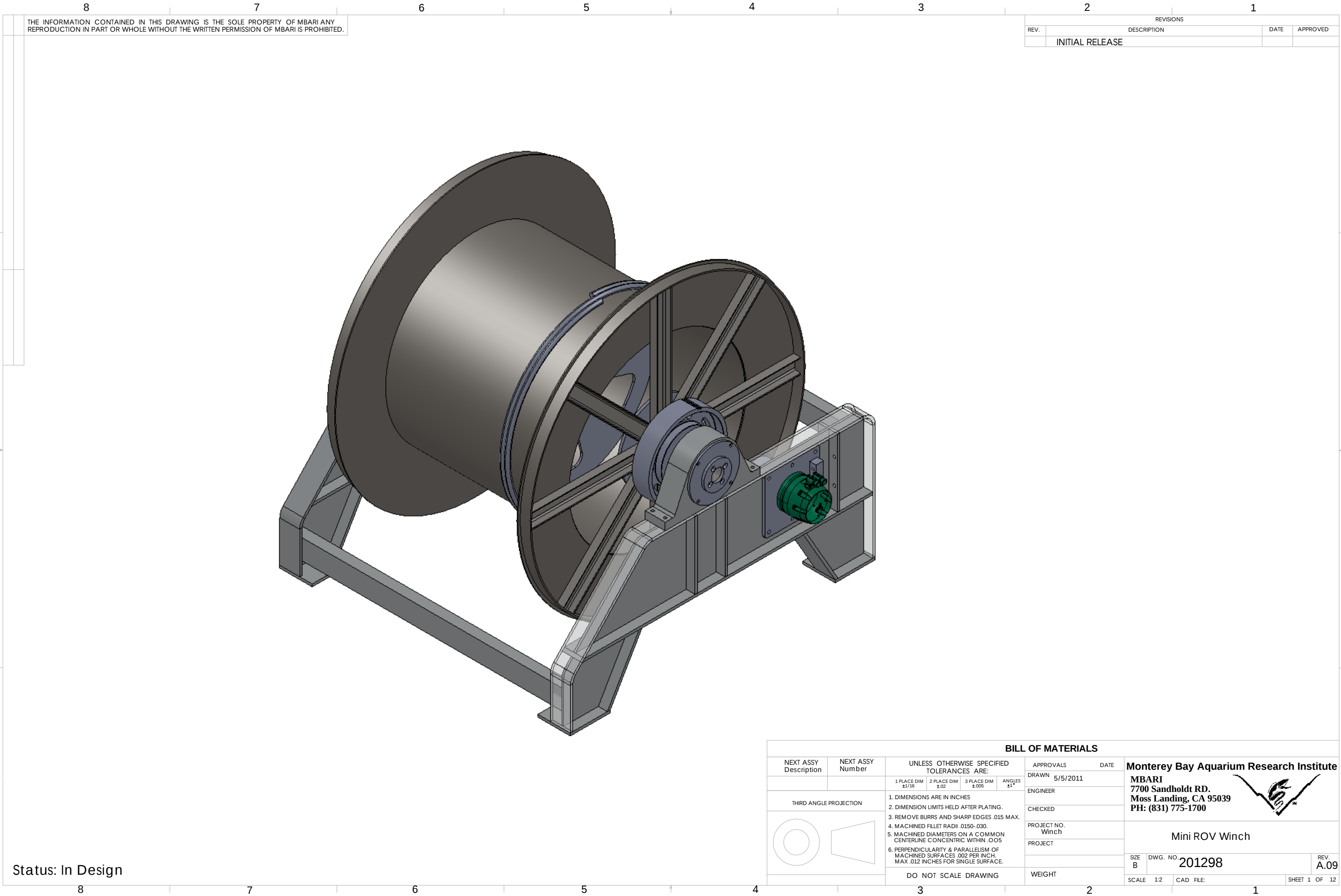
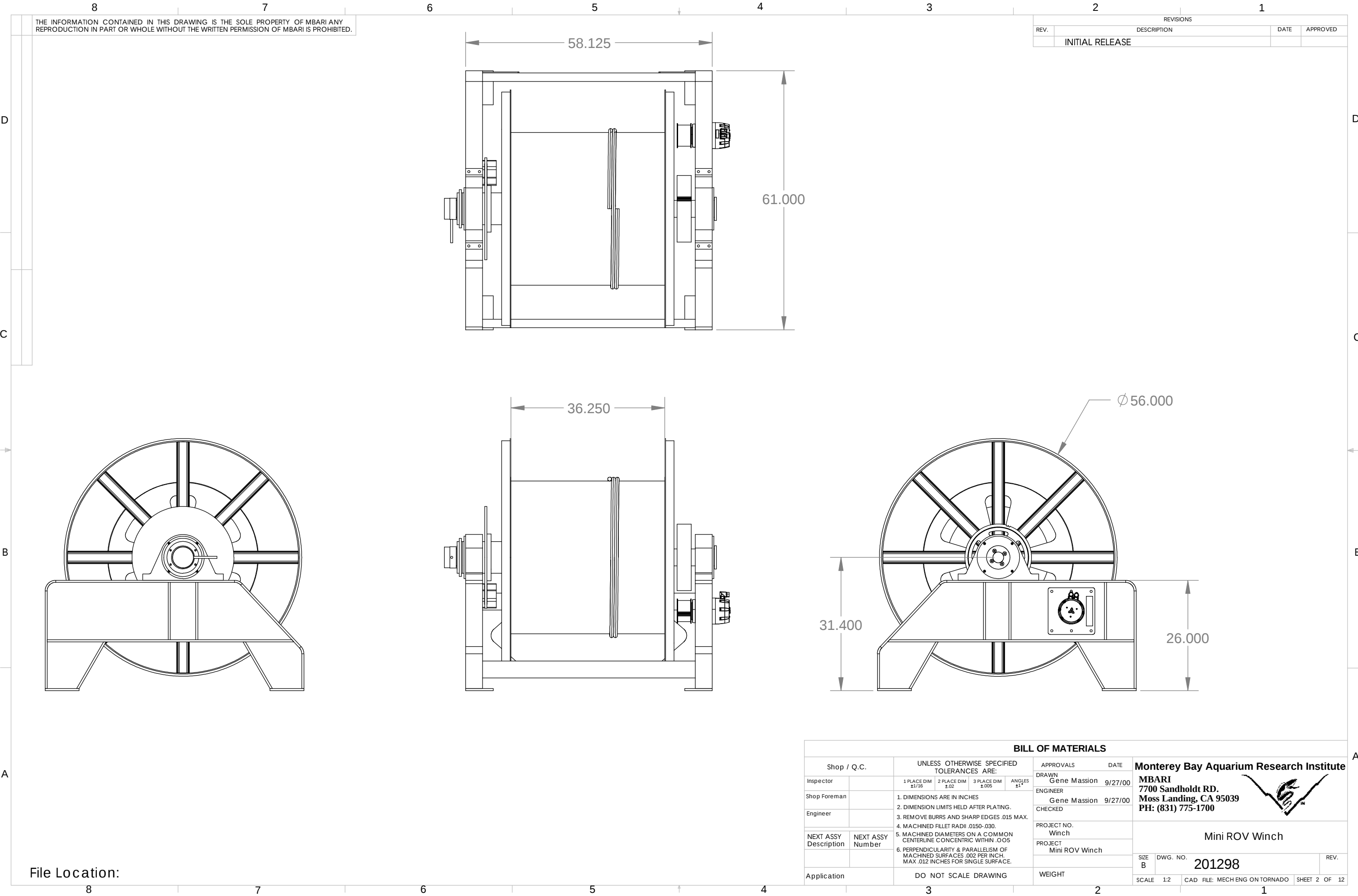
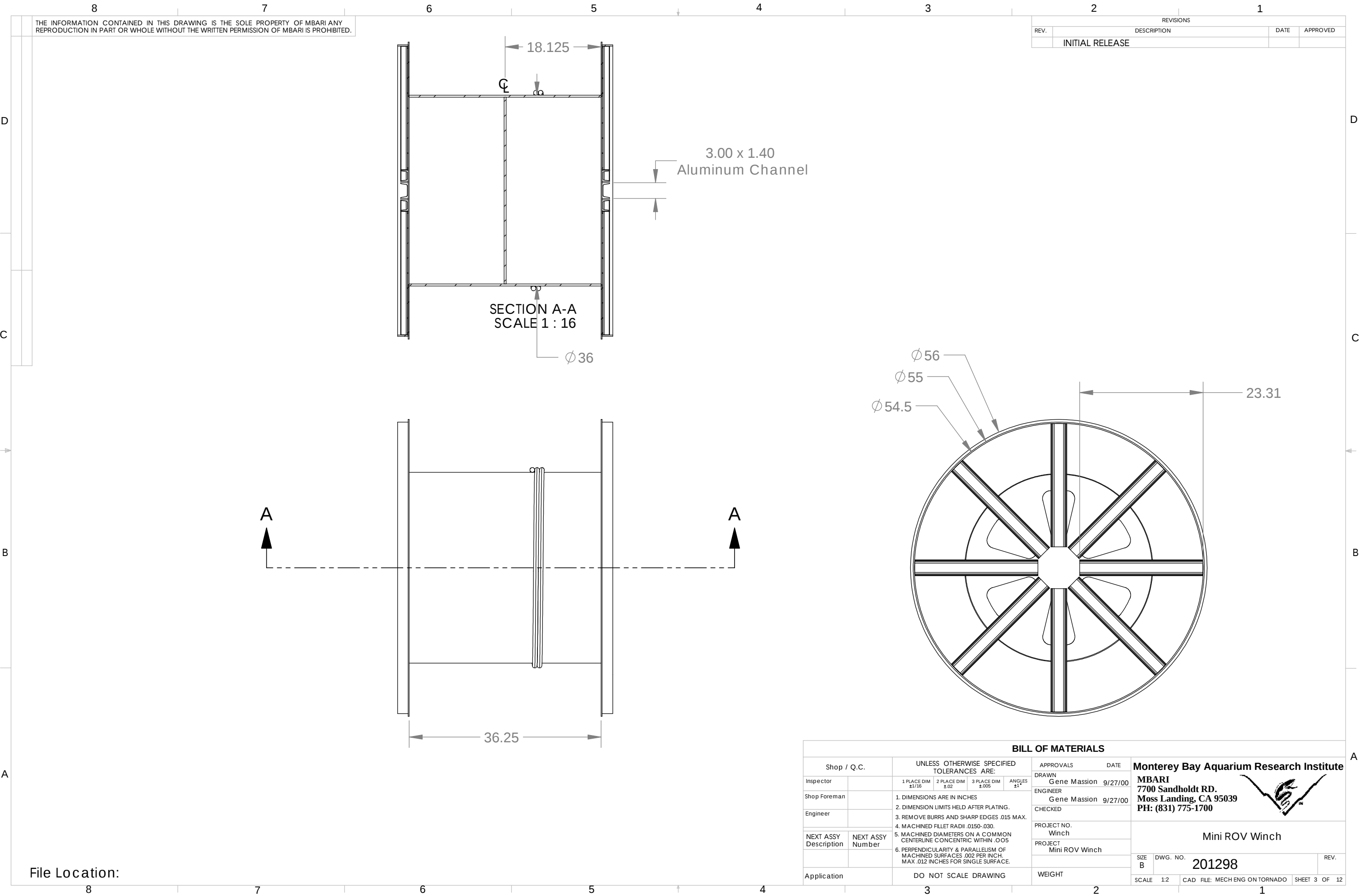








REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		

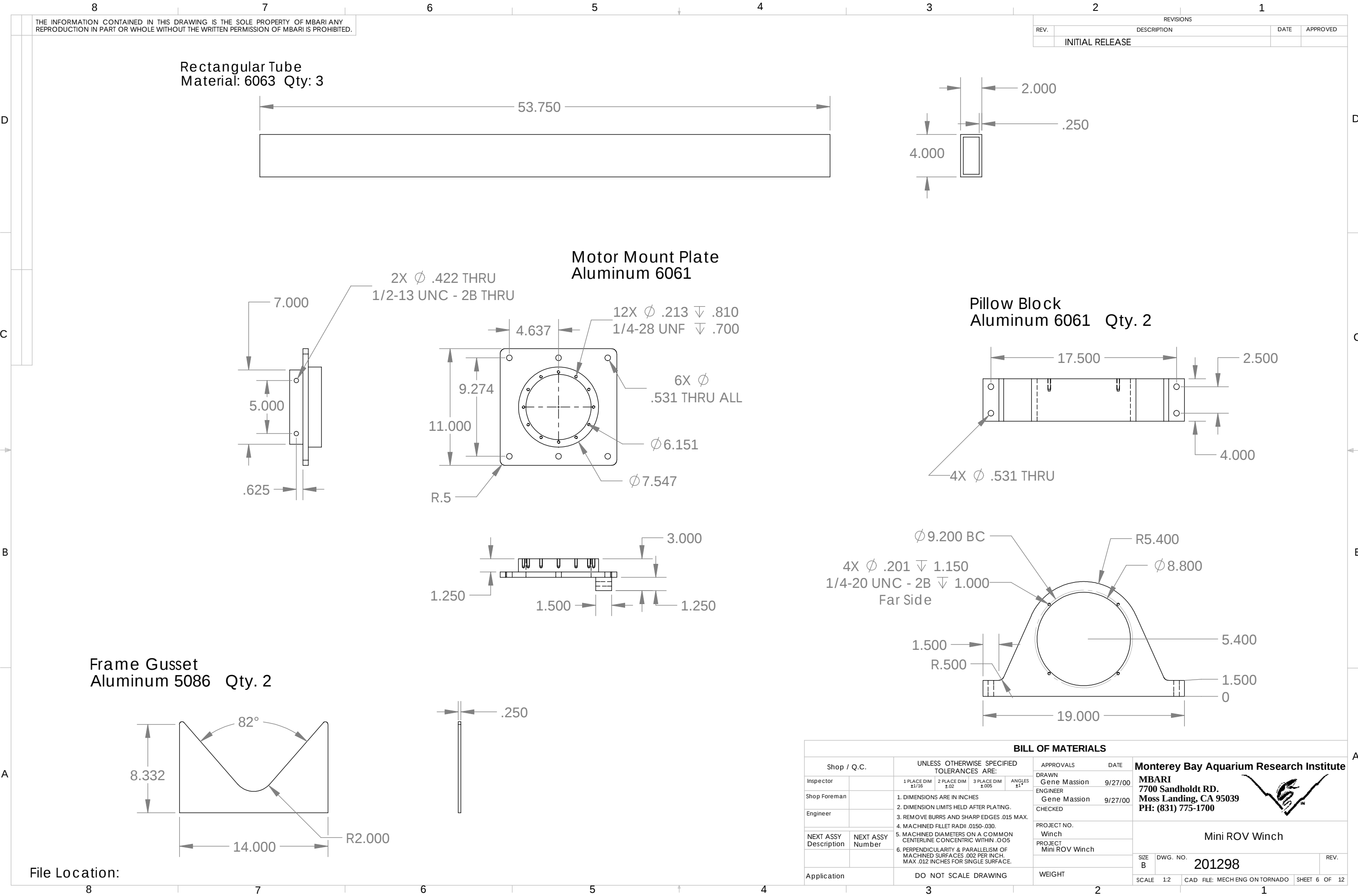


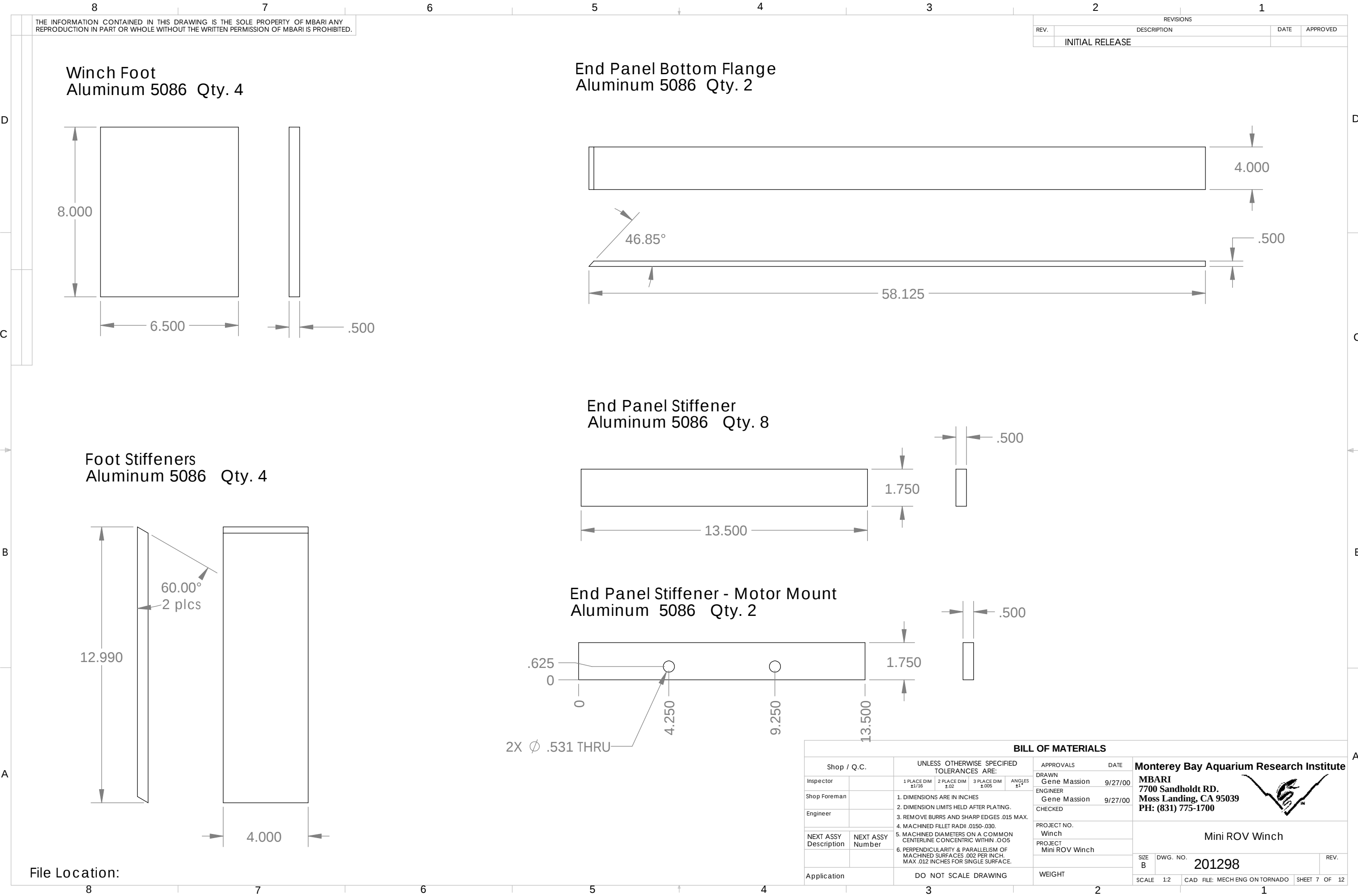
BILL OF MATERIALS											
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS		DATE		Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700	
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005	ANGLES ±1°	DRAWN Gene Massion	9/27/00				
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.				ENGINEER Gene Massion	9/27/00				
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. Winch
						PROJECT Mini ROV Winch					
Application		DO NOT SCALE DRAWING				WEIGHT					
						SIZE B		DWG. NO. 201298		REV.	
						SCALE 1:2		CAD FILE: MECH ENG ON TORNADO		SHEET 4 OF 12	

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		

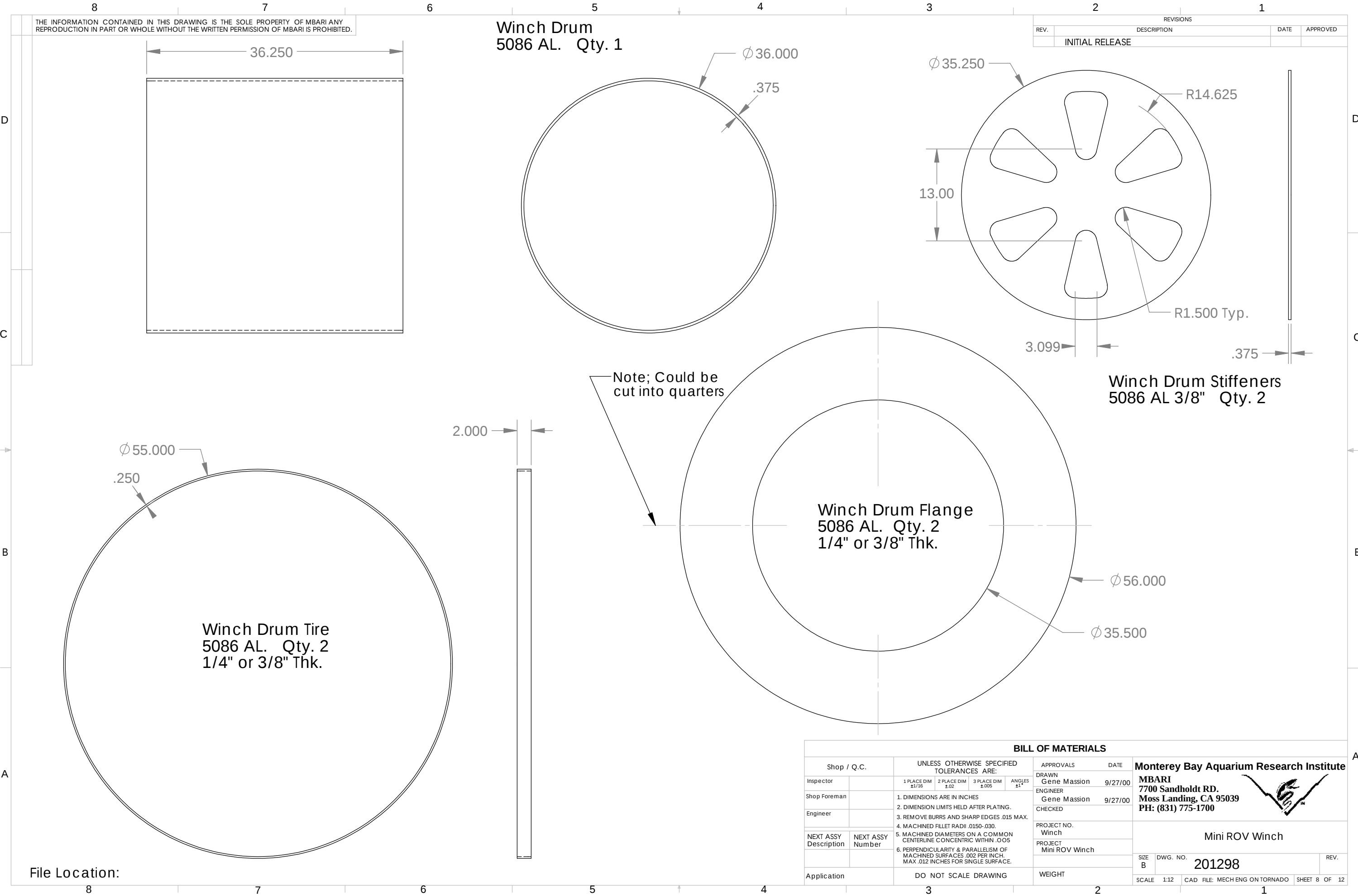


BILL OF MATERIALS									
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS		DATE	
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005	ANGLES ±1°	DRAWN Gene Massion	9/27/00		
Shop Foreman		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS 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 Gene Massion	9/27/00		
Engineer						CHECKED			
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO. Winch			Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700
		PROJECT Mini ROV Winch							
Application		DO NOT SCALE DRAWING				WEIGHT			
						SIZE B	DWG. NO. 201298		REV.
						SCALE	1:2	CAD FILE: MECH ENG ON TORNADO	SHEET 5 OF 12





File Location:

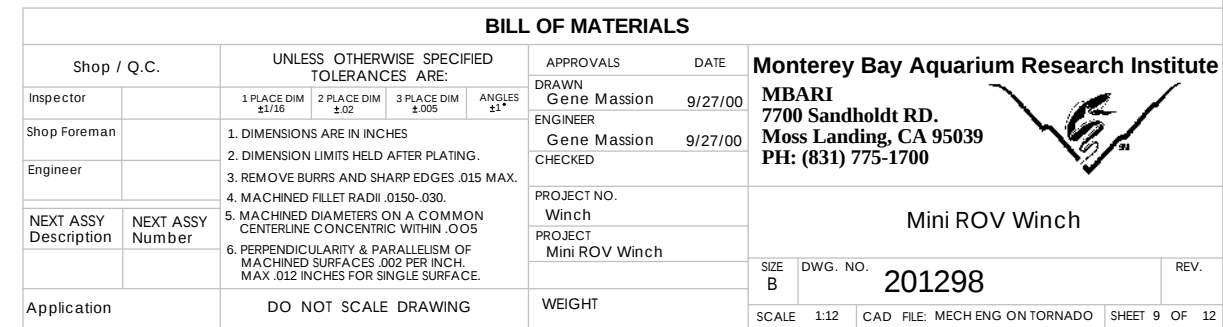


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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		

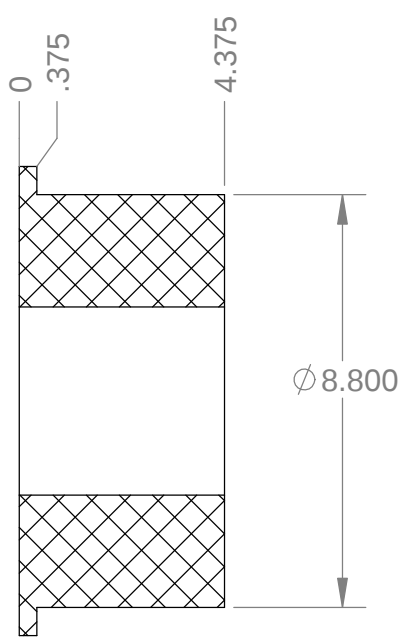
BILL OF MATERIALS									
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS	DATE	Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700 	
Inspector		1 PLACE DIM $\pm 1/16$	2 PLACE DIM $\pm .02$	3 PLACE DIM $\pm .005$	ANGLES $\pm 1^\circ$	DRAWN Gene Massion	9/27/00		
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 Gene Massion	9/27/00		
Engineer						CHECKED			
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO. Winch		Mini ROV Winch	
						PROJECT Mini ROV Winch			
Application		DO NOT SCALE DRAWING				WEIGHT		SIZE B	DWG. NO. 201298
								SCALE 1:12	REV.
								CAD FILE: MECH ENG ON TORNADO	SHEET 8 OF 12

File Location:

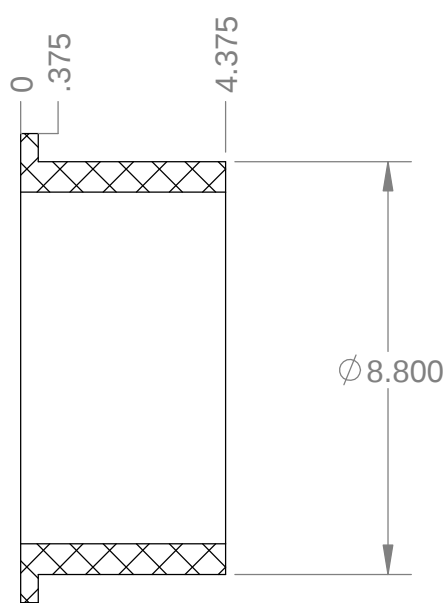


File Location:

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		



Axle Bushing
Motor Side
Qty: 1
Material: Black Acetal



Axle Bushing
Qty: 1
Material: Black Acetal

File Location:

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 Gene Massion	9/27/00		
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 Gene Massion	9/27/00		
Engineer						CHECKED			
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO. Winch			
		PROJECT Mini ROV Winch							
Application		DO NOT SCALE DRAWING				WEIGHT			
						SIZE B	DWG. NO. 201298		REV.
						SCALE 1:4	CAD FILE: MECH ENG ON TORNADO		SHEET 10 OF 12

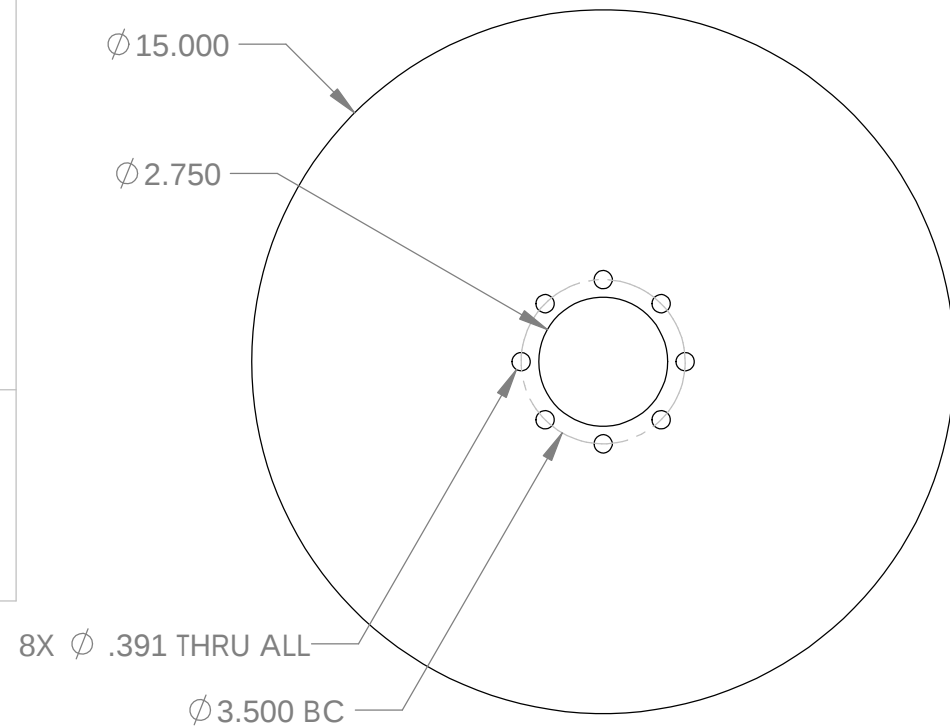
Monterey Bay Aquarium Research Institute

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

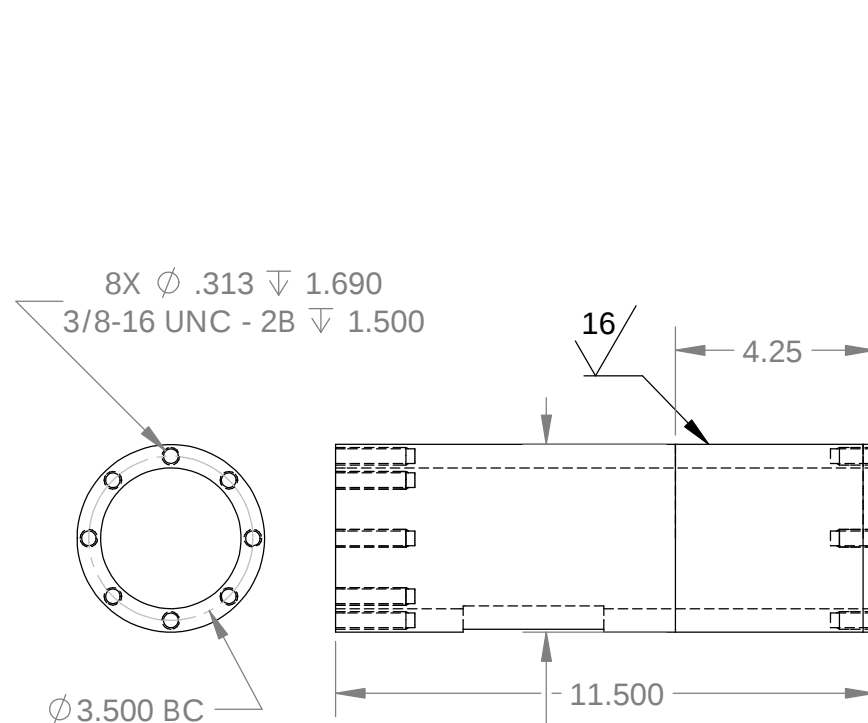
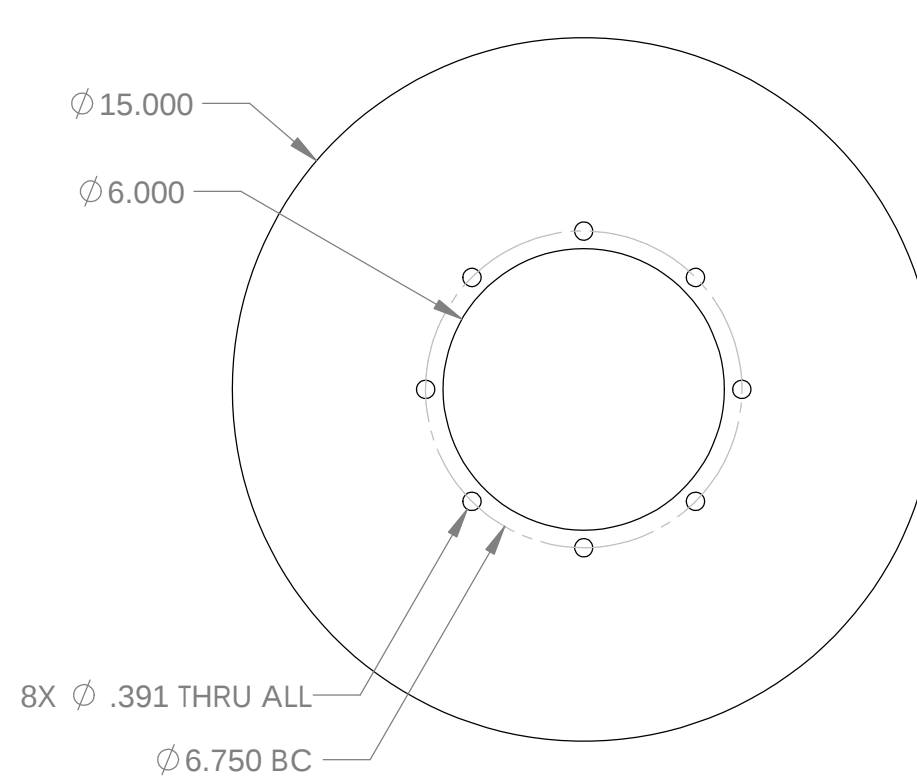


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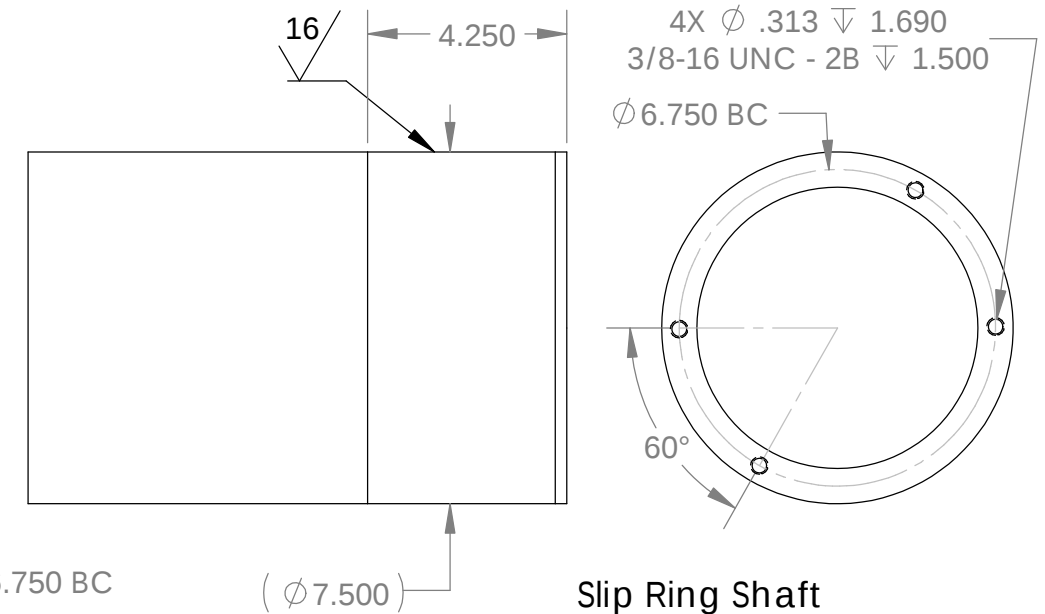
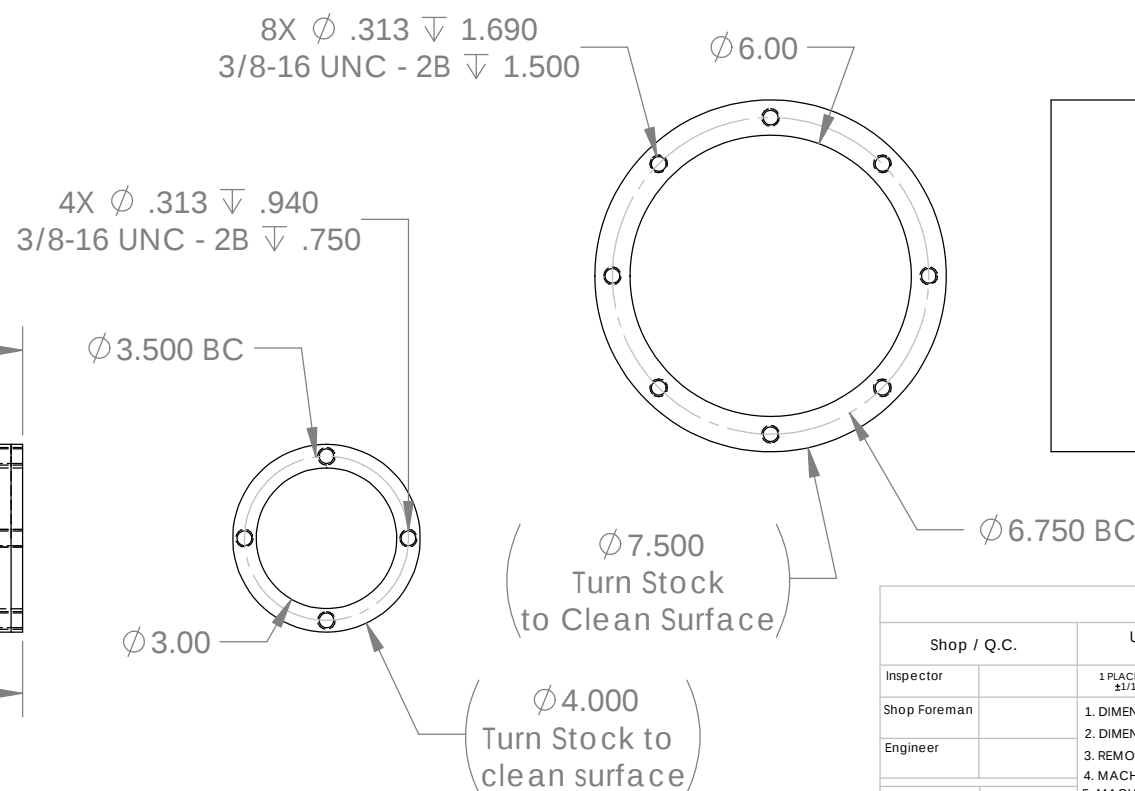
Motor Hub Plate
Matl: 5086



Slip Ring Hub Plate
Matl: 5086

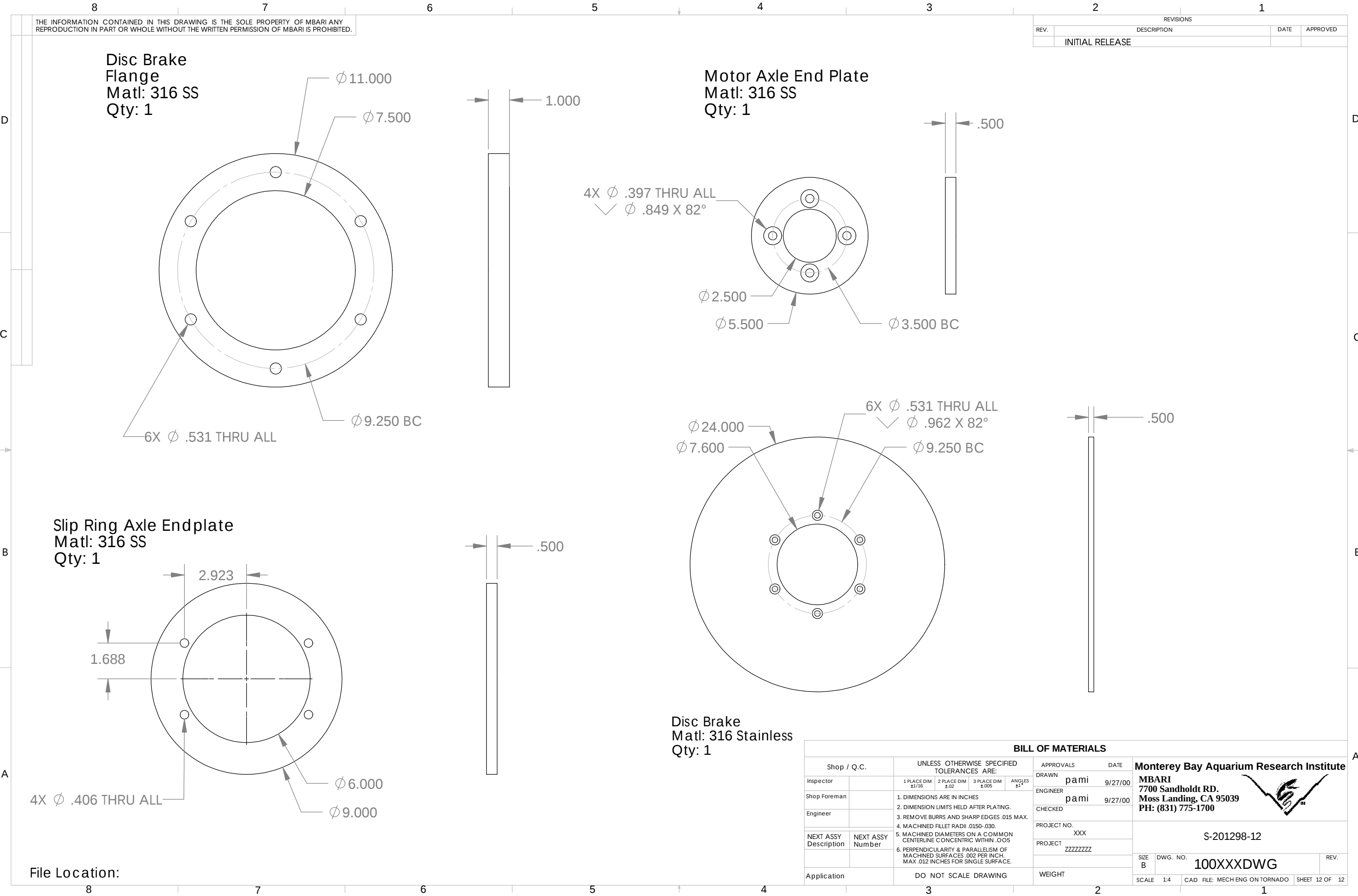


Motor Shaft



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	pami	9/27/00							
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	pami	9/27/00							
Engineer						CHECKED									
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.		XXX		S-201298-12					
						PROJECT		ZZZZZZZZ							
Application		DO NOT SCALE DRAWING				WEIGHT				SIZE B		DWG. NO. 100XXXDWG		REV.	
										SCALE 1:4		CAD FILE: MECH ENG ON TORNADO		SHEET 11 OF 12	



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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		

Disc Brake
Flange
Matl: 316 SS
Qty: 1

Motor Axle End Plate
Matl: 316 SS
Qty: 1

Slip Ring Axle Endplate
Matl: 316 SS
Qty: 1

Disc Brake
Matl: 316 Stainless
Qty: 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	pami	9/27/00	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	pami	9/27/00	
Engineer						CHECKED			
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.	XXX		
						PROJECT	ZZZZZZZZ		
Application		DO NOT SCALE DRAWING				WEIGHT			

File Location: