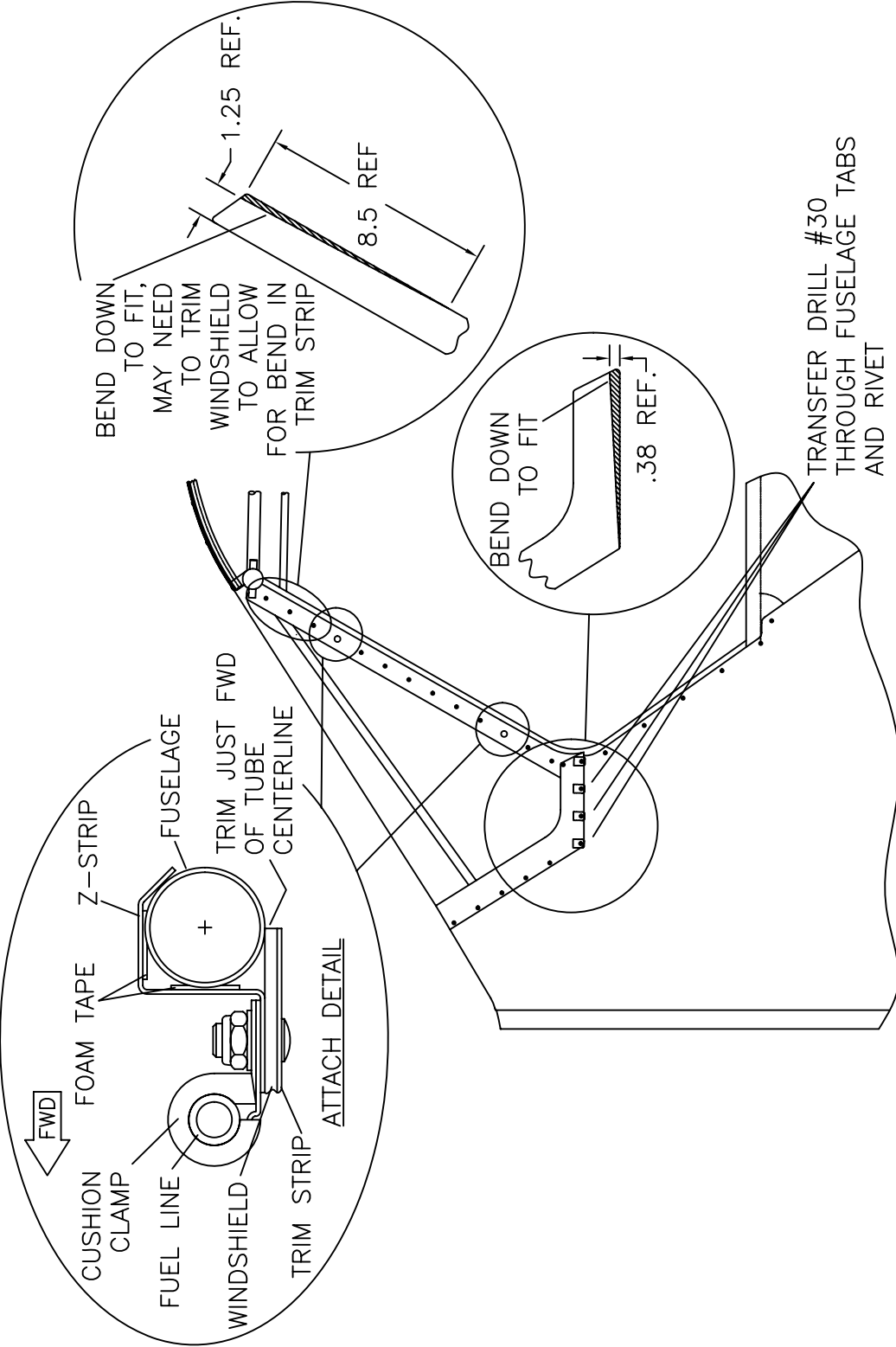


IMPORTANT: DO NOT DRILL  
COMPLETELY THROUGH RIB

MD4409

**RAMS S-7S**  
**WINSHIELD SUPPORT TUBE DRILL FIGURE 06-05**

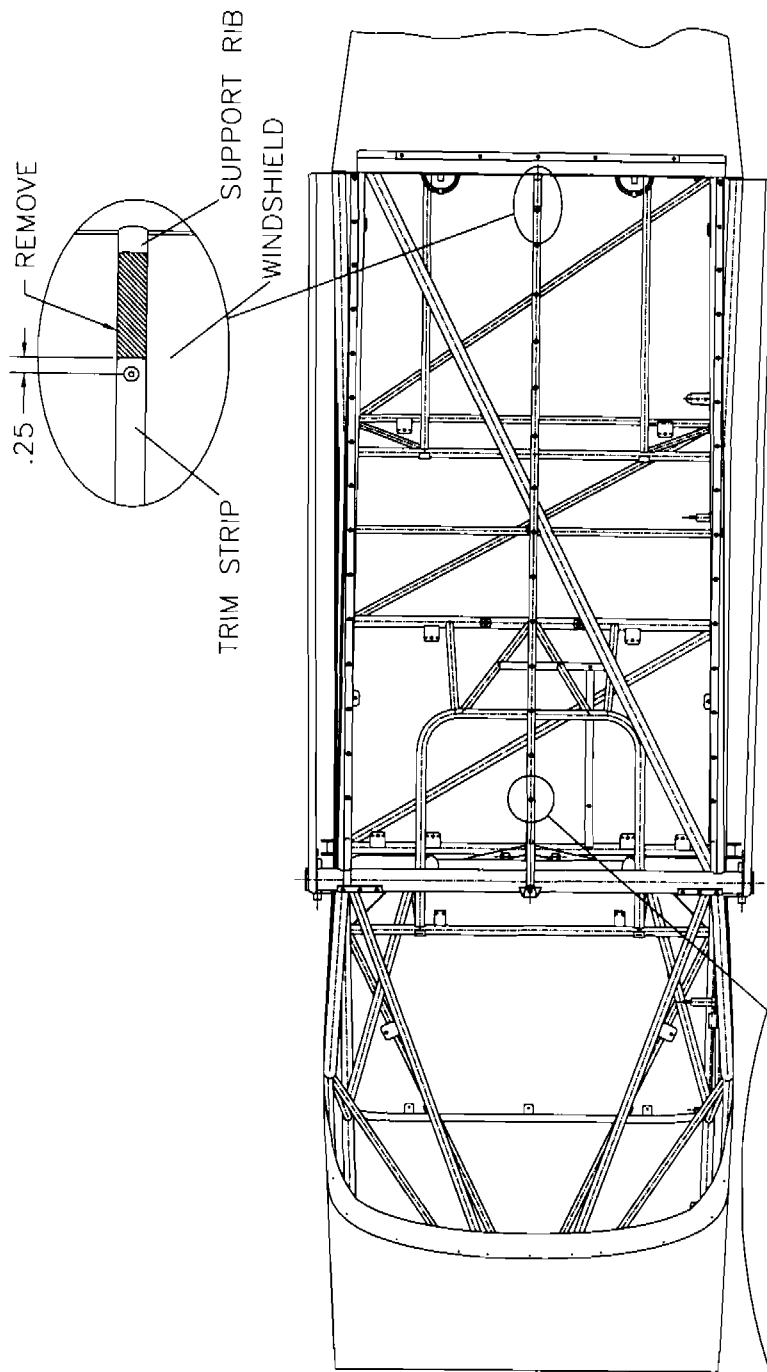
FUEL LINE ATTACHES WITH CUSHIONED CLAMPS IN 2 POINTS ON EACH SIDE



MD4410

**RAMS S-7S**

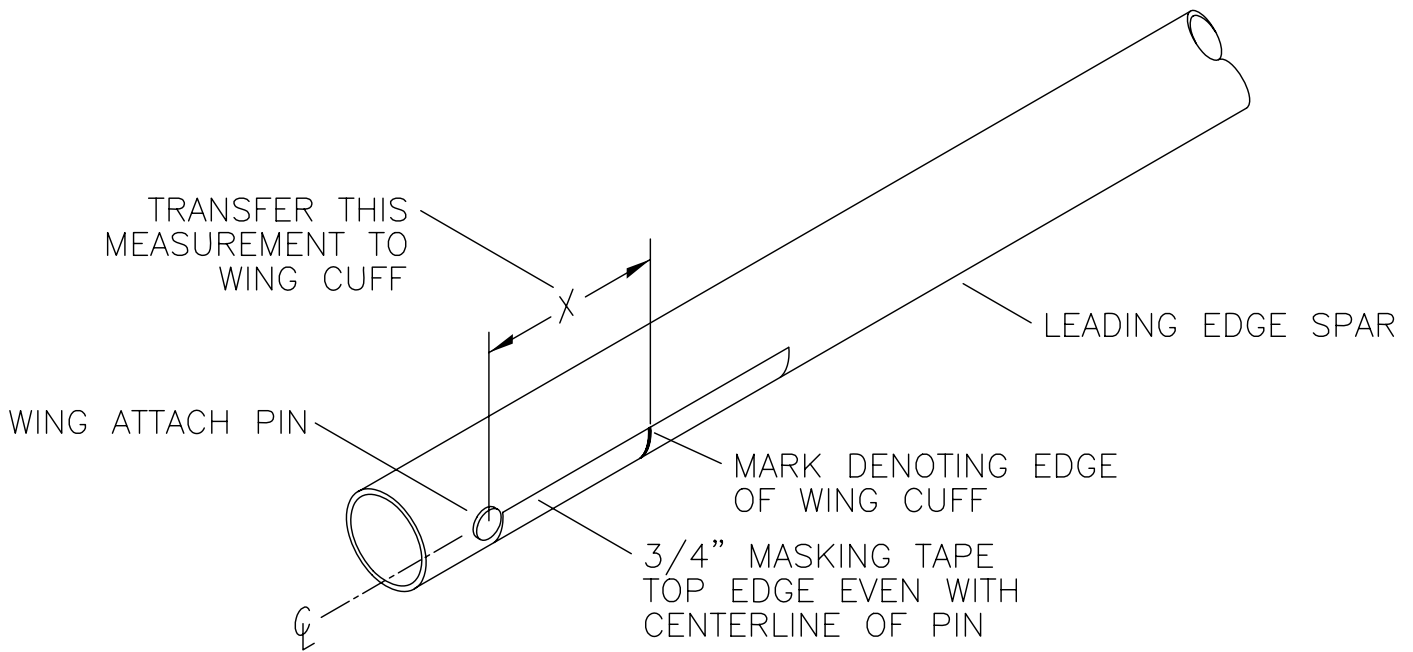
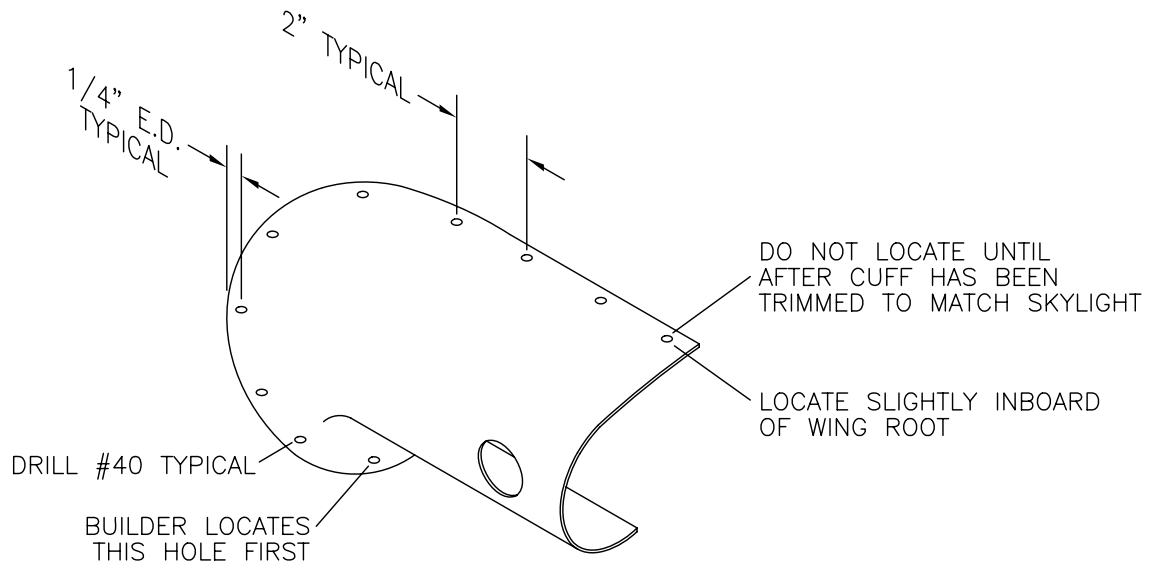
WINDSHIELD INSTALLATION FIGURE 06-06



MD4411

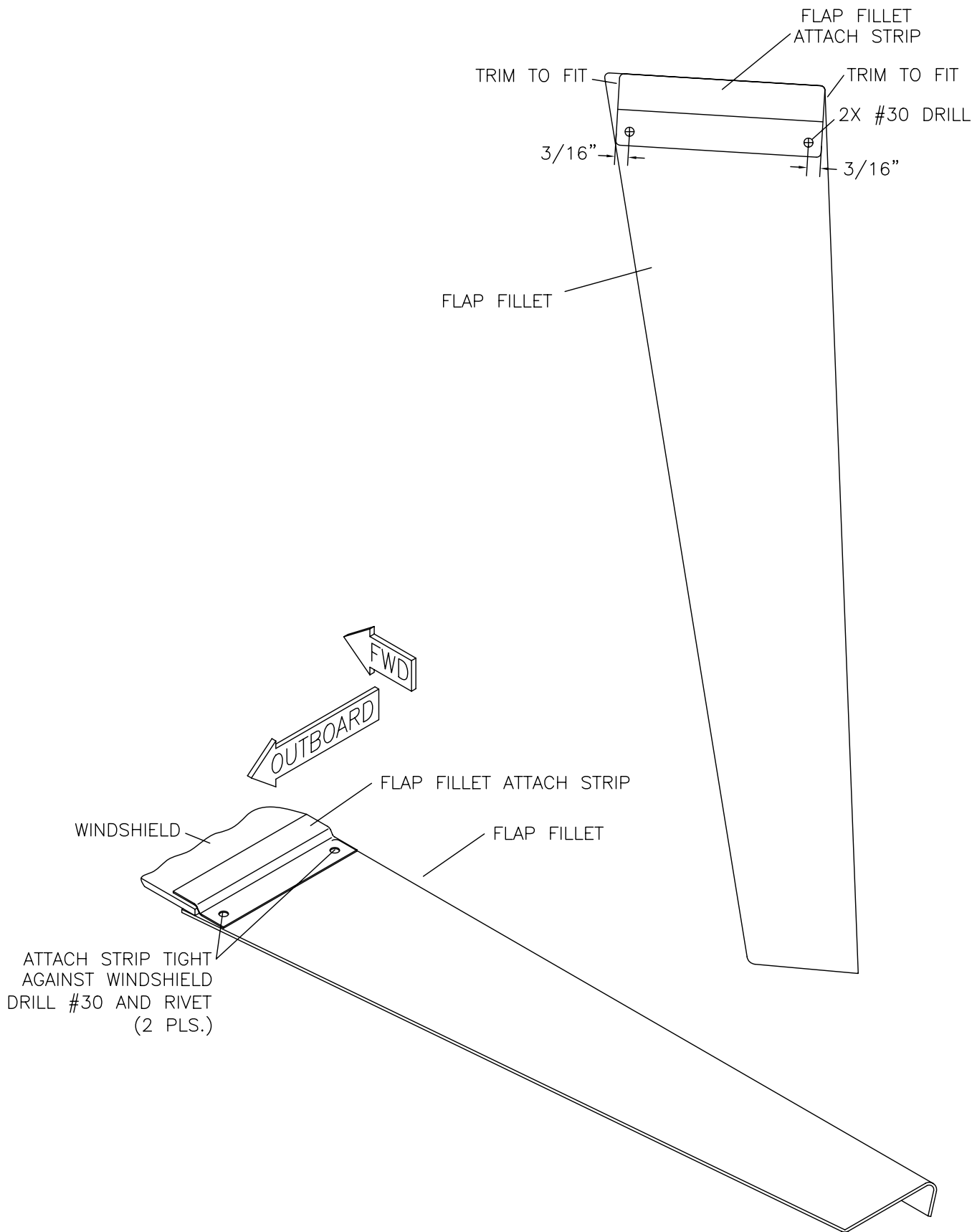
**RAMBO S-7S**

**WINDSHIELD INSTALLATION FIGURE 06-07**



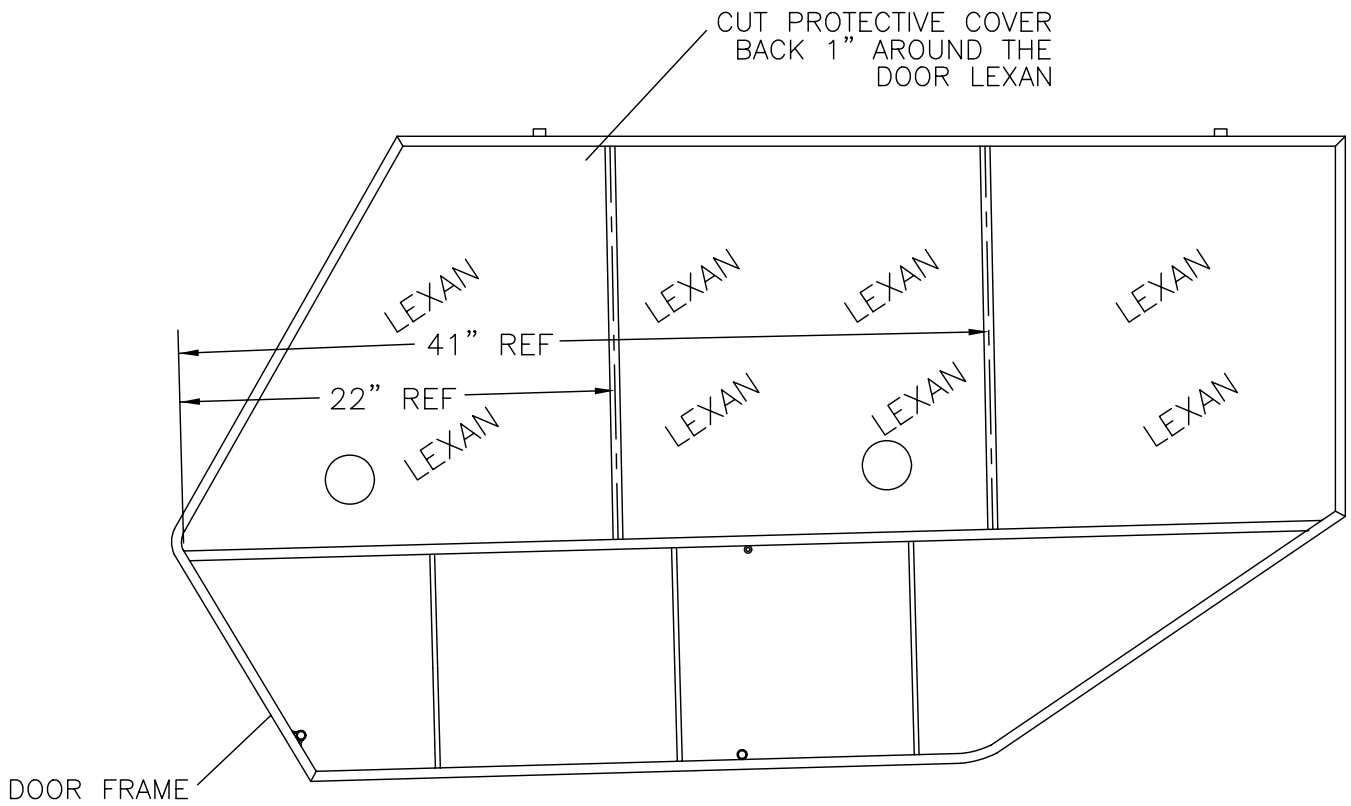
MD4412  
REV. A

**RANS S-7S**  
**WING CUFF INSTALLATION FIGURE 06-08**



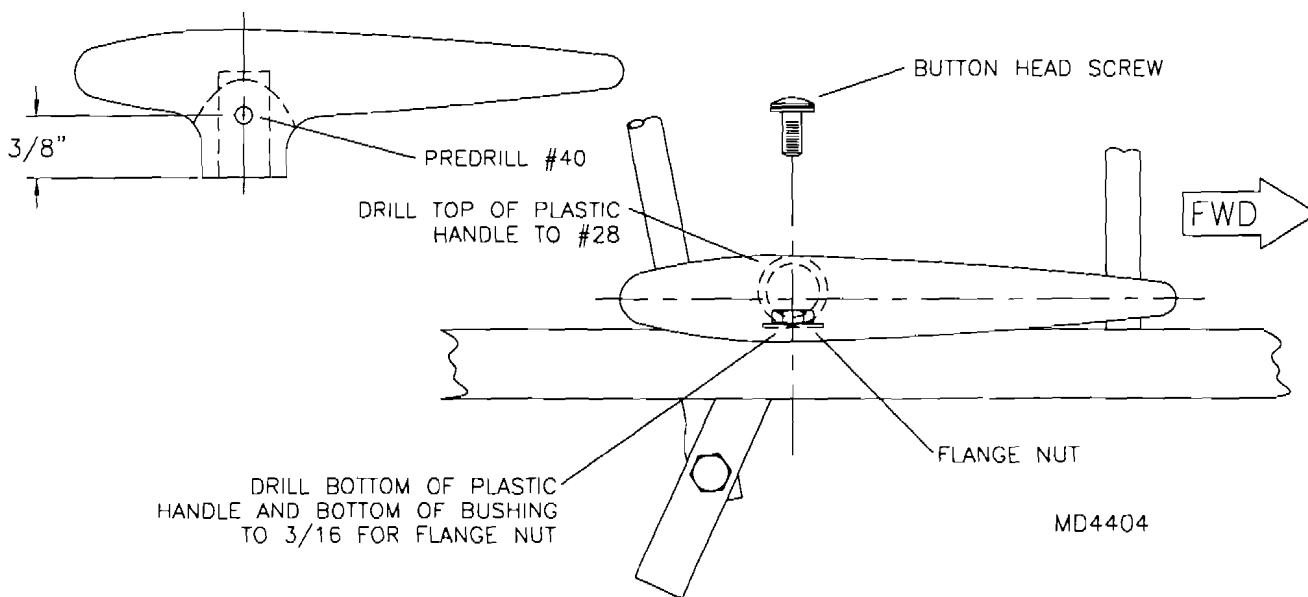
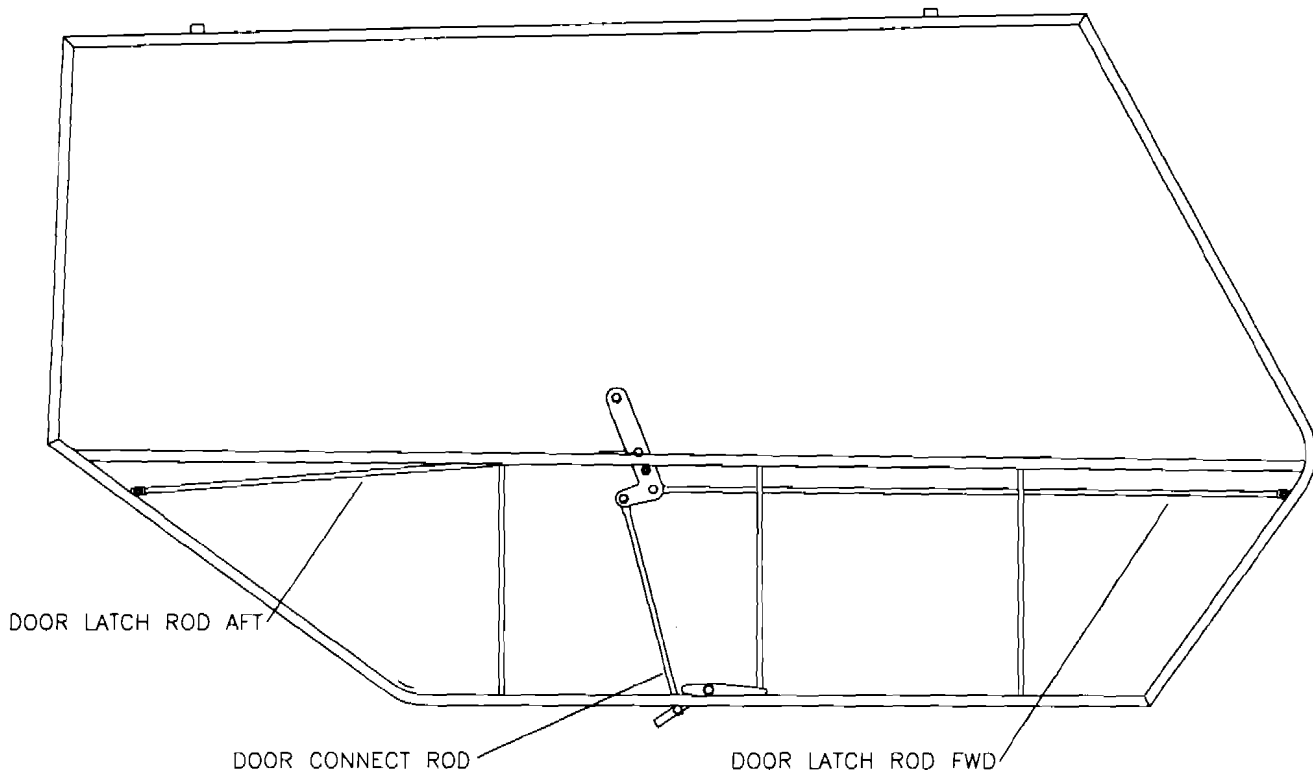
**RANS S-7S**  
**FLAP FILLET MODIFICATION**  
**FIGURE 06-08A**

MD5083



MD4403  
REV. A

**RANS S-7S**  
**DOOR ASSEMBLY - LEXAN AND TRIM**  
**FIGURE 06-09**



**RANS S-7S**  
**DOOR LATCH DETAIL FIGURE 06-10**



SPINNER BACKING PLATE

COUNTER SINK SO RIVET HEADS ARE FLUSH.

NUT PLATE

SPINNER CUT OUT TEMPLATE FOR SENSENICH WOOD PROP. (ASSURE 1/8" MINIMUM CLEARANCE BETWEEN PROP AND SPINNER DOME.)

SPINNER DOME

TEMPLATE

180° REF. LINE

180°

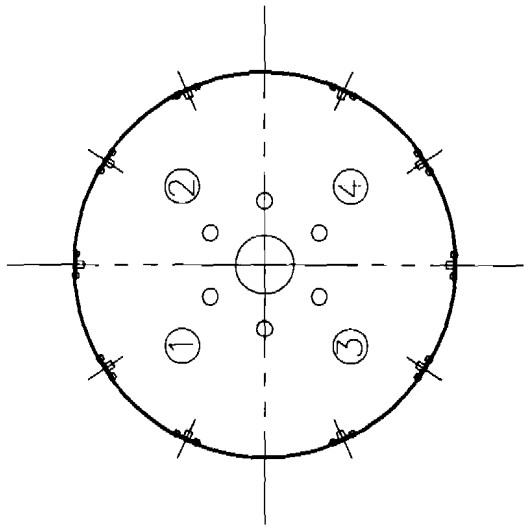
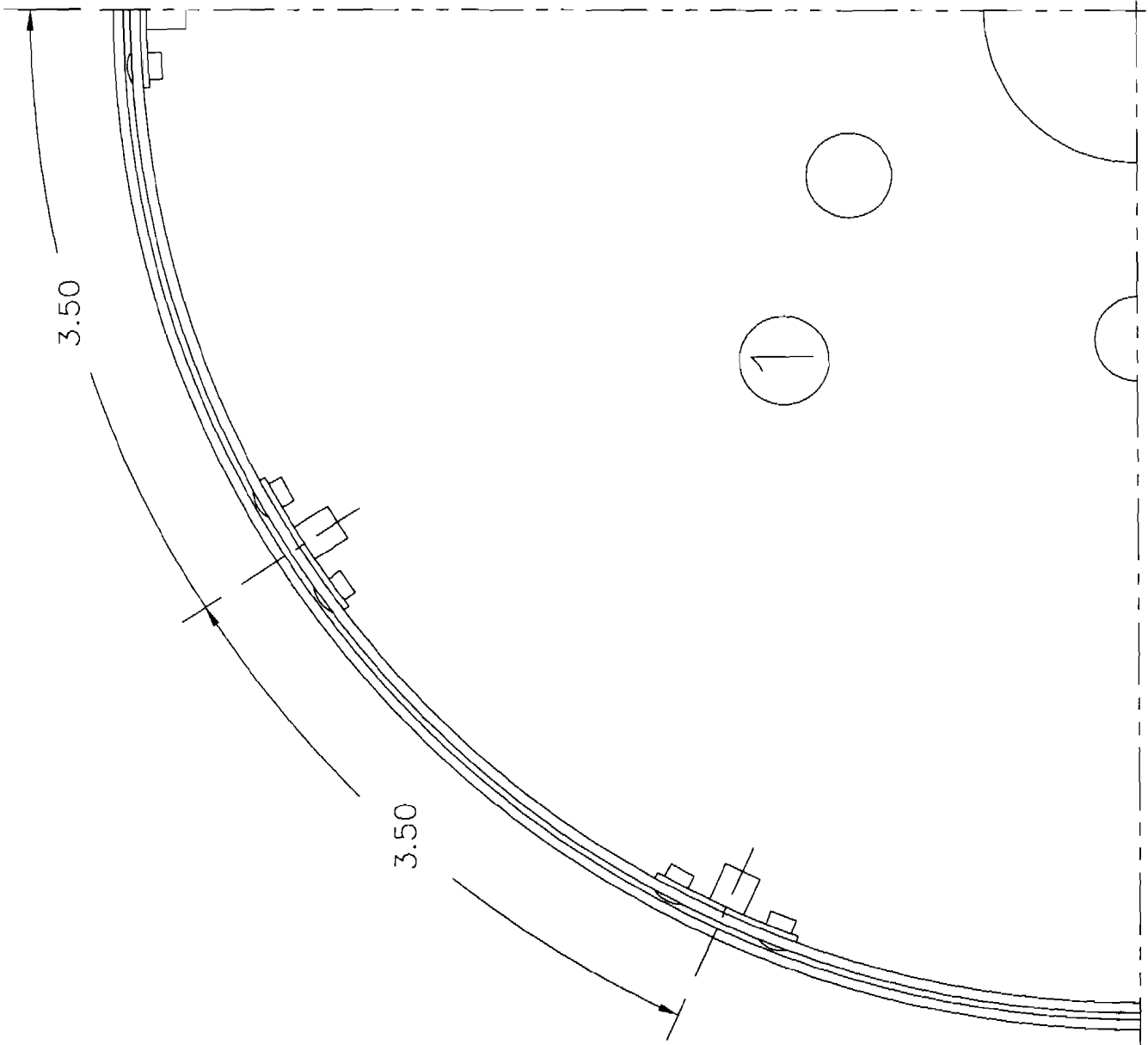
5/16" TYPICAL

TEMPLATE

MD4378

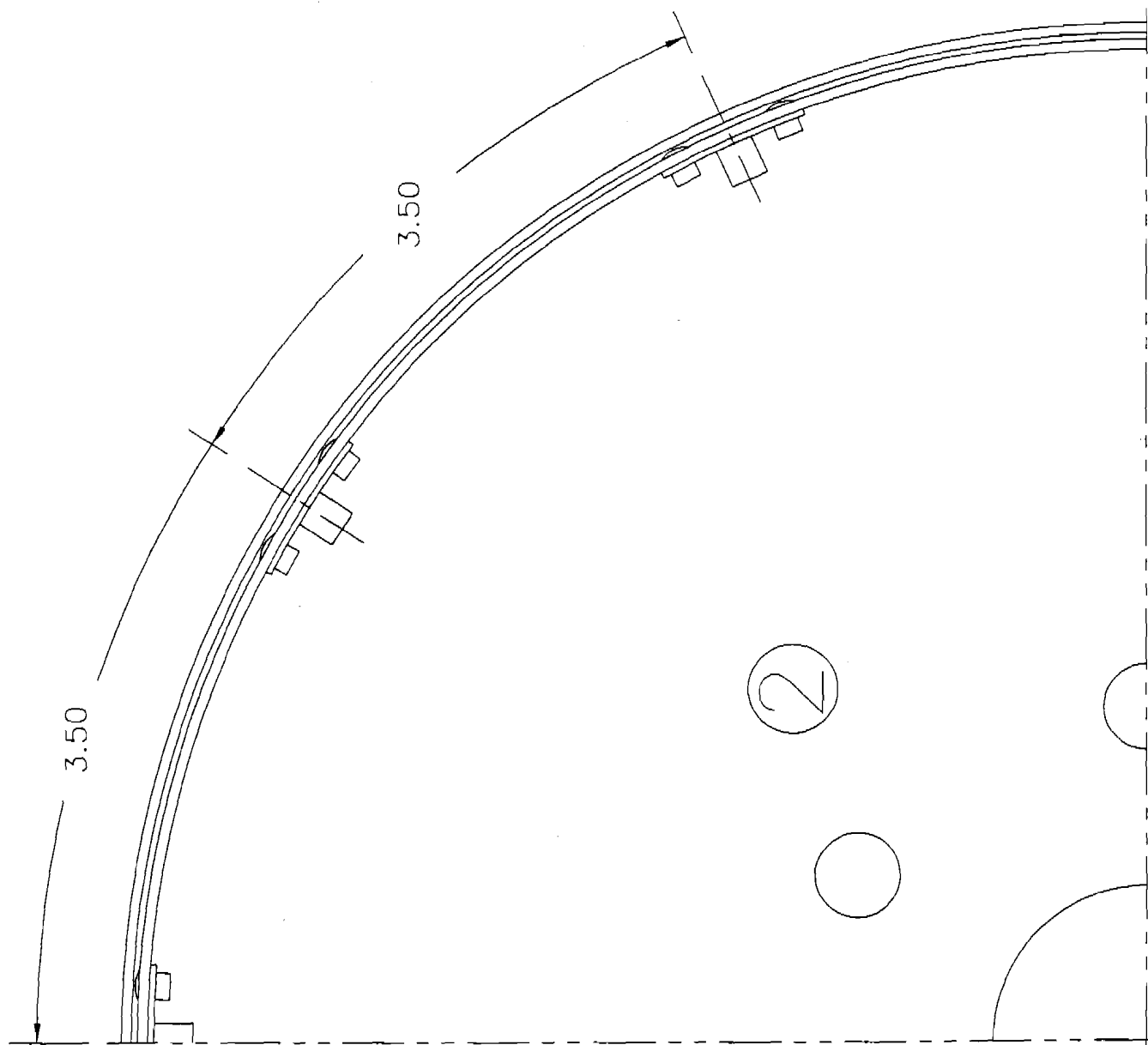
RRFMS S-7S

SPINNER DETAIL FIGURE 06-11



MD4-377

**RRFANES S-7S**  
**SPINNER BACKING**  
**PLATE TEMPLATE #1**  
**FIGURE 06-12-A**

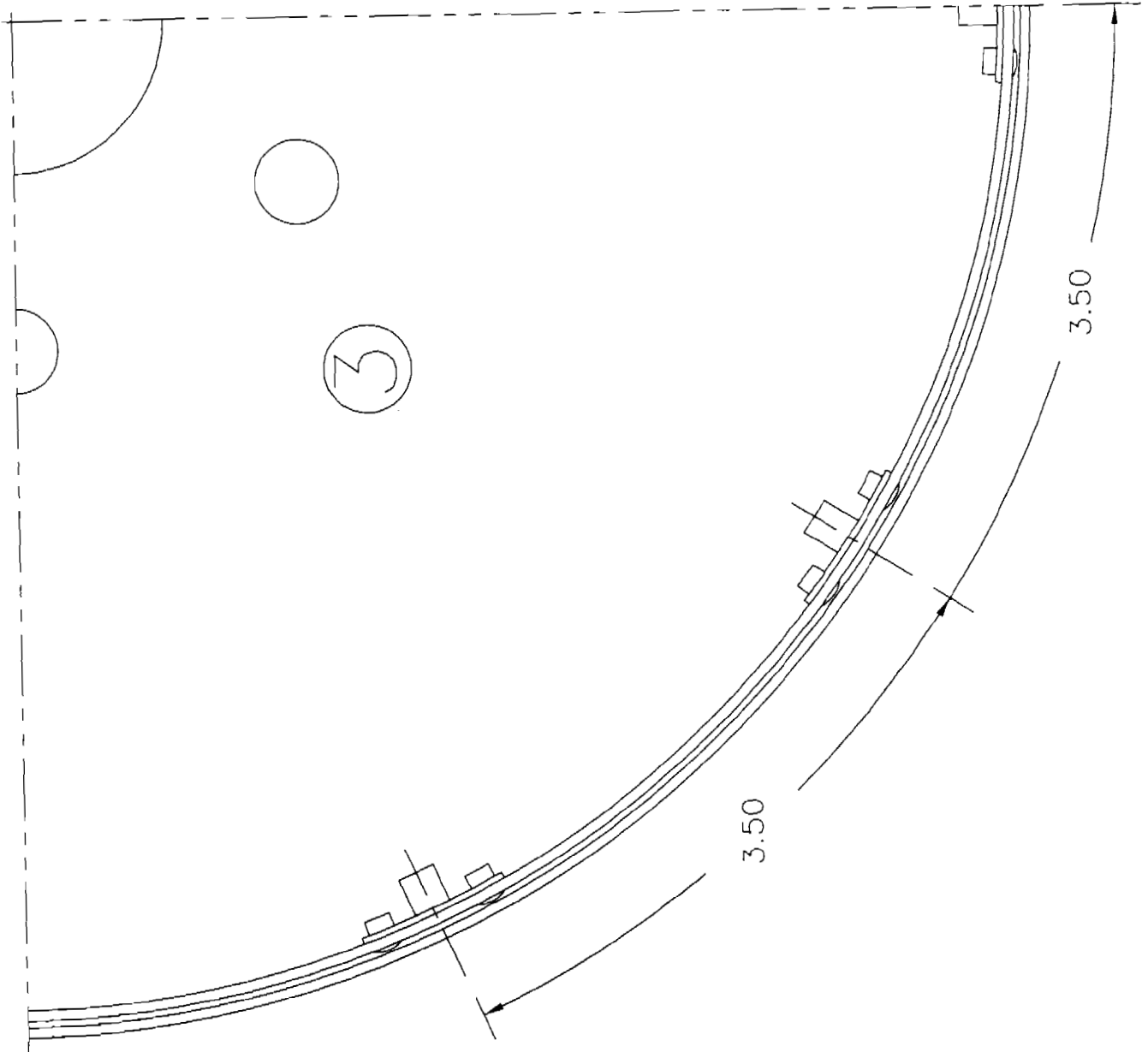


MD4377

**RAMS S-7S**  
**SPINNER BACKING**  
**PLATE TEMPLATE #2**  
**FIGURE 06-12-B**

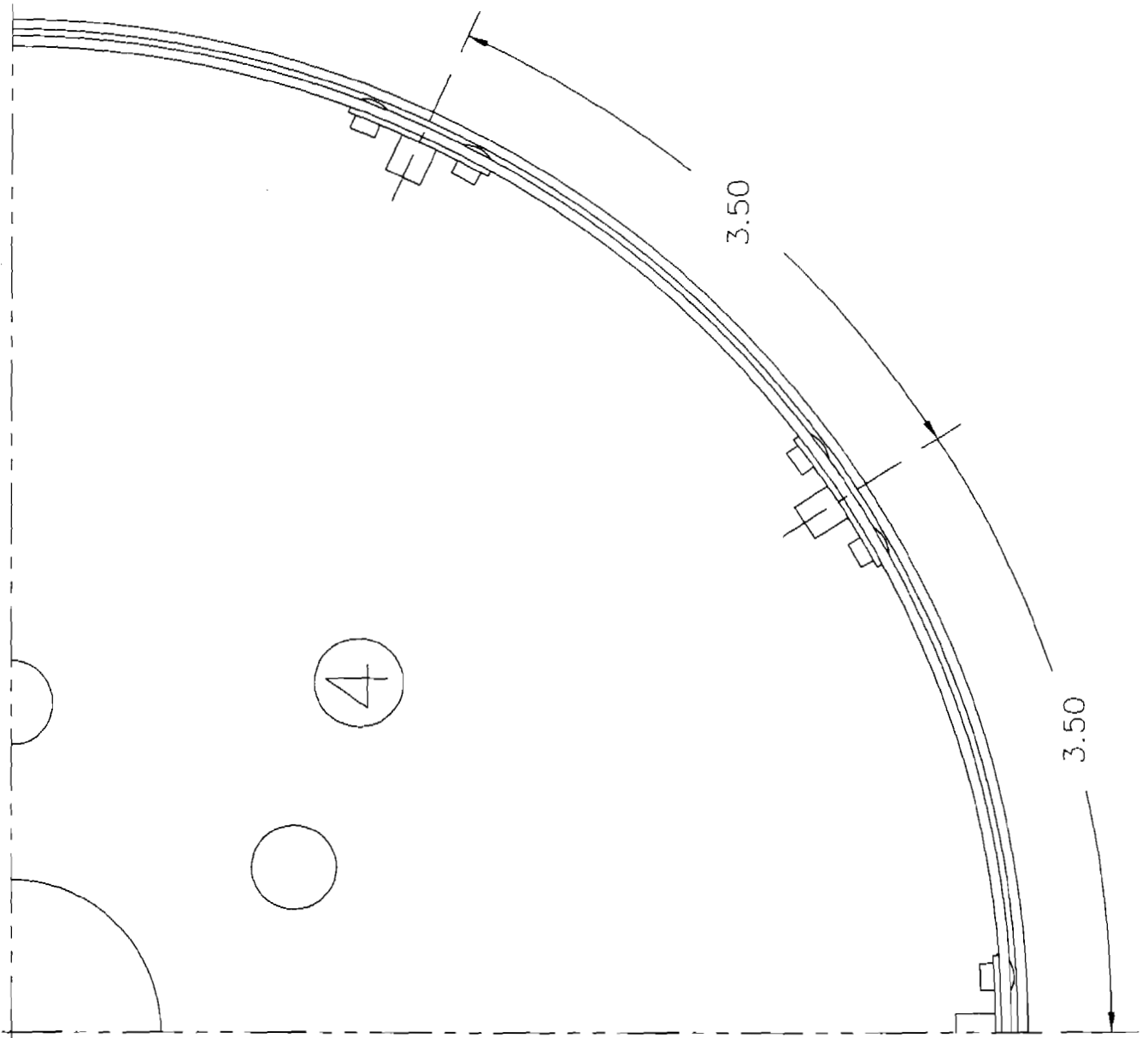
MD4377

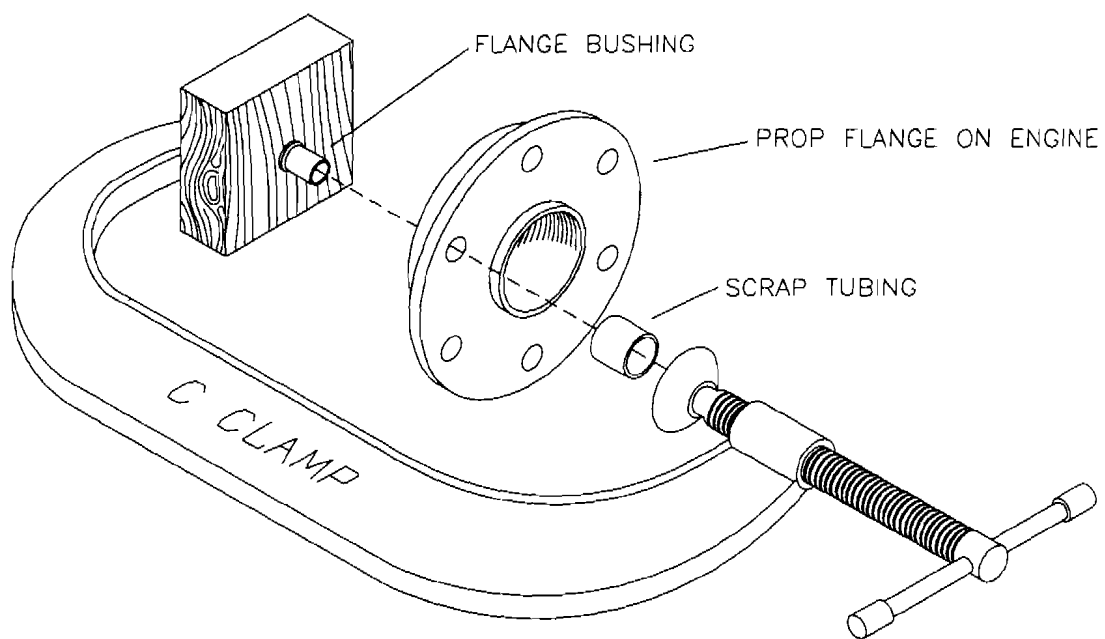
**RRR S-7S**  
**SPINNER BACKING**  
**PLATE TEMPLATE #3**  
**FIGURE 06-12-C**



MD4377

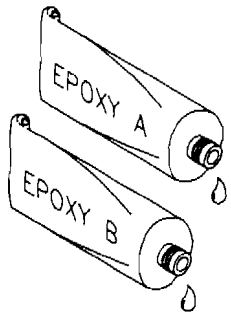
**RRR S-7S**  
**SPINNER BACKING**  
**PLATE TEMPLATE #4**  
**FIGURE 06-12-D**



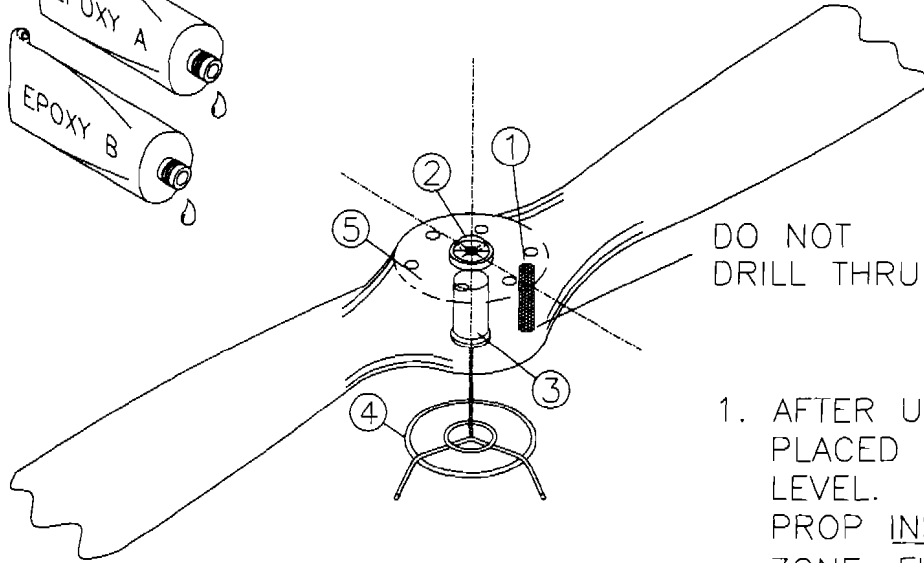


MD4401

**RANS S-7S**  
**FLANGE BUSHING INSTALLATION**  
**FIGURE 06-13**



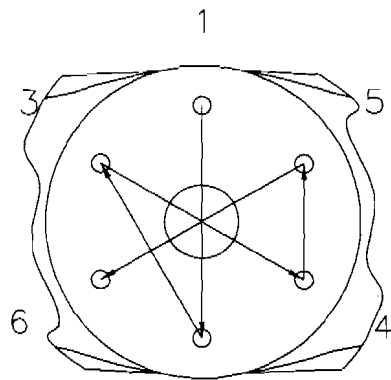
NOTE: BALANCE PROP  
INDOORS OUT  
OF WIND



DO NOT  
DRILL THRU

1. AFTER USING COINS  
PLACED TO CENTER BUBBLE  
LEVEL. DRILL A HOLE INTO  
PROP INSIDE OF CRUSH PLATE  
ZONE. FILL WITH LEAD "BB'S"  
SEAL WITH EPOXY.

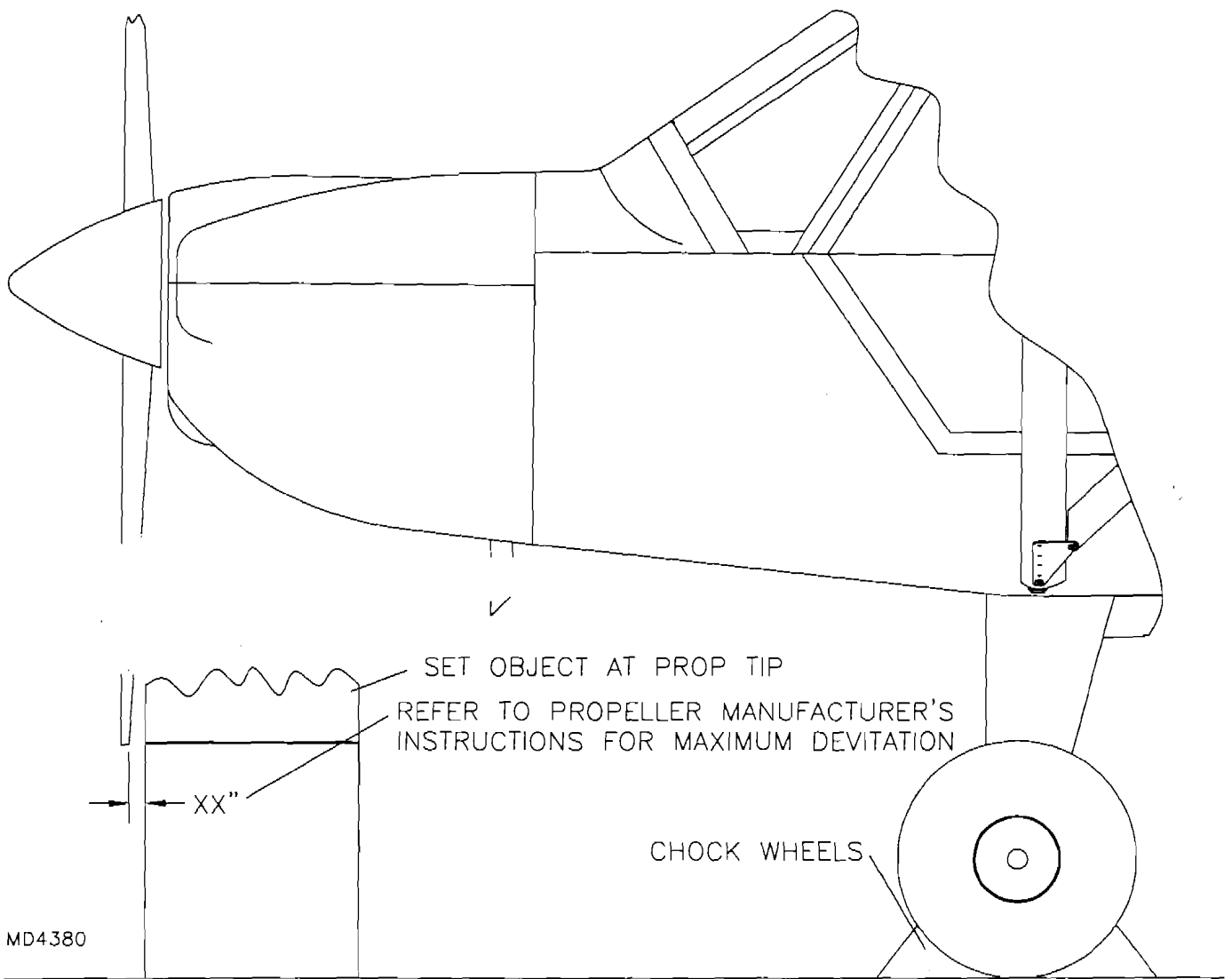
2. CENTER LEVEL
3. DUAL AXIS PROP BALANCER INSERT  
SPECIFY PROP INSIDE DIAMETER WHEN  
ORDERING.
4. STAND FOR INSERT
5. CRUSH PLATE ZONE



MD4379

2  
RE-TORQUE BOLTS AFTER 5 HRS. OF FLIGHT

## RANS S-7S WOOD PROPELLER STATIC BALANCE AND TORQUE FIGURE 06-14



MD4380

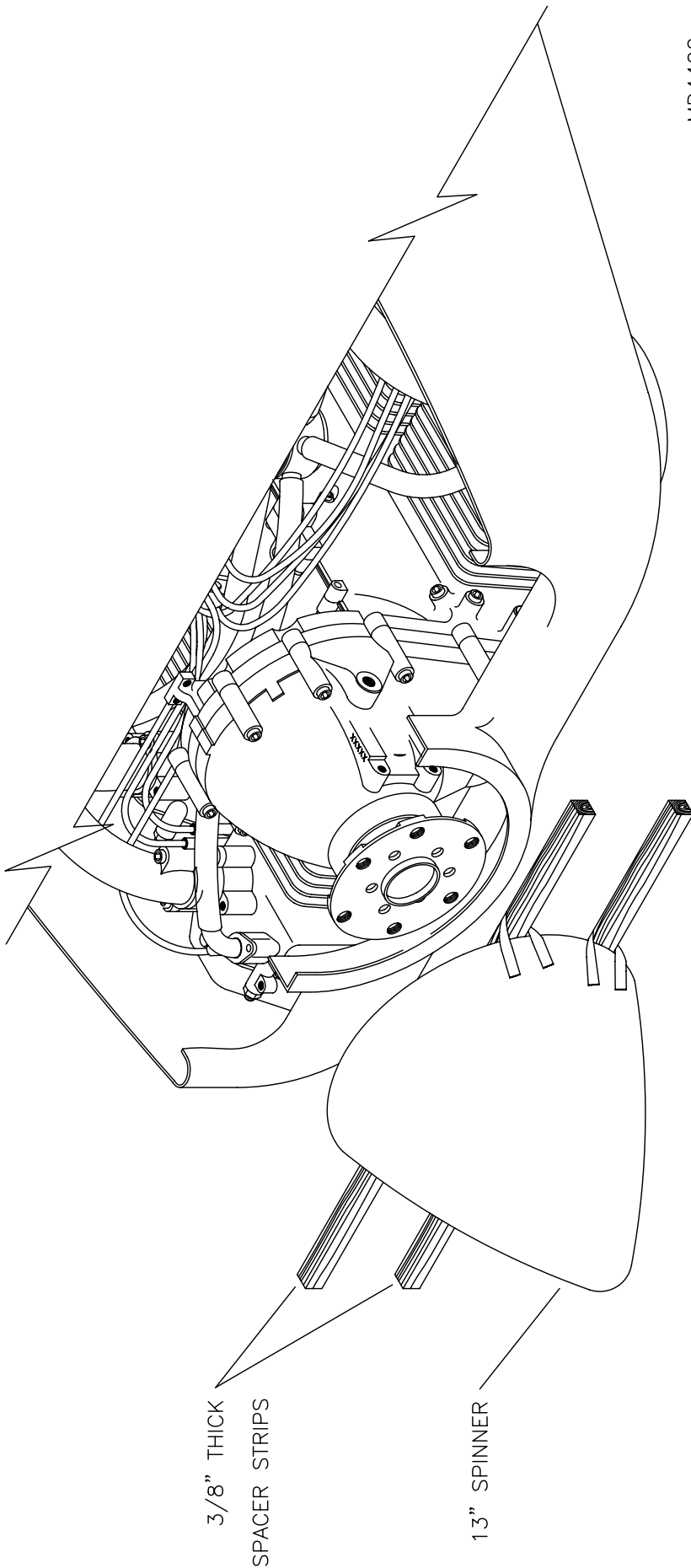
TRACK PROP IN CALM CONDITIONS

**IMPORTANT!**

CHECK PROPELLER TORQUE EVERY 50 HOURS OR AFTER LARGE CHANGES IN CLIMATE. WOOD PROPS WILL SHRINK AND EXPAND WITH HUMIDITY. IF YOU LIVE IN A CLIMATE WITH LARGE CHANGES IN HUMIDITY OR FLY TO A DIFFERENT CLIMATE, PROP TORQUE MAY CHANGE MORE OFTEN. FAILURE TO MAINTAIN PROP TORQUE MAY RESULT IN SEPARATION OF THE PROPELLER FROM THE AIRCRAFT AND MAY CAUSE INJURY OR DEATH. REFER TO PROPELLER MANUFACTURER'S INSTRUCTIONS FOR SPECIAL MAINTENANCE REQUIREMENTS.

**RANS S-7S**  
**WOOD PROPELLER TRACKING**  
**FIGURE 06-15**



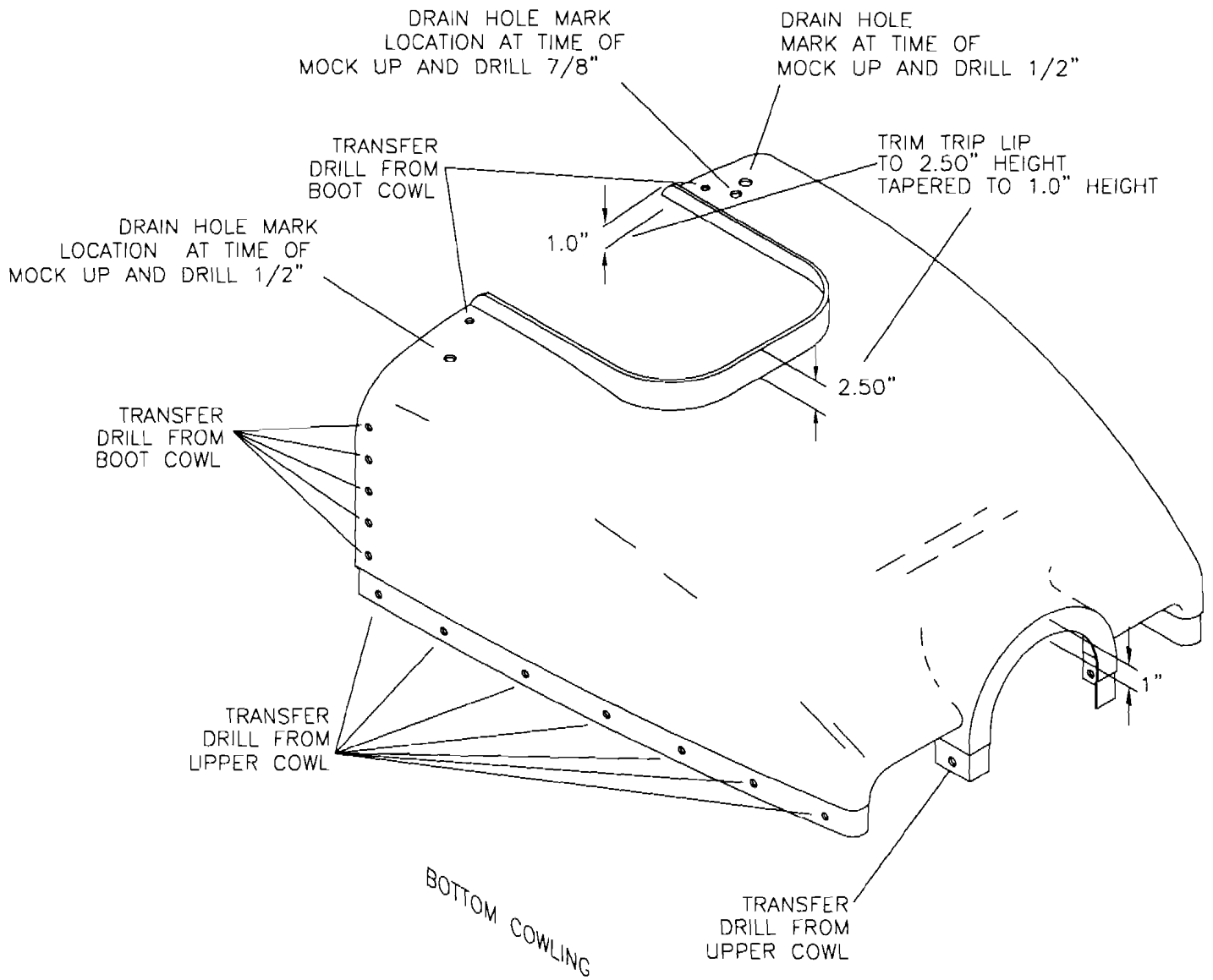


3/8" THICK  
SPACER STRIPS

13" SPINNER

MD4402

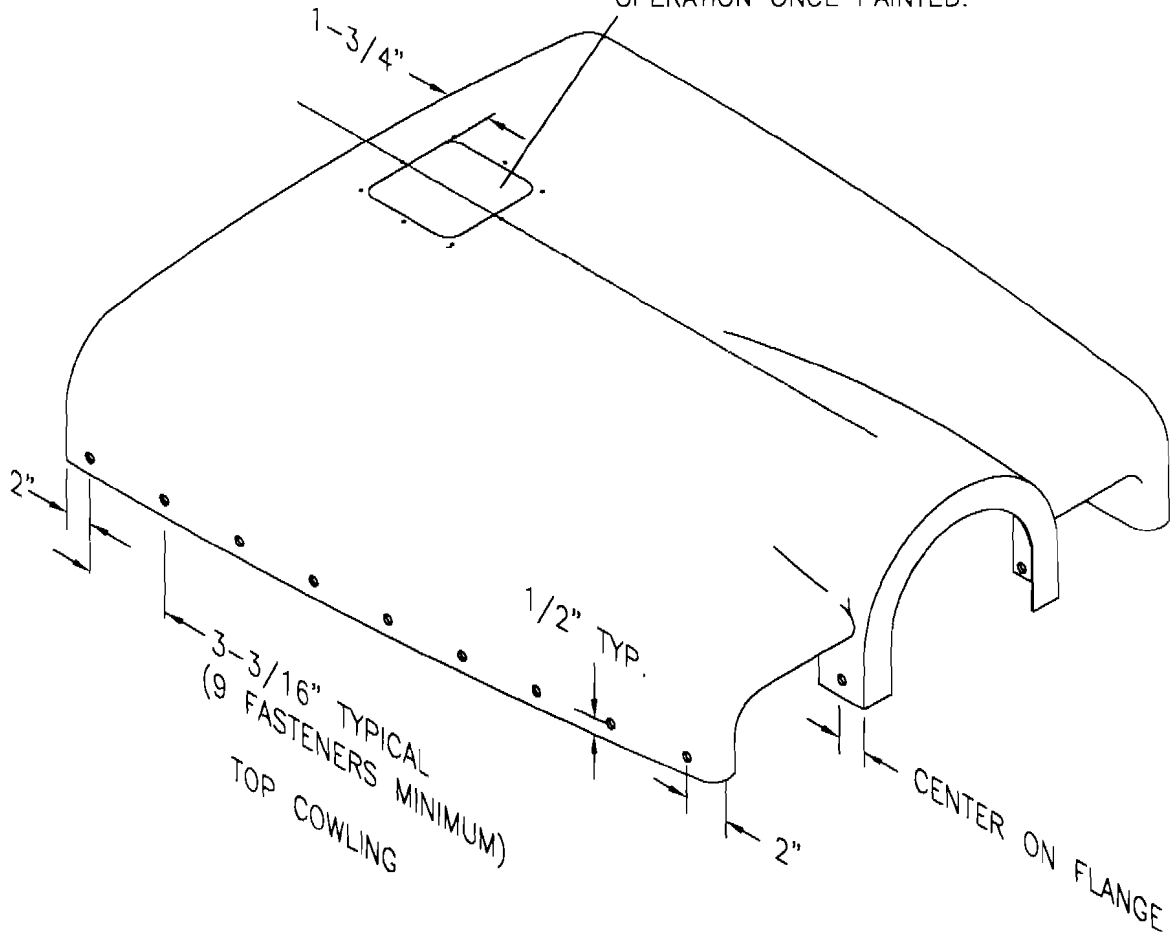
# RAMMS S-7S SPINNER TO COWLING FIGURE 06-16



MD4393

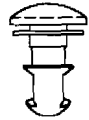
**RANS S-7S**  
**LOWER COWLING DRILL FIGURE**  
 06-17

CUT AND DRILL USING 1:1 TEMPLATE,  
 TEST FIT WITH OIL DOOR P/N KPCW0036  
 MAINTAIN SUFFICIENT CLEARANCE FOR PROPER  
 OPERATION ONCE PAINTED.



TURN FASTENER

RUBBER WASHER



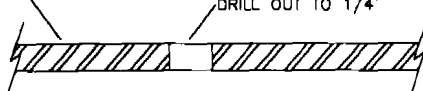
NYLON WEAR WASHER

MD4392



TOP COWLING

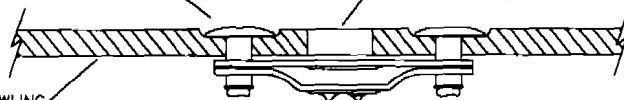
DRILL OUT TO 1/4"



RETAINING RING

POP RIVET  
(COUNTERSINK FOR A  
MORE MATCHED FIT)

DRILL OUT TO 5/16"

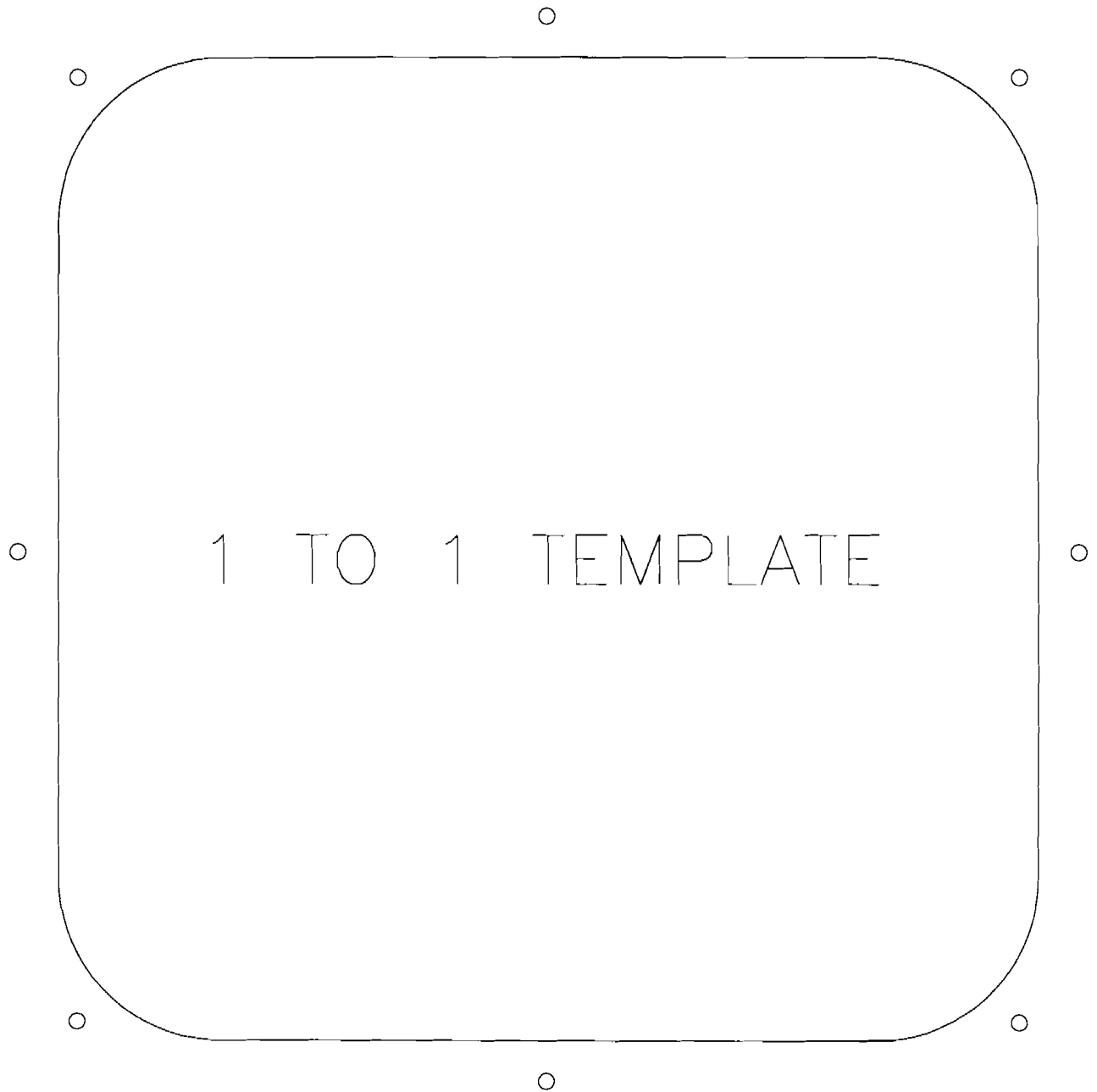


BOTTOM COWLING

FASTENER RECEPTACLE

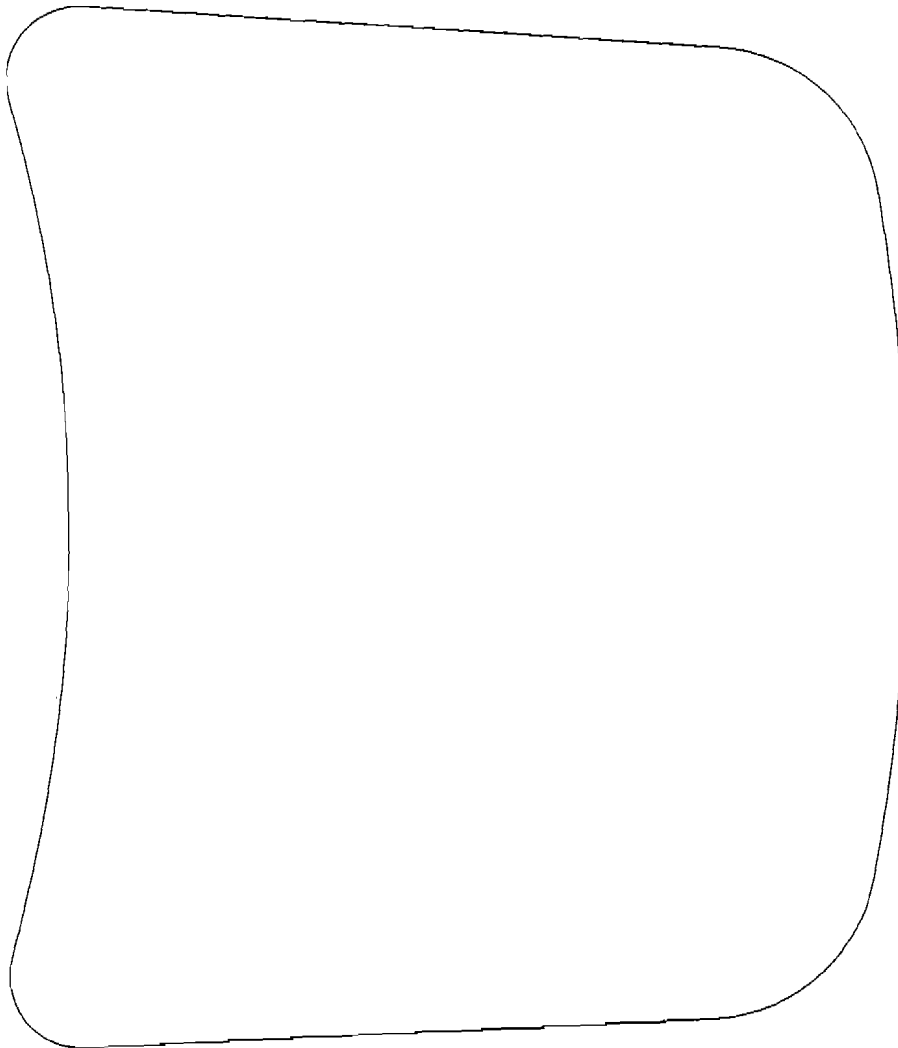
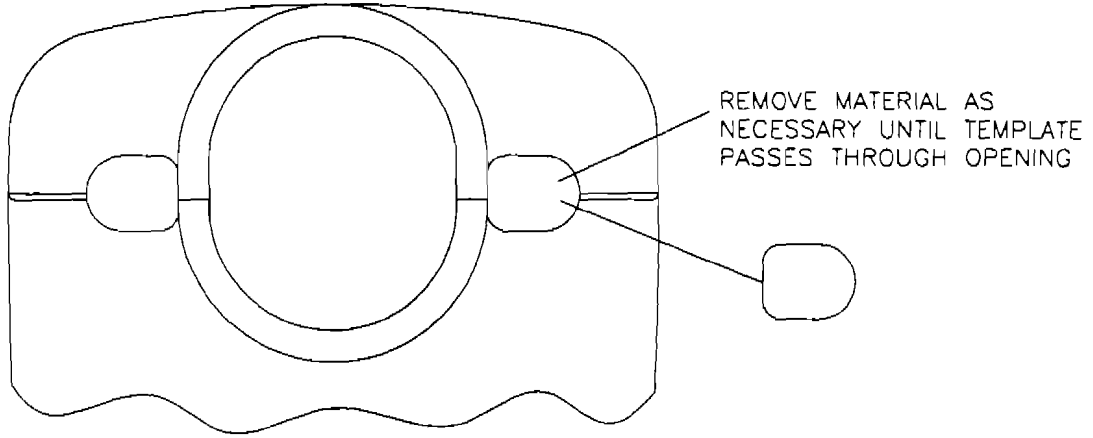
# RANS S-7S

## UPPER COWLING DRILL FIGURE 06-18



MD4394

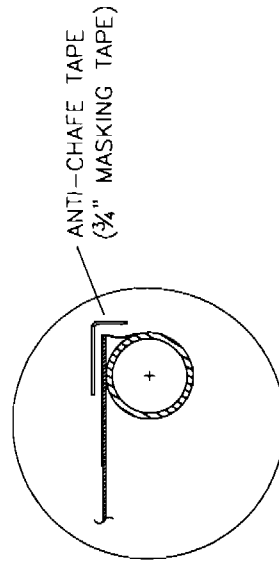
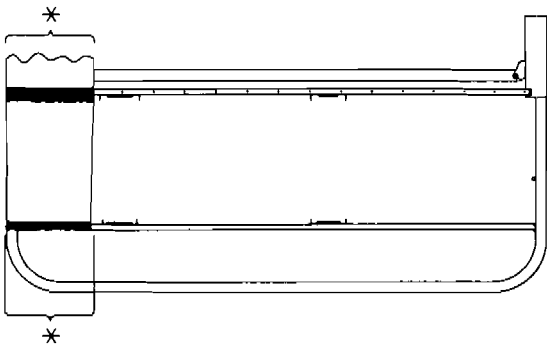
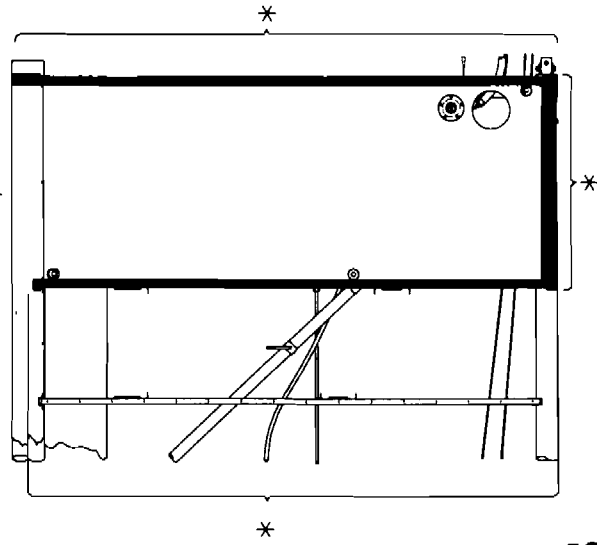
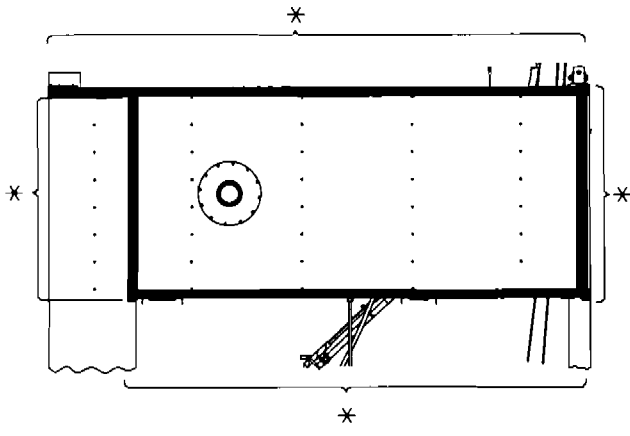
**RANS S-7S**  
**OIL CHECK DOOR TEMPLATE**  
**FIGURE 06-19**



1 TO 1 TEMPLATE

**RANS S-7S**  
AIR INTAKE TEMPLATE FIGURE 06-20

MD4395

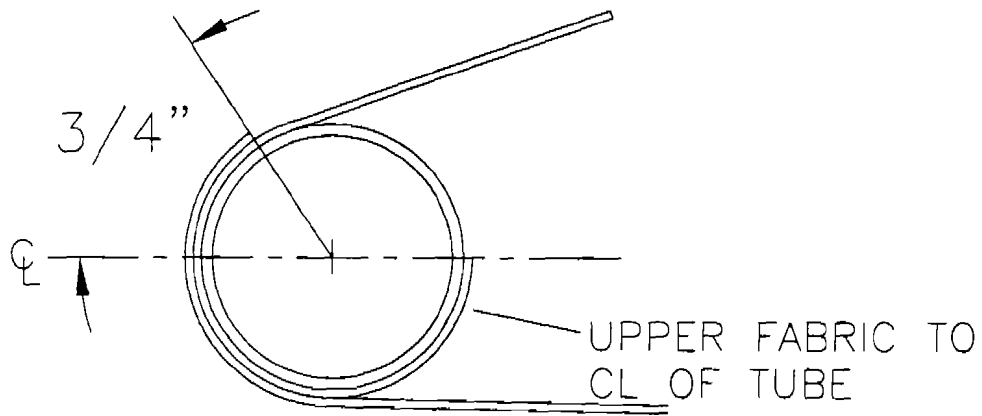


\* APPLY ANTI-CHAFE TAPE (3/4" MASKING TAPE) BEFORE COVERING

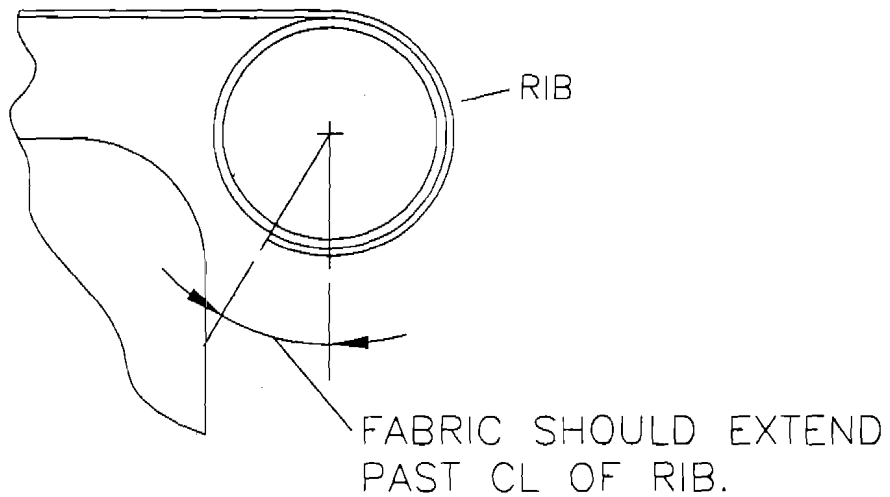
MD4632

**RRRMS S-7S**

**WING COVERING - ANT-CHAFE TAPE FIGURE 07-01**



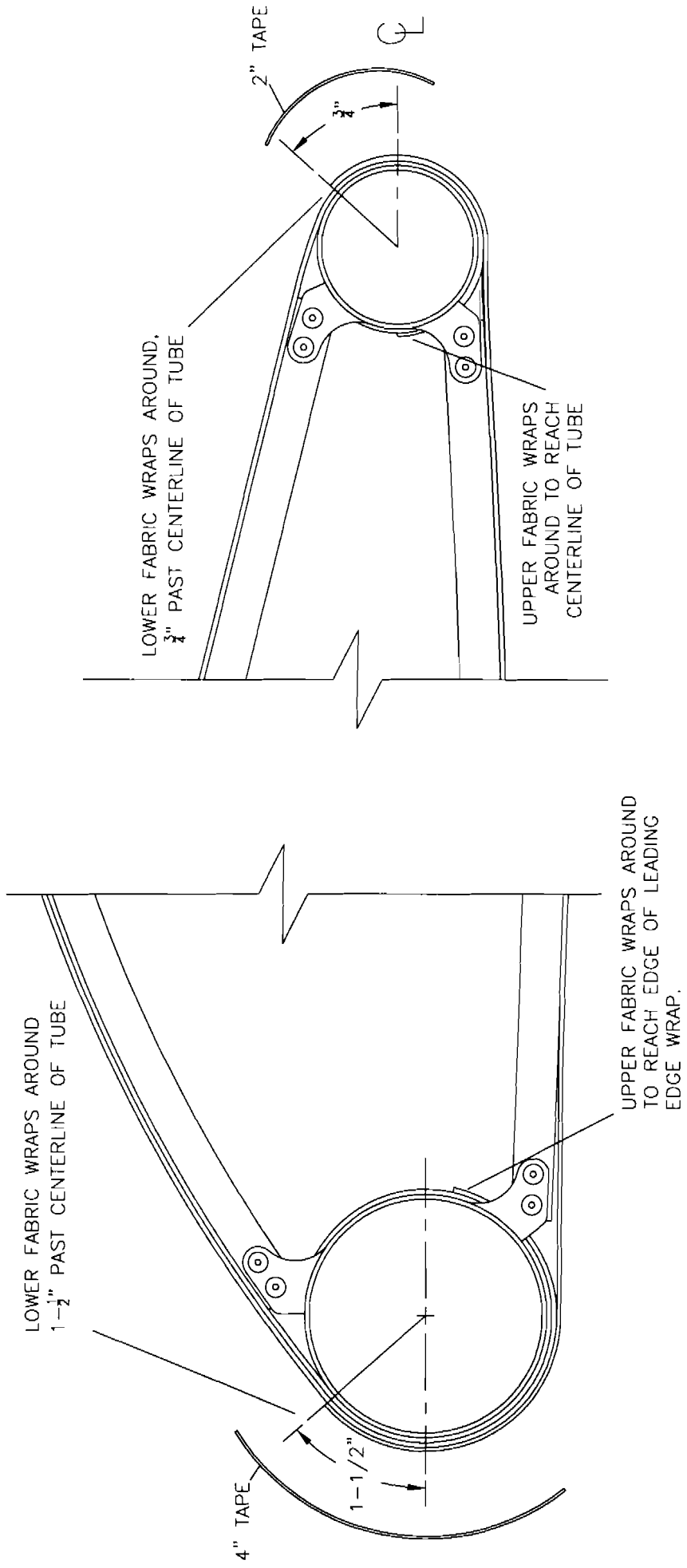
WING TIP BOW DETAIL TYPICAL



ROOT RIB DETAIL TYPICAL

MD4340

**RANS S-7S**  
**WING COVERING FABRIC OVERLAP**  
**ON TIP AND ROOT FIGURE 07-02**



MD4341



S-7S

WING COVERING - FABRIC OVERLAP ON LEADING EDGE AND TRAILING SPAR FIGUR 07-03



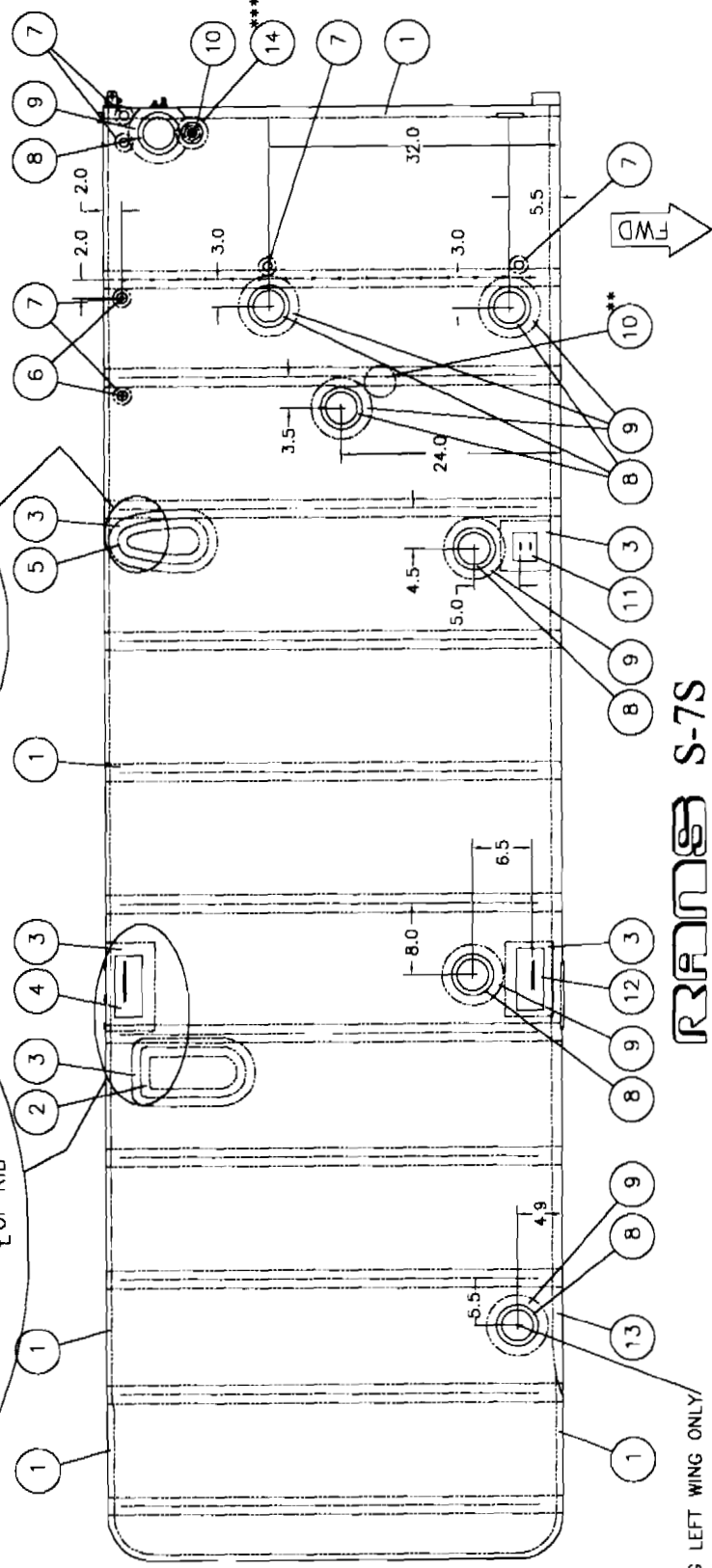
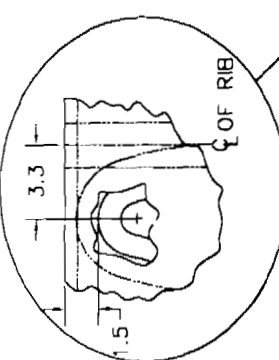
- 1 2" PINKED TAPE
- 2 AILERON PUSH/PULL TUBE EXIT RING
- 3 PATCH\*
- 4 TE STRUT ATTACH PLATE EXIT
- 5 FLAP TELEFLEX EXIT RING
- 6 DRAIN GROMMET
- 7 2" DIA. ROUND PATCH
- 8 INSPECTION RING
- 9 6.5" DIA. ROUND PATCH
- 10 3.5" DIA. ROUND PATCH
- 11 JURY STRUT BRACKET EXIT
- 12 LE STRUT ATTACH PLATE EXIT
- 13 4" PINKED TAPE
- 14 DRAIN COVER-WING

\* PATCH MUST BE A MINIMUM OF 1" LARGER THAN EXIT

\*\* CENTER OVER DOOR UPATCH SOCKET

\*\*\* DRAIN COVER-WING-INSTALL POST PRIMING AND PRIOR TO PAINTING.

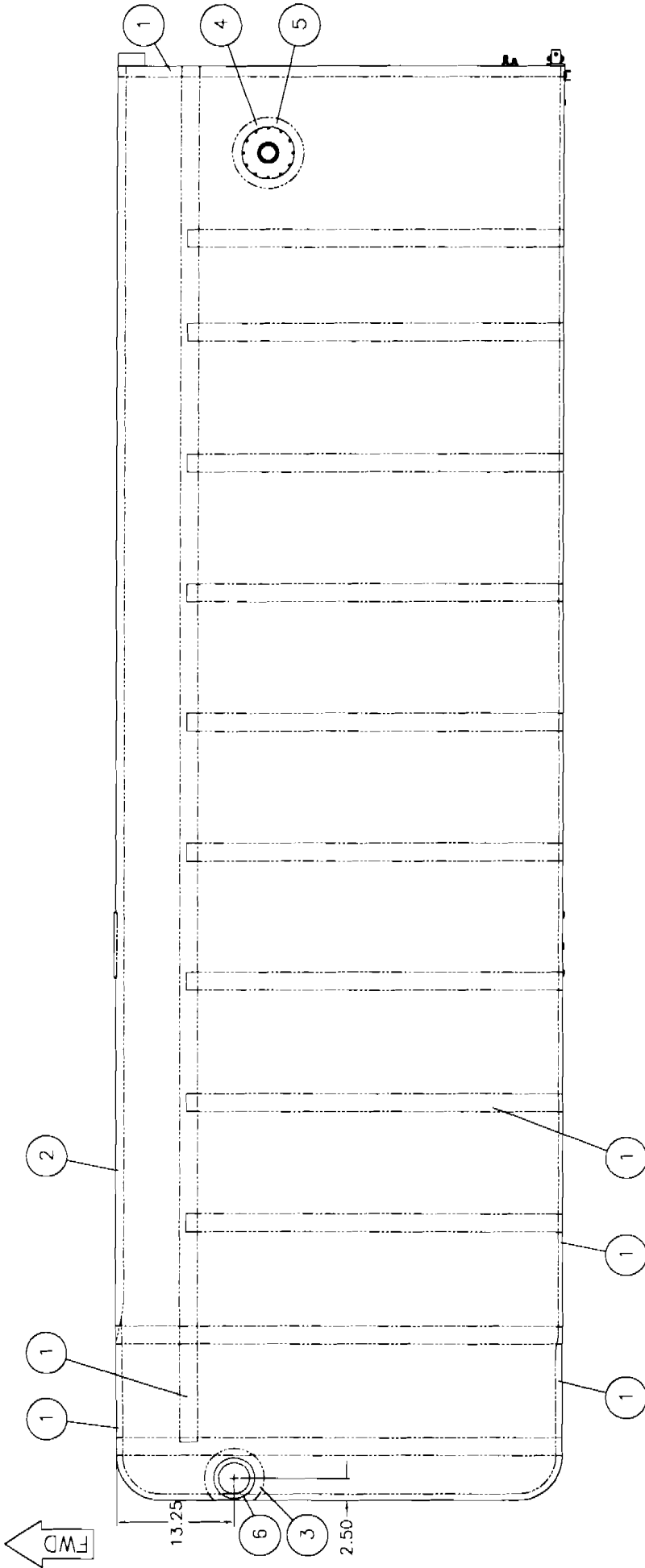
NOTE: SKIN IS RIVETED TO ALL RIBS EXCEPT ROOT RIB AND TIP RIB



**RRANOR S-7S**  
**WING BOTTOM COVERING FIGURE 07-04**

THIS INSPECTION RING LEFT WING ONLY

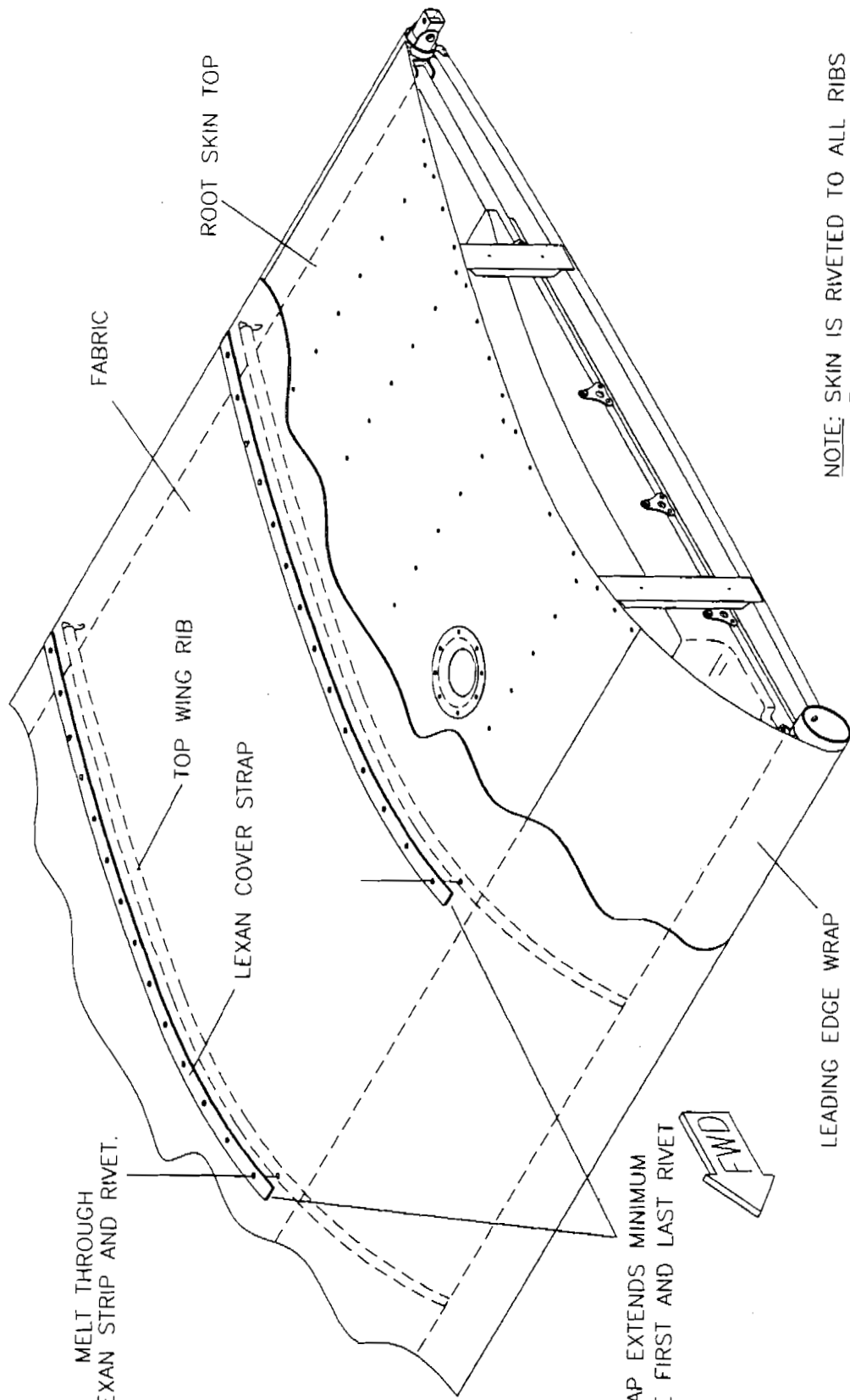
MD4339



- ① 2" PINKED TAPE
  - ② 4" PINKED TAPE
  - ③ 6.5" DIA. ROUND PATCH\*\*
  - ④ UPPER ROOT SKIN SCUPPER\*
  - ⑤ 8" DIA. ROUND PATCH
  - ⑥ INSPECTION RING\*\*
- \* INSTALL SCUPPER POST PRIMING AND PRIOR TO PAINTING
- \*\* INSTALL FOR OPTIONAL STROBES

MD4.338  
REV. B

**RRAN S-7S**  
WING TOP COVERING FIGURE 07-05



MELT THROUGH  
LEXAN STRIP AND RIVET.

TOP WING RIB

LEXAN COVER STRAP

FABRIC

ROOT SKIN TOP

LEXAN COVER STRAP EXTENDS MINIMUM  
OF 1/4" PAST THE FIRST AND LAST RIVET



LEADING EDGE WRAP

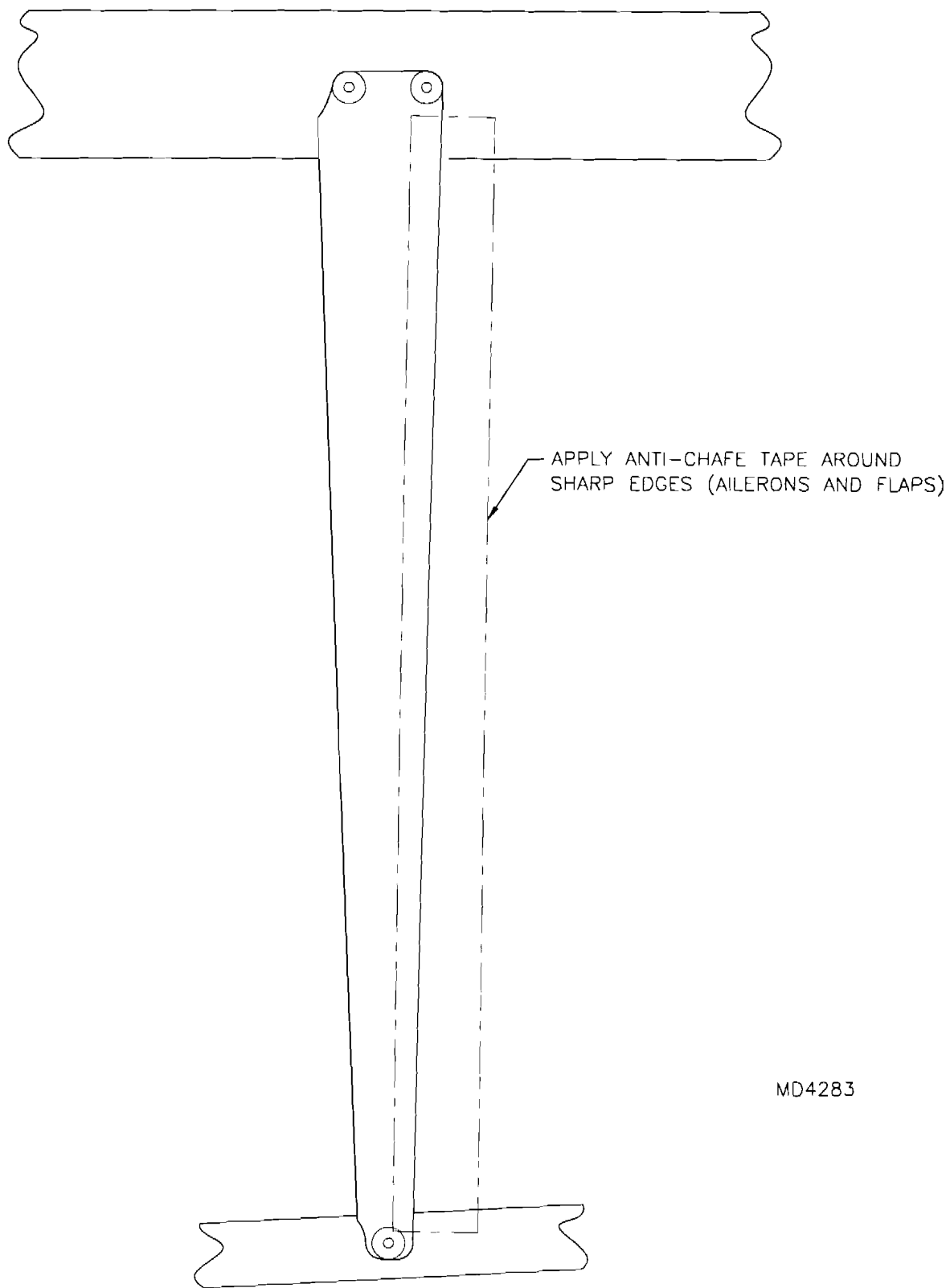
NOTE: SKIN IS RIVETED TO ALL RIBS  
EXCEPT ROOT RIBS AND TIP RIBS

2" PINKED TAPE IS APPLIED AFTER  
RIVETING OVER THE TOP OF ALL  
COVER STRAPS

MD4337

**RRR** S-7S

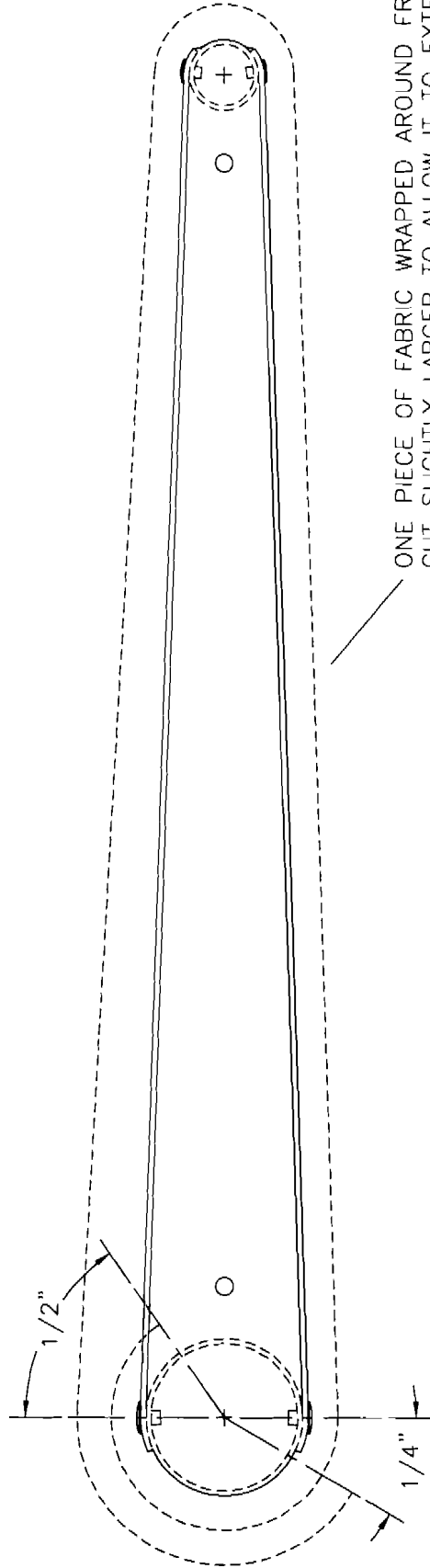
# WING COVERING RIVETING FIGURE 07-06



MD4283

**RAMS S-7S**  
**ANTI-CHAFE TAPE APPLICATION FOR AILERONS AND FLAPS**  
**FIGURE 07-07**

FABRIC EXTENDS TO A MINIMUM OF 1/2" PAST THE CENTERLINE OF THE LEADING EDGE SPAR (NOTCHED FOR RIBS)



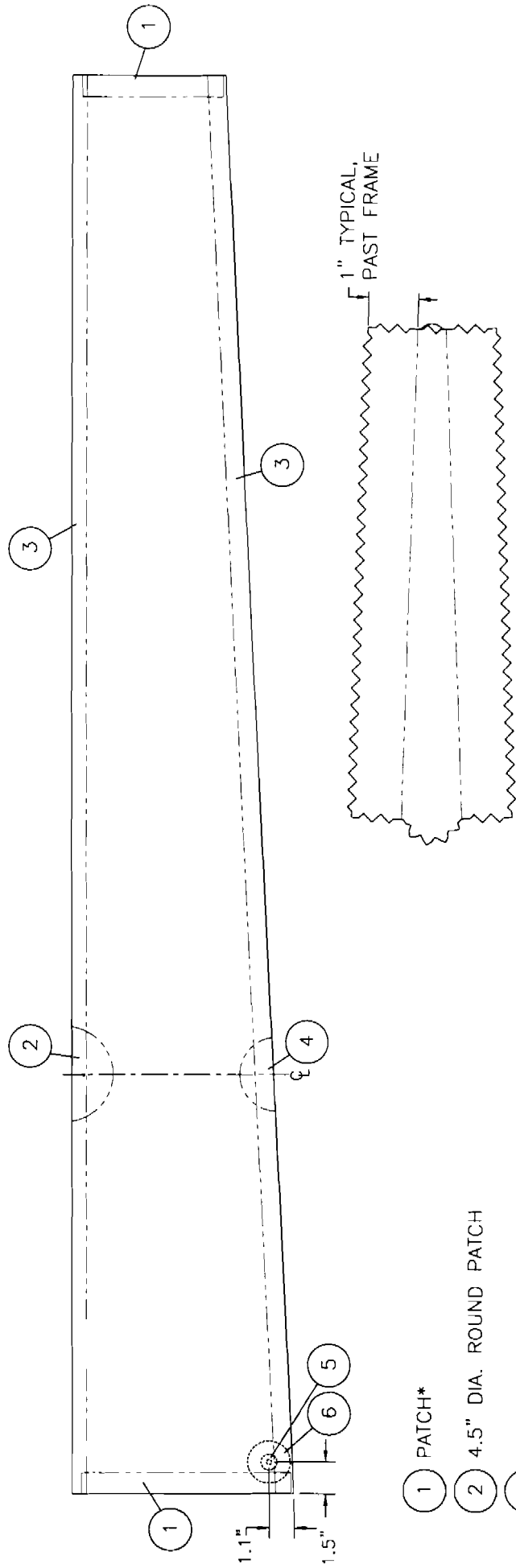
ONE PIECE OF FABRIC WRAPPED AROUND FRAME  
CUT SLIGHTLY LARGER TO ALLOW IT TO EXTEND PAST  
THE ENDS BY APPROXIMATELY 2"

FABRIC STOPS APPROXIMATELY 1/4" BEFORE CENTERLINE OF TUBE (TO ALLOW THE REINFORCEMENT TAPE TO OVERLAP SEAM.)

MD4284

# RRAMES S-7S AILERON AND FLAP COVERING FIGURE 07-08

NOTE: DRAIN GROMMETS LOCATED AT THE LOWER  
INBOARD SIDE OF THE AILERONS AND FLAPS  
MAKE LEFT AND RIGHT



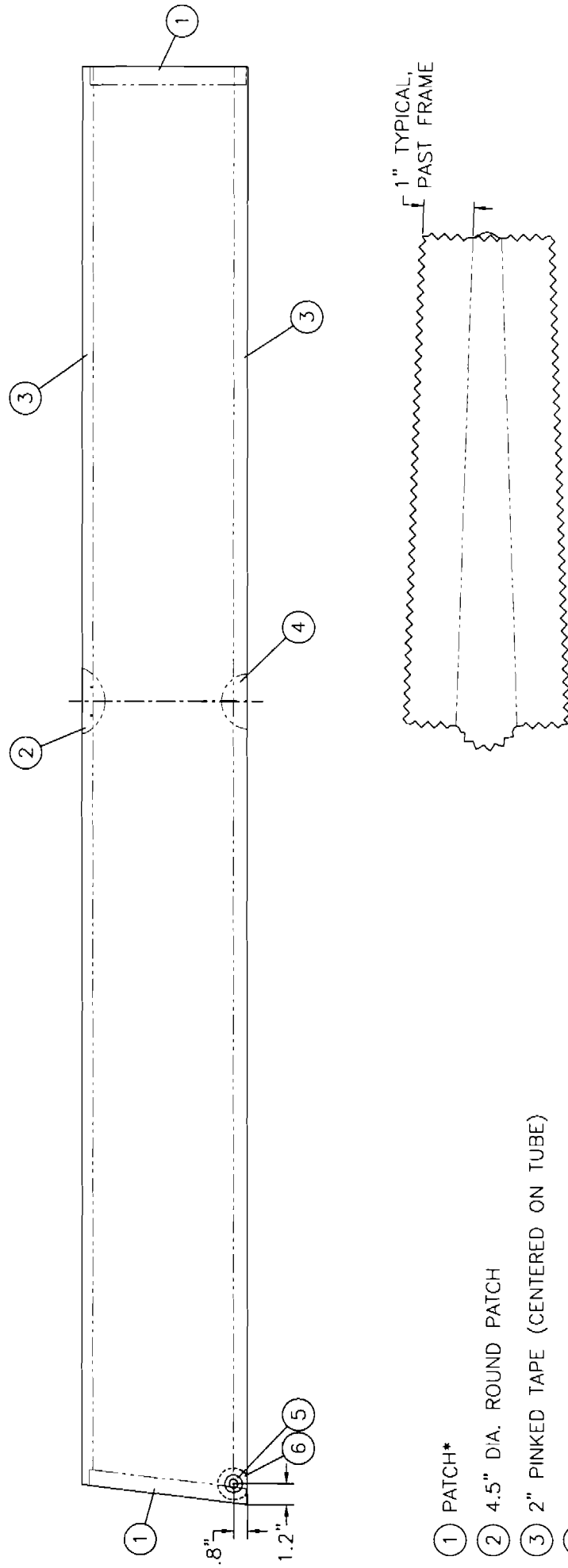
- 1 PATCH\*
- 2 4.5" DIA. ROUND PATCH
- 3 2" PINKED TAPE (CENTERED ON TUBE)
- 4 3.5" DIA. ROUND PATCH
- 5 DRAIN GROMMET
- 6 2" DIA. ROUND PATCH  
(GOES OVER DRAIN GROMMET)

\* TYPICAL END PATCH FOR AILERONS AND FLAPS,  
MAKE 1" LARGER THAN END RIB. CUT WITH PINKED  
SCISSORS.

MD4280

**RRR S-7S**  
**AILERON COVERING FIGURE 07-09**

NOTE: DRAIN GROMMETS LOCATED AT THE LOWER  
 INBOARD SIDE OF THE AILERONS AND FLAPS  
 MAKE LEFT AND RIGHT

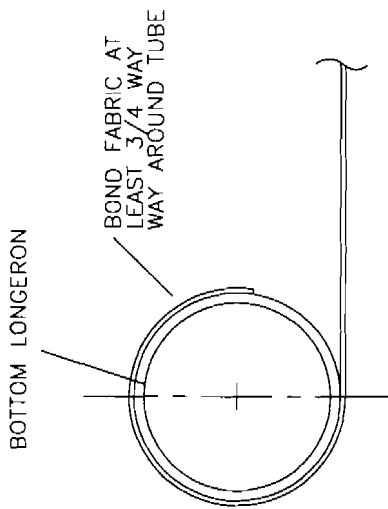


- ① PATCH\*
- ② 4.5" D/A. ROUND PATCH
- ③ 2" PINKED TAPE (CENTERED ON TUBE)
- ④ 3.5" DIA. ROUND PATCH
- ⑤ DRAIN GROMMET
- ⑥ 2" DIA. ROUND PATCH

\* TYPICAL END PATCH FOR AILERONS AND FLAPS,  
 MAKE 1" LARGER THAN END RIB. CUT WITH PINKED  
 SCISSORS.

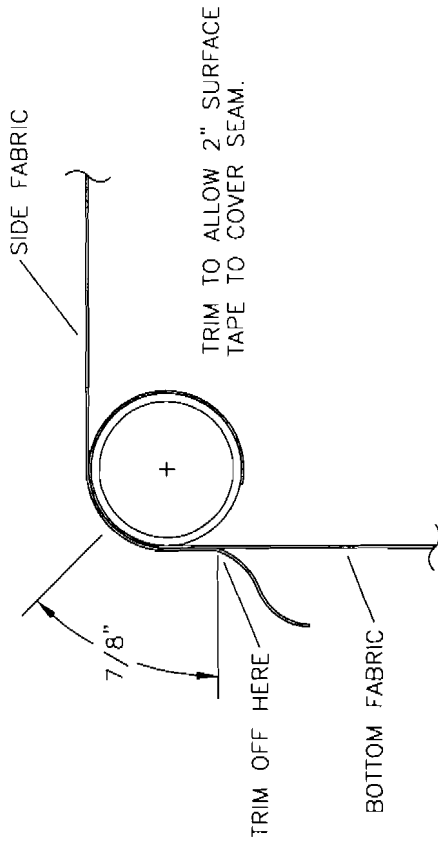
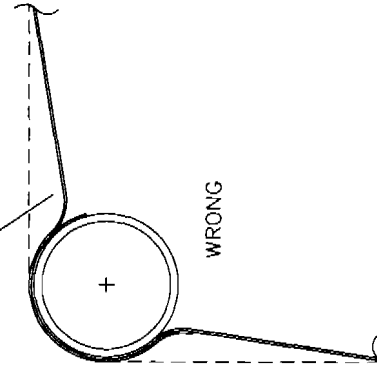
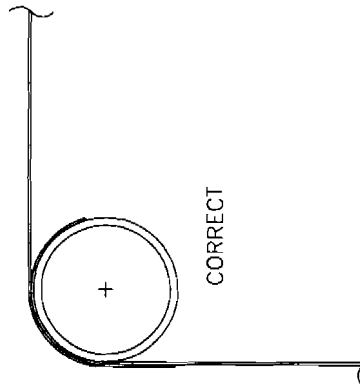
MD4279

**RAMS S-7S COURIER**  
**FLAP COVERING FIGURE 07-10**

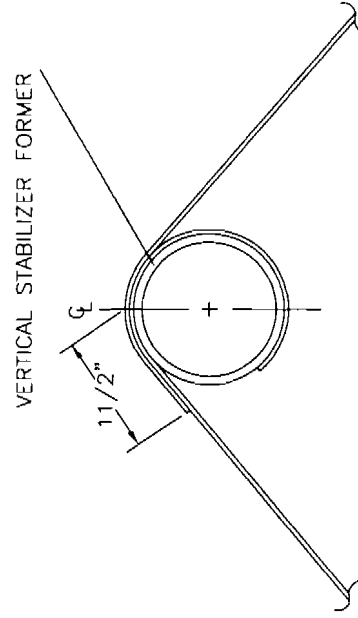


FABRIC ATTACH TO BOTTOM LONGERONS

DIP OR PUCKER AS A RESULT OF FABRIC BEING GLUED TOO FAR AROUND TUBES.



FABRIC OVERLAP (SIDE AND BOTTOM FABRIC)



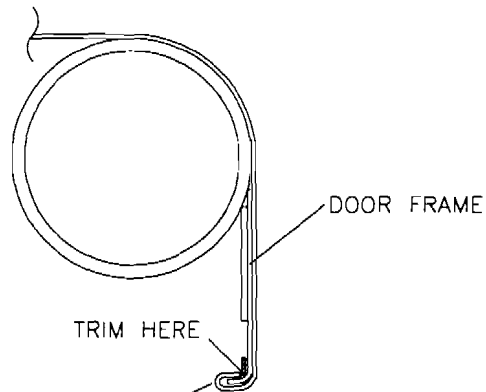
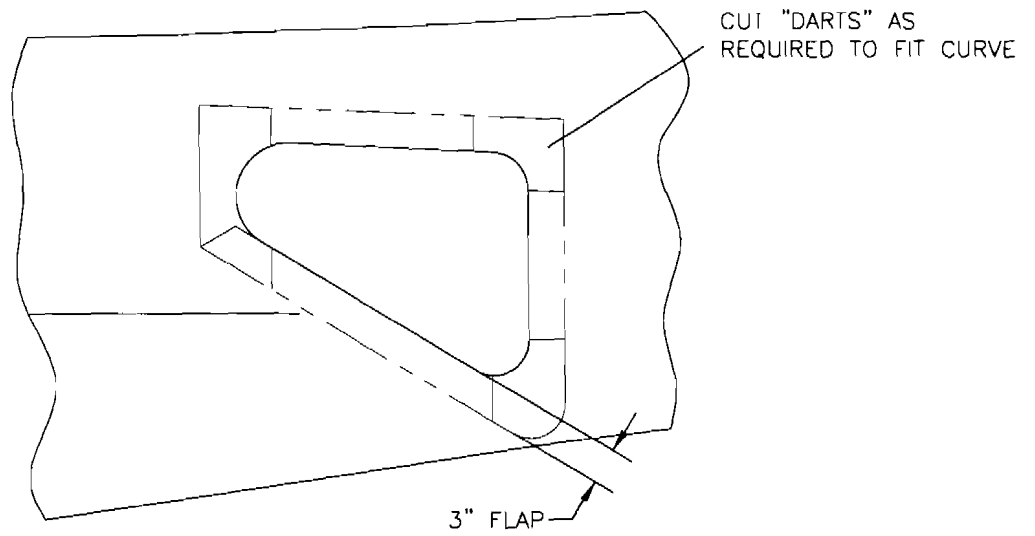
FABRIC OVERLAP (TOP OF FUSELAGE)

GENERAL INFORMATION

**RRANOS S-7S**  
**FUSELAGE COVERING DETAILS**  
**FIGURE 07-11**

MD4334

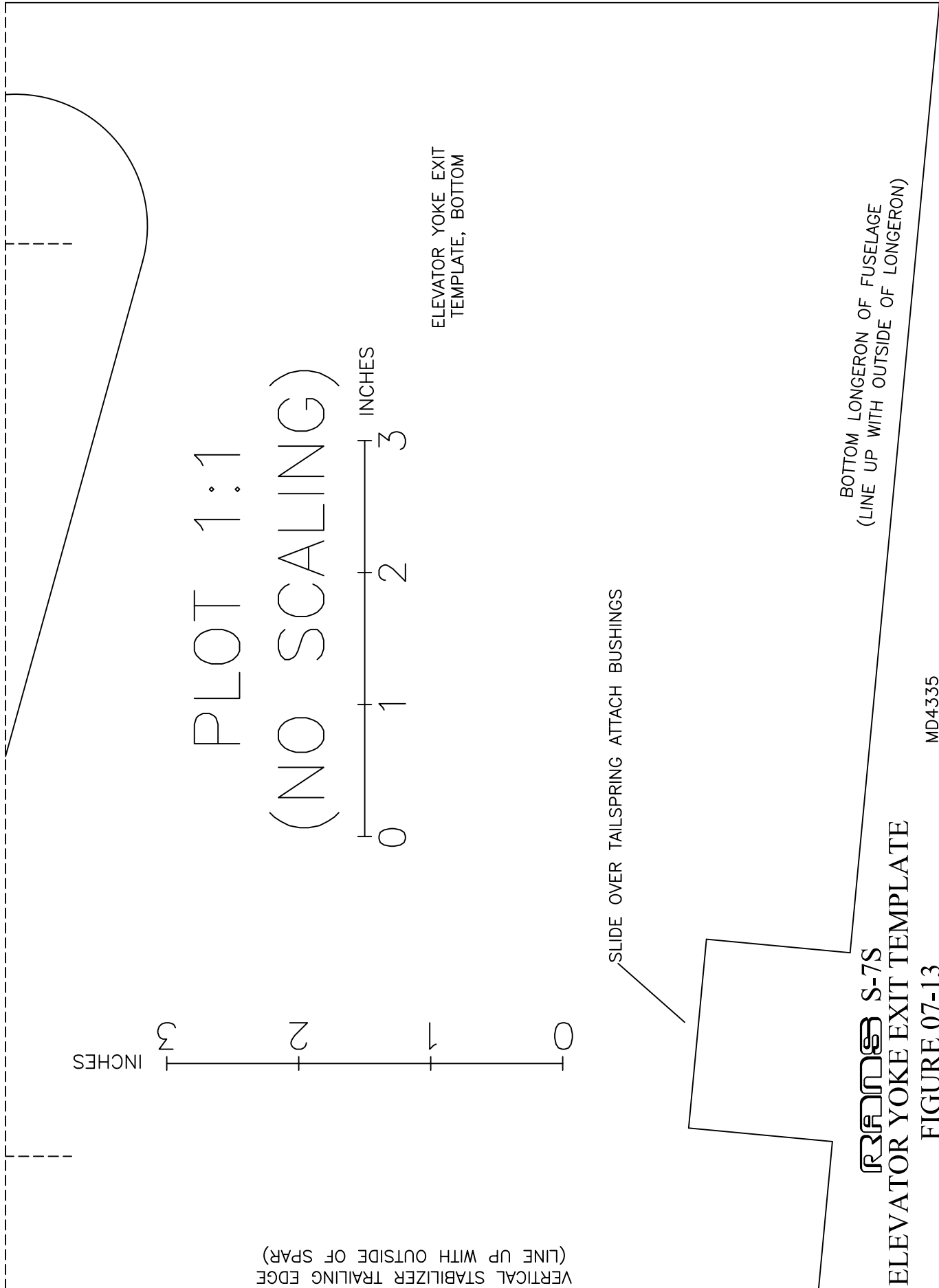




FABRIC WRAPS AROUND  
FLANGE AND GLUES TO  
BACK SIDE. TRIM OFF  
EXCESS WITH UTILITY  
KNIFE BLADE.

MD4333

**RAMS S-7S**  
**FUSELAGE COVERING DETAIL -**  
**BATTERY ACCESS DOOR FIGURE 07-12**



VERTICAL STABILIZER TRAILING EDGE  
(LINE UP WITH OUTSIDE OF SPAR)

PLOT 1:1  
(NO SCALING)

0 1 2 3 INCHES

ELEVATOR YOKE EXIT  
TEMPLATE, BOTTOM

SLIDE OVER TAILSPRING ATTACH BUSHINGS

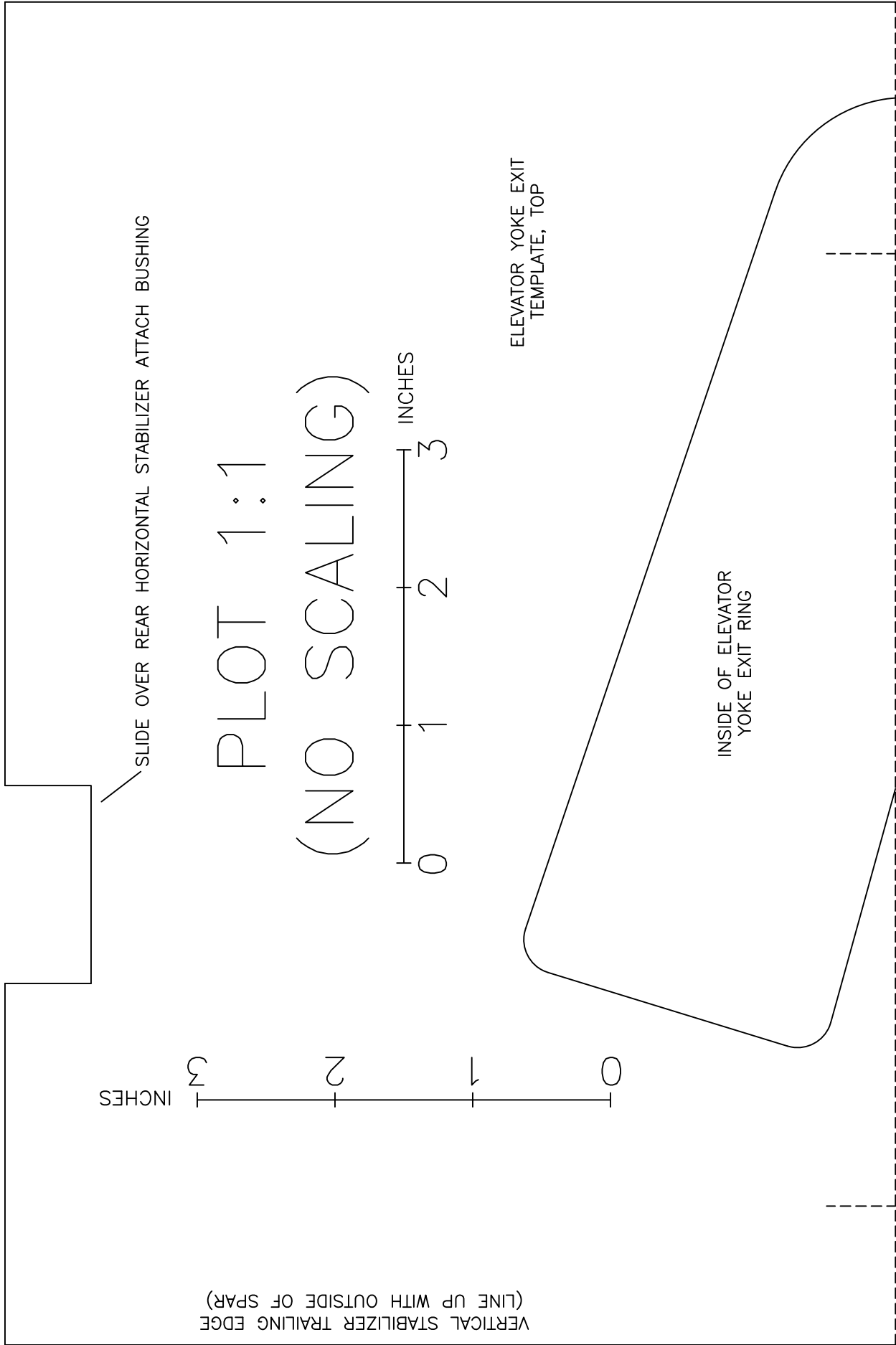
BOTTOM LONGERON OF FUSELAGE  
(LINE UP WITH OUTSIDE OF LONGERON)

R3A008 S-7S

ELEVATOR YOKE EXIT TEMPLATE

FIGURE 07-13

MD4335



VERTICAL STABILIZER TRAILING EDGE  
(LINE UP WITH OUTSIDE OF SPAR)

INCHES  
3  
2  
1  
0

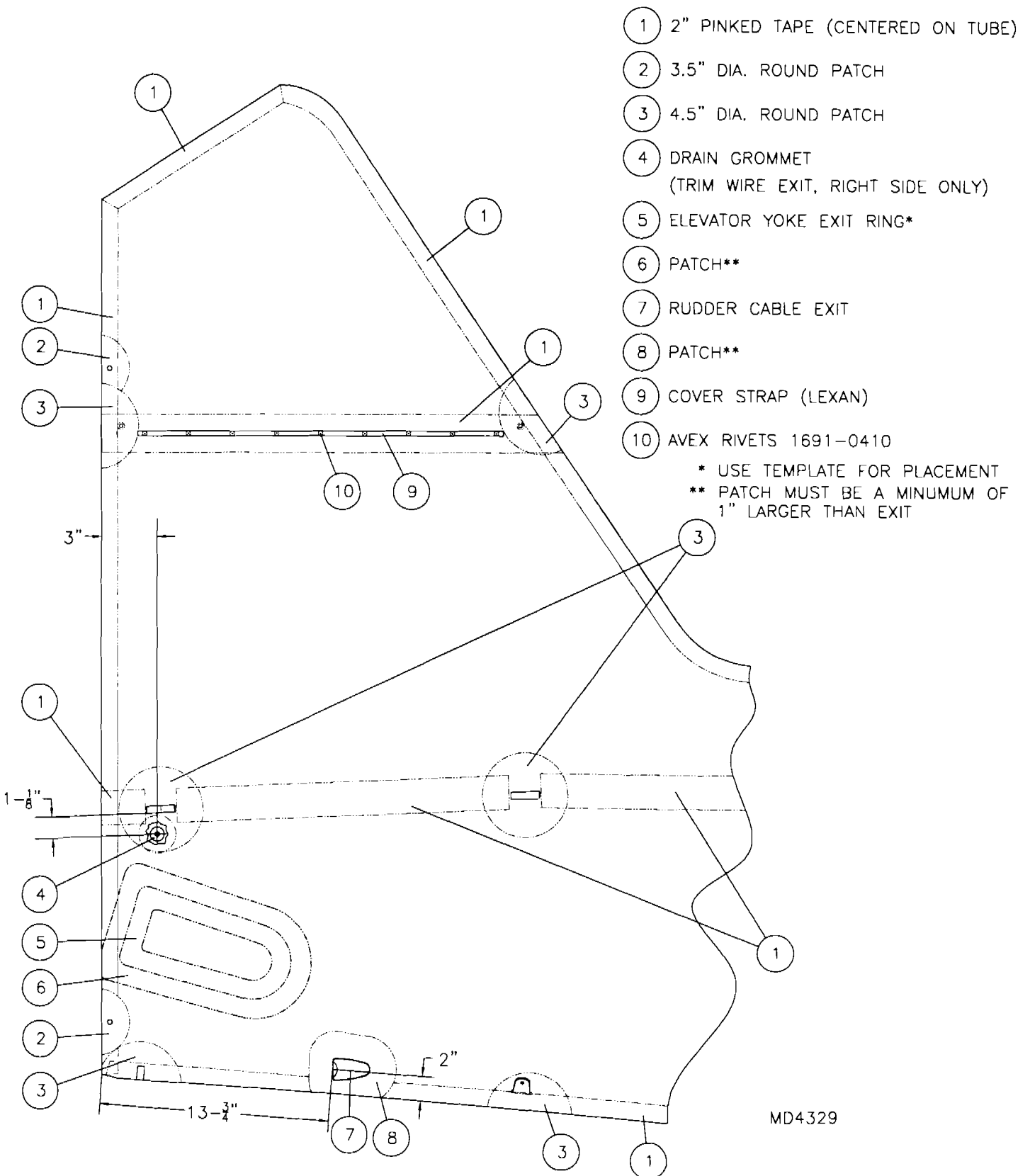
PLOT 1:1  
(NO SCALING)

0 1 2 3  
INCHES

SLIDE OVER REAR HORIZONTAL STABILIZER ATTACH BUSHING

INSIDE OF ELEVATOR  
YOKE EXIT RING

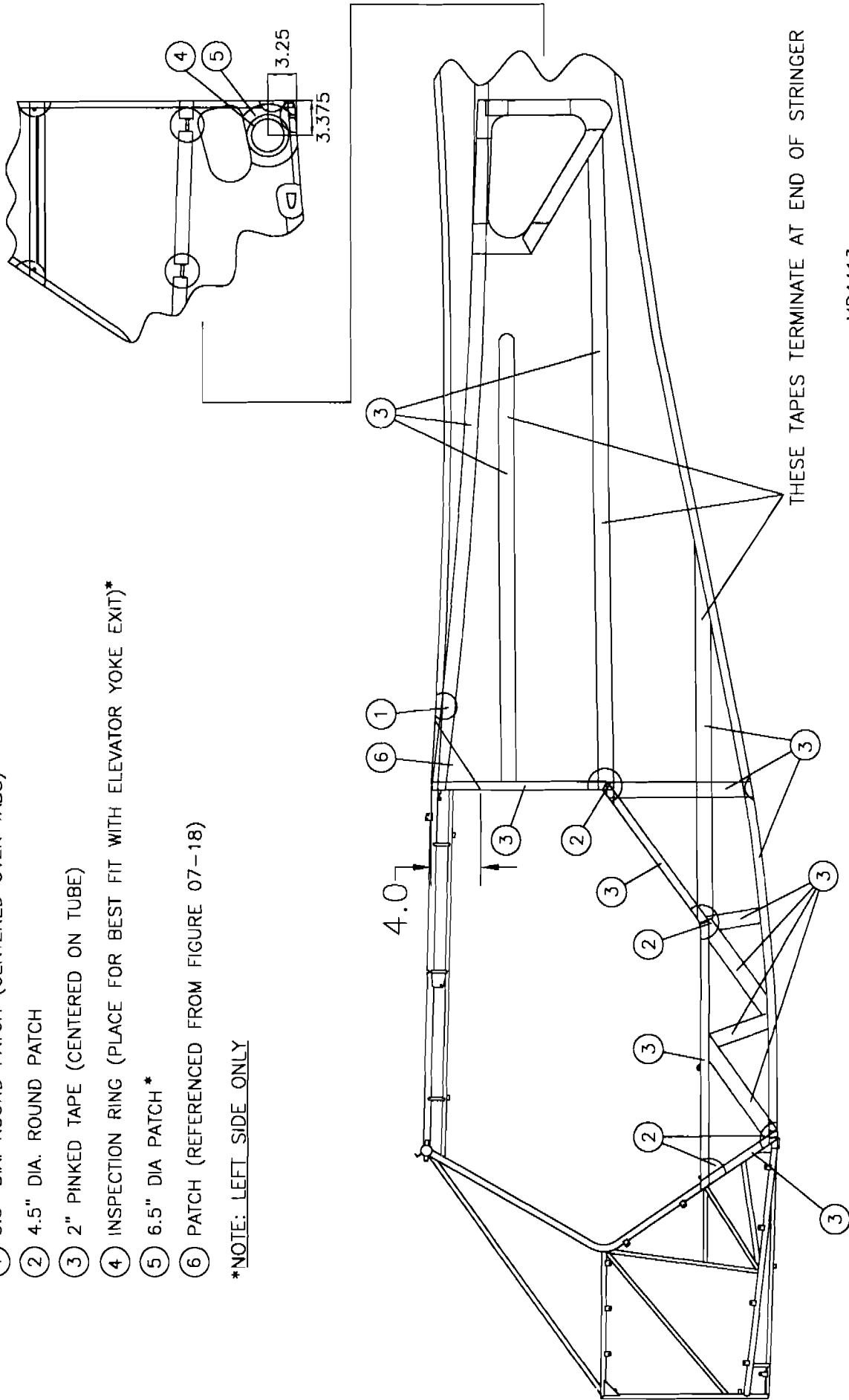
ELEVATOR YOKE EXIT  
TEMPLATE, TOP



**RANS S-7S**  
**VERTICAL STABILIZER AND REAR**  
**FUSELAGE COVERING FIGURE 07-15**

- ① 3.5" DIA. ROUND PATCH (CENTERED OVER TABS)
- ② 4.5" DIA. ROUND PATCH
- ③ 2" PINKED TAPE (CENTERED ON TUBE)
- ④ INSPECTION RING (PLACE FOR BEST FIT WITH ELEVATOR YOKE EXIT)\*
- ⑤ 6.5" DIA PATCH\*
- ⑥ PATCH (REFERENCED FROM FIGURE 07-18)

\*NOTE: LEFT SIDE ONLY



MD4413

**RRR** S-7S

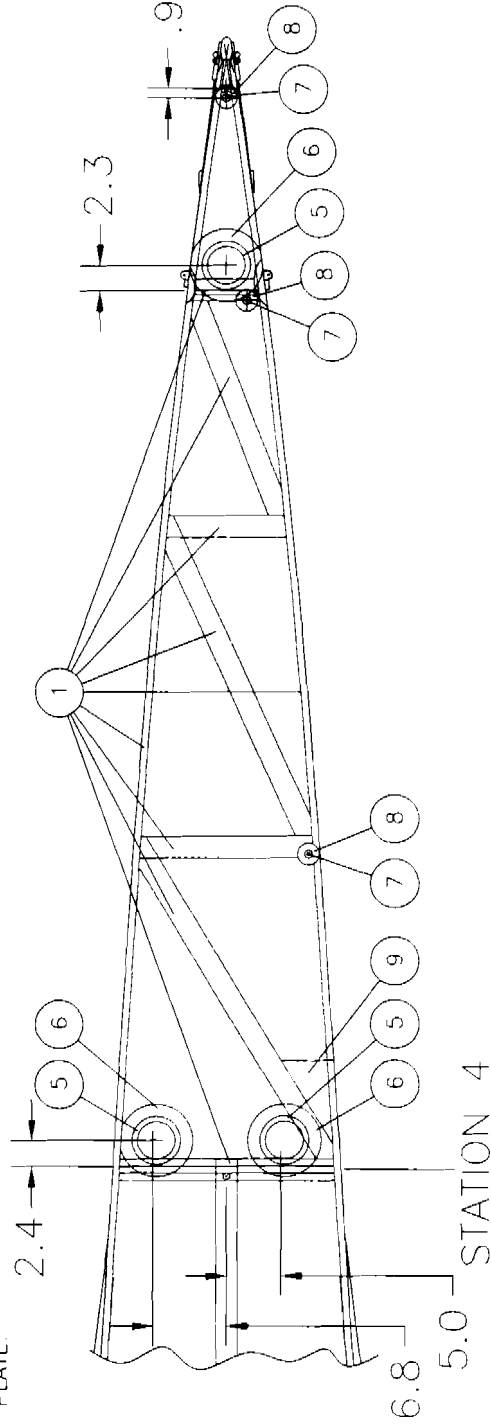
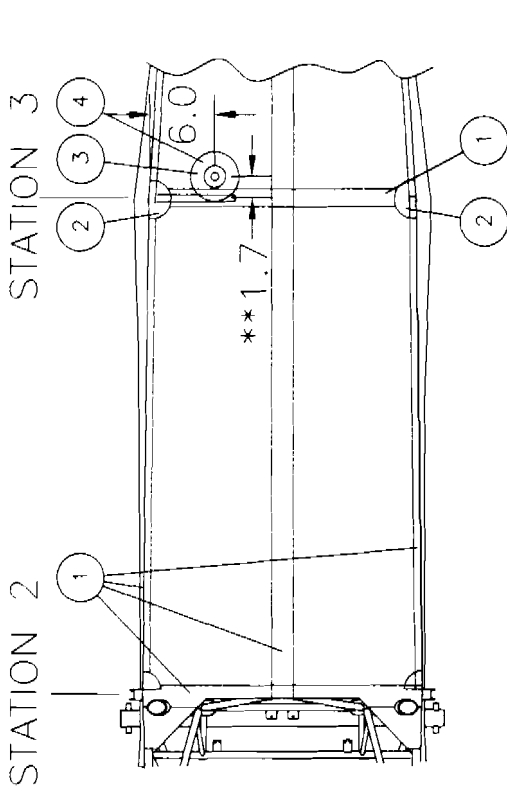
**FUSELAGE SIDE COVERING FIGURE 07-16**

- 1 2" PINKED TAPE (CENTERED ON TUBE)
- 2 3.5" DIA. ROUND PATCH
- 3 2" DIA. RING LEXAN
- 4 4.5" DIA. ROUND PATCH
- 5 INSPECTION RING
- 6 6.5" DIA. ROUND PATCH
- 7 DRAIN GROMMET\*
- 8 2" DIA. ROUND PATCH
- 9 PATCH (CENTERED ON COMM ANTENNA MOUNT PLATE)\*\*\*

\*NOTE: BURN .13 DRAIN HOLE AFTER PAINTING

\*\*FROM CENTERLINE OF TUBE.

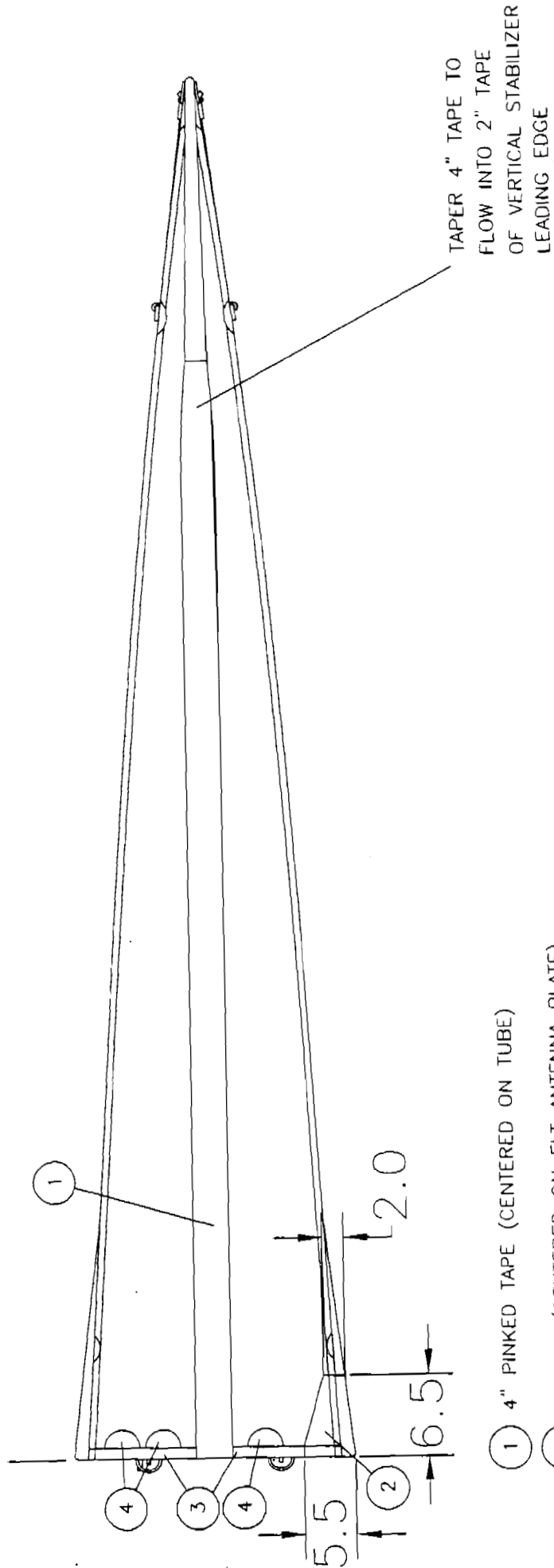
\*\*\*PATCH MUST BE A MIN. OF 1" LARGER THAN MOUNT PLATE.



**RAMMS S-7S**  
**FUSELAGE BOTTOM COVERING**  
**FIGURE 07-17**

MD4332

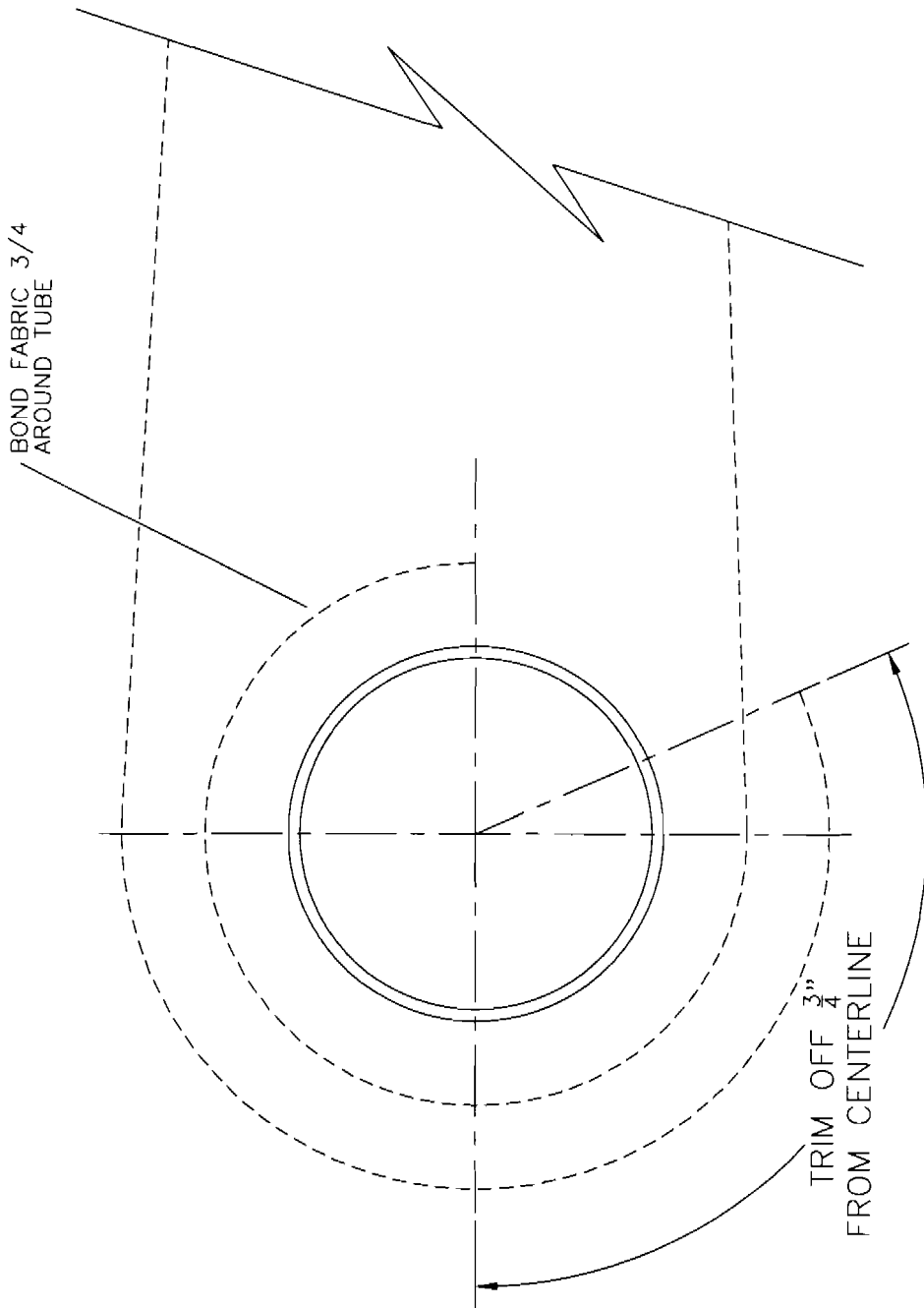
STATION 3



- ① 4" PINKED TAPE (CENTERED ON TUBE)
- ② PATCH (CENTERED ON ELT ANTENNA PLATE)
- ③ 2" PINKED TAPE (CENTERED ON TUBE)
- ④ 3.5" DIA. ROUND PATCH (CENTERED OVER TABS)

MD4327

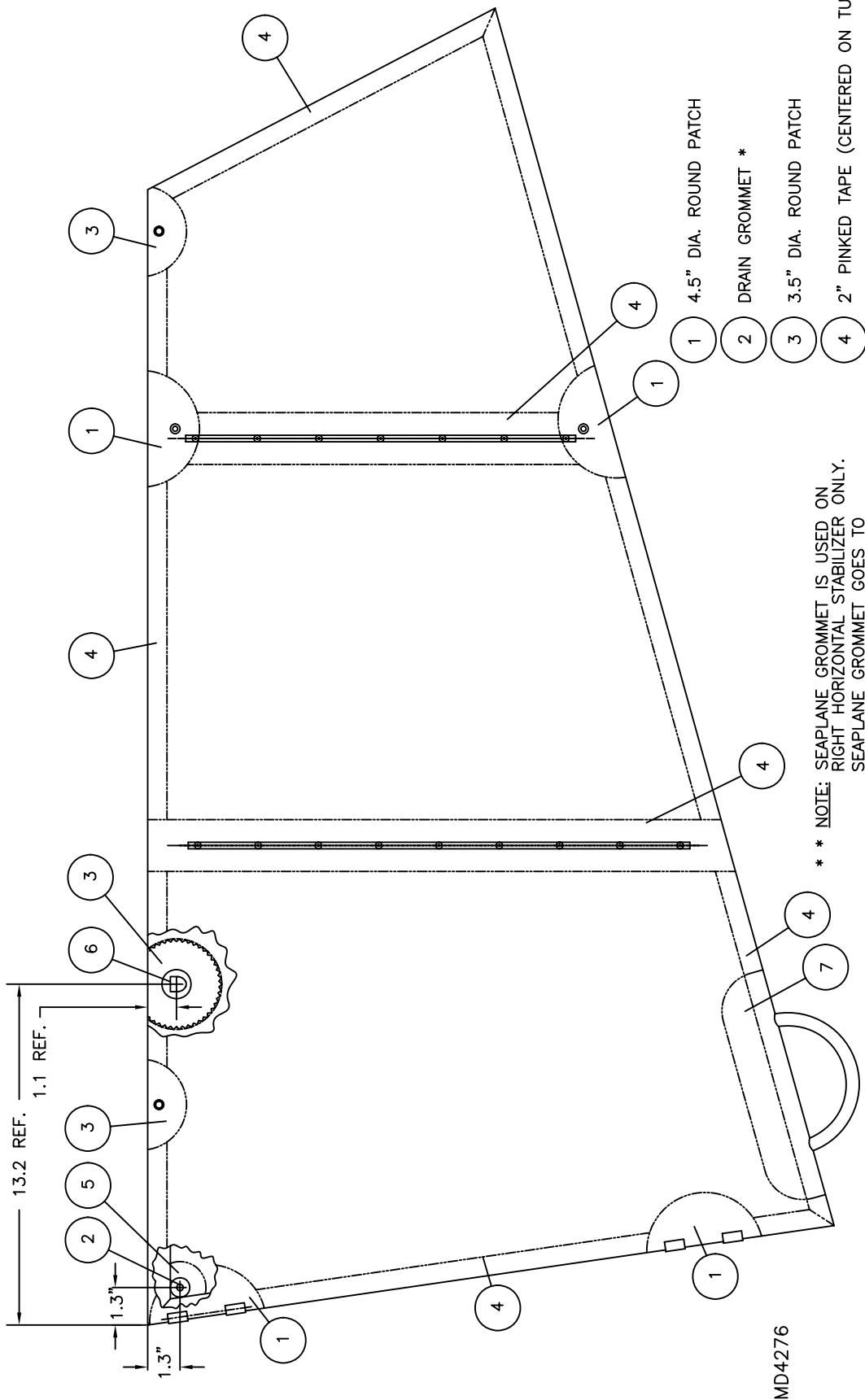
**RRAN S-7S**  
**FUSELAGE TOP COVERING 07-18**



**RRF S-7S**  
**FABRIC OVERLAP TYPICAL FOR**  
**TAIL SURFACES FIGURE 07-19**

MD4326





MD4276

- 1 4.5" DIA. ROUND PATCH
- 2 DRAIN GROMMET \*
- 3 3.5" DIA. ROUND PATCH
- 4 2" PINKED TAPE (CENTERED ON TUBE)
- 5 2" DIA. ROUND PATCH
- 6 SEAPLANE GROMMET\* \*(SEE NOTE)
- 7 9" X 4" PATCH

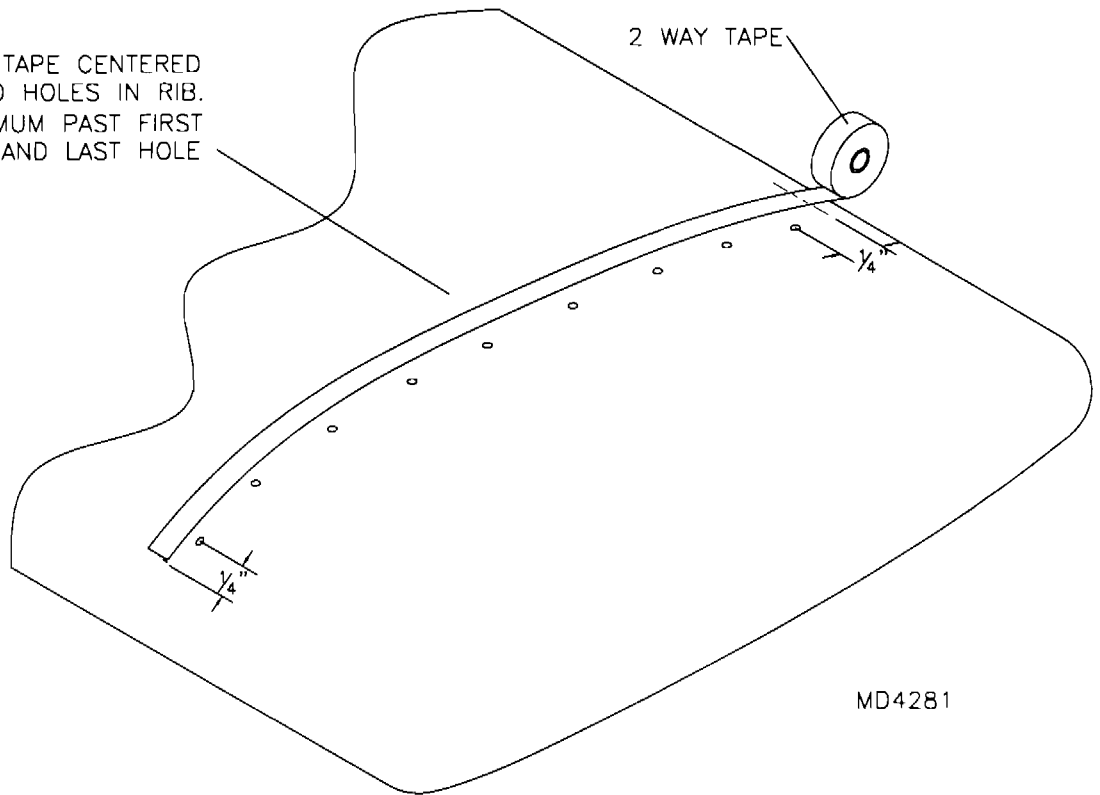
\* NOTE: BURN 0.13" HOLE AFTER PAINT.

\*\* NOTE: SEAPLANE GROMMET IS USED ON RIGHT HORIZONTAL STABILIZER ONLY. SEAPLANE GROMMET GOES TO BOTTOM, INBOARD, REAR SIDE. BURN HOLE THROUGH GROMMET AFTER PAINT.

**RAVEN S-7S COURIER**  
**HORIZONTAL STABILIZER COVERING**  
**FIGURE 07-20**

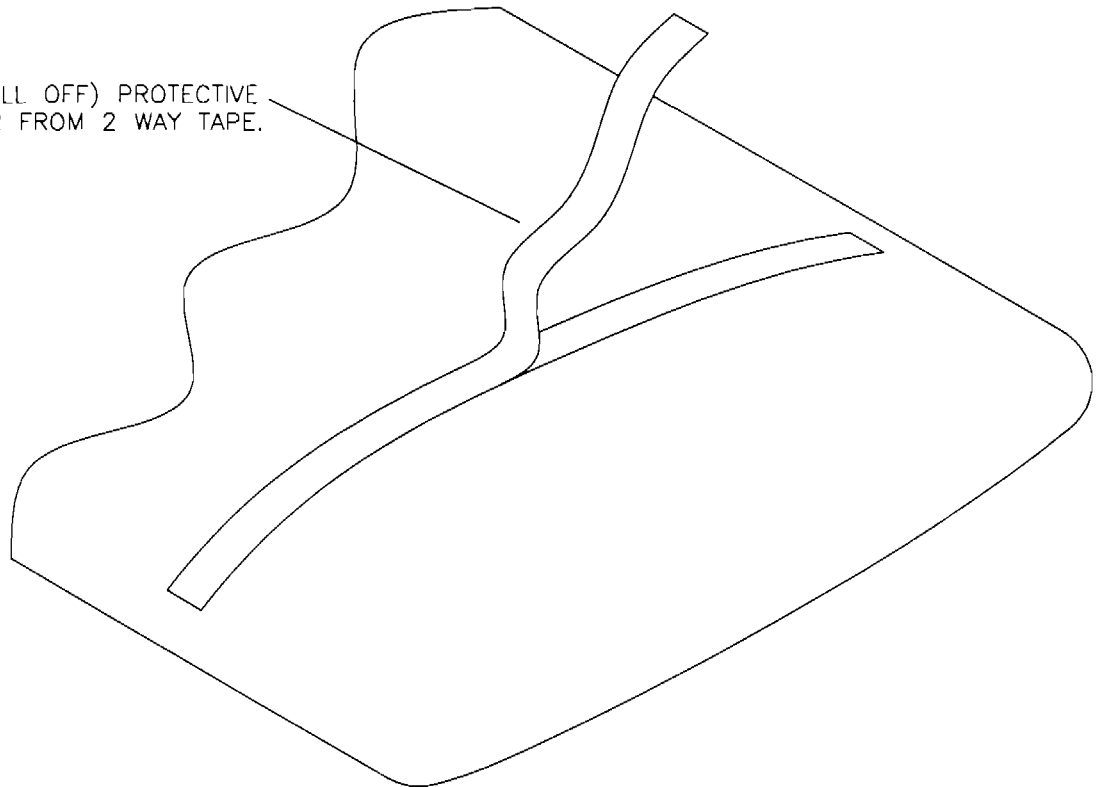
**STEP 1:**

APPLY 2 WAY TAPE CENTERED ON PREDRILLED HOLES IN RIB. EXTEND  $\frac{1}{4}$ " MINIMUM PAST FIRST AND LAST HOLE



**STEP 2:**

REMOVE (PULL OFF) PROTECTIVE PAPER FROM 2 WAY TAPE.

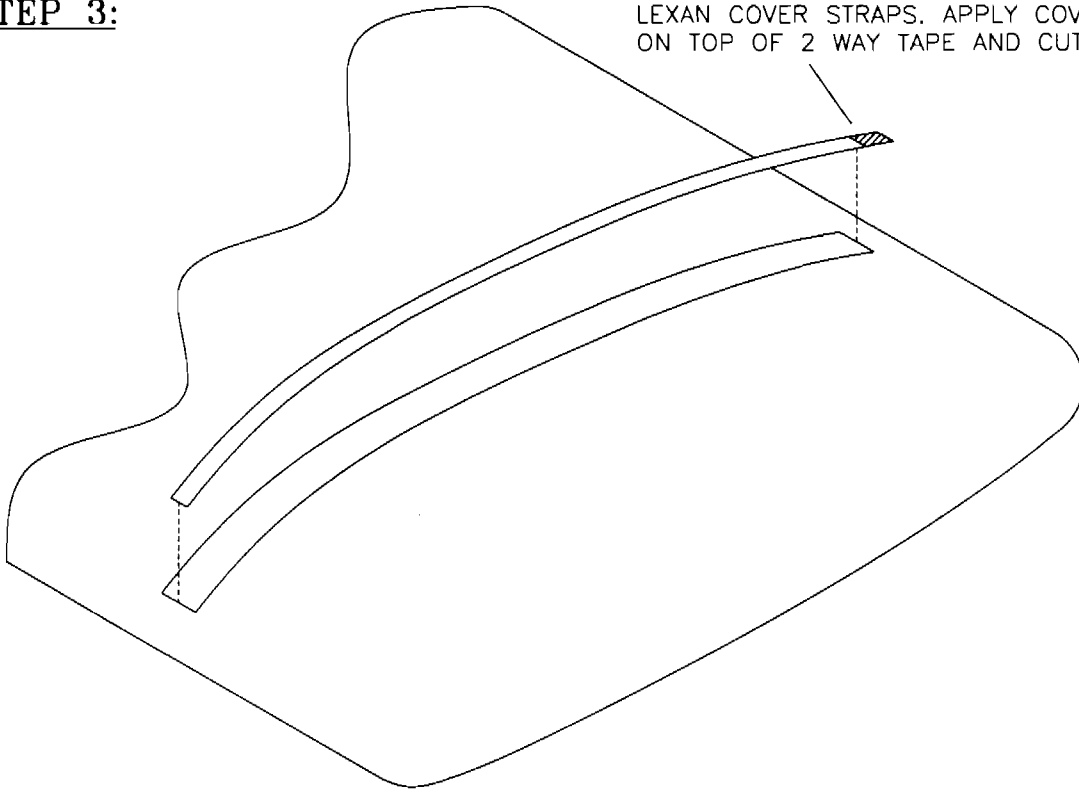


MD4281

**RANS S-7S**  
**FABRIC RIVETING FIGURE 07-21-A**

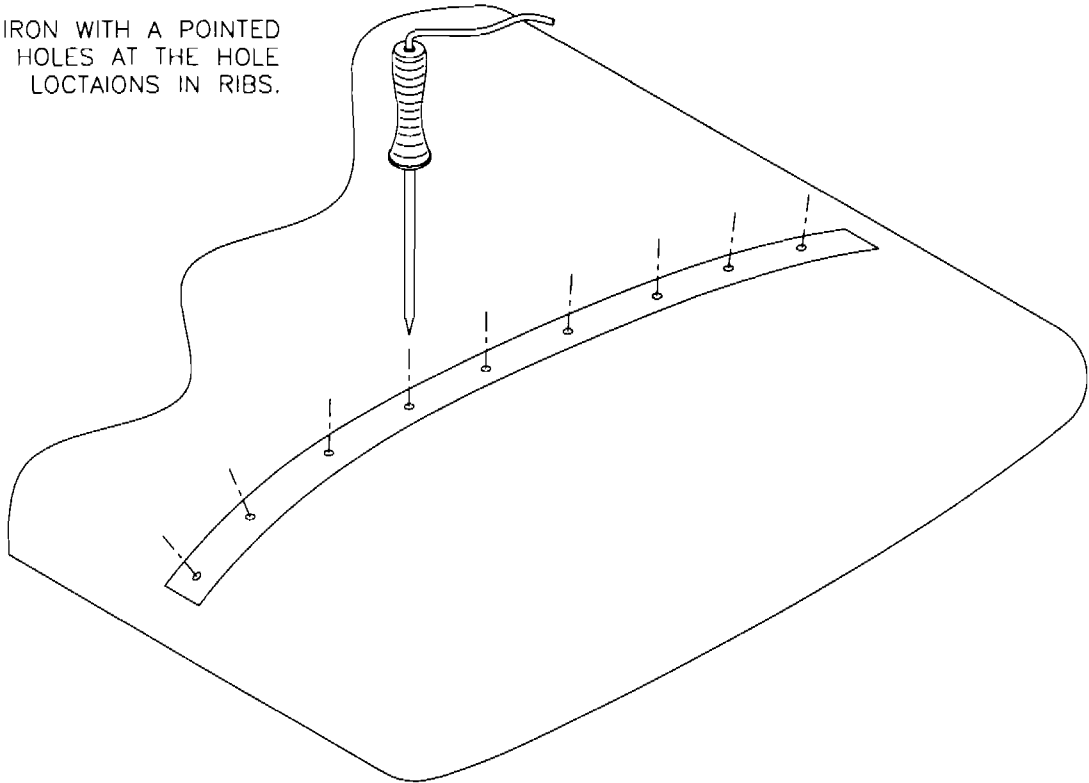
**STEP 3:**

REMOVE PROTECTIVE PLASTIC FROM BOTH SIDES OF LEXAN COVER STRAPS. APPLY COVER STRAP CENTERED ON TOP OF 2 WAY TAPE AND CUT OFF EXCESS.



**STEP 4:**

USE A HOT IRON WITH A POINTED TIP TO BURN HOLES AT THE HOLE LOCATIONS IN RIBS.

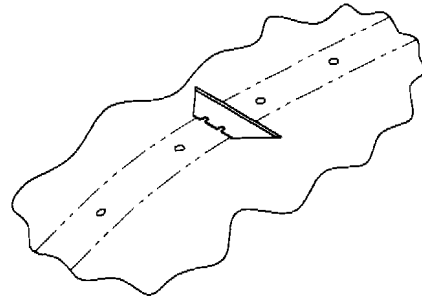


MD4281

**RANS S-7S  
FABRIC RIVETING FIGURE 07-21-B**

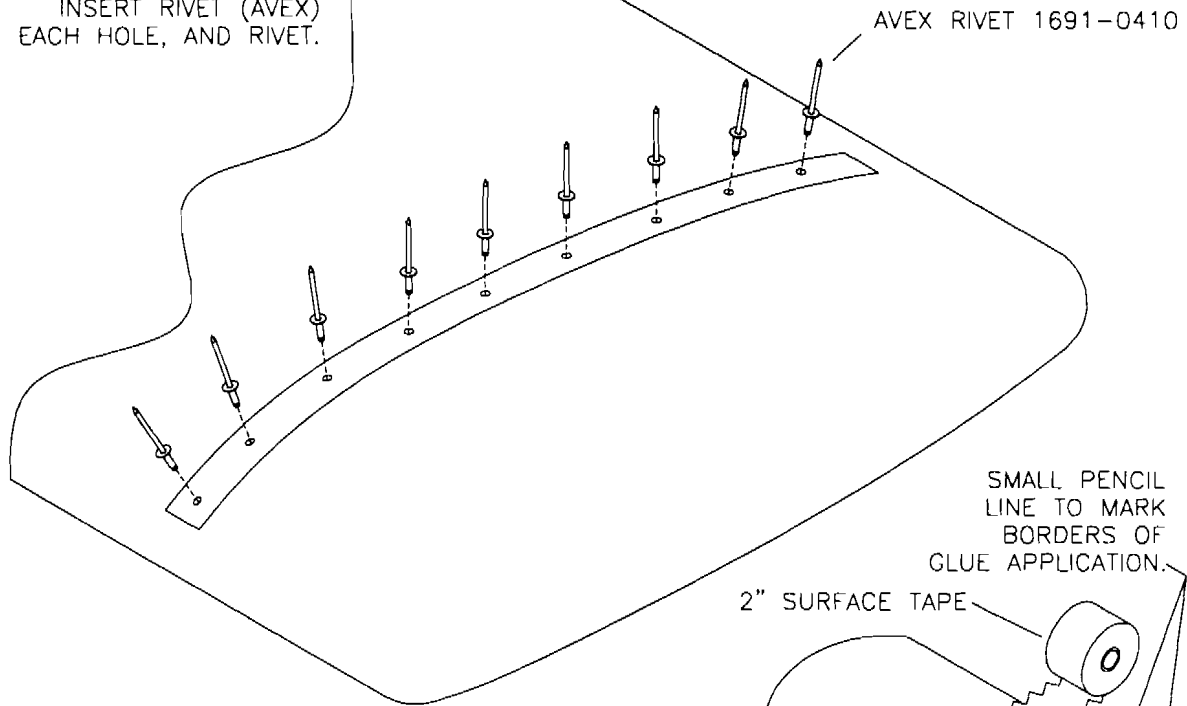
**STEP 5:**

USE A SHARP BLADE TO CUT OFF MELTED BUILD UP ON TOP OF LEXAN STRAP.



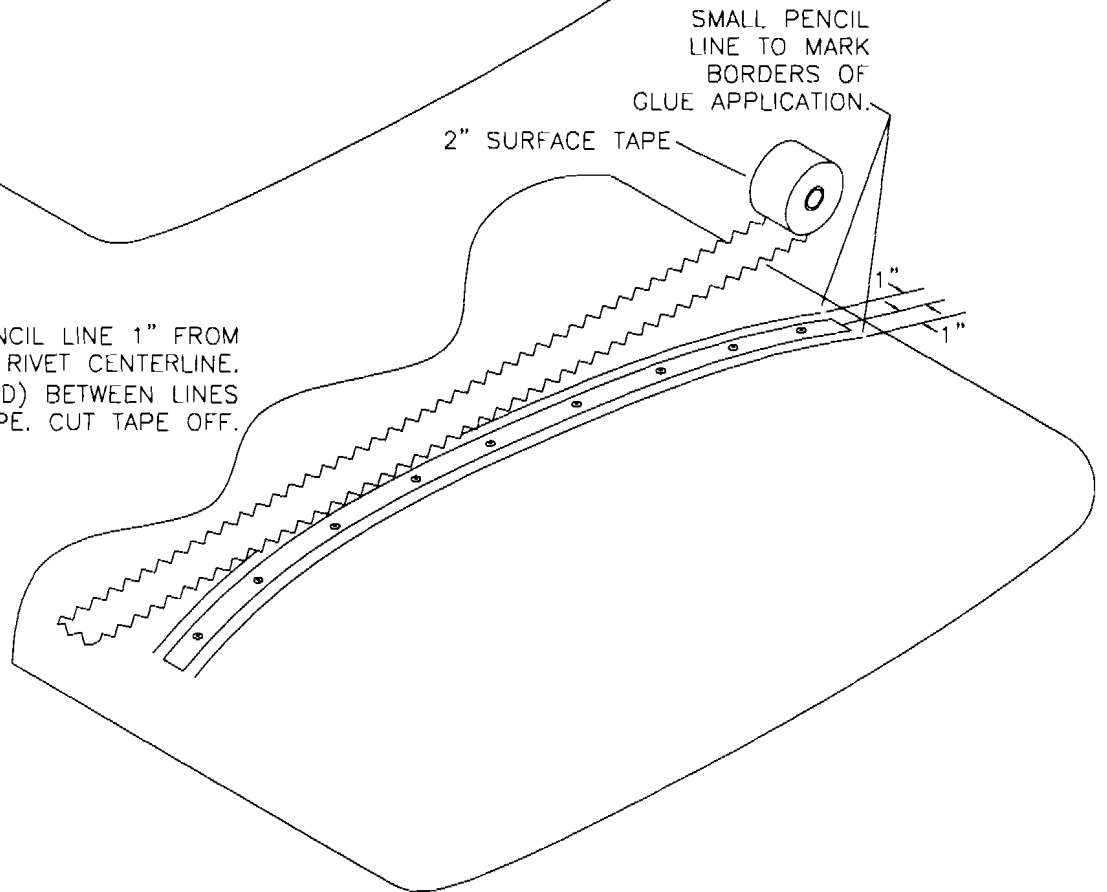
**STEP 6:**

INSERT RIVET (AVEX) IN EACH HOLE, AND RIVET.



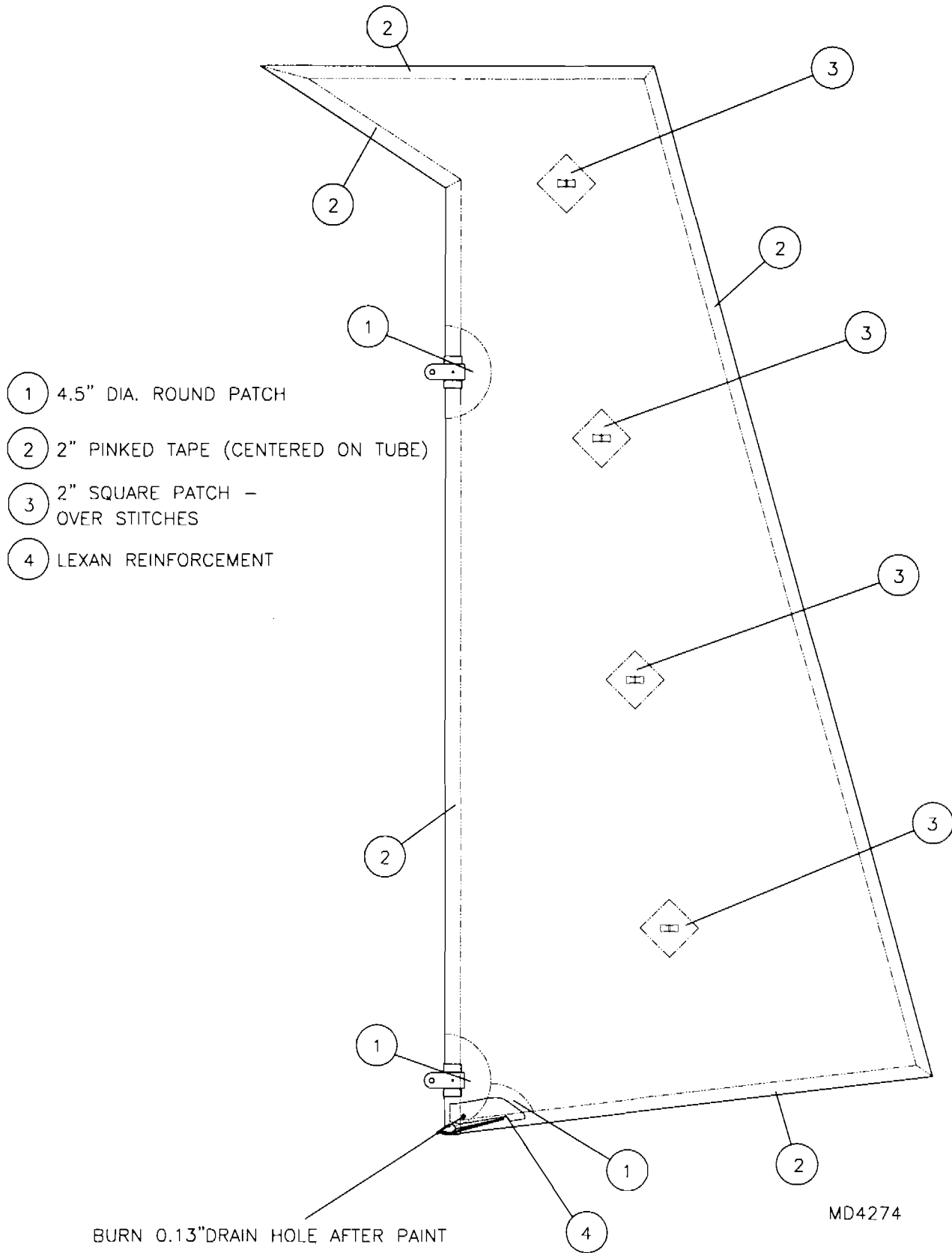
**STEP 7:**

DRAW SMALL PENCIL LINE 1" FROM EACH SIDE OF THE RIVET CENTERLINE. APPLY GLUE (THINNED) BETWEEN LINES AND APPLY TAPE. CUT TAPE OFF.

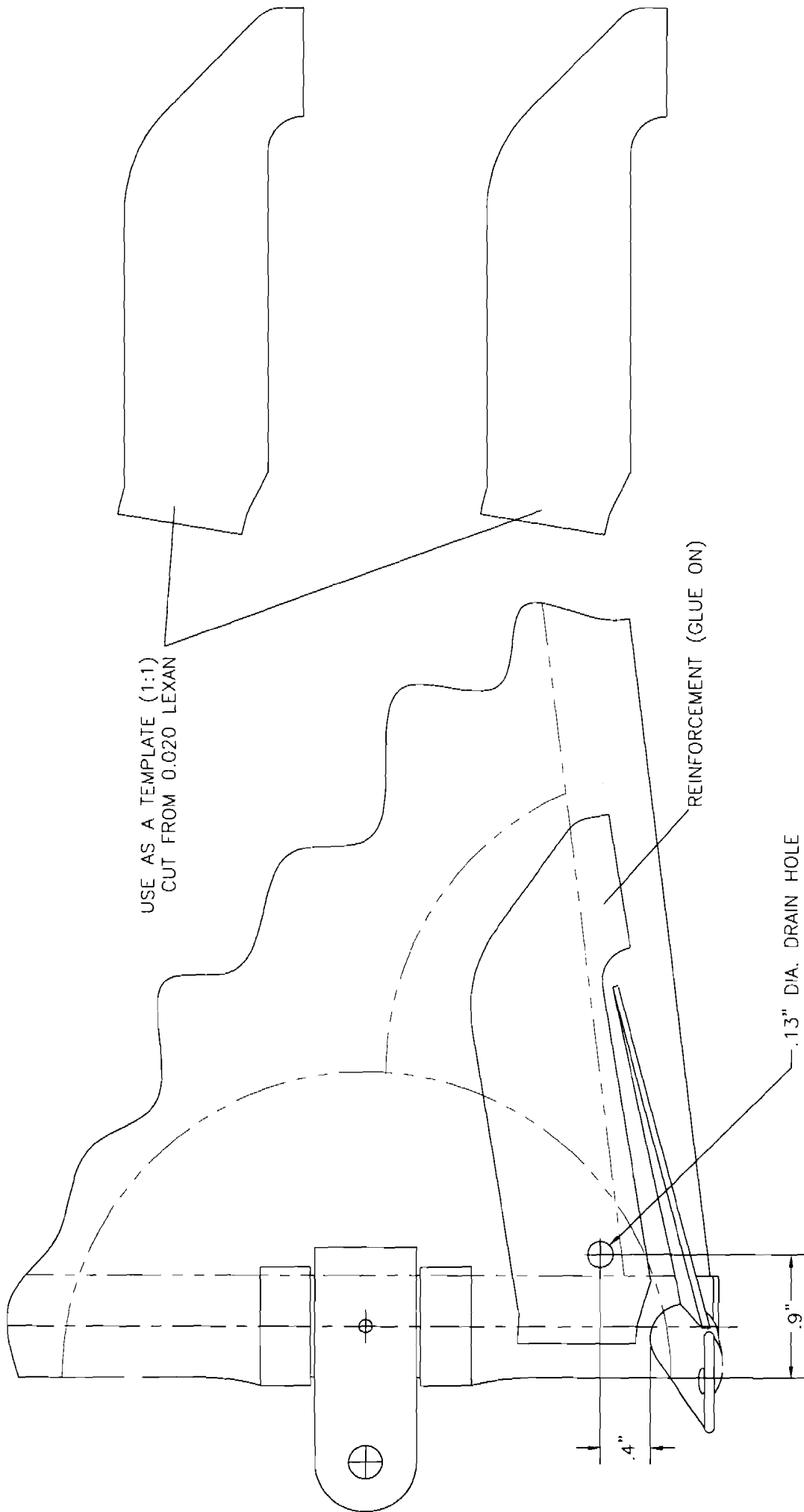


MD4281

**RANS S-7S**  
**FABRIC RIVETING FIGURE 07-21-C**



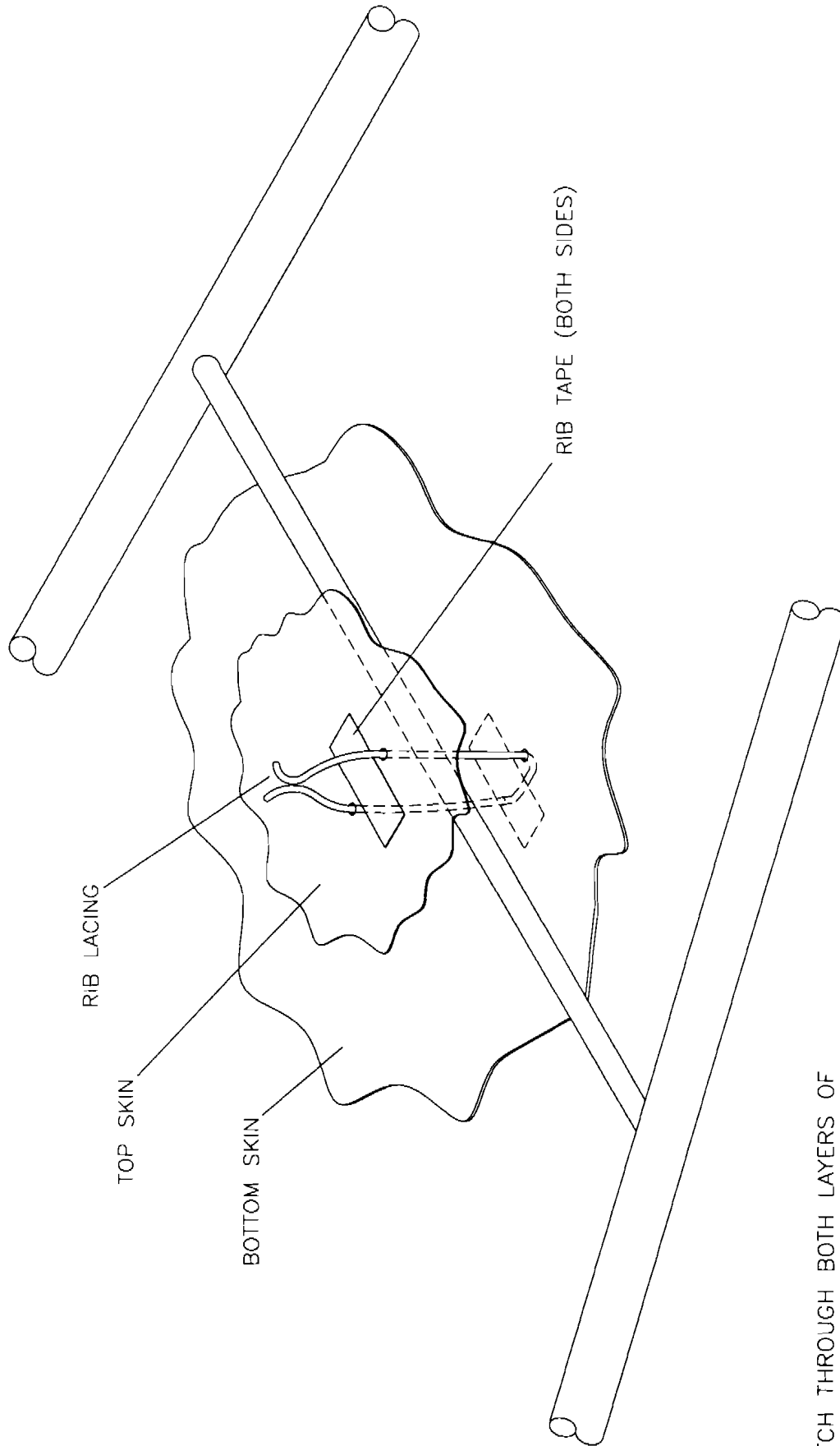
**RAMS S-7S**  
**RUDDER COVERING FIGURE 07-22**



MD4275

**RAMS** S-7S

**RUDDER - FABRIC REINFORCEMENT FIGURE 07-23**



STITCH THROUGH BOTH LAYERS OF FABRIC COMPLETELY AROUND TUBE. TIE A KNOT AND ROTATE THE KNOT TO INTERIOR SIDE. PLACE A DIAMOND PATCH OVER STITCH ON EACH SIDE.

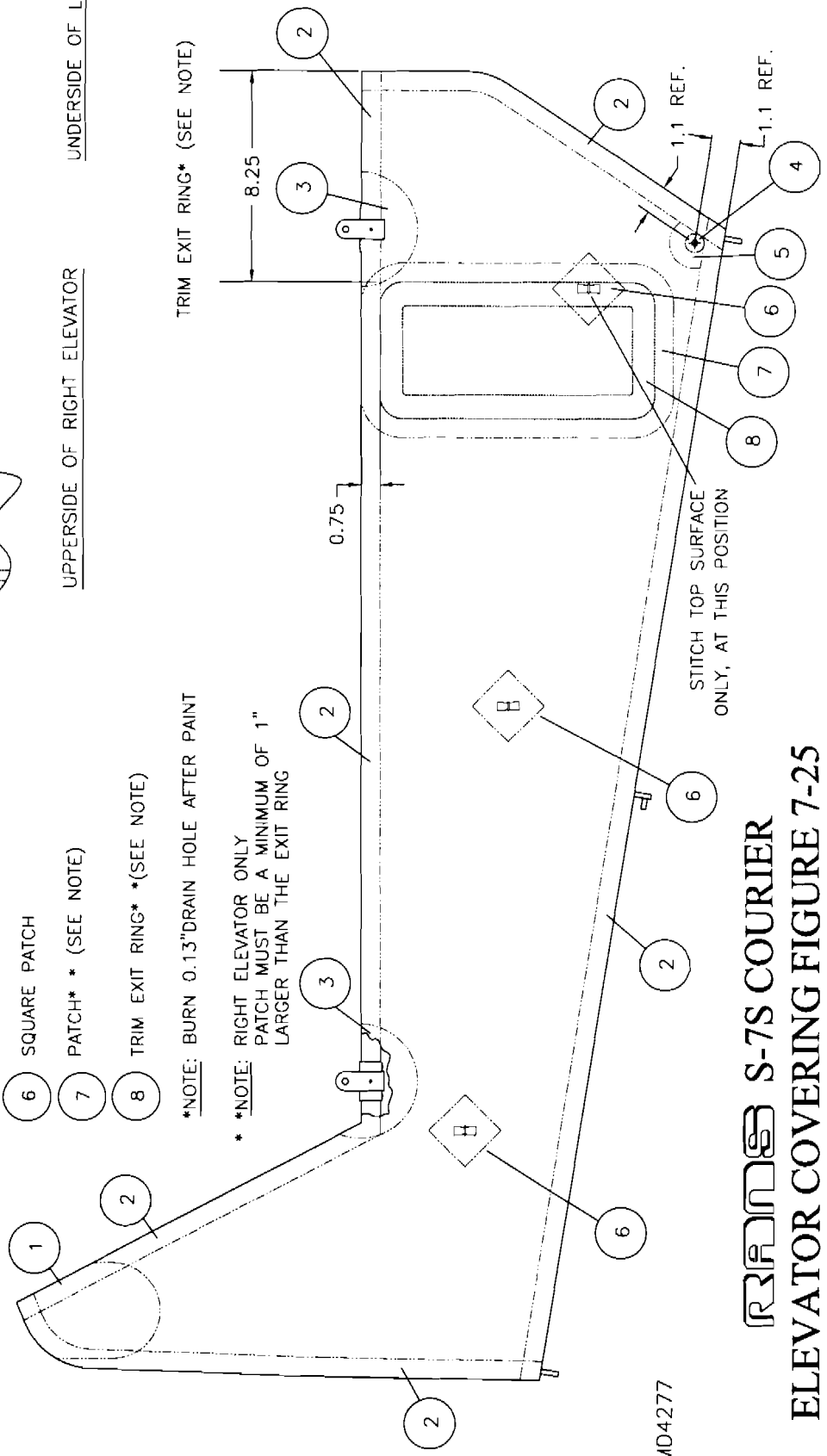
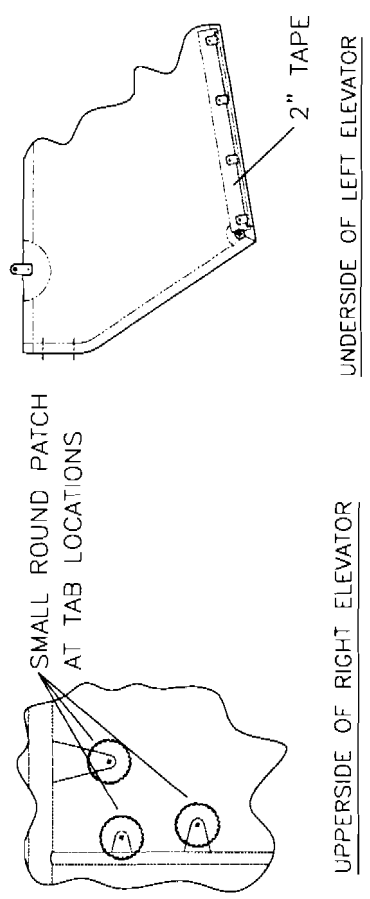
MD4273

**RRAMES S-7S COURIER**  
**ELEVATOR AND RUDDER STITCHING FIGURE 07-24**

- 1 PATCH TO COVER INTERNAL BALANCE WEIGHT (BOTTOM OF EACH ELEVATOR)
- 2 2" PINKED TAPE (CENTERED ON TUBE)
- 3 4.5" DIA. ROUND PATCH
- 4 DRAIN GROMMET \* (BOTTOM SIDE/ SEE NOTE)
- 5 2" DIA. ROUND PATCH
- 6 SQUARE PATCH
- 7 PATCH\* \* (SEE NOTE)
- 8 TRIM EXIT RING\* \*(SEE NOTE)

\*NOTE: BURN 0.13" DRAIN HOLE AFTER PAINT

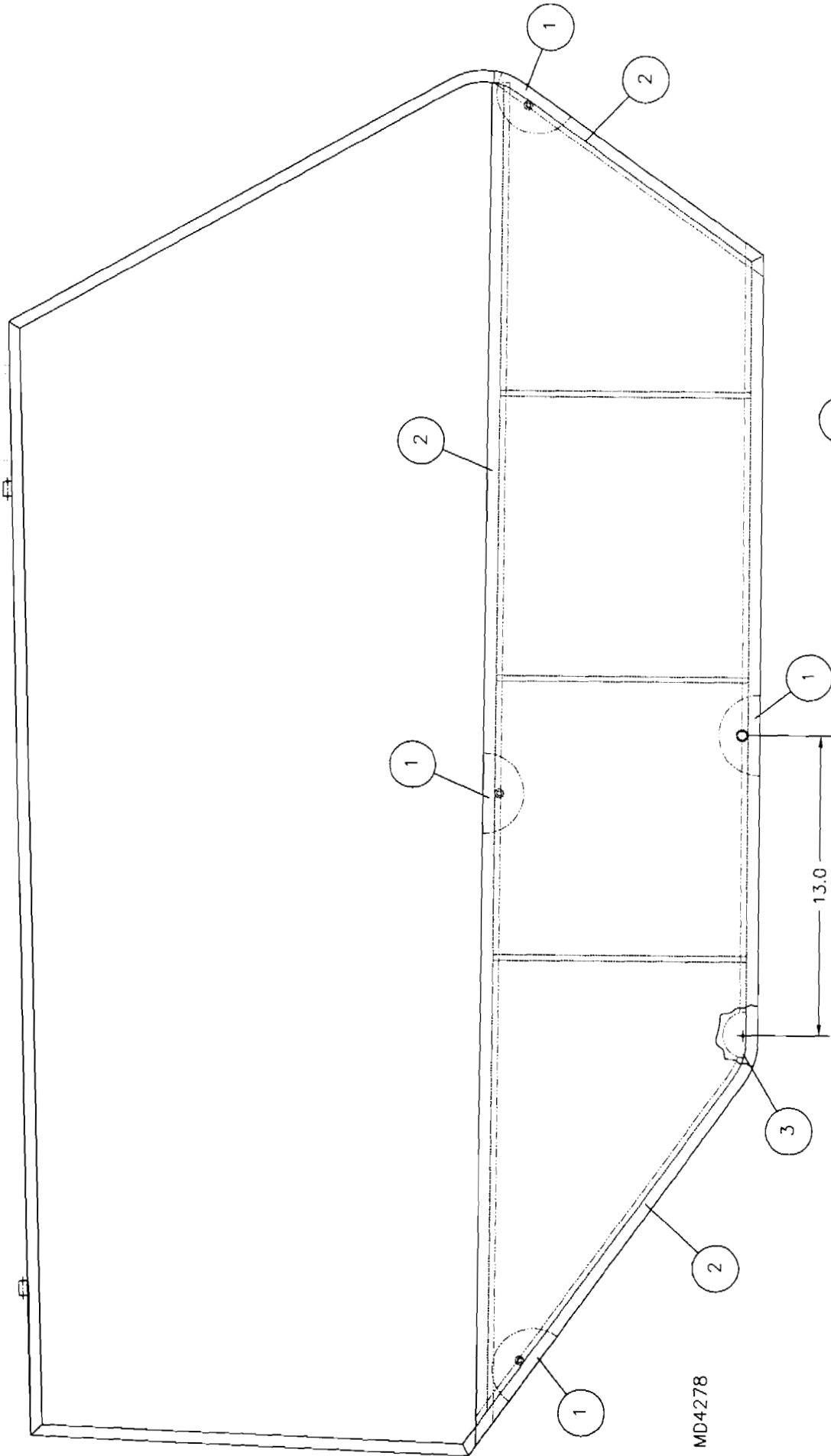
\*NOTE: RIGHT ELEVATOR ONLY  
PATCH MUST BE A MINIMUM OF 1"  
LARGER THAN THE EXIT RING



MD4277

**RRR S-7S COURIER**  
**ELEVATOR COVERING FIGURE 7-25**



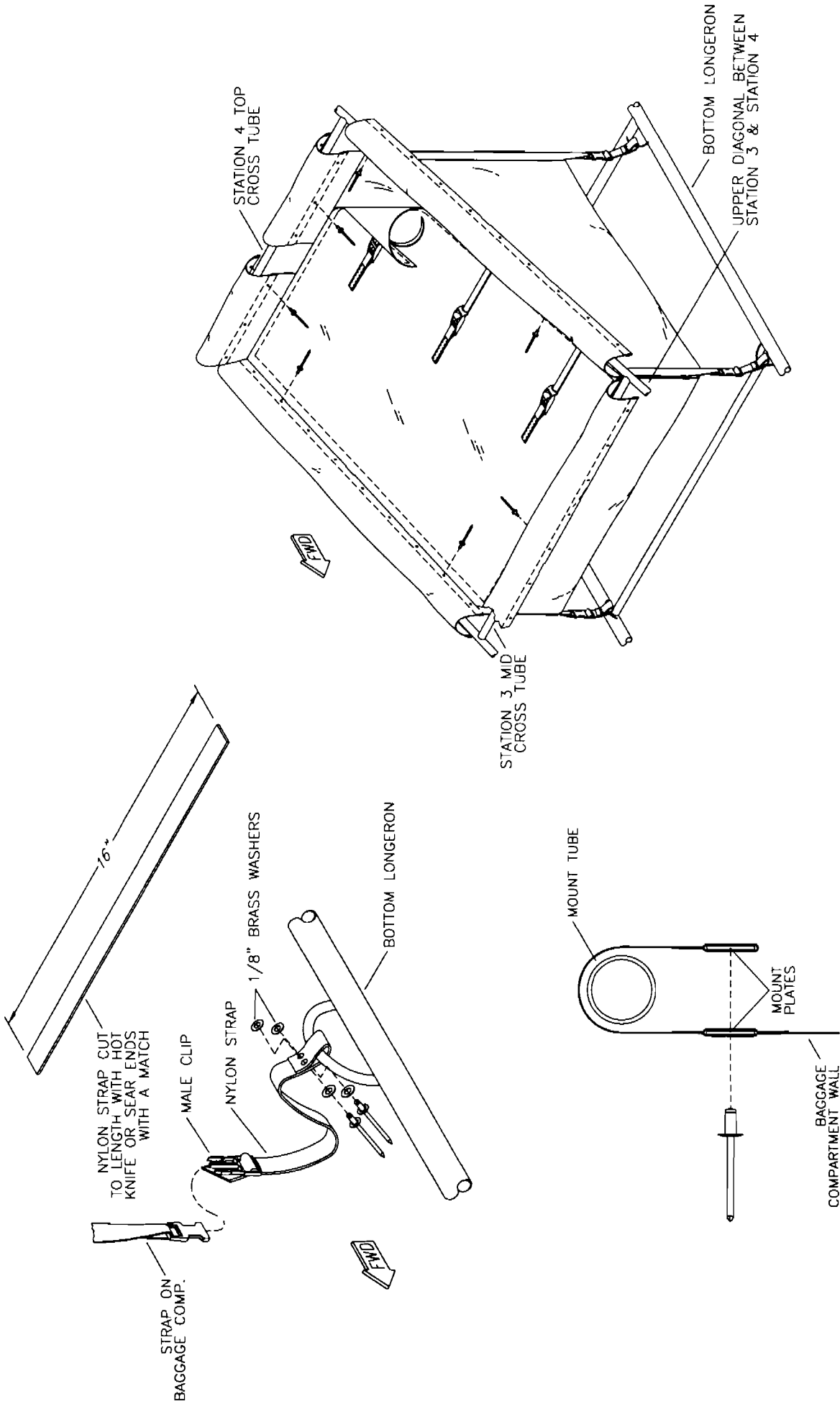


MD4278

- 1 3.5" DIA. ROUND PATCH
- 2 2" PINKED TAPE (CENTERED ON TUBE)
- 3 2" DIA. ROUND PATCH\* (SEE NOTE)

\*NOTE: APPLY PATCH ON INSIDE OF DOOR ONLY  
 BURN AN .13" HOLE AFTER PAINTING  
 FOR DRAINING.

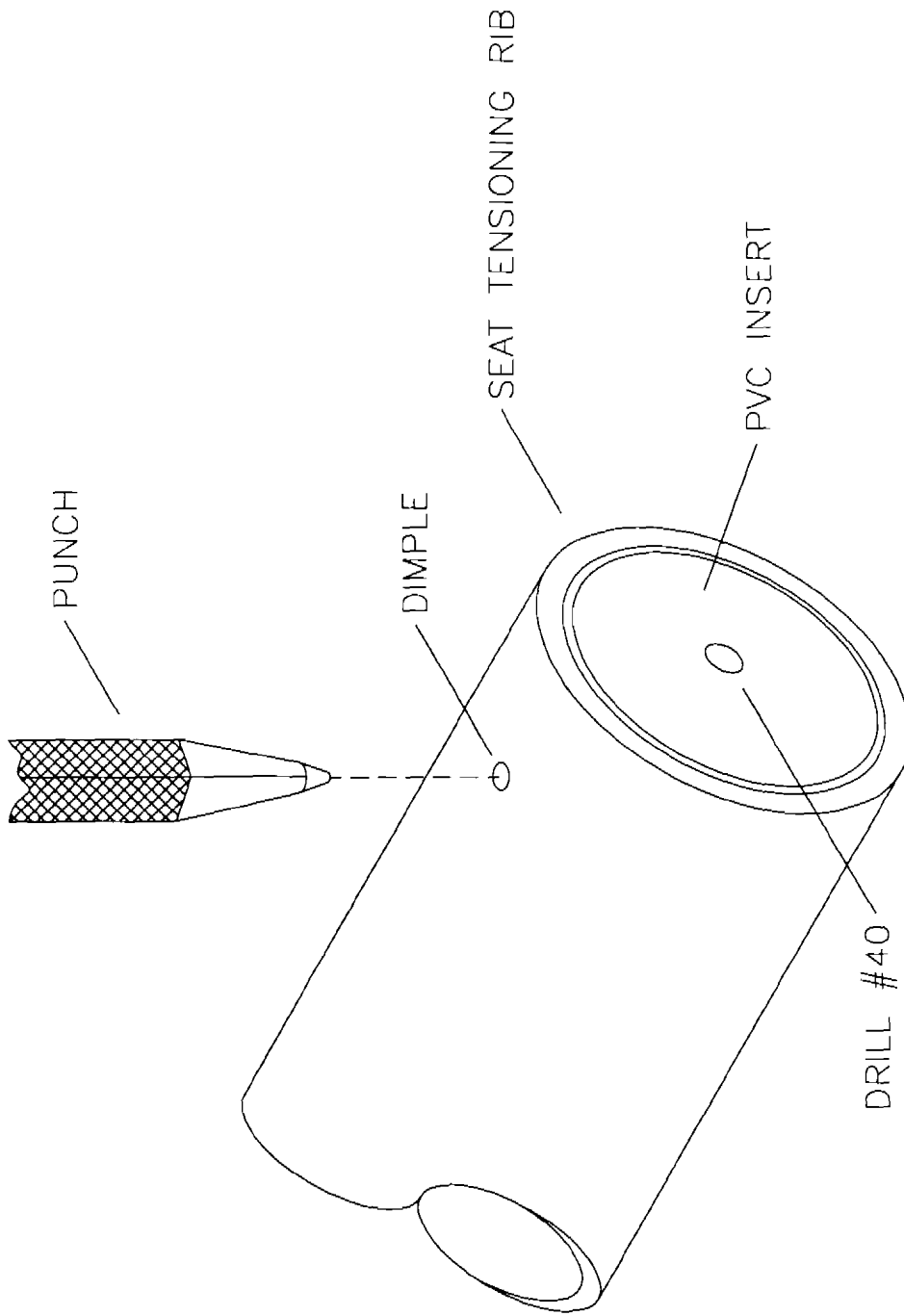
**RAMBO S-7S COURIER**  
**DOOR COVERING FIGURE 07-26**



MD4315

RRAM S-7S

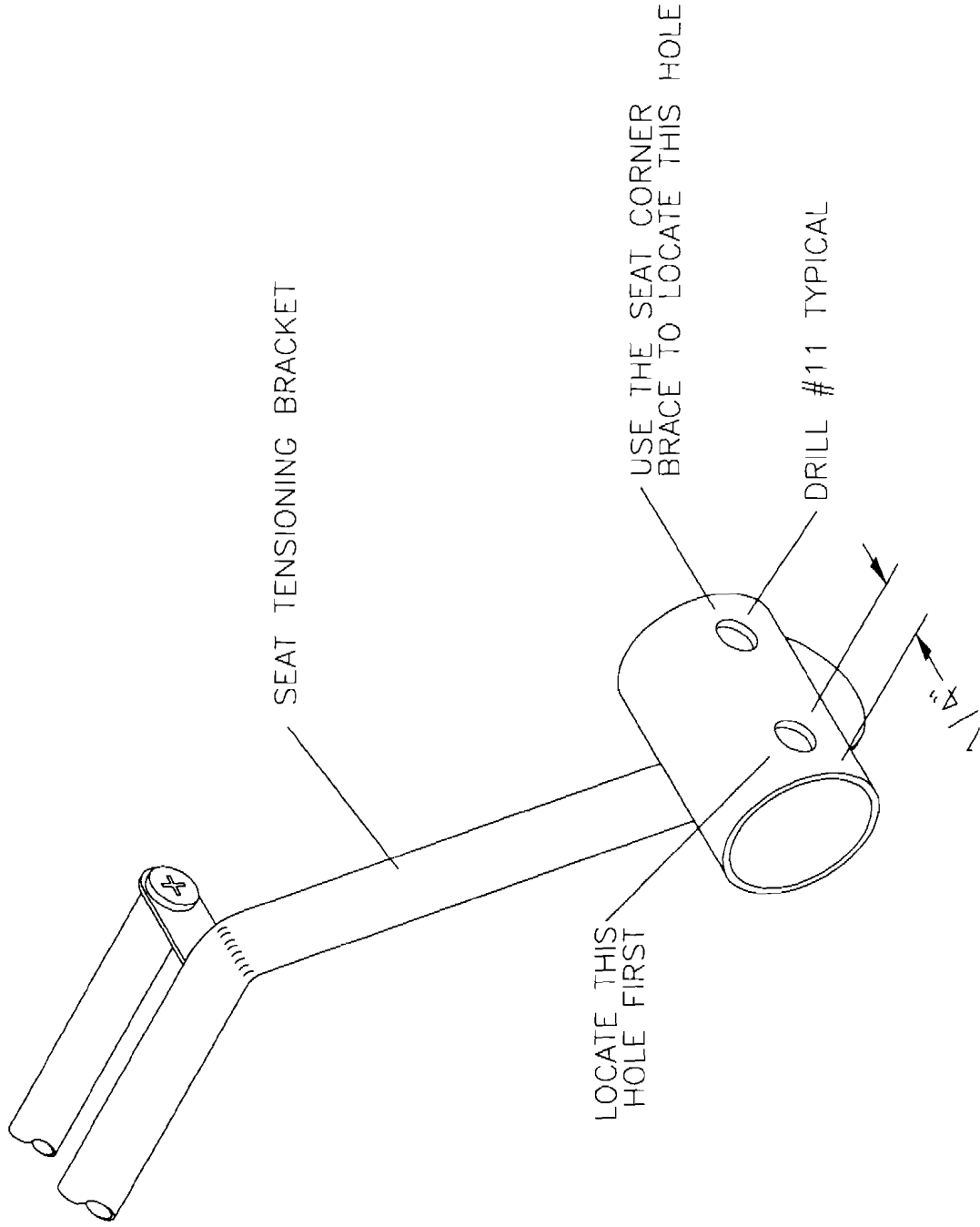
BAGGAGE COMPARTMENT FIGURE 08-01



MD4311

**RRR** S-7S

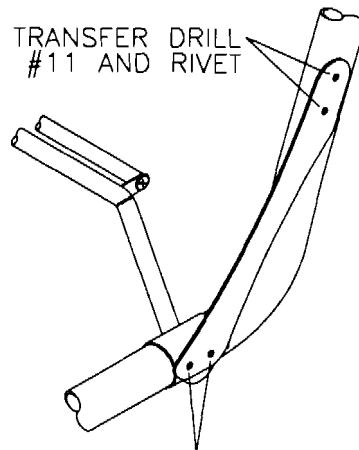
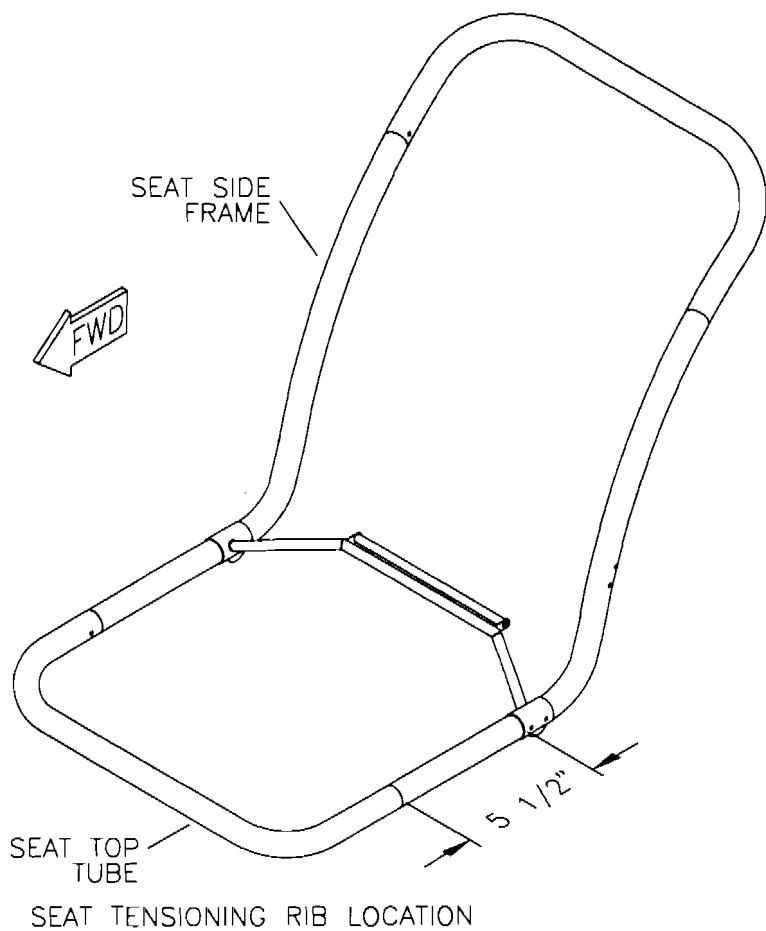
### SEAT TENSIONING RIB FIGURE 08-02



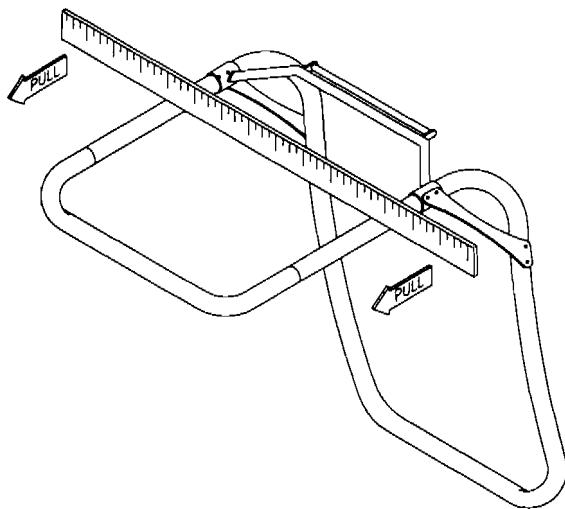
MD4310

RAMBO S-7S

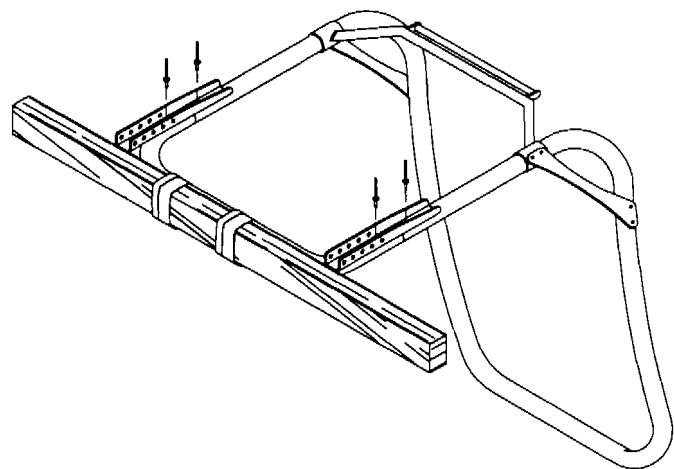
SEAT TENSIONING BRACKET FIGURE 08-03



RIVET IN PLACE AND LOCATE AFT HOLES ON CENTERLINE OF TUBE



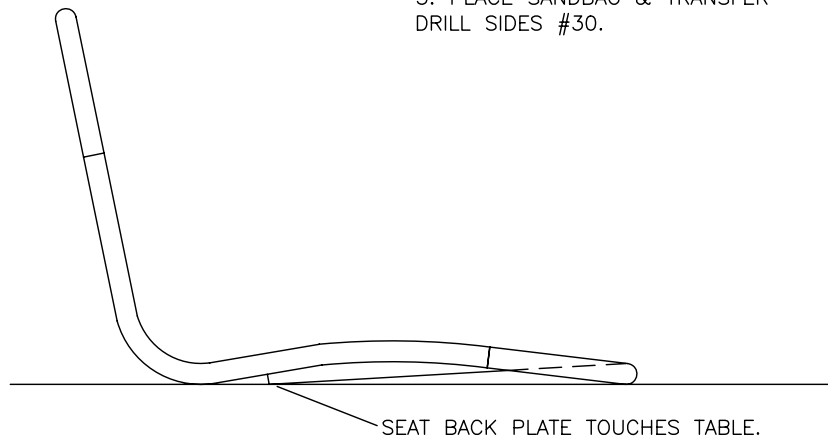
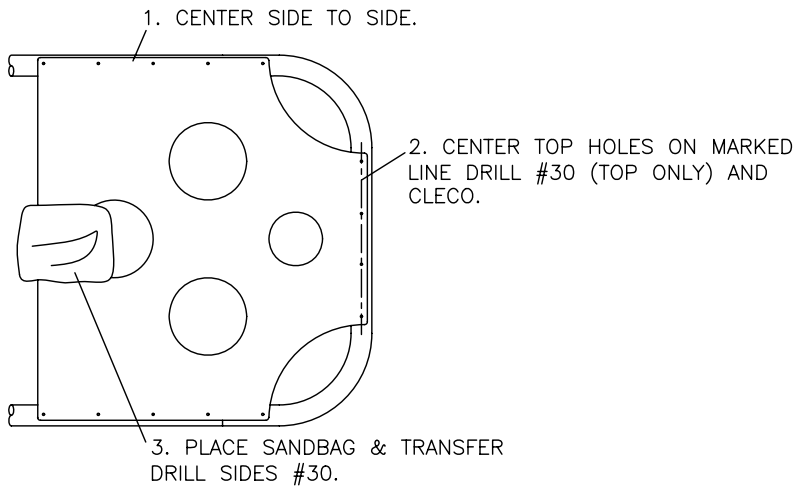
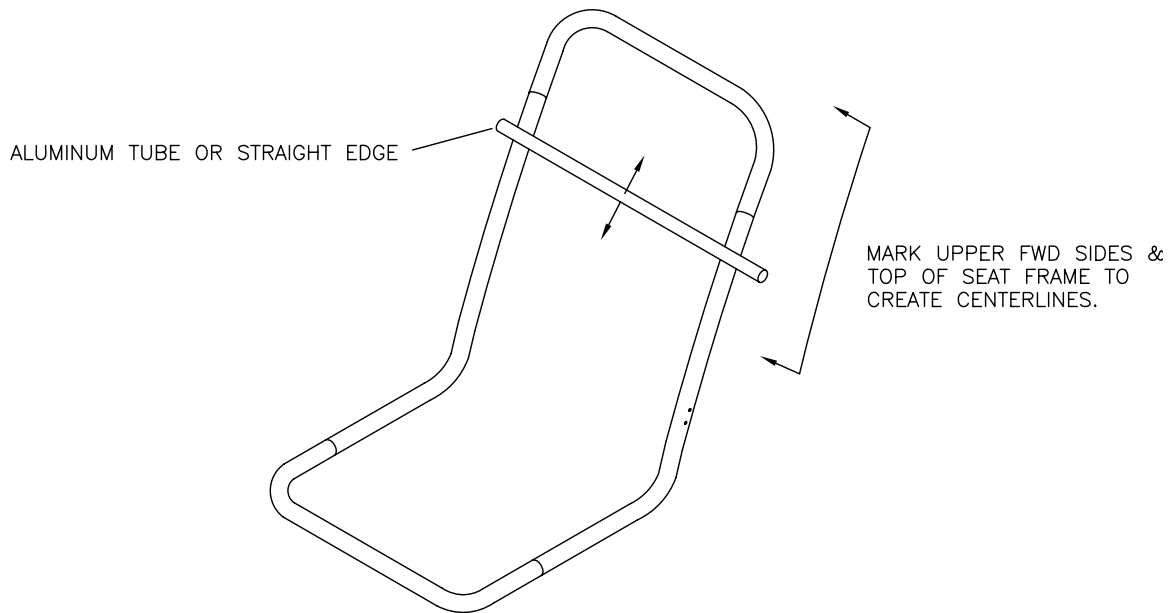
DRAG STRAIGHT EDGE LIGHTLY ALONG FRAME TO MARK CENTERLINE.



TAPE A STRAIGHT EDGE IN POSITION TO LOCATE SEAT CHANNELS FLUSH WITH FRONT OF SEAT TUBE.

MD4298

**RANS S-7S**  
**SEAT FRAME ASSEMBLY FIGURE 08-04**



**RANS S-7S**  
**SEAT BACK PLATE INSTALLATION**  
**FIGURE 08-04A**

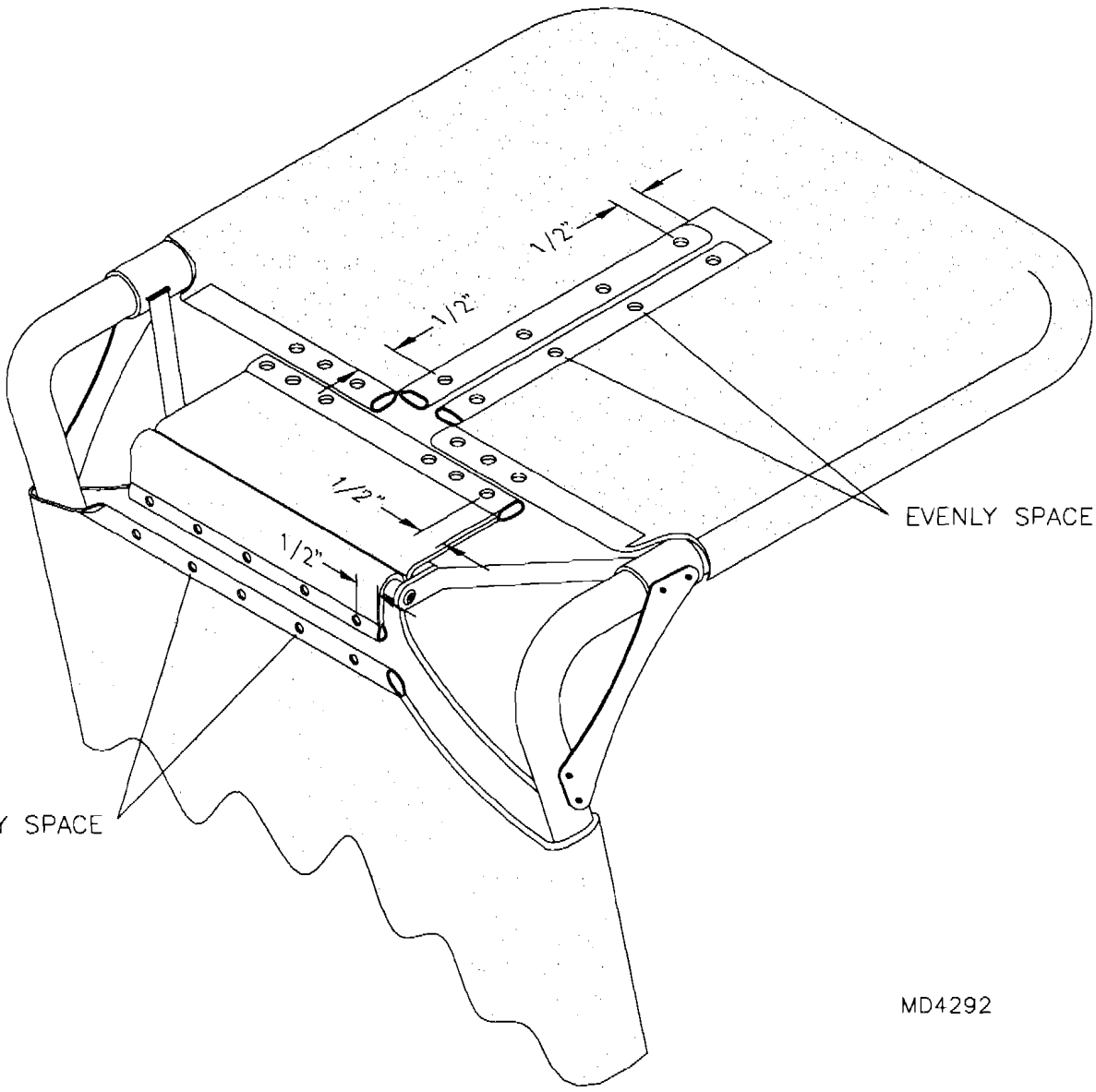
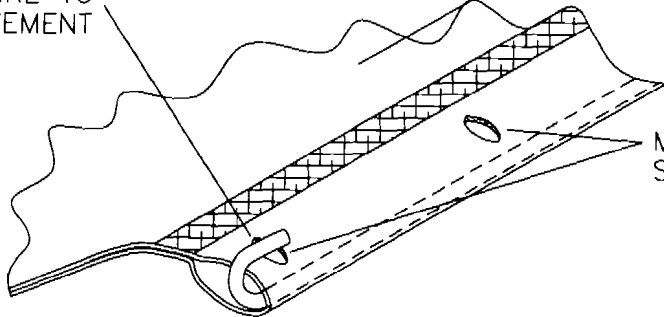
MD5237

TYPICAL

BEND HOOK IN WIRE TO PREVENT MOVEMENT

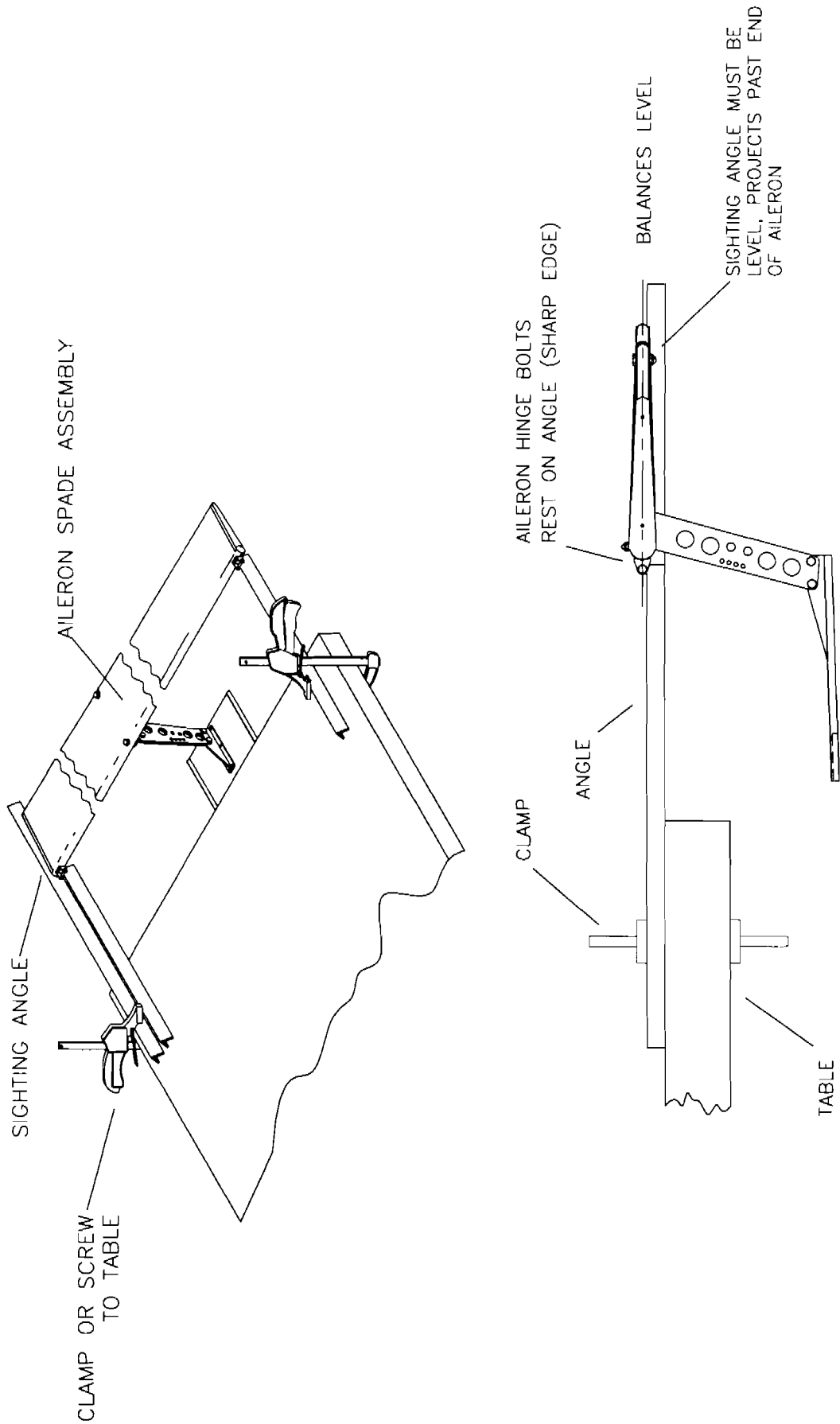
SEAT COVER

MELT HOLES JUST ABOVE STAINLESS STEEL WIRE



MD4292

**RANS S-7S  
SEAT LACING FIGURE 08-05**

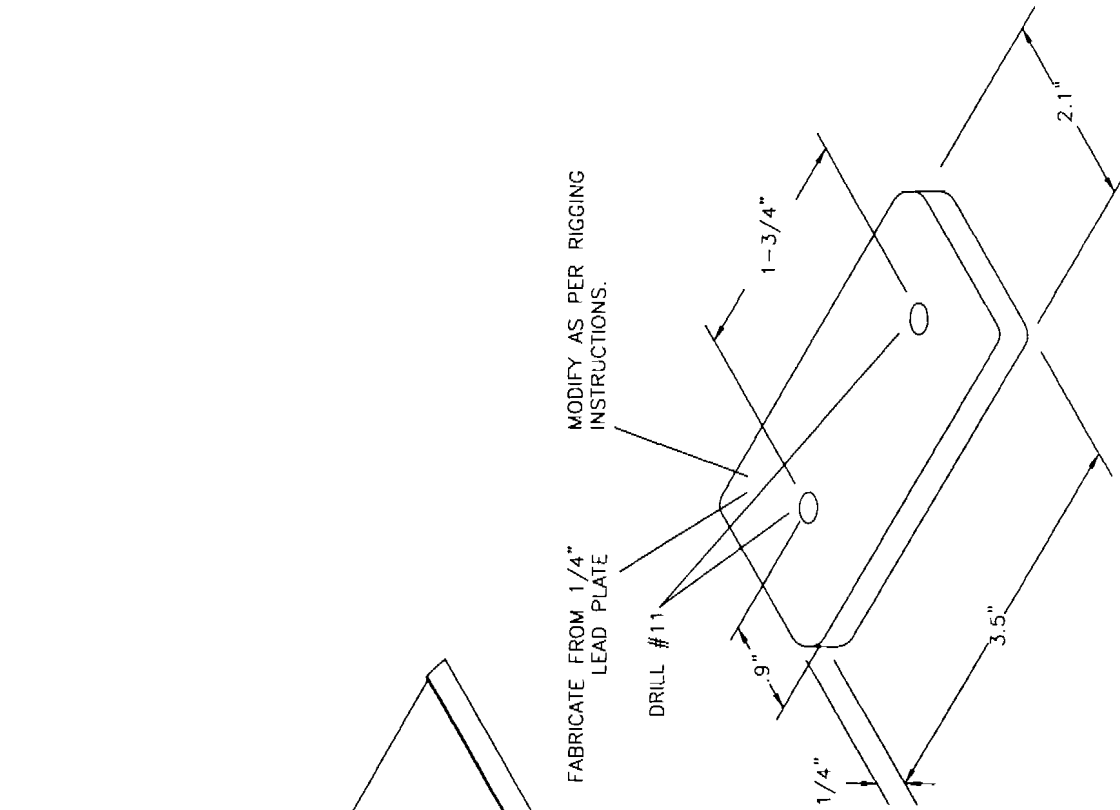


MD4325

**RRR** S-7S

# AILERON MASS BALANCE FIGURE 09-01

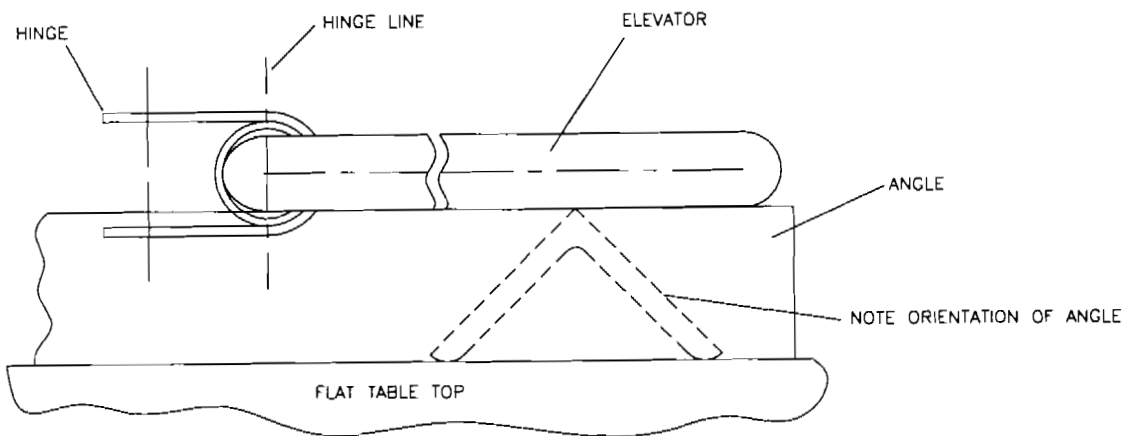
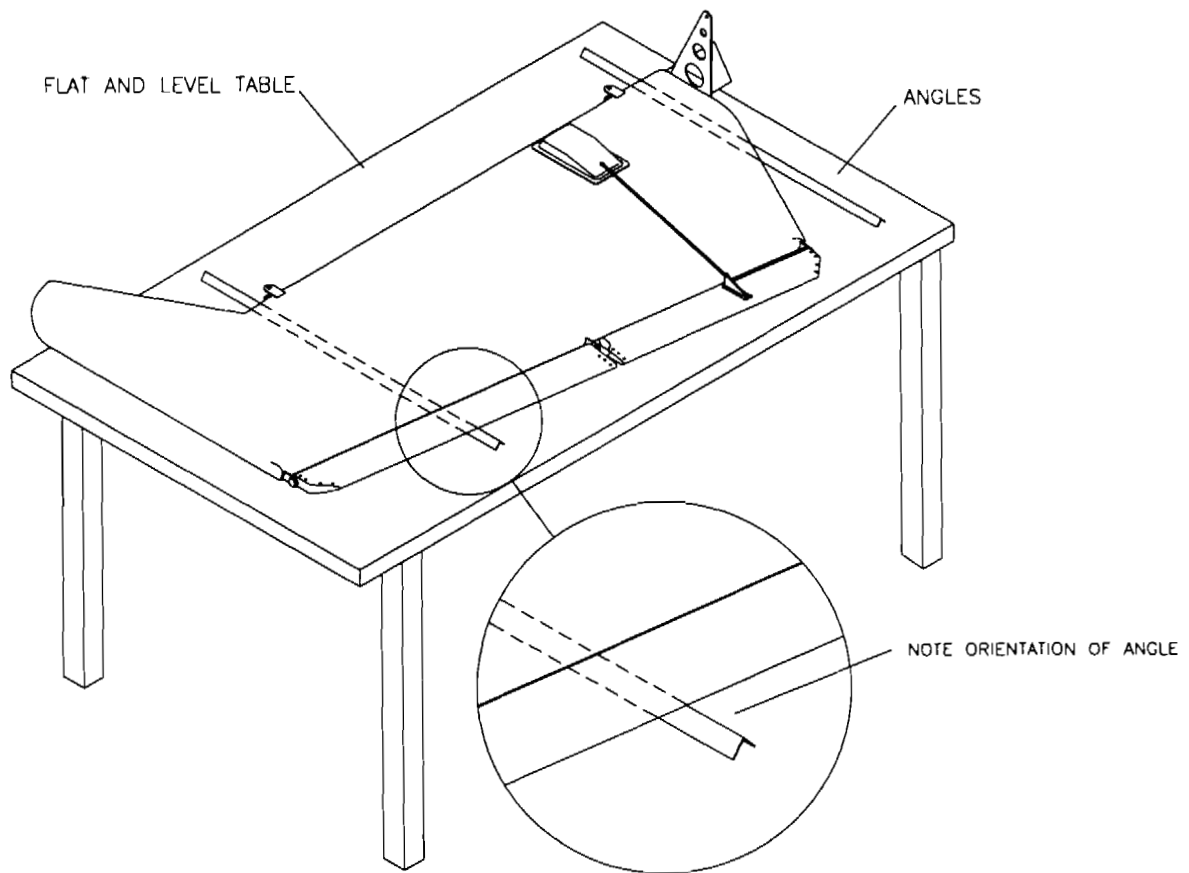




- SCREW AN526-1032R12
- 3/16" WASHER AN970-3
- 3/16" THIN WASHER AN960-10L
- 3/16" SHEAR NUT AN364-1032A

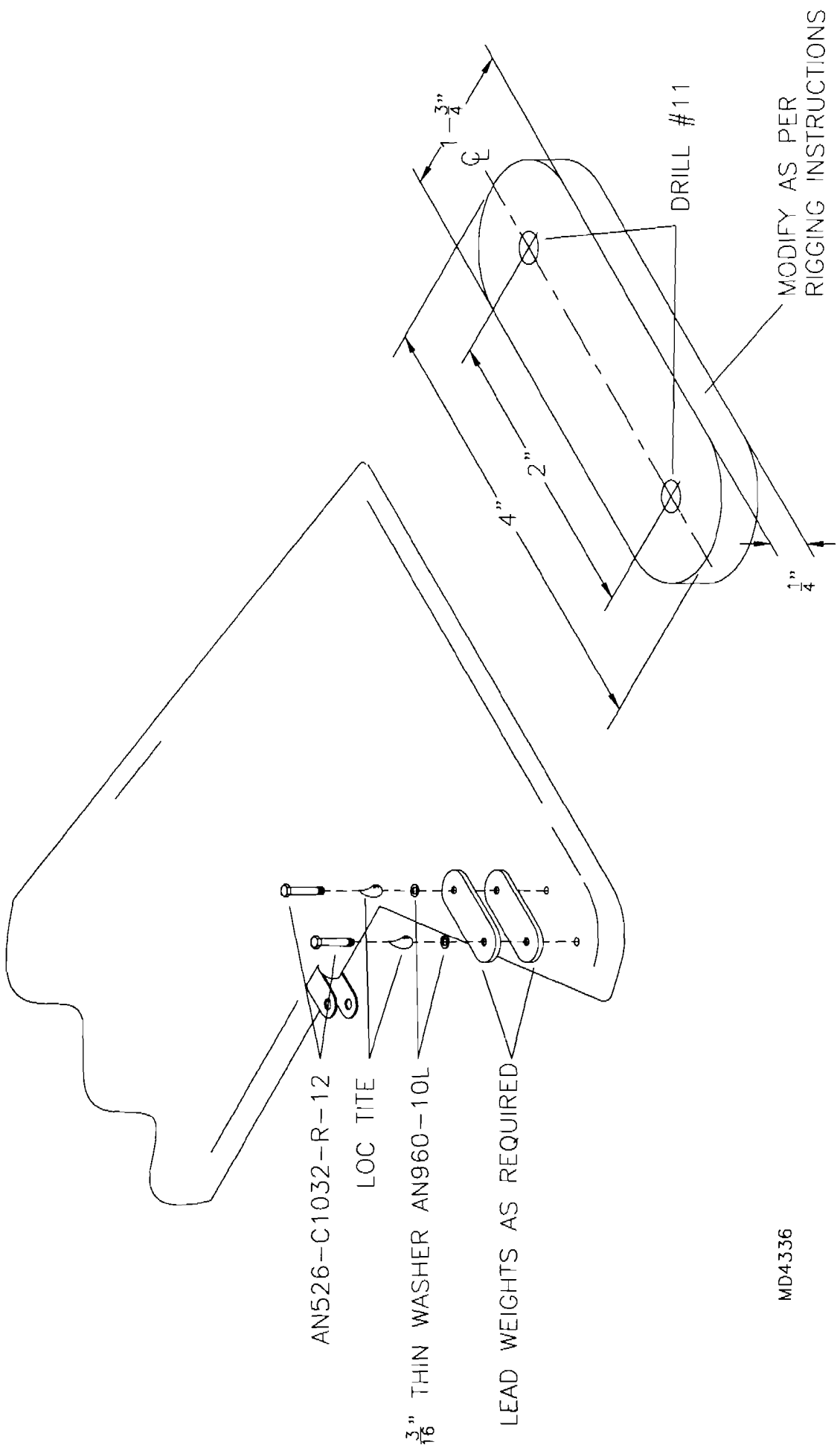
MD4324

**RAMS S-7S**  
**AILERON MASS BALANCE WEIGHT**  
**AND ATTACH FIGURE 09-02**



MD4328

**RANS S-7S**  
**ELEVATOR MASS BALANCE**  
**FIGURE 09-03**



AN526-C1032-R-12

LOC TITE

$\frac{3}{16}$ " THIN WASHER AN960-10L

LEAD WEIGHTS AS REQUIRED

DRILL #11

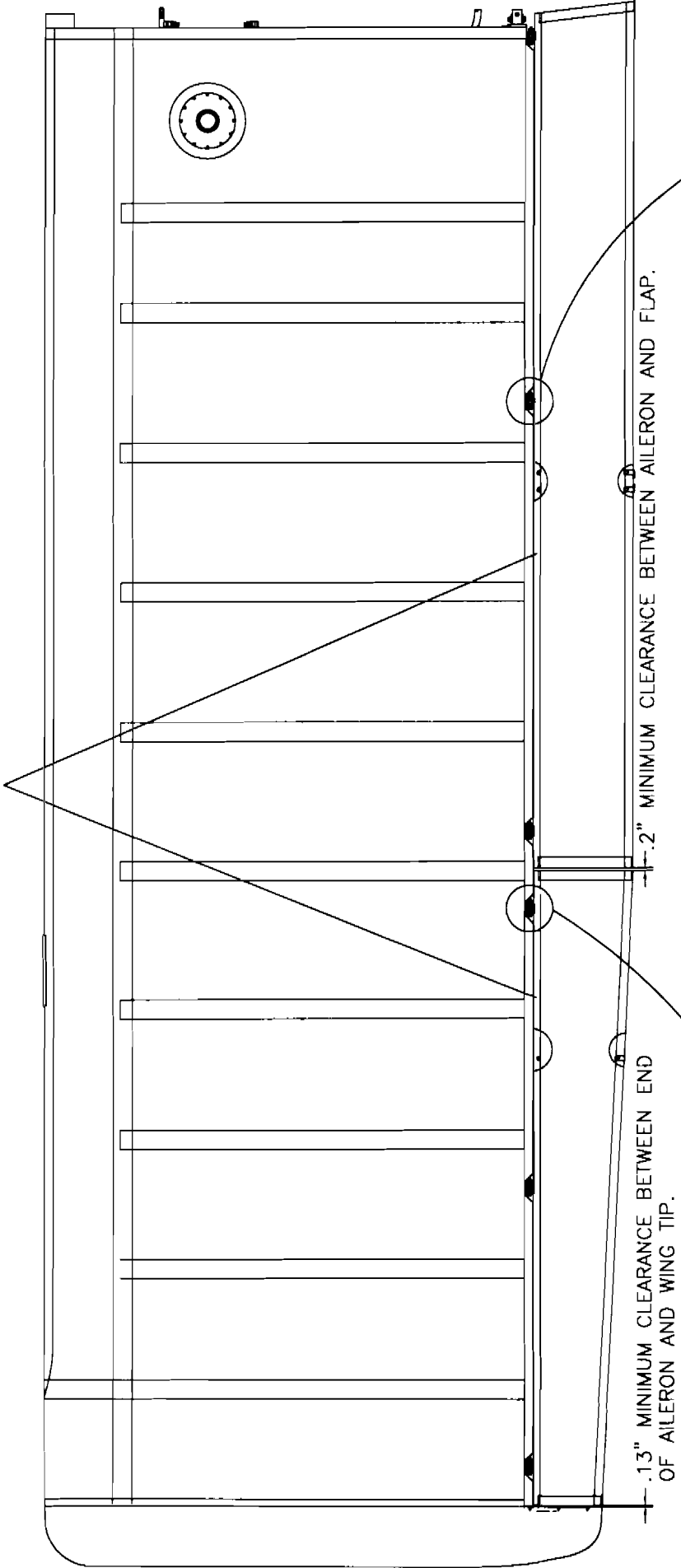
MD4336

MODIFY AS PER RIGGING INSTRUCTIONS

**RAMS S-7S**  
**ELEVATOR MASS BALANCE**  
**WEIGHT AND ATTACH FIGURE 09-04**

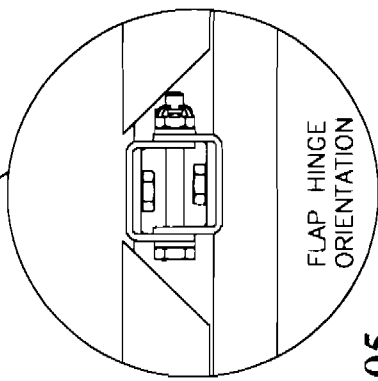
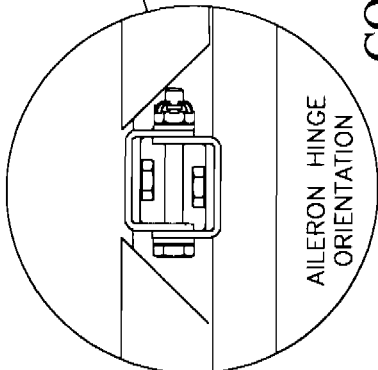
NOTE: RH ELEVATOR REQUIRES MORE WEIGHT THAN LH ELEVATOR

MINIMUM CLEARANCE BETWEEN SURFACE AND GAPSEAL - .060" (ENTIRE LENGTH)



.13" MINIMUM CLEARANCE BETWEEN END OF AILERON AND WING TIP.

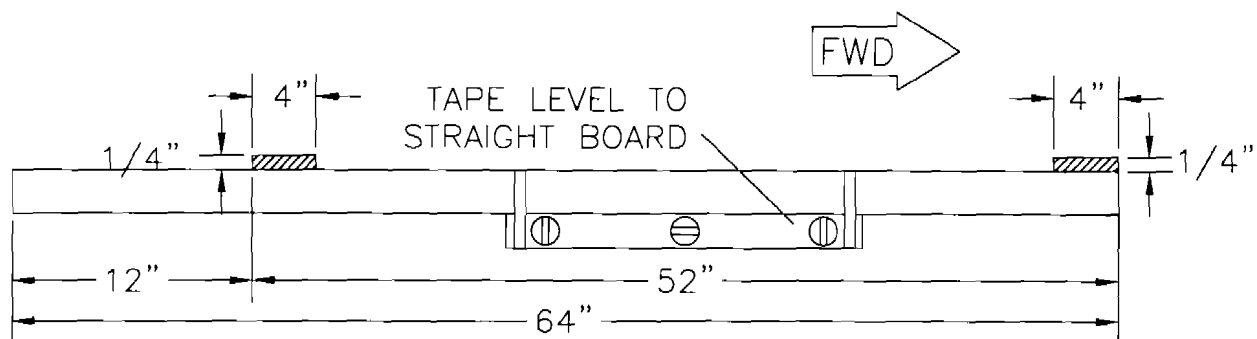
.2" MINIMUM CLEARANCE BETWEEN AILERON AND FLAP.



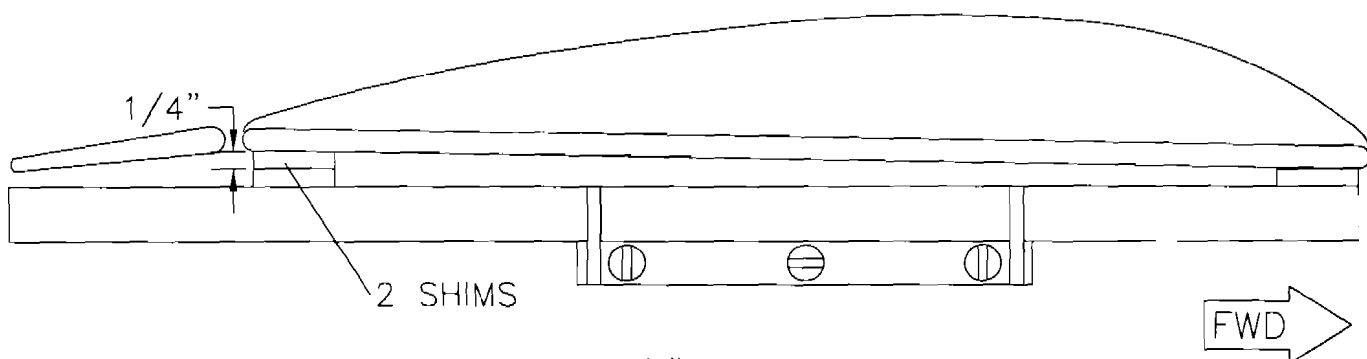
MD4384

**RRR** S-7S

# CONTROL SURFACE CLEARANCE - WING FIGURE 09-05



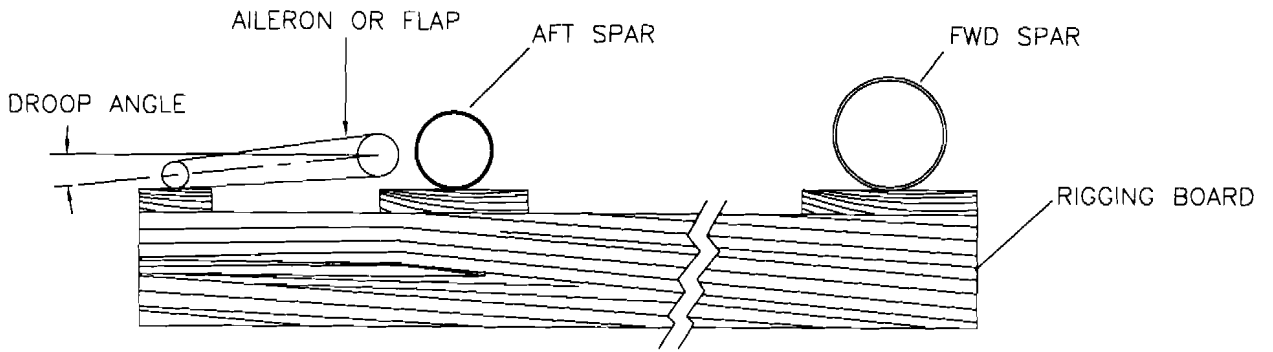
FIRST, FABRICATE RIGGING LEVEL AS SHOWN  
AND USE TO LEVEL WING ROOT.



PLACE ADDITIONAL  $\frac{1}{4}$ " SHIM AS SHOWN.  
WITH LEVEL JUST OUTBOARD OF STRUT ATTACH POINTS,  
ADJUST REAR STRUT FOR LEVEL READING.

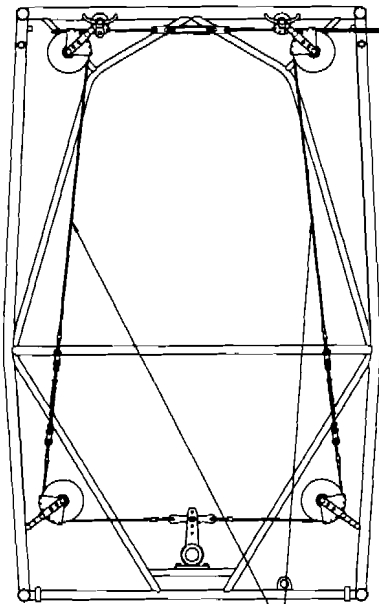
MD4426

**RANS S-7S**  
**WING WASH OUT RIGGING LEVEL**  
**FIGURE 09-06**

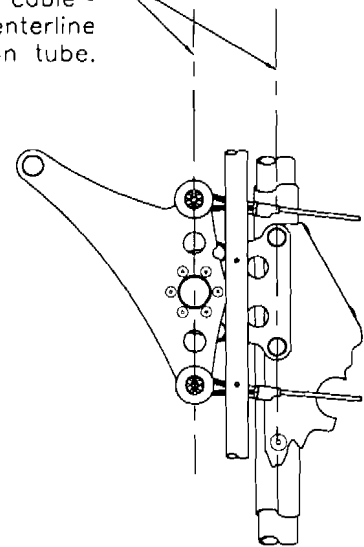


CENTER FORWARD CONTROLSTICK (AILERON NEUTRAL) AND FIX IN THIS POSITION. ADJUST AILERON CABLE LENGTH AND CABLE TENSION AND CHECK THAT BOTH AILERON BELL CRANKS ARE IN NEUTRAL POSITION (VISUAL INSPECTION) WITH STICK CENTERED. ADJUST CABLE TENSION TO 25 LB. - 0.0 + 5 LBS (2 PLS)

In neutral position of bellcrank the centerline through both cable-attach bolts is parallel to centerline of compression tube.

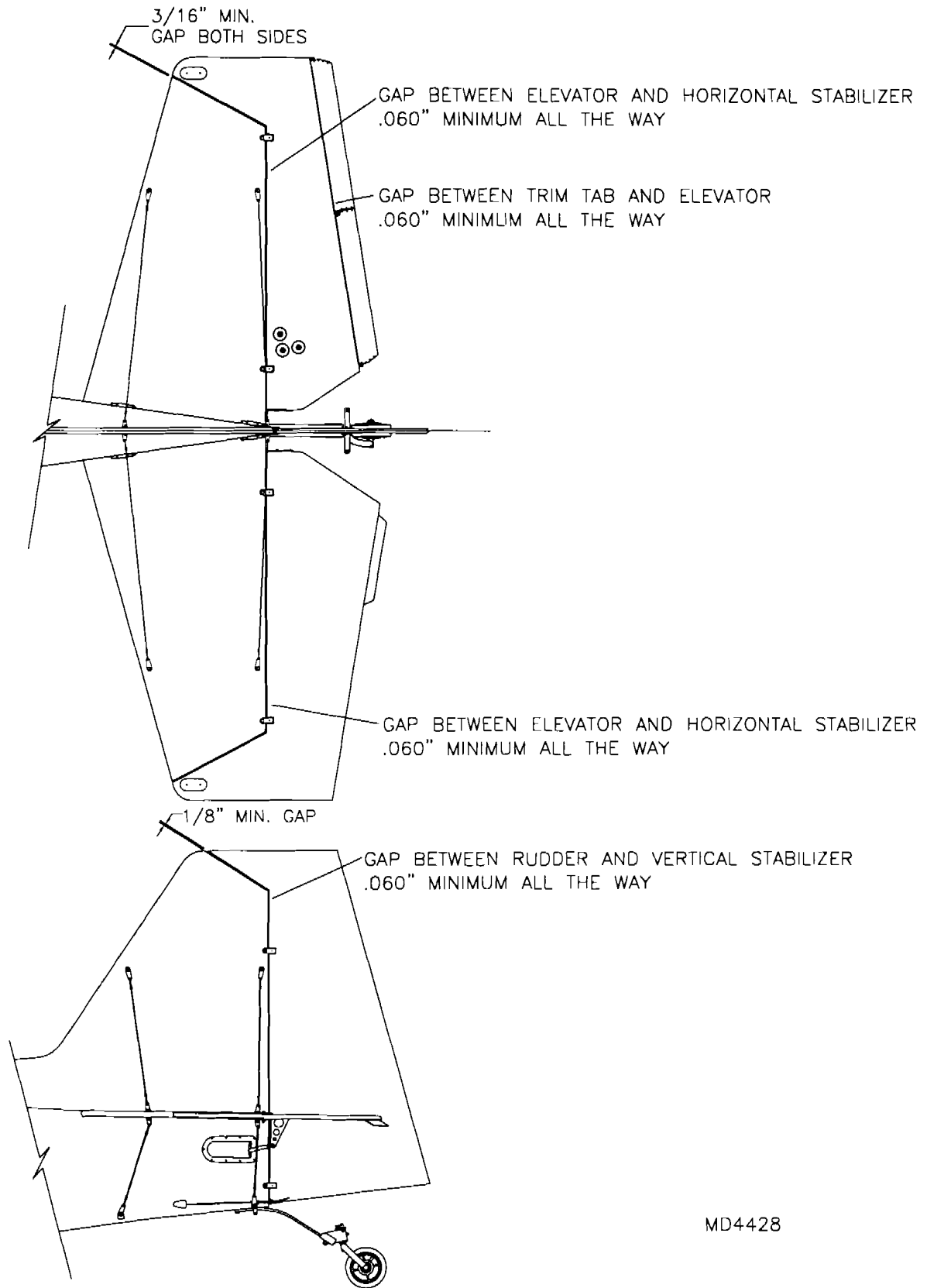


Measure left and right approximate here



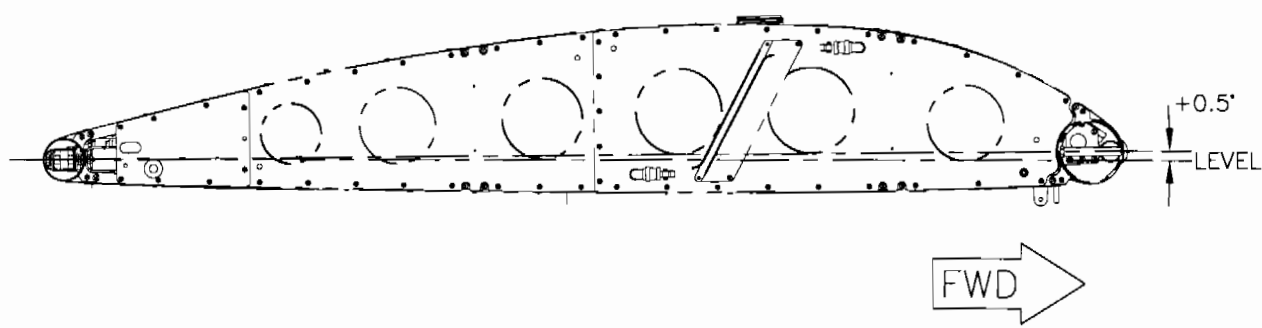
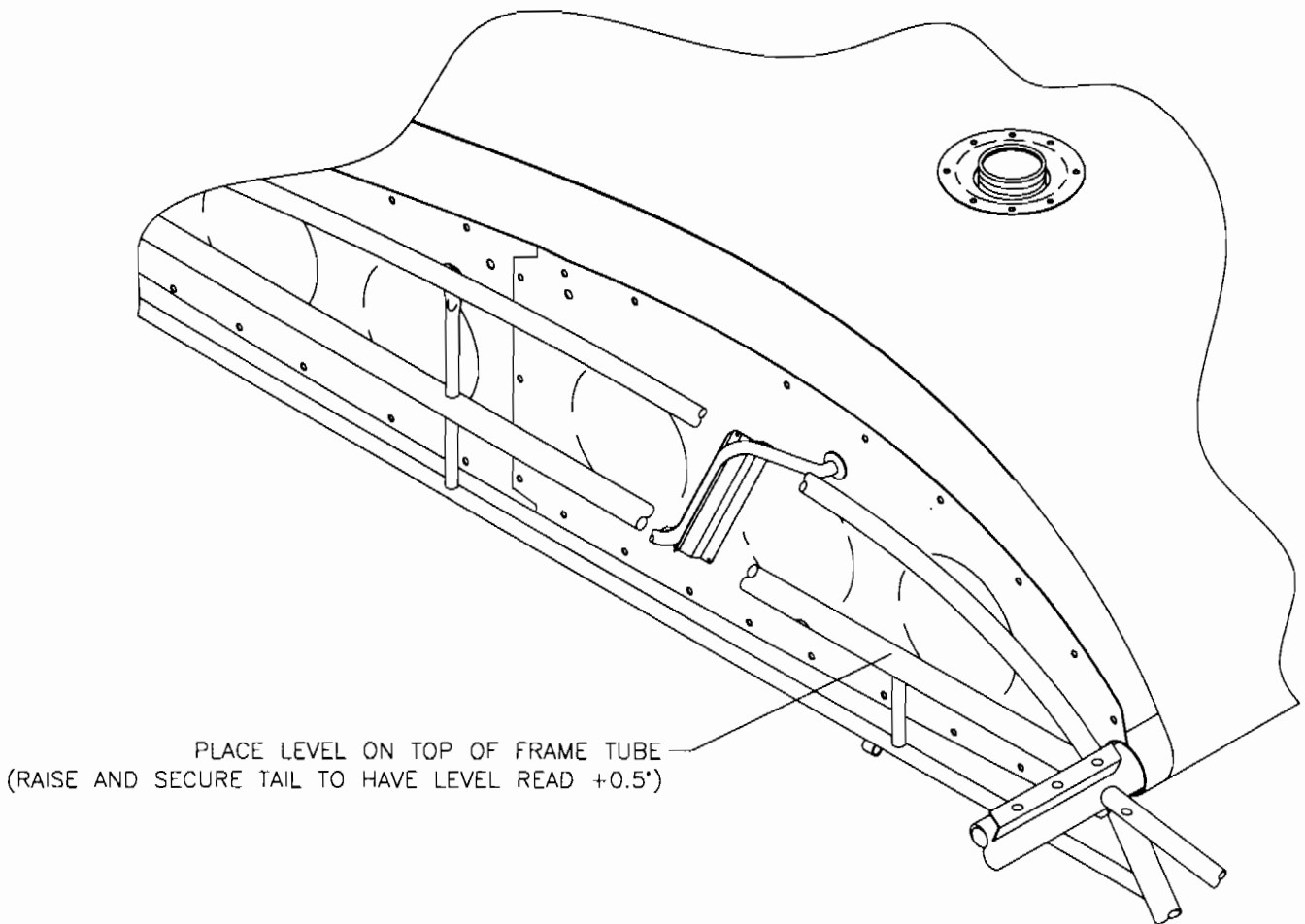
MD4427

# RANS S-7S AILERON RIGGIN FIGURE 09-07



MD4428

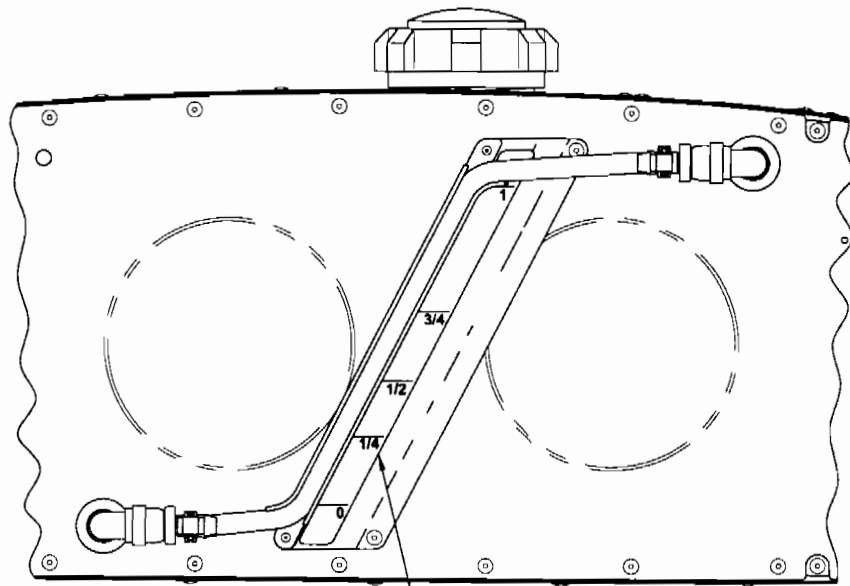
**RANS S-7S**  
**CONTROL SURFACE RIGGING**  
**CLEARANCES - TAIL FIGURE 09-08**



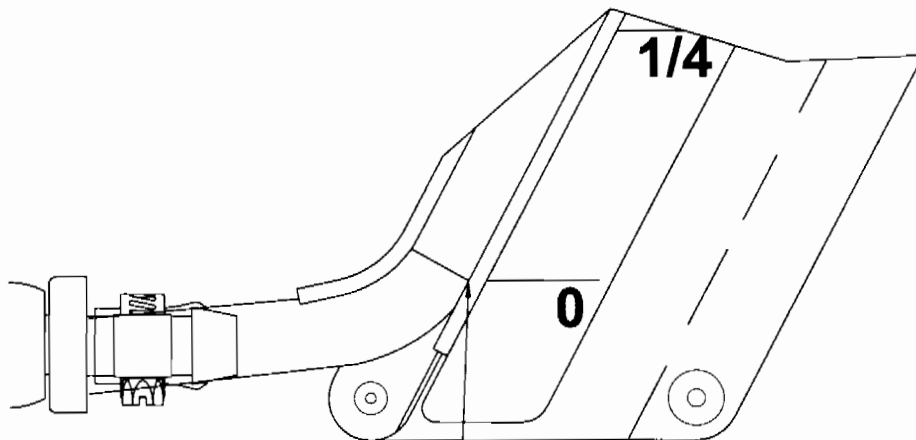
MD4330

**RANS S-7S**  
**FUEL SIDE GAUGE CALIBRATION**  
**FIGURE 09-09**





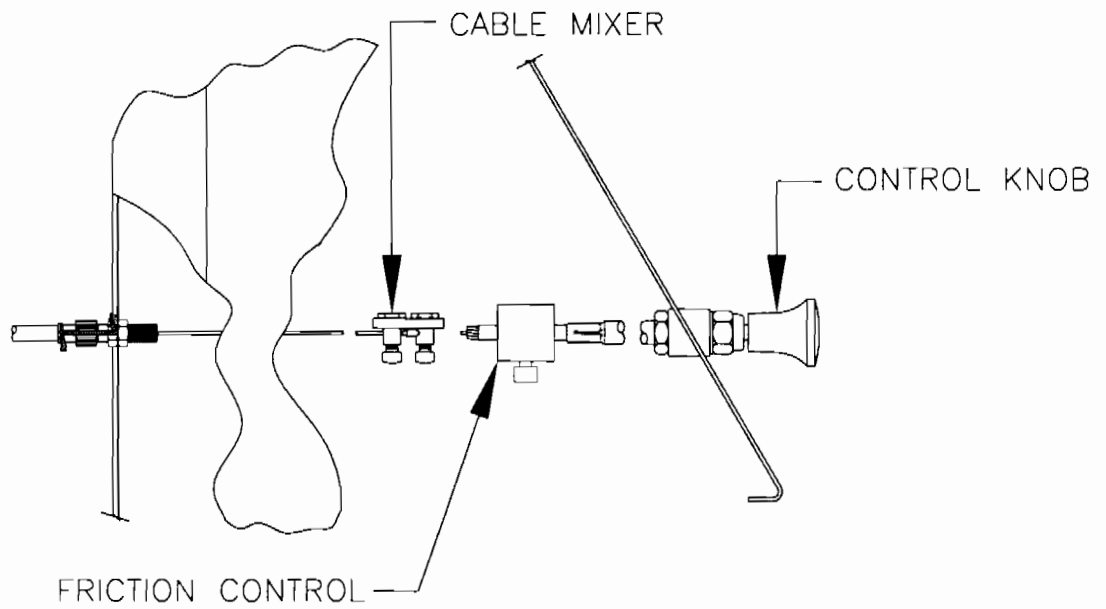
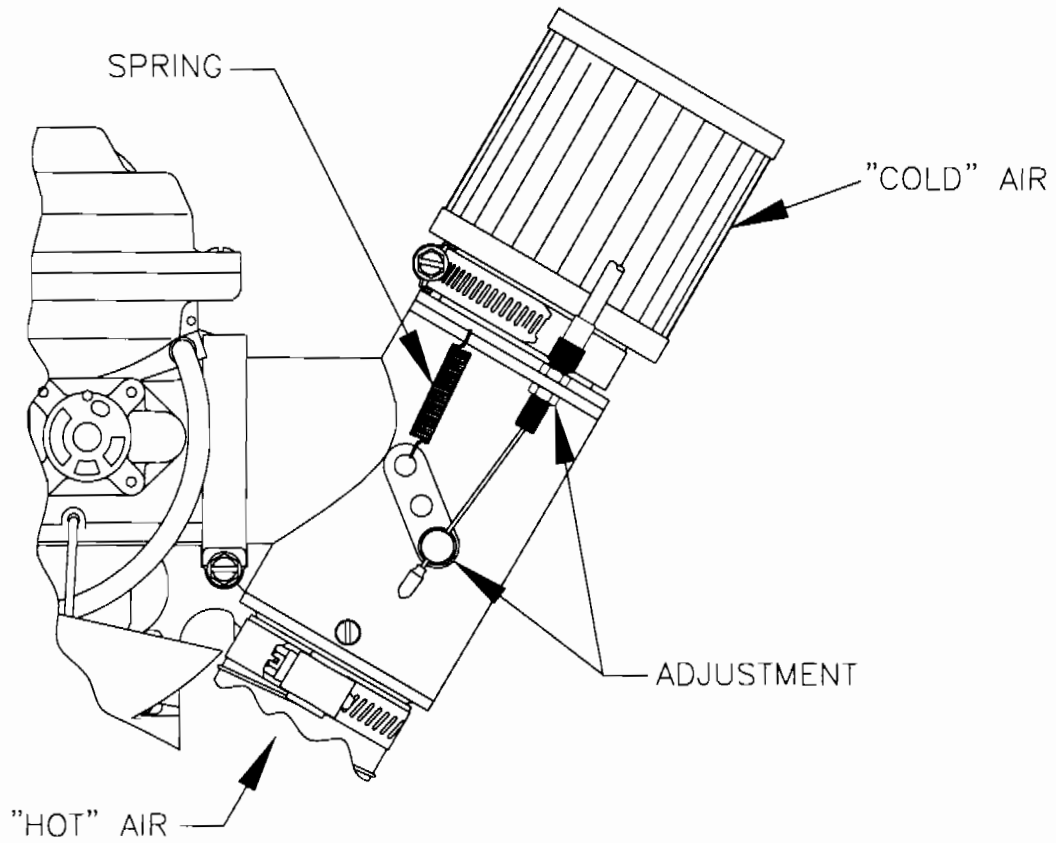
FUEL SIDE  
GAUGE DECAL



LINE UP LOWER SIDE OF  
FUEL INDICATION WITH  
LINE ABOVE "0" WHEN  
INSTALLING DECAL.

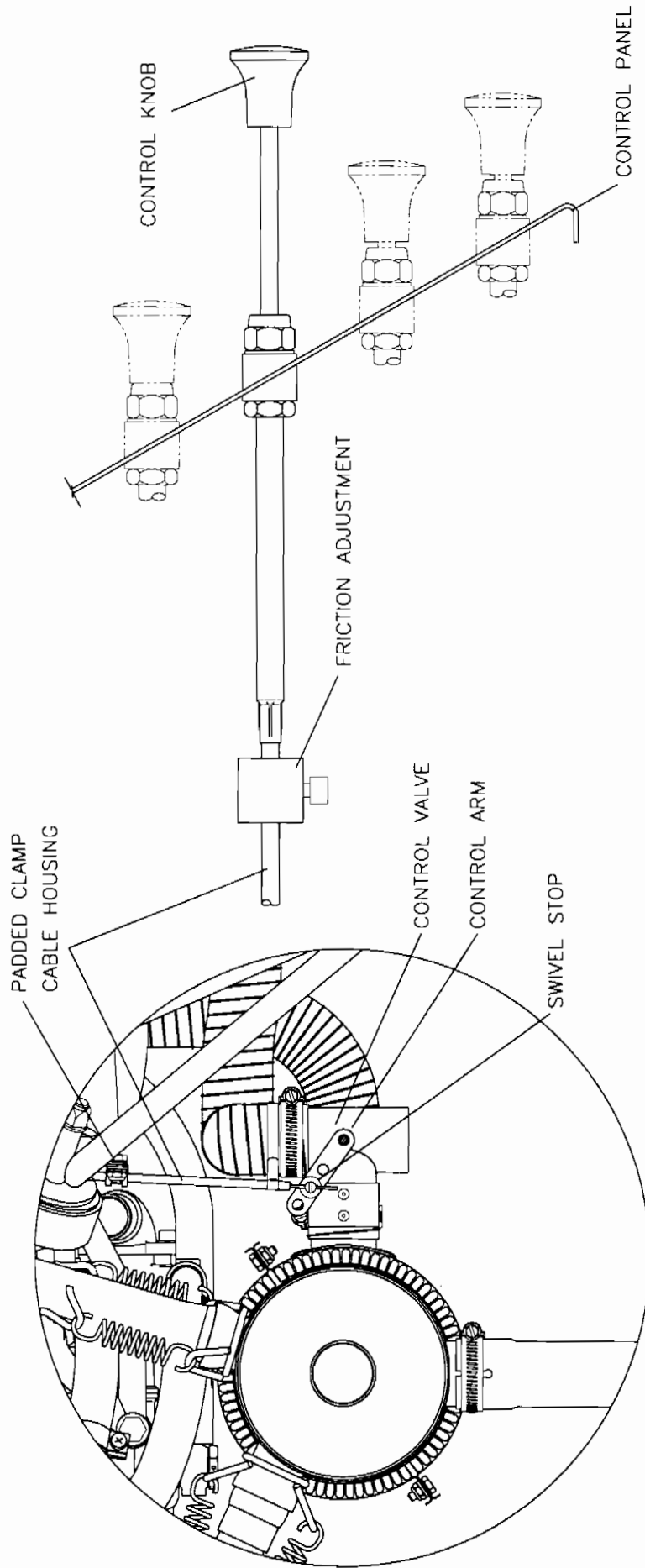
MD4331

**RANS S-7S**  
**FUEL SIDE GAUGE CALIBRATION**  
**FIGURE 09-10**



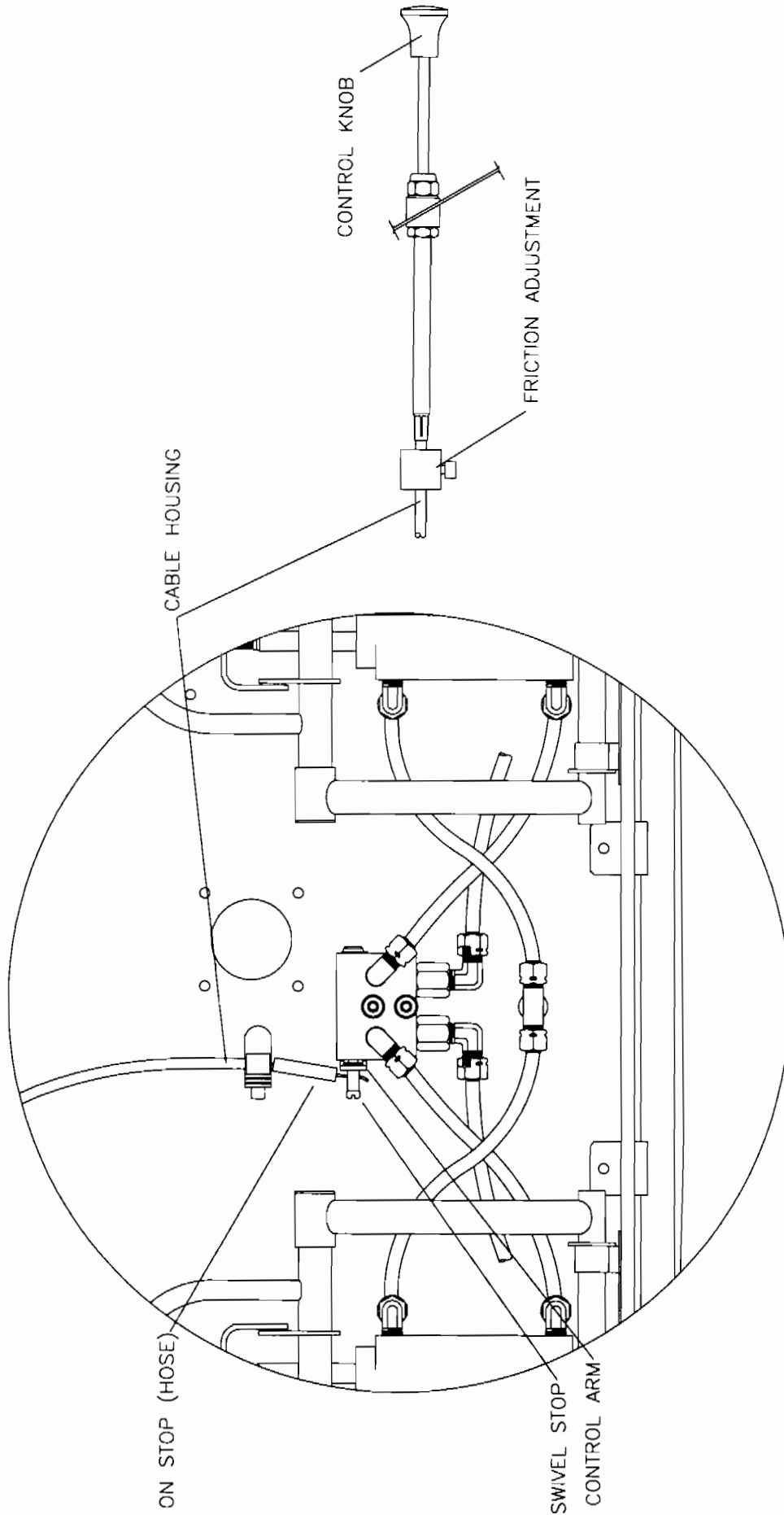
MD4429

**RANS S-7S**  
**CARBURETOR HEAT RIGGING**  
**FIGURE 09-11**



MD4433

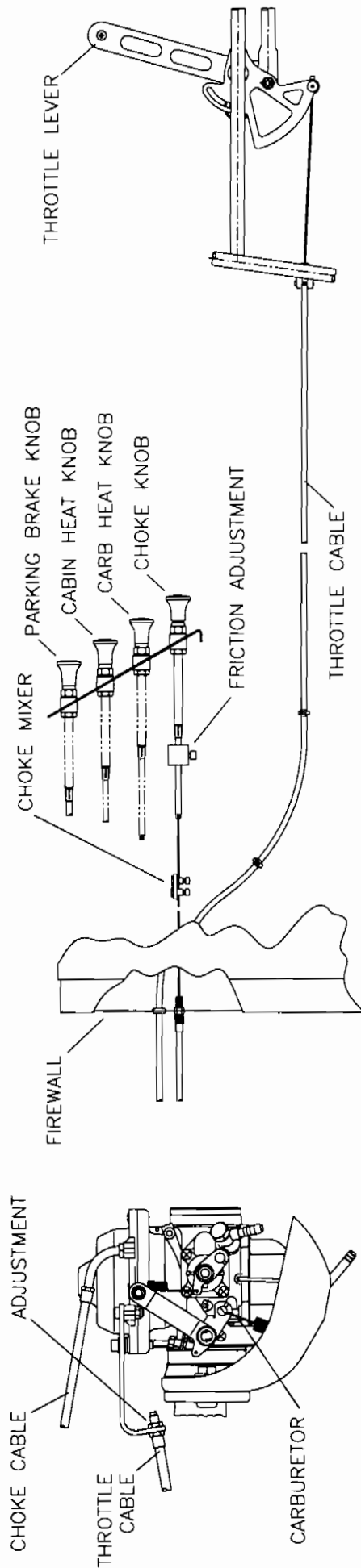
**RAMS S-7S**  
**CABIN HEAT RIGGING FIGURE 09-12**



MD4434

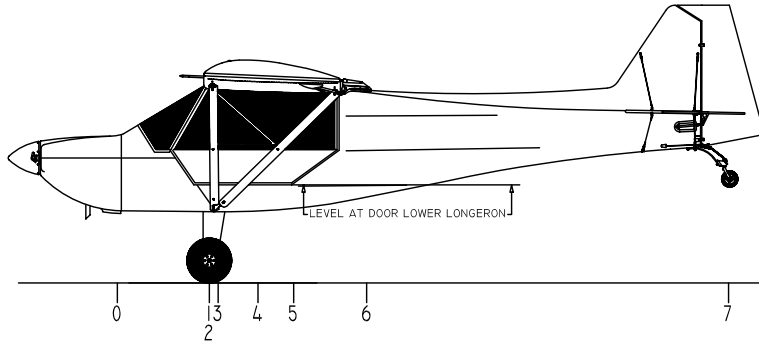
**RAMMS S-7S**

**PARK BRAKE RIGGING FIGURE 09-13**



**Rotax S-7S**  
**THROTTLE AND CHOKE RIGGING**  
**FIGURE 09-14**

MD4435



N _____	
DATE WEIGHED	
ENGINE TYPE	ROTAX 912ULS
C.G. CONDITION	
EMPTY WEIGHT	LBS.
GROSS WT.	1320 LBS.

## RANS S-7S COURIER WEIGHT AND BALANCE

ACCEPTABLE C.G. 46.1" TO 50.5" FROM DATUM 0.  
 DATUM = FRONT OF FIREWALL; AIRCRAFT IN  
 LEVEL ATTITUDE. (LEVEL REFERENCE TO  
 DOOR LOWER LONGERON)

#	ITEM	WEIGHT	ARM	MOMENT
1	MAIN - RH	355	34.1	12,105.5
2	MAIN - LH	344	34.1	11,730.4
3	PILOT	190	37.4	7,106
4	FUEL	108	52.2	5,637.6
5	PASSENGER	170	65.4	11,118
6	BAGGAGE *	20	92.5	1,850
7	TAILWHEEL	51	226.8	11,566.8
TOTAL=		1238	TOTAL=	61,114.3

$$\frac{\text{TOTAL MOMENTS}}{\text{TOTAL WEIGHT}} = \text{C.G.}$$

$$\frac{61,114.3}{1,238} = 49.4"$$

#	ITEM	WEIGHT	ARM	MOMENT
1	MAIN - RH		34.1	
2	MAIN - LH		34.1	
3	PILOT		37.4	
4	FUEL		52.2	
5	PASSENGER		65.4	
6	BAGGAGE *		92.5	
7	TAILWHEEL		226.8	
TOTAL=			TOTAL=	

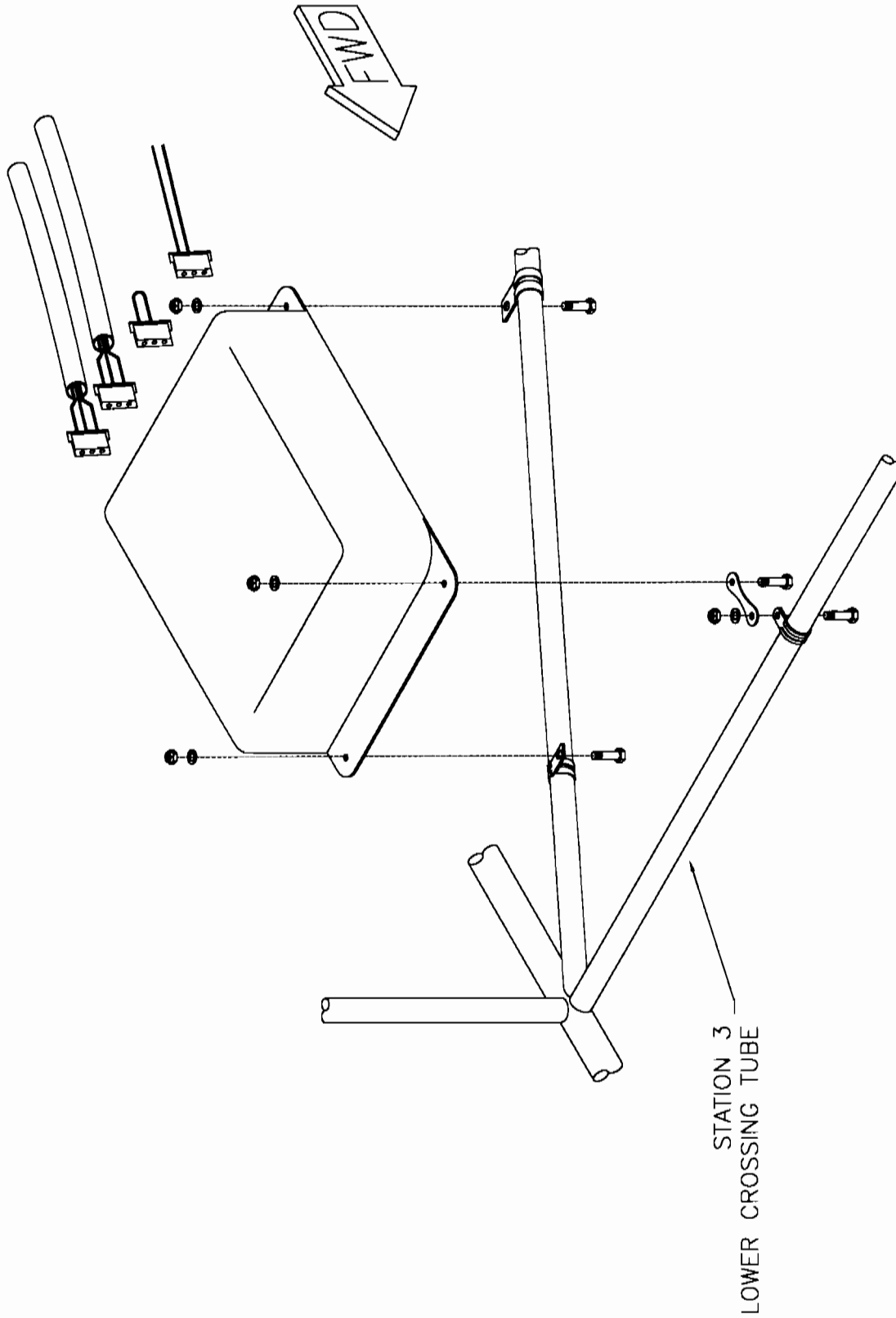
$$\frac{\text{TOTAL MOMENTS}}{\text{TOTAL WEIGHT}} = \text{C.G.}$$

$$\text{_____} =$$

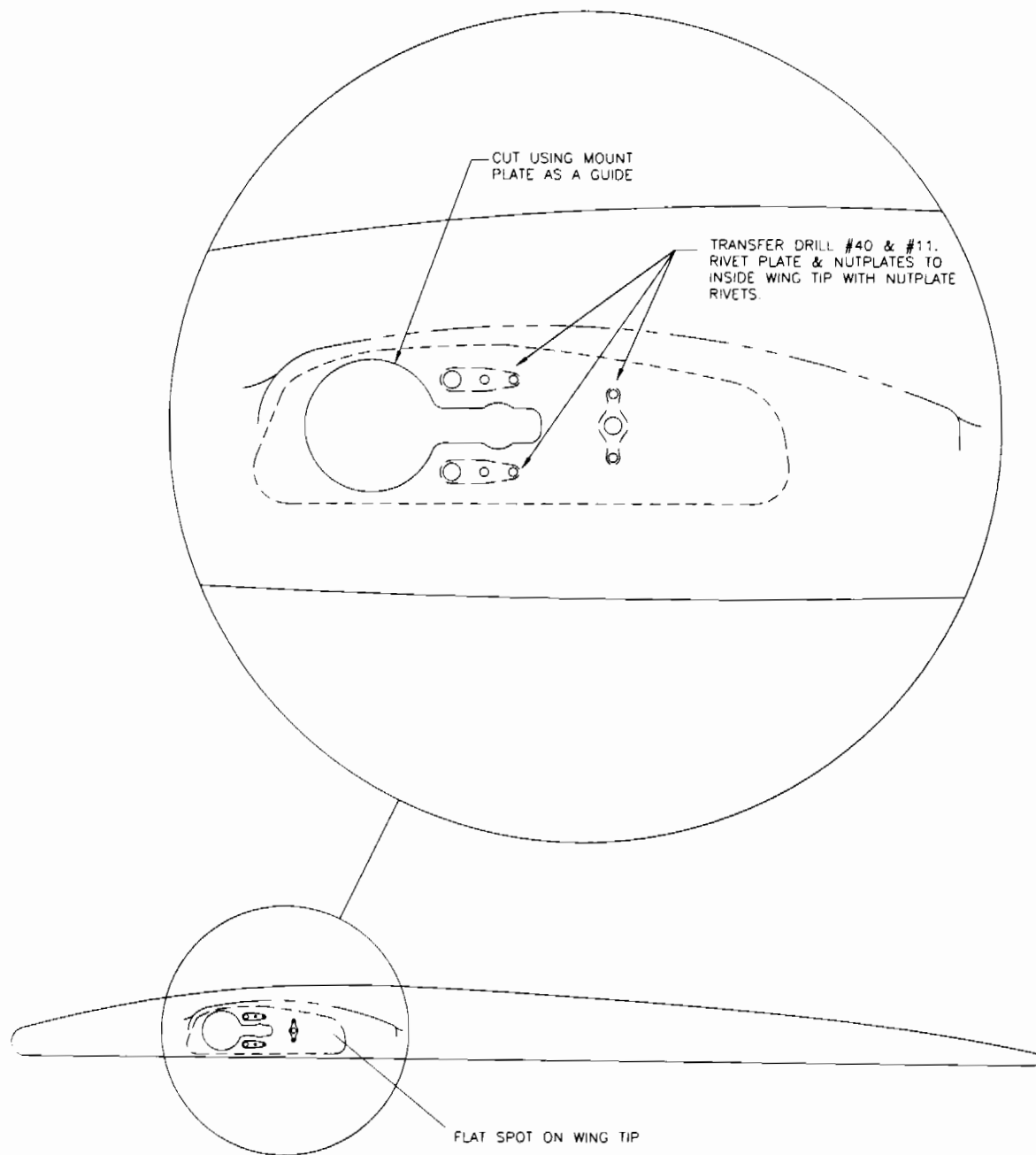
MD5550

\* 50 LBS. MAXIMUM BAGGAGE

## RANS S-7S WEIGHT & BALANCE FIGURE 10-01



RRR S-7S  
STROBE POWER BOX INSTALLATION  
FIGURE 11B-01

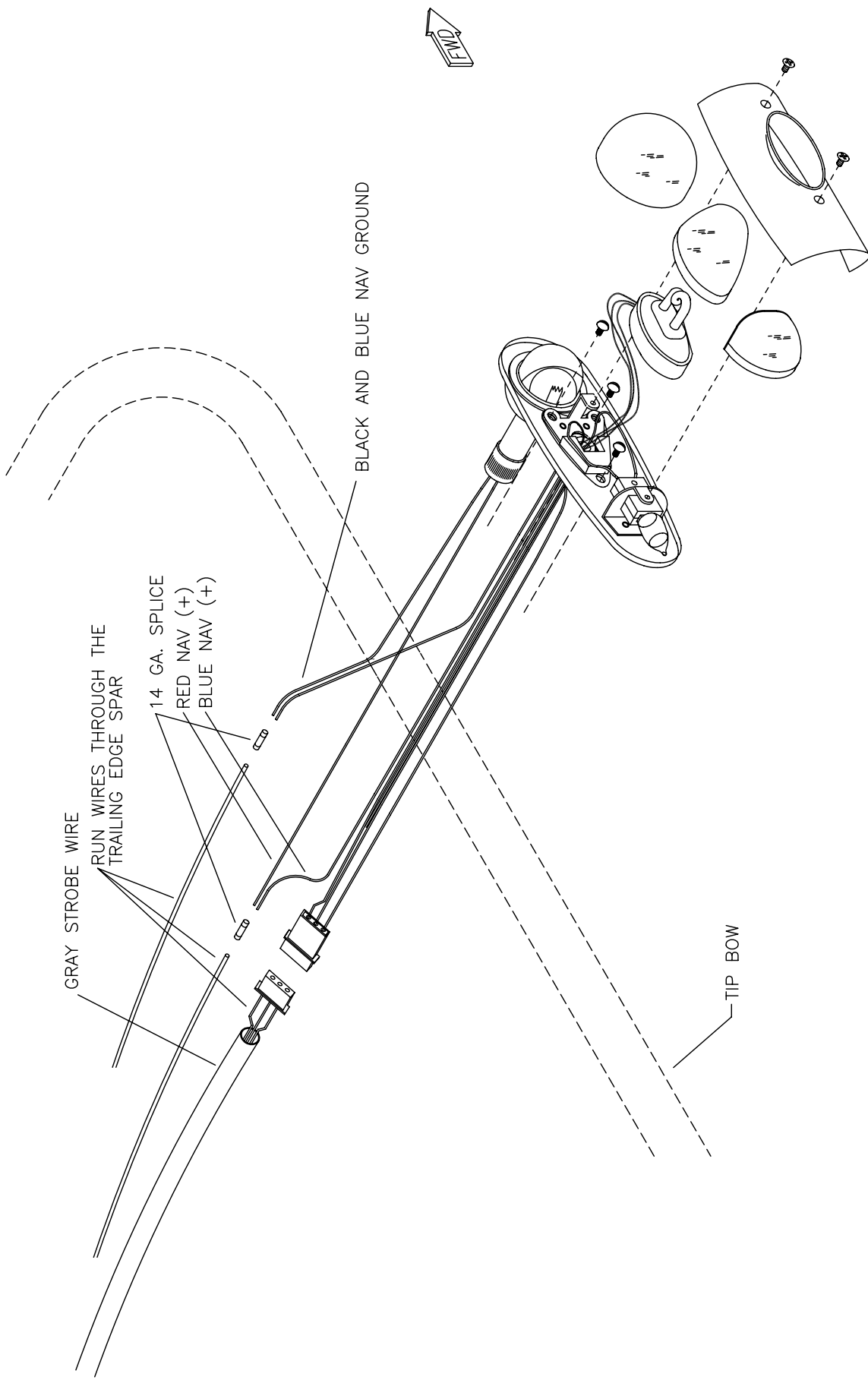


MD4483  
REV. A

**RANS S-7S**  
**STROBE / NAV WING TIP MODIFICATION**  
**FIGURE 11B-02**

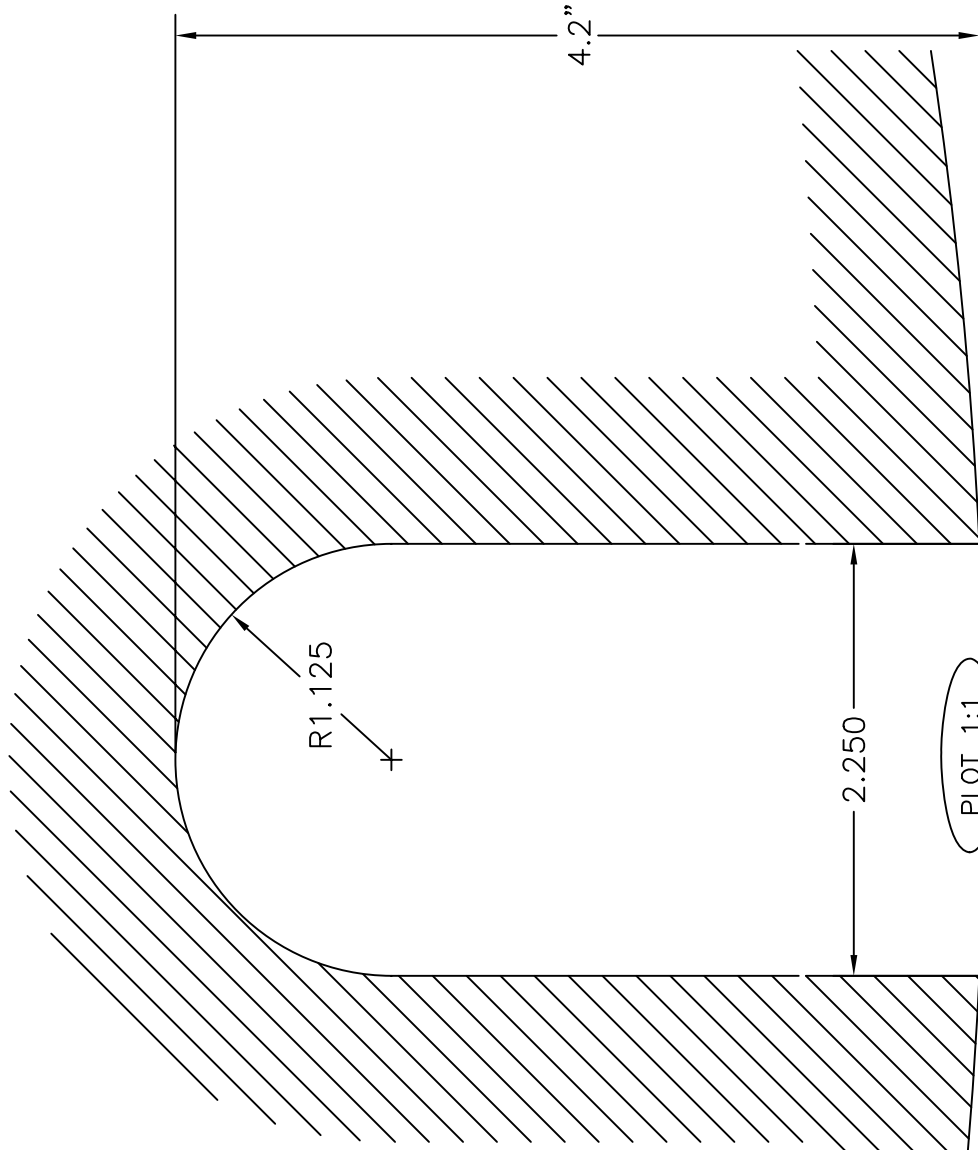
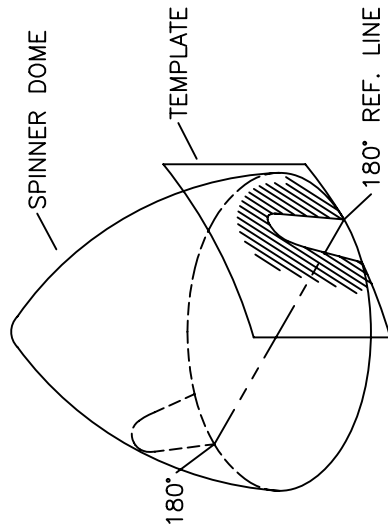
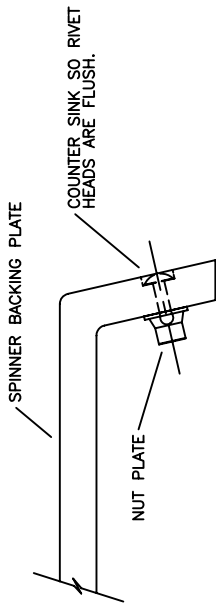
09/01/05



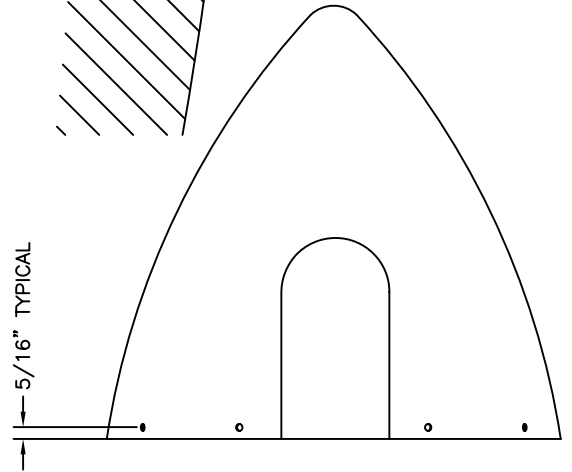


MD3719  
REV. A

**RAMSES S-7S**  
**STROBE / NAV LIGHT WIRING**  
**FIGURE 11B-03**

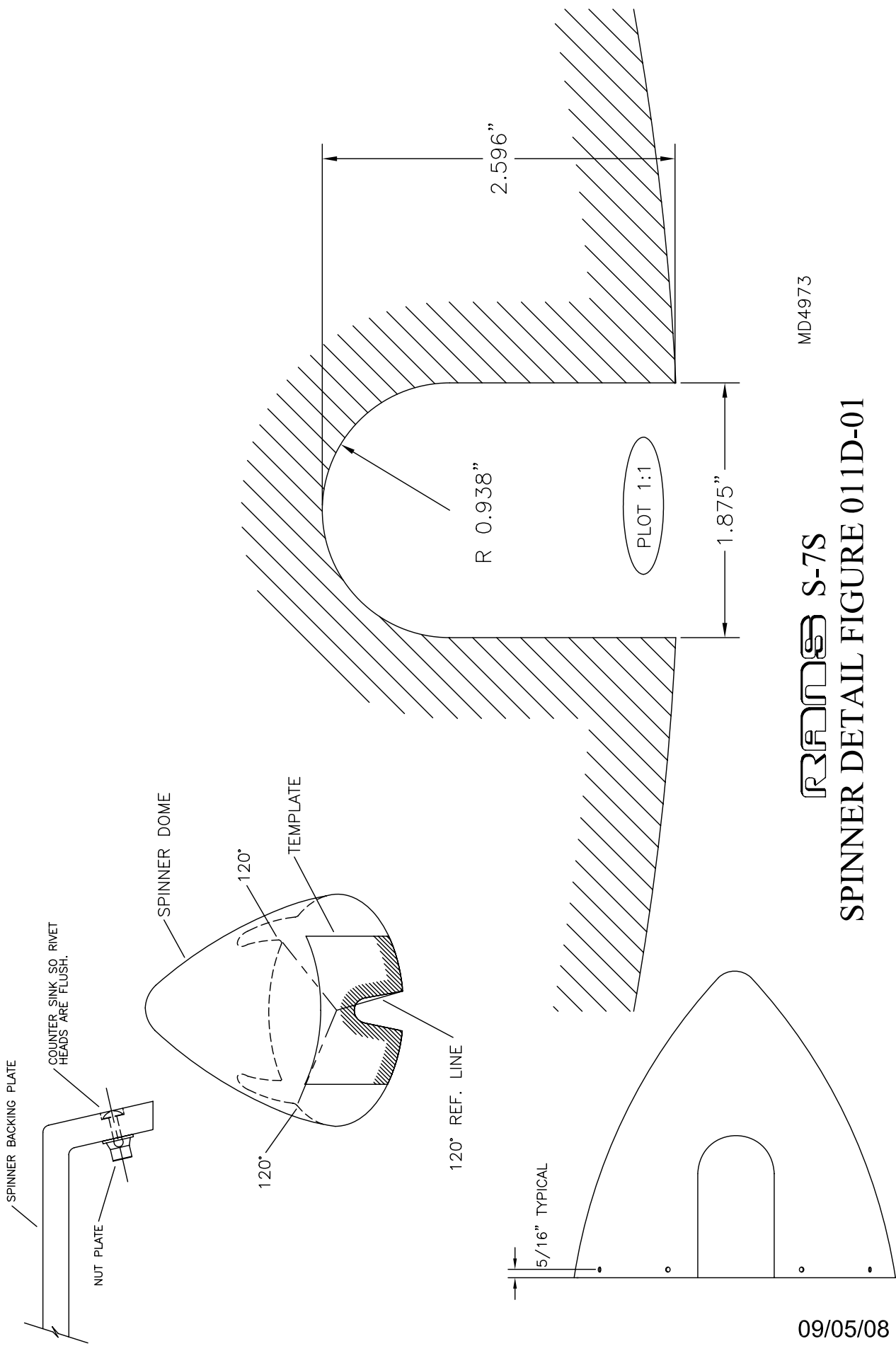


PLOT 1:1



MD4973

**RAMMS S-7S**  
 SPINNER DETAIL FIGURE 011C-01



SPINNER BACKING PLATE

COUNTER SINK SO RIVET HEADS ARE FLUSH.

NUT PLATE

SPINNER DOME

120°

TEMPLATE

120°

120° REF. LINE

R 0.938"

2.596"

PLOT 1:1

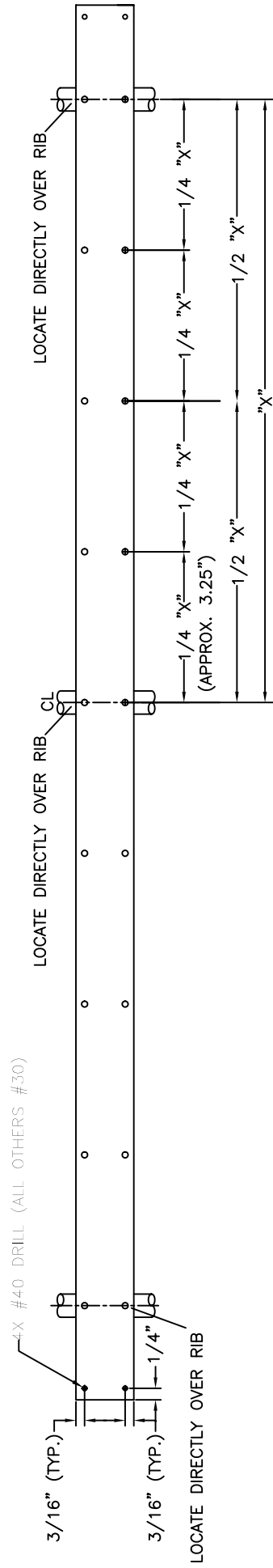
1.875"

5/16" TYPICAL

09/05/08

MD4973

**RAMS S-7S**  
**SPINNER DETAIL FIGURE 011D-01**



MD5471



S-7S

# WINDSHIELD MATING STRIP MODIFICATION

FIGURE 011E-04