

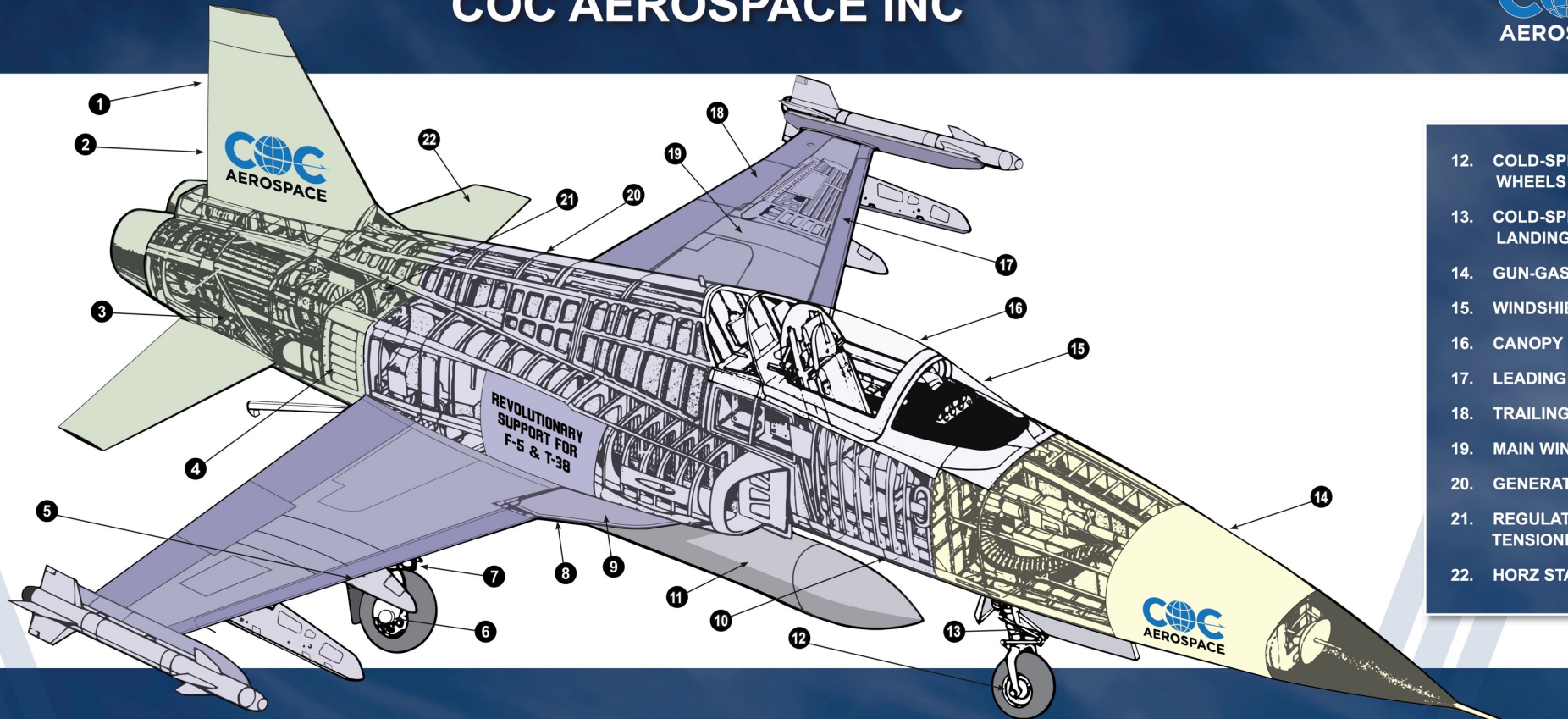


# CL 275 GALLON TANK

COC's Northrop F-5 Capabilities



1. VERT TRAILING EDGE
2. RUDDER
3. HORN HORZ STABILIZER
4. AUX-AIR-ACTUATOR  
14-50901-5
5. SEQUENCING SWITCH
6. PARKING BRAKE &  
ANTI-SKID
7. COLD-SPRAY REPAIR MAIN  
LANDING GEAR
8. ADAPTER, FUEL DRAIN
9. LEX, W-6\_IHQ PKG
10. COCKPIT LONGERONS
11. 275 GAL CENTERLINE  
FUEL TANK



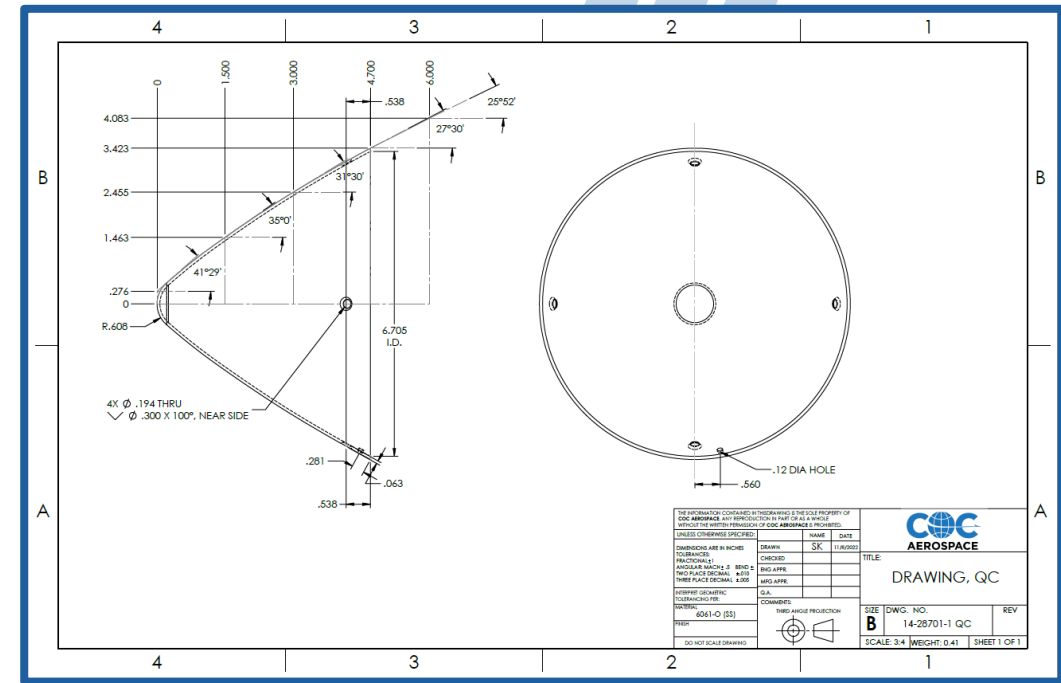
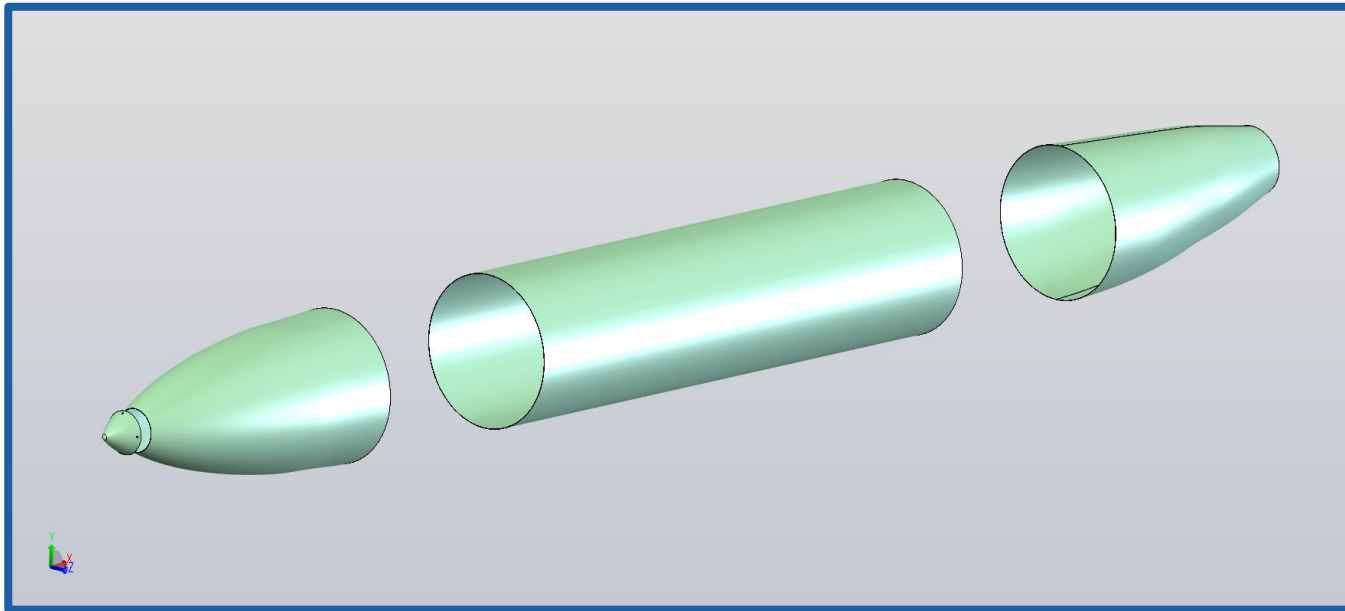
12. COLD-SPRAY REPAIR  
WHEELS
13. COLD-SPRAY NOSE  
LANDING GEAR
14. GUN-GAS DEFLECTOR
15. WINDSHIELD REPAIR
16. CANOPY REPAIR
17. LEADING EDGE FLAPS
18. TRAILING EDGE PANEL
19. MAIN WING PANEL
20. GENERATOR
21. REGULATOR\_CABLE  
TENSIONER
22. HORZ STABILIZER

## REVOLUTIONARY SUPPORT FOR NORTHROP F-5 & T-38 AIRCRAFT



# 275 Gal. Centerline Fuel Tank

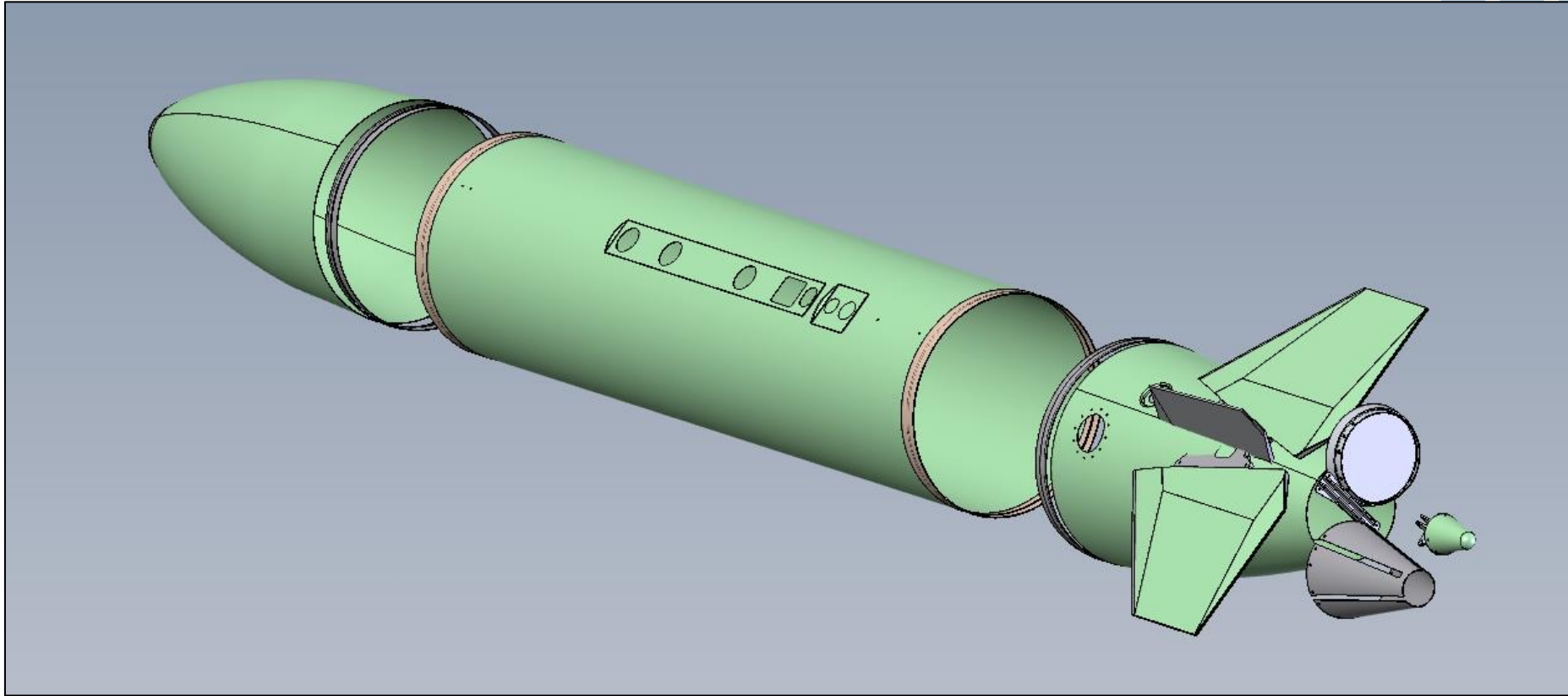
## Engineering work; CAD and 2D drawings





# 275 Gal. Centerline Fuel Tank

## Engineering work; CAD and 2D drawings





# 275 Gal. Centerline Fuel Tank

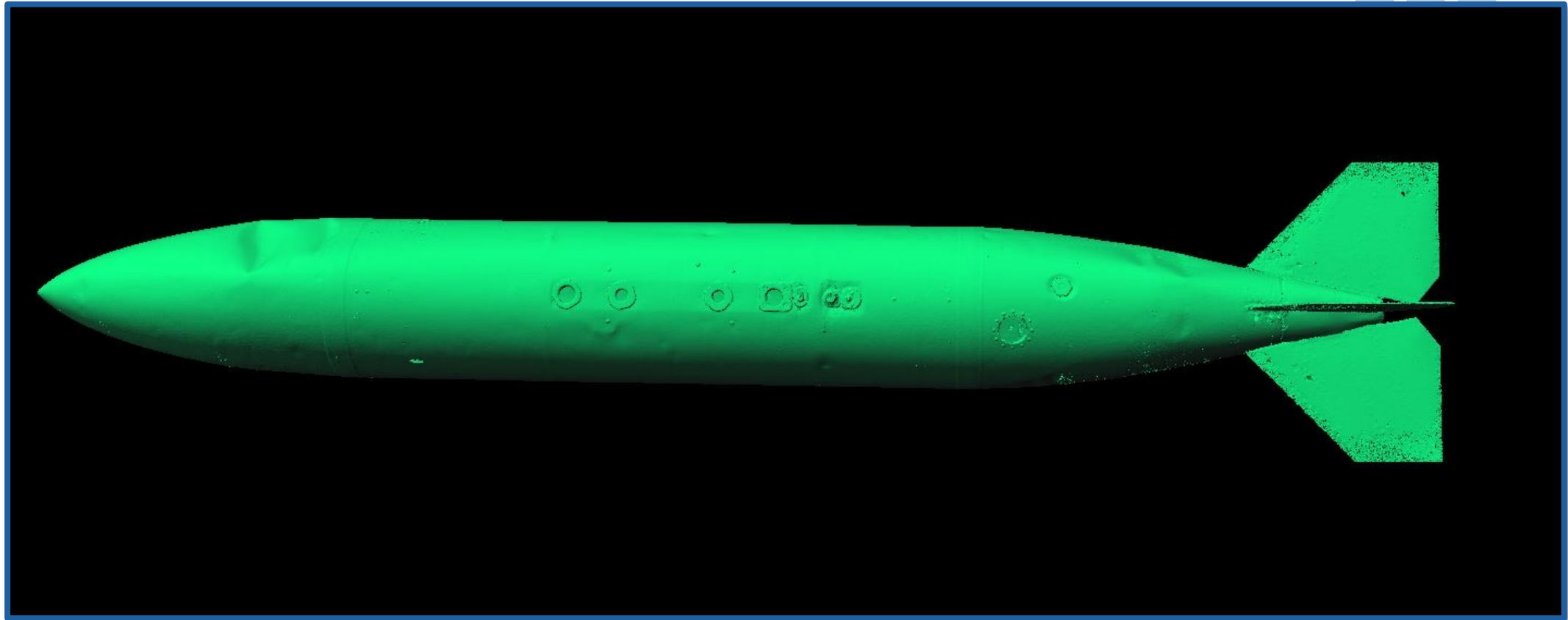
## Engineering work; CAD and 2D drawings





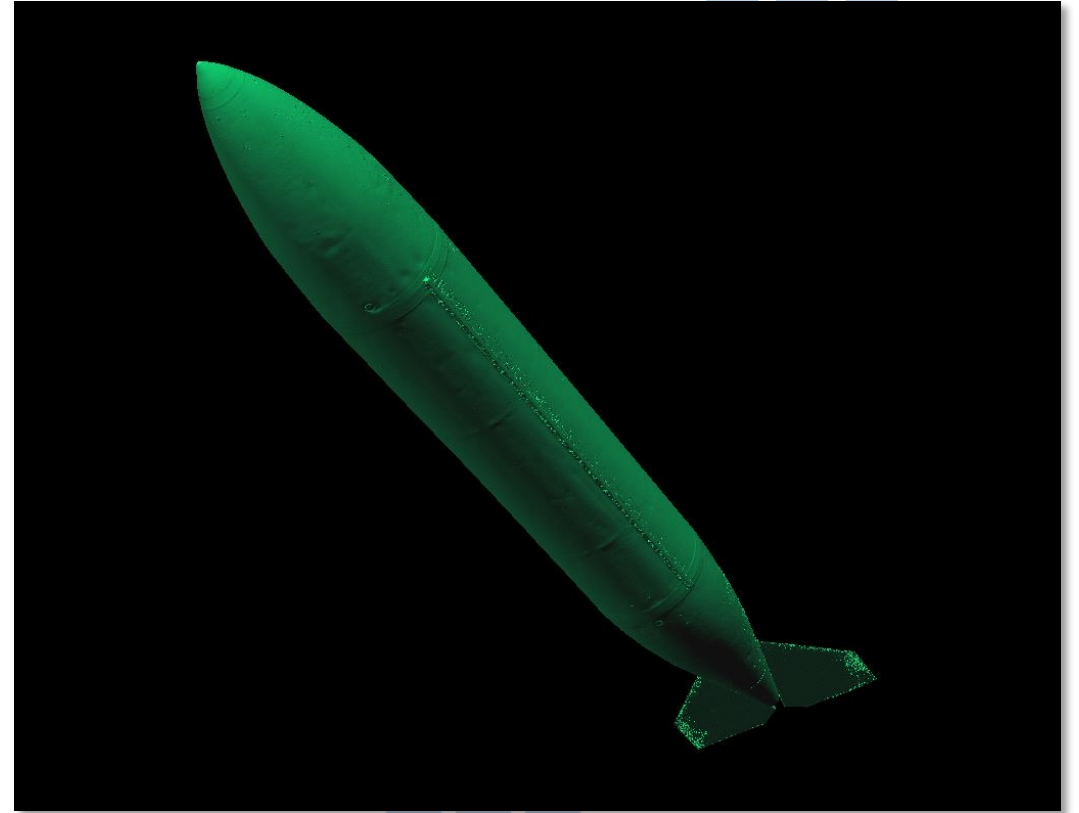
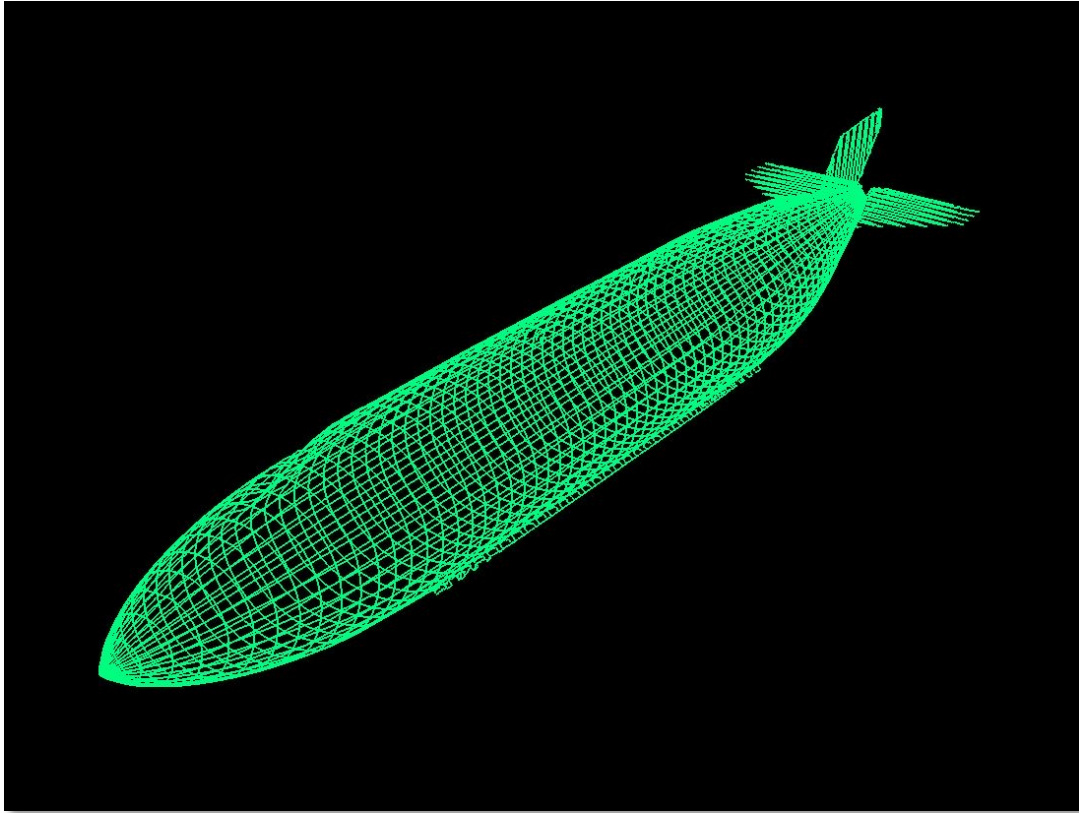
# 275 Gal. Centerline Fuel Tank

## Engineering work; CAD and 2D drawings



# 275 Gal. Centerline Fuel Tank

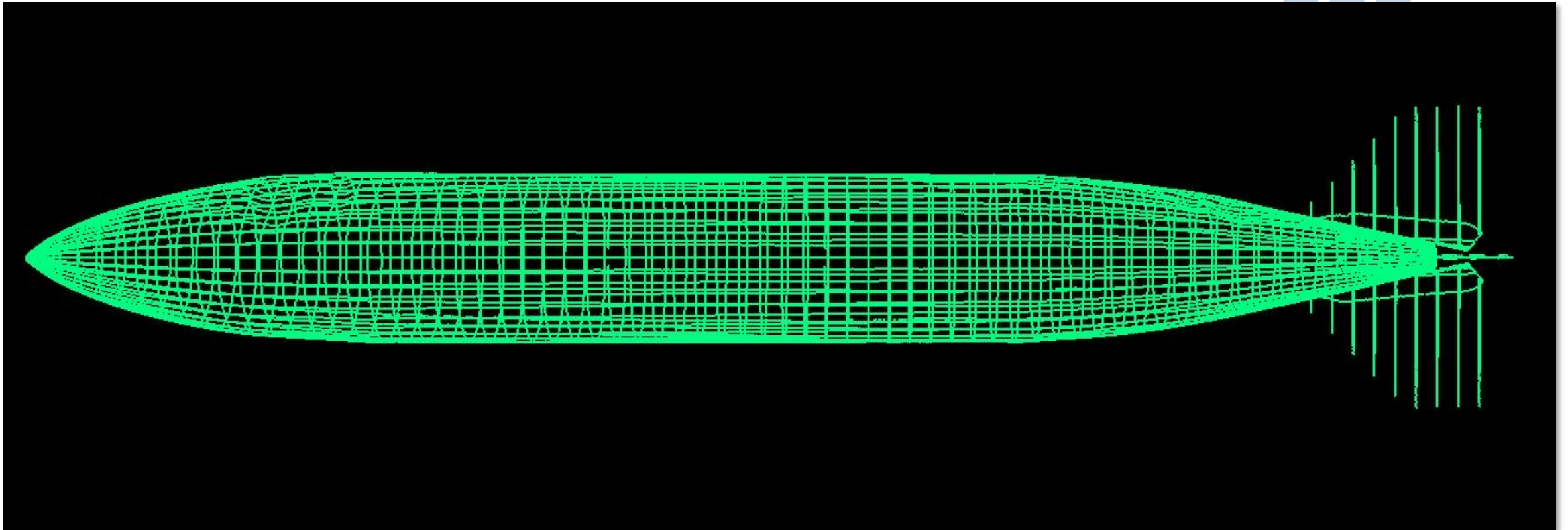
## Engineering work; CAD and 2D drawings





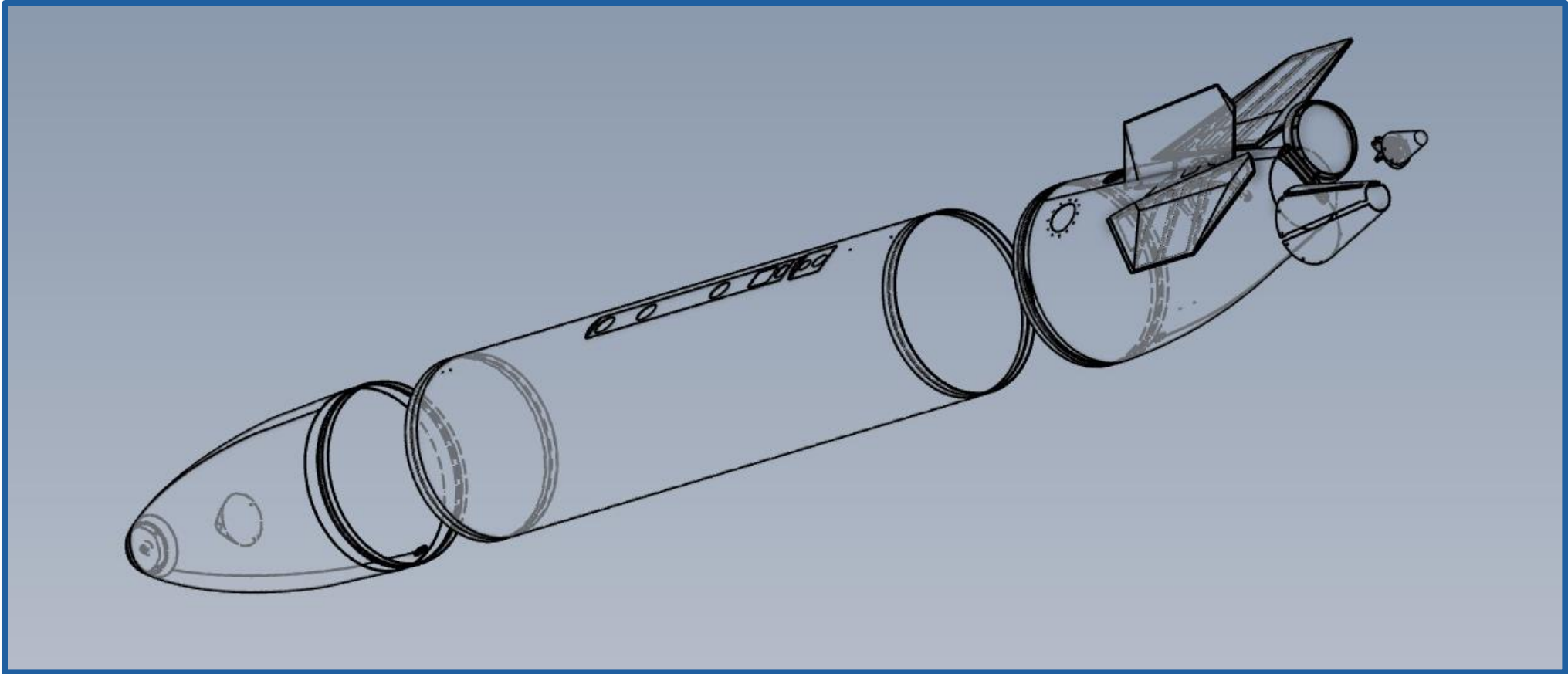
# 275 Gal. Centerline Fuel Tank

## Engineering work; CAD and 2D drawings



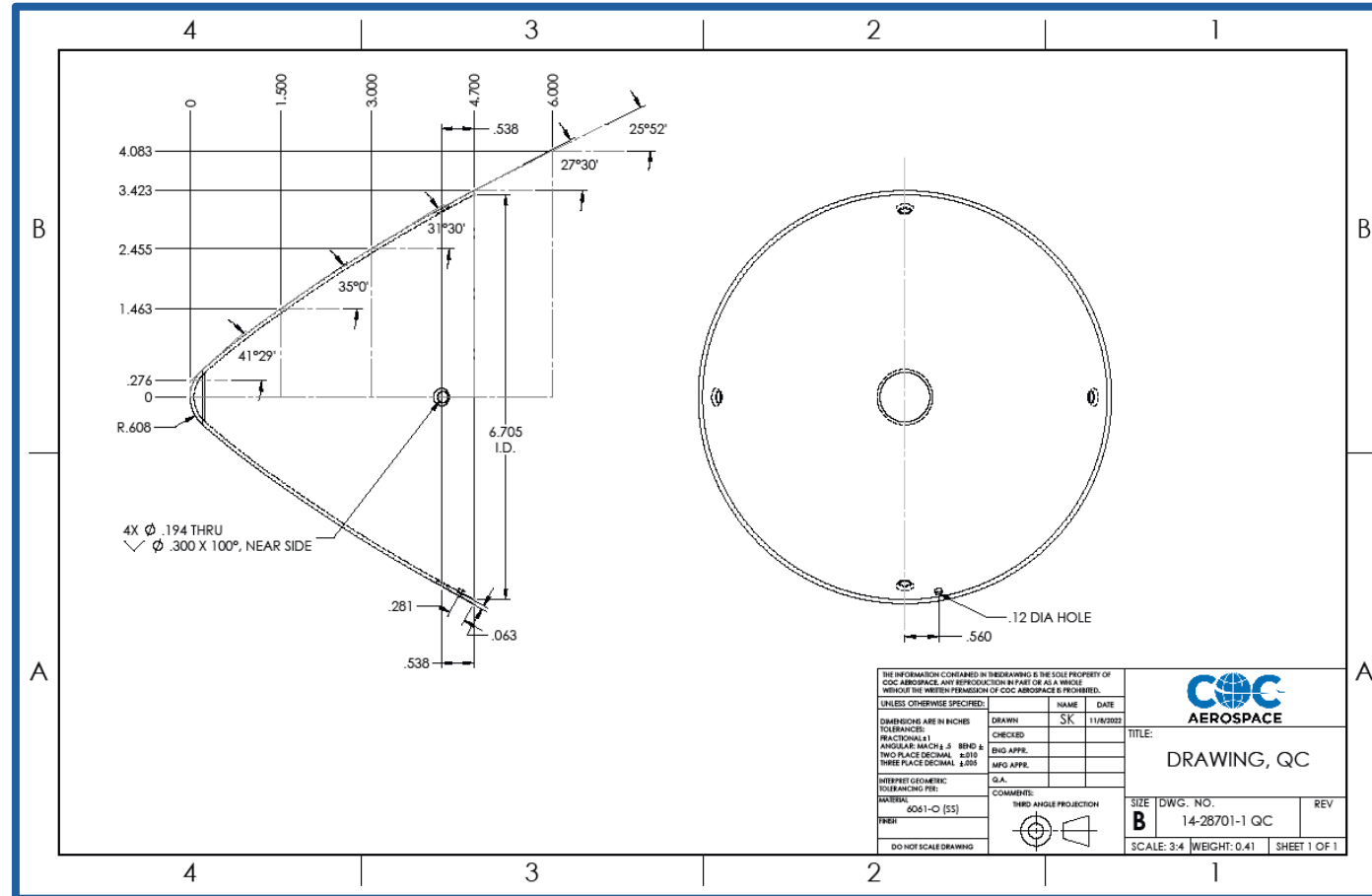
# 275 Gal. Centerline Fuel Tank

## Engineering work; CAD and 2D drawings



# 275 Gal. Centerline Fuel Tank

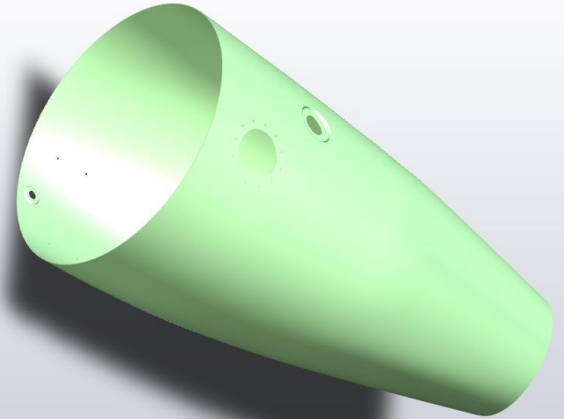
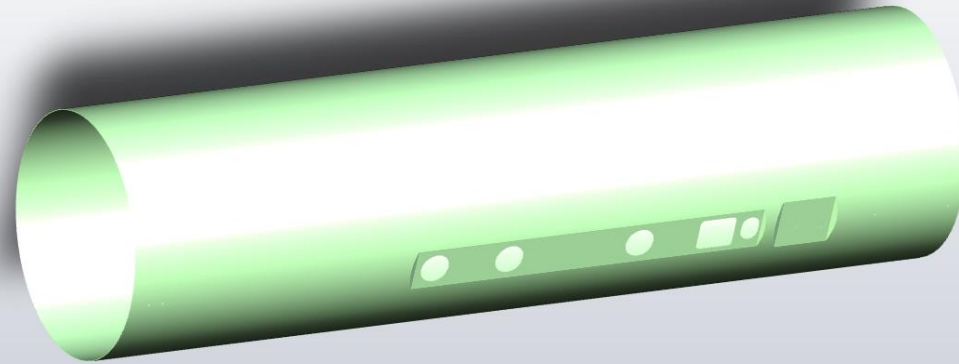
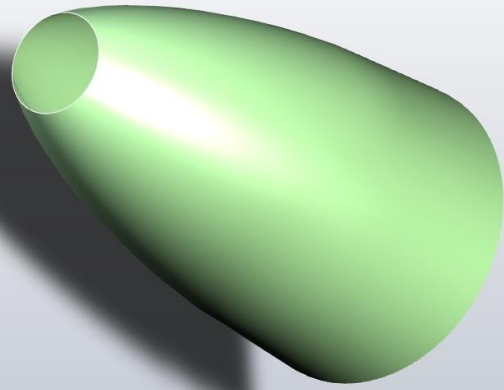
## Engineering work; CAD and 2D drawings





# 275 Gal. Centerline Fuel Tank

## Engineering work; CAD and 2D drawings



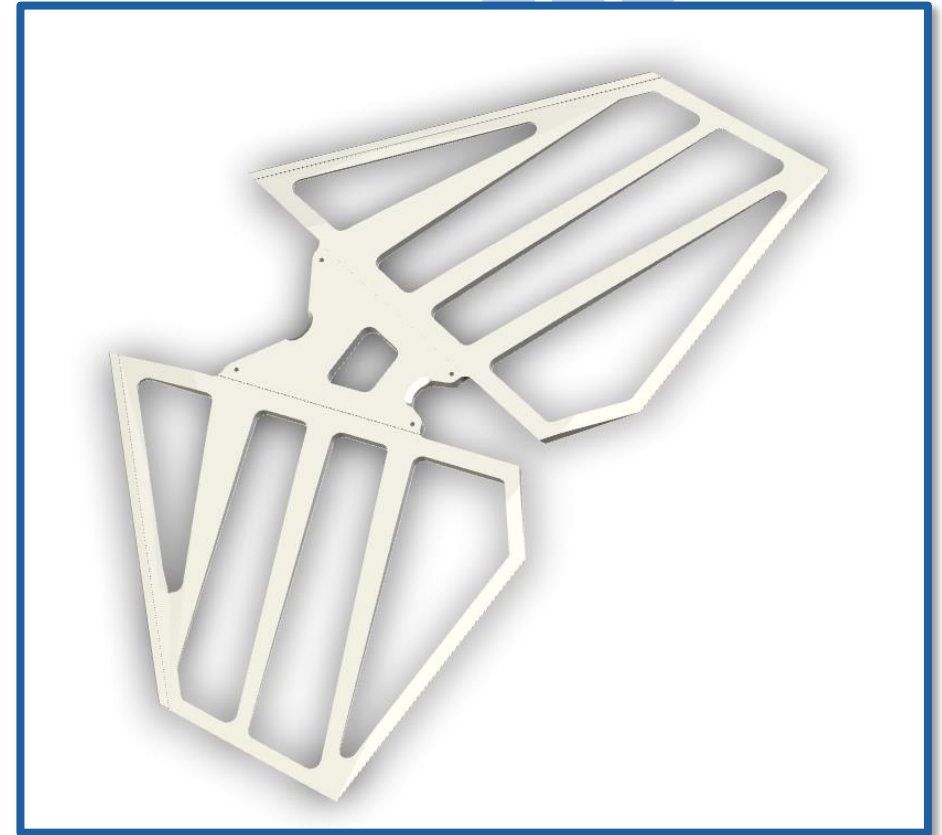
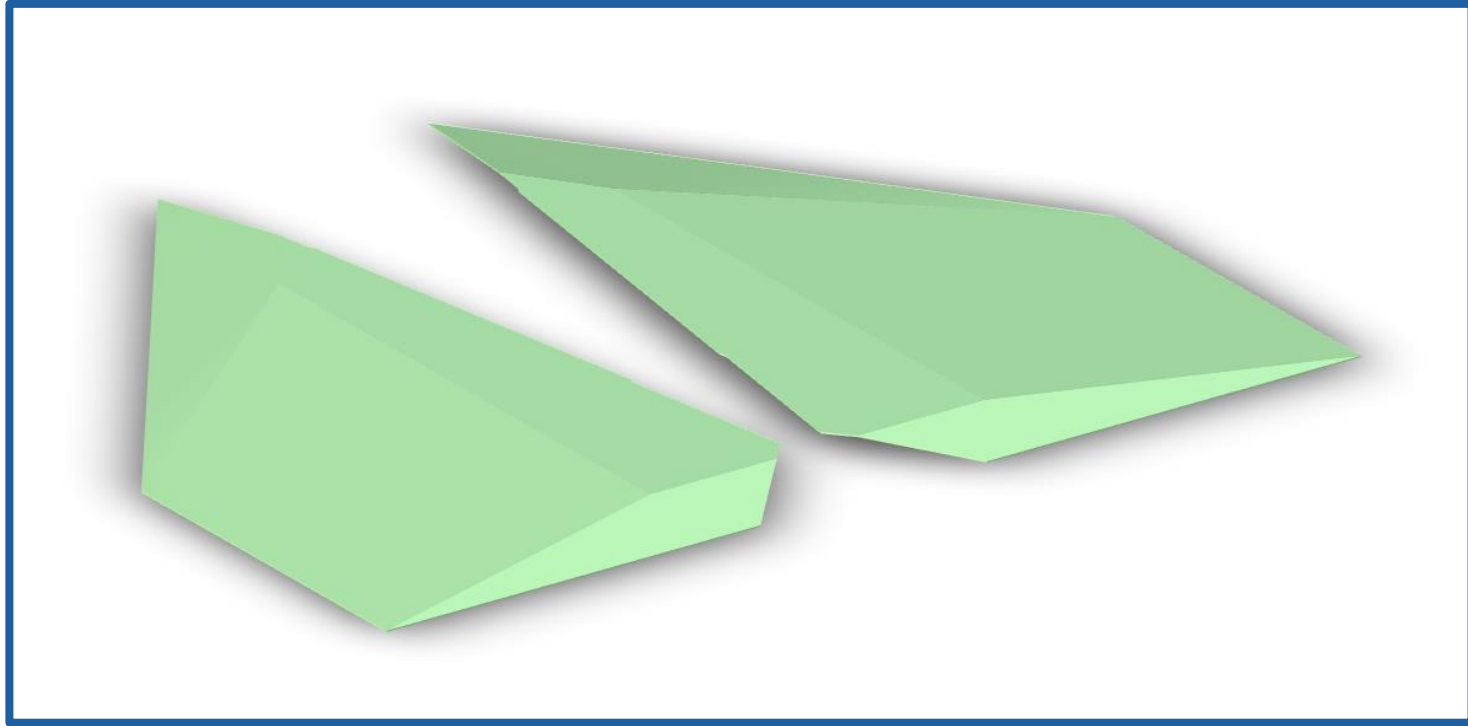
# 275 Gal. Centerline Fuel Tank

## Engineering work; CAD and 2D drawings



# 275 Gal. Centerline Fuel Tank

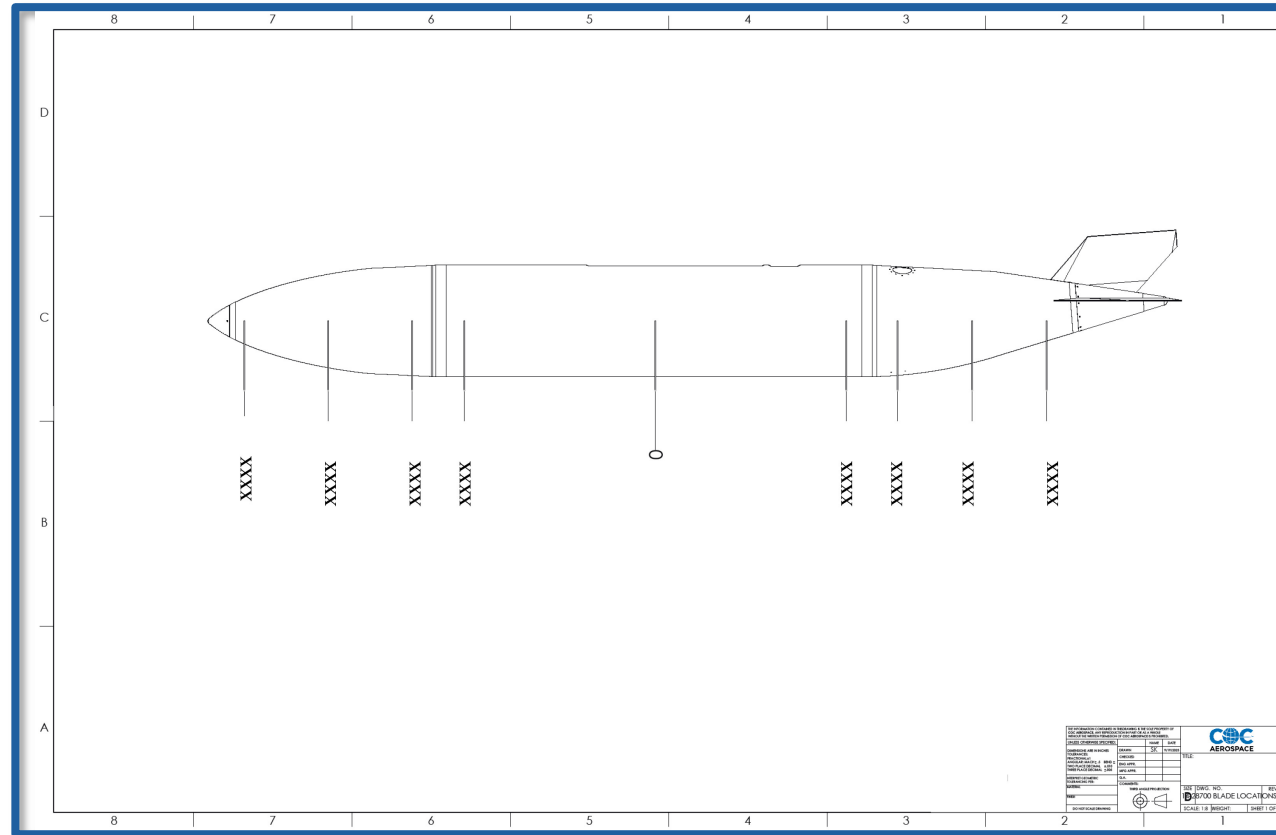
## Engineering work; CAD and 2D drawings

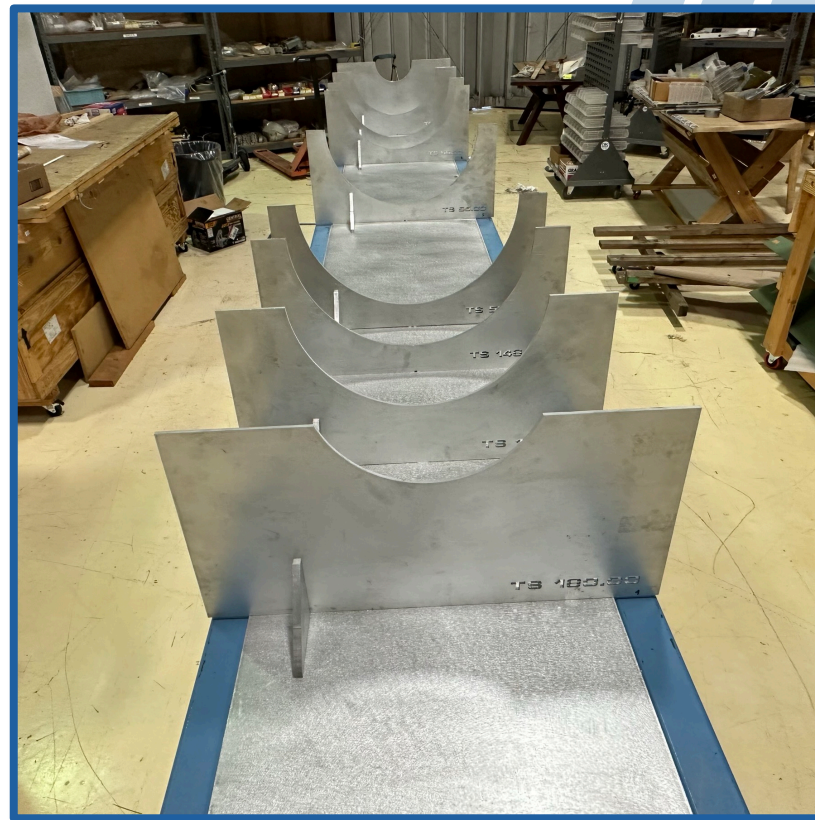


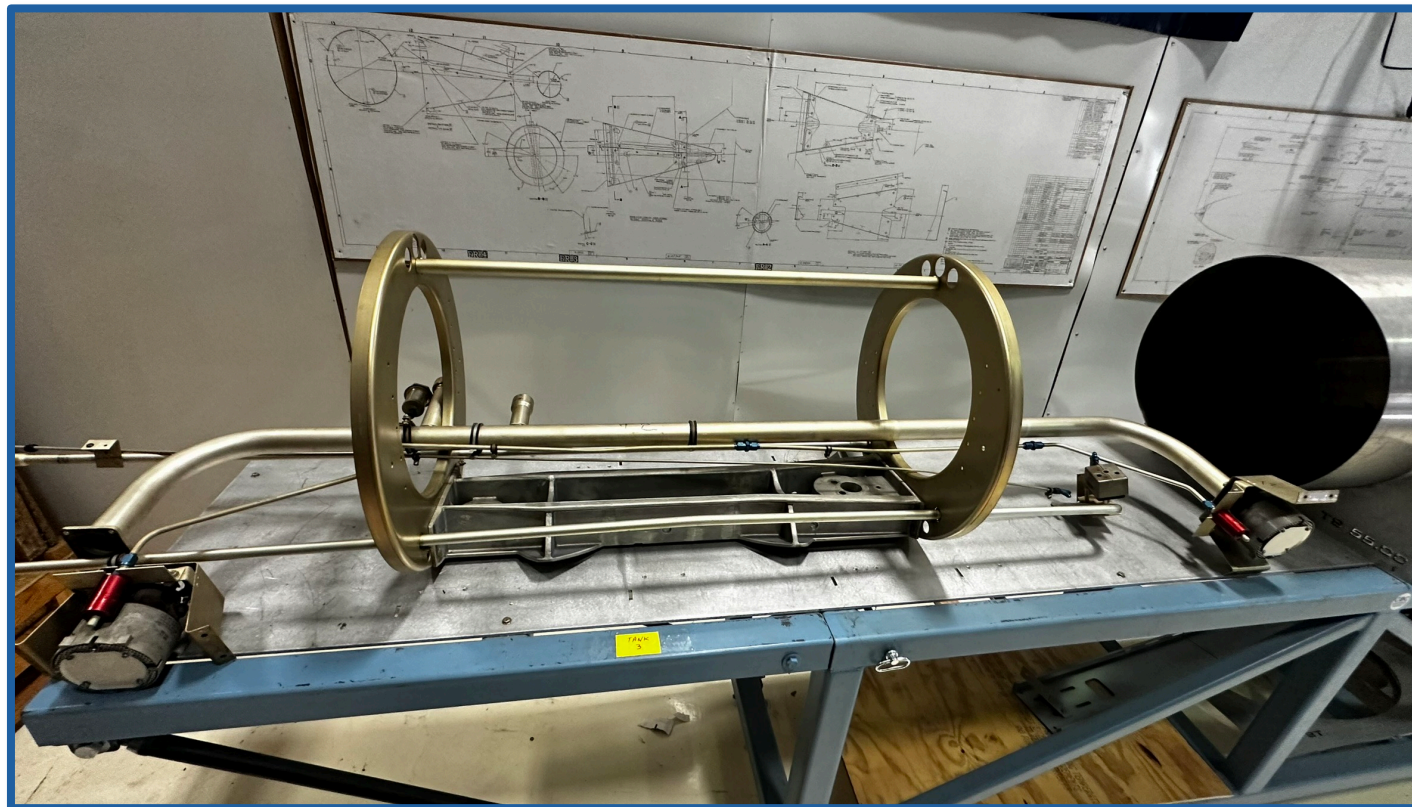


# 275 Gal. Centerline Fuel Tank

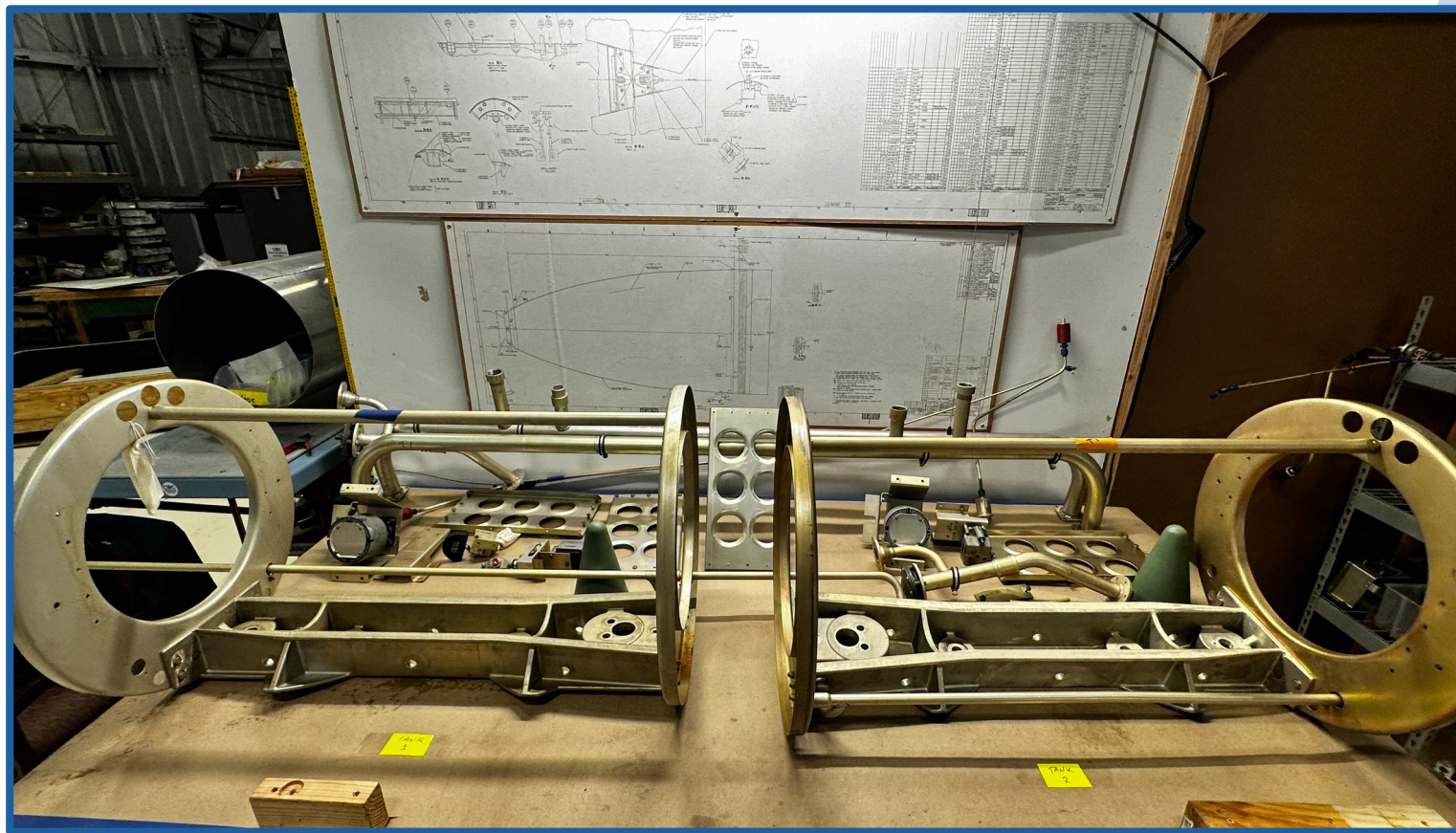
## Engineering work; CAD and 2D drawings











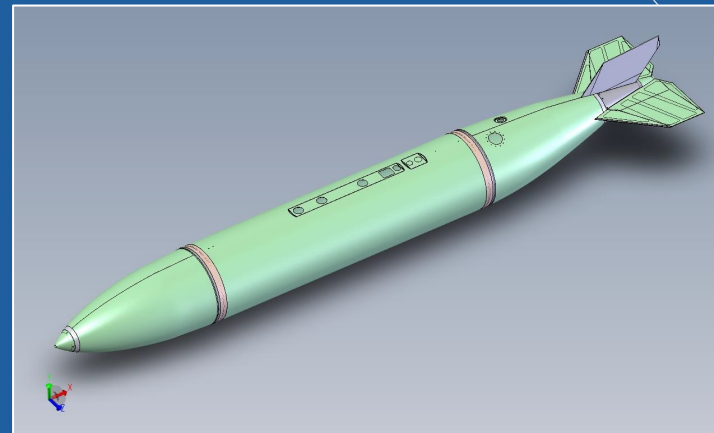
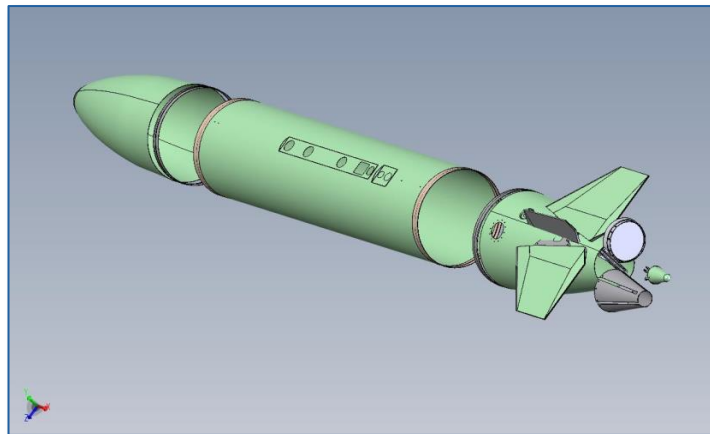
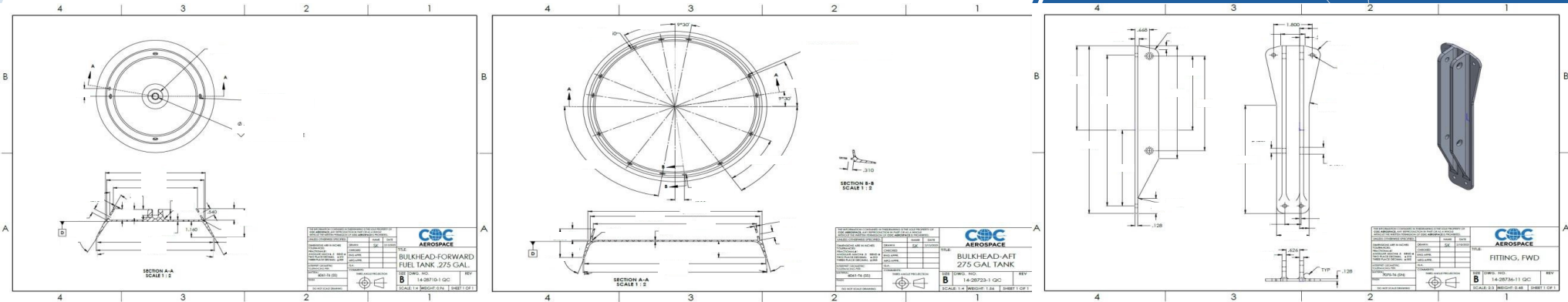




# ENGINEERING DRAWINGS & CAD DEVELOPED BY COC AEROSPACE



COC has produced CAD models for over 37 different components that comprise the final assembly







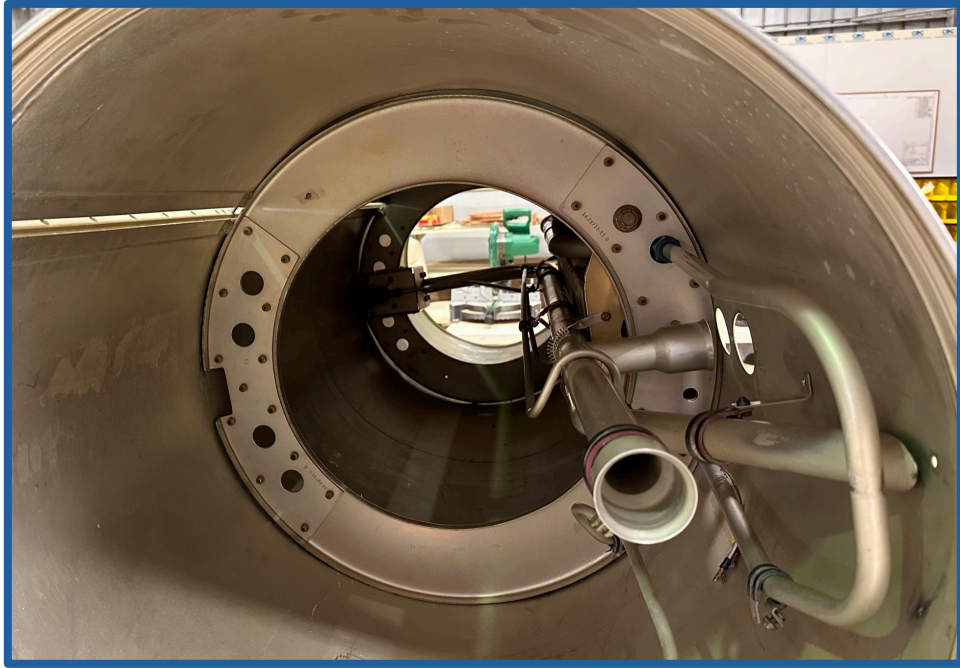
















# LIST OF COMPONENTS



Top Assembly consists of 341 Components listed on the main BOM (14-28700-5 Drawing)

## Including:

- 57 Different Hardware items & their quantities
- 3 Different Vendor Items & their quantities
- All Sub-Assemblies & their Part/Manufacturing Requirements
- 1 Complete CL Fuel Tank Assy = 341 Components
- 6 Complete CL Fuel Tank Assys = 2046 Components
- 24 Complete CL Fuel Tank Assys = 8184 Components

DRAWING #	REV	Quantity per Assembly	TOTAL QTY FOR 6 FINAL ASSYS	TOTAL QTY FOR 24 FINAL ASSYS	Part Number	MFG SPECIFICATION	Description	Material Description	SIZE	MATERIAL SPECIFICATION	ZONE	BOM ITEM
14-28700-5	G	2	12	48	45P107-24		GROMMET					
14-28700-5	G	10	60	240	51B221-3		SCREW, MACHINE					
14-28700-5	G	12	72	288	51B221-5		SCREW, MACHINE, CLOSE TOLERANCE					
14-28700-5	G	4	24	96	51B222-6		SCREW, MACHINE					
14-28700-5	G	4	24	96	51B581-3-3		SCREW, CLOSE TOLERANCE				11	47
14-28700-5	G	11	66	264	51B581-3-4		SCREW				3	49
14-28700-5	G	4	24	96	600-015-1/4		STAT-O-SEAL					
14-28700-5	G	22	132	528	600-015-10		STAT-O-SEAL					
14-28700-5	G	4	24	96	600-015-5/16		STAT-O-SEAL					
14-28700-5	G	2	12	48	7500-10		THREAD SEAL					
14-28700-5	G	1	6	24	7500-5/16*		THREAD SEAL					
14-28700-5	G	1	6	24	AN316-7R		NUT					
14-28700-5	G	8	48	192	AN3-3A		BOLT,MACHINE					
14-28700-5	G	4	24	96	AN4-11A		BOLT,MACHINE					
14-28700-5	G	4	24	96	AN4-12A		BOLT				3	45
14-28700-5	G	4	24	96	AN4-4A		BOLT					
14-28700-5	G	4	24	96	AN4-5A		BOLT,MACHINE					
14-28700-5	G	37	222	888	AN5-7A		BOLT,MACHINE					
14-28700-5	G	2	12	48	AN924-24D		NUT					
14-28700-5	G	1	6	24	AN924-28D		NUT					
14-28700-5	G	1	6	24	AN924-6D		NUT, PLAIN, HEXAGON					
14-28700-5	G	2	12	48	AN960-1016L		WASHER					
14-28700-5	G	22	132	528	AN960-10L		WASHER, FLAT					
14-28700-5	G	2	12	48	AN960-3016L		WASHER					
14-28700-5	G	1	6	24	AN960-3616L		WASHER					
14-28700-5	G	16	96	384	AN960-416L		WASHER,FLAT					
14-28700-5	G	37	222	888	AN960-516L		WASHER, FLAT					
14-28700-5	G	1	6	24	AN960-716L		WASHER, FLAT				3	44
14-28700-5	G	2	12	48	AN960D10		WASHER, FLAT					
14-28700-5	G	1	6	24	AN970-7		WASHER					
14-28700-5	G	4	24	96	MS20002C5		WASHER, RECESSED					
<b>Totals</b>			<b>341</b>	<b>2046</b>	<b>8184</b>							

# 21 SUB ASSEMBLIES COMPRISED OF 37 ENGINEERING DRAWINGS



**448 PARTS PER ASSEMBLY**  
**10,752 TOTAL PARTS FOR 24 ASSEMBLIES**



**Example: Assembly & Sub-assembly breakdown for 14-28704-1 Shell, Tank, Fuel, AFT (Total of 21 Components in Assy)**

Assembly Drawing	Assembly Name	Component Name	Component P/N	Qty Per Assy	Notes	Material Description	Size	Specification	Zone	BOM Item	Column1	Column2
14-28704-1	Shell, Tank, Fuel, AFT	NUT	FHN-6010-10-A		11 12,		8524	DEUTSCH FASTNER CORP		7	11	
		MARKING	14-28733-9	1						8	13	
		MARKING	14-28733-3	1						12	9	
		MARKING	14-28733-21	2						12	15	
		MARKING	14-28733-3	1						7	14	
		RECEPTICLE	MS90298-1	1						7	10	
		Assembly Drawing #	Assembly Name	Component Name	Component P/N	Qty Per Assy	Notes	Material Description	Size	Specification	Zone	BOM Item
		14-28720-1	Plate, Identification	PLATE	14-28720-1	1	1,	AL FOIL	.003x3.1x4.1	.003x3.1x4.2	.003x3.1x4.3	12
		14-28704-7			3,8			WELDMENT				9
		Assembly Drawing #	Assembly Name	Component Name	Component P/N	Qty Per Assy	Notes	Material Description	Size	Specification	Zone	BOM Item
		14-28704-7	Shell, Tank, Fuel, AFT	SKIN	14-28704-5	1		SH AL 6061-T4	.063x52x75	QQ-A-250/11		11
		Assembly Drawing #	Assembly Name	Component Name	Component P/N	Qty Per Assy	Notes	Material Description	Size	Specification	Zone	BOM Item
		14-28711-1	Ferrule, Grooved, Clamp, Coupling, Nose & Tail	FERRULE (RING)	14-28711-1	1		14-28721-1 EXTR, AL 6061 T4	76.0 LG	QQ-A-200/8		
		Assembly Drawing #	Assembly Name	Component Name	Component P/N	Qty Per Assy	Notes	Material Description	Size	Specification	Zone	BOM Item
		14-28723-1	Bulkhead, AFT	BULKHEAD	14-28723-1	1		MAKE FROM -1F (FORG AL 6061-T6)		MIL-A-22771		18,2
COMP TOTAL	21											



# HARDWARE ITEMS



**1,138 SCREWS, BOLTS, RIVETS,  
CLAMPS, ETC. PER ASSEMBLY**



**27,312 TOTAL HARDWARE  
REQUIREMENTS FOR 24 CL FUEL  
TANKS**

DRAWING #	Quantity per Assembly	TOTAL QTY FOR 6 FINAL ASSYS	TOTAL QTY FOR 24 FINAL ASSYS	Part Number	SEE NOTES	Description
14-28700-5	2	12	48	45P107-24		GROMMET
14-28700-5	10	60	240	51B221-3		SCREW, MACHINE
14-28700-5	12	72	288	51B221-5		SCREW, MACHINE, CLOSE TOLERANCE
14-28700-5	4	24	96	51B222-6		SCREW, MACHINE
14-28700-5	4	24	96	51B581-3-3		SCREW, CLOSE TOLERANCE
14-28700-5	11	66	264	51B581-3-4		SCREW
14-28700-5	4	24	96	600-015-1/4		STAT-O-SEAL
14-28700-5	22	132	528	600-015-10		STAT-O-SEAL
14-28700-5	4	24	96	600-015-5/16		STAT-O-SEAL
14-28700-5	2	12	48	7500-10		THREAD SEAL
14-28700-5	1	6	24	7500-5\16*		THREAD SEAL
14-28700-5	1	6	24	AN316-7R		NUT
14-28700-5	8	48	192	AN3-3A		BOLT,MACHINE
14-28700-5	4	24	96	AN4-11A		BOLT,MACHINE
14-28700-5	4	24	96	AN4-12A		BOLT
14-28700-5	4	24	96	AN4-4A		BOLT
14-28700-5	4	24	96	AN4-5A		BOLT,MACHINE
14-28700-5	37	222	888	AN5-7A		BOLT,MACHINE
14-28700-5	2	12	48	AN924-24D		NUT
14-28700-5	1	6	24	AN924-28D		NUT
14-28700-5	1	6	24	AN924-6D		NUT, PLAIN, HEXAGON
14-28700-5	2	12	48	AN960-1016L		WASHER
14-28700-5	22	132	528	AN960-10L		WASHER, FLAT
14-28700-5	2	12	48	AN960-3016L		WASHER
14-28700-5	1	6	24	AN960-3616L		WASHER
14-28700-5	16	96	384	AN960-416L		WASHER,FLAT
14-28700-5	37	222	888	AN960-516L		WASHER, FLAT
14-28700-5	1	6	24	AN960-716L		WASHER,FLAT
14-28700-5	2	12	48	AN960D10		WASHER, FLAT
14-28700-5	1	6	24	AN970-7		WASHER
14-28700-5	4	24	96	MS20002C5		WASHER, RECESSED
14-28700-5	2	12	48	MS21919DF10		CLAMP
14-28700-5	4	24	96	MS21919DF20		CLAMP
14-28700-5	4	24	96	MS21919DF24		CLAMP
14-28700-5	4	24	96	MS21919DF6		CLAMP

# SHEET METAL PARTS



**68 SHEET METAL PARTS PER CL FUEL TANK**



**1632 TOTAL PARTS FOR 24 CL FUEL TANKS**

DWG #	Qty per Assy	TOTAL QTY FOR 6 FINAL ASSYS	TOTAL QTY FOR 24 FINAL ASSYS	Part Number	SEE NOTES	Description	Material Description	SIZE	SPECIFICATION	ZONE	BOM ITEM
14-28700-5	1	6	24	14-28705-1		AFT CONE ASSY				3	5
14-28701-1	1	6	24	14-28701-1		SKIN	SH AL 6061 O	.071x13.0x13.0	QQ-A-250/11		1
14-28702-1	1	6	24	14-28702-3		SKIN	SH AL 6061-T4	.063x58x75	QQ-A-250/11	8	5
14-28702-1	1	6	24	14-28702-7	5,8	WELDMENT				6	7
14-28703-23	1	6	24	14-28703-23	5,	WELDMENT				7	20
14-28703-23	1	6	24	14-28703-25		SKIN	SH AL 6061 T4	.063x73.8x89.2	QQ-A-250/11	9	21
14-28703-23	8	48	192	14-28703-9		STOP	SH AL 6061-T4	.188x.6x.6	QQ-A-250/11	8	5
14-28704-1	1	6	24	14-28704-7	3,8	WELDMENT				9	4
14-28704-7	1	6	24	14-28704-5		SKIN	SH AL 6061 T4	.063x52x7.5	QQ-A-250/11	11	3
14-28705-1	1	6	24	14-28705-5	2,12,13	WEB	SH AL 7075- O	.065x11.1x13.8	QQ-A-250/12	4	3
14-28705-1	1	6	24	14-28705-15	12,13	SKIN	SH AL 7075 T6	.080x16.0x20.0	QQ-A-250/12	9	8
14-28705-1	1	6	24	14-28705-17	12,13	SKIN	SH AL 7075 T6	.080x16.0x15.0	QQ-A-250/12	9	9
14-28705-1	1	6	24	14-28705-27	12,13	SKIN	SH AL 7075 T6	.080x16.0x20.0	QQ-A-250/12	9	12
14-28705-1	1	6	24	14-28705-25	2,12,13	WEB	SH AL 7075 T6	.063x11.1x13.8	QQ-A-250/12	4	11
14-28705-1	1	6	24	14-28780-1		FIN, HORIZONTAL				5	37
14-28705-1	1	6	24	14-28736-5		FORMER, FWD				11	14
14-28705-1	1	6	24	14-28736-7		FORMER,AFT				8	15
14-28705-1	1	6	24	14-28705-3		WEB ASSY				6	2
14-28705-1	1	6	24	14-28705-23		WEB ASSY				6	6
14-28706-1	1	6	24	14-28706-1		TAIL CONE	SH AL 7075 O	.063x14.0x14.0	QQ-A-250/12		1
14-28715-11	1	6	24	14-28715-2	6	FORMER	SH AL 7075-O	.090 x 26 x 26	QQ-A-250/12		1
14-28715-11	1	6	24	14-28715-20		DOUBLER	SH AL 7075-T6	.125 x 5.8 x 16.6	QQ-A-250/12		2
14-28715-11	1	6	24	14-28715-13		DOUBLER	SH AL 7075-T6	.125 x 5.8 x 16.6	QQ-A-250/12		4

# MACHINED PARTS



**50 MACHINED PART COMPONENTS PER CL FUEL TANK**



**1200 TOTAL PARTS FOR 24 CL FUEL TANKS**

DWG #	Quantity per Assembly	TOTAL QTY FOR 6 FINAL ASSYS	TOTAL QTY FOR 24 FINAL ASSYS	Part Number	SEE NOTES	Description	Material Description	SIZE	SPECIFICATION
14-28703-23	1	6	24	14-28703-11		PAD	BAR AL 6061-T651	.62 DIA x .2	QQ-A-250/8
14-28703-23	4	24	96	14-28703-27		STOP	BAR AL 6061-T6511	.50 x 5 x4.0	QQ-A-250/8
14-28704-7	1	6	24	14-28711-1		FERRULE	14-28721-1 EXTR, AL 6061 T4	76.0 LG	QQ-A-200/8
14-28708-1	1	6	24	14-28708-1		LUG	BAR ST 4340	2.75 DIA x 4	MIL-S-5000
14-28710-1	1	6	24	14-28710-1		BULKHEAD	MAKE FROM -1F (FORG AL 6061-T6)		MIL-A-22771
14-28711-1	1	6	24	14-28711-1		FERRULE (RING)	14-28721-1 EXTR, AL 6061 T4	76.0 LG	QQ-A-200/8
14-28712-1	1	6	24	14-28712-1		RING/COUPLING	14-28722-1 EXTR, AL 6061-T4	76.0 LG	QQ-A-200/8
14-28712-1	1	6	24	14-28712-2		RING/COUPLING	14-28722-1 EXTR, AL 6061-T4	76.0 LG	QQ-A-200/8
14-28713-3	1	6	24	14-28713-3		CLAMP BAR	14-28761-1 EXTR; AL 6061-T4	94.0 LG	QQ-A-200/8
14-28714-1	1	6	24	14-28714-3		CLAMP BAR	14-28762-1 EXTR; AL 6061-T4	94.0 LG	QQ-A-200/8
14-28716-1	3	18	72	14-28716-5	13,	BLOCK	BAR AL 6061-T6	.50 x .50 x .40	QQ-A-225/8
14-28716-1	1	6	24	14-28716-3		BOX	BAR AL 6061-T651	3.00 x 3.00 x 4.0	QQ-A-225/8
14-28717-5	1	6	24	14-28717-3		PLATE	BAR AL 7075 T6	.125 x 1.0 x3.1	QQ-A-225/9
14-28723-1	1	6	24	14-28723-1		BULKHEAD	MAKE FROM -1F (FORG AL 6061-T6)		MIL-A-22771
14-28724-1	1	6	24	14-28724-3		ADAPTER	BAR AL 6061-T6511	2.00 x 5.00 x 5.0	QQ-A-200/8
14-28726-1	1	6	24	14-28726-1	(7 On Master BOM)	ADAPTER	BAR AL 2024-T4	3 x 3 x 3	QQ-A-225/6
14-28728-1	2	12	48	14-28728-1		PLUG	BAR AL 6061-T651	1.75 DIA x 1.0	QQ-A-225/8
14-28734-2	1	6	24	14-28734-2		BALLAST	CASTING, LEAD	1.50 x 3.32 DIA	AMS 7720
14-28734-3	1	6	24	14-28734-3		BALLAST	CASTING, LEAD	.50 x 2.70 DIA	AMS 7720
14-28734-4	1	6	24	14-28734-4		BALLAST	CASTING, LEAD	5.0 x 2.10 DIA	AMS 7720
14-28734-5	1	6	24	14-28734-5	3,	BALLAST	CASTING, LEAD	.8 x 4.66 DIA	AMS 7720
14-28735-9	1	6	24	14-28735-7		RING	TUBE AL 6061 T6	.125W x .2	WW-T-700/6
14-28736-5	1	6	24	14-28736-23 & 14-28736-24	4,5	ANGLE	BAR AL 2024-T351	1.4 x 2 x 3.7	QQ-A-225/6
14-28736-5	1	6	24	14-28736-3	4,5	FITTING, AFT	PL AL 7075-T7351	25 x 28 x4.3	QQ-A-250/12
14-28736-5	1	6	24	14-28736-11	4,5	FITTING, FWD	PL AL 7075-T7351	12.5 x 3.0 x9.2	QQ-A-250/12



# TUBE ASSEMBLIES



**12 TUBE COMPONENTS  
PER CL FUEL TANK**



**288 TOTAL PARTS FOR  
24 CL FUEL TANKS**

DWG #	Quantity per Assembly	TOTAL QTY FOR 6 FINAL ASSYS	TOTAL QTY FOR 24 FINAL ASSYS	Part Number	SEE NOTES	Description	Material Description	SIZE	SPECIFICATION	ZONE	BOM ITEM
14-28724-1	1	6	24	14-28724-5		TUBE	TUBE AL 6061-T4	1.5000.0x.058Wx3.0	WW-T-700/6		
14-28735-9	1	6	24	14-28735-3		TUBE	TUBE AL 6061 O	.750 OD x .49x2.5	WW-T-700/6		2
14-28735-9	1	6	24	14-28735-11	4,	TUBE	TUBE AL 6061 T4	.750 OD x .49x45	WW-T-700/6		6
14-28737-81	1	6	24	14-28737-83		TUBE	TUBE AL 5052-O	1.5 OD x .049W x 74	WW-T-700/4	6	3
14-28737-81	1	6	24	14-28737-7		TUBE	TUBE AL 5052-O	1.5 OD x .049W x 4	WW-T-700/4	5	4
14-28737-81	1	6	24	14-28737-9		TUBE	TUBE AL 5052-O	1.5 OD x .049W x 6	WW-T-700/4	4	5
14-28737-87	1	6	24	14-28737-85		TUBE	TUBE AL 5052-O	.375 OD x .035W x 27	WW-T-700/4	6	10
14-28737-93	1	6	24	14-28737-95		TUBE	TUBE AL 5052-O	1.5 OD x .049W x 22	WW-T-700/4	3	8
14-28760-11	1	6	24	14-28760-13	7,	TUBE	AL 5052-O	.625 O.D. .035Wx48	WW-T-700/4	3	7
14-28760-15	1	6	24	14-28760-17	7,	TUBE	AL 5052-O	.625 O.D. .035Wx37	WW-T-700/4	5	9
14-28760-3	1	6	24	14-28760-5		TUBE	AL 5052-O	1.25 O.D. .035Wx159	WW-T-700/4	5	3
14-28760-7	1	6	24	14-28760-9	7,	TUBE	AL 5052-O	.625 O.D. .035Wx42	WW-T-700/4	6	5
<b>TOTAL</b>	<b>12</b>	<b>72</b>	<b>288</b>								

# VENDOR ITEMS



9 VENDOR ITEMS PER  
CL FUEL TANK



216 TOTAL PARTS FOR  
24 CL FUEL TANKS

DWG #	Quantity per Assembly	TOTAL QTY FOR 6 FINAL ASSYS	TOTAL QTY FOR 24 FINAL ASSYS	Part Number	SEE NOTES	Description	Material Description	SIZE	SPECIFICATION	ZONE	BOM ITEM
14-28700-5	1	6	24	10006-1		CAP & ADAPTER ASSY	VENDOR ITEM SEE CONT DWG			4	68
14-28739-19	2	12	48	10005-1		FLOAT SWITCH				D5/A10	21
14-28737-91	2	12	48	10001-1		VALVE	VENDOR ITEM SEE CONT DWG			3 6	17
14-28737-91	1	6	24	10002-1		VALVE	VENDOR ITEM SEE CONT DWG				
14-28700-5	2	12	48	10003-1		VALVE, DRAIN	VENDOR ITEM SEE CONT DWG			9	67
14-28700-5	1	6	24	10004-1		VALVE, SNIFFLE	VENDOR ITEM SEE CONT DWG			5	66
<b>TOTAL</b>	<b>9</b>	<b>54</b>	<b>216</b>								

# CONSUMABLES (SHELF-LIFE ITEMS)



**6 CONSUMABLE ITEMS  
PER CL FUEL TANK**



**144 TOTAL PARTS FOR  
24 CL FUEL TANKS**

DWG #	Quantity per Assembly	TOTAL QTY FOR 6 FINAL ASSYS	TOTAL QTY FOR 24 FINAL ASSYS	Part Number	SEE NOTES	Description	Material Description	SIZE	SPECIFICATION	ZONE	BOM ITEM
14-28719-1	1	6	24	14-28719-1		GASKET	CORK-RUBBER SHEET	.125x7.0x7.0	MIL-G-6183. CL I, GR FIRM		1
14-28737-91	2	12	48	14-28758-1		RESTRICTOR	SPONGE/POLYUREPHANE, OPEN CELL, 10PPI	.75x2.1x2.1	COMMERCIAL	8	16
14-28709-2	2	12	48	14-287009-2		SEAL	RUBBER		MIL-P-5315		2
14-28718-1	1	6	24	14-28718-1		SEAL	SYNTHETIC RUBBER	NOTED	MIL-P-5315 OR EQUAL		1
<b>TOTAL</b>	<b>6</b>	<b>36</b>	<b>144</b>								



# MISC. ITEMS (MARKINGS, ID PLATES, ETC.)



**34 MISC. ITEMS PER CL FUEL TANK**



**816 TOTAL PARTS FOR 24 CL FUEL TANKS**

DRAWING #	Quantity per Assembly	TOTAL QTY FOR 6 ASSYS	TOTAL QTY FOR 24 ASSYS	Part Number	NOTES	Description	Material Description	SIZE	SPECIFICATION	ZONE	BOM ITEM
14-28700-5				14-28733-1	REF DWG	MARKING INSTAL	IN			5	40
14-28702-1	1	6	24	14-28733-9		MARKING				4	12
14-28702-1	1	6	24	14-28733-13		MARKING				4	13
14-28702-1	2	12	48	14-28733-21		MARKING				5	16
14-28703-1	1	6	24	14-28733-11		MARKING				8	23
14-28703-1	2	12	48	14-28733-17		MARKING				8	24
14-28703-1	4	24	96	14-28733-19		MARKING				8	25
14-28703-1	2	12	48	14-28733-21		MARKING				7	26
14-28703-1	2	12	48	14-28733-23		MARKING				9	27
14-28704-1	1	6	24	14-28720-1		IDENT PLATE	AL FOIL	.003x3.1x4.1		1	7
14-28704-1	1	6	24	14-28733-3		MARKING				12	9
14-28704-1	1	6	24	14-28733-9		MARKING				8	13
14-28704-1	1	6	24	14-28733-3		MARKING				7	14
14-28704-1	2	12	48	14-28733-21		MARKING				12	15
14-28705-1	1	6	24	MS27606-1		MARKING				12	36
14-28729-1	1	6	24	NOTED	1,	WIRE	NOTE 1	SEE WIRE TABLE	NOTE 1		4
14-28729-1	1	6	24	PD TYPE I		CAP	CIN 08795	1/8IN. I.D. EXPANDED	RAYCLAD TUBES INC		7
14-28729-1	3	18	72	14-28729-5		SLEEVE		0.218 I.D.x2.0	MIL-1-3190/6		5
14-28748-1	2	12	48	14-28733-13		MARKING				4	6
14-28748-1	2	12	48	14-28733-15		MARKING				4	7
14-28749-1	1	6	24	14-28720-1	10	PLATE, IDENT				4	11
14-28752-1	2	12	48	14-28733-15		MARKING				5	7
<b>TOTAL</b>	<b>34</b>	<b>204</b>	<b>816</b>								

# MANUFACTURING SPECIFICATIONS



## 198 Northrop Manufacturing & Process Specifications for Top & Sub-Assys of 275-Gal CL Fuel Tank

Drawing #	Drawing Rev	Process Spec #	Process Spec Title	Spec Rev
14-28700	G	EL-1.11	Sleeving & Tape in Electrical Applications	G
14-28700	G	EL-3.1	Electrical Bonding of Components & Systems	R
14-28700	G	EL-41	Crimp Disconnect Insulated Splices	B
14-28700	G	FH-16.1	Installation of Fluid Line Assy	G
14-28700	G	FH-16.2	Fluid Line Flared Tube & Hose End Fittings	E
14-28700	G	FH-21	Bolts, Screws, Nuts and Washers	L
14-28700	G	FH-32.1	Screw & Pipe Thread Tolerances	D
14-28700	G	FP-80	Application of Fluid-Resistant Epoxy Primer	H
14-28700	G	L-1	Anti-Seize Lubricants & Sealing Compounds	L
14-28700	G	QC-20	Aerodynamic Smoothness Requirements - F-5E/F & RF-5E Aircraft	F
14-28701	E	FH-29	Countersinking	J
14-28701	E	FP-28	Chemical Conversion Coatings, Colored, For Aluminum & Aluminum Alloys	J
14-28701	E	FP-80	Application of Fluid-Resistant Epoxy Primer	H
14-28701	E	FP-85	Application of Polyurethane Topcoats NAI-1278 & NAI-1290	H
14-28701	E	IM-23, TYPE I	Identification by Ink or Paint Marking	C
14-28701	E	MA-32.1	Fabrication of Sheet Metal Parts	C
14-28701	E	QC-20	Aerodynamic Smoothness Requirements - F-5E/F & RF-5E Aircraft	F
14-28702	F	FH-1	Solid Shank Rivets	L
14-28702	F	FP-28	Chemical Conversion Coatings, Colored, For Aluminum & Aluminum Alloys	J
14-28702	F	FP-80	Application of Fluid-Resistant Epoxy Primer	H
14-28702	F	FP-85	Application of Polyurethane Topcoats NAI-1278 & NAI-1290	H
14-28702	F	IM-23, TYPE I	Identification by Ink or Paint Marking	C
14-28702	F	MA-19.9	Application of Marking Film - Pressure Sensitive	E
14-28702	F	MA-32.1	Fabrication of Sheet Metal Parts	C
14-28702	F	QC-20	Aerodynamic Smoothness Requirements - F-5E/F & RF-5E Aircraft	F
14-28702	F	QC-3	Quality Standards for Aluminum Alloy Sheet & Plate	F
14-28702	F	W3.2, CLASS 3	Fusion Welding of Aluminum Alloys	D

# COC MANUFACTURING PROCEDURES & CONTROLS INCLUDES DETAILED WORK CARDS FOR EACH OPERATION



Work Cards contain specific assembly instructions to ensure highest quality of finished parts

COC AEROSPACE				WORK CARD - F-5 CL FUEL TANK - FWD ASSY			
CARD NO. 1	WORK AREA(S) 1	TYPE MECH REQ'D		MECH NO.	CARD TIME	SCHED START TIME	PUBLICATION NUMBER & DATE
MAN MINUTES	WORK AREA	WORK UNIT CODE FOR DISCREPANCY		NOSE CONE INSTALLATION - I/A/W T.O. 6J14-2-33-2 IMI (INTERMEDIATE MAINTENANCE INSTRUCTIONS)			
		SYS	SUBSYSTEM OR COMPONENT				
				<ol style="list-style-type: none"> <li>1. ATTACH NUT (8) &amp; WASHER (9) TO ROD (10)</li> <li>2. ATTACH BALLAST (7), BALLAST (6) &amp; BALLAST (3) AS REQUIRED TO ROD (10)</li> <li>3. ATTACH NUT (4) &amp; WASHER (5) TO ROD (10)</li> <li>4. ATTACH ROD ASSEMBLY TO NOSE CONE (1) USING SCREW(S) (2)</li> <li>5. INSTALL NOSE CONE ASSY TO FWD FUEL TANK SHELL</li> </ol>			





# PRODUCTION PLANNING



- Master Data File
- Broken Down into Main Assy, Sub Assys, Raw Material Requirements (i.e. Sheet Metal, Machined Parts, Hardware, etc.)
- Requirements breakdown – Assys & their components

Assembly Drawing #	Assembly Name	Component Name	Component P/N	Qty Per Assy	Notes	Material Description	Size	Specification
14-28703-21	Shell, Tank, Fuel, Center							
		MARKING	14-28733-23	2				
		MARKING	14-28733-21	2				
		MARKING	14-28733-19	4				
		MARKING	14-28733-17	2				
		MARKING	14-28733-11	1				
		SPLINE NUT	SL3273-5	37			97393	
		INSERTS	MS21209F5-10A	1				
			14-28703-23	5,		WELDMENT		
14-28703-23	Shell, Tank, Fuel, Center							
		SKIN	14-28703-25	1		SH AL 6061-T4		
		STOP	14-28703-27	4		BAR AL 6061-T6511		
		STOP	14-28703-9	4		SH AL 6061-T4		
		PAD	14-28703-11	1		BAR AL 6061-T651		
14-28712	Coupling, Clamp, Grooved-Center Sect							
		COUPLING (RING)	14-28712-1	1				
		COUPLING (RING)	14-28712-2	1				
14-28713-3	Clamp, Rim Clenching, Plain							
		CLAMP BAR	14-28713-3	1	2,			
14-28714-3	Clamp, Rim Clenching, Grooved							
		CLAMP BAR	14-28714-3	1	2,			



- COC's ERP System
  - Project ID used internally to manage all project data in one location (PO's, WO's, RFQ's, etc.)

General | Detail | Phase | Address | Invoice | Purchase Order | Quote | Request For Quotes | Sales Order | Sales Order Lines | Work Order | Pick List | Budget | Project Hours | Tasks: 0

**Project Info**

Project City:  Division: COC Aerospace Inc.

Project State:  Item Class:

Project Country: United States of America Bid Opening:

Project ID: 1428700 Bid Created: 10/14/2022

Project Name: CL FUEL TANK 14-28700-1 Bid Sent:

Project Description:  Bid Items:

Status: Open Assigned To:

Party:  Assigned To 2:

Department:  Created By: Ryan Campbell

Project Number: 2

**Miscellaneous**

**Materials And Plans**

Material Source:

Verified By:

Full Set of Plans and Specs

Date Requested:

Date Received:

Charpy Impact Material Required

User Def. Num. 1:

# PRODUCTION PLANNING



ERP-Aero allows the creation of component kits to effectively track & monitor all hardware & raw matl. requirements for each sub-assy

The screenshot displays a software interface for creating a component kit. On the left, an 'Item List' shows the parent kit '14-28700-5 HARDWARE KIT' with revision 'G'. The main area shows a detailed list of components for this kit:

Seq #	Work Center	Setup Time	Run Time	Comments
1	ENGINEERING	0.00000	0.00000	
2	ENGINEERING	0.00000	0.00000	
3	ENGINEERING	0.00000	0.00000	
4	PROCUREMENT	0.00000	0.00000	
5	PROCUREMENT	0.00000	0.00000	
6	PROCUREMENT	0.00000	0.00000	

Part Number	Qty Required	Qty On Hand	Qty Demand	Qty Ordered	WIP
14-28701-1	1.00	0.00	6.00	1.00	
14-28702-1	1.00	0.00	6.00	0.00	
14-28704-1	1.00	0.00	6.00	0.00	
14-28700-5 HARDW	1.00	0.00	0.00	0.00	

Line Number	Part Number	Revision	Description	Quote Number	Material Description	Other Description	Quantity	Qty On Hand	Optional
1	14-28700-5 HARDWARE KIT	G	FUEL TANK HARDWARE SUBKIT			***SEE SUBKIT CONTENTS***	1.00	0.00	<input type="checkbox"/>
2	14-28702-1		SHELL				1.00	0.00	<input type="checkbox"/>
3	14-28704-1		SHELL				1.00	0.00	<input type="checkbox"/>
4	14-28703-21		C.S. SHELL				1.00	0.00	<input type="checkbox"/>
5	14-28705-21		AFT CONE ASSY			CANCELLED (USING -1, -3, -2)	1.00	0.00	<input type="checkbox"/>
6	14-28760-1		VENT SYSTEM INSTLTN				1.00	0.00	<input type="checkbox"/>
7	14-28760-19		BRACKET				1.00	0.00	<input type="checkbox"/>
8	14-28760-23		BRACKET				1.00	0.00	<input type="checkbox"/>
9	14-28760-24		BRACKET				1.00	0.00	<input type="checkbox"/>
10	14-28737-91		FUEL SYSTEM INSTLTN				1.00	0.00	<input type="checkbox"/>

This screenshot shows a different view of the component kit configuration. The 'Item List' on the left shows the parent kit '14-28700-5 HARDWARE KIT' with revision 'G'. The main table lists the following components:

Line Number	Part Number	Revision	Description	Quantity	Qty On Hand	Optional
1	AN960-416L		WASHER FLAT	16.00	0.00	<input type="checkbox"/>
2	ANA-12A		BOLT	4.00	0.00	<input type="checkbox"/>
3	518581-3-3		SCREW, CLOSE TOLERANCE	4.00	0.00	<input type="checkbox"/>
4	518581-3-4		SCREW	11.00	0.00	<input type="checkbox"/>
5	NAS1190-5T5L		BOLT	1.00	0.00	<input type="checkbox"/>
6	NAS1189-3T18L		SCREW	4.00	0.00	<input type="checkbox"/>
7	NAS1022A7		NUT	1.00	0.00	<input type="checkbox"/>
8	NAS1022A10		NUT	4.00	0.00	<input type="checkbox"/>
9	NAS1454-7-9401		ROD	1.00	0.00	<input type="checkbox"/>
10	600-Q15-10		STAT-O-SEAL	22.00	0.00	<input type="checkbox"/>



Ex: Hardware Kit



# DELIVERY SCHEDULE FOR INITIAL 6 TANKS, PLUS 18 ADDITIONAL TANKS

275 Gallon C/L Fuel Tank Delivery Schedule		
Tanks 1-6		Delivery Schedule
Tank 1	275 Gallon C/L Fuel Tank	October 30, 2023
Tank 2	275 Gallon C/L Fuel Tank	November 30, 2023
Tank 3	275 Gallon C/L Fuel Tank	December 30, 2023
Tank 4	275 Gallon C/L Fuel Tank	January 15, 2024
Tank 5	275 Gallon C/L Fuel Tank	January 30, 2024
Tank 6	275 Gallon C/L Fuel Tank	February 15, 2024
	<b>Additional Tanks</b>	
Tank 7 & 8	275 Gallon C/L Fuel Tank	March 15, 2024
Tank 9-11	275 Gallon C/L Fuel Tank	April 15, 2024
Tank 12-14	275 Gallon C/L Fuel Tank	May 15, 2024
Tank 15-18	275 Gallon C/L Fuel Tank	June 15, 2024



















 **The COC F-5 Team - [www.coc-aerospace.com](http://www.coc-aerospace.com)** 

**EXPERIENCE** - OVER 5 DECADES YEARS SUPPORTING LEGACY AIRCRAFT  
**CUSTOMER SERVICE** - OVER 50 YEARSSUPPORTING THE SAME CUSTOMERS  
**TRUST** - ABOVE ALL, WE ALWAYS DO THE RIGHT THING