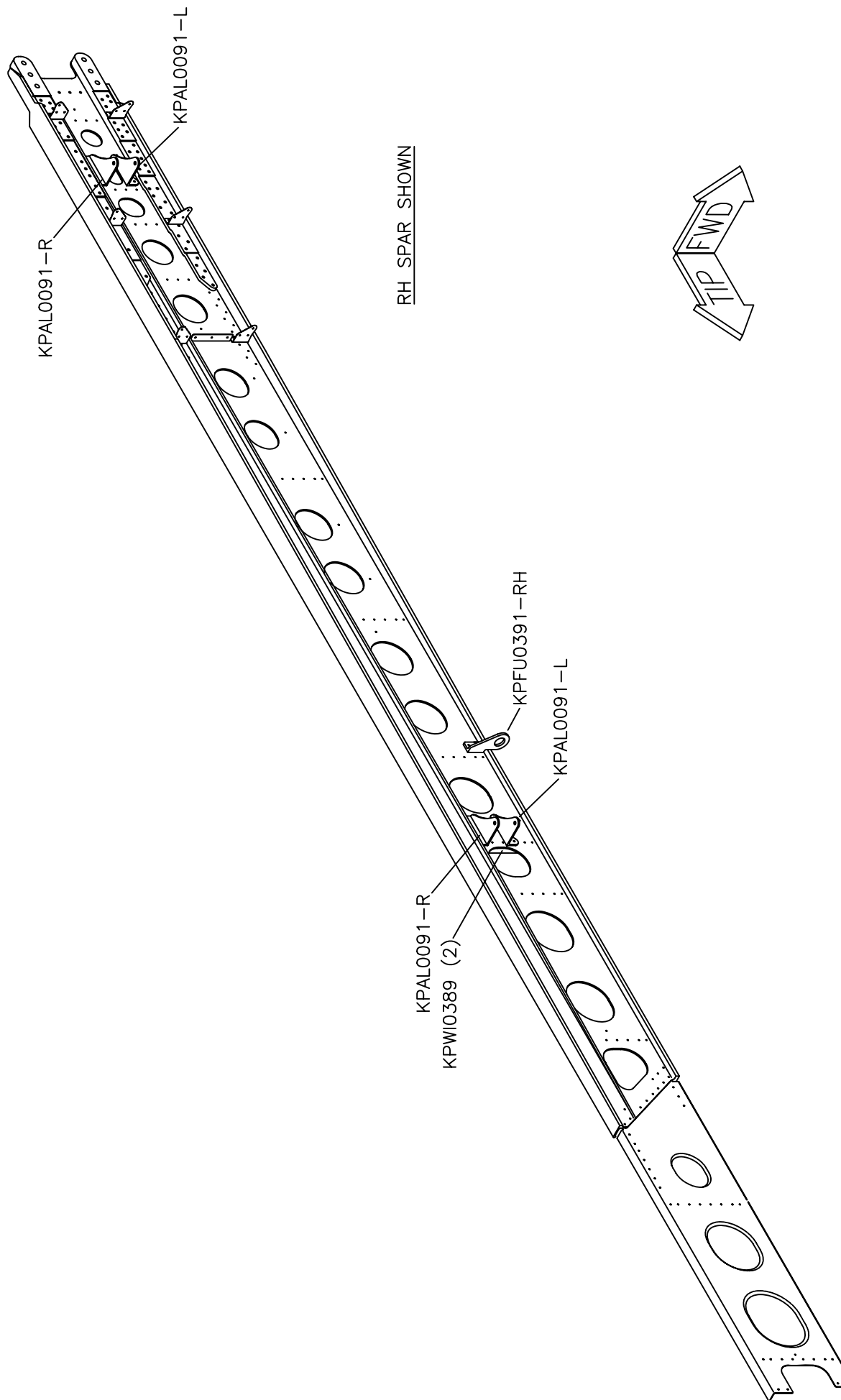


## 03 – WING ASSEMBLY

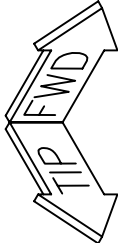
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WING INCIDENCE JIG TEMPLATE .....	03K-09B
WING INCIDENCE JIG TEMPLATE .....	03K-09C
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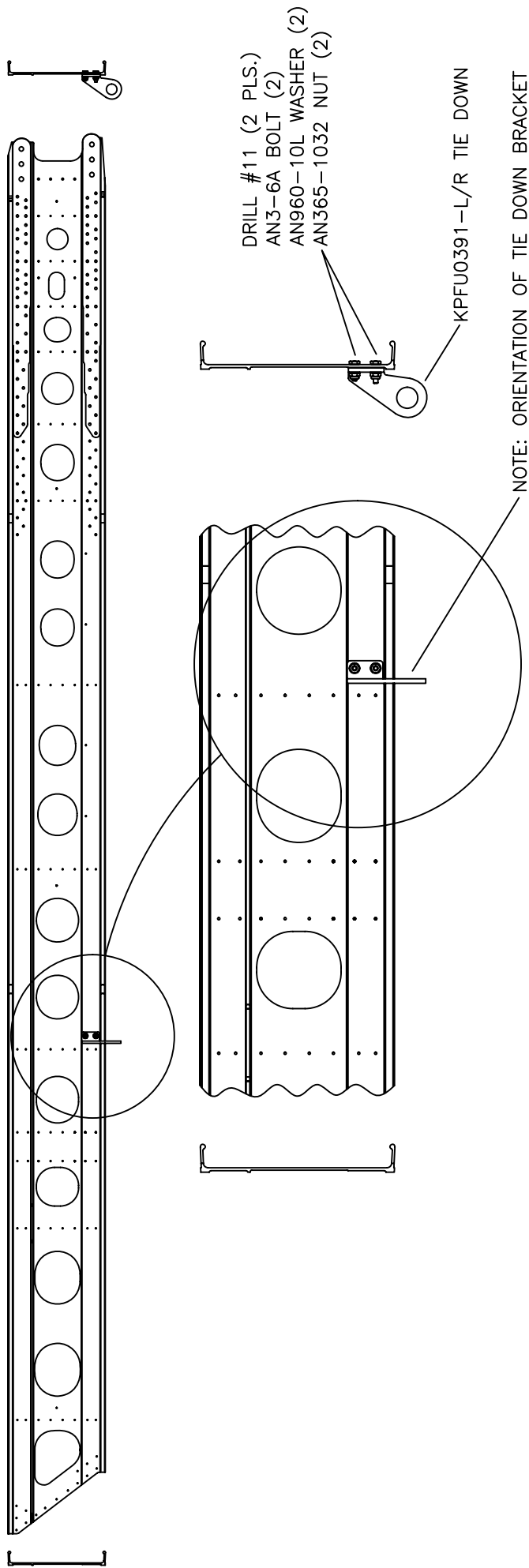
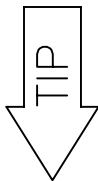


RH SPAR SHOWN



MD4912

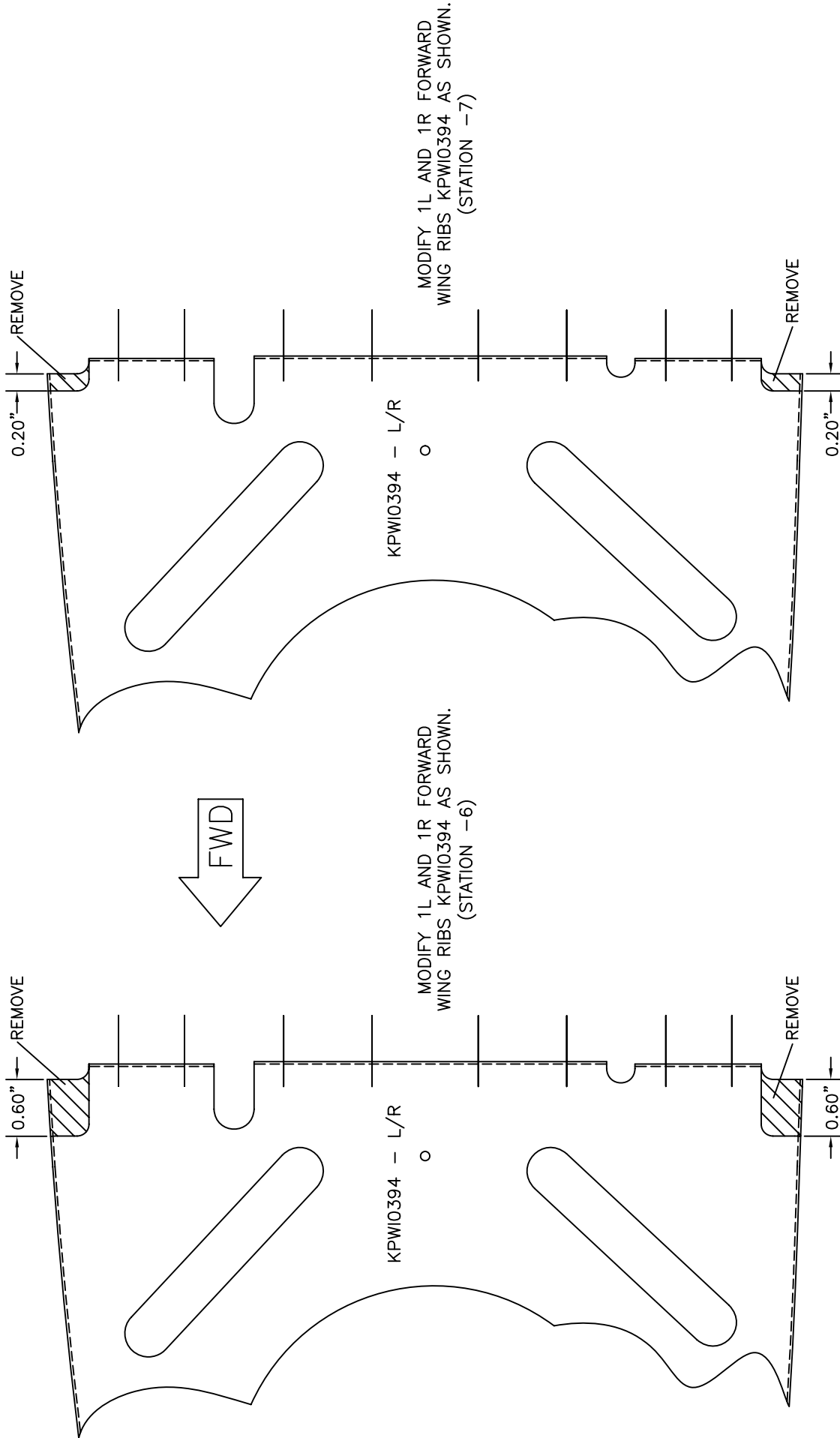
**RRR** S-19 VENTERRA  
 WING SPAR ASSEMBLY  
 FIGURE 03-01



**RAMS S-19 VENTERRA**  
**WING SPAR ASSEMBLY**

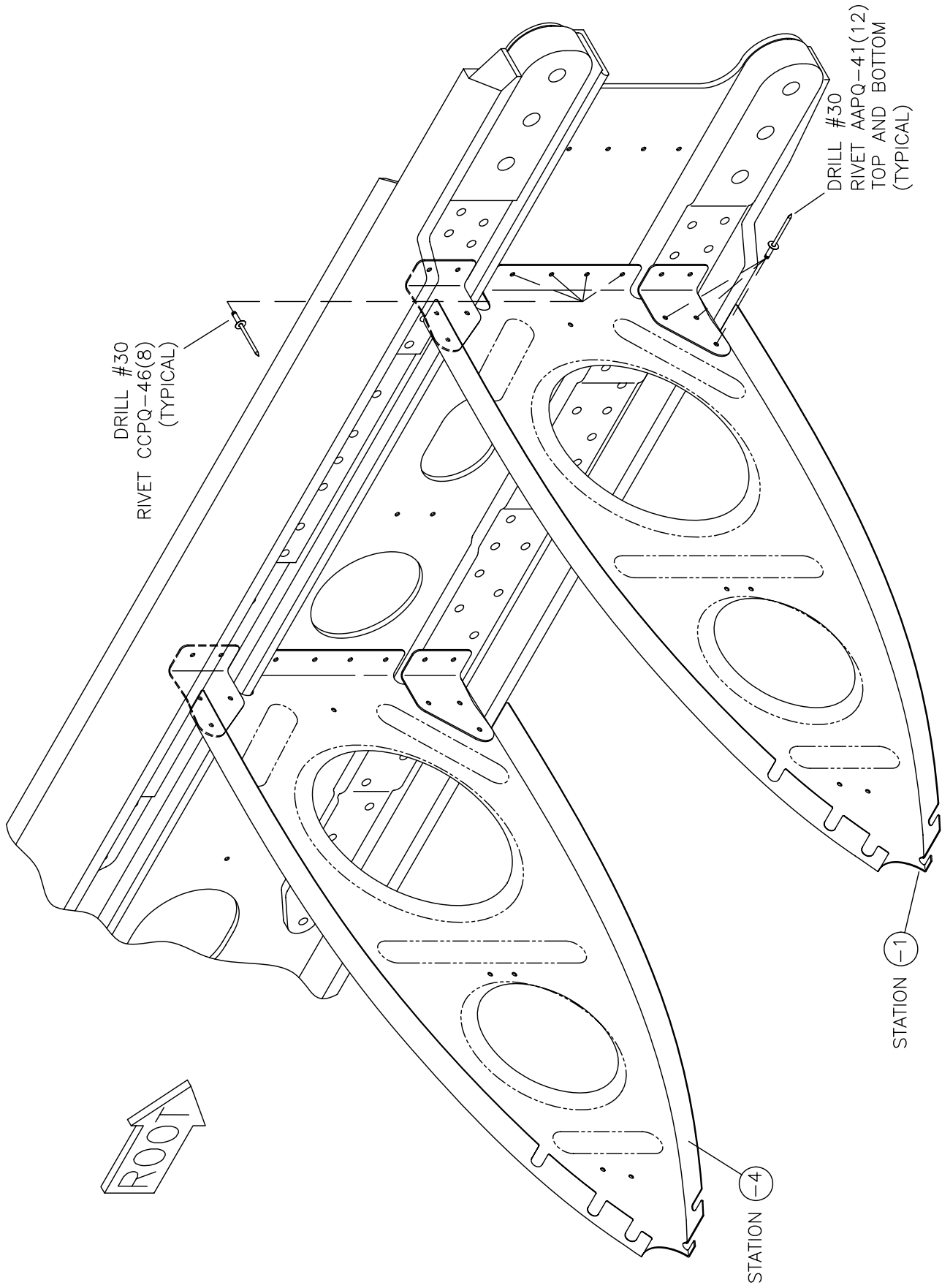
**INSTALLATION OF TIE DOWN BRACKET**  
**FIGURE 03-01A**

MD4910



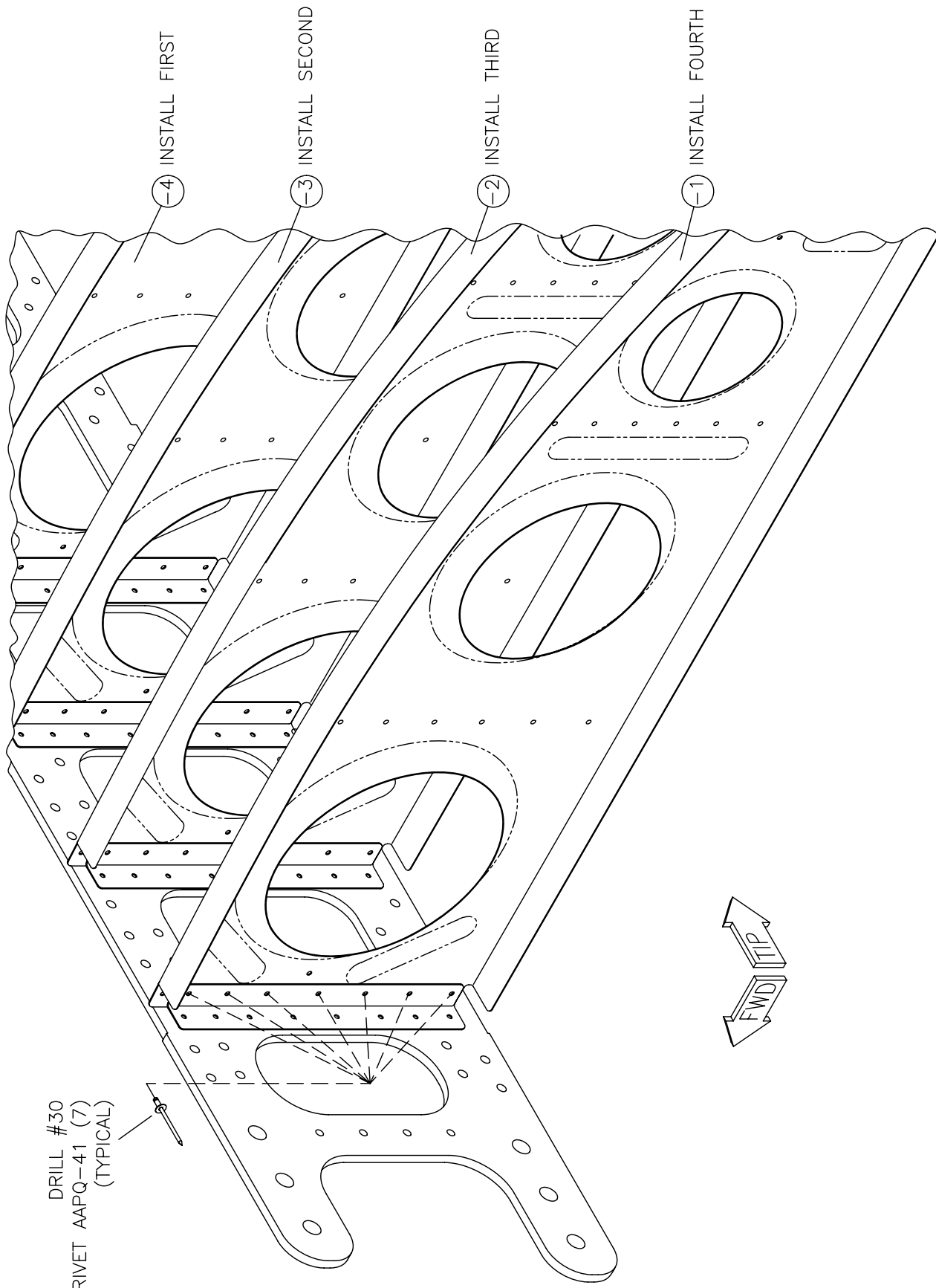
MD4826

**RAMS S-19 VENTERRA**  
**FORWARD WING RIB MODIFICATION**  
**FIGURE 03A-04**



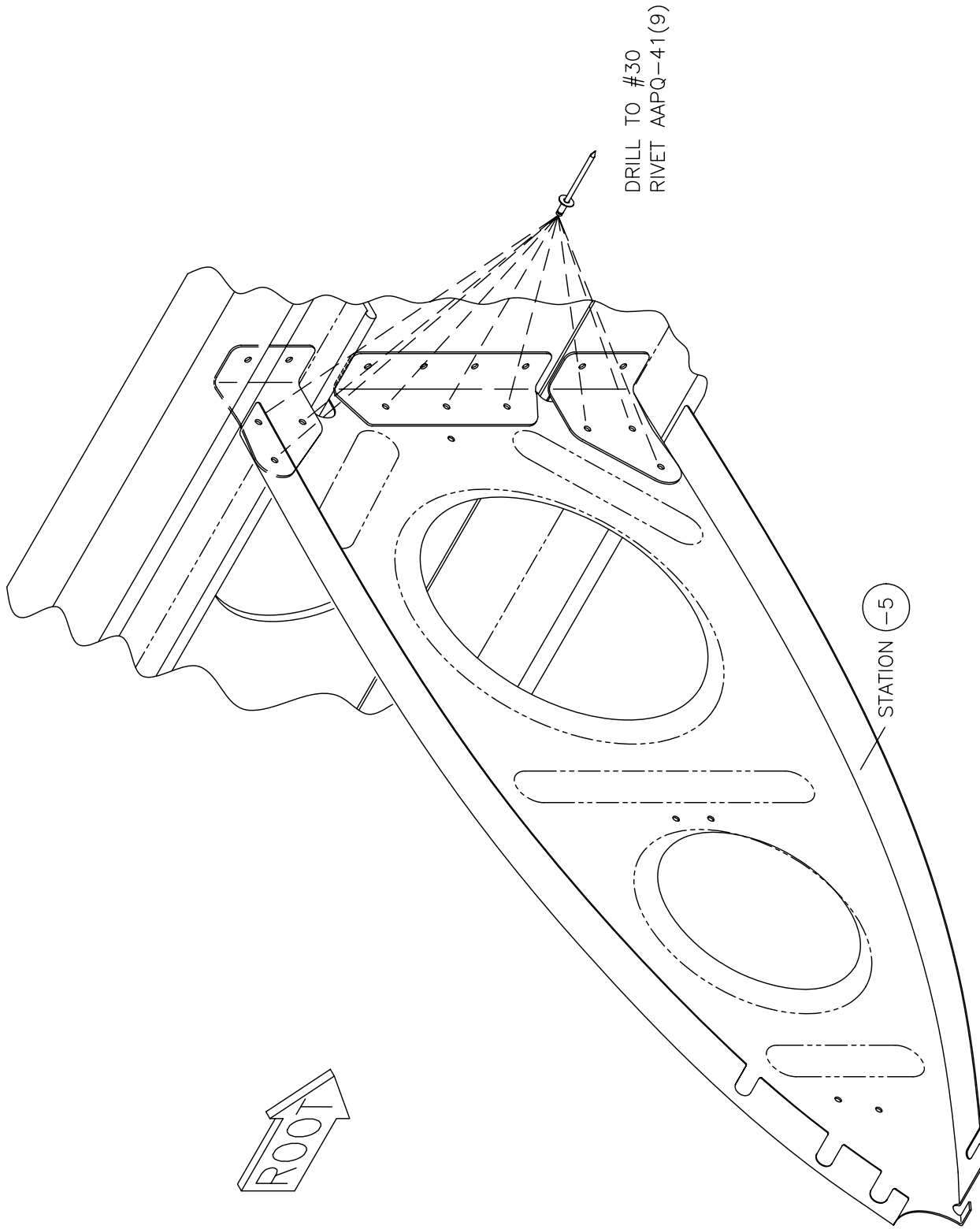
MD4901

**RAMS S-19 VENTERRA**  
**WING RIB INSTALLATION-NOSE RIBS - STATIONS -1 & -4**  
**FIGURE 03A-05**



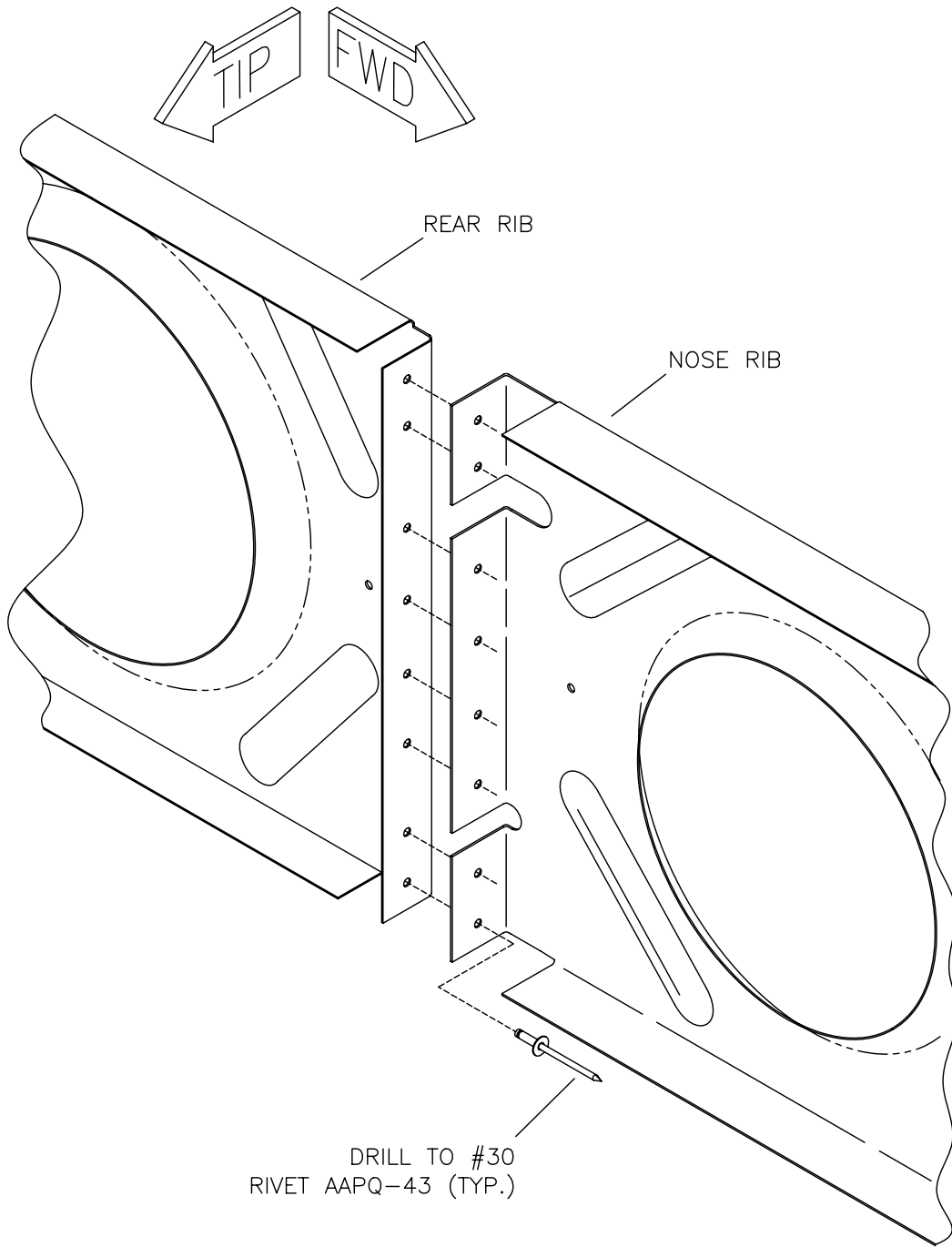
**RRR** S-19 VENTERRA  
WING RIB INSTALLATION - REAR RIBS - STATIONS -1 & -4  
FIGURE 03A-06





MD4900

**RRM03 S-19 VENTERRA**  
**WING RIB INSTALLATION - NOSE RIB - STATION -5**  
**FIGURE 03A-08**

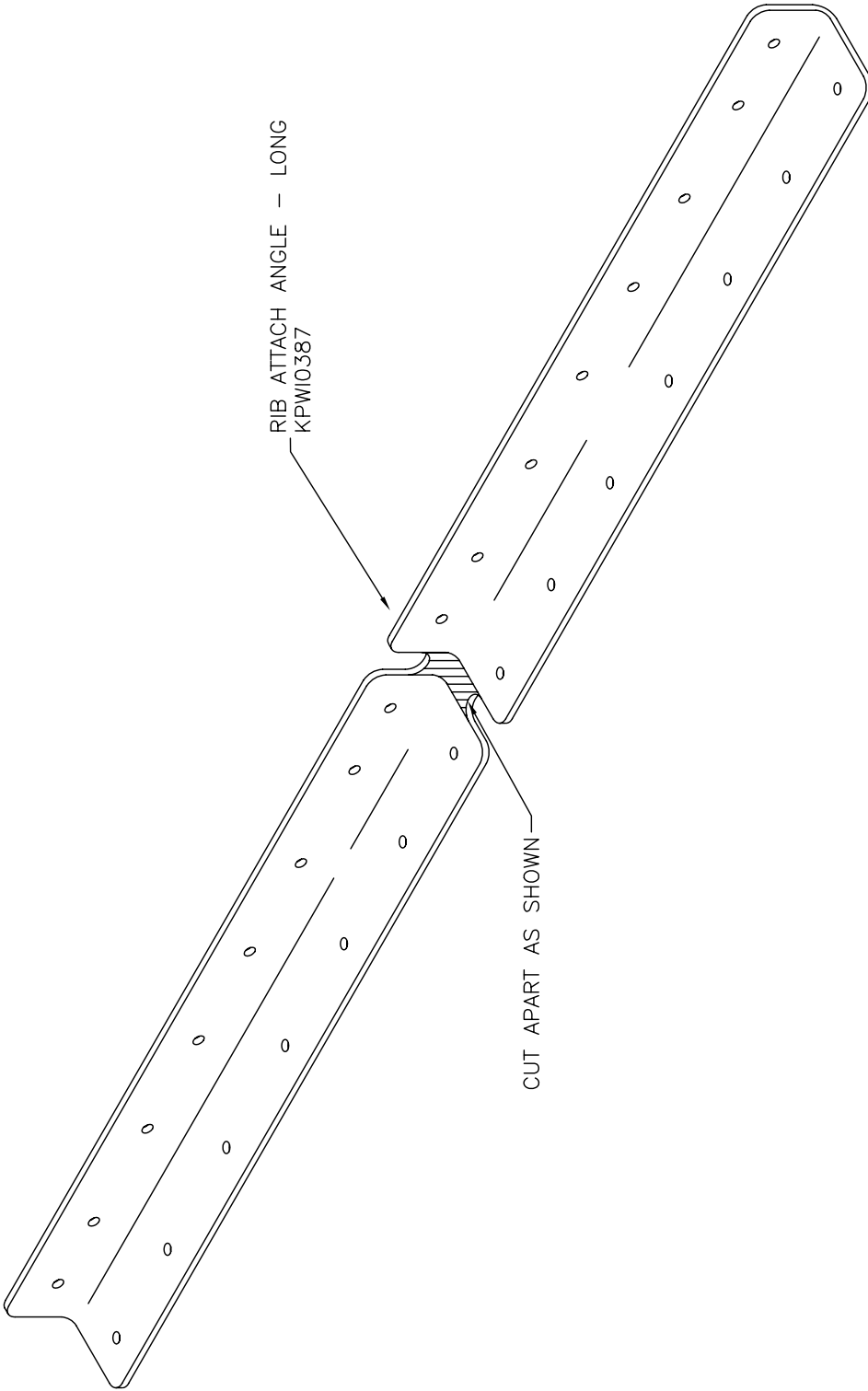


NOTE: WING SPAR IS REMOVED FOR CLARITY

MD4904

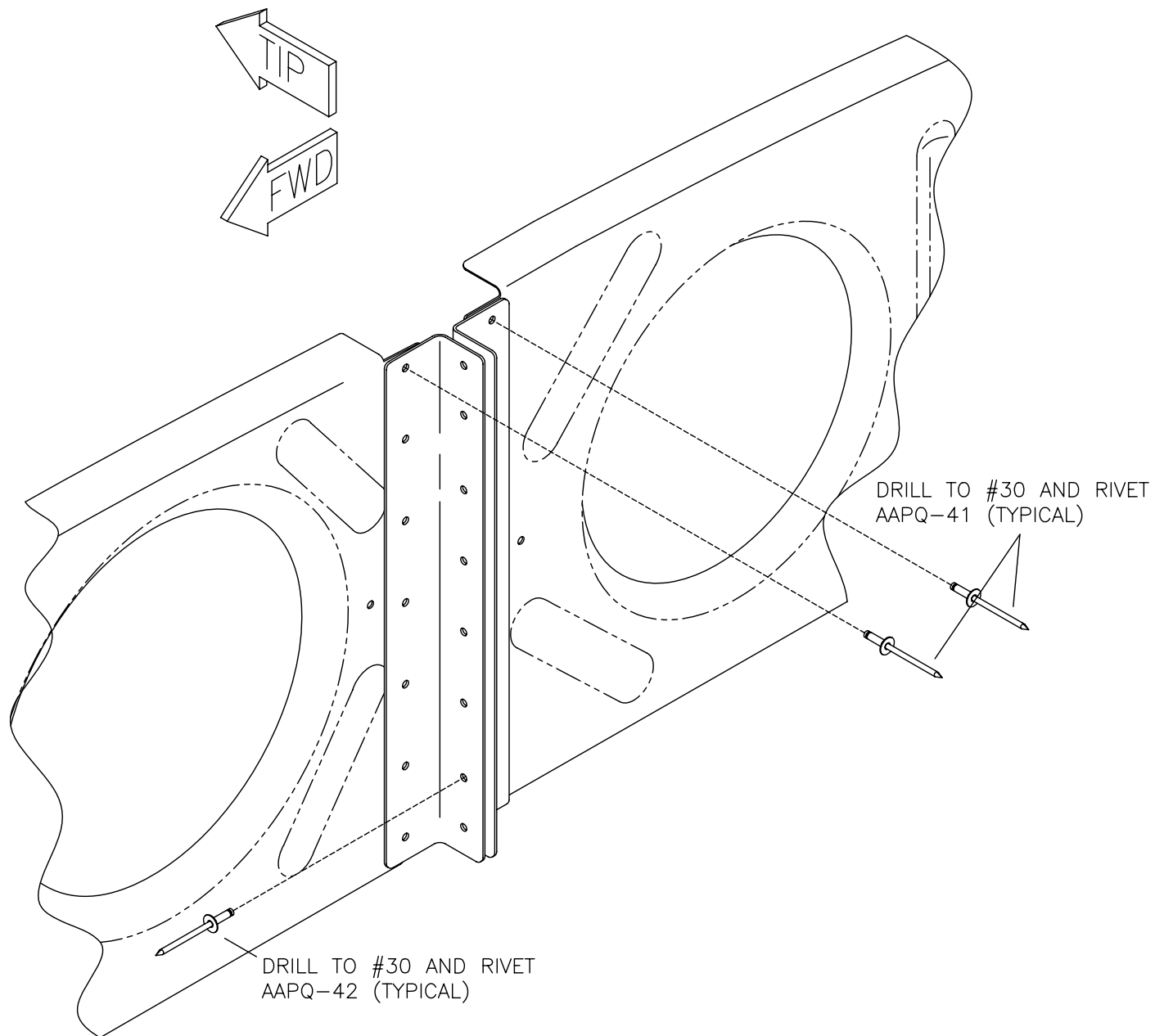
**RANS S-19 VENTERRA**  
**WING RIB INSTALLATION - STATIONS -7 TO -10**  
**FIGURE 03A-10**

04/01/2011



MD5476

**RAMS S-19 VENTERRA**  
**RIB ATTACH ANGLE MODIFICATION**  
**FIGURE 03A-12**

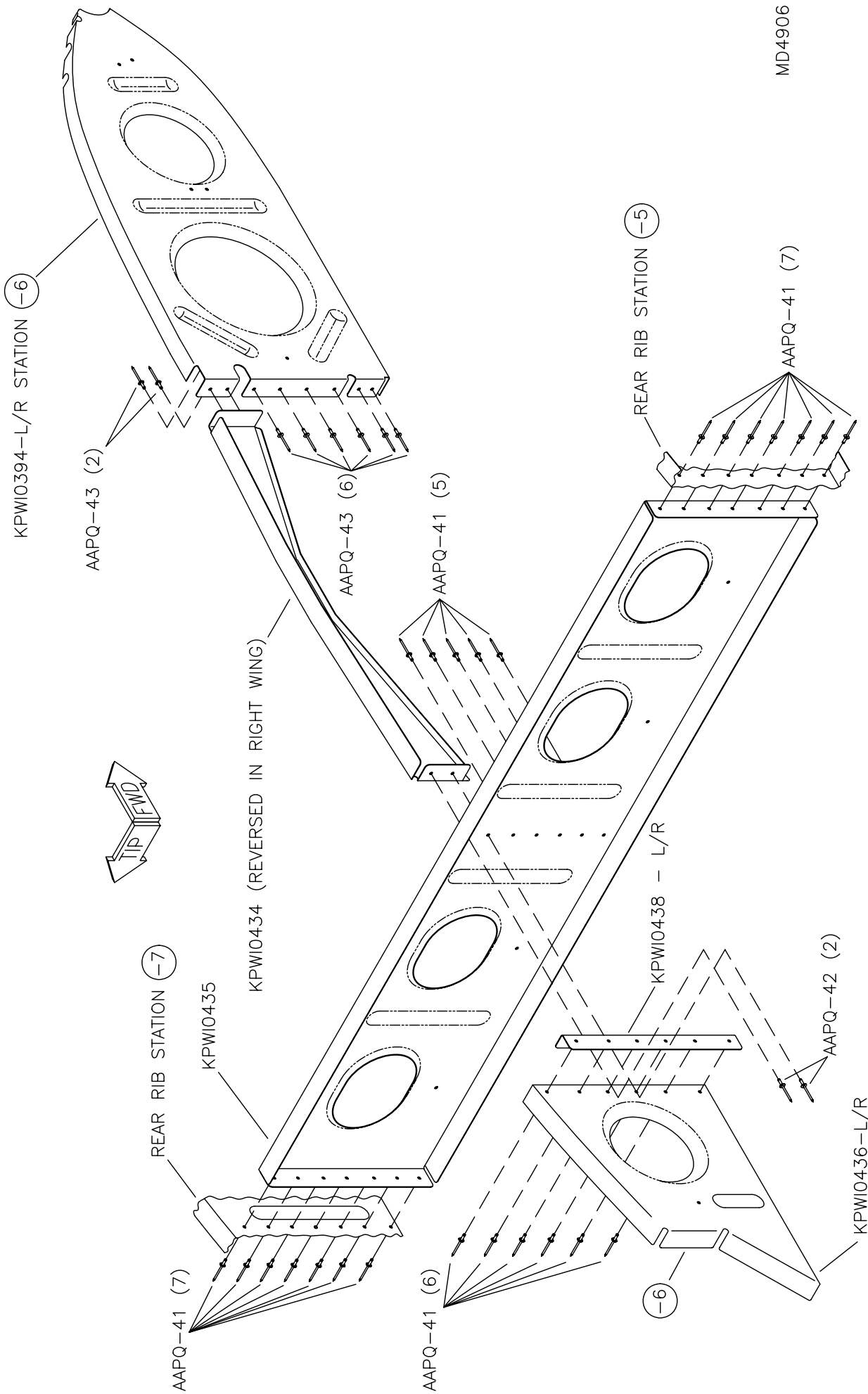


NOTE: TIP SPAR CHANNEL IS REMOVED FOR CLARITY.

MD4905

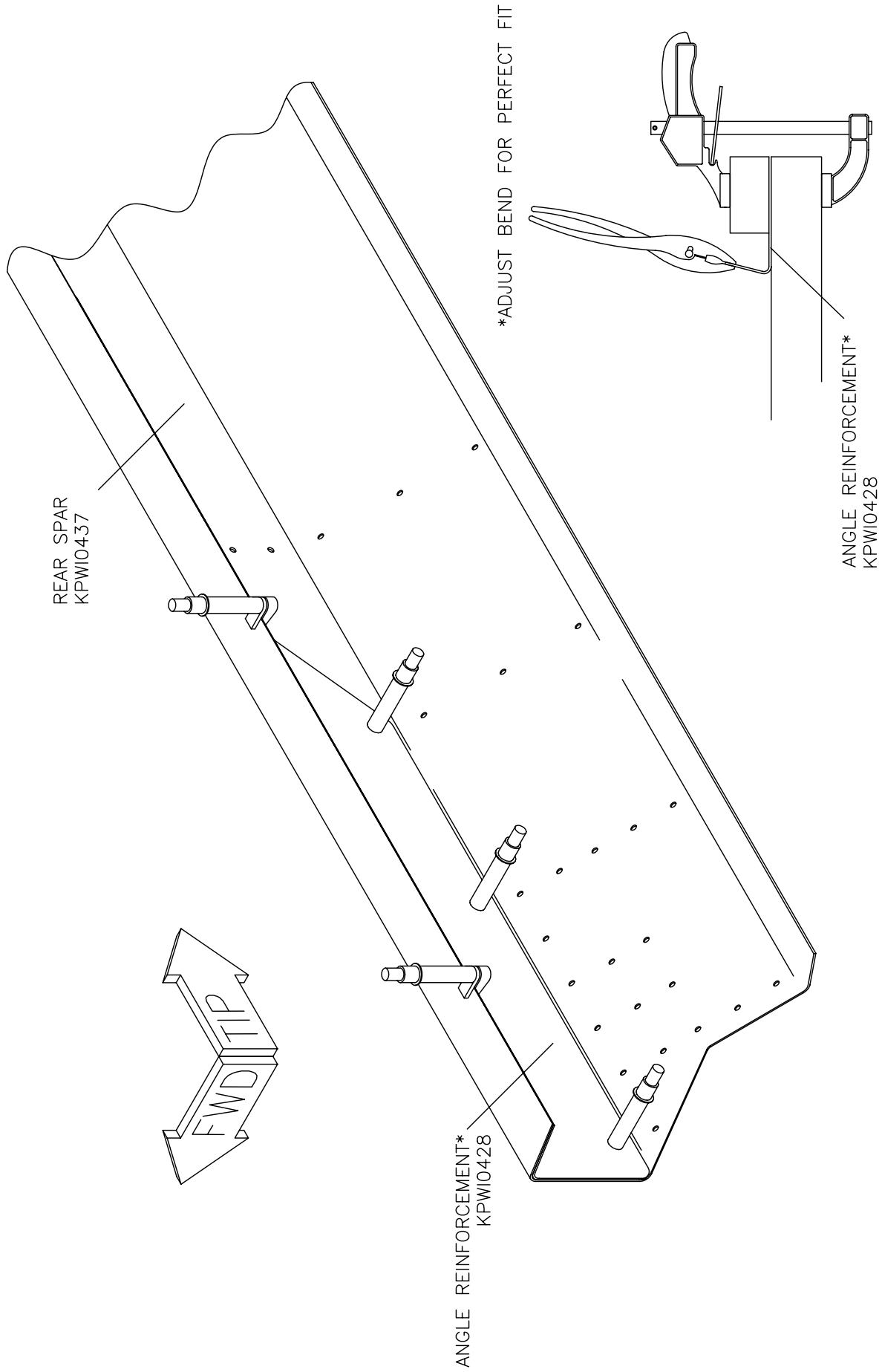
**RANS S-19 VENTERRA**  
**WING RIB INSTALLATION - STATIONS -11 TO -12**  
**FIGURE 03A-12A**

04/01/2011



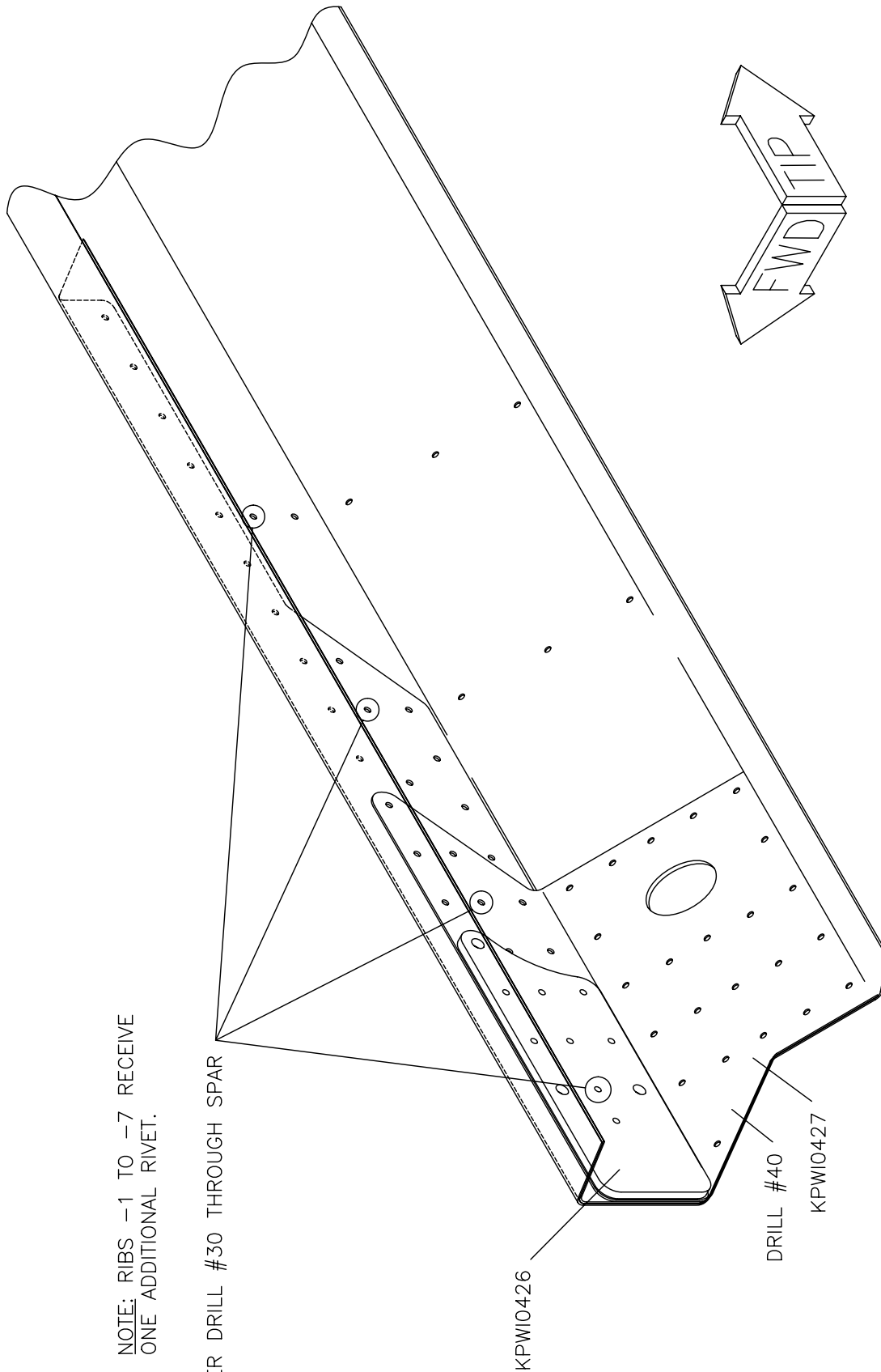
NOTE: WING SPAR REMOVED FOR CLARITY.

**RAMS S-19 VENTERRA**  
**WING RIB INSTALLATION-TANK BAY AREA - STATIONS -5 TO -7**  
**FIGURE 03B-04**



MD4885

**RAMS** S-19 VENTERRA  
TRAILING EDGE SPAR  
FIGURE 03C-01



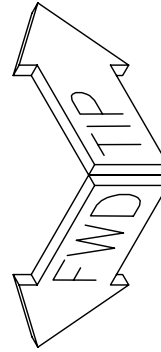
NOTE: RIBS -1 TO -7 RECEIVE  
ONE ADDITIONAL RIVET.

TRANSFER DRILL #30 THROUGH SPAR

KPWI0426

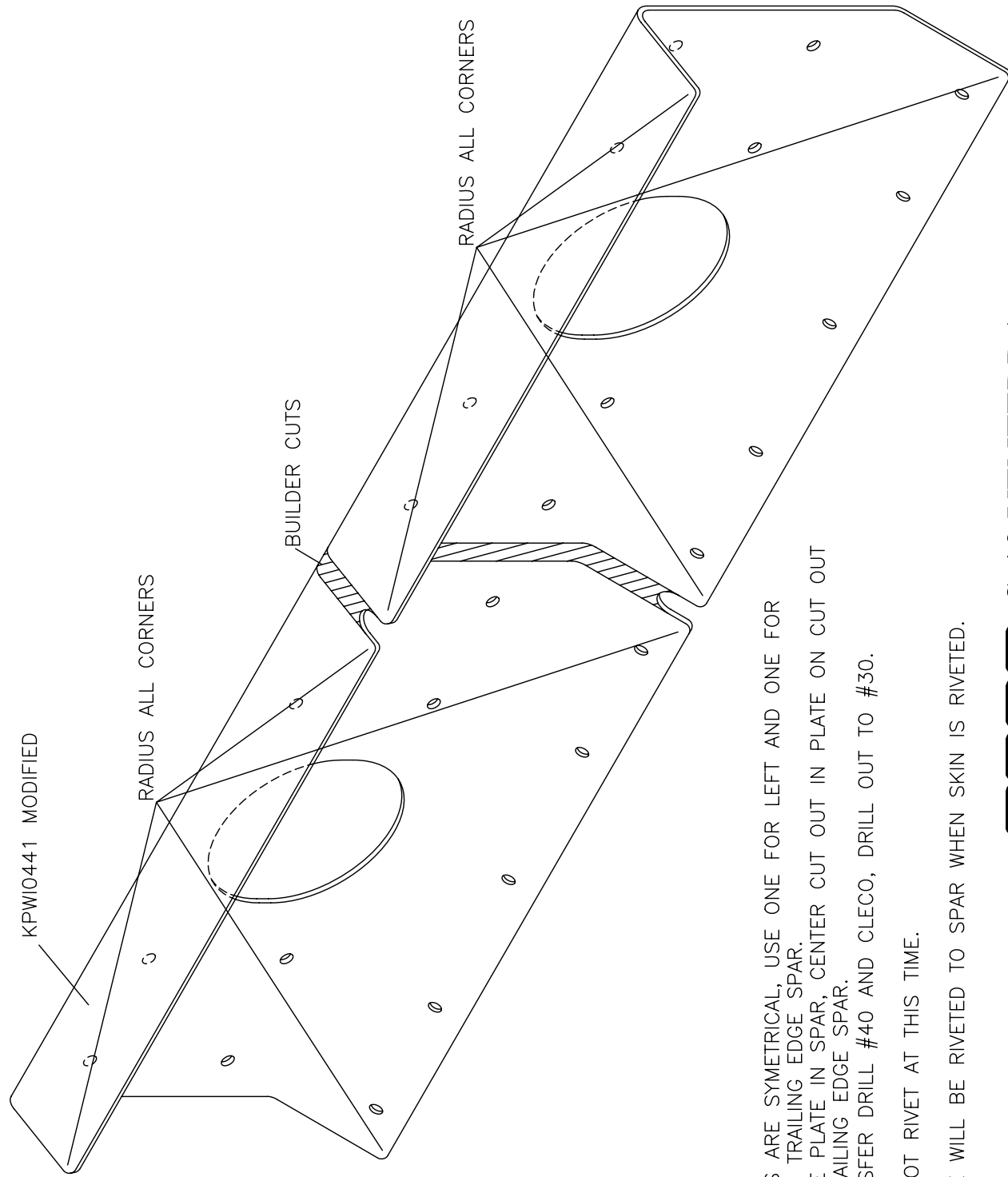
DRILL #40

KPWI0427



MD4885

**RAMS S-19 VENTRA**  
**TRAILING EDGE SPAR**  
**FIGURE 03C-03**



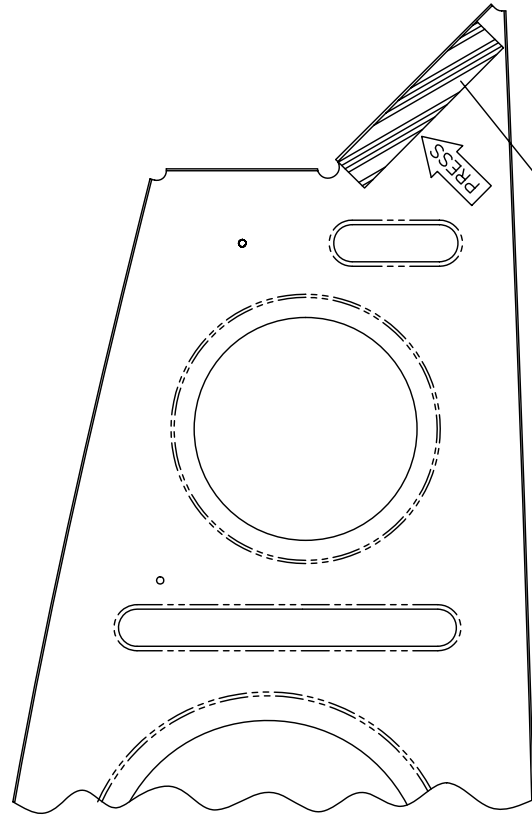
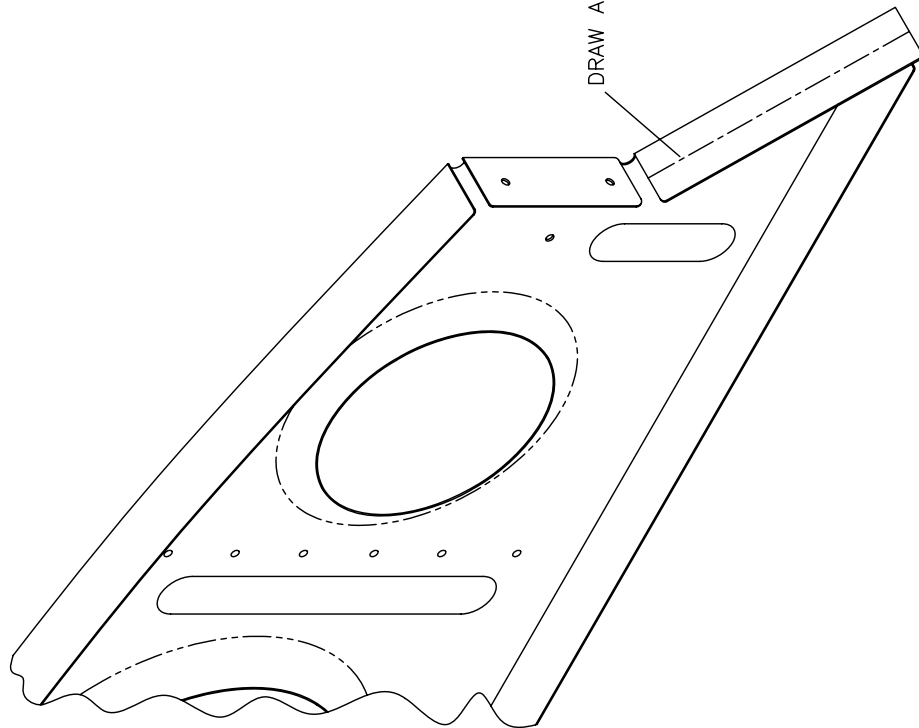
NOTE: PARTS ARE SYMMETRICAL, USE ONE FOR LEFT AND ONE FOR RIGHT TRAILING EDGE SPAR.  
 PLACE PLATE IN SPAR, CENTER CUT OUT IN PLATE ON CUT OUT IN TRAILING EDGE SPAR.  
 TRANSFER DRILL #40 AND CLECO, DRILL OUT TO #30.

DO NOT RIVET AT THIS TIME.

PLATE WILL BE RIVETED TO SPAR WHEN SKIN IS RIVETED.

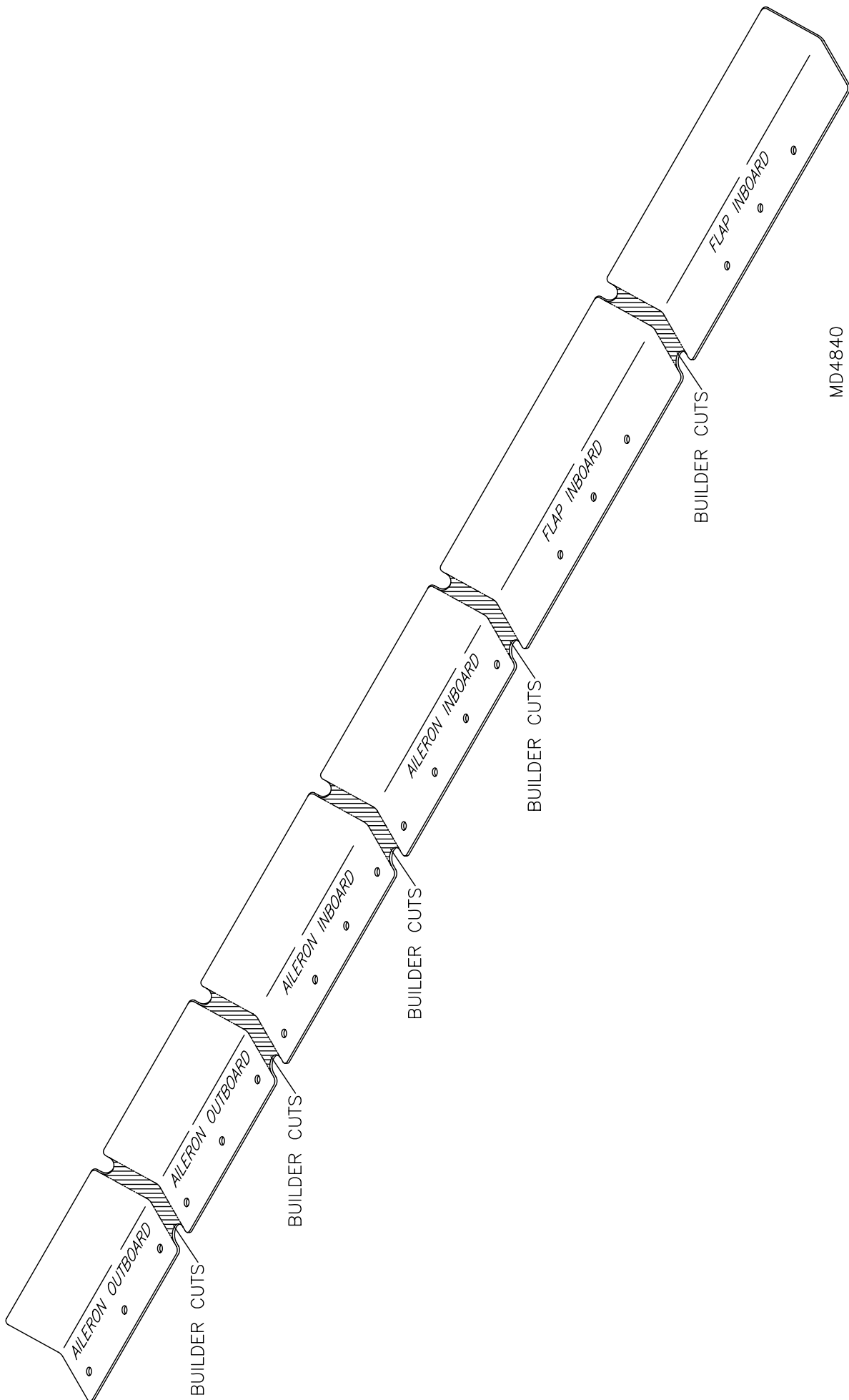
**RAMS S-19 VENTERRA**  
**PLATE SPAR REINFORCEMENT MODIFICATION**  
**FIGURE 03C-04**





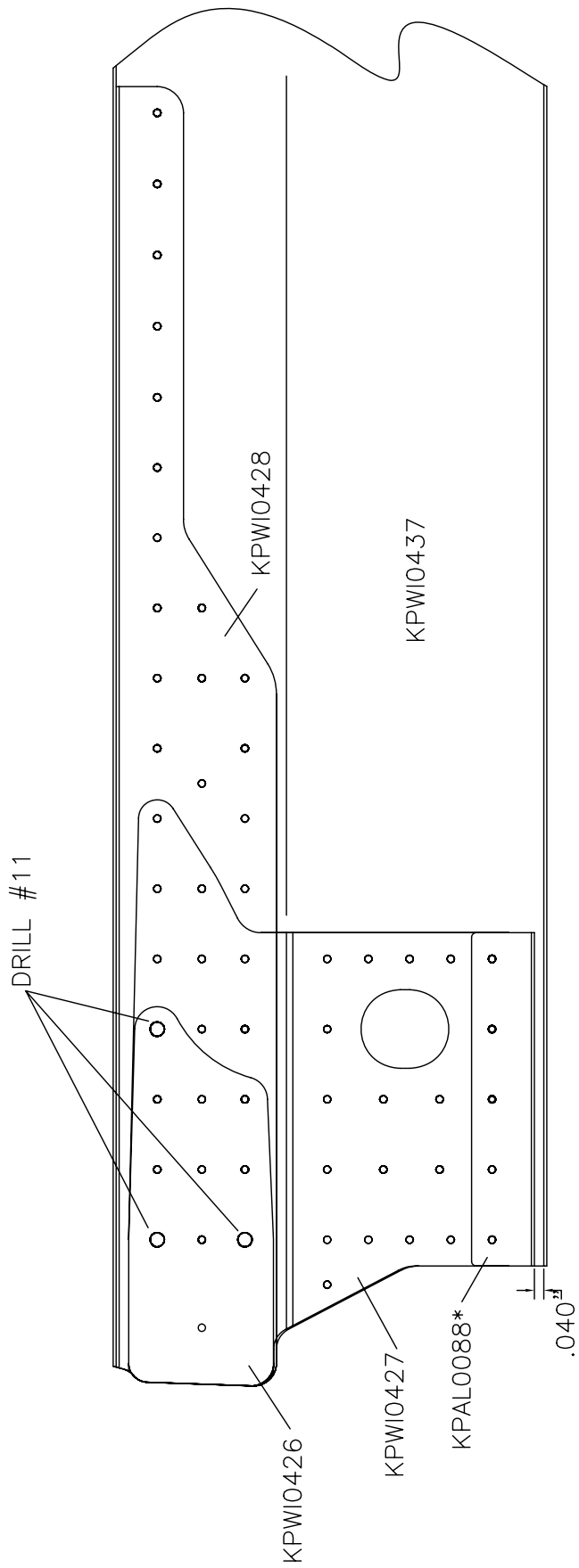
MD4885

**RAMS S-19 VENTERRA**  
**TRAILING EDGE SPAR**  
**FIGURE 03C-05**



MD4840

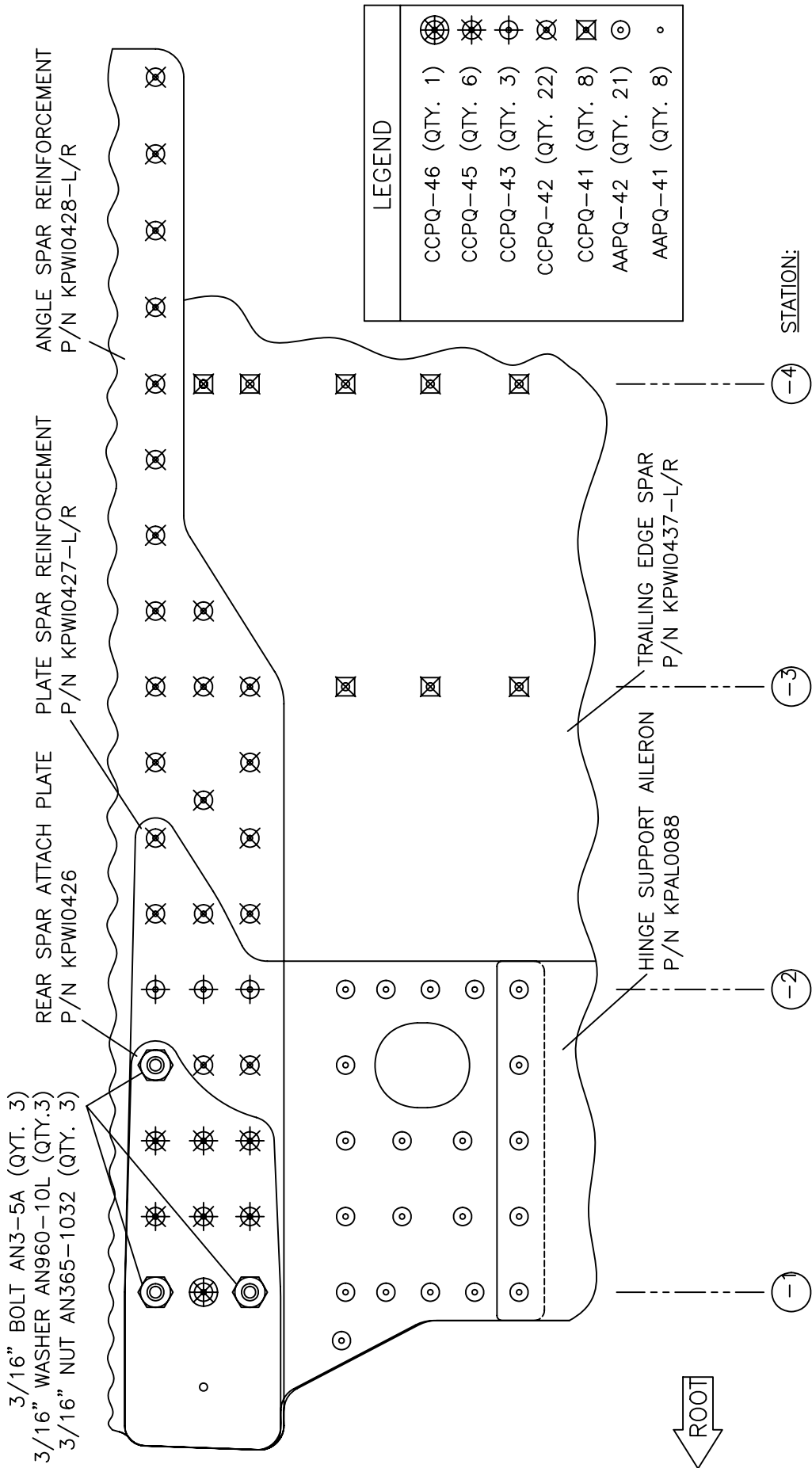
**RRR** S-19 VENTERRA  
HINGE SUPPORT MODIFICATION  
FIGURE 03C-06



\*NOTE: USE A PIECE OF HINGE TO SPACE THIS PART.

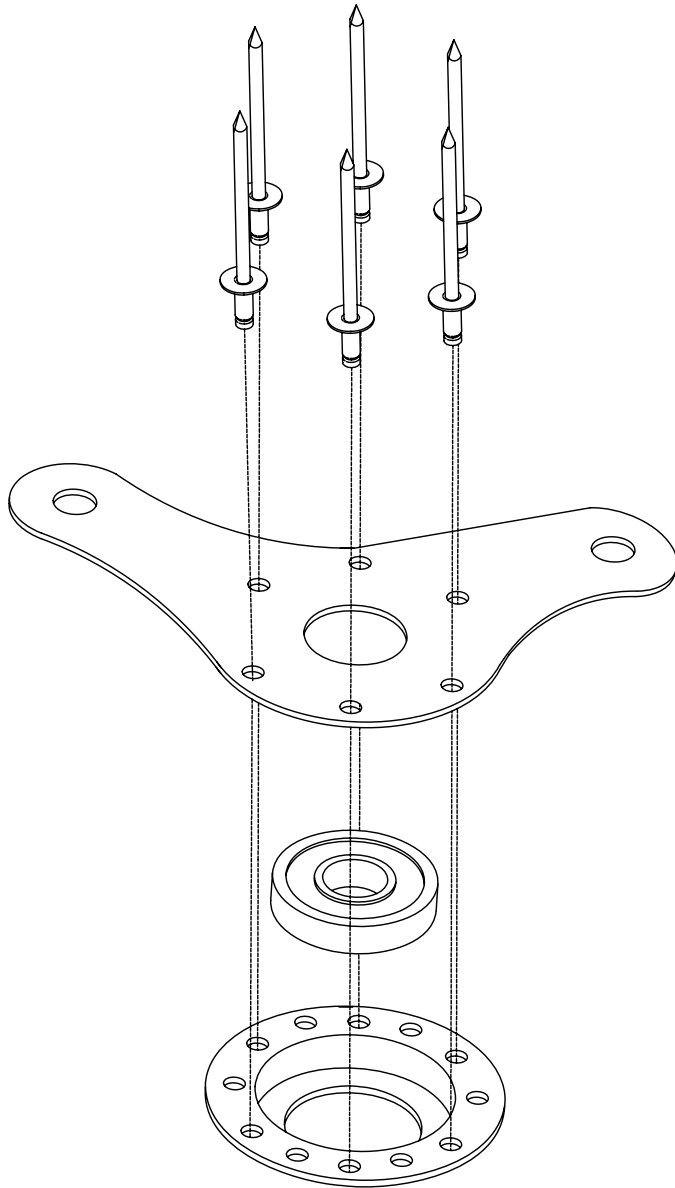
MD4885

**RAMS S-19 VENTERRA**  
**TRAILING EDGE SPAR**  
**FIGURE 03C-06A**



MD4884  
 REV. A

**RAMS S-19 VENTERRA**  
**TRAILING EDGE SPAR-ROOT ATTACH**  
**FIGURE 03C-07**

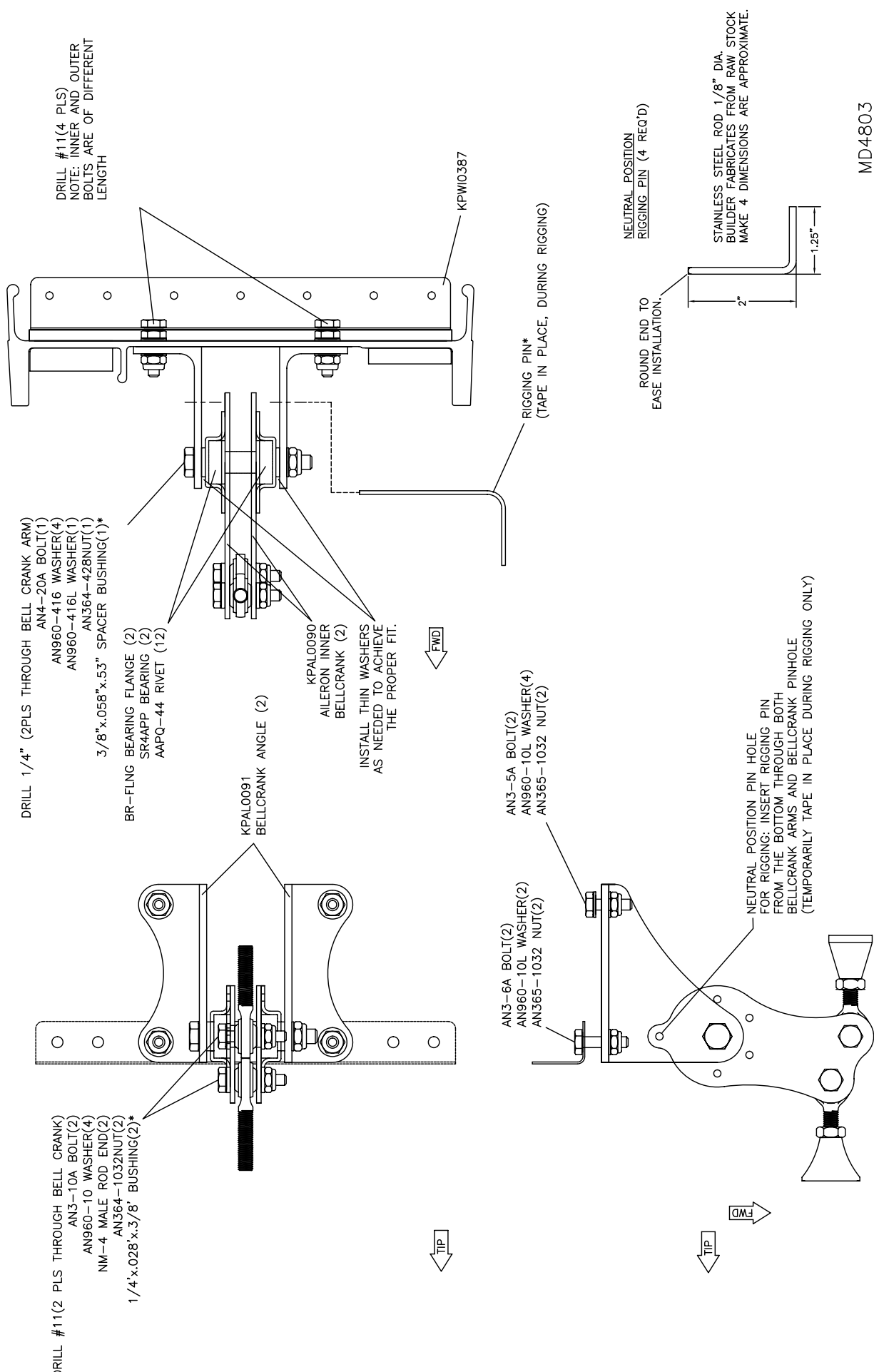


TYPICAL FOR ALL BELLCRANK ASSEMBLIES

**RANS S-19 VENTERRA**  
**TYPICAL BELLCRANK ASSEMBLY**  
**FIGURE 03D-01**

MD4886

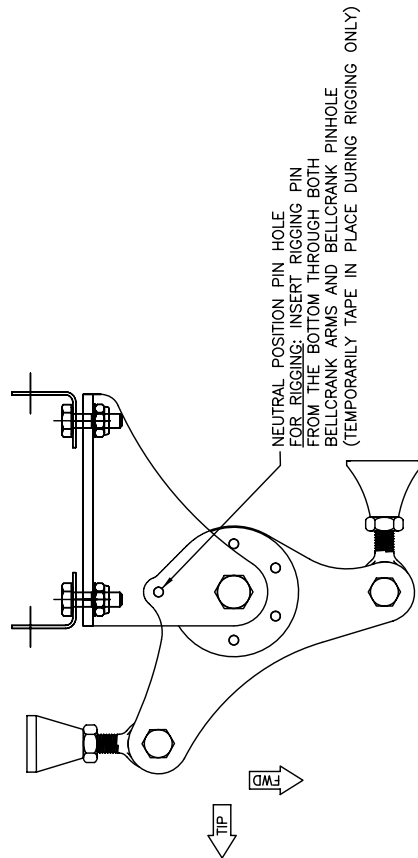
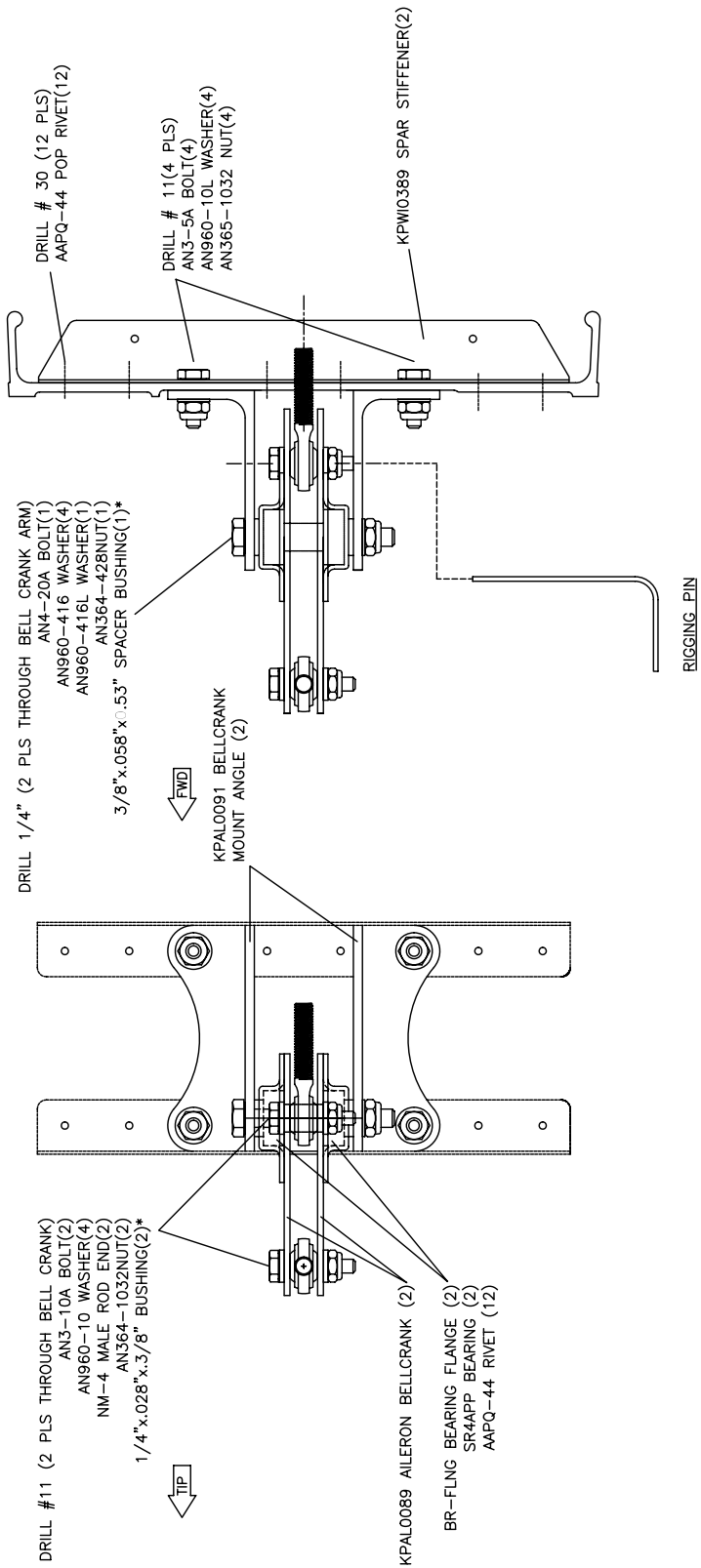
04/01/2011



MD4803

**RAMS S-19 VENTERRA**  
**AILERON INNER BELLCRANK INSTALLATION**  
**FIGURE 03D-03**

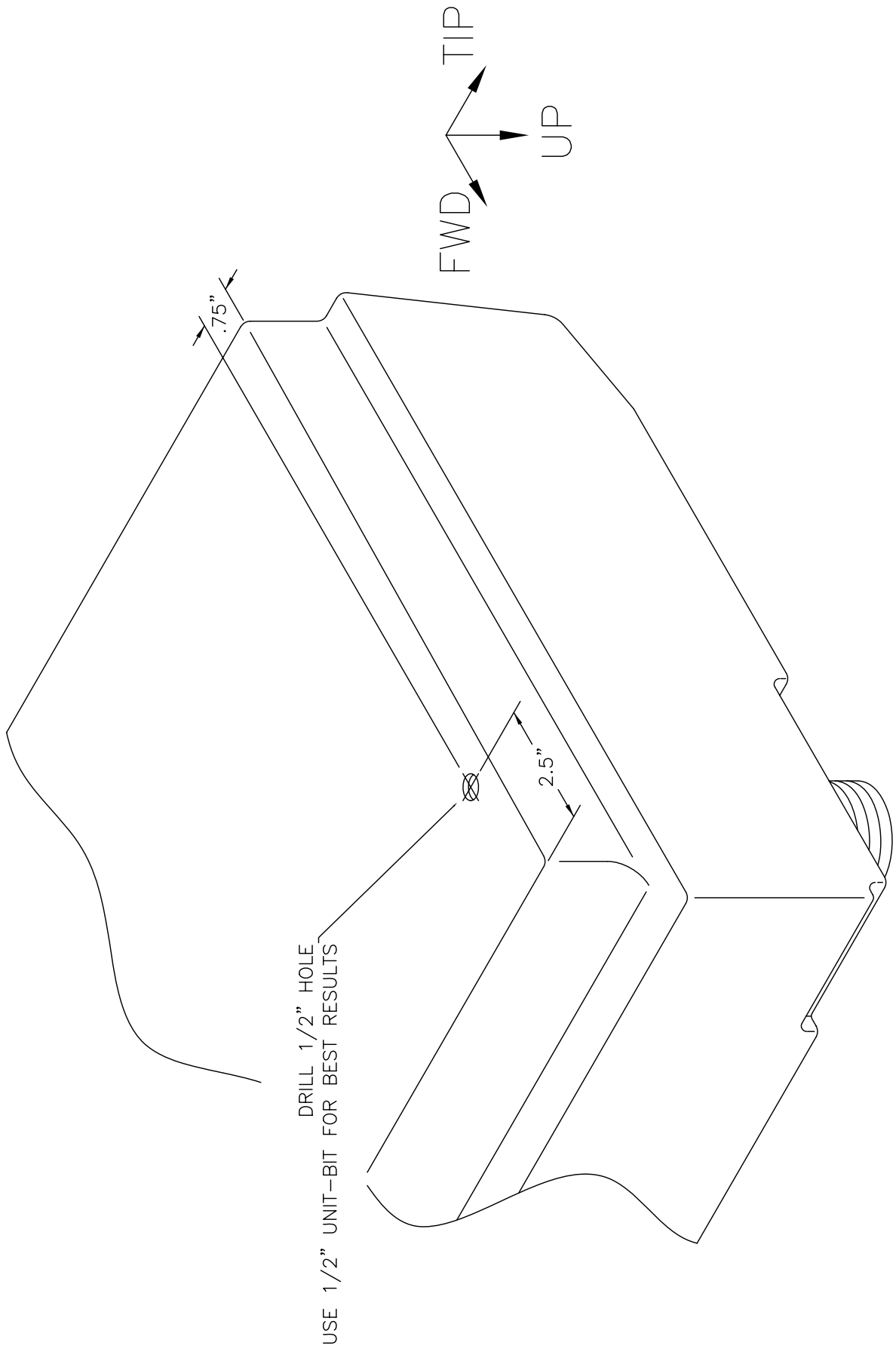
\* BUILDER FABRICATES FROM RAW STOCK



\* BUILDER FABRICATES FROM RAW STOCK

MD4803

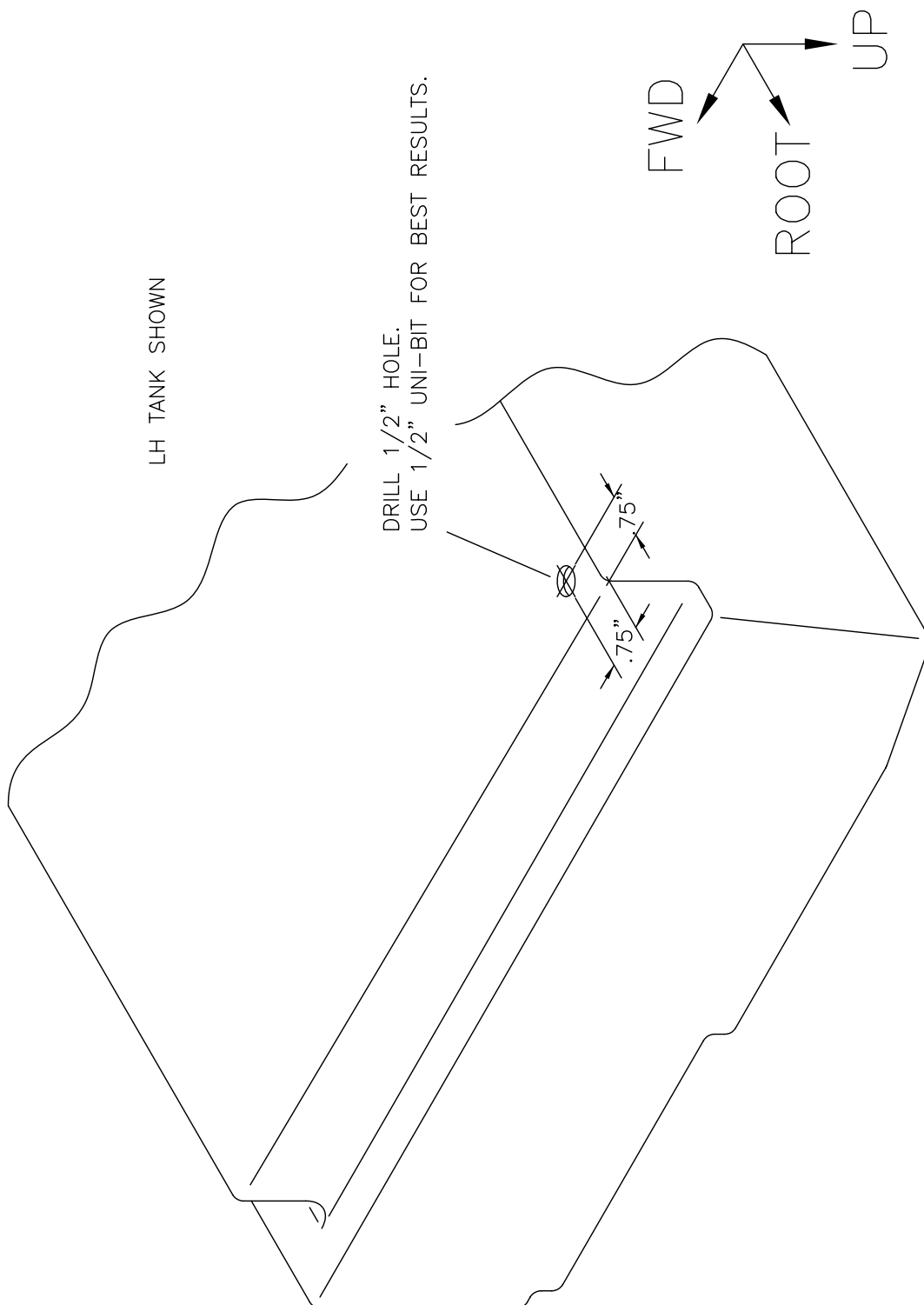
**RRR** S-19 VENTERRA  
 AILERON OUTER BELLCRANK INSTALLATION  
 FIGURE 03D-03A



MD4889

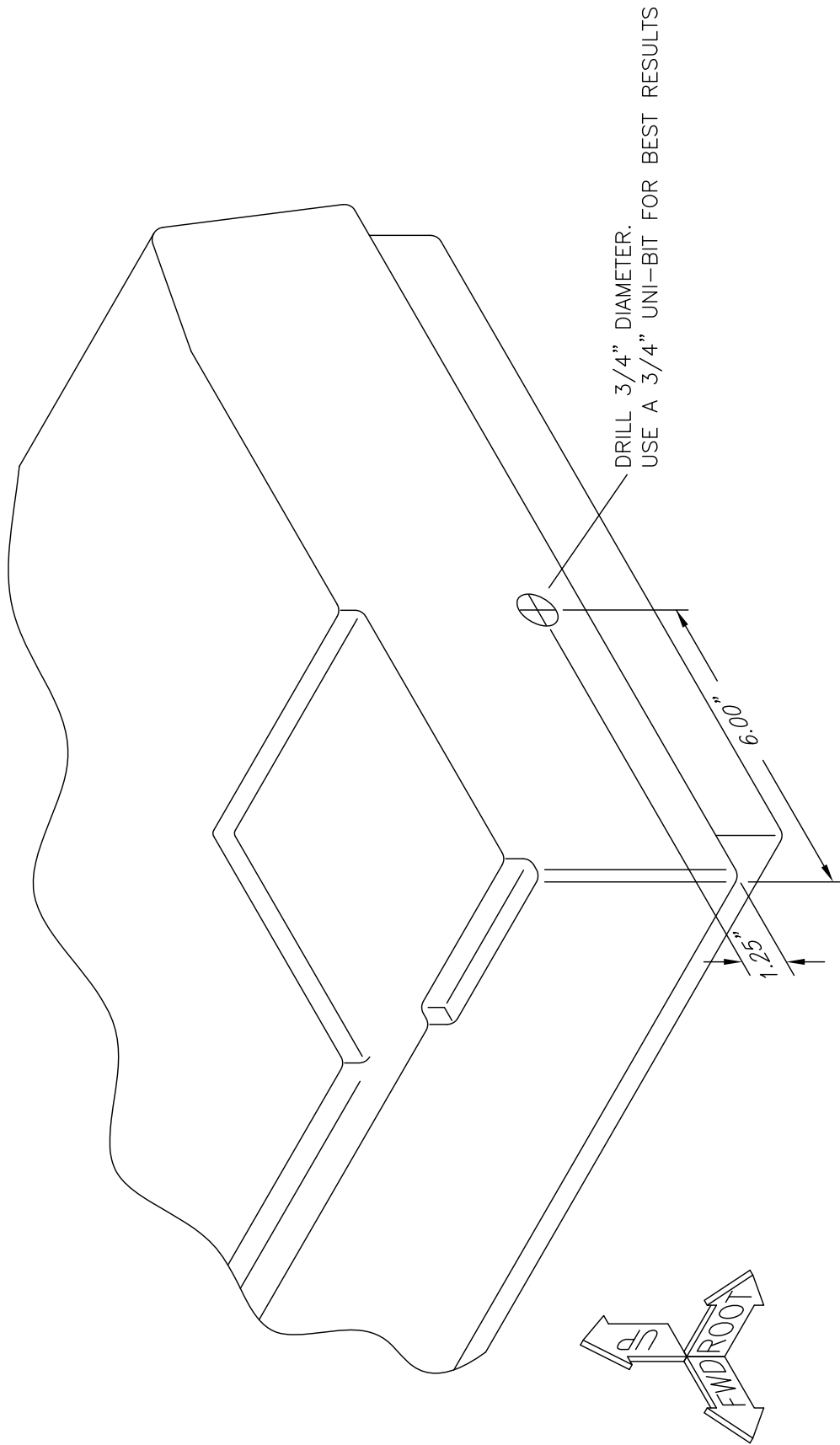
**RAMS S-19 VENTERRA**  
**VENT TUBE - TANK HOLE LOCATION**  
**FIGURE 03E-01**





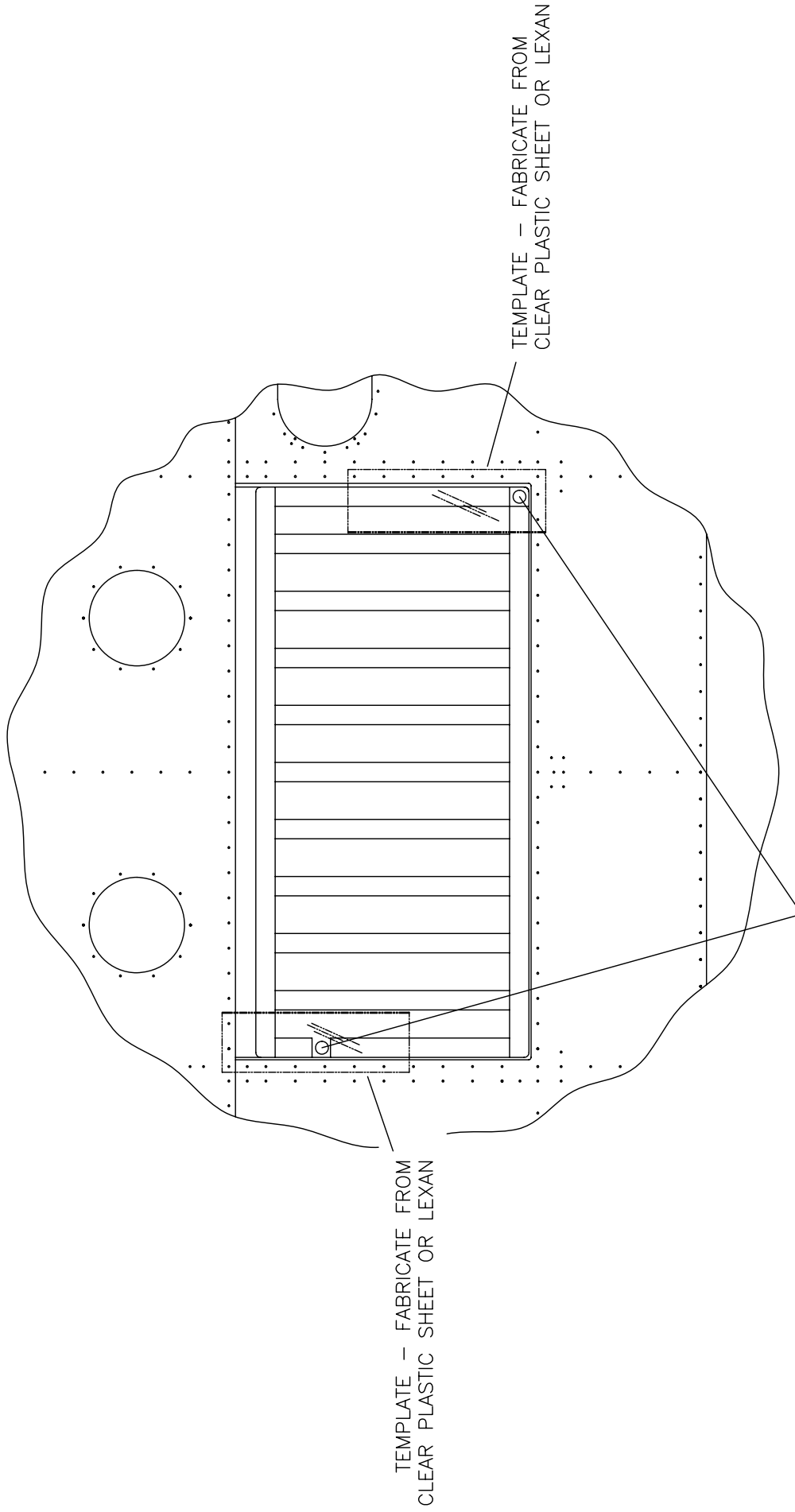
MD4819

**RRR S-19 VENTERRA**  
**DRAIN FITTING - HOLE LOCATION**  
**FIGURE 03E-01A**



MD5156

**RRR S-19 VENTERRA**  
**PICK UP TUBE - TANK HOLE LOCATION**  
**FIGURE 03E-01B**



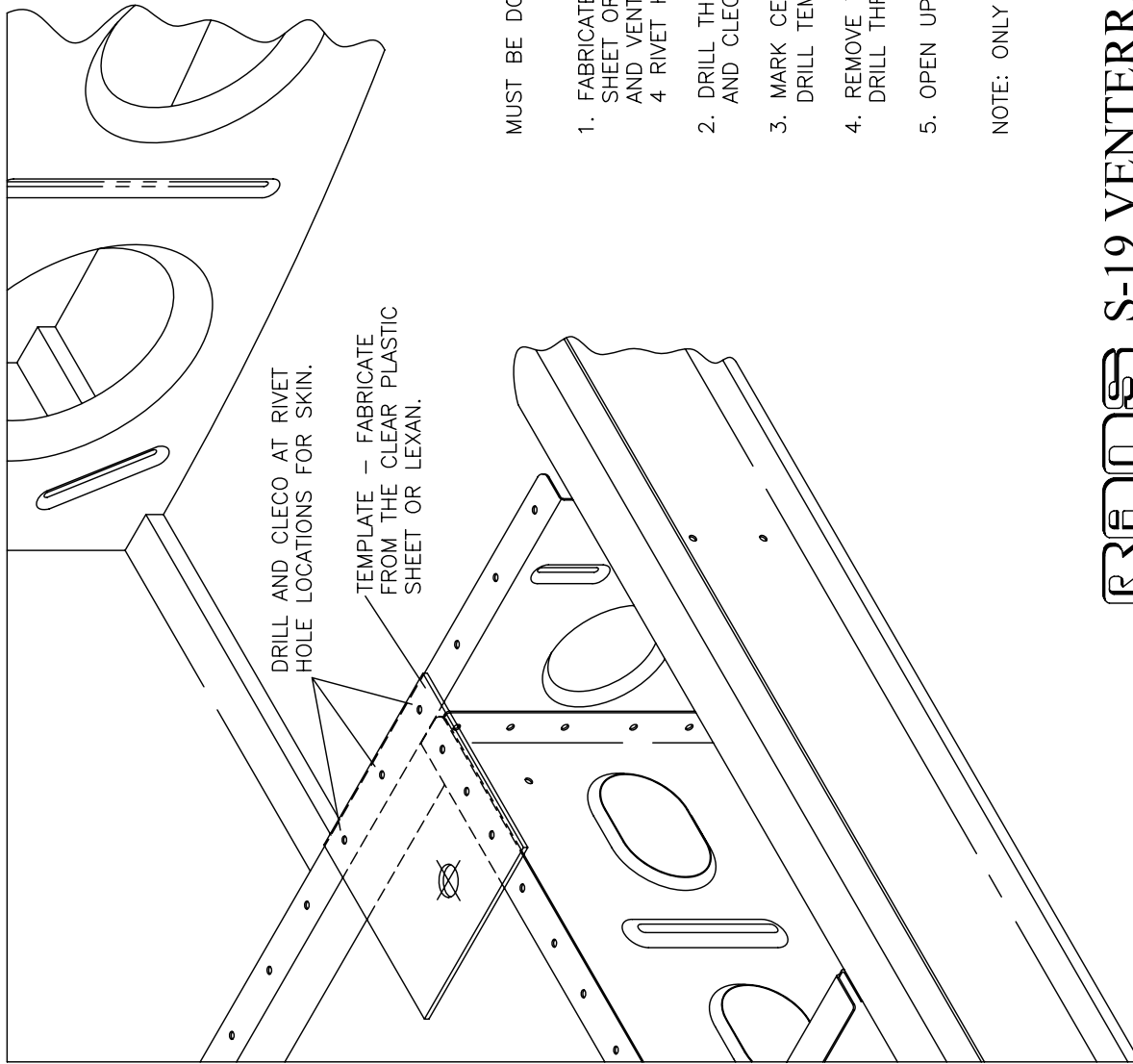
TEMPLATE - FABRICATE FROM CLEAR PLASTIC SHEET OR LEXAN

TEMPLATE - FABRICATE FROM CLEAR PLASTIC SHEET OR LEXAN

MARK HOLE LOCATION AND TRANSFER TO TANK SKIN  
FINAL DRILL TANK SKIN HOLES TO 1-1/8"

MD4879

**RRR** S-19 VENTERRA  
**TANK SKIN HOLE LOCATION DRILLING**  
**FIGURE 03E-05**



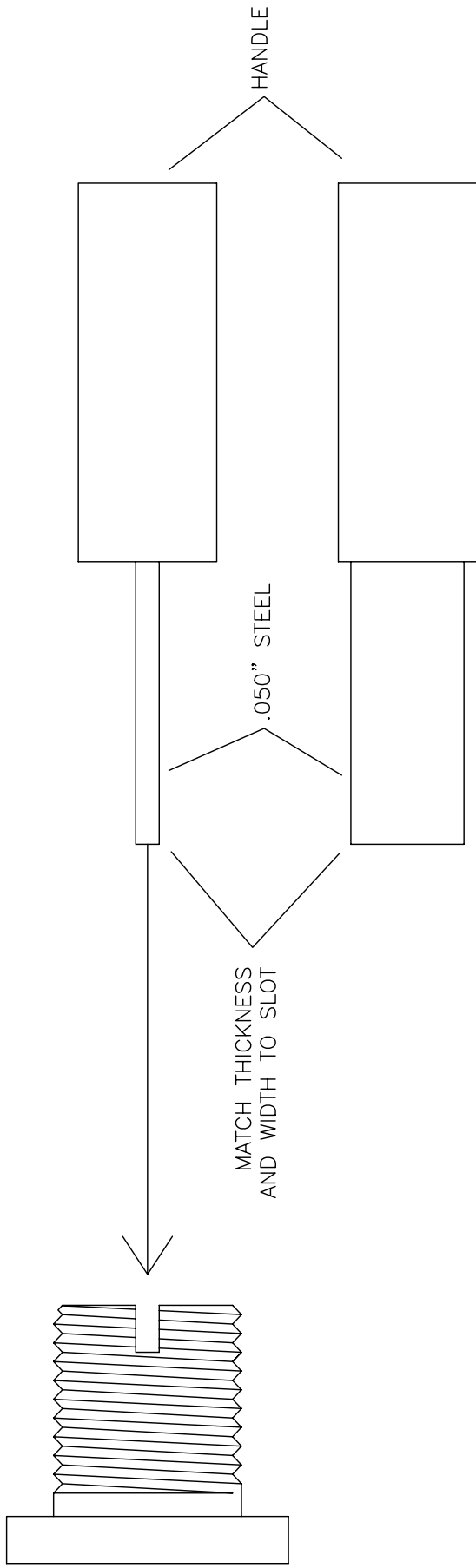
MUST BE DONE AFTER SKIN IS FIT

1. FABRICATE TEMPLATE FROM CLEAR PLASTIC SHEET OR LEXAN AS SHOWN FOR LOCATIONS OF DRAIN FITTING AND VENT TUBE. MAKE BIG ENOUGH TO COVER 3 TO 4 RIVET HOLES IN EACH DIRECTION.
2. DRILL THROUGH TEMPLATE ON SKIN RIVET LOCATIONS AND CLECO TEMPLATE IN PLACE AS SHOWN.
3. MARK CENTER OF CUTOUT IN FUEL TANK ON TEMPLATE. DRILL TEMPLATE #30 AT CENTER MARKS.
4. REMOVE TEMPLATE AND CLECO TO LOWER SKIN. TRANSFER DRILL THROUGH TEMPLATE IN SKIN.
5. OPEN UP SKIN HOLES TO A MIN. OF 1.125" DIAMETER.

NOTE: ONLY THE DRAIN FITTING LOCATION IS SHOWN.

MD4818

**RRR S-19 VENTERRA**  
**LOCATING TANK SKIN OPENINGS**  
**DRAIN FITTING & VENT TUBE**  
**FIGURE 03E-05A**

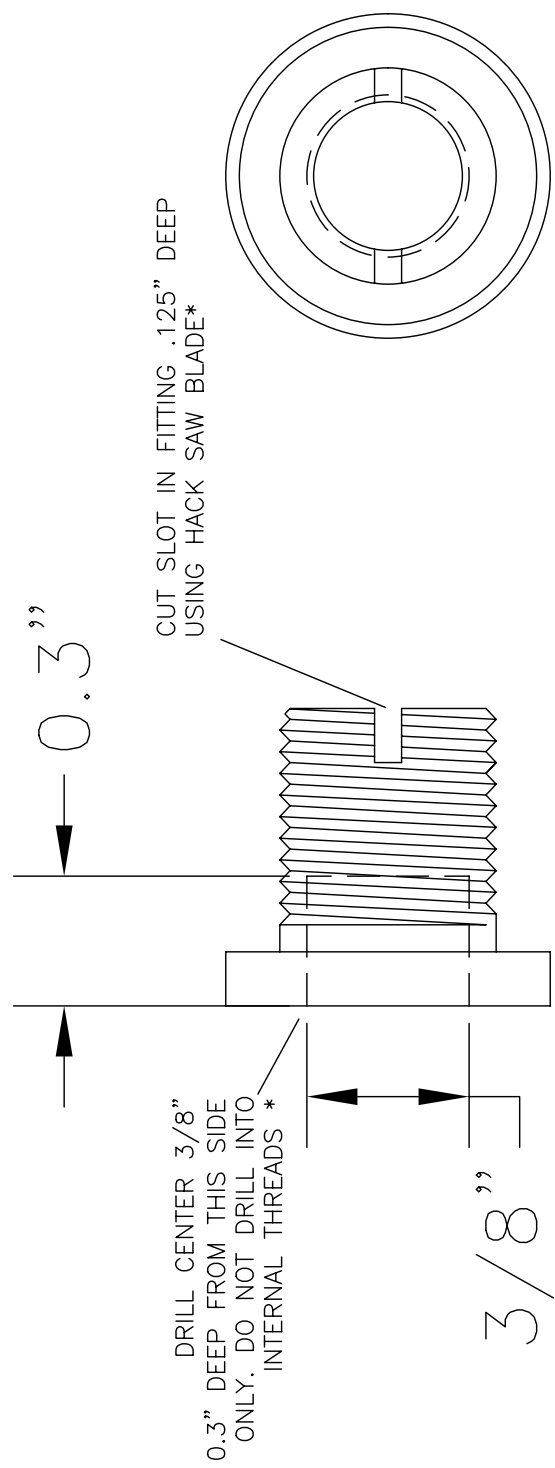


HANDLE

MATCH THICKNESS AND WIDTH TO SLOT

.050" STEEL

\* MODIFY 2 FITTINGS

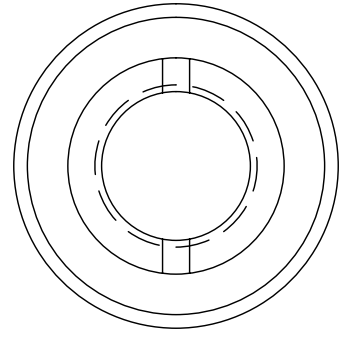


0.3"

CUT SLOT IN FITTING .125" DEEP USING HACK SAW BLADE\*

DRILL CENTER 3/8" 0.3" DEEP FROM THIS SIDE ONLY. DO NOT DRILL INTO INTERNAL THREADS \*

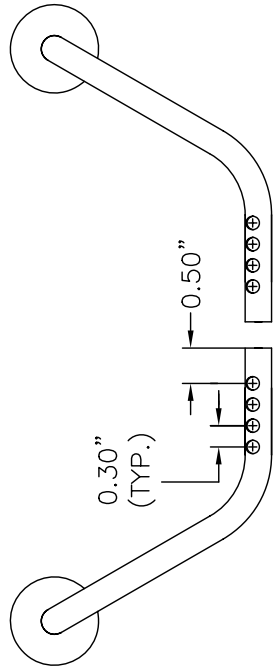
3/8"



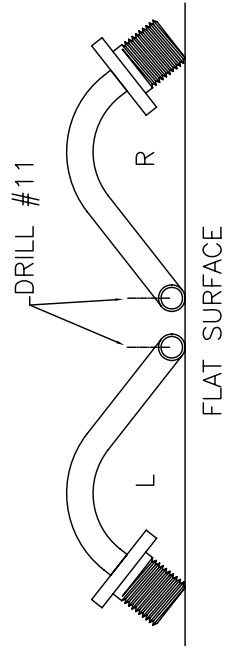
MD4823

**RAMS** S-19 VENTERRA  
 FUEL DRAIN FITTING MODIFICATION  
 FIGURE 03E-06

STEP 1

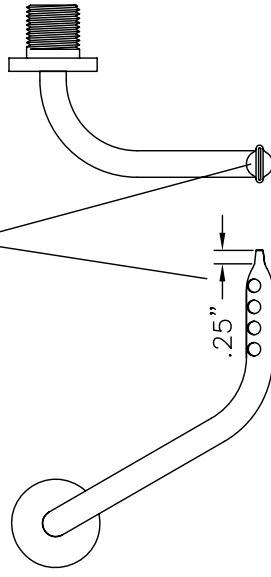


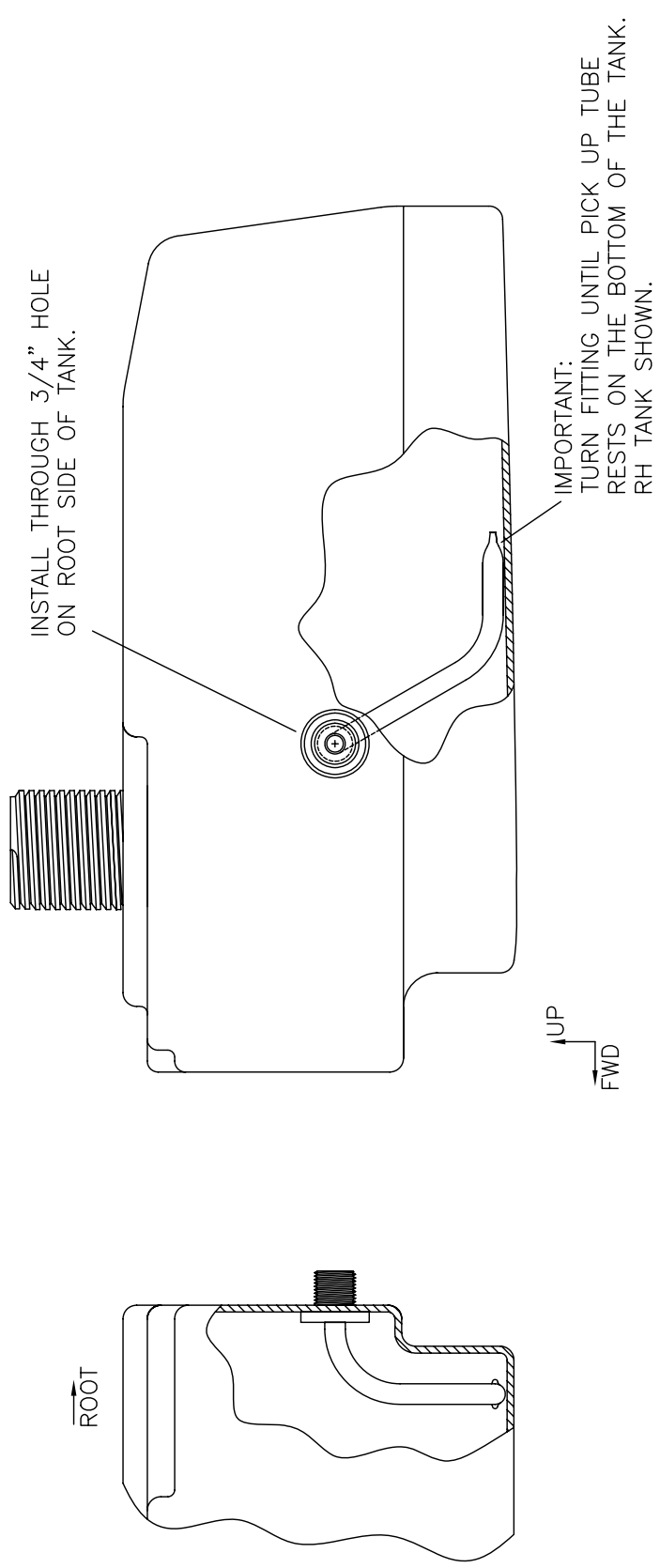
PLACE FUEL PICK UP TUBES ON FLAT WORK SURFACE AS SHOWN  
MARK AND DRILL #11 AS SHOWN (4 HOLES EACH)  
DRILL ONLY ONE SIDE, DO NOT DRILL THROUGH



STEP 2

FLATTEN END OF TUBE AS SHOWN  
USE VICE - NOTE ORIENTATION

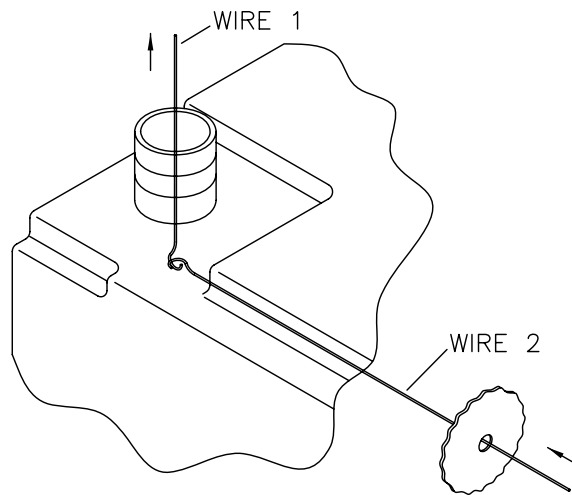




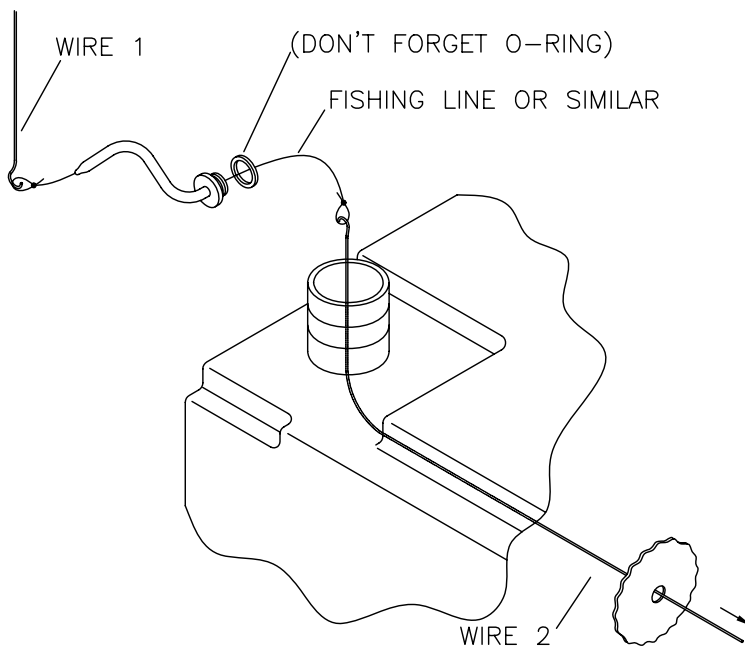
MD4827

**RRANES S-19 VENTERRA**  
**FUEL PICK UP TUBE INSTALLATION**  
**FIGURE 03E-08**

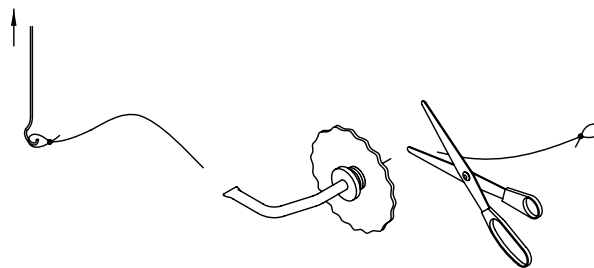
①



②



③



④

INSTALL RUBBER WASHER, STEEL WASHER AND NUT –  
ROTATE FITTING UNTIL PICK UP TUBE IS FLAT ON TANK  
BOTTOM FACING AFT.

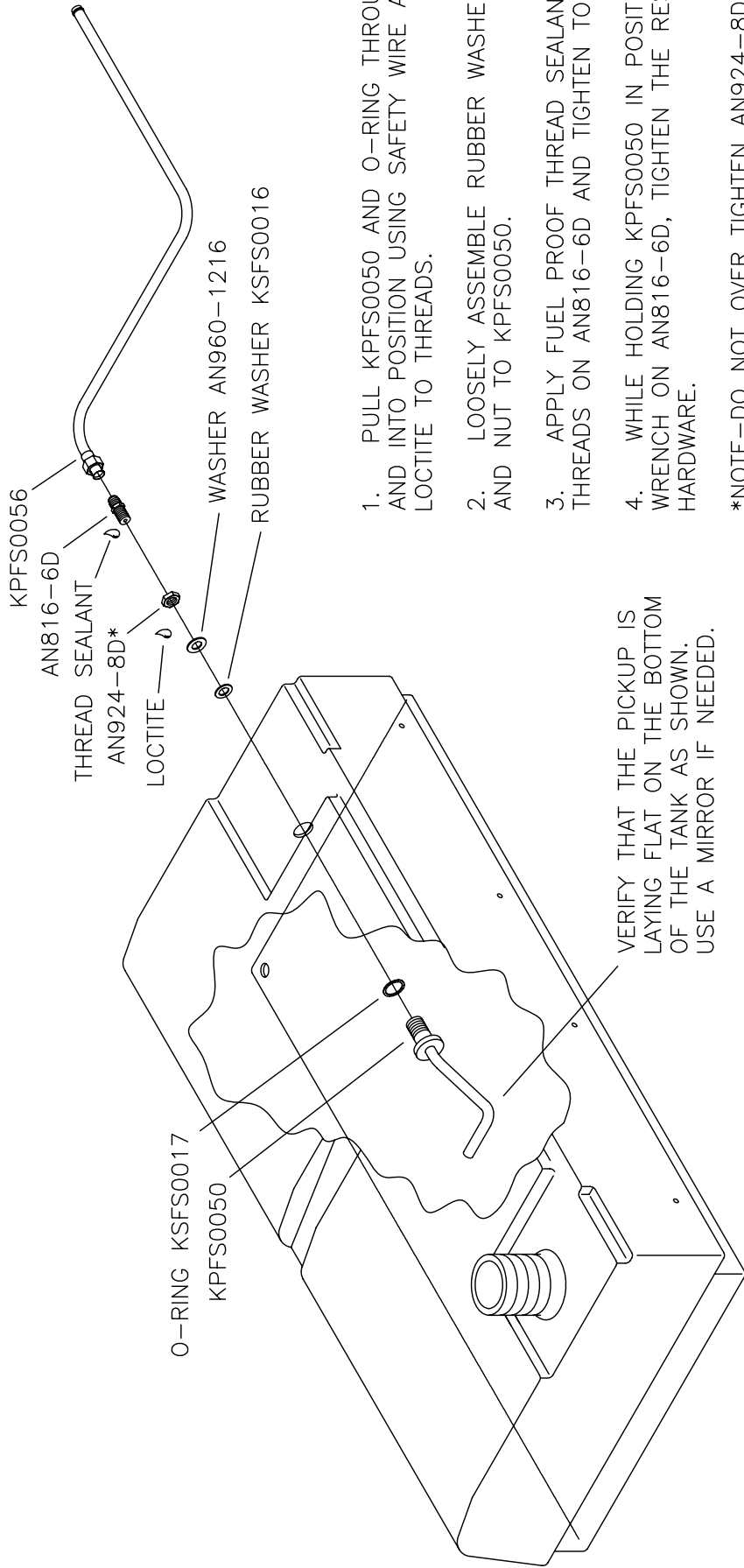
(USE SIMILAR PROCEDURE FOR DRAIN FITTING)

MD4832

# RANDS S-19 VENTERRA FUEL TANK FITTING INSTALLATION FIGURE 03E-08A

04/01/2011





1. PULL KPFS0050 AND O-RING THROUGH TANK AND INTO POSITION USING SAFETY WIRE AND APPLY LOCTITE TO THREADS.
2. LOOSELY ASSEMBLE RUBBER WASHER, WASHER AND NUT TO KPFS0050.
3. APPLY FUEL PROOF THREAD SEALANT TO PIPE THREADS ON AN816-6D AND TIGHTEN TO KPFS0050
4. WHILE HOLDING KPFS0050 IN POSITION WITH A WRENCH ON AN816-6D, TIGHTEN THE REST OF THE HARDWARE.

\*NOTE-DO NOT OVER TIGHTEN AN924-8D, THIS WILL DISTORT THE WASHER AND CAUSE LEAKAGE.

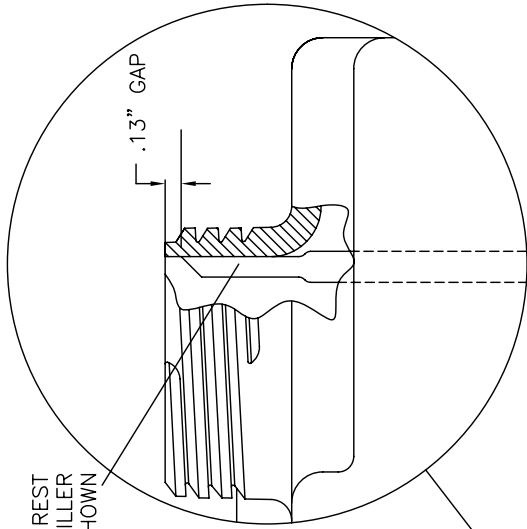
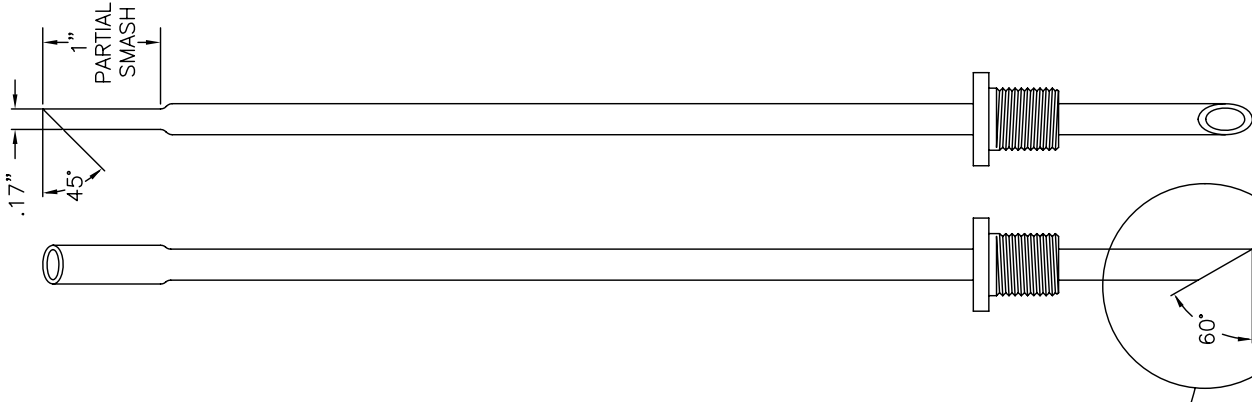
HINT: HOLD AN960-1216 WITH NEEDLE-NOSE VISE GRIP PLIERS TO PREVENT THE WASHER FROM TURNING AND DISTORTING THE RUBBER WASHER.

# RRR S-19 VENTERRA

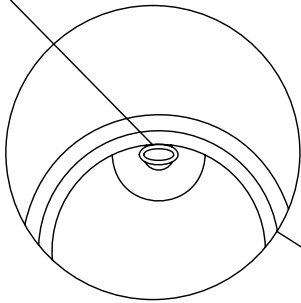
## FUEL PICKUP TUBE INSTALLATION

### FIGURE 03E-08B

# RRAMES S-19 VENTERRA VENT TUBE MODIFICATION AND INSTALLATION FIGURE 03E-09

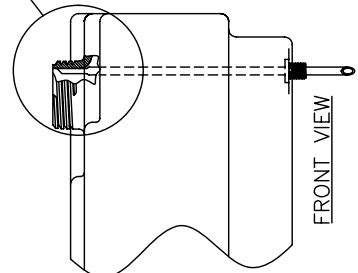
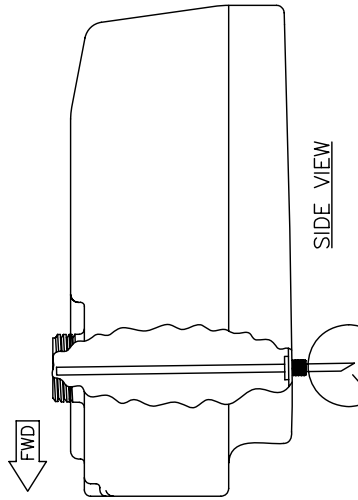
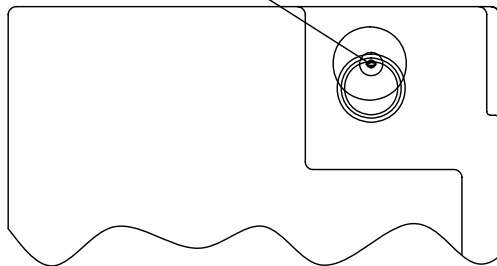


VENT TUBE MUST REST  
ALONG INSIDE OF FILLER  
NECK AS SHOWN

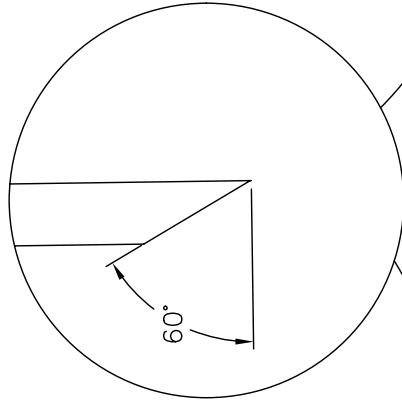


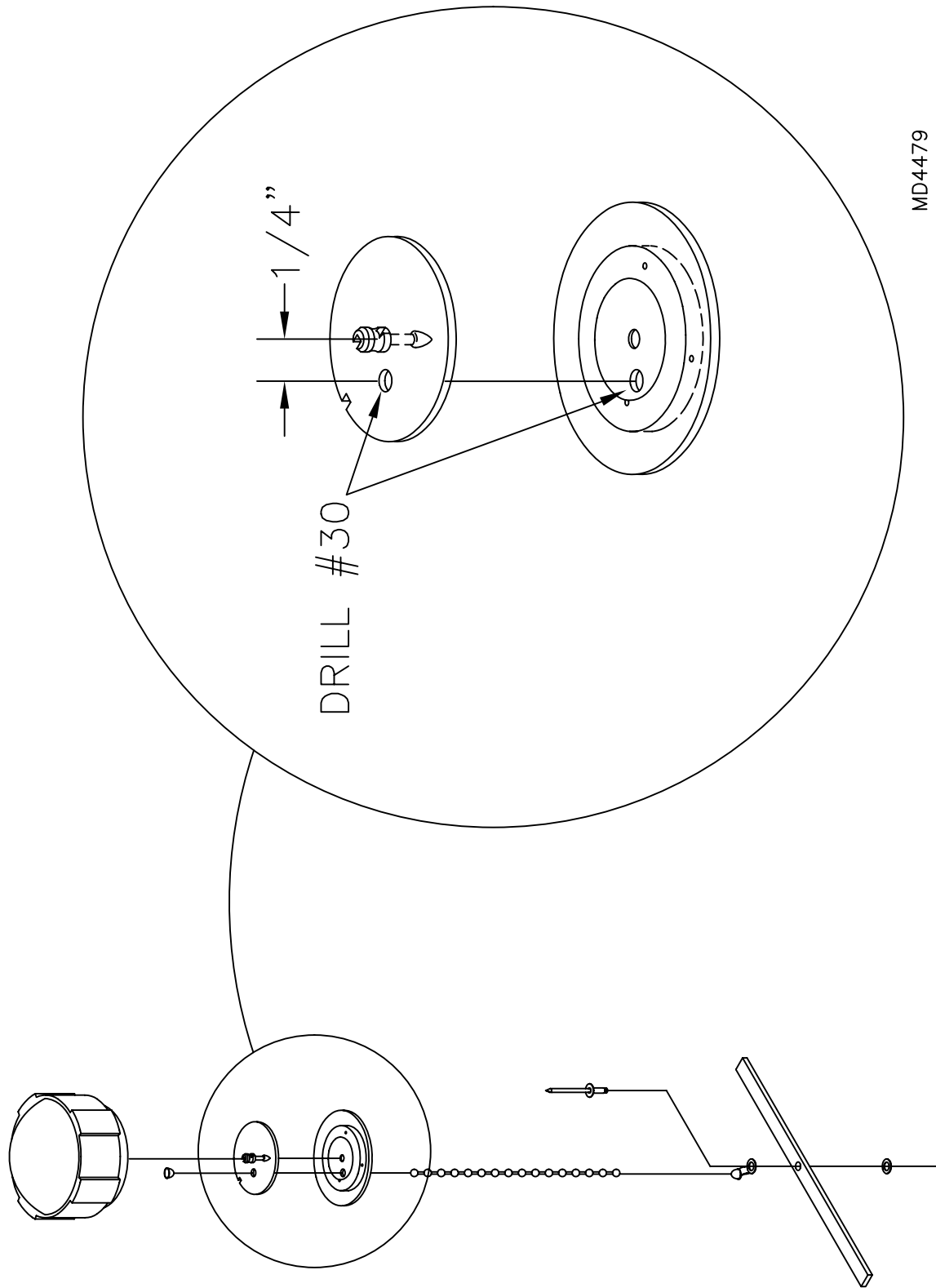
## RIGHT HAND TANK AND VENT SHOWN

OUTBOARD  
TOP VIEW



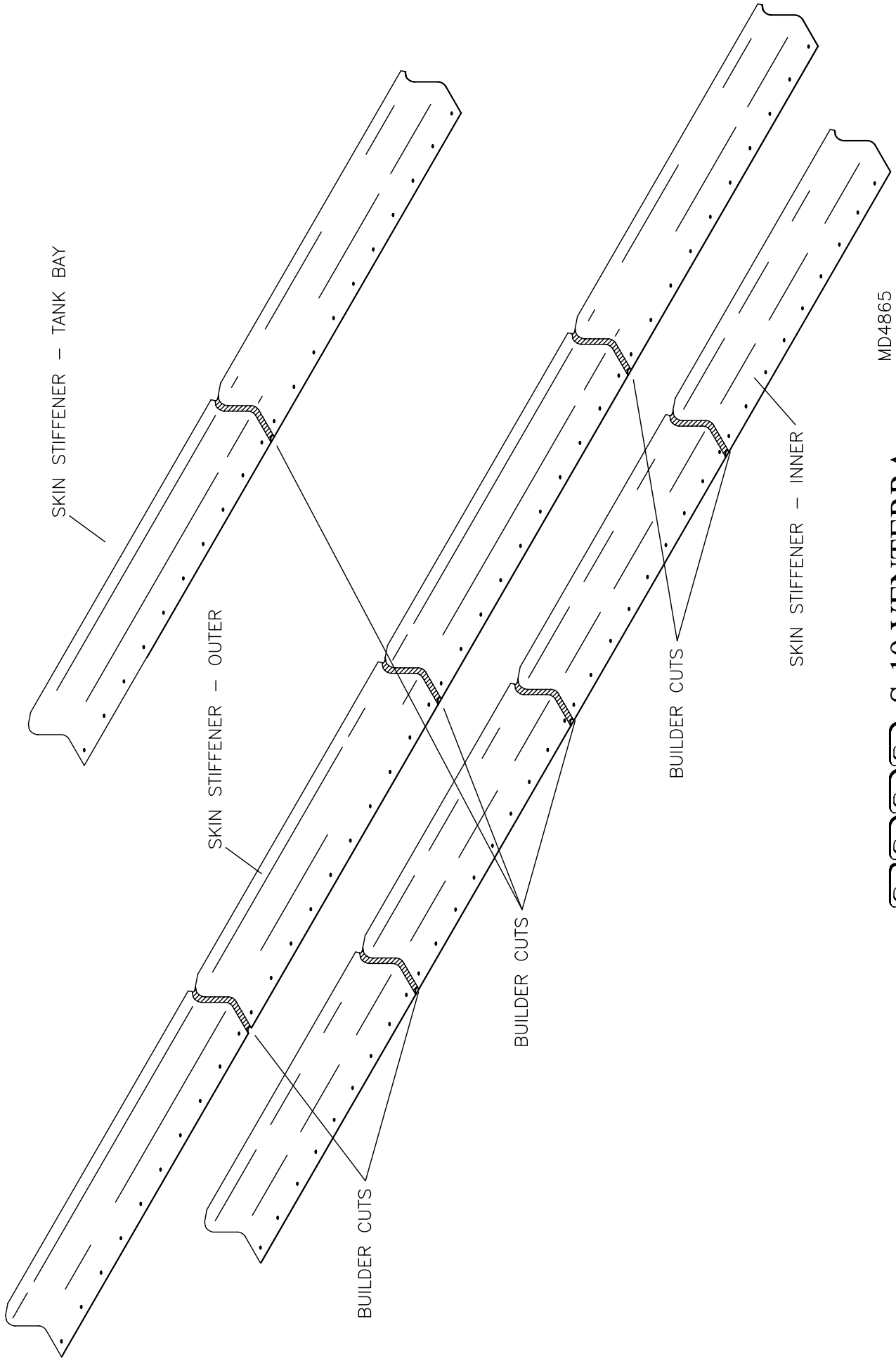
CUT MUST FACE FORWARD!





MD4479

**RAMS** S-19 VENTERRA  
 FUEL CAP ASSEMBLY  
 FIGURE 03E-10

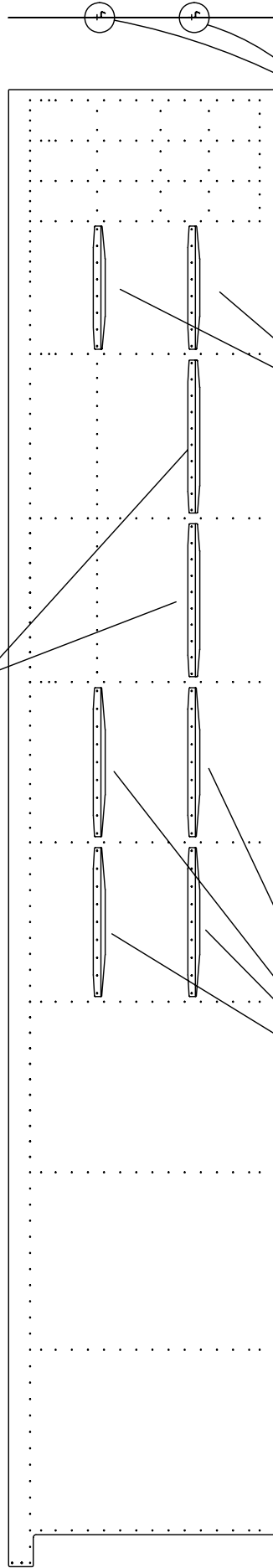


MD4865

**RAMS S-19 VENTERRA**  
**SKIN STIFFENER MODIFICATION**  
**FIGURE 03F-01**

TOP SKIN

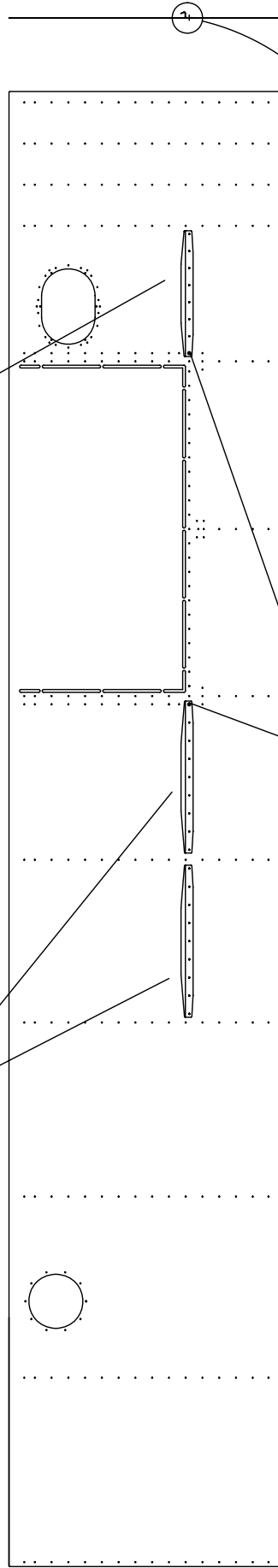
SKIN STIFFENER - TANK BAY KPWI0452



SKIN STIFFENER - OUTER KPWI0440

SKIN STIFFENER - INNER KPWI0439

BOTTOM SKIN



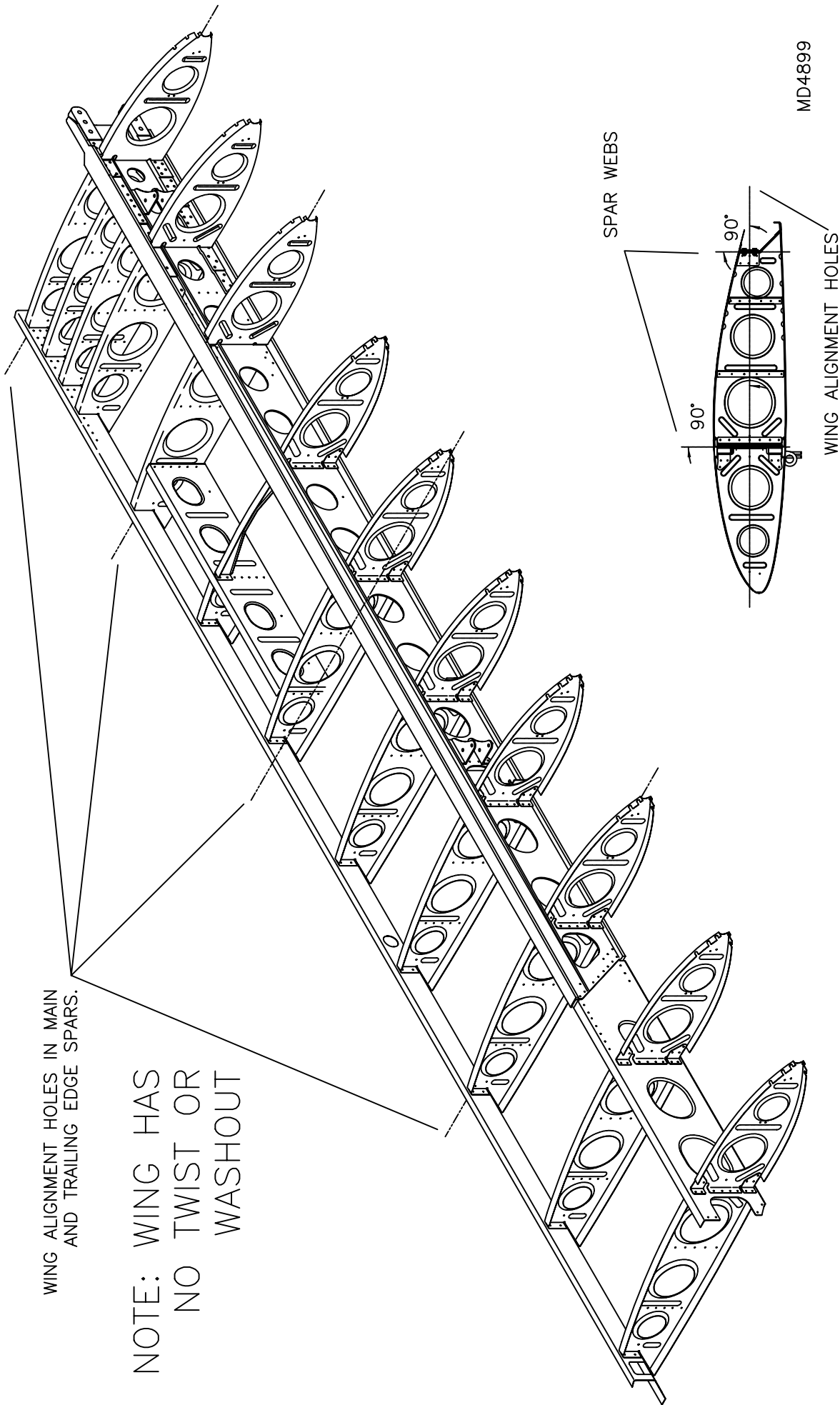
DO NOT RIVET UNTIL SKIN IS INSTALLED

LEFT HAND SKINS SHOWN

MD4864

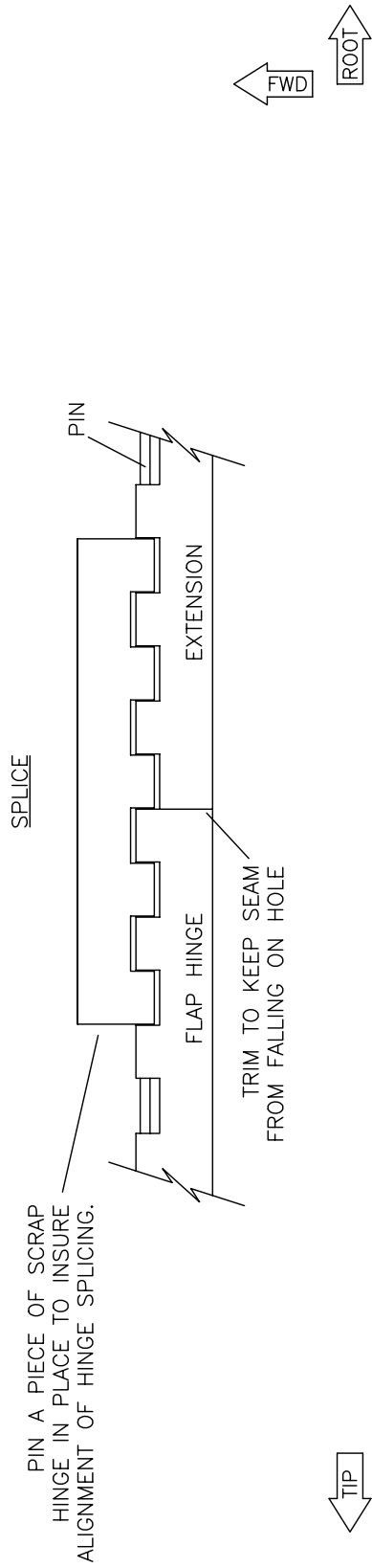
BENT FLANGE FACES  
FWD AS SHOWN, TYPICAL  
FOR ALL SKIN STIFFENERS

**RRADON S-19 VENTERRA**  
**SKIN STIFFENER INSTALLATION**  
**FIGURE 03F-03**

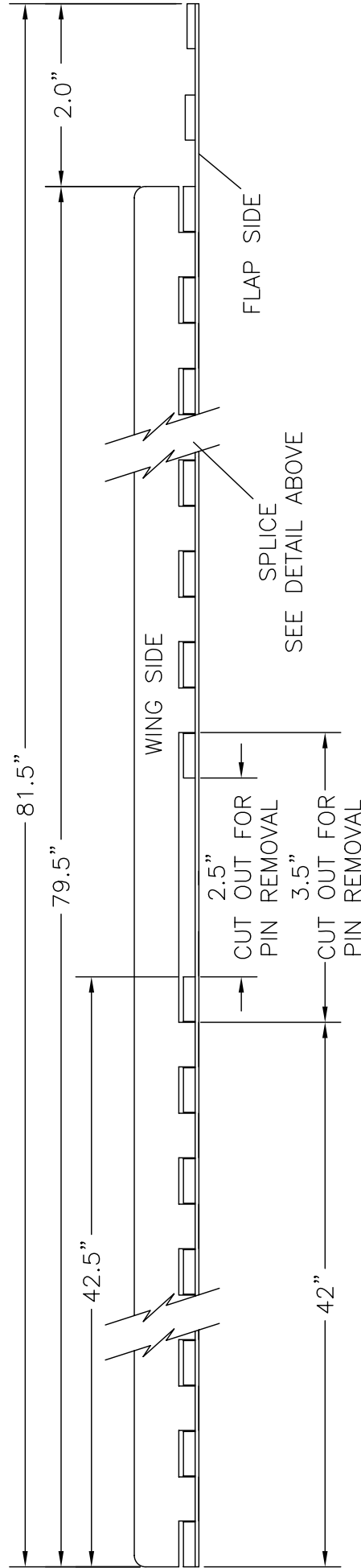


**RAMS S-19 VENTERRA**  
**WING ALIGNMENT HOLE LOCATIONS**  
**FIGURE 03F-10**

IMPORTANT: REMOVE PIN FROM HINGE BEFORE CUTTING

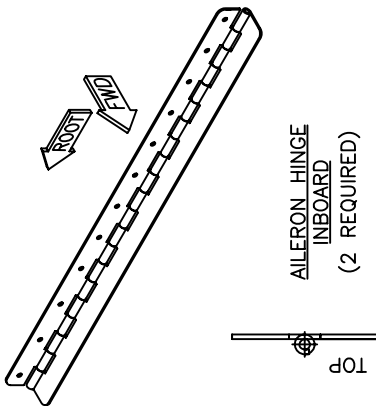


AN EXTENSION SPLICING IS NEEDED TO ACHIEVE 79.5" LENGTH

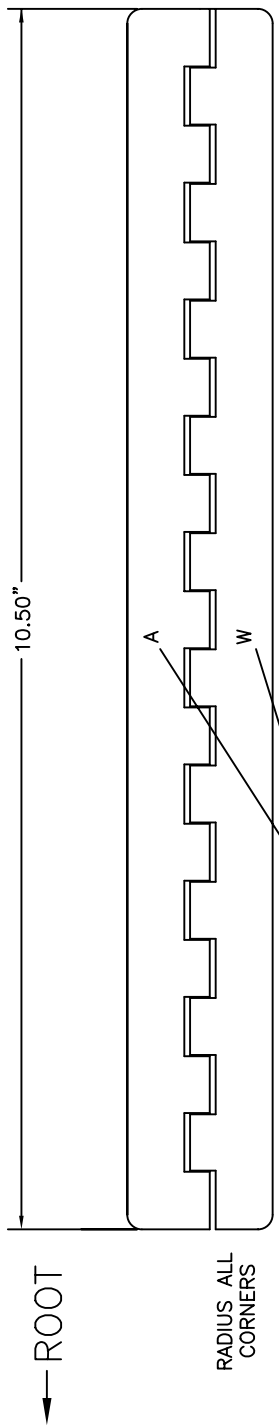


MD4825

**RAMS S-19 VENTERRA**  
**FLAP HINGE MODIFICATION AND INSTALLATION**  
**FIGURE 03F-20**

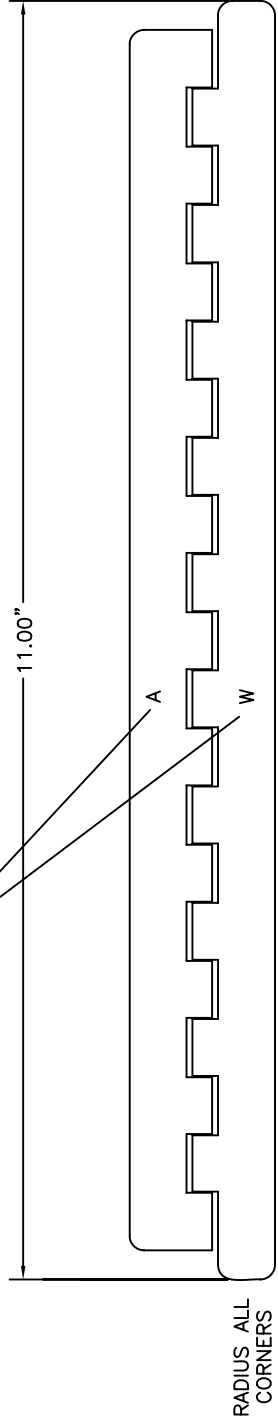


HINGES VIEWED AS PLACED ON AILERON



MARK WITH AILERON AND WING FOR LATER IDENTIFICATION OF ORIENTATION.

IMPORTANT: REMOVE PIN FROM HINGE BEFORE CUTTING



AILERON HINGE INBOARD AND OUTBOARD  
MS20257-3 (1.25"WIDTH) MODIFIED  
BUILDER CUTS AND DRILLS AS SHOWN (ALL HOLES #40)  
S-19, QTY - 2 EACH

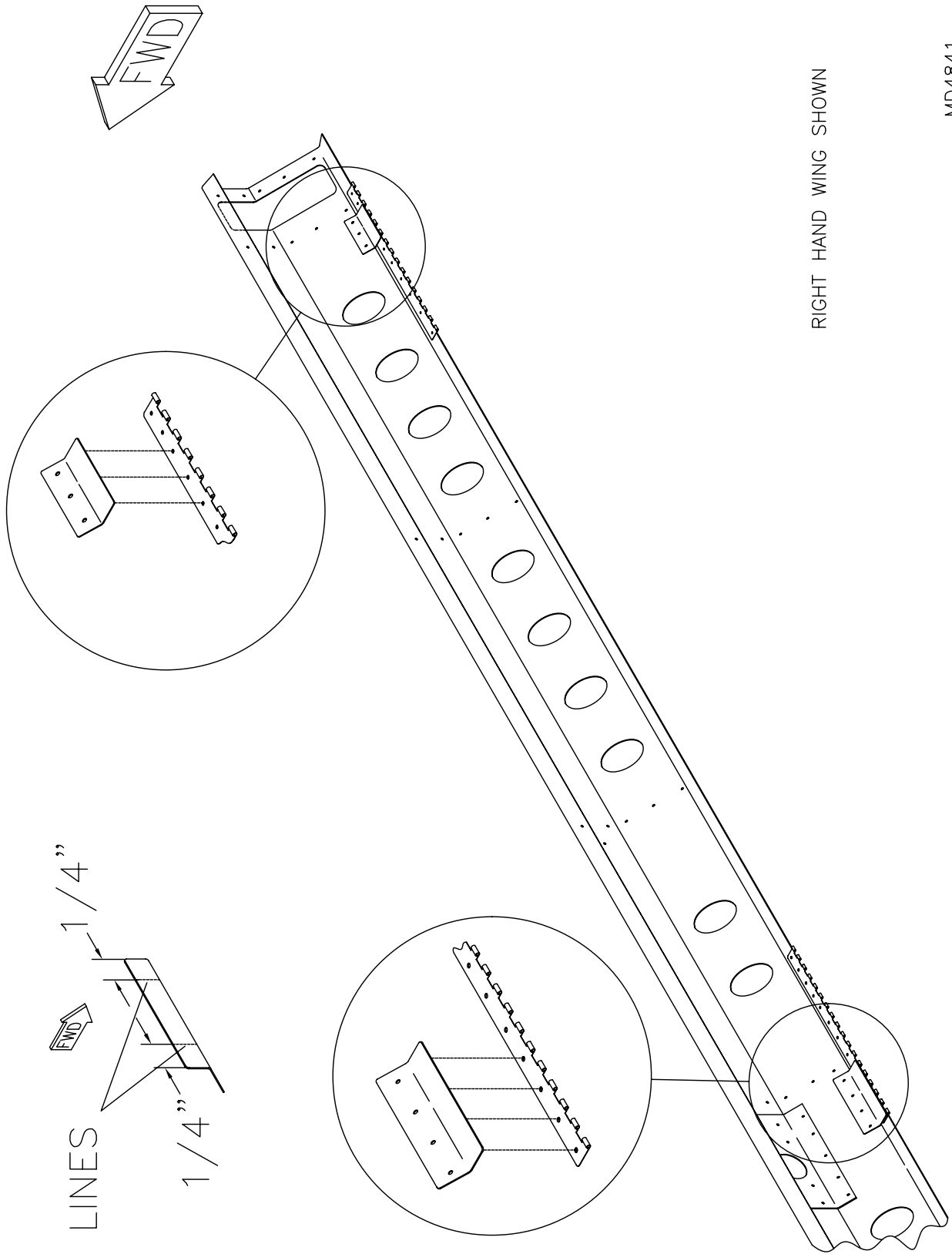
AILERON HINGE OUTBOARD (2 REQUIRED)

NOTE: AILERON HINGE RIVET LOCATIONS WILL BE COMPETED IN THE AILERON ASSEMBLY SECTION

MD4806

**RAVEN S-19 VENTERRA**  
**AILERON HINGE MODIFICATION**  
**FIGURE 03F-20A**



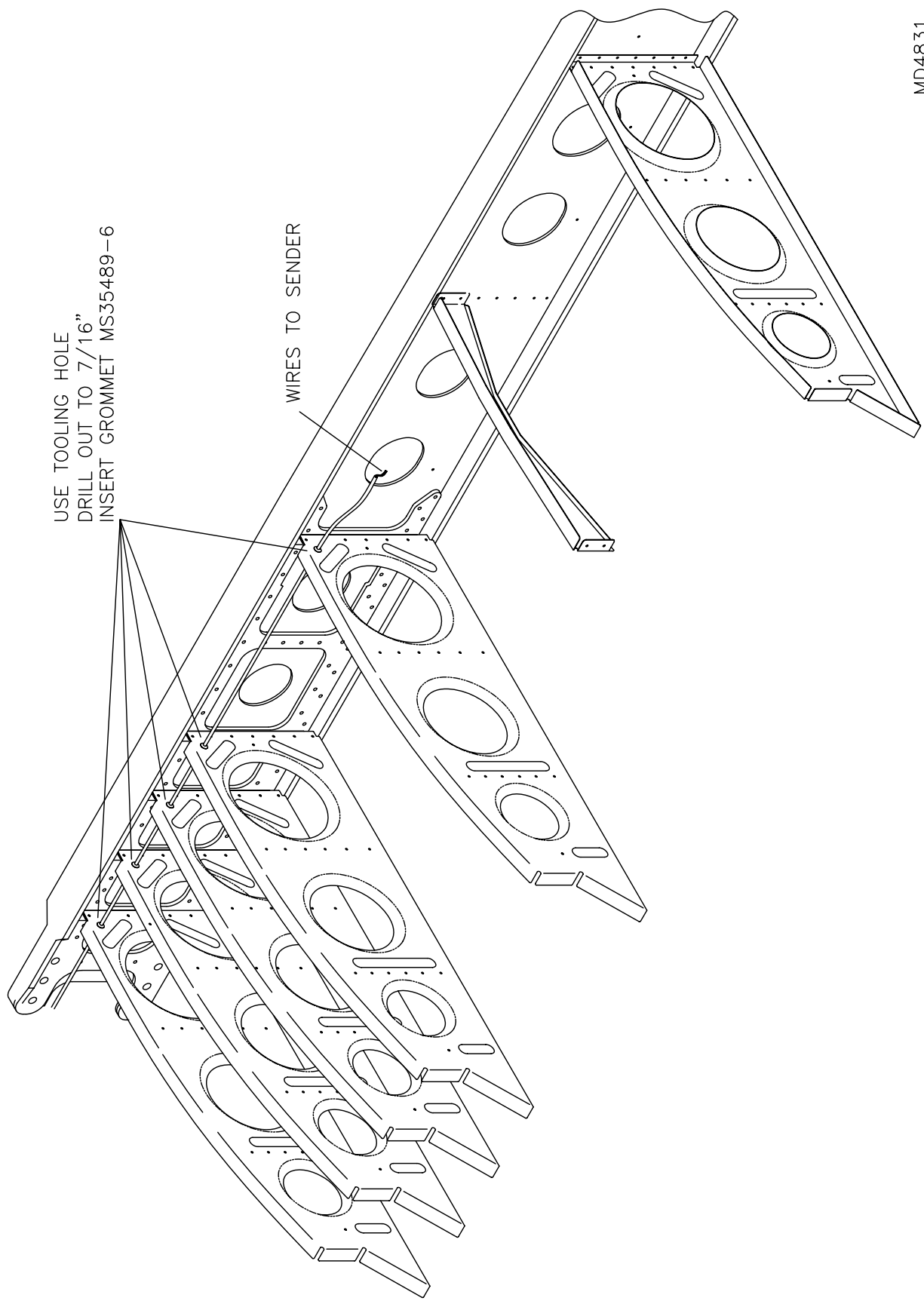


DRAW LINES  
 1/4"  
 1/4"

RIGHT HAND WING SHOWN

MD4841

**RAMBLER S-19 VENTERRA**  
**HINGE DOUBLER INSTALLATION**  
**FIGURE 03F-33**

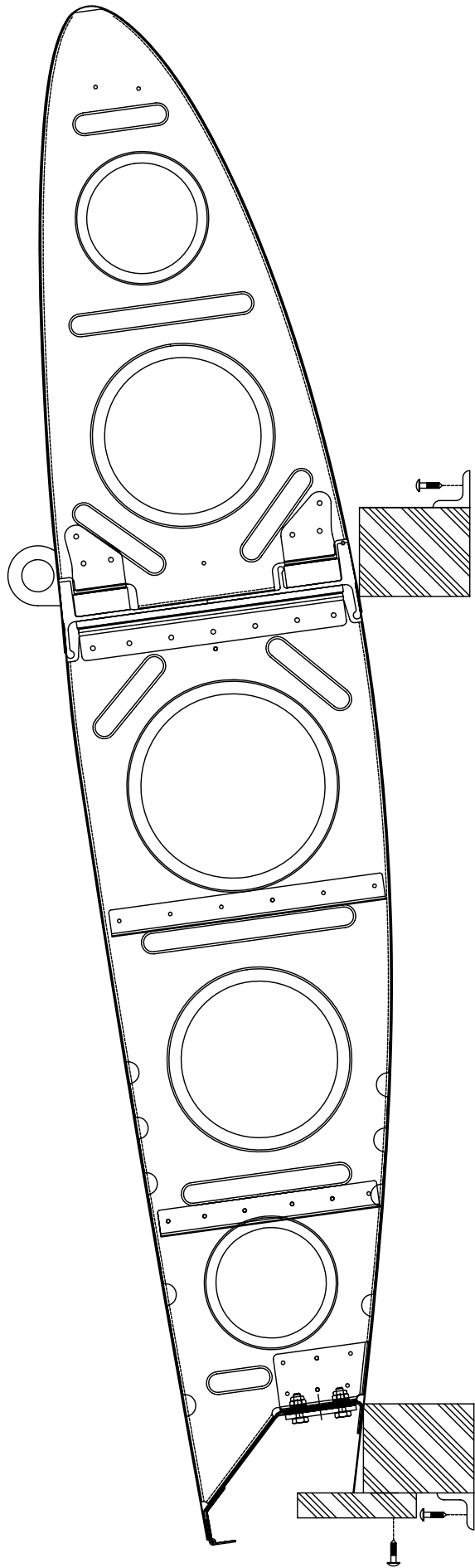


USE TOOLING HOLE  
DRILL OUT TO 7/16"  
INSERT GROMMET MS35489-6

WIRES TO SENDER

MD4831

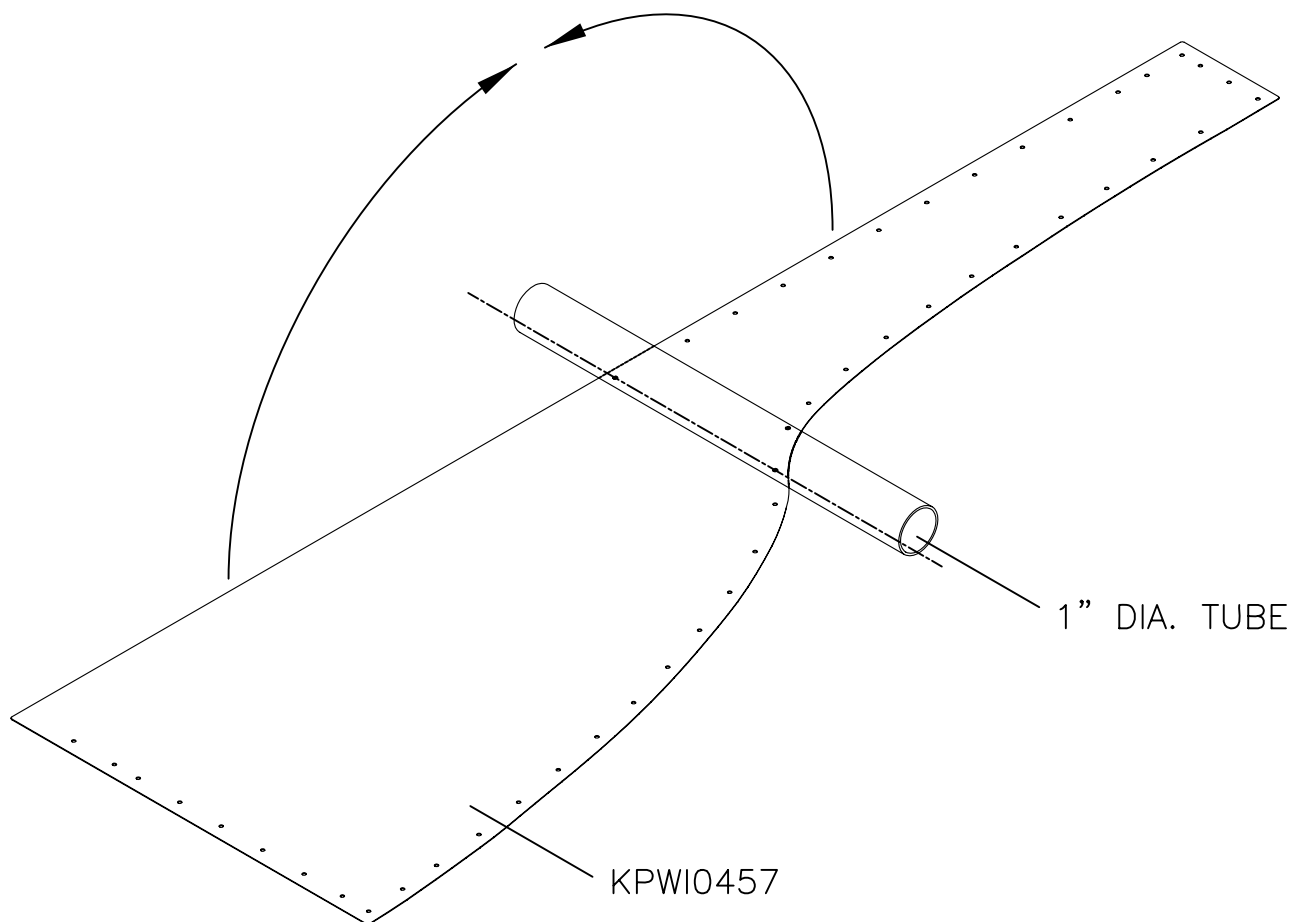
**RRR** S-19 VENTERRA  
FUEL SENDER WIRE INSTALLATION  
FIGURE 03F-40



MD4911

**RAMOS** S-19 VENTERRA  
WING SUPPORT  
FIGURE 03F-50

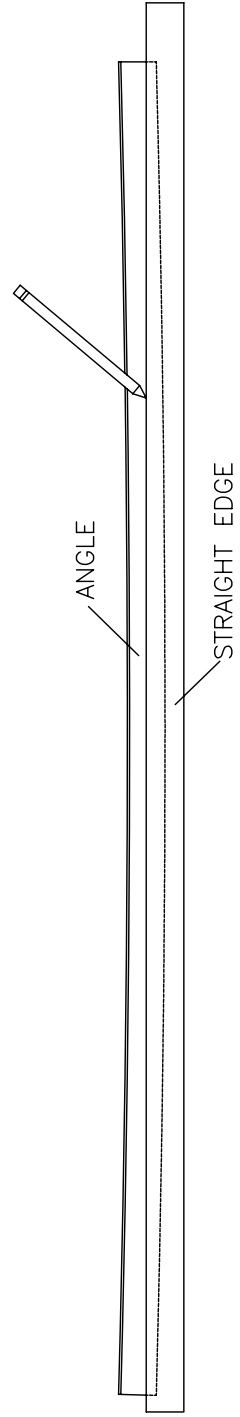
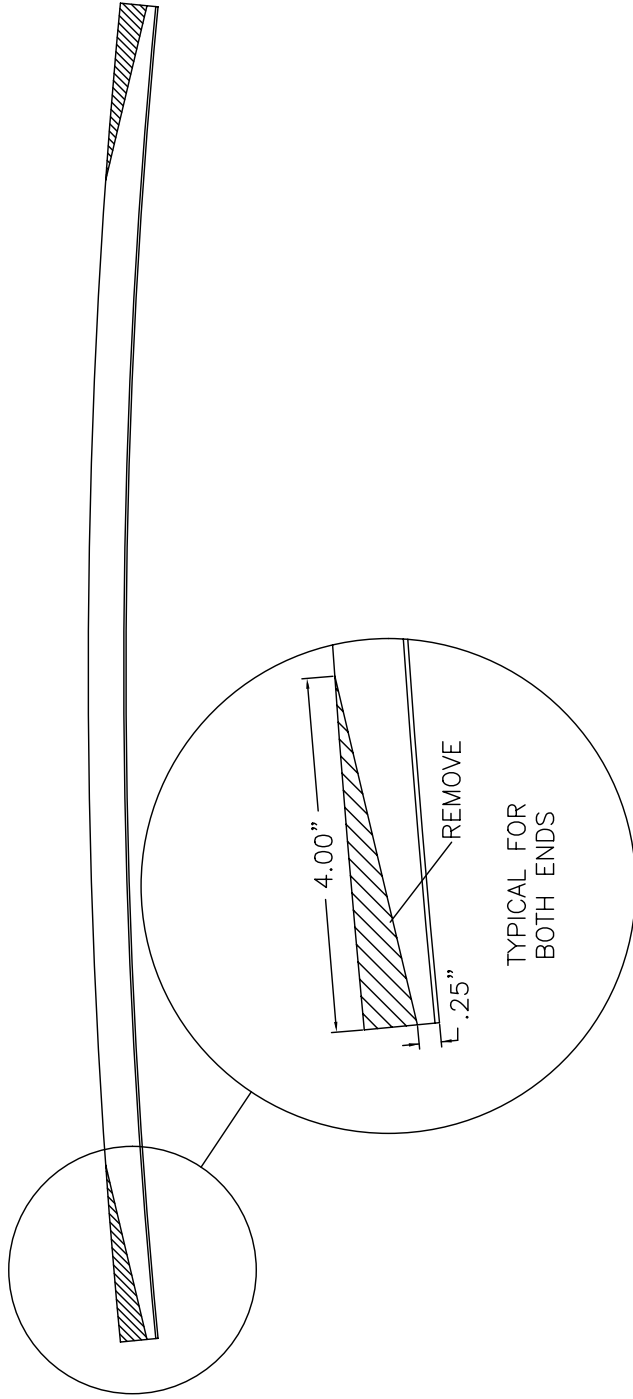
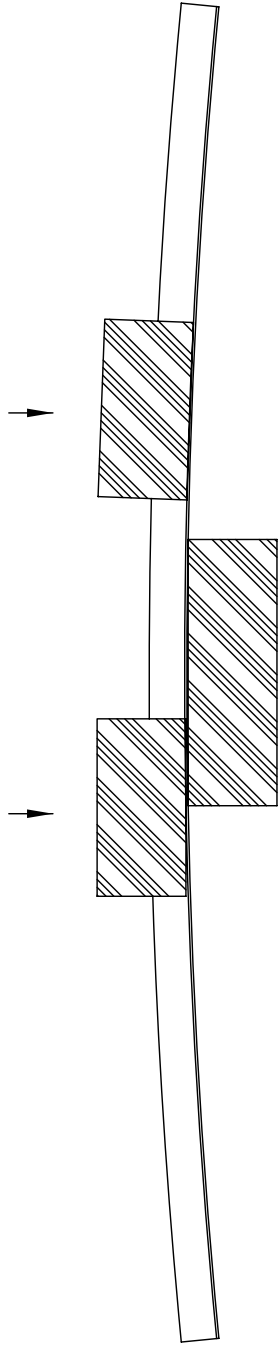
CENTER TUBE ON HOLES  
AND FORM SKIN AS SHOWN.  
LEFT AND RIGHT REQ'D  
(LH SHOWN)



MD5235

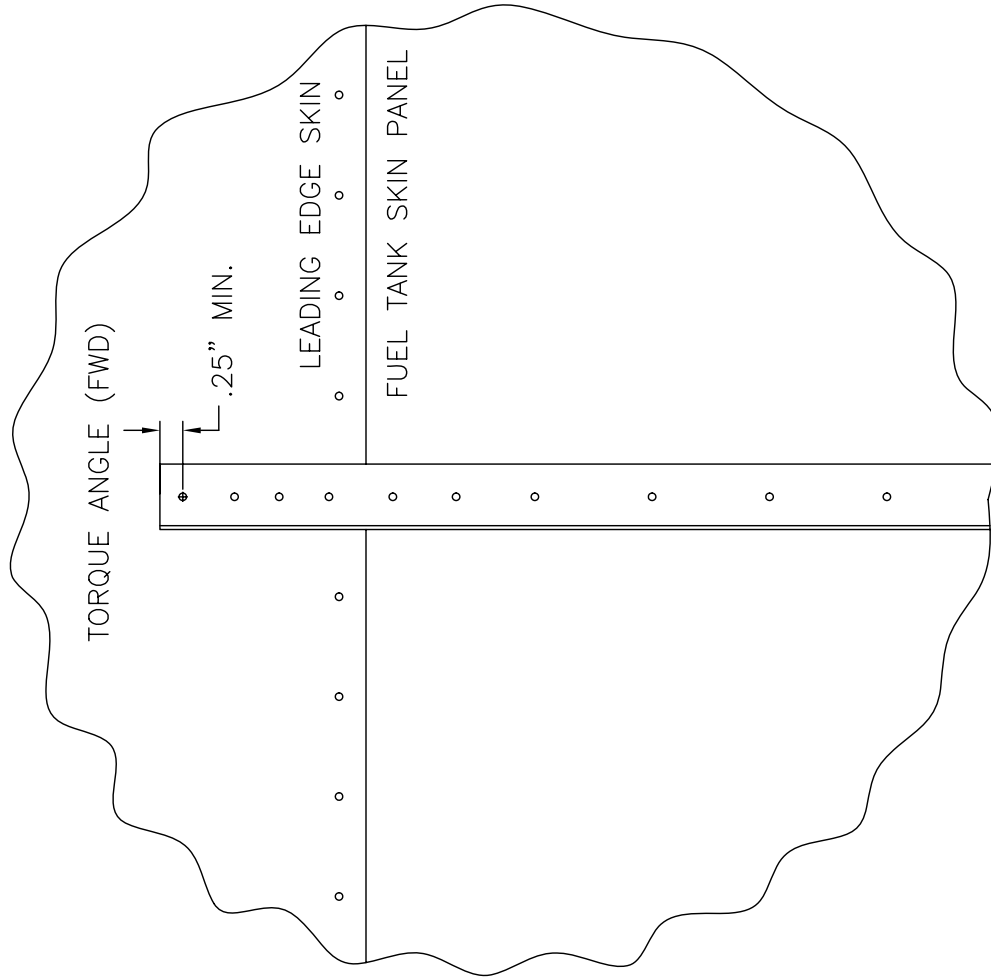
**RANS S-19 VENTERRA**  
**FWD SKIN TIP FORMING**  
**FIGURE 03F-70**

04/01/2011



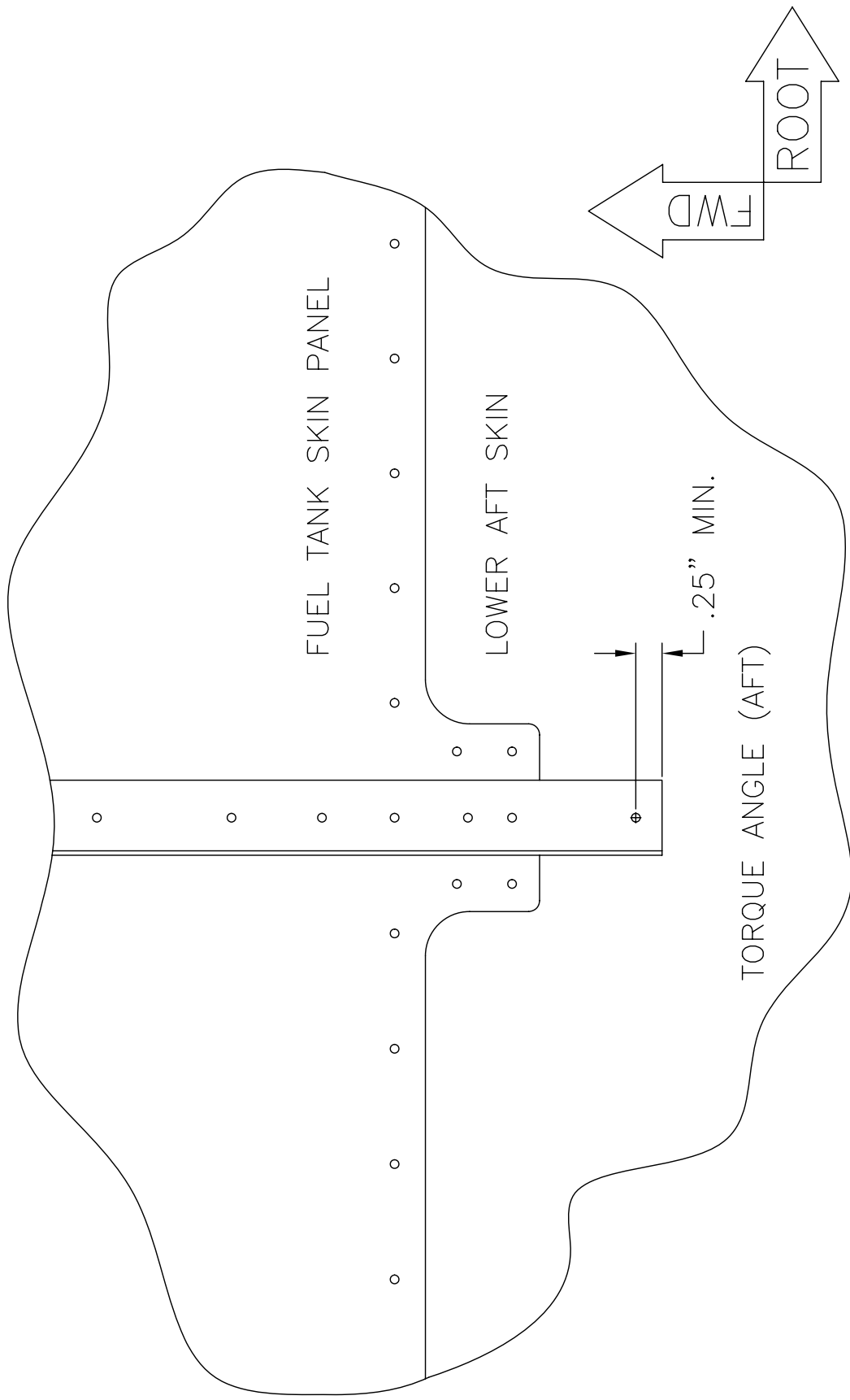
MD4833

**RAMS S-19 VENTERRA**  
**FUEL TANK TORQUE ANGLE MODIFICATION**  
**FIGURE 03F-72**



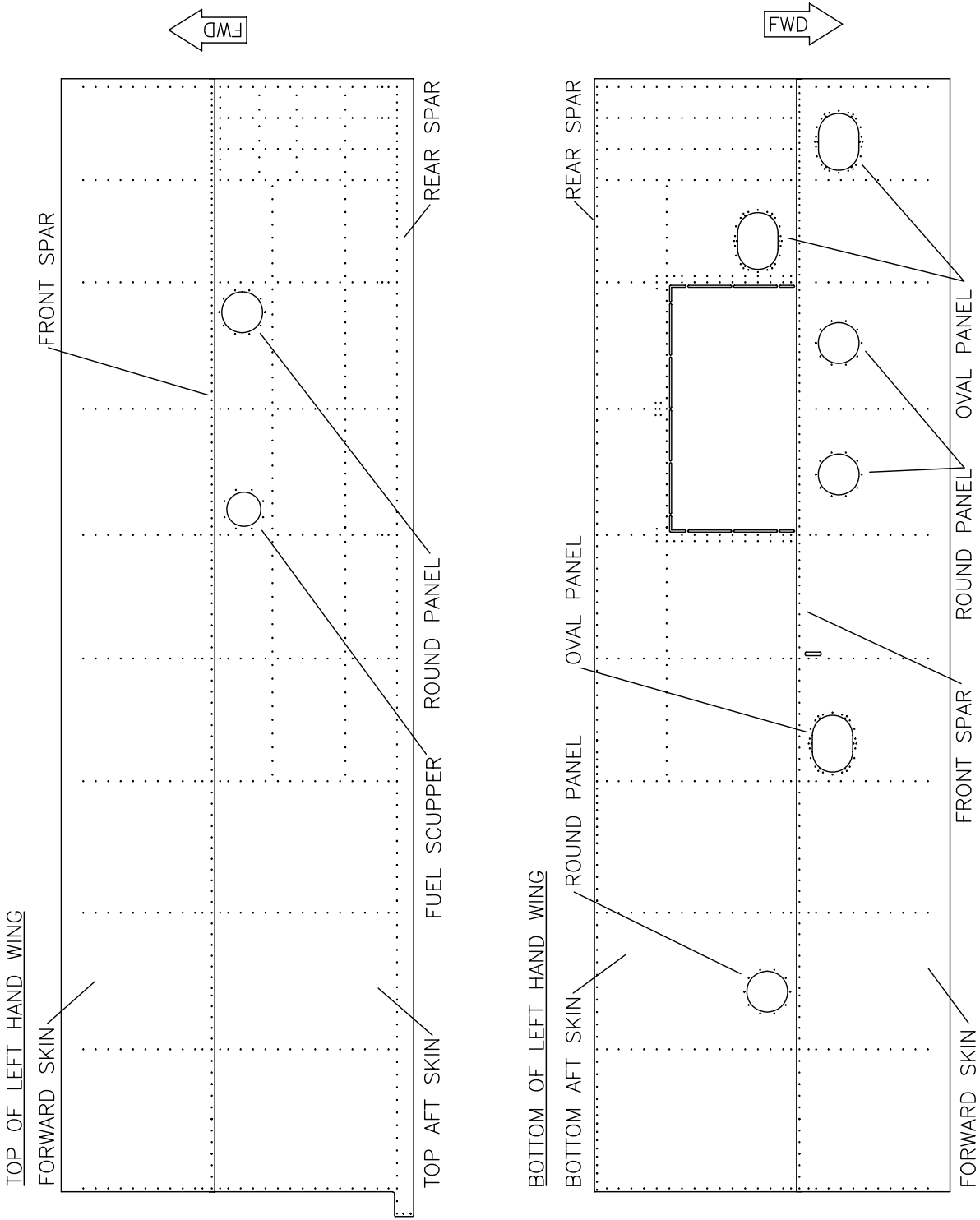
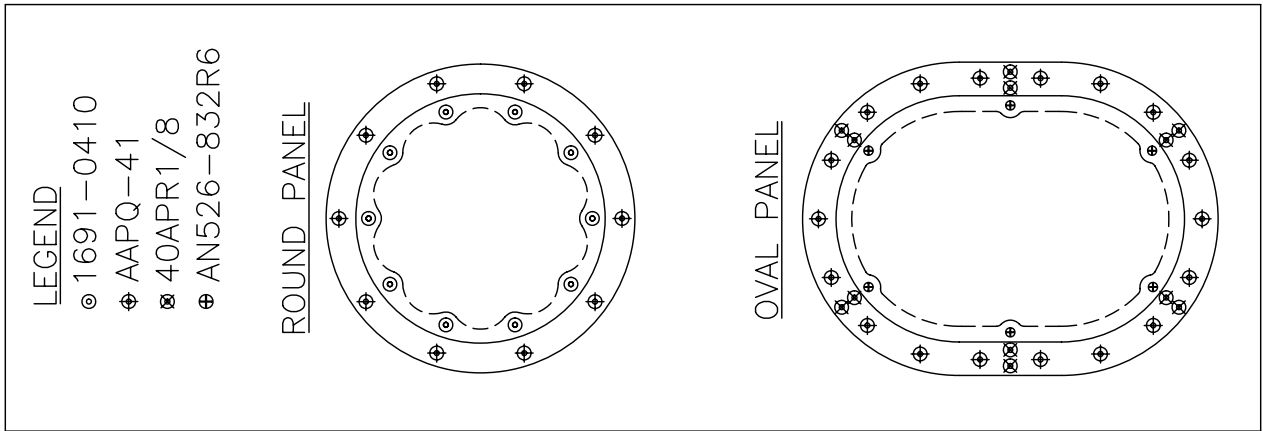
**RRR** S-19 VENTERRA  
 TORQUE ANGLE - FWD  
 FIGURE 03F-74

MD4882



MD4881

**RAMB S-19 VENTERRA**  
**TORQUE ANGLE - AFT**  
**FIGURE 03F-74A**



MD4842

**RAMB S-19**  
**INSPECTION PANEL INSTALLATION**  
**FIGURE 03F-78**

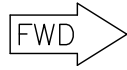


BOTTOM OF LEFT HAND WING

BOTTOM AFT SKIN REAR SPAR

CCPQ-43 (QTY. 30)

AA PQ-43 (QTY. 15)



FORWARD SKIN

AA PQ-43 (QTY. 16)

USE AVEX RIVETS 1691-0410 UNLESS OTHERWISE SPECIFIED

AA PQ-42 (QTY. 1)

AA PQ-43 (QTY. 3)

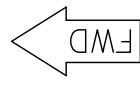
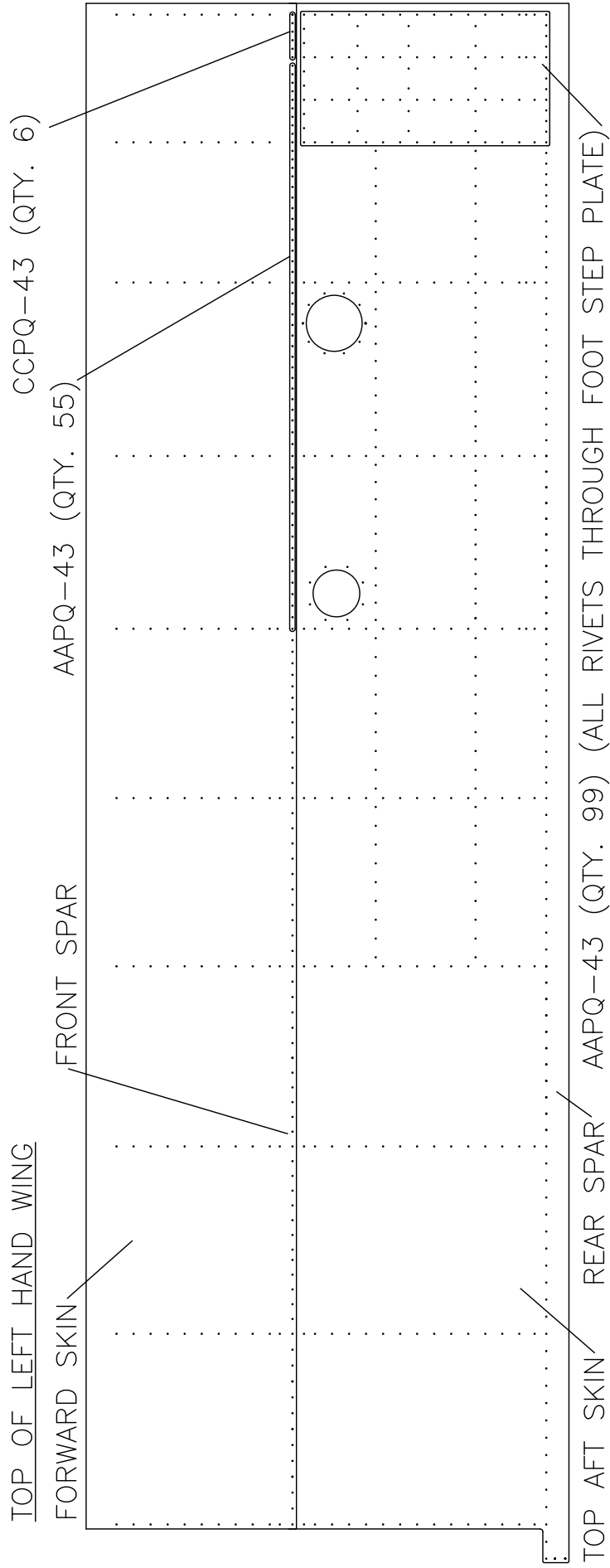
AA PQ-41 (QTY. 11)

AA PQ-44 (QTY. 1)

AA PQ-42 (QTY. 3)

MD4907

**RRR** S-19 VENTERRA  
WING SKIN RIVET SCHEDULE - BOTTOM  
FIGURE 03G-06



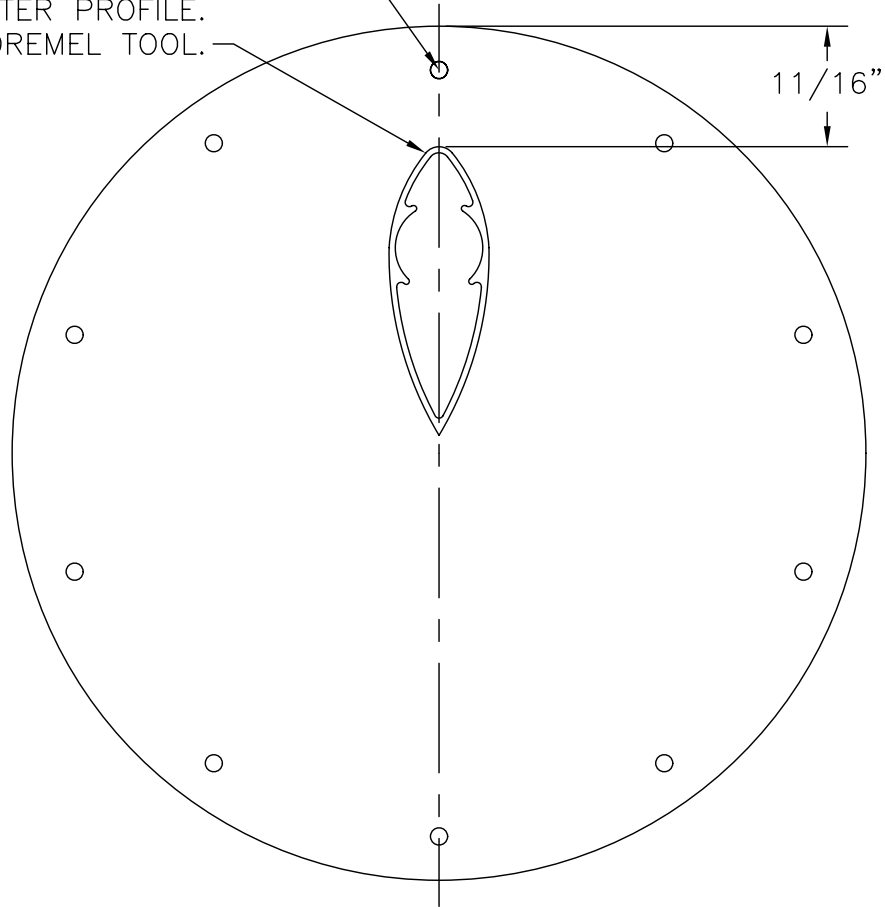
USE AVEX RIVETS 1691-0410 UNLESS OTHERWISE SPECIFIED

MD4907

**RAMS** S-19 VENTERRA  
 WING SKIN RIVET SCHEDULE - TOP  
 FIGURE 03G-11

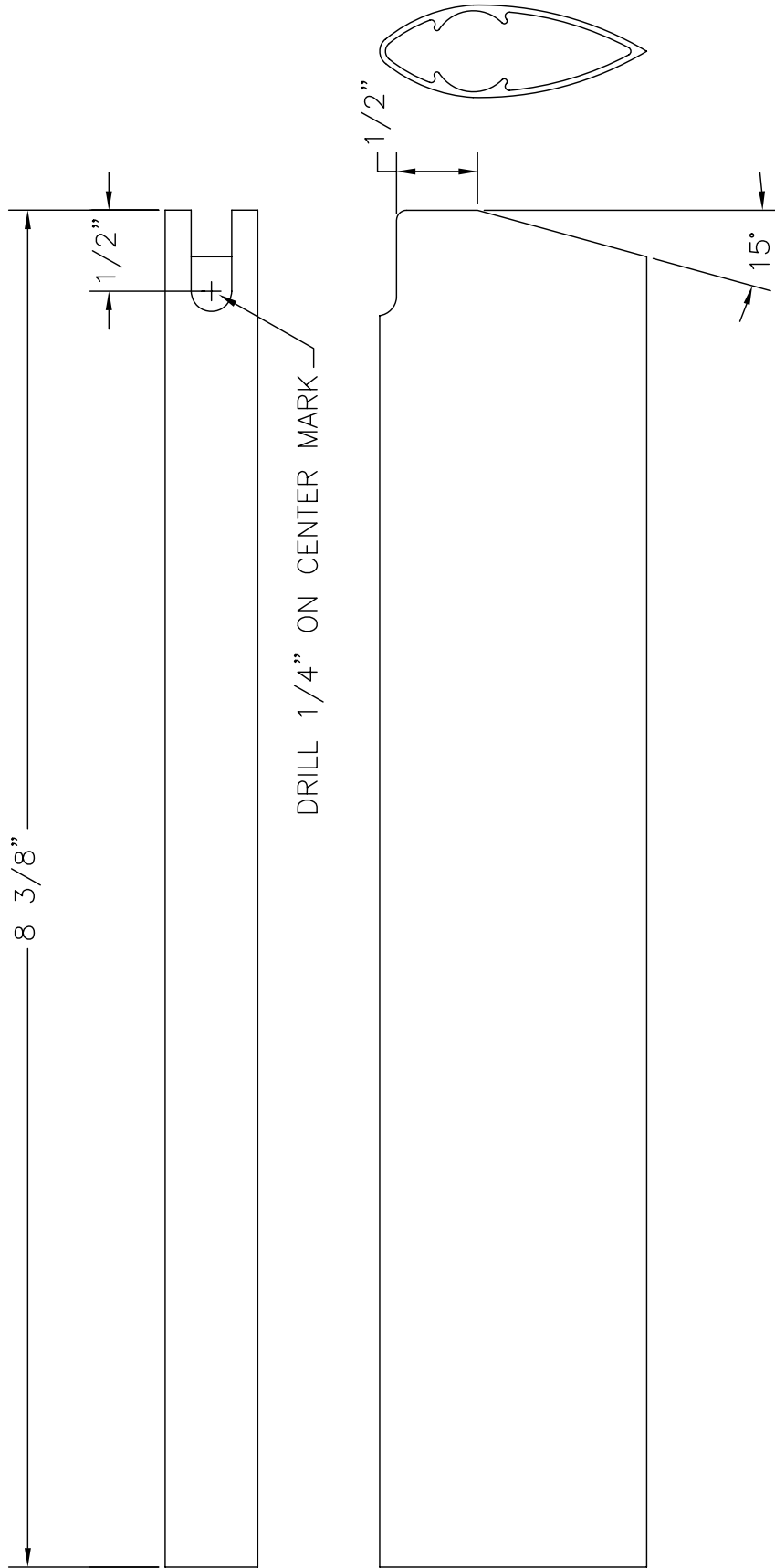
NOTE ORIENTATION OF HOLES

PLACE FAIRING AS SHOWN  
AND USE AS TEMPLATE TO  
TRACE OUTER PROFILE.  
CUT OUT WITH DREMEL TOOL.



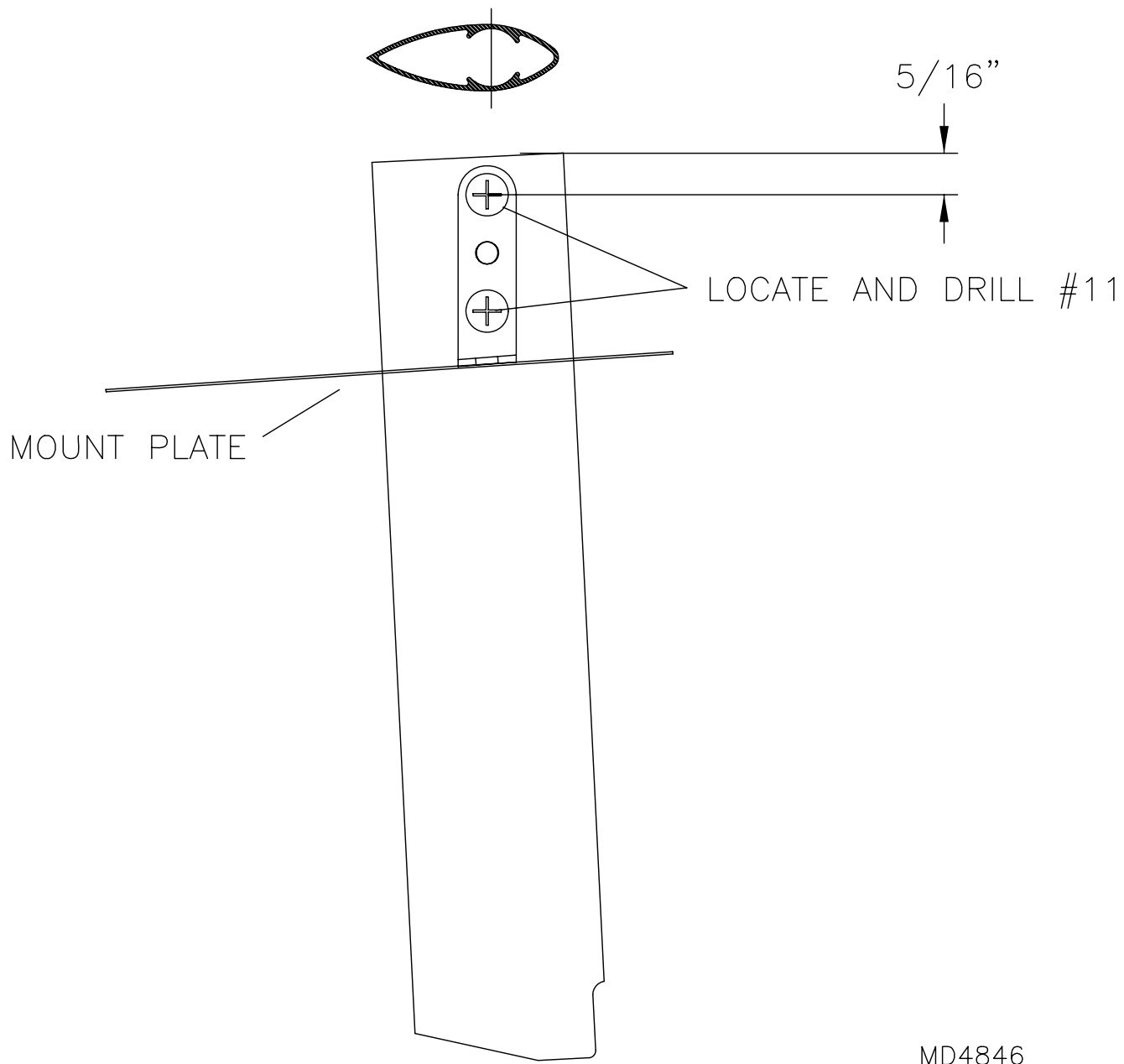
**RAMS S-19 VENTERRA  
OPTIONAL PITOT/STATIC  
FAIRING MOUNT PLATE MODIFICATION  
FIGURE 03H-02**

MD5483



MD4847

**RRF** S-19 VENTERRA  
 OPTIONAL PITOT/STATIC  
 FAIRING MODIFICATION  
 FIGURE 03H-03

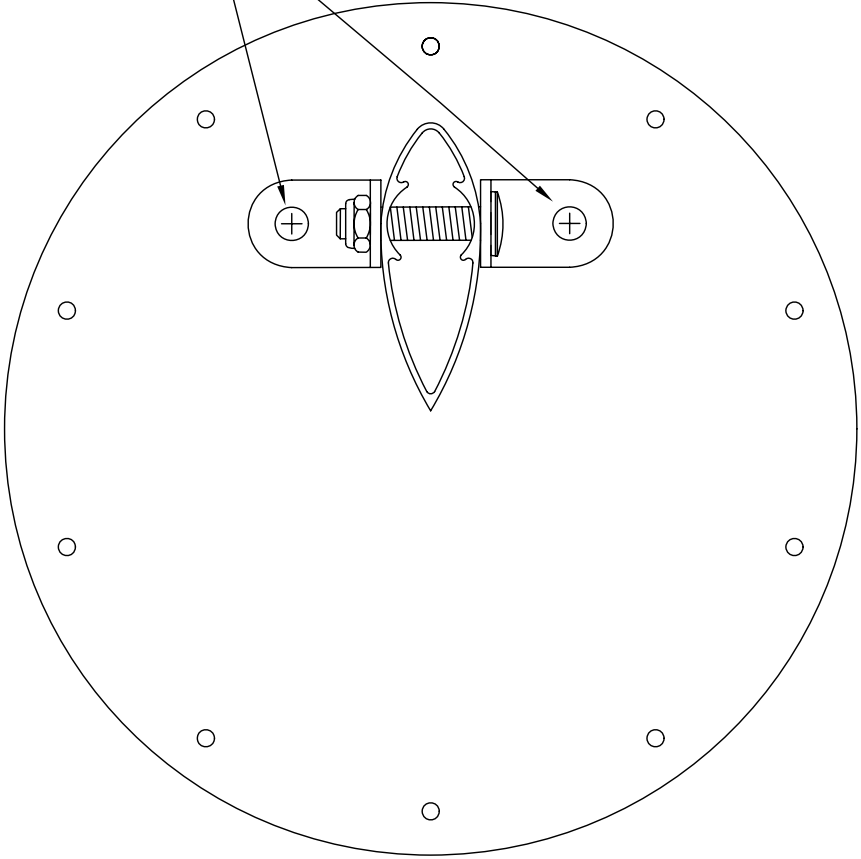


MD4846

**RANS S-19 VENTERRA**  
**OPTIONAL PITOT/STATIC**  
**TUBE MOUNT**  
**FIGURE 03H-04**

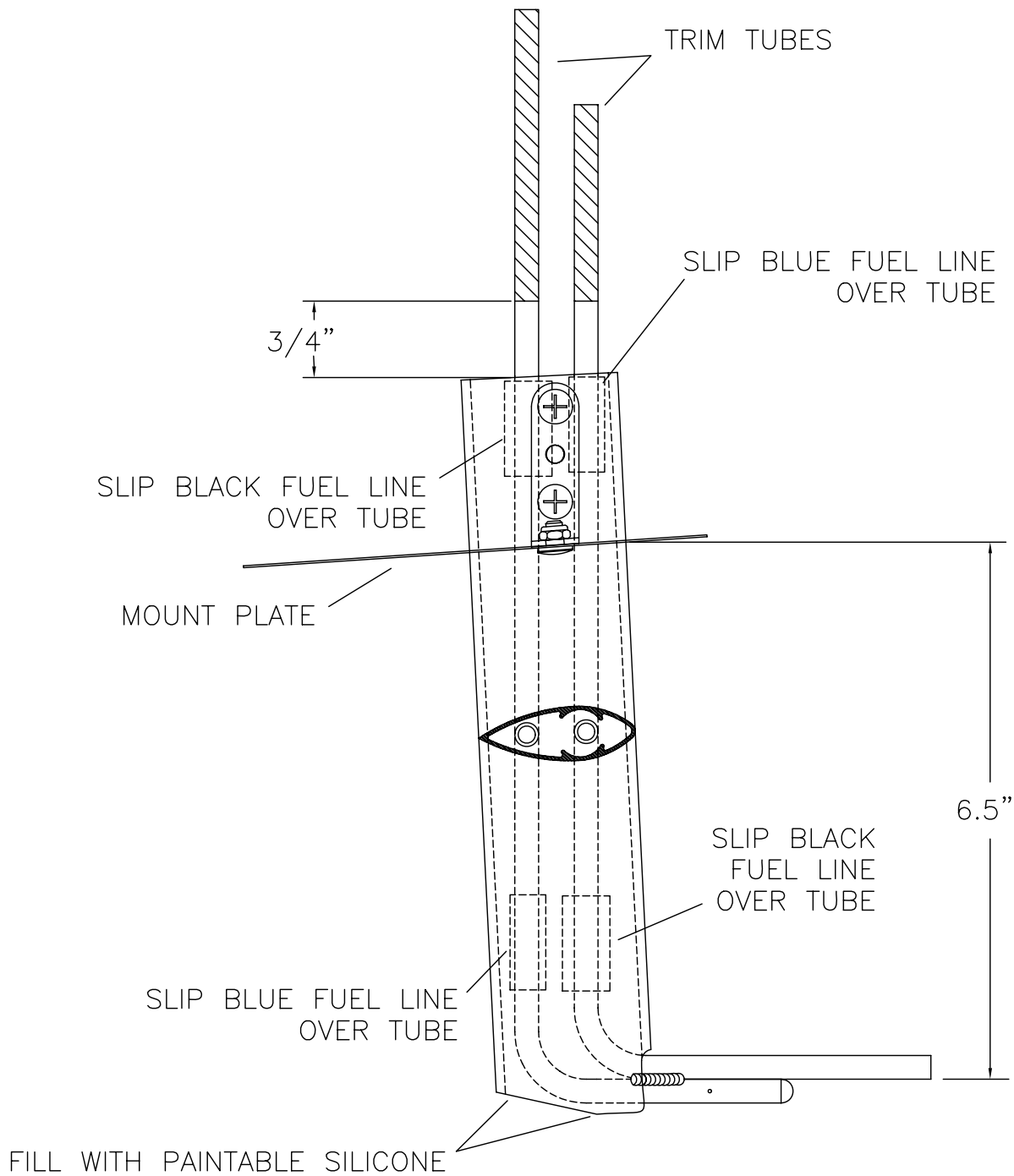
04/01/2011

BOLT BRACKETS TO FAIRING  
AND TRANSFER DRILL #11



**RANS S-19 VENTERRA**  
**OPTIONAL PITOT/STATIC**  
**FAIRING MOUNT PLATE MODIFICATION**  
**FIGURE 03H-05**

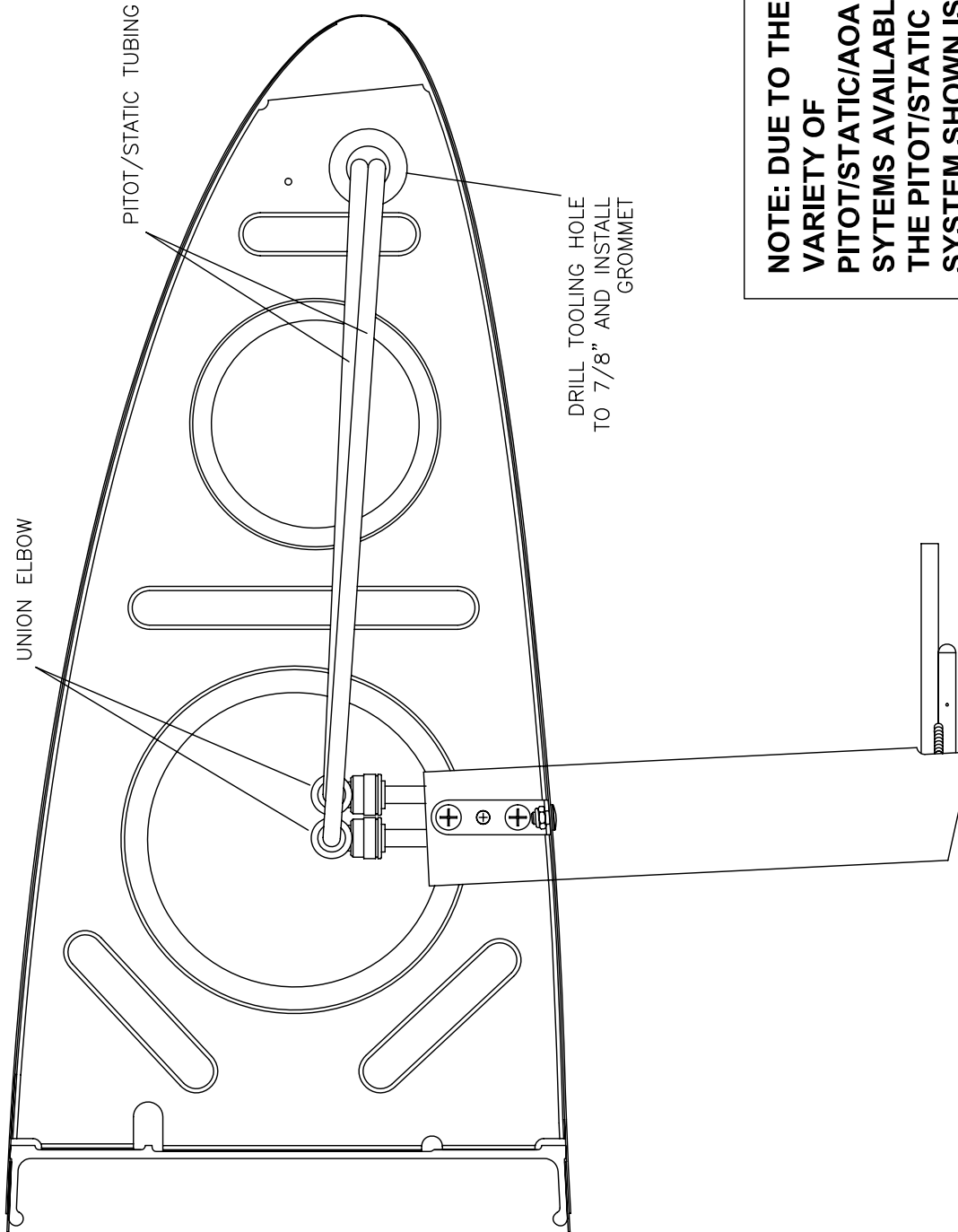
MD5483



MD4846

**RANS S-19 VENTERRA  
 OPTIONAL PITOT/STATIC  
 TUBE MOUNT  
 FIGURE 03H-06**

04/01/2011

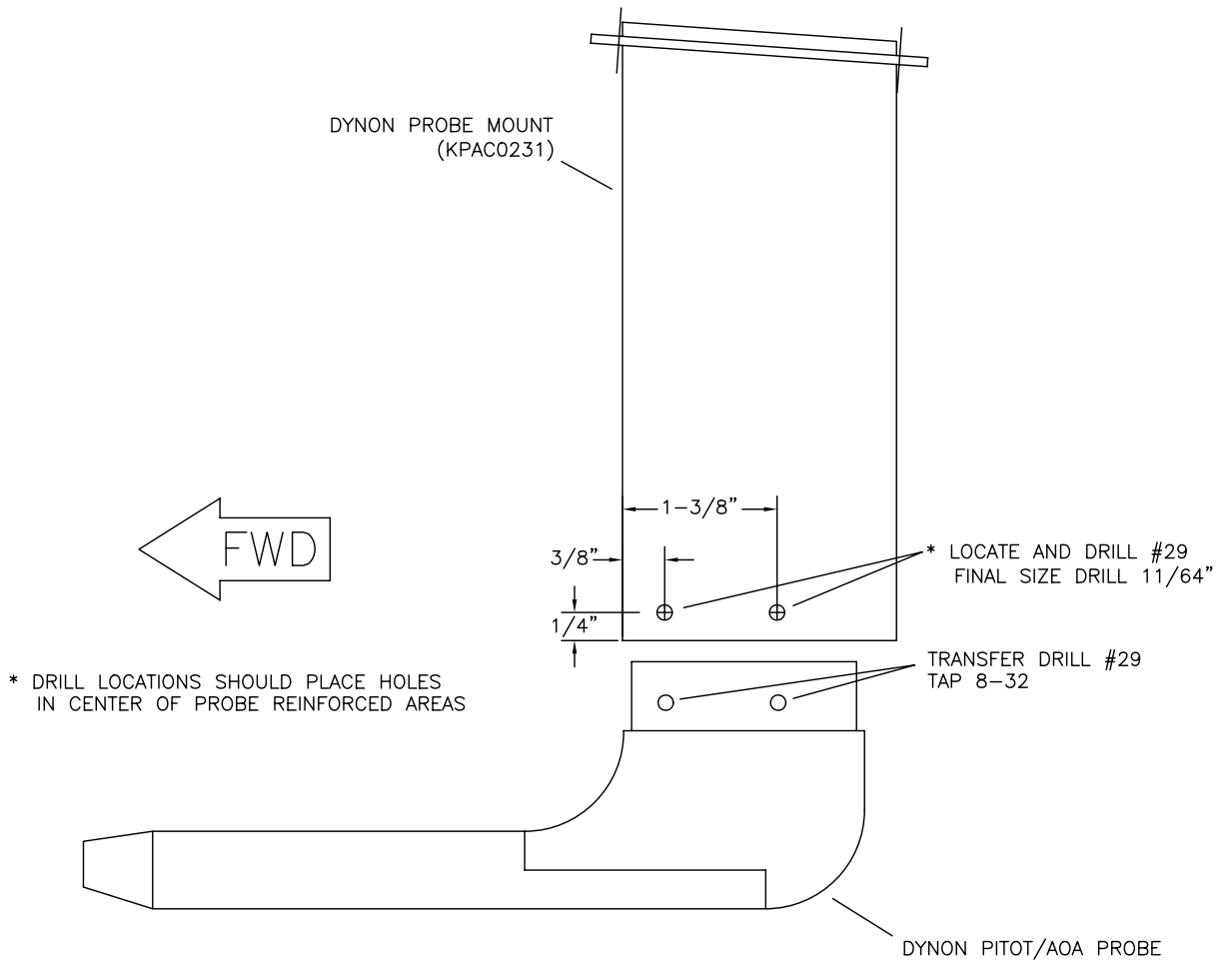


**NOTE: DUE TO THE VARIETY OF PITOT/STATIC/AOA SYTEMS AVAILABLE, THE PITOT/STATIC SYSTEM SHOWN IS OPTIONAL.**

MD4846

**RRR S-19 VENTERRA  
OPTIONAL PITOT/STATIC  
ASSEMBLY INSTALLATION  
FIGURE 03H-07**

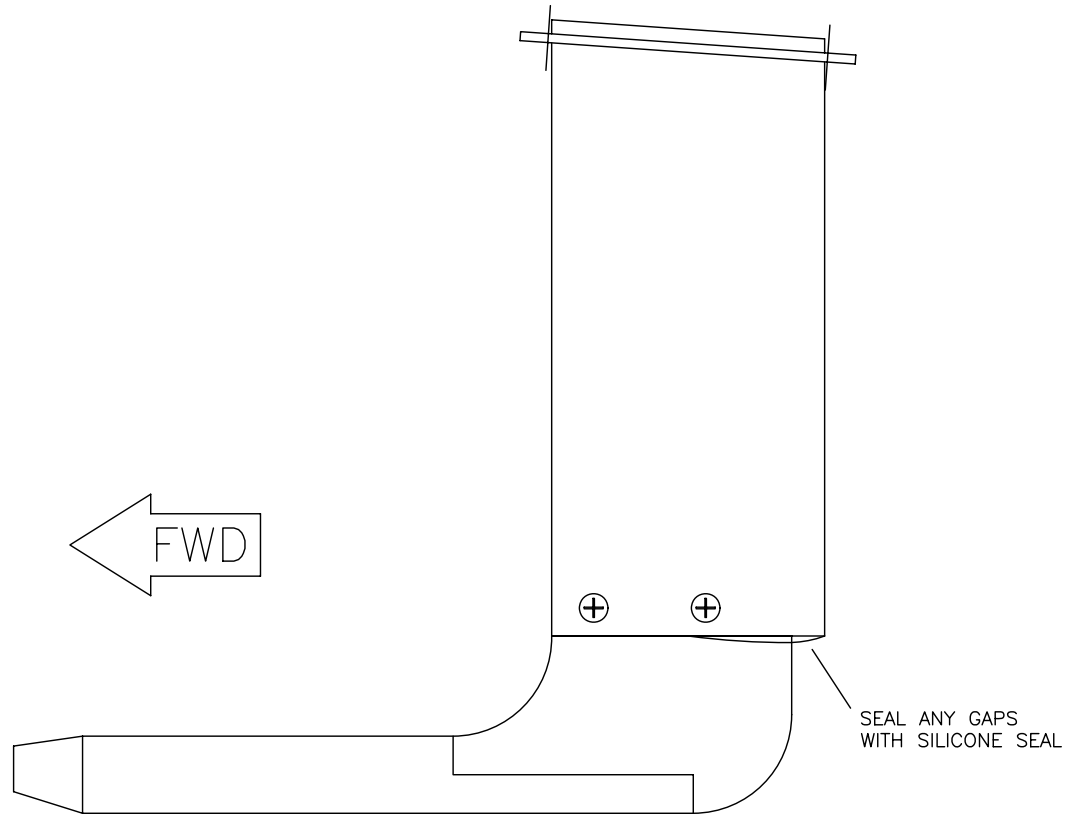




MD5537

**RANS S-19 VENTERRA**  
**OPTIONAL DYNON PROBE ATTACH**  
**FIGURE 03I-02**

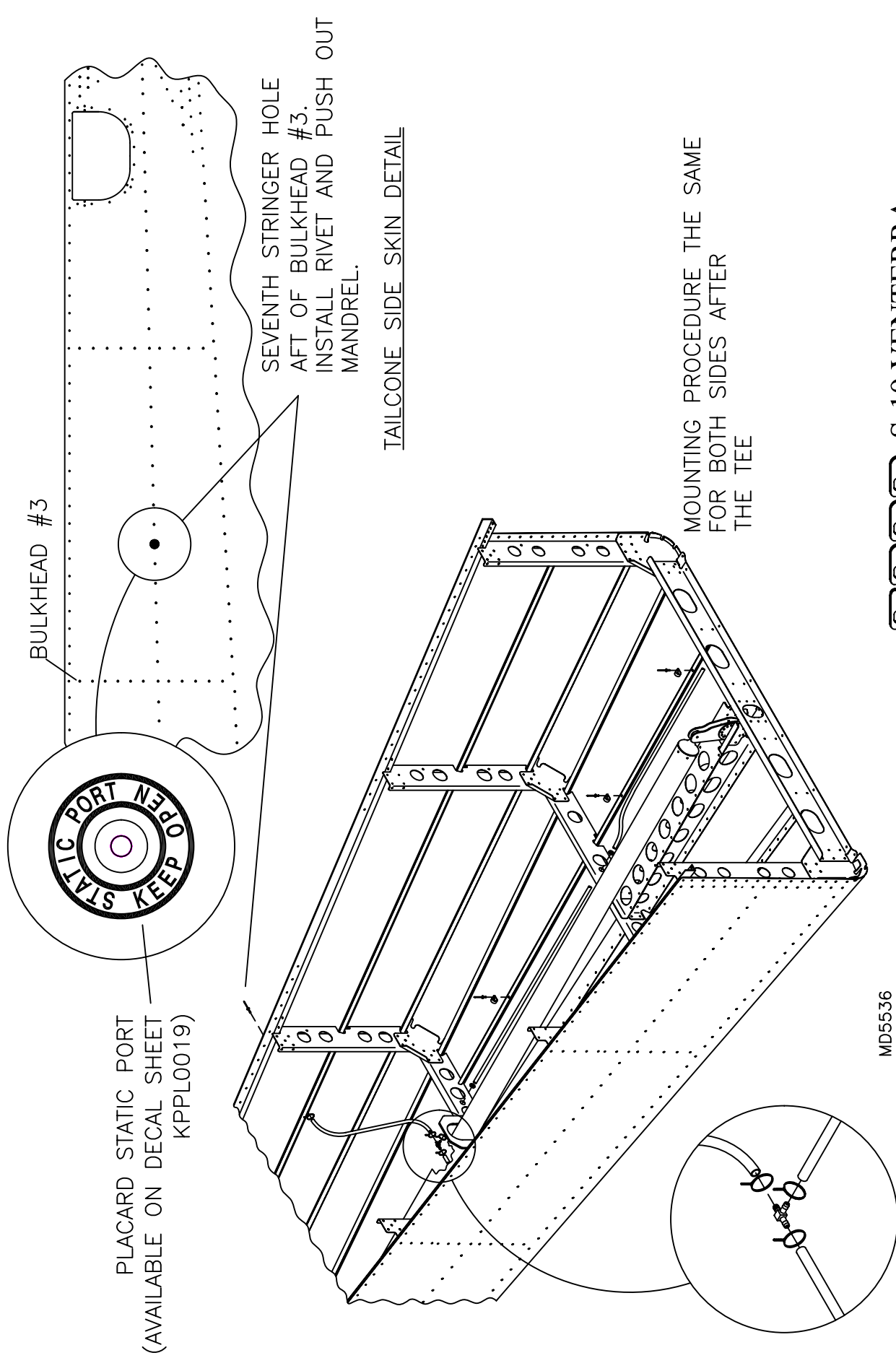
04/01/2011



MD5537

**RANS S-19 VENTERRA**  
**OPTIONAL DYNON PROBE**  
**FIGURE 03I-03**

04/01/2011



BULKHEAD #3

PLACARD STATIC PORT  
(AVAILABLE ON DECAL SHEET  
KPPL0019)

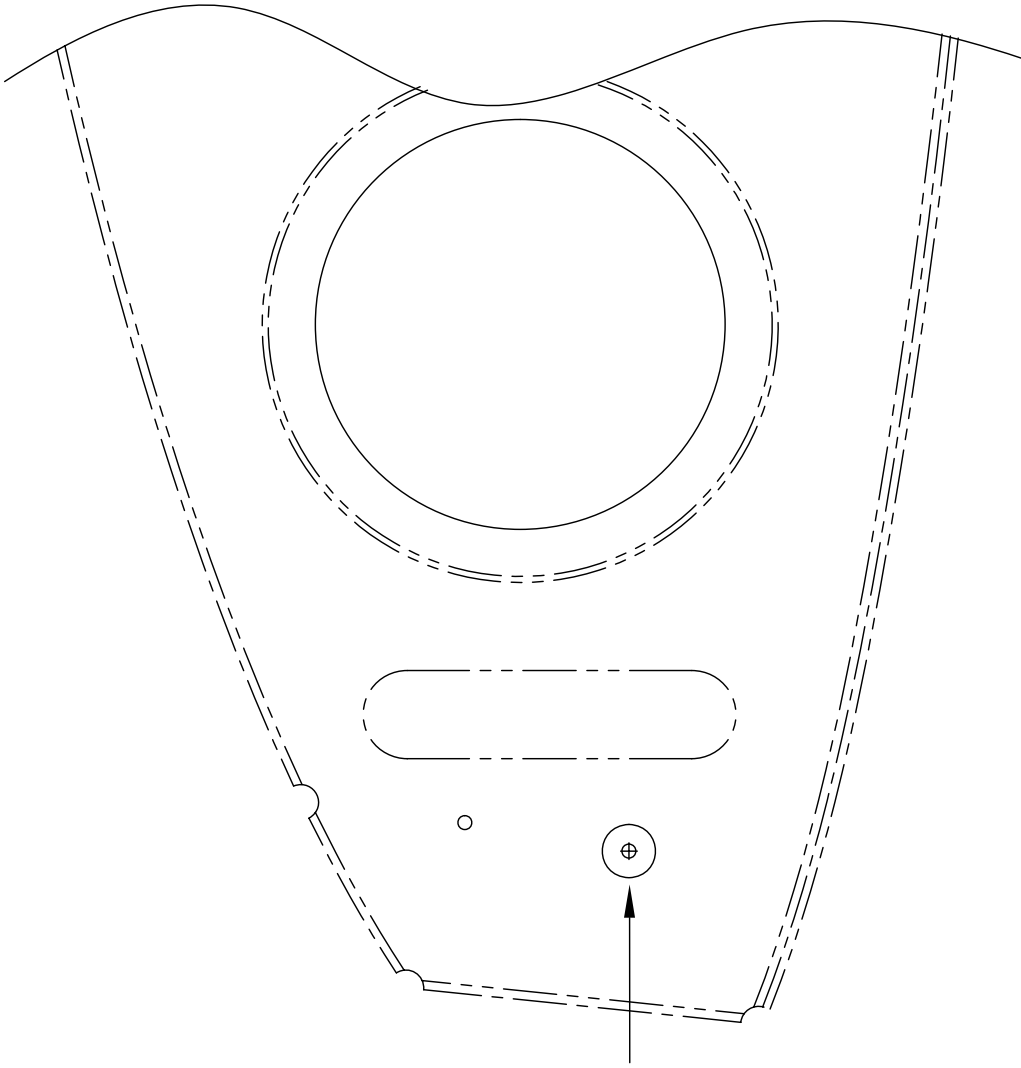
SEVENTH STRINGER HOLE  
AFT OF BULKHEAD #3.  
INSTALL RIVET AND PUSH OUT  
MANDREL.

TAILCONE SIDE SKIN DETAIL

MOUNTING PROCEDURE THE SAME  
FOR BOTH SIDES AFTER  
THE TEE

MD5536

**RRR** S-19 VENTERRA  
OPTIONAL DYNON STATIC LINE ROUTING - TAILCONE  
FIGURE 03I-08



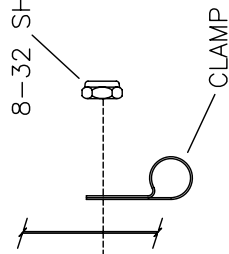
MD4877

04/01/2011

**RAMS S-19**  
**OPTIONAL AVEO STROBES - NOSE RIB MODIFICATION**  
**FIGURE 03J-02**

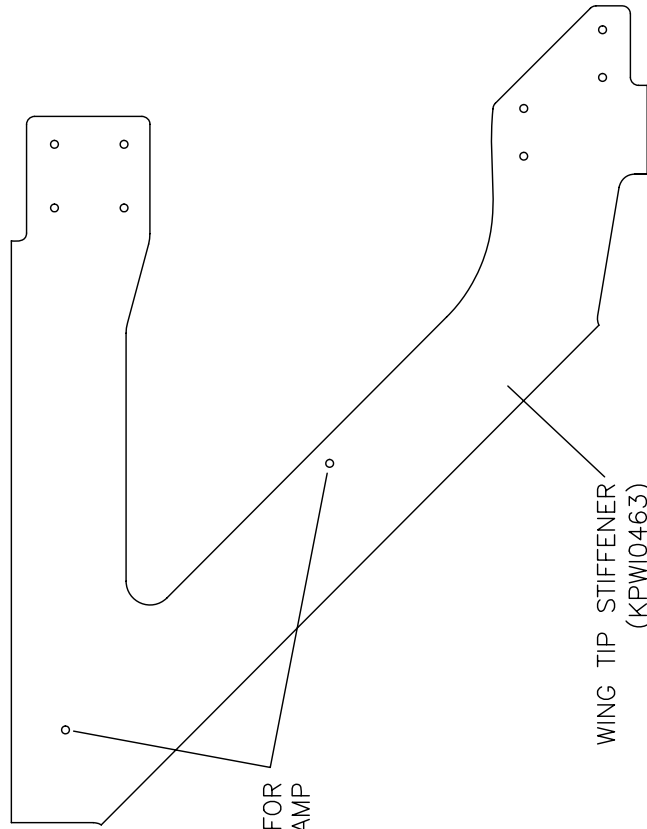
#8 TRUSSHEAD SCREW

8-32 SHEAR NUT

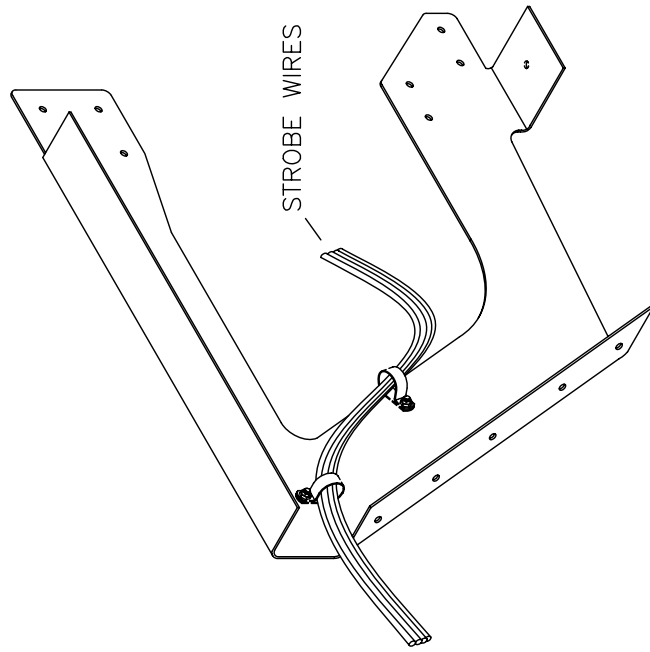


CLAMP

DRILL #11 FOR  
ATTACHING CLAMP



WING TIP STIFFENER  
(KPW10463)

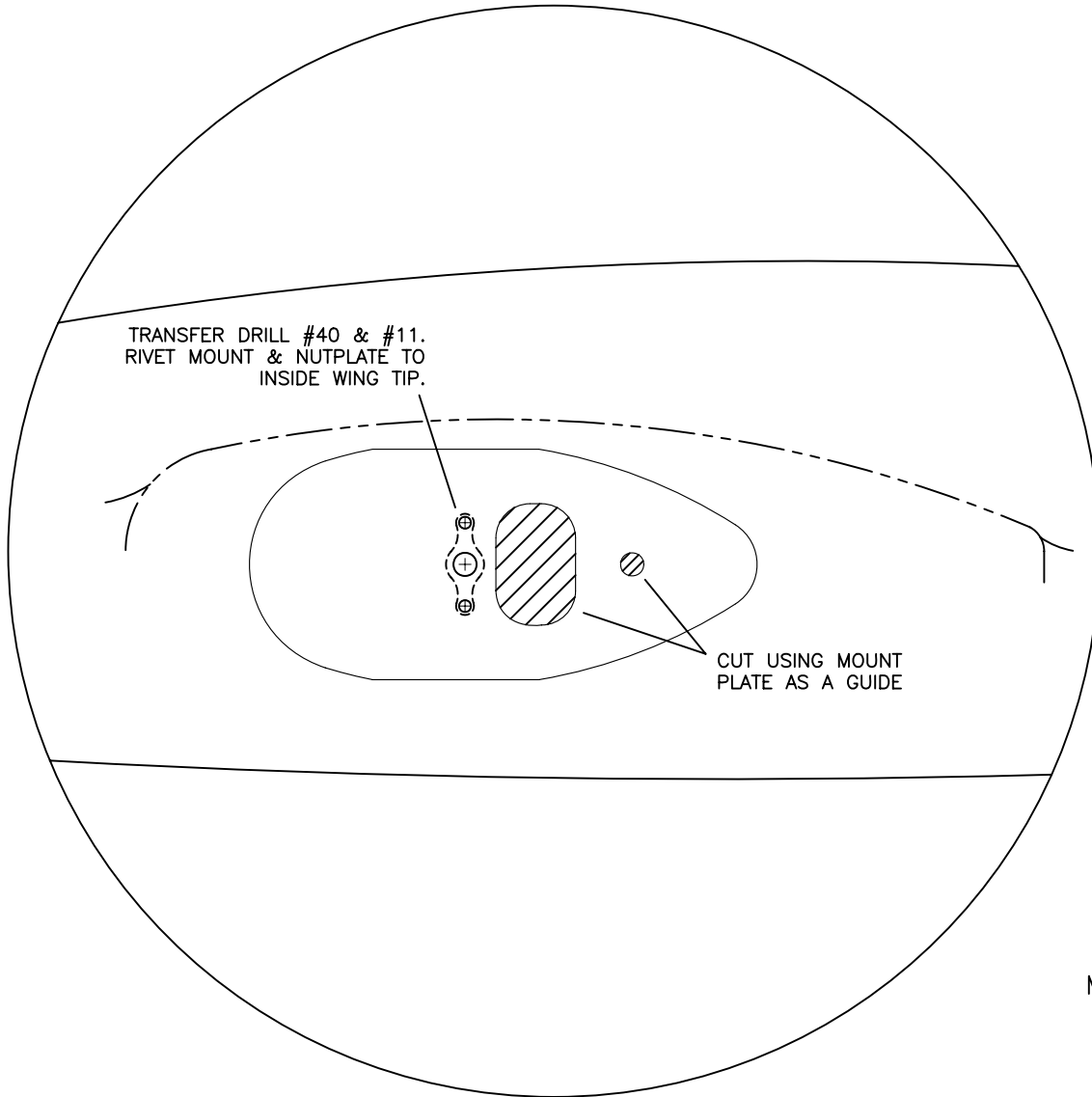


STROBE WIRES

MD5448

04/01/2011

**RAMS S-19 VENTERRA**  
**OPTIONAL AVEO STROBES - WING TIP STIFFENER MODIFICATION**  
**FIGURE 03J-03**

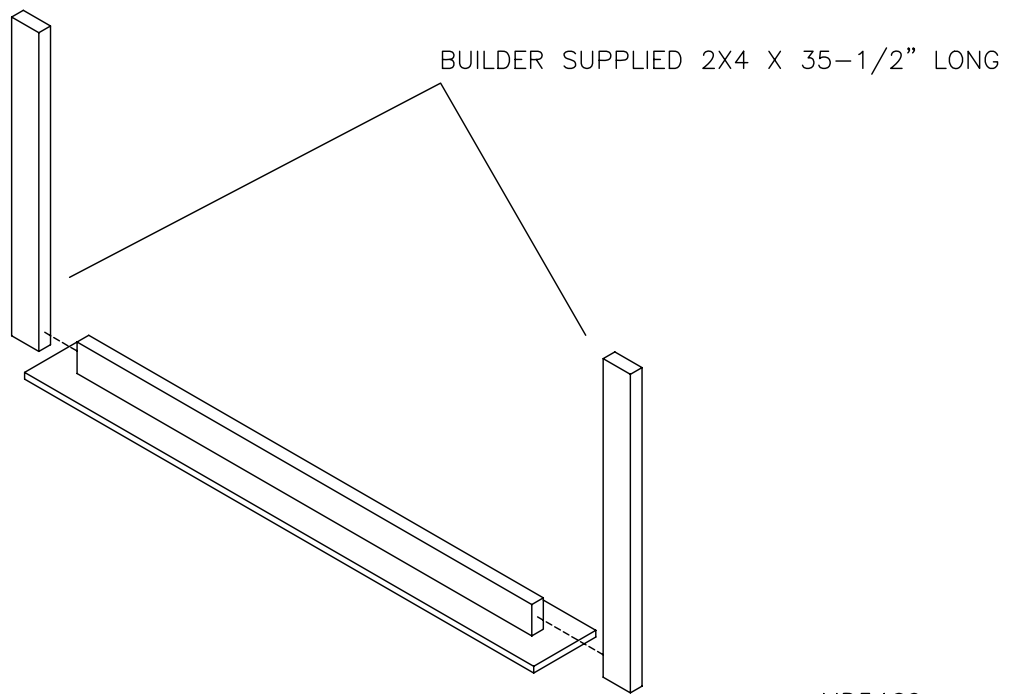
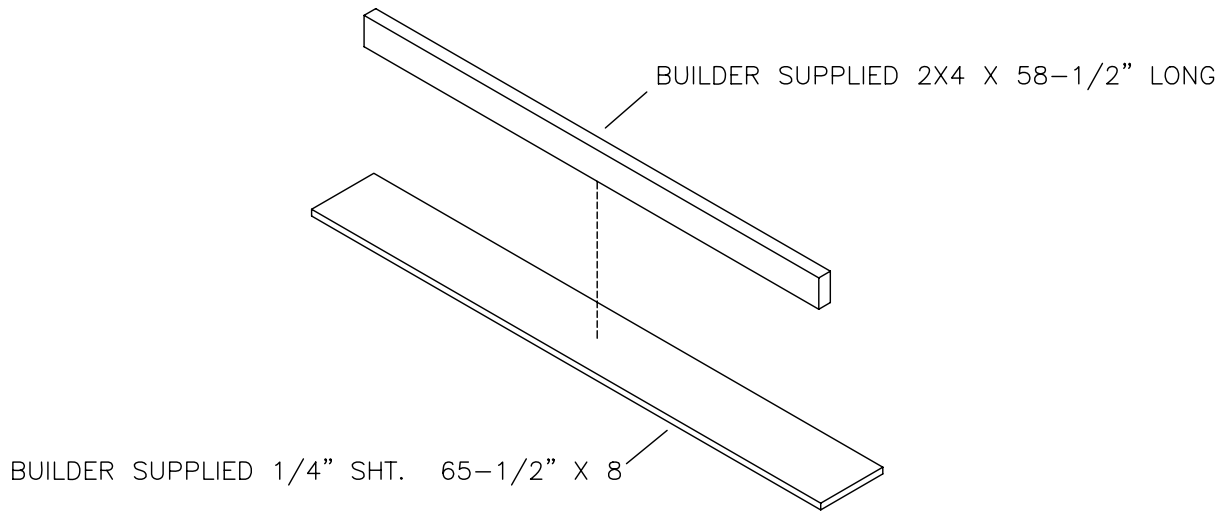


MD4483

**RANS S-19 VENTERRA**  
**OPTIONAL AVEO STROBES - WING TIP MODIFICATION**

FIGURE 03J-06

04/01/2011

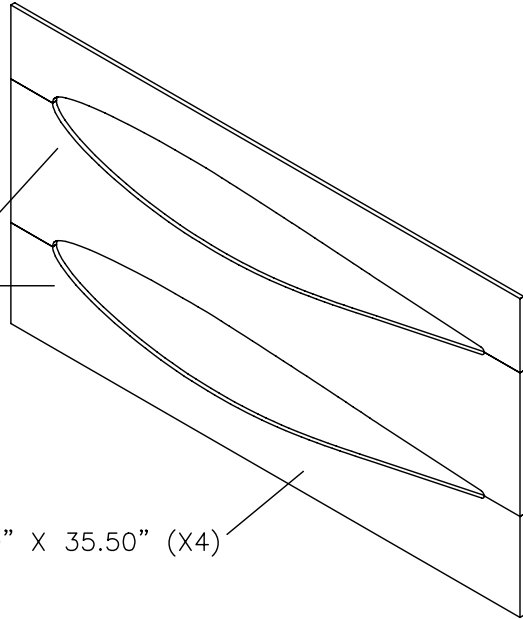


MD5469

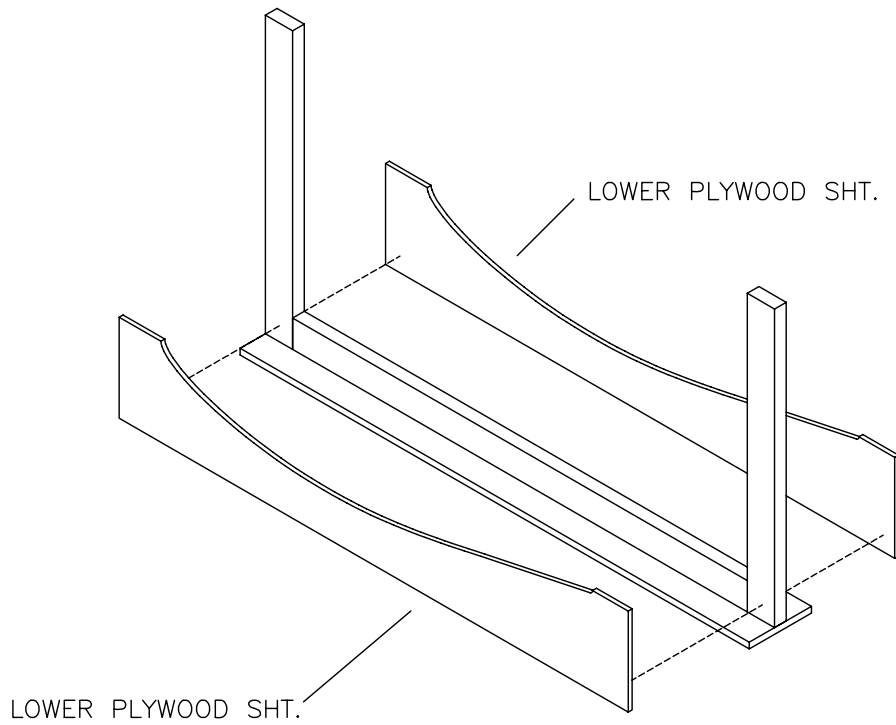
**RANS S-19 VENTERRA**  
**WING TRANSPORT #1**  
**FIGURE 03K-02**

04/01/2011

BUILDER TRACES WING PROFILE AND CUTS INTO (3) PIECES AS SHOWN. USE THESE AS TEMPLATES FOR THE REMAINING (3) BLANKS.



BUILDER SUPPLIED 1/4" PLYWOOD 65.50" X 35.50" (X4)

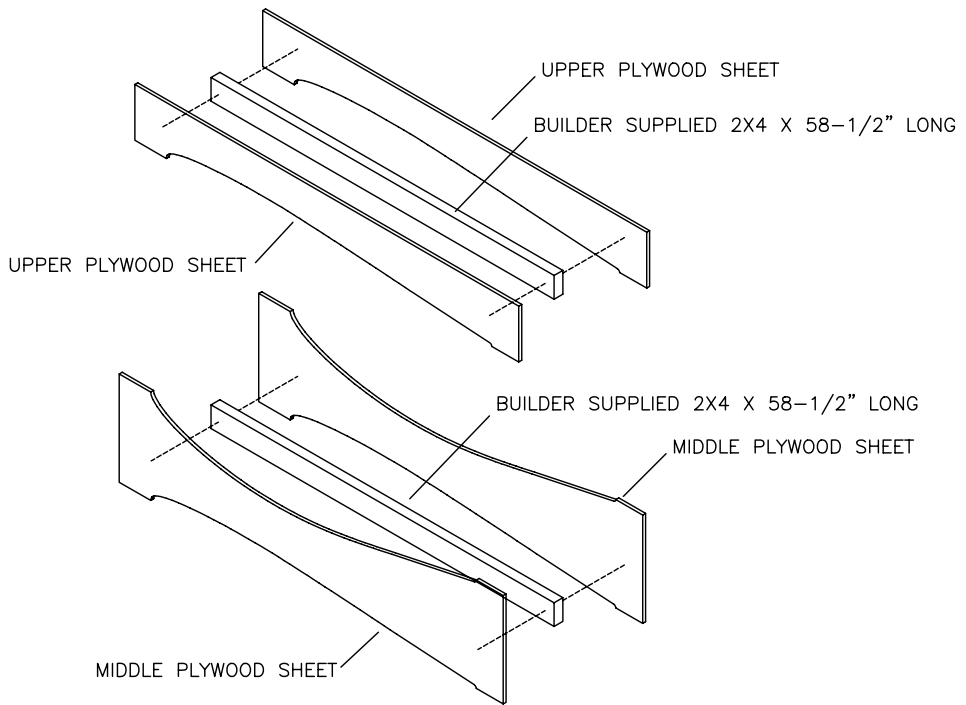


MD5469

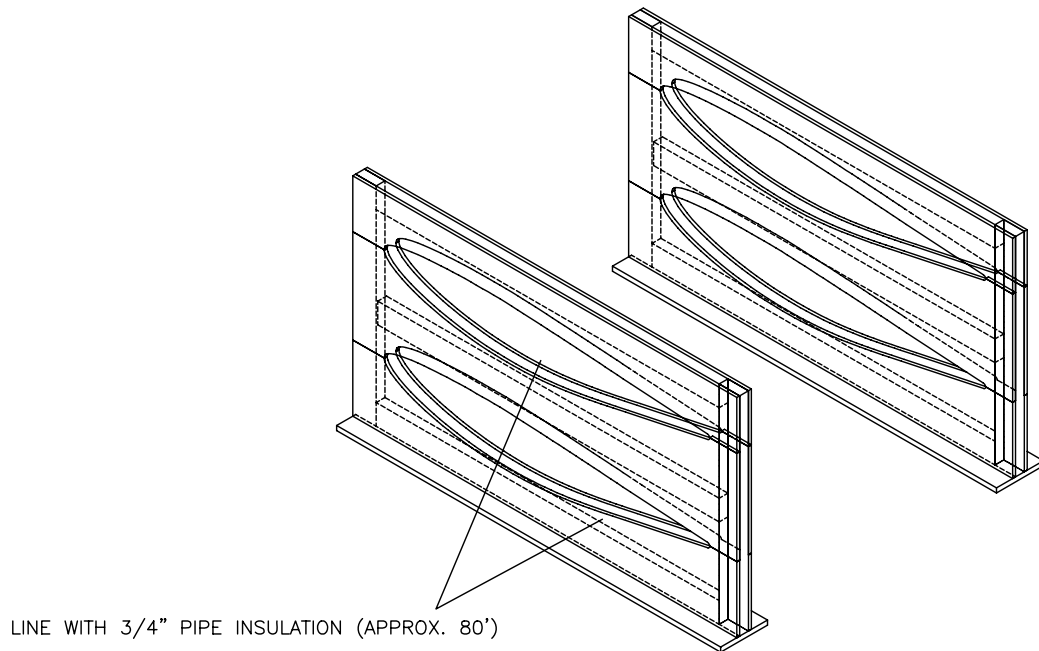
**RANS S-19 VENTERRA**  
**WING TRANSPORT #2**  
**FIGURE 03K-02A**

04/01/2011





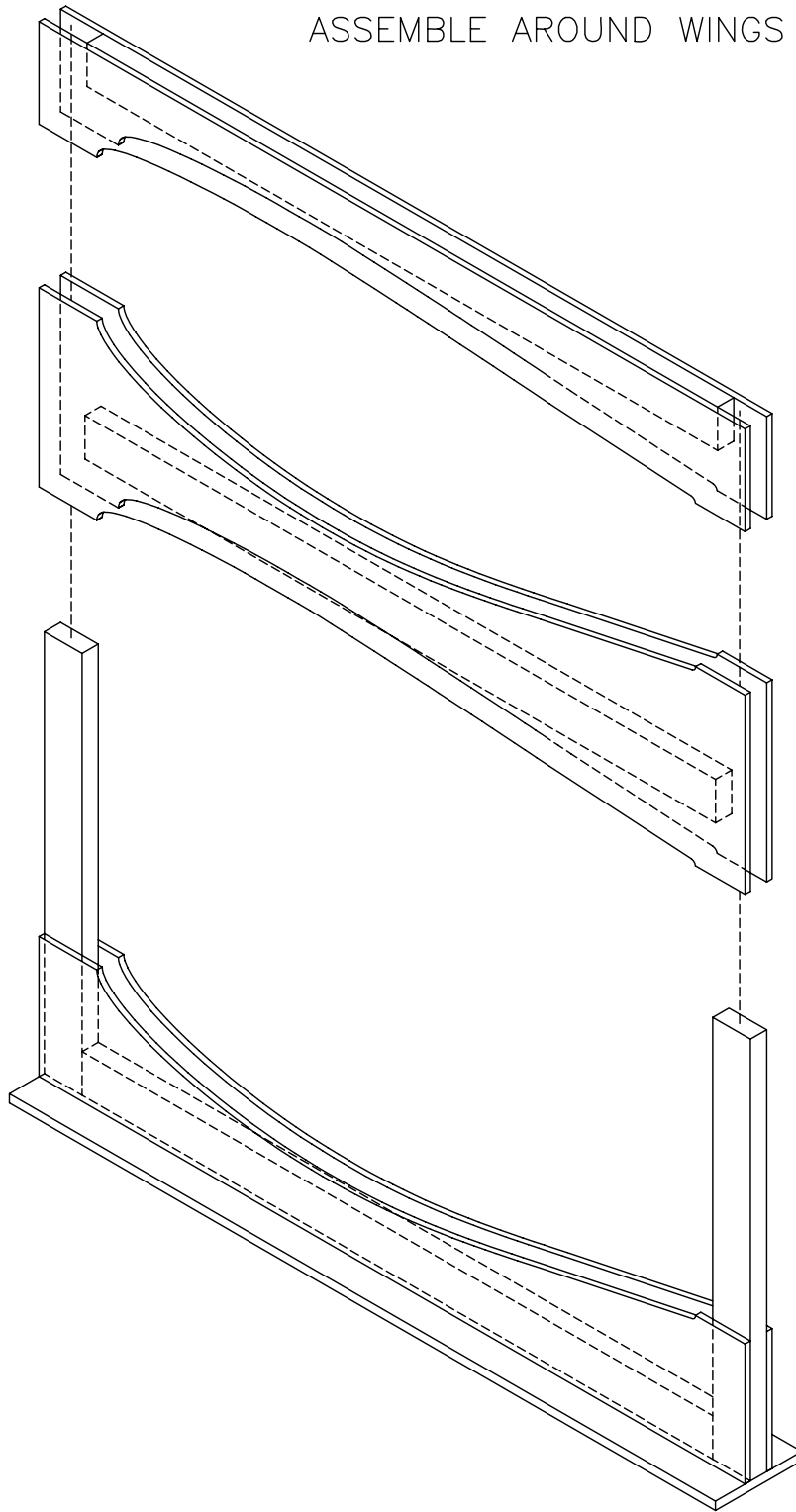
TWO FINISHED WING TRANSPORTS



MD5469

**RANS S-19 VENTERRA**  
**WING TRANSPORT #3**  
**FIGURE 03K-02B**

ASSEMBLE AROUND WINGS AS SHOWN

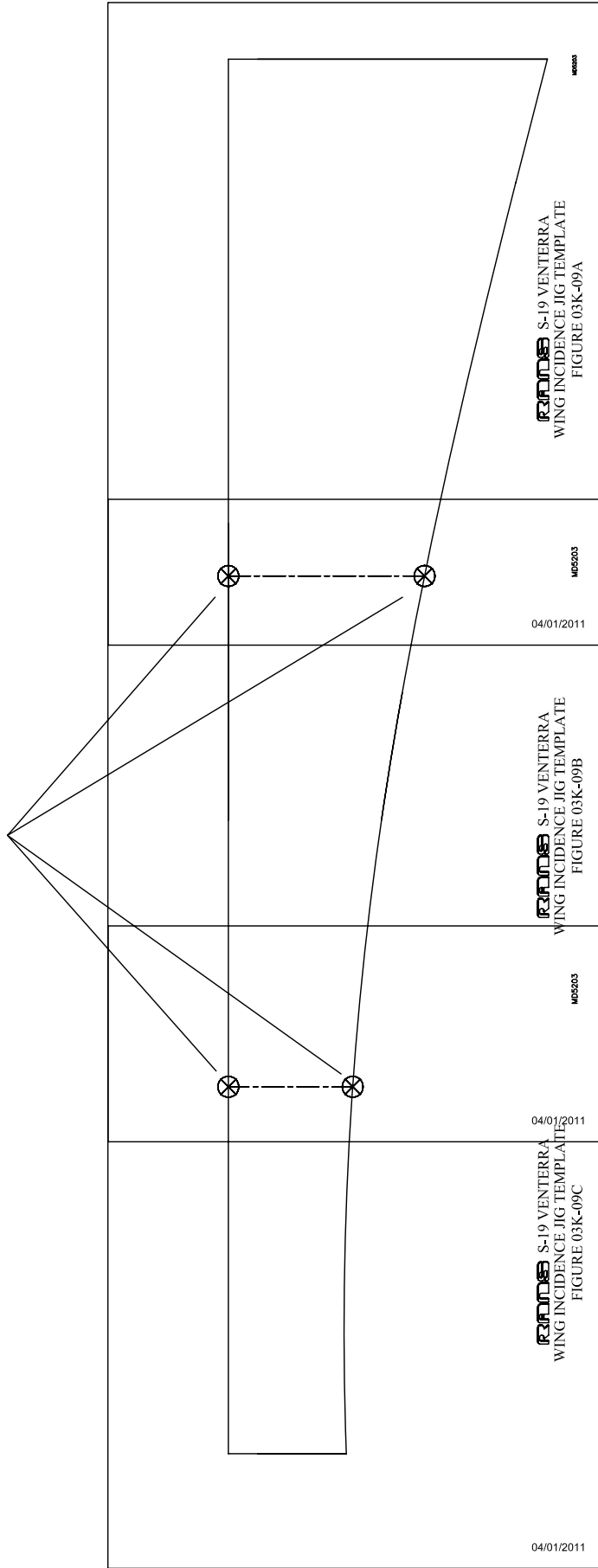


MD5469

**RAMS S-19 VENTERRA**  
**WING TRANSPORT #4**  
**FIGURE 03K-02C**

04/01/2011

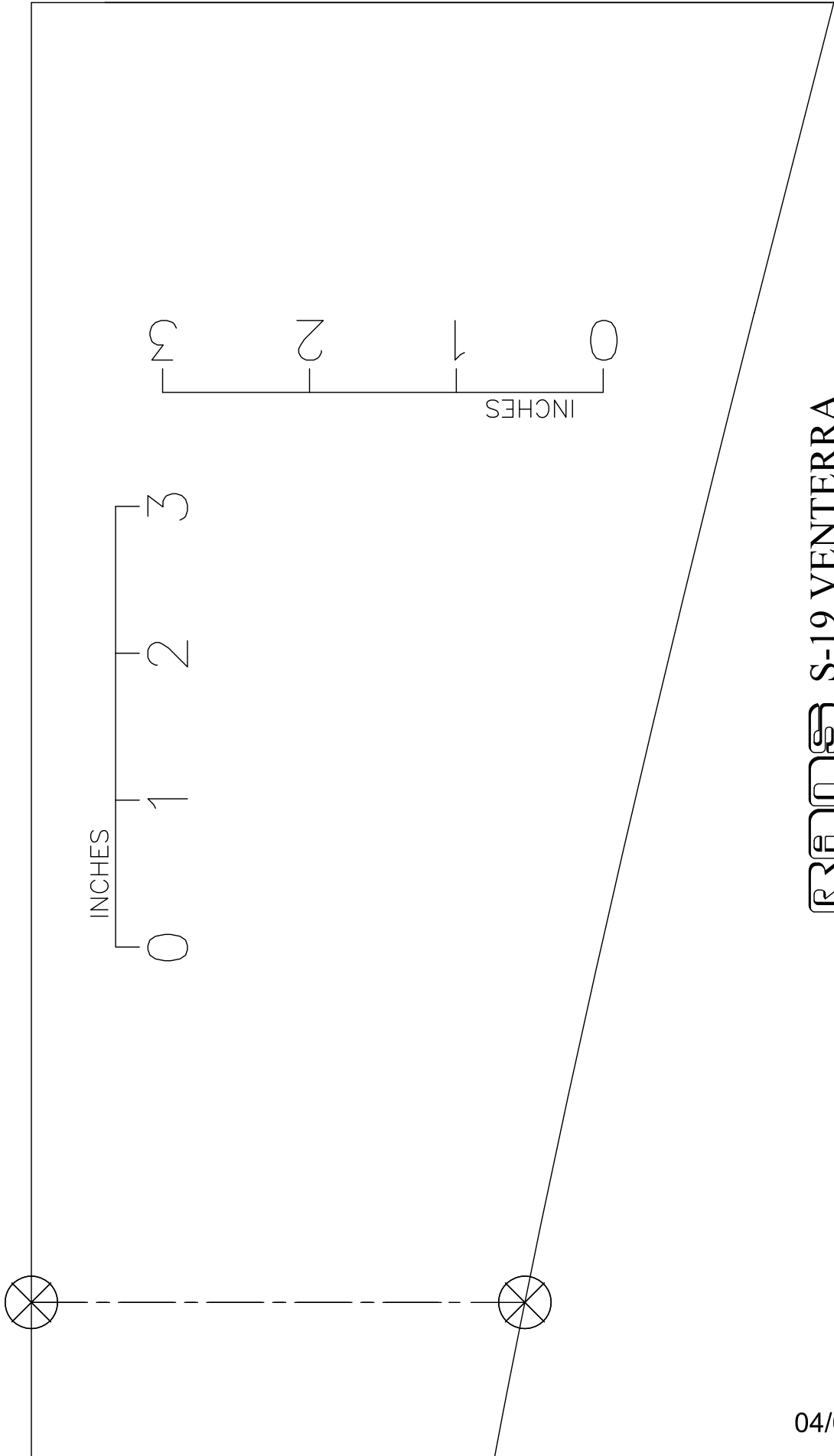
LINE PAGES UP ON CROSS HAIRS  
(TOP AND BOTTOM)



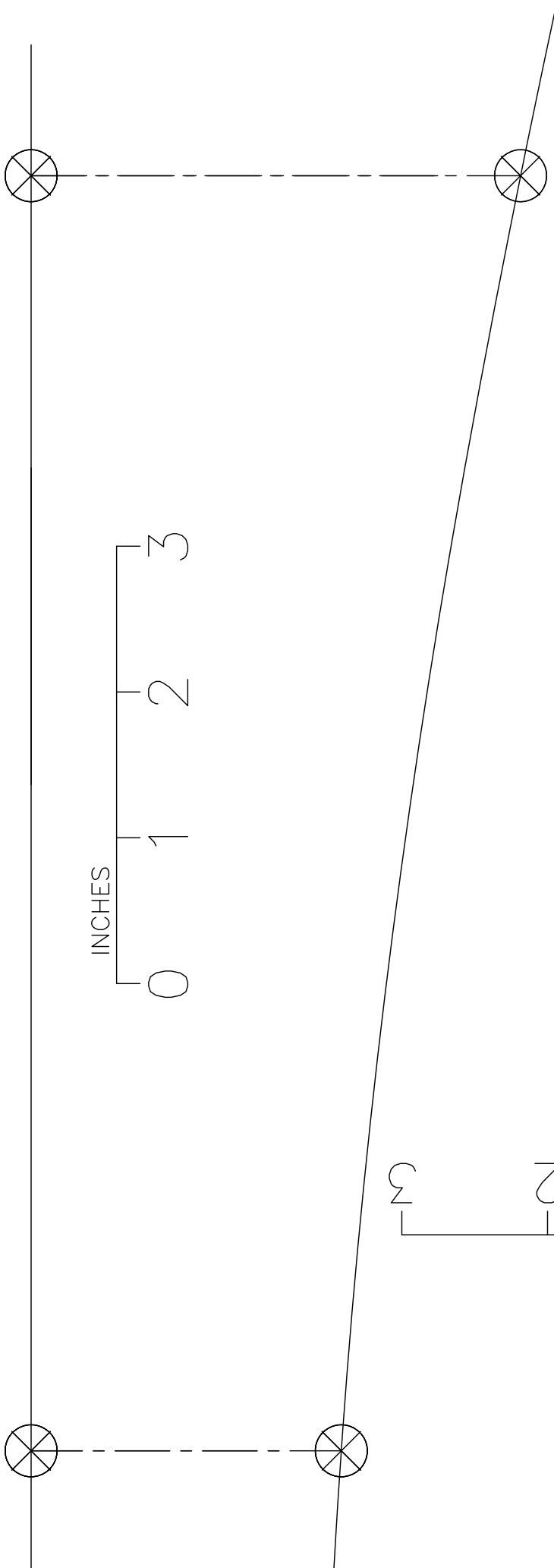
FABRICATE FROM PLY-WOOD OR SIMILAR MATERIAL  
REFER TO FIGURES 03K-09A THRU 03K-09C

MD5203

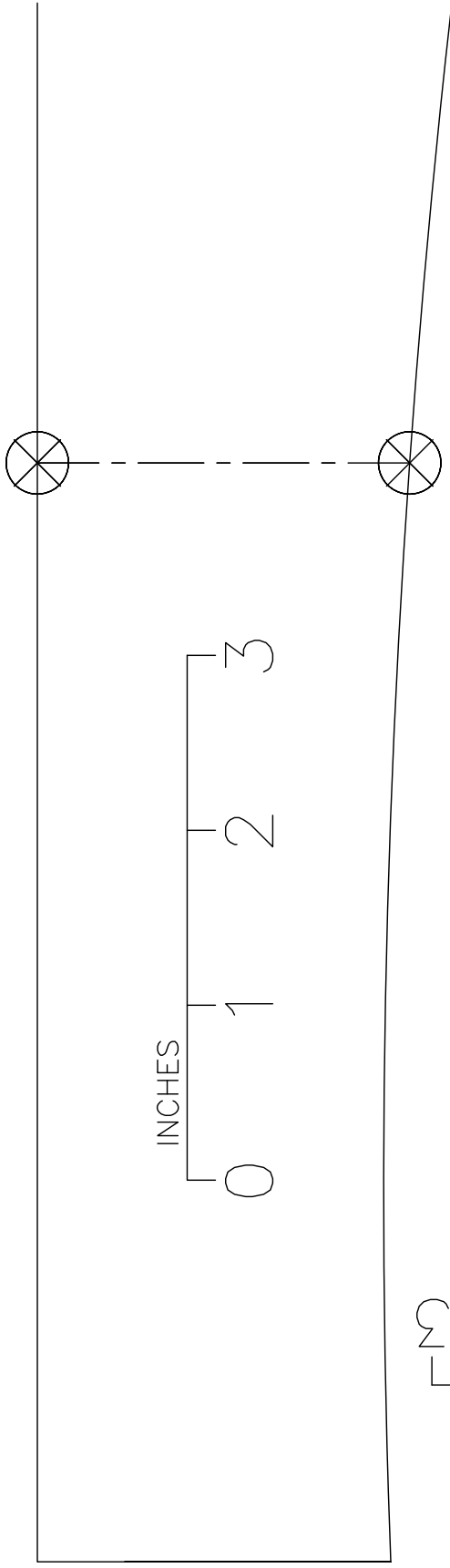
**RRAMES S-19 VENTERRA**  
**WING INCIDENCE JIG TEMPLATE**  
**FIGURE 03K-09**



**RRP** S-19 VENTERRA  
 WING INCIDENCE JIG TEMPLATE  
 FIGURE 03K-09A

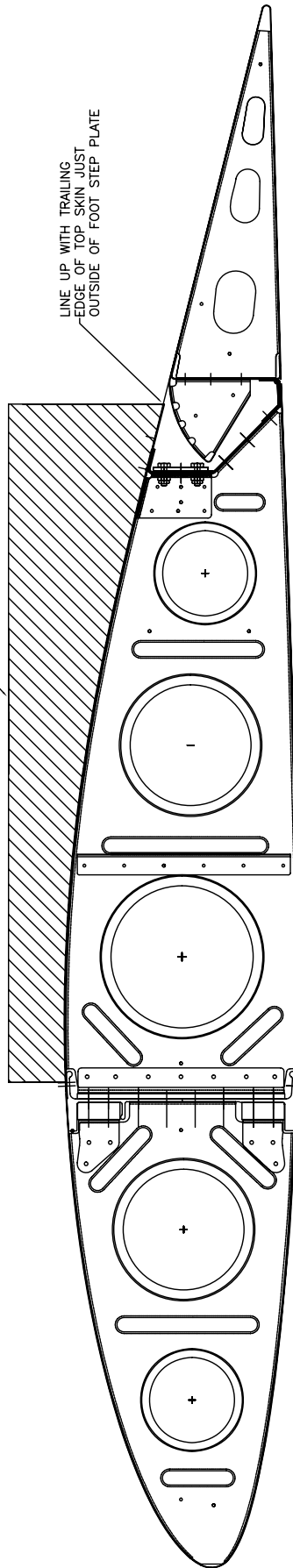


**RRF** S-19 VENTERRA  
 WING INCIDENCE JIG TEMPLATE  
 FIGURE 03K-09B



**RRF008 S-19 VENTERRA  
WING INCIDENCE JIG TEMPLATE  
FIGURE 03K-09C**

WING INCIDENCE JIG:  
TAKE READING ON THIS SURFACE.  
REFERENCE IS TOP LONGERON FUSELAGE  
IN CABIN AREA.  
READING SHOULD BE 0°



LINE UP WITH TRAILING  
EDGE OF TOP SKIN JUST  
OUTSIDE OF FOOT STEP PLATE

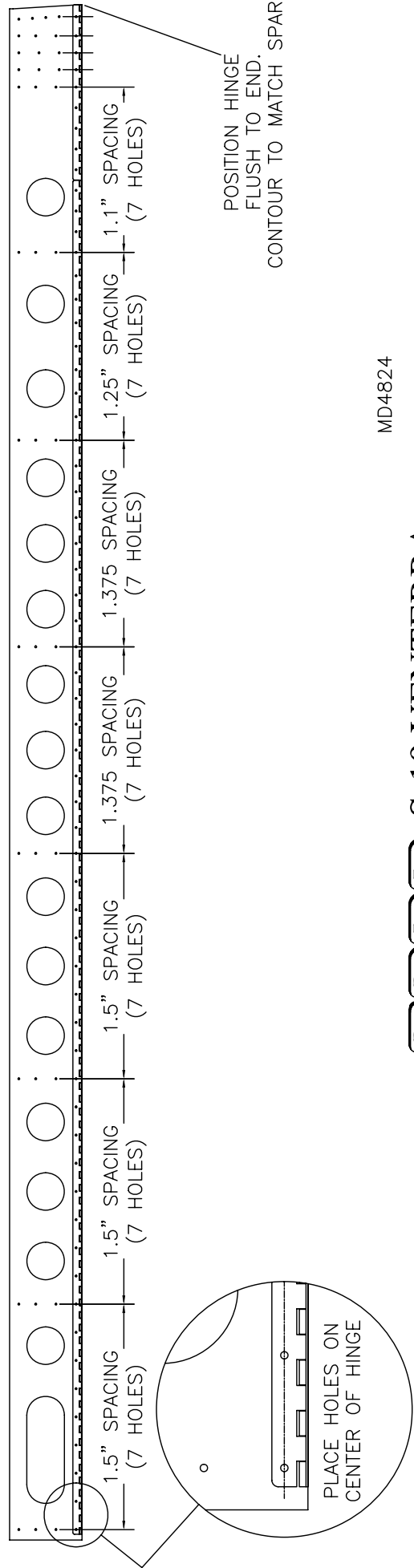
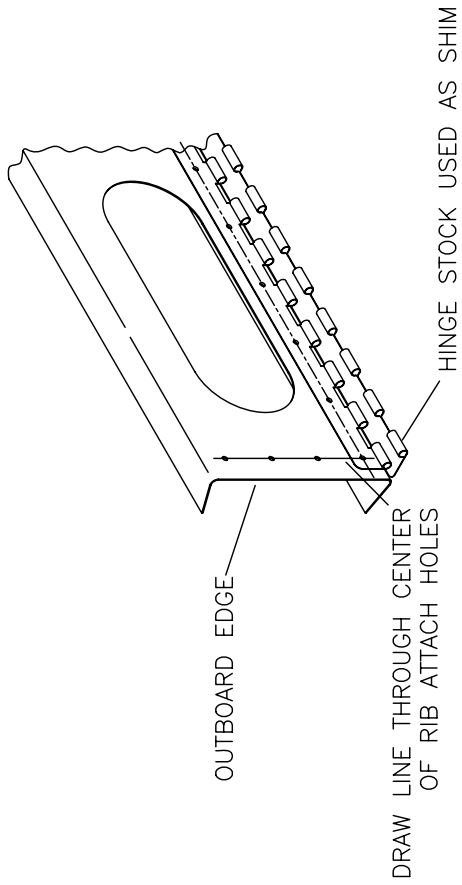
MD5203

**RAMS S-19 VENTERRA**  
**WING INCIDENCE JIG LOCATION**  
**FIGURE 03K-10**

## 04 – FLAP AND AILERON ASSEMBLY

FLAP SPAR HINGE LOCATION.....	04-03
ROOT RIB SUPPORT ANGLE MODIFICATION.....	04-05
PLATE SPAR REINFORCEMENT (FLAP) MODIFICATION.....	04-06
DRILLING OF HINGES TO FLAP SPAR.....	04-09
FLAP & AILERON SKIN BENDING.....	04-12
FLAP & AILERON SUPPORT.....	04-15
FLAP HINGE PIN MODIFICATION.....	04-17
FLAP HINGE PIN SAFETY WIRE.....	04-18
AILERON HINGE ALIGNMENT.....	04A-03
AILERON HINGE MODIFICATION.....	04A-04
AILERON HINGE MODIFICATION.....	04A-04A
AILERON BALANCE ARM SHIM MODIFICATION.....	04A-05
DRILLING OF HINGES TO AILERON SPAR.....	04A-07
AILERON RIVET DETAIL.....	04A-08
BALANCE ARM – RIVET SCHEDULE.....	04A-09
AILERON HINGE PIN MODIFICATION.....	04A-18
AILERON HINGE PIN SAFETY WIRE.....	04A-19
AILERON MASS BALANCE.....	04B-03
AILERON MASS BALANCE.....	04B-04
AILERON MASS BALANCE.....	04B-05

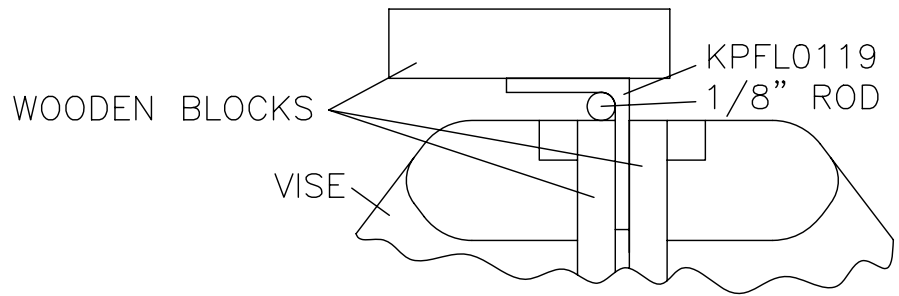
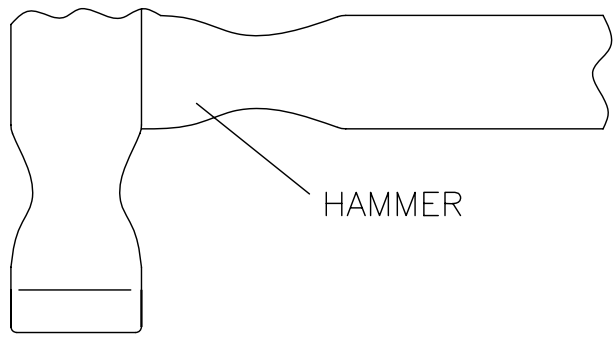




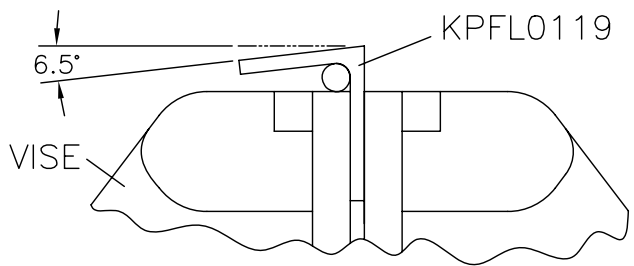
POSITION HINGE  
FLUSH TO END.  
CONTOUR TO MATCH SPAR.

MD4824

**RAMS S-19 VENTERRA**  
**FLAP SPAR HINGE LOCATION**  
**FIGURE 04-03**



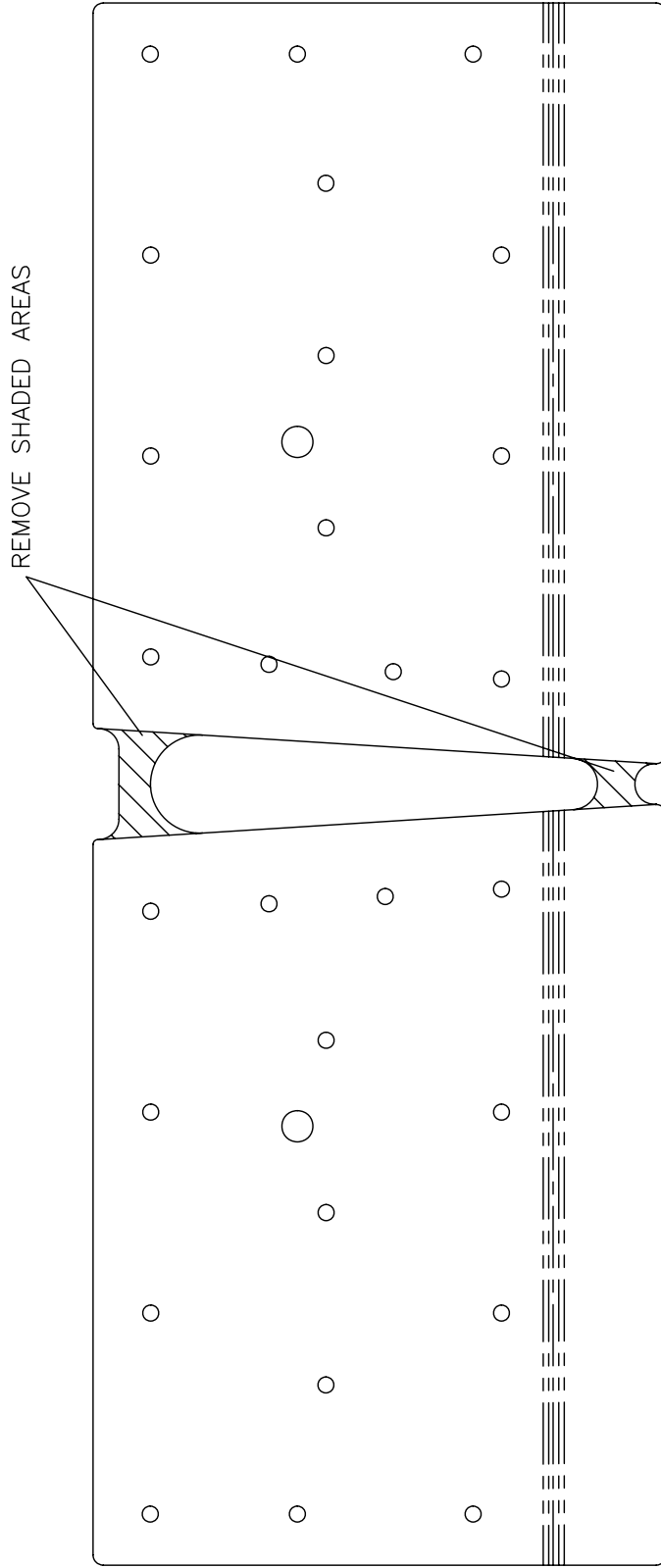
BEND DOWN 6.5°



MD4858

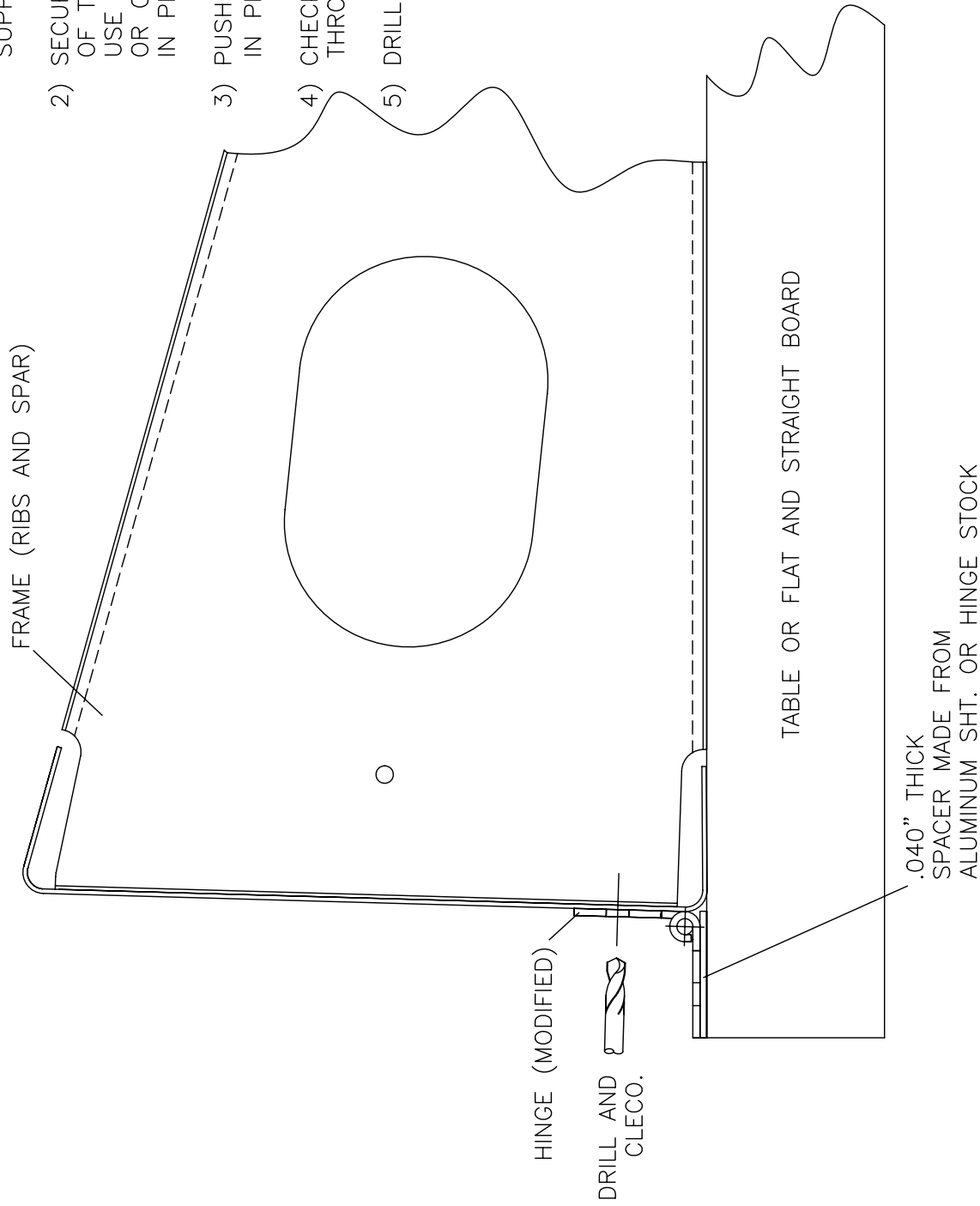
**RANS S-19 VENTERRA**  
**ROOT RIB SUPPORT ANGLE MODIFICATION**  
**FIGURE 04-05**

04/01/2011



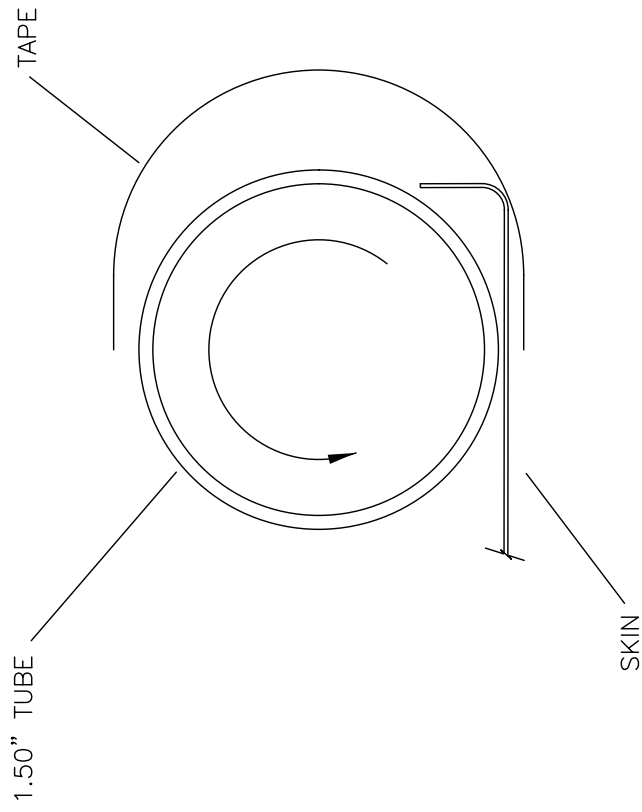
**RRF** S-19 VENTERRA  
**PLATE SPAR REINFORCEMENT (FLAP) MODIFICATION**  
**FIGURE 04-06**

- 1) FABRICATE .040 THICK SPACER FROM SUPPLIED RAW STOCK OR HINGE STOCK.
- 2) SECURE SPACER AND HINGE TO EDGE OF TABLE OR FLAT AND STRAIGHT BOARD. USE CORRECT SPACING AND TAPE, SCREW OR CLAMP HINGE AND SPACER SECURELY IN PLACE.
- 3) PUSH FRAME AGAINST HINGE AND SECURE IN PLACE (USE WEIGHTS OR SIMILAR)
- 4) CHECK ALIGNMENT AND DRILL SPAR #40 THROUGH PRE-DRILLED HOLES IN HINGE.
- 5) DRILL OUT TO #30.



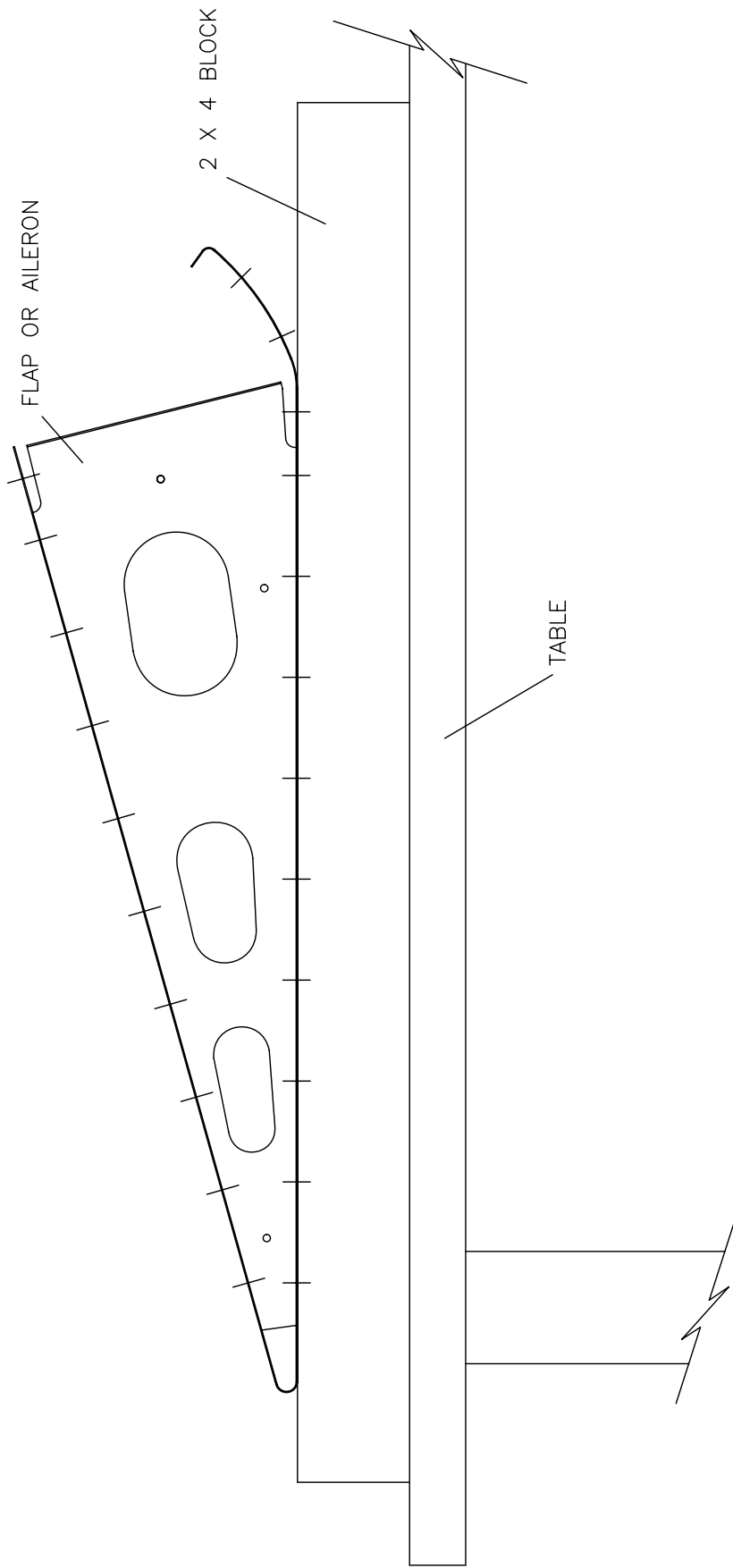
MD4822

**RAMS S-19 VENTERRA**  
**DRILLING OF HINGES TO FLAP SPAR**  
**FIGURE 04-09**

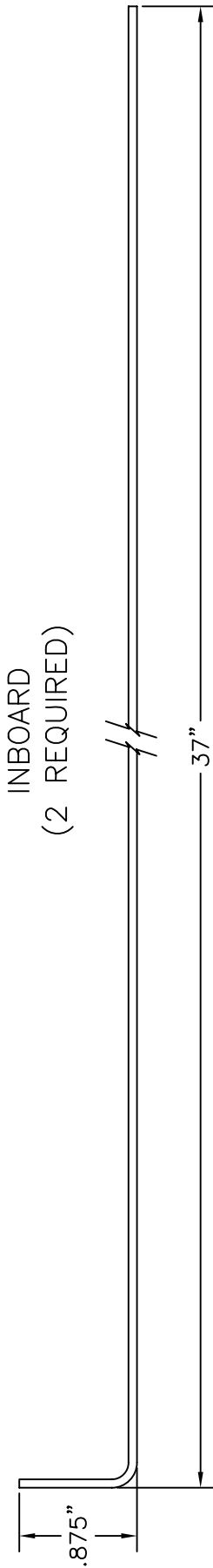
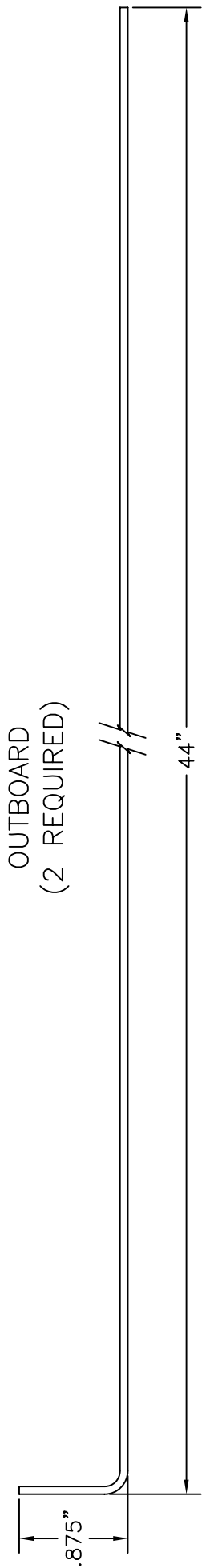


**RRR S-19 VENTERRA**  
**FLAP & AILERON SKIN BENDING**  
**FIGURE 04-12**

MD4810



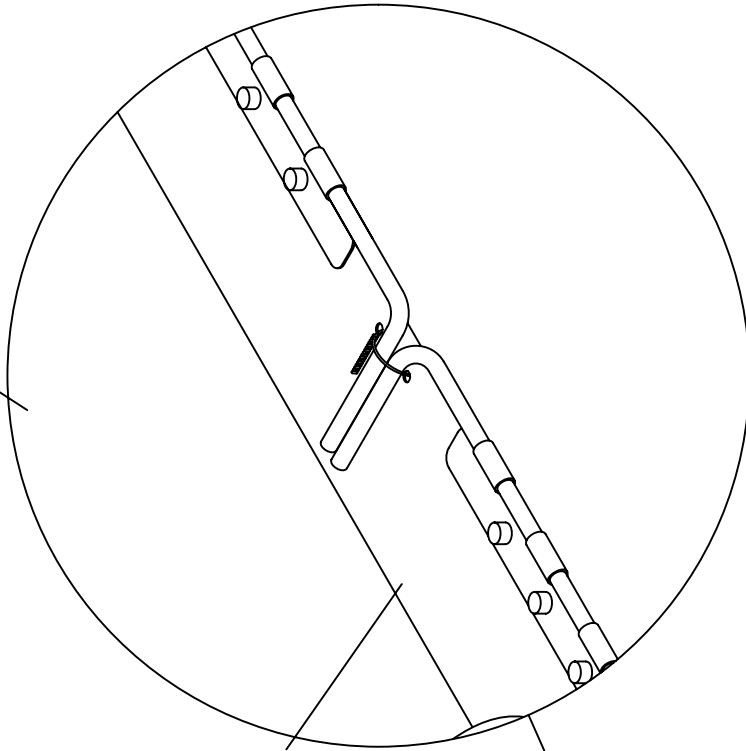
**RRR S-19 VENTERRA  
FLAP & AILERON SUPPORT  
FIGURE 04-15**



MD5023

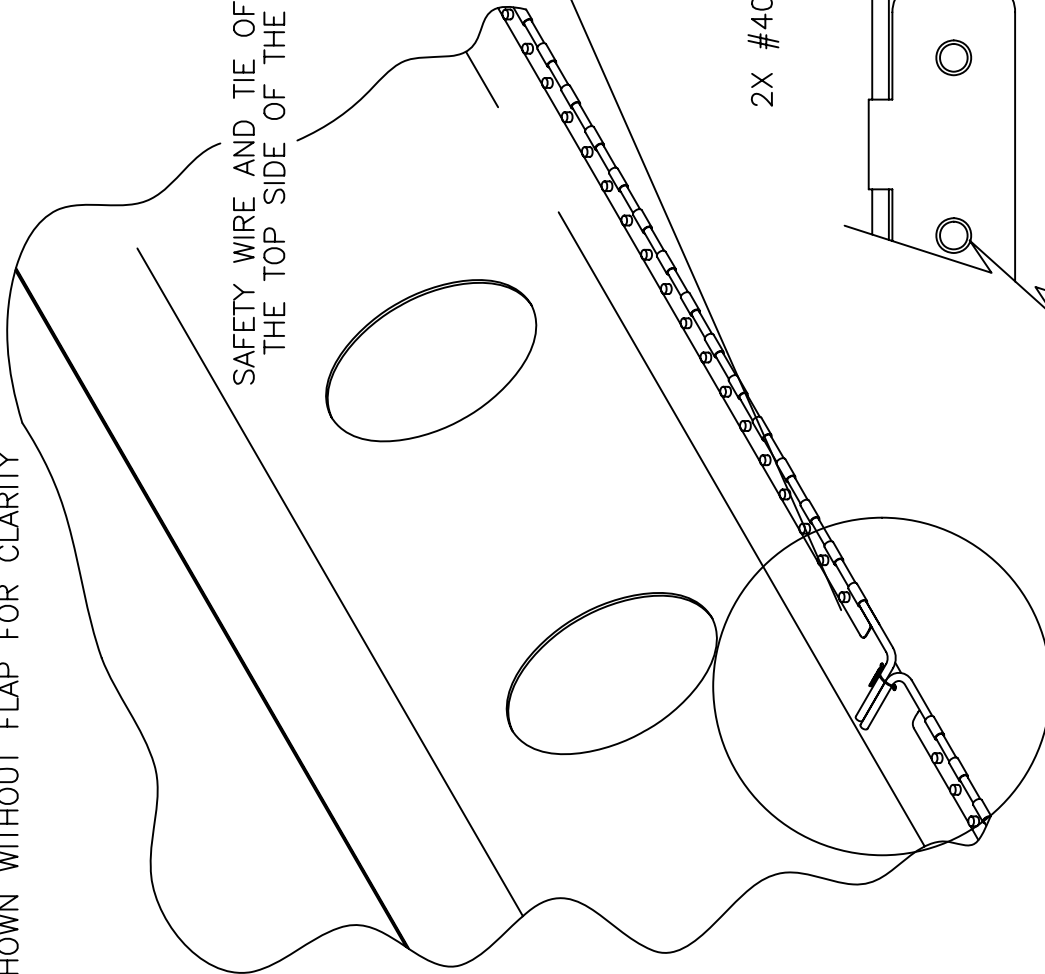
**RAMS** S-19 VENTERRA  
FLAP HINGE PIN MODIFICATION  
FIGURE 04-17

WING TRAILING EDGE SPAR



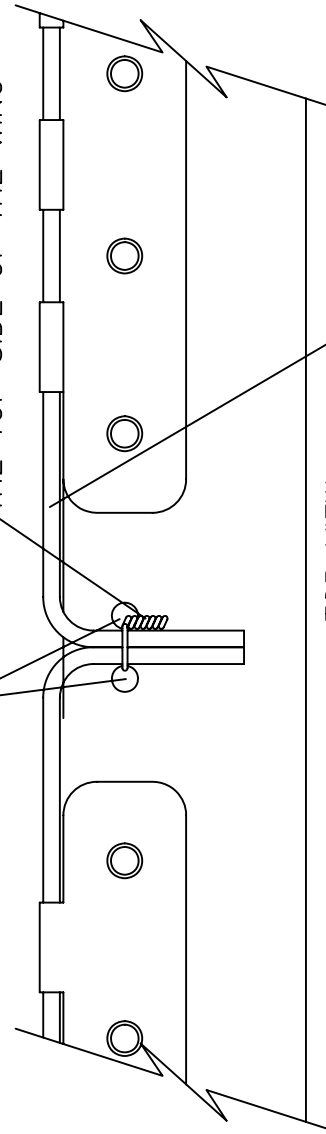
SAFETY WIRE AND TIE OFF ON THE TOP SIDE OF THE WING

\*SHOWN WITHOUT FLAP FOR CLARITY



2X #40 DRILL

SAFETY WIRE AND TIE OFF ON THE TOP SIDE OF THE WING



TOP VIEW

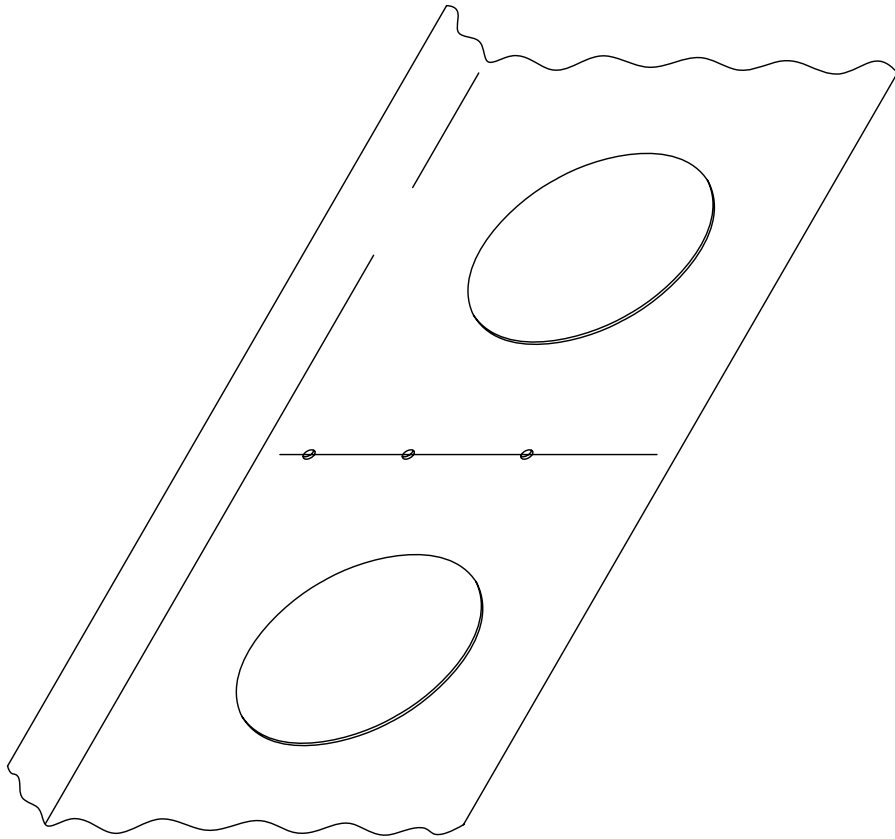
HINGE PIN

MD5024

**RRADIOS S-19 VENTERRA**  
**FLAP HINGE PIN SAFETY WIRE**

FIGURE 04-18

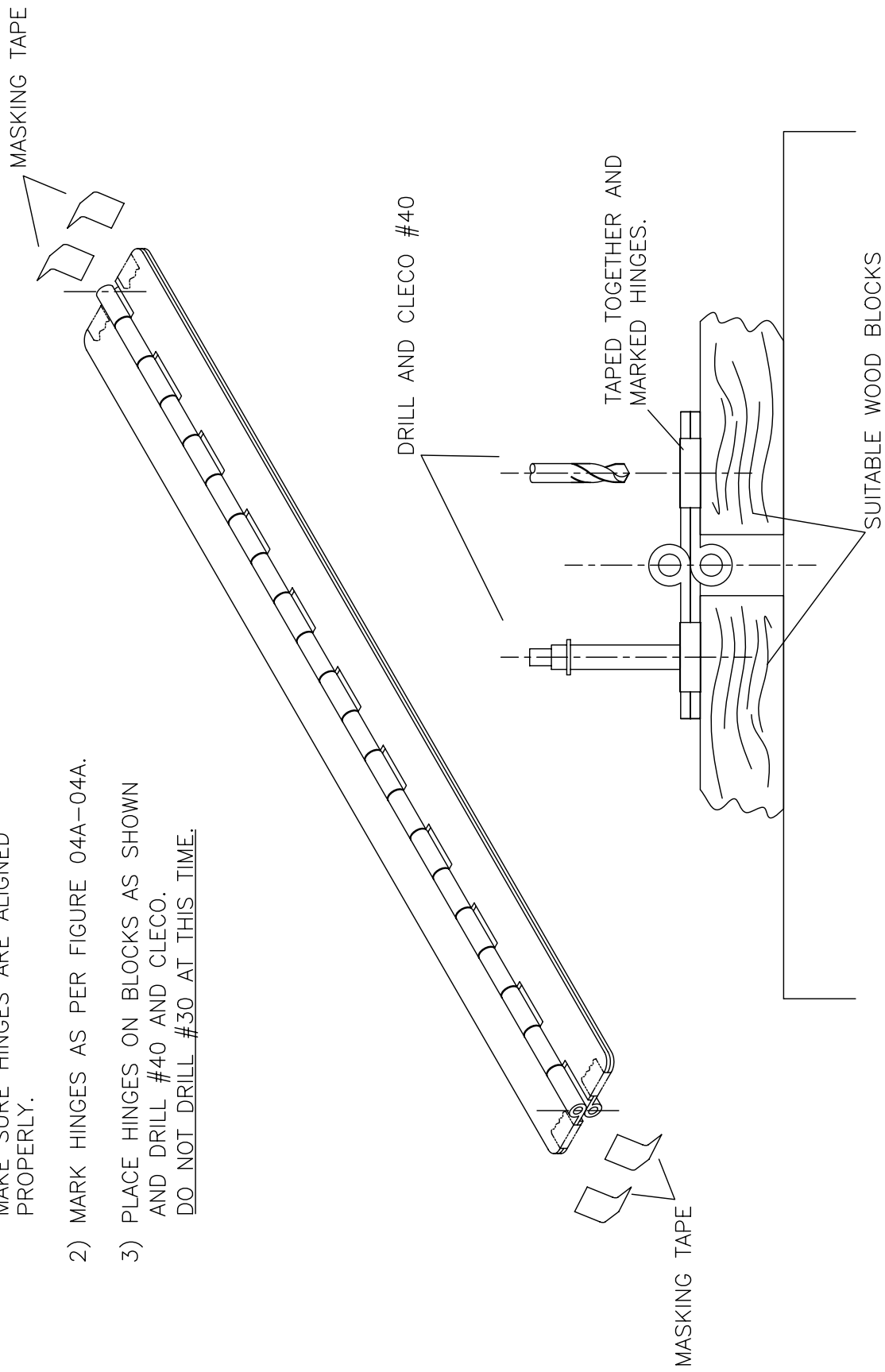




MD4805

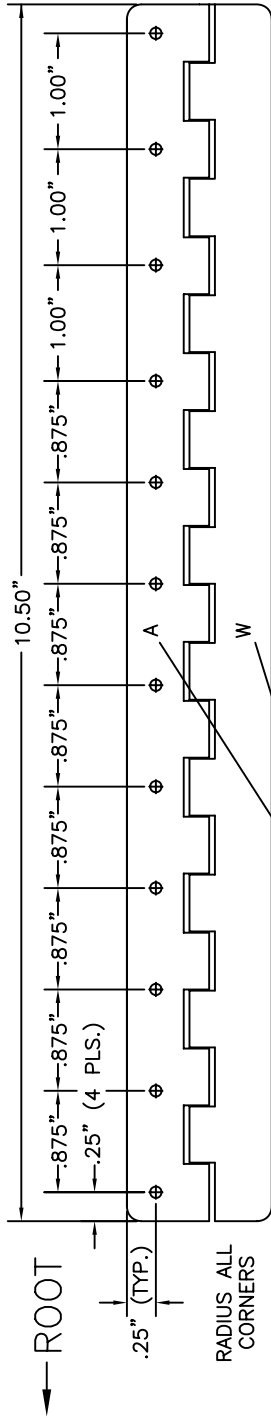
**RRR** S-19 VENTERRA  
AILERON HINGE ALIGNMENT  
FIGURE 04A-03

- 1) TAPE HINGES TOGETHER AS SHOWN, MAKE SURE HINGES ARE ALIGNED PROPERLY.
- 2) MARK HINGES AS PER FIGURE 04A-04A.
- 3) PLACE HINGES ON BLOCKS AS SHOWN AND DRILL #40 AND CLECO. DO NOT DRILL #30 AT THIS TIME.



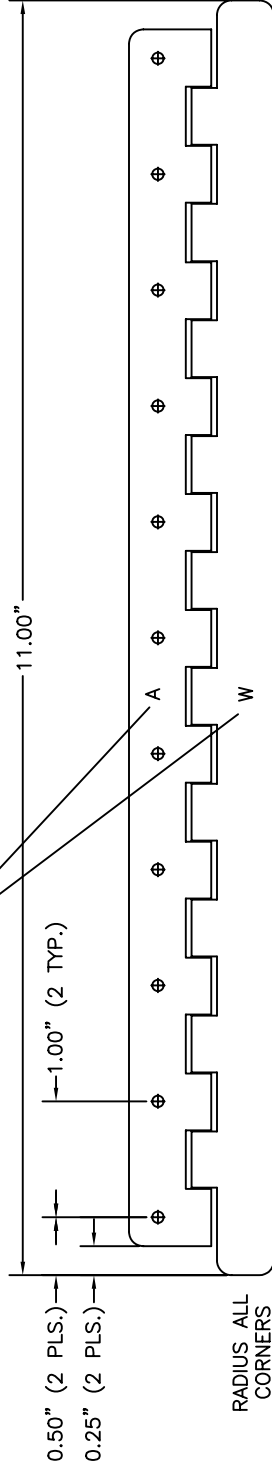
**RAMS S-19 VENTERRA**  
**AILERON HINGE MODIFICATION**  
**FIGURE 04A-04**

HINGES VIEWED AS PLACED ON AILERON

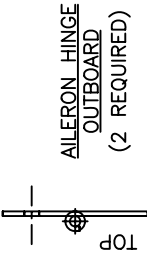
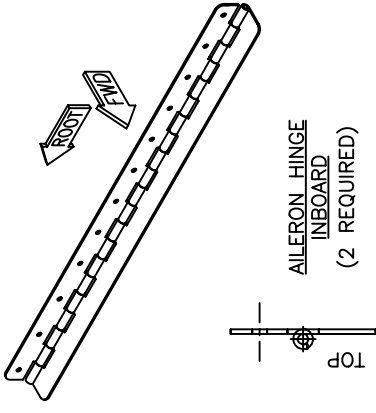


MARK WITH AILERON AND WING  
FOR LATER IDENTIFICATION OF ORIENTATION.

IMPORTANT: REMOVE PIN FROM HINGE BEFORE CUTTING

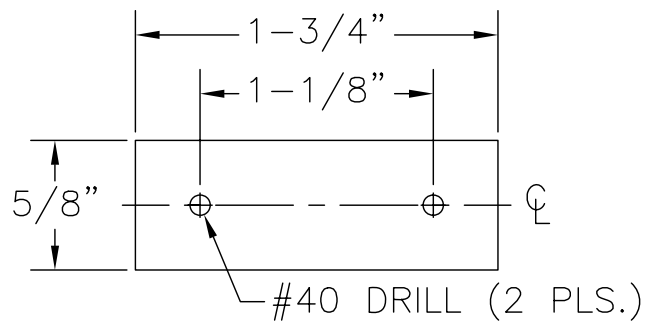


AILERON HINGE INBOARD AND OUTBOARD  
MS20257-3 (1.25"WIDTH) MODIFIED  
BUILDER CUTS AND DRILLS AS SHOWN (ALL HOLES #40)  
S-19, QTY - 2 EACH



MD4806

**RAMS** S-19 VENTERRA  
AILERON HINGE MODIFICATION  
FIGURE 04A-04A

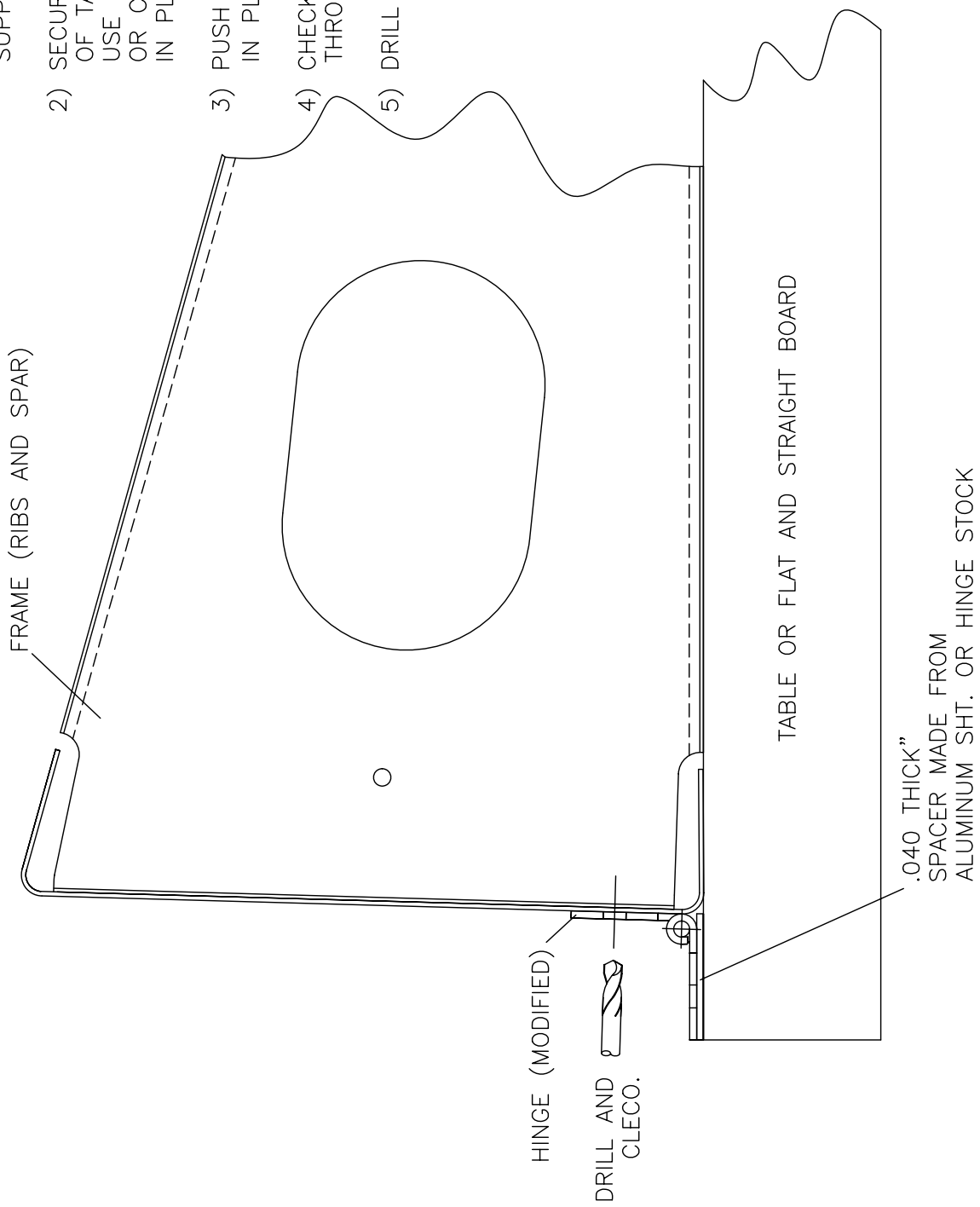


MD4801

**RANDS S-19 VENTERRA**  
**AILERON BALANCE ARM SHIM MODIFICATION**  
**FIGURE 04A-05**

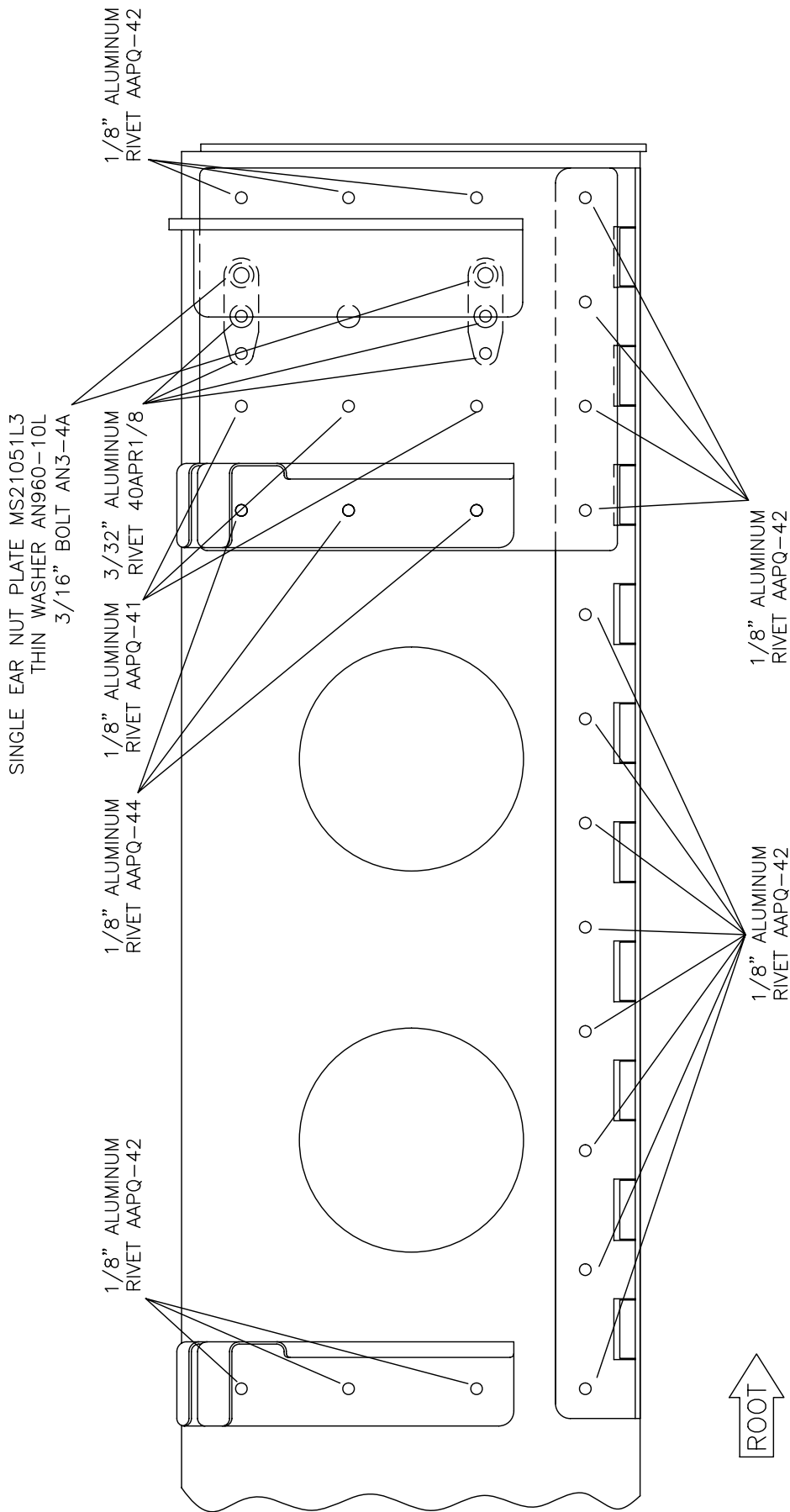
04/01/2011

- 1) FABRICATE .040 THICK SPACER FROM SUPPLIED RAW STOCK OR HINGE STOCK.
- 2) SECURE SPACER AND HINGE TO EDGE OF TABLE OR FLAT AND STRAIGHT BOARD. USE CORRECT SPACING AND TAPE, SCREW OR CLAMP HINGE AND SPACER SECURELY IN PLACE.
- 3) PUSH FRAME AGAINST HINGE AND SECURE IN PLACE (USE WEIGHTS OR SIMILAR)
- 4) CHECK ALIGNMENT AND DRILL SPAR #40 THROUGH PRE-DRILLED HOLES IN HINGE.
- 5) DRILL OUT TO #30.



MD4822

**RAMS S-19 VENTERRA**  
**DRILLING OF HINGES TO AILERON SPAR**  
**FIGURE 04A-07**



MD4809

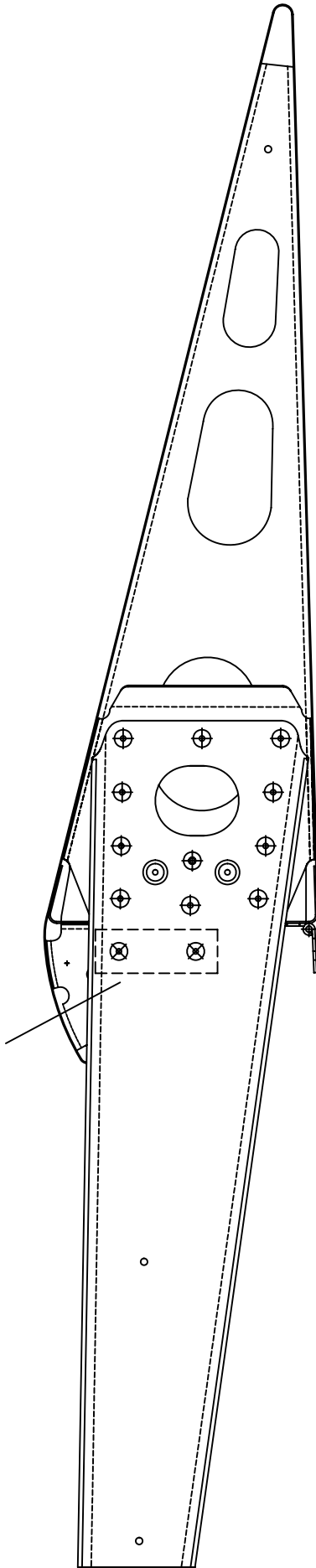
**RAMS** S-19 VENTERRA  
 AILERON RIVET DETAIL  
 FIGURE 04A-08

0.025" SHIM BETWEEN  
BALANCE ARM AND NOSE RIB.

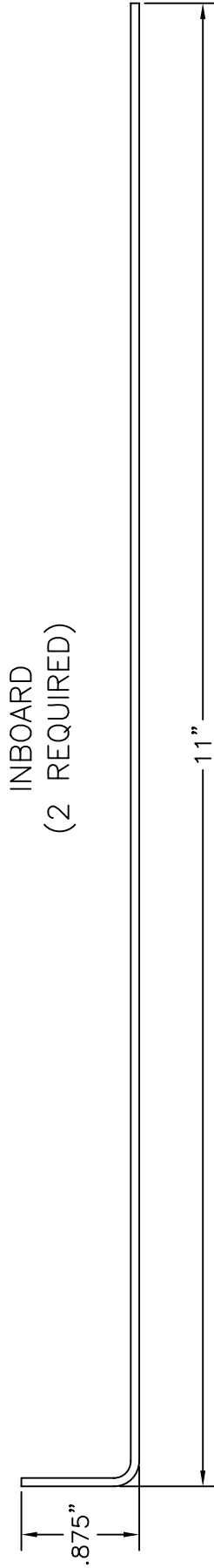
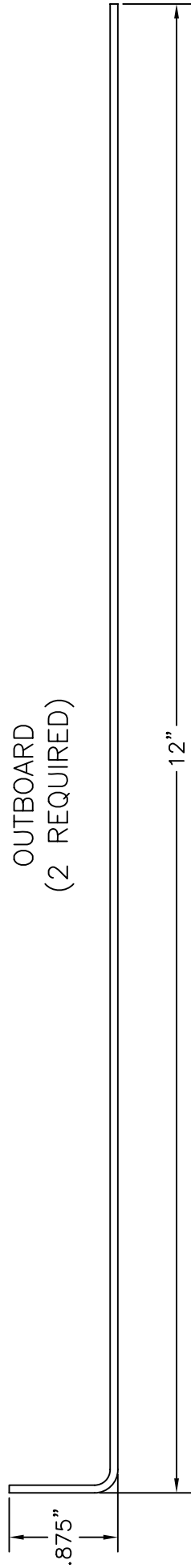
TRANSFER DRILL #40 THROUGH LOWER TOOLING  
HOLE IN NOSE RIB.

CLECO SHIM, ALIGN AND TRANSFER DRILL #40  
THROUGH UPPER SHIM HOLE.

FINAL SIZE DRILL #30



- ⊙ AAPQ-41 (2)
- ⊗ AAPQ-42 (2)
- ⊕ AAPQ-43 (12)



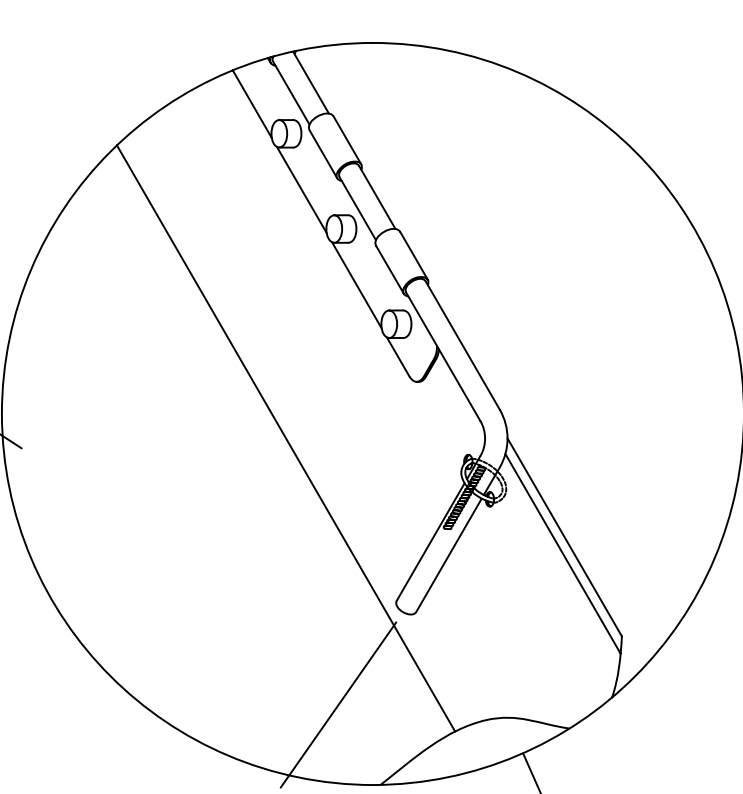
MD5020

**RAMS** S-19 VENTERRA  
AILERON HINGE PIN MODIFICATION  
FIGURE 04A-18

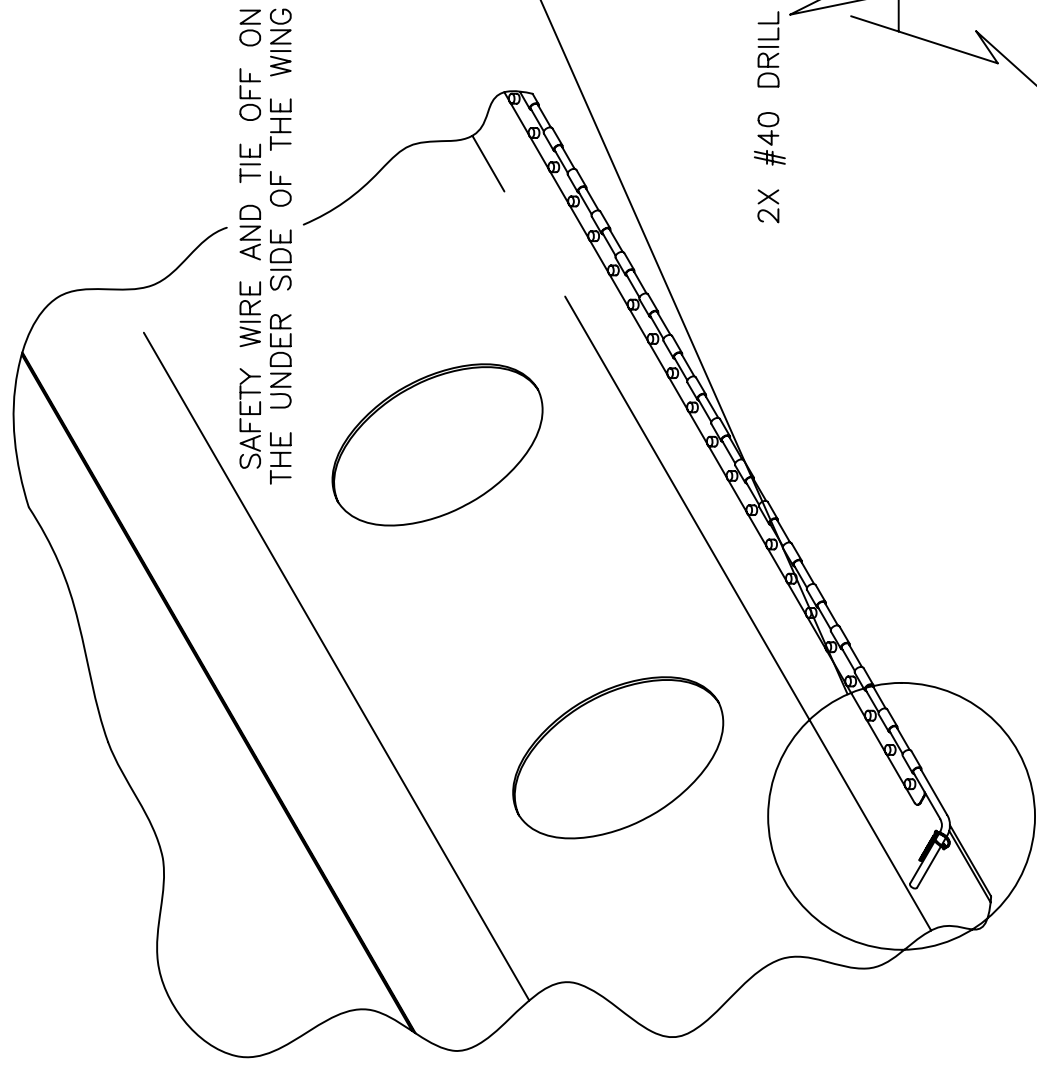


\*SHOWN WITHOUT AILERON FOR CLARITY

WING TRAILING EDGE SPAR

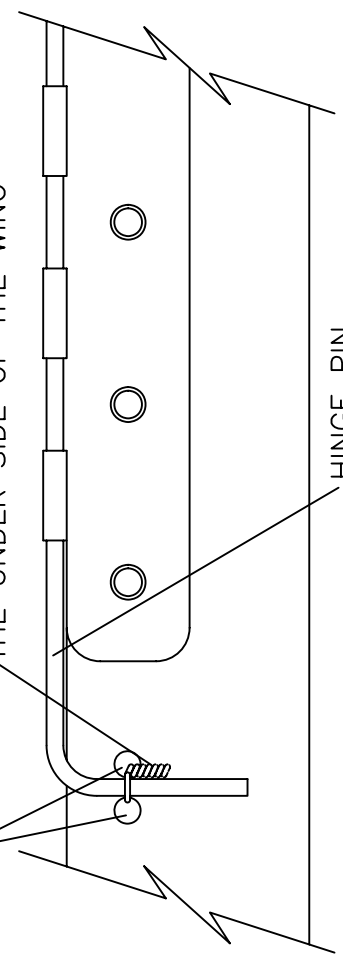


SAFETY WIRE AND TIE OFF ON THE UNDER SIDE OF THE WING



2X #40 DRILL

SAFETY WIRE AND TIE OFF ON THE UNDER SIDE OF THE WING

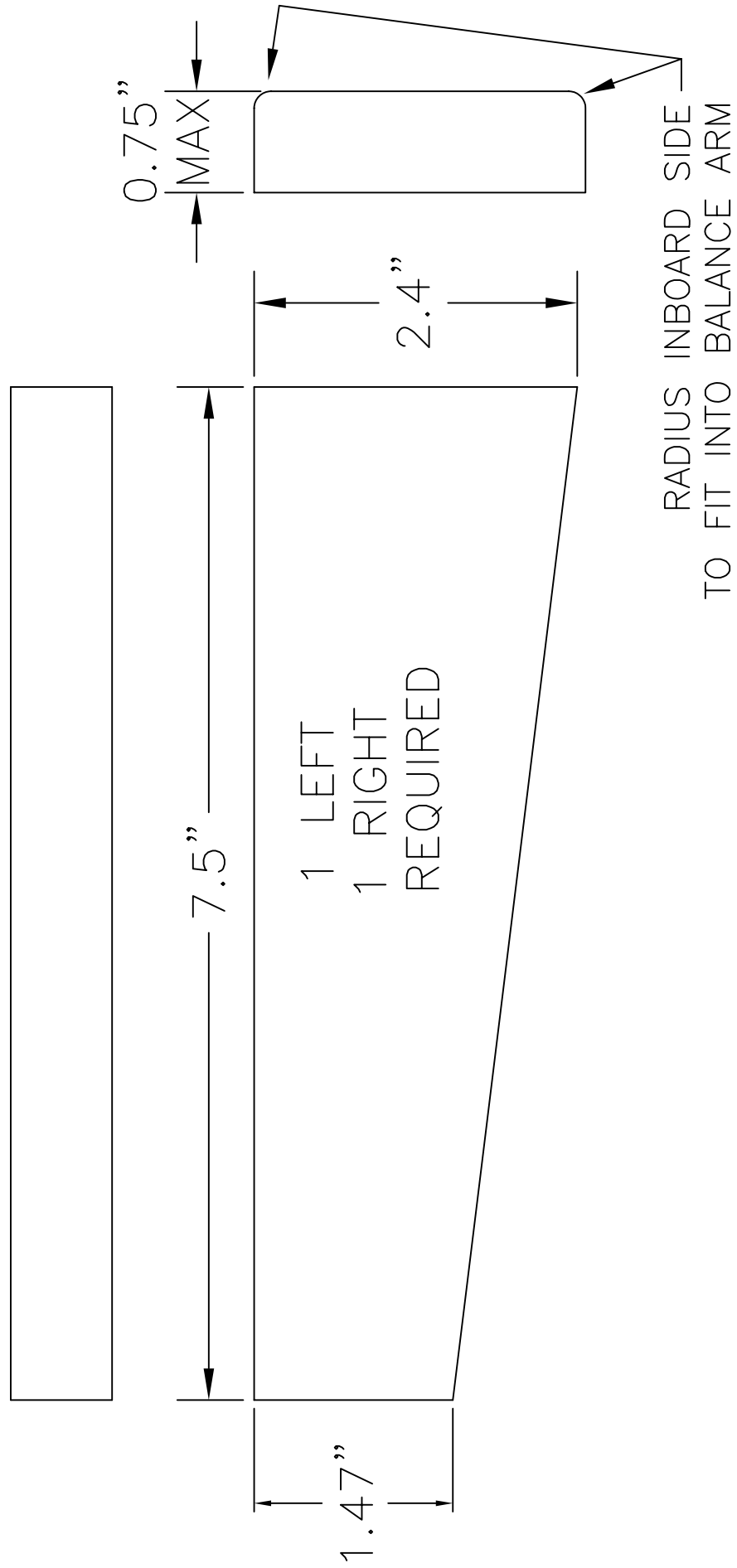


HINGE PIN TOP VIEW

**RAMS** S-19 VENTERRA  
AILERON HINGE PIN SAFETY WIRE  
FIGURE 04A-19

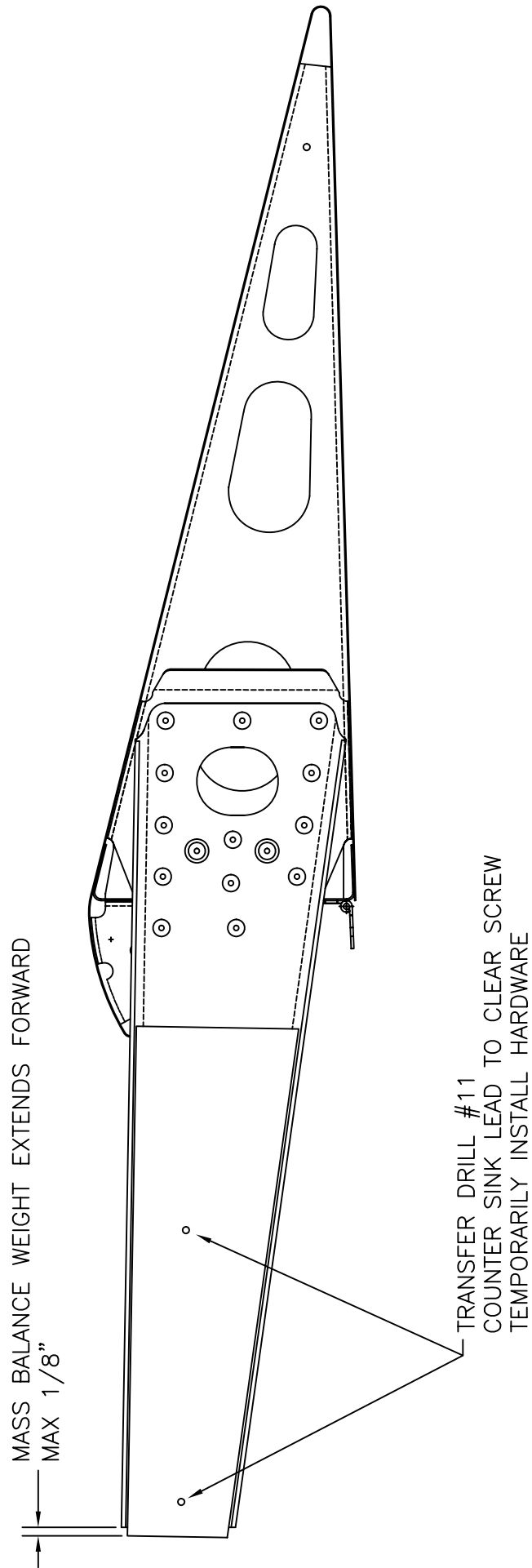
MD5022

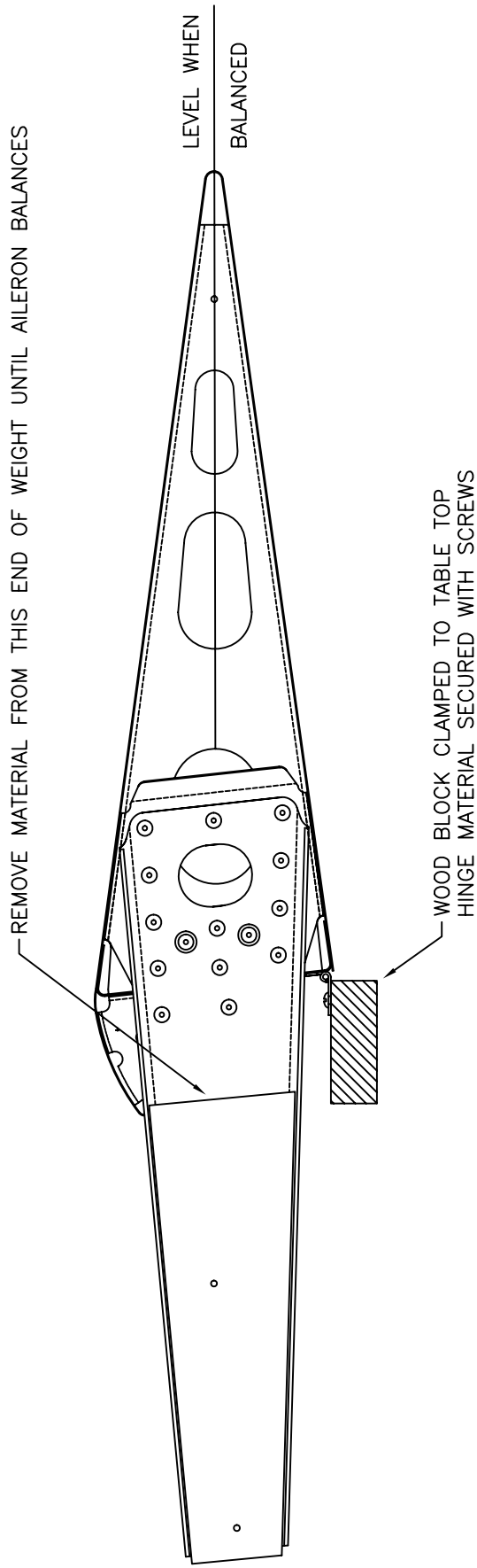
MAY BE CAST OR MADE FROM LAYERED LEAD.  
APPROXIMATE WEIGHT 4 POUNDS.



**RAMS** S-19  
AILERON MASS BALANCE  
FIGURE 04B-03

MD5443





MD5443

**RAMS S-19 VENTERRA**  
**AILERON MASS BALANCE**  
**FIGURE 04B-05**