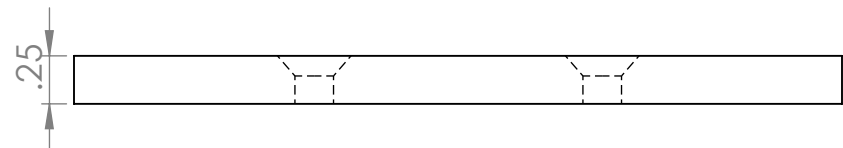
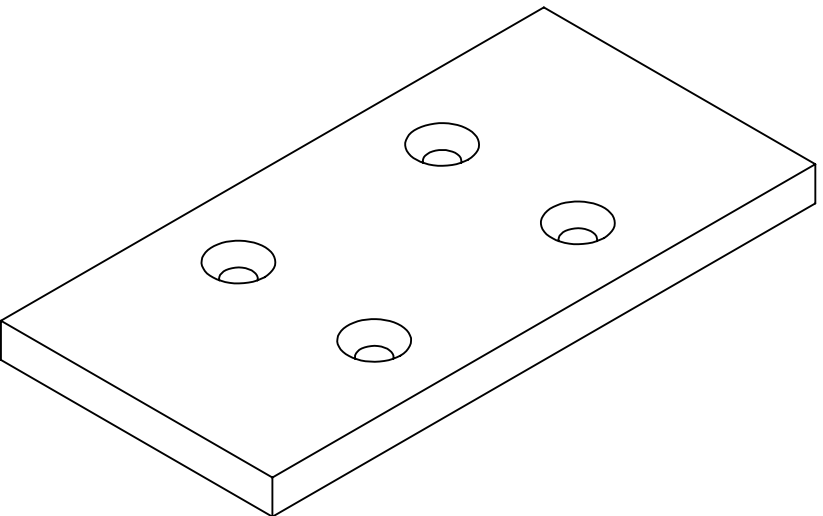


# Prototype Package

1

B



A

BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.

UNLESS OTHERWISE SPECIFIED:		NAME		DATE		TEAM 5  TITLE: BASEPLATE					
DIMENSIONS ARE IN INCHES		DRAWN		M.S. KEYES						04 AUG 2025	
DEFAULT TOLERANCES:		CHECKED		J. PATTEN						06 AUG 2025	
x.x = ± .02 x.xx = ± .01 x.xxx = ± .005 ANGULAR: x.x = ± 1		COMMENTS:									
MATERIAL						DO NOT SCALE DRAWING					
ALUMINUM 6061 - T6											
FINISH						SIZE	PART NO.	REV			
EXTRUDED AND MACHINED						B	1	1			
						SCALE: 1:1		WEIGHT:	SHEET 1 OF 1		

4

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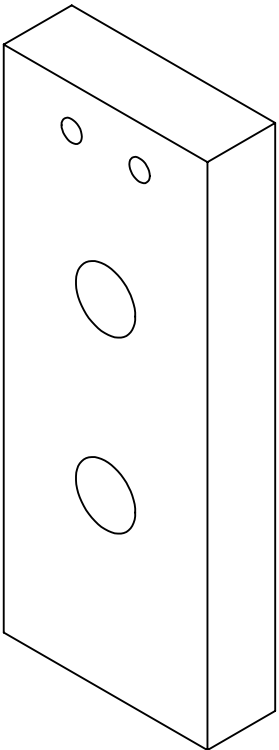
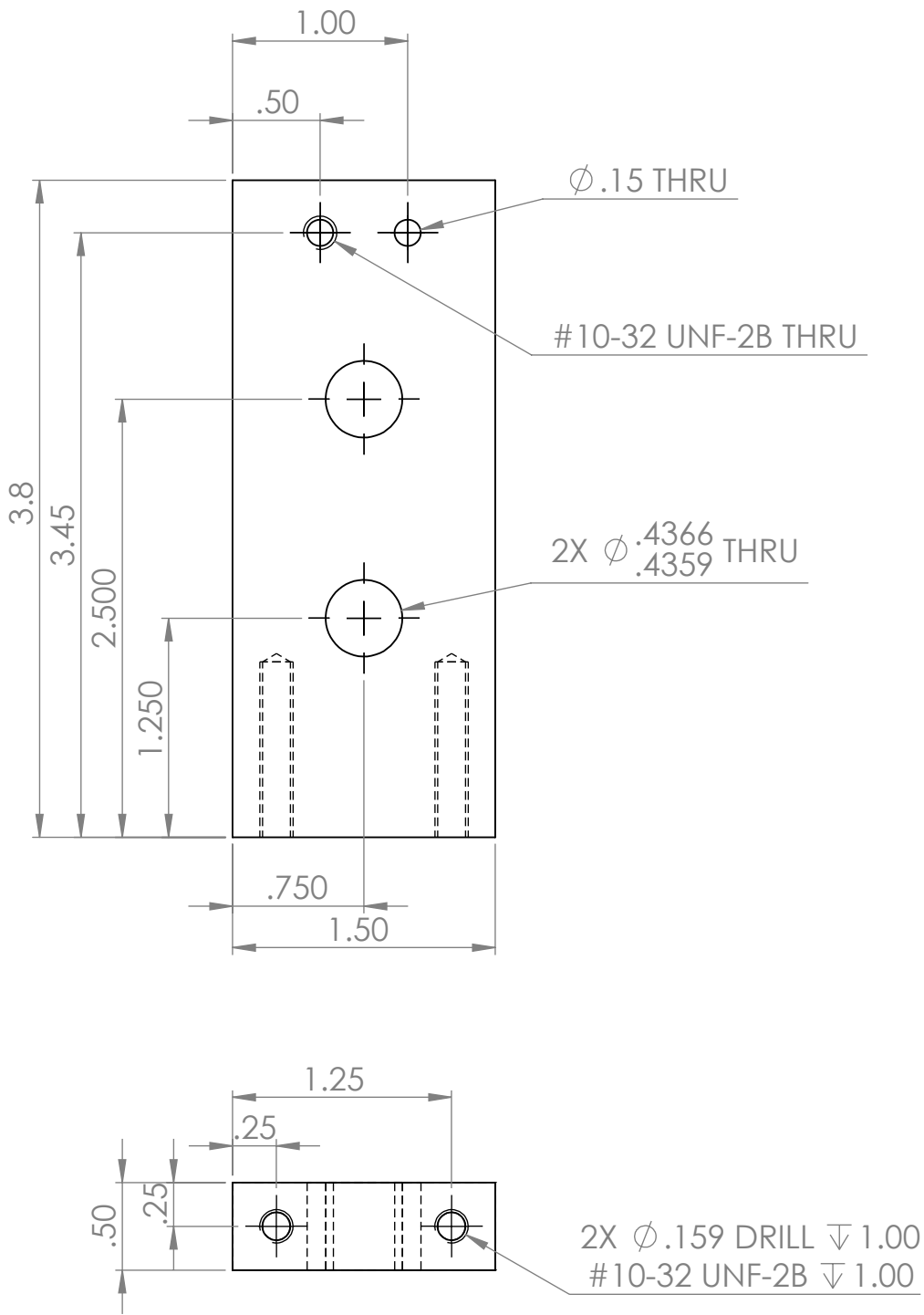
1

B

B

A

A



BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.

UNLESS OTHERWISE SPECIFIED:		NAME		DATE		TEAM 5					
DIMENSIONS ARE IN INCHES		DRAWN		J. PATTEN		25 JUN 2025		TITLE: MAIN UPRIGHT			
DEFAULT TOLERANCES:		CHECKED		B. W. COON		26 JUN 2025					
x.x = ± .02		COMMENTS:									
x.xx = ± .01											
x.xxx = ± .005											
ANGULAR: x.x = ± 1											
MATERIAL											
ALUMINUM 6061 - T6											
FINISH											
EXTRUDED AND MACHINED											
		DO NOT SCALE DRAWING									
		SIZE		PART NO.			REV				
		B		2			1				
		SCALE: 1:1		WEIGHT: 0.25		SHEET 1 OF 1					

4

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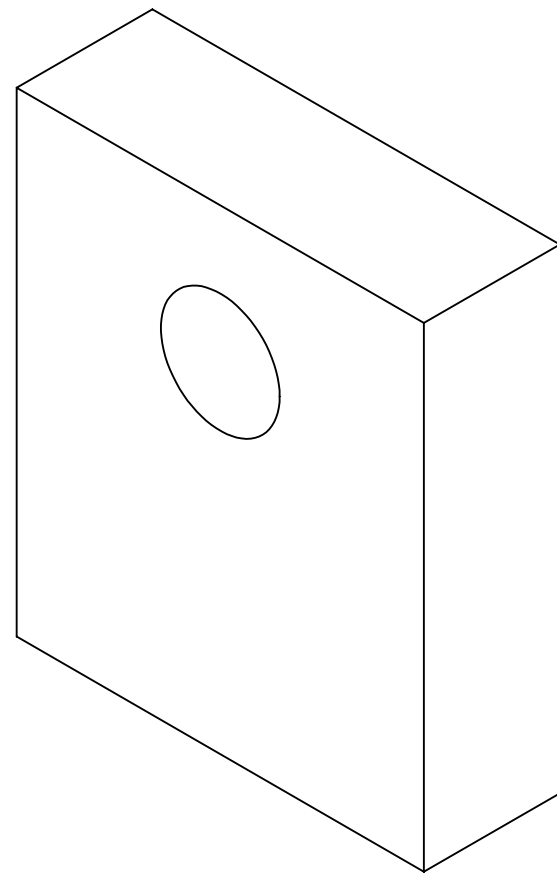
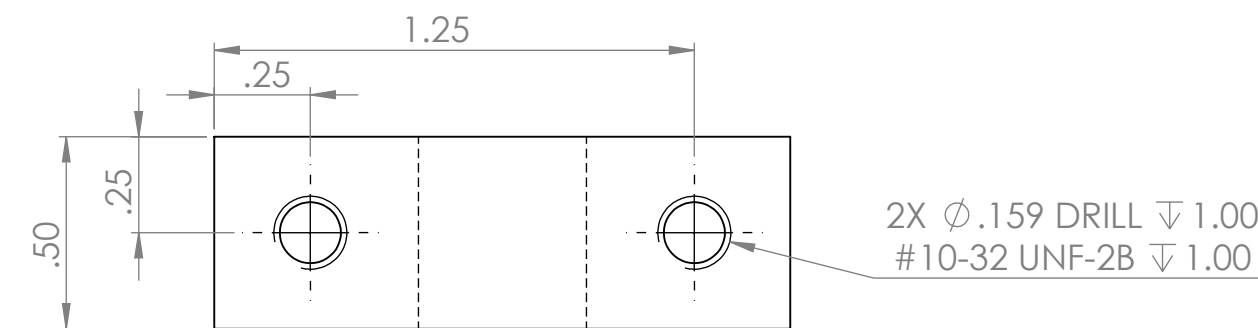
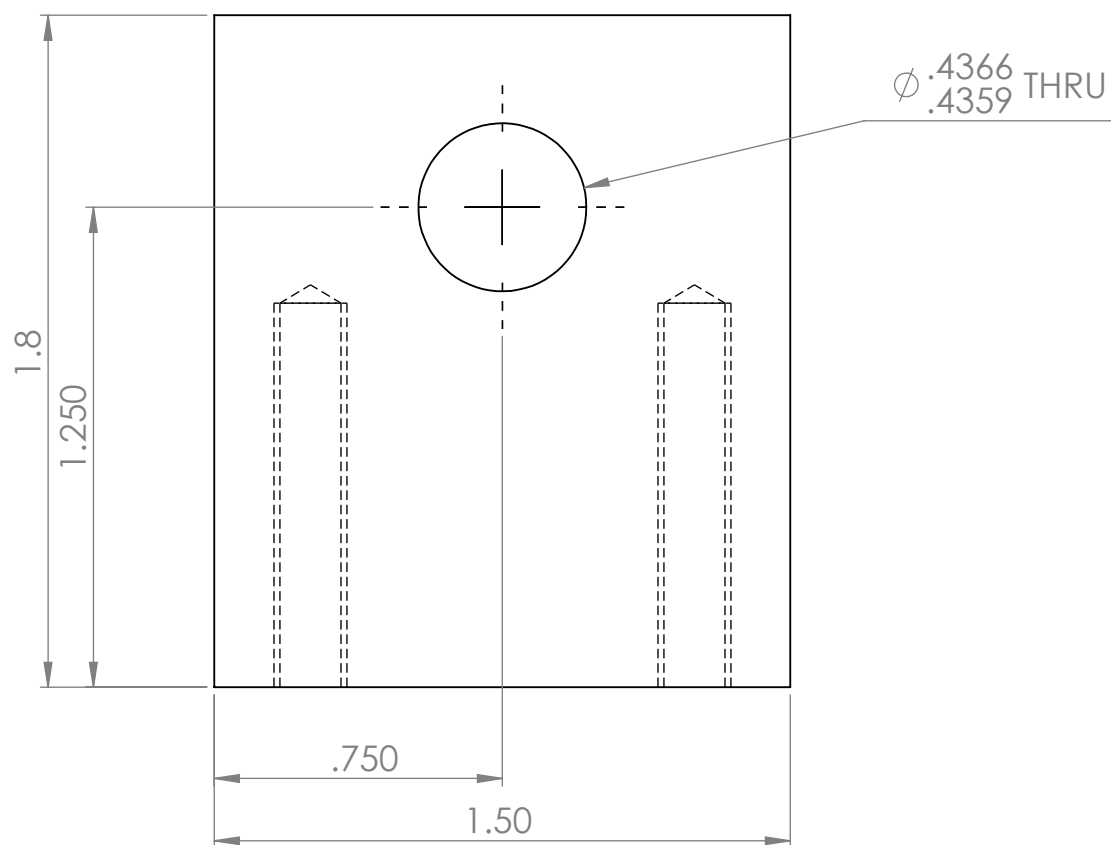
1

B

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B

A



BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES DEFAULT TOLERANCES: x.x = ± .02 x.xx = ± .01 x.xxx = ± .005 ANGULAR: x.x = ± 1		NAME	DATE	TEAM 5		
	DRAWN	J. PATTEN	06 AUG 2025	TITLE: SMALL UPRIGHT		
	CHECKED	M.S. KEYES	06 AUG 2025			
	COMMENTS:					
MATERIAL ALUMINUM 6061 - T6	DO NOT SCALE DRAWING			SIZE B	PART NO. 3	REV 1
FINISH EXTRUDED AND MACHINED				SCALE: 2:1	WEIGHT: 0.12	SHEET 1 OF 1

4

3

2

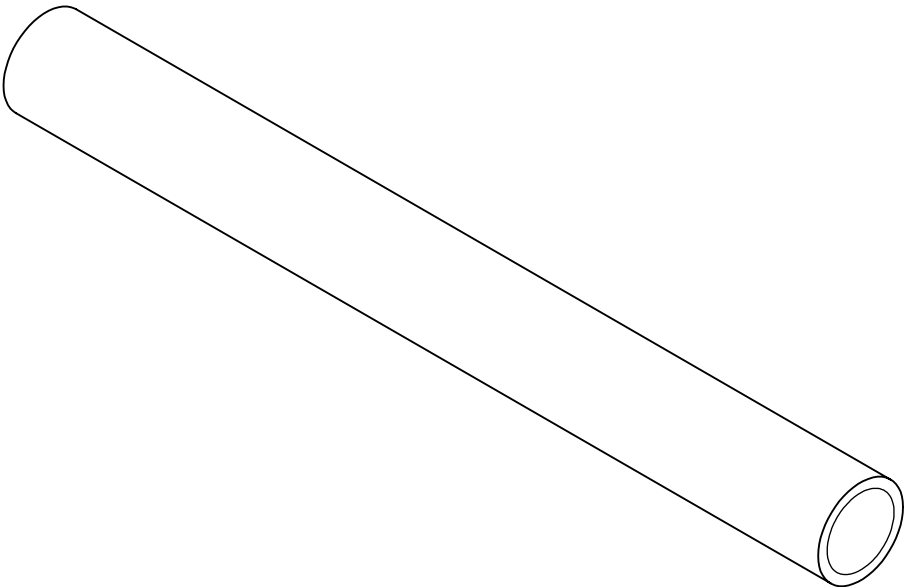
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B

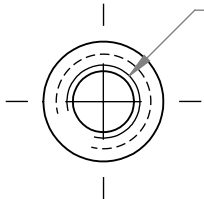
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A

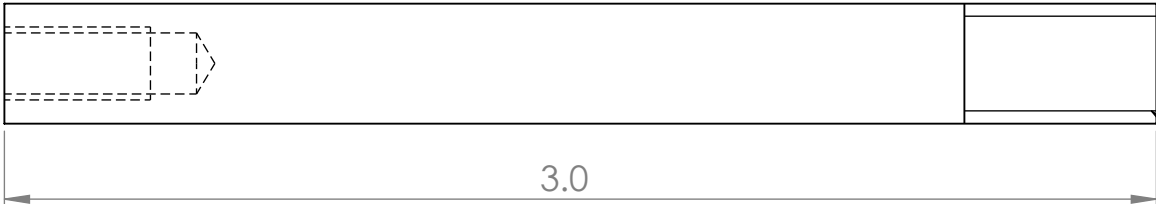
A



$\varnothing$ .159 DRILL  $\nabla$ .50  
# 10-32 UNF-2B  $\nabla$ .375



$\varnothing$ .3123  
 $\varnothing$ .3121



EXT 5/16 - 18 UNC-2A  $\nabla$ .75

3.0

BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.

UNLESS OTHERWISE SPECIFIED:		NAME		DATE		TEAM 5					
DIMENSIONS ARE IN INCHES		DRAWN		J. PATTEN		01 AUG 2025		TITLE:  CRANKSHAFT			
DEFAULT TOLERANCES:		CHECKED		M.S. KEYES		05 AUG 2025					
x.x = ± .02		COMMENTS:									
x.xx = ± .01											
x.xxx = ± .005											
ANGULAR: x.x = ± 1											
MATERIAL		DO NOT SCALE DRAWING									
AISI 1018 STEEL											
FINISH											
COLD ROLLED											
		SIZE		PART NO.		REV					
		B		4		11					
		SCALE: 2:1		WEIGHT: .07		SHEET 1 OF 1					

4

3

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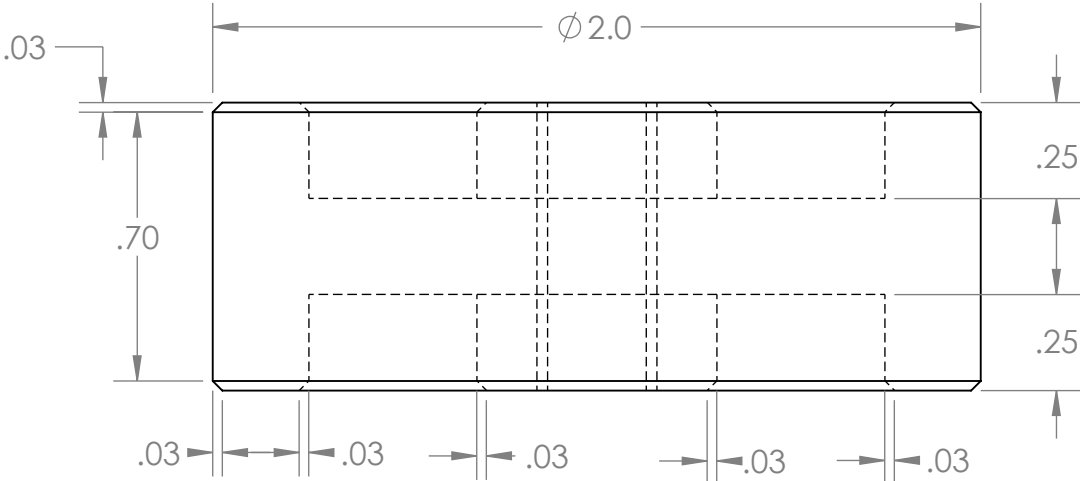
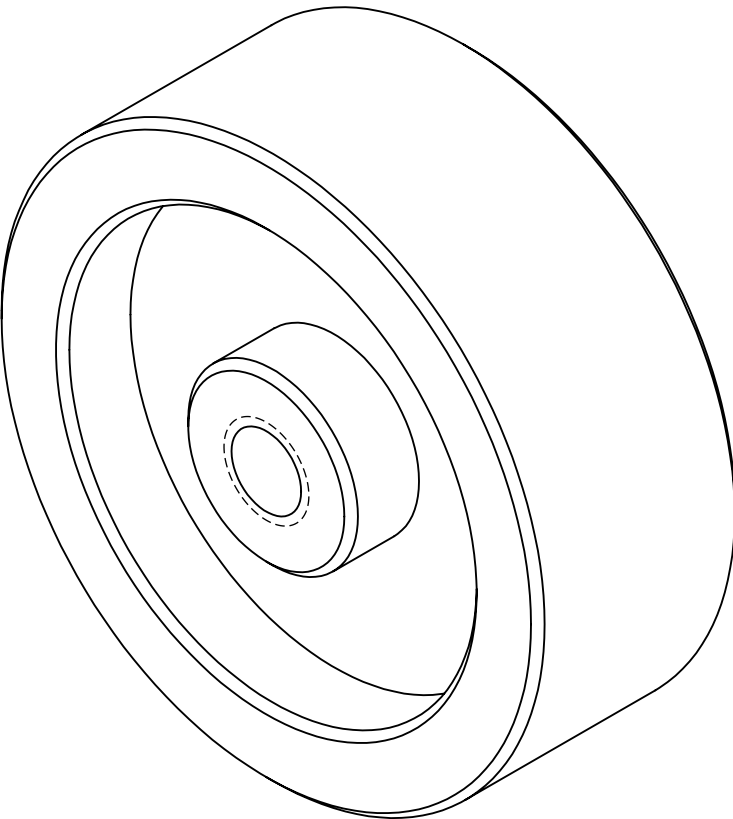
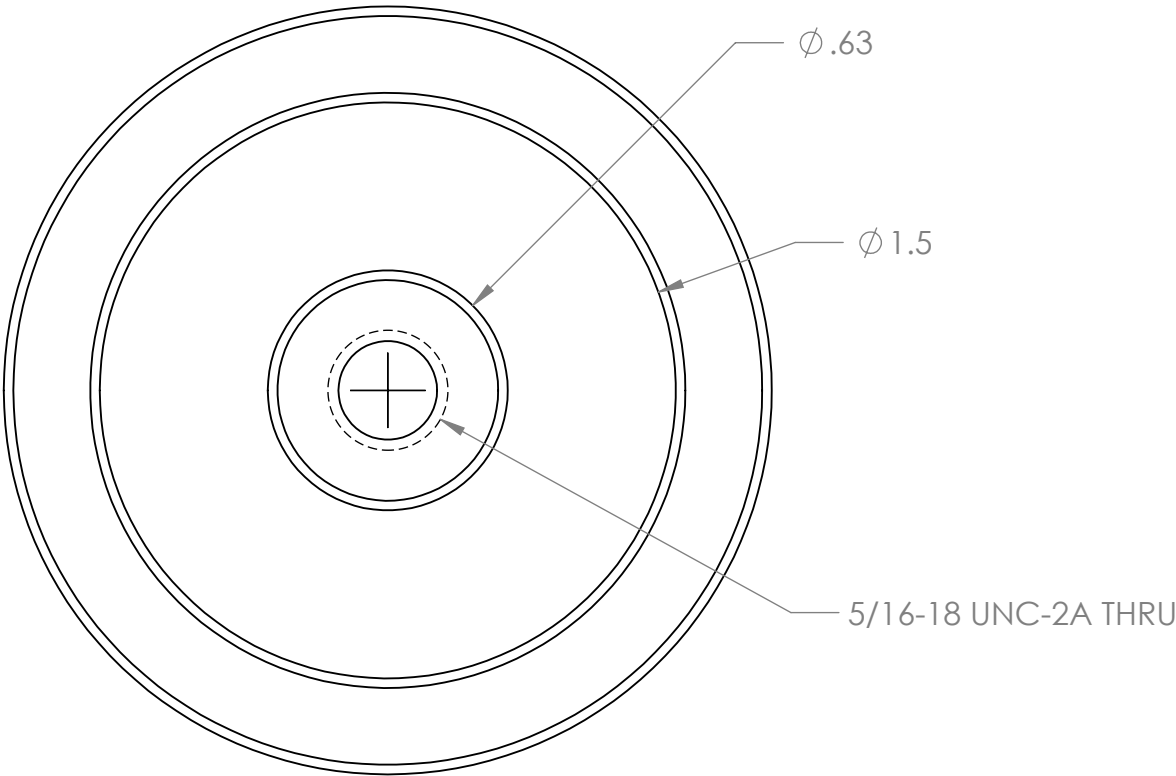
1

B

B

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A



BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.

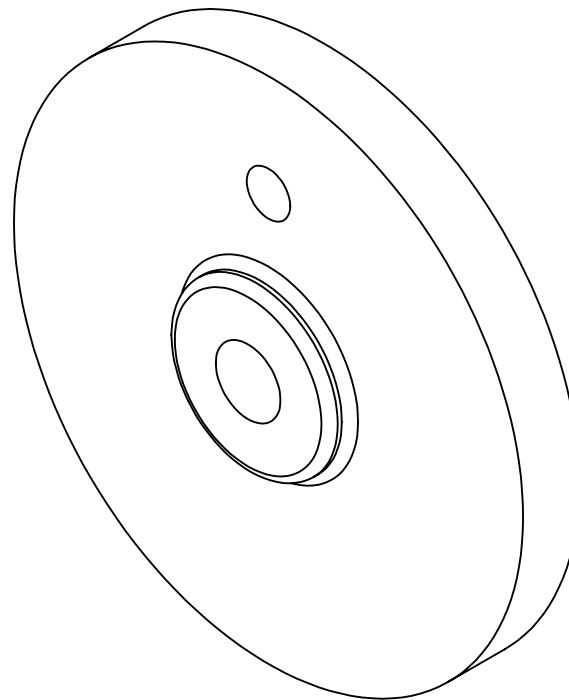
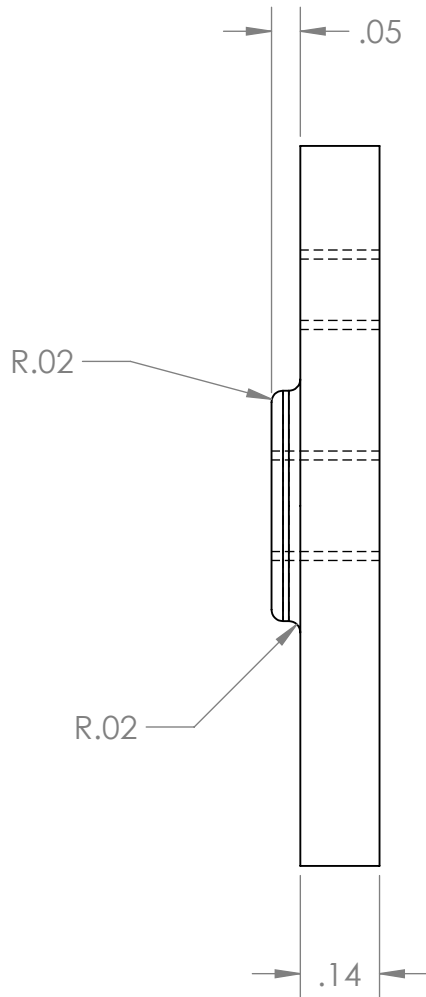
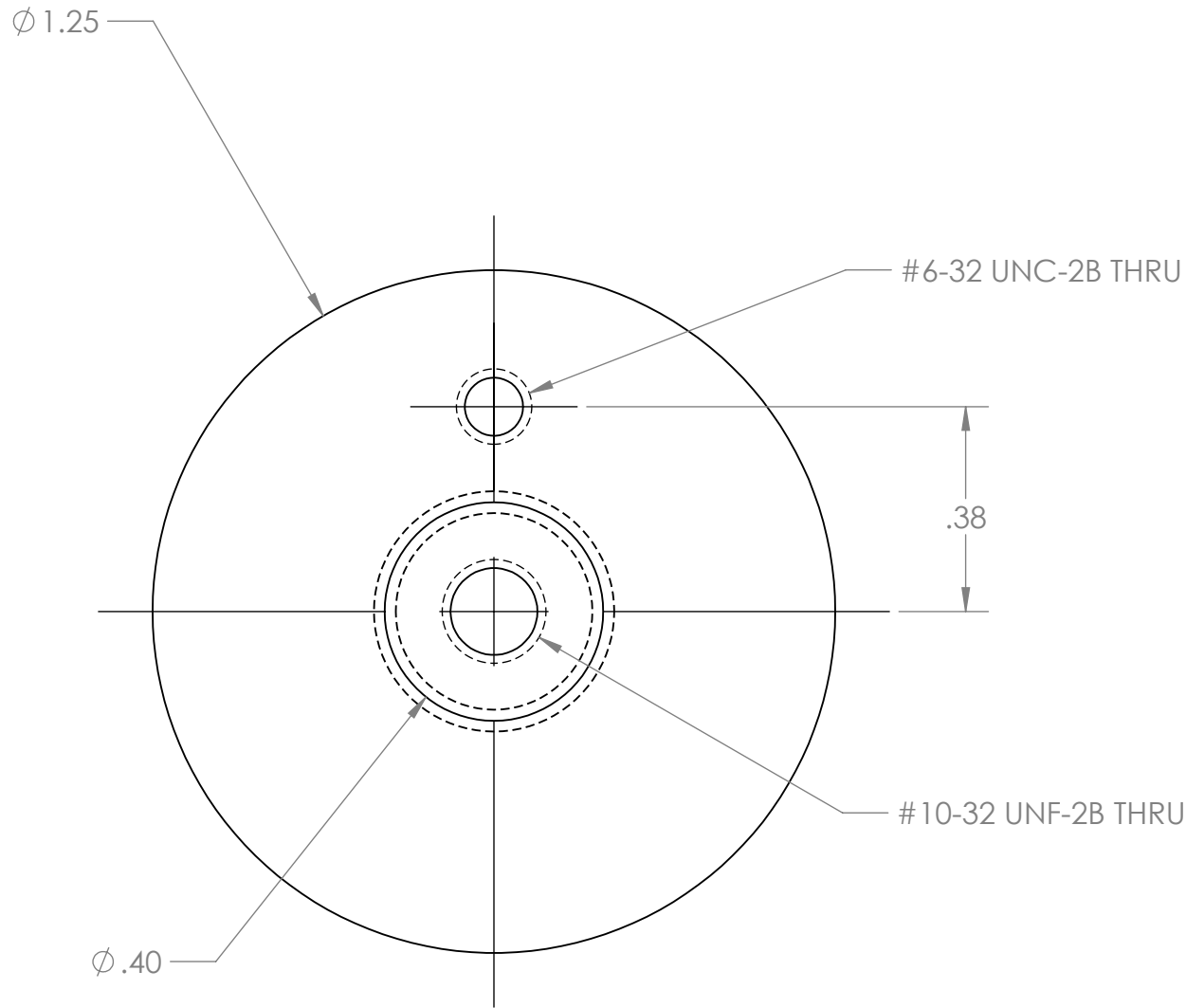
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES DEFAULT TOLERANCES: x.x = ± .02 x.xx = ± .01 x.xxx = ± .005 ANGULAR: x.x = ± .5		NAME	DATE	TEAM 5	
DRAWN		M. S. KEYES	4 AUG 2024	TITLE: FLYWHEEL	
CHECKED		J. PATTEN	7 AUG 2025		
COMMENTS:					
MATERIAL ALUMINUM 6061 ALLOY BRASS				SIZE B	PART NO. 5
FINISH SAND BLASTED				REV 2	
		DO NOT SCALE DRAWING		SCALE: 2:1	WEIGHT: .23
				SHEET 1 OF 1	

B

A

B

A



BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES DEFAULT TOLERANCES: x.x = ± 0.02 x.xx = ± 0.01 x.xxx = ± 0.005 ANGULAR: x.x ± 1		NAME		DATE		TEAM 5							
		DRAWN		J. WINTERS		06 AUG 2025		TITLE: CRANKWHEEL					
		CHECKED		M.S. KEYES		07 AUG 2025							
		COMMENTS:											
MATERIAL BRONZE UNS22000		DO NOT SCALE DRAWING						SIZE B		PART NO. 6		REV 1	
FINISH SINTERED								SCALE: 3:1		WEIGHT: .07		SHEET 1 OF 1	

4

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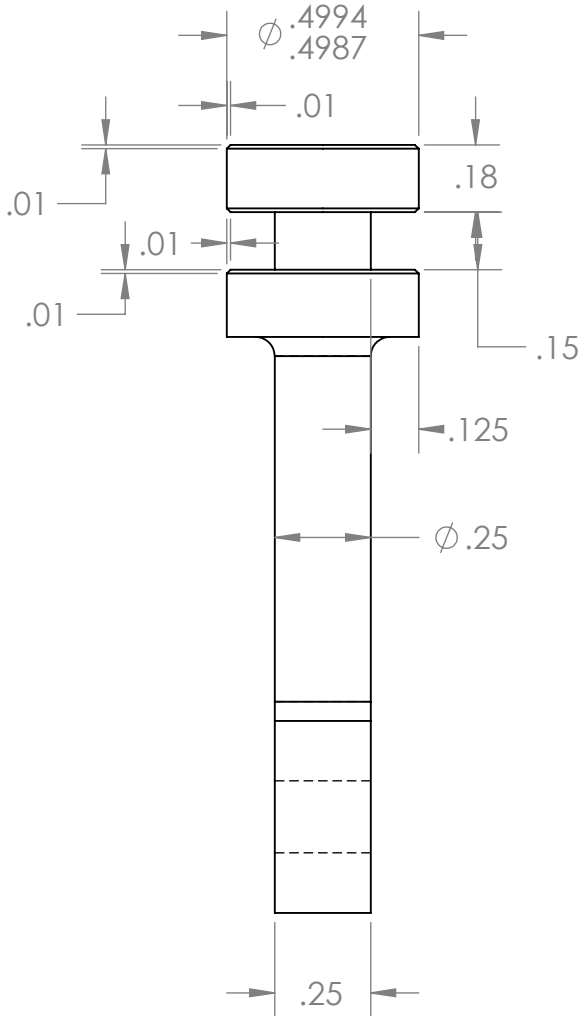
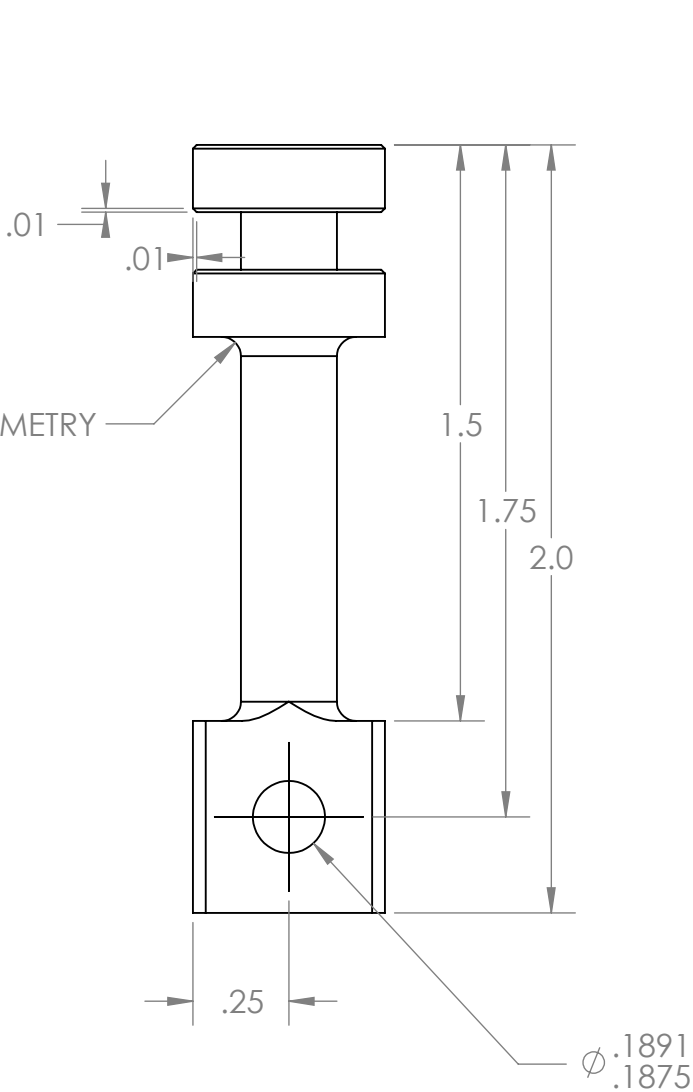
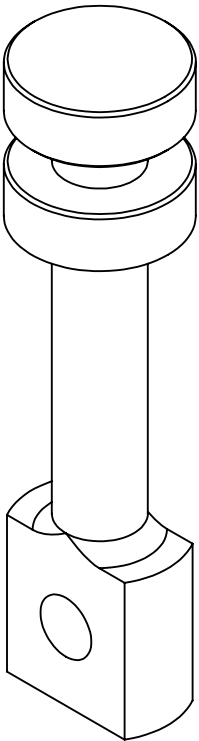
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B

B

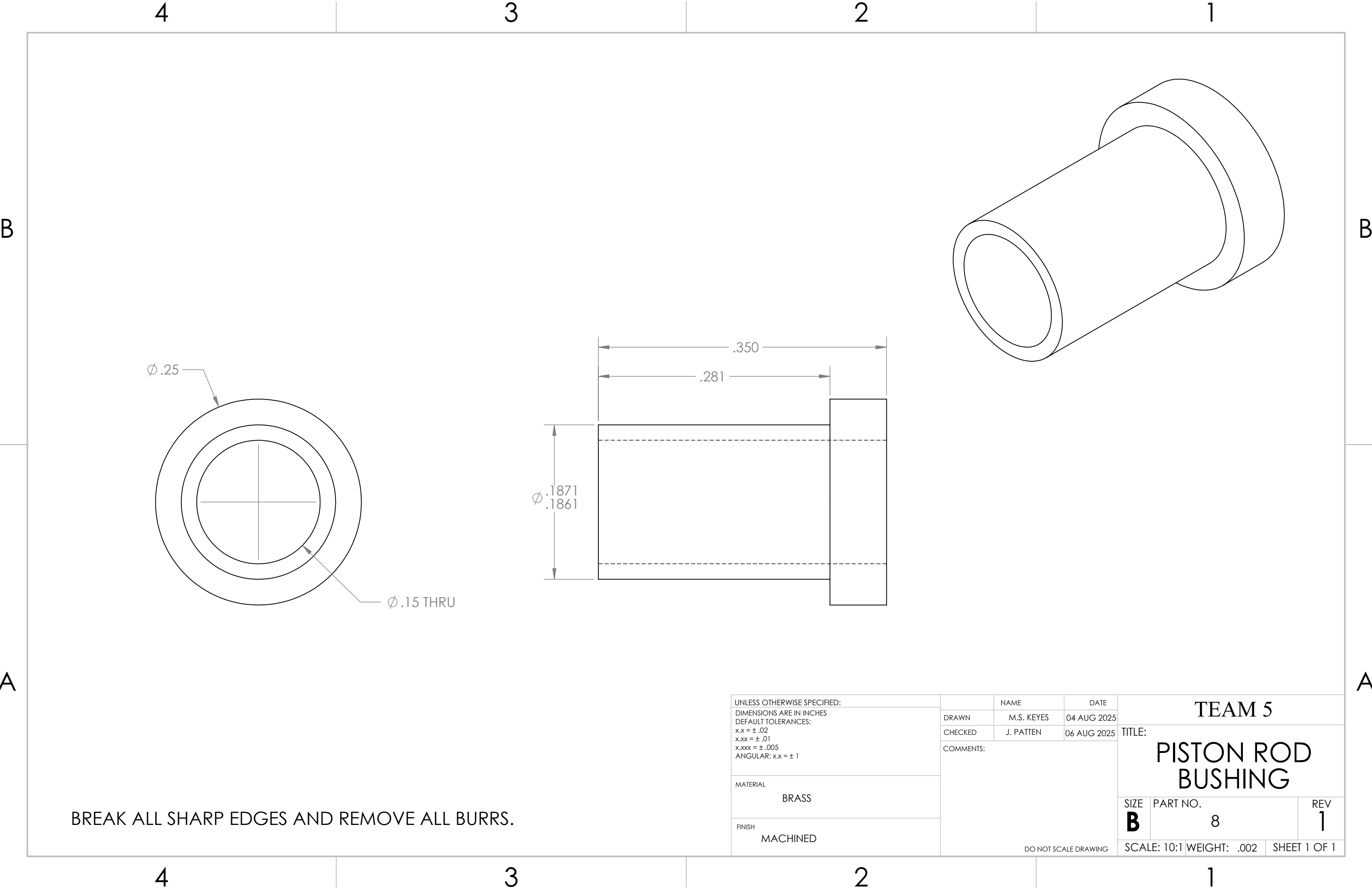
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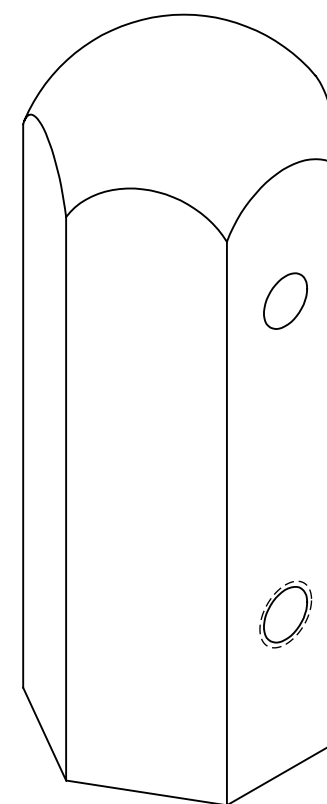
BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES DEFAULT TOLERANCES: x.x = $\pm .02$ x.xx = $\pm .01$ x.xxx = $\pm .005$ ANGULAR: x.x = $\pm .5$		NAME	DATE	TEAM 5	
DRAWN		M. S. KEYES	4 AUG 2024	TITLE: PISTON	
CHECKED		J. PATTEN	7 AUG 2025		
COMMENTS:					
MATERIAL AISI 1018 STEEL				SIZE B	PART NO. 7
FINISH COLD ROLLED / MACHINED				REV 1	
		DO NOT SCALE DRAWING		SCALE: 2:1	WEIGHT: .06
				SHEET 1 OF 1	



1

B



A



UNLESS OTHERWISE SPECIFIED:		NAME	DATE	TEAM 5			
DIMENSIONS ARE IN INCHES DEFAULT TOLERANCES: x.x = ± 0.02 x.xx = ± 0.01 x.xxx = ± 0.005 ANGULAR: x.x = ± 1		DRAWN	J. PATTEN				25 JUN 2025
		CHECKED	B.W. COON				26 JUN 2025
		COMMENTS:					
MATERIAL  BRASS		DO NOT SCALE DRAWING			TITLE:  CYLINDER		
FINISH  EXTRUDED / MACHINED							
					SIZE B	PART NO. 9	REV 1
					SCALE: 2:1	WEIGHT: 0.25	SHEET 1 OF 1

BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.

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4

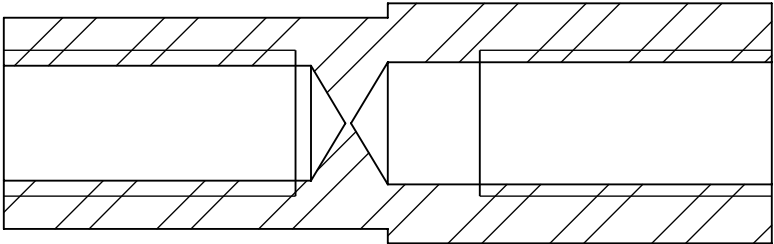
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2

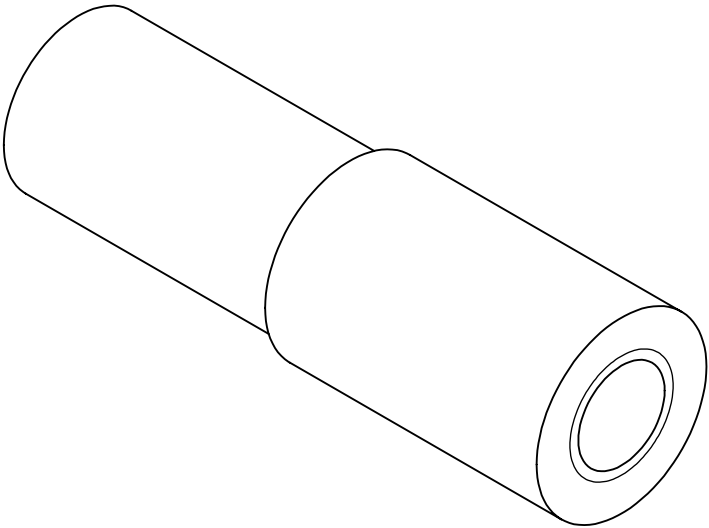
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B

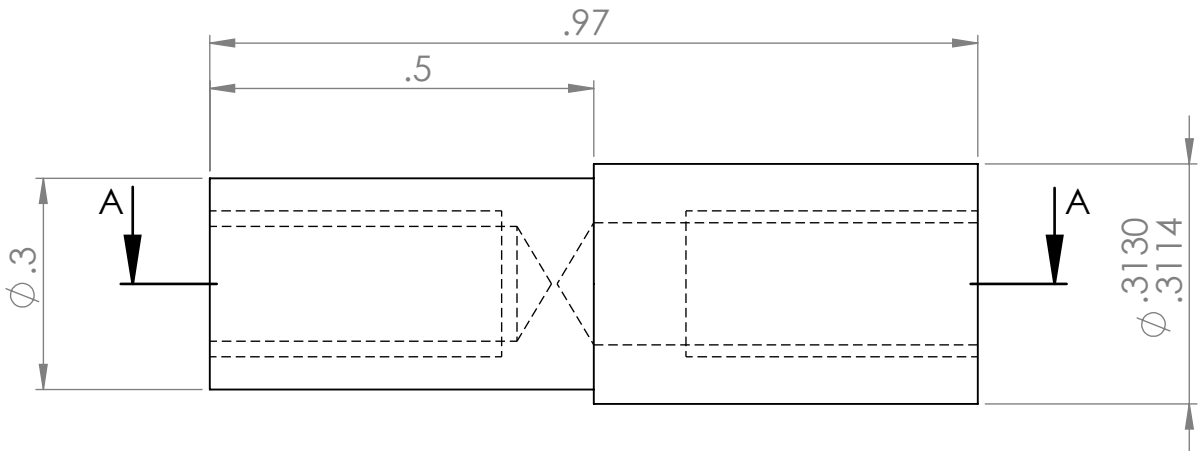
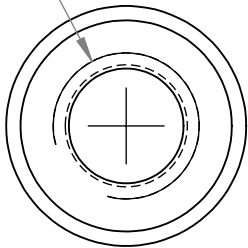
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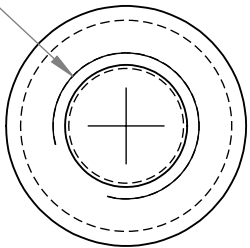
SECTION A-A



Ø.15 DRILL ▽.60  
#10-24 UNC-2B ▽.50



Ø.16 DRILL ▽.50  
# 10-32 UNF-2B ▽.40



A

A

BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.

UNLESS OTHERWISE SPECIFIED:		NAME		DATE		TEAM 5					
DIMENSIONS ARE IN INCHES		DRAWN		J. PATTEN		06 AUG 2024		TITLE:  ROCKER PIN			
DEFAULT TOLERANCES:		CHECKED		M.S. KEYES		06 AUG 2025					
x.x = ± .02		COMMENTS:									
x.xx = ± .01											
x.xxx = ± .005											
ANGULAR: x.x = ± 1											
MATERIAL		DO NOT SCALE DRAWING									
AISI 1018 STEEL											
FINISH											
COLD ROLLED / MACHINED		SCALE: 4:1		WEIGHT: .01		SHEET 1 OF 1					

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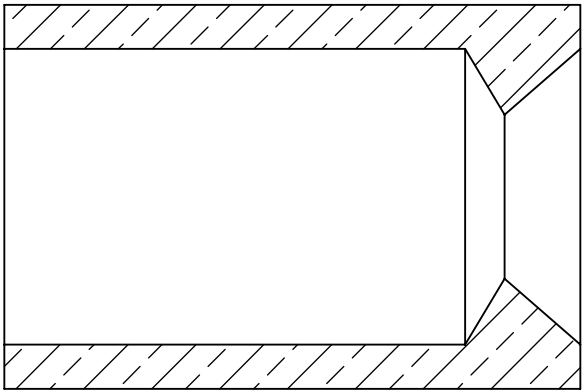
3

2

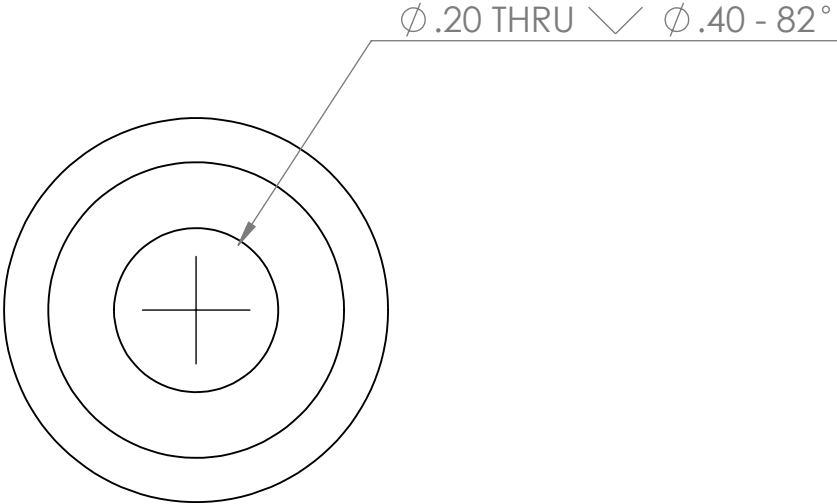
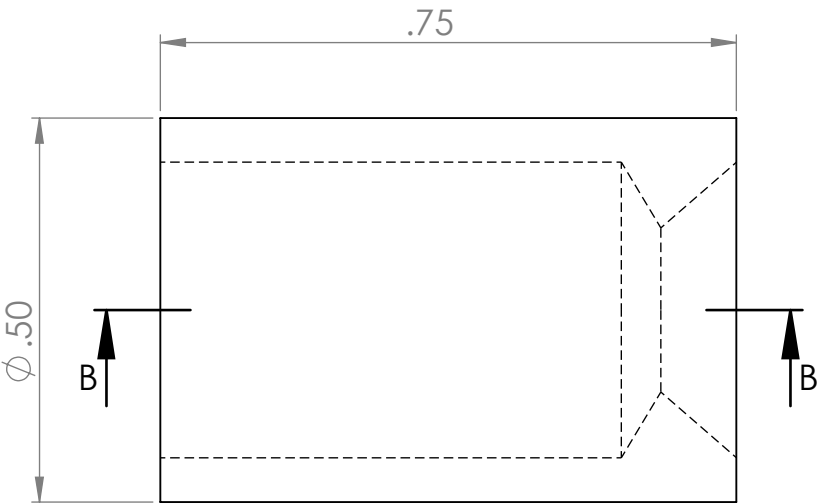
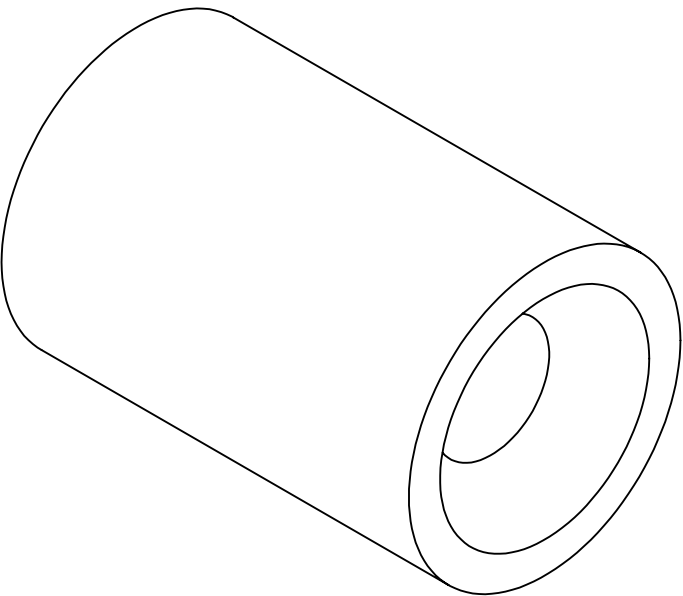
1

B

B



SECTION B-B



$\phi .39 \nabla .60$

A

A

BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES DEFAULT TOLERANCES: x.x = $\pm .02$ x.xx = $\pm .01$ x.xxx = $\pm .005$ ANGULAR: x.x = $\pm .005$		NAME	DATE	TEAM 5	
DRAWN		J. PATTEN	01 AUG 2025	TITLE: SPRING COVER	
CHECKED		M.S. KEYES	05 AUG 2025		
COMMENTS:					
MATERIAL		BRASS		SIZE	PART NO.
FINISH		MACHINED		<b>B</b>	11
				REV	1
				SCALE: 4:1	WEIGHT: .02
				SHEET 1 OF 1	

4

3

2

1

# Manufacturing Process Sheet

Part No.	<b>1</b>	Part Name	<b>Baseplate</b>	Model	<b>Pipsqueak Engine</b>	Sheet	<b>1</b>	of	<b>1</b>
Team Name	<b>5</b>	Mach Name	<b>Mill</b>	Loc.	<b>EB 117</b>	Material	<b>Aluminum 6061-T6</b>		
Prepared By.	<b>B. W. Coon</b>	Date	<b>07/30/25</b>	Approved By.	<b>J. Patten</b>				

[illegible]

# Manufacturing Process Sheet

Part No.	<b>2</b>	Part Name	<b>Main Upright</b>	Model	<b>Pipsqueak Engine</b>	Sheet	<b>1</b>	of	<b>1</b>
Team Name	<b>5</b>	Mach Name	<b>Mill</b>	Loc.	<b>EB 117</b>	Material	<b>Aluminum 6061-T6</b>		
Prepared By.	<b>J. Patten</b>	Date	<b>07/10/25</b>	Approved By.	<b>B. W. Coon</b>				

[illegible]

# Manufacturing Process Sheet

Part No.	<b>3</b>
Team Name	<b>5</b>
Prepared By.	<b>J. Winters</b>

Part Name	<b>Small Upright</b>	
Mach Name	<b>Mill</b>	Loc. <b>EB 117</b>
Date	<b>7/29/2025</b>	Approved By. _____

Model **Pipsqueak Engine**  
Material **Aluminum 6061-T6**  
**M. S. Keyes**

Sheet 1 of 1

[illegible]

# Manufacturing Process Sheet

Part No.	<b>4</b>	Part Name	<b>Rocker Pin</b>	Model	<b>Pipsqueak Engine</b>	Sheet	<b>1</b>	of	<b>1</b>
Team Name	<b>5</b>	Mach Name	<b>Lathe</b>	Loc.	<b>EB 117</b>	Material	<b>AISI 1018 STEEL</b>		
Prepared By.	<b>J. Patten</b>	Date	<b>07/29/25</b>	Approved By.	<b>M. S. Keyes</b>				

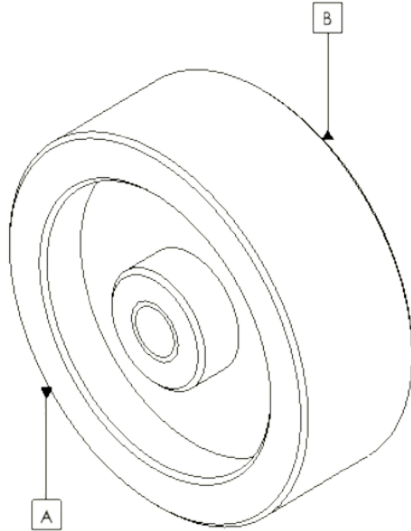
[illegible]

# Manufacturing Process Sheet

Part No.	<b>5</b>	Part Name	<b>Flywheel</b>	
Team Name	<b>5</b>	Mach Name	<b>Mill/Lathe/Press</b>	Loc. <b>EB 117</b>
Prepared By.	<b>M. Keyes</b>	Date	<b>8/582025</b>	Approved By. _____

Model	<b>Pipsqueak Engine</b>
Material	<b>Aluminum 6061 Alloy/Brass</b>
<b>J. Patten</b>	

Sheet 1 of 1

[illegible]

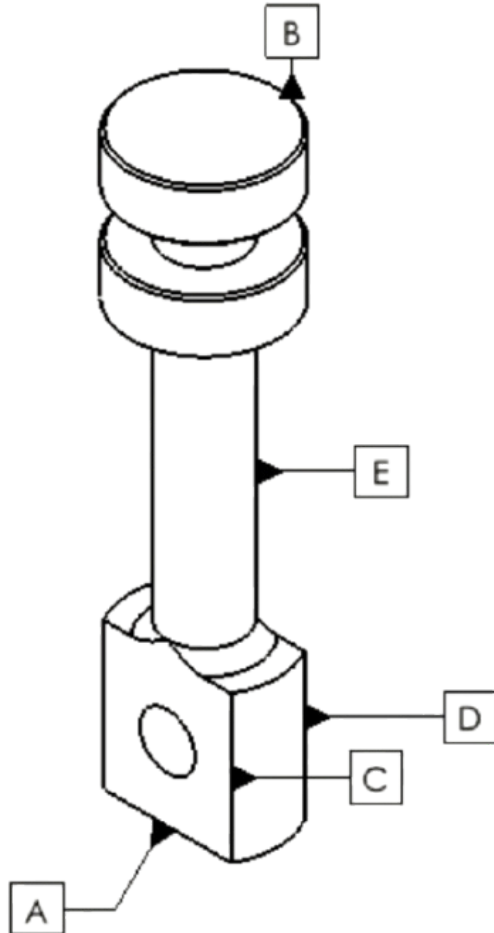
# Manufacturing Process Sheet

Part No.	<b>6</b>	Part Name	<b>Crankwheel</b>	Model	<b>Pipsqueak Engine</b>	Sheet	<b>1</b>	of	<b>1</b>
Team Name	<b>5</b>	Mach Name	<b>Mill/Lathe</b>	Loc.	<b>EB 117</b>	Material	<b>Bronze UNS22000</b>		
Prepared By.	<b>J. Winters</b>	Date	<b>08/05/25</b>	Approved By.	<b>M. S. Keyes</b>				

[illegible]

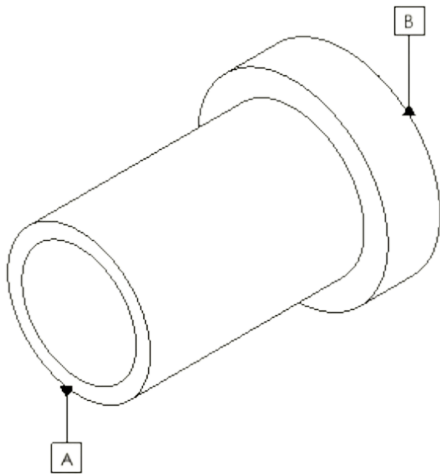
# Manufacturing Process Sheet

Part No.	<b>7</b>	Part Name	<b>Piston</b>	Model	<b>Pipsqueak Engine</b>	Sheet	<b>1</b>	of	<b>1</b>
Team Name	<b>5</b>	Mach Name	<b>Mill/Lathe</b>	Loc.	<b>EB 117</b>	Material	<b>AISI 1018 Steel</b>		
Prepared By.	<b>M. Keyes</b>	Date	<b>08/05/25</b>	Approved By.	<b>J. Patten</b>				

[illegible]

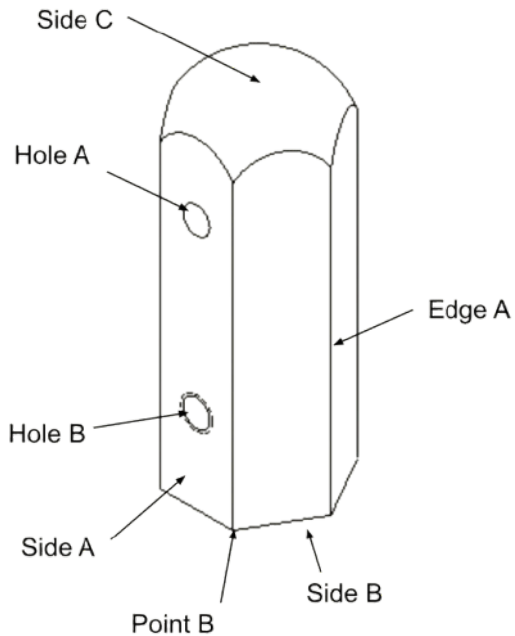
# Manufacturing Process Sheet

Part No.	<b>8</b>	Part Name	<b>Piston Rod Bushing</b>	Model	<b>Pipsqueak Engine</b>	Sheet	<b>1</b>	of	<b>1</b>
Team Name	<b>5</b>	Mach Name	<b>Lathe</b>	Loc.	<b>EB 117</b>	Material	<b>Brass</b>		
Prepared By.	<b>M. Keyes</b>	Date	<b>08/05/25</b>	Approved By.	<b>J. Patten</b>				

[illegible]

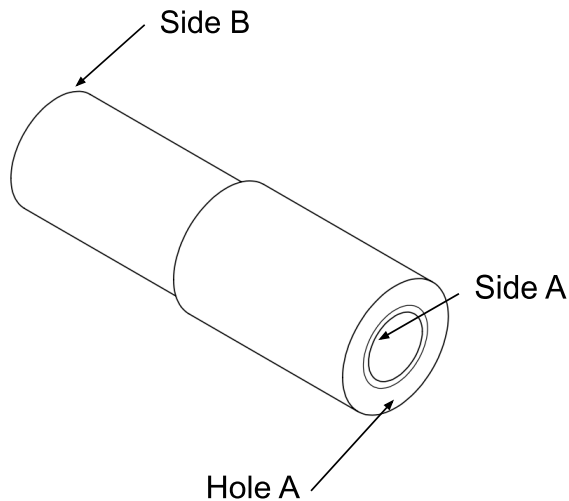
# Manufacturing Process Sheet

Part No.	<b>9</b>	Part Name	<b>Cylinder</b>	Model	<b>Pipsqueak Engine</b>	Sheet	<b>1</b>	of	<b>1</b>
Team Name	<b>5</b>	Mach Name	<b>Mill / Lathe</b>	Loc.	<b>EB 117</b>	Material	<b>Brass</b>		
Prepared By.	<b>J. Patten</b>	Date	<b>07/10/25</b>	Approved By.	<b>B. W. Coon</b>				

[illegible]

# Manufacturing Process Sheet

Part No.	<b>10</b>	Part Name	<b>Rocker Pin</b>	Model	<b>Pipsqueak Engine</b>	Sheet	<b>1</b>	of	<b>1</b>
Team Name	<b>5</b>	Mach Name	<b>Lathe</b>	Loc.	<b>EB 117</b>	Material	<b>AISI 1018 STEEL</b>		
Prepared By.	<b>J. Winters</b>	Date	<b>07/29/25</b>	Approved By.	<b>J. Patten</b>				

[illegible]

# Manufacturing Process Sheet

Part No.	<b>11</b>	Part Name	<b>Spring Cover</b>	Model	<b>Pipsqueak Engine</b>	Sheet	<b>1</b>	of	<b>1</b>
Team Name	<b>5</b>	Mach Name	<b>Lathe</b>	Loc.	<b>EB 117</b>	Material	<b>Brass</b>		
Prepared By.	<b>J. Patten</b>	Date	<b>07/29/25</b>	Approved By.	<b>M. S. Keyes</b>				

[illegible]