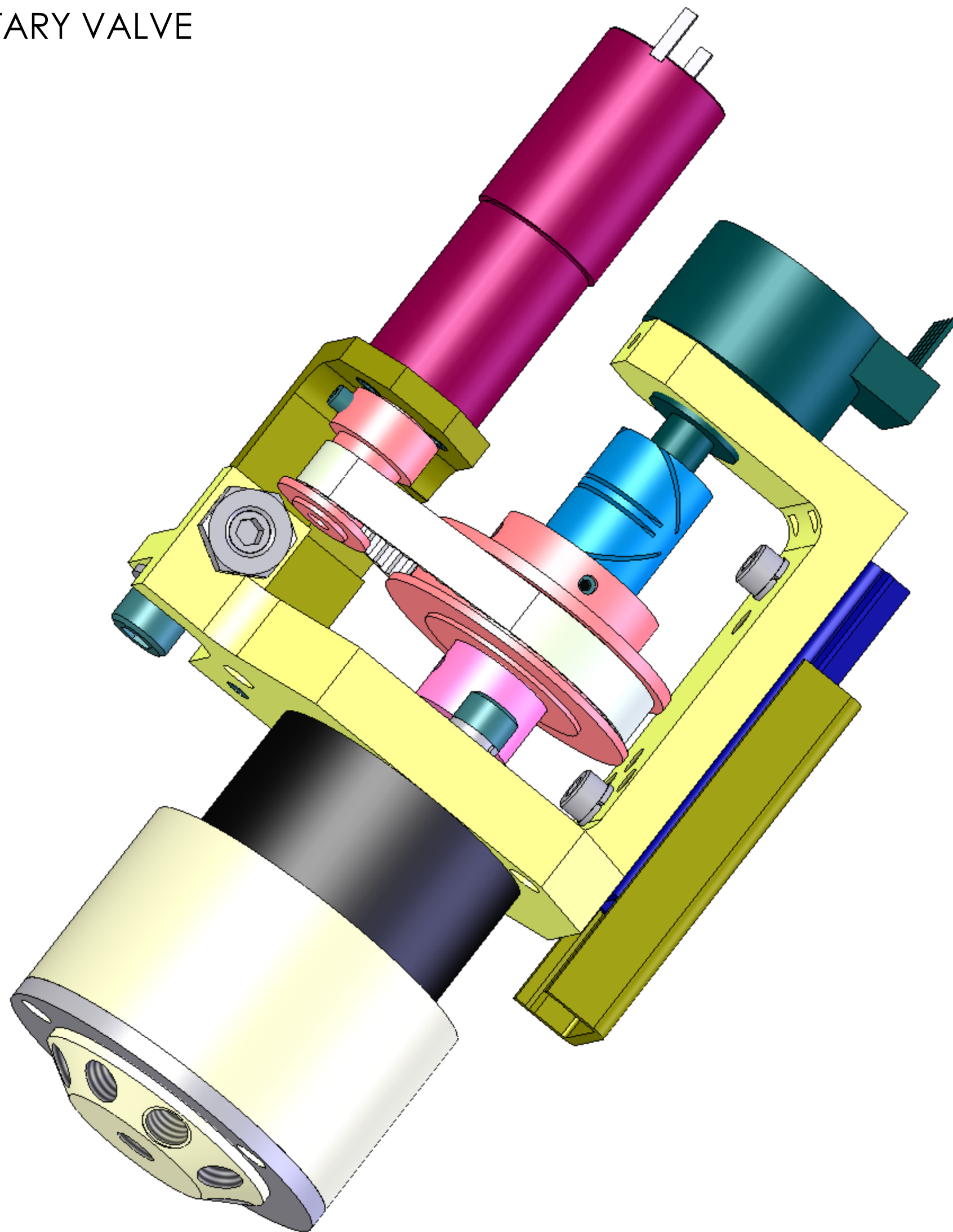


SMALL ROTARY VALVE

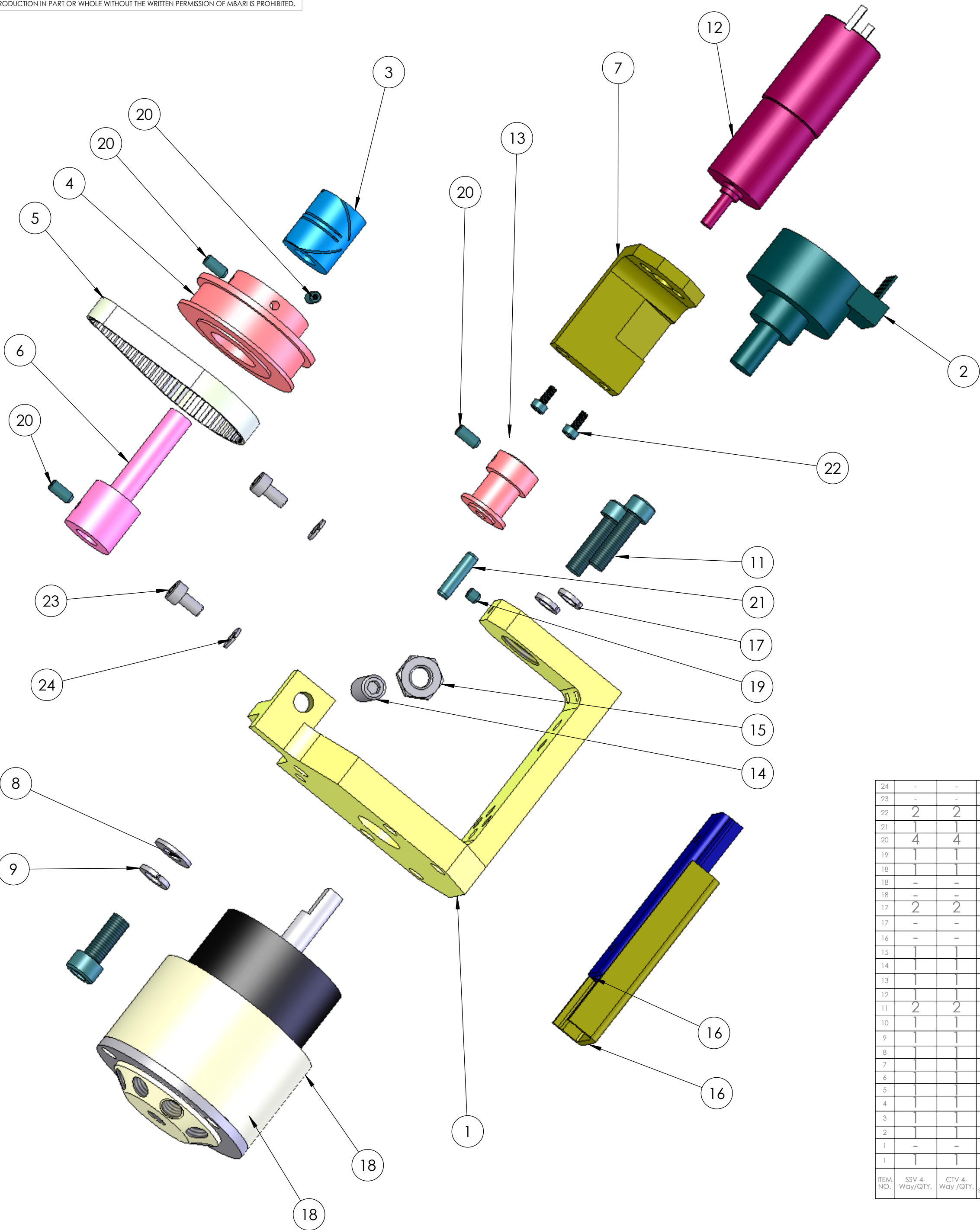


SECTION P-P

Shop / Q.C.				BILL OF MATERIALS				last updated: Friday, June 15, 2007 2:38:42 PM			
								Shop Foreman Inspector Engineer			
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE: 2 PLACE DIM $\pm .01$ 3 PLACE DIM $\pm .005$ 4 PLACE DIM $\pm .0005$ ANGLES $\pm 1'$				APPROVALS DATE				Monterey Bay Aquarium Research Institute 			
1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING 3. REMOVE BURRS & SHARP EDGES .010 MAX 4. MACHINED FILLET RADII .000 TO .015				ENGINEER JASON FELDMAN 831-775-1837				7700 Sandholdt Road Moss Landing, CA 95039			
5. MACHINED DIMENSIONS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005				CHECKED				PROJECT NUMBER 701312.00			
6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .001 PER INCH. MAX .010 INCHES FOR SINGLE SURFACE.				PROJECT ESP 2G				Small Rotary Valve SIZE C DWG. NO. 1002562 REV. F			
7. SURFACE FINISH TO BE 63 MICRON UNLESS OTHERWISE SPECIFIED				CAD FILE: X:\701312 ESP 2G\SolidWorks files\internal structure (1002209)				SHEET 1 OF 6			
DO NOT SCALE DRAWING											

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MBARI. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF MBARI IS PROHIBITED.

REV.		DESCRIPTION	REVISIONS		DATE	APPROVED
					X/XX/00	J.E.



24	-	-	2	-	2	2	-	-		Spring Lock Washer M3			
23	-	-	2	-	2	2	-	-		M3 x 6 Sckt Hd Cap Screw			
22	2	2	2	2	2	2	2	2		Sckt Hd Cap Screw M2x5			S.S.
21	1	1	1	1	1	1	1	1		Dowel Pin 1/8x1/2L	McMASTER-CARR		18-8 Stainless Steel
20	4	4	4	4	4	4	4	4		#4-40x1/4 Cup Pt. Set Screw	McMASTER-CARR		
19	1	1	1	1	1	1	1	1		Cup Pt. Set Screw #4-40x.125	McMASTER-CARR		
18	1	1	-	1	1	-	-	-	C25-3184	Cheminert valve	Valco Instruments Co.		
18	-	-	-	-	1	-	-	-	C25-3188	Cheminert valve	Valco Instruments Co.		
18	-	-	1	-	-	-	-	-	C25-3186	Cheminert valve	Valco Instruments Co.		
17	2	2	-	2	2	2	2	2		#8 Split Lock Washer			
17	-	-	2	-	-	-	-	-		Spring Lock Washer #8			S.S.
16	-	-	1	-	1	-	-	-	BSP 2050SL	Precision linear slide type BSP	IKO International		
15	-	-	-	-	1	-	-	-	MMC#90710A038	Hex Jam Nut M6x1.0	McMaster-Carr		18-8 S.S.
14	-	-	1	-	1	-	-	-		M6x1.0x16 Sckt Set Screw Nylon Dog Pt.	McMaster-Carr		
13	1	1	1	1	1	1	1	1	1002562-005	BRECOFLEX T2.5/12	Brecoflex Co.	LS16 T2.5/12-2 Hub12x6	as supplied
12	-	-	-	-	-	-	-	-	303103	MAXON Motor GP16A104 to 1-Remax17	MAXON		
11	2	2	2	2	2	2	2	2		Sckt Hd Cap Screw #8-32 x .625	McMASTER-CARR		316 SS
10	-	-	-	-	-	-	-	-		#10-32x1/2 Sckt Hd Cap Screw	McMASTER-CARR		316 SS
9	1	1	1	1	1	1	1	1		Split Lock Washer #10			18-8 S.S.
8	-	-	-	-	-	-	-	-		#10 Flat Washer Narrow			18-8 S.S.
7	-	-	-	-	-	-	-	-	1002562-003	Motor Mount			6061-T6 Aluminum
6	1	1	1	1	1	1	1	1	1002562-006	Fairloc Shaft Extender	Stock Drive Prod.	A 7X 3-08088	S.S.
5	-	-	-	-	-	-	-	-	T2.5/120	BrecoFlex T2.5/120	BrecoFlex	T2.5/120	
4	-	-	-	-	-	-	-	-	1002562-004	BRECOFLEX T2.5/40	Brecoflex Co.	LS16 T2.5/40-2 HUB22x6	as supplied
3	1	1	1	1	1	1	1	1	S51FCZ-250250	fairloc shaft coupling	Stock Drive Prod.		
2	-	-	-	-	-	-	-	-	ED-17	Encoder	Encoder Devices		
1	-	-	-	-	-	-	-	-	1002562-001	Rotary Valve Base			6061-T6 Aluminum
1	-	-	-	-	-	-	-	-	1002562-001	Rotary Valve Base			6061-T6 Aluminum
ITEM NO.	SSV 4-Way/QTY.	CTV 4-Way /QTY.	PBV 6-Way slider/QTY.	PTV 4-Way/QTY.	CBV 8-Way/QTY.	PRV 8-Way/QTY.	PSV 8-Way/QTY.	CSV 8-Way/QTY.	Part_Number	DESCRIPTION	Vendor	Vendor No.	MATERIAL

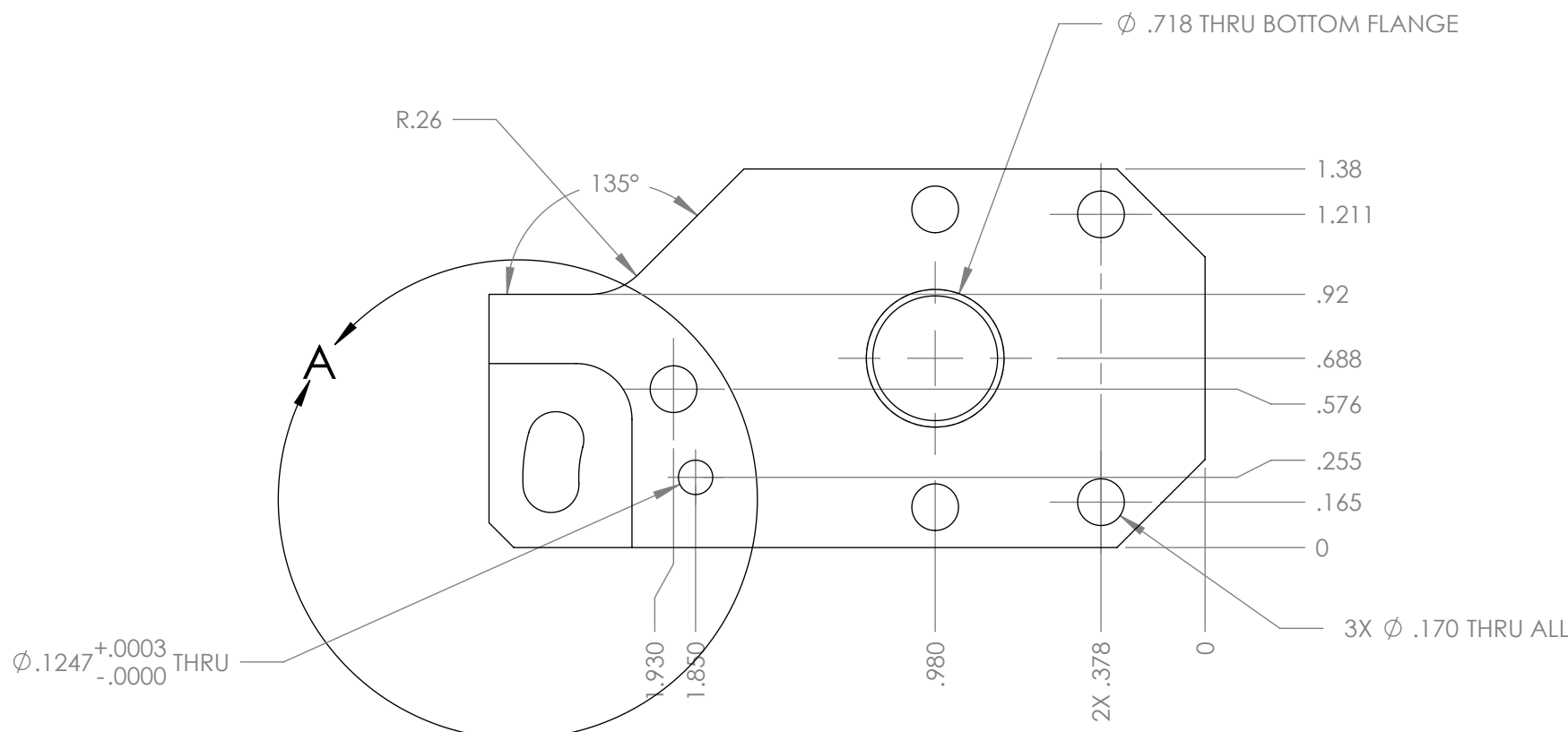
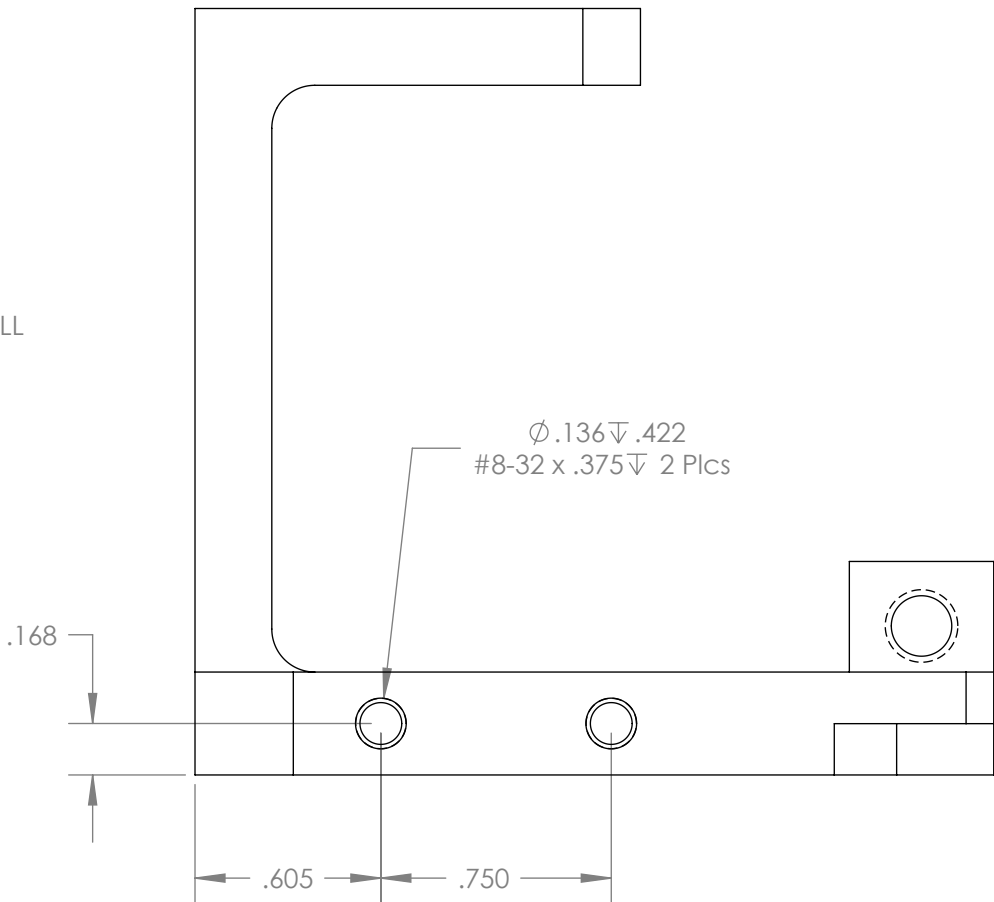
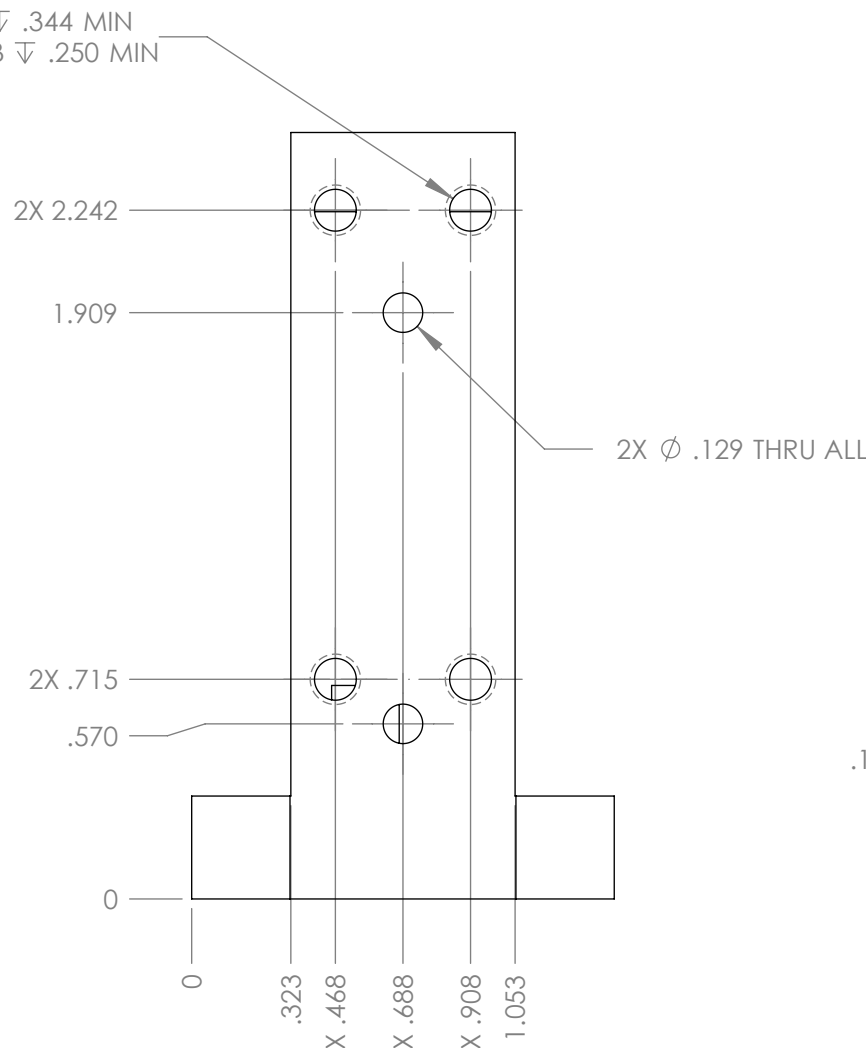
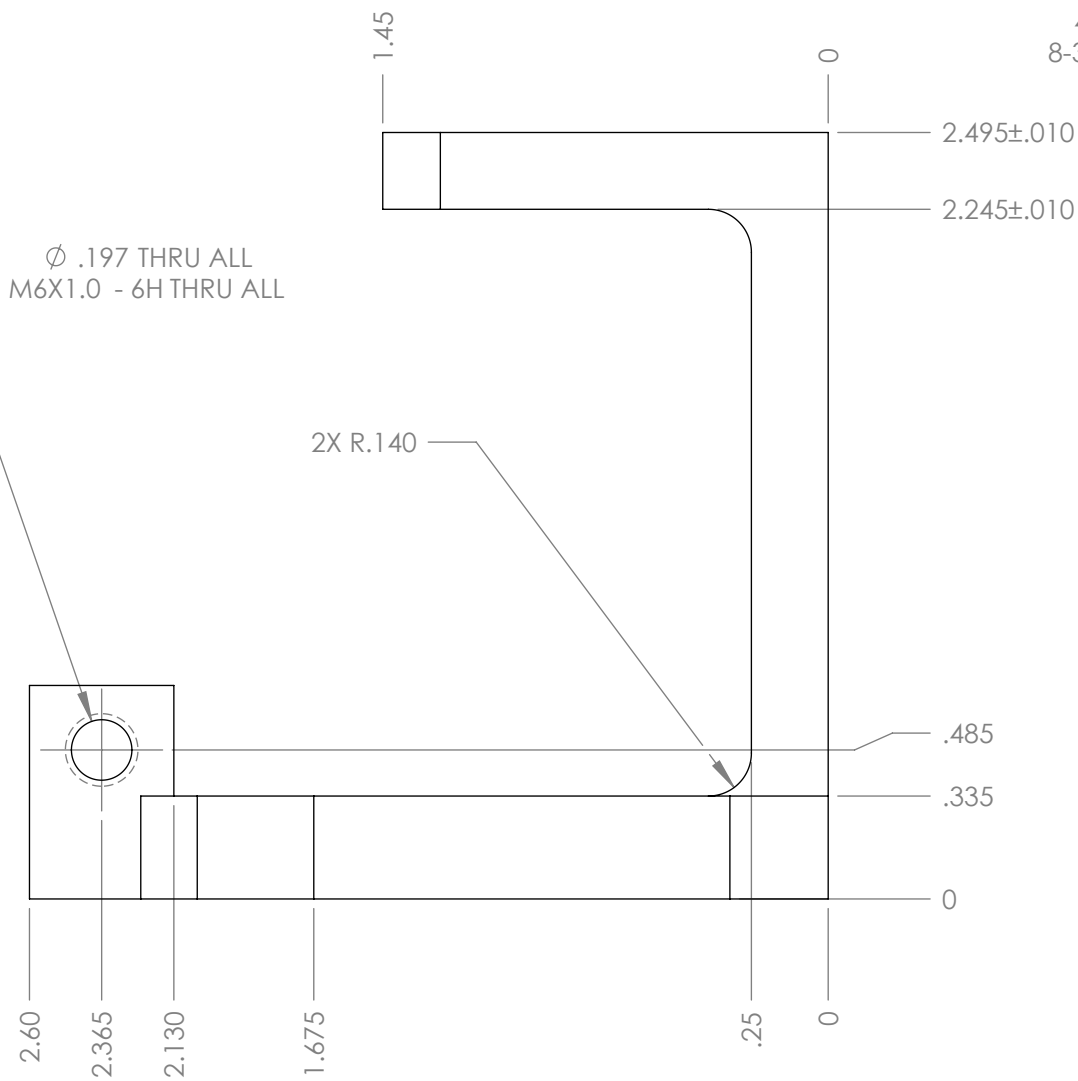
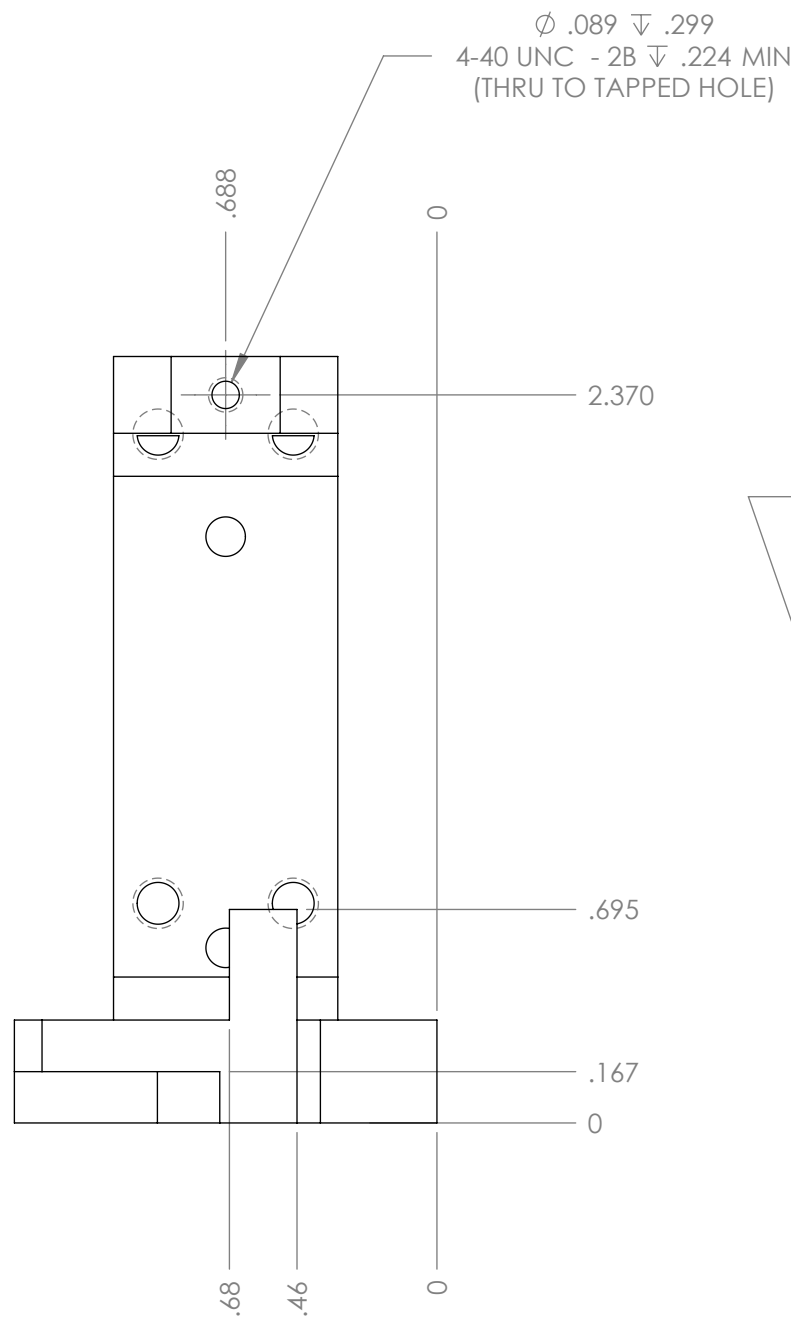
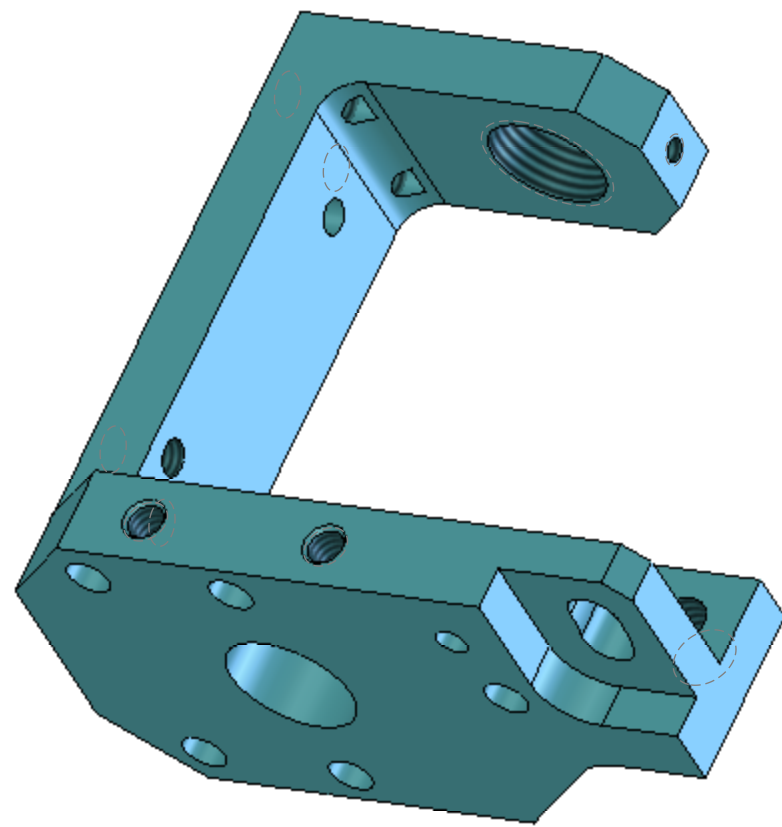
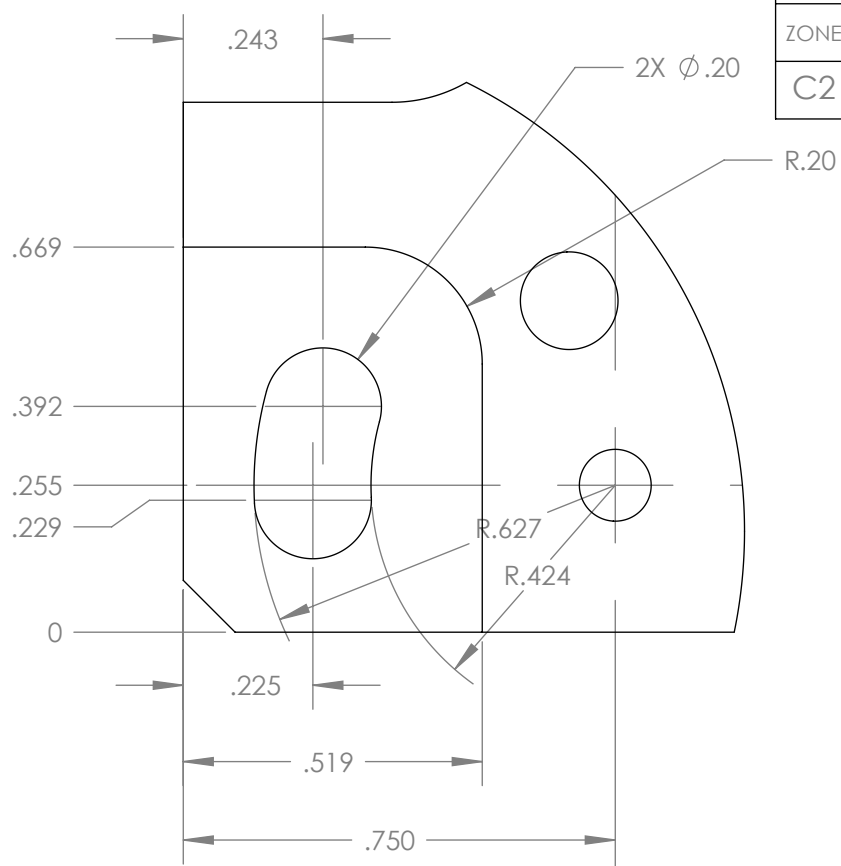
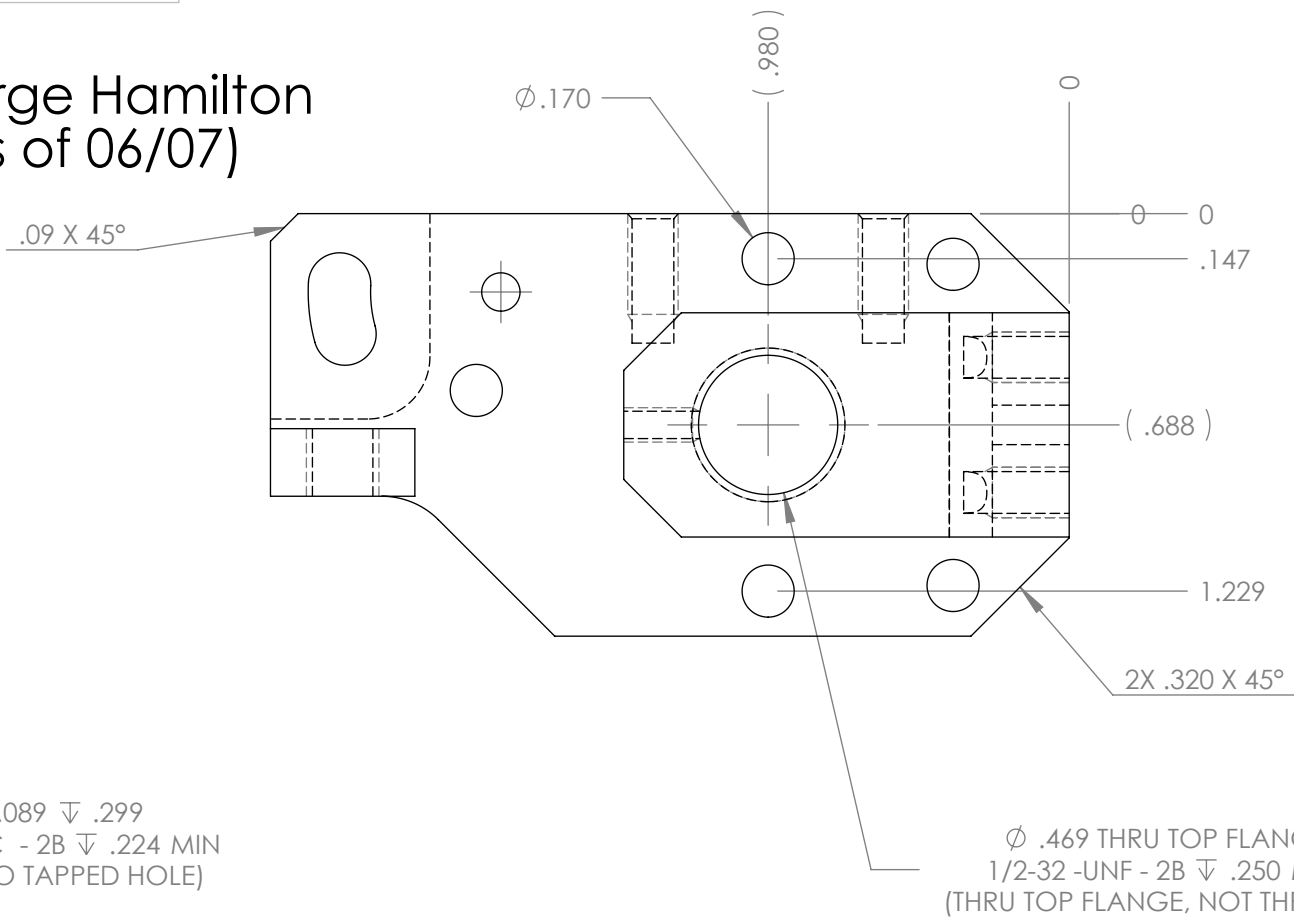
NOTES: (CONT. FROM TITLE BLOCK)

BILL OF MATERIALS															
Shop / Q.C.			UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS		DATE	Monterey Bay Aquarium Research Institute 7700 Sandholdt Rd. Moss Landing, CA 95039 PH: (831) 775-1700 					
Inspector			1 PLACE DIM. ±.175	2 PLACE DIM. ±.005	3 PLACE DIM. ±.005	ANGLE ±°	DRAWN	J. ERICKSON	11/3/06						
Shop Foreman			1. DIMENSIONS ARE IN INCHES.				ENGINEER	J. ERICKSON	11/3/06						
Engineer			2. DIMENSION LINES WELD AFTER PLATING.				CHECKED								
			3. REMOVE BURRS AND SHARP EDGES .015 MAX.												
			4. MACHINED FILLET RADIUS .015-.030.												
NEXT ASSY Description			NEXT ASSY Number			PROJECT No.				701312		ESP 2G		REV. F	
SYRINGE			1002258			PROJECT Name				ESP 2G		SIZE C			DWG. NO. 1002562.DWG
APPLICATION			DO NOT SCALE DRAWING			WEIGHT				SCALE		CAD FILE: MECH ENG ON TORNADO			
												SHEET 2		OF 6	

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MBARI ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF MBARI IS PROHIBITED

1002562 - 001
ROTARY VALVE BASE - Large Hamilton
(Current Configuration as of 06/07)

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C2	F	Added #8-32 Mounting Holes	04/20/06	-

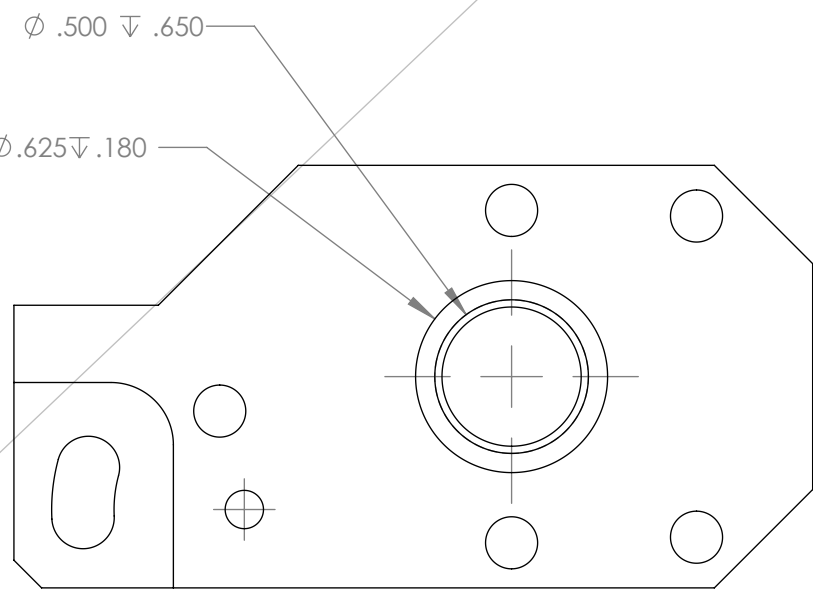
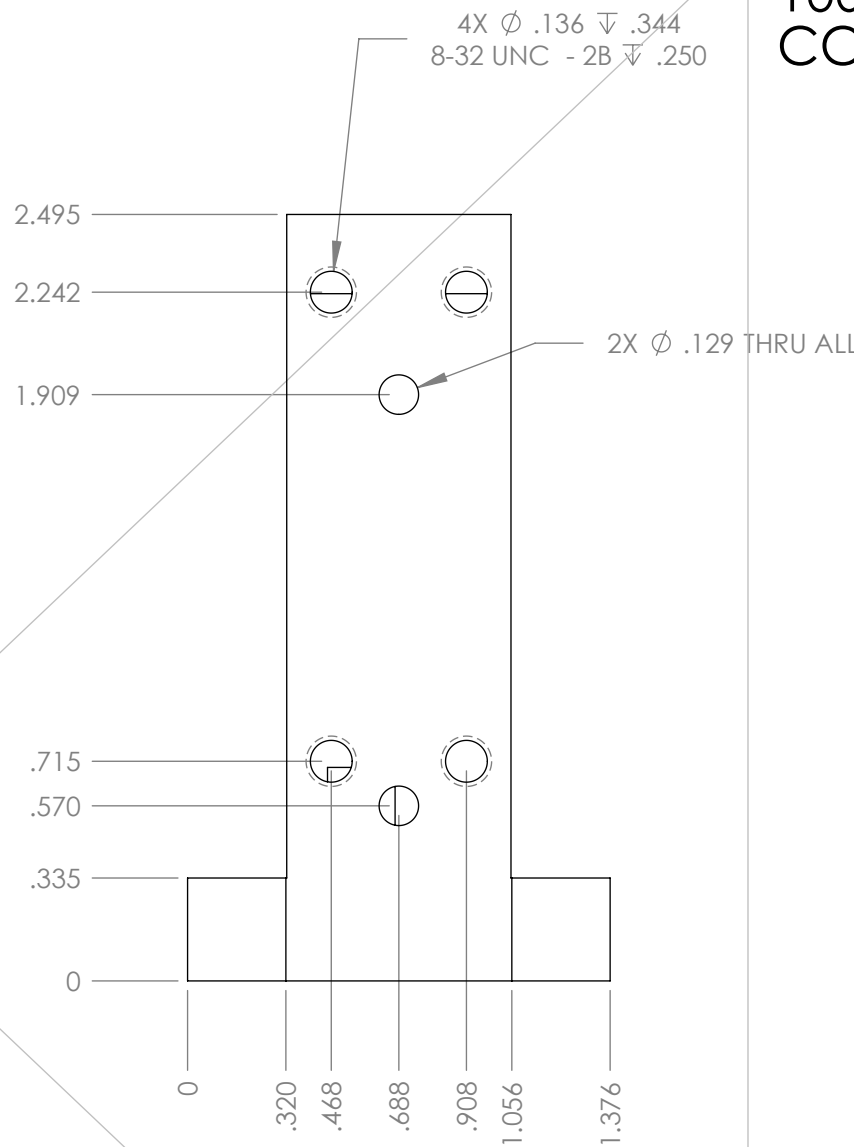
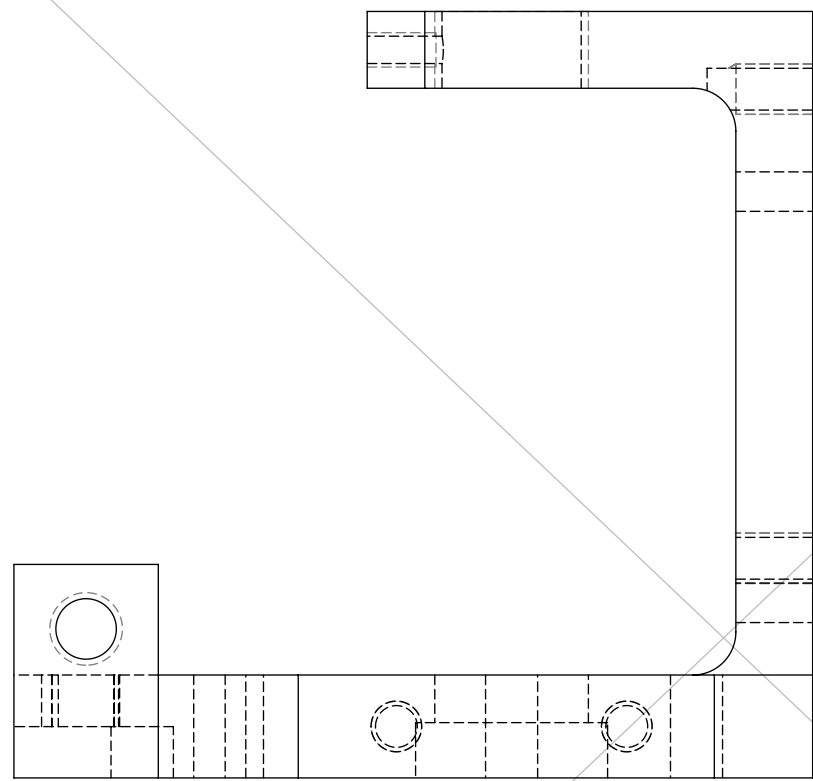


ITEM NO.	PART NUMBER	DESCRIPTION	MATERIAL	QTY.
1	1002562-001	small rotary valve base	6061-T6 Aluminum	-

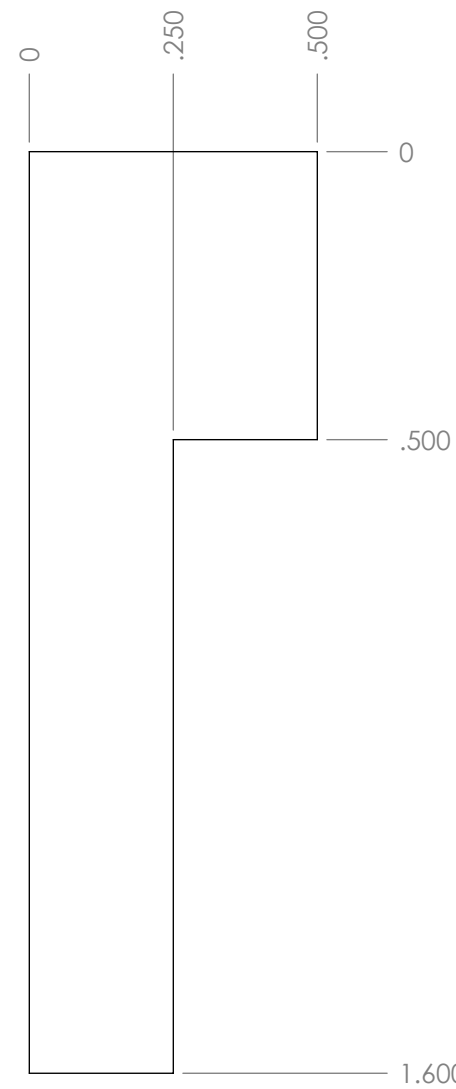
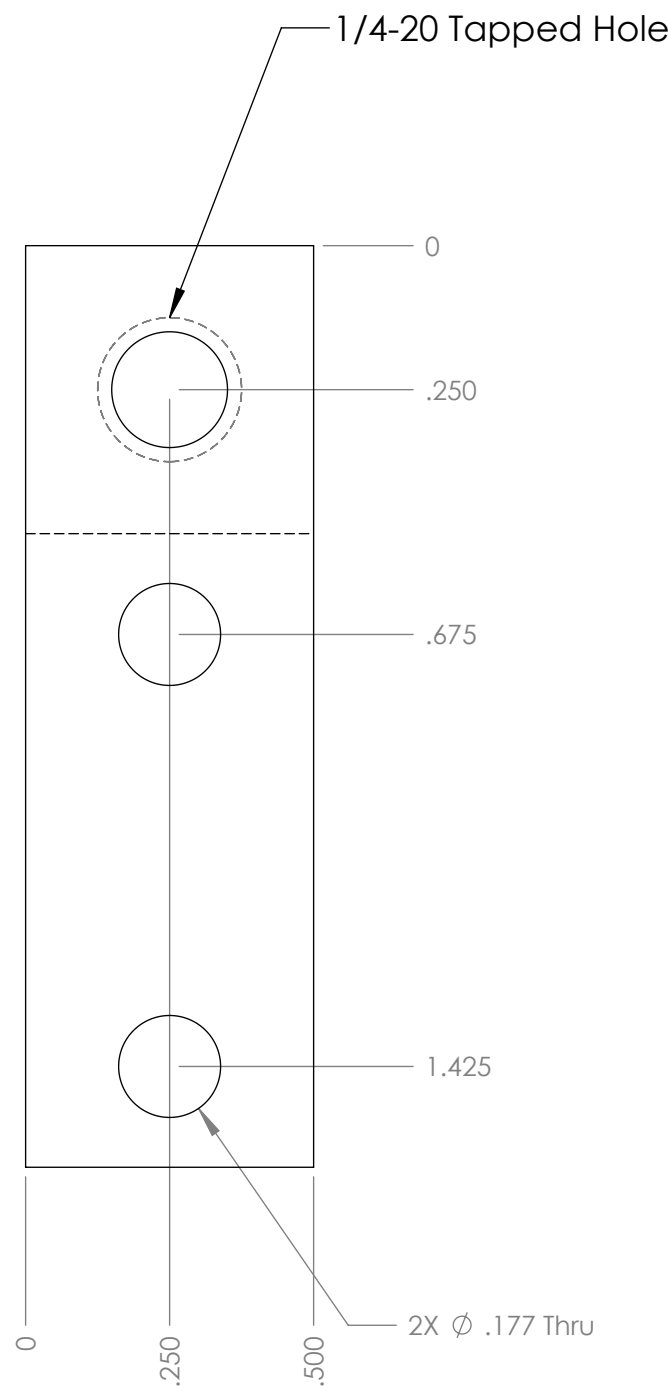
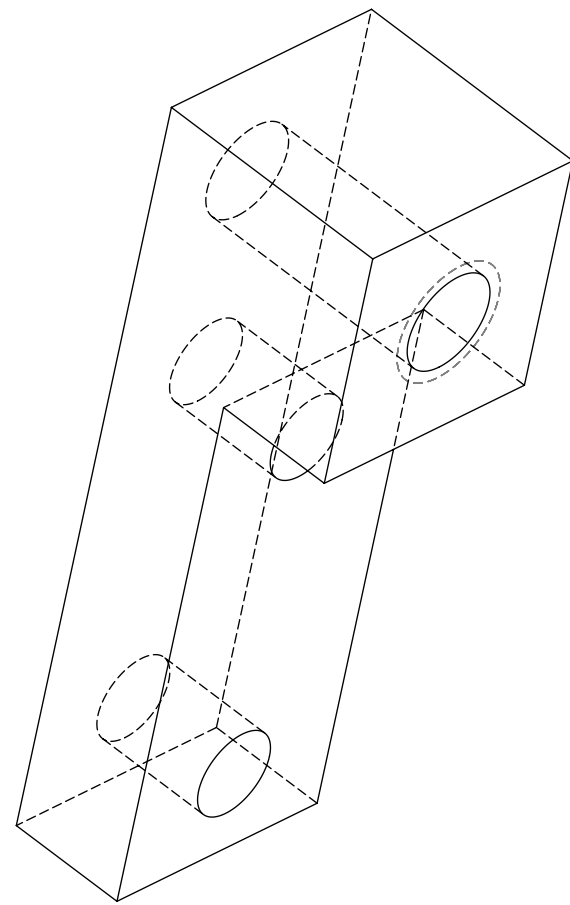
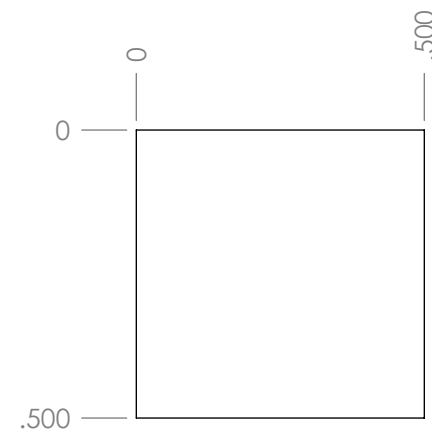
BILL OF MATERIALS						last updated on: Friday, June 15, 2007 2:38:42 PM			
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS DATE		Monterey Bay Aquarium Research Institute	
Inspector		2 PLACE DIM ±.01	3 PLACE DIM ±.005	4 PLACE DIM ±.0005	ANGLES ±1°	ENGINEER Jason Feldman 831-775-1837		7700 Sandholdt Road Moss Landing, CA 95039	
Shop Foreman		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING 3. REMOVE BURRS & SHARP EDGES .010 MAX 4. MACHINED FILLET RADII .000 TO .015 5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005				CHECKED		Small Rotary Valve	
Engineer									
NEXT ASSY Description	NEXT ASSY Number					6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .001 PER INCH. MAX .010 INCHES FOR SINGLE SURFACE.			
DO NOT SCALE DRAWING		7. SURFACE FINISH TO BE 63 MICRON UNLESS OTHERWISE SPECIFIED				PROJECT 701312.00 ESP 2G	SIZE C	DWG. NO. 1002562	REV. F
CAD FILE: X:\701312 ESP 2G\SolidWorks files\internal structure (1002209)						SHEET 3 OF 6			

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MBARI ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF MBARI IS PROHIBITED

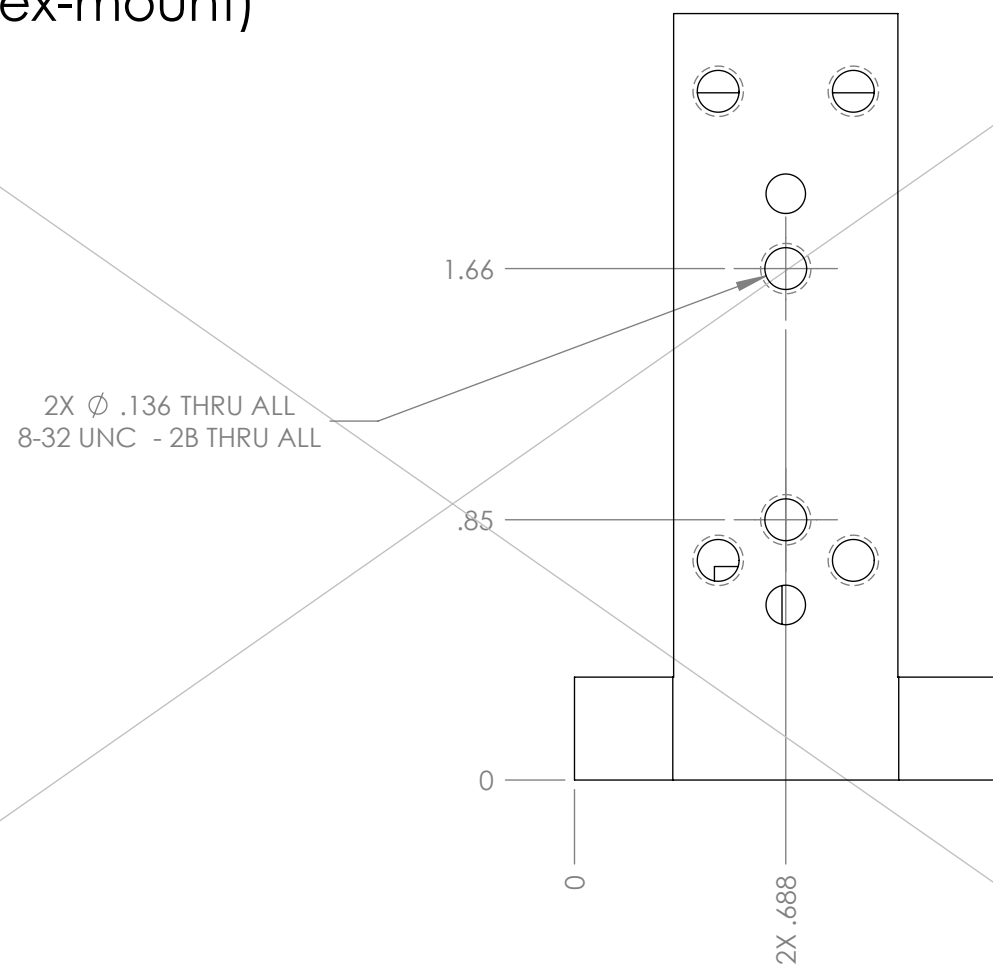
1002562 - 002
SMALL ROTARY VALVE BASE - small Hamilton



1002562 - 006
CCTV bracket



1002562 - 001-flex
ROTARY VALVE BASE
(modification for flex-mount)

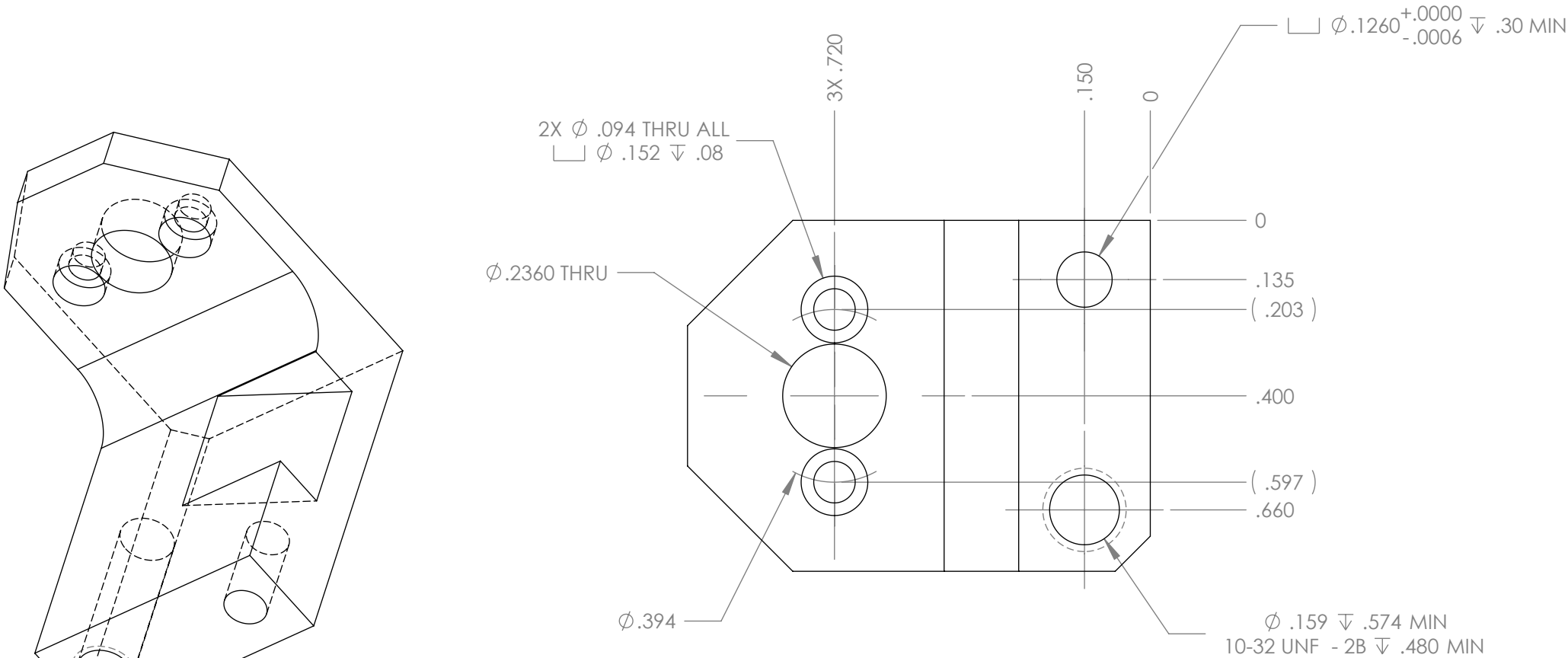
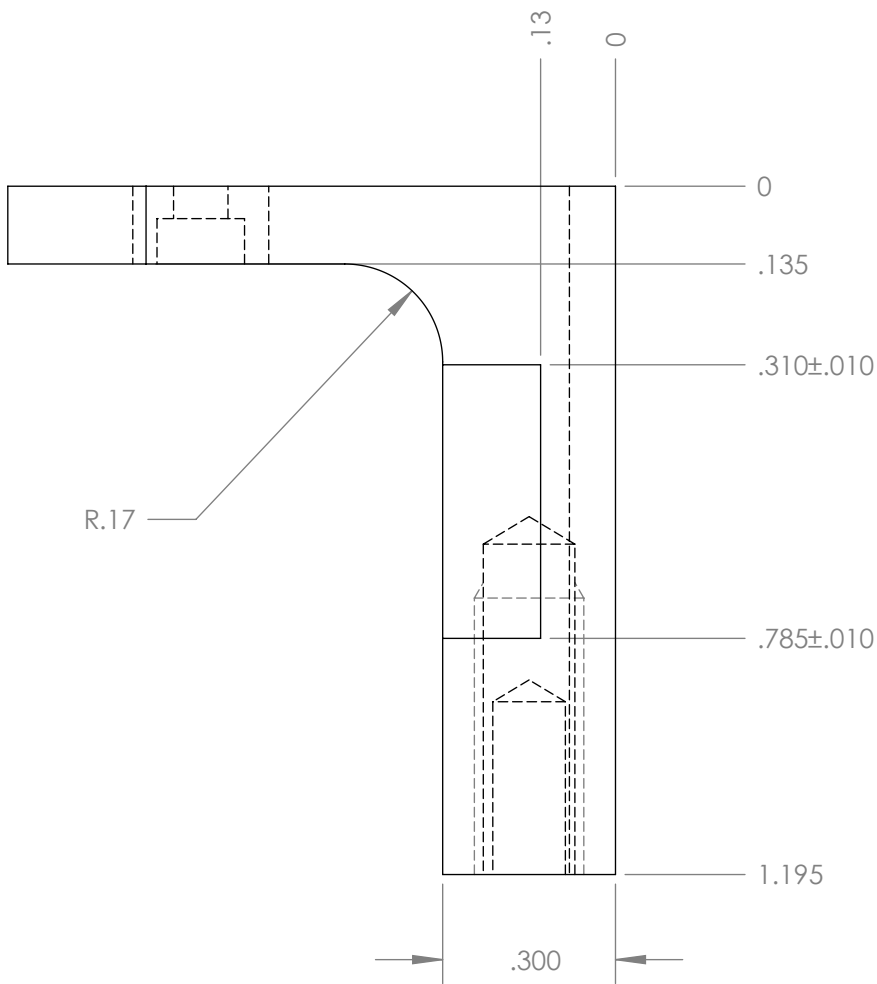
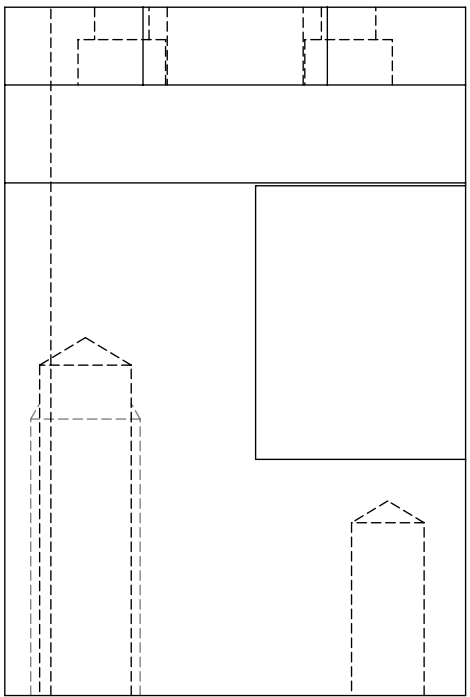
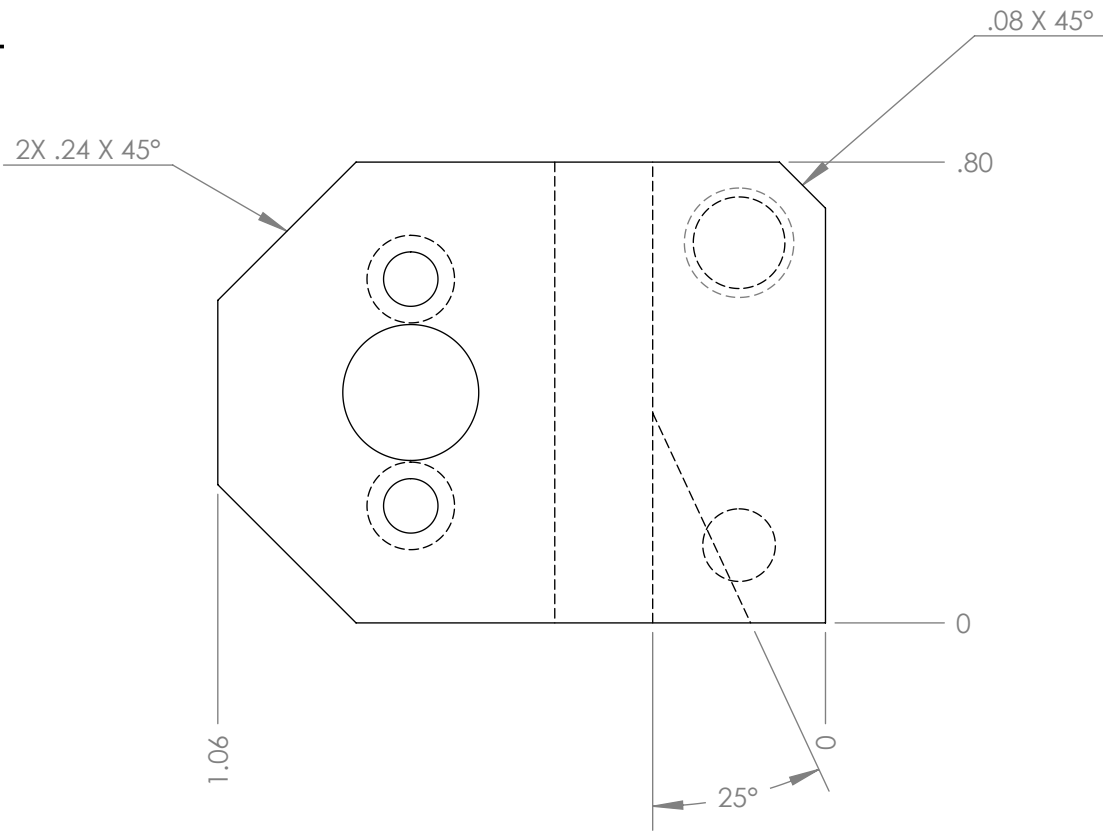


ALL OTHER DIMENSIONS AS PER 1--2562-001 (SHEET 2)

ITEM NO.	PART NUMBER	DESCRIPTION	MATERIAL	QTY.
6	1002562-006	CCTV BRACKET	7075 Aluminum	1
BILL OF MATERIALS			last updated on: Friday, June 15, 2007 2:38:42 PM	
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		
Inspector		2 PLACE DIM ±.01	3 PLACE DIM ±.005	4 PLACE DIM ±.0005
Shop Foreman		ANGLES ±1°		
Engineer		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING 3. REMOVE BURRS & SHARP EDGES .010 MAX 4. MACHINED FILLET RADII .000 TO .015 5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005 6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .001 PER INCH. MAX .010 INCHES FOR SINGLE SURFACE. 7. SURFACE FINISH TO BE 63 MICRON UNLESS OTHERWISE SPECIFIED		
NEXT ASSY Description	NEXT ASSY Number	APPROVALS DATE ENGINEER Jason Feldman 831-775-1837 CHECKED		
DO NOT SCALE DRAWING		PROJECT NUMBER 701312.00		Monterey Bay Aquarium Research Institute 7700 Sandholdt Road Moss Landing, CA 95039 
		PROJECT ESP 2G		
		PROJECT NUMBER 701312.00		
		SIZE C	DWG. NO. 1002562	REV. F
		CAD FILE: X:\701312 ESP 2G\SolidWorks files\internal structure (1002209) SHEET 4 OF 6		

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MBARI ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF MBARI IS PROHIBITED

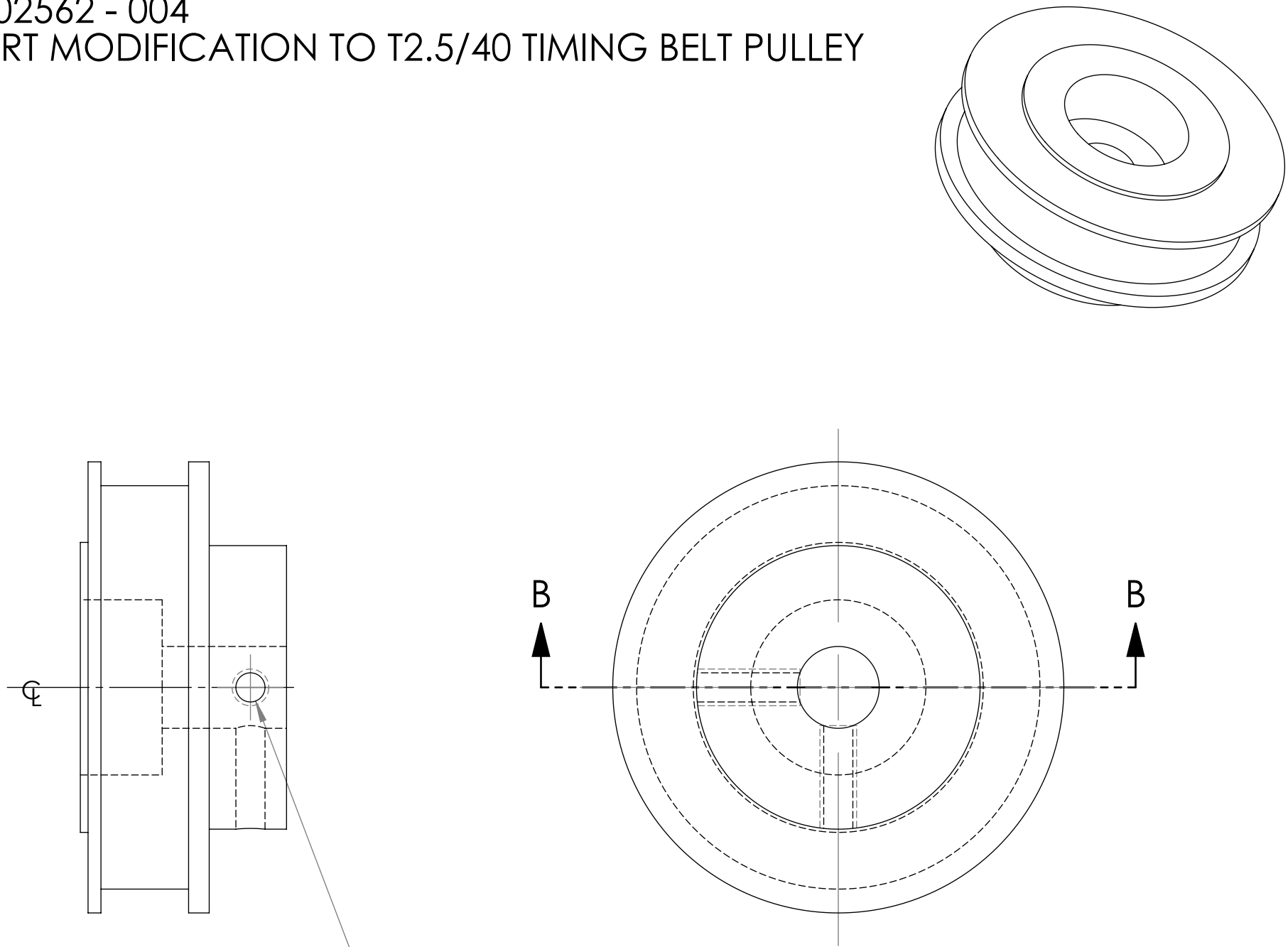
1002562 - 003
ROTARY VALVE MOTOR MOUNT



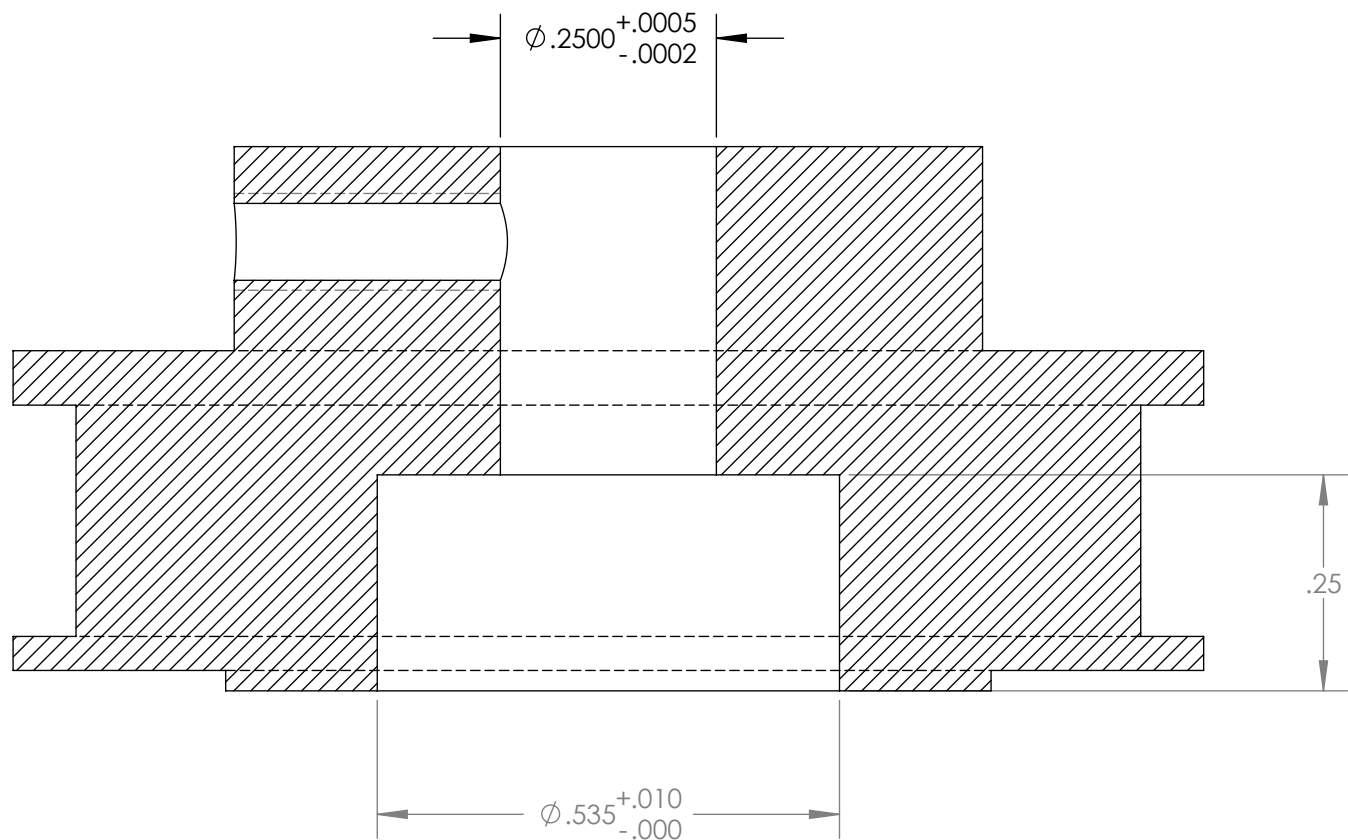
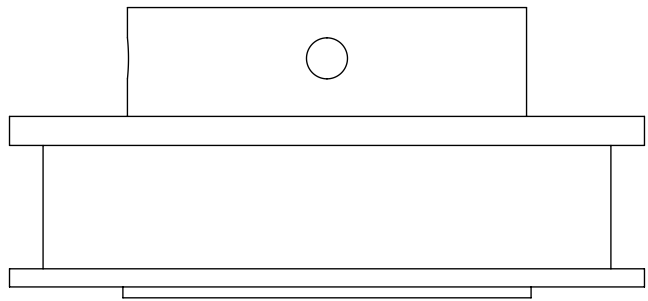
3	1	1002562-003	Motor Mount	6061-T6 Aluminum
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	MATERIAL
BILL OF MATERIALS				
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		
Inspector		2 PLACE DIM ±.01	3 PLACE DIM ±.005	4 PLACE DIM ±.0005
Shop Foreman		1. DIMENSIONS ARE IN INCHES	2. DIMENSION LIMITS HELD AFTER PLATING	3. REMOVE BURRS & SHARP EDGES .010 MAX
Engineer		4. MACHINED FILLET RADII .000 TO .015	5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005	6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .001 PER INCH. MAX .010 INCHES FOR SINGLE SURFACE.
NEXT ASSY Description	NEXT ASSY Number	7. SURFACE FINISH TO BE 63 MICRON UNLESS OTHERWISE SPECIFIED	APPROVALS ENGINEER Jason Feldman 831-775-1837 CHECKED	DATE Friday, June 15, 2007 2:38:42 PM
DO NOT SCALE DRAWING		PROJECT ESP 2G	PROJECT NUMBER 701312.00	Monterey Bay Aquarium Research Institute 7700 Sandholdt Road Moss Landing, CA 95039
		SIZE C	DWG. NO. 1002562	REV. F
CAD FILE: X:\701312 ESP 2G\SolidWorks files\internal structure (1002209) SHEET 5 OF 6				

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MBARI ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF MBARI IS PROHIBITED

1002562 - 004
PART MODIFICATION TO T2.5/40 TIMING BELT PULLEY



2X $\phi .089$ THRU TO CENTER
4-40 UNC - 2B THRU TO CENTER
2 PLCS @ 90°

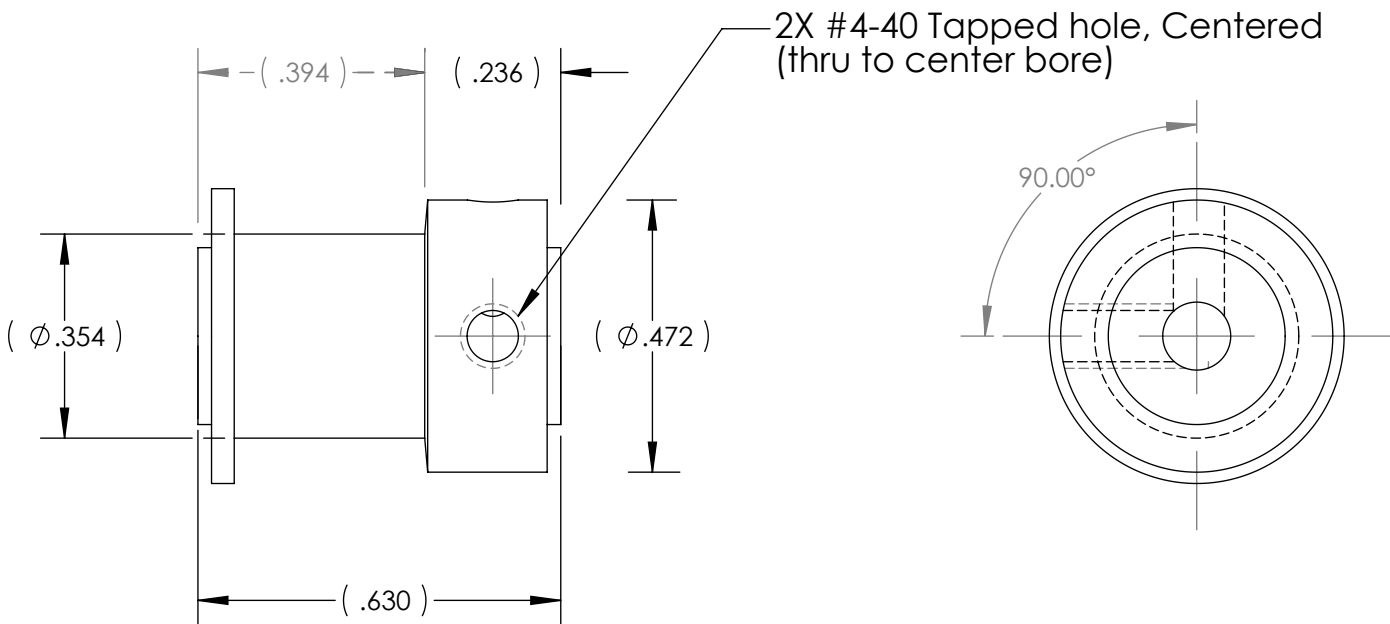


SECTION B-B

1	1	1002562-004	BRECOFLEX T2.5/40	Brecoflex Co.	LS16 T2.5/40-2 Hub22x6	as supplied
ITEM NO.	QTY.	Part_Number	DESCRIPTION	Vendor	Vendor No.	MATERIAL

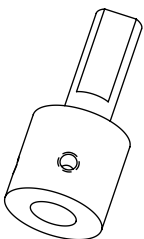
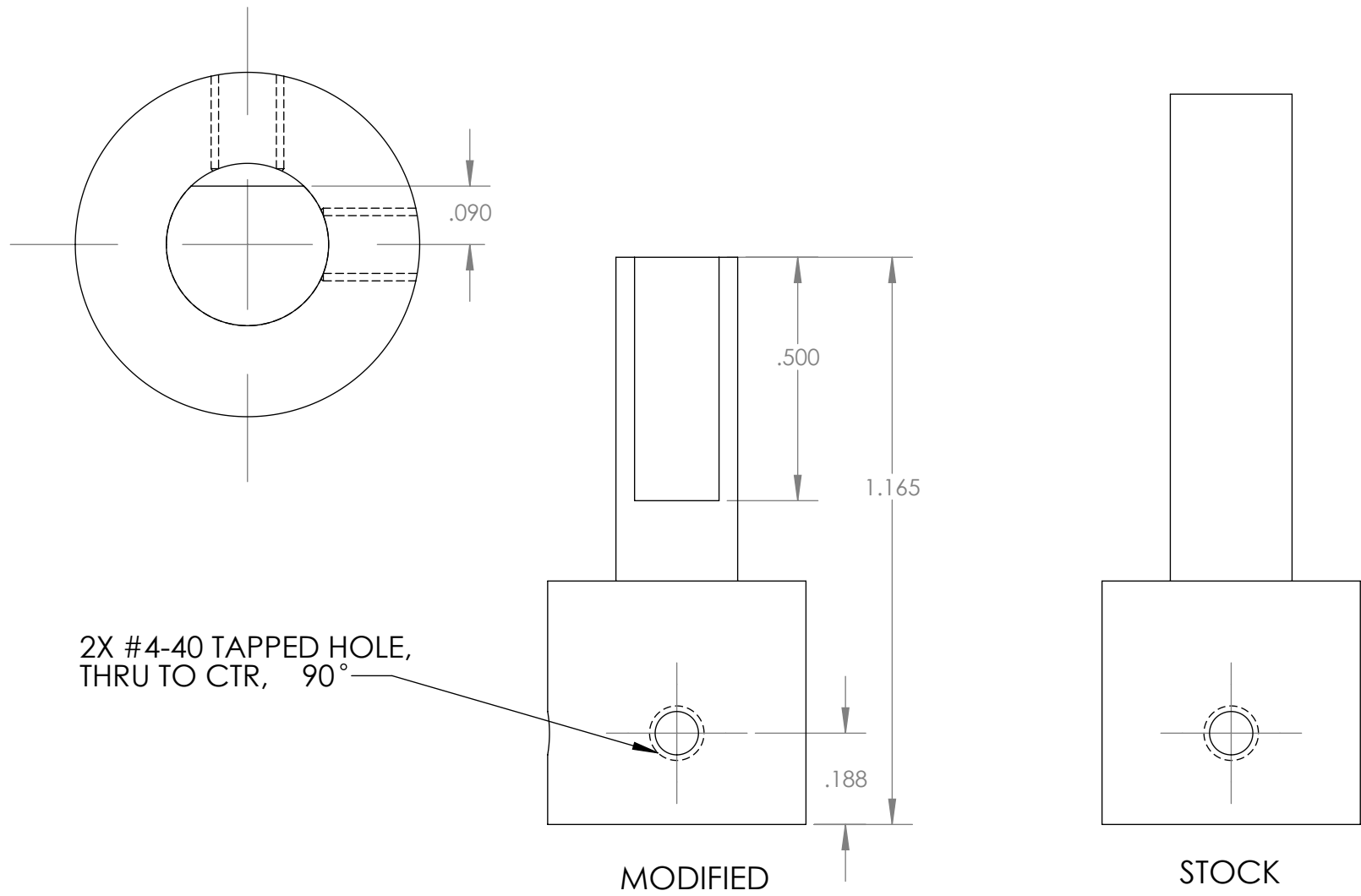
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
2E	G	2ND 4-40 TAPPED HOLE	6/15/07	JS
2C	G	SHAFT FLAT AND 2ND 4-40 TAPPED HOLE	6/15/07	JS

1002562 - 005
PART MODIFICATION TO T2.5/12 TIMING BELT PULLEY



1	1	1002562-005	BRECOFLEX T2.5/12	LS16 T2.5/12-2 Hub12x6	LS16 T2.5/12-2 Hub12x6	as supplied
ITEM NO.	QTY.	Part_Number	DESCRIPTION	Vendor No.	Vendor No.	MATERIAL

1002562-006
PART MODIFICATION to Fairloc shat extender - for $\phi 1/4"$ shaft



1	1	1002562-006	Fairloc Shaft Extender	Stock Drive Prod.	A 7X 3-0808B	S.S.
ITEM NO.	QTY.	Part_Number	DESCRIPTION	Vendor	Vendor No.	MATERIAL

BILL OF MATERIALS				last updated on: Friday, June 15, 2007 2:38:42 PM	
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		APPROVALS DATE	
Inspector		2 PLACE DIM $\pm .01$	3 PLACE DIM $\pm .005$	ENGINEER Jason Feldman 831-775-1837	
Shop Foreman		4 PLACE DIM $\pm .0005$	ANGLES $\pm 1^\circ$	CHECKED	
Engineer		1. DIMENSIONS ARE IN INCHES		PROJECT NUMBER 701312.00	
NEXT ASSY Description		2. DIMENSION LIMITS HELD AFTER PLATING		PROJECT ESP 2G	
NEXT ASSY Number		3. REMOVE BURRS & SHARP EDGES .010 MAX		SIZE C	
		4. MACHINED FILLET RADII .000 TO .015		DWG. NO. 1002562	
		5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005		G	
		6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .001 PER INCH. MAX .010 INCHES FOR SINGLE SURFACE.		CAD FILE: X:\701312 ESP 2G\SolidWorks files\Internal structure (1002209)	
		7. SURFACE FINISH TO BE 63 MICRON UNLESS OTHERWISE SPECIFIED		SHEET 6 OF 6	