

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. INITIAL RELEASE		DESCRIPTION	DATE	APPROVED

NOTES:

1. MATERIAL IS GR 5 AS CAST TITANIUM, MIN YIELD 120 KSI
2. BREAK ALL SHARP EDGES
3. APPLICABLE STANDARDS/SPECIFICATIONS:
ANSI Y14.5M-1994, DIMENSIONS AND TOLERANCES
MIL-STD-12, ABBREVIATIONS.
4. PART IS SYMMETRIC ABOUT CENTERLINE
5. DEPTH RATING OF ASSEMBLY: 6000M
6. WEIGHT: 47.6 LBS DRY

SAE #4 PORT $\phi .391$ THRU ALL
7/16-20 UNF - 2B THRU ALL

$\oplus \phi .028 (M) C B$

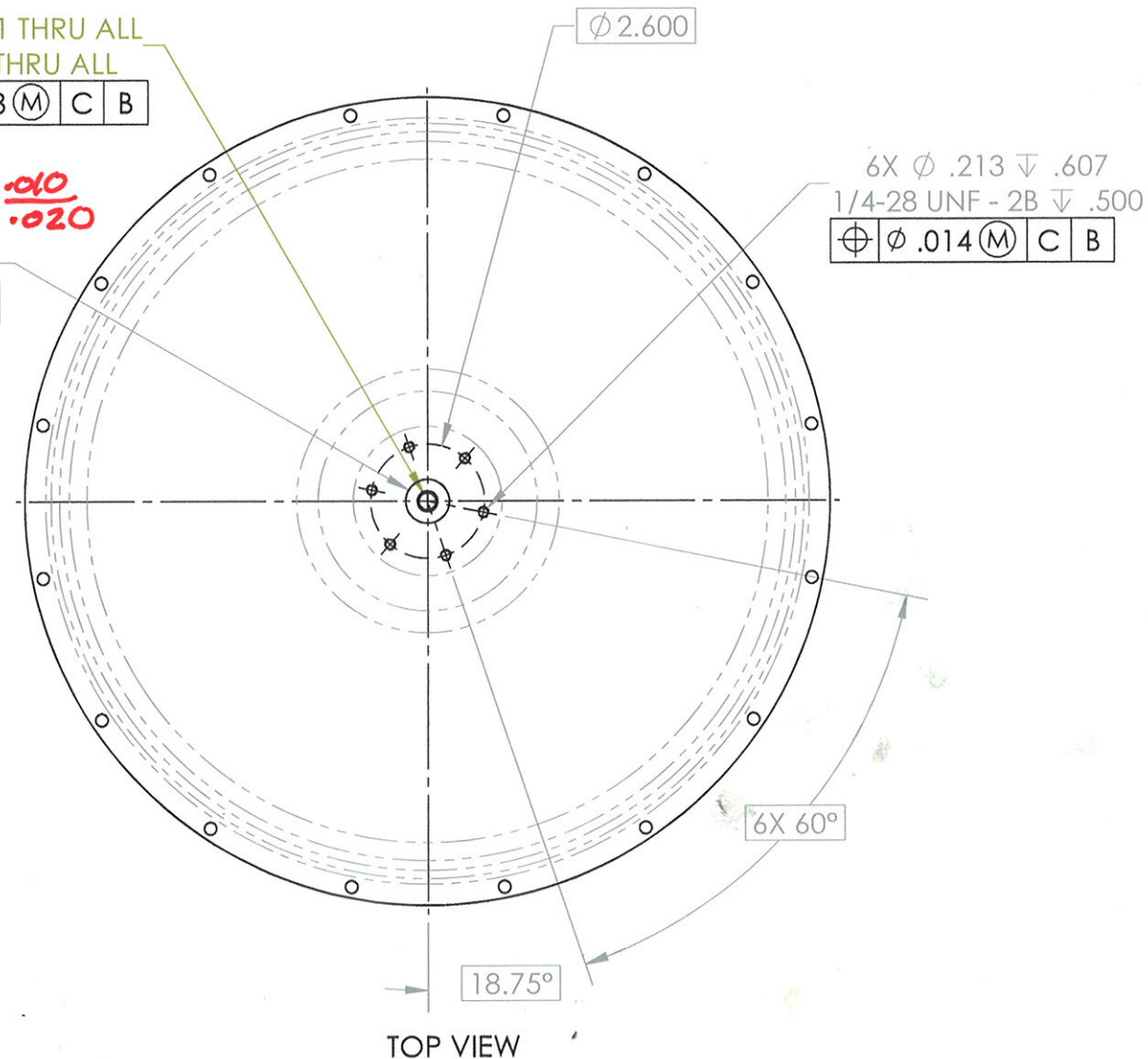
$\phi .875 \downarrow \frac{.010}{.020}$

$\phi 1.000 \downarrow .040$

$\oplus \phi .028 (M) C B$

USE DIA.
OF SAE
PORT TOOL

6X $\phi .213 \downarrow .607$
1/4-28 UNF - 2B $\downarrow .500$
 $\oplus \phi .014 (M) C B$



TOP VIEW

DATE: 7JAN12

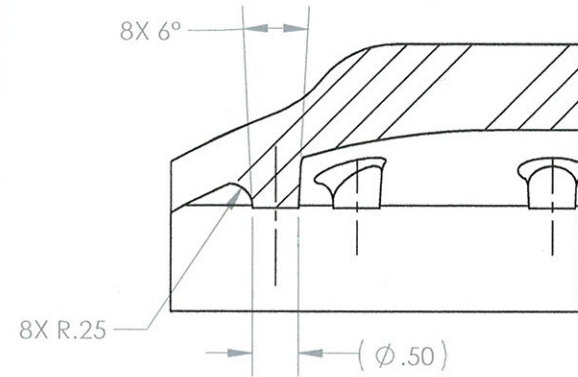
BILL OF MATERIALS

Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		APPROVALS		DATE		Monterey Bay Aquarium Research Institute	
Inspector		1 PLACE DIM $\pm .1/16$	2 PLACE DIM $\pm .02$	3 PLACE DIM $\pm .005$	ANGLES $\pm 1^\circ$	DRAWN	M. GREISE	11/30/11	MBARI
Shop Foreman		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX AFTER MACHINING. 4. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005 UNLESS SPECIFIED OTHER. 5. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH, MAX .012 IN. FOR SINGLE SURFACE UNLESS SPECIFIED OTHER.				ENGINEER	M. GREISE	11/30/11	7700 Sandholdt RD.
Engineer						CHECKED			Moss Landing, CA 95039
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.			PH: (831) 775-1700
Application						PROJECT	6K SPHERE		
		DO NOT SCALE DRAWING		WEIGHT				TOP HEMISPHERE, 6K SPHERICAL HOUSING	
						SIZE	DWG. NO.	REV.	
						B	1001102DWG		
						SCALE	1:5	CAD FILE: MECH ENG ON TORNADO	SHEET 1 OF 2

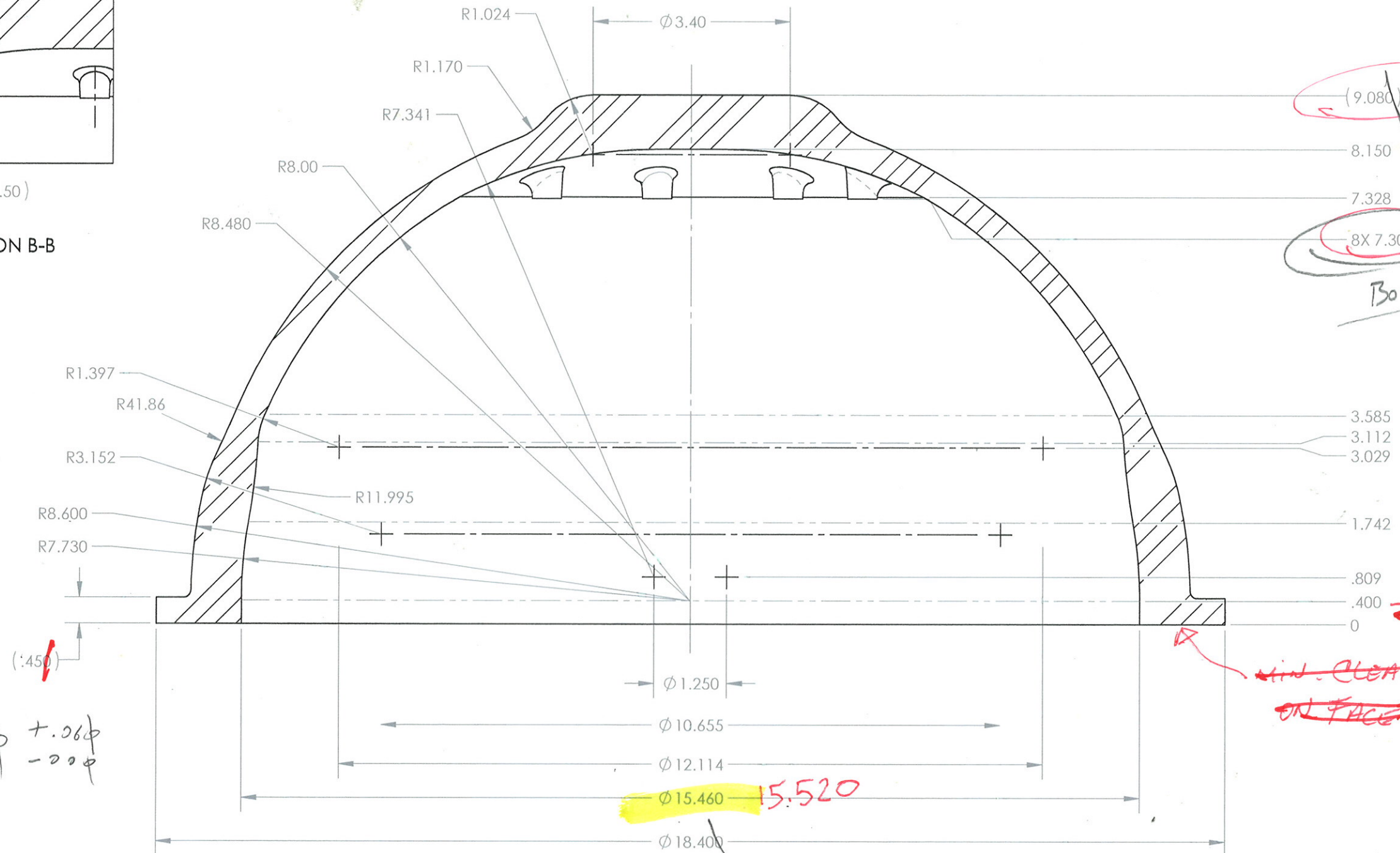
8 7 6 5 4 3 2 1

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		



SECTION B-B



SECTION A-A

- 45° ± .060
- 20°

~~and CLEAN UP~~
~~ON FACE~~

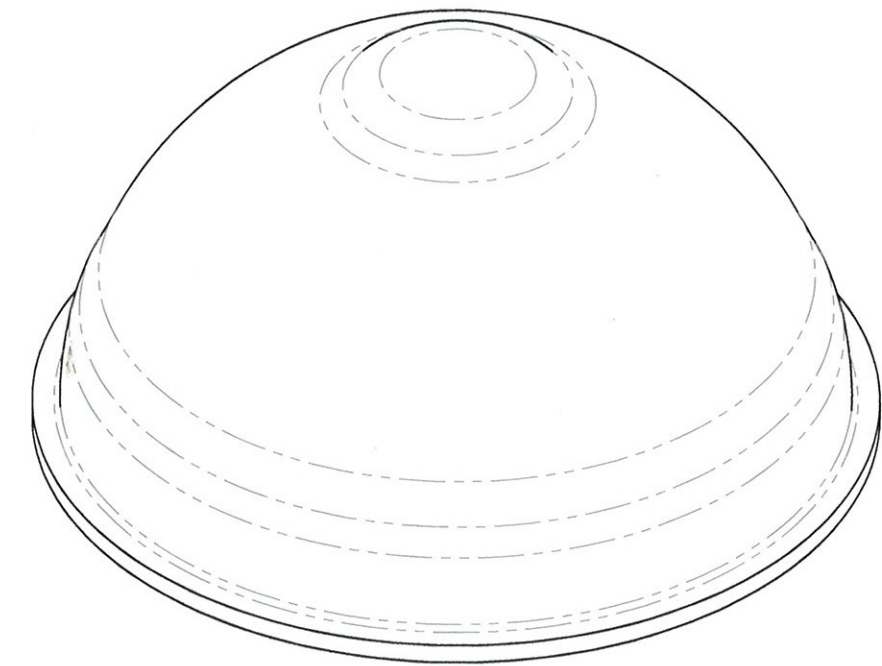
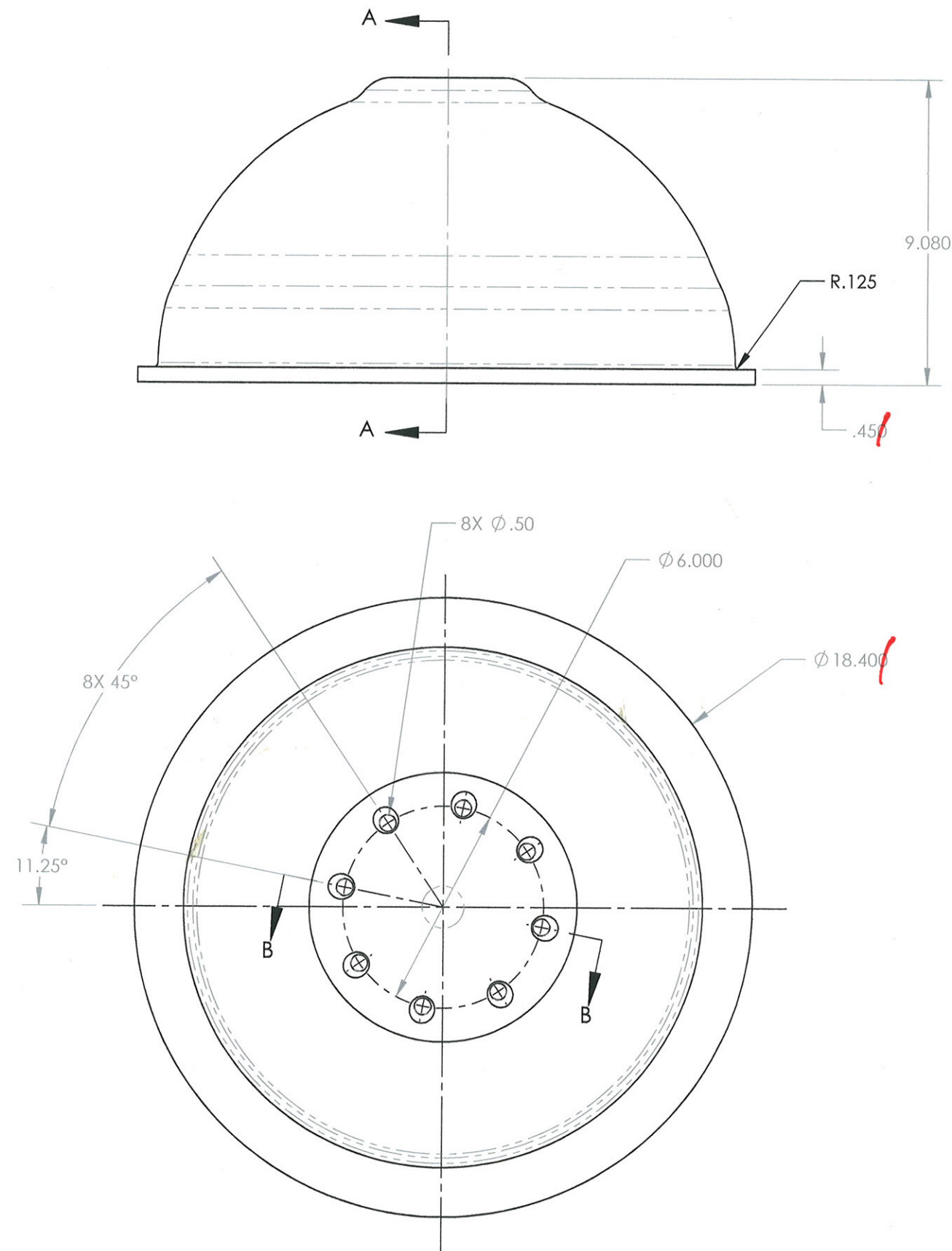
Shop / Q.C.				UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS		DATE	Monterey Bay Aquarium Research Institute			
Inspector				1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005	ANGLES ±1°	DRAWN	M. GREISE	11/30/11	MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700 			
Shop Foreman				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	M. GREISE	11/30/11				
Engineer								CHECKED						
NEXT ASSY Description		NEXT ASSY Number						PROJECT NO.						
								PROJECT	4K SPHERE		HEMISPHERE CASTING 6K HOUSING			
								WEIGHT			SIZE B	DWG. NO. 1001103WG		REV.
Application				DO NOT SCALE DRAWING						SCALE 1:2		CAD FILE: MECH ENG ON TORNADO		SHEET 2 OF 2
				3						2		1		

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REV.		REVISIONS	DATE	APPROVED
INITIAL RELEASE				

NOTES:

1. MATERIAL IS GR 5 AS CAST TITANIUM, MIN YIELD 120 KSI
2. BREAK ALL SHARP EDGES
3. APPLICABLE STANDARDS/SPECIFICATIONS:
ANSI Y14.5M-1994, DIMENSIONS AND TOLERANCES
MIL-STD-12, ABBREVIATIONS.
4. PART IS SYMMETRIC ABOUT CENTERLINE
5. WEIGHT: 47.8 LBS DRY

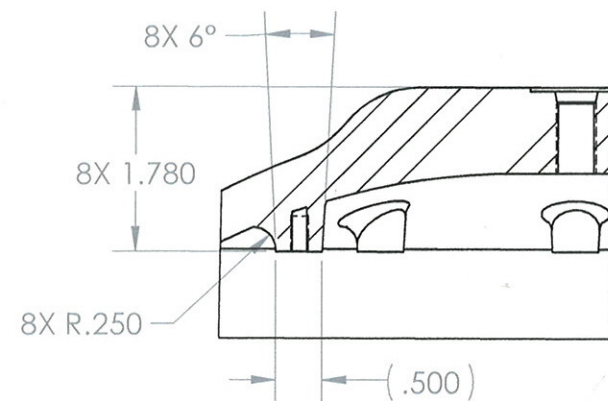
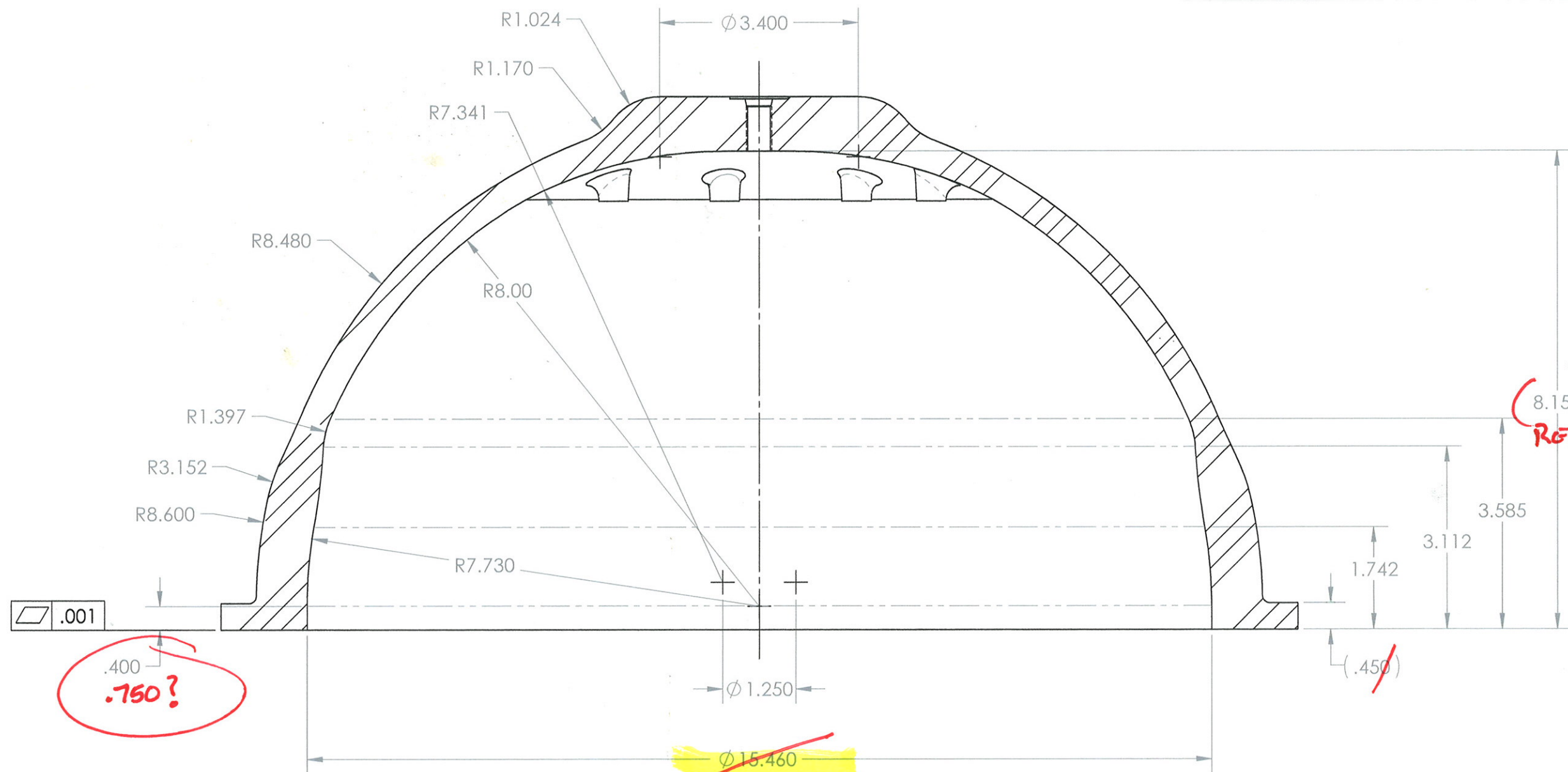


DATE: 1/17/12

Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS		DATE	Monterey Bay Aquarium Research Institute	
Inspector		1 PLACE DIM $\pm .1/16$	2 PLACE DIM $\pm .02$	3 PLACE DIM $\pm .005$	ANGLES $\pm 1'$	DRAWN	M. GREISE	11/30/11	MBARI	
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	M. GREISE	11/30/11	7700 Sandholdt RD.	
Engineer						CHECKED			Moss Landing, CA 95039	
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.			PH: (831) 775-1700	
Application						PROJECT	4K SPHERE		HEMISPHERE, 6K SPHERICAL HOUSING	
		DO NOT SCALE DRAWING		WEIGHT		SIZE	B	DWG. NO.	1001103DWG	REV.
						SCALE	1:4	CAD FILE: MECH ENG ON TORNADO	SHEET 1 OF 2	

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REV.	REVISIONS		DATE	APPROVED
	DESCRIPTION			
1	INITIAL RELEASE			



SECTION A-A
SCALE 1 : 2

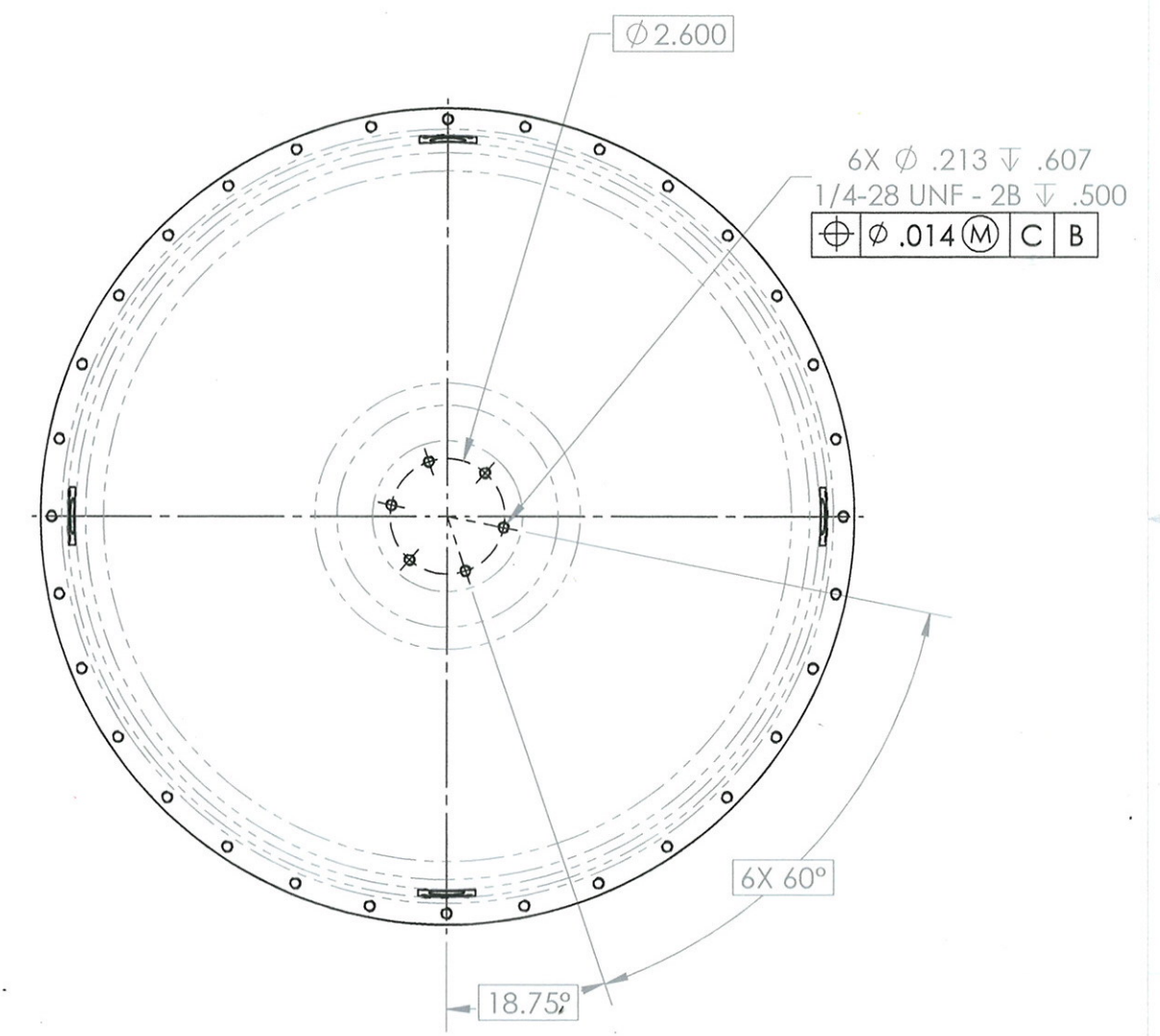
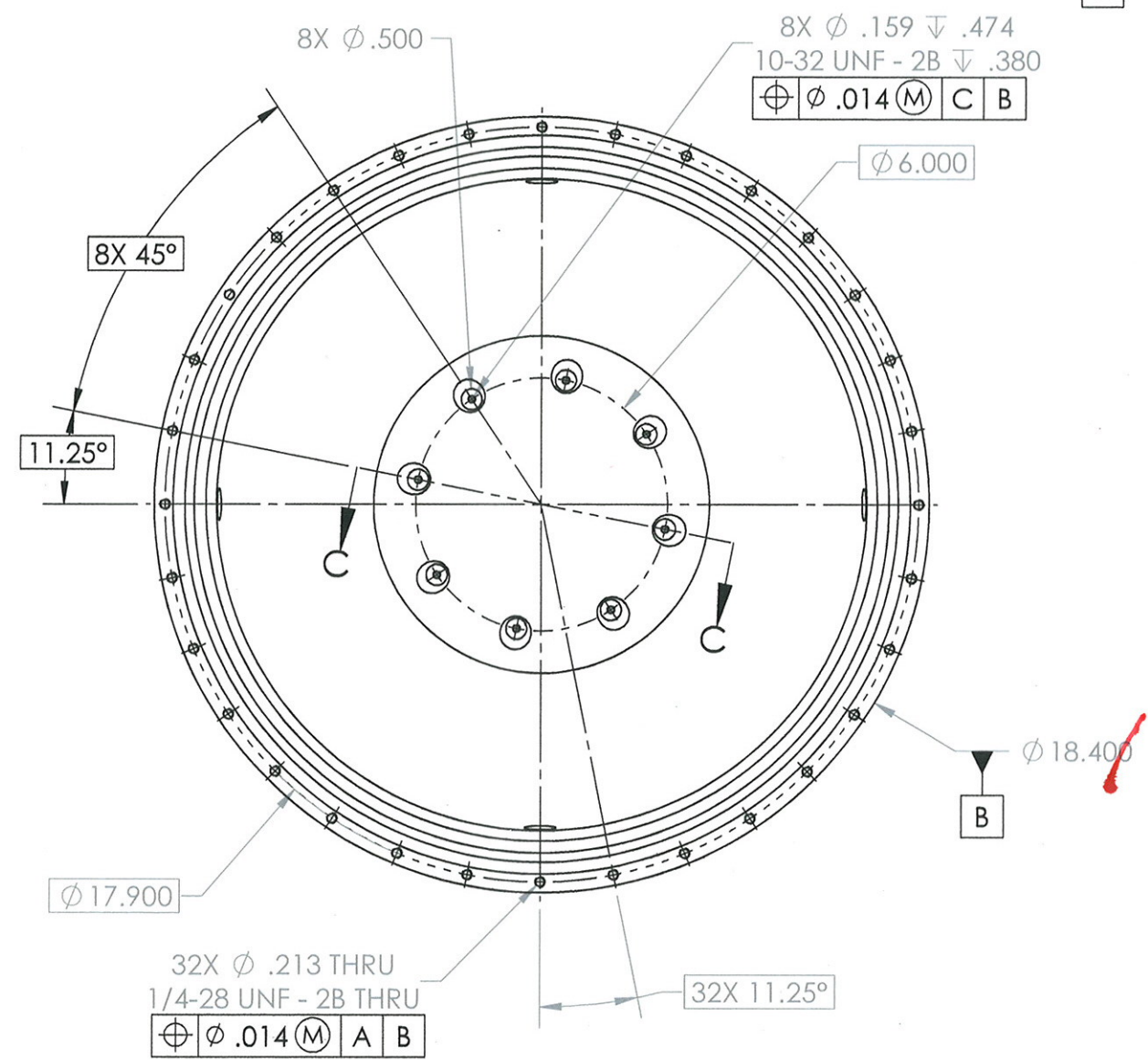
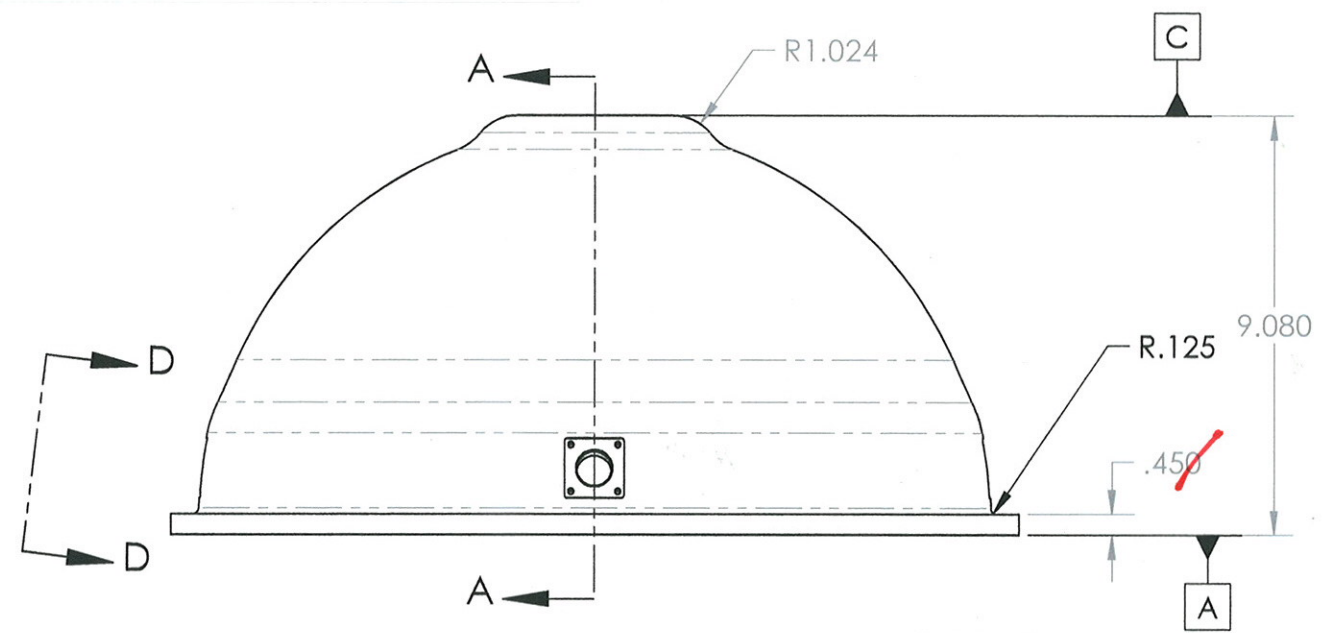
SECTION B-B
SCALE 1 : 2

BILL OF MATERIALS				Monterey Bay Aquarium Research Institute	
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		APPROVALS DATE	
Inspector		1 PLACEDIM 1/16	2 PLACEDIM 1/32	DRAWN M. GREISE	11/30/11
Shop Foreman		3 PLACEDIM 1/64	4 ANGLES 1/16	ENGINEER M. GREISE	11/30/11
Engineer		1. DIMENSIONS ARE IN INCHES			
NEXT ASSY Description	NEXT ASSY Number	2. DIMENSION LIMITS HELD AFTER PLATING.			
Application		3. REMOVE BURRS AND SHARP EDGES .015 MAX.			
		4. MACHINED FILLET RADII .015-.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.			
		DO NOT SCALE DRAWING			
		PROJECT NO.		PROJECT 4K SPHERE	
		WEIGHT		TOP HEMISPHERE 6K HOUSING	
		SCALE 1:5		DWG. NO. 1001102DWG	
		CAD FILE: MECH ENG ON TORNADO		SHEET 2 OF 2	

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	INITIAL RELEASE		

- NOTES:
1. MATERIAL IS GR 5 AS CAST TITANIUM, MIN YIELD 120 KSI
 2. APPLICABLE STANDARDS/SPECIFICATIONS: ANSI Y14.5M-1994, DIMENSIONS AND TOLERANCES MIL-STD-12, ABBREVIATIONS.
 3. GROOVE FOR O-RING 2-385
 4. GROOVE FOR O-RING 2-386
 5. BOSS AND PENETRATION FOR SEACON MINK-FCR RECEPTACLE
 6. PART IS SYMMETRIC ABOUT CENTERLINE
 7. DEPTH RATING OF ASSEMBLY: 6000M
 8. WEIGHT: 46.6 LBS DRY



TOP VIEW

DATE: 7JAN12

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 M. GREISE 11/30/11
Shop Foreman		1. DIMENSIONS ARE IN INCHES	ENGINEER M. GREISE 11/30/11
Engineer		2. DIMENSION LIMITS HELD AFTER PLATING.	CHECKED
NEXT ASSY Description	NEXT ASSY Number	3. REMOVE BURRS AND SHARP EDGES .015 MAX AFTER MACHINING.	PROJECT NO.
		4. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005 UNLESS SPECIFIED OTHER.	PROJECT 6K SPHERE
Application		5. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH. MAX .012 IN FOR SINGLE SURFACE UNLESS SPECIFIED OTHER.	WEIGHT
		DO NOT SCALE DRAWING	

Monterey Bay Aquarium Research Institute

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

**BOTTOM HEMISPHERE,
6K SPHERICAL HOUSING**

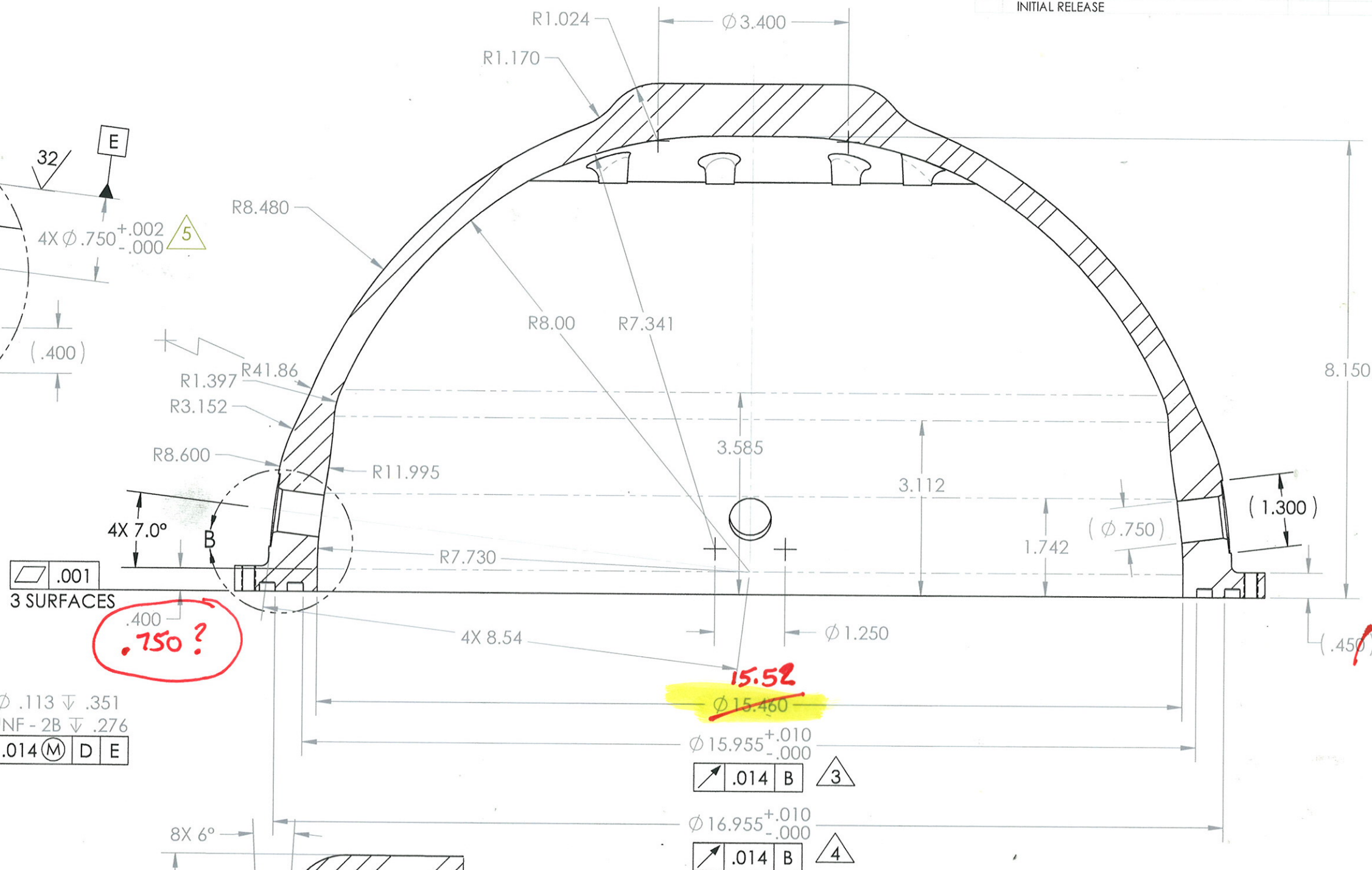
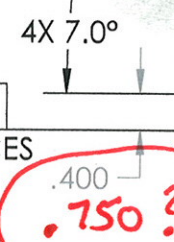
SIZE B DWG. NO. 1001101DWG REV.

SCALE 1:4 CAD FILE: MECH ENG ON TORNADO SHEET 1 OF 2



	.001
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3 SURFACES

SECTION A-A

DATE: 7JAN12

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	M. GREISE	11/30/11				
Shop Foreman		1. DIMENSIONS ARE IN INCHES				ENGINEER	M.GREISE	11/30/11				
Engineer		2. DIMENSION LIMITS HELD AFTER PLATING.				CHECKED						
		3. REMOVE BURRS AND SHARP EDGES .015 MAX.										
		4. MACHINED FILLET RADII .0150-.030.				PROJECT NO.		BOTTOM HEMISPHERE 6K HOUSING				
NEXT ASSY Description	NEXT ASSY Number	5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005				PROJECT	4K SPHERE					
		6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH. MAX. .012 INCHES FOR SINGLE SURFACE.							SIZE B	DWG. NO.	1001101DWG	REV.
Application		DO NOT SCALE DRAWING				WEIGHT				SCALE 1:2	CAD FILE: MECH ENG ON TORNADO	SHEET 2 OF 2