

REVISIONS			
REV	DESCRIPTION	DATE	APVD

MECH 72165 - YEAR 2 PROJECT

GROUP 1

DAVID LUTELMOWSKI & NAMOSHI BHATT

SUBMITTED: DECEMBER 11, 2020

SUBMITTED TO: ANDREW CAMPBELL

DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-2009		SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY		C CONESTOGA Connect Life and Learning 299 Doon Valley Drive, Kitchener, ON, N2G 4M4		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES APPLY AS SHOWN BELOW		PROPRIETARY NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College		TITLE FINAL WORKING DRAWINGS		
0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.1 2 PLACE DECIMALS ± 0.01 3 PLACE DECIMALS ± 0.005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu \text{in}$		COURSE MECH 72165 PROJECT YEAR 2 PROJECT		DRAWN BY NA DATE DEC. 11/20 CHECKED BY DATE APPROVED DATE		
				SIZE B DRAWING NO SCALE 1:2 WEIGHT REVISION 0	SHEET 1 OF 29	

REVISIONS			
REV	DESCRIPTION	DATE	APVD

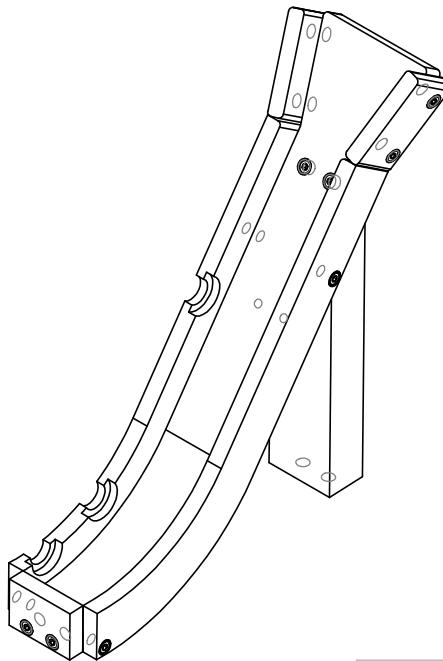
NOTES:

CLEAN ALL EDGES/TAPPED HOLES ON ALUMINUM PARTS
PRINT IN HIGHEST QUALITY FOR 3D PRINTED PARTS

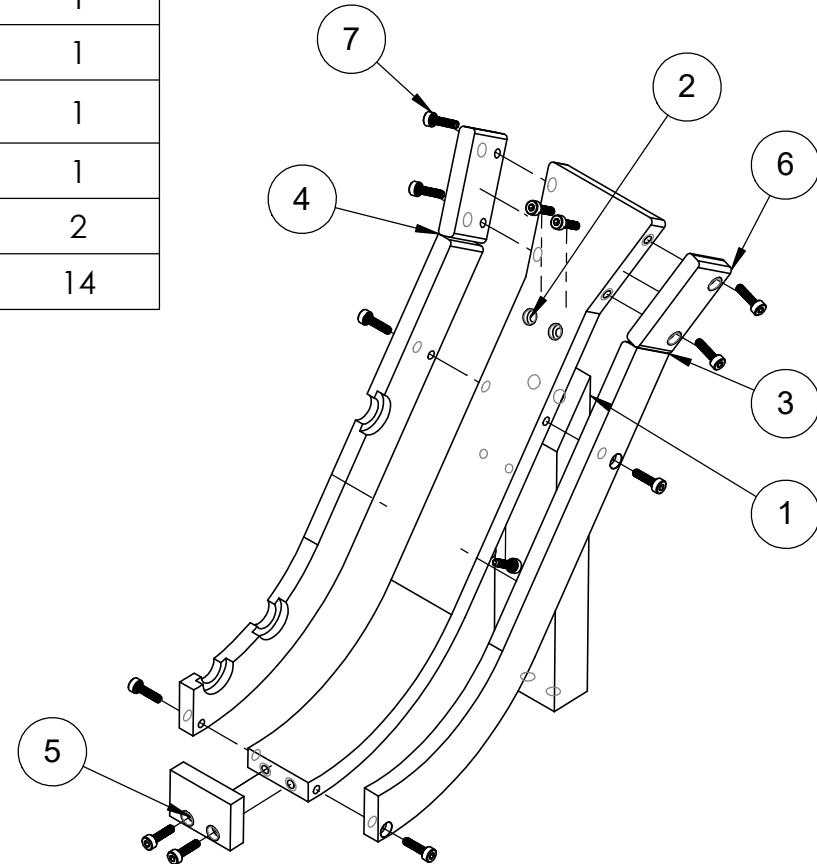
DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-2009		SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY		TITLE	
UNLESS OTHERWISE SPECIFIED		PROPRIETARY NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College		C CONESTOGA Connect Life and Learning 299 Doon Valley Drive, Kitchener, ON, N2G 4M4	
DIMENSIONS ARE IN INCHES TOLERANCES APPLY AS SHOWN BELOW		COURSE MECH 72165 PROJECT YEAR 2 PROJECT		FINAL WORKING DRAWINGS	
0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.01 2 PLACE DECIMALS ± 0.001 3 PLACE DECIMALS ± 0.005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu\text{in}$		DRAWN BY NA CHECKED BY APPROVED		SIZE B	DRAWING NO 1:2
				DATE DEC. 11/20	WEIGHT 0
				SCALE	REVISION 0
SHEET 2 OF 29					

NOTES:

1. MATERIAL :
POLYCARBONATE
2. SOCKET HEAD CAP
SCREW (M2)



ITEM	PART NUMBER	QTY.
1	MAGAZINE BASE	1
2	MAGAZINE BODY	1
3	MAGAZINE SIDE-R	1
4	MAGAZINE SIDE-L	1
5	MAGAZINE BOTTOM	1
6	TOP SIDE PIECE	2
7	M2 - SCREW	14



DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-2009		SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY	
UNLESS OTHERWISE SPECIFIED			
DIMENSIONS ARE IN INCHES			
TOLERANCES APPLY AS SHOWN BELOW			
0 PLACE DECIMALS ± 0.2			
1 PLACE DECIMALS ± 0.01			
2 PLACE DECIMALS ± 0.001			
3 PLACE DECIMALS ± 0.005			
ANGLES $\pm 1^\circ$			
SURFACE ROUGHNESS $32 \mu \text{in}$			
THIRD ANGLE PROJECTION		PROPRIETARY	
 		NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College.	
		COURSE MECH72165	
		PROJECT YEAR 2 PROJECT	



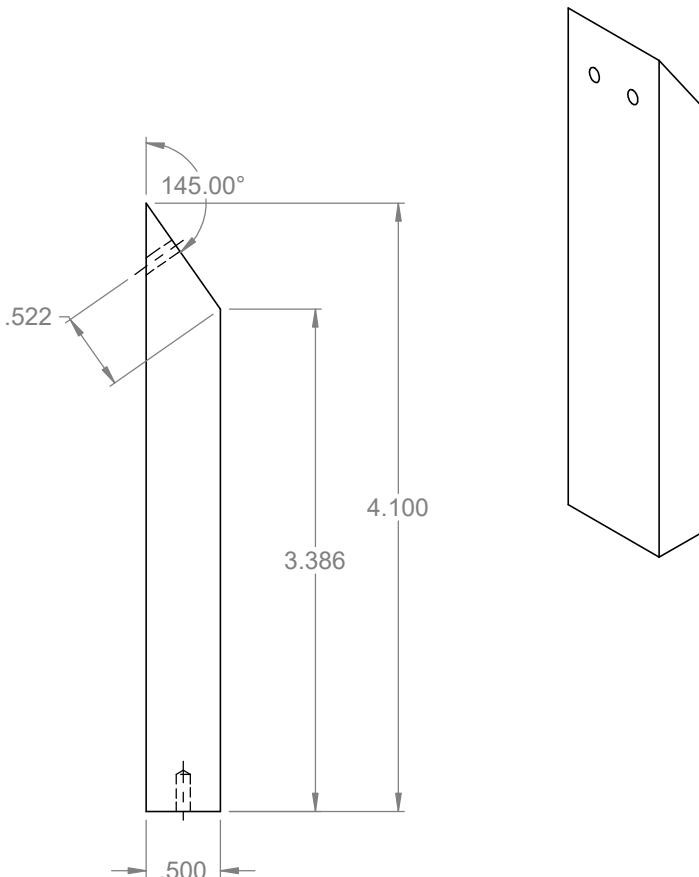
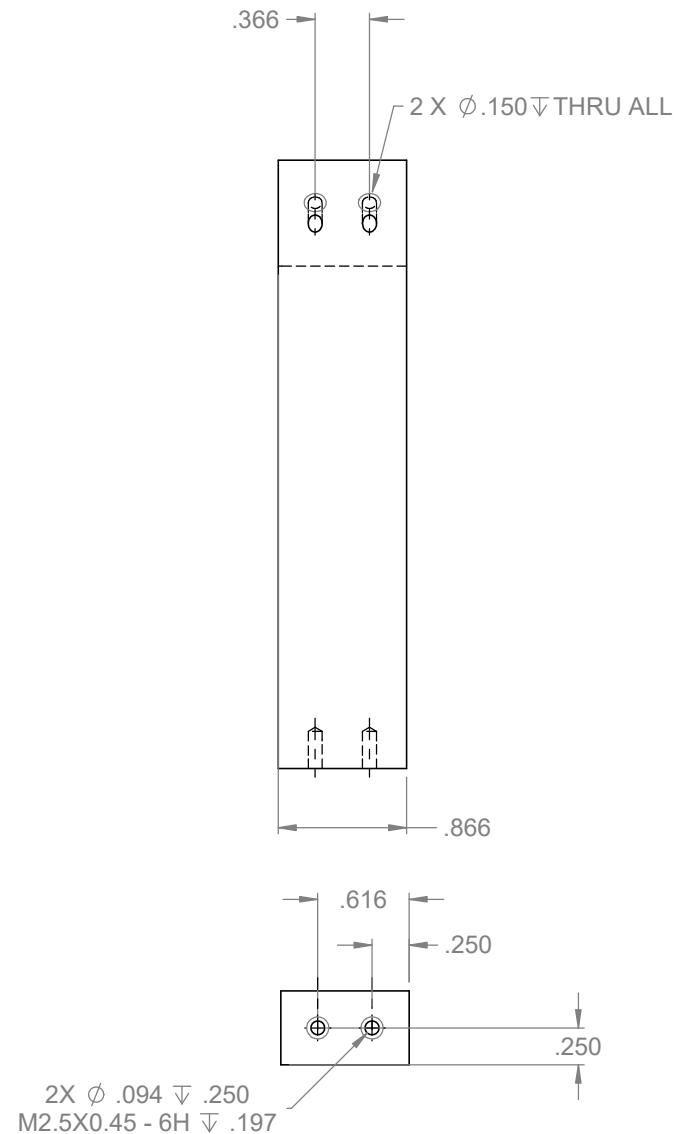
299 Doon Valley Drive, Kitchener, ON, N2G 4M4

MAGAZINE EXPLODED VIEW

SIZE	DRAWING NO	REVISION
B		0
1:2	0.193	
WEIGHT		
SHEET 4 OF 29		

NOTES:
 1. MATERIAL : POLYCARBONATE
 2. QUANTITY: 1

REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING
INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-2009
UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
TOLERANCES APPLY AS SHOWN BELOW

0 PLACE DECIMALS	± 0.2
1 PLACE DECIMALS	± 0.1
2 PLACE DECIMALS	± 0.01
3 PLACE DECIMALS	± 0.005
ANGLES	± 1°
SURFACE ROUGHNESS	32 μ in

THIRD ANGLE PROJECTION

SolidWorks MAINTAINED DATA
CHANGES SHALL BE INCORPORATED
ELECTRONICALLY BY THE DESIGN ACTIVITY

PROPRIETARY

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Conestoga College

COURSE MECH72165
PROJECT YEAR 2 PROJECT

DRAWN BY DAVID LUTELMOWSKI DATE DEC. 11/20
CHECKED BY DATE
APPROVED DATE

C CONESTOGA
Connect Life and Learning

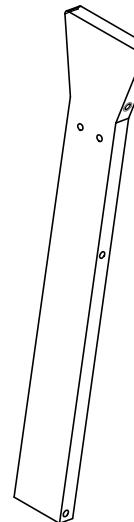
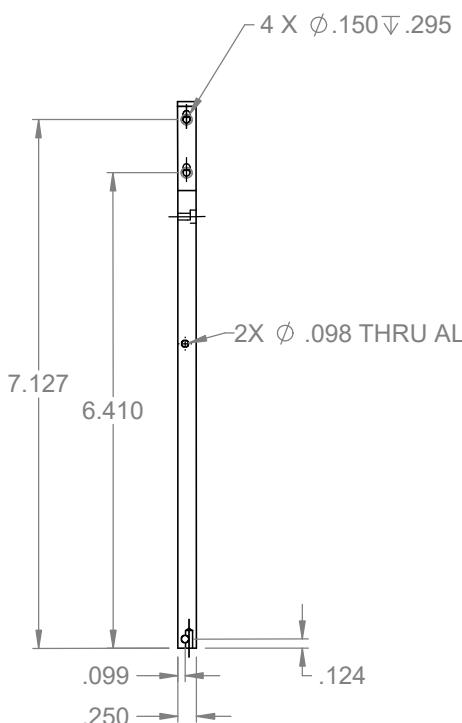
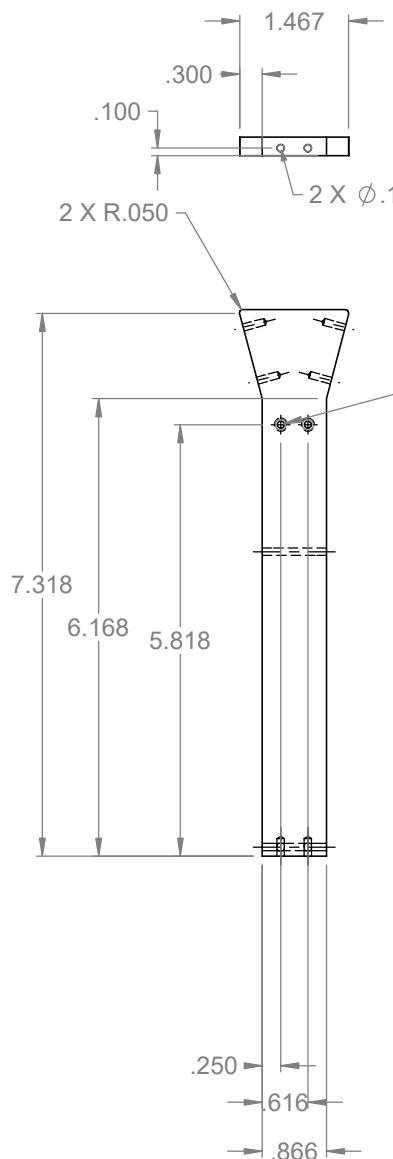
299 Doon Valley Drive, Kitchener, ON, N2G 4M4

MAGAZINE BASE

SIZE	DRAWING NO	REVISION
B		0
1:1	0.055 lb	SHEET 5 OF 29

NOTES:
 1. MATERIAL : POLYCARBONATE
 2. QUANTITY: 1
 3. WILL BE FORMED AFTER WITH HEAT

REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-2009		SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY	
UNLESS OTHERWISE SPECIFIED		PROPRIETARY NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College	
DIMENSIONS ARE IN INCHES TOLERANCES APPLY AS SHOWN BELOW		COURSE MECH72165 PROJECT YEAR 2 PROJECT	
0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.1 2 PLACE DECIMALS ± 0.01 3 PLACE DECIMALS ± 0.005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu\text{in}$		DRAWN BY DAVID LUTELMOWSKI DATE DEC. 11/20 CHECKED BY DATE APPROVED DATE	
THIRD ANGLE PROJECTION		SIZE B	DRAWING NO. 0
		SCALE 1:2	WEIGHT 0.057 lb
		SHEET 6 OF 29	

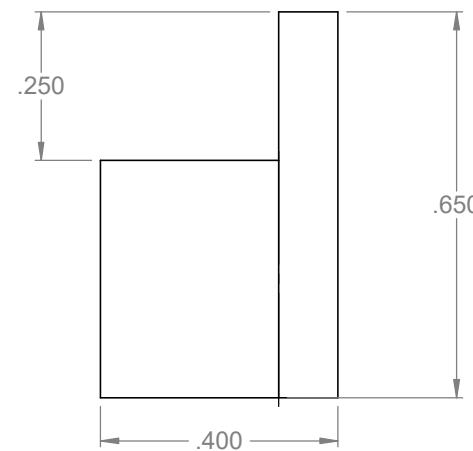
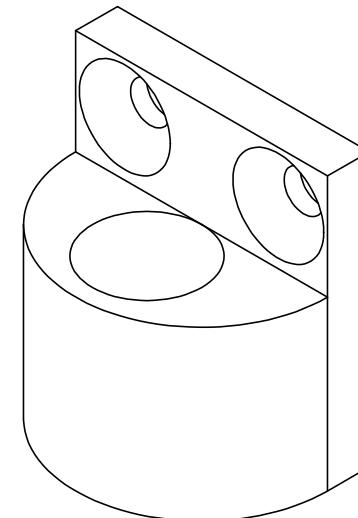
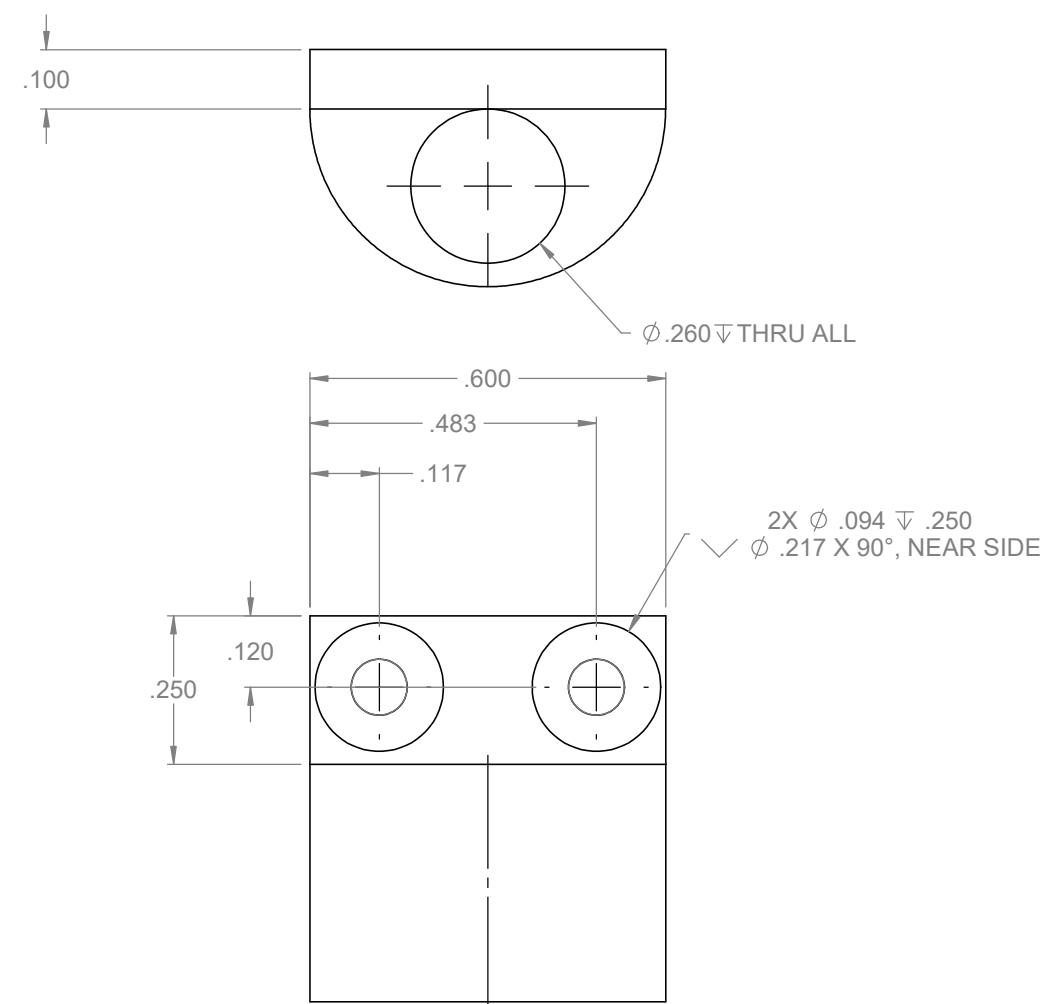
C CONESTOGA
Connect Life and Learning

299 Doon Valley Drive, Kitchener, ON, N2G 4M4

MAGAZINE BODY

NOTES:
 1. MATERIAL : POLYCARBONATE
 2. QUANTITY: 1

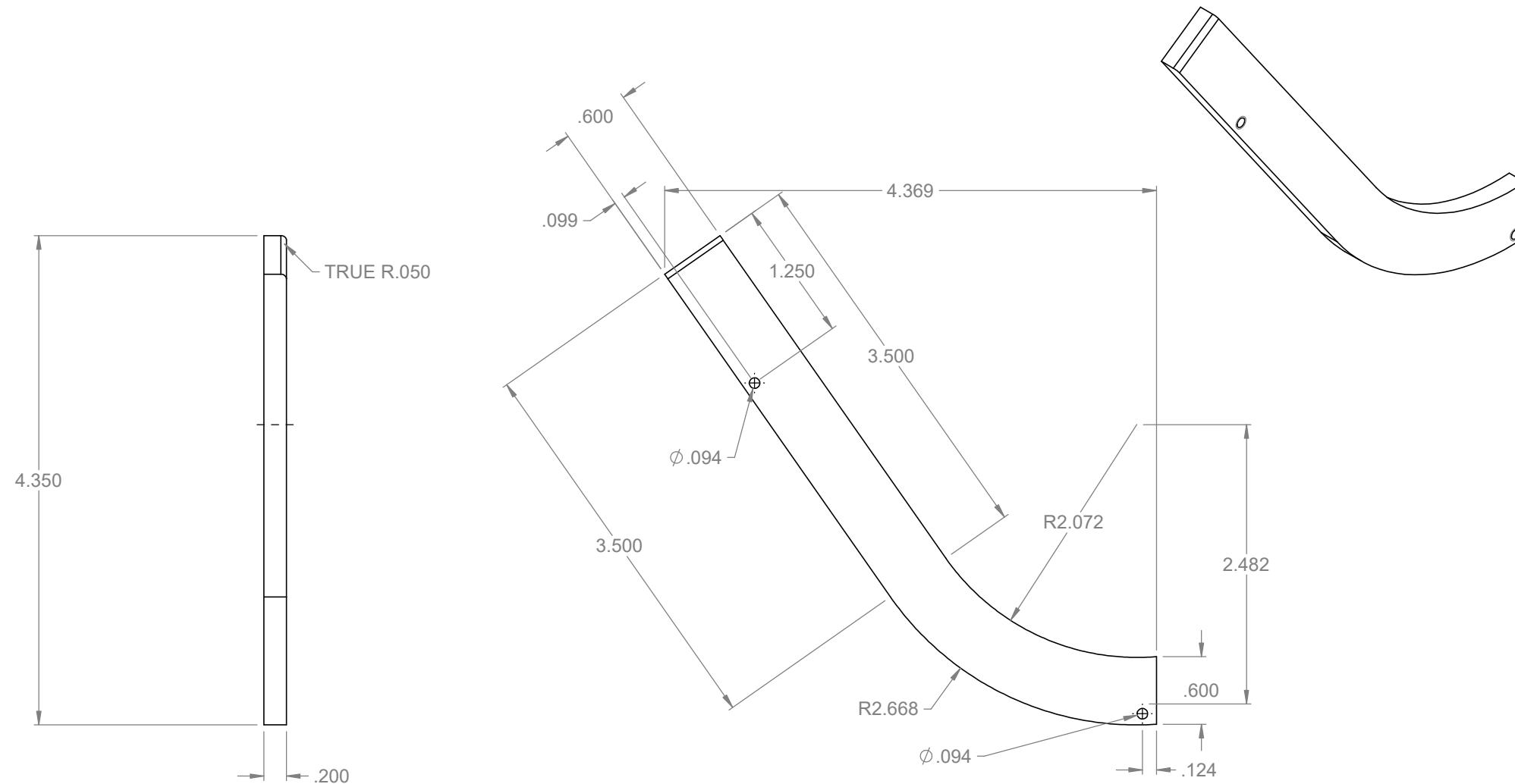
REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-2009		SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY	
UNLESS OTHERWISE SPECIFIED		PROPRIETARY NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College	
DIMENSIONS ARE IN INCHES TOLERANCES APPLY AS SHOWN BELOW		COURSE MECH72165 PROJECT YEAR 2 PROJECT	
0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.1 2 PLACE DECIMALS ± 0.01 3 PLACE DECIMALS ± 0.005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu\text{in}$		DRAWN BY DAVID LUTELMOWSKI CHECKED BY APPROVED DATE DEC. 11/20 DATE DATE	
THIRD ANGLE PROJECTION		SIZE B DRAWING NO 4:1 SCALE WEIGHT 0.020 lb REVISION 0	
TITLE MAGAZINE MOTOR MOUNT			
299 Doon Valley Drive, Kitchener, ON, N2G 4M4			

NOTES:
 1. MATERIAL : POLYCARBONATE
 2. 0.05" FILLET
 3. QUANTITY: 2

REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING
 INTERPRET DIMENSIONS AND TOLERANCES
 PER ASME Y14.5M-2009
 UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
 TOLERANCES APPLY AS SHOWN BELOW
 0 PLACE DECIMALS ± 0.2
 1 PLACE DECIMALS ± 0.1
 2 PLACE DECIMALS ± 0.01
 3 PLACE DECIMALS ± 0.005
 ANGLES $\pm 1^\circ$
 SURFACE ROUGHNESS $32 \mu\text{in}$

THIRD ANGLE PROJECTION



SolidWorks MAINTAINED DATA
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 PROPRIETARY

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 Conestoga College

COURSE MECH72165
 PROJECT YEAR 2 PROJECT

DAVID LUTELMOWSKI DEC. 11/20
 CHECKED BY
 APPROVED

C CONESTOGA
 Connect Life and Learning

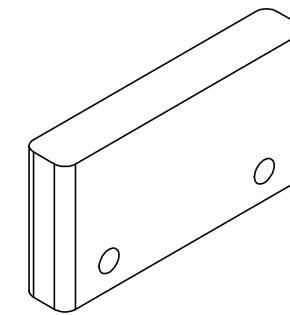
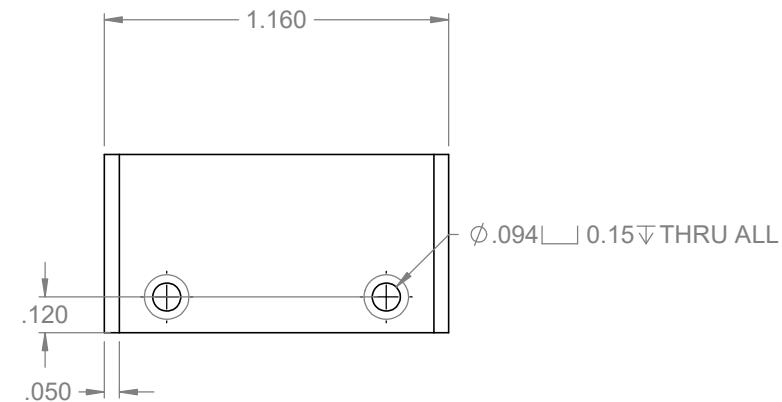
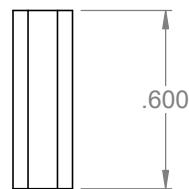
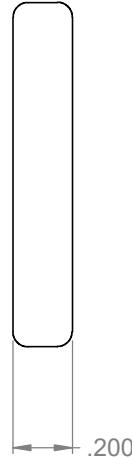
299 Doon Valley Drive, Kitchener, ON, N2G 4M4

SIDE MAGAZINE

SIZE	DRAWING NO	REVISION
B		0
1:2	0.024 lb	SHEET 8 OF 29

NOTES:
 1. MATERIAL : POLYCARBONATE
 2. EDGES HAVE .05" FILLET
 3. QUANTITY: 2

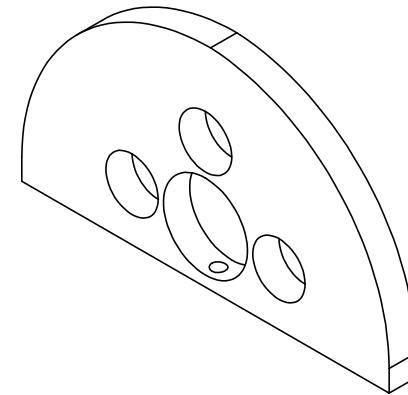
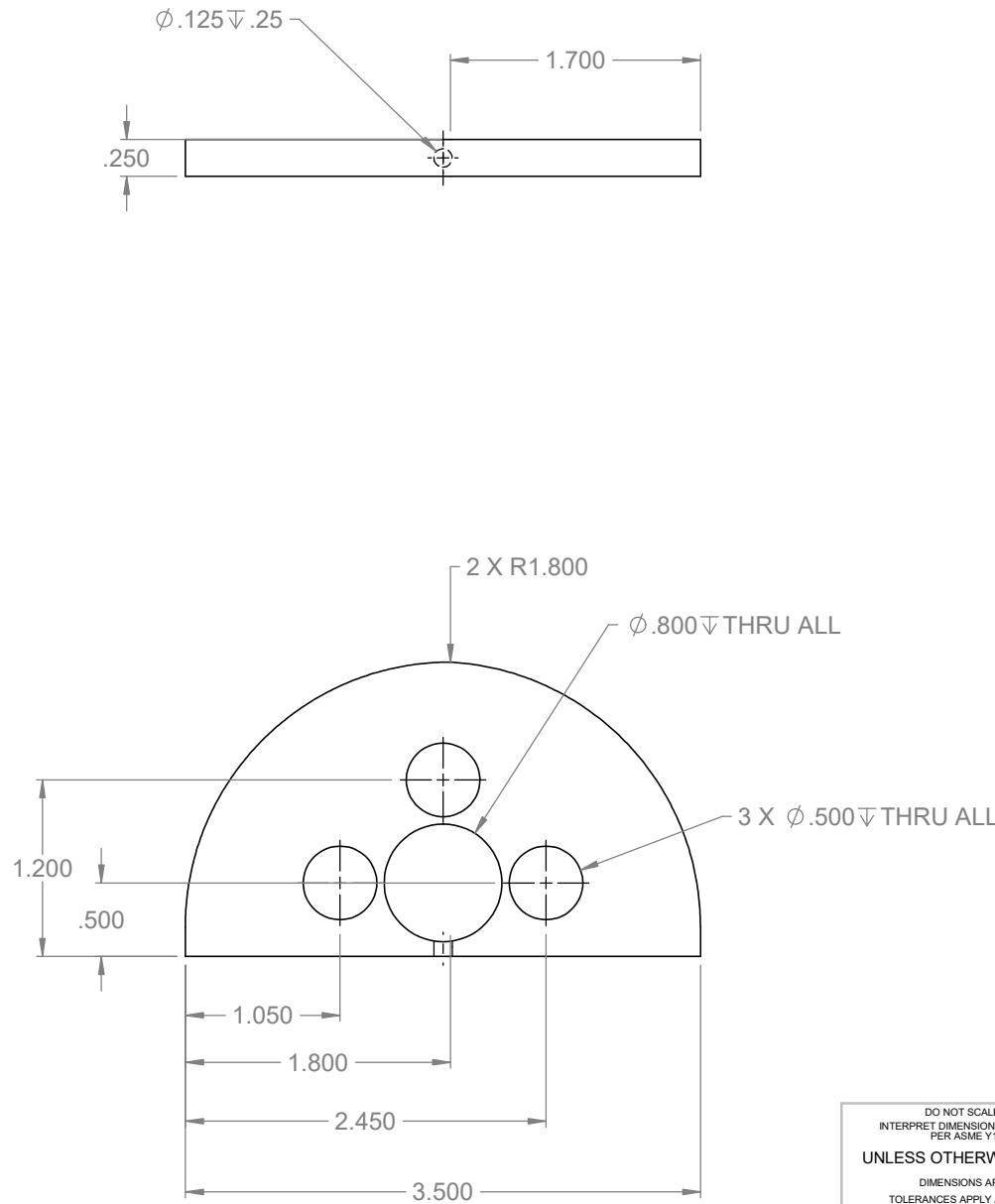
REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-2009	SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY	TITLE TOP MAGAZINE SIDES
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES APPLY AS SHOWN BELOW	PROPRIETARY NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College	
0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.1 2 PLACE DECIMALS ± 0.01 3 PLACE DECIMALS ± 0.005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu\text{in}$	COURSE MECH71265 PROJECT YEAR 2 PROJECT	DATE 299 Doon Valley Drive, Kitchener, ON, N2G 4M4
THIRD ANGLE PROJECTION 	DAVID LUTELMOWSKI CHECKED BY APPROVED	SIZE B SCALE 2:1 DRAWING NO WEIGHT 0.005 lb REVISION 0 SHEET 9 OF 29

NOTES:
 1. MATERIAL : 6061 ALUMINUM
 2. STOCK SIZE: 1/4"x4" FLAT BAR
 3. QUANTITY: 1

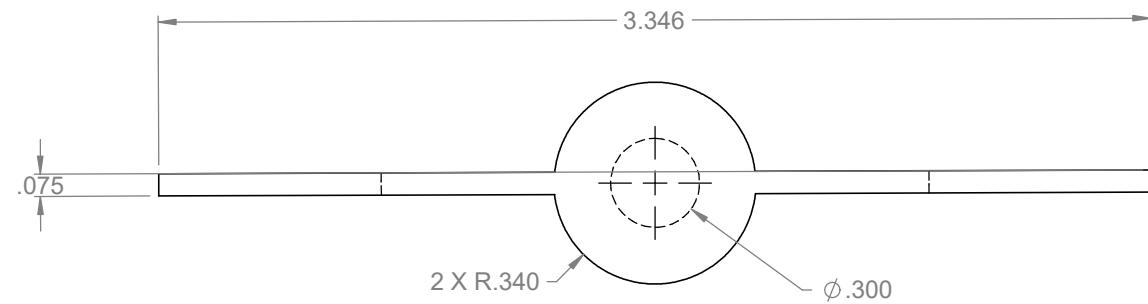
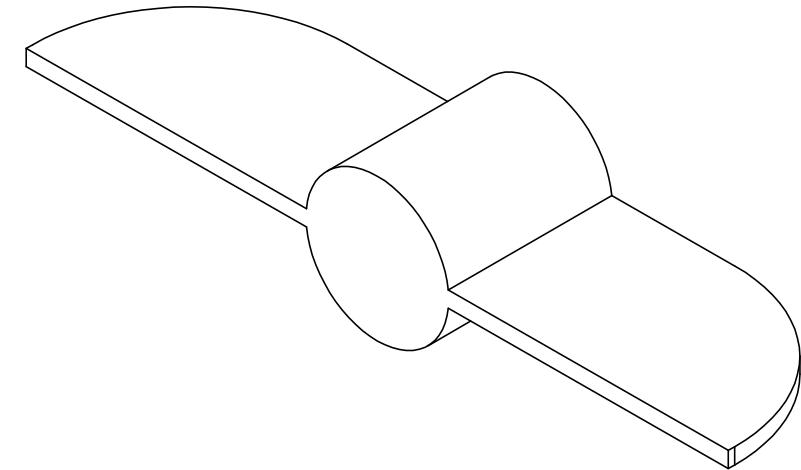
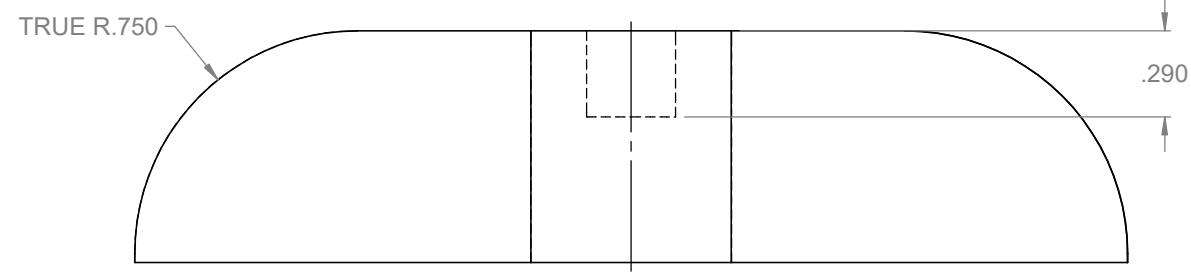
REVISIONS			
REV	DESCRIPTION	DATE	APVD



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0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.1 2 PLACE DECIMALS ± 0.01 3 PLACE DECIMALS ± 0.005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu\text{in}$	COURSE MECH72165 PROJECT YEAR 2 PROJECT
THIRD ANGLE PROJECTION	DRAWN BY DAVID LUTELMOWSKI DATE DEC. 11/20 CHECKED BY DATE APPROVED DATE
	SIZE B DRAWING NO SCALE 1:1 WEIGHT 0.323 lb REVISION 0 SHEET 10 OF 29

NOTES:
 1. MATERIAL : PLA
 2. 3D PRINTED
 3. QUANTITY: 1

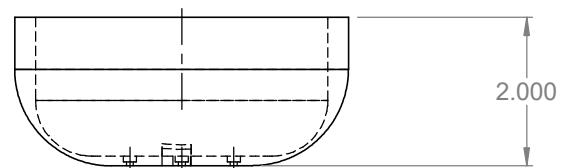
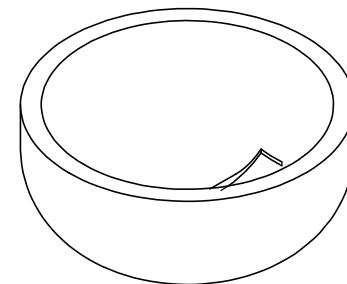
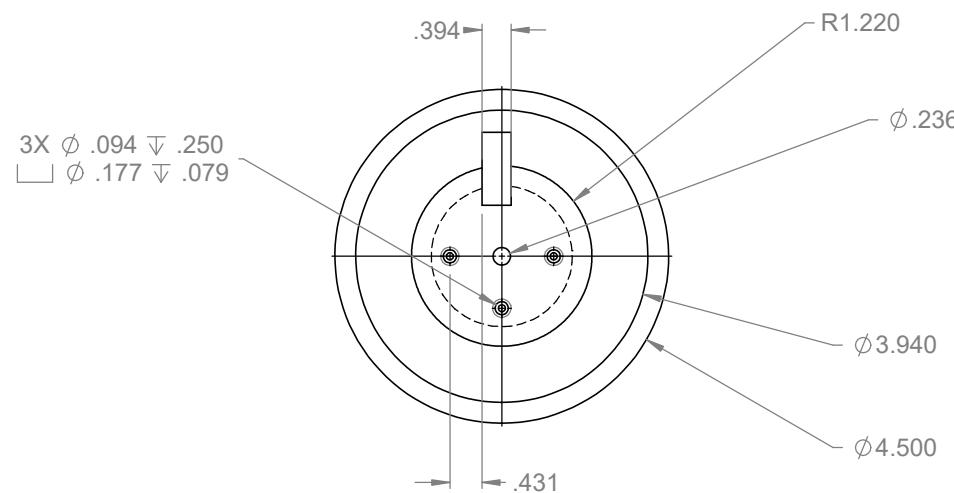
REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-2009		SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY	
UNLESS OTHERWISE SPECIFIED			
DIMENSIONS ARE IN INCHES			
TOLERANCES APPLY AS SHOWN BELOW			
0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.1 2 PLACE DECIMALS ± 0.01 3 PLACE DECIMALS ± 0.005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu\text{in}$			
THIRD ANGLE PROJECTION		PROPRIETARY	
 		NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College	
COURSE: MECH72165		PROJECT: YEAR 2 PROJECT	
DRAWN BY: DAVID LUTELMOWSKI		DATE: DEC. 11/20	
CHECKED BY:		APPROVED:	
APPROVED:		DATE:	
APPROVED:		SCALE: 2:1	
APPROVED:		WEIGHT: 0.115 lb	
APPROVED:		REVISION: 0	
TITLE: HOPPER BLADE			
299 Doon Valley Drive, Kitchener, ON, N2G 4M4			
SHEET 11 OF 29			

NOTES:
 1. MATERIAL : ABS
 2. 3D PRINTED
 3. QUANTITY: 1

REVISIONS			
REV	DESCRIPTION	DATE	APVD

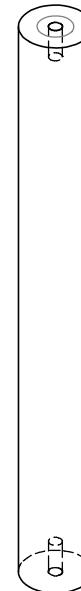
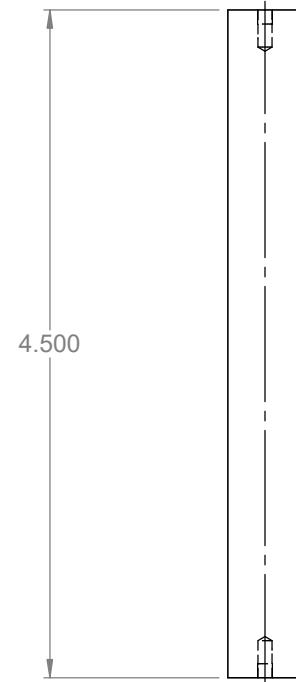


DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-2009		SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY	
UNLESS OTHERWISE SPECIFIED			
DIMENSIONS ARE IN INCHES			
TOLERANCES APPLY AS SHOWN BELOW			
0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.01 2 PLACE DECIMALS ± 0.001 3 PLACE DECIMALS ± 0.0005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu\text{in}$			
THIRD ANGLE PROJECTION		PROPRIETARY	
 		NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College	
COURSE: MECH72165		PROJECT: YEAR 2 PROJECT	
DRAWN BY: DAVID LUTELMOWSKI		DATE: DEC. 11/20	
CHECKED BY:		DATE:	
APPROVED:		DATE:	
SIZE: B		DRAWING NO:	
SCALE: 1:2		WEIGHT: 0.216 lb	
REVISION: 0		SHEET 12 OF 29	

NOTES:
 1. MATERIAL 6061 ALUMINUM
 2. STOCK SIZE: 1/2" ROUND BAR
 3. QUANTITY: 3

REVISIONS			
REV	DESCRIPTION	DATE	APVD

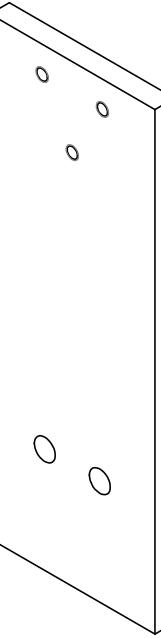
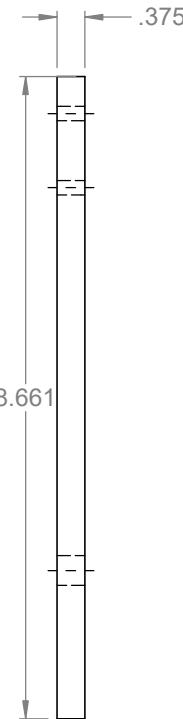
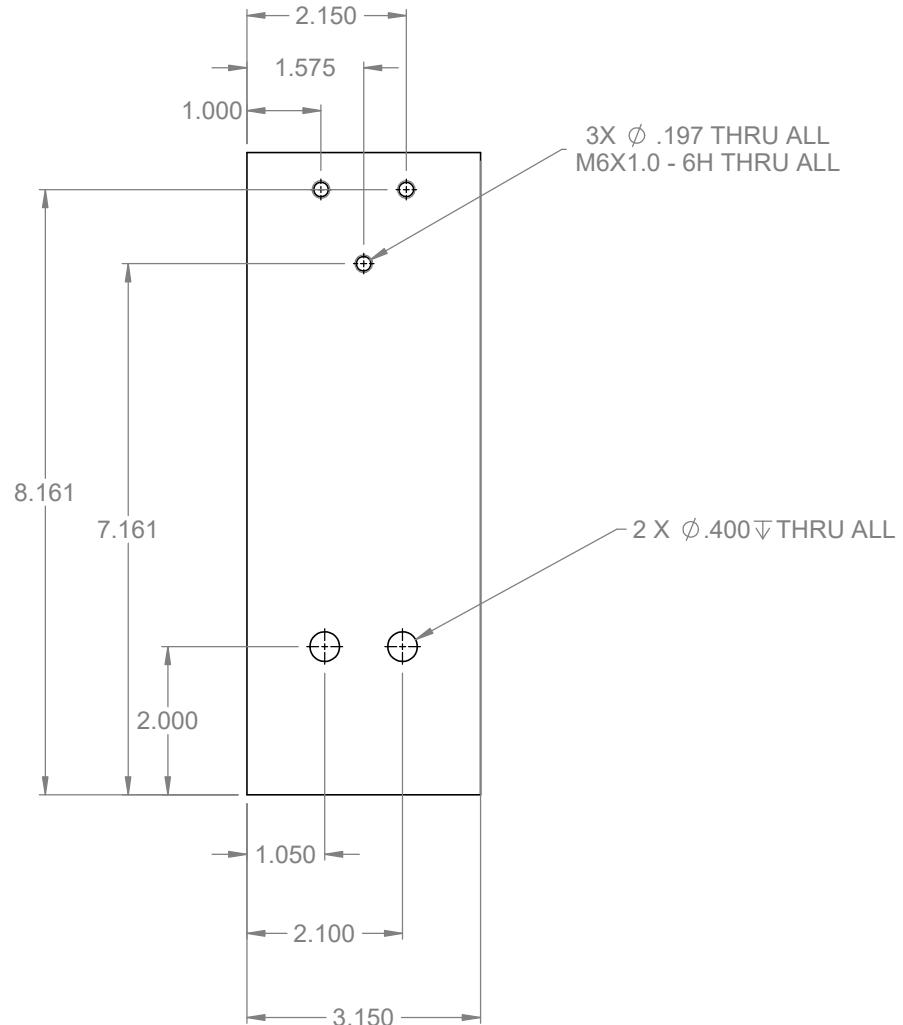
$\phi .500$ ←
 2 X $\phi .094 \downarrow .250$
 M2.5X0.45 - 6H $\downarrow .094$



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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES APPLY AS SHOWN BELOW	PROPRIETARY NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College	
0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.01 2 PLACE DECIMALS ± 0.001 3 PLACE DECIMALS ± 0.0005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu \text{in}$	COURSE MECH72165 PROJECT YEAR 2 PROJECT	
THIRD ANGLE PROJECTION  	DAVID LUTELMOWSKI DEC. 11/20 CHECKED BY APPROVED	SIZE B DRAWING NO SCALE 1:1 WEIGHT 0.086 lb REVISION 0 SHEET 13 OF 29

NOTES:
1. MATERIAL : 6061 ALUMINUM
2. STOCK SIZE: 3/8"X4" FLAT BAR
3. QUANTITY: 6

REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING
INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-2009

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES

TOLERANCES APPLY AS SHOWN BELOW
0 PLACE DECIMALS ± 0.2
1 PLACE DECIMALS ± 0.1
2 PLACE DECIMALS ± 0.01
3 PLACE DECIMALS ± 0.005
ANGLES $\pm 1^\circ$
SURFACE ROUGHNESS 32μ in

SolidWorks MAINTAINED DATA
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PROPRIETARY

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Conestoga College

COURSE MECH72165

PROJECT YEAR 2 PROJECT

DRAWN BY DAVID LUTELMOWSKI DATE DEC. 11/20

CHECKED BY DATE

APPROVED DATE

THIRD ANGLE PROJECTION



Connect Life and Learning
299 Doon Valley Drive, Kitchener, ON, N2G 4M4

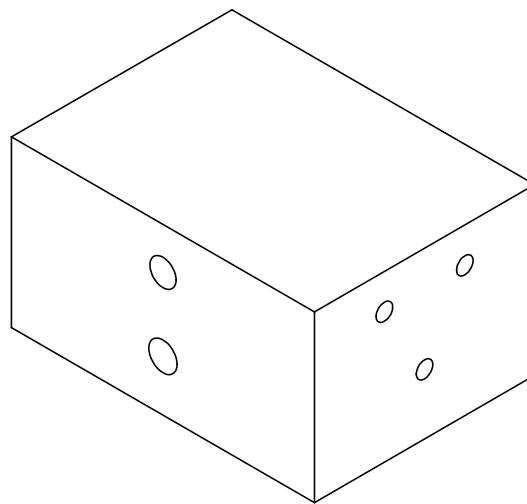
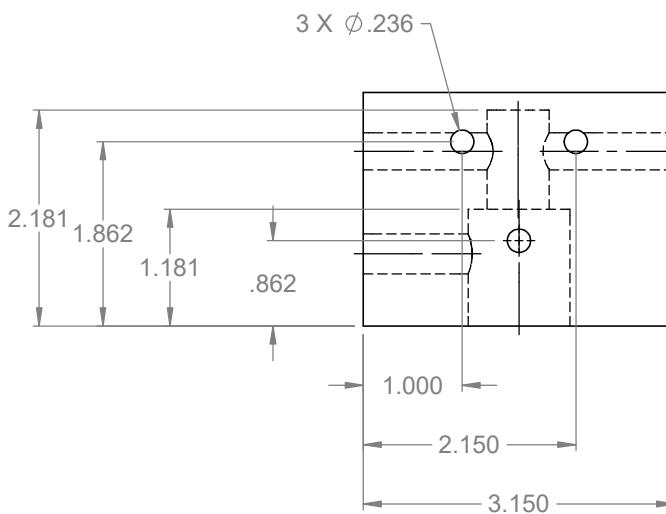
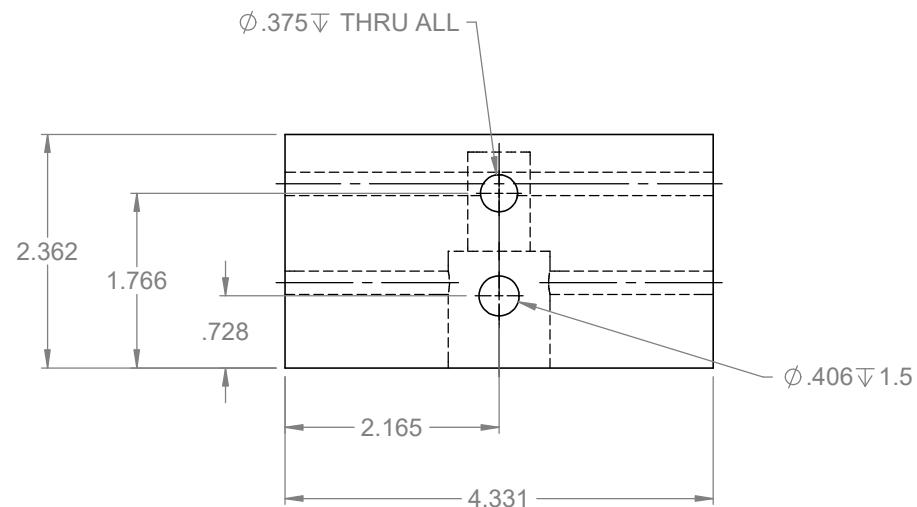
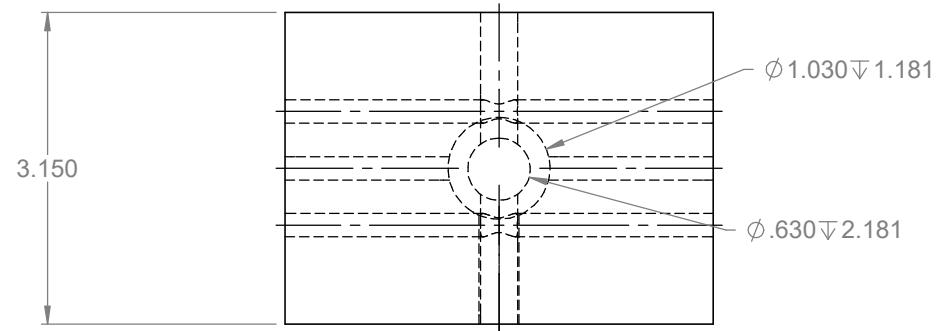
PRESS SIDE PLATE

SIZE	DRAWING NO	REVISION
B		0
1:2	0.985 lb	SHEET 14 OF 29

NOTES:

1. MATERIAL : 6061 ALUMINUM
2. CUSTOM ORDERED STOCK SIZE: 3.150"x2.362"
3. QUANTITY: 1

REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING
INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-2009
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES APPLY AS SHOWN BELOW

0 PLACE DECIMALS	± 0.2
1 PLACE DECIMALS	± 0.1
2 PLACE DECIMALS	± 0.01
3 PLACE DECIMALS	± 0.005
ANGLES	$\pm 1^\circ$
SURFACE ROUGHNESS	$32 \mu\text{in}$

THIRD ANGLE PROJECTION


SolidWorks MAINTAINED DATA
CHANGES SHALL BE INCORPORATED
ELECTRONICALLY BY THE DESIGN ACTIVITY
PROPRIETARY
NO PART OF THIS DOCUMENT MAY BE REPRODUCED,
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Conestoga College

COURSE: MECH72165
PROJECT: YEAR 2 PROJECT
DRAWN BY: DAVID LUTELMOWSKI DATE: DEC. 11/20
CHECKED BY: DATE:
APPROVED: DATE:
SCALE: 1:1 WEIGHT: 2.927 lb SHEET 15 OF 29

 CONESTOGA
Connect Life and Learning

299 Doon Valley Drive, Kitchener, ON, N2G 4M4

MIDDLE PRESS

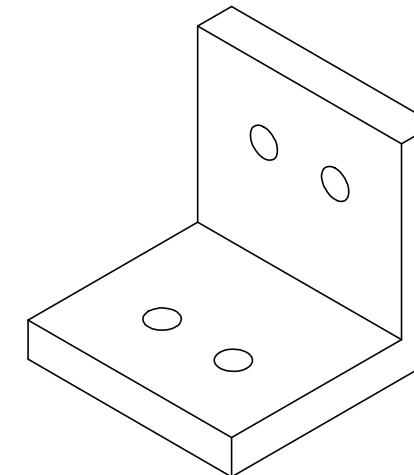
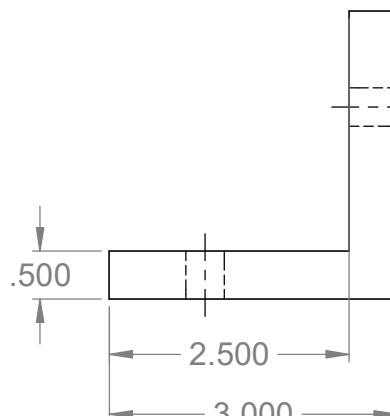
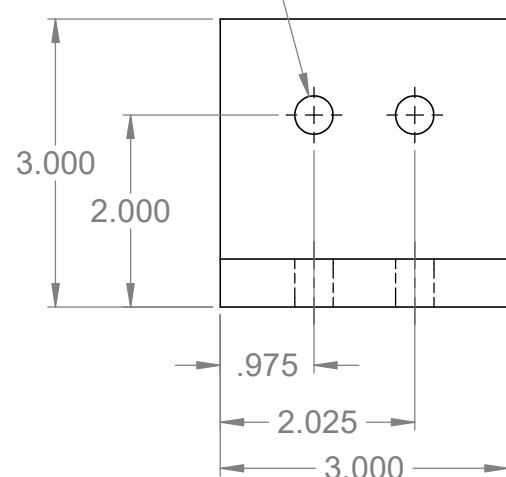
REVISION
0

NOTES:

1. MATERIAL : 6061 ALUMINUM
2. STOCK SIZE: 1/2"x3"x3"
3. QUANTITY: 2

REVISIONS			
REV	DESCRIPTION	DATE	APVD

4 X ϕ .400 \downarrow THRU ALL



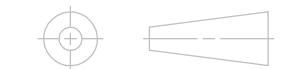
DO NOT SCALE DRAWING
INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-2009

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES

TOLERANCES APPLY AS SHOWN BELOW
0 PLACE DECIMALS \pm 0.2
1 PLACE DECIMALS \pm 0.01
2 PLACE DECIMALS \pm 0.001
3 PLACE DECIMALS \pm 0.005
ANGLES \pm 1 $^{\circ}$
SURFACE ROUGHNESS 32 μ in

THIRD ANGLE PROJECTION



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Conestoga College.

COURSE MECH72165

PROJECT YEAR 2 PROJECT

DRAWN BY DAVID LUTELMOWSKI DATE DEC. 11/20

CHECKED BY DATE

APPROVED DATE



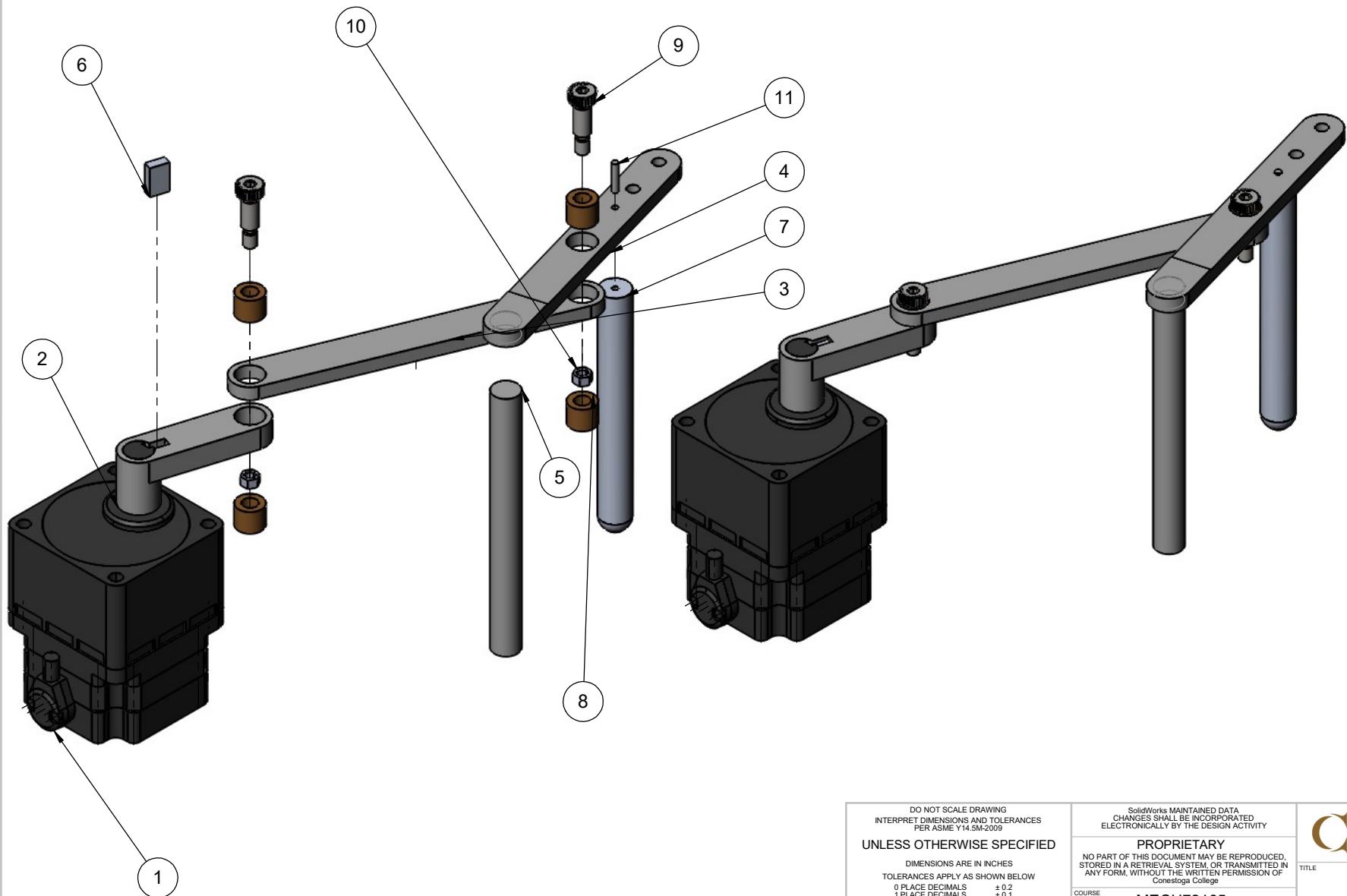
299 Doon Valley Drive, Kitchener, ON, N2G 4M4

PRESS BRACKET

SIZE	DRAWING NO	REVISION
B		0
1:2	0.780 lb	SHEET 16 OF 29

REVISIONS

REV	DESCRIPTION	DATE	APVD
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ITEM NO.	DESCRIPTION	QTY.
1	ROBOT MOTOR	1
2	LINK 1	1
3	LINK 2	1
4	LINK 3	1
5	LINK 3 SUPPORT	1
6	LOCK KEY	1
7	MOVING SUPPORT	1
8	PLAIN BUSHING	4
9	METRIC SOCKET HEAD SHOULDER SCREW 10M 2	2
10	M6 NUT	2
11	M4 DOUBLE END NUT	1

DO NOT SCALE DRAWING
INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-2009

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES

TOLERANCES APPLY AS SHOWN BELOW
0 PLACE DECIMALS ± 0.2
1 PLACE DECIMALS ± 0.1
2 PLACE DECIMALS ± 0.01
3 PLACE DECIMALS ± 0.005
ANGLES $\pm 1^\circ$
SURFACE ROUGHNESS $32 \mu\text{in}$

THIRD ANGLE PROJECTION



SolidWorks MAINTAINED DATA
CHANGES SHALL BE INCORPORATED
ELECTRONICALLY BY THE DESIGN ACTIVITY

PROPRIETARY

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Conestoga College

COURSE MECH72165

PROJECT YEAR 2 PROJECT

DRAWN BY NAMOSHI BHATT DATE DEC.11/20

CHECKED BY

APPROVED

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Connect Life and Learning

299 Doon Valley Drive, Kitchener, ON, N2G 4M4

R-SUBASSEM

TITLE

SIZE

B

DRAWING NO

REVISION

0

SCALE 1:2.5

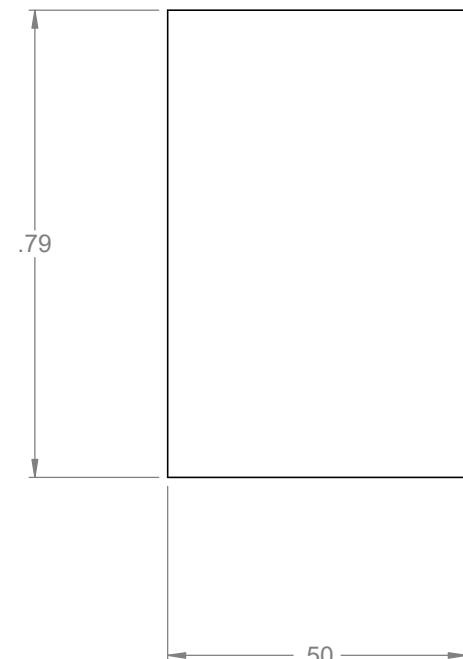
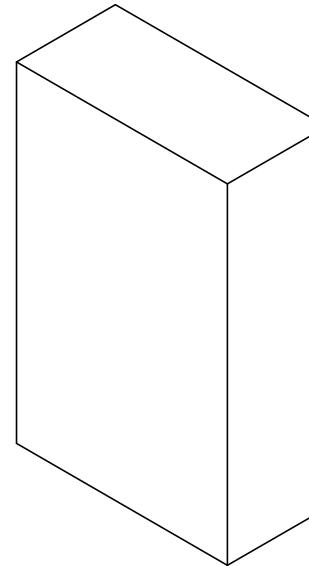
WEIGHT

SHEET 17 OF 29

NOTES:

1. BLANK MATERIAL : 6061 ALUMINUM(3/8"X4"X1")
2. CAN BE MILLED WITH SMALLER BLANK
3. SURFACE FINISHING REQUIRED

REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING
INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-2009

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES

TOLERANCES APPLY AS SHOWN BELOW
0 PLACE DECIMALS ± 0.2
1 PLACE DECIMALS ± 0.1
2 PLACE DECIMALS ± 0.01
3 PLACE DECIMALS ± 0.005
ANGLES $\pm 1^\circ$
SURFACE ROUGHNESS $32 \mu\text{in}$

SolidWorks MAINTAINED DATA
CHANGES SHALL BE INCORPORATED
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COURSE MECH72165

PROJECT YEAR 2 PROJECT

DRAWN BY NAMOSHI BHATT DATE DEC.11/20

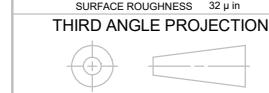
CHECKED BY

APPROVED

CONESTOGA
Connect Life and Learning

299 Doon Valley Drive, Kitchener, ON, N2G 4M4

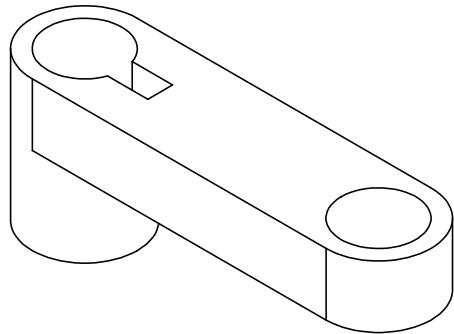
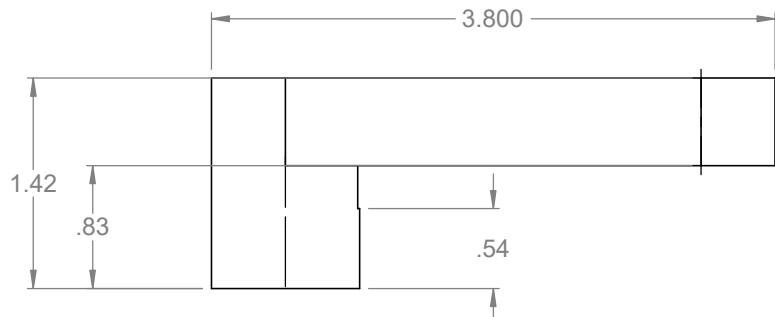
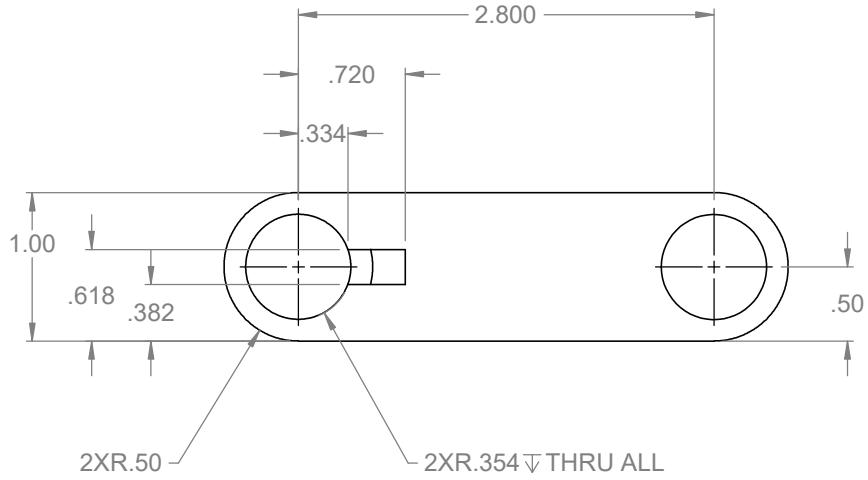
KEY



TITLE	KEY		
SIZE	DRAWING NO	SCALE	WEIGHT
B		4:1	0.009 lb

NOTES:
1. BLANK MATERIAL : 6061 ALUMINUM (4"X2"X1")
2. SPECIAL BLANK SIZE WILL BE NEEDED

REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING
INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-2009

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
TOLERANCES APPLY AS SHOWN BELOW

0 PLACE DECIMALS ± 0.2
1 PLACE DECIMALS ± 0.01
2 PLACE DECIMALS ± 0.001
3 PLACE DECIMALS ± 0.0005
ANGLES $\pm 1^\circ$
SURFACE ROUGHNESS $32 \mu\text{in}$

THIRD ANGLE PROJECTION

SolidWorks MAINTAINED DATA
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COURSE MECH72165

PROJECT YEAR 2 PROJECT

DRAWN BY NAMOSHI BHATT DATE DEC.11/20

CHECKED BY DATE

APPROVED DATE

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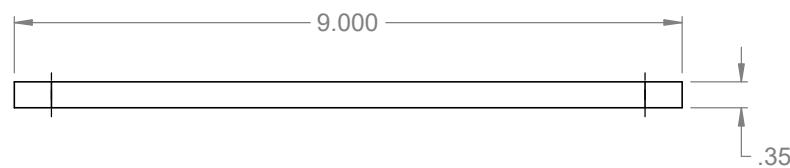
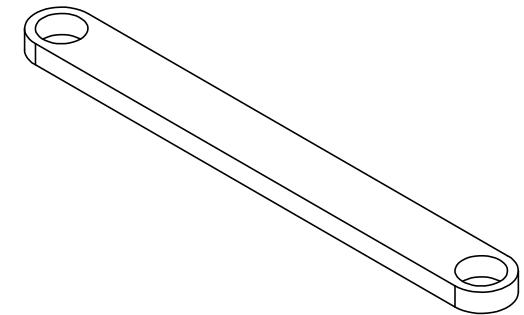
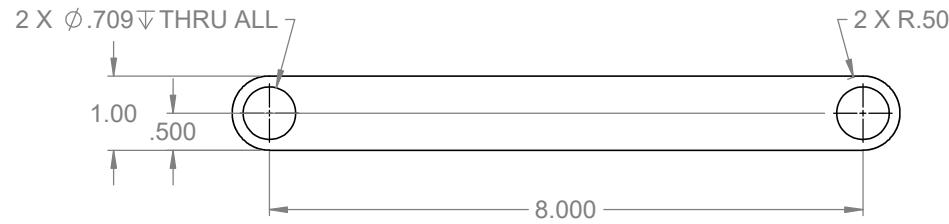
299 Doon Valley Drive, Kitchener, ON, N2G 4M4

LINK ONE

SIZE		DRAWING NO		REVISION	
B				0	
SCALE	1:1	WEIGHT	0.547 lb	SHEET	19 OF 29

NOTES:
1. BLANK MATERIAL : 6061 ALUMINUM (9"X1.2"X3/8")
2. REMOVE ALL BURRS

REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING
INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-2009

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES

TOLERANCES APPLY AS SHOWN BELOW

0 PLACE DECIMALS	± 0.2
1 PLACE DECIMALS	± 0.1
2 PLACE DECIMALS	± 0.01
3 PLACE DECIMALS	± 0.005
ANGLES	$\pm 1^\circ$
SURFACE ROUGHNESS	$32 \mu\text{in}$

THIRD ANGLE PROJECTION

SolidWorks MAINTAINED DATA
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PROPRIETARY

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COURSE MECH72165

PROJECT YEAR 2 PROJECT

DRAWN BY NAMOSHI BHATT DATE DEC.11/20

CHECKED BY

APPROVED

C CONESTOGA
Connect Life and Learning

299 Doon Valley Drive, Kitchener, ON, N2G 4M4

TITLE

LINK TWO

SIZE B DRAWING NO

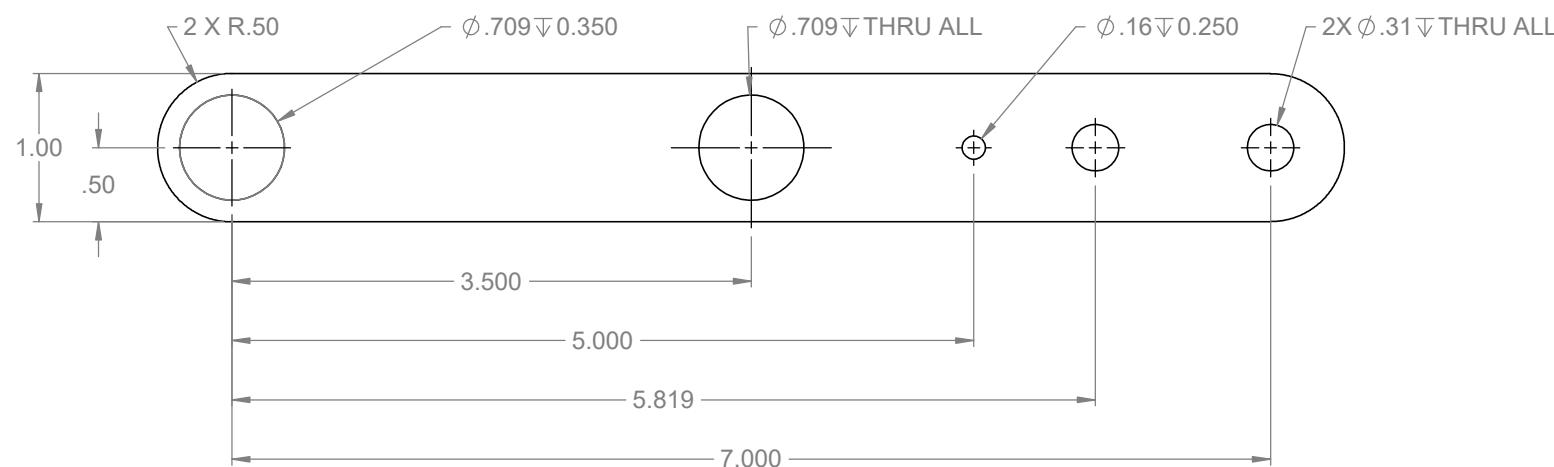
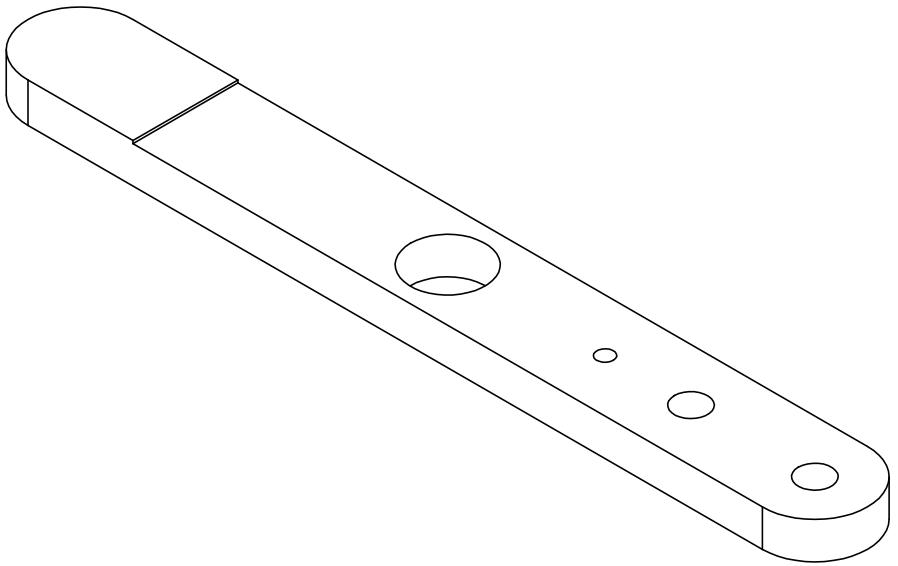
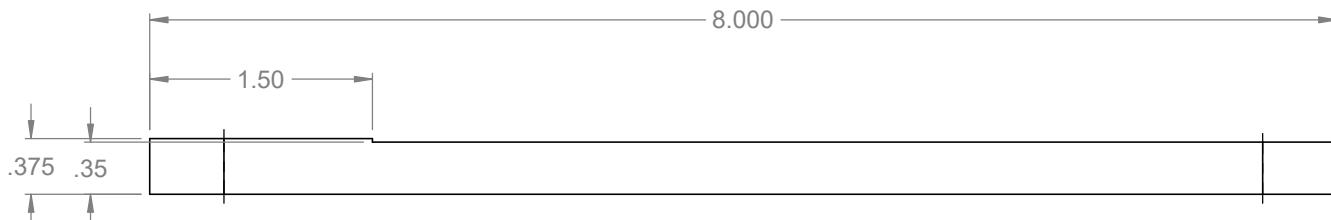
SCALE 1:2 WEIGHT 0.800 lb

REVISION 0

SHEET 20 OF 29

NOTES:
1. BLANK MATERIAL : 6061 ALUMINUM(9"X1.2"X3/8")
2. REMOVE ALL BURRS

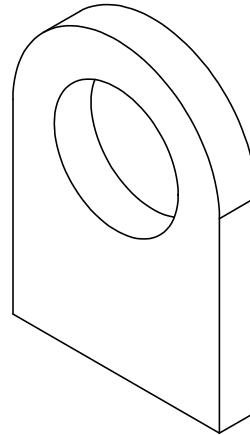
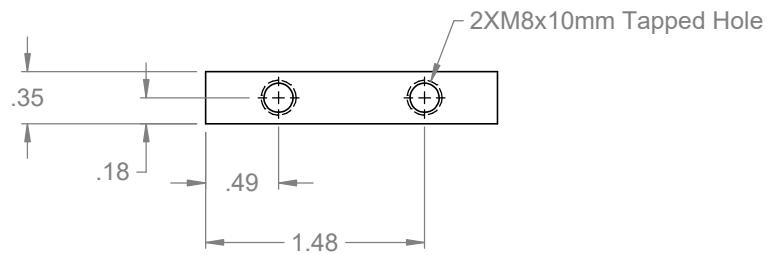
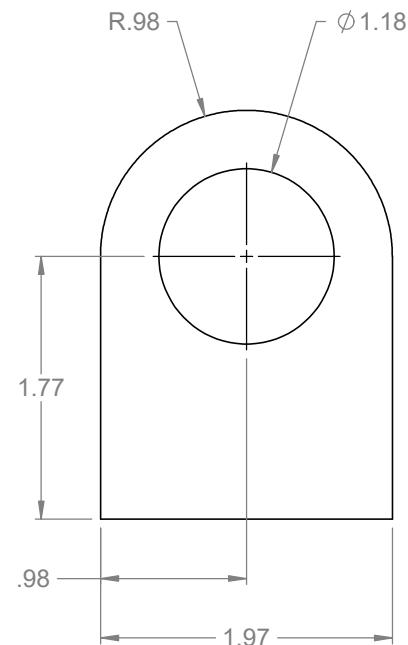
REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-2009		SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY	
UNLESS OTHERWISE SPECIFIED			
DIMENSIONS ARE IN INCHES			
TOLERANCES APPLY AS SHOWN BELOW			
0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.1 2 PLACE DECIMALS ± 0.01 3 PLACE DECIMALS ± 0.005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu \text{in}$			
PROPRIETARY			
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COURSE MECH72165		PROJECT YEAR 2 PROJECT	
DRAWN BY NAMOSHI BHATT		DATE DEC.11/20	
CHECKED BY		DATE	
APPROVED		DATE	
TITLE LINK THREE		SIZE B	
DRAWING NO		REVISION 0	
SCALE 1:1		WEIGHT 0.693 lb	
SHEET 21 OF 29			

NOTES:
 1. BLANK MATERIAL : 6061 ALUMINUM(3"X2"X3/8")
 2. CLEAN ALL TAPPED HOLES

REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING
 INTERPRET DIMENSIONS AND TOLERANCES
 PER ASME Y14.5M-2009

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES

TOLERANCES APPLY AS SHOWN BELOW
 0 PLACE DECIMALS ± 0.2
 1 PLACE DECIMALS ± 0.1
 2 PLACE DECIMALS ± 0.01
 3 PLACE DECIMALS ± 0.005
 ANGLES $\pm 1^\circ$
 SURFACE ROUGHNESS $32 \mu\text{in}$

SolidWorks MAINTAINED DATA
 CHANGES SHALL BE INCORPORATED
 ELECTRONICALLY BY THE DESIGN ACTIVITY

PROPRIETARY

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COURSE MECH72165

PROJECT YEAR 2 PROJECT

DRAWN BY NAMOSHI BHATT DEC.11/20

CHECKED BY DATE

APPROVED DATE



299 Doon Valley Drive, Kitchener, ON, N2G 4M4

BRACKET

TITLE

SIZE DRAWING NO

B

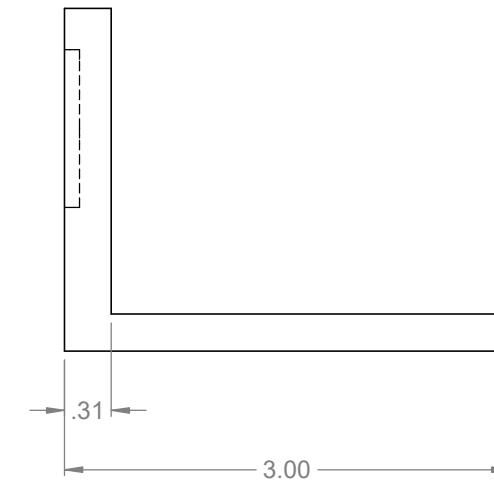
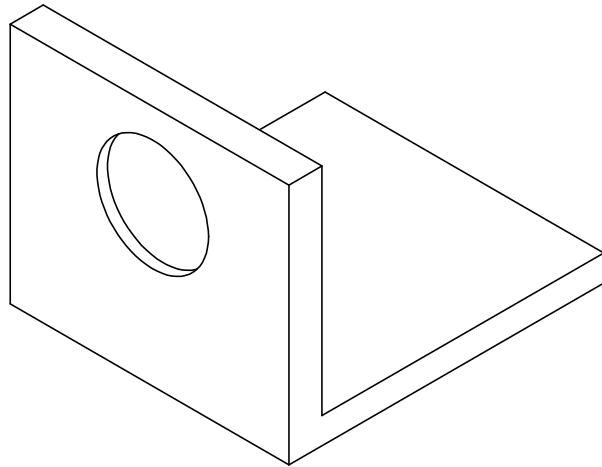
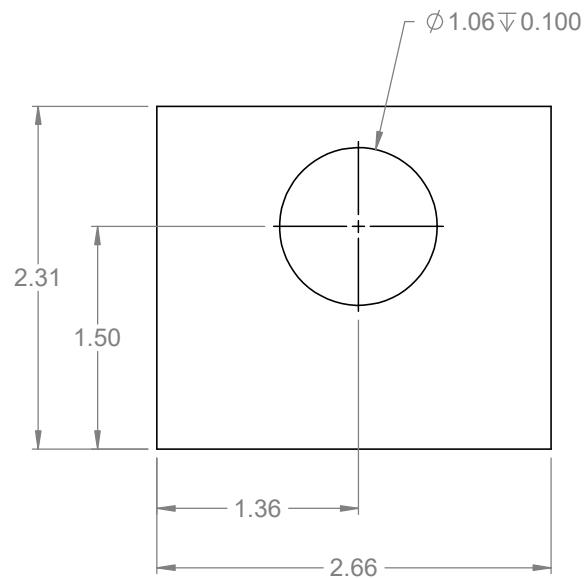
REVISION

0

SCALE 1:1 WEIGHT 0.130 lb SHEET 22 OF 29

NOTES:
 1. BLANK MATERIAL : 6061 ALUMINUM(1/2"X3"X3")
 2. REMOVE ALL BURRS

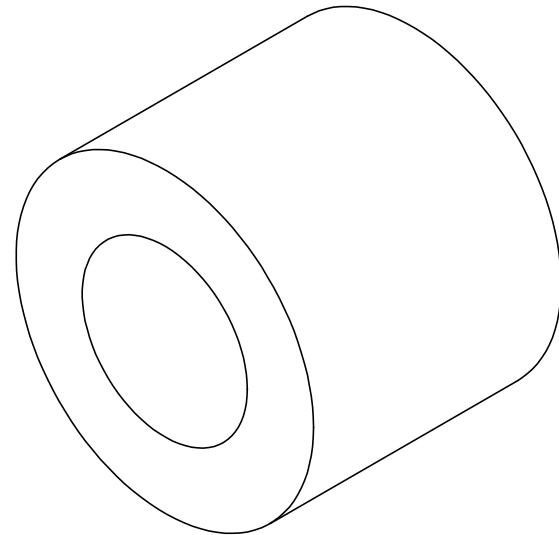
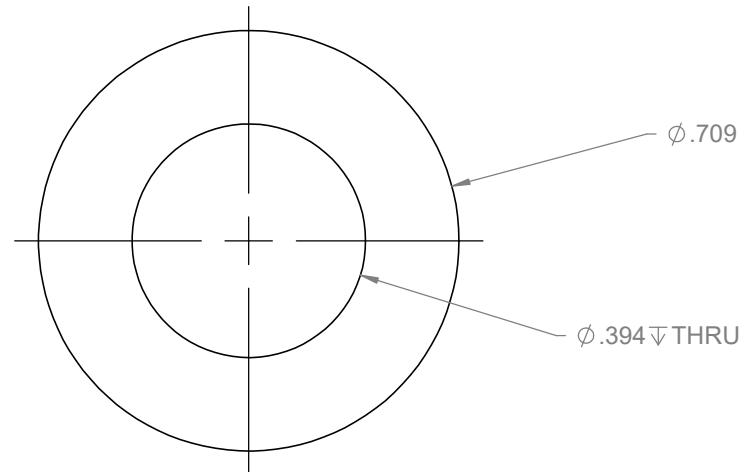
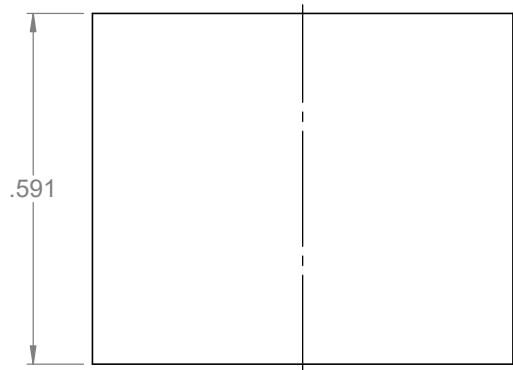
REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-2009	SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY	C CONESTOGA Connect Life and Learning 299 Doon Valley Drive, Kitchener, ON, N2G 4M4		
UNLESS OTHERWISE SPECIFIED	PROPRIETARY			
DIMENSIONS ARE IN INCHES TOLERANCES APPLY AS SHOWN BELOW	NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College			
0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.1 2 PLACE DECIMALS ± 0.01 3 PLACE DECIMALS ± 0.005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu\text{in}$	COURSE MECH72165 PROJECT YEAR 2 PROJECT			
THIRD ANGLE PROJECTION	DRAWN BY NAMOSHI BHATT DATE DEC.11/20	SIZE B	DRAWING NO	REVISION 0
	CHECKED BY APPROVED DATE	1:1	WEIGHT 0.354 lb	SHEET 23 OF 24

NOTES:
1. BLANK MATERIAL : OLLITE BRONZE ROUND BAR
(1-3/8"X0.6")

REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-2009		SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY	
UNLESS OTHERWISE SPECIFIED			
DIMENSIONS ARE IN INCHES			
TOLERANCES APPLY AS SHOWN BELOW			
0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.1 2 PLACE DECIMALS ± 0.01 3 PLACE DECIMALS ± 0.005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu\text{in}$			
THIRD ANGLE PROJECTION		PROPRIETARY	
 		NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College	
DRAWN BY NAMOSHI BHATT DATE DEC.11/20		COURSE MECH72165	
CHECKED BY		PROJECT YEAR 2 PROJECT	
APPROVED		DATE	
SIZE B		DRAWING NO	
SCALE 4:1		WEIGHT 0.0430 lb	
		REVISION 0	

PLAIN BUSHING

C CONESTOGA
Connect Life and Learning
299 Doon Valley Drive, Kitchener, ON, N2G 4M4

TITLE

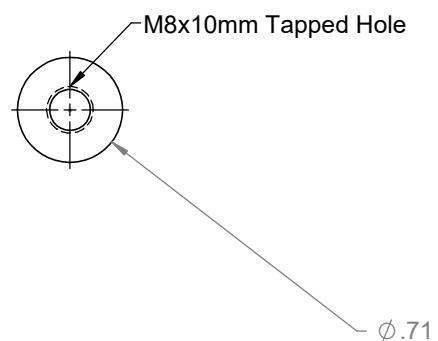
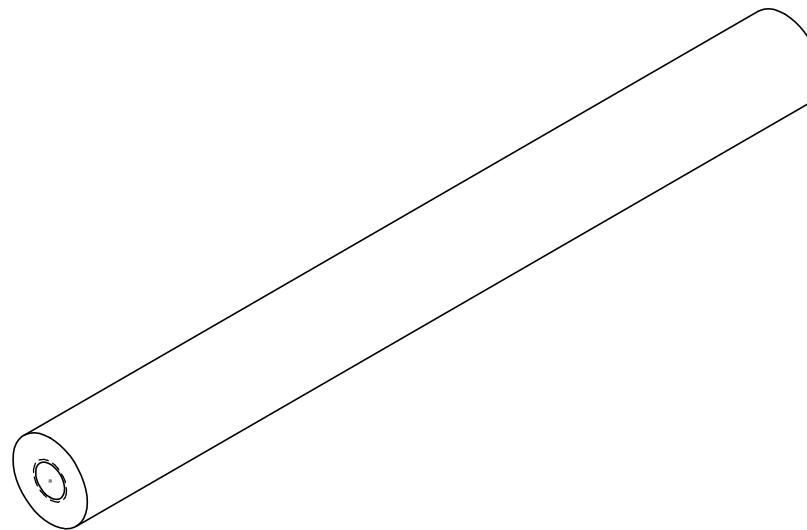
REVISION

0

NOTES:

1. BLANK MATERIAL : 6061 ALUMINUM ROUND BAR
(1/2"X7.1")
2. FACE BOTH ENDS

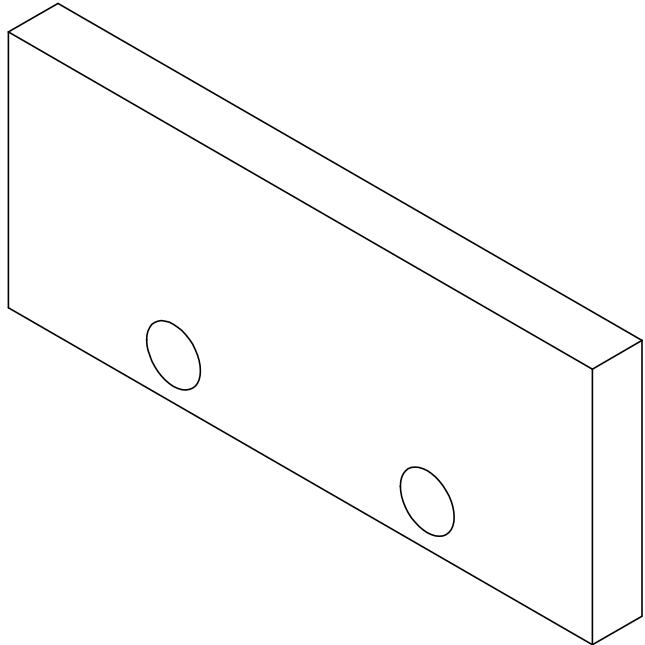
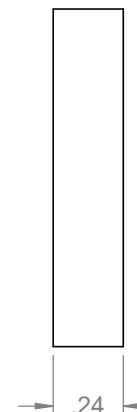
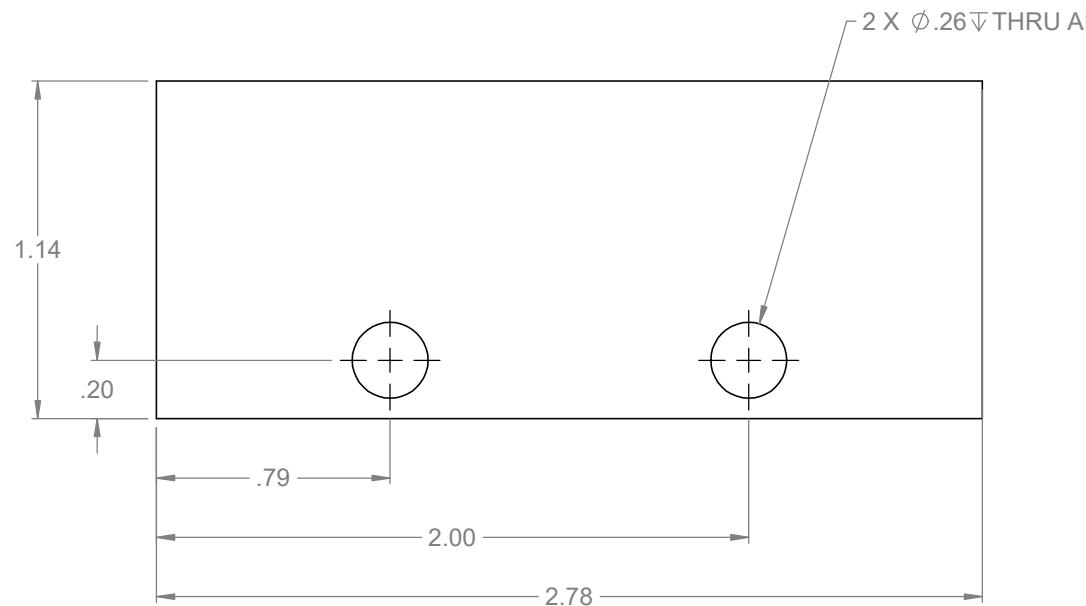
REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-2009		SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY	
UNLESS OTHERWISE SPECIFIED			
DIMENSIONS ARE IN INCHES			
TOLERANCES APPLY AS SHOWN BELOW			
0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.1 2 PLACE DECIMALS ± 0.01 3 PLACE DECIMALS ± 0.005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu\text{in}$			
THIRD ANGLE PROJECTION		PROPRIETARY	
 		NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College	
COURSE		MECH72165	
PROJECT		YEAR 2 PROJECT	
DRAWN BY		NAMOSHI BHATT	
CHECKED BY		DATE DEC.11/20	
APPROVED		DATE	
SIZE		DRAWING NO	
B			
SCALE		1:1	
WEIGHT		0.779 lb	
REVISION		0	
LINK 3 SUPPORT			
C CONESTOGA Connect Life and Learning 299 Doon Valley Drive, Kitchener, ON, N2G 4M4			
SHEET 25 OF 29			

NOTES:
1. BLANK MATERIAL : 6061 ALUMINUM (1/4"X1-
1/2"X4")
2. REMOVE ALL BURRS

REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING
INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-2009

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES

TOLERANCES APPLY AS SHOWN BELOW
0 PLACE DECIMALS ± 0.2
1 PLACE DECIMALS ± 0.1
2 PLACE DECIMALS ± 0.01
3 PLACE DECIMALS ± 0.005
ANGLES $\pm 1^\circ$
SURFACE ROUGHNESS $32 \mu\text{in}$

THIRD ANGLE PROJECTION



SolidWorks MAINTAINED DATA
CHANGES SHALL BE INCORPORATED
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PROPRIETARY

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Conestoga College

COURSE

MECH72165

PROJECT

YEAR 2 PROJECT

DRAWN BY

NAMOSHI BHATT

DATE

DEC.11/20

CHECKED BY

APPROVED

DATE

APPROVED

DATE



299 Doon Valley Drive, Kitchener, ON, N2G 4M4

INDEX TOP

TITLE

SIZE

DRAWING NO

REVISION

B 0

2:1

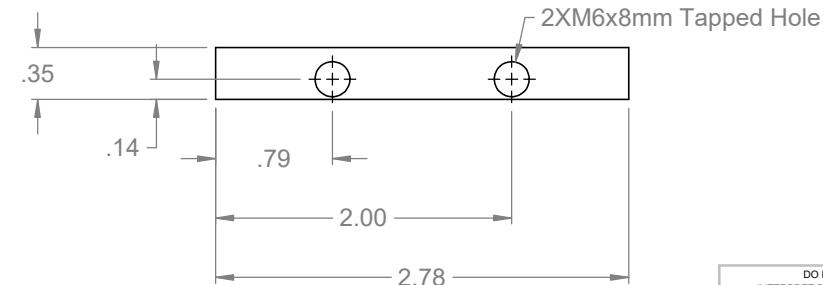
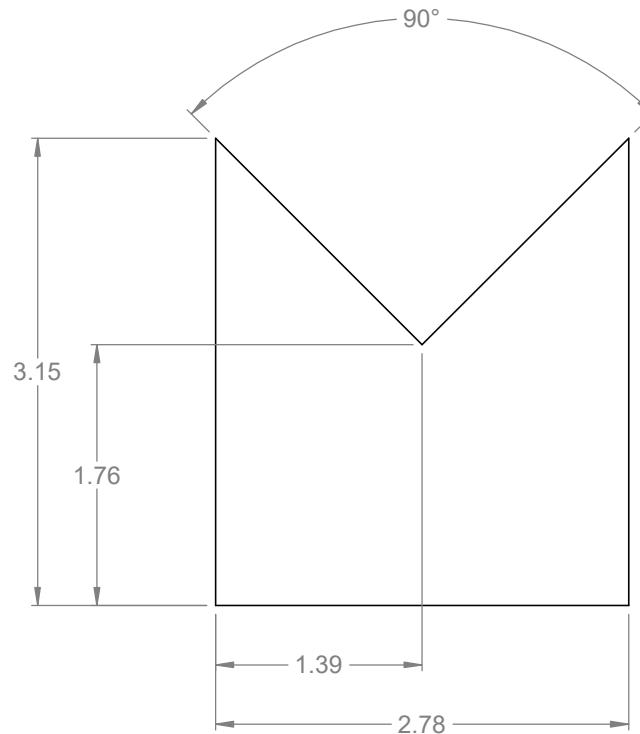
WEIGHT 0.071 lb

SHEET 26 OF 29

NOTES:

1. BLANK MATERIAL : 6061 ALUMINUM (4"X3"X3/8")
2. ALL ANGLES ARE 0 PLACE DECIMALS

REVISIONS			
REV	DESCRIPTION	DATE	APVD



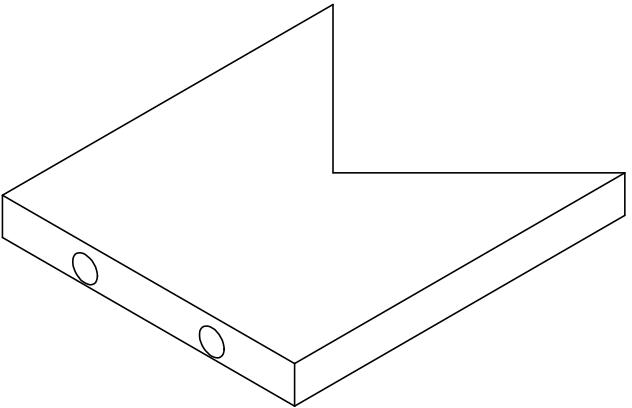
DO NOT SCALE DRAWING
INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-2009
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES APPLY AS SHOWN BELOW

0 PLACE DECIMALS	± 0.2
1 PLACE DECIMALS	± 0.1
2 PLACE DECIMALS	± 0.01
3 PLACE DECIMALS	± 0.005
ANGLES	$\pm 1^\circ$
SURFACE ROUGHNESS	$32 \mu\text{in}$

THIRD ANGLE PROJECTION

SolidWorks MAINTAINED DATA
CHANGES SHALL BE INCORPORATED
ELECTRONICALLY BY THE DESIGN ACTIVITY
PROPRIETARY
NO PART OF THIS DOCUMENT MAY BE REPRODUCED,
STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN
ANY FORM, WITHOUT THE WRITTEN PERMISSION OF
Conestoga College

COURSE	MECH72165
PROJECT	YEAR 2 PROJECT
DRAWN BY	NAMOSHI BHATT
CHECKED BY	DATE DEC.11/20
APPROVED	DATE



C CONESTOGA
Connect Life and Learning

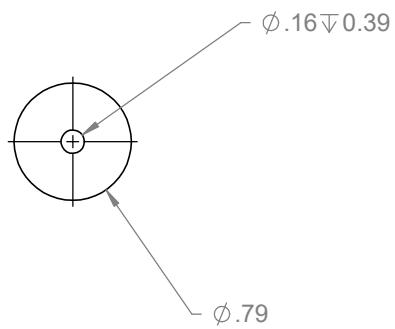
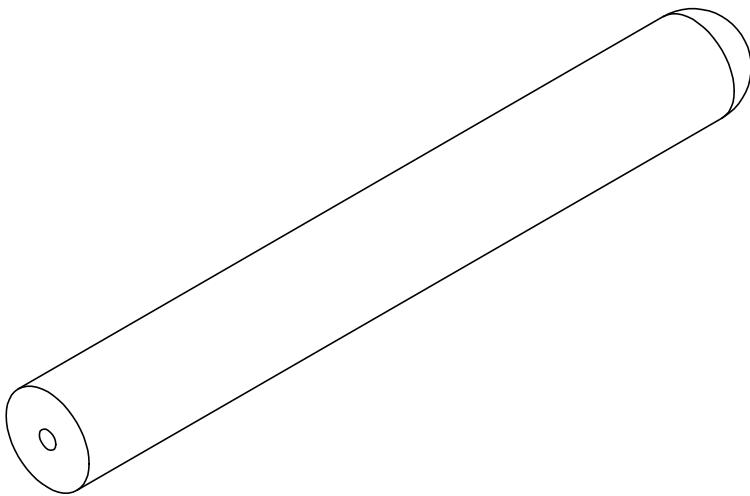
299 Doon Valley Drive, Kitchener, ON, N2G 4M4

INDEXER

TITLE	INDEXER		
	SIZE	DRAWING NO	REVISION
B	1:1	0.230 lb	0

NOTES:
1. BLANK MATERIAL : 6061 ALUMINUM ROUND BAR
(1"X7")
2. BLANK MAY NEED TO BE SPECIAL ORDERED

REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-2009		SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY	
UNLESS OTHERWISE SPECIFIED			
DIMENSIONS ARE IN INCHES			
TOLERANCES APPLY AS SHOWN BELOW			
0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.01 2 PLACE DECIMALS ± 0.001 3 PLACE DECIMALS ± 0.0005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu\text{in}$			
THIRD ANGLE PROJECTION		PROPRIETARY	
 		NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College	
COURSE		MECH72165	
PROJECT		YEAR 2 PROJECT	
DRAWN BY		DATE	
NAMOSHI BHATT		DEC.11/20	
CHECKED BY		DATE	
APPROVED		DATE	
SIZE		DRAWING NO	
B		0	
SCALE		1:1	
WEIGHT		0.306 lb	
SHEET		28 OF 29	

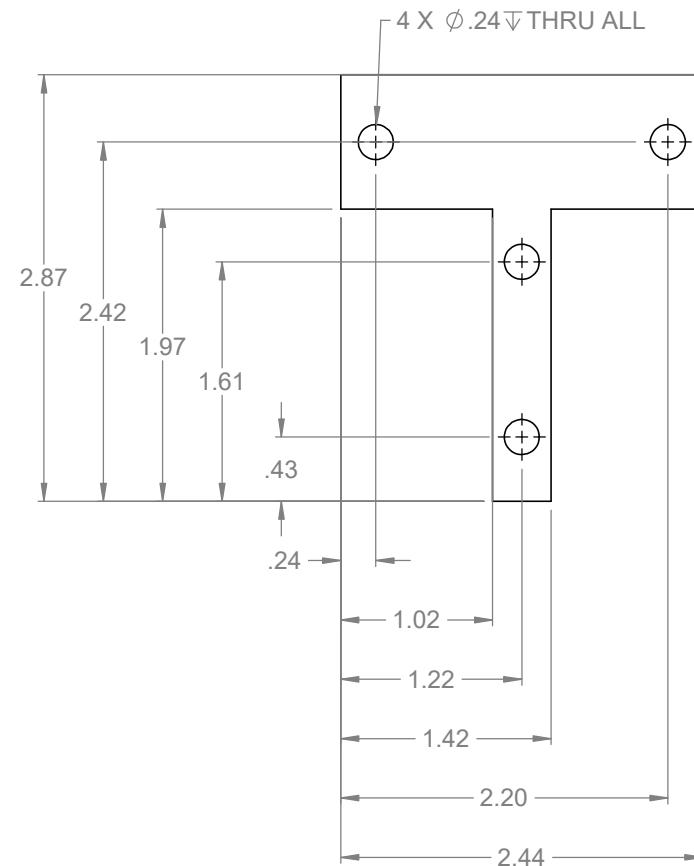
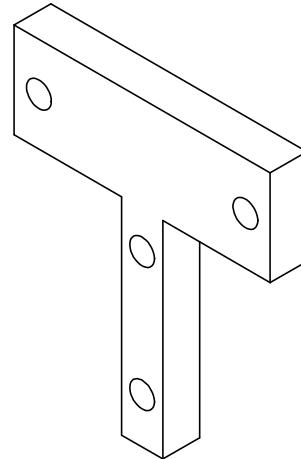
MOVING SUPPORT



299 Doon Valley Drive, Kitchener, ON, N2G 4M4

NOTES:
 1. MATERIAL : 6061 ALUMINUM (3/8"X3"X3")
 2. REMOVE ALL BURRS

REVISIONS			
REV	DESCRIPTION	DATE	APVD



DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-2009		SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY	
UNLESS OTHERWISE SPECIFIED			
DIMENSIONS ARE IN INCHES			
TOLERANCES APPLY AS SHOWN BELOW			
0 PLACE DECIMALS ± 0.2 1 PLACE DECIMALS ± 0.1 2 PLACE DECIMALS ± 0.01 3 PLACE DECIMALS ± 0.005 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS $32 \mu\text{in}$			
THIRD ANGLE PROJECTION		PROPRIETARY	
 		NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College	
COURSE: MECH72165		PROJECT: YEAR 2 PROJECT	
DRAWN BY: NAMOSHI BHATT		DATE: DEC.11/20	
CHECKED BY:		DATE:	
APPROVED:		DATE:	
SIZE: B		DRAWING NO:	
SCALE: 1:1		WEIGHT: 0.096 lb	
REVISION: 0		SHEET 29 OF 29	