

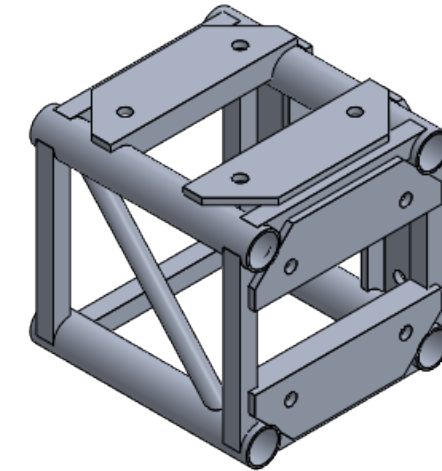
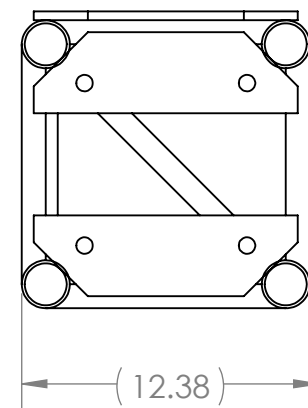
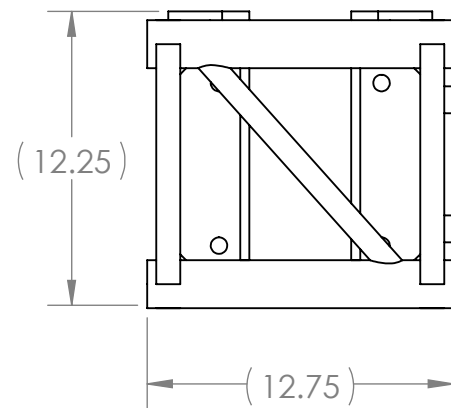
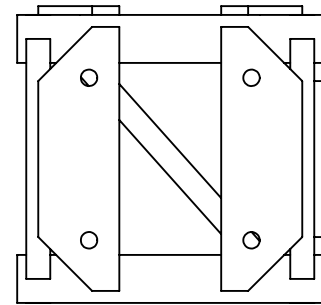
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Added Note	10/28/2019	KAMC





DESCRIPTION: 6061-T6 ALUMINUM - LIGHT DUTY TRUSS, 3-SIDED CORNER BLOCK

VENDOR: TOTAL STRUCTURES

PART NUMBER: TS 1212LD-C3P

NOTE: SUBSTITUTIONS NOT ALLOWED 

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$	DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		
		MATERIAL	ENG APPR.		
		FINISH	MFG APPR.		
NEXT ASSY	USED ON		Q.A.		
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		
TITLE:					TS 1212LD-C3P, 3 Way Corner Block Light Duty Truss, Total Structures
SIZE	DWG. NO.	REV			
B	GE-20001	A			
SCALE: 1:8		WEIGHT:	SHEET 1 OF 1		

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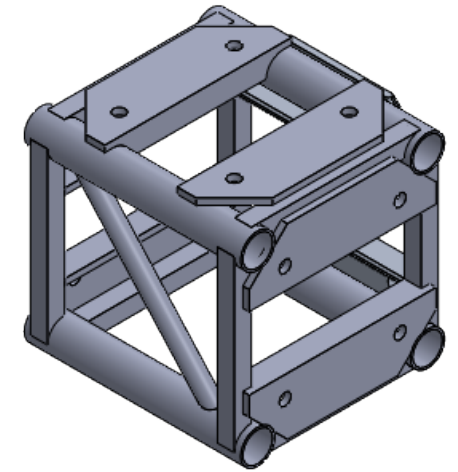
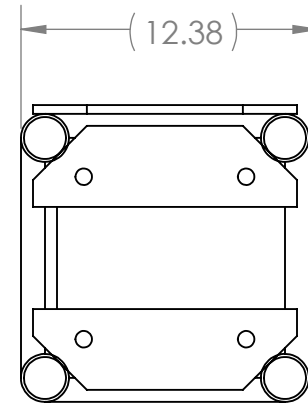
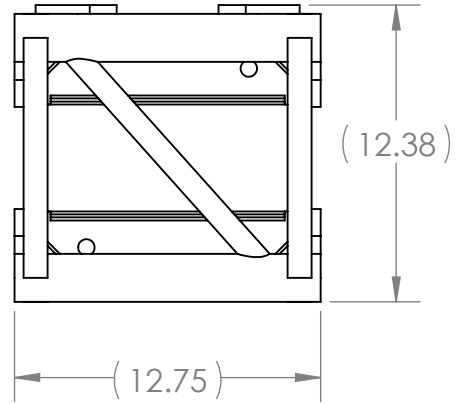
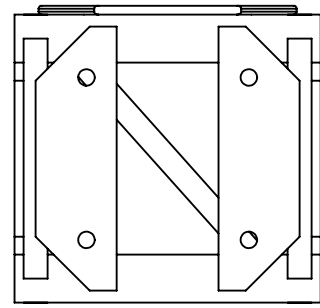
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Added Note	10/28/2019	KAMC



DESCRIPTION: 6061-T6 ALUMINUM - LIGHT DUTY TRUSS, 4-SIDED CORNER BLOCK

VENDOR: TOTAL STRUCTURES

PART NUMBER: TS 1212LD-C4P

NOTE: SUBSTITUTIONS NOT ALLOWED



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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	9/23/19
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
		APPLICATION		
		DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
 TS 1212LD-C4P, 4 Way Corner Block Light Duty Truss, Total Structures

SIZE	DWG. NO.	REV
B	GE-20002	A

SCALE: 1:8 WEIGHT: SHEET 1 OF 1

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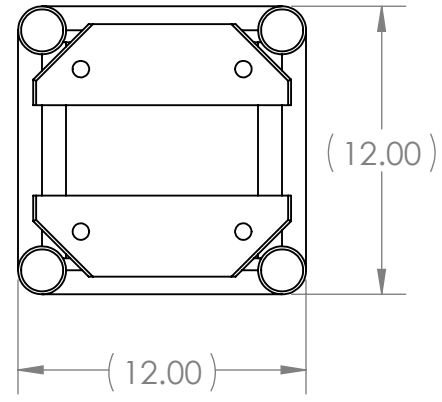
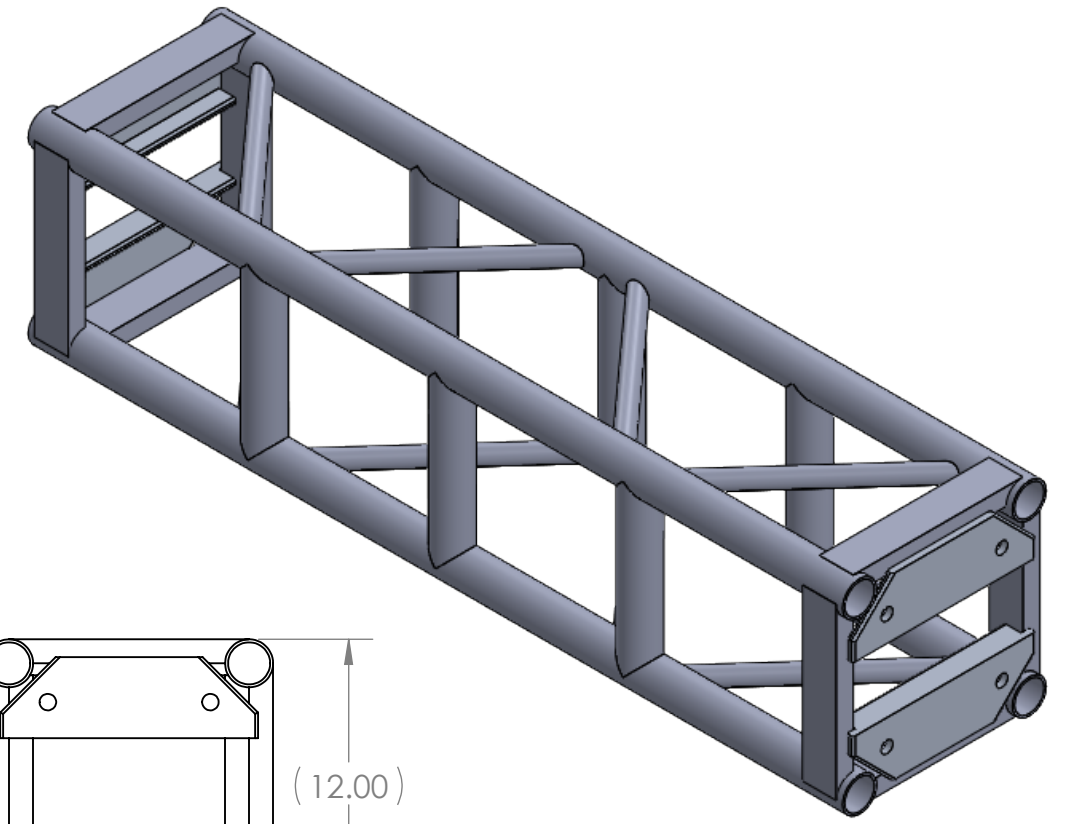
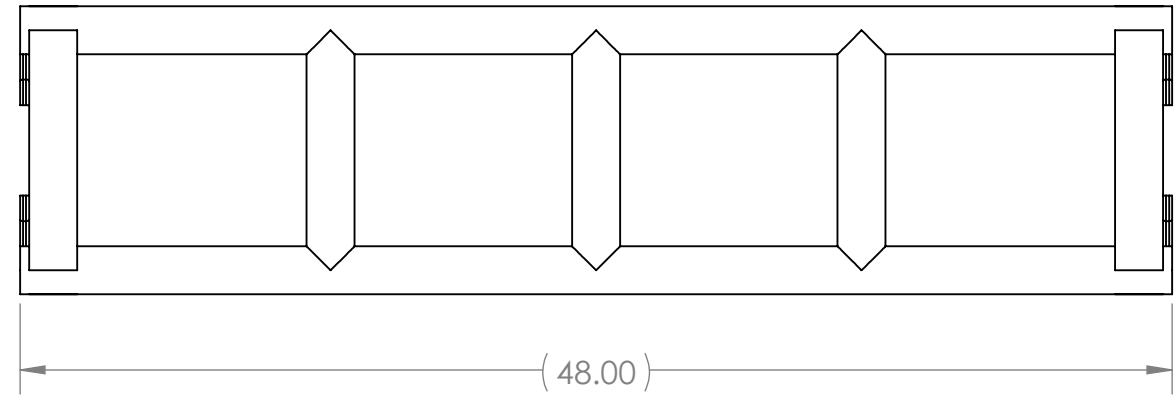
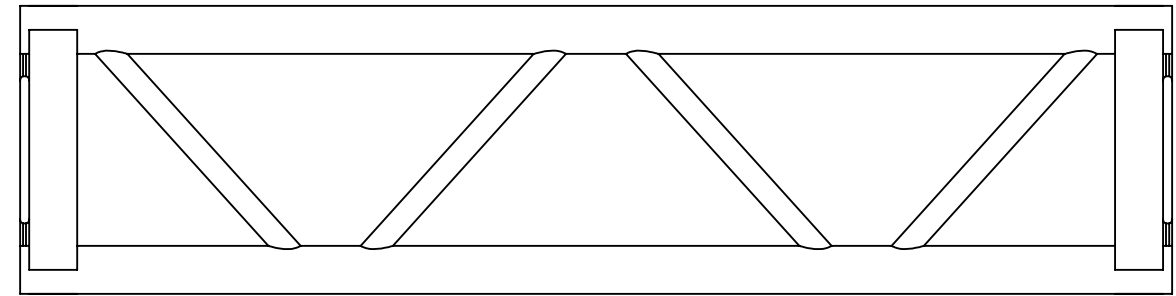
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Added Note	10/28/2019	KAMC



DESCRIPTION: 6061-T6 ALUMINUM - LIGHT DUTY TRUSS, 48" X 12" X 12"

VENDOR: TOTAL STRUCTURES

PART NUMBER: TS 1212LD-048P

NOTE: SUBSTITUTIONS NOT ALLOWED

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	9/23/19
		FRACTIONAL: ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
 TS 1212LD-48P, 48" x 12" x 12" Light Duty Truss, Total Structures

SIZE	DWG. NO.	REV
B	GE-20003	

SCALE: 1:8 WEIGHT: SHEET 1 OF 1

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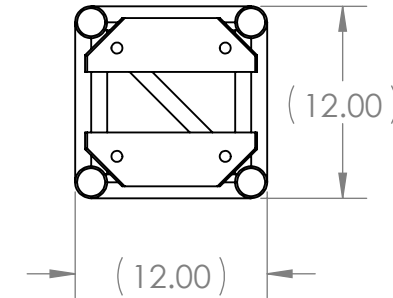
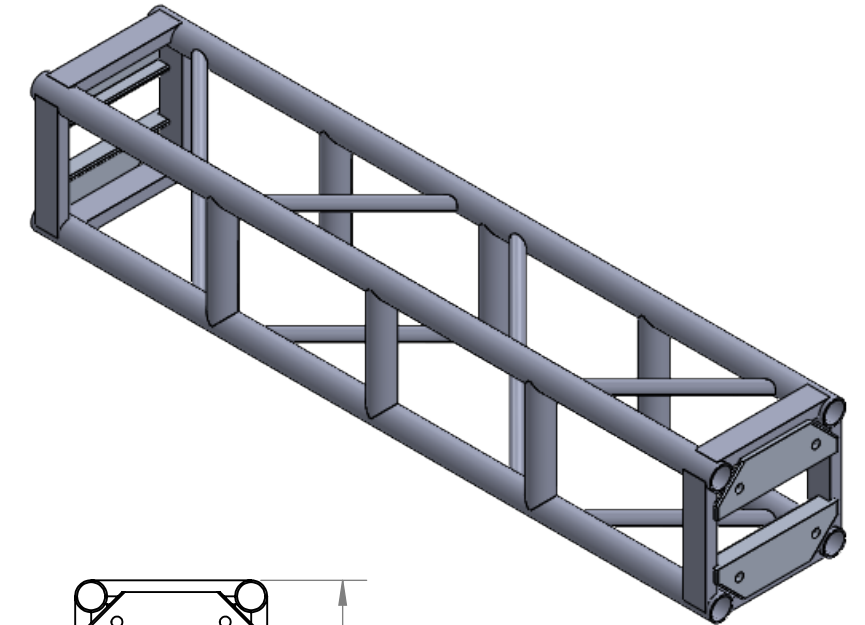
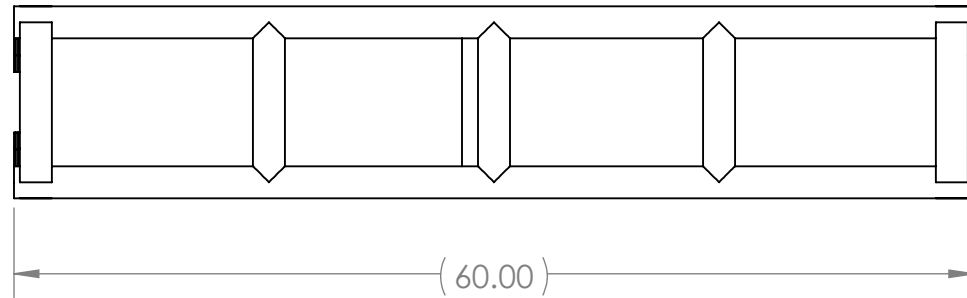
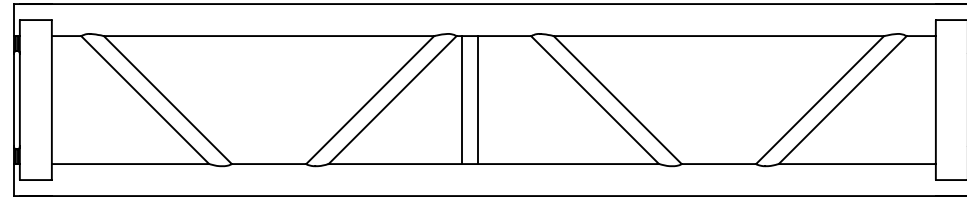
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Added Note	10/28/2019	KAMC



DESCRIPTION: 6061-T6 ALUMINUM - LIGHT DUTY TRUSS, 60" X 12" X 12"


VENDOR: TOTAL STRUCTURES

PART NUMBER: TS 1212LD-060P

NOTE: SUBSTITUTIONS NOT ALLOWED 

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	9/23/19
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		




TITLE:
 TS 1212LD-60P, 60" x 12" x 12" Light Duty Truss, Total Structures

SIZE	DWG. NO.	REV
B	GE-20004	

SCALE: 1:12 WEIGHT: SHEET 1 OF 1

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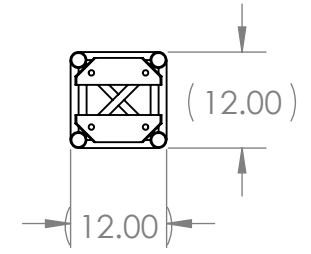
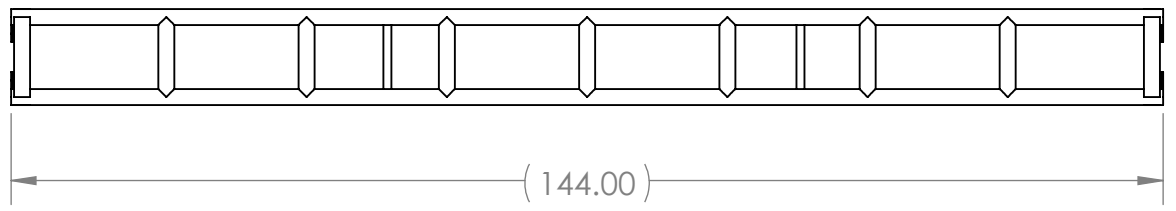
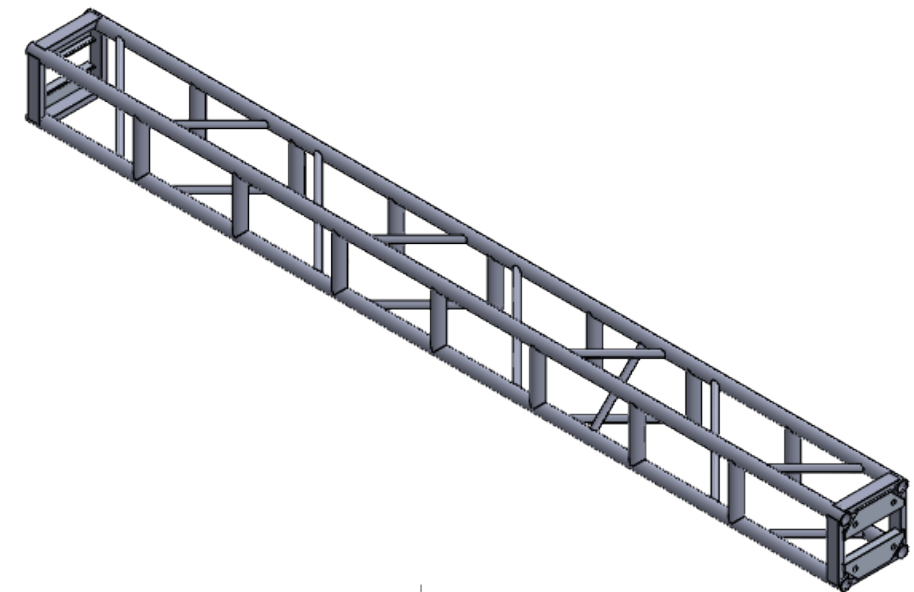
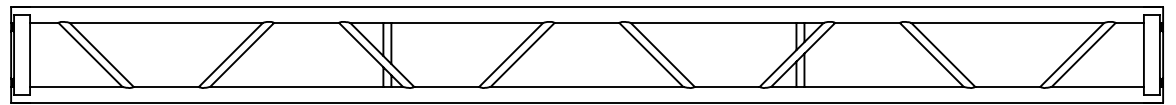
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Added Note	10/28/2019	KAMC



DESCRIPTION: 6061-T6 ALUMINUM - LIGHT DUTY TRUSS, 144" X 12" X 12"

VENDOR: TOTAL STRUCTURES

PART NUMBER: TS 1212LD-144P

NOTE: SUBSTITUTIONS NOT ALLOWED

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	9/23/19
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON	APPLICATION		
		DO NOT SCALE DRAWING		

TITLE:
 TS 1212LD-144P, 144" x 12" x 12" Light Duty Truss, Total Structures

SIZE	DWG. NO.	REV
B	GE-20005	A

SCALE: 1:24 WEIGHT: SHEET 1 OF 1

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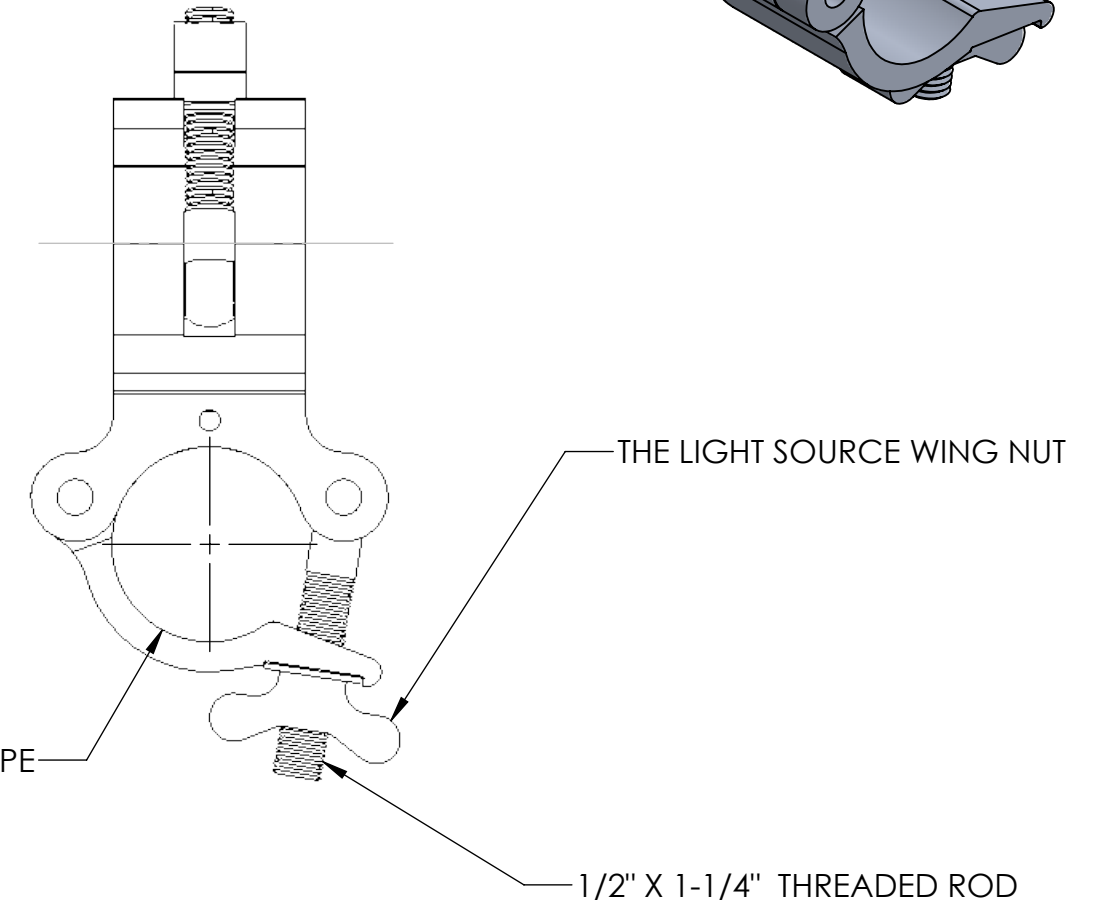
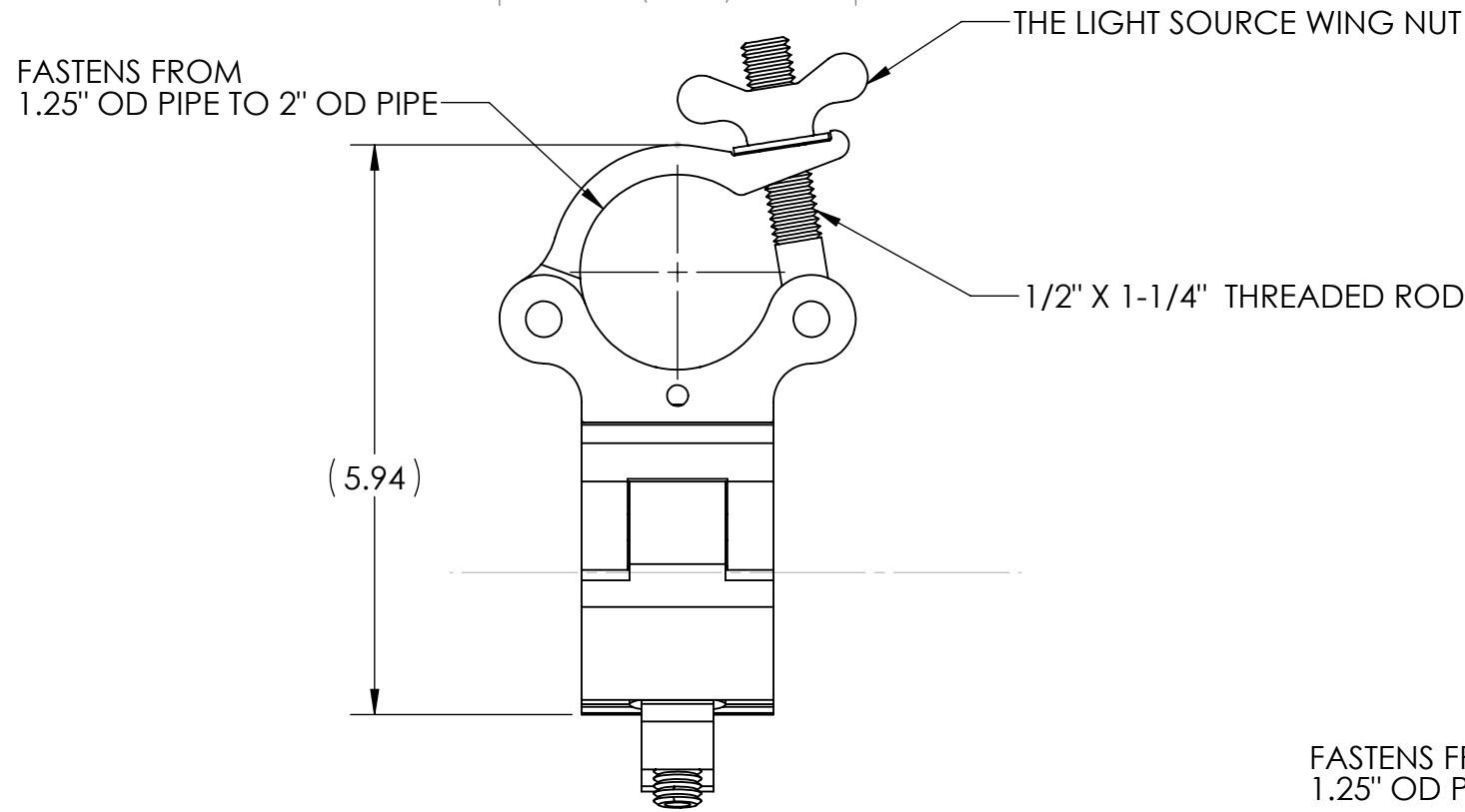
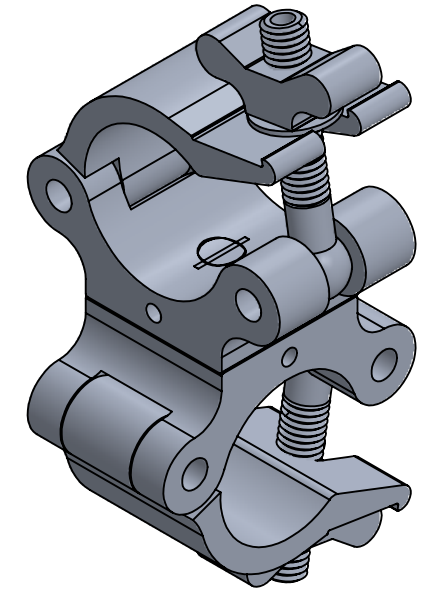
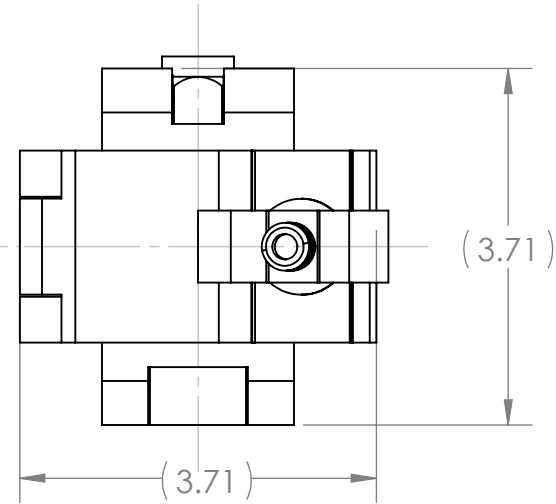
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DESCRIPTION: STACKED, 90 DEG OFF SET, CHEESE BOROUGH FOR TRUSS - MEGA-SWIVEL COUPLER, SILVER

VENDOR: TOTAL STRUCTURES VIA THE LIGHT SOURCE

PART NUMBER: MLSM MEGA COUPLER

NOTE: SUBSTITUTIONS NOT ALLOWED

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE:
		MATERIAL		ENG APPR.		Cheeseborough for Truss _ Stacked
		FINISH		MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON	SILVER		Q.A.		B GE-20006 0
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		SCALE: 1:2 WEIGHT: SHEET 1 OF 1
				CHEESEBOROUGH NAME BRAND: MEGA COUPELR		

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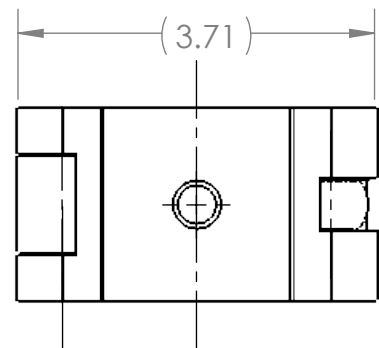
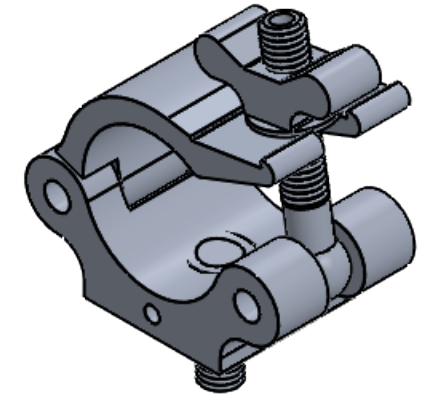
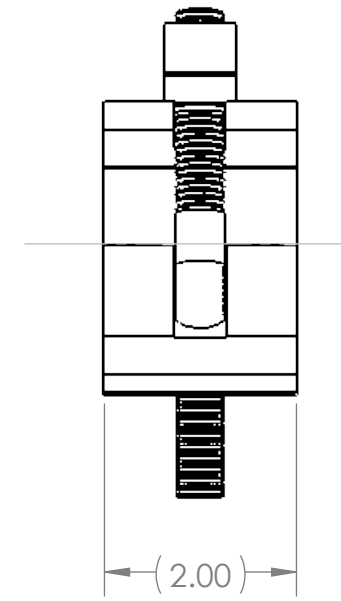
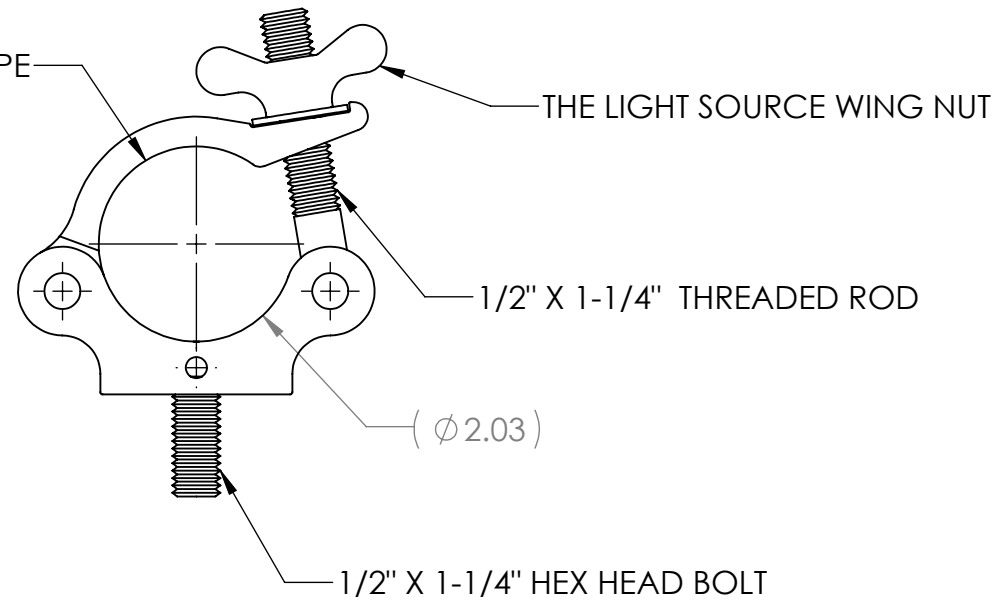
FASTENS FROM
1.25" OD PIPE TO 2" OD PIPE

THE LIGHT SOURCE WING NUT

1/2" X 1-1/4" THREADED ROD

(ϕ 2.03)

1/2" X 1-1/4" HEX HEAD BOLT





DESCRIPTION: CHEESE BOROUGH FOR TRUSS - MLM MEGA COUPLER, SILVER

VENDOR: TOTAL STRUCTURES VIA THE LIGHT SOURCE

PART NUMBER: MLM MEGA COUPLER

NOTE: SUBSTITUTIONS NOT ALLOWED

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
		MATERIAL		ENG APPR.		
		FINISH		MFG APPR.		
NEXT ASSY	USED ON	SILVER		Q.A.		
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		TITLE: Cheeseborough for Truss _ Single
				CHEESEBOROUGH NAME BRAND: MEGA COUPELR		
		SIZE	DWG. NO.	REV		
		B	GE-20007	0		
		SCALE: 1:2	WEIGHT:	SHEET 1 OF 1		

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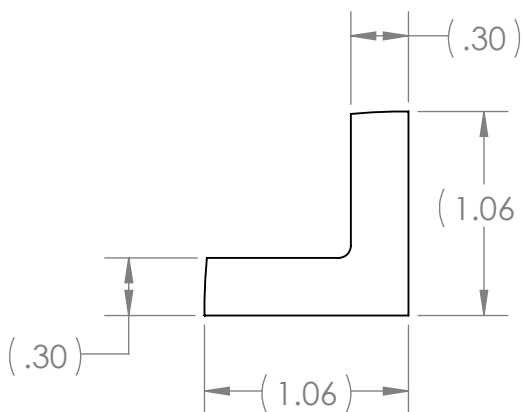
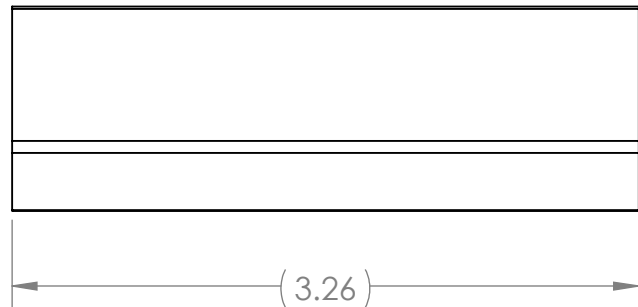
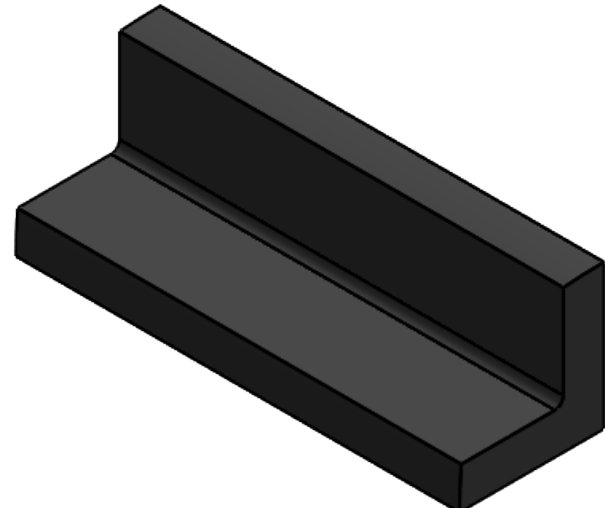
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DESCRIPTION: SAFETY EDGE & CORNER GAURD, NBR FOAM, ONYX
VENDOR: ROVING COVE
PART NUMBER: 1305
PACKAGE QUANTITY: 18FEET
NOTE: CUT TO LENGTH

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	12/15/19
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		



TITLE:
Foam Cushion for Generator Switch

SIZE	DWG. NO.	REV
B	GE-20008	
SCALE: 1:1	WEIGHT:	SHEET 1 OF 2

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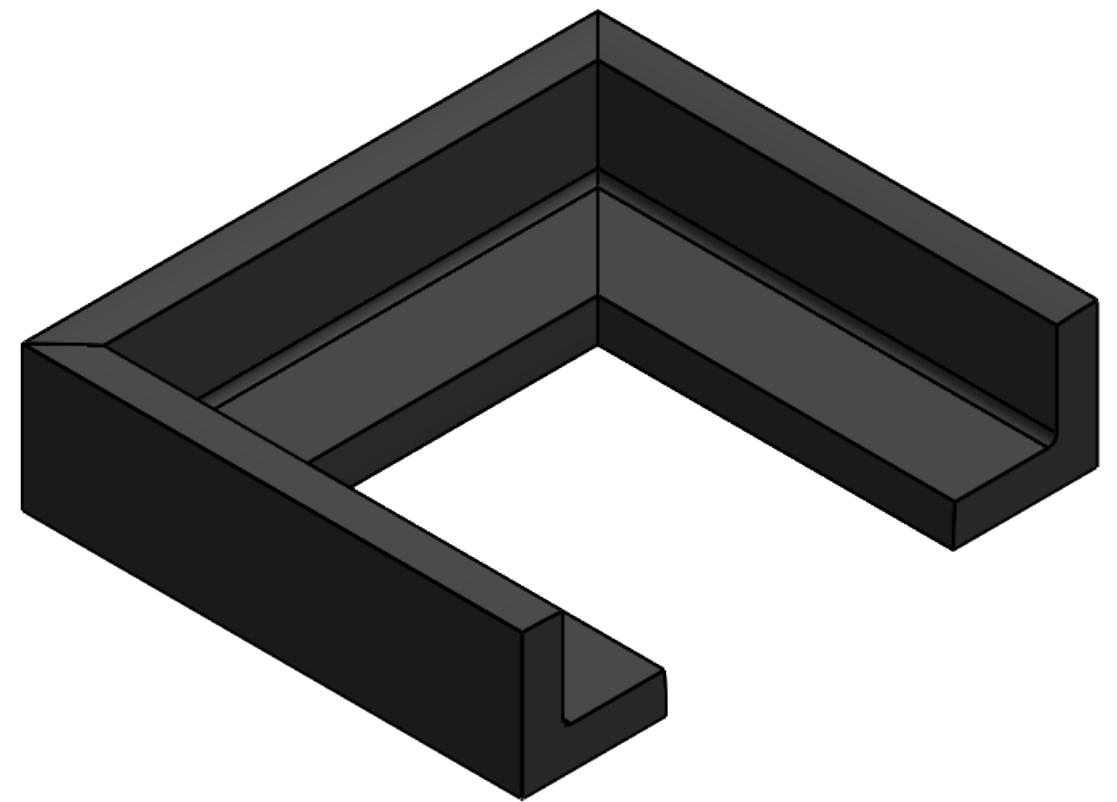
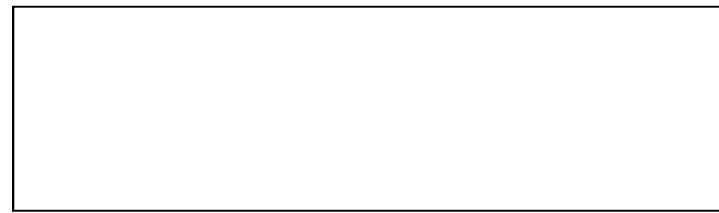
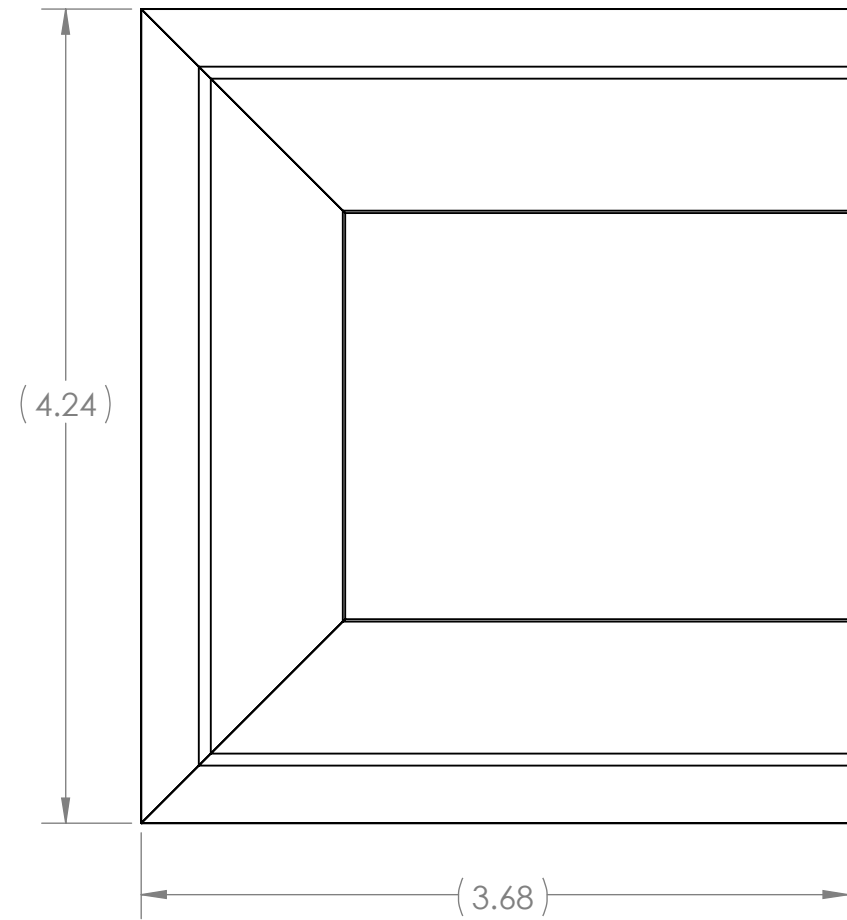
1

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DESCRIPTION: SAFETY EDGE & CORNER GAURD, NBR FOAM, ONYX



VENDOR: ROVING COVE

PART NUMBER: 1305

PACKAGE QUANTITY: 18FEET

NOTE: CUT TO LENGTH

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
		MATERIAL		ENG APPR.		
		FINISH		MFG APPR.		
NEXT ASSY	USED ON			Q.A.		
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		
TITLE:						
Foam Cushion for Generator Switch						
SIZE	DWG. NO.	REV				
B	GE-20008					
SCALE: 1:1		WEIGHT:		SHEET 2 OF 2		

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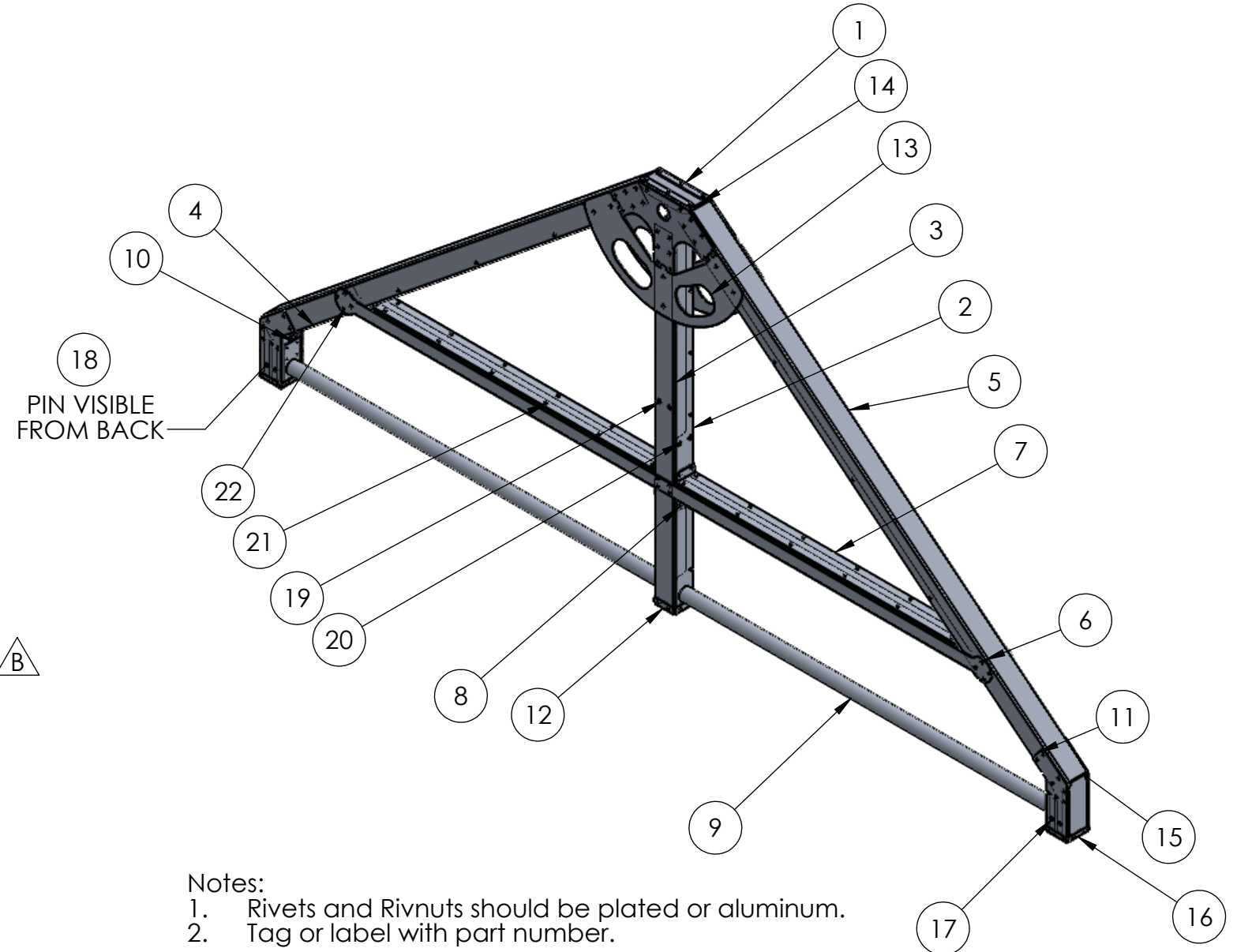
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20010 - 01	Hanger - Top	2
2	GE-20010 - 02	Hanger - Center Leg	1
3	GE-20010 - 03	Hanger - Center Leg, Face	1
4	GE-20010 - 04	Hanger - Side Leg	2
5	GE-20010 - 05	Hanger - Side Leg, Face	2
6	GE-20010 - 06	Hanger - Cross Bar	2
7	GE-20010 - 07	Hanger - Cross Bar, Top	2
8	GE-20010 - 08	Hanger - Cross Bar, Bottom	2
9	GE-20010 - 09	Hanger - Hanging Pole	1
10	GE-20010 - 10	Hanger - Hanging Pole Holder	4
11	GE-20010 - 11	Hanger - Hanging Pole Holder, Face	4
12	GE-20010 - 12	Hanger - Center Leg, End Cap	1
13	GE-20010 - 13	Hanger - Sensor Feature	2
14	GE-20010 - 14	Hanger - Top, Face	1
15	GE-20010 - 15	Hanger - Hanging Pole Holder, End	2
16	GE-20010 - 16	Hanger - Hanging Pole Holder, End Cap	2
17	pin_clevis_.25_3.5	Clevis Pin, 1/4" diameter, 3.5" length	4
18	pin_hairpincotter_0.078_1.5	Cotter Pin_ 0.078in x 1.5in	4
19	rivnut_.25_20_.027-.165	Rivnut, 1/4"-20 bolt, material thickness: .027" - .165"	4
20	rivnut_.25_20_.165-.260	Rivnut, 1/4"-20 bolt, material thickness: .165"-.260"	4
21	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	130
22	rivet_.1875_.376-.5	3/16" Aluminum Rivet, .376-.5 Grip Range	92

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	MULTIPLE PARTS UPDATED, WEIGHT UPDATED, OVERALL ASSEMBLY OTHERWISE UNCHANGED	9/10/2019	KAMC
A3, 8-B2	B	POST PRODUCTION - CHANGED PIN TO COTTER PIN STYLE	11/18/2019	KAMC



- Notes:
- Rivets and Rivnuts should be plated or aluminum.
 - Tag or label with part number.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: <h1>Hanger</h1>
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		SIZE DWG. NO. REV B GE-20010 B
APPLICATION		Q.A.		
GE-20015	USED ON	COMMENTS:		SCALE: 1:16 WEIGHT: SHEET 1 OF 8
NEXT ASSY		WEIGHT: 67.14 LBS		
DO NOT SCALE DRAWING				

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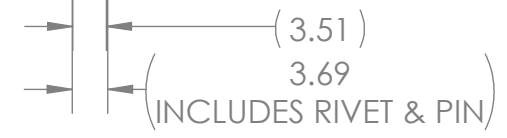
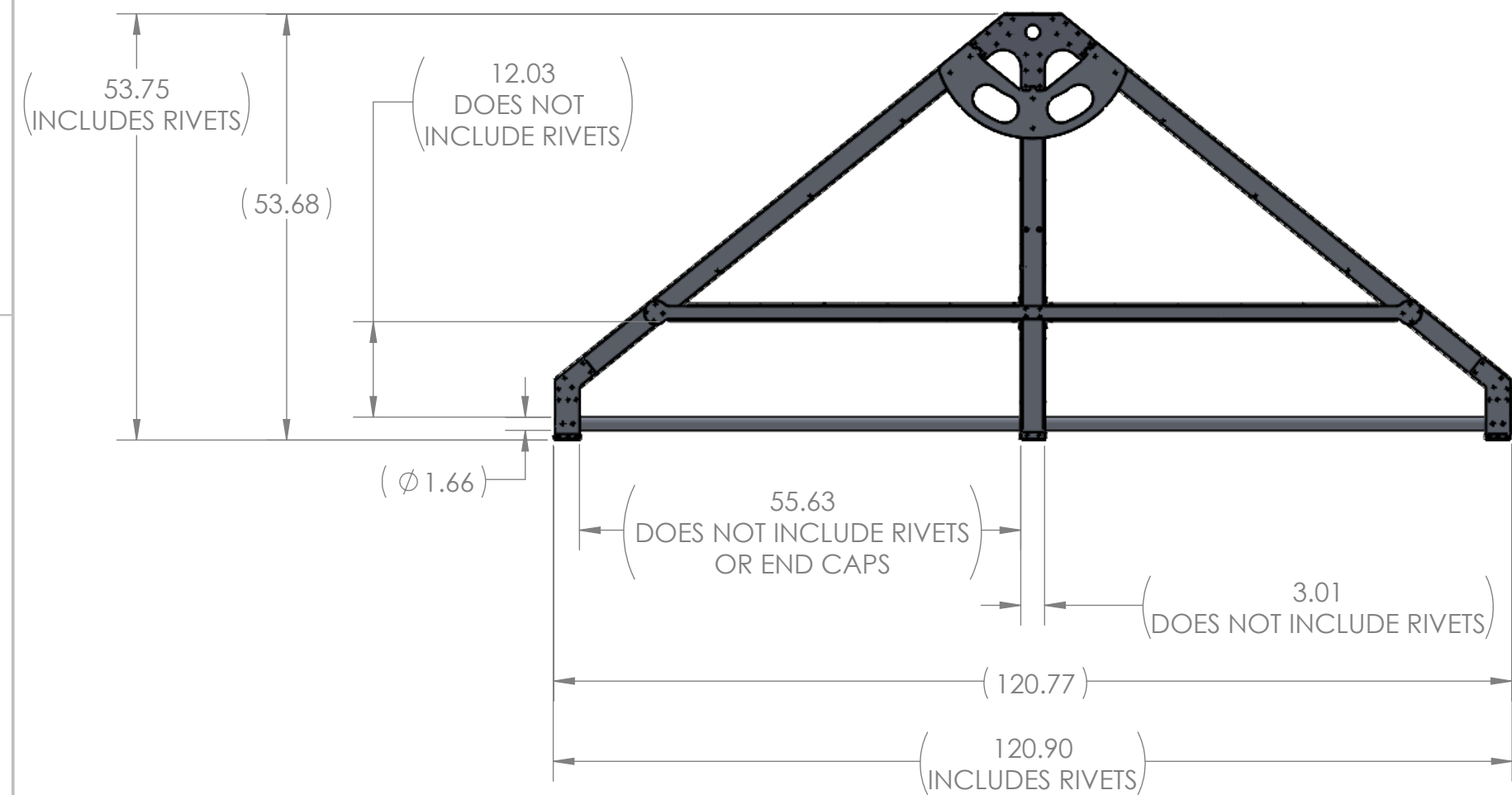
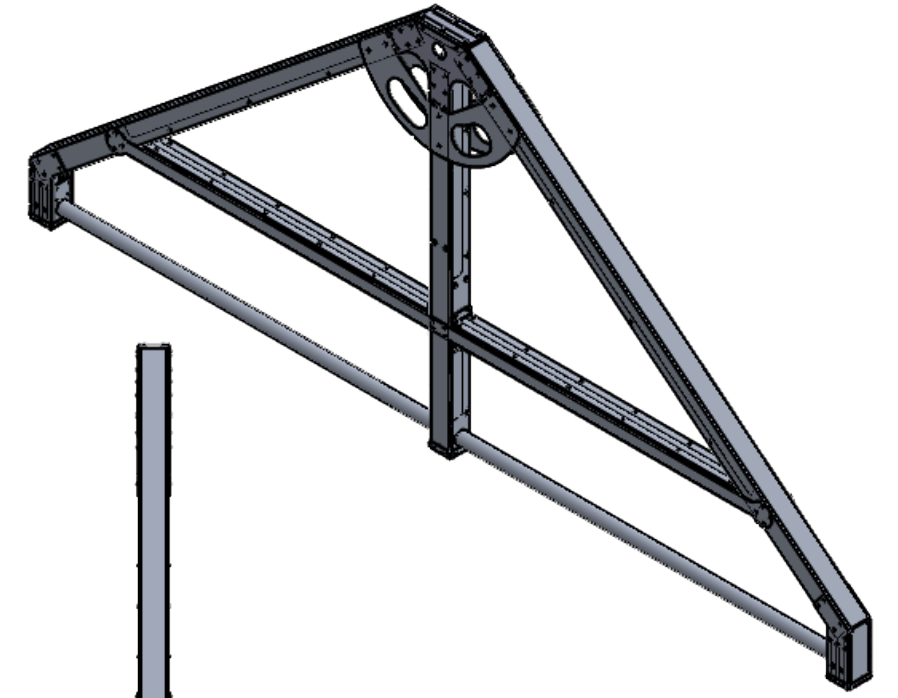
2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet 1	-	-





Note: Assembly is symmetric - Left/Right



DIMENSIONS SHOWN FOR REF.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL		CHECKED		
FINISH BARE		ENG APPR.		
GE-20015		MFG APPR.		
NEXT ASSY USED ON		Q.A.		
APPLICATION DO NOT SCALE DRAWING		COMMENTS:	WEIGHT SHOWN ON SHEET 1	
		TITLE: Hanger		
		SIZE B	DWG. NO. GE-20010	REV B
		SCALE: 1:20 WEIGHT:		SHEET 2 OF 8

4

3

2

1

B

B

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A

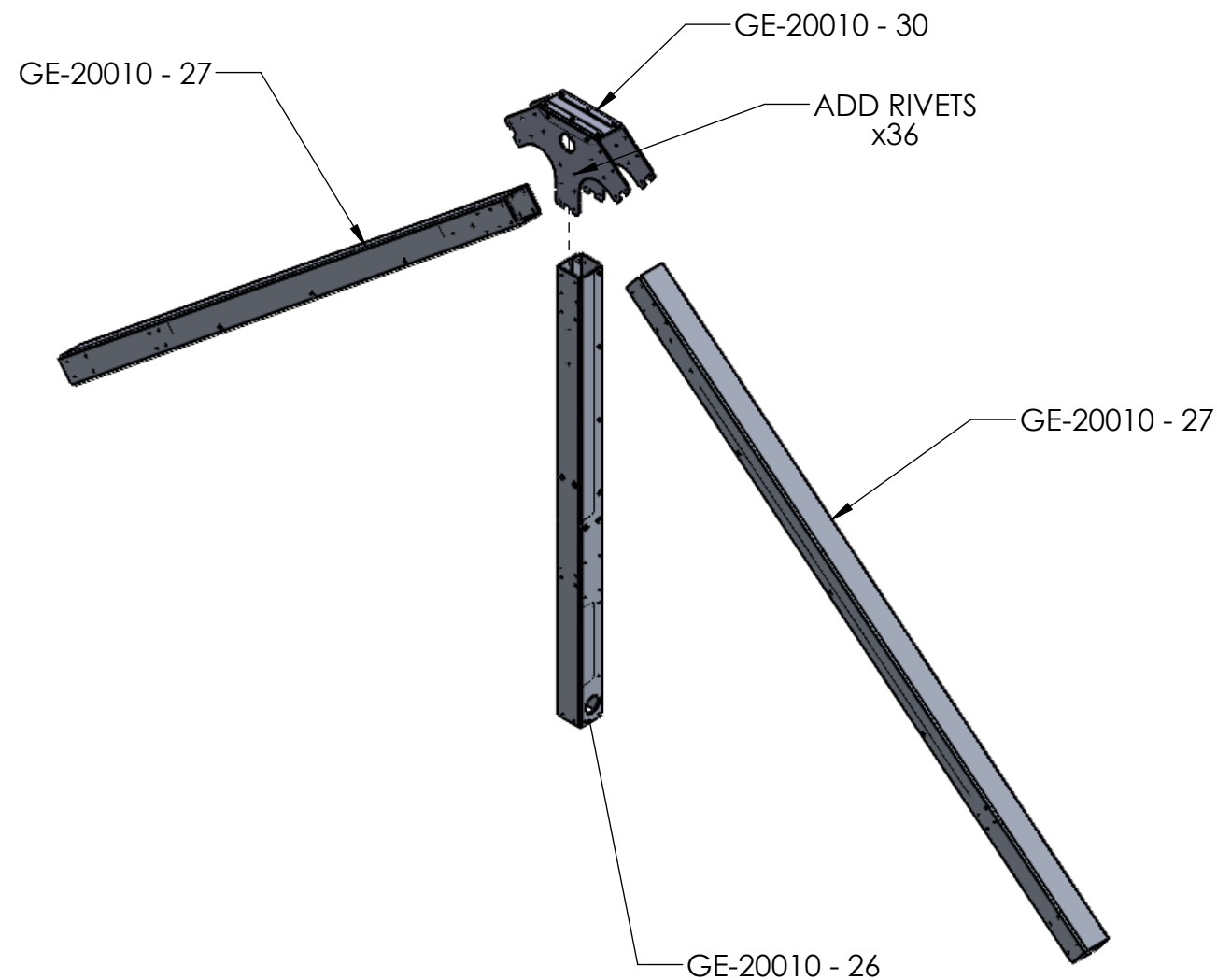
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3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet1	-	-



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		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	9/10/19
		FRACTIONAL $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
		BARE		
APPLICATION		DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Hanger**

SIZE **B** DWG. NO. **GE-20010** REV **B**

SCALE: 1:16 WEIGHT: SHEET 3 OF 8

4

3

2

1

B

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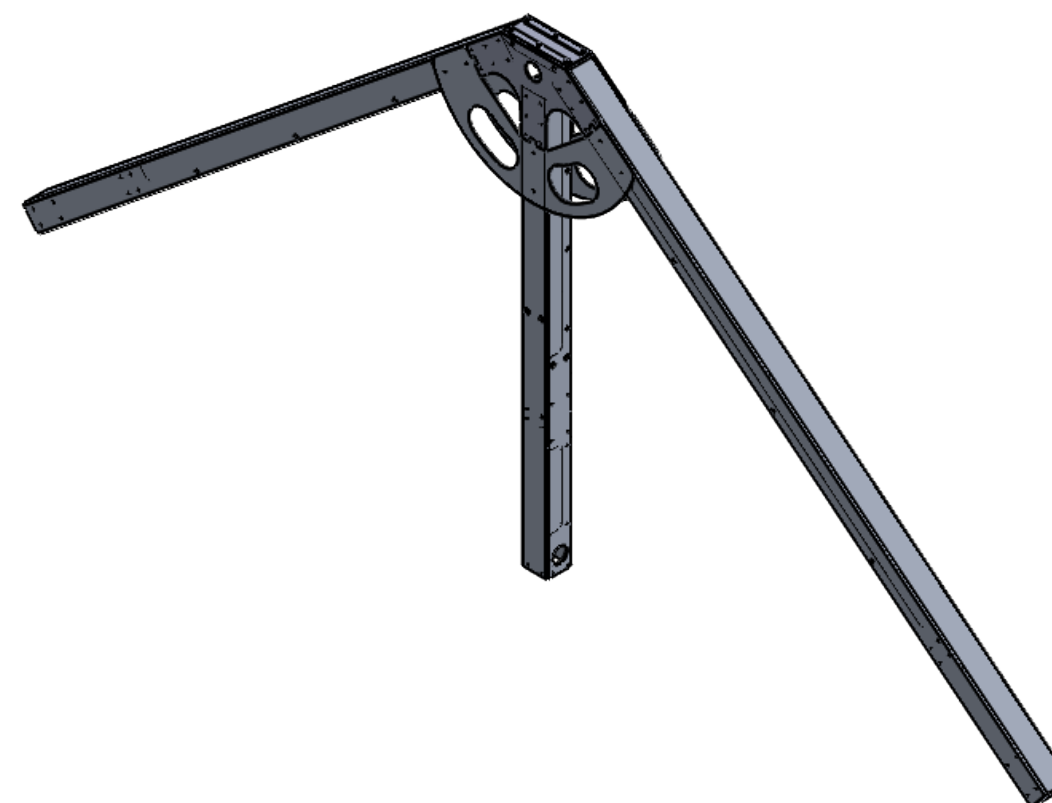
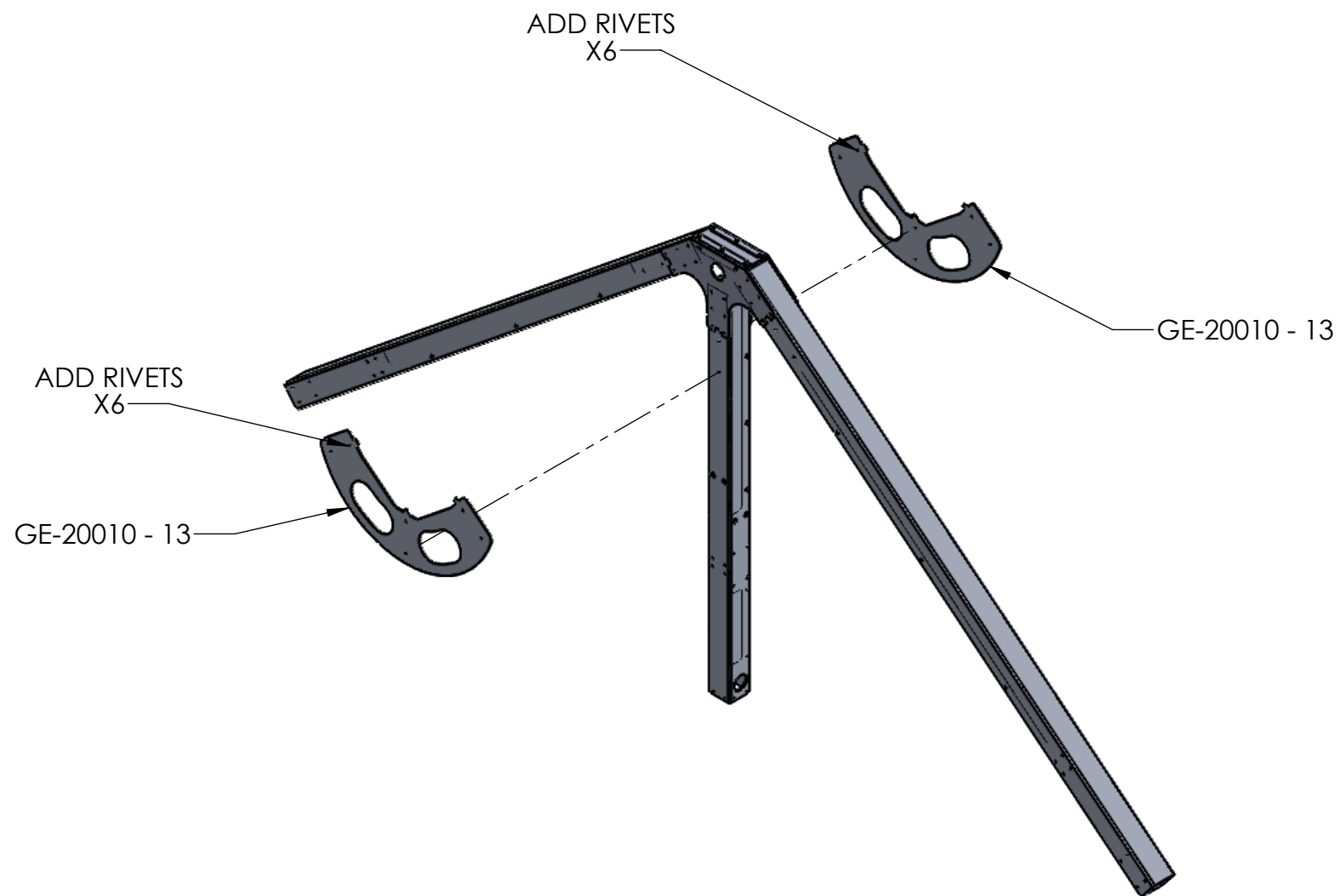
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3



2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet1	-	-



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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		
		MATERIAL	ENG APPR.		
		FINISH	MFG APPR.		
NEXT ASSY	USED ON		Q.A.		
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		
			TITLE:		Hanger
SIZE	DWG. NO.	REV			
B	GE-20010	B			
SCALE: 1:16		WEIGHT:	SHEET 4 OF 8		

4

3

2

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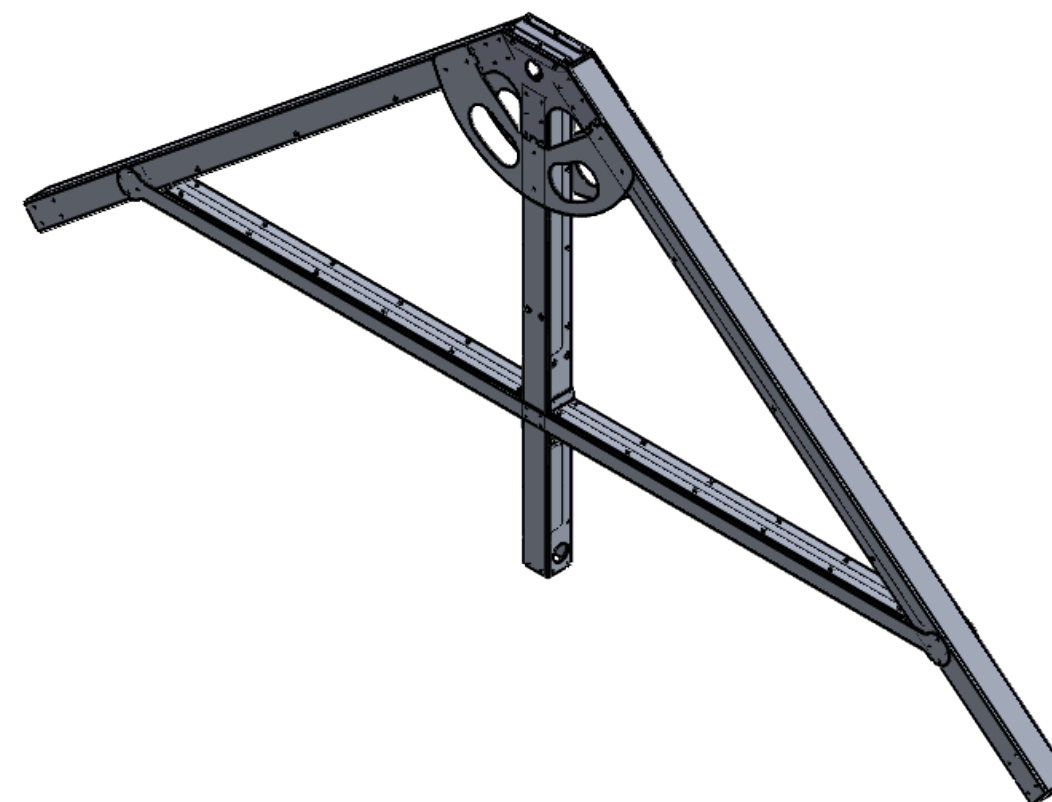
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3





2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet1	-	-



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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$	DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		
		MATERIAL	ENG APPR.		
		FINISH	MFG APPR.		
NEXT ASSY	USED ON		Q.A.		
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		
TITLE:					 
Hanger					
SIZE	DWG. NO.	REV			
B	GE-20010	B			
SCALE: 1:16		WEIGHT:	SHEET 5 OF 8		

4

3

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1

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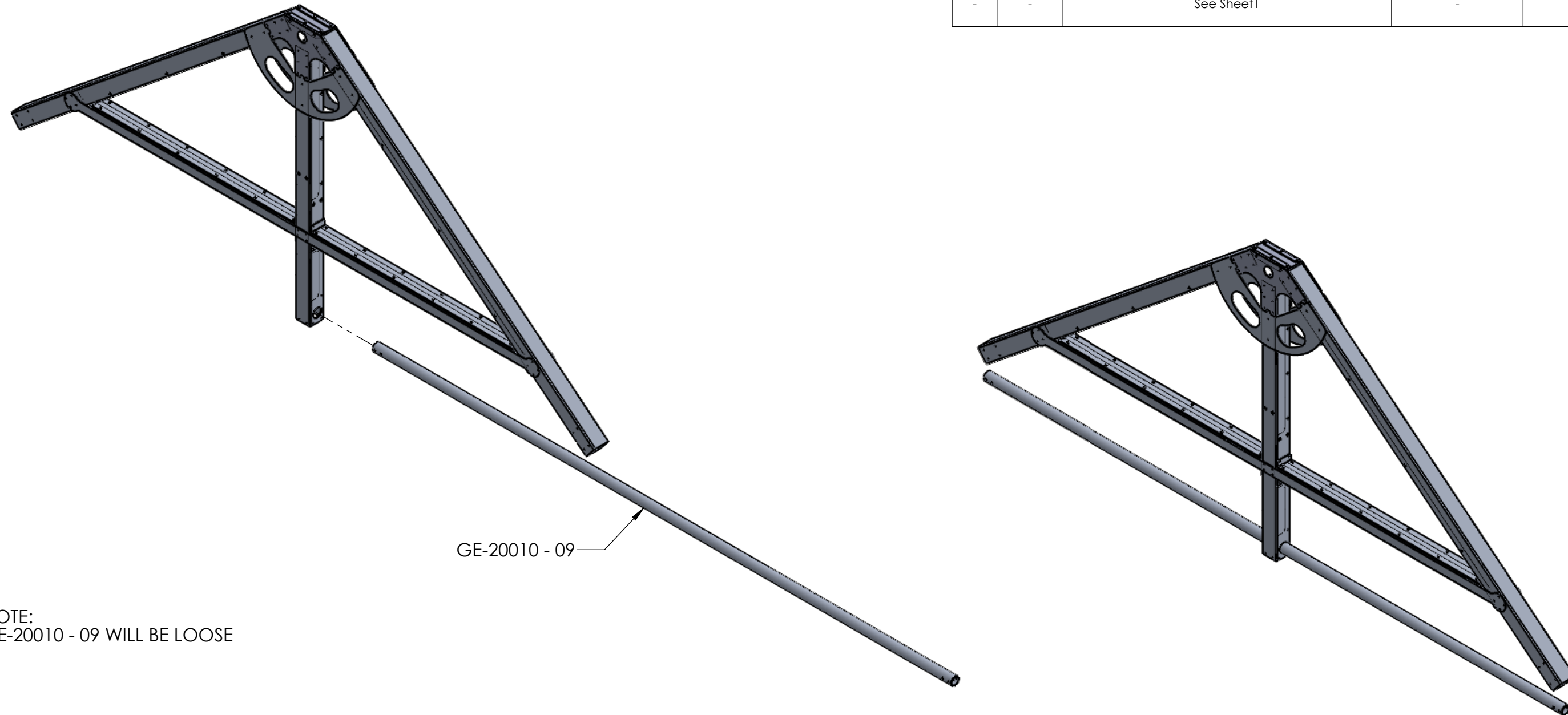
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3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet1	-	-



GE-20010 - 09

NOTE:
GE-20010 - 09 WILL BE LOOSE

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		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	9/10/19
		FRACTIONAL $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
		APPLICATION		
		DO NOT SCALE DRAWING		



TITLE:		
<h1>Hanger</h1>		
SIZE	DWG. NO.	REV
B	GE-20010	B
SCALE: 1:16 WEIGHT:		SHEET 6 OF 8

4

3

2

1

B

B

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A

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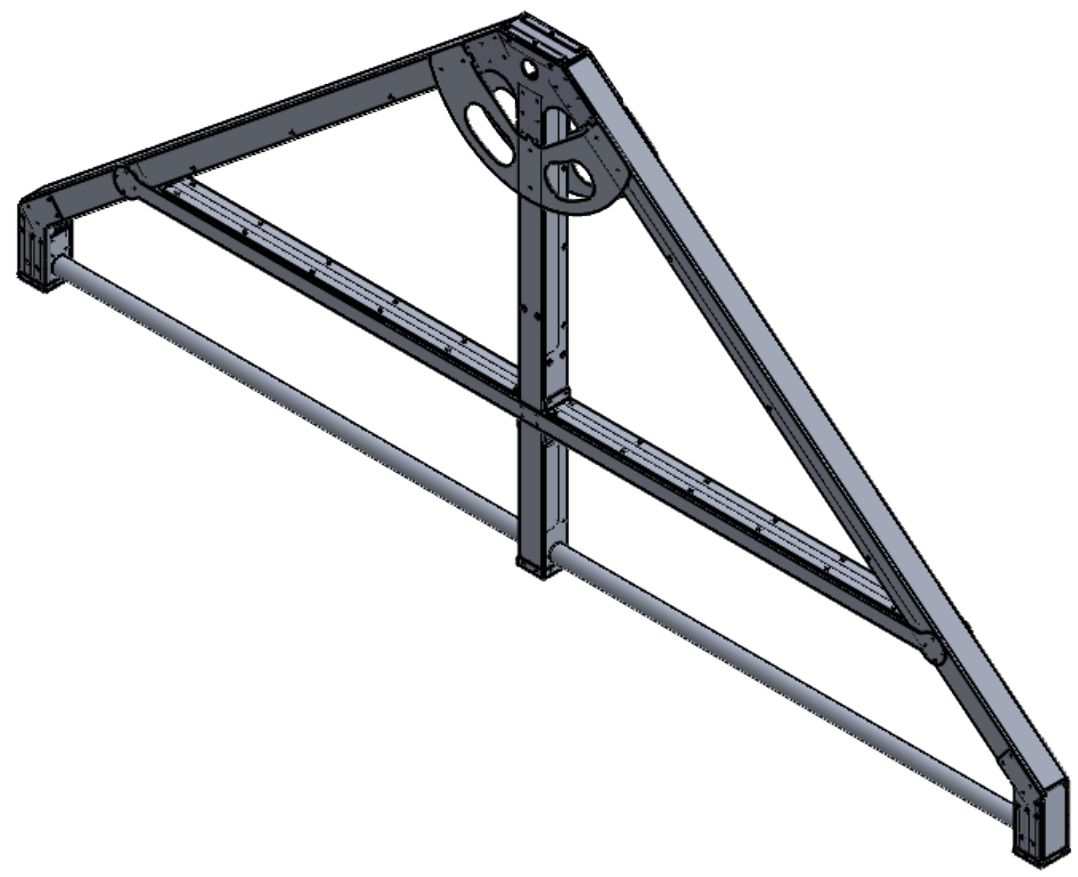
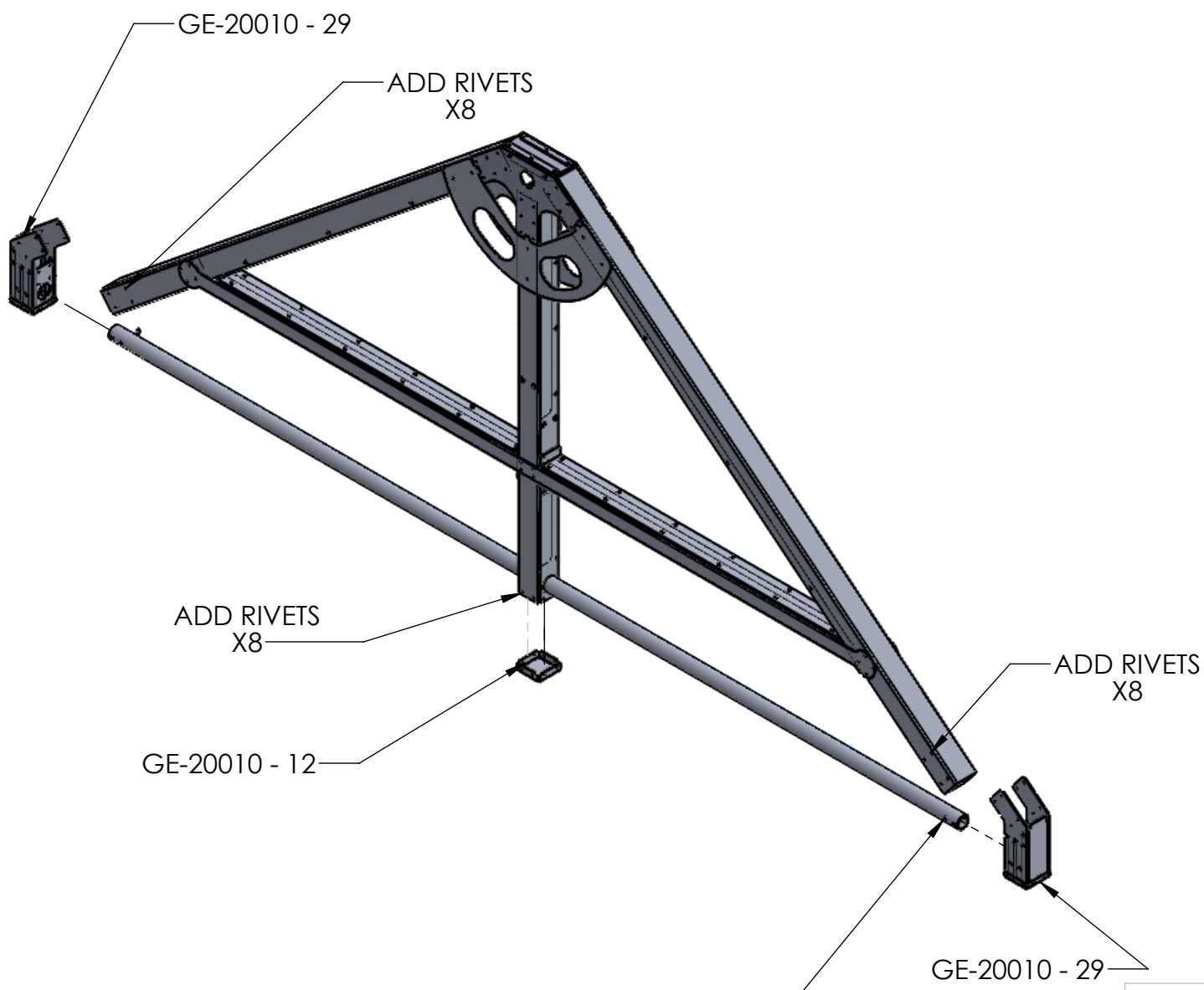
2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet 1	-	-

B

B



A

A

NOTE:
ALIGN HOLES IN GE-20010 - 09 WITH
THE SLOTS ON GE-20010 - 30,
SPECIFICALLY GE-20010 - 11
USE PINS TO LOCK POLE IN PLACE

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		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	9/10/19
		FRACTIONAL: $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
<h1>Hanger</h1>		
SIZE	DWG. NO.	REV
B	GE-20010	B
SCALE: 1:16 WEIGHT:		SHEET 7 OF 8

4

3

2

1

4

3

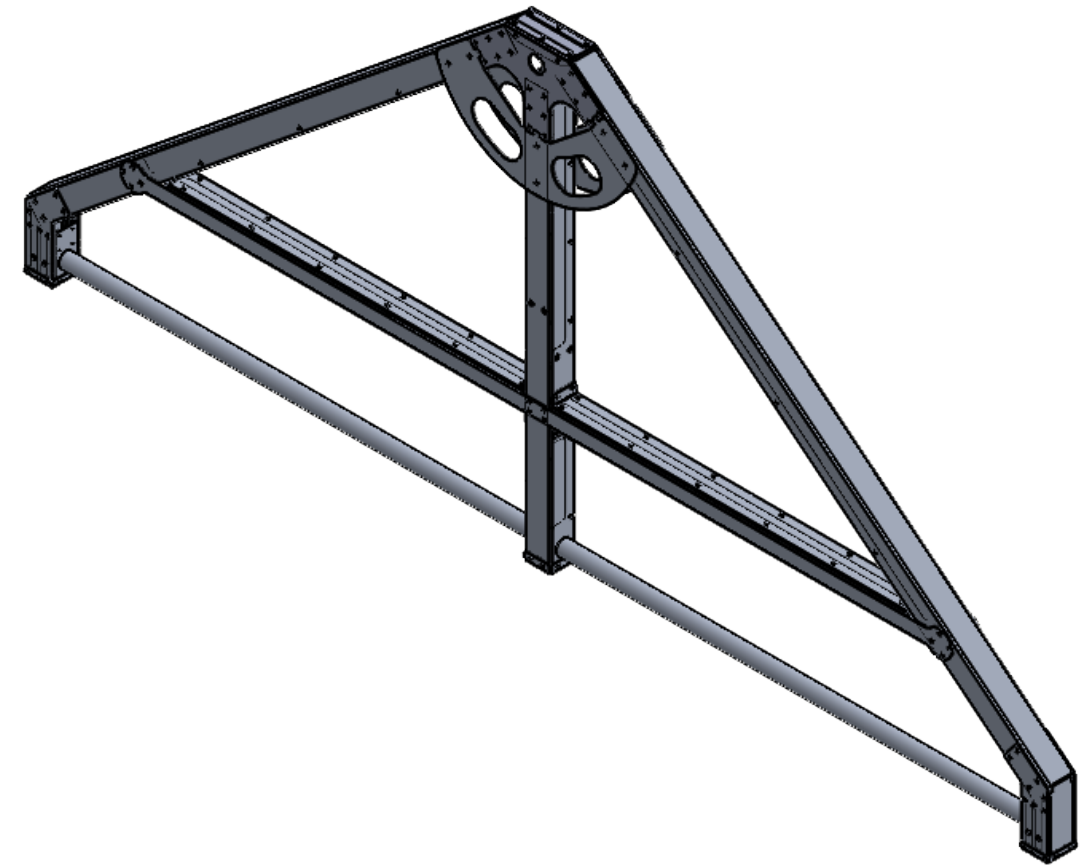
2

1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	pin_clevis_.25_3.5	Clevis Pin, 1/4" diameter, 3.5" length	4
2	pin_hairpincotter_0.078_1.5	Cotter Pin_ 0.078in x 1.5in	4
3	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	28
4	GE-20010 - 30	Hanger - Top Sub Assembly	1
4.1	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	10
4.2	GE-20010 - 01	Hanger - Top	2
4.3	GE-20010 - 14	Hanger - Top, Face	1
5	GE-20010 - 26	Hanger - Center Bar Sub Assembly	1
5.1	rivnut_.25_20_.027-.165	Rivnut, 1/4"-20 bolt, material thickness: .027" - .165"	4
5.2	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	8
5.3	GE-20010 - 02	Hanger - Center Leg	1
5.4	rivnut_.25_20_.165-.260	Rivnut, 1/4"-20 bolt, material thickness: .165"-.260"	4
5.5	GE-20010 - 03	Hanger - Center Leg, Face	1
6	GE-20010 - 27	Hanger - Side Leg Assembly	2
6.1	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	6
6.2	GE-20010 - 04	Hanger - Side Leg	1
6.3	GE-20010 - 05	Hanger - Side Leg, Face	1
7	GE-20010 - 28	Hanger - Center Bar Sub Assembly	1
7.1	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	48
7.2	GE-20010 - 06	Hanger - Cross Bar	2
7.3	GE-20010 - 07	Hanger - Cross Bar, Top	2
7.4	GE-20010 - 08	Hanger - Cross Bar, Bottom	2
8	GE-20010 - 09	Hanger - Hanging Pole	1
9	GE-20010 - 29	Hanger - Hanging Pole Holder Sub Assembly	2
9.1	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	12
9.2	GE-20010 - 10	Hanger - Hanging Pole Holder	2
9.3	GE-20010 - 11	Hanger - Hanging Pole Holder, Face	2
9.4	rivet_.1875_.376-.5	3/16" Aluminum Rivet, .376-.5 Grip Range	6
9.5	GE-20010 - 15	Hanger - Hanging Pole Holder, End	1
9.6	GE-20010 - 16	Hanger - Hanging Pole Holder, End Cap	1
10	GE-20010 - 12	Hanger - Center Leg, End Cap	1
11	GE-20010 - 13	Hanger - Sensor Feature	2
12	rivet_.1875_.376-.5	3/16" Aluminum Rivet, .376-.5 Grip Range	80





REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet1	-	-



DETAILED BOM SHOWN FOR REF.

- Notes:
- Rivets and Rivnuts should be plated or aluminum.
 - Tag or label with part number.

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INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: <h1>Hanger</h1>
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	COMMENTS:		Q.A. WEIGHT SHOWN ON SHEET 1
APPLICATION		DO NOT SCALE DRAWING		SIZE B DWG. NO. GE-20010 REV B SCALE: 1:16 WEIGHT: SHEET 8 OF 8

4

3

2

1

B

B

A

A

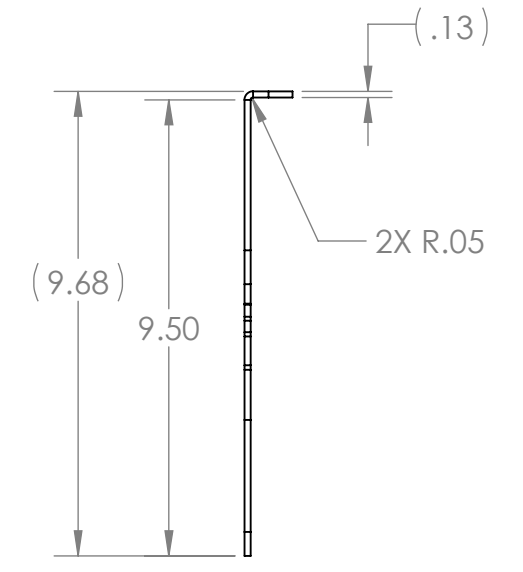
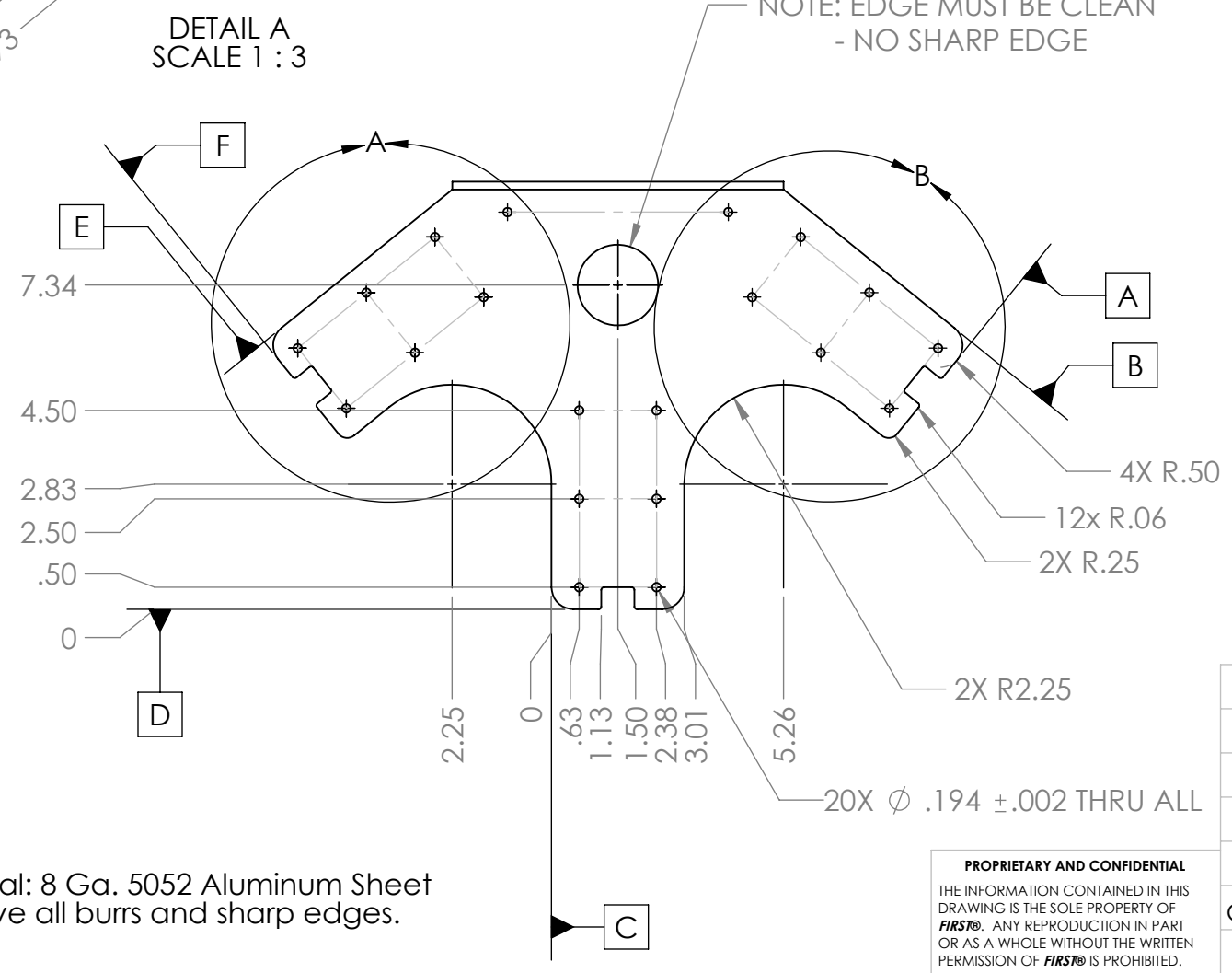
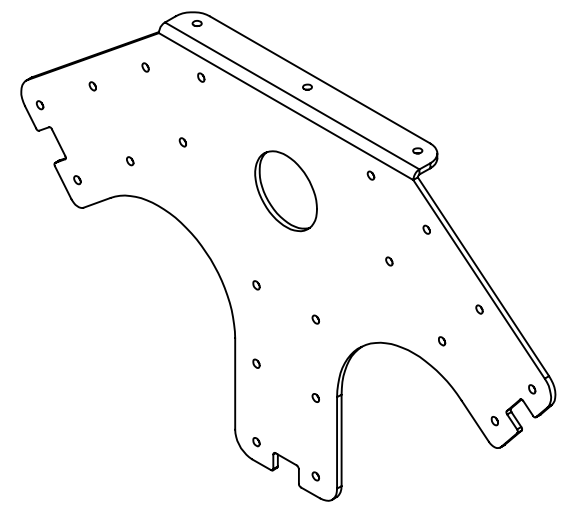
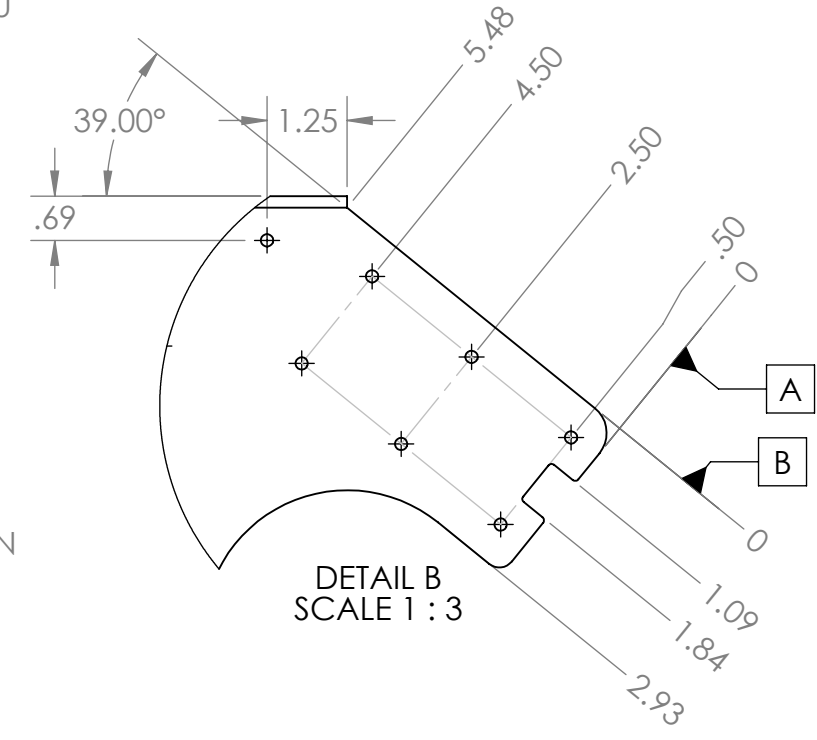
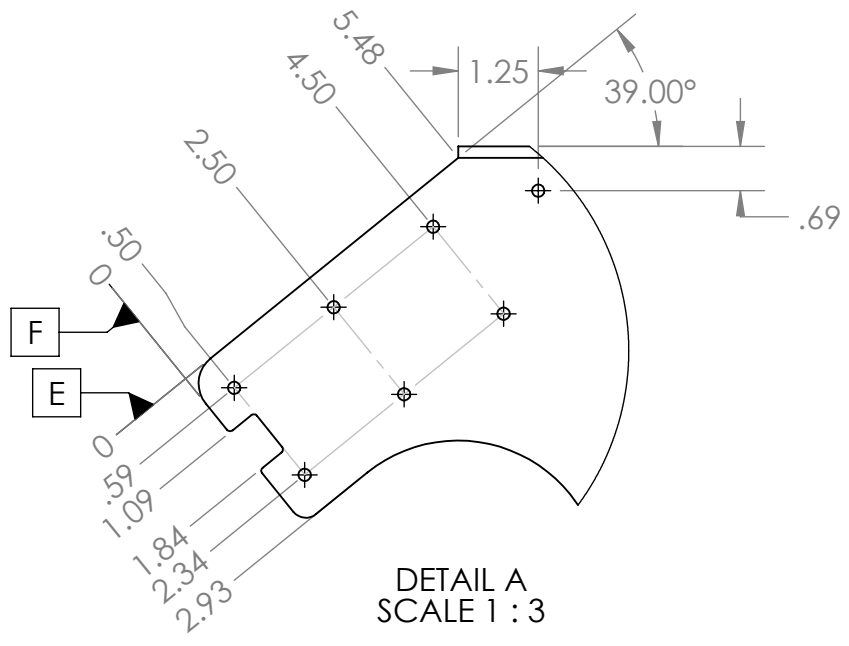
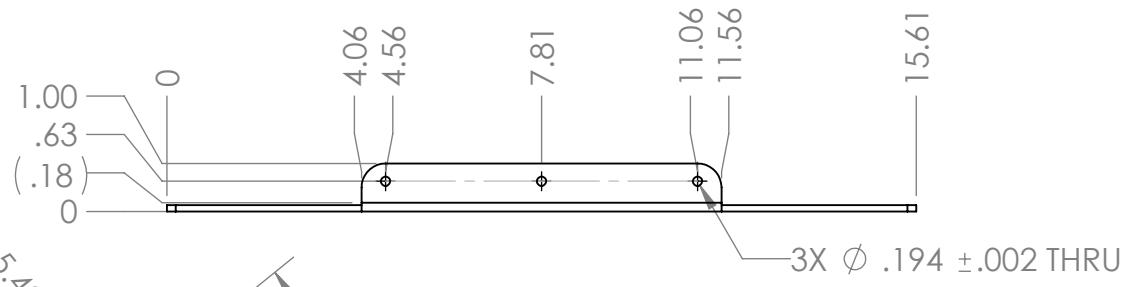
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1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	MAJOR GEOMETRY CHANGE	9/16/19	KAMC



- Notes:
1. Material: 8 Ga. 5052 Aluminum Sheet
 2. Remove all burrs and sharp edges.

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		DIMENSIONS ARE IN INCHES		DRAWN	KAMC
		TOLERANCES:		CHECKED	
		FRACTIONAL: ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
GE-20010 - 30	GE-20010	INTERPRET GEOMETRIC TOLERANCING PER:	MATERIAL		
NEXT ASSY	USED ON	ALUMINUM SHEET	FINISH		
APPLICATION		BARE			
		DO NOT SCALE DRAWING			



TITLE:		
Hanger - Top		
SIZE	DWG. NO.	REV
B	GE-20010 - 01	A
SCALE: 1:4	WEIGHT:	SHEET 1 OF 1

4

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2

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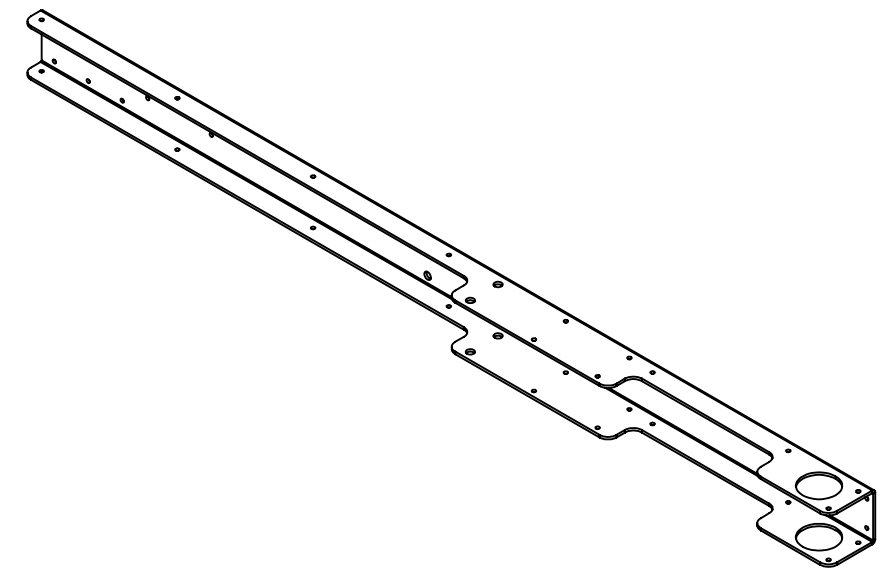
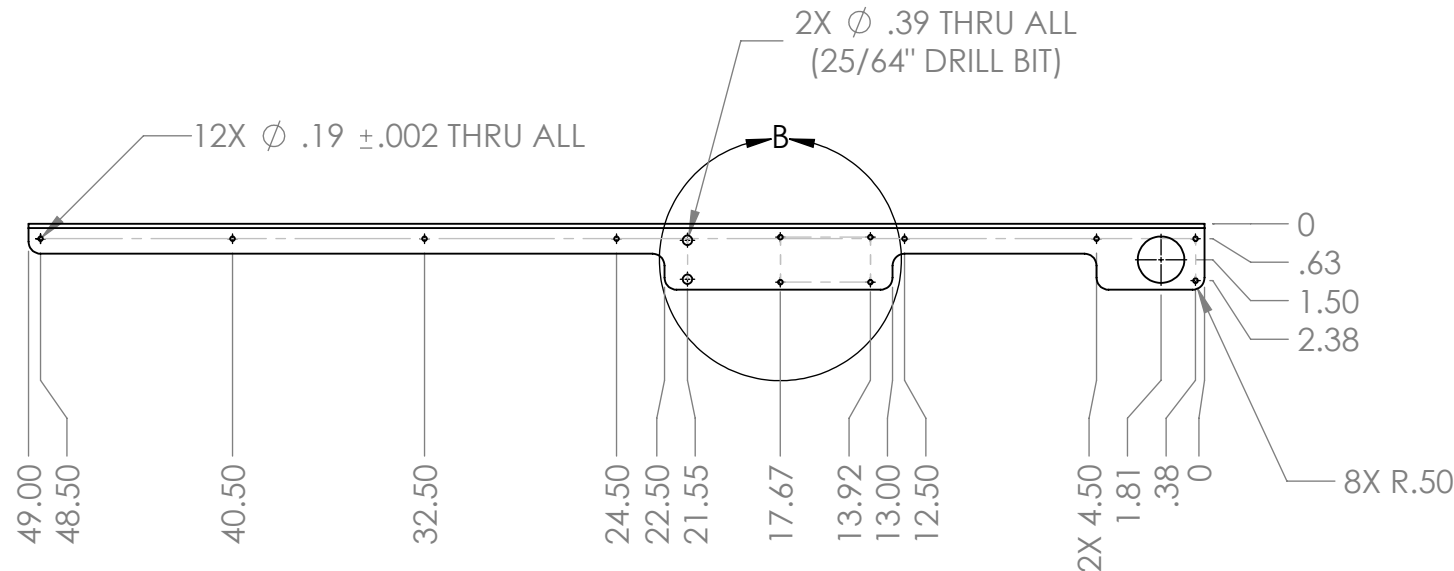
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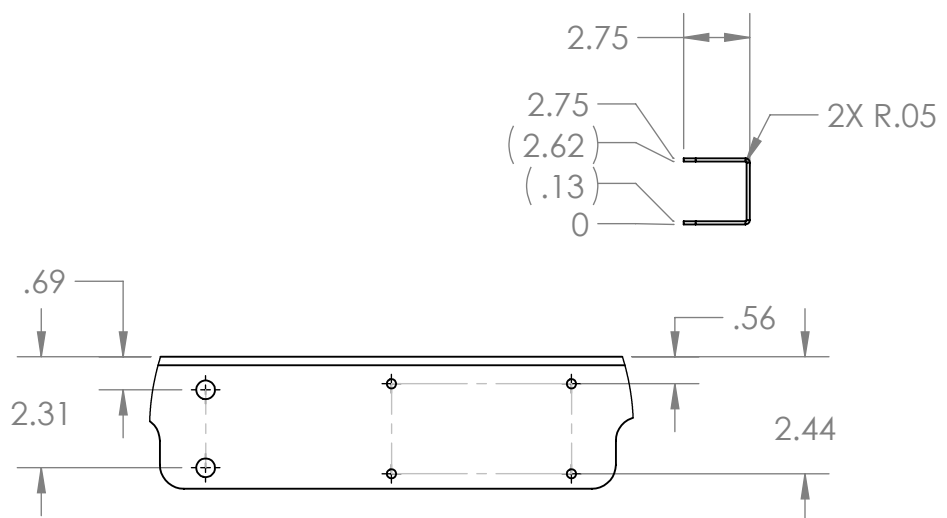
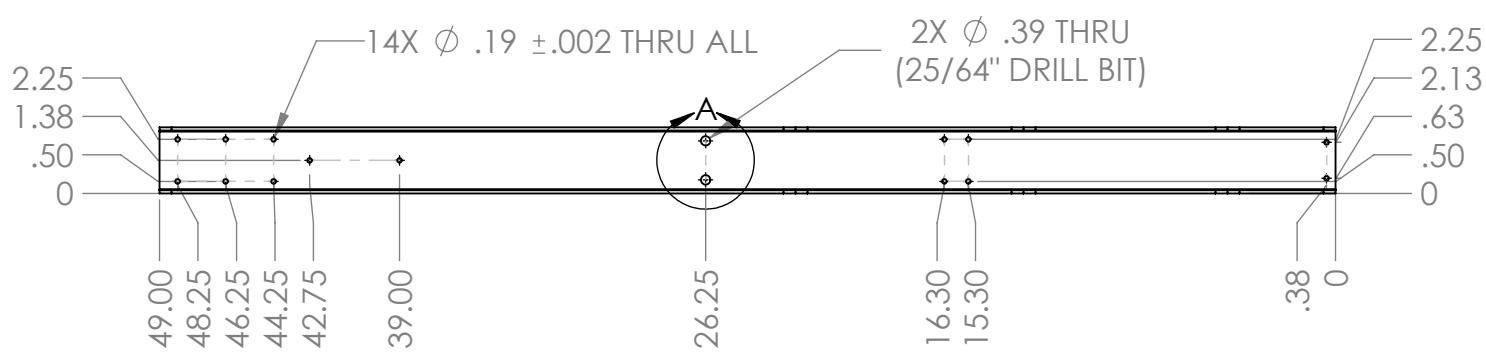
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	MAJOR GEOMETRY CHANGES	9/17/19	KAMC

B

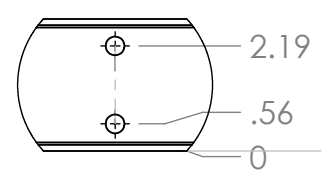


B

A



DETAIL B
SCALE 1 : 4



DETAIL A
SCALE 1 : 4

- Notes:
1. Material: 8 Ga. 5052 Aluminum Sheet
 2. Remove all burrs and sharp edges

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: \pm 1/16 ANGULAR: MACH \pm 1° BEND \pm 1° TWO PLACE DECIMAL \pm .01 THREE PLACE DECIMAL \pm .001		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		
GE-20010 - 26	GE-20010	MATERIAL ALUMINUM SHEET		TITLE: Hanger - Center Leg		
NEXT ASSY	USED ON	FINISH BARE		SIZE DWG. NO. REV B GE-20010 - 02 A		
APPLICATION		DO NOT SCALE DRAWING		SCALE: 1:8 WEIGHT: SHEET 1 OF 1		

4

3

2

1

A

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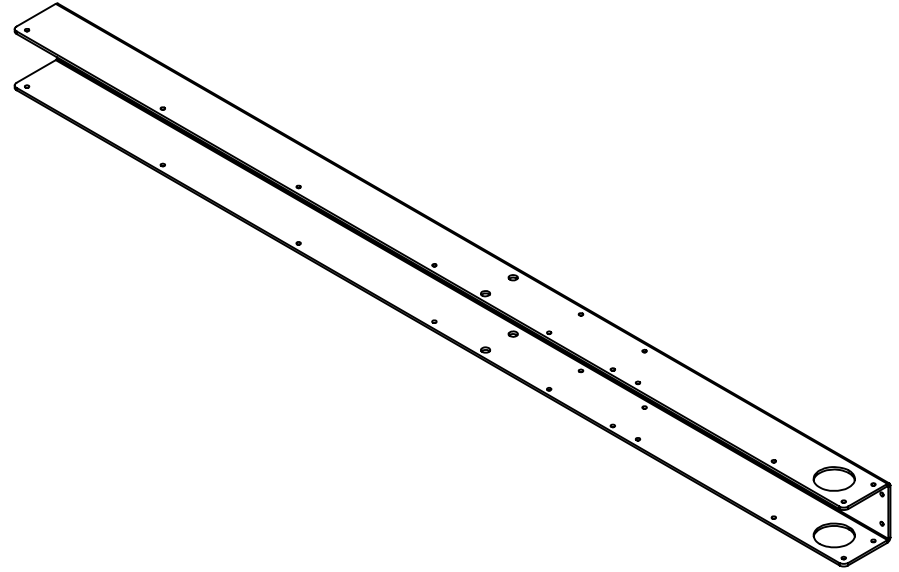
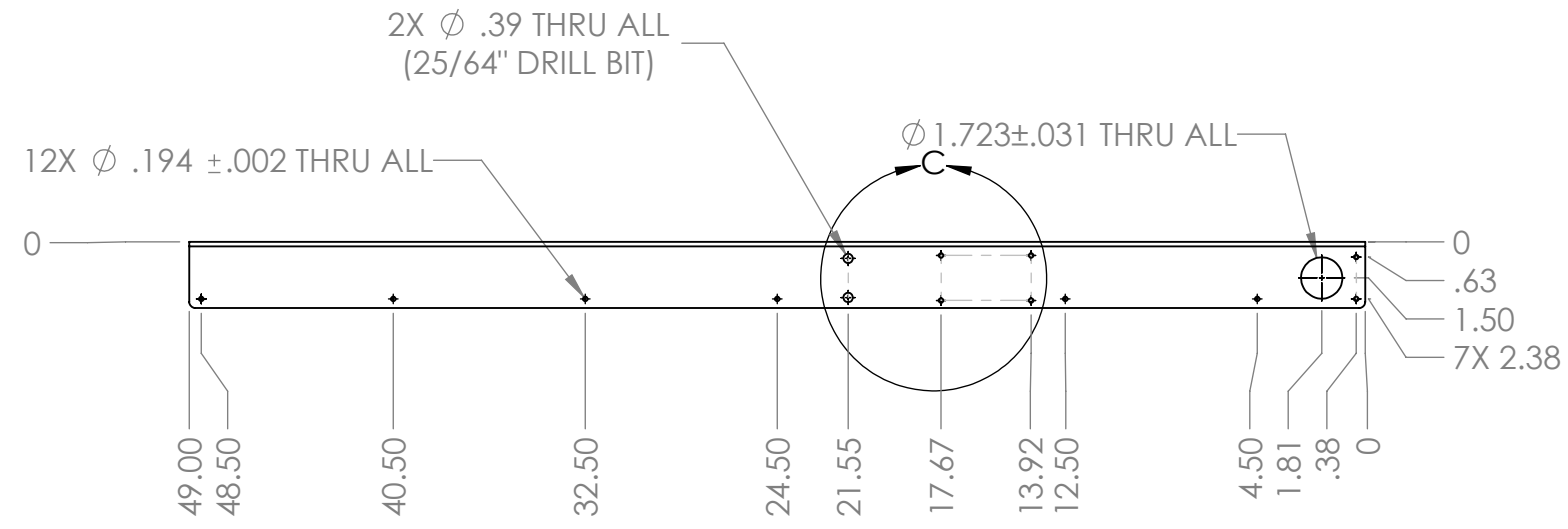
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1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	MAJOR GEOMETRY CHANGES	9/16/19	KAMC

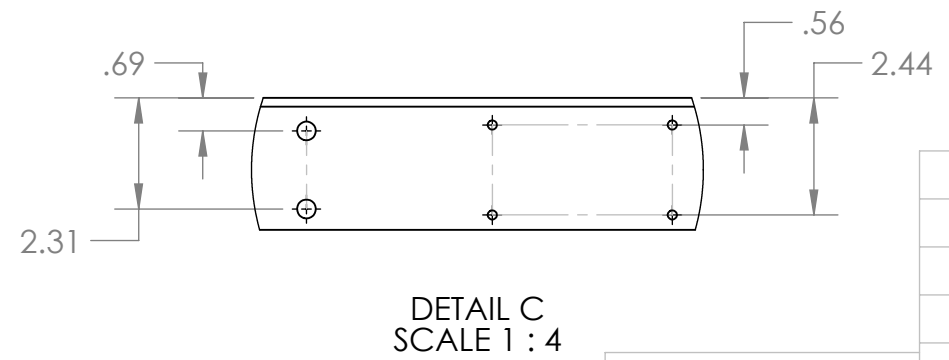
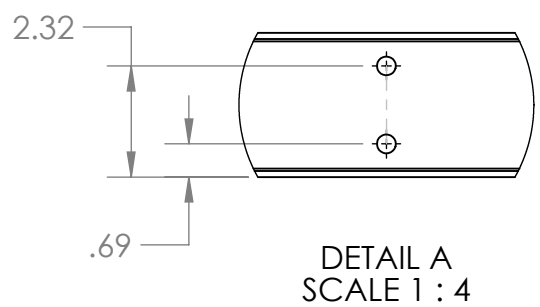
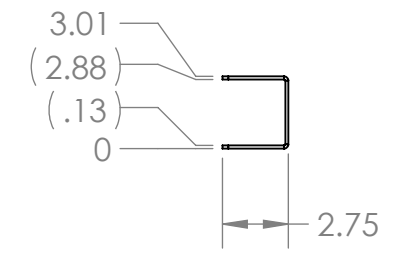
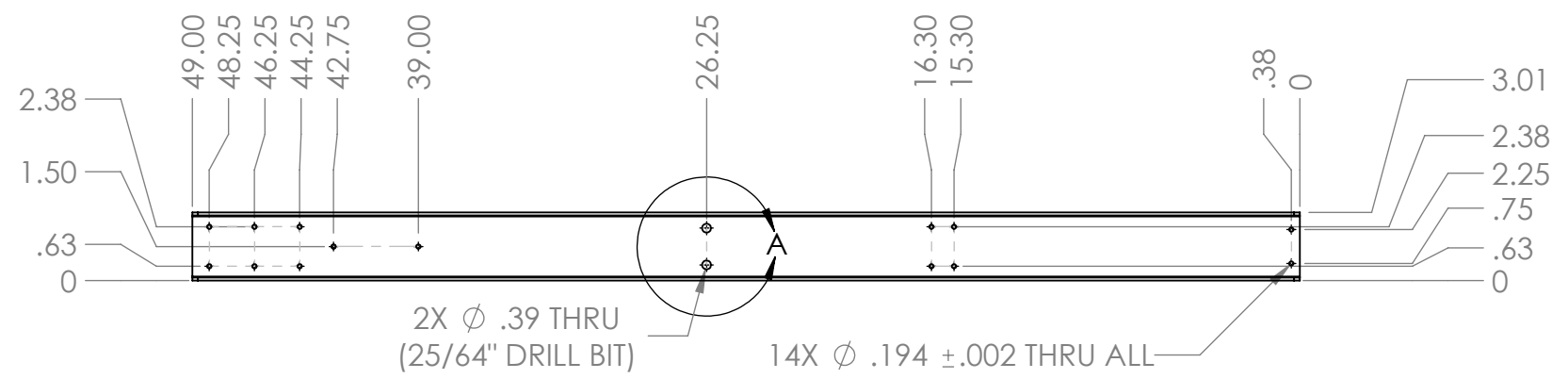
B

B



A

A



- Notes:
1. Material: 8 Ga. Aluminum Sheet
 2. Remove all burrs and sharp edges.

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		DIMENSIONS ARE IN INCHES		DRAWN	KAMC
		TOLERANCES:		CHECKED	
		FRACTIONAL \pm 1/16		ENG APPR.	
		ANGULAR: MACH \pm 1° BEND \pm 1°		MFG APPR.	
		TWO PLACE DECIMAL \pm .01		Q.A.	
		THREE PLACE DECIMAL \pm .001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
GE-20010 - 26	GE-20010	MATERIAL			
		ALUMINUM SHEET			
		FINISH			
		BARE			
NEXT ASSY		USED ON			
APPLICATION		DO NOT SCALE DRAWING			



TITLE:		
Hanger - Center Leg, Face		
SIZE	DWG. NO.	REV
B	GE-20010 - 03	A
SCALE: 1:8	WEIGHT:	SHEET 1 OF 1

4

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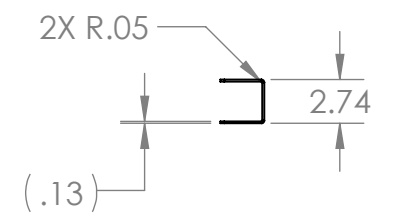
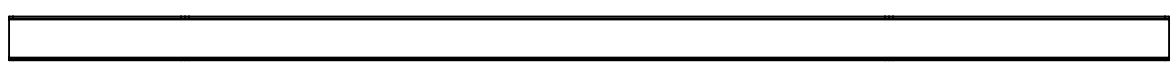
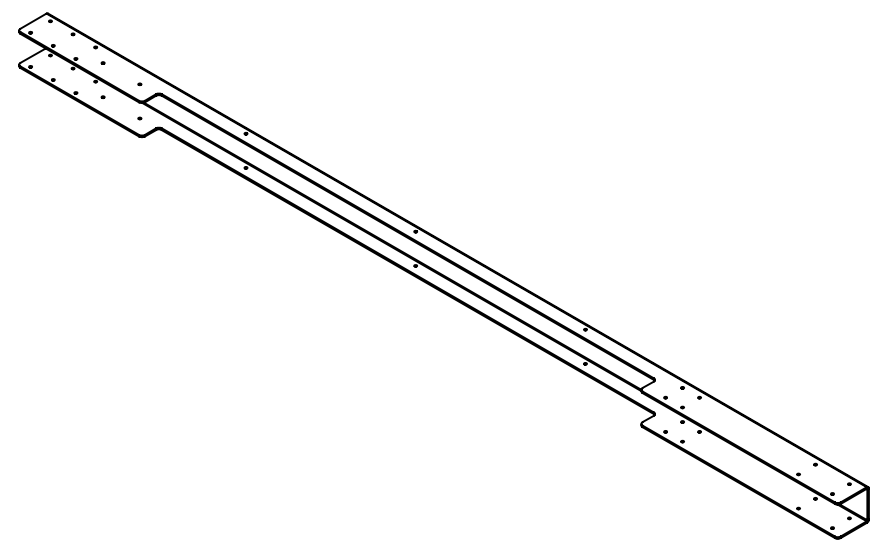
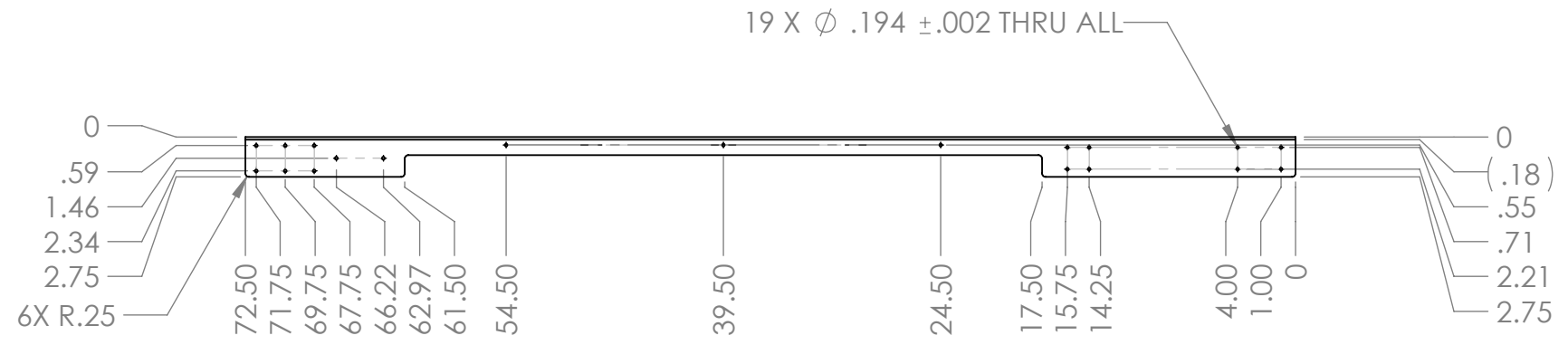
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1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	MAJOR GEOMETRY CHANGE	9/16/19	KAMC

B

B







A

A

- Notes:
1. Material: 8 Ga. 5052 Aluminum
 2. Remove all burrs and sharp edges.

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
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		MATERIAL		ENG APPR.		
		FINISH		MFG APPR.		
		ALUMINUM SHEET		Q.A.		
		BARE		COMMENTS:		
GE-20010-27	GE-20010					
NEXT ASSY	USED ON					
APPLICATION		DO NOT SCALE DRAWING				
				TITLE:		 
				Hanger - Side Leg		
SIZE	DWG. NO.	REV				
B	GE-20010 - 04	A				
SCALE: 1:12		WEIGHT:		SHEET 1 OF 1		

4

3

2

1

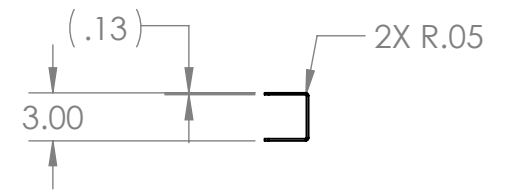
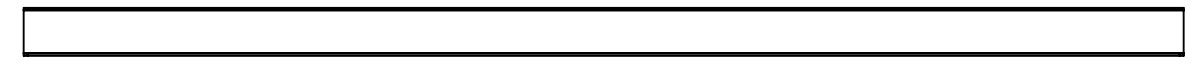
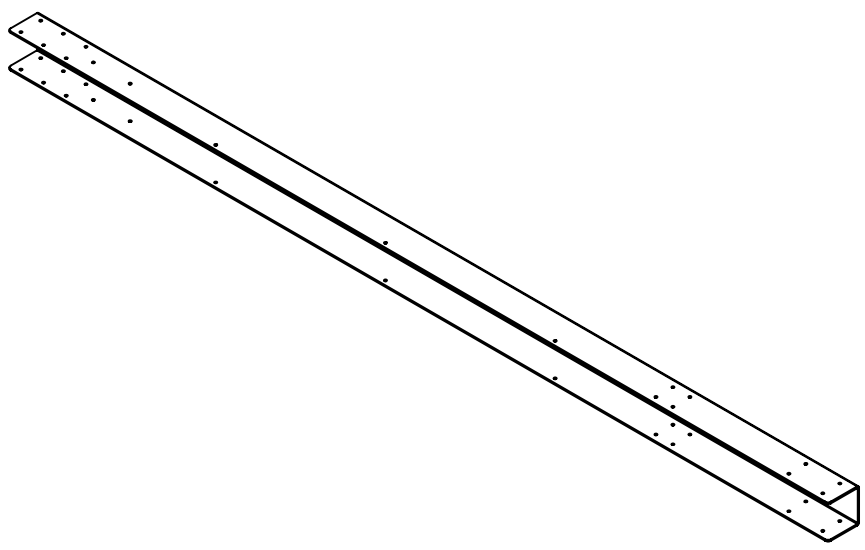
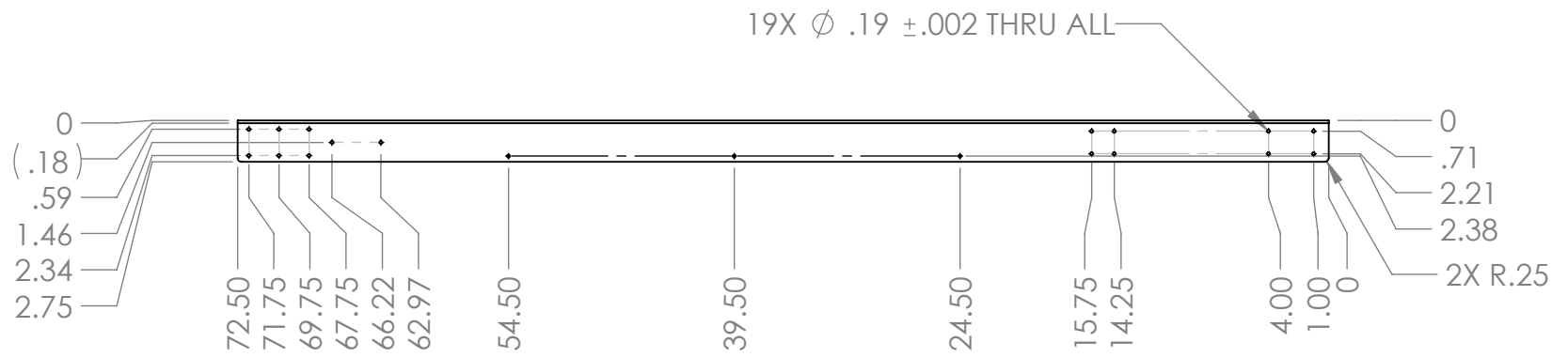
4

3

2

1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	MAJOR GEOMETRY CHANGES	9/16/19	KAMC



- Notes:
1. Material: 8 Ga. 5052 Aluminum
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
GE-20010-27	GE-20010	INTERPRET GEOMETRIC TOLERANCING PER:		
NEXT ASSY	USED ON	MATERIAL		
		ALUMINUM SHEET		
		FINISH		
		BARE		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
Hanger - Side Leg, Face		
SIZE	DWG. NO.	REV
B	GE-20010 - 05	A
SCALE: 1:12 WEIGHT:		SHEET 1 OF 1

4

3

2

1

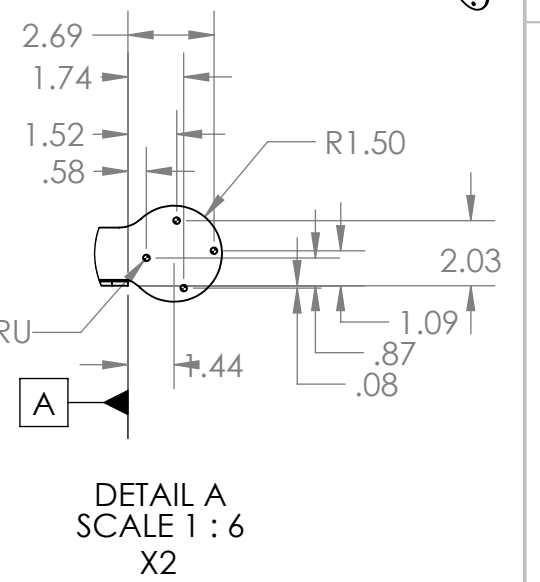
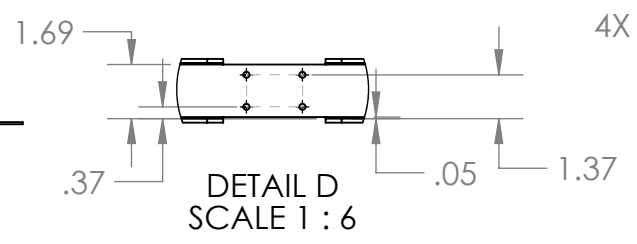
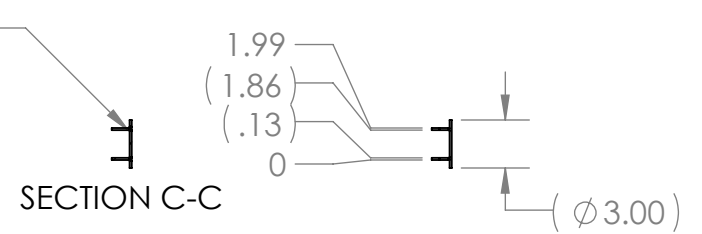
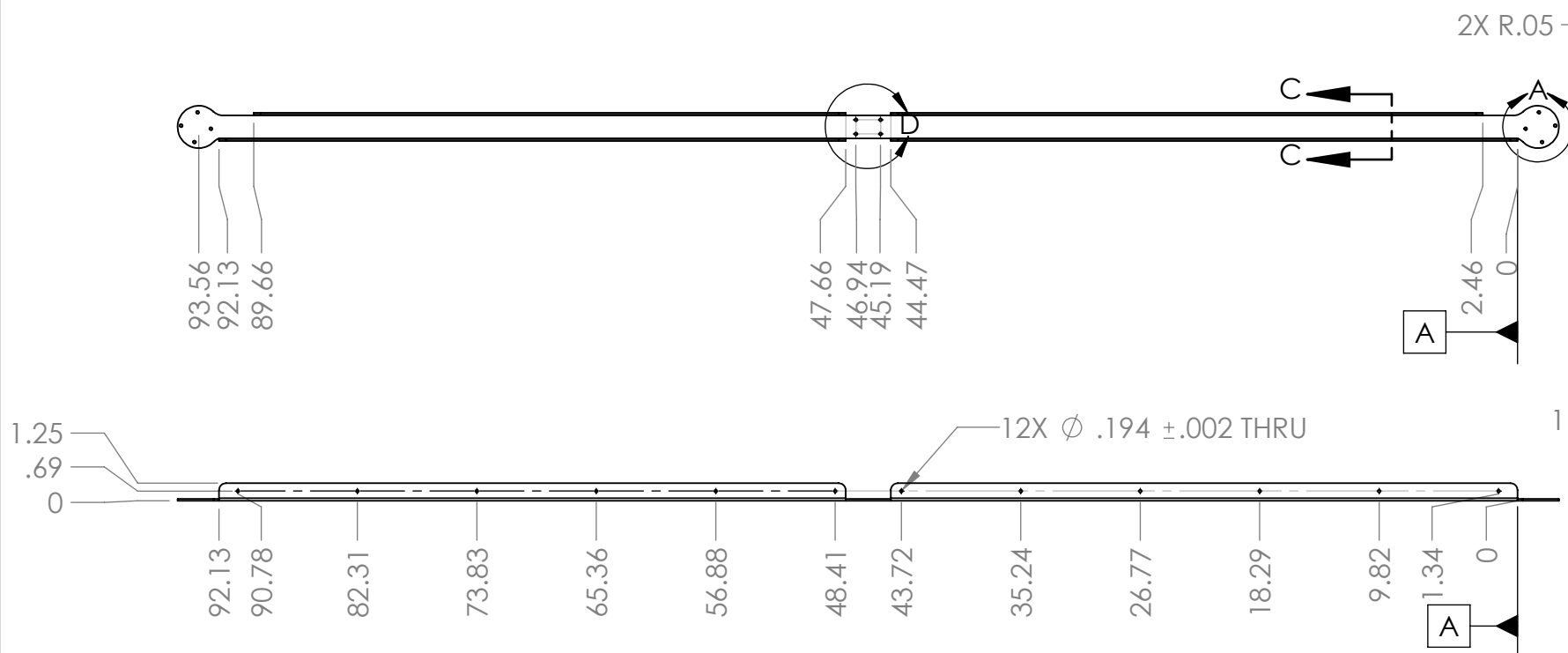
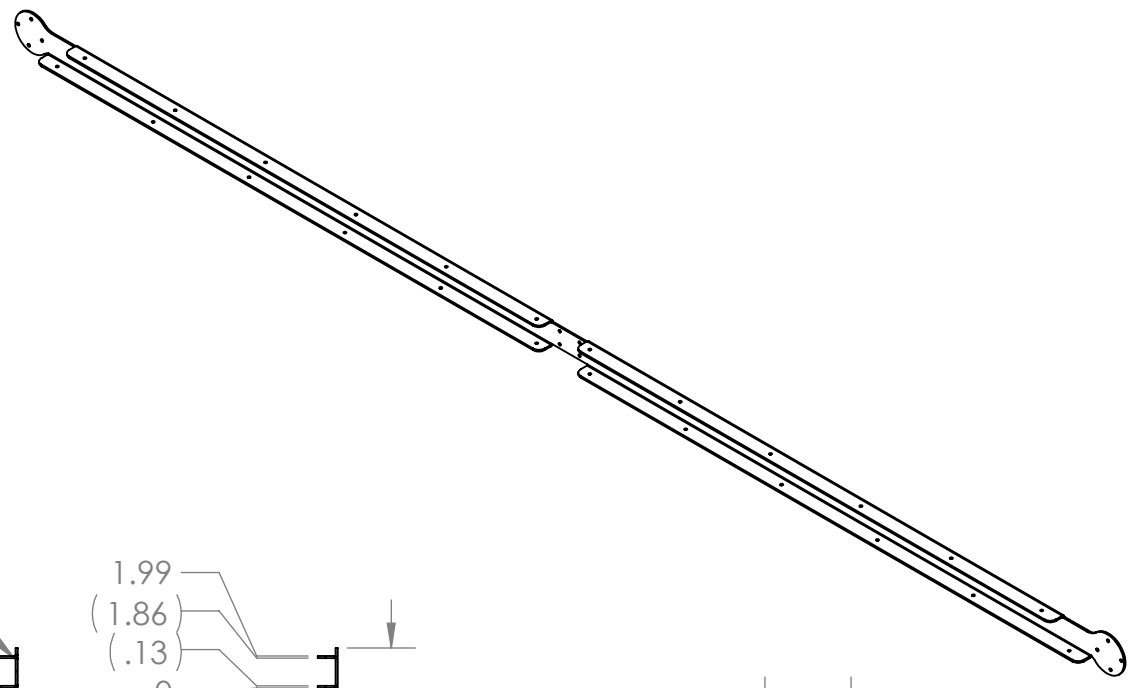
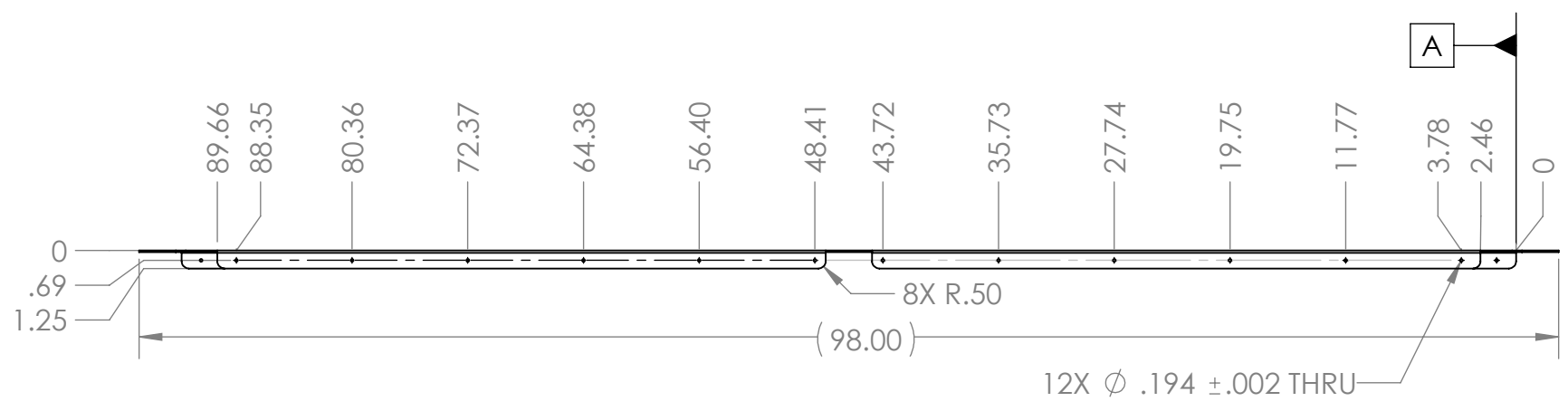
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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	UPDATED HOLE PATTERN AND PART LENGTH	9/16/19	KAMC



- Notes:
1. Material: 8 Ga. 5052 Aluminum
 2. Remove all burrs and sharp edges.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	KAMC 9/10/19
TOLERANCES:		CHECKED	
FRACTIONAL: ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
GE-20010-28	GE-20010	MATERIAL	
NEXT ASSY	USED ON	ALUMINUM SHEET	
APPLICATION		FINISH	
		BARE	
		DO NOT SCALE DRAWING	

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Hanger - Cross Bar**

SIZE	DWG. NO.	REV
B	GE-20010 - 06	A

SCALE: 1:12 WEIGHT: SHEET 1 OF 1

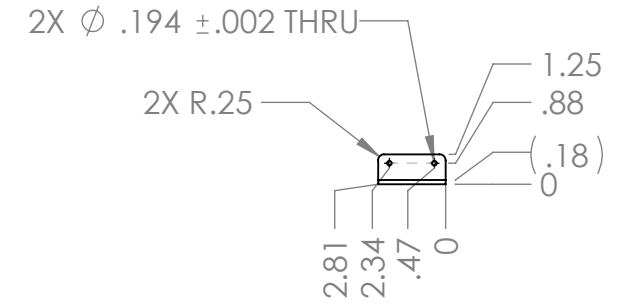
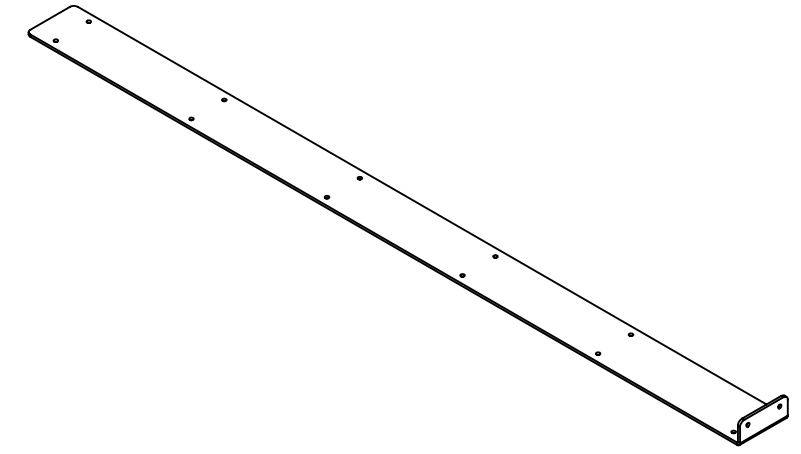
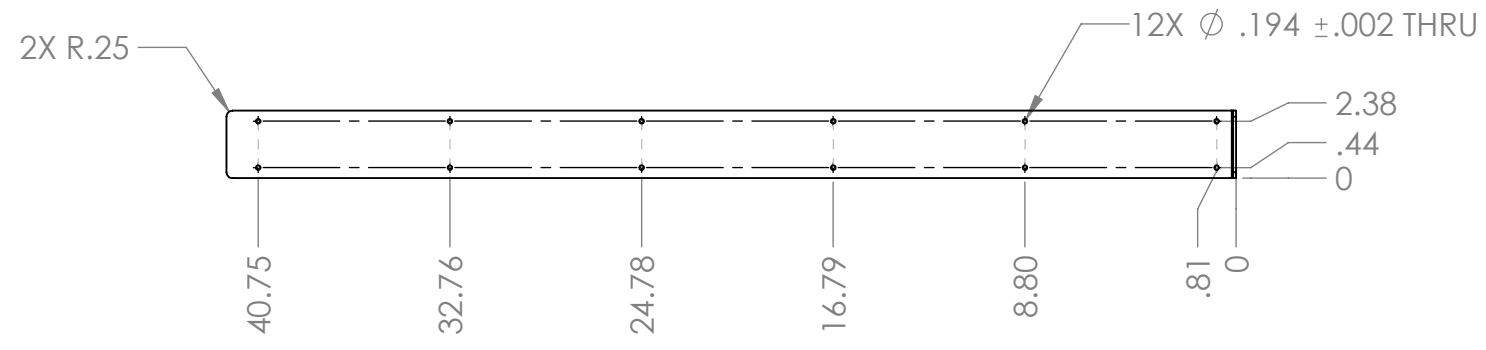
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2



1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	PART LENGTH INCREASED	9/16/2019	KAMC



- Notes:
1. Material: 8 Ga. 5052 Aluminum
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL \pm 1/16 ANGULAR: MACH \pm 1° BEND \pm 1° TWO PLACE DECIMAL \pm .01 THREE PLACE DECIMAL \pm .001	DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		
GE-20010 - 28	GE-20010	MATERIAL ALUMINUM SHEET	ENG APPR.		
NEXT ASSY	USED ON	FINISH BARE	MFG APPR.		
APPLICATION		DO NOT SCALE DRAWING	Q.A.		
			COMMENTS:		TITLE: Hanger - Cross Bar, Top
			SCALE: 1:8	WEIGHT:	SHEET 1 OF 1
			SIZE B	DWG. NO. GE-20010 - 07	REV A

4

3

2

1

B

B

A

A

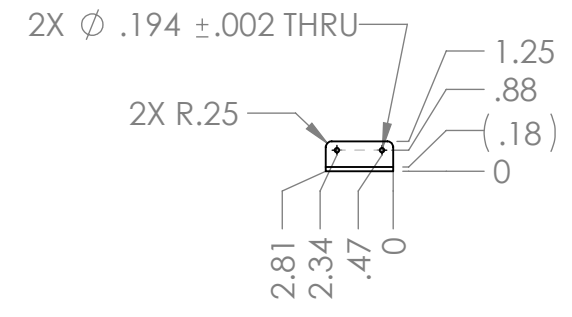
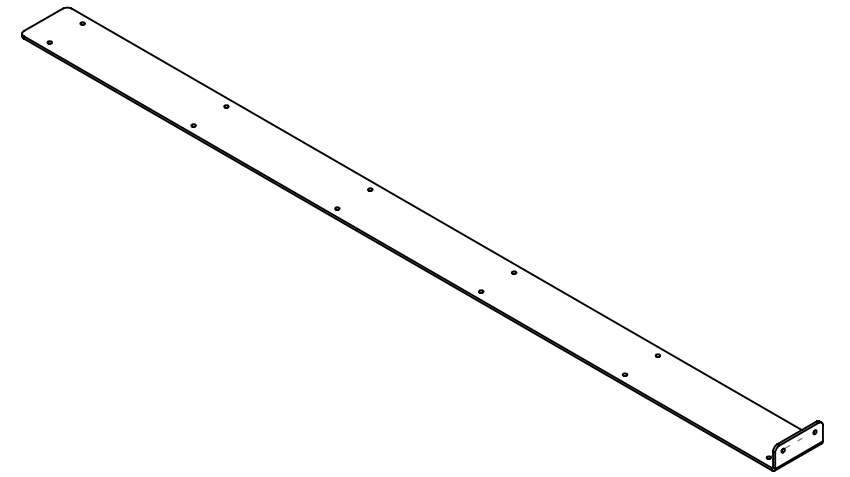
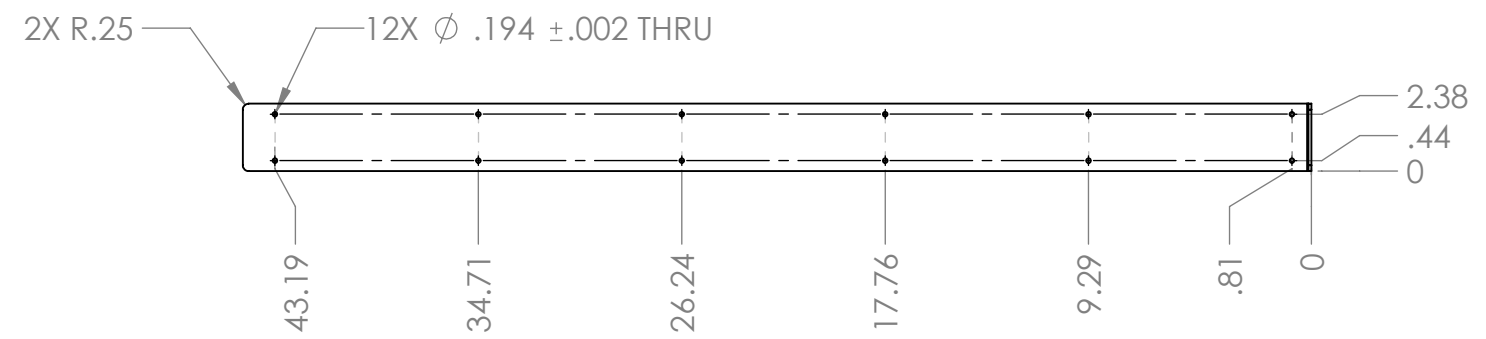
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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	PART LENGTH INCREASED	9/16/2019	KAMC



- Notes:
1. Material: 8 Ga. 5052 Aluminum
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
GE-20010-28	GE-20010	INTERPRET GEOMETRIC TOLERANCING PER:		
NEXT ASSY	USED ON	MATERIAL	ALUMINUM SHEET	
APPLICATION		FINISH	BARE	
		DO NOT SCALE DRAWING		



TITLE:		
Hanger - Cross Bar, Bottom		
SIZE	DWG. NO.	REV
B	GE-20010 - 08	A
SCALE: 1:8	WEIGHT:	SHEET 1 OF 1

4

3

2

1

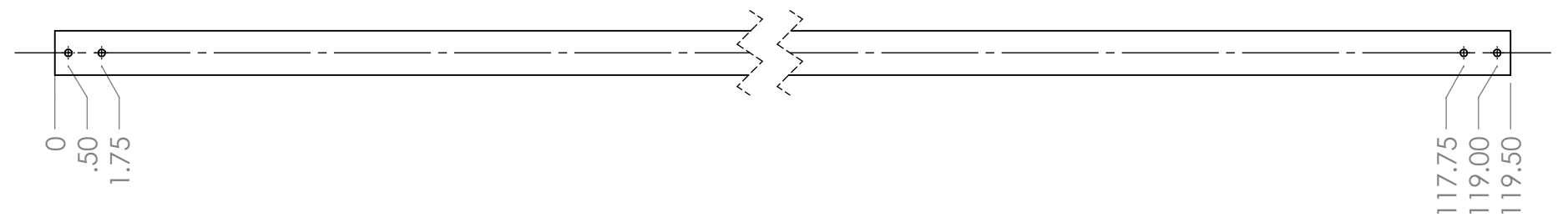
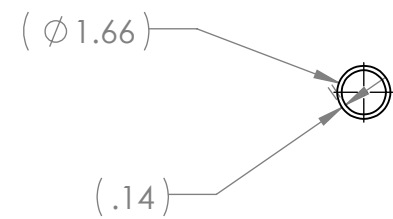
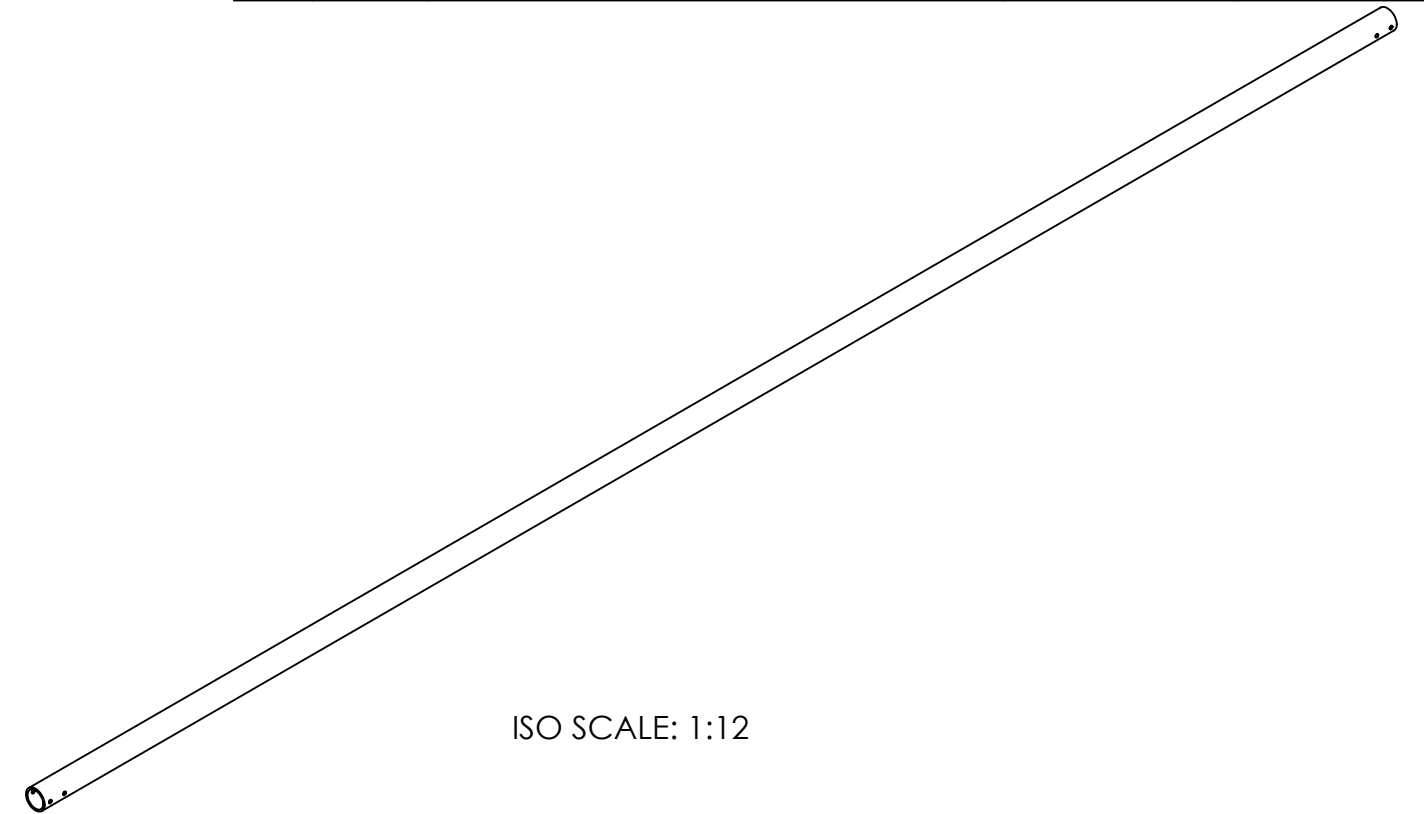
4

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2

1



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	PART LENGTH AND HOLE PATTERN MODIFIED	9/17/2019	KAMC



Notes:

1. Material: 1.66" OD x 0.14" WALL x 1.38" ID Aluminum Pipe 6061-T6-Extruded Schedule 40
2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .01 THREE PLACE DECIMAL ± .001		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		
GE-20010				TITLE: <h1>Hanger - Hanging Pole</h1>		
NEXT ASSY		USED ON		SIZE	DWG. NO.	REV
				B	GE-20010 - 09	A
APPLICATION		DO NOT SCALE DRAWING		SCALE: 1:6 WEIGHT:		SHEET 1 OF 1

4

3

2

1

B

B

A

A

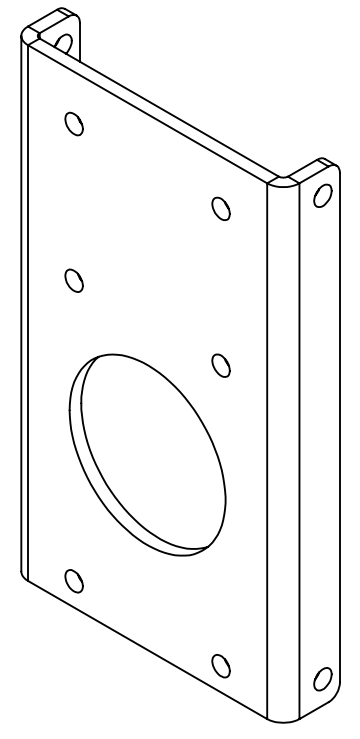
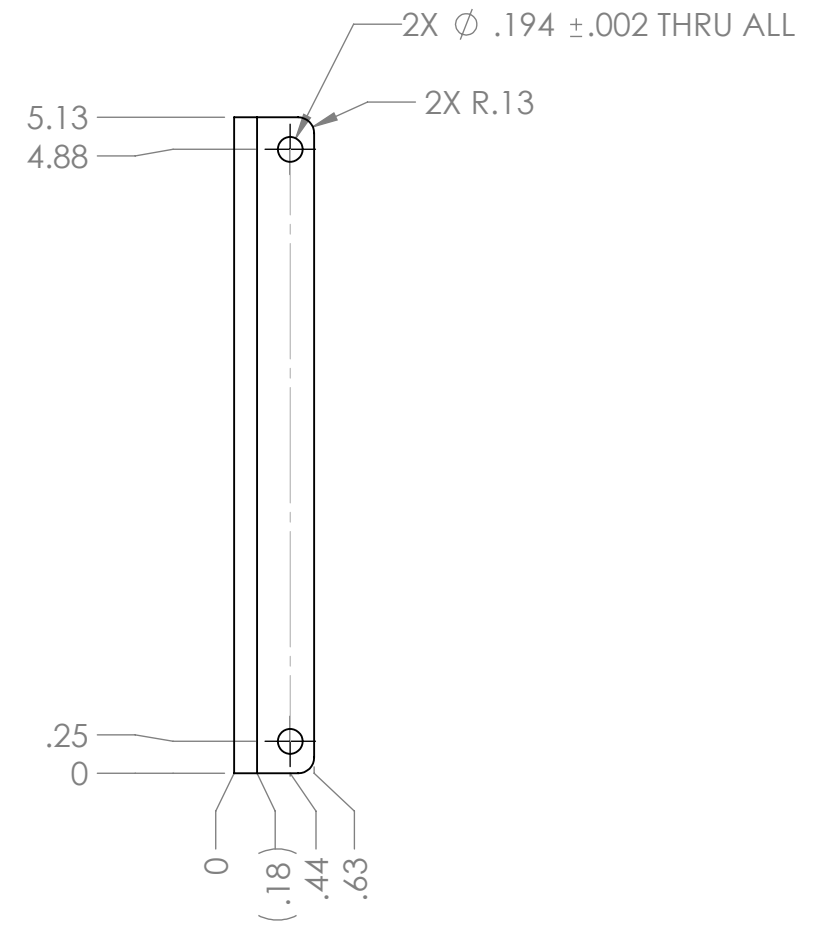
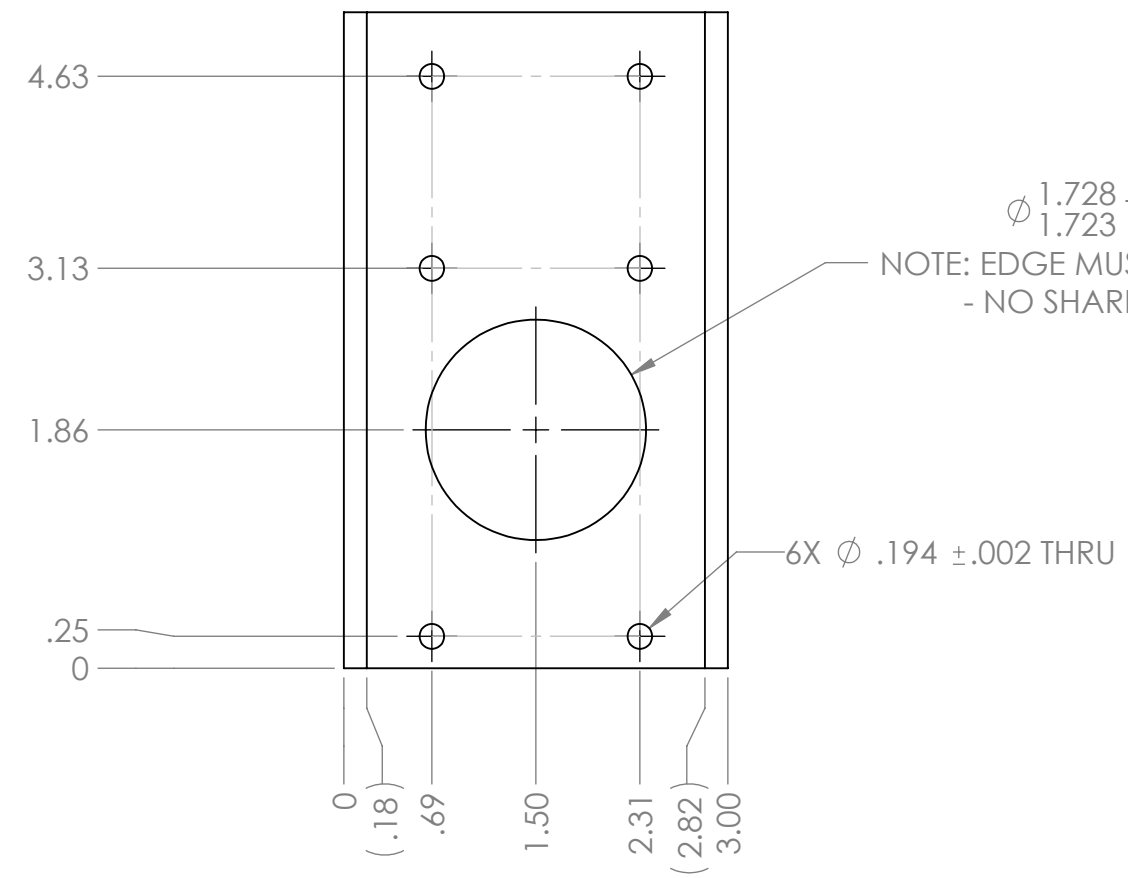
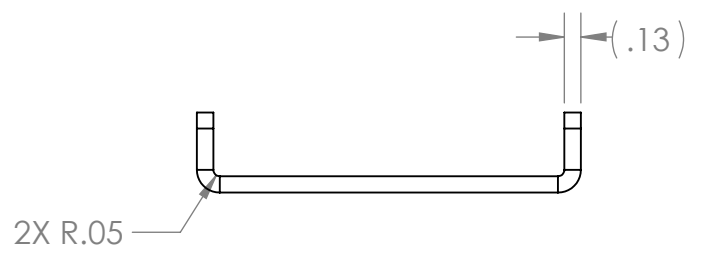
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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	MAJOR GEOMETRY CHANGE	9/16/2019	KAMC



B

B

A

A

- Notes:
- Material: 8 Ga. 5052 Aluminum Sheet
 - Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	
		FRACTIONAL \pm 1/16	ENG APPR.	
		ANGULAR: MACH \pm 1° BEND \pm 1°	MFG APPR.	
		TWO PLACE DECIMAL \pm .01	Q.A.	
		THREE PLACE DECIMAL \pm .001	COMMENTS:	
GE-20011 - 16	GE-20011	INTERPRET GEOMETRIC TOLERANCING PER:		
NEXT ASSY	USED ON	MATERIAL		
		ALUMINUM SHEET		
		FINISH		
		BARE		
APPLICATION		DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Hanger - Hanging Pole Holder

SIZE	DWG. NO.	REV
B	GE-20010 - 10	A

SCALE: 2:3 WEIGHT: SHEET 1 OF 1

4

3

2

1

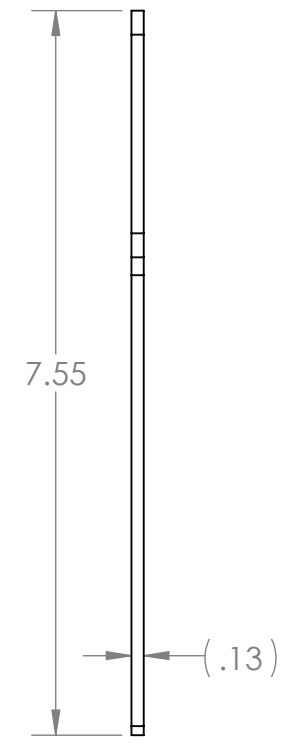
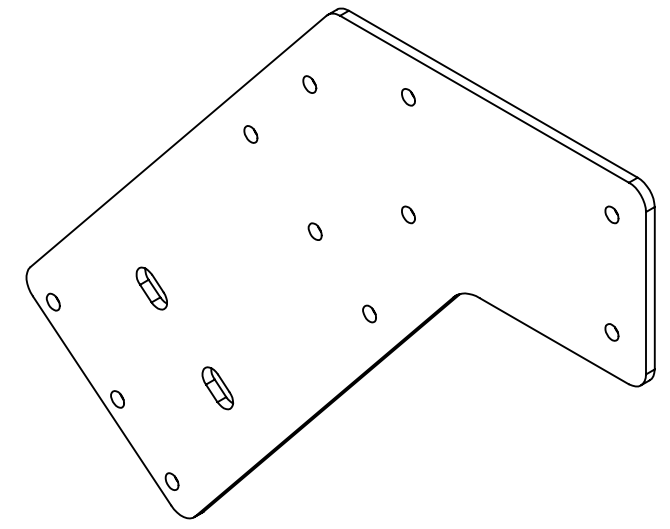
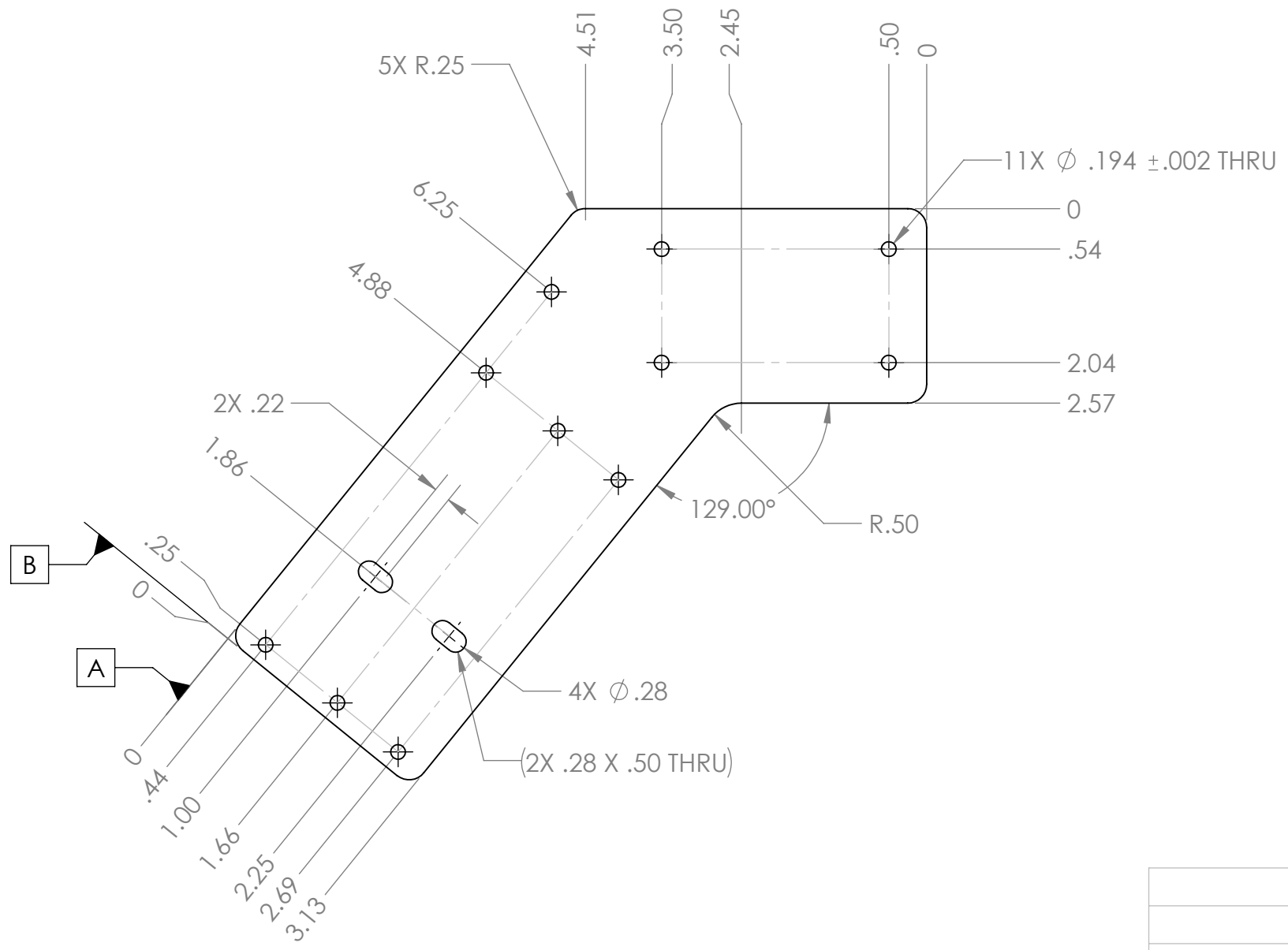
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2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	HOLE PATTERN AND GENERAL GEOMETRY MODIFIED	9/16/2019	KAMC



B



B

A

A

- Notes:
1. Material: 8 Ga. 5052 Aluminum Sheet.
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
		MATERIAL		ENG APPR.		
		ALUMINUM SHEET		MFG APPR.		
		FINISH		Q.A.		
		BARE		COMMENTS:		
GE-20010 - 29	GE-20010					
NEXT ASSY	USED ON					
APPLICATION		DO NOT SCALE DRAWING				
				TITLE:		
				Hanger - Hanging Pole Holder, Face		
SIZE	DWG. NO.	REV				
B	GE-20010 - 11	A				
SCALE: 1:2		WEIGHT:		SHEET 1 OF 1		

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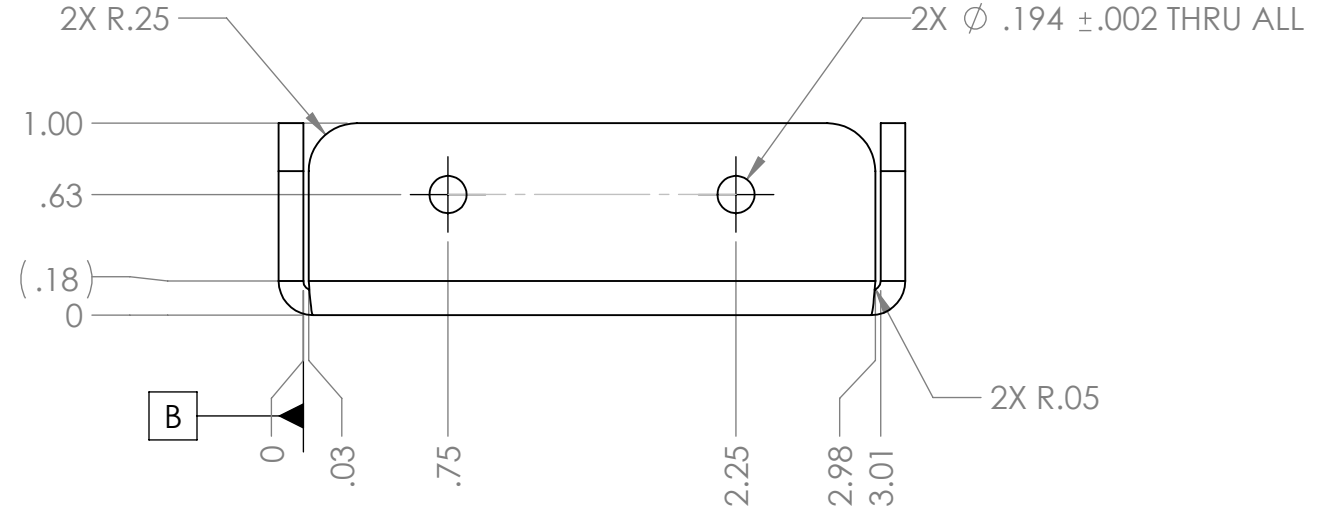
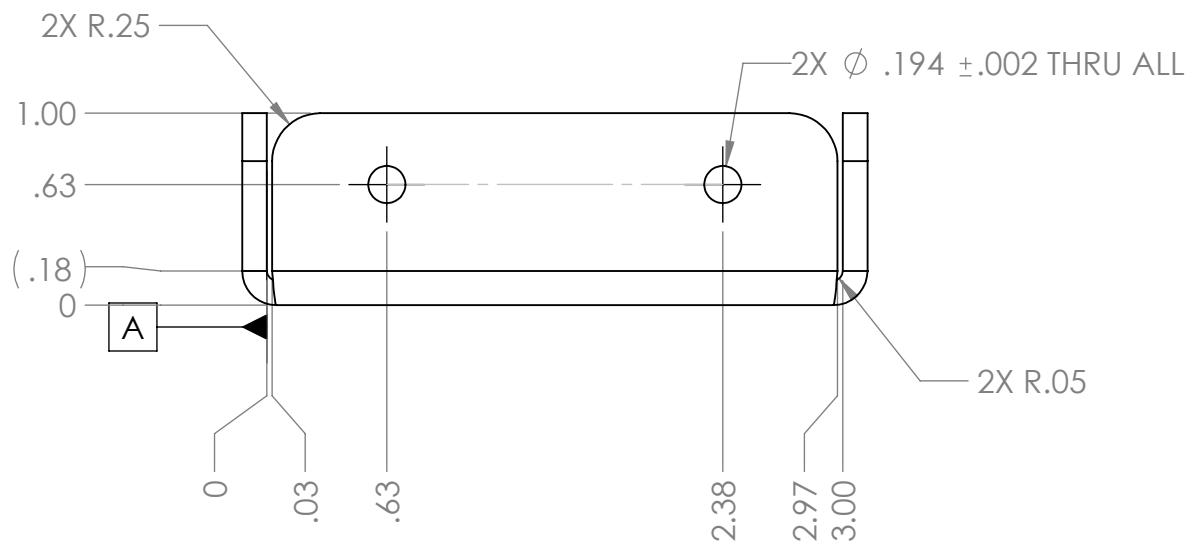
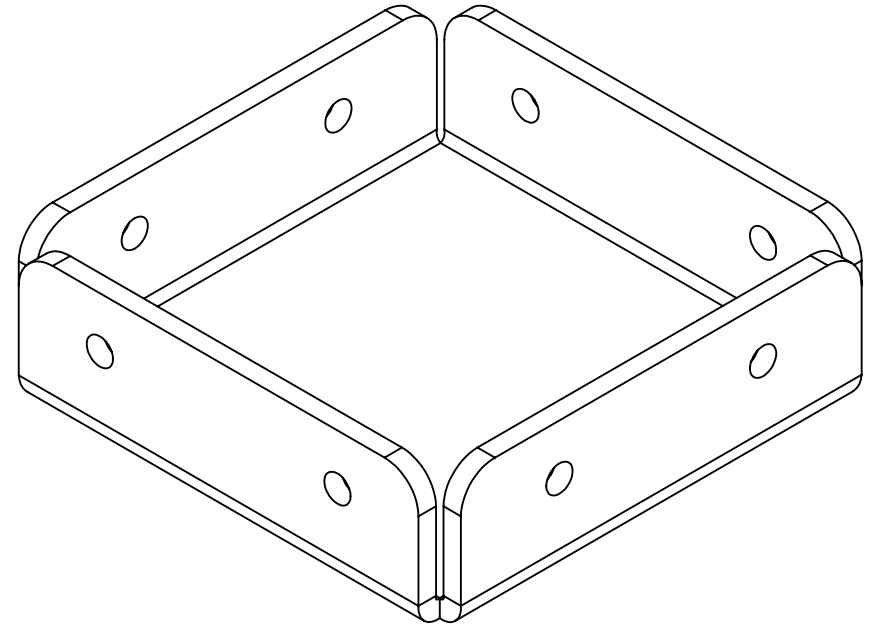
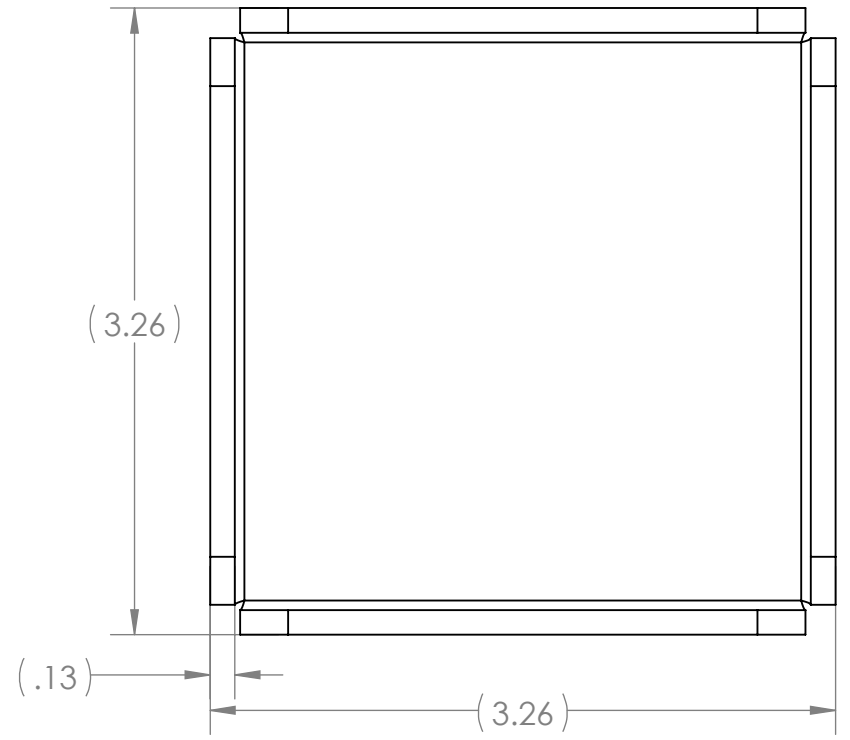
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3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	MINOR GEOMETRY CHANGES	9/16/2019	KAMC



- Notes:
1. Material: 8 Ga. 5052 Aluminum Sheet
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	KAMC
		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
GE-20010		INTERPRET GEOMETRIC TOLERANCING PER:	MATERIAL		
NEXT ASSY	USED ON		ALUMINUM SHEET		
APPLICATION		FINISH	BARE		
		DO NOT SCALE DRAWING			



TITLE:		
Hanger - Center Leg, End Cap		
SIZE	DWG. NO.	REV
B	GE-20010 - 12	A
SCALE: 1:1	WEIGHT:	SHEET 1 OF 1

4

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2

1

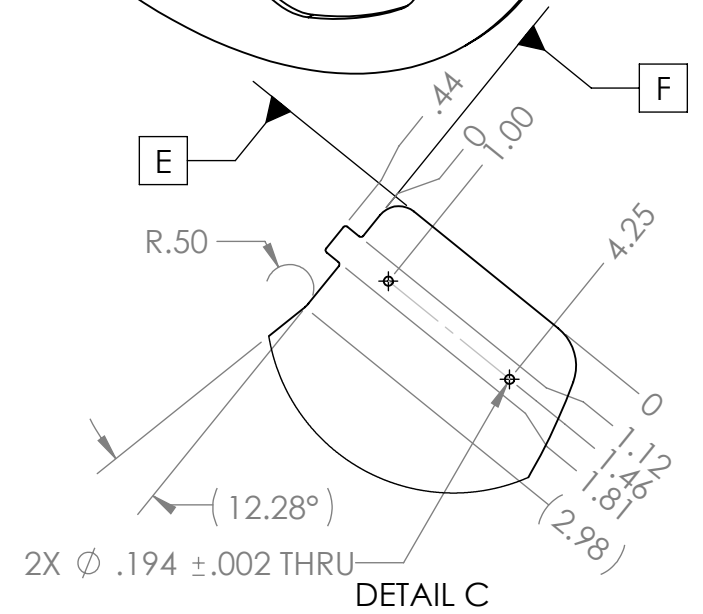
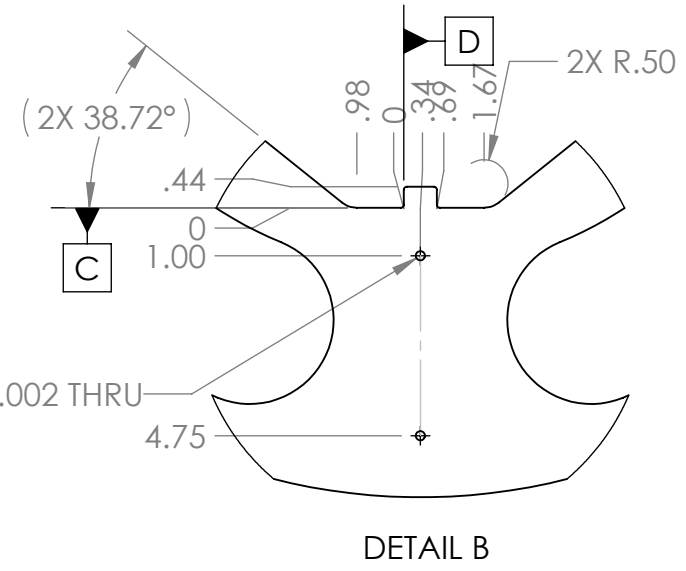
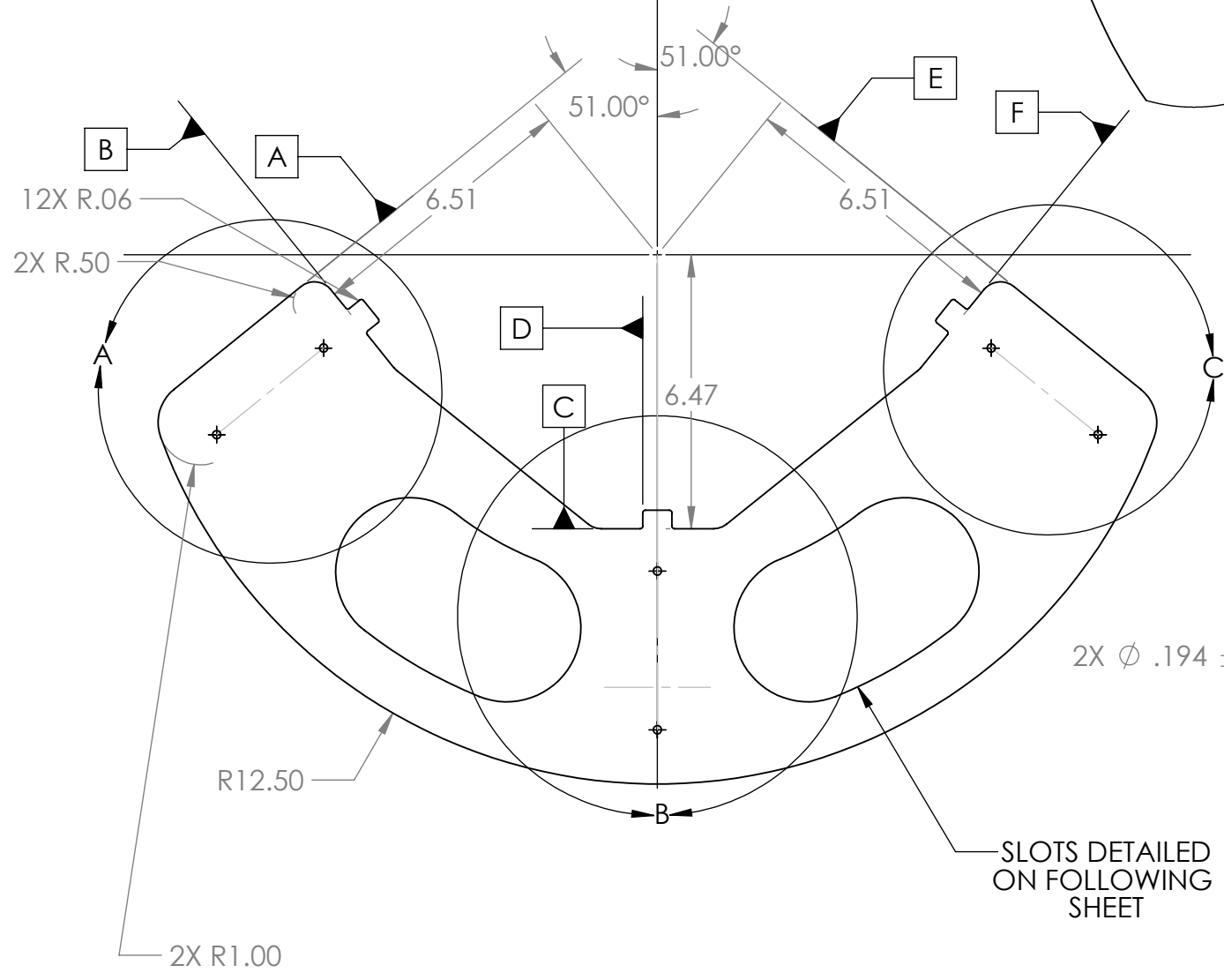
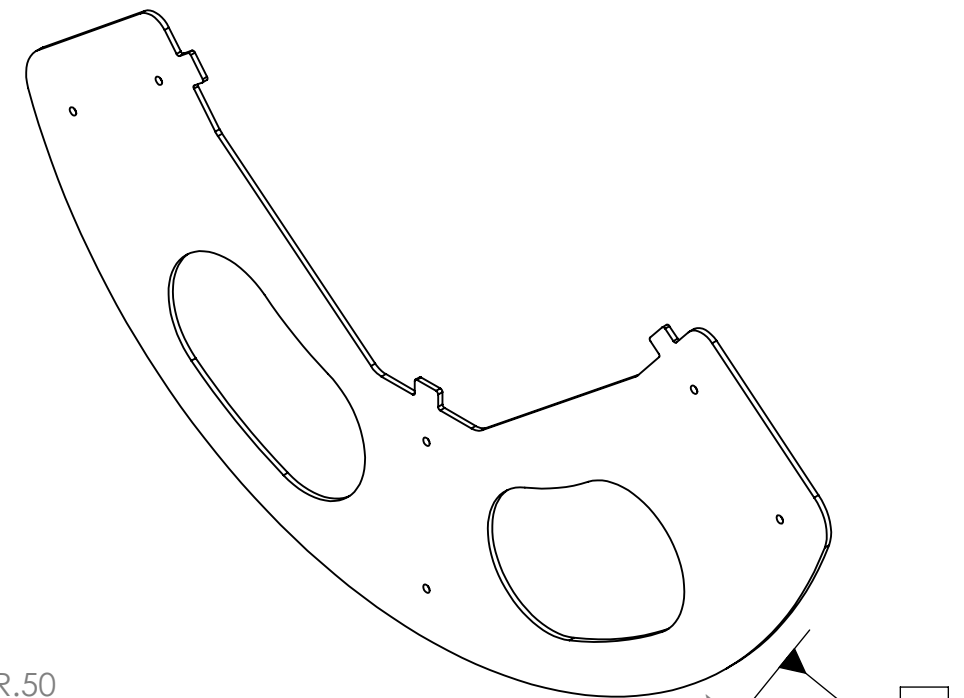
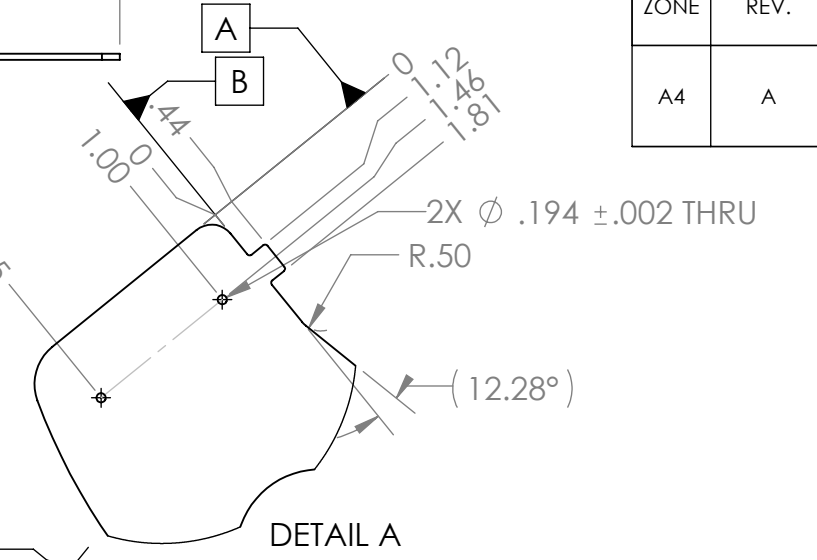
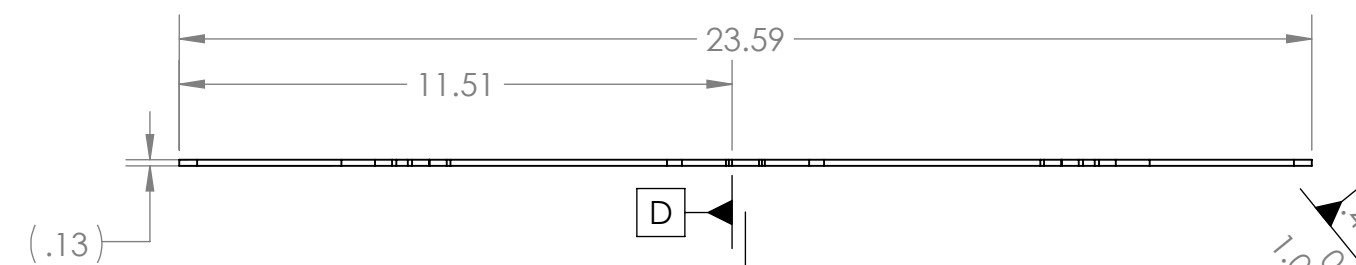
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3

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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A4	A	HOLES PREVIOUSLY IN DETAIL B REMOVED, MINOR OVERALL GEOMETRY CHANGES	9/17/2019	KAMC



SLOTS DETAILED ON FOLLOWING SHEET

- Notes:
1. Material: 8 Ga. 5052 Aluminum Sheet
 2. Remove all burrs and sharp edges.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	KAMC 8/29/19
TOLERANCES:		CHECKED	
FRACTIONAL ± 1/16		ENG APPR.	
ANGULAR: MACH ± 1° BEND ± 1°		MFG APPR.	
TWO PLACE DECIMAL ± .01		Q.A.	
THREE PLACE DECIMAL ± .001		COMMENTS:	
GE-20010	MATERIAL	ALUMINUM SHEET	
NEXT ASSY	USED ON	BARE	
APPLICATION		DO NOT SCALE DRAWING	

FIRST ROBOTICS COMPETITION **SOLIDWORKS**
 Modeling Solutions Partner

TITLE:
Hanger - Sensor Feature

SIZE **B** DWG. NO. **GE-20010 - 13** REV **A**

SCALE: 1:4 WEIGHT: SHEET 1 OF 2

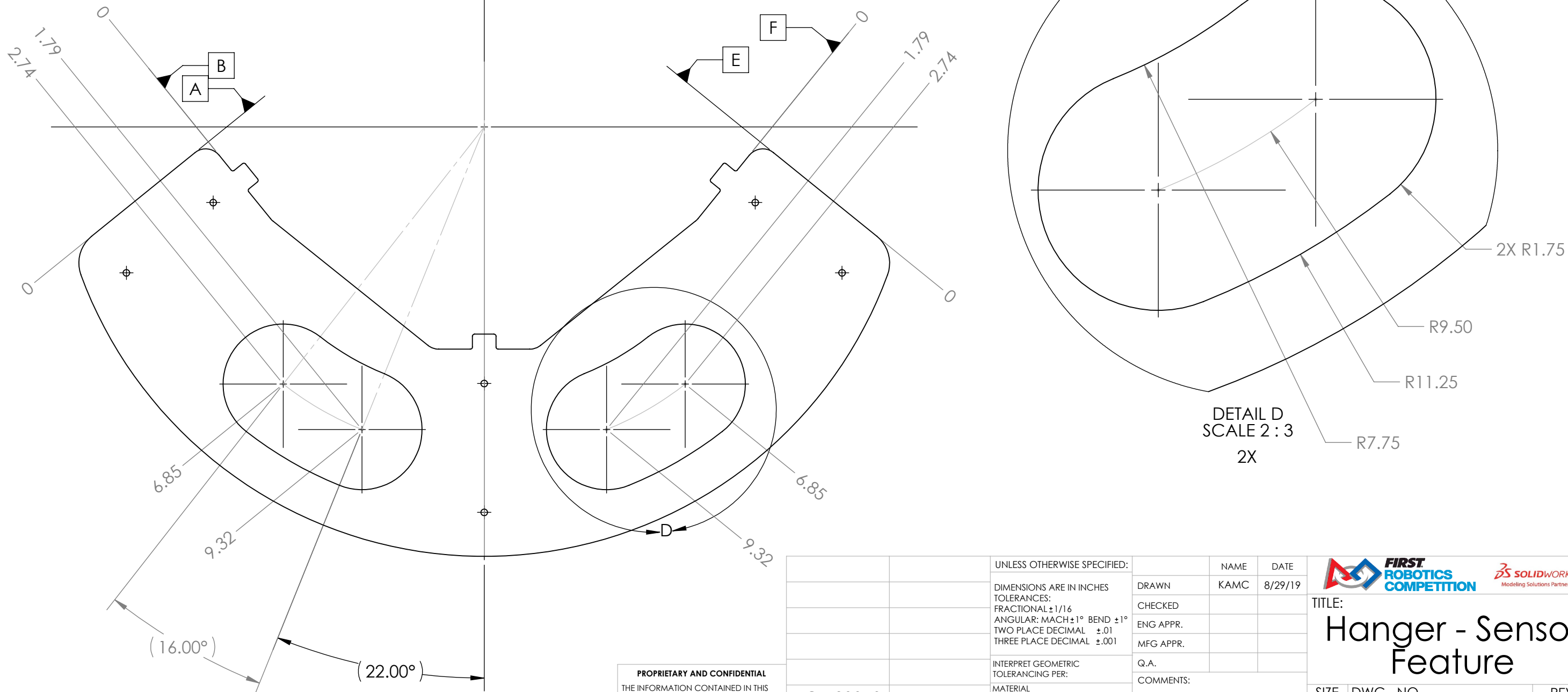
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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet 1	-	-



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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	8/29/19
		FRACTIONAL: $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
GE-20010		INTERPRET GEOMETRIC TOLERANCING PER:		
NEXT ASSY	USED ON	MATERIAL		
		ALUMINUM SHEET		
		FINISH		
		BARE		
APPLICATION		DO NOT SCALE DRAWING		

TITLE:
Hanger - Sensor Feature

SIZE	DWG. NO.	REV
B	GE-20010 - 13	A

SCALE: 1:3 WEIGHT: SHEET 2 OF 2

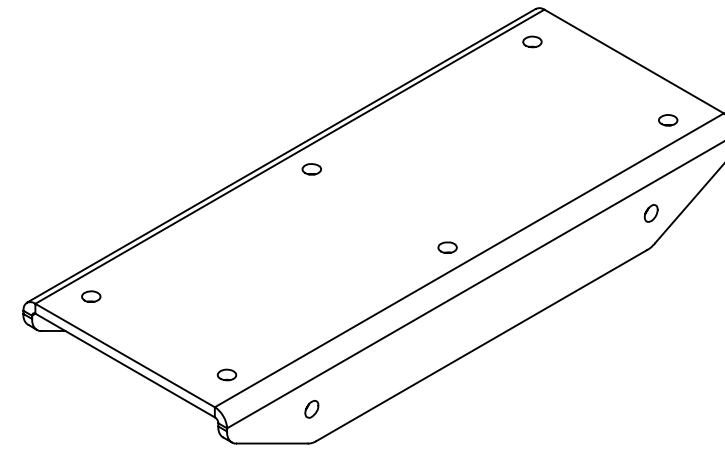
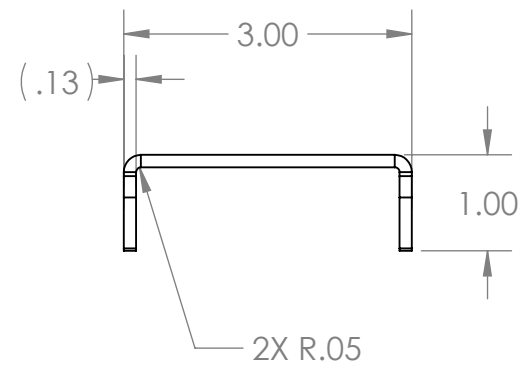
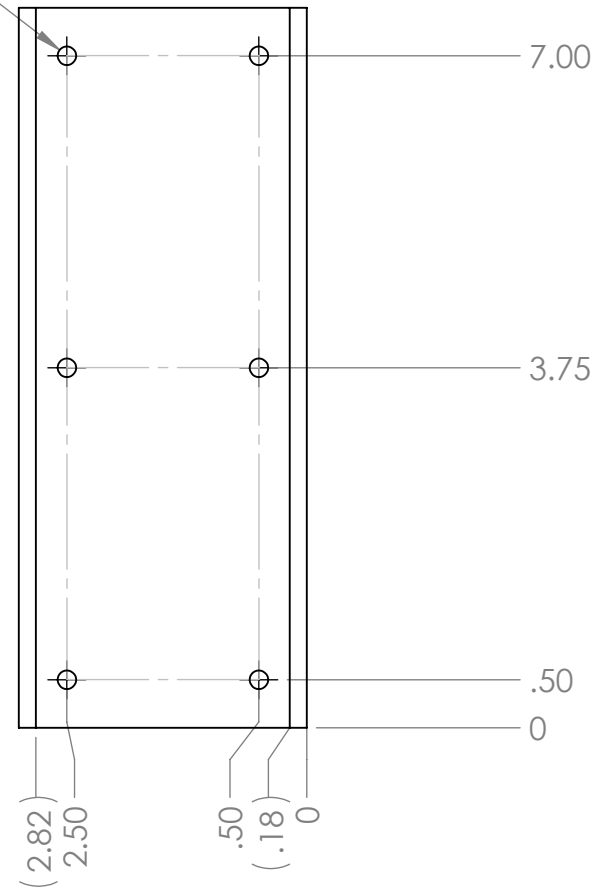
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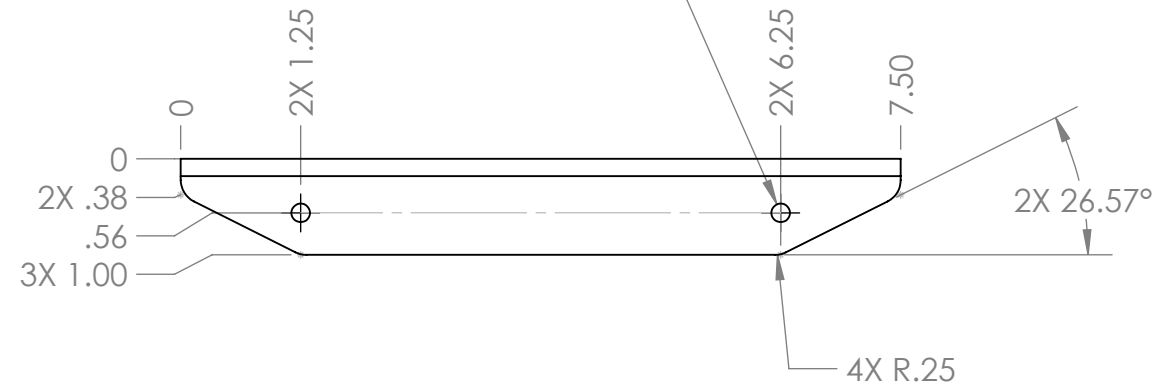
2

1

6X ϕ .19 \pm .002 THRU





2X ϕ .19 \pm .002 THRU ALL



- Notes:
1. Material: 8 Ga. 5052 Aluminum Sheet
2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL \pm 1/16 ANGULAR: MACH \pm 1° BEND \pm 1° TWO PLACE DECIMAL \pm .01 THREE PLACE DECIMAL \pm .001		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Hanger - Top, Face
		MATERIAL ALUMINUM SHEET		ENG APPR.		
		FINISH BARE		MFG APPR.		SIZE DWG. NO. REV B GE-20010 - 14 0
GE-20010 - 30		GE-20010		Q.A.		SCALE: 1:2 WEIGHT: SHEET 1 OF 1
NEXT ASSY		USED ON		COMMENTS:		
APPLICATION		DO NOT SCALE DRAWING				

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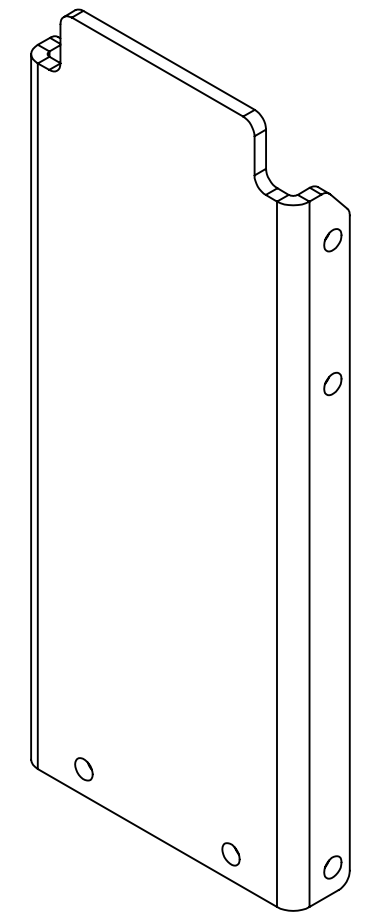
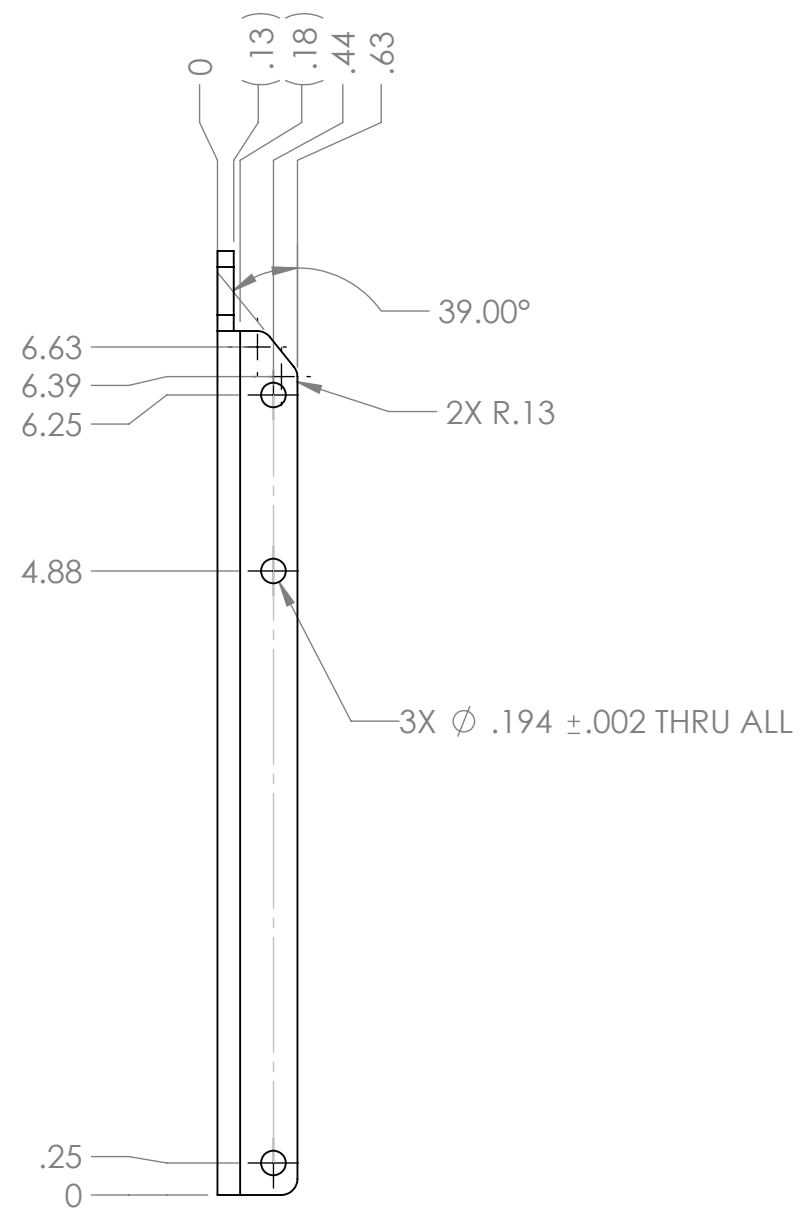
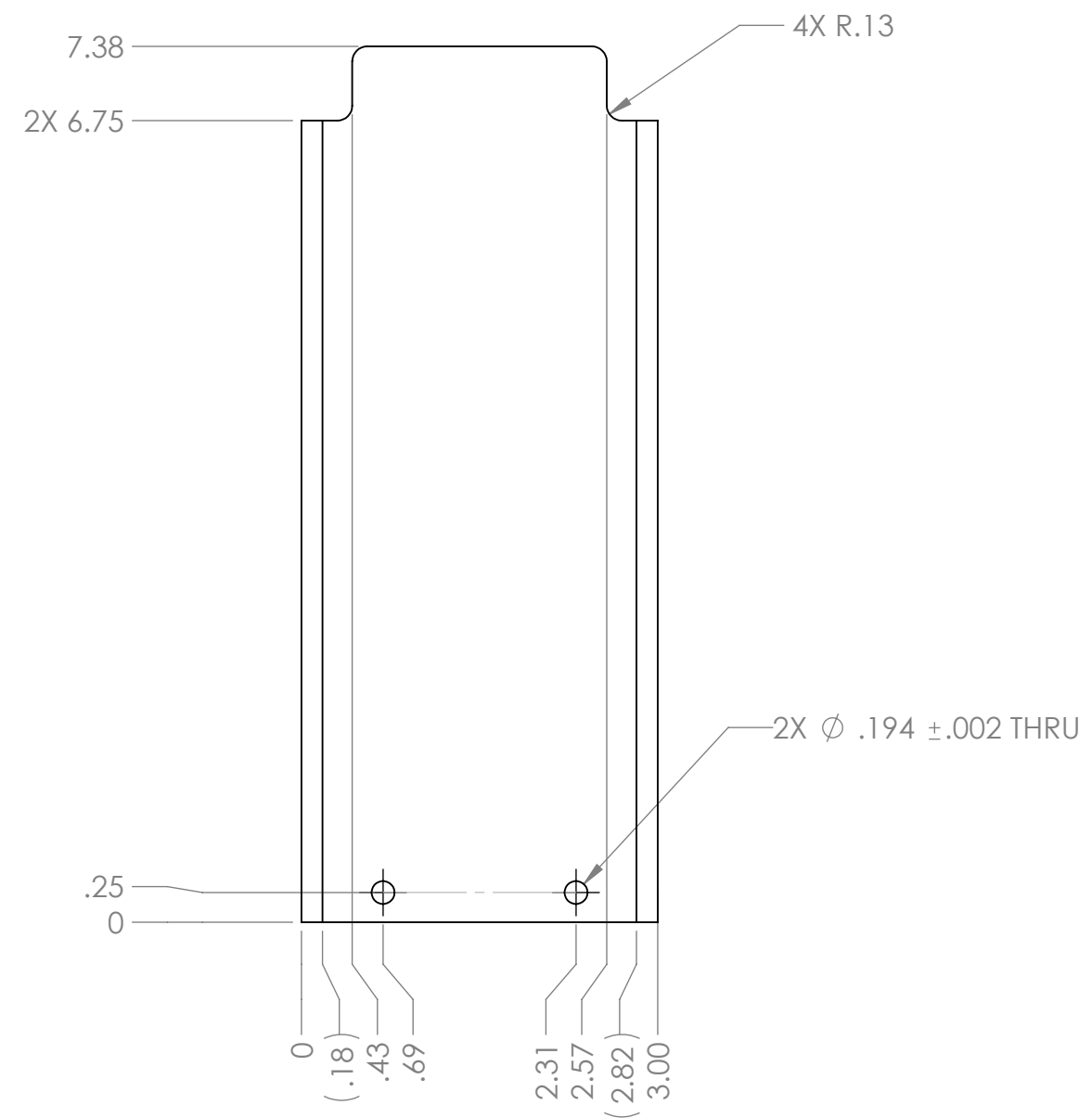
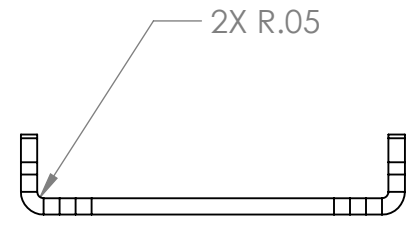
1

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Note:
 1. Material: 8 Ga. 5052 Aluminum Sheet
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	KAMC 9/16/19
		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
GE-20010 - 29	GE-20010	MATERIAL		TITLE:	
NEXT ASSY	USED ON	ALUMINUM SHEET		Hanger - Hanging Pole Holder, End	
APPLICATION		FINISH		SIZE	DWG. NO.
		BARE		B	GE-20010 - 15
		DO NOT SCALE DRAWING		REV	0
				SCALE: 2:3	WEIGHT:
				SHEET 1 OF 1	



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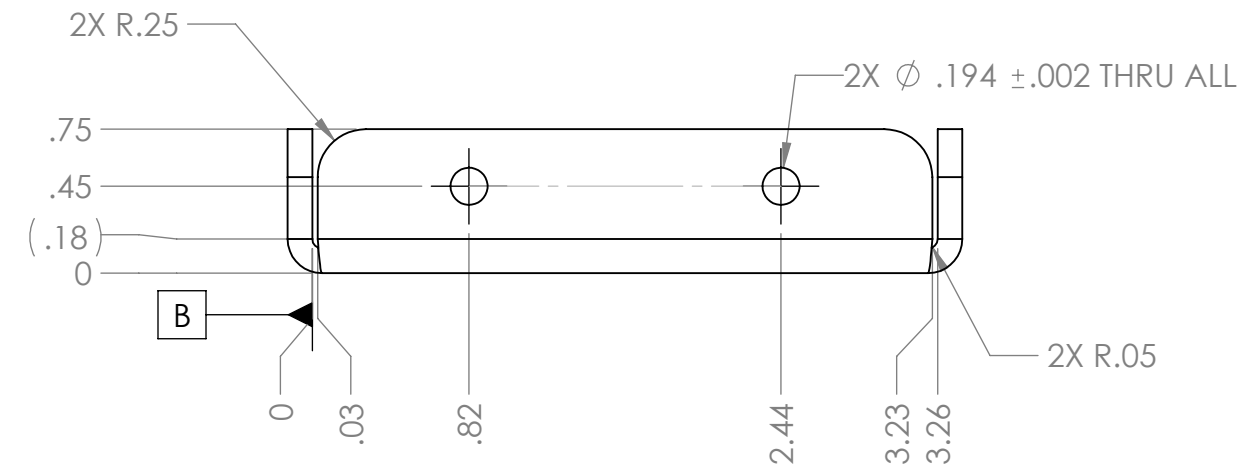
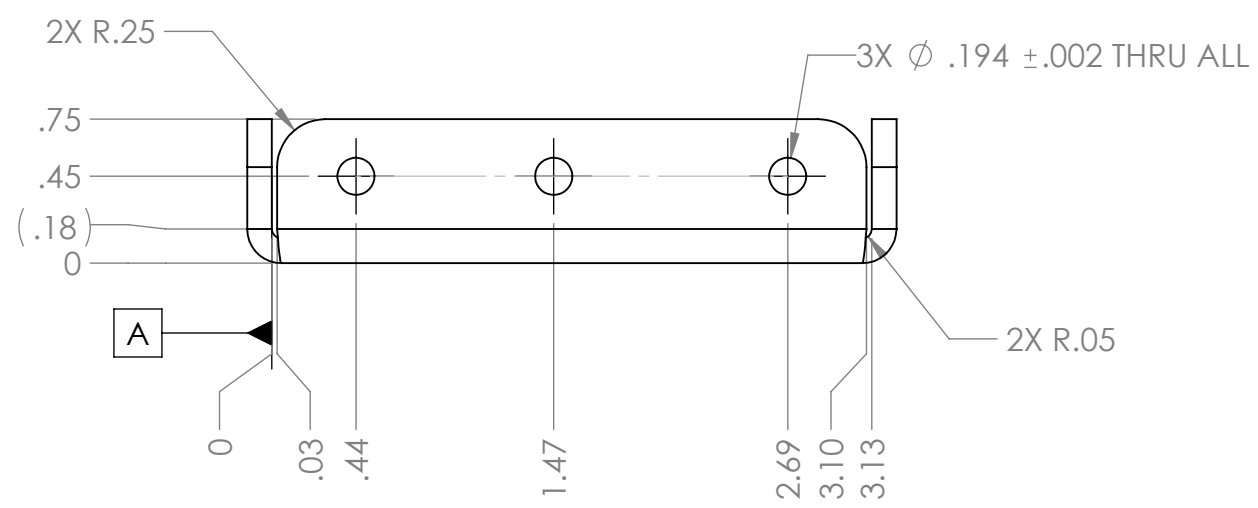
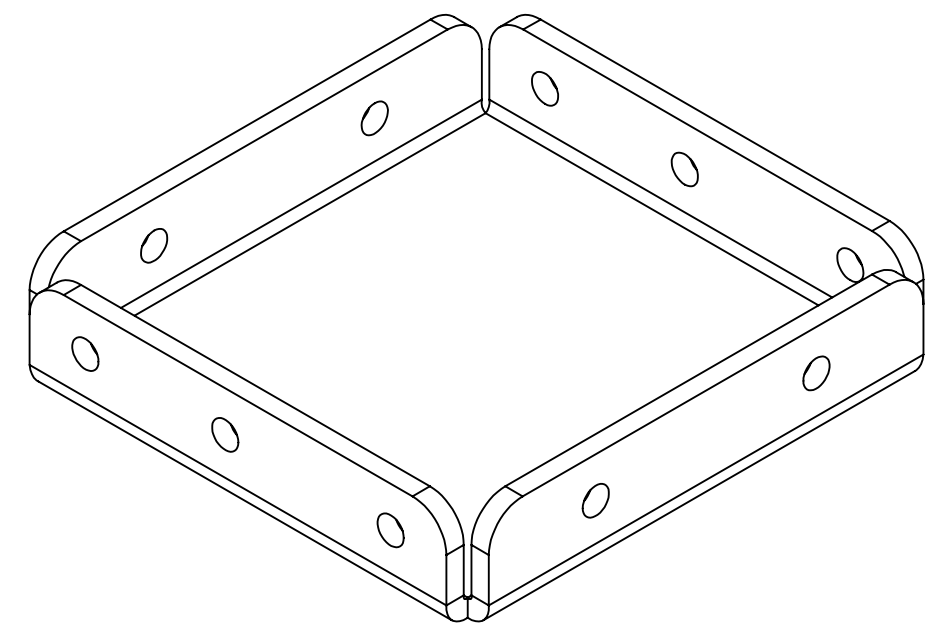
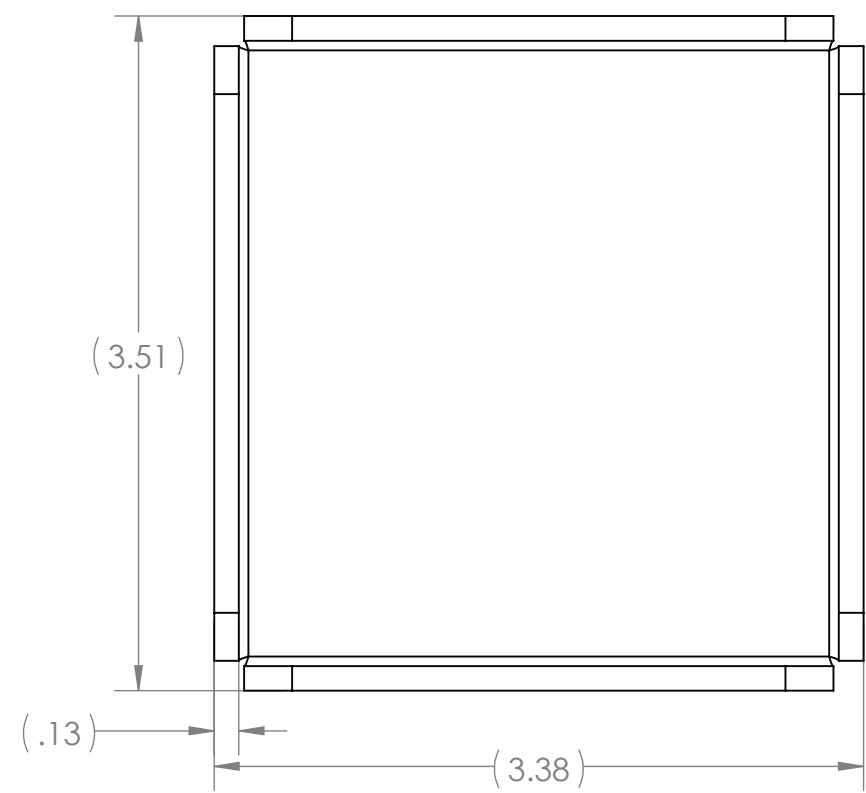
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- Notes:
1. Material: 8 Ga. 5052 Aluminum Sheet
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
		MATERIAL		ENG APPR.		
		ALUMINUM SHEET		MFG APPR.		
		FINISH		Q.A.		
		BARE		COMMENTS:		
GE-20010 - 29	GE-20010					TITLE:
NEXT ASSY	USED ON					Hanger - Hanging Pole Holder, End Cap
APPLICATION		DO NOT SCALE DRAWING				SIZE DWG. NO. REV
						B GE-20010 - 16 0
						SCALE: 1:1 WEIGHT: SHEET 1 OF 1

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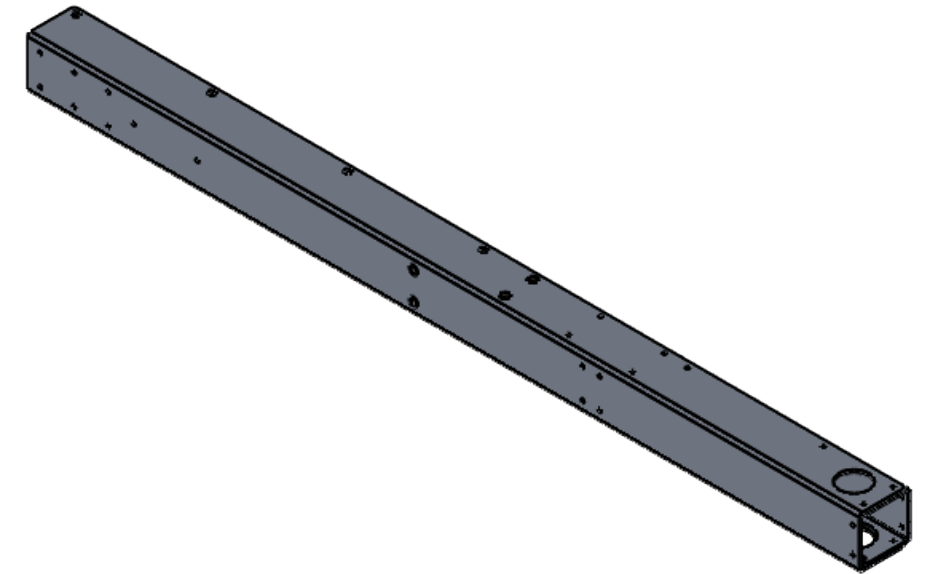
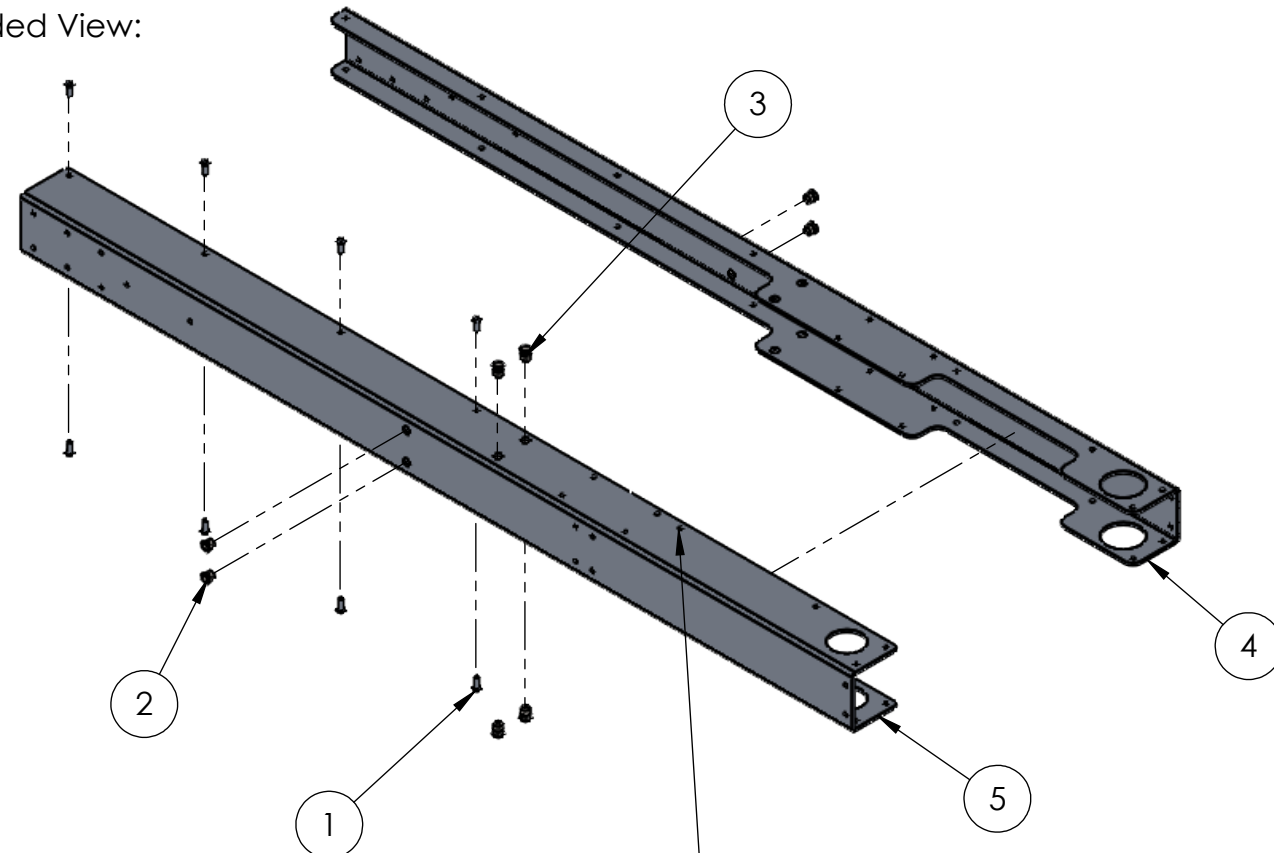
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REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	GE-20010-02 & GE-20010-03 UPDATED, BOM UPDATED (REMOVED ONE STYLE OF RIVNUT), WEIGHT COMMENT UPDATED	9/10/2019	KAMC

Exploded View:





RIVETS INTENTIONALLY LEFT OUT AT THIS STEP
x16

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	8
2	rivnut_.25_20_.027-.165	Rivnut, 1/4"-20 bolt, material thickness: .027" - .165"	4
3	rivnut_.25_20_.165-.260	Rivnut, 1/4"-20 bolt, material thickness: .165"-.260"	4
4	GE-20010 - 02	Hanger - Center Leg	1
5	GE-20010 - 03	Hanger - Center Leg, Face	1

Notes:
 1. Rivets and Rivnuts should be plated or aluminum.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Hanger - Center Bar Sub Assembly
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
APPLICATION		Q.A.		WEIGHT: 8.39 LBS
DO NOT SCALE DRAWING		COMMENTS:		
GE-20010				SIZE DWG. NO. REV B GE-20010 - 26 A
NEXT ASSY	USED ON			SCALE: 1:8 WEIGHT: SHEET 1 OF 2

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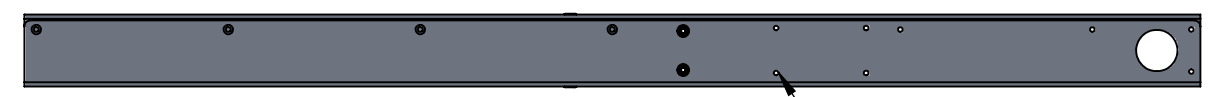
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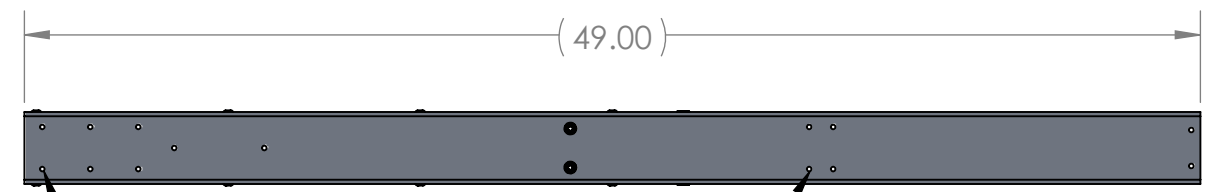
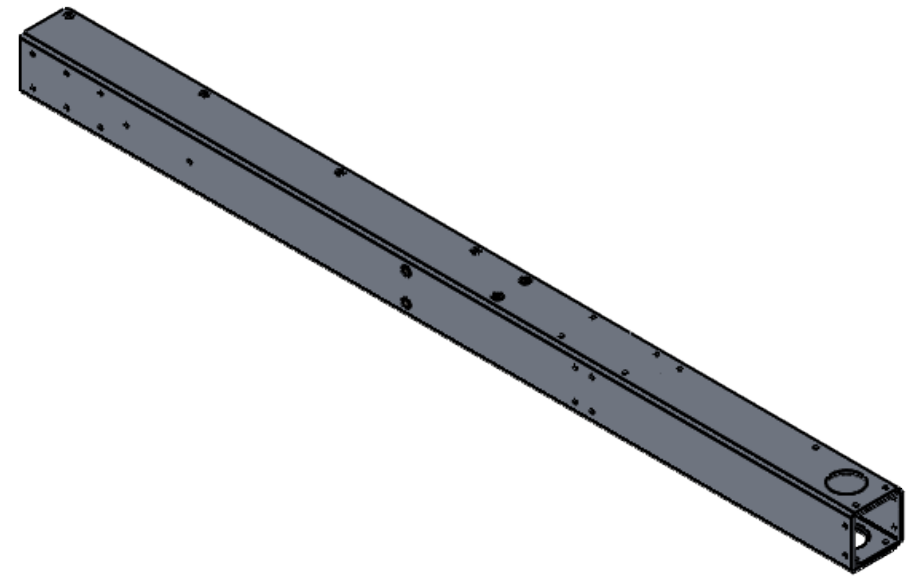
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet 1	-	-

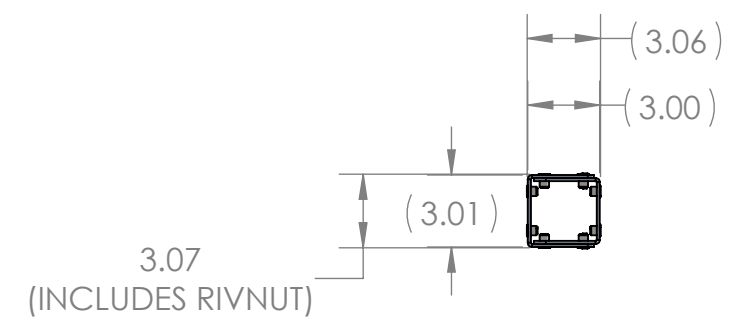


RIVETS INTENTIONALLY LEFT OUT X8



(49.00)

RIVET INTENTIONALLY LEFT OUT X14



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DIMENSIONS SHOWN FOR REFERENCE

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Hanger - Center Bar Sub Assembly
GE-20010		MATERIAL		ENG APPR.		
NEXT ASSY		FINISH		MFG APPR.		
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		SIZE B DWG. NO. GE-20010 - 26 REV A
				WEIGHT SHOWN ON SHEET 1		SCALE: 1:8 WEIGHT: SHEET 2 OF 2

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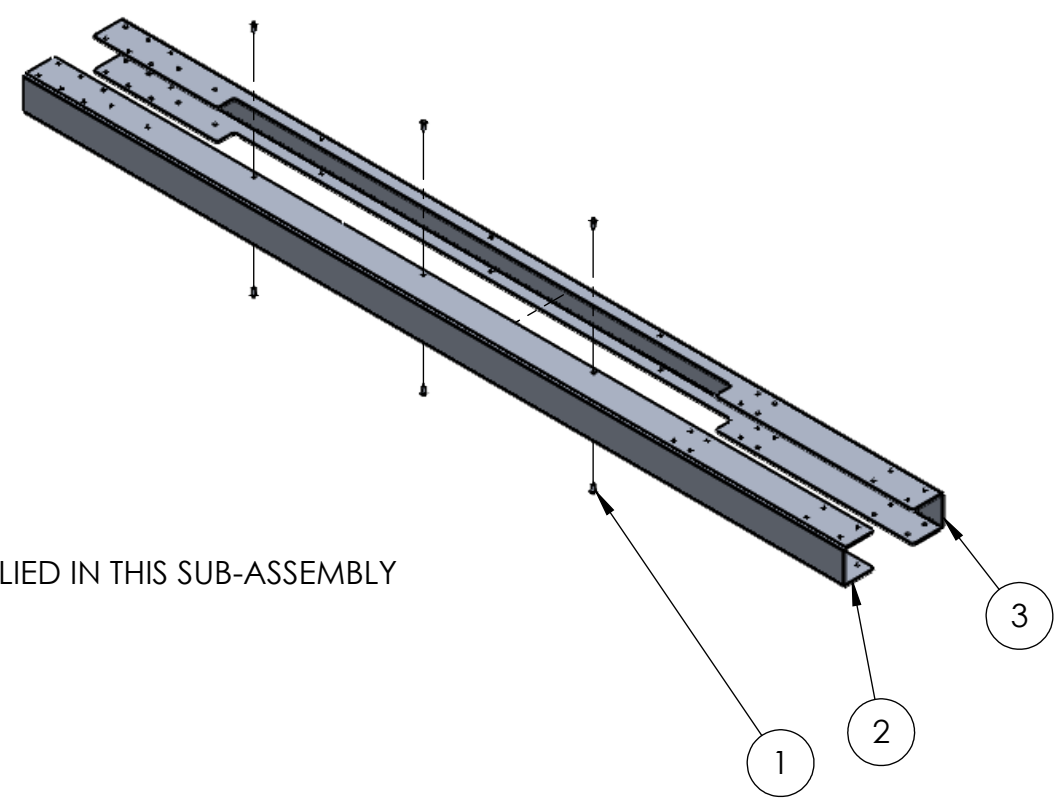
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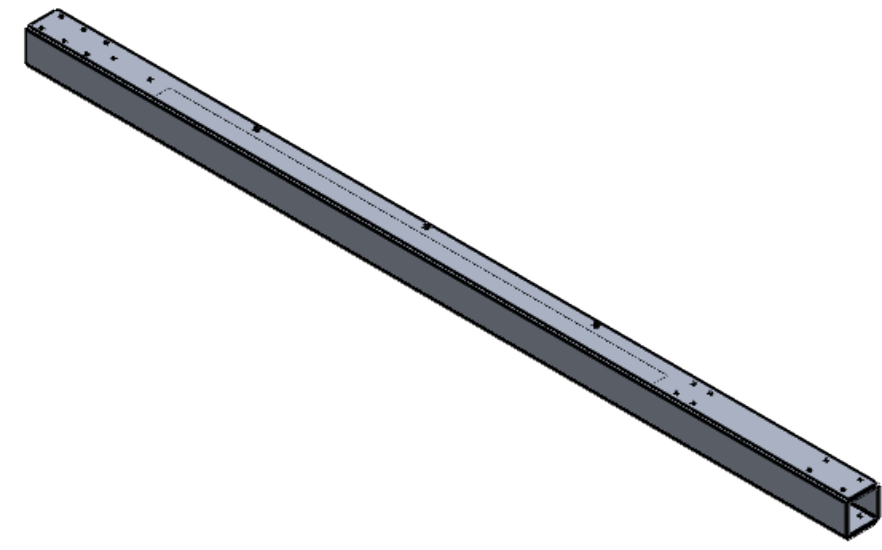
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REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	MAJOR GEOMETRY CHANGE TO PARTS	9/16/19	KAMC

Exploded View:





ONLY 6 RIVETS APPLIED IN THIS SUB-ASSEMBLY



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	6
2	GE-20010 - 05	Hanger - Side Leg, Face	1
3	GE-20010 - 04	Hanger - Side Leg	1

Notes:
 1. Rivets should be plated or aluminum.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Hanger - Side Leg Assembly
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
GE-20010		Q.A.		WEIGHT: 12.80 LBS
NEXT ASSY	USED ON	COMMENTS:		
APPLICATION		DO NOT SCALE DRAWING		SIZE B DWG. NO. GE-20010 - 27 REV A
			SCALE: 1:12	WEIGHT: SHEET 1 OF 2

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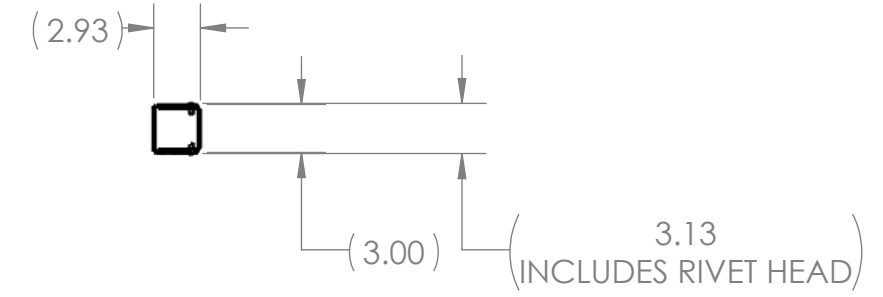
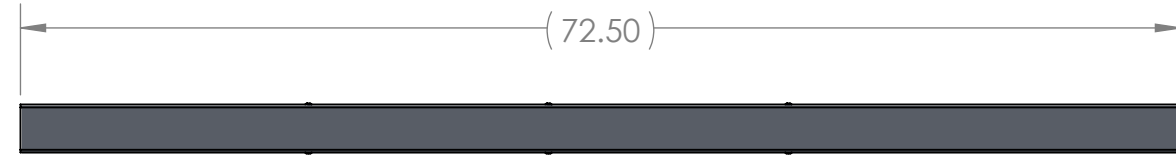
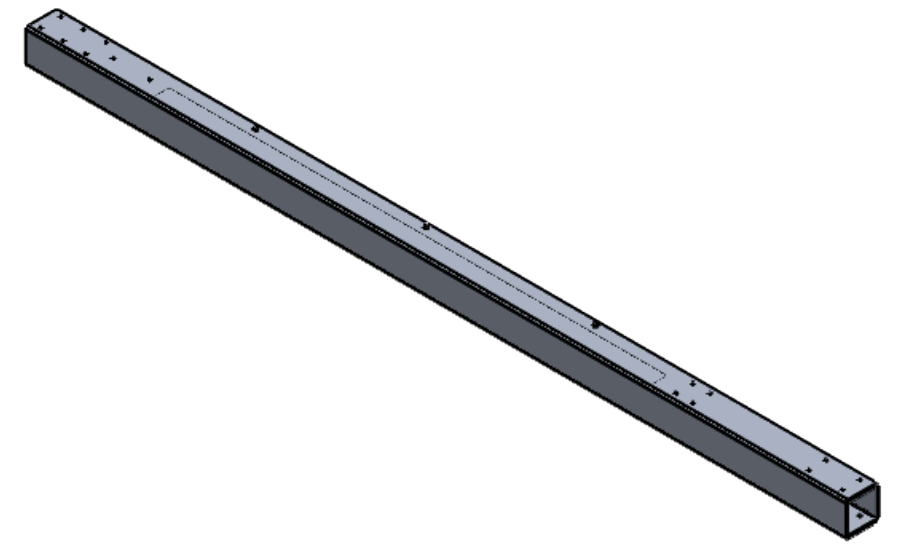
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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet 1	-	-



DIMENSIONS SHOWN FOR REFERENCE

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Hanger - Side Leg Assembly
GE-20010		MATERIAL		ENG APPR.		
NEXT ASSY		FINISH		MFG APPR.		
APPLICATION		DO NOT SCALE DRAWING		COMMENTS: WEIGHT SHOWN ON SHEET 1		SIZE B DWG. NO. GE-20010 - 27 SCALE: 1:12 WEIGHT:
						REV A SHEET 2 OF 2

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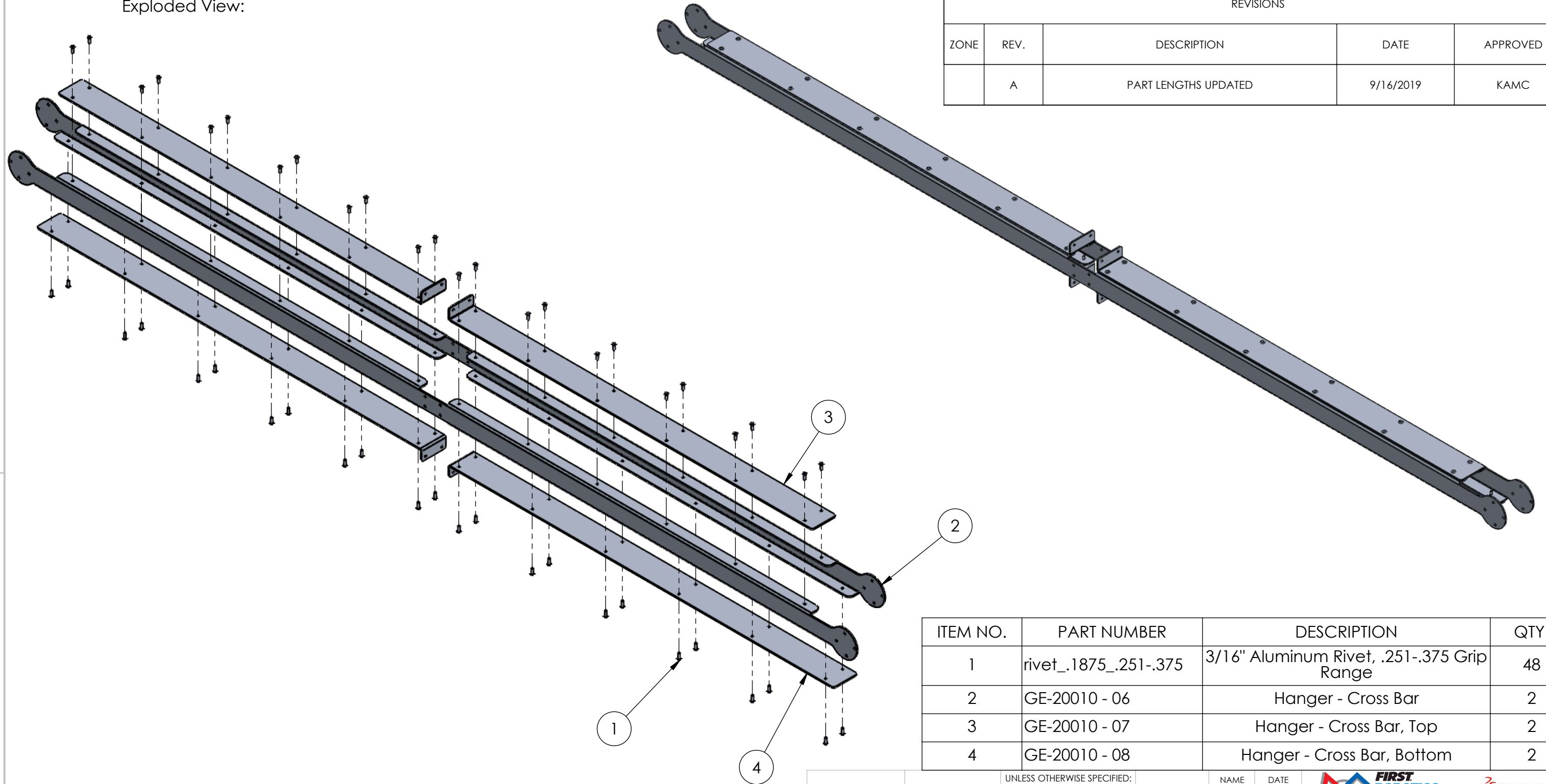
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Exploded View:





REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	PART LENGTHS UPDATED	9/16/2019	KAMC

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	48
2	GE-20010 - 06	Hanger - Cross Bar	2
3	GE-20010 - 07	Hanger - Cross Bar, Top	2
4	GE-20010 - 08	Hanger - Cross Bar, Bottom	2

Notes:
 1. Rivets should be plated or aluminum.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES		DRAWN	KAMC	
TOLERANCES:		CHECKED		
FRACTIONAL ±1/16		ENG APPR.		
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.		
TWO PLACE DECIMAL ±.01		Q.A.		
THREE PLACE DECIMAL ±.001		COMMENTS:	WEIGHT: 15.74 LBS	
INTERPRET GEOMETRIC TOLERANCING PER:		TITLE: Hanger - Center Bar Sub Assembly		
MATERIAL		SIZE DWG. NO. REV B GE-20010 - 28 A		
FINISH BARE		SCALE: 1:8 WEIGHT: SHEET 1 OF 2		
APPLICATION		DO NOT SCALE DRAWING		

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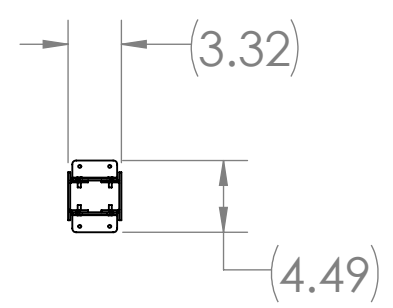
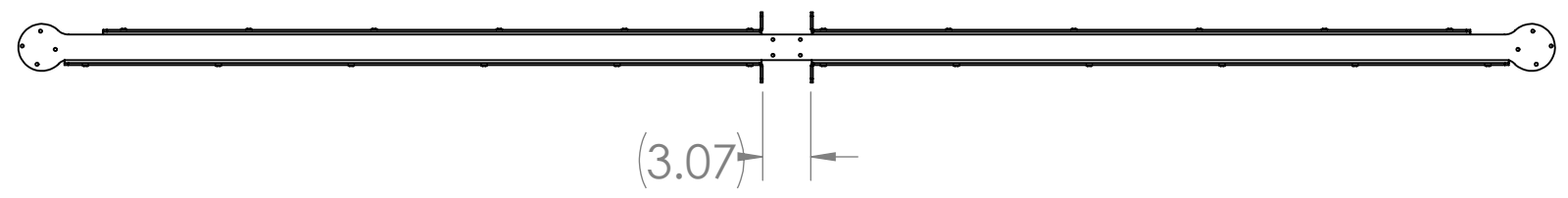
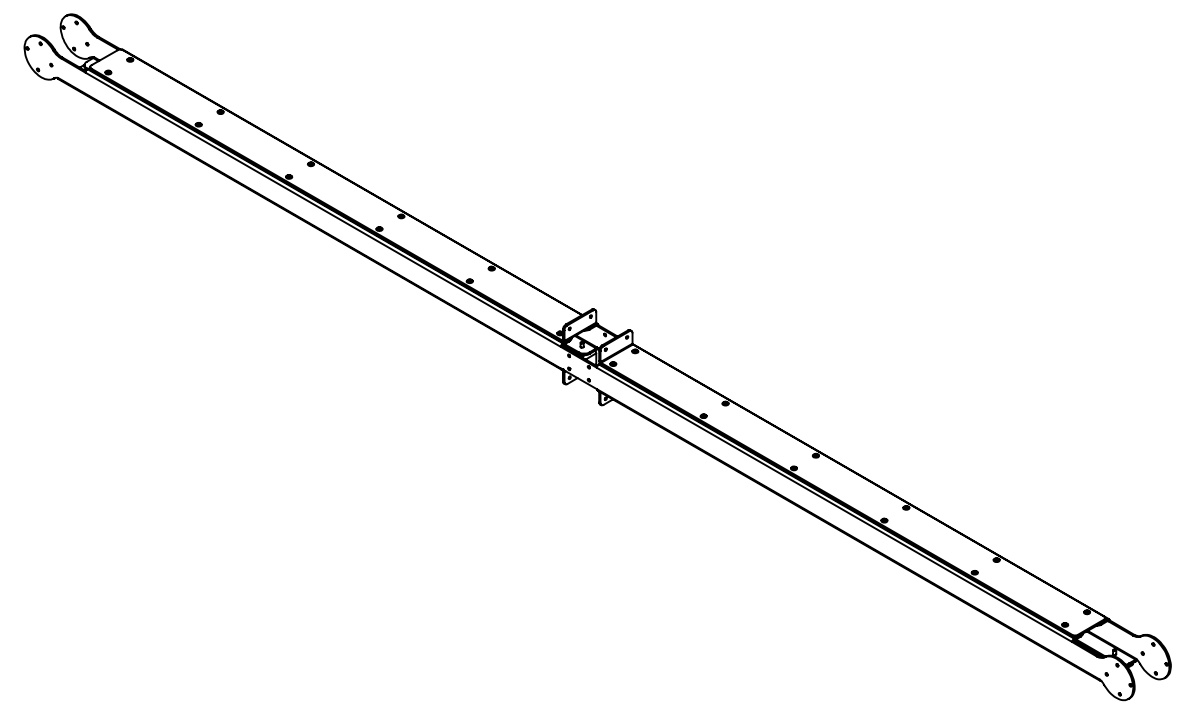
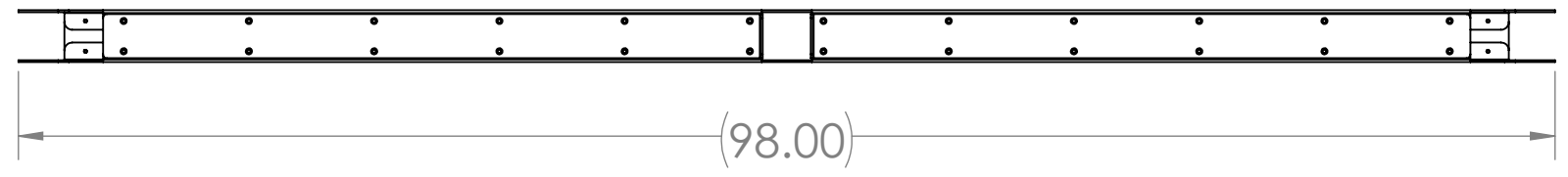
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet 1	-	-

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DIMENSIONS SHOWN FOR REFERENCE

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Hanger - Center Bar Sub Assembly
		MATERIAL		ENG APPR.		
GE-20010		FINISH		MFG APPR.		SIZE B DWG. NO. GE-20010 - 28 REV A
NEXT ASSY		USED ON		Q.A.		
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		SCALE: 1:12 WEIGHT:
				WEIGHT SHOWN ON SHEET 1		SHEET 2 OF 2

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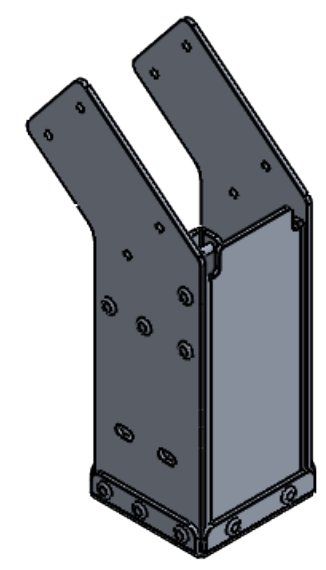
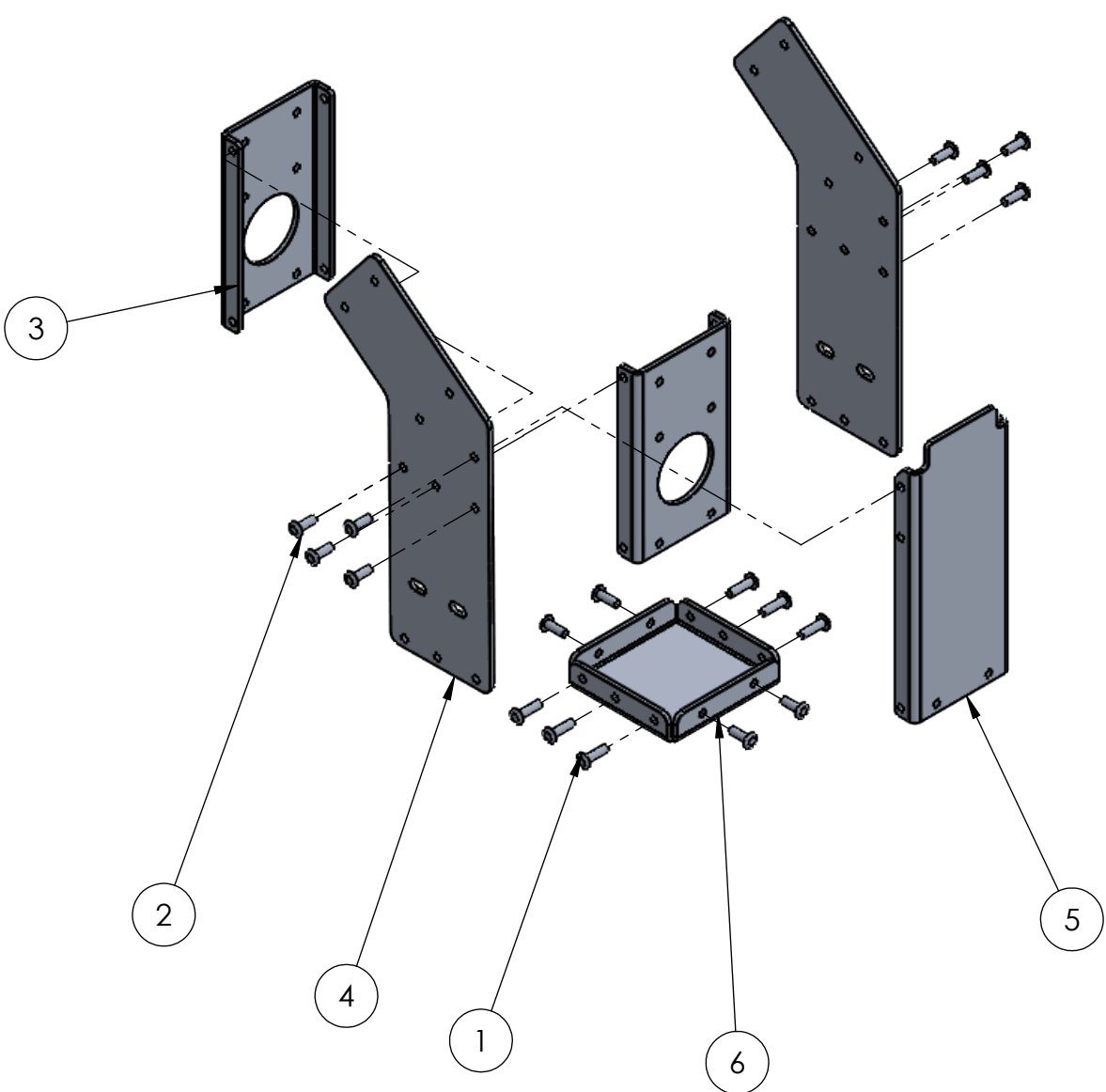
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	MAJOR GEOMETRY CHANGES TO PARTS AND OVERALL ASSEMBLY	9/16/2019	KAMC



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	rivet_.1875_.376-.5	3/16" Aluminum Rivet, .376-.5 Grip Range	6
2	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	12
3	GE-20010 - 10	Hanger - Hanging Pole Holder	2
4	GE-20010 - 11	Hanger - Hanging Pole Holder, Face	2
5	GE-20010 - 15	Hanger - Hanging Pole Holder, End	1
6	GE-20010 - 16	Hanger - Hanging Pole Holder, End Cap	1

Notes:
 1. Rivets should be plated or aluminum.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
BARE		Q.A.		
WEIGHT: 1.80 LBS		COMMENTS:		TITLE: Hanger - Hanging Pole Holder Sub Assembly
GE-20010				SIZE DWG. NO. REV B GE-20010 - 29 A
NEXT ASSY	USED ON			SCALE: 1:4 WEIGHT: SHEET 1 OF 2
APPLICATION	DO NOT SCALE DRAWING			

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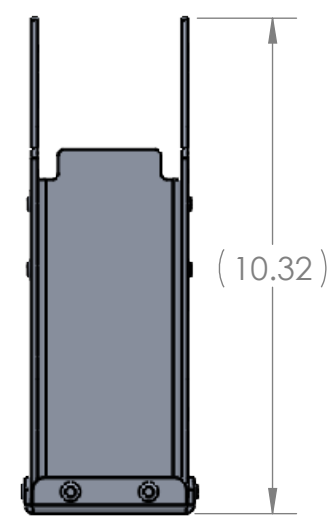
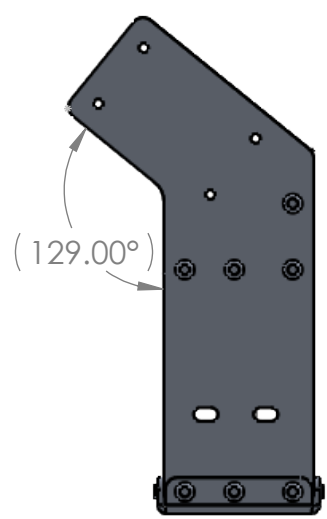
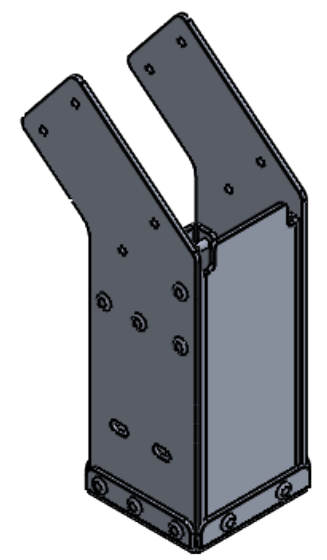
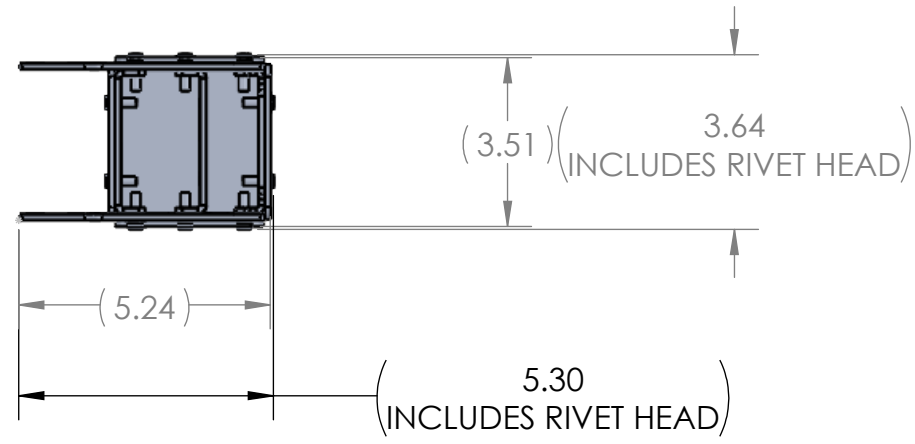
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet 1	-	-



DIMENSIONS SHOWN FOR REFERENCE

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		TITLE: Hanger - Hanging Pole Holder Sub Assembly
				WEIGHT SHOWN ON SHEET 1		
GE-20010		MATERIAL		SIZE	DWG. NO.	REV
NEXT ASSY	USED ON	FINISH		B	GE-20010 - 29	A
APPLICATION		DO NOT SCALE DRAWING		SCALE: 1:4	WEIGHT:	SHEET 2 OF 2

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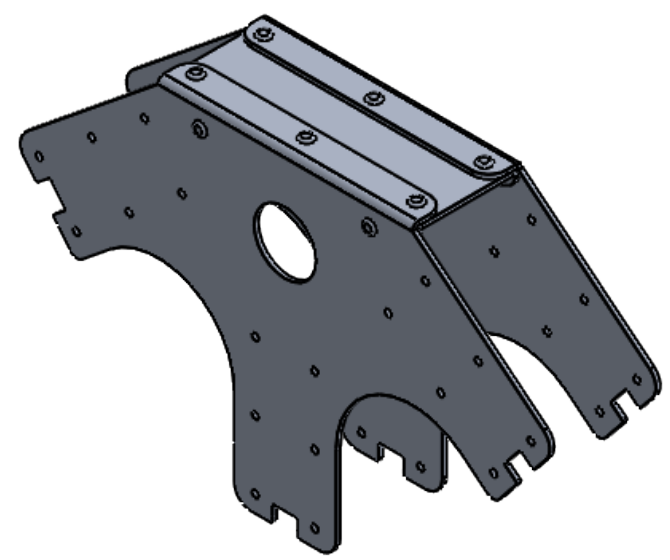
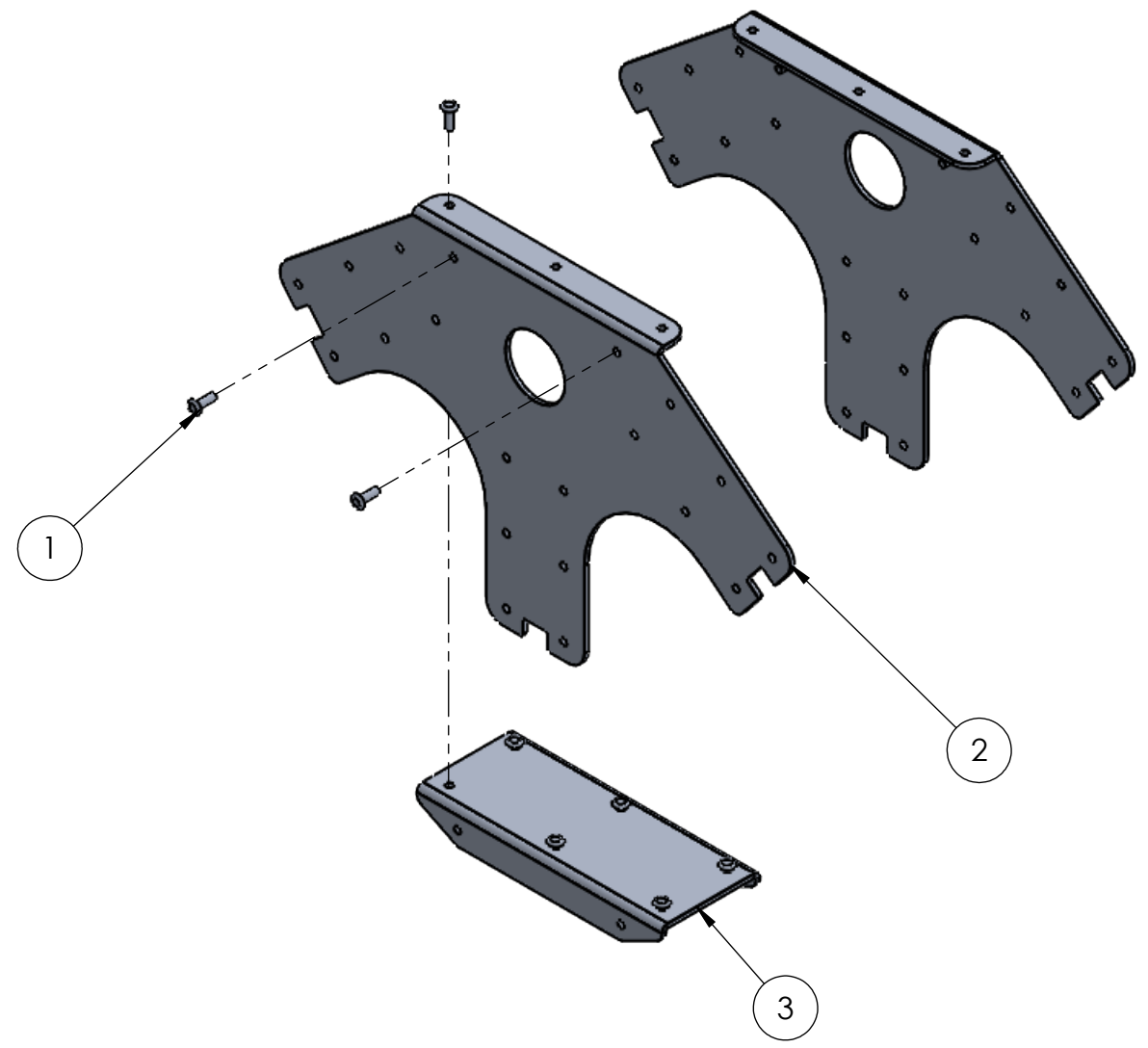
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	10
2	GE-20010 - 01	Hanger - Top	2
3	GE-20010 - 14	Hanger - Top, Face	1

Notes:
 1. Rivets should be plated or aluminum.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE:
MATERIAL		ENG APPR.		Hanger - Top
FINISH		MFG APPR.		Sub Assembly
BARE		Q.A.		SIZE DWG. NO. REV
DO NOT SCALE DRAWING		COMMENTS:	WEIGHT: 2.40 LBS	
GE-20010				B GE-20010 - 30 0
NEXT ASSY	USED ON			SCALE: 1:4 WEIGHT: SHEET 1 OF 2

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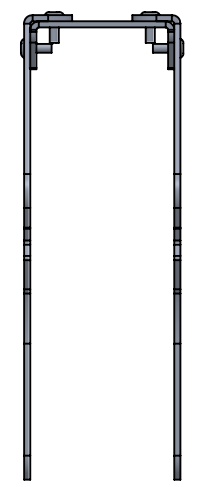
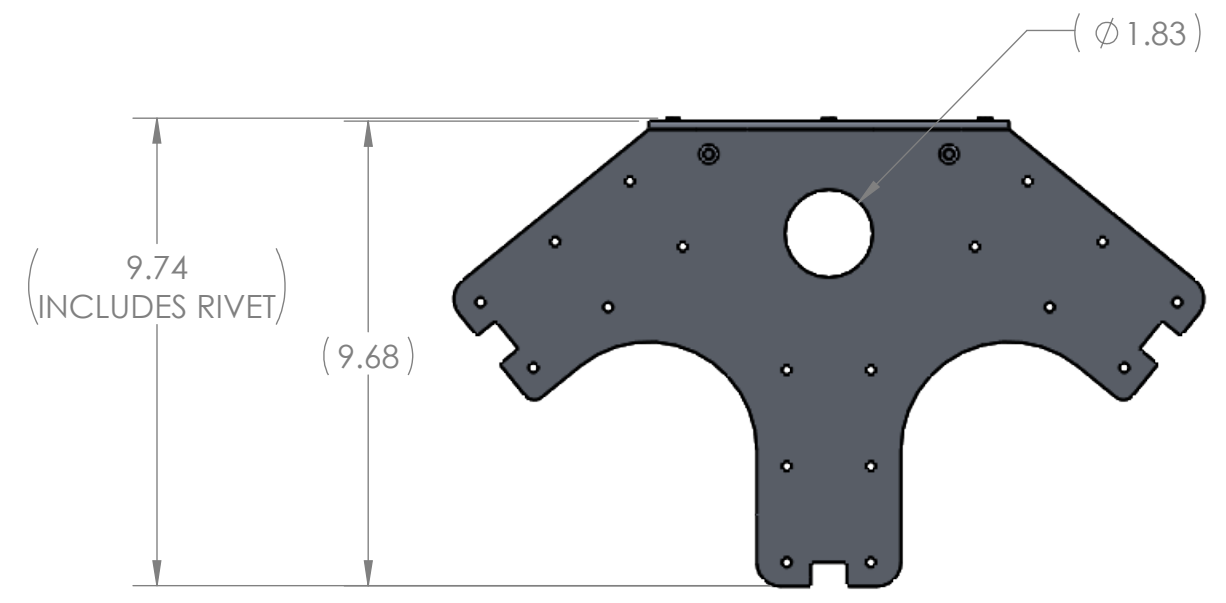
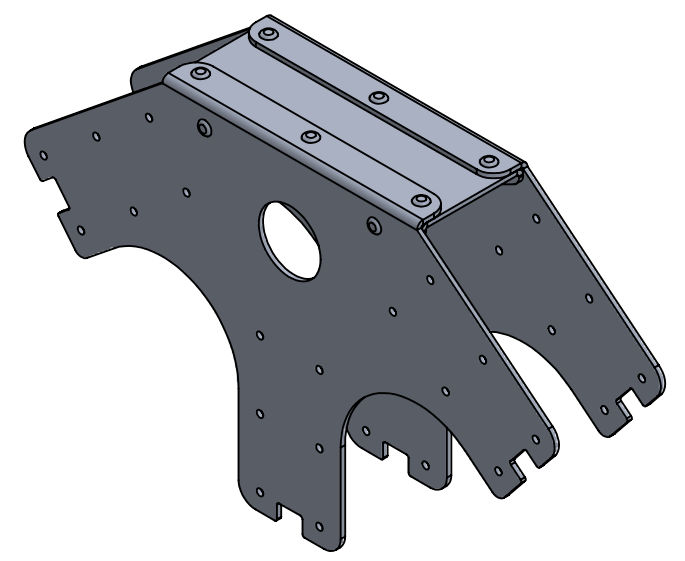
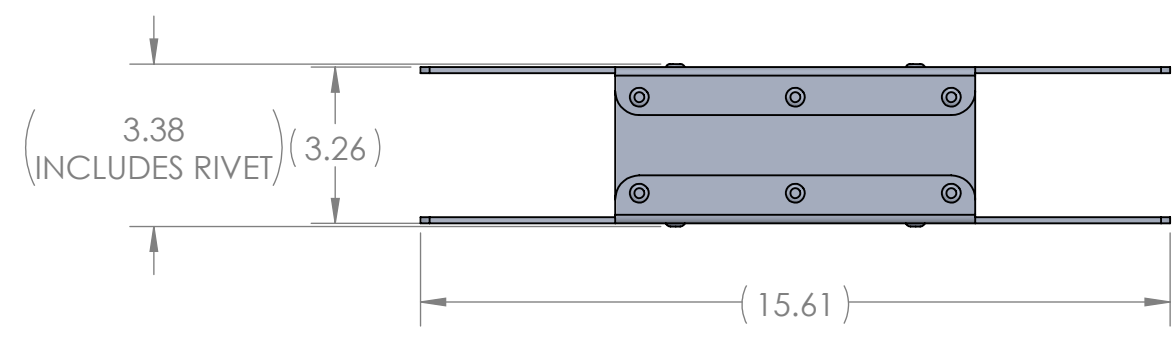
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DIMENSIONS FOR REF.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:	WEIGHT SHOWN ON SHEET 1	
GE-20010						TITLE: Hanger - Top Sub Assembly
NEXT ASSY	USED ON					SIZE B DWG. NO. GE-20010 - 30 REV 0
APPLICATION		FINISH BARE				SCALE: 1:4 WEIGHT: SHEET 2 OF 2
		DO NOT SCALE DRAWING				

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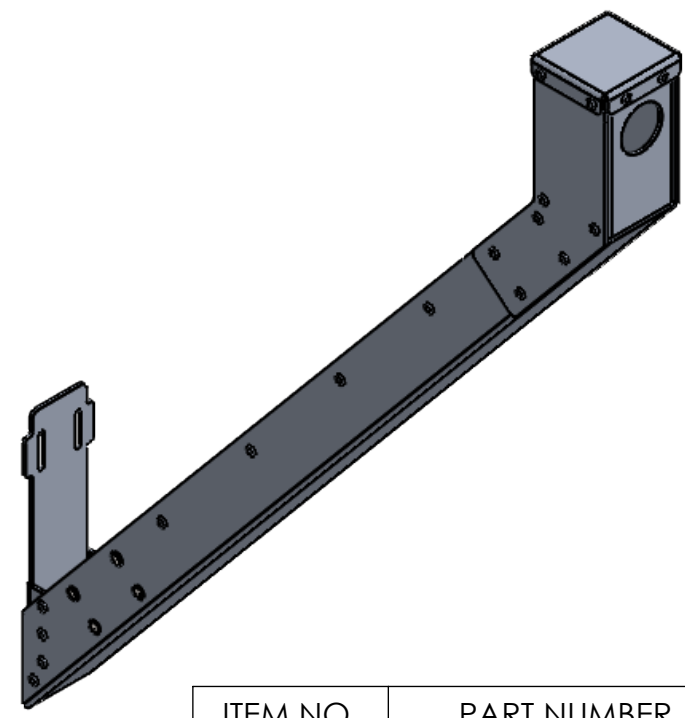
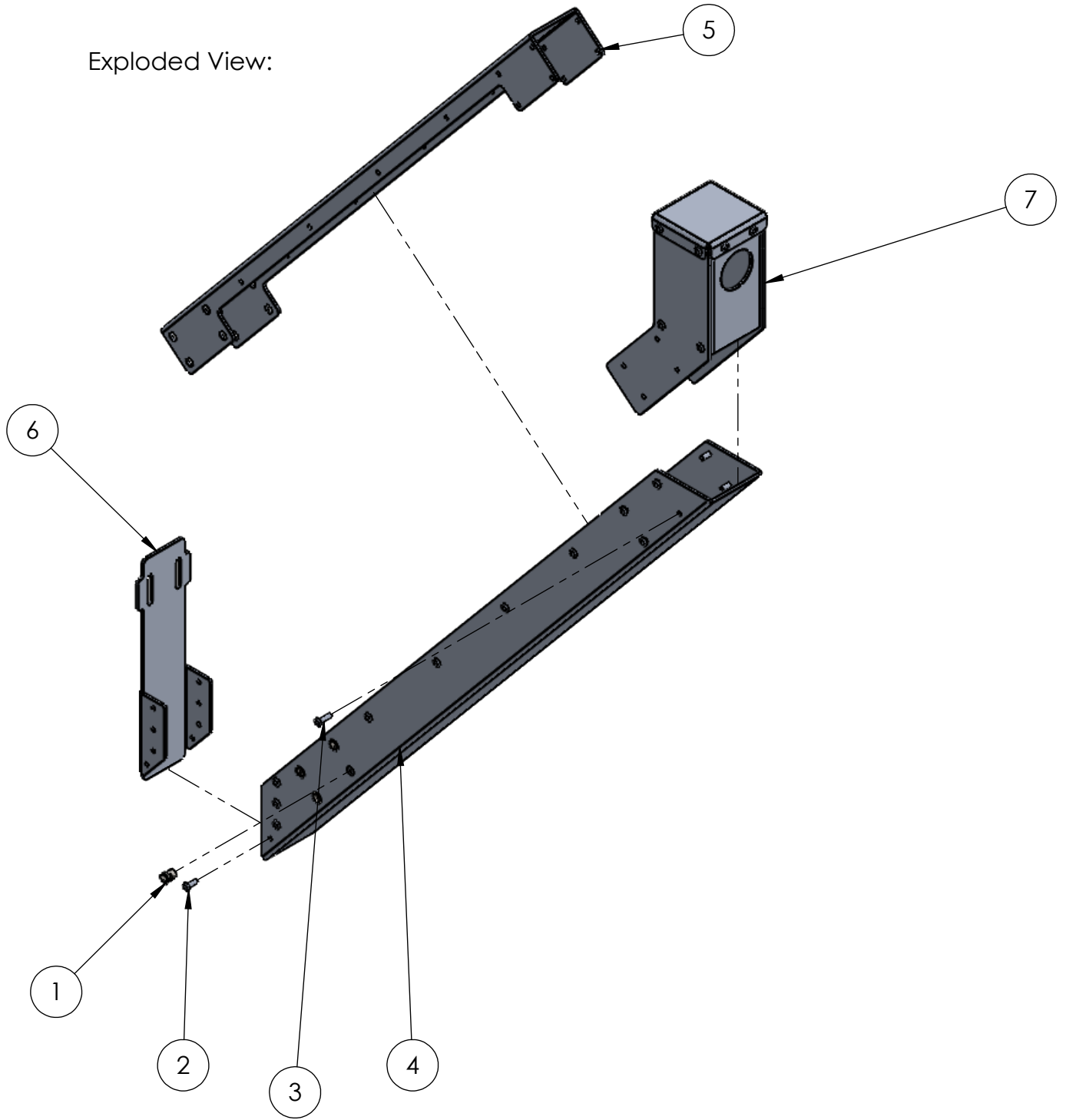
3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	MAJOR GEOMETRY CHANGE TO PARTS, PARTS AND SUB ASSEMBLY ADDED	9/16/2019	KAMC



Exploded View:



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	rivnut_.25_20_.165-.260	Rivnut, 1/4"-20 bolt, material thickness: .165"-.260"	8
2	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	16
3	rivet_.1875_.376-.5	3/16" Aluminum Rivet, .376-.5 Grip Range	8
4	GE-20011 - 01	Hanger Brace - Channel	1
5	GE-20011 - 02	Hanger Brace - Face	1
6	GE-20011 - 06	Hanger Brace - Connection to Hanger	1
7	GE-20011 - 16	Hanger Brace - Pivot Pole Holder Sub Assembly	1

- Notes:
1. Rivets and Rivnuts should be plated or aluminum.
 2. Tag or label with part number.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: <h2 style="text-align: center;">Hanger Brace</h2>
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	Q.A.		WEIGHT: 7.63 LBS
APPLICATION		COMMENTS:		
DO NOT SCALE DRAWING		SIZE	DWG. NO.	REV
		B	GE-20011	A
		SCALE: 1:6	WEIGHT:	SHEET 1 OF 2

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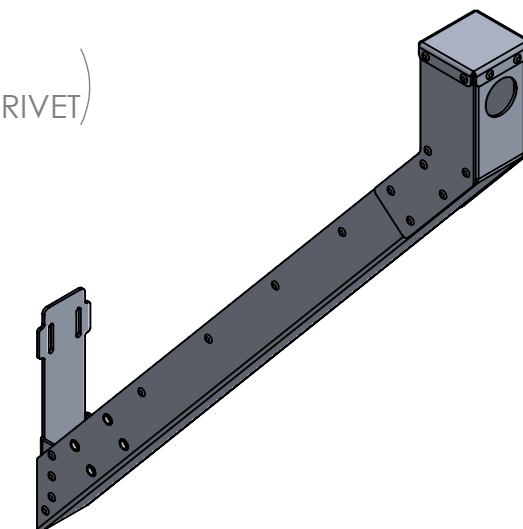
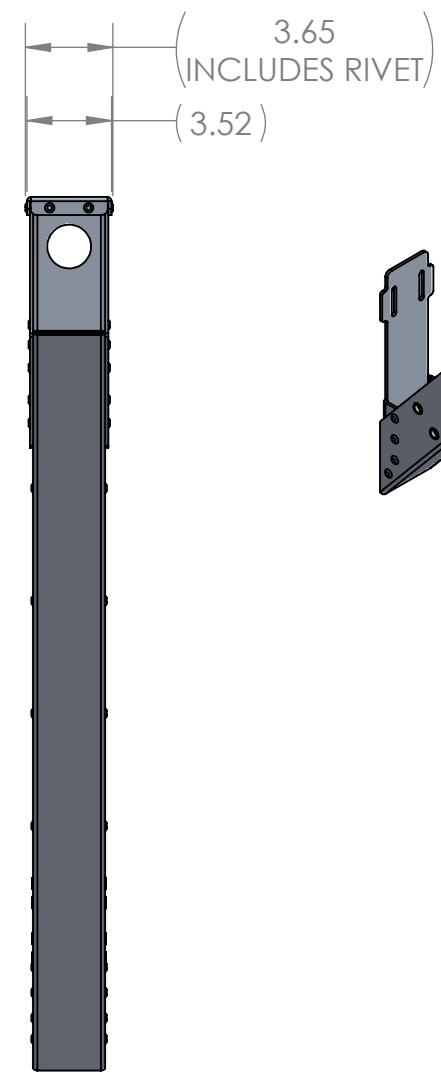
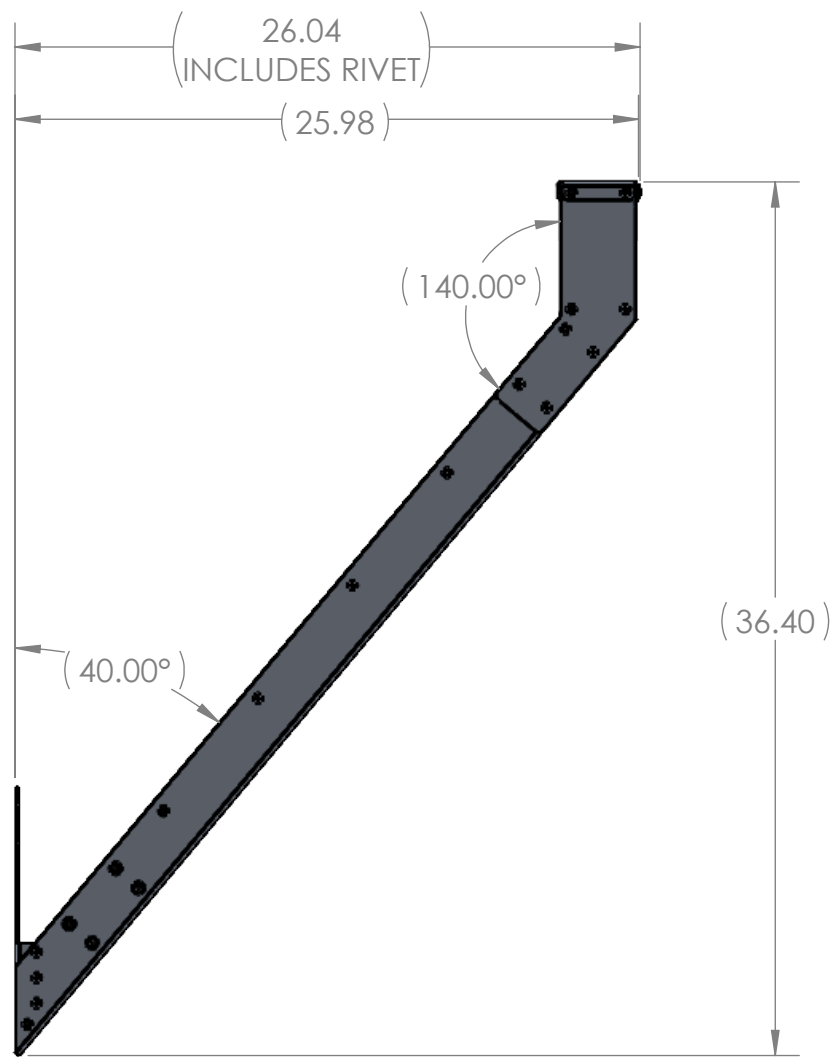
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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet1	-	-



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DIMENSIONS SHOWN FOR REF.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	9/10/19
		FRACTIONAL: ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:	WEIGHT SHOWN ON SHEET 1	
		MATERIAL		
		FINISH BARE		
NEXT ASSY	USED ON	APPLICATION	DO NOT SCALE DRAWING	



TITLE:
Hanger Brace

SIZE	DWG. NO.	REV
B	GE-20011	A
SCALE: 1:8	WEIGHT:	SHEET 2 OF 2

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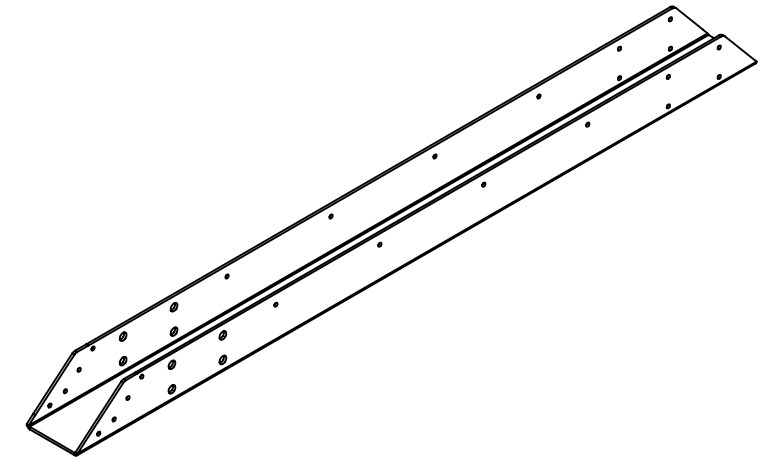
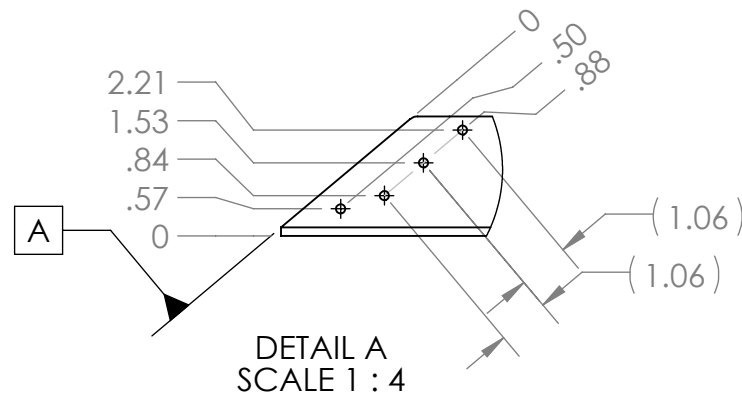
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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	MAJOR GEOMETRY CHANGE , INNER BEND REMOVED	9/16/2019	KAMC

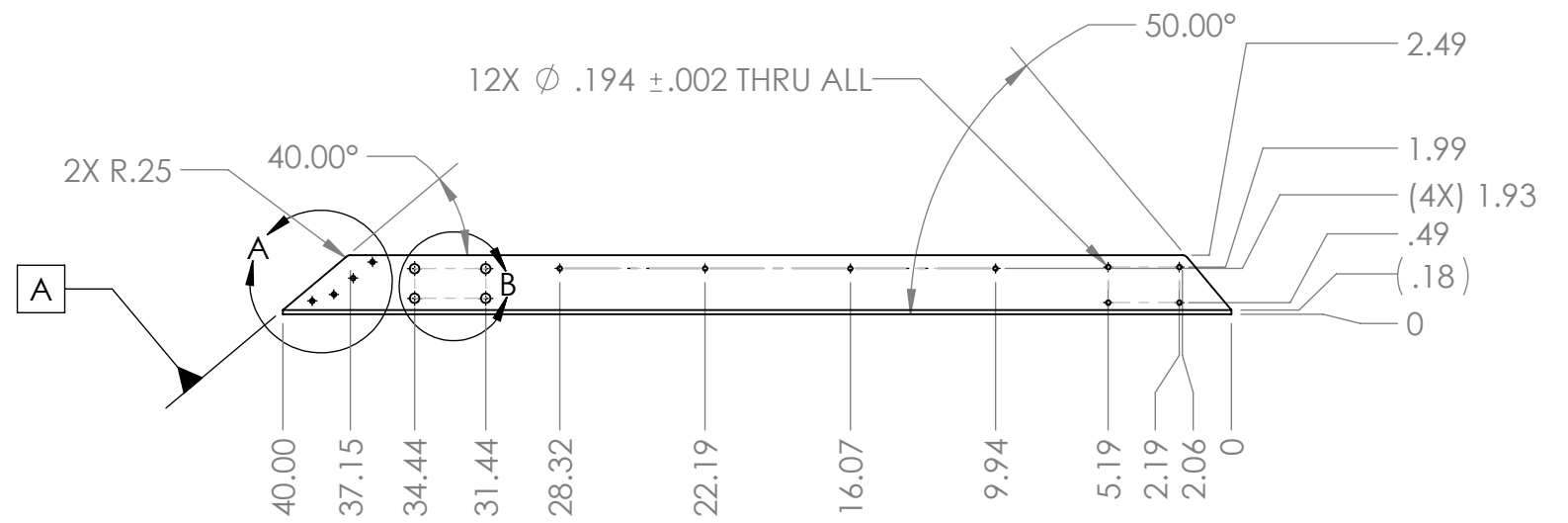
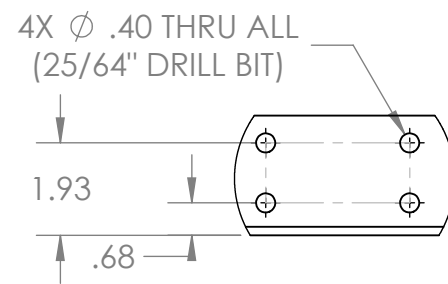
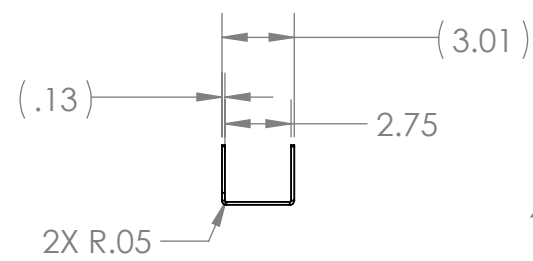
B

B



A

A



- Notes:
- Material: 8 Ga. 5052 Aluminum Sheet
 - Remove all burrs and sharp edges.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Hanger Brace - Channel
MATERIAL ALUMINUM SHEET		ENG APPR.		
FINISH BARE		MFG APPR.		SIZE DWG. NO. REV B GE-20011 - 01 A
APPLICATION DO NOT SCALE DRAWING		Q.A.		
GE-20011		COMMENTS:		SCALE: 1:8 WEIGHT: SHEET 1 OF 1
NEXT ASSY	USED ON			

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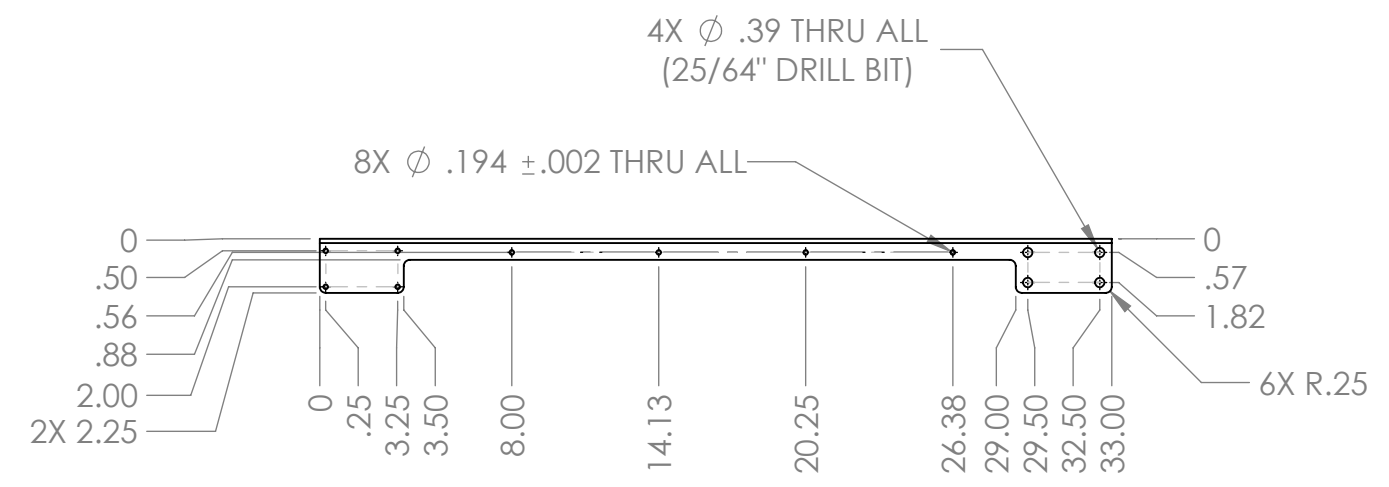
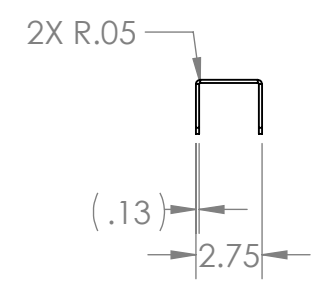
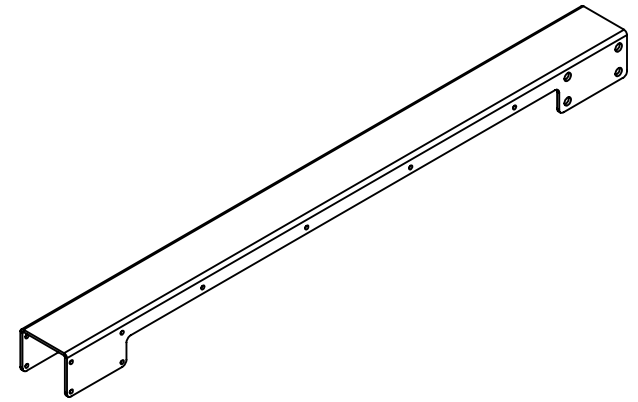
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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	MAJOR GEOMETRY CHANGE	9/16/2019	KAMC



- Notes:
1. Material: 8 Ga. 5052 Aluminum Sheet
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	KAMC
		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
GE-20011		MATERIAL			
		ALUMINUM SHEET			
		FINISH			
		BARE			
		APPLICATION			
		DO NOT SCALE DRAWING			



TITLE:		
Hanger Brace - Face		
SIZE	DWG. NO.	REV
B	GE-20011 - 02	A
SCALE: 1:8	WEIGHT:	SHEET 1 OF 1

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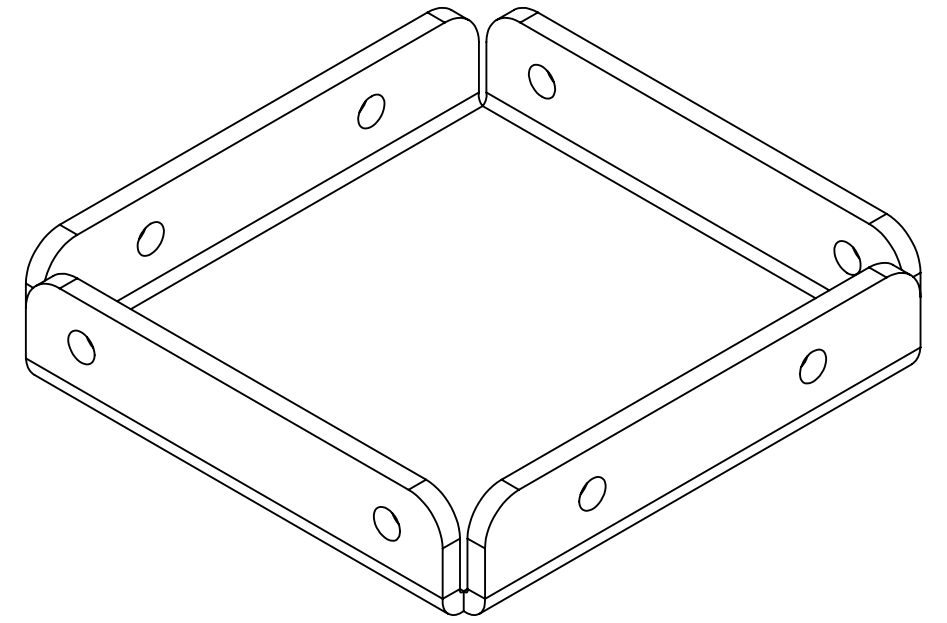
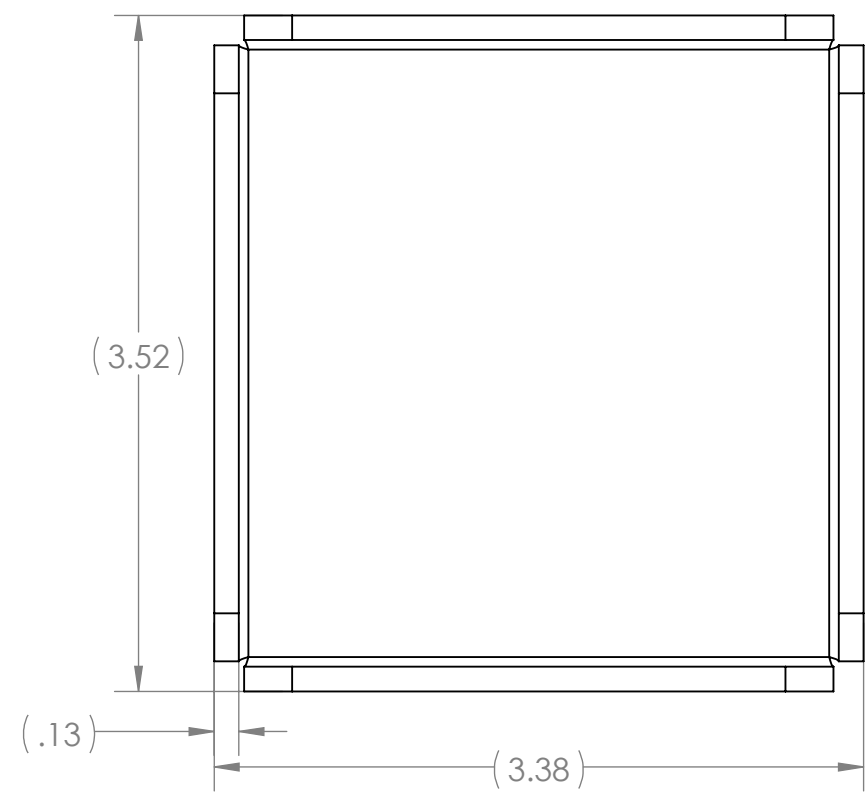
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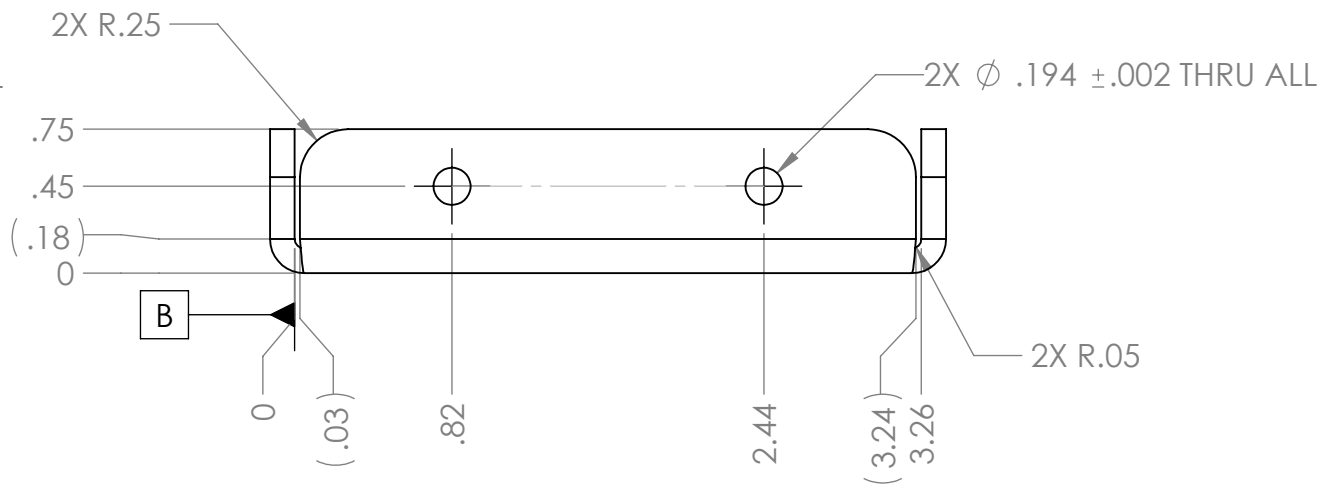
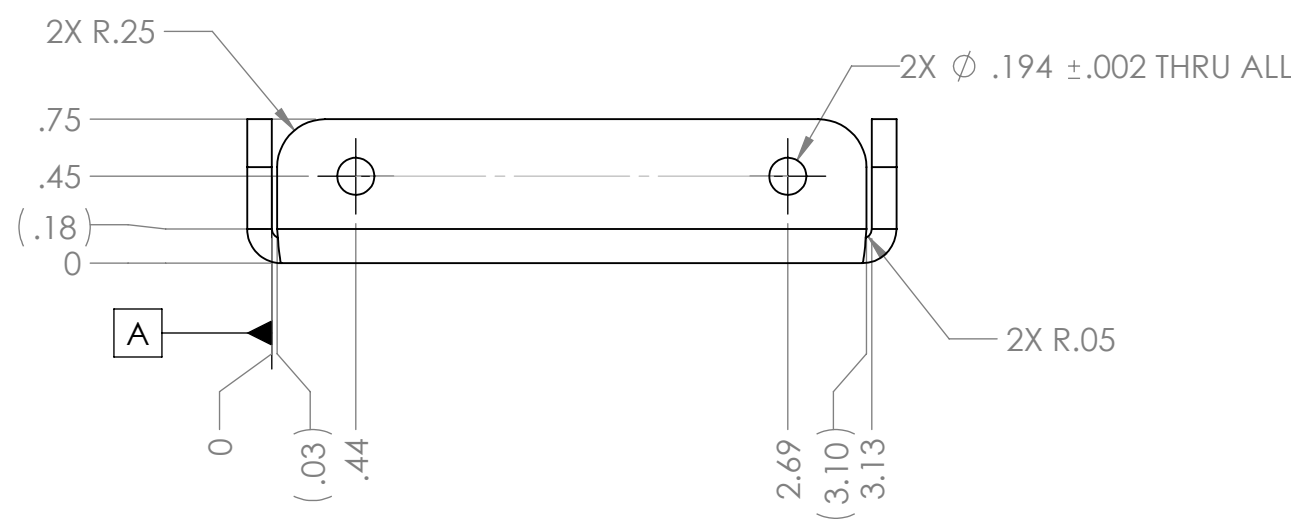
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	MAJOR GEOMETRY CHANGE TO ALLOW FOR MANUFACTURING. NAME MODIFICATION MADE.	9/16/2019	KAMC

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- Notes:
1. Material: 8 Ga. 5052 Aluminum Sheet
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	KAMC
		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
GE-2011 - 16	GE-20011	MATERIAL		TITLE:	
		ALUMINUM SHEET		Hanger Brace -	
		FINISH		Pivot Pole Top Cap	
		BARE		SIZE	DWG. NO.
		APPLICATION		B	GE-20011 - 03
		DO NOT SCALE DRAWING		REV	A
				SCALE: 1:1	WEIGHT:
				SHEET 1 OF 1	



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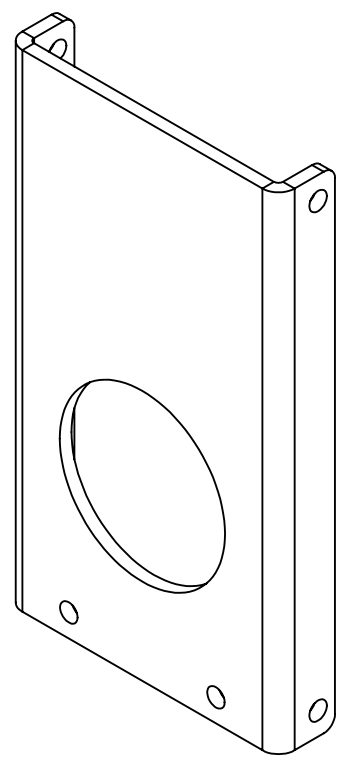
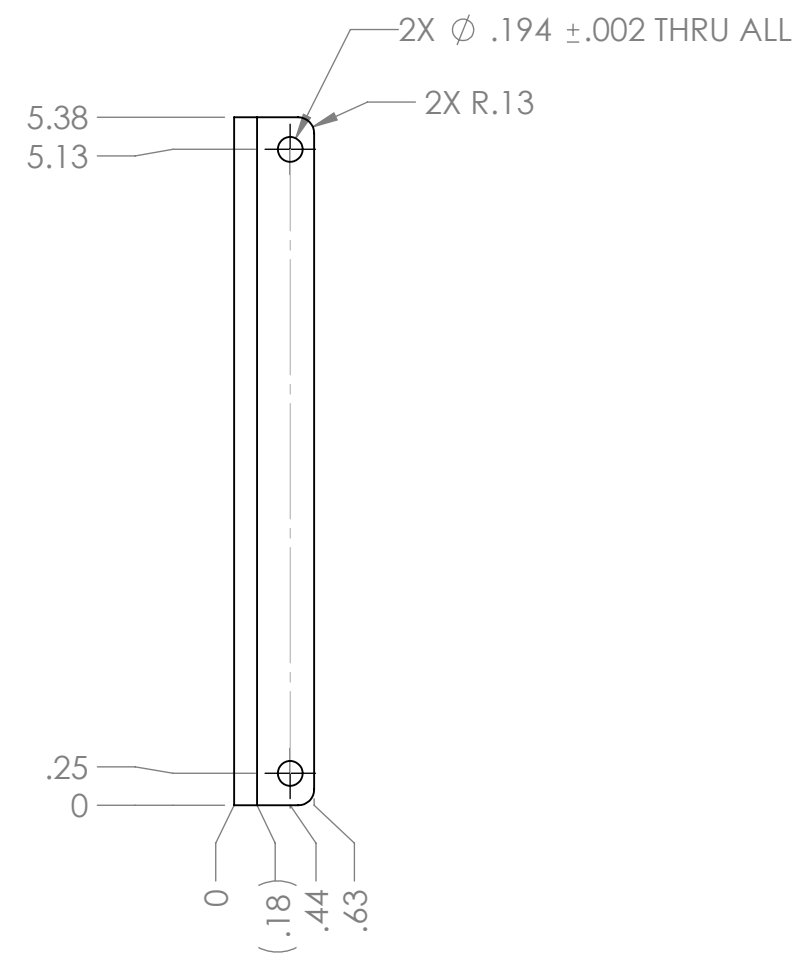
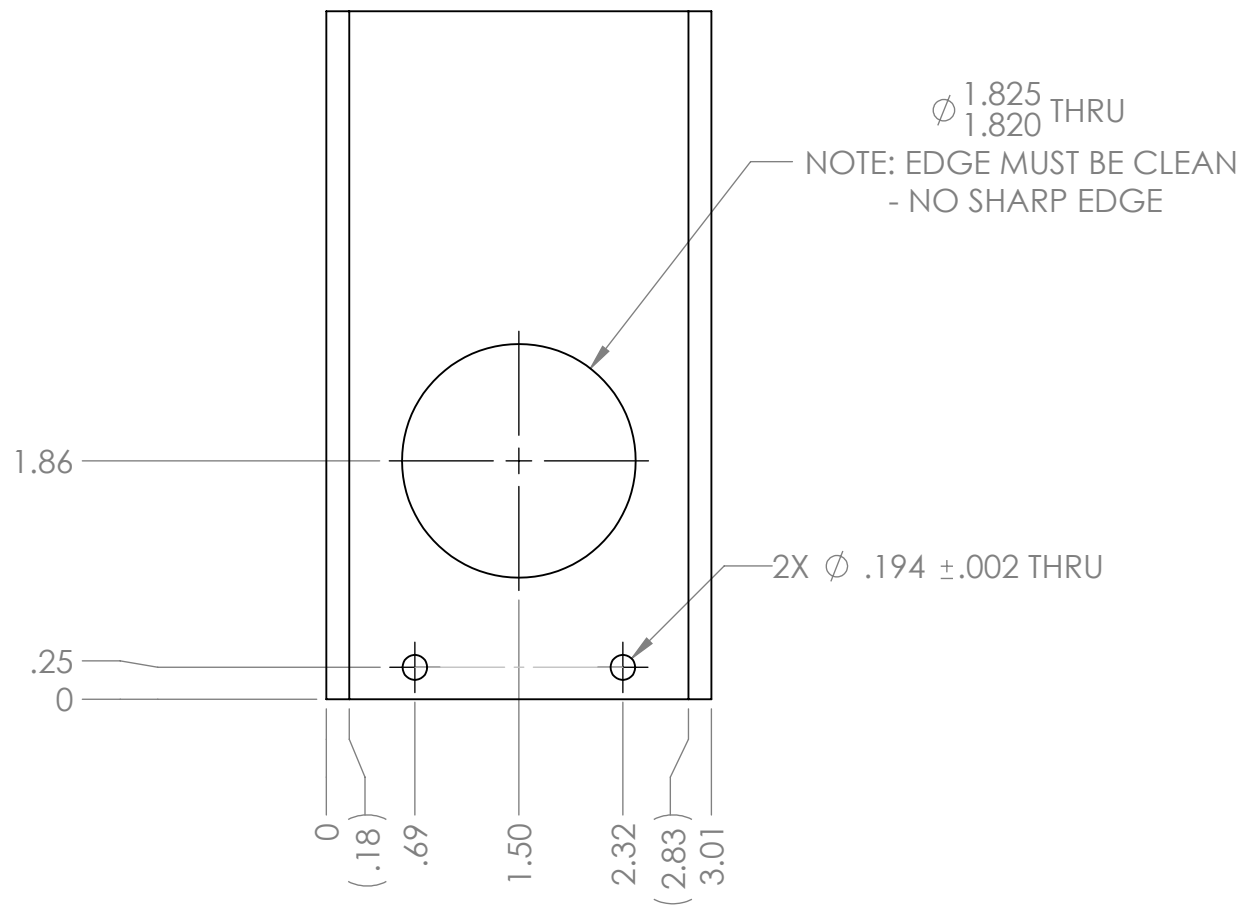
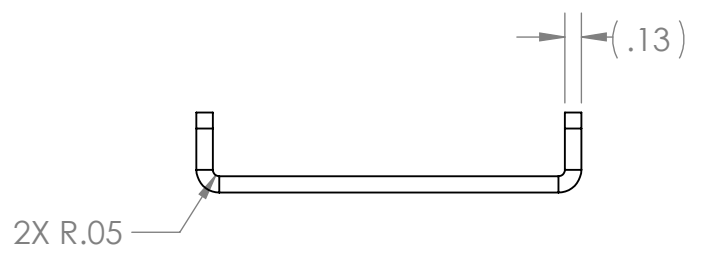
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- Notes:
1. Material: 8 Ga. 5052 Aluminum Sheet
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
		MATERIAL ALUMINUM SHEET		ENG APPR.		
		FINISH BARE		MFG APPR.		
		APPLICATION DO NOT SCALE DRAWING		Q.A.		
GE-20011 - 16	GE-20011			COMMENTS:		
				TITLE:		
				Hanger Brace - Pivot Pole Holder		
		SIZE	DWG. NO.	REV		
		B	GE-20011 - 04	0		
		SCALE: 2:3 WEIGHT:		SHEET 1 OF 1		

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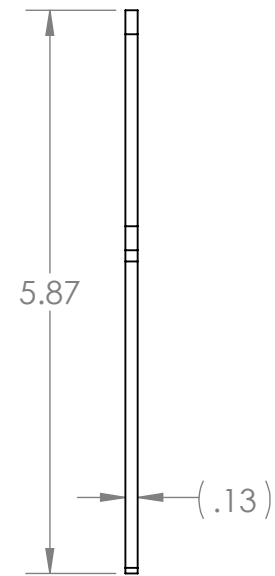
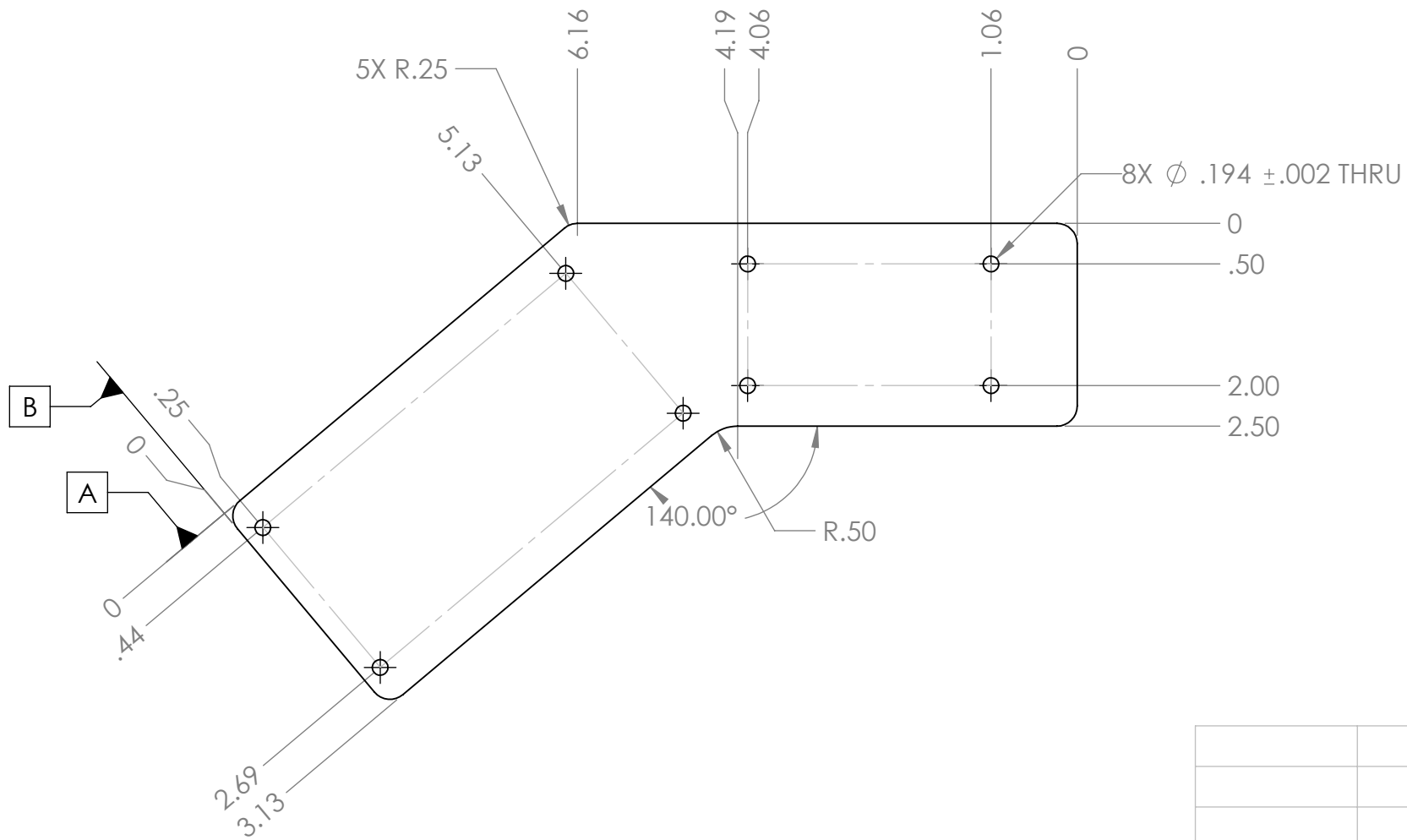
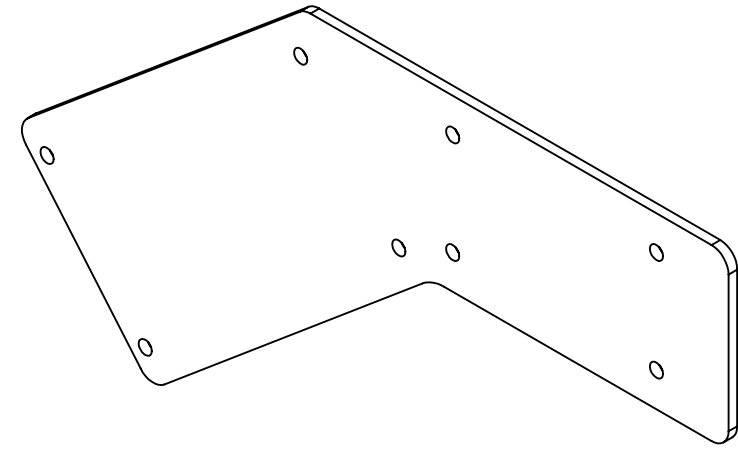
1

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- Notes:
1. Material: 8 Ga. 5052 Aluminum Sheet.
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	9/16/19
		FRACTIONAL \pm 1/16	ENG APPR.	
		ANGULAR: MACH \pm 1° BEND \pm 1°	MFG APPR.	
		TWO PLACE DECIMAL \pm .01	Q.A.	
		THREE PLACE DECIMAL \pm .001	COMMENTS:	
GE-20011 - 16	GE-20011	INTERPRET GEOMETRIC TOLERANCING PER:		
NEXT ASSY	USED ON	MATERIAL		
		ALUMINUM SHEET		
		FINISH		
		BARE		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:
Hanger Brace - Pivot Pole Holder, Face

SIZE	DWG. NO.	REV
B	GE-20011 - 05	0

SCALE: 1:2 WEIGHT: SHEET 1 OF 1

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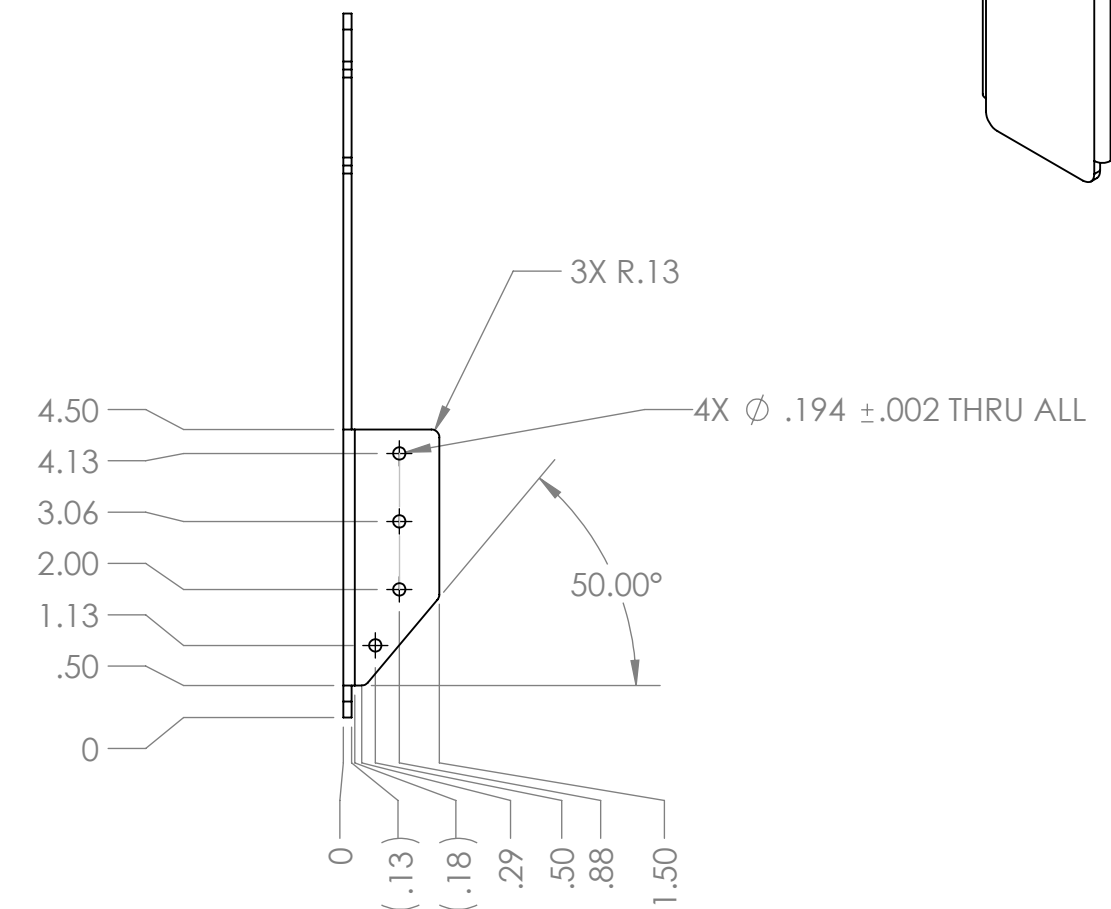
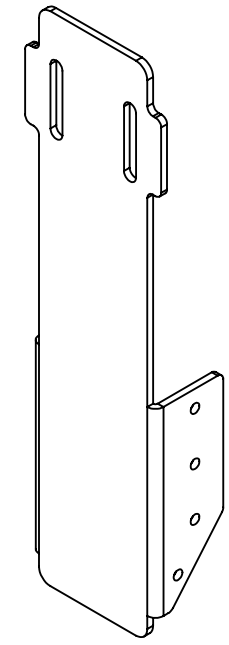
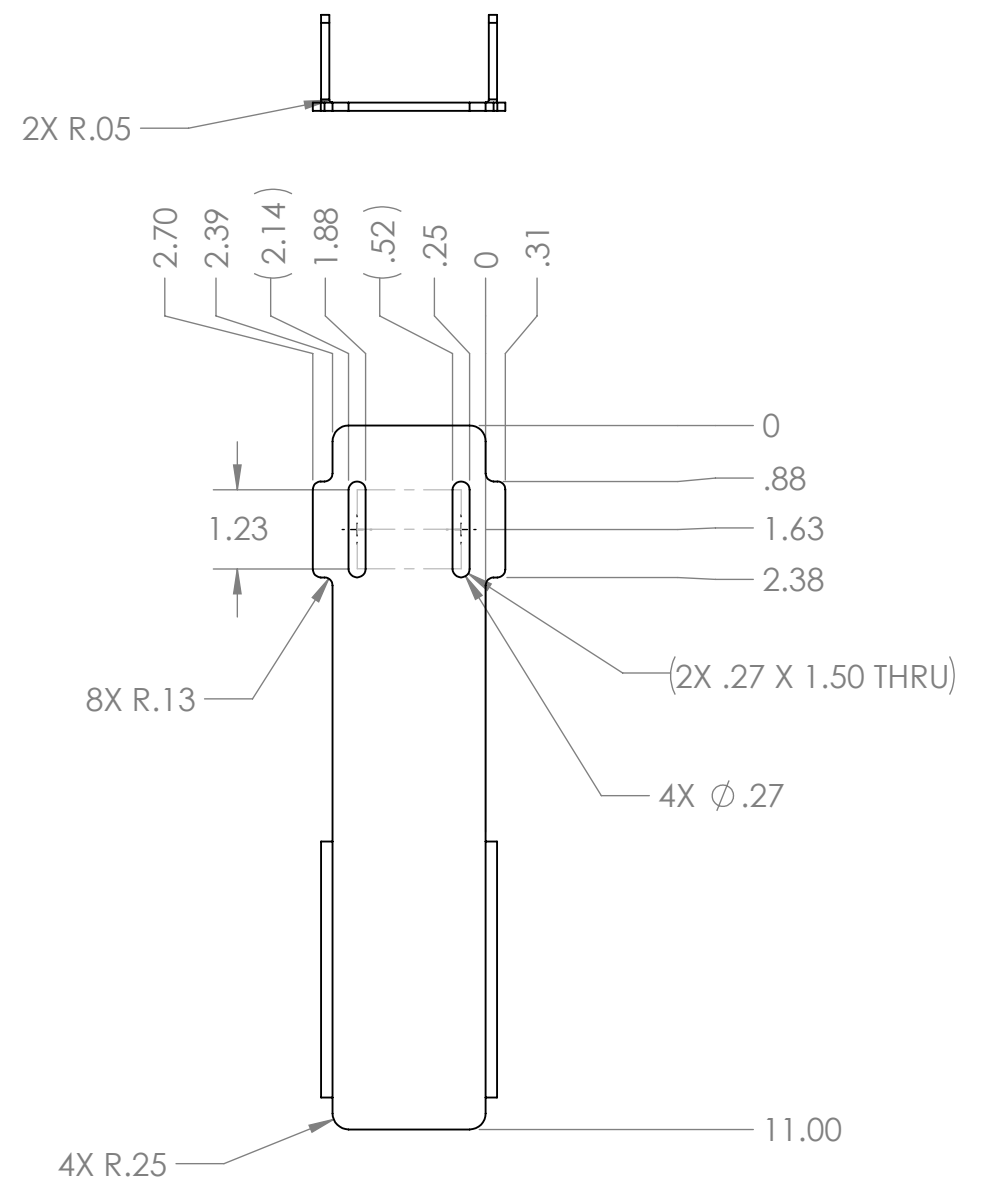
1

B

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- Notes:
1. Material: 8 Ga. 5052 Aluminum Sheet
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 		
		DIMENSIONS ARE IN INCHES		DRAWN	KAMC	9/16/19	TITLE:	
		TOLERANCES:		CHECKED			Hanger Brace - Connection to Hanger	
		FRACTIONAL \pm 1/16		ENG APPR.				
		ANGULAR: MACH \pm 1° BEND \pm 1°		MFG APPR.			SIZE	
		TWO PLACE DECIMAL \pm .01		Q.A.			DWG. NO.	
		THREE PLACE DECIMAL \pm .001		COMMENTS:			REV	
GE-20011		MATERIAL						B GE-20011 - 06 0
		ALUMINUM SHEET						
NEXT ASSY		FINISH						SCALE: 1:3
		BARE						WEIGHT:
APPLICATION		DO NOT SCALE DRAWING						SHEET 1 OF 1

4

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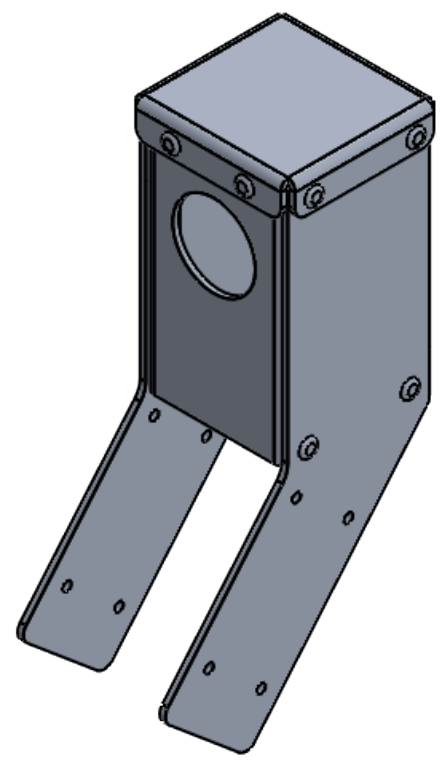
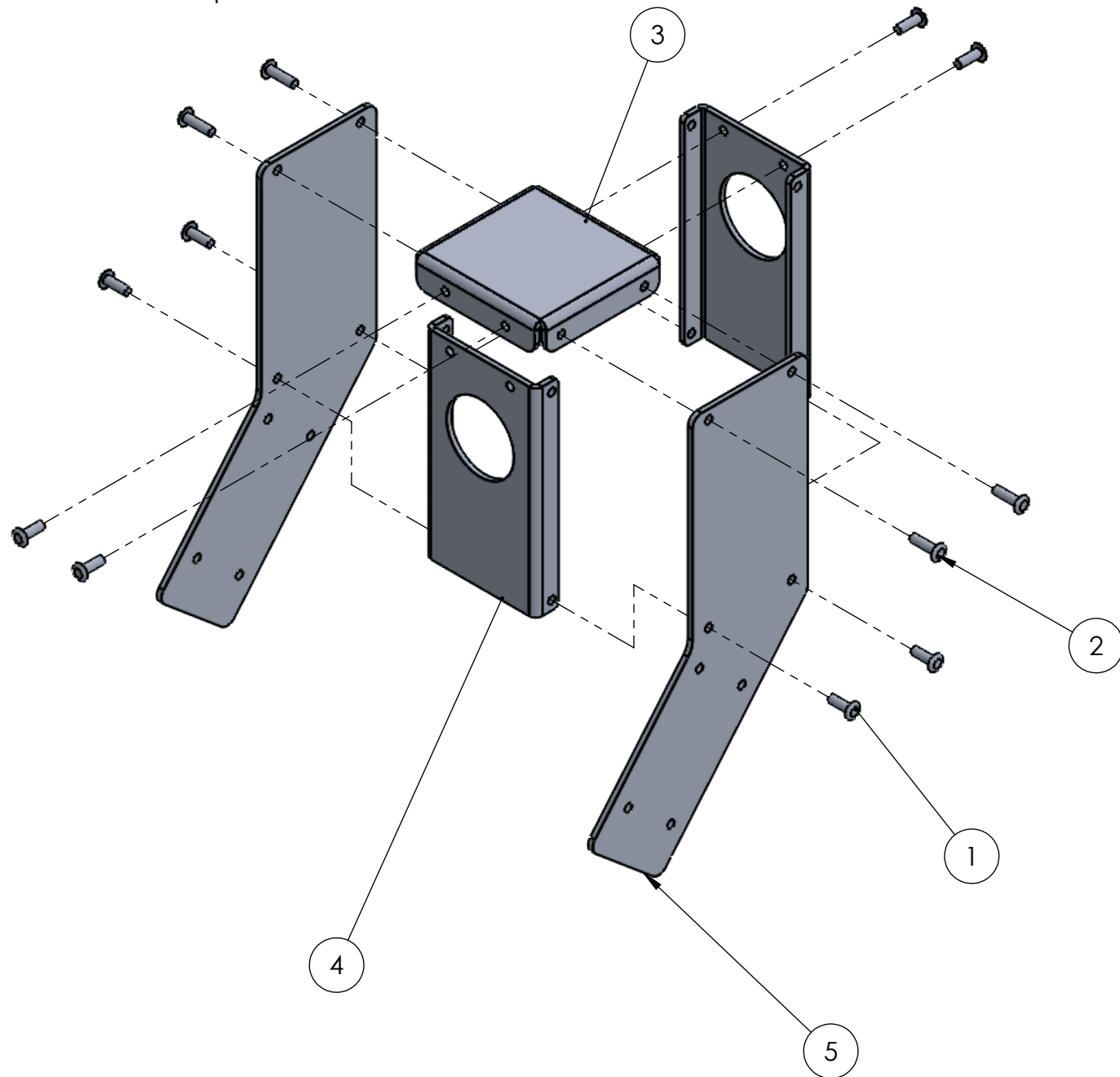
4

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Exploded View:



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	8
2	rivet_.1875_.376-.5	3/16" Aluminum Rivet, .376-.5 Grip Range	4
3	GE-20011 - 03	Hanger Brace - Pivot Pole Top Cap	1
4	GE-20011 - 04	Hanger Brace - Pivot Pole Holder	2
5	GE-20011 - 05	Hanger Brace - Pivot Pole Holder, Face	2

Notes:
 1. Rivets should be plated or aluminum.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Hanger Brace - Pivot Pole Holder Sub Assembly
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
GE-20011		Q.A.		WEIGHT: 1.46 LBS
NEXT ASSY	USED ON	COMMENTS:		
APPLICATION		DO NOT SCALE DRAWING		SIZE B DWG. NO. GE-20011 - 16 REV 0
		SCALE: 1:3 WEIGHT:		SHEET 1 OF 2

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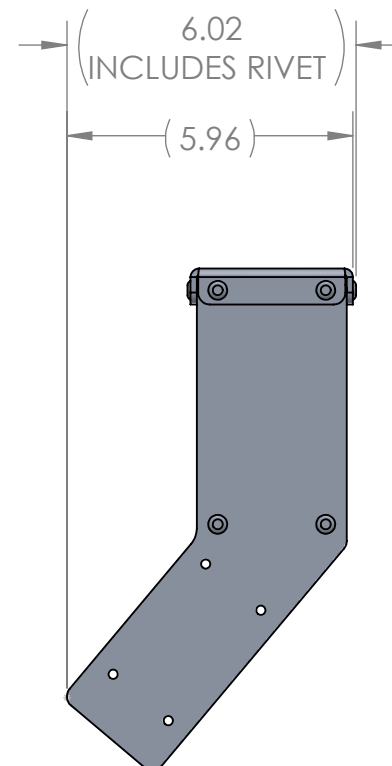
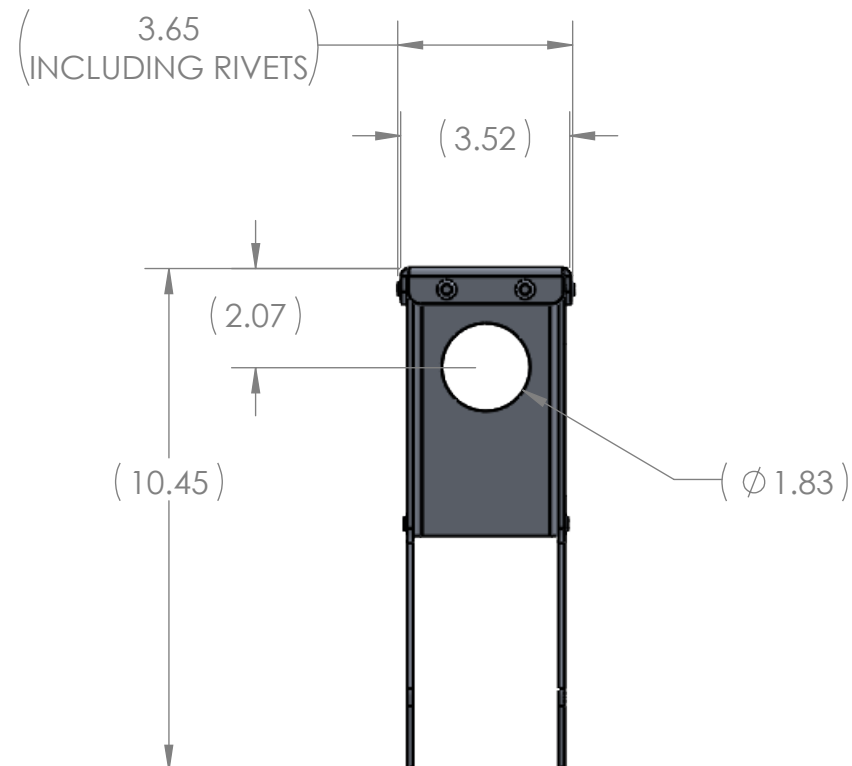
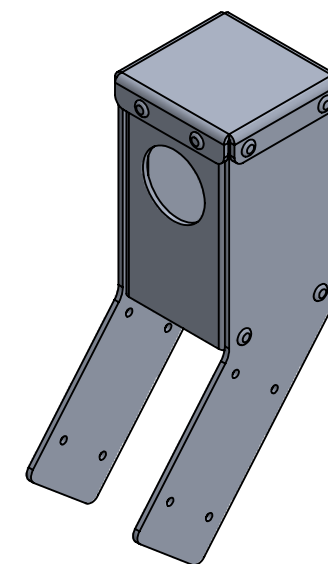
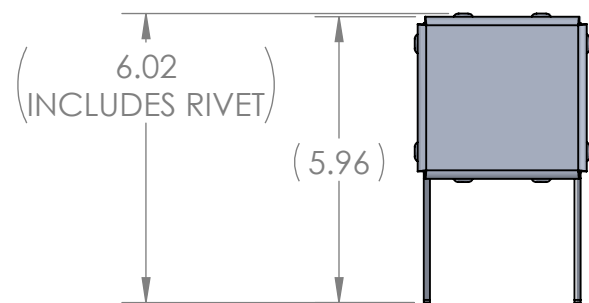
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DIMENSIONS SHOWN FOR REF.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		
GE-20011				WEIGHT SHOWN ON SHEET 1		
NEXT ASSY	USED ON	FINISH		BARE		
APPLICATION		DO NOT SCALE DRAWING				
				TITLE:		
				Hanger Brace - Pivot Pole Holder Sub Assembly		
SIZE	DWG. NO.	REV				
B	GE-20011 - 16	0				
SCALE: 1:4		WEIGHT:		SHEET 2 OF 2		

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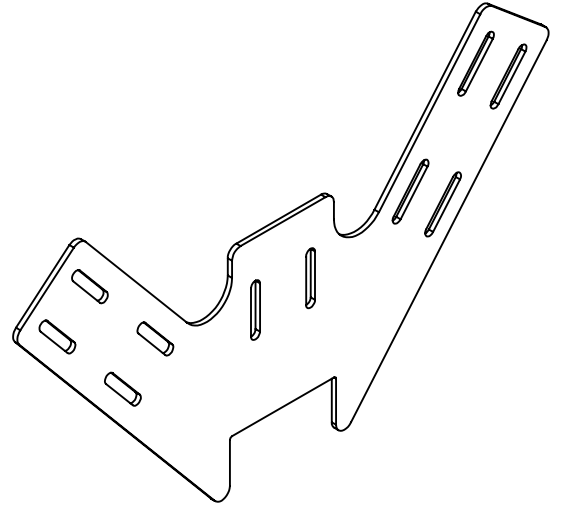
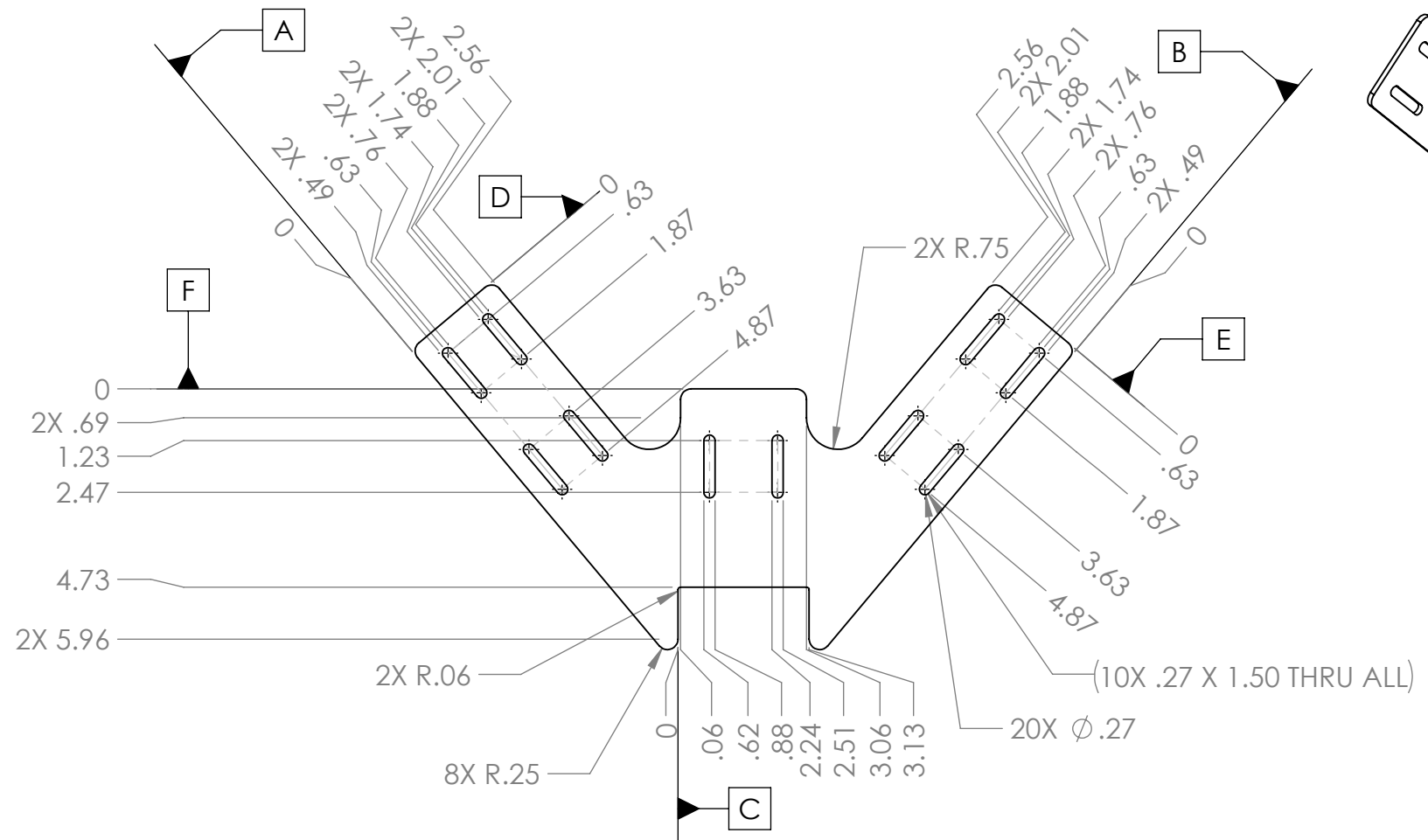
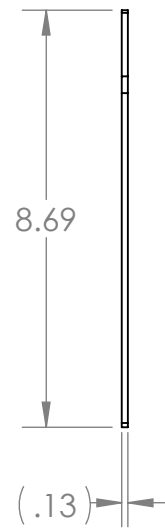
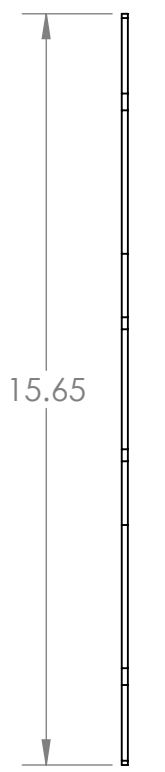
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	MINOR GEOMETRY CHANGES	9/17/2019	KAMC



B

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- Notes:
1. Material: 8 Ga. Aluminum Sheet
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	9/5/19
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		ALUMINUM SHEET		
		FINISH		
		BARE		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Hanger Brace - Mounting Plate

SIZE DWG. NO. REV
B GE-20012 A

SCALE: 1:4 WEIGHT: SHEET 1 OF 1

4

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2

1

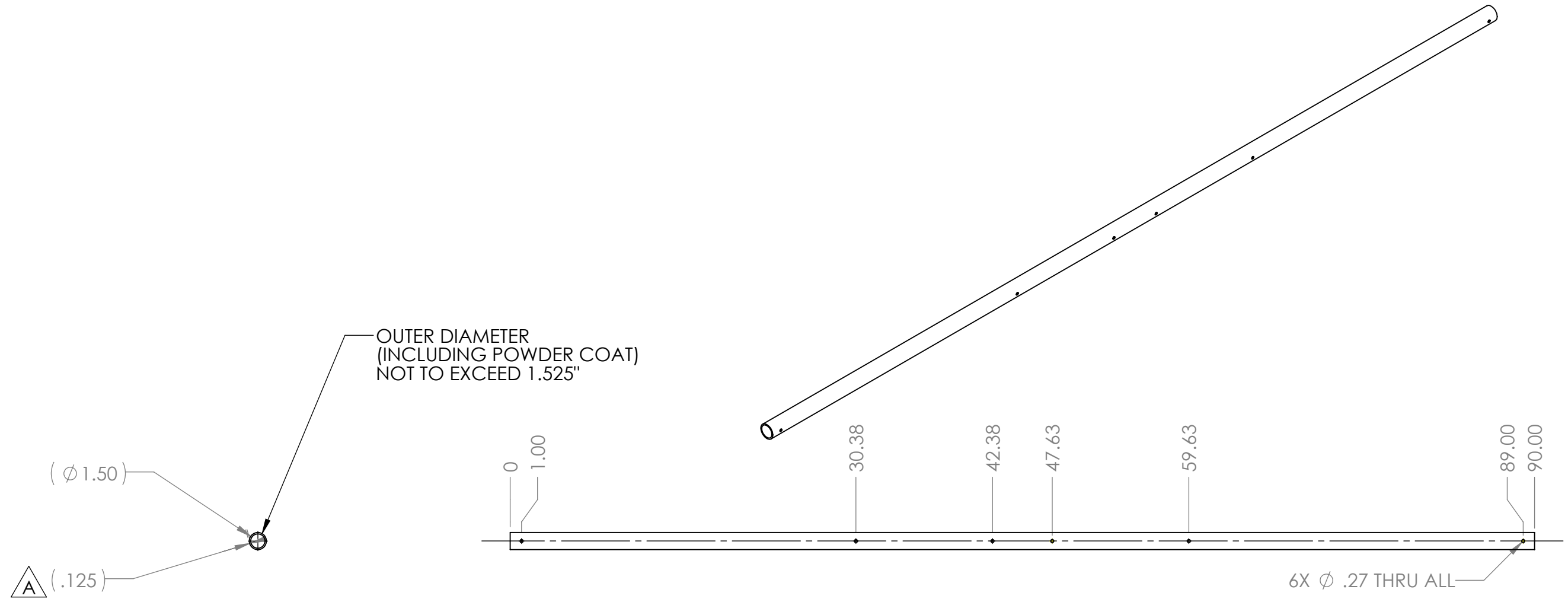
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A4	A	UPDATED WALL THICKNESS TO 0.125"	10/7/2019	KAMC

B

B

A

A



- Notes:
1. Material: 1.50" diameter x 0.125" wall, 1020 DOM A513 Round Tube
 2. Remove all burrs and sharp edges.
 3. Powder Coated Black.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	KAMC
		TOLERANCES:		CHECKED	
		FRACTIONAL ± 1/16		ENG APPR.	
		ANGULAR: MACH ± 1° BEND ± 1°		MFG APPR.	
		TWO PLACE DECIMAL ± .01		Q.A.	
		THREE PLACE DECIMAL ± .001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		ROUND TUBE			
		FINISH			
		POWDER COAT BLACK			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Hanger - Pivot Pole

SIZE	DWG. NO.	REV
B	GE-20013	A

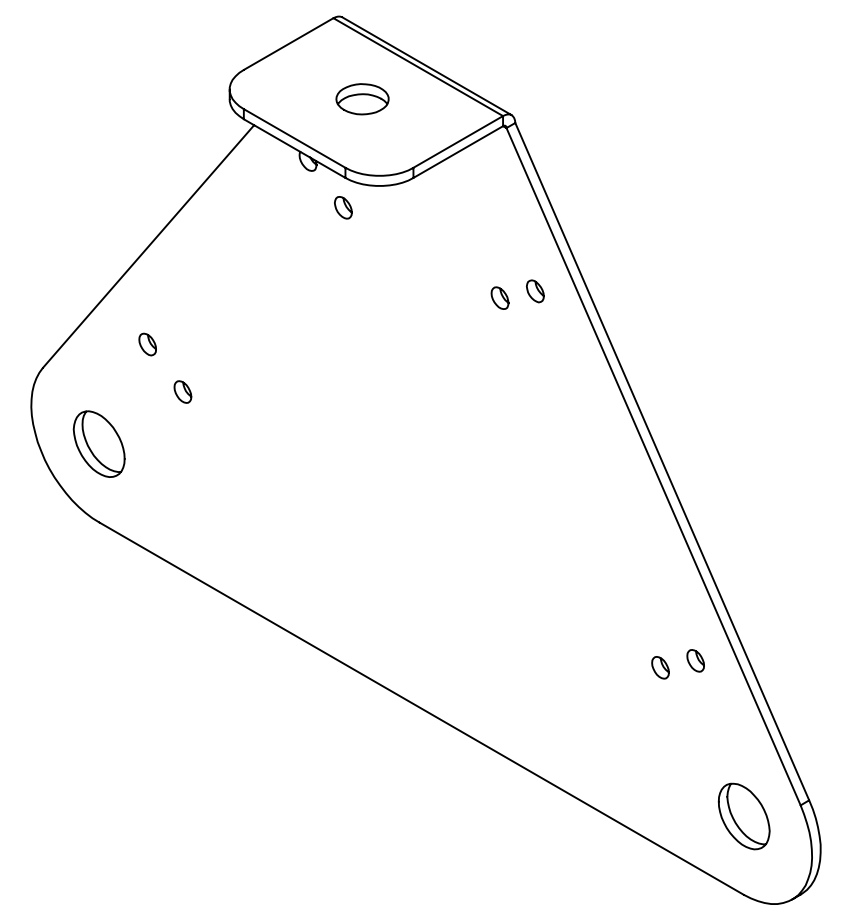
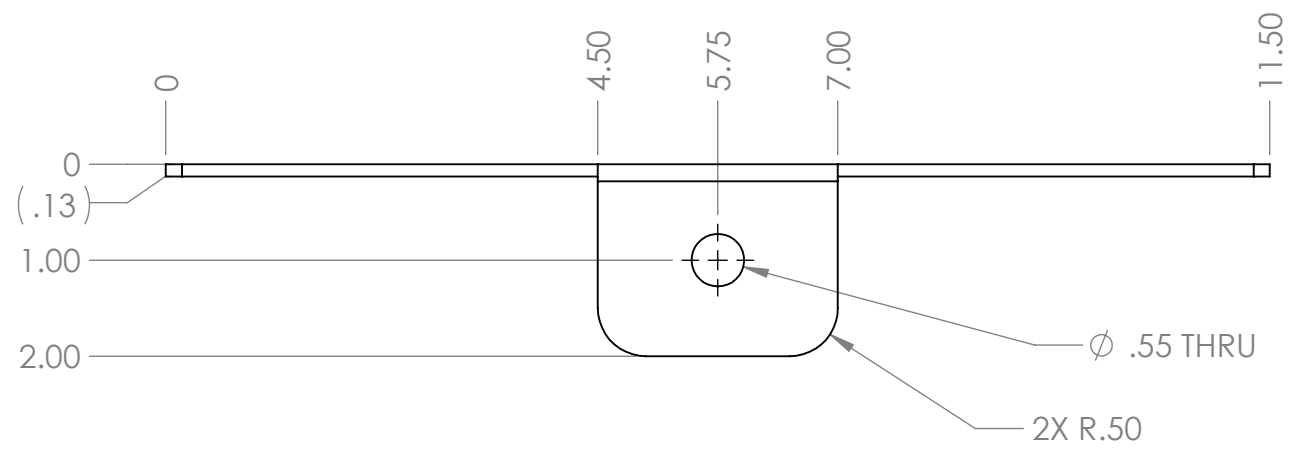
SCALE: 1:10 WEIGHT: SHEET 1 OF 1

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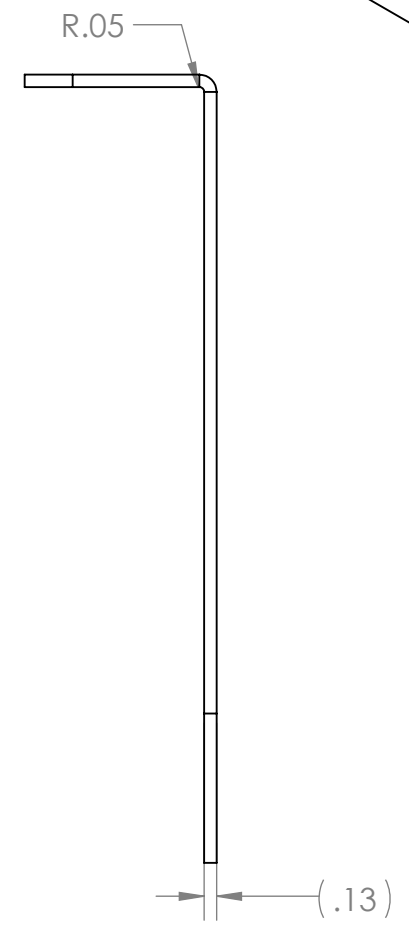
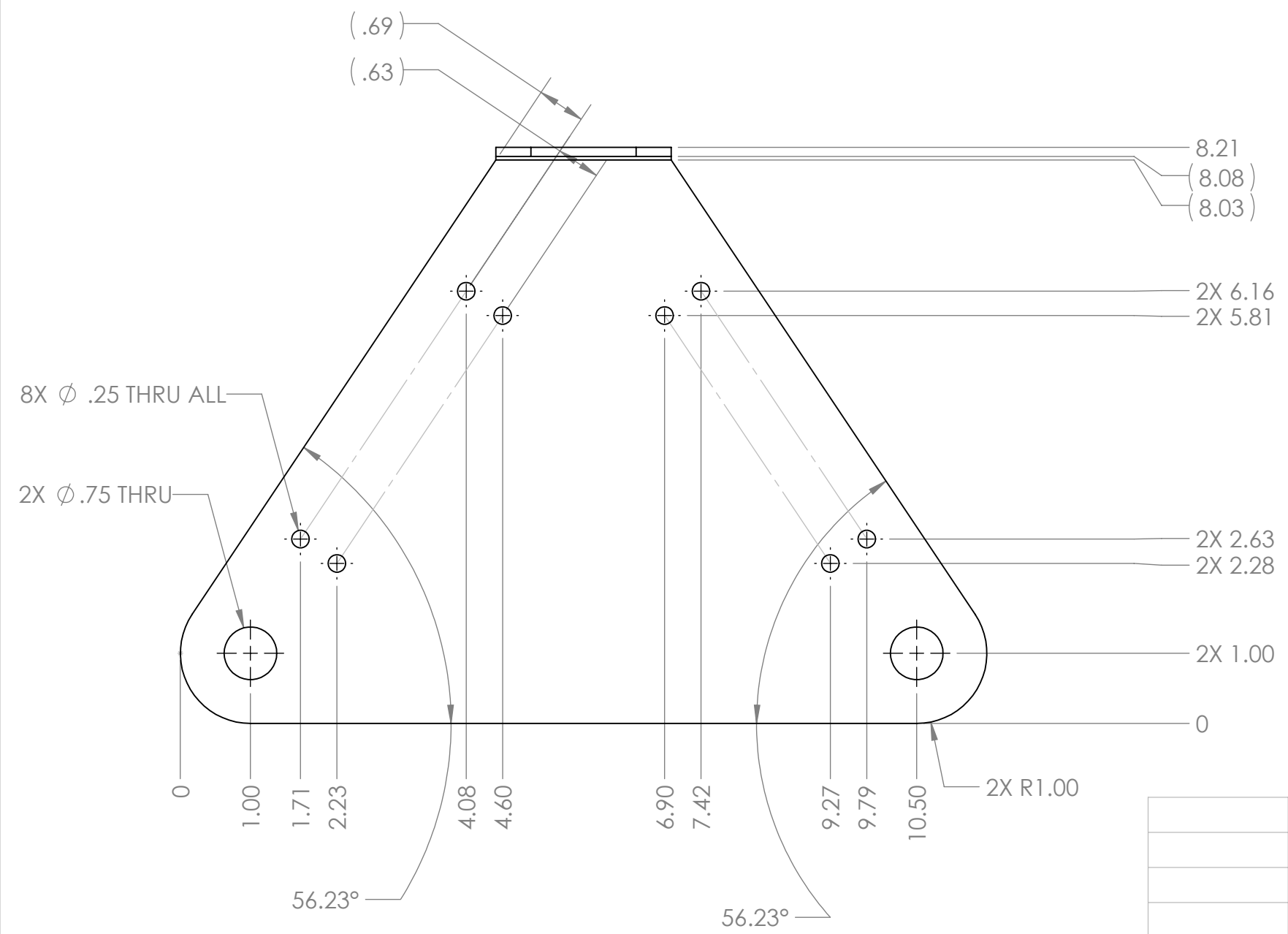
2

1



B

B



A

A

- Notes:
1. Material: 8 Ga. 5052 Aluminum Sheet
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	KAMC 9/5/19
		TOLERANCES:		CHECKED	
		FRACTIONAL: ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		ALUMINUM SHEET			
		FINISH			
		BARE			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			
TITLE:			FIRST ROBOTICS COMPETITION 3D SOLIDWORKS Modeling Solutions Partner		
Hanger - Sensor Mount					
SIZE	DWG. NO.	REV			
B	GE-20014				
SCALE: 1:2	WEIGHT:	SHEET 1 OF 1			

4

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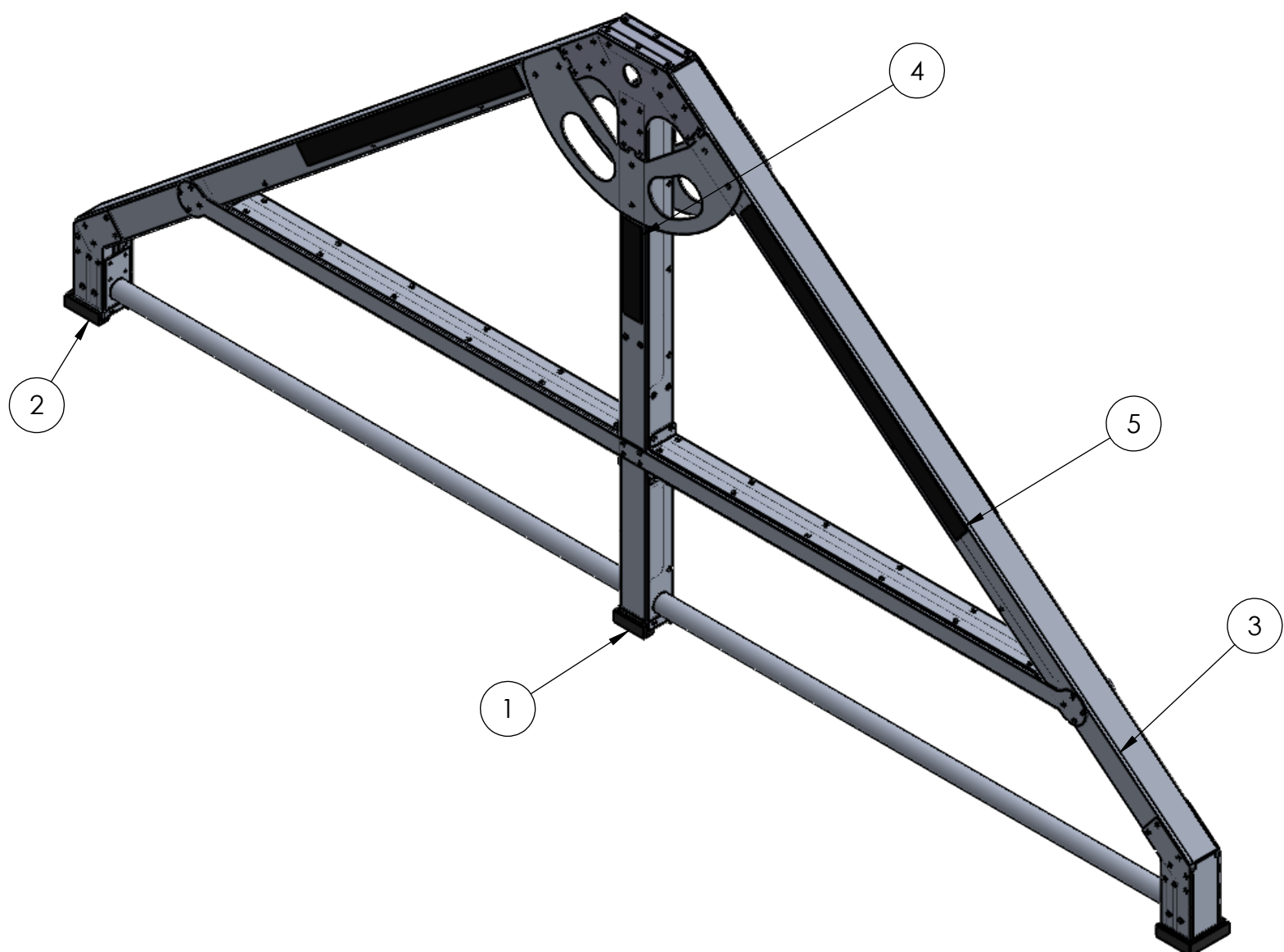
1

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3

2

1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20008	Foam Cushion for Generator Switch	1
2	GE-20008	Foam Cushion for Generator Switch	2
3	GE-20010	Hanger	1
4	Hook_2_9	Hook 2" x 9", Adhesive Backed	2
5	Hook_2_30	Hook 2" x 30", Adhesive Backed	4

UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Generator Switch with Hook and Corners
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	Q.A.		SIZE DWG. NO. REV B GE-20015
APPLICATION		COMMENTS:		SCALE: 1:12 WEIGHT: SHEET 1 OF 2
DO NOT SCALE DRAWING				

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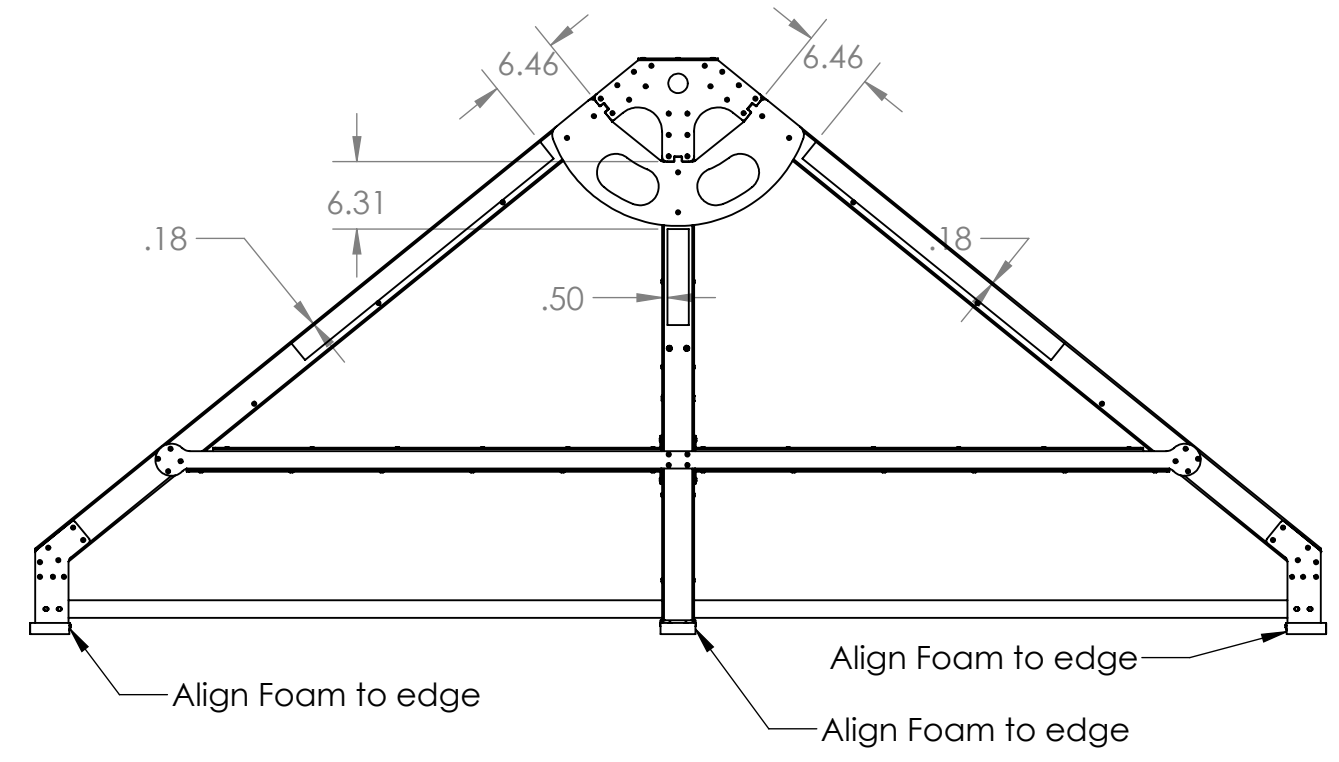
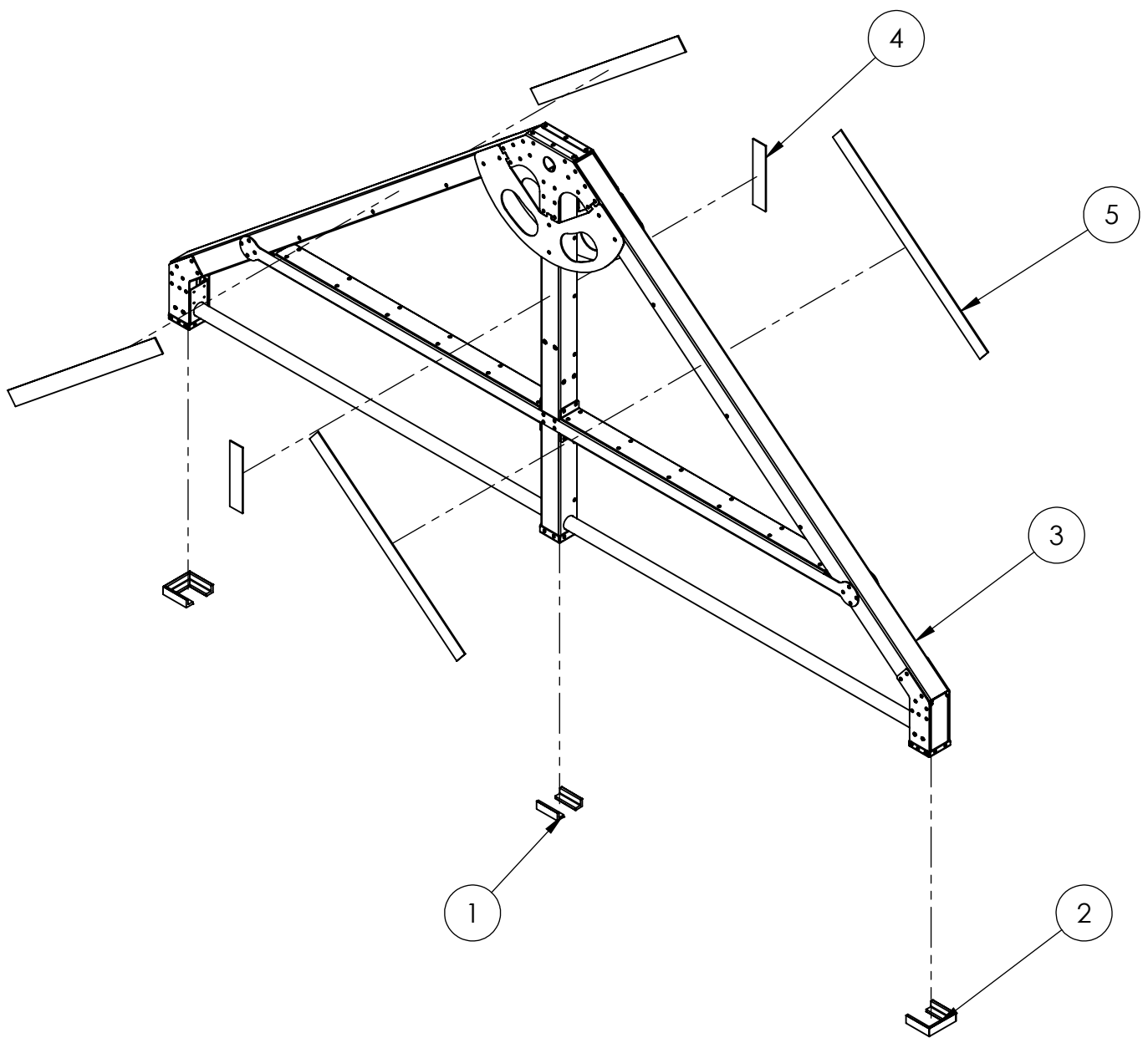
1

B

B



A

A



- Notes:
1. Make sure surface of GE-20010 is clean prior to hook and foam application.
 2. Press firmly on hook and foam to ensure adhesion.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE:
		MATERIAL		ENG APPR.		Generator Switch with Hook and Corners
		FINISH		MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON			Q.A.		B GE-20015
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		SCALE: 1:18 WEIGHT: SHEET 2 OF 2

4

3

2

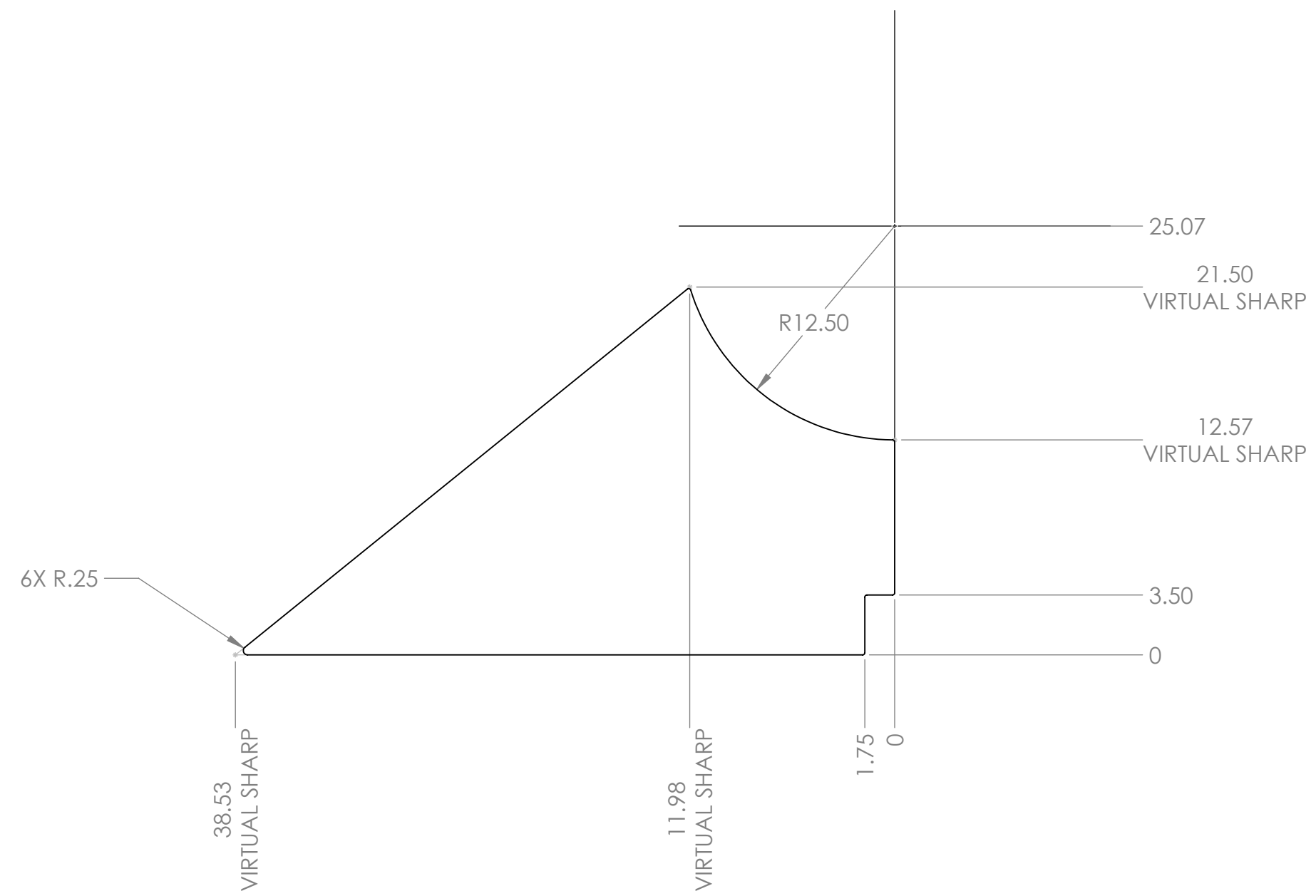
1

B

B



A

A



- Notes:
1. Material: 1/16" Polycarbonate, Clear
 2. Remove all burrs and sharp edges
 3. Tag or label with part number
 4. Finish: Bare - Vinyl will be applied to face, either side

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		DIMENSIONS ARE IN INCHES		DRAWN	KAMC		10/9/19
		TOLERANCES:		CHECKED			
		FRACTIONAL ±1/16		ENG APPR.			
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.			
		TWO PLACE DECIMAL ±.01		Q.A.			
		THREE PLACE DECIMAL ±.001		COMMENTS:			
GE-20018		INTERPRET GEOMETRIC TOLERANCING PER:				Generator Switch Plastic TITLE:	
GE-20017		MATERIAL		POLYCARB			SIZE B DWG. NO. GE-20016 REV 0
NEXT ASSY	USED ON	FINISH		BARE			SCALE: 1:8 WEIGHT: SHEET 1 OF 1
APPLICATION		DO NOT SCALE DRAWING					

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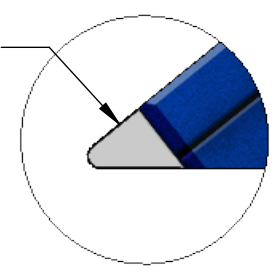
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3

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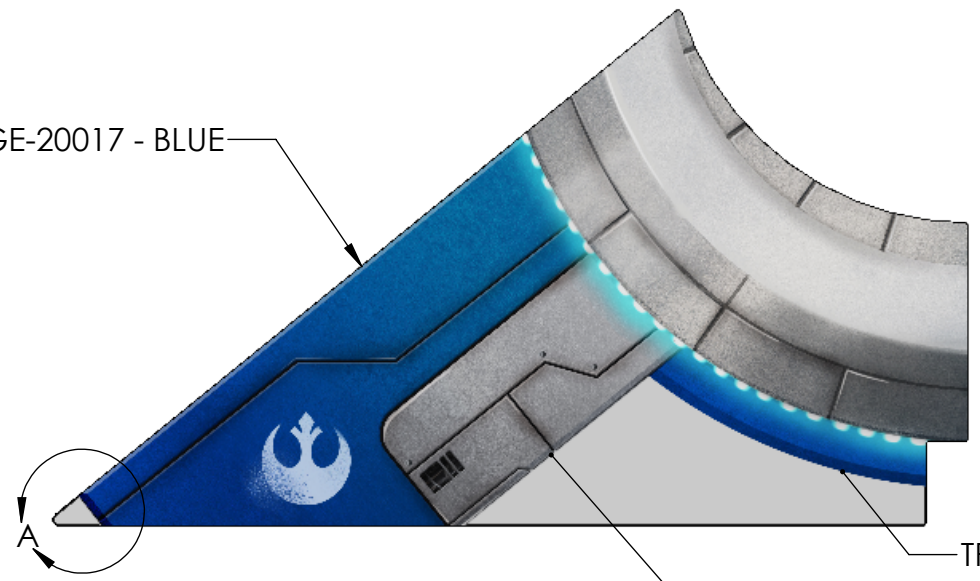
1

TRIM VINYL
(RED AND BLUE)



DETAIL A
SCALE 1 : 4

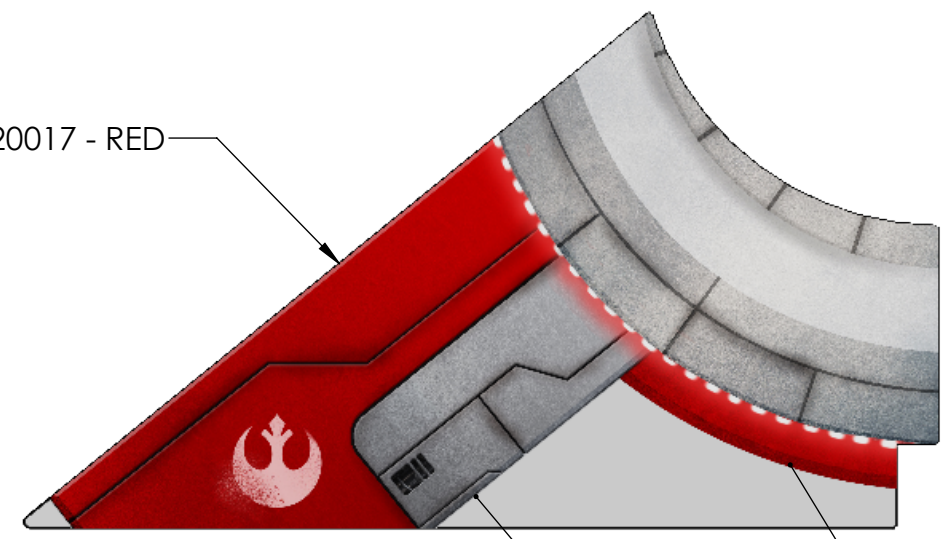
GE-20017 - BLUE



TRIM VINYL

TRIM VINYL

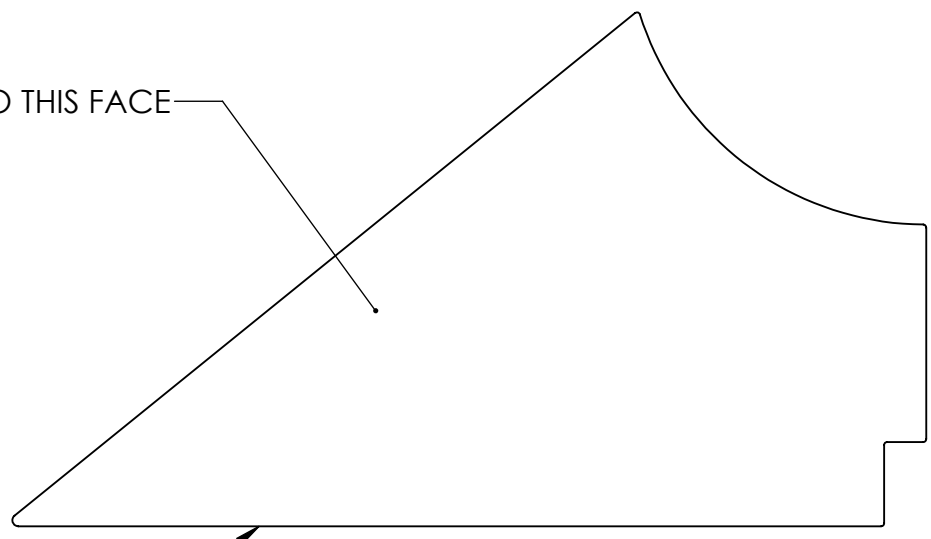
GE-20017 - RED



TRIM VINYL

TRIM VINYL

VINYL APPLIED TO THIS FACE



GE-20016

B

B



A

A

Notes:
1. Tag or label with part number

Color Variations		
Part Number	Vinyl Image	Qty per Field
GE-20017 - Blue	GE-20017 - Blue - Vinyl	2
GE-20017 - Red	GE-20017 - Red - Vinyl	2

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Generator Switch Vinyl Plastic_ Left - with vinyl
		ENG APPR.		
MATERIAL		MFG APPR.		SIZE DWG. NO. REV
		Q.A.		B GE-20017 0
FINISH VINYL		COMMENTS:		SCALE: 1:8 WEIGHT: SHEET 1 OF 1
APPLICATION	DO NOT SCALE DRAWING			

4

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2

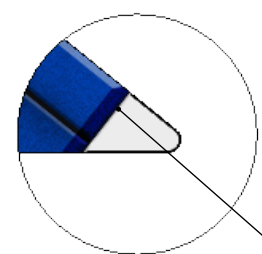
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4

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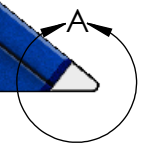
DETAIL A
SCALE 1 : 4

TRIM VINYL
(RED AND BLUE)

GE-20018 - BLUE

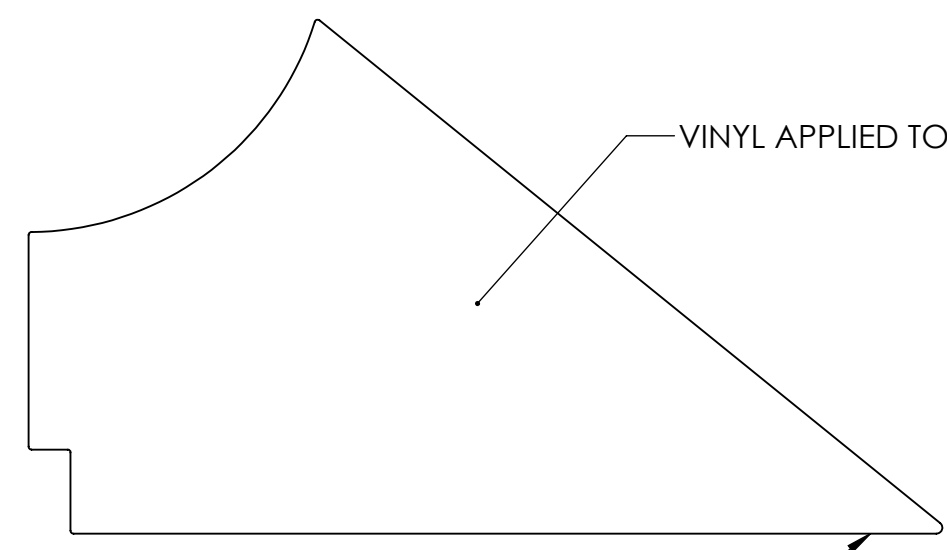
TRIM VINYL

TRIM VINYL



B

B



VINYL APPLIED TO THIS FACE

GE-20016

GE-20018 - RED

TRIM VINYL

TRIM VINYL

A

A

Notes:
1. Tag or label with part number

Color Variations		
Part Number	Vinyl Image	Qty per Field
GE-20018 - Blue	GE-20018 - Blue - Vinyl	2
GE-20018 - Red	GE-20018 - Red - Vinyl	2

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		DIMENSIONS ARE IN INCHES		DRAWN	KAMC 10/25/19
		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
GE-20024		MATERIAL			
NEXT ASSY		FINISH			
		USED ON			
APPLICATION		DO NOT SCALE DRAWING			



TITLE:
**Generator Switch Vinyl
Plastic_Right - with vinyl**

SIZE	DWG. NO.	REV
B	GE-20018	0
SCALE: 1:8	WEIGHT:	SHEET 1 OF 1

4

3

2

1

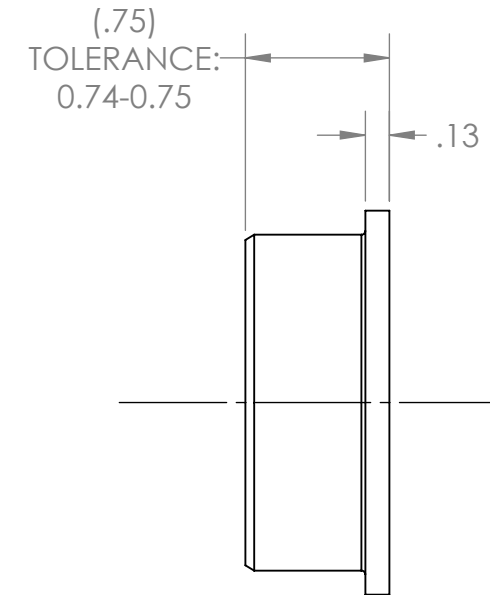
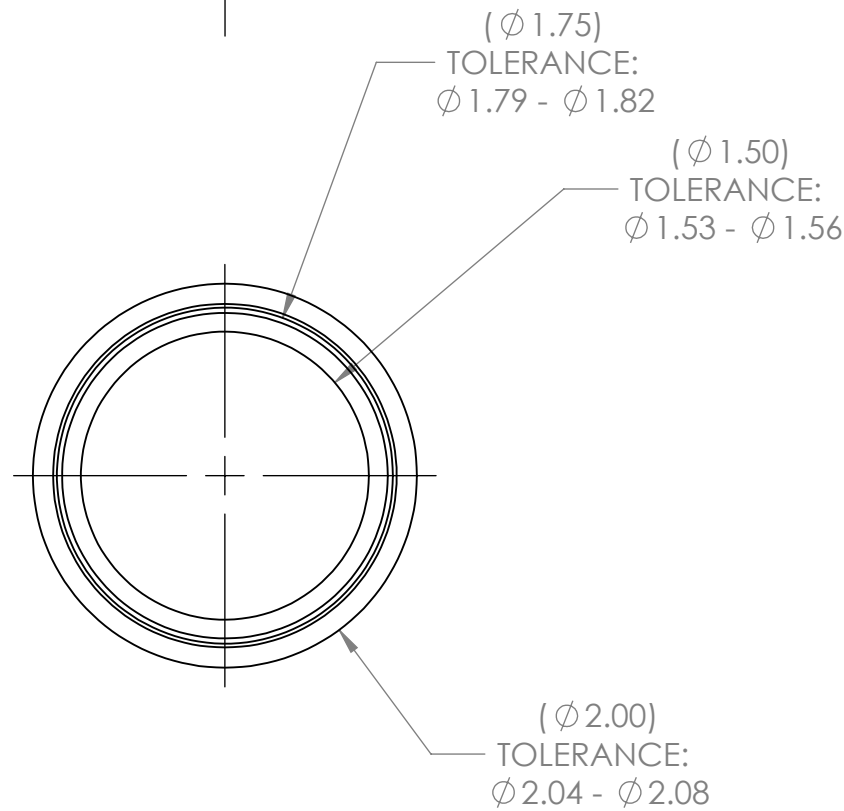
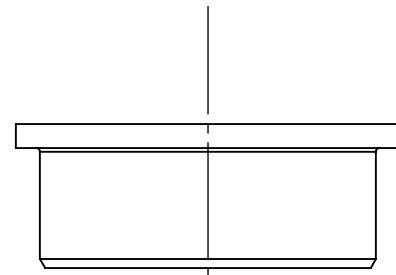
4

3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Updated Notes	10/29/2019	KAMC



DESCRIPTION: IGLIDE M250 FLANGE BEARING - INCH



VENDOR: IGUS

PART NUMBER: MFI-2428-12

NOTE: SUBSTITUTIONS NOT ALLOWED



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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Pivot Pole to Generator Switch Bearing
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	Q.A.		SIZE DWG. NO. REV B GE-20021 A
APPLICATION		COMMENTS:		
DO NOT SCALE DRAWING		SCALE: 1:1	WEIGHT:	SHEET 1 OF 1

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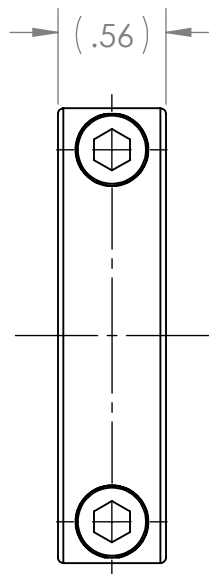
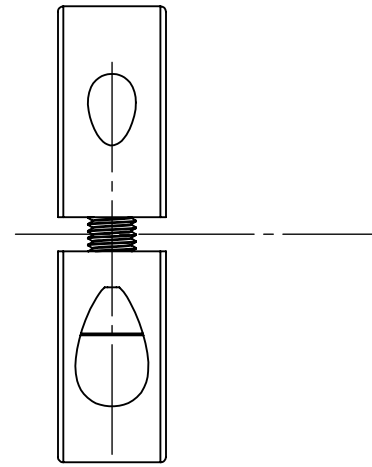
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3

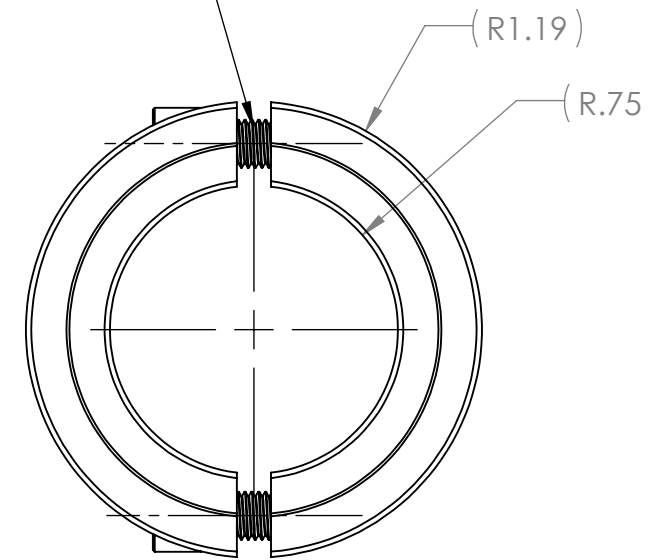
2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Updated Notes.	10/29/2019	KAMC



2X FORGED CLAMP SCREWS
1/4-28
HEX WRENCH SIZE: 3/16"





DESCRIPTION: TWO-PIECE SHAFT COLLAR, BLACK OXIDE STEEL, CLAMP STYLE

VENDOR: RULAND

PART NUMBER: SP-24-F

NOTE: EQUIVALENT SUBSTITUTIONS ALLOWED 

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 	
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN	KAMC		10/25/19
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED			TITLE:
		MATERIAL	ENG APPR.			Pivot Pole to Generator Switch Shaft Collar
		FINISH	MFG APPR.			SIZE DWG. NO. REV
NEXT ASSY	USED ON		Q.A.			B GE-20022 A
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:			SCALE: 1:1 WEIGHT: SHEET 1 OF 1

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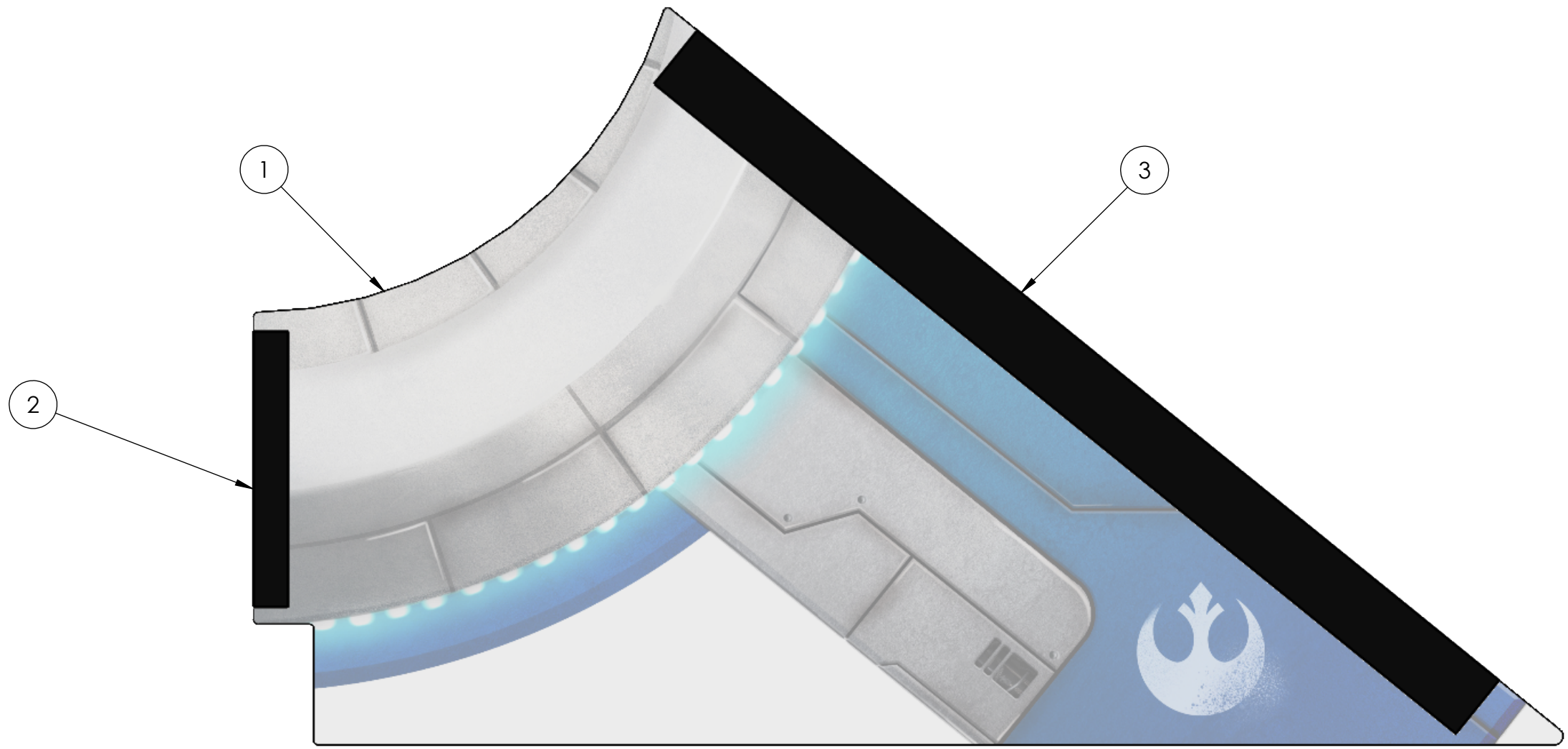
3

2

1

B

B



A

A

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20017-Blue	Generator Switch Vinyl Plastic_ Left - with vinyl	1
2	Loop_1_8	1" x 8" Loop, Adhesive Backed	1
3	Loop_2_30	2" x 30" Loop, Adhesive Backed	1

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	KAMC 12/18/19
TOLERANCES:		CHECKED	
FRACTIONAL ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:	MATERIAL		
FINISH			
NEXT ASSY	USED ON		
APPLICATION	DO NOT SCALE DRAWING		



TITLE:		
Generator Switch Vinyl Left _ With Loop		
SIZE	DWG. NO.	REV
B	GE-20023	
SCALE: 1:4	WEIGHT:	SHEET 1 OF 2

4

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2

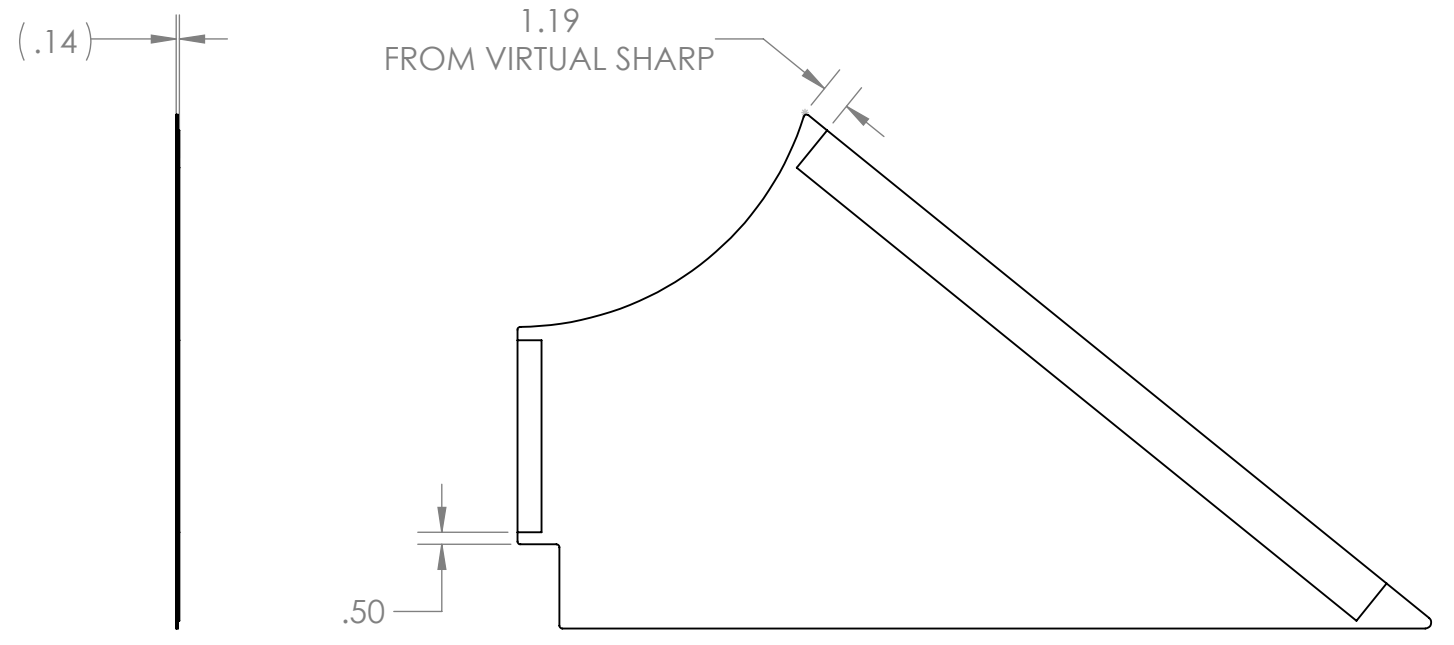
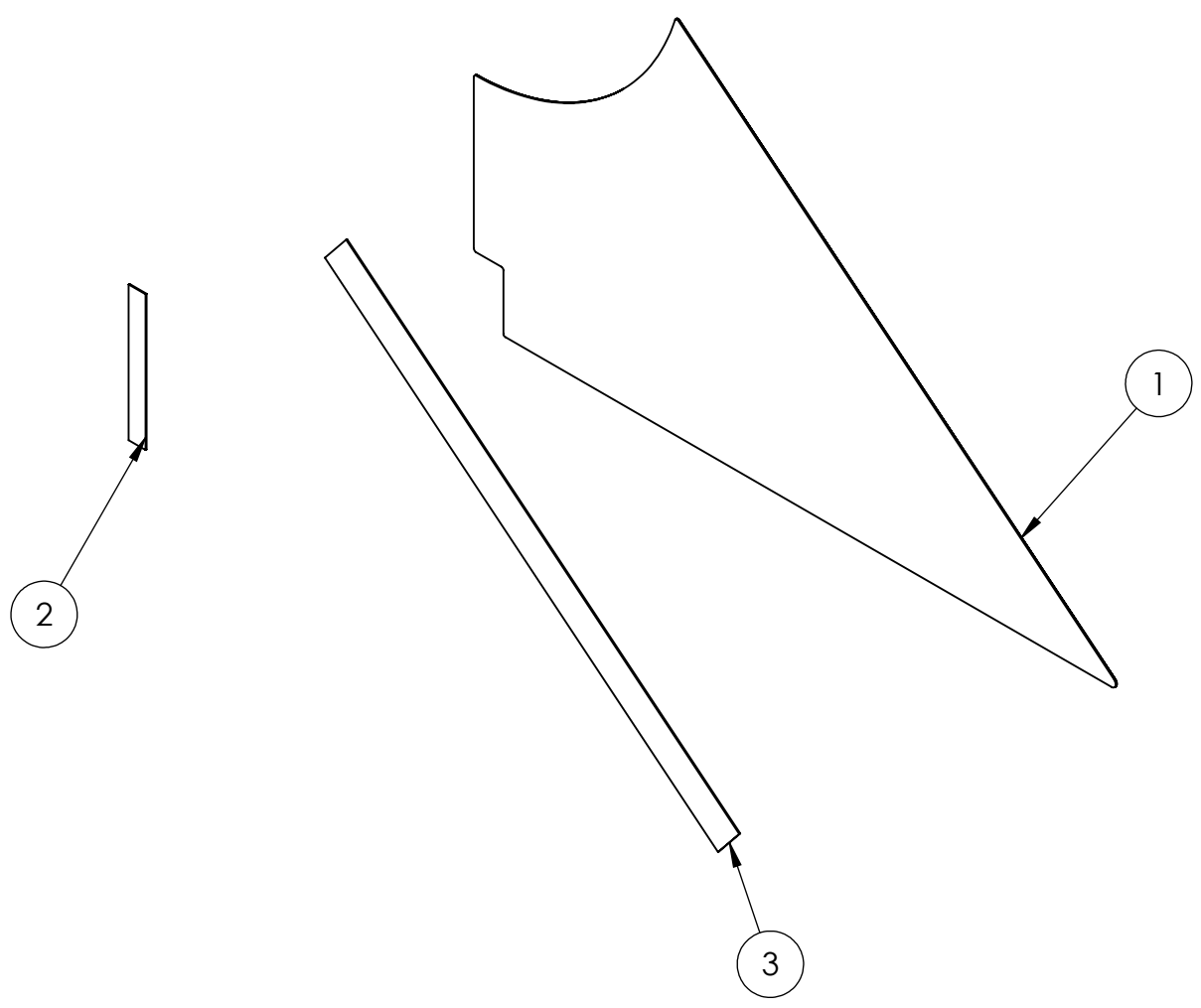
1

B

B



A

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- Notes:
1. Make sure non-vinyl surface of GE-20017 is clean prior to loop application.
 2. Press firmly on loop to ensure adhesion.

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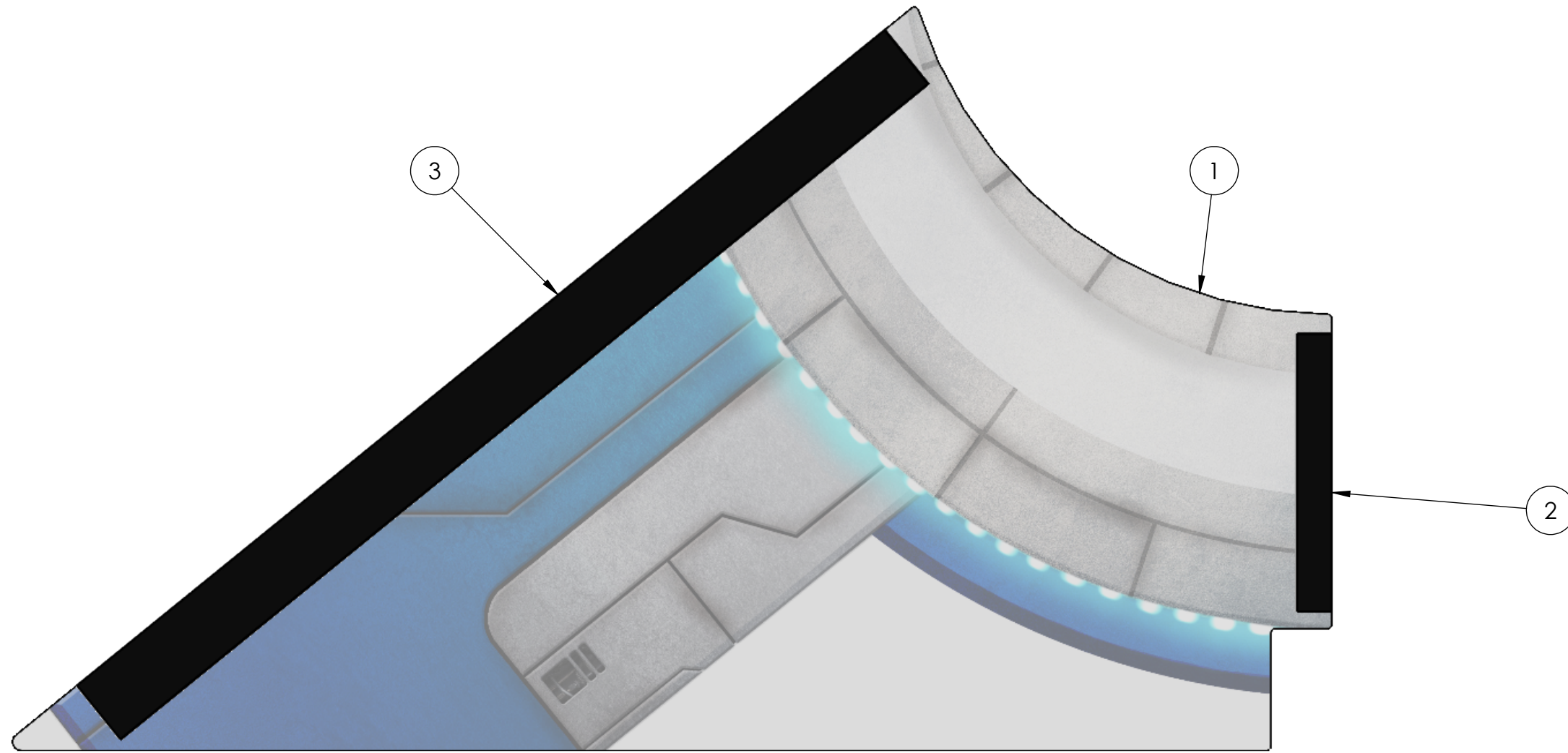
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				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		
				INTERPRET GEOMETRIC TOLERANCING PER:		
				MATERIAL		
				FINISH		
NEXT ASSY	USED ON					
APPLICATION		DO NOT SCALE DRAWING				
				TITLE:		
				Generator Switch Vinyl Left _ With Loop		
SIZE	DWG. NO.			REV		
B	GE-20023					
SCALE: 1:8		WEIGHT:		SHEET 2 OF 2		

4

3



2

1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20018-Blue	Generator Switch Vinyl Plastic_Right - with vinyl	1
2	Loop_1_8	1" x 8" Loop, Adhesive Backed	1
3	Loop_2_30	2" x 30" Loop, Adhesive Backed	1

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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	Q.A.		
APPLICATION		COMMENTS:		
DO NOT SCALE DRAWING		TITLE: Generator Switch Vinyl Right _ With Loop		
		SIZE	DWG. NO.	REV
		B	GE-20024	
		SCALE: 1:4	WEIGHT:	SHEET 1 OF 2

4

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2

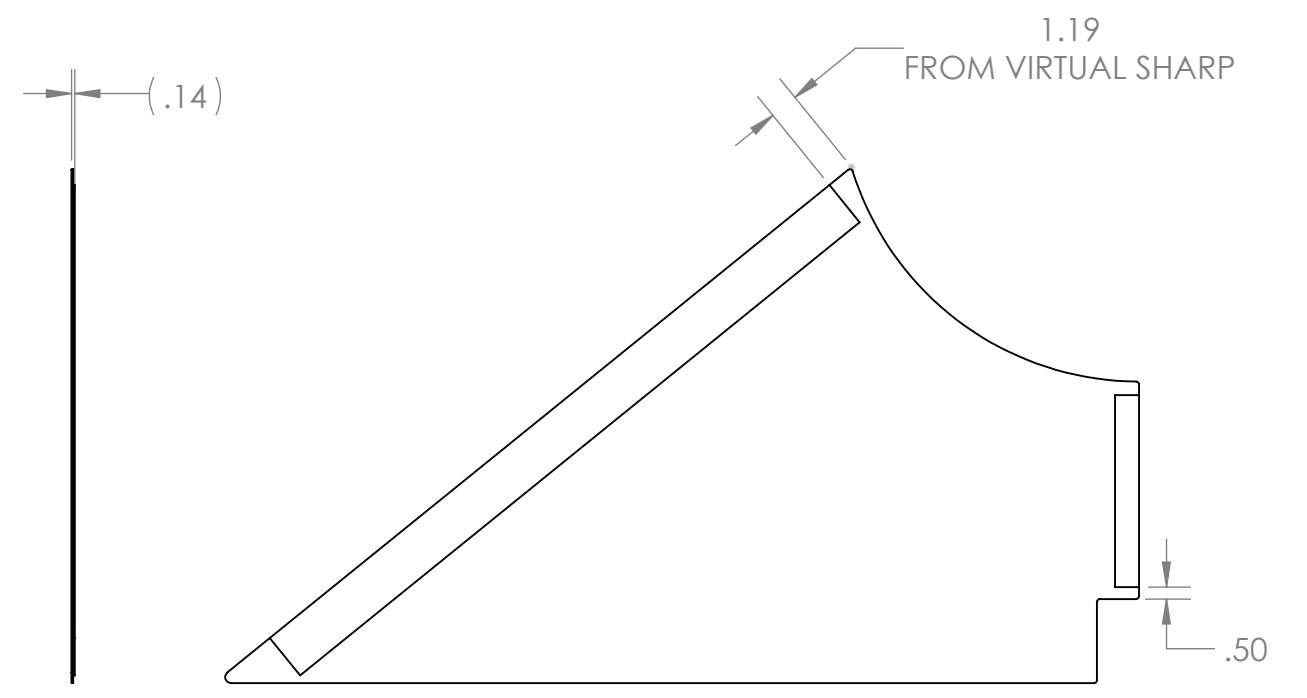
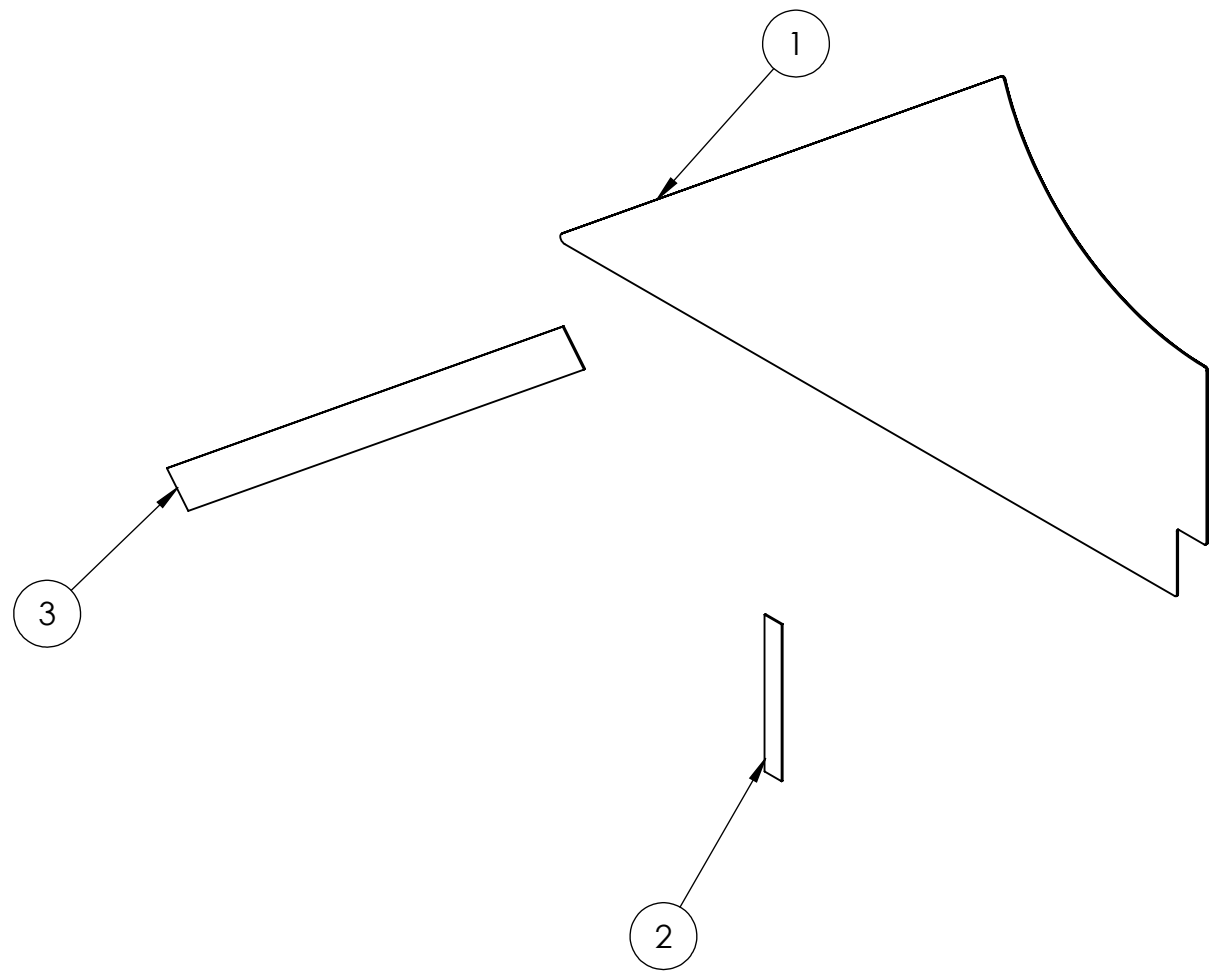
1

B

B



A

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- Notes:
1. Make sure non-vinyl surface of GE-20018 is clean prior to loop application.
 2. Press firmly on loop to ensure adhesion.

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
		MATERIAL		ENG APPR.		
		FINISH		MFG APPR.		
NEXT ASSY	USED ON			Q.A.		
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		
				TITLE:		
				Generator Switch Vinyl Right _ With Loop		
SIZE	DWG. NO.	REV				
B	GE-20024					
SCALE: 1:8		WEIGHT:		SHEET 2 OF 2		

4

3

2

1

4

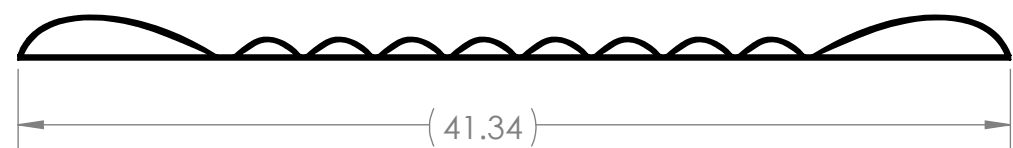
3

2

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B

B



A

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DESCRIPTION: SAFETY DAISY CHAINS, BEARING CAPACITY 23 KN, GREY

VENDOR: KIKIGOAL VIA AMAZON

PART NUMBER: B072Z87DD5

NOTE: SUBSTITUTIONS NOT ALLOWED

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
		MATERIAL		ENG APPR.		
		FINISH		MFG APPR.		
NEXT ASSY	USED ON	NYLON		Q.A.		
APPLICATION		GREY		COMMENTS:		
		DO NOT SCALE DRAWING				
			TITLE:		Generator Switch Lock Out - Daisy Chain	
SIZE	DWG. NO.	REV				
B	GE-20026					
SCALE: 1:8		WEIGHT:		SHEET 1 OF 1		

4

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2

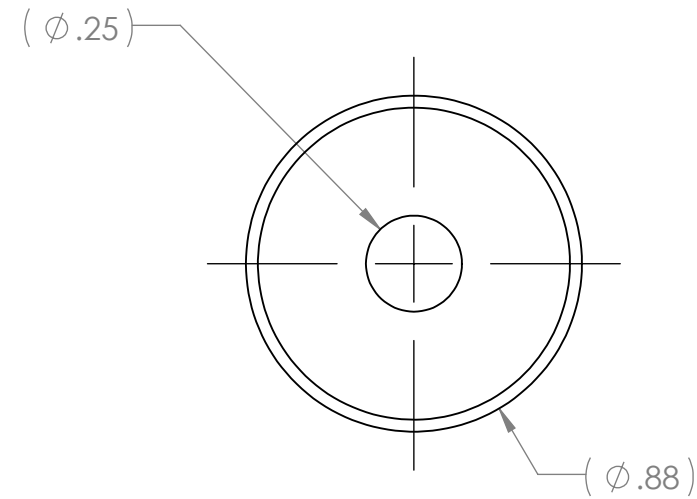
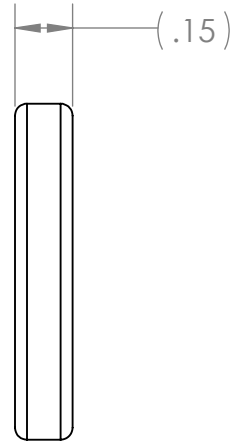
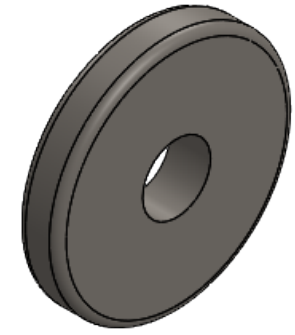
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DESCRIPTION: NEODYMIUM LATCH MAGNET

VENDOR: MASTER MAGNETICS, INC. - MAGNET SOURCE

PART NUMBER: NMLKIT4

- NOTE:**
1. SUBSTITUTIONS NOT ALLOWED
 2. MAGNET MUST BE INSTALLED INTO HOUSING
 3. DIMENSIONS SHOWN ARE FOR MAGNET + HOUSING ASSEMBLY

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
		MATERIAL		ENG APPR.		
		NEODYMIUM		MFG APPR.		
		FINISH		Q.A.		
		BARE		COMMENTS:		
NEXT ASSY	USED ON					
APPLICATION		DO NOT SCALE DRAWING				
				TITLE:		
				Generator Switch Lock Out - Magnet		
SIZE	DWG. NO.			REV		
B	GE-20027					
SCALE: 2:1		WEIGHT:		SHEET 1 OF 1		

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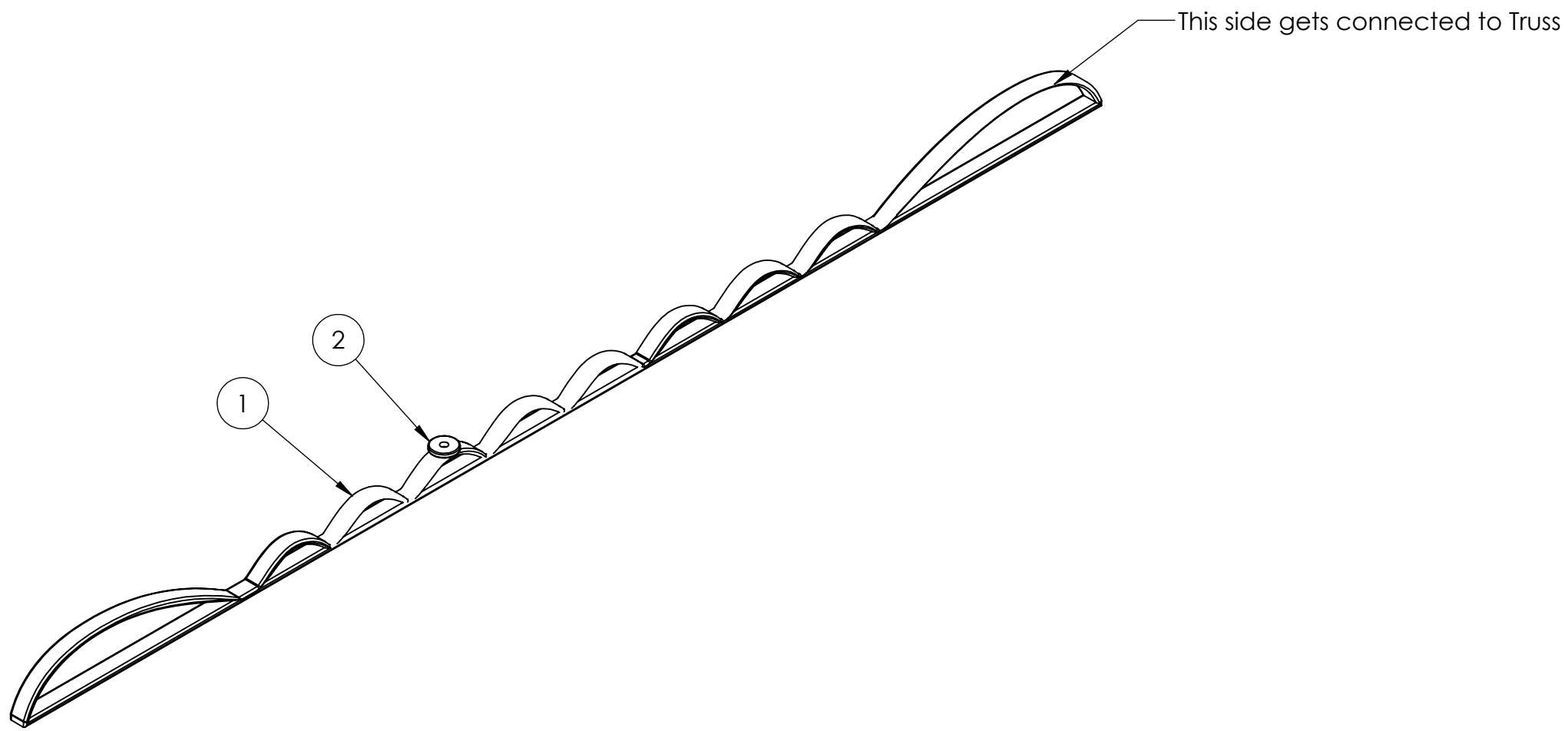
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This side gets connected to Truss

①



②

Notes:

1. Attach ② to ① where shown, using 2x 18 lb. cable ties. Cable tie heads should be inside Daisy Chain (i.e. not showing).

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20026	Generator Switch Lock Out - Daisy Chain	1
2	GE-20027	Generator Switch Lock Out - Magnet	1

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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Generator Switch Lock Out - Field Attachment
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	Q.A.		SIZE DWG. NO. REV B GE-20028
APPLICATION		COMMENTS:		SCALE: 1:4 WEIGHT: SHEET 1 OF 2
DO NOT SCALE DRAWING				

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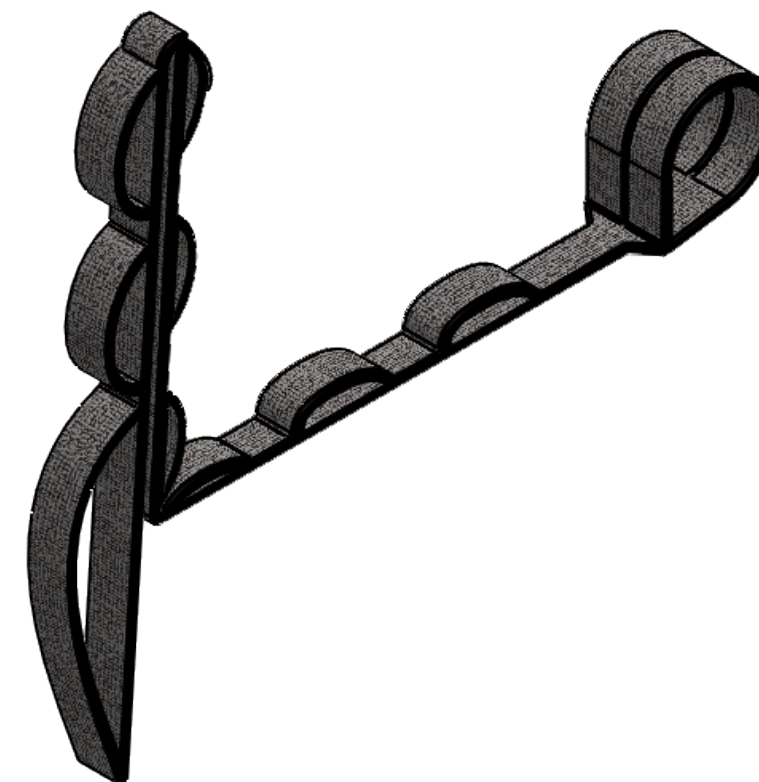
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INSTALLED CONFIGURATION

May wrap over truss or hang down, as shown

Magnet sticks to Hard Stop

Wraps around truss



Note: See GE-21000 for installation information & lengths relative to the Truss

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	2/5/2020
		FRACTIONAL: $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		



TITLE: Generator Switch Lock Out - Field Attachment

SIZE DWG. NO. REV
B GE-20028

SCALE: 1:3 WEIGHT: SHEET 2 OF 2

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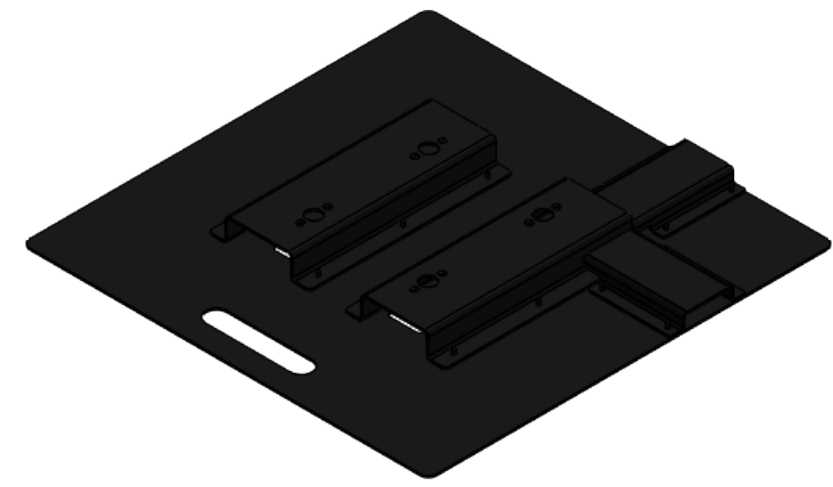
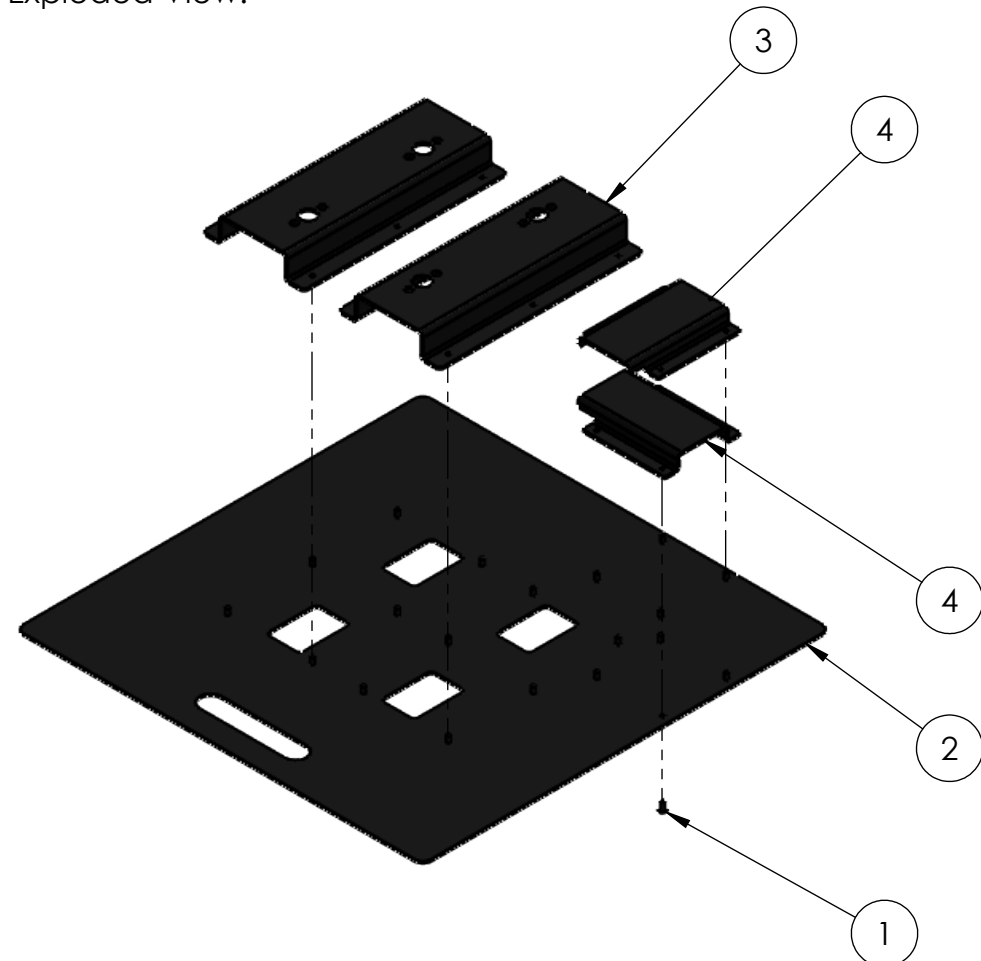
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Exploded View:



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	rivet_.1875_.126-.25	3/16" Rivet, .126-.25 Grip Range	20
2	GE-20030 - 01	Truss Base - Sheet Metal Assembly, Base Plate	1
3	GE-20030 - 02	Truss Base - Sheet Metal Assembly, Truss Feet	2
4	GE-20030 - 03	Truss Base - Sheet Metal Assembly, Berm - Red	2

- Notes:
1. Rivets should be plated or stainless steel
 2. Tag or label with part number.
 3. Powder Coated Black (Full Assembly).

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES		DRAWN	KAMC	
TOLERANCES:		CHECKED		
FRACTIONAL ±1/16		ENG APPR.		
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.		
TWO PLACE DECIMAL ±.01		Q.A.		
THREE PLACE DECIMAL ±.001		COMMENTS:	WEIGHT: 24.93 LBS	
INTERPRET GEOMETRIC TOLERANCING PER:		TITLE: Truss Base - Sheet Metal Assembly		
MATERIAL		SIZE DWG. NO. REV B GE-20030 0		
NEXT ASSY	USED ON	SCALE: 1:8 WEIGHT:		SHEET 1 OF 2
APPLICATION		DO NOT SCALE DRAWING		

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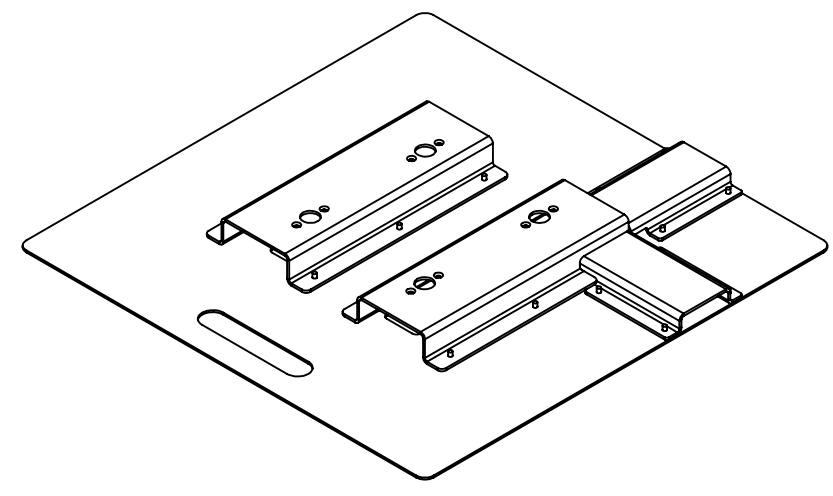
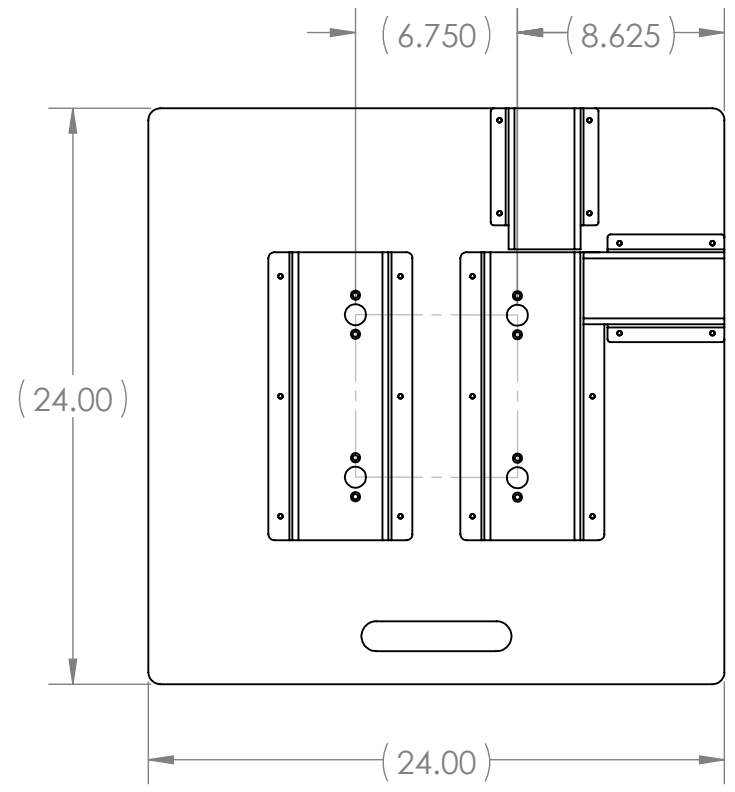
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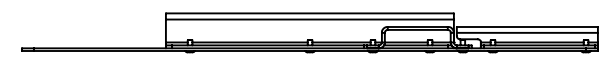
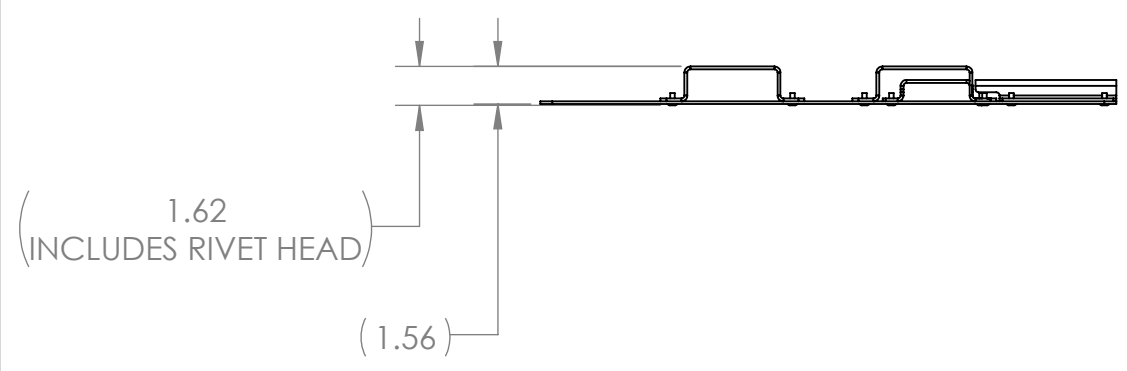


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DIMENSIONS SHOWN FOR REFERENCE

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 	
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC	9/2/19	TITLE:
		TOLERANCES:	CHECKED			Truss Base - Sheet Metal Assembly
		FRACTIONAL: ±1/16	ENG APPR.			SIZE DWG. NO. REV
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.			B GE-20030 0
		TWO PLACE DECIMAL ±.01	Q.A.			SCALE: 1:8 WEIGHT: SHEET 2 OF 2
		THREE PLACE DECIMAL ±.001	COMMENTS:	WEIGHT: 24.93 LBS		
		INTERPRET GEOMETRIC TOLERANCING PER:				
		MATERIAL				
NEXT ASSY	USED ON	FINISH POWDER COAT BLACK				
APPLICATION		DO NOT SCALE DRAWING				

4

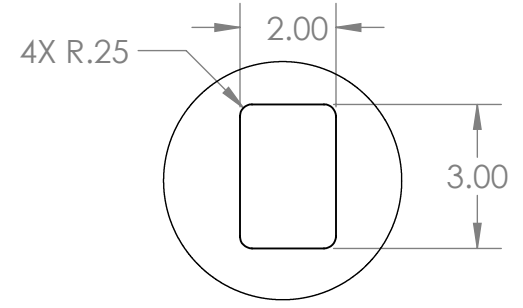
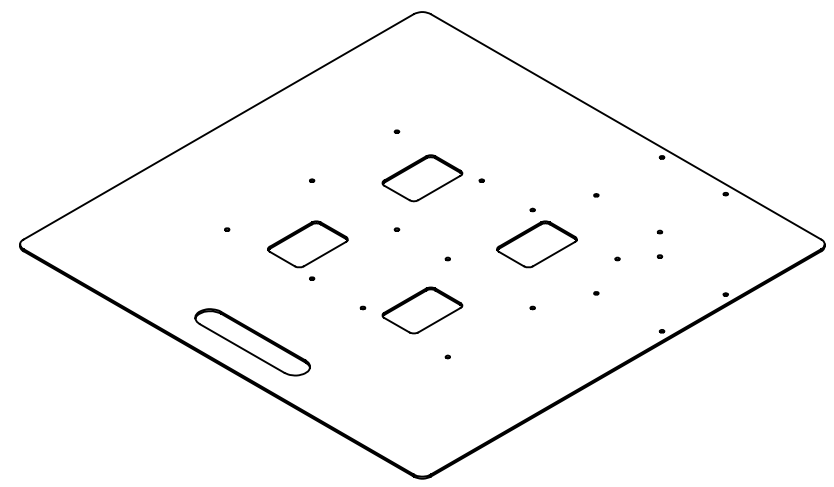
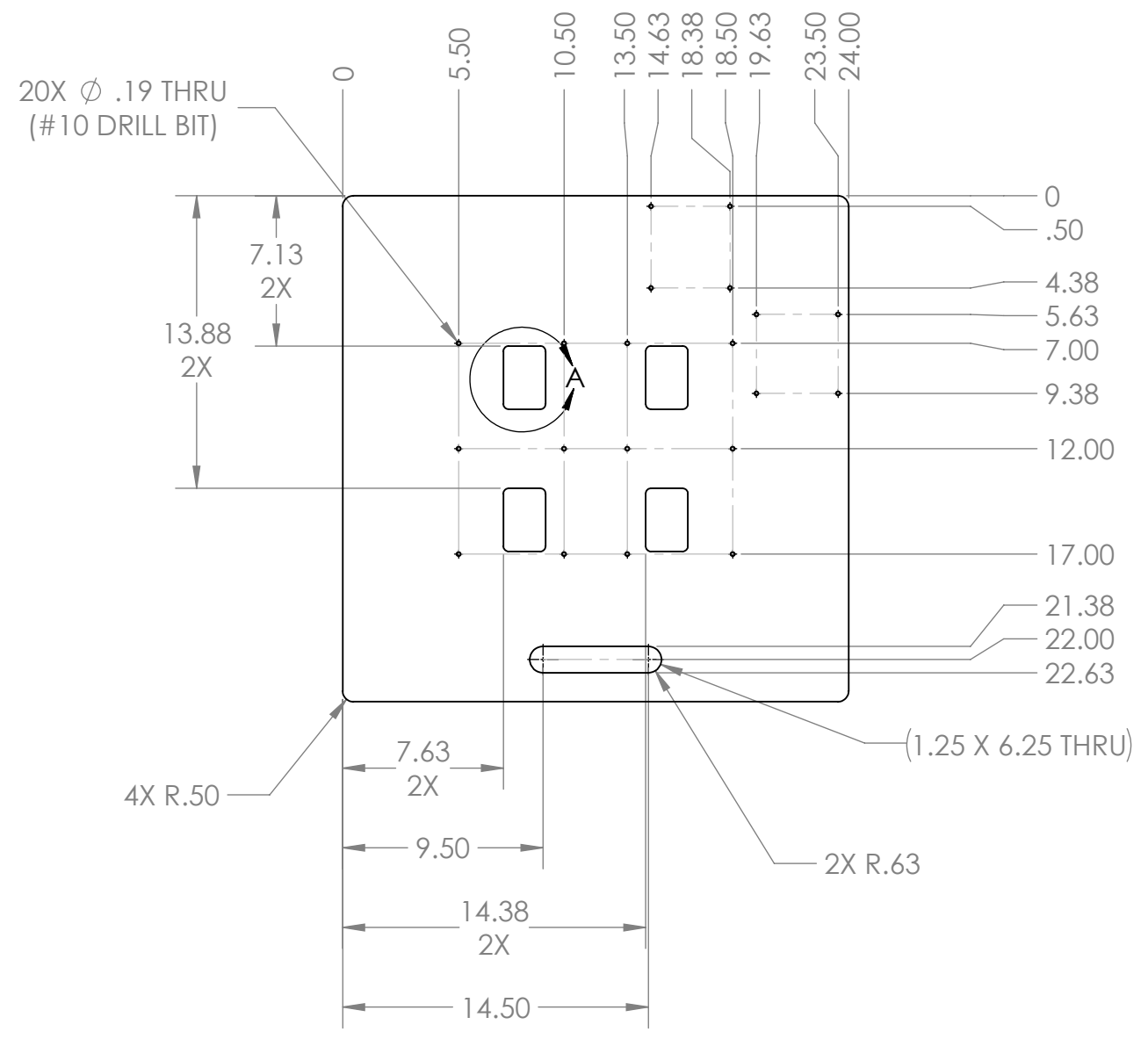
3

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DETAIL A
SCALE 1 : 4
4X



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- Notes:
1. Material: 12 Ga. (0.105") Mild Steel Sheet A366/1008 Cold Roll
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE:
		MATERIAL		ENG APPR.		Truss Base - Sheet Metal Assembly, Base Plate
		STEEL SHEET		MFG APPR.		
		FINISH		Q.A.		SIZE DWG. NO. REV
		BARE		COMMENTS:		B GE-20030 - 01 0
GE-20030		APPLICATION		DO NOT SCALE DRAWING		SCALE: 1:8 WEIGHT: SHEET 1 OF 1

4

3

2

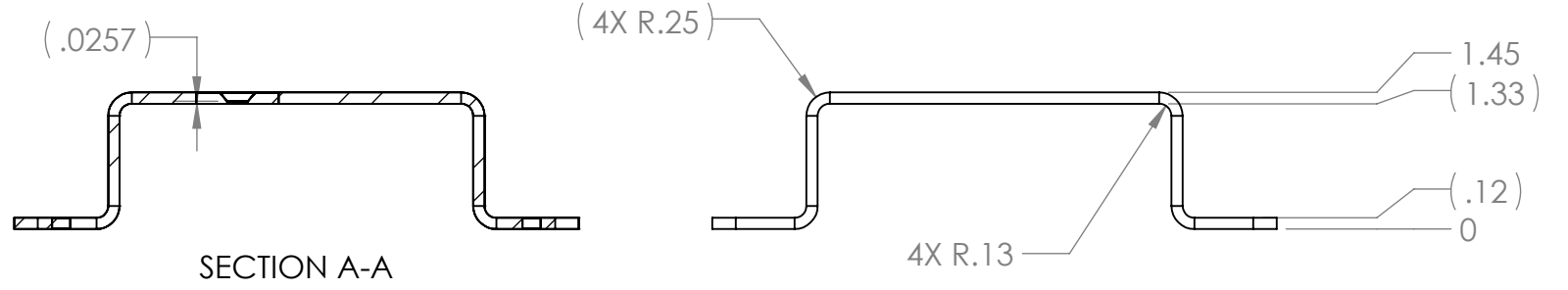
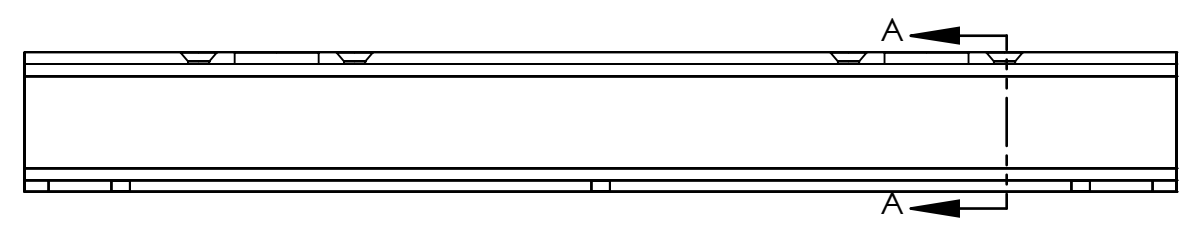
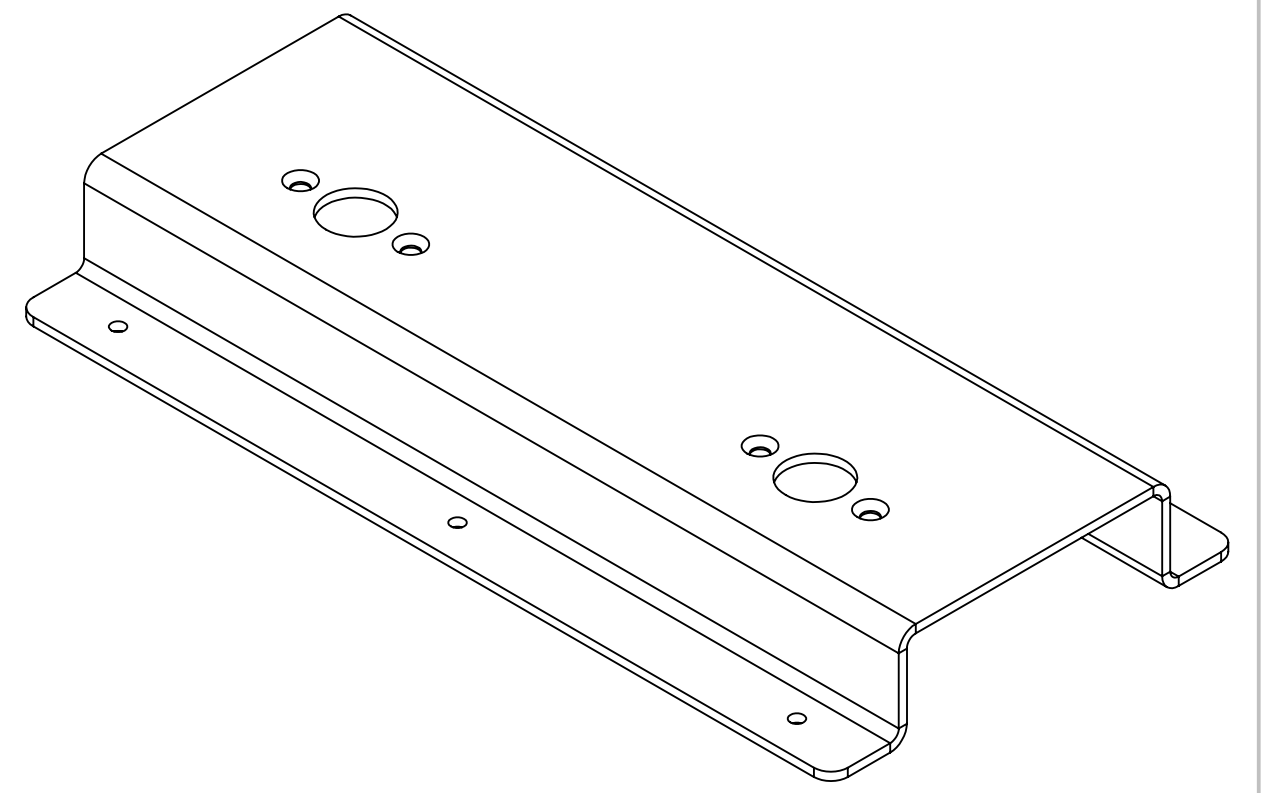
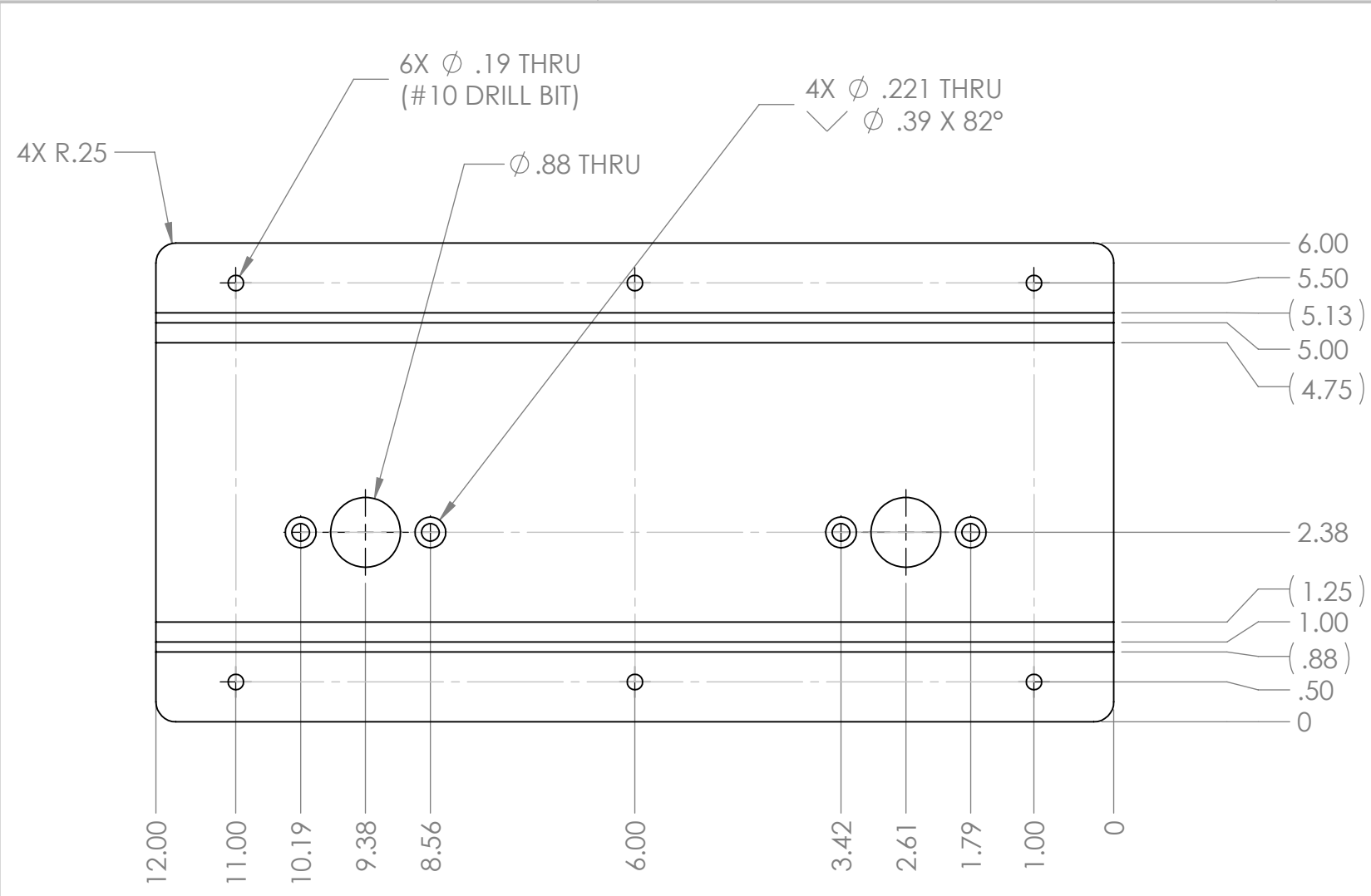
1

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- Notes:
1. Material: 0.125" Mild Steel Sheet A366/1008 Cold Roll
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
				CHECKED		TITLE:
				ENG APPR.		Truss Base - Sheet Metal Assembly, Truss Feet
				MFG APPR.		SIZE DWG. NO. REV
				Q.A.		B GE-20030 - 02 0
				COMMENTS:		SCALE: 1:2 WEIGHT: SHEET 1 OF 1
GE-20030		MATERIAL	STEEL SHEET			
NEXT ASSY	USED ON	FINISH	BARE			
APPLICATION		DO NOT SCALE DRAWING				

4

3

2

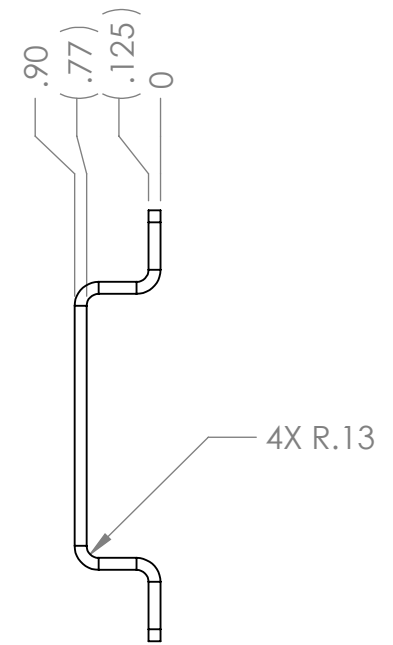
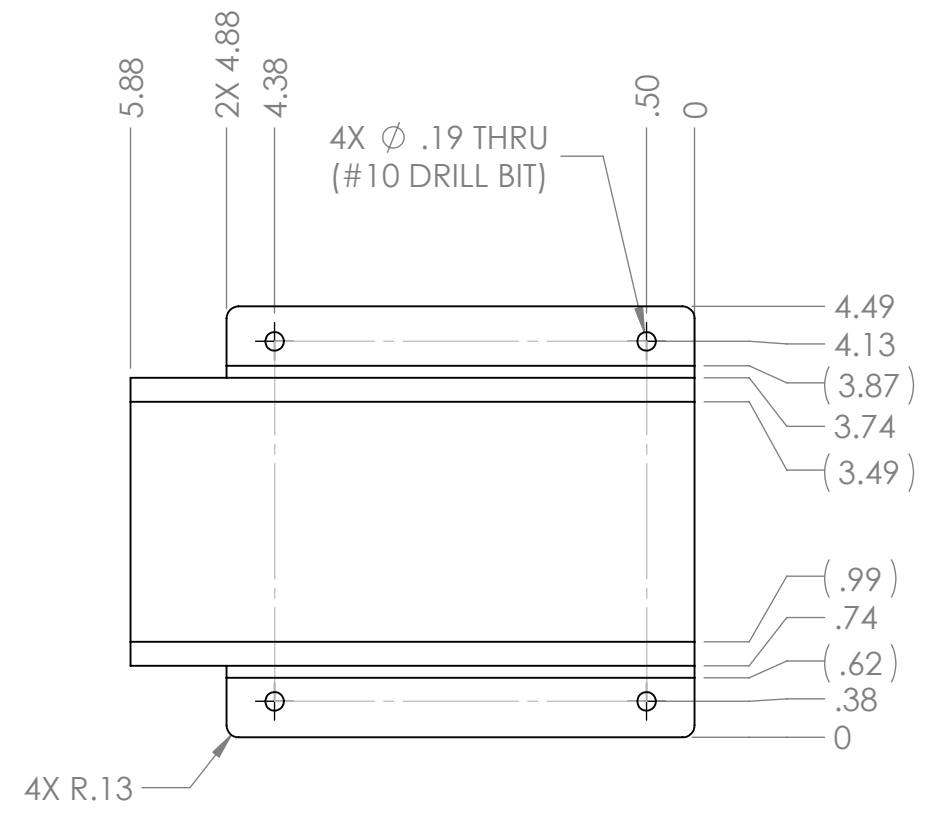
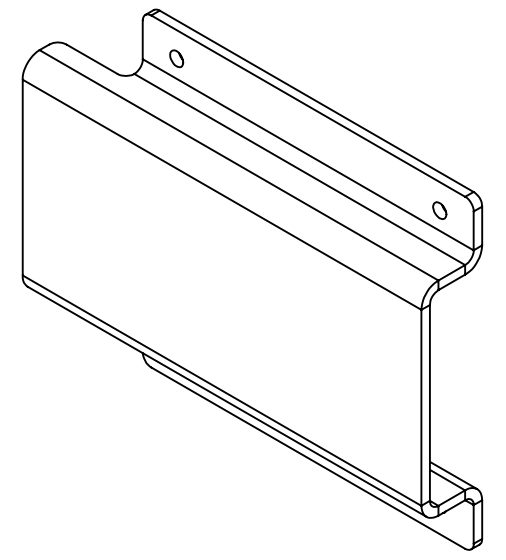
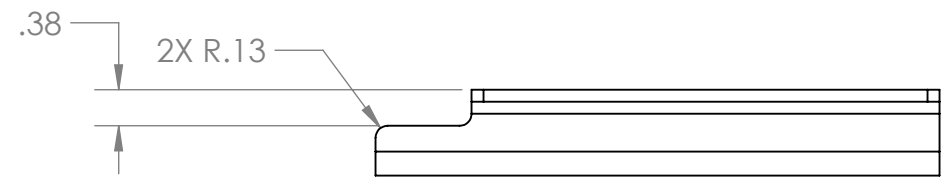
1

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- Notes:
1. Material: 0.125" Mild Steel Sheet A366/1008 Cold Roll
 2. Remove all burrs and sharp edges.

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		
GE-20030		MATERIAL		TITLE:		
NEXT ASSY		SHEET STEEL		Truss Base - Sheet Metal Assembly, Berm		
USED ON		FINISH		SIZE DWG. NO. REV		
APPLICATION		BARE		B GE-20030 - 03 0		
		DO NOT SCALE DRAWING		SCALE: 1:2 WEIGHT:		SHEET 1 OF 1

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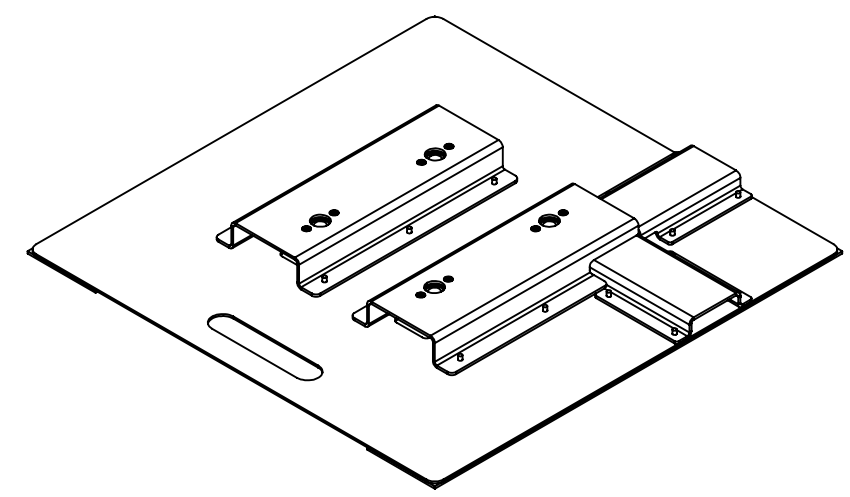
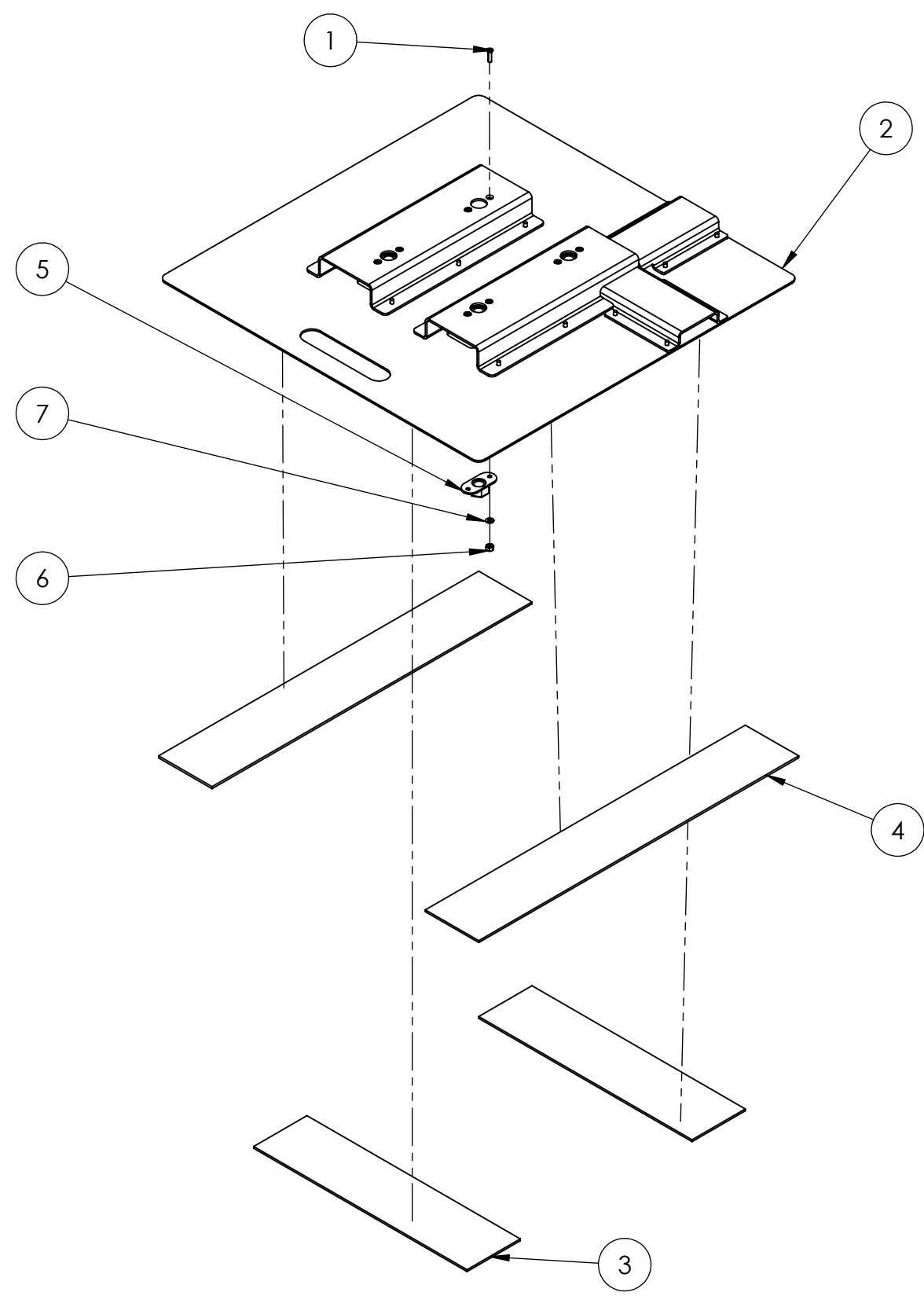
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	flat_phillips_10_24_.75	Flat Head, Phillips, .75in Length, 10/24	8
2	GE-20030	Truss Base - Sheet Metal Assembly	1
3	Hook_4_16	4" x 16" Hook Fastener, Adhesive Backed	2
4	Hook_4_24	4" x 24" Hook Fastener, Adhesive Backed	2
5	nut_chassis_.625_11	Nut, Chassis, 5/8-11	4
6	nylock_10_24	Nylock #10-24	8
7	washer_flat_10	Flat Washer for #10 Screw	8

- Note:
1. Make sure surface of GE-20030 is clean prior to hook application.
 2. Pres firmly on hook to ensure adhesion.
 3. ⑥ should be loose to allow ⑤ to float.

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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Truss Base with Nut Chassis
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	COMMENTS:		SIZE DWG. NO. REV B GE-20031
APPLICATION		DO NOT SCALE DRAWING		WEIGHT: 24.4 LBS SCALE: 1:8 WEIGHT: SHEET 1 OF 2

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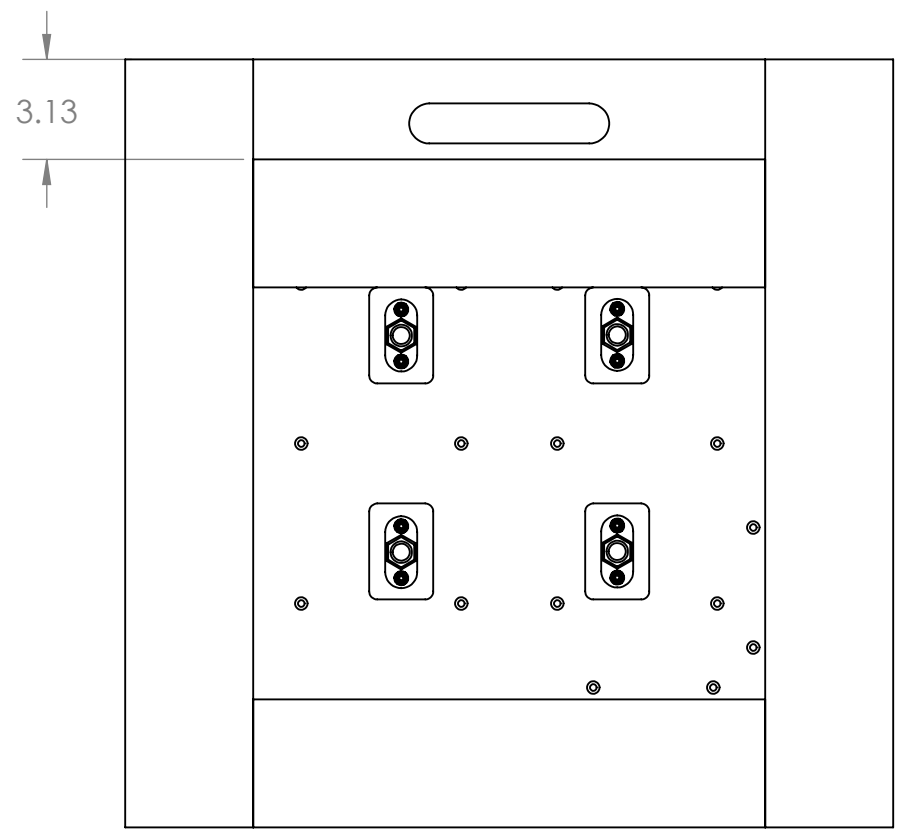
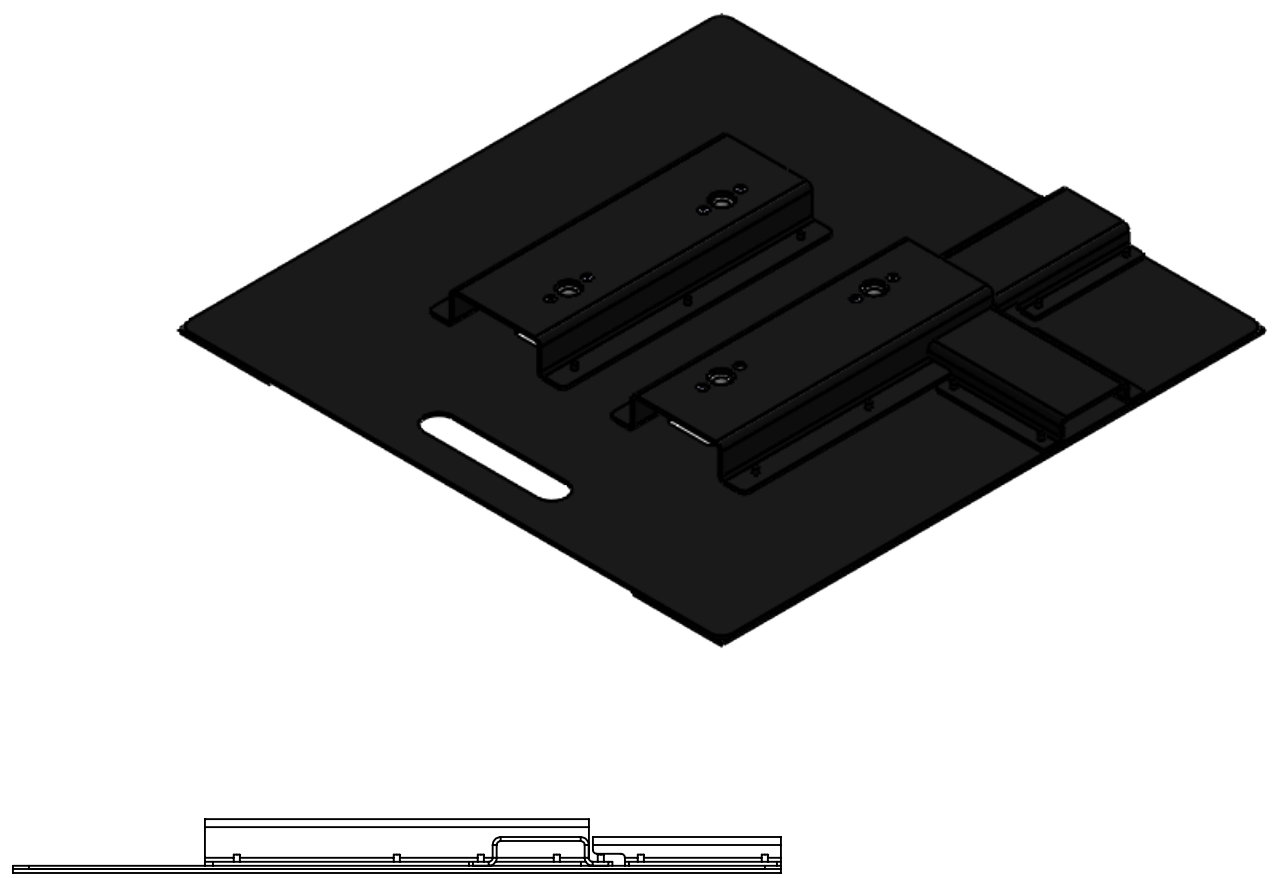
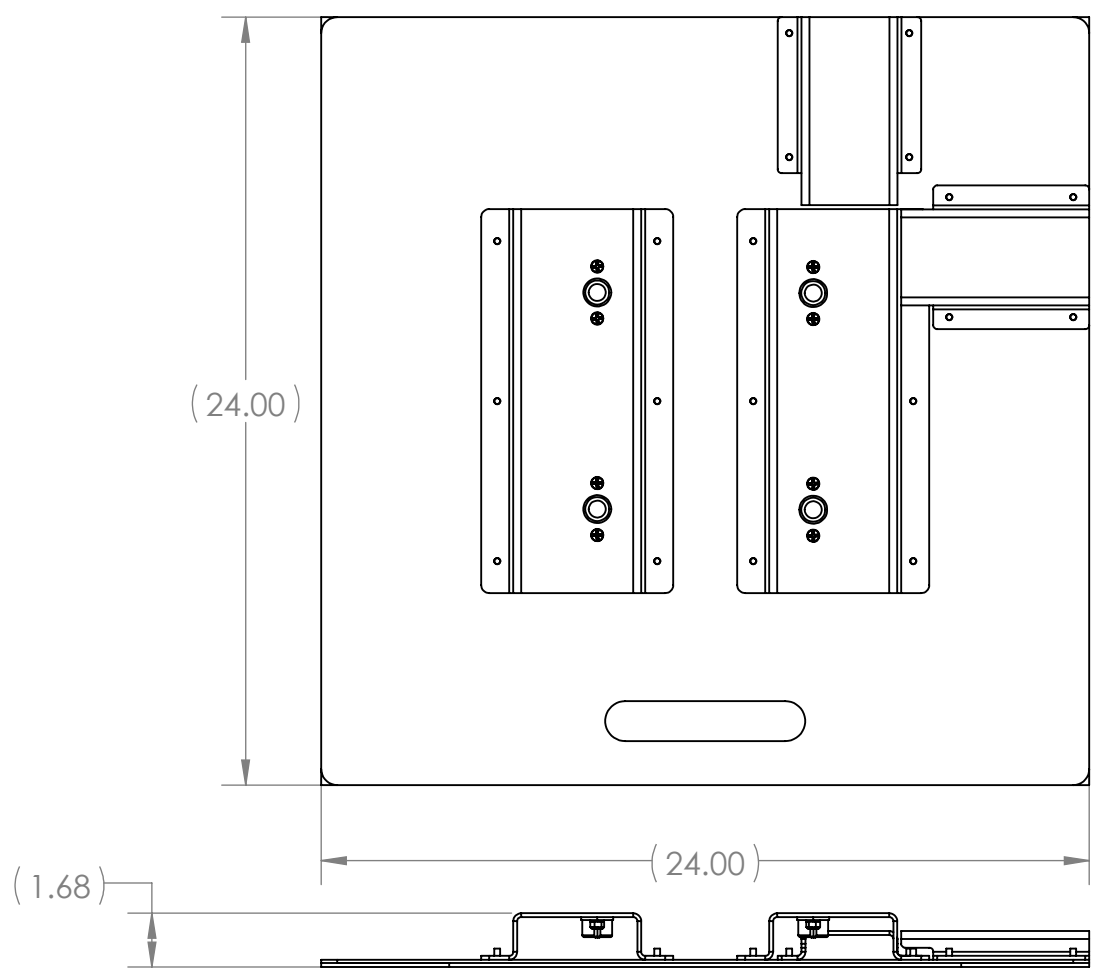
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		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	8/29/19
		FRACTIONAL $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:
Truss Base with Nut Chassis

SIZE DWG. NO. REV
B **GE-20031**

SCALE: 1:6 WEIGHT: SHEET 2 OF 2

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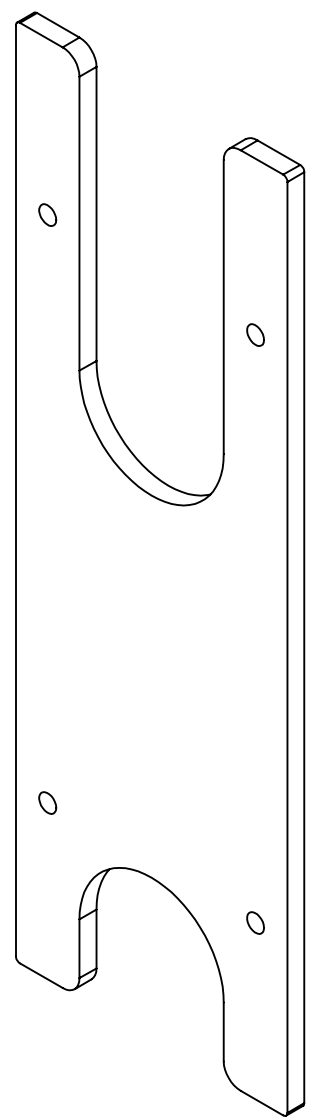
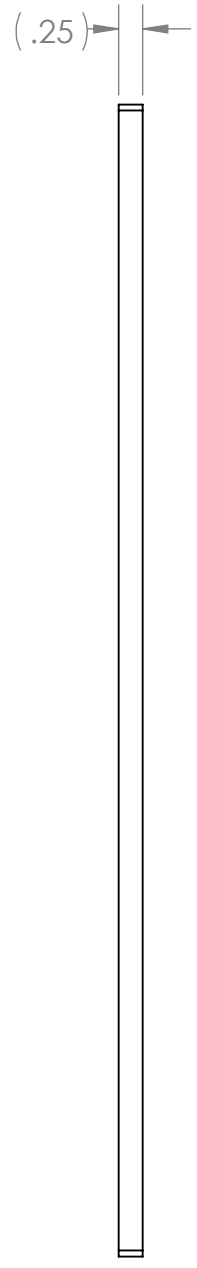
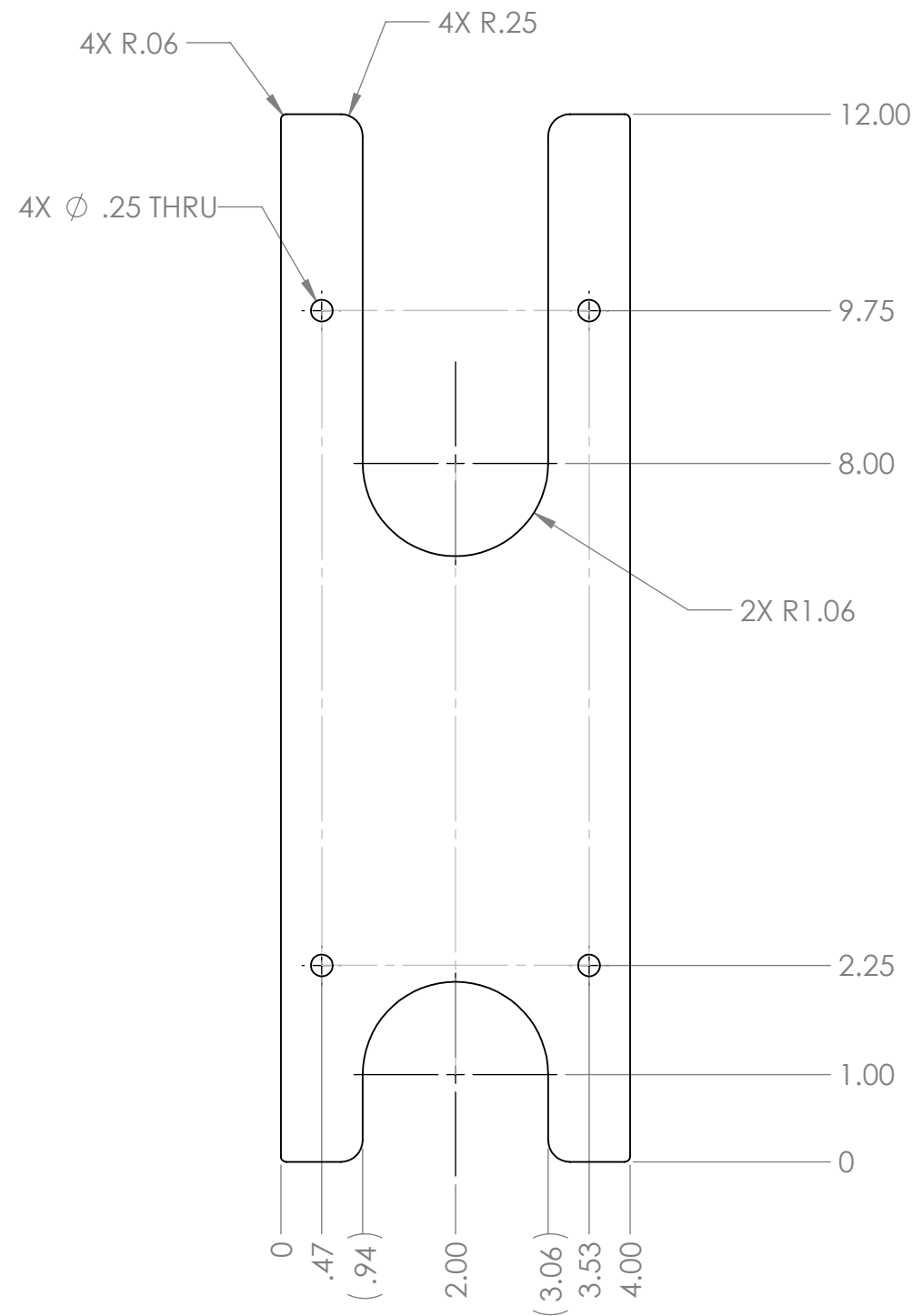
1

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- Notes:
1. Material: 1/4" Polycarbonate, Clear
 2. Remove all burrs and sharp edges
 3. Tag or label with part number

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
		MATERIAL POLYCARB		ENG APPR.		
		FINISH BARE		MFG APPR.		
NEXT ASSY	USED ON			Q.A.		
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		
				TITLE:		<p>Jig for Cheeseboroughs</p>
SIZE	DWG. NO.			REV		
B	GE-20035					
SCALE: 1:2		WEIGHT:		SHEET 1 OF 1		

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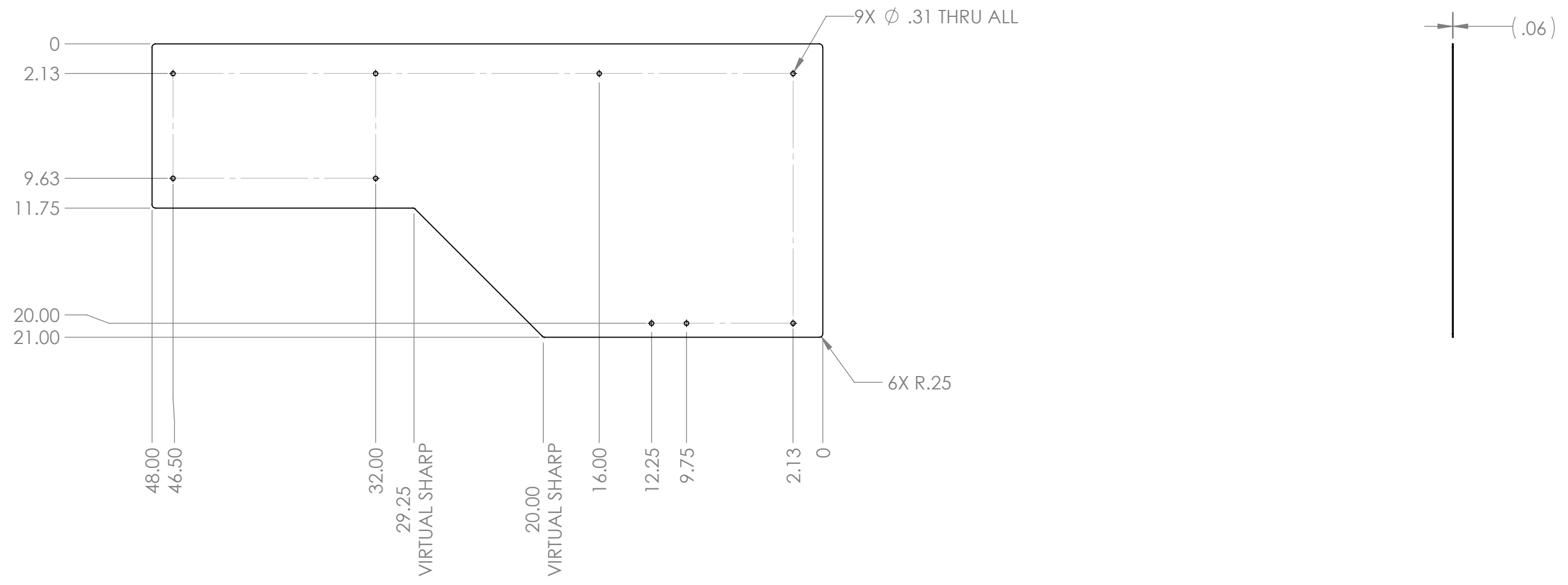
1

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- Notes:
1. Material: 1/16" Polycarbonate, Clear
 2. Remove all burrs and sharp edges
 3. Tag or label with part number
 4. Finish: Bare - Vinyl will be applied to face, either side

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		
GE-20041				MATERIAL		TITLE: Shield Generator Corner Plastic
				POLYCARB		
NEXT ASSY		USED ON		FINISH		SIZE DWG. NO. REV B GE-20040 0
				BARE		SCALE: 1:8 WEIGHT: SHEET 1 OF 1
APPLICATION				DO NOT SCALE DRAWING		

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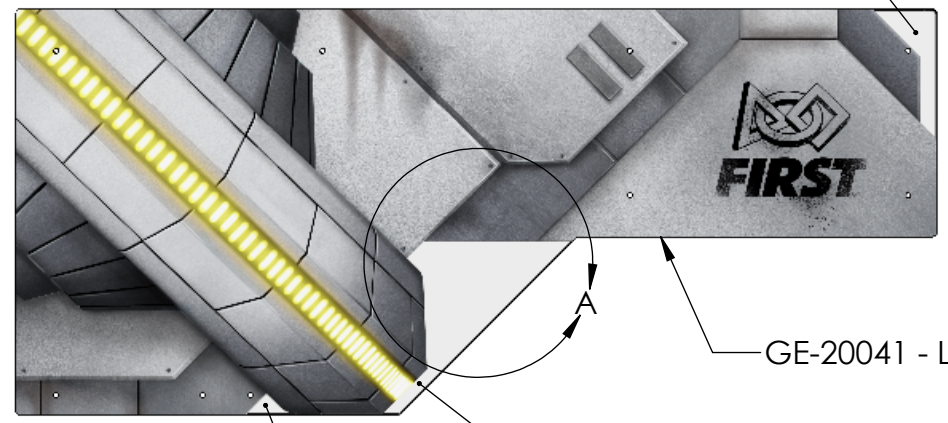
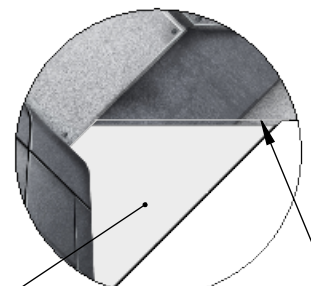
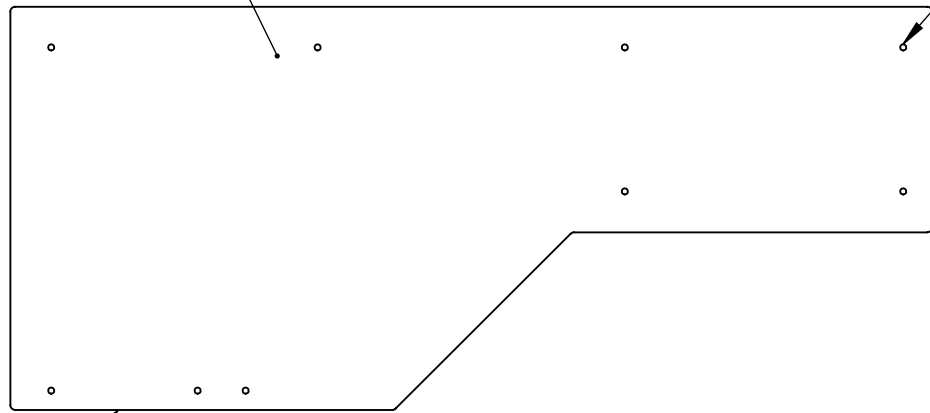
2

1

VINYL APPLIED TO THIS FACE

CUT OUT HOLES (X9)

VINYL CUT AWAY



GE-20041 - LEFT

DETAIL A SCALE 1 : 8

FOLLOW EDGE OF PLASTIC CUT AWAY VINYL

VINYL CUT AWAY

VINYL CUT AWAY

CUT AWAY VINYL

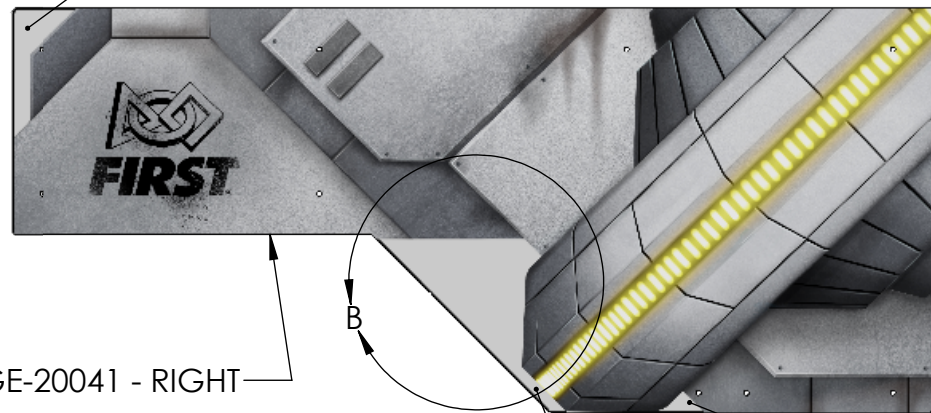
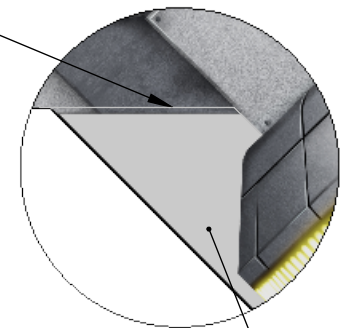
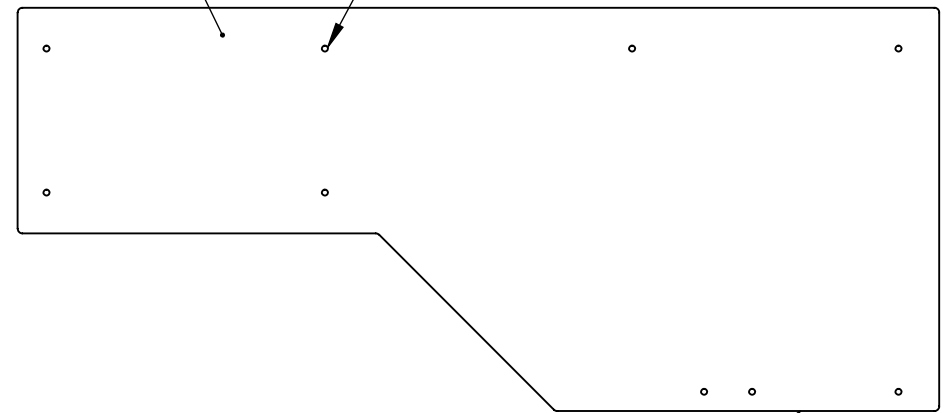
GE-20040

VINYL APPLIED TO THIS FACE

CUT OUT HOLES (X9)

FOLLOW EDGE OF PLASTIC CUT AWAY VINYL

VINYL CUT AWAY



GE-20041 - RIGHT

DETAIL B SCALE 1 : 8

CUT AWAY VINYL

VINYL CUT AWAY



VINYL CUT AWAY

GE-20040

Notes:
 1. Tag or label with part number

Left/Right Variations		
Part Number	Vinyl Image	Qty per Field
GE-20041 - Left	GE-20041 - Left - Vinyl	4
GE-20041 - Right	GE-20041 - Right - Vinyl	4

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		
				INTERPRET GEOMETRIC TOLERANCING PER:		
				MATERIAL		
				FINISH	VINYL	
				APPLICATION	DO NOT SCALE DRAWING	
				TITLE:		Truss Vinyl Plastic
				SIZE	DWG. NO.	REV
				B	GE-20041	0
				SCALE: 1:10 WEIGHT:		SHEET 1 OF 1

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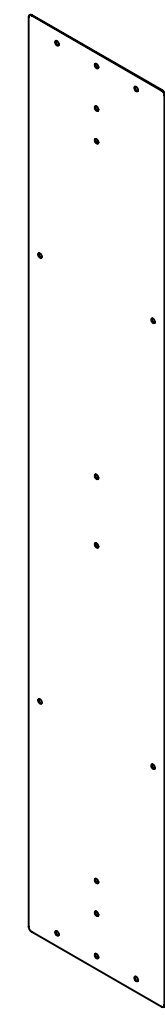
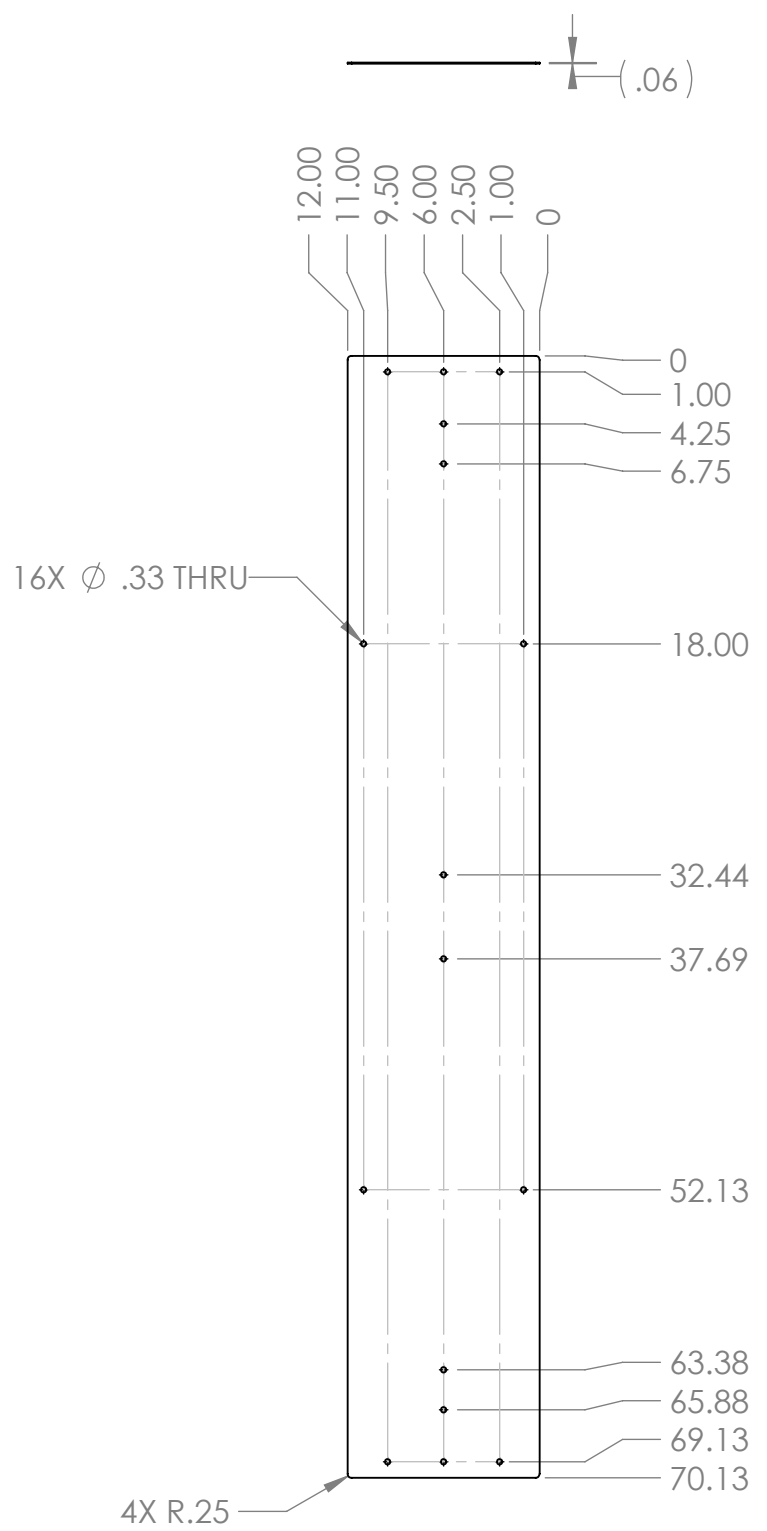
1

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- Notes:
1. Material: 1/16" Polycarbonate, Clear
 2. Remove all burrs and sharp edges
 3. Tag or label with part number

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		
				TITLE:		
				Shield Generator Truss Leg Plastic		
		SIZE	DWG. NO.	REV		
		B	GE-20043	0		
		SCALE: 1:12 WEIGHT:		SHEET 1 OF 1		
NEXT ASSY	USED ON	FINISH				
		POLYCARB				
		BARE				
APPLICATION		DO NOT SCALE DRAWING				

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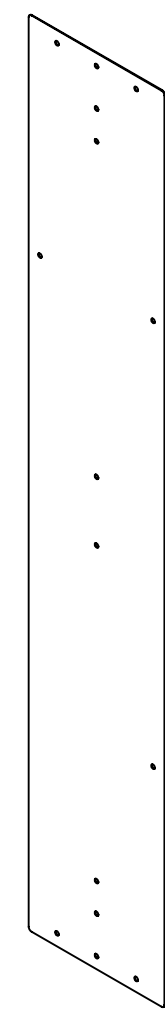
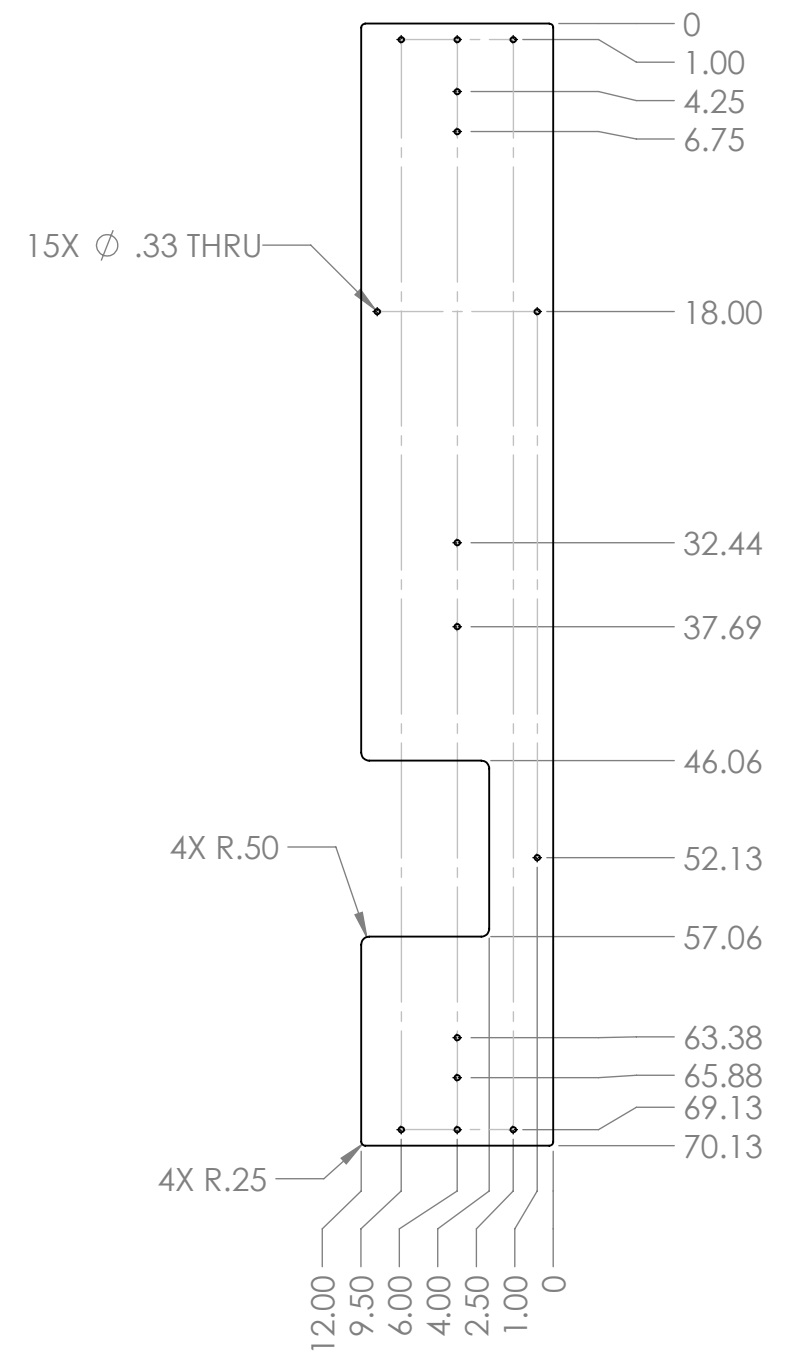
1

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- Notes:
1. Material: 1/16" Polycarbonate, Clear
 2. Remove all burrs and sharp edges
 3. Tag or label with part number

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC 10/23/19
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL POLYCARB		ENG APPR.	
		FINISH BARE		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
TITLE: Shield Generator Truss Leg Plastic_Trench					
SIZE	DWG. NO.	REV			
B	GE-20044	0			
SCALE: 1:12 WEIGHT:				SHEET 1 OF 1	

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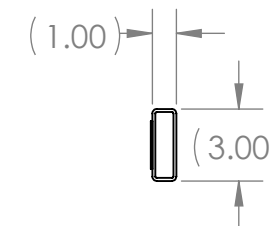
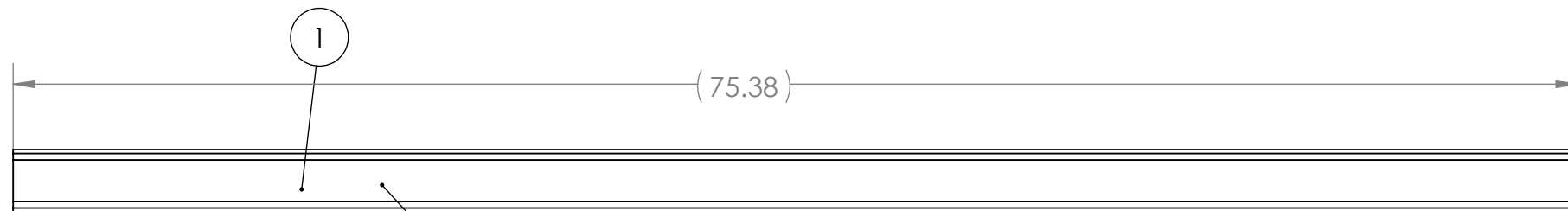
3

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Note:
Hook should be placed centered on the width of the part.

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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20051	Boundary, Black 75.38"	1
2	Hook_2_75.-375	2" x 75.375" Hook, Adhesive Backed	1

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL: ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:	MATERIAL		
FINISH			
NEXT ASSY	USED ON		
APPLICATION	DO NOT SCALE DRAWING		



TITLE:
**Boundary 75.38"
w/ hook**

SIZE DWG. NO. REV
B **GE-20046**

SCALE: 1:12 WEIGHT: SHEET 1 OF 1

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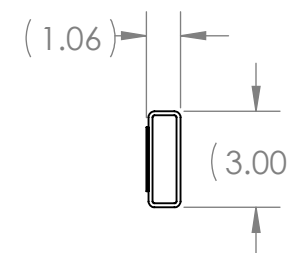
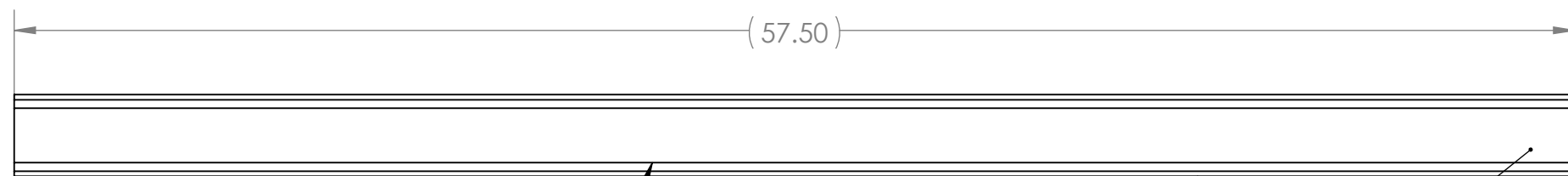
3

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Hook should be placed centered on the width of the part.

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Note: Item 1 can be red or blue. See part drawing for more details.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20053	Boundary, Red/Blue 57.5"	1
2	Hook_2_57-50	2" x 57.5" Hook, Adhesive Backed	1

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL: ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
Boundary 57.5" w/ hook		
SIZE	DWG. NO.	REV
B	GE-20048	
SCALE: 1:6	WEIGHT:	SHEET 1 OF 1

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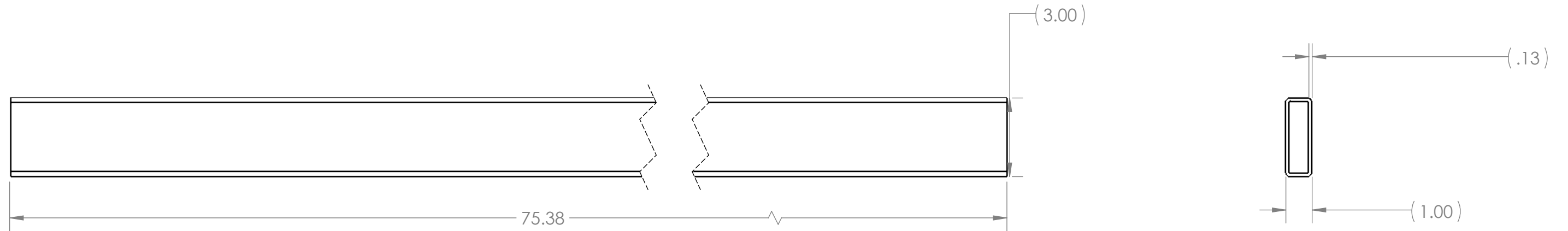
3

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Notes:

- 1. Material: 1" x 3" x .125" A513 Rectangular Tube
- 2. Finish: Tiger Drylac Powder Coating, Or Equivalent
- 3. Remove All Sharp Edges and Burrs
- 4. Lable or Tag with part number

Part Number	Color
GE-20051	Bengal Black 49/88888

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL ±1/16
 ANGULAR: MACH ±1° BEND ±1°
 TWO PLACE DECIMAL ±.01
 THREE PLACE DECIMAL ±.001

INTERPRET GEOMETRIC
 TOLERANCING PER:

MATERIAL

FINISH

NEXT ASSY

USED ON

APPLICATION

DO NOT SCALE DRAWING

NAME DATE

DRAWN

CHECKED

ENG APPR.

MFG APPR.

Q.A.

COMMENTS:



TITLE:
Boundary, Black
75.38"

SIZE	DWG. NO.	REV
B	GE-20051	

SCALE: 1:12 WEIGHT: SHEET 1 OF 1

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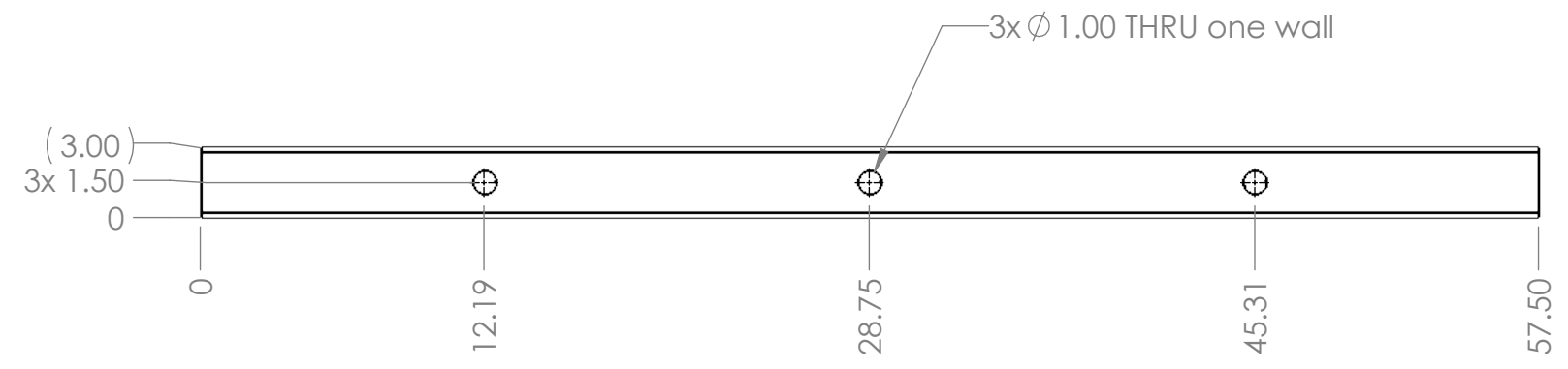
1

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Notes:

- 1. Material: 1" x 3" x .125" A513 Rectangular Tube
- 2. Finish: Tiger Drylac Powder Coating, Or Equivalent
- 3. Remove All Sharp Edges and Burrs
- 4. Lable or Tag with part number

Part Number	Color
GE-20053-RED	Bengal Red 49/33333
GE-20053-BLU	Mercury Blue 59/40653

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL $\pm 1/16$		ENG APPR.	
ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$		MFG APPR.	
TWO PLACE DECIMAL $\pm .01$		Q.A.	
THREE PLACE DECIMAL $\pm .001$		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION			
DO NOT SCALE DRAWING			



TITLE: Boundary, Red/Blue 57.5"		
SIZE B	DWG. NO. GE-20053	REV
SCALE: 1:8	WEIGHT:	SHEET 1 OF 1

4

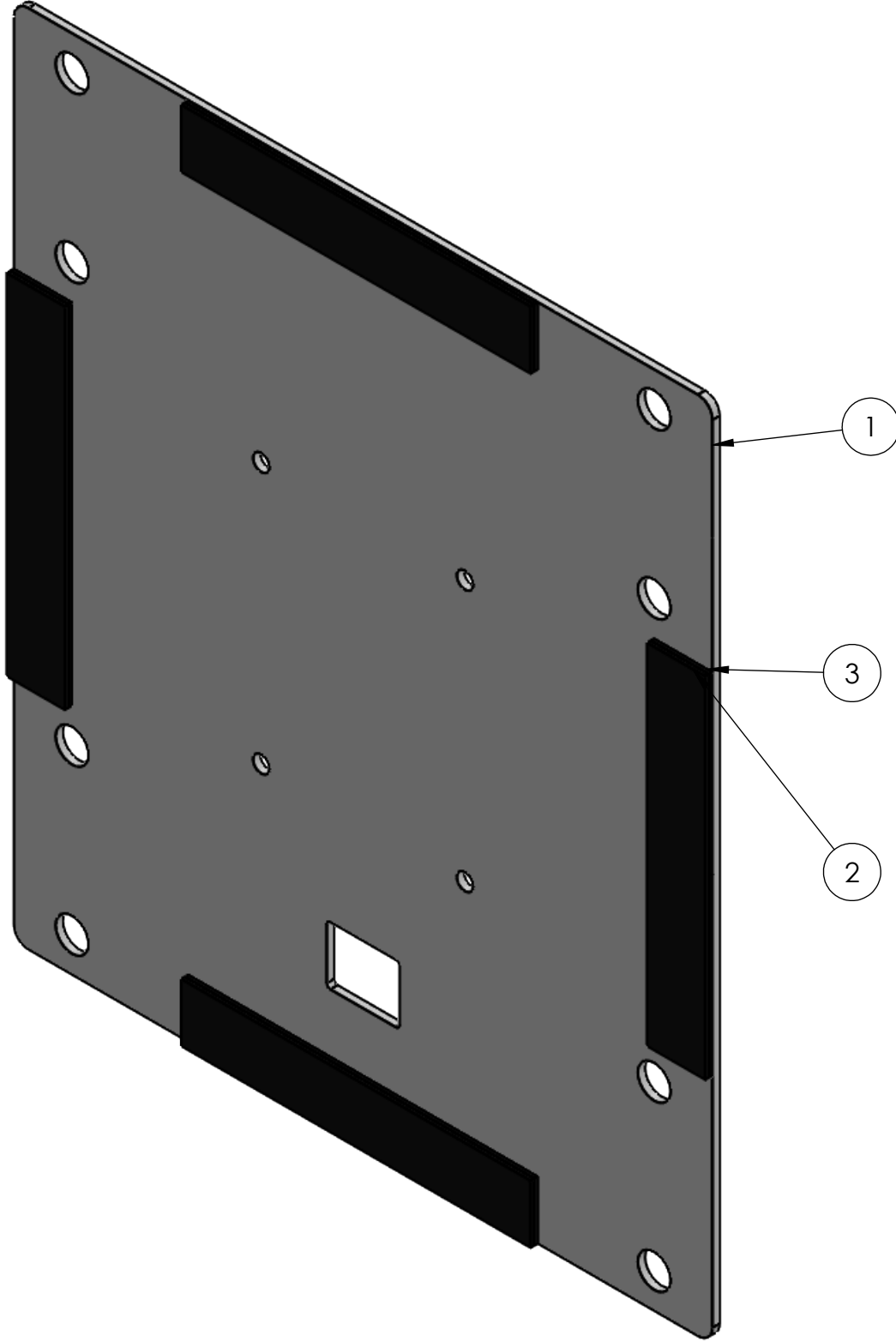
3

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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20087	Hard Stop, Truss Protection	1
2	Hook_1_6	1" x 6" Hook, Adhesive Backed	4
3	Loop_1_6	1" x 6" Loop, Adhesive Backed	4

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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE:
MATERIAL		ENG APPR.		Hard Stop, Truss Protection , with Hook and Loop
FINISH		MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON	Q.A.		B GE-20066
APPLICATION		COMMENTS:		SCALE: 1:2 WEIGHT: SHEET 1 OF 3
DO NOT SCALE DRAWING				

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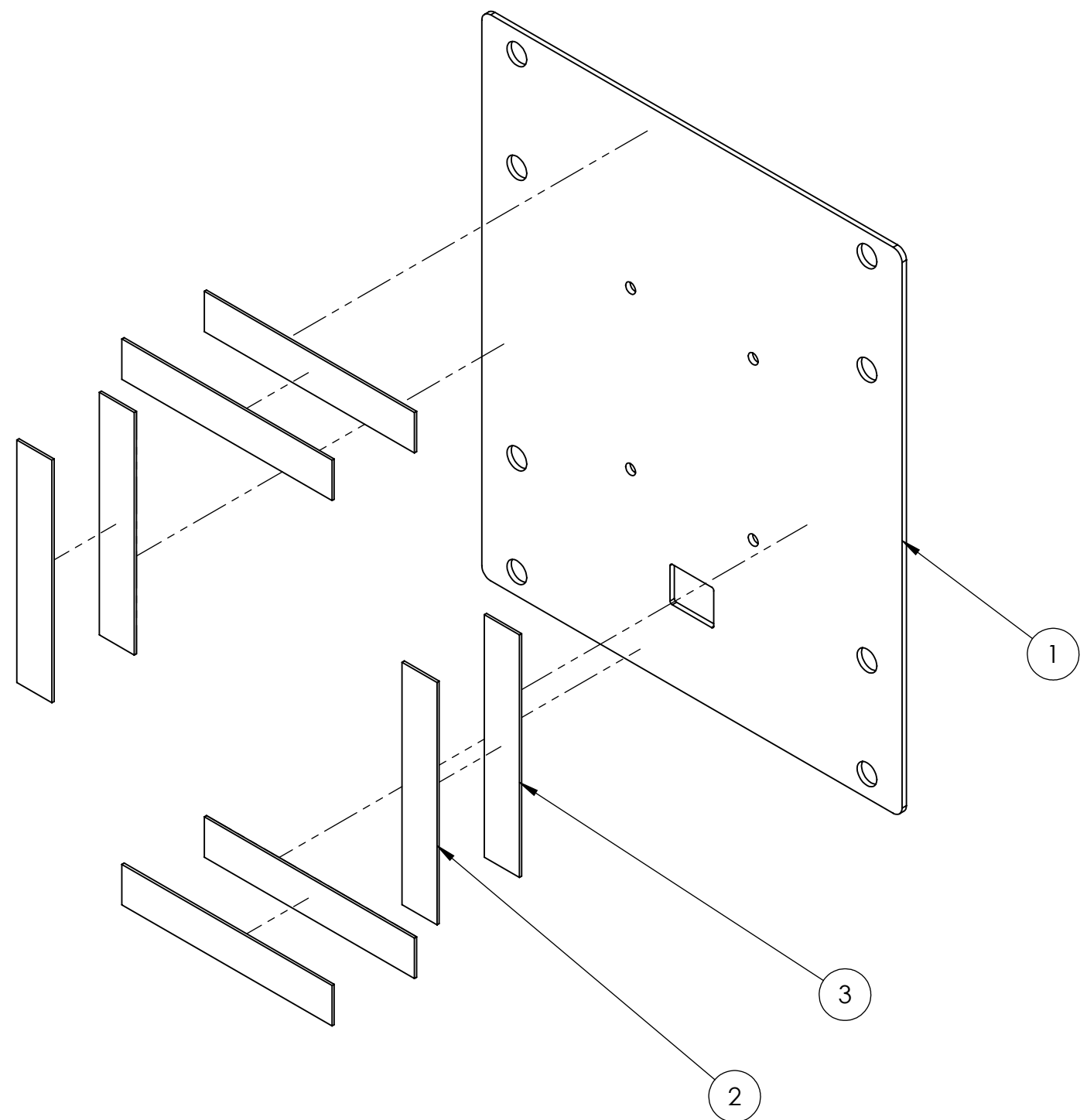
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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	12/16/19
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
Hard Stop, Truss Protection , with Hook and Loop		
SIZE	DWG. NO.	REV
B	GE-20066	
SCALE: 1:3	WEIGHT:	SHEET 2 OF 3

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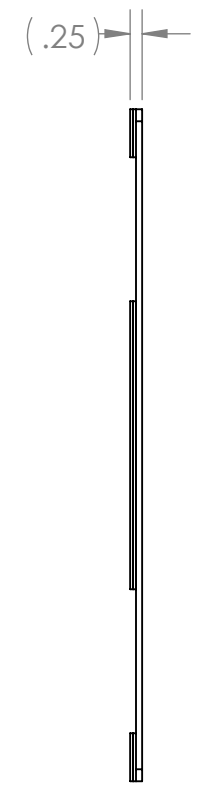
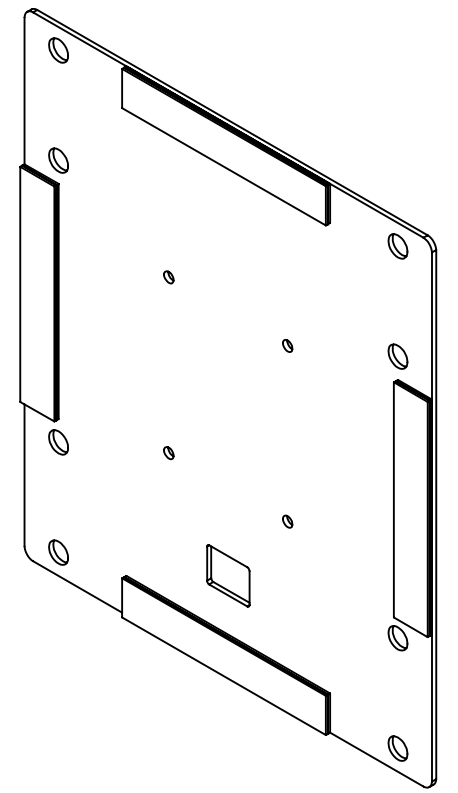
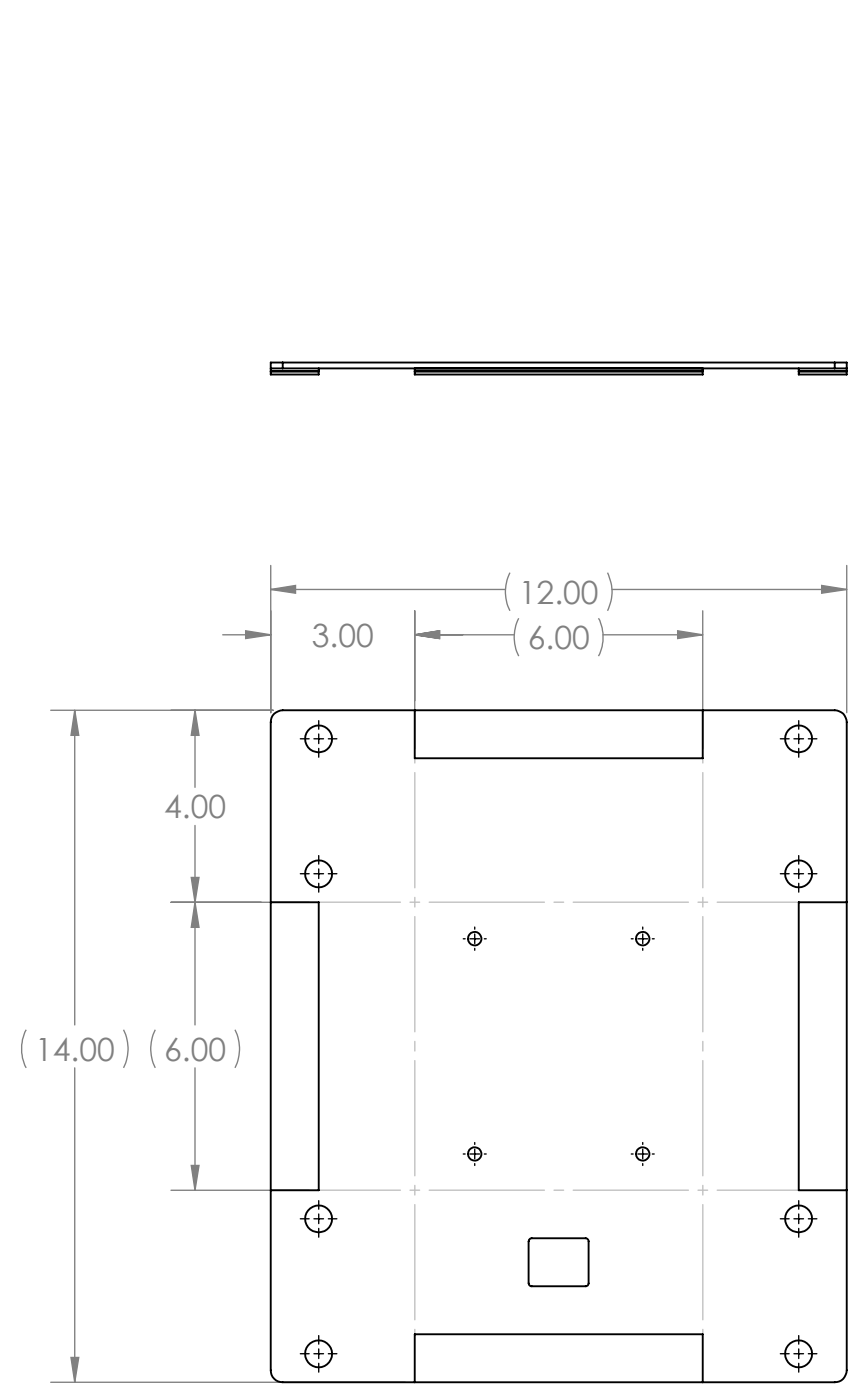
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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC 12/16/19
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
				 	
				TITLE:	
				Hard Stop, Truss Protection , with Hook and Loop	
SIZE	DWG. NO.			REV	
B	GE-20066				
SCALE: 1:4		WEIGHT:		SHEET 3 OF 3	

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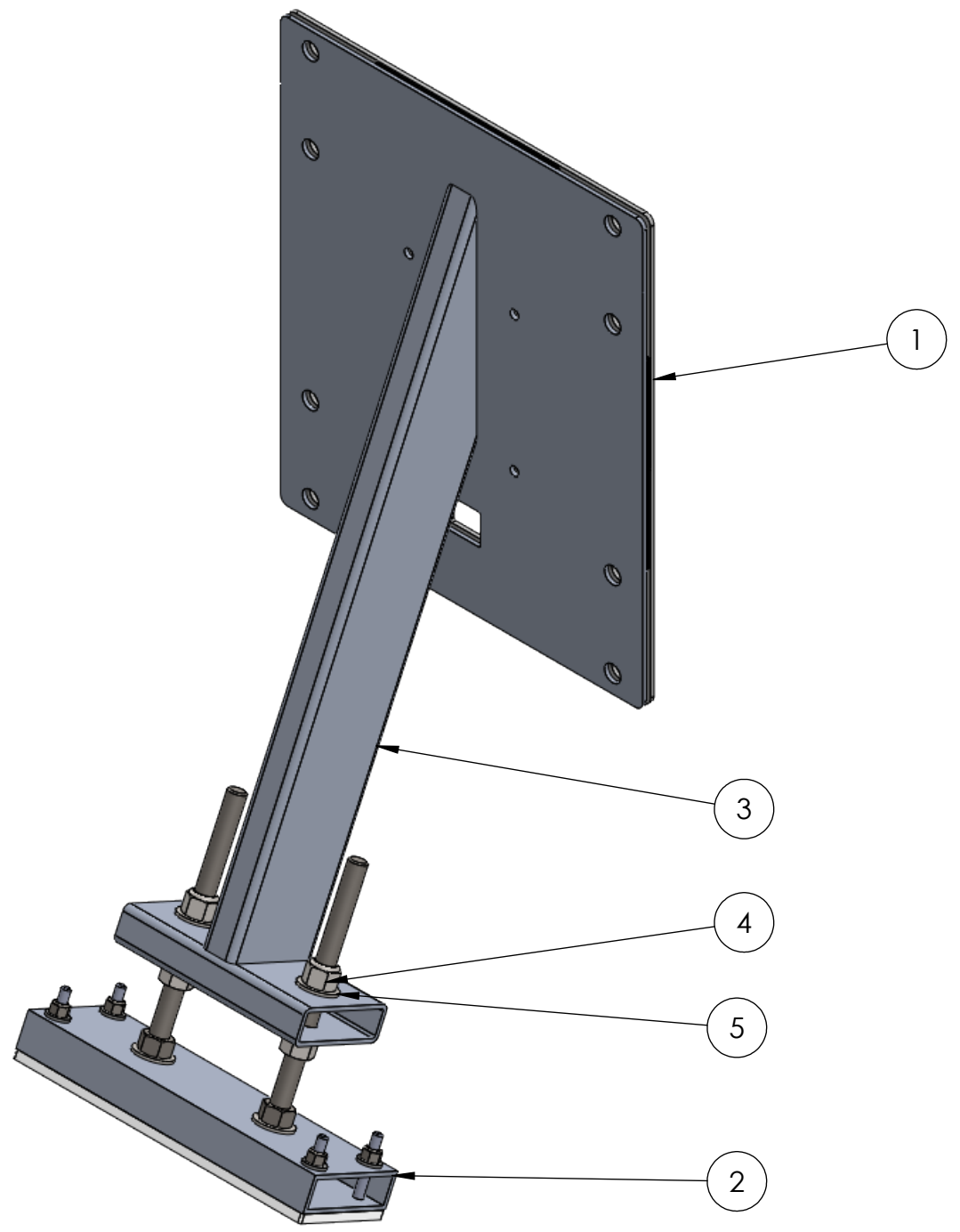
1

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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20066	Hard Stop, Truss Protection , with Hook and Loop	1
2	GE-20072	Hard Stop, Hitting Assembly	1
3	GE-20088	Hard Stop, Weldment, Large	1
4	nylock_.5_13	steel nylon-insert locknut, 1/2" - 13	4
5	washer_flat_.5	Flat Washer for 1/2" Screw	4

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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN		
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE:
MATERIAL		ENG APPR.		Hard Stop, Large
FINISH		MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON	Q.A.		B GE-20067
APPLICATION		COMMENTS:		SCALE: 1:4 WEIGHT: SHEET 1 OF 3
DO NOT SCALE DRAWING				

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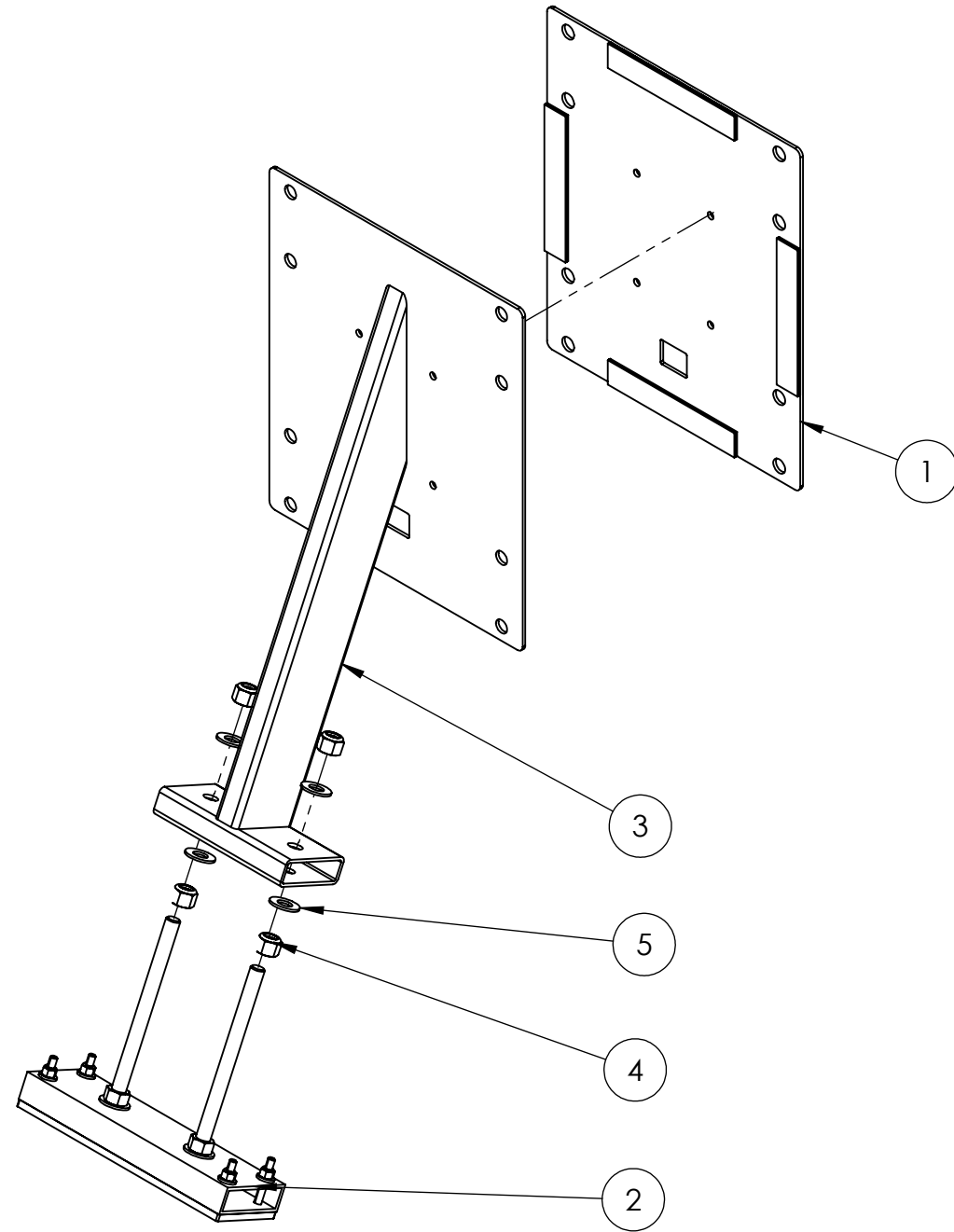
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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 	
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$	DRAWN	KAMC		12/16/19
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED			TITLE:
		MATERIAL	ENG APPR.			Hard Stop, Large
		FINISH	MFG APPR.			
NEXT ASSY	USED ON	APPLICATION	COMMENTS:			B GE-20067
		DO NOT SCALE DRAWING				SCALE: 1:6 WEIGHT: SHEET 2 OF 3

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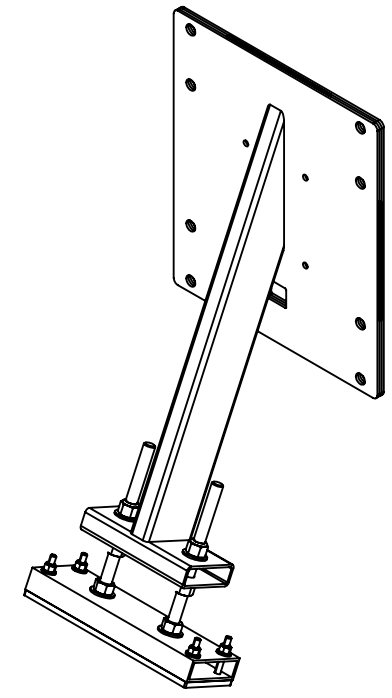
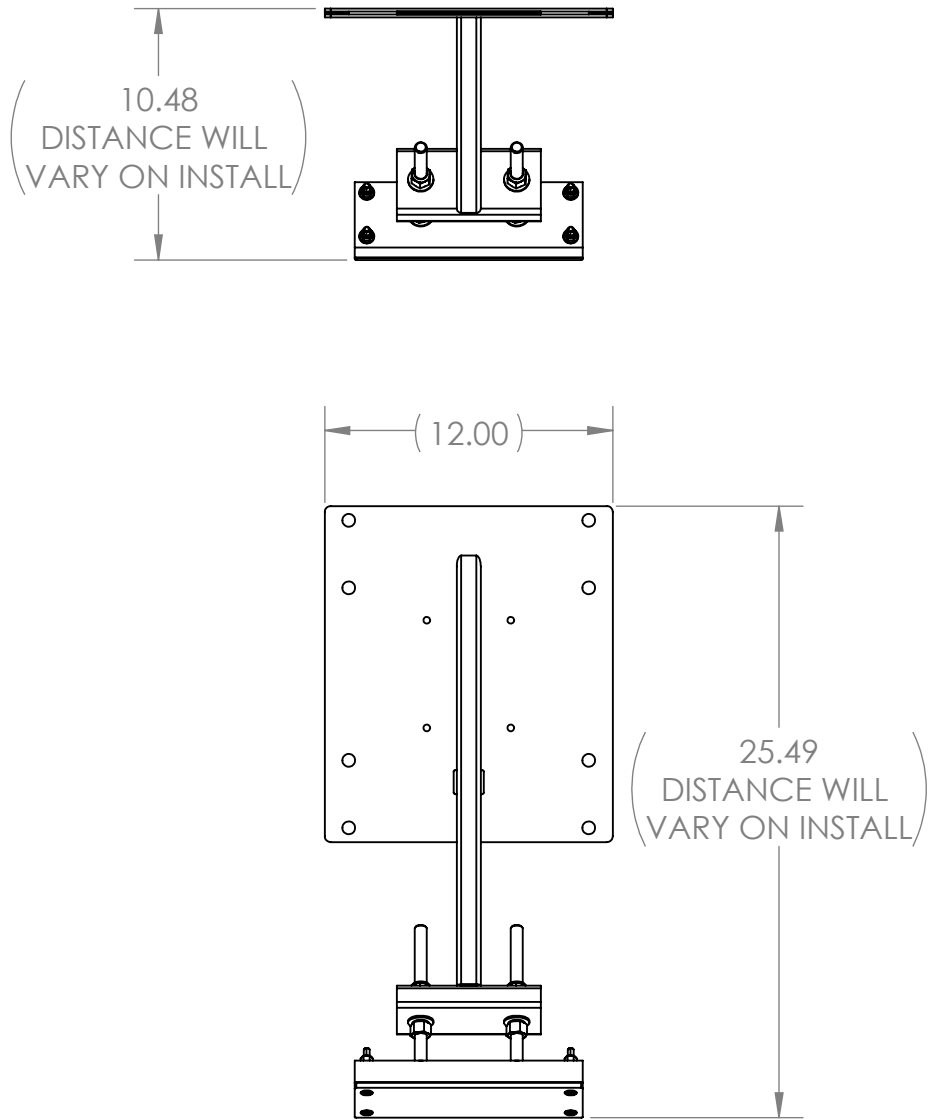
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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
		MATERIAL		ENG APPR.		
		FINISH		MFG APPR.		
NEXT ASSY	USED ON			Q.A.		
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		
			TITLE:			Hard Stop, Large
SIZE	DWG. NO.	REV				
B	GE-20067					
SCALE: 1:8		WEIGHT:		SHEET 3 OF 3		

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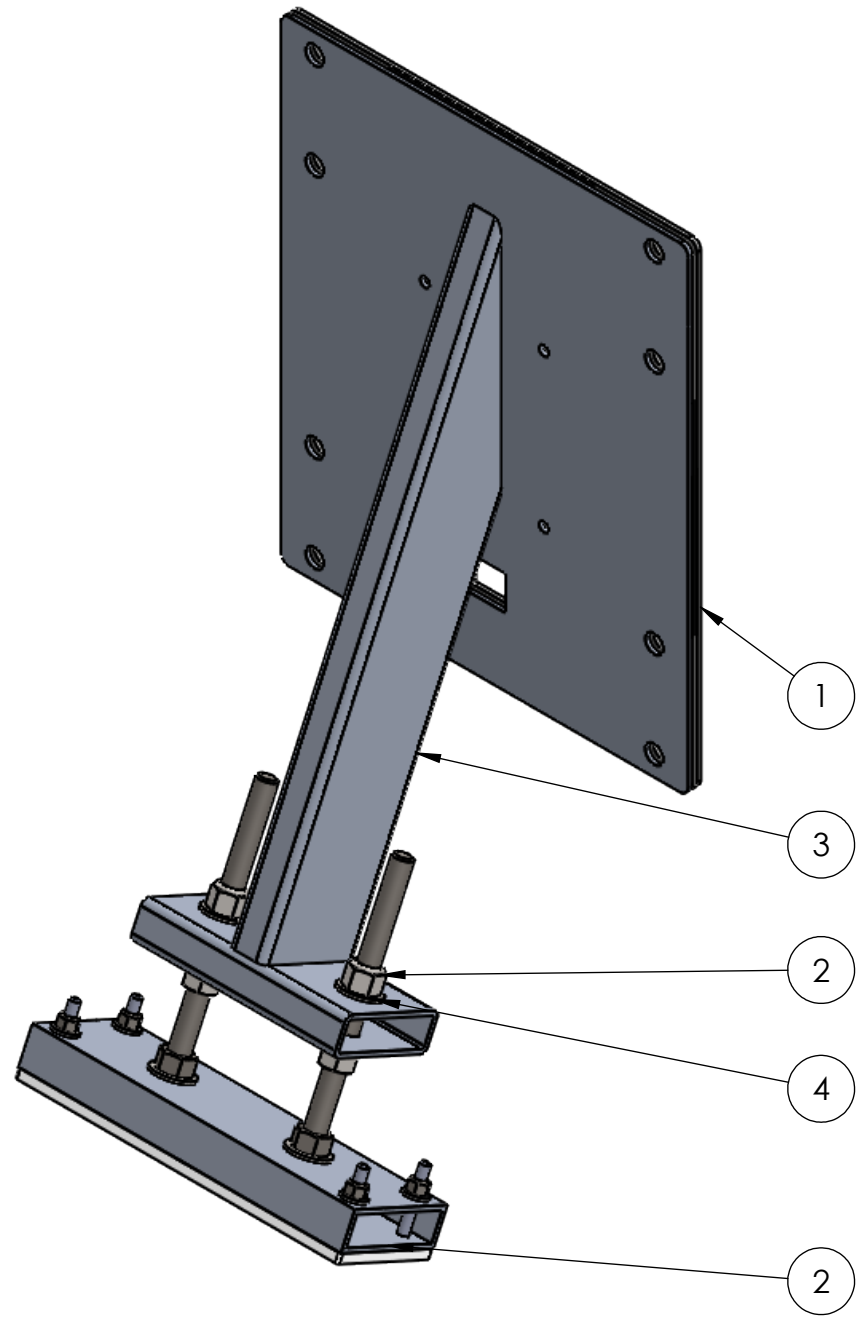
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ITEM NO.	PART NUMBER	DESCRIPTION	
1	GE-20066	Hard Stop, Truss Protection , with Hook and Loop	1
2	GE-20072	Hard Stop, Hitting Assembly	1
3	GE-20089	Hard Stop, Weldment, Small	1
4	washer_flat_.5	Flat Washer for 1/2" Screw	4
5	nylock_.5_13	steel nylon-insert locknut, 1/2" - 13	4

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	Q.A.		
APPLICATION		COMMENTS:		
DO NOT SCALE DRAWING		TITLE: <h1>Hard Stop, Small</h1>		
		SIZE	DWG. NO.	REV
		B	GE-20068	
		SCALE: 1:4	WEIGHT:	SHEET 1 OF 3

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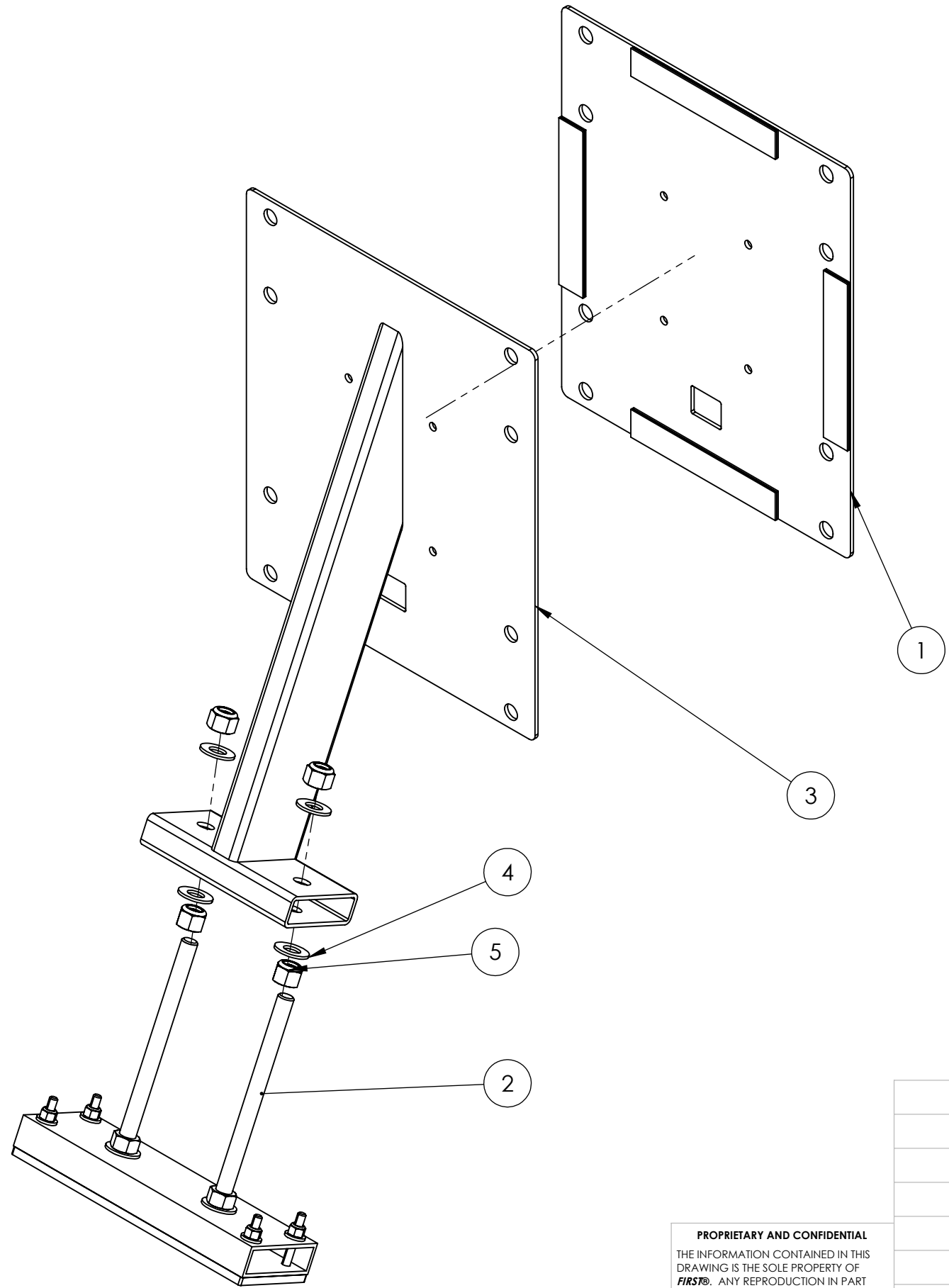
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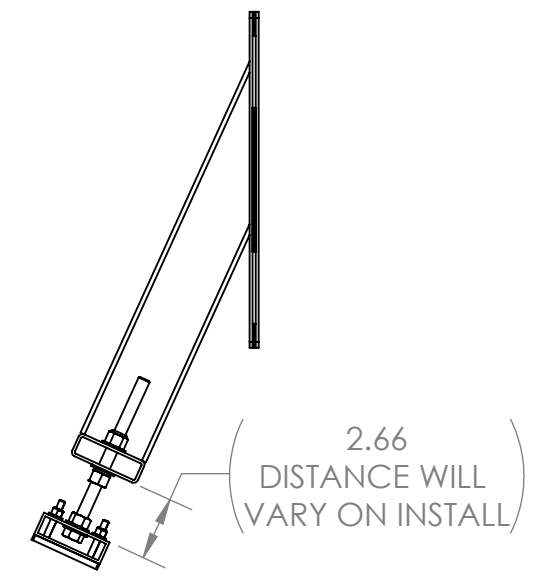
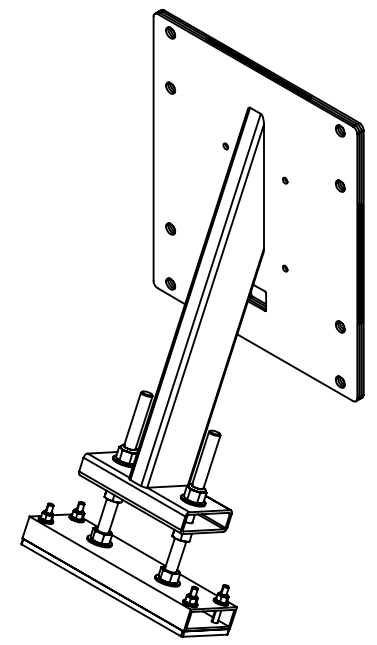
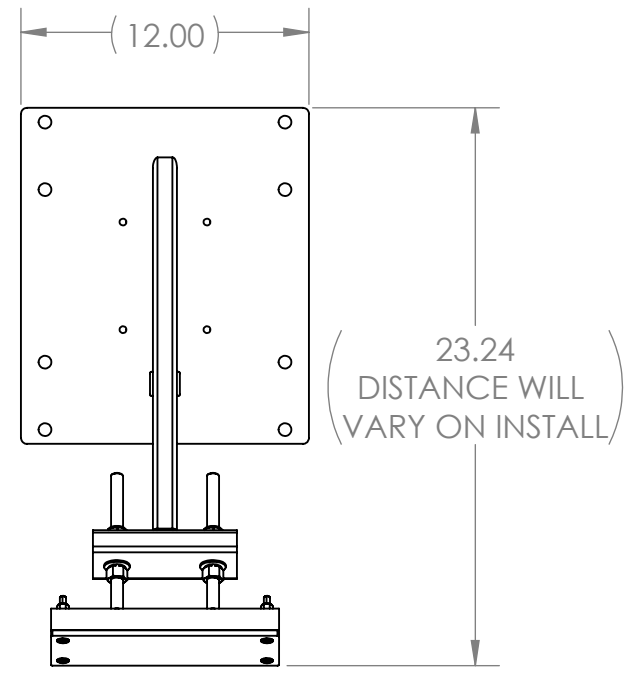
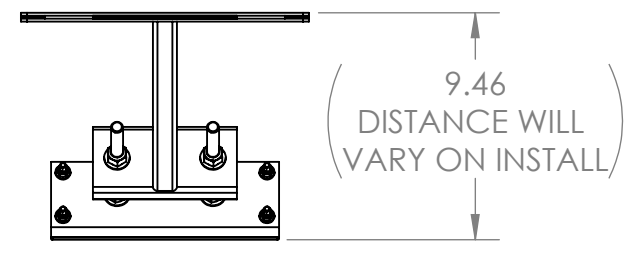
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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE DWG. NO. REV
		MATERIAL	ENG APPR.		B GE-20068
NEXT ASSY	USED ON	FINISH	MFG APPR.		SCALE: 1:4 WEIGHT: SHEET 2 OF 3
APPLICATION		DO NOT SCALE DRAWING	Q.A.		
			COMMENTS:		

4



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1



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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
		MATERIAL		ENG APPR.		
		FINISH		MFG APPR.		
NEXT ASSY	USED ON			Q.A.		
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		
				TITLE:		Hard Stop, Small
SIZE	DWG. NO.			REV		
B	GE-20068					
SCALE: 1:8		WEIGHT:		SHEET 3 OF 3		

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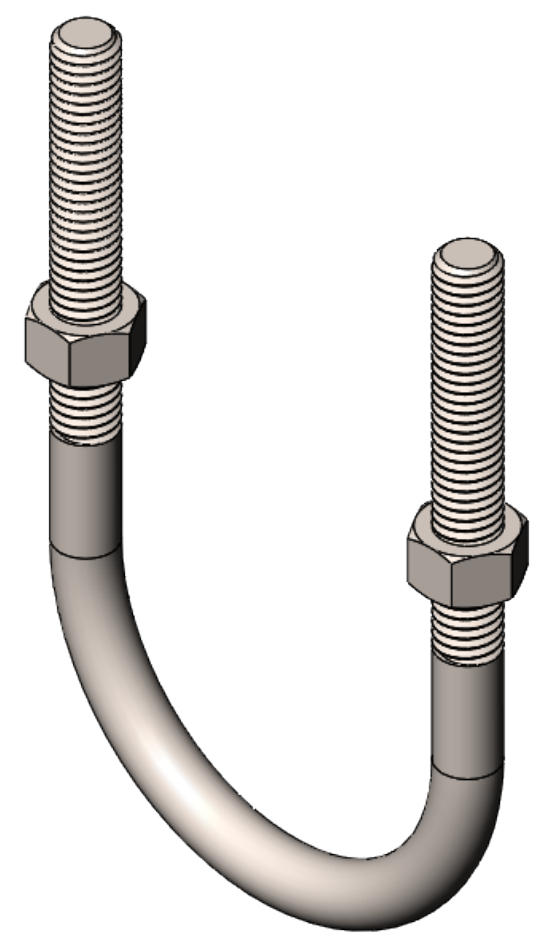
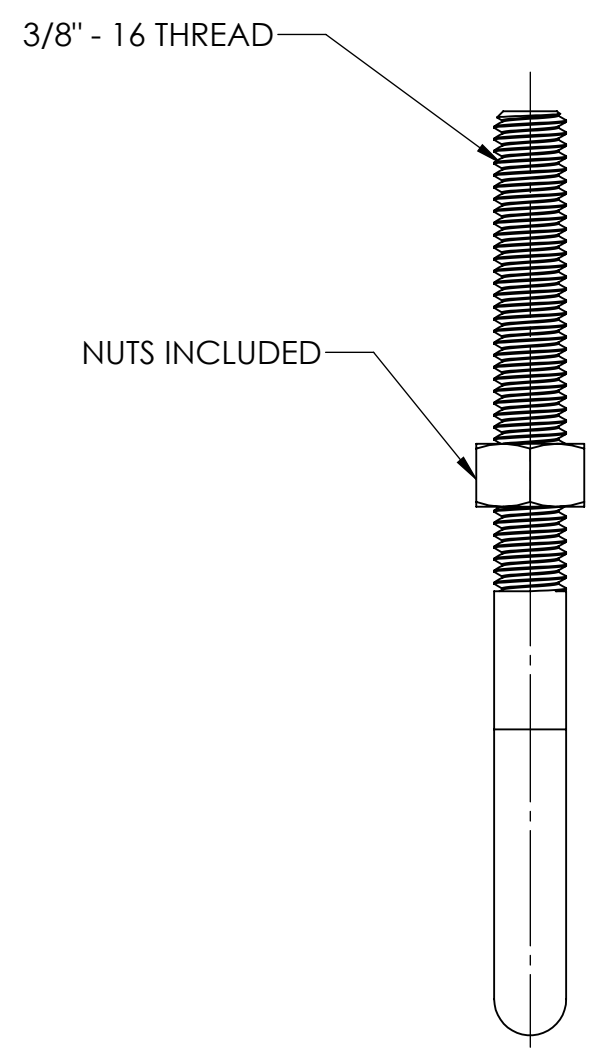
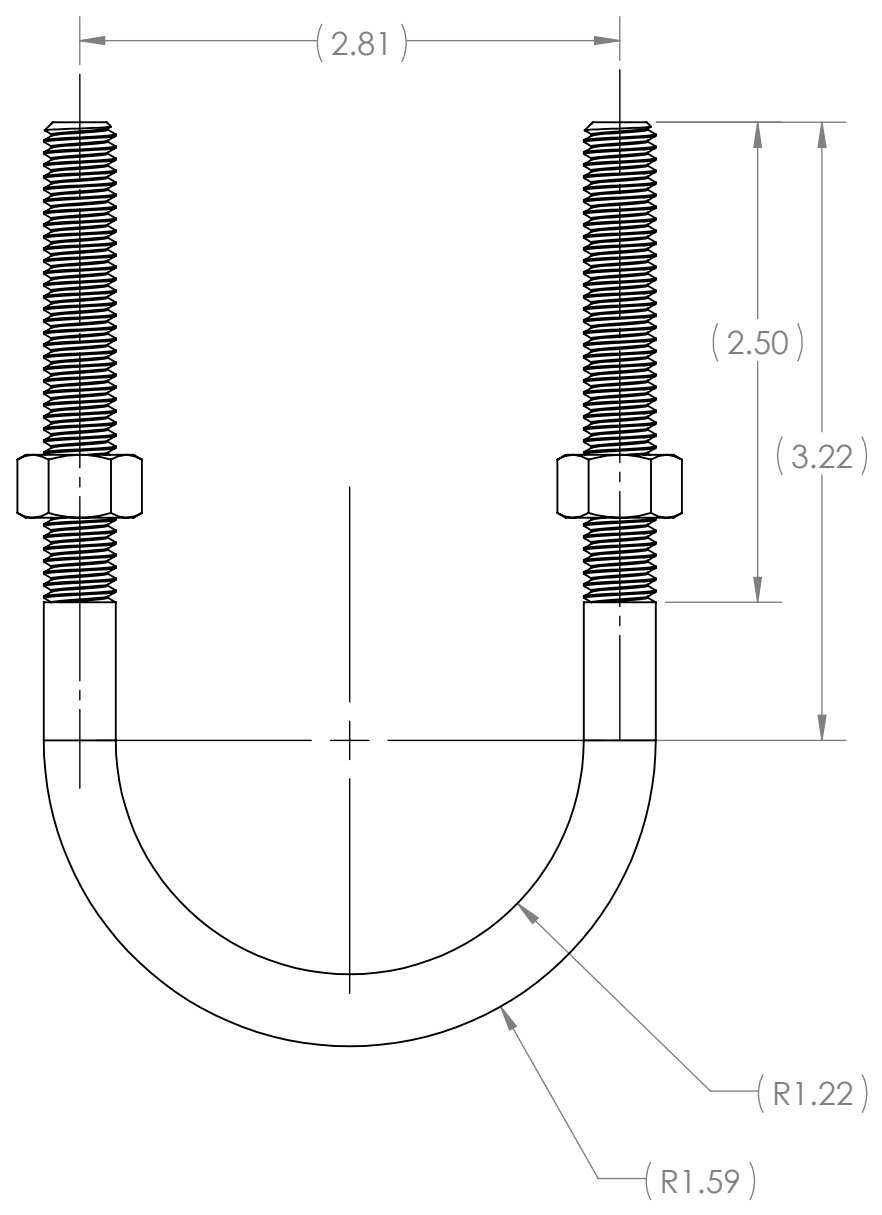
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DESCRIPTION: STEEL U-BOLT, 3/8"-16, 2-7/16" ID

VENDOR: MCMaster CARR

VENDOR PART NUMBER: 8880T959

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC 12/16/19
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
			 		
			TITLE: U-Bolt, Truss to Hard Stop		
SIZE	DWG. NO.			REV	
B	GE-20069				
SCALE: 1:1		WEIGHT:		SHEET 1 OF 1	

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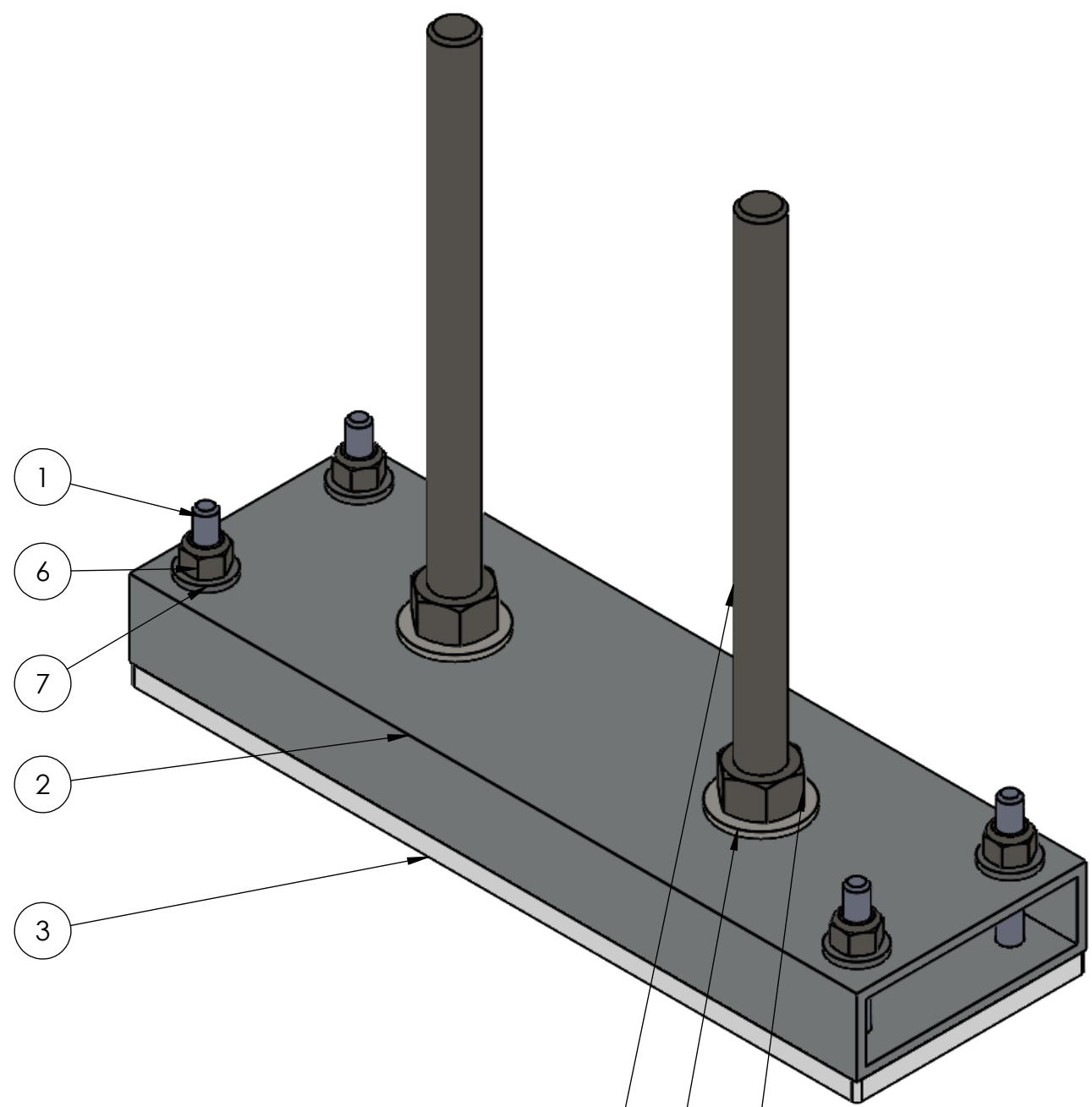
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	flat_phil_.25_20_2	.25"-20 x 2" Flat Head Phillips	4
2	GE-20084	Hard Stop, Hitting Tube	1
3	GE-20085	Hard Stop, Hitting Plate	1
4	hex_.5_13_7	Steel Hex Head Screw, 1/2"-13 x 7" long, fully threaded	2
5	hexnut_.5_13	Steel Hex Nut, 1/2"-13	2
6	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	4
7	washer_flat_.25	Flat Washer for 1/4" Screw	4
8	washer_flat_.5	Flat Washer for 1/2" Screw	4

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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	Q.A.		
APPLICATION		COMMENTS:		
DO NOT SCALE DRAWING		TITLE: <h2>Hard Stop, Hitting Assembly</h2>		
		SIZE	DWG. NO.	REV
		B	GE-20072	
		SCALE: 2:3	WEIGHT:	SHEET 1 OF 3

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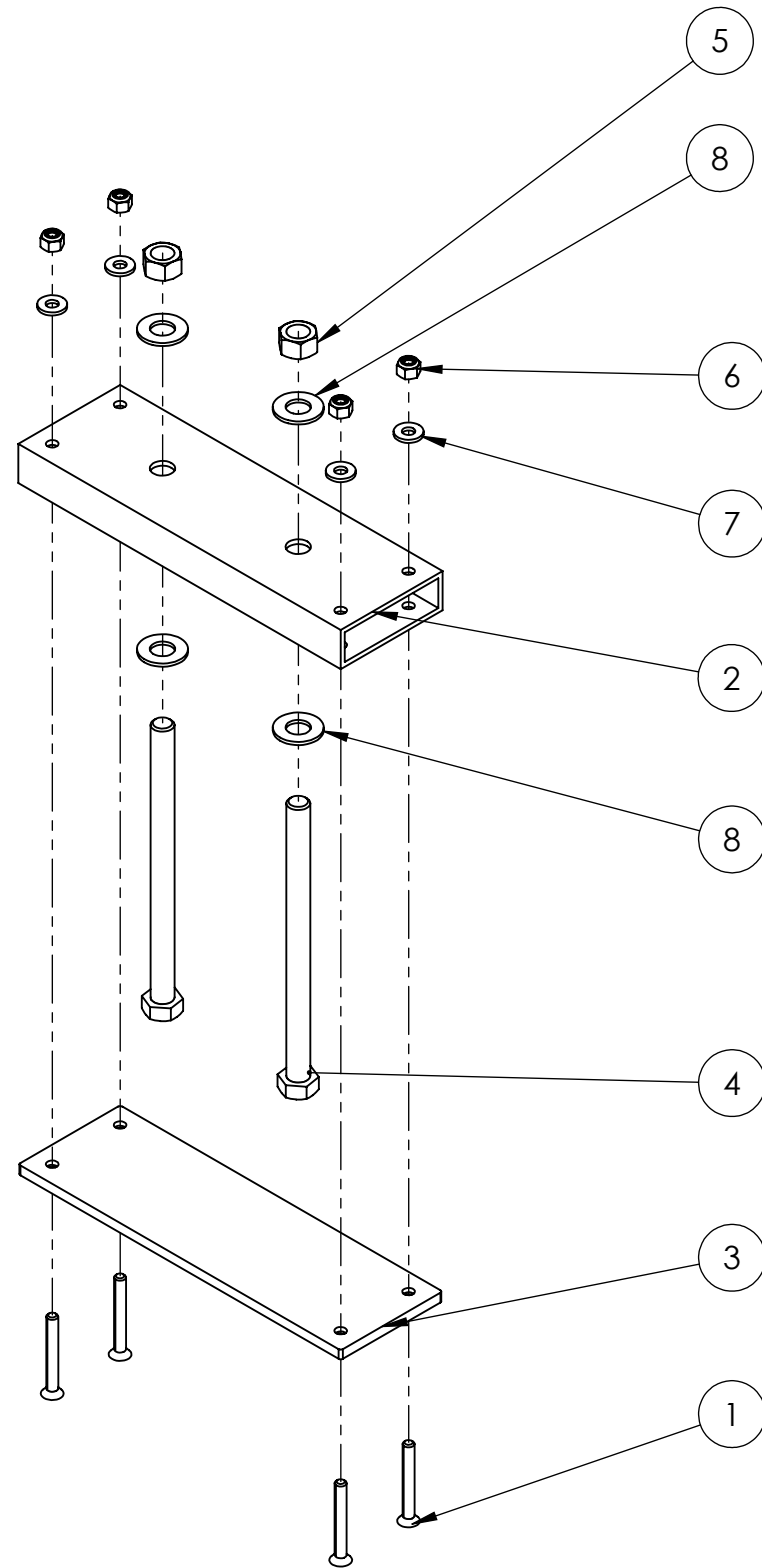
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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
		MATERIAL		ENG APPR.		
		FINISH		MFG APPR.		
NEXT ASSY	USED ON			Q.A.		
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		
			TITLE:			
			<h1>Hard Stop, Hitting Assembly</h1>			
SIZE	DWG. NO.	REV				
B	GE-20072					
SCALE: 1:4		WEIGHT:		SHEET 2 OF 3		

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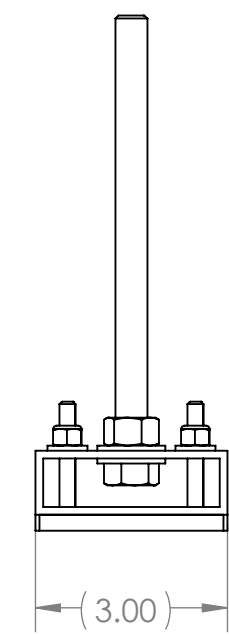
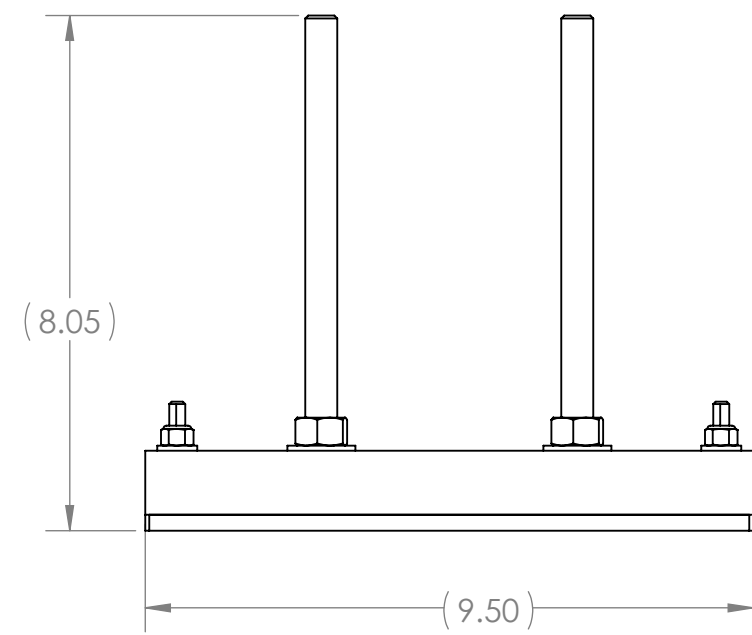
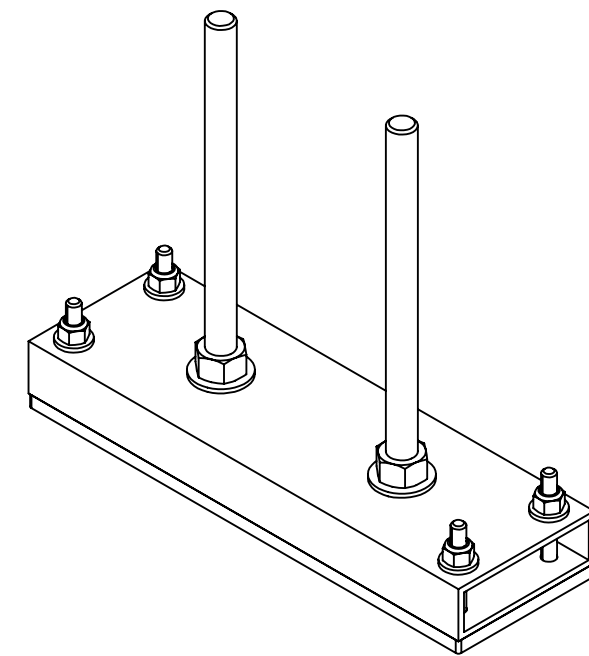
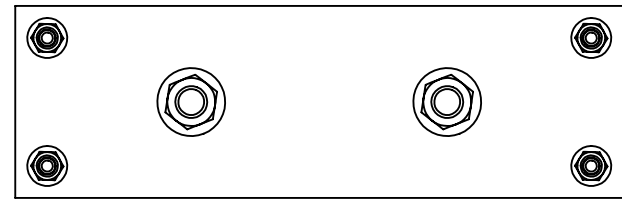
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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	12/16/19
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:
Hard Stop, Hitting Assembly

SIZE DWG. NO. REV
B GE-20072

SCALE: 1:3 WEIGHT: SHEET 3 OF 3

4

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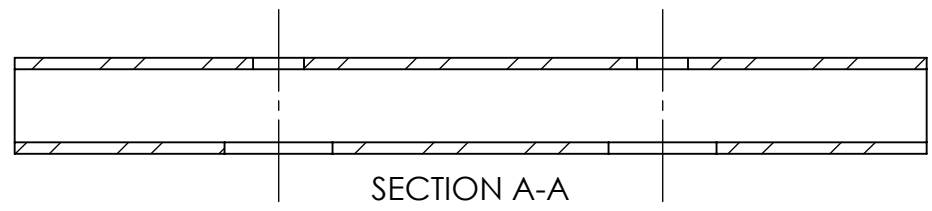
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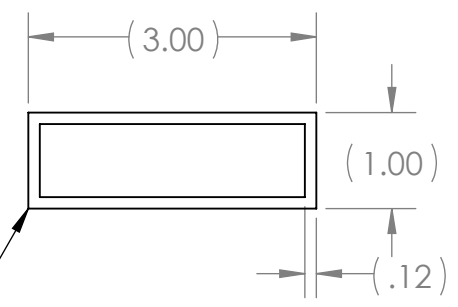
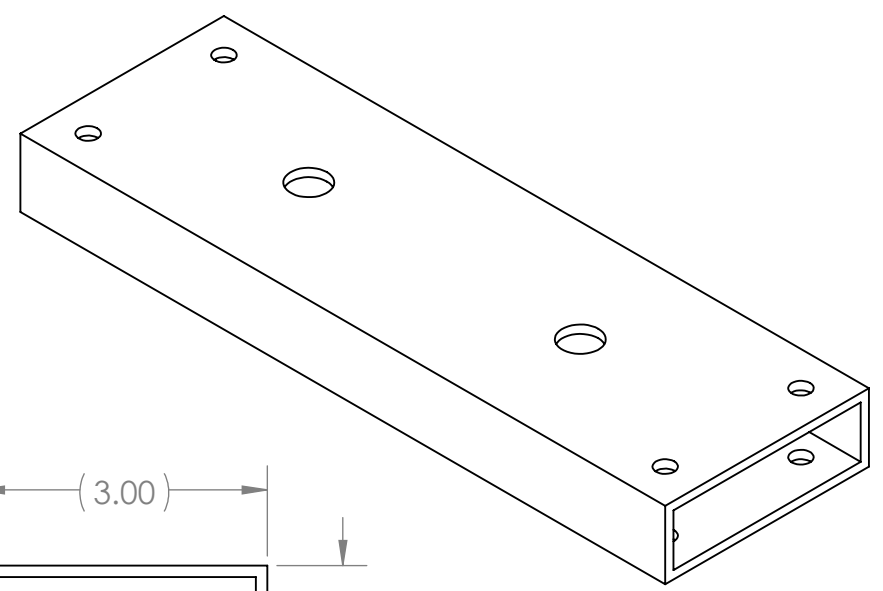
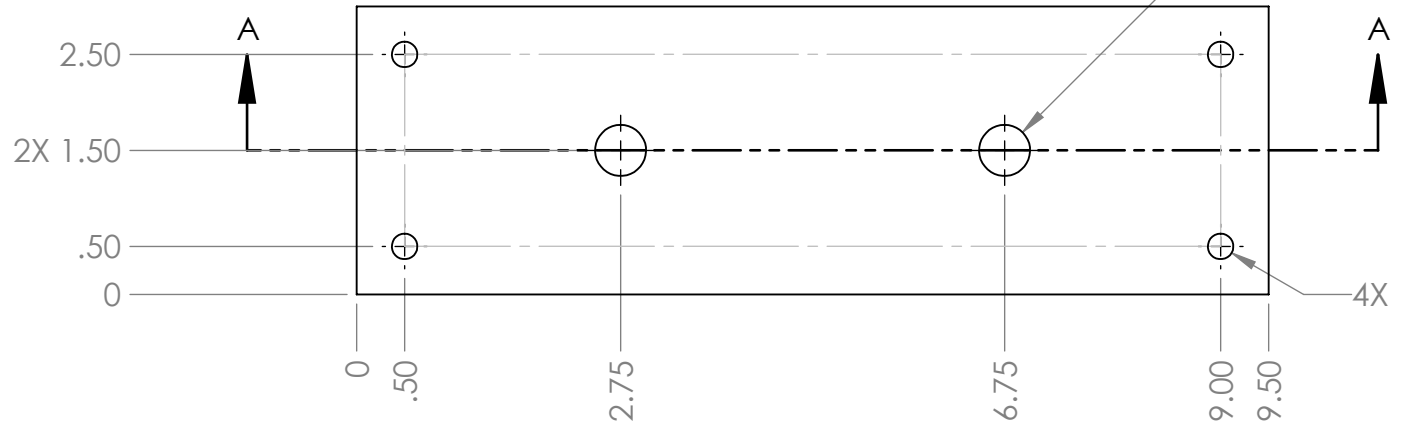
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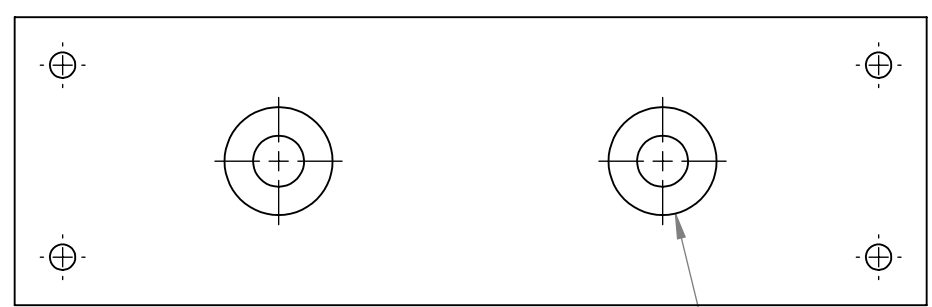
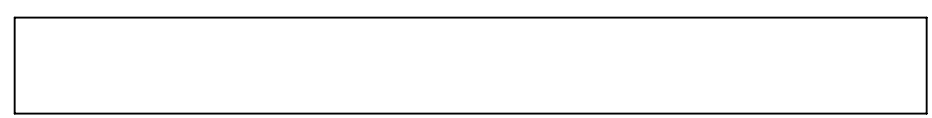
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, A4	A	UPDATED FINISH & APPLICATION TABLE	10/21/2019	KAMC



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 \square ϕ 1.13 ∇ .13



ROUND CORNERS PERMITTED



- Notes:
1. Material: 1" x 3" x 0.12" Mild Steel Rectangle Tube A500/A513 Hot Rolled
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.
 4. Finish: Gray/Silver - Painted

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	10/3/19
		FRACTIONAL: $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
GE-20074		INTERPRET GEOMETRIC TOLERANCING PER:		
NEXT ASSY	USED ON	MATERIAL		
		STEEL TUBE		
		FINISH		
		PAINT		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
Hard Stop, Hitting Tube		
SIZE	DWG. NO.	REV
B	GE-20084	A
SCALE: 1:2	WEIGHT:	SHEET 1 OF 1

4

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2

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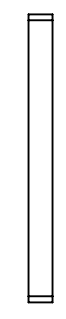
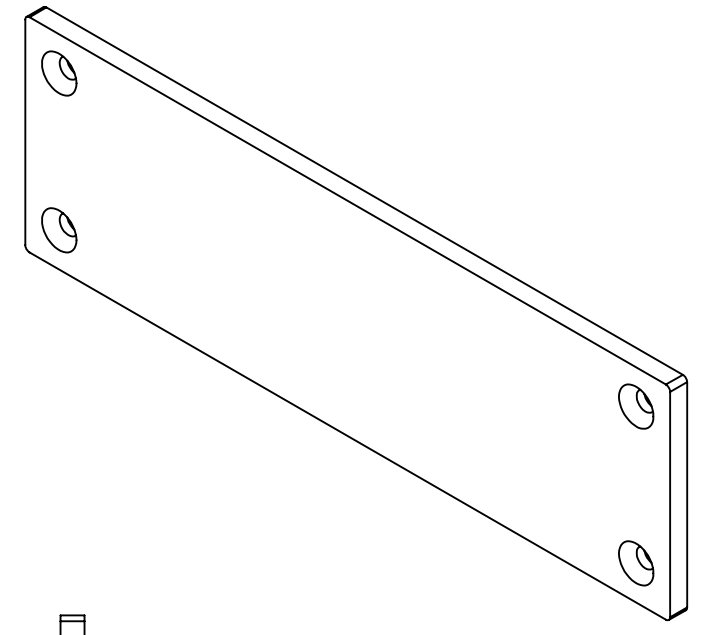
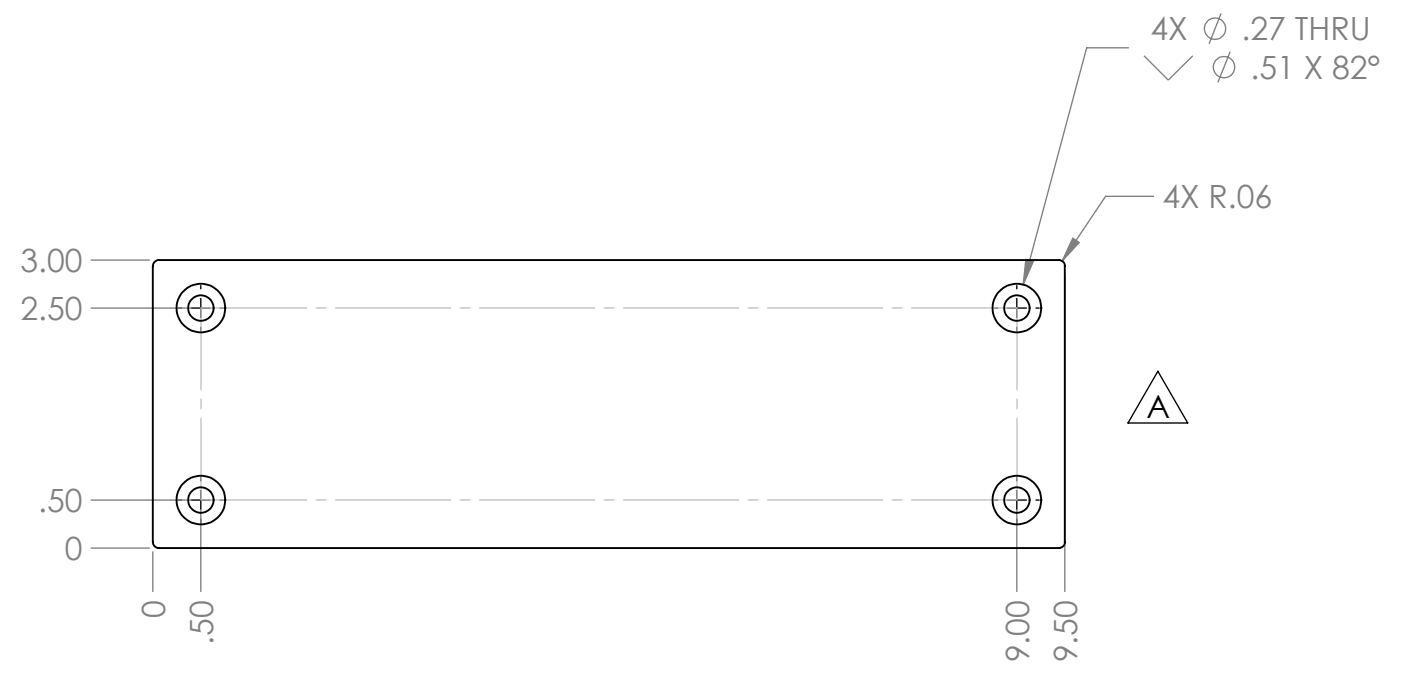
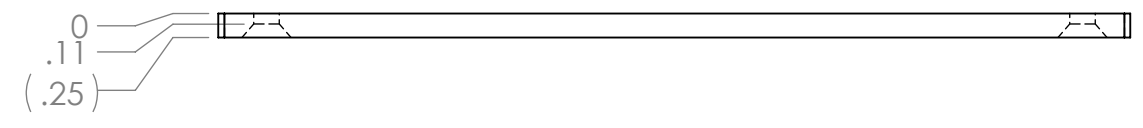
3

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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, A3	A	PART SIZE, NUMBER OF HOLES, AND APPLICATION TABLE MODIFIED	10/22/2019	KAMC

HIDDEN LINES SHOWN - FOR HOLE REF.



- Notes:
1. Material: 0.25" HDPE, Texture: Natural/Smooth, Color: White
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	KAMC
		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
GE-20072		MATERIAL			
		HDPE			
NEXT ASSY		FINISH			
		BARE			
APPLICATION		DO NOT SCALE DRAWING			



TITLE: **Hard Stop, Hitting Plate**

SIZE **B** DWG. NO. **GE-20085** REV **A**

SCALE: 1:2 WEIGHT: SHEET 1 OF 1

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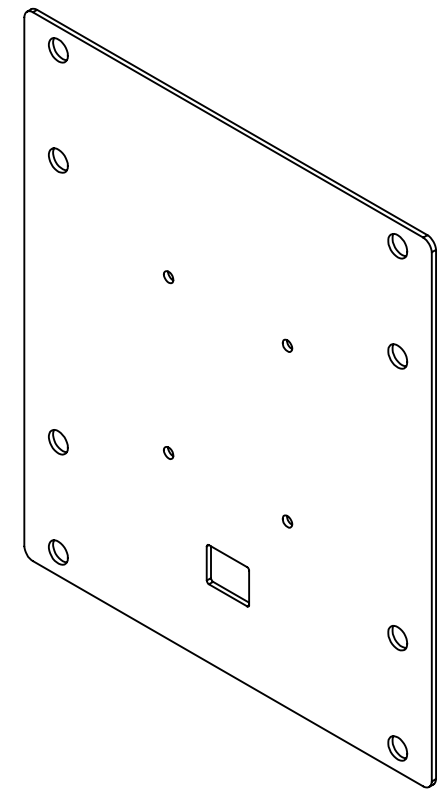
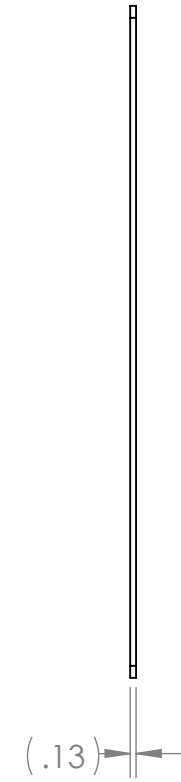
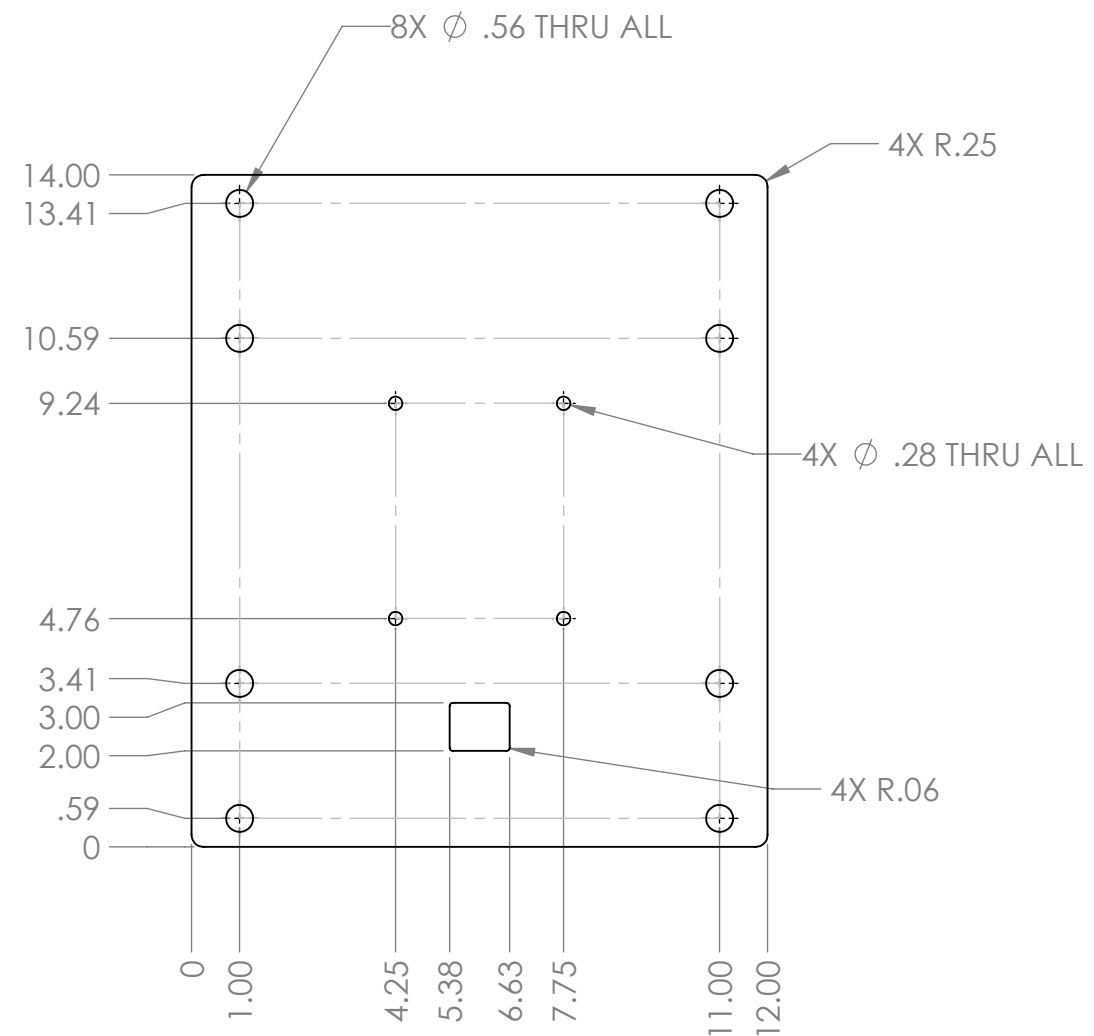
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- Notes:
1. Material: 0.125" HDPE, Texture: Natural/Smooth, Color: White
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		
				TITLE:		
				Hard Stop, Truss Protection		
		SIZE	DWG. NO.	REV		
		B	GE-20087			
		SCALE: 1:4		WEIGHT:	SHEET 1 OF 1	

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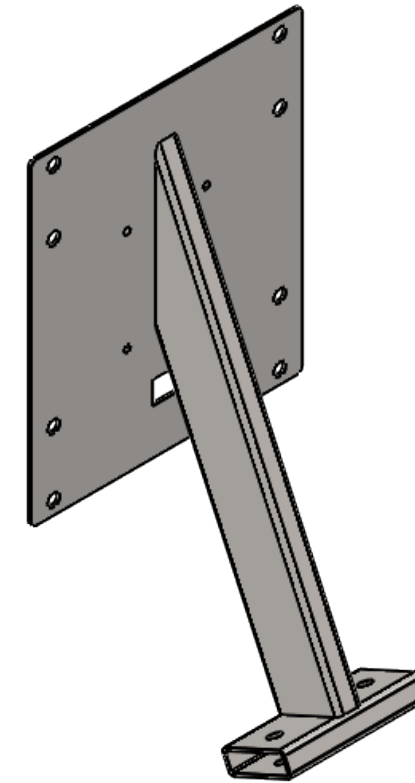
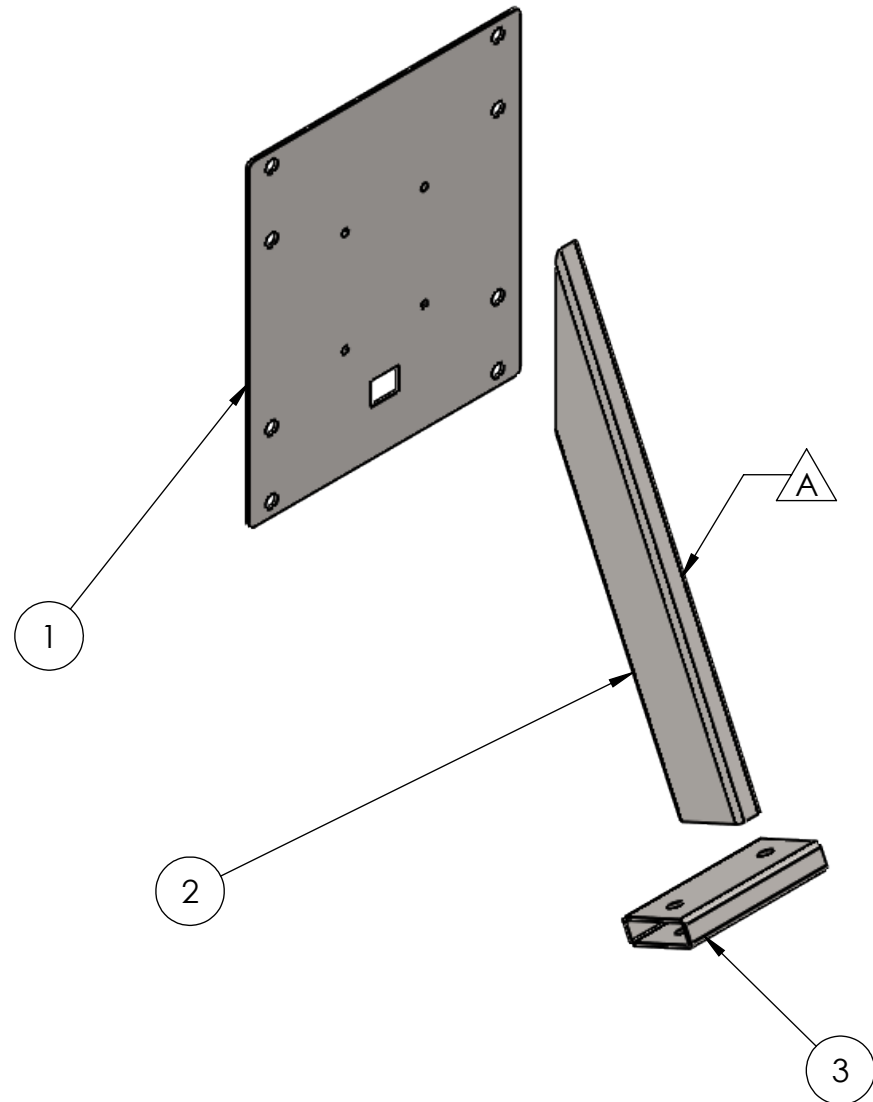
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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, B3, 2-A2, 2- A4	A	GE-20082 Part Length Modified	10/30/2019	KAMC





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20081	Hard Stop, Weldment, Truss Mount Plate	1
2	GE-20082	Hard Stop, Weldment, Tube, Long	1
3	GE-20086	Hard Stop, Weldment, Tube, Hitting Assembly Mount	1

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- Notes:
1. Finish: Silver/Gray - Paint
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: <h2>Hard Stop, Weldment, Large</h2>
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	FINISH	PAINT	Q.A. COMMENTS:
APPLICATION		DO NOT SCALE DRAWING		SIZE DWG. NO. REV B GE-20088 A
				SCALE: 1:6 WEIGHT: SHEET 1 OF 2

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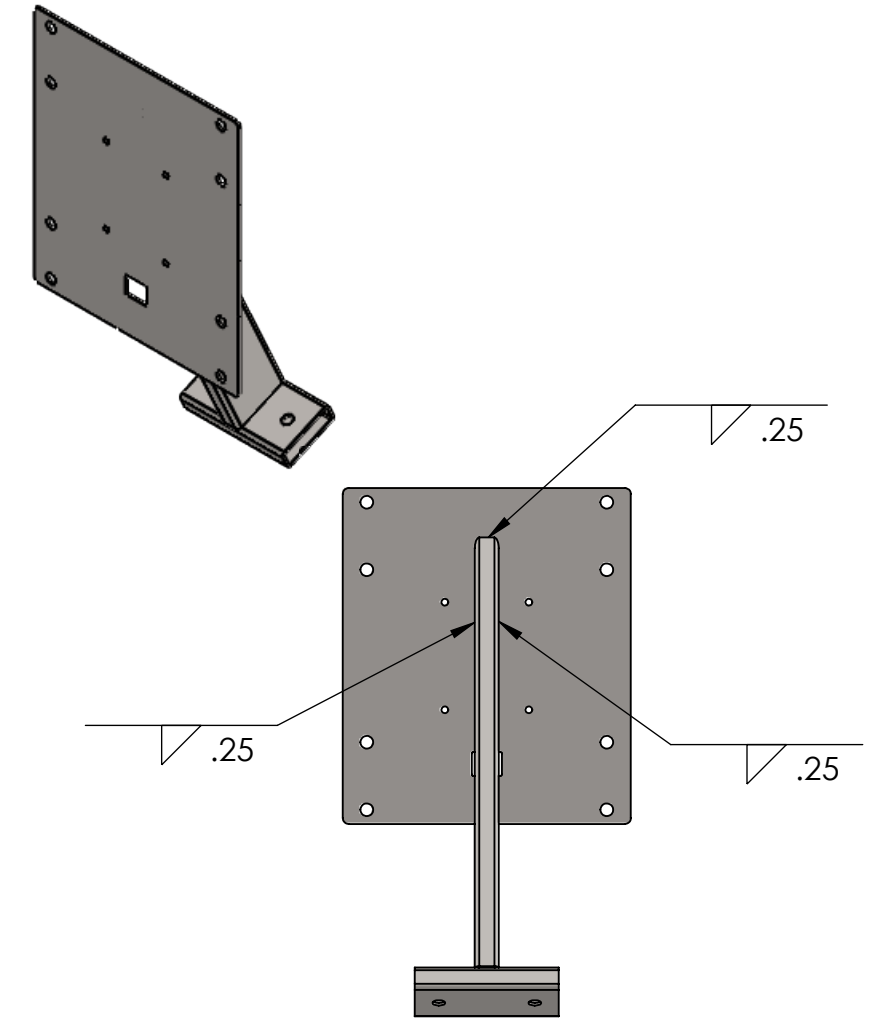
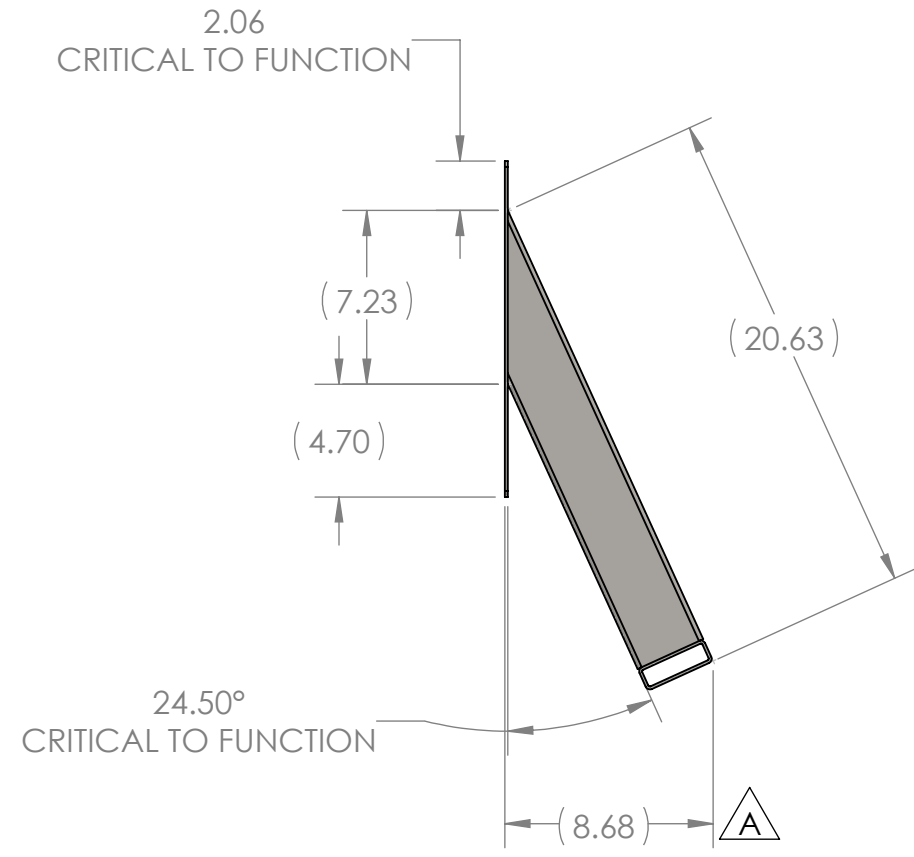
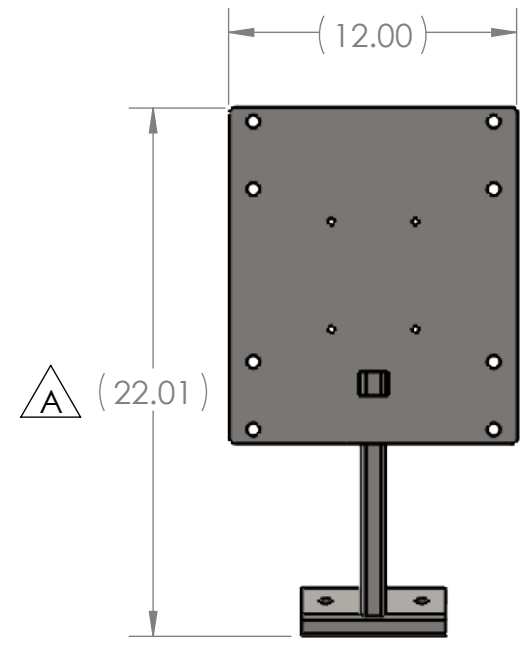
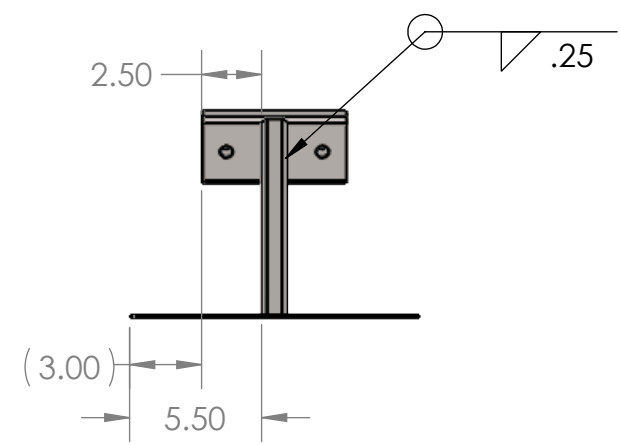
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet 1	-	-



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DIMENSIONS ARE IN INCHES		DRAWN	KAMC 10/22/19
TOLERANCES:		CHECKED	
FRACTIONAL: ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
PAINT			
NEXT ASSY	USED ON		
APPLICATION			
DO NOT SCALE DRAWING			



TITLE:		
Hard Stop, Weldment, Large		
SIZE	DWG. NO.	REV
B	GE-20088	A
SCALE: 1:8	WEIGHT:	SHEET 2 OF 2

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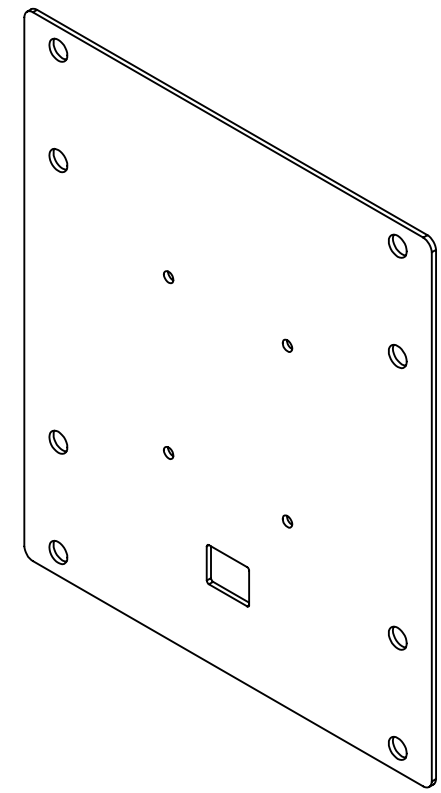
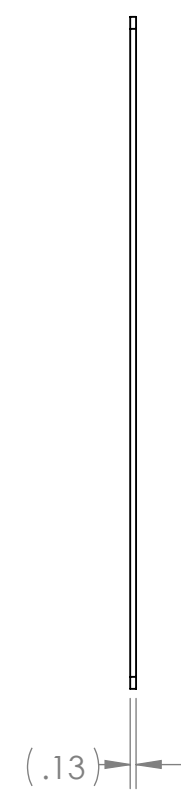
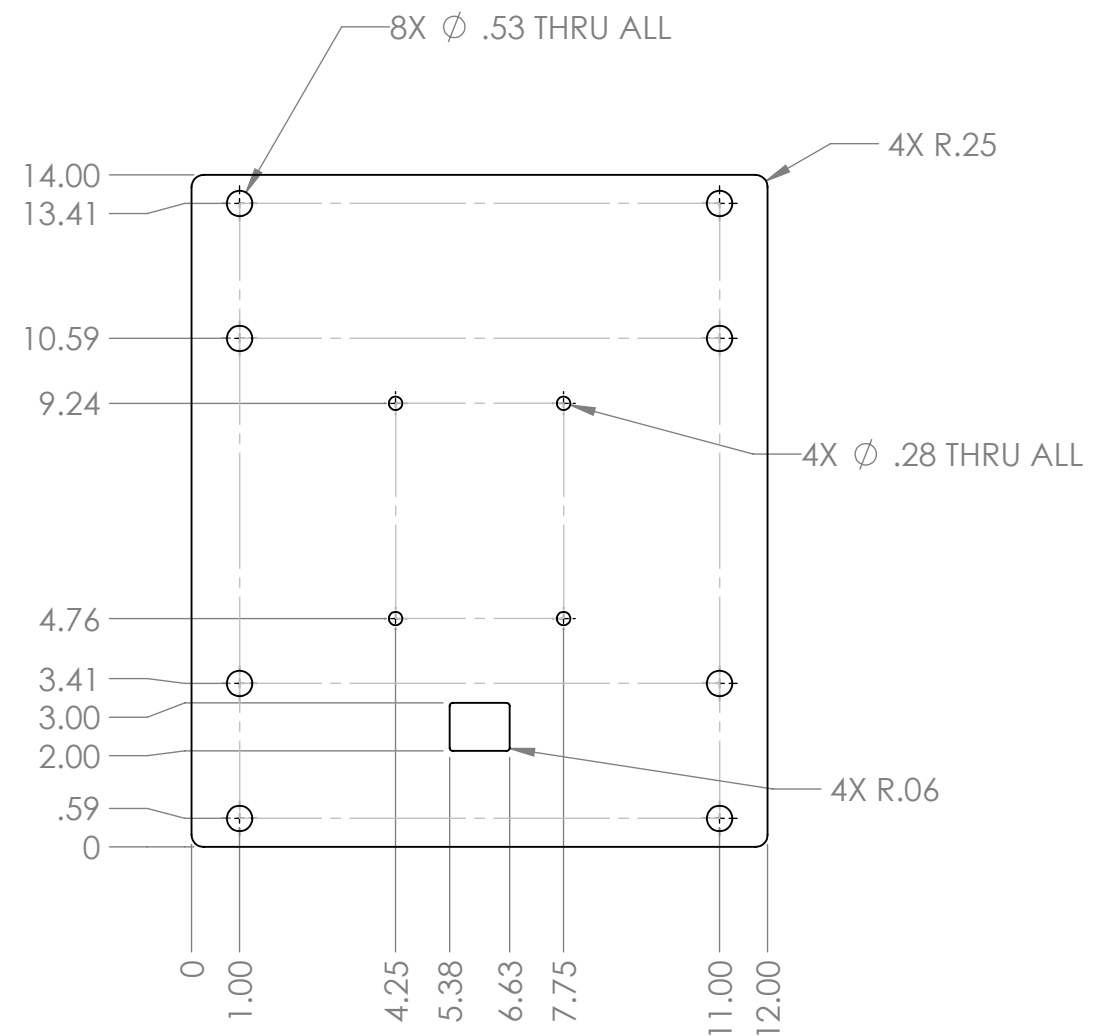
3

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- Notes:
1. Material: 0.125" Mild Steel A366/1008 Cold Roll
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		
GE-20089		INTERPRET GEOMETRIC TOLERANCING PER:		TITLE: Hard Stop, Weldment, Truss Mount Plate		
GE-20088		MATERIAL				
		STEEL PLATE		SIZE	DWG. NO.	REV
NEXT ASSY	USED ON	FINISH		B	GE-20081	0
		BARE		SCALE: 1:4	WEIGHT:	SHEET 1 OF 1
APPLICATION		DO NOT SCALE DRAWING				

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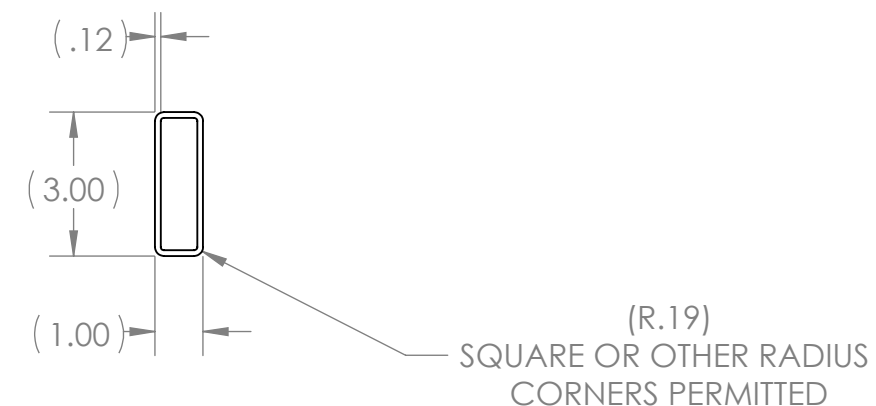
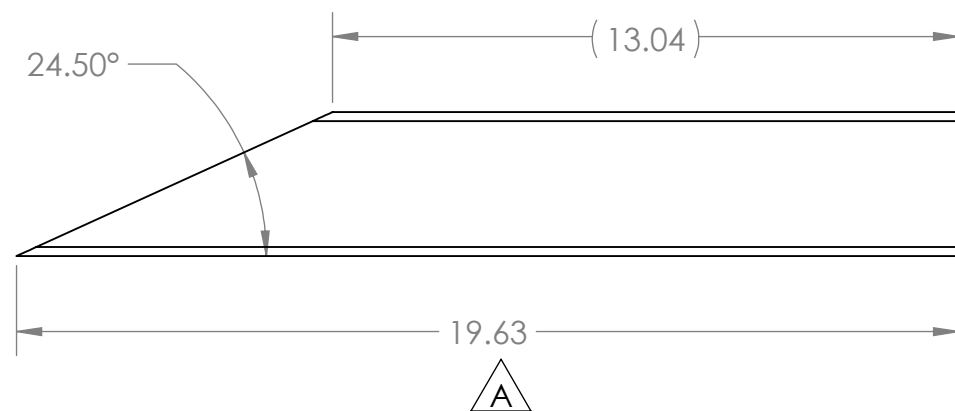
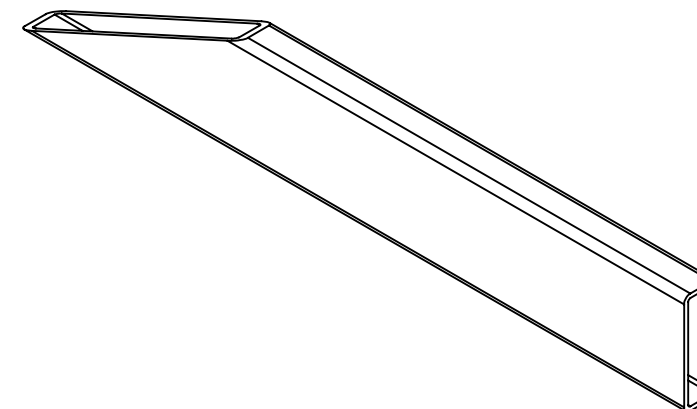
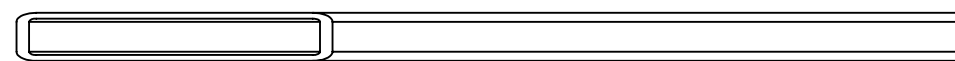
4

3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, A3	A	Updated Part Length & Application Table	10/30/2019	KAMC



B



B

A

A

- Notes:
1. Material: 1" x 3" x 0.12" Mild Steel Rectangle Tube A500/A513 Hot Rolled
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		
GE-20088		MATERIAL		STEEL TUBE		TITLE:
NEXT ASSY	USED ON	FINISH		BARE		Hard Stop, Weldment, Tube, Long
APPLICATION				DO NOT SCALE DRAWING		SIZE B DWG. NO. GE-20082 REV A
						SCALE: 1:4 WEIGHT: SHEET 1 OF 1

4

3

2

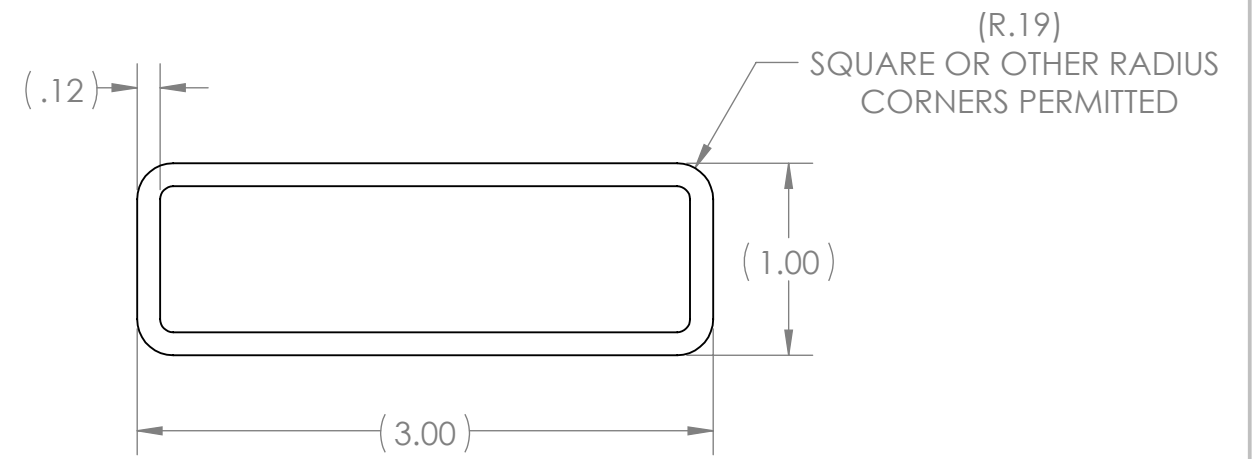
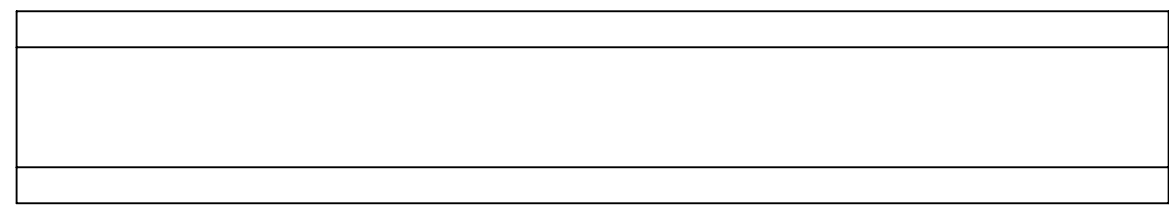
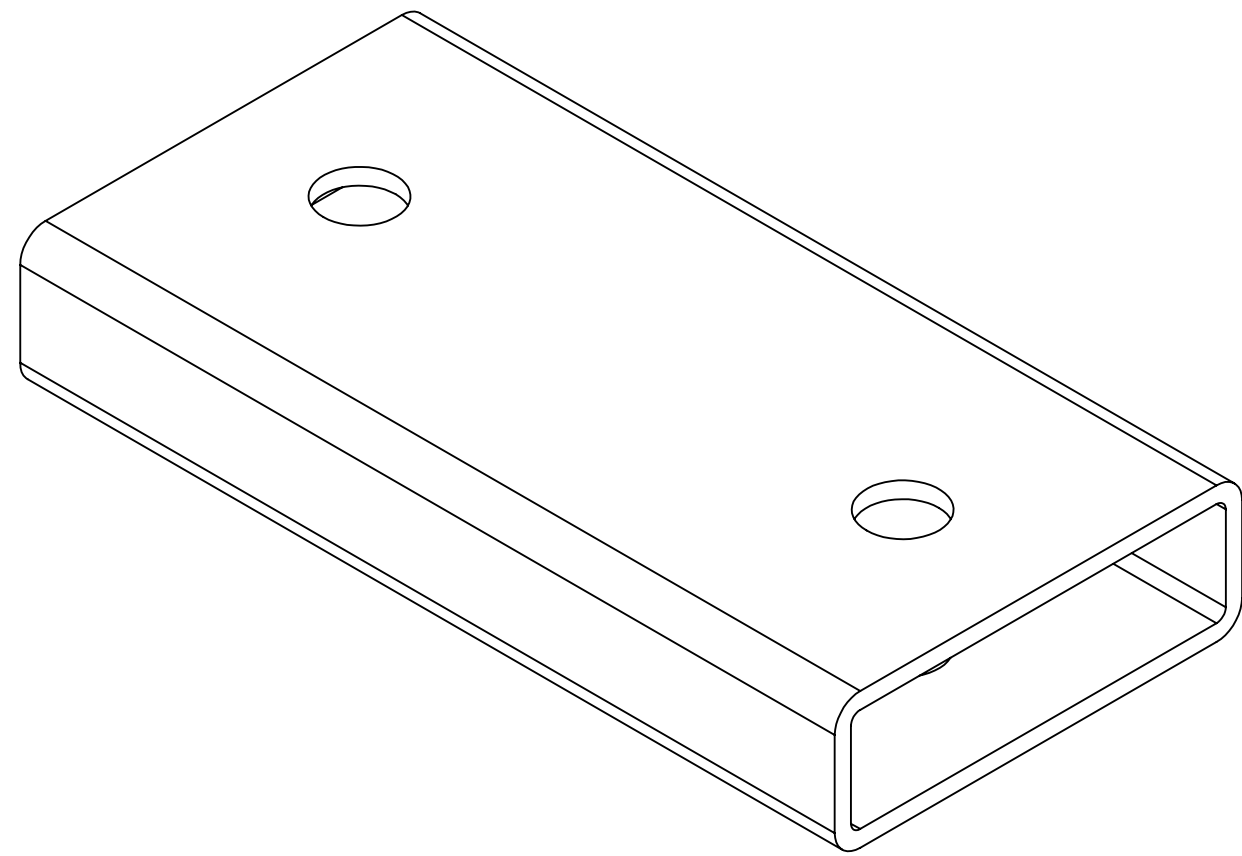
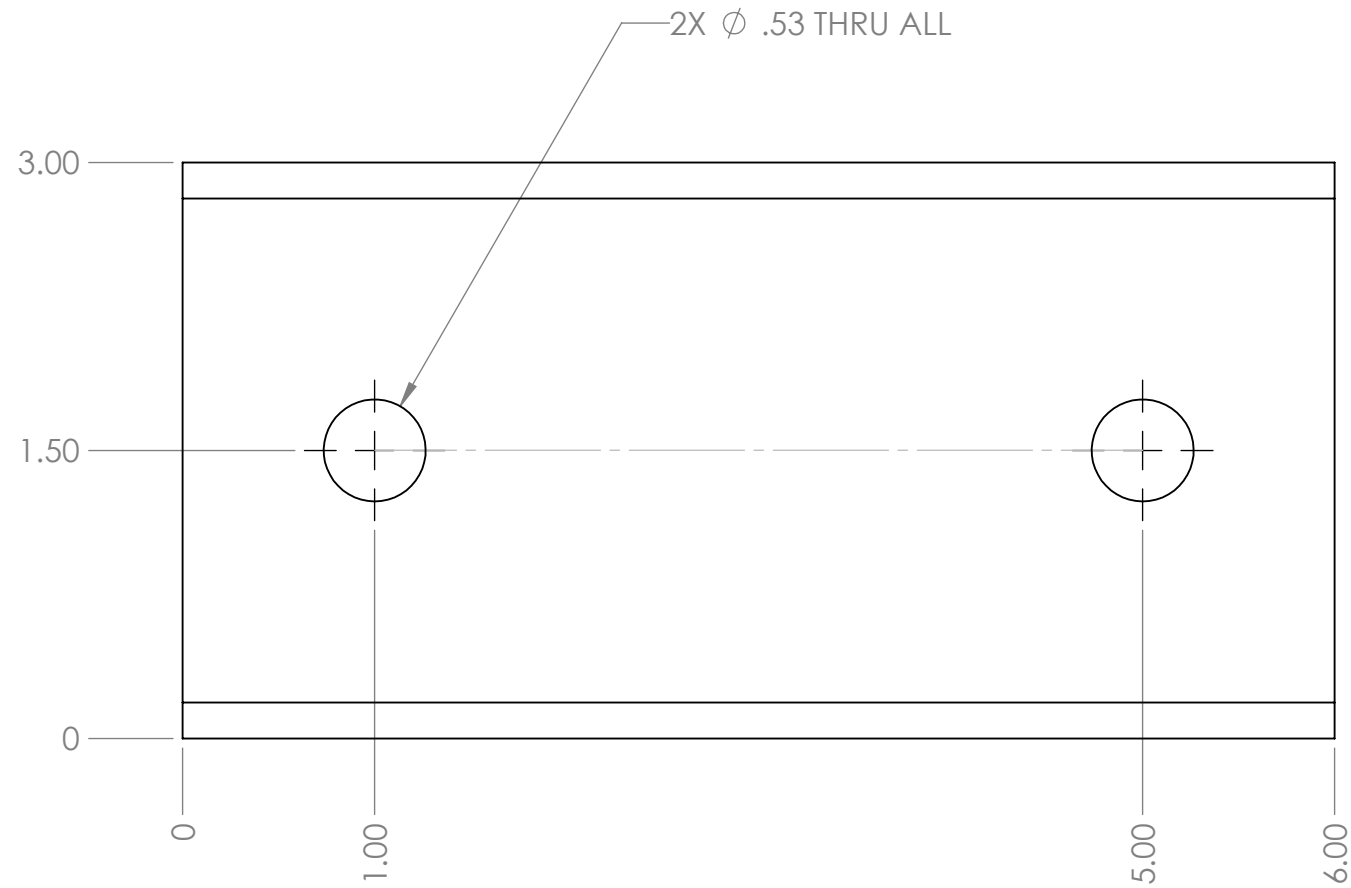
1

4

3



2

1



- Notes:
1. Material: 1" x 3" x 0.12" Mild Steel Rectangle Tube A500/A513 Hot Rolled
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Hard Stop, Weldment, Tube, Hitting Assembly Mount
		MATERIAL		ENG APPR.		
		STEEL TUBE		MFG APPR.		
		FINISH		Q.A.		SIZE DWG. NO. REV B GE-20086 0
		BARE		COMMENTS:		
NEXT ASSY		USED ON				SCALE: 1:1
APPLICATION		DO NOT SCALE DRAWING				WEIGHT:
						SHEET 1 OF 1

4

3

2

1

B

B

A

A

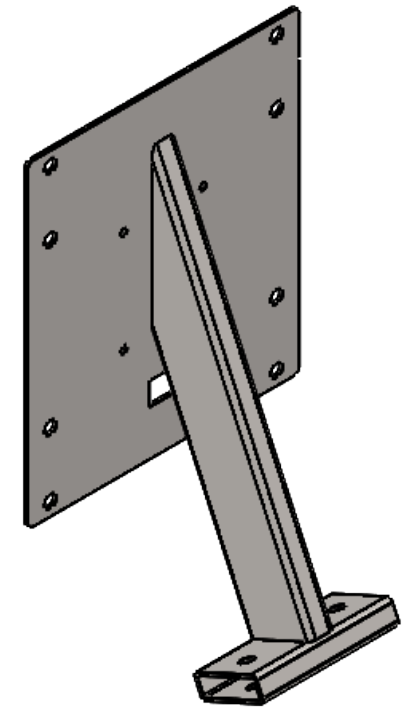
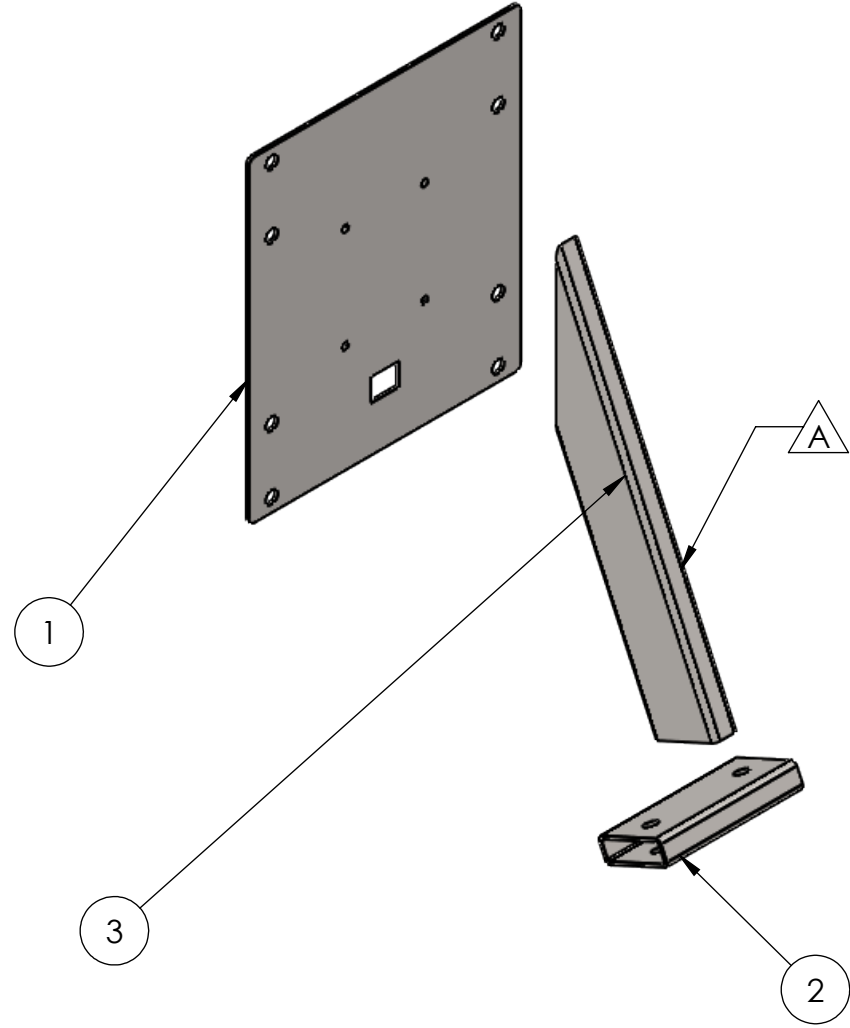
4

3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, B3, 2-A2, 2-A4, 2-B3	A	Updated Length of Part GE-20083 & Changed Mounting Location to GE-20081	10/30/2019	KAMC



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20081	Hard Stop, Weldment, Truss Mount Plate	1
2	GE-20086	Hard Stop, Weldment, Tube, Hitting Assembly Mount	1
3	GE-20083	Hard Stop, Weldment, Tube, Short	1

UNLESS OTHERWISE SPECIFIED:		NAME	DATE	
DIMENSIONS ARE IN INCHES		DRAWN	KAMC	
TOLERANCES:		CHECKED		TITLE: Hard Stop, Weldment, Small
FRACTIONAL ±1/16		ENG APPR.		
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.		
TWO PLACE DECIMAL ±.01		Q.A.		
THREE PLACE DECIMAL ±.001		COMMENTS:		SIZE DWG. NO. REV B GE-20089 A
INTERPRET GEOMETRIC TOLERANCING PER:	MATERIAL			SCALE: 1:6
FINISH	PAINT			WEIGHT:
NEXT ASSY	USED ON			SHEET 1 OF 2
APPLICATION	DO NOT SCALE DRAWING			

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- Notes:
1. Finish: Silver/Gray - Paint
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

4

3

2

1

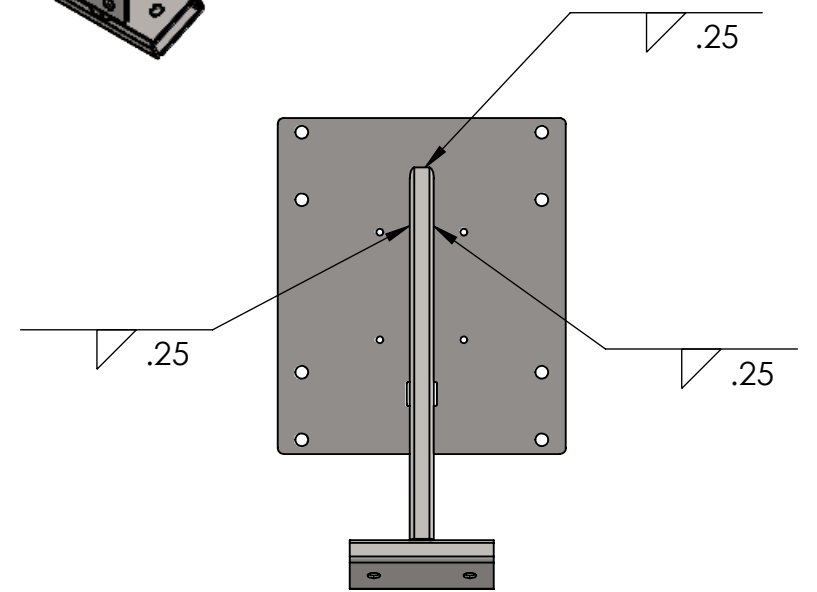
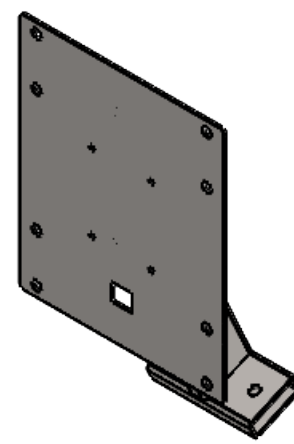
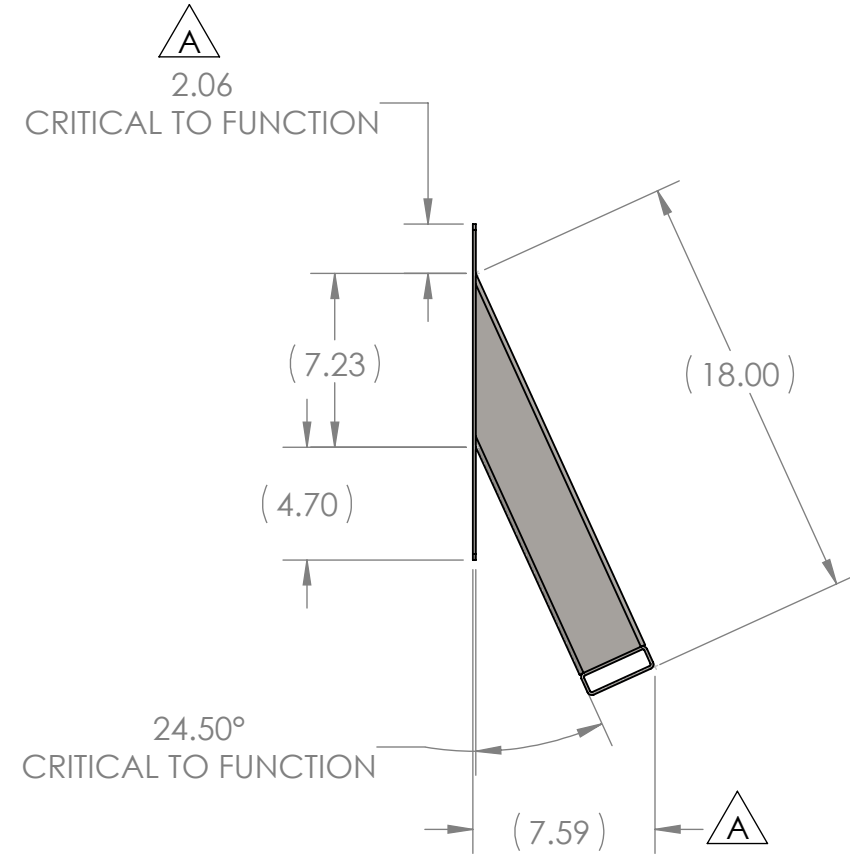
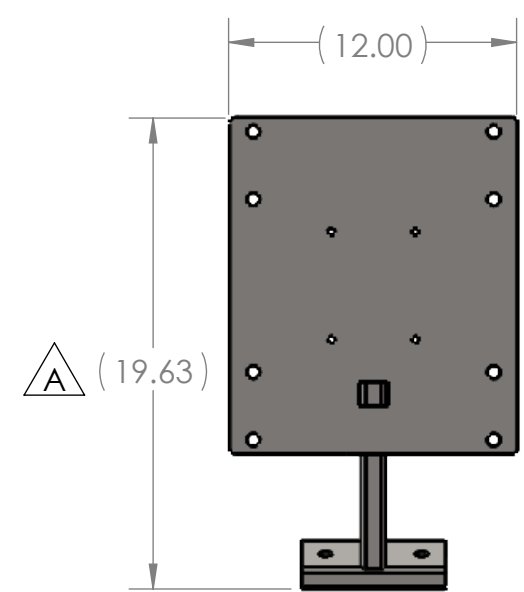
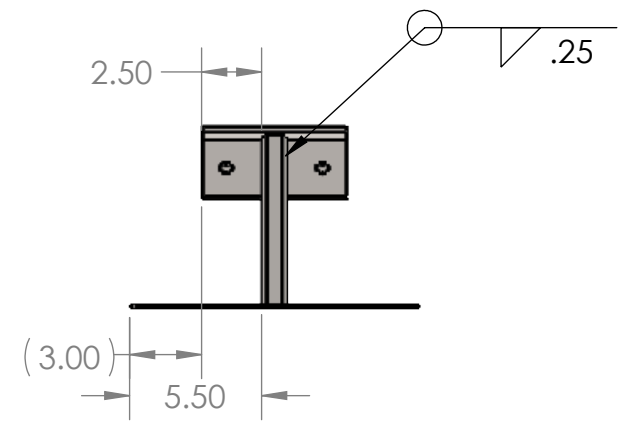
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3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet1	-	-



B

B

A

A

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC
		TOLERANCES:	CHECKED	10/22/19
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH	PAINT	
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
Hard Stop, Weldment, Small		
SIZE	DWG. NO.	REV
B	GE-20089	A
SCALE: 1:8	WEIGHT:	SHEET 2 OF 2

4

3

2

1

4

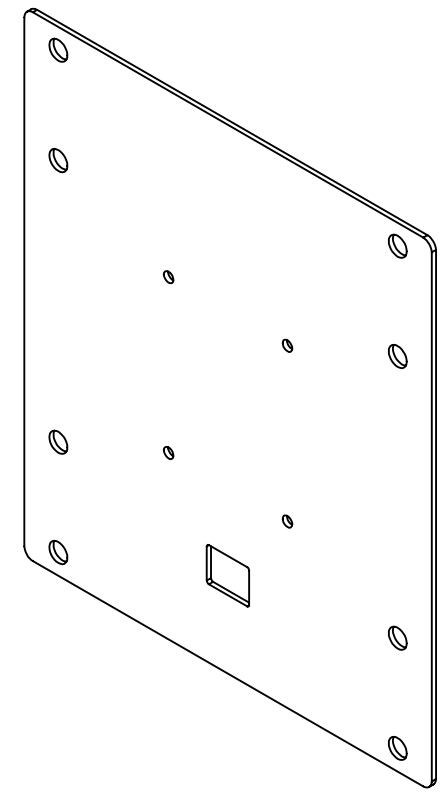
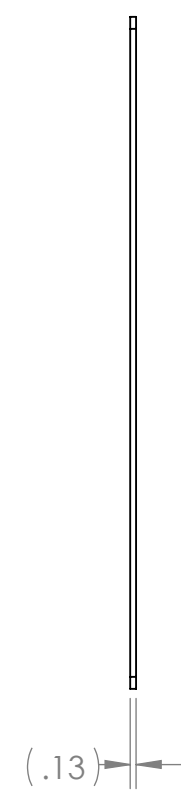
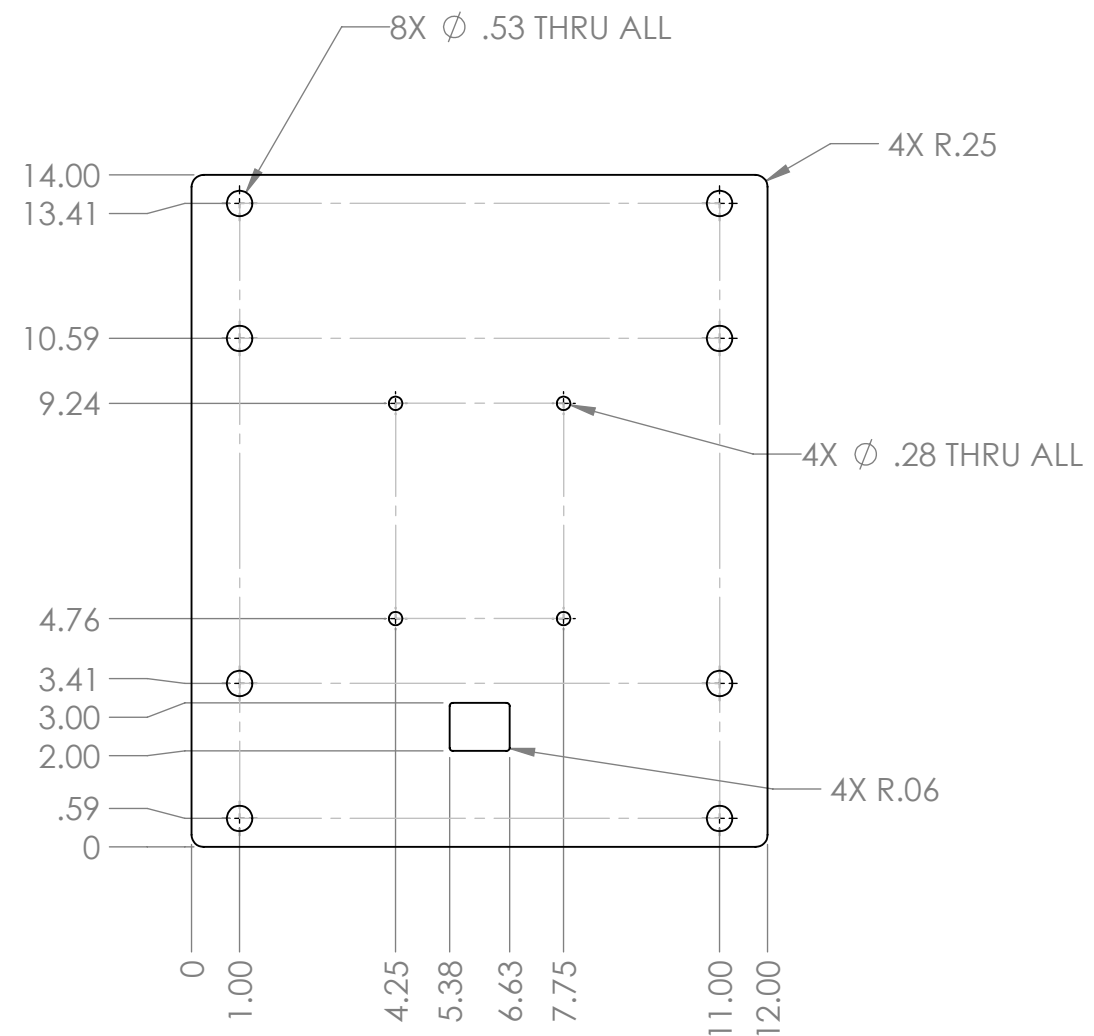
3

2

1

B

B





A

A

- Notes:
1. Material: 0.125" Mild Steel A366/1008 Cold Roll
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		
GE-20089		INTERPRET GEOMETRIC TOLERANCING PER:		TITLE: Hard Stop, Weldment, Truss Mount Plate		
GE-20088		MATERIAL				
		STEEL PLATE		SIZE	DWG. NO.	REV
NEXT ASSY	USED ON	FINISH		B	GE-20081	0
		BARE		SCALE: 1:4	WEIGHT:	SHEET 1 OF 1
APPLICATION		DO NOT SCALE DRAWING				

4

3

2

1

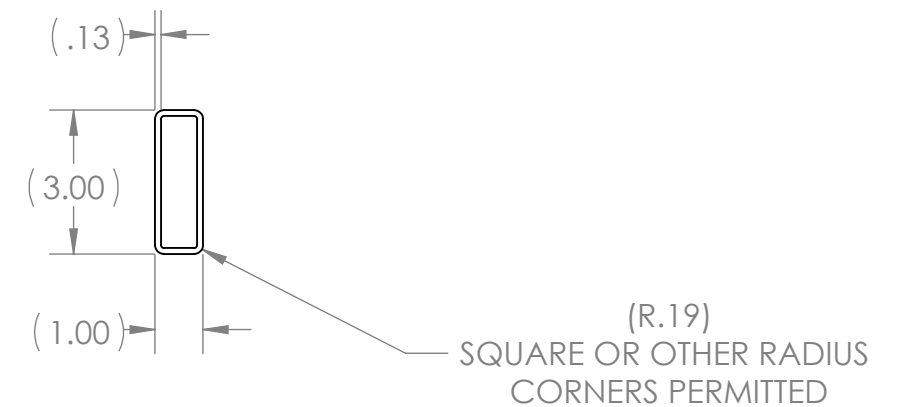
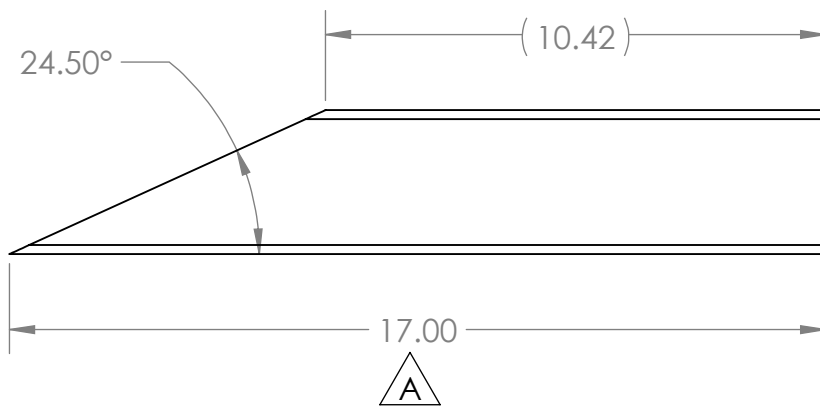
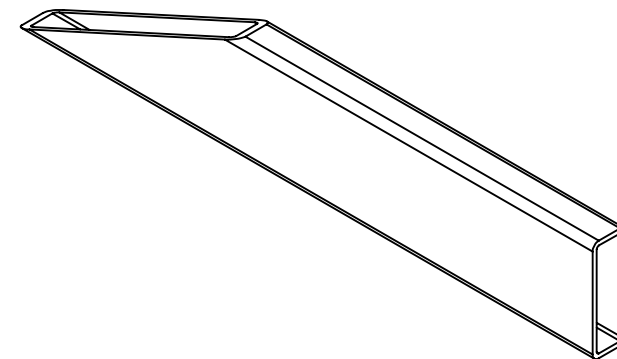
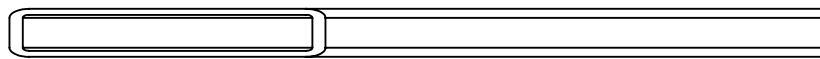
4

3

2



1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, A3	A	Updated Part Length & Application Table	10/30/2019	KAMC



- Notes:
1. Material: 1" x 3" x 0.12" Mild Steel Rectangle Tube A500/A513 Hot Rolled
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		
GE-20089		MATERIAL		TITLE:		
		STEEL TUBE		Hard Stop, Weldment, Tube, Short		
NEXT ASSY	USED ON	FINISH		SIZE	DWG. NO.	REV
		BARE		B	GE-20083	A
APPLICATION		DO NOT SCALE DRAWING		SCALE: 1:4	WEIGHT:	SHEET 1 OF 1

4

3

2

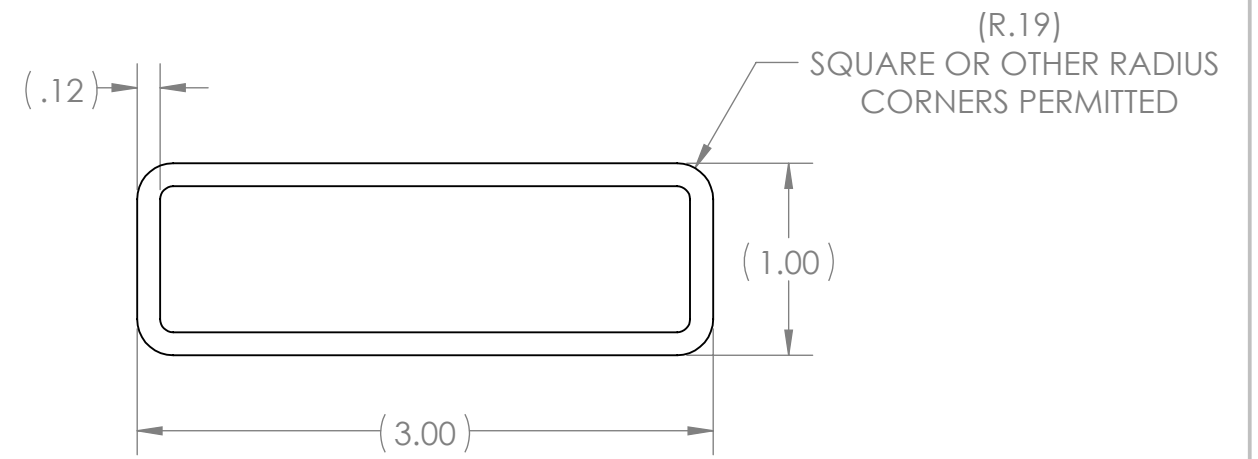
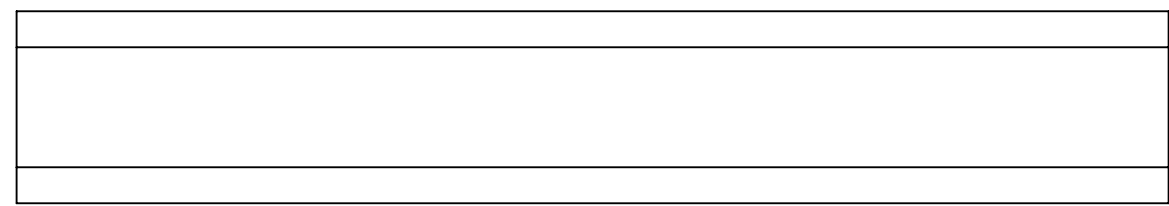
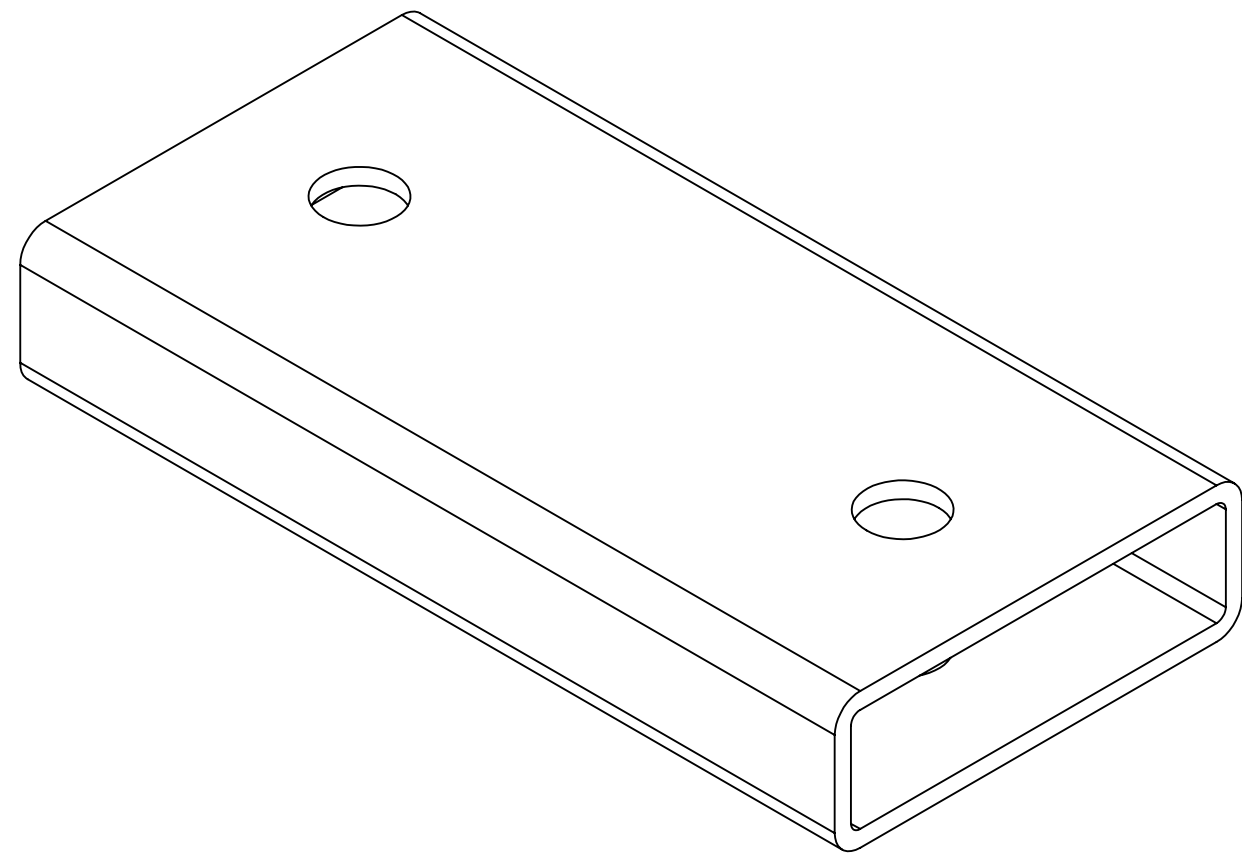
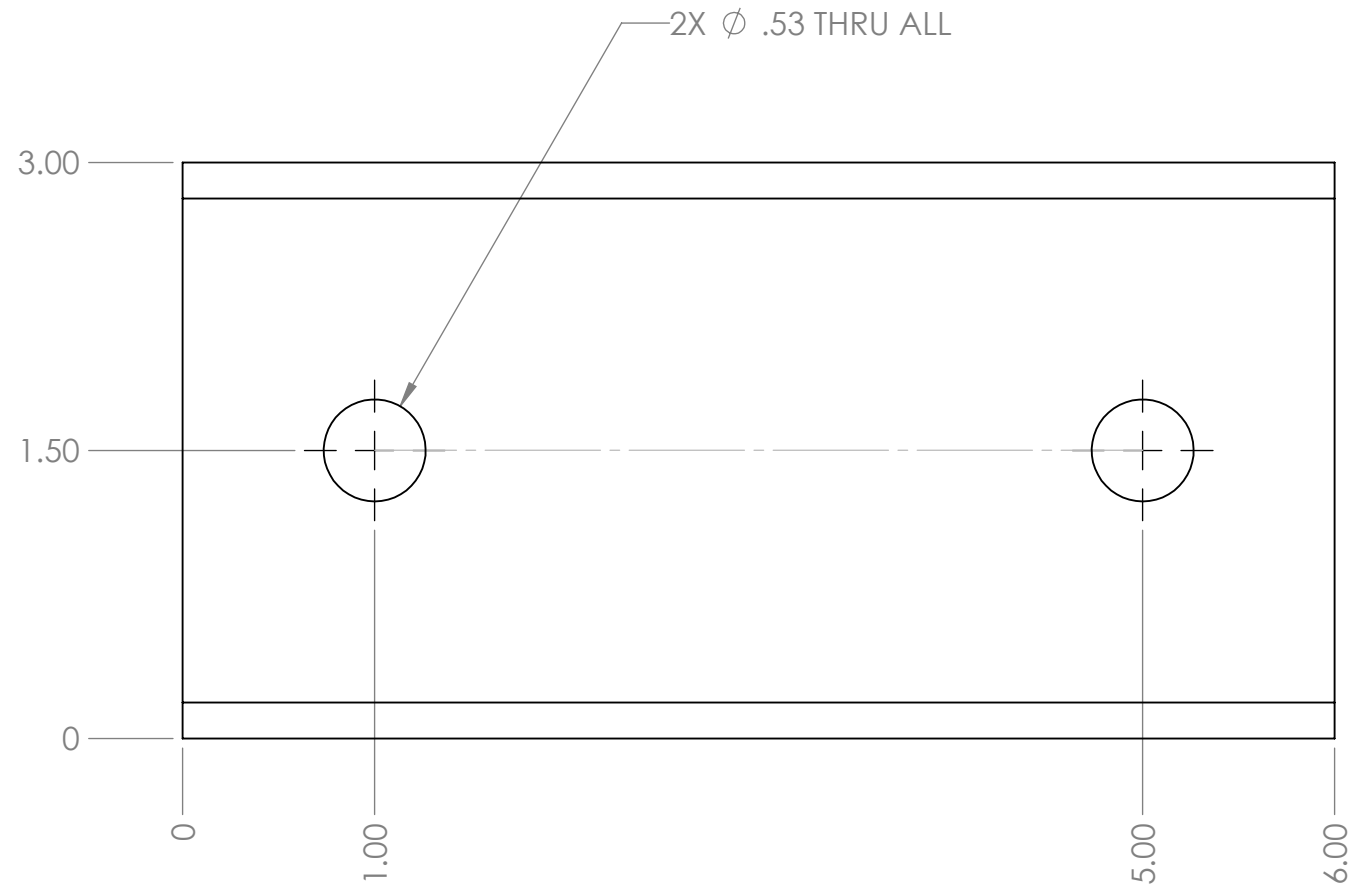
1

4

3



2

1



- Notes:
1. Material: 1" x 3" x 0.12" Mild Steel Rectangle Tube A500/A513 Hot Rolled
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
		MATERIAL		ENG APPR.		
		STEEL TUBE		MFG APPR.		
		FINISH		Q.A.		
		BARE		COMMENTS:		
GE-20088						TITLE: Hard Stop, Weldment, Tube, Hitting Assembly Mount
GE-20089						
NEXT ASSY	USED ON					SIZE DWG. NO. REV B GE-20086 0
APPLICATION		DO NOT SCALE DRAWING				SCALE: 1:1 WEIGHT: SHEET 1 OF 1

4

3

2

1

B

B

A

A

4

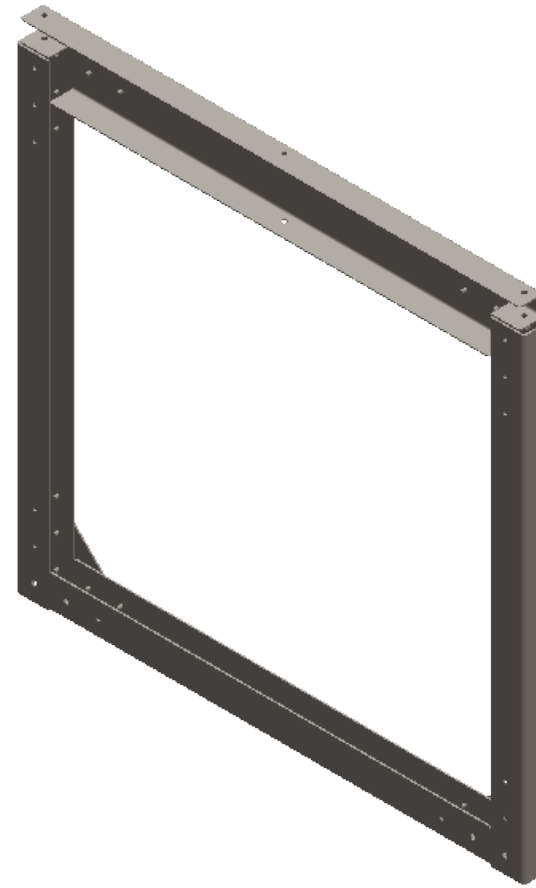
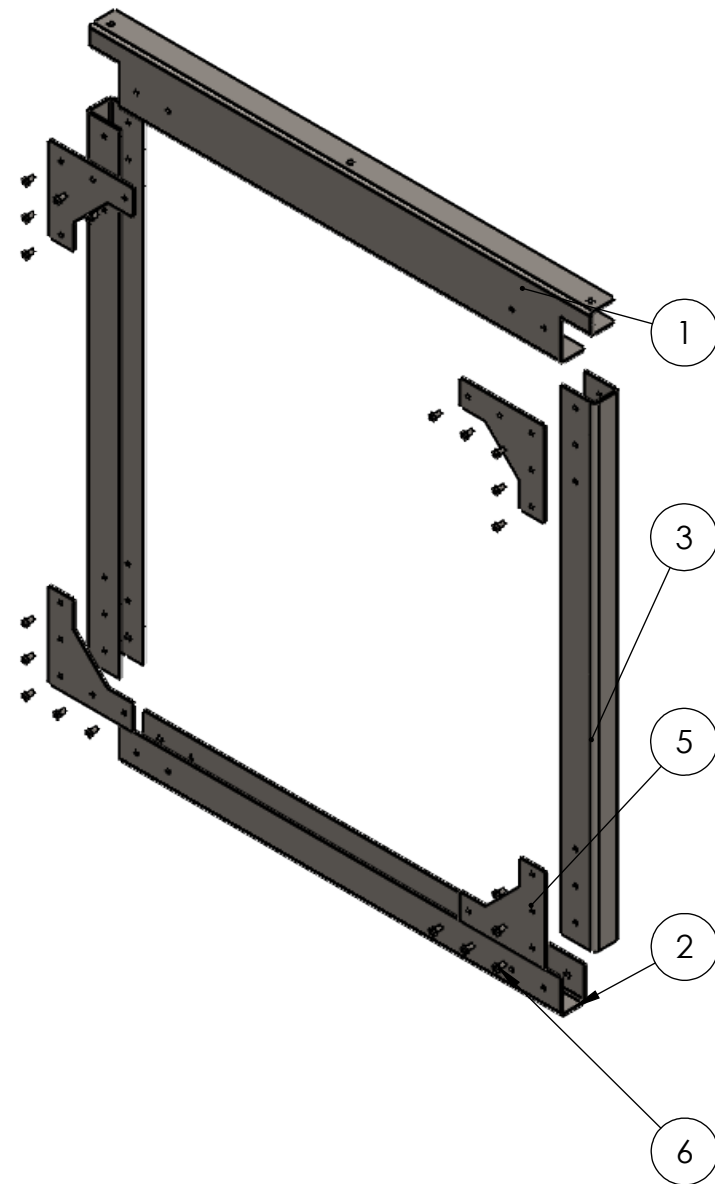
3

2

1

REVISIONS

ZONE	REV.	DESCRIPTION	DATE	APPROVED
4-A4, 5-B2	A	Add 19/64 holes for rivnuts	12/10/2019	NTW





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20101-01	14 Gauge Pre-plated steel	1
2	GE-20101-02	12 Gauge Pre-plated Steel	1
3	GE-20101-03	12 Gauge Pre-plated steel	1
5	GE-20101-04	12 Gauge Pre-plated steel	4
6	rivet_.1875_.126-.25	3/16" Rivet, .126-.25 Grip Range	20

Notes:

- 1. Label or Tag with Part Number

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN		
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: <h1>Trench Leg</h1>
MATERIAL		ENG APPR.		
NEXT ASSY	USED ON	MFG APPR.		SIZE DWG. NO. REV B GE-20101 A
APPLICATION		COMMENTS:		
DO NOT SCALE DRAWING		SCALE: 1:8 WEIGHT:		SHEET 1 OF 5

4

3

2

1

4

3

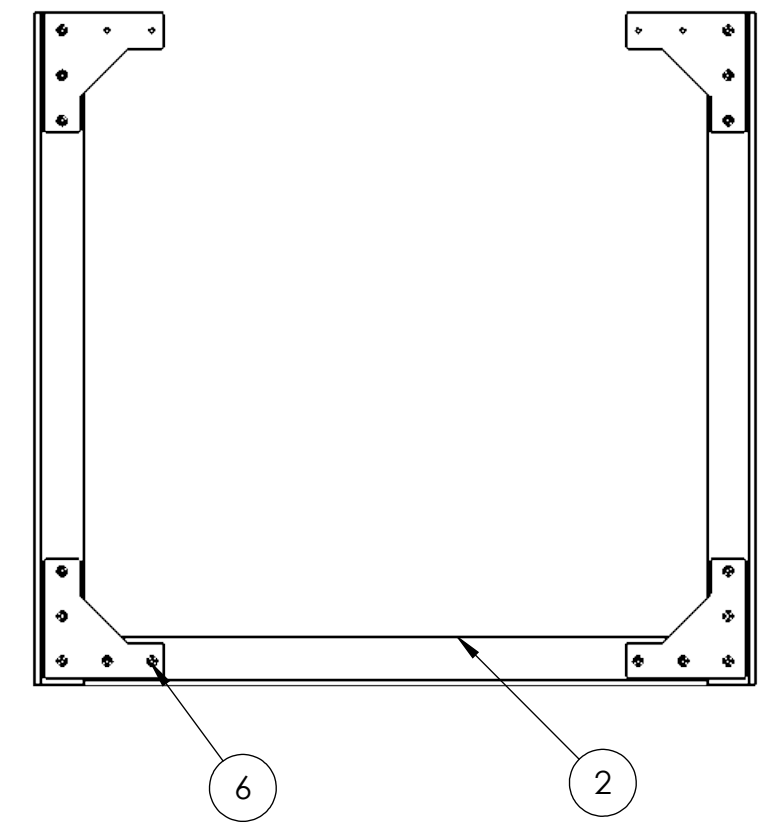
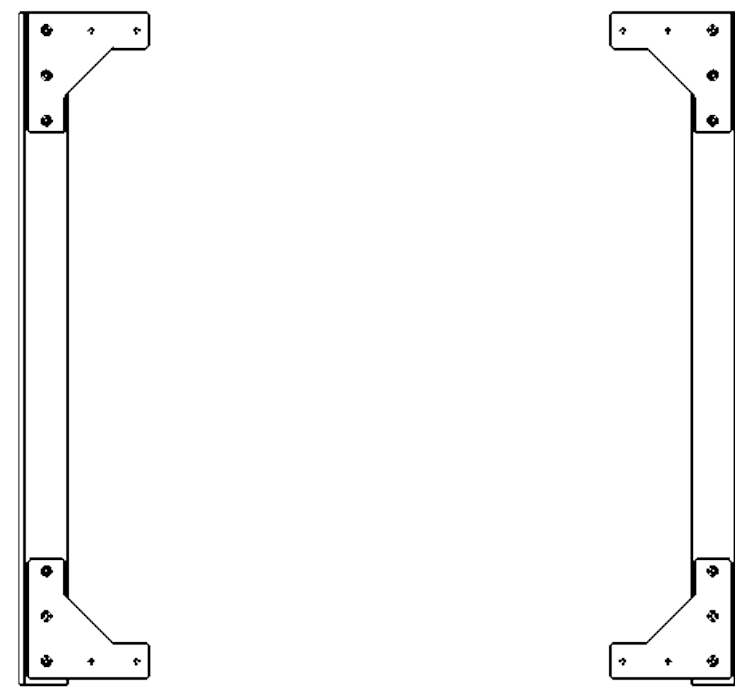
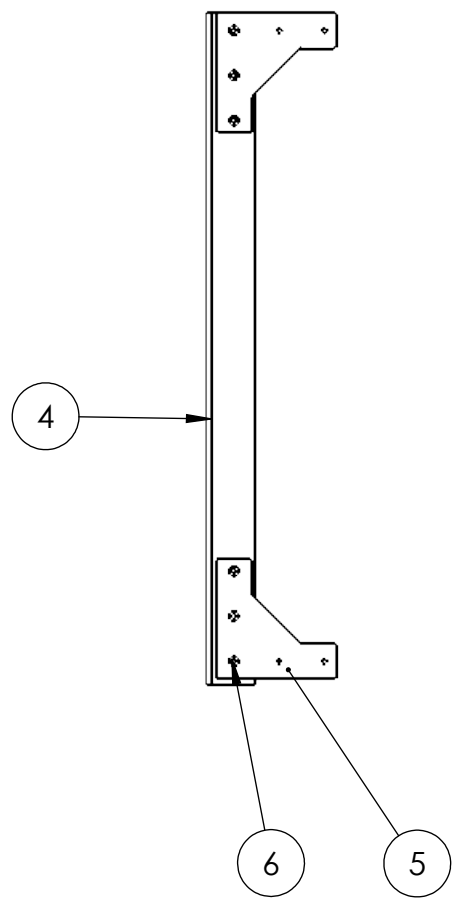
2

1

Step 1:

Step 2:

Step 3:




Assembly (5) to (4) with (6) QTY (6)
 Note: Zinc Plated Steel Rivets


Attach (2) to Step 2: with channel facing up with (6) QTY (4)
 Note: Zinc Plated Steel Rivets

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			



FIRST ROBOTICS COMPETITION



SOLIDWORKS
Modeling Solutions Partner

TITLE: **Trench Leg**

SIZE	DWG. NO.	REV
B	GE-20101	A

SCALE: 1:8 WEIGHT: SHEET 2 OF 5

4

3

2

1

B

B

A

A

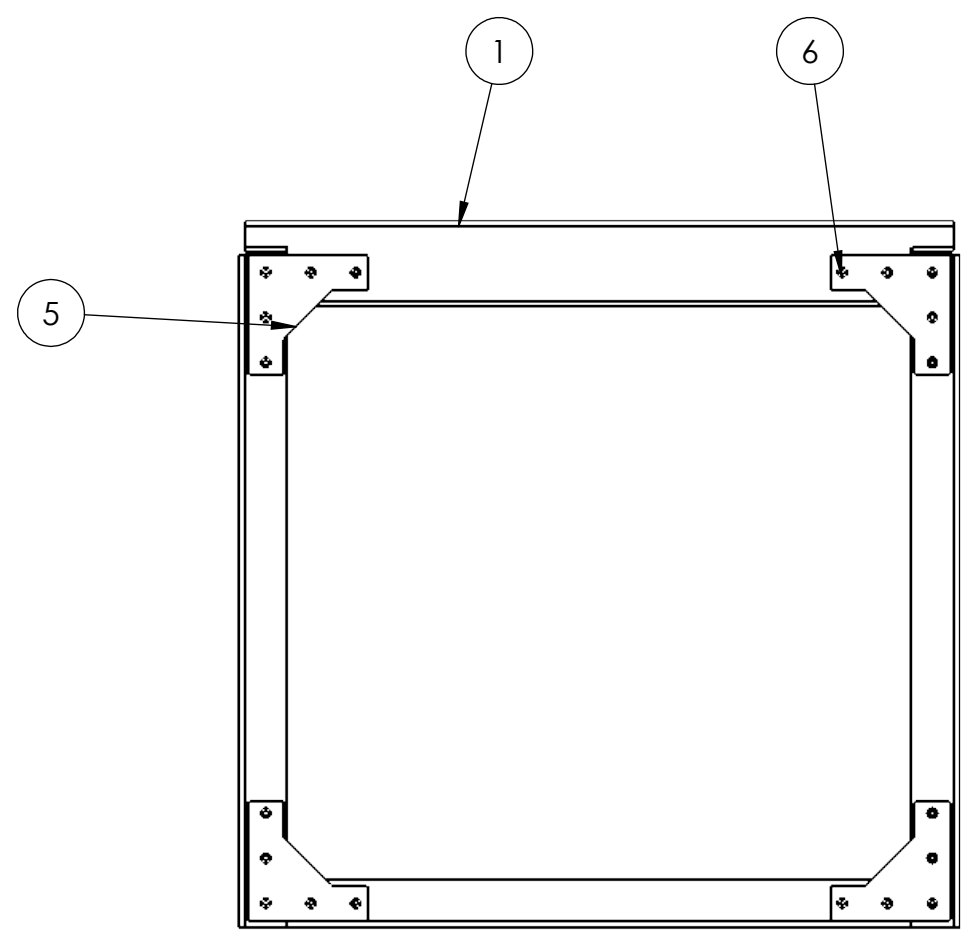
4

3

2



1

Step 4:



Attach 1 to Step 3: with 6 QTY(4). Flanges away from 5

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE B DWG. NO. GE-20101 REV A SCALE: 1:8 WEIGHT: SHEET 3 OF 5
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		
APPLICATION		DO NOT SCALE DRAWING	Q.A.		
			COMMENTS:		

4

3

2

1

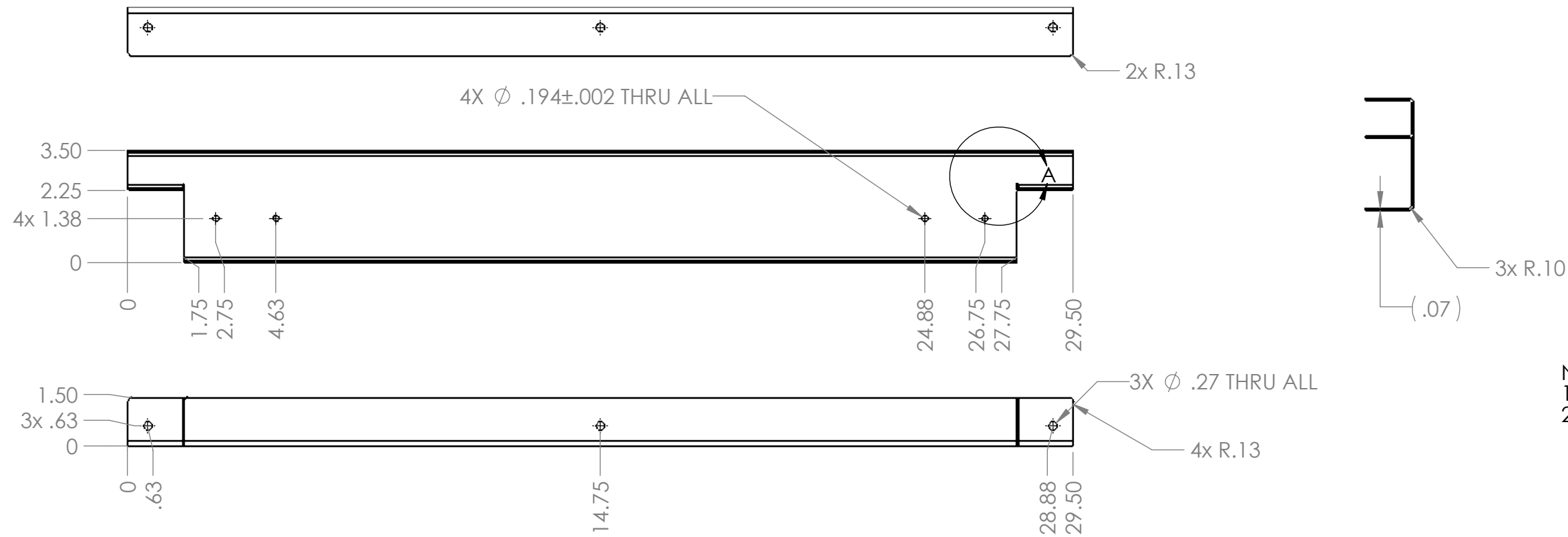
B

B

A

A

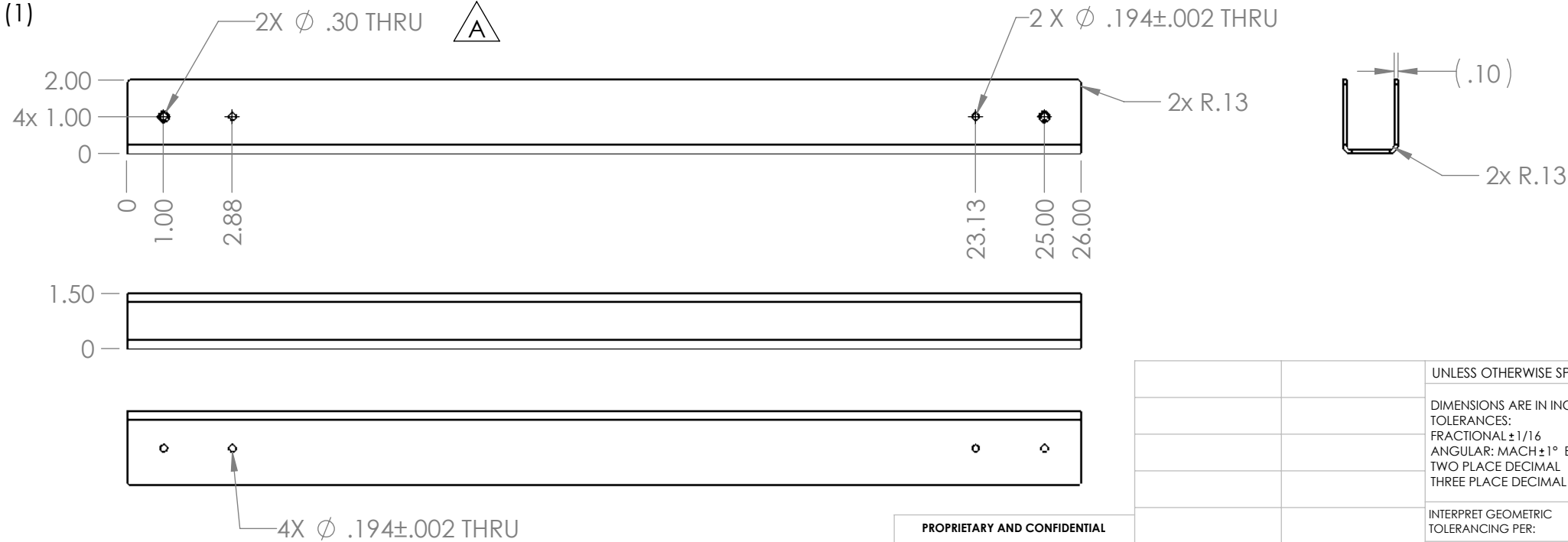
GE-20101-01
QTY (1)



Notes:

1. Material: 14 Ga. Pre-plated steel
2. Remove all burrs and sharp edges.

GE-20101-02
QTY (1)



Notes:

1. Material: 12 Ga. Pre-plated steel
2. Remove all burrs and sharp edges.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL \pm 1/16		ENG APPR.	
ANGULAR: MACH \pm 1° BEND \pm 1°		MFG APPR.	
TWO PLACE DECIMAL \pm .01		Q.A.	
THREE PLACE DECIMAL \pm .001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION			
DO NOT SCALE DRAWING			



TITLE:
Trench Leg

SIZE B	DWG. NO. GE-20101	REV A
SCALE: 1:8	WEIGHT:	SHEET 4 OF 5

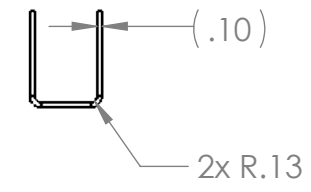
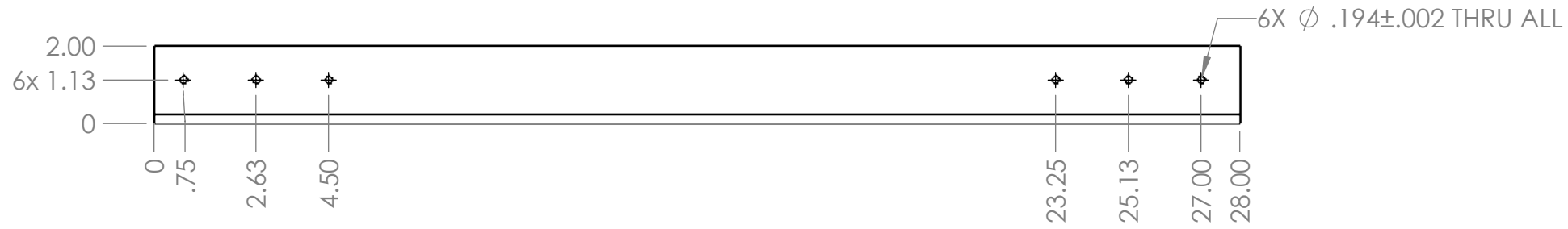
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3

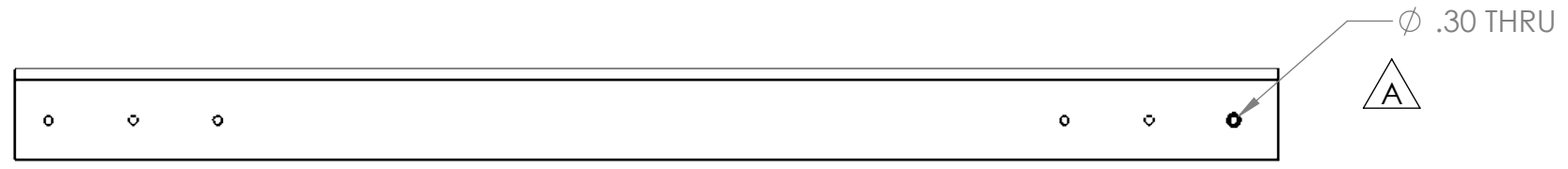
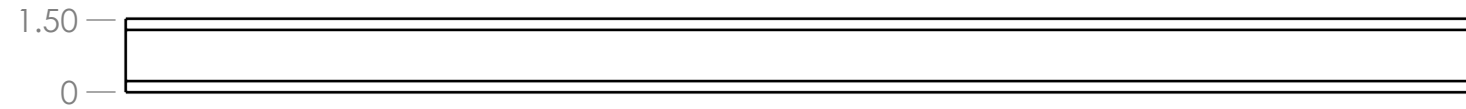
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1

GE-20101-03
QTY(2)



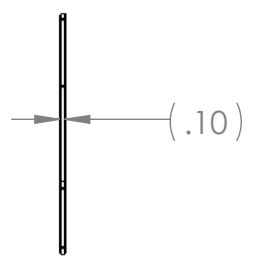
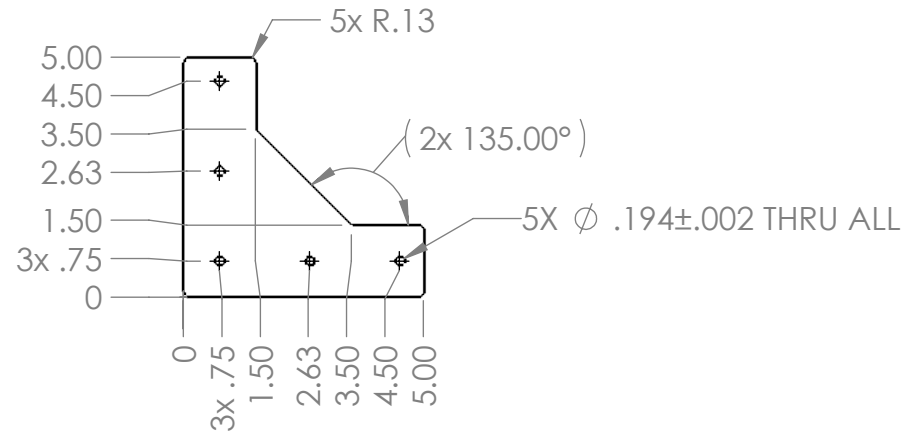
B



- Notes:
1. Material: 12 Ga. Pre-plated steel
 2. Remove all burrs and sharp edges.

B

GE-20101-04
QTY(4)



A

- Notes:
1. Material: 12 Ga. Pre-plated steel
 2. Remove all burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
NEXT ASSY	USED ON	FINISH		MFG APPR.	
APPLICATION		DO NOT SCALE DRAWING		Q.A.	
				COMMENTS:	



TITLE: Trench Leg		
SIZE B	DWG. NO. GE-20101	REV A
SCALE: 1:8	WEIGHT:	SHEET 5 OF 5

A

4

3

2

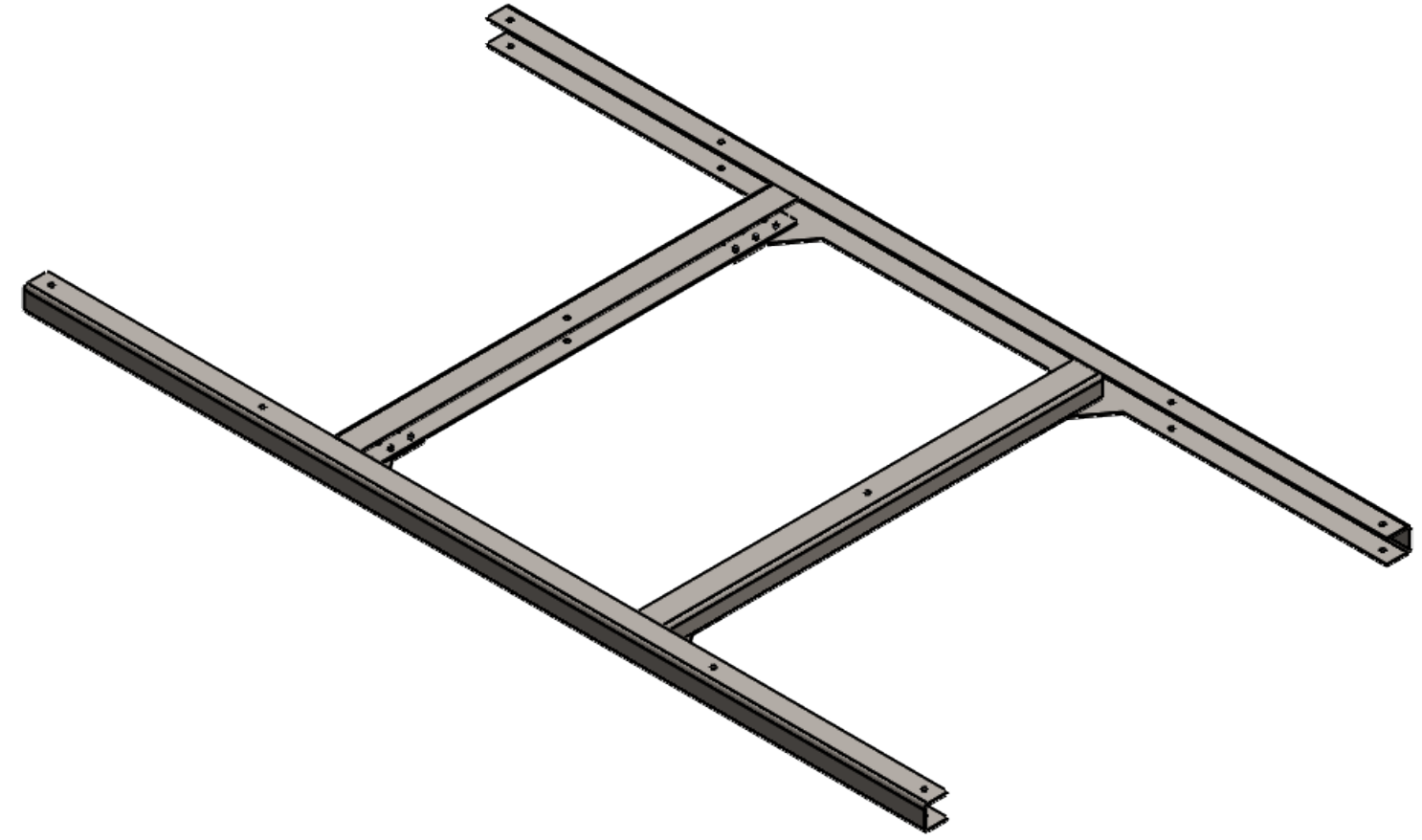
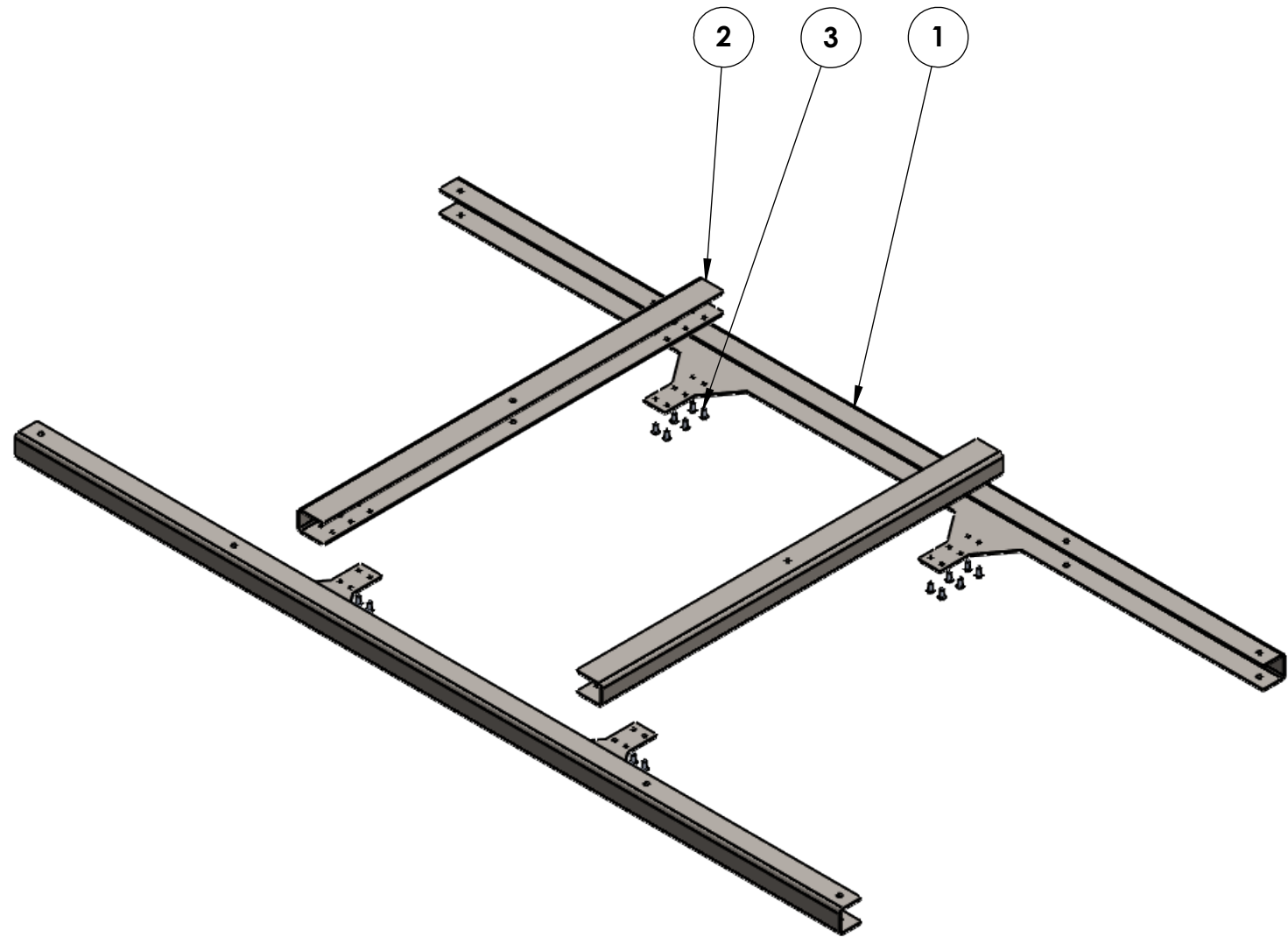
1

4

3

2



1



- Note:**
1. Tag or Label with Part Number
 2. Zinc Plated Steel Rivets 3

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20102-01	12 Gauge Pre-plated Steel	2
2	GE-20102-02	12 Gauge Pre-plated Steel	2
3	rivet_.1875_.126-.25	3/16" Rivet, .126-.25 Grip Range	24

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN		
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Trench Top Frame
MATERIAL		ENG APPR.		
NEXT ASSY	USED ON	MFG APPR.		SIZE DWG. NO. REV B GE-20102
APPLICATION		COMMENTS:		
DO NOT SCALE DRAWING		SCALE: 1:12 WEIGHT:		SHEET 1 OF 3

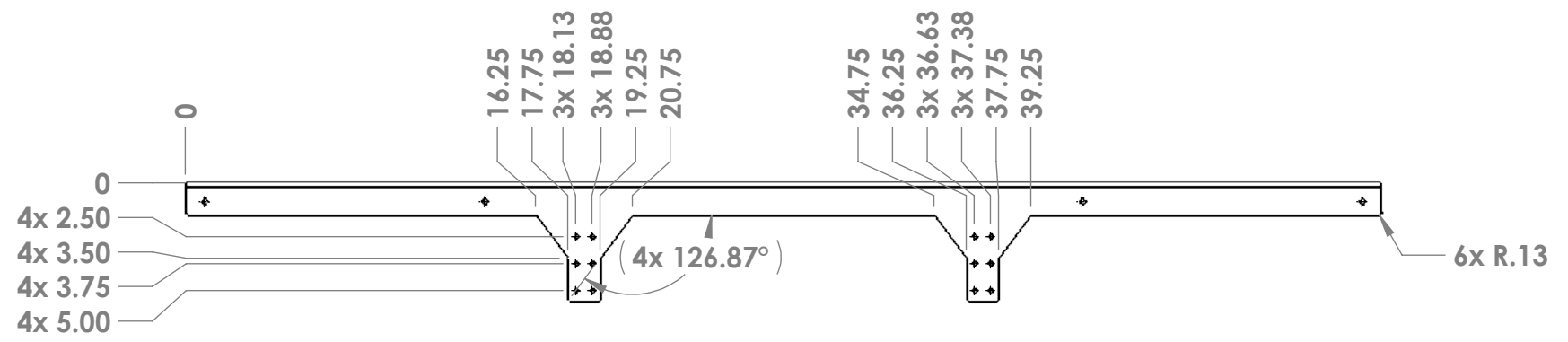
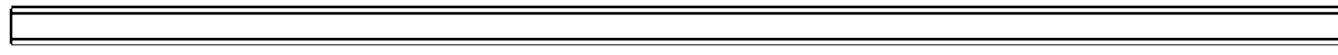
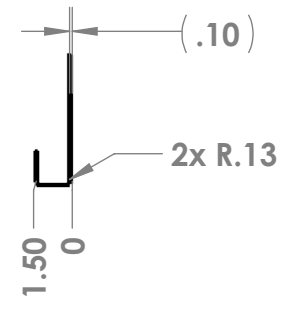
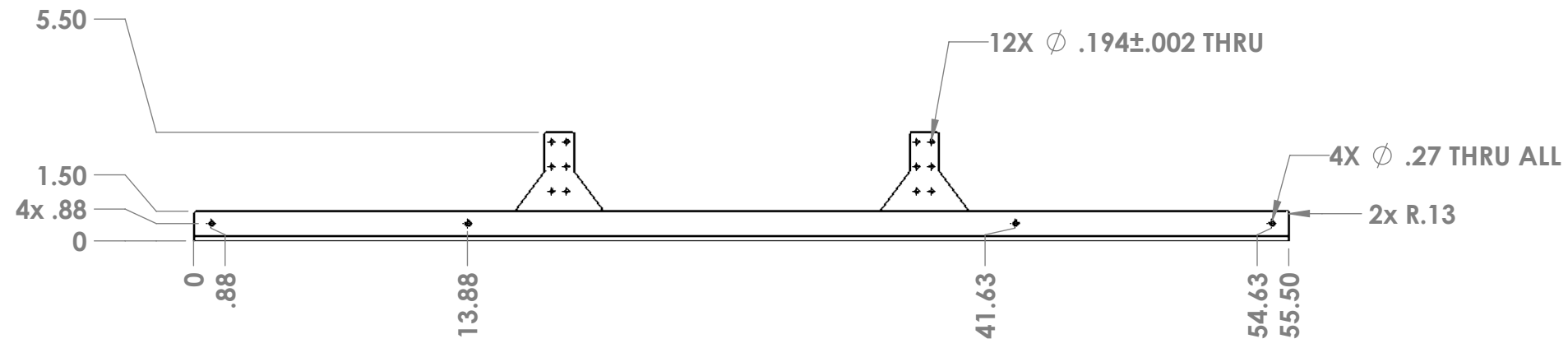
4

3

2

1

GE-20102-01
QTY (2)



- Notes:
1. Material: 12 Ga. Pre-plated steel
 2. Remove all burrs and sharp edges

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL: ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		

FIRST
ROBOTICS
COMPETITION

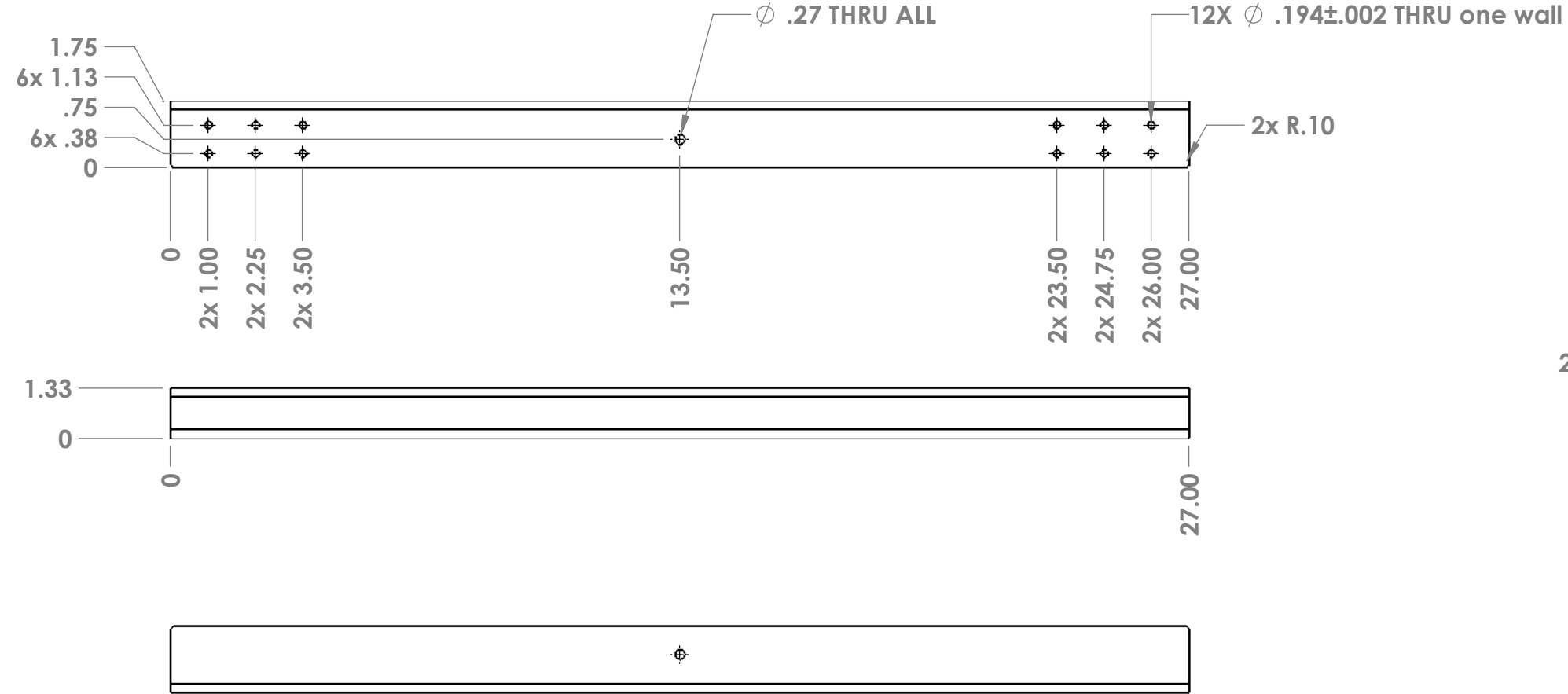
SOLIDWORKS
Modeling Solutions Partner

TITLE:
**Trench Top
Frame**

SIZE DWG. NO. REV
B GE-20102

SCALE: 1:12 WEIGHT: SHEET 2 OF 3

GE-20102-02
QTY (2)





Notes:

1. Material: 12 Ga. Pre-plated steel
2. Remove all burrs and sharp edges.

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DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL $\pm 1/16$		ENG APPR.	
ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$		MFG APPR.	
TWO PLACE DECIMAL $\pm .01$		Q.A.	
THREE PLACE DECIMAL $\pm .001$		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION		DO NOT SCALE DRAWING	

TITLE:

Trench Top Frame

SIZE	DWG. NO.	REV
B	GE-20102	
SCALE: 1:12 WEIGHT:		SHEET 3 OF 3

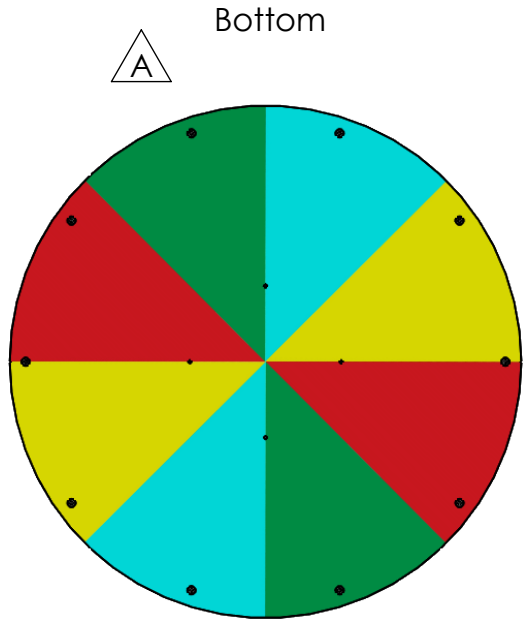
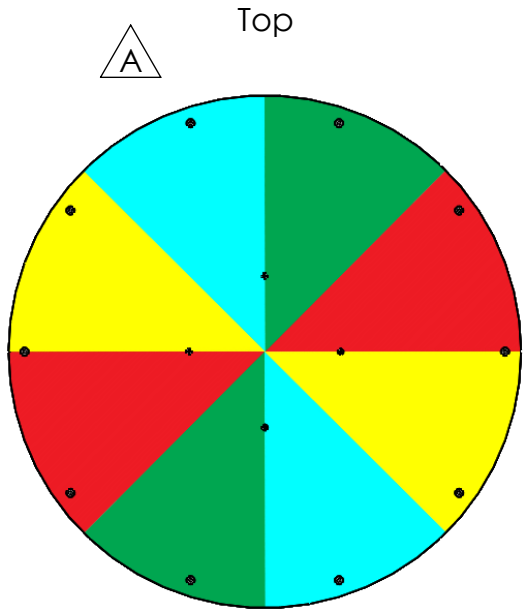
2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B1, B2, 2-A1, 2-B1, 2-B2, 3-B2, 4-A1, 5-B1, 5-B2	A	Fixed broken Item No. callouts, fixed color pattern application to match GE-20105 and GE-20106 drawings. Updated Part Numbers of standoffs in BOM.	1/6/2020	CPO

B

B



A

A

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ± 1/16	ENG APPR.		
		ANGULAR: MACH ± 1° BEND ± 1°	MFG APPR.		
		TWO PLACE DECIMAL ± .01	Q.A.		
		THREE PLACE DECIMAL ± .001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
NEXT ASSY	USED ON	FINISH			
		DO NOT SCALE DRAWING			



TITLE:
Control Panel

SIZE	DWG. NO.	REV
A	GE-20104	A
SCALE: 1:12 WEIGHT:		SHEET 1 OF 5

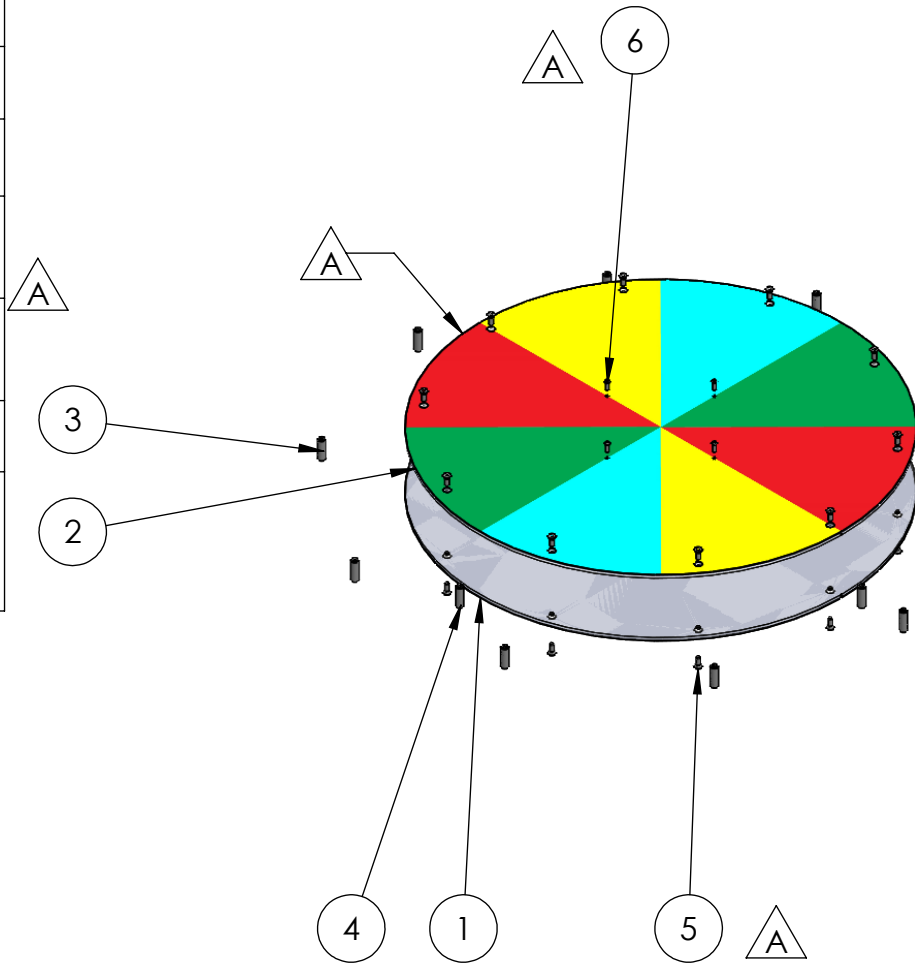
2

1

2

1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20105	Bottom Control Panel	1
2	GE-20106	Top Control Panel	1
3	Threaded_standoff_.25_1.5	Threaded_standoff_.25_1.5	10
4	Threaded_standoff_10-32_1.5	Threaded_standoff_10-32 x 1.5"	4
5	Flat Hex .25_20_.75	Flat Hex .25_20_.75	20
6	round_hex_10_32_.625_full	Round Hex Head, #10-32 x 5/8" long, fully threaded	4



B

B

A

A

		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ± 1/16	ENG APPR.		
		ANGULAR: MACH ± 1° BEND ± 1°	MFG APPR.		
		TWO PLACE DECIMAL ± .01	Q.A.		
		THREE PLACE DECIMAL ± .001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:
Control Panel

SIZE	DWG. NO.	REV
A	GE-20104	A
SCALE: 1:12 WEIGHT:		SHEET 2 OF 5

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2

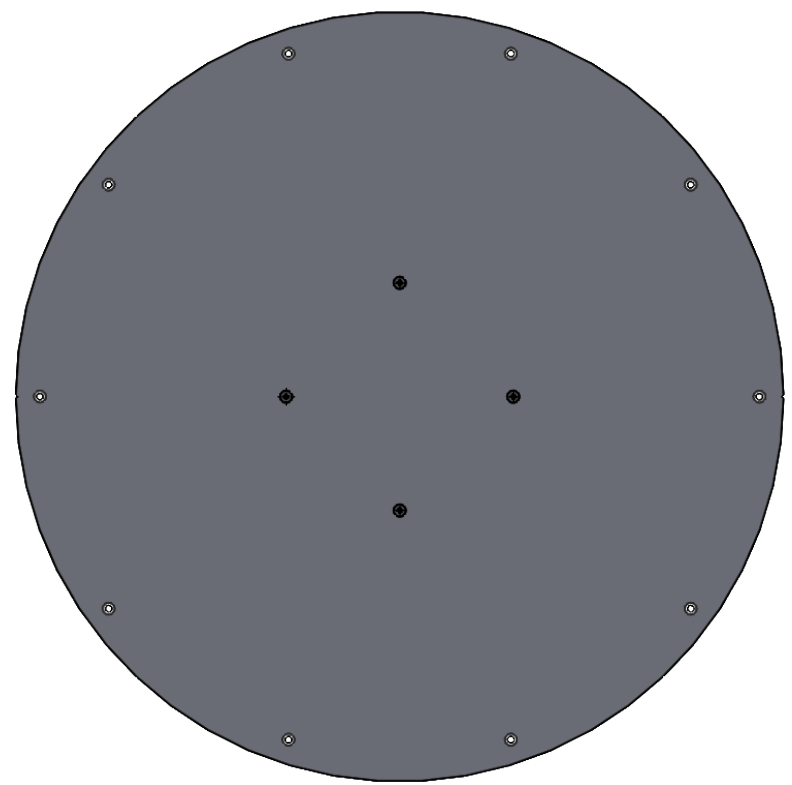
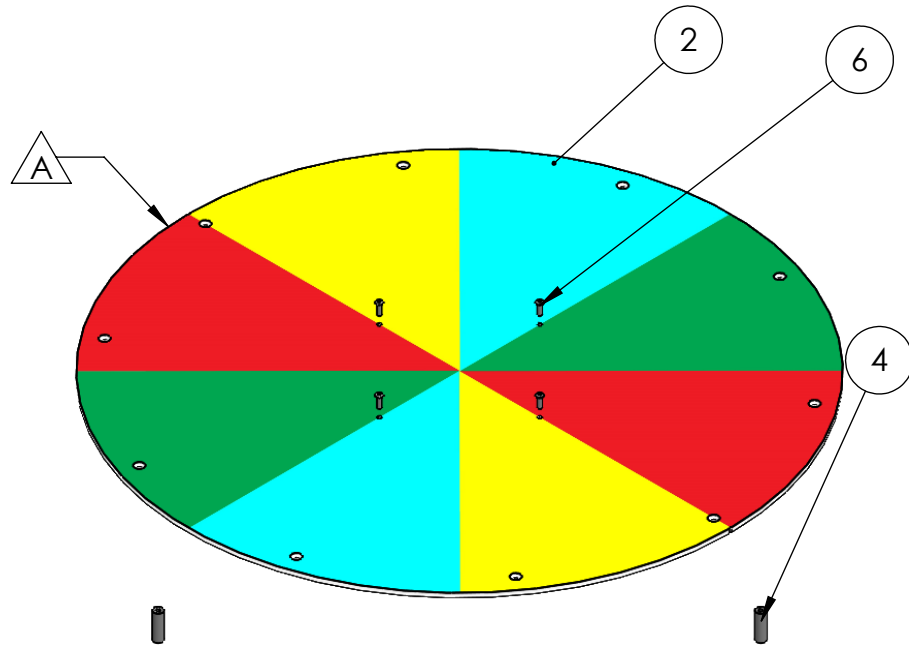
1

2

1

B

B



Bottom

Notes:

1. Remove Protective backing
2. Attach (4) to (2) using (6) 4 spots.

A

A

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		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ± 1/16	ENG APPR.		
		ANGULAR: MACH ± 1° BEND ± 1°	MFG APPR.		
		TWO PLACE DECIMAL ± .01	Q.A.		
		THREE PLACE DECIMAL ± .001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
NEXT ASSY	USED ON	FINISH			
		APPLICATION			
		DO NOT SCALE DRAWING			



TITLE:
Control Panel

SIZE	DWG. NO.	REV
A	GE-20104	A
SCALE: 1:12 WEIGHT:		SHEET 3 OF 5

2

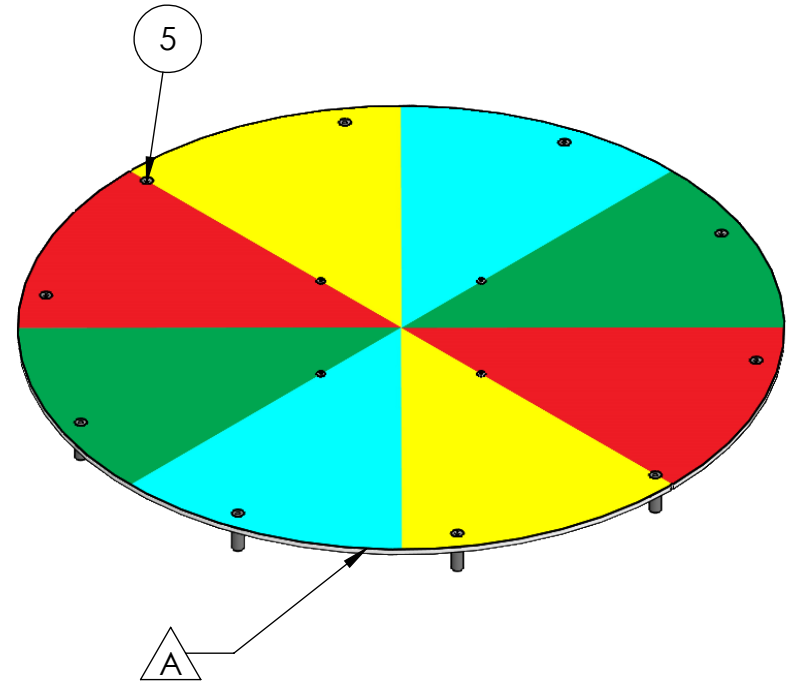
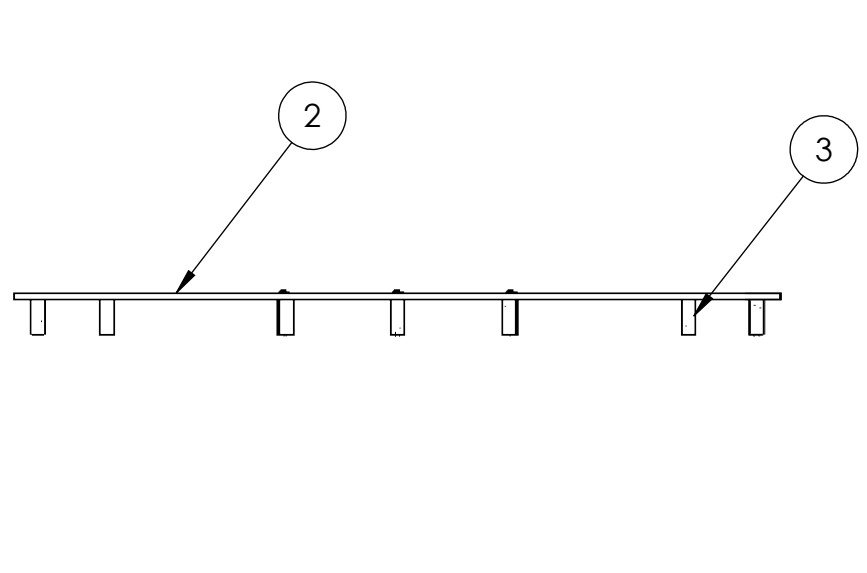
1

2

1

B

B



Notes:

- 1. Attach (3) to (2) using (5).

A

A

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ± 1/16	ENG APPR.		
		ANGULAR: MACH ± 1° BEND ± 1°	MFG APPR.		
		TWO PLACE DECIMAL ± .01	Q.A.		
		THREE PLACE DECIMAL ± .001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			



TITLE:
Control Panel

SIZE	DWG. NO.	REV
A	GE-20104	A
SCALE: 1:12 WEIGHT:		SHEET 4 OF 5

2

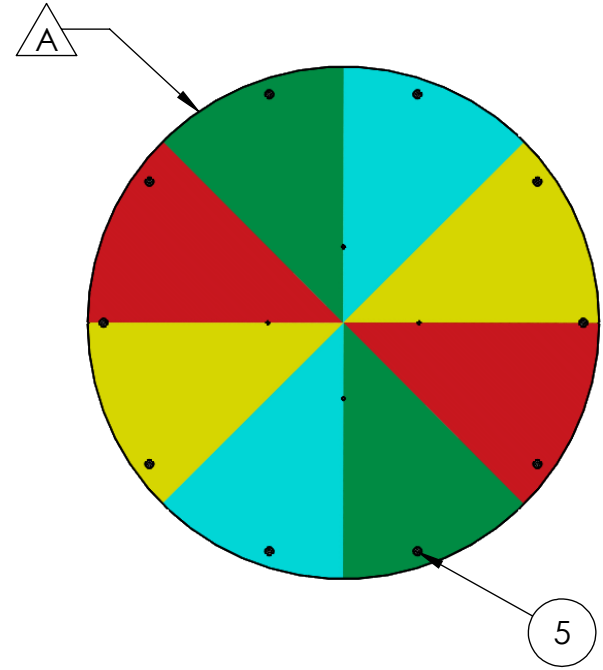
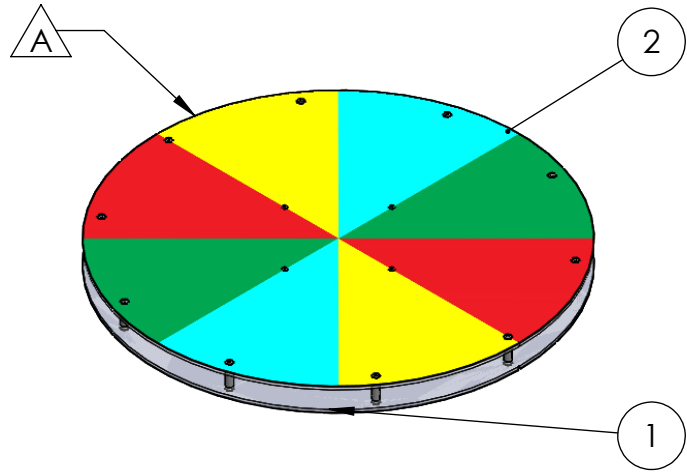
1

2

1

B

B



Notes:

1. Remove the protective backing from (1).
2. Align colors to match
3. Attach (1) to (2) using (5)

A

A

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ± 1/16	ENG APPR.		
		ANGULAR: MACH ± 1° BEND ± 1°	MFG APPR.		
		TWO PLACE DECIMAL ± .01	Q.A.		
		THREE PLACE DECIMAL ± .001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			



TITLE:
Control Panel

SIZE	DWG. NO.	REV
A	GE-20104	A
SCALE: 1:12 WEIGHT:		SHEET 5 OF 5

2

1

4

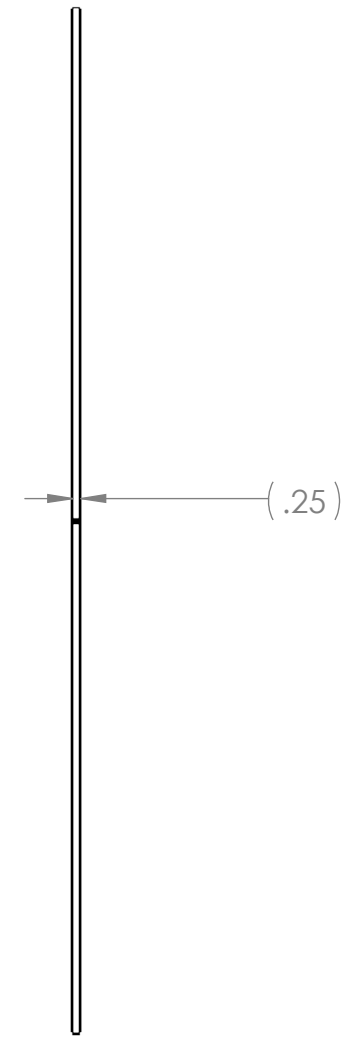
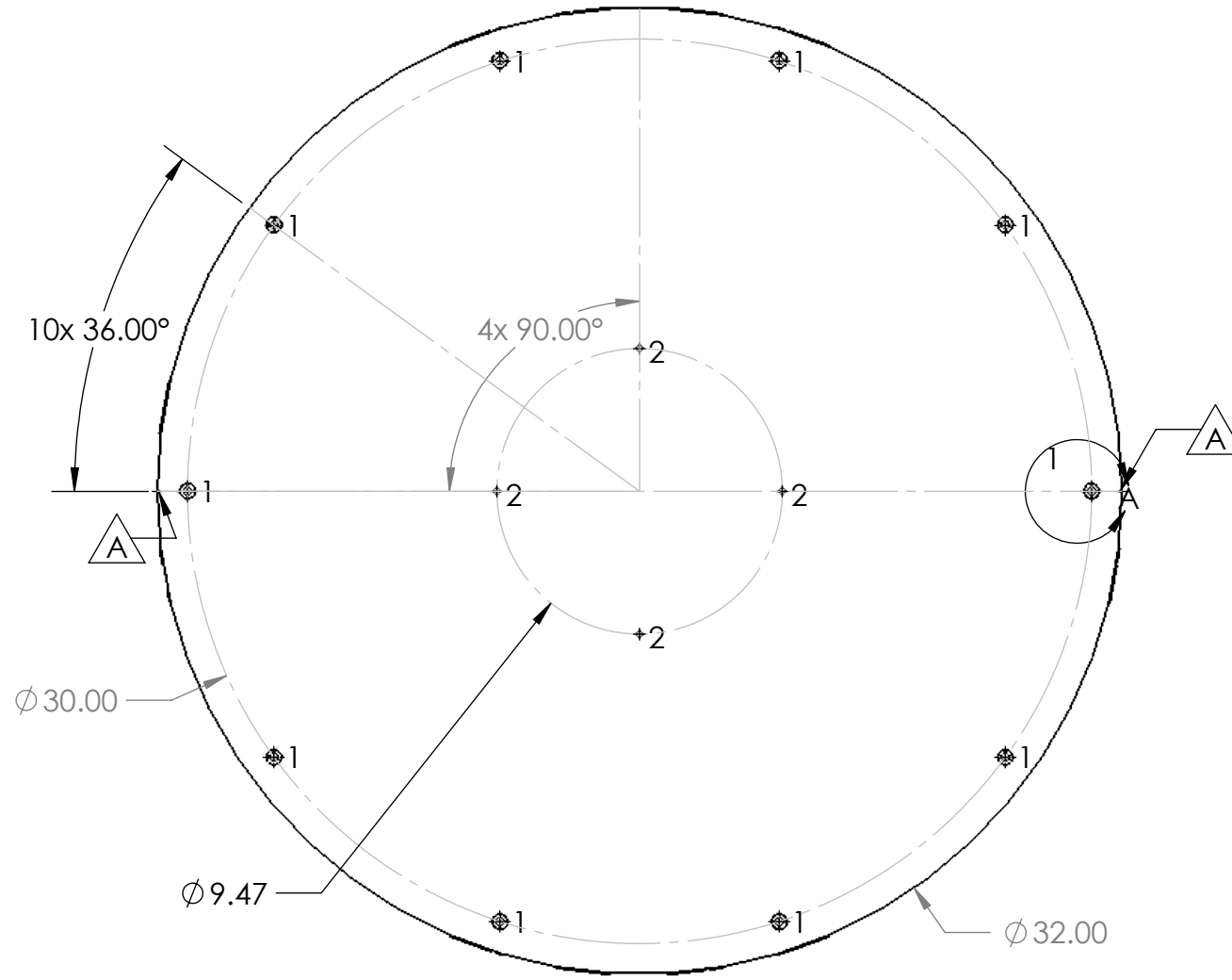
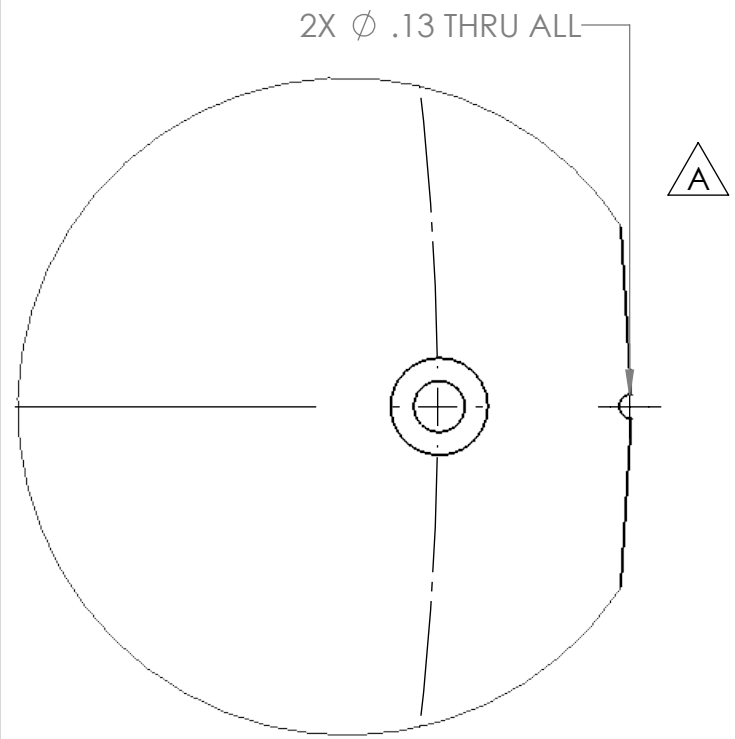
3

2

1

TAG	SIZE	QUANTITY
1	ϕ .27 THRU ALL ✓ ϕ .51 X 82°	10
2	ϕ .19 THRU ALL	4

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B3, B4	A	0.125" Alignment holes for vinyl	10/21/2019	NTW



- Notes:
1. Material: 0.25" Clear Polycarbonate
 2. Remove all burrs and sharp edges.
 3. Label or Tag with Part Number

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DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL $\pm 1/16$		ENG APPR.	
ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$		MFG APPR.	
TWO PLACE DECIMAL $\pm .01$		Q.A.	
THREE PLACE DECIMAL $\pm .001$		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION			
DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Control Panel Plastic

SIZE **B** DWG. NO. **GE-20107** REV **A**

SCALE: 1:8 WEIGHT: SHEET 1 OF 1

4

3

2

1

4

3

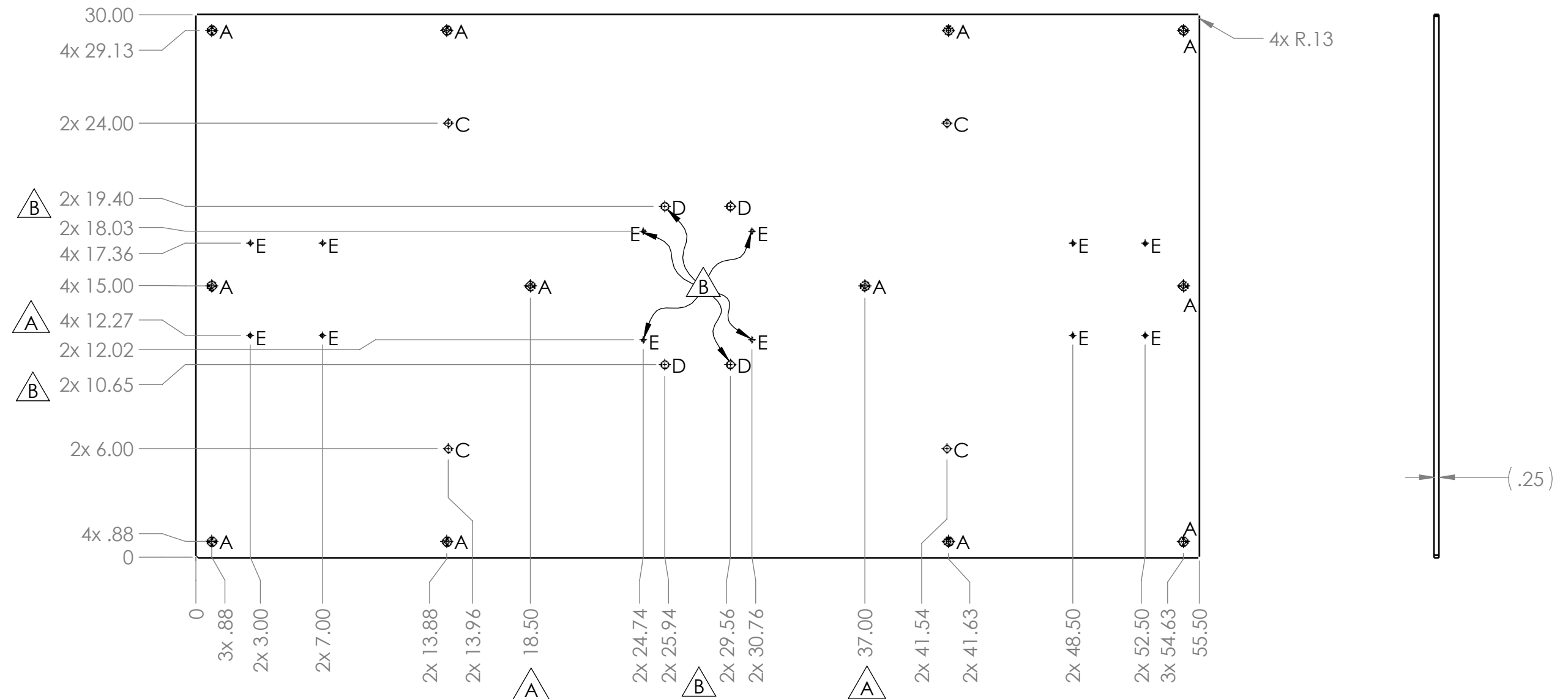
2

1

TAG	SIZE	QUANTITY
A	∅ .27 THRU ALL ✓ ∅ .51 X 82°	12
C	∅ .38 THRU ALL	4
D	∅ .44 THRU ALL	4
E	∅ .20 THRU ALL	12



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, A3, B4	A	Moved holes to align with part	9/19/2019	NTW
A3, A4, B2, B3, B4	B	Added Second set of D size holes. Change holes to match #10 size to match remaining E size	9/24/2019	NTW



- Notes:
1. Material: 0.25" Clear Polycarbonate
 2. Remove all burrs and sharp edges.
 3. Label or Tag with Part Number

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	NTW
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Trench Top Plastic**

SIZE **B** DWG. NO. **GE-20114** REV **B**

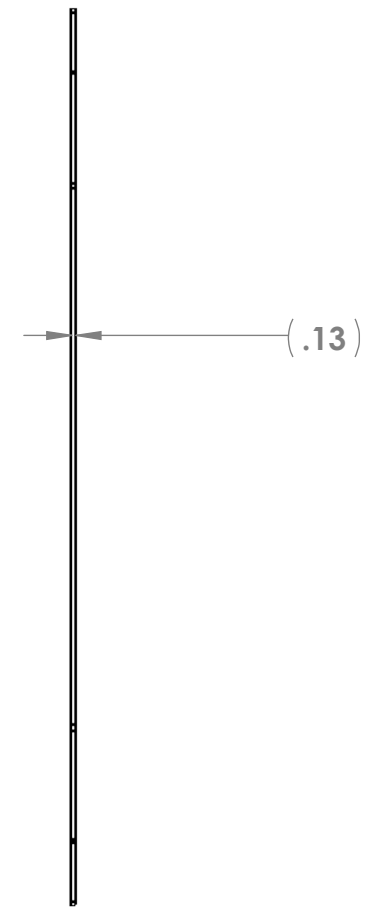
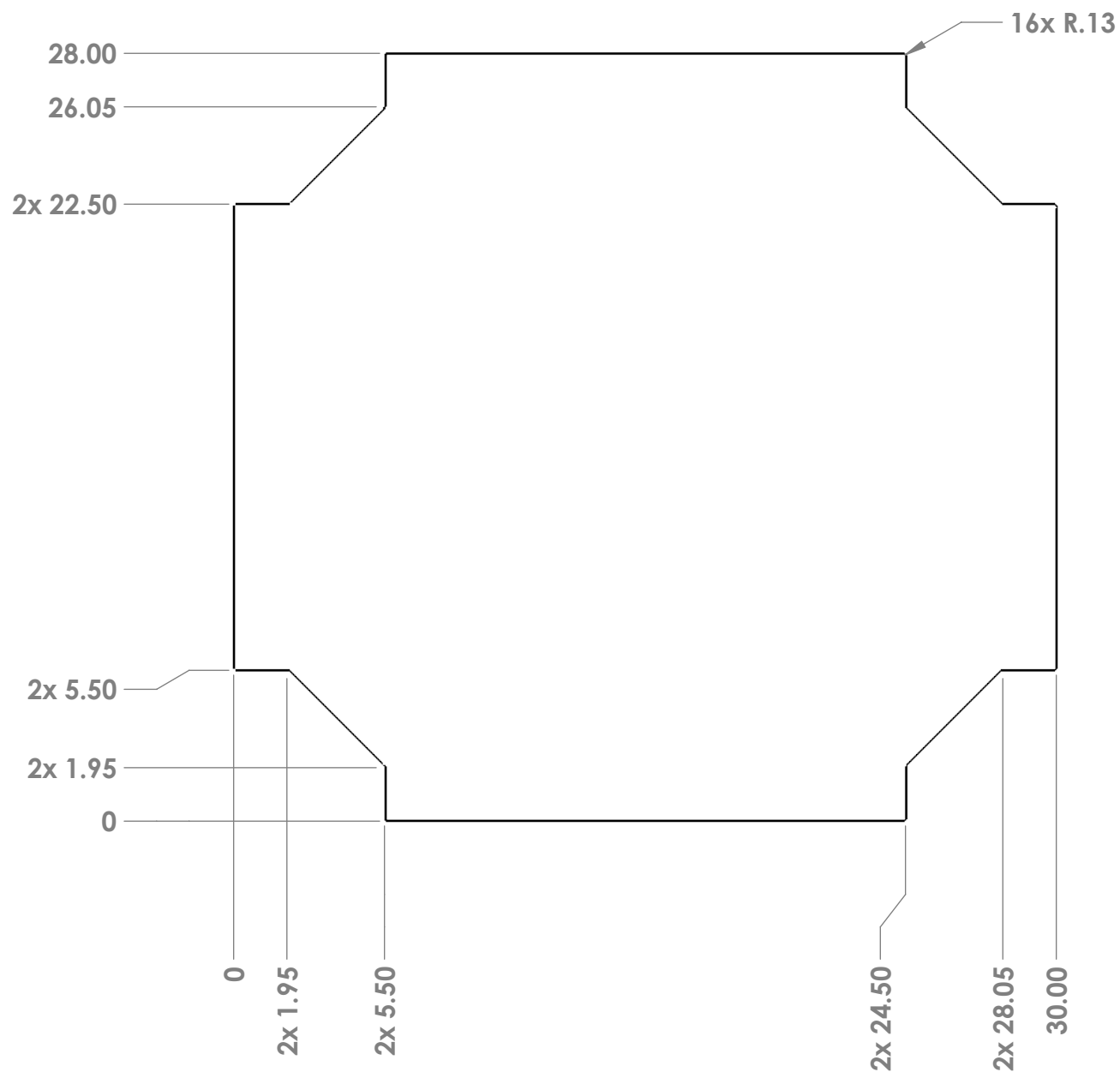
SCALE: 1:12 WEIGHT: SHEET 1 OF 1

4

3



2

1



- Note:**
1. Material: 1/8" clear Polycarbonate
 2. Remove all Burrs and Sharp edges
 3. Label or Tag with Part Number

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		Trench Side Plastic
		MATERIAL	ENG APPR.		
		FINISH	MFG APPR.		
NEXT ASSY	USED ON		Q.A.		SIZE DWG. NO. REV B GE-20115
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		SCALE: 1:8 WEIGHT: SHEET 1 OF 1

4

3

2

1

B

B

A

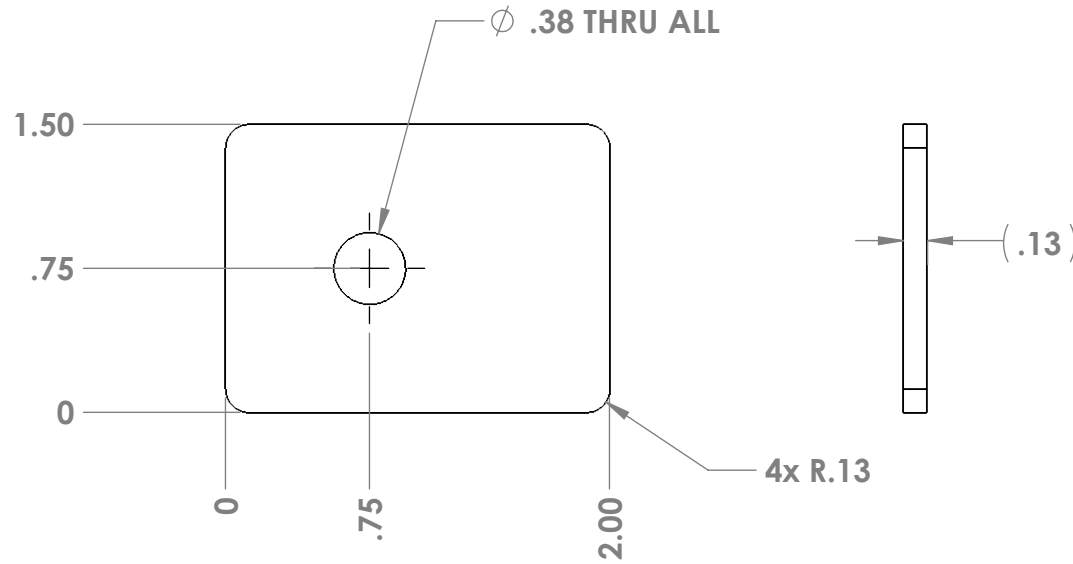
A

2

1

B

B



Notes:

- 1. Material: 0.125" Black HDPE Smooth Finish
- 2. Remove all burrs and sharp edges.
- 3. Bag and Label with part number

A

A

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ± 1/16	ENG APPR.		
		ANGULAR: MACH ± 1° BEND ± 1°	MFG APPR.		
		TWO PLACE DECIMAL ± .01	Q.A.		
		THREE PLACE DECIMAL ± .001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:
Flange for control panel

SIZE	DWG. NO.	REV
A	GE-20121	
SCALE: 1:1	WEIGHT:	SHEET 1 OF 1

2

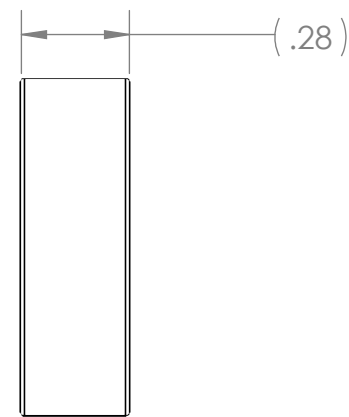
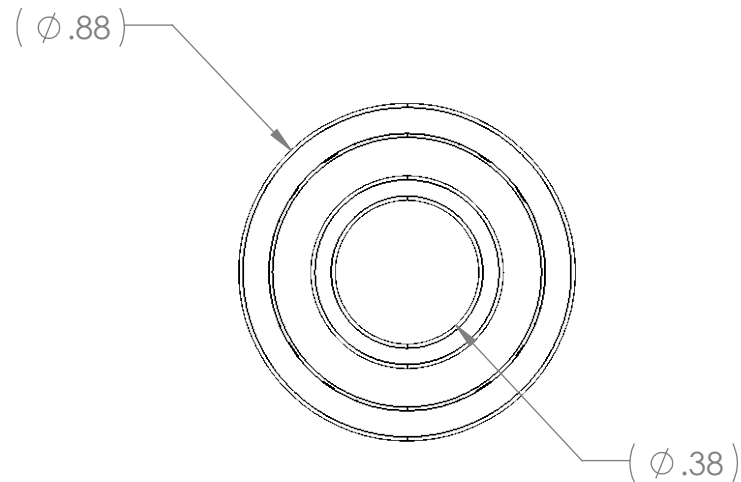
1

2

1

B

B



Notes:
 1. 0.375" id shielded bearing (R6ZZ)

A

A

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		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ± 1/16	ENG APPR.		
		ANGULAR: MACH ± 1° BEND ± 1°	MFG APPR.		
		TWO PLACE DECIMAL ± .01	Q.A.		
		THREE PLACE DECIMAL ± .001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			



TITLE:
0.375" id bearing shielded

SIZE	DWG. NO.	REV
A	GE-20122	
SCALE: 2:1	WEIGHT:	SHEET 1 OF 1

2

1

4

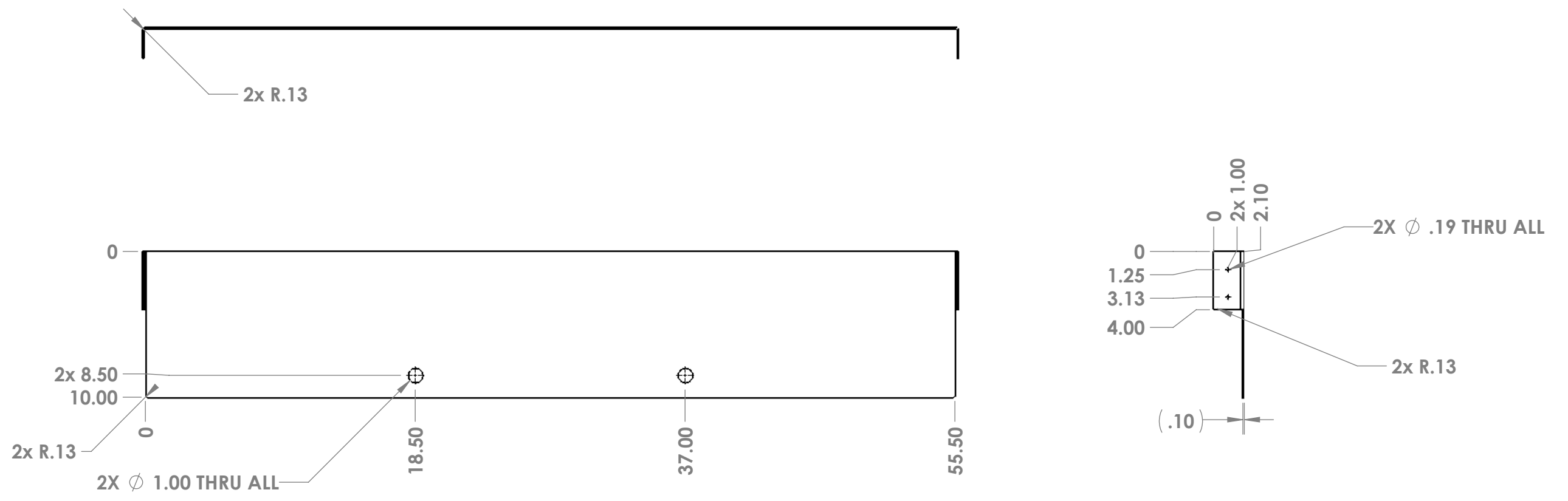
3

2

1

B

B



Notes:

1. Material: 12 Ga. Pre Plated Steel
2. Remove all burrs and sharp edges.
3. Label or Tag with part number

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
Trench Base		
SIZE	DWG. NO.	REV
B	GE-20123	
SCALE: 1:8	WEIGHT:	SHEET 1 OF 1

4

3

2

1

A

A

4

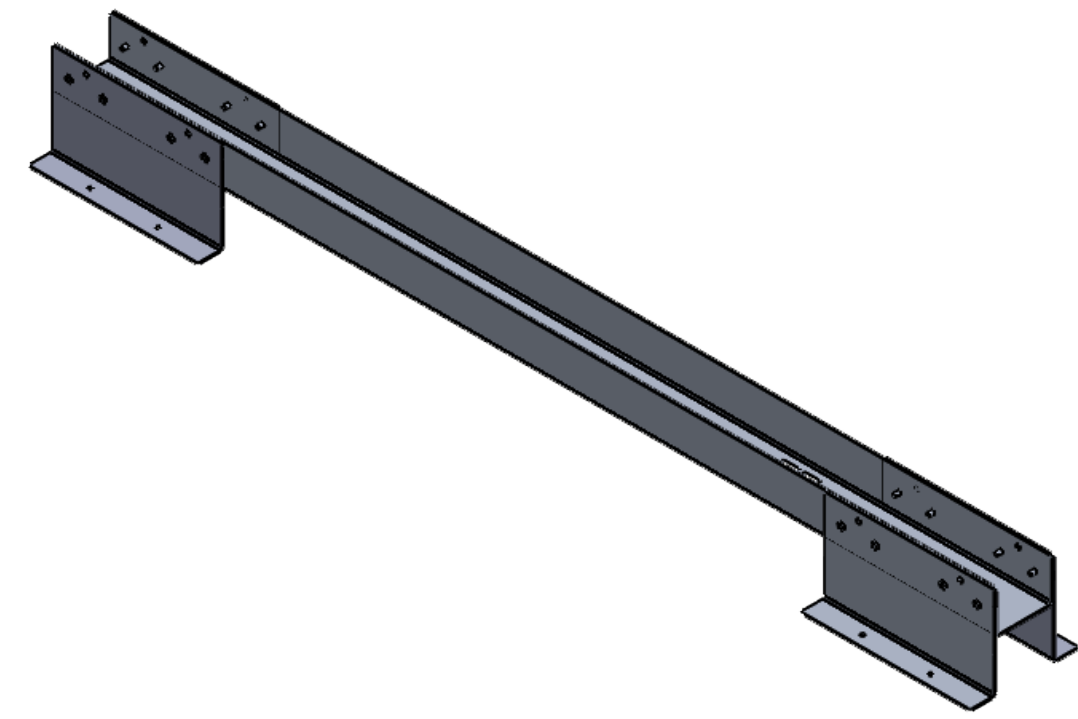
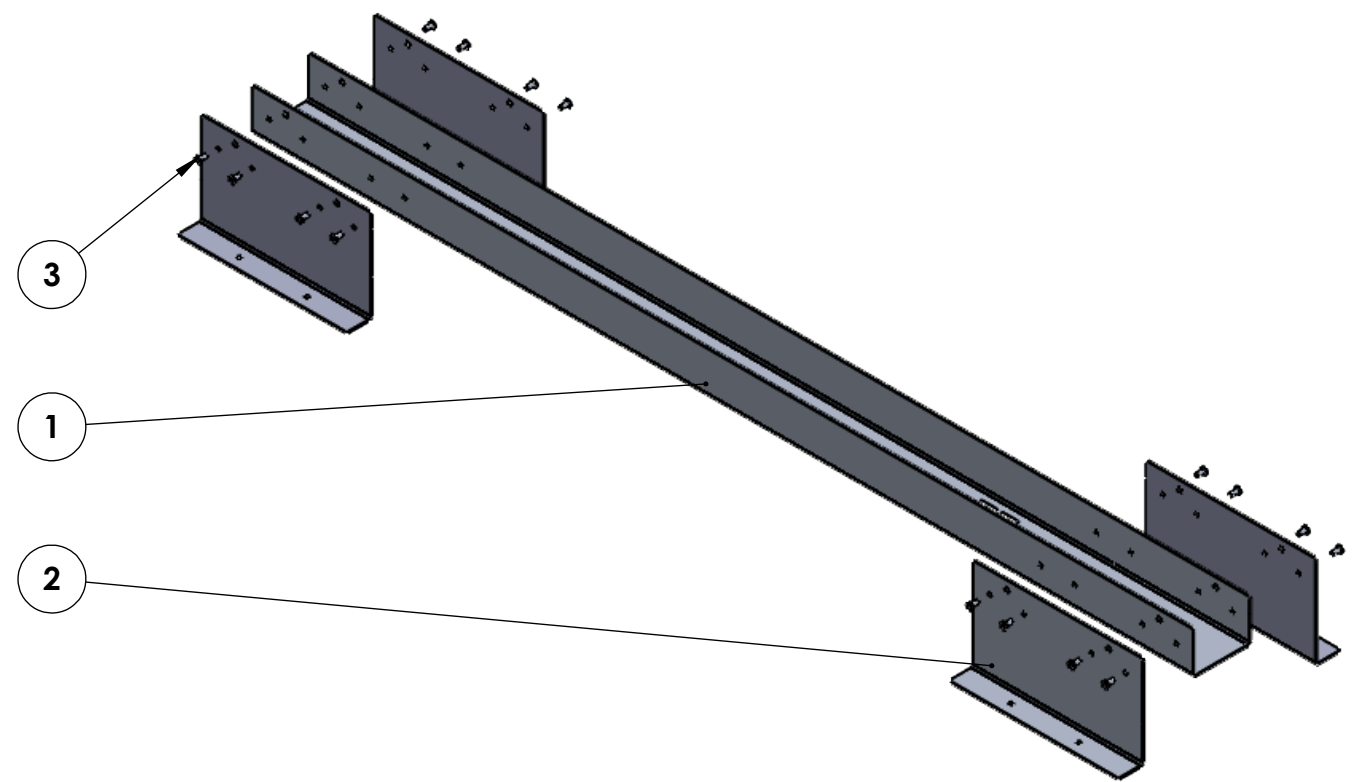
3

2

1

B

B





Note:
Tag or Label with part number

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20140-01	12 Gauge Aluminum	1
2	GE-20140-03	12 Gauge Aluminum	4
3	rivet_.1875_.126-.25	3/16" Rivet, .126-.25 Grip Range	16

A

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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN		
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: <h2>Sensor Housing Assembly</h2>
MATERIAL		ENG APPR.		
NEXT ASSY	USED ON	MFG APPR.		SIZE DWG. NO. REV B GE-20140
APPLICATION		FINISH		SCALE: 1:8 WEIGHT: SHEET 1 OF 3
DO NOT SCALE DRAWING		COMMENTS:		

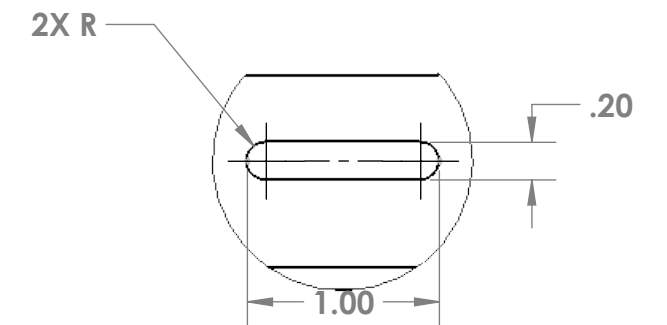
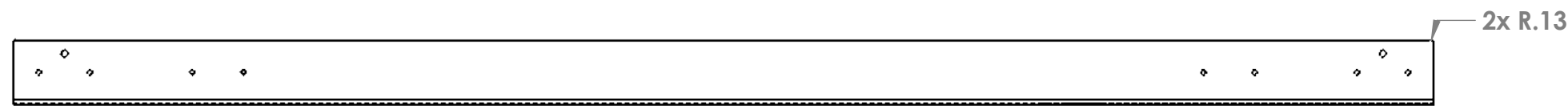
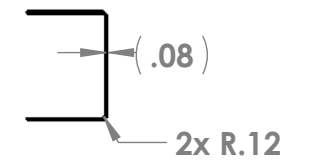
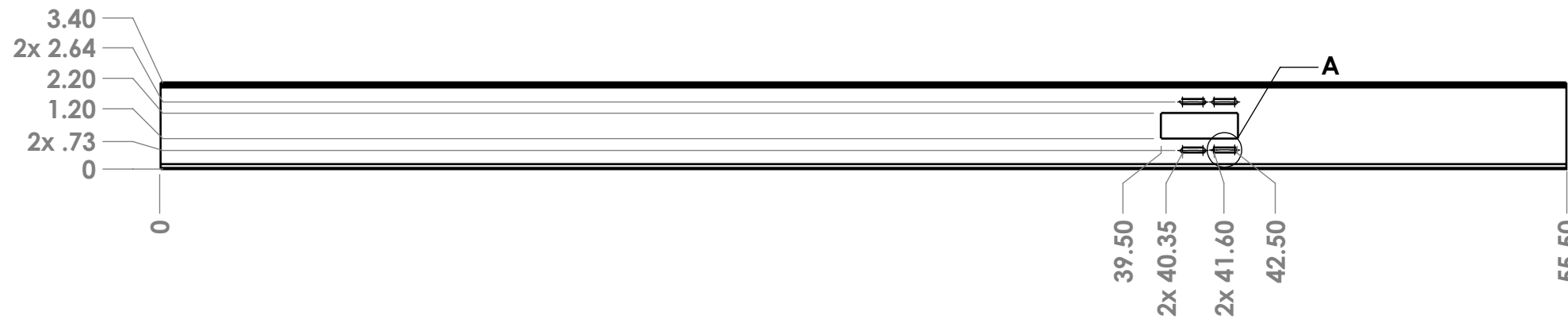
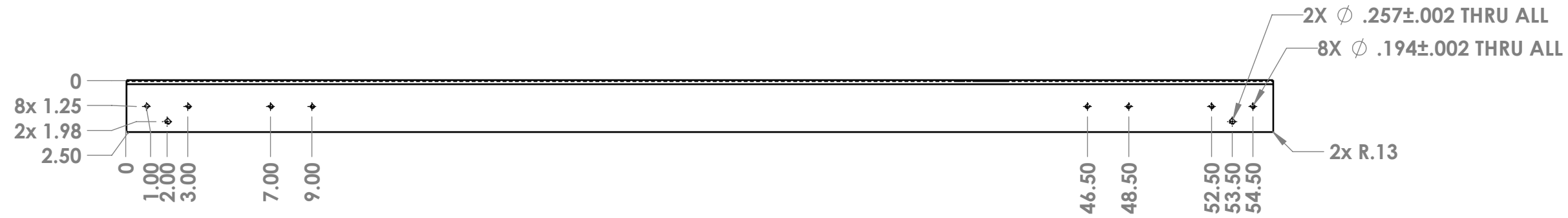
4

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1

GE-20140-01
QTY(1)



DETAIL A
SCALE 1 : 1

- Notes:
 1. Material: 12 Ga. Aluminum 5052
 2. Remove all burrs and sharp edges.

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		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON	APPLICATION		Q.A.	
		DO NOT SCALE DRAWING		COMMENTS:	

TITLE: Sensor Housing Assembly		
SIZE B	DWG. NO. GE-20140	REV
SCALE: 1:8 WEIGHT:		SHEET 2 OF 3

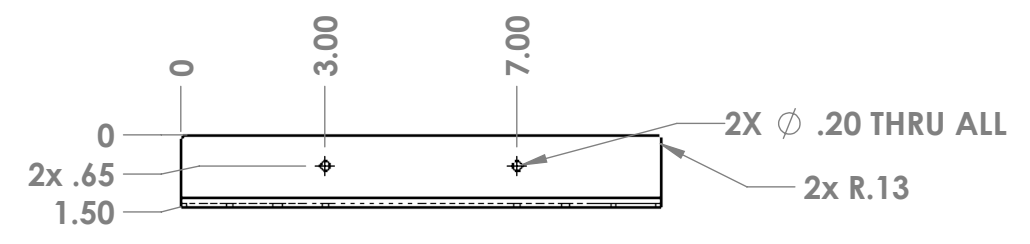
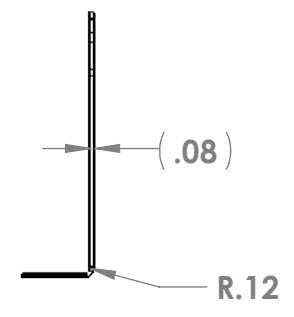
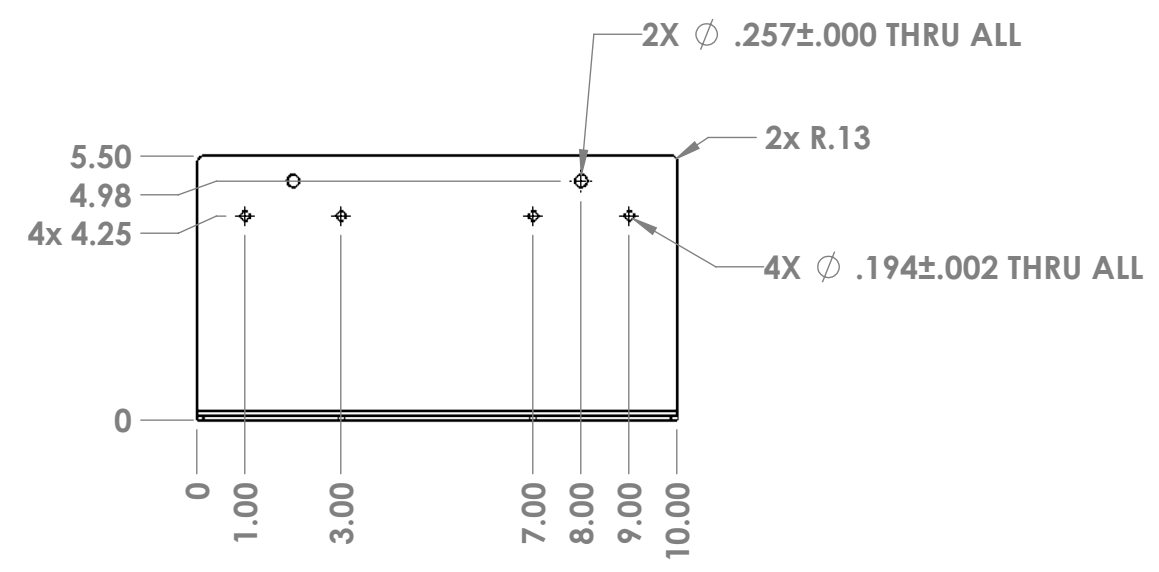
4

3

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1

GE-20140-03
QTY(4)



- Notes:
1. Material: 12 Ga. Aluminum 5052
 2. Remove all burrs and sharp edges.

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		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	



TITLE:
Sensor Housing Assembly

SIZE	DWG. NO.	REV
B	GE-20140	

SCALE: 1:8 WEIGHT: SHEET 3 OF 3

4

3

2

1

B

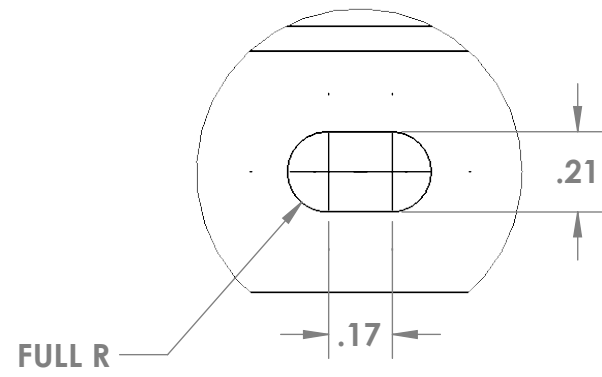
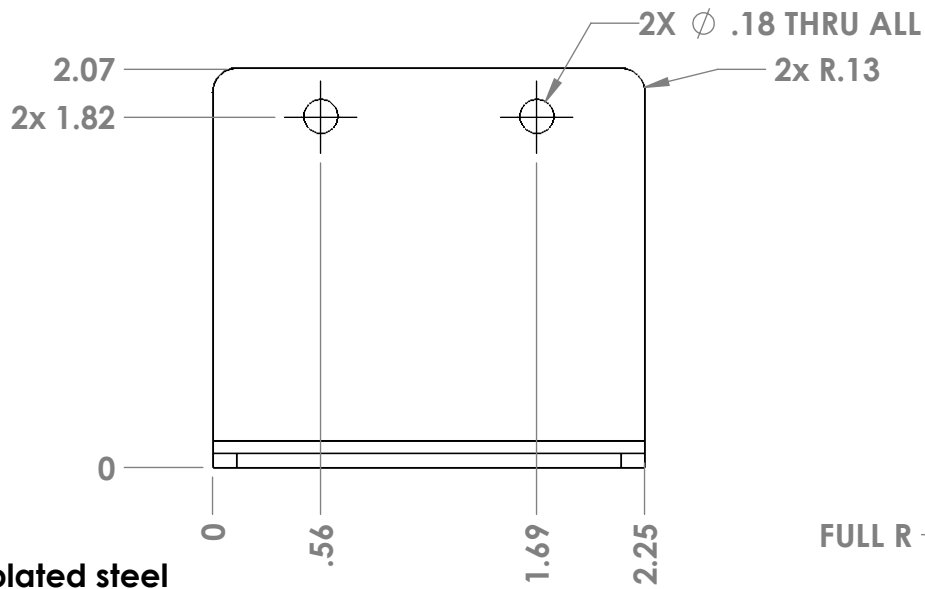
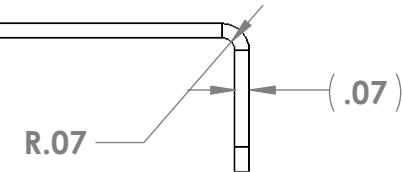
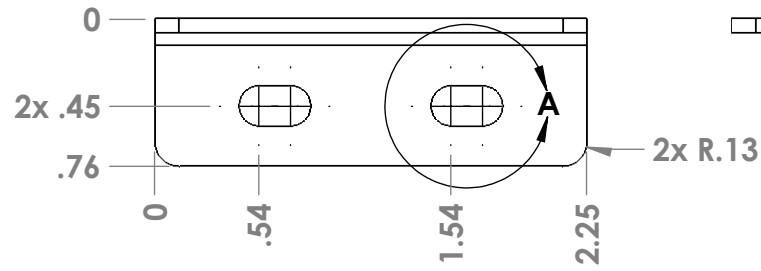
B

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1



DETAIL A
SCALE 2 : 1

Notes:

1. Material: 14 Ga. Pre-plated steel
2. Remove all burrs and sharp edges.
3. Bag or Tag with Part Number

B

B

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A

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		TOLERANCES:	CHECKED		
		FRACTIONAL ± 1/16	ENG APPR.		
		ANGULAR: MACH ± 1° BEND ± 1°	MFG APPR.		
		TWO PLACE DECIMAL ± .01	Q.A.		
		THREE PLACE DECIMAL ± .001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS**
 Modeling Solutions Partner

TITLE:
**Mounting Bracket
 (46CLR ColorSight)**

SIZE	DWG. NO.	REV
A	GE-20141	
SCALE: 1:1	WEIGHT:	SHEET 1 OF 1

2

1

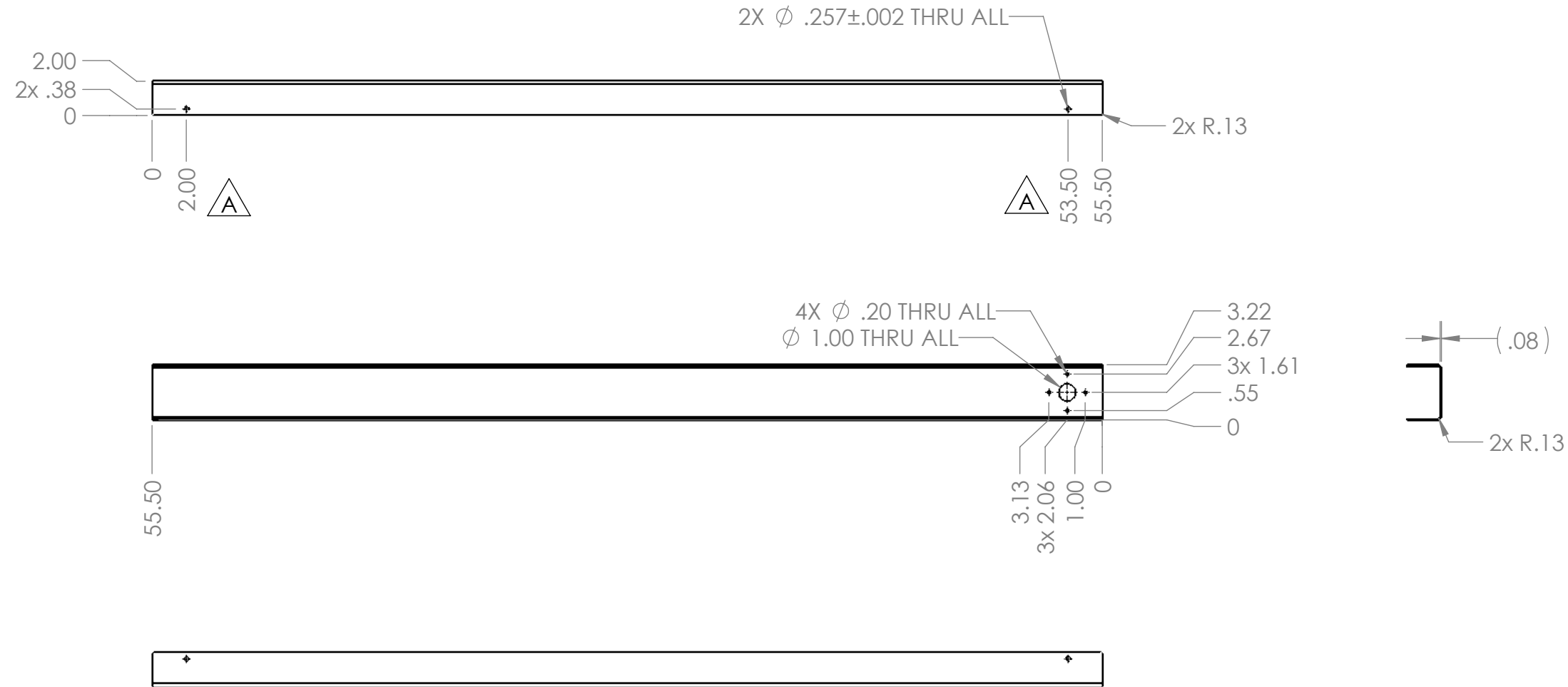
4

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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B4	A	Moved holes for pins	9/20/2019	NTW



Notes:

1. Material: 12 Ga. Aluminum 5052
2. Remove all burrs and sharp edges.
3. Tag or Label with part number

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL \pm 1/16		ENG APPR.	
ANGULAR: MACH \pm 1° BEND \pm 1°		MFG APPR.	
TWO PLACE DECIMAL \pm .01		Q.A.	
THREE PLACE DECIMAL \pm .001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:	MATERIAL		
FINISH			
NEXT ASSY	USED ON		
APPLICATION	DO NOT SCALE DRAWING		



TITLE: Sensor Tray Lid		
SIZE B	DWG. NO. GE-20142	REV A
SCALE: 1:8	WEIGHT:	SHEET 1 OF 1

4

3

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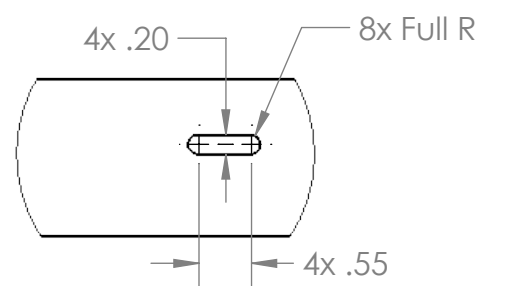
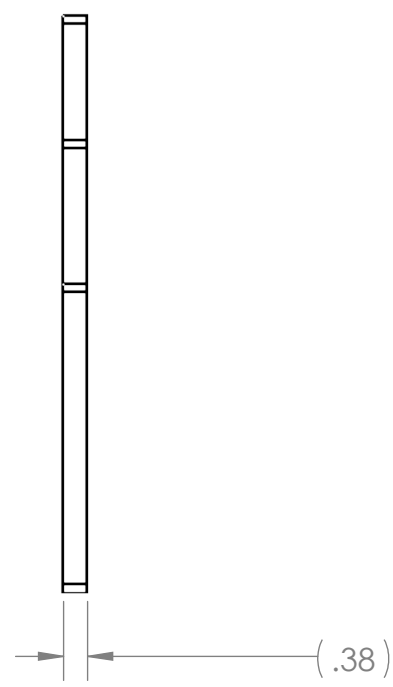
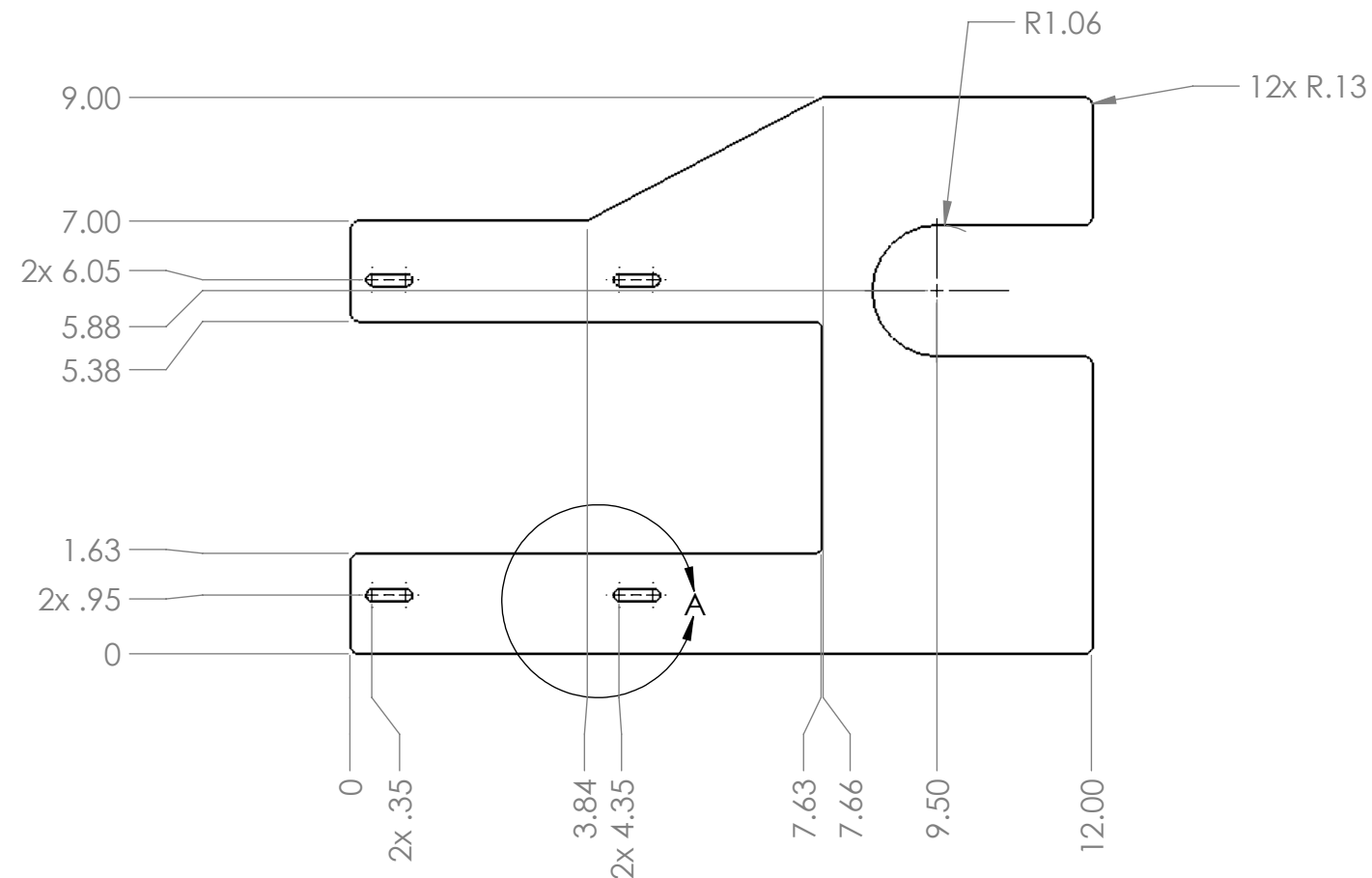
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1



DETAIL A
SCALE 1 : 2

- Note:
1. Material 0.375" Polycarbonate, Clear
 2. Remove all burrs and sharp edges
 3. Tag or Label with part number

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
 					
TITLE:					
<h1>Trench to Truss Gusset</h1>					
SIZE	DWG. NO.			REV	
B	GE-20143				
SCALE: 1:4		WEIGHT:		SHEET 1 OF 1	

4

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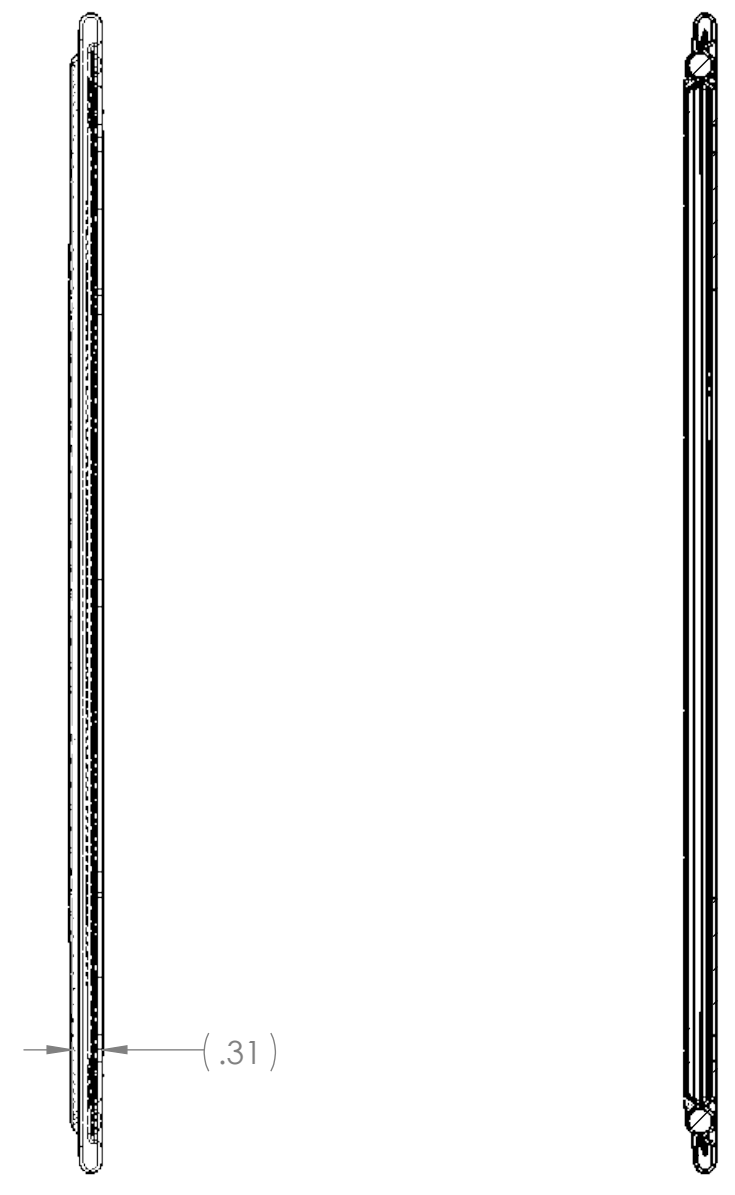
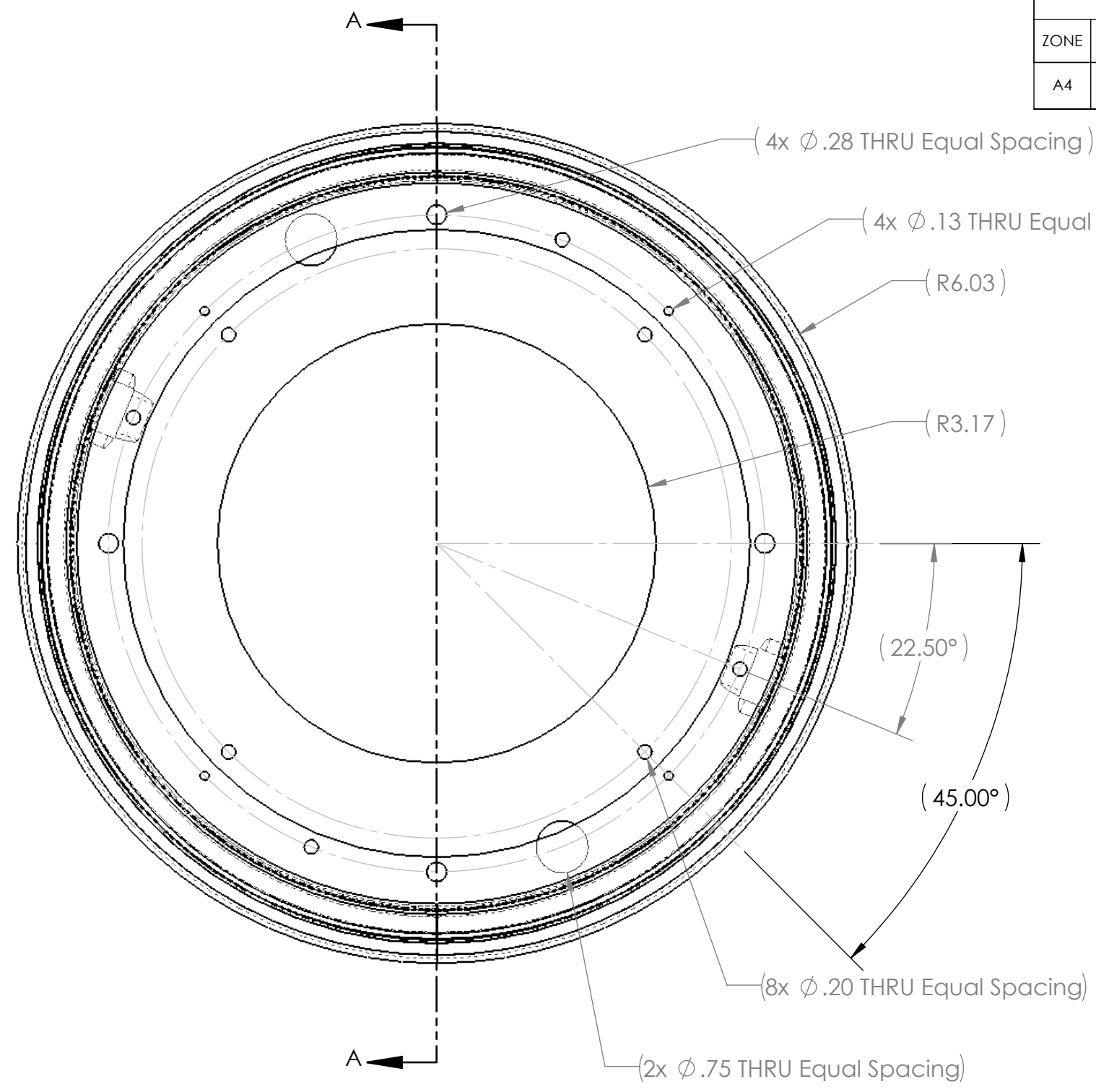
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A4	A	Updated manufacturer part number.	1/9/2020	CPO



SECTION A-A
SCALE 1 : 2

B

B

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Note:
Triangle Manufacturing
Steel Round Lazy Susan Turntable Bearing 22gau-12" with 4 detents
Manufacturer part number: 12D10346



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		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE: Lazy Susan		
SIZE B	DWG. NO. GE-20150	REV A
SCALE: 1:4	WEIGHT:	SHEET 1 OF 1

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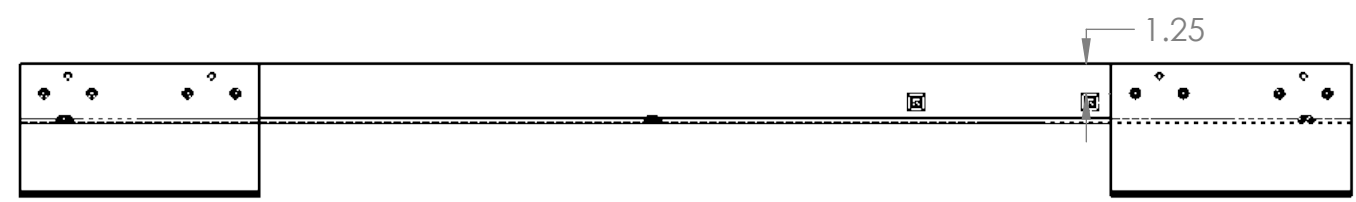
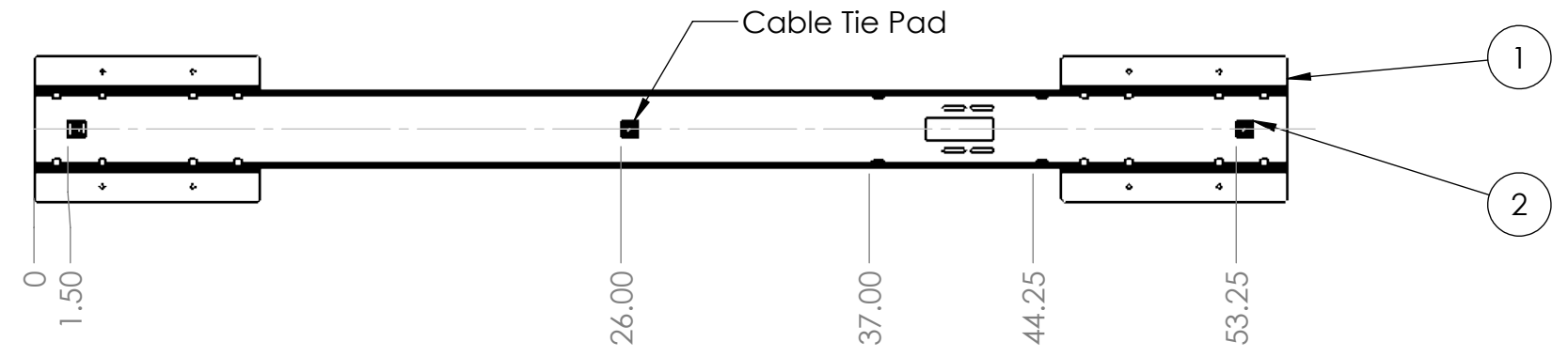
3

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B

B



Cable Tie placement

A

A

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20140	Sensor Housing Assembly	1
2	CABLE TIE MOUNT	CABLE TIE MOUNT	7

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TOLERANCES:		CHECKED	
FRACTIONAL ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
NEXT ASSY	USED ON		
FINISH			
APPLICATION			
DO NOT SCALE DRAWING			



TITLE:
Sensor Housing Assembly with cable tie mounts

SIZE DWG. NO. REV
B GE-20160

SCALE: 1:12 WEIGHT: SHEET 1 OF 1

4

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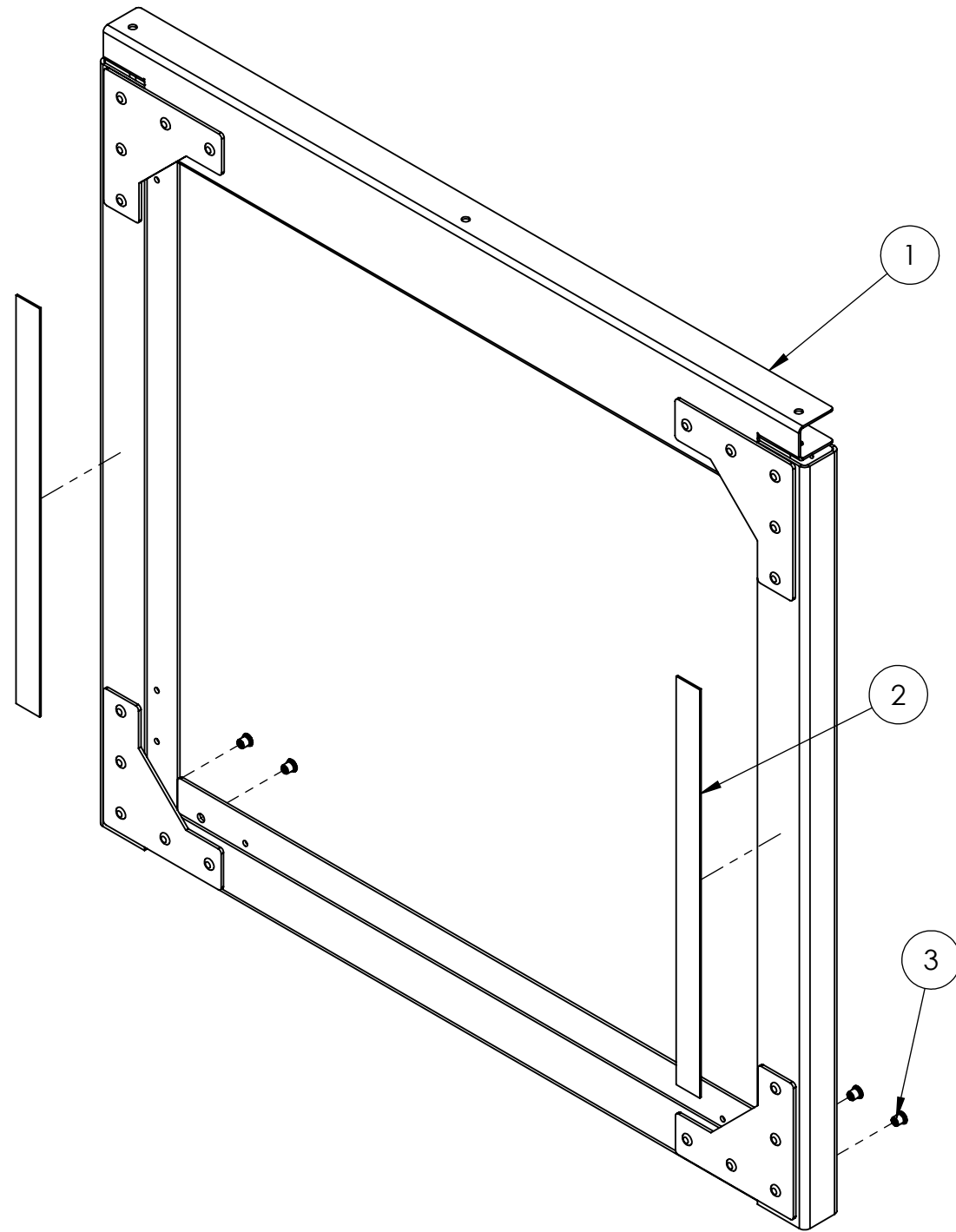
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20101	Trench Leg	1
2	Hook_1_15	1" x 15" Hook, Adhesive Backed	2
3	rivnut_10-32_.130	rivnut 10-32 grip range .020 to .130	4

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		TITLE:
		MATERIAL	ENG APPR.		GE-20101 with hook
		FINISH	MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON		Q.A.		B GE-20161
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		SCALE: 1:8 WEIGHT: SHEET 1 OF 2

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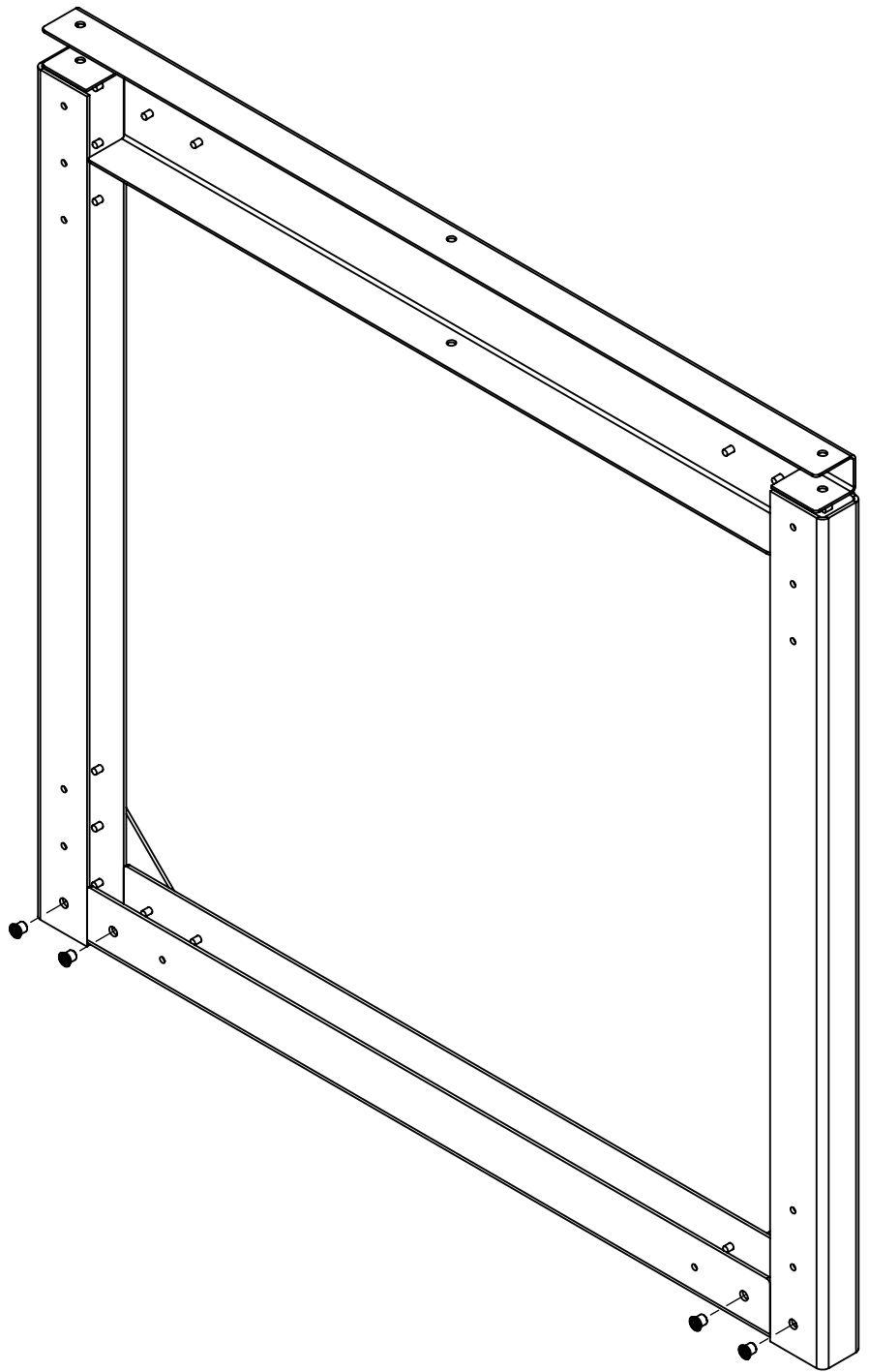
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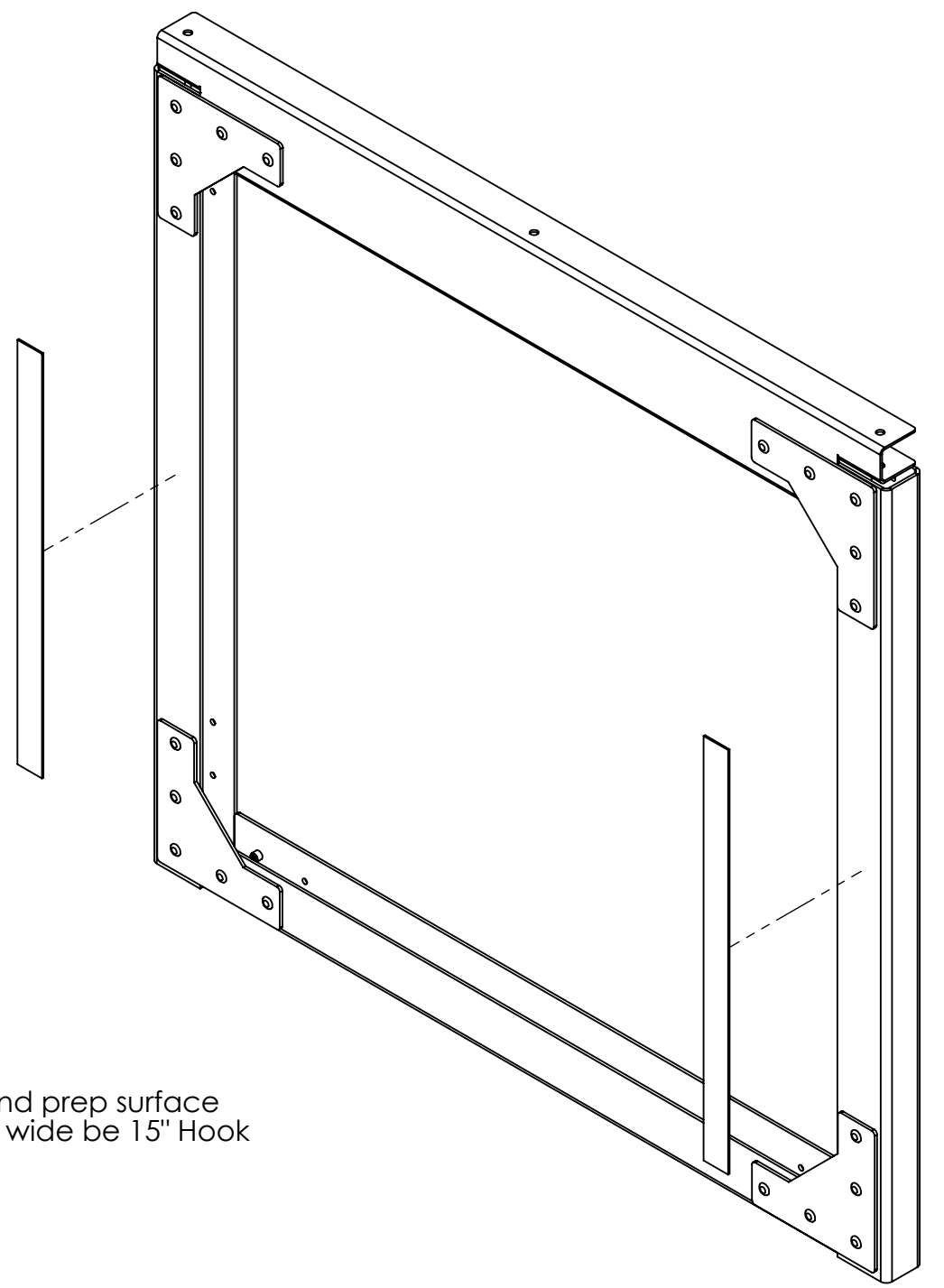
B

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Notes:
 1. Install #10-32 rivet nuts to GE-20101 as shown



Notes:
 1. Clean and prep surface
 2. Apply 1" wide by 15" Hook

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		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
 					
TITLE: GE-20101 with hook					
SIZE	DWG. NO.			REV	
B	GE-20161				
SCALE: 1:8		WEIGHT:		SHEET 2 OF 2	

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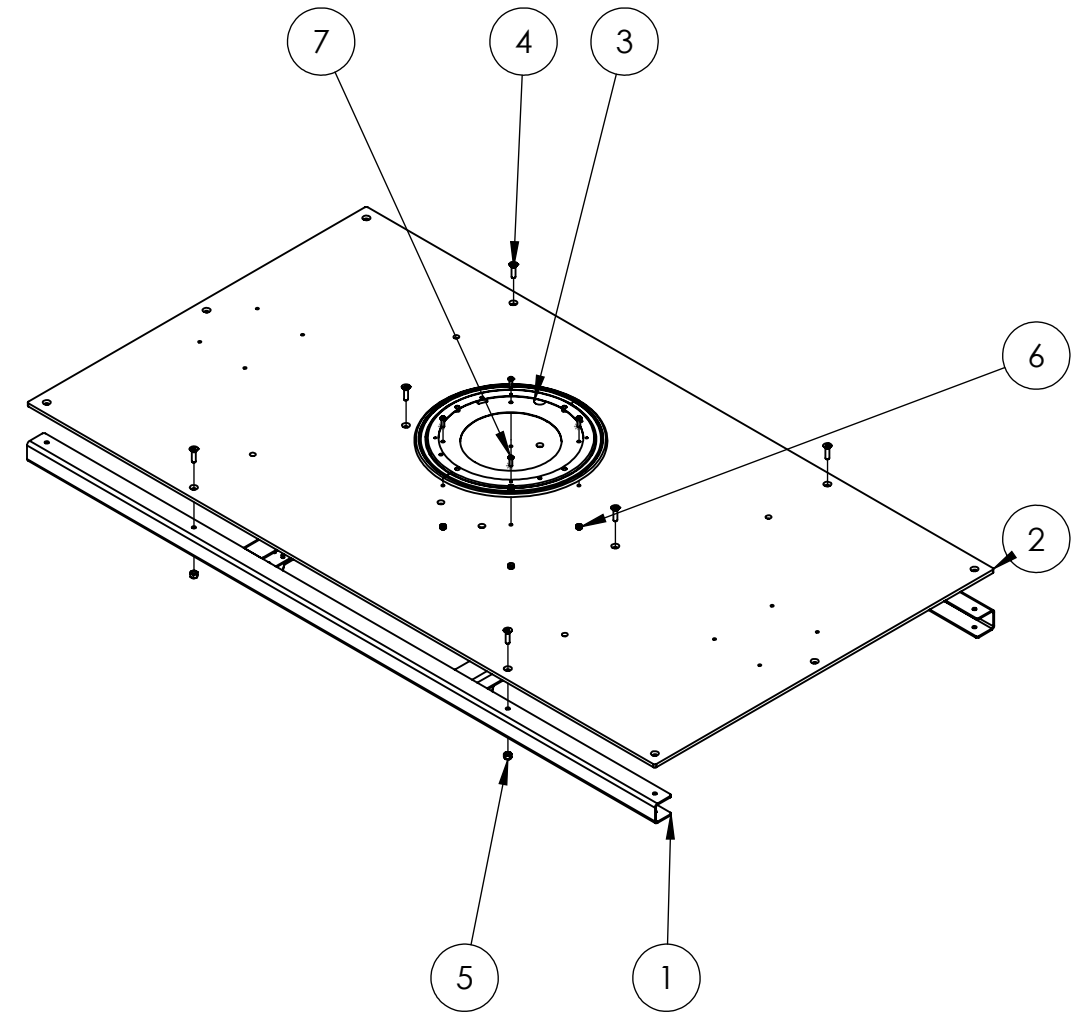
1

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Notes:

1. Attach (2) to (1) with (4) and (5) in 6 spots.
2. Attach (3) to (2) with (7) and (6) in 4 spots. Making sure to align access holes in (3) to matching cut out in (2)

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20102	Trench Top Frame	1
2	GE-20114	Trench Top Plastic	1
3	GE-20150	12d6234 Triangle Manufacturing	1
4	flat_hex_.25_20_1	Steel Hex Flat Head Screw, 1/4"-20 x 1" long, fully threaded	6
5	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	6
6	nylock_10_32	Low-Strength Steel Nylon-Insert Locknut, Zinc-Plated, 10-32 Thread Size	4
7	round_hex_10_32_.625_full	Round Hex Head, #10-32 x 5/8" long, fully threaded	4

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
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		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		TITLE:
		MATERIAL	ENG APPR.		GE-20102 with GE-20114
		FINISH	MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON		Q.A.		B GE-20162
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		SCALE: 1:12 WEIGHT: SHEET 1 OF 1

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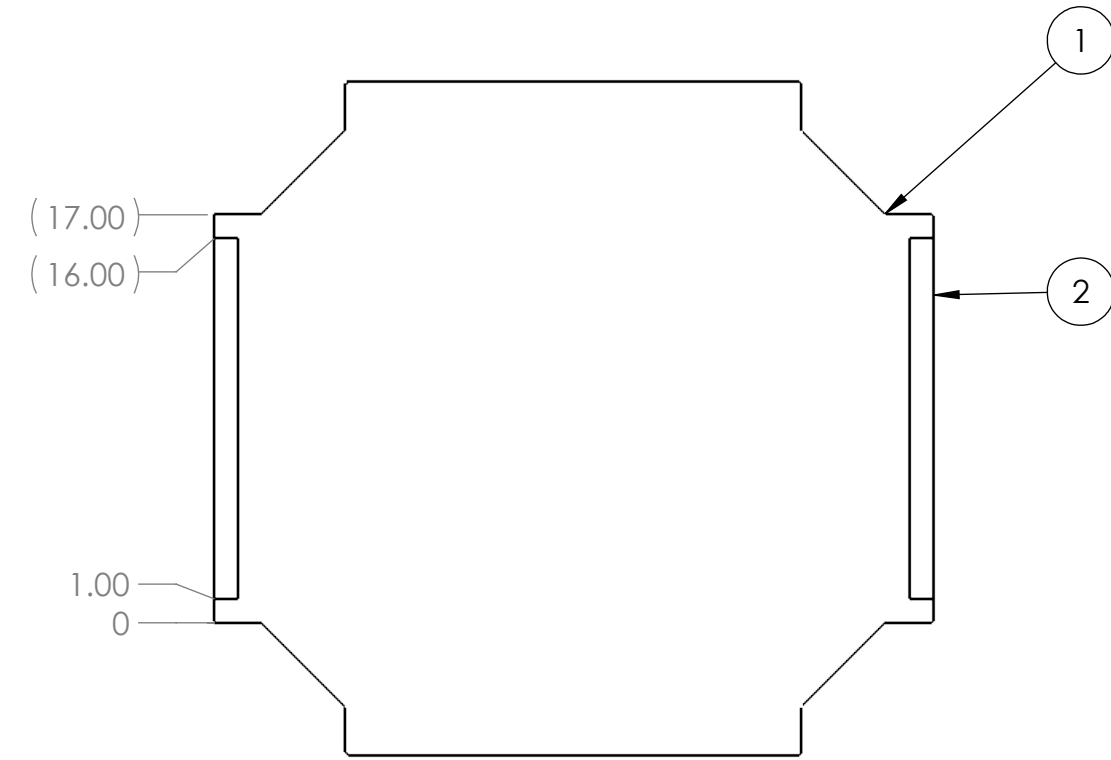
3

2

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B



Notes:



- 1. Remove protective Plastic.
- 2. Attach (2) to (1) as shown on back side only.

A

A

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20115	Trench Side Plastic	1
2	Loop_1_15	1" x 15" Loop, Adhesive Backed	2

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		TITLE:
		MATERIAL	ENG APPR.		GE-20115 with loop
		FINISH	MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON		Q.A.		B GE-20163
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		SCALE: 1:8 WEIGHT: SHEET 1 OF 1

4

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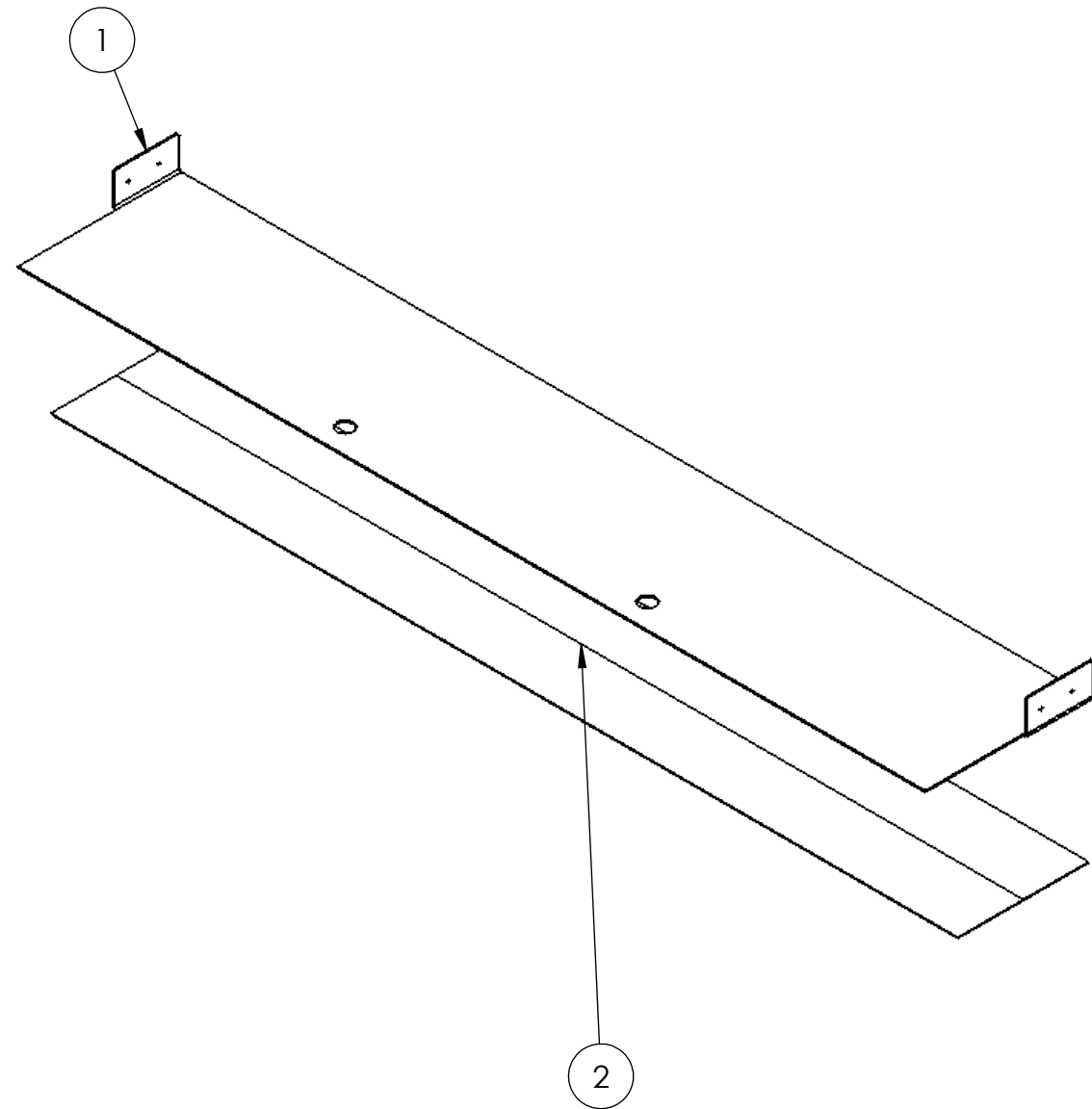
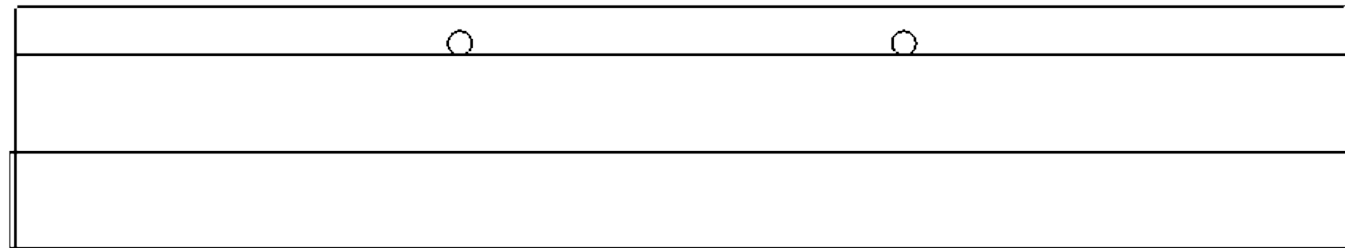
1

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1





Notes:

- 1. Clean and prep bottom surface
- 2. Attach (2) to (1) as shown above.
- 3. No Hook permissible in the circular cut outs.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20123	Trench Base	1
2	Hook_4_55	4" x 55" Hook, Adhesive Backed	2

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE DWG. NO. REV
		MATERIAL	ENG APPR.		B GE-20164
NEXT ASSY	USED ON	FINISH	MFG APPR.		SCALE: 1:8 WEIGHT: SHEET 1 OF 1
APPLICATION		DO NOT SCALE DRAWING	Q.A.		
			COMMENTS:		

4

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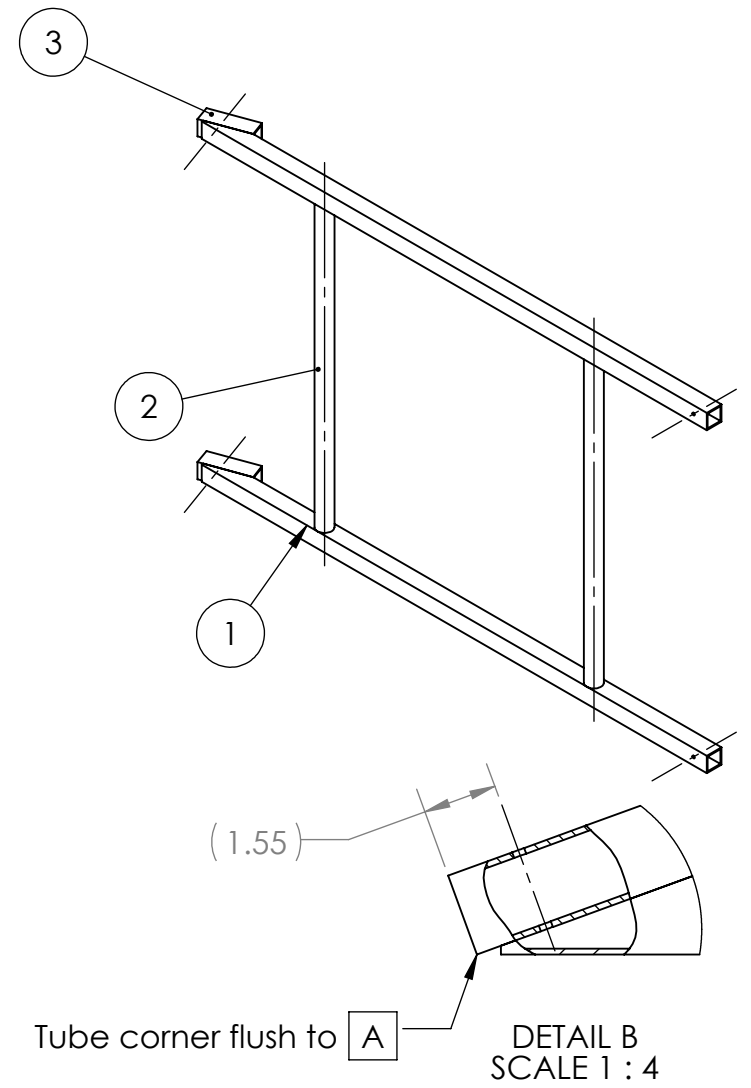
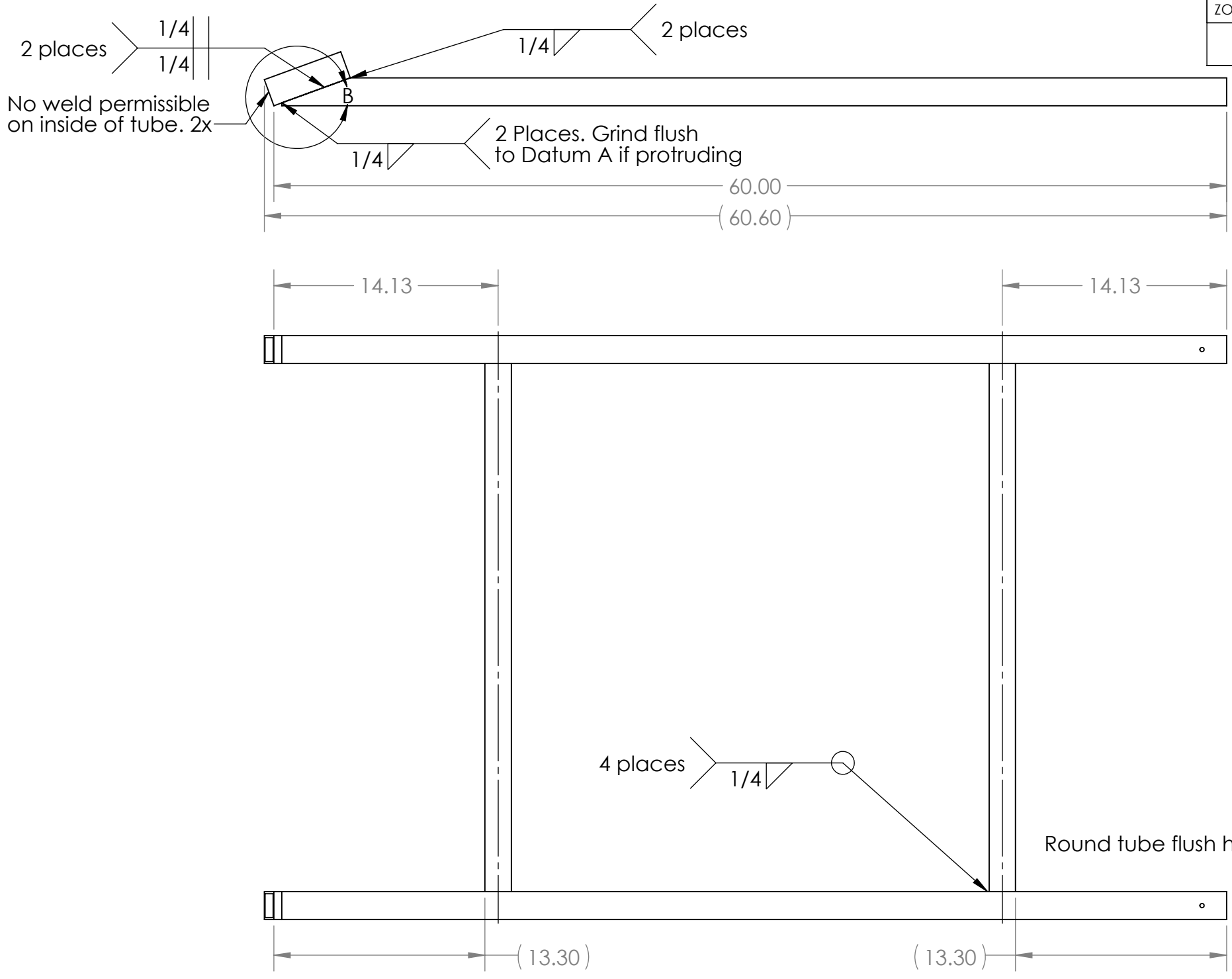
4

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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	Changed Title	9/11/2019	DAF



- Notes:
1. Tag or label with part number
 2. Remove all burrs and sharp edges

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20201-01	1.75" x .125" thk. Square Tubing, 6063 Aluminum	2
2	GE-20201-02	1-1/4" Schedule 40 Pipe, 6061 Aluminum	2
3	GE-20201-03	1.75" x .125" thk. Square Tubing, 6063 Aluminum	2

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TOLERANCES:		CHECKED	
FRACTIONAL: ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION			
DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Frame, Bay**

SIZE **B** DWG. NO. **GE-20201** REV **A**

SCALE: 1:8 WEIGHT: SHEET 1 OF 2

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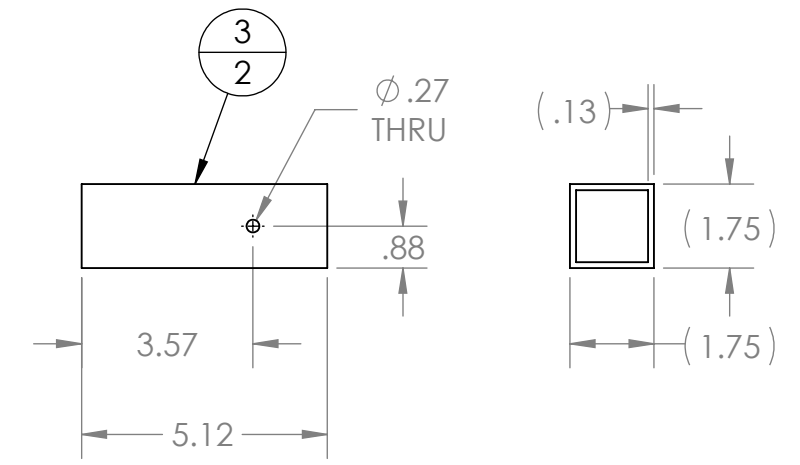
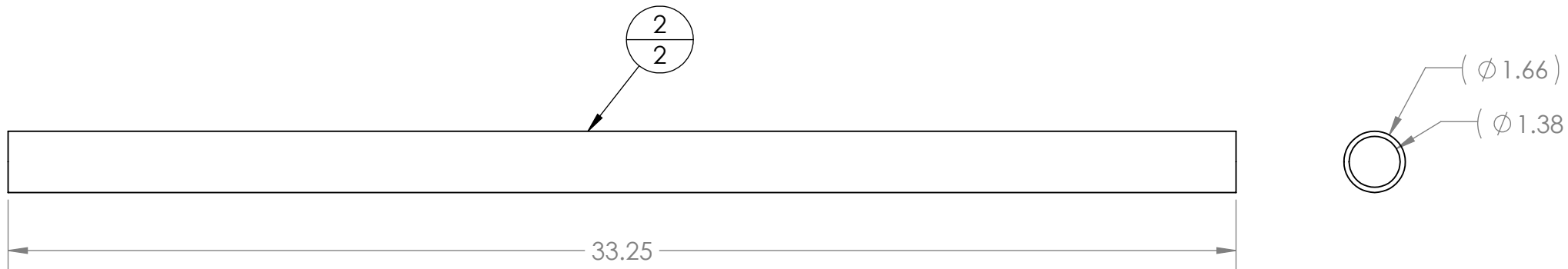
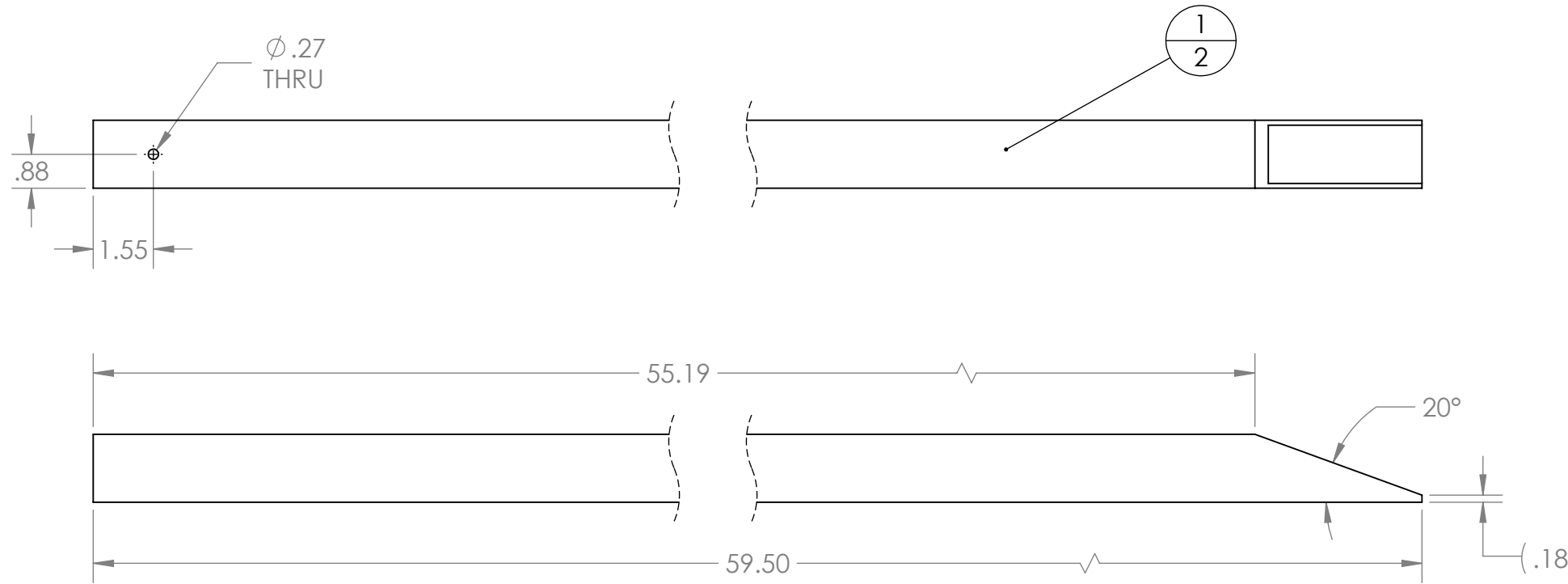
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4

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1



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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL: ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION			
DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Frame, Bay**

SIZE B	DWG. NO. GE-20201	REV A
SCALE: 1:4	WEIGHT:	SHEET 2 OF 2

4

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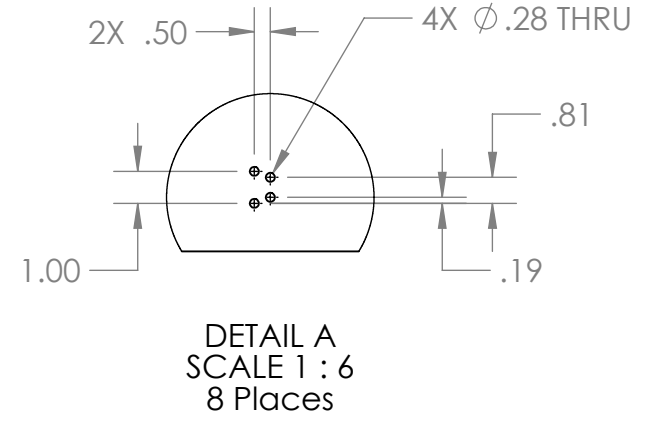
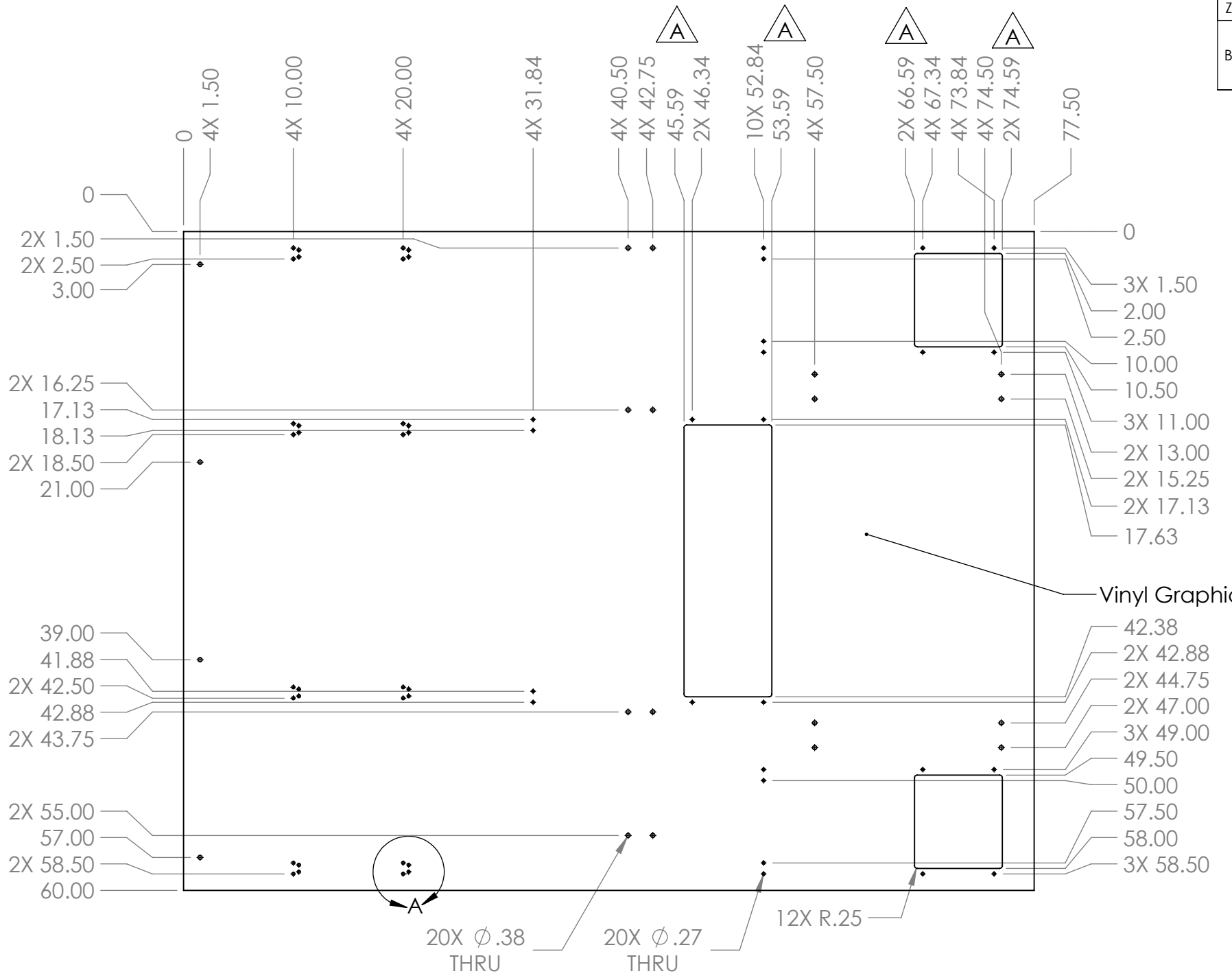
4

3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B3	A	45.59 was 45.50, 66.59 was 66.5, 74.59 was 74.5. Added 53.59	9/16/2019	DAF



B

B

A

A

- Notes:
1. Material: 1/4" thick, clear polycarbonate.
 2. Remove all burrs and sharp edges.
 3. Part will have vinyl applied.
 4. Tag or label with part number.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION			
DO NOT SCALE DRAWING			



TITLE:
Front Face, Bay

SIZE **B** DWG. NO. **GE-20202** REV **A**

SCALE: 1:12 WEIGHT: SHEET 1 OF 1

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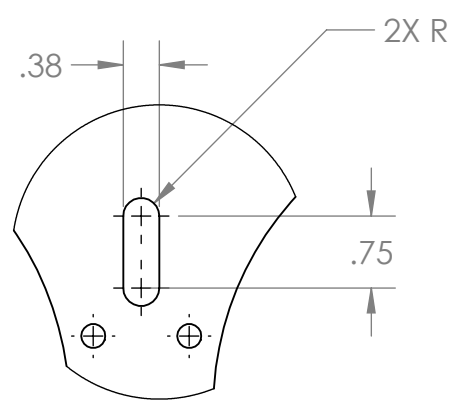
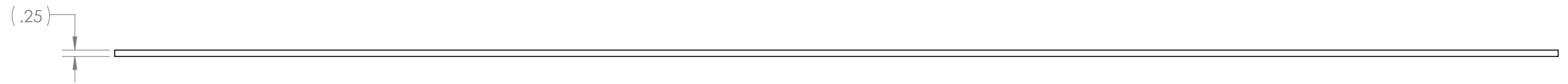
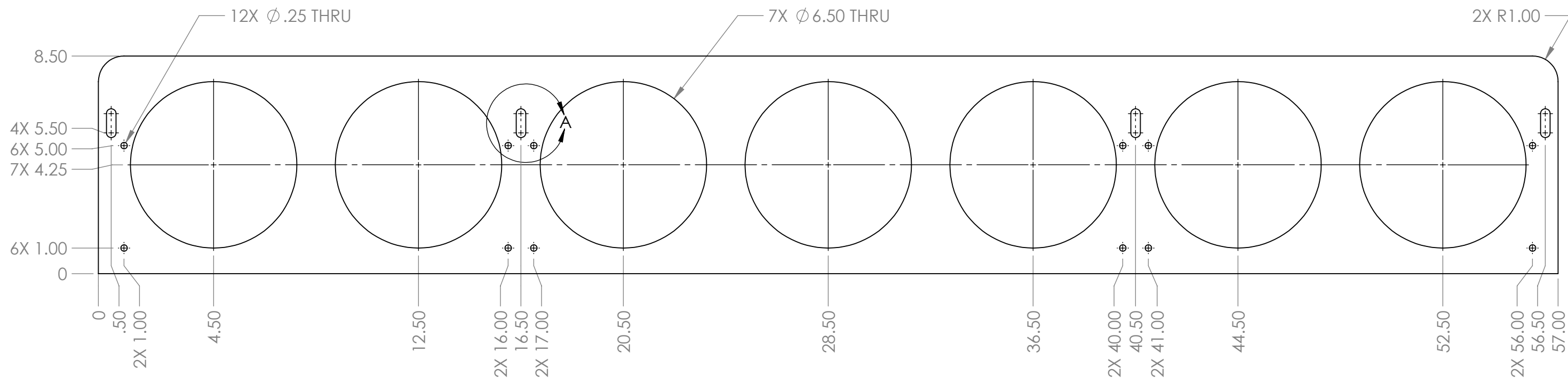
1

B

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DETAIL A
SCALE 1 : 2
4 Places

- Notes:
1. Material: 1/4" thick, clear, polycarbonate.
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL \pm 1/16 ANGULAR: MACH \pm 1° BEND \pm 1° TWO PLACE DECIMAL \pm .01 THREE PLACE DECIMAL \pm .001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
			 		
TITLE: Ball Rack, Bay					
SIZE	DWG. NO.			REV	
B	GE-20203				
SCALE: 1:4			WEIGHT:		SHEET 1 OF 1

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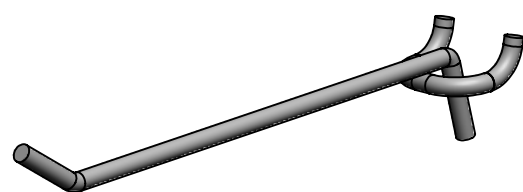
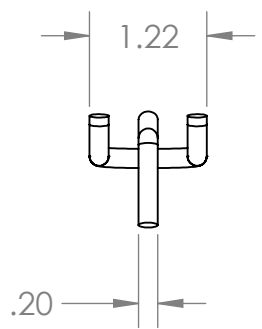
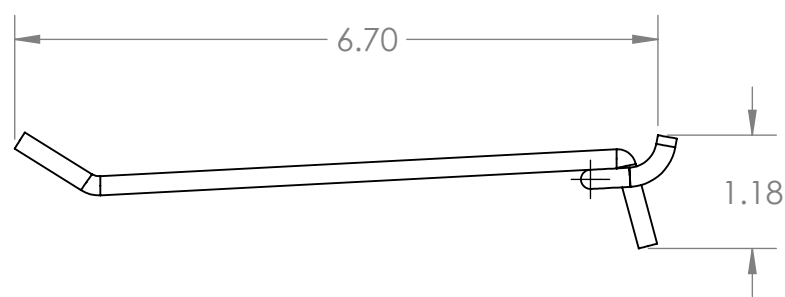
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DESCRIPTION: ZINC-PLATED STEEL
 PEGBOARD HOOK FOR 3/16" AND 9/32"
 DIAMETER PEG HOLE, 6-3/4" PROJECTION

VENDOR: MC MASTER-CARR

PART NUMBER: 18535A63

PACKAGE QUANTITY: 10

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		Hook, Pegboard, 6.75"
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		B GE-20204
APPLICATION		DO NOT SCALE DRAWING	Q.A.		SCALE: 1:2 WEIGHT: SHEET 1 OF 1
			COMMENTS:		

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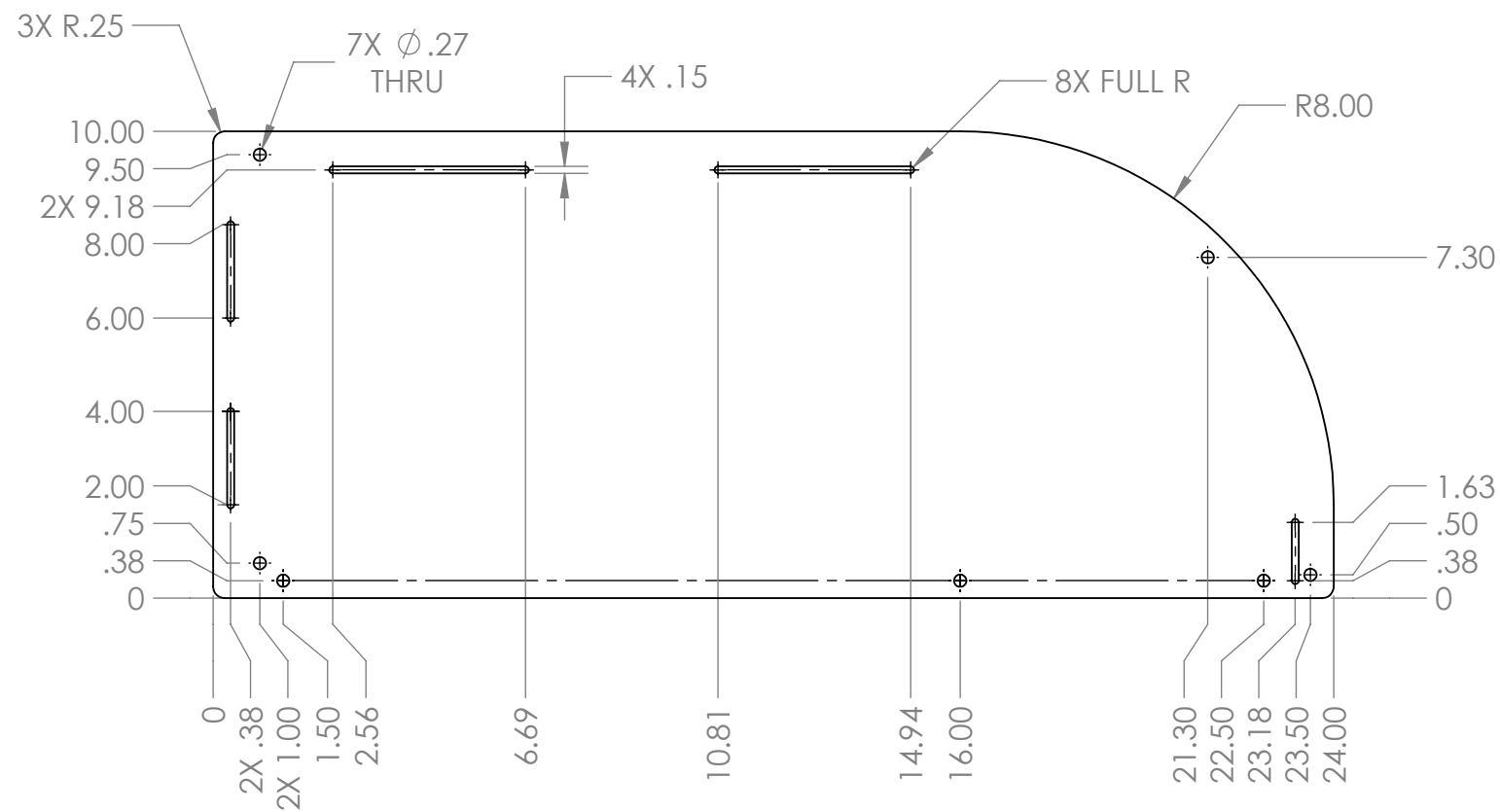
1

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- Notes:
1. Material: 1/4" Polycarbonate, Clear
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		

TITLE:

Side Plate, Lower Chute

SIZE	DWG. NO.	REV
B	GE-20206	
SCALE: 1:4	WEIGHT:	SHEET 1 OF 1

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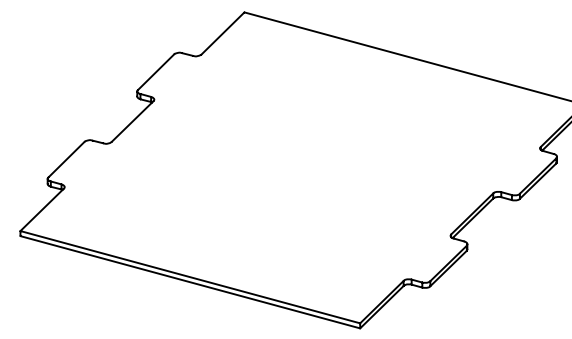
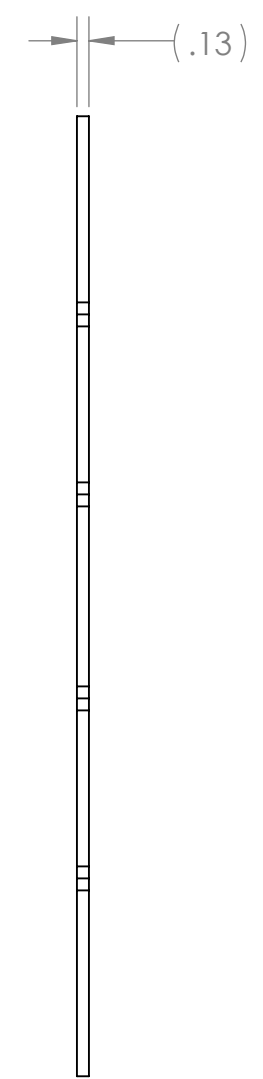
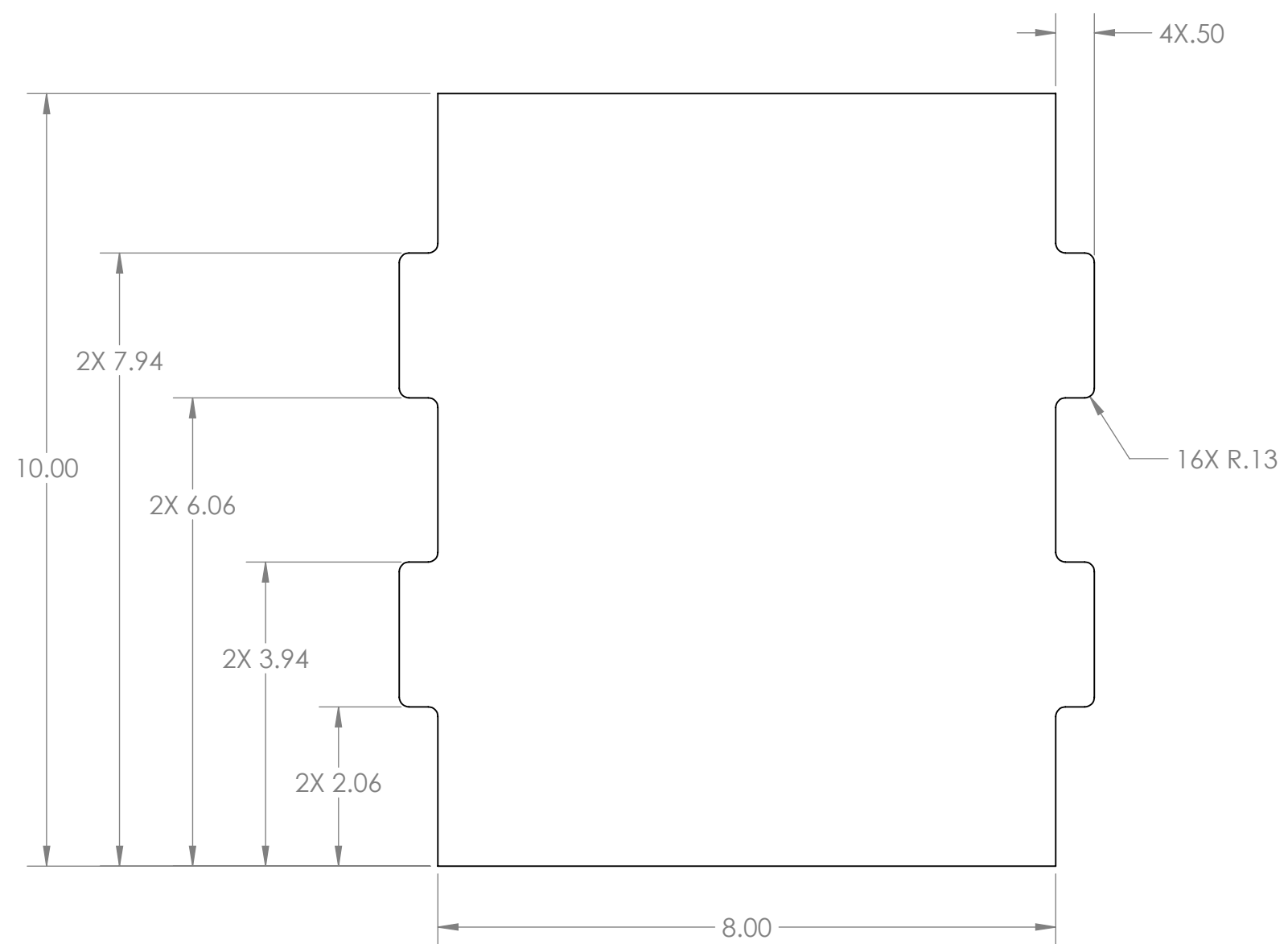
1

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Notes:

- 1. Material: 1/8" thick, polycarbonate, clear.
- 2. Remove all burrs and sharp edges.
- 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		Top, Lower Chute
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		SIZE DWG. NO. REV
APPLICATION		DO NOT SCALE DRAWING	Q.A.		B GE-20208
			COMMENTS:		SCALE: 1:2 WEIGHT: SHEET 1 OF 1

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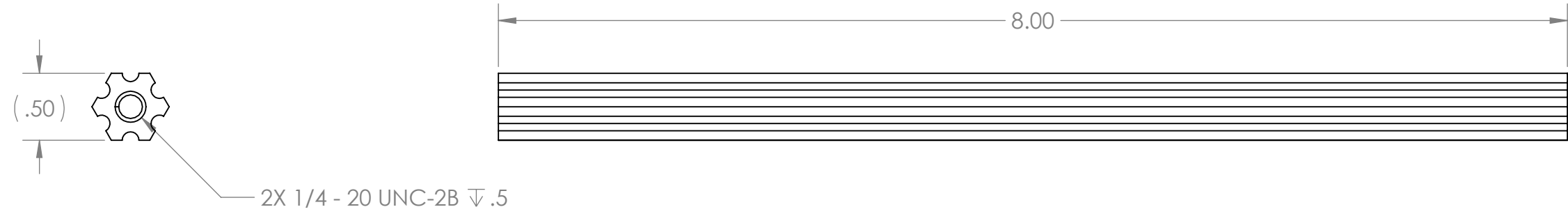
3

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Notes:

- 1. Material: Aluminum
- 2. Description: AndyMark Churro
- 3. Make from AndyMark PN: am-3101-6, or equivalent.
- 4. Bag or tag with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN			
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED			<h1>Churro, Lower Chute</h1>
		MATERIAL	ENG APPR.			
		FINISH	MFG APPR.			B GE-20209
NEXT ASSY	USED ON		Q.A.			SCALE: 1:1 WEIGHT: SHEET 1 OF 1
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:			

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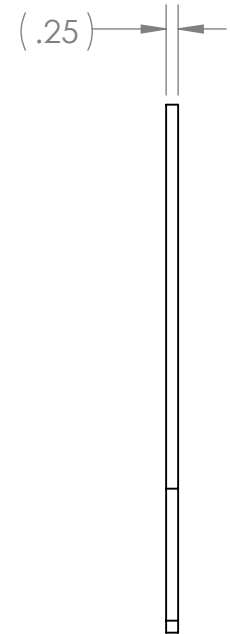
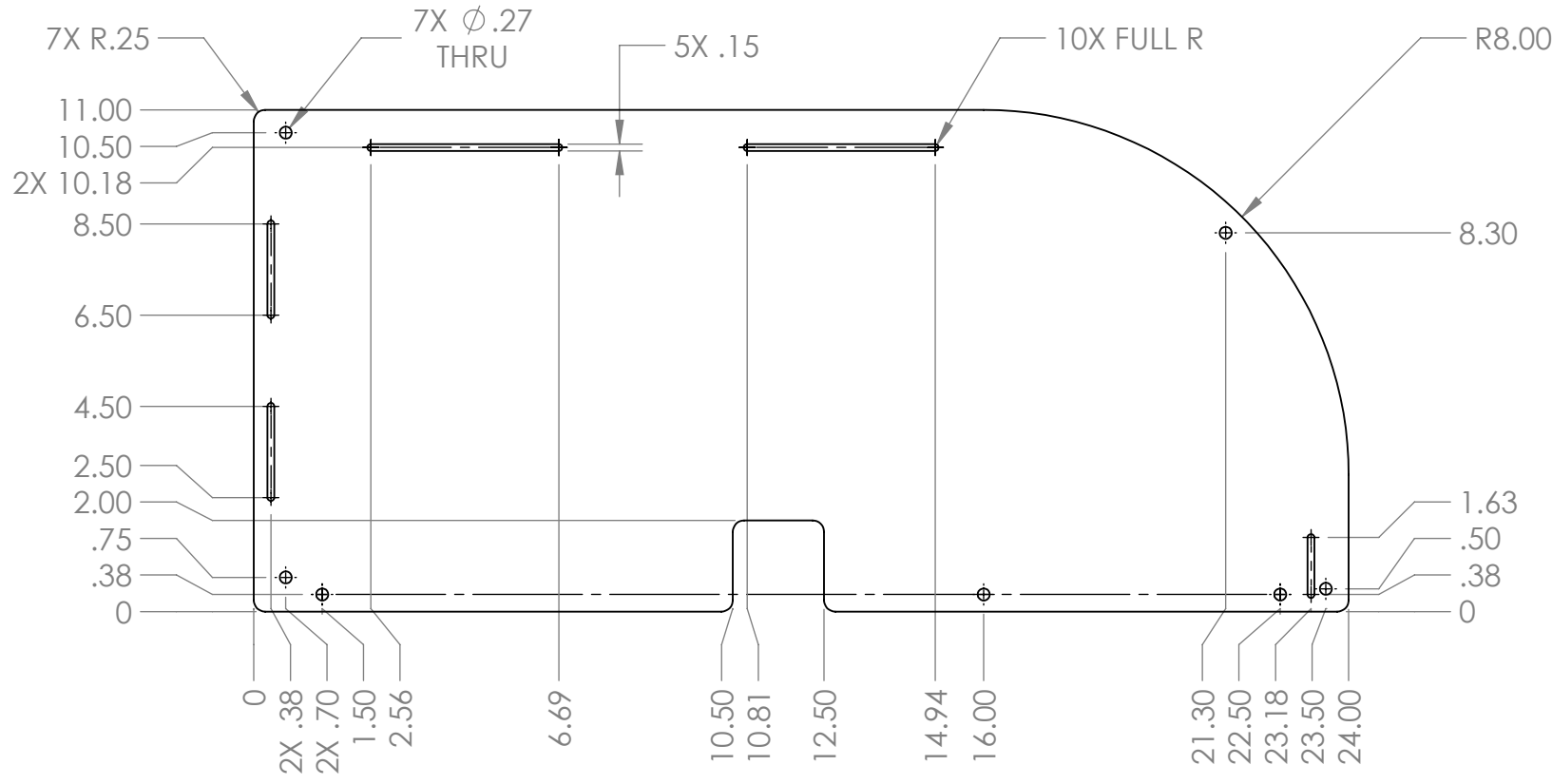
1

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Notes:

- 1. Material: 1/4" Polycarbonate, Clear
- 2. Remove all burrs and sharp edges.
- 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Side Plate, Upper Chute**

SIZE **B** DWG. NO. **GE-20211** REV

SCALE: 1:4 WEIGHT: SHEET 1 OF 1

4

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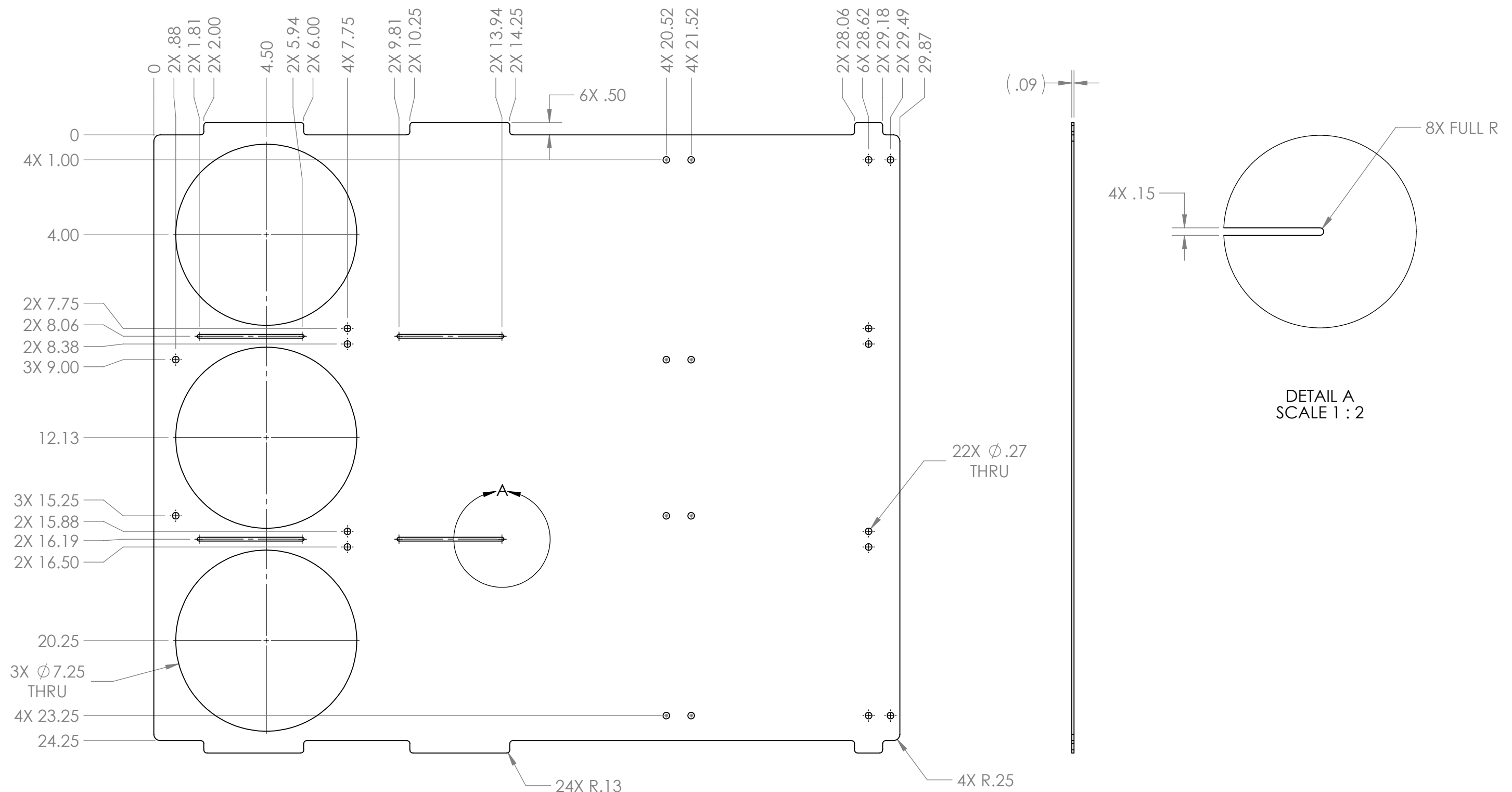
1

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- Notes:
1. Material: .093" polycarbonate, clear
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

TITLE: Slide, Upper Chute	
SIZE B	DWG. NO. GE-20212
SCALE: 1:4	WEIGHT:
SHEET 1 OF 1	

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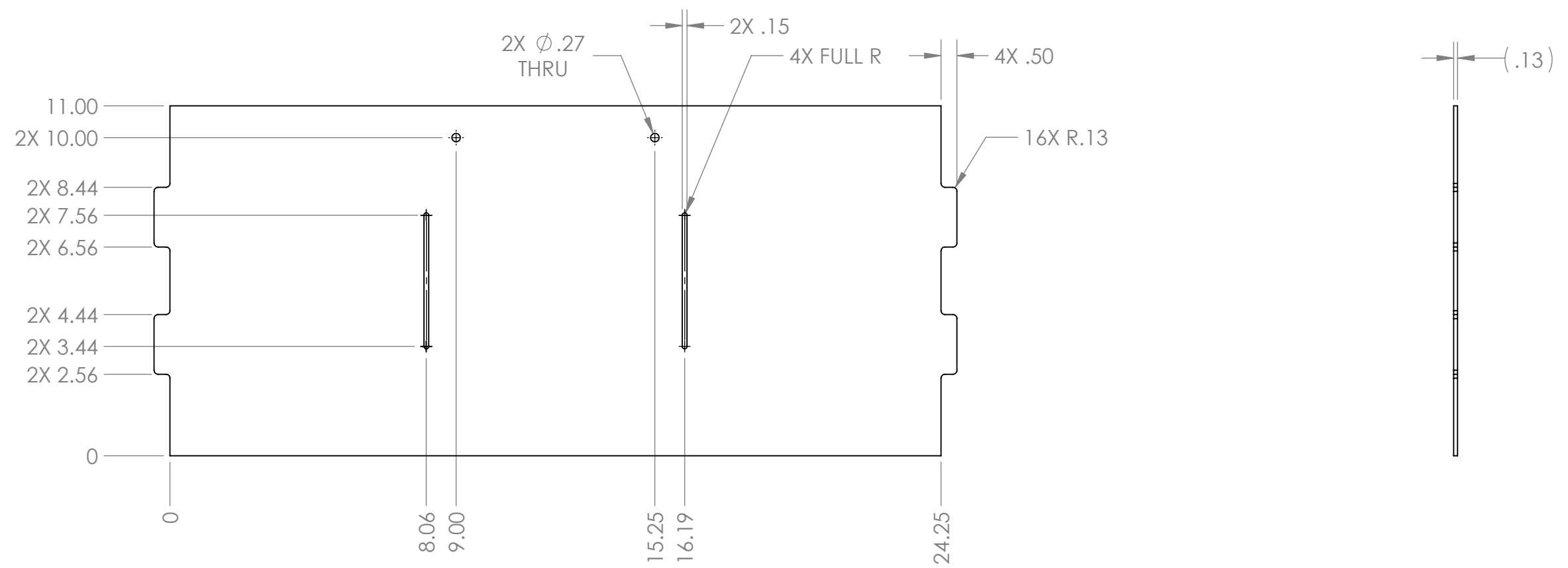
3

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- Notes:
1. Material: 1/8" polycarbonate, clear
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	

 		
TITLE: Top, Upper Chute		
SIZE	DWG. NO.	REV
B	GE-20213	
SCALE: 1:4		WEIGHT:
		SHEET 1 OF 1

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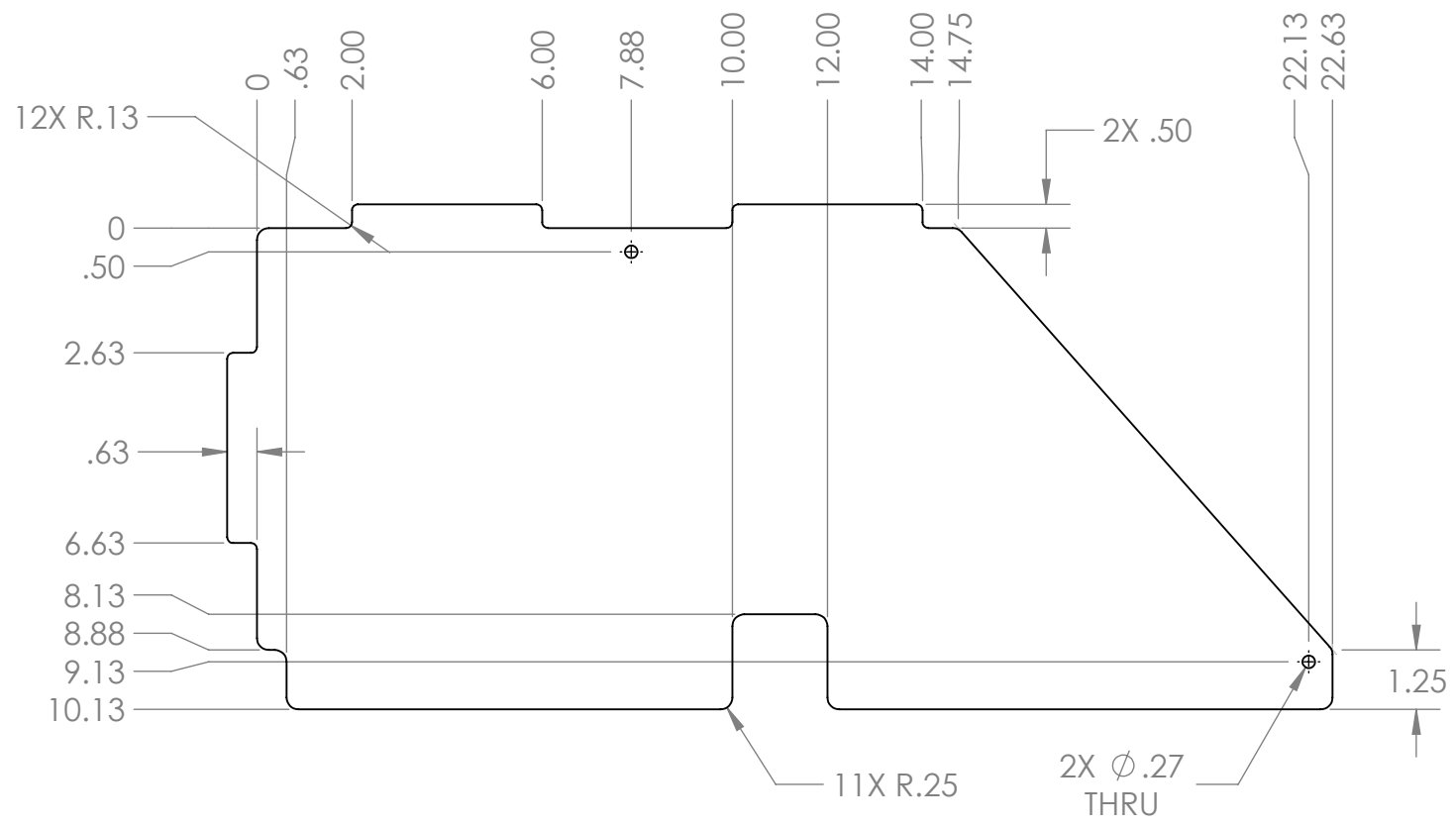
1

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Notes:

- 1. Material: 1/8" thick polycarbonate, clear
- 2. Remove all burrs and sharp edges.
- 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
Divider, Upper Chute		
SIZE	DWG. NO.	REV
B	GE-20214	
SCALE: 1:4	WEIGHT:	SHEET 1 OF 1

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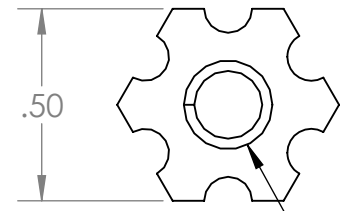
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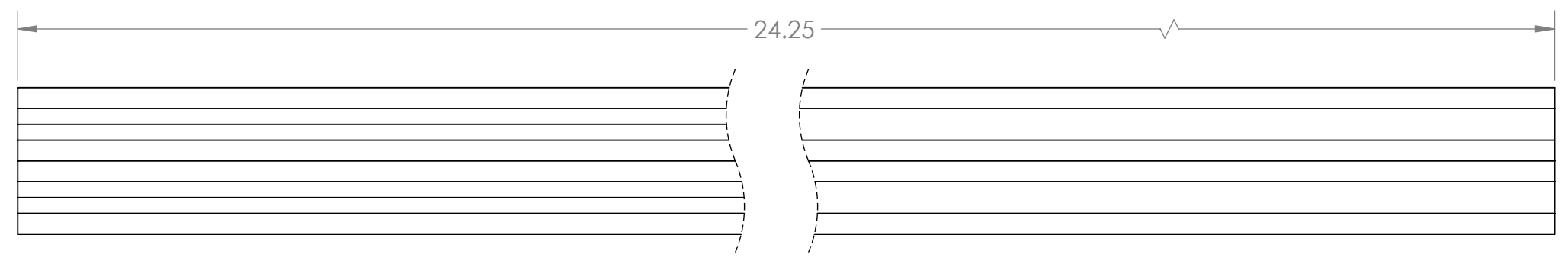
1

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2X 1/4-20 UNC-2B ∇ .50



Notes:

- 1. Material: Aluminum
- 2. Description: AndyMark Churro
- 3. Make from AndyMark PN: am-3101-6 or equivalent.
- 4. Bag or tag with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL $\pm 1/16$	ENG APPR.		
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.		
		TWO PLACE DECIMAL $\pm .01$	Q.A.		
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:		
Churro, Upper Chute		
SIZE	DWG. NO.	REV
B	GE-20215	
SCALE: 2:1	WEIGHT:	SHEET 1 OF 1

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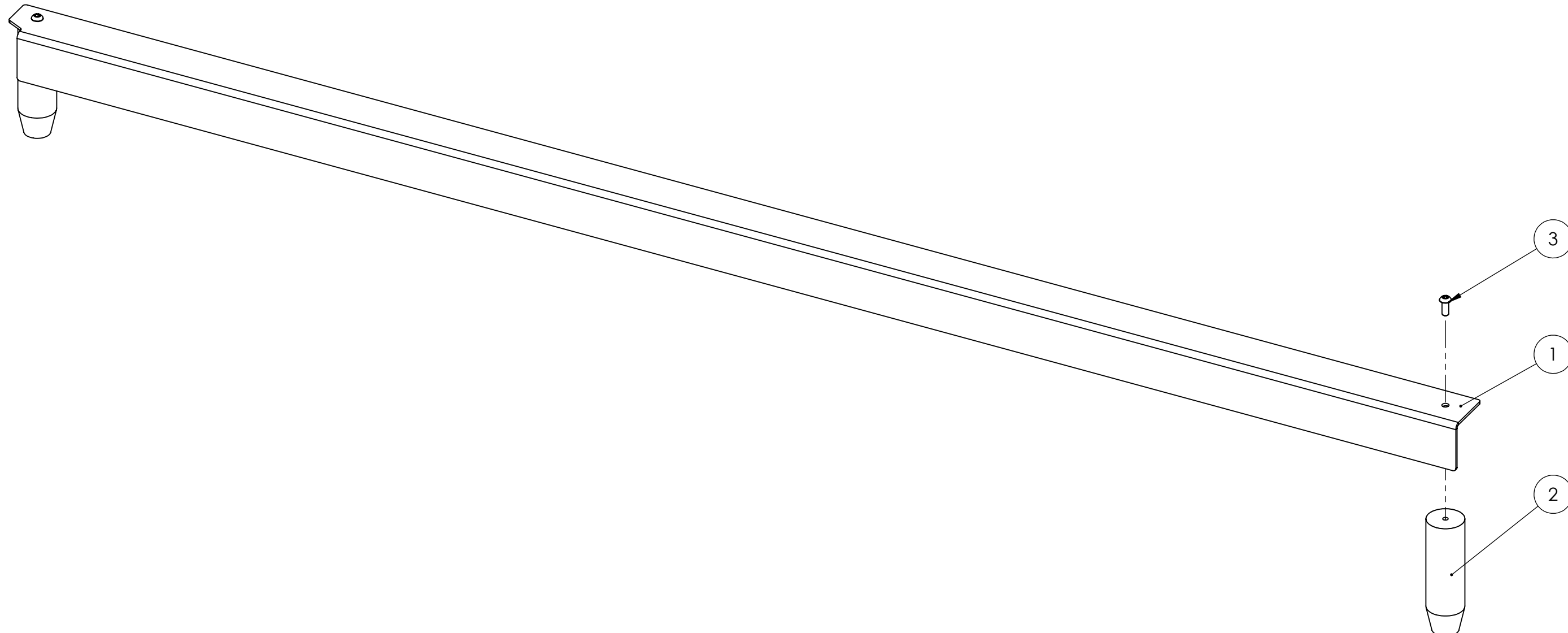
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20217	Top Rail, Angle	1
2	GE-20218	Top Rail, Post	2
3	round_hex_.25_20_.625_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 5/8" long, fully threaded	2

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN		
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: <h2 style="text-align: center;">Top Rail, Standard</h2>
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	Q.A.		SIZE B DWG. NO. GE-20216 REV
APPLICATION		COMMENTS:		SCALE: 1:4 WEIGHT: SHEET 1 OF 1
DO NOT SCALE DRAWING				

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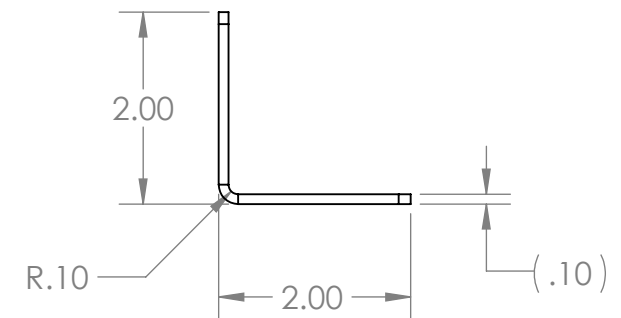
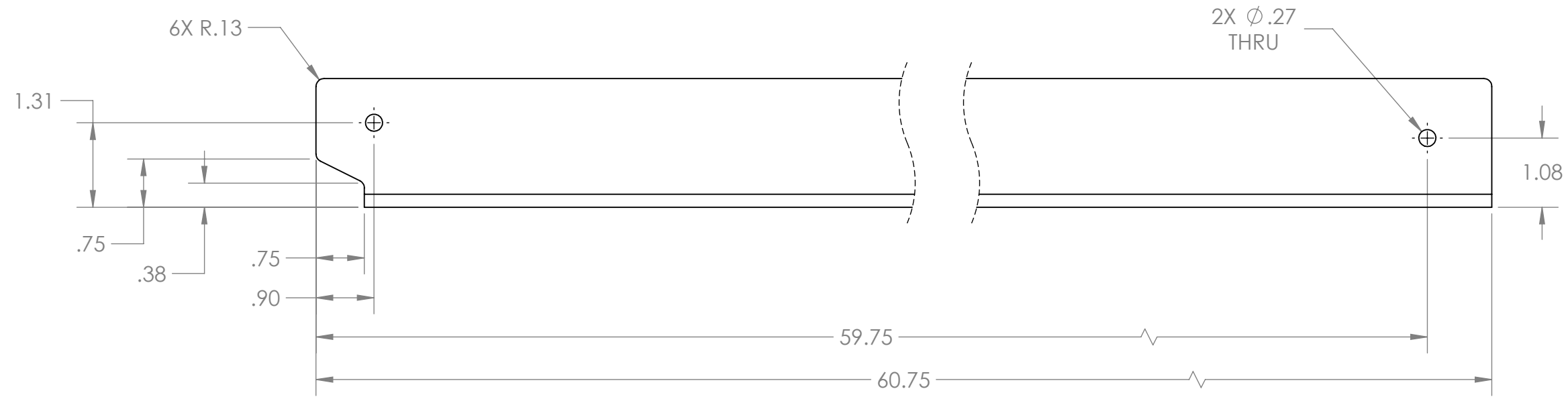
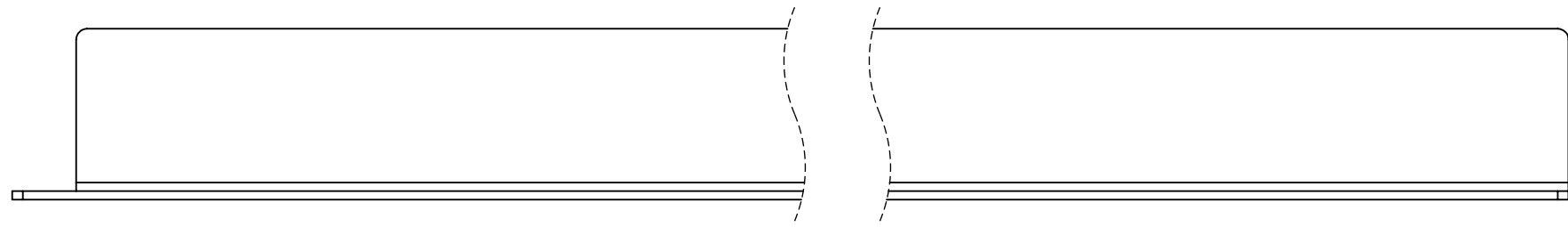
1

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- Notes:
1. Material: 5052 Aluminum Sheet, 10 GA.
 2. Remove all burrs and sharp edges.
 3. Tag or Label with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
NEXT ASSY	USED ON	FINISH		MFG APPR.	
APPLICATION		DO NOT SCALE DRAWING		Q.A.	
				COMMENTS:	



TITLE: Top Rail, Angle		
SIZE B	DWG. NO. GE-20217	REV
SCALE: 1:2	WEIGHT:	SHEET 1 OF 1

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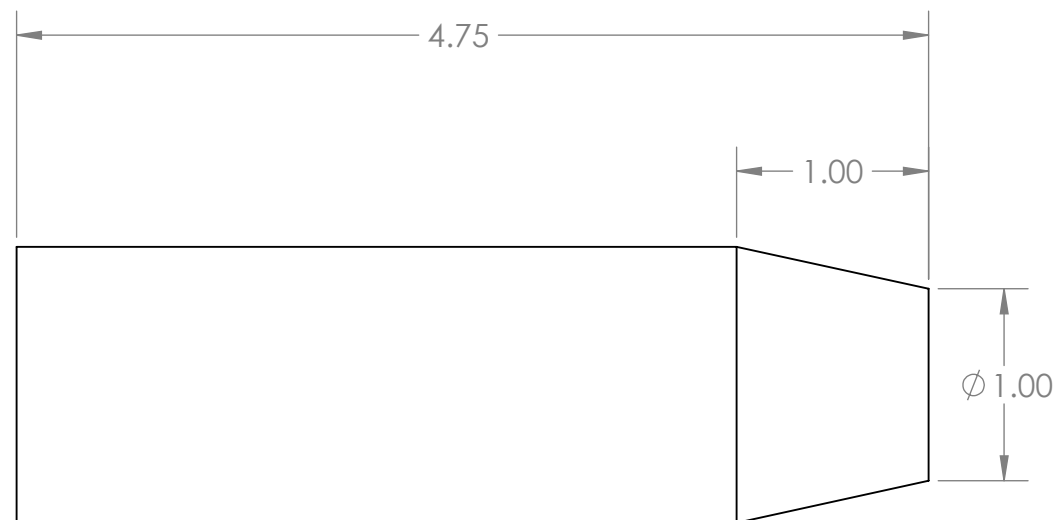
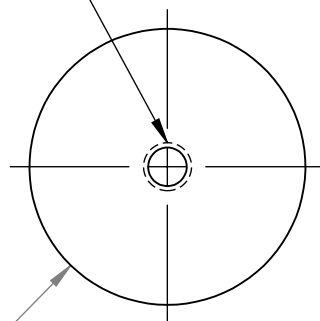
3

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1/4-20 UNC-2B ∇ .50

(ϕ 1.44)



Notes:

- 1. Material: 1-7/16 diameter, 6061 Aluminum.
- 2. Remove all burrs and sharp edges.
- 3. Bag or tag with part number.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL \pm 1/16	ENG APPR.	
		ANGULAR: MACH \pm 1° BEND \pm 1°	MFG APPR.	
		TWO PLACE DECIMAL \pm .01	Q.A.	
		THREE PLACE DECIMAL \pm .001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:
Top Rail, Post

SIZE	DWG. NO.	REV
B	GE-20218	
SCALE: 1:1	WEIGHT:	SHEET 1 OF 1

4

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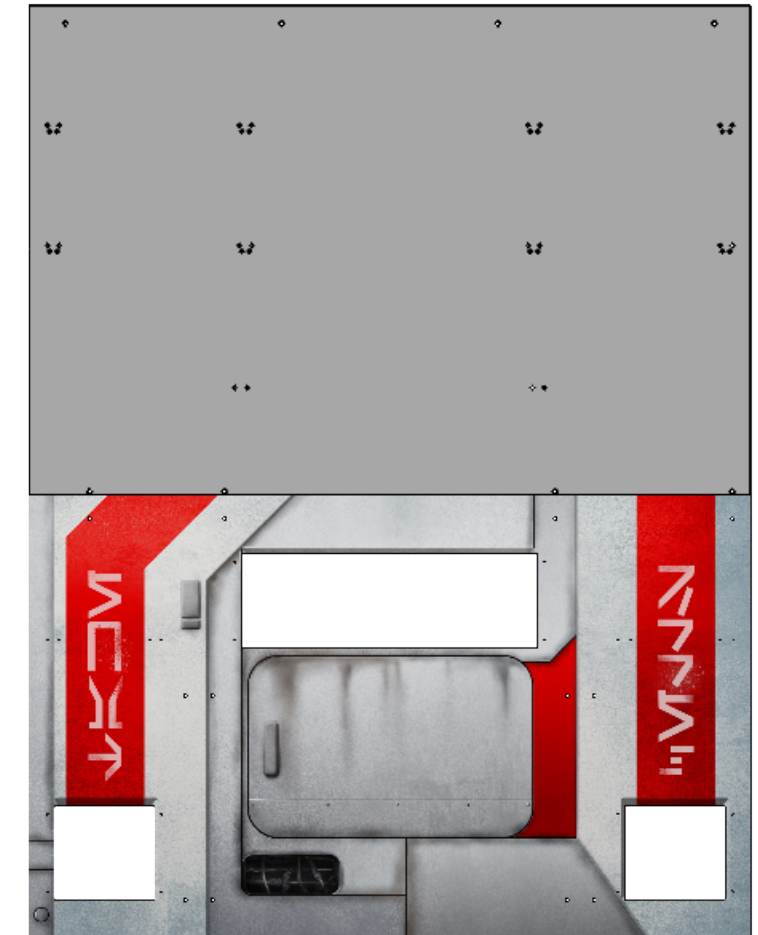
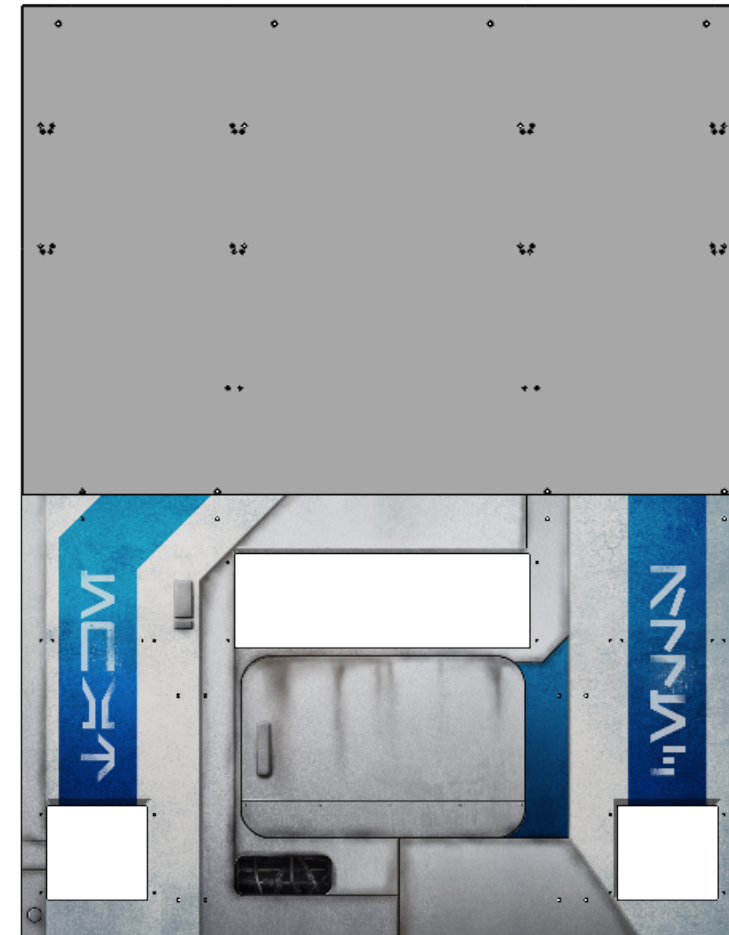
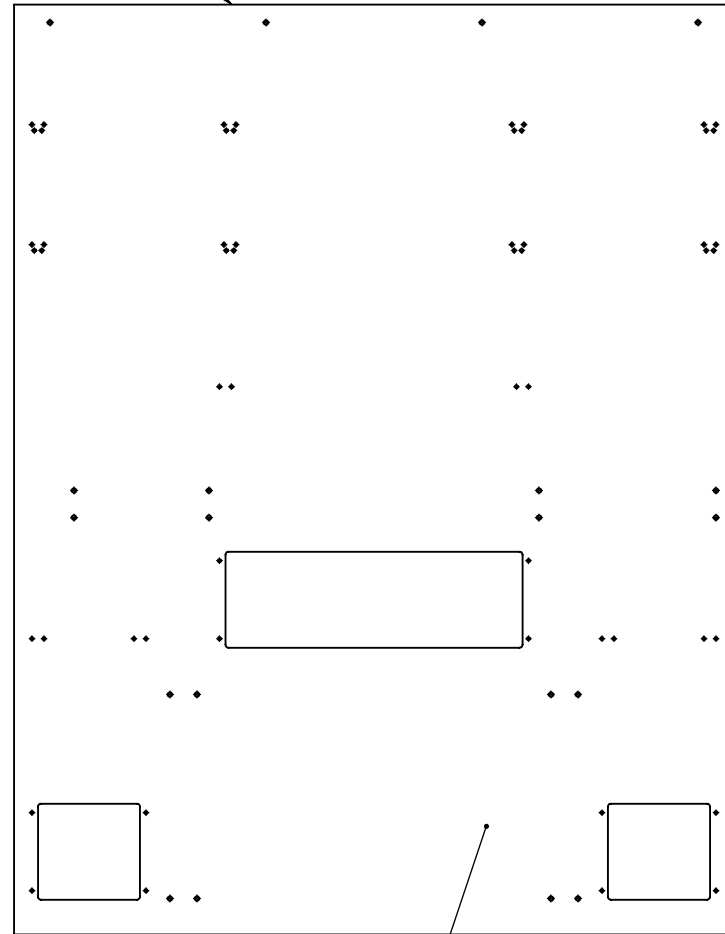
4

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GE-20202



GE-20220-Blue



GE-20220-Red

Vinyl applied to one face. Front and back of part are identical.

- Notes:
 1. Tag or label with part number

Color Variations		
Part Number	Vinyl Image	QTY per field
GE-20220-Blue	GE-20220-Blue-Vinyl	1
GE-20220-Red	GE-20220-Red-Vinyl	1

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
NEXT ASSY	USED ON	FINISH		MFG APPR.	
APPLICATION		DO NOT SCALE DRAWING		Q.A.	
				COMMENTS:	
 					
TITLE: Front Face with Vinyl					
SIZE	DWG. NO.	REV			
B	GE-20220				
SCALE: 1:16 WEIGHT:				SHEET 1 OF 1	

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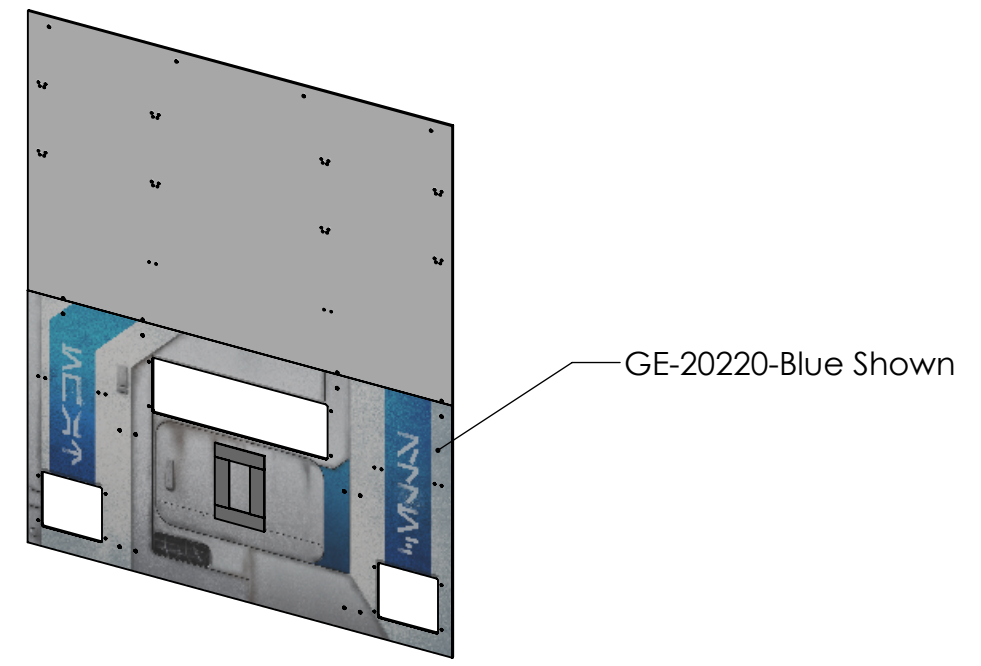
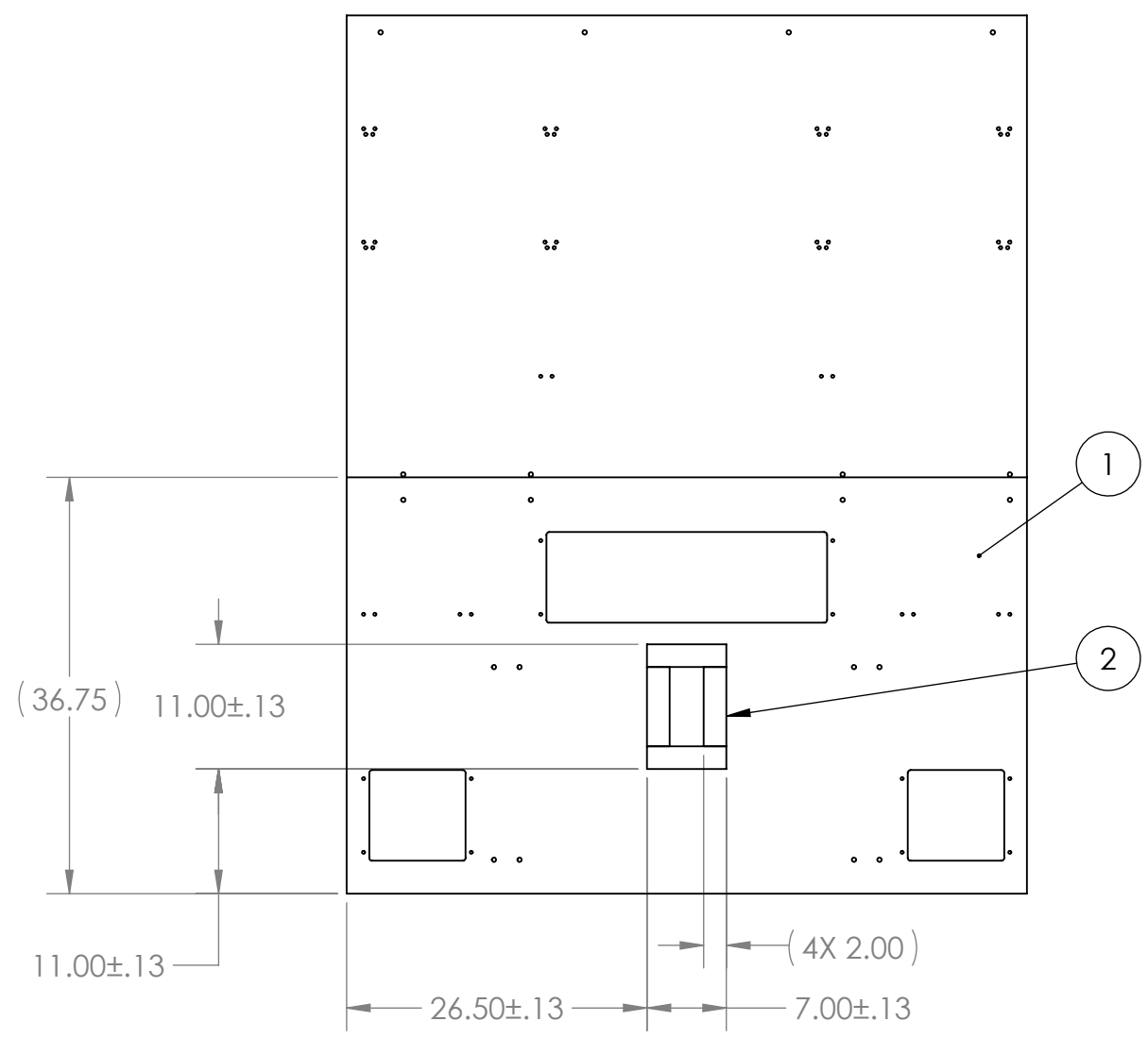
3

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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20220	Front Face with Vinyl	1
2	Vision_LoadingBay	2" Wide, 3M 8830 Scotchlite Reflective Material	4

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DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION	DO NOT SCALE DRAWING		



FIRST ROBOTICS COMPETITION



SOLIDWORKS
Modeling Solutions Partner

TITLE:
Front Face, with Target

SIZE	DWG. NO.	REV
B	GE-20221	

SCALE: 1:16 WEIGHT: SHEET 1 OF 1

4

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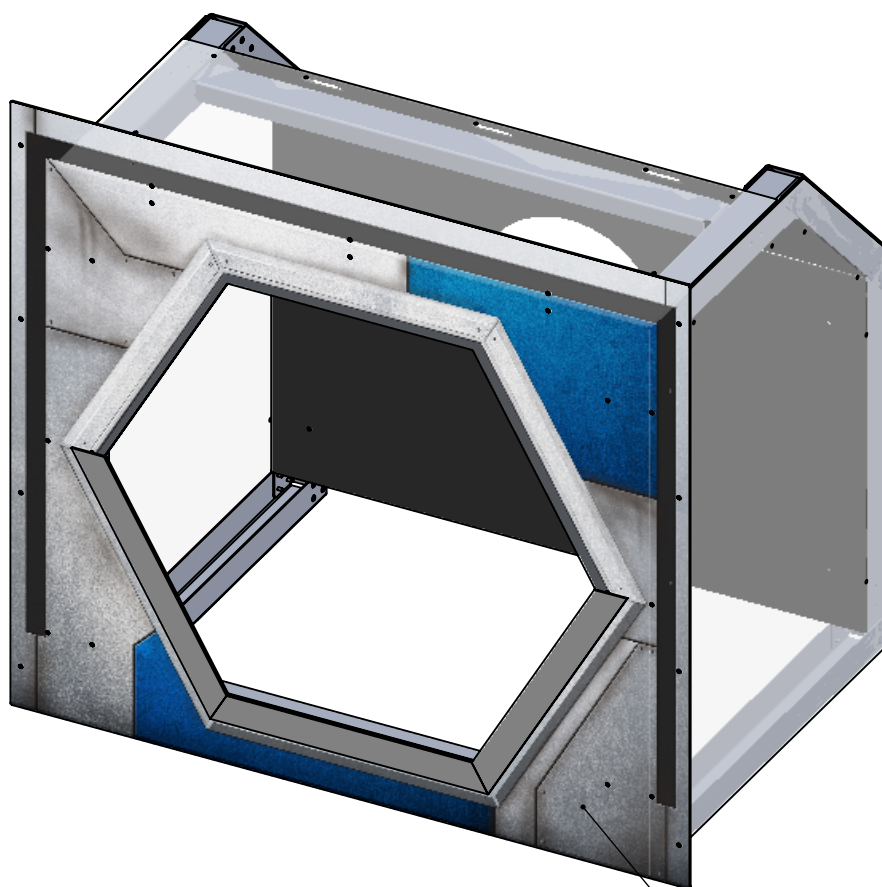
1

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Blue version shown,
also exists in red.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20302	Power Port Top Frame	2
2	GE-20303	Power Port Top Brace	4
3	GE-20304	Power Port Top Side Polycarbonate	2
4	GE-20305	Power Port Top Back Polycarbonate	1
5	GE-20307	Power Port Top Roof Polycarbonate	1
6	GE-20308	Power Port Top Deflector Polycarbonate	1
7	GE-20322	Power Port Top Front	1
8	hex_.25_20_.625	Steel Hex Head Screw, 1/4"-20 x 5/8" long, fully threaded	16



B

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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN		
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Power Port Top Assembly
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	Q.A.		SIZE DWG. NO. REV B GE-20301
APPLICATION		COMMENTS:		SCALE: 1:12 WEIGHT: SHEET 1 OF 2
DO NOT SCALE DRAWING				

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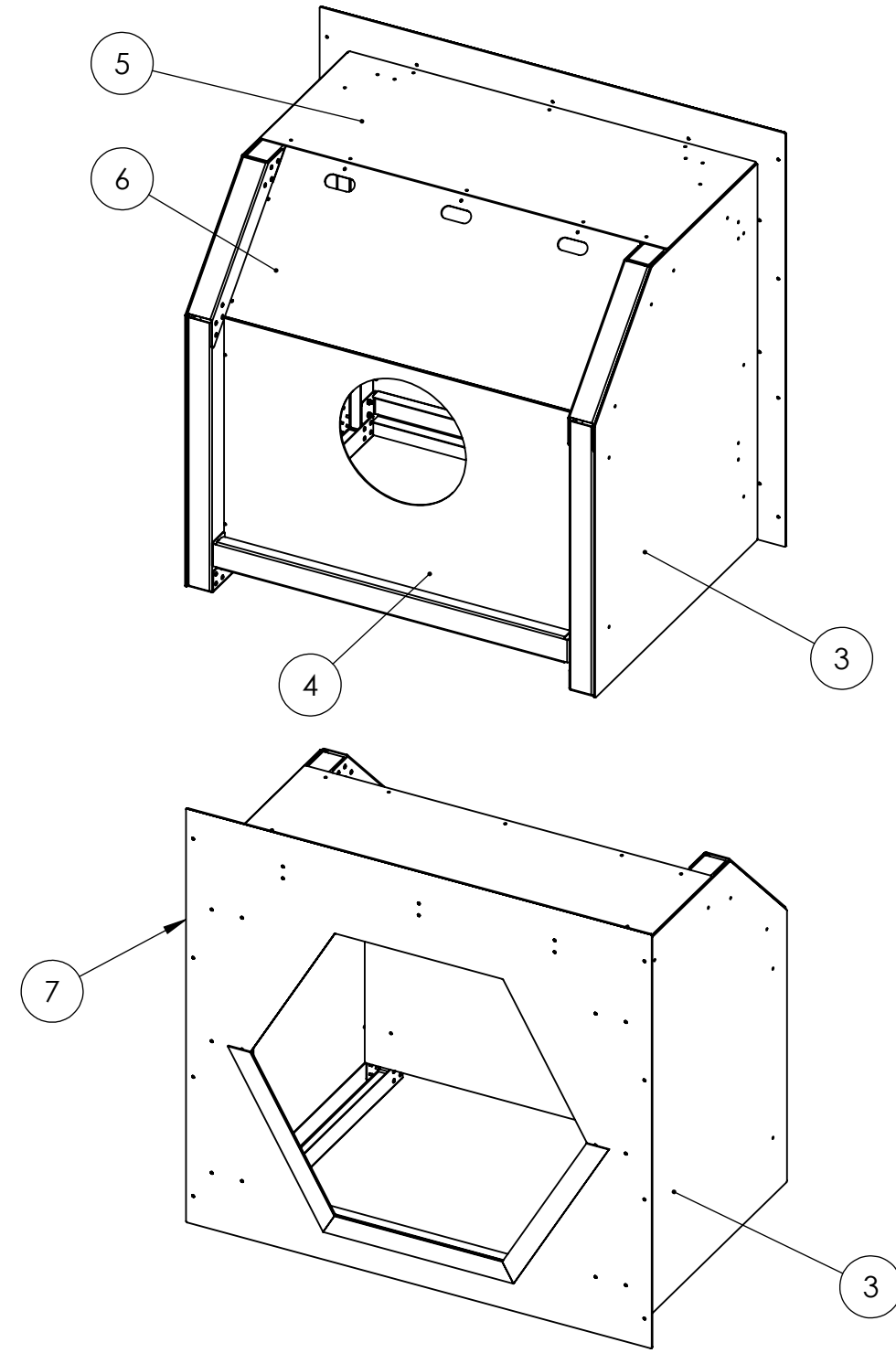
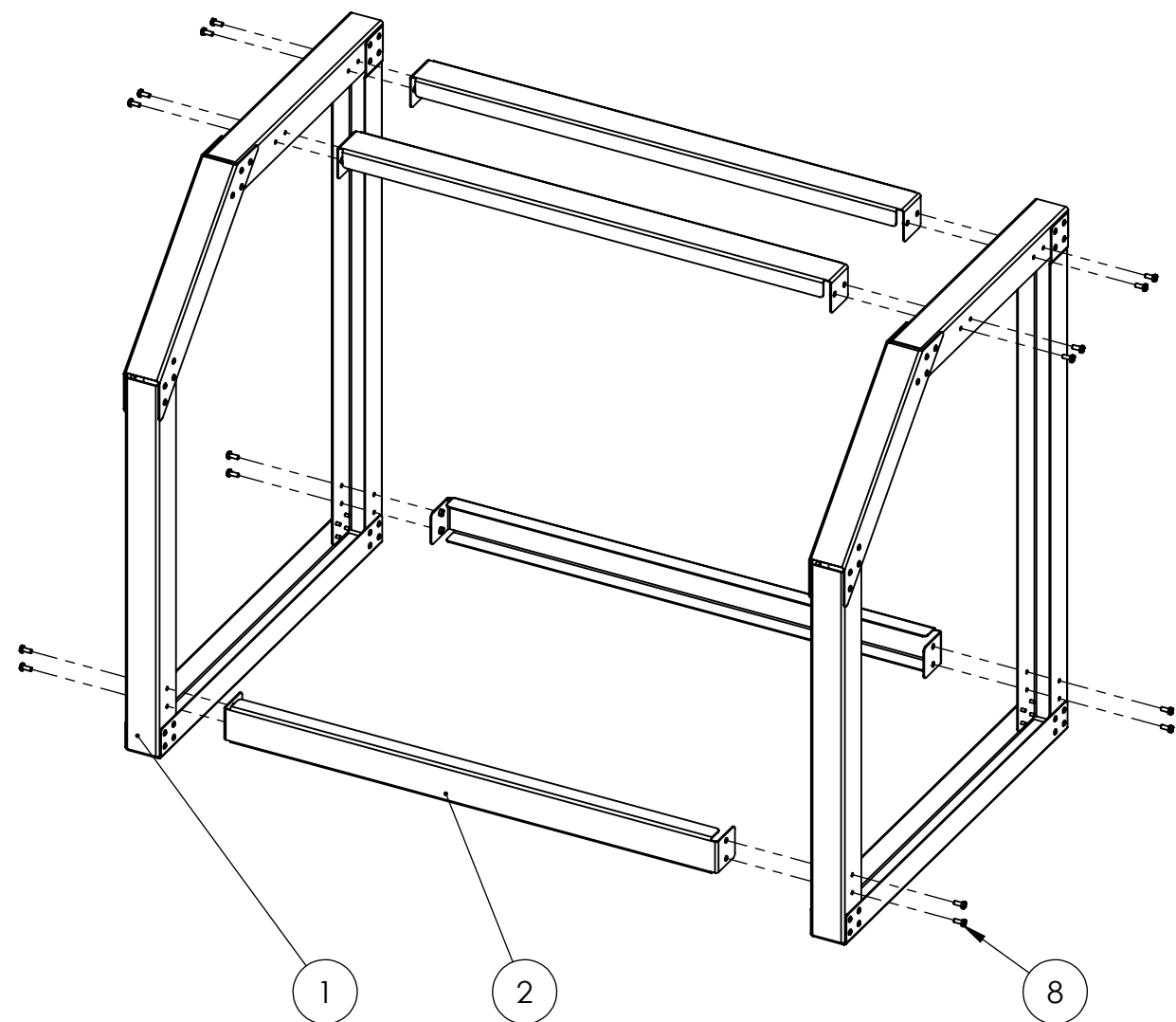
1

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Notes:
1. Cable tie plastic at available locations.

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		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
		FRACTIONAL: ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

TITLE:

Power Port Top Assembly

SIZE	DWG. NO.	REV
B	GE-20301	

SCALE: 1:12 WEIGHT: SHEET 2 OF 2

4

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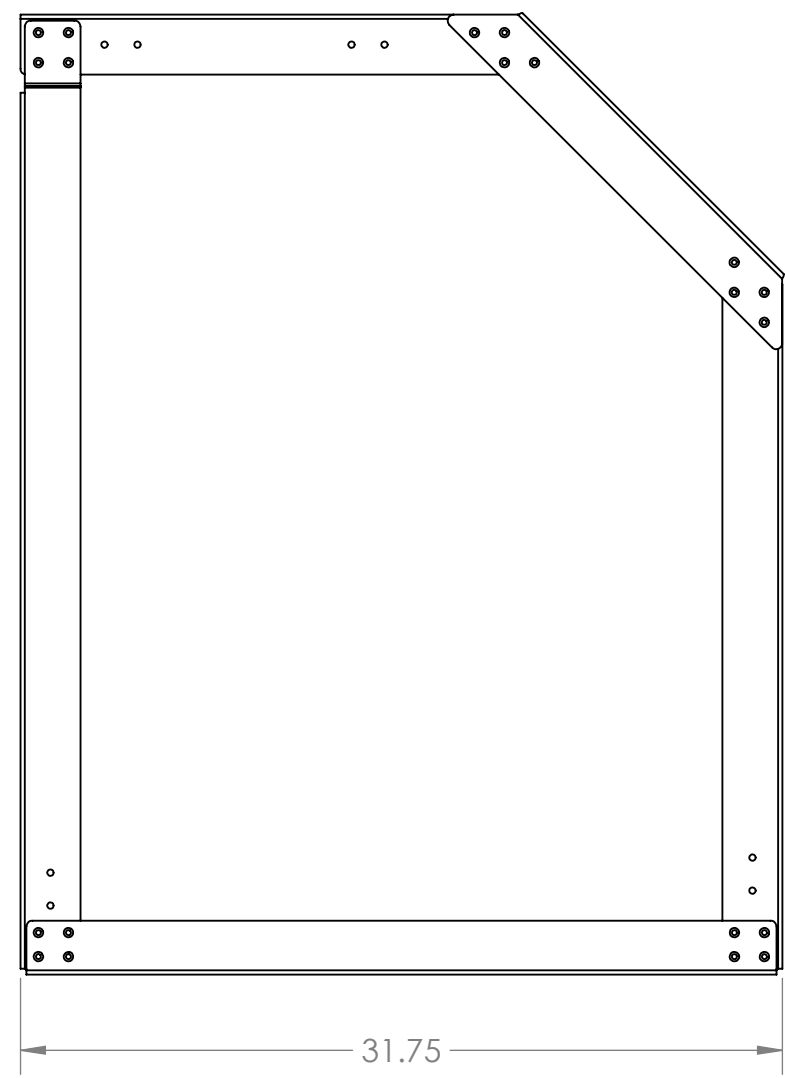
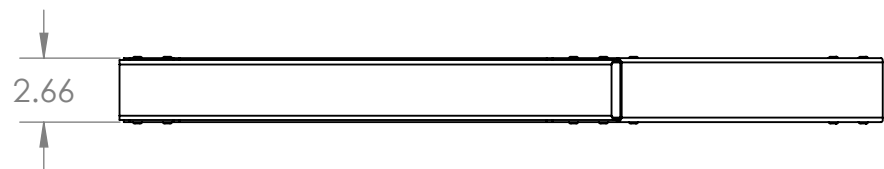
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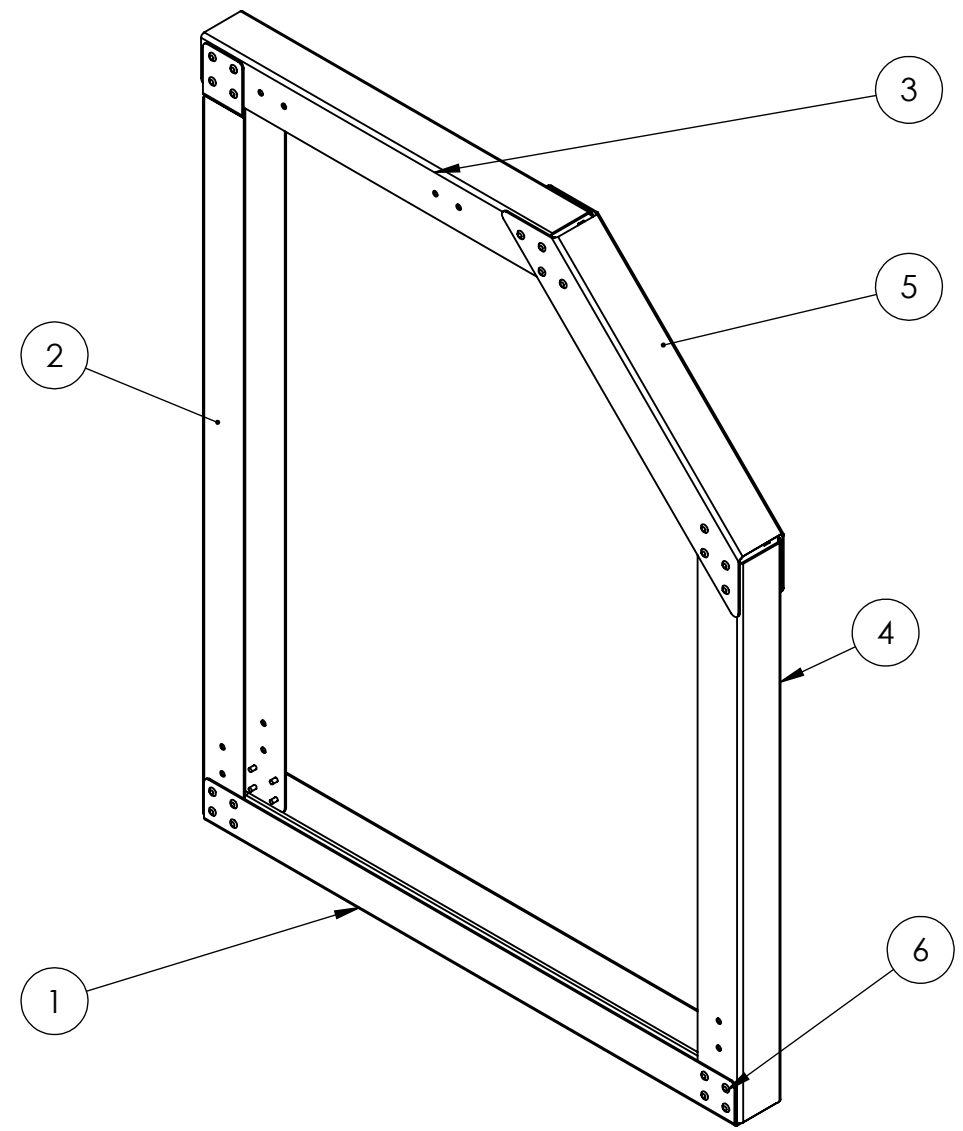
3

2

1



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, A3	A	Material used changed.	9/30/2019	CPO



Notes:



1. Rivets to be aluminum.
2. Tag or label with part number.
3. Remove all burrs and sharp edges.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20302-01	12 GA, 5052 Aluminum	1
2	GE-20302-02	12 GA, 5052 Aluminum	1
3	GE-20302-03	12 GA, 5052 Aluminum	1
4	GE-20302-04	12 GA, 5052 Aluminum	1
5	GE-20302-05	12 GA, 5052 Aluminum	1
6	rivet_.1875_.126-.25	3/16" Rivet, .126-.25 Grip Range	40

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DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION	DO NOT SCALE DRAWING		

TITLE:
Power Port Top Frame

SIZE	DWG. NO.	REV
B	GE-20302	A

SCALE: 1:8 WEIGHT: SHEET 1 OF 4

4

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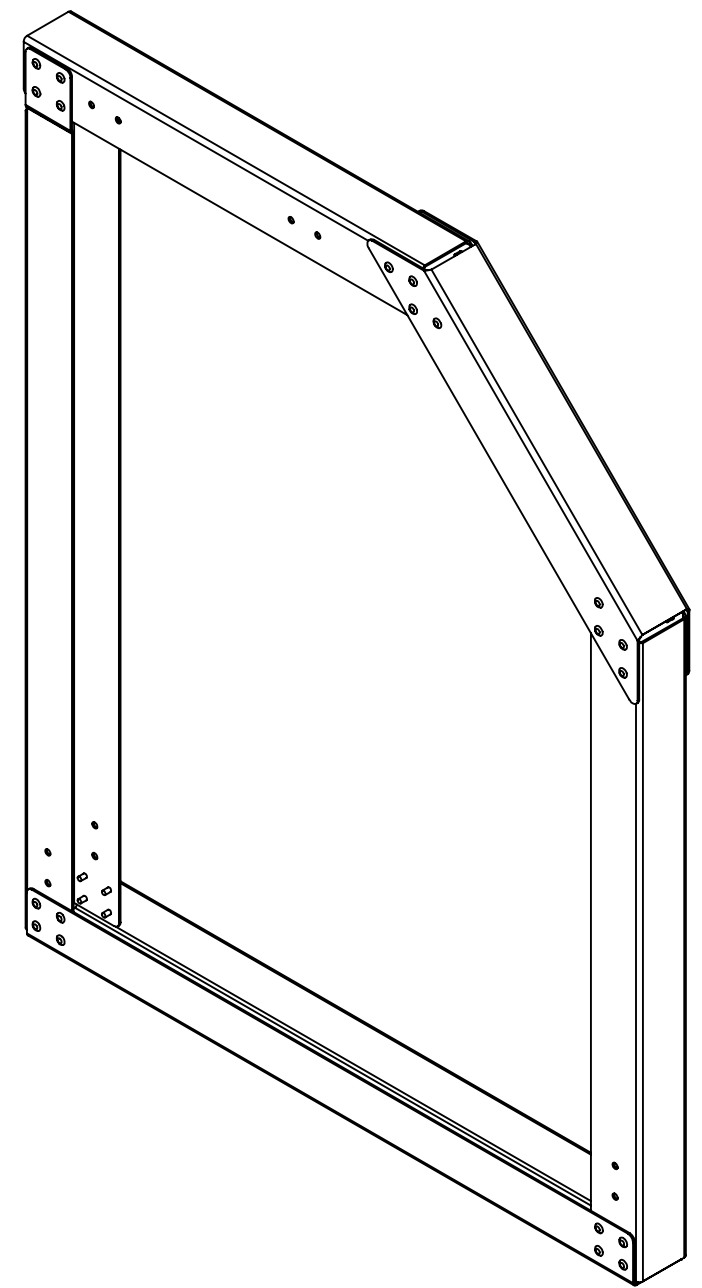
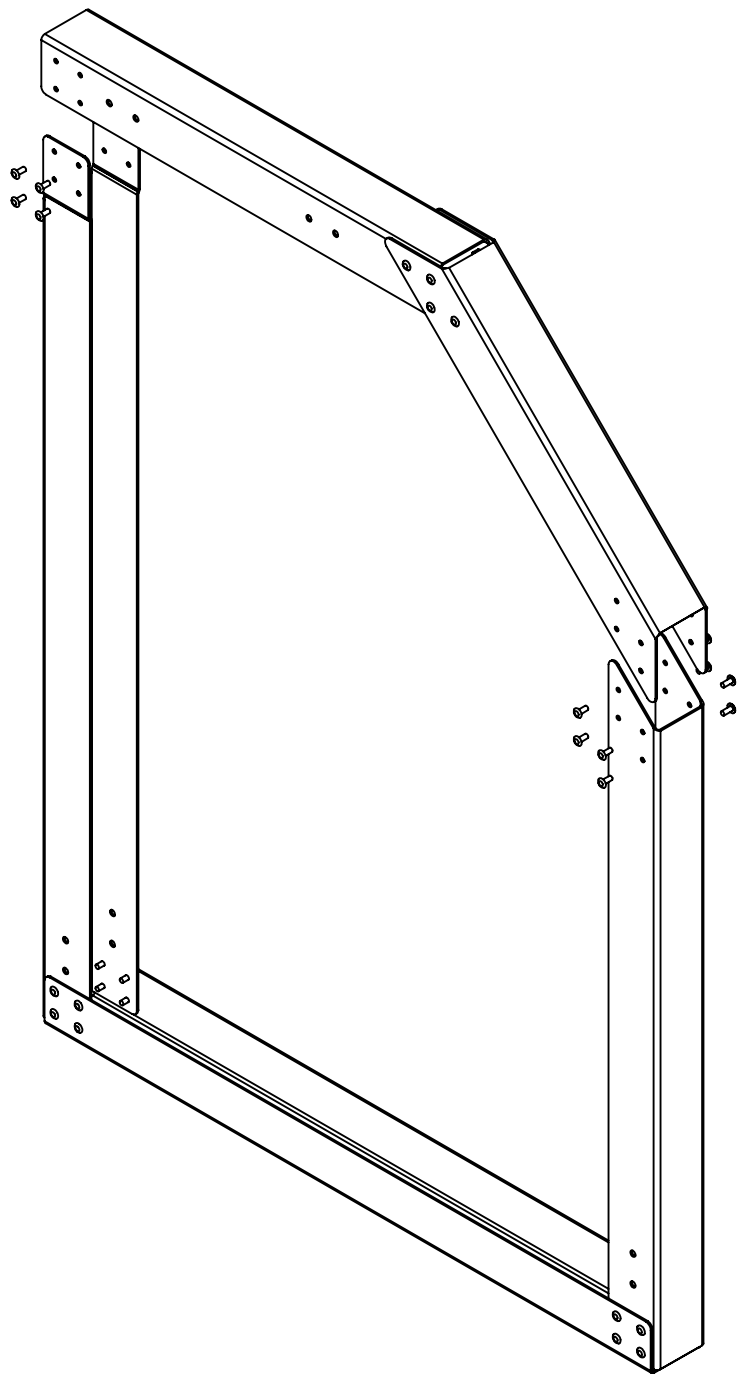
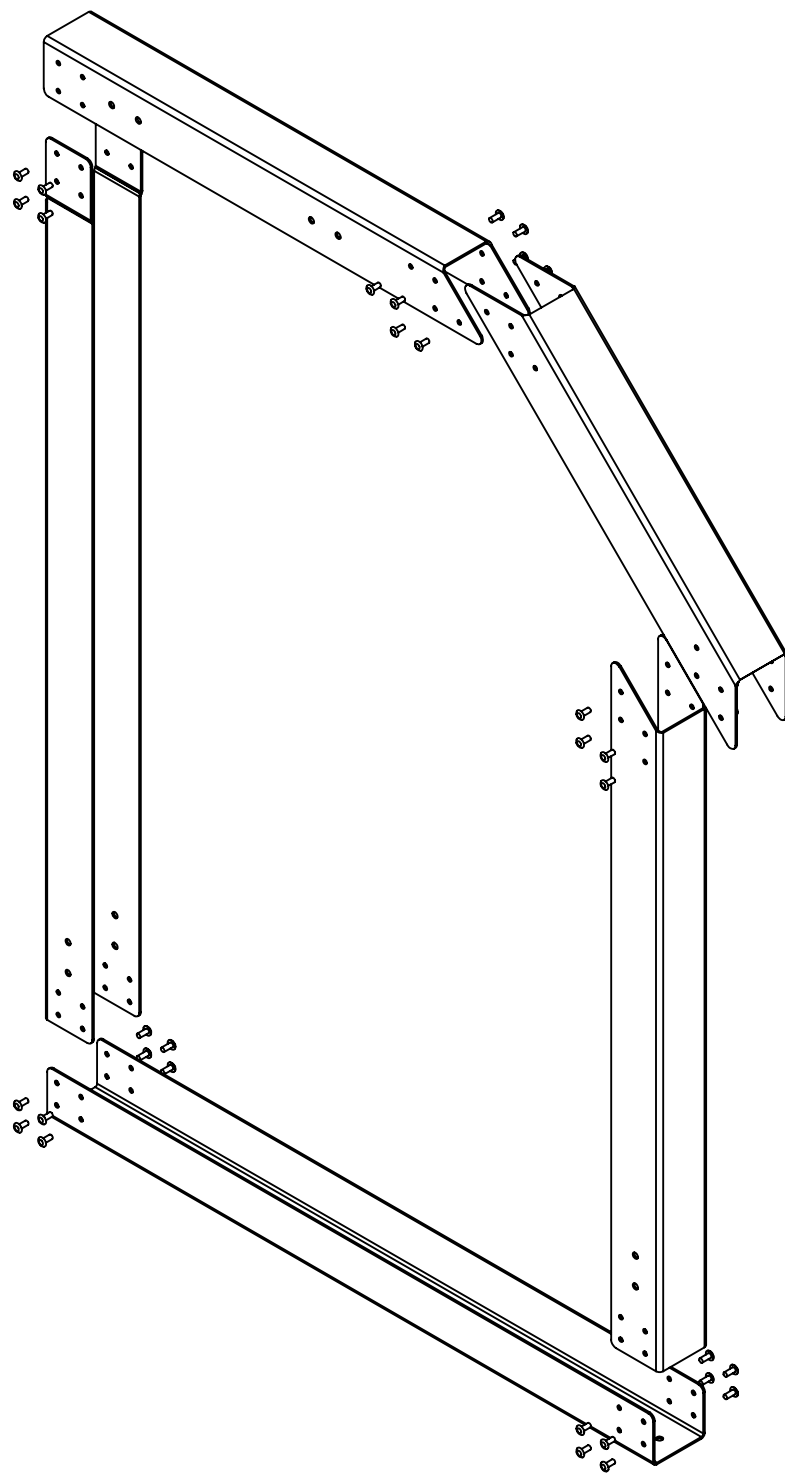
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		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
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		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
Power Port Top Frame		
SIZE	DWG. NO.	REV
B	GE-20302	A
SCALE: 1:7	WEIGHT:	SHEET 2 OF 4

4

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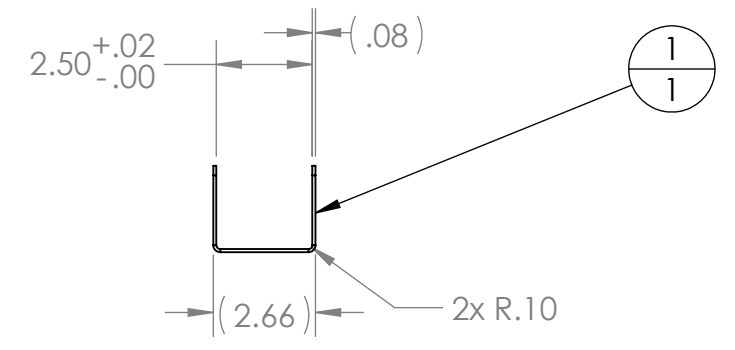
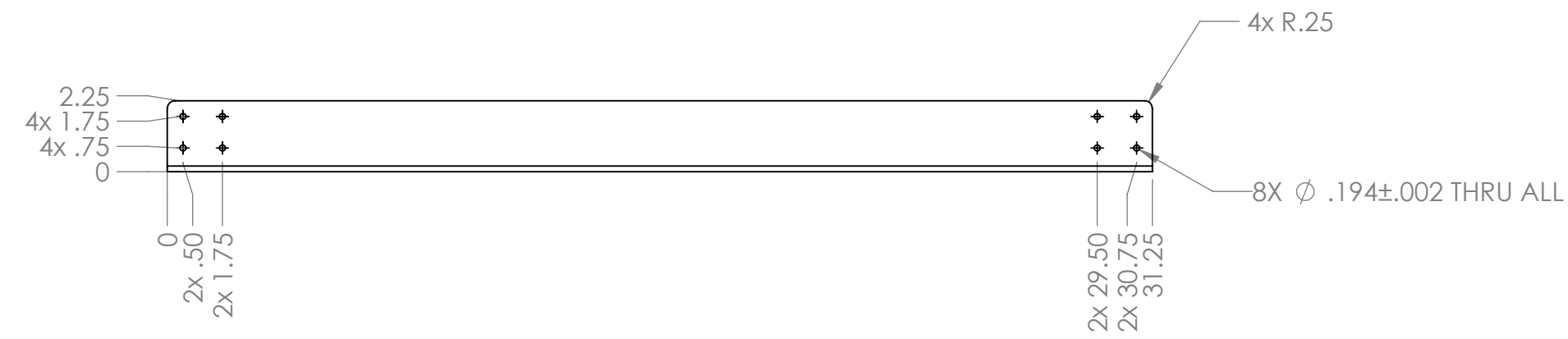
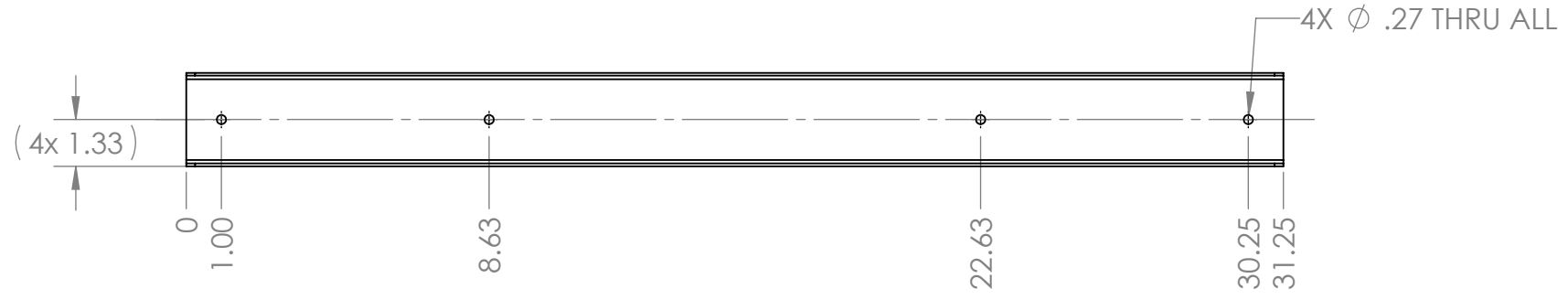
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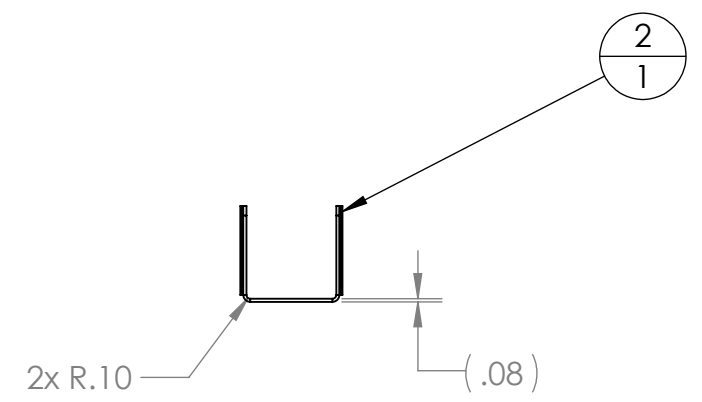
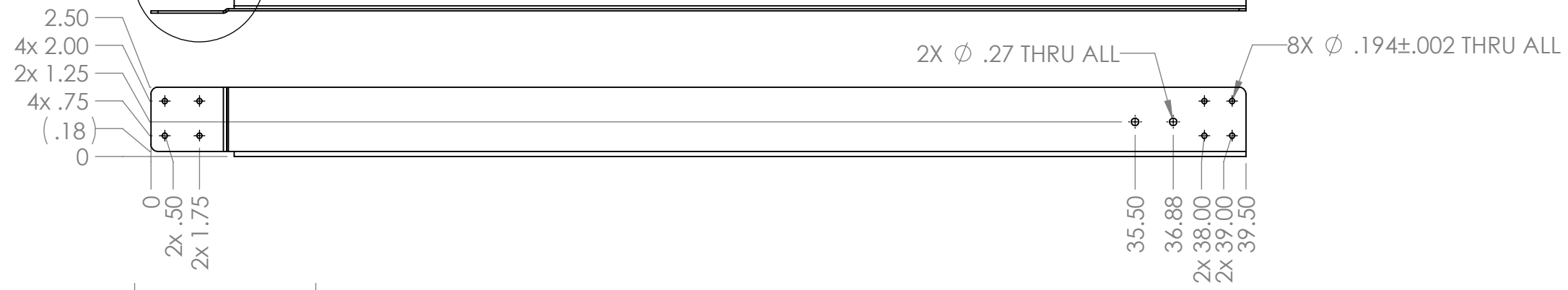
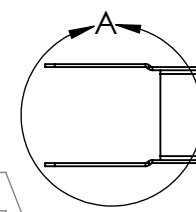
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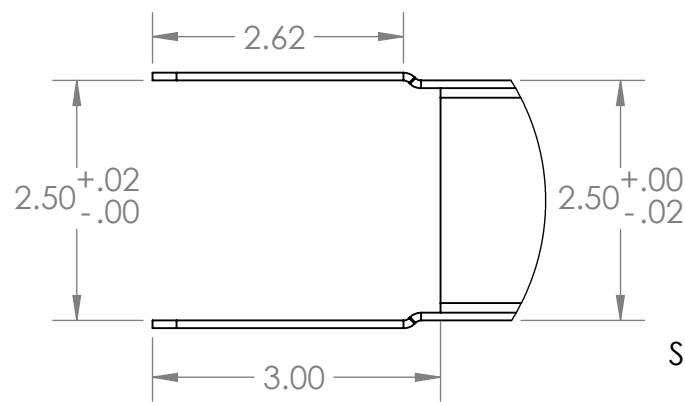
B

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DETAIL A SCALE 1:2

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		ANGULAR: MACH \pm 1° BEND \pm 1°		MFG APPR.	
		TWO PLACE DECIMAL \pm .01		Q.A.	
		THREE PLACE DECIMAL \pm .001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:		
Power Port Top Frame		
SIZE	DWG. NO.	REV
B	GE-20302	A
SCALE: 1:5	WEIGHT:	SHEET 3 OF 4

4

3

2

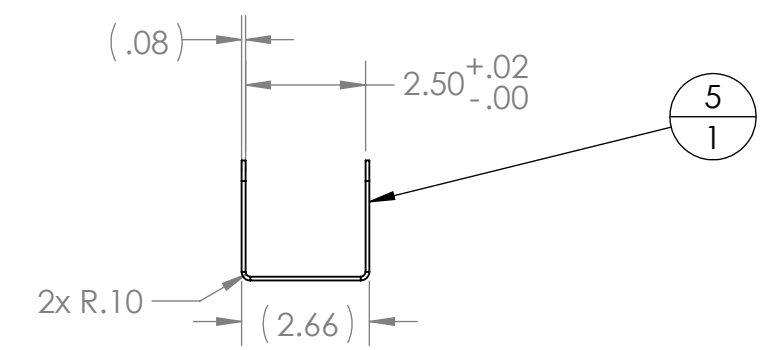
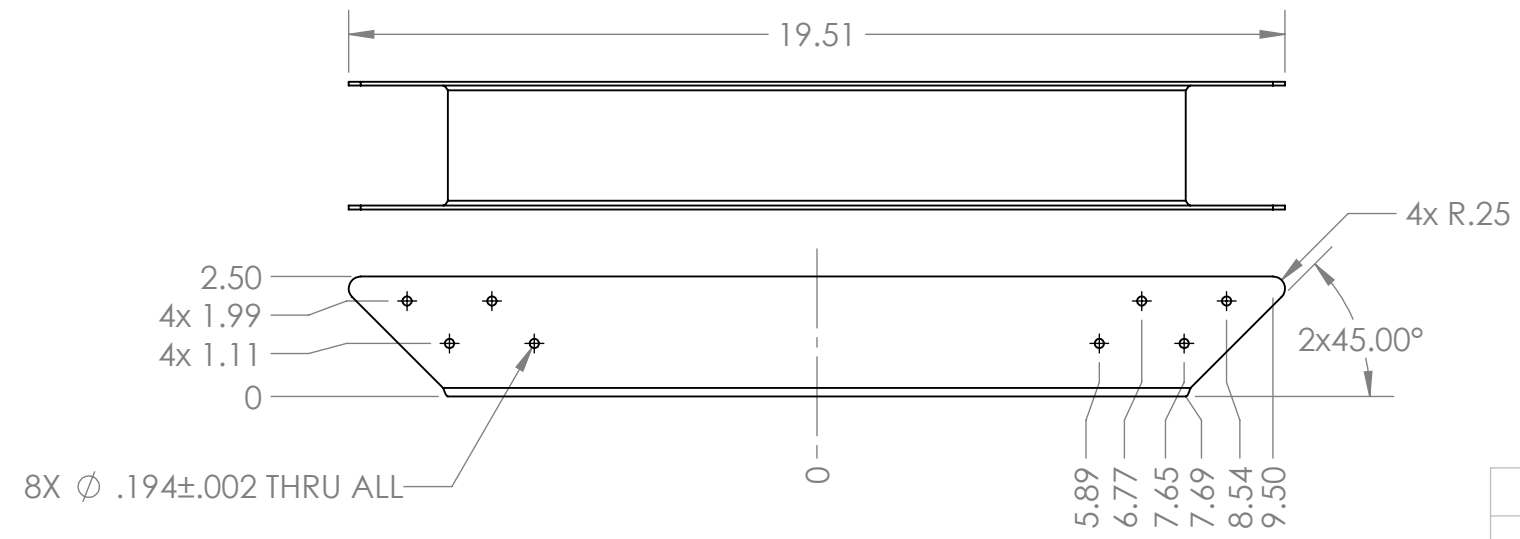
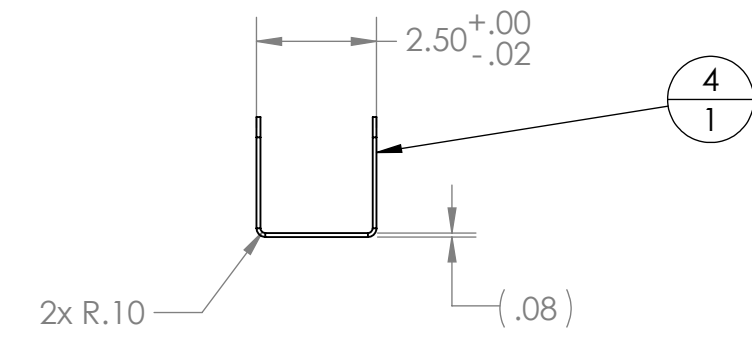
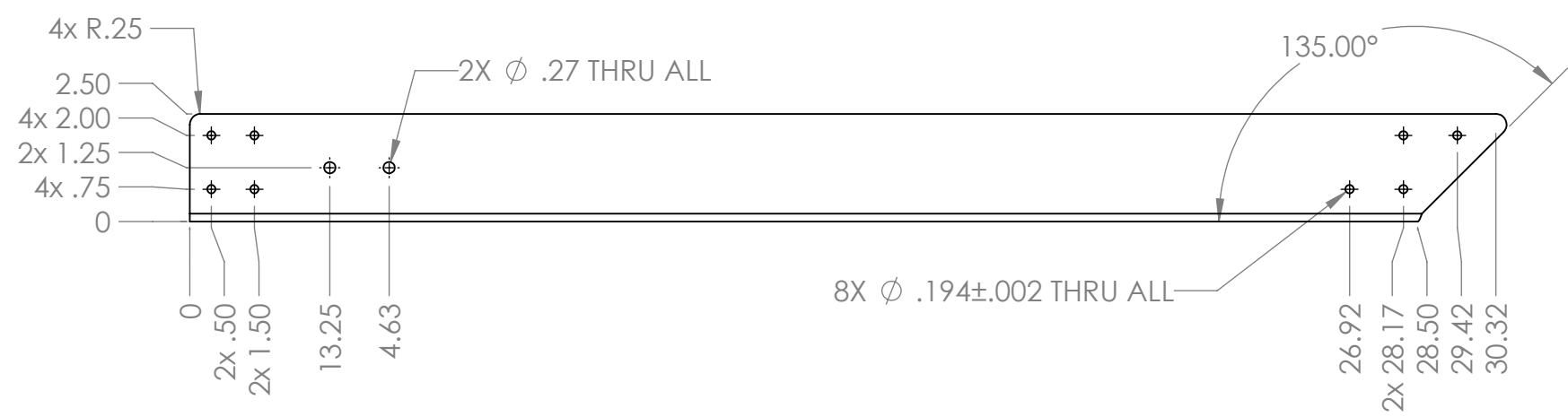
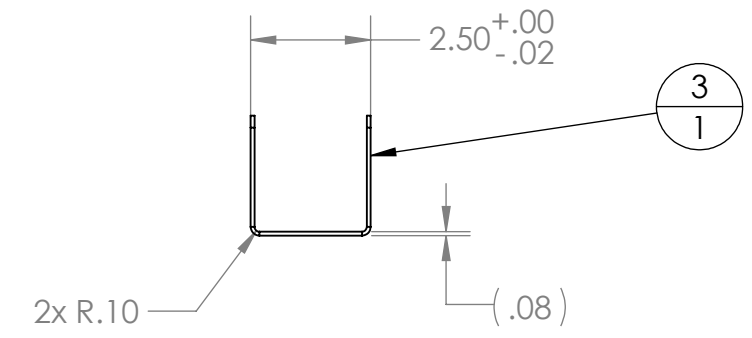
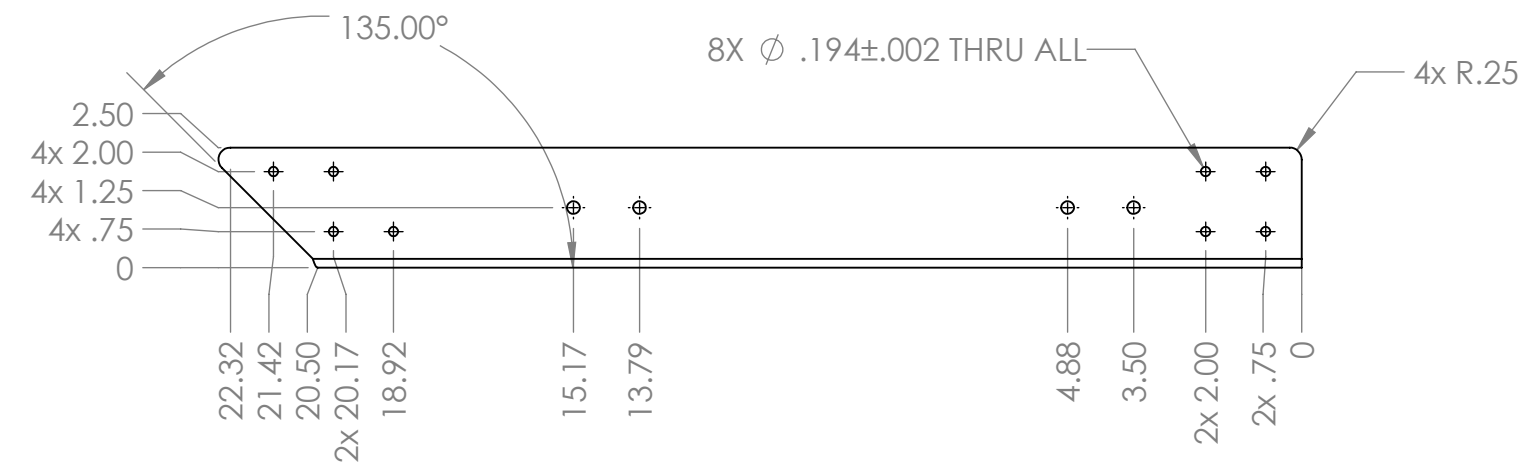
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		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Power Port Top Frame

SIZE	DWG. NO.	REV
B	GE-20302	A

SCALE: 1:4 WEIGHT: SHEET 4 OF 4

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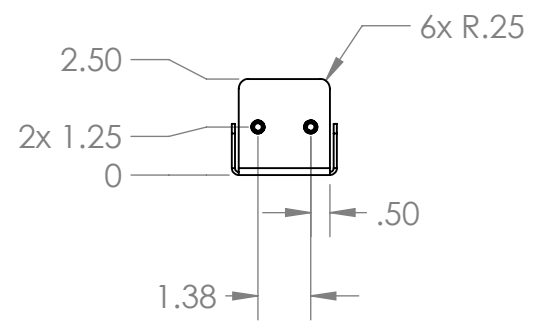
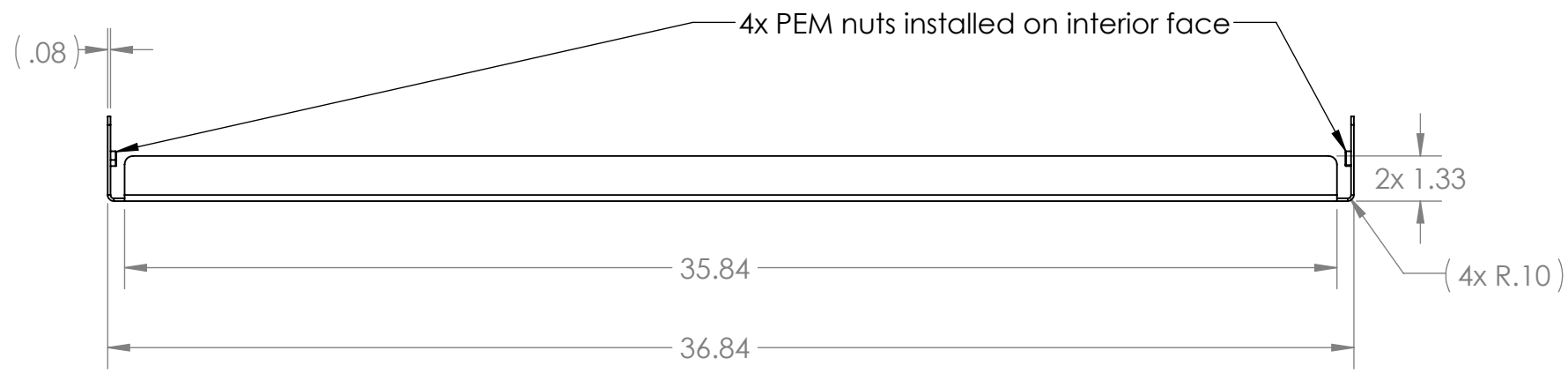
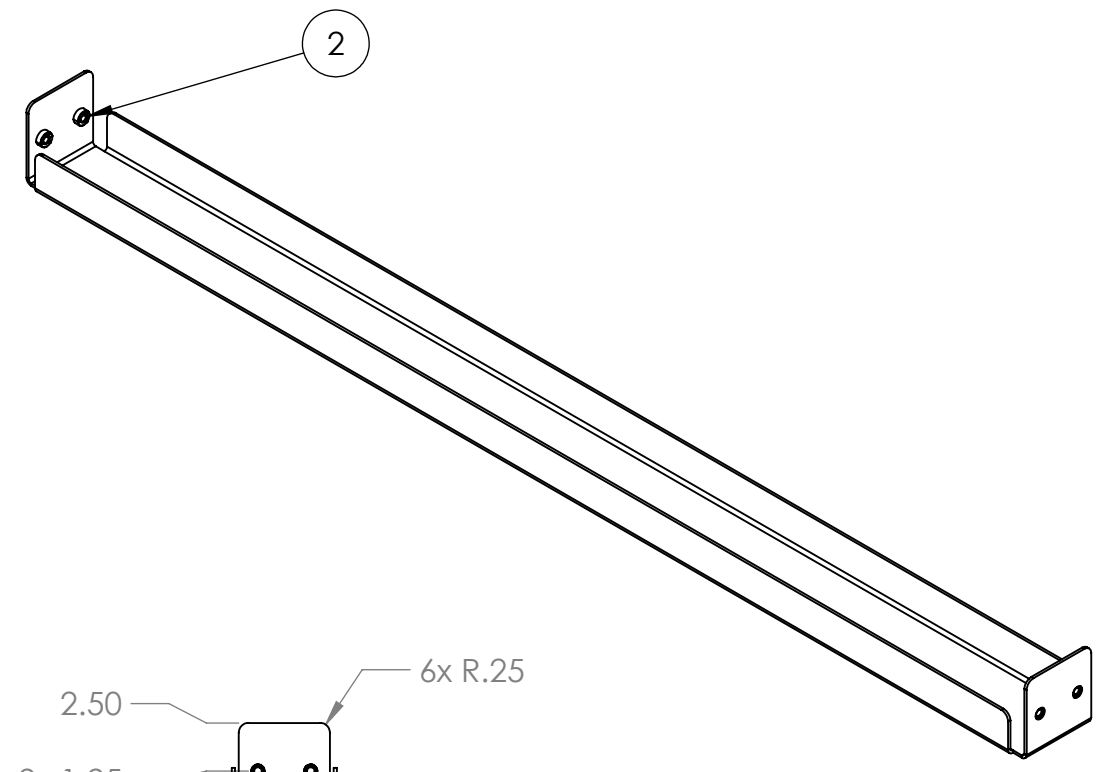
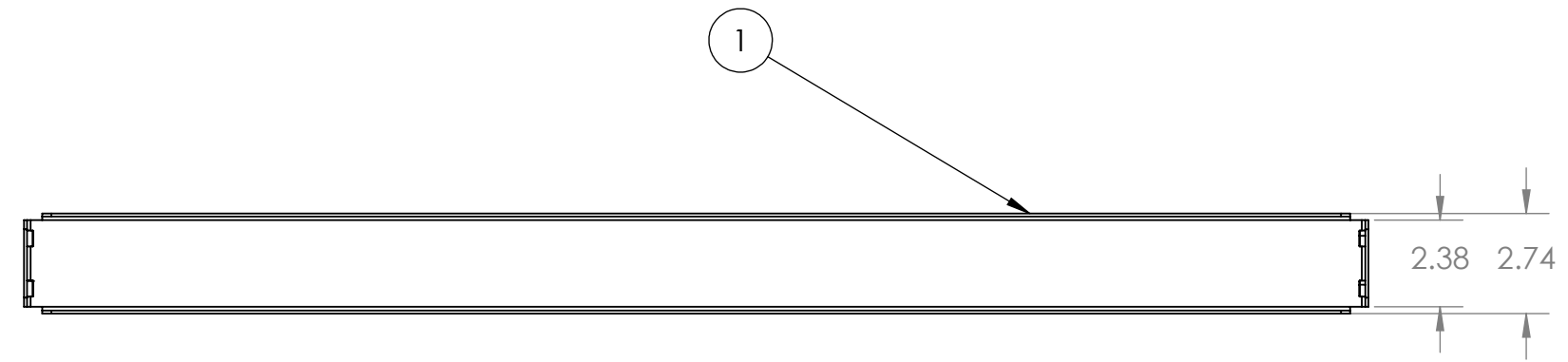
2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Part material changed to aluminum.	9/30/2019	CPO

B

B



Notes:

- 1. Tag or label with Part Number
- 2. Remove all burrs and sharp edges

A

A

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20303-01	12 GA, 5052 Aluminum	1
2	S-0420-1ZI-PennEngineering	1/4-20 self-clinching nut, .054 shank	4

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DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL: ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:	MATERIAL		
FINISH			
NEXT ASSY	USED ON		
APPLICATION	DO NOT SCALE DRAWING		



TITLE:
Power Port Top Brace

SIZE DWG. NO. REV
B GE-20303 A

SCALE: 1:5 WEIGHT: SHEET 1 OF 1

4

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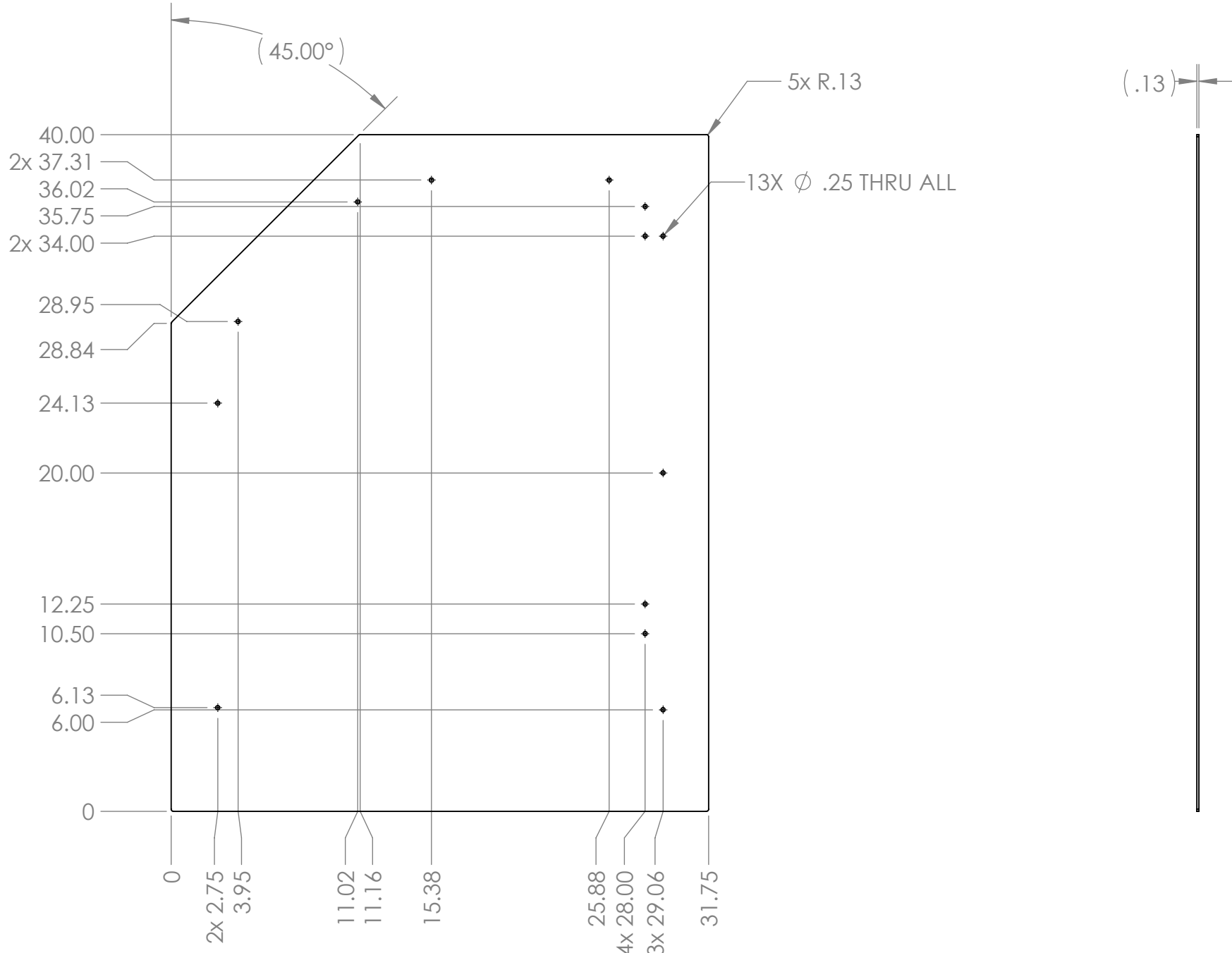
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Notes:

1. Material: 1/8" thick, clear polycarbonate
2. Remove all burrs and sharp edges
3. Tag or label with part number

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE DWG. NO. REV B GE-20304
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		SCALE: 1:8 WEIGHT: SHEET 1 OF 1
APPLICATION		DO NOT SCALE DRAWING	Q.A.	COMMENTS:	

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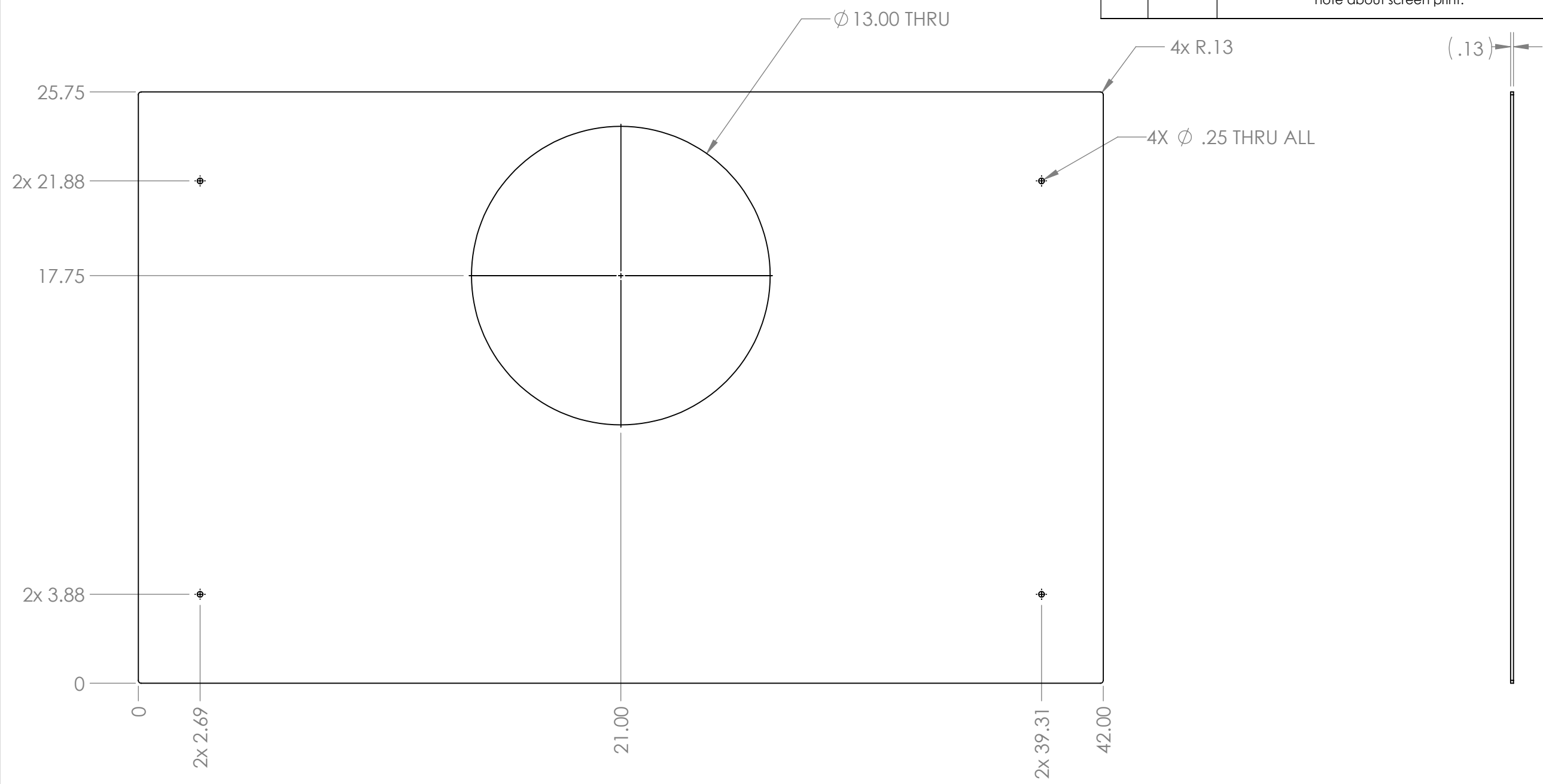
2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A4	A	Updated material to black polycarbonate, eliminated note about screen print.	10/28/2019	CPO

B

B



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Notes:

1. Material: 1/8" thick polycarbonate - black
2. Remove all burrs and sharp edges
3. Tag or label with part number



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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ±1/16	ENG APPR.		
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.		
		TWO PLACE DECIMAL ±.01	Q.A.		
		THREE PLACE DECIMAL ±.001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE: **Power Port Top Back Polycarbonate**

SIZE **B** DWG. NO. **GE-20305** REV **A**

SCALE: 1:5 WEIGHT: SHEET 1 OF 1

4

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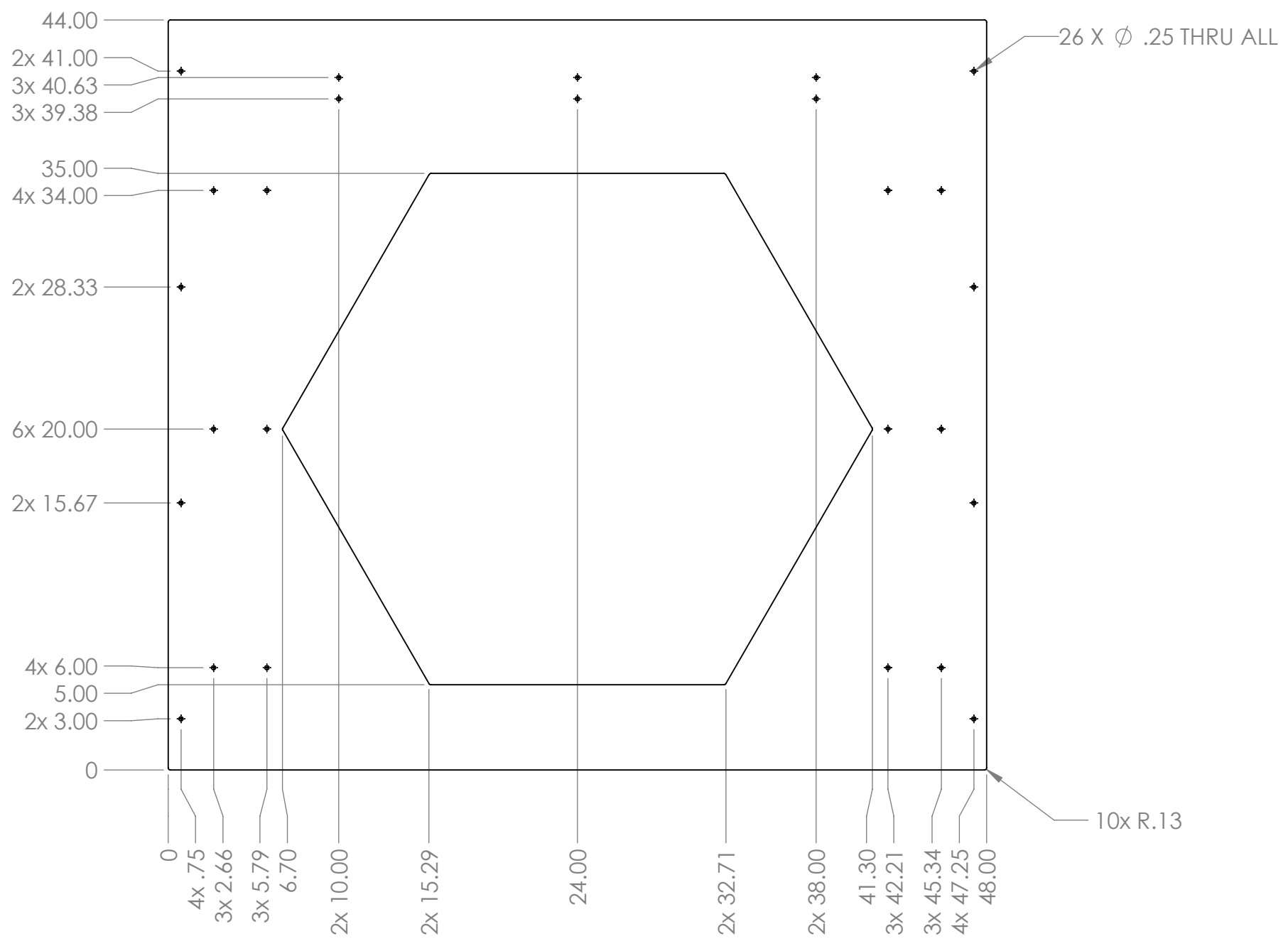
1

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Notes:

1. Material: 1/8" Thick Polycarbonate, Clear
2. Vinyl to be applied to face.
3. Tag or label with part number.
4. Remove burrs and sharp edges.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
		FRACTIONAL $\pm 1/16$		ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$		MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$		Q.A.	
		THREE PLACE DECIMAL $\pm .001$		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE: **Power Port Top Front Polycarbonate**

SIZE **B** DWG. NO. **GE-20306** REV

SCALE: 1:8 WEIGHT: SHEET 1 OF 1

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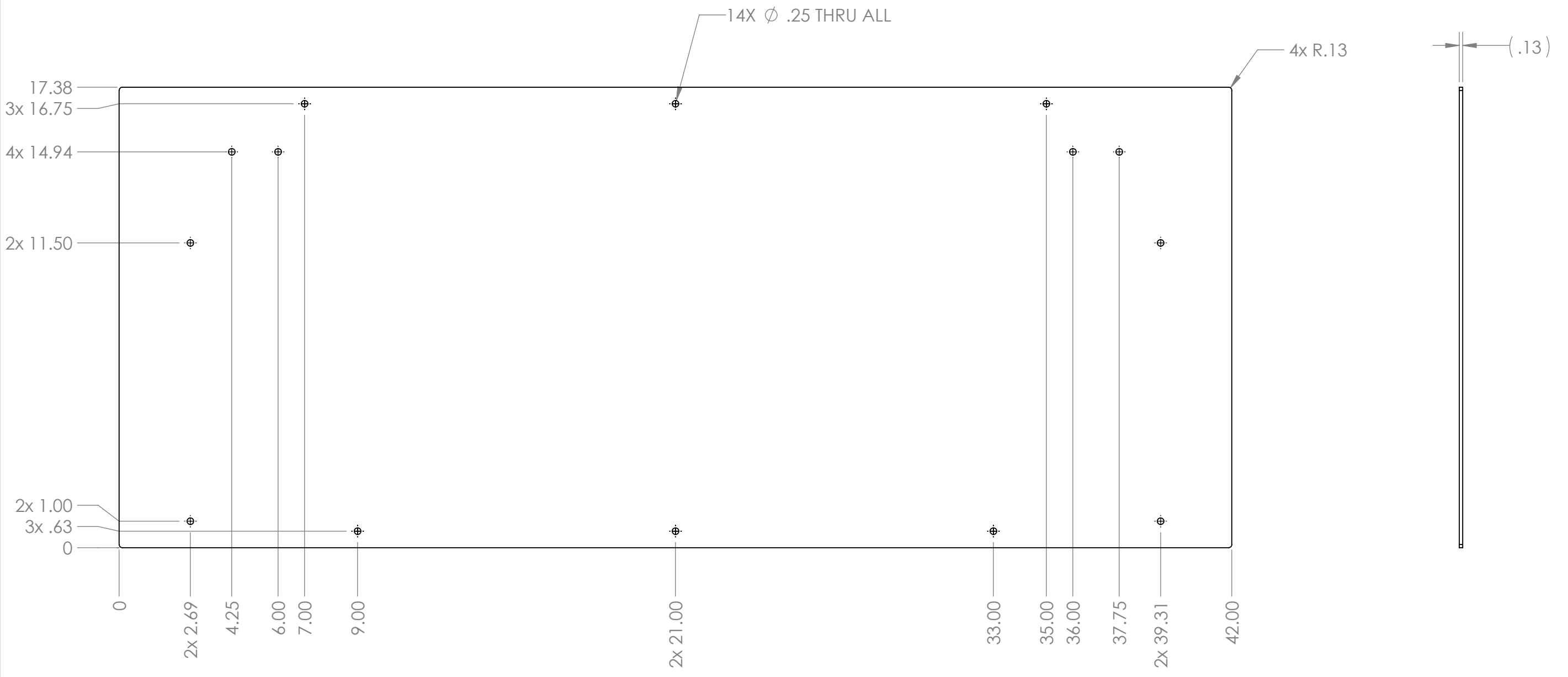
1

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Notes:

- 1. Material: 1/8" thick, clear polycarbonate
- 2. Remove all burrs and sharp edges
- 3. Tag or label with part number

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		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:
Power Port Top Roof Polycarbonate

SIZE	DWG. NO.	REV
B	GE-20307	
SCALE: 1:4	WEIGHT:	SHEET 1 OF 1

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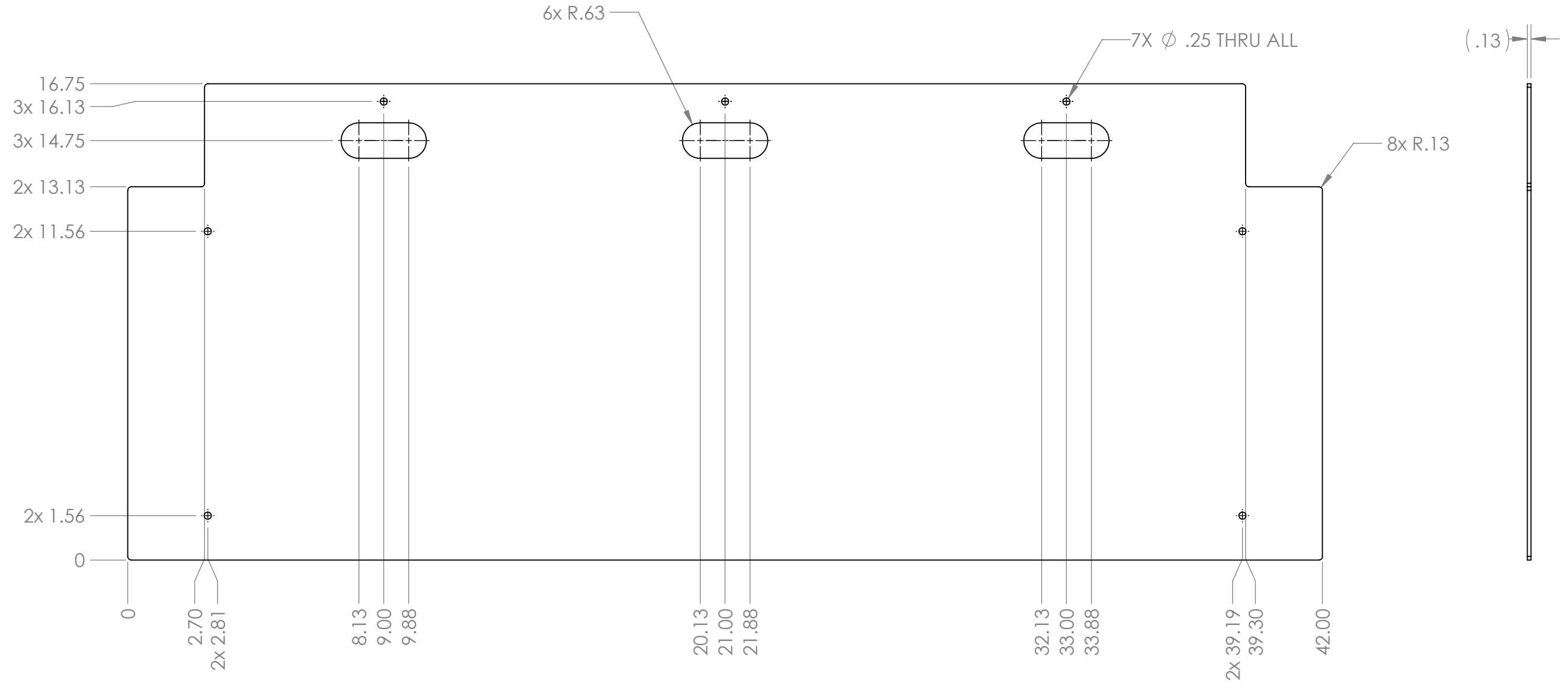
2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Finish changed from vinyl to screen print.	10/9/2019	CPO
A4	B	Updated material to black polycarbonate, eliminated note about screen print.	10/28/2019	CPO

B

B



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- Notes:
- Material: 1/8" thick polycarbonate - black
 - Remove all burrs and sharp edges
 - Tag or label with part number

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DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION			
DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Power Port Top Deflector Polycarbonate**

SIZE **B** DWG. NO. **GE-20308** REV **B**

SCALE: 1:4 WEIGHT: SHEET 1 OF 1

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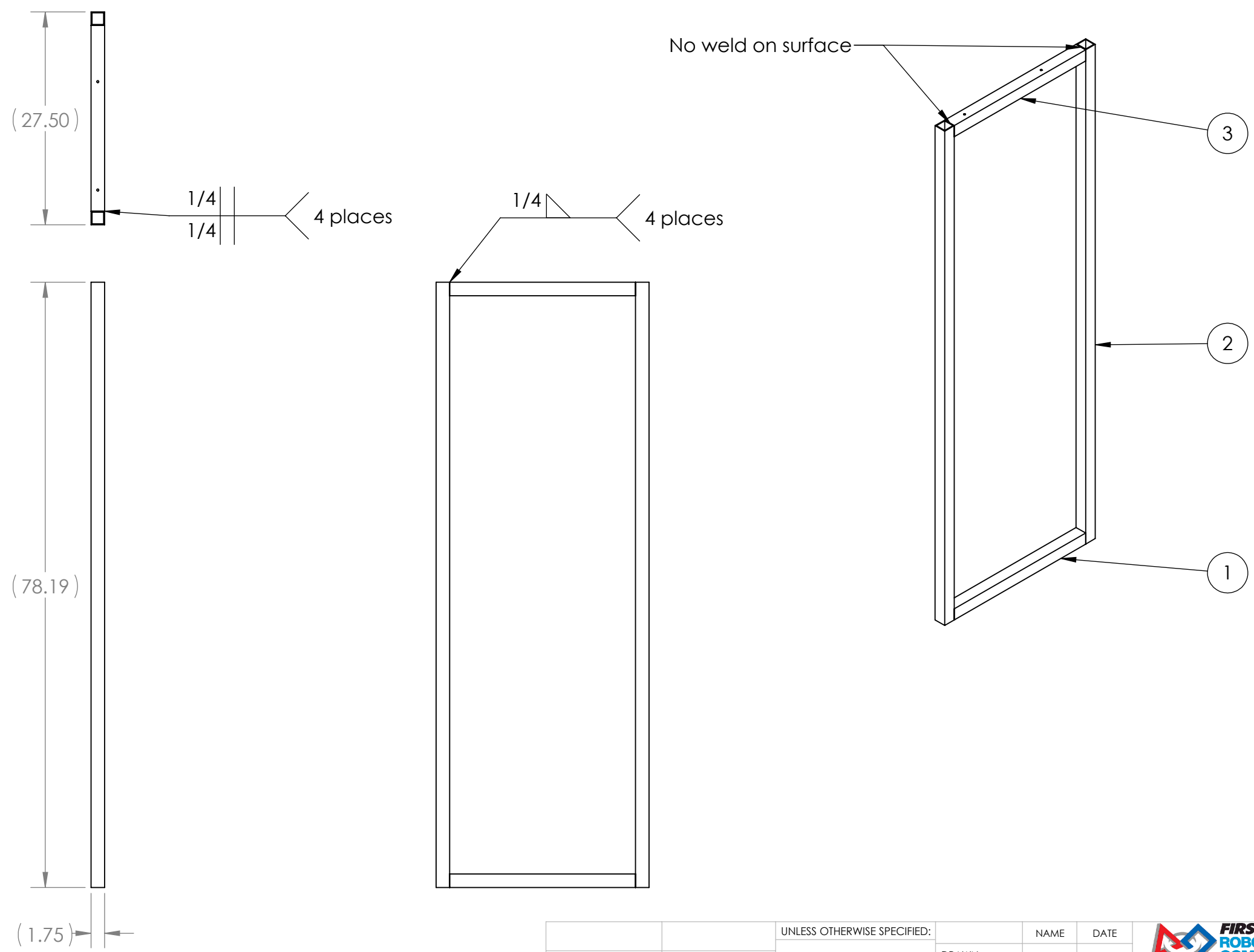
1

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- Notes:
 1. Tag or label with part number.
 2. Remove burrs and sharp edges.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20309-01	1.75" x .125" thk. Square Tube, 6061 Aluminum	1
2	GE-20309-02	1.75" x .125" thk. Square Tube, 6061 Aluminum	2
3	GE-20309-03	1.75" x .125" thk. Square Tube, 6061 Aluminum	1

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL: ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:	MATERIAL		
FINISH			
NEXT ASSY	USED ON		
APPLICATION	DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Goal Base Upright**

SIZE **B** DWG. NO. **GE-20309** REV

SCALE: 1:15 WEIGHT: SHEET 1 OF 2

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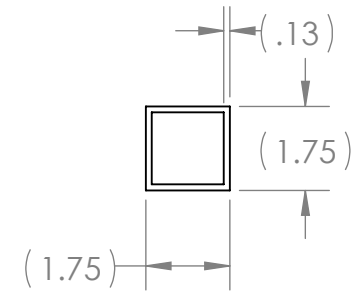
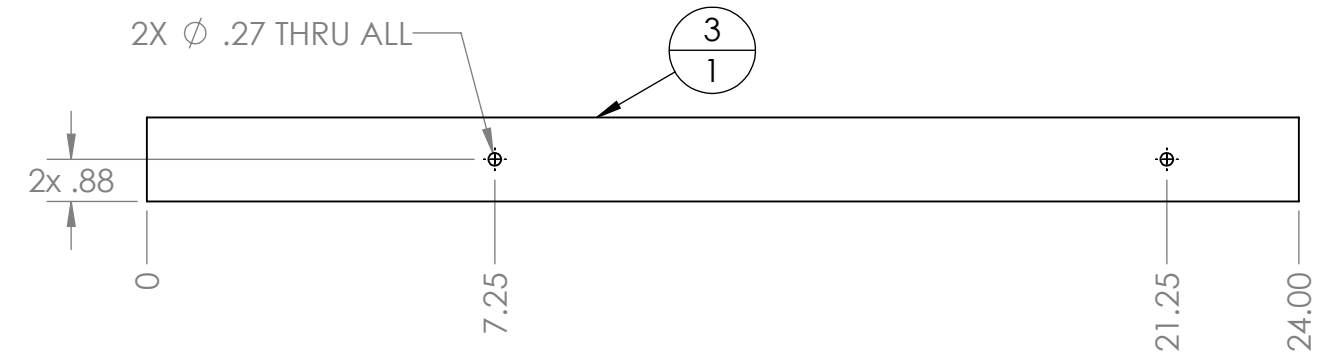
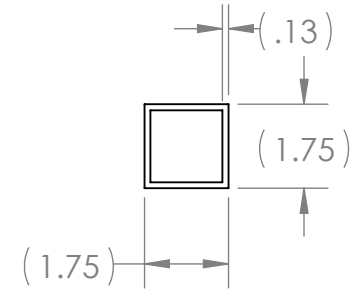
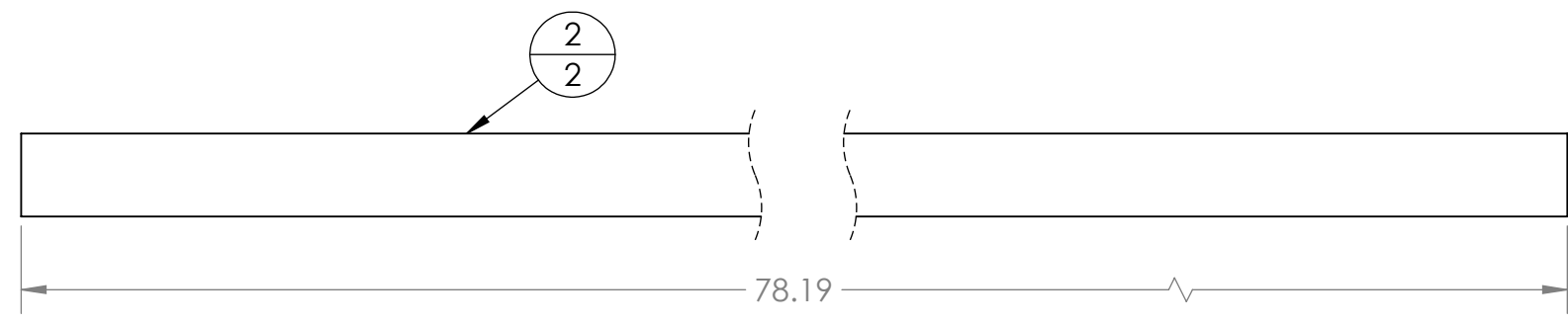
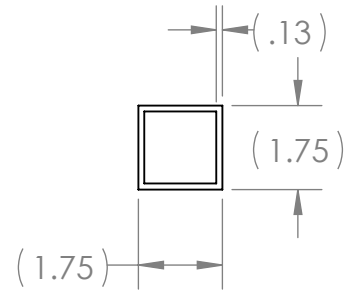
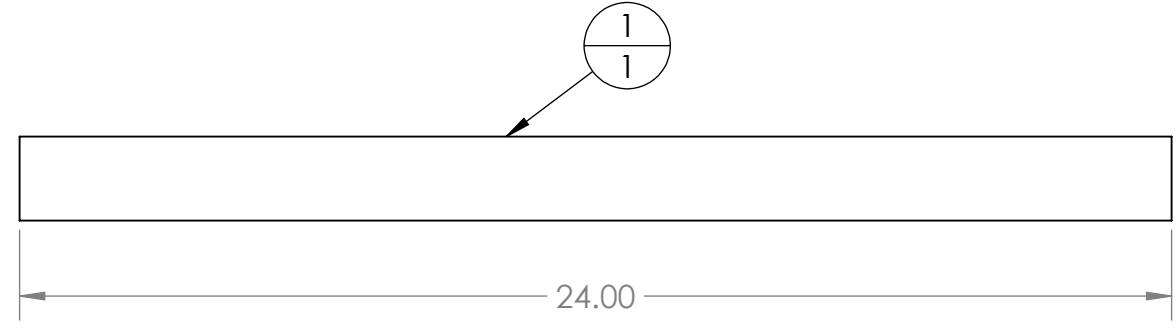
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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL: ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
<h1>Goal Base Upright</h1>		
SIZE	DWG. NO.	REV
B	GE-20309	
SCALE: 1:4	WEIGHT:	SHEET 2 OF 2

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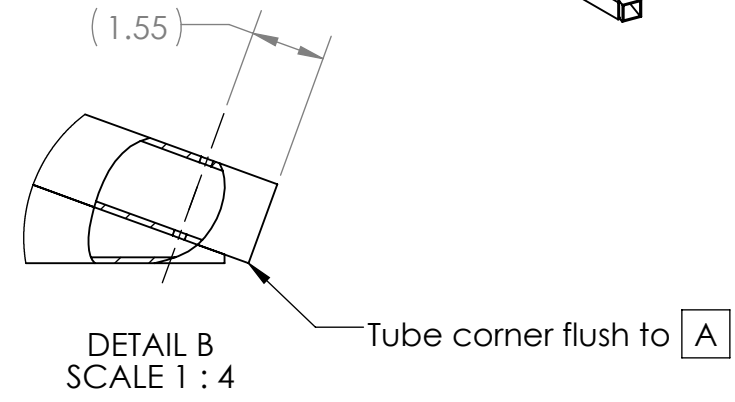
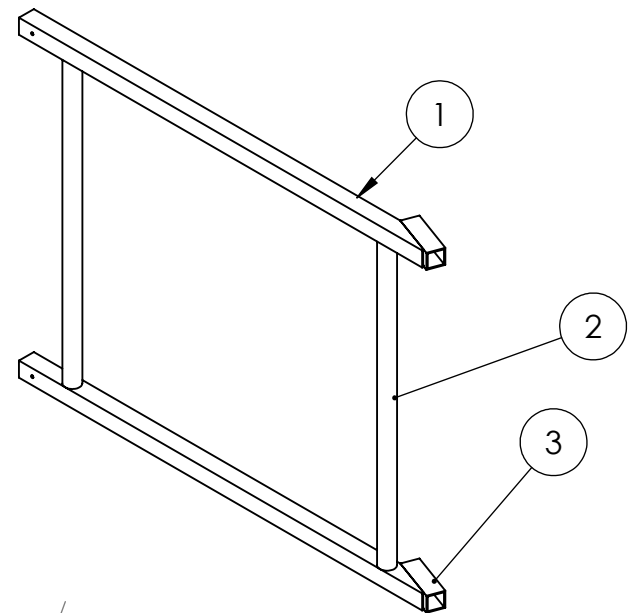
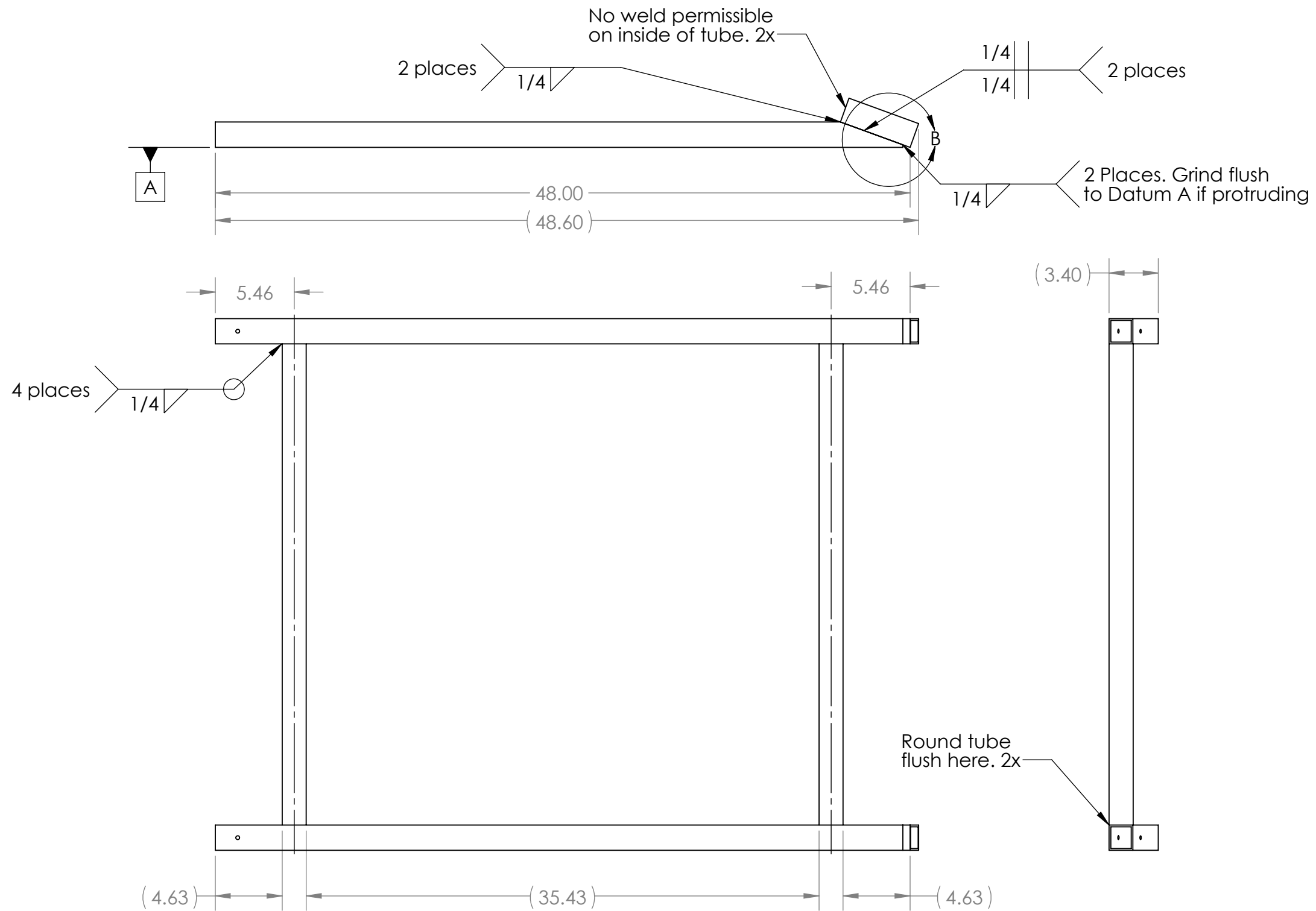
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- Notes:
1. Tag or label with part number
 2. Remove all burrs and sharp edges

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20310-01	1.75" x .125" thk. Square Tubing, 6063 Aluminum	2
2	GE-20310-02	1-1/4" Schedule 40 Pipe, 6061 Aluminum	2
3	GE-20310-03	1.75" x .125" thk. Square Tubing, 6063 Aluminum	2

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DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL: ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION			
DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Low Power Port Frame

SIZE DWG. NO. REV
B GE-20310

SCALE: 1:8 WEIGHT: SHEET 1 OF 2

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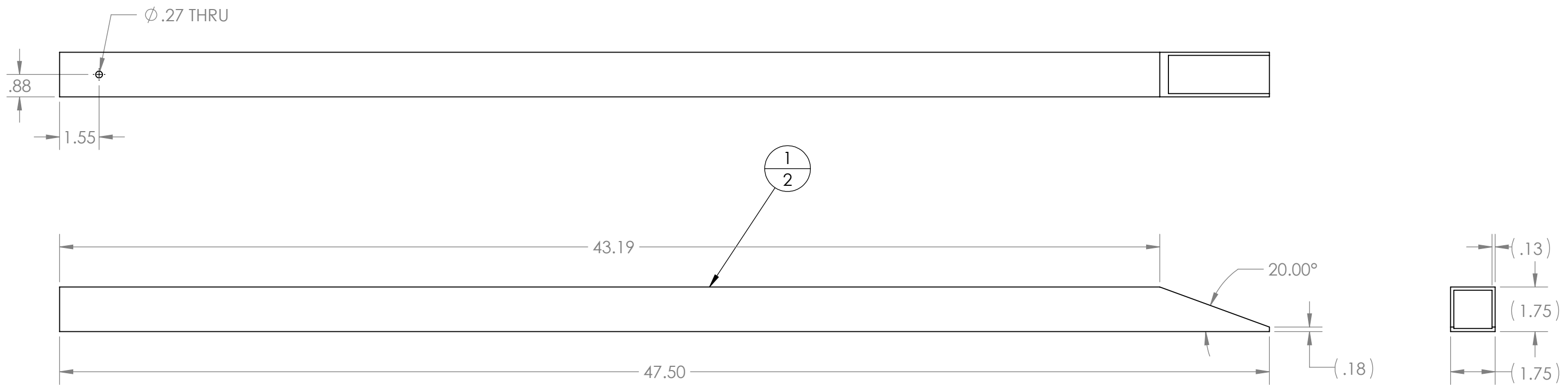
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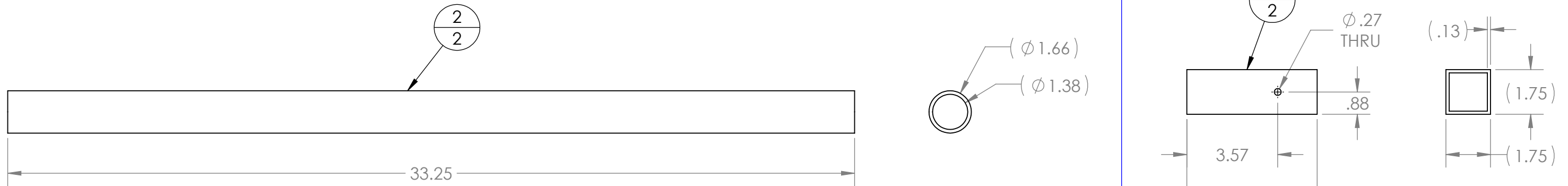
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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION			
DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Low Power Port Frame

SIZE **B** DWG. NO. **GE-20310** REV

SCALE: 1:4 WEIGHT: SHEET 2 OF 2

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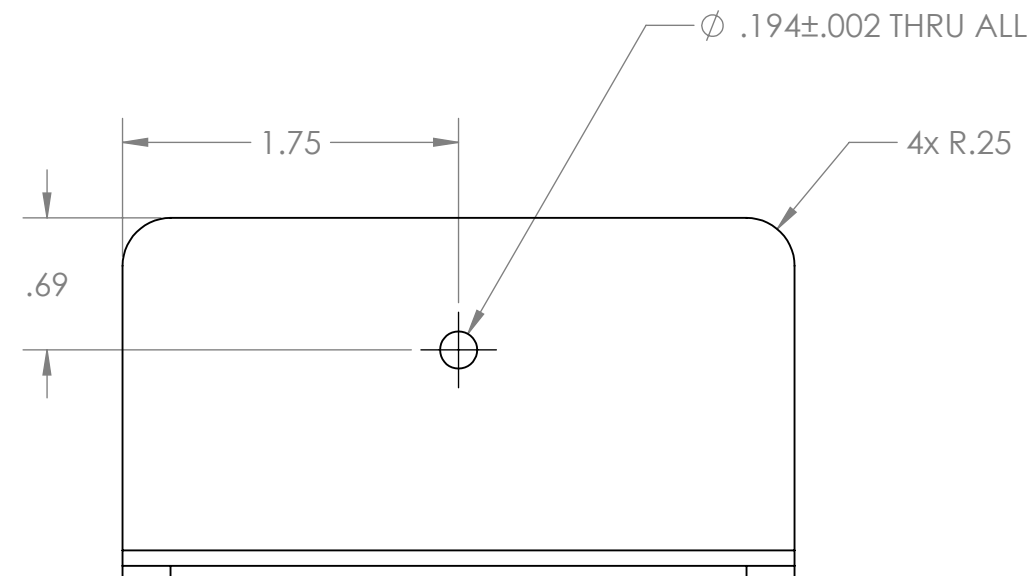
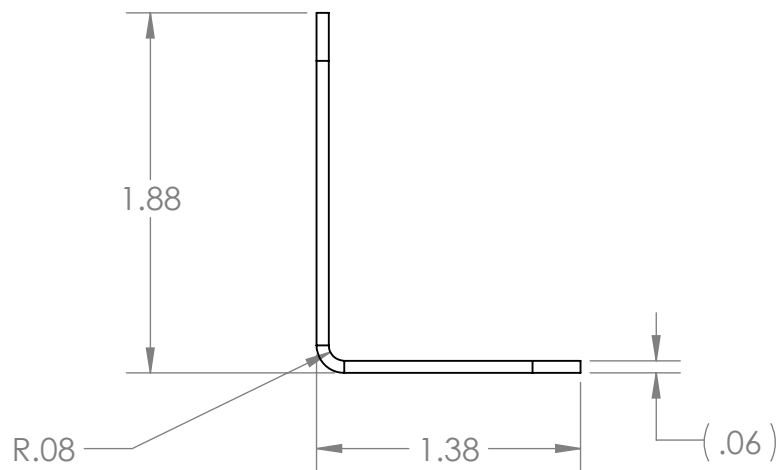
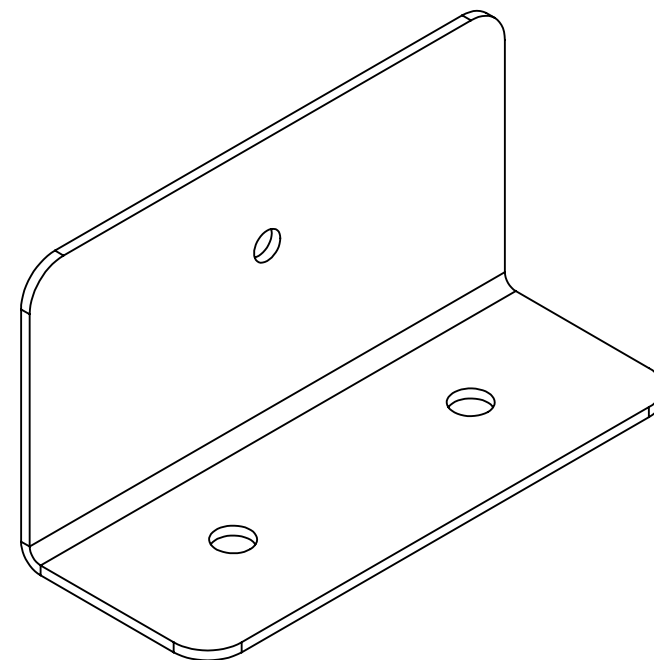
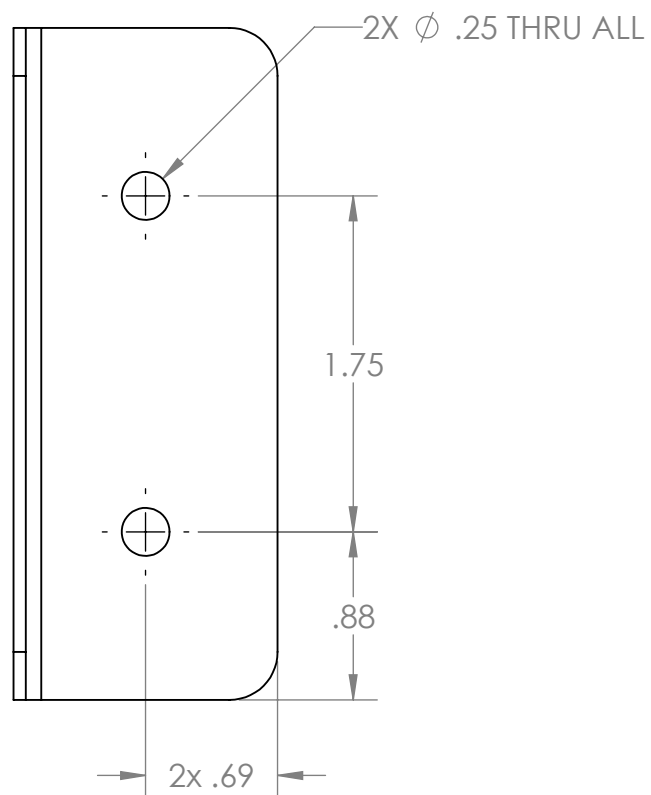
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Notes:

1. Material: 16 GA. Preplated Steel
2. Remove all burrs and sharp edge
3. Tag or label with part number

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL \pm 1/16 ANGULAR: MACH \pm 1° BEND \pm 1° TWO PLACE DECIMAL \pm .01 THREE PLACE DECIMAL \pm .001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE DWG. NO. REV
		MATERIAL	ENG APPR.		B GE-20311
NEXT ASSY	USED ON	FINISH	MFG APPR.		SCALE: 1:1 WEIGHT: SHEET 1 OF 1
APPLICATION		DO NOT SCALE DRAWING	Q.A.		
			COMMENTS:		

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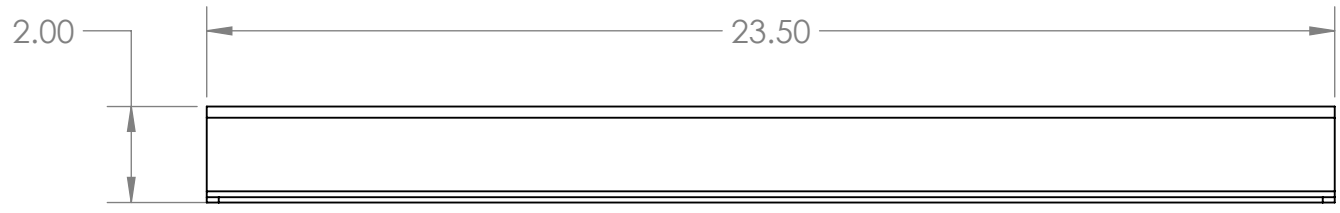
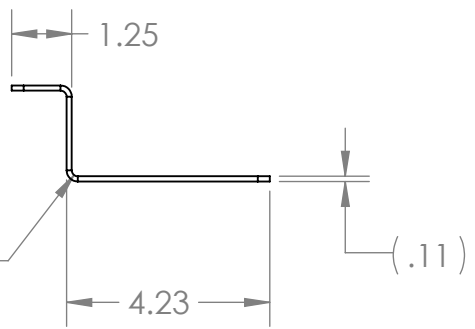
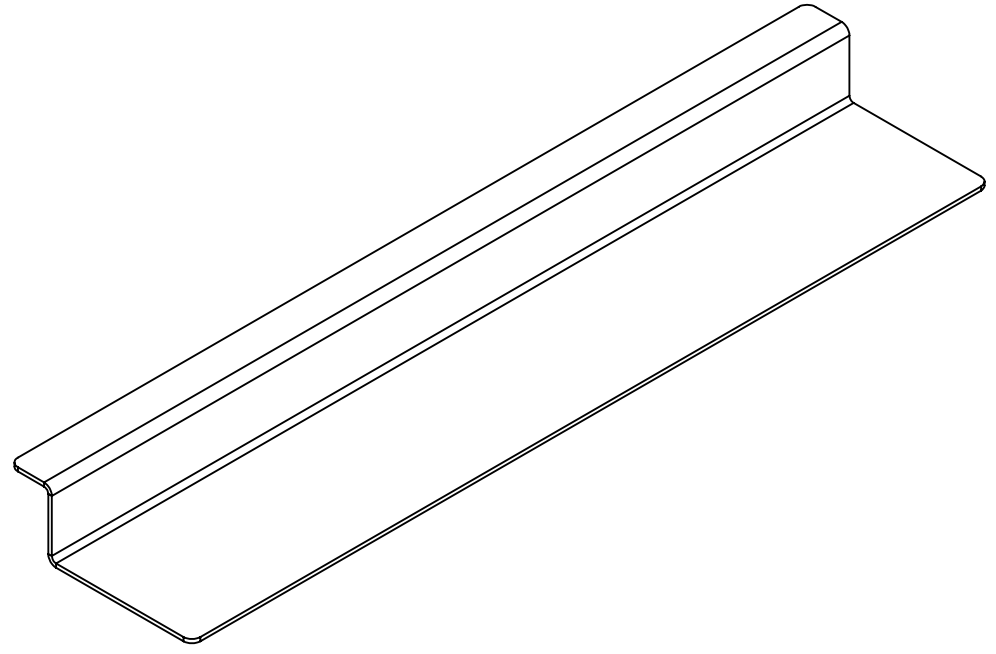
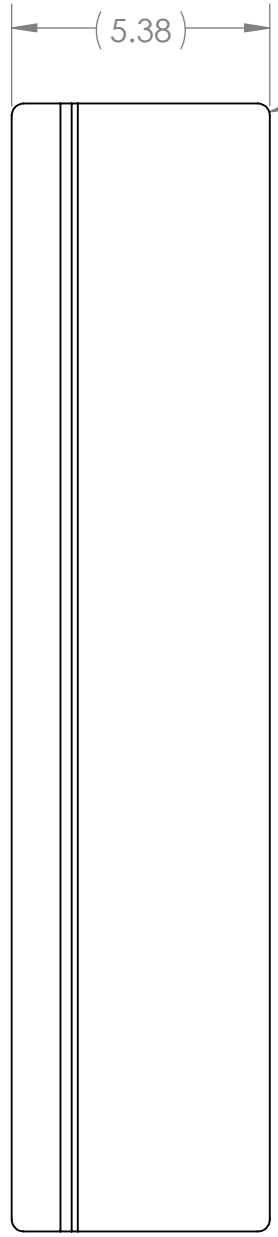
1

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- Notes:
1. Material: 12 Gauge Preplated Steel
 2. Remove all burrs and sharp edges
 3. Tag or label with part number

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE DWG. NO. REV B GE-20312
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		
APPLICATION		DO NOT SCALE DRAWING	Q.A.		
			COMMENTS:		

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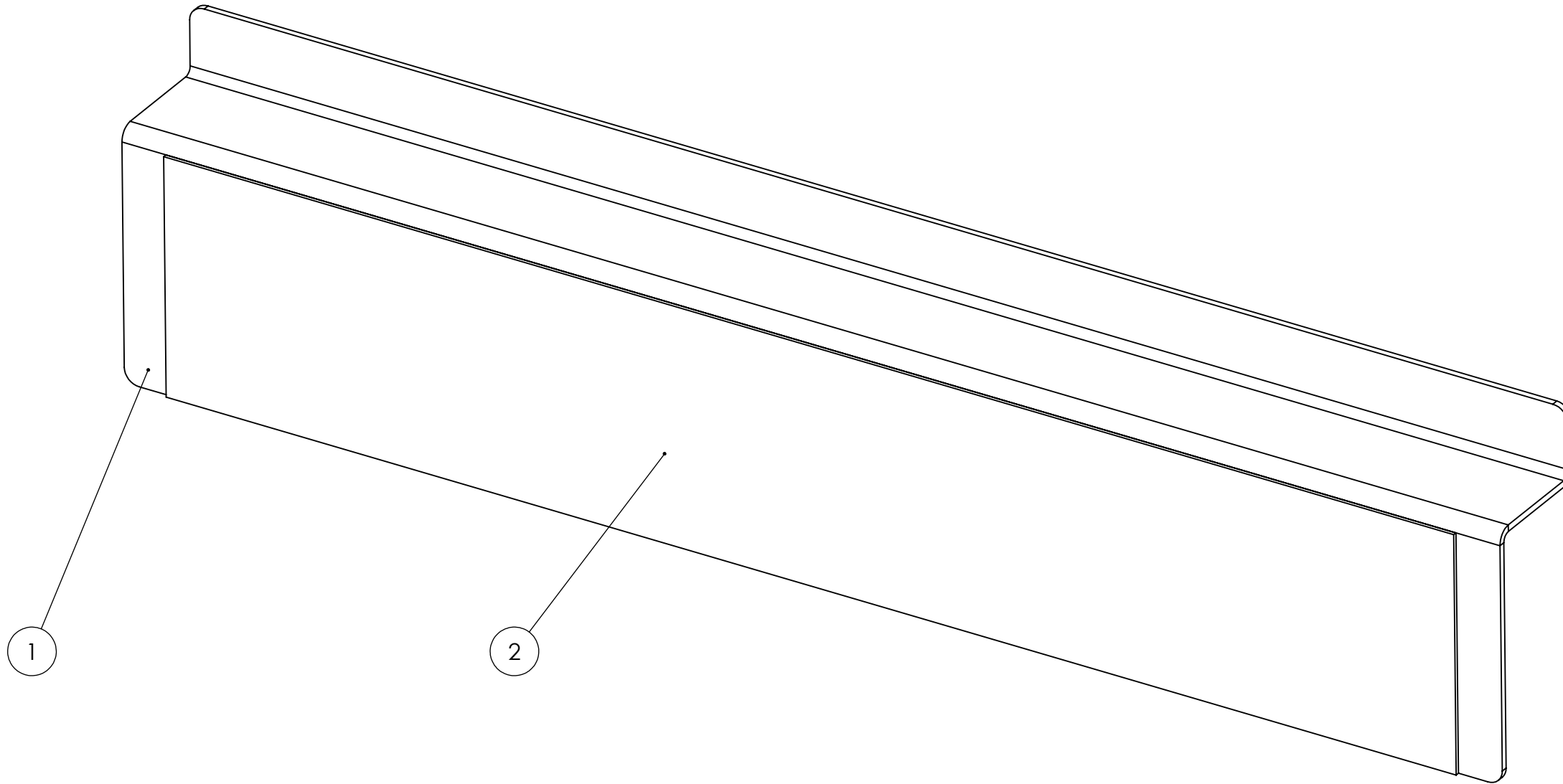
1

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Notes:

- 1. Make sure surface of GE-20312 is clean prior to hook application.
- 2. Press firmly on hook to ensure adhesion.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20312	Anchor	1
2	Hook_4_22	4" x 22" Hook Fastener, Adhesive Backed	1

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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN		
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: <h2 style="text-align: center;">Anchor with hook</h2>
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	Q.A.		SIZE DWG. NO. REV B GE-20313
APPLICATION		COMMENTS:		SCALE: 1:2 WEIGHT: SHEET 1 OF 1
DO NOT SCALE DRAWING				

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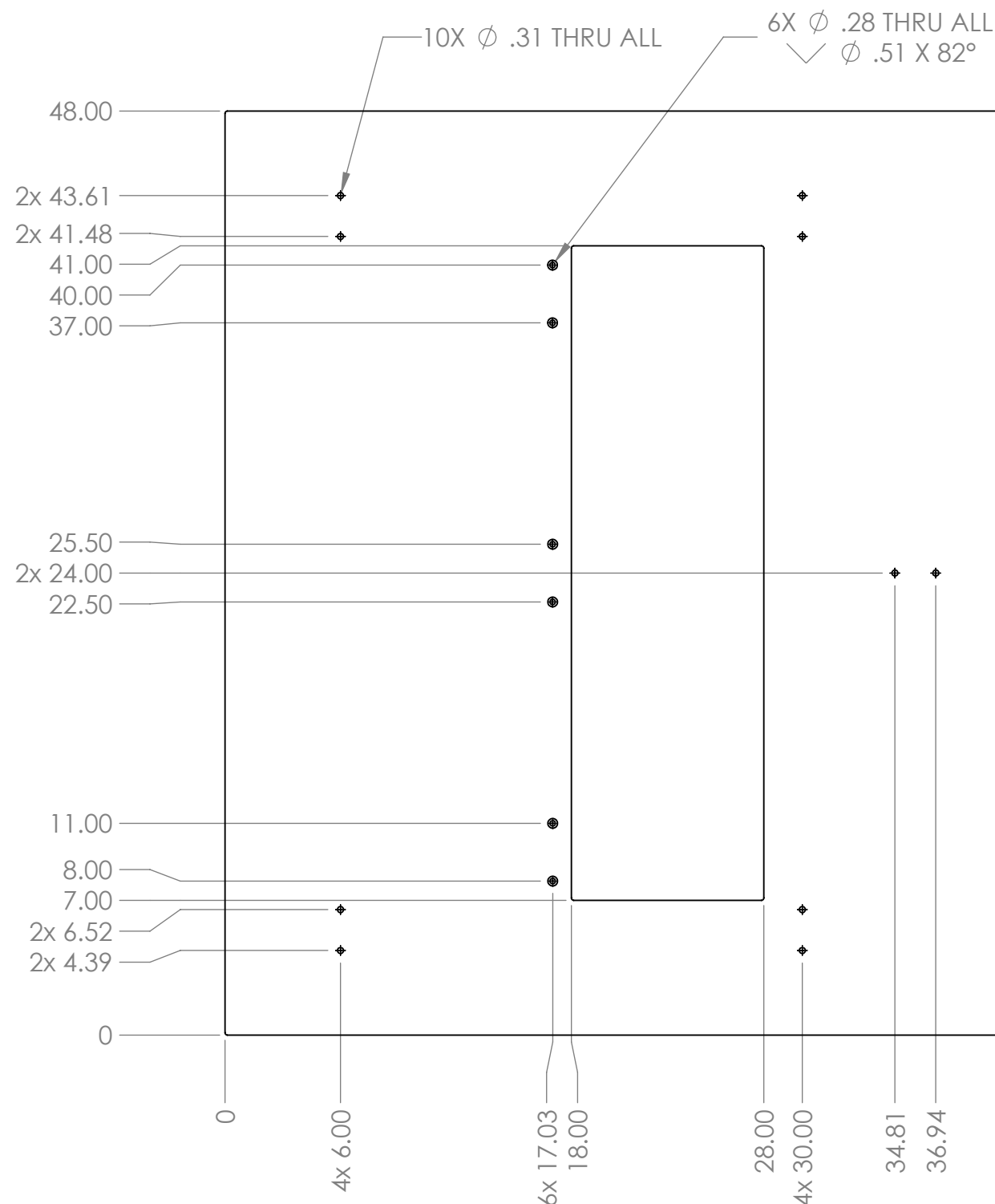
1

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- Notes:
1. Material: 1/4" thk. Polycarbonate, Clear.
 2. Tag or label with part number.
 3. Remove all burrs and sharp edges.
 4. Finish: Vinyl to be applied to face.

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	

 		
TITLE:		
<h1>Low Power Port Polycarbonate</h1>		
SIZE	DWG. NO.	REV
B	GE-20314	
SCALE: 1:8	WEIGHT:	SHEET 1 OF 1

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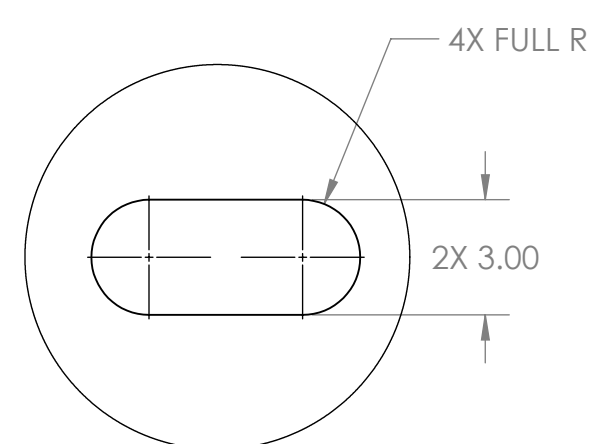
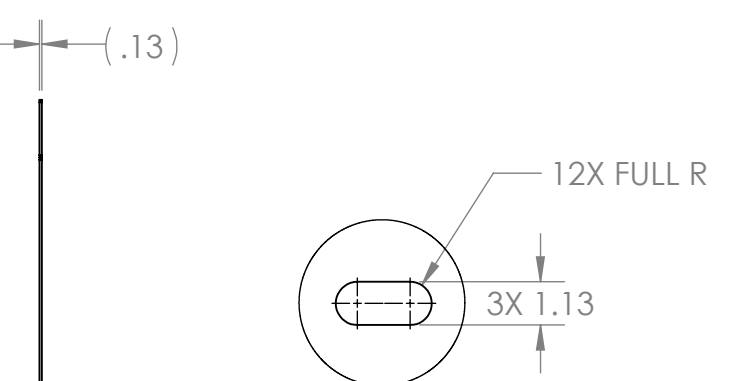
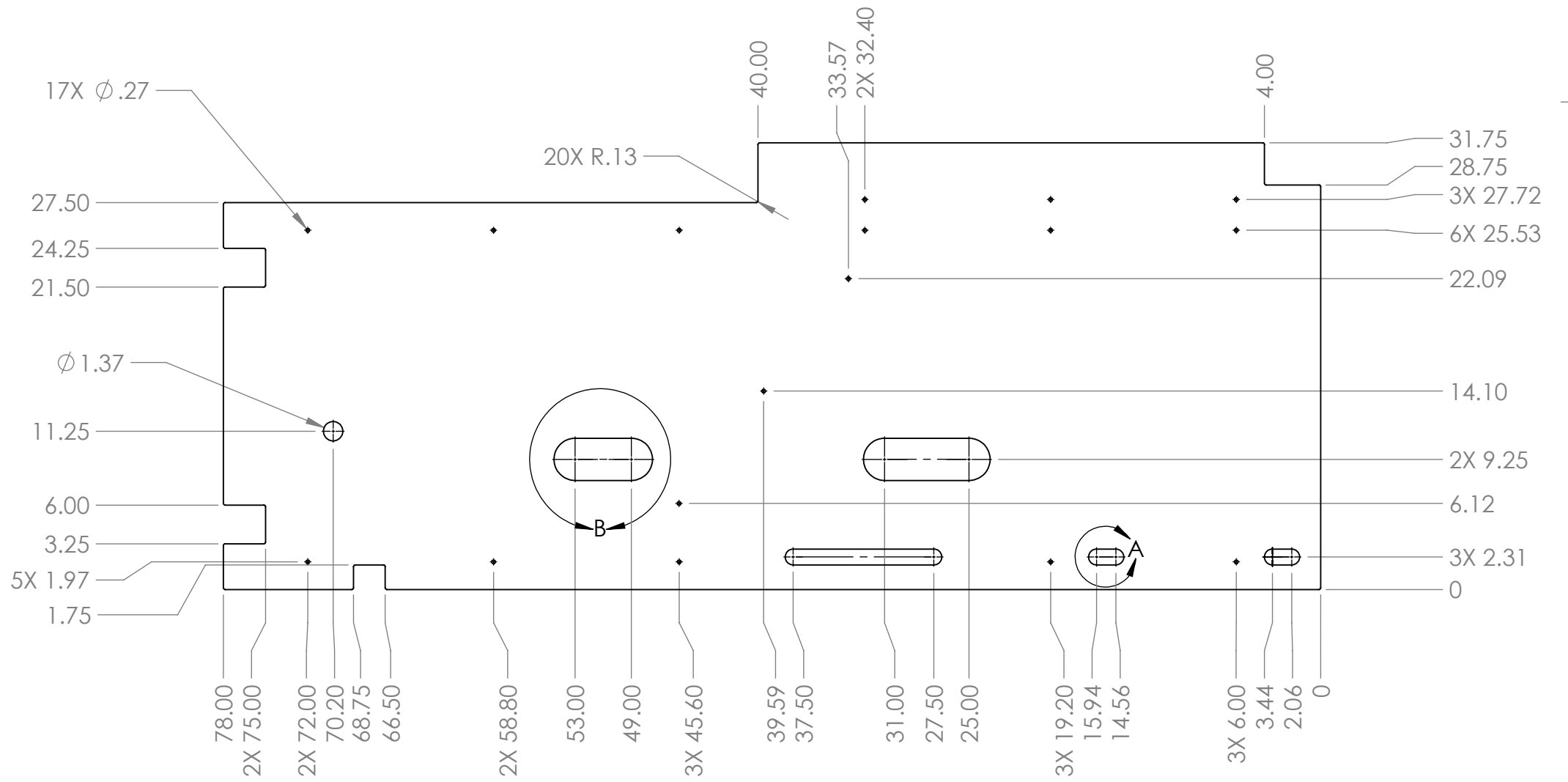
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Notes:

1. Material: 1/8" Clear Polycarbonate.
2. Remove burrs and sharp edges.
3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL: ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:
Power Port Base Side Polycarbonate

SIZE DWG. NO. REV
B GE-20315

SCALE: 1:10 WEIGHT: SHEET 1 OF 1

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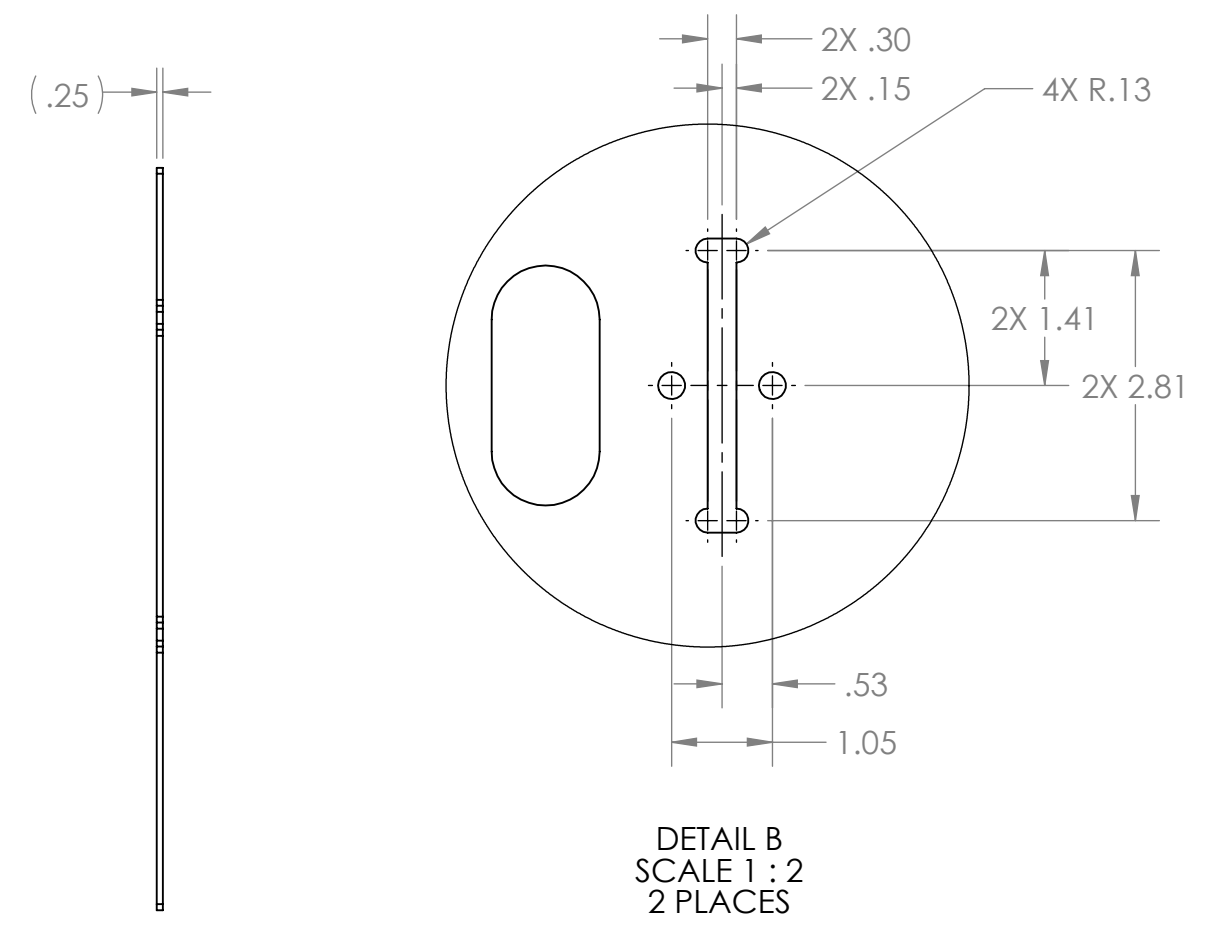
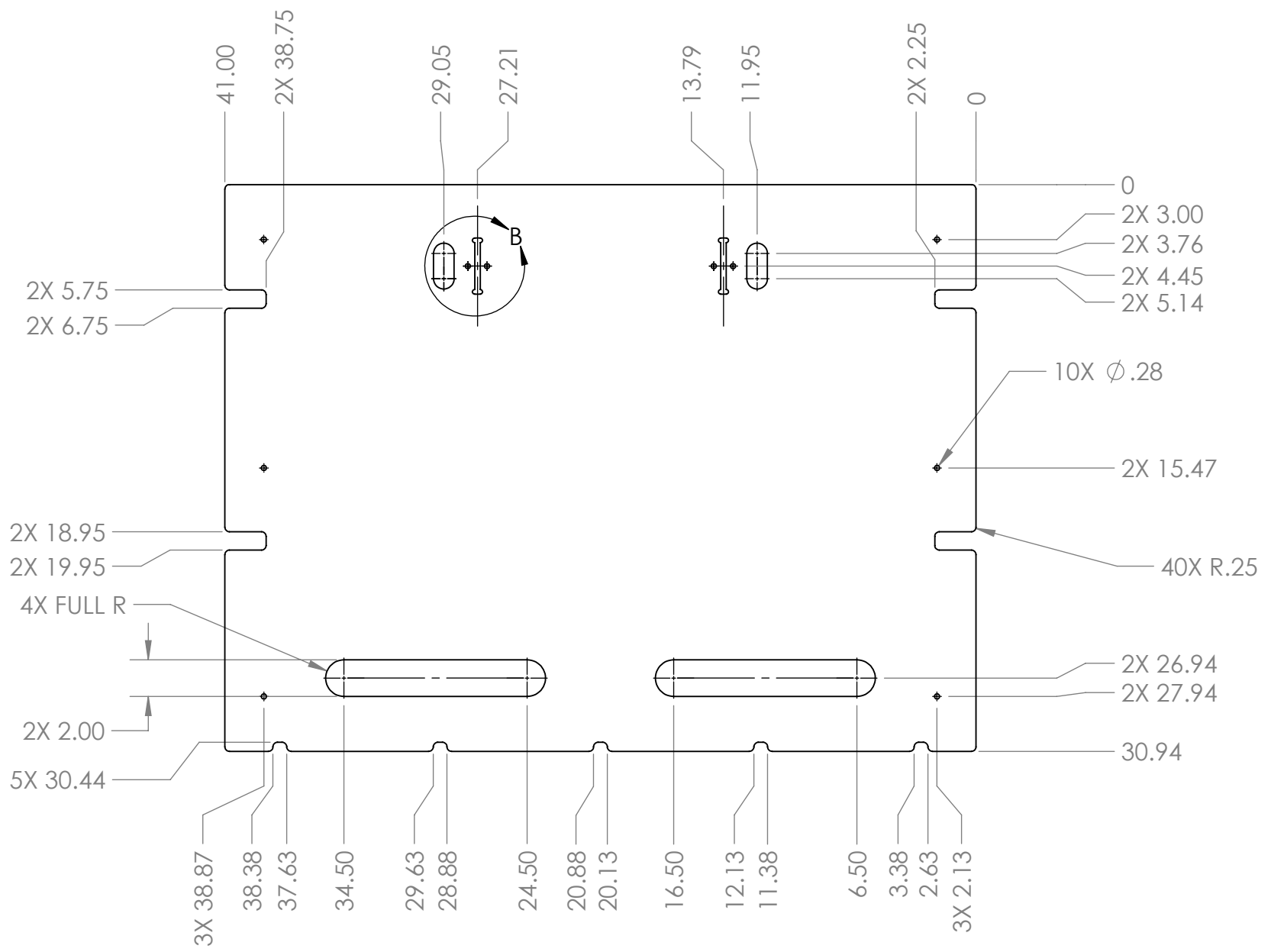
1

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- Notes:
1. Material: 1/4" Clear Polycarbonate.
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
 					
TITLE: Power Port Base Back Top					
SIZE	DWG. NO.			REV	
B	GE-20316				
SCALE: 1:8		WEIGHT:		SHEET 1 OF 1	

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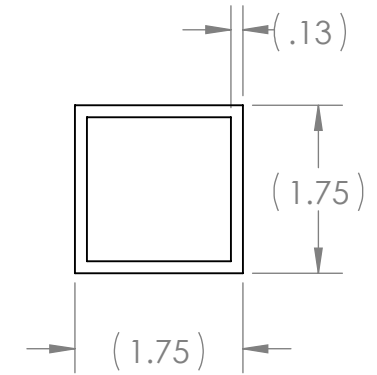
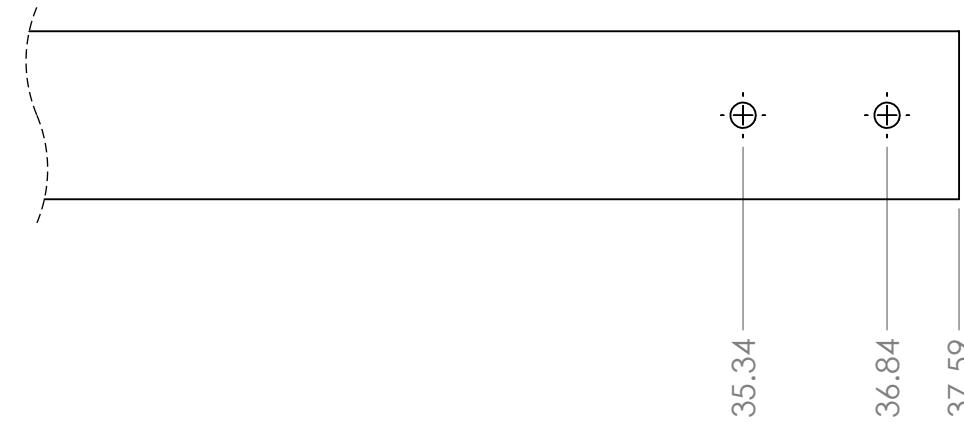
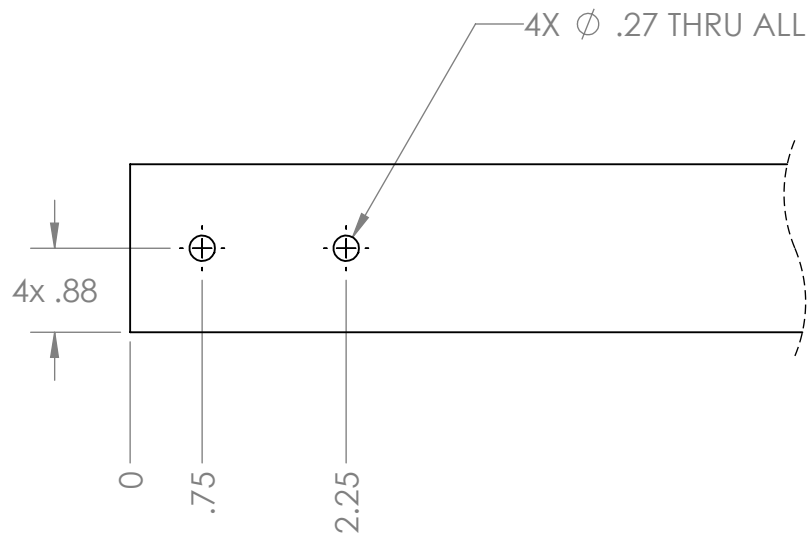
1

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Notes:

- 1. Material: 1.75" x .125" thk. Square Tube, 6063 Aluminum
- 2. Remove all burrs and sharp edges
- 3. Tag or label with part numbers

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		TITLE: Power Port Base Brace Bar
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		SIZE B DWG. NO. GE-20317 REV
APPLICATION		DO NOT SCALE DRAWING	Q.A.		SCALE: 1:2 WEIGHT: SHEET 1 OF 1
			COMMENTS:		

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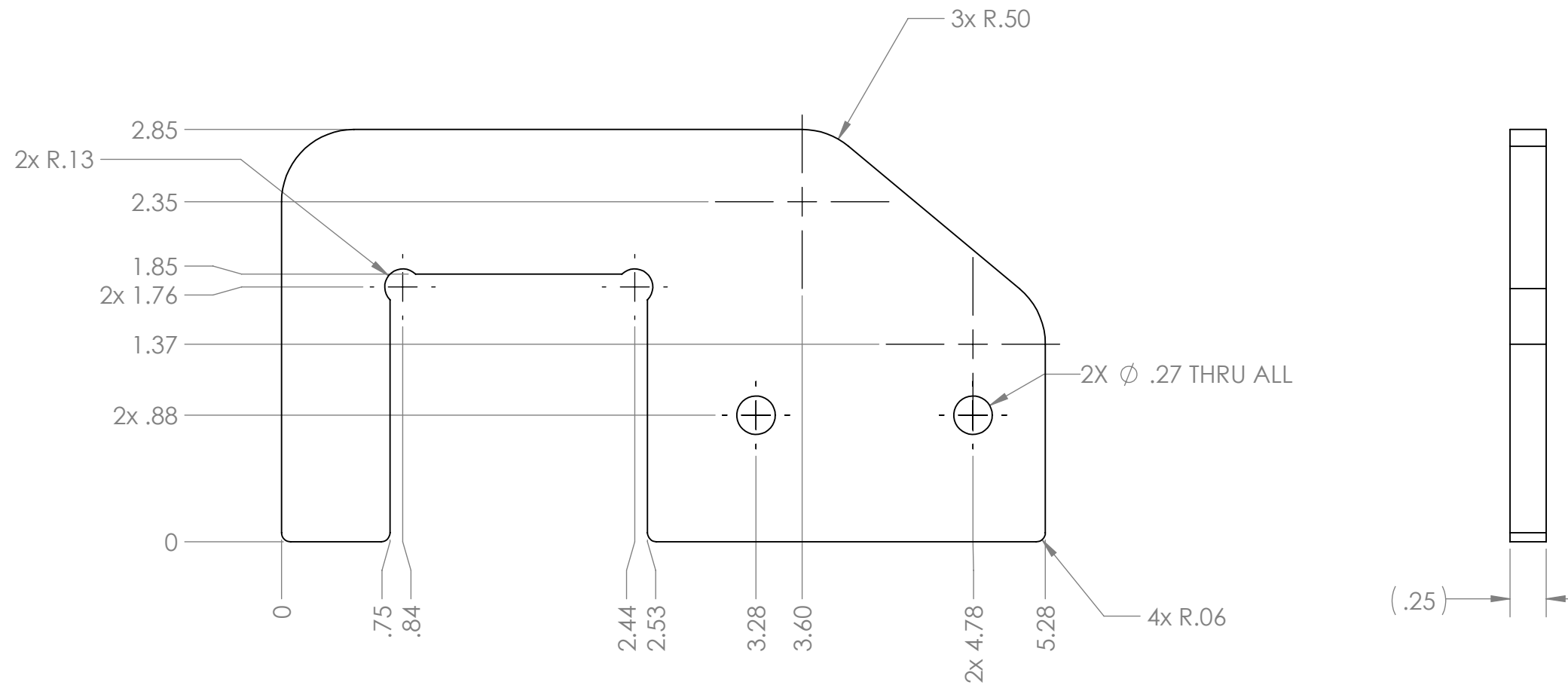
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Notes:

1. Material: 1/4" thk. Polycarbonate, Clear
2. Tag or label with part number
3. Remove all burrs and sharp edges

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
 					
TITLE: Power Port Base Brace Hook					
SIZE	DWG. NO.			REV	
B	GE-20318				
SCALE: 1:1		WEIGHT:		SHEET 1 OF 1	

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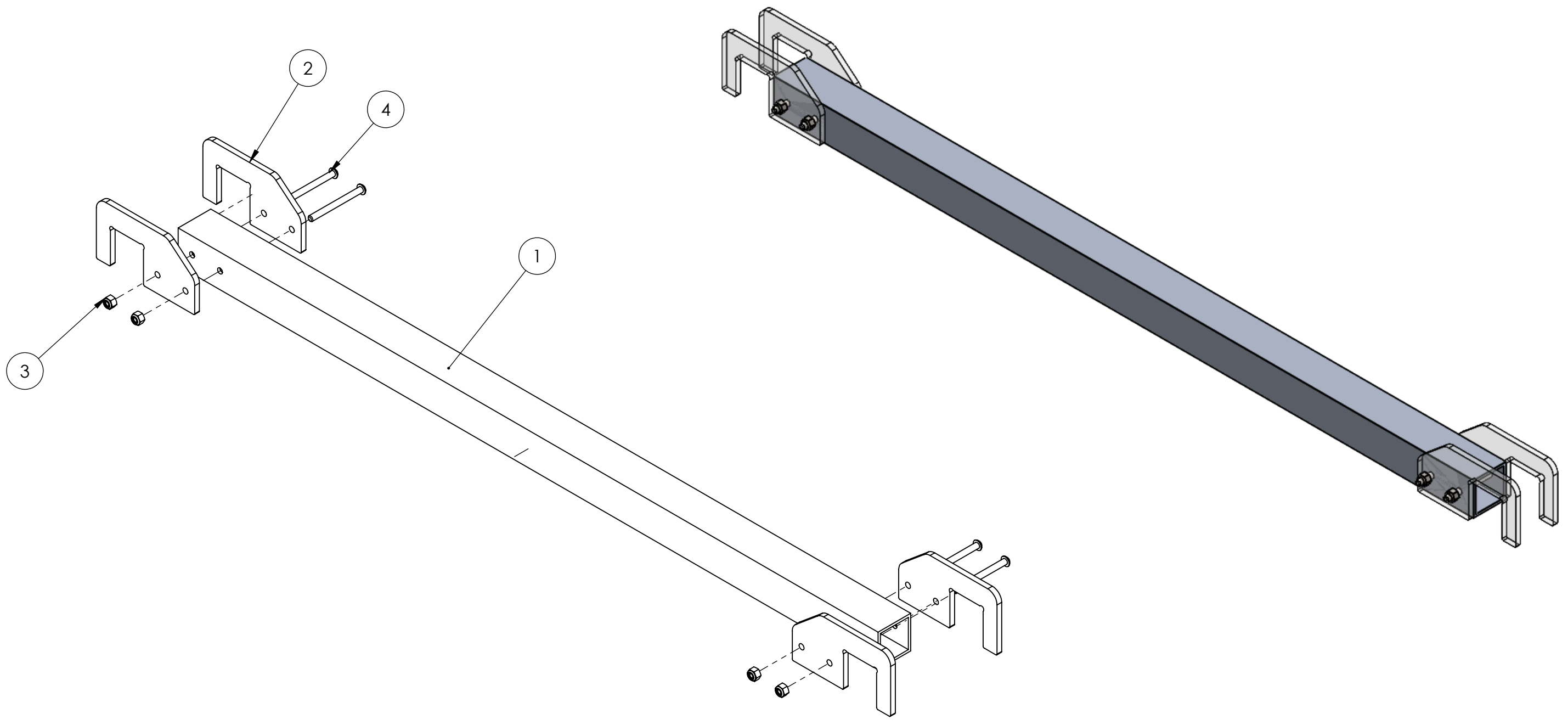
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20317	Power Port Base Brace Bar	1
2	GE-20318	Power Port Base Brace Hook	4
3	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	4
4	round_hex_.25_20_2.75_partial	Steel Button Head Hex Drive Screw, 1/4"-20 x 2.75" long, partially threaded	4

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION			
DO NOT SCALE DRAWING			

TITLE:
Power Port Base Brace Assembly

SIZE DWG. NO. REV
B GE-20319

SCALE: 1:8 WEIGHT: SHEET 1 OF 1

4

3

2

1

4

3

2

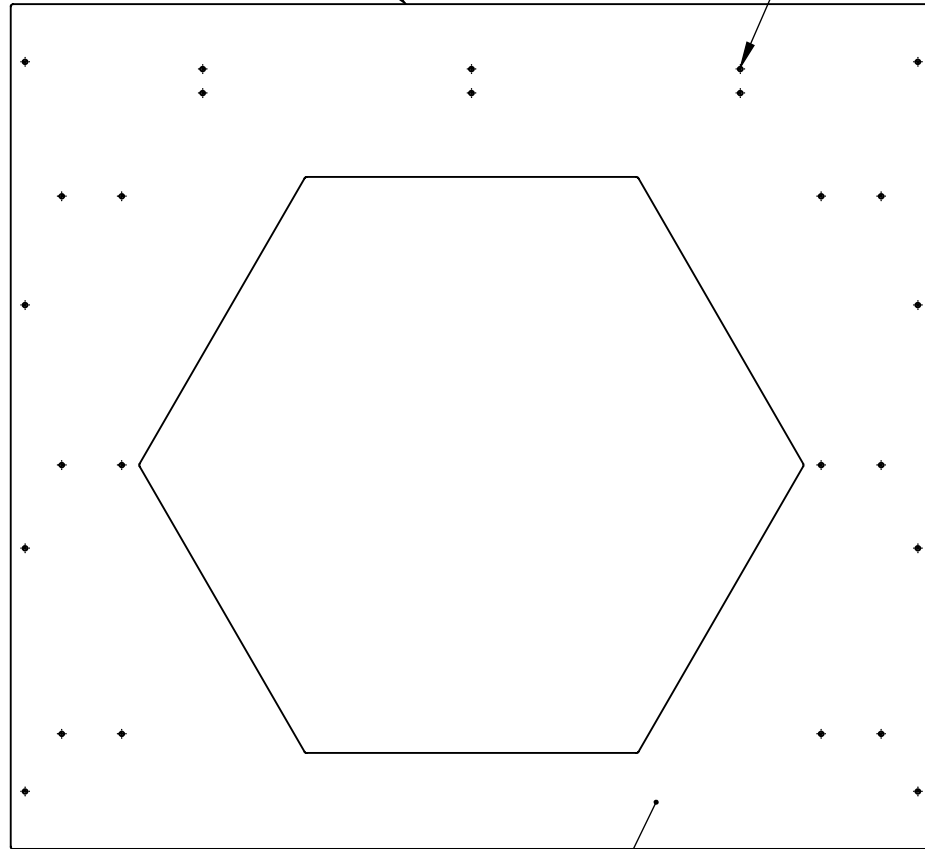
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GE-20306

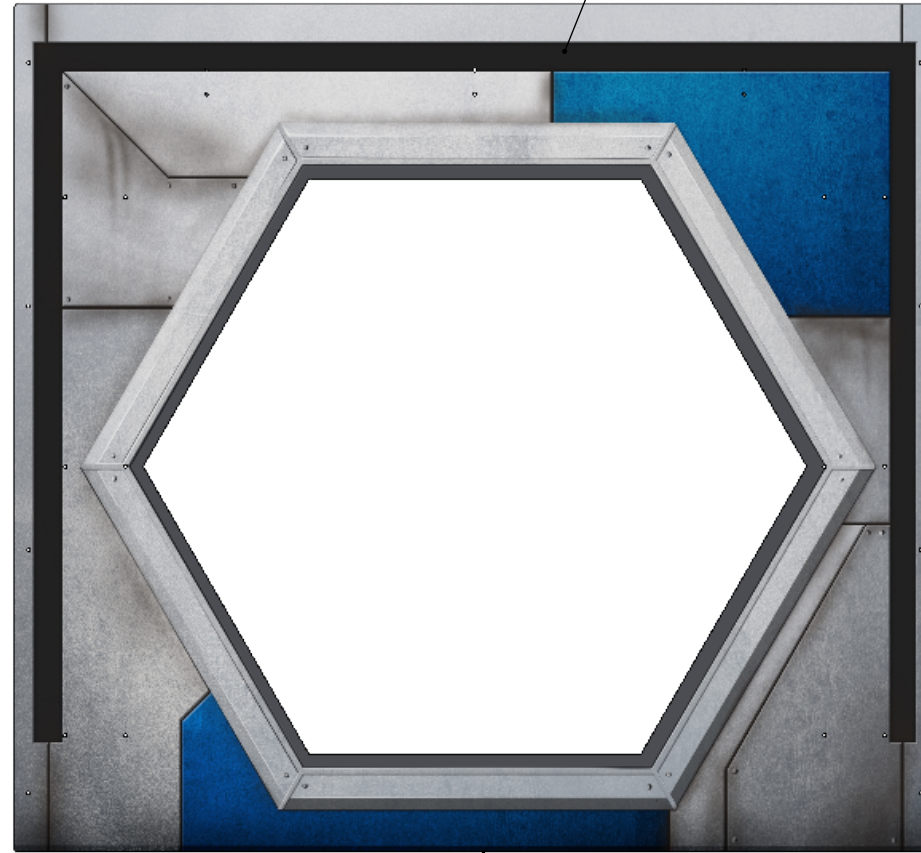
This row of holes oriented towards top.

Black region to be cut out, backed with translucent, light diffusing vinyl.

B



Vinyl applied to one face. Front and back of part are identical.



GE-20320-Blue



GE-20320-Red



B

A

- Notes:
 1. Tag or label with part number

Color Variations		
Part Number	Vinyl Image	QTY per field
GE-20320-Blue	GE-20320-Blue-Vinyl	1
GE-20320-Red	GE-20320-Red-Vinyl	1

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
				 	
TITLE: Power Port Top Front with Vinyl					
SIZE	DWG. NO.			REV	
B	GE-20320				
SCALE: 1:10 WEIGHT:				SHEET 1 OF 1	

4

3

2

1

A

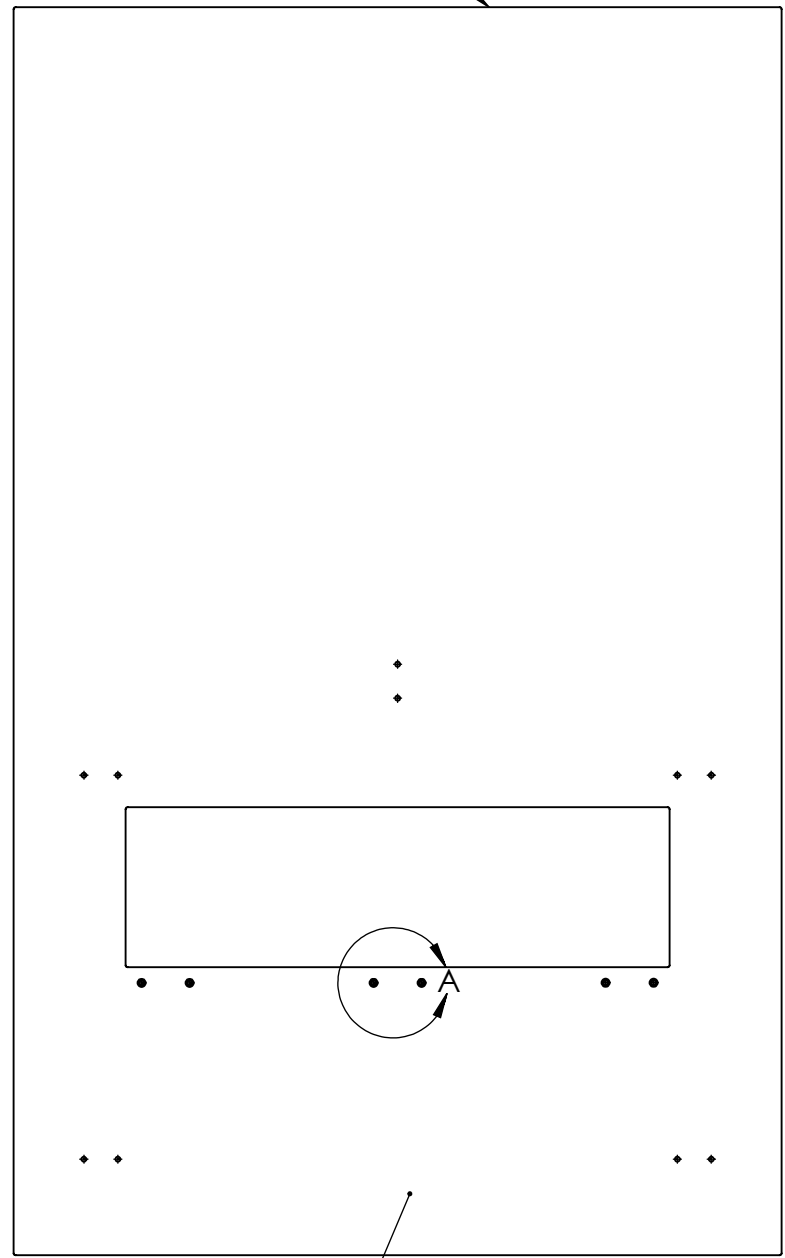
4

3

2

1

GE-20314

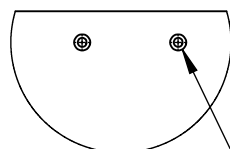


GE-20321-Red



GE-20321-Blue

Vinyl applied to this face



DETAIL A
SCALE 1 : 6

Countersinks face up

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:		
Low Power Port with Vinyl		
SIZE	DWG. NO.	REV
B	GE-20321	
SCALE: 1:12 WEIGHT:		SHEET 1 OF 1

Color Variations		
Part Number	Vinyl Image	QTY per field
GE-20321-Blue	GE-20321-Blue-Vinyl	1
GE-20321-Red	GE-20321-Red-Vinyl	1

4

3

2

1

B

B

A

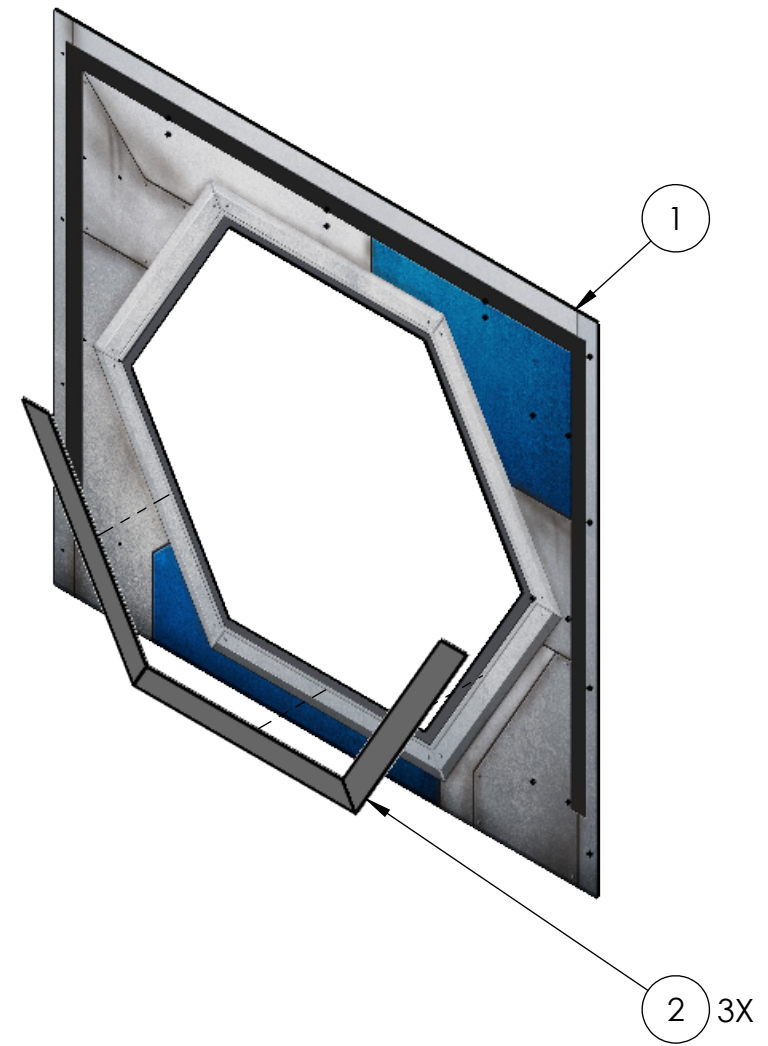
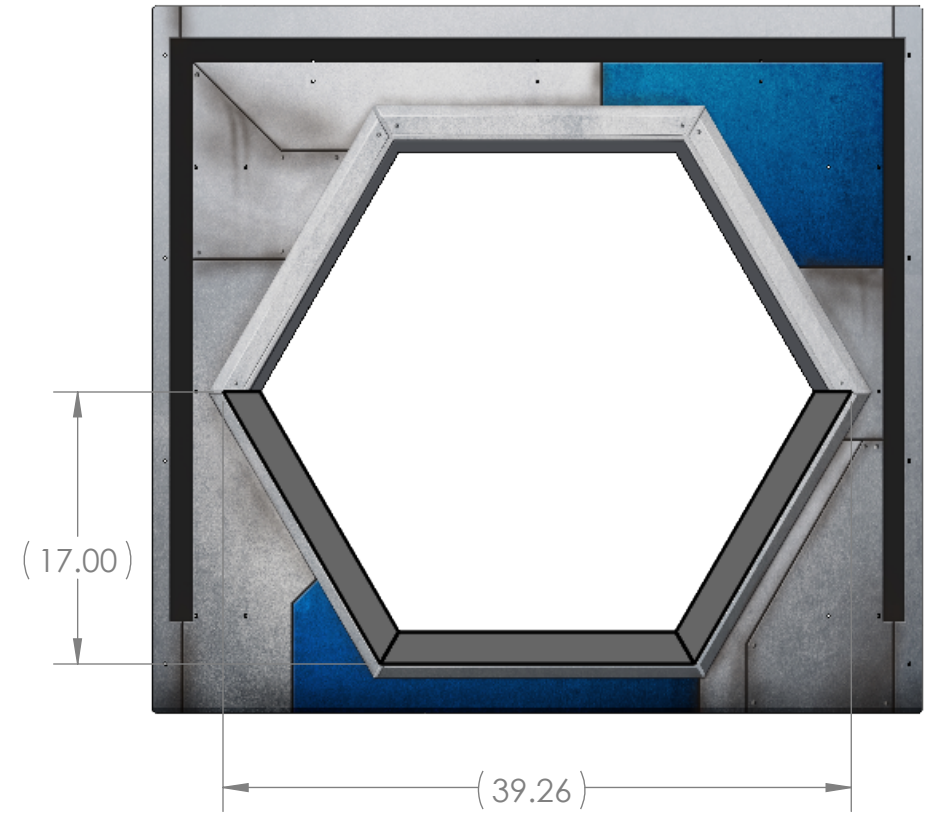
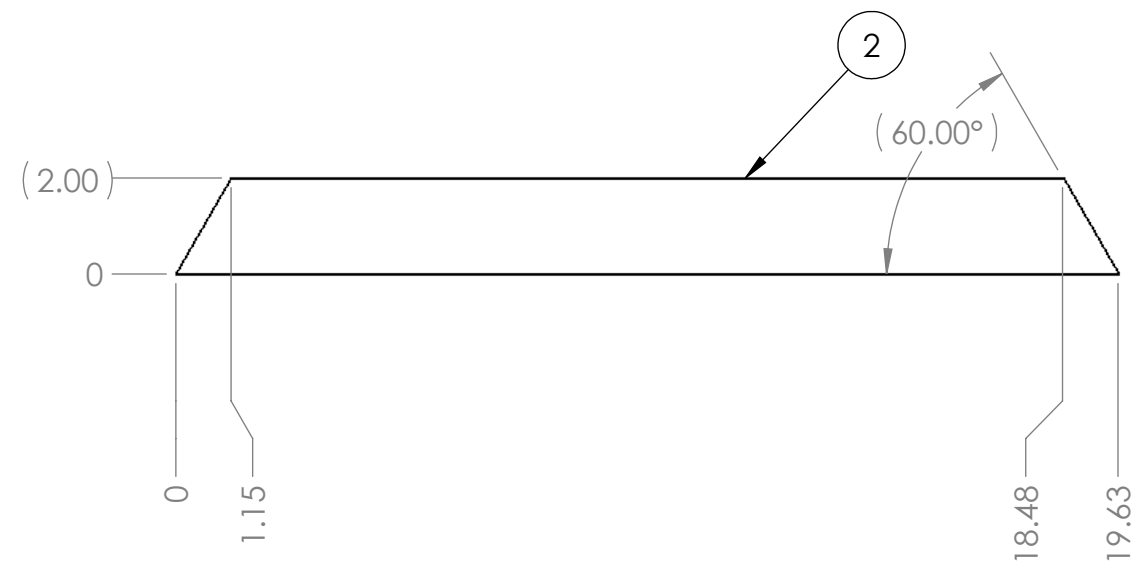
A

4

3

2

1



Notes:

1. Attach (2) 3X to (1).
2. Align to lower portion of the opening on the face of the vinyl
3. Repeat for GE-20320-Red.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20320-Blue	Power Port Top Front with Vinyl	1
2	Vision_PowerPort		3

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DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL: ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION			
DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS**
 Modeling Solutions Partner

TITLE:
Power Port Top Front

SIZE **B** DWG. NO. **GE-20322** REV

SCALE: 1:12 WEIGHT: SHEET 1 OF 1

4

3

2

1

B

B

A

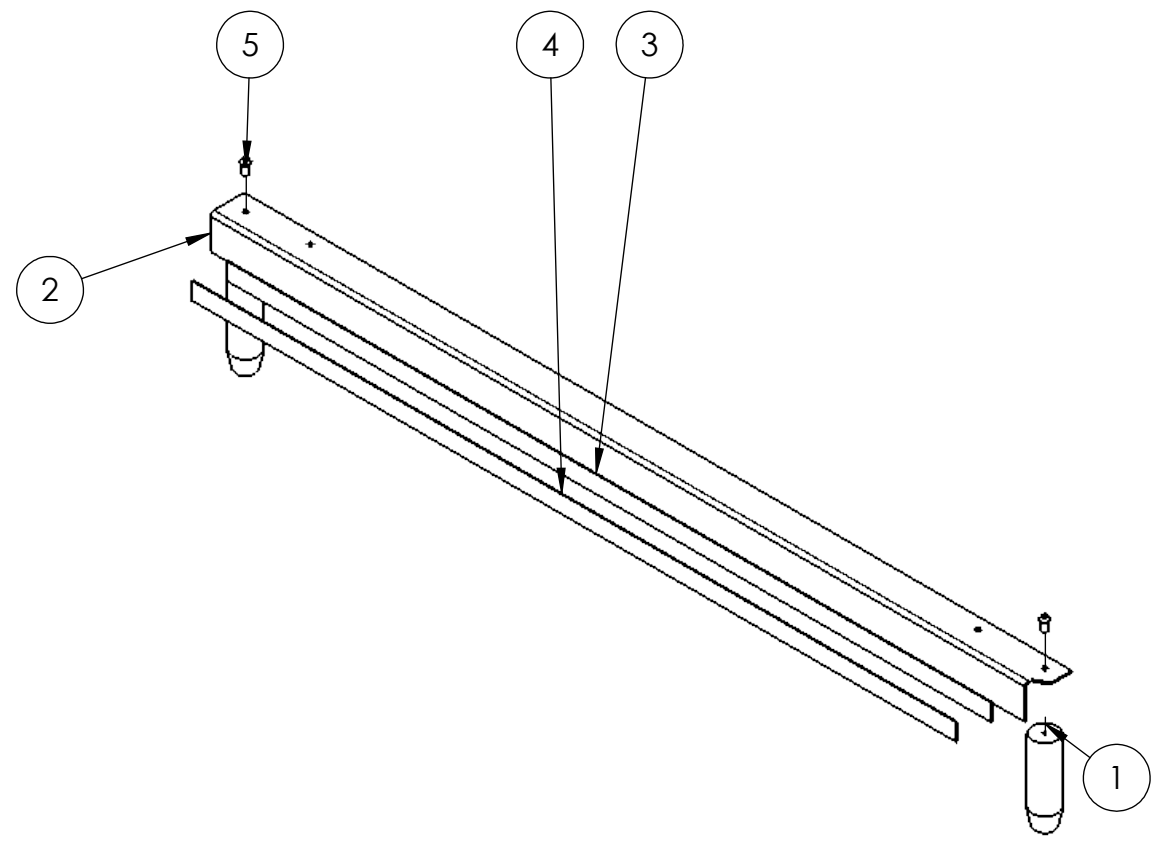
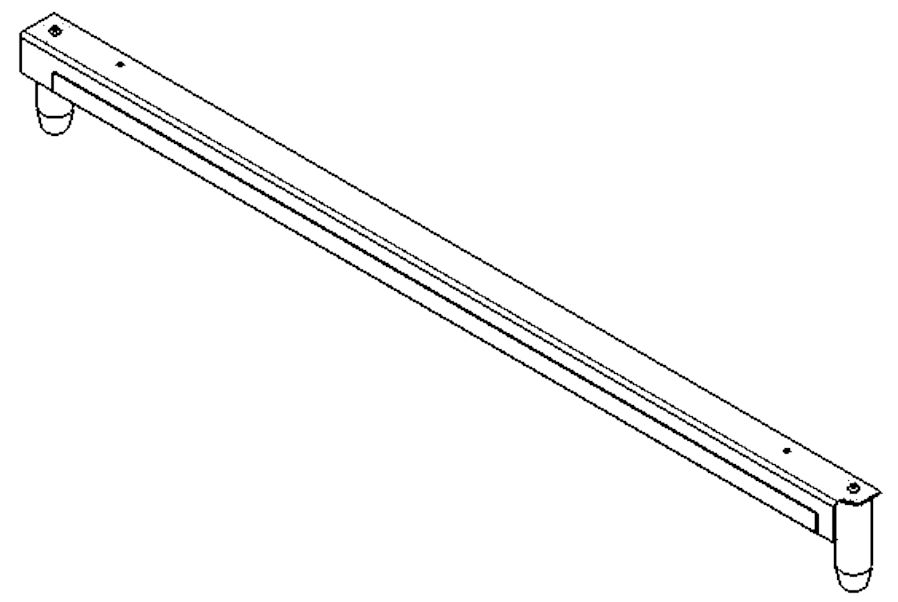
A

4

3

2

1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20218	Top Rail, Post	2
2	GE-20324	Top Rail, Power Port Angle	1
3	Hook_1_45	1" X 45" Hook, Adhesive Backed	1
4	Loop_1_45	1" x 45" Loop, Adhesive Backed	1
5	round_hex_.25_20_.62_5_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 5/8" long, fully threaded	2

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
<h1>Top Rail, Standard</h1>		
SIZE	DWG. NO.	REV
B	ge-20323	
SCALE: 1:8	WEIGHT:	SHEET 1 OF 2

4

3

2

1

B

B

A

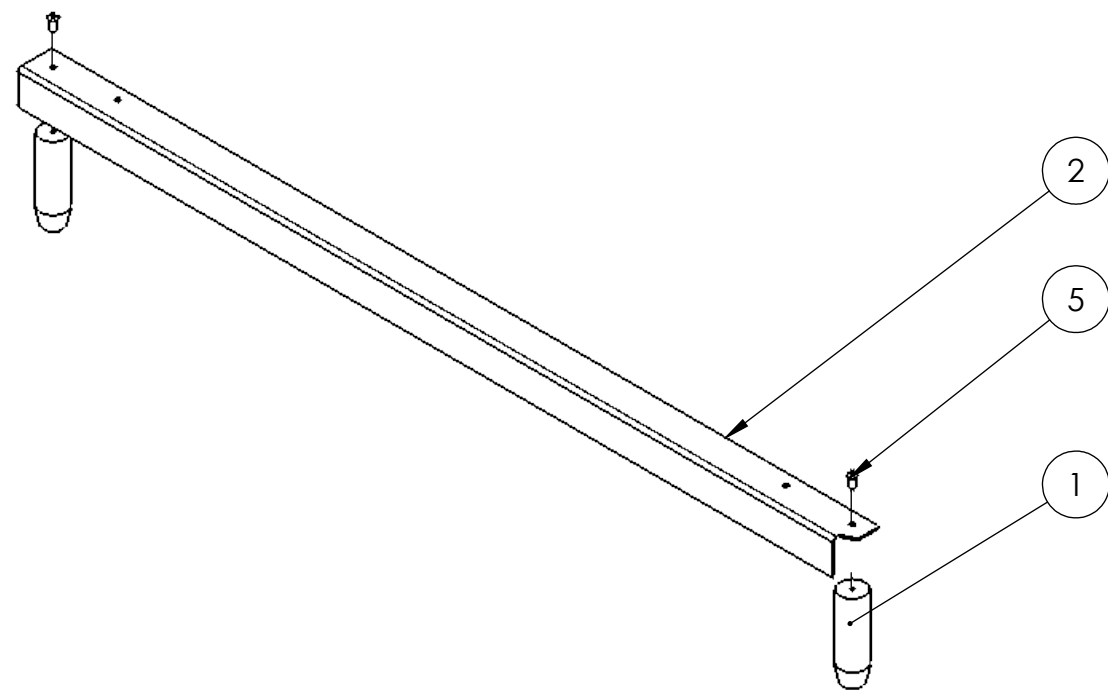
A

4

3

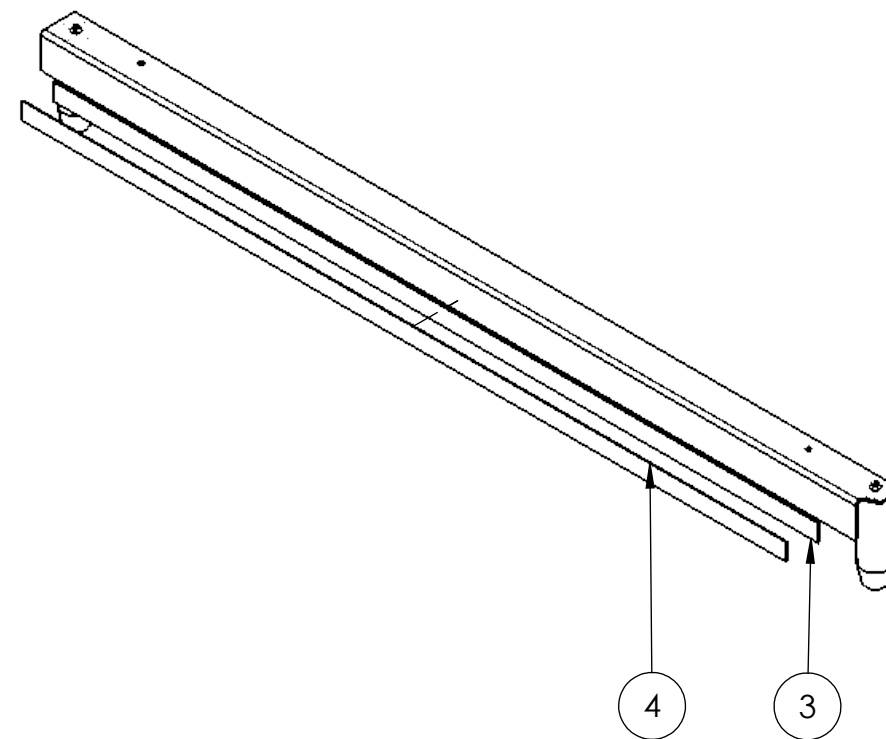
2

1



Notes:

1. Attach (1) to the underside of (2)
2. Fasten in place with (5)





Note:

1. Clean and Prep (2).
2. Attach (3) to the front of of (2).
3. Attach (4) to (3) and leave the protective backing on.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

TITLE:

Top Rail, Standard

SIZE	DWG. NO.	REV
B	ge-20323	
SCALE: 1:8	WEIGHT:	SHEET 2 OF 2

4

3

2

1

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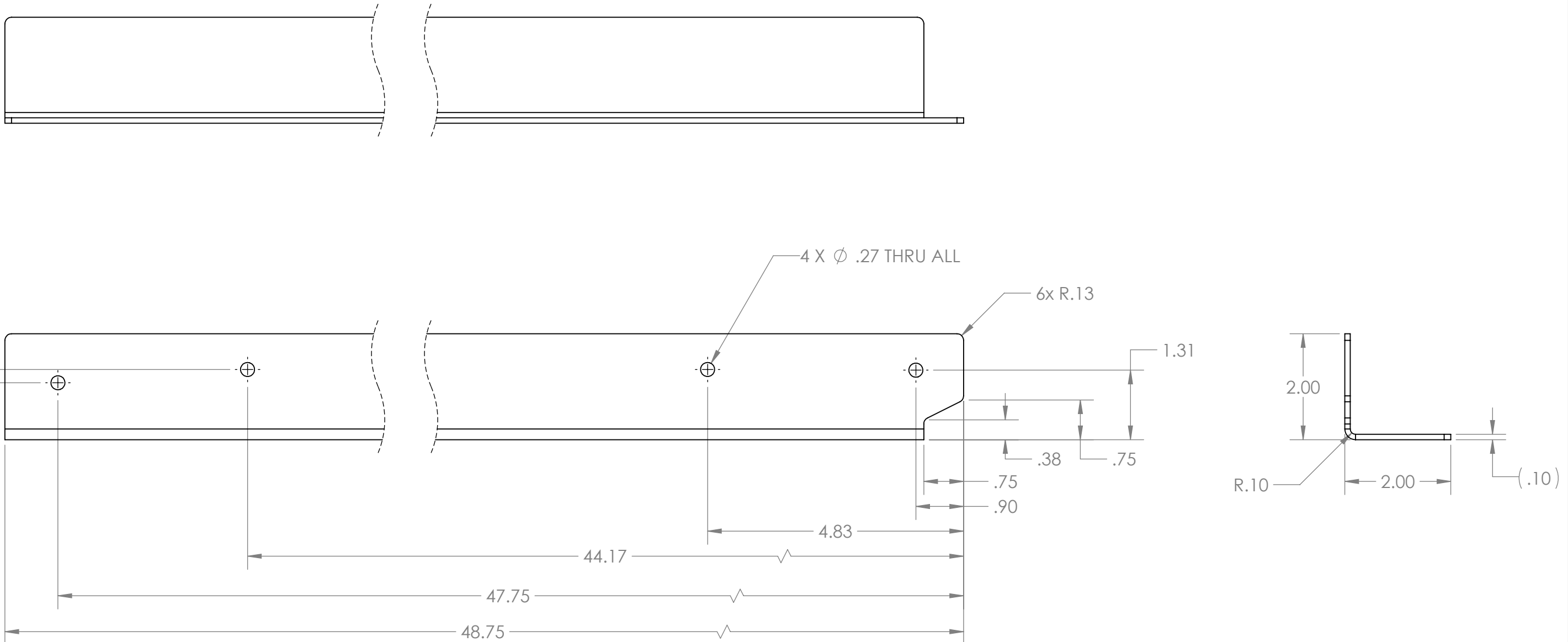
1

B

B

A

A



2x 1.33
1.08

4 X ϕ .27 THRU ALL

6x R.13

1.31

.38

.75

.75

.90

R.10

2.00

2.00

(.10)

44.17

4.83

47.75

48.75

Notes:

1. Material: 5052 Aluminum Sheet, 10 GA.
2. Remove all burrs and sharp edges.
3. Tag or label with part number.

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		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
		FRACTIONAL $\pm 1/16$		ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$		MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$		Q.A.	
		THREE PLACE DECIMAL $\pm .001$		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

TITLE:		
<h1>Top Rail, Power Port Angle</h1>		
SIZE	DWG. NO.	REV
B	GE-20324	
SCALE: 1:2	WEIGHT:	SHEET 1 OF 1

4

3

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1

4

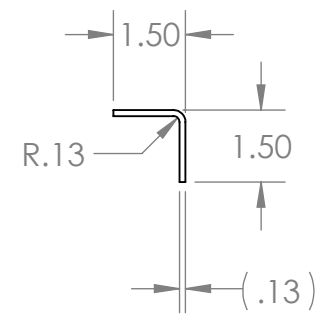
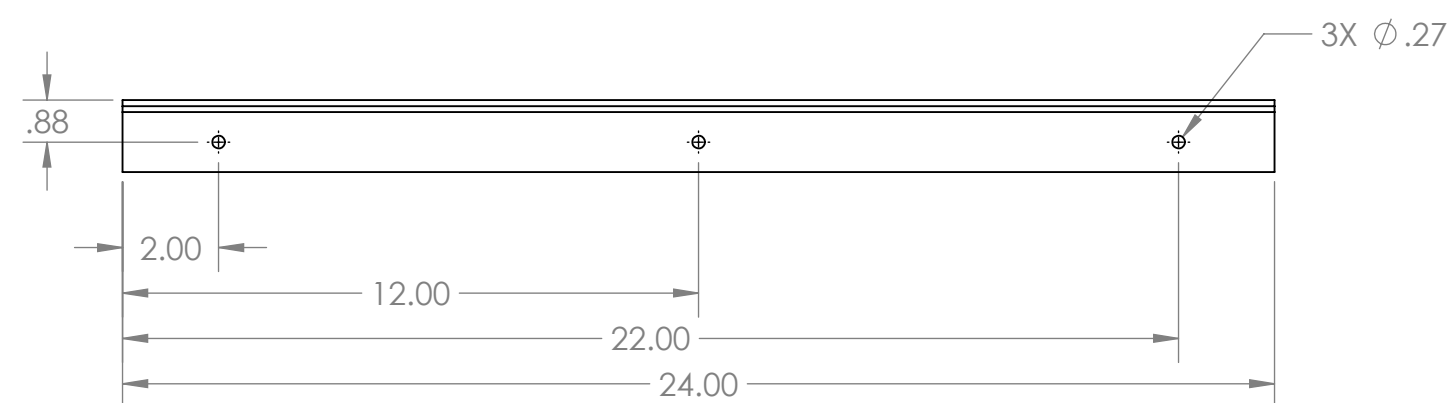
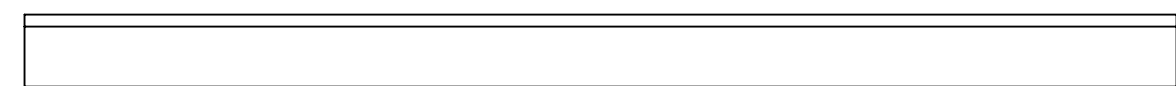
3

2

1

B

B





Notes:

- 1. Material: 1/8" thick, 5052 Aluminum, or similar.
- 2. Remove all burrs and sharp edges.
- 3. Bag or tag with part number.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		

 		
TITLE: Angle, Side Polycarbonate		
SIZE B	DWG. NO. GE-20325	REV
SCALE: 1:4	WEIGHT:	SHEET 1 OF 1

4

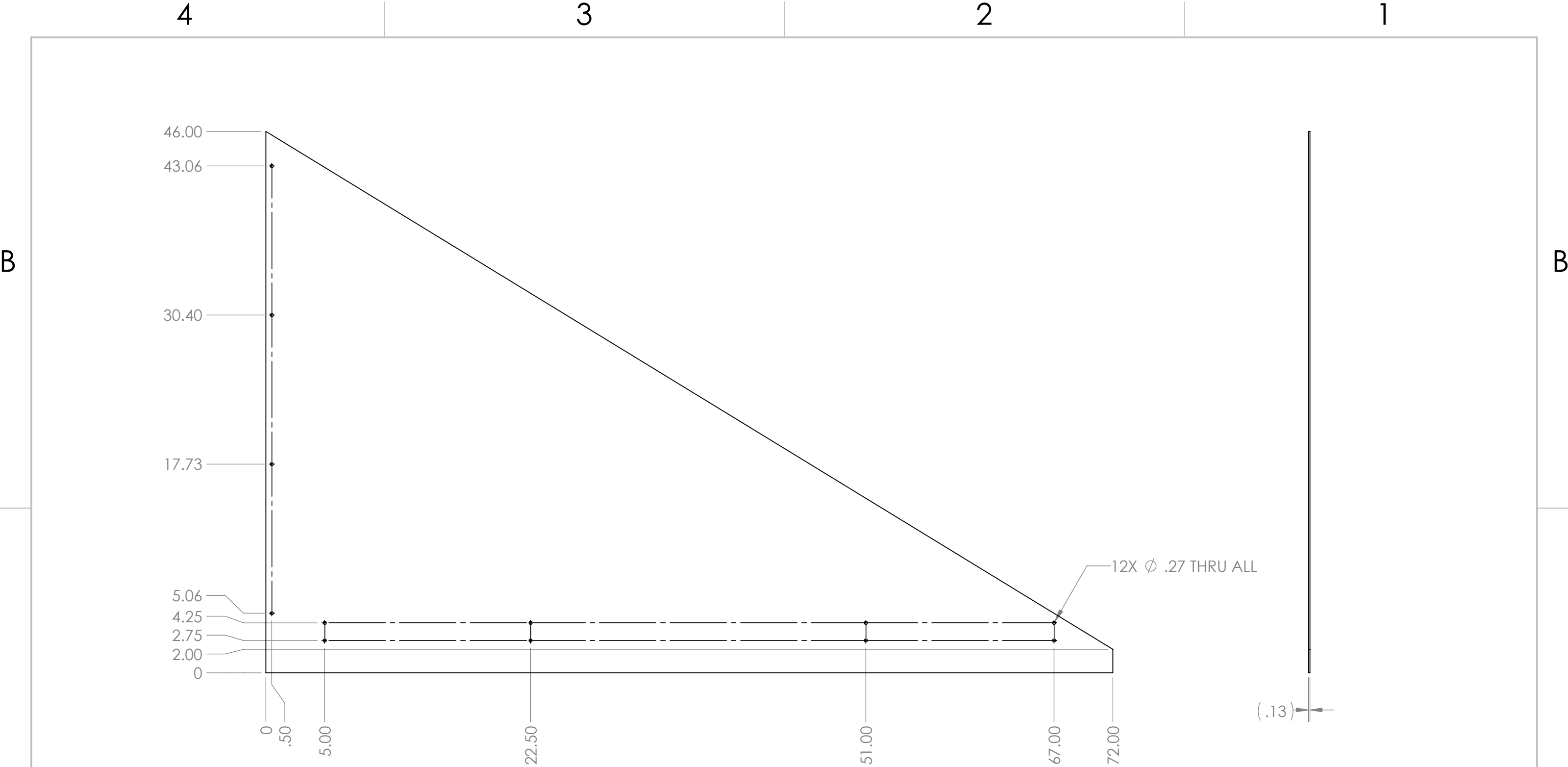
3

2

1

A

A



- Notes:
1. Material: 1/8" Thick Polycarbonate, Clear
 2. Vinyl to be applied to face.
 3. Tag or label with part number
 4. Remove burrs and sharp edges

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		

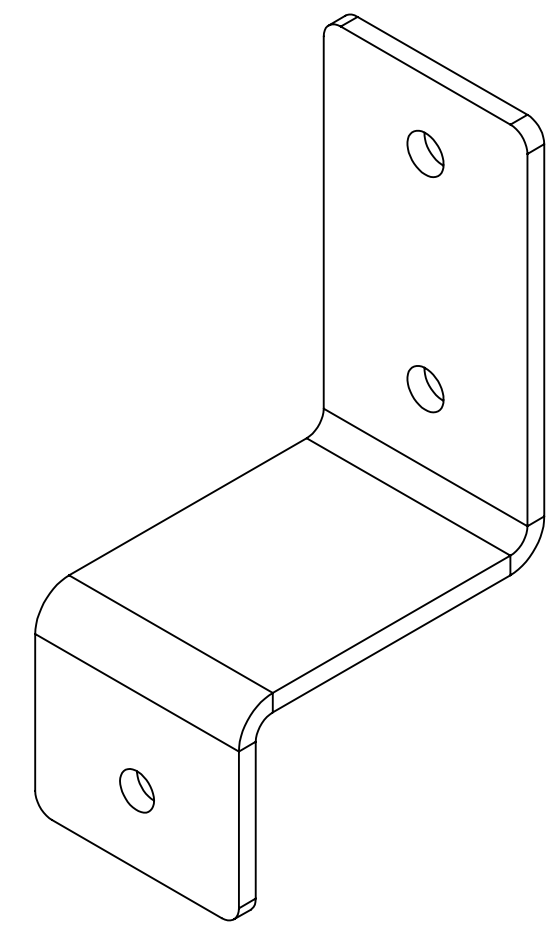
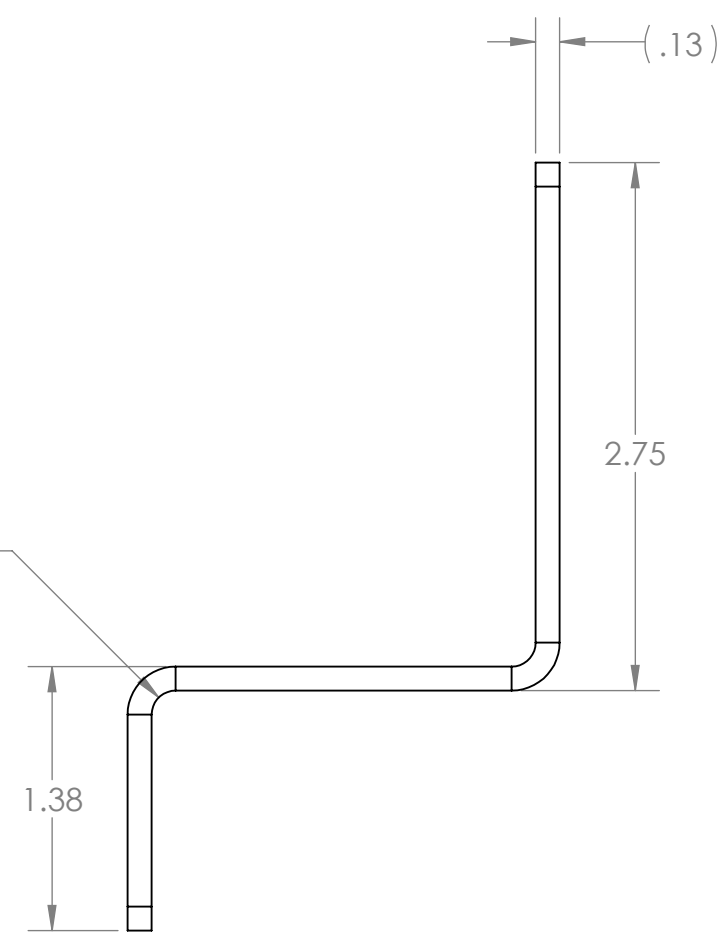
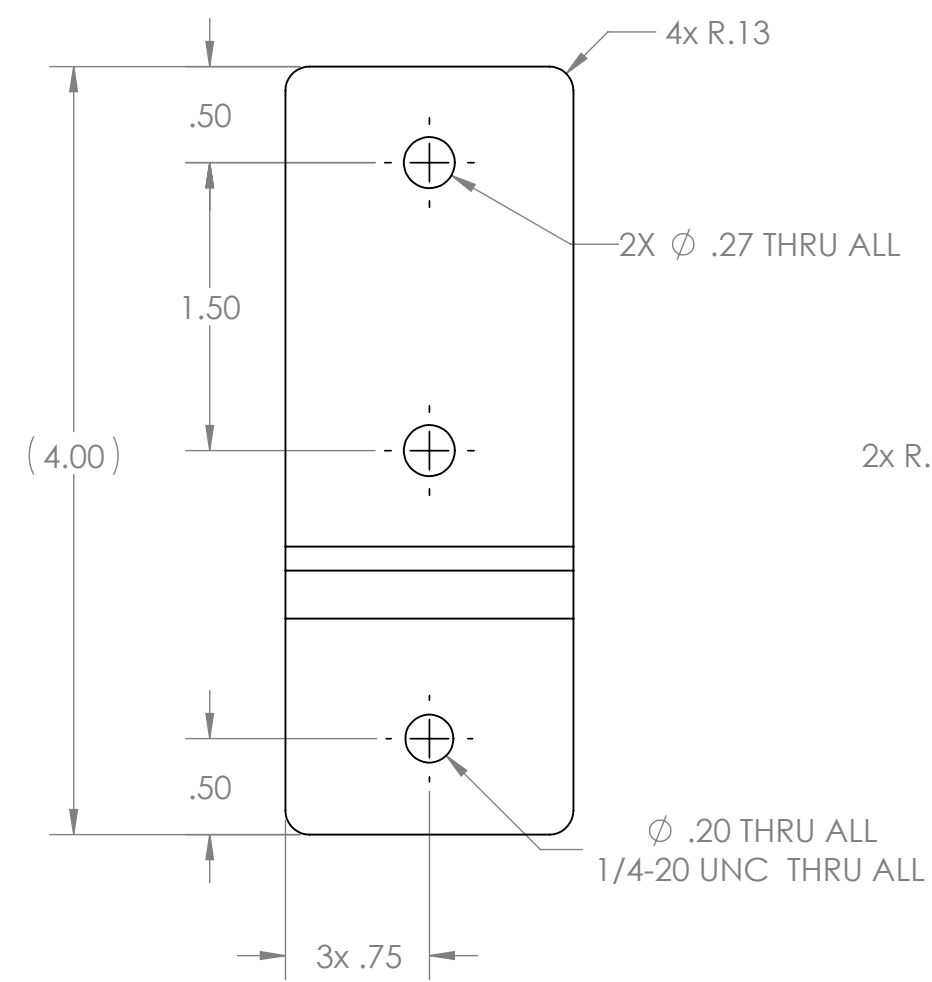
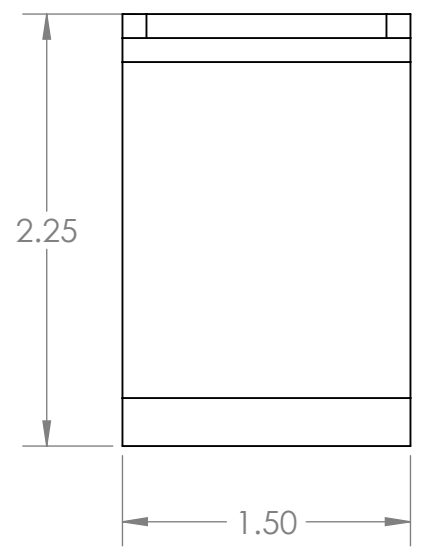
TITLE: Power Port Backboard		
SIZE	DWG. NO.	REV
B	GE-20327	
SCALE: 1:8	WEIGHT:	SHEET 1 OF 1

4

3

2

1



B

B



A

A

- Notes:
1. Remove all burrs and sharp edges
 2. Bag or label with part number
 3. Material: 11 Ga. Preplated Steel

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		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
		FRACTIONAL: ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

 		
TITLE: Backboard Bracket		
SIZE B	DWG. NO. GE-20328	REV
SCALE: 1:1	WEIGHT:	SHEET 1 OF 1

4

3

2

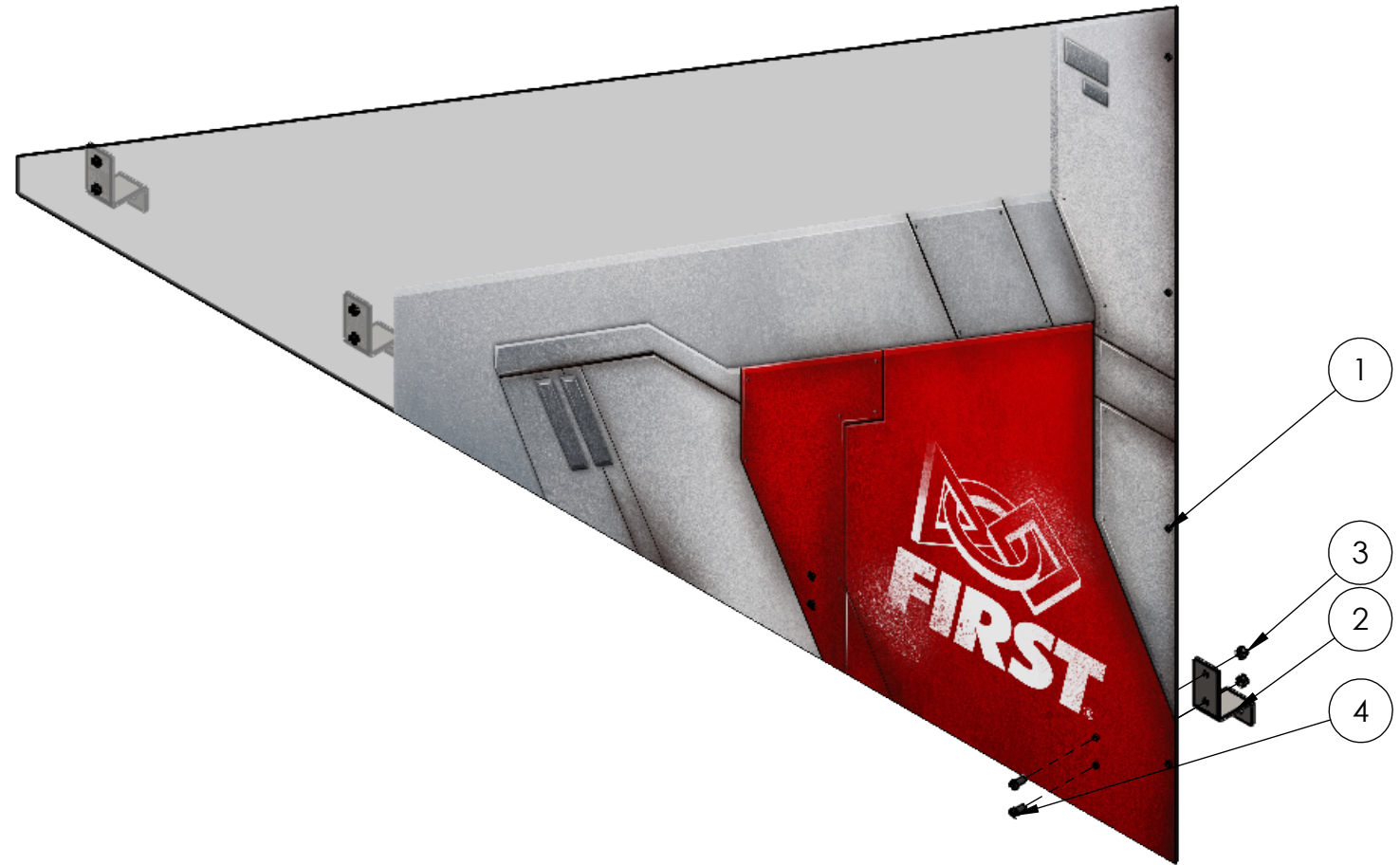
1

4

3

2



1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20331-Red	Power Port Backboard Left with Vinyl	1
2	GE-20328	Backboard Bracket	4
3	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	8
4	round_hex_.25_20_.62_5_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 5/8" long, fully threaded	8

Note:
1. Plastic with vinyl same for both RED and BLUE

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		Power Port Backboard Left
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		B GE-20329
APPLICATION		DO NOT SCALE DRAWING	Q.A.		SCALE: 1:12 WEIGHT: SHEET 1 OF 1
			COMMENTS:		

4

3

2

1

B

B

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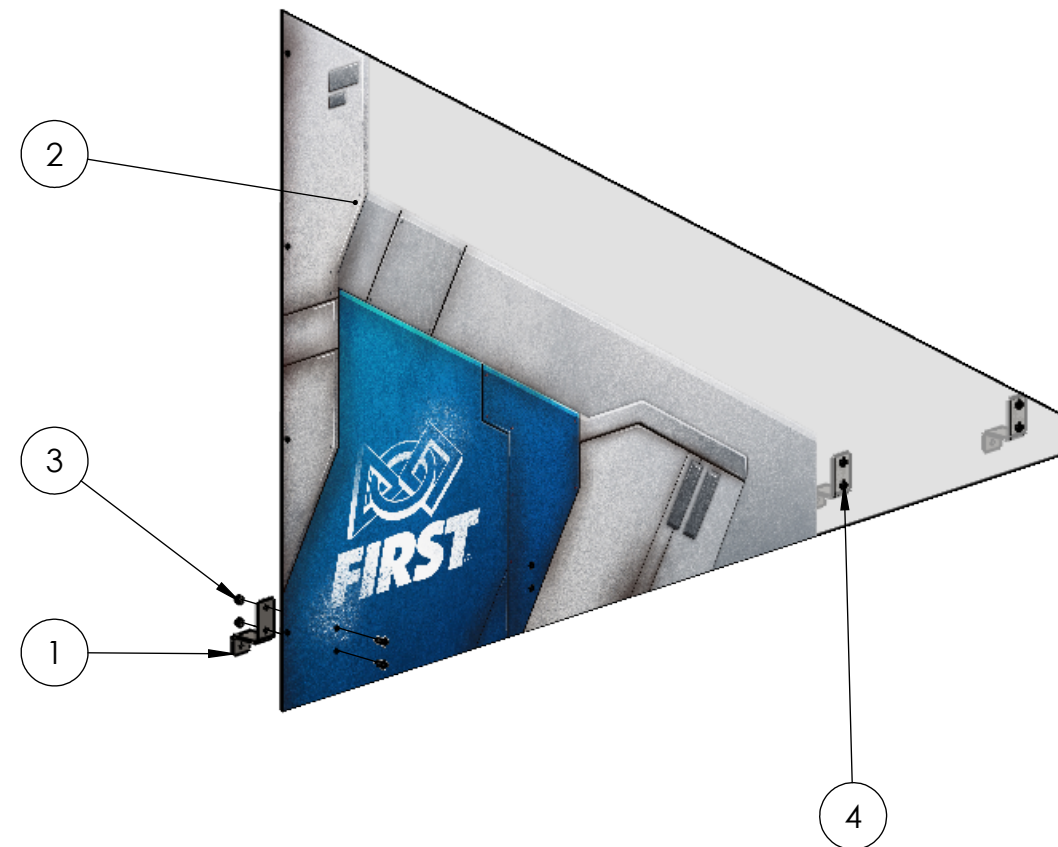
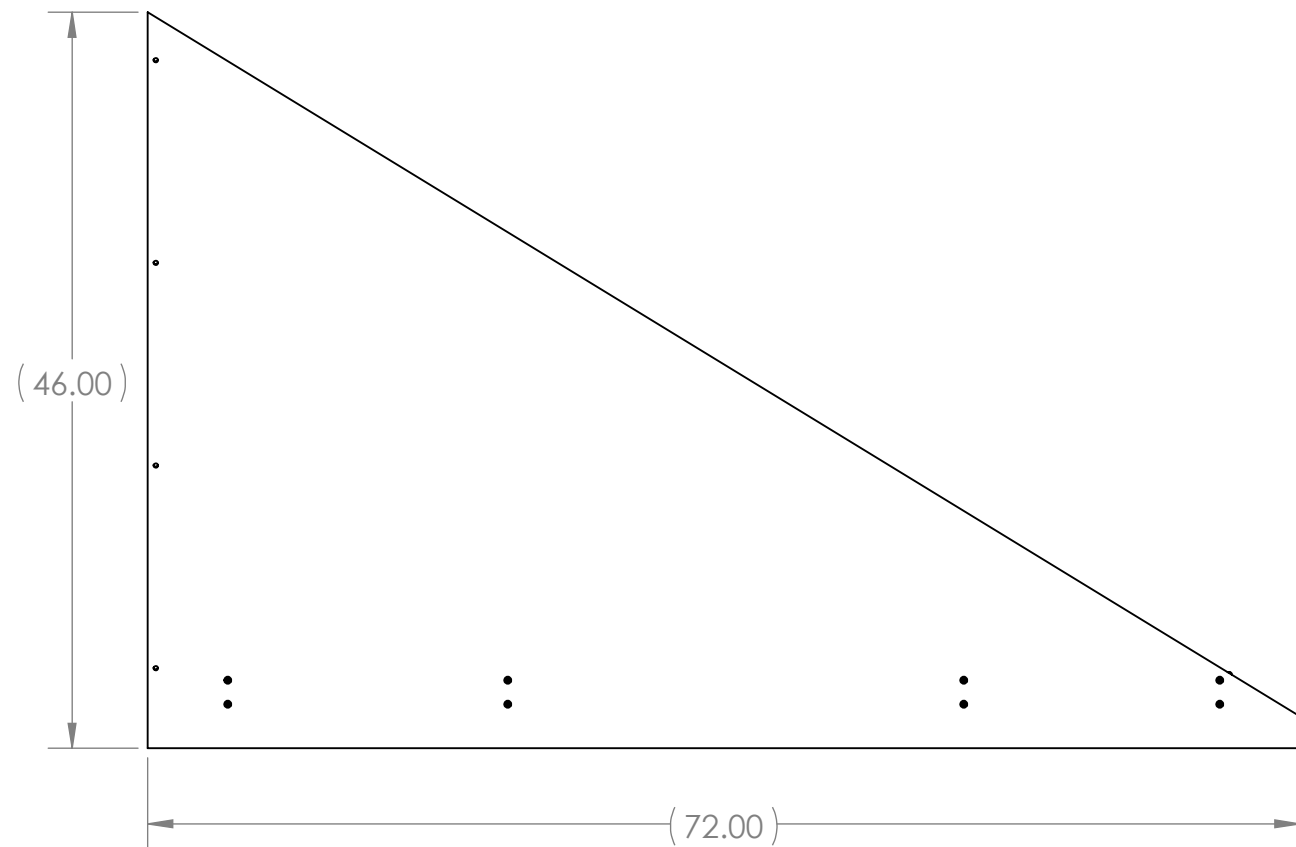
A

4

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2

1





Note: Item (2) can be red or blue. See drawing for more details.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20328	Backboard Bracket	4
2	GE-20332	Power Port Backboard Right with Vinyl	1
3	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	8
4	round_hex_.25_20_.62_5_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 5/8" long, fully threaded	8

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		TOLERANCES:	CHECKED	
		FRACTIONAL: ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		

 		
TITLE: Power Port Backboard Right Assembly		
SIZE	DWG. NO.	REV
B	GE-20330	
SCALE: 1:12 WEIGHT:		SHEET 1 OF 1

4

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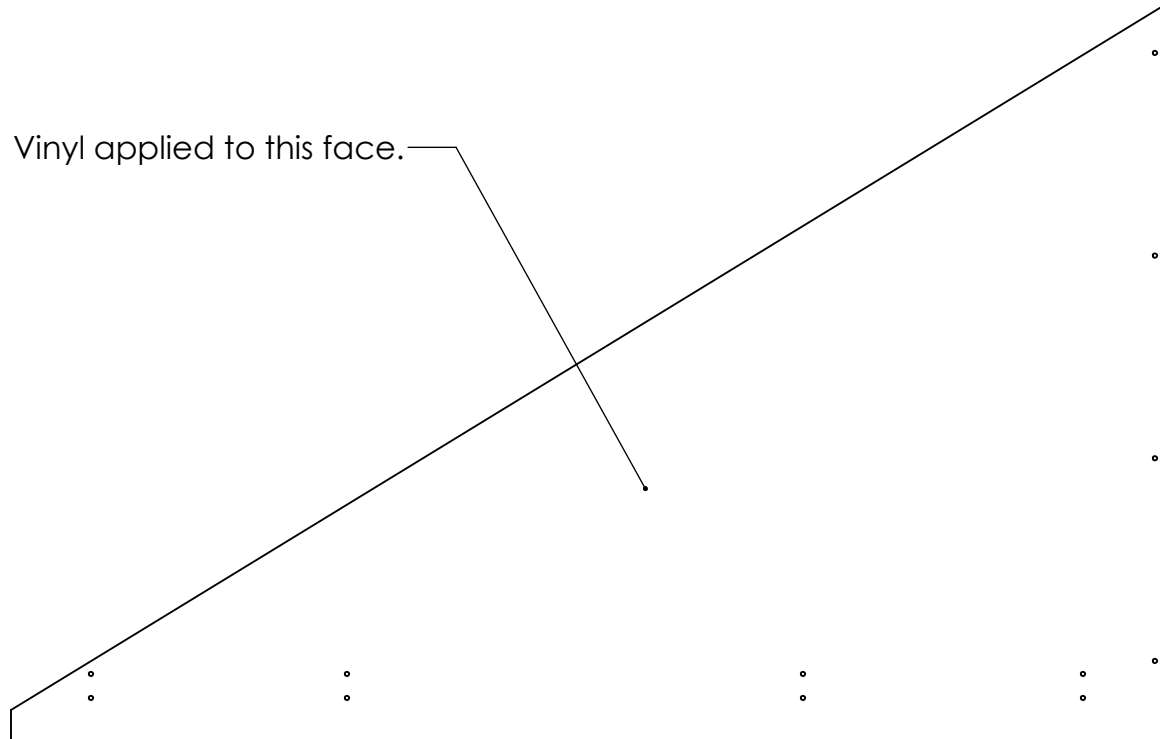
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B

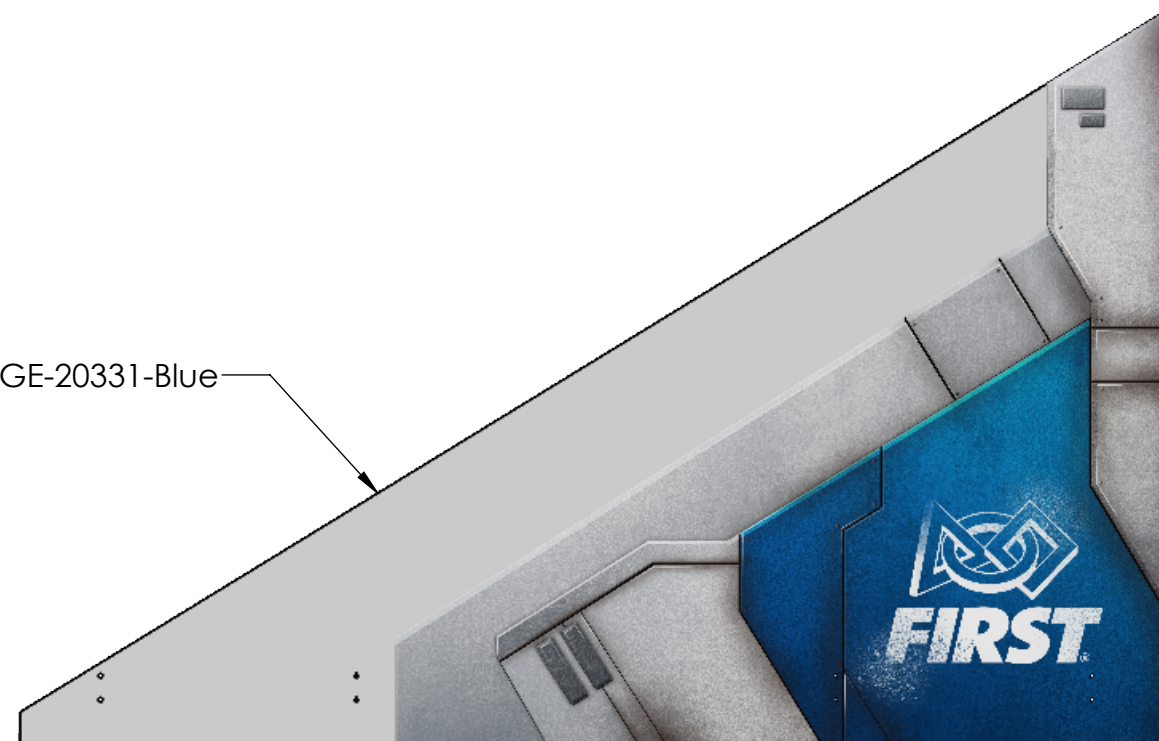
B

Vinyl applied to this face.

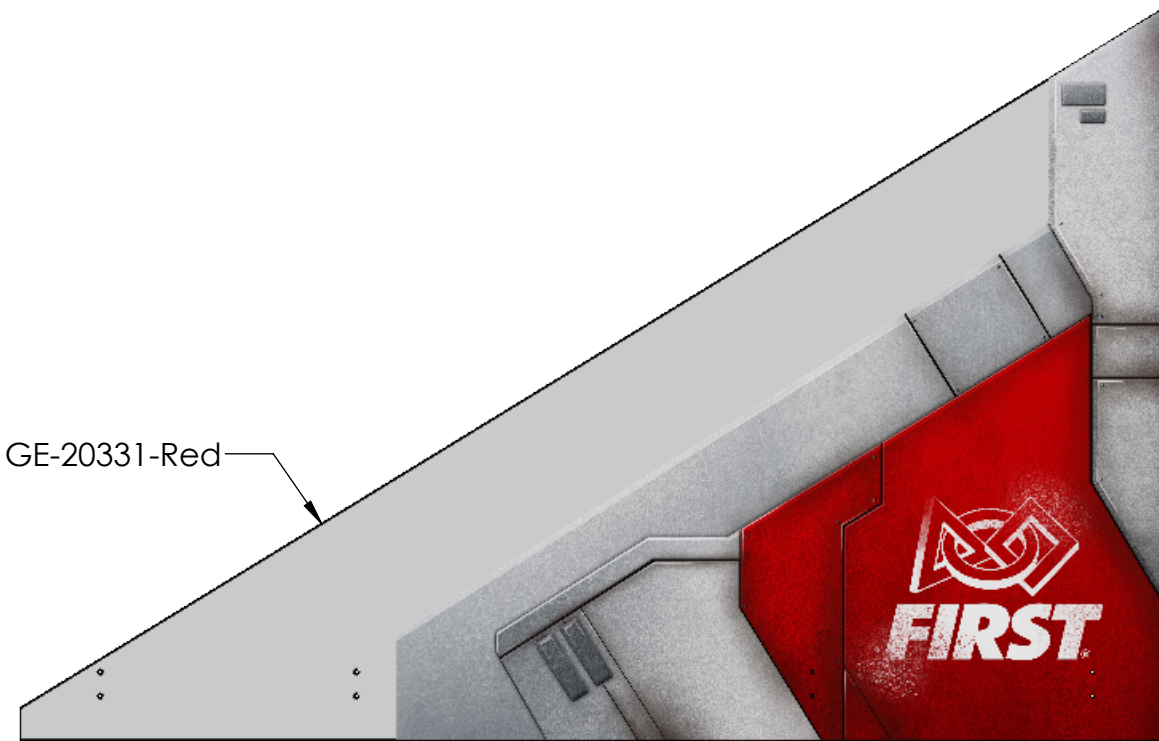


GE-20327

GE-20331-Blue



GE-20331-Red





A

A

Notes: Tag or label with part number

Color Variations		
Part Number	Vinyl Image	QTY per field
GE-20331-Blue	GE-20331-Blue-Vinyl	1
GE-20331-Red	GE-20331-Red-Vinyl	1

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN		
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: Power Port Backboard Left with Vinyl
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		SIZE DWG. NO. REV B GE-20331
NEXT ASSY	USED ON	Q.A.		SCALE: 1:12 WEIGHT: SHEET 1 OF 1
APPLICATION		DO NOT SCALE DRAWING		

4

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4

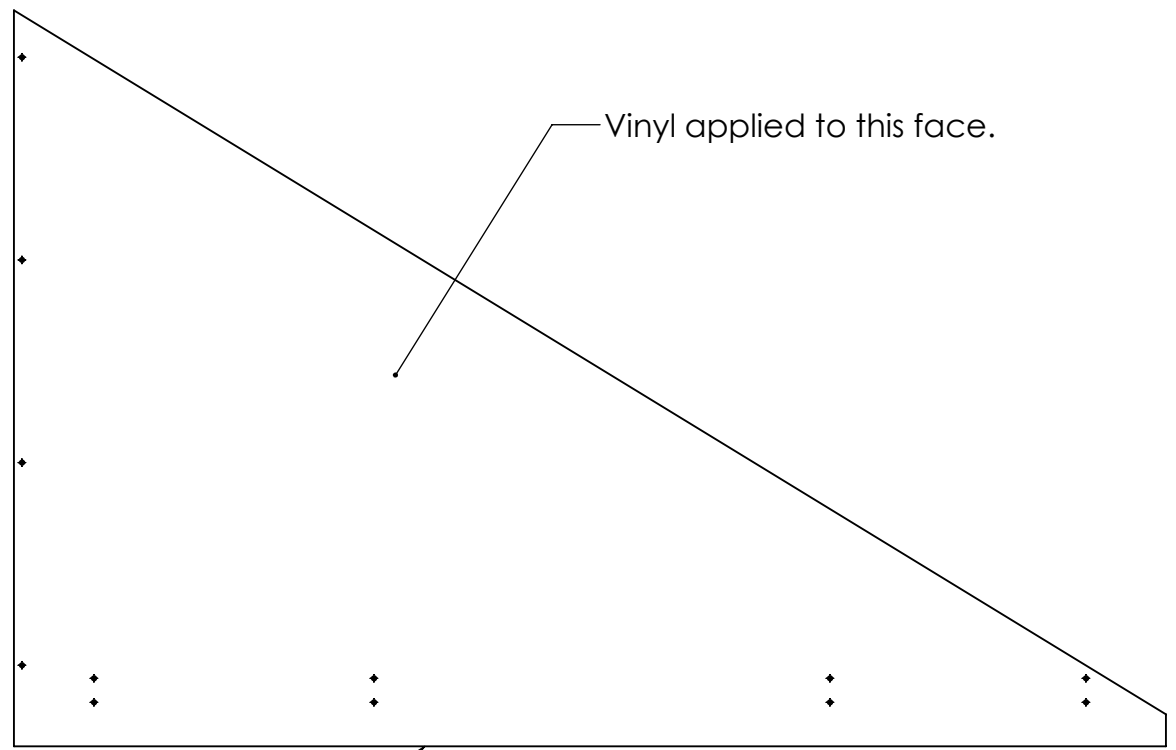
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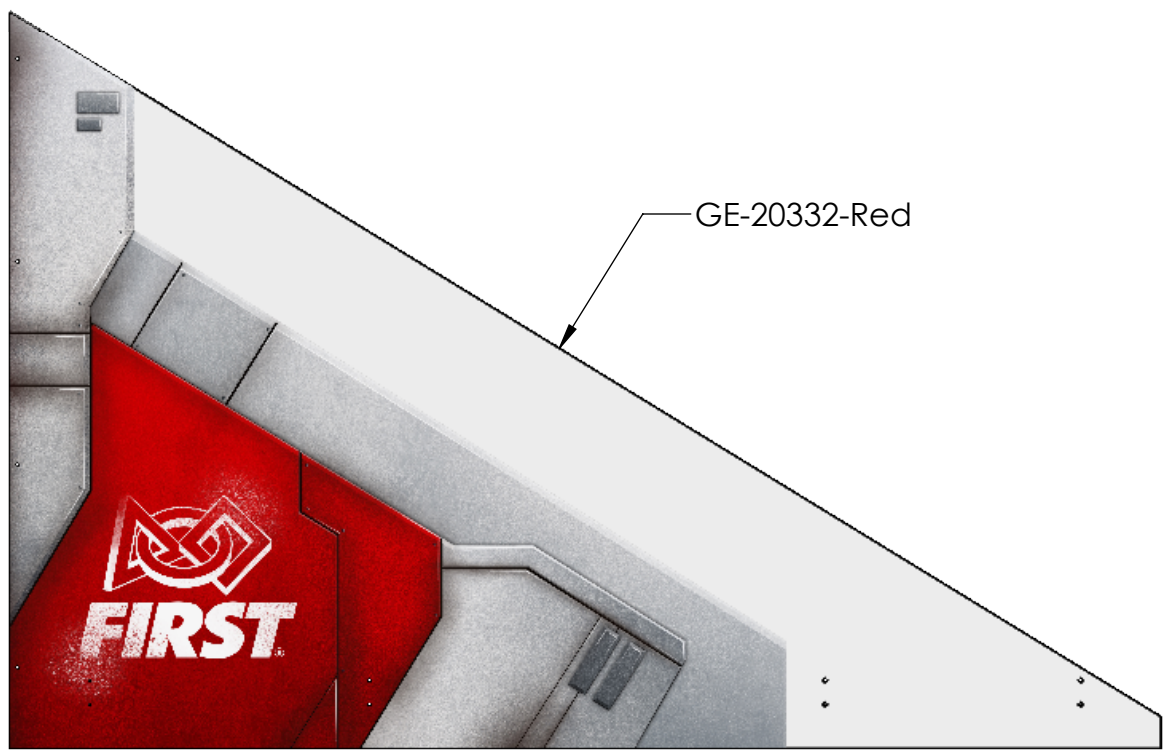
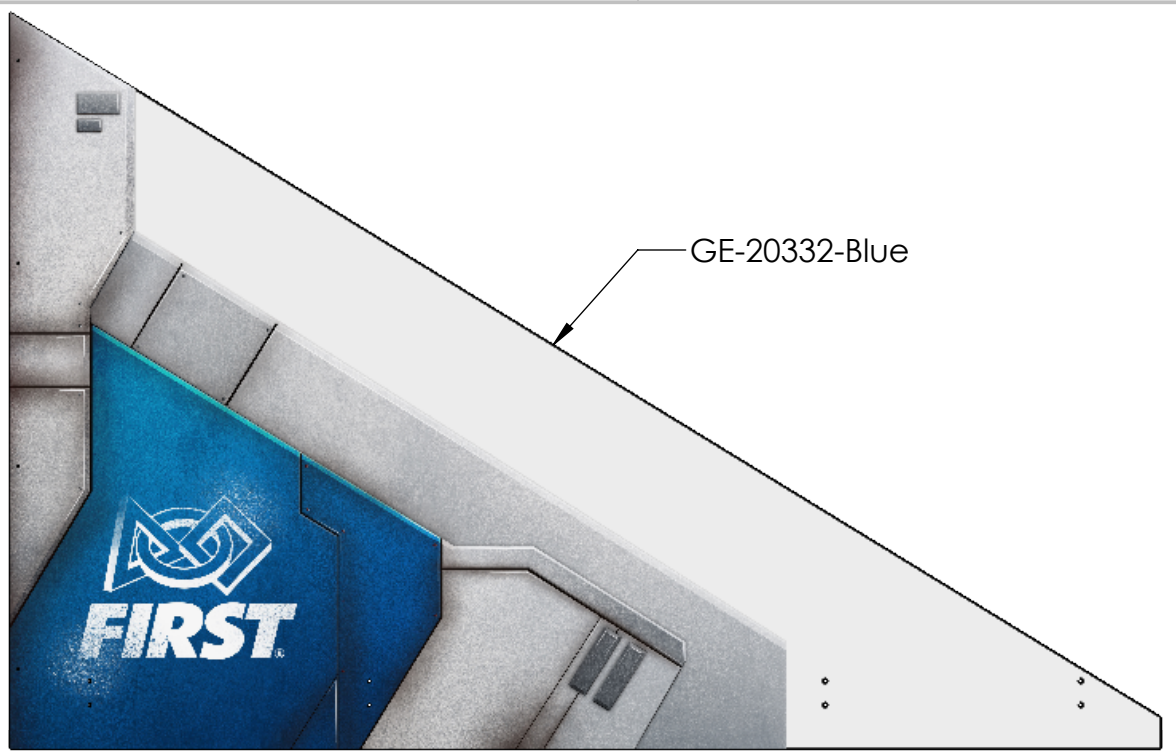
1

B

B



GE-20327



A

A

Notes: Tag or label with part number

Color Variations		
Part Number	Vinyl Image	QTY per field
GE-20332-Red	GE-20332-Red-Vinyl	1
GE-20332-Blue	GE-20332-Blue-Vinyl	1

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS**
 Modeling Solutions Partner

TITLE: **Power Port Backboard Right with Vinyl**

SIZE **B** DWG. NO. **GE-20332** REV

SCALE: 1:12 WEIGHT: SHEET 1 OF 1

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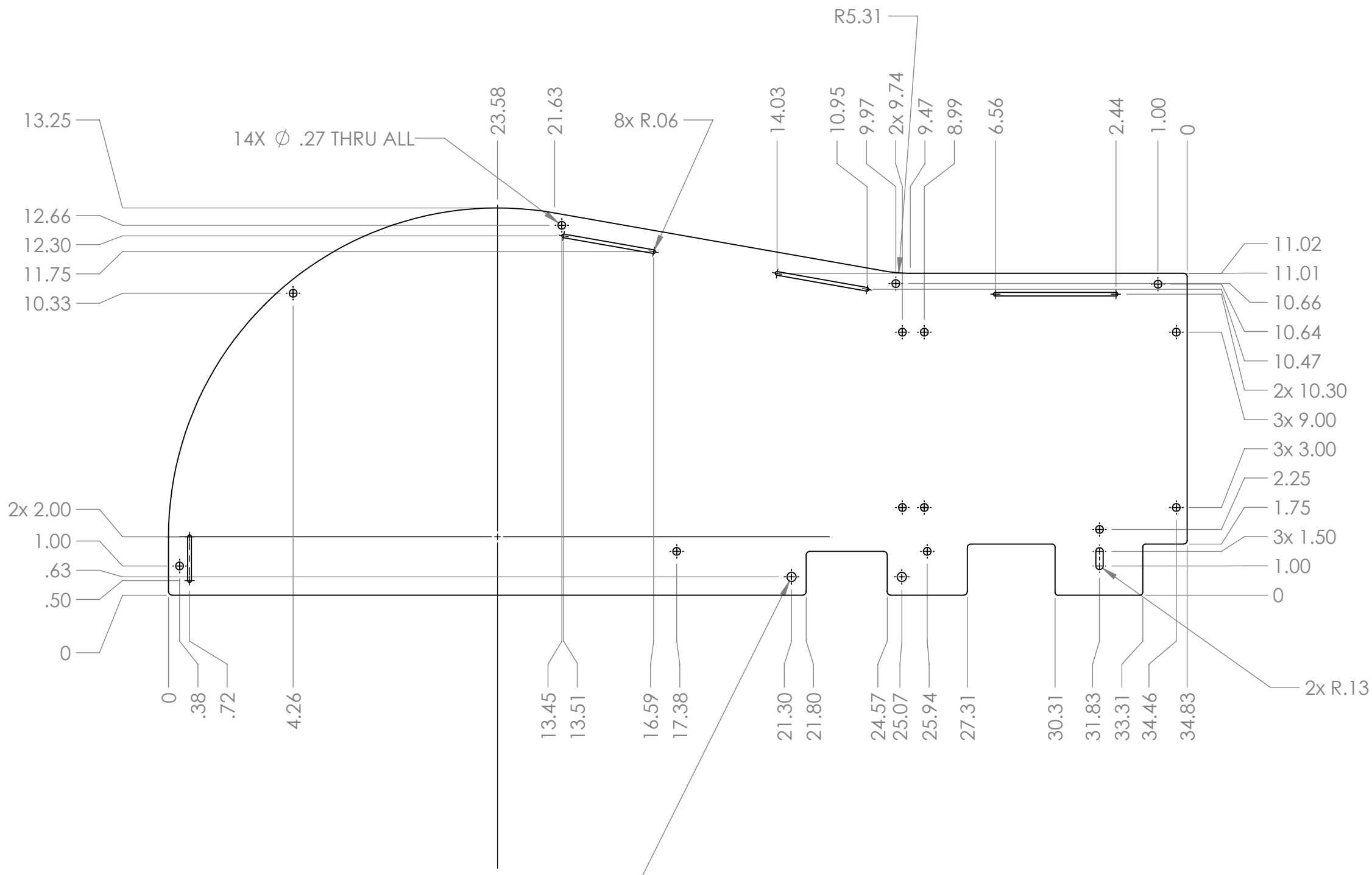
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Notes:

1. Material: 1/4" thick, clear polycarbonate.
2. Remove all burrs and sharp edges.
3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		



TITLE:
Inner Port Chute Wall

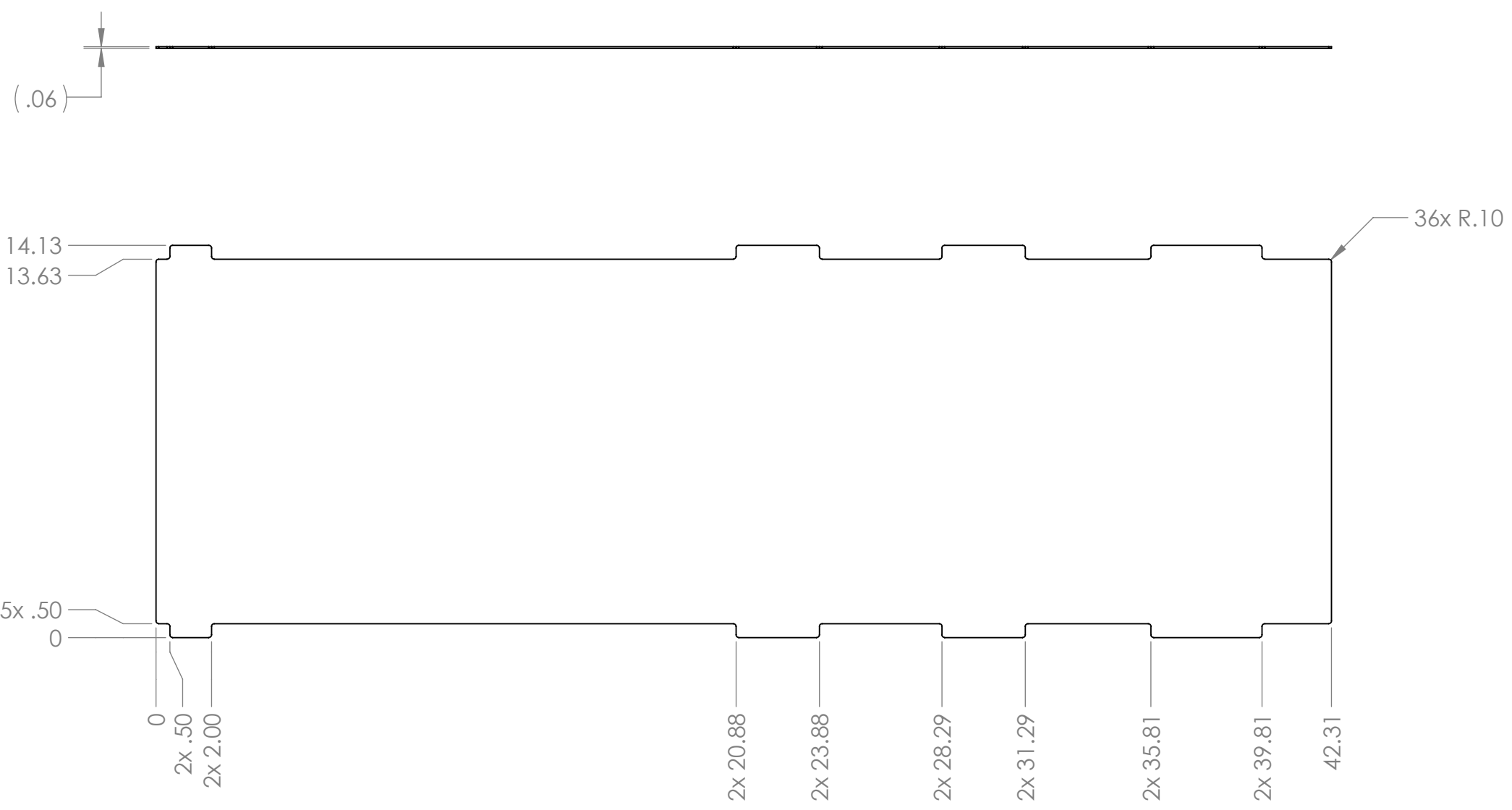
SIZE	DWG. NO.	REV
B	GE-20333	
SCALE: 1:4	WEIGHT:	SHEET 1 OF 1

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- Notes:
1. Material: 1/16" thick, clear polycarbonate
 2. Remove all burrs and sharp edges
 3. Tag or label with part number

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL: ±1/16	ENG APPR.		
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.		
		TWO PLACE DECIMAL ±.01	Q.A.		
		THREE PLACE DECIMAL ±.001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:
Inner Port Chute Slide

SIZE	DWG. NO.	REV
B	GE-20334	
SCALE: 1:5	WEIGHT:	SHEET 1 OF 1

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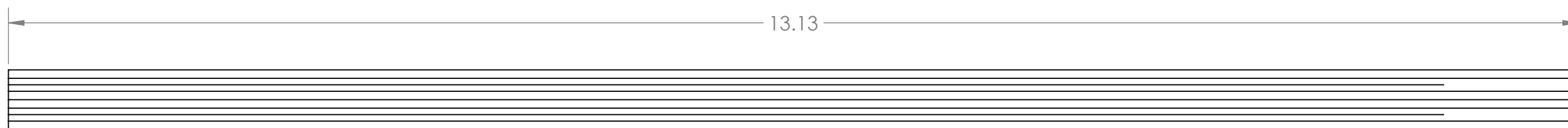
3

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2X 1/4 - 20 UNC-2B ∇ .5



Notes:

- 1. Material: Aluminum
- 2. Description: AndyMark Churro
- 3. Make from AndyMark PN: am-3101-6, or equivalent.
- 4. Bag or tag with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		Inner Port Chute Churro
		MATERIAL		ENG APPR.		
		FINISH		MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON			Q.A.		B GE-20335
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		SCALE: 1:1 WEIGHT: SHEET 1 OF 1

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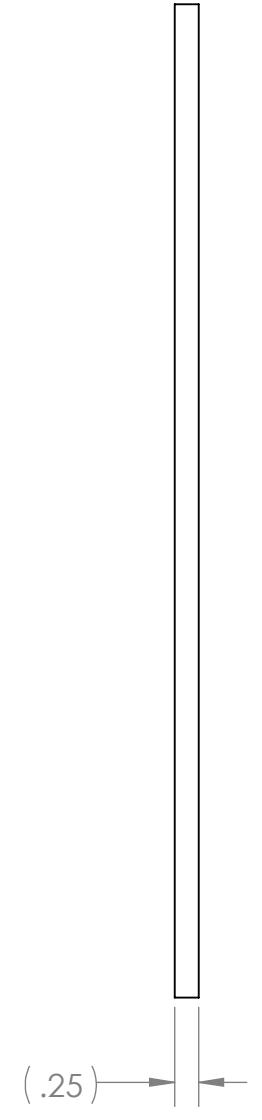
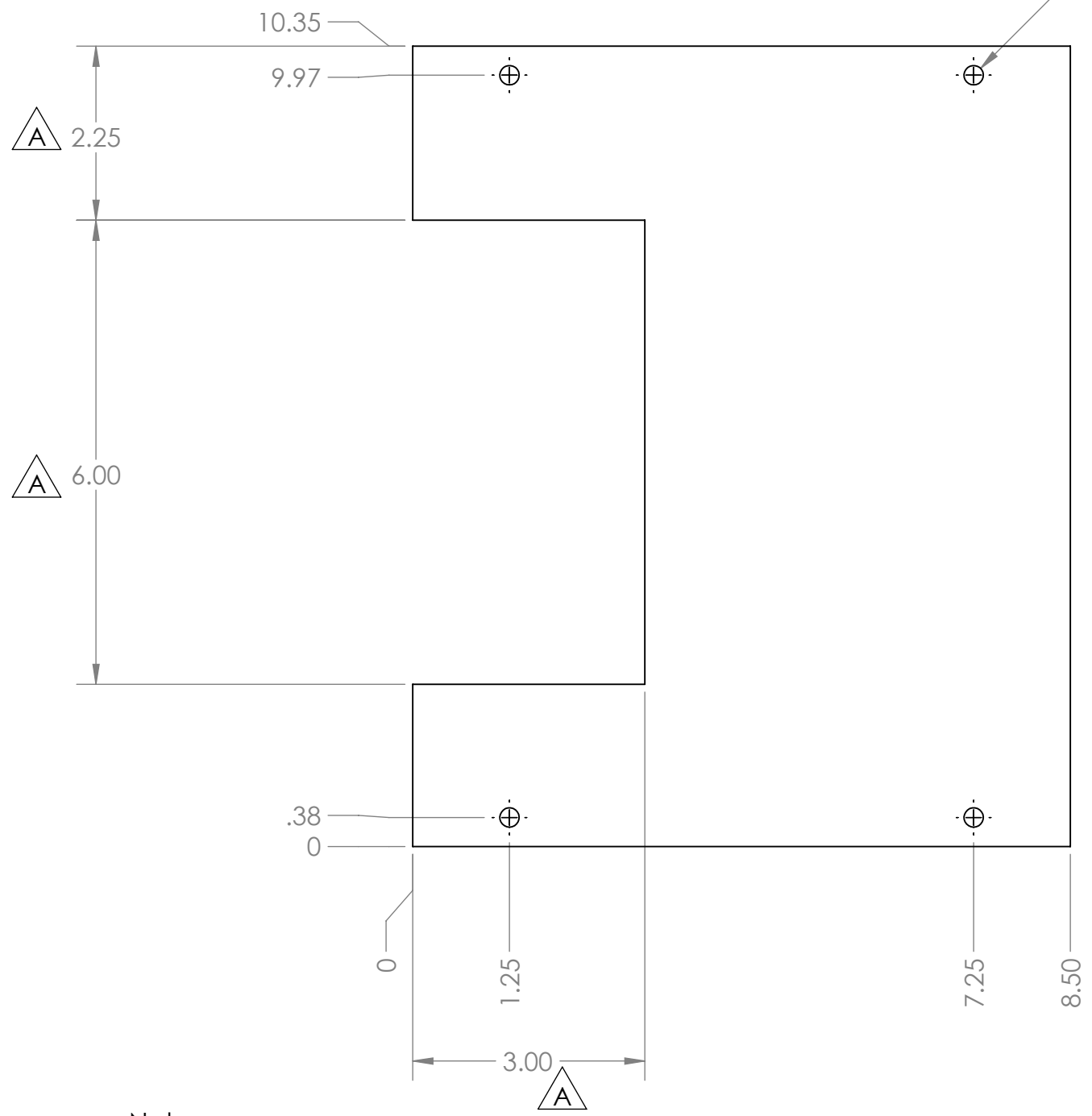
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, B4	A	Added slot to part.	2/27/2020	CPO

4X Ø .25 THRU ALL



- Notes:
1. Material: 1/4" thk. Polycarbonate, Clear.
 2. Remove burrs and sharp edges.
 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		



TITLE:
Inner Port Chute Ramp

SIZE DWG. NO. REV
B GE-20336 A

SCALE: 1:2 WEIGHT: SHEET 1 OF 1

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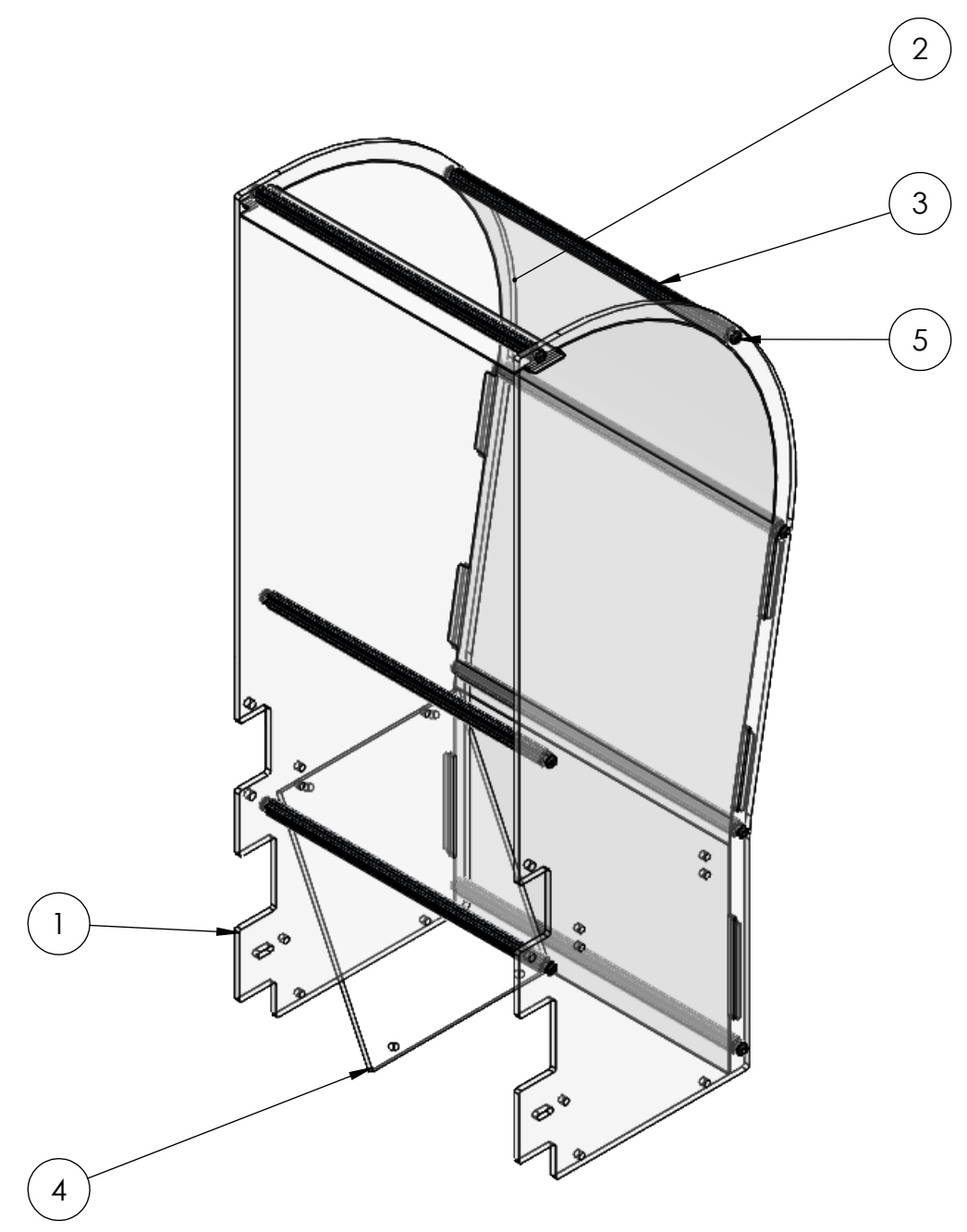
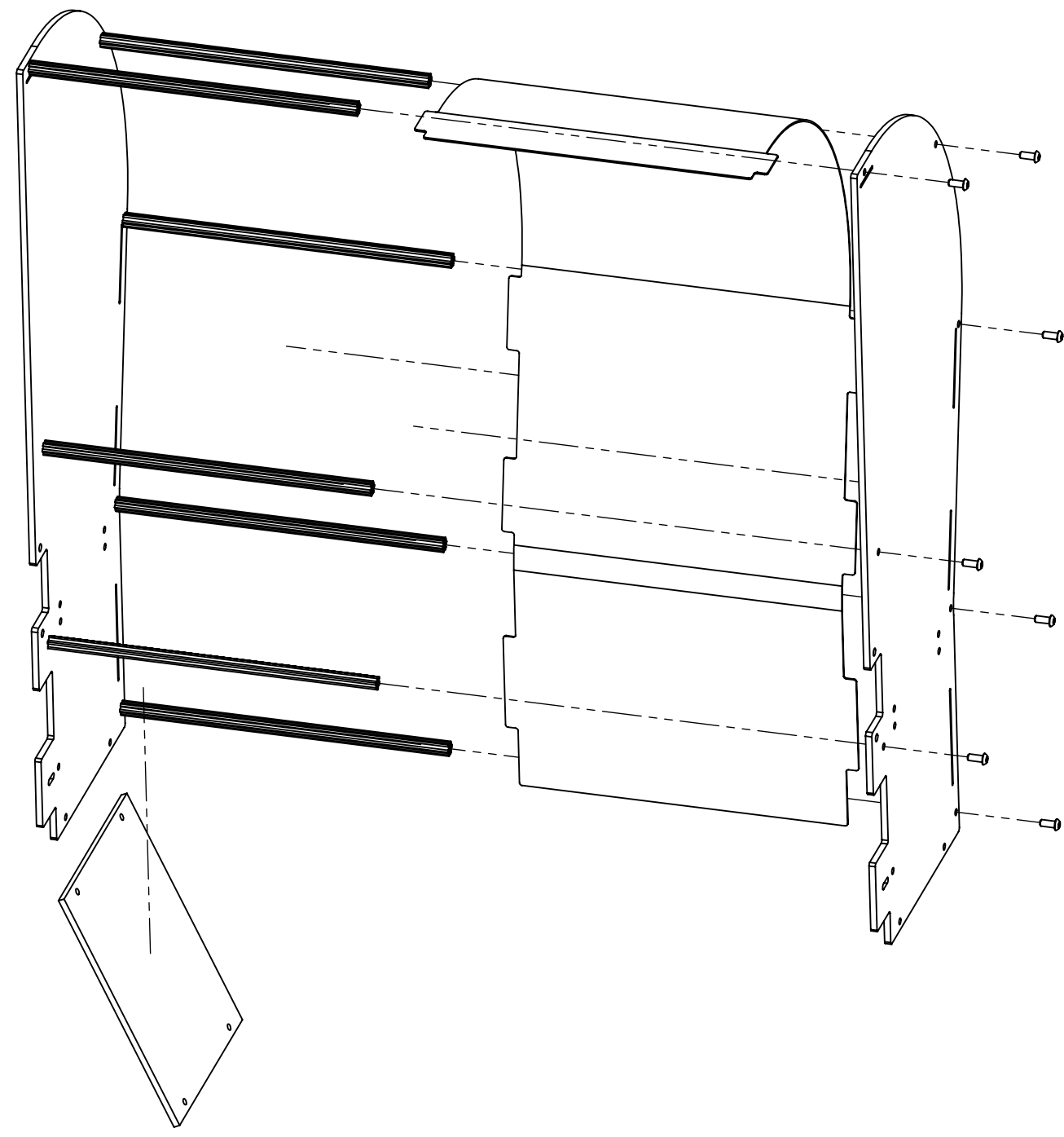
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ITEM NO.	PART NUMBER	DESCRIPTION	
1	GE-20333	Inner Port Chute Wall	2
2	GE-20334	Inner Port Chute Slide	1
3	GE-20335	Inner Port Chute Churro	7
4	GE-20336	Inner Port Chute Ramp	1
5	round_hex_.25_20_.62_5_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 5/8" long, fully threaded	14

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Inner Port Chute Assembly

SIZE DWG. NO. REV
B GE-20337

SCALE: 1:6 WEIGHT: SHEET 1 OF 2

4

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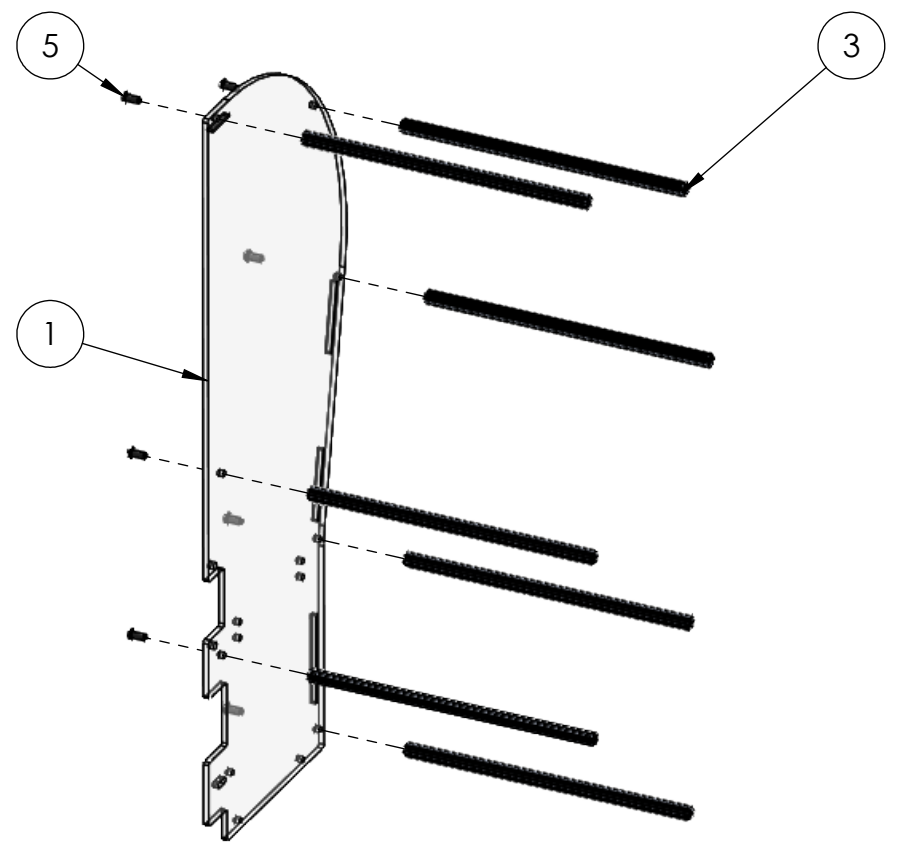
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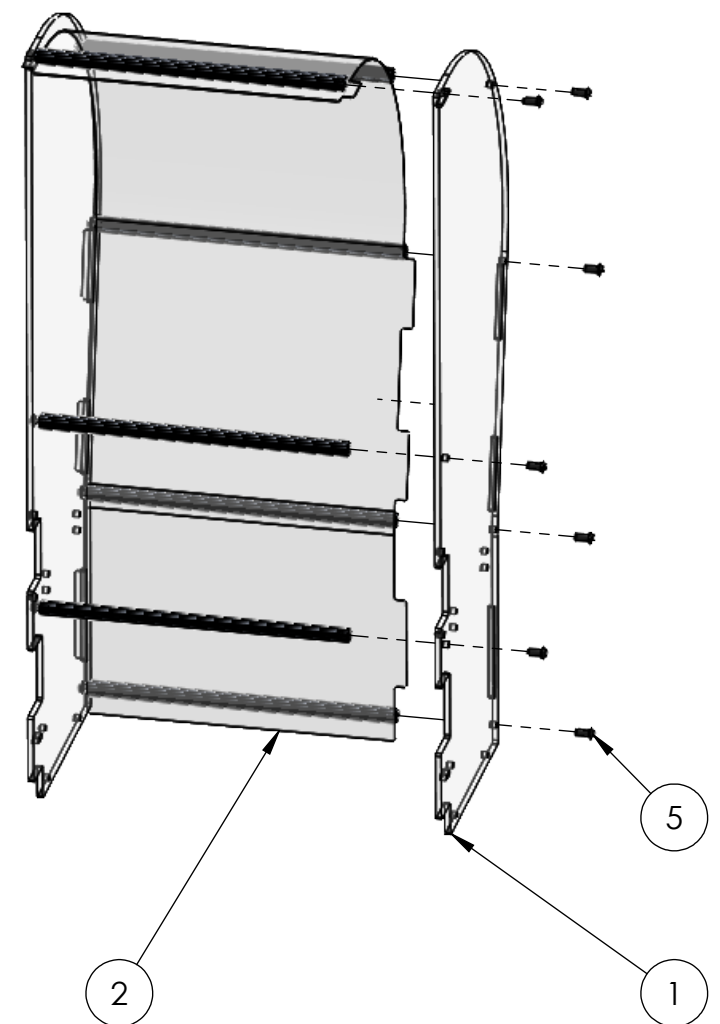
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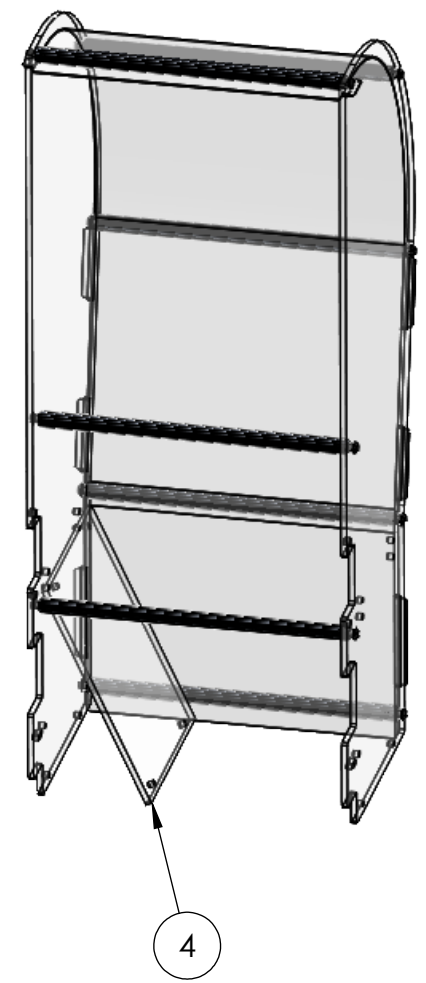
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Notes:
 1. Attach (3) (qty. 7) to (1) using (5) (qty. 7)



Notes:
 1. Attach (2) to the assembly by bending and aligning the plastic tabs
 2. Attach (1) to the assembly, aligning with the tabs of (2). Bolt using (5) (qty. 7)



Notes:
 1. Attach (4) to the assembly using 50 lb. cable ties.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

TITLE:
Inner Port Chute Assembly

SIZE	DWG. NO.	REV
B	GE-20337	
SCALE: 1:8	WEIGHT:	SHEET 2 OF 2

4

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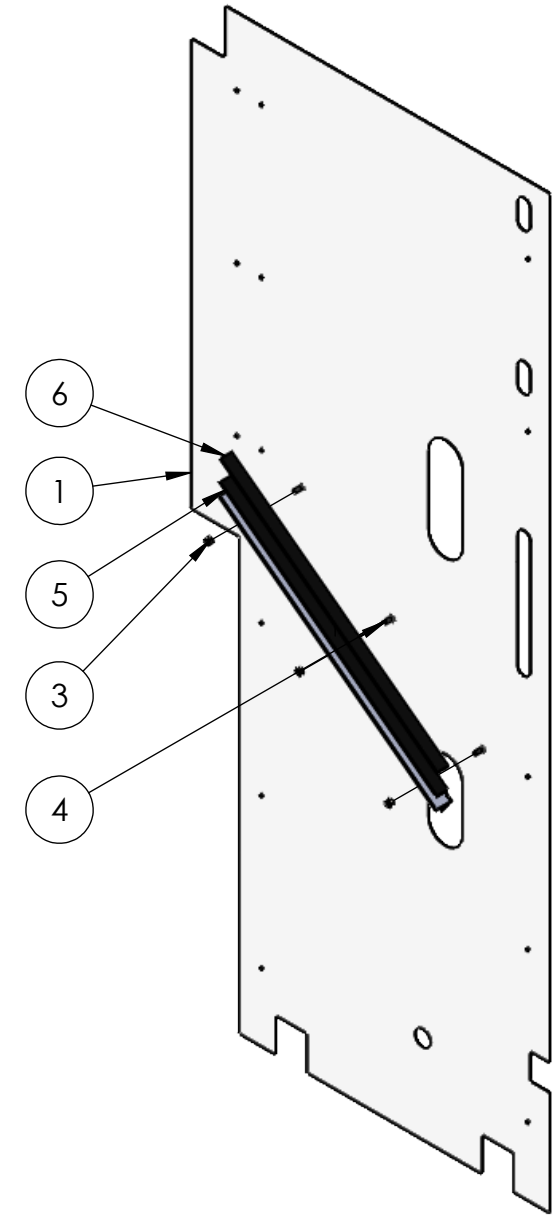
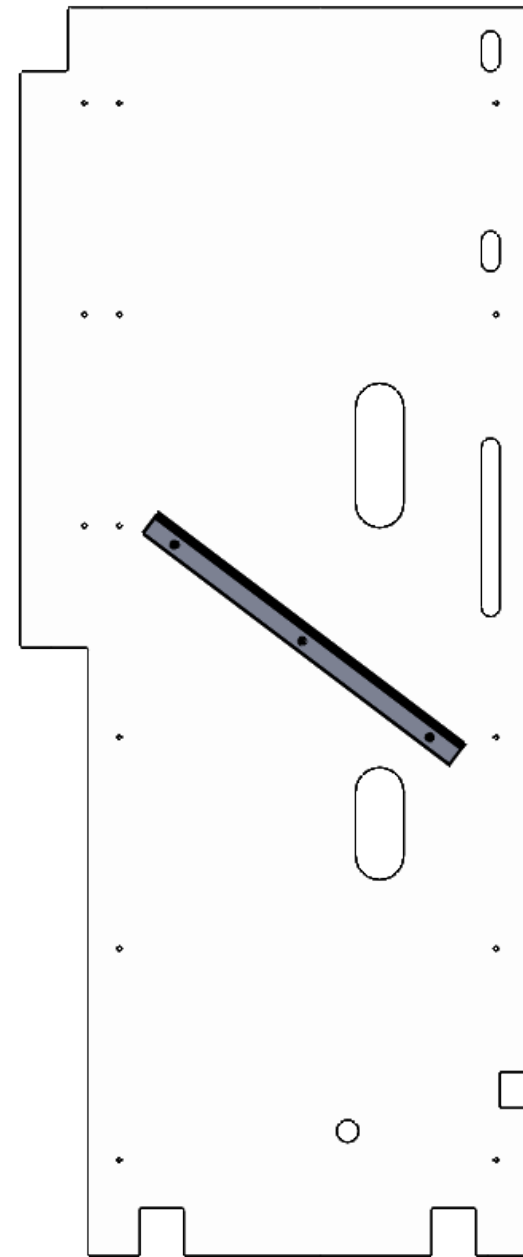
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20315	Power Port Base Side Polycarbonate	1
2	GE-20325	Angle, Side Polycarbonate	1
3	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	3
4	round_hex_.25_20_.62_5_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 5/8" long, fully threaded	3
5	Hook_1_24	1" x 24" Hook, Adhesive backed	1
6	Loop_1_24	1" x 24" Loop, Adhesive backed	1

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		TITLE:
		MATERIAL	ENG APPR.		Side Polycarbonate Assembly, Right
		FINISH	MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON		Q.A.		B GE-20338
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		SCALE: 1:24 WEIGHT: SHEET 1 OF 2

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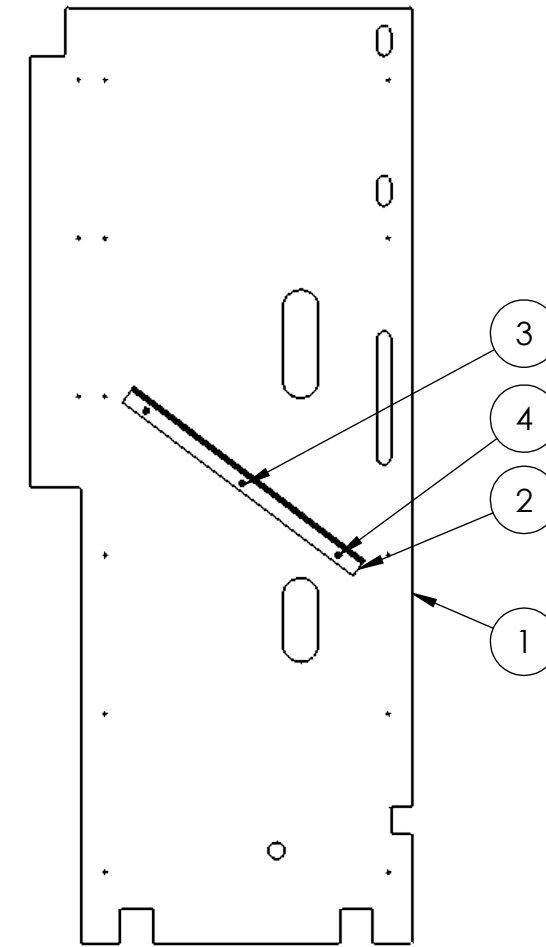
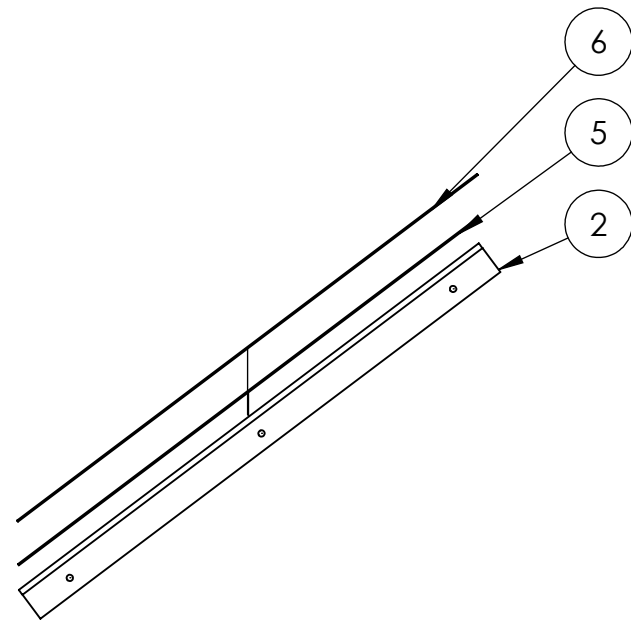
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Notes:

1. Clean and prep (2)
2. Attach (5) to (2) to the back without drilled holes.
3. Attach (6) to (5) leaving protective backing on.

Notes:

1. Remove protective plastic from (1).
2. Attach (2) to one in the orientation shown above.
3. Fasten with (3) and (4) in three locations.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE DWG. NO. REV B GE-20338
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		
APPLICATION		DO NOT SCALE DRAWING	Q.A.		
			COMMENTS:		

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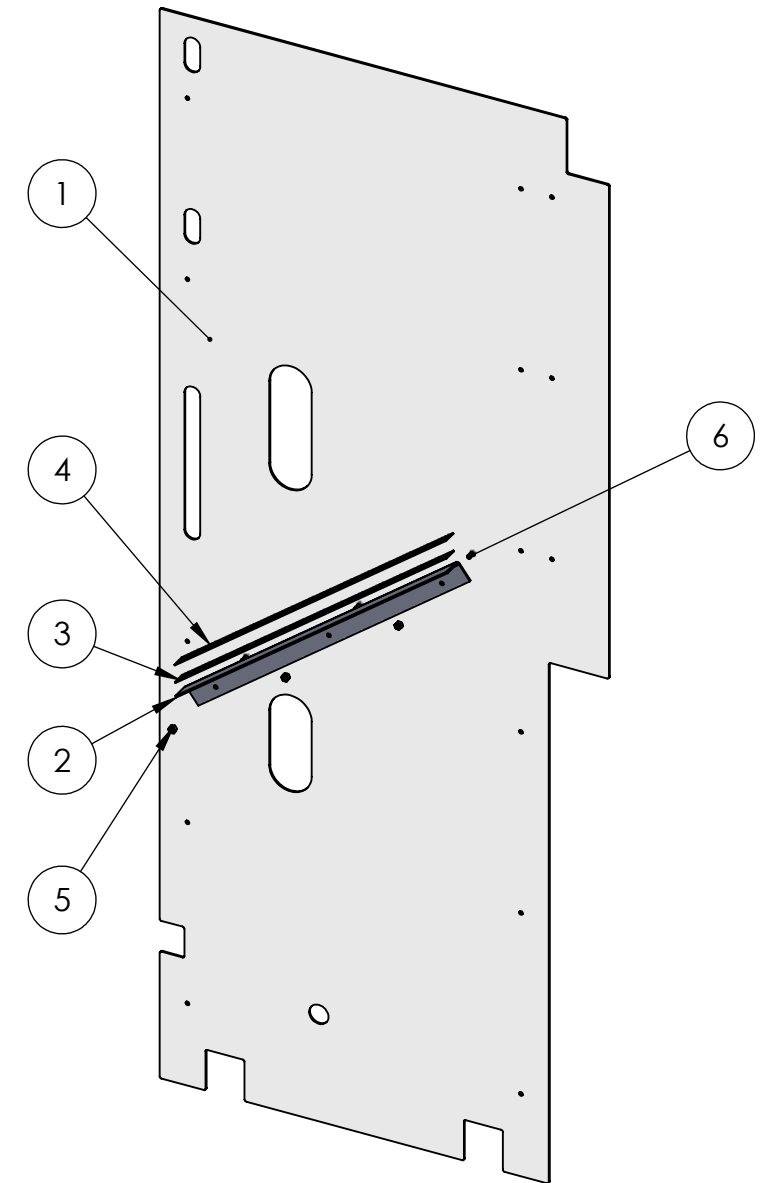
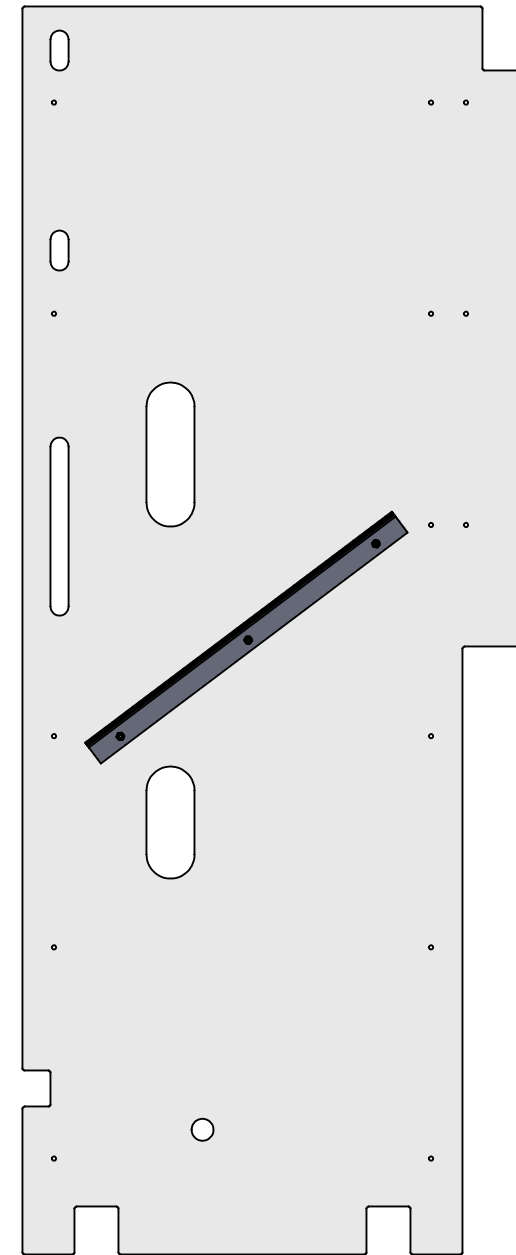
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20315	Power Port Base Side Polycarbonate	1
2	GE-20325	Angle, Side Polycarbonate	1
3	Hook_1_24	1" x 24" Hook, Adhesive backed	1
4	Loop_1_24	1" x 24" Loop, Adhesive backed	1
5	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	3
6	round_hex_.25_20_.62_5_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 5/8" long, fully threaded	3

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		



TITLE:
Side Polycarbonate Assembly, Left

SIZE DWG. NO. REV
B GE-20339

SCALE: 1:12 WEIGHT: SHEET 1 OF 2

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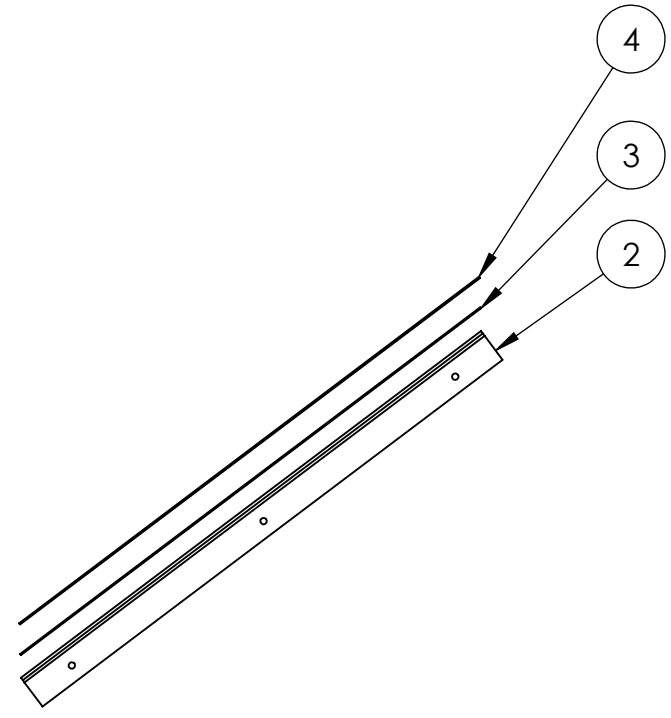
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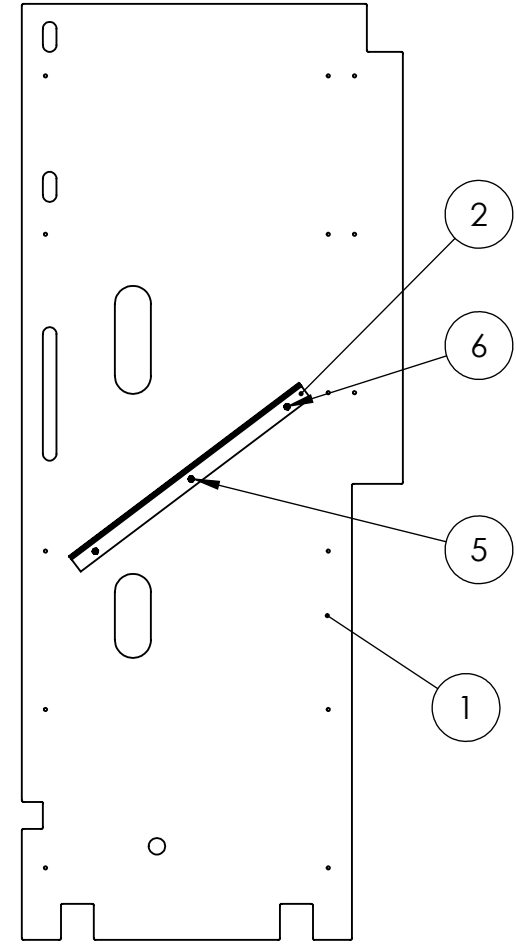
2

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Notes:



1. Clean and prep (2).
2. Attach (3) to (2) to the face without holes.
3. Attach (4) to (3), but leave the protective backing on.



Notes:

1. Remove protective plastic from (1).
2. Attach (2) to the plastic in the orientation shown.
3. Fasten with (6) and (5) in three locations.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
				 	
TITLE: Side Polycarbonate Assembly, Left					
SIZE	DWG. NO.	REV			
B	GE-20339				
SCALE: 1:24 WEIGHT:				SHEET 2 OF 2	

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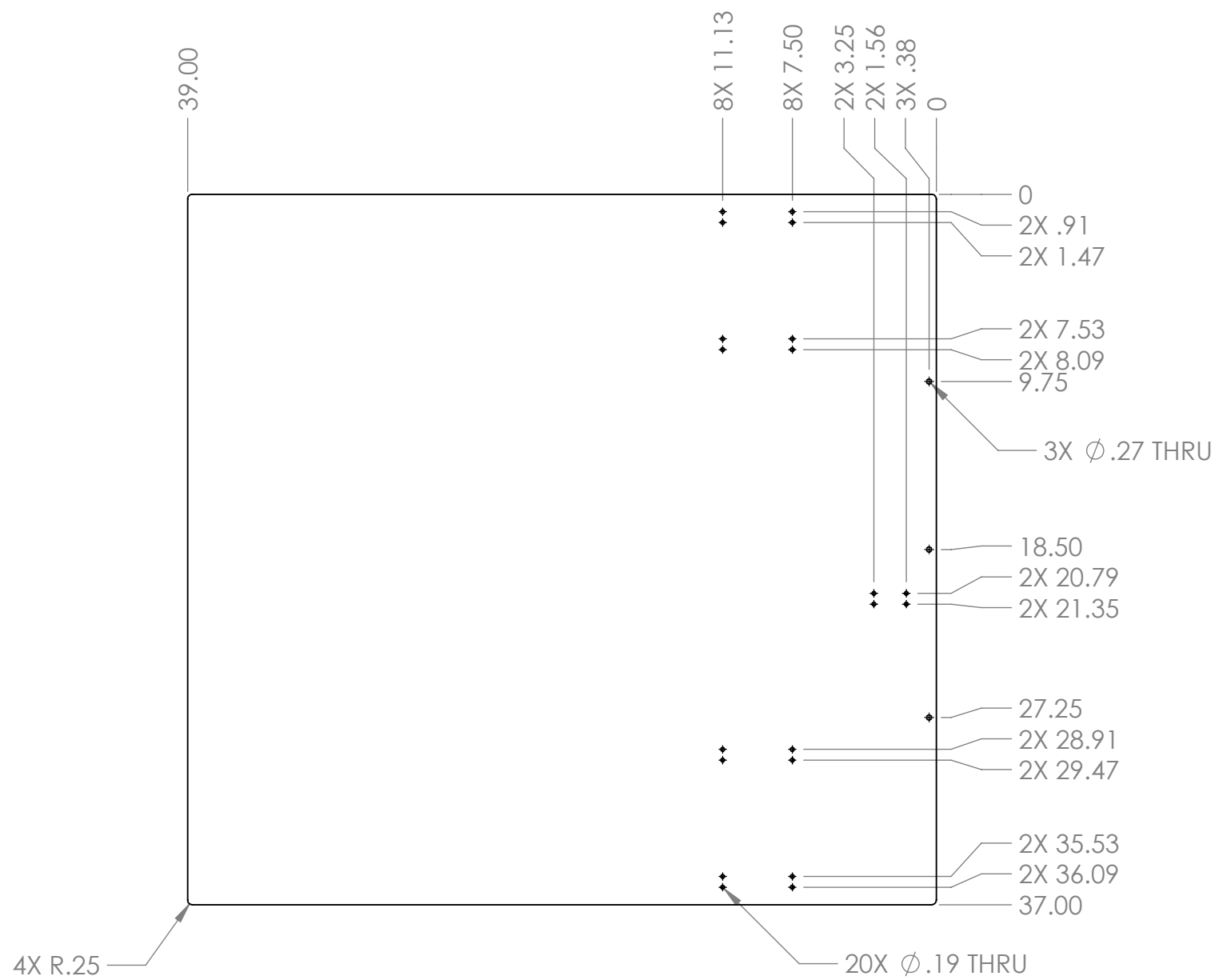
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- Notes:
1. Material: 1/4" clear polycarbonate.
 2. Remove all burrs and sharp edges.
 3. Label or tag with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	

 		
TITLE:		
Floor, Outer Port Serializer		
SIZE	DWG. NO.	REV
B	GE-20341	
SCALE: 1:8	WEIGHT:	SHEET 1 OF 1

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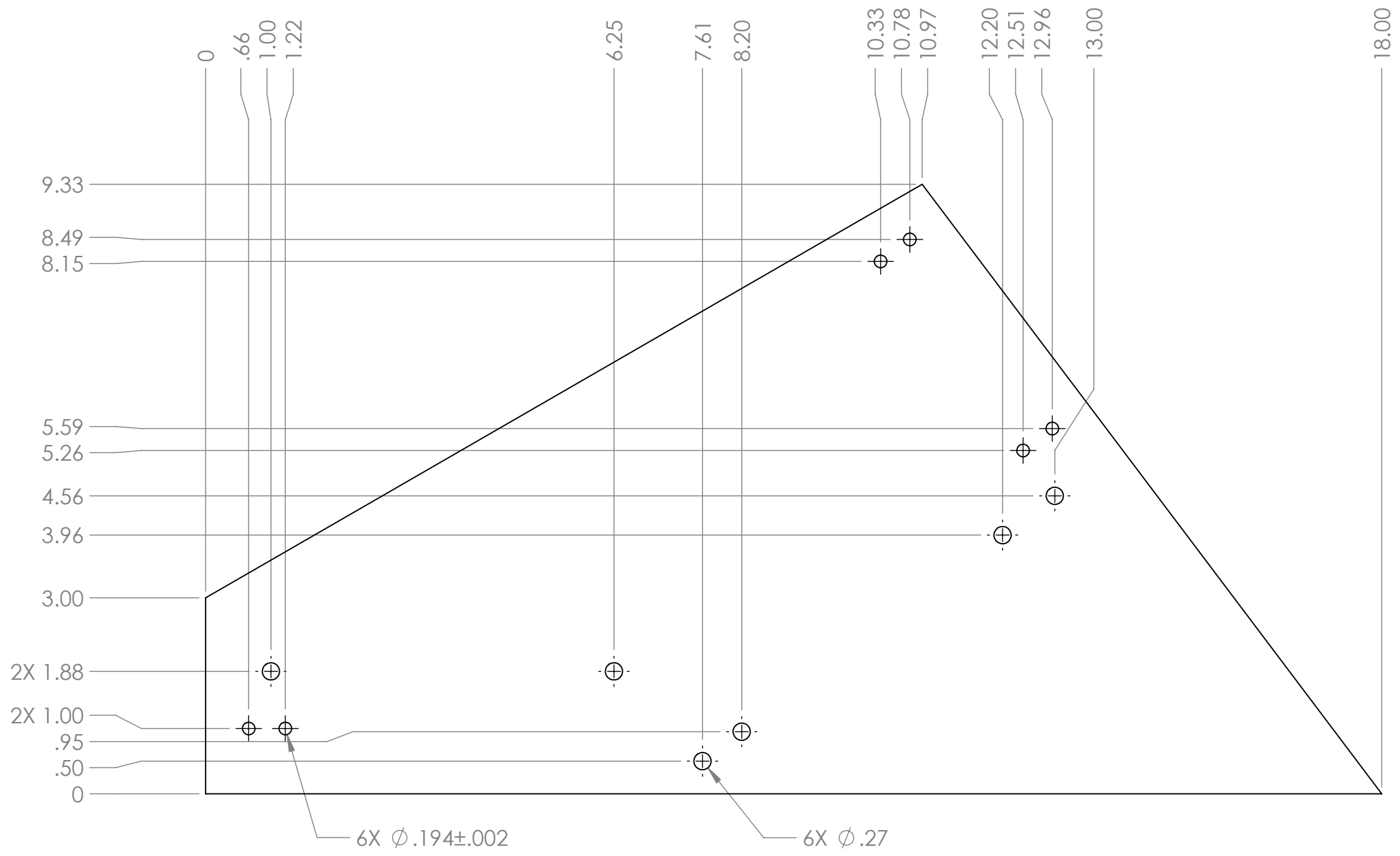
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- Notes:
1. Material: 1/4" Clear Polycarbonate.
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:
Side Plate, Outer Port Serializer

SIZE	DWG. NO.	REV
B	GE-20342	

SCALE: 1:2 WEIGHT: SHEET 1 OF 1

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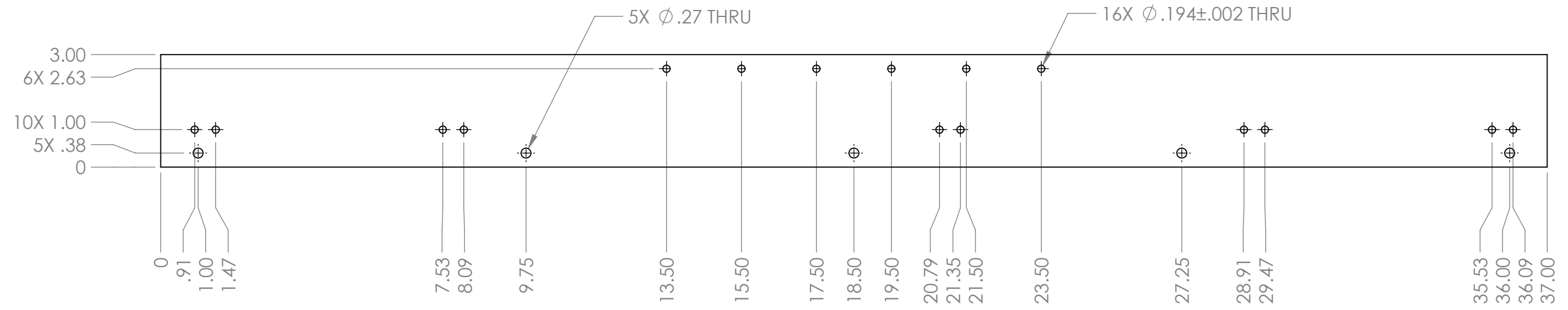
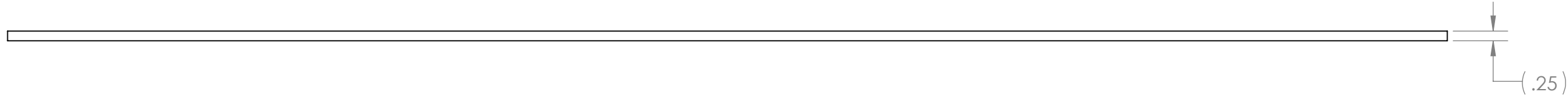
3

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- NOTES:
1. Material: 1/4" Clear Polycarbonate.
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ±1/16	ENG APPR.		
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.		
		TWO PLACE DECIMAL ±.01	Q.A.		
		THREE PLACE DECIMAL ±.001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Top Plate, Outer Port Serializer

SIZE **B** DWG. NO. **GE-20343** REV

SCALE: 1:3 WEIGHT: SHEET 1 OF 1

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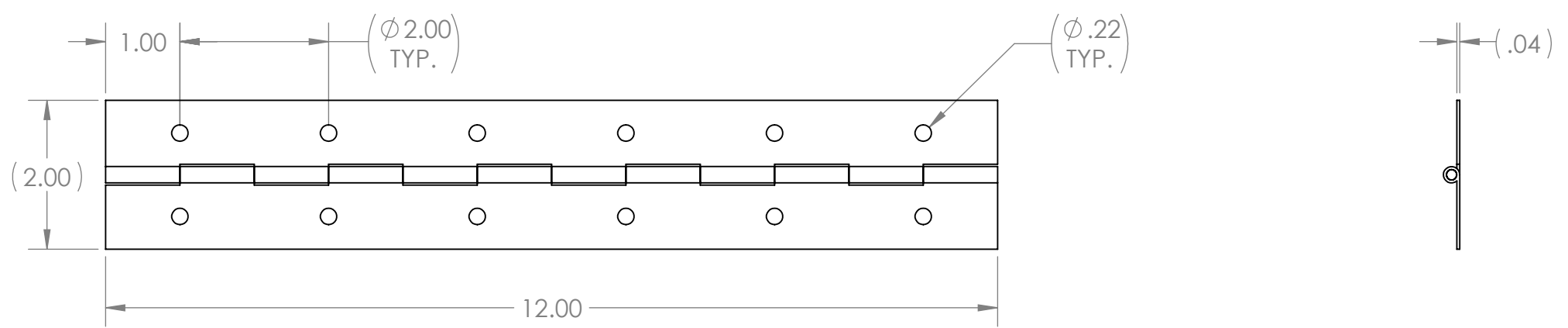
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Notes:

1. Make from commercial part:
Vendor: TCH
Website: TCHWEB.com
SKU #: 505-1965801
Description: STEEL CONTINUOUS HINGE - 0.04" X 2.0" X 72"
WITH NICKEL PLATE & MOUNTING HOLES
2. Bar or tag with part number.
3. Remove burrs and sharp edges.

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		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
Hinge, Outer Port Serializer		
SIZE	DWG. NO.	REV
B	GE-20344	
SCALE: 1:2	WEIGHT:	SHEET 1 OF 1

4

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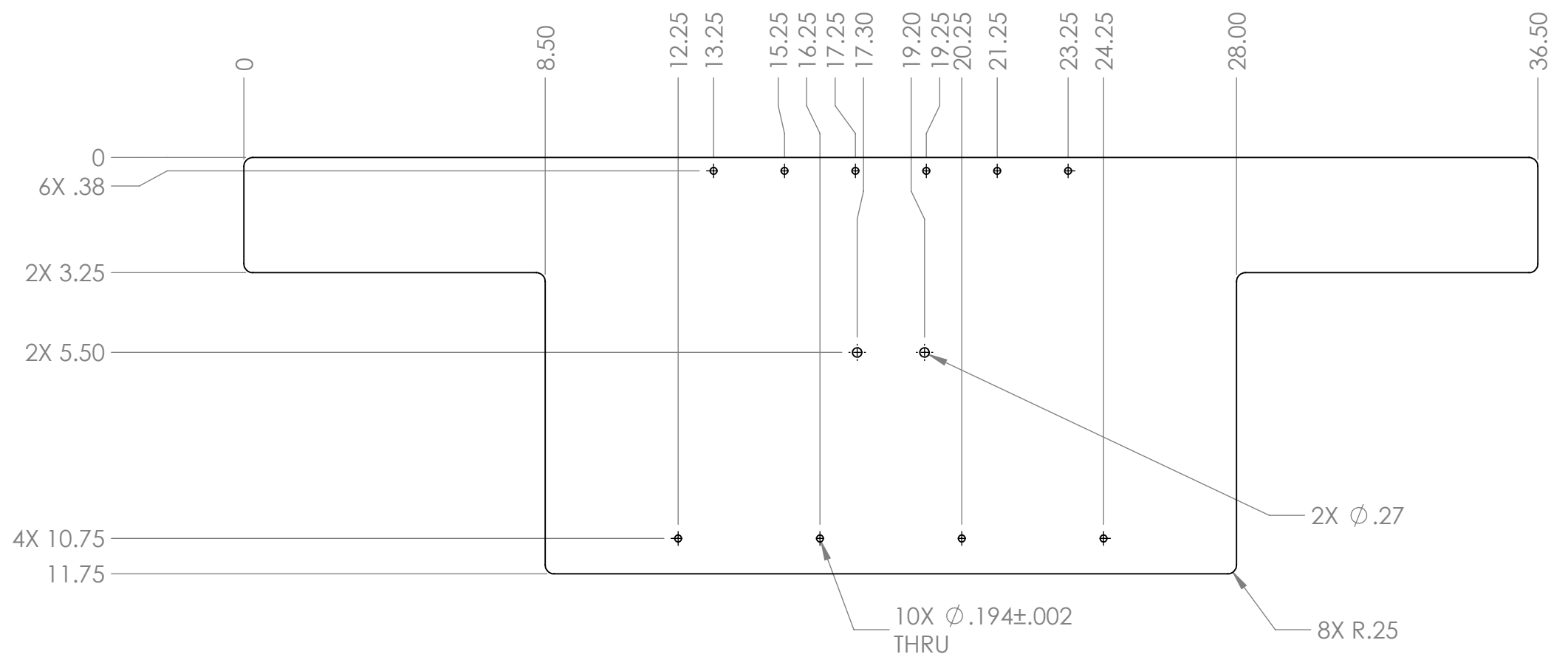
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A A



- Notes:
1. Material: 1/4" Clear Polycarbonate.
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Paddle, Outer Port Serializer

SIZE	DWG. NO.	REV
B	GE-20345	

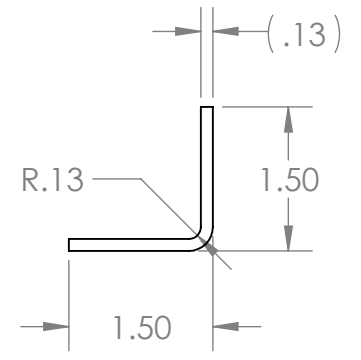
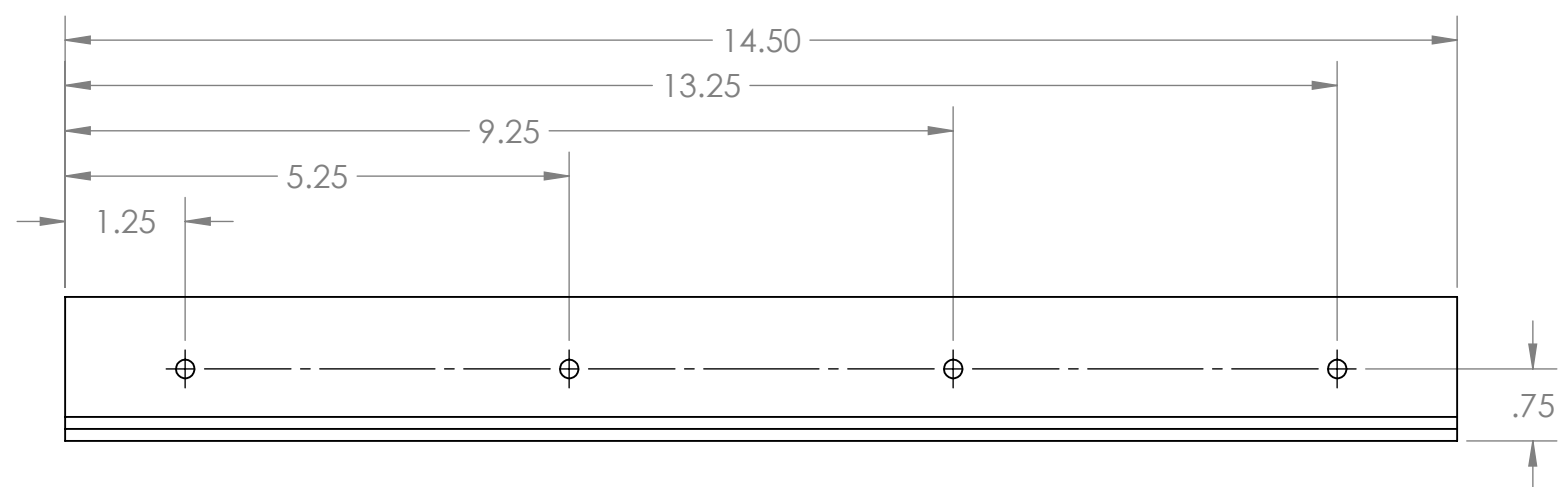
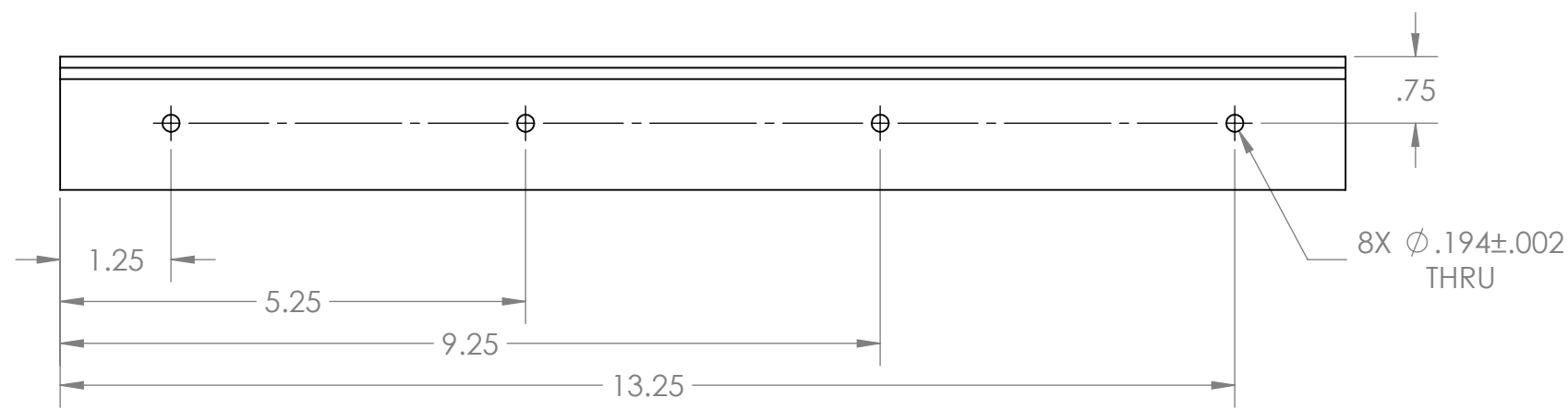
SCALE: 1:4 WEIGHT: SHEET 1 OF 1

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- Notes:
1. Material: 1/8" 5052 Aluminum sheet or similar.
 2. Remove all burrs and sharp edges.
 3. Bag or tag with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
		FRACTIONAL $\pm 1/16$		ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$		MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$		Q.A.	
		THREE PLACE DECIMAL $\pm .001$		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:		
Angle, Outer Port Serializer		
SIZE	DWG. NO.	REV
B	GE-20346	
SCALE: 1:2	WEIGHT:	SHEET 1 OF 1

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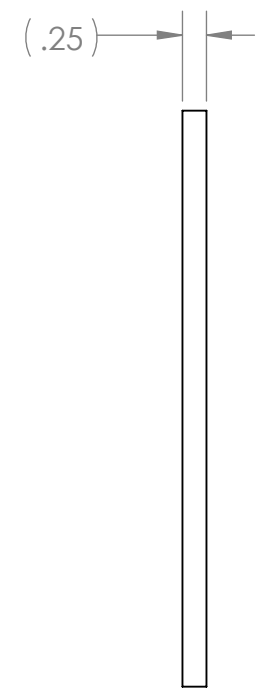
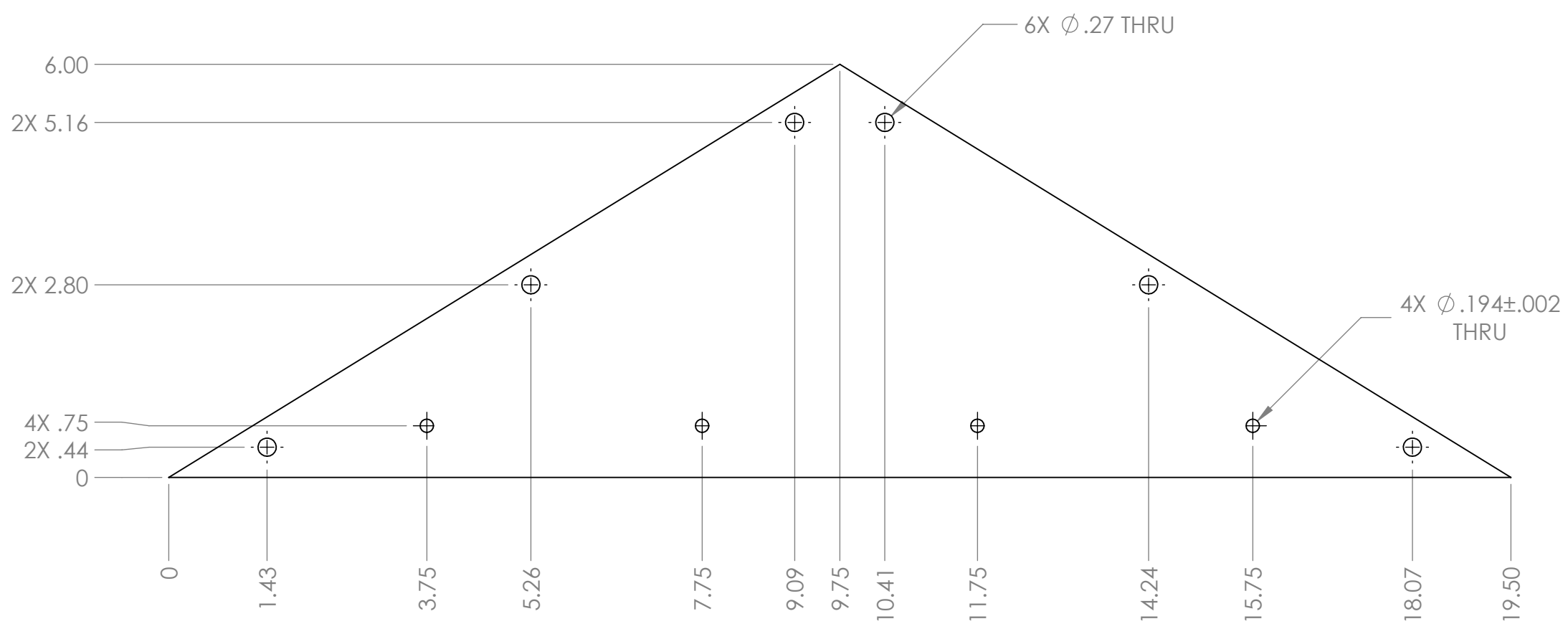
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- Notes:
1. Material: 1/4" Clear Polycarbonate
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number,

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL \pm 1/16	ENG APPR.		
		ANGULAR: MACH \pm 1° BEND \pm 1°	MFG APPR.		
		TWO PLACE DECIMAL \pm .01	Q.A.		
		THREE PLACE DECIMAL \pm .001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Foot, Outer Port Serializer

SIZE	DWG. NO.	REV
B	GE-20347	

SCALE: 1:2 WEIGHT: SHEET 1 OF 1

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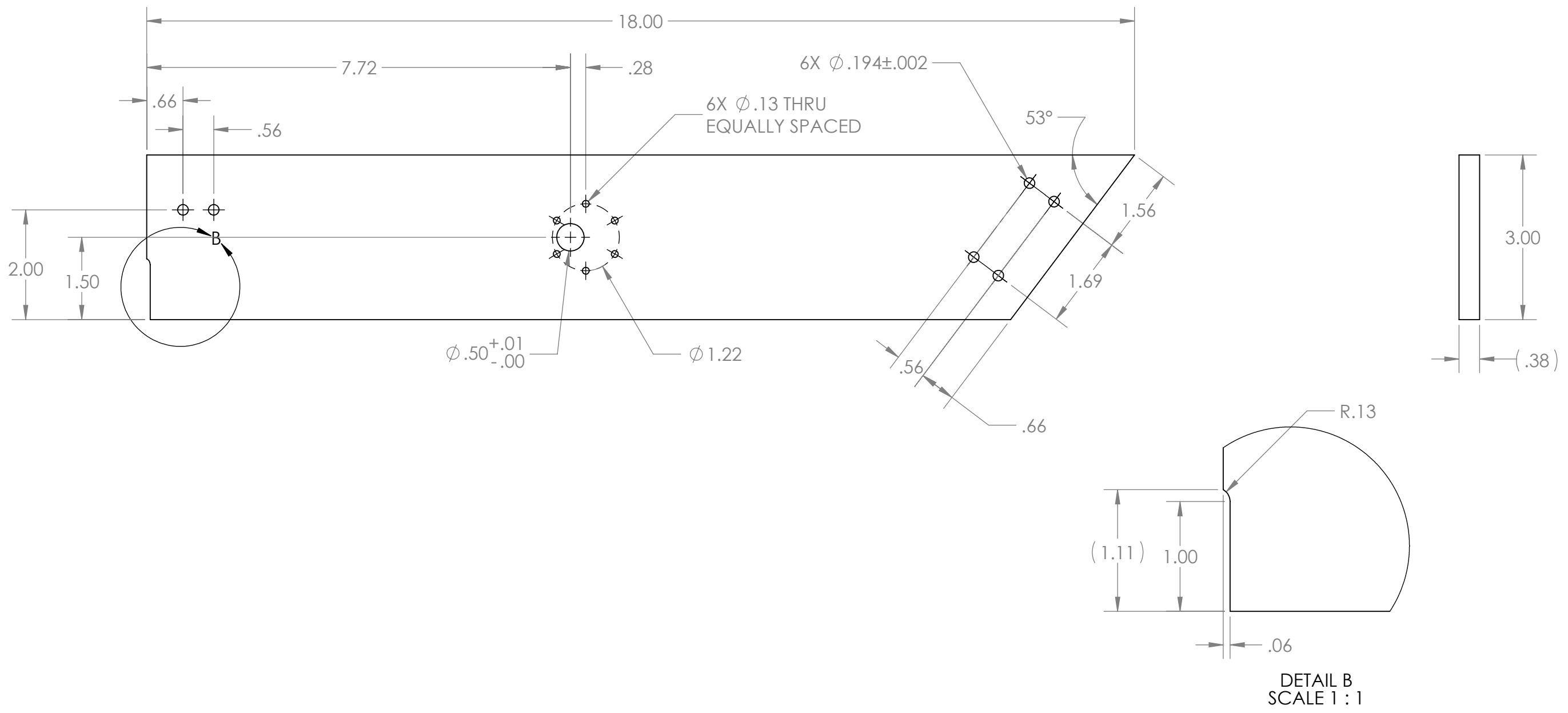
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- Notes:
1. Material: 3/8" Clear Polycarbonate
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Motor Mount, Outer Port Serializer**

SIZE	DWG. NO.	REV
B	GE-20349	

SCALE: 1:2 WEIGHT: SHEET 1 OF 1

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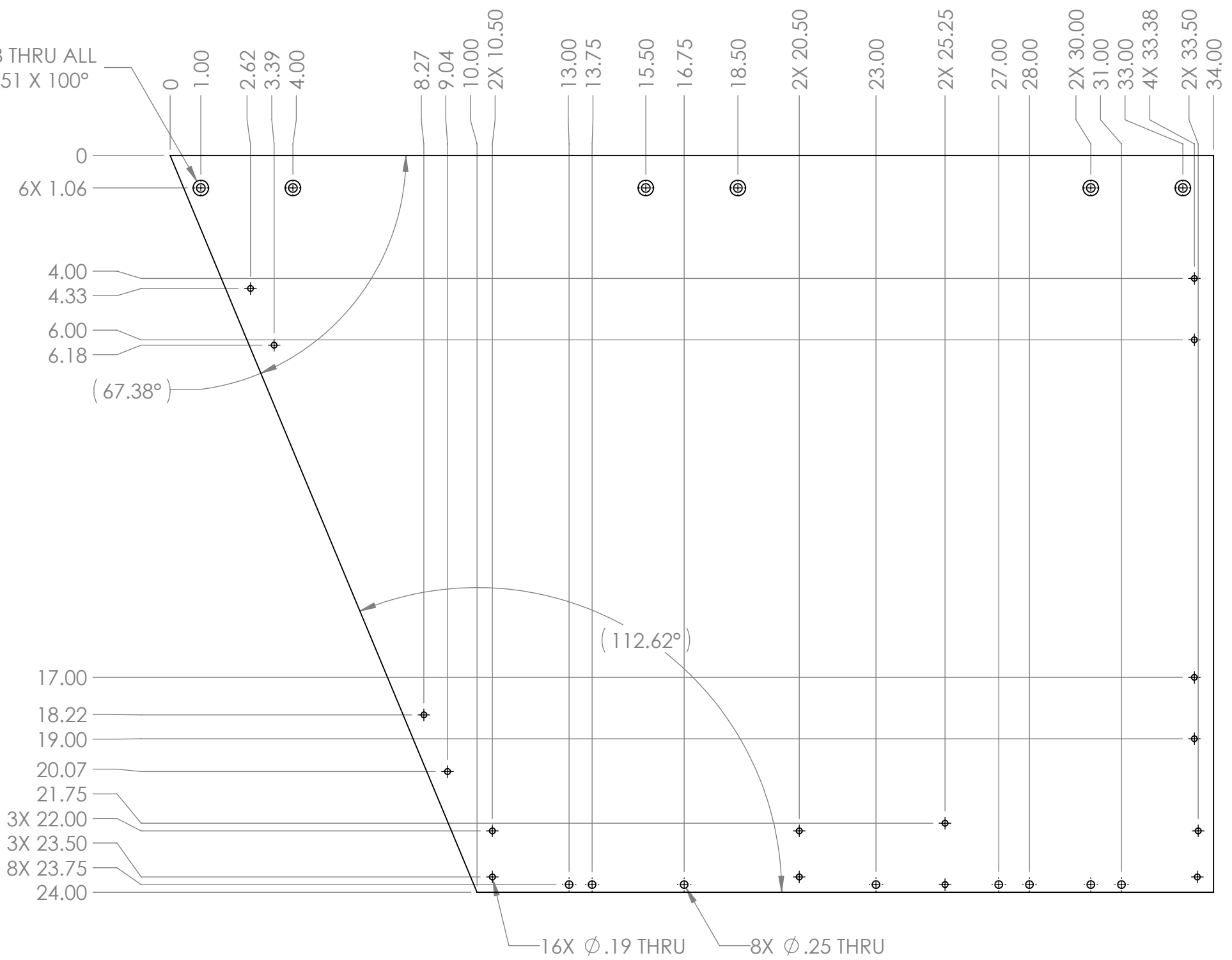
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Notes:
 1. Material 1/4" Thick Polycarbonete Sheet, Clear
 2. Remove Sharp Edges and Burrs
 3. Tag or Label with Part Number

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
1/4" Thick Polycarbonete Sheet		
SIZE	DWG. NO.	REV
B	GE-20351	
SCALE: 1:4	WEIGHT:	SHEET 1 OF 1

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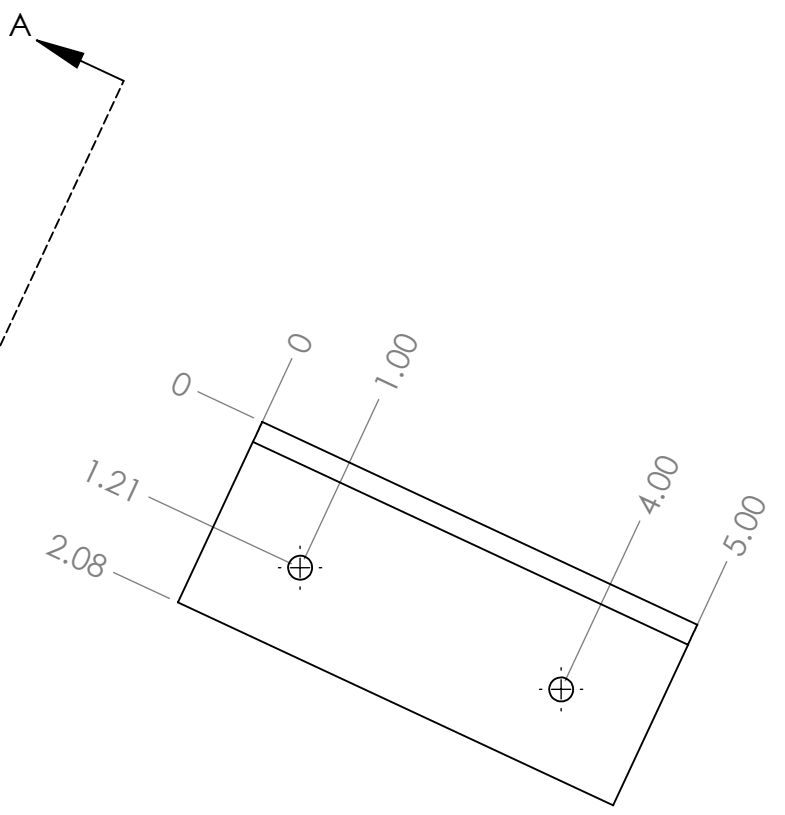
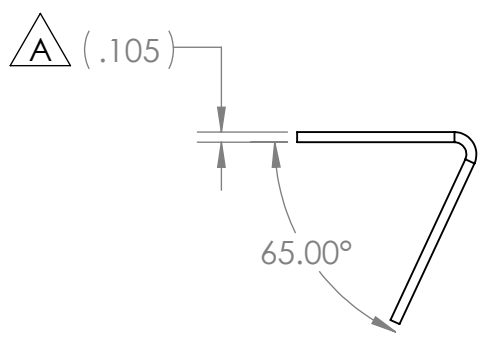
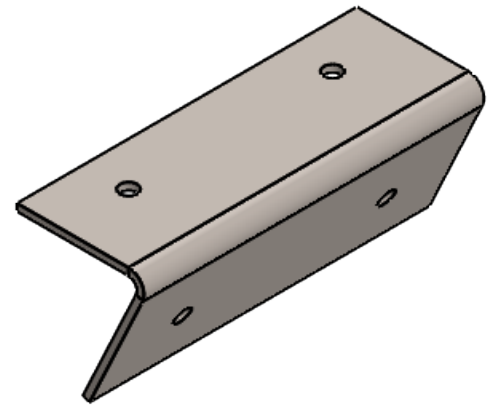
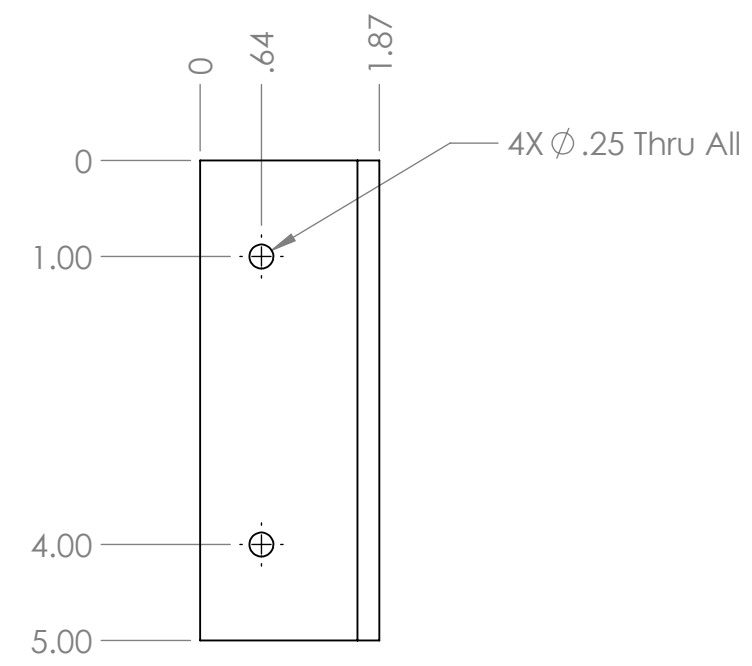
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B4	A	12 Gage Steel Thickness updated	11/1/2019	MXS



VIEW A-A

Note:
 1. Material: 12 GA Plated Sheet
 2. Remove Sharp edges and burrs
 3. Label and Tag with part number

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
Sheet Metal Angle		
SIZE	DWG. NO.	REV
B	GE-20352	A
SCALE: 1:2	WEIGHT:	SHEET 1 OF 1

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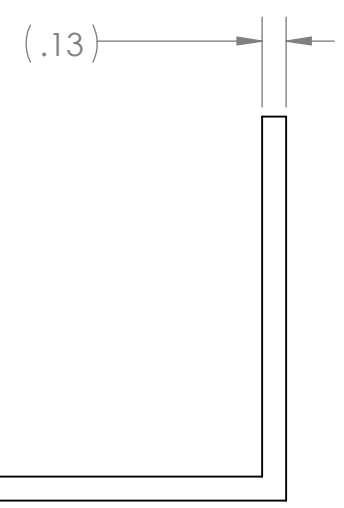
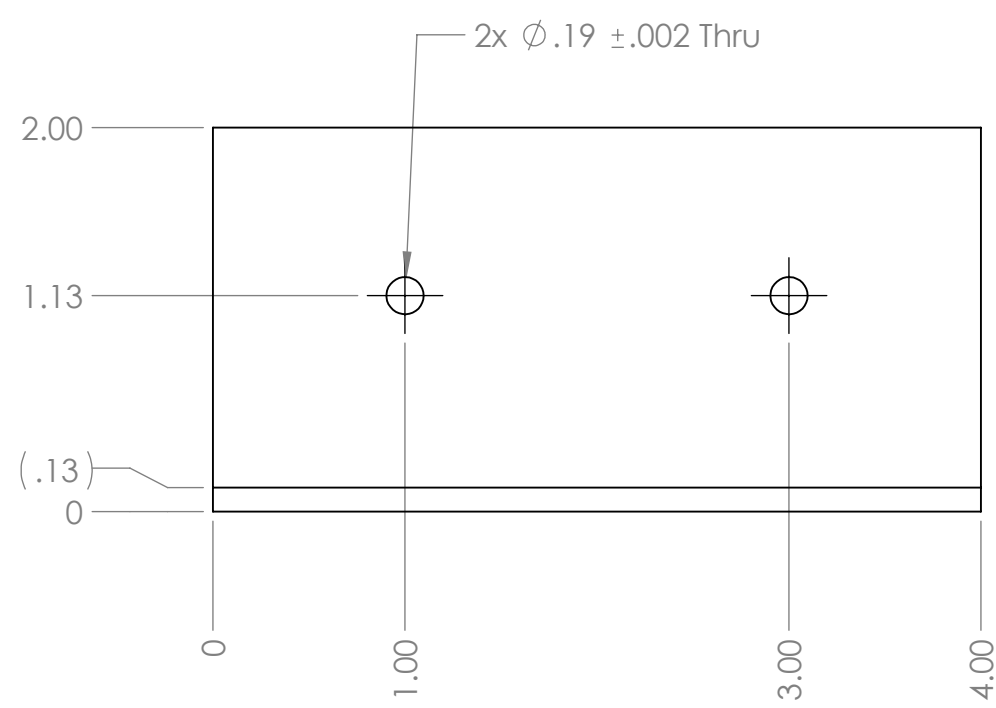
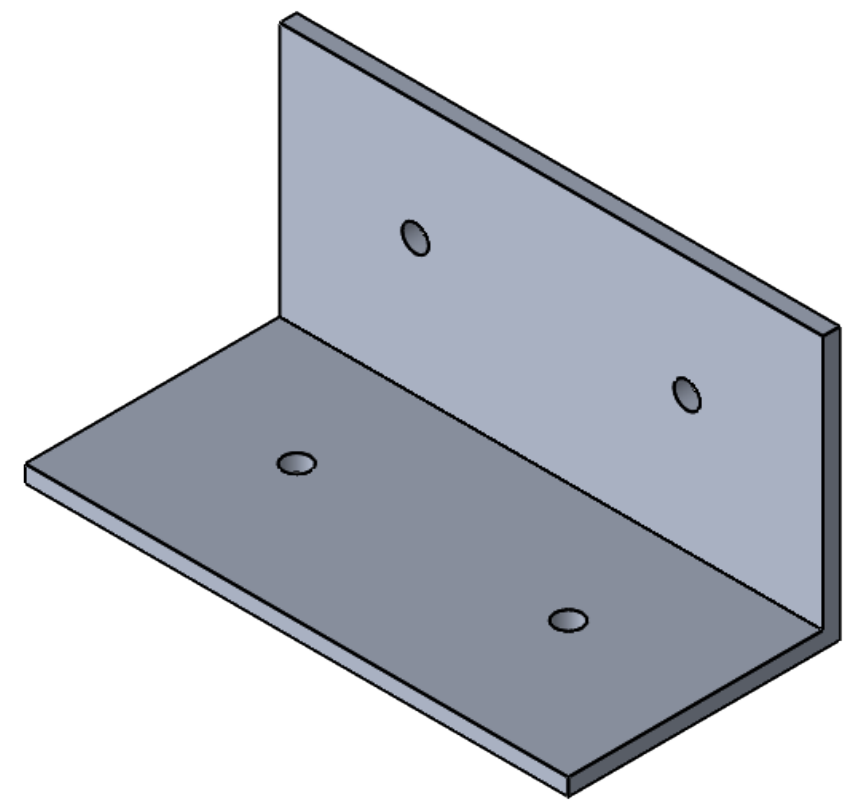
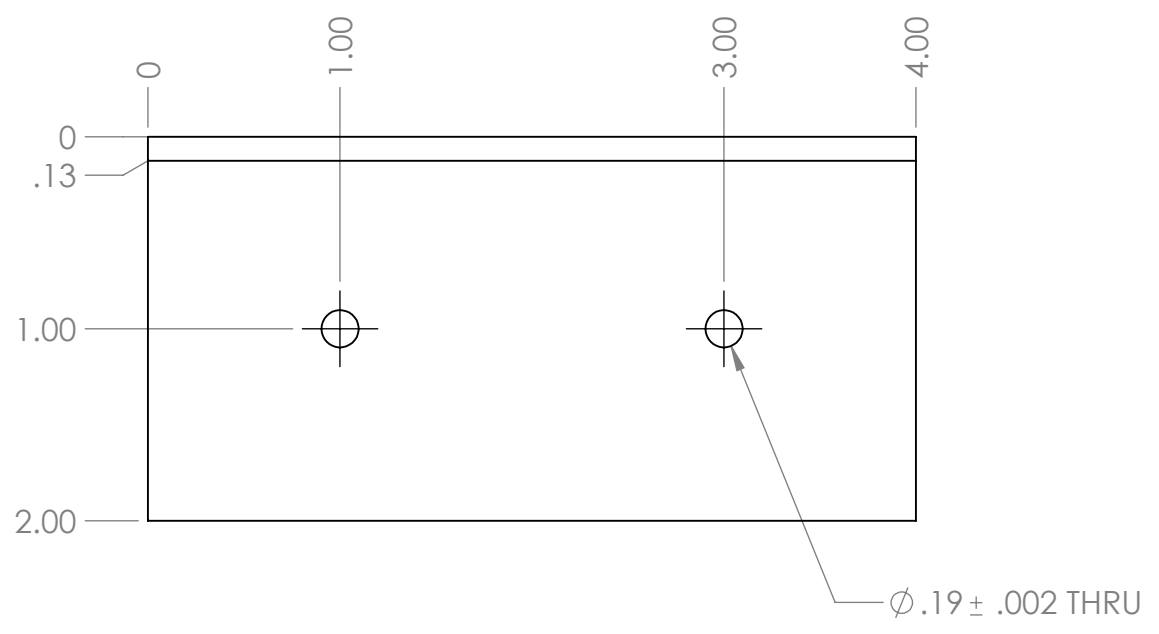
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- Notes
1. Material: 2" x 2" x .125" Aluminum Angle 6063
 2. R"emove Sharp Edges and Burrs
 3. Tag and Label with Part Number

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
2 x 2 Aluminum Angle 6063

SIZE	DWG. NO.	REV
B	GE-20353	

SCALE: 1:1 WEIGHT: SHEET 1 OF 1

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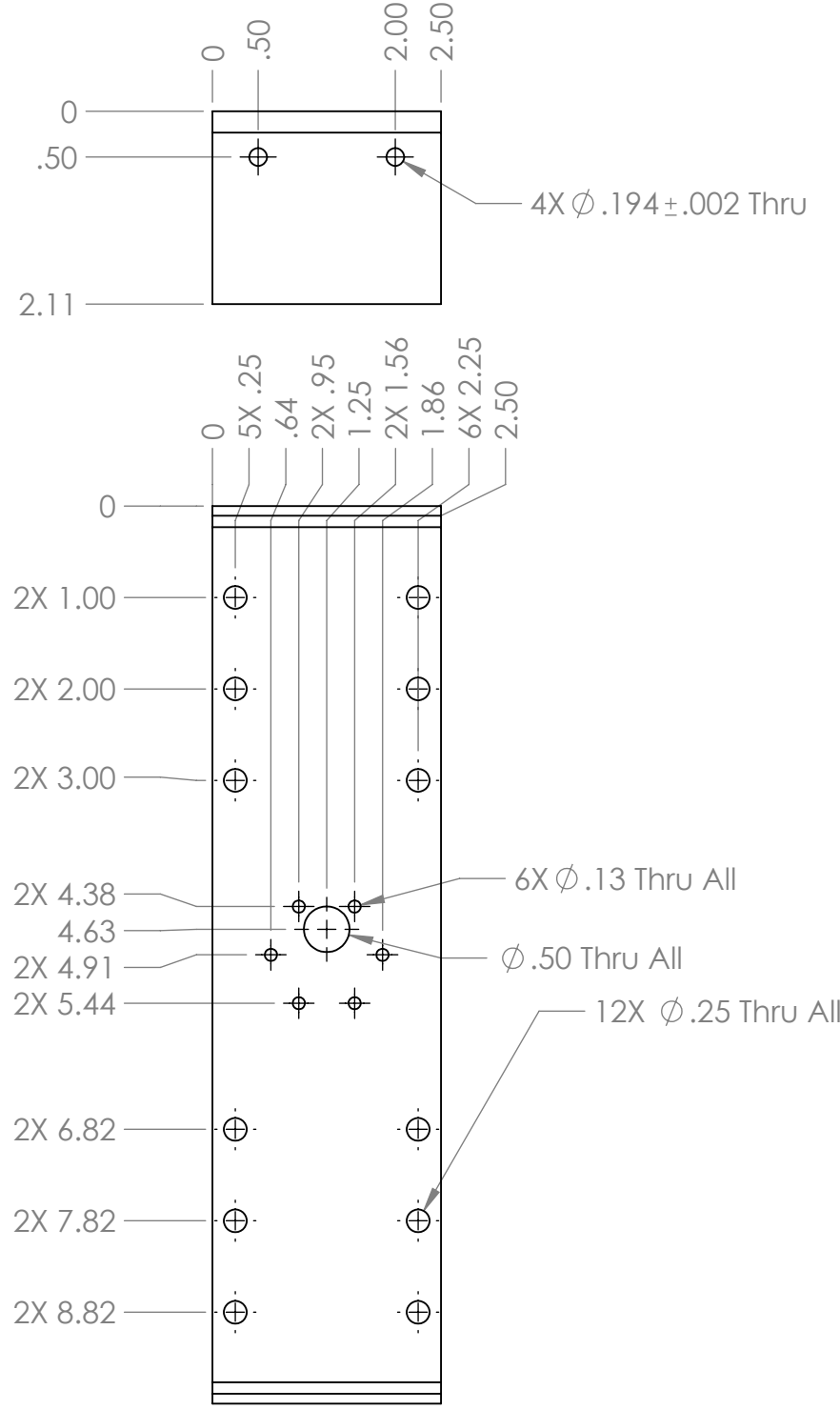
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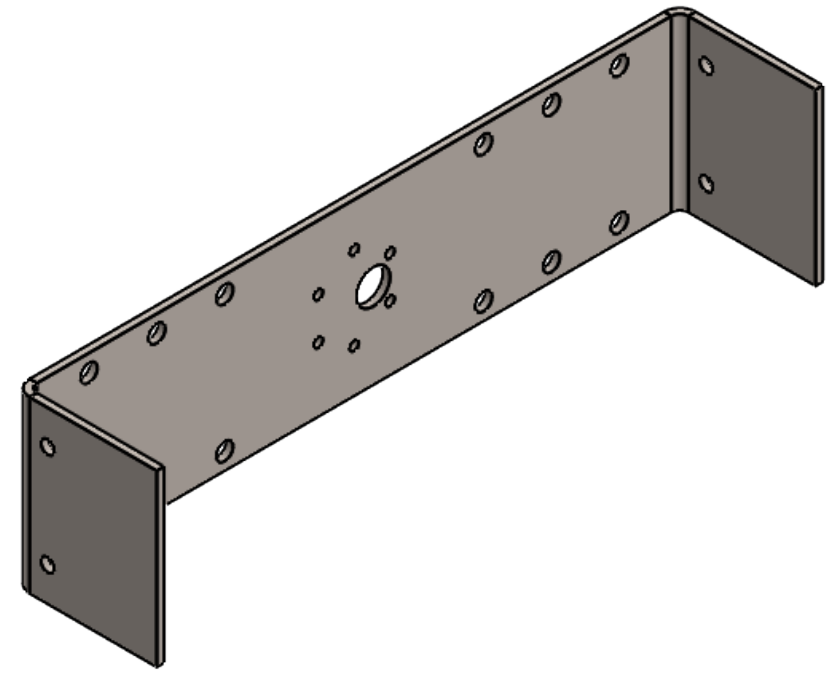
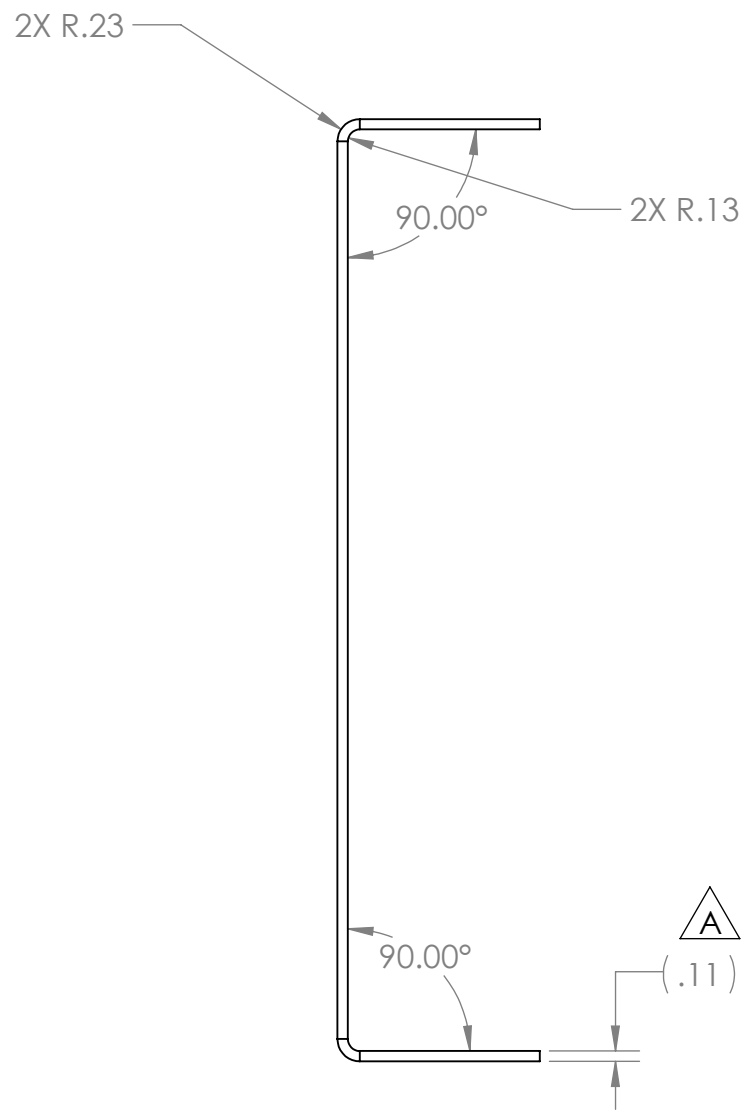
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2	A	Changed to 12 Gage Preplated Steel	10/24/2019	MXS
A1	B	Changed Part description	10/30/2019	MXS



Notes:
 1. Material: 12 Ga. Pre Plated Steel
 2. Remove all burrs and sharp edges
 3. Tag and Label With Part Number

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .01 THREE PLACE DECIMAL ± .001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		TITLE:
		MATERIAL	ENG APPR.		Serializer Bracket Support
NEXT ASSY	USED ON	FINISH	MFG APPR.		SIZE DWG. NO. REV
APPLICATION		DO NOT SCALE DRAWING	Q.A.		B GE-20354 B
			COMMENTS:		SCALE: 1:2 WEIGHT: SHEET 1 OF 1

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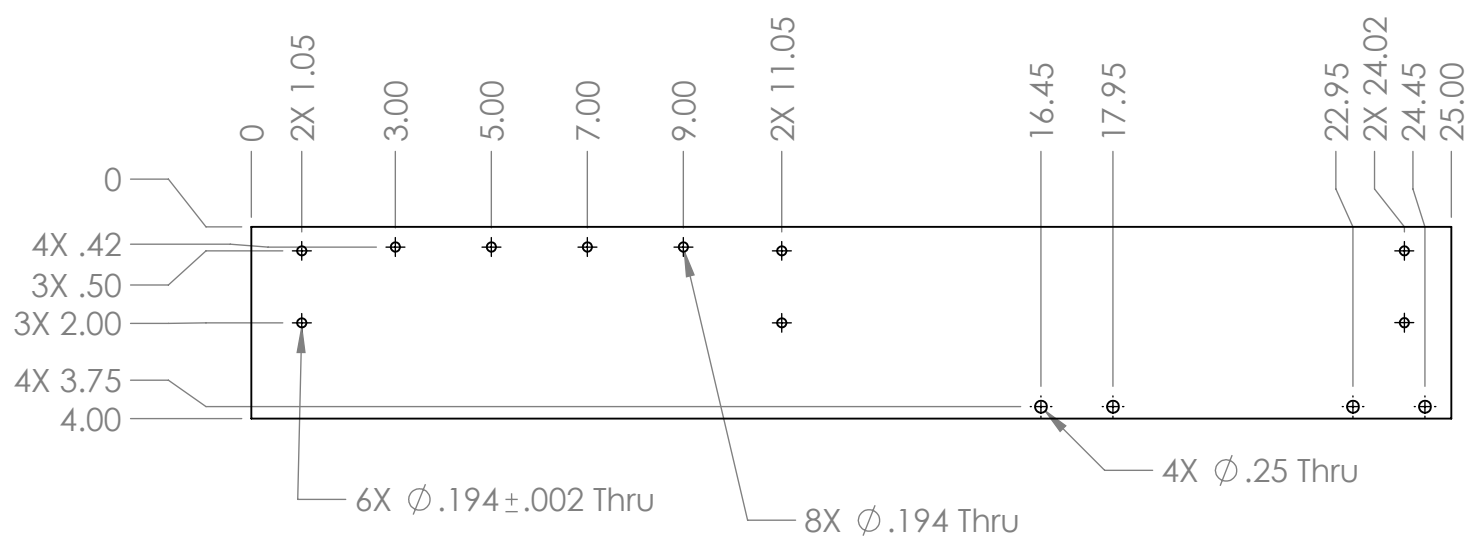
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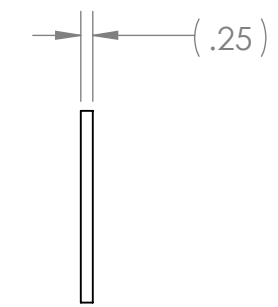
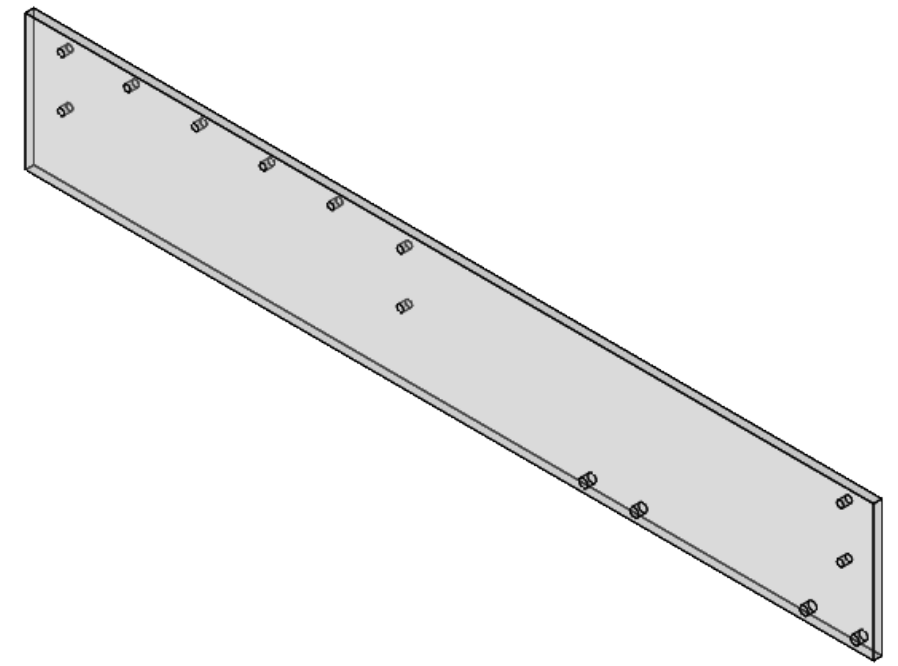
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- Notes:
1. Material 1/4" Thick Polycarbonate Sheet
 2. Remove Sharp Edges and Burrs
 3. Label and Tag with Part Number



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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE DWG. NO. REV B GE-20355
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		SCALE: 1:4 WEIGHT: SHEET 1 OF 1
APPLICATION		DO NOT SCALE DRAWING	Q.A.		
			COMMENTS:		

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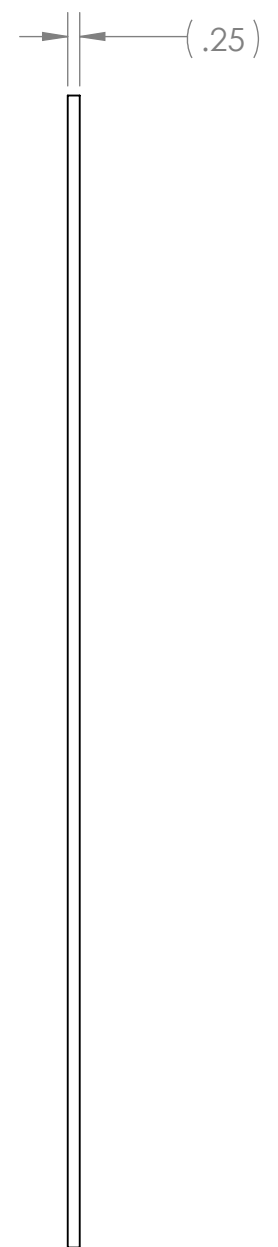
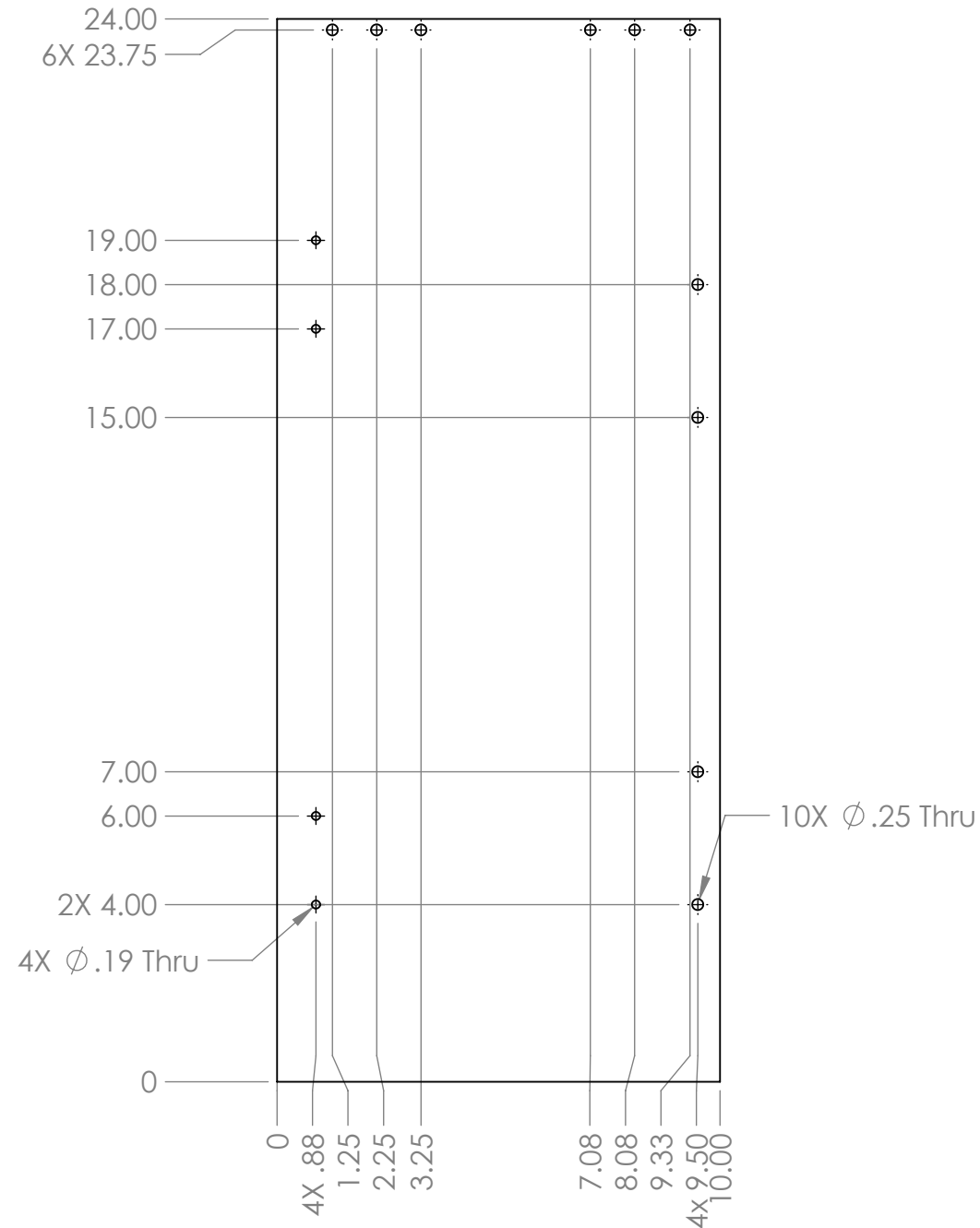
1

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- Notes:
1. Material: 1/4" Thick Polycarbonate Sheet, Clear
 2. Remove Sharp Edges and Burrs
 3. Label and Tag with Part Number

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE DWG. NO. REV B GE-20356
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		SCALE: 1:4 WEIGHT: SHEET 1 OF 1
APPLICATION		DO NOT SCALE DRAWING	Q.A.	COMMENTS:	

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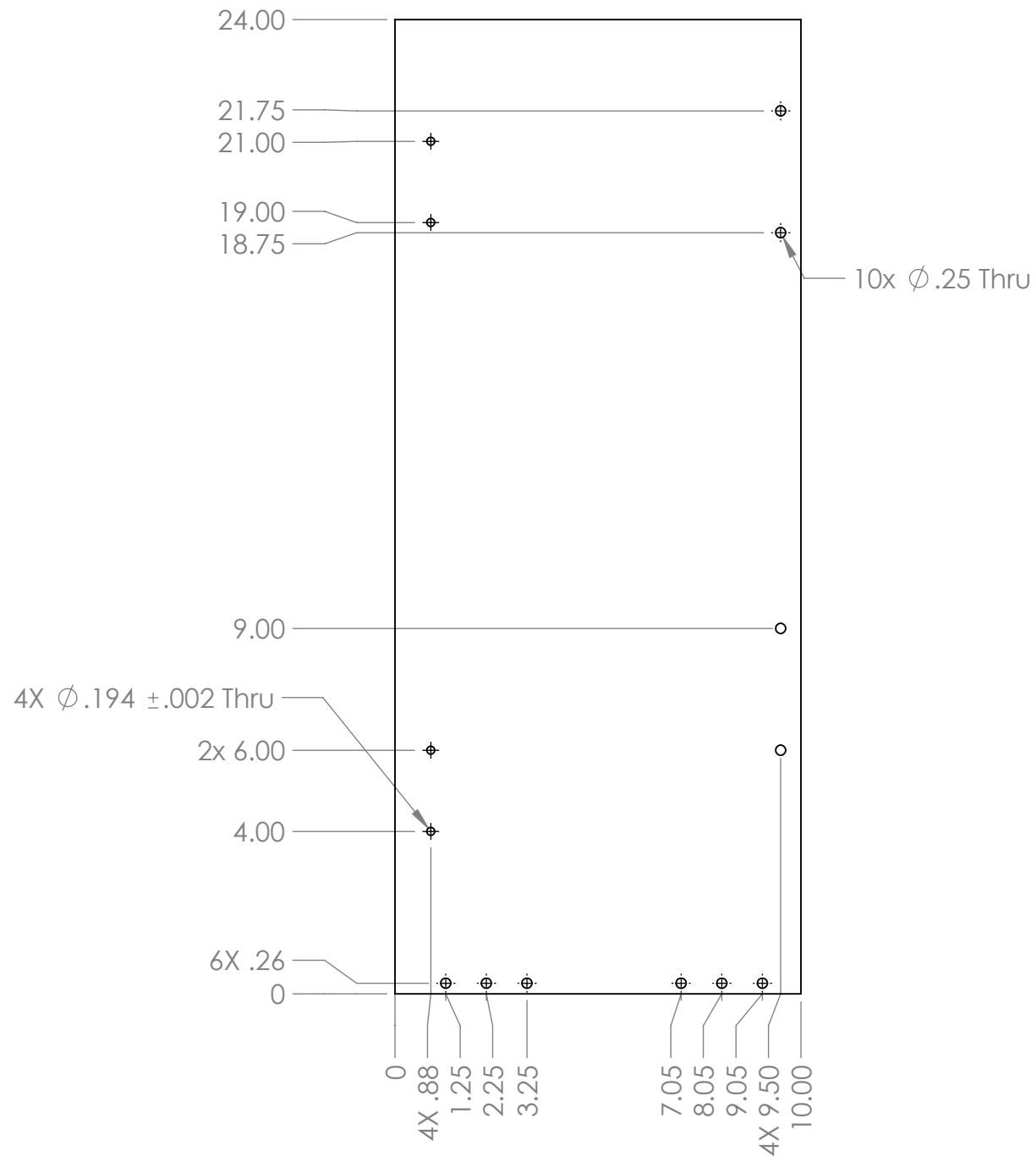
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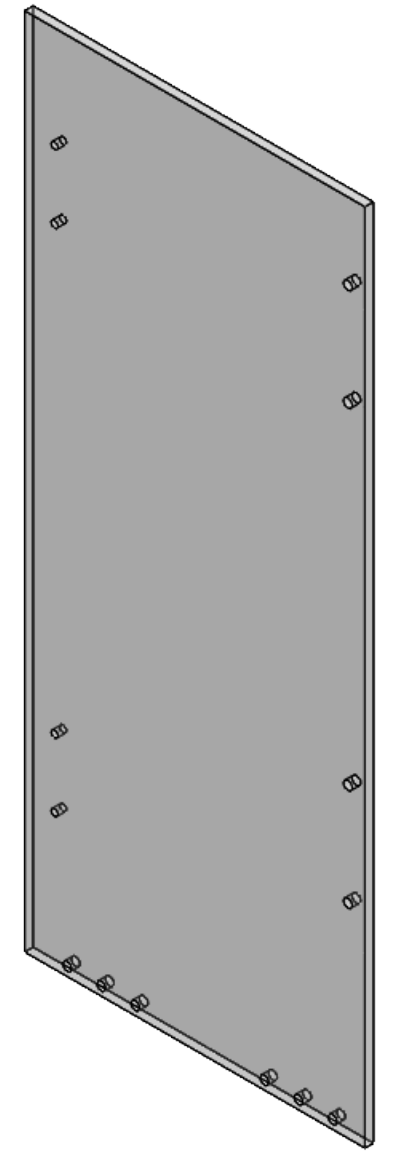
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- Notes:
1. Material: 1/4" Thick Polycarbonate Sheet
 2. Remove Sharp Edges And Burrs
 3. Tag and Label with Part Numbers

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
				 	
TITLE:					
<h2 style="text-align: center;">Serializer Side Wall Angled</h2>					
SIZE	DWG. NO.			REV	
B	GE-20357				
SCALE: 1:4		WEIGHT:		SHEET 1 OF 1	

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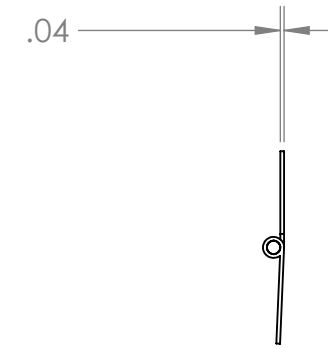
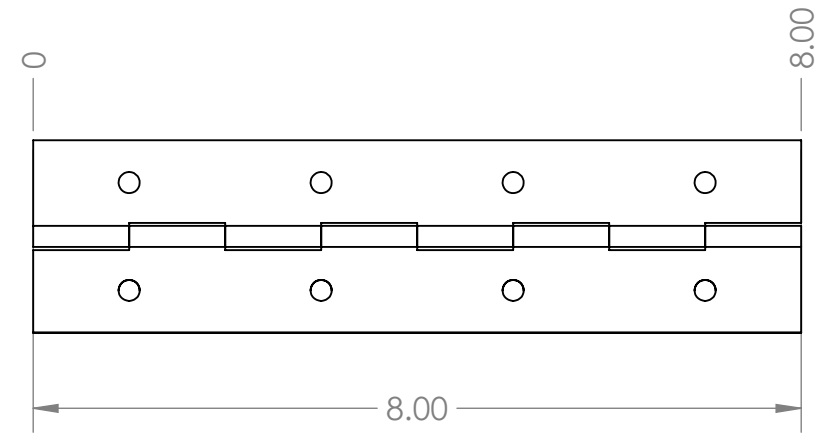
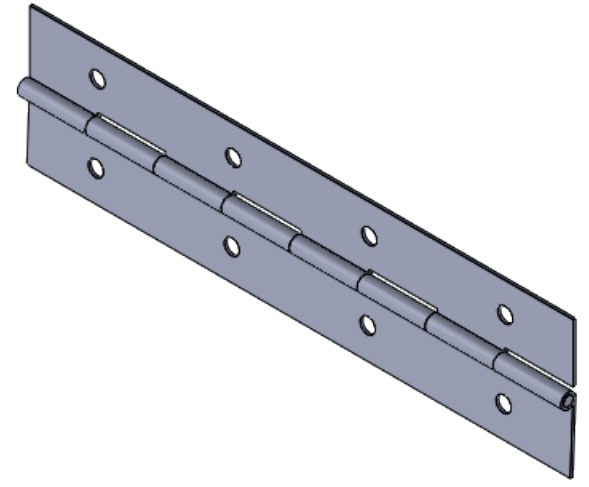
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Description: STEEL CONTINUOUS HINGE - 0.04" X 2.0" X 72" WITH NICKEL PLATE & MOUNTING HOLES

Vendor TCH

Part Number: 505-1965801

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		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ±1/16	ENG APPR.		
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.		
		TWO PLACE DECIMAL ±.01	Q.A.		
		THREE PLACE DECIMAL ±.001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:
 Steel Continuous Hinge,
 Nickel (6' lengths) TCH 505-1965801

SIZE	DWG. NO.	REV
B	GE-20358	
SCALE: 1:2	WEIGHT:	SHEET 1 OF 1

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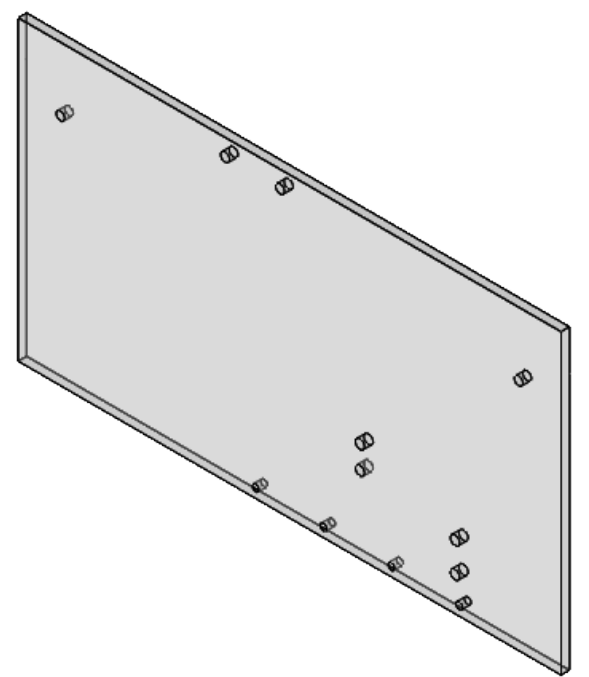
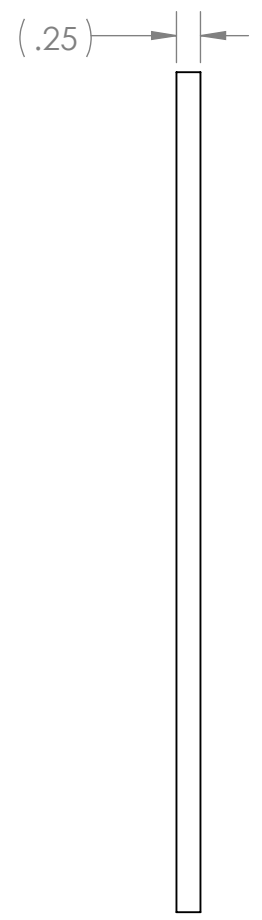
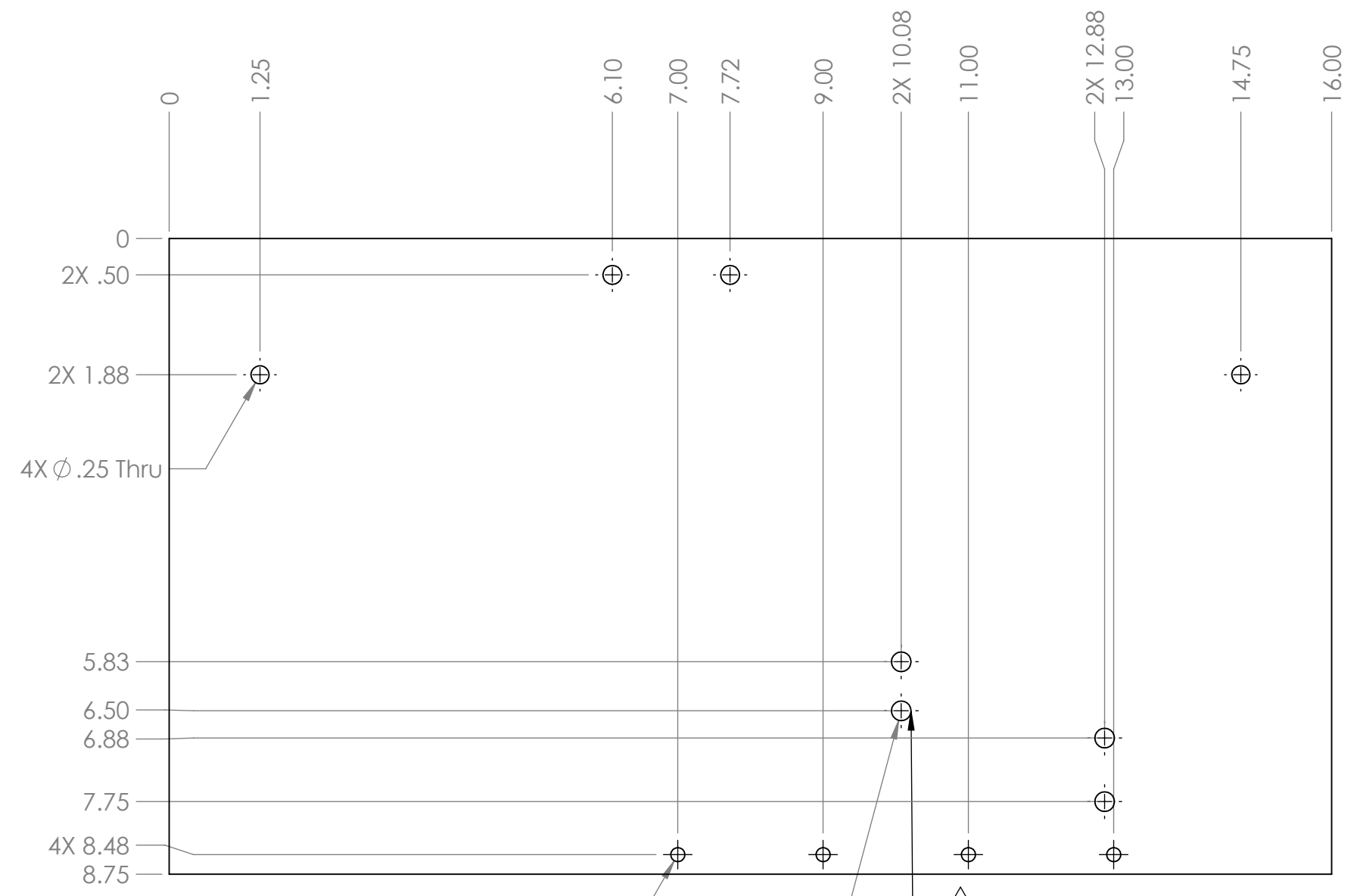
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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Added Four holes	11/22/2019	MXS
A1	B	Description/Title Change	12/19/2019	MXS

B

B



A

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Note:
 1. Material: 1/4" Thick Polycarbonate Sheet
 2. Remove Sharp Edges and Burrs
 3. Tag and Label with Part Number

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL ± 1/16		ENG APPR.	
ANGULAR: MACH ± 1° BEND ± 1°		MFG APPR.	
TWO PLACE DECIMAL ± .01		Q.A.	
THREE PLACE DECIMAL ± .001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION			
DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Polycarbonate Face**

SIZE **B** DWG. NO. **GE-20361** REV **B**

SCALE: 1:2 WEIGHT: SHEET 1 OF 1

4

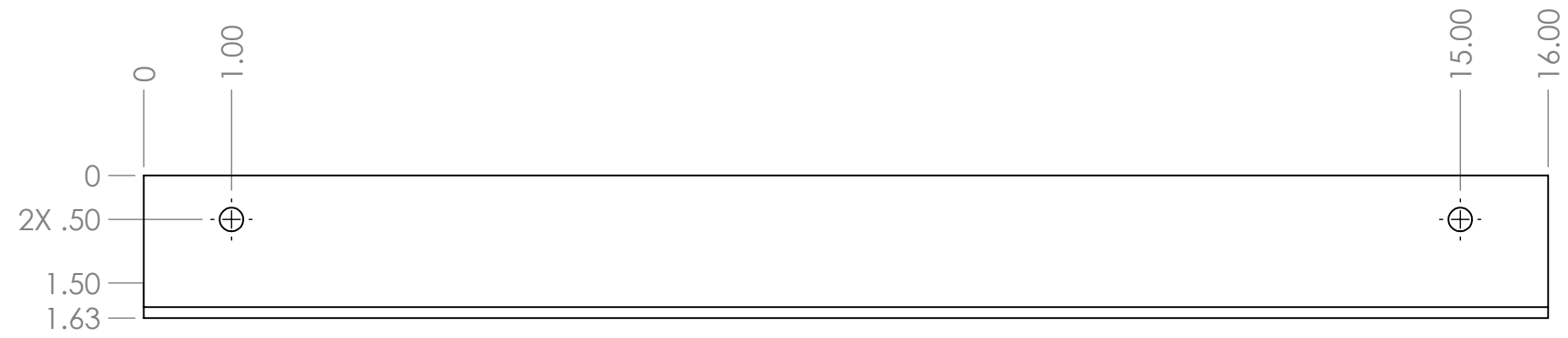
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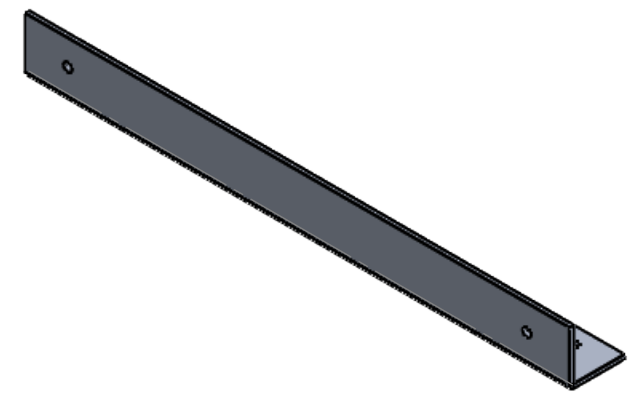
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Hole Change	12/19/2019	MXS
A1	B	Description/title change	12/19/2019	MXS

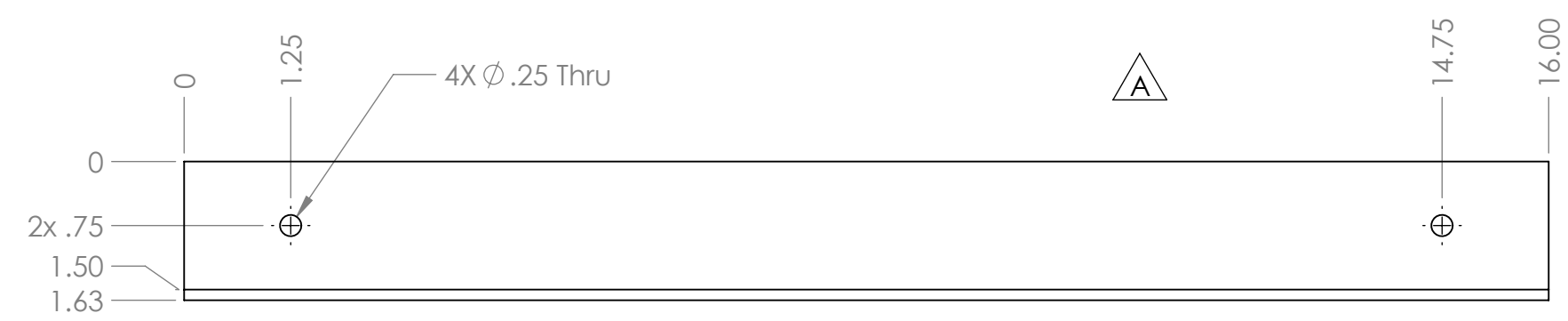
B



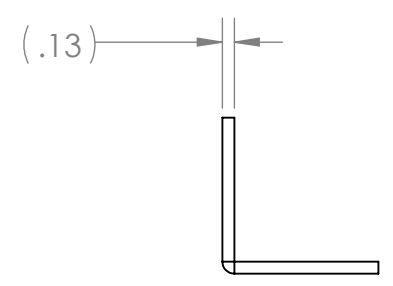
B



A





A



- Notes:
 1. Material: 1.5" X 1.5" X .125" Aluminum Angle 6063
 2. Remove Sharp Edges and Burrs
 3. Tag and Label with Part Number 2x .75

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		TITLE:
		MATERIAL	ENG APPR.		Angle Bracket
		FINISH	MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON		Q.A.		B GE-20362 C
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		SCALE: 1:2 WEIGHT: SHEET 1 OF 1

4

3

2

1

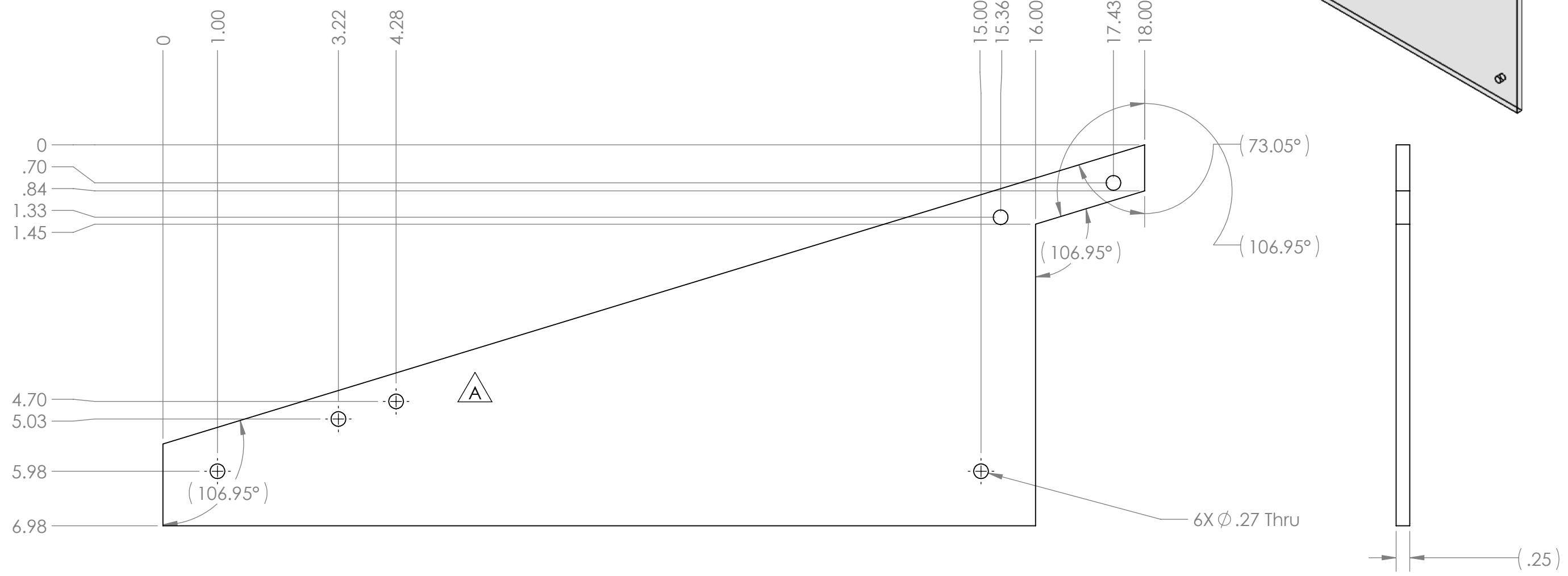
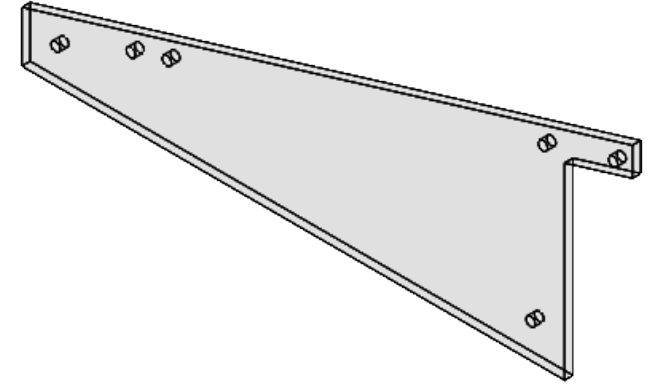
4

3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Added four holes	11/27/2019	MXS



- Notes:
1. Material: 1/4" Thick Polycarbonate Sheet, Clear
 2. Remove Sharp Edges and Burrs
 3. Tag and Label with Part Number

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ± 1/16	ENG APPR.		
		ANGULAR: MACH ± 1° BEND ± 1°	MFG APPR.		
		TWO PLACE DECIMAL ± .01	Q.A.		
		THREE PLACE DECIMAL ± .001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Angle Pusher**

SIZE **B** DWG. NO. **GE-20363** REV **A**

SCALE: 1:2 WEIGHT: SHEET 1 OF 1

4

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1

B

B

A

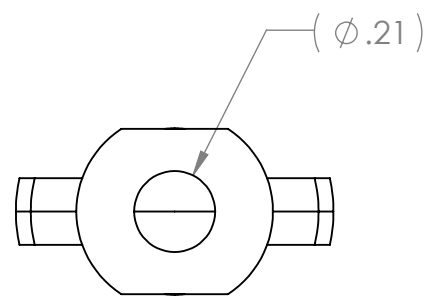
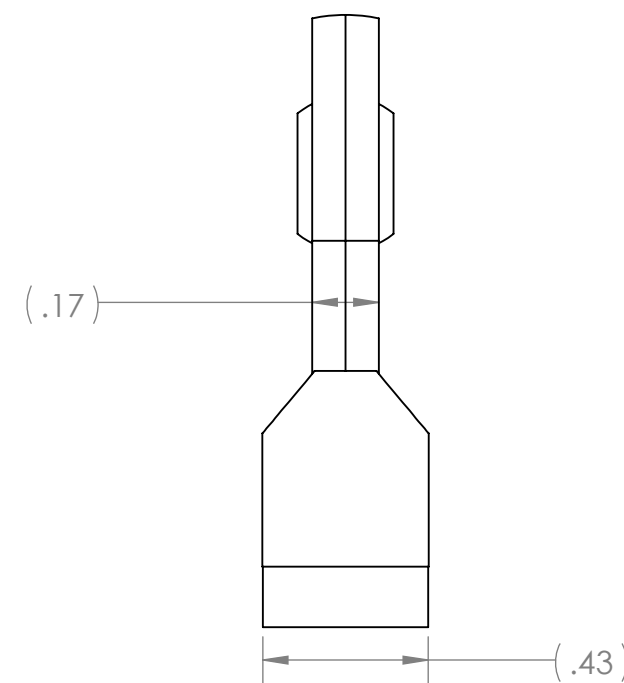
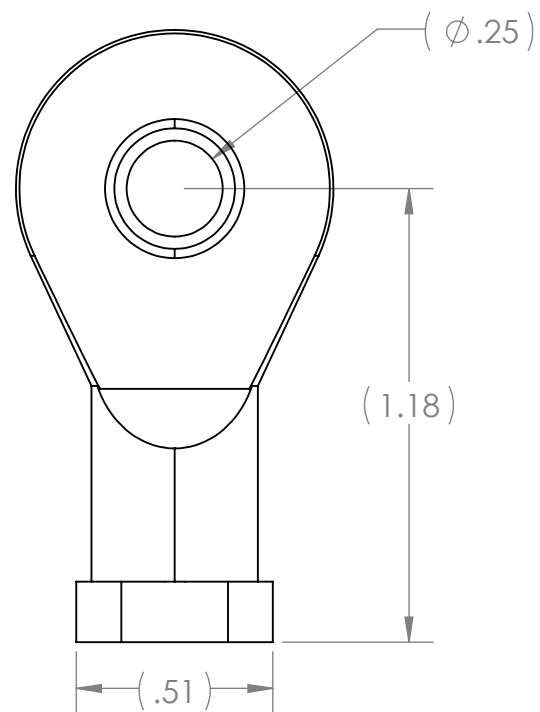
A

4

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1





Description: Rod end with female thread, EBRI igubal®, spherical ball iglide® L280, inch

Vendor: IguS

Part Number: EBRI-04

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE B DWG. NO. GE-20364 REV SCALE: 2:1 WEIGHT: SHEET 1 OF 1
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		
APPLICATION		DO NOT SCALE DRAWING	Q.A.		
			COMMENTS:		

4

3

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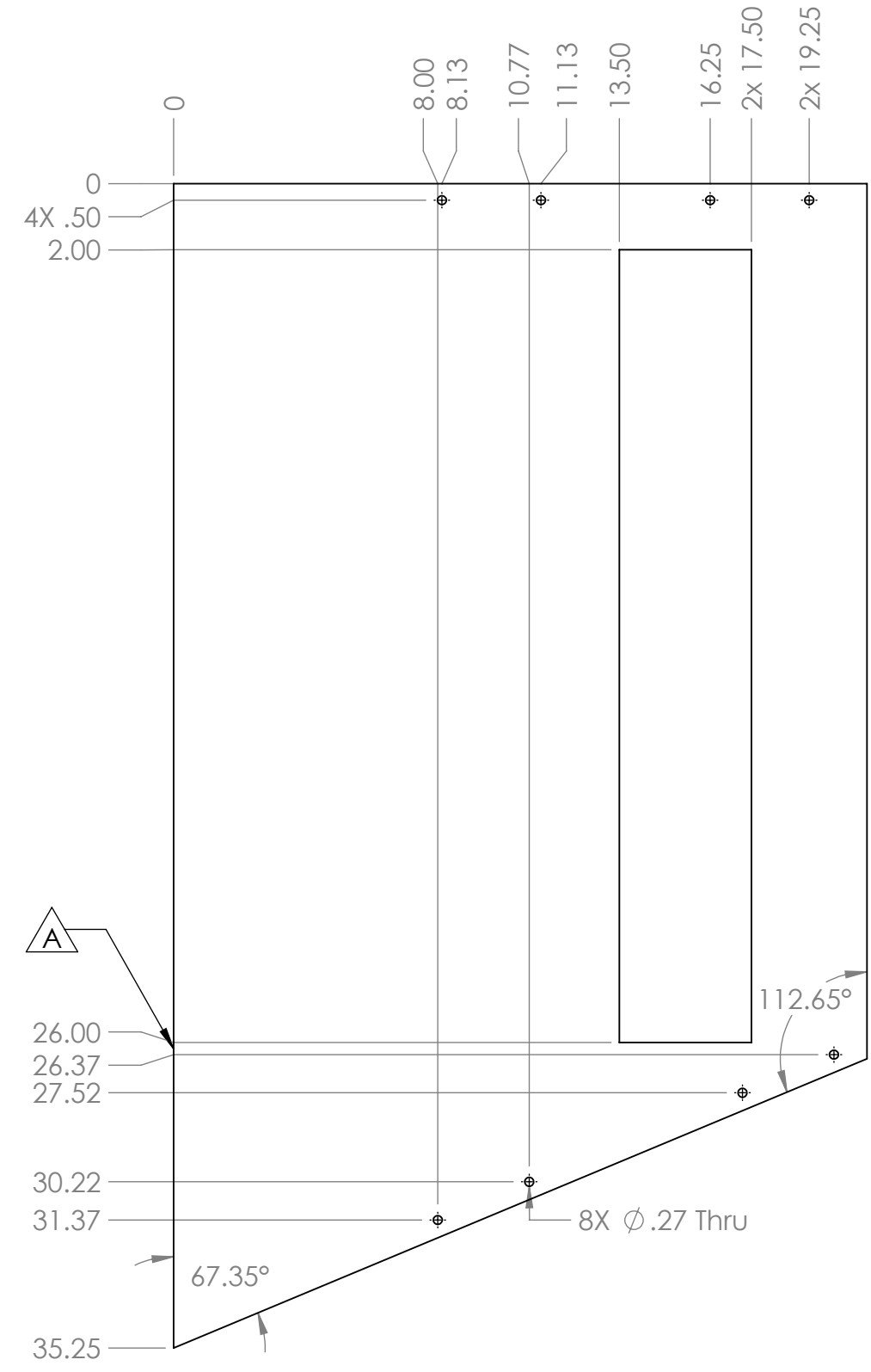
4

3

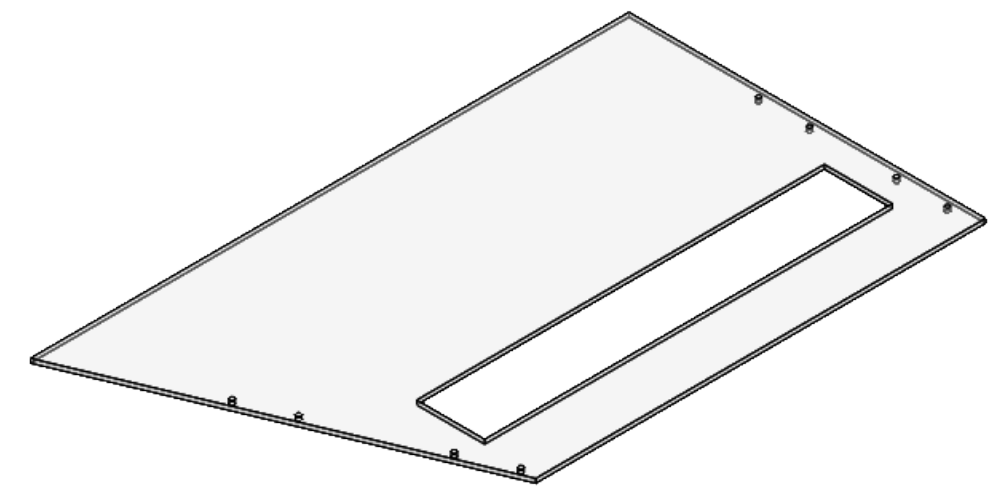
2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A4	A	Changed overall diminsions to make smaller	10/24/2019	MXS



(.25)



- Notes:
1. Material 1/4" Thick Polycarbonate Sheet
 2. Remove Sharp Edges and Burrs
 3. Tag and Label with Part Number

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:	MATERIAL		
FINISH			
NEXT ASSY	USED ON		
APPLICATION	DO NOT SCALE DRAWING		



TITLE: **1/4" Thick Polycarbonate Sheet**

SIZE **B** DWG. NO. **GE-20365** REV **A**

SCALE: 1:5 WEIGHT: SHEET 1 OF 1

4

3

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B

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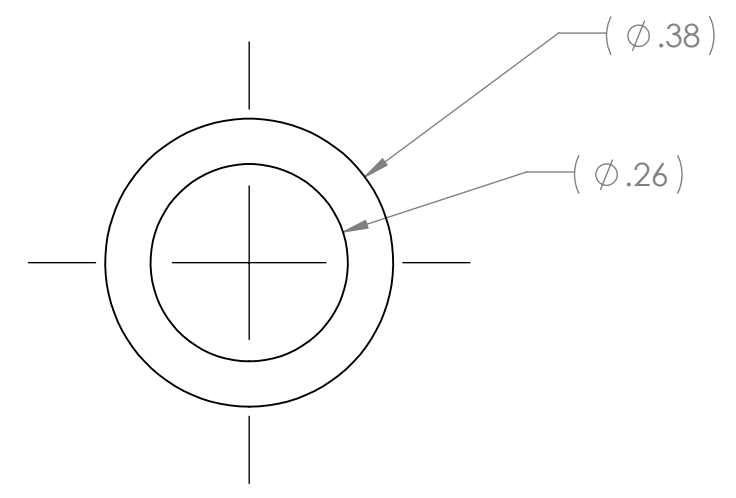
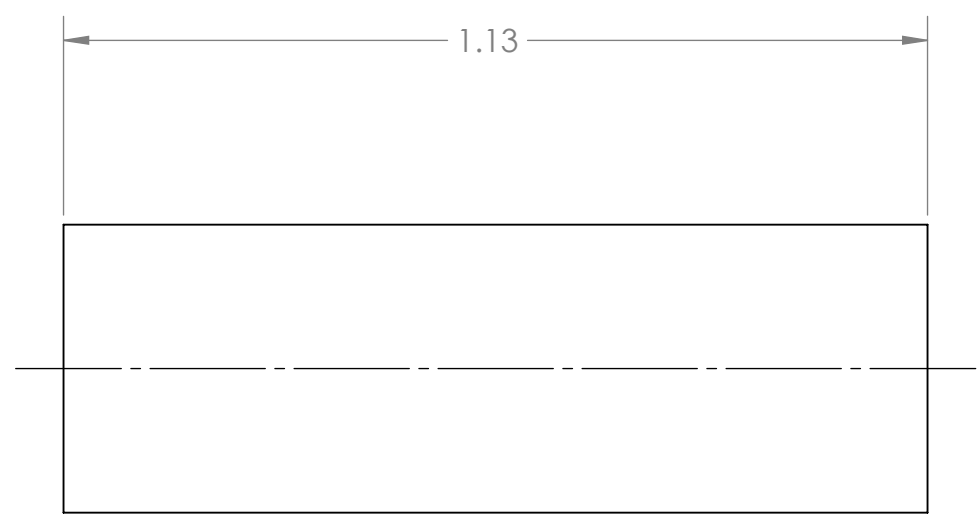
A

4

3

2

1





Description: Aluminum Spacer 3/8 OD x .257 ID x 1-1/8 Long

Vendor: Aluminum Spacers

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	

 		
TITLE: Serializer 1/4 x 20 Rod Spacer		
SIZE B	DWG. NO. GE-20368	REV
SCALE: 4:1	WEIGHT:	SHEET 1 OF 1

4

3

2

1

B

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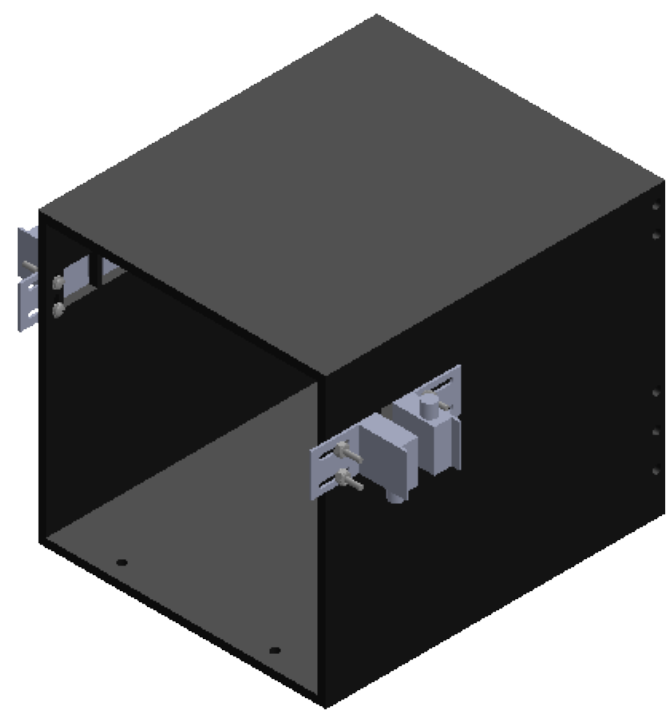
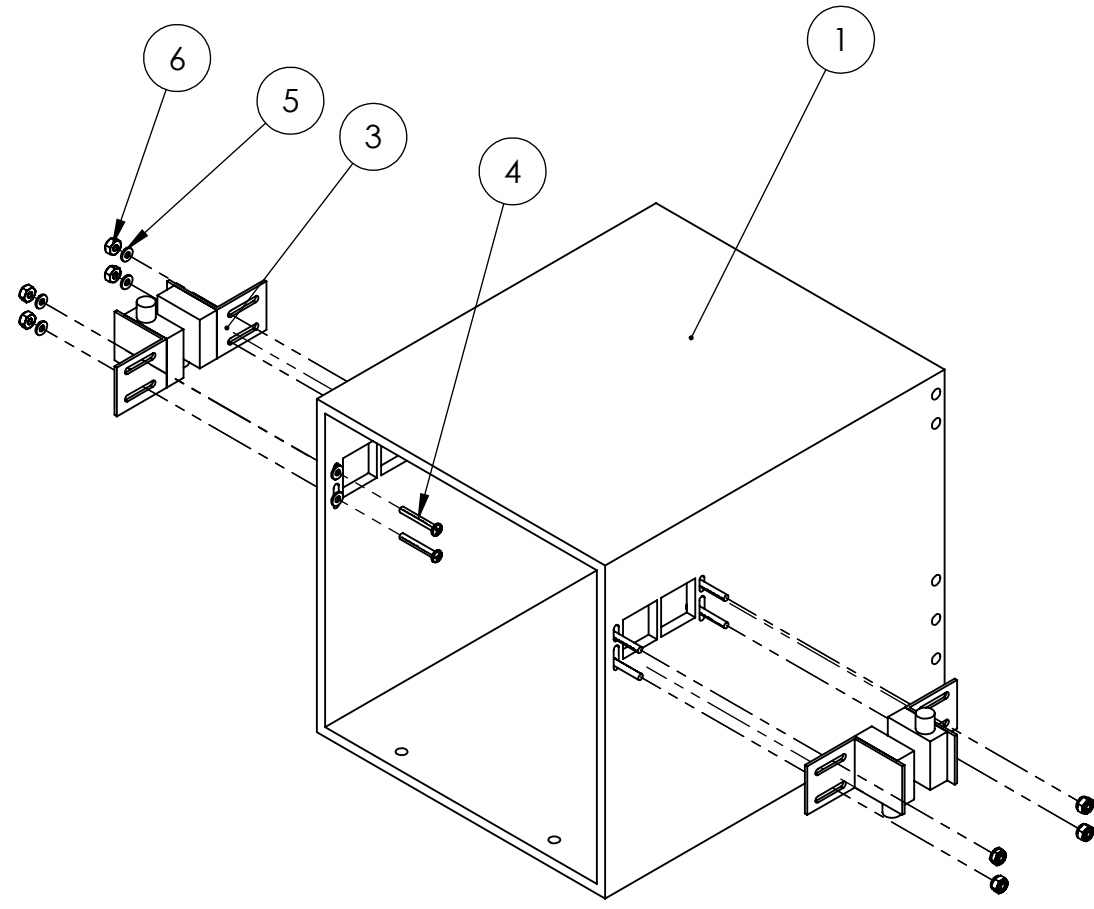
A

4

3

2



1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20372	Counter Box	1
2	VisiSight_with_bracket	VisiSight Break Beam with Bracket	-
4	6-32_Pan_Phil_1	6-32 Steel Pan Head Phillips Screw	8
5	No.5 Washer	No 5 Screw washer	16
6	Nylock_6_32	6-32 Nylock Nut	8

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL: ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		

TITLE: **Counter Assembly**

SIZE **B** DWG. NO. **GE-20370** REV **1**

SCALE: 1:2 WEIGHT: SHEET 1 OF 3

4

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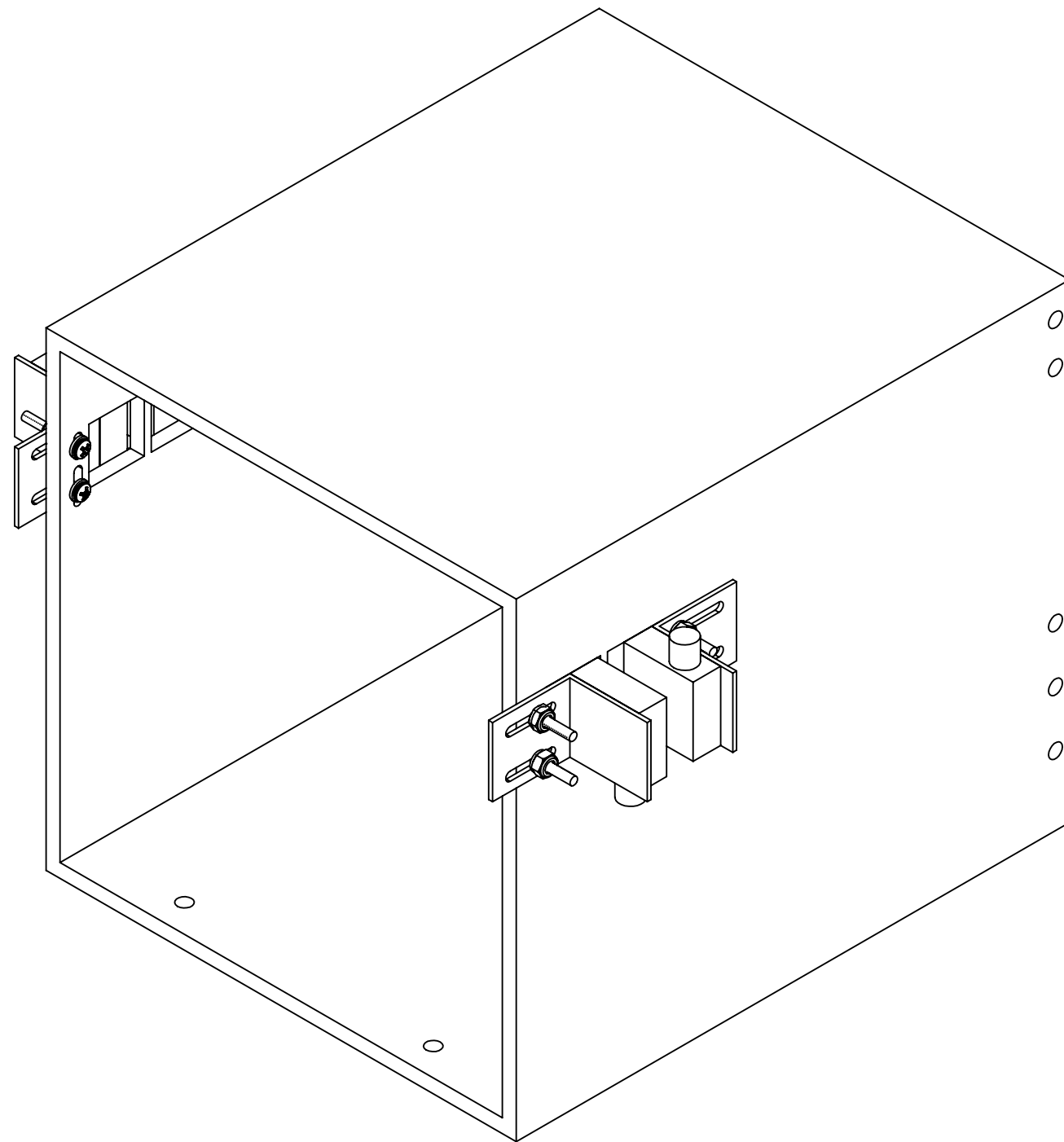
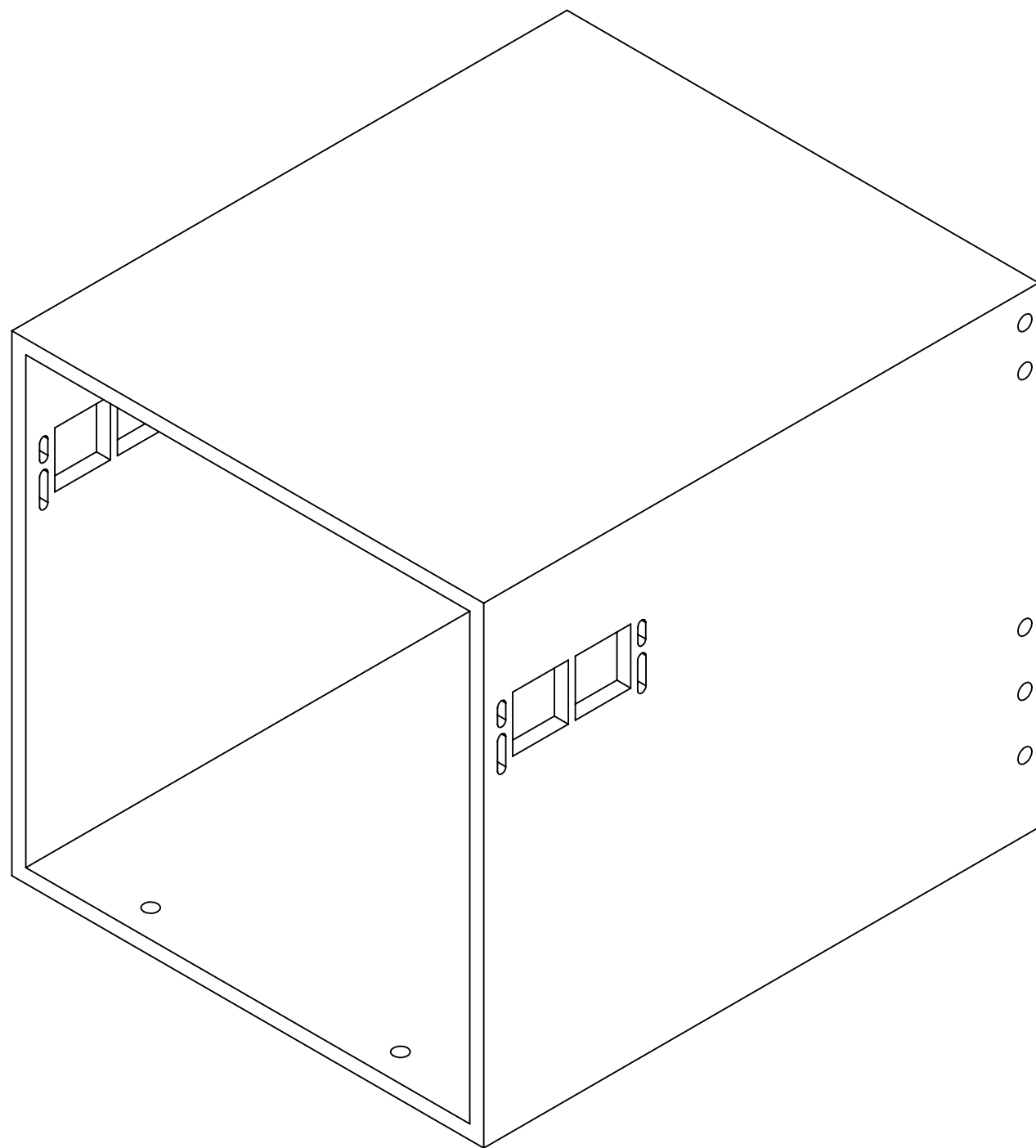
1

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		<h1>Counter Assembly</h1>
		MATERIAL		ENG APPR.		
		FINISH		MFG APPR.		B GE-20370
NEXT ASSY	USED ON			Q.A.		SCALE: 1:4 WEIGHT: SHEET 2 OF 3
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		

4

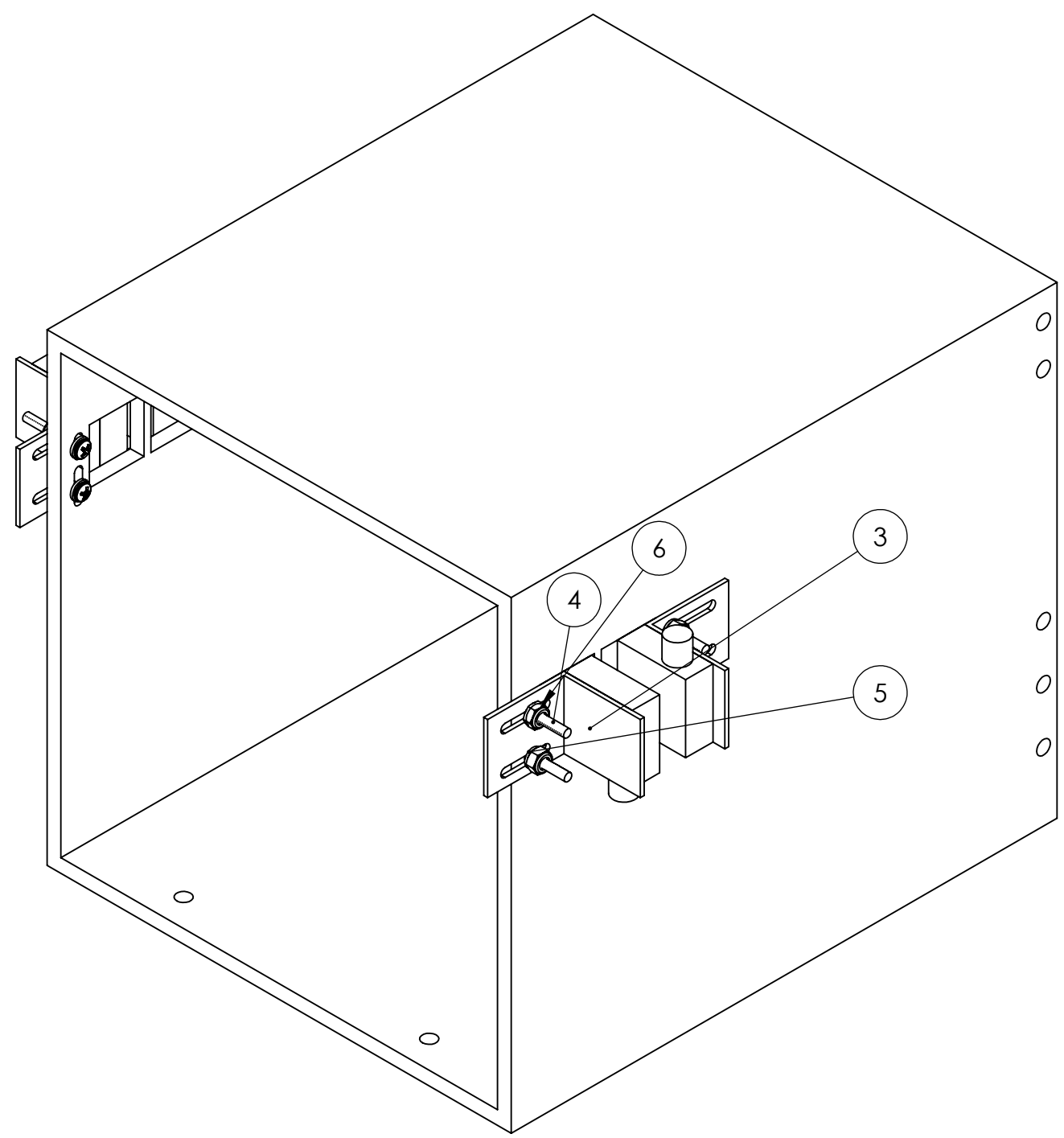
3

2

1

B

B





Note:
Using item 1 attach item 3 using hardware from items 4,5,6 in four places

A

A

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		<h1>Counter Assembly</h1>
		MATERIAL	ENG APPR.		
		FINISH	MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON		Q.A.		B GE-20370
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		SCALE: 1:4 WEIGHT: SHEET 3 OF 3

4

3

2

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4

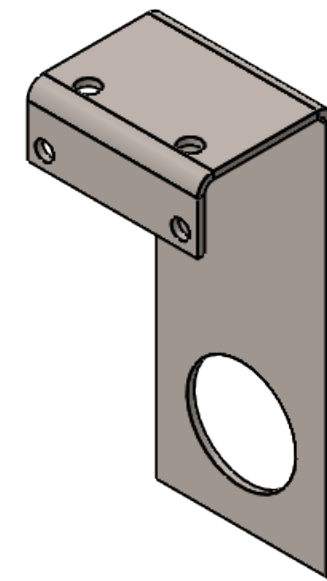
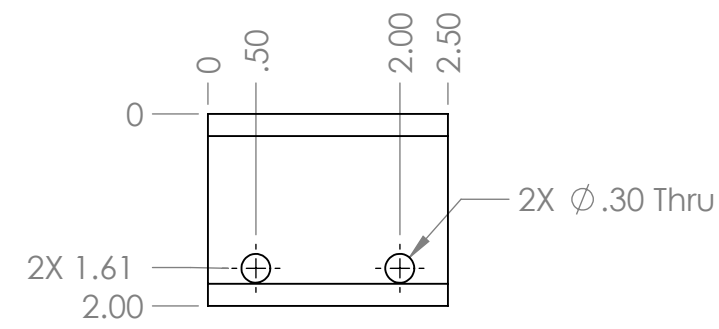
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1

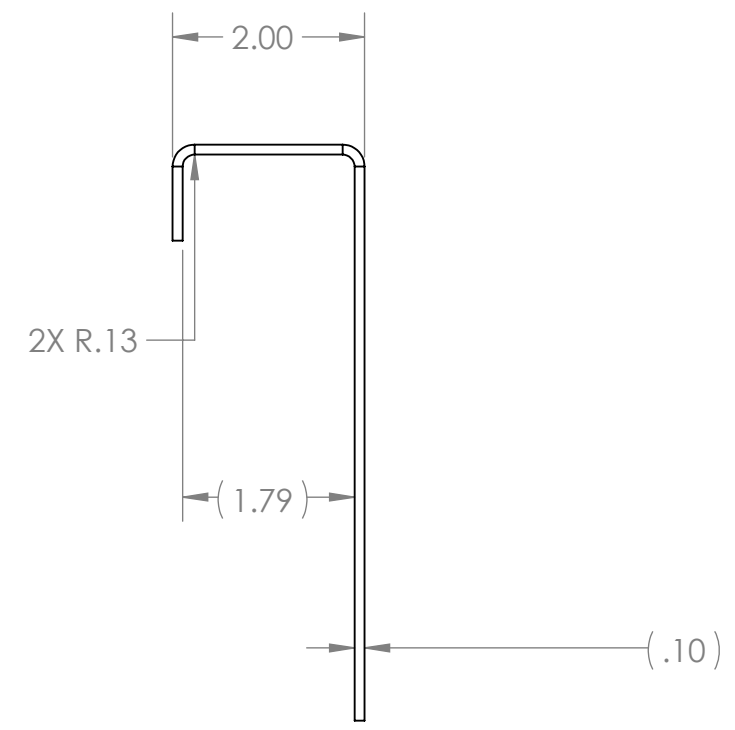
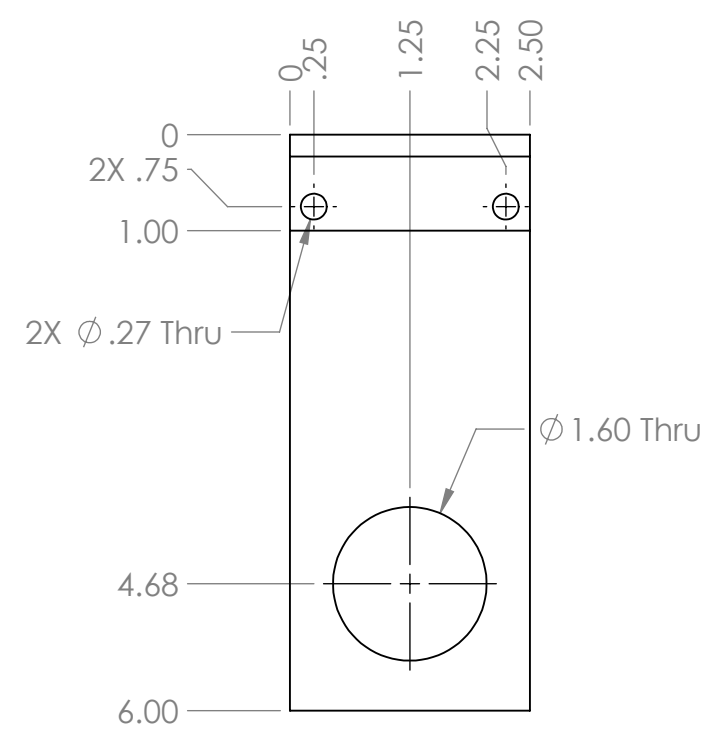
B

B



A



A



Notes:
 1. Material: 12 GA Pre Plated Steel
 2. Remove Sharp Edges and Burrs
 3. Tag and Label with Part Number

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
		FRACTIONAL $\pm 1/16$		ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$		MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$		Q.A.	
		THREE PLACE DECIMAL $\pm .001$		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

TITLE:
12 GA Plated Steel

SIZE	DWG. NO.	REV
B	GE-20371	

SCALE: 1:2 WEIGHT: SHEET 1 OF 1

4

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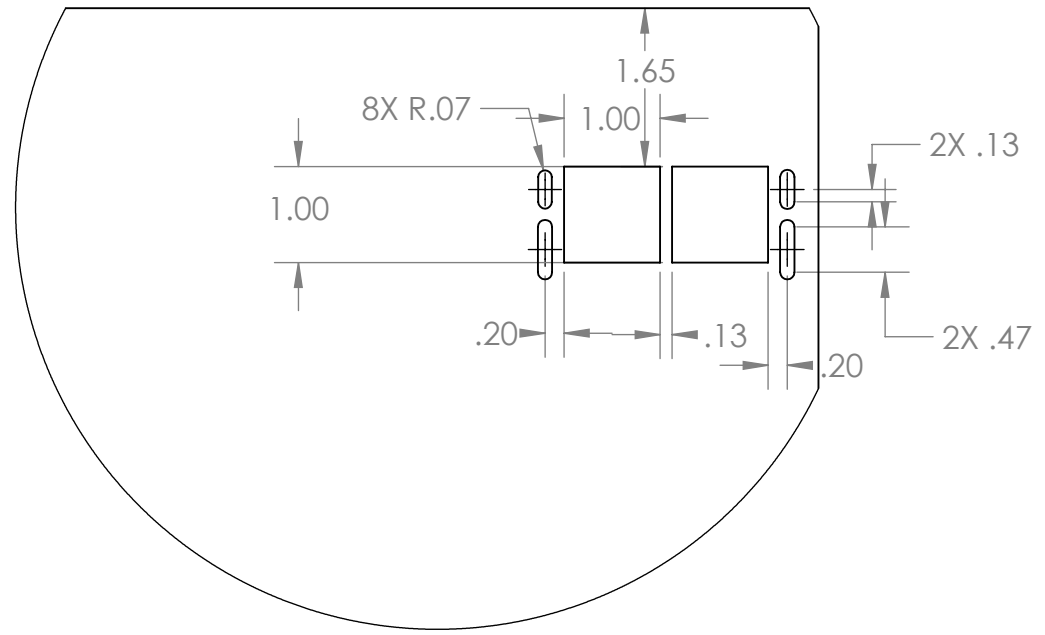
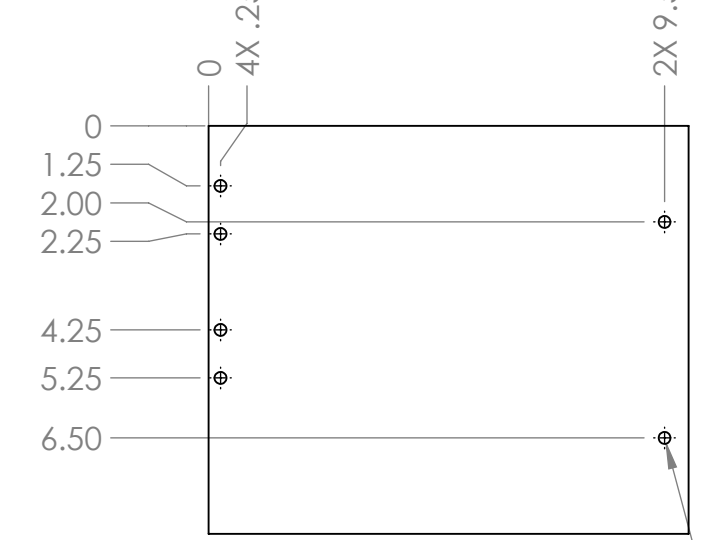
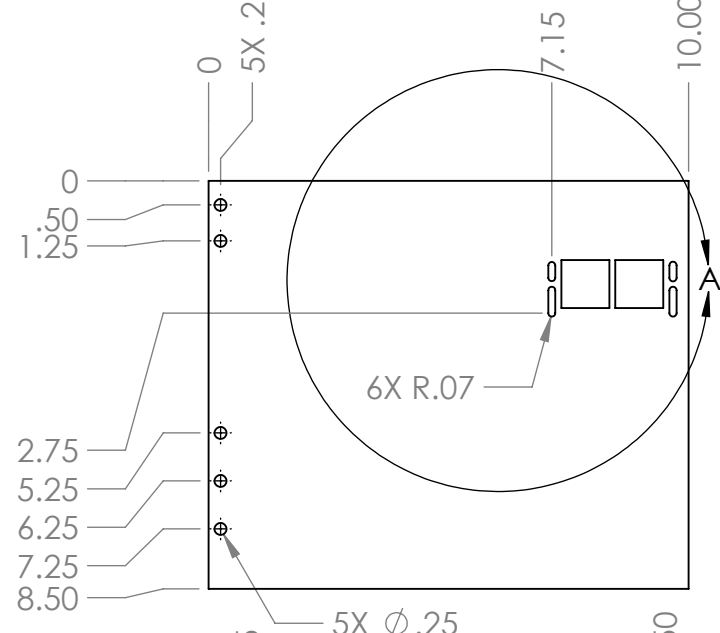
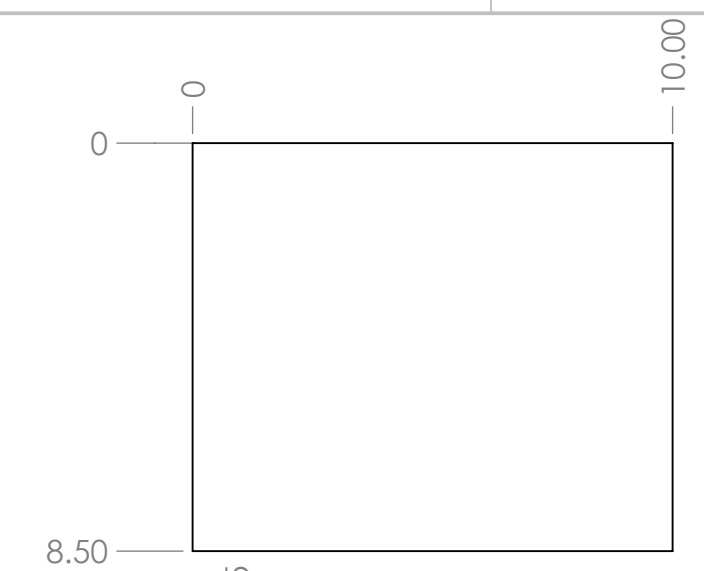
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B

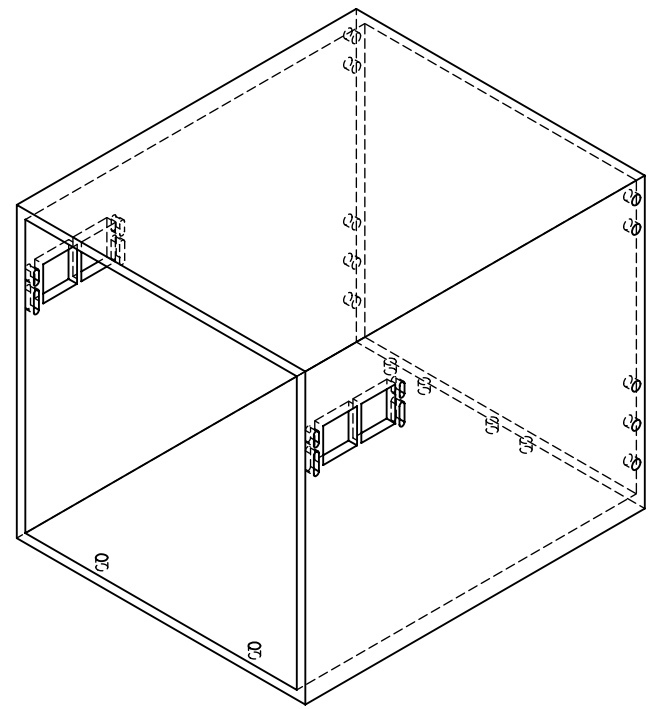
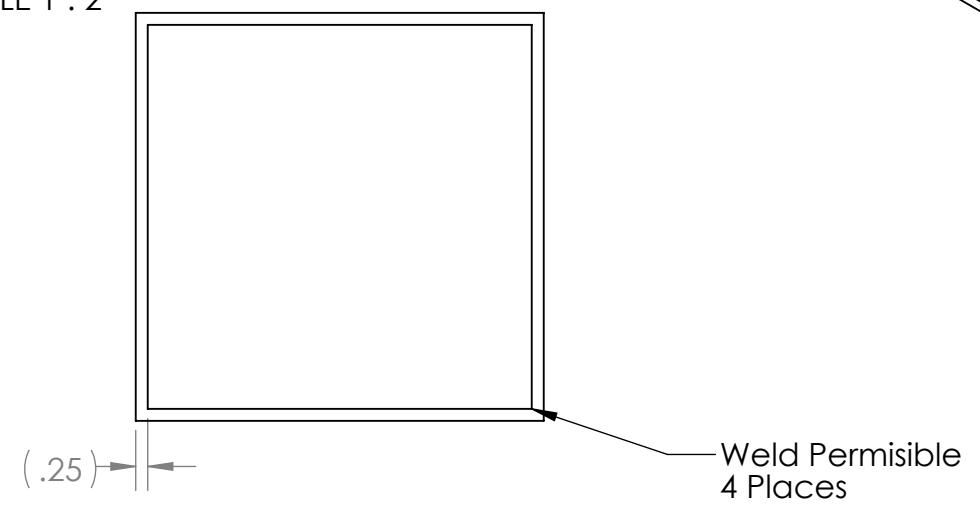
B

A

A



DETAIL A
SCALE 1 : 2



- Note:
1. Material: 1/4" Thick HDPE Sheet, Black
 2. Finish: Orange Peel
 3. Remove Sharp Edges and Burrs
 4. Tag and Label With Part Number

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DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL ± 1/16		ENG APPR.	
ANGULAR: MACH ± 1° BEND ± 1°		MFG APPR.	
TWO PLACE DECIMAL ± .01		Q.A.	
THREE PLACE DECIMAL ± .001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION			
DO NOT SCALE DRAWING			



TITLE: Counter Box		
SIZE B	DWG. NO. GE-20372	REV
SCALE: 1:4	WEIGHT:	SHEET 1 OF 1

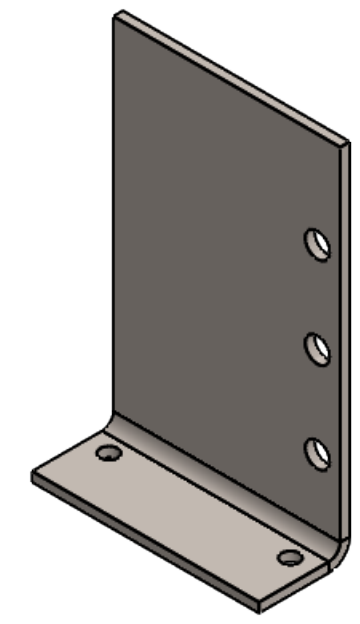
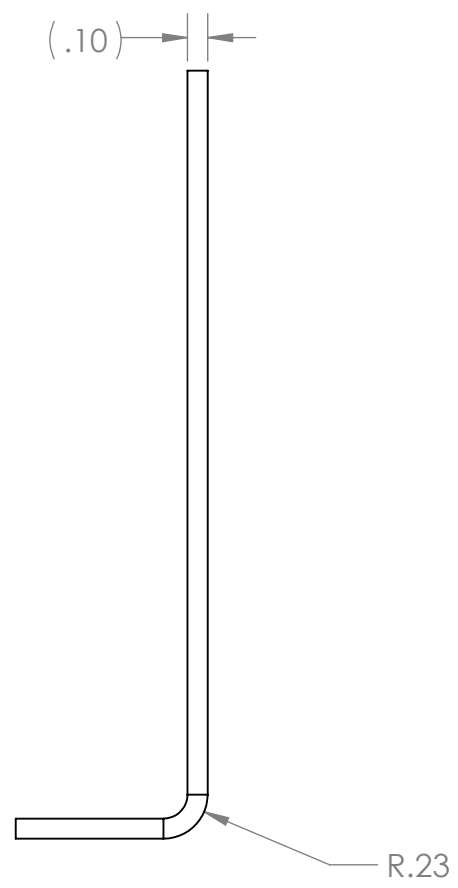
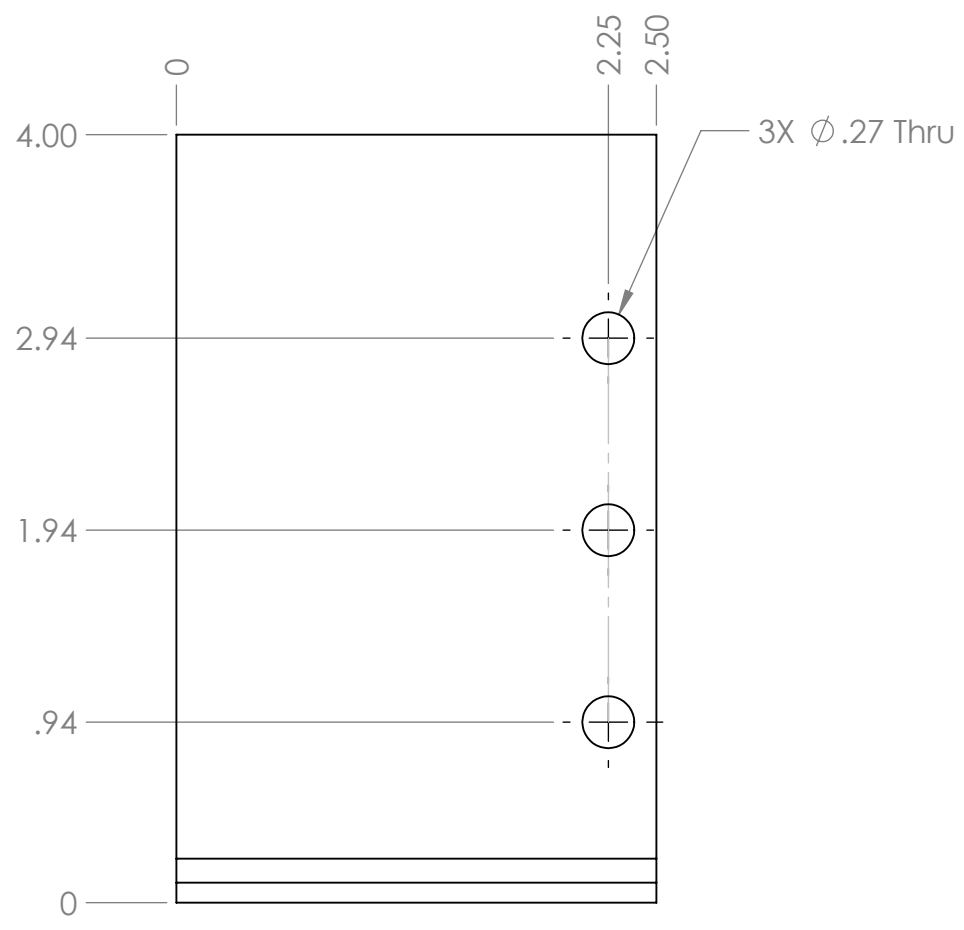
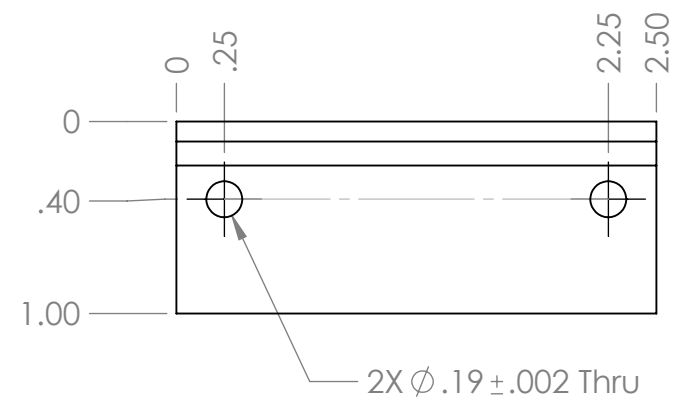
4

3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A1	A	Changed Part Name	11/22/2019	MXS



Note:
 1. Material: 12 Gage Preplated Steel Sheet
 2. Remove Sharp Edges and Burrs
 3. Tag and Label With Part Number

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ± 1/16	ENG APPR.	
		ANGULAR: MACH ± 1° BEND ± 1°	MFG APPR.	
		TWO PLACE DECIMAL ± .01	Q.A.	
		THREE PLACE DECIMAL ± .001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		

△ A

FIRST ROBOTICS COMPETITION **SOLIDWORKS**
Modeling Solutions Partner

TITLE:
Counter Box Side Bracket

SIZE	DWG. NO.	REV
B	GE-20373	A
SCALE: 1:1	WEIGHT:	SHEET 1 OF 1

4

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B

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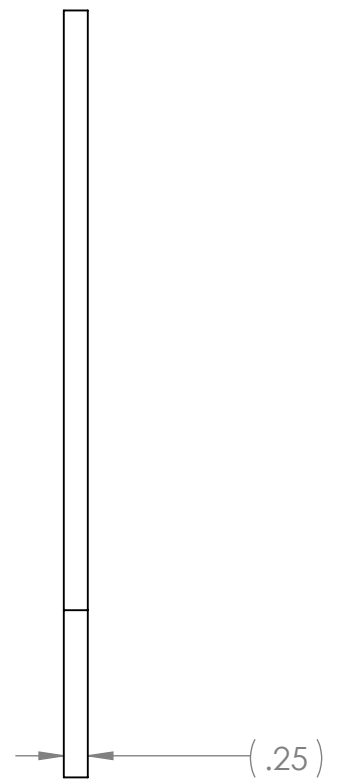
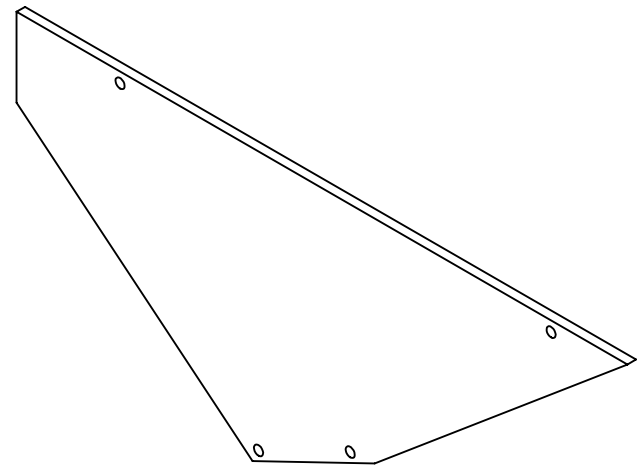
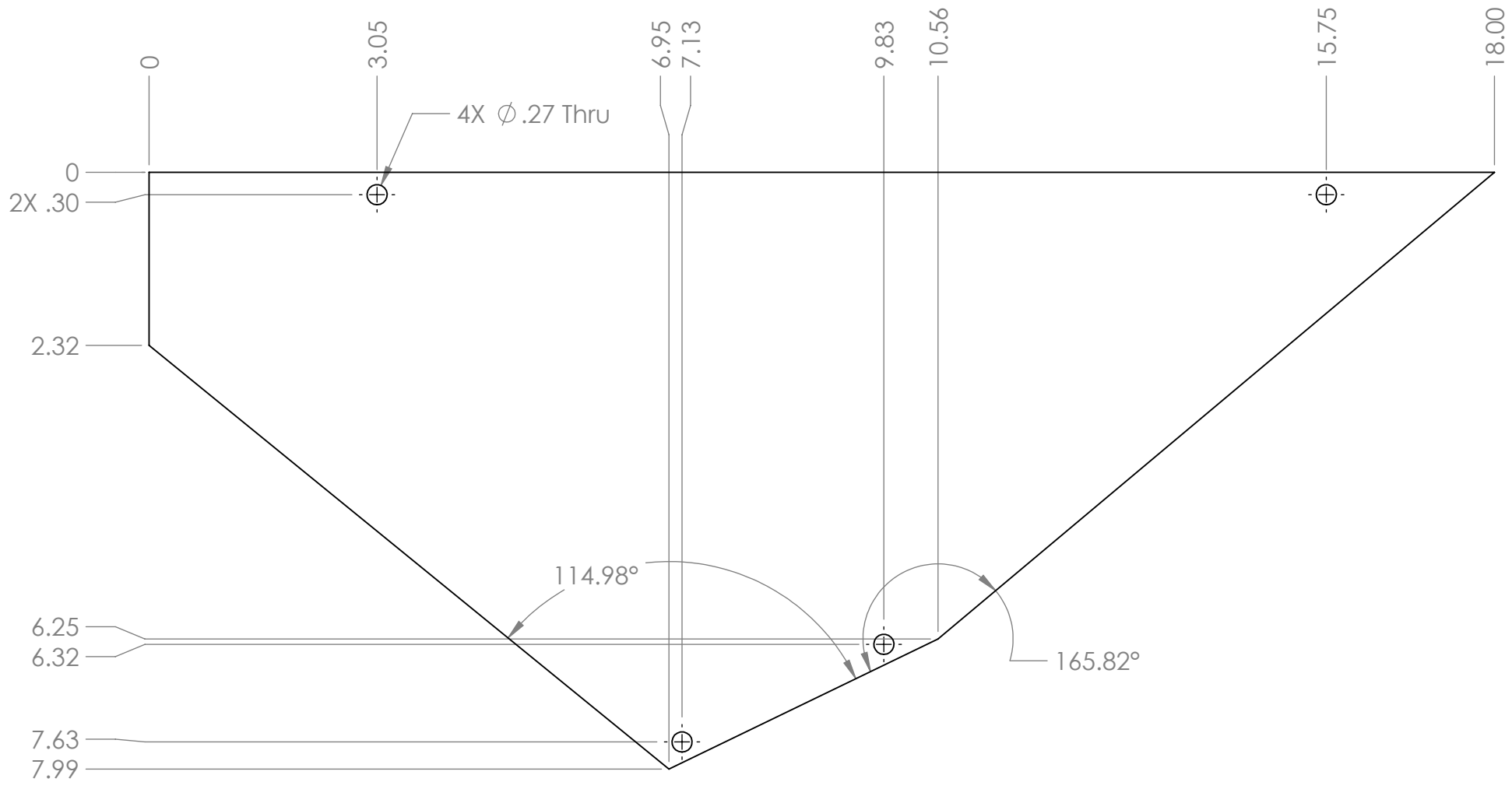
3

2

1

B

B





A

A

- Notes:
1. Material : 1/4" Thick Polycarbonate Sheet, Clear
 2. Remove Sharp Edges and Burrs
 3. Tag and Label with Part Numbers

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
NEXT ASSY	USED ON	FINISH		MFG APPR.	
APPLICATION		DO NOT SCALE DRAWING		Q.A.	
				COMMENTS:	
				TITLE:	
				 	
				<h1>Serializer Top Angle</h1>	
SIZE	DWG. NO.	REV			
B	GE-20374				
SCALE: 1:4		WEIGHT:		SHEET 1 OF 1	

4

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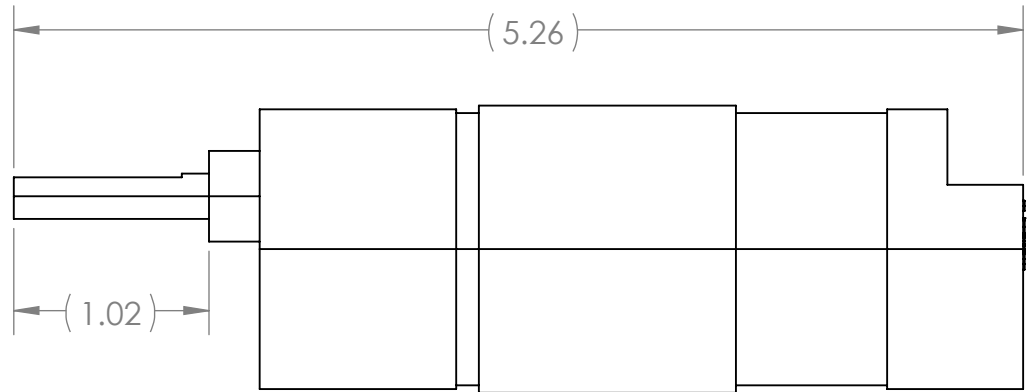
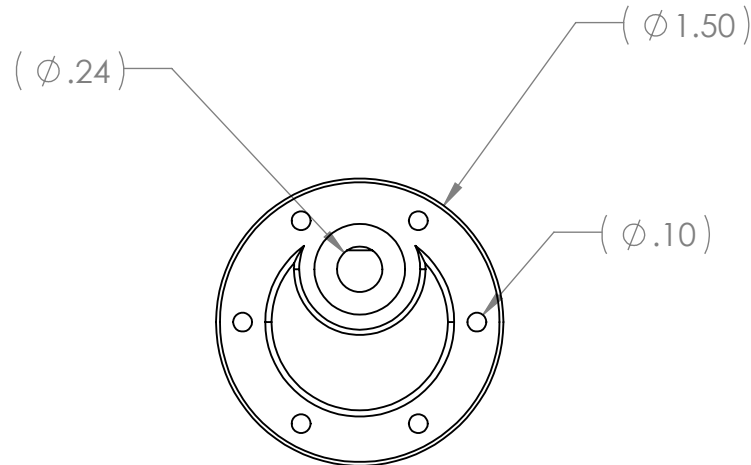
3

2

1

B

B



Description: NeverRest 60 Motor
Vendor: Andymark
Part Number: am-3103

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A

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ±1/16	ENG APPR.		
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.		
		TWO PLACE DECIMAL ±.01	Q.A.		
		THREE PLACE DECIMAL ±.001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE: NeverRest 60		
SIZE B	DWG. NO. GE-20381	REV
SCALE: 1:2	WEIGHT:	SHEET 1 OF 1

4

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1

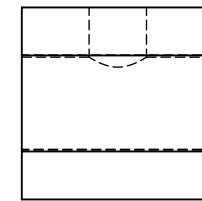
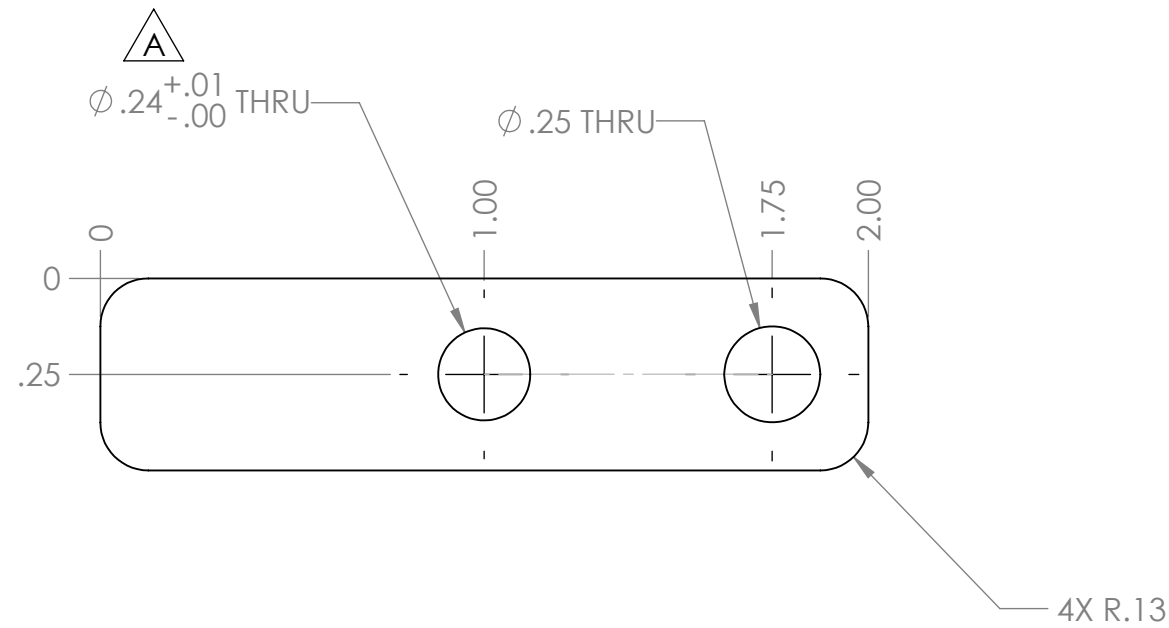
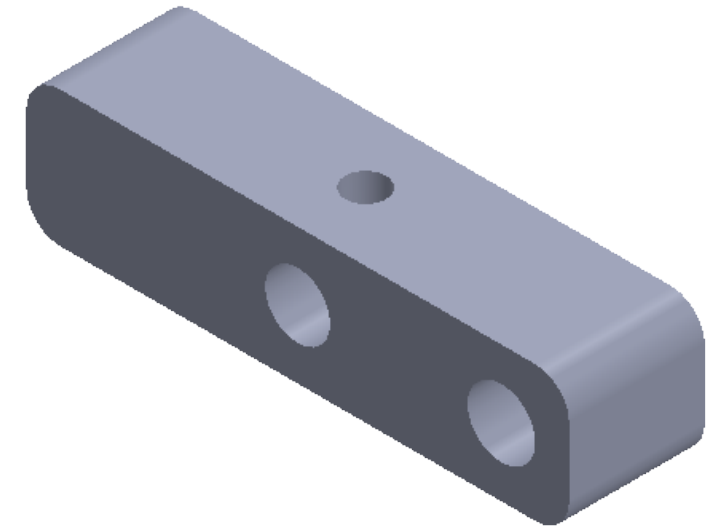
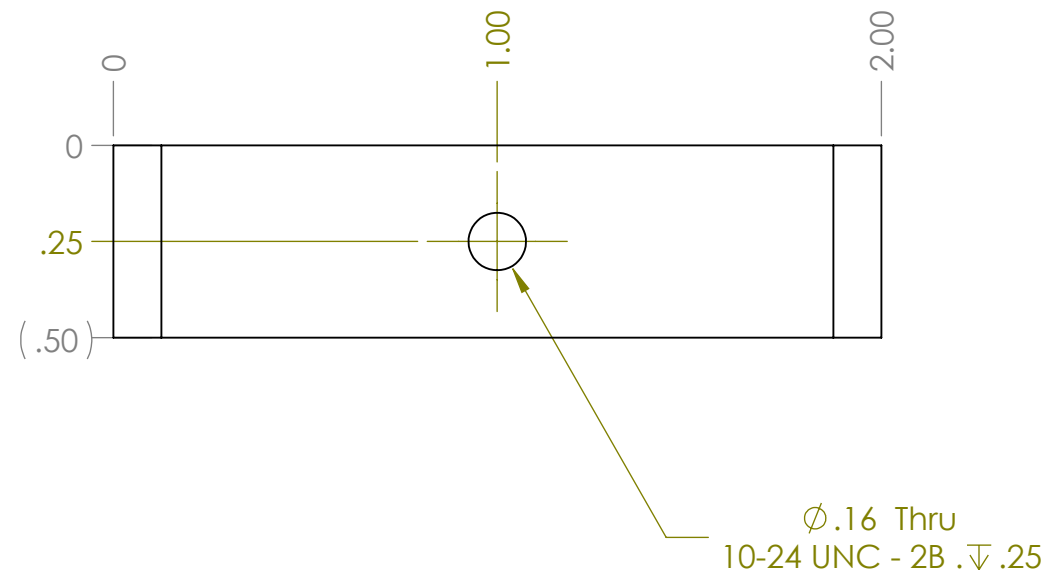
4

3

2



1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B4	A	Changed Hole size and toleranced	10/23/2019	MXS



Note:
 1. Material: 1/2" Square Bar, 6061 Aluminum
 2. Remove Sharp Edges and Burrs
 3. Tag and Label With Part Number

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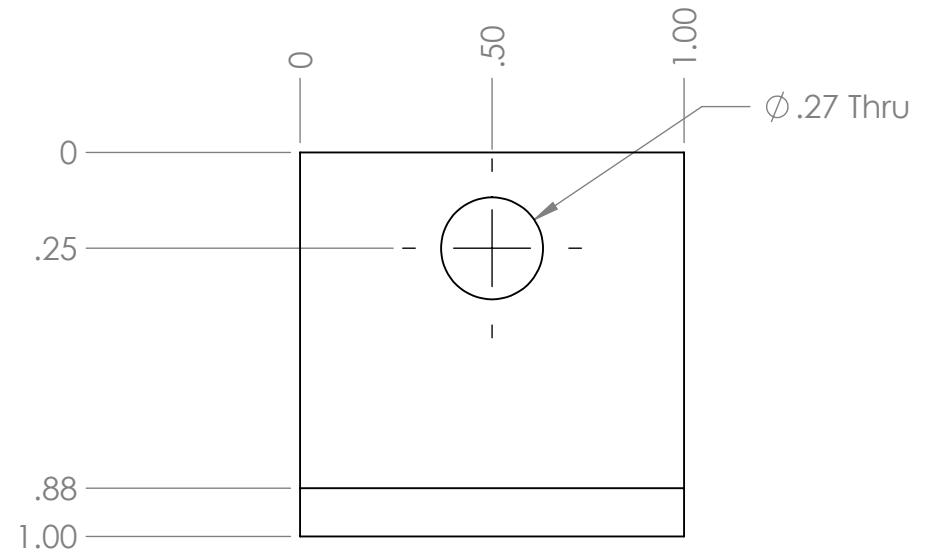
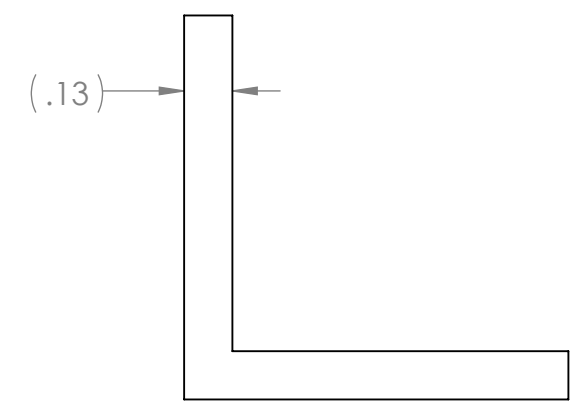
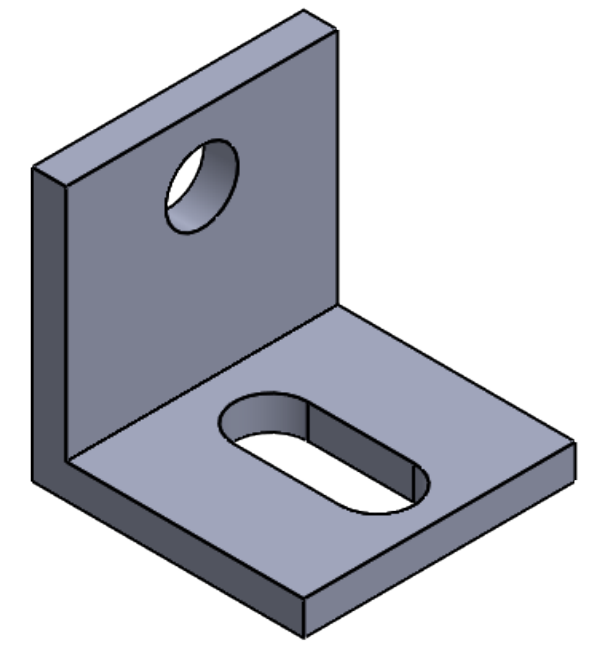
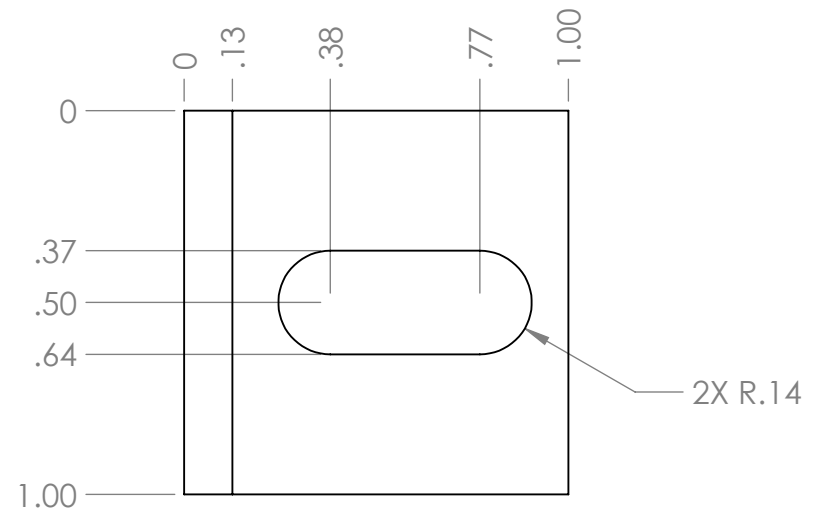
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		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE B DWG. NO. GE-20382 REV B
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		
APPLICATION		DO NOT SCALE DRAWING	Q.A.		
			COMMENTS:		

4

3

2

1



- Notes:
1. Material: 1x1x.125 Aluminumn Angle 6063
 2. Remove Sharp Edges and Burrs
 3. Tag and Label with Part Numbers

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ±1/16	ENG APPR.		
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.		
		TWO PLACE DECIMAL ±.01	Q.A.		
		THREE PLACE DECIMAL ±.001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE: L Bracket		
SIZE B	DWG. NO. GE-20384	REV
SCALE: 2:1	WEIGHT:	SHEET 1 OF 1

4

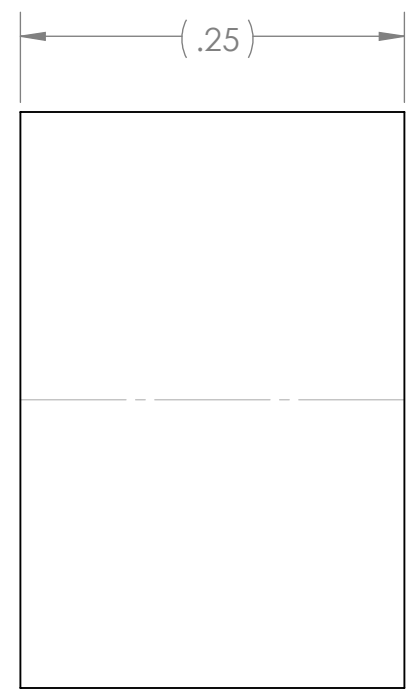
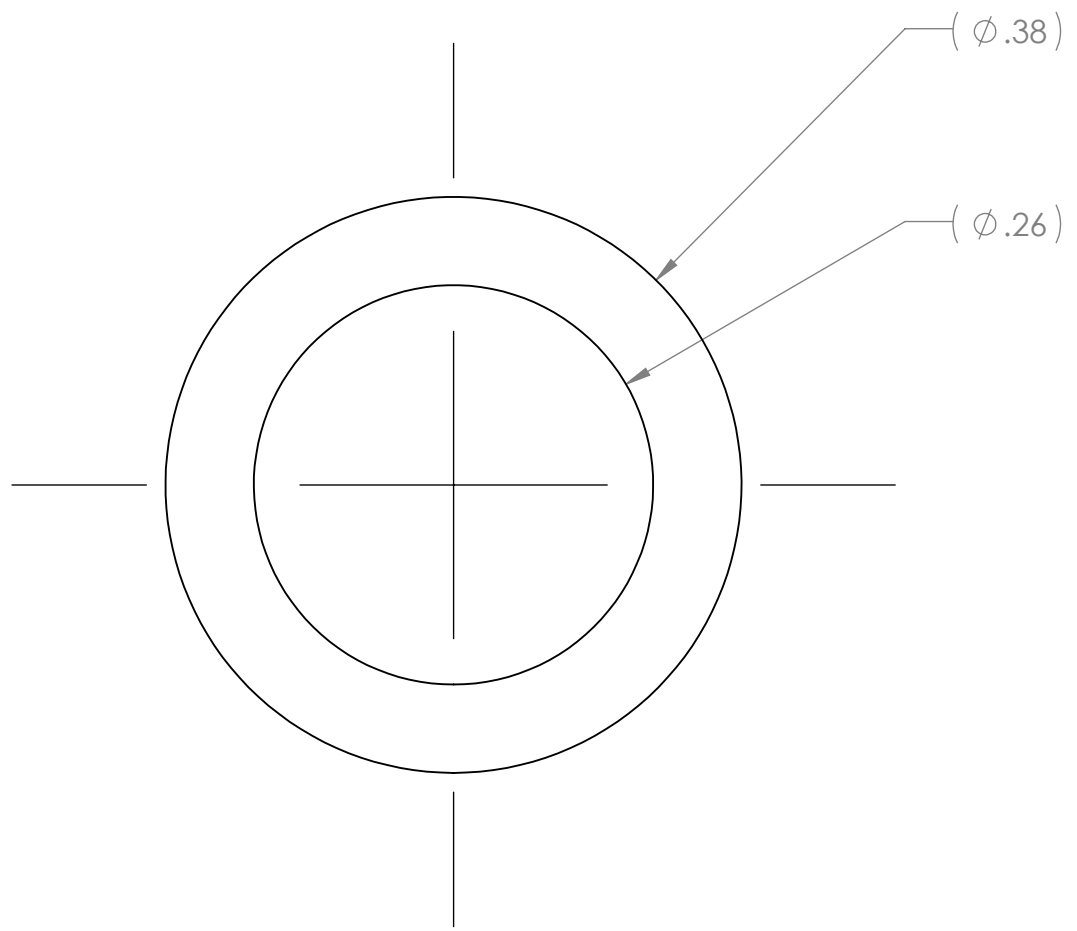
3

2

1

B

B



Notes

Vendor: McMasterCarr

Partnumber: 94639A569

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ±1/16	ENG APPR.		
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.		
		TWO PLACE DECIMAL ±.01	Q.A.		
		THREE PLACE DECIMAL ±.001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:		
<h1>Spacer</h1>		
SIZE	DWG. NO.	REV
B	GE-20385	
SCALE: 8:1	WEIGHT:	SHEET 1 OF 1

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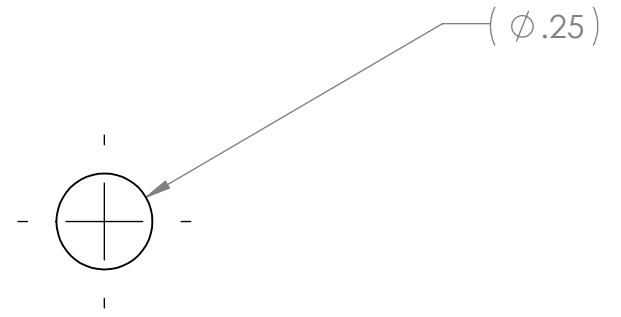
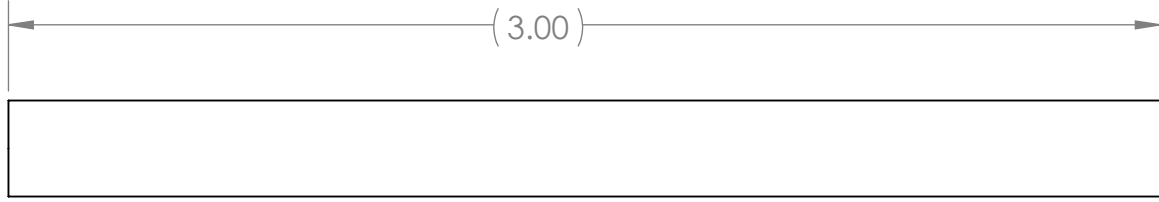
4

3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Changed Part and part length	10/24/2019	MXS



Notes:
 1. Material: Low-Strength Steel Threaded Rod
 1/4"-20 Thread Size, 3" Long
 McMaster-Carr: 91565A554

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
1/4x20 Threaded Shaft

SIZE	DWG. NO.	REV
B	GE-20386	A

SCALE: 2:1 WEIGHT: SHEET 1 OF 1

4

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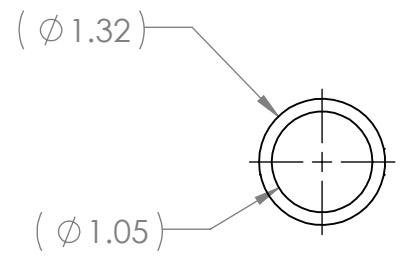
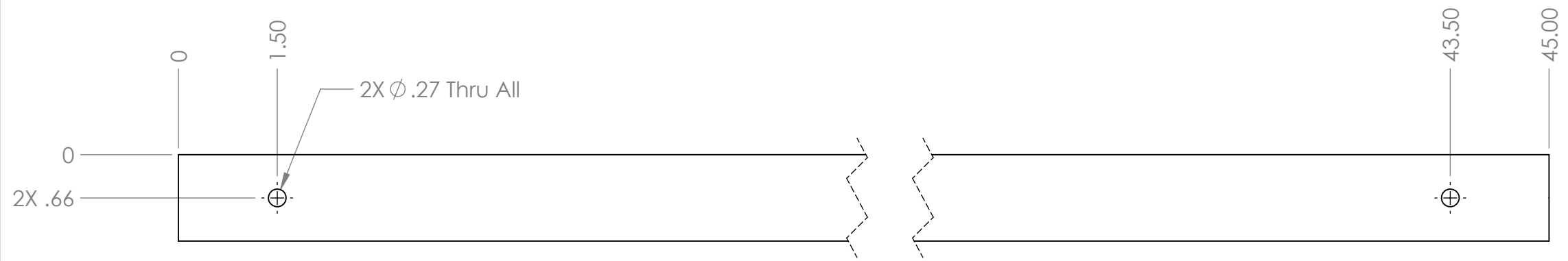
3

2

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B

B



- Notes:
1. Material: 1" Schedule 40 Pipe, 6061 Aluminum
 2. Remove Sharp Edges and Burrs
 3. Tag and Label With Part Number

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE		
		DIMENSIONS ARE IN INCHES		DRAWN			
		TOLERANCES:		CHECKED			
		FRACTIONAL ±1/16		ENG APPR.			
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.			
		TWO PLACE DECIMAL ±.01		Q.A.			
		THREE PLACE DECIMAL ±.001		COMMENTS:			
		INTERPRET GEOMETRIC TOLERANCING PER:		 			
		MATERIAL				TITLE: support bar	
		FINISH				SIZE DWG. NO. REV	
NEXT ASSY	USED ON			B GE-20387			
APPLICATION		DO NOT SCALE DRAWING		SCALE: 1:2 WEIGHT: SHEET 1 OF 1			

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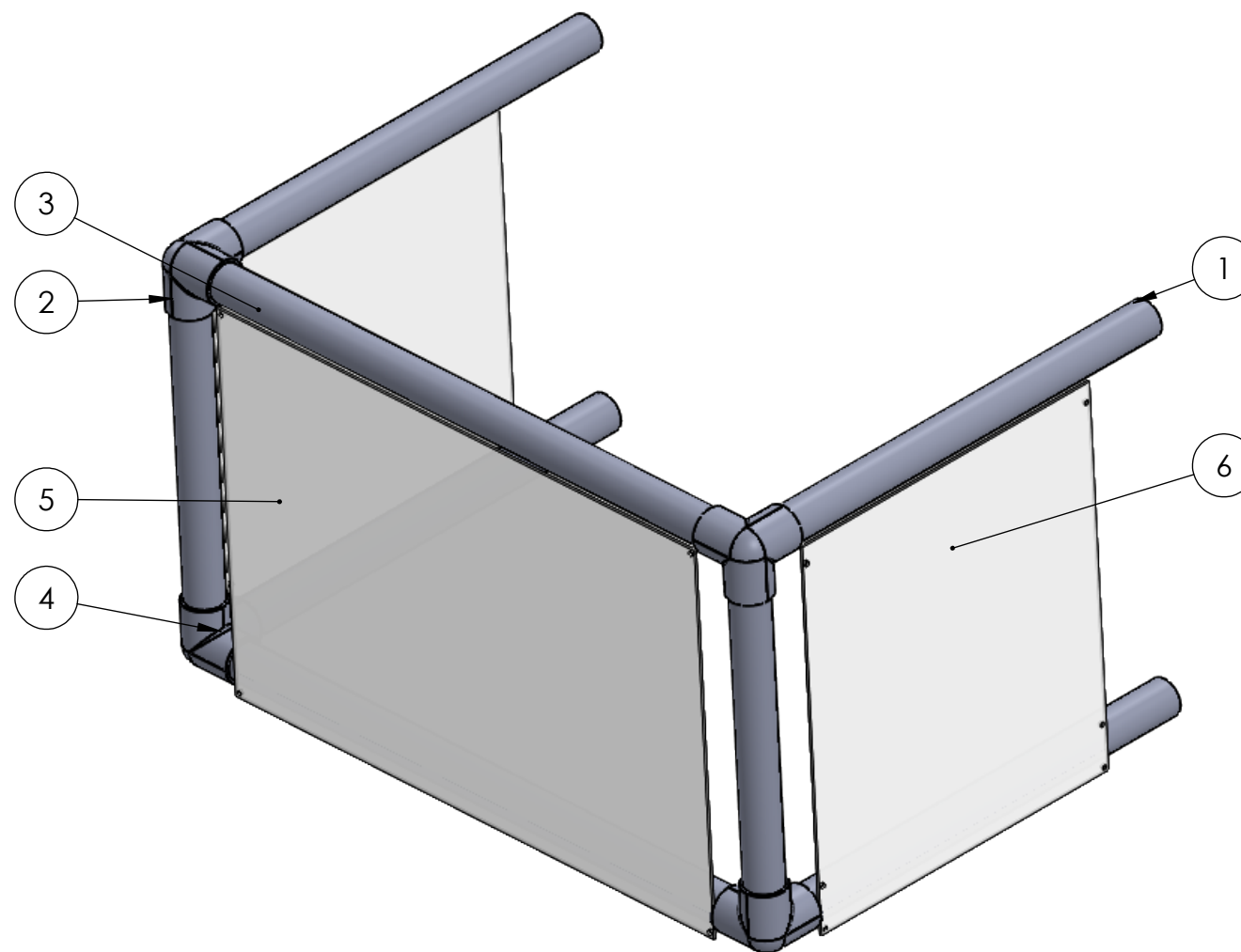
A

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2



1



Note: Use cable ties to attach plastic pieces.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20393	Corral Leg Side	4
2	GE-20396	Corral Elbow	4
3	GE-20395	Corral Leg Middle	2
4	GE-20394	Corral Leg Vertical	2
5	GE-20391	Corral Backboard	1
6	GE-20392	Corral Side Plastic	2

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE DWG. NO. REV B GE-20390
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		
APPLICATION		DO NOT SCALE DRAWING	Q.A.		
			COMMENTS:		

4

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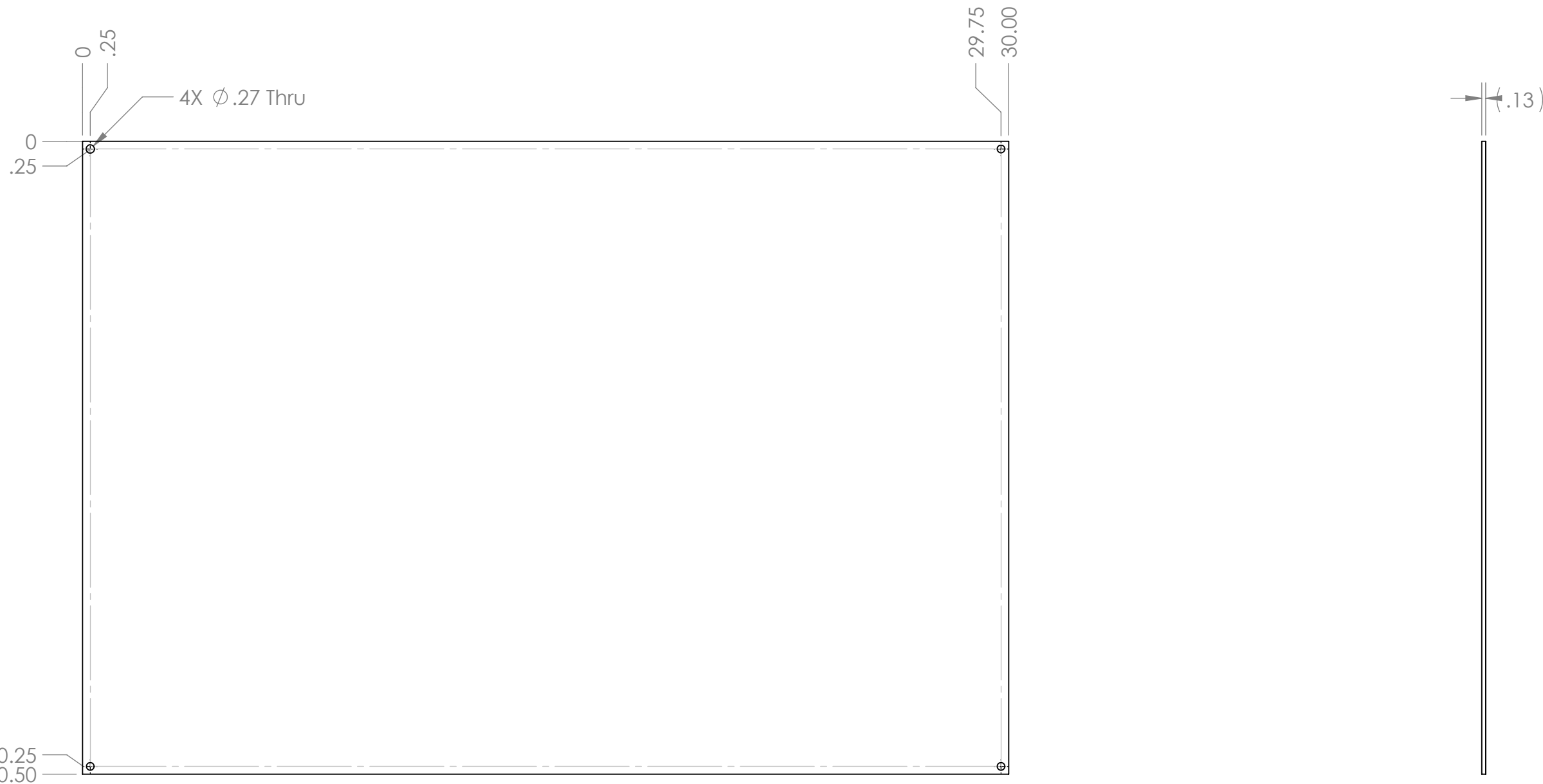
A

4

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2

1



- Notes:
1. Material: 1/8" Polycarbonate Sheet clear
 2. Remove Sharp Edges and Burrs
 3. Tag and Label with Part Numbers

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
 					
TITLE: Coral Backboard					
SIZE	DWG. NO.			REV	
B	GE-20391				
SCALE: 1:4		WEIGHT:		SHEET 1 OF 1	

4

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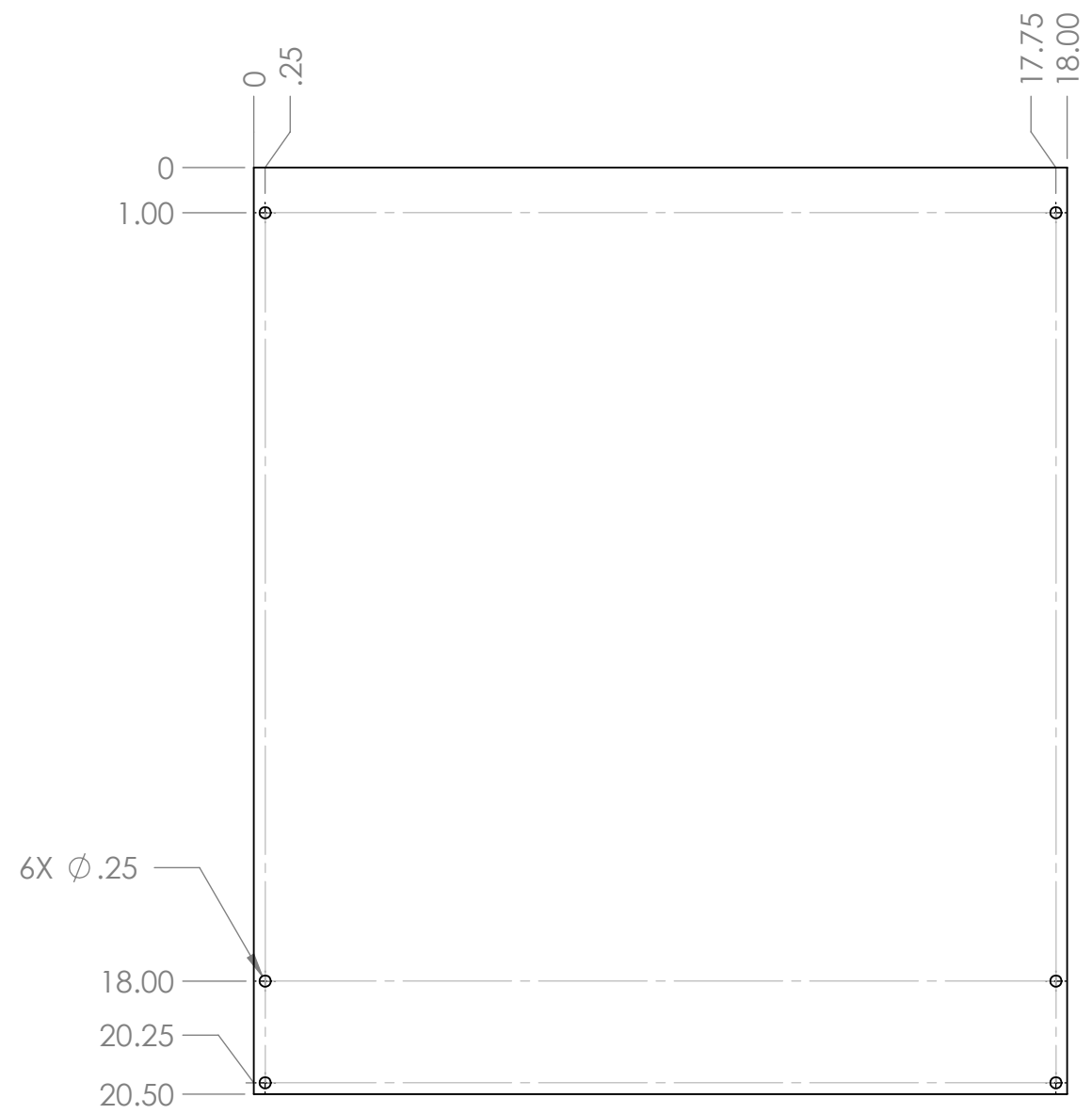
A

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- Notes:
1. Material: 1/8" Thick Polycarbonate Clear
 2. Remove Sharp Edges and Burrs
 3. Tag and label with part number

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ±1/16	ENG APPR.		
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.		
		TWO PLACE DECIMAL ±.01	Q.A.		
		THREE PLACE DECIMAL ±.001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Coral Side Plastic**

SIZE	DWG. NO.	REV
B	GE-20392	

SCALE: 1:4 WEIGHT: SHEET 1 OF 1

4

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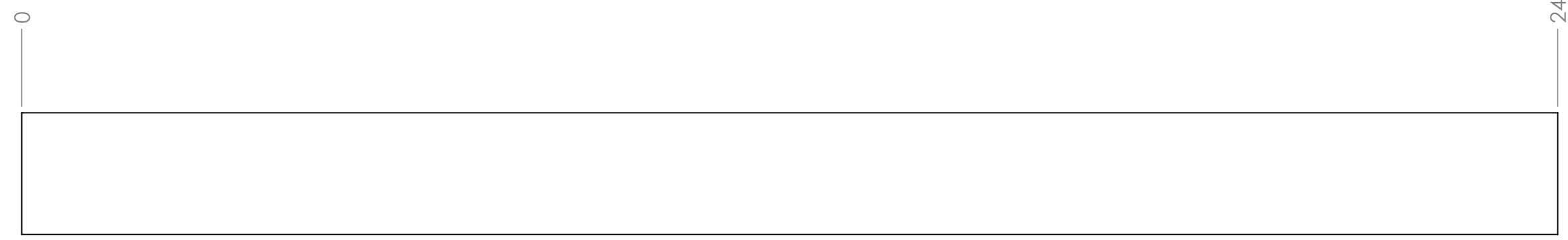
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B

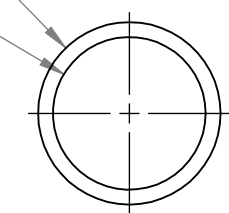
B



24.00

(Ø 1.90)

(Ø 1.59)



Notes:

1. Materials: 1 1/2" Schedule 40 PVC Pipe, White
2. Remove Sharp edges and burrs
3. Remove markings and lettering
4. Tag and Label with Part Numbers

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ±1/16	ENG APPR.		
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.		
		TWO PLACE DECIMAL ±.01	Q.A.		
		THREE PLACE DECIMAL ±.001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:
Corral Leg Side

SIZE	DWG. NO.	REV
B	GE-20393	

SCALE: 1:2 WEIGHT: SHEET 1 OF 1

4

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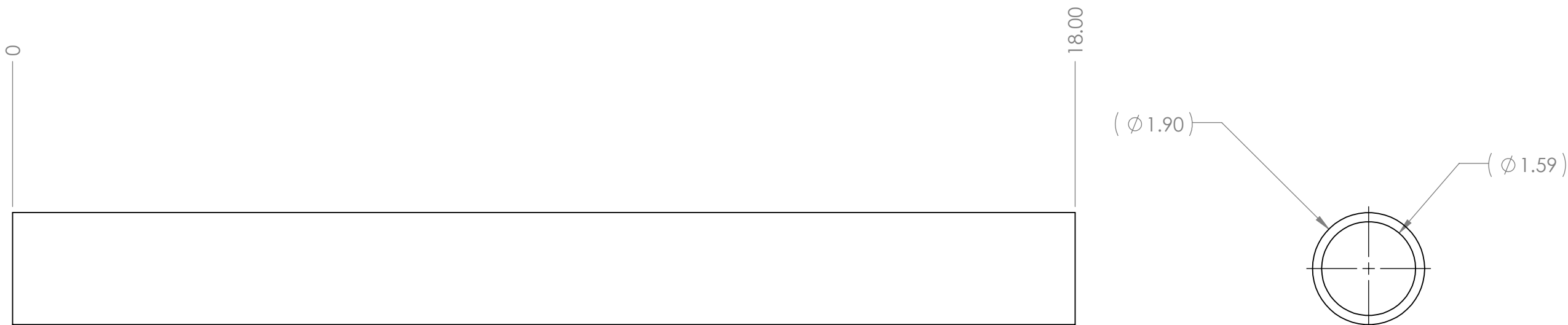
3

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- Notes:
1. Material: 1-1/2" Schedule 40 PVC Pipe, White
 2. Remove Lettering and Markings
 3. Remove Sharp Edges and Burrs
 4. Tag and Label with Part Number

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		<h1>Corral Leg Vertical</h1>
		MATERIAL	ENG APPR.		
		FINISH	MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON		Q.A.		B GE-20394
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		SCALE: 1:2 WEIGHT: SHEET 1 OF 1

4

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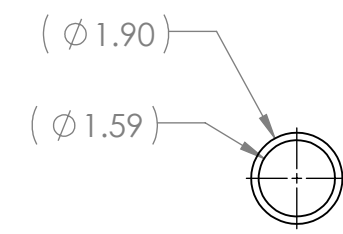
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- Notes:
1. Material: 1-1/2" Schedule 40 PVC, White
 2. Remove Labeling and Lettering
 3. Remove Sharp Edges and Burrs
 4. Tag and Label with Part Number

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		<h1>Corral Leg Middle</h1>
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		SIZE DWG. NO. REV
APPLICATION		DO NOT SCALE DRAWING	Q.A.		B GE-20395
			COMMENTS:		SCALE: 1:4 WEIGHT: SHEET 1 OF 1

4

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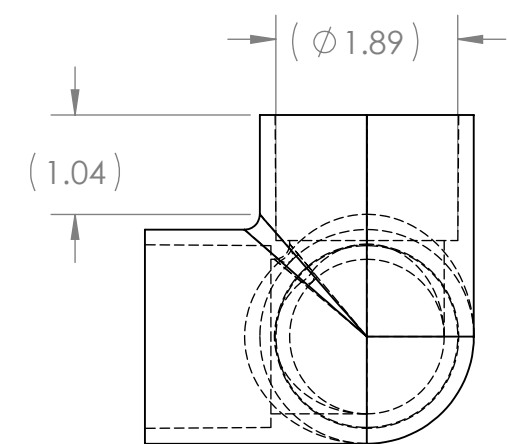
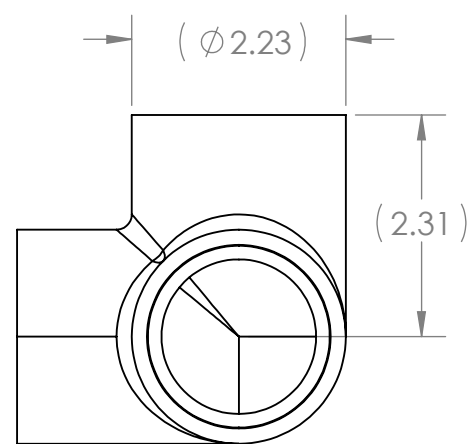
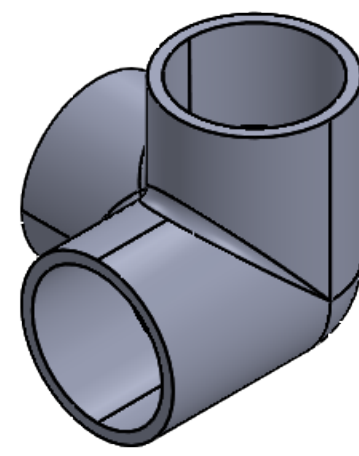
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Description: Standard-Wall PVC Pipe Fitting for Water Side-Outlet Elbow Connector, 1-1/2 Socket-Connect Female

Vendor: McMaster-Carr

Part Number: 4880K634

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		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL ±1/16	ENG APPR.		
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.		
		TWO PLACE DECIMAL ±.01	Q.A.		
		THREE PLACE DECIMAL ±.001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:
Corral Elbow

SIZE	DWG. NO.	REV
B	GE-20396	

SCALE: 1:2 WEIGHT: SHEET 1 OF 1

4

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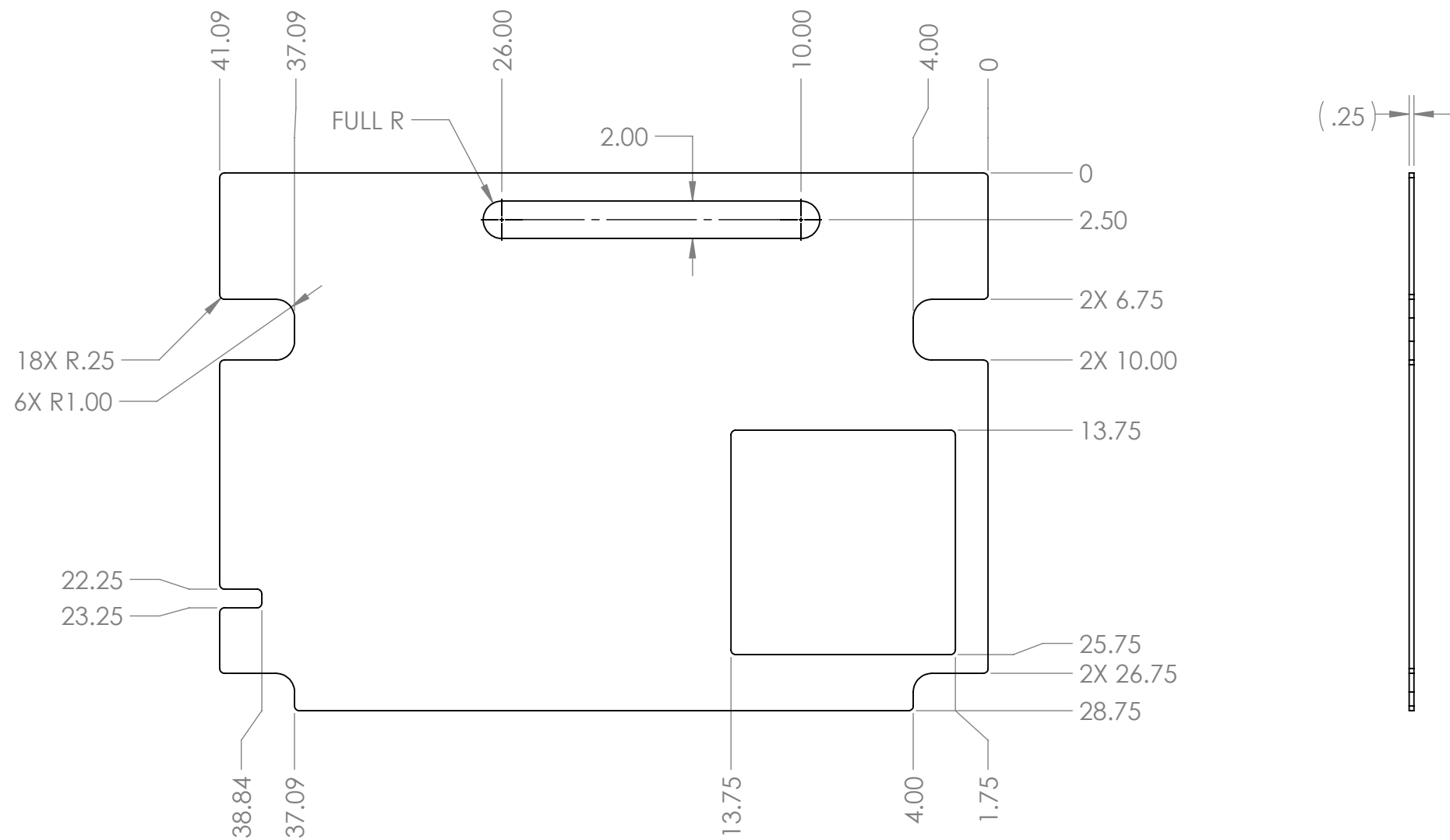
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- Notes:
1. Material: 1/4" Clear Polycarbonate.
 2. Remove all burrs and sharp edges.
 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:
Power Port Base Back Bottom

SIZE DWG. NO. REV
B GE-20398

SCALE: 1:8 WEIGHT: SHEET 1 OF 1

4

3

2

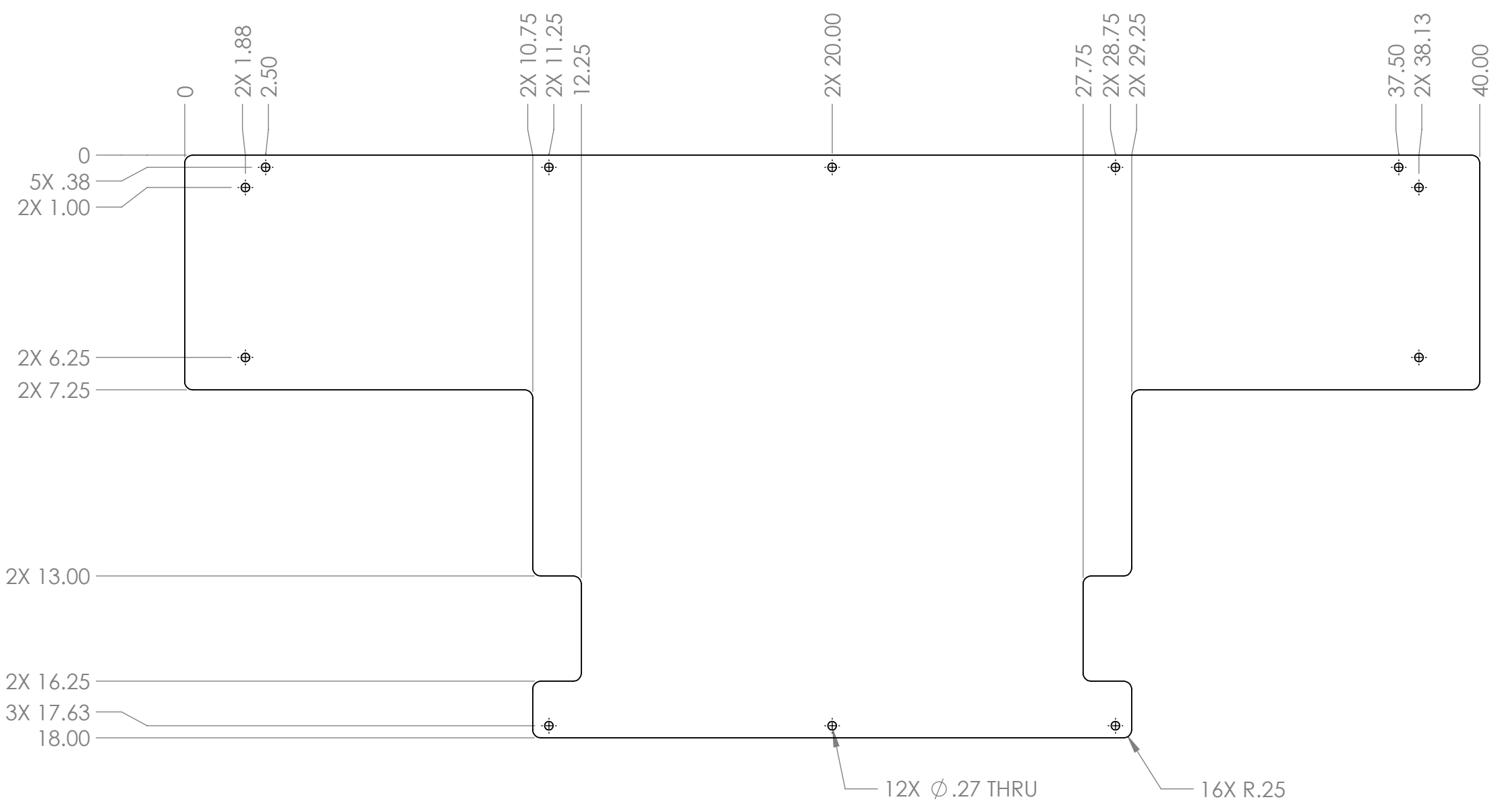
1

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(.25)

Notes:

- 1. Material: 1/4" Clear Polycarbonate
- 2. Remove all burrs and sharp edges.
- 3. Tag or label with part number.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
NEXT ASSY	USED ON	FINISH		MFG APPR.	
APPLICATION		DO NOT SCALE DRAWING		Q.A.	
				COMMENTS:	
 					
TITLE: Cover, Outer Port Serializer					
SIZE	DWG. NO.			REV	
B	GE-20399				
SCALE: 1:4		WEIGHT:		SHEET 1 OF 1	

4

3

2

1

Notes:

1. (1), (2), (3), (4), (5) are attached via (25), (26), (32), and secured to the field carpet via (11). These parts have volunteer requirements for assembly.
2. Secure (13) to Truss using 50-lb cable ties.
3. Attach (23) & (22) to (21) before installing (21).
4. (21) is attached to (5) via (6) and aligned using (13). Lifting and securing (21) has volunteer requirements.
5. Attach 2x (9) flush to (6) on each (21) assembly.
6. Attach (18) and (19) using appropriate hardware.
7. Attach (10) to (4) by looping around Truss. Ensure loops on (10) are facing towards (21). To move out of the way, attach (10) to (18) or (19) using the attached magnet.
8. Assemble (7) and (8) with appropriate hardware. Once assembled, attach (7) to (5) such that (7) is aligned with (6).
9. Secure (28) and (27) to Truss using 50-lb cable ties.
10. Secure (30) to Truss using 50-lb cable ties.

△ B

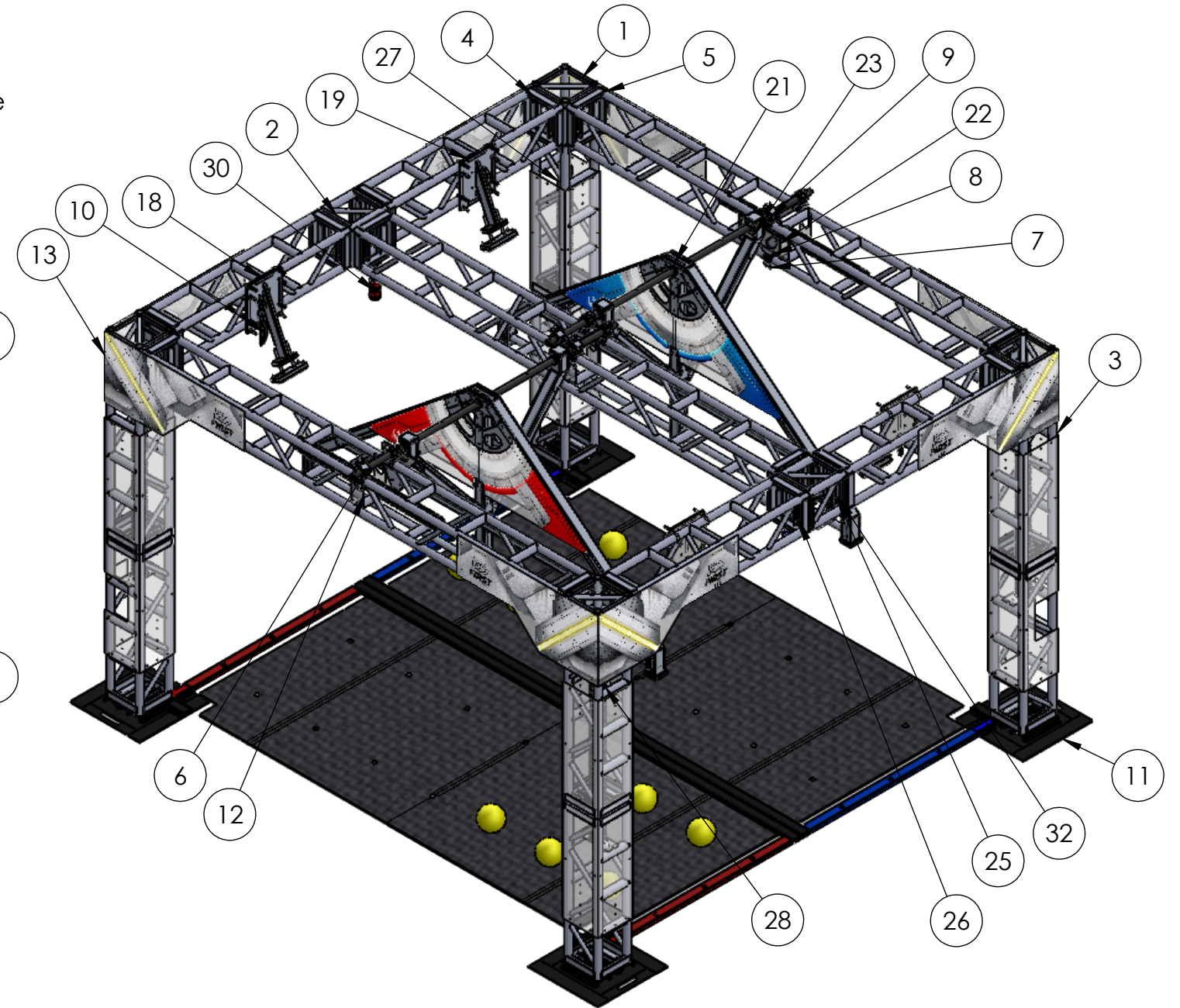
△ B

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
			 		
TITLE: Shield Generator					
SIZE	DWG. NO.			REV	
B	GE-21000			B	
SCALE: 1:36 WEIGHT:				SHEET 2 OF 6	

A

4

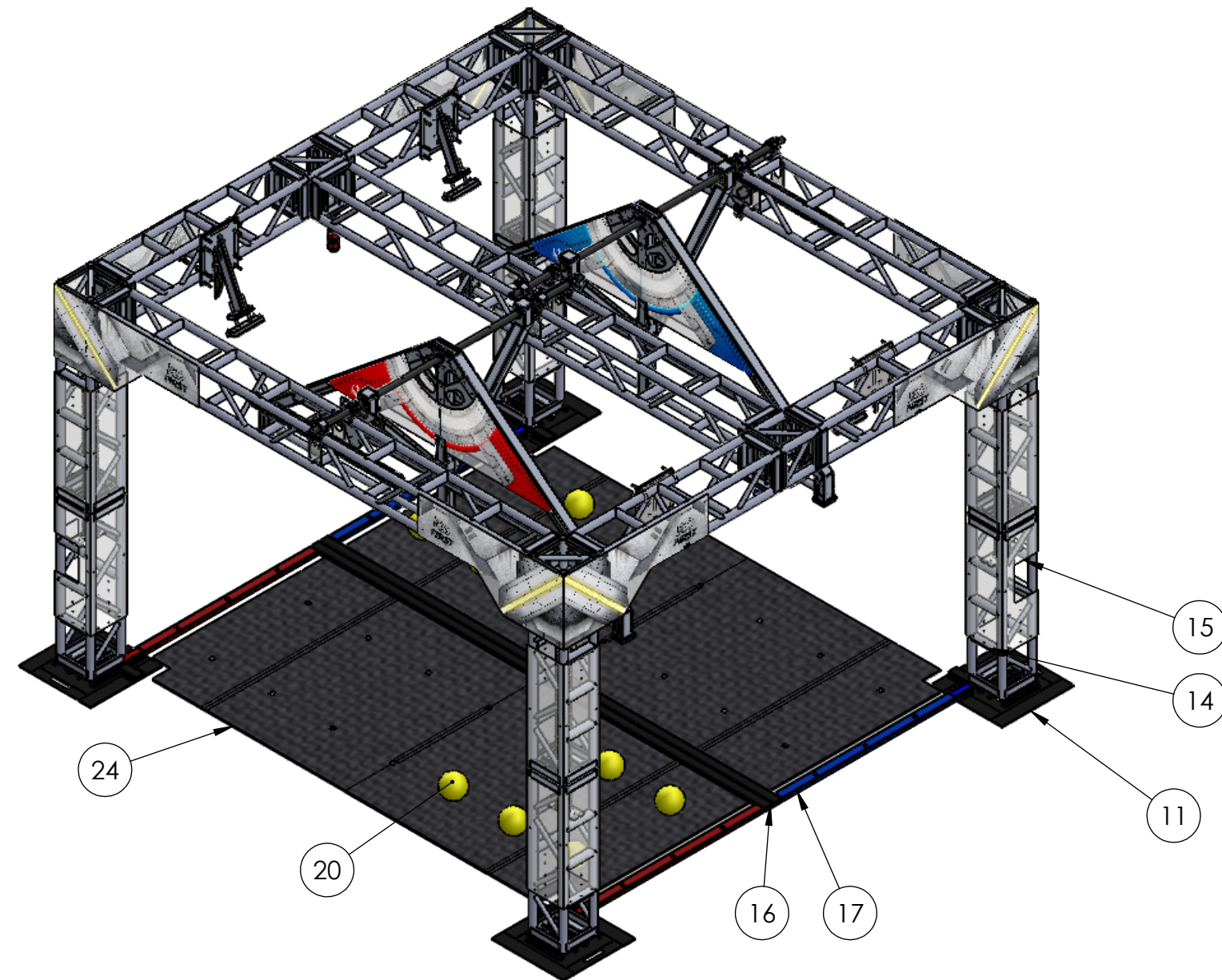
3

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Notes:

- △ B 1. Align 2x red and 2x blue (17) with boundaries on (11). Apply colored Gaffers Tape to boundaries on (11).
- △ B 2. Align 2X (16) between 2X (17). Repeat until there are 4x (16) placed.
- △ B 3. Place (24) between (17) and aligned with (16).
4. Attach (14) and (15) with 120-lb cable ties. Be sure (15) aligns with Trenches.
- △ B 5. Place (20) on (24) as needed.





A

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL: $\pm 1/16$		ENG APPR.	
ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$		MFG APPR.	
TWO PLACE DECIMAL $\pm .01$		Q.A.	
THREE PLACE DECIMAL $\pm .001$		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION		DO NOT SCALE DRAWING	

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TITLE:
Shield Generator

SIZE	DWG. NO.	REV
B	GE-21000	B

SCALE: 1:36 WEIGHT: SHEET 3 OF 6

4

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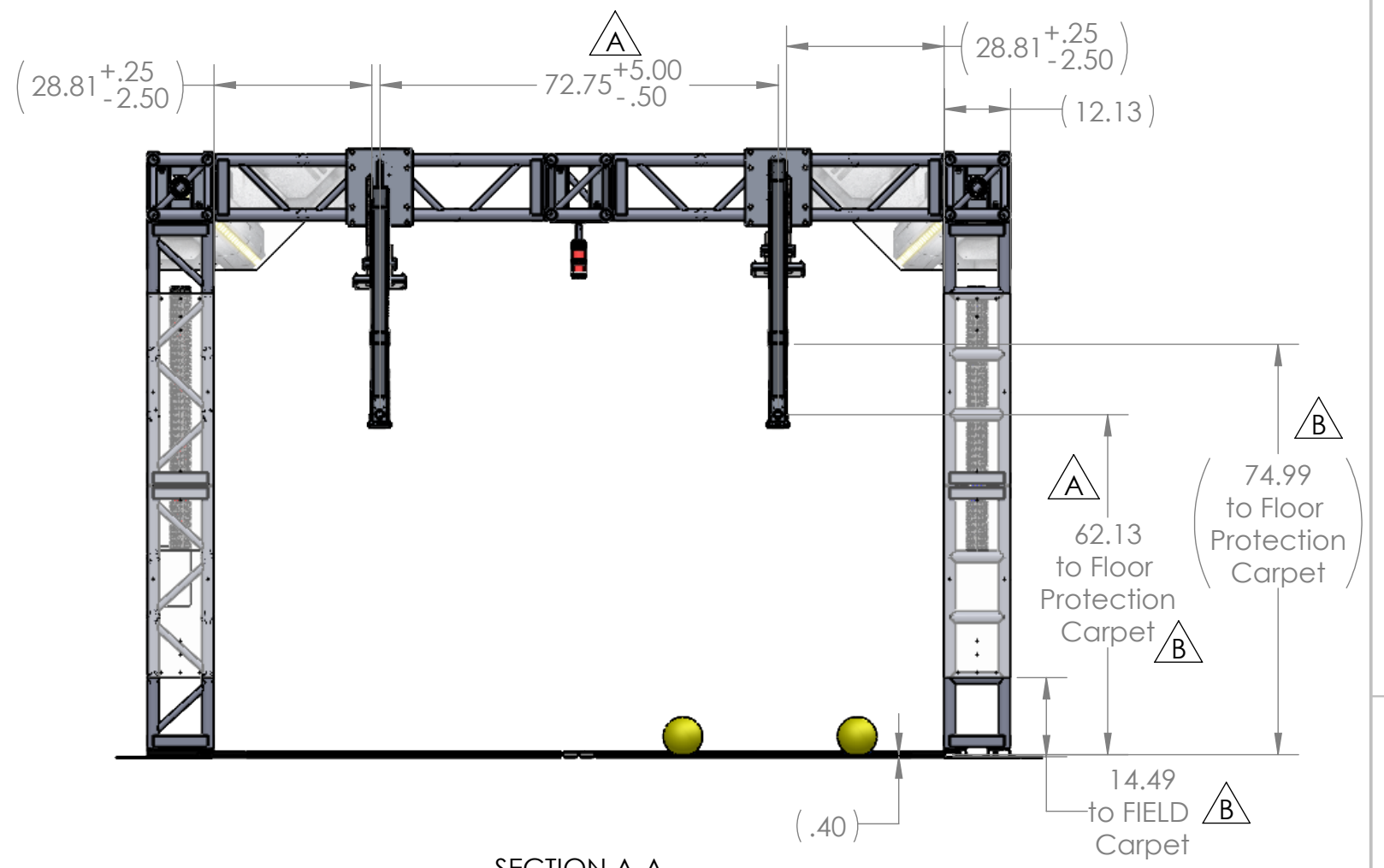
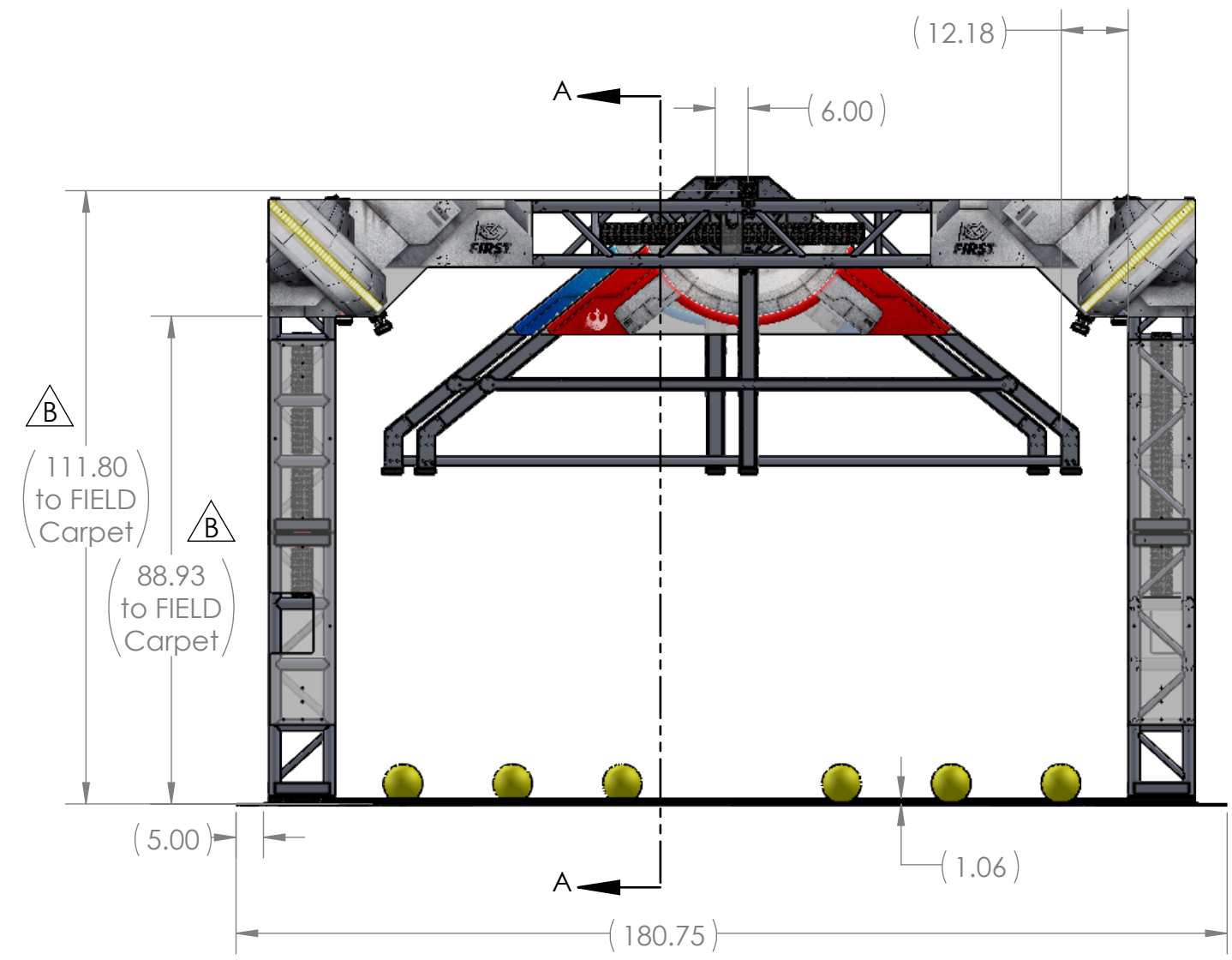
3

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SECTION A-A

A



A

Notes:
 All dimensions in parentheses () are REFERENCE dimensions.



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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL: ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION		DO NOT SCALE DRAWING	

TITLE:
Shield Generator

SIZE **B**

DWG. NO. **GE-21000**

REV **B**

SCALE: 1:30 WEIGHT:

SHEET 4 OF 6

4

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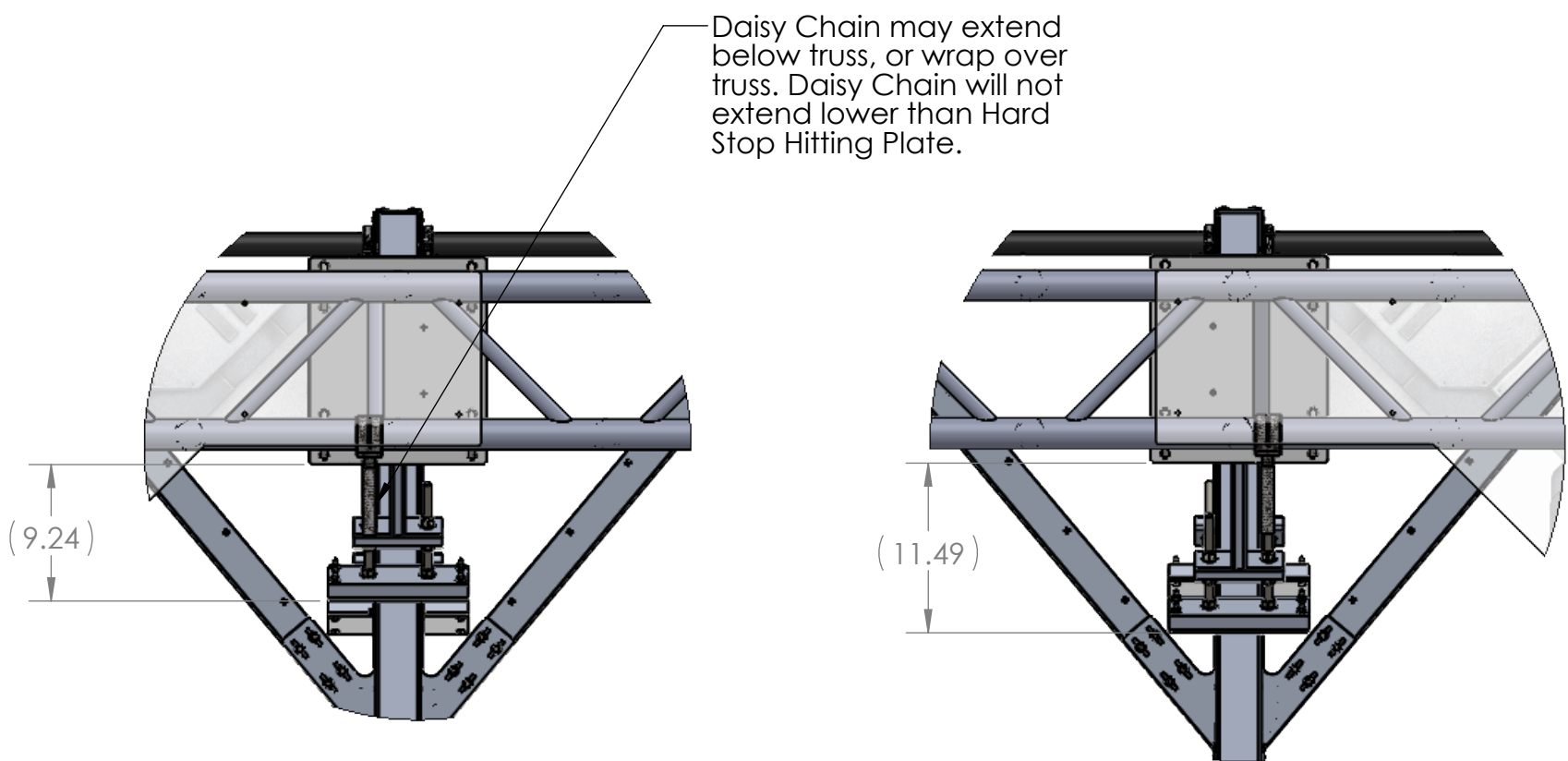
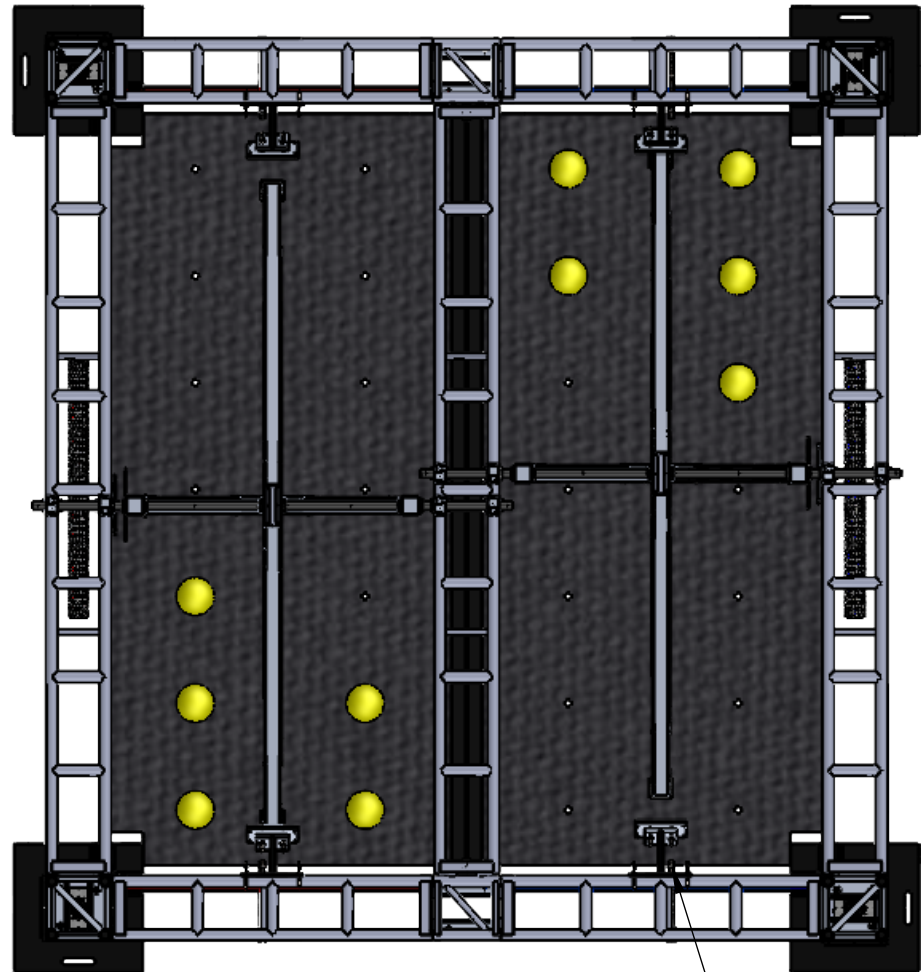
1

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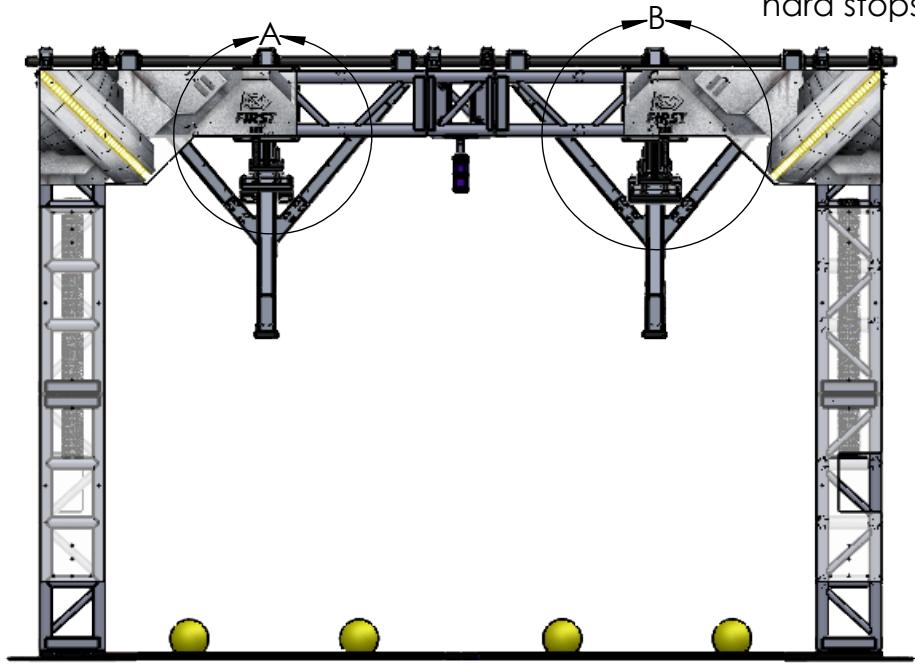
Daisy Chain may extend below truss, or wrap over truss. Daisy Chain will not extend lower than Hard Stop Hitting Plate.

Generator Switch Lock Out - Field Attachment is attached to lower rung of Truss, positioned behind hard stops.

Note: Vinyl hidden in Detail Views

DETAIL A
SCALE 1 : 12



DETAIL B
SCALE 1 : 12



Notes:
All dimensions in parentheses () are REFERENCE dimensions.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION		DO NOT SCALE DRAWING	

TITLE:

Shield Generator

SIZE	DWG. NO.	REV
B	GE-21000	B
SCALE: 1:36 WEIGHT:		SHEET 5 OF 6

4

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Note: Blue GENERATOR SWITCH and Black Boundaries hidden for clarity

GENERATOR SWITCH Dimensions - Top of Rung to Top of Floor Protection Carpet:

LEVEL (Horizontal):

M2 = 63" +/- 0.5"

M1 & M3 should be within +/- 0.25" of each other

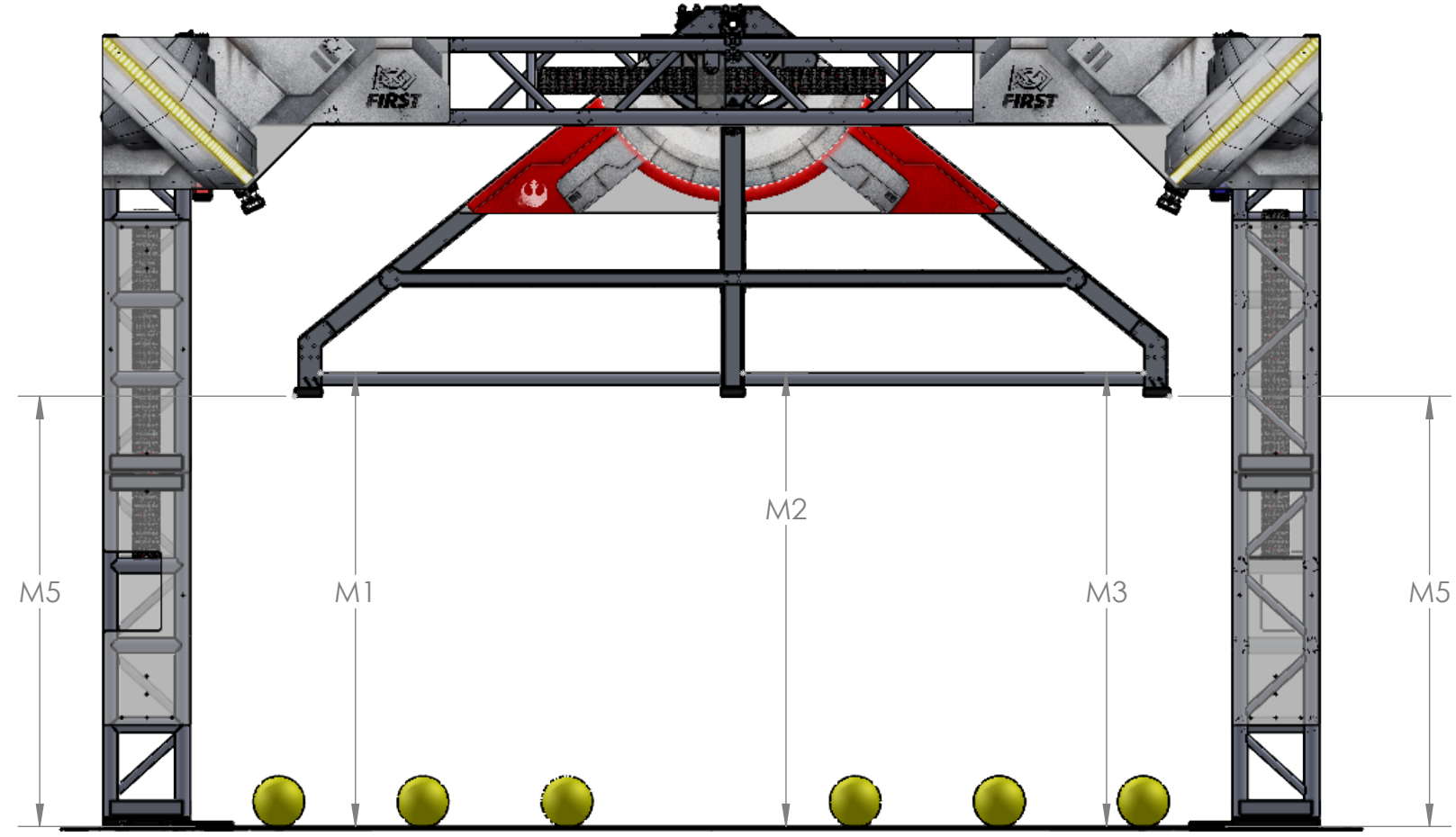
Lower LEVEL Range:

M1 = M2 - 7.25", +/- 0.25"

M3 = M2 - 7.25", +/- 0.25"

Maximum Range (hitting hard stops):

M5 = 46.13", +0.5", -0"



B

B

A

A

B

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:
Shield Generator

SIZE	DWG. NO.	REV
B	GE-21000	B

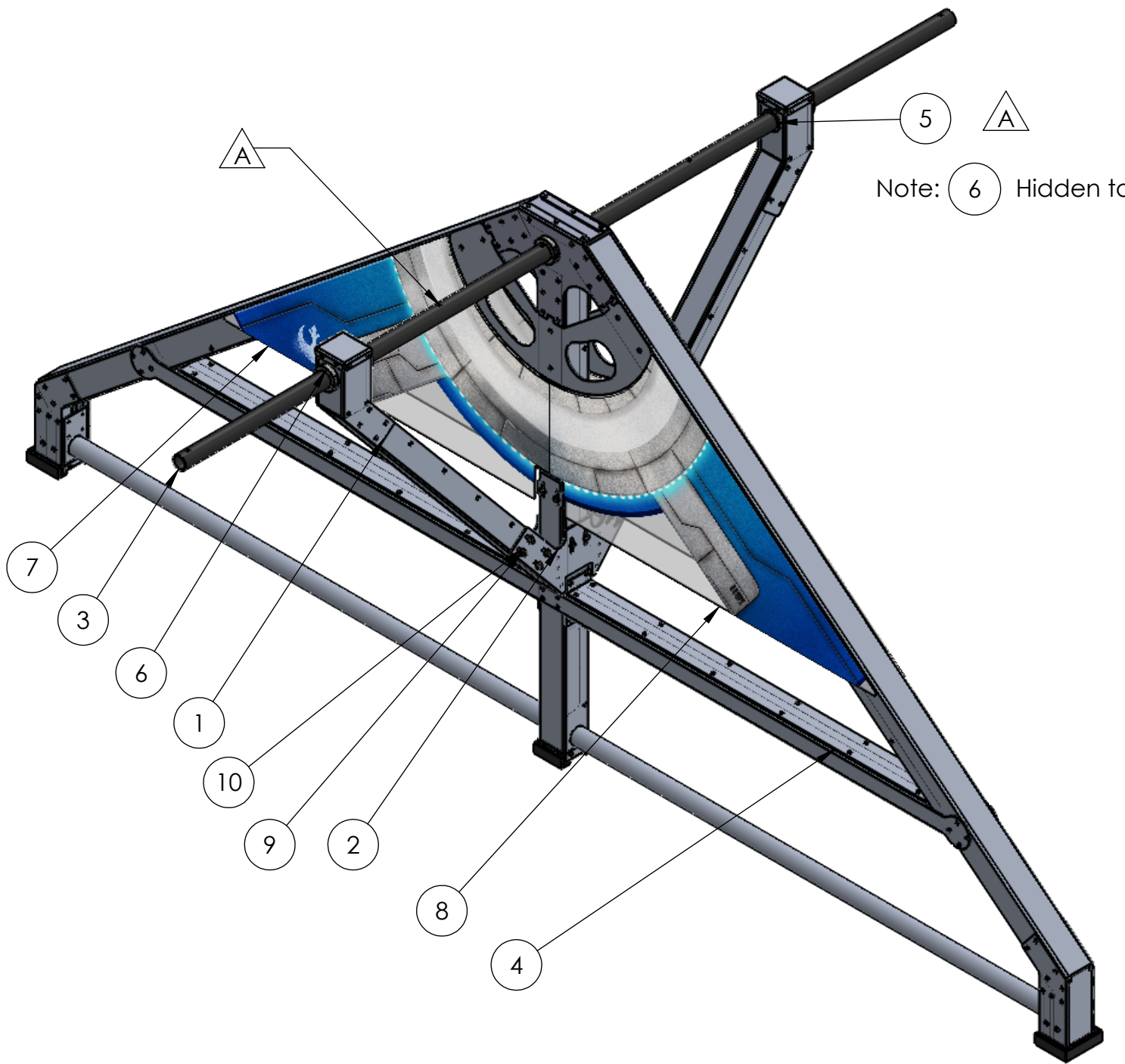
SCALE: 1:24 WEIGHT: SHEET 6 OF 6

4

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1





Note: (5) (A)
 Note: (6) Hidden to Show (5)

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3, B4	A	Part number changed from GE-20020. Removed GE-20007, GE-20014, and corresponding hardware, updated balloons, added balloon to 5 on Sheet 1.	12/16/2020	KAMC

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20011	Hanger Brace	2
2	GE-20012	Hanger Brace - Mounting Plate	2
3	GE-20013	Hanger - Pivot Pole	1
4	GE-20015	Generator Switch with Hook and Corners	1
5	GE-20021	Pivot Pole to Generator Switch Bearing	6
6	GE-20022	Pivot Pole to Generator Switch Shaft Collar	6
7	GE-20023	Generator Switch Vinyl Left _ With Loop	2
8	GE-20024	Generator Switch Vinyl Right _ With Loop	2
9	hex_.25_20_1.25	Steel Hex Head Screw, 1/4"-20 x 1.25" long, fully threaded	24
10	washer_flat_.25	Flat Washer for 1/4" Screw	24

Note:
 1. Vinyl may be red or blue.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	Q.A.		
APPLICATION		COMMENTS:	TITLE: <h1>Generator Switch Assembly</h1>	
DO NOT SCALE DRAWING		WEIGHT: 111.81 LBS	SIZE DWG. NO. REV B GE-21020 A	SCALE: 1:12 WEIGHT: SHEET 1 OF 4

4

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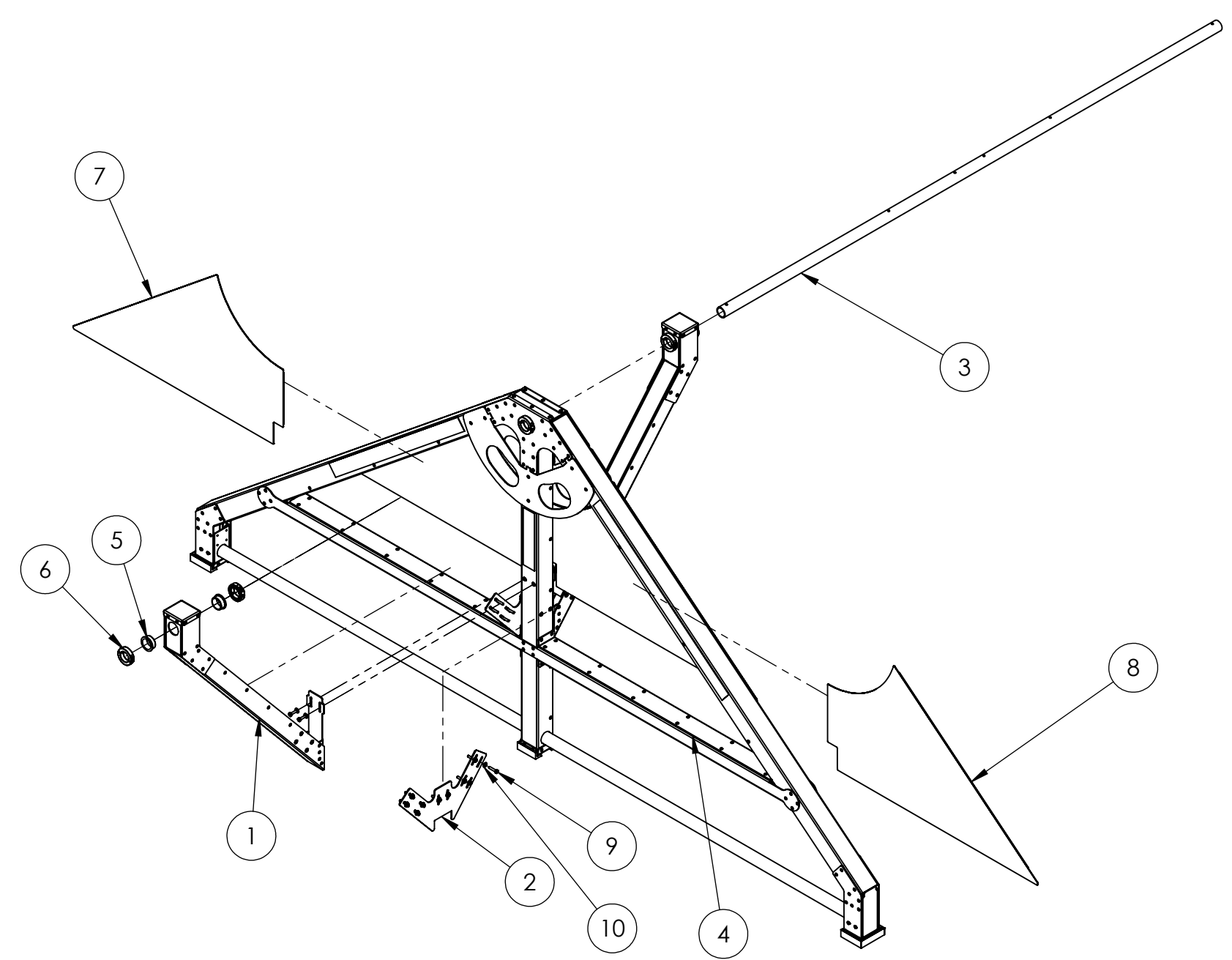
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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	KAMC	12/18/19
		TOLERANCES:	CHECKED		
		FRACTIONAL ±1/16	ENG APPR.		
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.		
		TWO PLACE DECIMAL ±.01	Q.A.		
		THREE PLACE DECIMAL ±.001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:
Generator Switch Assembly

SIZE DWG. NO. REV
B GE-21020 A

SCALE: 1:18 WEIGHT: SHEET 2 OF 4

4

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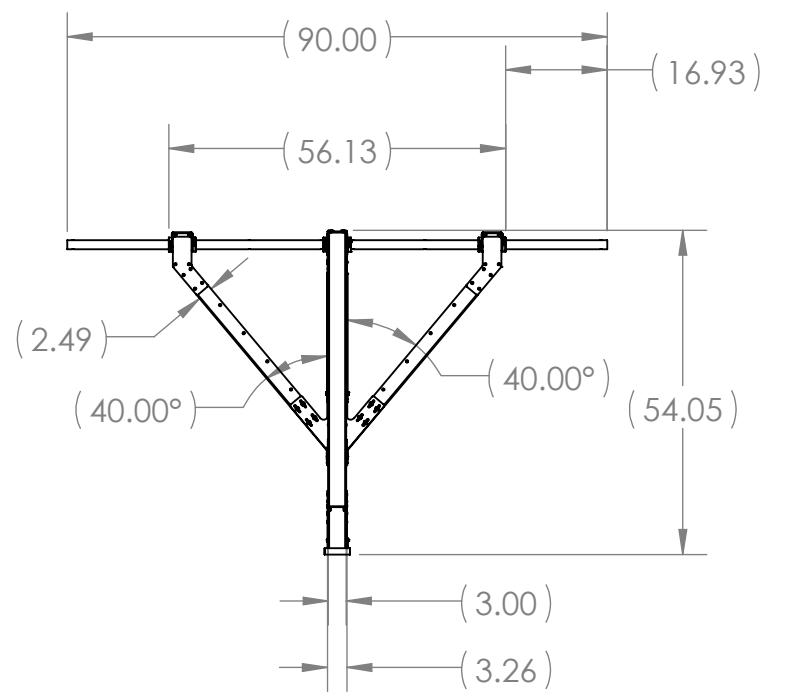
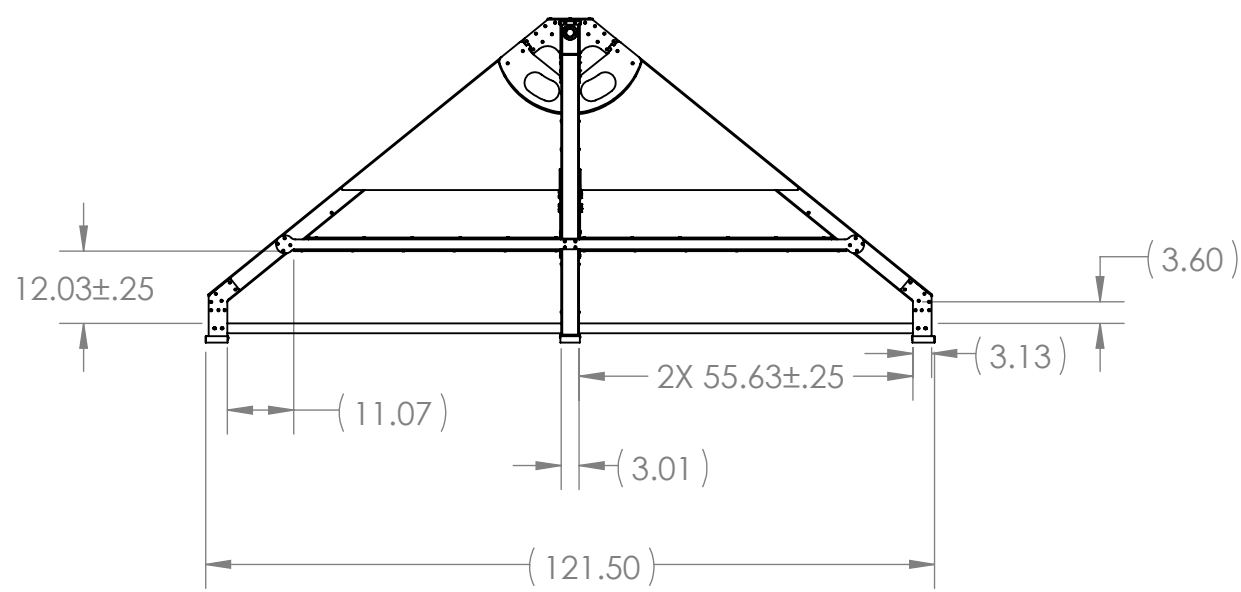
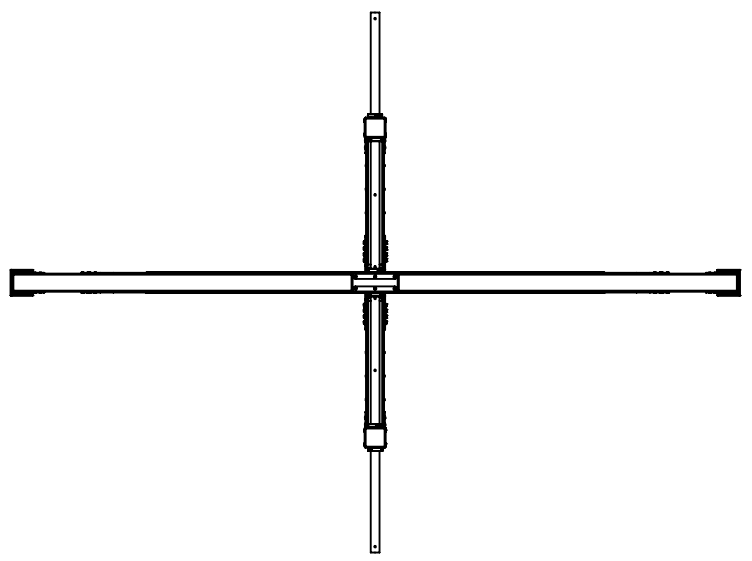
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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL: ±1/16	ENG APPR.		
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.		
		TWO PLACE DECIMAL ±.01	Q.A.		
		THREE PLACE DECIMAL ±.001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:
Generator Switch Assembly

SIZE DWG. NO. REV
B GE-21020 A

SCALE: 1:32 WEIGHT: SHEET 3 OF 4

4

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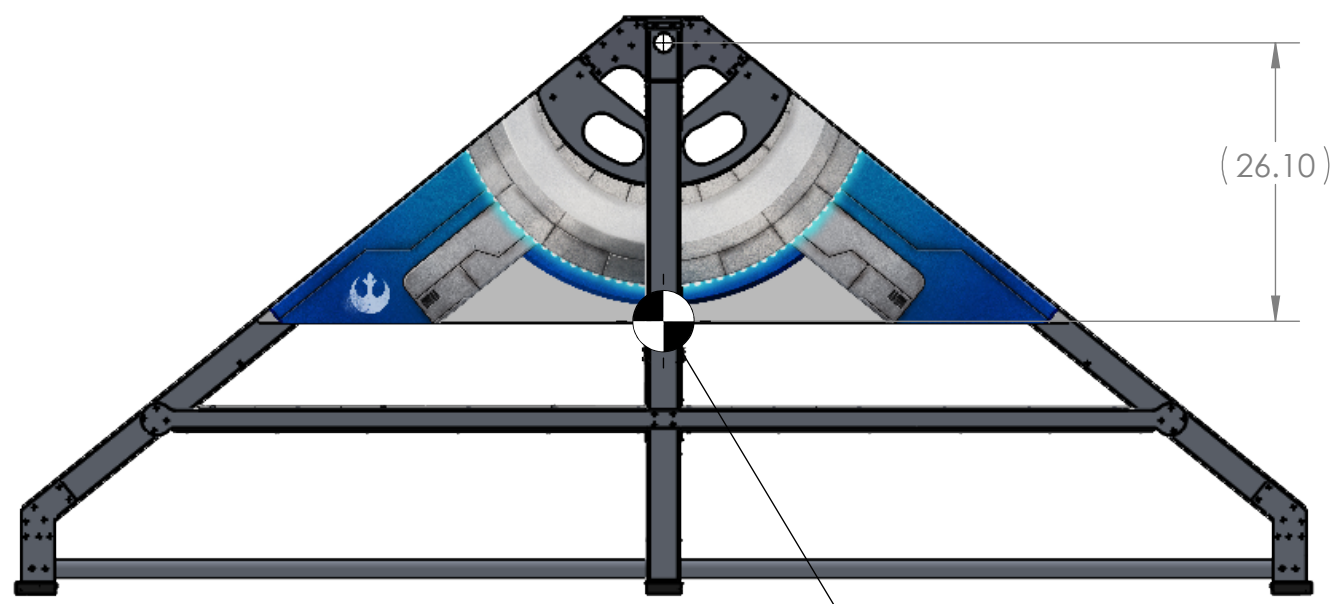
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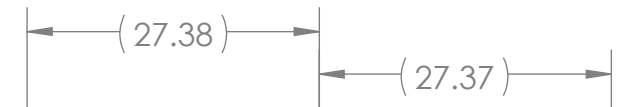
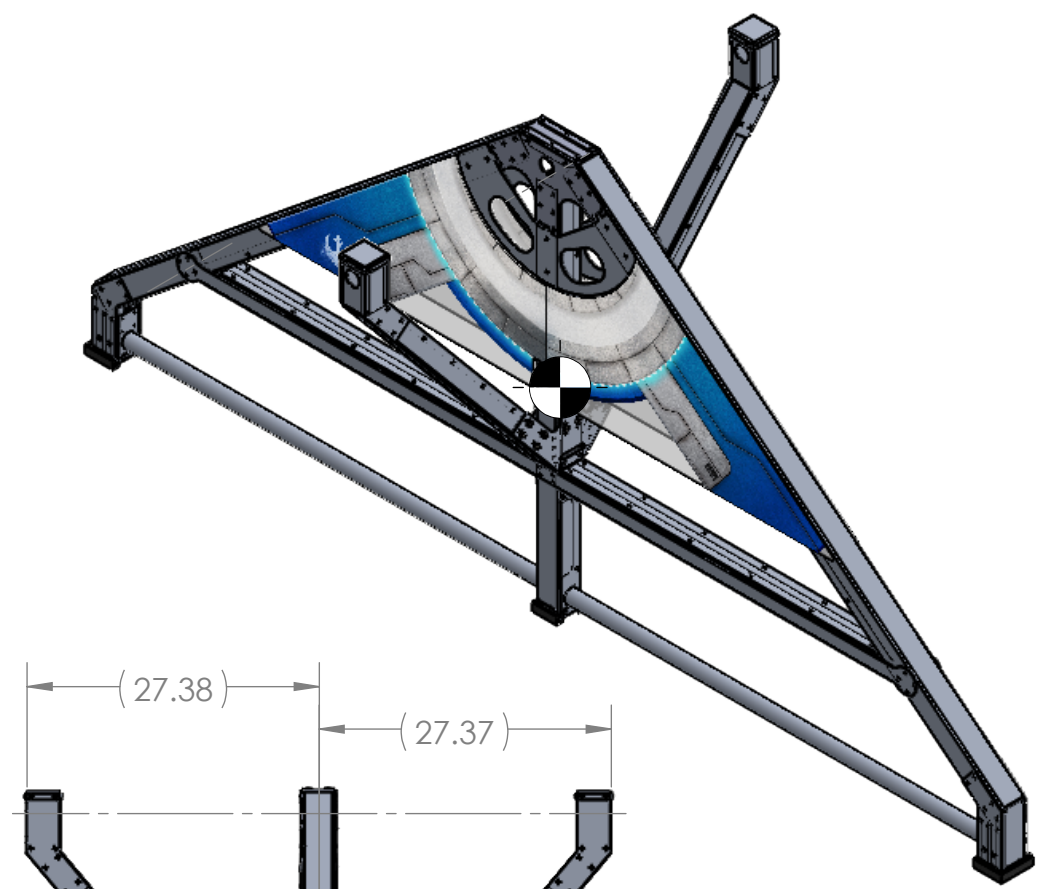
1

B

B



Center of Mass





Center of Mass

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A

NOTE:
 1. Only pieces that pivot are shown here. Approximate mass of pivoting system is 93 lbs.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE:
		MATERIAL		ENG APPR.		<h1>Generator Switch Assembly</h1>
		FINISH		MFG APPR.		
NEXT ASSY	USED ON			Q.A.		B GE-21020 A
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		SCALE: 1:18 WEIGHT: SHEET 4 OF 4

4

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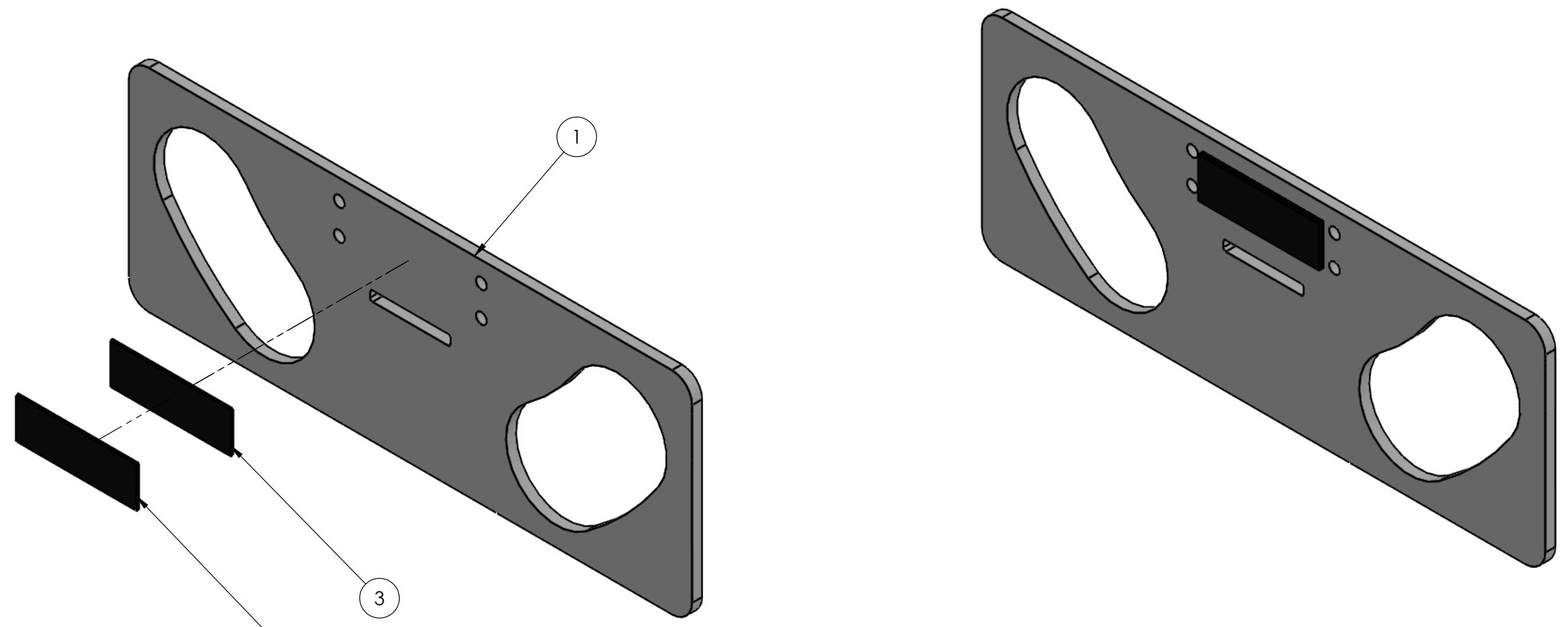
1

B

B



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A



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-21033-01	Sensor Attachment Front	1
2	Hook_1_3	1" x 3" Hook, Adhesive Backed	1
3	Loop_1_3	1" x 3" Loop, Adhesive Backed	1

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	Q.A.		
APPLICATION		COMMENTS:		
DO NOT SCALE DRAWING		TITLE: Sensor Attachment Front w/ Hook, Loop		
		SIZE	DWG. NO.	REV
		B	GE-21033	
		SCALE: 1:2	WEIGHT:	SHEET 1 OF 2

4

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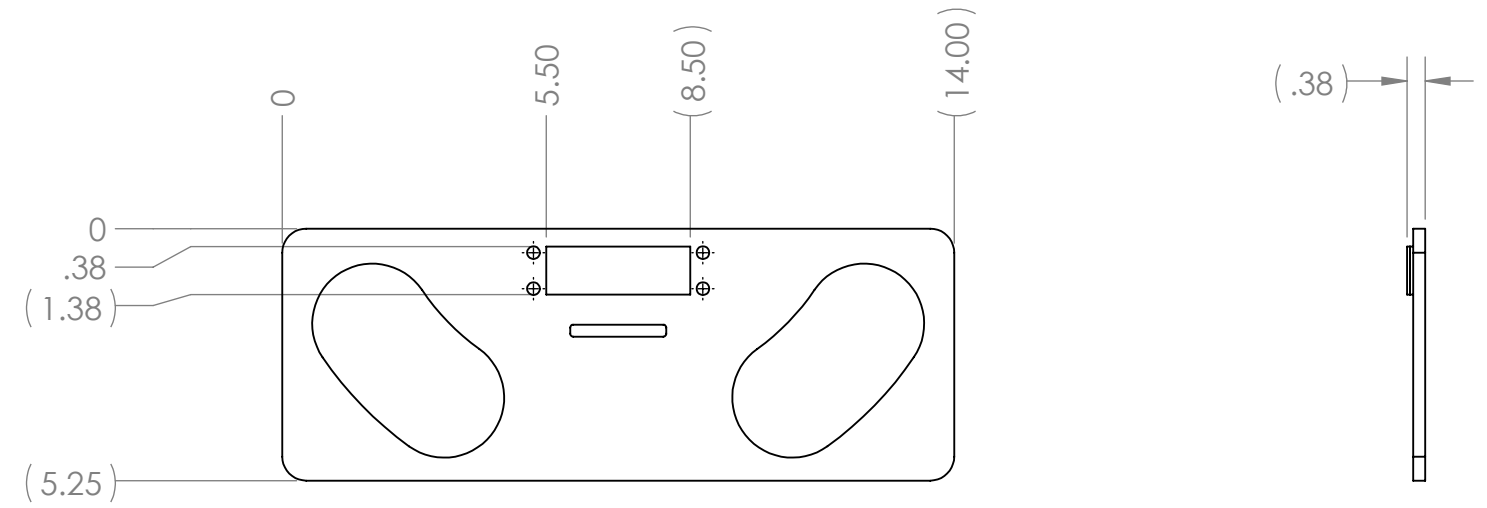
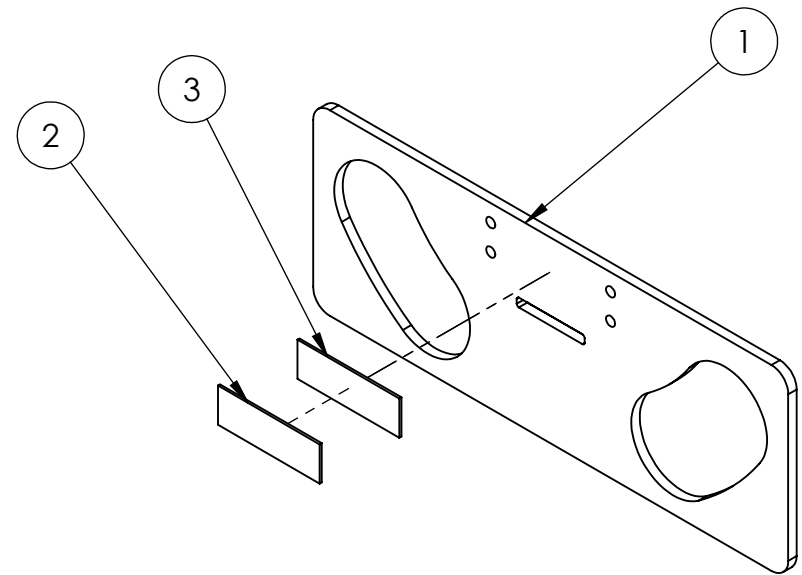
1

B

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A

A



Notes:

1. Ensure surface of (1) is clean prior to loop application
2. Press (3) firmly to (1) to ensure application
3. Without removing the adhesive backing protection, attach (2) to (3).
4. The adhesive backing protection will be removed from (2) when installed in-field.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE		
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	08/20/20	TITLE:
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED			Sensor Attachment Front w/ Hook, Loop
		MATERIAL		ENG APPR.			
		FINISH		MFG APPR.			SIZE DWG. NO. REV
NEXT ASSY	USED ON			Q.A.			B GE-21033
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:			SCALE: 1:4 WEIGHT: SHEET 2 OF 2

4

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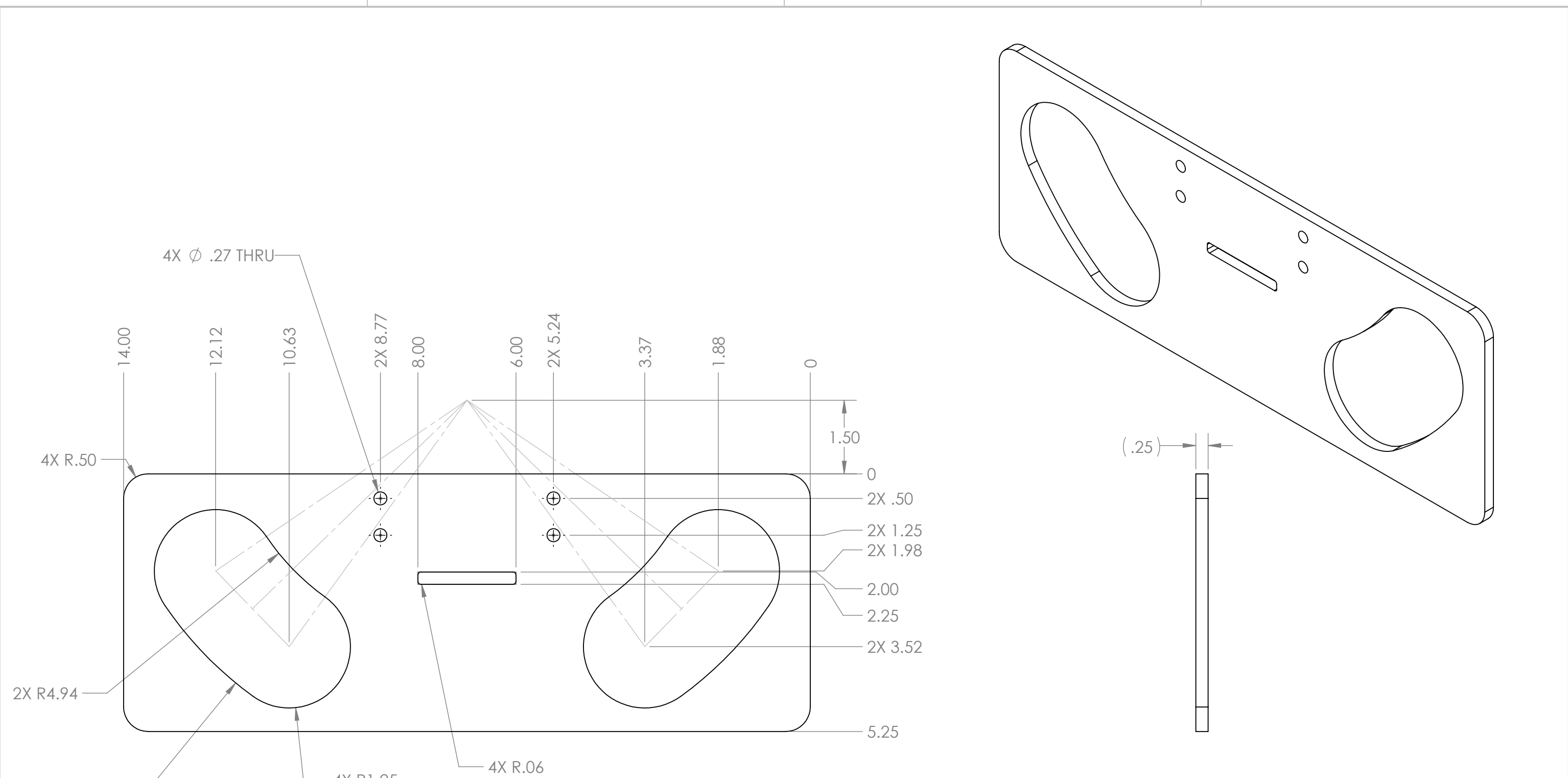
1

B

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- Notes:
1. Material: 0.25" HDPE, White
 2. Remove all burrs and sharp edges

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
				COMMENTS:		
GE-21033		INTERPRET GEOMETRIC TOLERANCING PER:		TITLE:		
		MATERIAL		Sensor Attachment		
		.25" HDPE, WHITE		Front		
		FINISH		SIZE	DWG. NO.	REV
NEXT ASSY	USED ON			B	GE-21033-01	
APPLICATION		DO NOT SCALE DRAWING		SCALE: 1:2	WEIGHT:	SHEET 1 OF 1

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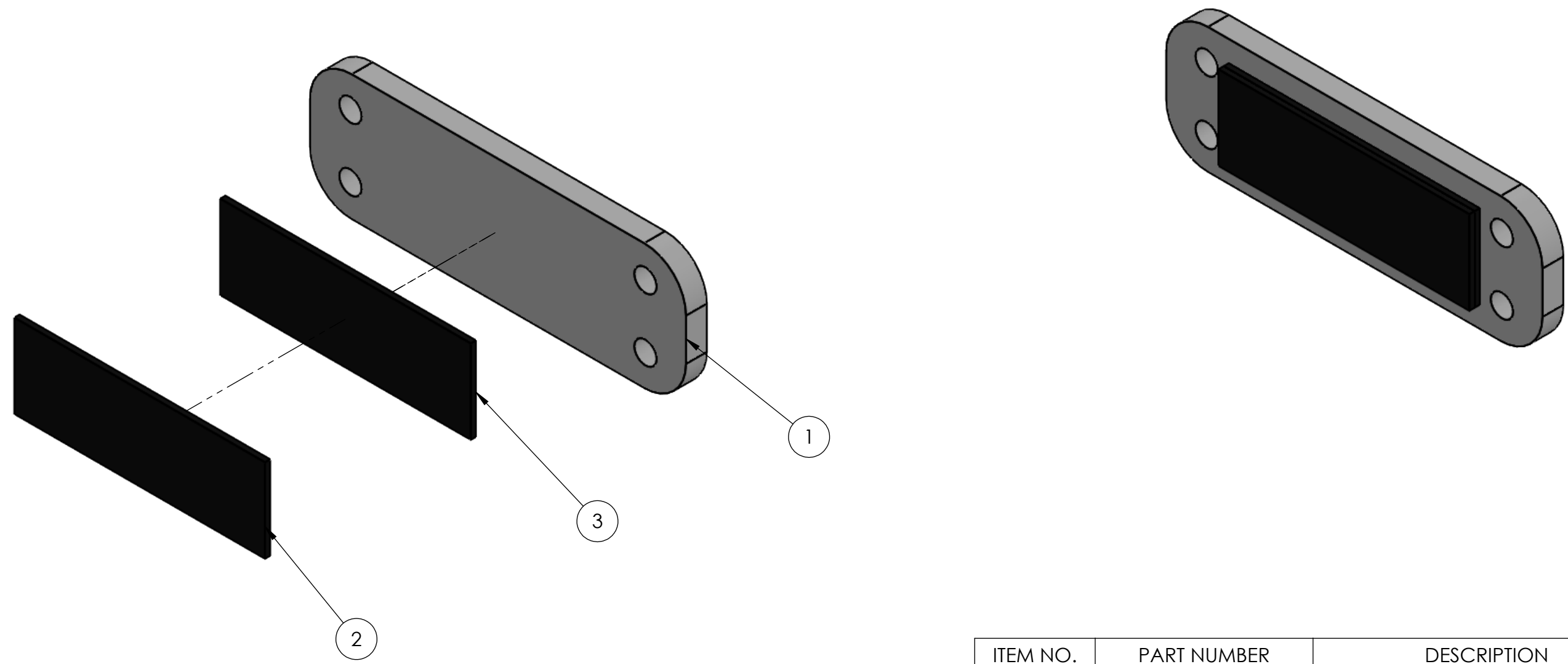
1

B

B



A

A



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-21034-01	Sensor Attachment Back	1
2	Hook_1_3	1" x 3" Hook, Adhesive Backed	1
3	Loop_1_3	1" x 3" Loop, Adhesive Backed	1

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC	
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	Q.A.		
APPLICATION		COMMENTS:		
DO NOT SCALE DRAWING		TITLE: Sensor Attachment Back w/ Hook, Loop		
		SIZE	DWG. NO.	REV
		B	GE-21034	
		SCALE: 1:1	WEIGHT:	SHEET 1 OF 2

4

3

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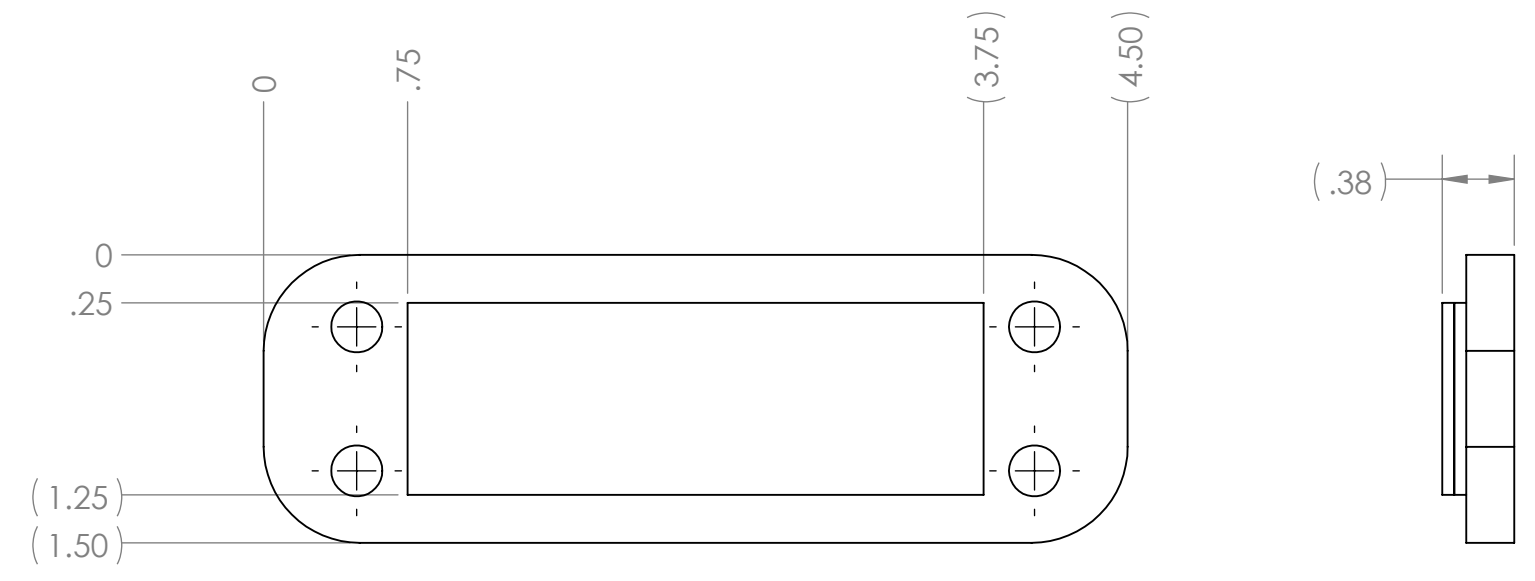
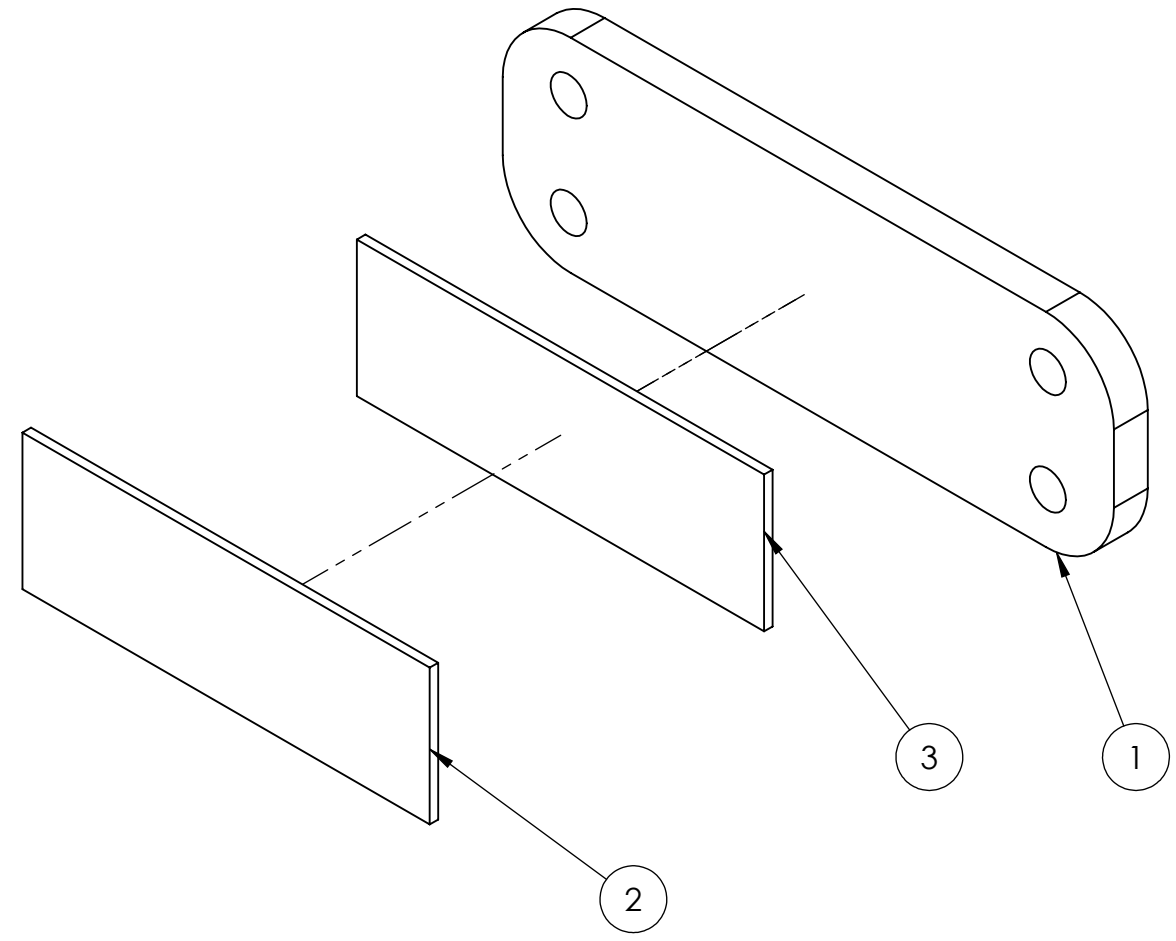
1

4

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2

1



Notes:

1. Ensure surface of (1) is clean prior to loop application
2. Press (3) firmly to (1) to ensure application
3. Without removing the adhesive backing protection, attach (2) to (3) .
4. The adhesive backing protection will be removed from (2) when installed in-field.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	TITLE: Sensor Attachment Back w/ Hook, Loop	
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	KAMC		08/20/20
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED			
		MATERIAL		ENG APPR.			
		FINISH		MFG APPR.			
NEXT ASSY	USED ON			Q.A.			
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:			
				SIZE	DWG. NO.	REV	
				B	GE-21034		
				SCALE: 1:1	WEIGHT:	SHEET 2 OF 2	

4

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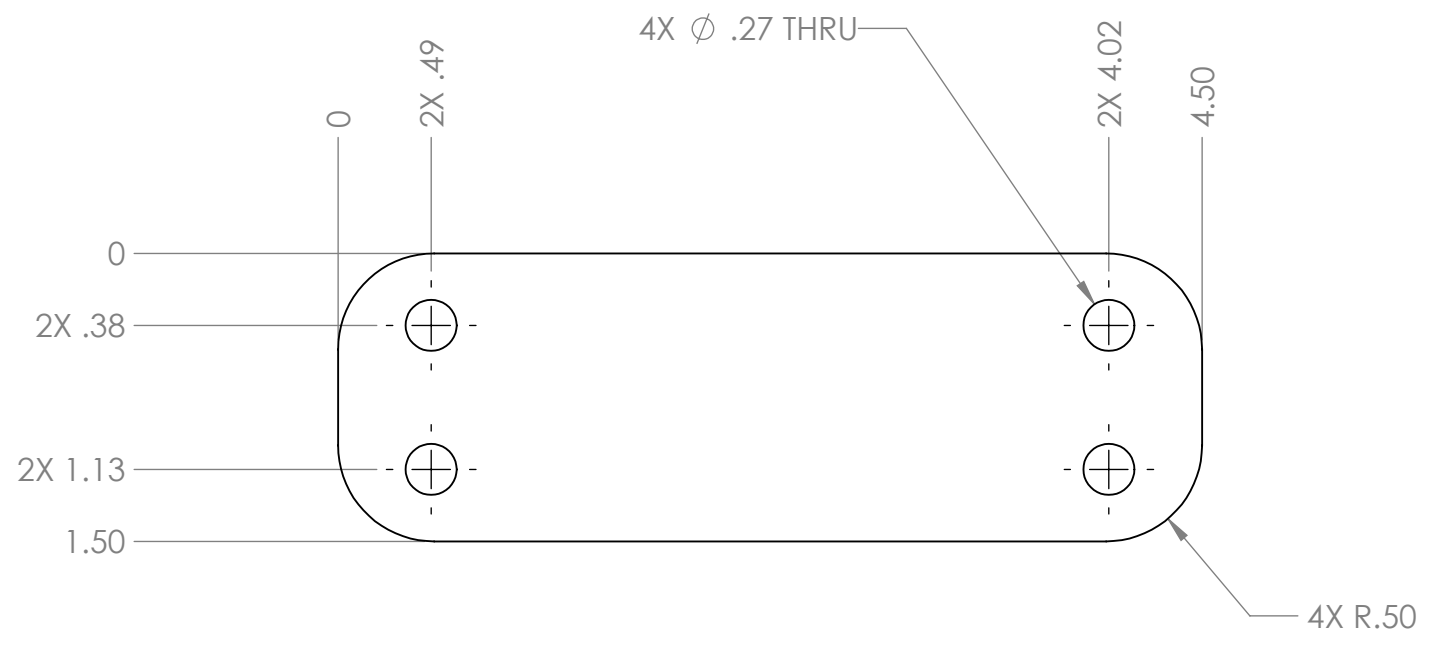
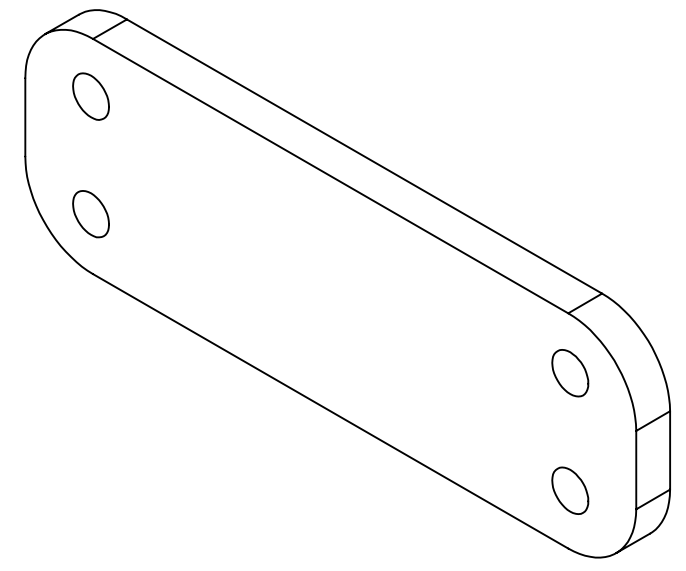
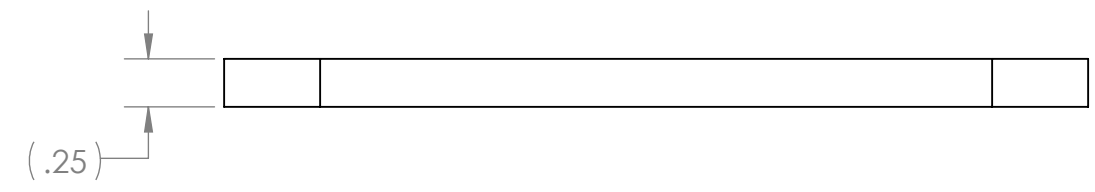
3

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B





A

A

- Notes:
1. Material: 0.25" HDPE, White
 2. Remove all burrs and sharp edges

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 	
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$		DRAWN	KAMC	08/20/20	TITLE:
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED			Sensor Attachment Back
GE-21034		MATERIAL .25" HDPE, White		ENG APPR.			
NEXT ASSY	USED ON	FINISH		MFG APPR.			SIZE DWG. NO. REV
APPLICATION		DO NOT SCALE DRAWING		Q.A.			B GE-21034-01
				COMMENTS:			SCALE: 1:1 WEIGHT: SHEET 1 OF 1

4

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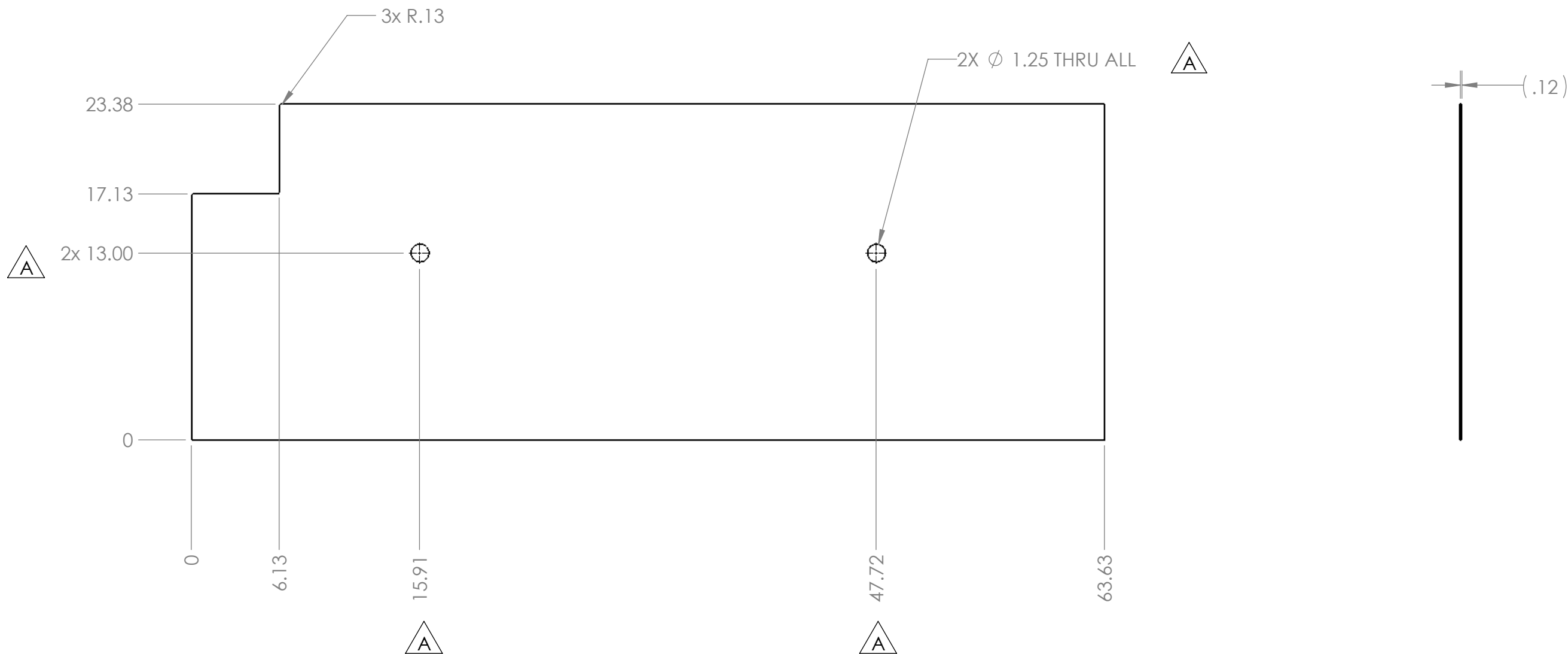
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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, A3, A4, B2, B4	A	1.25" holes added for ball placement (2021)	8/18/2020	NTW



- Notes:
1. Material: 1/8" Hardboard
 2. Remove all burrs and sharp edges.
 3. Tag or Label with part number

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		TITLE:
		MATERIAL	ENG APPR.		Notched Flooring Protection
		FINISH	MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON		Q.A.		B GE-21055 A
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		SCALE: 1:12 WEIGHT: SHEET 1 OF 1

4

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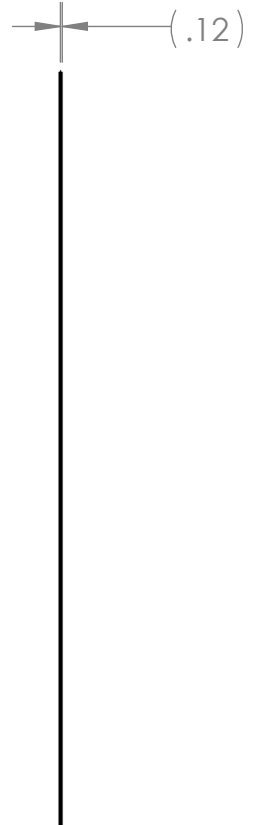
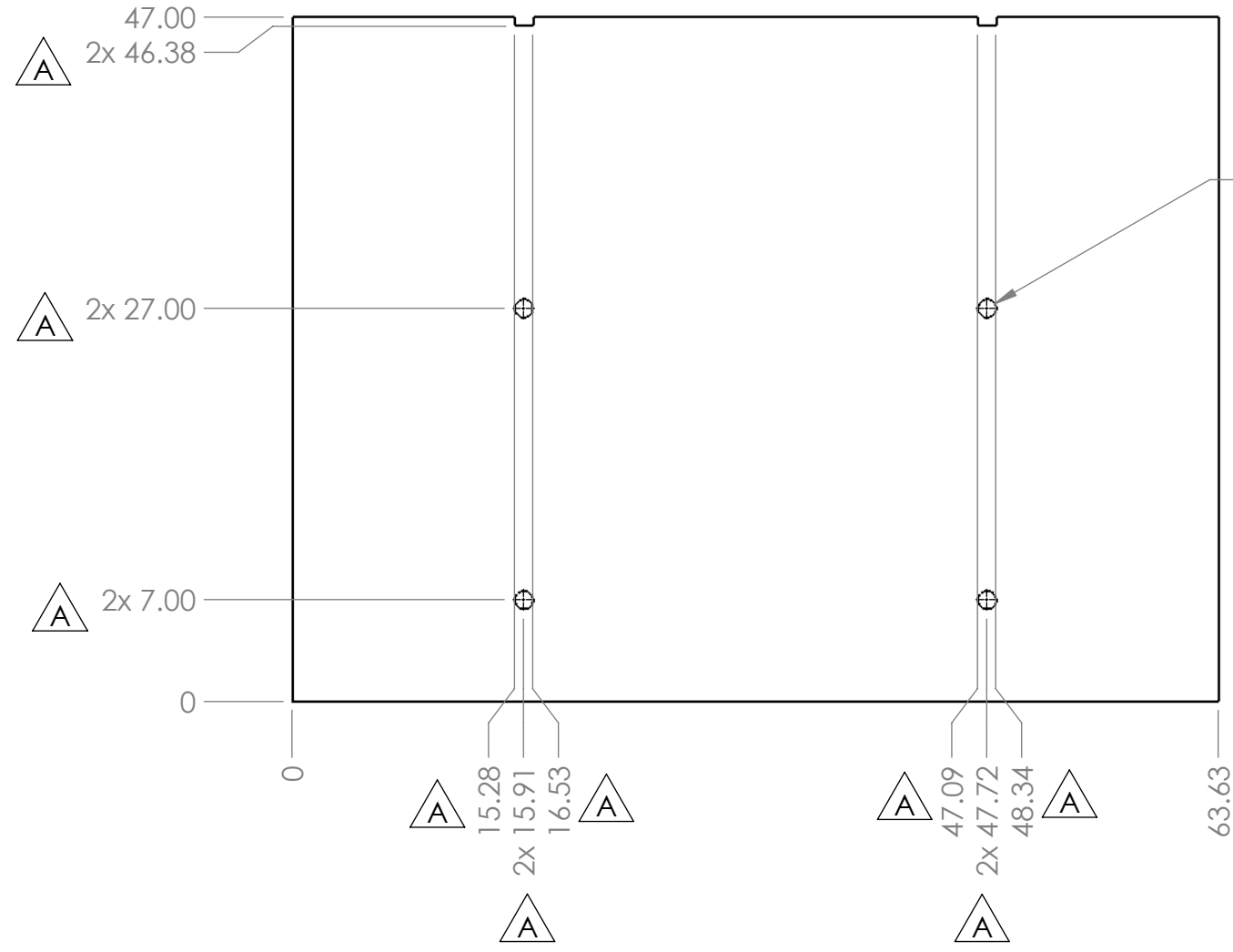
4

3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, A4, B2, B4	A	1.25" holes and notches added for ball placement (2021)	8/18/2020	NTW



- Notes:
1. Material: 1/8" Hardboard
 2. Remove all burrs and sharp edges.
 3. Tag or Label with part number

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Floor protection full

SIZE **B** DWG. NO. **GE-21056** REV **A**

SCALE: 1:12 WEIGHT: SHEET 1 OF 1

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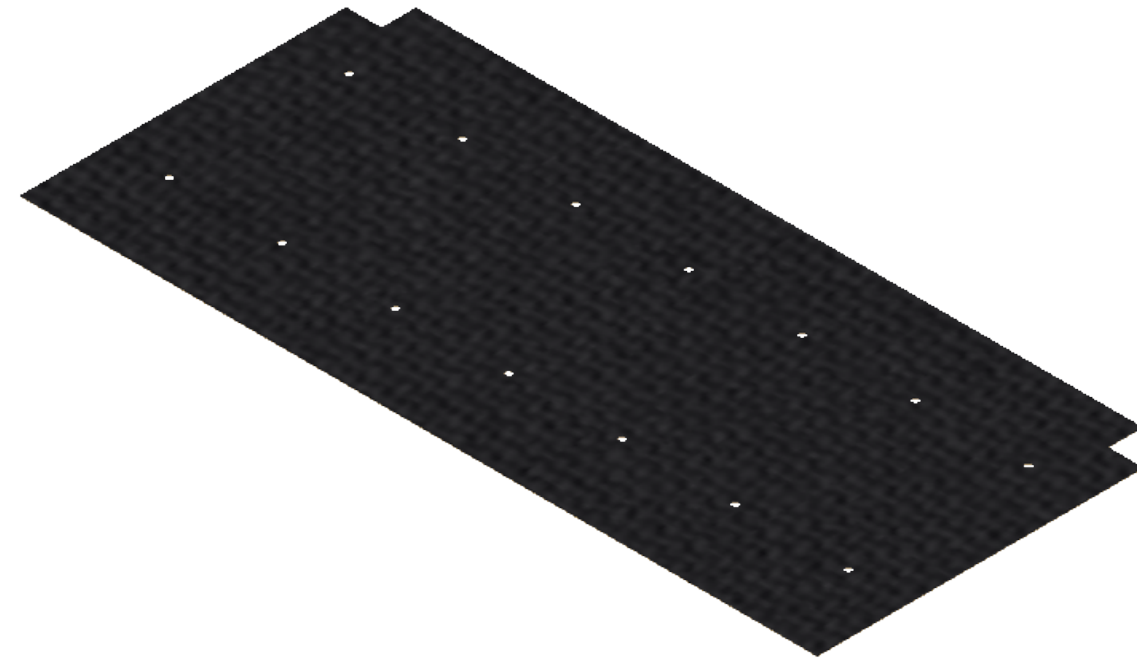
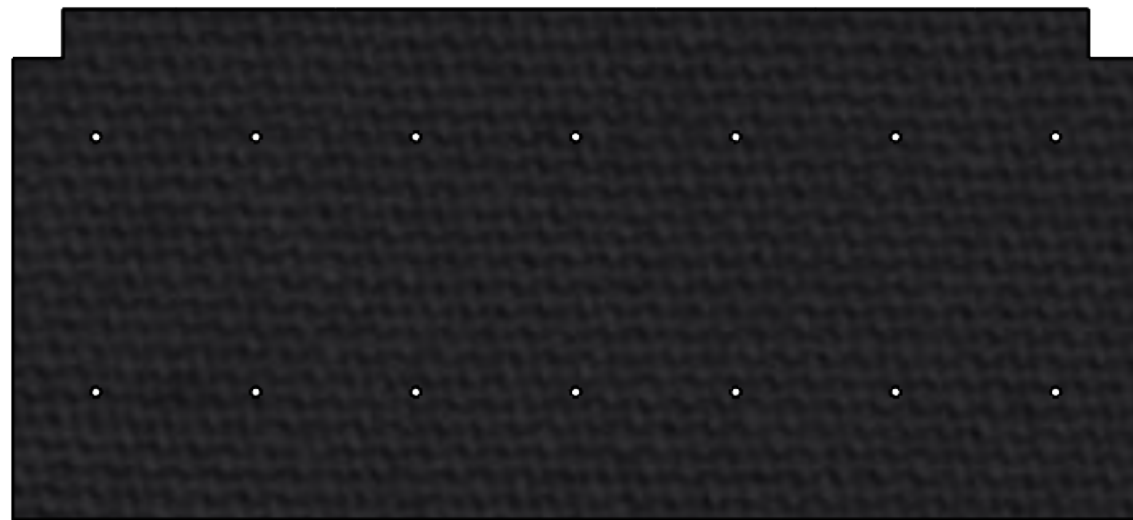
2

1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-21055	Notched Flooring Protection	2
2	GE-21056	Floor protection full	2
3	GE-21063	floor protection carpet	1
4	Tape 63_625	2" black gaff tape	2
5	Tape 30	2" black gaff tape	1

B



B



A

A

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE DWG. NO. REV B GE-21061
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		SCALE: 1:24 WEIGHT: SHEET 1 OF 2
APPLICATION		DO NOT SCALE DRAWING	Q.A.	COMMENTS:	

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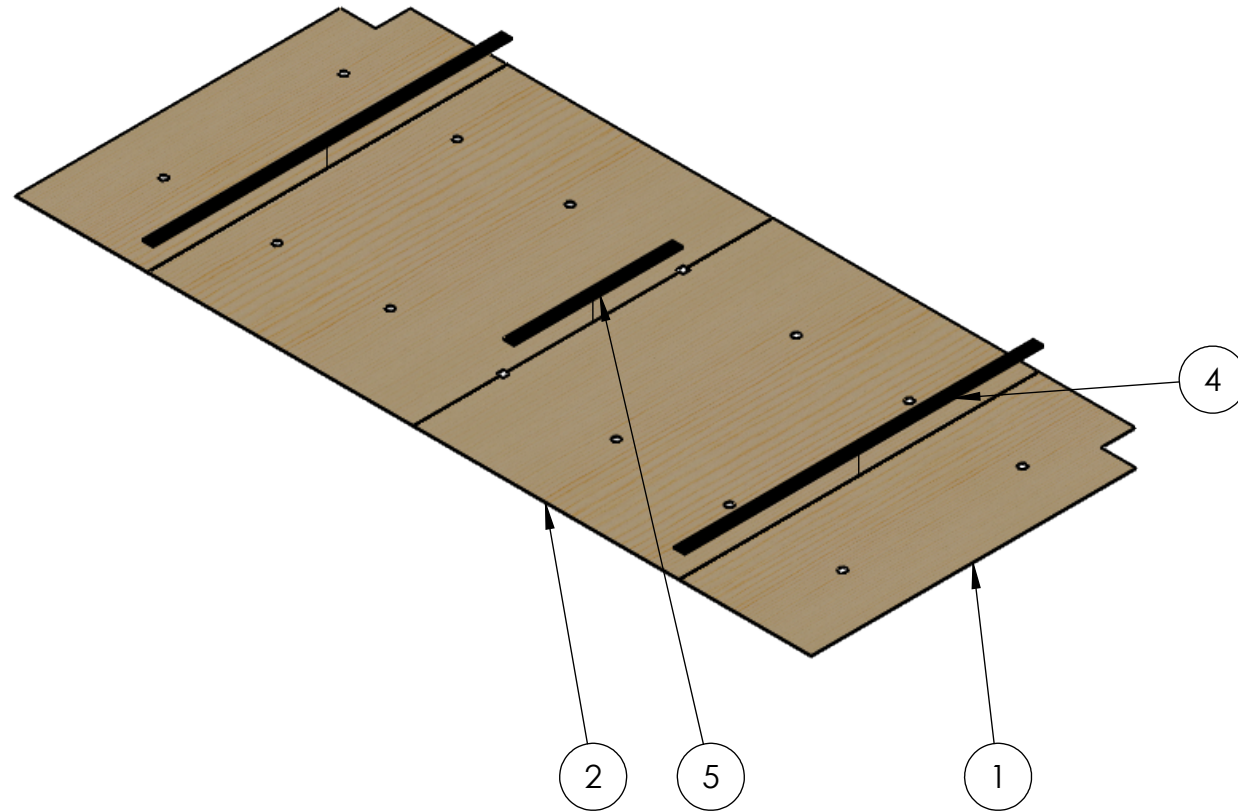
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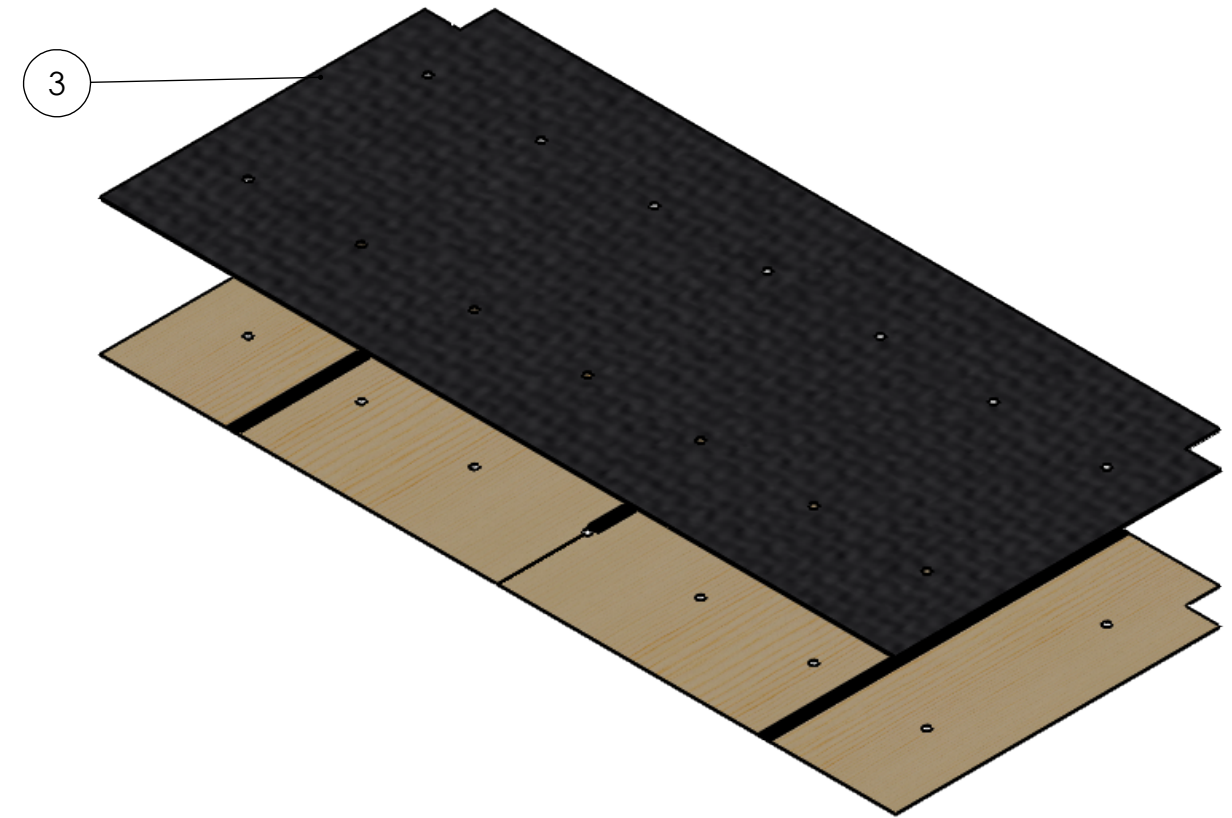
2

1

Step 1:



Step 2:





Notes:

1. Lay down (1) and (2) as shown on the floor.
2. Attach together at the seams with (4) and (5).

Notes:

1. Lay (3) on top of step 1 align the holes.
2. Tape the edge of the carpet to the hardboard by wrapping around from carpet to the back of the hardboard with Black 3M cloth tape (Gaffer Tape.) (Tape is not shown)
3. Tape assembly to floor using 3" Black 3M cloth Tape (Gaffer Tape.)

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		SIZE DWG. NO. REV
		MATERIAL		ENG APPR.		B GE-21061
		FINISH		MFG APPR.		SCALE: 1:24 WEIGHT: SHEET 2 OF 2
NEXT ASSY	USED ON			Q.A.		
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:		

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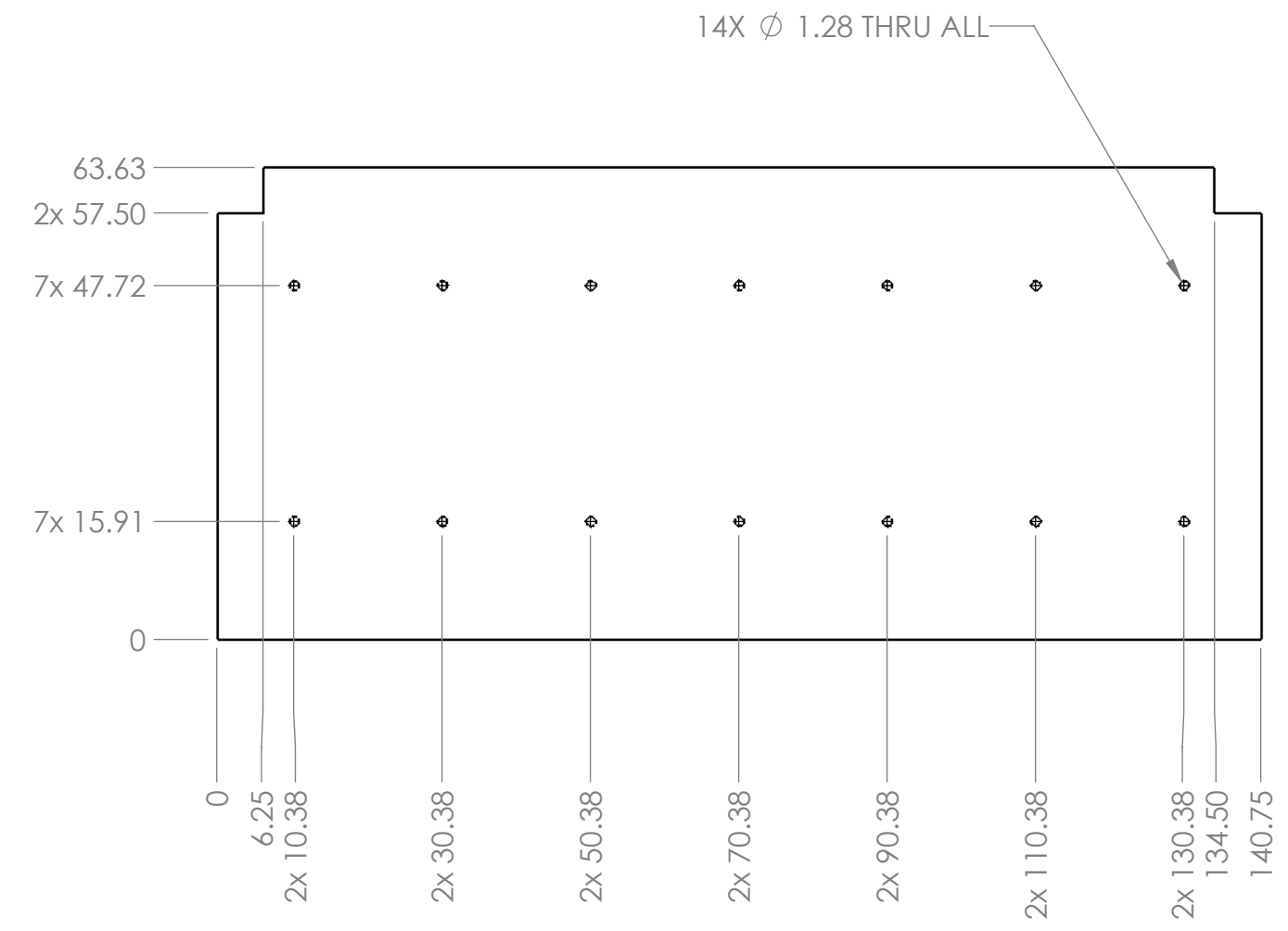
1

B

B

A



A



Notes:
 1. Material: Neyland II 20 carpet

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		carpet		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		

TITLE:

floor protection carpet

SIZE **B**

SCALE: 1:24

DWG. NO. **GE-21063**

WEIGHT:

REV

SHEET 1 OF 1

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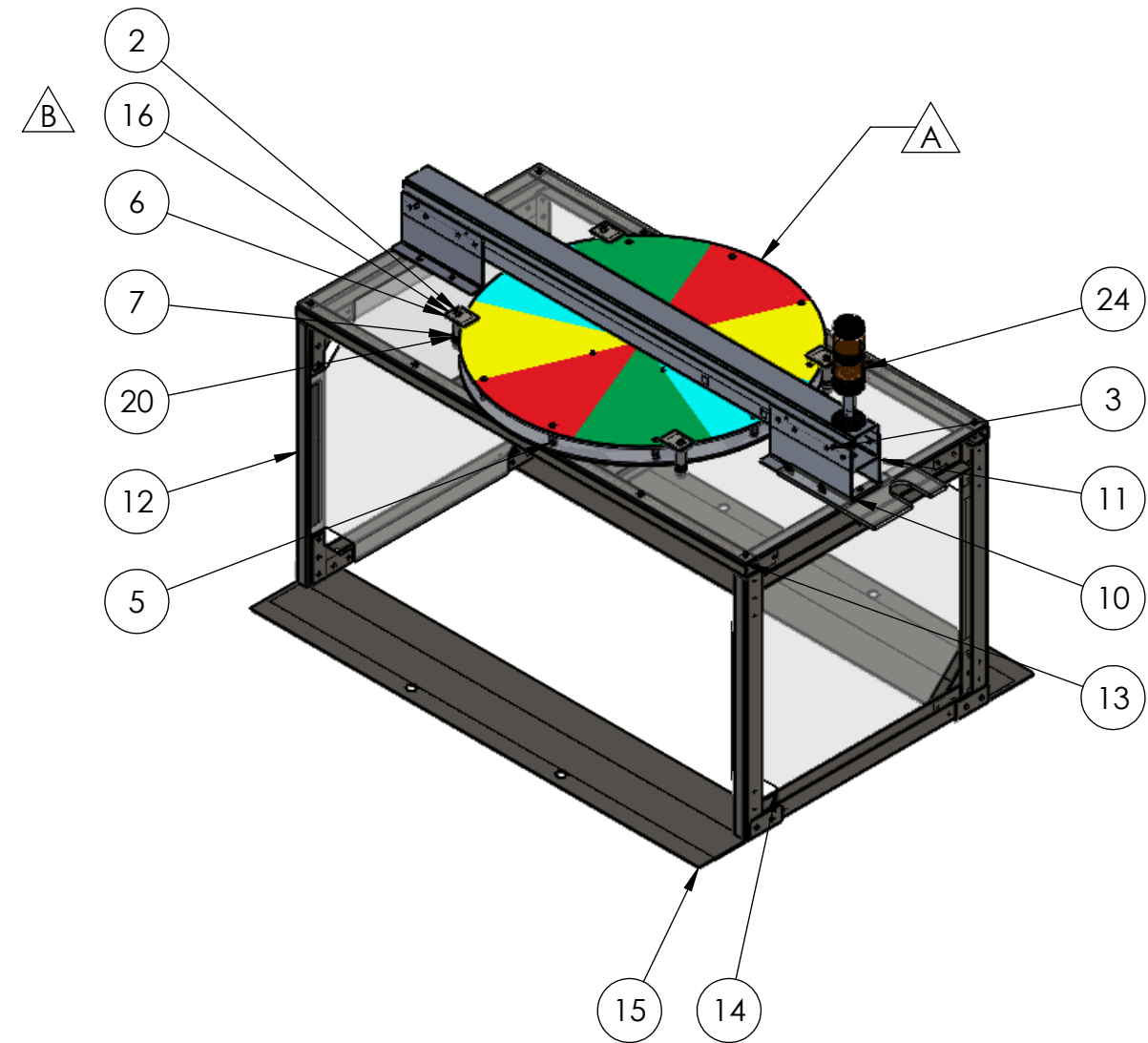
3

2

1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	46CLR	46CLR	1
2	Button_hex_.375_16_3.5	Button hex drive 3/8-16 x 3.5"	4
3	Default	Pin, Ring-Grip Quick-Release with SS Ring, 1/4" Diameter, 0.6875" Usable Length	4
4	Flat_phil_.25_20_2.25	Flat Head Phil .25-20 x 2.25"	4
5	GE-20104	Control Panel	1
6	GE-20121	Flange for control panel	4
7	GE-20122	0.375" id bearing shielded	8
8	GE-20141	Mounting Bracket (46CLR ColorSight)	2
9	GE-20142	Sensor Tray Lid	1
10	GE-20143	Trench to Truss Gusset	1
11	GE-20160	Sensor Housing Assembly with cable tie mounts	1
12	GE-20161	GE-20101 with hook	2
13	GE-20162	GE-20102 with GE-20114	1
14	GE-20163	GE-20115 with loop	2
15	GE-20164	GE-20123 with 4" hook	2
16	GE-21144	Flange for control panel	4
17	Pan_phil_10-32_1	Pan Head 10-32 1"	4
18	Pan_phil_10-32_.625	Pan head Phil 10-32 x 5/8	24
19	Pan_phil_M3_35	Pan Head M3 x 35mm	2
20	Spacer_.375_.75_2	3/4" OD 2" spacer for 3/8" screw	4
21	flat_phil_.25_20_.75	Steel Phillips Flat Head Screw, 1-4"-20 x 3/4" long, fully threaded	2
22	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	7
23	nylock_.375_16_thin	3/8"-16 nylock thin profile	5
24	StackLight_Assembly	Stack Light Assembly	1
25	nylock_10_32	Low-Strength Steel Nylon-Insert Locknut, Zinc-Plated, 10-32 Thread Size	16
26	nylock_M3	nylock M3	2
27	washer_flat_.375_nylon	nylon flat washer .375	4

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B1	A	Fixed color pattern appearance to match GE-20105 and GE-20106 drawings	1/6/2020	CPO
A3, B2, 5-A3, 5-B1	B	Added GE-21144 and washer to assembly. Fixed exploded views to show where parts are added.	8/27/2020	NTW



B

B

UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN		
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: <h2 style="text-align: center;">Trench with Control Panel</h2>
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY		USED ON		
APPLICATION		DO NOT SCALE DRAWING		Q.A. COMMENTS:
		SIZE	DWG. NO.	REV
		B	GE-21100	B
		SCALE: 1:16 WEIGHT:		SHEET 1 OF 6

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4

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B

B

A

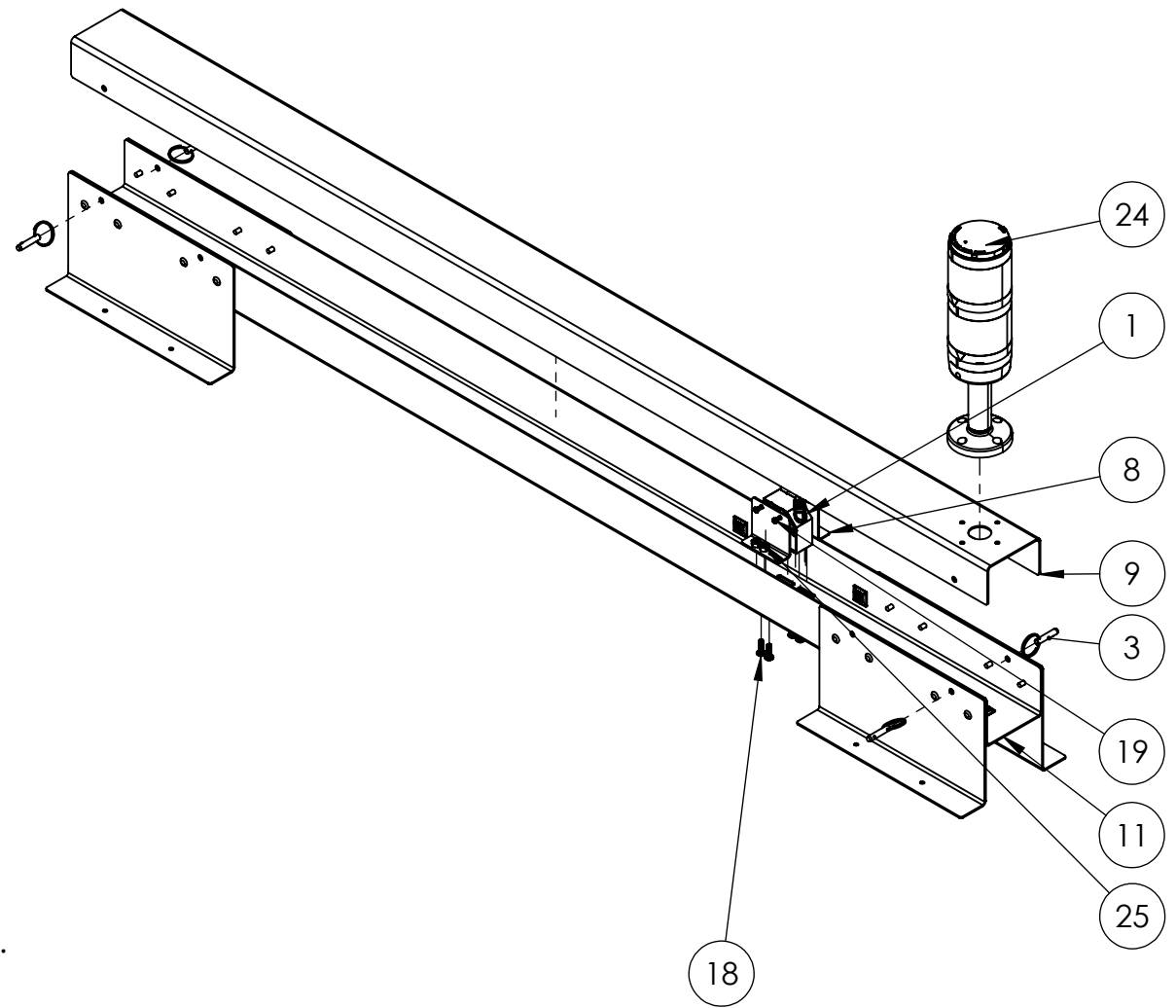
A

4

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1



Notes:

1. Attach (24) to (9) using cable 50lb cable ties.
2. Attach (8) to (1) with (19).
3. Attach step 2 to (11) with (18)
4. Attach (9) to (11) with (3) in 4 spots

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		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE DWG. NO. REV
		MATERIAL	ENG APPR.		B GE-21100 B
NEXT ASSY	USED ON	FINISH	MFG APPR.		SCALE: 1:16 WEIGHT: SHEET 2 OF 6
APPLICATION		DO NOT SCALE DRAWING	Q.A.		
			COMMENTS:		

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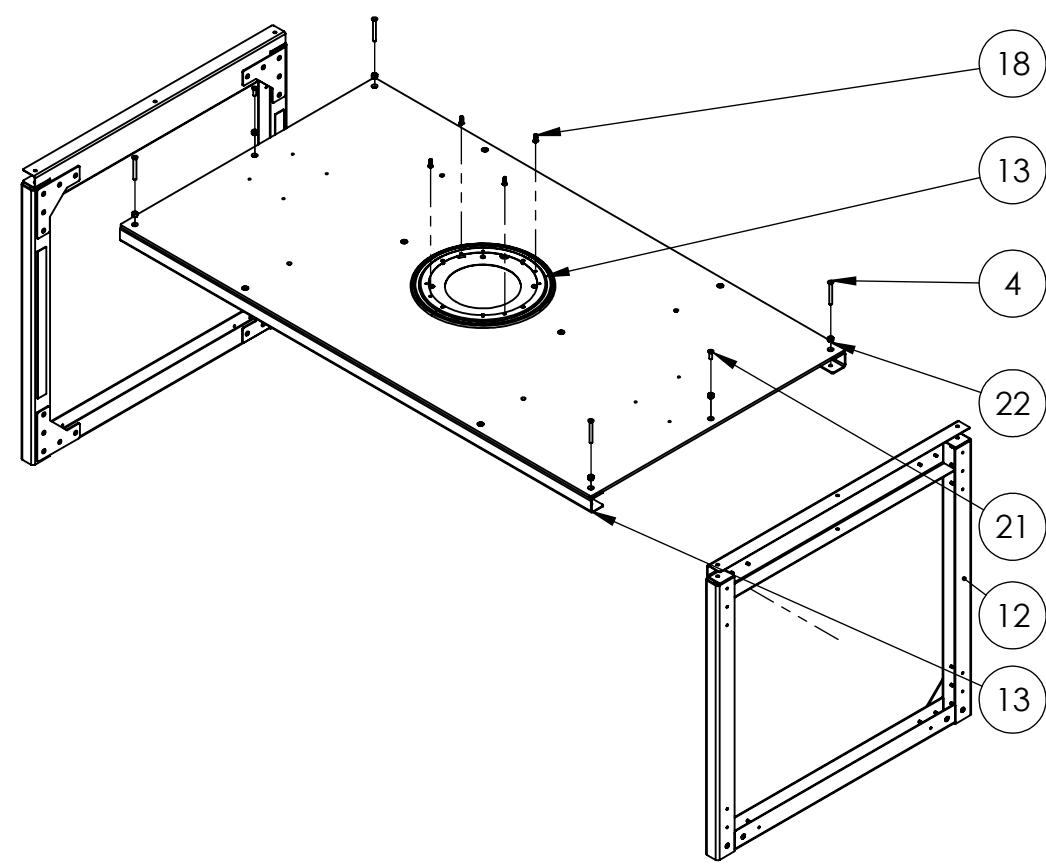
3

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B

B



Notes:



- 1. Slide (12) into (13)
- 2. Attach (13) to (12) using (4), (21) and (22) in three spots per side

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		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

TITLE:

Trench with Control Panel

SIZE	DWG. NO.	REV
B	GE-21100	B
SCALE: 1:16 WEIGHT:		SHEET 3 OF 6

4

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4

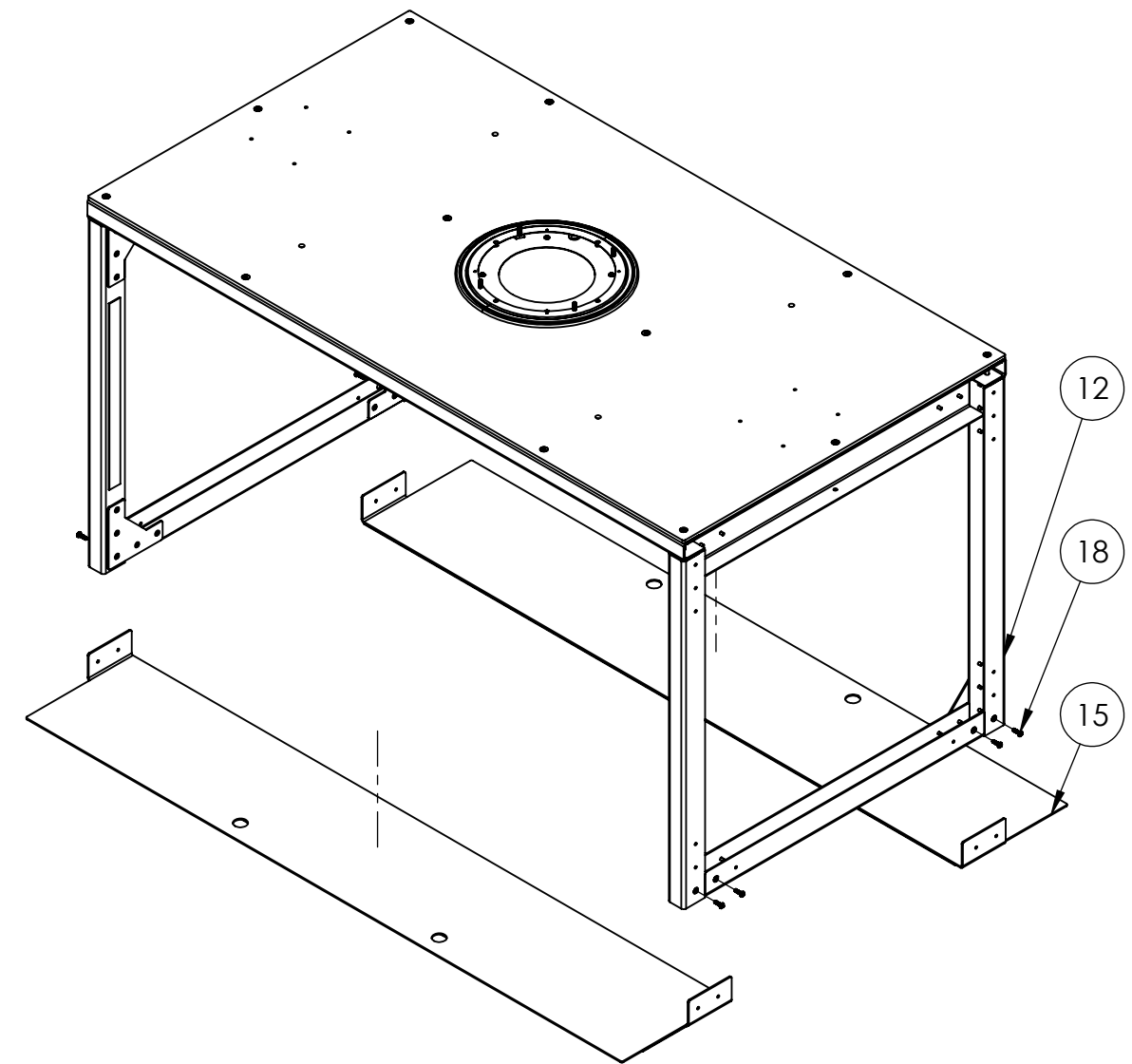
3

2

1

B

B



Notes:

- 1. Attach (15) to (12) on the outside
- 2. Use (18) to assemble. Rivet nut is in (12)

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:		
<h1>Trench with Control Panel</h1>		
SIZE	DWG. NO.	REV
B	GE-21100	B
SCALE: 1:16 WEIGHT:		SHEET 4 OF 6

4

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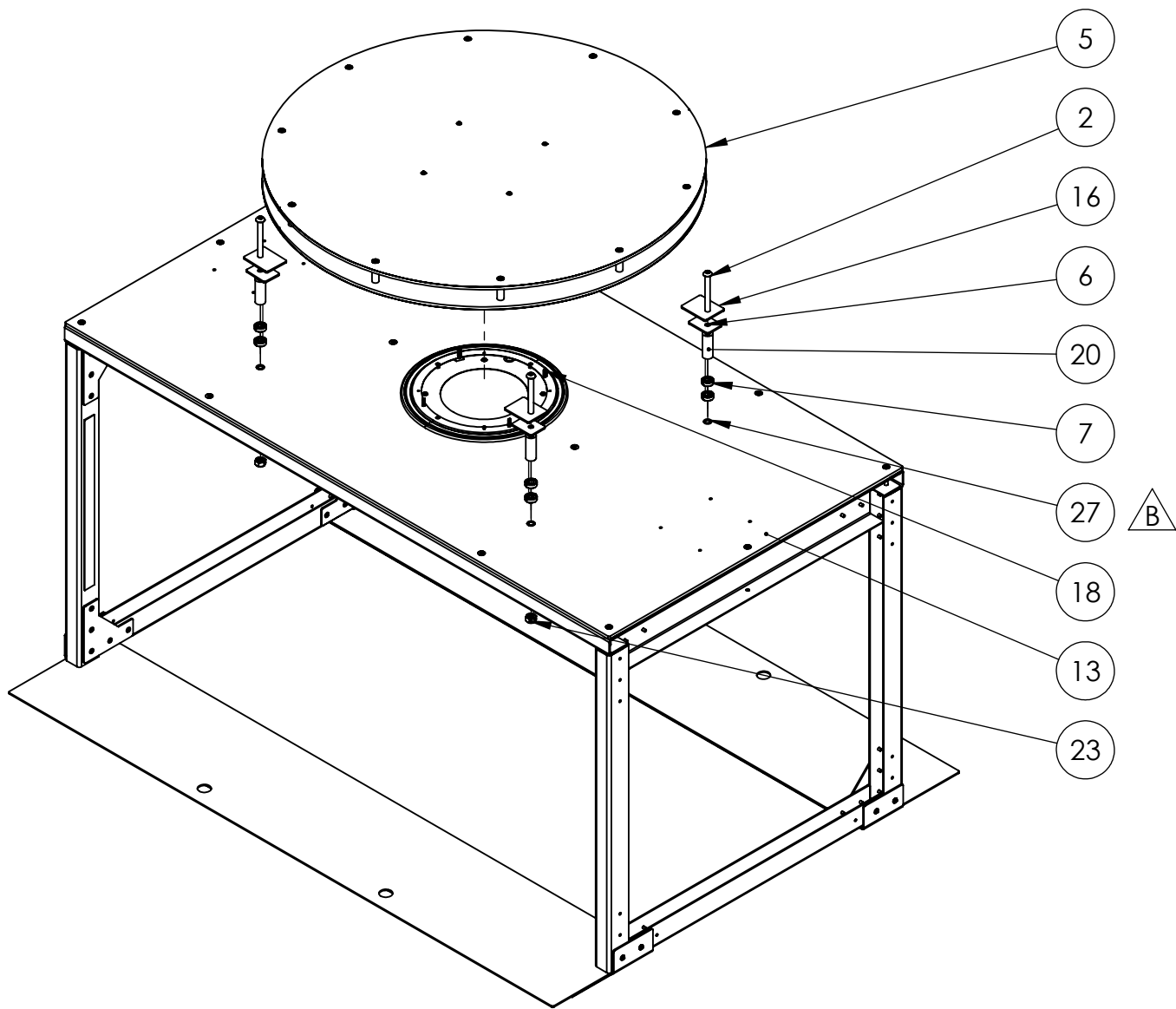
3

2

1

B

B



Notes:

- 1. Attach (5) to (13) on the Susan with (18) .
- 2. Assemble from top to bottom the following. (2) (16) (6) (20) (27) (7) . $\triangle B$
- 3. Insert Step 2 into (13) and secure with (23)

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE:
Trench with Control Panel

SIZE **B** DWG. NO. **GE-21100** REV **B**

SCALE: 1:16 WEIGHT: SHEET 5 OF 6

4

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4

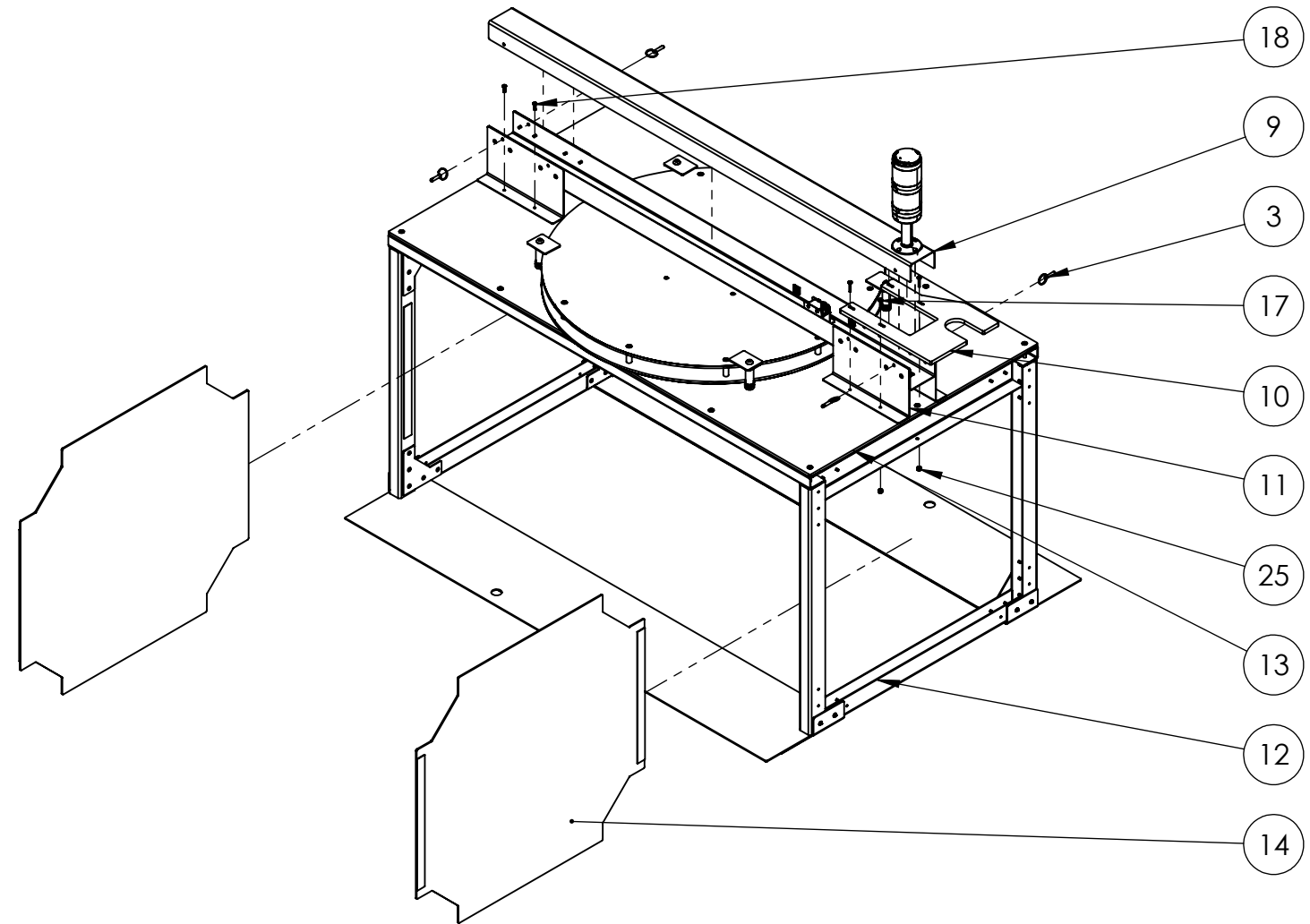
3

2

1

B

B





Notes:

1. Attach (14) to (12) with hook and loop
2. Attach (11) to (13) using (18) just on one side
3. After placement on the field attach (10) to (11) and (13) with (17).
4. After wiring and pass through of cable attach (9) to (11) using (3)

A

A

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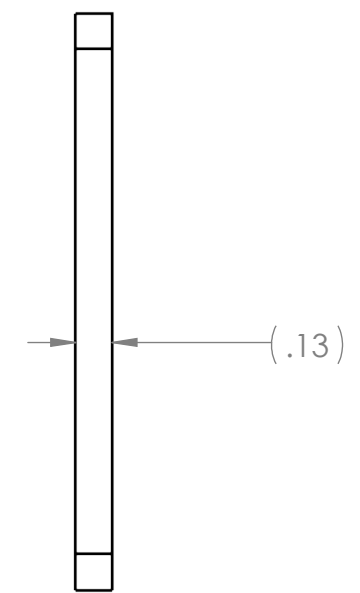
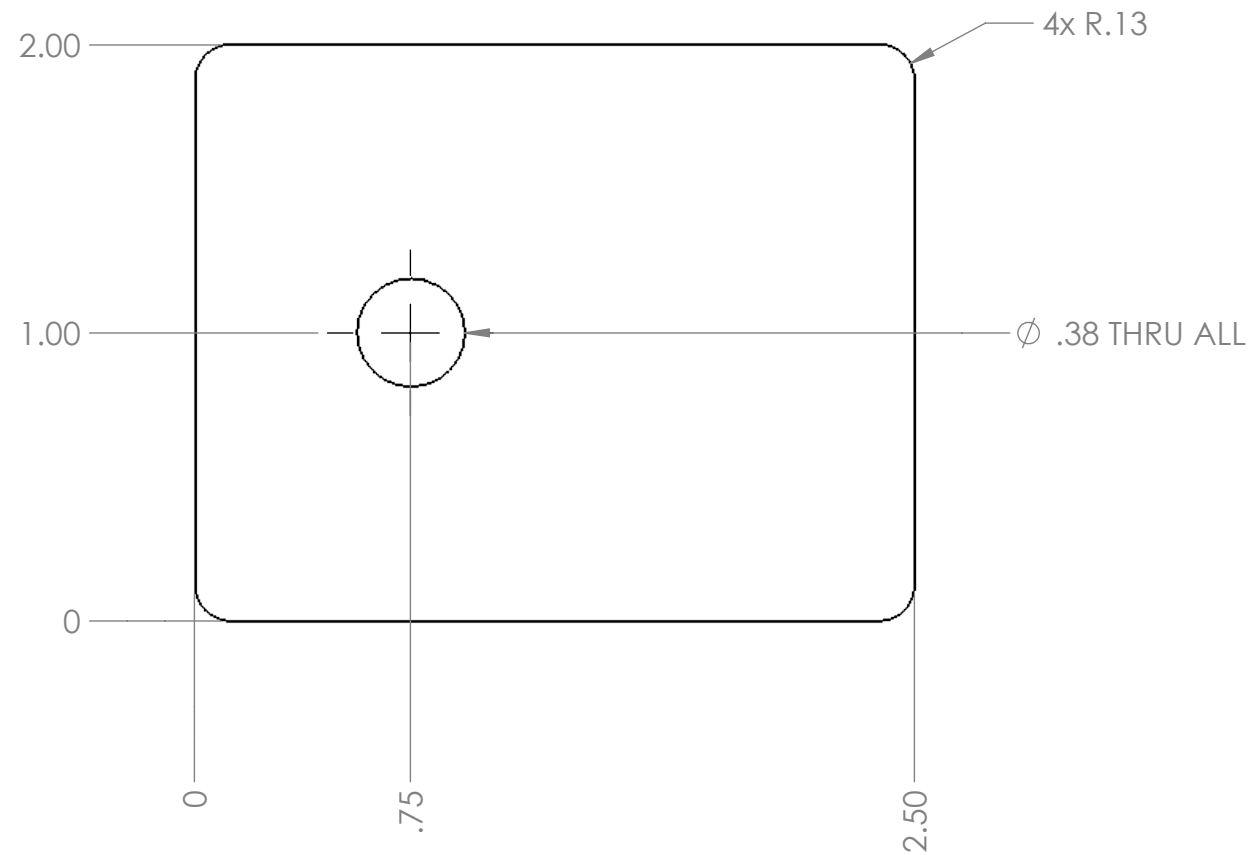
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		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
				 	
				TITLE:	
				Trench with Control Panel	
SIZE	DWG. NO.			REV	
B	GE-21100			B	
SCALE: 1:16		WEIGHT:		SHEET 6 OF 6	

4

3



2

1



- Notes:
1. Material: 0.125" Steel pre-plated.
 2. Remove all burrs and sharp edges.
 3. Bag and Label with part number.

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		<h1>Flange for control panel</h1>
		MATERIAL steel	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		B GE-21144
APPLICATION		DO NOT SCALE DRAWING	Q.A.		SCALE: 2:1 WEIGHT: SHEET 1 OF 1
			COMMENTS:		

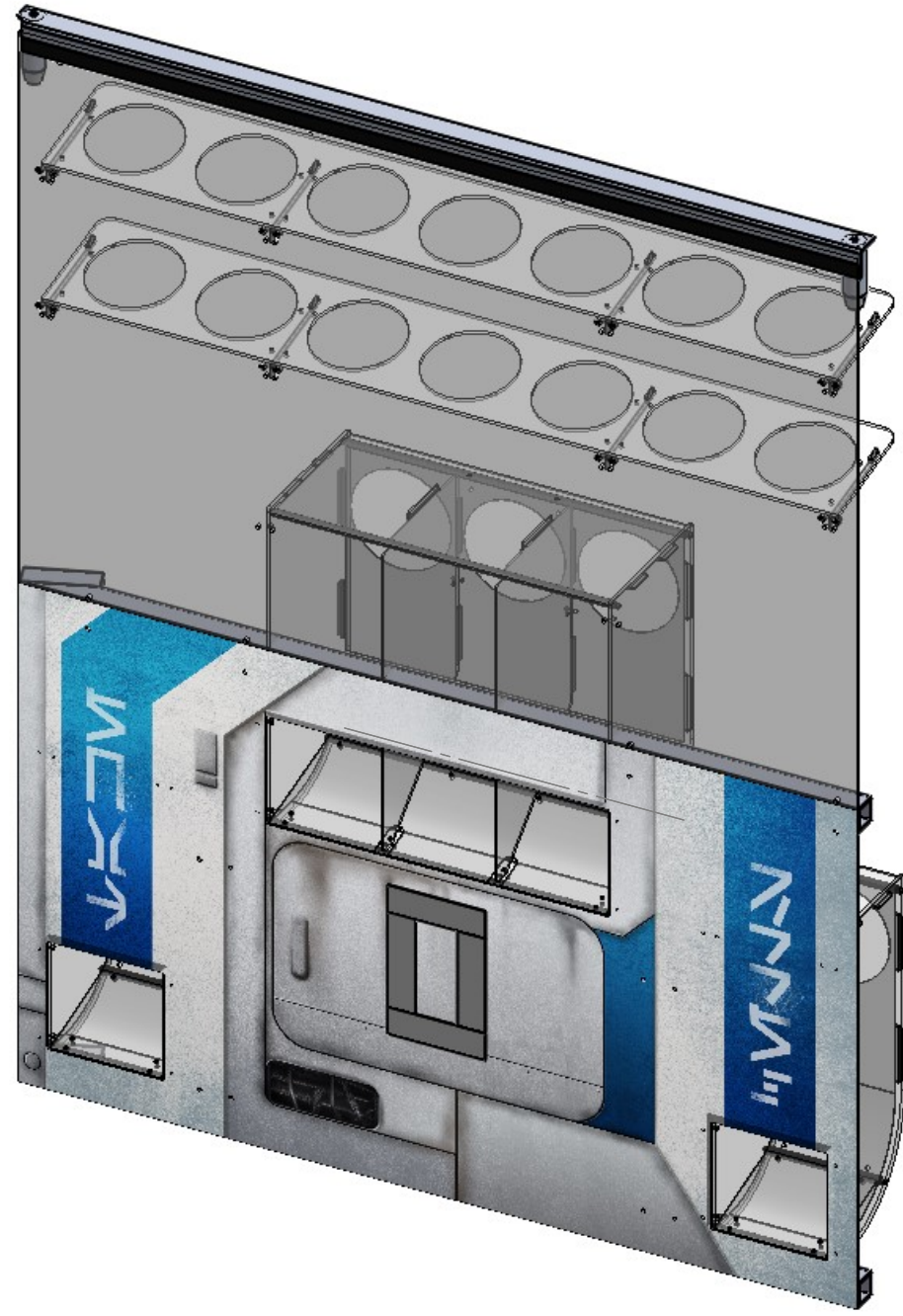
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2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2	A	Renumbered for 2021. GE-20205 and GE-20210 updated to GE-21205 and GE-21210. See assemblies for additional details.	11/30/2020	CPO





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20201	Frame, Bay	1
2	GE-20203	Ball Rack, Bay	2
3	GE-20204	Hook, Pegboard, 6.75"	8
4	GE-20216	Top Rail, Standard	1
5	GE-20221	Front Face, with Target	1
6	GE-20313	Anchor with hook	1
7	GE-21205	Chute Assembly, Lower	2
8	GE-21210	Chute Assembly, Upper	1
9	Hook_1_60	1" x 60" Hook, Adhesive Backed	1
10	Loop_1_60	1" x 60" Loop, Adhesive Backed	1

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN		
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE:
MATERIAL		ENG APPR.		Loading Bay
FINISH		MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON	Q.A.		B GE-21200 A
APPLICATION		COMMENTS:		SCALE: 1:12 WEIGHT: SHEET 1 OF 2
DO NOT SCALE DRAWING				

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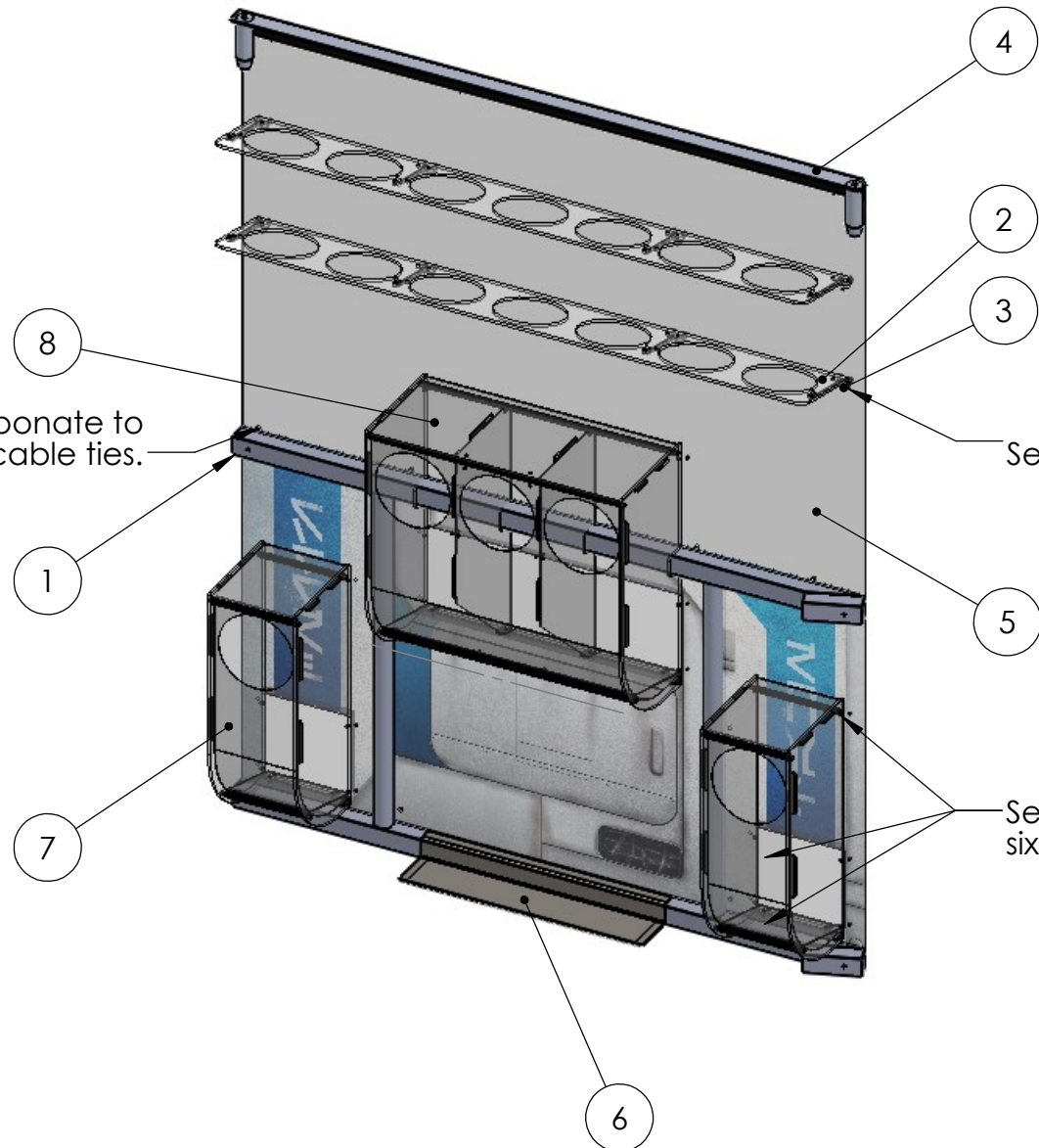
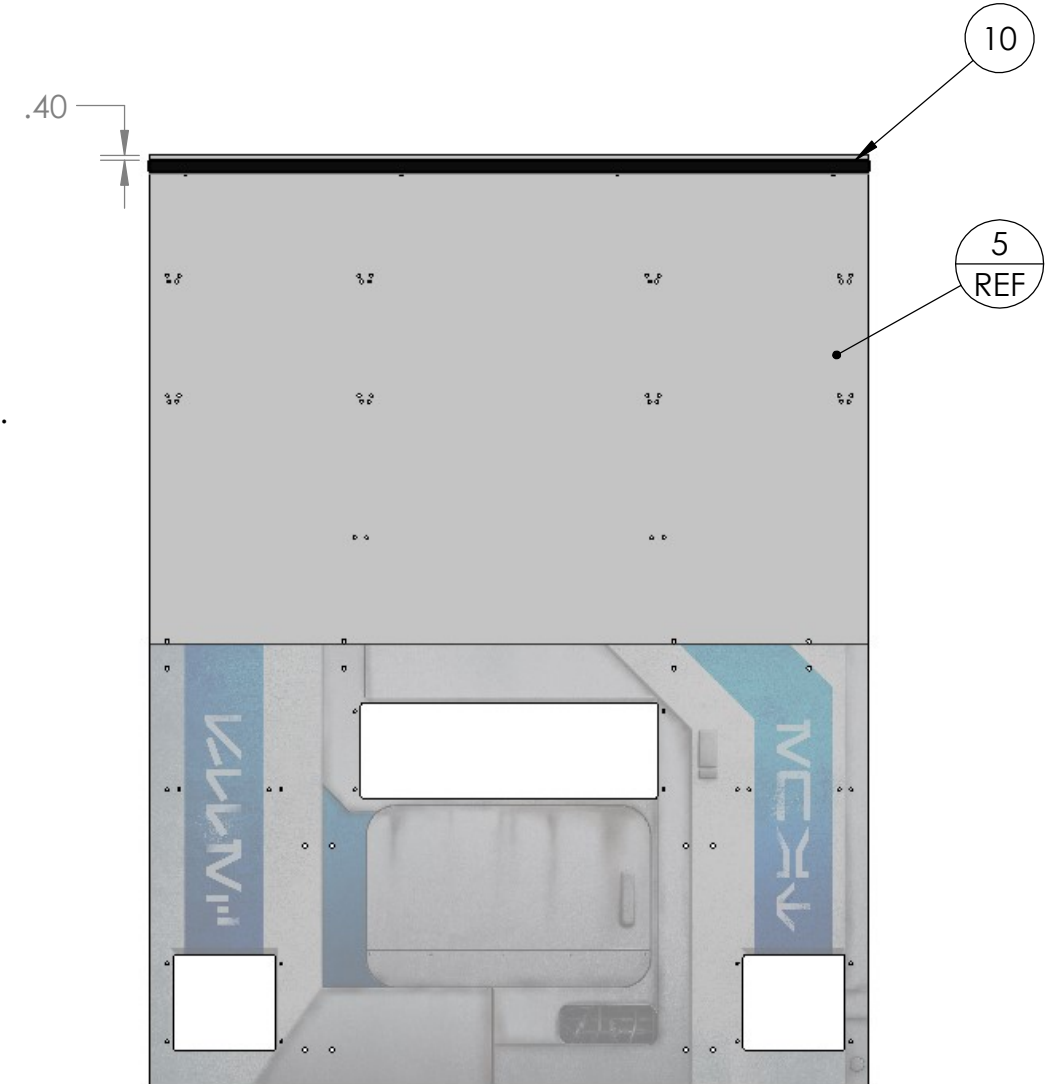
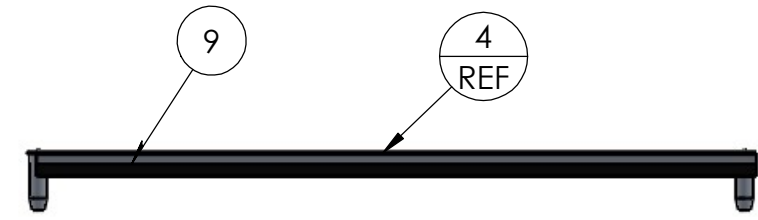
B

B

Secure polycarbonate to frame with eight cable ties.

Secure all item 3 with a cable tie.



Secure each chute with six cable ties.



A

A

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		SIZE DWG. NO. REV
		MATERIAL		ENG APPR.		B GE-21200 A
NEXT ASSY		USED ON		MFG APPR.		SCALE: 1:16 WEIGHT:
APPLICATION		DO NOT SCALE DRAWING		Q.A.		SHEET 2 OF 2
				COMMENTS:		

4

3

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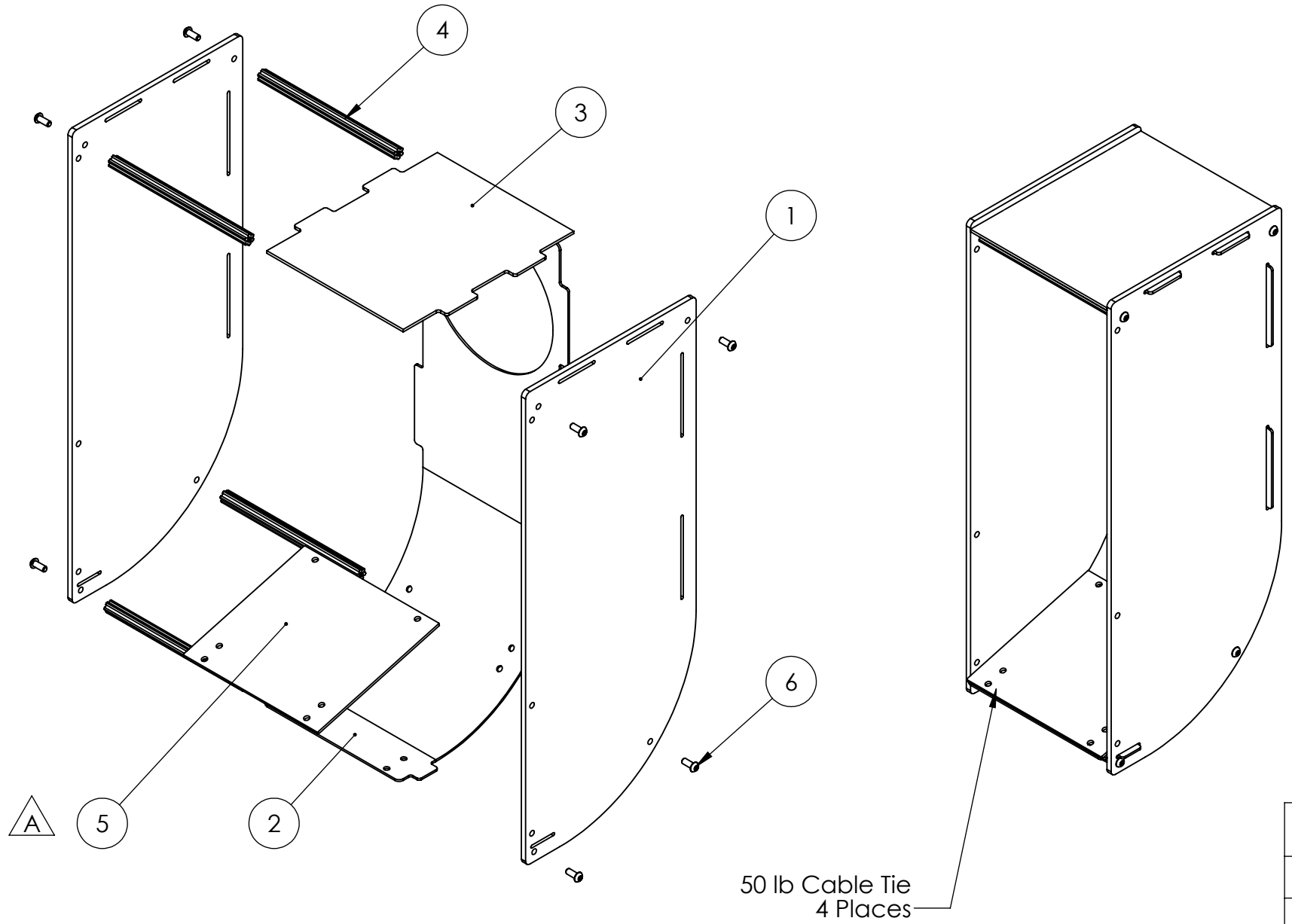
2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, A4	A	Assembly renumbered for 2021 season. GE-21223 Ramp, Lower Chute added to assembly.	11/30/2020	CPO

B

B





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20206	Side Plate, Lower Chute	2
2	GE-20207	Slide, Lower Chute	1
3	GE-20208	Top, Lower Chute	1
4	GE-20209	Churro, Lower Chute	4
5	GE-21223	Ramp, Lower Chute	1
6	round_hex_.25_20_.625_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 5/8" long, fully threaded	8

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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN		
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MATERIAL		ENG APPR.		
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APPLICATION		FINISH		SCALE: 1:6 WEIGHT: SHEET 1 OF 1
		DO NOT SCALE DRAWING		

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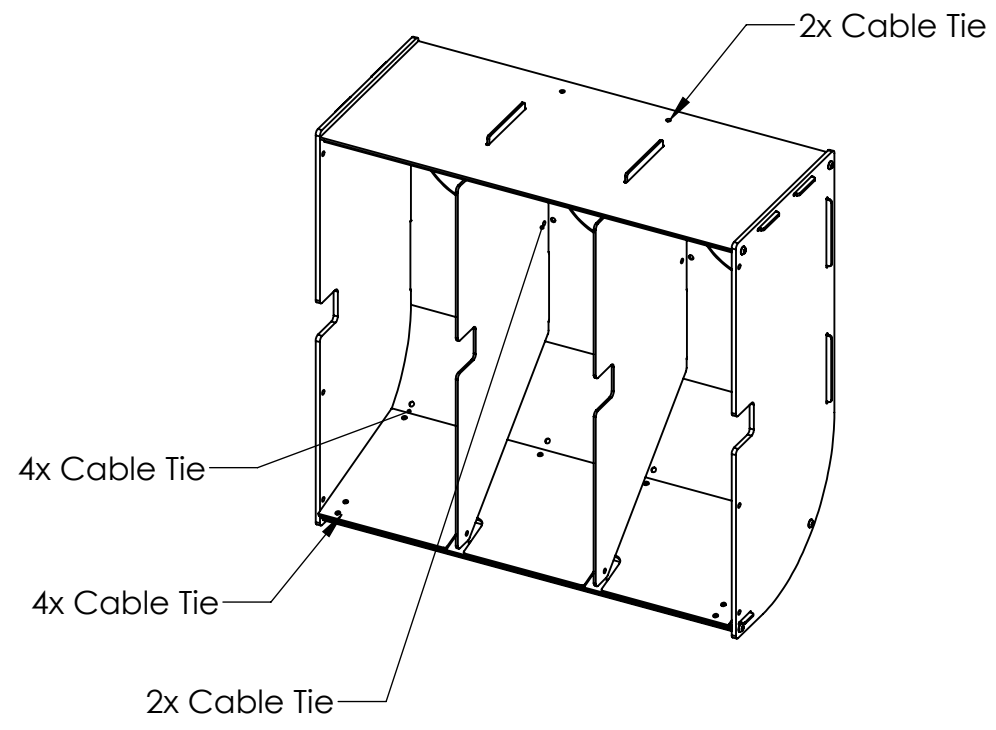
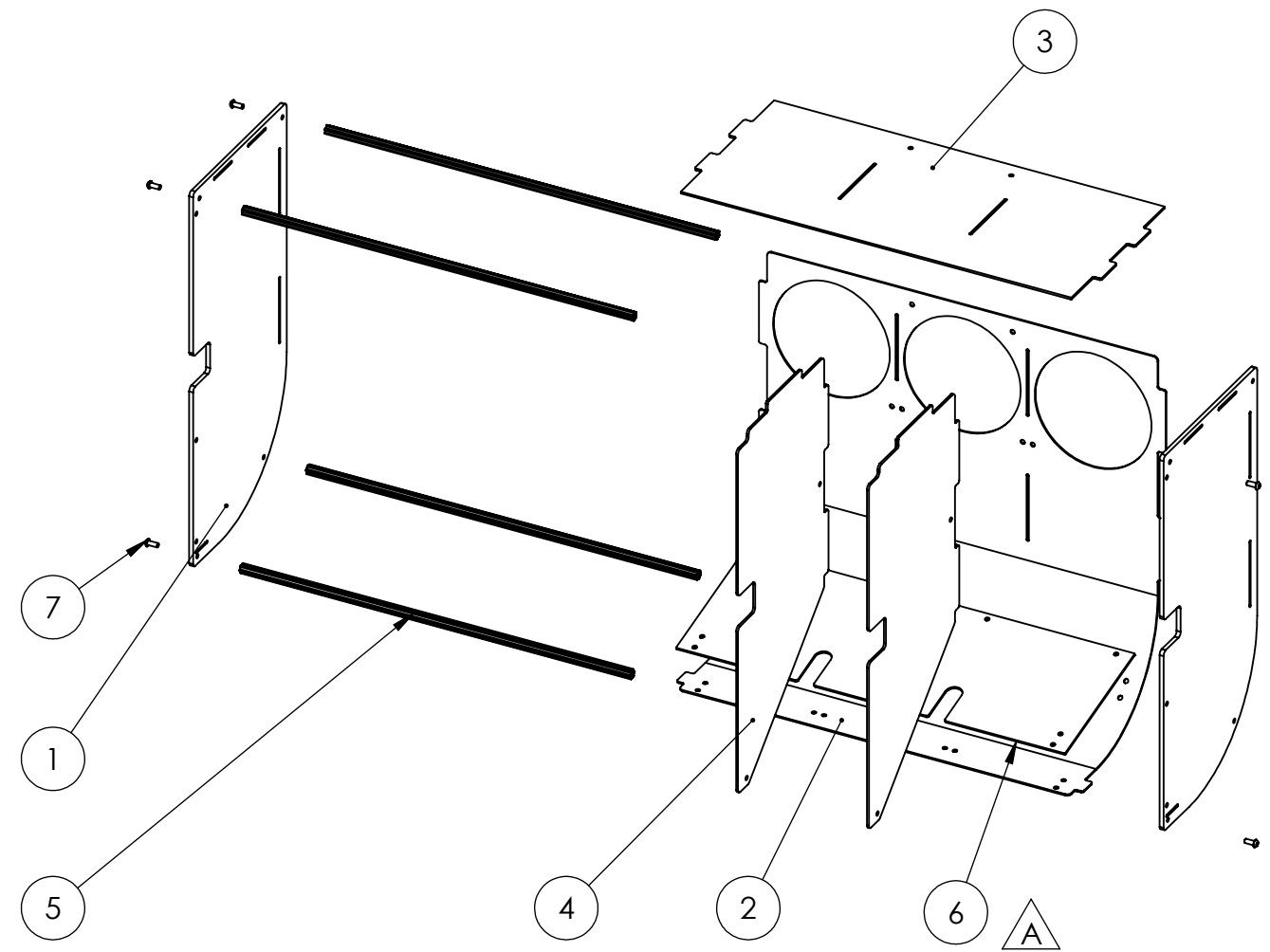
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, A3	A	Assembly renumbered for 2021 season. GE-21224 Ramp, Upper Chute added to assembly.	11/30/2020	CPO



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20211	Side Plate, Upper Chute	2
2	GE-20212	Slide, Upper Chute	1
3	GE-20213	Top, Upper Chute	1
4	GE-20214	Divider, Upper Chute	2
5	GE-20215	Churro, Upper Chute	4
6	GE-21224	Ramp, Upper Chute	1
7	round_hex_.25_20_.625_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 5/8" long, fully threaded	8

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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN		
INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		TITLE: <h2>Chute Assembly, Upper</h2>
MATERIAL		ENG APPR.		
FINISH		MFG APPR.		
NEXT ASSY	USED ON	Q.A.		SIZE B DWG. NO. GE-21210 REV A
APPLICATION		COMMENTS:		SCALE: 1:10 WEIGHT: SHEET 1 OF 1
DO NOT SCALE DRAWING				

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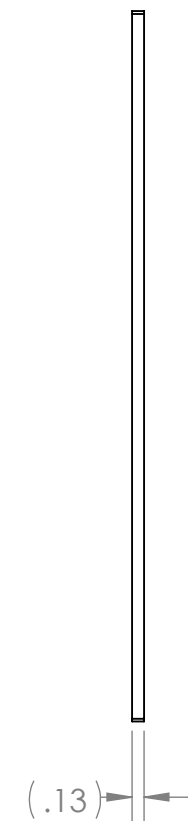
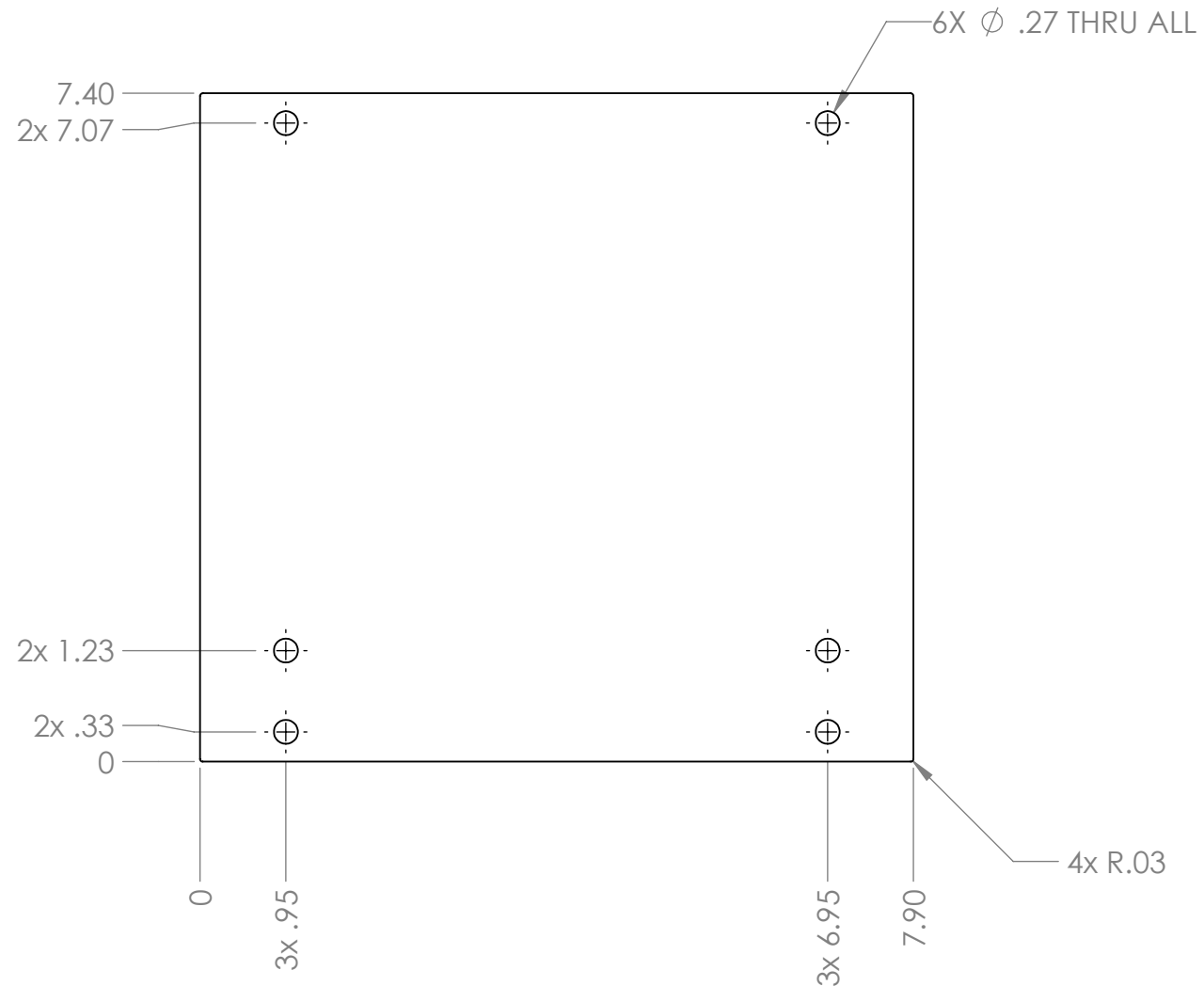
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Notes:

1. Material: 1/8" thk. Polycarbonate, Clear
2. Tag or label with part number
3. Remove all burrs and sharp edges

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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		Ramp, Lower Chute
		MATERIAL	ENG APPR.		
		FINISH	MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON	DO NOT SCALE DRAWING	Q.A.		B GE-21223
APPLICATION			COMMENTS:		SCALE: 1:2 WEIGHT: SHEET 1 OF 1

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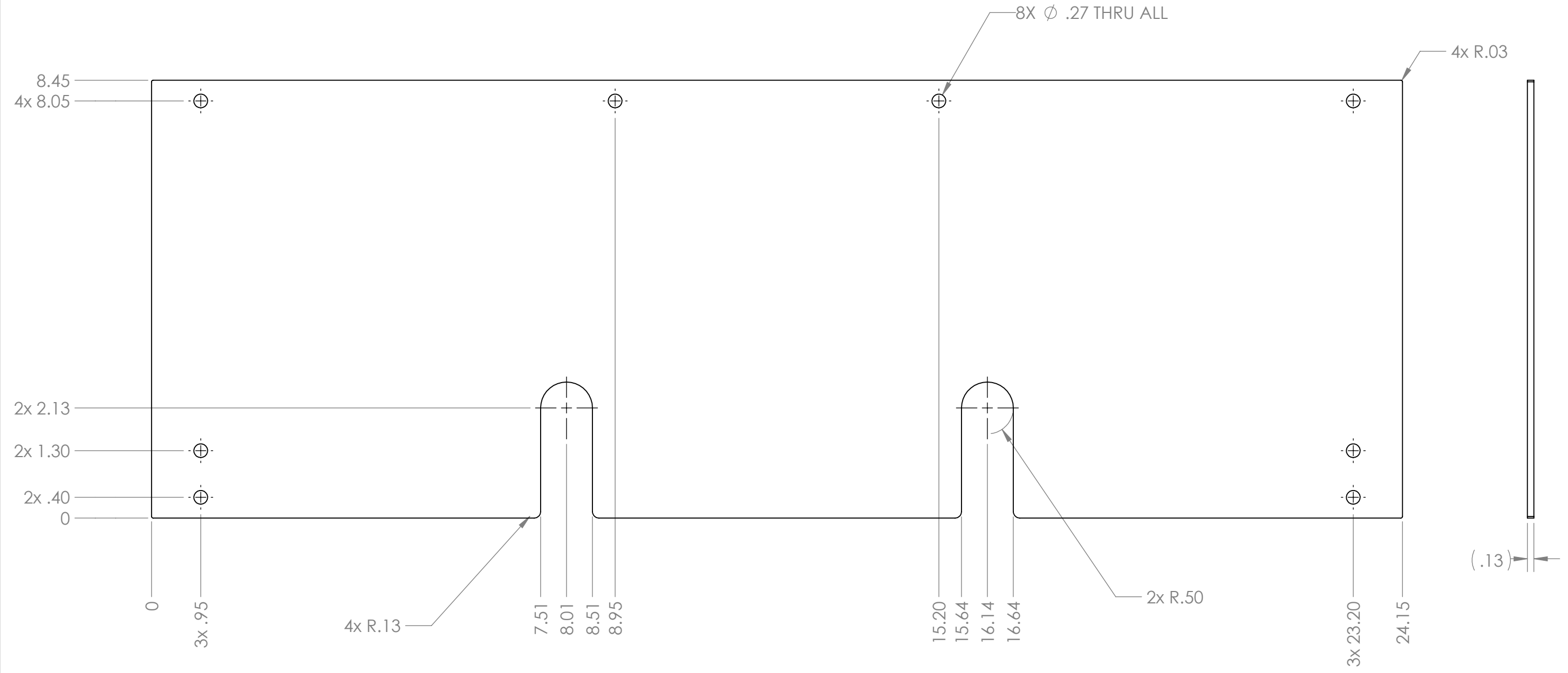
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Notes:

- 1. Material: 1/8" thk. Polycarbonate, Clear
- 2. Tag or label with part number
- 3. Remove all burrs and sharp edges

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		TOLERANCES:	CHECKED		
		FRACTIONAL ±1/16	ENG APPR.		
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.		
		TWO PLACE DECIMAL ±.01	Q.A.		
		THREE PLACE DECIMAL ±.001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:		
Ramp, Upper Chute		
SIZE	DWG. NO.	REV
B	GE-21224	
SCALE: 1:2	WEIGHT:	SHEET 1 OF 1

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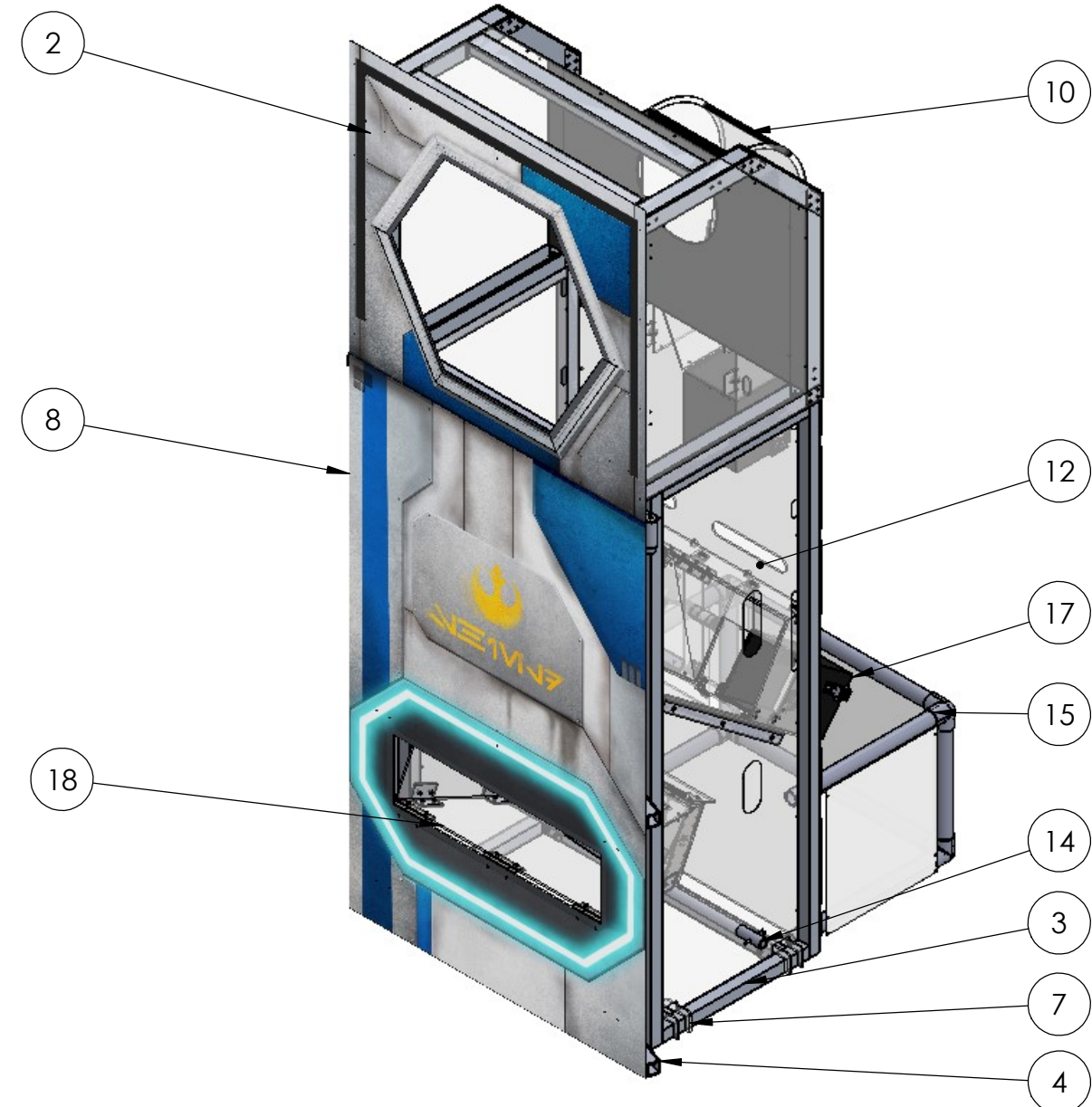
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Assembly renumbered for 2021 season. Outer Port Serializer and Plastic Serializer Assembly updated and renumbered. See subassembly drawings for details.	12/16/2020	CPO

Notes:

1. This assembly exists in red and blue configurations. Only blue is shown here.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	flat_phil_.25_20_.75	Steel Phillips Flat Head Screw, 1-4"-20 x 3/4" long, fully threaded	6
2	GE-20301	Power Port Top Assembly	1
3	GE-20309	Goal Base Upright	2
4	GE-20310	Low Power Port Frame	1
5	GE-20313	Anchor with hook	1
6	GE-20316	Power Port Base Back Top	1
7	GE-20319	Power Port Base Brace Assembly	2
8	GE-20321	Low Power Port with Vinyl	1
9	GE-20323	Top Rail, Standard	1
10	GE-20337	Inner Port Chute Assembly	1
11	GE-20338	Side Polycarbonate Assembly, Right	1
12	GE-20339	Side Polycarbonate Assembly, Left	1
13	GE-20370	Counter Assembly	1
14	GE-20387	support bar	1
15	GE-20390	Corral Assembly	1
16	GE-20398	Power Port Base Back Bottom	1
17	GE-21340	Outer Port Serializer	1
18	GE-21350	Plastic Serializer Assembly	1
19	hex_.25_20_0.625	Steel Hex Head Screw, 1/4"-20 x 0.625" long, fully threaded	2
20	hex_.25_20_2.25_partial	Steel Hex Head Screw, 1/4"-20 x 2-1/4" long, partially threaded	4
21	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	12
22	pin_quick_ring_.25_1.8125	Pin, Ring-Grip Quick-Release with SS Ring, 1/4" Diameter, 1.8125" Usable Length	2




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DIMENSIONS ARE IN INCHES		DRAWN	
TOLERANCES:		CHECKED	
FRACTIONAL ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION		DO NOT SCALE DRAWING	



FIRST ROBOTICS COMPETITION



SOLIDWORKS
Modeling Solutions Partner

TITLE: **Power Port**

SIZE B	DWG. NO. GE-21300	REV A
SCALE: 1:20 WEIGHT:		SHEET 1 OF 4

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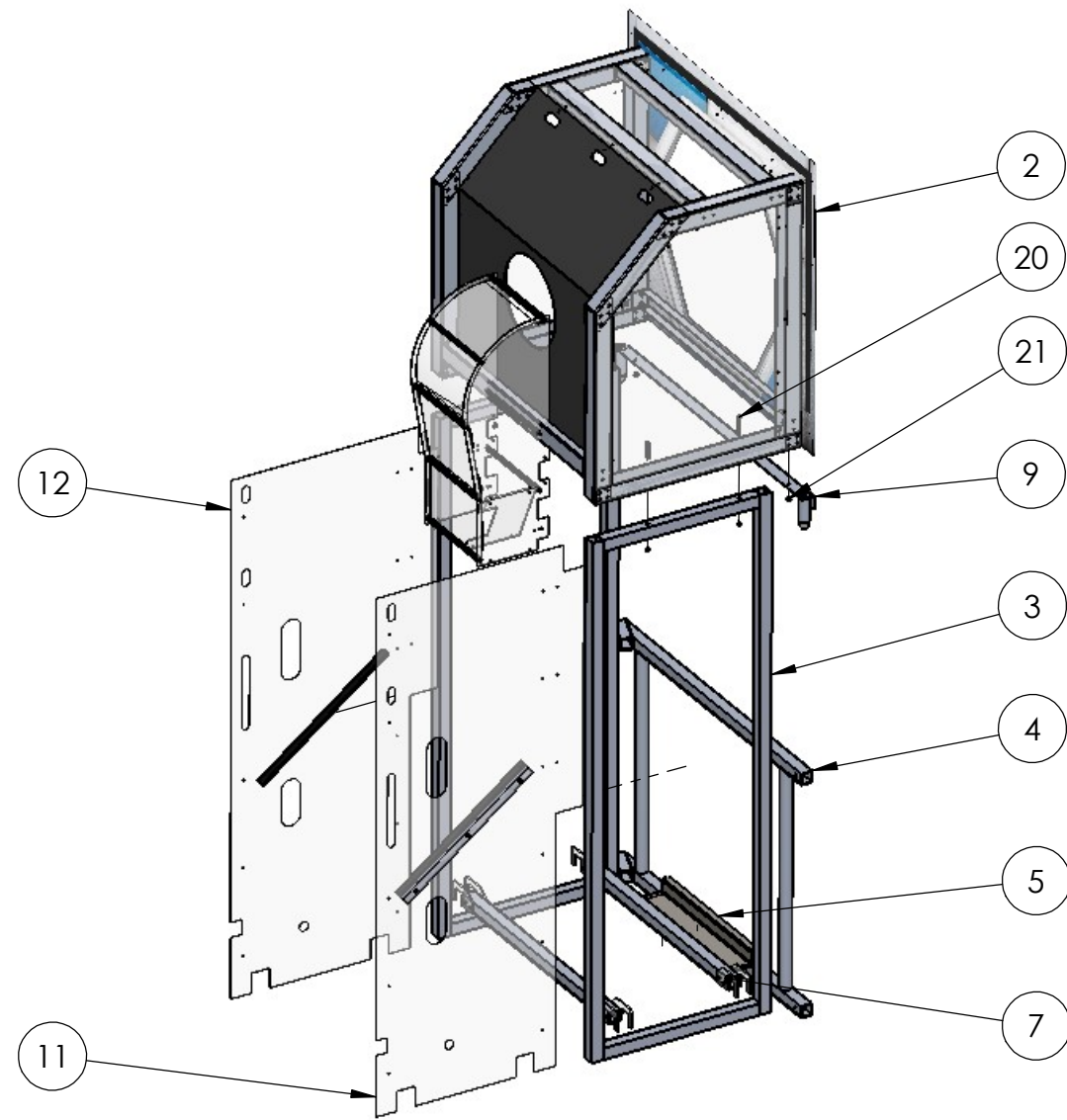
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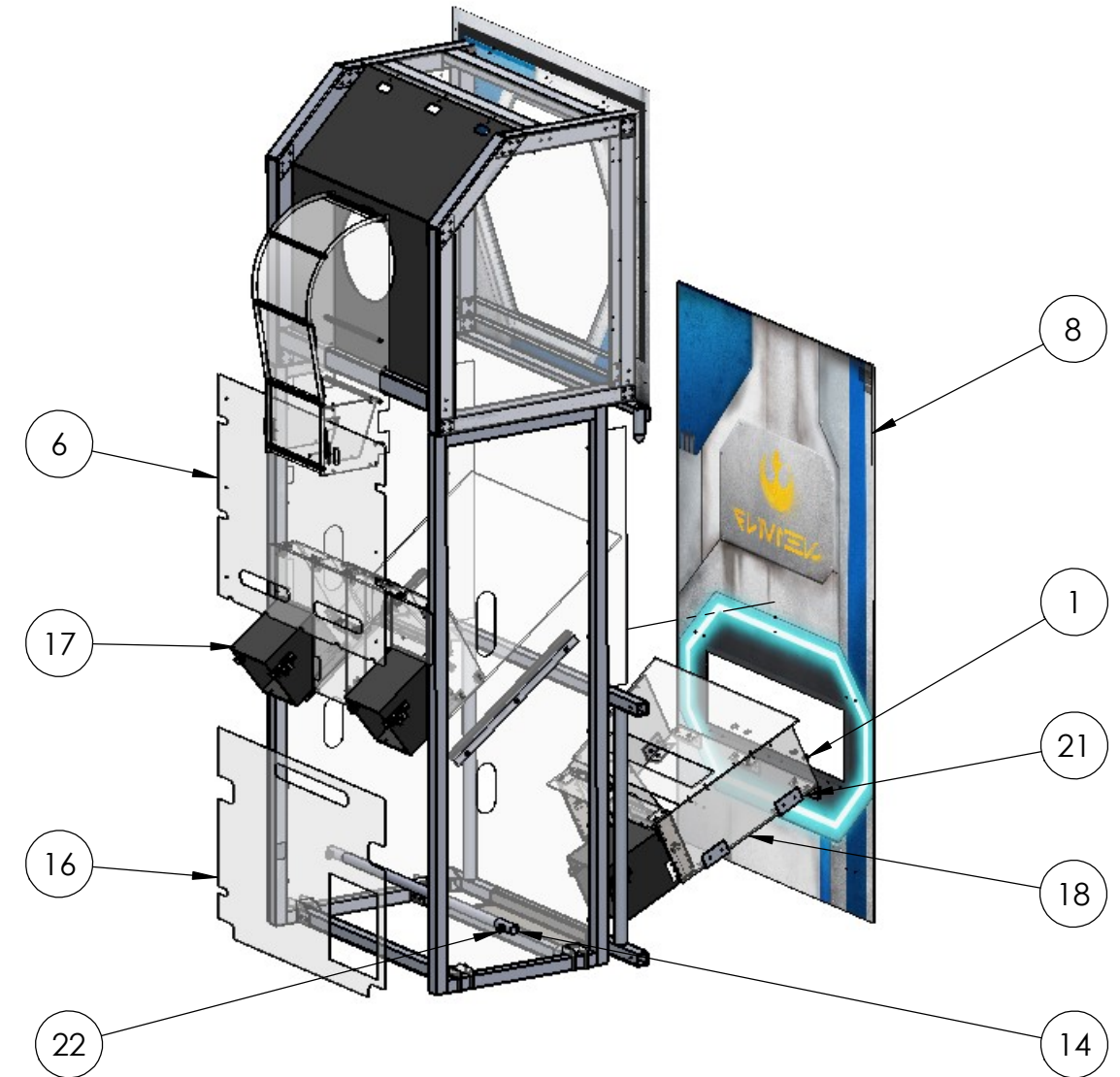
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Notes:



- Items (9) and (4) should be installed during creation of Alliance Wall.
- Attach (2) to (3) and (9) using (20), (20), and (21).
- Place item (5) in place and affix to carpet.
- Attach the item (7) pieces to (3) using the plastic hooks.
- Slide (11) and (12) into place and secure using 50 lb. cable ties.

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Notes:

- Insert (14) into the assembly, secure in place using (22).
- Attach (18) to (8) using (1) and (21).
- Slide this subassembly into place and secure using 120 lb. cable ties.
- Attach (17) to the assembly using the hook and loop fastener.
- Attach (6) and (16) using 50 lb. cable ties.

		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001		DRAWN	
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
		FINISH		MFG APPR.	
NEXT ASSY	USED ON			Q.A.	
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:	
 					
TITLE: Power Port					
SIZE	DWG. NO.	REV			
B	GE-21300	A			
SCALE: 1:25 WEIGHT:				SHEET 2 OF 4	

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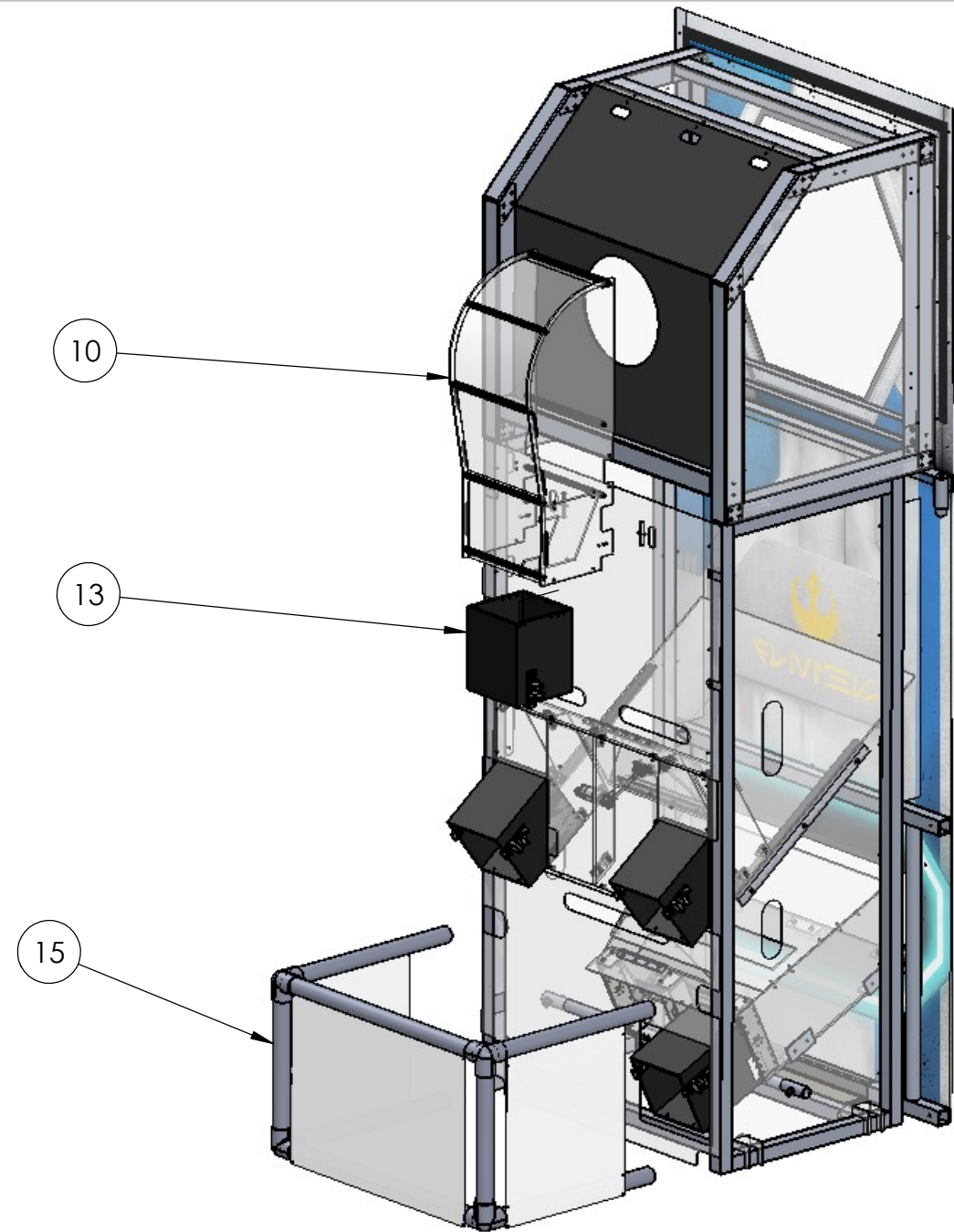
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Notes:

1. Attach (13) to (10) using 50 lb. cable ties.
2. Attach this subassembly to the rest of the assembly using 50 lb. cable ties.
3. Slide (15) into place.

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		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
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		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

 		
TITLE: Power Port		
SIZE B	DWG. NO. GE-21300	REV A
SCALE: 1:20 WEIGHT:		SHEET 3 OF 4

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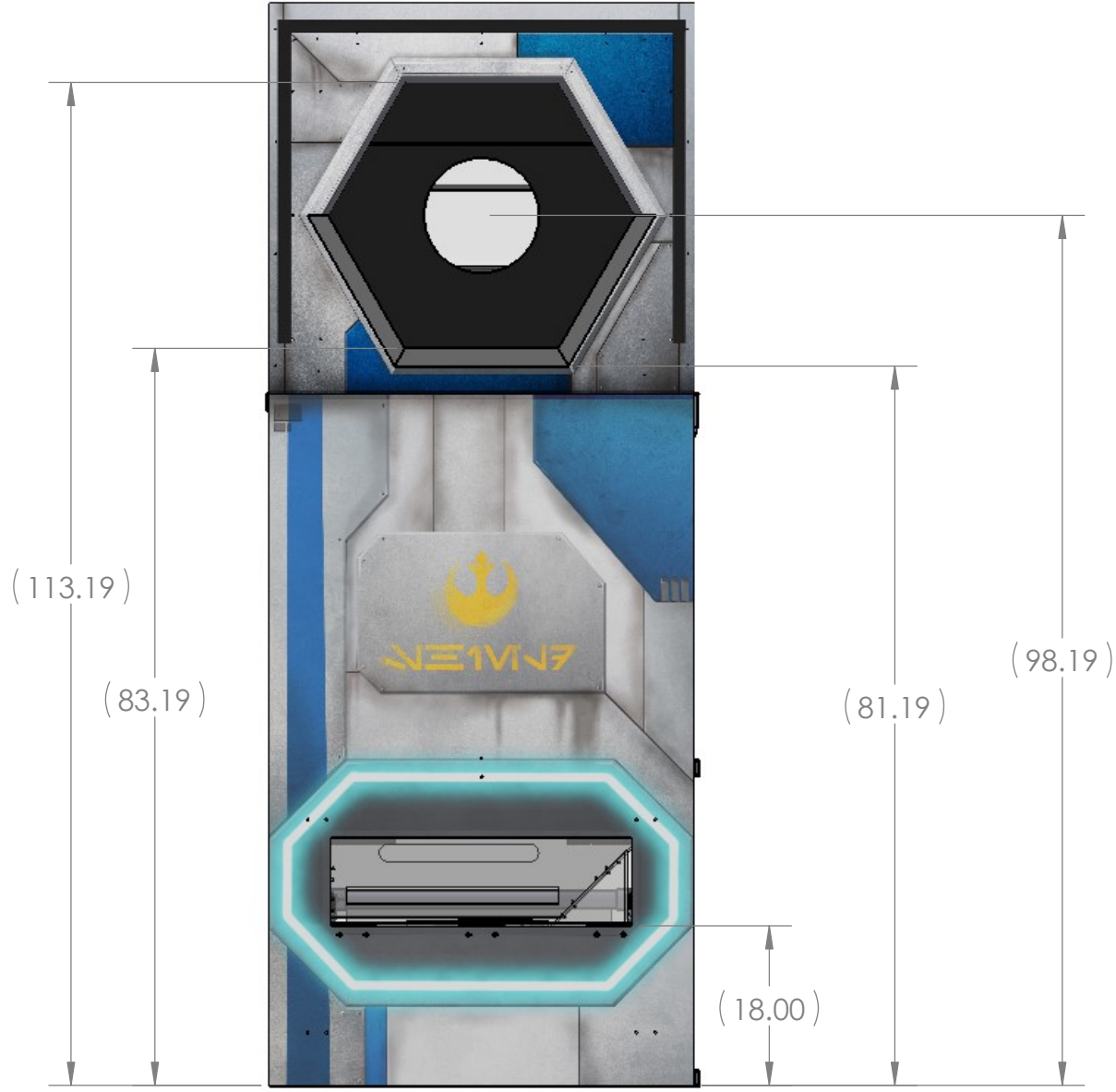
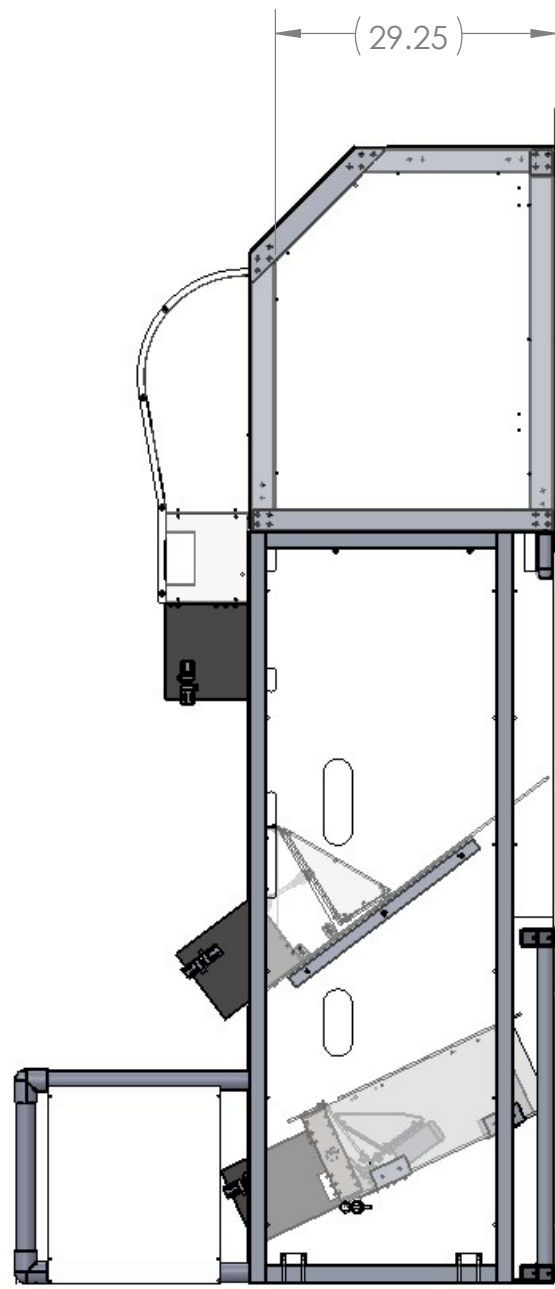
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		FRACTIONAL: ±1/16	ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.	
		TWO PLACE DECIMAL ±.01	Q.A.	
		THREE PLACE DECIMAL ±.001	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING		



TITLE: Power Port		
SIZE B	DWG. NO. GE-21300	REV A
SCALE: 1:20 WEIGHT:		SHEET 4 OF 4

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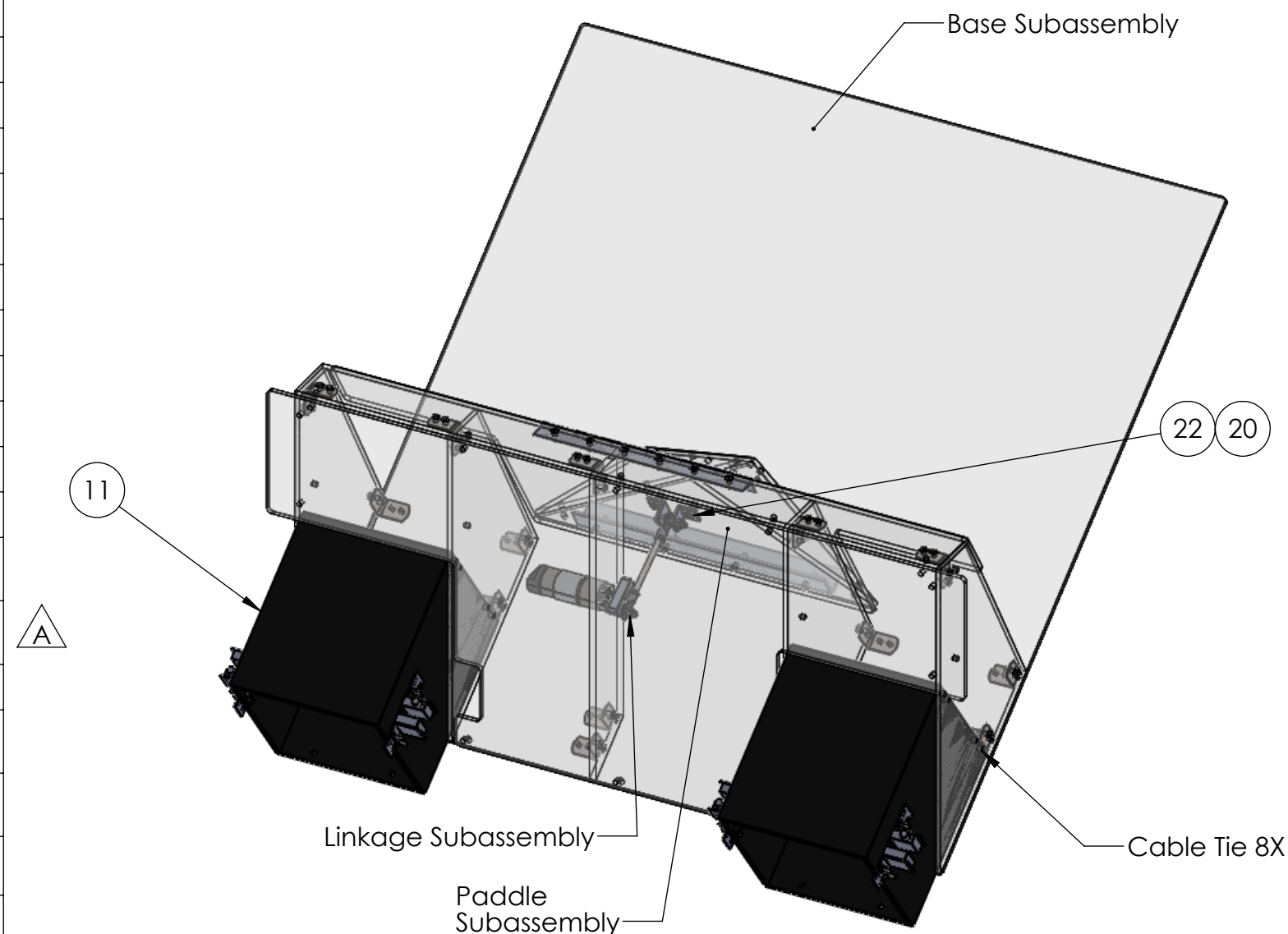
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20341	Floor, Outer Port Serializer	1
2	GE-20342	Side Plate, Outer Port Serializer	4
3	GE-20343	Top Plate, Outer Port Serializer	1
4	GE-20344	Hinge, Outer Port Serializer	1
5	GE-20345	Paddle, Outer Port Serializer	1
6	GE-20346	Angle, Outer Port Serializer	1
7	GE-20347	Foot, Outer Port Serializer	1
8	GE-20348	Ramp, Outer Port Serializer	2
9	GE-20349	Motor Mount, Outer Port Serializer	1
10	GE-20364	Igus Bearing	2
11	GE-20370	Counter Assembly	2
12	GE-20381	NeverRest 60	1
13	GE-20382	Hub	1
14	GE-20384	L Bracket	2
15	GE-20385	Spacer	3
16	GE-20399	Cover, Outer Port Serializer	1
17	Angle Bracket, 4 Hole	1/8" Bracket	15
18	CUP POINT SET SCREW 10-24_.50	Cup Point Set Screw 10-24	1
19	hex_.25_20_1.5	Steel Hex Head Screw, 1/4"-20 x 1.5" long, fully threaded	2
20	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	4
21	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	80
22	round_hex_.25_20_.625_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 5/8" long, fully threaded	2
23	socket_hex_3mm_14mm	Socket Head Screw, 3mm x .5mm x 14mm	6
24	threaded_rod_.25_20_4	Threaded Rod, 1/4-20 x 4"	1


REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Assembly renumbered for 2021. Bolt length changed.	11/30/2020	CPO



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		TOLERANCES:	CHECKED	
		FRACTIONAL $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
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		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
		APPLICATION		
		DO NOT SCALE DRAWING		





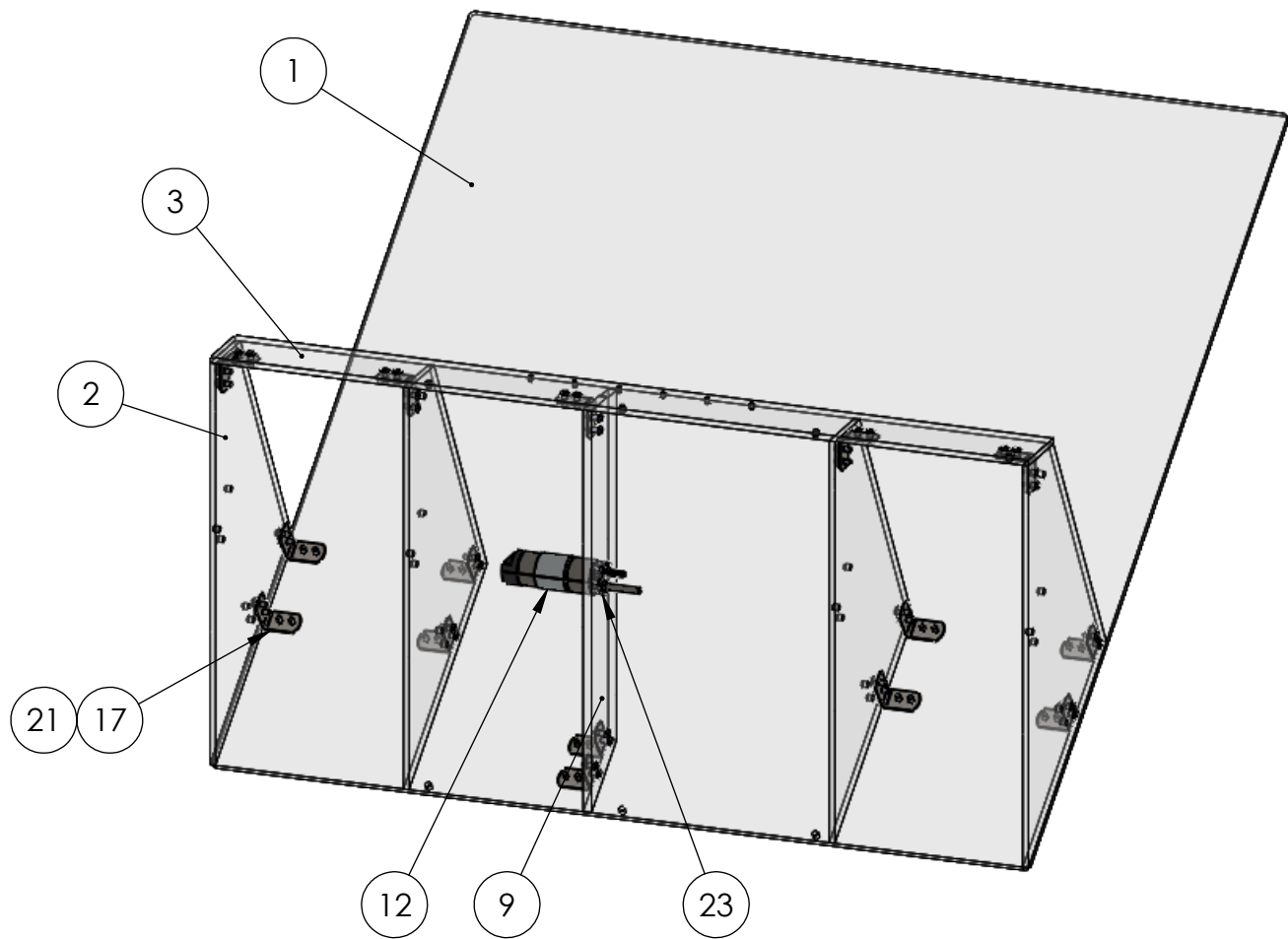
TITLE: Outer Port Serializer		
SIZE B	DWG. NO. GE-21340	REV A
SCALE: 1:8	WEIGHT:	SHEET 1 OF 2

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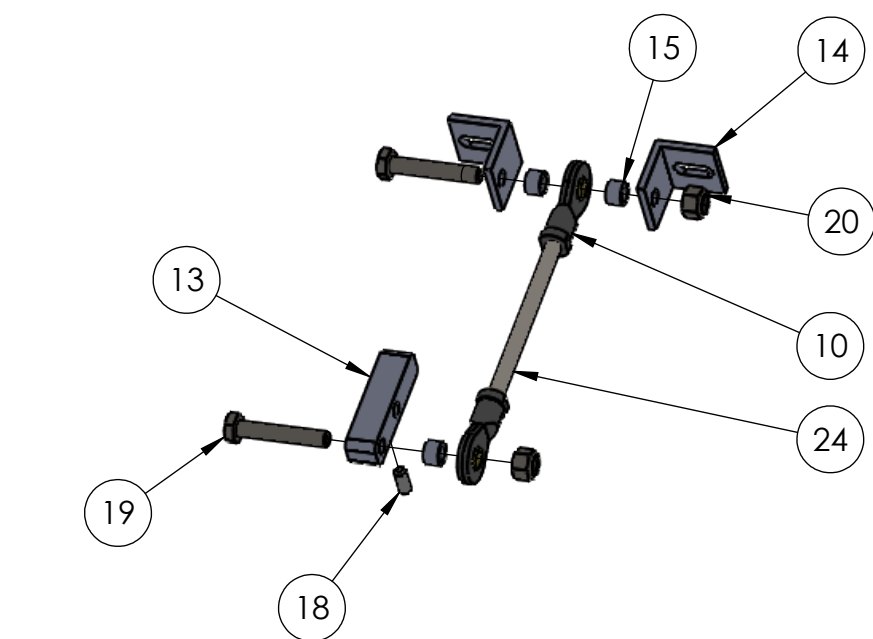
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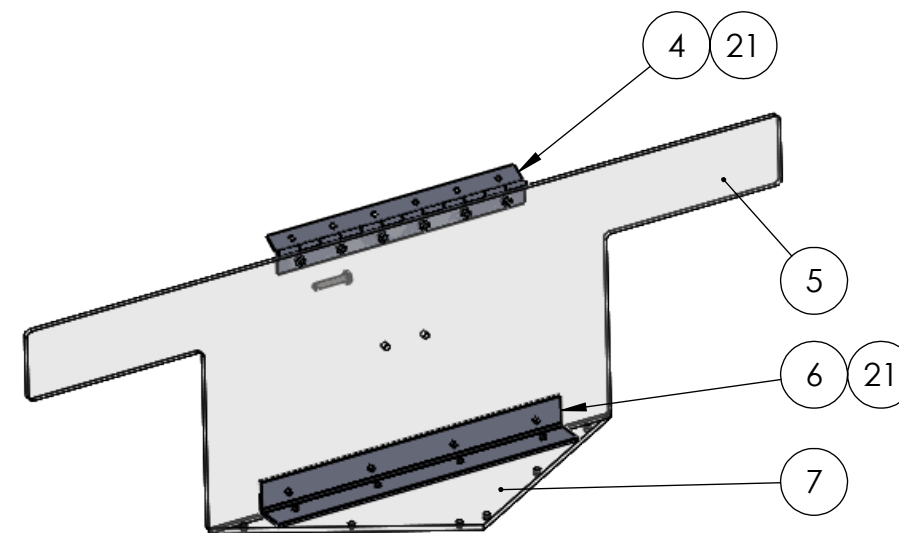
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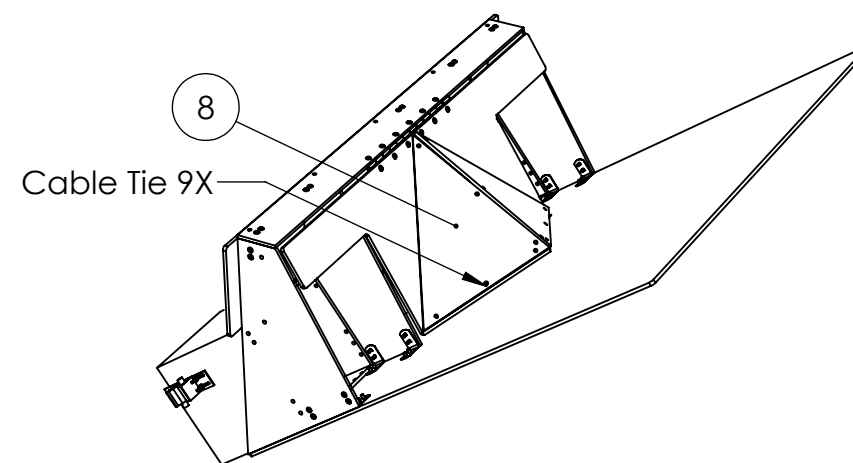
Base Subassembly



Linkage Subassembly





Paddle Subassembly



Cable Tie 9X

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		THREE PLACE DECIMAL $\pm .001$		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

 		
TITLE: Outer Port Serializer		
SIZE	DWG. NO.	REV
B	GE-21340	A
SCALE: 1:12 WEIGHT:		SHEET 2 OF 2

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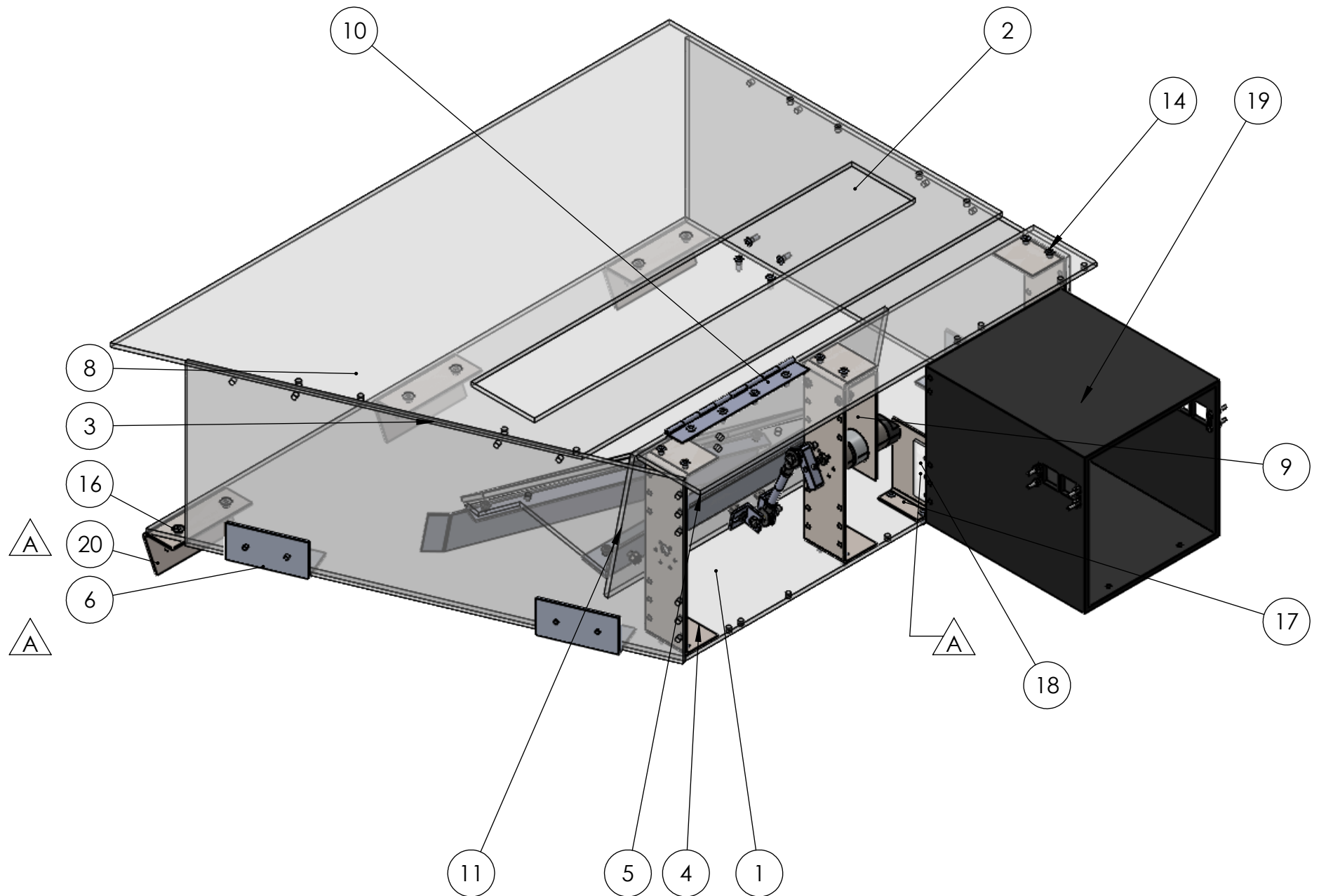
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A1, A3	A	Added GE-21377 and GE -21376. GE-20360 changed to GE-21360. GE-20380 changed to GE-21380.	12/18/2020	MXS

ITEM NO.	PART NUMBER	DESCRIPTION	
1	GE-20351	1/4" Thick Polycarbonate Sheet	1
2	GE-20356	Serializer Side Wall	1
3	GE-20357	Serializer Side Wall Angled	1
4	GE-20354	Serializer Bracket Support	2
5	GE-20355	Top Bracket	1
6	GE-20353	2 x 2 Aluminumn Angle 6063	4
7	GE-20370	Counter Assembly	1
8	GE-20365	1/4" Thick Polycarbonate Sheet	1
9	GE-21380	NeverRest Assembly	1
10	GE-20358	Steel Continuous Hinge, Nickel (6' lengths) TCH 505-1965801	1
11	GE-21360	Pusher Assembly	1
12	round_hex_.25_20_.75_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 3/4" long, fully threaded	2
13	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	10
14	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	38
15	round_hex_.25_20_.625_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 5/8" long, fully threaded	2
16	Flat Hex .25_20_.75	Flat Hex .25_20_.75	6
17	GE-20373	Counter Box Side Bracket	1
18	GE-21376	Polycarbonate Bracket Small Left	1
19	GE-21377	Polycarbonate Bracket Small Right	1
20	GE-20352	Sheet Metal Angle	3



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TOLERANCES:		CHECKED	
FRACTIONAL: ±1/16		ENG APPR.	
ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
TWO PLACE DECIMAL ±.01		Q.A.	
THREE PLACE DECIMAL ±.001		COMMENTS:	
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION		DO NOT SCALE DRAWING	

 		
TITLE:		
Plastic Serializer Assembly		
SIZE	DWG. NO.	REV
B	GE-21350	A
SCALE: 1:6	WEIGHT:	SHEET 1 OF 4

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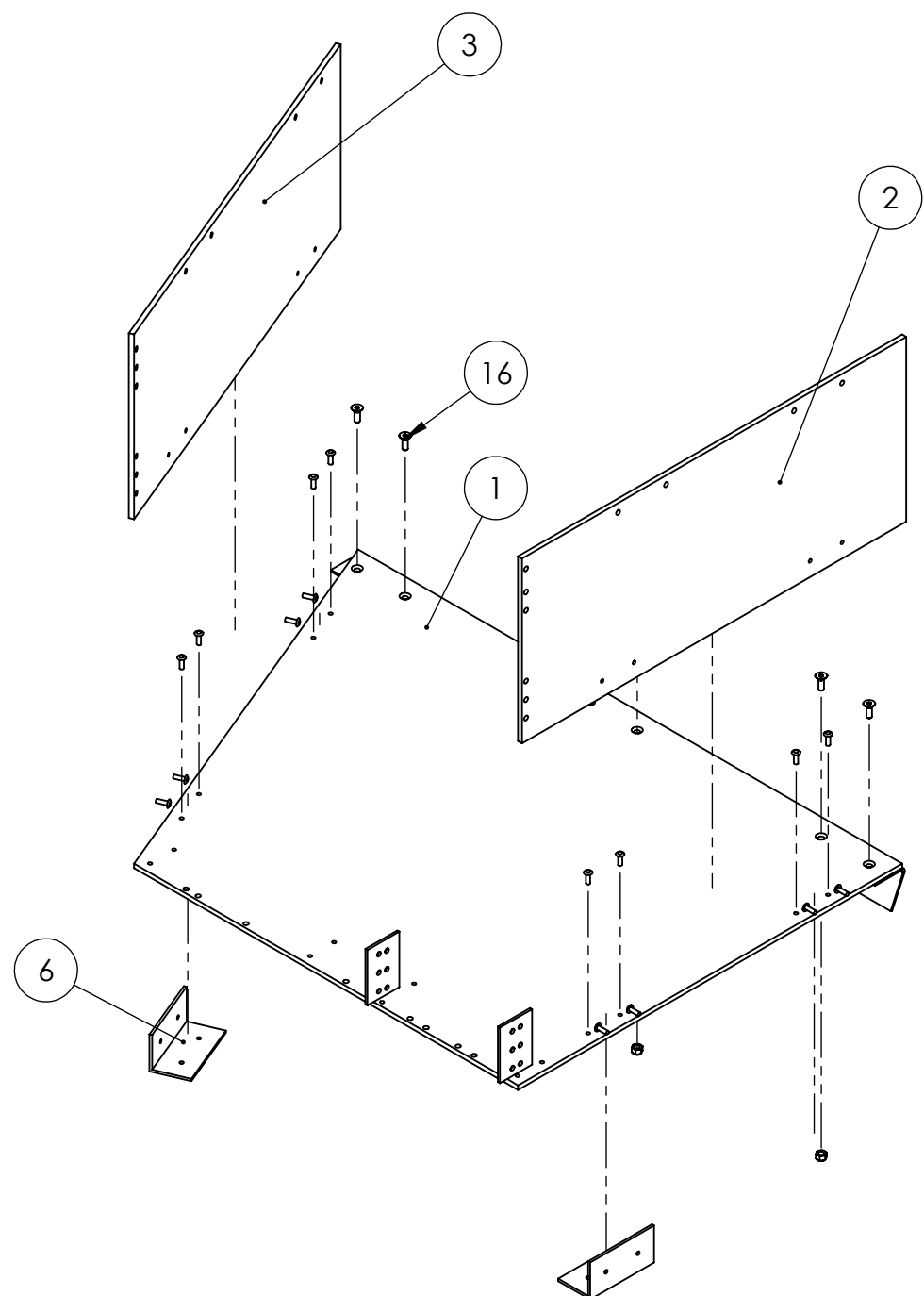
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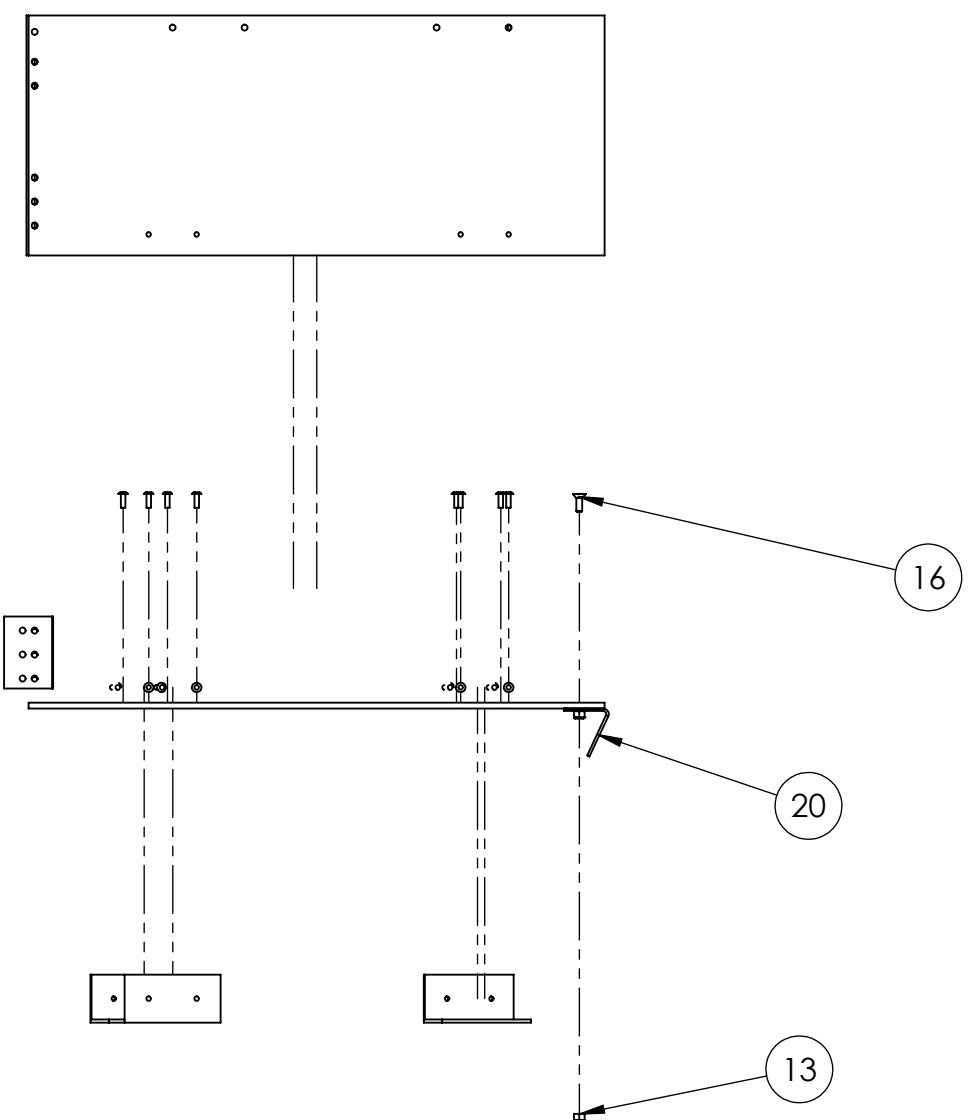
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Note: Place Item 6 (QTY:4) in four places
Place Item 2 and 3 (QTY:2) in four places





Notes:
Attach Item 20, 3 places

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		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
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		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

 		
TITLE:		
<h1>Plastic Serializer Assembly</h1>		
SIZE	DWG. NO.	REV
B	GE-21350	A
SCALE: 1:8	WEIGHT:	SHEET 2 OF 4

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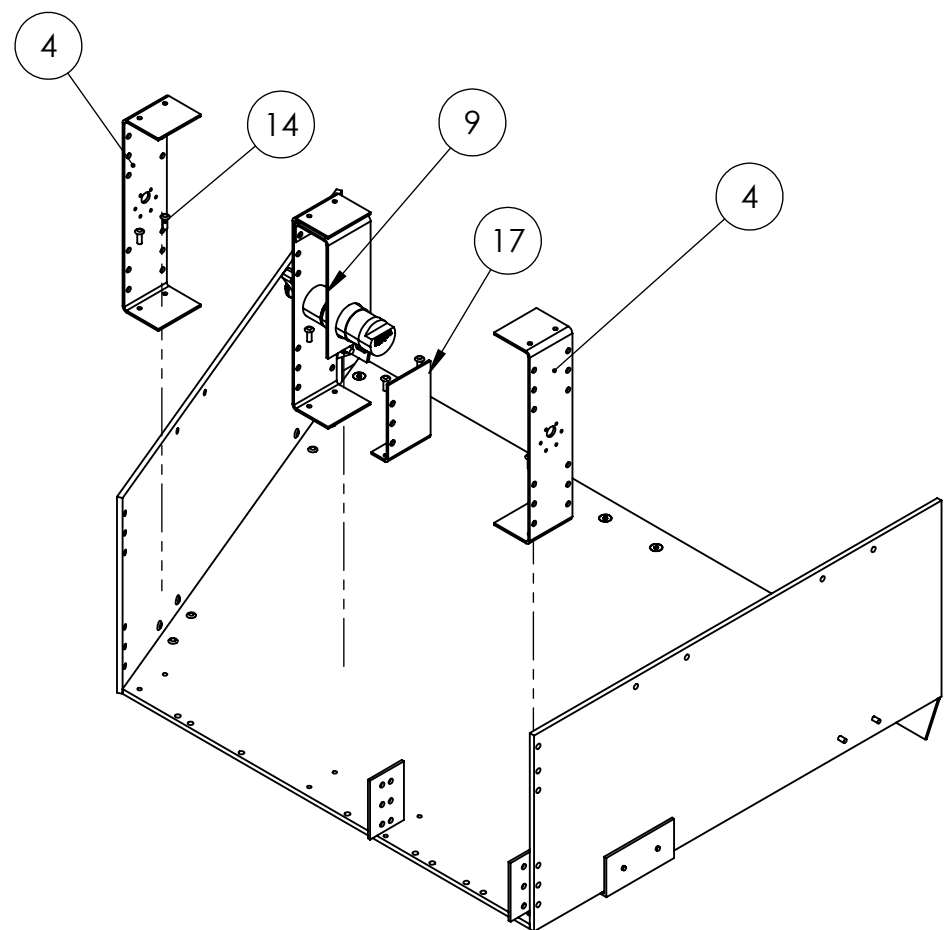
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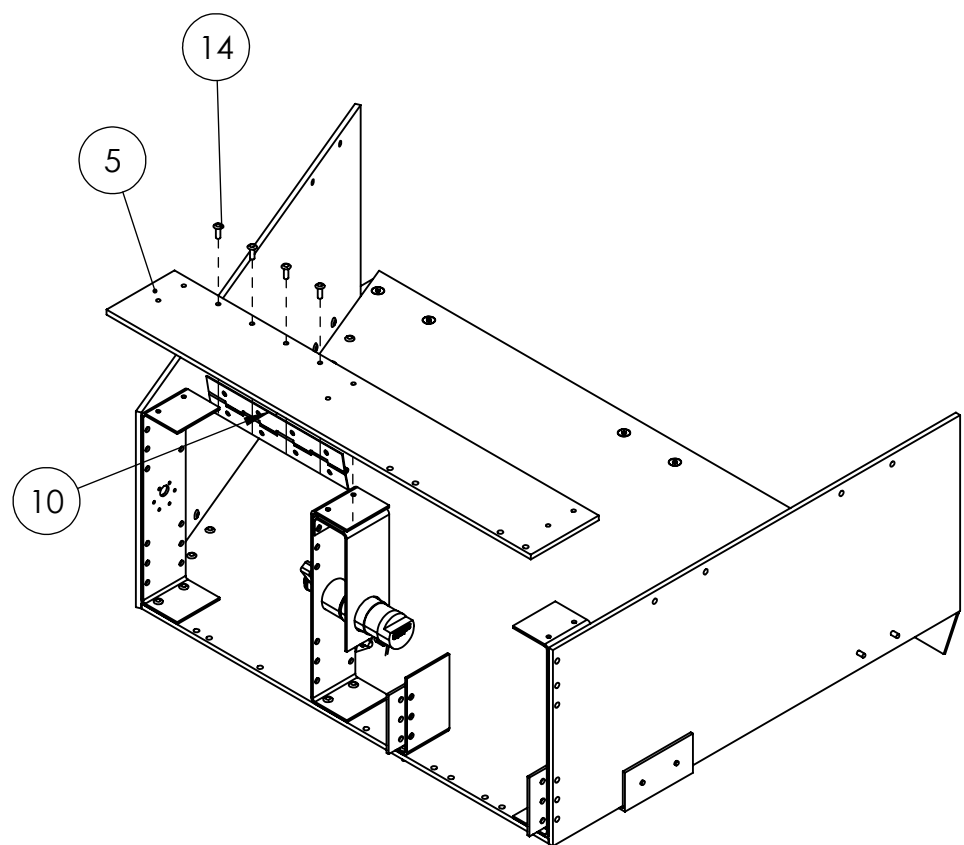
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Notes:
 Attach Item 4 and 9 Using Hardware Item 15
 Repeat with Item 17





Notes:
 Attach Item 10 using Item 14 To Item 5

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		DIMENSIONS ARE IN INCHES		DRAWN	
		TOLERANCES:		CHECKED	
		FRACTIONAL ±1/16		ENG APPR.	
		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

TITLE:

Plastic Serializer Assembly

SIZE	DWG. NO.	REV
B	GE-21350	A
SCALE: 1:8	WEIGHT:	SHEET 3 OF 4

4

3

2

1

4

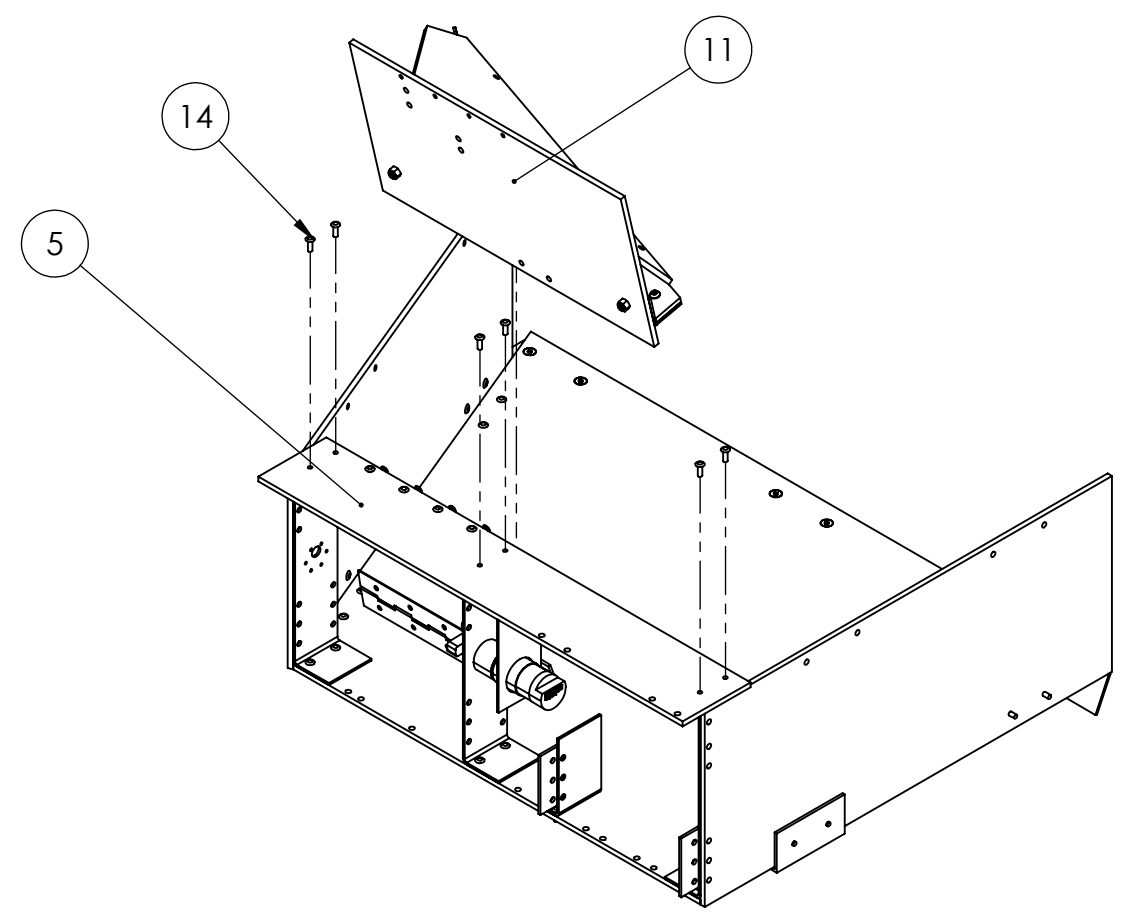
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2

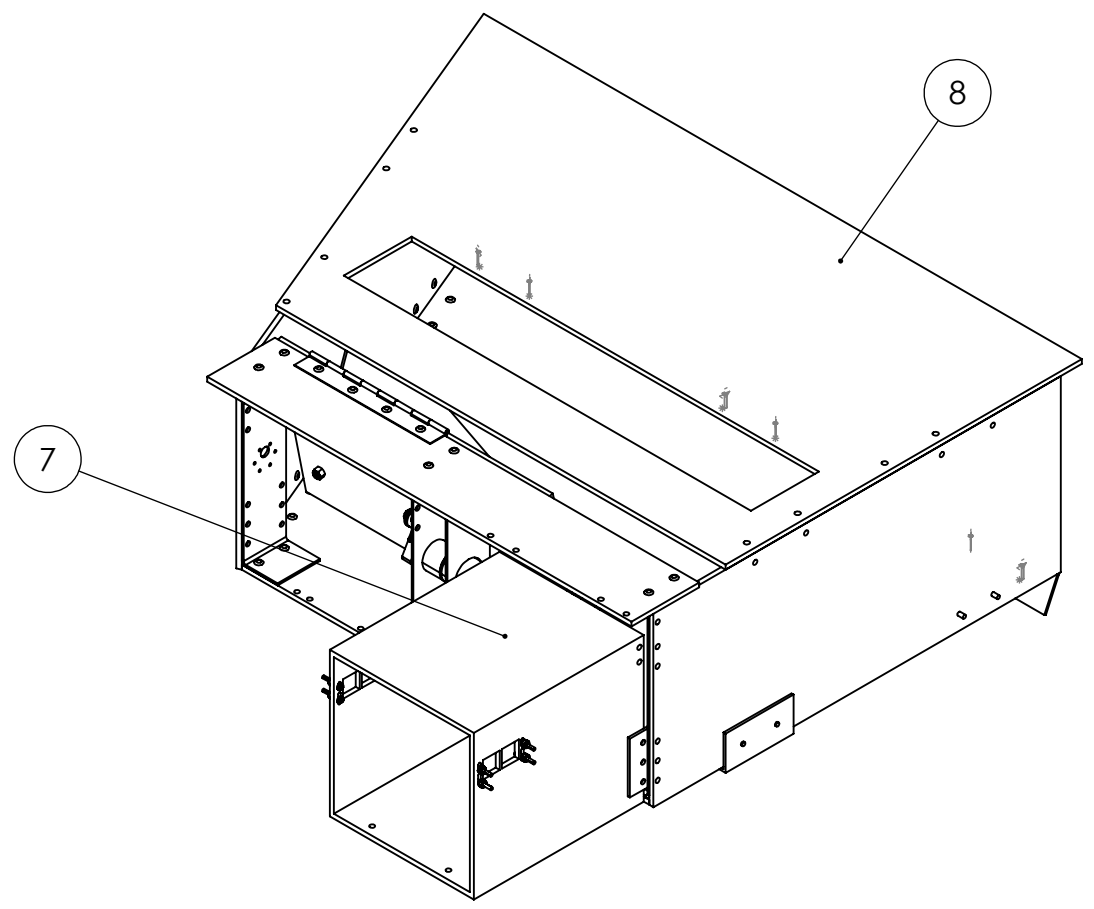
1

B

B



Note:
Attach item 5 and 11 using item 14





Note:
Attach item 7 and 8 using cable ties

A

A

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		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
NEXT ASSY	USED ON	FINISH		MFG APPR.	
APPLICATION		DO NOT SCALE DRAWING		Q.A.	
				COMMENTS:	
				 	
				TITLE: Plastic Serializer Assembly	
SIZE	DWG. NO.	REV			
B	GE-21350	A			
SCALE: 1:8		WEIGHT:		SHEET 4 OF 4	

4

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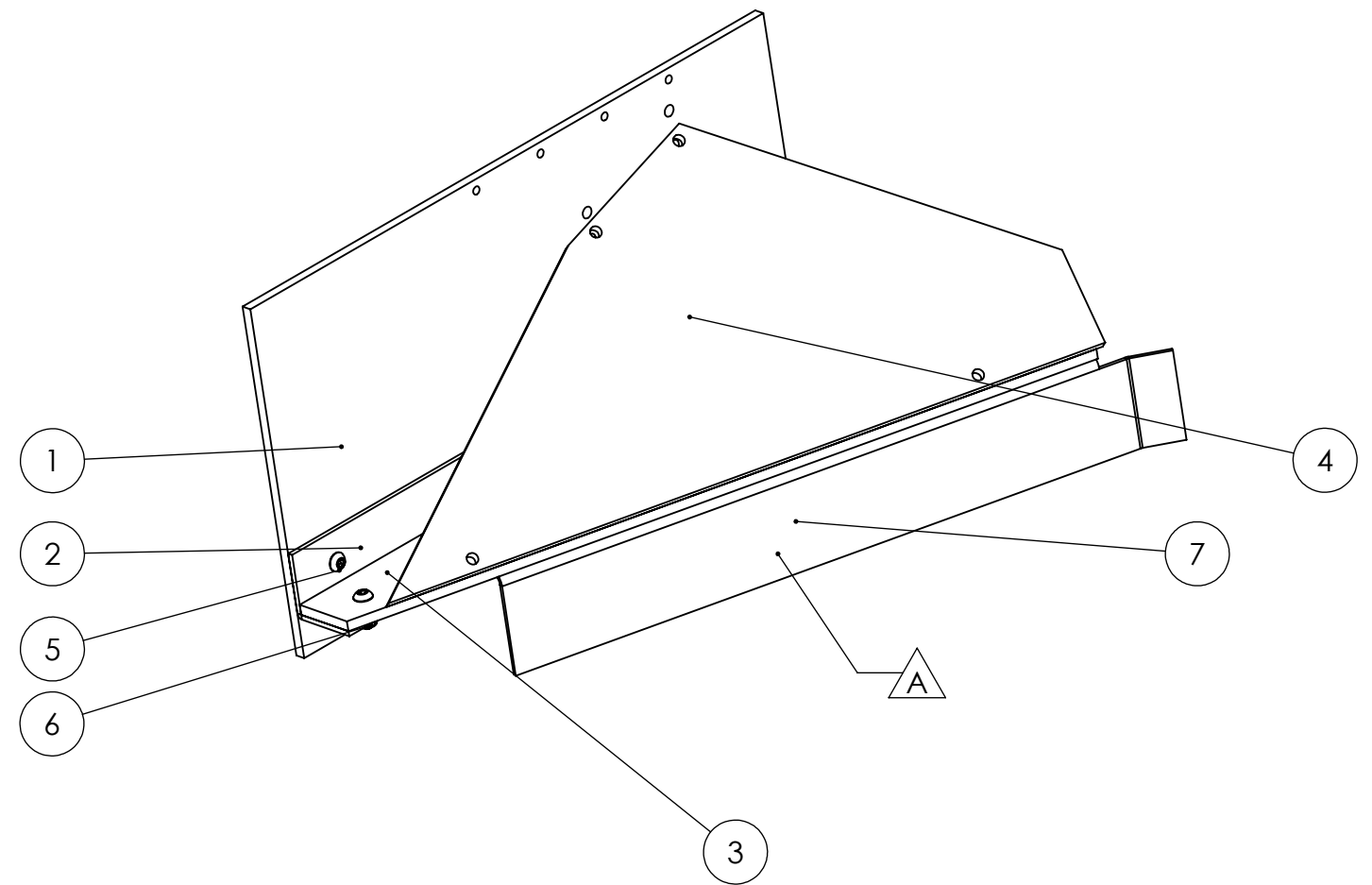
4

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1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A1, A4	A	Added 21369	12/17/2020	MXS



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20361	Polycarbonate Face	1
2	GE-20362	Angle Bracket	1
3	GE-20363	Angle Pusher	1
4	GE-20374	Serializer Top Angle	1
5	round_hex_.25_20_.75_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 3/4" long, fully threaded	6
6	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	6
7	GE-21369 A	Serializer Sweeper	1

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		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	 
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001	DRAWN		
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		TITLE:
		MATERIAL	ENG APPR.		Pusher Assembly
		FINISH	MFG APPR.		SIZE DWG. NO. REV
NEXT ASSY	USED ON		Q.A.		B GE-21360 A
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		SCALE: 1:4 WEIGHT: SHEET 1 OF 2

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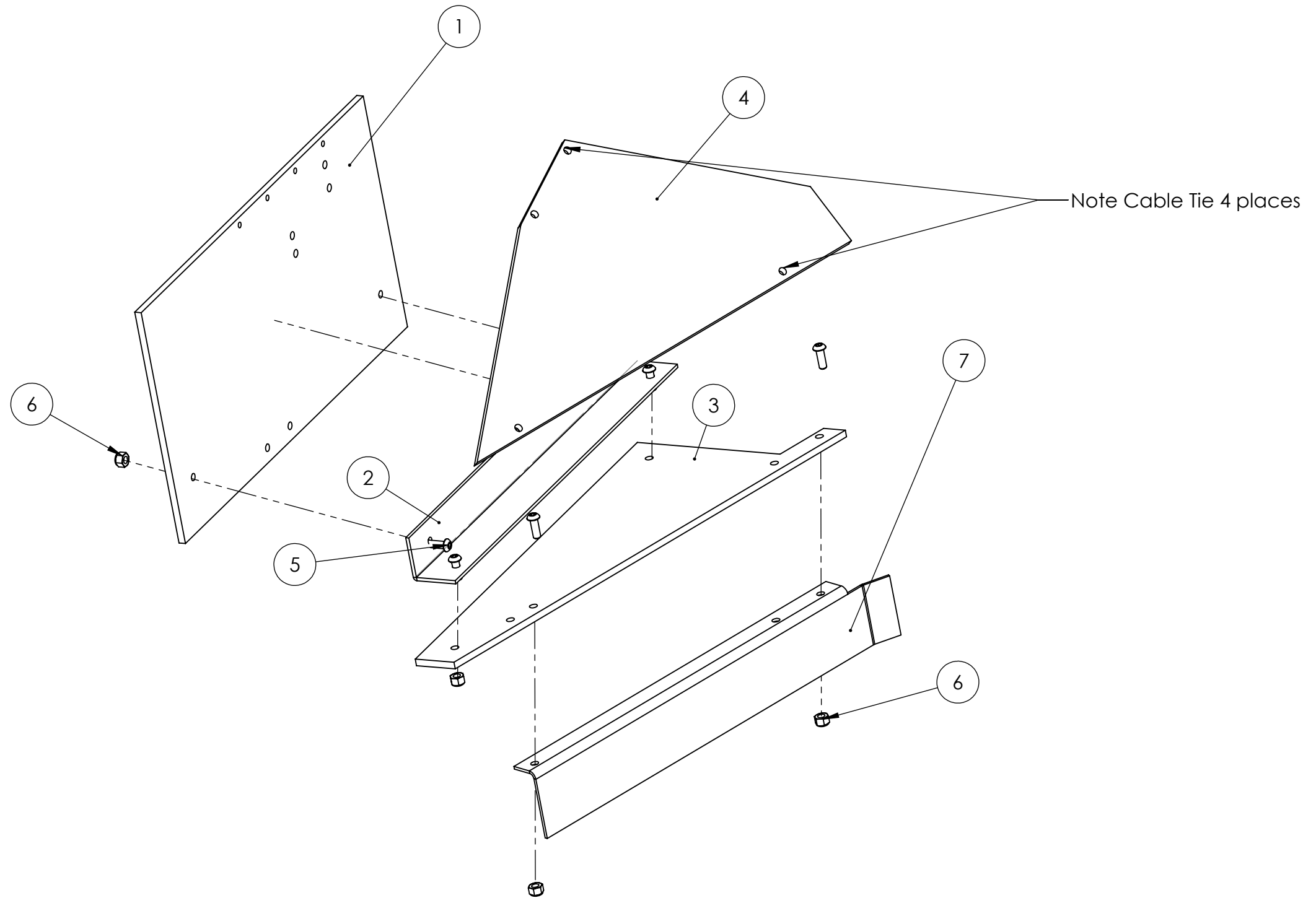
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		TOLERANCES:	CHECKED		
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		ANGULAR: MACH ±1° BEND ±1°	MFG APPR.		
		TWO PLACE DECIMAL ±.01	Q.A.		
		THREE PLACE DECIMAL ±.001	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



TITLE:
Pusher Assembly

SIZE	DWG. NO.	REV
B	GE-21360	A

SCALE: 1:8 WEIGHT: SHEET 2 OF 2

4

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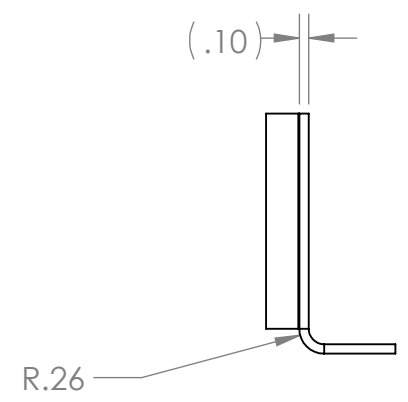
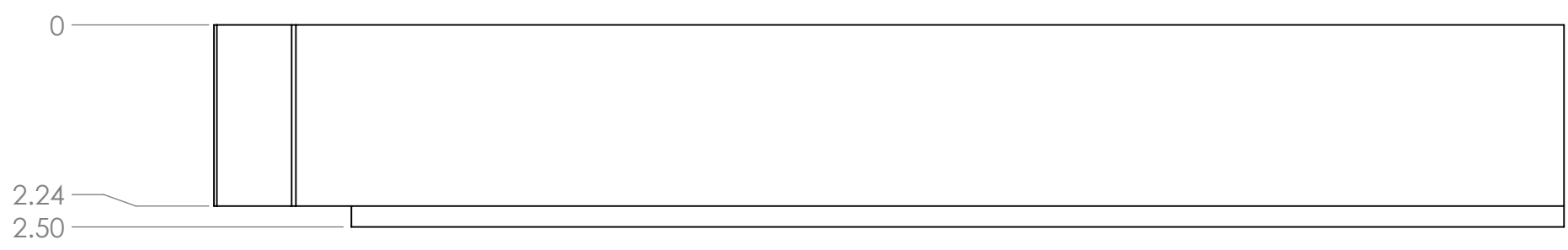
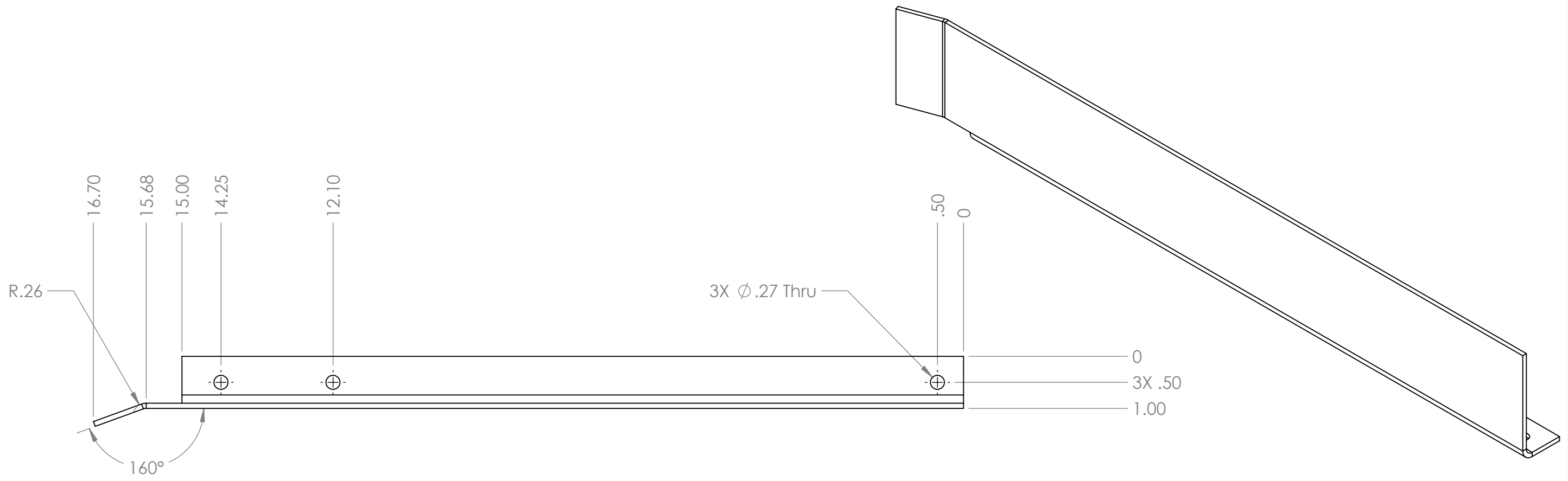
3

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Note:
Material: 12 Gage Sheet Metal Steel
Remove Sharp Edges and Burrs

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		ANGULAR: MACH ±1° BEND ±1°		MFG APPR.	
		TWO PLACE DECIMAL ±.01		Q.A.	
		THREE PLACE DECIMAL ±.001		COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			



FIRST
ROBOTICS
COMPETITION



SOLIDWORKS
Modeling Solutions Partner

TITLE: **Serializer Sweeper**

SIZE	DWG. NO.	REV
B	GE-21369	

SCALE: 1:2 WEIGHT: SHEET 1 OF 1

4

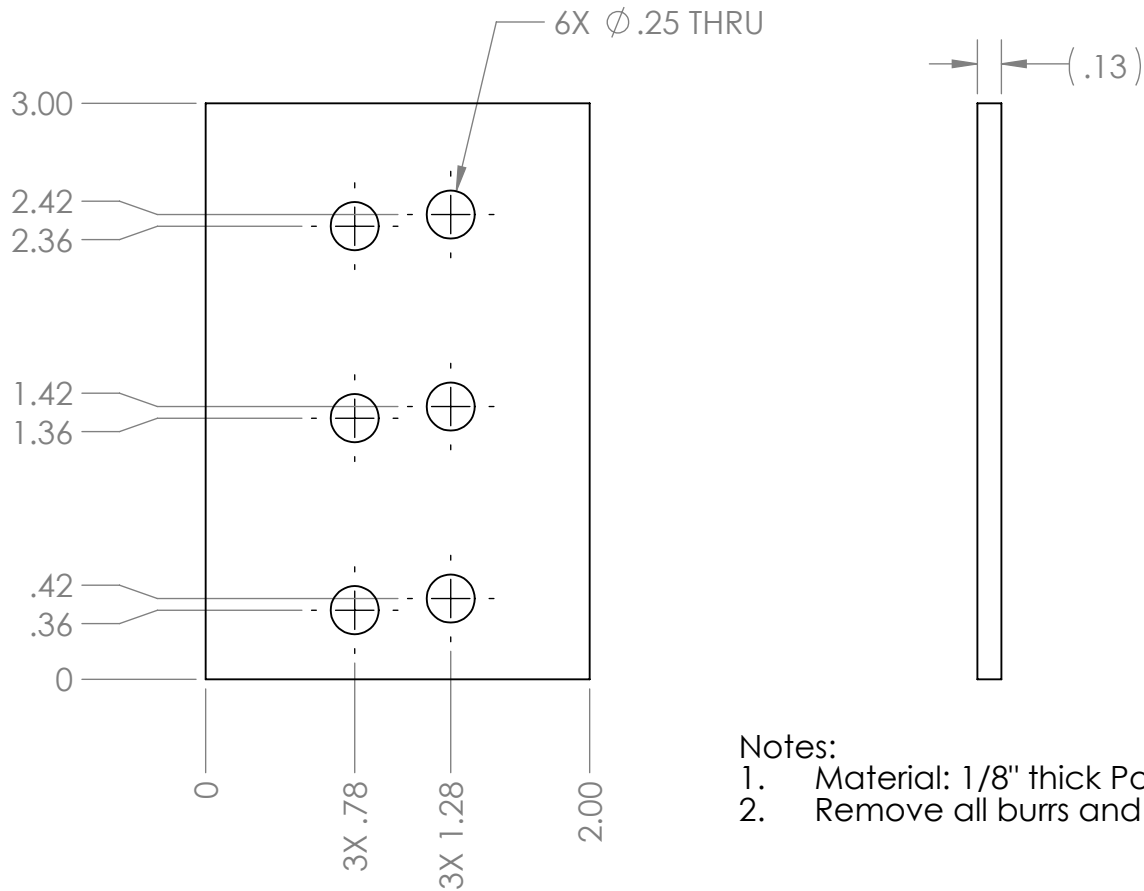
3

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Notes:

1. Material: 1/8" thick Polycarbonete, Clear
2. Remove all burrs and sharp edges.

B

B

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		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		
		MATERIAL	ENG APPR.		
		FINISH	MFG APPR.		
NEXT ASSY	USED ON		Q.A.		
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		



TITLE:
**Polycarbonete
 Bracket Small Left**

SIZE	DWG. NO.	REV
A	GE-21376	
SCALE: 1:1	WEIGHT:	SHEET 1 OF 1

2

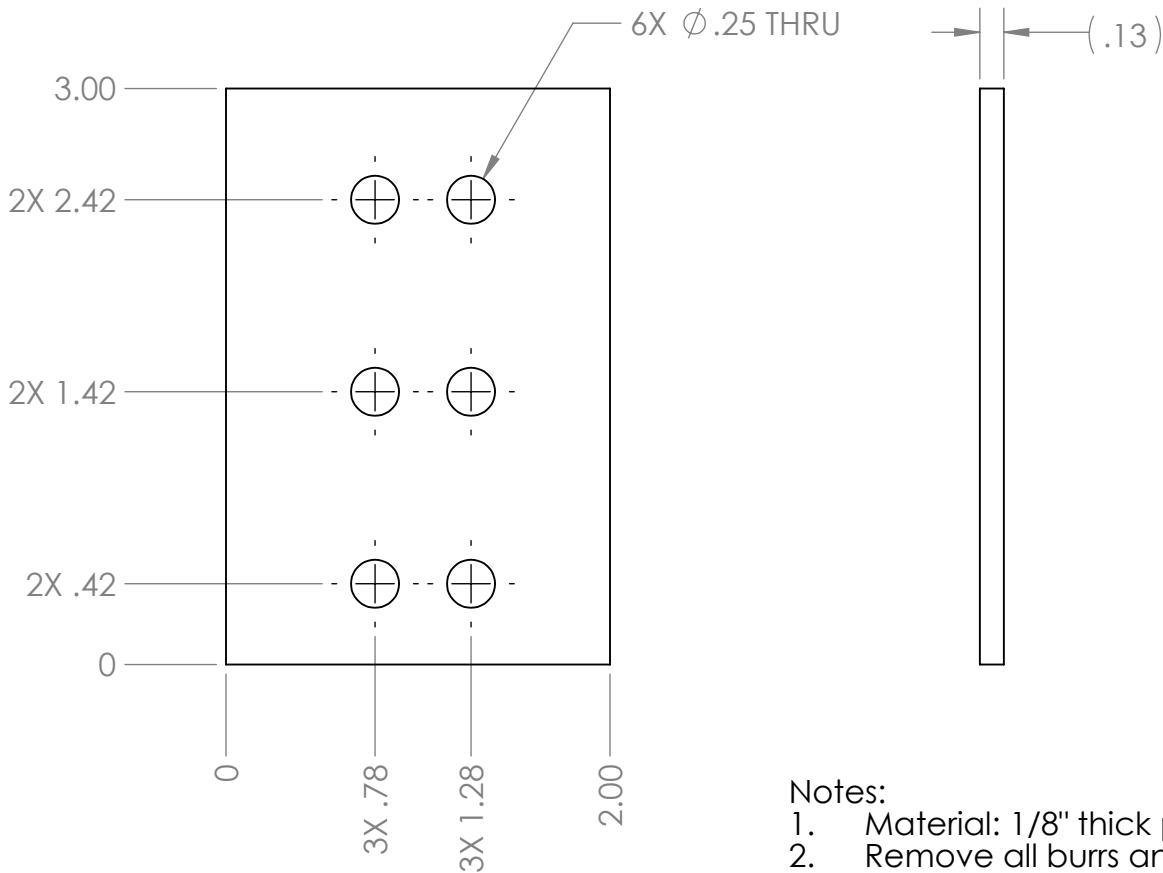
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B

B



- Notes:
1. Material: 1/8" thick polycarbonete, clear.
 2. Remove all burrs and sharp edges.

A

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		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		
		MATERIAL	ENG APPR.		
		FINISH	MFG APPR.		
NEXT ASSY	USED ON		Q.A.		
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		



TITLE:
Polycarbonete Bracket Small Right

SIZE	DWG. NO.	REV
A	GE-21377	
SCALE: 1:1	WEIGHT:	SHEET 1 OF 1

2

1

4

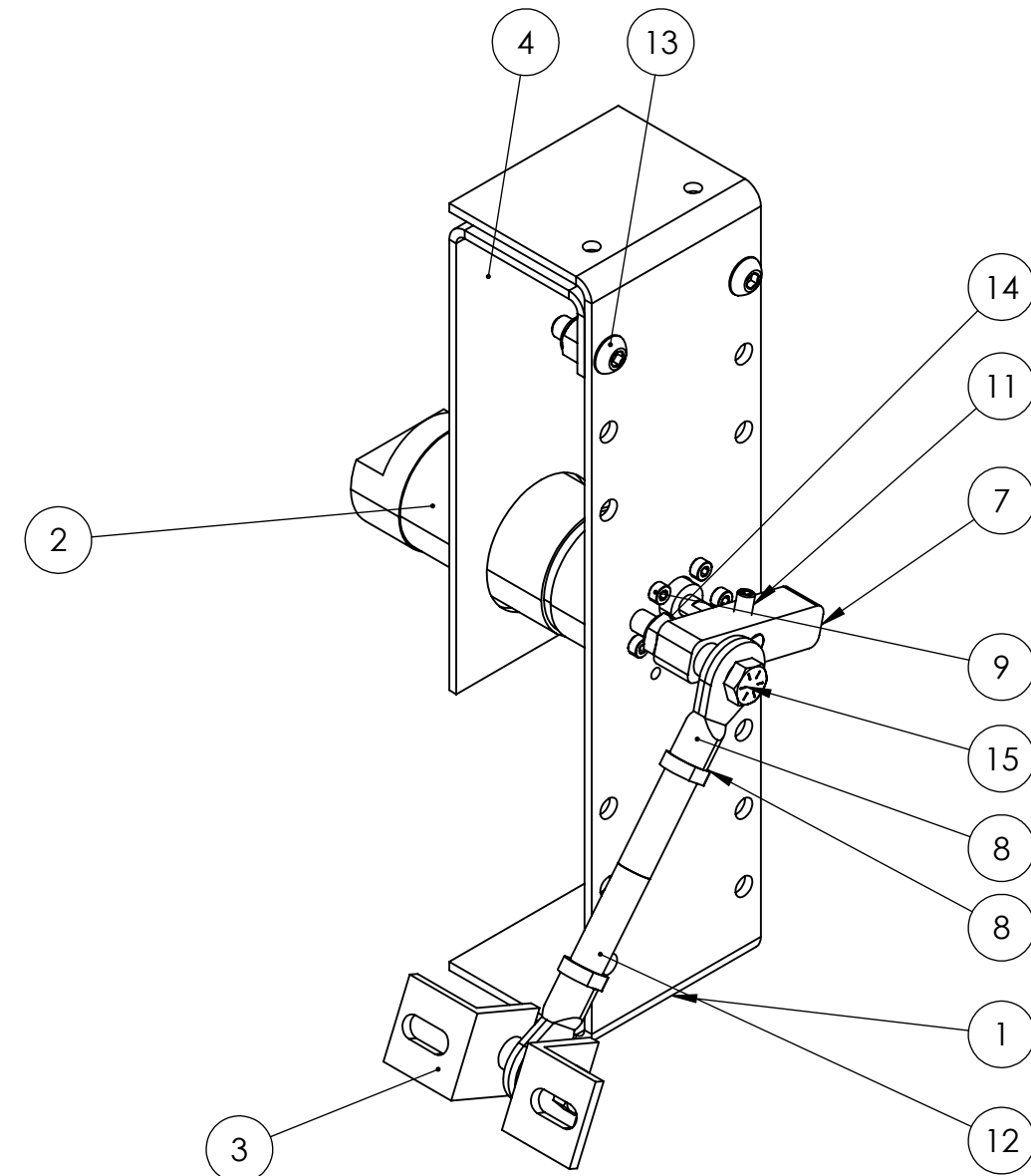
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2

1


REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	Increased bolt length to 1.5 inches.	12/18/2020	DAF


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-20354	Serializer Bracket Support	1
2	GE-20381	NeverRest 60	1
3	GE-20384	L Bracket	2
4	GE-20371	Motor Bracket	1
5	GE-20386	1/4x20 Threaded Shaft	1
6	GE-20385	Spacer	3
7	GE-20382	Hub	1
8	GE-20364	igus bearing	2
9	M3 SOCKET HEAD CAP SCREW	M3 Socket Head Cap Screw 5mm	4
10	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	2
11	CUP POINT SET SCREW 10-24_.50	Cup Point Set Screw 10-24	1
12	GE-20368	Serializer 1/4 x 20 Rod Spacer	2
13	round_hex_.25_20_.75_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 3/4" long, fully threaded	2
14	Nylock_Shallow_.25_20	Nylock Shallow 1/4 x 20	2
15	hex_.25_20_1.50	Steel Hex Head Screw, 1/4"-20 x 1.5" long, fully threaded	2



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		TOLERANCES:	CHECKED	
		FRACTIONAL $\pm 1/16$	ENG APPR.	
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.	
		TWO PLACE DECIMAL $\pm .01$	Q.A.	
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		





TITLE: NeverRest Assembly		
SIZE B	DWG. NO. GE-21380	REV A
SCALE: 1:2	WEIGHT:	SHEET 1 OF 2

4

3

2

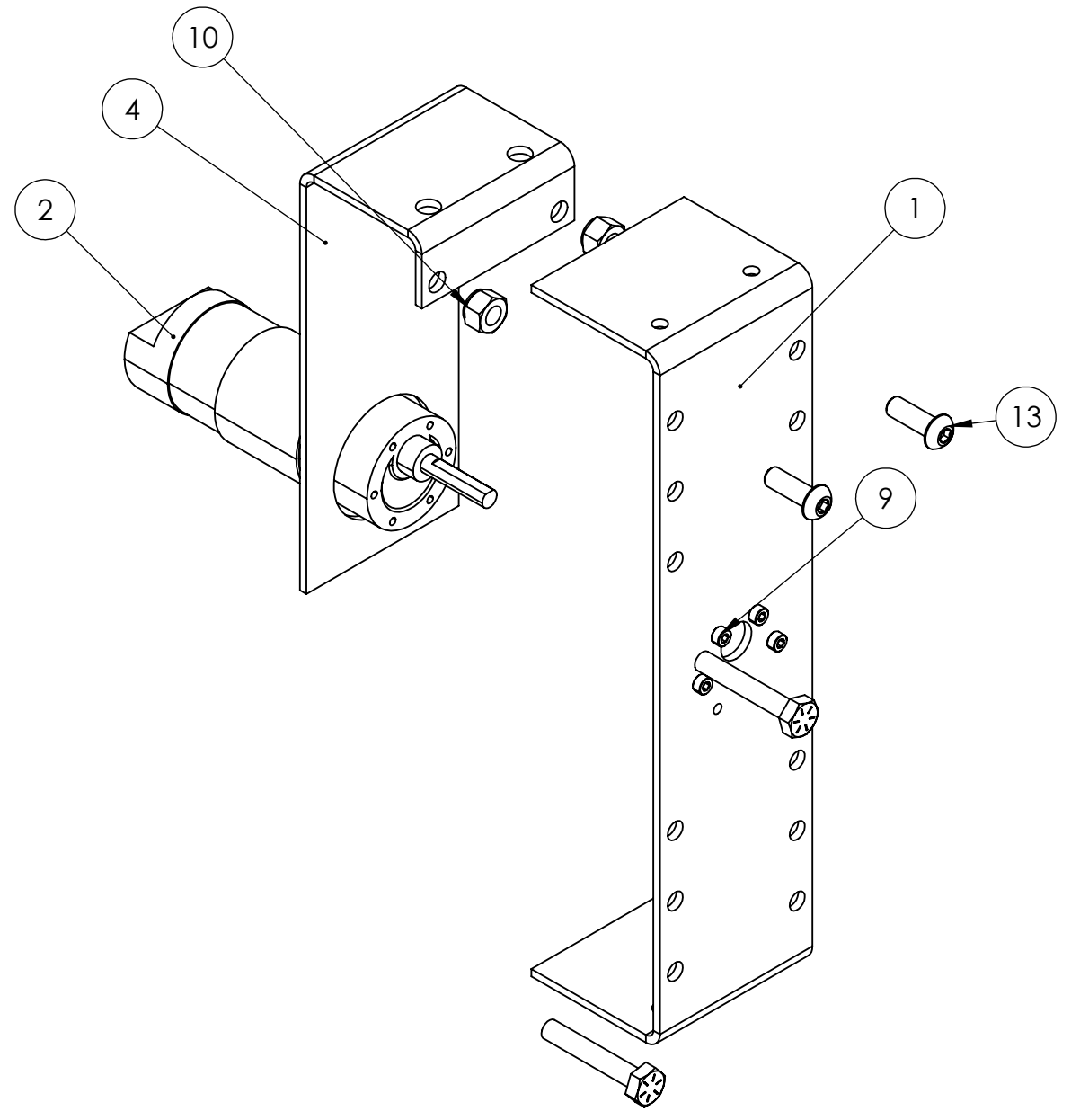
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4

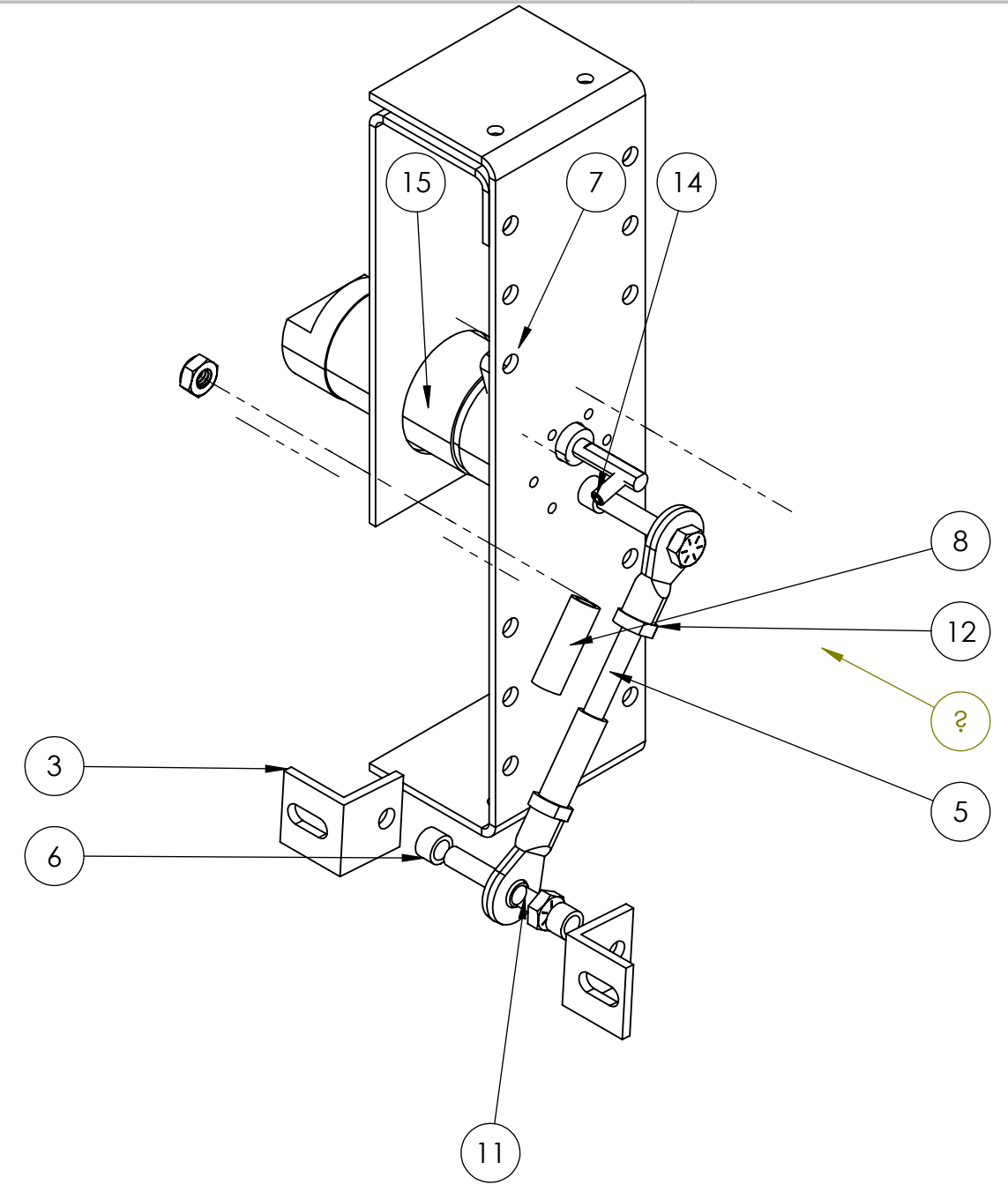
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2

1





Base Assembly Exploded View



Linkage Exploded View

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		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED	
		MATERIAL		ENG APPR.	
NEXT ASSY	USED ON	FINISH		MFG APPR.	
APPLICATION		DO NOT SCALE DRAWING		Q.A.	
				COMMENTS:	
				 	
				TITLE:	
				<h1>NeverRest Assembly</h1>	
SIZE	DWG. NO.			REV	
B	GE-21380			A	
SCALE: 1:8		WEIGHT:		SHEET 2 OF 2	

4

3

2

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B

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A

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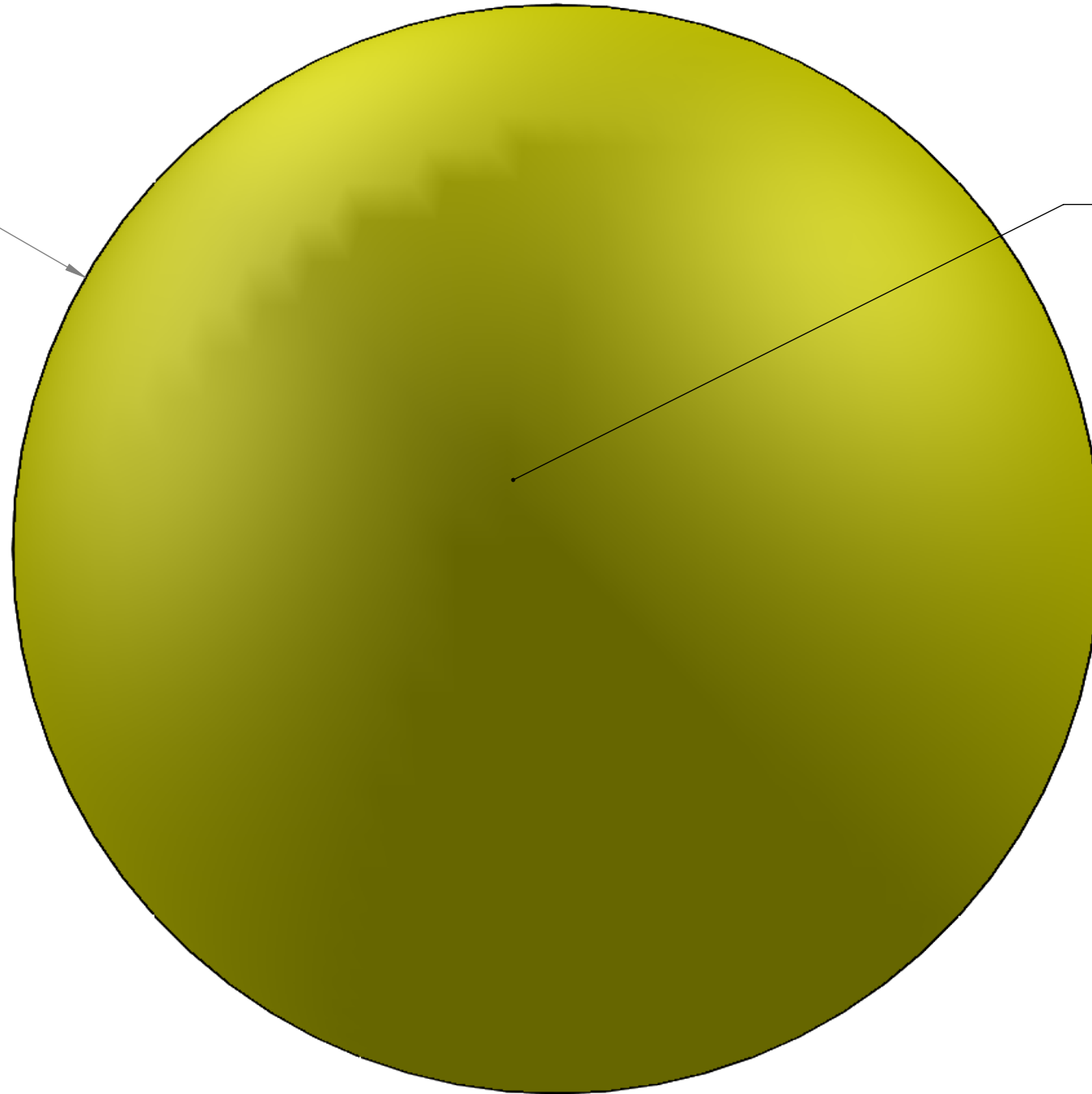
3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, B1	A	Part renumbered for 2021 season. AndyMark part number updated. Note about logo modified to make appearance of logo optional.	12/1/2020	CPO

∅ 7.00



FIRST logo may be applied to face in black.



B

B

A



A

Notes:

1. Description: Medium Bounce Dino-Skin Foam Ball, 7 inches
2. Source: Flaghouse
3. Item #: 1892 YEL
4. Available to teams as am-4200a from AndyMark



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		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED		SIZE B DWG. NO. GE-21500 REV A
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		
APPLICATION		DO NOT SCALE DRAWING	Q.A.		
			COMMENTS:		