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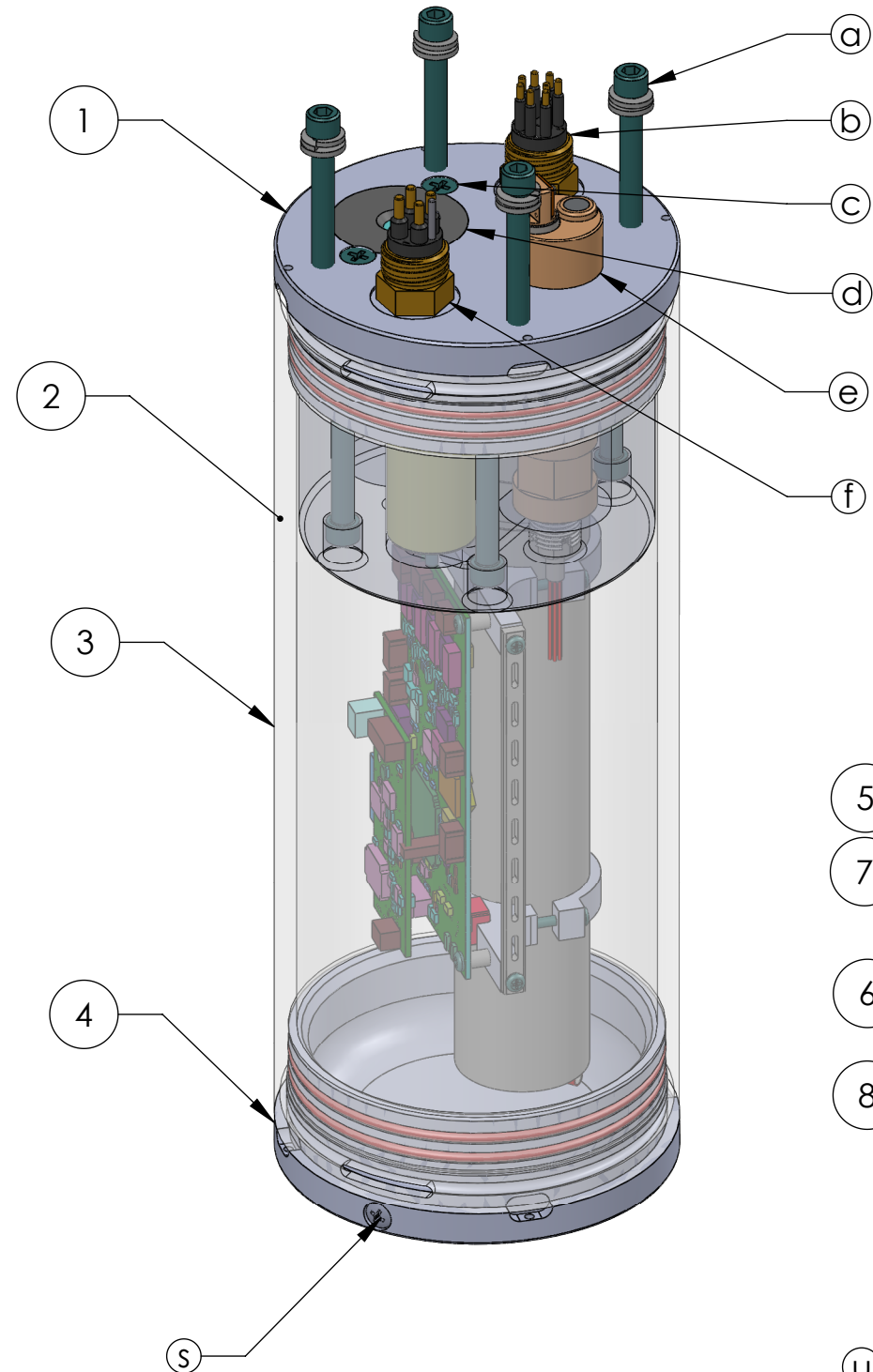
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
INITIAL RELEASE			
A	Dec 2021 Modifications	12/18/21	hwj
B	Added 4th battery and jack screws	10/25/22	hwj

D

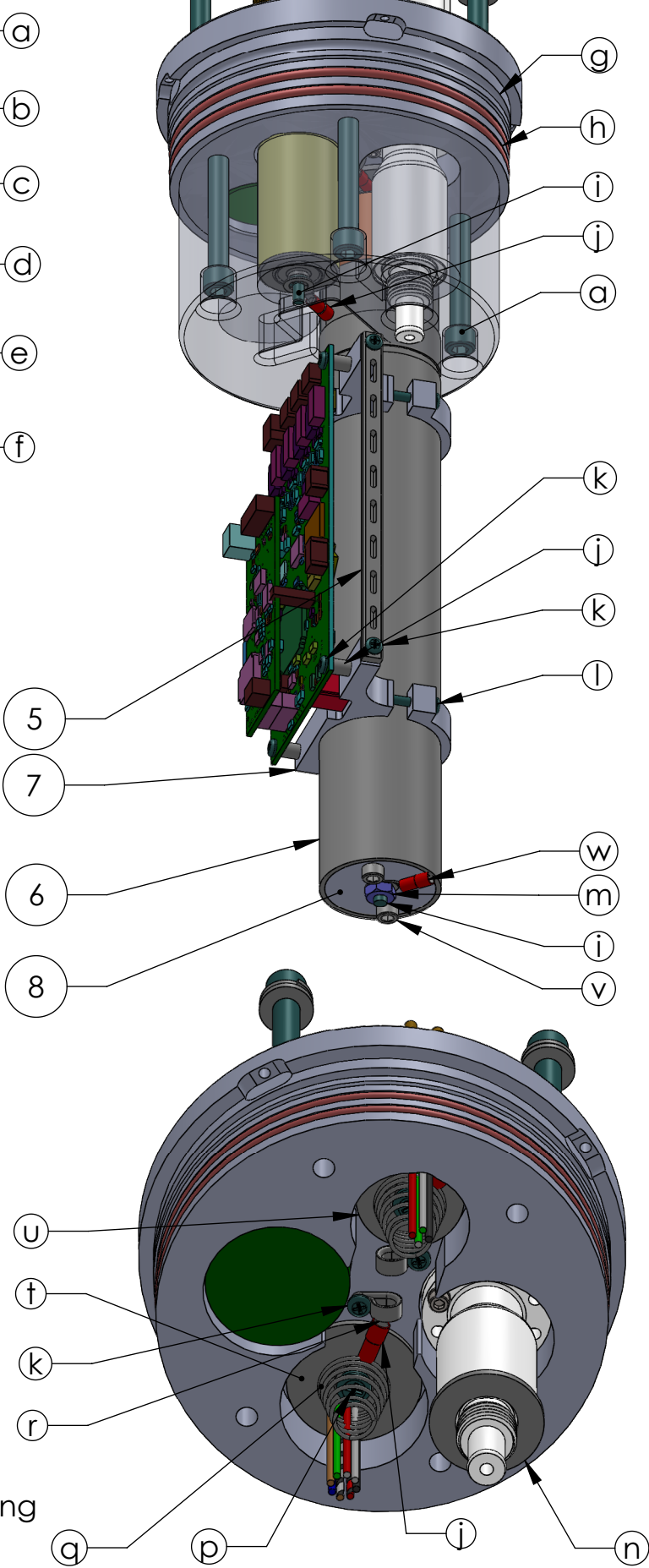
C

B

A



- RevA:
- 1) Loosened endcaps from .002 to .005"
 - 2) Increased battery housing thread
 - 3) Added grip screws to battery endcap
 - 4) Added washers to hold down MCBH wires
 - 5) Added 3 new prts (t, u & v)
 - 6) Updated 4 parts (1, 4, 6 & 8)
- RevB:
- 7) Added 4th battery; longer battery tube & housing
 - 8) Added jack screws & slots

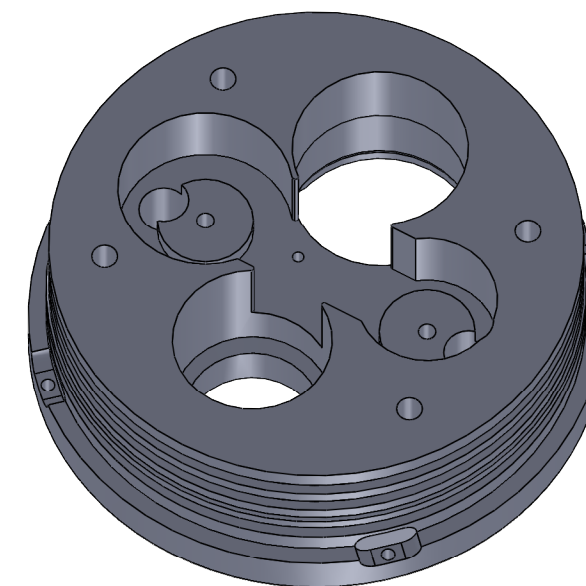
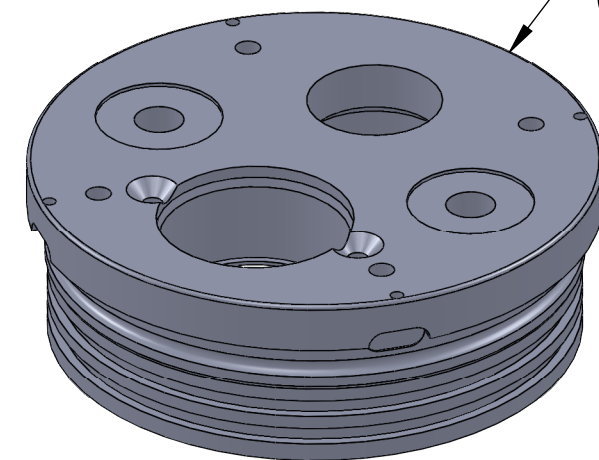
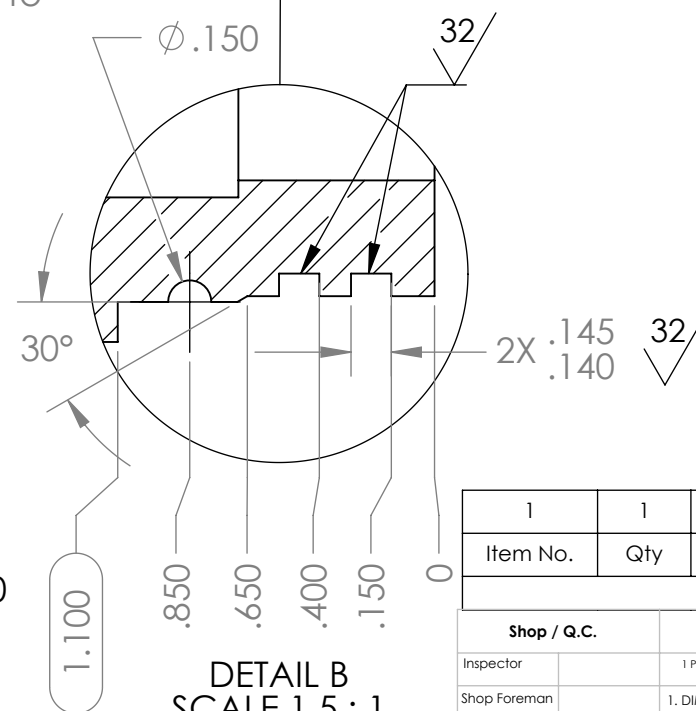
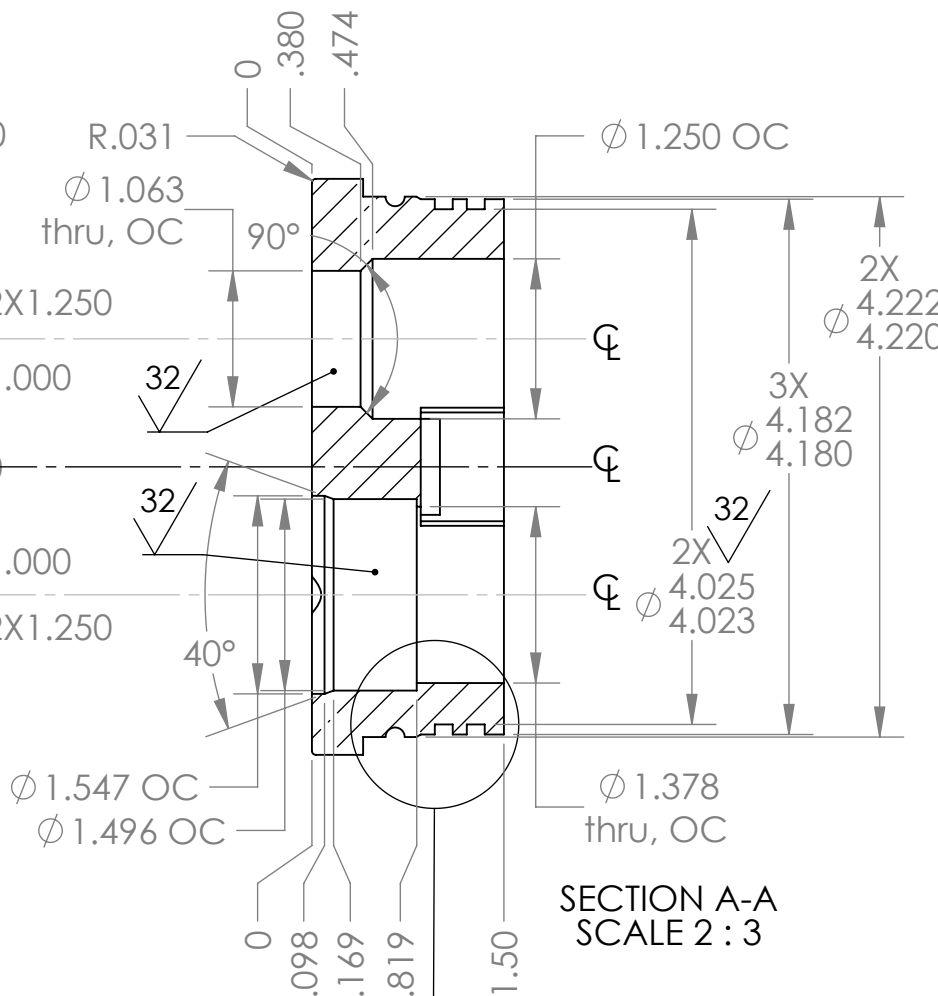
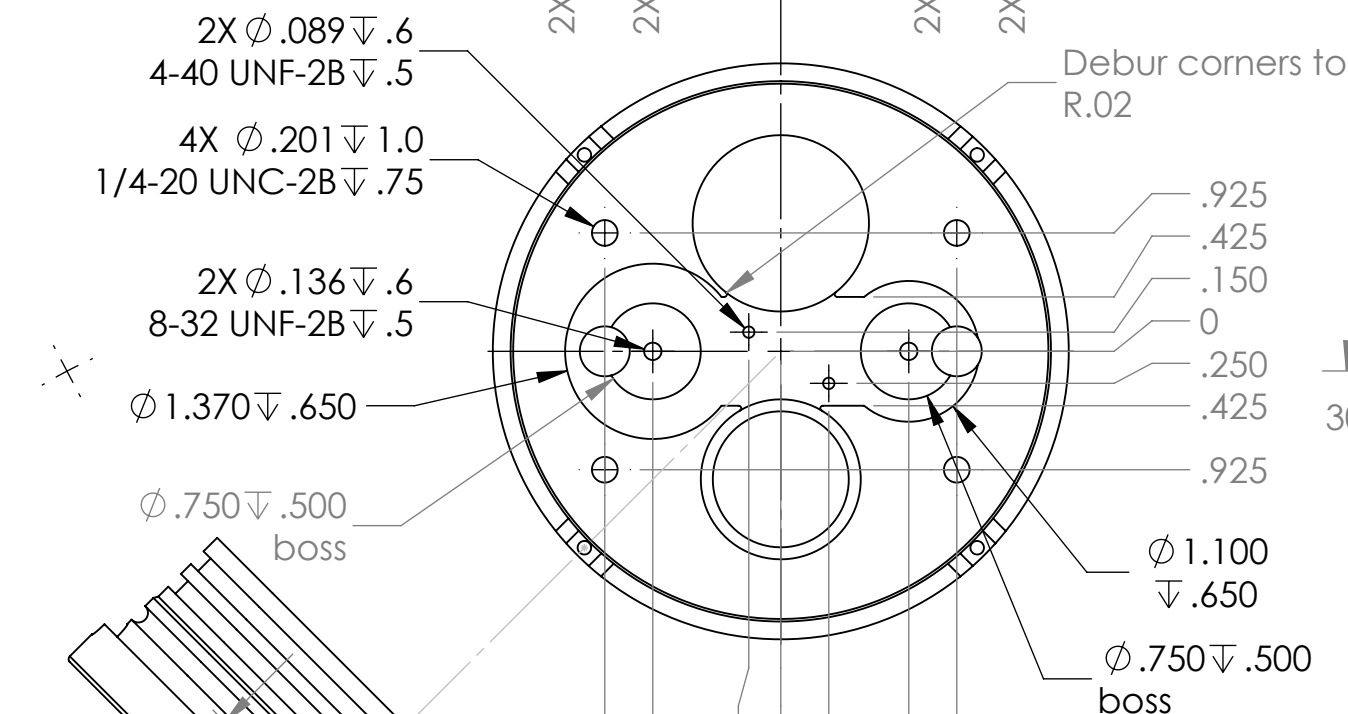
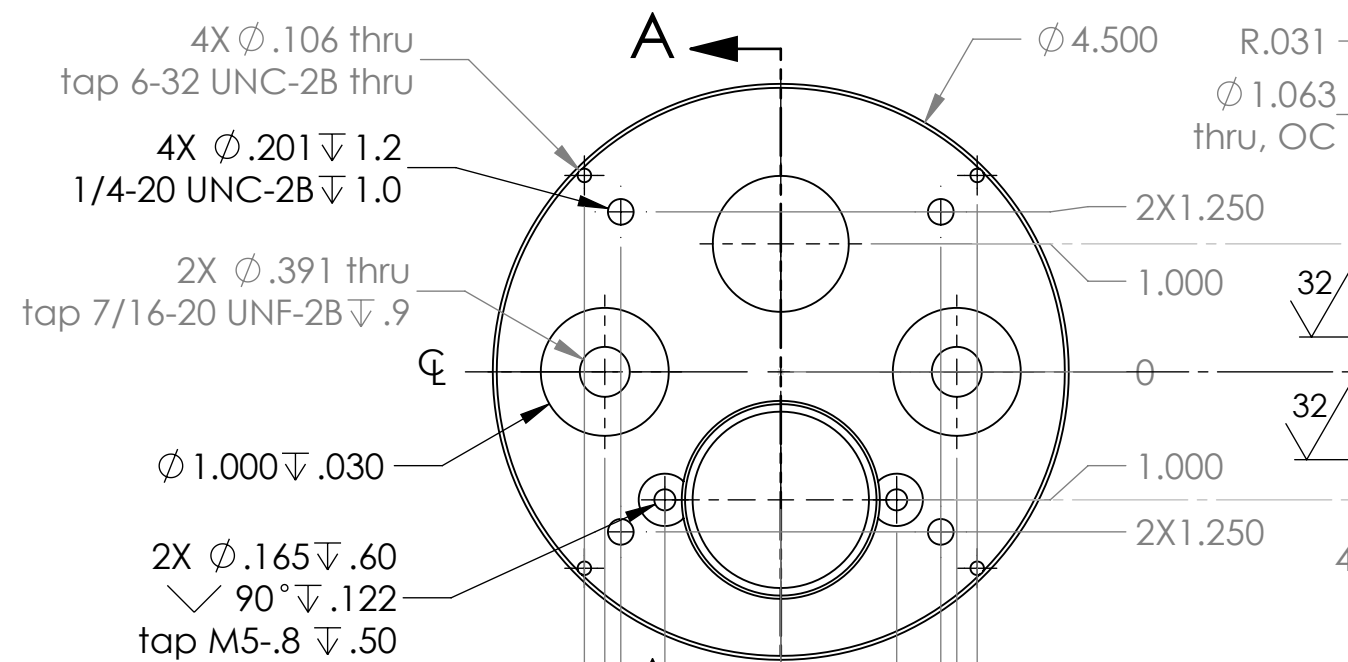


w	1		Ring Terminal	e.g., McMaster 69665K74	D
v	2		Battery cap grip screws	McMaster 97334A190	
u	1		Hold-down Washer #2	McMaster 95611A225	
t	1		Hold-down Washer #1	McMaster 95611A233	
s	1		Vent screw	McMaster 90825A185	
r	2		Nylon loop clamp	McMaster 8876T56	
q	2		Battery Springs	McMaster 2415N14	
p	2		Battery Spring screws	8-32 *0.5 Panhead	
n	1		GDF Spacer	1/16" Washer: McMaster 92150A166	
m	1		Main Battery nut	8-32 Nut	
l	2		Logger bracket screws	4-40*1.0 Panhead	
k	8		Logger screws	4-40*0.5 Panhead	C
j	4		spacer (#4 x .25")	e.g., McMaster 94639A706	
i	1		Battery + screw	8-32*0.25 Panhead	
h	4		O-rings	Viton -155: McMaster 9464K518	
g	1		Lock Cord	1/8" PolyPro: McMaster 7889A44	
f	1		Pump connector	MCBH4M	
e	1		DuraFET pH Sensor	Either: DSD or GDF	
d	1		Oxygen Optode	Aanderaa 5730	
c	2		Optode screws	5-.8*12mm flathead, Mcmaster 93395A304	
b	1		CTD/COM connector	MCBH8M	
a	8		Mounting screws	1/4-20 x 2.25" Socket head, McMaster 92185A553	
Item No.	Qty	Part No.	Description	Material Specification	
Bill of Materials: Ordered Parts					B

8	1		Batery Retainer	1/4" PVC or Delrin plate	
7	2		Logger Mount	3/8" PVC or Delrin plate	
6	1		Battery Tube	Stainess Tube; McMaster 1750T211	
5	1		Rail	Aluminum: McMaster 4490T173	
4	1		Endcap, Bottom	1.5" PVC plate	
3	1		Housing Pipe	4" PVC Sched 40 pipe	
2	1		Housing Support	4" PVC Rod OR 2-1/8" PVC plate	
1	1		Endcap, Top	1.5" PVC plate	
Item No.	Qty	Part No.	Description	Material Specification	
Bill of Materials: Machined Pats					A

Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		APPROVALS		DATE		jDesign Hans Jannasch 532 Herrmann Drive Monterey, CA 93940 jannasch@mac.com; 831-521-8425 mpHOx Housing		REV. B
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	Designer	Hans Jannasch	9/31/2021				
Shop Foreman		1. DIMENSIONS ARE IN INCHES	3 PLACE DIM ±.005	Checked						
Engineer		2. DIMENSION LIMITS HELD AFTER PLATING. 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.	ANGLES ±1°	PROJECT						
NEXT ASSY Description	NEXT ASSY Number			WEIGHT				SIZE B	DWG. NO. 200jD-mpHoxHousing	
Application		DO NOT SCALE DRAWING						SCALE 1:3	CAD FILE:	SHEET 1 OF 7

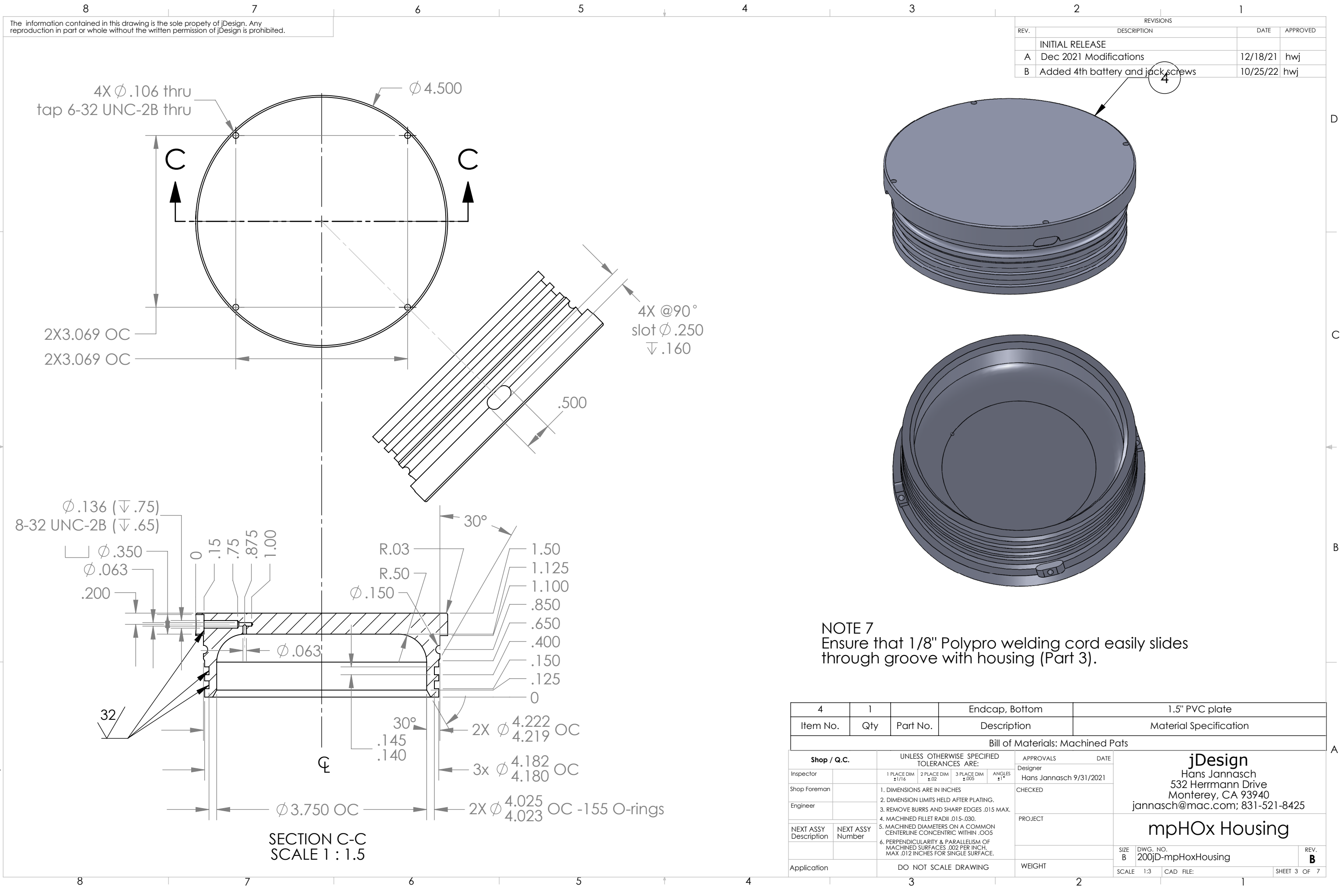
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
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A	Dec 2021 Modifications	12/18/21	hwj
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NOTE 7
Ensure that 1/8" Polypro welding cord easily slides through groove with housing (Part 3).

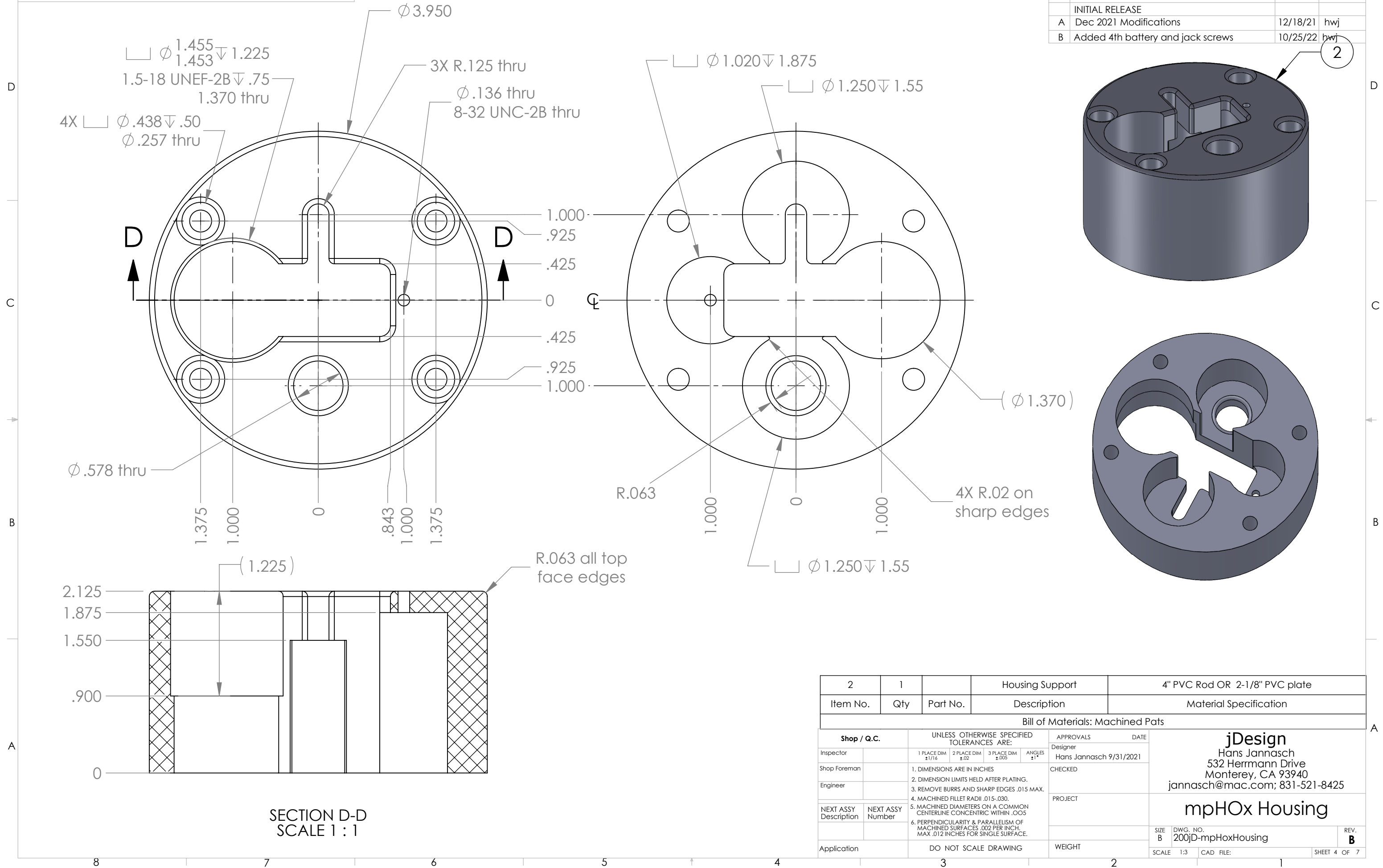
NOTE 8
Ensure that Part 6 screws into Part 2 until firmly seated.

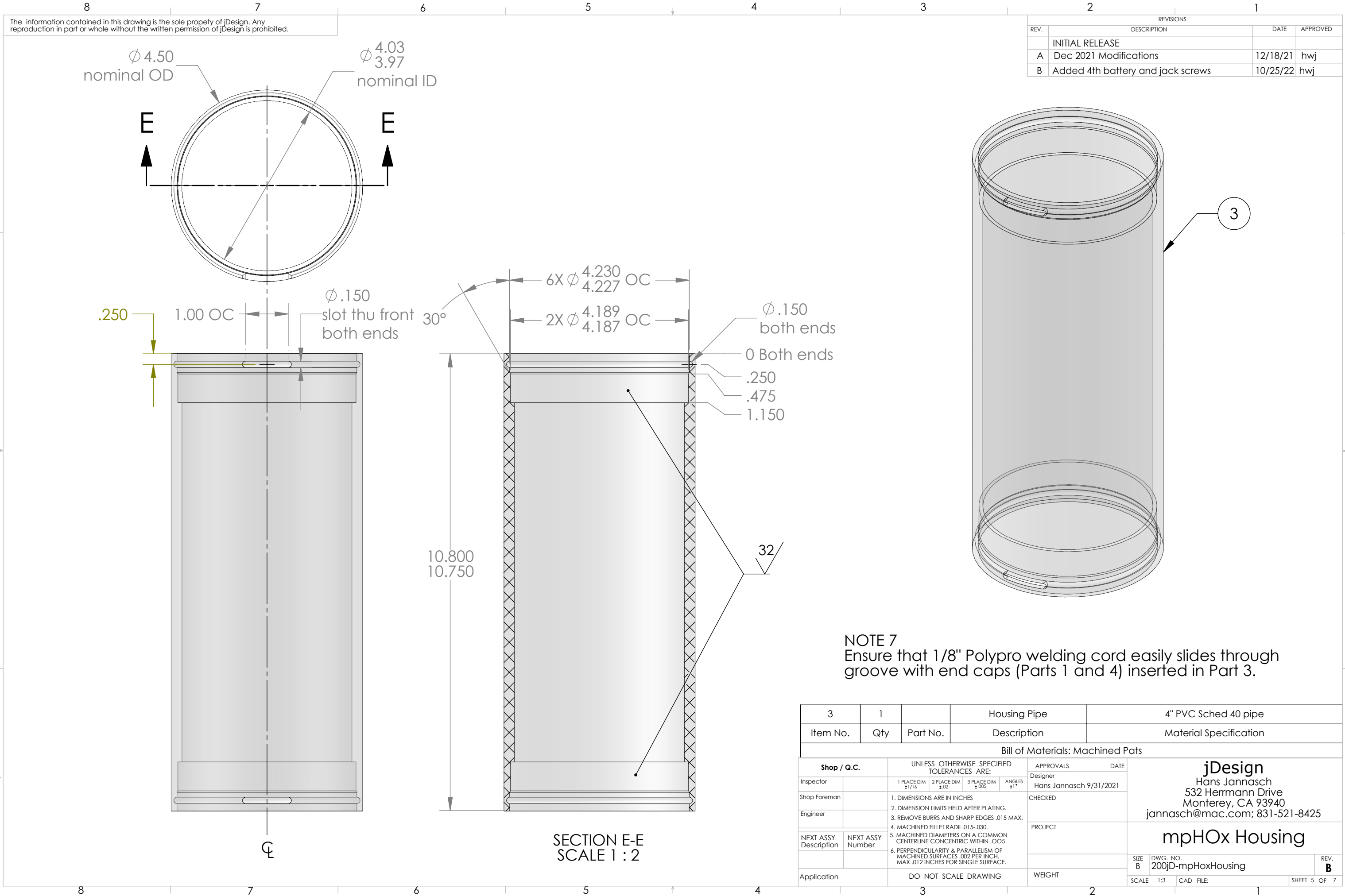
1	1		Endcap, Top	1.5" PVC plate
Item No.	Qty	Part No.	Description	Material Specification
Bill of Materials: Machined Pats				
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		APPROVALS DATE
Inspector		1 PLACE DIM ±.1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005
Shop Foreman		1. DIMENSIONS ARE IN INCHES		DESIGNER Hans Jannasch 9/31/2021
Engineer		2. DIMENSION LIMITS HELD AFTER PLATING.		CHECKED
		3. REMOVE BURRS AND SHARP EDGES .015 MAX.		
		4. MACHINED FILLET RADII .015-.030.		
NEXT ASSY Description	NEXT ASSY Number	5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005		PROJECT
		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. 200jD-mpHoxHousing
				SCALE 1:3 CAD FILE: SHEET 2 OF
				REV. B



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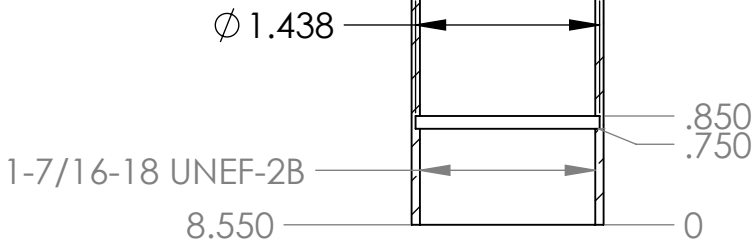
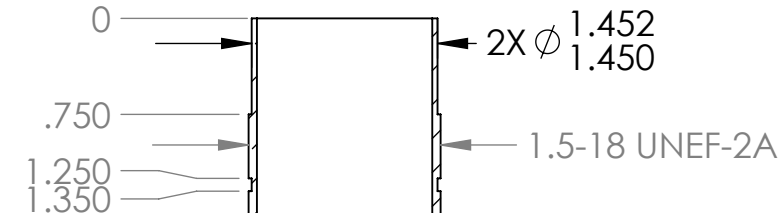
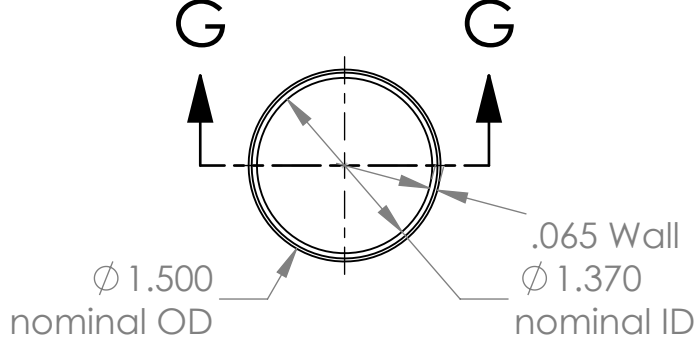
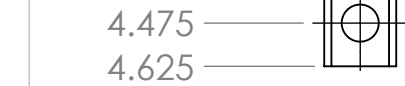
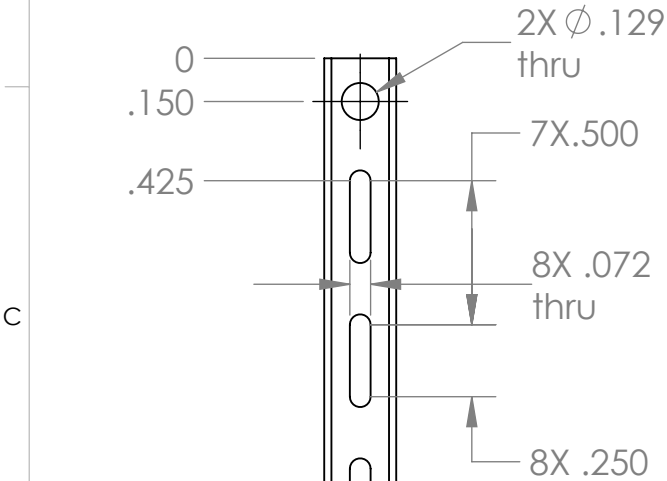
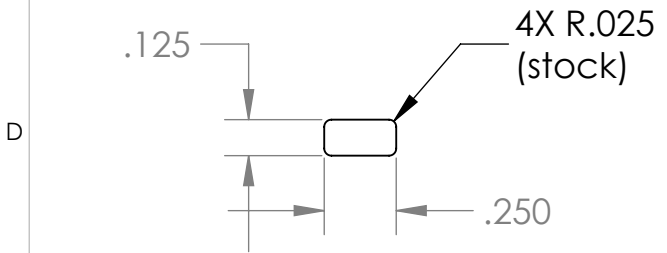
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
INITIAL RELEASE			
A	Dec 2021 Modifications	12/18/21	hwj
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NOTE 7
Ensure that 1/8" Polypro welding cord easily slides through groove with end caps (Parts 1 and 4) inserted in Part 3.

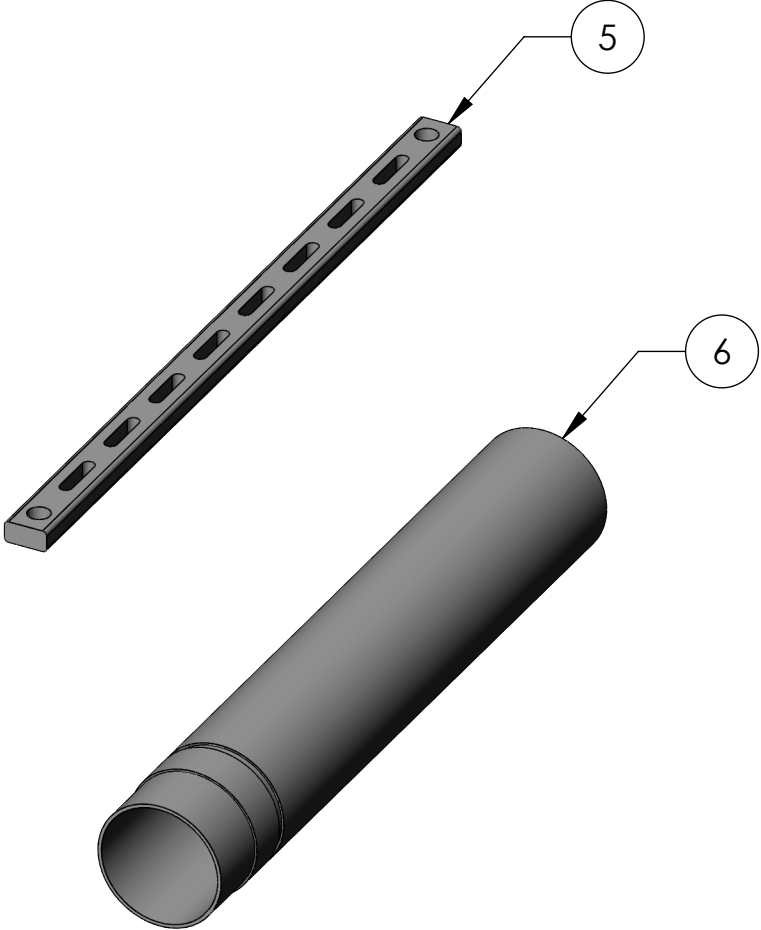
3	1		Housing Pipe	4" PVC Sched 40 pipe
Item No.	Qty	Part No.	Description	Material Specification
Bill of Materials: Machined Pats				
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		APPROVALS Designer Hans Jannasch 9/31/2021
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005
Shop Foreman		1. DIMENSIONS ARE IN INCHES		
Engineer		2. DIMENSION LIMITS HELD AFTER PLATING.		
		3. REMOVE BURRS AND SHARP EDGES .015 MAX.		
		4. MACHINED FILLET RADII .015-.030.		
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.		
Application		DO NOT SCALE DRAWING		
		WEIGHT		SIZE B
				DWG. NO. 200jD-mpHoxHousing
				REV. B
		SCALE 1:3		SHEET 5 OF 7

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SECTION G-G
SCALE 1 : 1.5



NOTE 7
Ensure that Part 6 screws into Part 2 until firmly seated.

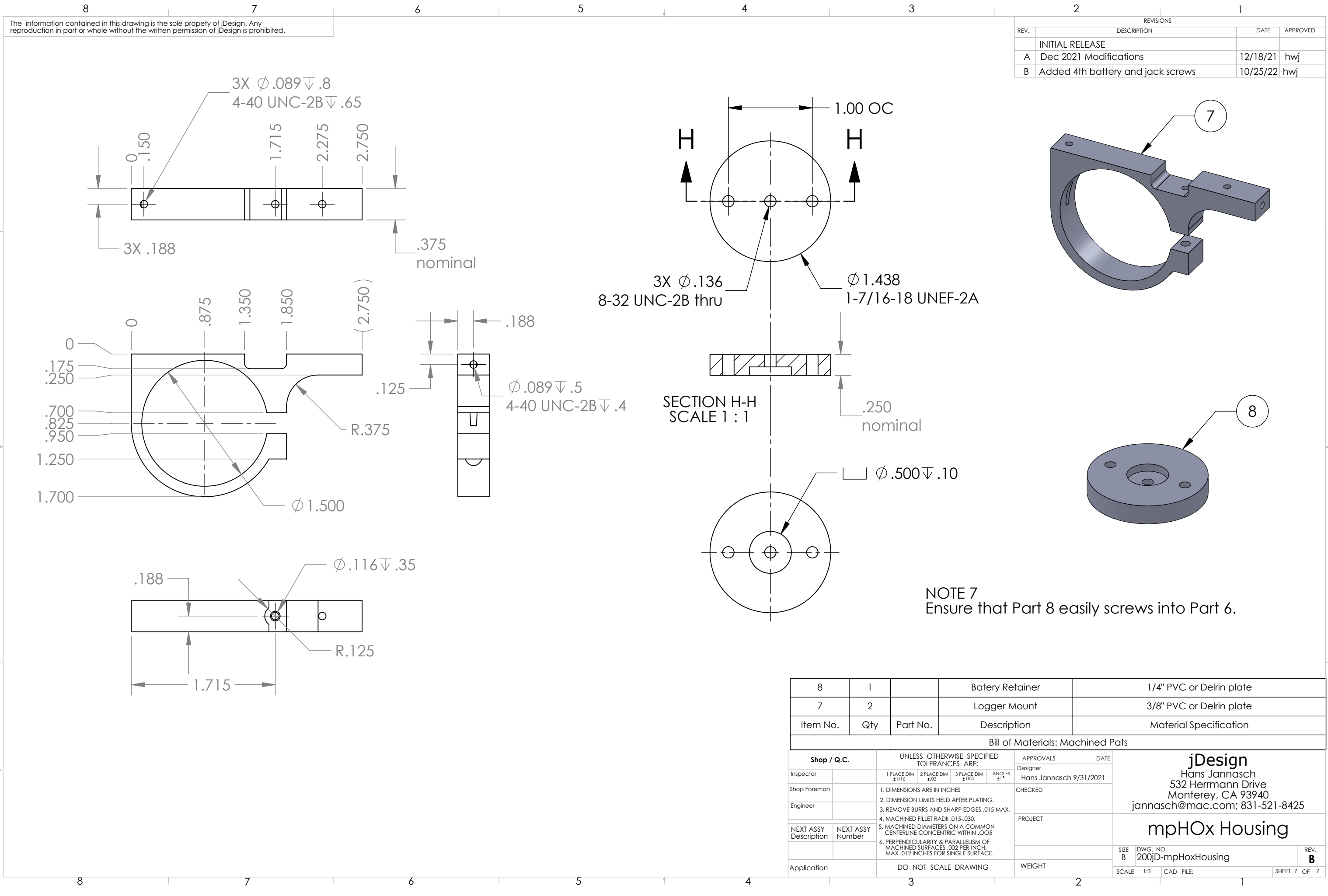
NOTE 8
Ensure that Part 8 easily screws into Part 6.

6	1		Battery Tube	Stainless Tube; McMaster 1750T211
5	1		Rail	Aluminum; McMaster 4490T173
Item No.	Qty	Part No.	Description	Material Specification

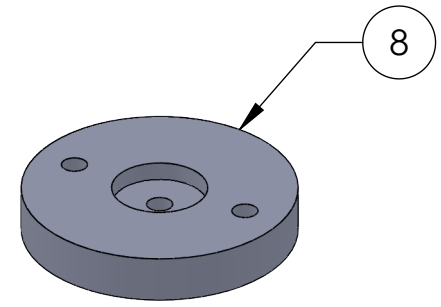
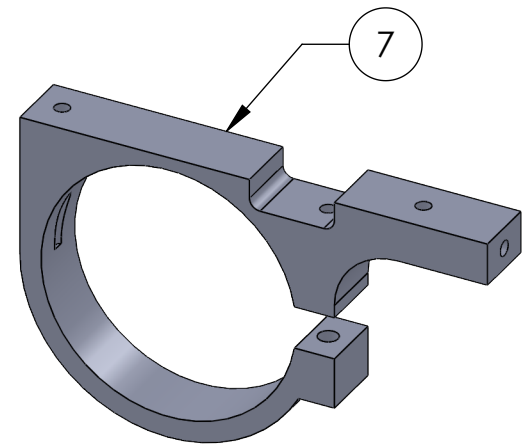
Bill of Materials: Machined Pats			
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:	
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02
Shop Foreman		3 PLACE DIM ±.005	ANGLES ±1°
Engineer		1. DIMENSIONS ARE IN INCHES	
		2. DIMENSION LIMITS HELD AFTER PLATING.	
		3. REMOVE BURRS AND SHARP EDGES .015 MAX.	
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NEXT ASSY Description	NEXT ASSY Number	5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005	
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Application		DO NOT SCALE DRAWING	
		APPROVALS	DATE
		Designer	Hans Jannasch 9/31/2021
		CHECKED	
		PROJECT	
		WEIGHT	
		SIZE B	DWG. NO. 200jD-mpHoxHousing
		SCALE 1:3	CAD FILE: SHEET 6 OF 7
		REV. B	

jDesign
Hans Jannasch
532 Herrmann Drive
Monterey, CA 93940
jannasch@mac.com; 831-521-8425

mpHOx Housing



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NOTE 7
Ensure that Part 8 easily screws into Part 6.

8	1		Batery Retainer	1/4" PVC or Delrin plate				
7	2		Logger Mount	3/8" PVC or Delrin plate				
Item No.	Qty	Part No.	Description	Material Specification				
Bill of Materials: Machined Pats								
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°	jDesign Hans Jannasch 532 Herrmann Drive Monterey, CA 93940 jannasch@mac.com; 831-521-8425		
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 .015-.030.					CHECKED	
Engineer		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	
NEXT ASSY Description	NEXT ASSY Number							
Application		DO NOT SCALE DRAWING		WEIGHT		SIZE B	DWG. NO. 200jD-mpHoxHousing	REV. B
						SCALE 1:3	CAD FILE:	SHEET 7 OF 7