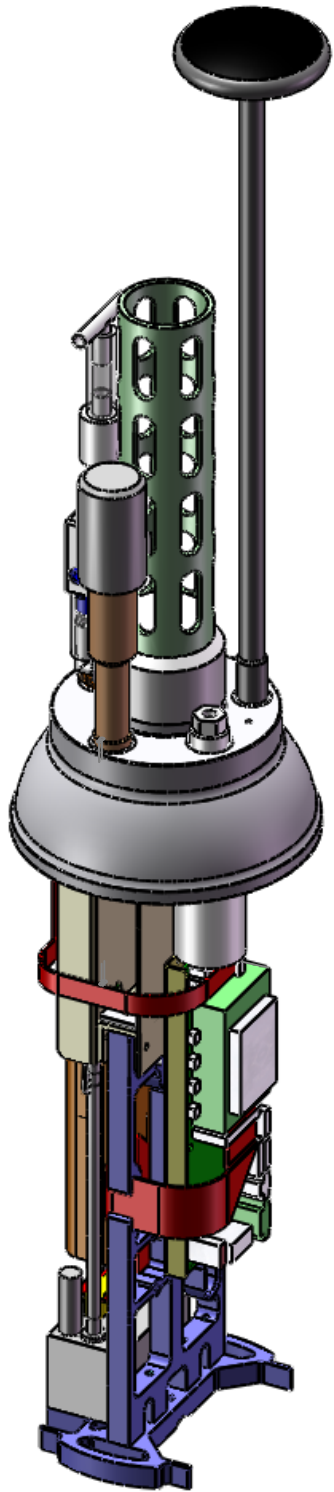


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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
INITIAL RELEASE			
A	Dec '08 Modifications	12/15/08	HWJ
B	Added inserts to sheetmetal parts	8/25/09	HWJ



l	1	Probe and flowcell	per 211jaha.dwg or 212jaha.dwg
k	1	Dummy for ISUS external connector	Impulse IE55-1206-SCP
j	1	ISUS external connector	Impulse IE55-1206-BCR
i	1	ISUS Reference	
h	1	ISUS light source	
g	1	ISUS Spectrometer	
f	15	Standoffs	#6 Nylon Standoffs
e	3	Support screws	316 SS Flat head 8-32 UNC x 1.25in
d	1	ISUS Controller	
c	2	Mount screws	316 SS Socket head 1/4-20 UNC x 1.25in
b	1	APEX CTD	Seabird (built w/ modified endcap)
a	1	Modified APEX Top Endcap	per DWGs Webb#2583 and 208jaha
Item No.	Qty	Description	Specifications
Other Required Parts			

9	1		Flash Card Retainer	Delrin
8	1		Impulse IE55 Bushing	PEEK
7	1		Reference Support Retainer	5052 H32 Aluminum .040" Chemical coat per MIL-C-5541, Class 1A
6	1		Reference Support	Delrin
5	3		Fiberlight Support	Delrin
4	1		ISUS Mount	Delrin
3	1		ISUS Support End	Delrin
1	1		CPU Support	5052 H32 Aluminum .040" Chemical coat per MIL-C-5541, Class 1A
1	2		ISUS Chassis Union	6061 Aluminum .125
Item No.	Qty	Part No.	Description	Material Specification

Bill of Materials

Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		APPROVALS		DATE	Monterey Bay Aquarium Research Institute	
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005	ANGLES ±1°		DRAWN Hans Jannasch	9/30/08
Shop Foreman		1. DIMENSIONS ARE IN INCHES					ENGINEER	
Engineer		2. DIMENSION LIMITS HELD AFTER PLATING.					CHECKED Jon Erickson	10/28/08
		3. REMOVE BURRS AND SHARP EDGES .015 MAX.					PROJECT NO. 701818	
NEXT ASSY Description	NEXT ASSY Number	4. MACHINED FILLET RADII .0150-.030.					PROJECT NSF Floats	
		5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005						
		6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH. MAX .012 INCHES FOR SINGLE SURFACE.						
Application		DO NOT SCALE DRAWING		WEIGHT				
		3		2				

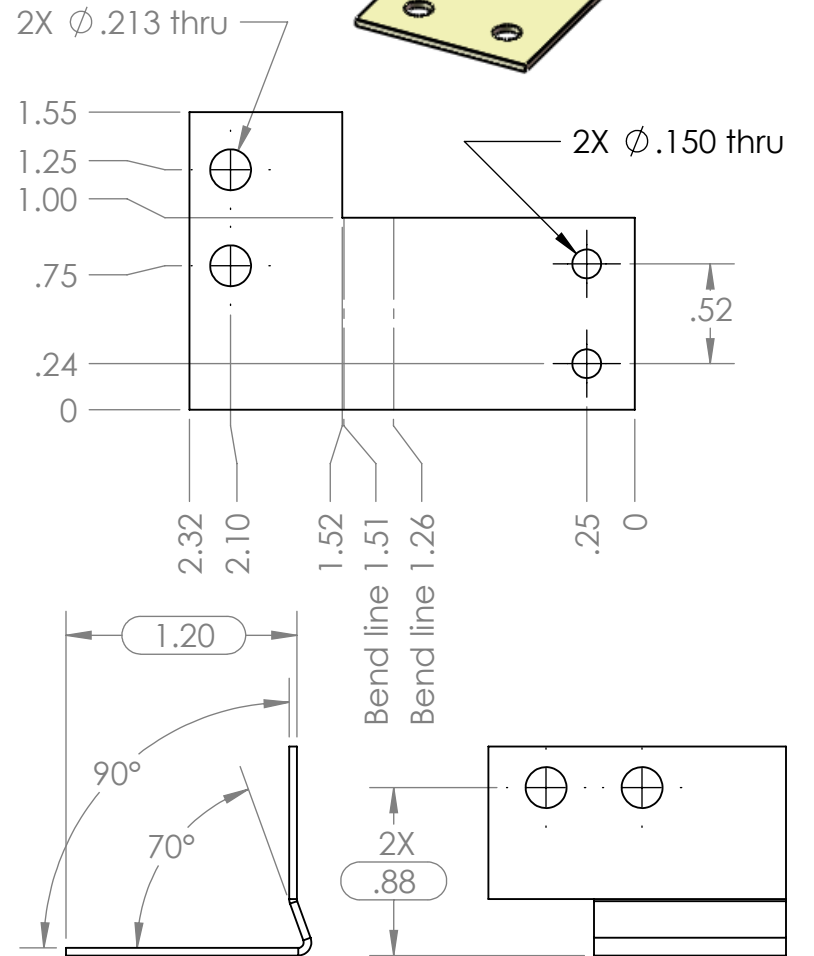
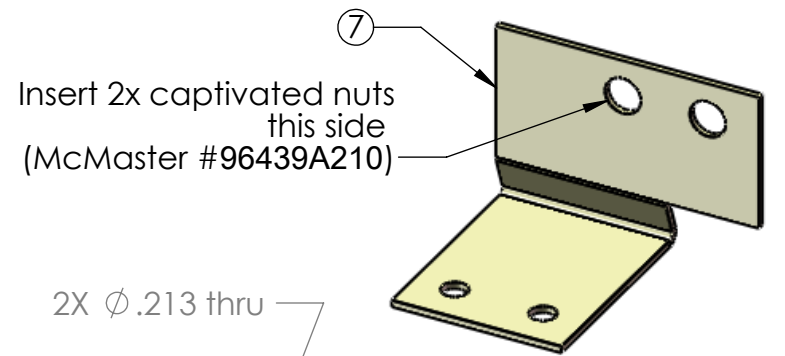
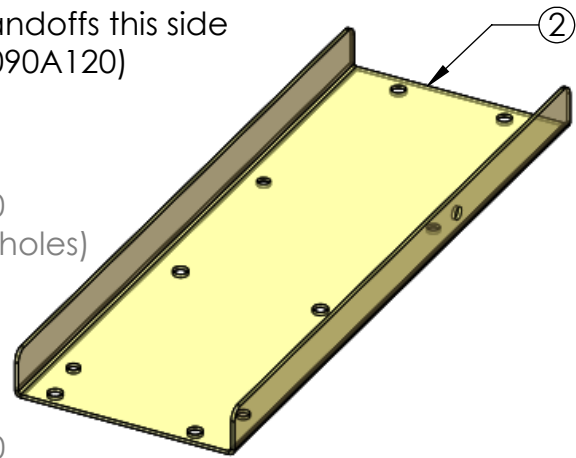
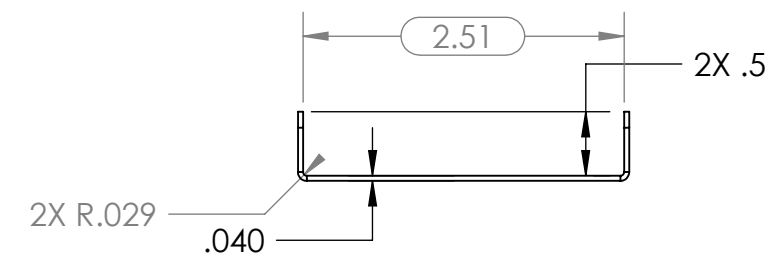
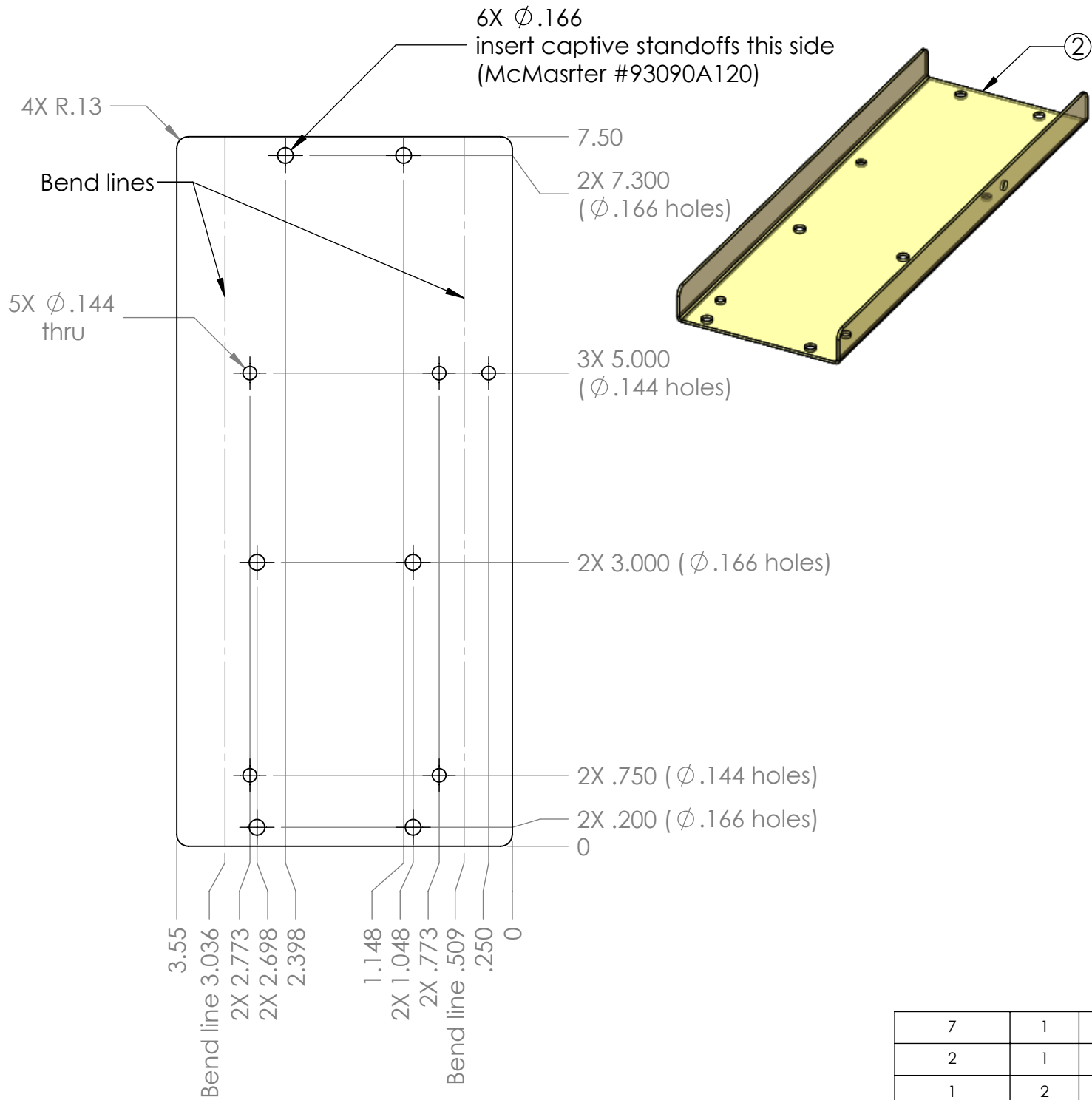
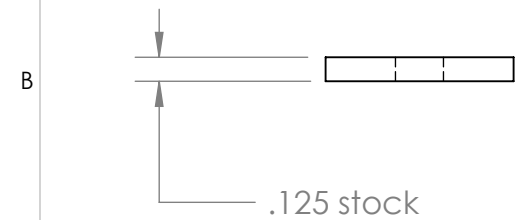
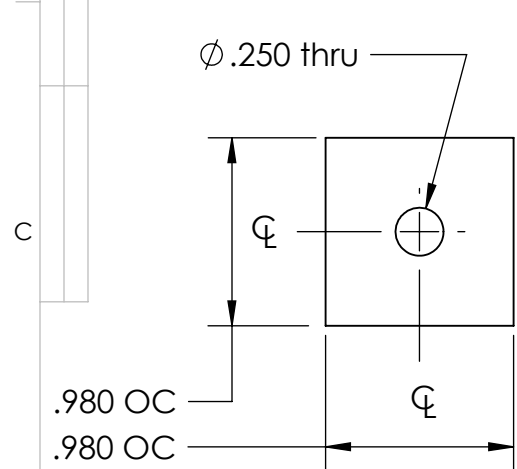
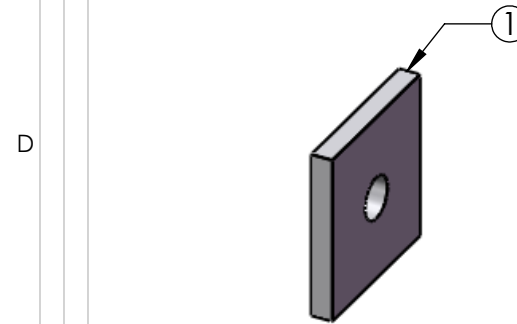
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APEX+ISUS Ver 2

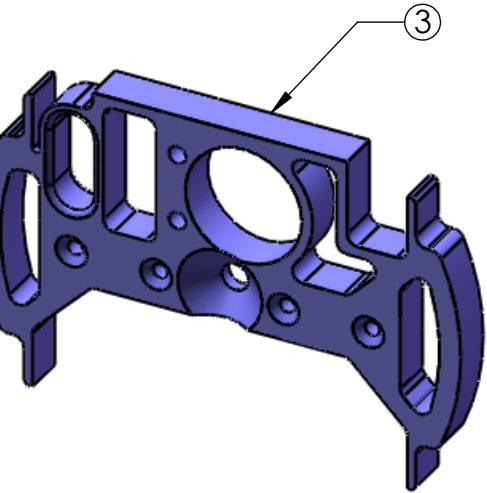
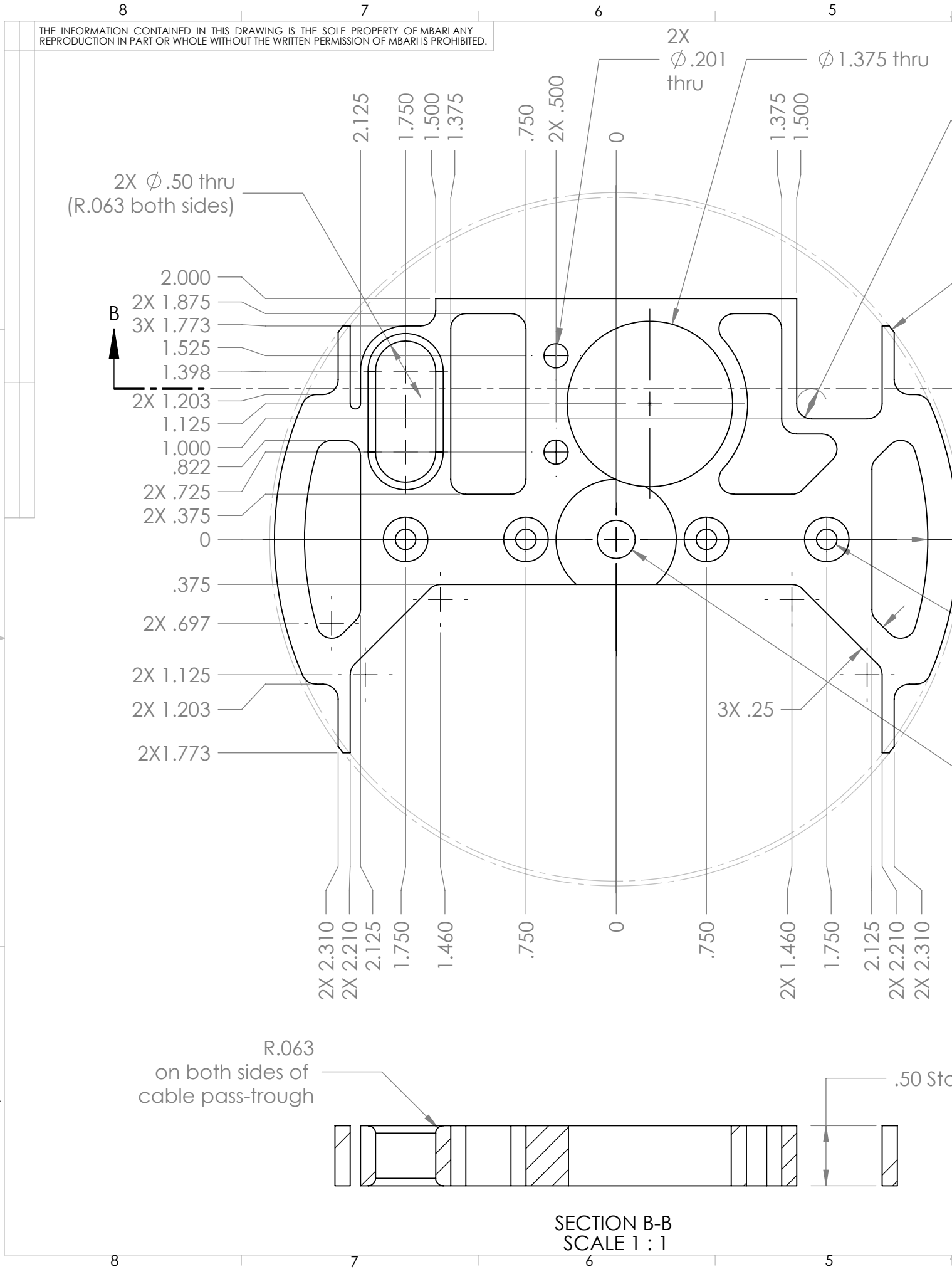
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SCALE 1:3	CAD FILE: Tornado/chem/SWfiles	SHEET 1 OF 5

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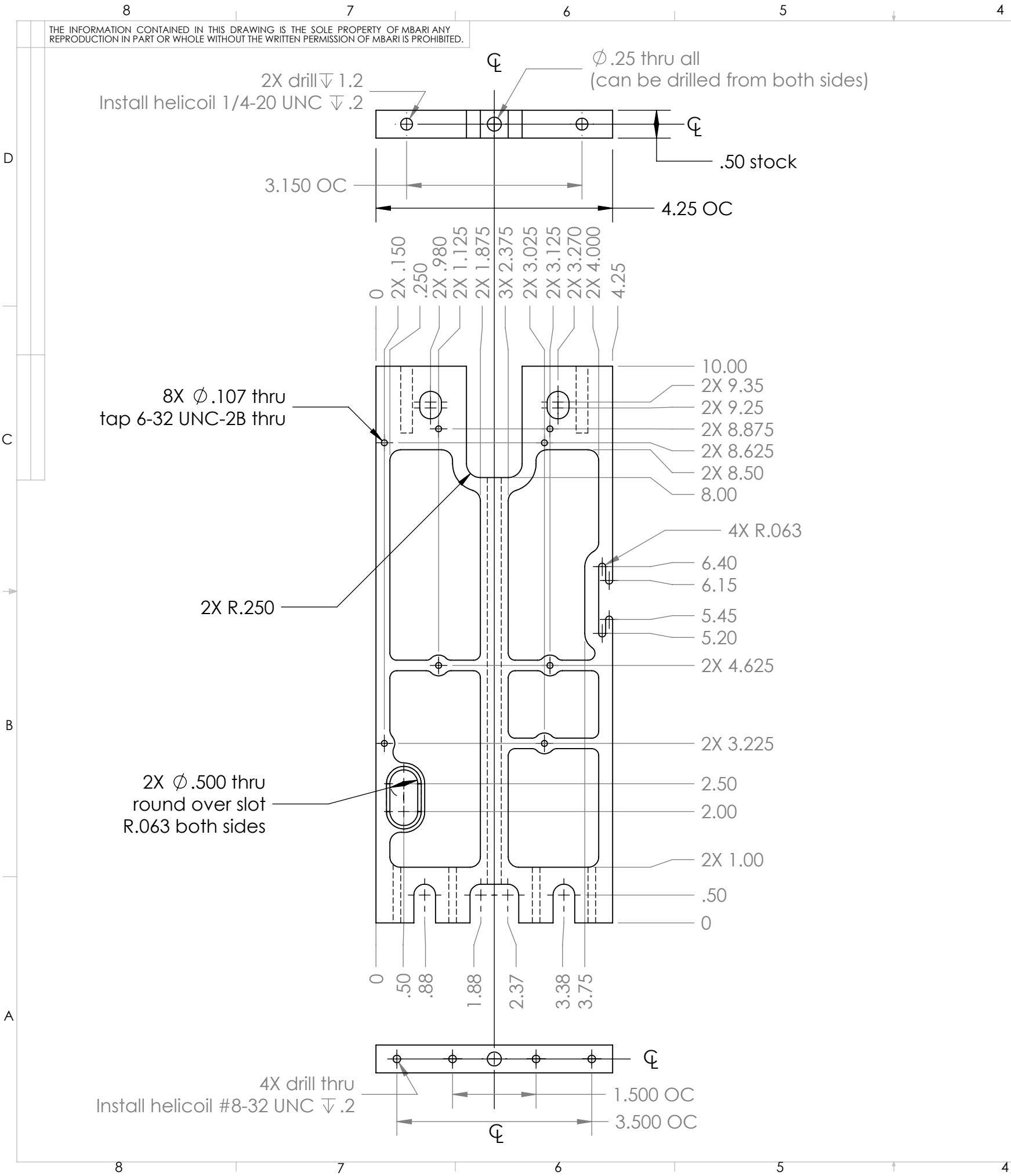


7	1		Reference Support Retainer	5052 H32 Aluminum .040" Chemical coat per MIL-C-5541, Class 1A
2	1		CPU Support	5052 H32 Aluminum .040" Chemical coat per MIL-C-5541, Class 1A
1	2		ISUS Chassis Union	6061 Aluminum .125
Item No.	Qty	Part No.	Description	Material Specification
Bill of Materials				
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		APPROVALS DATE
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	DRAWN Hans Jannasch 9/30/08
Shop Foreman		3 PLACE DIM ±.005	ANGLES ±1°	ENGINEER
Engineer		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX. 4. MACHINED FILLET RADII .0150-.030. 5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005 6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH, MAX .012 INCHES FOR SINGLE SURFACE.		CHECKED Jon Erickson 10/28/08
NEXT ASSY Description	NEXT ASSY Number			PROJECT NO. 701818
				PROJECT NSF Floats
Application		DO NOT SCALE DRAWING		WEIGHT
		3		2
Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700				
				
APEX+ISUS Ver 2				
SIZE B		DWG. NO. 206jahaAPEX+ISUSv2		REV B
SCALE 1:3		CAD FILE: Tornado/chem/SWfiles		SHEET 2 OF 5

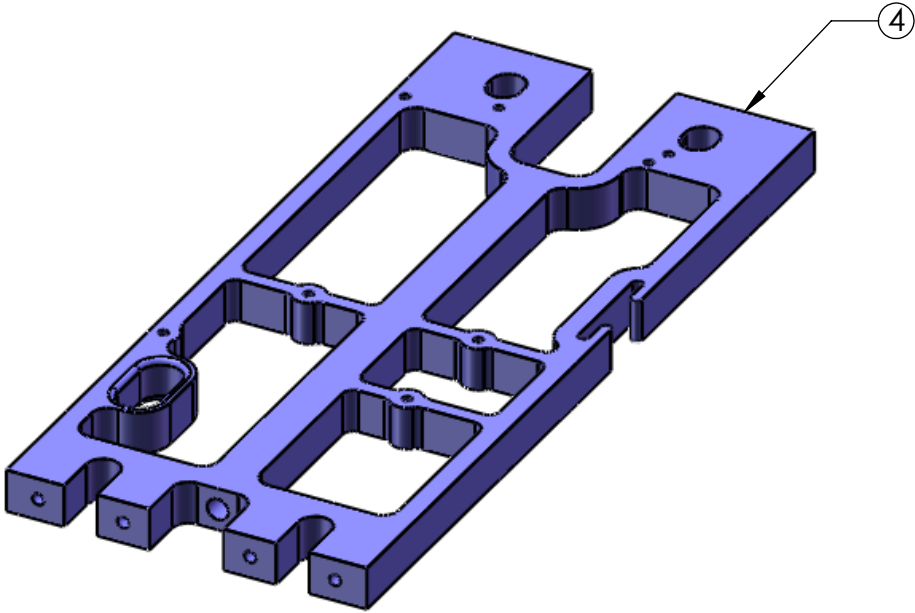


REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
INITIAL RELEASE			
A	Dec '08 Modifications	12/15/08	HWJ
B	Added inserts to sheetmetal parts	8/25/09	HWJ

3		1				ISUS Support End		Delrin	
Item No.		Qty		Part No.		Description		Material Specification	
Bill of Materials									
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS		DATE	
Inspector		1 PLACE DIM ±1/16		2 PLACE DIM ±.02		3 PLACE DIM ±.005		ANGLES ±1°	
Shop Foreman		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX. 4. MACHINED FILLET RADII .0150-.030. 5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005 6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH, MAX. .012 INCHES FOR SINGLE SURFACE.				DRAWN Hans Jannasch		9/30/08	
Engineer						ENGINEER			
NEXT ASSY Description						NEXT ASSY Number		CHECKED Jon Erickson	
						PROJECT NO. 701818			
						PROJECT NSF Floats			
Application		DO NOT SCALE DRAWING				WEIGHT			
		3				2			
Monterey Bay Aquarium Research Institute									
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APEX+ISUS Ver 2									
SIZE B		DWG. NO. 206jahaAPEX+ISUSv2		REV B					
SCALE 1:3		CAD FILE: Tornado/chem/SWfiles		SHEET 3 OF 5					



REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
INITIAL RELEASE			
A	Dec '08 Modifications	12/15/08	HWJ
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NOTE 7:
Part can be cut on waterjet, however:
Both ends faces need to be milled flat.

4		1				ISUS Mount		Delrin	
Item No.		Qty		Part No.		Description		Material Specification	
Bill of Materials									
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS		DATE	
Inspector		1 PLACE DIM ±1/16		2 PLACE DIM ±.02		3 PLACE DIM ±.005		4 ANGLES ±1°	
Shop Foreman		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX. 4. MACHINED FILLET RADII .0150-.030. 5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005 6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH. MAX. .012 INCHES FOR SINGLE SURFACE.				DRAWN Hans Jannasch		9/30/08	
Engineer						ENGINEER			
						CHECKED Jon Erickson		10/28/08	
NEXT ASSY Description		NEXT ASSY Number				PROJECT NO. 701818		Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700 	
						PROJECT NSF Floats			
Application		DO NOT SCALE DRAWING				WEIGHT		SIZE B	
		3				2		DWG. NO. 206jahaAPEX+ISUSv2	
								REV B	
						SCALE 1:3		CAD FILE: Tornado/chem/SWfiles	
								SHEET 4 OF 5	

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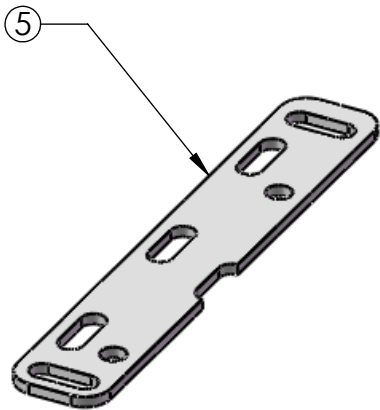


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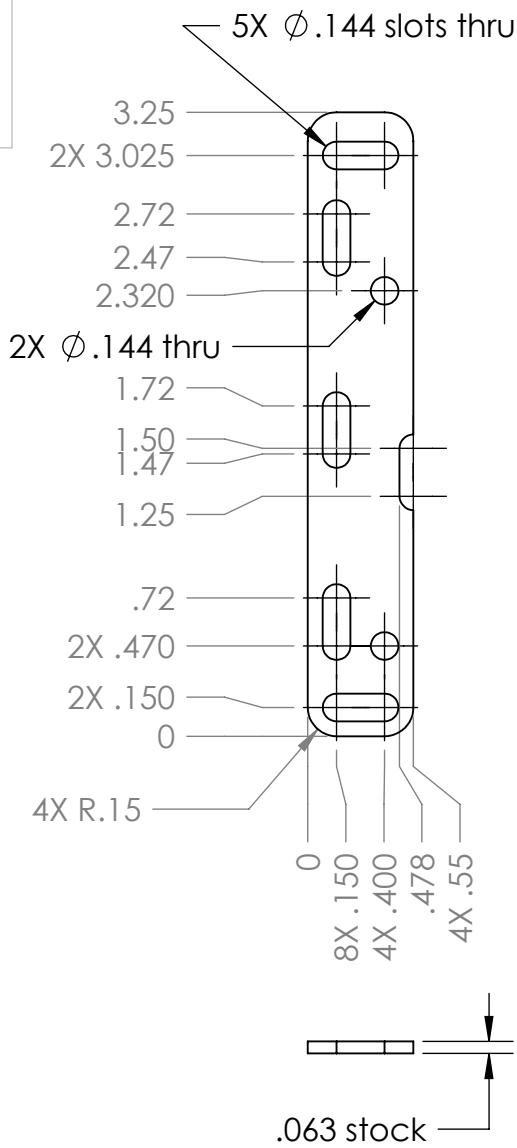
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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
INITIAL RELEASE			
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B	Added inserts to sheetmetal parts	8/25/09	HWJ

D

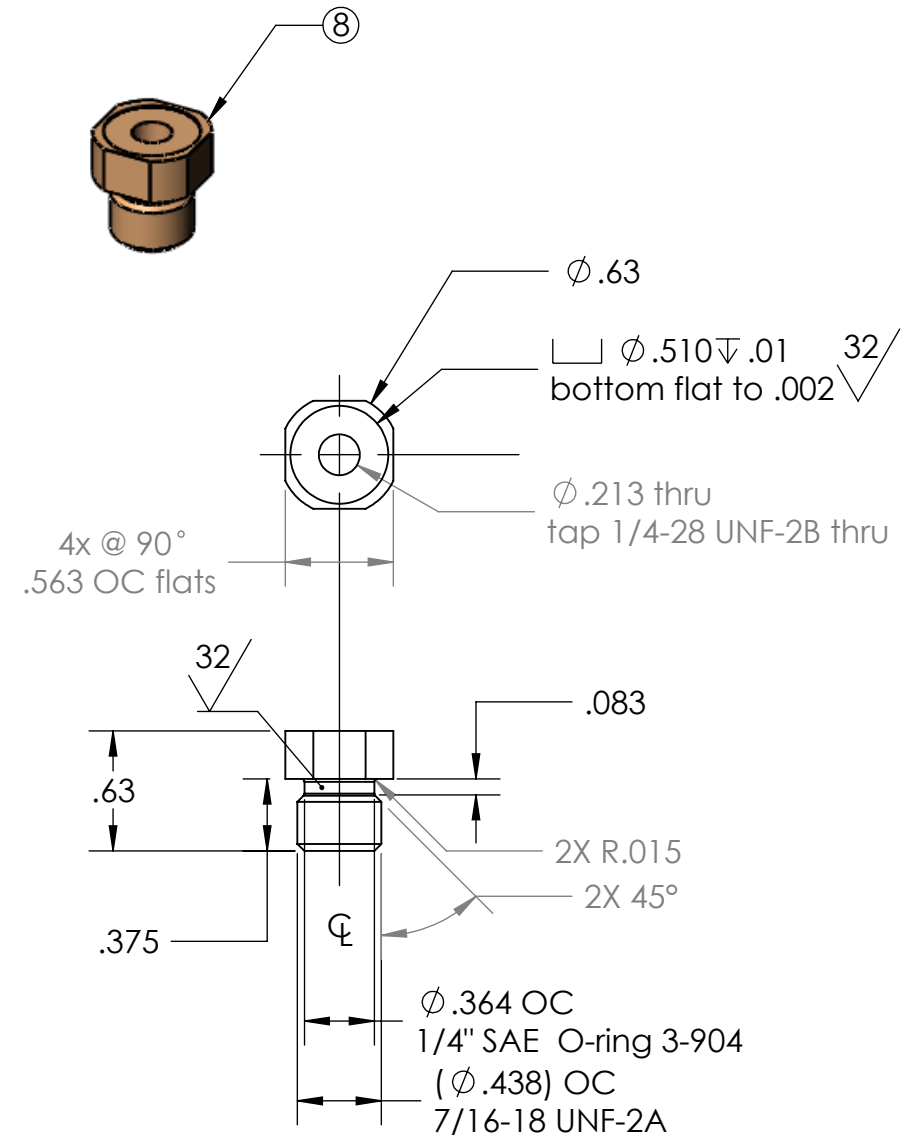
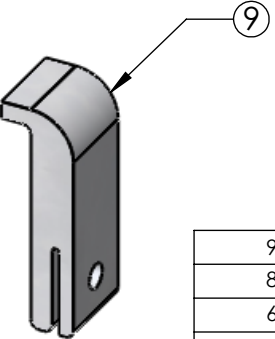
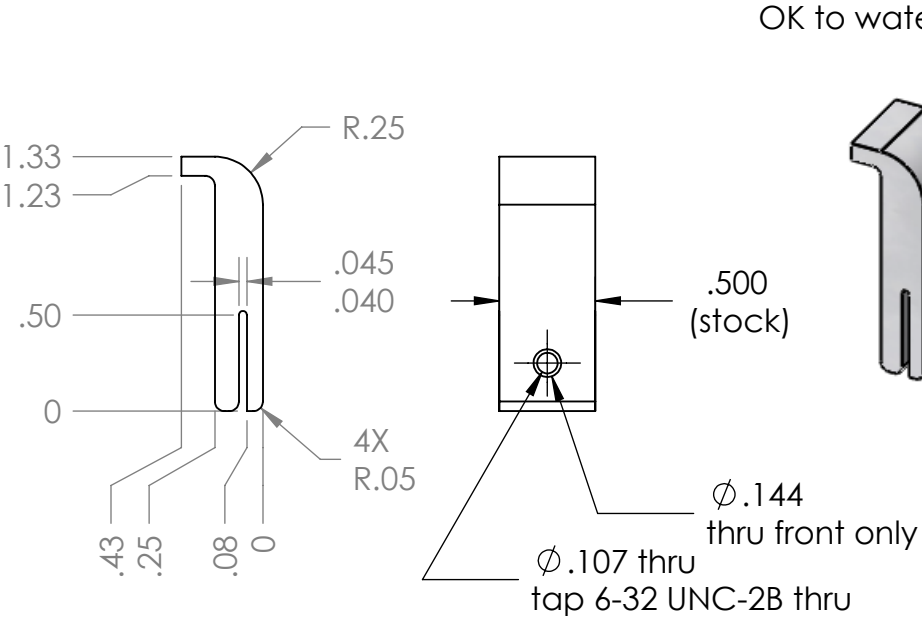
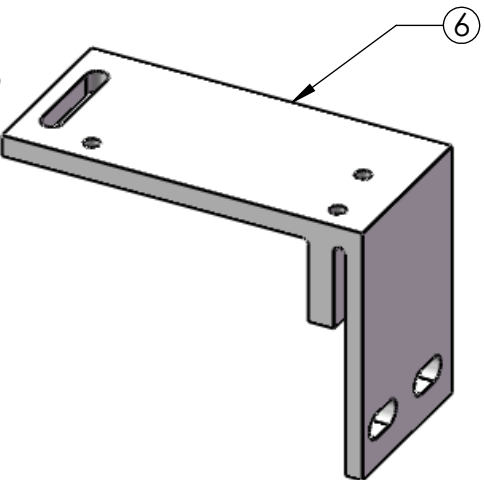
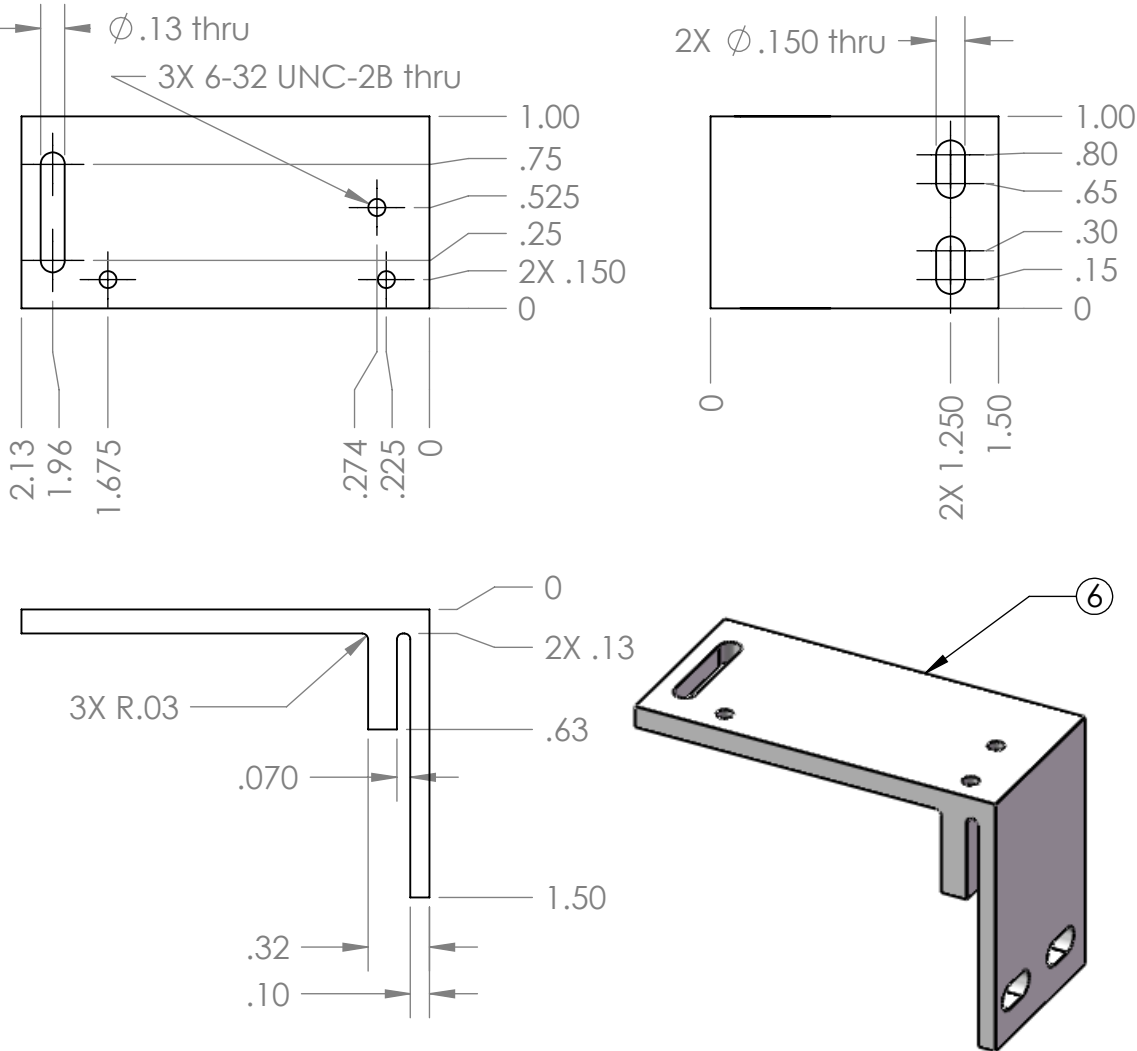


C



B

A



9	1		Flash Card Retainer	Delrin		
8	1		Impulse IE55 Bushing	PEEK		
6	1		Reference Support	Delrin		
5	3		Fiberlight Support	Delrin		
Item No.	Qty	Part No.	Description	Material Specification		
Bill of Materials						
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		APPROVALS DATE		
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005	ANGLES ±1°	DRAWN Hans Jannasch 9/30/08
Shop Foreman		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX. 4. MACHINED FILLET RADII .0150-.030. 5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005 6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH. MAX .012 INCHES FOR SINGLE SURFACE.				ENGINEER
Engineer						CHECKED Jon Erickson 10/28/08
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO. 701818
				PROJECT NSF Floats	Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700  APEX+ISUS Ver 2	
Application		DO NOT SCALE DRAWING		WEIGHT		
		SIZE B		DWG. NO. 206jahaAPEX+ISUSv2	REV B	
SCALE		1:3		CAD FILE: Tornado/chem/SWfiles	SHEET 5 OF 5	