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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	1/14/2014	

D

C

B

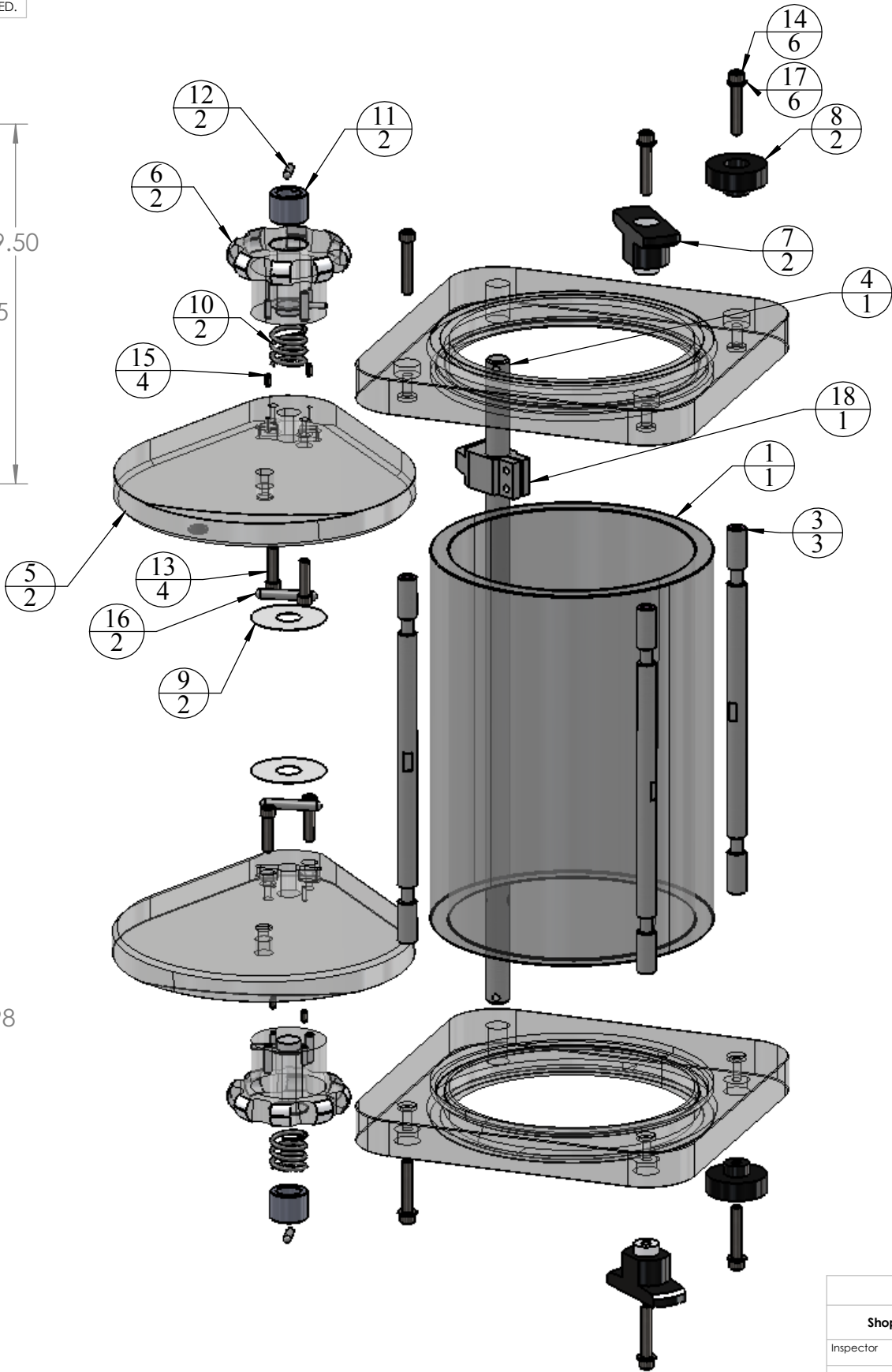
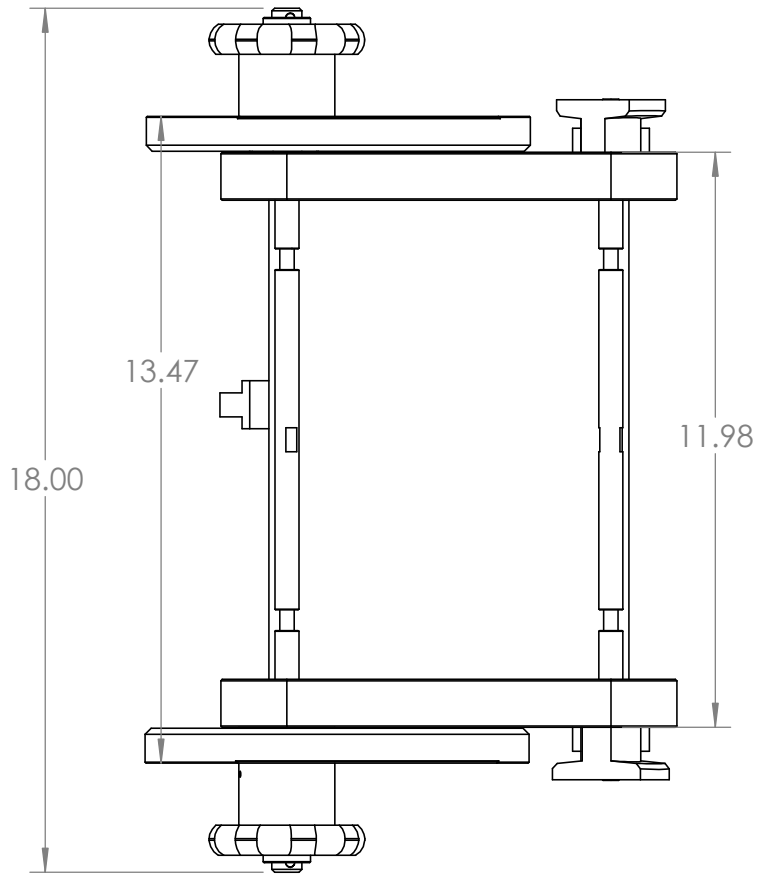
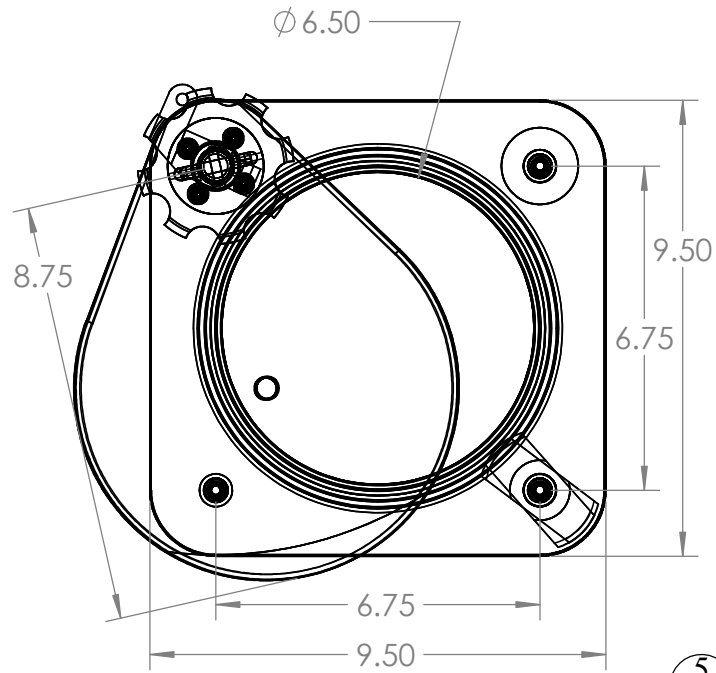
A

D

C

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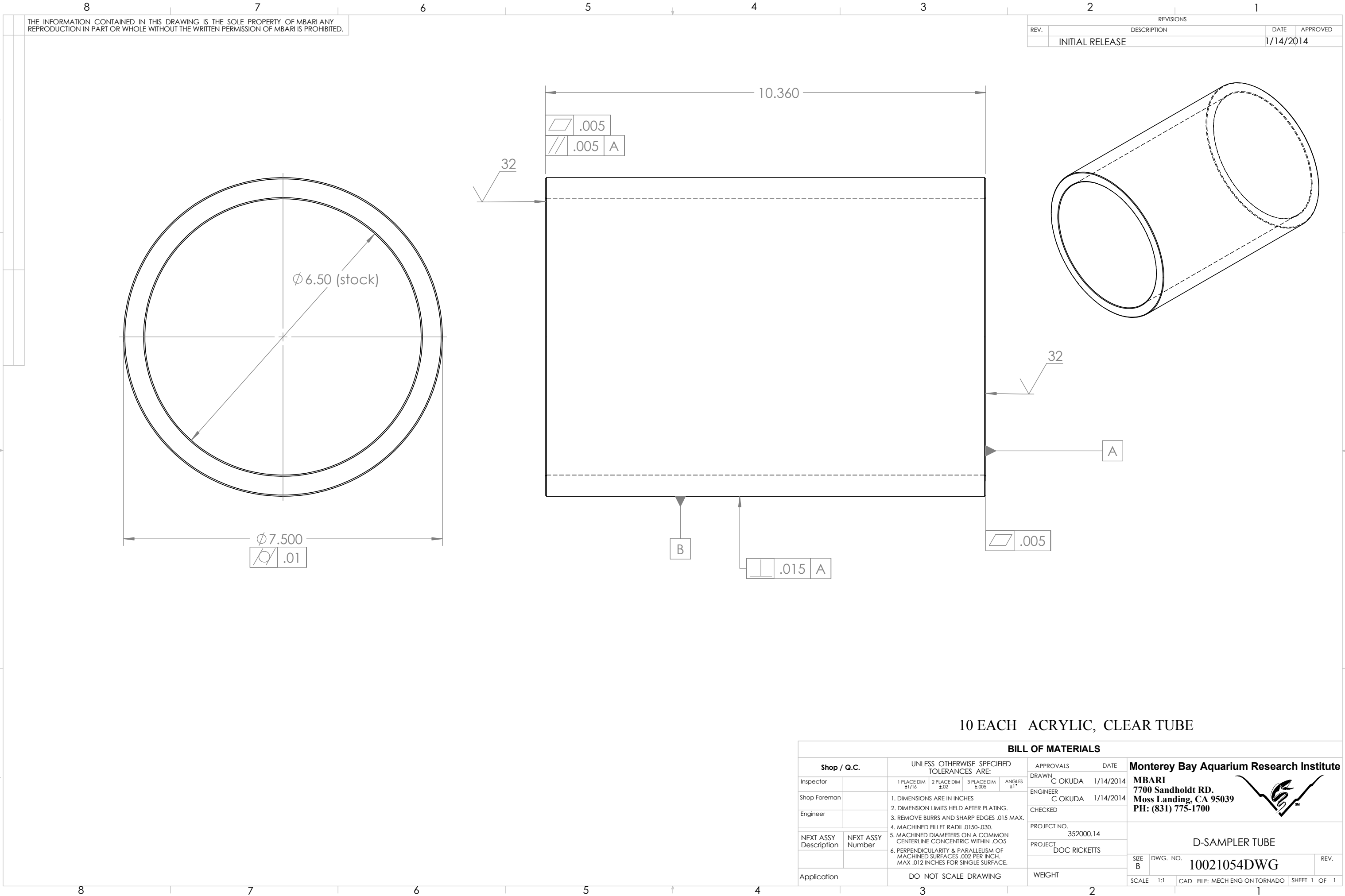
A



ITEM NO.	DRAWING TITLE	PART NUMBER	qty
1	d sampler tube	10021054.DWG	1
2	d sampler end plate	10021048.DWG	2
3	d sampler tie rod	10021053.DWG	3
4	d sampler handle rod	10021049.DWG	1
5	d sampler door	10021056.DWG	2
6	d sampler door Knob	10021046.DWG	2
7	d sampler lid lock	10021052.DWG	2
8	d sampler door stop	10021047.DWG	2
9	d sampler knob thrust washer	10021050.DWG	2
10	d sampler spring	McMASTER	2
11	d sampler spring retainer	10021051.DWG	2
12	d sampler spring pin	10021044.DWG	2
13	HX-SHCS 0.25-20x1x1-N		4
14	HX-SHCS 0.25-20x1.5x1-N		6
15	SPS 0.125x0.313		4
16	d sampler door pin	10021044.DWG	2
17	Narrow FW 0.25		6
18	d sampler door bell crank	10021045.DWG	1

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 C OKUDA	1/14/2014	MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700		
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 C OKUDA	1/14/2014			
Engineer						CHECKED				
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO. 352000.17				
		PROJECT doc ricketts		MBARI Detritus Sampler						
					WEIGHT	SIZE B	DWG. NO. 10021043DWG	REV.		
Application		DO NOT SCALE DRAWING				SCALE 1:8 CAD FILE: MECH ENG ON TORNADO SHEET 1 OF 1				



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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	1/14/2014	

10 EACH ACRYLIC, CLEAR TUBE

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	C OKUDA	1/14/2014	Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700 	
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	C OKUDA	1/14/2014		
Engineer						CHECKED				
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.	352000.14			
						PROJECT	DOC RICKETTS			
Application		DO NOT SCALE DRAWING				WEIGHT		SIZE B DWG. NO. 10021054DWG REV.		
						SCALE 1:1		CAD FILE: MECH ENG ON TORNADO		SHEET 1 OF 1

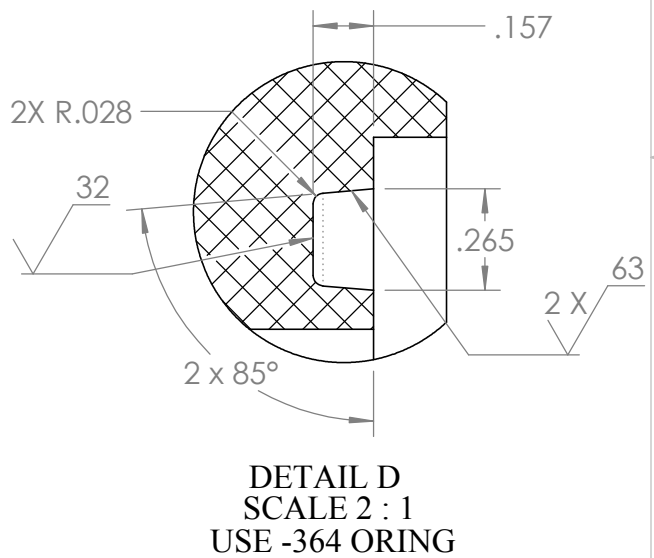
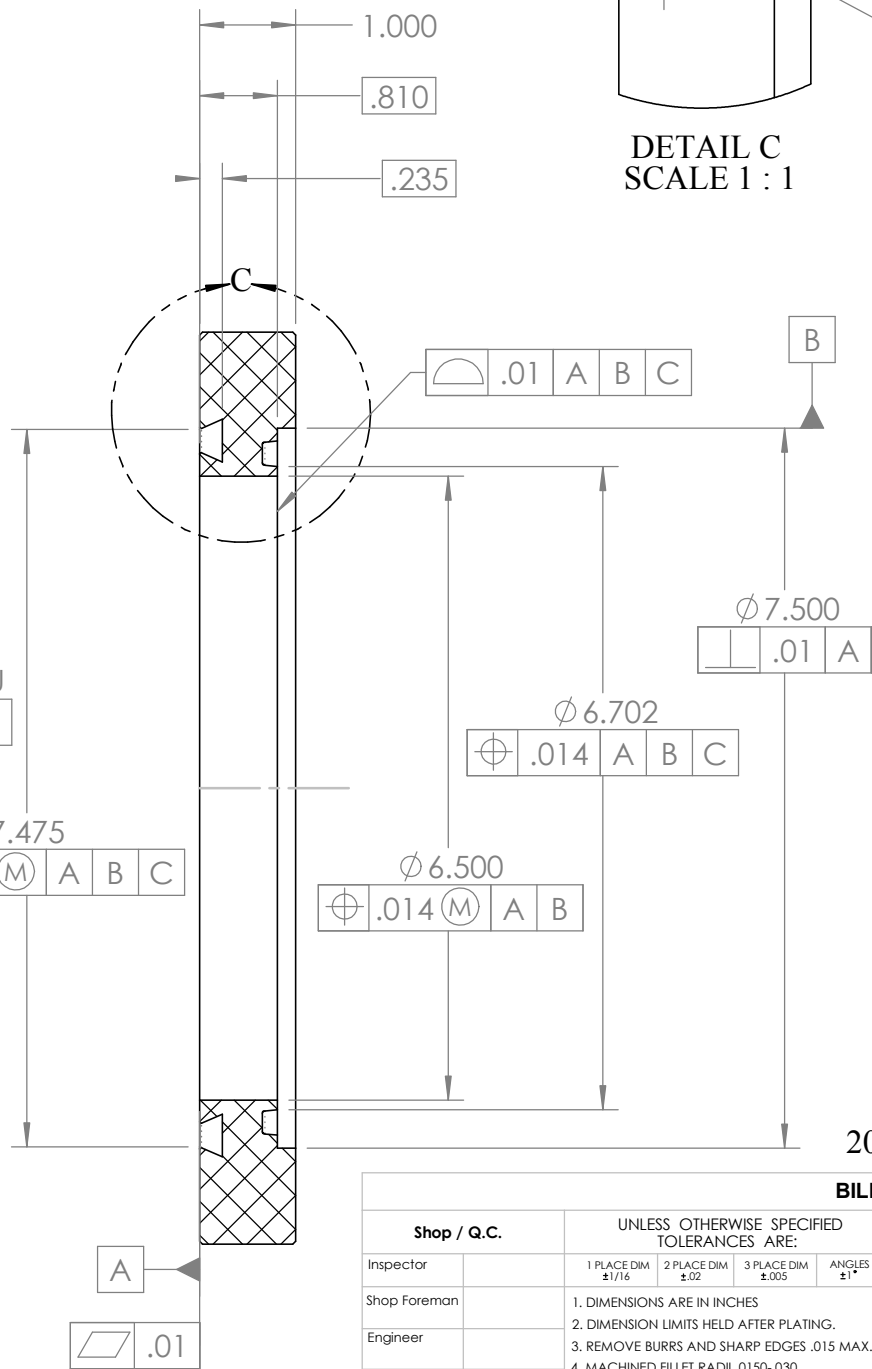
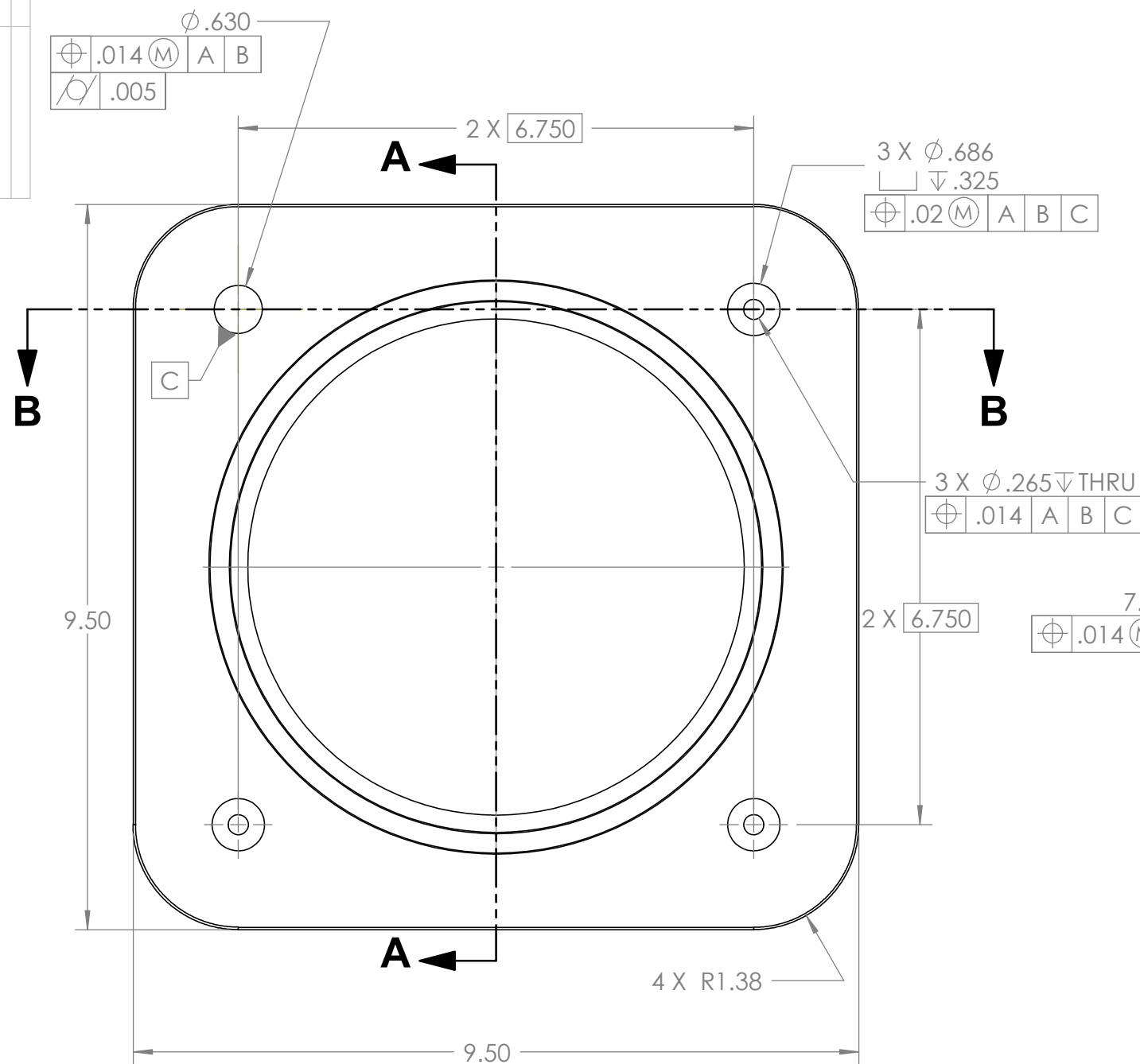
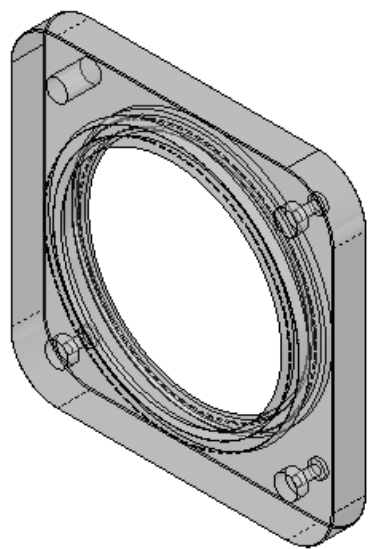
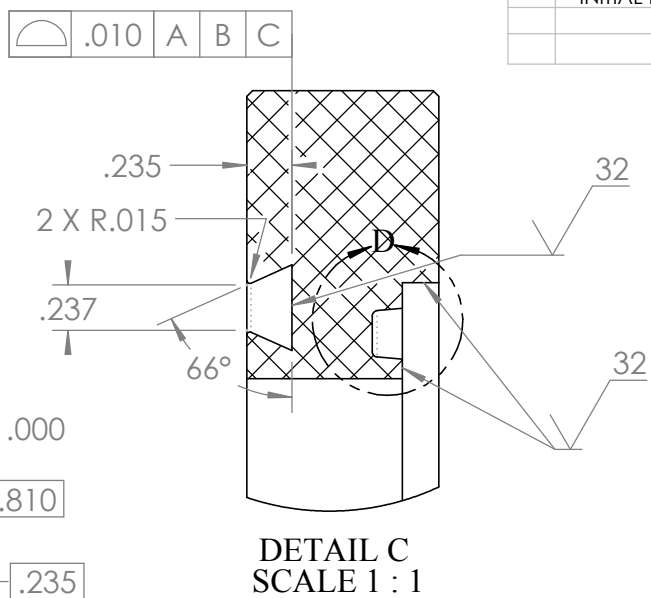
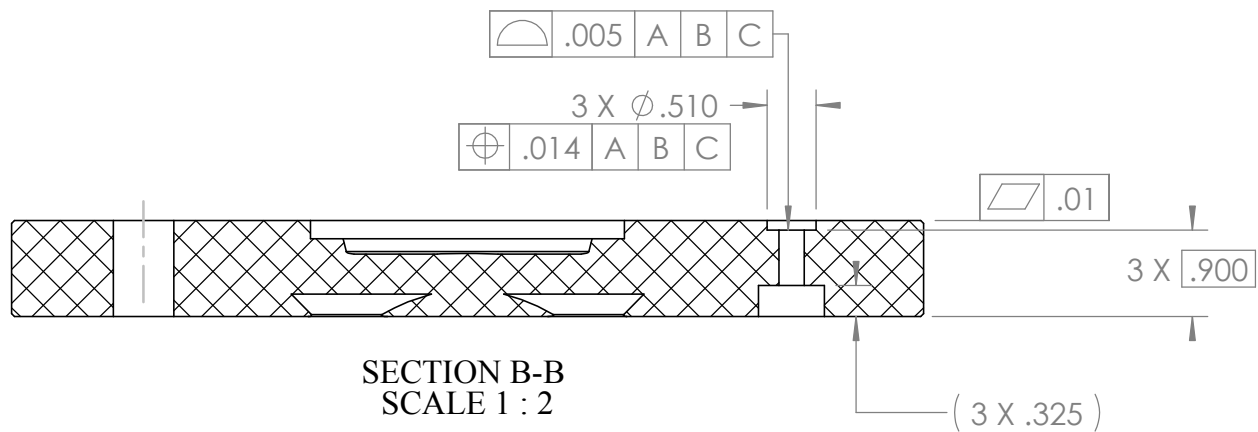
Monterey Bay Aquarium Research Institute
MBARI
7700 Sandholdt RD.
Moss Landing, CA 95039
PH: (831) 775-1700



D-SAMPLER TUBE

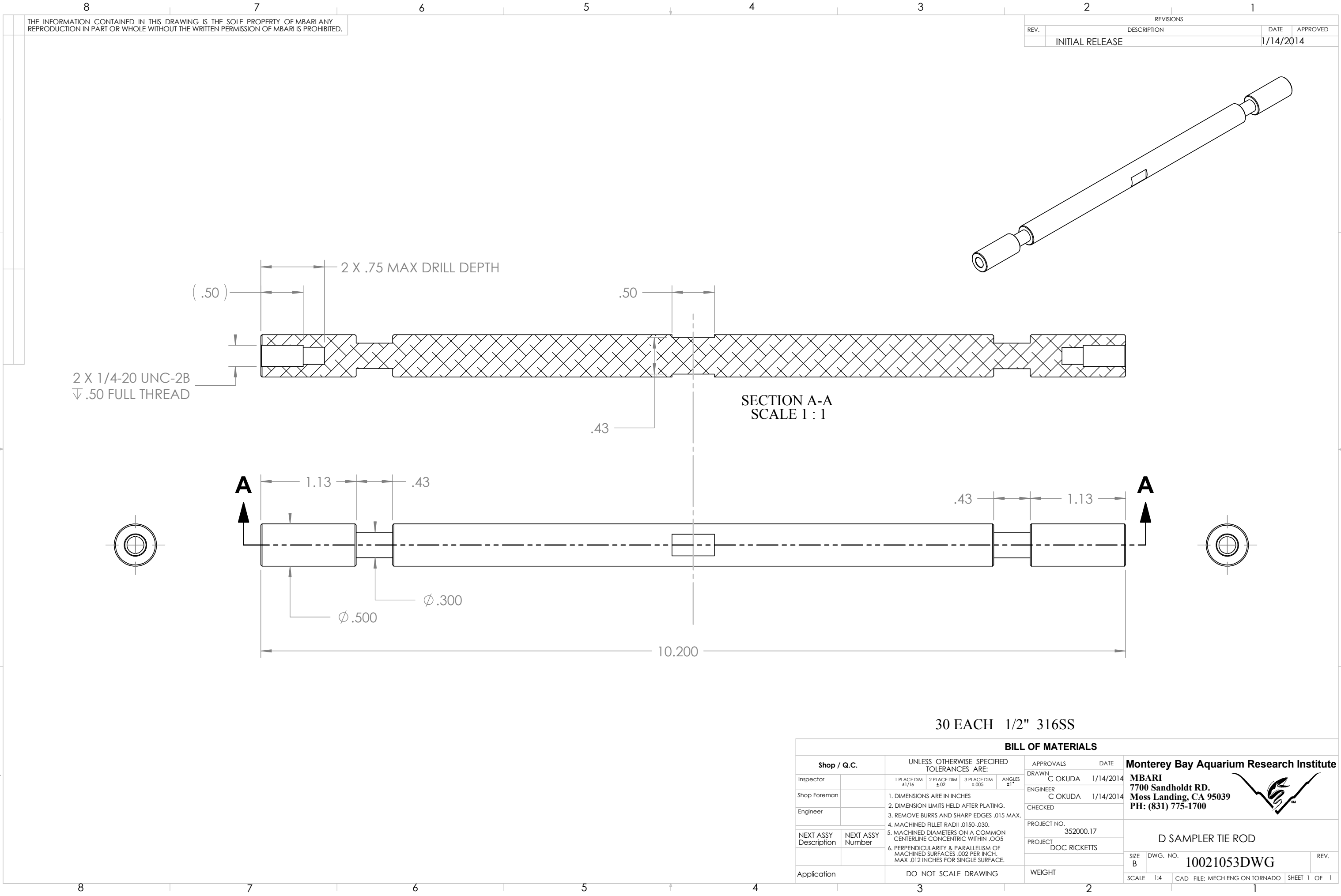
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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	1/14/2014	



20 EACH ACRYLIC, CLEAR

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	C OKUDA 1/14/2014			
Shop Foreman		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX. 4. MACHINED FILLET RADI. .0150-.030.				ENGINEER	C OKUDA 1/14/2014			
Engineer						CHECKED				
NEXT ASSY Description	NEXT ASSY Number	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.				PROJECT NO.	352000.17			
						PROJECT			DOC RICKETTS	
Application		DO NOT SCALE DRAWING				WEIGHT				
						SIZE B	DWG. NO.		10021048DWG	
						SCALE 1:4	CAD FILE: MECH ENG ON TORNADO			REV. -
						SHEET 1 OF 1				



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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	1/14/2014	

SECTION A-A
SCALE 1 : 1

30 EACH 1/2" 316SS

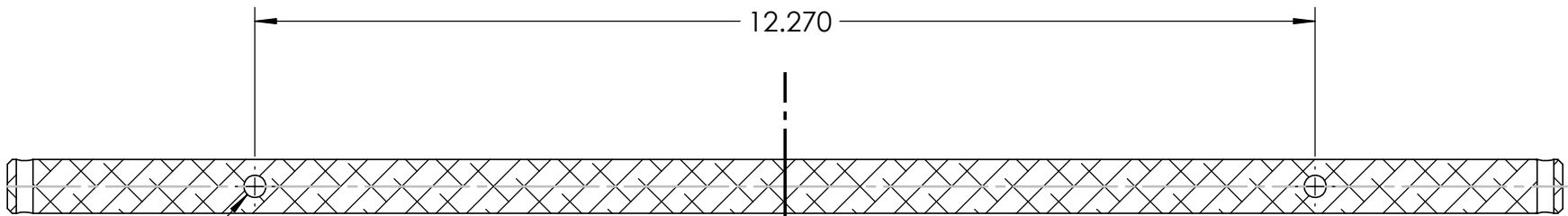
BILL OF MATERIALS									
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS		DATE	
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005	ANGLES ±1°	DRAWN	C OKUDA	1/14/2014	
Shop Foreman		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS 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	C OKUDA	1/14/2014	
Engineer						CHECKED			
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.	352000.17		
						PROJECT	DOC RICKETTS		
Application		DO NOT SCALE DRAWING				WEIGHT			
						SIZE B	DWG. NO.	10021053DWG	REV.
						SCALE 1:4	CAD FILE: MECH ENG ON TORNADO	SHEET 1 OF 1	

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



D SAMPLER TIE ROD

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	1/14/2014	


$$2 \times \phi .257^{+.002}_{-.001}$$

$$2 \times \phi .191^{+.002}_{-.001}$$

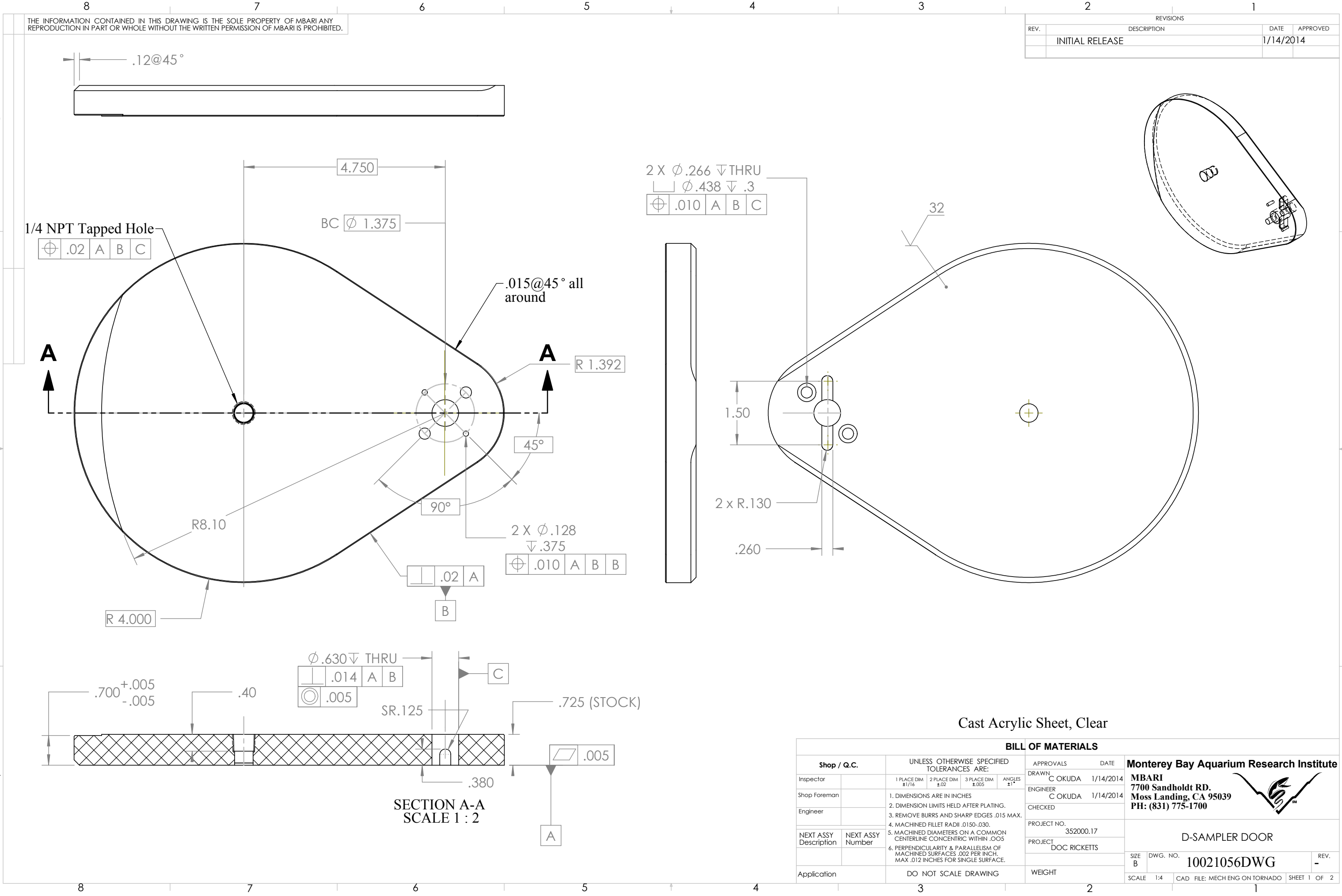
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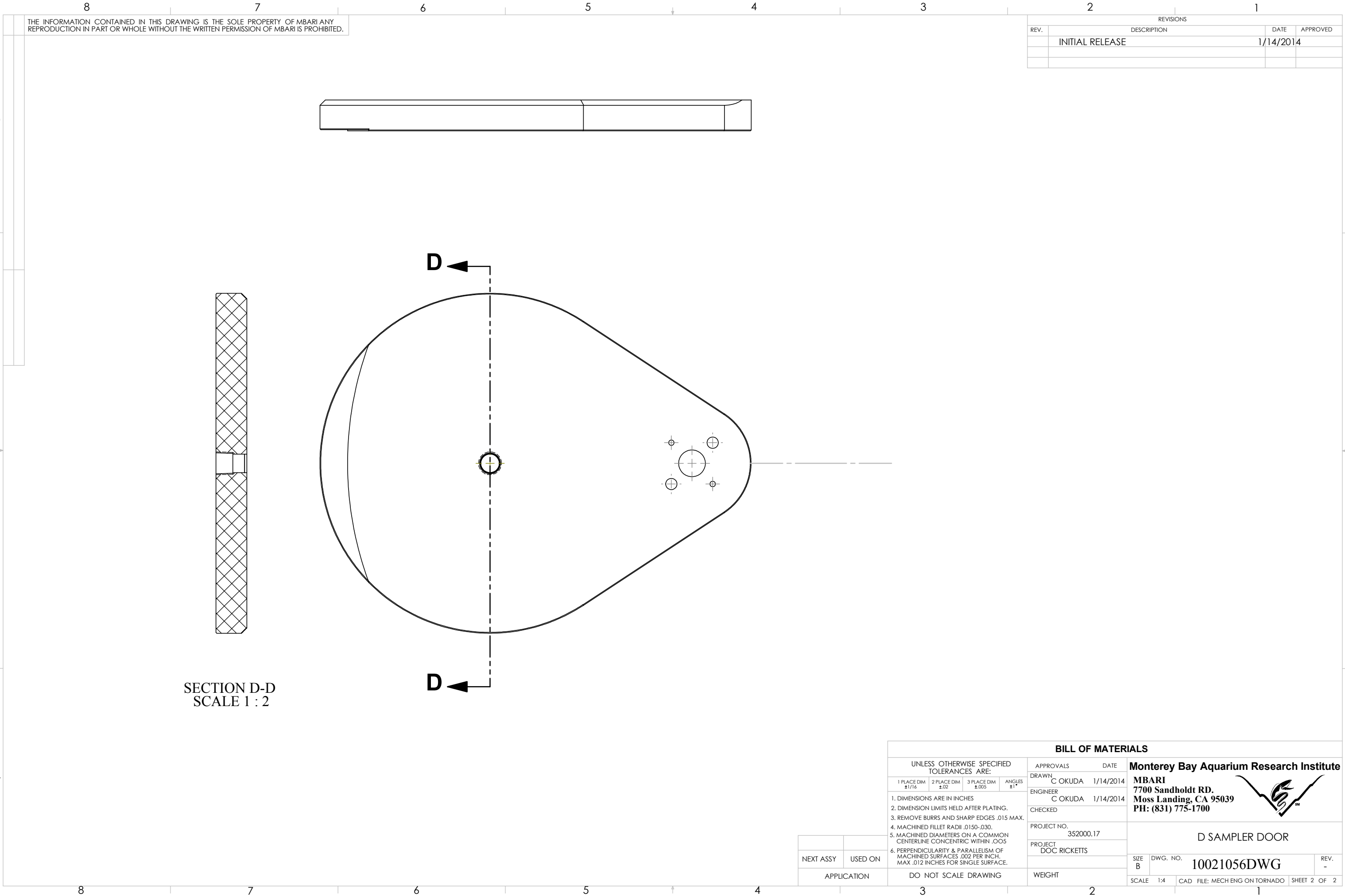
HOLE CENTERLINE LOCATION TOLERANCE +/- .002

HOLD HOLE TOLERANCES AFTER PLATING

ANODIZE PER MIL8625F TYPE III CLASS -1

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	C OKUDA	1/14/2014	Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700 
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	C OKUDA	1/14/2014	
Engineer						CHECKED			
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.		352000.17	
		PROJECT		DOC RICKETTS					
Application		DO NOT SCALE DRAWING				WEIGHT		SIZE B DWG. NO. 10021049DWG REV.	
						SCALE 1:4		CAD FILE: MECH ENG ON TORNADO SHEET 1 OF 1	





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	INITIAL RELEASE	1/14/2014	

SECTION D-D
SCALE 1 : 2

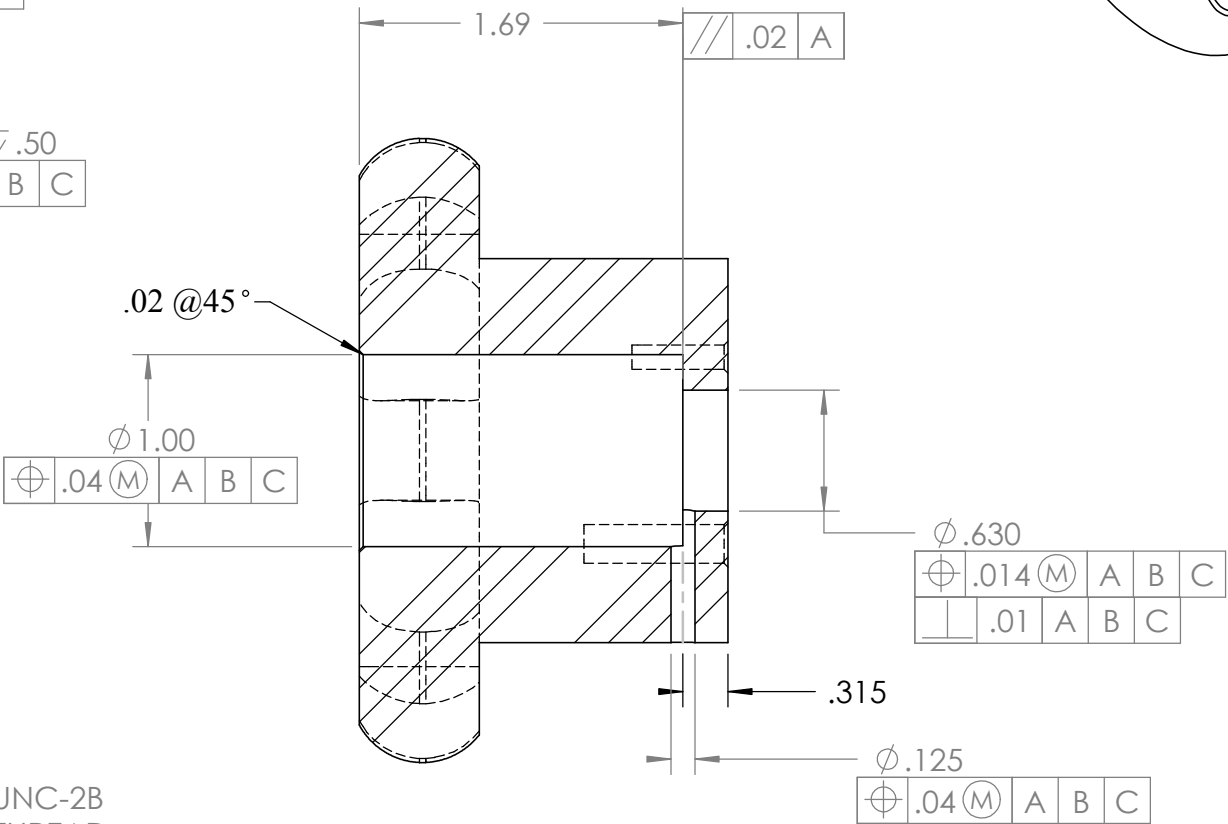
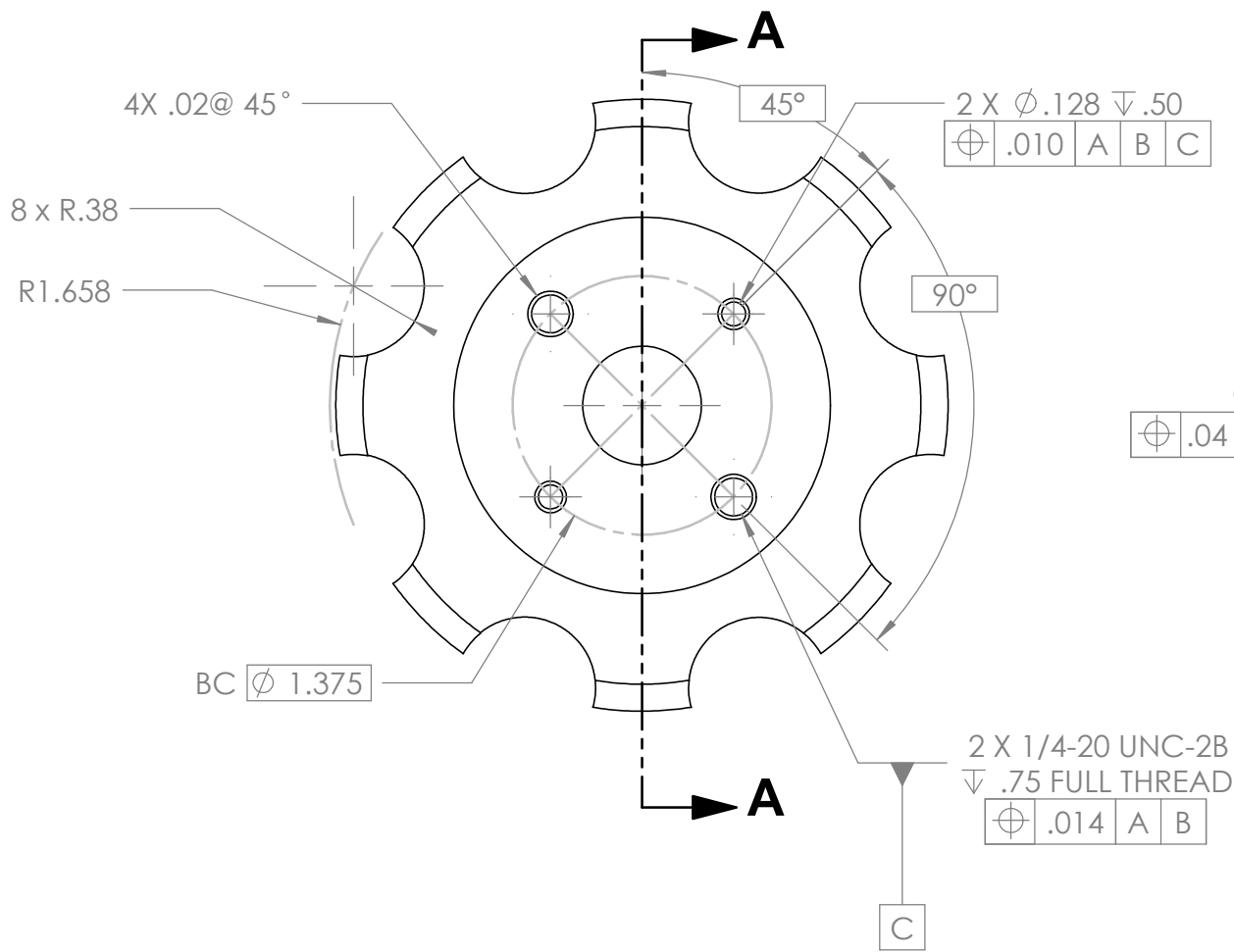
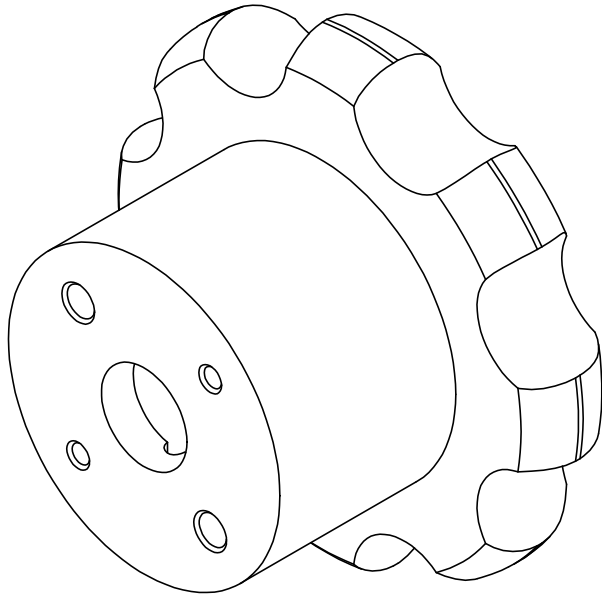
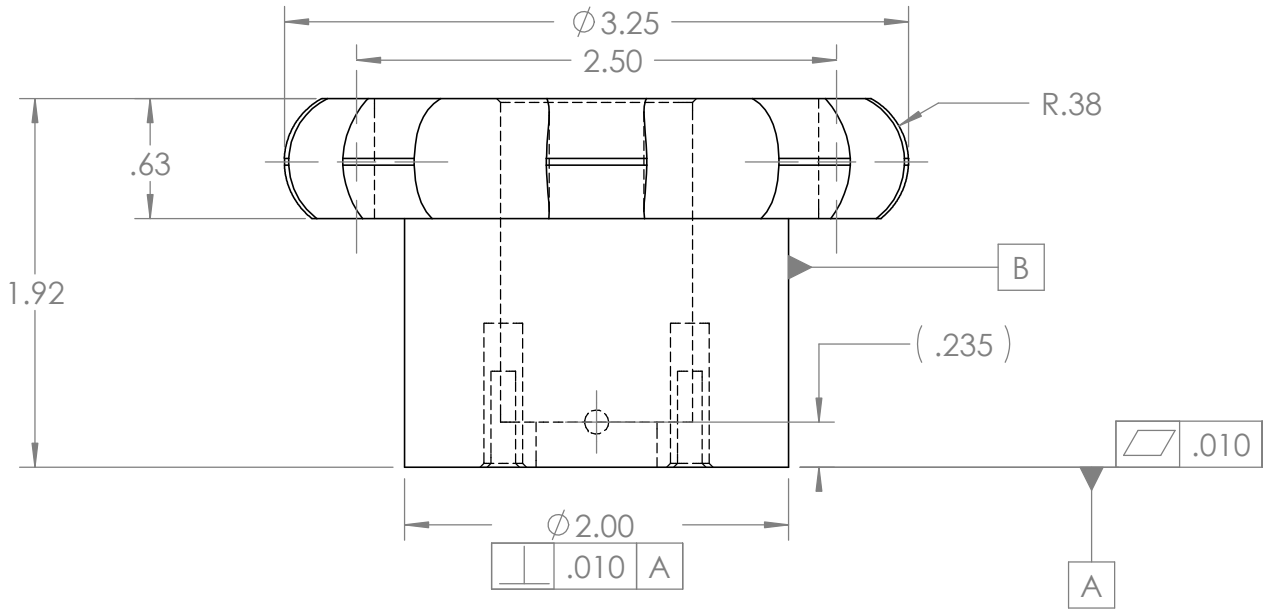
BILL OF MATERIALS									
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS	DATE	Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700 			
1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005	ANGLES ±1°	DRAWN	C OKUDA 1/14/2014				
1. DIMENSIONS 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	C OKUDA 1/14/2014				
				CHECKED					
				PROJECT NO.	352000.17	D SAMPLER DOOR			
				PROJECT	DOC RICKETTS				
				WEIGHT		SIZE B	DWG. NO. 10021056DWG	REV. -	
						SCALE 1:4	CAD FILE: MECH ENG ON TORNADO	SHEET 2 OF 2	

NEXT ASSY	USED ON
APPLICATION	

DO NOT SCALE DRAWING

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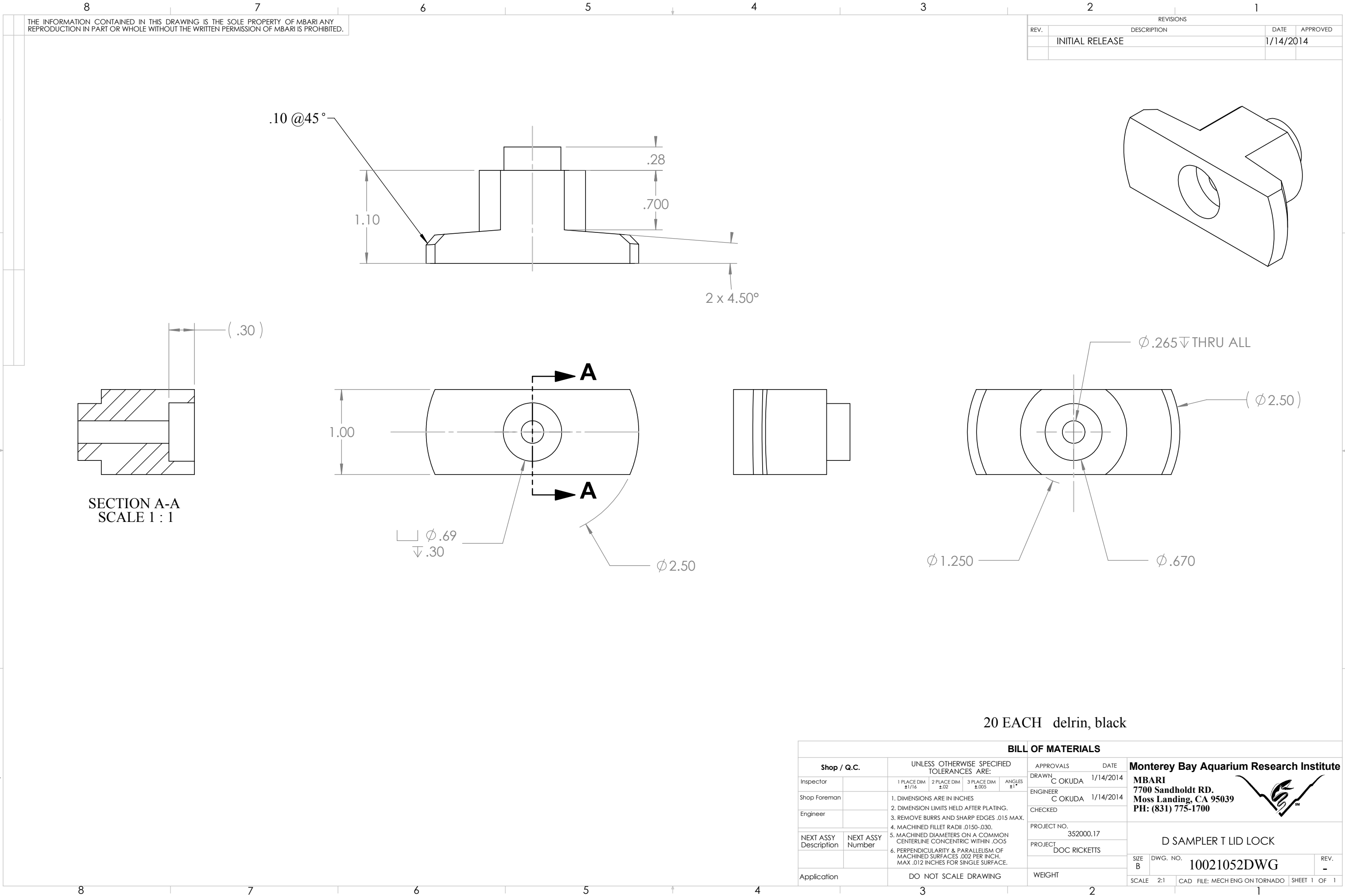
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	1/14/2014	



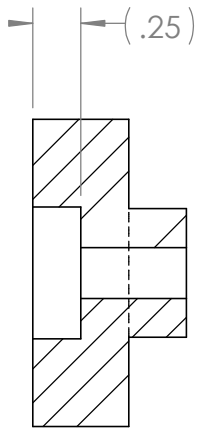
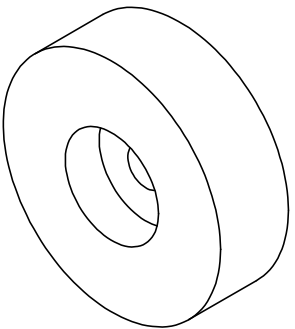
SECTION A-A

20 EACH ACRYLIC, CLEAR

BILL OF MATERIALS			
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:	
Inspector		1 PLACE DIM $\pm 1/16$	2 PLACE DIM $\pm .02$
Shop Foreman		3 PLACE DIM $\pm .005$	ANGLES $\pm 1^\circ$
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.	
NEXT ASSY Description	NEXT ASSY Number	APPROVALS DATE DRAWN C OKUDA 1/14/2014 ENGINEER C OKUDA 1/14/2014 CHECKED PROJECT NO. 35200.17 PROJECT DOC RICKETTS WEIGHT	
Application	DO NOT SCALE DRAWING	Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700 D-SAMPLER DOOR KNOB SIZE B DWG. NO. 10021046DWG SCALE 1:1 CAD FILE: MECH ENG ON TORNADO SHEET 1 OF 1	



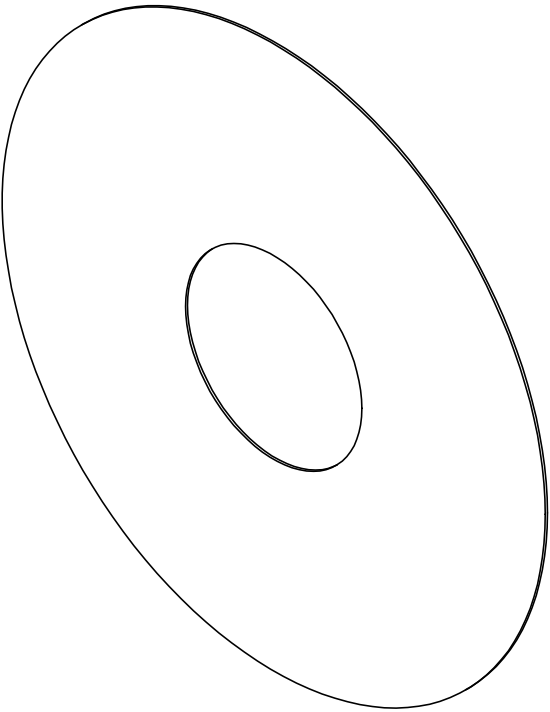
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	1/14/2014	



20 EACH DELRIN

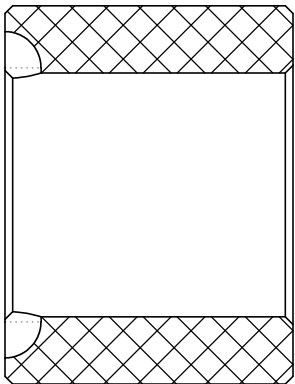
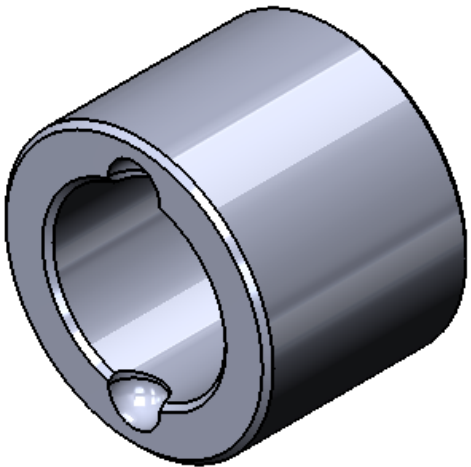
BILL OF MATERIALS										
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS		DATE		Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700 
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005	ANGLES ±1°	DRAWN	C OKUDA	1/14/2014		
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	C OKUDA	1/14/2014		
Engineer						CHECKED				
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.	352000.17			
		PROJECT	DOC RICKETTS		D-SAMPLER DOOR STOP					
Application		DO NOT SCALE DRAWING				WEIGHT		SIZE B	DWG. NO. 10021047DWG	REV.
								SCALE 1:1	CAD FILE: MECH ENG ON TORNADO	SHEET 1 OF 1

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	1/14/2014	



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	C OKUDA	1/14/2014	MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700 							
Shop Foreman		1. DIMENSIONS ARE IN INCHES				ENGINEER	C OKUDA	1/14/2014								
Engineer		2. DIMENSION LIMITS HELD AFTER PLATING.				CHECKED										
NEXT ASSY Description	NEXT ASSY Number	3. REMOVE BURRS AND SHARP EDGES .015 MAX.				PROJECT NO.	352000.17									
		4. MACHINED FILLET RADII .0150-.030.				PROJECT	DOC RICKETTS		D SAMPLER KNOB THRUST WASHER							
		5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005								SIZE	DWG. NO.		REV.			
		6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH. MAX. .012 INCHES FOR SINGLE SURFACE.								B	10021050DWG					
Application		DO NOT SCALE DRAWING				WEIGHT				SCALE	2:1		CAD FILE: MECH ENG ON TORNADO	SHEET 1 OF 1		

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	1/14/2014	



20 EACH, WHITE DELRIN ROD

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	C OKUDA	1/14/2014	Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700 
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	C OKUDA	1/14/2014	
Engineer						CHECKED			
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.		352000.17	
		PROJECT		DOC RICKETTS	D SAMPLER SPRING RETAINER				
Application		DO NOT SCALE DRAWING				WEIGHT		SIZE B DWG. NO. 10021051DWG REV.	
						SCALE 2:1		CAD FILE: MECH ENG ON TORNADO SHEET 1 OF 1	

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
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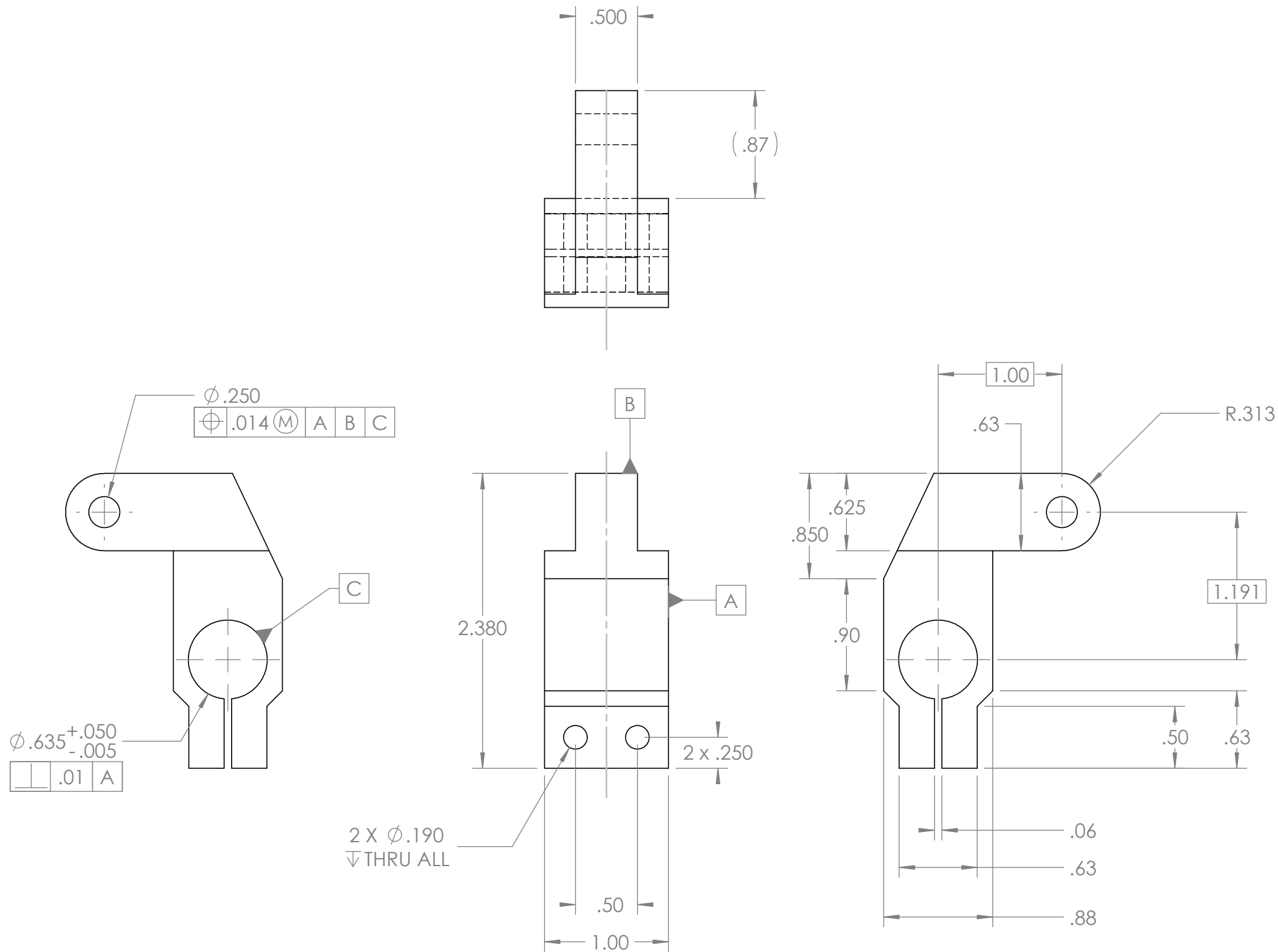
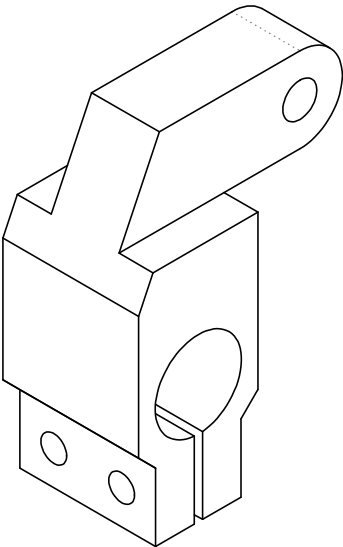
SPRING RTNR PIN

PADDLE PIN

SPRING RTNR PIN, 20 EACH 1/4" 6061 T6 ROD
PADDLE PIN, 20 EACH 3/16" 6061 T6 ROD

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	C OKUDA	1/14/2014				
Shop Foreman		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX. 4. MACHINED FILLET RADI .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	C OKUDA	1/14/2014				
Engineer						CHECKED						
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.	352000.17					
		PROJECT	DOC RICKETTS					D SAMPLER ALUMINUM PINS				
Application		DO NOT SCALE DRAWING				WEIGHT		SIZE B		DWG. NO. 10021044DWG		REV.
								SCALE 2:1		CAD FILE: MECH ENG ON TORNADO SHEET 1 OF 1		

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	1/14/2014	



ANODIZE PER MIL8625F TYPE III CLASS -1

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	C OKUDA	1/14/2014				
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	C OKUDA	1/14/2014				
Engineer						CHECKED						
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.		352000.17		D SAMPLER DOOR BELL CRANK		
						PROJECT		DOC RICKETTS				
Application		DO NOT SCALE DRAWING				WEIGHT		SIZE B		DWG. NO. 10021045DWG		REV.
								SCALE 1:1		CAD FILE: MECH ENG ON TORNADO SHEET 1 OF 1		