SERVICE INSTRUCTION

SI-34-01

Revision 0

TITLE: Tracking System Installation.

SUBJECT / REASON / DESCRIPTION:

This service instruction describes the installation of wing mounted hard points to allow the installation of tracking antennae. The purpose of these antennae is to track radio tagged wildlife.

COMPLIANCE:

Compliance is optional**.**

EFFECTIVITY:

All FBA-2C1 and FBA-2C2 aircraft.

APPROVAL:

This modification has been approved by FAC Engineering and TCCA where applicable.

MANPOWER REQUIREMENTS:

It is estimated that the modification will take approximately 8 hours. This excludes labor necessary to open and close the aircraft, and experienced personnel perform work.

SPECIAL TOOLS / EQUIPMENT:

None

PARTS LIST (BILL OF MATERIALS):

Kit FAC-SI-34-01A

Qty Total	Qty/Kit	Part Number	Description
2	2	QS200M12	1” S.S. Hose Clamp
2	2	W1017	Quadra Pod
2	2	W800-47	Cover
4	4	W1029	Doubler
4	4	W1031	Doubler
8	8	AN525-832R10	Screw
8	8	AN960-8L	Washer
4	4	MS21051L08	Nut plate
4	4	MS21047L08	Nut plate
60’	60’	RG-400	50 Ohm Co-Axial Cable
4	4	31-202	BNC Connector
2	2	MS35489-4	Grommet

Kit FAC-SI-34-01B (Conduit Kit)

Qty Total	Qty/Kit	Part Number	Description
1	1	W1027	Conduit
1	1	W1025	Conduit
2	2	W800-21	Cover
6	6	T8059S1032B2CPC	Right Angle Nut Plate
6	6	MS21919WH12	Adel Clamp
6	6	AN3-3A	Bolt

WEIGHT & BALANCE:

ITEM	WEIGHT LBS	ARM
W1025	0.47	37”
W1027	0.53	37”
W1017	1.04	19”
RG400	0.0035/INCH 2.52 lbs/60’	5.5” (Fwd route) 33” (Aft route)
Hardware	Negligible	N/A

IMPLEMENTATION INSTRUCTIONS:

GENERAL

1. The general arrangement for the installation of the Tracking System is illustrated in Figure A. Quadra pods may be installed on the left, right or both wings dependant on the desired configuration of the operator.
2. Note; the installation of the conduit to facilitate the routing of the antennae leads is optional. The installer may elect to route these leads through the conduits in the leading edge of the wings.
3. The purpose for installing an alternate conduit is to minimize noise from the aircraft system wires. The degree to which this is important varies with the strength of the target transmitter, (example, polar bear or humming bird).
4. Choose kit FAC-SI-34-01A if the antennae leads are to routed through the existing leading edge conduits Choose kit FAC-SI-34-01A and FAC-SI-34-01B if the new W1025 and W1027 conduits are to be installed.
5. An electric Turn Coordinator or Turn & Bank instrument may create unacceptable noise. Replacement of the standard power harness with a shielded harness (Figure I) may help reduce unwanted noise in the tracking system.

PART "A" STRUCTURAL PROVISIONS

1. Locate and remove 3 existing rivets at each Quadra pod mounting bracket location as illustrated in figures C & D. Confirm the correct location of the rivets by temporarily positioning the Quadra pods under the wings. It may be necessary to spread or compress the legs of the Quadra pod to line up with the rivets.
2. Drill clearance holes for the AN525-832 screws used to mount the Quadra pods. Deburr and edge prep holes with alodine and epoxy primer.
   Caution: Care must be taken to ensure that only the holes used for the Quadra pod attachment hardware are oversized (reference figures C & D) Holes used for attachment of the Quadra pod mount brackets to the wing are not to be oversized.
3. Position and install inboard hard point bracket attach hardware per figure C. Back drill holes for attachment of hard point brackets. Remove Deburr and edge prep rivet holes with alodine and epoxy primer.
4. Position and install outboard hard point bracket attach hardware per figure D. Back drill holes for attachment of hard point brackets. Remove Deburr and edge prep rivet holes with alodine and epoxy primer.
5. Compete an appropriate Log Book entry stating that " Service Instruction SI-34-01, Tracking System Installation, Part "A" Structural Provisions has been accomplished "

PART "B" QUADRAPOD INSTALLATION

1. It is permissible to slightly adjust the legs of the W1017 Quadra pods to achieve alignment with the mounting holes.

2. It is permissible to install either one or both of the Quadra pods for flight. Note, these Quadra pods are designed to receive 1" wood dowels to be supplied by the operator. The weight of these dowels and any attached antennae must be included in the weight and balance amendment.
3. Install Quadra pods using hardware specified in figures G.
4. Complete a Weight & Balance revision using data provided.
5. Compete an appropriate Log Book entry stating that, " Service Instruction SI-34-01, Tracking System Installation, Part "B" Quadra pod Installation has been accomplished "

PART "C" ELECTRICAL PROVISIONS

1. If required, to install the conduit in the aft of the wing see Figures H and A. Note, when installing the port conduit it will be necessary to temporarily remove the flap actuator. The conduits have sufficient flexibility to insert them starting from rib # 1.
2. The final step is to install the antenna leads. The length of the leads will be determined by the route selected by the installer. Note, when installing the leads they should be made equal length with the excess cable being gently taken up by a circuitous route and not by a tight coil. The equal cable length can be critical to some types of tracking equipment. Ultimately the antenna leads have to get to the antennas and thus the install kit comes with a replacement access cover for the wing. If the antenna leads are run through the existing leading edge conduit then the leads should exit the forward access cover and a W800-47 cover is required. Drill a hole in the access cover to accept an MS35489-4 grommet. Feed the cable through the grommet before installing the BNC connectors. Alternatively, a slot may be cut in the access cover to allow the assembled antenna lead (BNC connectors installed) to be routed thru the access cover. Using the latter technique the grommet must be slit and slipped over the cable.
   Caution: the installed cable shall not be PVC insulated, such as RG-58U but rather RG-400U or equivalent.
3. See Figure J for BNC connector installation.
4. Complete a Weight & Balance revision using data provided.
5. Compete an appropriate Log Book entry stating that " Service Instruction SI-34-01, Tracking System Installation, Part "C" Electrical Provisions has been accomplished "

LOG BOOK CERTIFICATION:

Compete an appropriate Log Book entry and Weight and Balance revision for completed sections of this Service Instruction.

INSPECTION:

Before each flight the pilot should inspect the Quadra pods for condition and security.

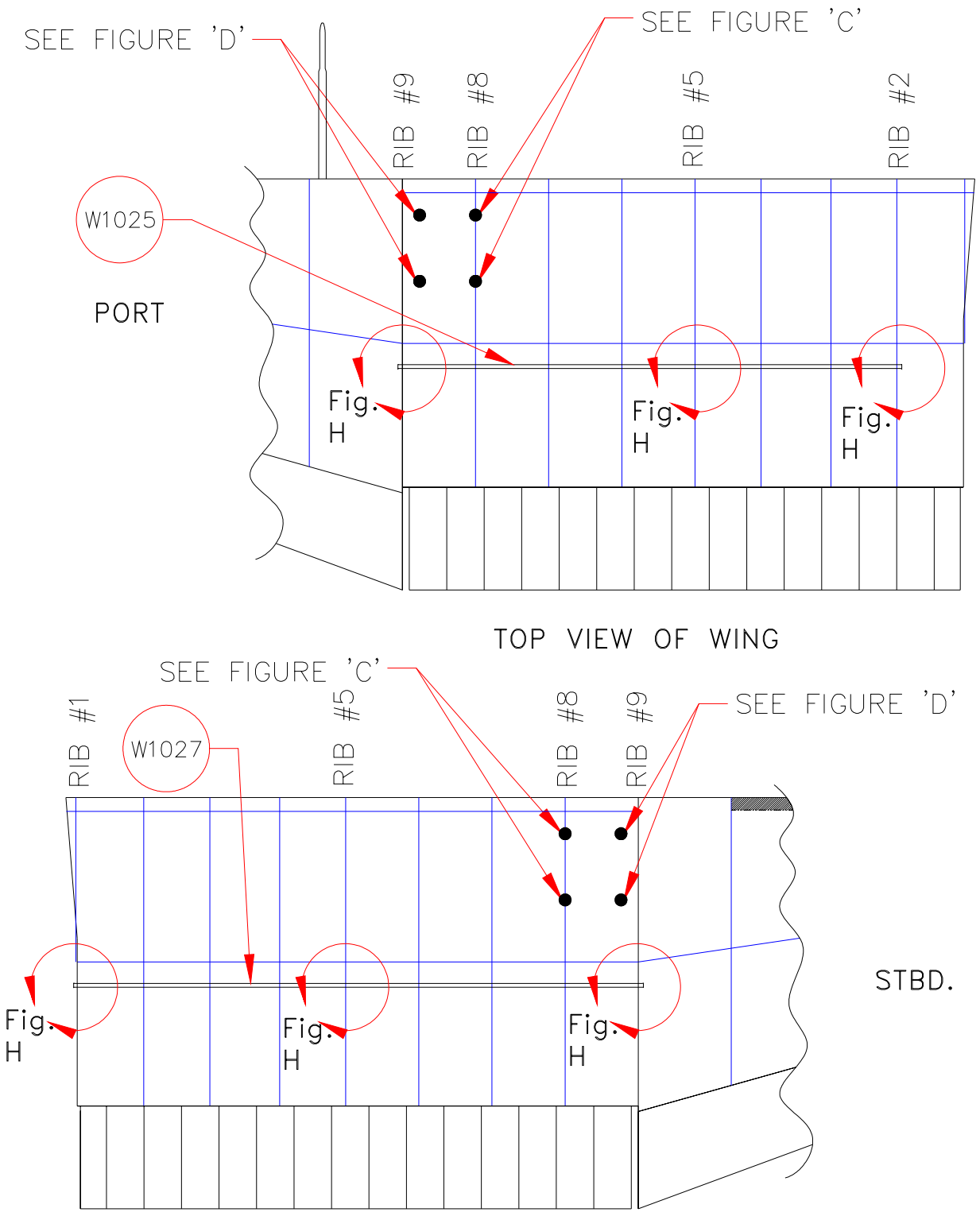


Figure A - Hard Point And Conduit Locations

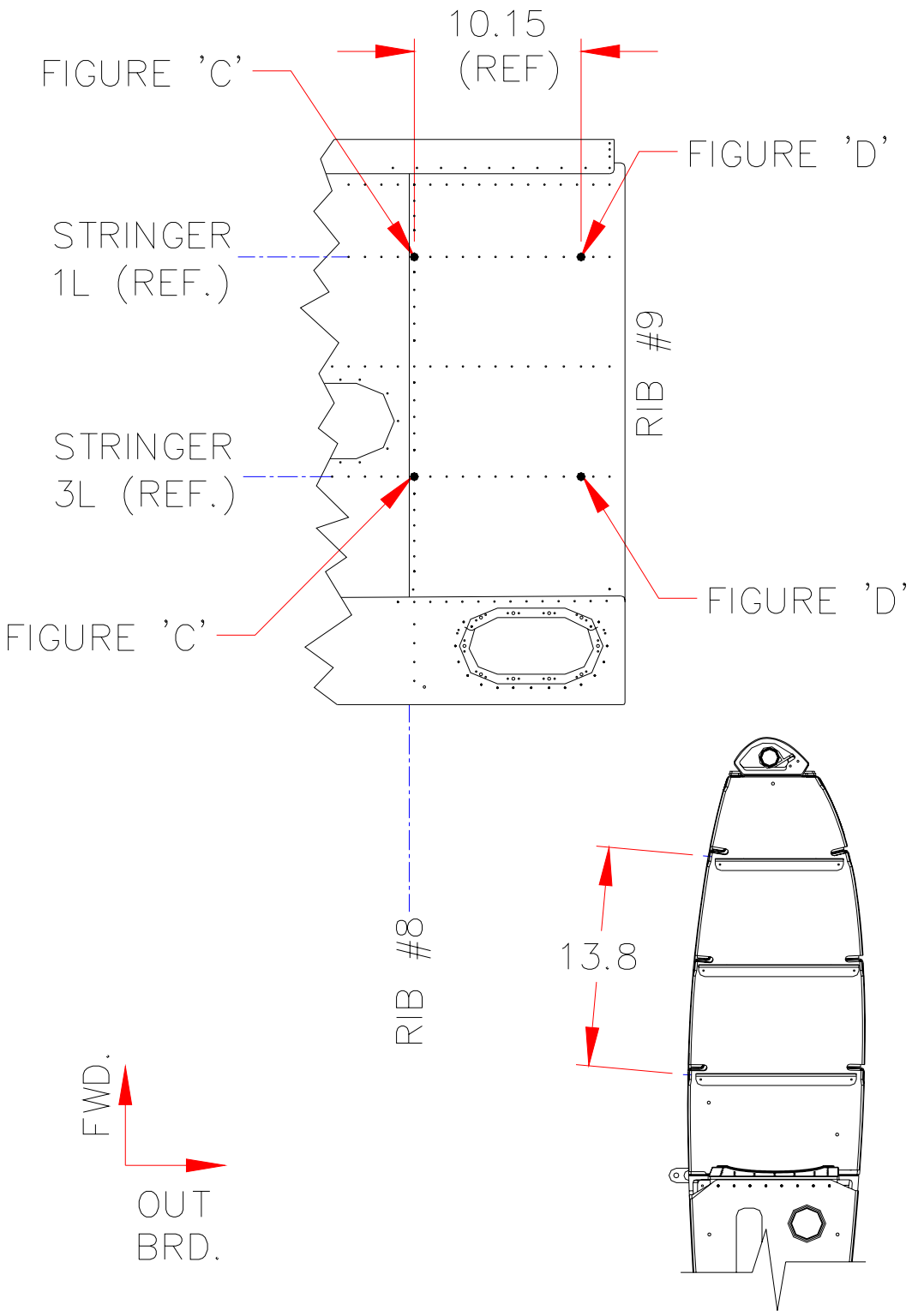


Figure B – Detail Of Hard Point Locations

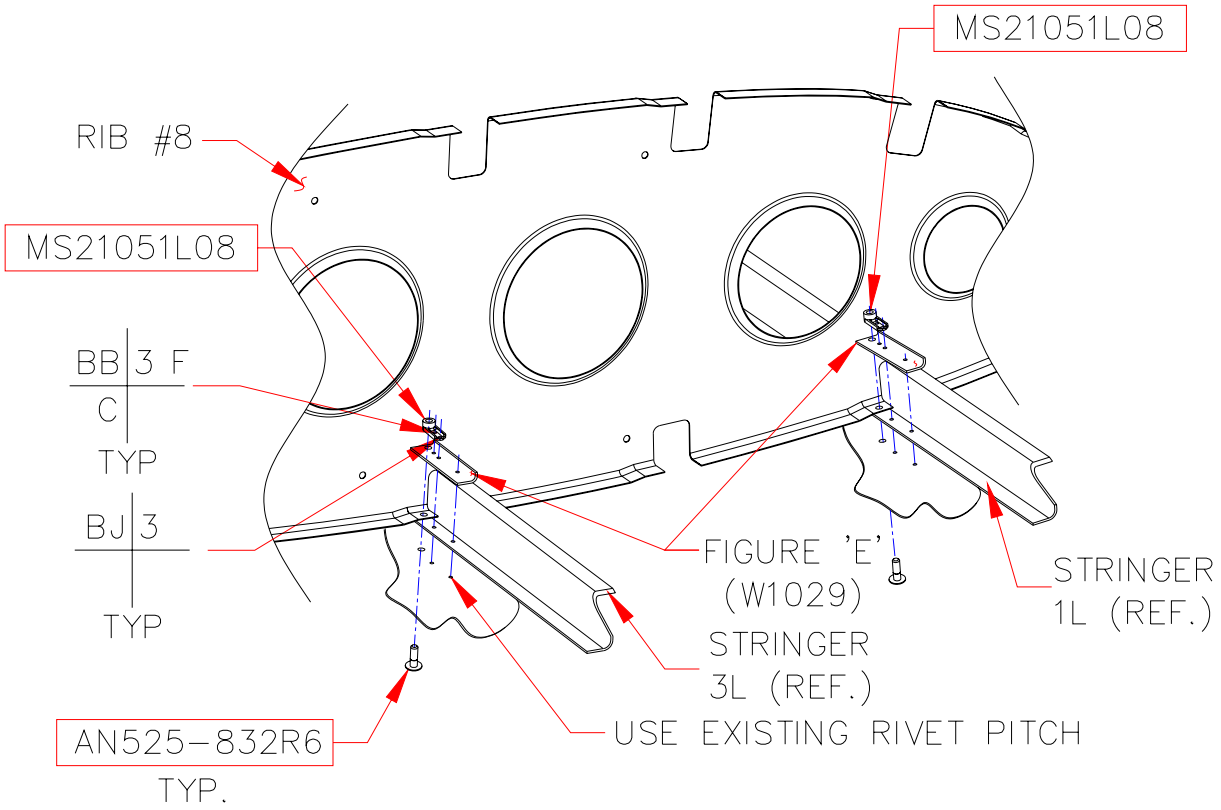


Figure C - Detail Of Inboard Hard Point Installation

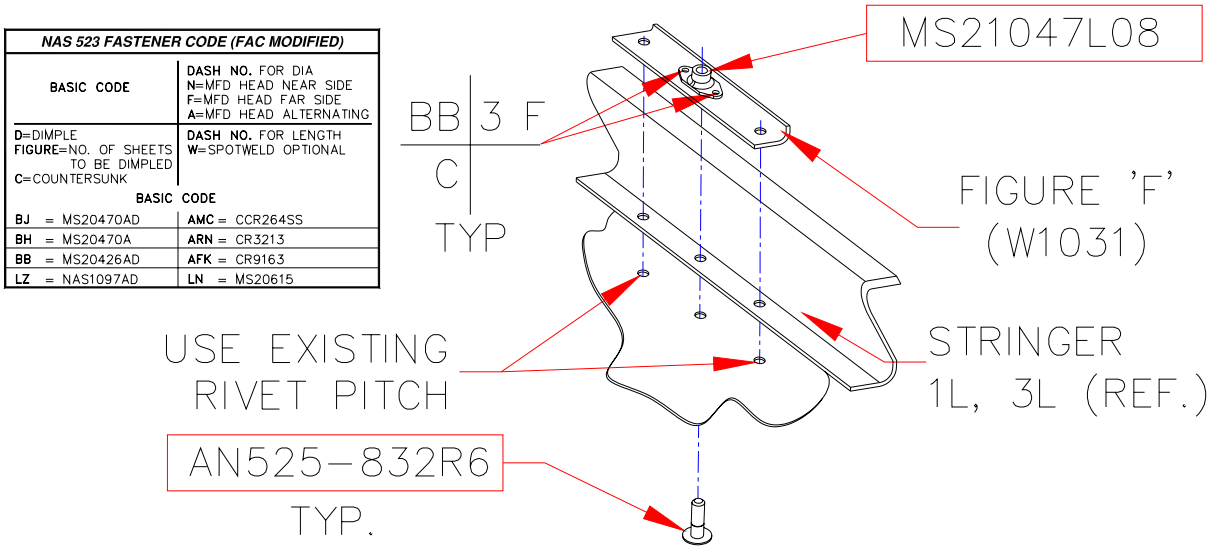
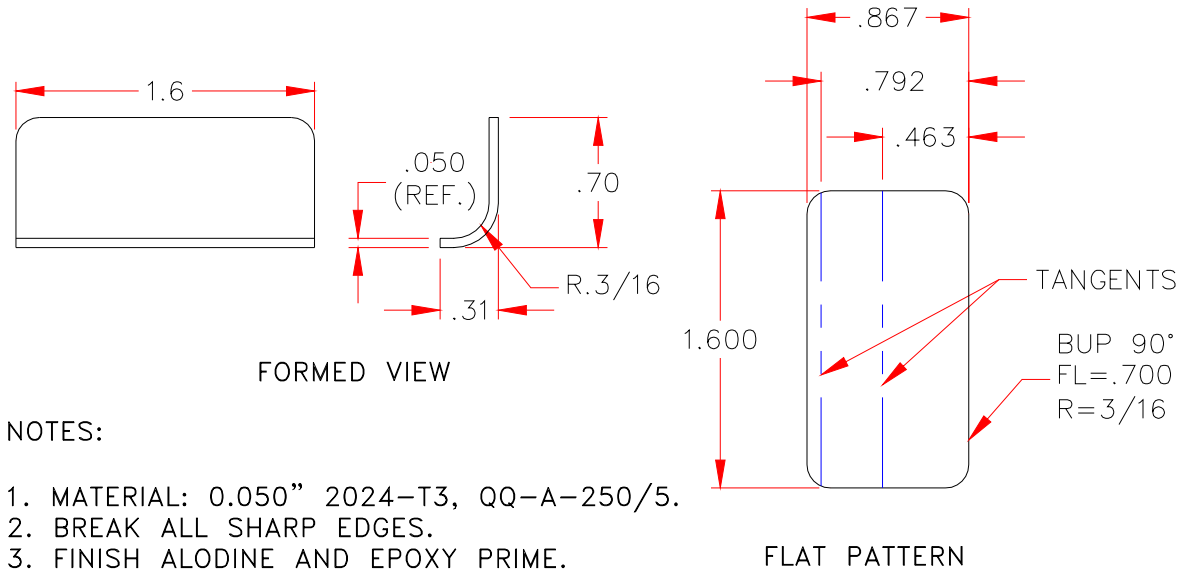


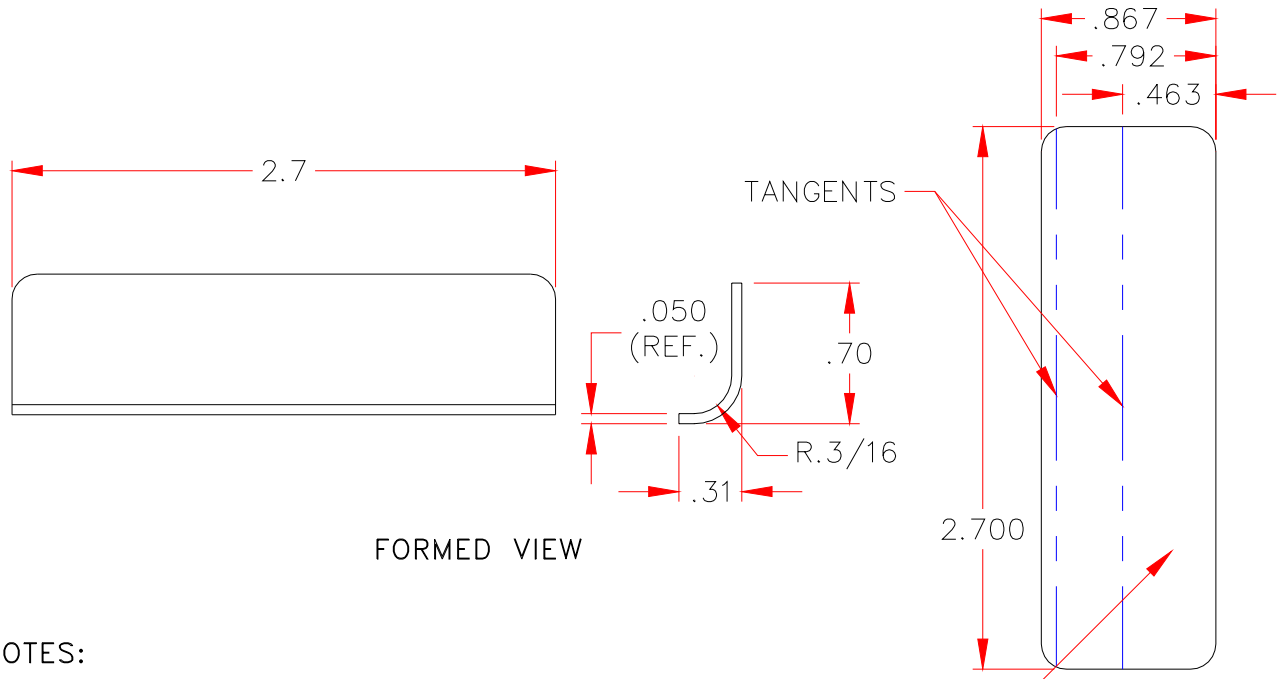
Figure D – Detail Of Outboard Hard Point Installation



NOTES:

1. MATERIAL: 0.050" 2024-T3, QQ-A-250/5.
2. BREAK ALL SHARP EDGES.
3. FINISH ALODINE AND EPOXY PRIME.

Figure E – W1029 Doubler Inboard Hard Points



NOTES:

1. MATERIAL: 0.050" 2024-T3, QQ-A-250/5.
2. BREAK ALL SHARP EDGES.
3. FINISH ALODINE AND EPOXY PRIME.

Figure F – W1031 Doubler Outboard Hard Points

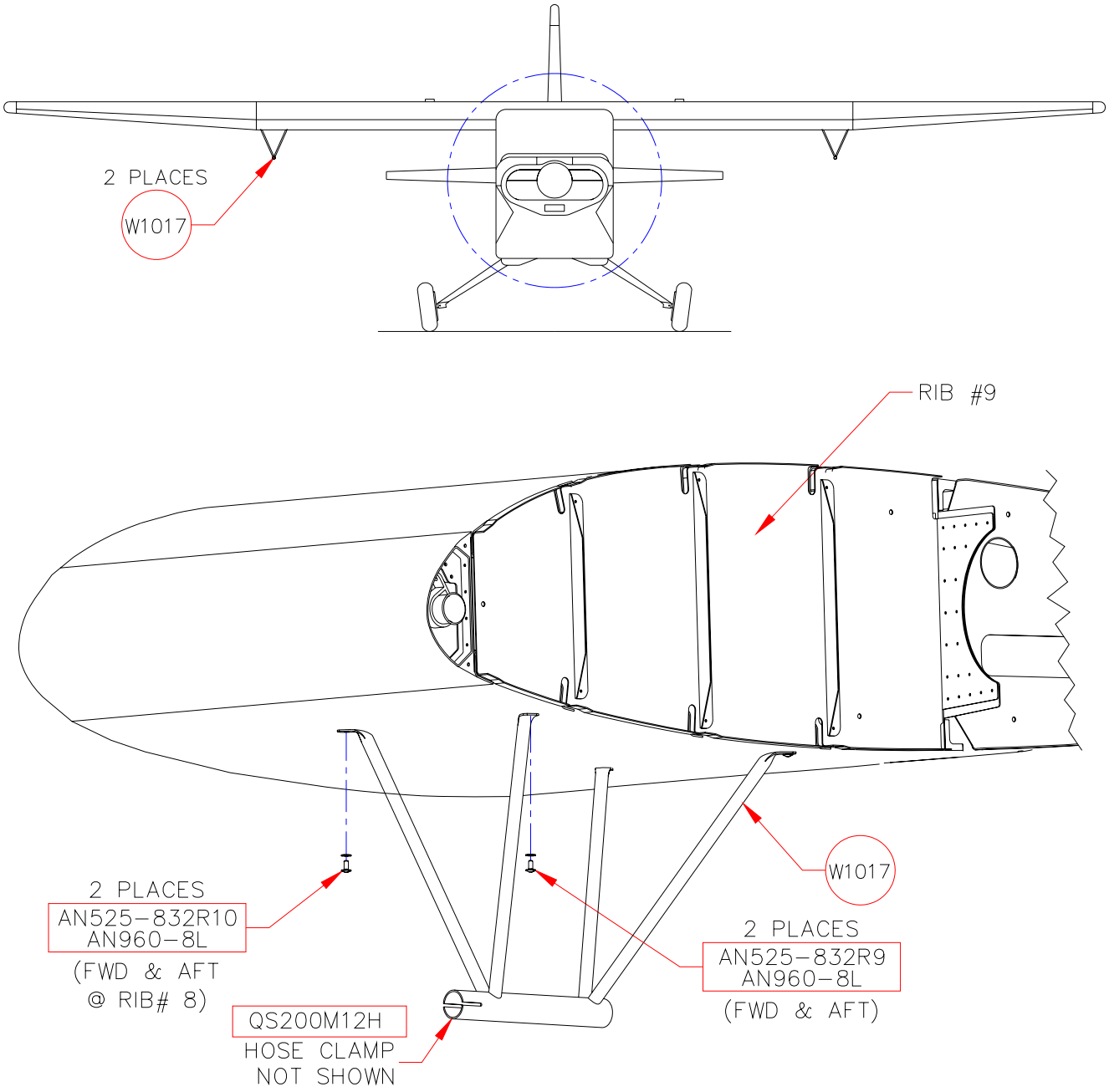


Figure G – Quadra Pod Attachment

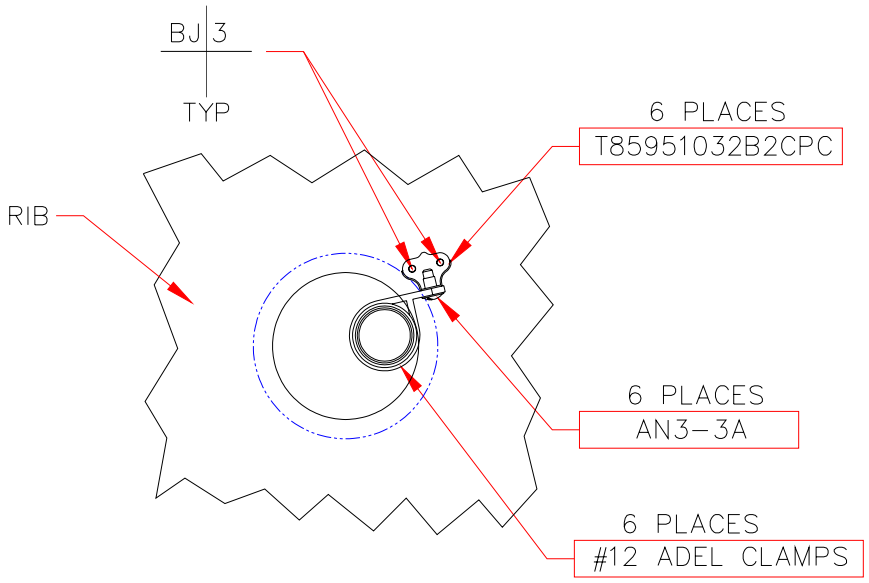
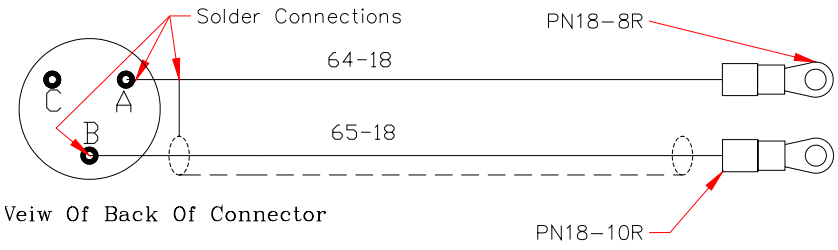
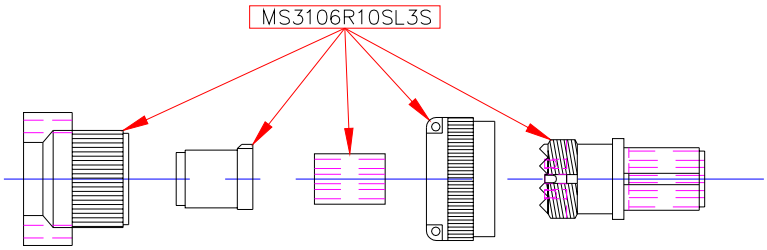


Figure H – Conduit Attachment Method

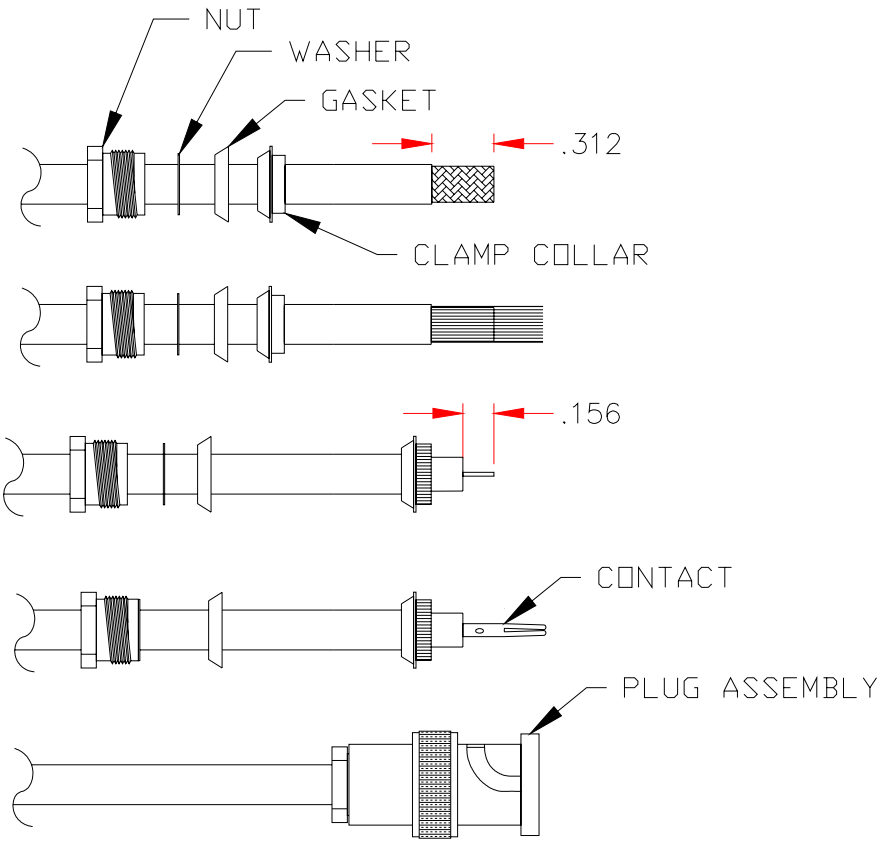




Wire List		
Wire #	Lenght	Type
64-18	59"	MS22759/16-18-9
65-18	45"	M27500-18TG1T14

1) ALL WIRE IAW MIL-W-22759 UNLESS OTHERWISE SPECIFIED
2) FABRICATION AND INSTALLATION OF WIRING HARNESS IAW AC 43.13-1A CHAPTER 11, SECTION 3 PARA 445 TO 462 AND SECTION 7
3) GROUNDING AND BONDING IAW AC43.13-1A, CHAPTER 11, SECTION 3, PARA 452, PER FAC PMS-505
4) THE DASH NUMBER AFTER THE WIRE # REPRESENTS THE GAUGE OF THE WIRE

Figure I – Shielded Turn Coordinator/Turn & Bank Power Harness



ASEMBLY INSTRUCTIONS:

1. INSTALL BNC CONNECTOR PARTS AS INDICATED.
2. STRIP BACK OUTER SHEATH 0.312".
3. COMB BRAIDED SHIELD WIRE STRAIGHT.
4. SLIDE CLAMP COLLAR FORWARD, PULL SHIELD WIRE BACK, TRIM EXCESS SHEILD AS SHOWN.
5. STRIP CENTER DIELECTRIC, (INSULATION), BACK 0.156".
6. SOLDER CONTACT TO CENTER CONDUCTOR USING STANDARD SOLDER TECHNIQUES. MAKE CERTAIN CONTACT IS FULLY INSTALLED ON CONDUCTOR.
7. INSERT CONTACT INTO PLUG ASSEMBLY UNTIL CONTACT SNAPS INTO PLACE.
8. THREAD NUT INTO PLUG ASSEMBLY UNTIL IT IS SECURED. RECOMMEND THE NUT BE TORQUED TO 20–30 INCH LBS.

Figure J – BNC Connector Assembly Instructions