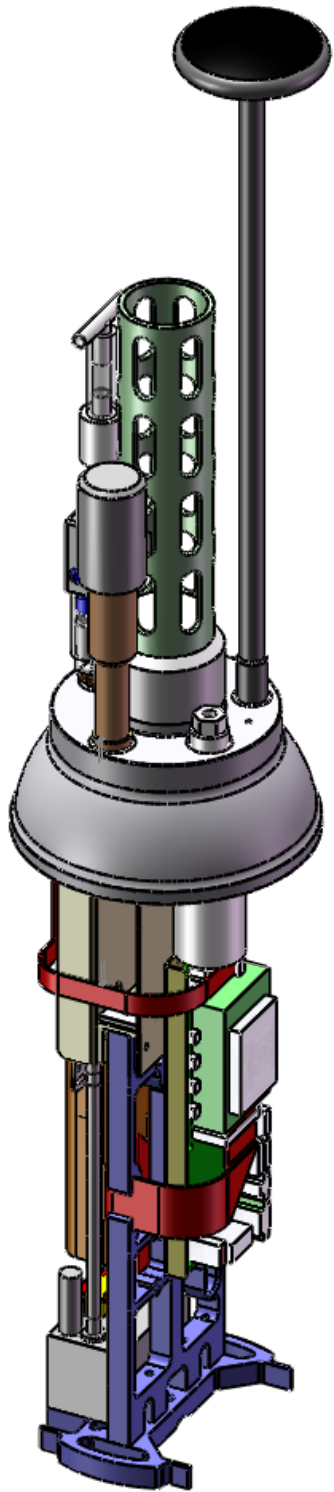


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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
INITIAL RELEASE			
A	Dec '08 Modifications	12/15/08	HWJ
B	Added inserts to sheetmetal parts	8/25/09	HWJ
C	Modified Reference Mount	11/15/10	HWJ



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	2@ 6010-AI, 1@ 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			SIZE B	DWG. NO. 206jahaAPEX+ISUSv2
							SCALE 1:3	CAD FILE: Tornado/chem/SWfiles
							SHEET 1	OF 5

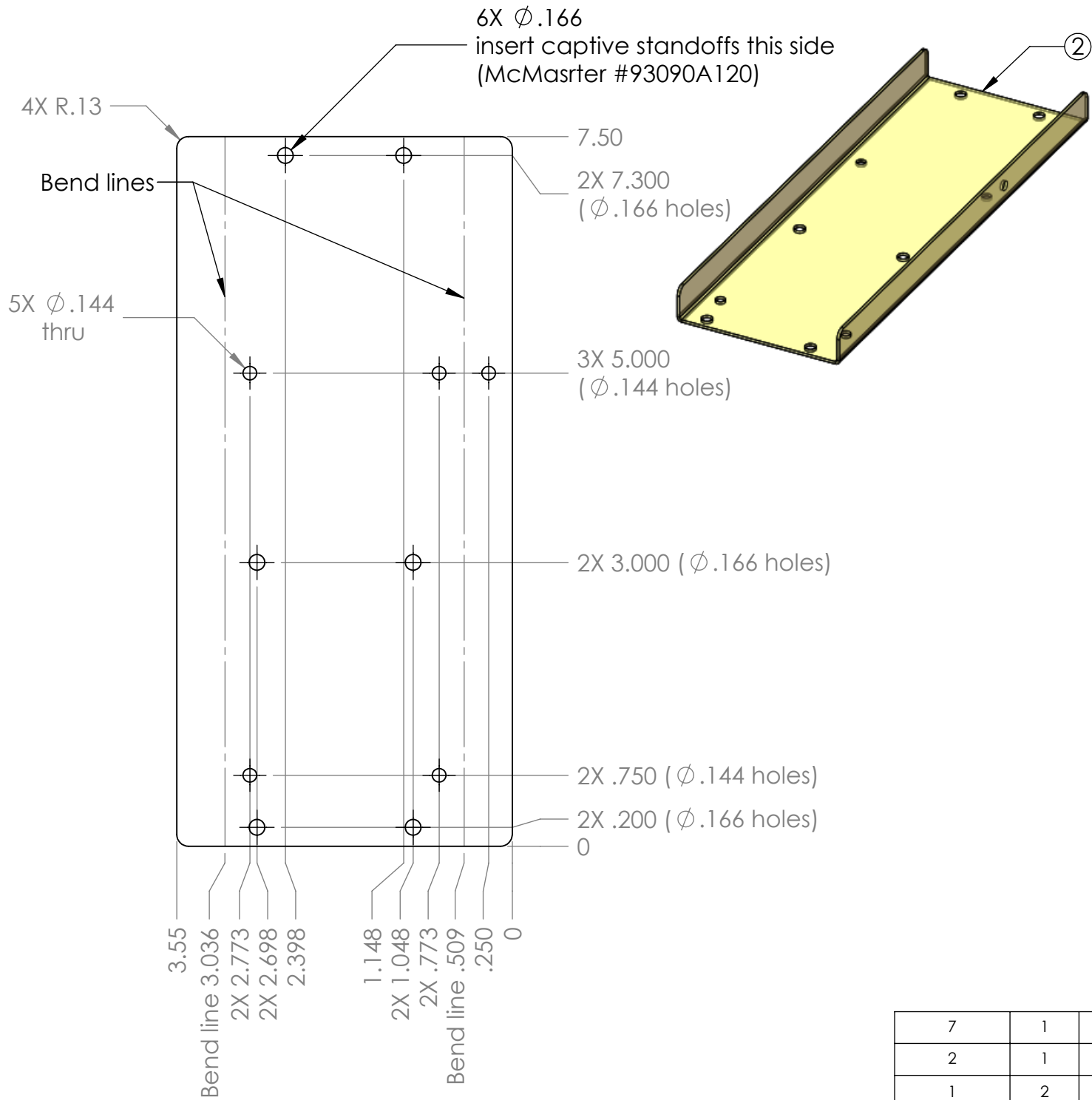
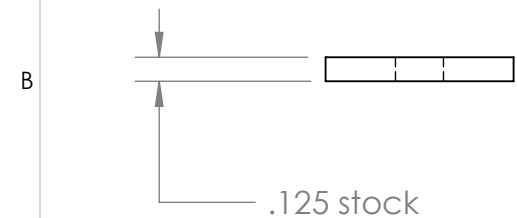
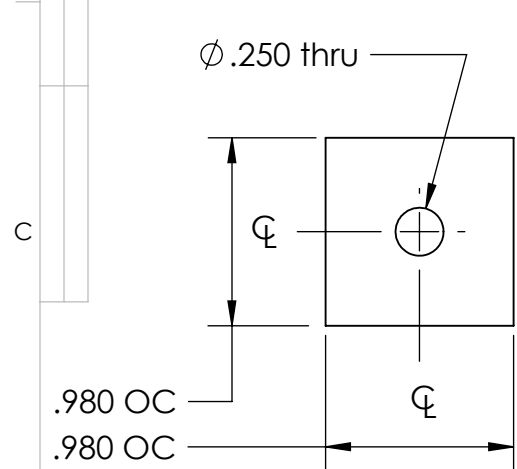
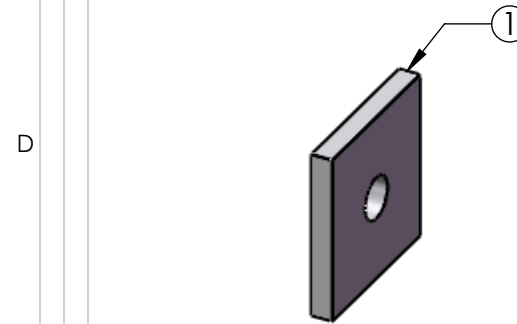
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MBARI
7700 Sandholdt RD.
Moss Landing, CA 95039
PH: (831) 775-1700

APEX+ISUS Ver 2

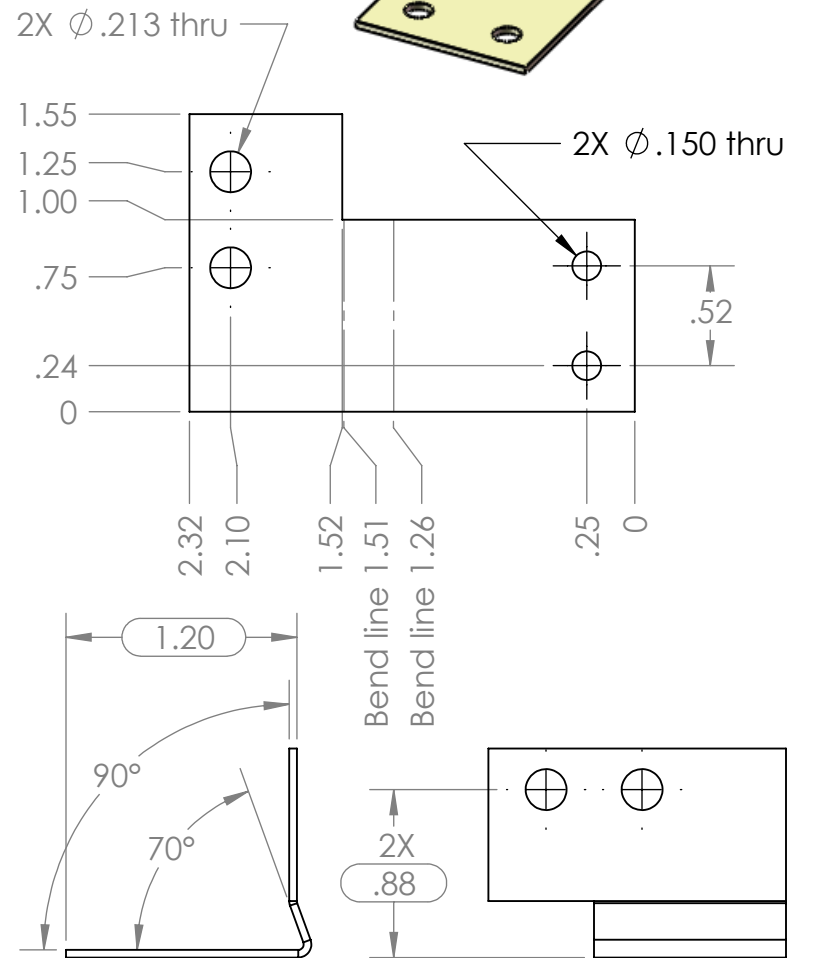
REV. C

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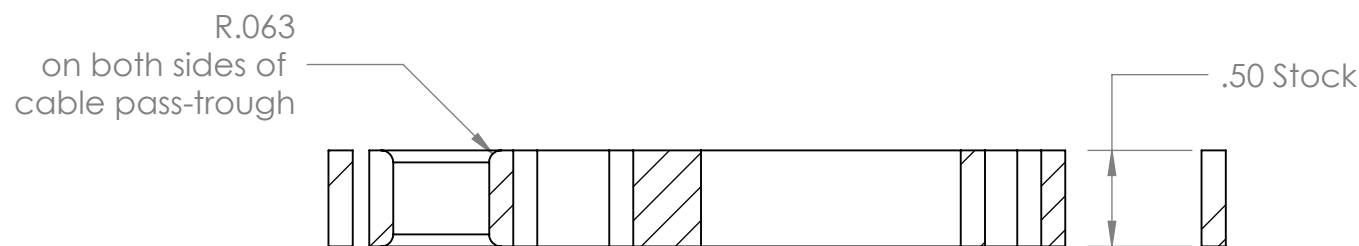
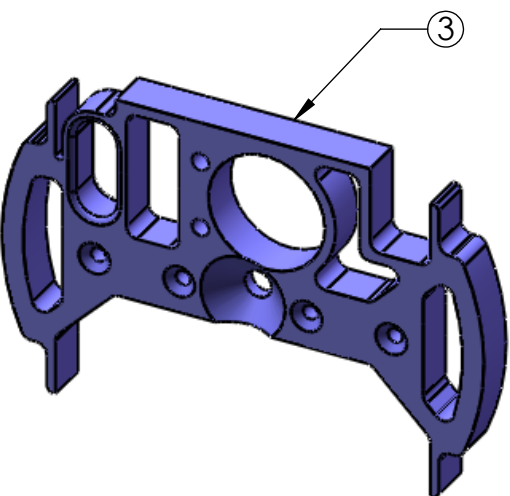
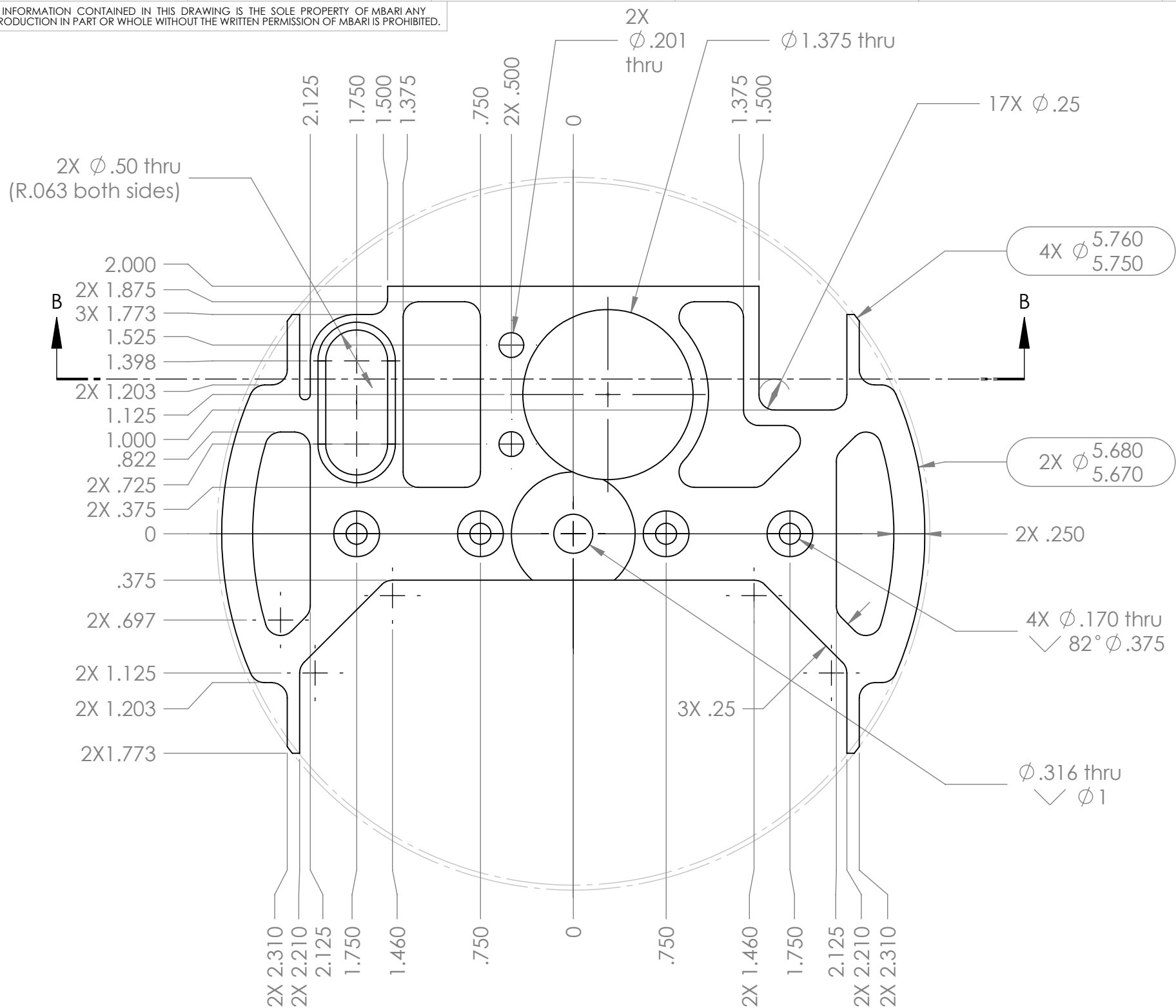
Insert 2x captivated nuts
this side
(McMaster #96439A210)



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 C
SCALE 1:3		CAD FILE: Tornado/chem/SWfiles		SHEET 2 OF 5

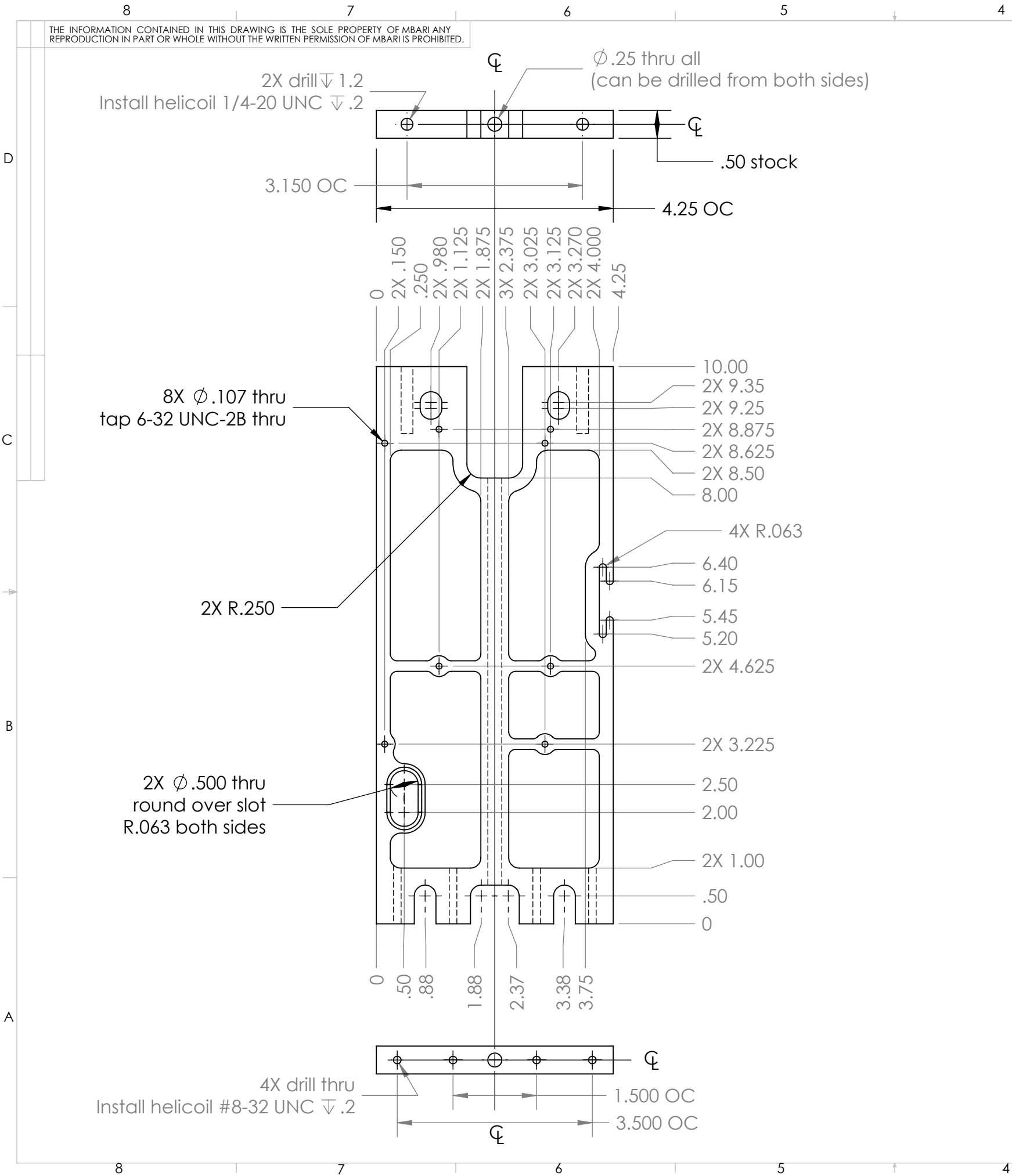
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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		
A	Dec '08 Modifications	12/15/08	HWJ
B	Added inserts to sheetmetal parts	8/25/09	HWJ
C	Modified Reference Mount	11/15/10	HWJ

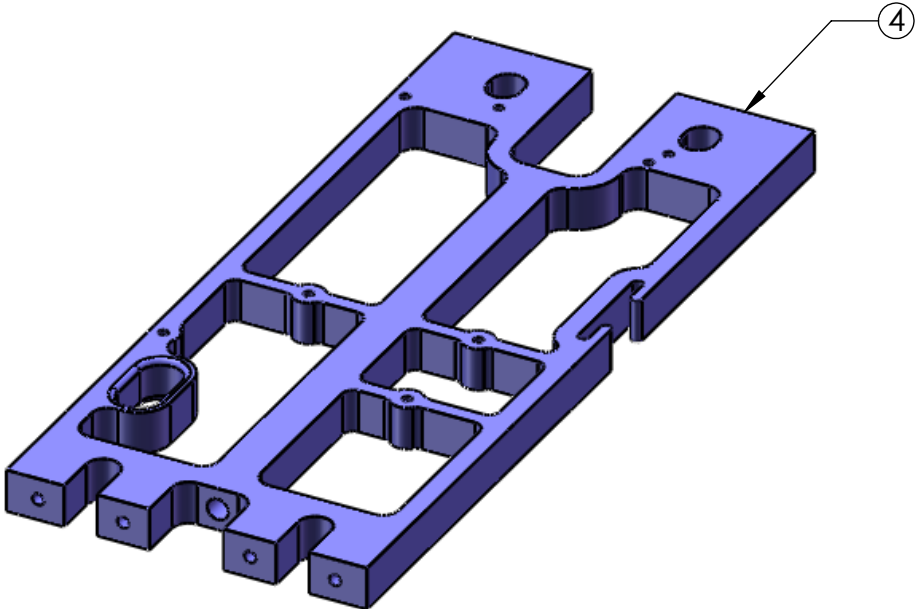


SECTION B-B
SCALE 1 : 1

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 ENGINEER 9/30/08	Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700 
Engineer				CHECKED Jon Erickson 10/28/08	
NEXT ASSY Description	NEXT ASSY Number			PROJECT NO. 701818	
				PROJECT NSF Floats	
Application		DO NOT SCALE DRAWING		WEIGHT	SIZE B DWG. NO. 206jahaAPEX+ISUSv2 SCALE 1:3 CAD FILE: Tornado/chem/SWfiles SHEET 3 OF 5



REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
INITIAL RELEASE			
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NOTE 7:
Part can be cut on waterjet, however:
Both ends faces need to be milled flat.

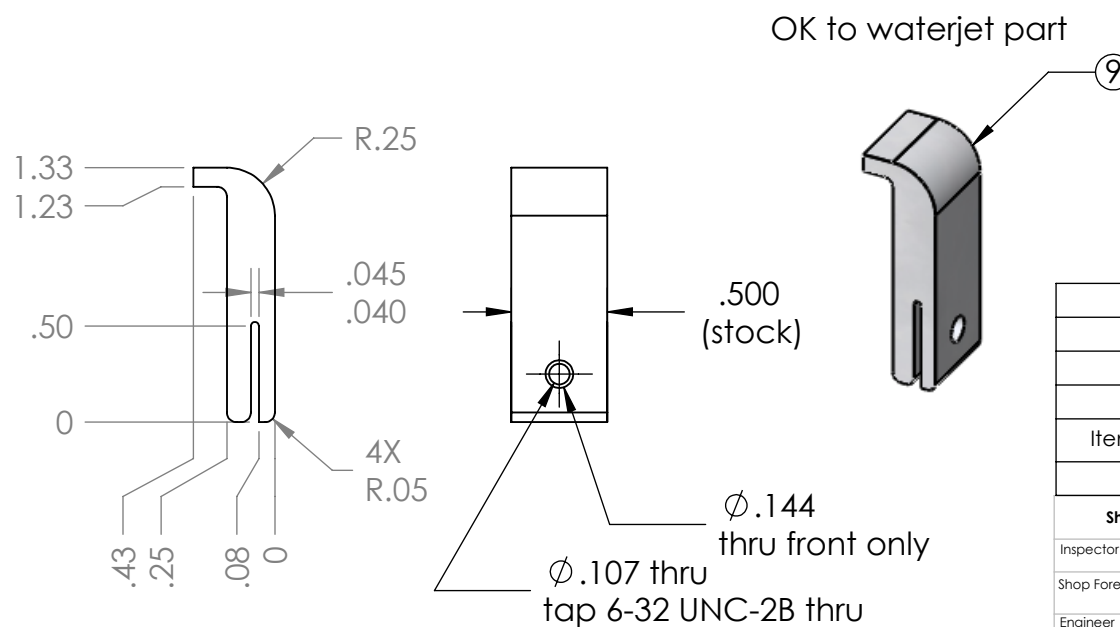
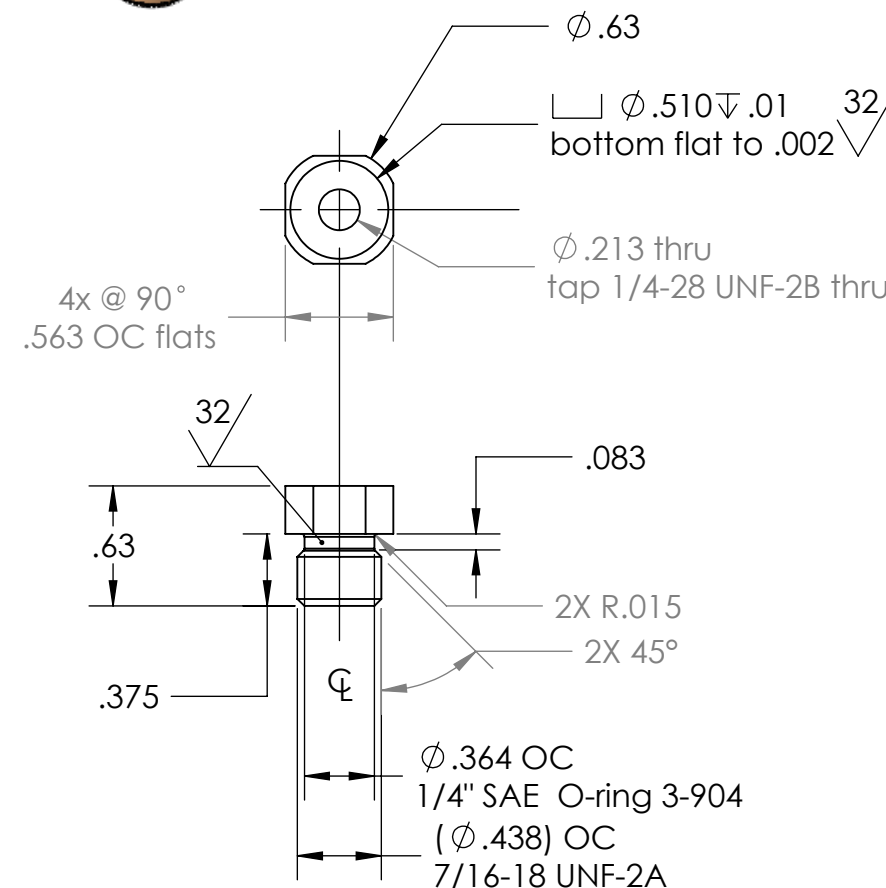
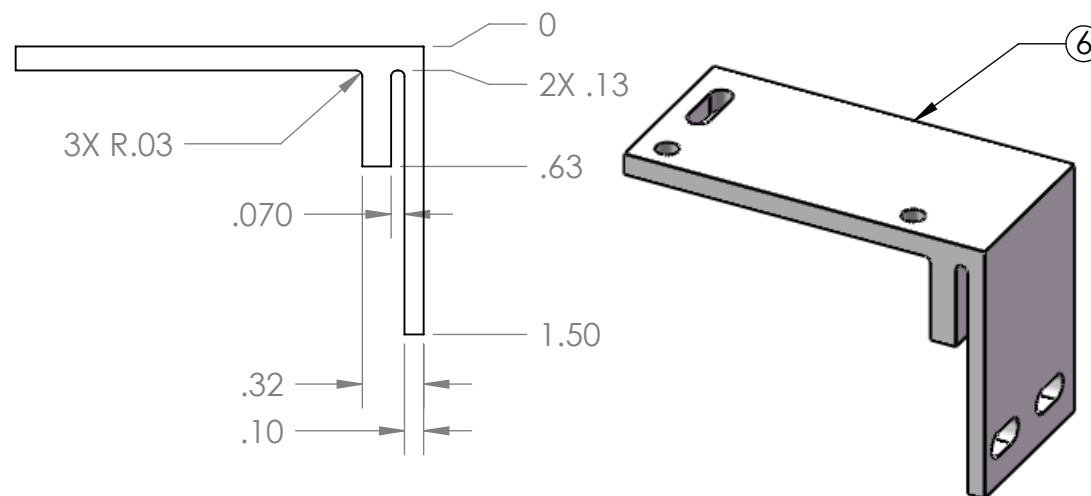
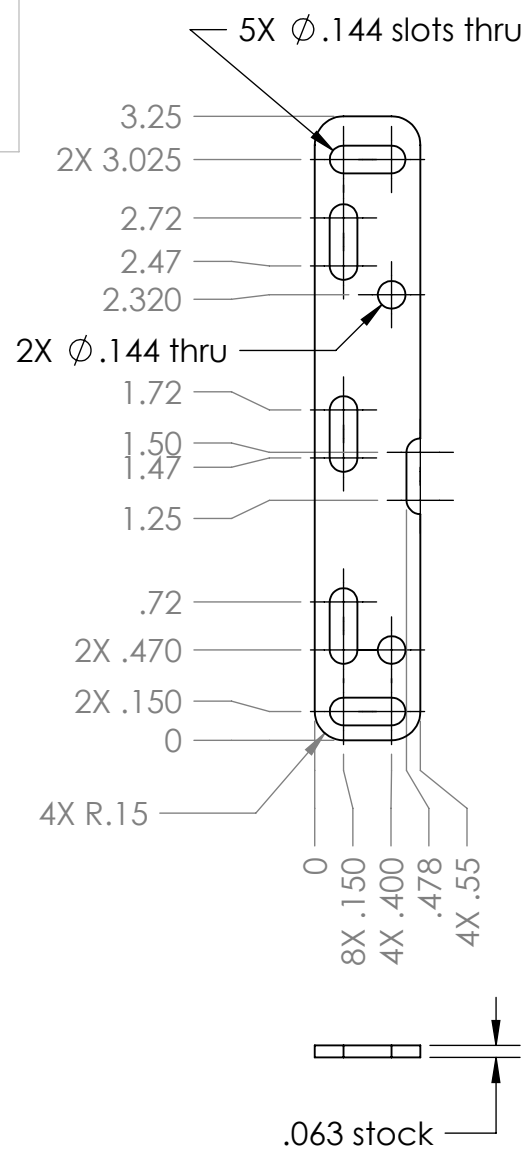
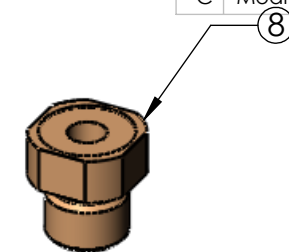
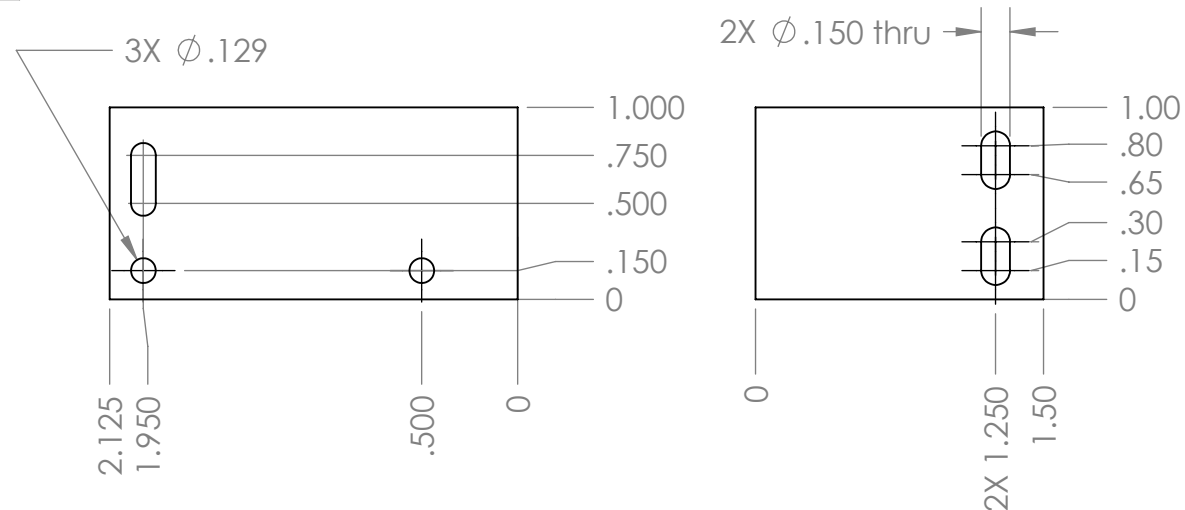
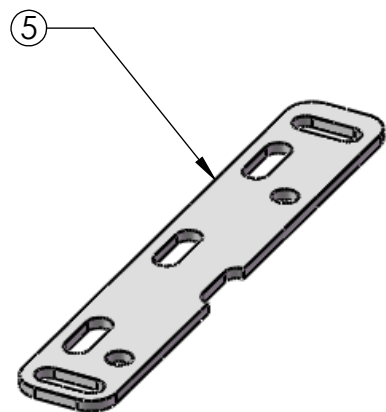
4		1		ISUS Mount		Delrin		
Item No.		Qty	Part No.	Description		Material Specification		
Bill of Materials								
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:			APPROVALS		DATE	
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005	4 ANGLES ±1°	DRAWN Hans Jannasch	9/30/08	
Shop Foreman		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	
Application		DO NOT SCALE DRAWING			WEIGHT			
		3		2		SIZE B	DWG. NO. 206jahaAPEX+ISUSv2	REV C
						SCALE 1:3	CAD FILE: Tornado/chem/SWfiles	SHEET 4 OF 5

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9	1		Flash Card Retainer	Delrin
8	1		Impulse IE55 Bushing	PEEK
6	1		Reference Support	Delrin
5	3		Fiberlight Support	2@ 6010-AI, 1@ Delrin
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 MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700 		
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				APEX+ISUS Ver 2		
						PROJECT NSF Floats						
Application		DO NOT SCALE DRAWING				WEIGHT		SIZE B		DWG. NO. 206jahaAPEX+ISUSv2		REV. C
								SCALE 1:3		CAD FILE: Tornado/chem/SWfiles		SHEET 5 OF 7