REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	INCORPORATE EO 090512-04 DWG KB1406	D. B.	05/14/09
B	CLARIFIED AILERON WT INSTL, ADDED W&B INFO REVISED LINE CLAMP INSTL, REVISED HOSE	D. B.	10/12/09
C	APPROVED MODELS, ADD TANK W/O SIGHT STRIP	D. B.	01/14/10
D	W&B INFO; FUEL GAUGING; PUMP PLATE INSTALL	D. B.	01/13/11
E	W&B INFO	D. B.	02/10/12
H	INCLUDE STC SA153EA; REV F AND G NEVER ISSUED	D. B.	01/01/13
I	UPDATE REVISION	L. L.	10/31/14

D'SHANNON PRODUCTS, LTD

INSTALLATION MANUAL

KB-1401-1, Revision I

STC SA153EA
STC SA02722CH

AUXILARY WING TIP FUEL TANKS

INSTALLATION DRAWINGS AND INSTRUCTIONS

HAWKER BEECHCRAFT MODELS:

35, A35, B35, C35, D35, E35, F35, G35, H35, J35, K35, M35, N35, P35, S35, V35, V35A, V35B, 35-33, 35-A33, 35-B33, 35-C33, 35-C33A, E33, E33A, E33C, F33, F33A, F33C, G33, 36, A36, A36TC, G36

D'SHANNON PRODUCTS, LTD

800-291-7616, INT'L 763-559-5998

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	COVER SHEET	
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*	
	DWG. No. KB-1401-1-1	REVISION I
	SCALE: NONE	DATE 10/31/14 | SH 1 OF 1

NUMERICAL DRAWING LIST CONTROL

DWG. No.	DATED	REV.		No. SHTS	EFF. EO	EO	EO	EO	DESCRIPTION
KB-1401-1-1	01/01/13	H		1					COVER SHEET
KB-1401-1-2	01/01/13	E		1					NUMERICAL DWG. LIST
KB-1401-1-3	01/01/13	E		1					INSTALLATION BILL OF MATERIAL
KB-1401-1-4	01/13/11	B		1					GENERAL VIEW AND WEIGHT AND BALANCE
KB-1401-1-5	01/13/11	B		4					FUEL PUMP INSTALLATION
KB-1401-1-6	01/13/11	B		1					ELECTRICAL/MECHANICAL SCHEMATIC DIAGRAM
KB-1401-1-8A	01/01/13	A		5					FUEL PORT MODIFICATION 40 GAL
KB-1401-1-8B	01/01/13	A		9					FUEL PORT MODIFICATION 25 GAL
KB-1401-1-8C	01/01/13	A		6					FUEL PORT MODIFICATION 20 OR EARLY 25 GAL
KB-1401-1-9	01/01/13	NC		15					TUBING INSTALLATION ALL MODELS
KB-1401-1-10	04/04/09	NC		1					PUMP/SOLENOID SCHEMATIC WIRING DIAGRAM
KB-1401-1-11	01/13/11	B		4					LOCATING FUEL GAUGES AND PUMP SWITCHES
KB-1401-1-12	9/19/14	C		5					TIP TANK INSTALLATION
KB-1401-1-13	04/04/09	NC		4					ELECTRICAL CONNECTIONS NON LED STROBE AND NAV-LIGHT
KB-1406	10/05/09	B		1					AILERON BALANCE WEIGHT INSTALLATION
KB-1404	05/14/09	A		1					INSTALLATION-WING TIP FUEL TANKS (PLACARDS)
KB-1404A	01/01/13	A		1					BRACKET AND FUEL PUMP ASSY OPT. "A" 12 V
KB-1404B	01/01/13	A		1					BRACKET AND FUEL PUMP ASSY OPT. "B" 24 V

REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	REVISED TO REFLECT CURRENT DRAWING REVS.	D. B.	05/14/09
B	REVISED TO REFLECT CURRENT DRAWING REVS.	D. B.	10/12/09
C	REVISED TO REFLECT CURRENT DRAWING REVS.	D. B.	01/14/10
D	REVISED TO REFLECT CURRENT DRAWING REVS.	D. B.	01/13/11
E	REVISED TO REFLECT CURRENT DRAWING REVS.	D. B.	01/01/13
F	REVISED TO REFLECT CURRENT DRAWING REVS.	L. L.	9/24/2014

NEXT ASSY:
DRAWN BY: K. R. S.
ENGINEER: D. BRAUN
CHECKED BY: D. B.

NUMERICAL DRAWING LIST

TOLERANCES
.X__.10 .XXX__.01
.XX_.03 .XXXX_.001
ANGLES ±5%
UNLESS STATED

D'SHANNON PRODUCTS, LTD

DWG. No. KB-1401-1-2 | REVISION F
SCALE: NONE | DATE 9/24/2014 | SH 1 OF 1

ITEM	LOCATION OF ITEMS	QTY.	PART NUMBER	D E S C R I P T I O N
46				
45				
44				
43				
42				
41				
40				
39				
38	KB-1401-1-12	1	B1400-04-RGL	TIP TANK ASSEMBLY RH NO SIGHT STRIP (OPT)
37	KB-1401-1-12	1	B1400-03-RGL	TIP TANK ASSEMBLY LH NO SIGHT STRIP (OPT)
36	KB-1406	30	NAS679-A06	SELF-LOCKING NUT
35	KB-1406	30	AN526-C632R16	SCREW
34	KB-1406	2	B1405	BALANCE WEIGHT
33	KB-1401-1-9	2	AN960PD-6	FLAT WASHER
32	KB-1401-1-12	56	C3135-017-1	COUNTERSUNK TINNERMAN WASHER
31	KB-1401-1-12	56	AN507C832R10	COUNTERSUNK SCREW
30	KB-1401-1-12	4/12	82F9909	TERMINAL
29	KB-1401-1-12	2	82F9871	MALE CONNECTOR
28	KB-1401-1-12	1	B1400-02	TIP TANK ASSEMBLY RIGHT
27	KB-1401-1-12	1	B1400-01	TIP TANK ASSEMBLY LEFT
26	KB-1401-1-11	44FT	MS 22759-16/18	#18 WIRE
25	KB-1401-1-11	1	FL202	FUEL GAUGE
24				
23	KB-1401-1-11	1/0	MS26574-5	CIRCUIT BREAKER (28V)
22	KB-1401-1-9	2	AN815-4D	UNION FLARED TUBE
21	KB-1401-1-11	2	60F 814	MINIATURE TOGGLE SWITCHES
20	KB-1401-1-11	1	W58-XC4C12A-5	CIRCUIT BREAKER (12V)
19	KB-1401-1-9	2/0	AN832-4D	UNION FLARED TUBE
18	KB-1401-1-9, -11	AR	TYGON	TUBING 1/4 OD1/32W
17	KB-1401-1-9	2	350-4-0140	HOSE ASSEMBLY
16	KB-1401-1-9	2	AN526C-632R10	SCREW
15	KB-1401-1-9	2	NAS679-A06	LOCKNUT
14	KB-1401-1-8A, -8B, -8C, -9	AR	MS21266-1N	GROMMET PLASTIC ENDING
13	KB-1401-1-9	2	MS21919-DG4	ADEL CLAMP
12	KB-1401-1-9	12/14	AN818-4D	NUT COUPLING
11	KB-1401-1-9	12/14	AN819-4D	SLEVE COUPLING
10	KB-1401-1-9	AR	B1407	5052-0 TUBING 1/4 O. D. X .035 W.
9	KB-1401-1-8B, -8C	2	AN816-4D	ADAPTER
8	KB-1401-1-8B, -8C	2	AN960-616	FLAT WASHER
7	KB-1401-1-8B, -8C	2	B1408	FUEL INLET TRANSFER FITTING
6	KB-1401-1-8A, -8B, -8C	AR	CS3204 B2	PROSEAL
5	KB-1401-1-8A, -9	4/2	AN924-4D	NUT
4	KB-1401-1-8A, -9	8/4	AN960PD-716	FLAT WASHER
3	KB-1401-1-8A, -9	2/4	AN833-4D	ELBOW 90°
2	KB-1401-1-5	14	AD44H	RIVET
1	KB-1401-1-5	2	B1404A/B	BRACKET AND FUEL PUMP ASSEMBLY

REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	R. S.	04/04/09
A	INCORPORATED EO 090512-04	D. B.	05/14/09
B	REVISED FUEL LINE CLAMP INSTL AND FUEL HOSE	D. B.	10/12/09
C	ADD TIP TANK WITHOUT SIGHT STRIP	D. B.	01/14/10
D	INCORPORATED EO 101103-5	D. B.	01/13/11
E	REORDERED. BOM IS FOR BOTH WINGS	D. B.	01/01/13

4. ITEM (25) IS NOT AVAILABLE FOR ITEMS (27) AND (28) WITHOUT REMOTE GAUGE LIQUIDOMETER (W/O RGL DESIGNATION IN PART NUMBER). ITEM (25) IS REQUIRED FOR ITEMS (38) AND (37). ITEM (25) IS OPTIONAL FOR ALL OTHER INSTALLATIONS. IT IS PERMISSIBLE TO SUBSTITUTE ANY TSO OR STC CERTIFIED FUEL GAUGE ELIGIBLE FOR INSTALLATION ON THE PARTICULAR AIRCRAFT BEING MODIFIED, AND WHICH MEETS THE CALIBRATION OUTPUT OF ITEM B1463 LIQUIDOMETER.

3. ITEM (37) AND ITEM (38) MAY BE USED IN PLACE OF ITEM (27) AND ITEM (28) RESPECTIVELY FOR INSTALLATIONS WITHOUT THE TIP TANK SIGHT STRIP.

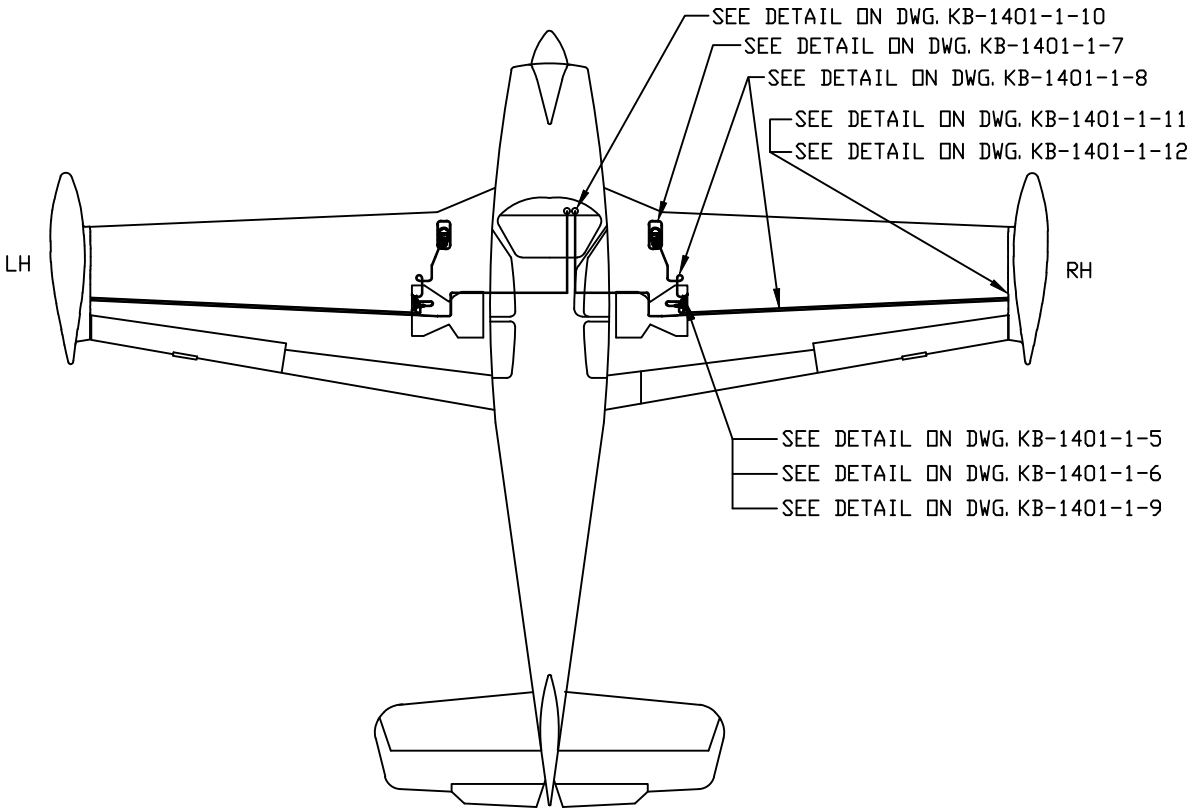
2. WS-8020-B2 MAY BE USED IN PLACE OF CS3204 B2 IN ITEM (6).

1. ITEM (23) SHOULD BE USED IN PLACE OF ITEM (20) ON 28 VOLT MODELS.

NOTES:

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	INSTALLATION BILL OF MATERIAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-3 REVISION E
	SCALE: NONE DATE 04/04/09 SH 1 OF 1

REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	ADDED WEIGHT AND BALANCE NOTES	D. B.	08/26/09
B	DWG TITLE. ACTUAL TANK WEIGHT IS 20 LBS. EACH	D. B.	01/13/11



The following information can be used to figure computed weight and balance computations when installing D'Shannon Products, LTD 20 gallon composite tip tanks. It should be noted that computed weight and balance data is only as good as the computations that came before them, they are not a good substitute for periodic weighing. As the Bonanza fleet continues to age, we are seeing more and more frequent errors, usually not in a conservative direction. Although some of these errors can be traced, others are simply due to dirt, and grime build up under floorboards, under upholstery, etc. Although not required by regulation, we would like to suggest the weighing of your aircraft with this modification.

A. Tip Tanks with fuel caps with fittings	40.0 lbs. @	89.1"
B. Tip Tank installation kit (pump assemblies, etc)	6.0 lbs. @	89.1"
C. Aileron Weights (33s, S35 and up, all 36s)	4.0 lbs. @	107.0"
D. Removed wing tips - to be subtracted	9.8 lbs. @	89.1"

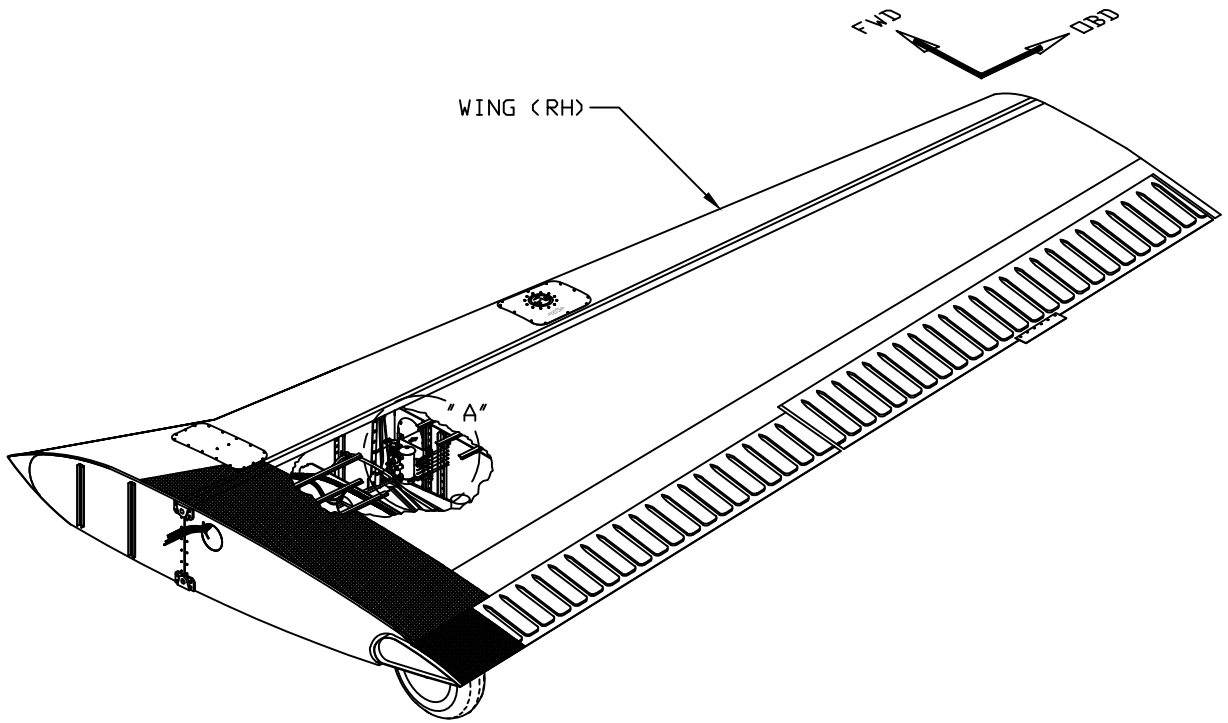
Fuel in the tanks can be figured at the standard 6 pounds per gallon at 87" aft of datum on all models.

Note: On aircraft approved for increased gross weights, make sure that you figure the new useful load based on the new maximum gross weight.

WEIGHT AND BALANCE NOTES:

NEXT ASSY:	GENERAL VIEW AND WEIGHT AND BALANCE
DRAWN BY: K. R. S.	
ENGINEER: D. BRAUN	
CHECKED BY: D. B.	
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
	DWG. No. KB-1401-1-4 REVISION B
	SCALE: NONE DATE 04/04/09 SH 1 OF 1

REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	REORDER NOTES AND VIEWS, ADD SH 4	D. B.	01/14/10
B	INCORPORATE EO 100614-1, ADD BOM	D. B.	01/13/11



NOTES:

1. SEE DETAIL "A" ON SHEET 2 OF 4 FOR INSTALLATION ON AIRCRAFT WITHOUT AUXILIARY WING TANKS AND 20, 25, OR 40 GALLON NON-COMMONALITY WING. (40, 50 OR 80 GALLON TOTAL FUEL ON AIRCRAFT).
2. SEE DETAIL "A" ON SHEET 3 OF 4 FOR INSTALLATION ON AIRCRAFT WITH AUXILIARY WING TANKS AND 20 OR 25 GALLON NON-COMMONALITY WING. (60 OR 70 GALLON TOTAL FUEL ON AIRCRAFT).
3. SEE DETAIL "A" ON SHEET 4 OF 4 FOR INSTALLATION ON AIRCRAFT WITH 40 GALLON COMMONALITY WING. (80 GALLON TOTAL FUEL ON AIRCRAFT).

ITEM	QTY	PART No.	DESCRIPTION
1	1	B1404A/B	BRACKET AND FUEL PUMP ASSEMBLY
2	7	AD44H	POP RIVET

NEXT ASSY:
DRAWN BY: K. R. S.
ENGINEER: D. BRAUN
CHECKED BY: D. B.

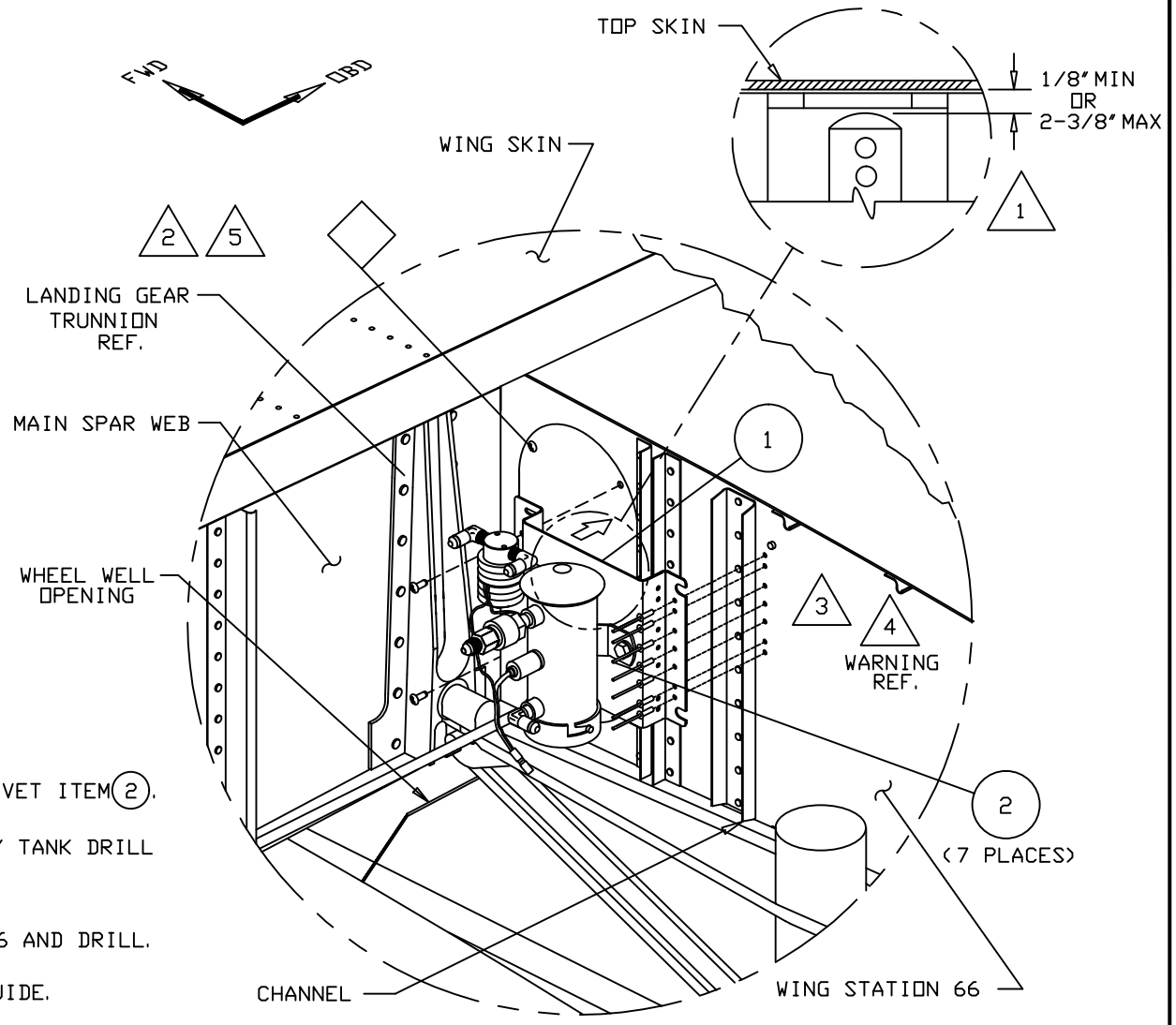
FUEL PUMP INSTALLATION

TOLERANCES
.X__.10 .XXX__.01
.XX_.03 .XXXX_.001
ANGLES ±5%
UNLESS STATED

D'SHANNON PRODUCTS, LTD

DWG. No. KB-1401-1-5 | REVISION B
SCALE: NONE | DATE 04/04/09 | SH 1 OF 4

SHOWS INSTALLATION ON AIRCRAFT
WITHOUT WING AUX. TANKS.
20, 25 OR 40 GAL. NON-COMMONALITY WING.



◇ ORIGINAL HARDWARE.

5 INSTALL SCREWS (ORIGINAL HARDWARE) AND POP RIVET ITEM (2).

4 FOR AIRPLANES EQUIPPED WITH 10 GAL. AUXILIARY TANK DRILL ON THE CHANNEL AS SHOWN IN SHEET 3 OF 4.

3 MARK THE BRACKET HOLES ON THE WING STATION 66 AND DRILL.

2 REMOVE SCREWS, USE THE HOLES AND CHANNEL AS GUIDE.

1 INSTALL PUMP BETWEEN 1/8" TO 2-3/8" ON THE UNDERSIDE OF THE TOP WING SKIN. POSITION PUMP MOUNTING PLATE AS TO AVOID EXISTING FASTENERS/HARDWARE.

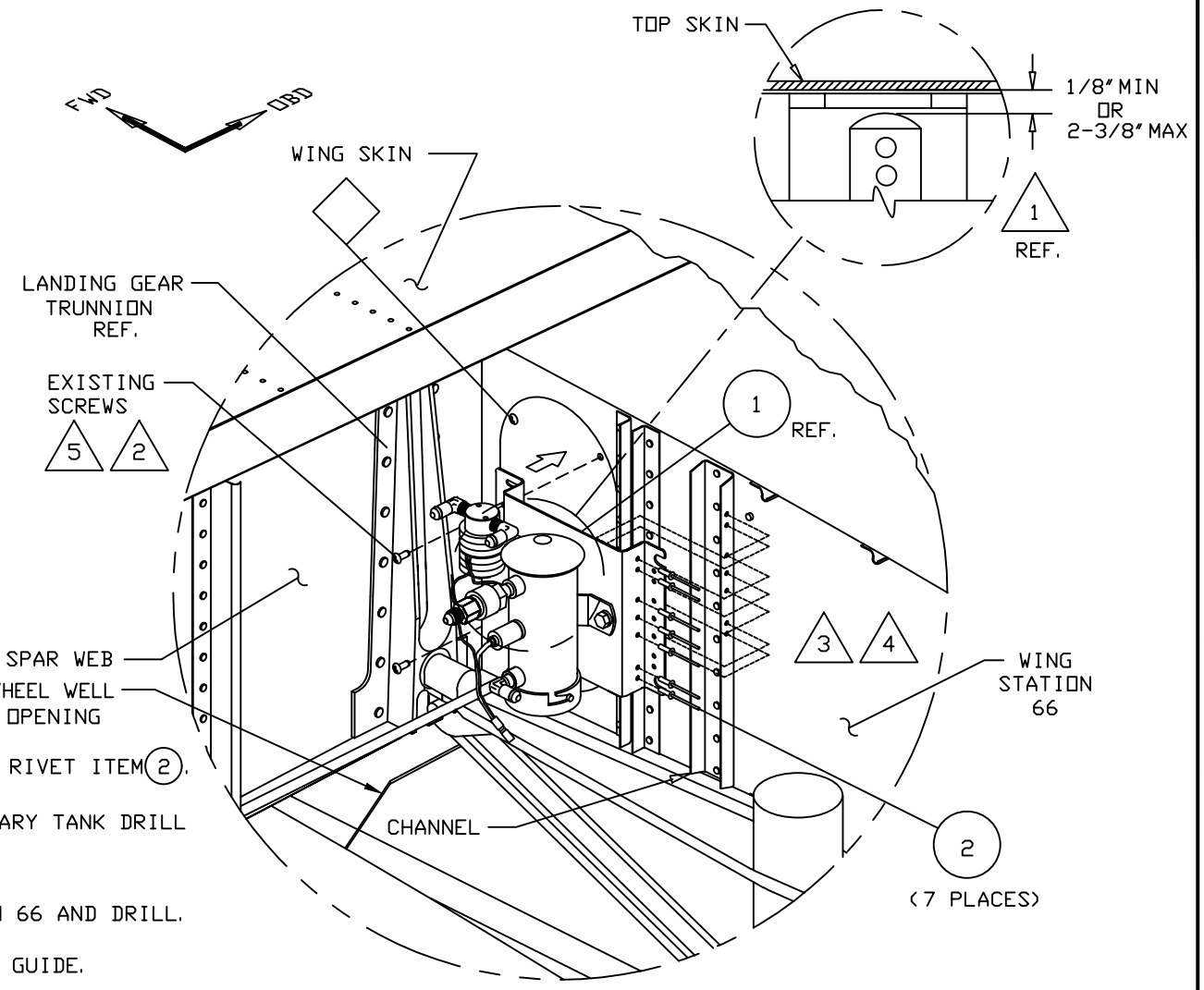
NOTES:

5. WHEN CORRECT ALIGNMENT IS ASSURED, MARK AND DRILL 7 HOLES INTO THE WING RIB WITH A #30 BIT USING PILOT HOLES IN THE PUMP BRACKET. CLECO AS NECESSARY AND INSTALL 7 BLIND RIVETS AS SHOWN. REINSTALL AND TIGHTEN TWO SCREWS ON FORWARD SIDE. CAUTION: FUMES MAY BE PRESENT. USE AIR POWERED DRILL.

4. REMOVE TOP AND BOTTOM SCREWS FROM THE AFT SIDE OF THE ACCESS PANEL AT WING STATION 66. FIT THE PUMP/BRACKET ASSEMBLY USING THE TWO SCREWS PREVIOUSLY REMOVED. OBSERVE THE 1/8" TO 2-3/8" CLEARANCE TO THE UNDERSIDE OF THE WING SKIN.

NEXT ASSY:	FUEL PUMP INSTALLATION
DRAWN BY: K. R. S.	
ENGINEER: D. BRAUN	
CHECKED BY: D. B.	
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
	DWG. No. KB-1401-1-5 REVISION B
	SCALE: NONE DATE 04/04/09 SH 2 OF 4

SHOWS INSTALLATION ON AIRCRAFT
WITH WING AUX. TANKS.
20 OR 25 GAL. NON-COMMONALITY WING.



◇ ORIGINAL HARDWARE.

△5 INSTALL SCREWS (ORIGINAL HARDWARE) AND POP RIVET ITEM (2).

△4 FOR AIRPLANES EQUIPPED WITH 10 GAL. AUXILIARY TANK DRILL ON THE CHANNEL AS SHOWN IN SHEET 3 OF 4.

△3 MARK THE BRACKET HOLES ON THE WING STATION 66 AND DRILL.

△2 REMOVE SCREWS, USE THE HOLES AND CHANNEL AS GUIDE.

△1 INSTALL PUMP BETWEEN 1/8" TO 2-3/8" ON THE UNDERSIDE OF THE TOP WING SKIN. POSITION PUMP MOUNTING PLATE AS TO AVOID EXISTING FASTENERS/HARDWARE.

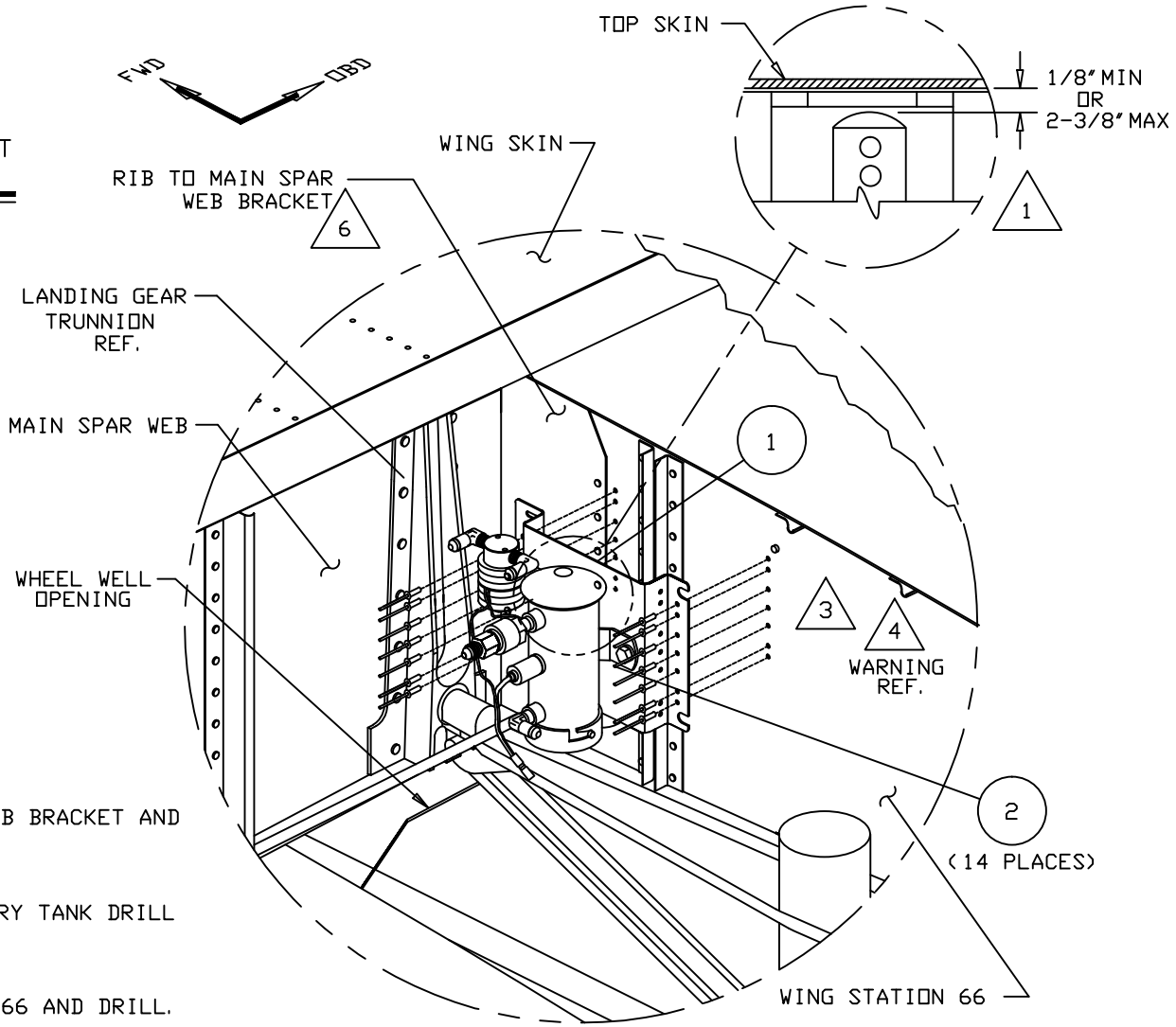
NOTES:

7. WHEN CORRECT ALIGNMENT IS ASSURED, MARK AND DRILL 7 HOLES INTO THE AFT SIDE OF THE BRACKET SHOWN USING A #30 BIT. DO NOT DRILL INTO THE WING RIB AT WING STATION 66. DOING SO WILL PUNCTURE THE AUXILIARY TANK FUEL BLADDER THAT RESTS ON THE OPPOSITE SIDE. INSTALL 7 BLIND RIVETS AS SHOWN. REINSTALL AND TIGHTEN TWO SCREWS ON FORWARD SIDE. CAUTION: FUMES MAY BE PRESENT. USE AIR POWERED DRILL.

6. REMOVE TOP AND BOTTOM SCREWS FROM THE AFT SIDE OF THE ACCESS PANEL AT WING STATION 66. FIT THE PUMP/BRACKET ASSEMBLY USING THE TWO SCREWS PREVIOUSLY REMOVED. OBSERVE THE 1/8" TO 2-3/8" CLEARANCE TO THE UNDERSIDE OF THE WING SKIN.

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PUMP INSTALLATION
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-5 REVISION B
	SCALE: NONE DATE 04/04/09 SH 3 OF 4

SHOWS INSTALLATION ON AIRCRAFT
WITH 40 GAL. COMMONALITY WING.



6 ALIGN PUMP BRACKET WITH RIB TO MAIN SPAR WEB BRACKET AND INSTALL W/ ITEM (2).

4 FOR AIRPLANES EQUIPPED WITH 10 GAL. AUXILIARY TANK DRILL ON THE CHANNEL AS SHOWN IN SHEET 3 OF 4.

3 MARK THE BRACKET HOLES ON THE WING STATION 66 AND DRILL.

1 INSTALL PUMP BETWEEN 1/8" TO 2-3/8" ON THE UNDERSIDE OF THE TOP WING SKIN. POSITION PUMP MOUNTING PLATE AS TO AVOID EXISTING FASTENERS/HARDWARE.

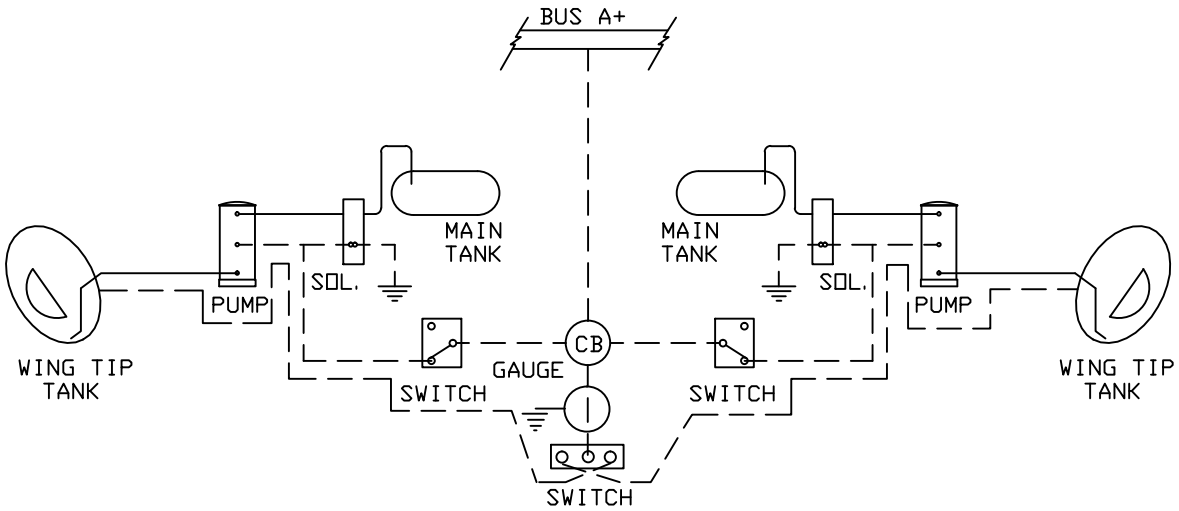
9. WHEN CORRECT ALIGNMENT IS ASSURED, MARK AND DRILL 14 HOLES INTO THE WING RIB WITH A #30 BIT USING PILOT HOLES IN THE FORWARD AND AFT FLANGES OF THE PUMP BRACKET. CLECO AS NECESSARY AND INSTALL 14 BLIND RIVETS AS SHOWN. CAUTION: FUMES MAY BE PRESENT. USE AIR POWERED DRILL.

8. ALIGN THE PUMP/BRACKET AS SHOWN. OBSERVE THE 1/8" TO 2-3/8" CLEARANCE TO THE UNDERSIDE OF THE WING SKIN. THE FORWARD SIDE OF THE PUMP SHOULD ALIGN WITH THE RIB TO MAIN SPAR WEB BRACKET AS SHOWN.

NOTES:

NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PUMP INSTALLATION
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-5 REVISION B
	SCALE: NONE DATE 01/14/10 SH 4 OF 4

REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	DOCUMENT FUEL QTY GAUGES ARE OPT.	J. M.	07/06/10
B	INCORPORATE EO 101103-7	D. B.	01/13/11



ELECTRICAL(---)/MECHANICAL(——) SCHEMATIC DIAGRAM

SYSTEMS REQUIRING ELECTRIC GAUGES (REFERENCE SH. KB-1401-1-11 SH. 4 OF 4)

3. IF FUEL LEVEL TRANSMITTERS ARE USED IN WING TIP TANK, THE WIRE TO THE TRANSMITTER CAN BE ROUTED THROUGH THE WING BY CUTTING THE NAV-LIGHT WIRE IN THE WHEEL WELL. ATTACHING 2 WIRES OF THE SAME TYPE ONTO THE SINGLE WIRE AND PULLING OUTWARD, PULL THE 2 WIRES THROUGH THE WING.

2. IT IS PERMISSIBLE TO SUBSTITUTE ANY TSO OR STC CERTIFIED FUEL GAUGE ELIGIBLE FOR INSTALLATION ON THE PARTICULAR AIRCRAFT BEING MODIFIED, AND WHICH MEETS THE CALIBRATION OUTPUT OF THE ITEM B1463 LIQUIDOMETER. WIRE AND CALIBRATE PER THE GAUGE MANUFACTURER'S RECOMMENDATIONS.

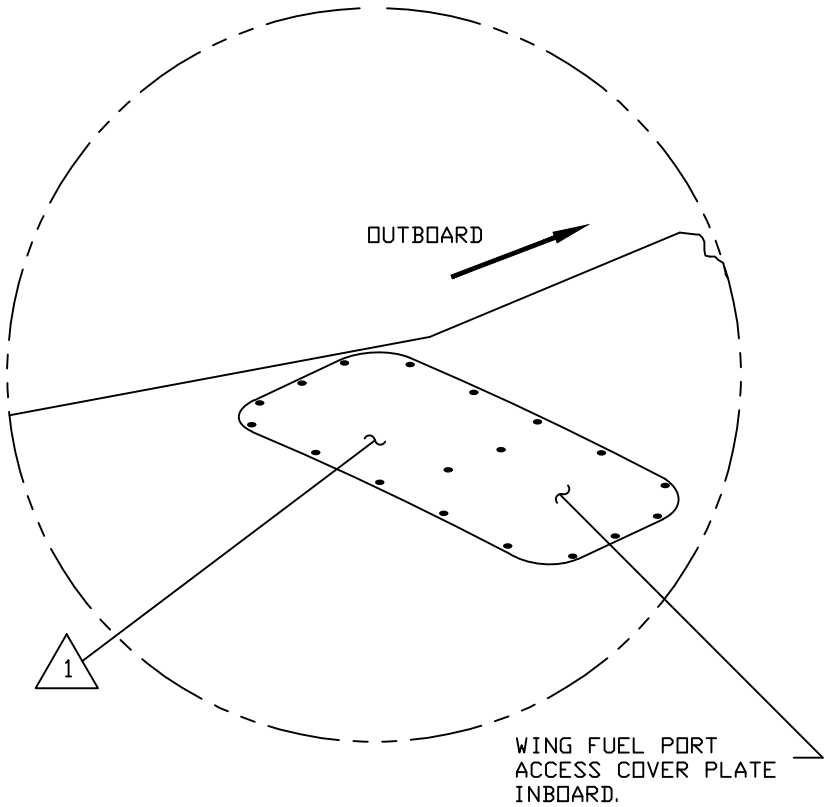
1. FUEL GAUGES ARE NOT AVAILABLE FOR ITEMS (27) AND (28) WITHOUT REMOTE GAUGE LIQUIDOMETER (W/O RGL DESIGNATION IN PART NUMBER). FUEL GAUGES ARE REQUIRED FOR ITEMS (37) AND (38) TIP TANKS W/O SIGHT STRIPS. FUEL GAUGES ARE OPTIONAL FOR ALL OTHER INSTALLATIONS.

NOTES:

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	ELECTRICAL/MECHANICAL SCHEMATIC DIAGRAM
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
	DWG. No. KB-1401-1-6 REVISION B
	SCALE: NONE DATE 04/04/09 SH 1 OF 1

REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	CLARIFY TITLE; REORDER VIEWS; REVISE NOTES; DELETE SHTS 6 & 7	D. B.	01/01/13

40 GAL. WING TANK



ITEM	QTY	PART No.	DESCRIPTION
14	A. R.	MS21266-1N	GROMMET PLASTIC ENDING
6	A. R.	CS3204 B2	PROSEAL
5	1	AN924-4D	NUT
4	2	AN960PD716	WASHER
3	1	AN833-4D	90° BULKHEAD FITTING

NEXT ASSY:
DRAWN BY: K. R. S.
ENGINEER: D. BRAUN
CHECKED BY: D. B.

FUEL PORT MODIFICATION 40 GAL

TOLERANCES
.X__.10 .XXX__.01
.XX_.03 .XXXX_.001
ANGLES ±5%
UNLESS STATED

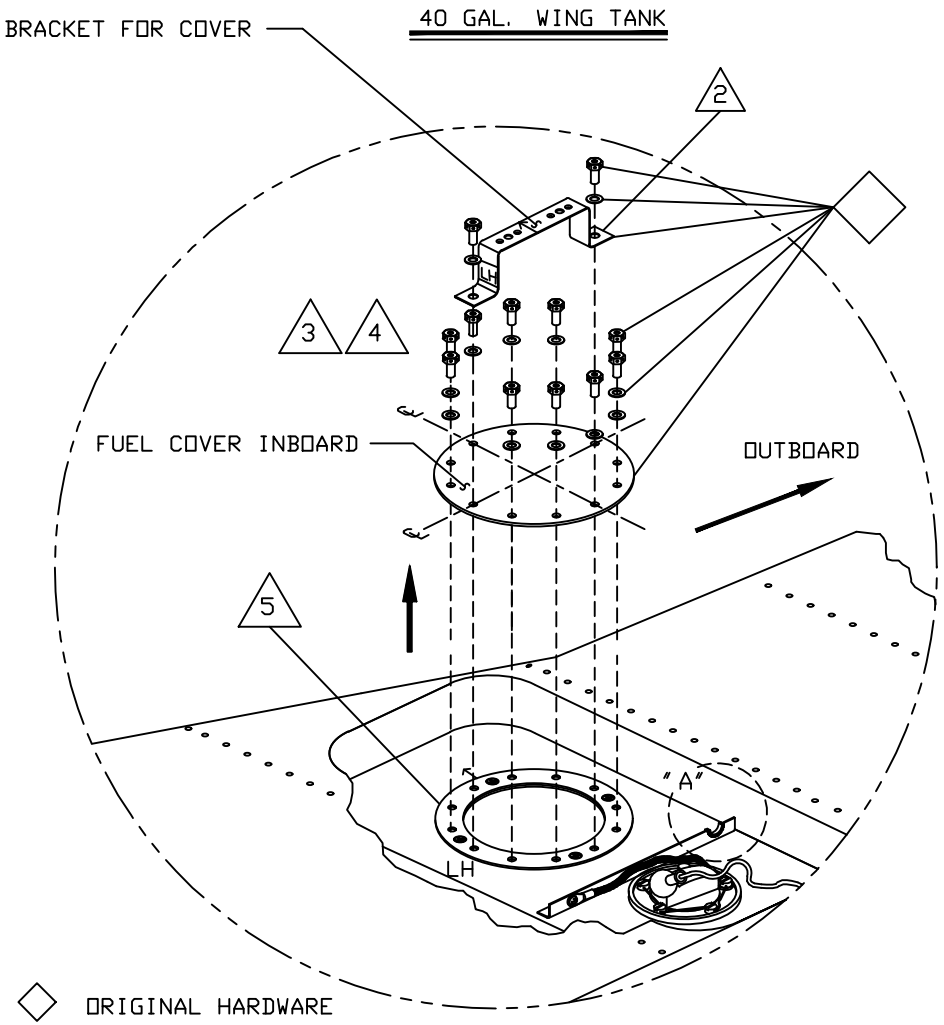
D'SHANNON PRODUCTS, LTD

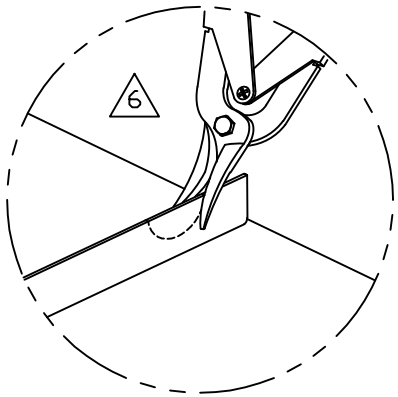
DWG. No. KB-1401-1-8A | REVISION A

SCALE: NONE | DATE 04/04/09 | SH 1 OF 5

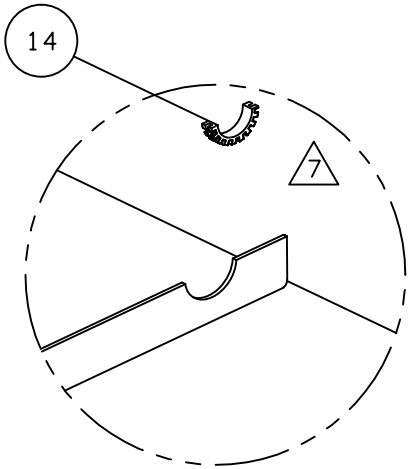
NOTES:

1. TAKE OFF ALL EXISTING SCREWS ON THE FUEL SKIN COVER AND REMOVE IT. SET ASIDE THE HARDWARE FOR REPLACEMENT OF THE COVER.

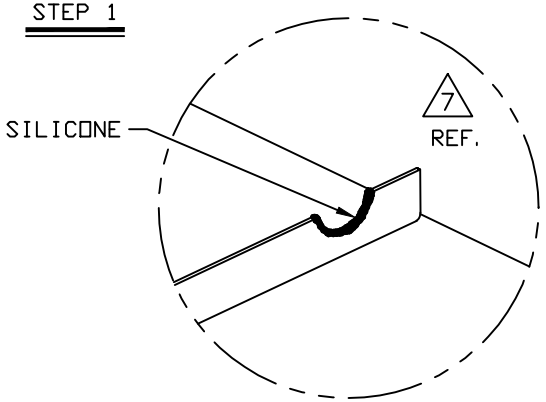




STEP 1



STEP 2



OPTIONAL STEP 2

DETAIL "A"

◇ ORIGINAL HARDWARE

△7 USING CATERPILLAR GROMMET OR SILICONE SEALANT.

△6 CUT WITH AVIATION SNIPS.

△5 REMOVE THE GASKET AND REPLACE IT WITH A NEW GASKET, IF REQUIRED.

△4 REMOVE THE FUEL COVER INBOARD PLATE.

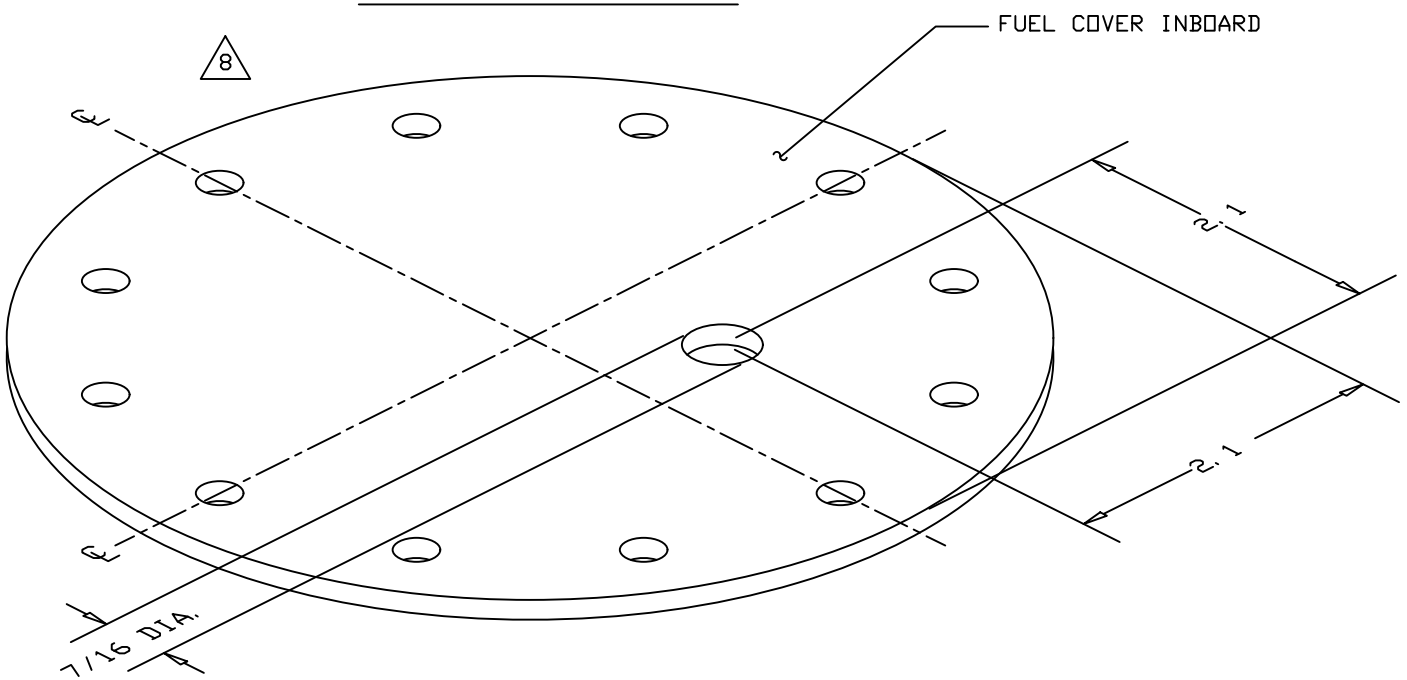
△3 TAKE OFF THE SAFETY WIRE AND REMOVE ALL THE BOLTS WITH DRILL HEAD (12 BLACES).

△2 MARK LEFT HAND OR RIGHT HAND AND EXACT LOCATION PRIOR TO THE REMOVAL OF ANY SCREWS.

NOTES:
1. REMOVE ALL SHARP EDGES AND BURRS.

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PORT MODIFICATION 40 GAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
DWG. No. KB-1401-1-8A	REVISION A
SCALE: NONE	DATE 04/04/09 SH 2 OF 5

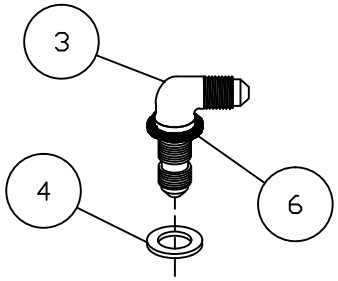
40 GAL. WING TANK



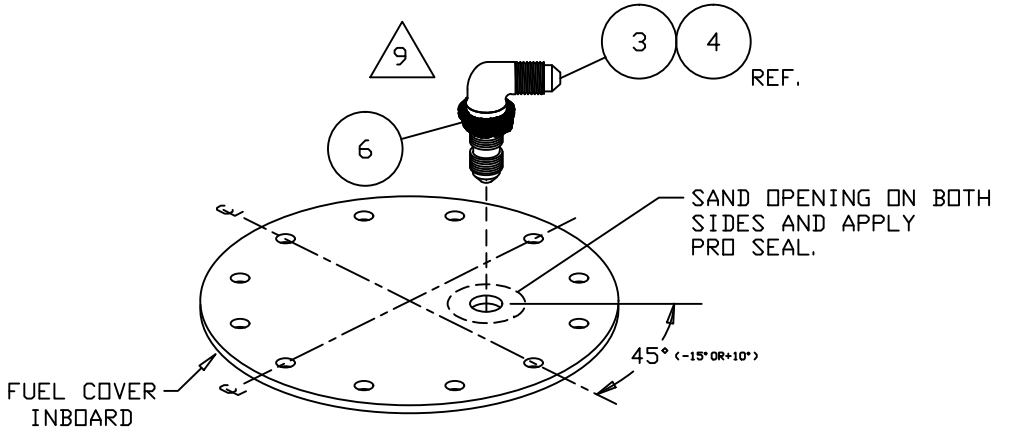
8 DRILL OR PUNCH A 7/16" HOLE IN THE POSITION SHOWN.

NOTES:

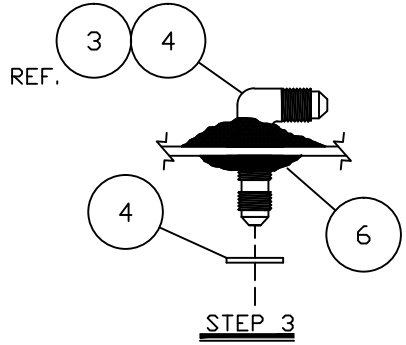
NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PORT MODIFICATION 40 GAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-8A | REVISION A
	SCALE: NONE | DATE 04/04/09 | SH 3 OF 5



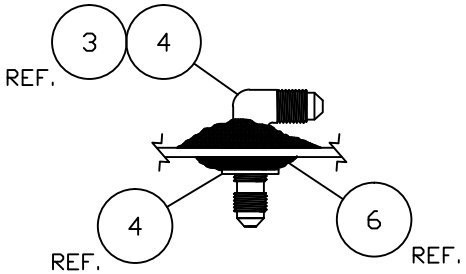
STEP 1



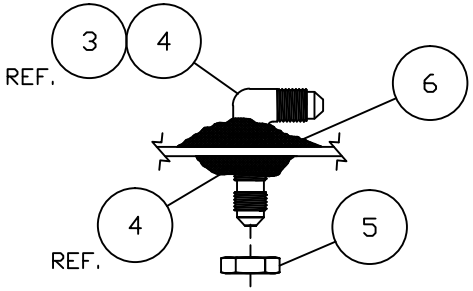
STEP 2



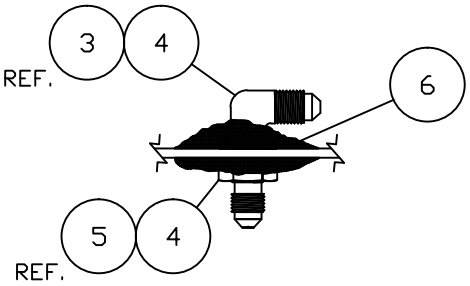
STEP 3



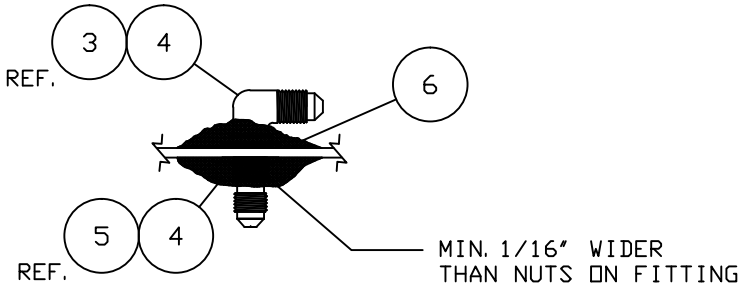
STEP 4



STEP 5



STEP 6



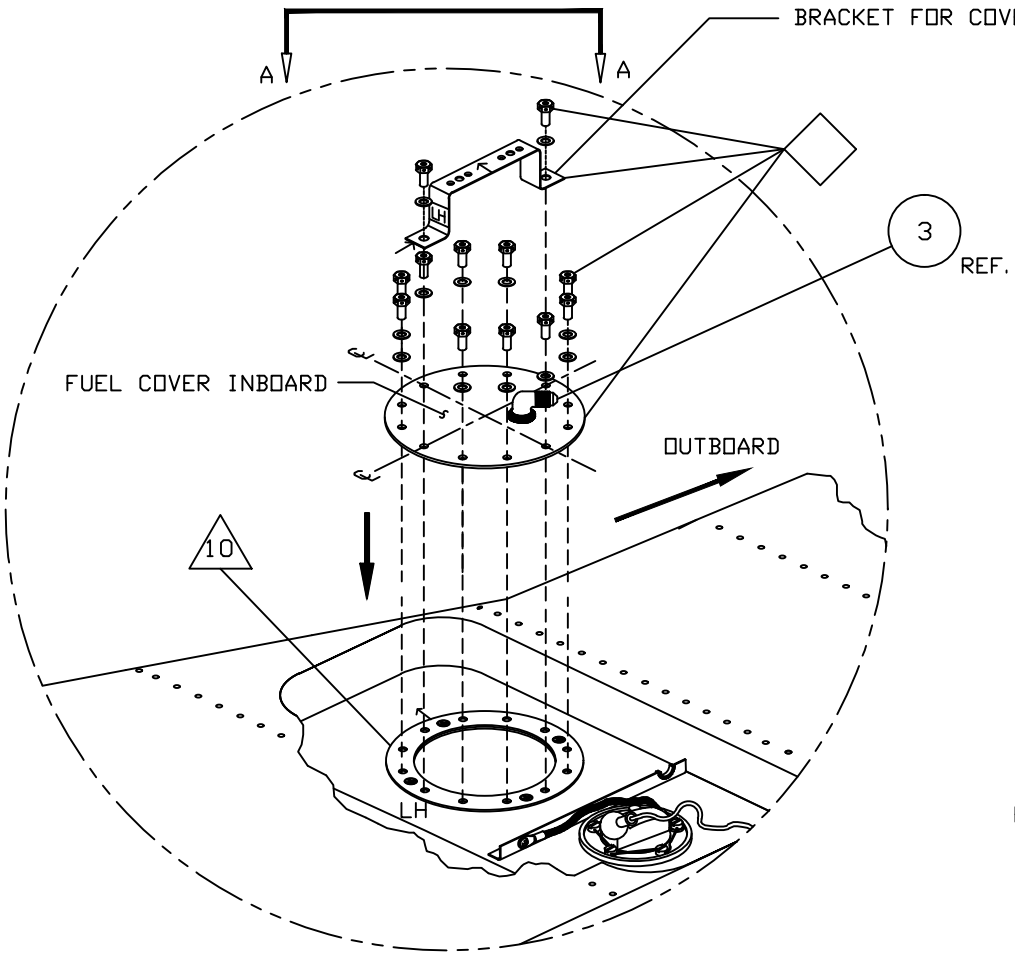
STEP 7

NOTES:

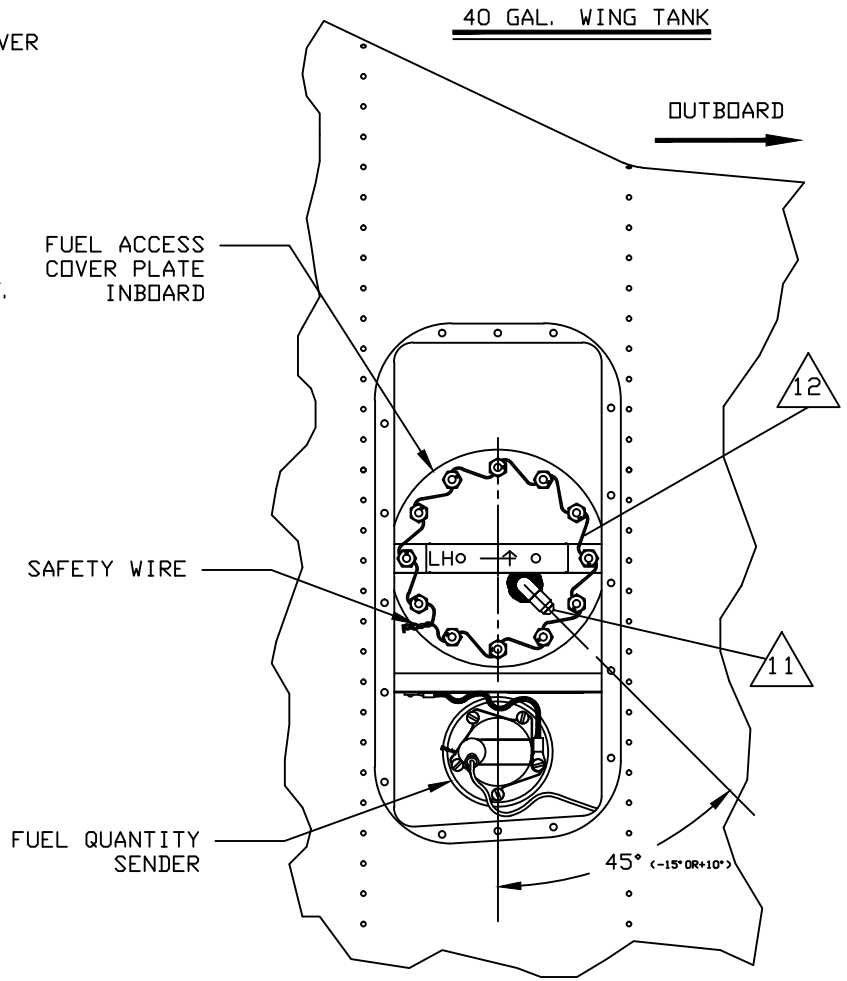
9 THE ELBOW FITTING, ITEM (3), IS ORIENTED BETWEEN THE TWO HOLES SHOWN IN VIEW A-A

2. DO NOT FILL FUEL CELLS FOR 48 HOURS FROM THE TIME THE PROSEAL HAS BEEN INSTALLED.

NEXT ASSY:	FUEL PORT MODIFICATION 40 GAL
DRAWN BY: K. R. S.	
ENGINEER: D. BRAUN	
CHECKED BY: D. B.	
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
DWG. No. KB-1401-1-8A	REVISION A
SCALE: NONE	DATE 04/04/09 SH 4 OF 5



40 GAL. WING TANK



VIEW A-A
R. H. WING AS SHOWN
L. H WING SAME PROCESS
(PARTS ARE OPPOSITE)

◇ ORIGINAL HARDWARE

△12 TORQUE ALL BOLTS SEVERAL TIMES TO ALLOW GASKET TO SEAT. SEAT GASKET TIGHTLY.

△11 A 45° ANGLE IS SUGGESTED BUT YOU CAN INSTALL THE FITTING IN ANOTHER DIRECTION IF REQUIRED.

△10 INSTALL THE ORIGINAL MODIFIED ACCESS COVER PLATE AND ORIGINAL HARDWARE IN THE EXACT DIRECTION AND POSITION OF THE ORIGINAL BRACKET.

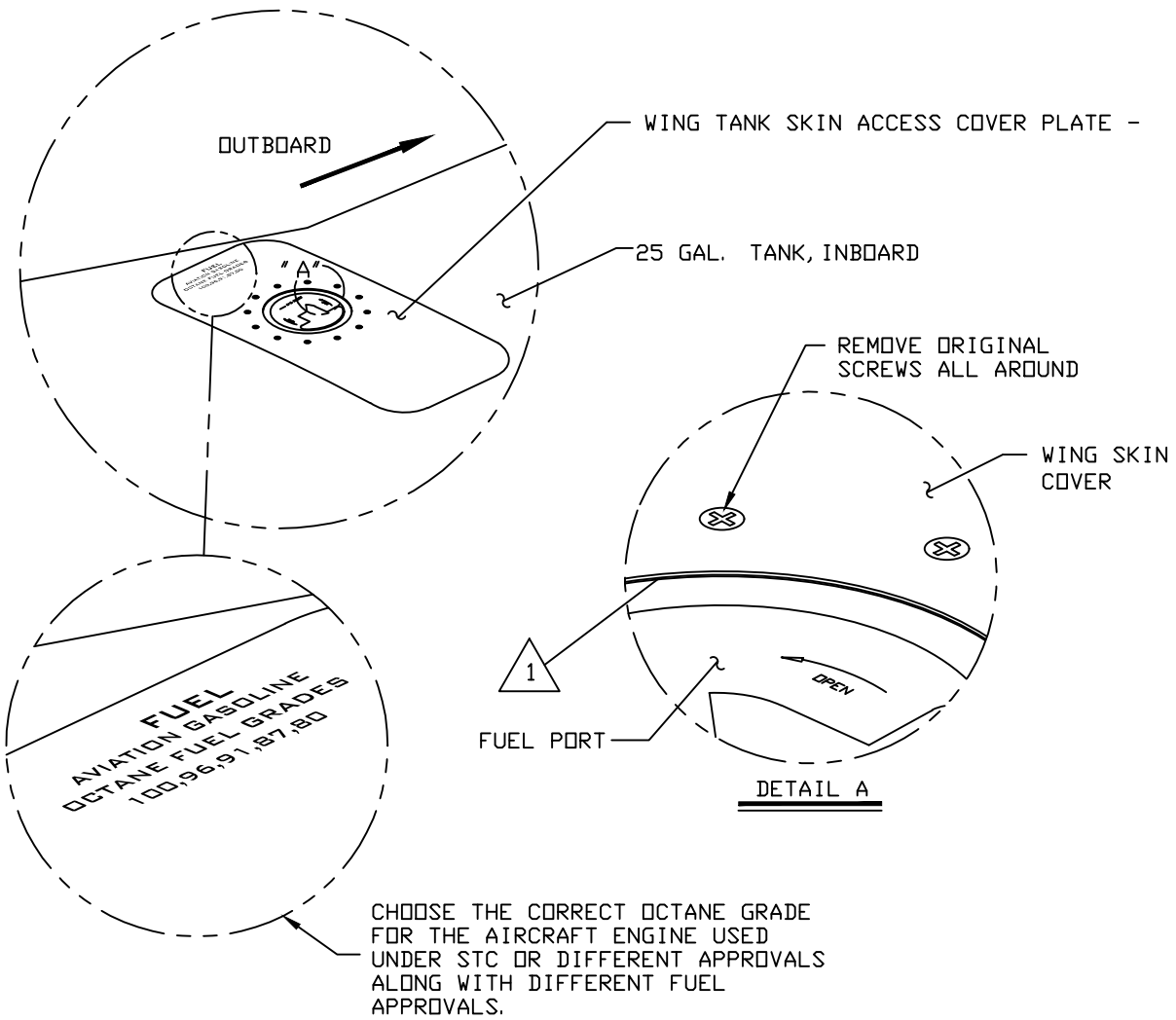
NOTES:

4. USE SAFETY WIRE AS SHOWN.
3. MAKE A REFERENCE MARK AS PER AIR SIDE AND POSITION OF PLATE (BRACKET).

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PORT MODIFICATION 40 GAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-8A REVISION A
	SCALE: NONE DATE 04/04/09 SH 5 OF 5

REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	CLARIFY TITLE; REORDER VIEWS; REVISE NOTES; DELETE SHTS 10 - 13	D. B.	01/01/13

25 GAL. WING TANK FILLER PORT AREA



NOTES:

1. THE FUEL OCTANE GRADE CAN BE 100, 96, 91, 97, 80 AS REQUIRED. SEE ENGINE TYPE UNDER STC OR OTHER CONFIGURATION AND ANY OTHER APPLICABLE FUEL TYPE REQUIREMENTS UNDER ANOTHER STC.

2. WHEN REINSTALLING SKIN ACCESS COVER PLATE USE ORIGINAL HARDWARE.

1. BEFORE REMOVING THE FUEL COVER SKIN MAKE SURE THAT THE TOP SKIN MATCHES THE FUEL PORT FACE CONTOUR.

ITEM	QTY	PART No.	DESCRIPTION
14	A. R.	MS21266-1N	GROMMET PLASTIC ENDING
9	1	AN916-4D	ADAPTER
7	1	B1408	FUEL INLET TRANSFER FITTING
6	A. R.	CS3204 B2	PROSEAL

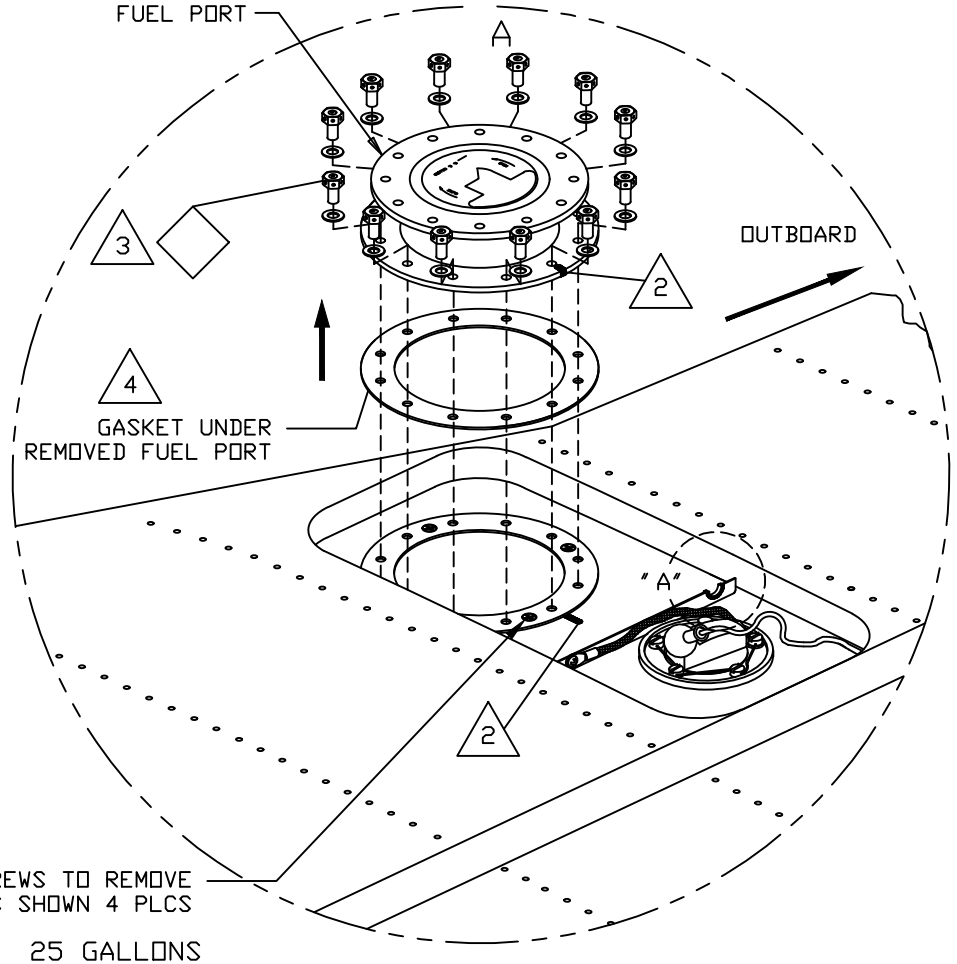
NEXT ASSY:
DRAWN BY: K. R. S.
ENGINEER: D. BRAUN
CHECKED BY: D. B.

FUEL PORT MODIFICATION 25 GAL

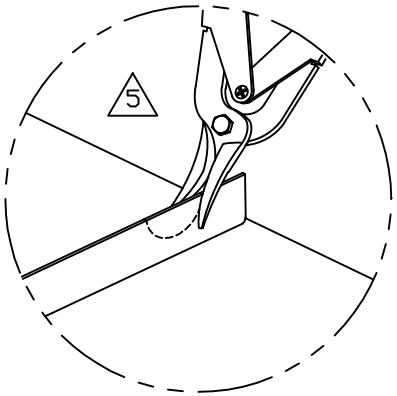
TOLERANCES
.X__.10 .XXX__.01
.XX_.03 .XXXX_.001
ANGLES ±5%
UNLESS STATED

D'SHANNON PRODUCTS, LTD

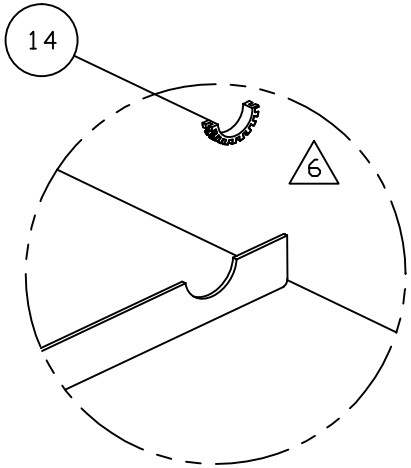
DWG. No. KB-1401-1-8B | REVISION A
SCALE: NONE | DATE 04/04/09 | SH 1 OF 9



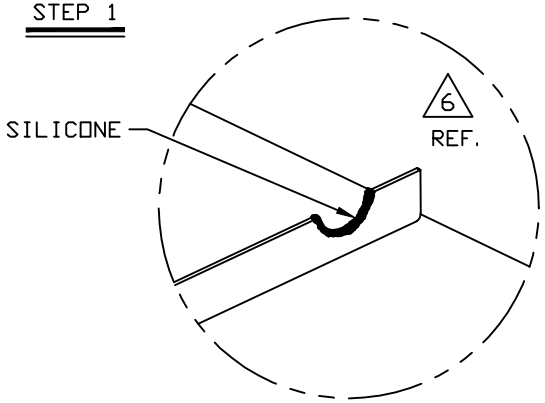
25 GALLONS



STEP 1



STEP 2



OPTIONAL STEP 2

DETAIL "A"

REMOVE PLATE WITH FOUR SCREWS HOLDING THE PLATE. THE PLATE WILL HAVE TO BE DRILLED TO ACCEPT SPECIAL FITTING. MAKE SURE TO MARK PLATE INDEX PRIOR TO REMOVAL.

◇ ORIGINAL HARDWARE

6 USING CATERPILLAR GROMMET OR SILICONE SEALANT

5 CUT WITH AVIATION SNIPS.

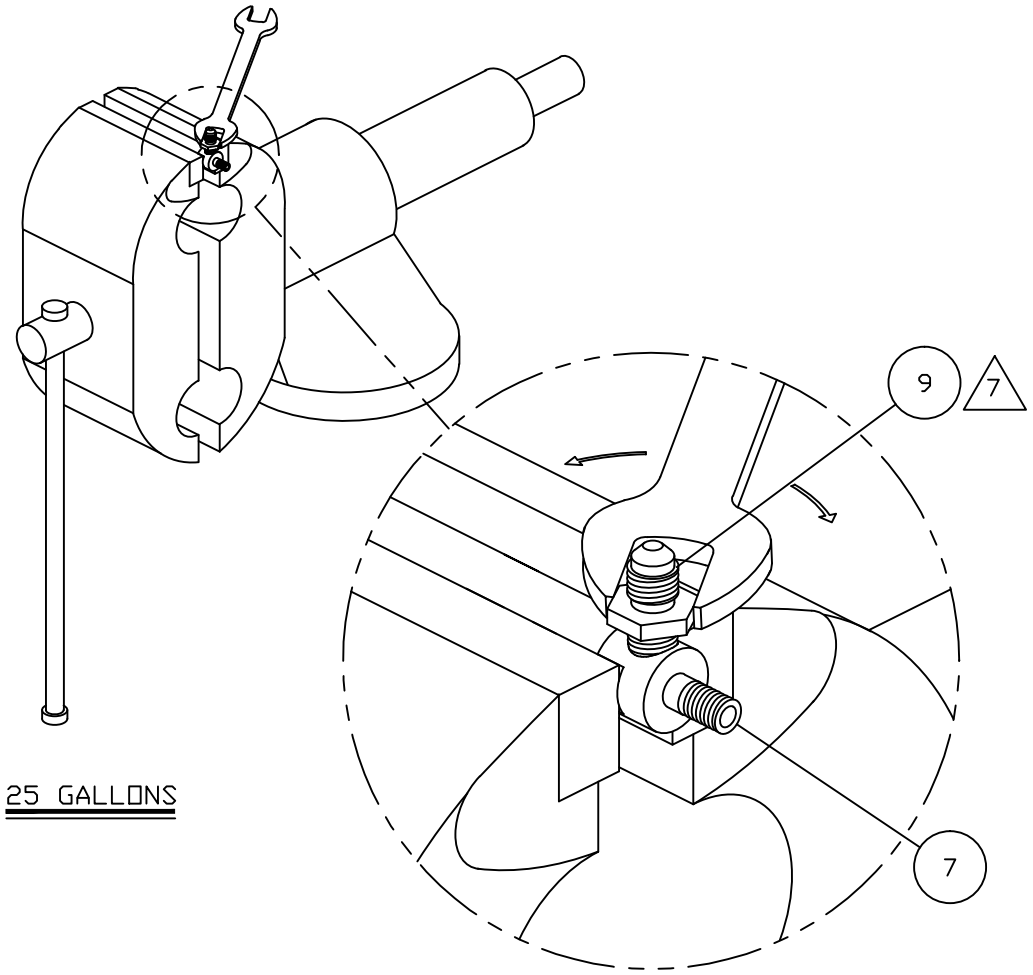
4 IF REQUIRED REMOVE THE GASKET AND REPLACE IT WITH A NEW GASKET.

3 REMOVE THE FUEL PORT AS SHOWN.

2 FOR EASY IDENTIFICATION OF HOLES UPON REINSTALLATION, MAKE A REFERENCE MARK WITH PERMANENT MARKER ON FUEL PORT AND SUPPORT.

NOTES:

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PORT MODIFICATION 25 GAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-8B REVISION A
	SCALE: NONE DATE 04/04/09 SH 2 OF 9



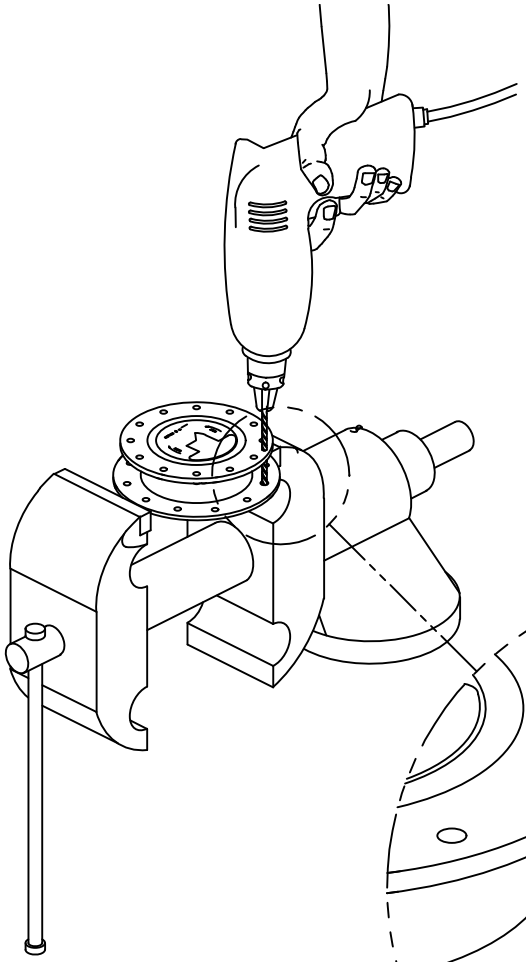
25 GALLONS

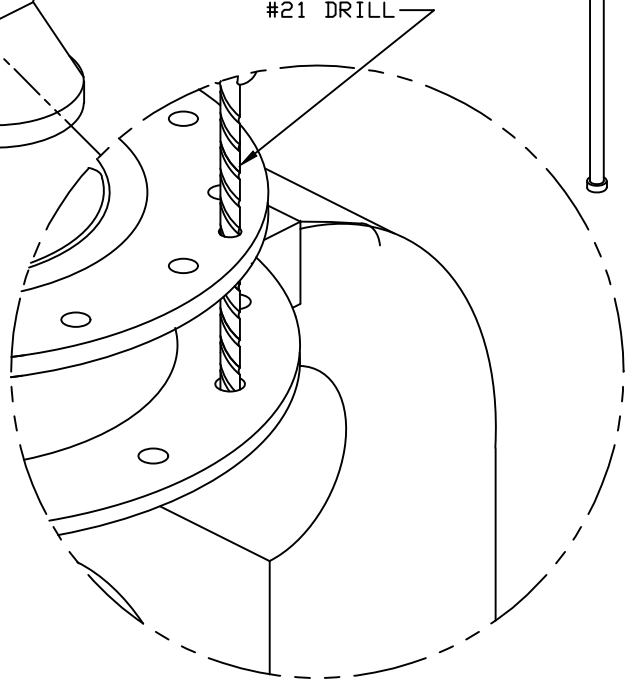
△7 PRIOR TO INSTALLATION INTO THE TANK, PLACE THE FUEL INLET TRANSFER, ITEM (7), INTO VISE.

3. WITH THE FUEL INLET TRANSFER FITTING IN PLACE AS SHOWN ON THE DRAWING, TAKE THE NIPPLE, ITEM (9), AND THREAD IT INTO THE TRANSFER FITTING. CHECK THE DEPTH OF ENGAGEMENT IS AT LEAST THREE FULL THREADS AND ENSURE THAT IT DOESN'T CLOSE THE HOLE FOR THE FUEL TRANSFER.

NOTES:

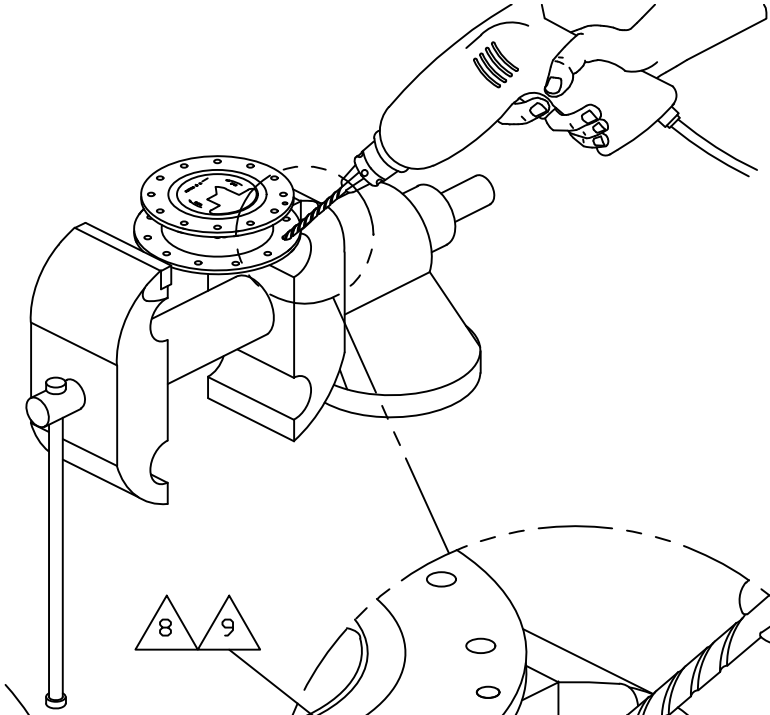
NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PORT MODIFICATION 25 GAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-8B | REVISION A
	SCALE: NONE | DATE 04/04/09 | SH 3 OF 9

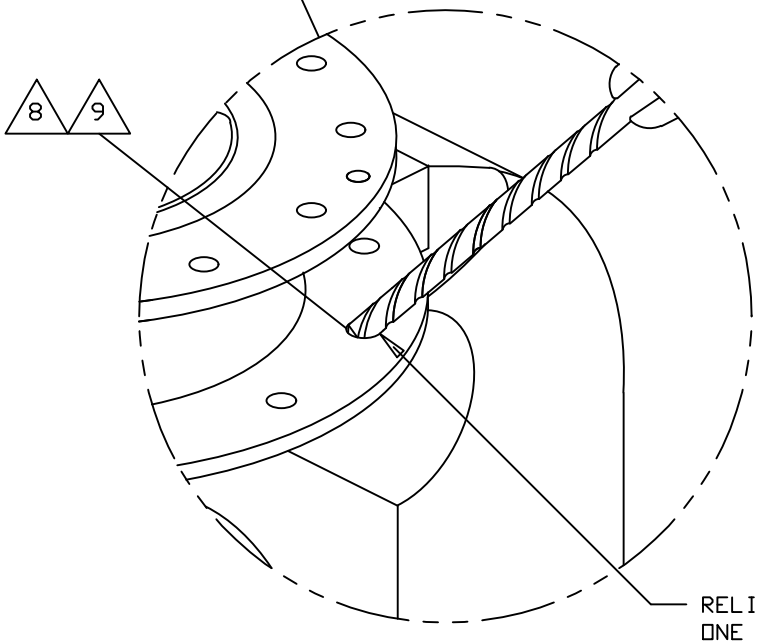




25 GALLONS

STEP 1





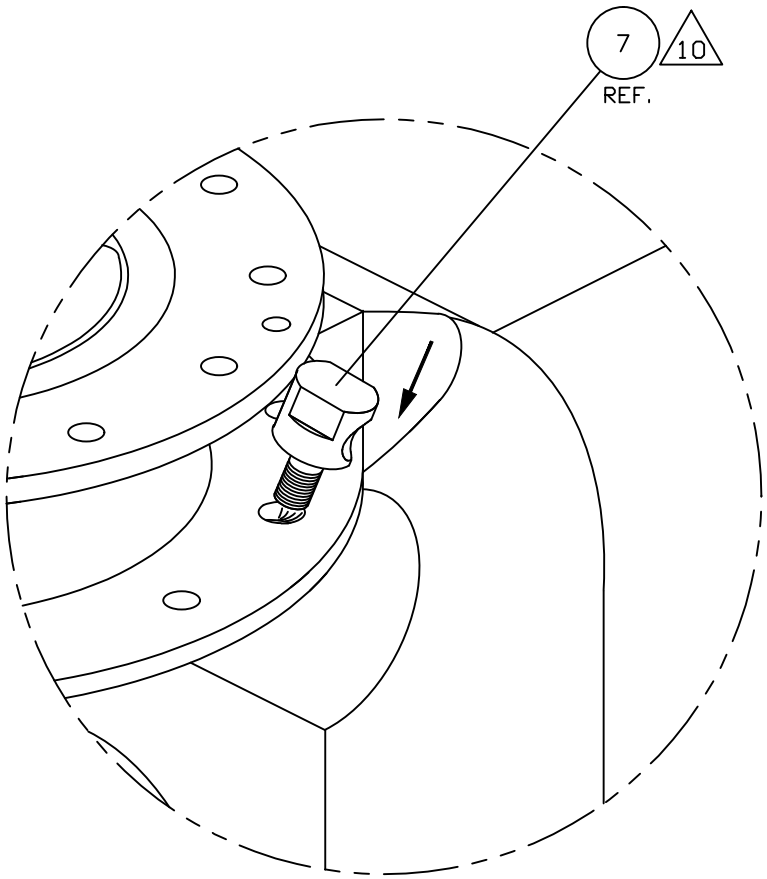
STEP 2

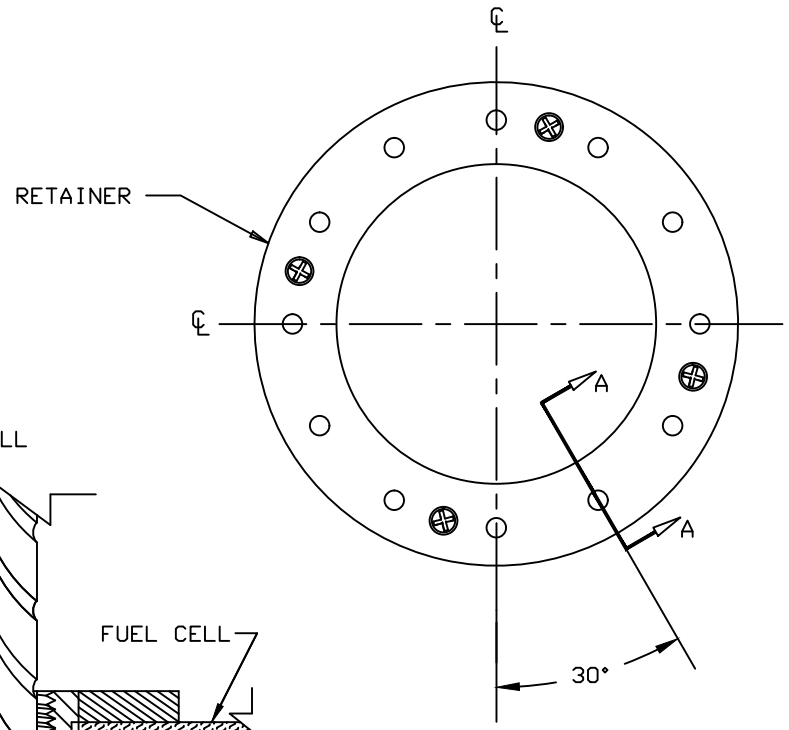
NOTES:

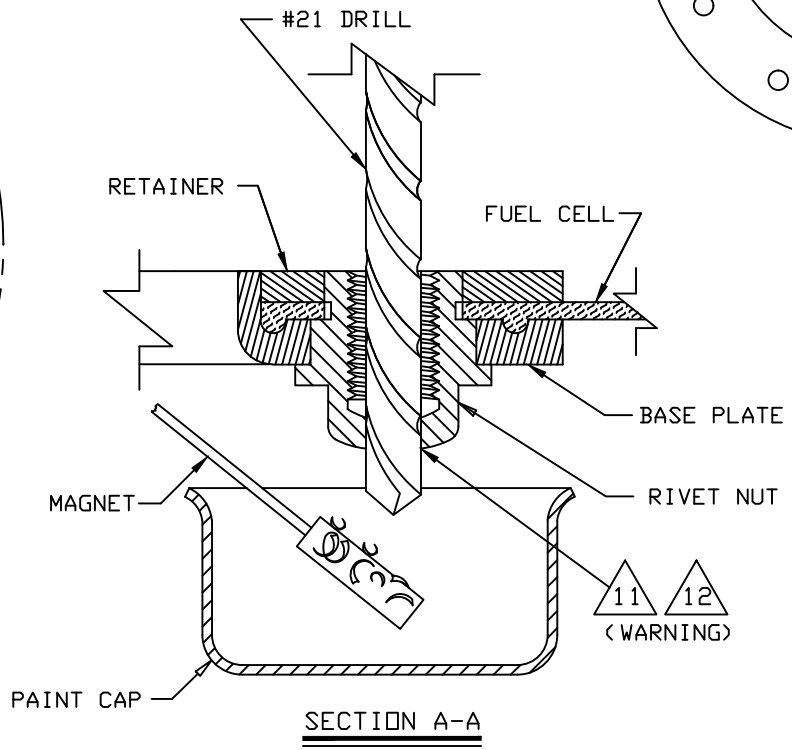
9 THE LOCATION IN THE DRAWING OF THE FUEL INLET TRANSFER FITTING IS A SUGGESTION. THE LOCATION CAN BE ADJUSTED AS REQUIRED.

8 CHAMFER THE EDGE OF THE HOLE, AS SHOWN, IN THE LOCATION OF THE FUEL INLET TRANSFER.

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PORT MODIFICATION 25 GAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
DWG. No. KB-1401-1-8B	REVISION A
SCALE: NONE	DATE 04/04/09 SH 4 OF 9







SECTION A-A

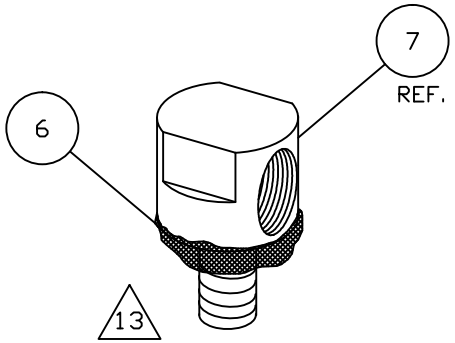
12 FUEL NEEDS TO BE EMPTIED. DRILL USING AN AIR MOTOR DRILL.

11 USE A MAGNET AND A SPRAY PAINT CAP TO CATCH BURRS.

10 ENSURE THAT THE FUEL INLET TRANSFER CAN BE PROPERLY INSERTED.

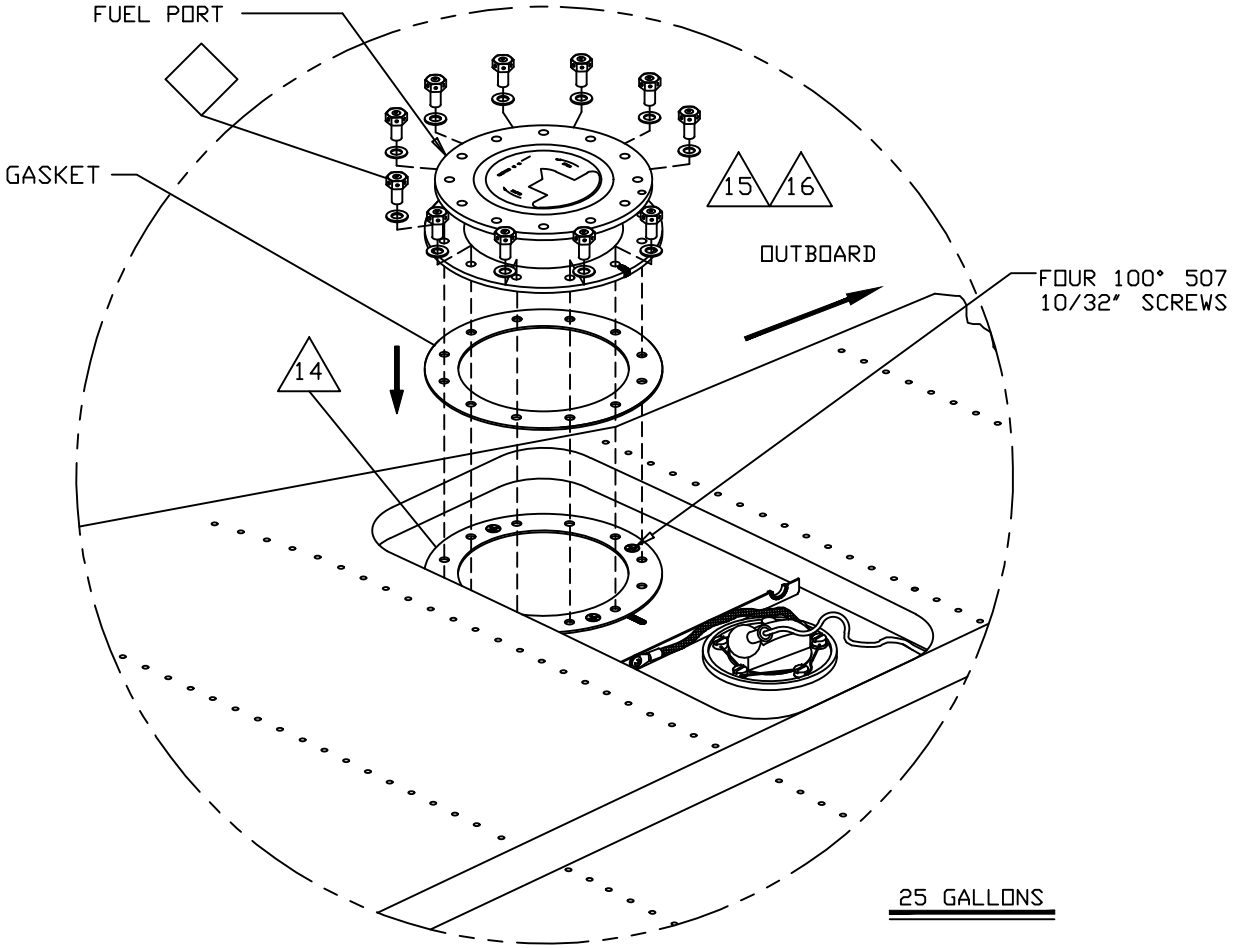
NOTES:

NEXT ASSY:	FUEL PORT MODIFICATION 25 GAL
DRAWN BY: K. R. S.	
ENGINEER: D. BRAUN	
CHECKED BY: D. B.	
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
DWG. No. KB-1401-1-8B	REVISION A
SCALE: NONE	DATE 04/04/09 SH 5 OF 9



ON INSTALLATION USE A FULL SIZE CADMIUM PLATED STEEL 1/4" WASHER, ONLY AS REQUIRED.

25 GALLONS



◇ ORIGINAL HARDWARE

16 ADD PROSEAL, ITEM (6), ON THE ADAPTER FUEL PORT. INSTALL THE GASKET AND APPLY PROSEAL, ITEM (6).

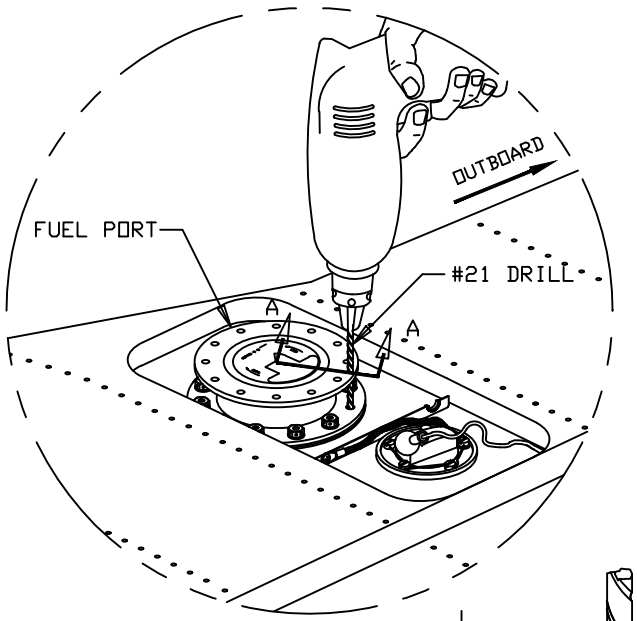
15 REINSTALL FUEL PORT USING BOLTS AND WASHERS (ORIGINAL HARDWARE) EXCEPT IN THE LOCATION FOR THE FUEL INLET TRANSFER INSTALLATION.

14 IF FUEL FILLER PORT IS REMOVED, MAKE SURE THE FUEL PORT MARKS MATCH THE COVER SKIN MARKS YOU MADE IN STEP 2.

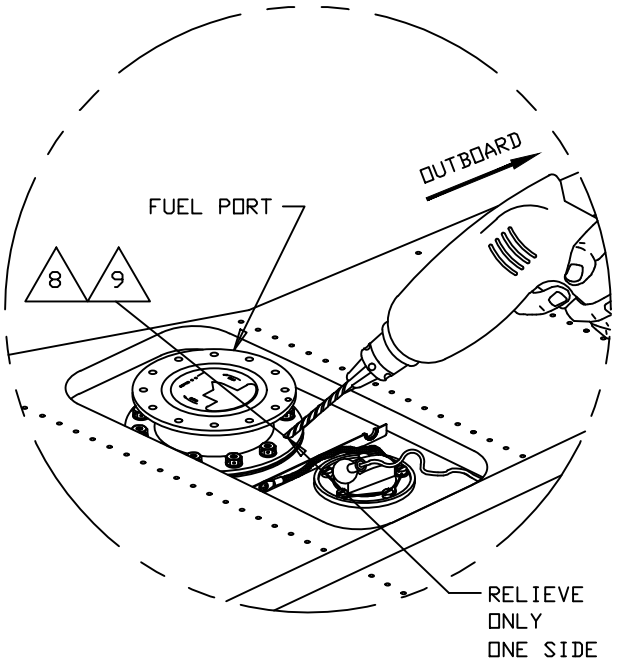
13 APPLY PROSEAL, ITEM (6), ON THE FUEL INLET TRANSFER ITEM (7). ON INSTALLATION USE A FULL SIZE CADMIUM PLATED STEEL 1/4" WASHER, ONLY AS REQUIRED.

NOTES:

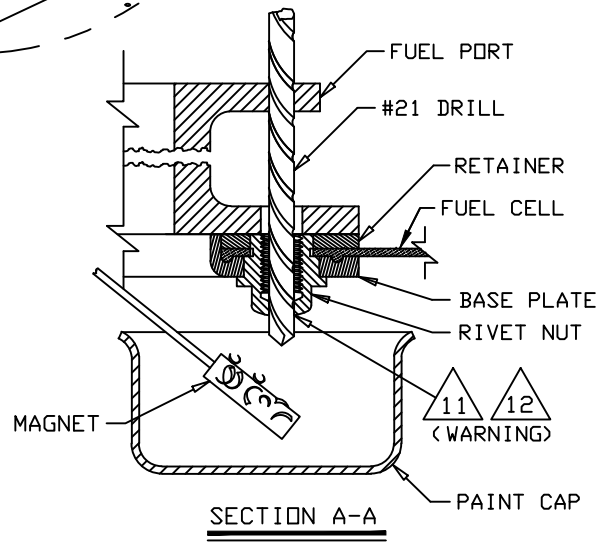
NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PORT MODIFICATION 25 GAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
DWG. No. KB-1401-1-8B	REVISION A
SCALE: NONE	DATE 04/04/09 SH 6 OF 9



OPTIONAL STEPS



25 GALLONS



SECTION A-A

NOTES:

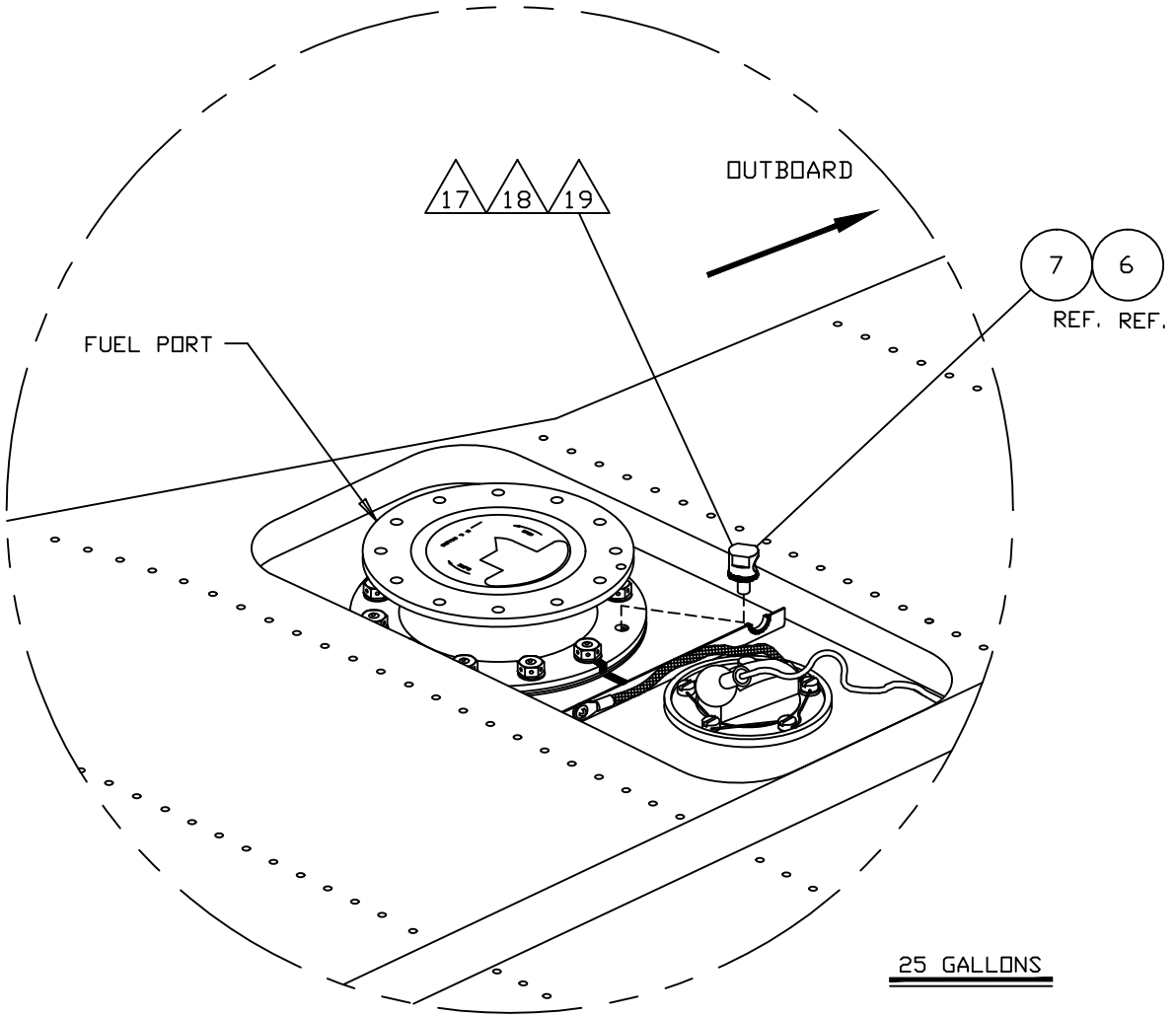
12 FUEL NEEDS TO BE EMPTIED. DRILL USING AN AIR MOTOR DRILL.

11 USE A MAGNET AND A SPRAY PAINT CAP TO CATCH BURRS.

9 THE LOCATION IN THE DRAWING OF THE FUEL INLET TRANSFER FITTING IS A SUGGESTION. THE LOCATION CAN BE ADJUSTED AS REQUIRED.

8 CHAMFER THE EDGE OF THE HOLE, AS SHOWN, IN THE LOCATION OF THE FUEL INLET TRANSFER.

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PORT MODIFICATION 25 GAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
	DWG. No. KB-1401-1-8B REVISION A
	SCALE: NONE DATE 04/04/09 SH 7 OF 9



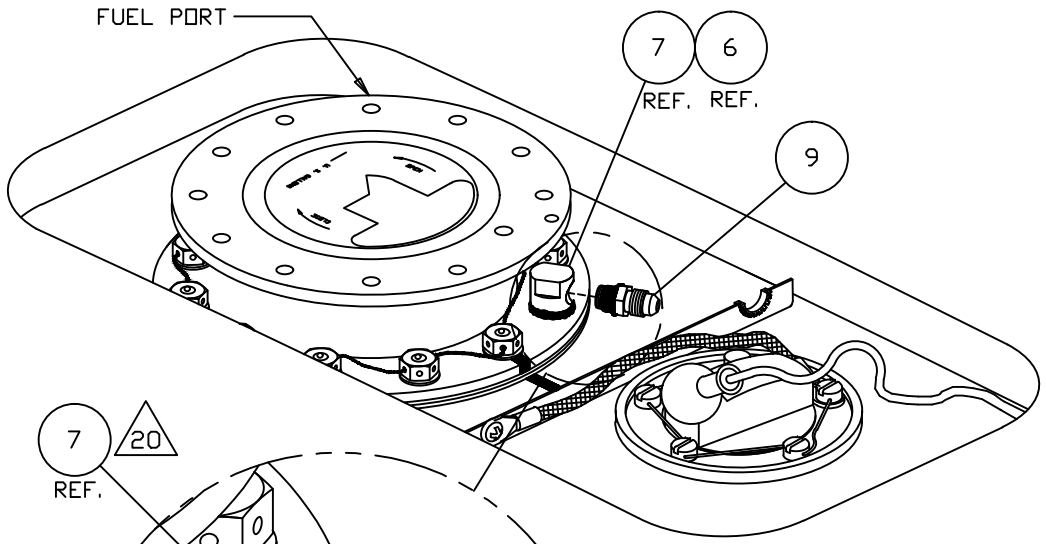
NOTES:

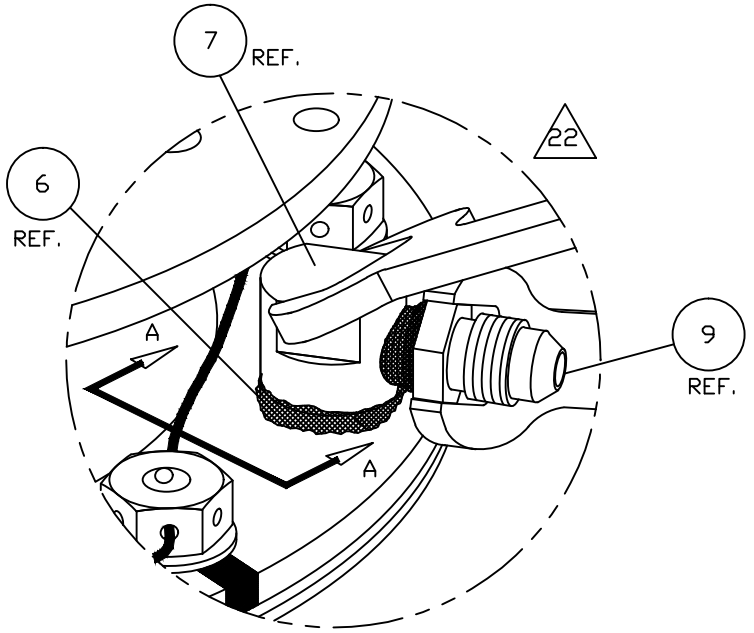
19 THIS DRAWING SHOWS A POSSIBLE DIRECTION OF THE FITTING. THE DIRECTION MAY BE CHANGED IF NEEDED.

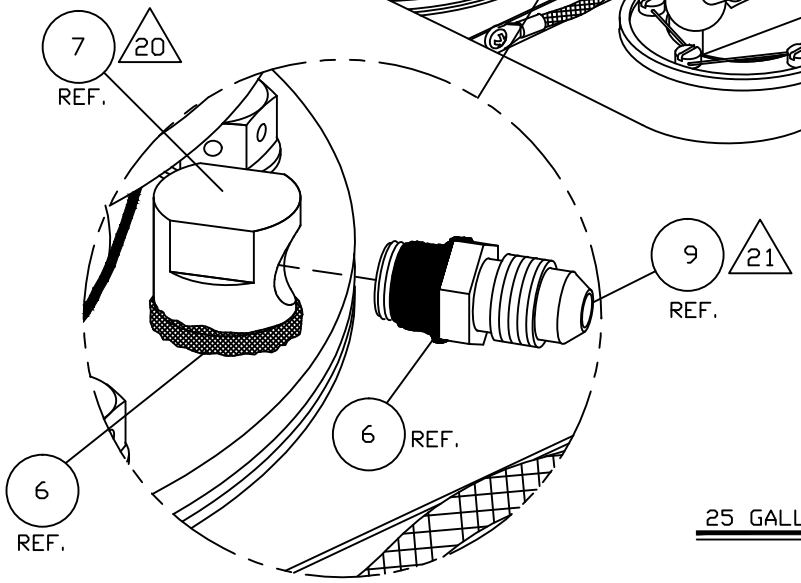
18 APPLY PROSEAL, ITEM (6), ON THE FUEL INLET TRANSFER ITEM (7).

17 CHECK THE DIRECTION OF THE FUEL INLET TRANSFER FITTING, ITEM (7), BEFORE INSTALLING IT IN THE FUEL PORT.

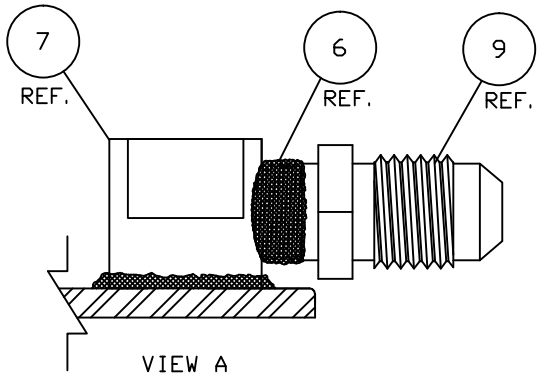
NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PORT MODIFICATION 25 GAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-8B REVISION A
	SCALE: NONE DATE 04/04/09 SH 8 OF 9







25 GALLONS



VIEW A

△22 HOLD THE FUEL INLET TRANSFER FITTING, ITEM (7), AND SCREW ON THE NIPPLE, ITEM (9), AND ADJUST IT.

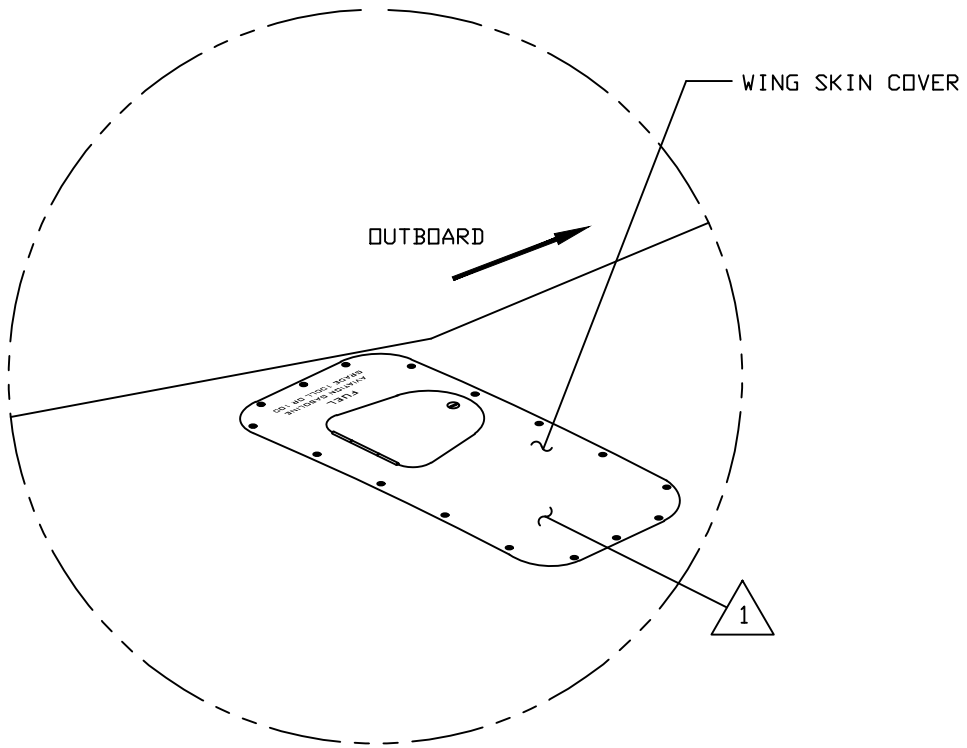
△21 APPLY PROSEAL, ITEM (6), ON THE NIPPLE, ITEM (9).

△20 TIGHTEN THE FUEL TRANSFER FITTING ITEM (7) UNTIL IT TOPS OUT AND THEN TURN BACK UNTIL IT IS IN THE POSITION INDICATED.

NOTES:

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PORT MODIFICATION 25 GAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
DWG. No. KB-1401-1-8B	REVISION A
SCALE: NONE	DATE 04/04/09 SH 9 OF 9

REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	CLARIFY TITLE; REORDER VIEWS; REVISE NOTES; ADD VIEWS; ADD SHT 6	D. B.	01/01/13



20 OR 25 GALLON

1. TAKE OFF ALL EXISTING SCREWS ON THE FUEL SKIN COVER AND REMOVE THE COVER. SAVE THE ORIGINAL HARDWARE FOR REINSTALLING THE COVER.

NOTES:

1. THE FUEL OCTANE GRADE CAN BE 100, 96, 91, 97, 80 AS REQUIRED. SEE ENGINE TYPE UNDER STC OR OTHER CONFIGURATION AND ANY OTHER APPLICABLE FUEL TYPE REQUIREMENTS UNDER ANOTHER STC.

ITEM	QTY	PART No.	DESCRIPTION
14	A. R.	MS21266-1N	GROMMET PLASTIC ENDING
9	1	AN916-4D	ADAPTER
7	1	B1408	FUEL INLET TRANSFER FITTING
6	A. R.	CS3204 B2	PROSEAL

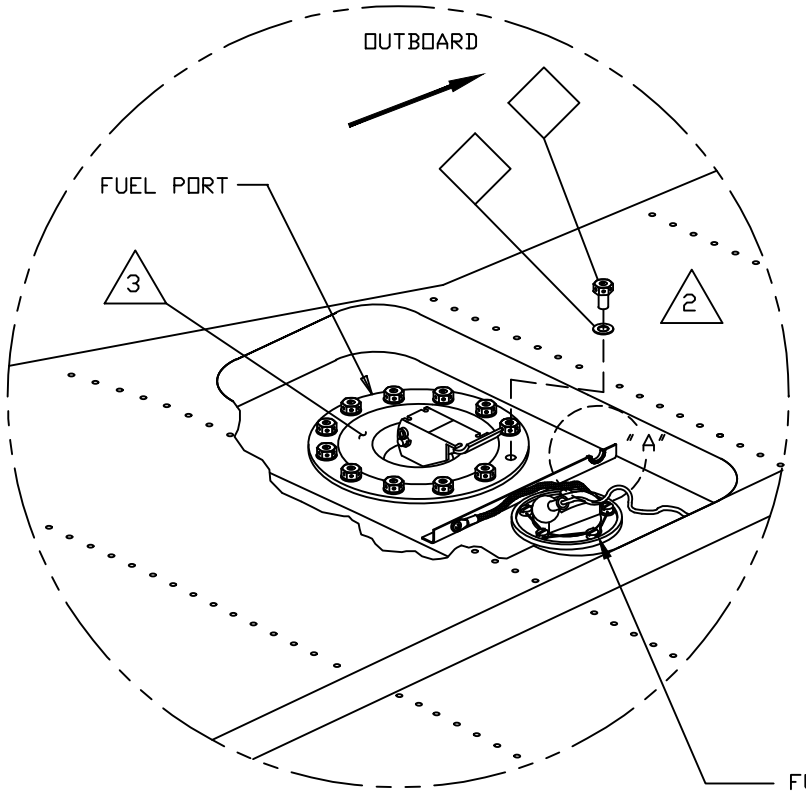
NEXT ASSY:
DRAWN BY: K. R. S.
ENGINEER: D. BRAUN
CHECKED BY: D. B.

FUEL PORT MODIFICATION
20 OR EARLY 25 GAL

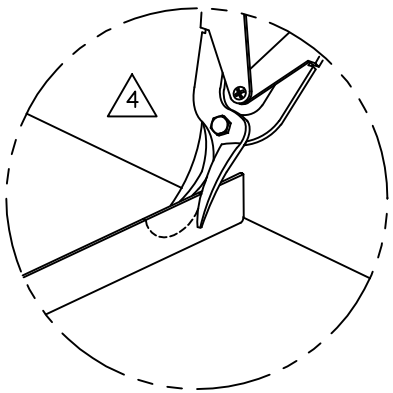
TOLERANCES
.X__.10 .XXX__.01
.XX_.03 .XXXX_.001
ANGLES ±5%
UNLESS STATED

D'SHANNON PRODUCTS, LTD

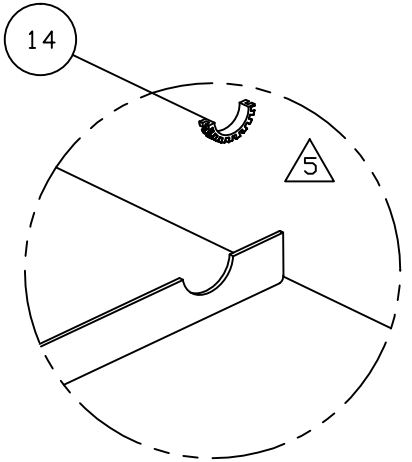
DWG. No. KB-1401-1-8C | REVISION A
SCALE: NONE | DATE 04/04/09 | SH 1 OF 6



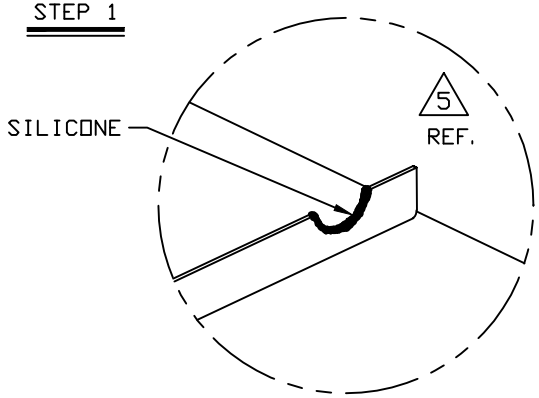
20 OR 25 GALLON



STEP 1



STEP 2



OPTIONAL STEP 2

DETAIL "A"

◇ ORIGINAL HARDWARE

△5 USING CATERPILLAR GROMMET OR SILICONE SEALANT

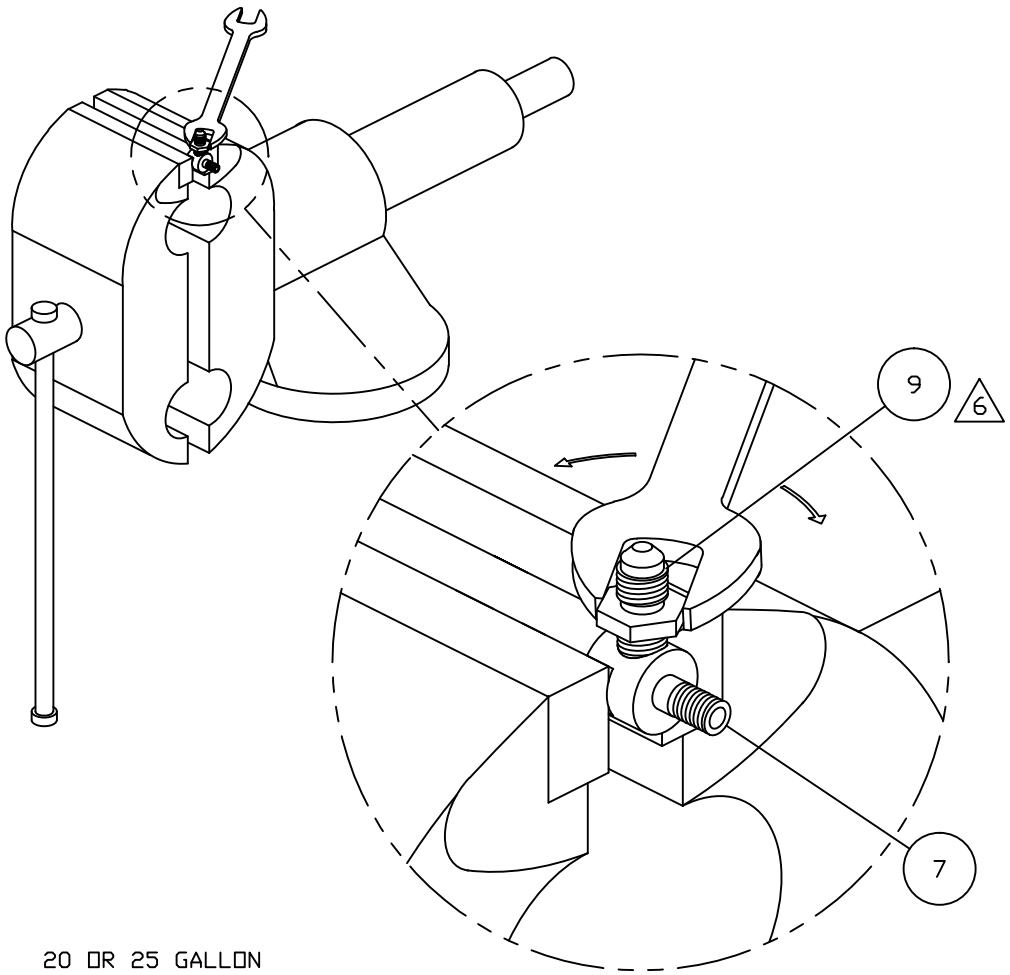
△4 CUT WITH AVIATION SNIPS.

△3 REMOVE THE FUEL CAP.

△2 REMOVE THE SAFETY WIRE AND THE BOLT AT LOCATION SHOWN.

NOTES:

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PORT MODIFICATION 20 OR EARLY 25 GAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-8C REVISION A
	SCALE: NONE DATE 04/04/09 SH 2 OF 6



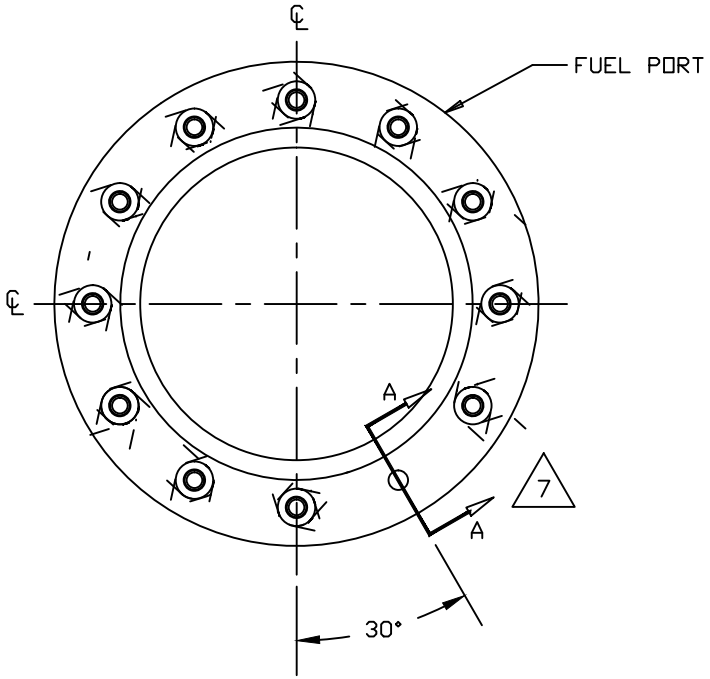
20 OR 25 GALLON

NOTES:

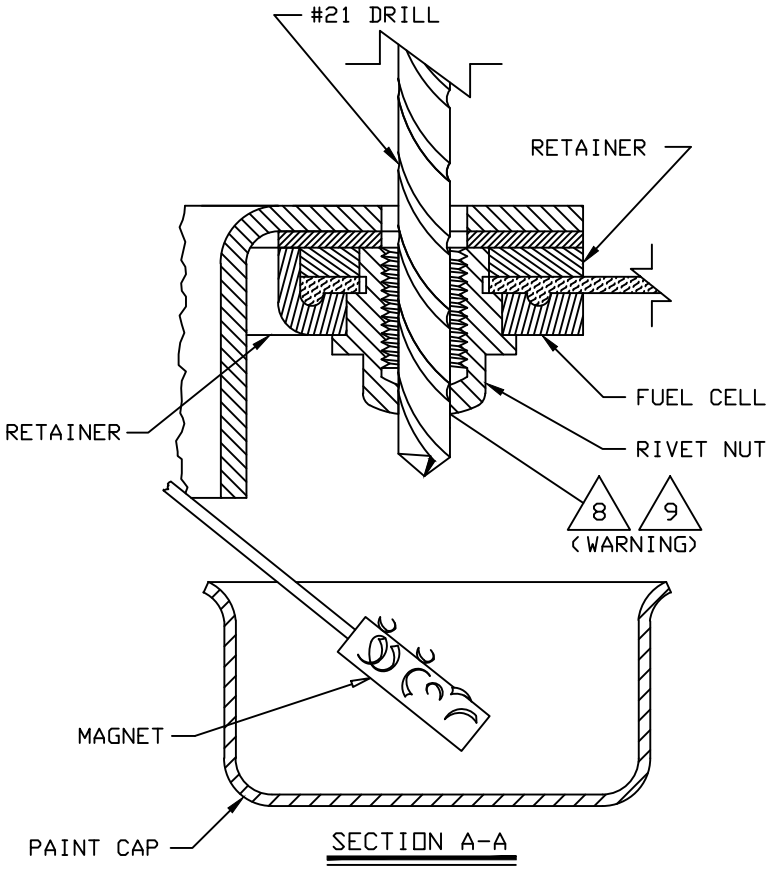
△6 PRIOR TO INSTALLATION INTO THE TANK PLACE THE FUEL INLET TRANSFER, ITEM (7), INTO VISE.

2. WITH THE FUEL INLET TRANSFER FITTING IN PLACE AS SHOWN ON THE DRAWING, TAKE THE NIPPLE, ITEM (9), AND THREAD IT INTO THE TRANSFER FITTING. CHECK THE DEPTH OF ENGAGEMENT IS AT LEAST THREE FULL THREADS AND ENSURE THAT IT DOESN'T CLOSE THE HOLE FOR THE FUEL TRANSFER.

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PORT MODIFICATION 20 OR EARLY 25 GAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-8C REVISION A
	SCALE: NONE DATE 04/04/09 SH 3 OF 6



20 OR 25 GALLON



SECTION A-A

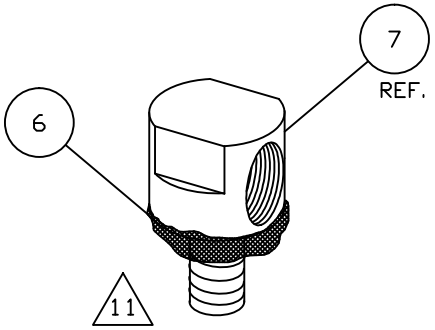
9 FUEL NEEDS TO BE EMPTIED. DRILL USING AN AIR MOTOR DRILL.

8 USE A MAGNET AND A SPRAY PAINT CAP TO CATCH BURRS.

7 THE LOCATION IN THE DRAWING OF THE FUEL INLET TRANSFER FITTING IS A SUGGESTION. THE LOCATION CAN BE ADJUSTED AS REQUIRED.

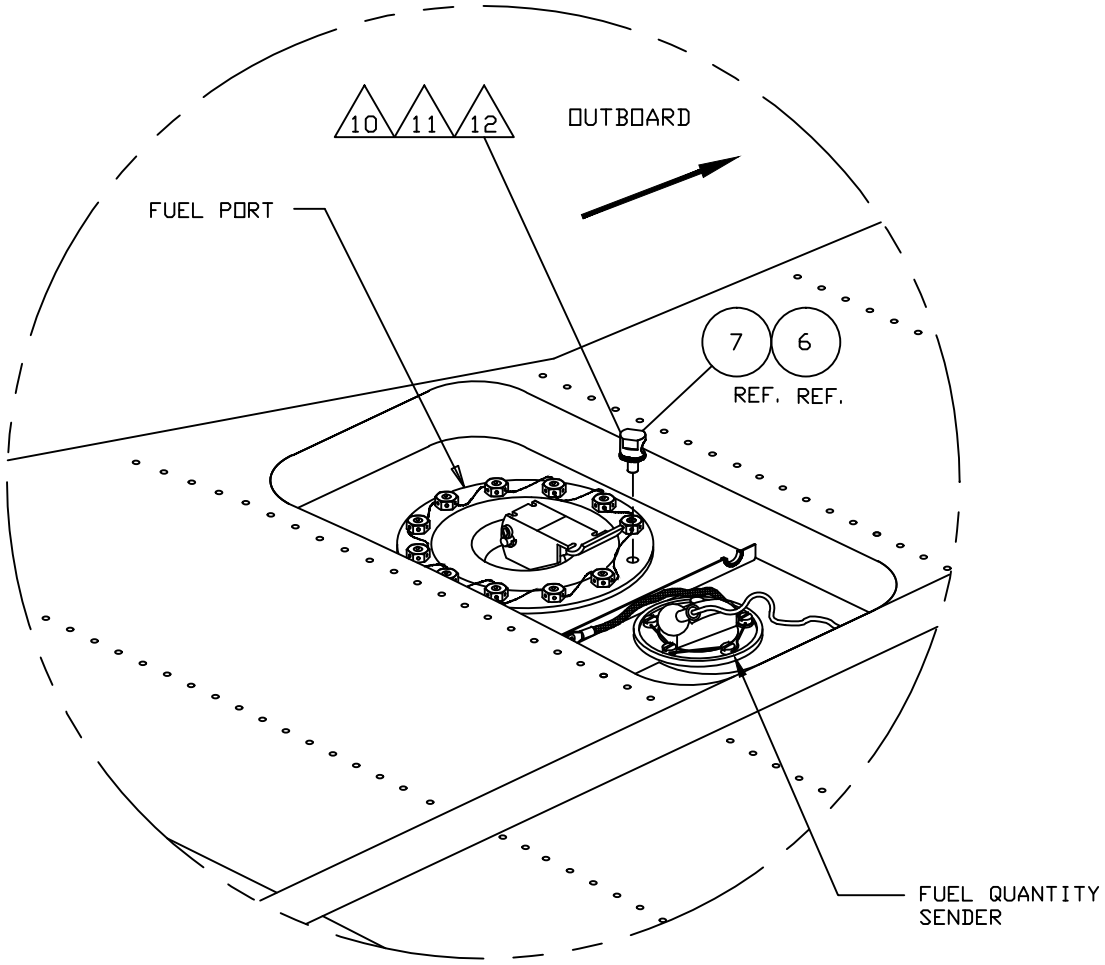
NOTES:

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PORT MODIFICATION 20 OR EARLY 25 GAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-8C | REVISION A
	SCALE: NONE | DATE 04/04/09 | SH 4 OF 6



ON INSTALLATION USE A FULL SIZE CADMIUM PLATED STEEL 1/4" WASHER, ONLY AS REQUIRED.

20 OR 25 GALLON



20 OR 25 GALLON

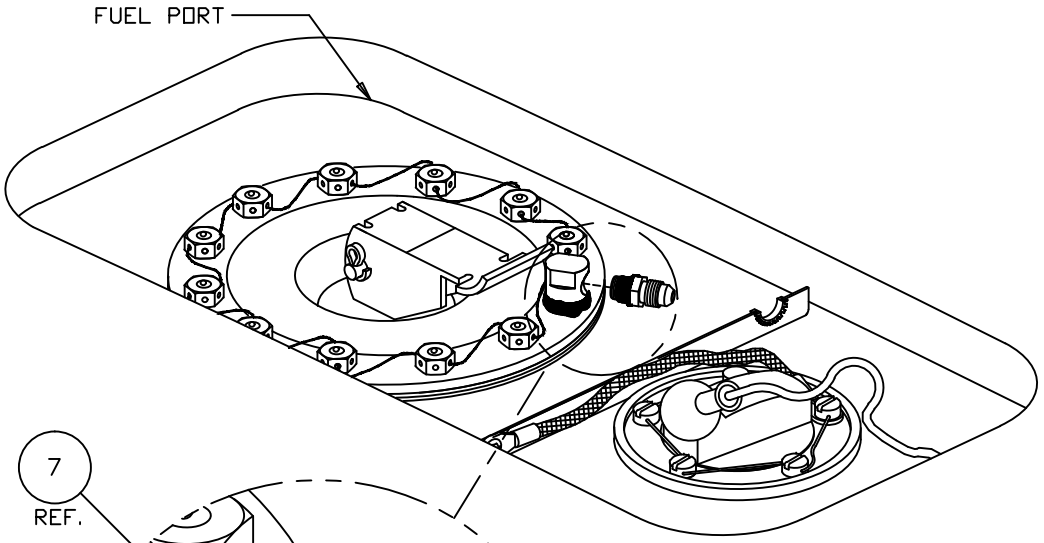
12 THE DRAWING INDICATES A POSSIBLE DIRECTION OF THE FITTING, CHANGE AS REQUIRED..

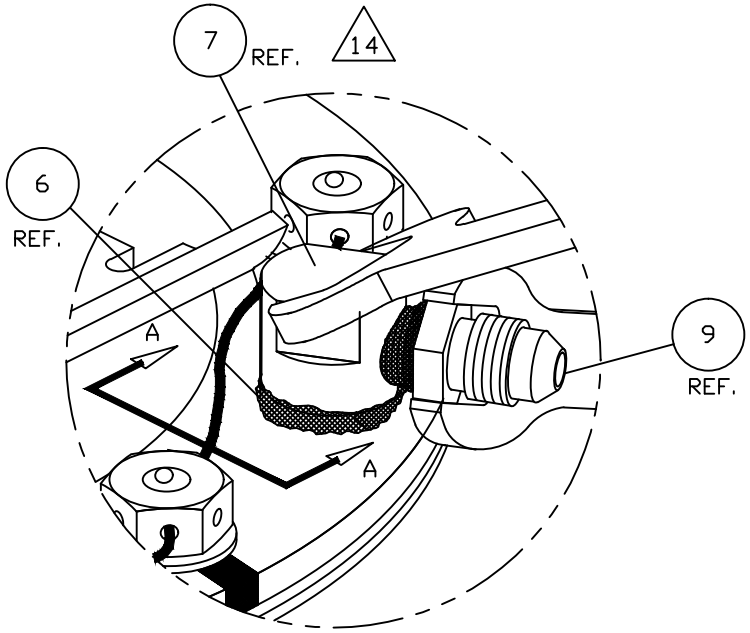
11 APPLY PROSEAL, ITEM (6), ON THE FUEL INLET TRANSFER ITEM (7). ON INSTALLATION USE A FULL SIZE CADMIUM PLATED STEEL 1/4" WASHER, ONLY AS REQUIRED.

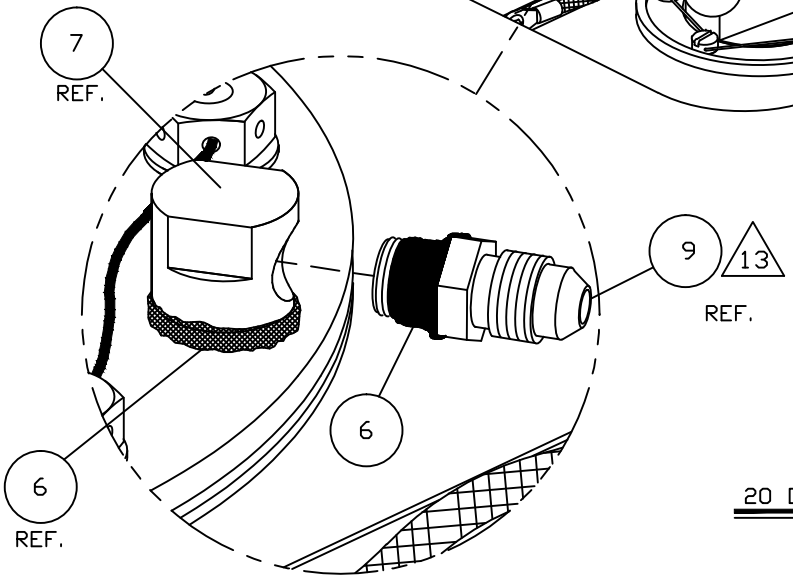
10 CHECK THE THREAD OF THE FUEL INLET TRANSFER FITTING ITEM (7) BEFORE INSTALLING IT IN THE FUEL PORT.

NOTES:

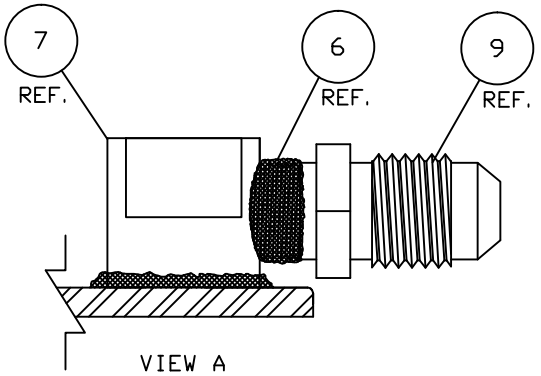
NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	FUEL PORT MODIFICATION 20 OR EARLY 25 GAL
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
	DWG. No. KB-1401-1-8C REVISION A
	SCALE: NONE DATE 04/04/09 SH 5 OF 6







20 OR 25 GALLON



VIEW A

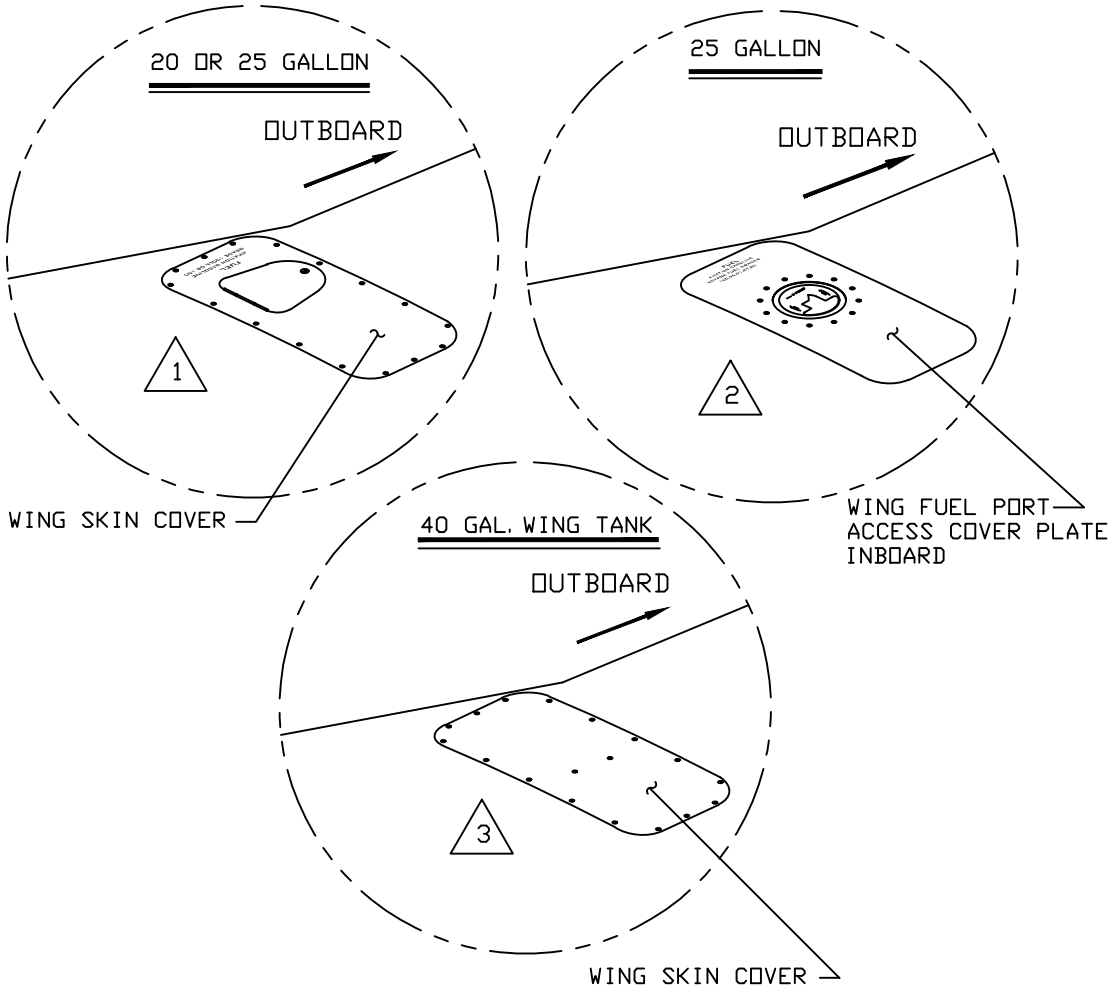
NOTES:

14 HOLD THE FUEL INLET TRANSFER FITTING, ITEM (7), AND SCREW ON THE NIPPLE, ITEM (9), AND ADJUST IT.

13 APPLY PROSEAL, ITEM (6), ON THE NIPPLE, ITEM (9).

3. DO NOT FILL FUEL CELLS FOR 48 HOURS FROM THE TIME THE PROSEAL HAS BEEN INSTALLED.

NEXT ASSY:	FUEL PORT MODIFICATION
DRAWN BY: D. A. B.	20 OR EARLY 25 GAL
ENGINEER: D. BRAUN	
CHECKED BY: D. B.	
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
	DWG. No. KB-1401-1-8C REVISION A
	SCALE: NONE DATE 01/01/13 SH 6 OF 6



REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	D. B.	01/01/13

ITEM	QTY	PART No.	DESCRIPTION
33	1	AN960PD-6	FLAT WASHER
22	1	AN815-4D	UNION FLARED TUBE
19	1	AN832-4D	UNION FLARED TUBE
18	A. R.	TYGON	TUBING 1/4 OD X 1/32 WALL
17	1	350-4-0140	HOSE ASSEMBLY
16	1	AN526C-632R10	SCREW
15	1	NAS679-A06	LOCKNUT
14	A. R.	MS2166-1N	GROMMET PLASTIC ENDING
13	1	MS21919-DG4	ADEL CLAMP
12	2	AN818-4D	NUT-COUPLING
11	6/8	AN819-4D	SLEEVE-COUPLING
10	A. R.	B1407	TUBING 1/4 O. D.
5	1/0	AN924-4D	NUT FLARED TUBE
4	2/0	AN960PD716	FLAT WASHER

NOTES:

3. IF YOU USED KB-1401-1-8A TO INSTALL YOUR FUEL PORT MODIFICATIONS (THE FUEL TRANSFER ELBOW IS INSTALLED IN THE SOLID PLATE UNDER THE COVER):
GO TO SHT 2 OF THIS DRAWING.

2. IF YOU USED KB-1401-1-8B TO INSTALL YOUR FUEL PORT MODIFICATIONS (THE FUEL TRANSFER ELBOW IS INSTALLED IN THE BASE OF THE FLIP TYPE FUEL CAP RECEPTACLE UNDER THE COVER):
GO TO SHT 4 OF THIS DRAWING.

1. IF YOU USED KB-1401-1-8C TO INSTALL YOUR FUEL PORT MODIFICATIONS (THE FUEL TRANSFER ELBOW IS INSTALLED IN THE BASE OF THE STOPPER TYPE FUEL CAP RECEPTACLE UNDER THE COVER):
GO TO SHT 4 OF THIS DRAWING.

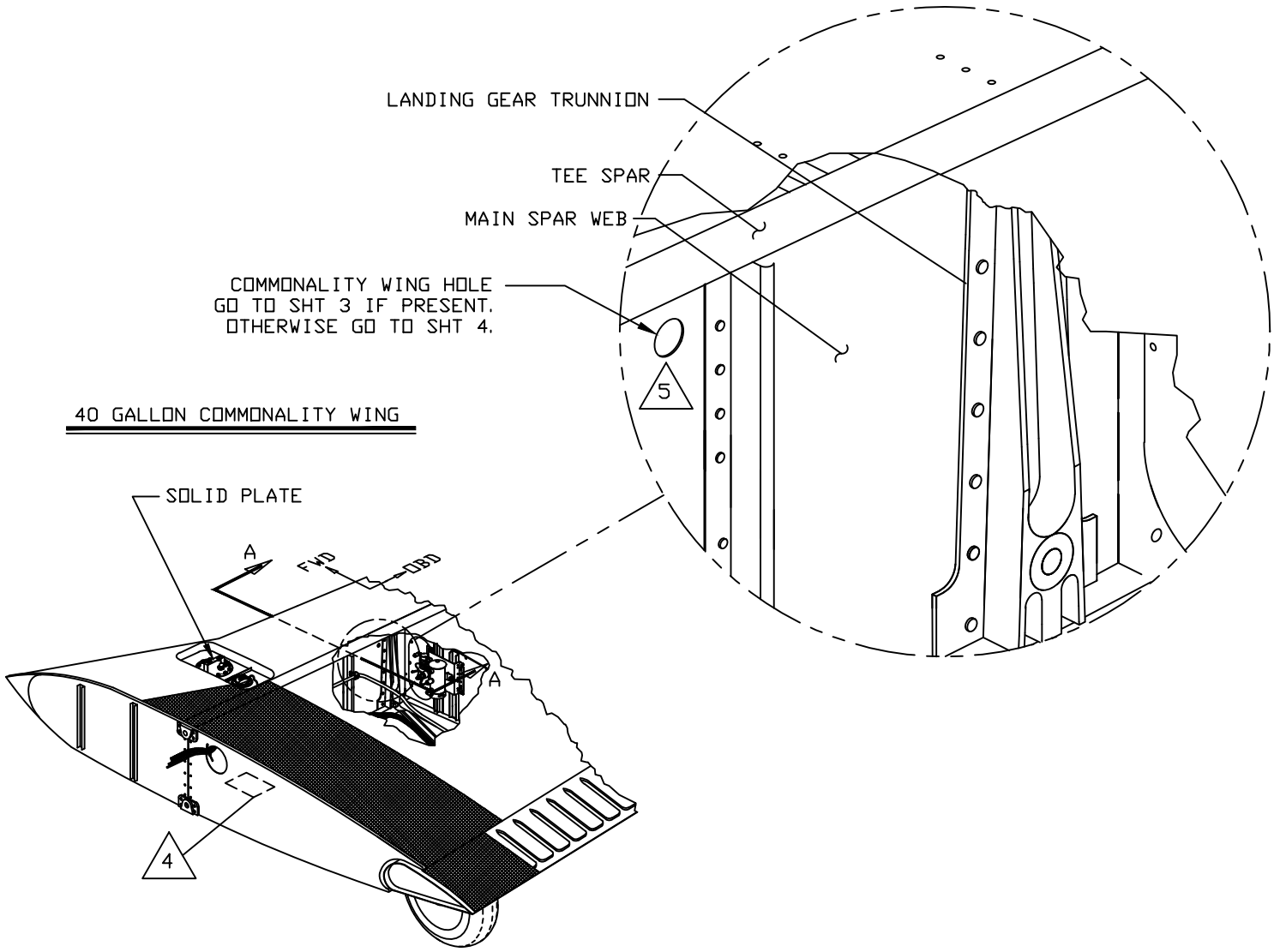
NEXT ASSY:
DRAWN BY: D. B.
ENGINEER: D. BRAUN
CHECKED BY: D. B.

TUBING INSTALLATION
ALL MODELS

TOLERANCES
.X__.10 .XXX__.01
.XX_.03 .XXXX_.001
ANGLES ±5%
UNLESS STATED

D'SHANNON PRODUCTS, LTD

DWG. No. KB-1401-1-9 | REVISION NC
SCALE: NONE | DATE 01/01/13 | SH 1 OF 15

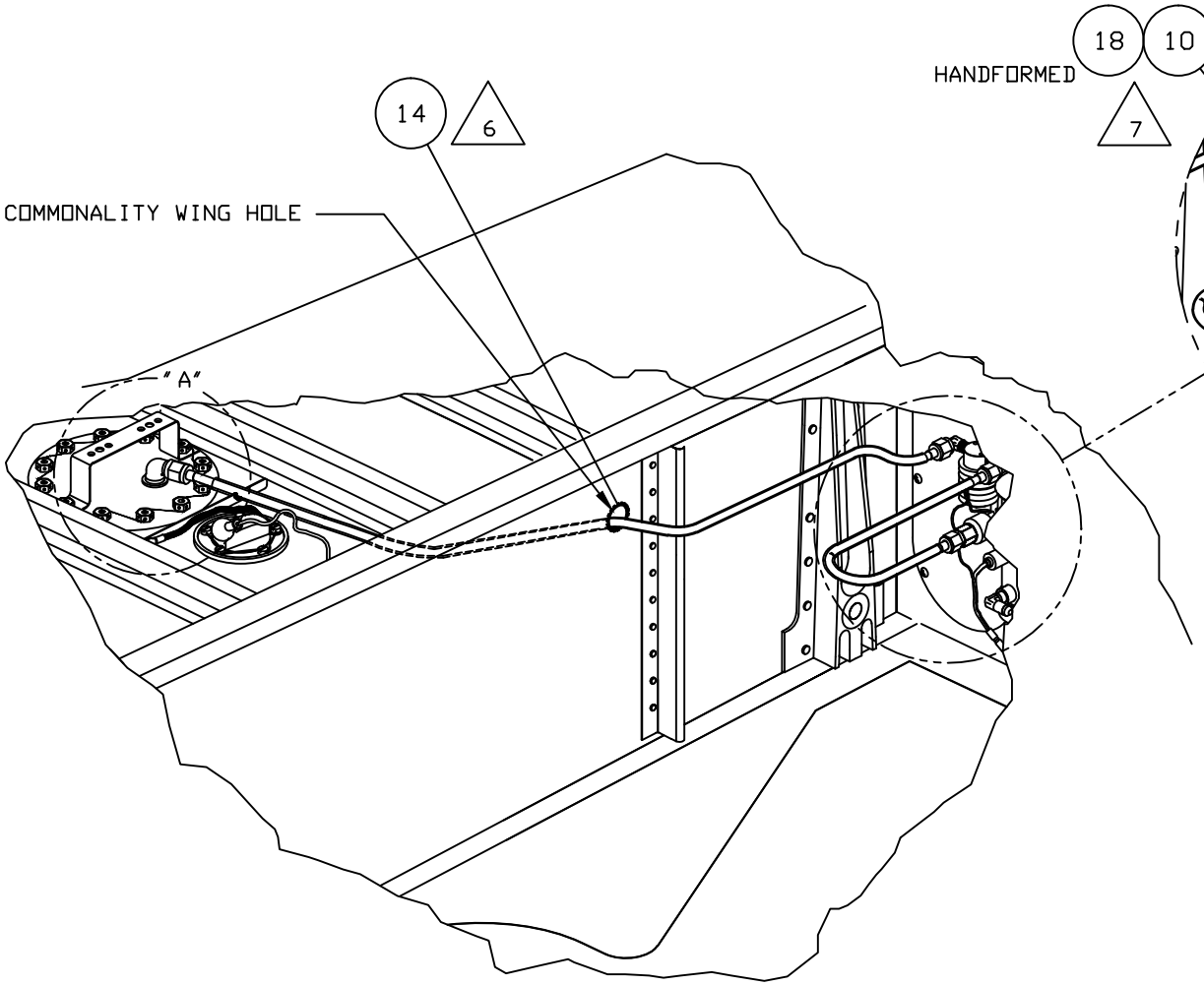


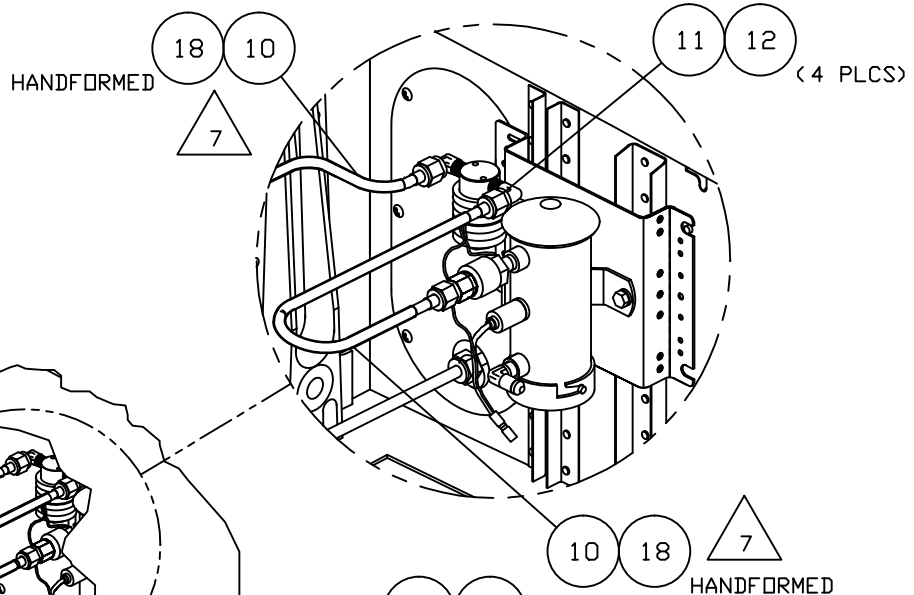
NOTES:

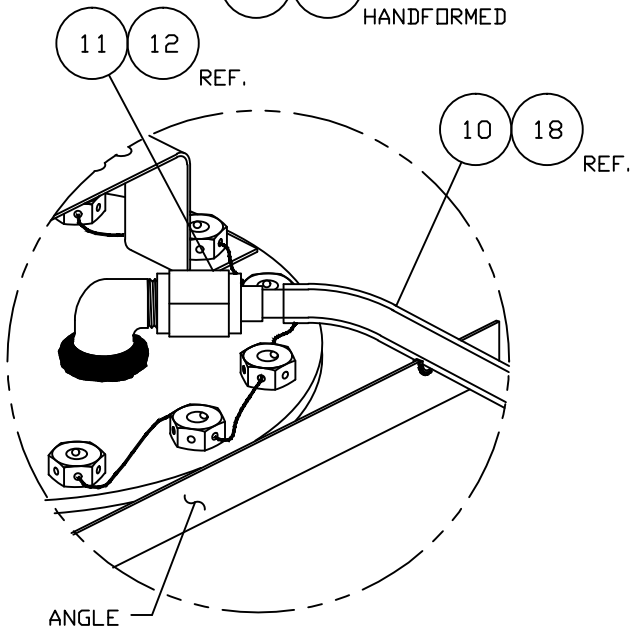
5 IF YOU HAVE A COMMONALITY WING DO NOT DRILL, USE THE EXISTING HOLE IN THE MAIN SPAR WEB VISIBLE IN THE WHEEL WELL AS SHOWN. GO TO SHT 3. IF YOU DO NOT SEE THIS HOLE, GO TO SHT 4.

4 REMOVE THE ACCESS DOOR TO RUBBER CELL AT THE BOTTOM OF BOTH WINGS.

NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TUBING INSTALLATION ALL MODELS
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-9 REVISION NC
	SCALE: NONE DATE 01/01/13 SH 2 OF 15







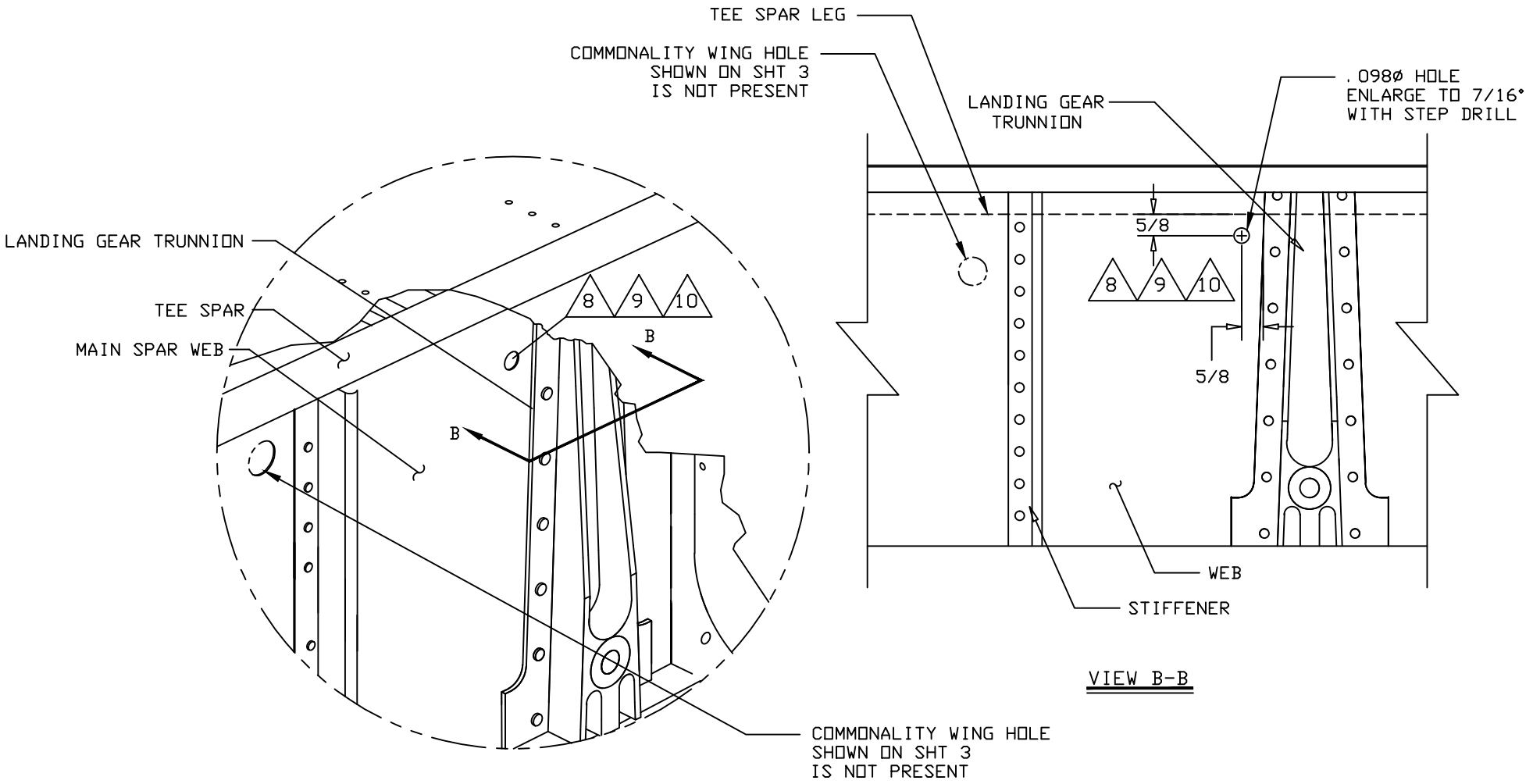
DETAIL "A"

△7 WORKING FROM THE TOP AT THE ACCESS PANEL, AND REACHING UP FROM UNDERNEATH THROUGH THE ACCESS DOOR OPENED IN STEP △4, ROUTE TUBE ITEM (10) AND TYGON SLEEVE ITEM (18) WITH B-NUT AND SLEEVE ITEMS (11) AND (12) FORMING AS SHOWN. (2 PLCS) WHEN FINISHED GO TO SHEET 13.

△6 INSTALL GROMMET ITEM (14) ON HOLE USING SEALANT OR ADHESIVE TO HOLD IT IN PLACE.

NOTES:

NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TUBING INSTALLATION ALL MODELS
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-9 | REVISION NC
	SCALE: NONE | DATE 01/01/13 | SH 3 OF 15



VIEW B-B

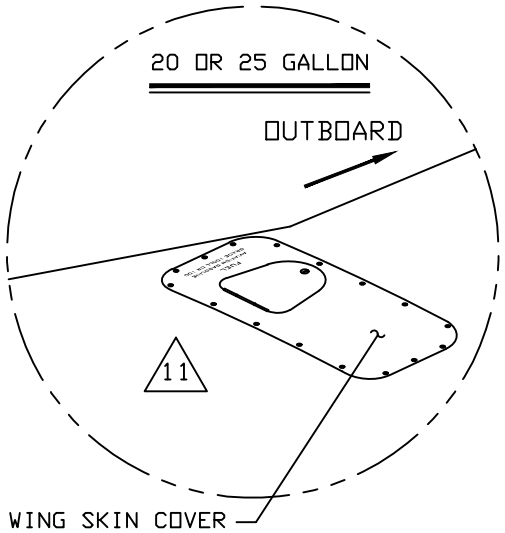
NOTES:

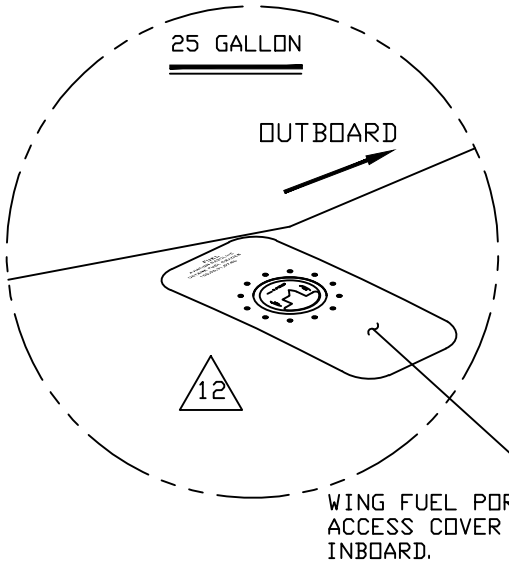
10 USE GLUE TAPE TO CATCH THE BURRS INSIDE OF THE FUEL TANK BOX.

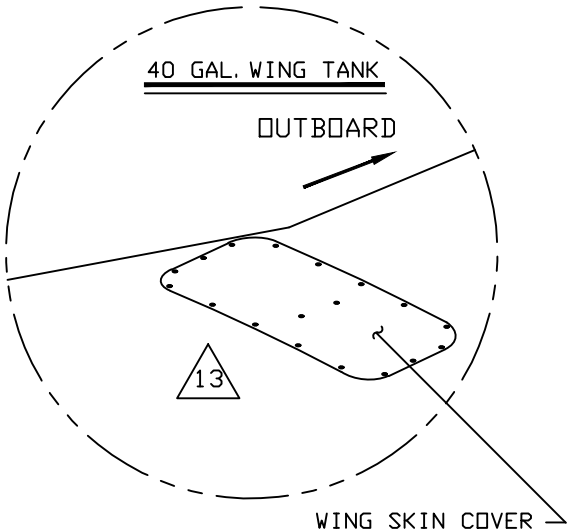
9 DO NOT DRILL HOLE IF YOU HAVE A COMMONALITY WING. USE EXISTING HOLE. SEE SHEET 3.

8 DRILL 0.098ø HOLE THROUGH MAIN SPAR WEB 5/8" DOWN FROM LEG OF SPAR 'T' AND 5/8" INBOARD OF TRUNNION SIDE AS SHOWN. USE A STEP DRILL TO ENLARGE TO 7/16ø HOLE. ASSURE PRIOR TO DRILLING THAT THE AREA BEHIND THE MAIN SPAR WEB IS UNOBSTRUCTED BY PUSHING ASIDE ANY FLEXIBLE FUEL CELL PRESENT.

NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TUBING INSTALLATION ALL MODELS
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
DWG. No. KB-1401-1-9	REVISION NC
SCALE: NONE	DATE 01/01/13 | SH 4 OF 15







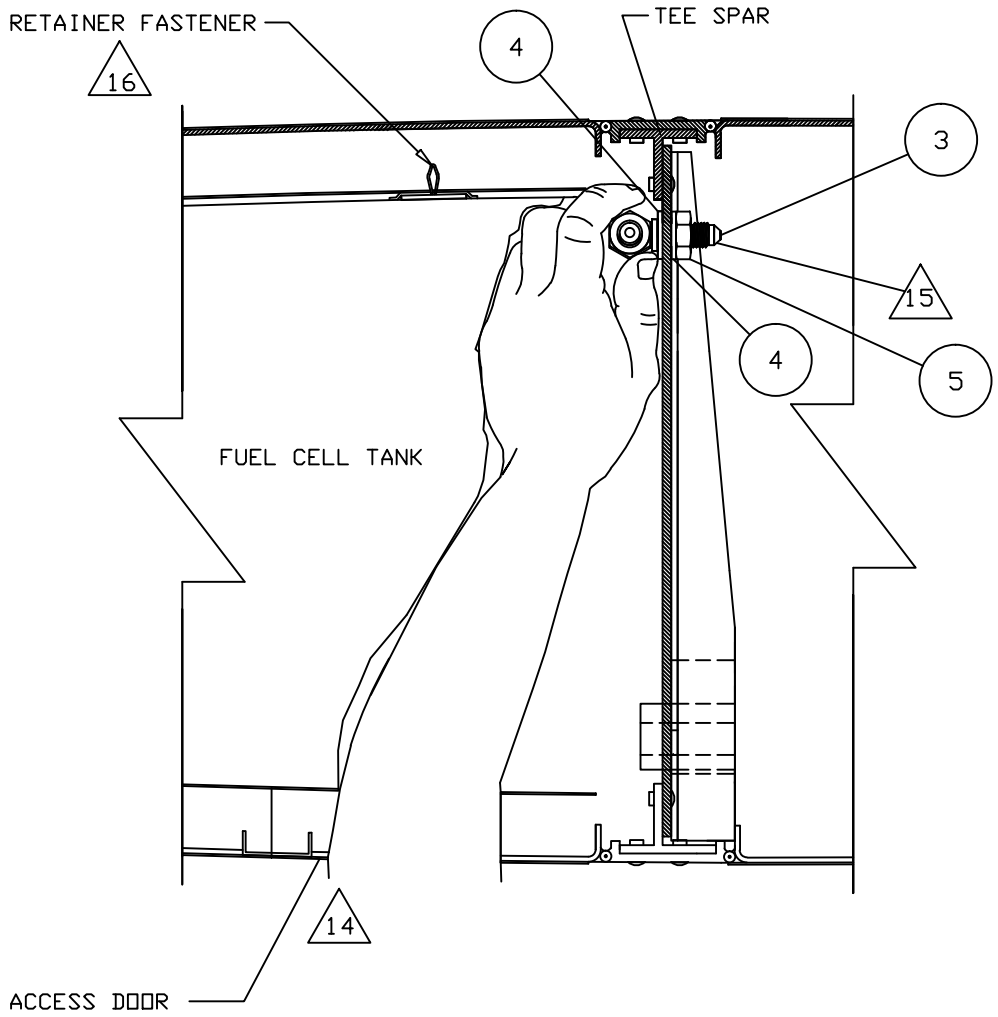
NOTES:

△13 AFTER COMPLETING STEPS ON SHT 4, IF YOU USED KB-1401-1-8A TO INSTALL YOUR FUEL PORT MODIFICATIONS (THE FUEL TRANSFER ELBOW IS INSTALLED IN THE SOLID PLATE UNDER THE COVER) AND YOU DID NOT HAVE A COMMONALITY WING:
GO TO SHT 6 OF THIS DRAWING.

△12 AFTER COMPLETING STEPS ON SHT 4, IF YOU USED KB-1401-1-8B TO INSTALL YOUR FUEL PORT MODIFICATIONS (THE FUEL TRANSFER ELBOW IS INSTALLED IN THE BASE OF THE FLIP TYPE FUEL CAP RECEPTACLE UNDER THE COVER):
GO TO SHT 6 OF THIS DRAWING.

△11 AFTER COMPLETING STEPS ON SHT 4, IF YOU USED KB-1401-1-8C TO INSTALL YOUR FUEL PORT MODIFICATIONS (THE FUEL TRANSFER ELBOW IS INSTALLED IN THE BASE OF THE STOPPER TYPE FUEL CAP RECEPTACLE UNDER THE COVER):
GO TO SHT 10 OF THIS DRAWING.

NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TUBING INSTALLATION ALL MODELS
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
DWG. No. KB-1401-1-9	REVISION NC
SCALE: NONE	DATE 01/01/13 SH 5 OF 15

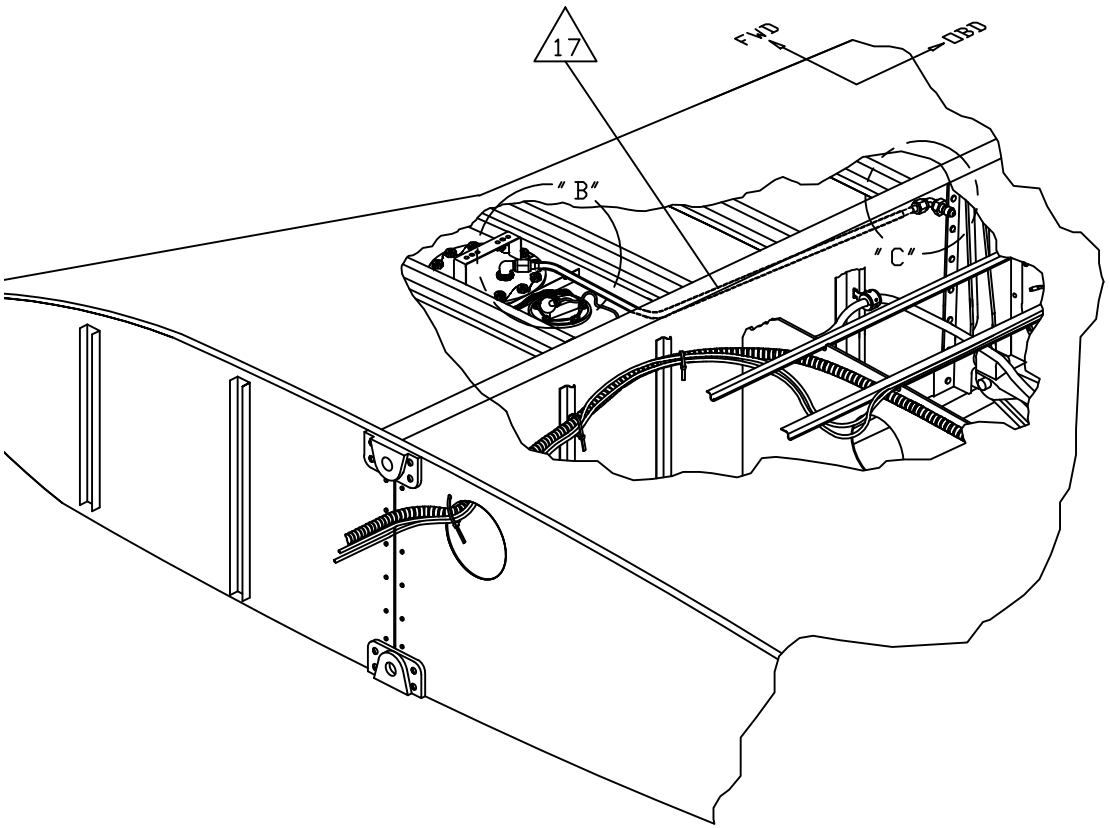


16 ASSURE THAT THE FUEL CELL RETAINER FASTENER IS PROPERLY POSITIONED.

15 PUSH PAST THE FLEXIBLE FUEL CELL AND PASS THE ELBOW FITTING ITEM (3) WITH WASHER ITEM (4) THROUGH THE HOLE MADE IN THE WEB. ATTACH ON WEB SIDE WITH A SECOND ITEM (4) AND NUT ITEM (5). THE ELBOW SHOULD POINT UP FROM HORIZONTAL ABOUT 4.5°.

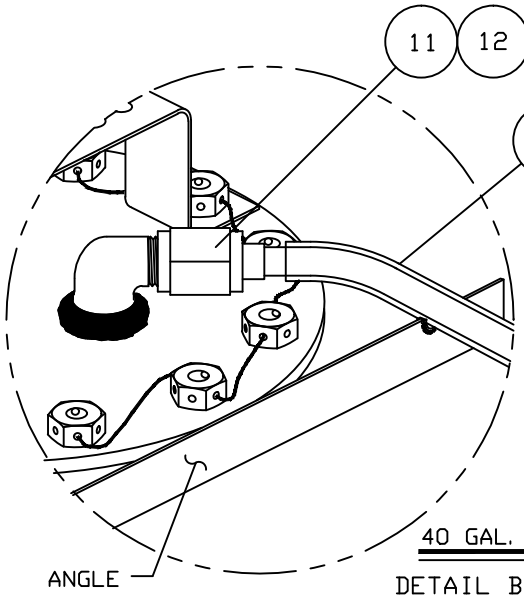
NOTES:

NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TUBING INSTALLATION ALL MODELS
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
	DWG. No. KB-1401-1-9 REVISION NC
	SCALE: NONE DATE 01/01/13 SH 6 OF 15



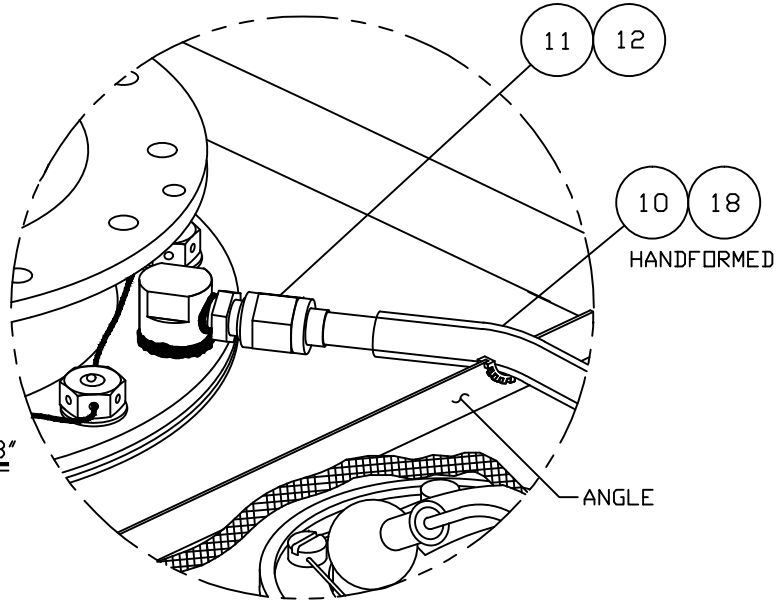
25 GALLON

DETAIL "B"



40 GAL. WING TANK

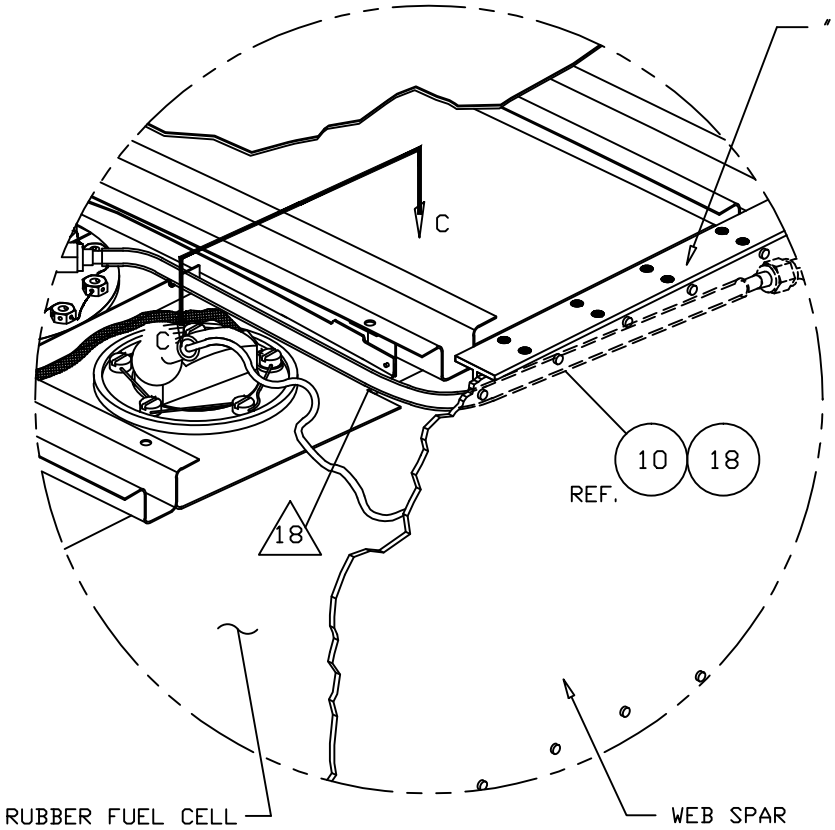
DETAIL B

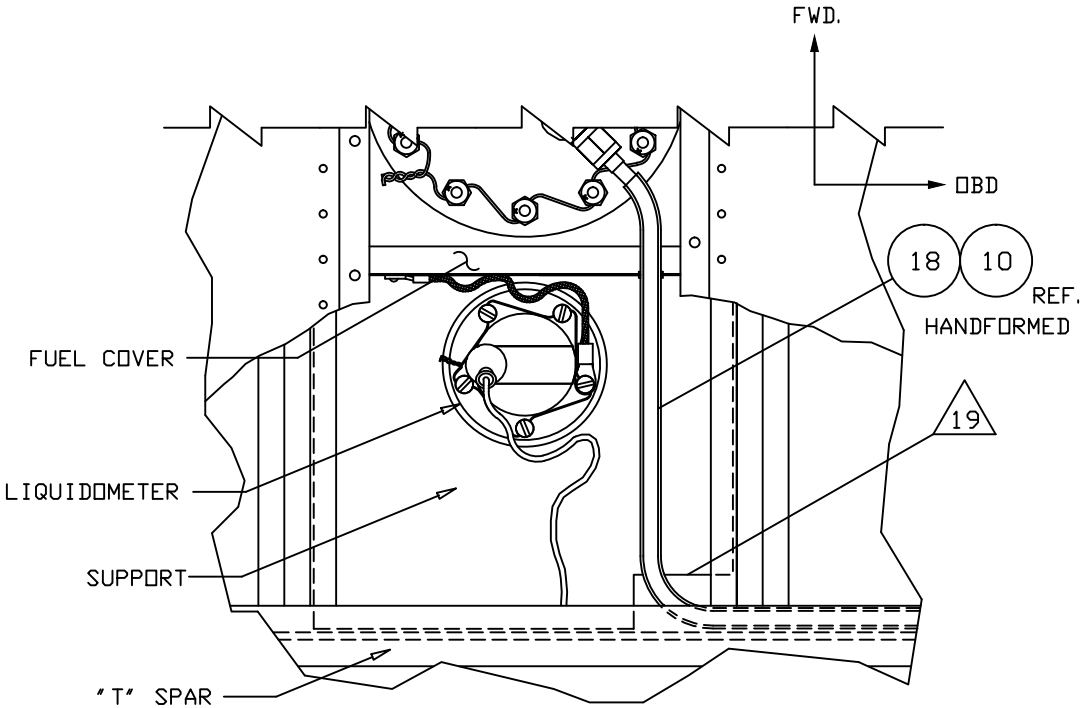


NOTES:

17 WORKING FROM THE TOP AT THE ACCESS PANEL, AND REACHING UP FROM UNDERNEATH THROUGH THE ACCESS DOOR OPENED IN STEP 14, ROUTE TUBE ITEM (10) AND ITEM (18) WITH B-NUT AND SLEEVE ITEMS (11) AND (12), FORMING AS SHOWN IN THE DETAIL VIEWS.

NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TUBING INSTALLATION ALL MODELS
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
DWG. No. KB-1401-1-9	REVISION NC
SCALE: NONE	DATE 01/01/13 SH 7 OF 15





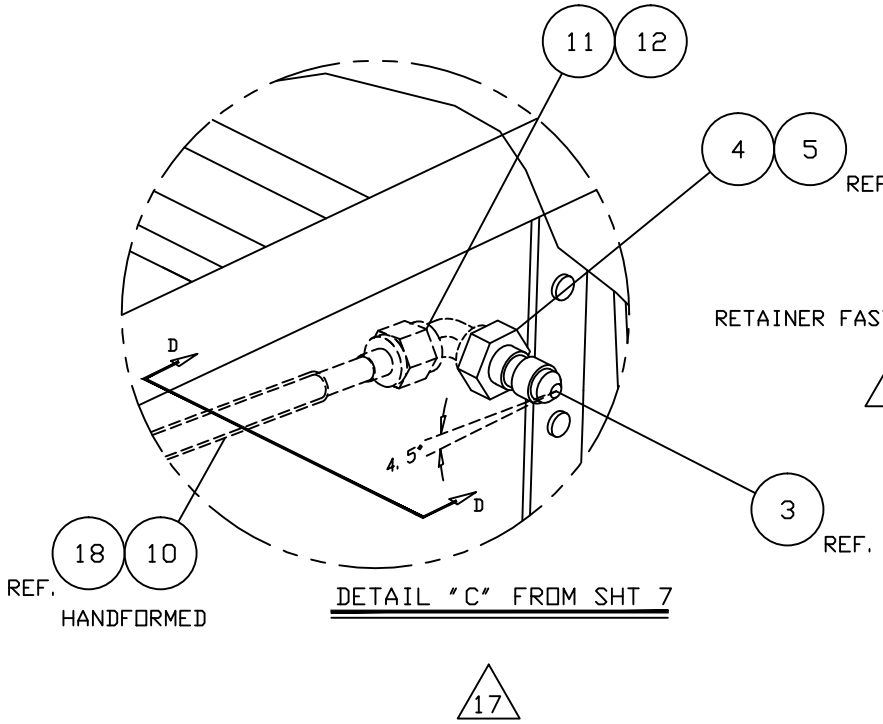
VIEW C-C

NOTES:

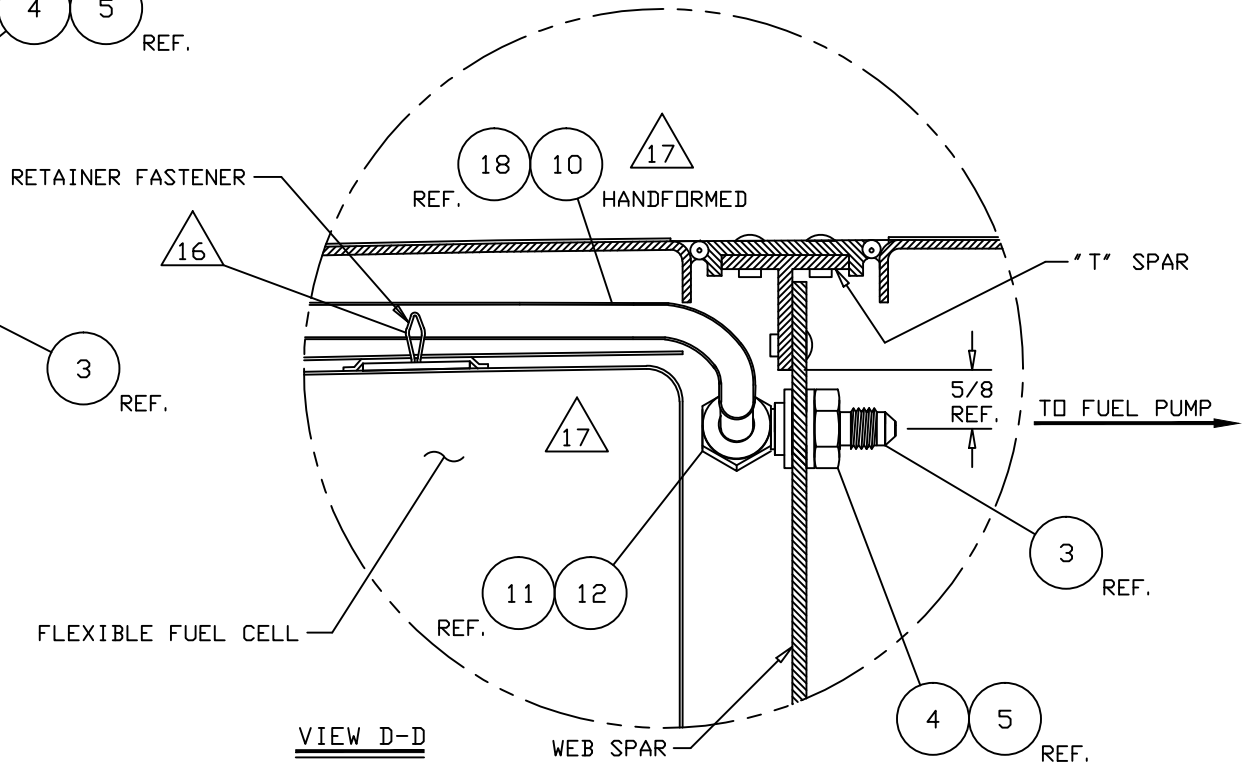
19 FEED THE FUEL LINE ITEMS (18) AND (10) THROUGH THE CORNER OF SUPPORT.

18 BEND PLATE TO ALLOW LINE ITEMS (18) AND (10) TO PASS. NO SHARP EDGES, TAPE AS REQUIRED.

NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TUBING INSTALLATION ALL MODELS
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
DWG. No. KB-1401-1-9	REVISION NC
SCALE: NONE	DATE 01/01/13 | SH 8 OF 15



WHEN YOU HAVE FINISHED THIS PORTION, PROCEED TO SHT 12 OF THIS DRAWING.

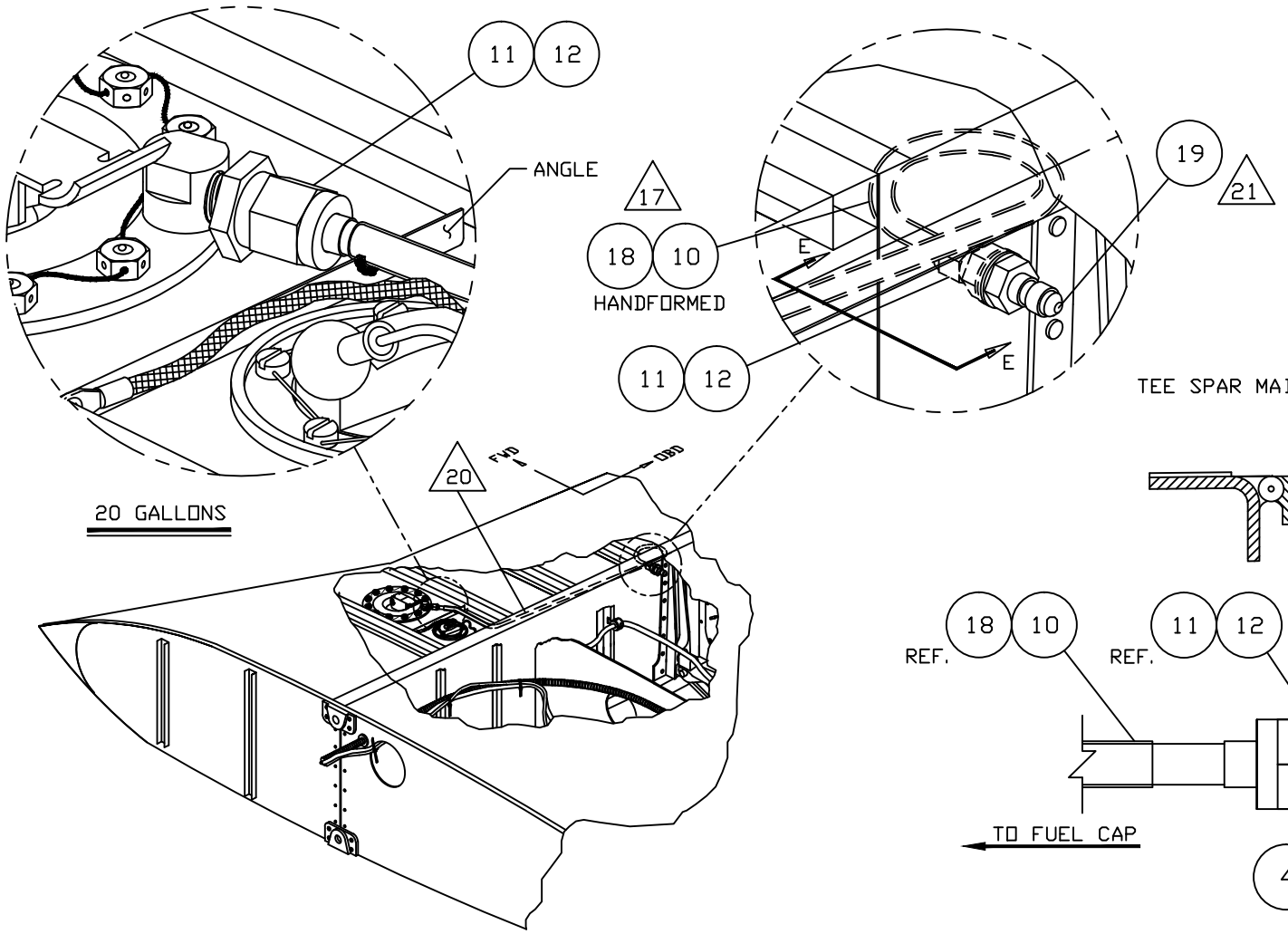


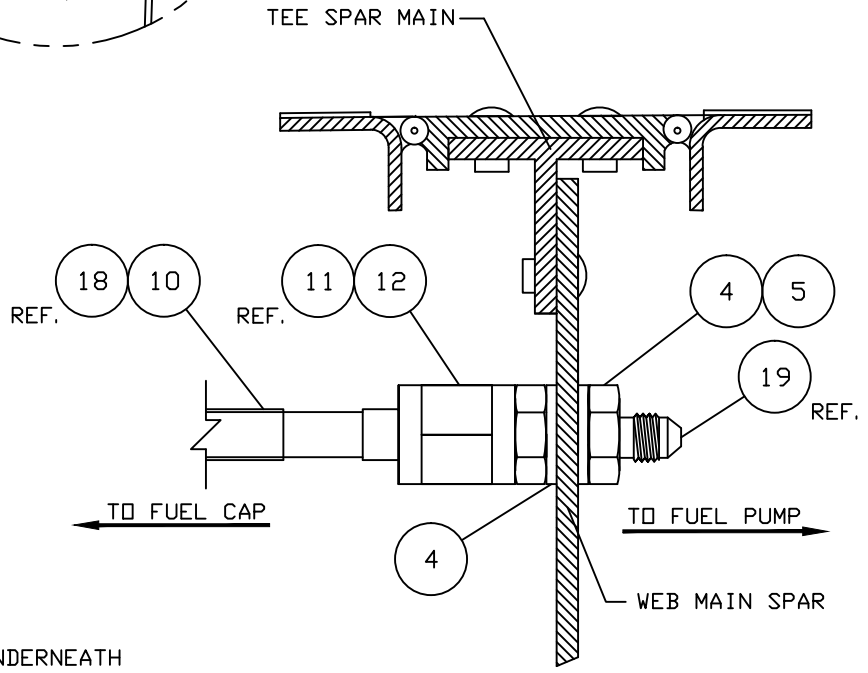
NOTES:

17 WORKING FROM THE TOP AT THE ACCESS PANEL, AND REACHING UP FROM UNDERNEATH THROUGH THE ACCESS DOOR OPENED IN STEP 14, ROUTE TUBE ITEM (10) AND ITEM (18) WITH B-NUT AND SLEEVE ITEMS (11) AND (12), FORMING AS SHOWN IN THE DETAIL VIEWS.

16 ASSURE THAT THE FUEL CELL RETAINER FASTENER IS PROPERLY POSITIONED.

NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TUBING INSTALLATION ALL MODELS
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
DWG. No. KB-1401-1-9	REVISION NC
SCALE: NONE	DATE 01/01/13 | SH 9 OF 15





20 GALLONS

SECTION E-E

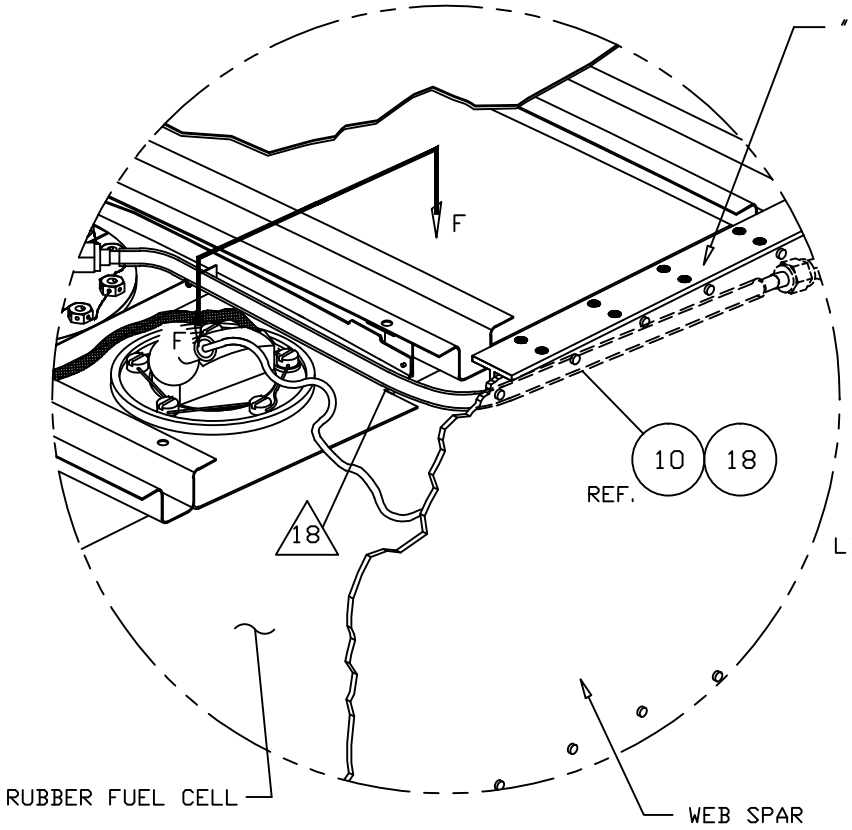
NOTES:

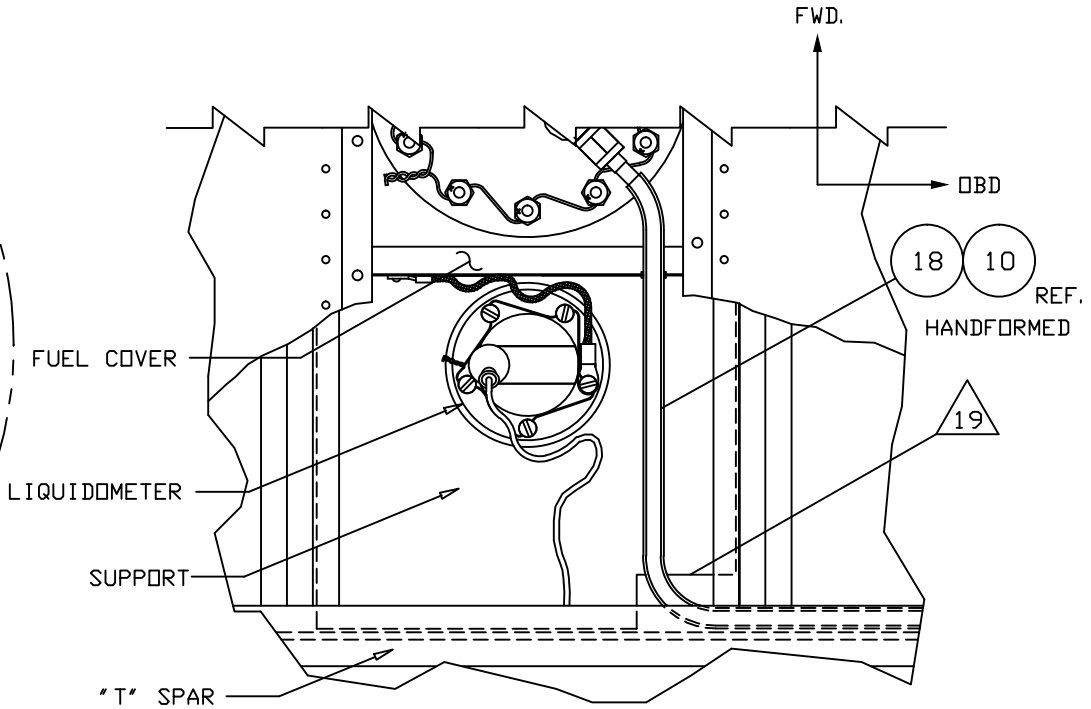
17 WORKING FROM THE TOP AT THE ACCESS PANEL, AND REACHING UP FROM UNDERNEATH THROUGH THE ACCESS DOOR OPENED IN STEP 14, ROUTE TUBE ITEM (10) AND ITEM (18) WITH B-NUT AND SLEEVE ITEMS (11) AND (12), FORMING AS SHOWN IN THE DETAIL VIEWS.

21 PASS THE UNION FITTING ITEM (19) WITH WASHER ITEM (4) THROUGH THE HOLE MADE IN THE WEB. ATTACH ON WEB SIDE WITH A SECOND ITEM (4) AND NUT ITEM (5).

20 USE THE FORWARD TRUNNION REMOVAL PLATE UNDER THE WING FOR ACCESS. REACH YOUR ARM UP ALONG SIDE THE FLEXIBLE FUEL CELL. IF AT THIS POINT YOU DO NOT HAVE PLENTY OF ROOM JUST FORWARD OF THE HOLE IN THE WEB TO USE THE STRAIGHT UNION AND ROUTE THE FUEL LINE AS SHOWN, YOU SHOULD USE THE INSTALLATION STARTING ON SHT 6 OF THIS DRAWING INSTEAD.

NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TUBING INSTALLATION ALL MODELS
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-9 REVISION NC
	SCALE: NONE DATE 01/01/13 SH 10 OF 15





VIEW F-F

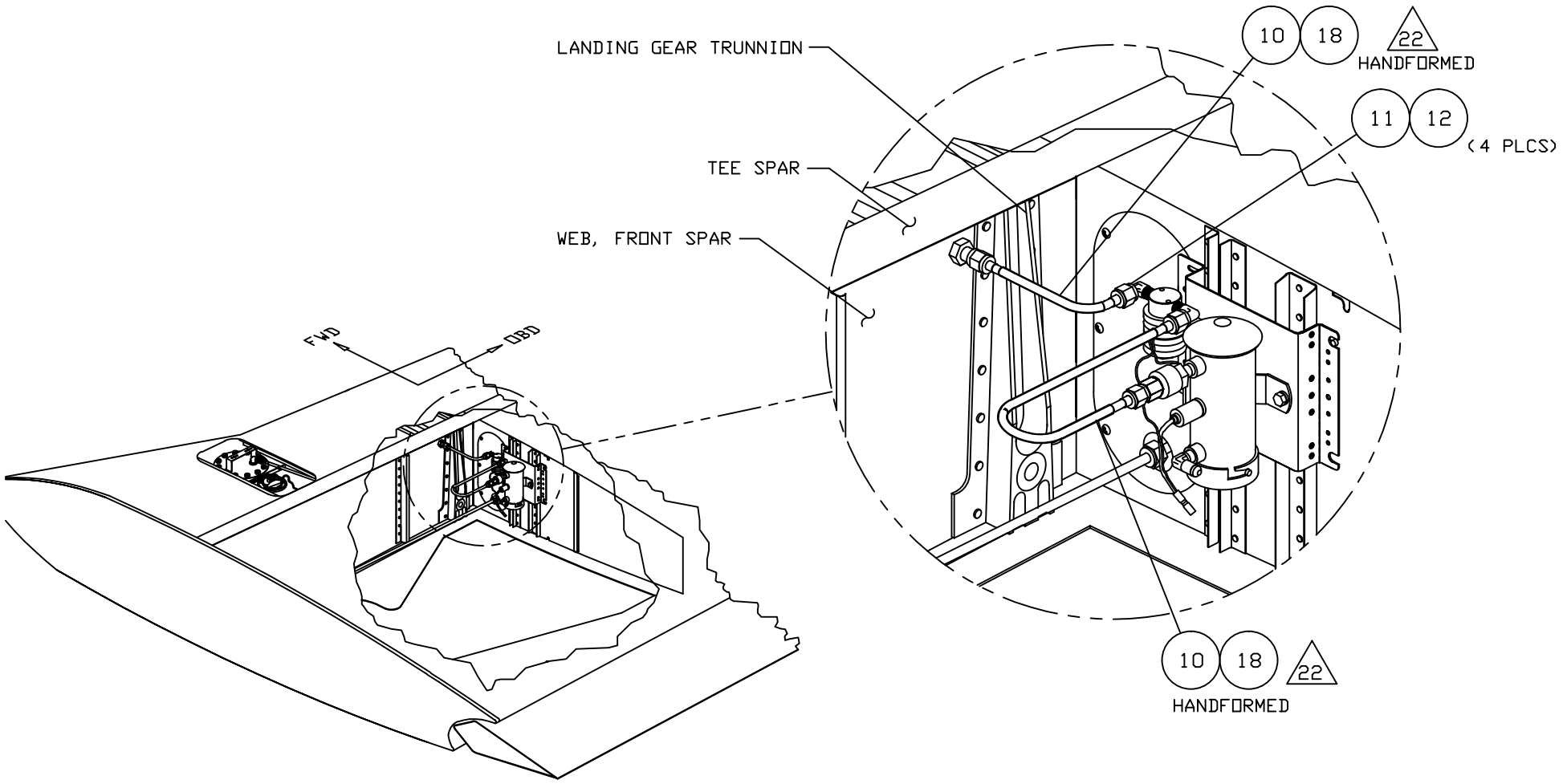
COMES FROM SHEET 4 OF 14

△19 FEED THE FUEL LINE ITEMS (18) AND (10) THROUGH THE CORNER OF SUPPORT.

△18 BEND PLATE TO ALLOW LINE ITEMS (18) AND (10) TO PASS. NO SHARP EDGES, TAPE AS REQUIRED.

NOTES:

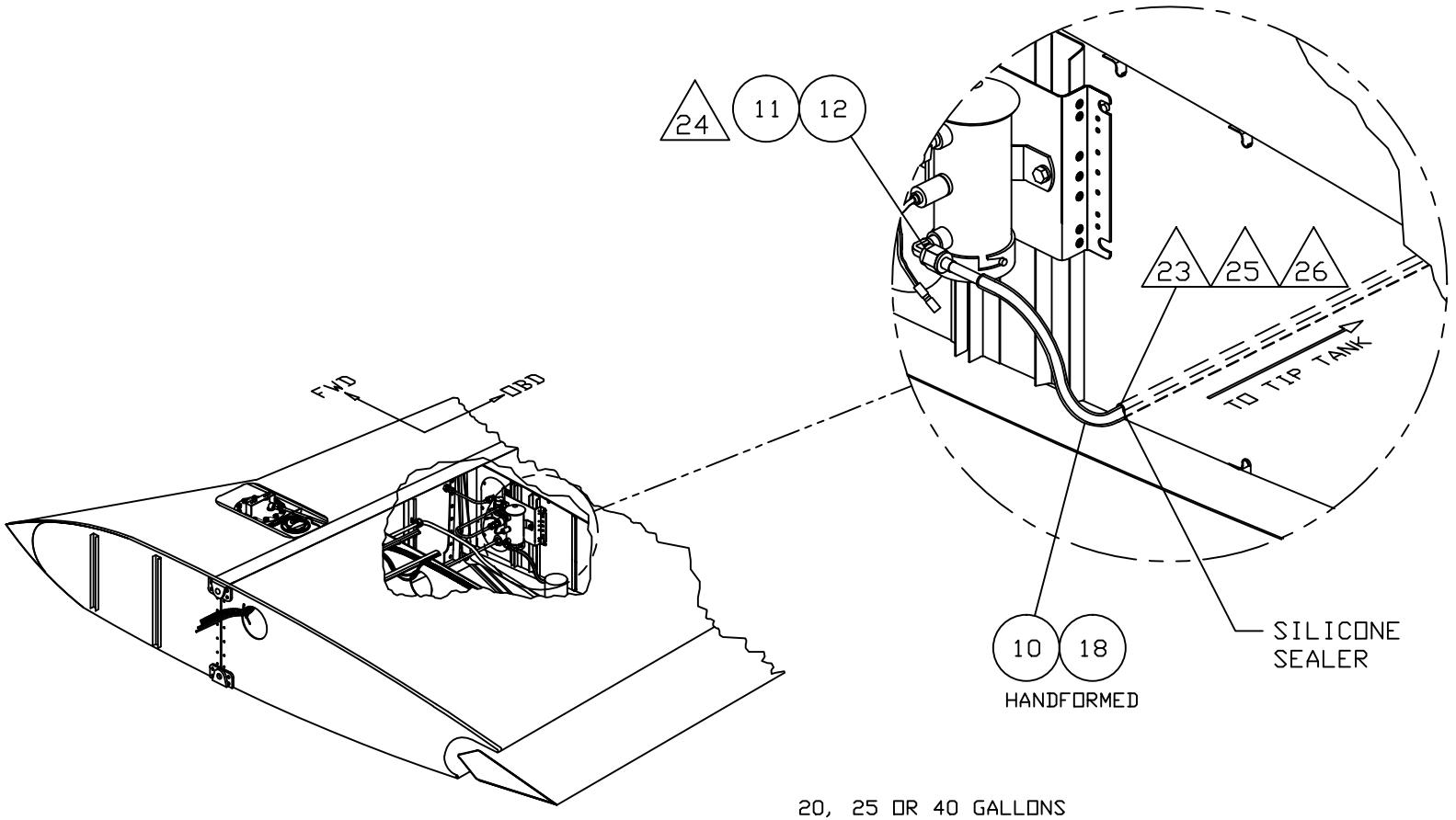
NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TUBING INSTALLATION ALL MODELS
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
DWG. No. KB-1401-1-9	REVISION NC
SCALE: NONE	DATE 01/01/13 | SH 11 OF 15



NOTES:

22 ROUTE TUBE ITEM (10) AND TYGON SLEEVE ITEM (9) WITH B-NUT AND SLEEVE ITEMS (11) AND (12) FORMING AS SHOWN (2 PLCS) TO CONNECT THE SOLENOID TO THE FUEL LINE FROM THE PORT, AND THE SOLENOID TO THE OUTLET OF THE FUEL PUMP.

NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TUBING INSTALLATION ALL MODELS
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-9 | REVISION NC
	SCALE: NONE | DATE 01/01/13 | SH 12 OF 15



20, 25 OR 40 GALLONS

△26 FUEL LINE MUST RUN UPHILL TO THE PUMP INLET.

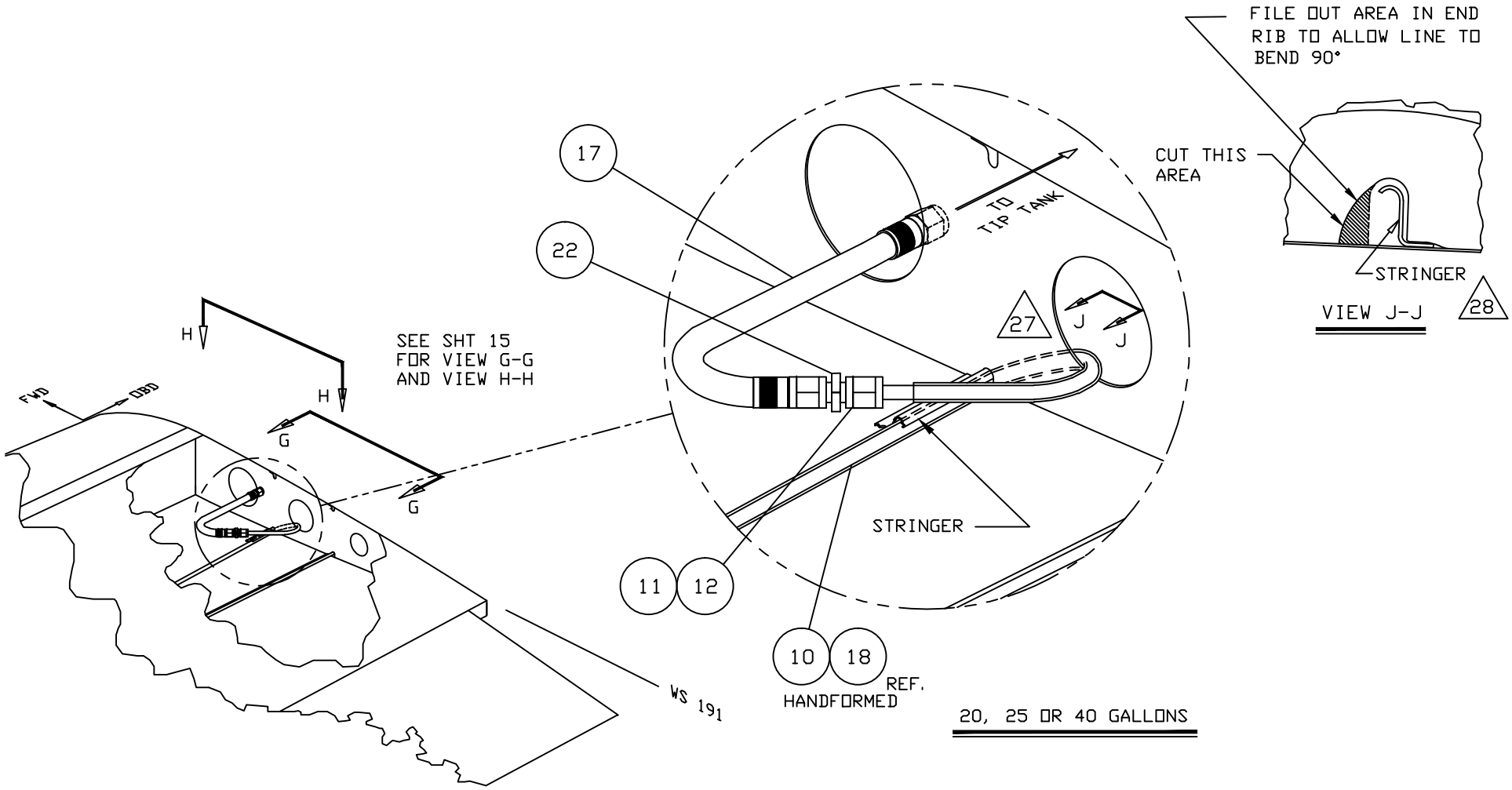
△25 FEED THE FUEL LINE AND TYGON SLEEVE ALONG SIDE THE STRINGER AND CONTINUE UNTIL IT EMERGES AT THE OPPOSITE END.

△24 INSTALL B-NUT AND SLEEVE ITEMS (11) AND (12) TO END OF FUEL LINE ITEM (10) FOR FITTING TO THE INLET SIDE OF THE PUMP.

△23 USE SILICONE SEALANT OR EQUIVALENT TO FILL STRINGER AREA WHEN INSTALLING THE ITEM (10) AND (18) FUEL LINE AND TYGON SLEEVE. THE TYGON SLEEVE IS THERE TO PROTECT THE FUEL LINE AND EASE FEEDING THE LINE IN STEP △25.

NOTES:

NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TUBING INSTALLATION ALL MODELS
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-9 | REVISION NC
	SCALE: NONE | DATE 01/01/13 | SH 13 OF 15



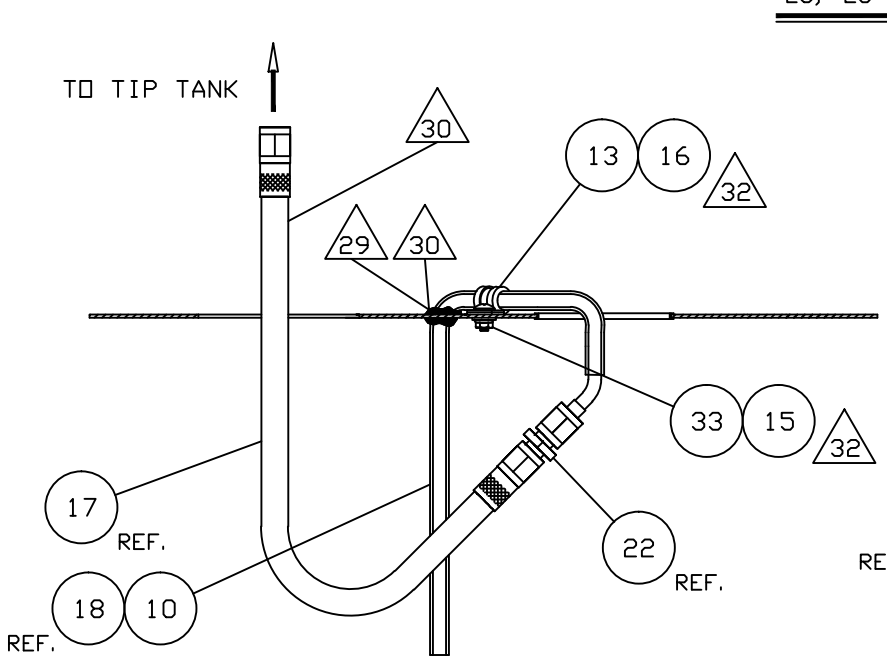
NOTES:

28 TRIM OR USE A ROTARY FILE TO PROVIDE ADDITIONAL CLEARANCE FOR THE BEND IN THE FUEL LINE.

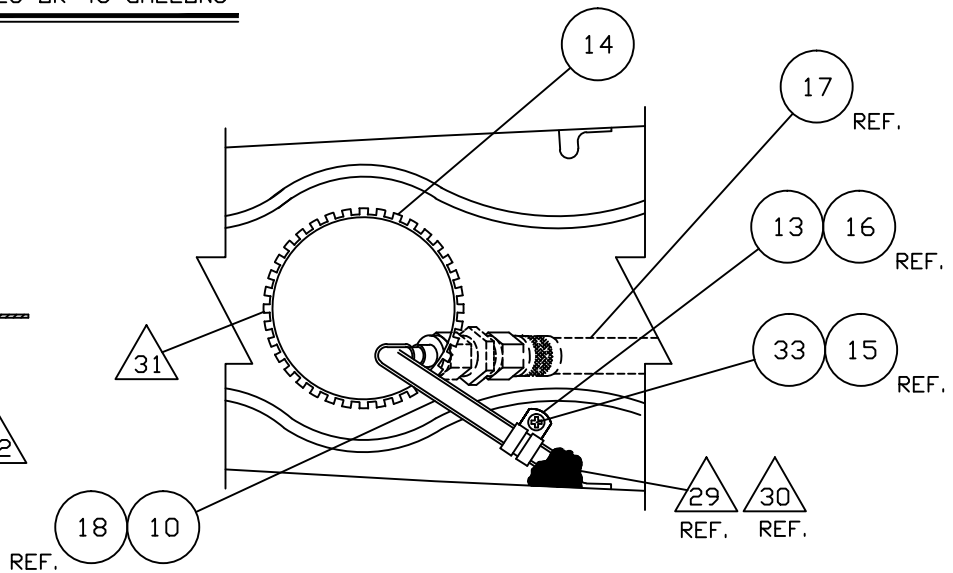
27 A LARGE RADIUS BEND MUST BE MAINTAINED, ALONG WITH CLEARANCE BETWEEN THE HOLE AND THE FUEL LINE.

NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TUBING INSTALLATION ALL MODELS
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
DWG. No. KB-1401-1-9	REVISION NC
SCALE: NONE	DATE 01/01/13 | SH 14 OF 15

20, 25 OR 40 GALLONS



VIEW H-H FROM SHT 14



VIEW G-G FROM SHT 14

NOTES:

32 FIT CLAMP ITEM (13) TO FUEL LINE AND FASTEN TO RIB WITH SCREW, LOCKNUT AND WASHER ITEMS (15), (16) AND (33).

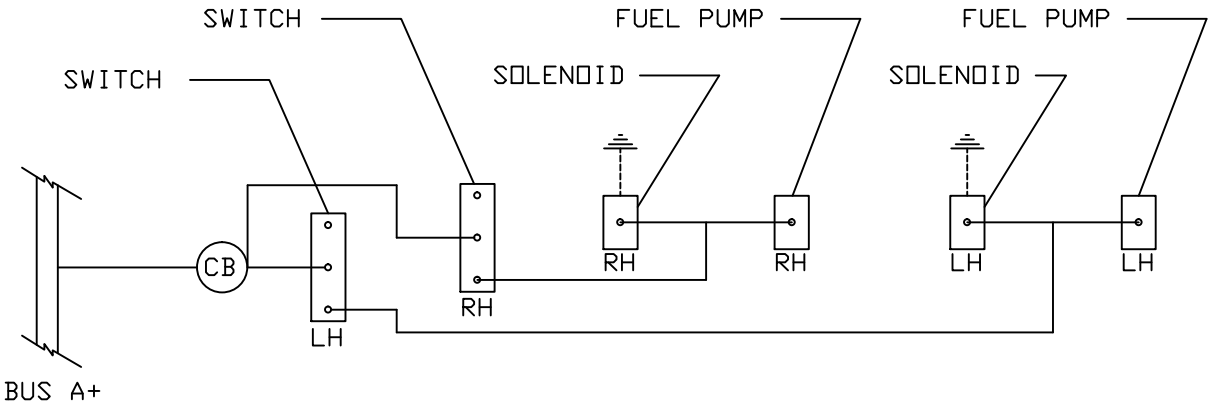
31 INSTALL CATERPILLAR GROMMET, ITEM (14), ALL AROUND I. D. FIX WITH ADHESIVE.

30 DO NOT ALLOW A LOW SPOT IN THE FUEL LINE INSTALLATION IN THIS AREA.

29 FILL VOID WITH SILICONE SEALANT TO ACT AS A VIBRATION DAMPER.

NEXT ASSY: DRAWN BY: D. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TUBING INSTALLATION ALL MODELS
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
DWG. No. KB-1401-1-9	REVISION NC
SCALE: NONE	DATE 01/01/13 | SH 15 OF 15

REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09

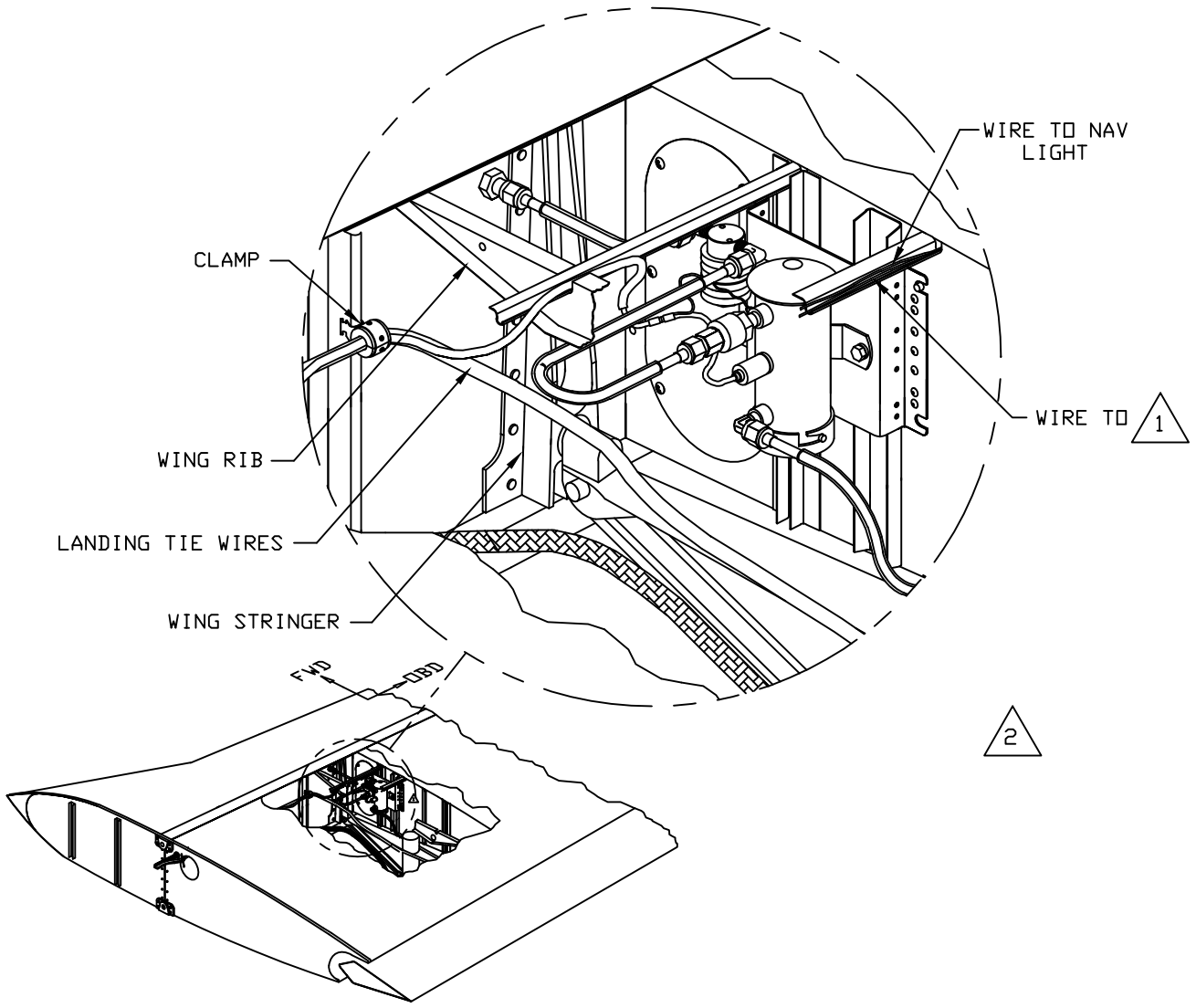


PUMP/SOLENOID SCHEMATIC WIRING DIAGRAM

NOTES:

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	PUMP/SOLENOID SCHEMATIC WIRING DIAGRAM
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-10 REVISION NC
	SCALE: NONE DATE 04/04/09 SH 1 OF 1

REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	DOCUMENT FUEL QTY GAUGES ARE OPTIONAL	J. M.	07/06/10
B	INCORPORATE EO 101103-8	D. B.	01/13/11
C	DUAL FUEL GAUGE, CLEAN UP VIEWS	D. B.	01/01/13



NOTES:

2 ITEM (25) FUEL GAUGE IS NOT AVAILABLE FOR ITEMS (27) AND (28) WITHOUT REMOTE GAUGE LIQUIDOMETER (W/O RGL DESIGNATION IN PART NUMBER). ITEM (25) FUEL GAUGE IS REQUIRED FOR ITEMS (37) AND (38) TIP TANKS W/O SIGHT STRIPS. ITEM (25) FUEL GAUGE IS OPTIONAL FOR ALL OTHER INSTALLATIONS.

1 THE ELECTRICAL LEAD-IN WIRE FOR THE PUMP AND SOLENOID IS ROUTED THROUGH THE PROTECTIVE TUBING ALONG THE WING STRINGER, ALONG SIDE THE EXISTING NAVIGATION LIGHT LINE.

ITEM	QTY	PART No.	DESCRIPTION
26	A. R.	MIL-W-5086-18GA MIL-W-22759/16 MS22759/16-18	#18 WIRE
25	2	FL202	L & R FUEL GAUGE
23	1	MS26574-5	CIRCUIT BREAKER (28V)
21	2	60F 814	MINIATURE TOGGLE SWITCH
20	1	W58-XC4C12A-5	CIRCUIT BREAKER (14V)
18	A. R.	TYGON	TUBING 1/4 OD X 1/32 WALL

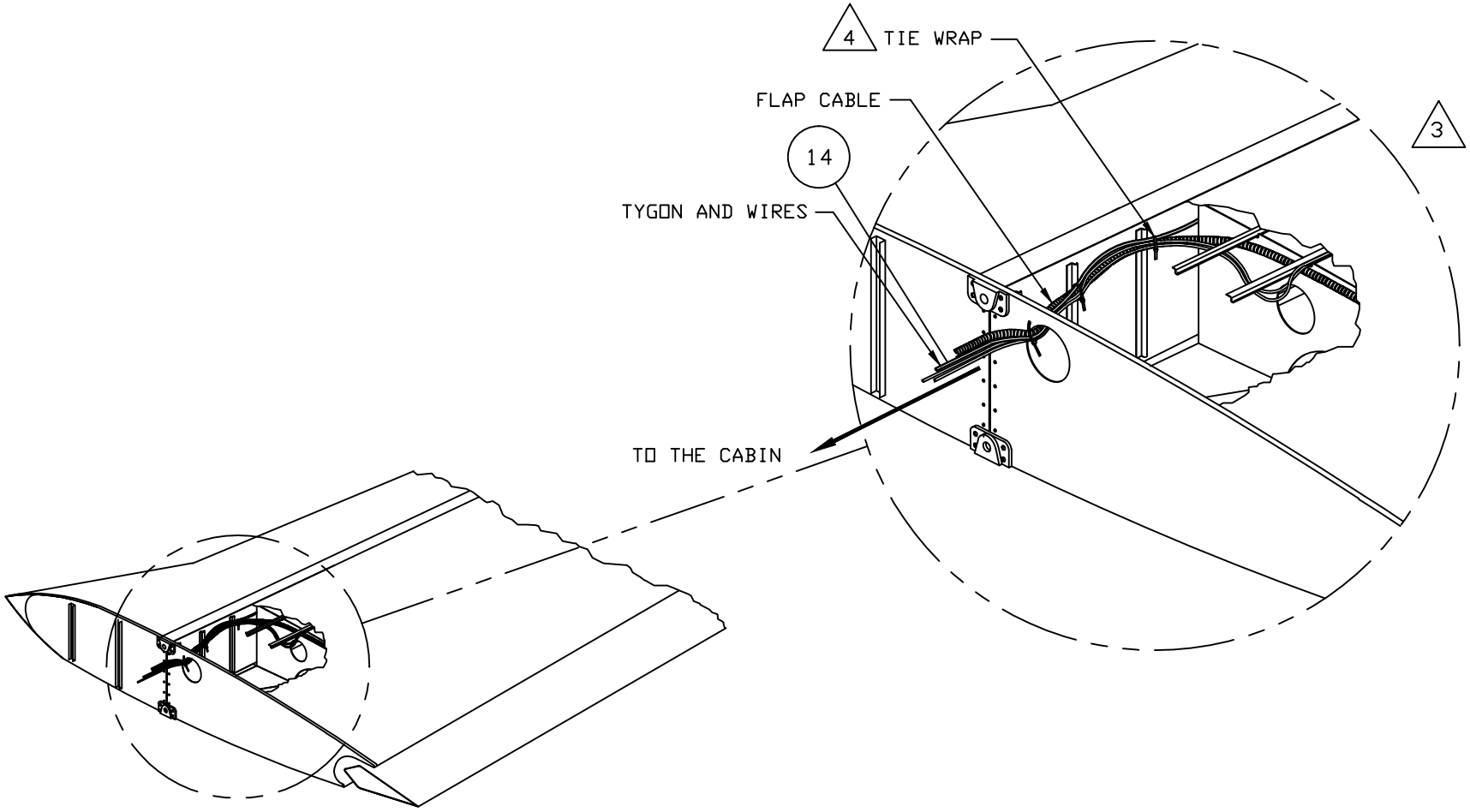
NEXT ASSY:
DRAWN BY: K. R. S.
ENGINEER: D. BRAUN
CHECKED BY: D. B.

LOCATING FUEL GAUGES AND PUMP SWITCHES

TOLERANCES
.X__.10 .XXX__.01
.XX_.03 .XXXX_.001
ANGLES ±5%
UNLESS STATED

D'SHANNON PRODUCTS, LTD

DWG. No. KB-1401-1-11 | REVISION C
SCALE: NONE | DATE 04/04/09 | SH 1 OF 4

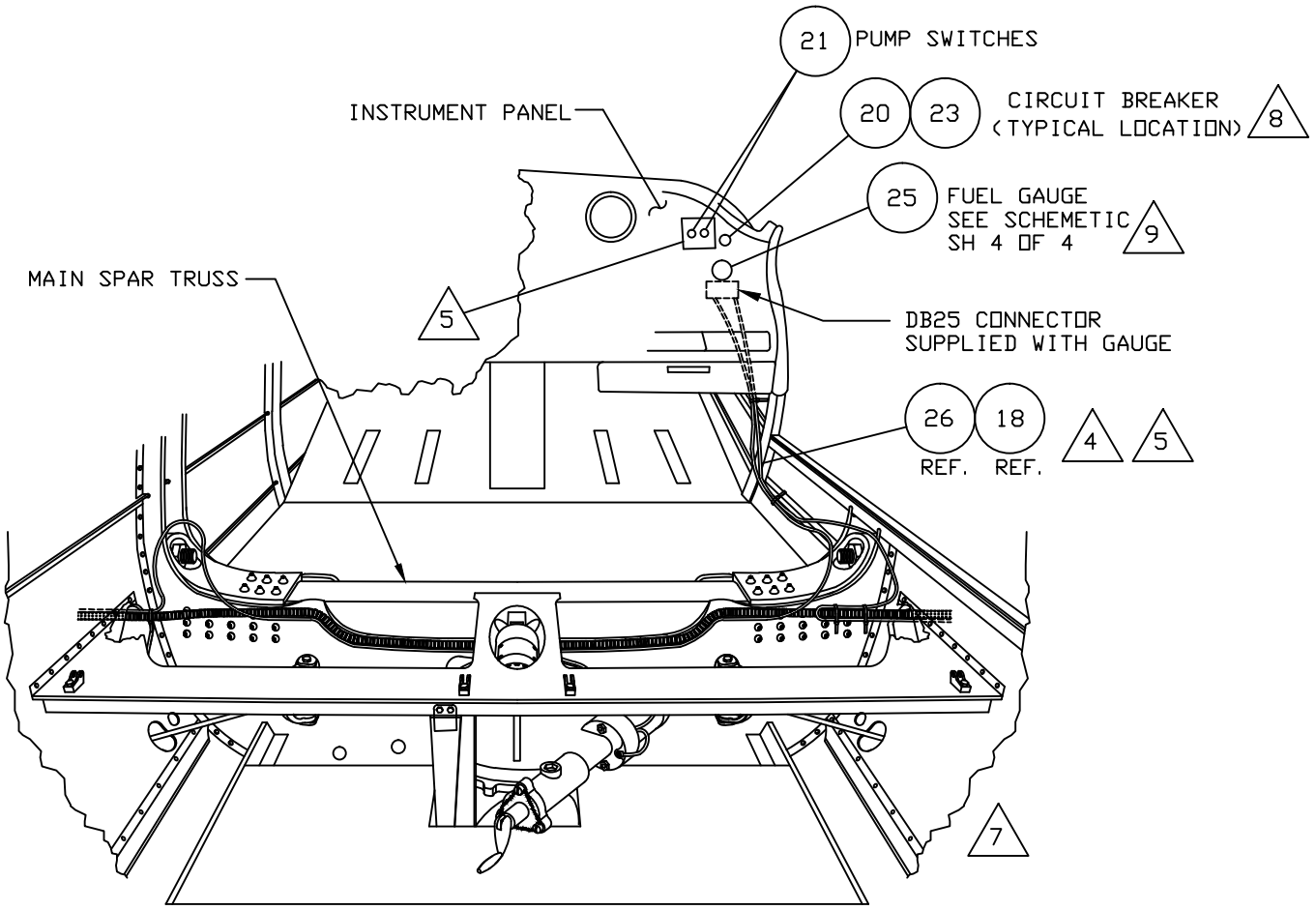


NOTES:

4 USE TIE WRAPS WHERE NECESSARY.

3 FEED TYGON ITEM (18) AND WIRE THROUGH THE EXISTING HOLE WITH GROMMET ON WING

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	LOCATING FUEL GAUGES AND PUMP SWITCHES
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No.KB-1401-1-11 REVISION C
	SCALE: NONE DATE 04/04/09 SH 2 OF 4



NOTES:

9 IT IS PERMISSIBLE TO SUBSTITUTE ANY TSO OR STC CERTIFIED FUEL GAUGE ELIGIBLE FOR INSTALLATION ON THE PARTICULAR AIRCRAFT BEING MODIFIED, AND WHICH MEETS THE CALIBRATION OUTPUT OF ITEM B1463 LIQUIDOMETER. SCHEMATIC SHOWN IS TYPICAL. IN ALL CASES, WIRE AND CALIBRATE PER THE GAUGE MANUFACTURER'S RECOMMENDATIONS.

8 ITEM (23) SHOULD BE USED IN PLACE OF ITEM (20) ON 28 VOLT MODELS.

7 LEAVE SLACK IN WIRE IN THIS AREA TO PREVENT POTENTIAL BINDING.

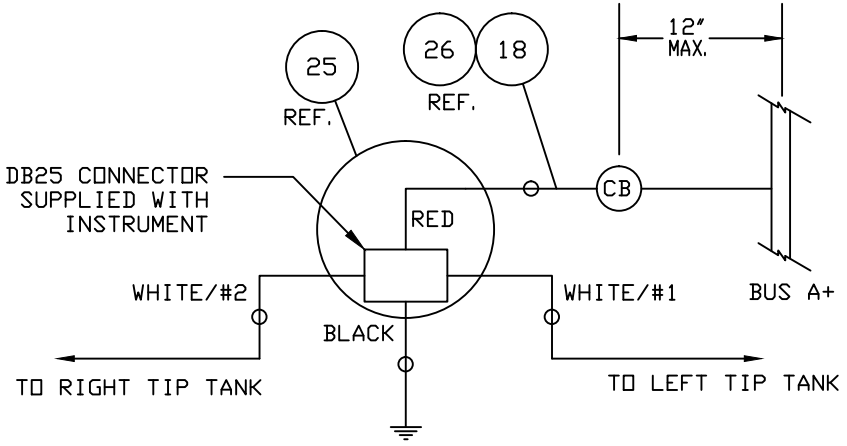
6 INSTALL FUEL GAUGES AND PUMP SWITCHES AT CONVENIENT LOCATIONS ON THE FACE OF THE INSTRUMENT PANEL OR BETWEEN SEATS ON PARTITION ASSEMBLY FORWARD OF MAIN SPAR TRUSS. REF. AC 43.13-1B AND AC 43.13-2A.

5 REMOVE THE PILOT AND COPILOT SEATS AND CARPET. FEED THE TUBES WITH WIRES TO THE CONTROL PANEL.

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	LOCATING FUEL GAUGES AND PUMP SWITCHES
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No.KB-1401-1-11 REVISION C
	SCALE: NONE DATE 04/04/09 SH 3 OF 4

CALIBRATION

⚠9 FUEL GAUGE CONNECTIONS (REAR VIEW)



RED	6V TO 38V SUPPLY
BLACK	GROUND
WHITE/#1	LEFT TANK
WHITE/#2	RIGHT TANK

REST UNUSED OR MAY BE INCORPORATED PER MANUFACTURER'S INSTRUCTIONS.

INSTRUMENT SERIAL #_____

LEFT	
US GAL	OHMS
0	
2	
4	
6	
8	
10	
12	
14	
16	
18	
20	

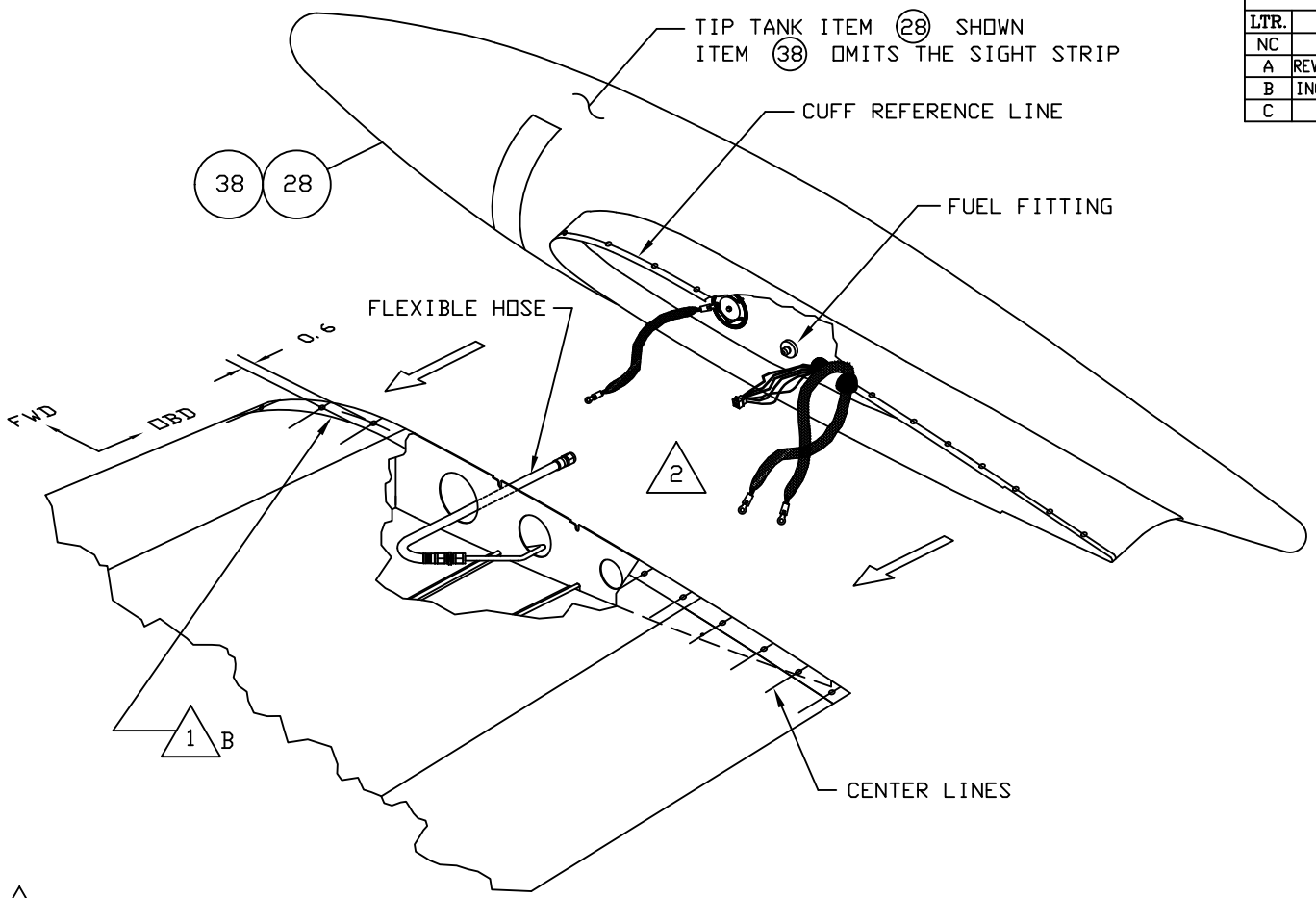
RIGHT	
US GAL	OHMS
0	
2	
4	
6	
8	
10	
12	
14	
16	
18	
20	

⚠9 IT IS PERMISSIBLE TO SUBSTITUTE ANY TSO OR STC CERTIFIED FUEL GAUGE ELIGIBLE FOR INSTALLATION ON THE PARTICULAR AIRCRAFT BEING MODIFIED, AND WHICH MEETS THE CALIBRATION OUTPUT OF ITEM B1463 LIQUIDOMETER. SCHEMATIC SHOWN IS TYPICAL. IN ALL CASES, WIRE AND CALIBRATE PER THE GAUGE MANUFACTURER'S RECOMMENDATIONS.

NOTES:

NEXT ASSY:	LOCATING FUEL GAUGES AND PUMP SWITCHES
DRAWN BY: K. R. S.	
ENGINEER: D. BRAUN	
CHECKED BY: D. B.	
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
DWG. No.KB-1401-1-11	REVISION C
SCALE: NONE	DATE 04/04/09 SH 4 OF 4

REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	REVISE NOTES SH 1, ADD TIP TANK W/O SIGHT STRIP	D. B.	01/14/10
B	INC ED 120719-02. REVISE VIEWS. ADD SHT 5	D. B.	01/01/13
C	INC ED 140919-01	W. E.	10/22/14



2 AVOID LOW SPOT IN FUEL LINE INSTALLATION IN THIS AREA.

1 TANK ALIGNMENT INSTRUCTIONS:

A. SCRIBE EXISTING TIP ATTACH SCREW LOCATIONS INBOARD ON WING APPROX. 3 INCHES, 28 PLACES.

B. SCRIBE A LINE AROUND CUFF AND WING AS SHOWN.

C. INSTALL TIP TANK USING AS REFERENCE THE LINE SCRIBED AROUND THE WING AND END OF THE CUFF.

D. EXTEND THE LINES SCRIBED ON THE CENTER OF HOLES TO INTERSECT WITH THE REFERENCE LINE ON THE CUFF.

E. DRILL CUFF WITH 11/64 DRILL AT SCRIBE LINE INTERSECTIONS FROM STEP C AND INSTALL USING SCREWS ITEM (31) WITH WASHERS ITEM (32).

NOTES:

ITEM	QTY	PART No.	DESCRIPTION
38	1	B1400-04	TIP TANK ASSY. RH NO SIGHT STRIP (OPT)
32	28	C3135-017-1	COUNTERSUNK TINNERMAN WASHER
31	28	AN507C832R10	COUNTERSUNK SCREW
30	2	82F9909	TERMINAL
29	1	82F9871	MALE CONNECTOR
28	1	B1400-02	TIP TANK ASSEMBLY RIGHT

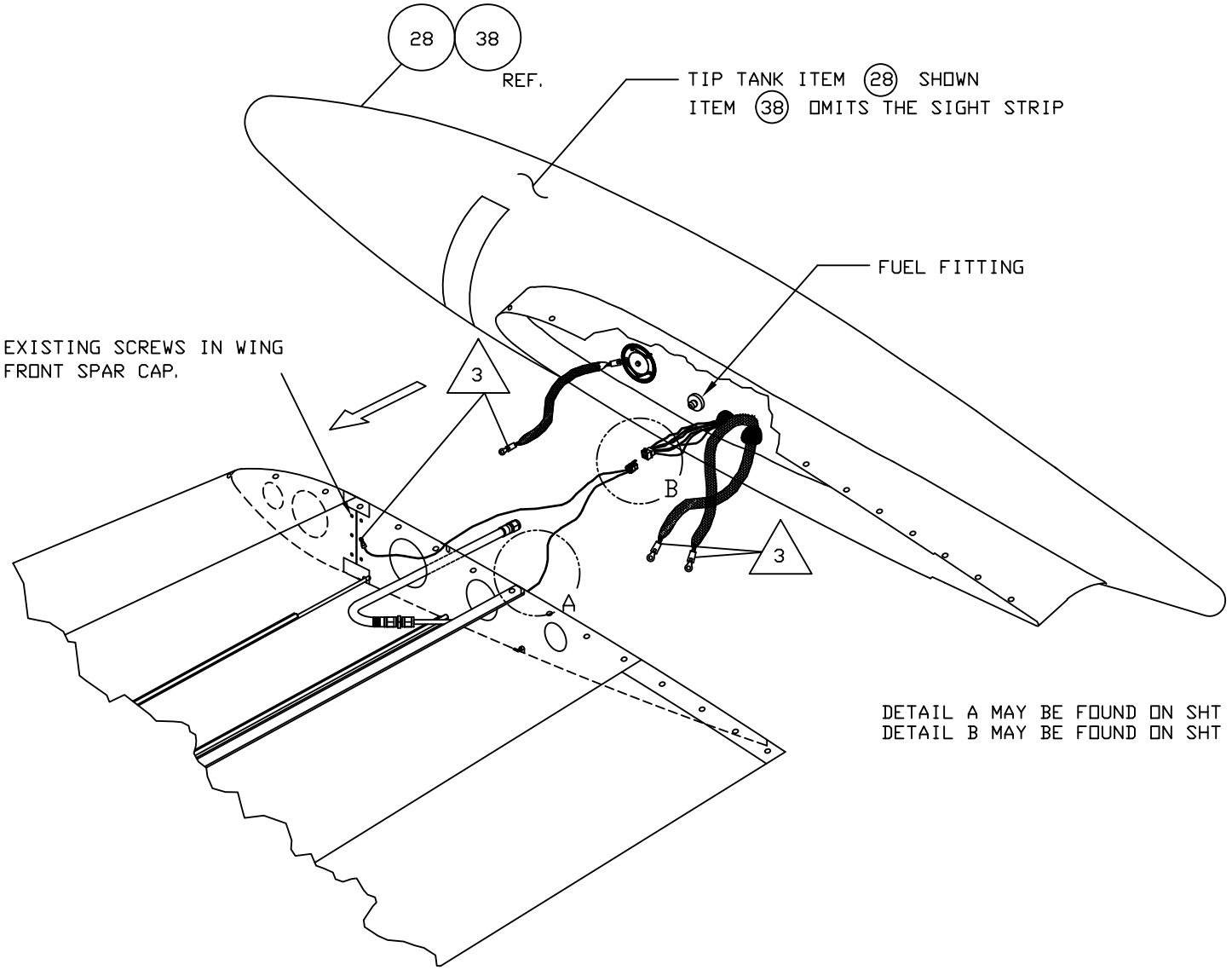
NEXT ASSY:
DRAWN BY: K. R. S.
ENGINEER: D. BRAUN
CHECKED BY: D. B.

TIP TANK INSTALLATION

TOLERANCES
.X___.10 .XXX___.01
.XX_.03 .XXXX_.001
ANGLES ±5%
UNLESS STATED

D'SHANNON PRODUCTS, LTD

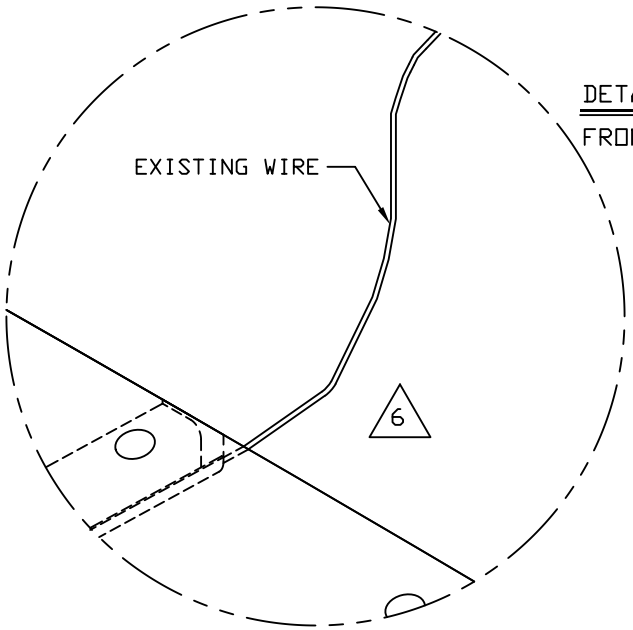
DWG. No. KB-1401-1-12 | REVISION C
SCALE: NONE | DATE 09/19/14 | SH 1 OF 5



3 GROUND TRANSMITTER AND NAV LIGHT TO EXISTING SCREWS IN WING FRONT SPAR CAP.

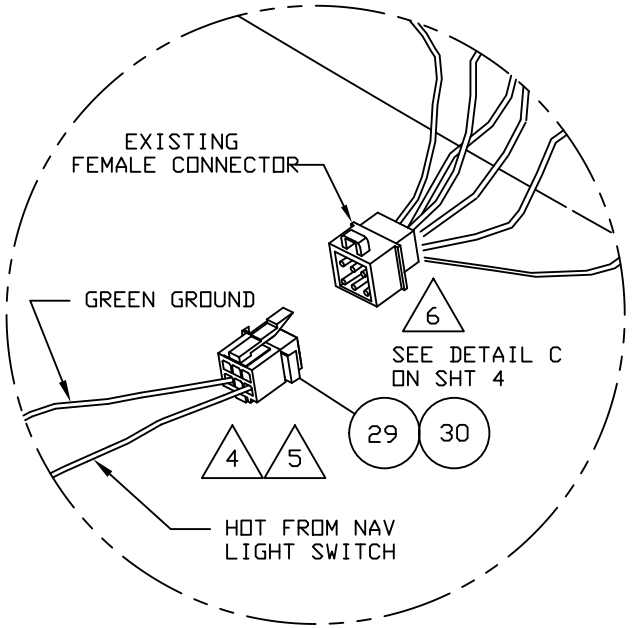
NOTES:

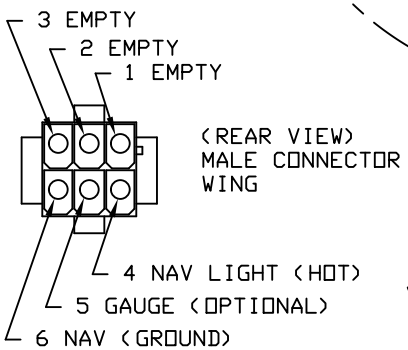
NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	TIP TANK INSTALLATION
TOLERANCES .X___.10 .XXX___.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
DWG. No. KB-1401-1-12	REVISION C
SCALE: NONE	DATE 09/19/14 | SH 2 OF 5



DETAIL A
FROM SHT 2

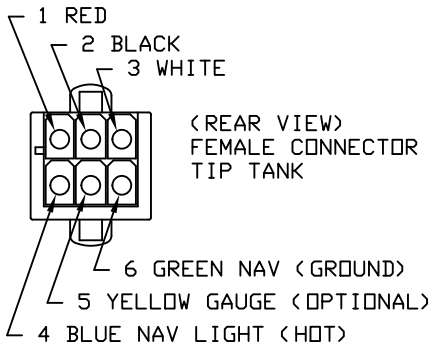
DETAIL B
FROM SHT 2





WIRING FOR INCANDESCENT NAV LIGHTS ONLY, NO STROBES. OPTIONAL LIQUIDOMETER (GAUGE) WIRING IS SHOWN

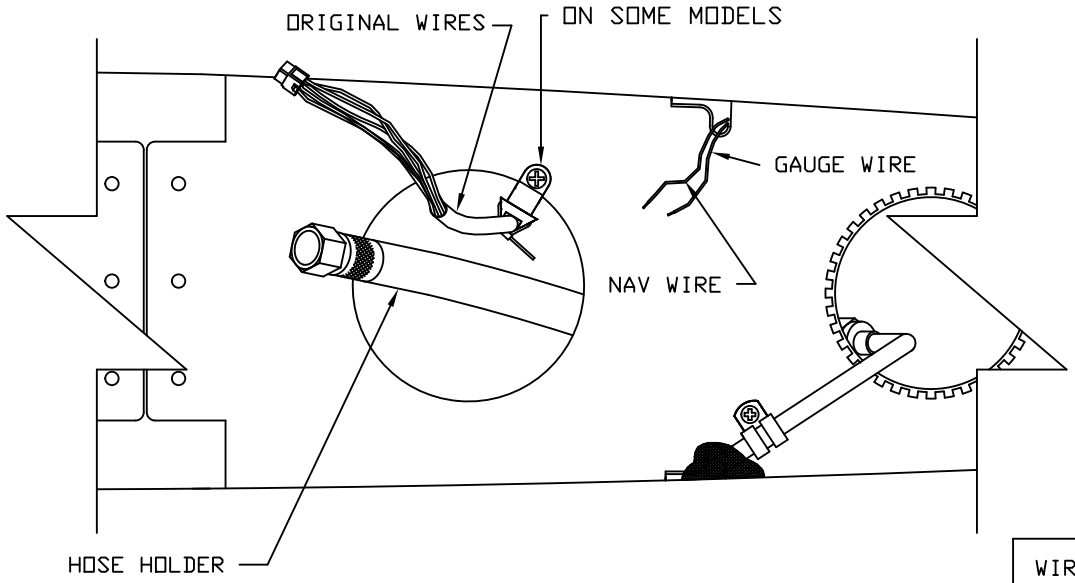
WARNING: IF CONNECTOR WIRE NUMBERS AND CONNECTOR WIRE COLORS ARE IN CONFLICT, THE CONNECTOR WIRE NUMBERS ARE TO BE FOLLOWED.

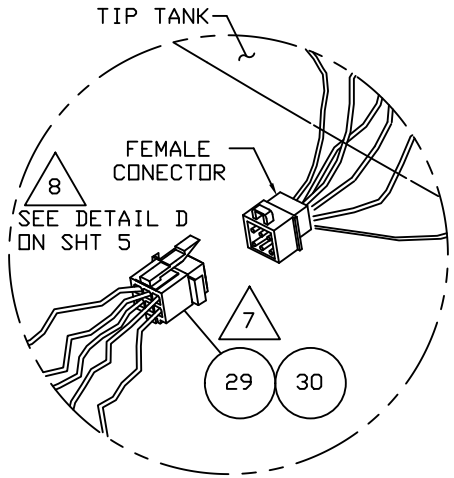


NOTES:

6. IF YOU HAVE A TIP TANK SET WITH STROBE LIGHTS AND LIQUIDOMETER, THEN INSTALL IN ACCORDANCE WITH SHT 4 OF 5 OR 5 OF 5.
5. USE A MALE CONNECTOR TO INSTALL THE TERMINAL PINS AS SHOWN.
4. INSTALL FEMALE TERMINAL PINS ON TIP OF THE GROUND AND OTHER WIRES AS NEEDED AND SHOWN.

NEXT ASSY:	TIP TANK INSTALLATION
DRAWN BY: K. R. S.	
ENGINEER: D. BRAUN	
CHECKED BY: D. B.	
TOLERANCES .X___.10 .XXX___.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
DWG. No. KB-1401-1-12	REVISION C
SCALE: NONE	DATE 09/19/14 SH 3 OF 5

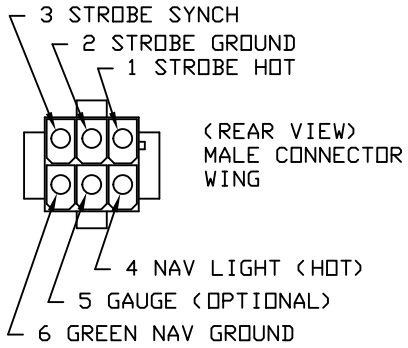


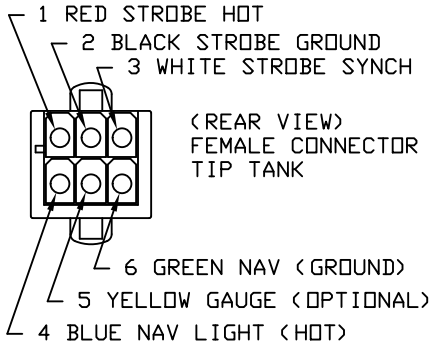


DETAIL C

WIRING FOR INCANDESCENT OR LED NAV LIGHTS AND STD. STROBES. OPTIONAL LIQUIDOMETER (GAUGE) WIRING IS SHOWN

WARNING: IF CONNECTOR WIRE NUMBERS AND CONNECTOR WIRE COLORS ARE IN CONFLICT, THE CONNECTOR WIRE NUMBERS ARE TO BE FOLLOWED.



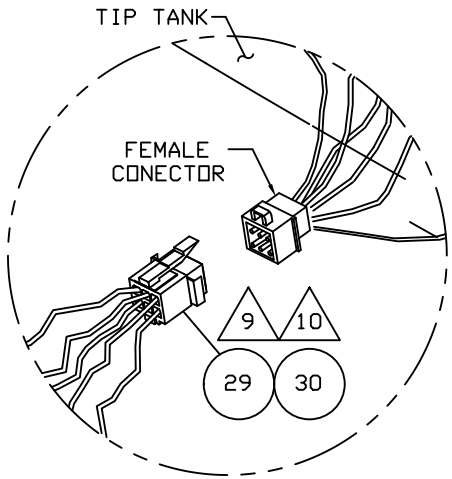


NOTES:

8 IF YOU HAVE A TIP TANK WITH LED NAV LIGHTS AND LED STROBE LIGHTS THEN FOLLOW THE INSTALLATION AS SHOWN ON SHT 5 OF 5.

7 IF YOU HAVE A TIP TANK SET WITH STROBE LIGHTS AND LIQUIDOMETER, BUT YOUR AIRPLANE WAS NOT PREVIOUSLY EQUIPPED WITH THE WIRES, THEN FOLLOW THE INSTALLATION AS SHOWN IN AC 43.13-2A, CHAPTER 4.

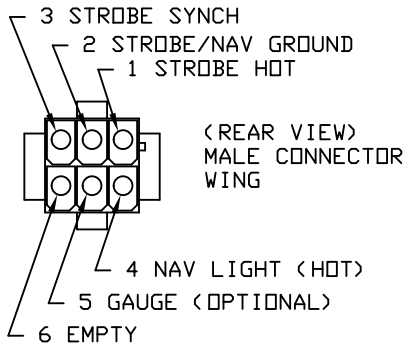
NEXT ASSY:	TIP TANK INSTALLATION
DRAWN BY: K. R. S.	
ENGINEER: D. BRAUN	
CHECKED BY: D. B.	
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
DWG. No. KB-1401-1-12	REVISION C
SCALE: NONE	DATE 09/19/14 SH 4 OF 5

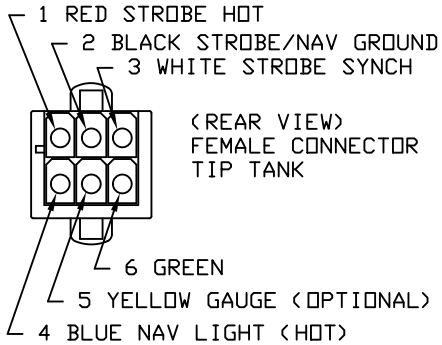


DETAIL D

WARNING: IF CONNECTOR WIRE NUMBERS AND CONNECTOR WIRE COLORS ARE IN CONFLICT, THE CONNECTOR WIRE NUMBERS ARE TO BE FOLLOWED.

WIRING FOR LED NAV LIGHTS AND LED STROBES.
OPTIONAL LIQUIDOMETER (GAUGE) WIRING IS SHOWN





10 DISREGARD THE STROBE TROUBLE SHOOTING INSTRUCTIONS ON KB-1401-1-13 AS THEY DO NOT APPLY TO LED STROBES.

9 IF YOU HAVE A TIP TANK WITH LED NAV LIGHTS AND LED STROBE LIGHTS THEN FOLLOW THE INSTALLATION AS SHOWN. IT IS RECOMMENDED THAT YOU USE THE PREVIOUS AIRCRAFT STROBE WIRING WHICH IS SHIELDED TO MAKE THE LED STROBE WIRING CONNECTIONS. REPLACE THE TAIL STROBE WITH LED TAIL STROBE AND REMOVE THE STROBE POWER PACK LOCATED AFT OF THE REAR UPHOLSTERY PANEL. EXISTING WIRING MAY BE USED AS THE SYNCH, POWER AND GROUND FOR THE LED TAIL STROBE FOLLOWING THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. IF YOUR AIRCRAFT DID NOT HAVE STROBES, A SECOND SET OF WIRES MAY BE FISHED THROUGH THE WING AND FROM THE TAIL TO THE REAR OF THE PANEL. TO MINIMIZE INTERFERENCE ON THE RADIO WHEN THE LED STROBES ARE IN USE YOU WILL NEED TO USE SHIELDED WIRE AND USE A DIFFERENT STRINGER LOCATION IF POSSIBLE. BE SURE TO GROUND THE SHIELDING AT BOTH ENDS. 20 GAGE OR LARGER 3 STRAND WIRE IS REQUIRED
NAV BREAKER (2A) REQUIRED, STROBE BREAKER (7 TO 10A) REQUIRED.
BREAKER SIZES WILL DEPEND ON NUMBER OF LIGHTS INSTALLED
BUDGET 0.5 A PER SUNTAIL OR PULSAR NAV INPUT
BUDGET 3 A PER SUNTAIL OR PULSAR STROBE INPUT

NOTES:

NEXT ASSY: DRAWN BY: D. A. B. ENGINEER: D. BRAUN CHECKED BY: D. B.	TIP TANK INSTALLATION	
TOLERANCES .X___.10 .XXX___.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*	
	DWG. No. KB-1401-1-12	REVISION C
	SCALE: NONE	DATE 09/19/14 SH 5 OF 5

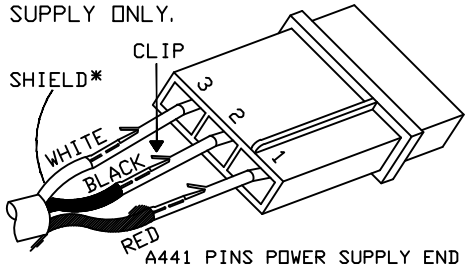
REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	CLARIFY TITLE	D. B.	01/01/13

INTERCONNECTING CABLE.

1. THE INTERCONNECTING CABLE IS SUPPLIED WITH ONE END UNFINISHED SO THAT THE CABLE CAN BE INSTALLED THROUGH SMALL OPENINGS, AND CUT TO LENGTH BEFORE FINISHING OFF THE POWER SUPPLY END.
2. THE GREY VINYL OUTER JACKET ON THE CABLE SUPPLIED WITH A WHELEN STROBE LIGHT, IS AN EXCELLENT CHAFE-RESISTANT MATERIAL, AND ADDITIONAL CHAFE PROTECTION IS SELDOM NECESSARY. THE USE OF RTV TO SECURE THE INTERCONNECTING CABLE IN INACCESSIBLE LOCATIONS IS ACCEPTABLE.
3. HIGH VOLTAGE LEADS SHALL NOT PARALLEL ADF LEADS CLOSER THAN 6 INCHES, AND SHALL NOT PARALLEL GYRO OR FLUX GATE COMPASS LEADS CLOSER THAN 3 INCHES.
4. REFERENCE SHOULD BE MADE TO AC 43,13-1A, CHAPTER 11, SECTIONS 3 AND 7, WHEN ROUTING AND FISHING THE INTERCONNECTING CABLE.
5. LEAVE A SERVICE LOOP AT THE STROBE LIGHT HEAD END, TO ALLOW ACCESS TO THE CONNECTOR FOR FLASH TUBE REPLACEMENT WITHOUT HAVING TO DISASSEMBLE THE AIRCRAFT.

COLOR CODE ON PIN 1 RED -ANODE+ 425 VDC NOMINALLY
INTERCONNECTING CABLE: PIN 2 BLACK -FLASH TUBE GROUND
P1N 3 WHITE -TRIGGER 200VDC
*GROUND SHIELD TO AIRCRAFT. GROUND AT THE POWER SUPPLY ONLY.

CAUTION: CABLES CONNECTING REMOTE POWER SUPPLY TYPE STROBE LIGHTS MUST BE CONNECTED CORRECTLY.



A441 PINS POWER SUPPLY END
A442 SOCKETS FLASH TUBE END

OBSERVE COLOR AND PIN NUMBERS

THE RETAINING CLIP ON THE SIDE OF EACH PIN OR SOCKET OF THE A441 AND A442 CONNECTOR ASSEMBLIES MUST BE BENT OUT (REFERENCE ILLUSTRATION SHOWN ABOVE) SO THAT THEY POSITIVELY SNAP INTO THE AMP 3 POSITION SOCKET NYLON CONNECTOR HOUSING.
IF IT IS NOT POSSIBLE TO GET A GOOD GRIP, IT IS RECOMMENDED THAT THE PINS AND SOCKETS BE SOLDERED TO PREVENT BURNING OF THE WIRES.
CAUTION: WHEN PINS 1 AND 2, OR PINS 2 AND 3 ARE REVERSED, THE SYSTEM WILL APPEAR TO OPERATE NORMALLY, BUT THIS CONDITION WILL CAUSE EARLY FLASH TUBE FAILURE, AND WILL VOID THE FLASH TUBE WARRANTY.

COMPLETING THE ANTI-COLLISION LIGHT INSTALLATION.

1. CHECK ALL AVIONICS SYSTEMS FOR INTERFERENCE FROM THIS INSTALLATION, REFERENCE AC 43,13-2A, CHAPTER 4, PARAGRAPH 52(B).
2. A FLIGHT CHECK WILL BE PERFORMED BY A PROPERLY CERTIFICATED PILOT WITH REFERENCE TO AC 43.13-2A, PARAGRAPH 52(A) AND (B).
3. IF A SOLID ANGLE BLOCKAGE DOCUMENT MUST BE ESTABLISHED, IT SHOULD BE PERFORMED AFTER . ALL MASKING HAS BEEN INSTALLED AND ALL FLIGHT TESTING IS COMPLETED. SEE PAGE B OF THIS MANUAL.
4. **WATERPROOFING OF STROBE LIGHT INSTALLATIONS:** WHEN NECESSARY TO WATERPROOF THE INSTALLATION OF A STROBE LIGHT MOUNTING TO THE AIRCRAFT, APPLY THE (SILICONE RUBBER) RTV 102 (OR EQUIVALENT) AROUND THE OPEN AREA WHERE WATER COULD GET IN,
5. LABEL ALL SWITCHES AND BREAKERS, INSTALL PILOT WARNING PLACARD,
6. UP-DATE AIRCRAFT RECORDS AND COMPLETE FORM 337.

NOTES:

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	ELECTRICAL CONNECTIONS NON LED STROBE AND NAV-LIGHT	
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*	
	DWG. No. KB-1401-1-13	REVISION A
	SCALE: NONE	DATE 04/04/09 SH 1 OF 4

TROUBLE-SHOOTING PROCEDURES FOR AVIATION ANTI-COLLISION STROBE LIGHT SYSTEMS

WHELEN FAA APPROVED HARDWARE. BE CAREFUL OF STROBE LIGHT PARTS THAT ARE SIMILAR IN APPEARANCE!

THE WHELEN AVIATION STROBE LIGHT IS A CONDENSER DISCHARGE STROBE LIGHT SYSTEM. A CONDENSER IS CHARGED IN APPROXIMATELY 450 VOLTS DC, THEN DISCHARGED ACROSS A XENON FLASH TUBE AT CONTROLLED INTERVALS. THE CONDENSER IS PARALLEL ACROSS THE XENON FLASH TUBE THAT IS DESIGNED TO HOLD OFF THE 450 VOLTS DC APPLIED, UNTIL THE FLASH TUBE IS TRIGGERED BY AN EXTERNAL PULSE. THIS PULSE IS GENERATED BY A SOLID STATE TIMING CIRCUIT IN THE POWER SUPPLY.

WHEN TROUBLE-SHOOTING A STROBE LIGHT SYSTEM FIRST DETERMINE IF THE TROUBLE IS WITH THE FLASH TUBE OR THE POWER SUPPLY. THIS CAN BE ACCOMPLISHED BY REPLACING THE FLASH TUBE ASSEMBLY WITH A GOOD OPERATING FLASH TUBE, OR WITH THE USE OF A WHELEN STROBE CHECK UNIT.

WHELEN'S POWER SUPPLIES ARE PROTECTED AGAINST A SHORT OR OPEN CIRCUIT ON THE OUTPUT. IN EITHER CASE THE POWER SUPPLIES WILL EFFECTIVELY TURN THEMSELVES OFF WHEN SUBJECTED TO A SHORTED OUTPUT OF A XENON FLASH TUBE THAT REFUSES TO FLASH.

WARNING: STROBE LIGHT POWER SUPPLIES ARE MEANT TO BE USED, NOT TO REMAIN IN AN INACTIVE STATE. USE THEM AT ALL TIMES, THIS WILL IMPROVE THEIR PROPER FUNCTIONING, ANY STROBE LIGHT POWER SUPPLY THAT HAS BEEN OUT OF SERVICE FOR A LONG PERIOD OF TIME IS SUBJECT TO FAILURE BECAUSE THE ELECTROLYTIC CONDENSER LOSES THE POLARITY FORMATION. A STROBE LIGHT POWER SUPPLY NOT HAVING BEEN USED FOR ONE YEAR OR LONGER IS VULNERABLE TO FAILURE.

IF THIS IS THE CASE, IT IS RECOMMENDED TO START OPERATING THE SYSTEM ON A VOLTAGE THAT IS REDUCED BY 25 PERCENT FOR 10 TO 15 MINUTES BEFORE PUTTING THE POWER SUPPLY INTO NORMAL SERVICE. THIS WILL PREVENT OVERHEATING OF THE CONDENSER WHILE THEY REFORM. IF THE POWER SUPPLY, AFTER A LONG PERIOD OF NON USE, IS OPERATED AT FULL VOLTAGE IMMEDIATELY, THERE IS AN EXCELLENT POSSIBILITY THAT THE CONDENSER WILL BECOME OVERHEATED.

POWER SUPPLY TEST PROCEDURES:

THE POWER SUPPLY IS A **HIGH VOLTAGE** DEVICE. LET THE POWER SUPPLY BLEED DOWN FOR 10 MINUTES AFTER TURNING OFF POWER BEFORE HANDLING,

WARNING: REVERSE POLARITY OF THE INPUT POWER, FOR JUST AN INSTANT, WILL PERMANENTLY DAMAGE THE POWER SUPPLY. THIS DAMAGE IS SOMETIMES NOT IMMEDIATELY APPARENT, BUT WILL CAUSE FAILURE LATER ON.

EXTERNAL TRIGGER SWITCHING IS NOT PROVIDED ON THE A413A, HDA-DF STROBE LIGHT POWER SUPPLY (REFERENCE A413, T3-DF OLD STYLE STROBE LIGHT POWER SUPPLY, OUTLET #1). DO NOT SHORT OUT HIGH VOLTAGE FOR EXTENDED LENGTH OF TIME; IT WILL CAUSE OVERHEATING OF THE OUTPUT DIODES AND CAUSE POSSIBLE FAILURE.

A NORMAL OPERATING POWER SUPPLY EMITS AN AUDIBLE TONE, IF THERE IS NOT SOUND EMITTED, INVESTIGATE.

1. DETERMINE THAT THERE IS A PROPER INPUT VOLTAGE AT THE POWER SUPPLY. IF THIS TEST IS POSITIVE GO TO STEP 2.
2. CLEAR ALL POSSIBLE SHORTS AT THE POWER SUPPLY, BY DISCONNECTING THE OUTPUT CABLES FROM THE POWER SUPPLY OUTLETS, AND CONNECT AN OPERATING STROBE LIGHT HEAD ASSEMBLY OR A STROBE CHECK UNIT DIRECTLY TO THE POWER SUPPLY OUTLET, THEN APPLY THE REQUIRED VOLTAGE TO THE POWER SUPPLY INPUT. IF THIS APPLICATION PROVES POSITIVE THE POWER SUPPLY IS IN WORKING CONDITION, AND THE PROBLEM MAY BE WITH THE INTERCONNECTING CABLES.

NOTES:

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	ELECTRICAL CONNECTIONS NON LED STROBE AND NAV-LIGHT
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
	DWG. No. KB-1401-1-13 REVISION A
	SCALE: NONE DATE 04/04/09 SH 2 OF 4

CABLE CONTINUITY CHECK PROCEDURES.

IF PINS 1 AND 3 ARE REVERSED, OR IF THERE IS A SHORT BETWEEN PINS 1 AND 2 OF THE INTERCONNECTING CABLE, THE POWER SUPPLY WILL BE RENDERED NON-OPERABLE UNTIL THE SHORT IS CLEARED. A SHORT OF THIS TYPE WILL NOT CAUSE ANY PERMANENT DAMAGE TO THE POWER SUPPLY, HOWEVER A DISCHARGE OF THE CONDENSER ACROSS PIN 1 AND PIN 3 WILL DESTROY THE TRIGGER CIRCUIT IN THE POWER SUPPLY.

1, CHECK FOR CONTINUITY BETWEEN THE CONNECTORS OF EACH INTERCONNECTING CABLE:

PIN 1 TO PIN 1 (RED WIRE = ANODE +).
PIN 2 TO PIN 2 (BLACK WIRE = FLASH TUBE GROUND -).
PIN 3 TO PIN 3 (WHITE WIRE = TRIGGER),

2. CHECK FOR SHORTS BETWEEN PINS 1 AND 2, PINS 1 AND 3, AND PINS 2 AND 3 OF THE INTERCONNECTING CABLE.

NOTE: WHEN PINS 1 AND 2, OR PINS 2 AND 3 ARE REVERSED, THE SYSTEM WILL APPEAR TO OPERATE NORMALLY, BUT THESE CONDITIONS WILL CAUSE EARLY FLASH TUBE FAILURE, AND VOID THE FLASH TUBE WARRANTY.

XENON FLASH TUBE PROCEDURES.

1. A XENON FLASH TUBE CAN BE VERY PHOTOSENSITIVE. ONE WILL FLASH NORMALLY WHEN EXPOSED TO AN EXTERNAL LIGHT SOURCE, BUT MAY BECOME HARD TO FIRE WHEN SUBJECTED TO DARKNESS.
2. THEY WILL BECOME HARD FIRING WITH AGE, OR WHEN EXPOSED TO A VERY HIGH TEMPERATURE, A HARD FIRING TUBE WILL SOMETIMES OPERATE WITH THE ENGINE RUNNING, BUT WILL FAIL WHEN OPERATED ON A LOW BATTERY.
3. THEY CAN DEVELOP A LEAK THROUGH EGGSHELLING OF THE GLASS, OR A LEAK CAN DEVELOP AROUND THE SEAL OF THE WIRE TO THE GLASS. THIS IS CAUSED BY HOT AND COLD CYCLING OF NORMAL OPERATING OF THE SYSTEM.
4. THEY CAN GO INTO SELF-IONIZATION (CONTINUOUSLY GLOW A LIGHT BLUE), THUS RENDERING THE ENTIRE SYSTEM NON-OPERATIONAL UNTIL FLASH TUBE IS REPLACED. THIS MOST LIKELY OCCURS WHEN THE INPUT VOLTAGE IS HIGHEST. THIS CAN BE CHECKED BY TURNING THE SYSTEM OFF. WHEN TURNING THE SYSTEM BACK ON, IT GENERALLY WILL OPERATE NORMALLY FOR A FEW FLASHES BEFORE GOING BACK INTO SELF-IONIZATION.

ANY OF THE ABOVE MENTIONED CONDITIONS ARE REASONS FOR REPLACEMENT OF THE XENON FLASH TUBE.

NOTE: INSTALLING ONE NEW FLASH TUBE IN ANY MULTI-HEAD STROBE LIGHT SYSTEM, WILL SOMETIMES CAUSE THE REMAINING OLD FLASH TUBE TO MISFIRE OR SKIP. THIS SIGNIFIES THAT THE OLD FLASH TUBE IS NEARING THE END OF IT'S SERVICE LIFE, HOWEVER, TO CHECK THE QUESTIONABLE FLASH TUBE, INSTALL IT IN A SYSTEM AND APPLY A REDUCED VOLTAGE, APPROXEMATELY 20 PERCENT, TO THE INPUT TO THE POWER SUPPLY IF THE FLASH TUBE WILL OPERATE AT THIS REDUCED LEVEL, IT STILL HAS A GREAT DEAL OF SERVICE LIFE IN IT.

WHELEN'S DF. (DOUBLE FLASH STROBE LIGHT SYSTEM) WAS DESIGNED TO DOUBLE FLASH AT THE OPERATIONAL LINE VOLTAGE OF THE AIRCRAFT. IT WILL BE NOTED THAT THE SECOND FLASH BECOMES INTERMITTENT WHEN THE LINE VOLTAGE DROPS BELOW THE BATTERY CHARGING VOLTAGE OF THE ELECTRICAL SYSTEM.

NOTE: WHELEN ENGINEERING DOES NOT RECOMMEND ATTEMPTING TO REPAIR THEIR STROBE LIGHT POWER SUPPLIES IN THE FIELD, IT IS RECOMMENDED TO TAKE ADVANTAGE OF EITHER THEIR EXCHANGE SERVICE, OR THEIR 24-HOUR REPAIR SERVICE.

NOTES:

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	ELECTRICAL CONNECTIONS NON LED STROBE AND NAV-LIGHT
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-13 REVISION A
	SCALE: NONE DATE 04/04/09 SH 3 OF 4

R.F.I, AND E.M.I. PROBLEMS (RADIO NOISE).

WHELEN ENGINEERING STROBE LIGHT POWER SUPPLIES ARE DESIGNED WITH A LOW PASS FILTER BUILT IN TO KEEP R. F. I. AND E. M. I DOWN TO MINIMUM, HOWEVER, SOMETIMES THERE WILL BE INTERFERENCE IN THE RADIOS BY THE STROBE LIGHT SYSTEM. MOST ALWAYS, THIS IS AN INSTALLATION PROBLEM, NOT A STROBE LIGHT POWER SUPPLY PROBLEM,

THE POWER SUPPLY SHOULD ACQUIRE ITS POWER FROM A LOW IMPEDANCE SOURCE, SUCH AS THE ALTERNATOR OR GENERATOR END OF THE ELECTRICAL BUSS, HISTORICALLY, THE ROTATING BEACON OR STROBE LIGHT CIRCUIT BREAKER IS EDDED ON THE ELECTRICAL BUSS AT THE OPPOSITE END, WITH THE RADIO IN BETWEEN THE STROBE BREAKER AND THE LOW IMPEDANCE END OF THE ELECTRICAL BUSS. ANY NOISE GENERATED BY THE POWER SUPPLY WILL BE TRANSMITTED INTO THE RADIO THROUGH THE A+ INPUT LEAD TO THE RADIO. MOST OF THE NEW RADIO EQUIPMENT MANUFACTURED TODAY HAS INADEQUATE INPUT FILTERING, AND ANY NOISE ON THE ELECTRICAL BUSS IS AMPLIFIED IN THE RADIO AND PRODUCED THROUGH THE SPEAKER AND/OR HEAD PHONES LOUD AND CLEAR.

TWO THINGS CAN BE DONE TO ALLEVIATE THE PROBLEM. ,.

1. CONNECT THE STROBE LIGHT CIRCUIT BREAKER TO THE LOW IMPEDANCE END OF THE ELECTRICAL BUSS, USING A 16 GAUGE JUMPER, AS CLOSE TO THE BATTERY AS POSSIBLE.
2. INSTALL ADDITIONAL FILTERING IN THE RADIO A+ LINE, OR PROVIDE AN ISOLATED A+ SOURCE FOR THE RADIOS BY INSTALLING A FILTER CHOKE IN SERIES WITH THE RADIO INPUT POWER LEAD AND A FILTER ADAPTER TO GROUND AND REFERENCE ALL RADIOS TO THEIR FILTER. THIS WILL ALSO IMPROVE THE RADIO SYSTEM FROM OTHER LINE NOISES.

FREQUENTLY, THE NOISE IS NOT ON THE A+ LEAD BUT IS CONDUCTED THROUGH THE GROUND CIRCUIT, ALTERNATOR, ELECTRICAL MOTOR, FUEL PUMPS AND STROBE LIGHT POWER SUPPLIES DRAW HEAVY CURRENT THROUGH THE GROUND CIRCUIT OF THE AIRCRAFTS FRAME. ANY VOLTAGE DROP IN THE GROUND CIRCUIT BETWEEN THE BATTERY GROUND AND THE RADIO GROUND CAN LOOK LIKE A SIGNAL TO THE RADIOS, WHEN THE SPEAKER HEAD PHONE AND MICROPHONE USE THE AIRCRAFT'S GROUND FOR RETURN TO THE RADIOS, ONE WILL ALWAYS EXPERIENCE SOME INTERFERENCE, THE AMOUNT OF INTERFERENCE DEPENDS UPON HOW MUCH POTENTIAL DIFFERENCE THERE IS BETWEEN THE TWO GROUND POINTS. BY ISOLATING THE AUDIO GROUNDS FROM THE AIRPLANE GROUND AT THE SPEAKER, HEAD PHONE AND MICROPHONE FUNCTIONS, AND GROUNDING THE AFOREMENTIONED WITH THE RADIO AT ONE CENTRAL GROUND POINT, WILL ELIMINATE THE MAJORITY OF ALL GROUND INDUCTED RADIO NOISE.

DO NOT PARALLEL ANY AUDIO LEADS WITH ANY POWER LEAD SUPPLYING ENERGY TO A NOISE GENERATOR; (I. E,) ALTERNATOR, ELECTRIC MOTOR OR DC CHOPPERS SUCH AS INVERTERS AND STROBE LIGHT POWER SUPPLIES.

THE INTERCONNECTING CABLE BETWEEN THE POWER SUPPLY AND THE REMOTE STROBE LIGHT HEAD ASSEMBLY RADIATE VERY LITTLE, FOR THE OUTPUT CIRCUIT OF THE POWER SUPPLY IS VERY LOW IMPEDANCE. THEY CAN RADIATE RF LIKE AN ANTENNA IF THE SHIELD IS NOT TERMINATED TO GROUND, THE RADIATION OF RF ENERGY IS REDUCED TO A MINIMUM BY PROPERLY TERMINATING THE SHIELD AT ONE END OR THE OTHER, GENERALLY THE POWER SUPPLY END, BUT WHICH EVER PROVES THE QUIETEST GROUND. DO NOT TERMINATE BOTH ENDS.

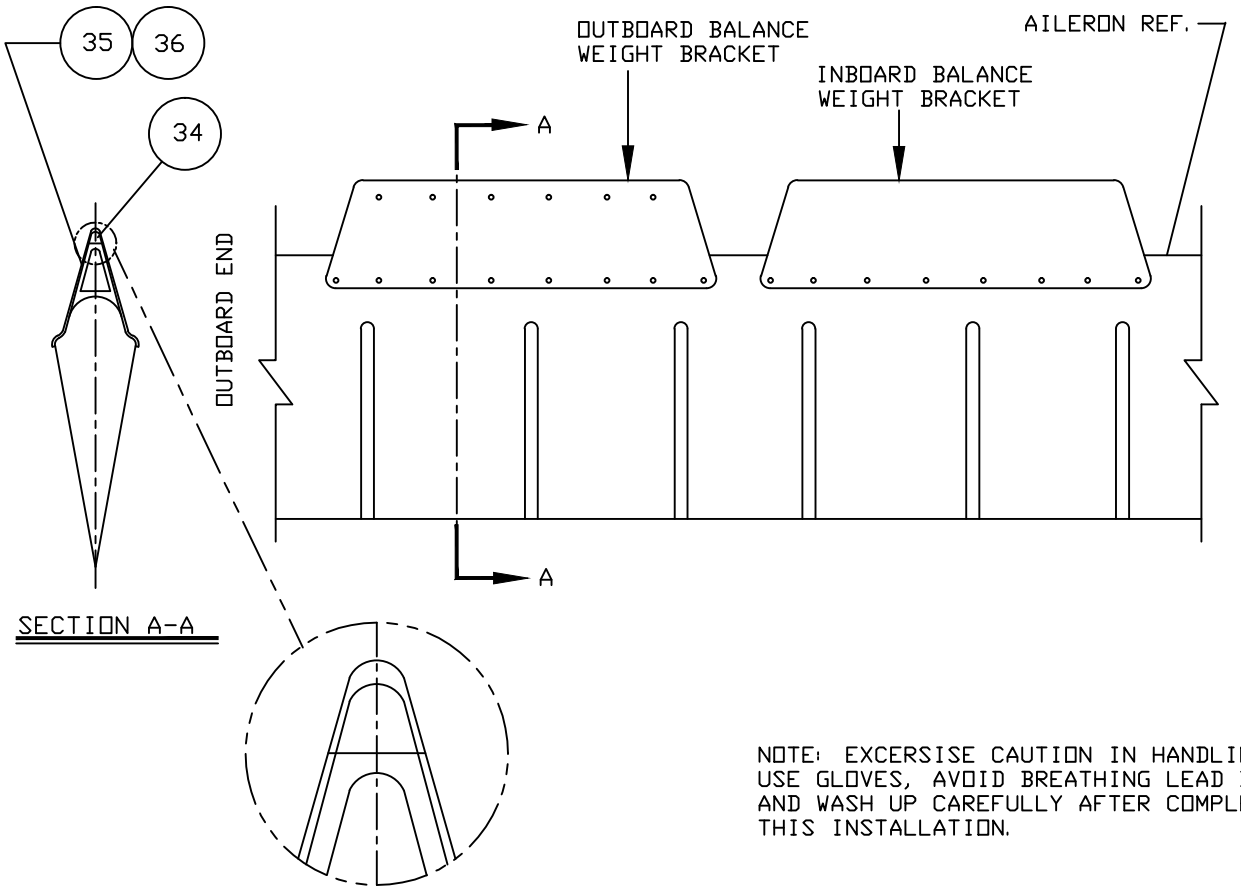
WHEN INSTALLING A STROBE LIGHT SYSTEM, PROVIDE A GOOD GROUND AND A LOW IMPEDANCE SOURCE TO THE STROBE LIGHT POWER SUPPLY. ELIMINATE GROUND LOOPS IN AUDIO CIRCUITS BY USING A CENTRALLY LOCATED GROUND POINT FOR ALL AUDIO GROUNDS,

WHELEN ENGINEERING HAS AVAILABLE RF SHIELDED FLASH TUBES AND STROBE LIGHT HEAD ASSEMBLIES TO SUPPRESS THE TRIGGER PULSE OR CLICKING SOMETIMES HEARD IN THE RADIOS.

IF NOISE PROBLEMS PERSIST, AND THE PROCEDURES DESCRIBED HAVE NOT CLEARED THEM UP, PLEASE CONTACT THE WHELEN ENGINEERING COMPANY FOR ASSISTANCE.

NOTES:

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	ELECTRICAL CONNECTIONS NON LED STROBE AND NAV-LIGHT
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	*D'SHANNON PRODUCTS, LTD*
	DWG. No. KB-1401-1-13 REVISION A
	SCALE: NONE DATE 04/04/09 SH 4 OF 4



REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	INC ED090512-04	D. B.	05/14/09
B	CLARIFY WEIGHT INSTALLATION INSTRUCTIONS	D. B.	10/05/09

NOTE: EXCERSISE CAUTION IN HANDLING LEAD. USE GLOVES, AVOID BREATHING LEAD DUST, AND WASH UP CAREFULLY AFTER COMPLETING THIS INSTALLATION.

BALANCE WEIGHT INSTALLATION INSTRUCTIONS:

NOTES: * 6.5 IN-LB OR GREATER ON 35 AND 33 MODELS.

1. -MEASURE THE STATIC BALANCE OF EACH AILERON. STATIC OVERBALANCE OF STOCK AIRCRAFT IS 0.2 IN-LBS OR GREATER. NEW STATIC BALANCE WEIGHT IS TO BE 4.0* IN-LBS OR GREATER.
2. -DRILL OUT EXISTING BALANCE WEIGHT ATTACHMENT RIVETS IN OUTBOARD BALANCE WEIGHT BRACKET ONLY, DO NOT REMOVE BRACKET FROM AILERON.
3. -SLIDE EXISTING BALANCE WEIGHT TO INBOARD BALANCE WEIGHT BRACKET AND REPLACE WITH ITEM 34 BALANCE WEIGHT B1405 IN THE OUTBOARD BRACKET
4. -DRILL NEW WEIGHT TO MATCH EXISTING OUTBOARD BRACKET ATTACHMENT HOLES AND INSTALL NEW BALANCE WEIGHT. INSTALL EXISTING BALANCE WEIGHT IN INBOARD BRACKET. USE ITEM 35 SCREWS AND ITEM 36 NUT TO INSTALL BOTH WEIGHTS.
5. -REPEAT STEPS 1-3 ON OPPOSITE SIDE AILERON.
6. -MEASURE THE STATIC BALANCE OF EACH AILERON AFTER INSTALLATION OF NEW WEIGHT. EACH AILERON MUST HAVE A STATIC OVERBALANCE (NOSE HEAVY) OF 4.0* IN-LBS. OR GREATER. IN THE EVENT THAT THE STATIC OVERBALANCE IS LESS THAN 4.0* IN-LBS, ADD SUFFICIENT LEAD ROD, $^{15}/_{32}$ INCH IN DIAMETER INSIDE THE INBOARD BRACKET AFT OF THE EXISTING BALANCE WEIGHT. DRILL HOLES AND SECURE WITH ITEM 35 SCREWS AND ITEM 36 NUT.

MODEL REQUIRING BALANCE WEIGHT INSTALLATION:
S35, V35, V35A, V35B,
ALL 33 AND 36 MODELS.

ITEM	QTY	PART No.	DESCRIPTION
36	30	NAS679-A06	NUT
35	30	AN526C632R16	SCREW
34	2	B1405	BALANCE WEIGHT

NEXT ASSY:
DRAWN BY: K. R. S.
ENGINEER: D. BRAUN
CHECKED BY: D. B.

AILERON BALANCE WEIGHT INSTRUCTIONS

TOLERANCES
.X__.10 .XXX__.01
.XX_.03 .XXXX_.001
ANGLES ±5%
UNLESS STATED

D'SHANNON PRODUCTS, LTD

DWG. No. KB1406 REVISION B
SCALE: NONE DATE 04/04/09 SH 1 OF 1

REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	REVISE PLACARDS TO REFLECT AFMS; REMOVE SHT 2.	D. B.	05/14/09

REQUIRED PLACARDS:

(-1) TRANSFER TIP TANK FUEL IN LEVEL FLIGHT ONLY (SEE NOTES 1, 2, & 3)

(-2) LEFT PUMP ON - OFF RIGHT PUMP ON - OFF (SEE NOTES 1, 2, & 4)

(-3) 20 GALLON CAPACITY (SEE NOTES 1, 2, & 5)

(-4) TYP. ADDED PLACARD (BASED ON V35B) (SEE NOTES 1, 2, 3, 6 & 7)

NORMAL CATEGORY AIRPLANE

(WHEN EQUIPPED WITH TIP TANKS)

AIRSPEED LIMITATION (NORMAL CAT. OPERATIONS)

MAXIMUM DESIGN MANEUVERING SPEED 145 MPH (126 KNOTS)

OPERATE IN ACCORDANCE WITH FAA APPROVED FLIGHT MANUAL / PILOT'S OPERATING HANDBOOK. INTENTIONAL SPINS ARE PROHIBITED. NO ACROBATIC MANEUVERS APPROVED.

(-5) FUEL CONSUMPTION MAY EXCEED TIP TRANSFER RATE. INITIATE FUEL TRANSFER WITH BOTH MAIN TANKS 1/2 FULL. MONITOR MAIN TANK GAUGES TO PREVENT OVERFLOW. (SEE NOTES 1, 2, AND 3)

(-6) AS REQUIRED:
AVGAS 80/87 OCTANE
AVGAS 100/100LL OCTANE
AIRCRAFT STC'd UNLEADED AUTO FUEL
JET FUEL ONLY
(SEE NOTES 1, 2, AND 5)

(-7) ------FULL------ ------3/4------ ------1/2------ ------1/4------
(SEE NOTES 1, 2, AND 10)

NOTES:

(1) ALL CHARACTERS MUST BE BOLD FACE VERTICAL GOTHIC OR ARIAL LETTERING SYMMETERICALLY CENTERED. SIZE AND DISPLAY TO BE CONSISTANT WITH CAR 3.755 THROUGH 3.772.

(2) PLACARD MATERIAL SHALL BE CLEAR BACKED OR BLACK BACKED MYLAR - SELF ADHESIVE OR EQUIVELENT.

(3) LOCATE IN FULL VIEW OF PILOT.

(4) LOCATE ADJACENT TO PUMP SWITCHES.

(5) LOCATE AT EACH TIP TANK FILLER CAP.

(6) 125 MPH FOR MODELS A35 THROUGH G35, AND 35R
136 MPH FOR MODELS H35 THROUGH M35
142 MPH FOR MODELS N35 AND P35
140 MPH FOR MODELS 35-33, 35-A33, 35-B33, 35-C33, E33, AND F33
145 MPH FOR MODELS V35, V35A, V35B, F33A, AND F33C
147 MPH FOR MODELS 35-C33A, E33A, E33C
148 MPH FOR MODEL S35
144 MPH FOR MODEL G33
152 MPH FOR MODELS 36 AND A36 (THROUGH S/N E-2110, EXCEPT E-1946, AND E-2104).
134 KIAS FOR MODEL A36 AND G36 (E-1946, E2104, E-2111 AND AFTER).
134 KIAS FOR MODEL A36TC.
For knot - mph conversions see applicable Airplane Flight Manual Supplement.

(7) KEEP EXISTING AIRPLANE PLACARD WHICH REFERENCES UTILITY CATEGORY AND MANEUVERING SPEEDS AND ADD NEW PLACARD FOR NORMAL CATEGORY OPERATION:

(8) THIS PLACARD TO REPLACE AN EXISTING SIMILAR PLACARD.

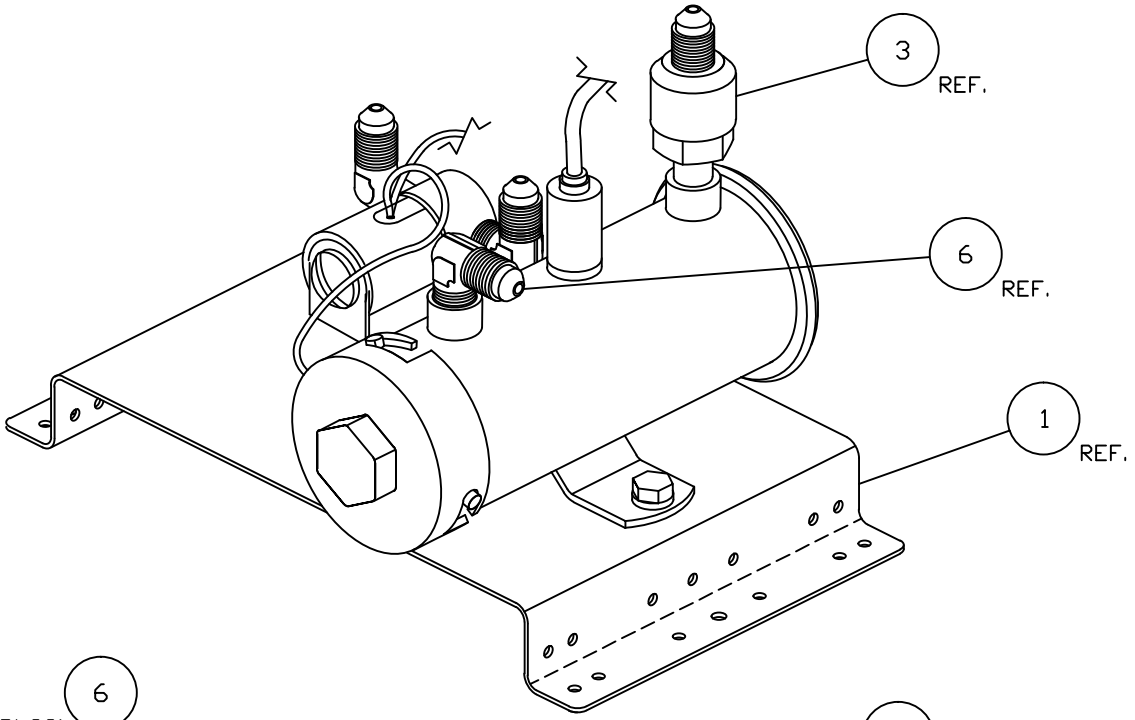
(9) SUBSTITUTE -8 PLACARD FOR -1 AS INDICATED.

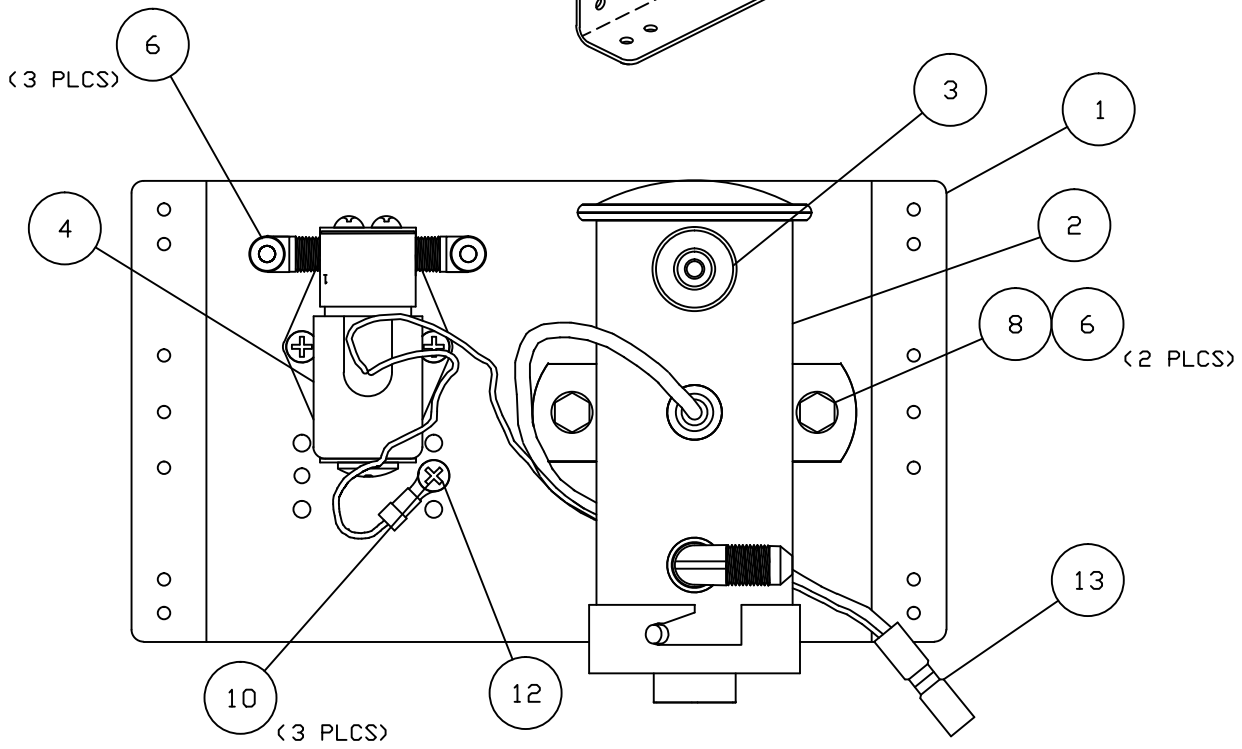
(10) PLACE NEXT TO SIGHT GAUGES. CALIBRATE BY LOADING 5, 10, 15 AND 20 GALLONS OF FUEL.

NOTES:

NEXT ASSY: DRAWN BY: K. R. S. ENGINEER: D. BRAUN CHECKED BY: D. B.	INSTALLATION - WING TIP FUEL TANKS (PLACARDS)
TOLERANCES .X__.10 .XXX__.01 .XX_.03 .XXXX_.001 ANGLES ±5% UNLESS STATED	D'SHANNON PRODUCTS, LTD
	DWG. No. KB1404 REVISION A
	SCALE: NONE DATE 04/04/09 SH 1 OF 1

REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	REVISE VIEWS; BOM	D. B.	01/01/13





NOTES:

ITEM	QTY	PART No.	DESCRIPTION
13	1	7113K86*	BUTT TERMINAL
12	1	7113K61*	RING TERMINAL
10	3	AN5266C632-R6	STAINLESS STEEL SCREW
9	2	AN960-416	FLAT WASHER
8	2	AN4-4A	HEX HEAD BOLT
6	3	AN822-4D-6	ELBOW
4	1	B1404-06A	SOLENOID AND ELBOWS SUBASSY OPT A 12V
3	1	B2500-4	FILTER ASSY
2	1	B1404-03A	FUEL PUMP AND FILTER SUBASSY OPT A 12V
1	1	B1404-01	BRACKET FOR PUMP SUBASSY

NEXT ASSY:
DRAWN BY: K. R. S.
ENGINEER: D. BRAUN
CHECKED BY: D. B.

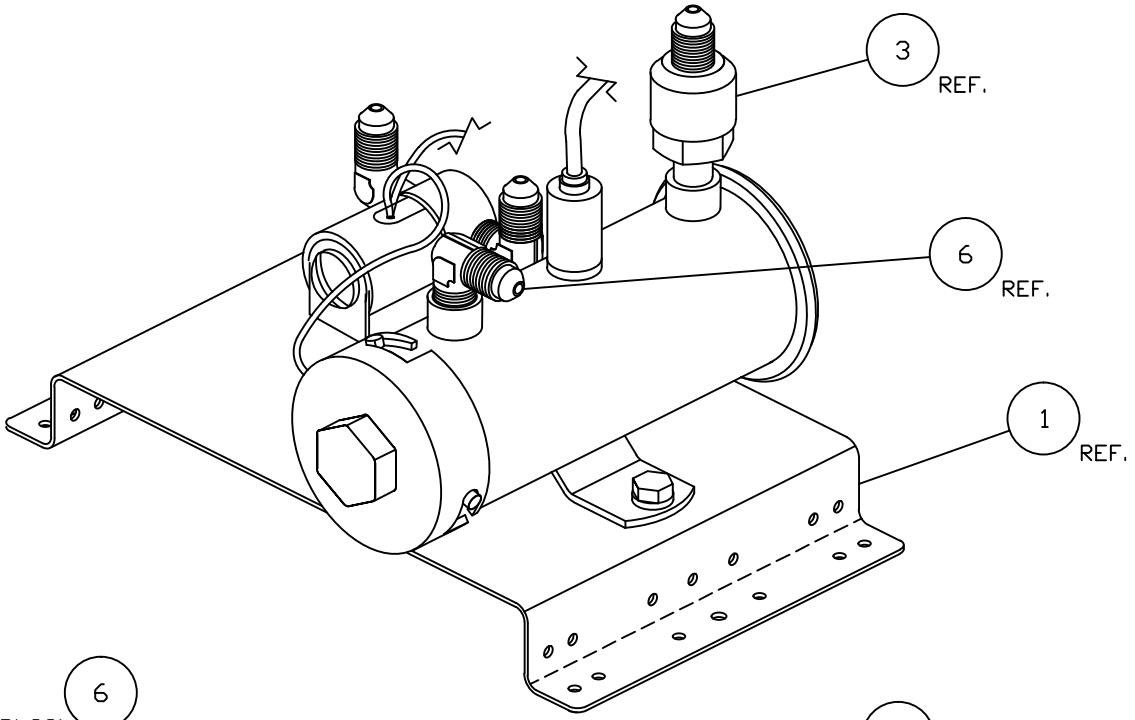
BRAKCET AND FUEL PUMP ASSEMBLY
OPTION "A" (12V)

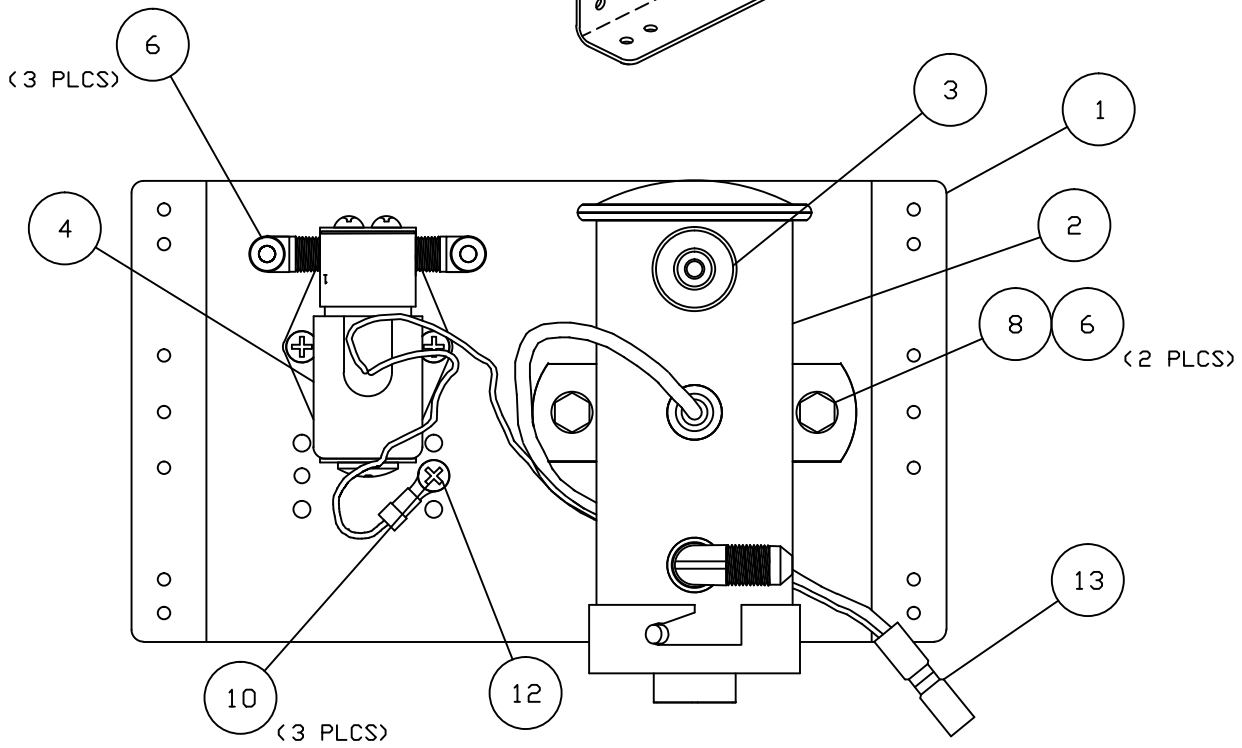
TOLERANCES
.X__.10 .XXX__.01
.XX_.03 .XXXX_.001
ANGLES ±5%
UNLESS STATED

D'SHANNON PRODUCTS, LTD

DWG. No. KB1404A | REVISION A
SCALE: NONE | DATE 04/04/09 | SH 1 OF 1

REVISION RECORD			
LTR.	CHANGES	BY	DATE
NC	RELEASED	K. S.	04/04/09
A	REVISE VIEWS; BOM	D. B.	01/01/13





NOTES:

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10	3	AN5266C632-R6	STAINLESS STEEL SCREW
9	2	AN960-416	FLAT WASHER
8	2	AN4-4A	HEX HEAD BOLT
6	3	AN822-4D-6	ELBOW
4	1	B1404-06B	SOLENOID AND ELBOWS SUBASSY OPT B 24V
3	1	B2500-4	FILTER ASSY
2	1	B1404-03B	FUEL PUMP AND FILTER SUBASSY OPT B 24V
1	1	B1404-01	BRACKET FOR PUMP SUBASSY

NEXT ASSY:
DRAWN BY: K. R. S.
ENGINEER: D. BRAUN
CHECKED BY: D. B.

BRAKCET AND FUEL PUMP ASSEMBLY
OPTION "B" (24V)

TOLERANCES
.X__.10 .XXX__.01
.XX_.03 .XXXX_.001
ANGLES ±5%
UNLESS STATED

D'SHANNON PRODUCTS, LTD

DWG. No. KB1404B | REVISION A
SCALE: NONE | DATE 04/04/09 | SH 1 OF 1