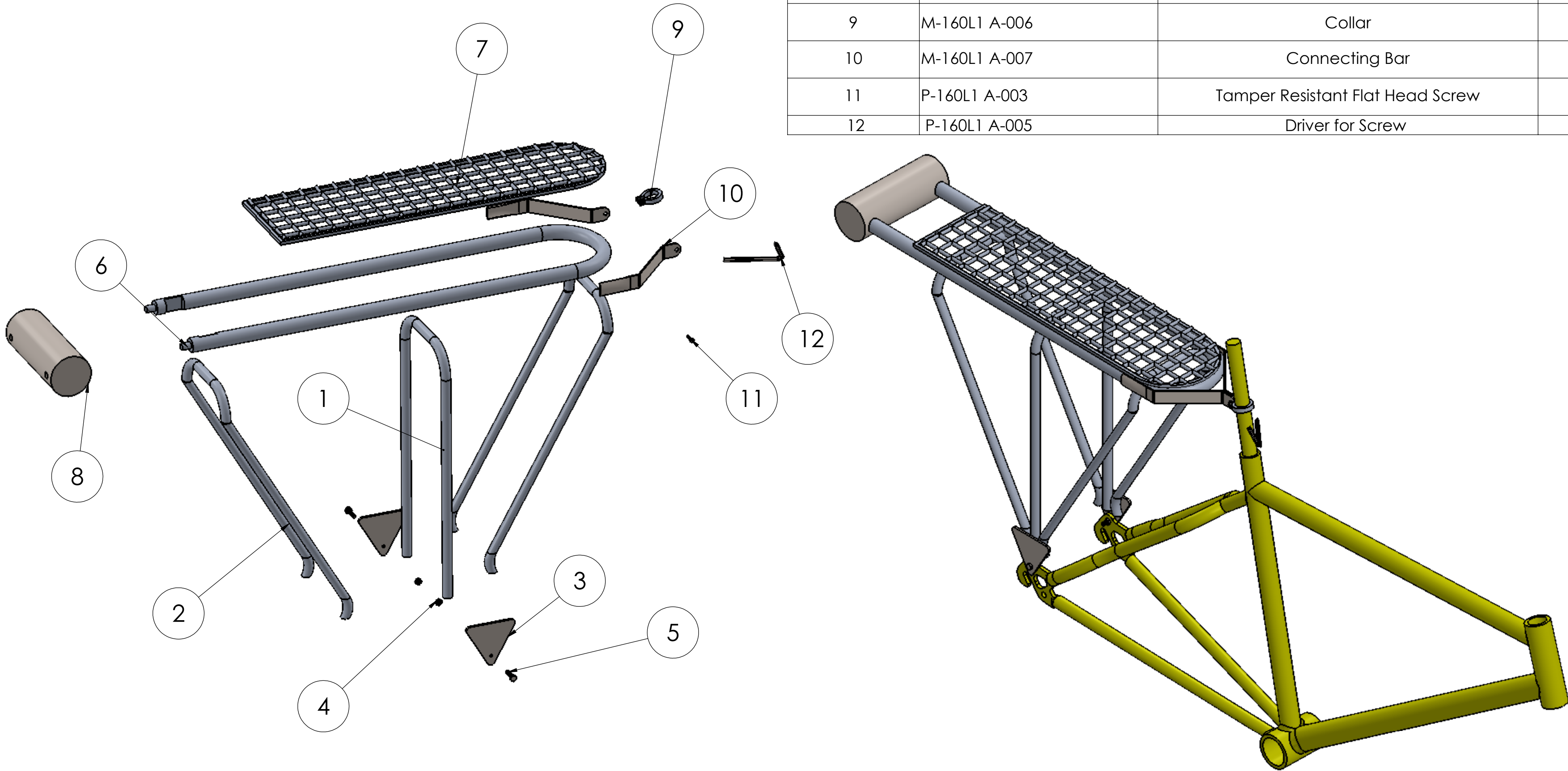
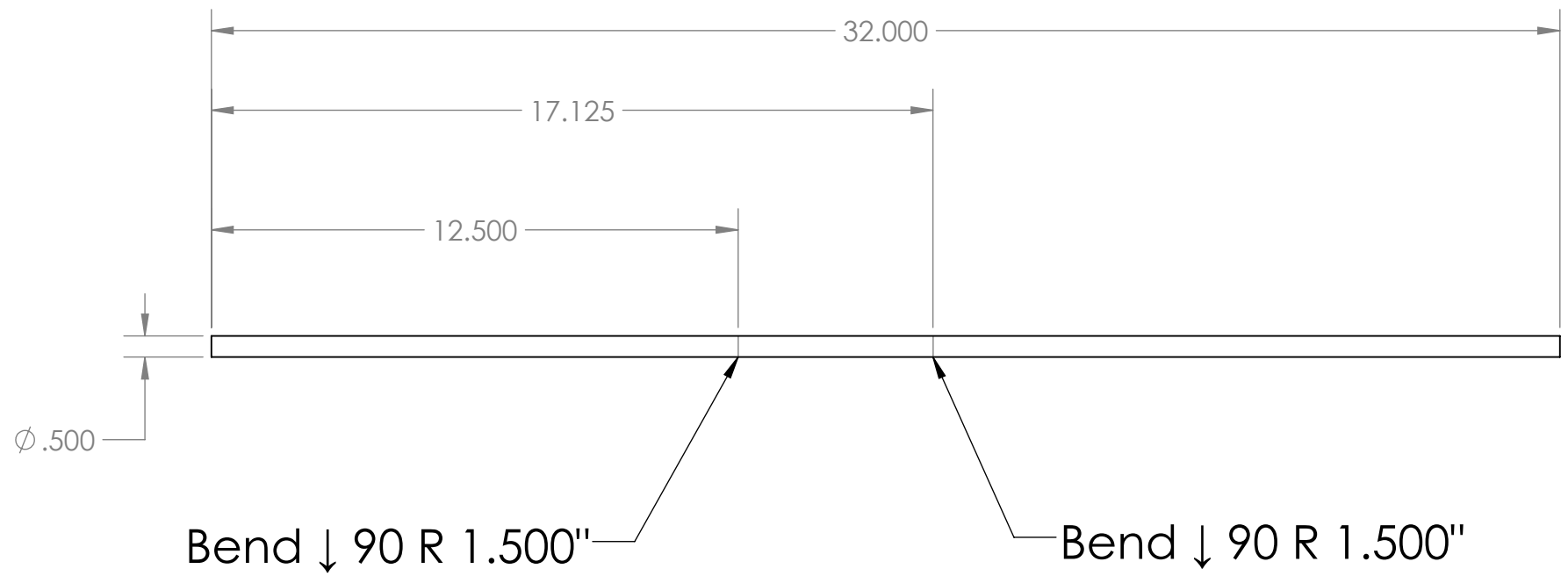
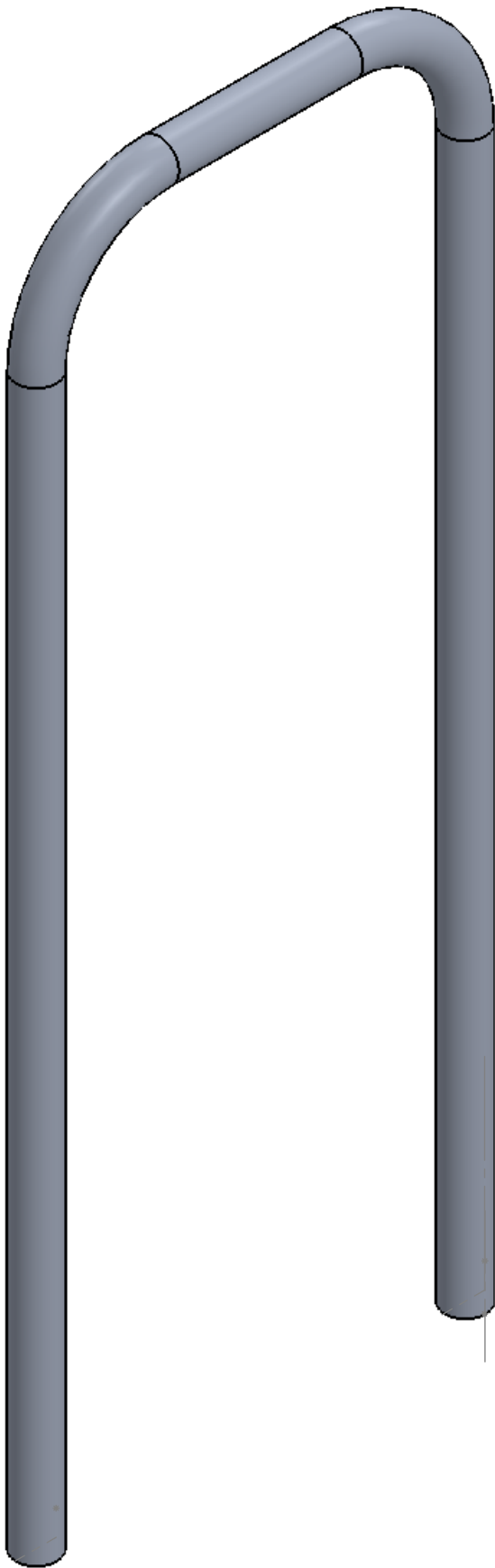




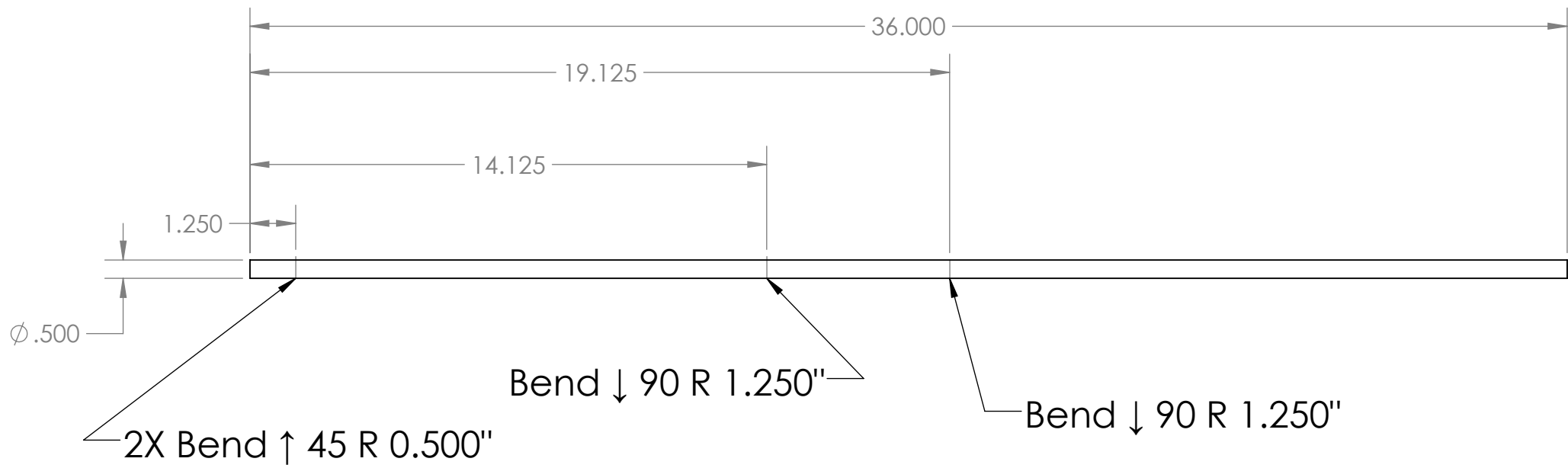
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	M-160L1 A-001	Center Support	1
2	M-160L1 A-002	Side Support	2
3	M-160L1 A-003	Support Attachment	2
4	P-160L1 A-001	Hex Nut	2
5	P-160L1 A-002	Hex Screw	2
6	M-160L1 A-004	U-Lock Frame	1
7	M-160L1 A-005	Grating	1
8	P-160L1 A-003	Lock (Purchased)	1
9	M-160L1 A-006	Collar	1
10	M-160L1 A-007	Connecting Bar	2
11	P-160L1 A-003	Tamper Resistant Flat Head Screw	1
12	P-160L1 A-005	Driver for Screw	1



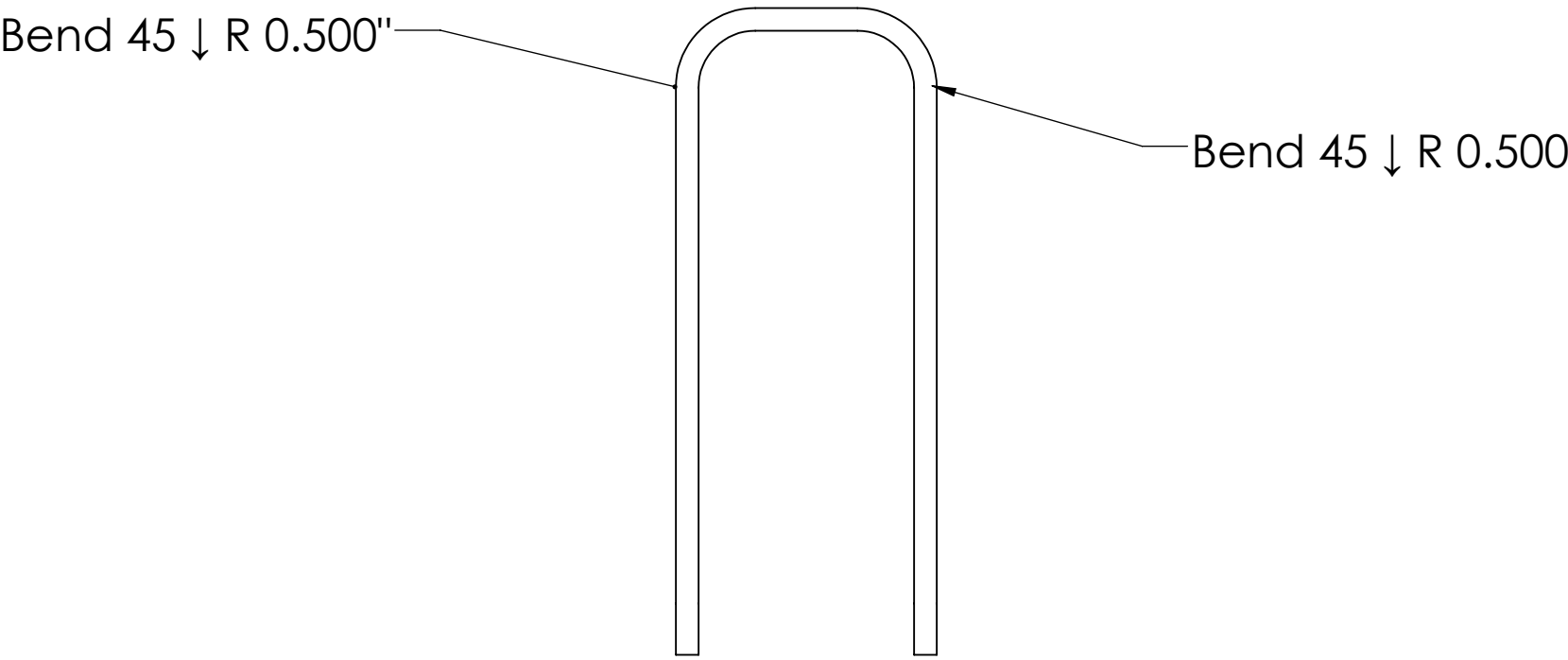
UNLESS OTHERWISE SPECIFIED: DIMENSIONS IN INCHES			
TOLERANCES: .XX ±.01    .XXX ±.005 FRACTIONS ±1/64 ANGULAR MACHINED ±.5° ANGULAR BEND ±1°			
SURFACE FINISH BREAK ALL EDGES .030			
125/			
DO NOT SCALE			
SHEET 1 OF 1			
TITLE: Locking Bike Luggage Rack			
SIZE: C	DATE: 11/1/2015	DRAWN BY: Group 6B	
MATERIAL: MATERIAL	PART #: A-160L1-A001	REV: REV	



UNLESS OTHERWISE SPECIFIED: DIMENSIONS IN INCHES				CASE SCHOOL OF ENGINEERING	
TOLERANCES: .XX ±.01    .XXX ±.005 FRACTIONS ±1/64 ANGULAR MACHINED ±.5° ANGULAR BEND ±1°				CASE WESTERN RESERVE UNIVERSITY	
SURFACE FINISH BREAK ALL EDGES .030				TITLE:  Center Support	
DO NOT SCALE		SIZE: <b>B</b>	DATE: 11/2/2015	DRAWN BY:  Group 6B	
		MATERIAL: 1/2" 6061 Aluminum		PART #: M-160L1 A-001	REV: REV
SHEET 1 OF 1					



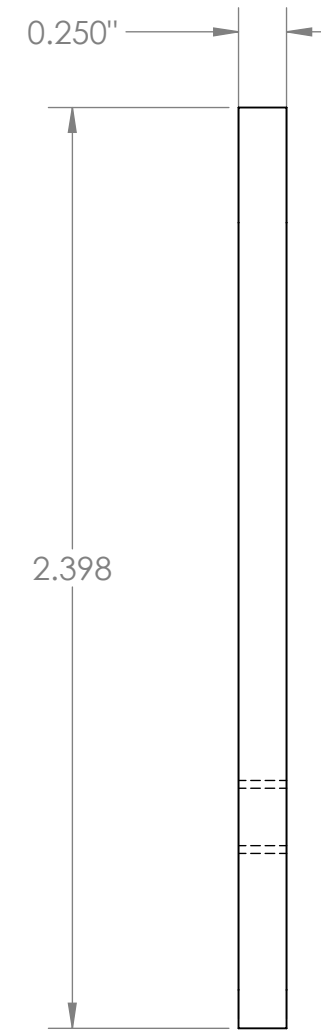
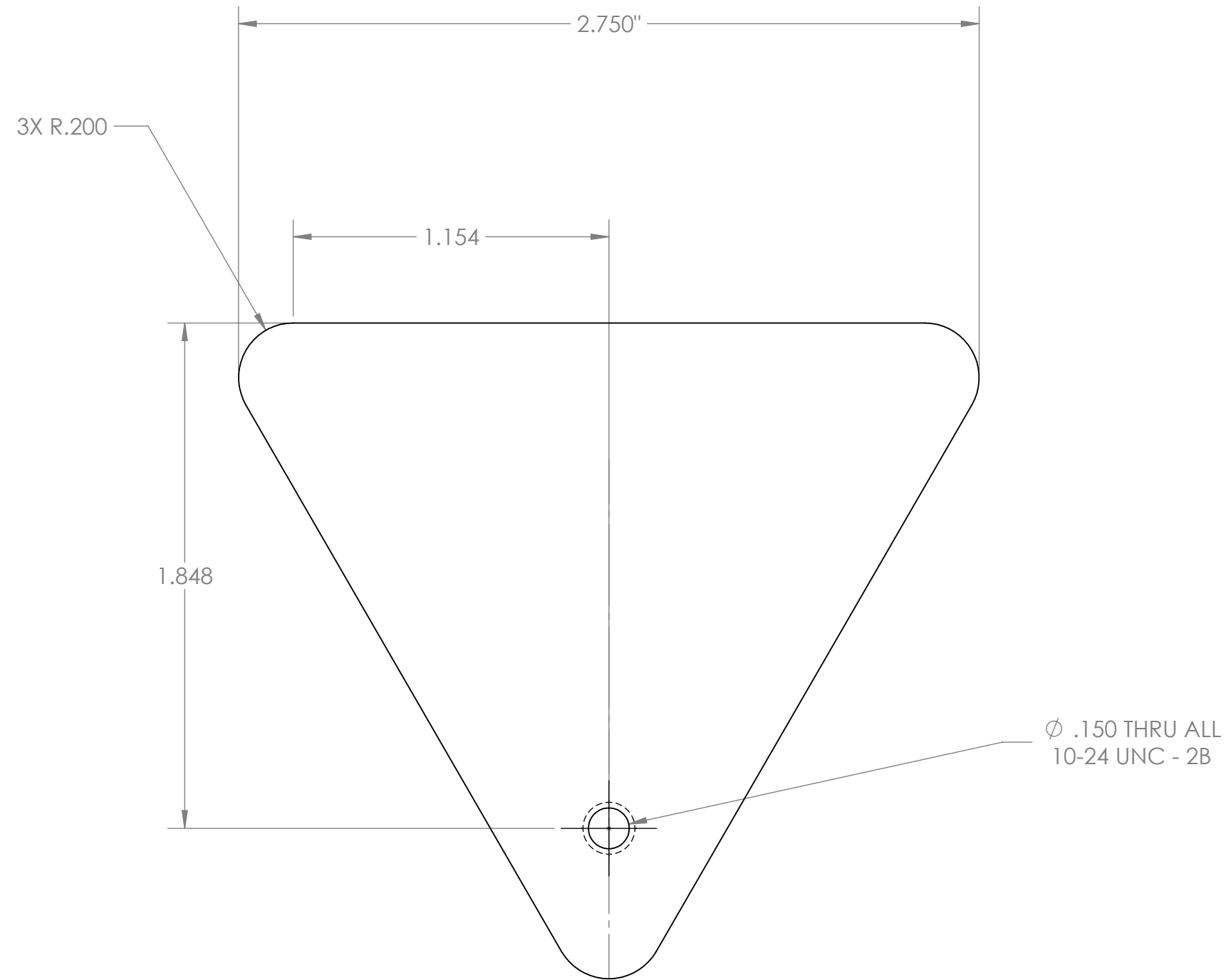
Development 1




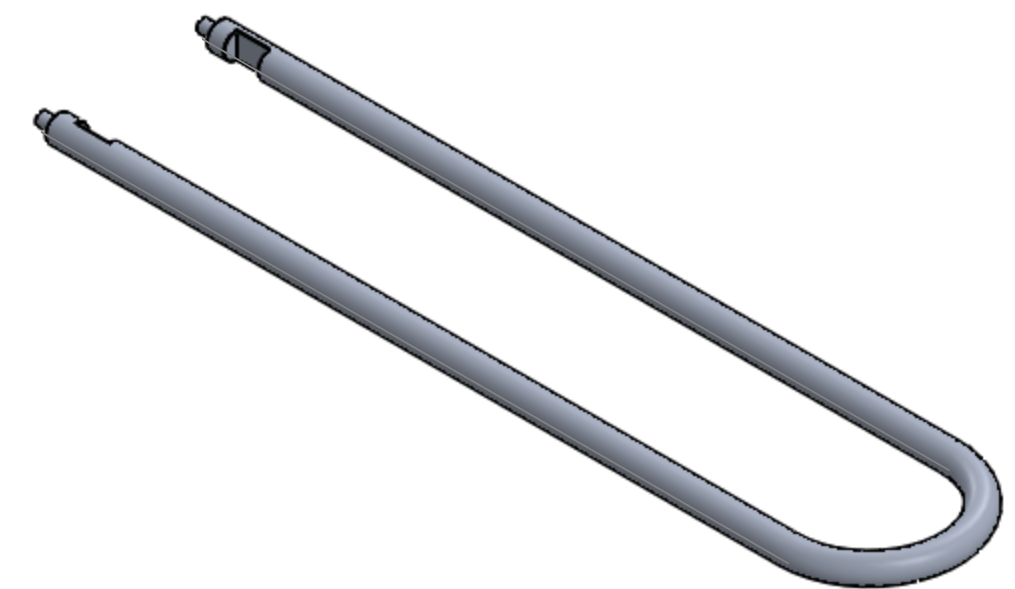
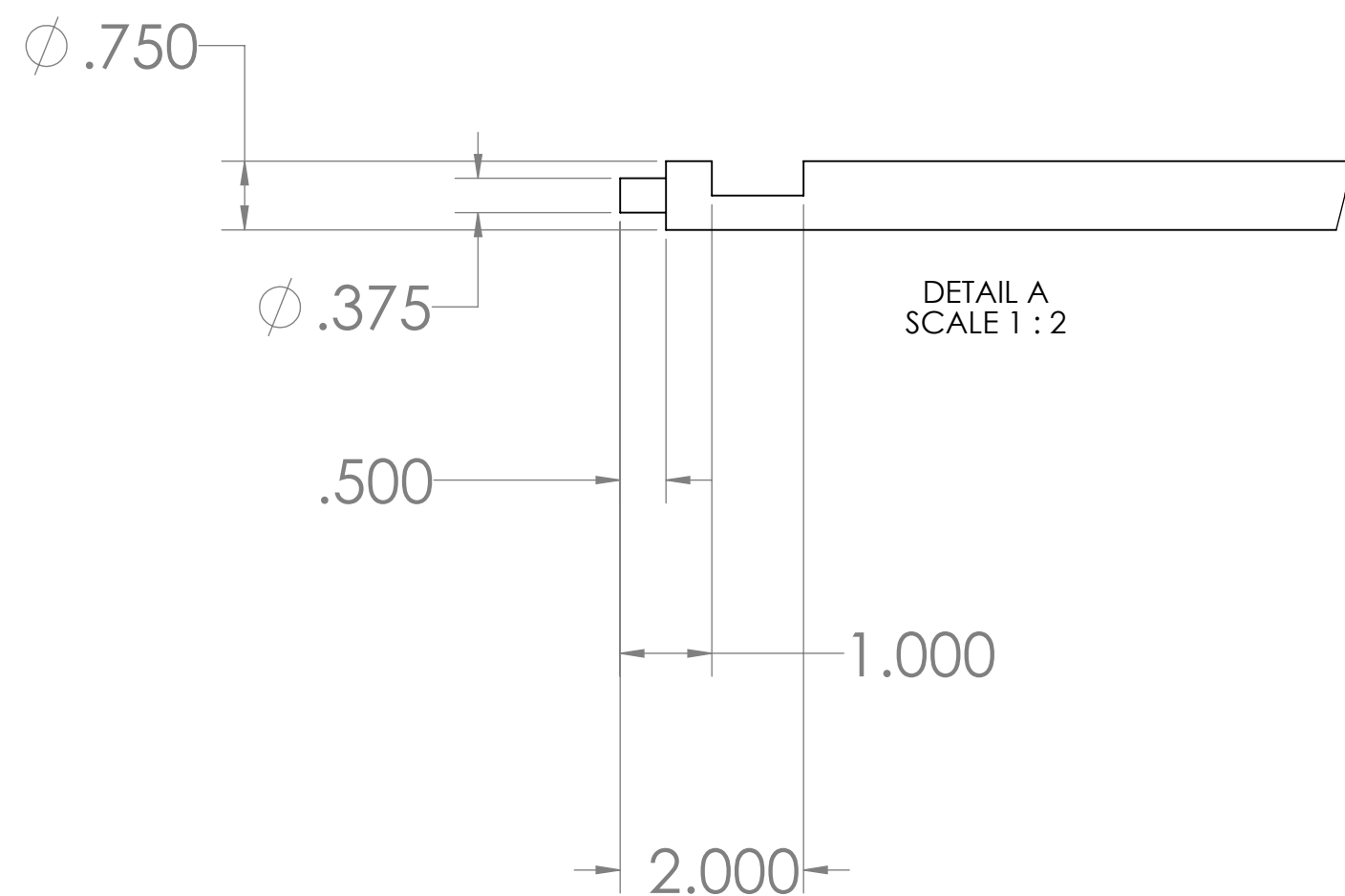
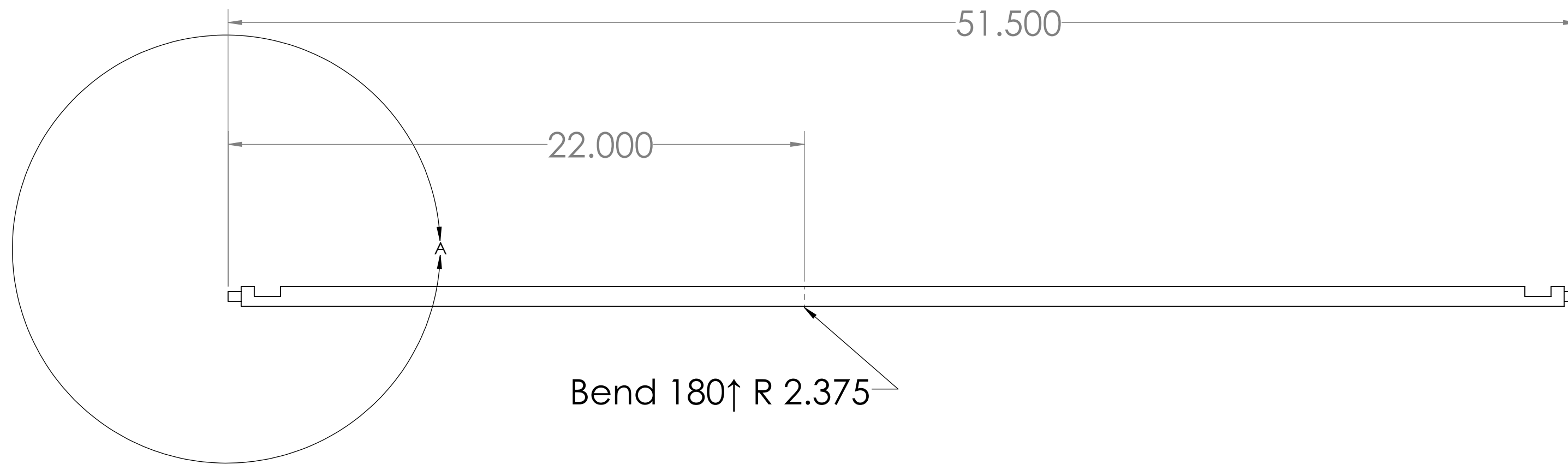
Development 2




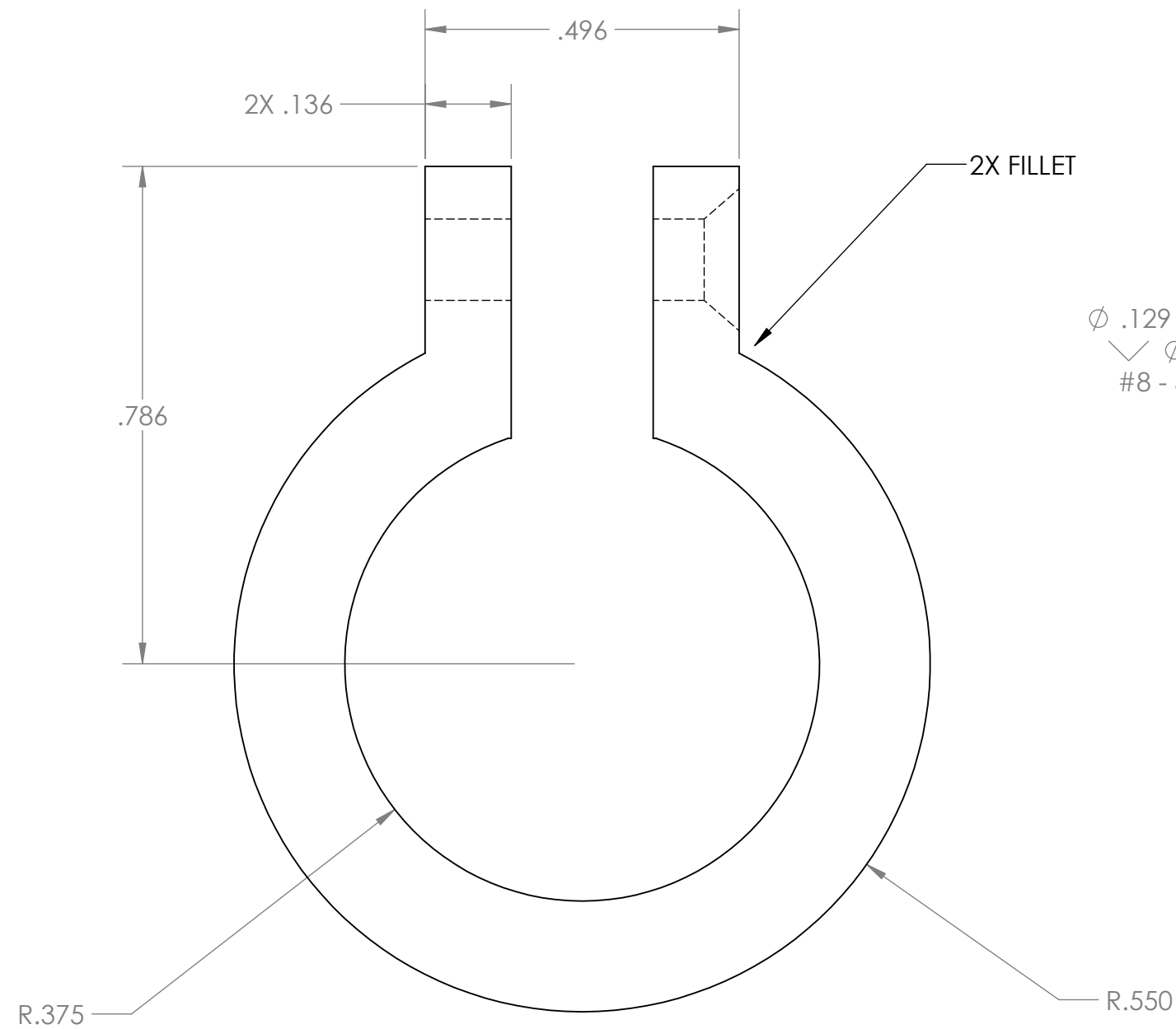
UNLESS OTHERWISE SPECIFIED: DIMENSIONS IN INCHES  TOLERANCES: .XX $\pm$ .01 .XXX $\pm$ .005 FRACTIONS $\pm$ 1/64 ANGULAR MACHINED $\pm$ .5° ANGULAR BEND $\pm$ 1°  SURFACE FINISH BREAK ALL EDGES .030		TITLE:  Side Support		DRAWN BY:  Group 6B	
DO NOT SCALE		SIZE: <b>B</b>	DATE: 11/2/2015	PART #:	REV:
SHEET 1 OF 1		1/2" 6061 Aluminum		M-160L1 A-002	REV



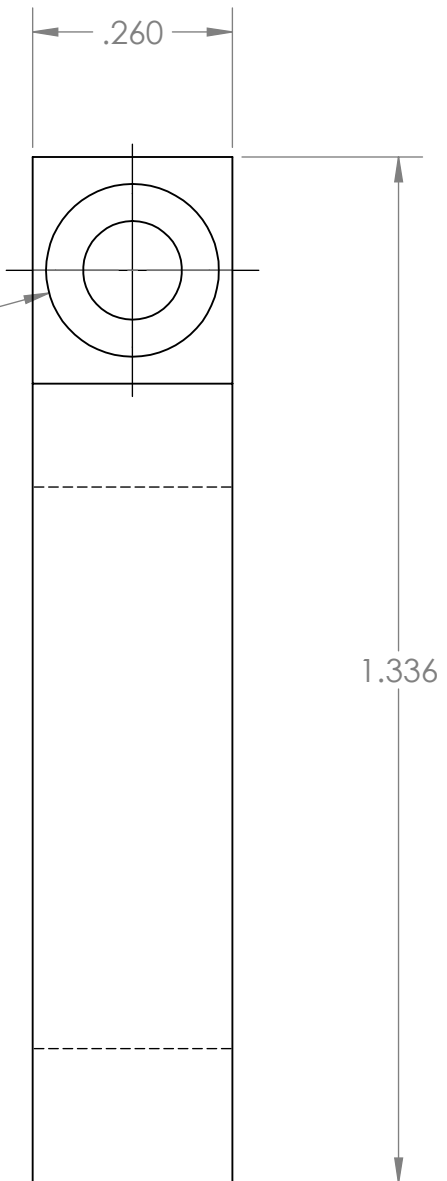
UNLESS OTHERWISE SPECIFIED: DIMENSIONS IN INCHES  TOLERANCES: .XX ±.01 .XXX ±.005 FRACTIONS ±1/64 ANGULAR MACHINED ±.5° ANGULAR BEND ±1°  SURFACE FINISH BREAK ALL EDGES .030		 <div>CASE SCHOOL OF ENGINEERING</div> <div>CASE WESTERN RESERVE UNIVERSITY</div>		TITLE: Support Attachment	
				SIZE: B	DATE: 11/1/2015
DO NOT SCALE		DRAWN BY: GROUP 6B		REV:	
SHEET 1 OF 1		MATERIAL: 6061 T-6 AL		PART #: M-160L1 A-003	REV: REV




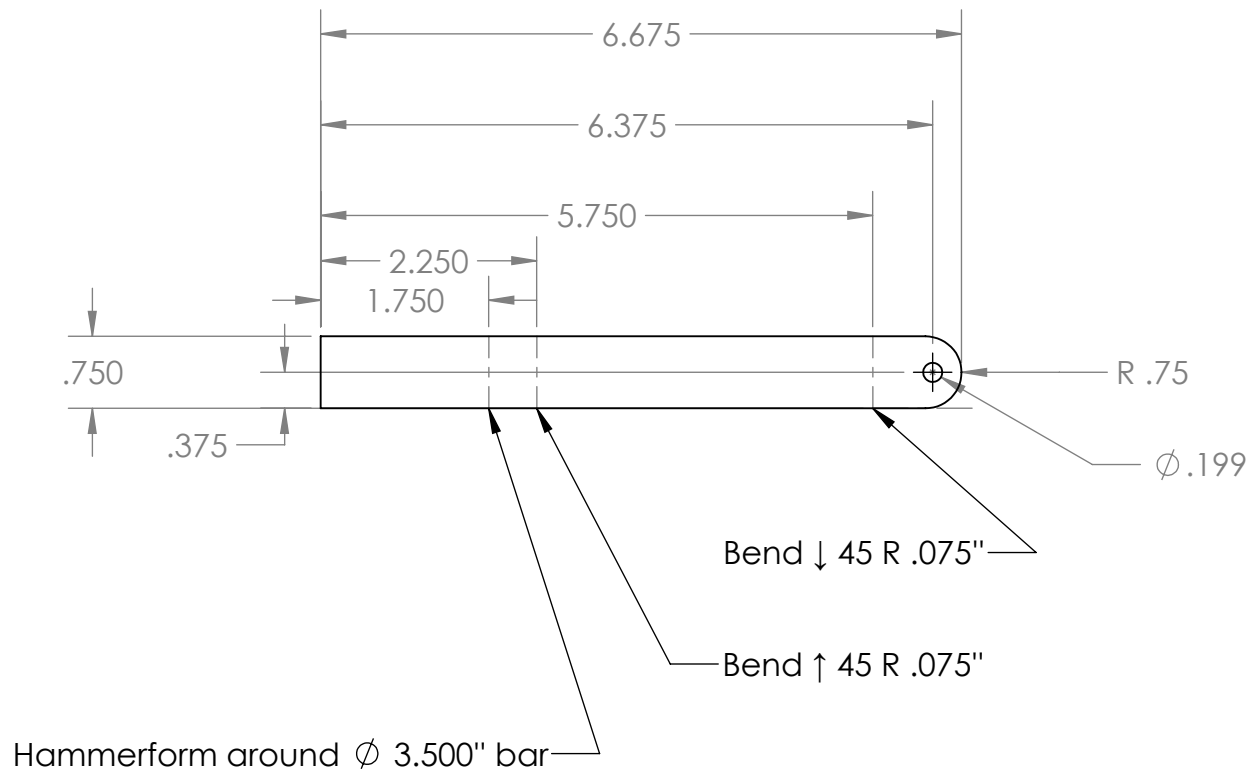
UNLESS OTHERWISE SPECIFIED: DIMENSIONS IN INCHES		 <div>CASE SCHOOL OF ENGINEERING</div> <hr/> <div>CASE WESTERN RESERVE UNIVERSITY</div>	
TOLERANCES: .XX ±.01    .XXX ±.005 FRACTIONS ±1/64 ANGULAR MACHINED ±.5° ANGULAR BEND ±1°			
SURFACE FINISH BREAK ALL EDGES .030		TITLE: <div>U-Lock Frame</div>	
DO NOT SCALE		SIZE: <div>C</div>	DATE: <div>11/2/2015</div>
SHEET 1 OF 1		MATERIAL: <div>6061 T6 Aluminum Bar Stock</div>	DRAWN BY: <div>Group 6B</div>
		PART #: <div>M-160L1 A -004</div>	REV: <div>REV</div>



$\phi$  .129  $\nabla$  INTO SLOT  
 $\sphericalangle$   $\phi$  .225 X 82°  
#8 - 32 UNC 2B



UNLESS OTHERWISE SPECIFIED: DIMENSIONS IN INCHES  TOLERANCES: .XX $\pm$ .01 .XXX $\pm$ .005 FRACTIONS $\pm$ 1/64 ANGULAR MACHINED $\pm$ .5° ANGULAR BEND $\pm$ 1°  SURFACE FINISH BREAK ALL EDGES .030		 <b>CASE SCHOOL OF ENGINEERING</b> <hr/> <b>CASE WESTERN RESERVE UNIVERSITY</b>	
		TITLE: <b>FRAME COLLAR</b>	
SIZE: <b>B</b>		DATE: 11/1/2015	DRAWN BY: GROUP 6B
MATERIAL: 6061 T-6 AL		PART #: PART NO.	REV: REV



UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS IN INCHES

TOLERANCES:  
.XX  $\pm .01$  .XXX  $\pm .005$   
FRACTIONS  $\pm 1/64$   
ANGULAR MACHINED  $\pm .5^\circ$   
ANGULAR BEND  $\pm 1^\circ$

SURFACE FINISH  $\sqrt{125}$   
BREAK ALL EDGES .030

DO NOT SCALE

SHEET 1 OF 1



CASE SCHOOL  
OF ENGINEERING

CASE WESTERN RESERVE  
UNIVERSITY

TITLE:

Connecting Bar

SIZE:

**A**

DATE:

11/2/2015

DRAWN BY:

Group 6B

MATERIAL:

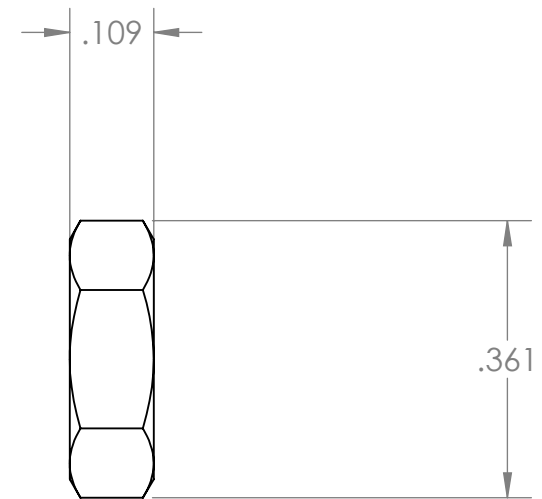
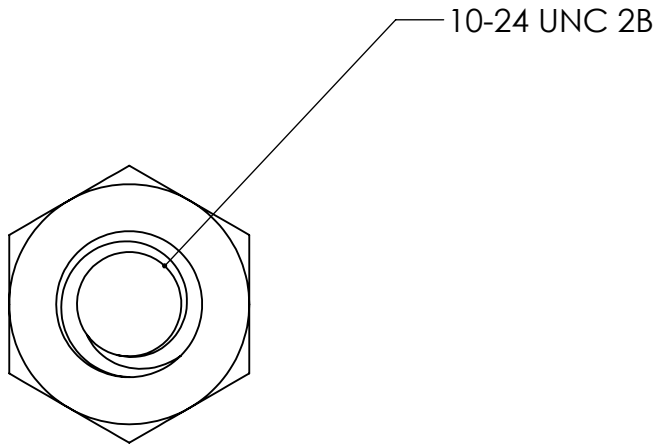
0.125" 6061 T6

PART #:

M-160L1-A007

REV:

REV



McMASTERCARR  
PART NUMBER  
90205A313

UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS IN INCHES

TOLERANCES:  
.XX  $\pm$ .01 .XXX  $\pm$ .005  
FRACTIONS  $\pm$ 1/64  
ANGULAR MACHINED  $\pm$ .5°  
ANGULAR BEND  $\pm$ 1°

SURFACE FINISH  $\sqrt{125}$   
BREAK ALL EDGES .030

DO NOT SCALE

SHEET 1 OF 1



CASE SCHOOL  
OF ENGINEERING

CASE WESTERN RESERVE  
UNIVERSITY

TITLE:

Hex Nut

SIZE:

**A**

DATE:

10/31/2015

DRAWN BY:

Group 6B

MATERIAL:

316 Stainless Steel

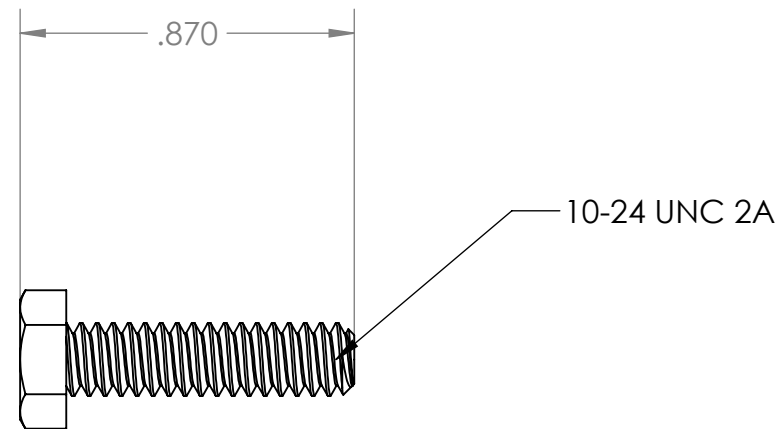
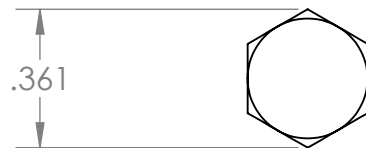
PART #:

P-160L1 A-001

REV:

REV





McMASTER CARR  
PART NUMBER  
91720A242

UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS IN INCHES

TOLERANCES:  
.XX  $\pm .01$  .XXX  $\pm .005$   
FRACTIONS  $\pm 1/64$   
ANGULAR MACHINED  $\pm .5^\circ$   
ANGULAR BEND  $\pm 1^\circ$

SURFACE FINISH  $\sqrt{125}$   
BREAK ALL EDGES .030

DO NOT SCALE

SHEET 1 OF 1



CASE SCHOOL  
OF ENGINEERING

CASE WESTERN RESERVE  
UNIVERSITY

TITLE:

Hex Screw

SIZE:

**A**

DATE:

10/31/2015

DRAWN BY:

Group 6B

MATERIAL:

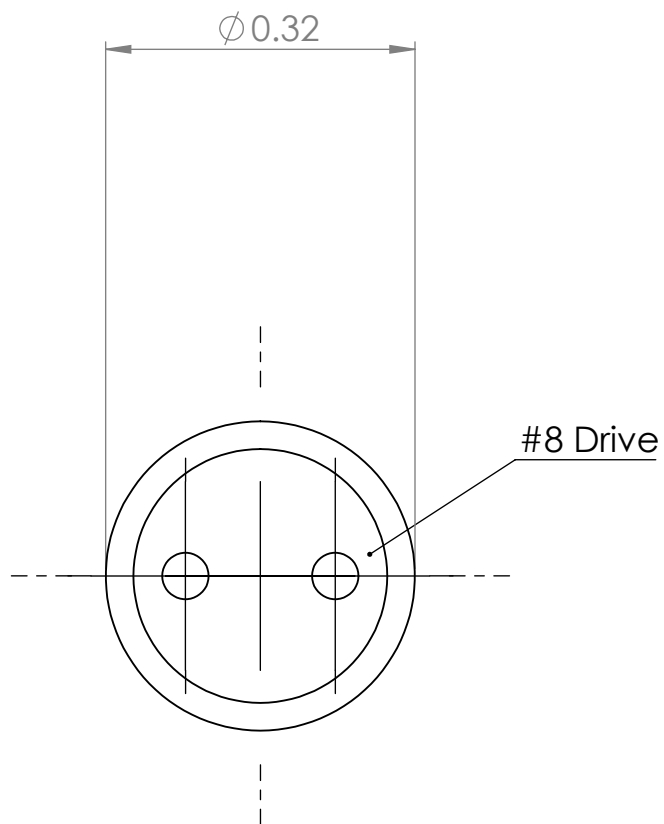
316 Stainless Steel

PART #:

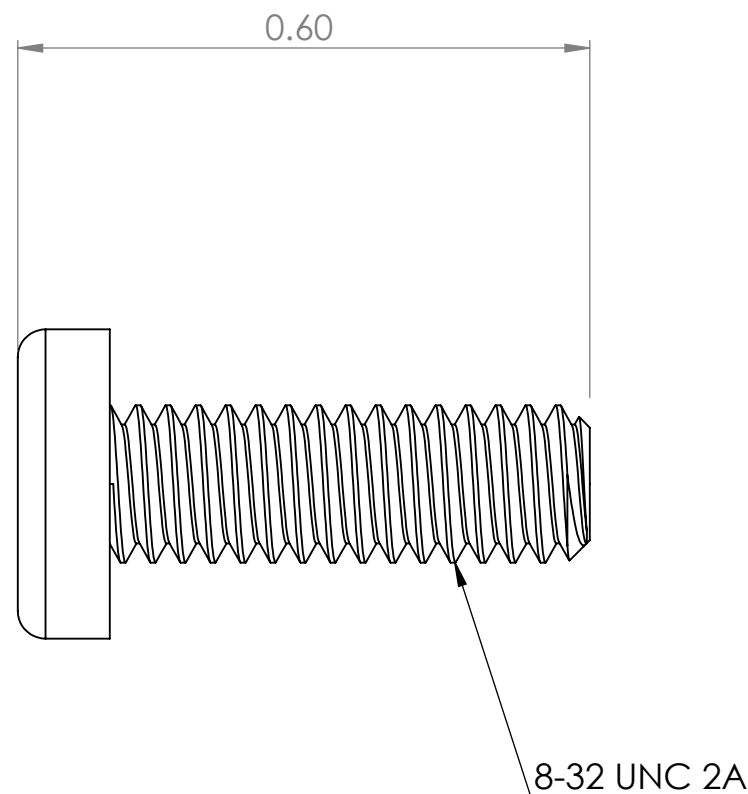
P-160L1 - A002

REV:

REV



McMaster Carr  
Purchased Part  
(94066A195)



UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS IN INCHES

TOLERANCES:  
.XX  $\pm .01$  .XXX  $\pm .005$   
FRACTIONS  $\pm 1/64$   
ANGULAR MACHINED  $\pm .5^\circ$   
ANGULAR BEND  $\pm 1^\circ$   
SURFACE FINISH  
BREAK ALL EDGES .030

DO NOT  
SCALE  
SHEET 1 OF 1



CASE SCHOOL  
OF ENGINEERING

CASE WESTERN RESERVE  
UNIVERSITY

TITLE:

DRAWING TITLE

SIZE:

**A**

DATE:

11/3/2015

DRAWN BY:

AUTHOR'S NAME

MATERIAL:

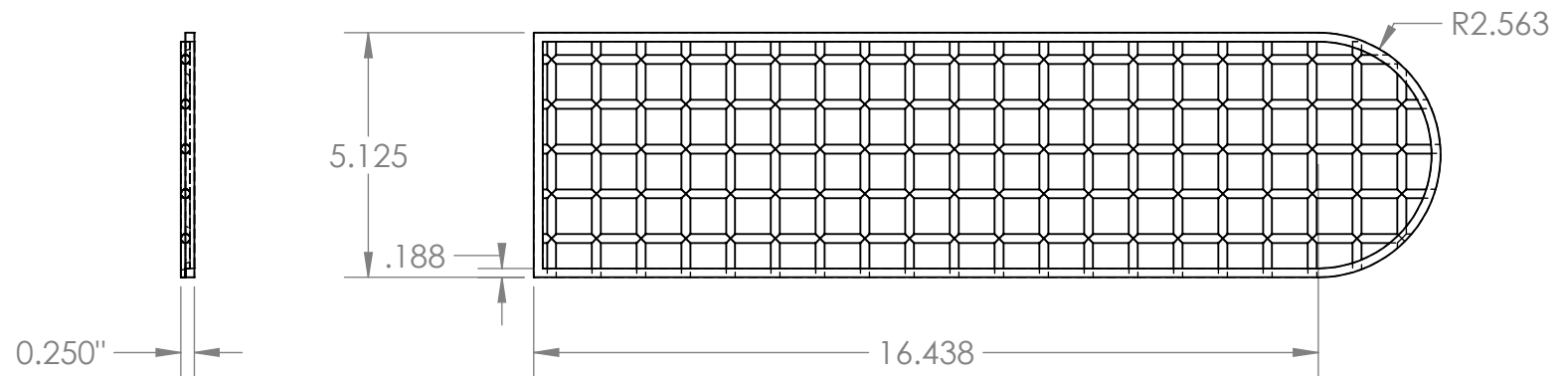
MATERIAL

PART #:

PART NO.

REV:

REV



McMaster Carr  
Part Number 6498T17  
Cut to Specification

UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS IN INCHES

TOLERANCES:  
.XX  $\pm .01$  .XXX  $\pm .005$   
FRACTIONS  $\pm 1/64$   
ANGULAR MACHINED  $\pm .5^\circ$   
ANGULAR BEND  $\pm 1^\circ$

SURFACE FINISH  $\sqrt{125}$   
BREAK ALL EDGES .030

DO NOT SCALE

SHEET 1 OF 1



CASE SCHOOL  
OF ENGINEERING

CASE WESTERN RESERVE  
UNIVERSITY

TITLE:

Grating

SIZE:

**A**

DATE:

11/2/2015

DRAWN BY:

Group 6B

MATERIAL:

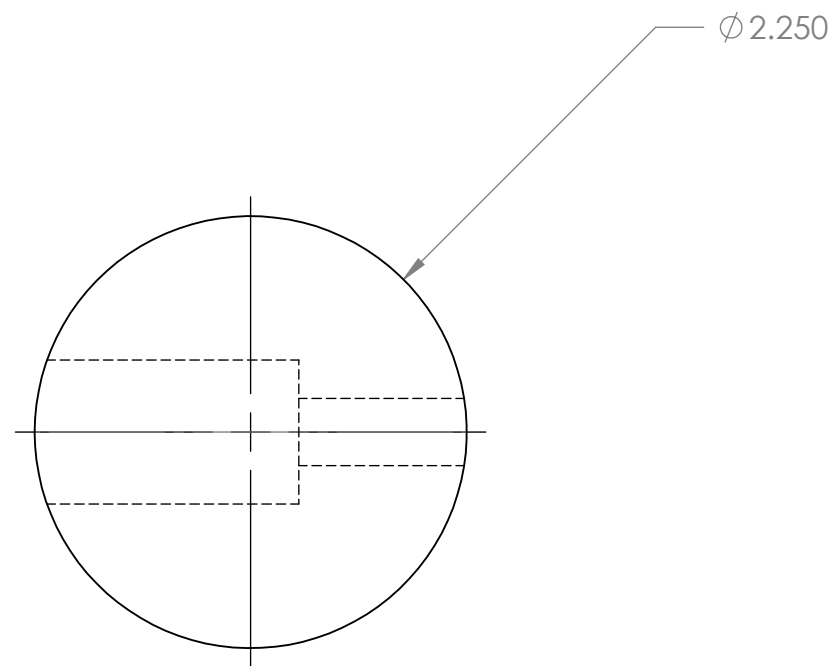
6061 T-6 Aluminum

PART #:

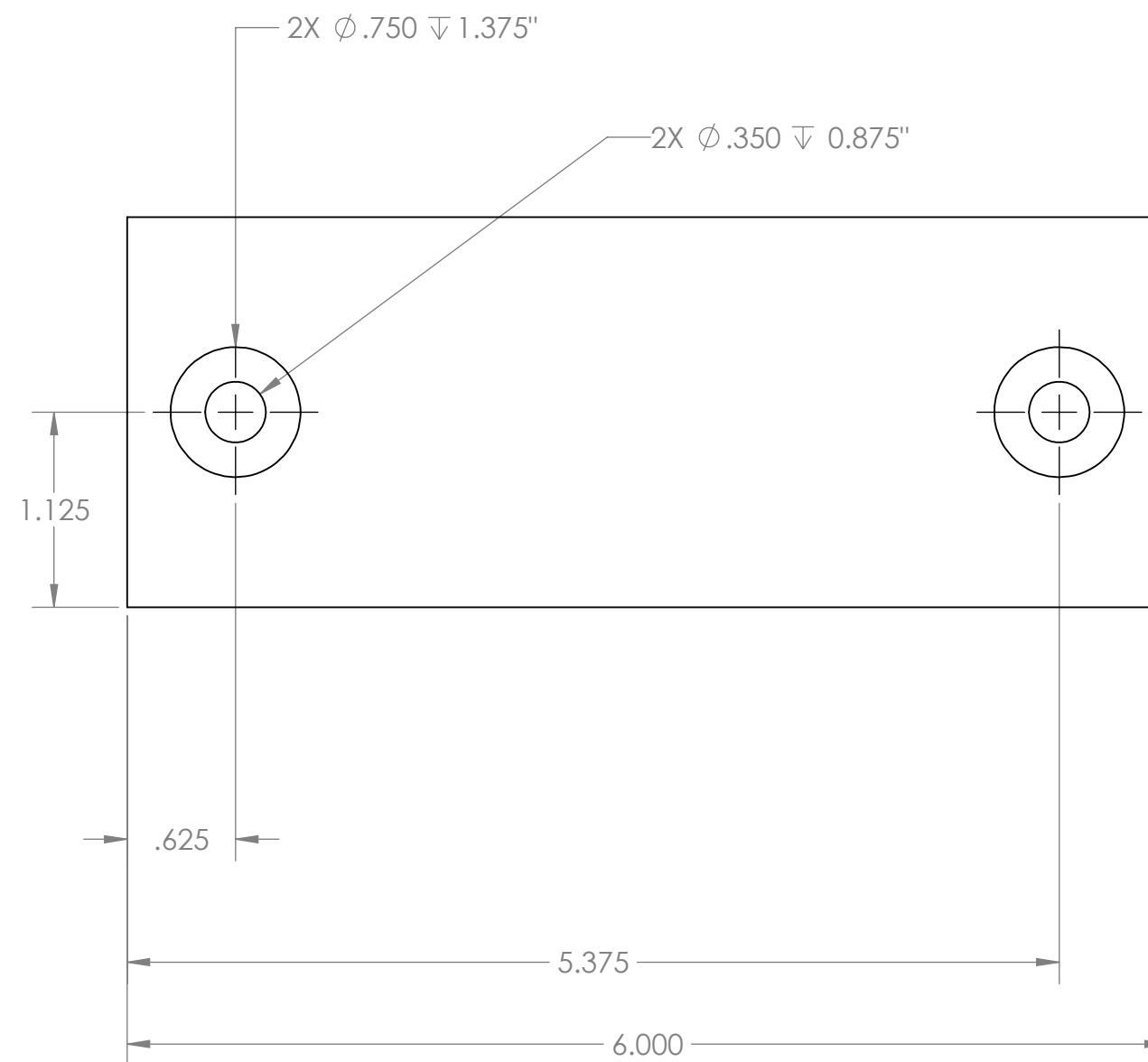
P-160L1 A-004

REV:

REV



Purchased lock  
Made to Dimensions of Master Lock  
Part Number 8195DLW



UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS IN INCHES

TOLERANCES:  
.XX ±.01 .XXX ±.005  
FRACTIONS ±1/64  
ANGULAR MACHINED ±.5°  
ANGULAR BEND ±1°

SURFACE FINISH  
BREAK ALL EDGES .030



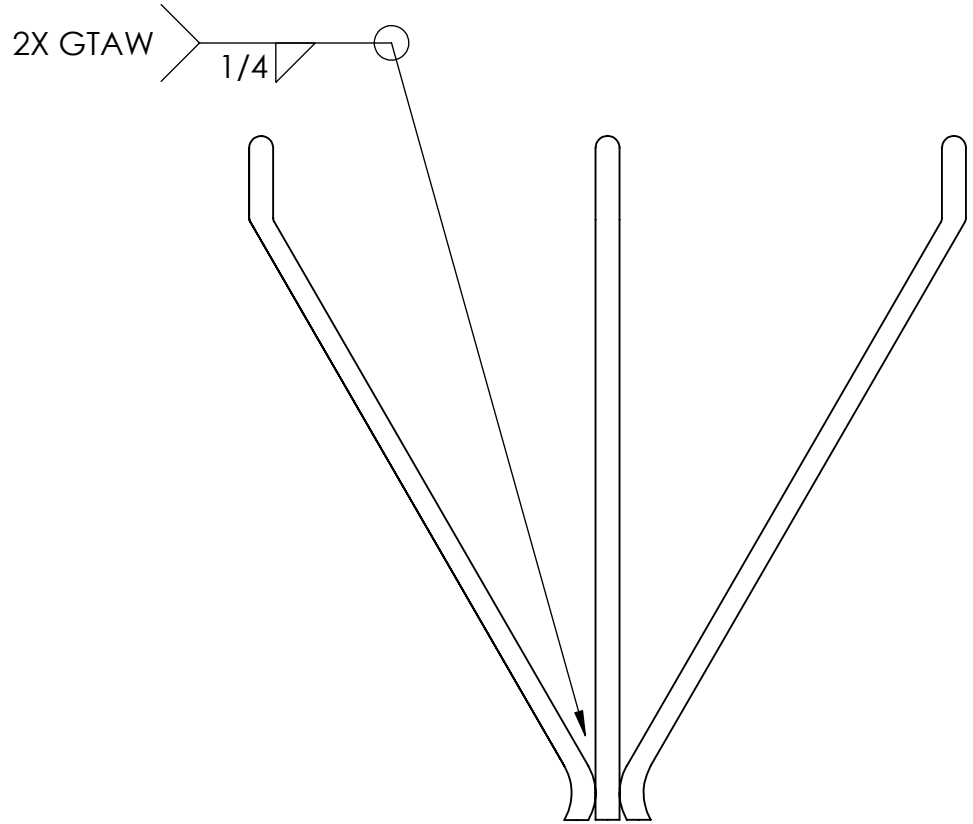
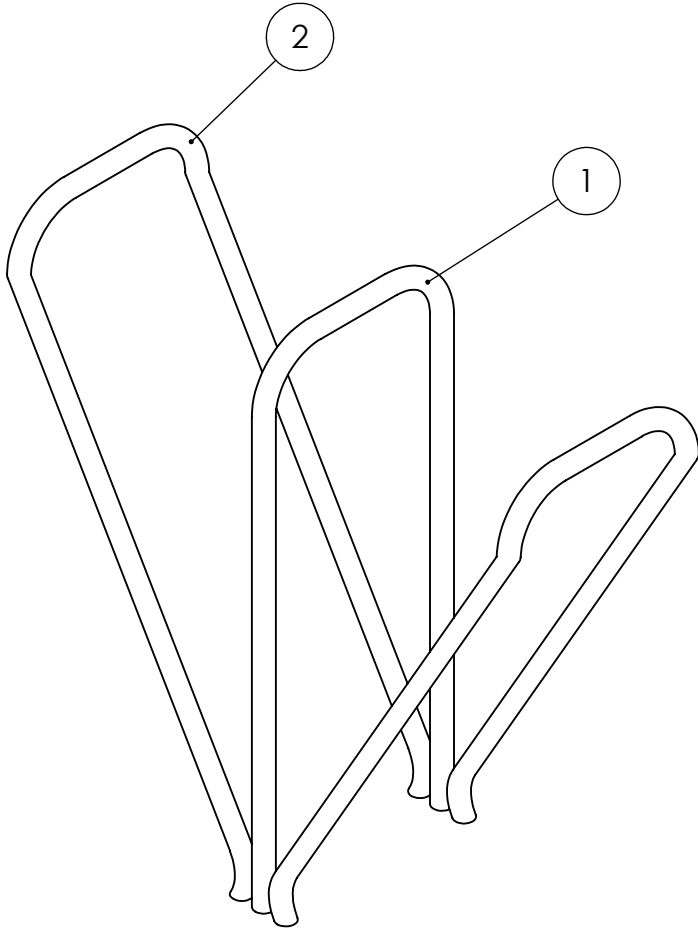
CASE SCHOOL  
OF ENGINEERING


CASE WESTERN RESERVE  
UNIVERSITY

TITLE: PURCHASED LOCK			
SIZE: <b>B</b>	DATE: 11/1/2015	DRAWN BY: GROUP 6B	
MATERIAL: 6061T-6 AL	PART #: P-160L1 A-003	REV: REV	

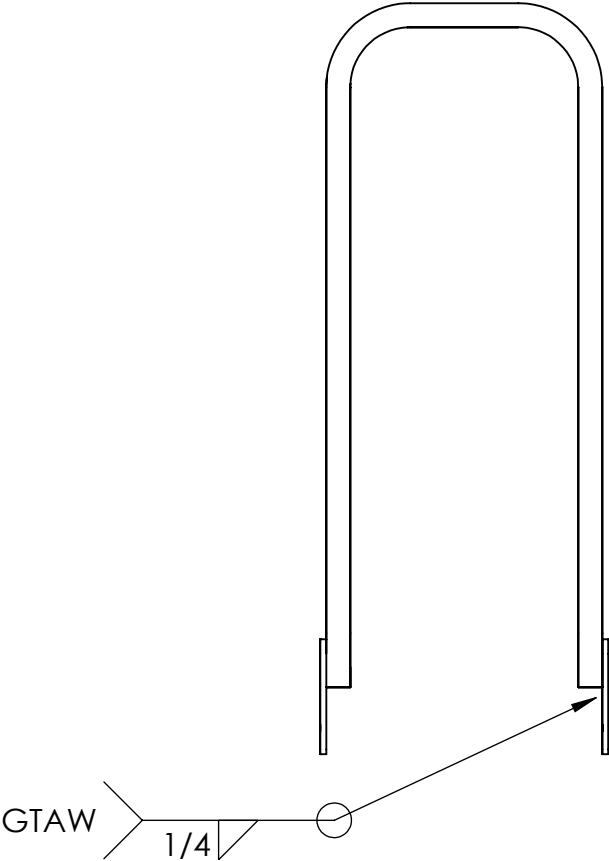
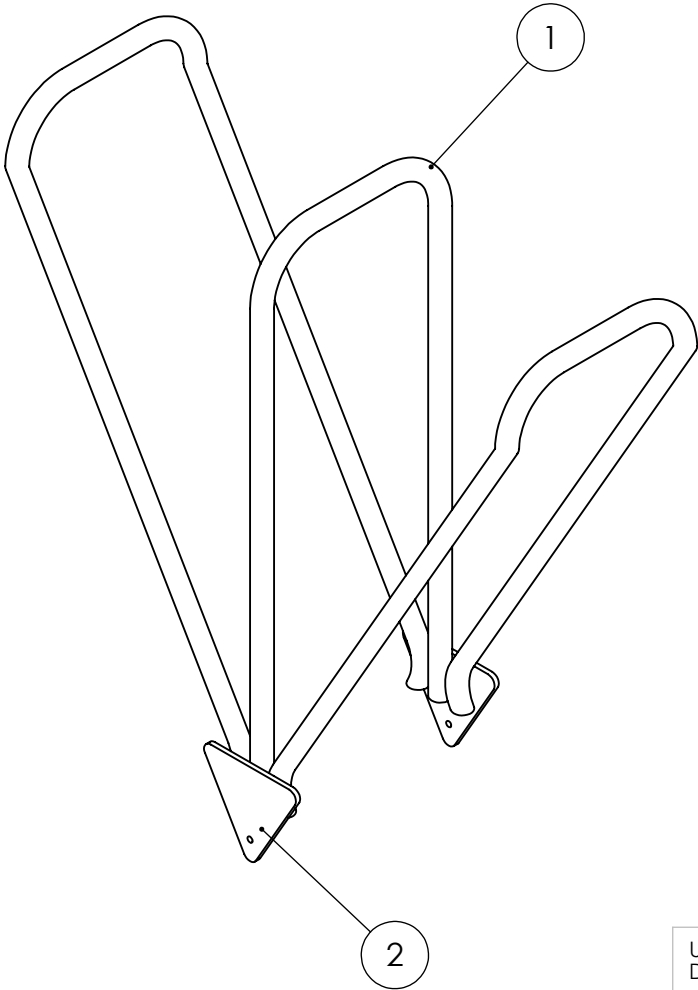
DO NOT SCALE  
SHEET 1 OF 1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	M-160L1 A-001	Center Support	1
2	M-160L1 A-002	Side Supports for Frame	2



UNLESS OTHERWISE SPECIFIED: DIMENSIONS IN INCHES  TOLERANCES: .XX $\pm$ .01    .XXX $\pm$ .005 FRACTIONS $\pm$ 1/64 ANGULAR MACHINED $\pm$ .5° ANGULAR BEND $\pm$ 1°  SURFACE FINISH $\sqrt{125}$ BREAK ALL EDGES .030		 <b>CASE SCHOOL OF ENGINEERING</b>  <b>CASE WESTERN RESERVE UNIVERSITY</b>	
<b>TITLE:</b> SUPPORT ASSEMBLY			
<b>SIZE:</b> <b>A</b>	<b>DATE:</b> 11/2/2015	<b>DRAWN BY:</b> GROUP 6B	
<b>MATERIAL:</b>		<b>PART #:</b> SA-160L1 A-001	<b>REV:</b> 0
<b>DO NOT SCALE</b> <b>SHEET 1 OF 1</b>			

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	SA-160L1 A-001	SUPPORT SA	1
2	M-160L1 A-003	SUPPORT ATTACHMENT	2



UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS IN INCHES

TOLERANCES:  
.XX ±.01 .XXX ±.005  
FRACTIONS ±1/64  
ANGULAR MACHINED ±.5°  
ANGULAR BEND ±1°

SURFACE FINISH  $\sqrt{125}$   
BREAK ALL EDGES .030

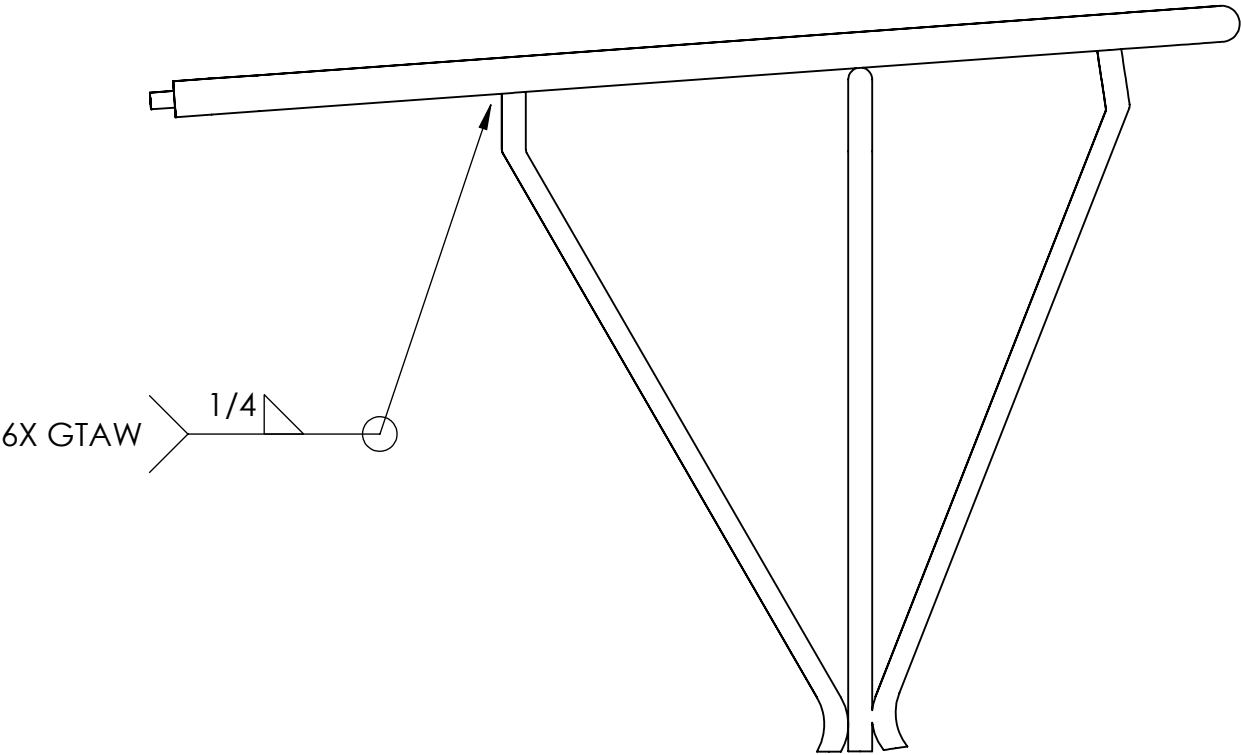
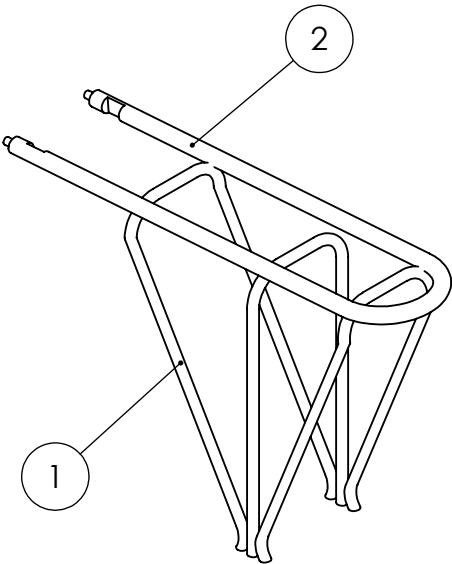
DO NOT SCALE  
SHEET 1 OF 1



CASE SCHOOL  
OF ENGINEERING  
CASE WESTERN RESERVE  
UNIVERSITY

TITLE: SUPPORT ATTACHMENT ASSEMBLY			
SIZE: <b>A</b>	DATE: 11/2/2015	DRAWN BY: GROUP 6B	
MATERIAL:	PART #: SA-160L1 A-002	REV:	0

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	SA-160L1A-001	SUPPORT ASSEMBLY	1
3	M-160L1A-004	U-LOCK	1



UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS IN INCHES

TOLERANCES:  
.XX  $\pm$ .01 .XXX  $\pm$ .005  
FRACTIONS  $\pm$ 1/64  
ANGULAR MACHINED  $\pm$ .5°  
ANGULAR BEND  $\pm$ 1°

125/  
SURFACE FINISH  
BREAK ALL EDGES .030

DO NOT SCALE  
SHEET 1 OF 1



CASE SCHOOL  
OF ENGINEERING

CASE WESTERN RESERVE  
UNIVERSITY

TITLE:

SUPPORT U LOCK ASSEMBLY

SIZE:

**A**

DATE:

11/2/2015

DRAWN BY:

GROUP 6B

MATERIAL:

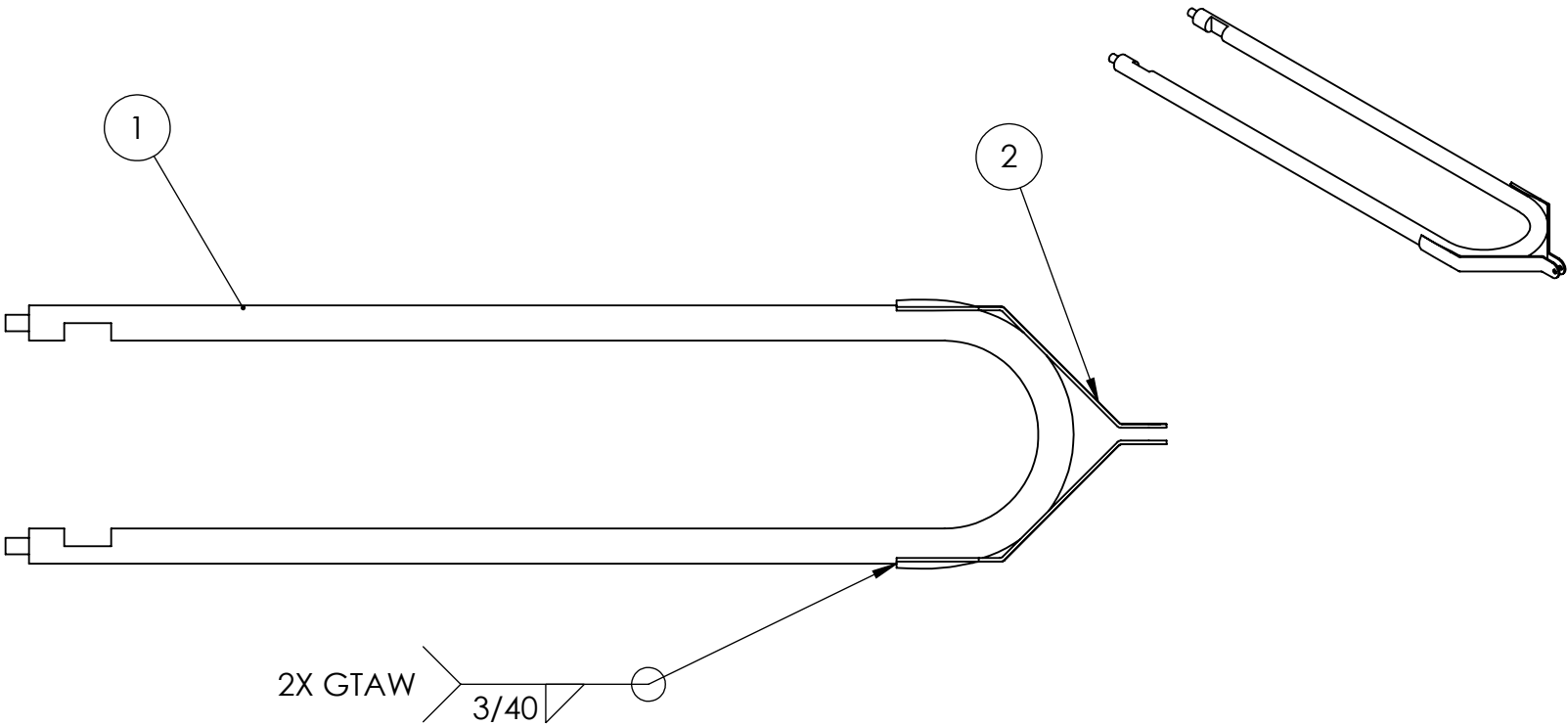
PART #:

SA-160L1A-003

REV:

0

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	M-160L1 A-004	U-Lock Frame	1
2	M-160L1 A-007	Connecting Bar	2



UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS IN INCHES

TOLERANCES:  
.XX ±.01 .XXX ±.005  
FRACTIONS ±1/64  
ANGULAR MACHINED ±.5°  
ANGULAR BEND ±1°

SURFACE FINISH  $\sqrt{125}$   
BREAK ALL EDGES .030

DO NOT SCALE  
SHEET 1 OF 1

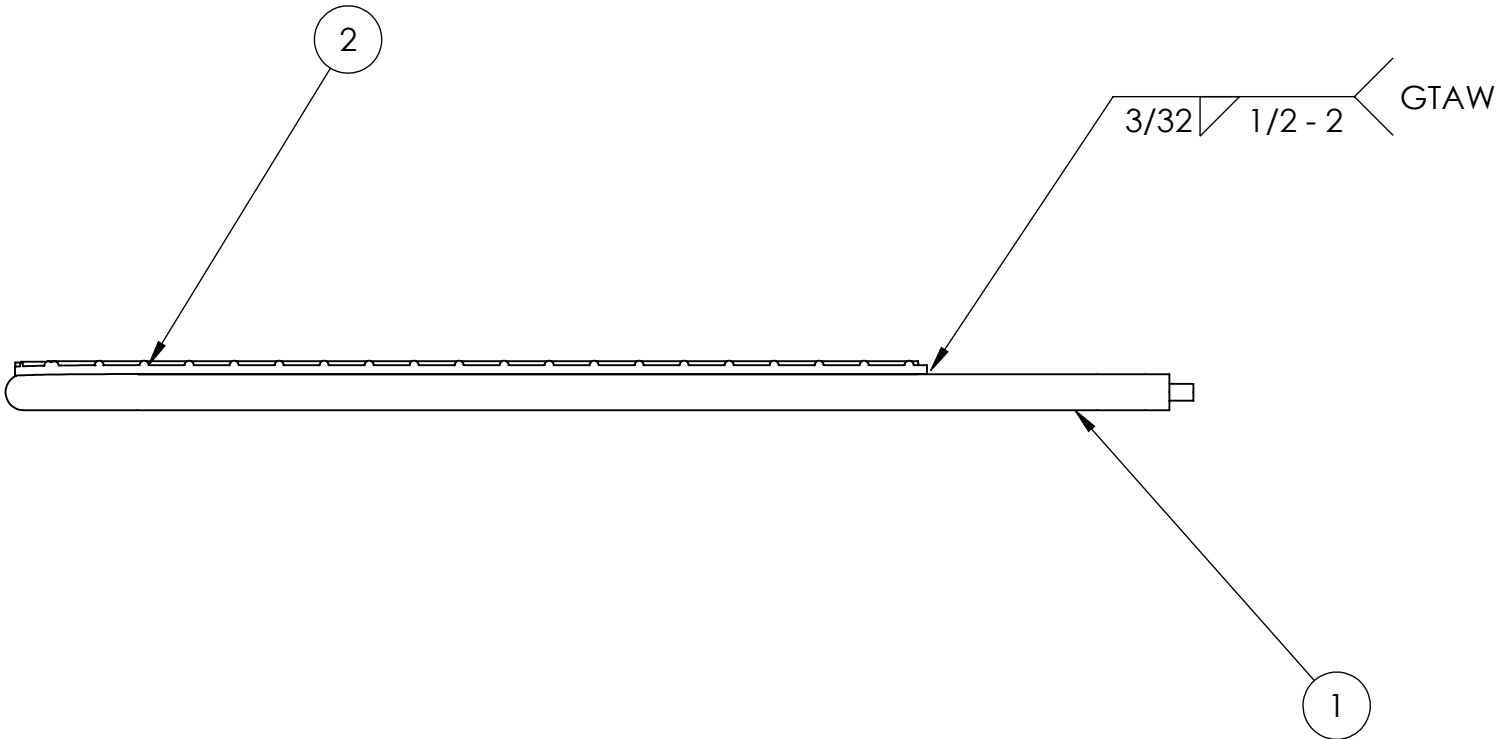



CASE SCHOOL  
OF ENGINEERING  
CASE WESTERN RESERVE  
UNIVERSITY

TITLE: U-LOCK CONNECTOR SUB ASSEMBLY			
SIZE: <b>A</b>	DATE: 11/1/2015	DRAWN BY: GROUP 6B	
MATERIAL:		PART #:	REV: REV



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	M-160L1 A-006	U-Lock	1
2	M-160L1 A-007	Grating	1



UNLESS OTHERWISE SPECIFIED: DIMENSIONS IN INCHES  TOLERANCES: .XX ±.01    .XXX ±.005 FRACTIONS ±1/64 ANGULAR MACHINED ±.5° ANGULAR BEND ±1° SURFACE FINISH 125/ BREAK ALL EDGES .030		 <b>CASE SCHOOL OF ENGINEERING</b>  <b>CASE WESTERN RESERVE UNIVERSITY</b>	
TITLE: <h2 style="text-align: center;">U-Lock with Grating</h2>		DRAWN BY: <h3 style="text-align: center;">Group 6B</h3>	
SIZE: <h1 style="text-align: center;">A</h1>	DATE: <h2 style="text-align: center;">11/2/2015</h2>	PART #: <h2 style="text-align: center;">SA-160L1A-004</h2>	
MATERIAL: <h2 style="text-align: center;">DO NOT SCALE</h2>		REV: <h2 style="text-align: center;">0</h2>	SHEET 1 OF 1