

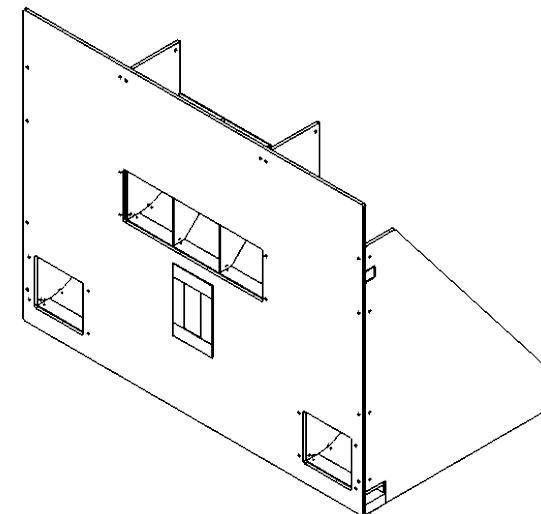
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-20000-01	1/2" plywood face	1
2	TE-20000-02	0.5 outrigger	2
3	TE-20000-03	60" 2x4	1
4	TE-20000-04	60" x 1.5" 2x2	1
5	TE-20000-05	34.5"x2x4	2
6	TE-20000-06	29.5x 2x4	2
7	TE-20000-07	lower chute side 050	4
8	TE-20000-08	.125 HB lower chute	2
9	TE-20000-09	.125 HB upper chute	1
10	TE-20000-10	.125" HB divider	2
11	TE-20000-11	Mid chute side 050	2
12	TE-20000-12	2" hook 29.125	2
13	TE-20000-13	2" hook, 60"	1
14	Vision_LoadingBay	2" Wide, 3M 8830 Scotchlite Reflective Material	4

Material	QTY
15/32" (1/2") A/C or CDX Plywood	1.25 sheets
0.115" (1/8") Hard Board	0.5 sheets
#6 Wood Screw 1.25" length	22
120lb Cable Ties 8"	8
50lb Cable Tie 8" length	48
Vision Tape 2" wide	24"
2" x 4" x 8'	3
2" x 2" x 8'	1

		UNLESS OTHERWISE SPECIFIED:		
		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 $\pm .001$		
		INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL		
NEXT ASSY	USED ON	FINISH		
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:	

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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
16-B2	A	Missing part from the packet	1/6/2020	NTW



Note:

- This assembly contains some optional portions. Use of these components better mimics field geometry, but may not be required for the assembly to be used for practice. These items are noted at the part and assembly steps.

 **FIRST
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TITLE:

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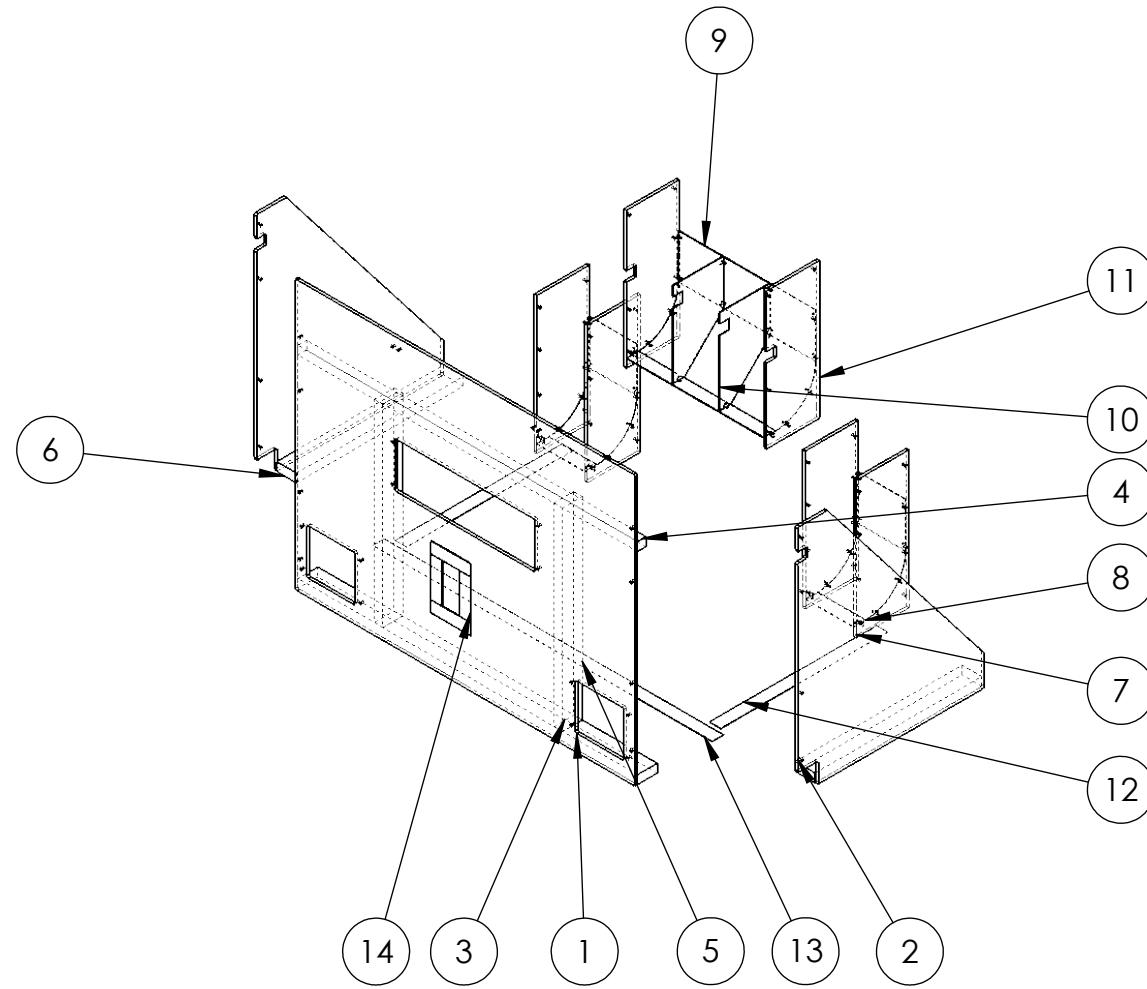
SIZE	DWG. NO.	REV
A	TE-20000	A
SCALE: 1:24		WEIGHT:
SHEET 1 OF 16		

2

1

B

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		TWO PLACE DECIMAL $\pm .01$	Q.A.		
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:		
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NEXT ASSY	USED ON	FINISH			
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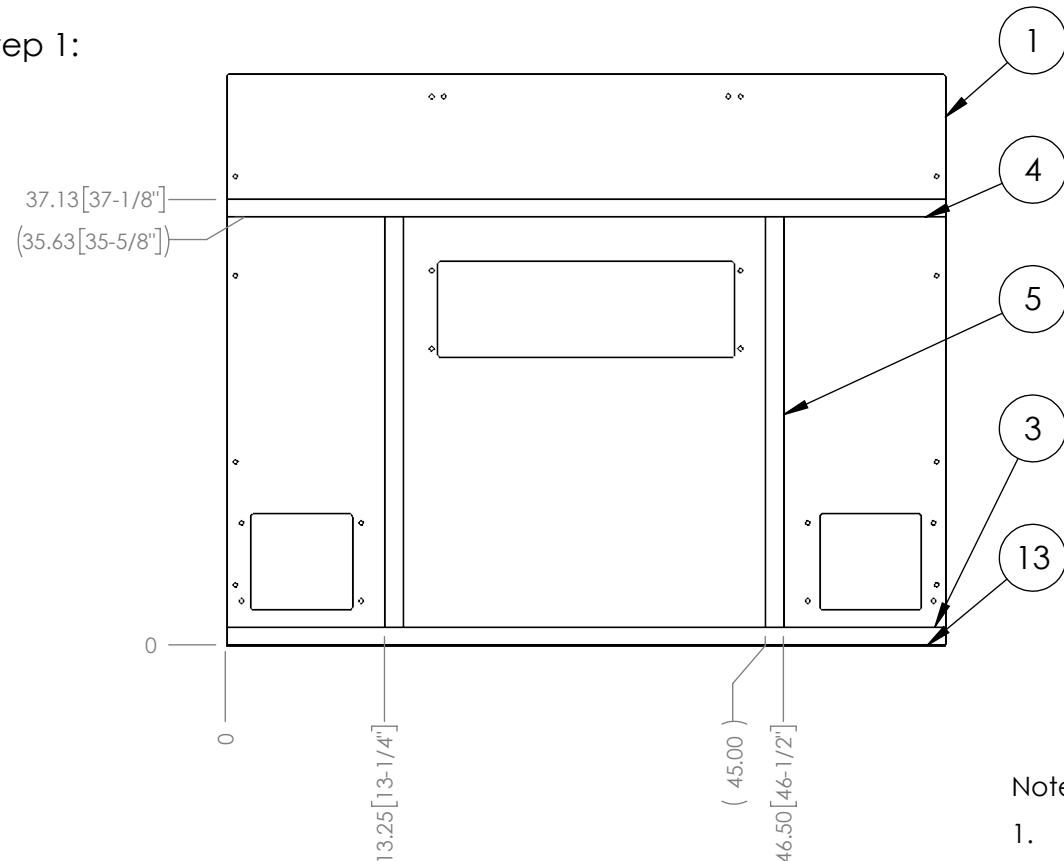
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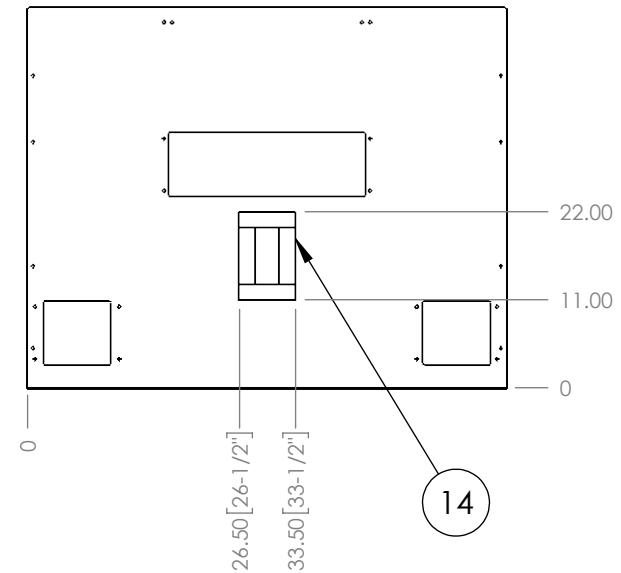
1

2

Step 1:



1



Note:

1. Screw ③, ⑤, ④ to ① 1.25" #6 screws, Pre-drill
2. After the frame is assembled flip over and add ⑭
3. Attach and staple ⑬ to the bottom of ③

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NEXT ASSY	USED ON	FINISH		MFG APPR.			
APPLICATION		DO NOT SCALE DRAWING		Q.A.	COMMENTS:		



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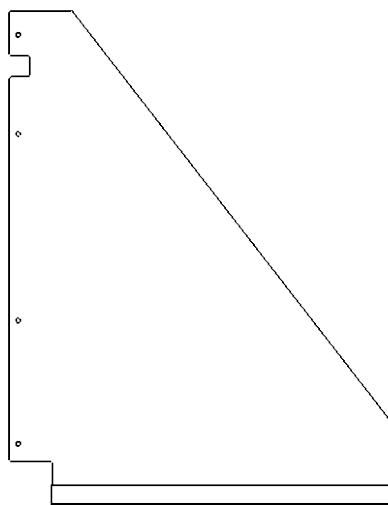
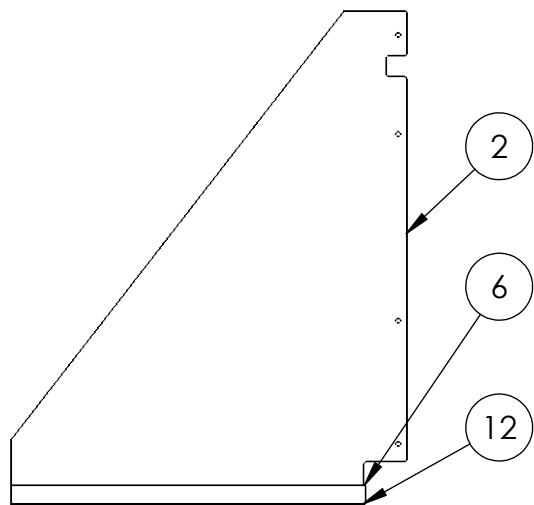
Team Version Loading Bay

SIZE	DWG. NO.	REV
A	TE-20000	A
SCALE: 1:24	WEIGHT:	SHEET 3 OF 16

2

1

Step 2 and 3:



Note:

1. Attach (6) to (2) with 1.25" #6 screws, Pre-drill
2. Attach (12) to the bottom of (6)
3. Mirror for step 3

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		THREE PLACE DECIMAL $\pm .001$	COMMENTS:		
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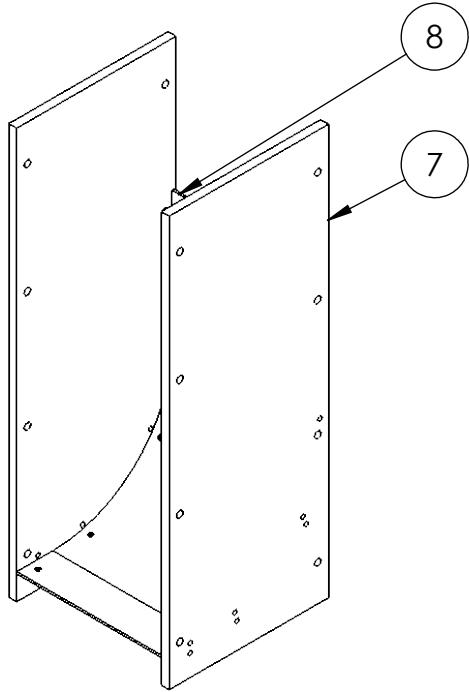
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TITLE:

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Loading Bay**

SIZE	DWG. NO.	REV
A	TE-20000	A
SCALE: 1:24	WEIGHT:	SHEET 4 OF 16

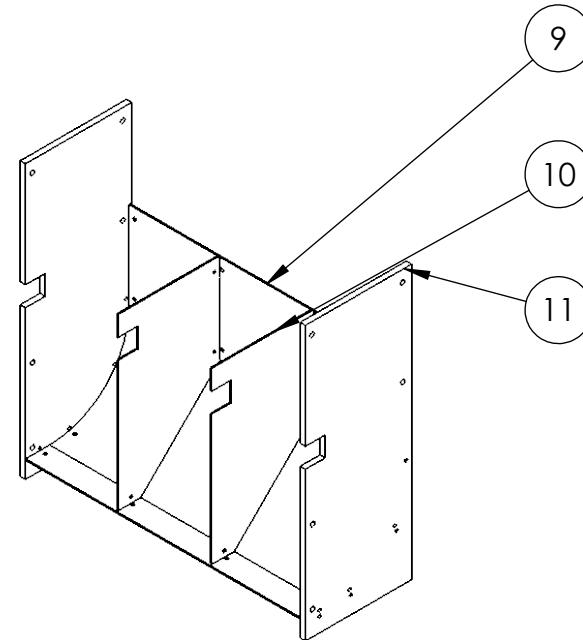
Step 4:



Note:

1. Attach (7) to (8) with 50lb Cable Ties
2. Start from bottom leave the middle loose until top is tight
3. This is Optional

Step 5:



Note:

1. Attach (11) to (10) with 50lb Cable Ties
2. Start from bottom leave the middle loose until top is tight
3. Attach (9) to (10) with 50lb Cable Tie
4. This is Optional

		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		
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			MFG APPR.		
			Q.A.		
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NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

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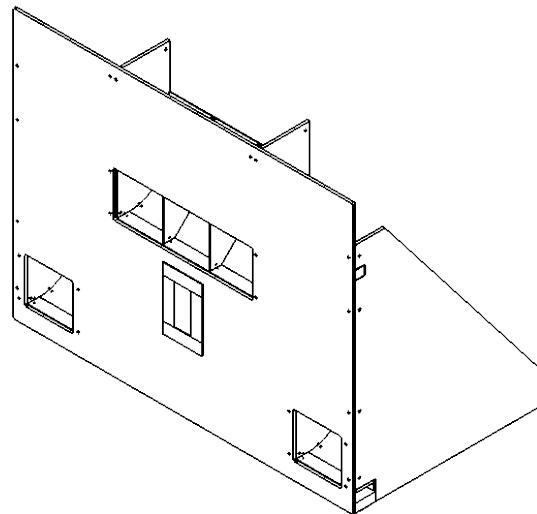
SIZE	DWG. NO.	REV
A	TE-20000	A
SCALE: 1:24	WEIGHT:	SHEET 5 OF 16

2

1

B

B



Notes:

1. Attach step 2 and 3 to step 1 using 120lb cable ties.
2. Attach step 4 and 5 to step 1 using 50lb cable ties.

A

A

		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		
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		MATERIAL		ENG APPR.		
				MFG APPR.		
				Q.A.		
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NEXT ASSY	USED ON	FINISH				
APPLICATION		DO NOT SCALE DRAWING				

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SCALE: 1:24		WEIGHT:
		SHEET 6 OF 16

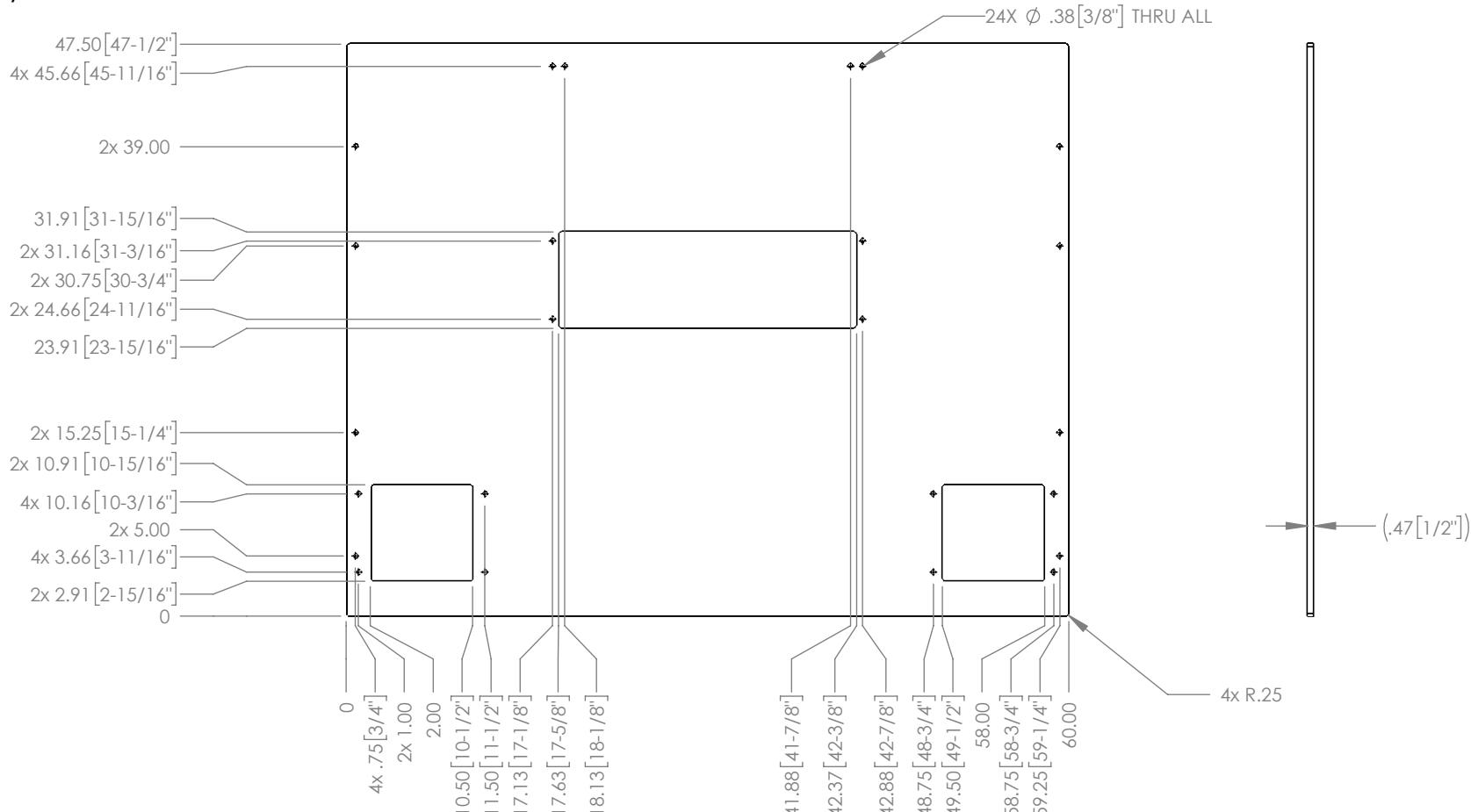
2

1

2

1

TE-20000-01
QTY (1)



Notes:

1. Material: 15/32" AC or CDX Plywood
 2. Fillet corners are optional

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

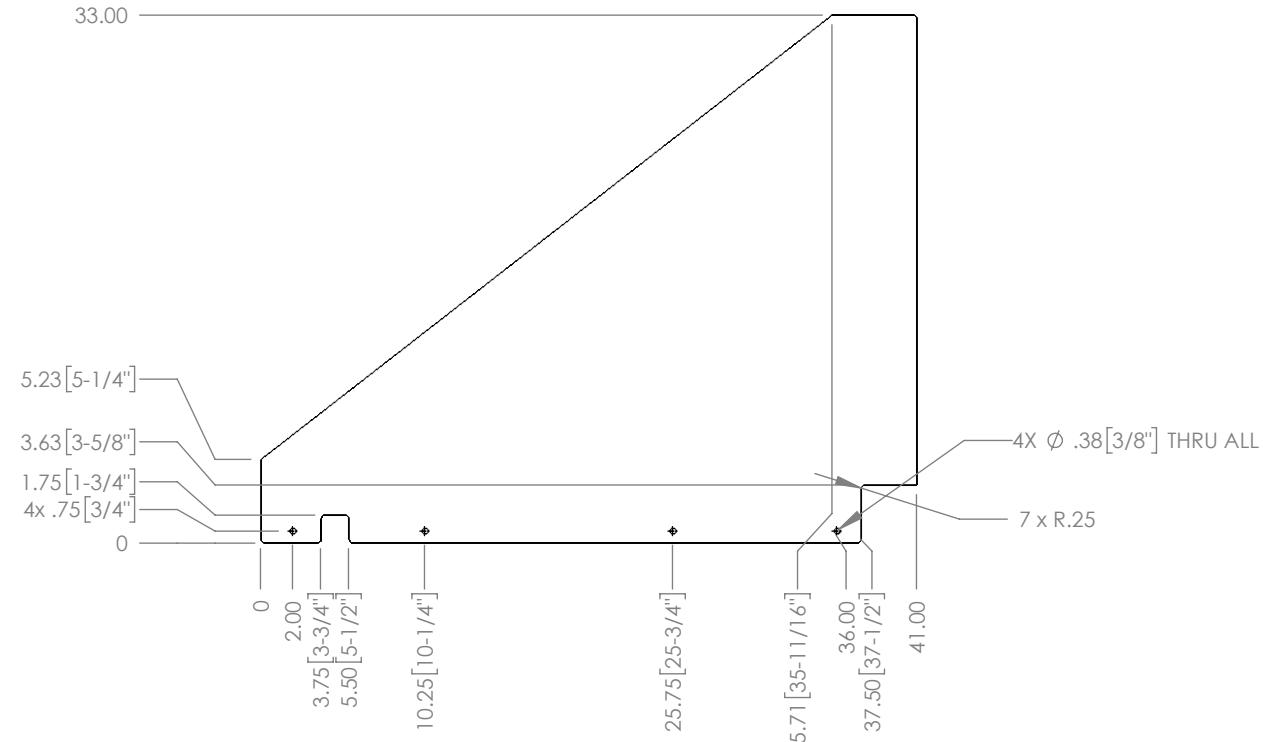


TITLE:

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SIZE	DWG. NO.	REV
A	TE-20000	A
SCALE: 1:24	WEIGHT:	SHEET 7 OF 16

TE-20000-02
QTY (2)



(.47 [1/2"])

Notes:

1. Material: 15/32" AC or CDX Plywood
2. Fillets are optional

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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:		
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APPLICATION		DO NOT SCALE DRAWING				



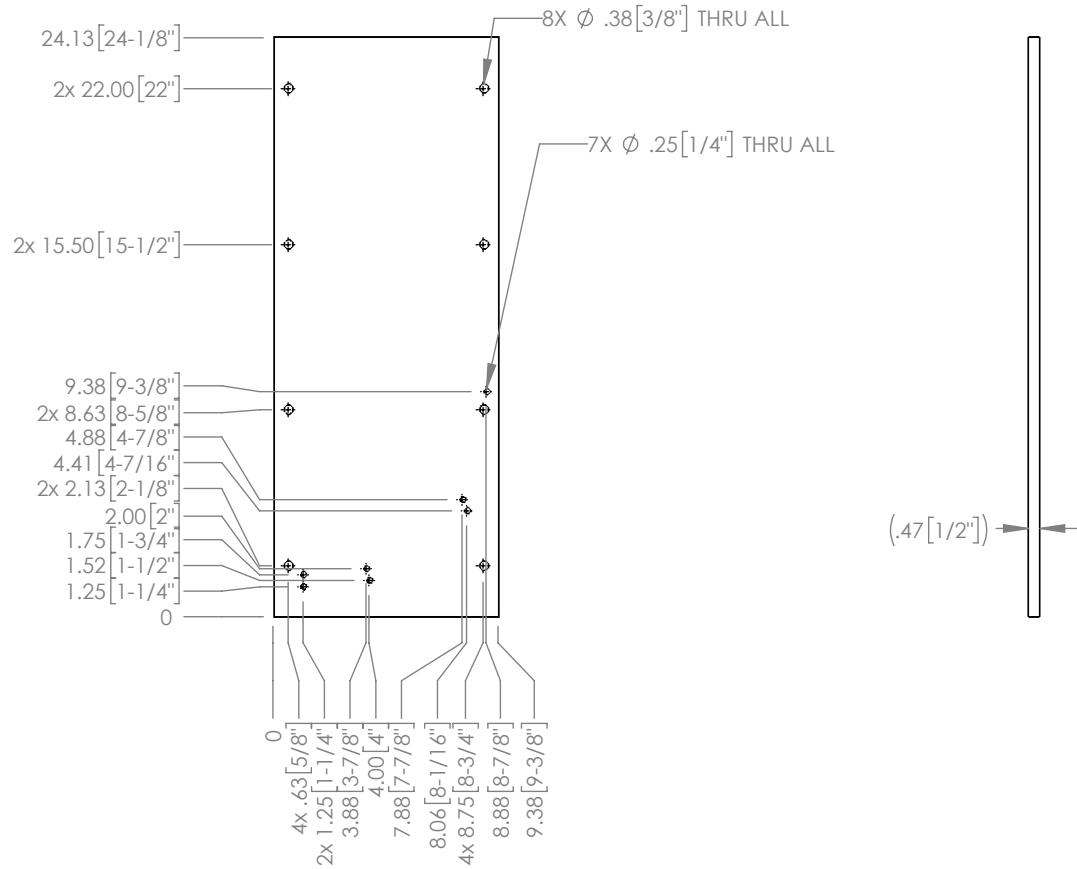
SOLIDWORKS
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TITLE:

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SIZE	DWG. NO.	REV
A	TE-20000	A
SCALE: 1:24		WEIGHT:
SHEET 8 OF 16		

TE-20000-07
QTY (2)



Notes:

1. Material: 15/32" AC or CDX Plywood
2. QTY shown for 1 chute
3. This Part is Optional

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		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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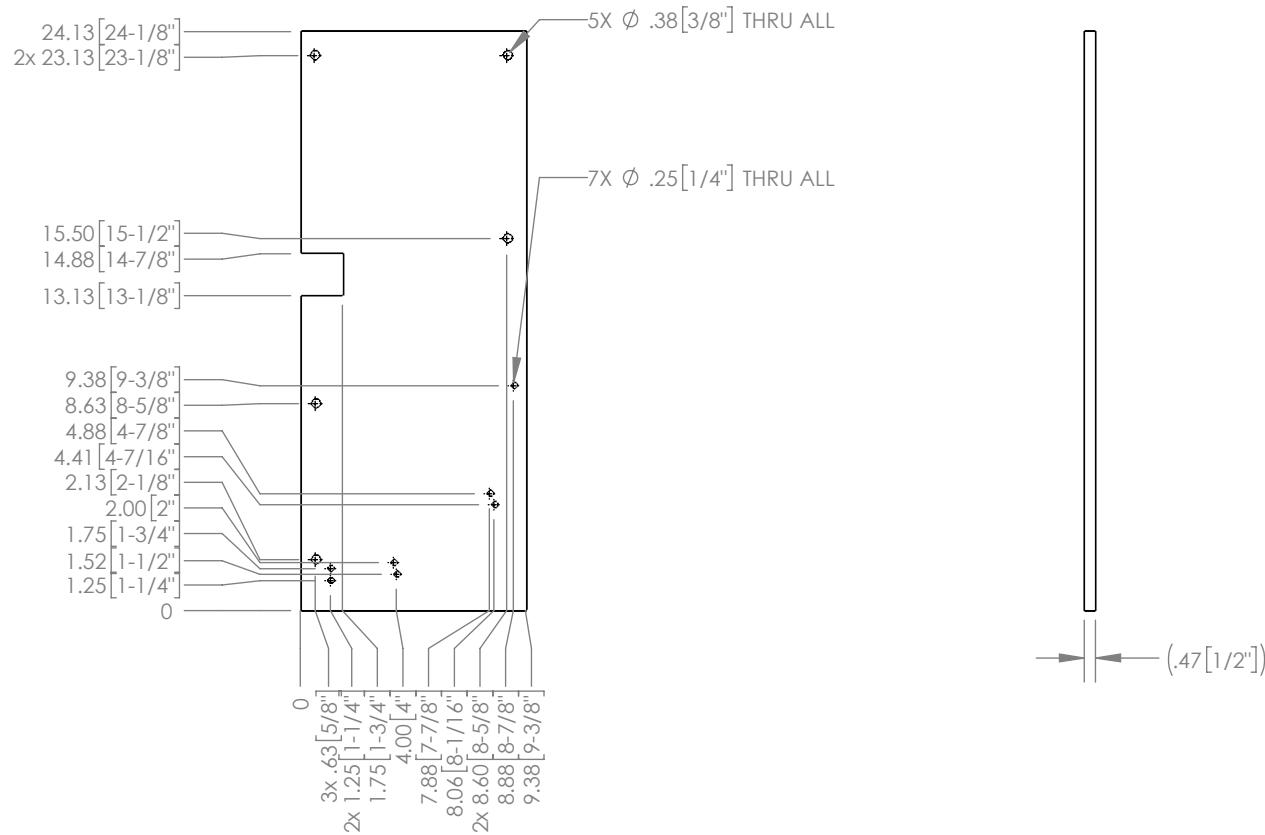


TITLE:

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SIZE	DWG. NO.	REV
A	TE-20000	A
SCALE: 1:24	WEIGHT:	SHEET 9 OF 16

TE-20000-11
QTY (2)



Note:

1. Material: 15/32" AC or CDX Plywood
2. This Part is Optional

		UNLESS OTHERWISE SPECIFIED:		DRAWN	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 $\pm .001$						
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NEXT ASSY	USED ON	FINISH						
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:				
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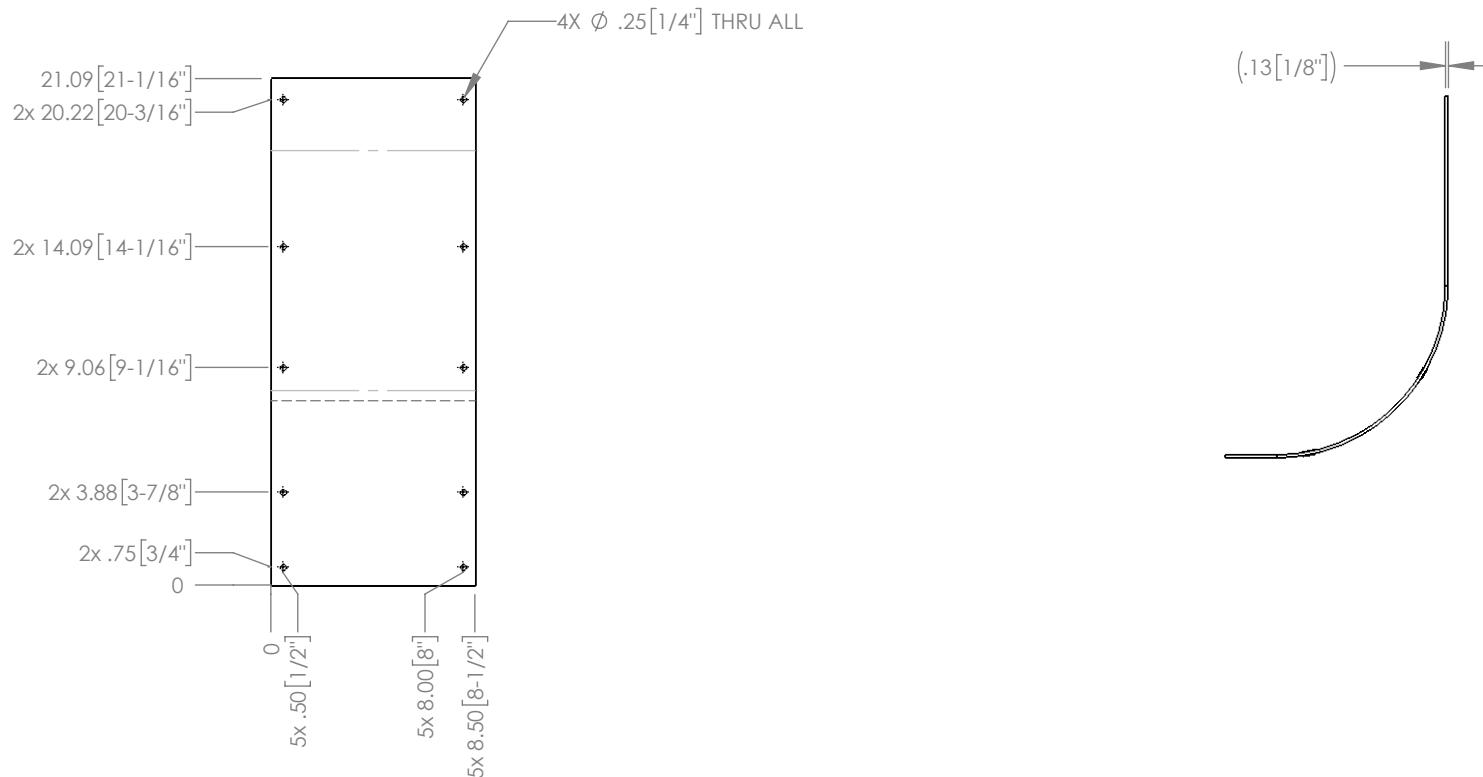


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TE-20000-08
QTY (1)



Note:

1. Material: 1/8" Hard board
2. Add relief cuts on the front face from 2" to 12" at 1/2" spacing roughly 1/16 or less depth
3. QTY shown for 1 chute
4. This Part is Optional

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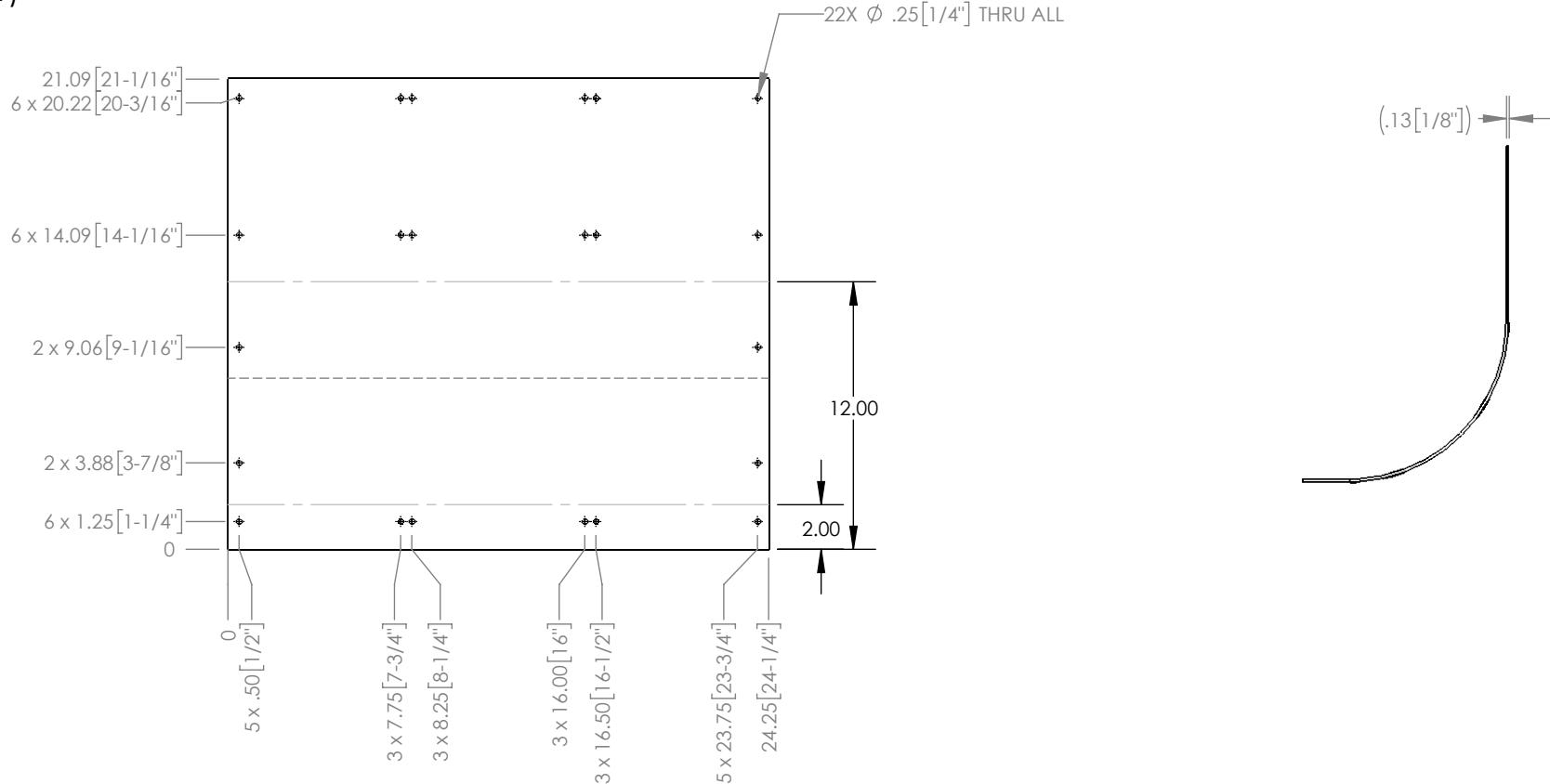


TITLE:

Team Version
Loading Bay

SIZE	DWG. NO.	REV
A	TE-20000	A
SCALE: 1:24	WEIGHT:	SHEET 11 OF 16

TE-20000-09
QTY (1)



Note:

1. Material: 1/8" Hard board
2. Add relief cuts on the front face from 2" to 12" at 1/2" spacing roughly 1/16" or less depth
3. This Part is Optional

		UNLESS OTHERWISE SPECIFIED:		DRAWN	NAME	DATE		
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SIZE	DWG. NO.	REV
A	TE-20000	A
SCALE: 1:24		WEIGHT:
		SHEET 12 OF 16

TE-20000-03
QTY (1)



Note:
1. Material: 2" x 4" Pine

TE-20000-04
QTY (1)



Note:
1. Material: 2" x 2" Pine

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		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.		
		TWO PLACE DECIMAL $\pm .01$	Q.A.		
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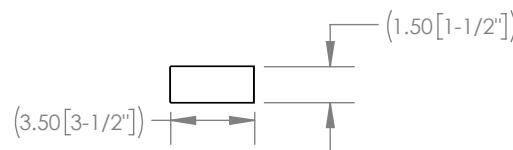
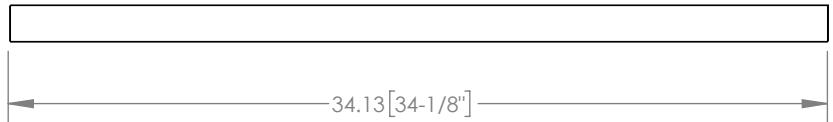
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SCALE: 1:24		WEIGHT:
SHEET 13 OF 16		



TITLE:

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TE-20000-05
QTY (2)

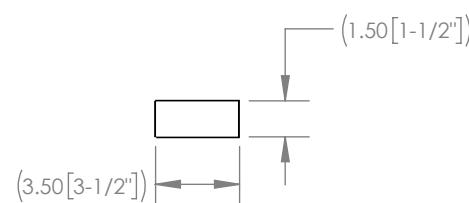
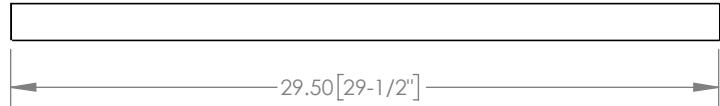


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Note:
1. Material: 2" x 4" Pine

TE-20000-06
QTY (2)



Note:
1. Material: 2" x 4" Pine

A

A

		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES			
		TOLERANCES:			
		FRACTIONAL $\pm 1/16$			
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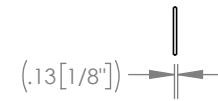
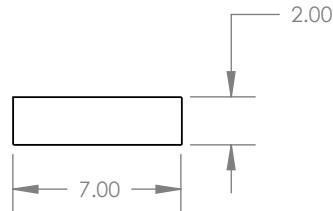
Team Version Loading Bay

SIZE	DWG. NO.	REV
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SCALE: 1:24	WEIGHT:	SHEET 14 OF 16

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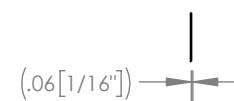
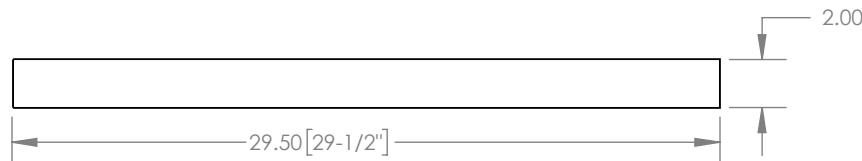
Vision_LoadingBay
QTY (4)



Notes:

1. 2" Wide, 3M 8830 Scotchlite Reflective Material

TE-20000-12
QTY (2)



Notes:

1. 2" wide Hook

TE-20000-13
QTY (1)



Notes:

1. 2" wide Hook

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		THREE PLACE DECIMAL $\pm .001$			COMMENTS:		
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NEXT ASSY	USED ON	FINISH					
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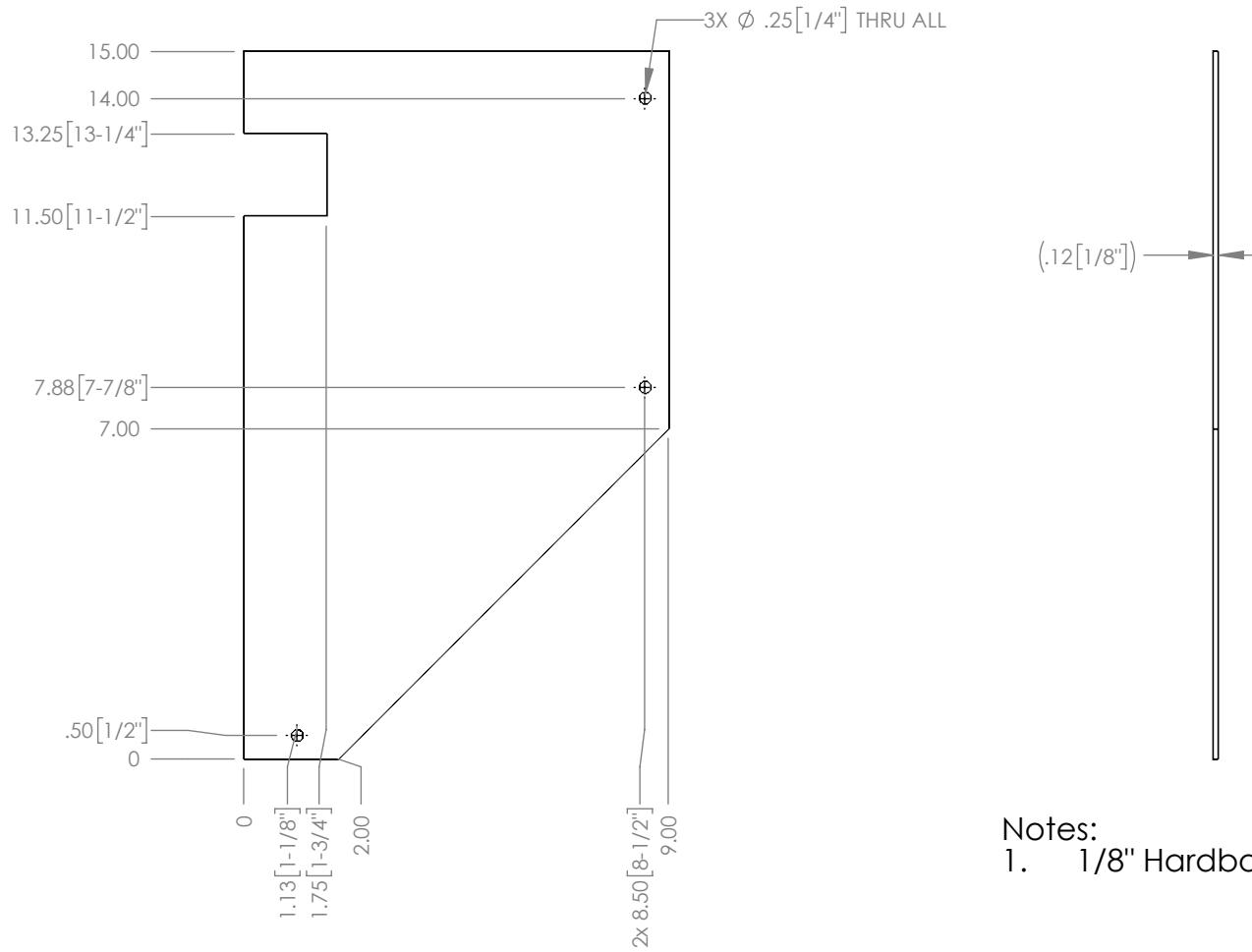
Team Version Loading Bay

SIZE	DWG. NO.	REV
A	TE-20000	A
SCALE: 1:24	WEIGHT:	SHEET 15 OF 16

2

1

TE-20000-10
QTY (2)



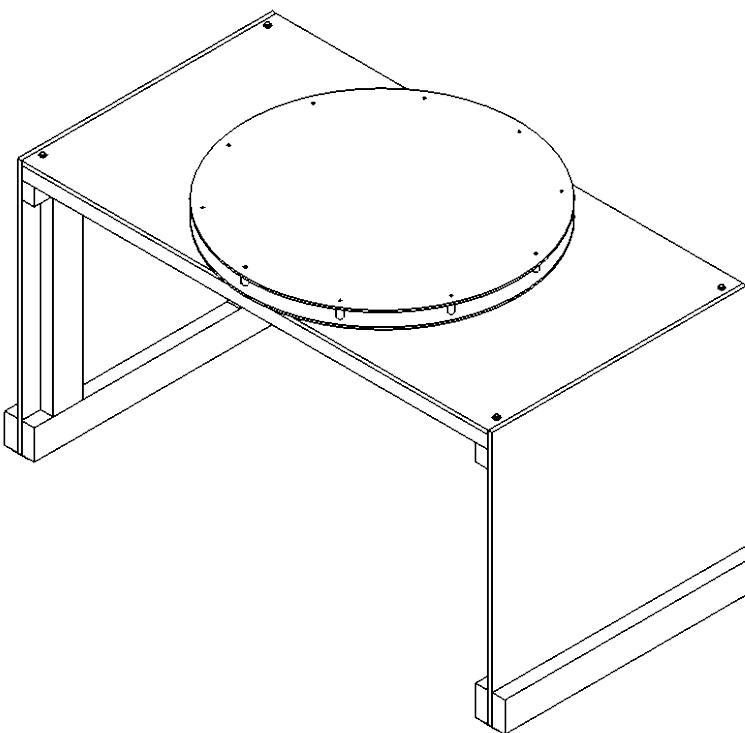
Notes:
1. 1/8" Hardboard

		UNLESS OTHERWISE SPECIFIED:		DRAWN	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 $\pm .001$							
		INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL							
NEXT ASSY	USED ON	FINISH		COMMENTS:					
APPLICATION		DO NOT SCALE DRAWING							
FIRST ROBOTICS COMPETITION	SOLIDWORKS Modeling Solutions Partner	TITLE: Team Version Loading Bay			SIZE DWG. NO.				
A	TE-20000	REV A		SCALE: 1:24 WEIGHT:		SHEET 16 OF 16			

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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TeeNut_.25_20	Soft Wood Fiber Tee Nut	4
2	TE-20001-01	050AC Top	1
3	TE-20001-02	050AC Side	2
4	TE-20001-03	2x4x55	2
5	TE-20001-04	2x4x30	2
6	TE-20001-05	2x4x30	4
7	TE-20001-06	2x4x23	2
8	TE-20001-07	2x4x22.875	4
9	TE-20001-08	12d6234 Triangle Manufacturing	1
10	TE-20001-09	2" Hook	2
11	TE-20002	Control Panel	1
12	hex_.25_20_4.5_partial	Steel Hex Head Screw, 1/4"-20 x 4-1/2" long, partially threaded	4
13	washer_flat_.25	Flat Washer for 1/4" Screw	4

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B1, 6-B2	A	Fixed Description of TE-20001-03. Fixed drawing for TE-20001-01	1/6/2020	NTW



		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		
		MATERIAL	ENG APPR.		
			MFG APPR.		
			Q.A.		
COMMENTS:					
SIZE	DWG. NO.	REV			
A	TE-20001	A			
SCALE: 1:24			WEIGHT:	SHEET 1 OF 12	

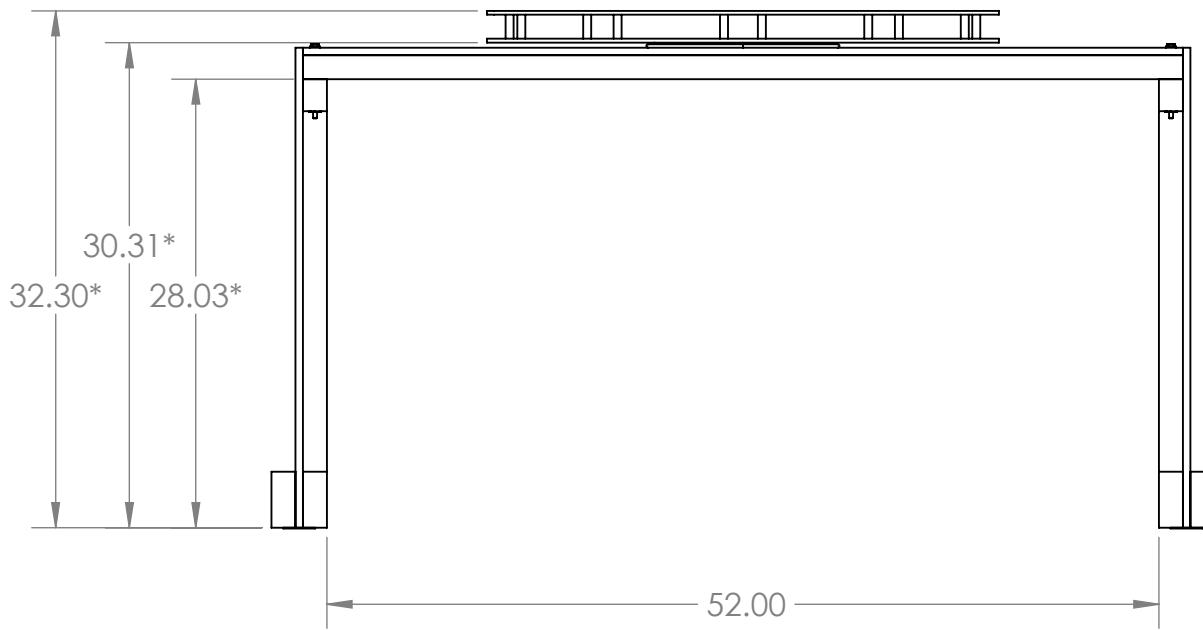
FIRST ROBOTICS COMPETITION **SOLIDWORKS**
Modeling Solutions Partner

TITLE: Trench

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2

1



*PLEASE NOTE: DUE TO MATERIAL THICKNESS, DIMENSIONS MAY VARY BY UP TO 1/8" FROM THE ACTUAL FIELD. PLEASE REFER TO THE FIELD DRAWINGS IF YOU THESE DIFFERENCES WILL AFFECT YOUR ROBOT DESIGN.

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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		
		MATERIAL	ENG APPR.		
NEXT ASSY	USED ON	FINISH	MFG APPR.		
APPLICATION		DO NOT SCALE DRAWING	Q.A.		

FIRST[®] ROBOTICS COMPETITION  **SOLIDWORKS**
Modeling Solutions Partner

TITLE: Trench

SIZE	DWG. NO.	REV
A	TE-20001	A

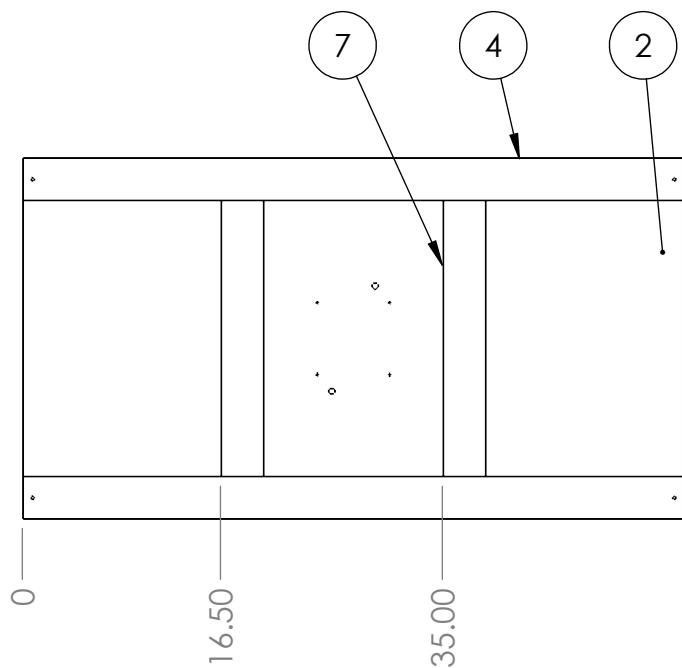
SCALE: 1:24 WEIGHT: SHEET 2 OF 12

2

1

2

Step 1:



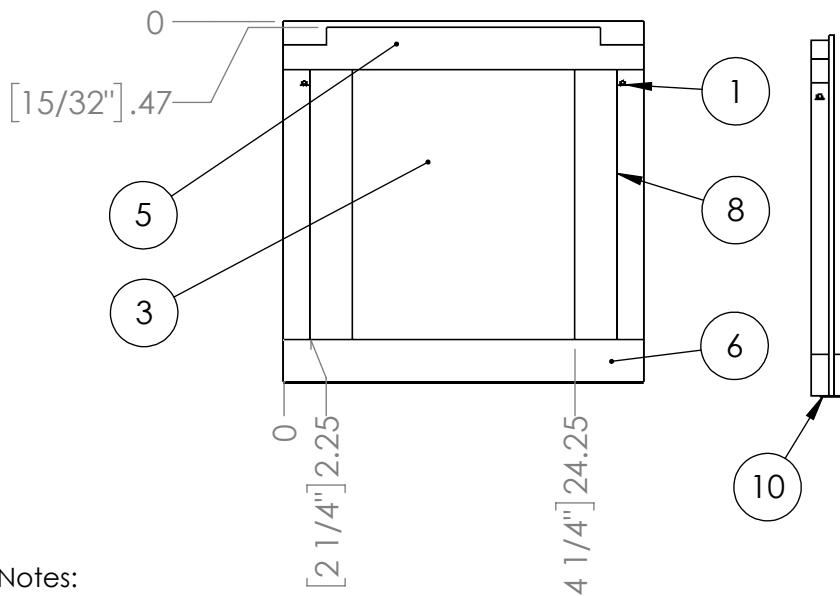
Notes:

1. Attach (4) to (2) with 1.25" #6 wood screw.
2. Attach (7) to (2) with 1.25" #6 wood screw.
3. Pre-drill if needed.

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1

Step 2 and 3:



Notes:

1. Insert (1) in (5), 2 places.
2. Attach (5) to (3) with 1.25" #6 wood screw.
3. Attach (8) to (3) with 1.25" #6 wood screw.
4. Attach (6) to (3) with 1.25" #6 wood screw.
5. Pre-drill if needed.
6. Attach (10) to the bottom.
7. Repeat for second leg.

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

SIZE	DWG. NO.	REV
A	TE-20001	A
SCALE: 1:24		WEIGHT:
SHEET 3 OF 12		

2

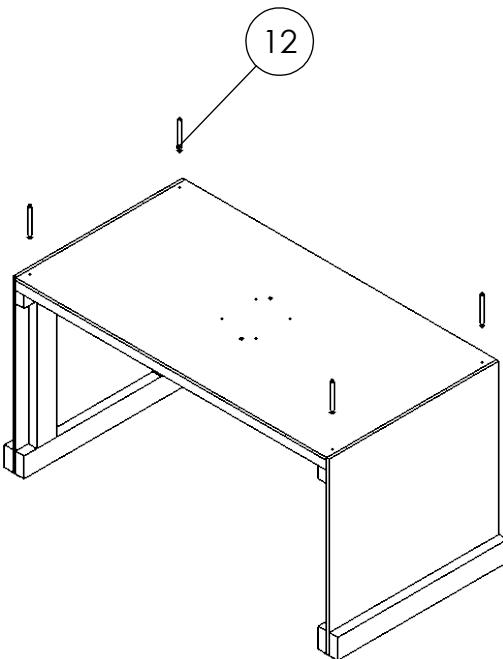
1

 **FIRST**
ROBOTICS
COMPETITION

 **SOLIDWORKS**
Modeling Solutions Partner

TITLE:
Trench

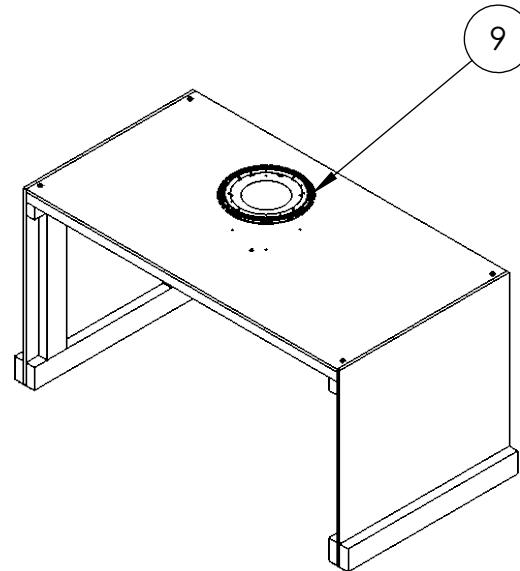
Step 4:



Notes:

1. Attach Step 1 to Step 2 and 3 as shown.
2. Use (12) to bolt together.

Step 5:



Notes:

1. Attach (9) to Step 4 with 10-32 hardware.
2. Align with pre-drilled holes and access holes.

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

Step 5:

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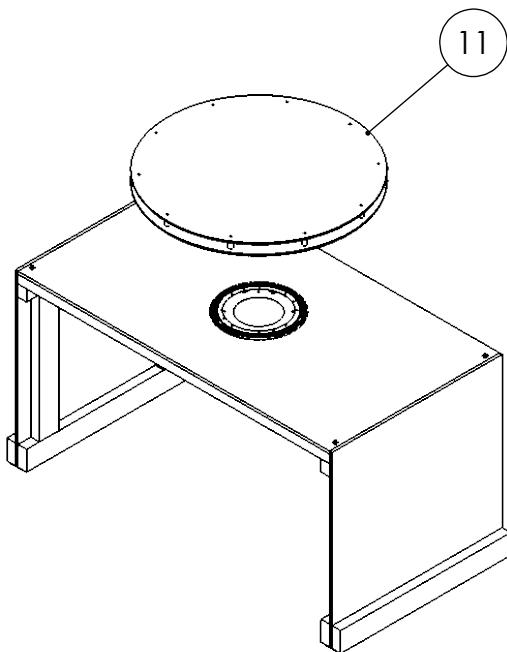


TITLE:

Trench

SIZE DWG. NO. REV
A TE-20001 **A**
 SCALE: 1:24 WEIGHT: SHEET 4 OF 12

Step 6:



Notes:

1. Attach (11) to Step 5 with 10-32 hardware.
2. Use the drilled access holes for hardware access.

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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		
		MATERIAL	ENG APPR.		
			MFG APPR.		
			Q.A.		
		COMMENTS:			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

 **FIRST**
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COMPETITION 
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TITLE:

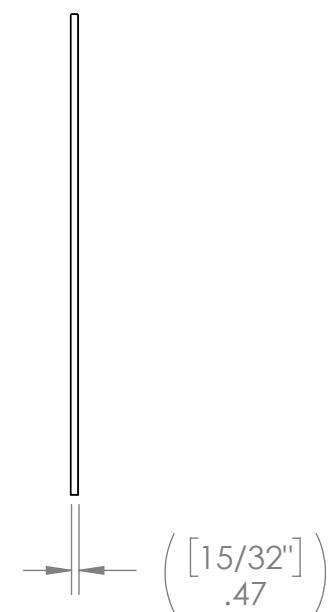
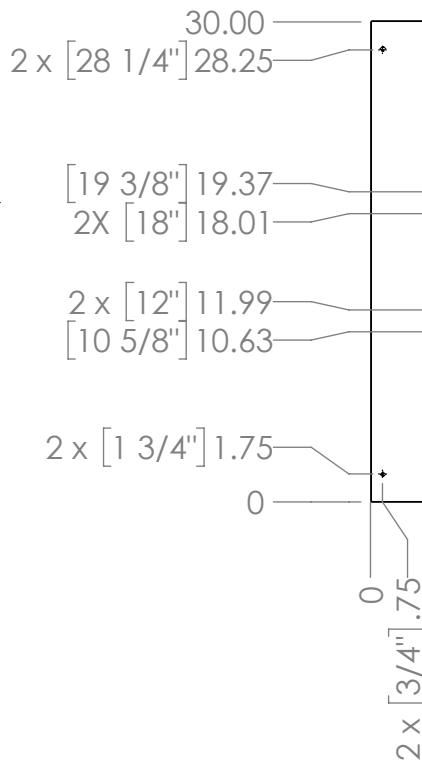
Trench

SIZE	DWG. NO.	REV
A	TE-20001	A
SCALE: 1:24	WEIGHT:	SHEET 5 OF 12

2

1

TE-20001-01
QTY (1)



Notes:

1. 15/32 (1/2") AC or CDX plywood

		UNLESS OTHERWISE SPECIFIED:			DRAWN	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 $\pm .001$							
		INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL			CHECKED	ENG APPR.	MFG APPR.		
NEXT ASSY	USED ON	FINISH							
APPLICATION		DO NOT SCALE DRAWING			COMMENTS:				

SIZE	DWG. NO.	REV
A	TE-20001	A
SCALE: 1:24	WEIGHT:	SHEET 6 OF 12

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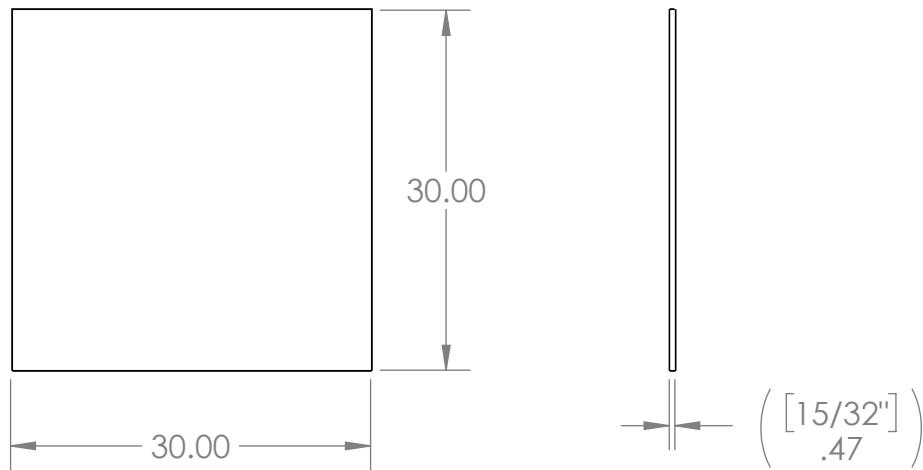


Trench

2

1

TE-20001-02
QTY (2)



Notes:

1. 15/32 (1/2") AC or CDX Plywood

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

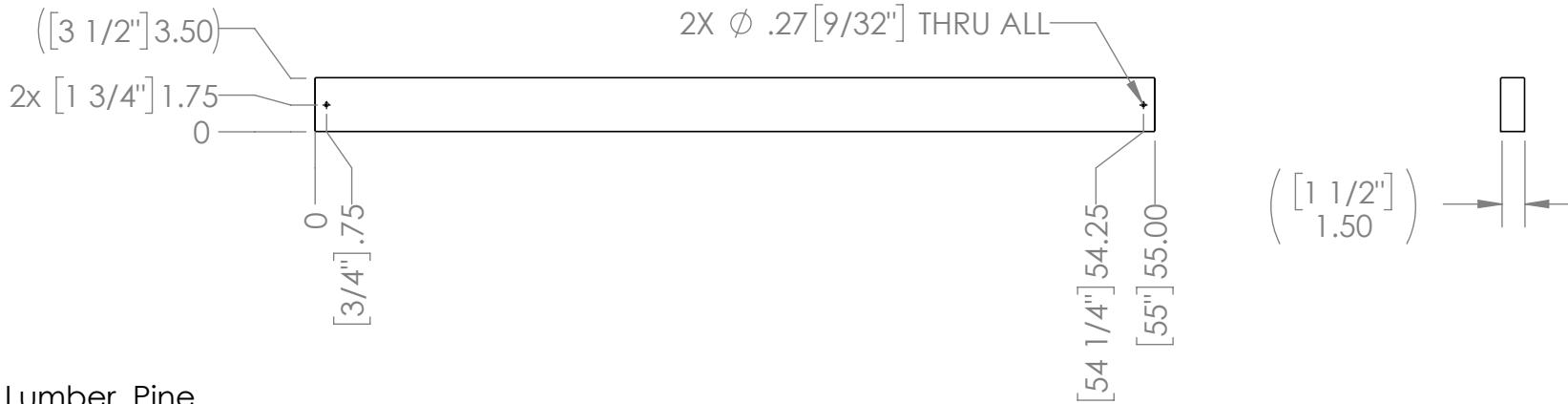
COMMENTS:

FIRST[®] ROBOTICS COMPETITION 
TITLE: Trench
SIZE DWG. NO. REV
A TE-20001 **A**
SCALE: 1:24 WEIGHT: SHEET 7 OF 12

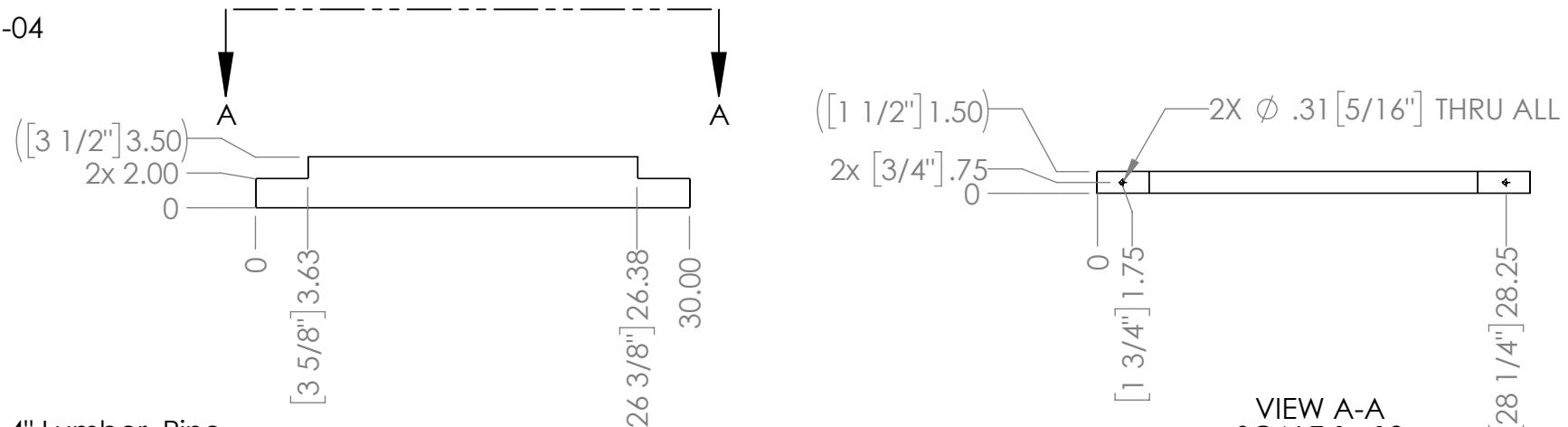
2

1

TE-20001-03
QTY (2)



TE-20001-04
QTY (2)



VIEW A-A
SCALE 1 : 12



FIRST
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TITLE:

Trench

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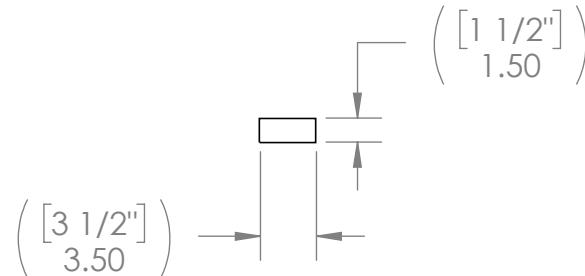
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		DIMENSIONS ARE IN INCHES			
		TOLERANCES:			
		FRACTIONAL $\pm 1/16$			
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$			
		TWO PLACE DECIMAL $\pm .01$			
		THREE PLACE DECIMAL $\pm .001$			
		INTERPRET GEOMETRIC			
		TOLERANCING PER:			
		MATERIAL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

SIZE	DWG. NO.	REV
A	TE-20001	A
SCALE: 1:24	WEIGHT:	SHEET 8 OF 12

2

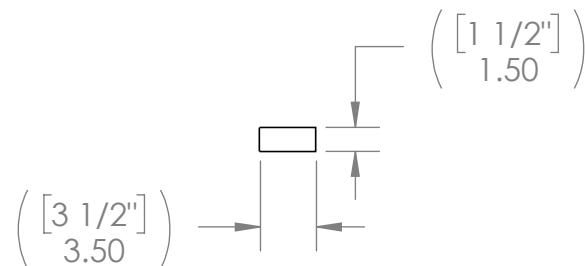
1

TE-20001-05
QTY (4)



Notes:
1. 2" x 4" Lumber, Pine

TE-20001-06
QTY (2)



Notes:
1. 2" x 4" Lumber, Pine

		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			

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TITLE:

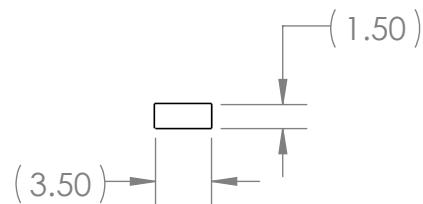
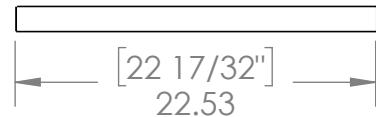
Trench

SIZE DWG. NO. REV
A TE-20001 **A**
SCALE: 1:24 WEIGHT: SHEET 9 OF 12

TE-20001-07
QTY (4)

B

B



Notes:

1. 2" x 4" Lumber, Pine

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

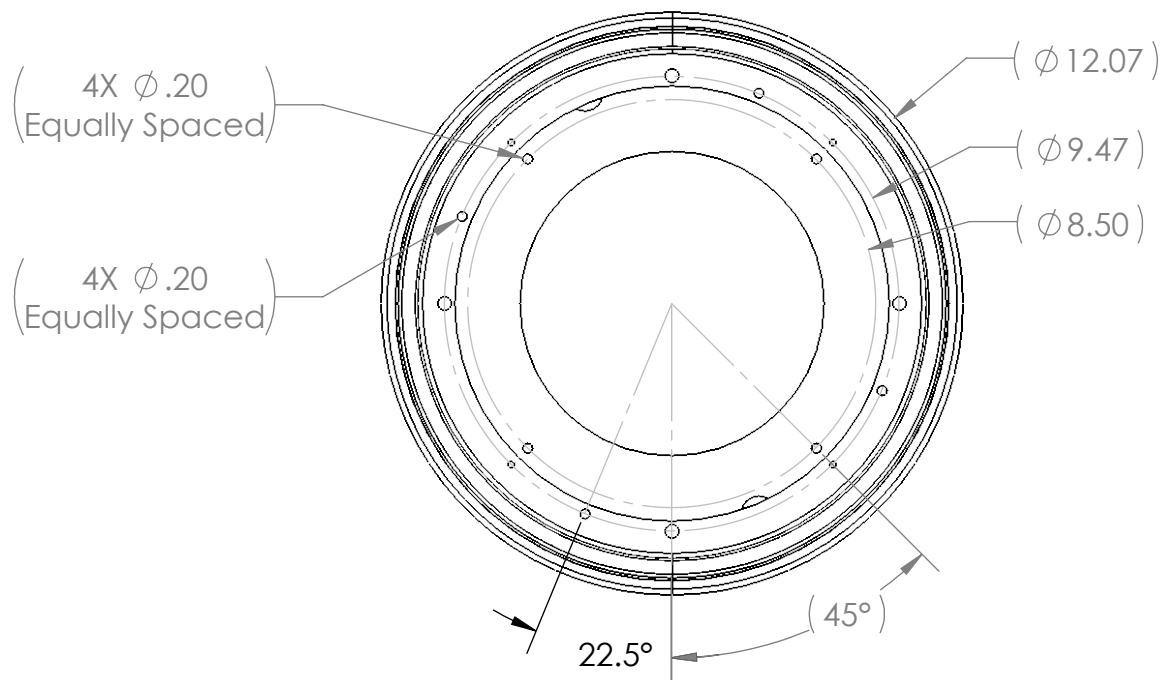
COMMENTS:

FIRST[®] ROBOTICS COMPETITION 
TITLE: Trench
SIZE DWG. NO. REV
A TE-2001 **A**
SCALE: 1:24 WEIGHT: SHEET 10 OF 12

2

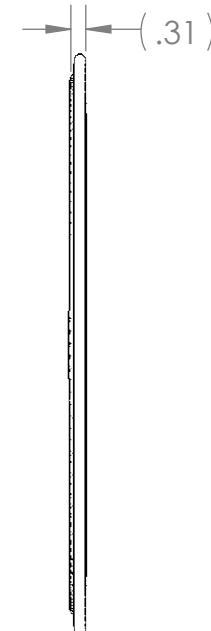
1

TE-20001-08



B

B



Notes:

1. Triangle Lazy Susan with 4 clips
2. From KOP

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		DIMENSIONS ARE IN INCHES					
		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:

Trench

SIZE	DWG. NO.	REV
A	TE-20001	A
SCALE: 1:24		WEIGHT:
SHEET 11 OF 12		

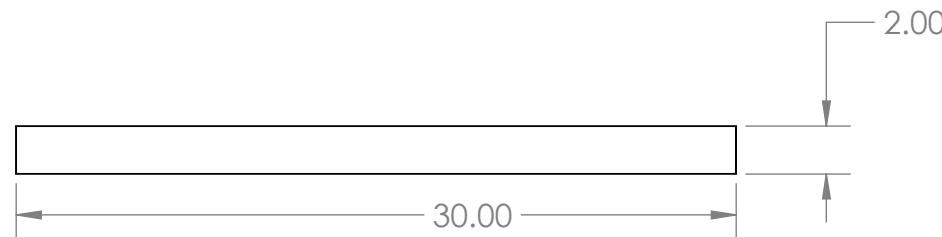
2

1

B

B

TE-20001-09
QTY (2)



Notes:

- Material: 2" Hook, Adhesive Backed

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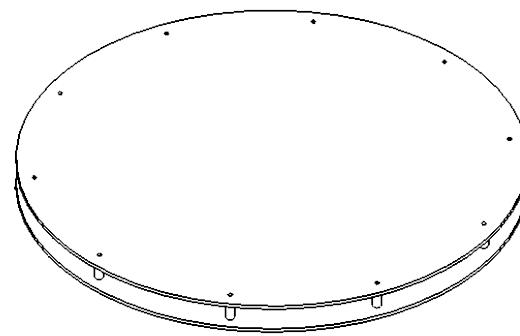
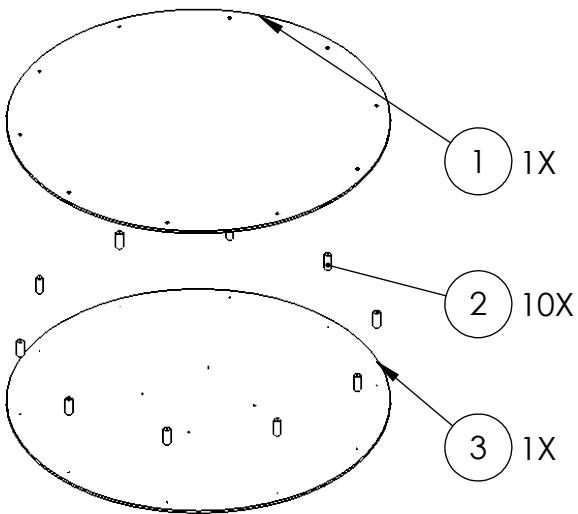
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		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL $\pm 1/16$	ENG APPR.		
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.		
		TWO PLACE DECIMAL $\pm .01$	Q.A.		
		THREE PLACE DECIMAL $\pm .001$			
		INTERPRET GEOMETRIC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

COMMENTS:

FIRST[®] ROBOTICS COMPETITION  **TITLE:** Trench

SIZE	DWG. NO.	REV
A	TE-20001	A
SCALE: 1:24	WEIGHT:	SHEET 12 OF 12

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-20002-01	025 AC, Top Disk	1
2	TE-20002-02	050 Poplar Dowel	10
3	TE-20002-03	025 AC, Bottom Disk	1



		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		
		MATERIAL	ENG APPR.		
			MFG APPR.		
			Q.A.		
		COMMENTS:			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			
DWG. NO.		SIZE A TE-20002 REV			
SCALE: 1:16		WEIGHT:			SHEET 1 OF 5

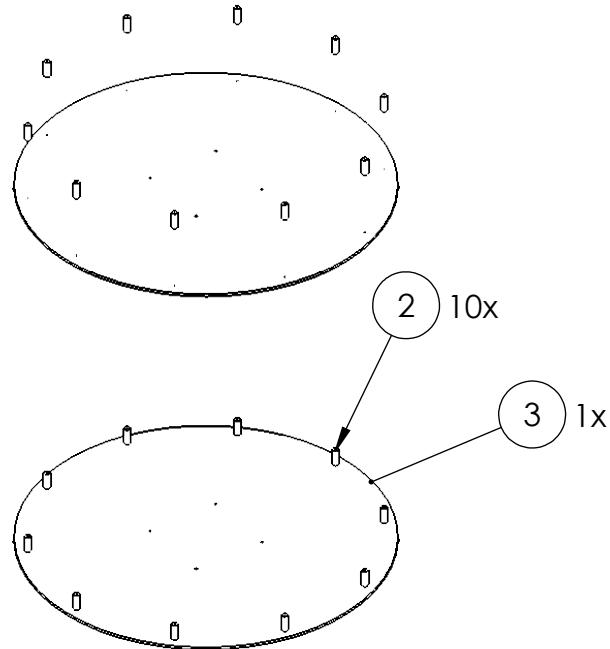
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FIRST ROBOTICS COMPETITION **SOLIDWORKS**
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TITLE: Control Panel

2

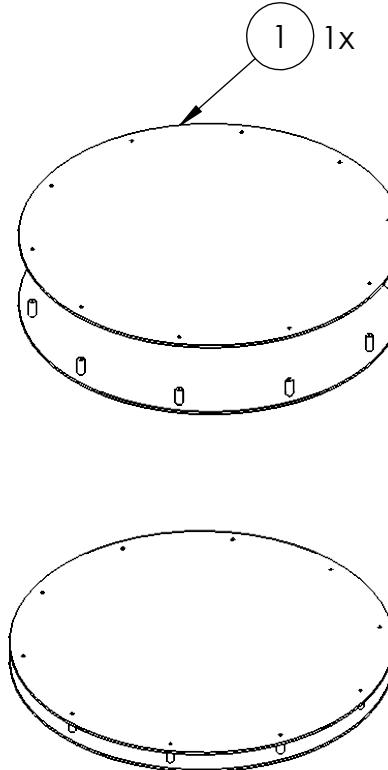
Step 1:



B

1

Step 2:



B

Notes:

1. Attach (2) 10x to (3) 1x with 1.125" #6 screw

Notes:

1. Attach (1) 1x to (2) 10x with 1.125" #6 screw

A

		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		
		MATERIAL	ENG APPR.		
			MFG APPR.		
			Q.A.		
		COMMENTS:			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

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TITLE:

Control Panel

SIZE	DWG. NO.	REV
A	TE-20002	
SCALE: 1:16		WEIGHT:
SHEET 2 OF 5		

2

1

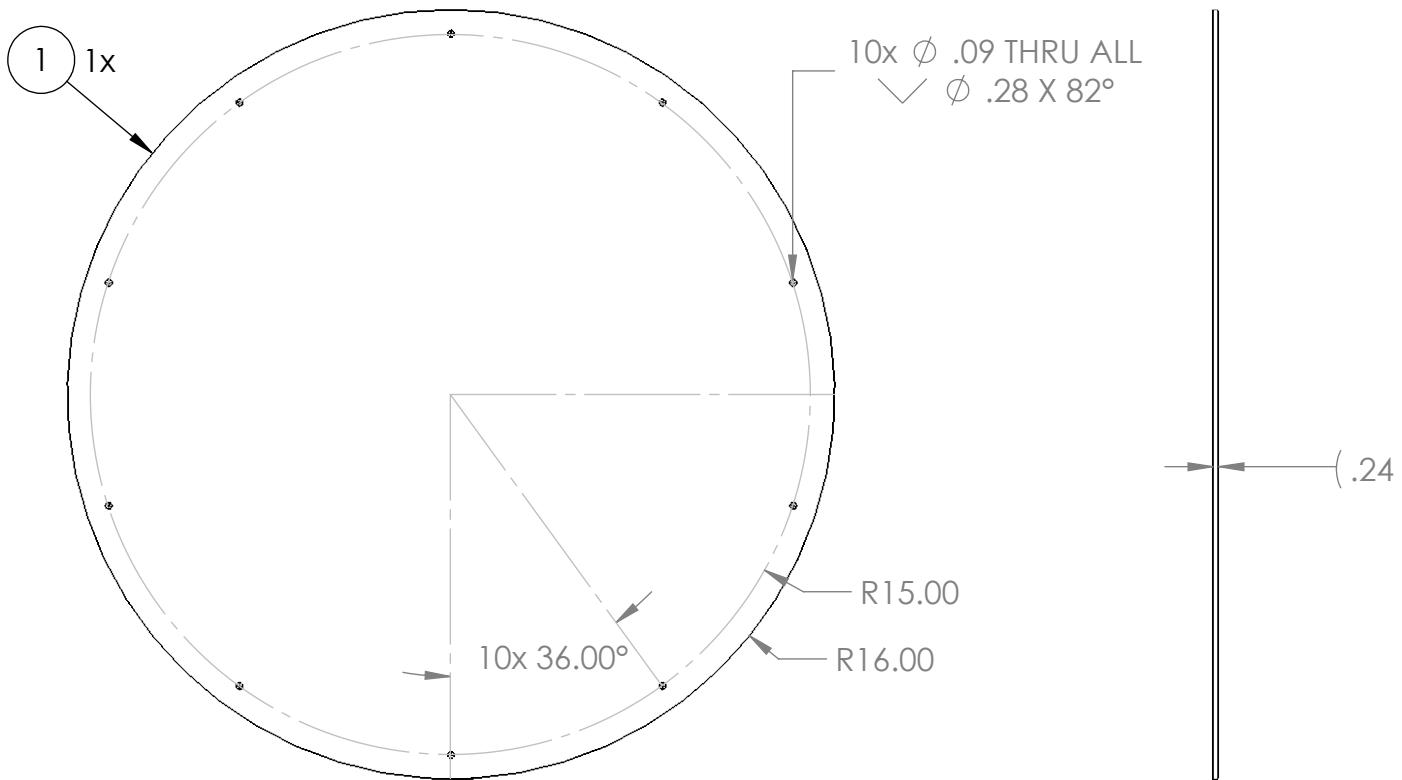
2

TE-20002-01

1

B

B



Note:

- Material 1/4 AC Plywood
- Pre-drill with countersunk bit for #6 screw and 3/32" bit

A

A

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		UNLESS OTHERWISE SPECIFIED:		DRAWN	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 $\pm .001$				
		INTERPRET GEOMETRIC TOLERANCING PER:		CHECKED		
		MATERIAL		ENG APPR.		
NEXT ASSY	USED ON	FINISH		MFG APPR.		
APPLICATION		DO NOT SCALE DRAWING		Q.A.		

COMMENTS:		



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TITLE:

Control Panel

SIZE	DWG. NO.	REV
A	TE-20002	
SCALE: 1:16		WEIGHT:
SHEET 3 OF 5		

2

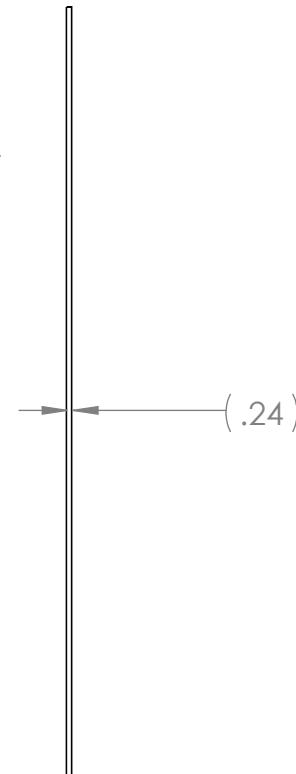
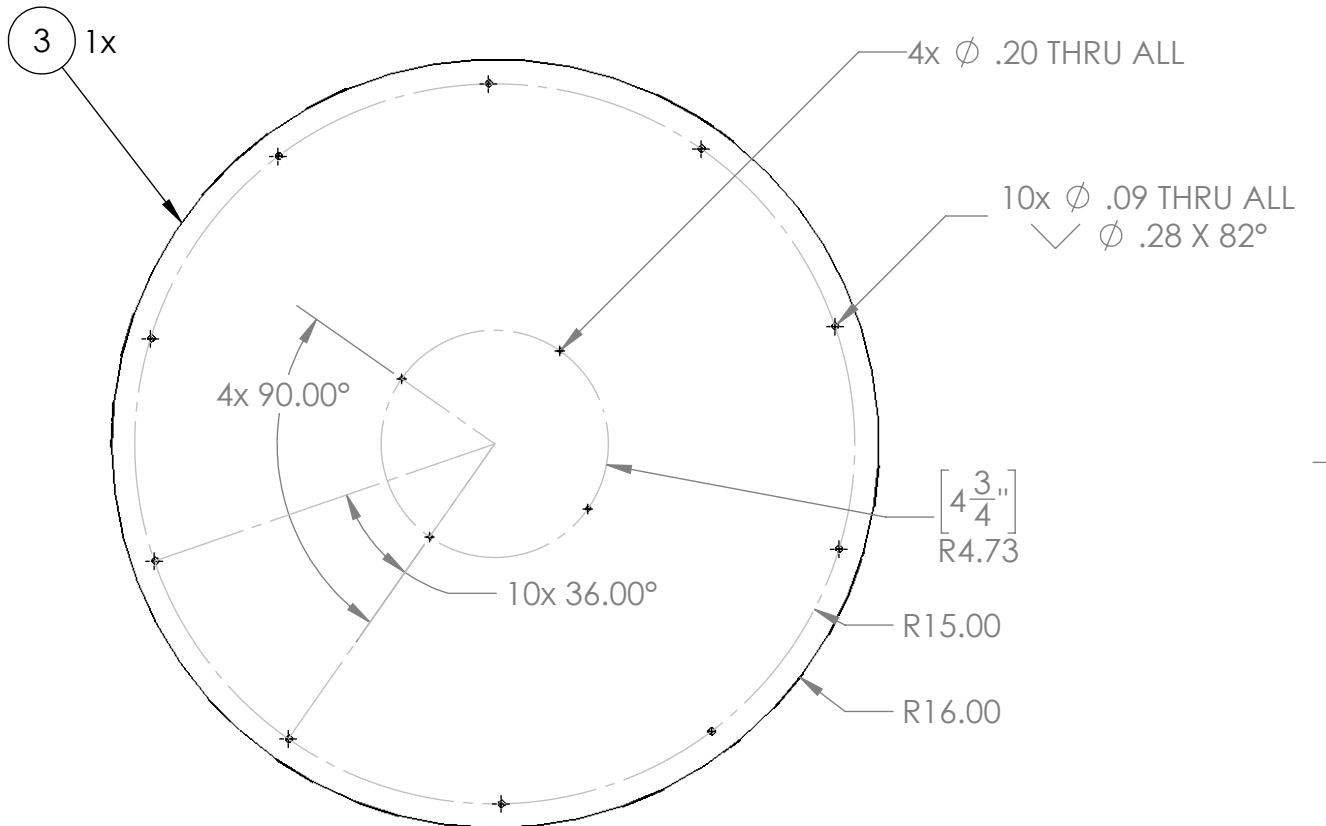
1

2

1

B

B



Note:

- Material 1/4 AC Plywood
- Pre-drill with countersunk bit for #6 screw and 3/32" bit

A

A

		UNLESS OTHERWISE SPECIFIED:		DRAWN	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 $\pm .001$						
		INTERPRET GEOMETRIC TOLERANCING PER:		COMMENTS:				
		MATERIAL						
NEXT ASSY	USED ON	FINISH						
APPLICATION		DO NOT SCALE DRAWING						
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1

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COMPETITION

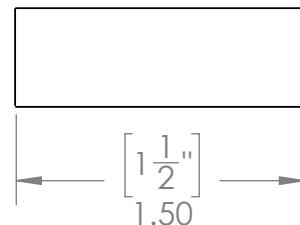
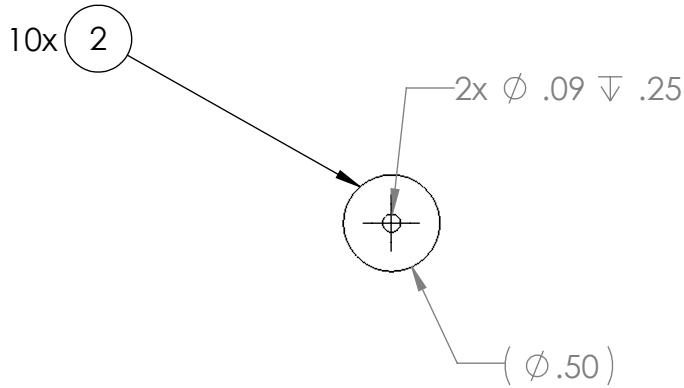
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TITLE:

Control Panel

SIZE	DWG. NO.	REV
A	TE-20002	
SCALE: 1:16		WEIGHT:
		SHEET 4 OF 5

TE-20002-02



Note:

1. Material 0.5" poplar dowel
2. Pre-drill 3/32

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		TOLERANCES:		CHECKED		
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		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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NEXT ASSY	USED ON		FINISH			
APPLICATION		DO NOT SCALE DRAWING				



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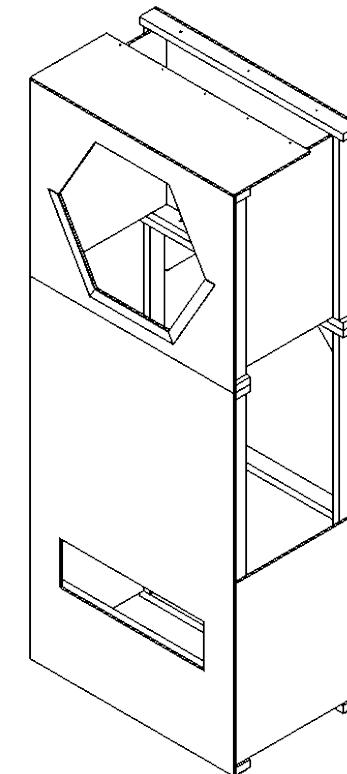
Control Panel

SIZE	DWG. NO.	REV
A	TE-20002	
SCALE: 1:16	WEIGHT:	SHEET 5 OF 5

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-20003-01	0.5 AC Lower Face	1
2	TE-20003-02	025 BC plywood	1
3	TE-20003-03	0.5 AC face back goal	1
4	TE-20003-04	2x4x48 pine	8
5	TE-20003-05	2x4x75 pine	4
6	TE-20003-06	2x4x37 pine	4
7	TE-20003-07	050 AC Side	4
8	TE-20003-08	050AC deflector	1
9	TE-20003-09	050AC roof	1
10	TE-20003-10	050 gusset	4
11	TE-20003-11	2x4x43	2
12	Hook_2_48	Hook_2_48	2
13	TeeNut_.25_20	Soft wood fiber tee nut	6
14	Vision_PowerPort	2" wide 3m vision tape	3
15	hex_.25_20_3.5	Steel Hex Head Screw, 1/4"-20 x 3.5 long, fully threaded	6

Material	QTY
15/32 " ACor CDX Plywood	4 sheets
2"x4"x8' Pine	10
2" Hook	96"
2" Vision Tape	54"
wood screw 1.25"	~110
wood screw 2.5	~40
50lb Cable tie	10
1/4-20 x 3.5" bolt	6
1/4-20 Softwood T nut	6

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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			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			
SIZE	DWG. NO.		REV		
A	TE-20003				
SCALE: 1:32	WEIGHT:	SHEET 1 OF 16			

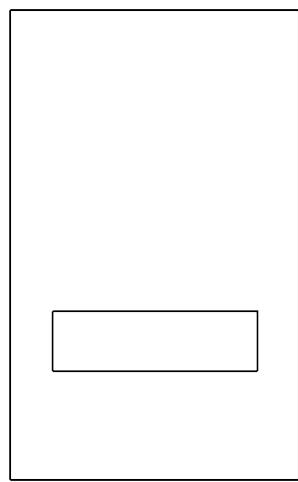
FIRST[®] ROBOTICS COMPETITION
SOLIDWORKS
Modeling Solutions Partner

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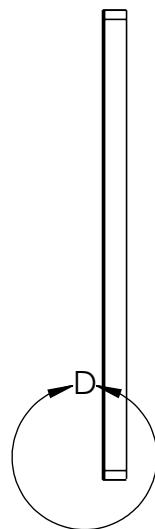
TE Power Port

2

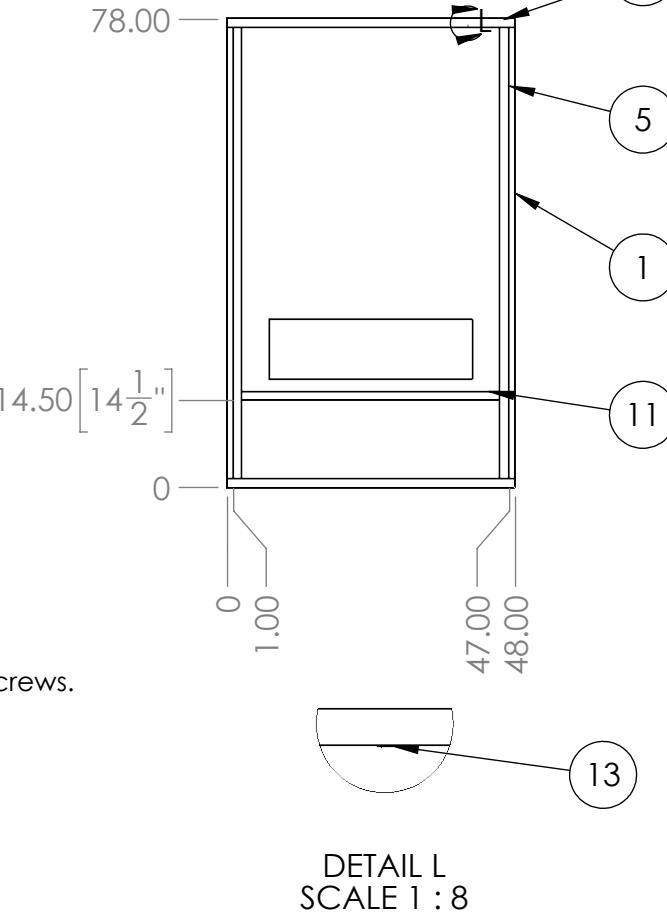
Front Lower Frame Assembly

DETAIL D
SCALE 1 : 8

12



D



Notes:

1. Attach (4), (5), (11) together to form a frame. Pre-drill and use 2.5" wood screws.
2. Attach (12) to the bottom of the frame use staples to hold in place
3. Attach (1) to the frame. Pre-drill and use 1.25" wood screws.
4. Insert (13) into the outer most drilled holes of (4)

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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					
NEXT ASSY	USED ON	FINISH					
APPLICATION		DO NOT SCALE DRAWING					



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TITLE:

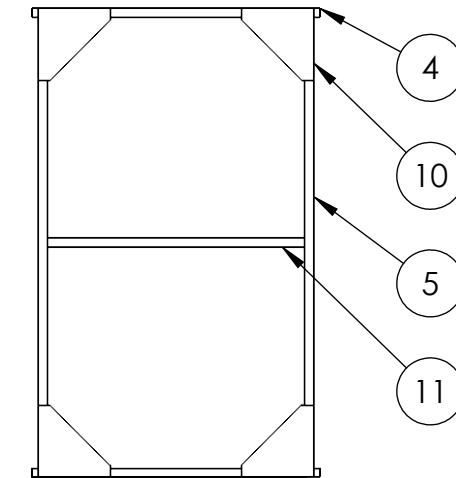
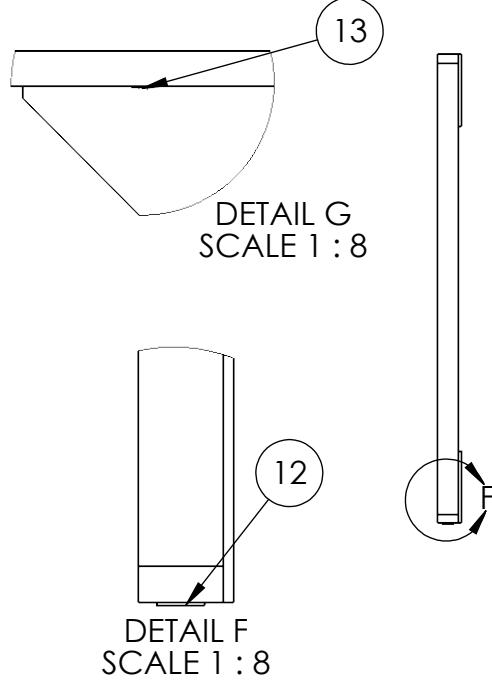
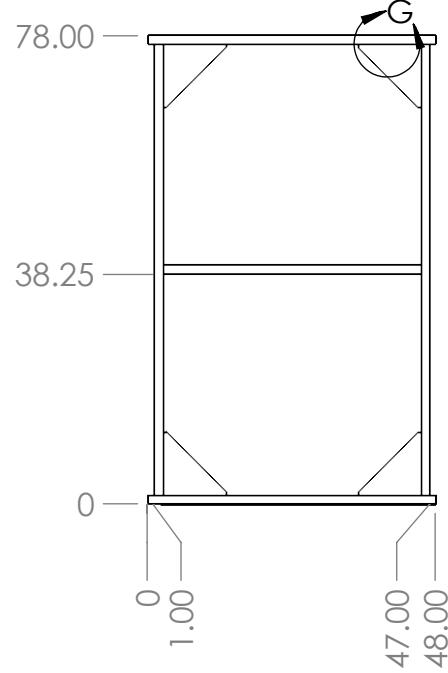
TE Power Port

SIZE	DWG. NO.	REV
A	TE-20003	
SCALE: 1:32	WEIGHT:	SHEET 2 OF 16

2

1

Back Lower Frame Assembly



Notes:

1. Attach (4), (5) and (11) to form a frame. Pre-drill and use 2.5" wood screws
2. Attach (12) to the bottom of (4).
3. Attach (10) to the frame. Pre-drill and use 1.25" wood screws
4. Insert (13) to the two outside holes of (4)

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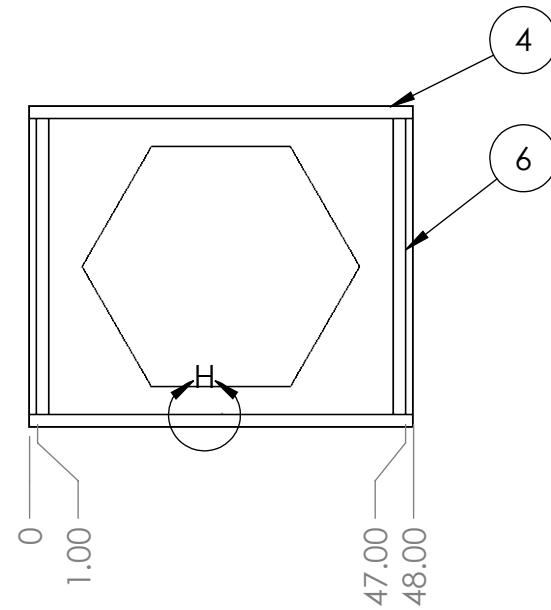
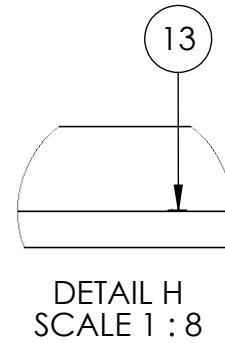
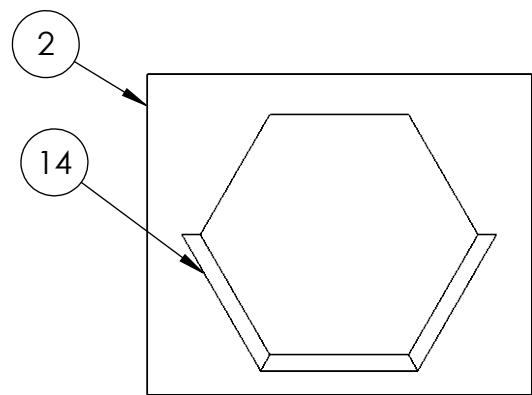


TITLE:

TE Power Port

SIZE	DWG. NO.	REV
A	TE-20003	
SCALE: 1:32	WEIGHT:	SHEET 3 OF 16

Front Upper Frame Assembly



Notes:

1. Attach (14) to (2) to lower portion of opening.
2. Attach (4) and (6) together to form a frame. Pre-drill and use 2.5" wood screws
3. Attach (2) to the frame. Pre-drill and use 1.25" wood screws
4. Insert (13) to the center hole of (4) on the lower portion of the fame

		UNLESS OTHERWISE SPECIFIED:			DRAWN	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 $\pm .001$							
		INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL			CHECKED	ENG APPR.	MFG APPR.		
NEXT ASSY	USED ON	FINISH							
APPLICATION		DO NOT SCALE DRAWING			COMMENTS:				

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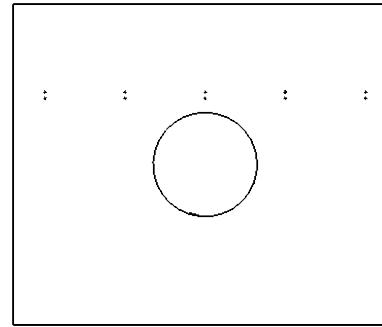
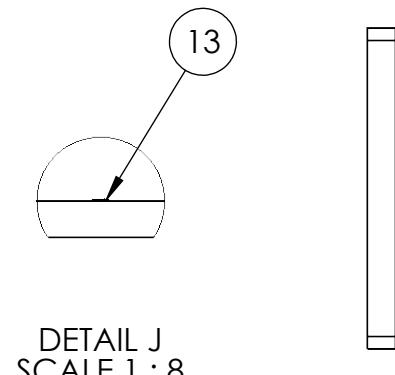
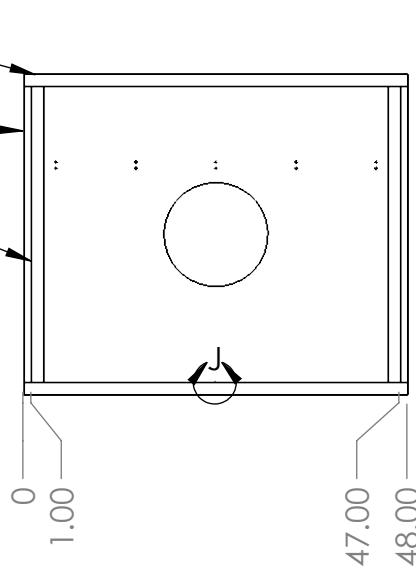
 **FIRST**
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COMPETITION

TITLE:

TE Power Port

SIZE	DWG. NO.	REV
A	TE-20003	
SCALE: 1:32		WEIGHT:
SHEET 4 OF 16		

Back Upper Frame Assembly



Notes:

1. Attach (4) and (6) together to form a frame. Pre-drill and use 2.5" wood screw.
2. Attach (3) to the frame. Pre-drill and use 1.25" wood screw.
3. Insert (13) to (4) in the center hole.

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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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NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			



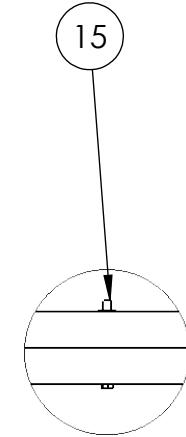
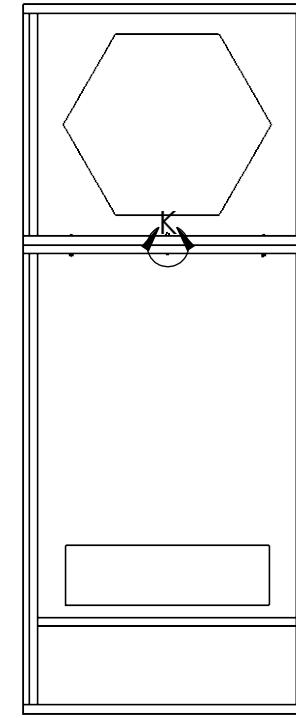
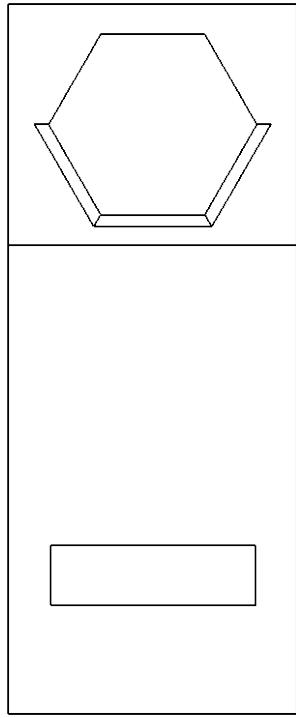
TITLE:

TE Power Port

SIZE	DWG. NO.	REV
A	TE-20003	
SCALE: 1:32	WEIGHT:	SHEET 5 OF 16

2

1



DETAIL K
SCALE 1 : 8

Note:

1. Attach the Front Lower Frame Assembly and Front Upper Frame Assembly together with 15

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		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.		
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		THREE PLACE DECIMAL $\pm .001$	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

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TITLE:

TE Power Port

SIZE	DWG. NO.	REV
A	TE-20003	
SCALE: 1:32	WEIGHT:	SHEET 6 OF 16

2

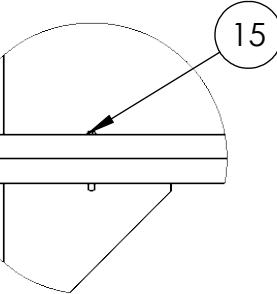
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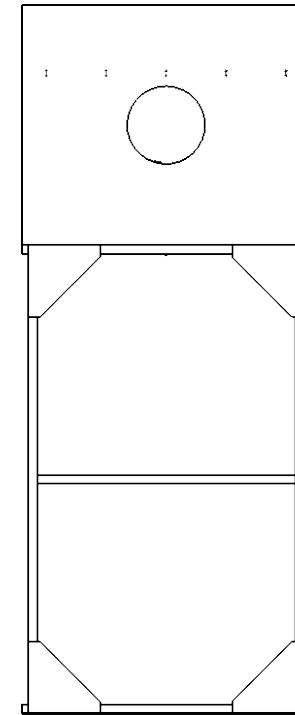
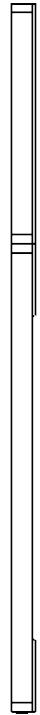
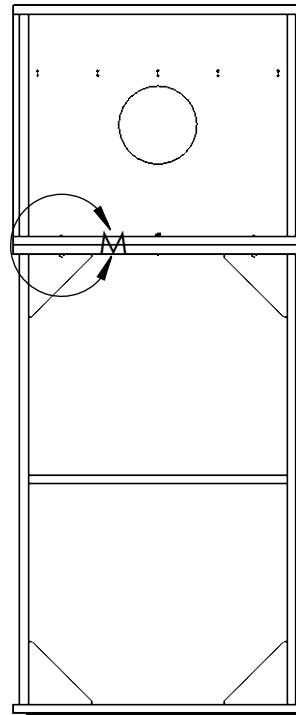
A

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1



DETAIL M
SCALE 1 : 12



Notes:

1. Attach Back Lower Frame Assembly and Back Upper Frame Assembly together with 15

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		NEXT ASSY		ENG APPR.		
		USED ON		MFG APPR.		
		FINISH		Q.A.		
		APPLICATION		COMMENTS:		
		DO NOT SCALE DRAWING				

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TITLE:

TE Power Port

SIZE	DWG. NO.	REV
A	TE-20003	
SCALE: 1:32		WEIGHT:
SHEET 7 OF 16		

2

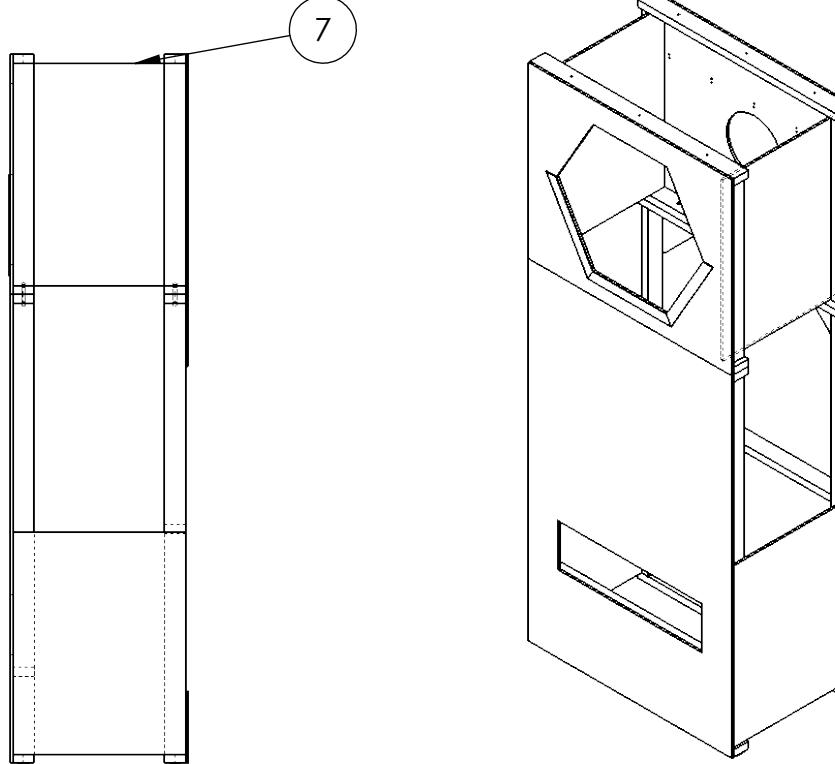
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B

B



Notes:

1. Attach (7) to the out side of the lower two frames on both sides. Pre-drill and use 1.25" wood screws
2. Attach (7) to the inside of the upper two frames on both sides. Pre-drill and use 1.25" wood screws
3. Assemble on its side on the ground

A

A

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		THREE PLACE DECIMAL $\pm .001$	COMMENTS:				
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NEXT ASSY	USED ON	FINISH					
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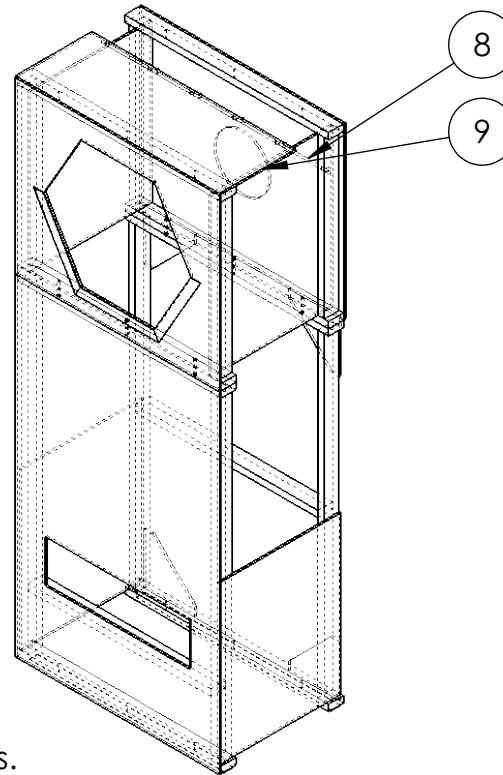
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TITLE:
TE Power Port

SIZE	DWG. NO.	REV
A	TE-20003	
SCALE: 1:32	WEIGHT:	SHEET 8 OF 16

B

B



Notes:

1. Attach (9) to upper frame assembly with 1.25" wood screws.
2. Attach (8) to (9) and upper back assembly with 50lb Cable ties.

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		MATERIAL		ENG APPR.		
		NEXT ASSY		MFG APPR.		
		USED ON		Q.A.		
		FINISH		COMMENTS:		
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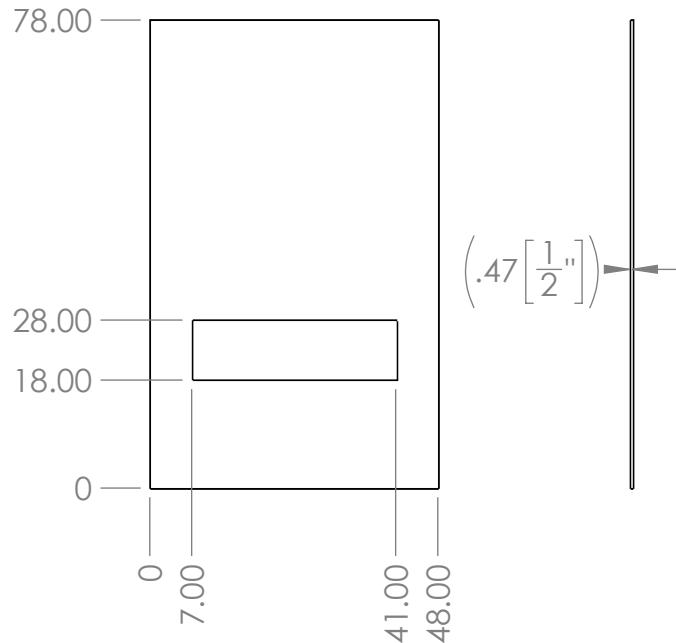
TITLE:

TE Power Port

SIZE	DWG. NO.	REV
A	TE-20003	
SCALE: 1:32	WEIGHT:	SHEET 9 OF 16

2

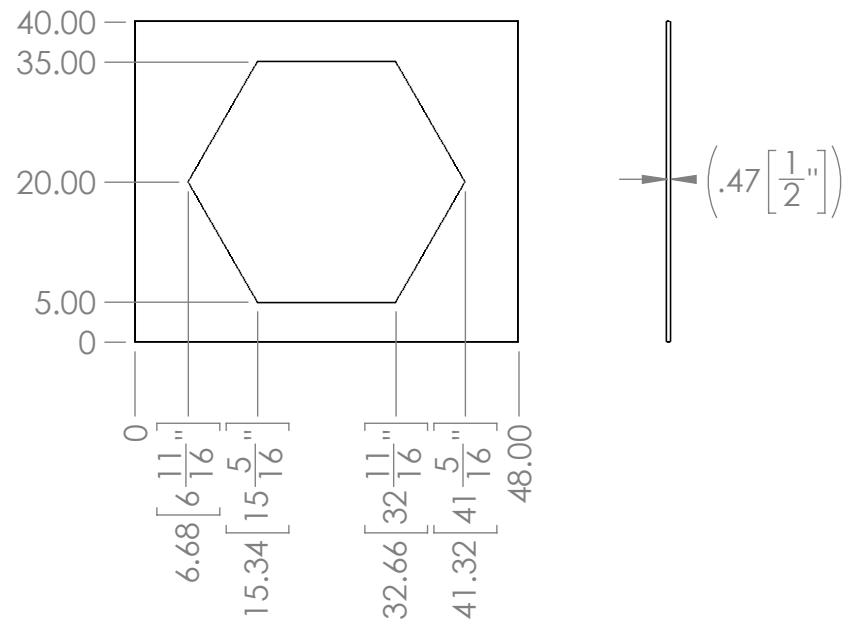
TE-20003-01
QTY (1)



Notes:
1. Material: 15/32 (1/2") AC or CDX Plywood

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TE-20003-02
QTY (1)



Notes:
1. Material: 15/32 (1/2") AC or CDX Plywood



TITLE:

TE Power Port

SIZE	DWG. NO.	REV
A	TE-20003	
SCALE: 1:32	WEIGHT:	SHEET 10 OF 16

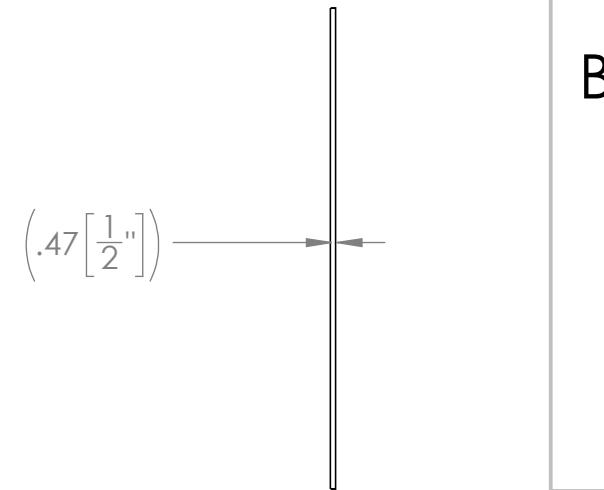
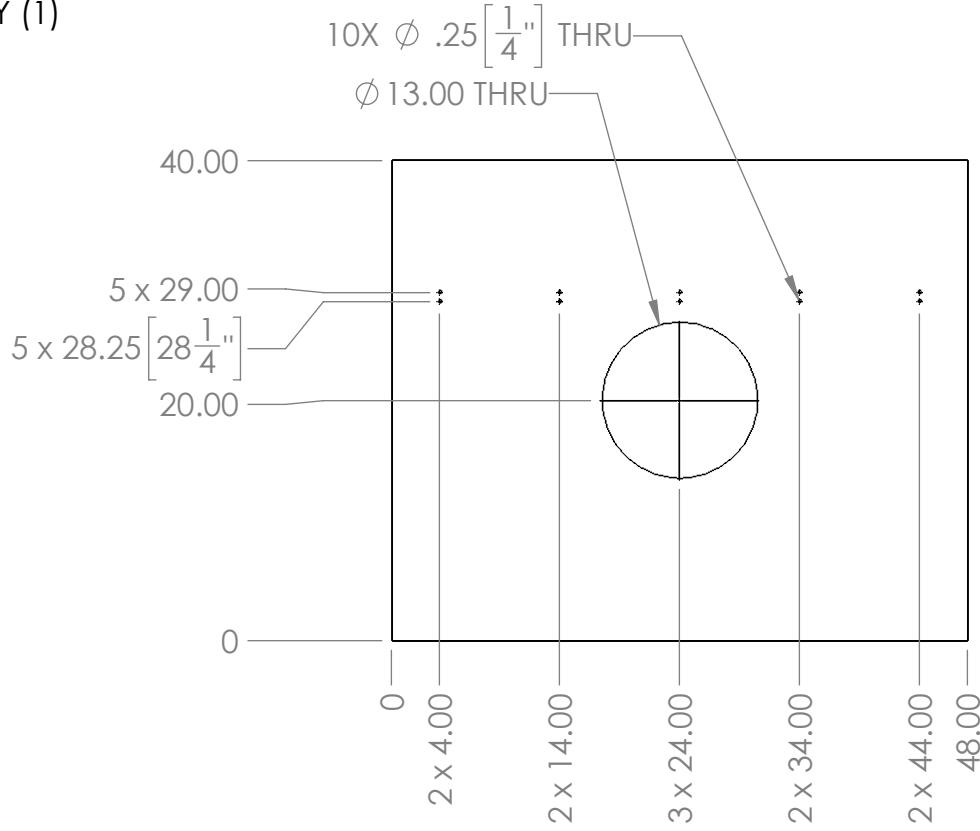
2

1

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1

TE-20003-03
QTY (1)



Notes:

- Material: 15/32 (1/2") AC or CDX Plywood
- 10X Ø .25 [1/4"] THRU optional if adding deflector

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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						
		INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL		CHECKED	ENG APPR.	MFG APPR.		
NEXT ASSY	USED ON	FINISH						
APPLICATION		DO NOT SCALE DRAWING		COMMENTS:				
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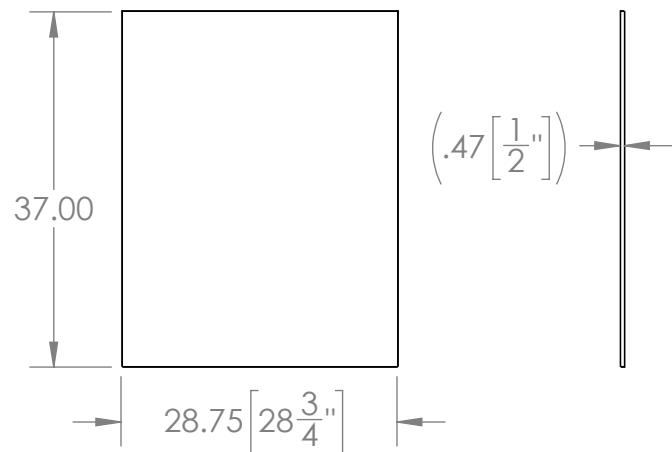
SIZE DWG. NO. REV
A TE-20003
SCALE: 1:32 WEIGHT: SHEET 11 OF 16

2

1

2

TE-20003-07
QTY (4)

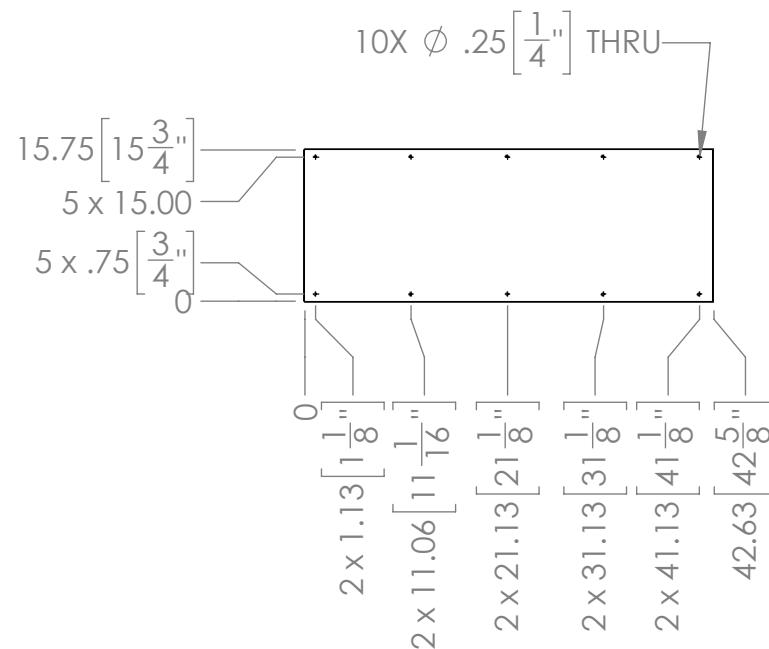


Notes:

1. Material: 15/32 (1/2") AC or CDX Plywood

1

TE-20003-08
QTY (1)



Notes:

1. Material: 15/32 (1/2") AC or CDX Plywood
2. This is an optional part

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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				
NEXT ASSY	USED ON	FINISH				
APPLICATION		DO NOT SCALE DRAWING				



SOLIDWORKS
Modeling Solutions Partner

TITLE:

TE Power Port

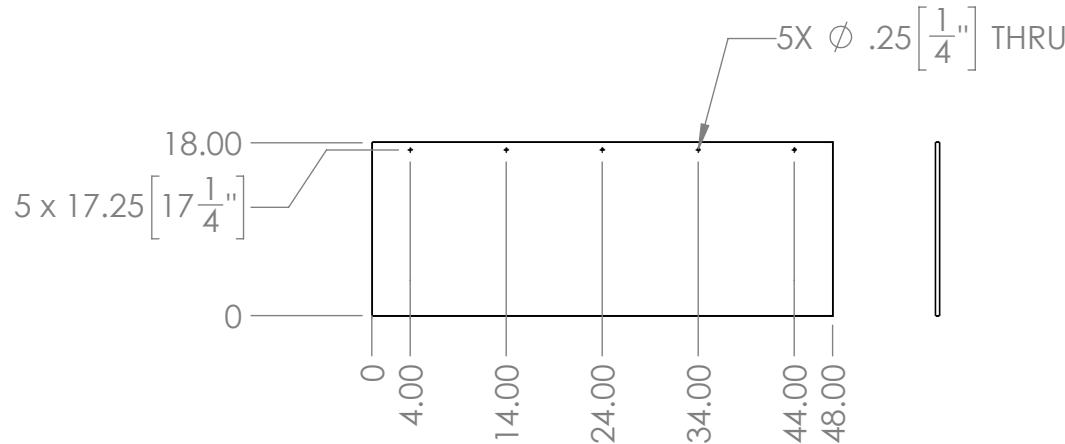
SIZE	DWG. NO.	REV
A	TE-20003	
SCALE: 1:32	WEIGHT:	SHEET 12 OF 16

2

1

2

TE-20003-09
QTY (1)



- Notes:
1. Material: 15/32 (1/2") AC or CDX Plywood
 2. This is an optional part

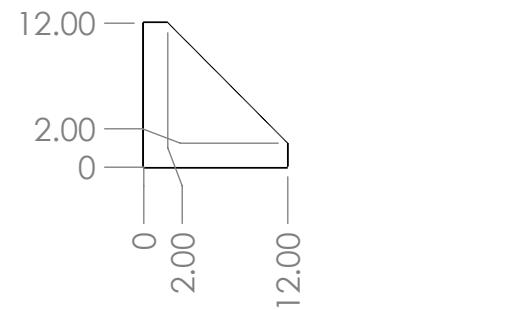
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		DIMENSIONS ARE IN INCHES	DRAWN		
		TOLERANCES:	CHECKED		
		FRACTIONAL $\pm 1/16$	ENG APPR.		
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.		
		TWO PLACE DECIMAL $\pm .01$	Q.A.		
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:		
		INTERPRET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

2

1

TE-20003-10
QTY (4)



- Notes:
1. Material: 15/32 (1/2") AC or CDX Plywood



TITLE:

TE Power Port

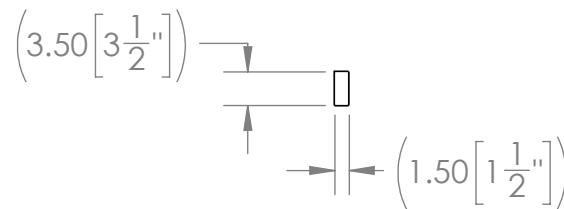
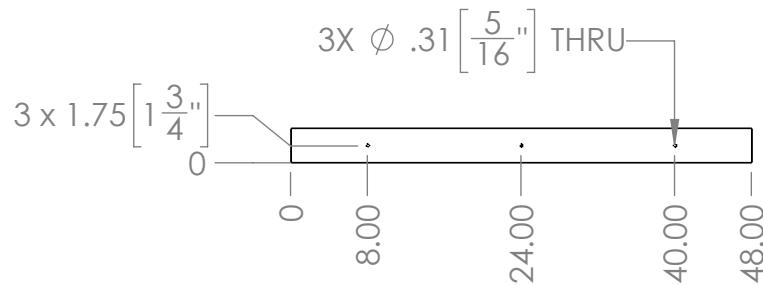
SIZE	DWG. NO.	REV
A	TE-20003	
SCALE: 1:32	WEIGHT:	SHEET 13 OF 16

1

B

A

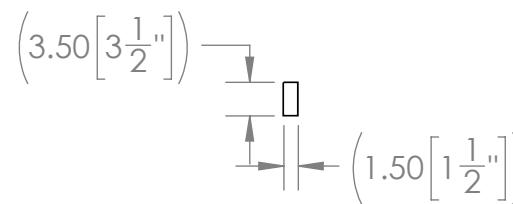
TE-20003-04
QTY (8)



Notes:

1. 2x4" Pine Lumber

TE-20003-05
QTY (4)



Notes:

1. 2x4" Pine Lumber

		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			

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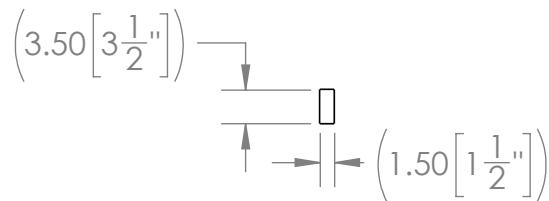
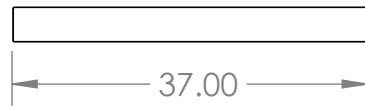


TITLE:

TE Power Port

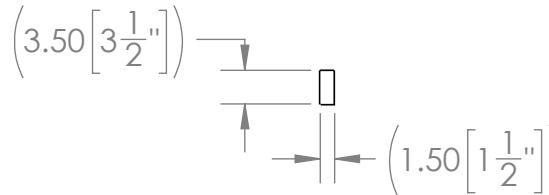
SIZE	DWG. NO.	REV
A	TE-20003	
SCALE: 1:32	WEIGHT:	SHEET 14 OF 16

TE-20003-06
QTY (4)



Notes:
1. 2x4" Pine Lumber

TE-20003-11
QTY (2)



Notes:
1. 2x4" Pine Lumber

		UNLESS OTHERWISE SPECIFIED:				
		DIMENSIONS ARE IN INCHES		DRAWN	NAME	DATE
		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				

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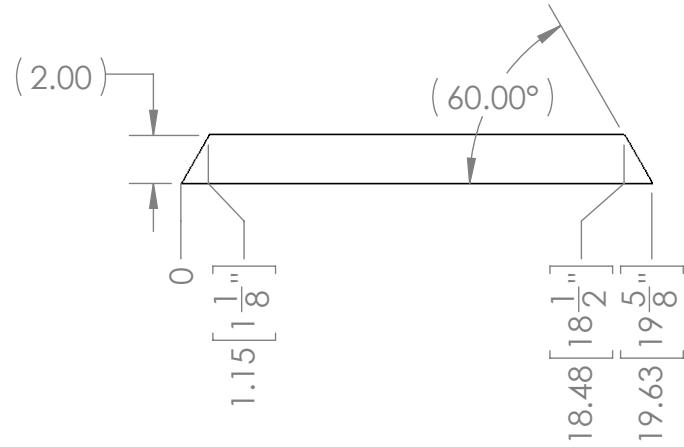


TITLE:

TE Power Port

SIZE	DWG. NO.	REV
A	TE-20003	
SCALE: 1:32	WEIGHT:	SHEET 15 OF 16

Vision_PowerPort
QTY (3)



Notes:

1. 2" Wide, 3M 8830 Scotchlite Reflective Material

Hook_2_48
QTY (2)



Notes:

1. 2" wide Hook

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		MATERIAL	ENG APPR.		
			MFG APPR.		
			Q.A.		
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NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			



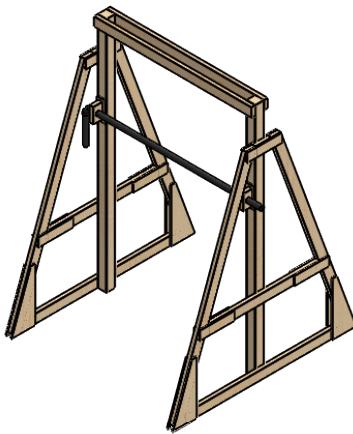
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TITLE:

TE Power Port

SIZE	DWG. NO.	REV
A	TE-20003	
SCALE: 1:32	WEIGHT:	SHEET 16 OF 16

Rung: Horizontal



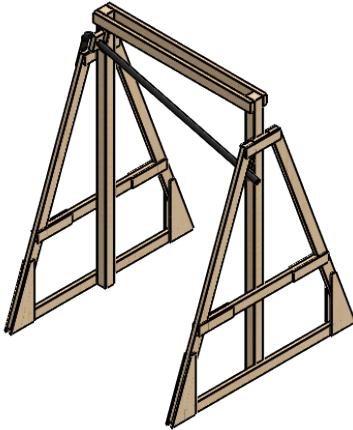
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, 2- B1, 4- A2	A	REFORMATTED SHEET 1, ADDED 4" X 4" X 8' TO MATERIAL LIST ON SHEET 2, UPDATED PART NO. ON SHEET 4.	1/5/2020	KAMC

Notes:

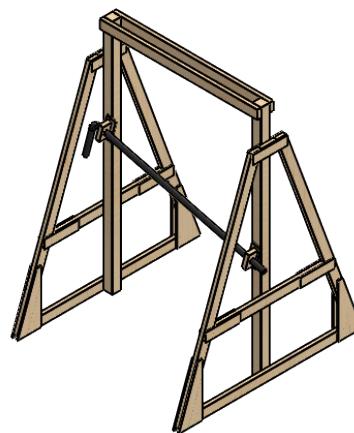
1. This drawing provides information on how to make each of the 5 configurations shown. Configurations can be combined such that only 1 final assembly needs to be created.
2. Bill of Materials are provided per configuration.
3. General material list is provided on 2.
4. Only sheets impacted by revisions have revision tables. Not all revision tables are at the top right of the sheet.

A

Rung: Hard Stop, Max



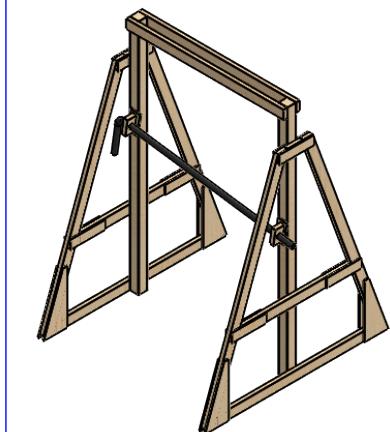
Rung: Hard Stop, Min



Rung: Level Range, Max



Rung: Level Range, Min



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		INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL	CHECKED		
NEXT ASSY	USED ON	FINISH	ENG APPR.		
APPLICATION		DO NOT SCALE DRAWING	MFG APPR.		
COMMENTS:					
SIZE	DWG. NO.		REV		
A	TE-20005		A		
SCALE: 1:54			WEIGHT:	SHEET 1 OF 25	

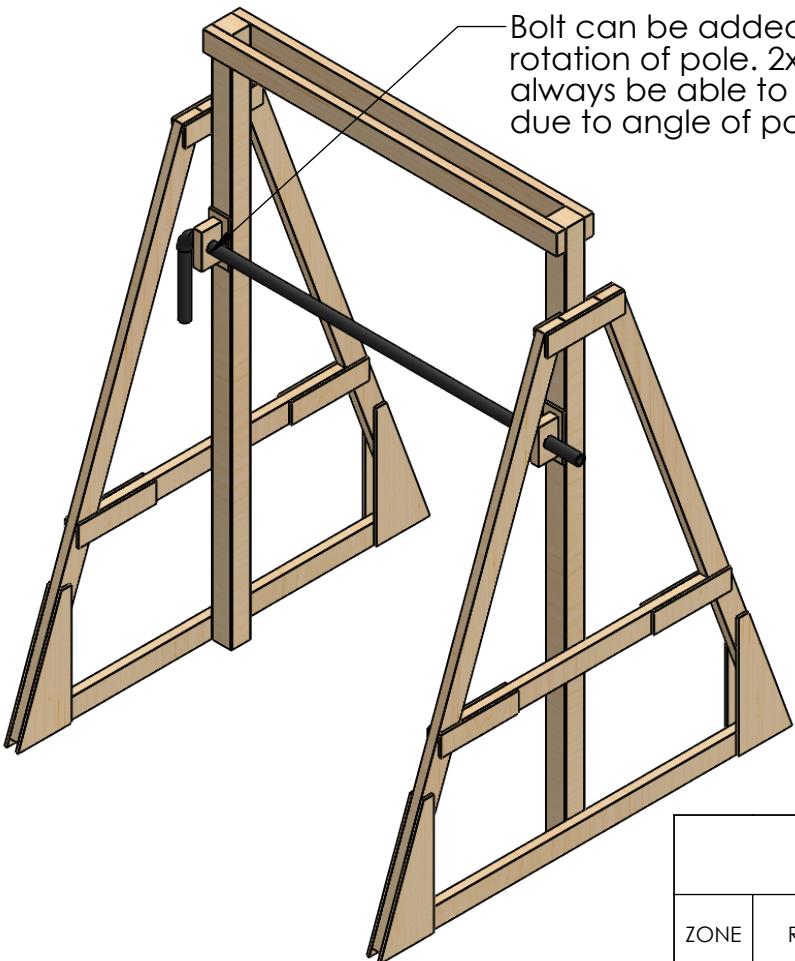
**FIRST
ROBOTICS
COMPETITION**
SOLIDWORKS
Modeling Solutions Partner

TITLE:

Generator Switch Modified

SIZE DWG. NO. REV
A **TE-20005** **A**
SCALE: 1:54 WEIGHT: SHEET 1 OF 25

2



1

Material	Qty
2" x 4" x 8'	9
1/2" Plywood	2
1-1/4" Schedule 40 Black Iron Pipe	1
1-1/4" Black Iron Elbow, 90 deg.	1
1/4-20 x 3.5" Hex Head Bolt	2
1/4-20 TeeNut	10
2.5" Screws	~50
1.5" Screws	~50
4" x 4" x 8'	2

A

REVISIONS

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

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		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			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

TITLE:

Generator Switch Modified

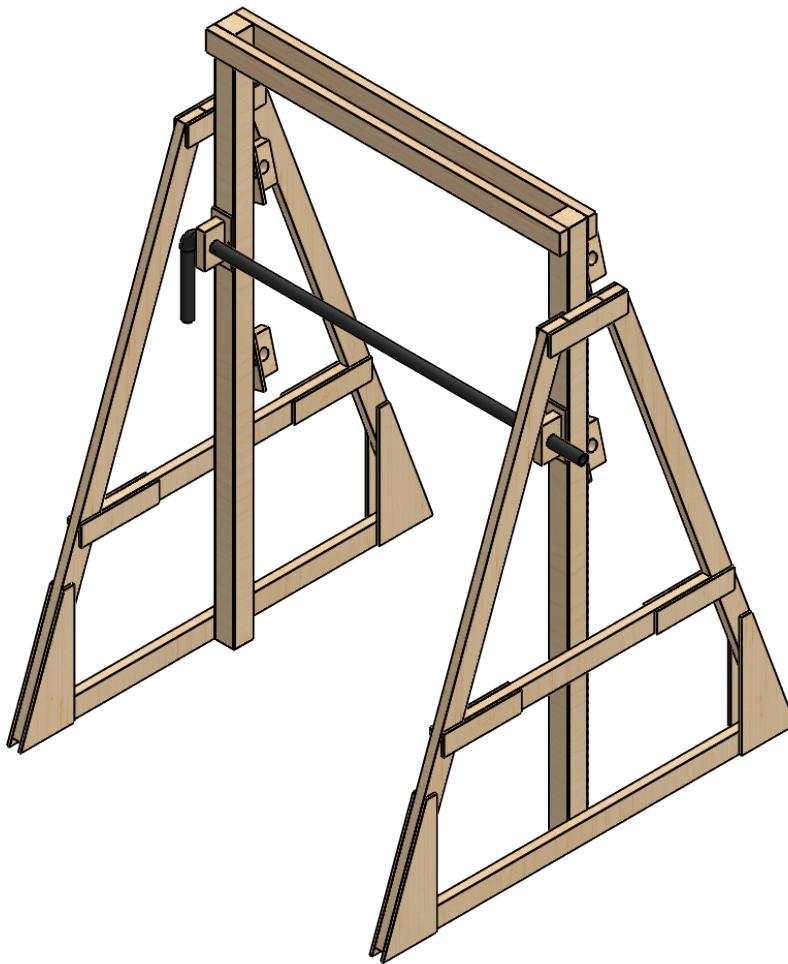
SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:24	WEIGHT:	SHEET 2 OF 25

2

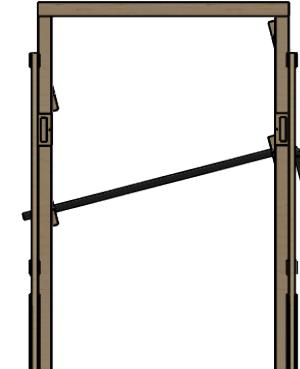
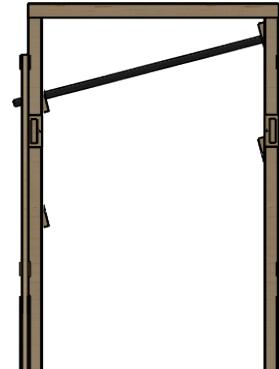
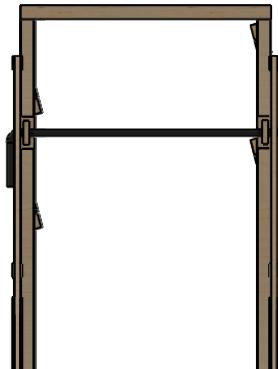
1

2

Recommended Build:



1



B

B

Notes:

1. The recommended build includes Level Horizontal, Hard Stop Max, and Hard Stop Min. Instructions for Level Max and Level Min are also included.

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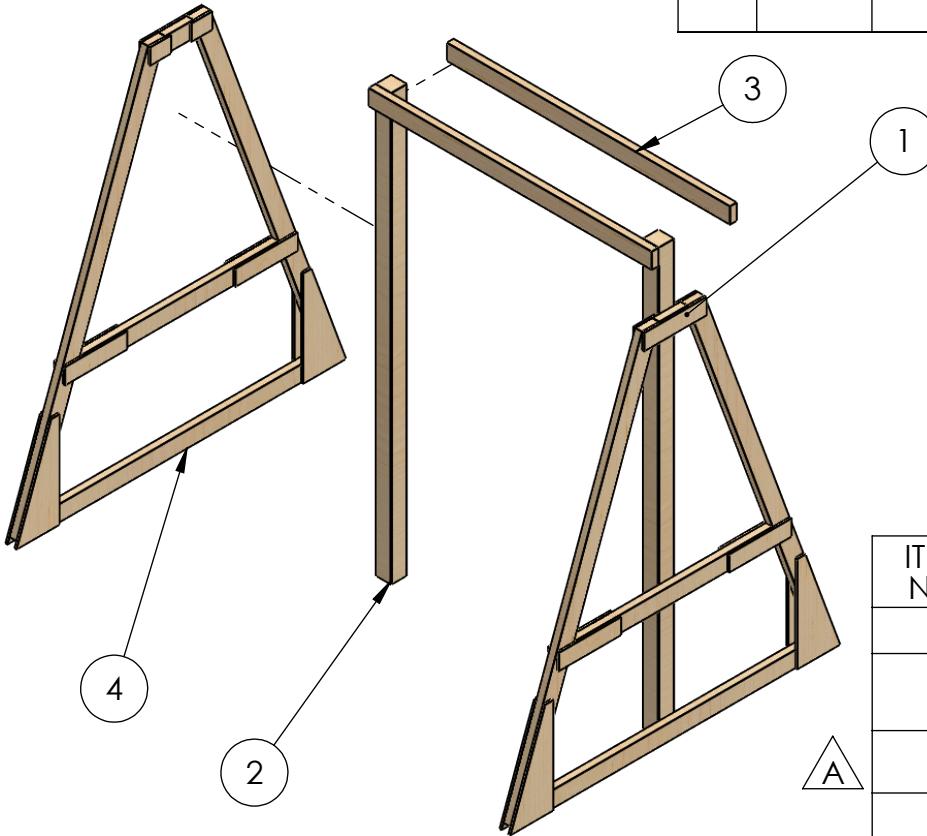
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		FRACTIONAL $\pm 1/16$	ENG APPR.		
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.		
		TWO PLACE DECIMAL $\pm .01$	Q.A.		
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
NEXT ASSY	USED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

SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:24	WEIGHT:	SHEET 3 OF 25

2

1

Basic Frame



REVISIONS

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

Notes:

1. Details on placing pole mounts on (2) are found on following sheets. We recommend assembling pole mounts to (2) before installing (2) in the Basic Frame Assembly.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	TE-20005-02	Top Support, Full	2
2	TE-20005-09	Vertical Leg, Level, Horizontal, Side A	2
3	TE-20005-10	Cross Support	2
4	TE-20005-20	A Frame Assembly	2

		UNLESS OTHERWISE SPECIFIED:	DRAWN CHECKED ENG APPR. MFG APPR. Q.A.	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 $\pm .001$			
		INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL	COMMENTS:		
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			
SIZE		DWG. NO.	REV		
A		TE-20005	A		
SCALE: 1:30		WEIGHT:	SHEET 4 OF 25		

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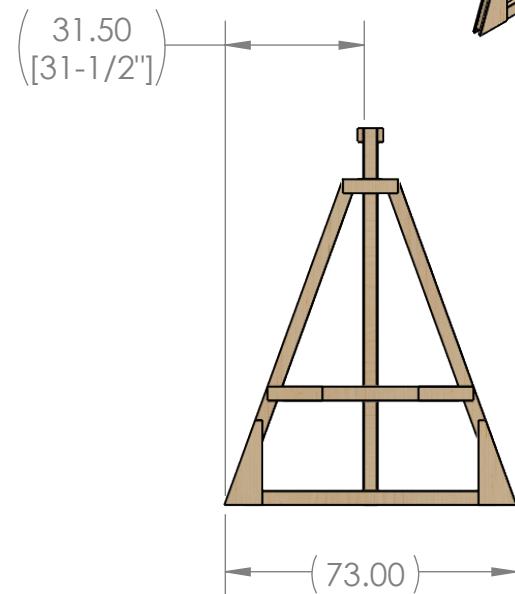
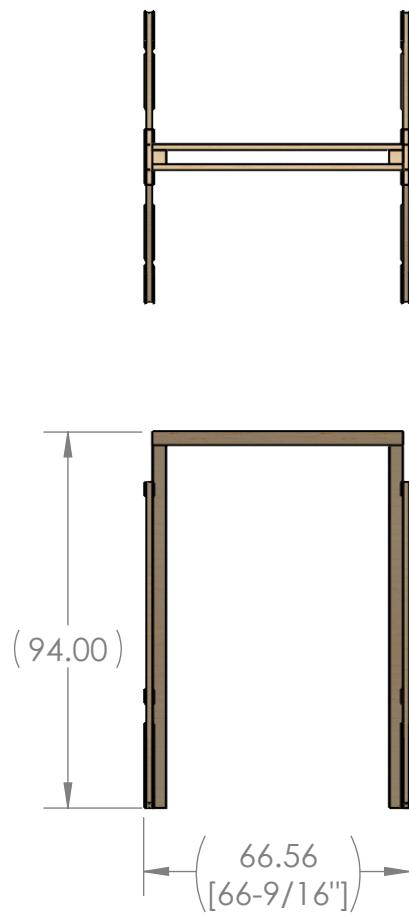
TITLE:

Generator
Switch Modified

2

1

Basic Frame



1

2

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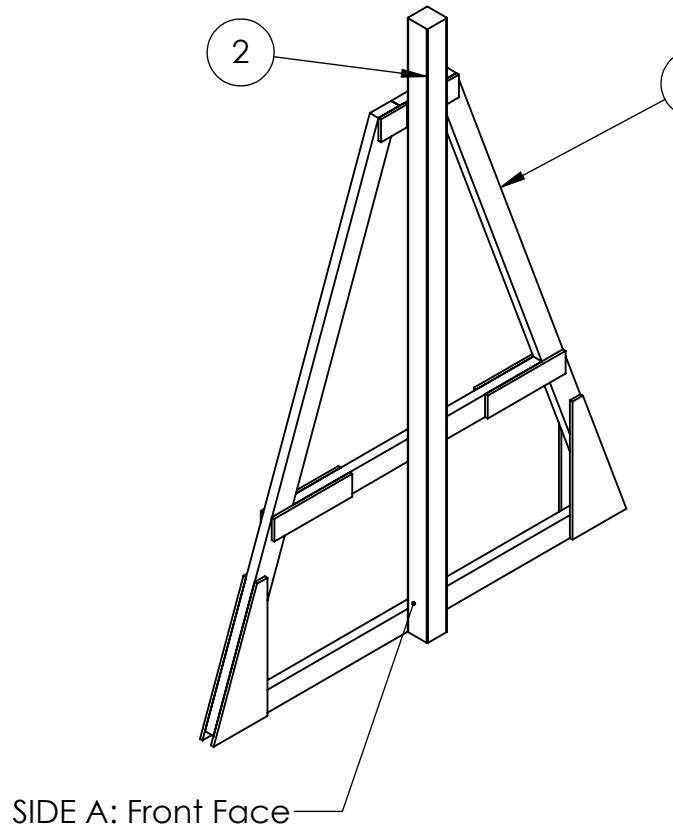
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		TOLERANCES:	CHECKED		
		FRACTIONAL $\pm 1/16$	ENG APPR.		
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$	MFG APPR.		
		TWO PLACE DECIMAL $\pm .01$	Q.A.		
		THREE PLACE DECIMAL $\pm .001$	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL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

SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:48	WEIGHT:	SHEET 5 OF 25

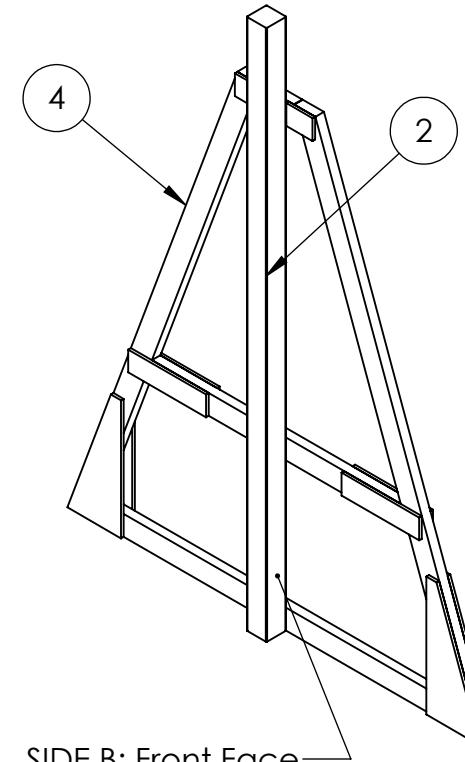
FIRST[®] ROBOTICS COMPETITION 
TITLE:
**Generator
Switch Modified**
SIZE DWG. NO. REV
A TE-20005 A
SCALE: 1:48 WEIGHT: SHEET 5 OF 25

2

Basic Frame
Step 1:
QTY 2:



1



Notes:

1. Attach (2) to (4) using 2.5" screws. Predrill as needed.
2. When adding (2), be sure orientation matches intended direction (i.e. Front Face of A matches Front Face of B).

		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			

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SOLIDWORKS Modeling Solutions Partner		
SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:24	WEIGHT:	SHEET 6 OF 25

2

1

2

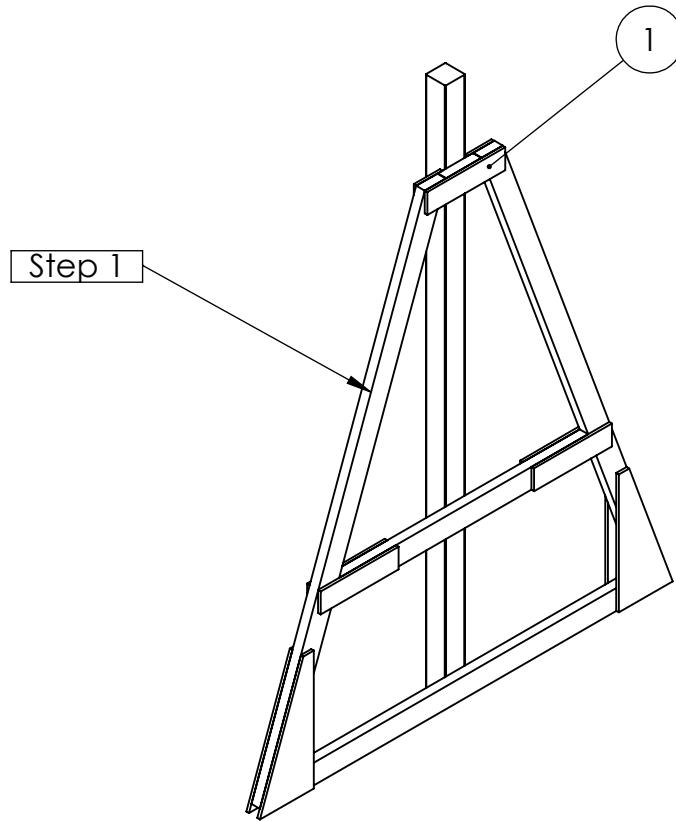
1

Basic Frame

Step 2: QTY 2:

B

B



Notes:

1. Attach (1) to Step 1 using 1.5" and 2.5" screws.

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

NAME	DATE	 FIRST ROBOTICS COMPETITION	 SOLIDWORKS Modeling Solutions Partner
TITLE:			
<h1>Generator Switch Modified</h1>			
SIZE	DWG. NO.	REV	
A	TE-20005	A	
SCALE: 1:24		WEIGHT:	SHEET 7 OF 25

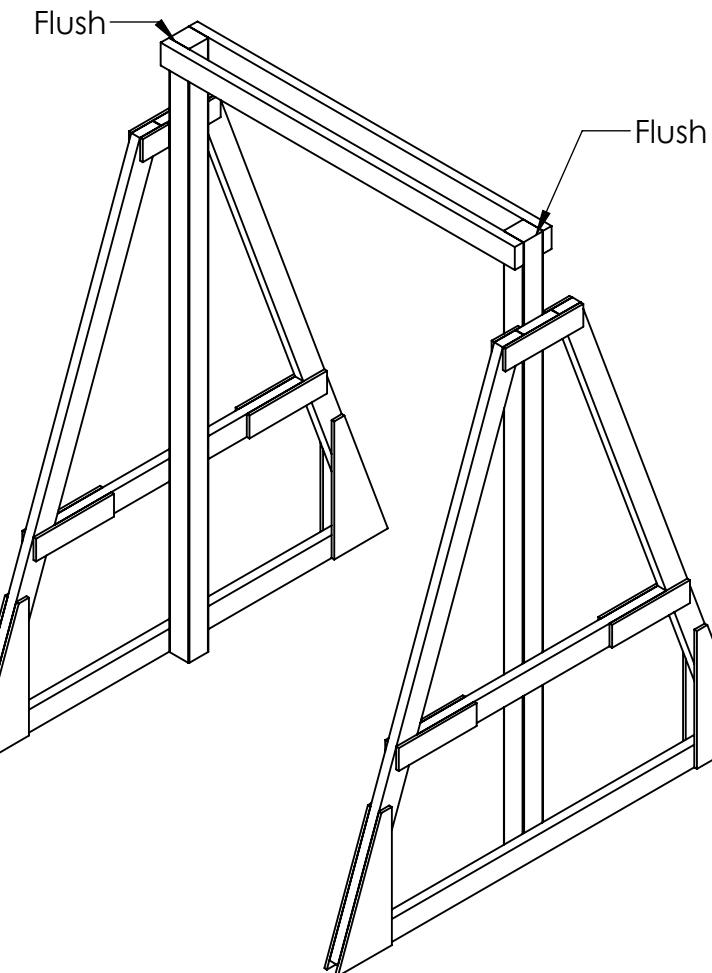
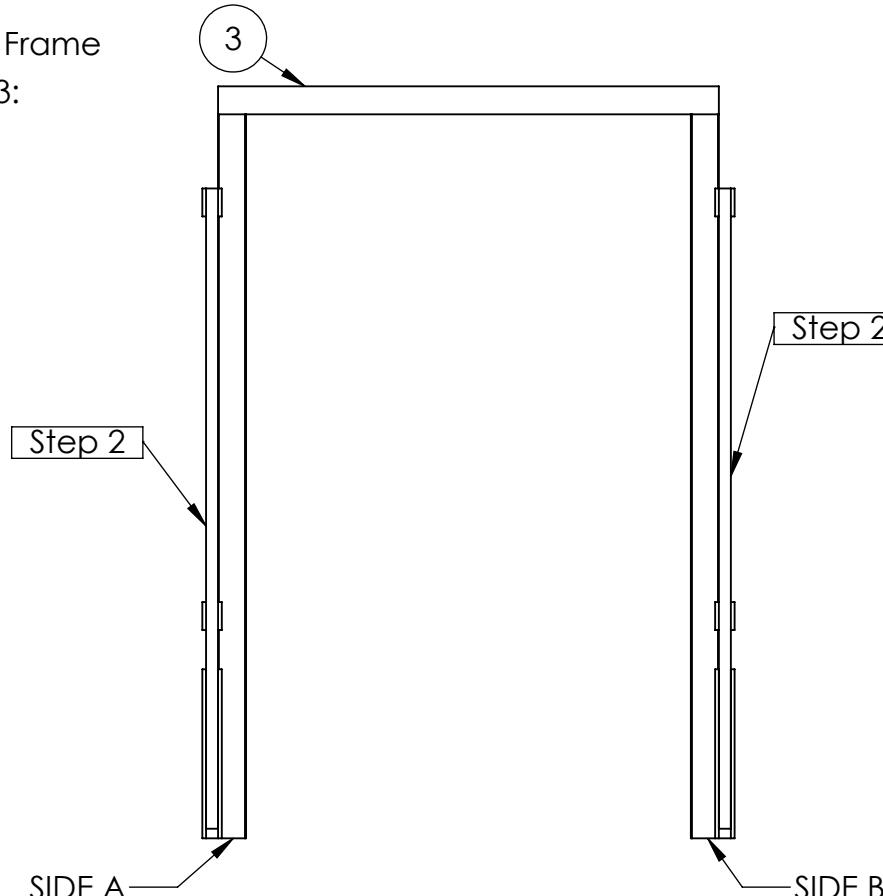
2

1

2

1

Basic Frame
Step 3:



Notes:

1. Attach Step 2 and Step 2 to 3 using 2.5" screws.
2. Repeat.

		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					

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 FIRST
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TITLE:

Generator
Switch Modified

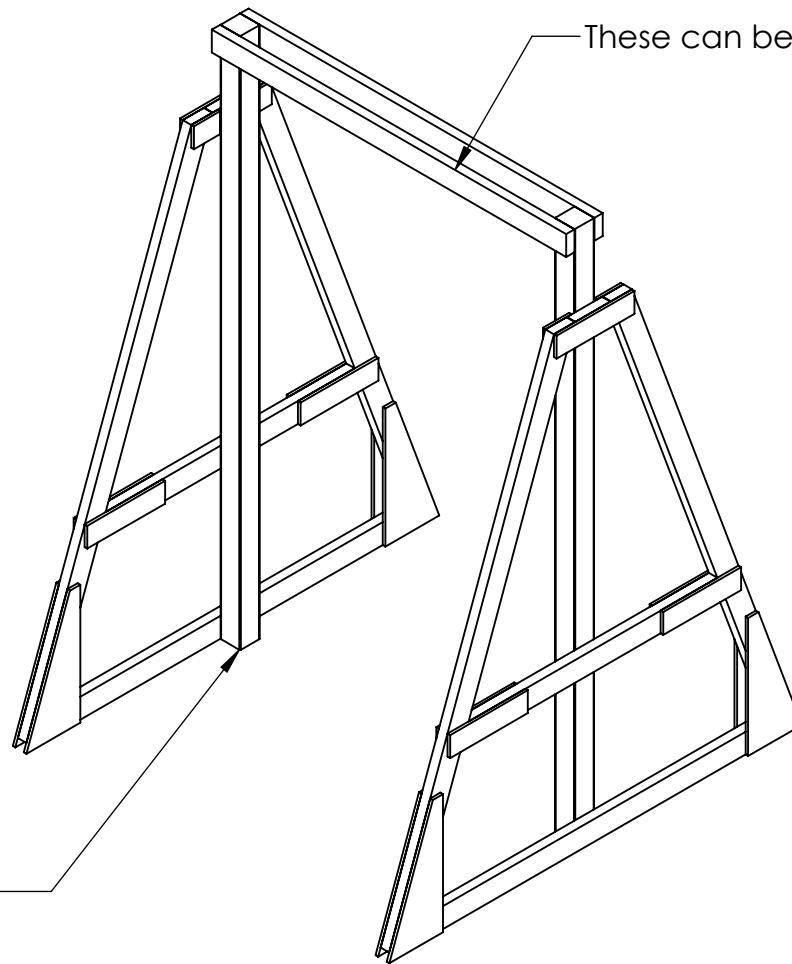
SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:24		WEIGHT:
SHEET 8 OF 25		

2

1

Basic Frame

Optional



If needed, assembly
can be mounted to a
plywood for floor
protection.

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		DIMENSIONS ARE IN INCHES					
		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:

Generator Switch Modified

SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:24	WEIGHT:	SHEET 9 OF 25

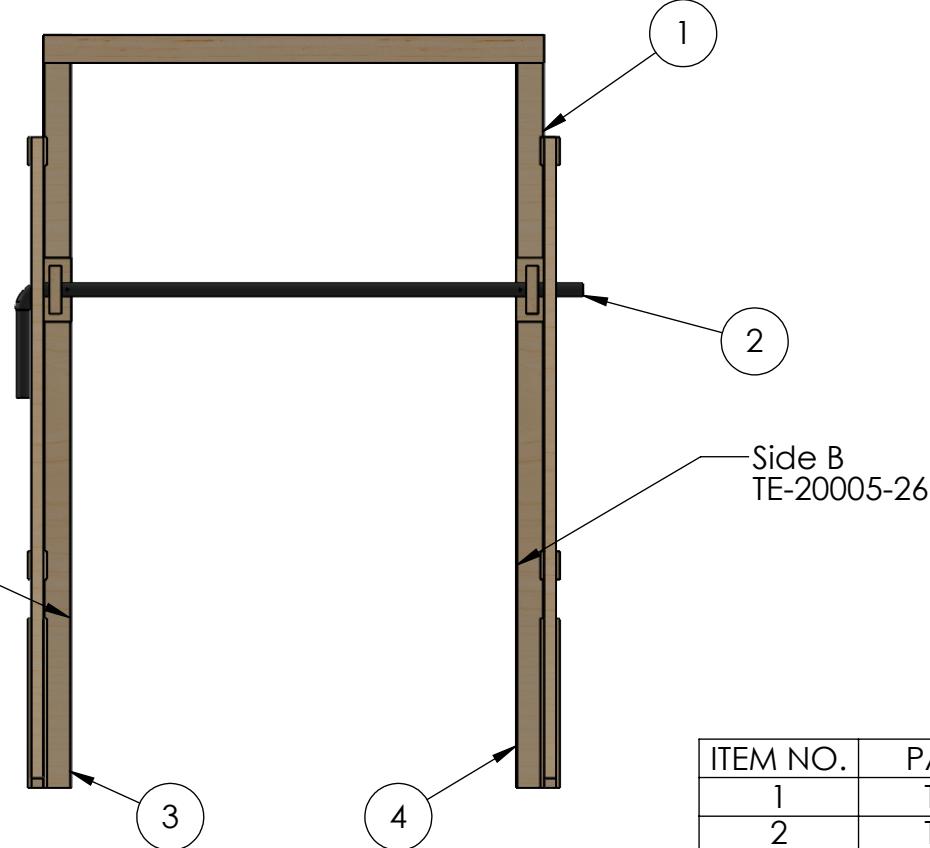
2

1

Level, Horizontal

Side A

TE-20005-25



Note:

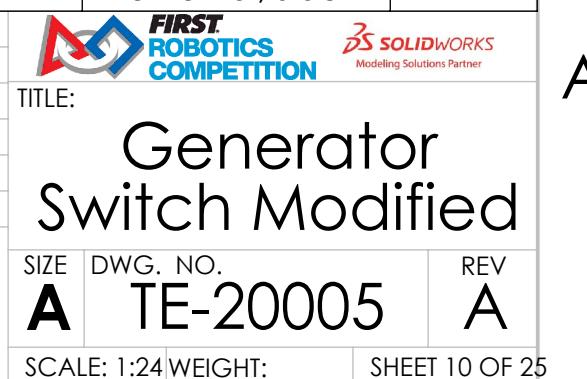
1. TE-20005-25 contains 1x TE-20005-09 & 1x TE-20005-22
2. TE-20005-26 contains 1x TE-20005-09 & 1x TE-20005-22

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-20005-21	Basic Frame	1
2	TE-20005-23	Pipe Assembly	1
3	TE-20005-25	Vertical Leg, Level, Horizontal, Side A	1
4	TE-20005-26	Vertical Leg, Level, Horizontal, Side B	1

		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			

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SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:24	WEIGHT:	SHEET 10 OF 25



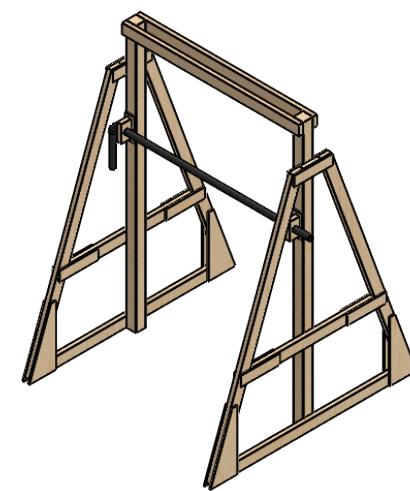
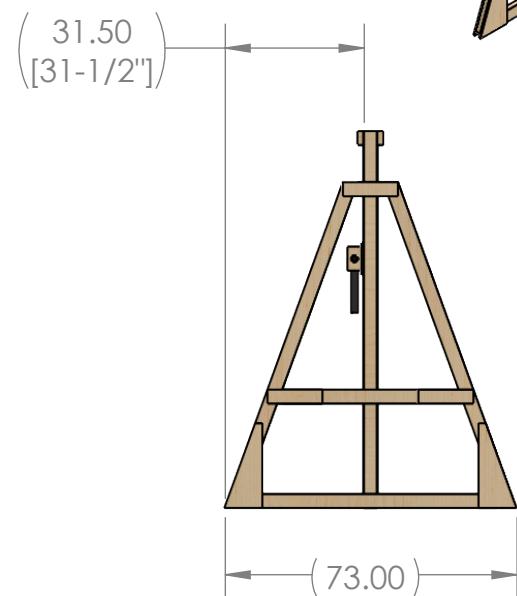
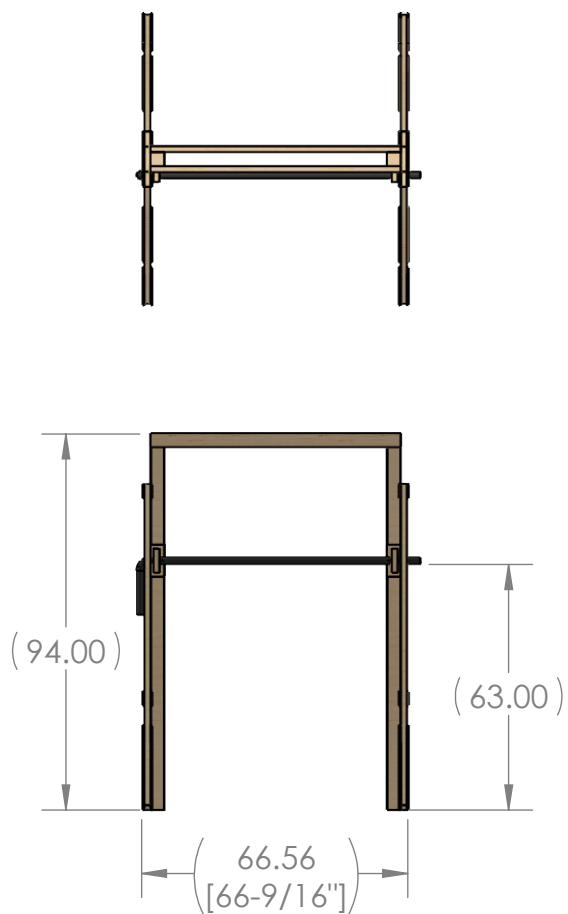
1

2

2

1

Level, Horizontal



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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			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

 **FIRST[®]
ROBOTICS
COMPETITION** 
Modeling Solutions Partner

TITLE:

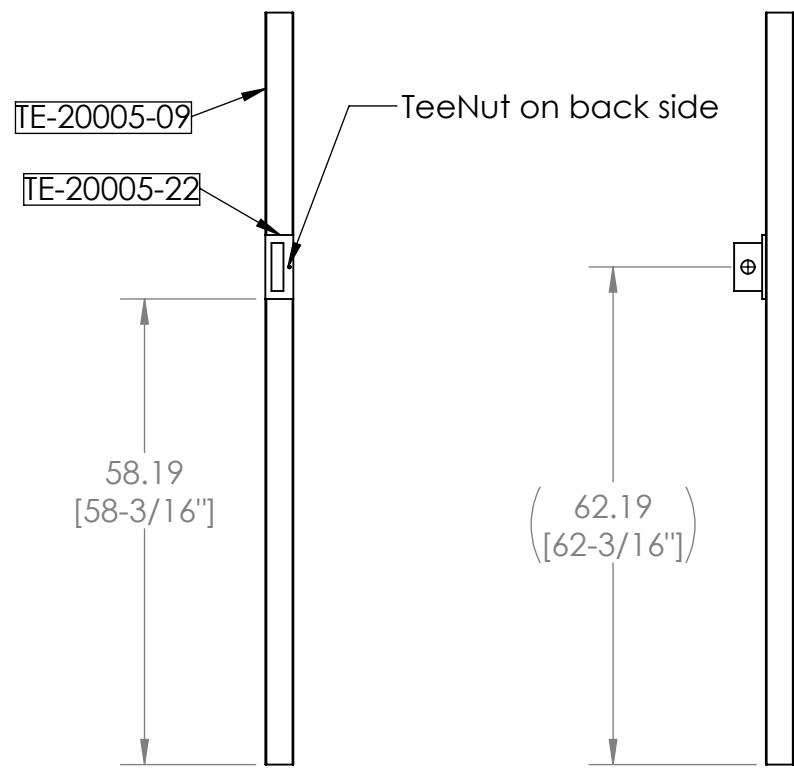
Generator Switch Modified

SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:48	WEIGHT:	SHEET 11 OF 25

2

1

Level, Horizontal
TE-20005-25

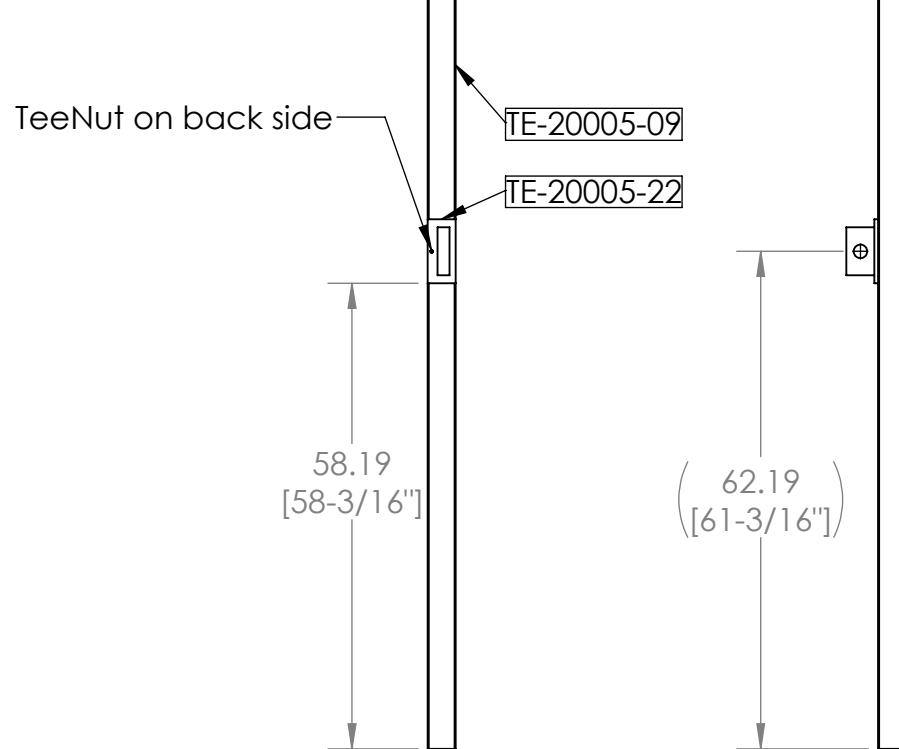


Notes:

1. Attach **TE-20005-22** to **TE-20005-09** as shown using 2.5" screws. Predrill as needed.

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Level, Horizontal
TE-20005-26



Notes:

1. Attach **TE-20005-22** to **TE-20005-09** as shown using 2.5" screws. Predrill as needed.

		UNLESS OTHERWISE SPECIFIED:					
		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	NAME	DATE
		INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL			CHECKED		
NEXT ASSY	USED ON	FINISH			MFG APPR.		
APPLICATION		DO NOT SCALE DRAWING			Q.A.	COMMENTS:	



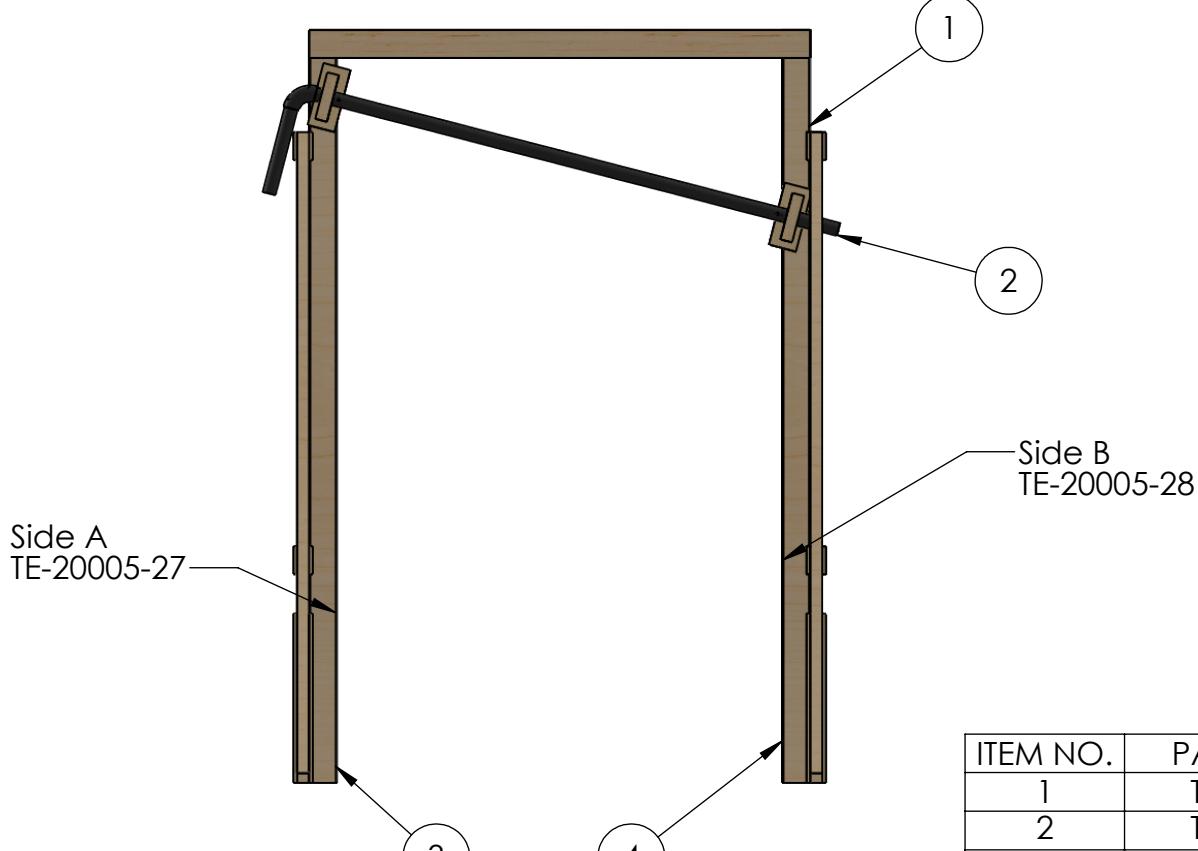
TITLE:

SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:24	WEIGHT:	SHEET 12 OF 25

2

1

Hard Stop, Max



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-20005-21	Basic Frame	1
2	TE-20005-23	Pipe Assembly	1
3	TE-20005-27	Vertical Leg, Hard Stop, Max, Side A	1
4	TE-20005-28	Vertical Leg, Hard Stop, Max, Side B	1

		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			

SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:24	WEIGHT:	SHEET 13 OF 25

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SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:24	WEIGHT:	SHEET 13 OF 25

2

1

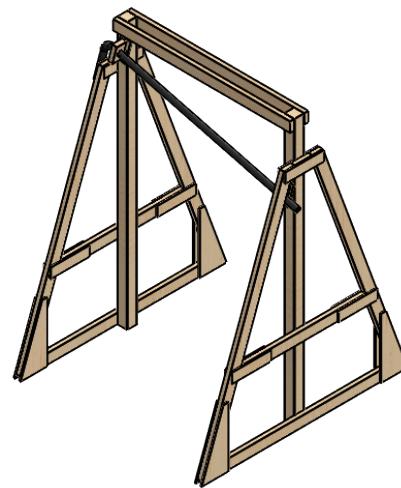
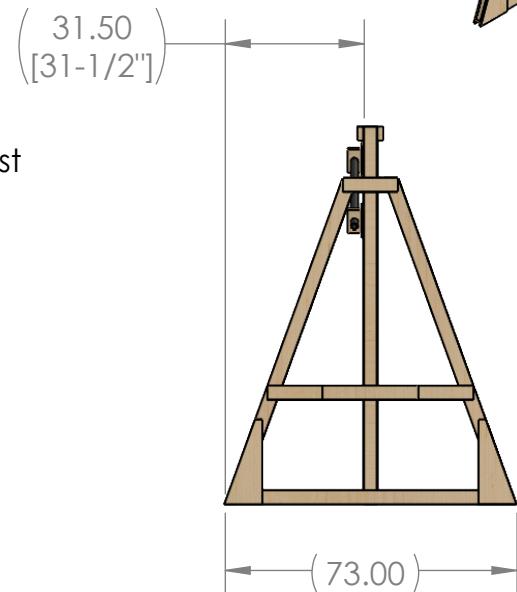
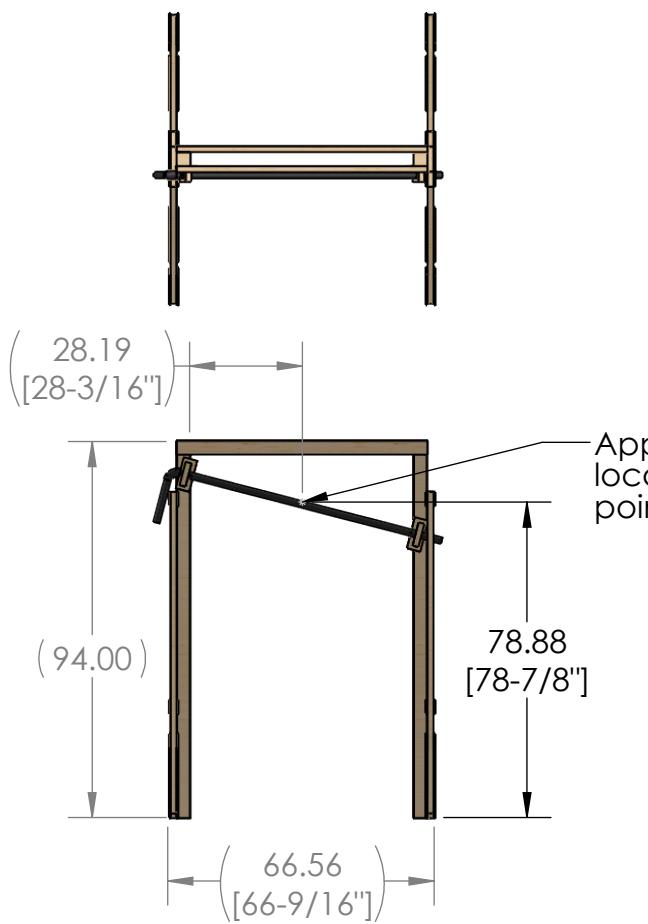
Generator Switch Modified

FIRST [®] ROBOTICS COMPETITION	SOLIDWORKS Modeling Solutions Partner
TITLE:	

2

1

Hard Stop, Max



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

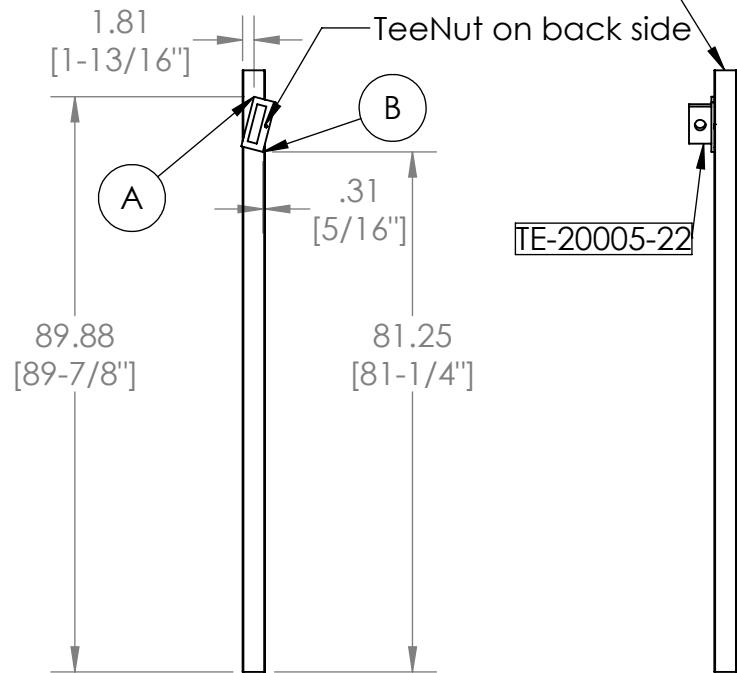
SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:48	WEIGHT:	SHEET 14 OF 25

FIRST[®] ROBOTICS COMPETITION 
Modeling Solutions Partner
TITLE: **Generator Switch Modified**
SIZE DWG. NO. REV
A TE-20005 A
SCALE: 1:48 WEIGHT: SHEET 14 OF 25

2

1

Hard Stop, Max
TE-20005-27

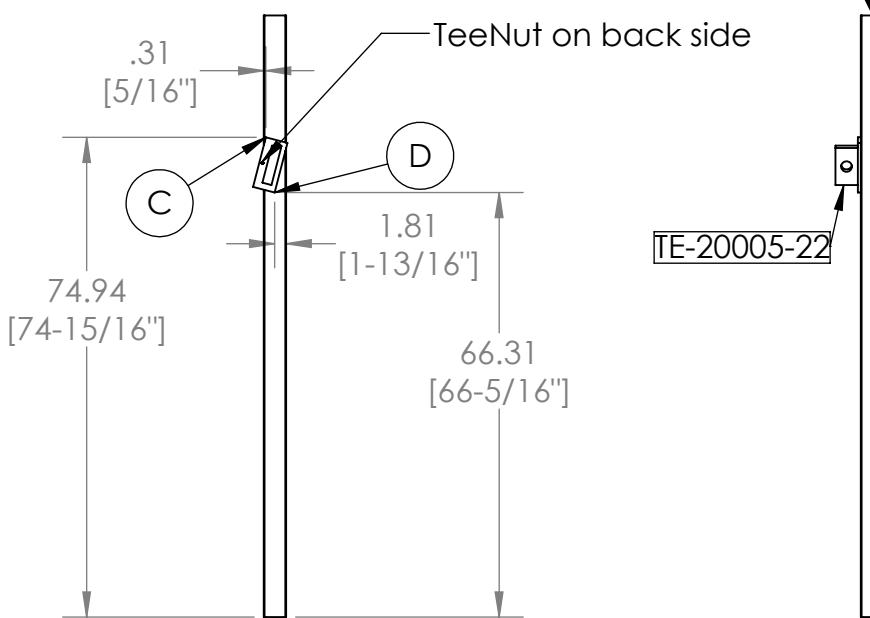


Notes:

1. Locate (A) and (B).
2. Align corners of TE-20005-22 with (A) and (B).
3. Attach TE-20005-22 to TE-20005-09 as shown using 2.5" screws. Predrill as needed.

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Hard Stop, Max
TE-20005-28



Notes:

1. Locate (C) and (D).
2. Align corners of TE-20005-22 with (C) and (D).
3. Attach TE-2005-22 to TE-20005-09 as shown using 2.5" screws. Predrill as needed.

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



SOLIDWORKS
Modeling Solutions Partner

TITLE:

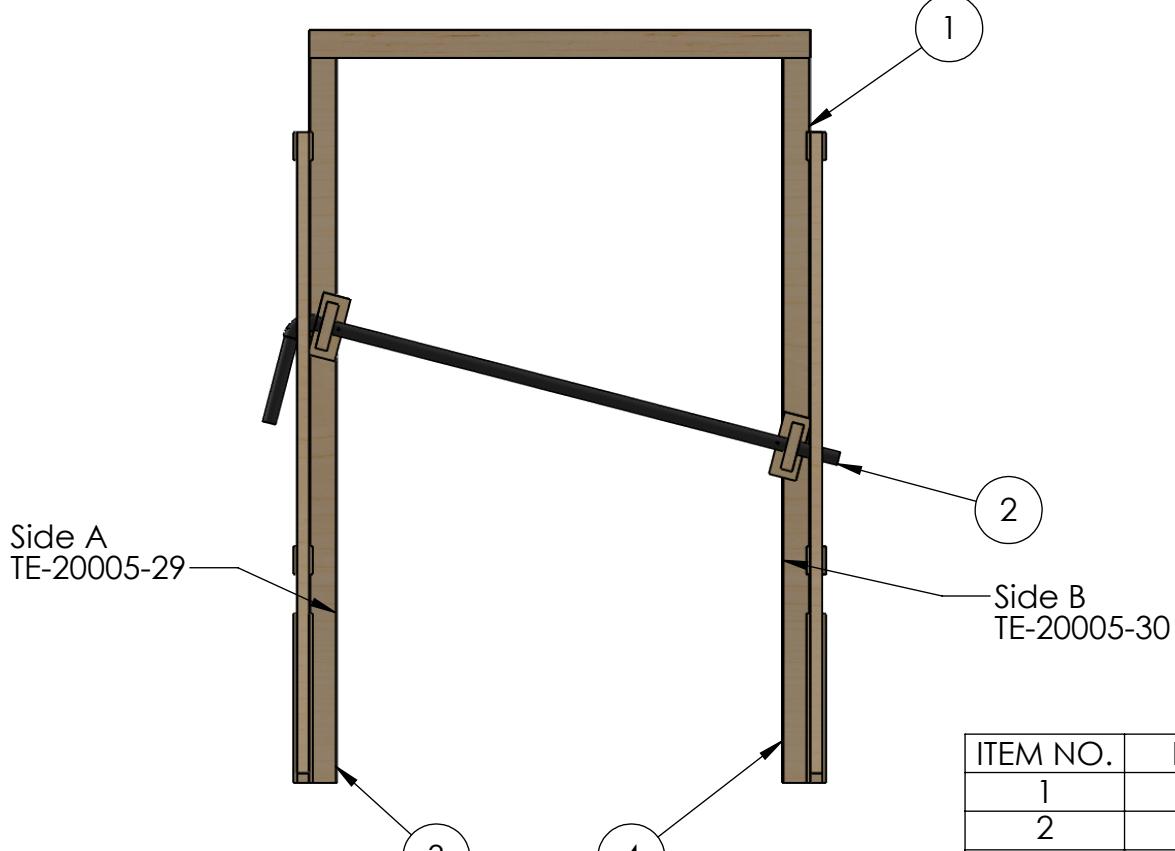
Generator Switch Modified

SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:30	WEIGHT:	SHEET 15 OF 25

2

1

Hard Stop, Min



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-20005-21	Basic Frame	1
2	TE-20005-23	Pipe Assembly	1
3	TE-20005-29	Vertical Leg, Hard Stop, Min, Side A	1
4	TE-20005-30	Vertical Leg, Hard Stop, Min, Side B	1

Note:

1. TE-20005-29 contains 1x TE-20005-09 & 1x TE-20005-22
2. TE-20005-30 contains 1x TE-20005-09 & 1x TE-20005-22

		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			



SOLIDWORKS
Modeling Solutions Partner

TITLE:

Generator Switch Modified

SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:24	WEIGHT:	SHEET 16 OF 25

2

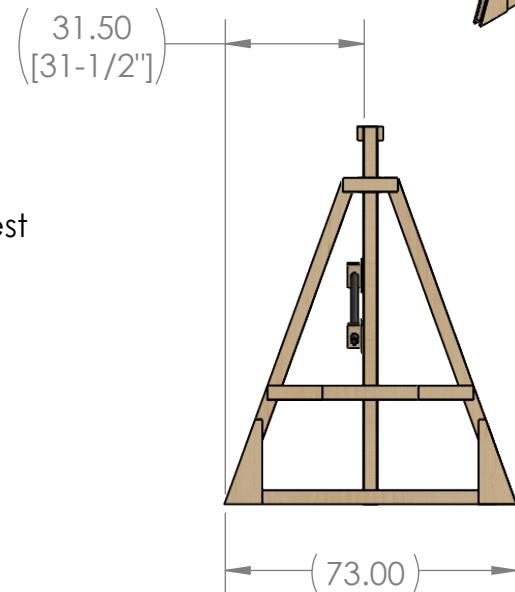
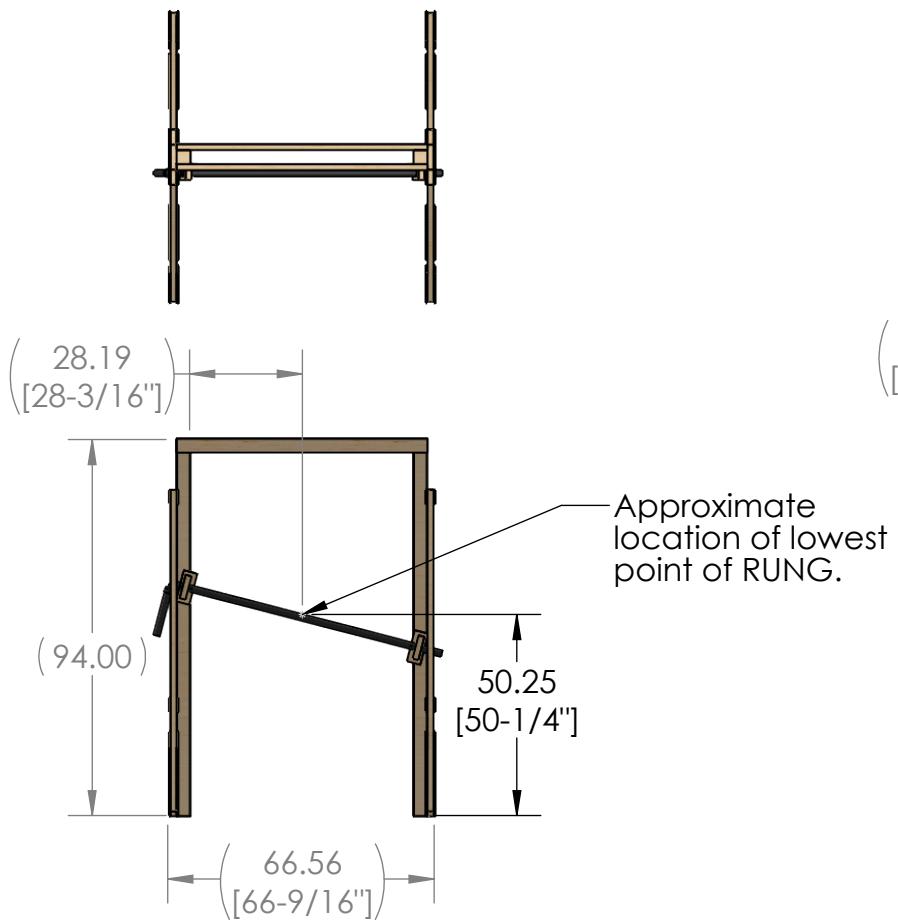
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2

1

Hard Stop, Min



1

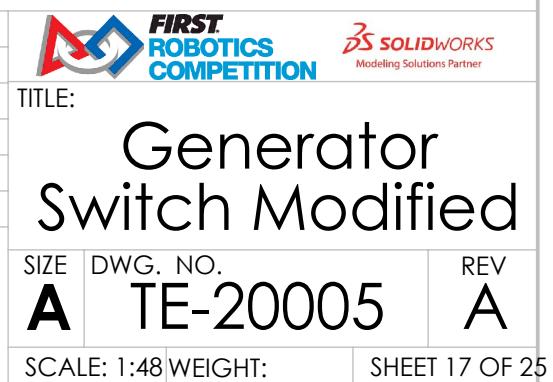
2

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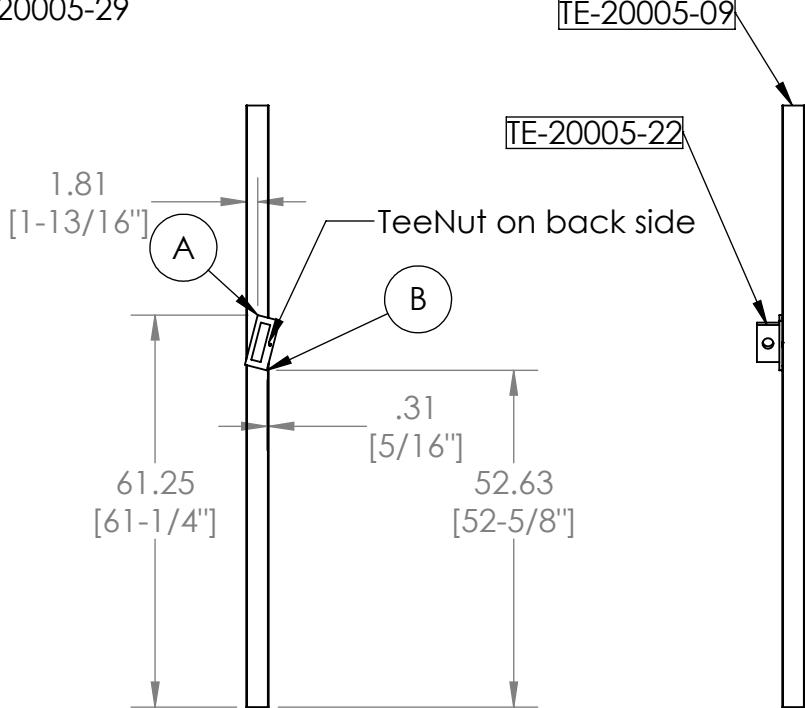
		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES			
		TOLERANCES:			
		FRACTIONAL $\pm 1/16$			
		ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$			
		TWO PLACE DECIMAL $\pm .01$			
		THREE PLACE DECIMAL $\pm .001$			
		INTERPRET GEOMETRIC			
		TOLERANCING PER:			
		MATERIAL			
NEXT ASSY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

DRAWN	
CHECKED	
ENG APPR.	
MFG APPR.	
Q.A.	
COMMENTS:	

SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:48	WEIGHT:	SHEET 17 OF 25



Hard Stop, Min
TE-20005-29

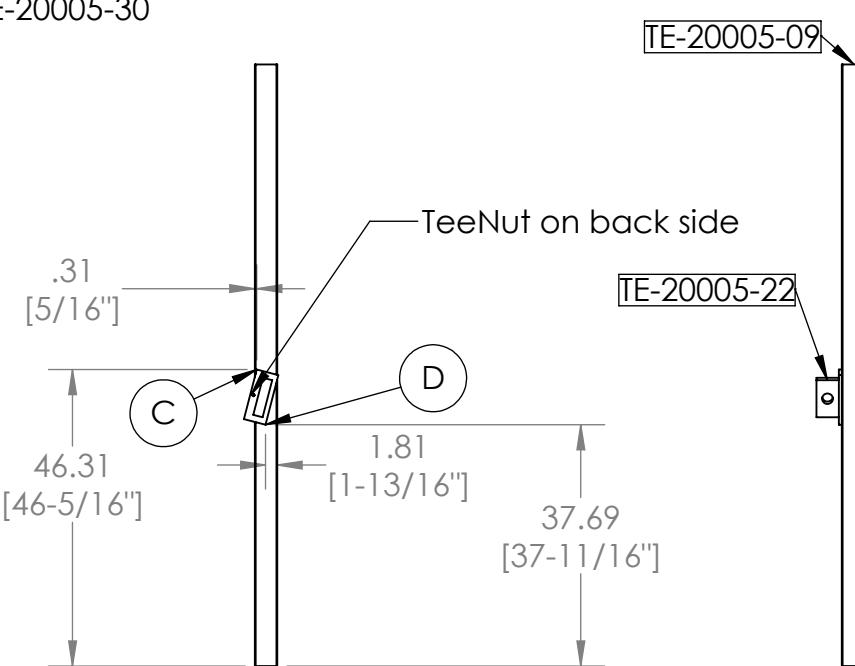


Notes:

1. Locate (A) and (B).
2. Align corners of TE-20005-22 with (A) and (B).
3. Attach TE-20005-22 to TE-20005-09 as shown using 2.5" screws. Predrill as needed.

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Hard Stop, Min
TE-20005-30



Notes:

1. Locate (C) and (D).
2. Align corners of TE-20005-22 with (C) and (D).
3. Attach TE-20005-22 to TE-20005-09 as shown using 2.5" screws. Predrill as needed.

		UNLESS OTHERWISE SPECIFIED:		DRAWN	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 $\pm .001$								
		INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL		COMMENTS:				
NEXT ASSY	USED ON	FINISH						
APPLICATION		DO NOT SCALE DRAWING						



SOLIDWORKS
Modeling Solutions Partner

TITLE:

Generator Switch Modified

SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:30	WEIGHT:	SHEET 18 OF 25

2

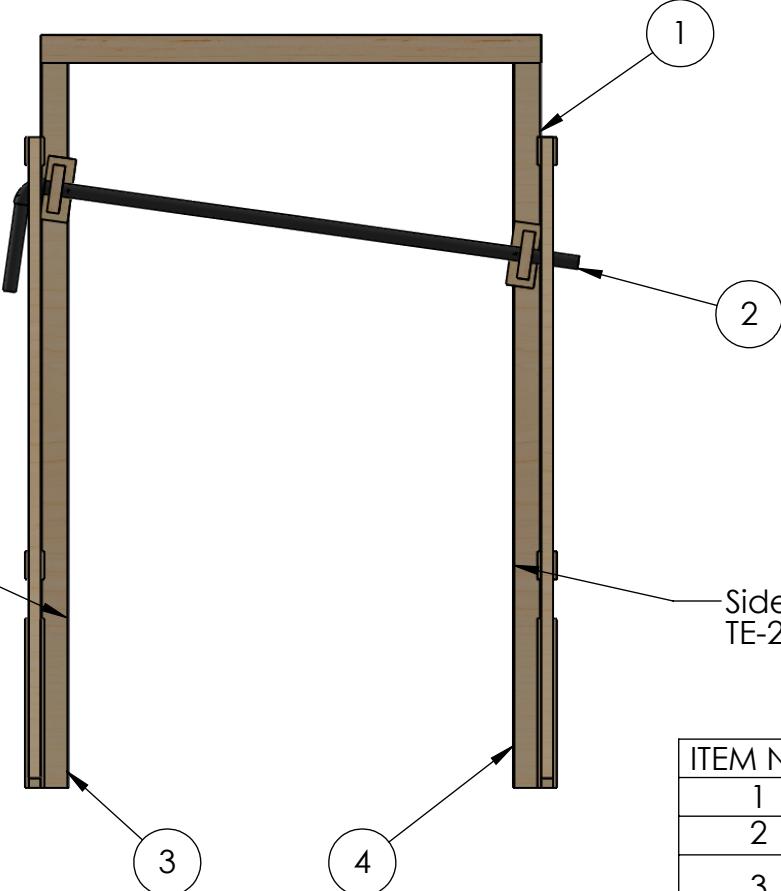
1

Level Range, Max

Side A
TE-20005-31Side B
TE-20005-32

Note:

1. TE-20005-31 contains 1x TE-20005-09 & 1x TE-20005-22
2. TE-20005-32 contains 1x TE-20005-09 & 1x TE-20005-22



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-20005-21	Basic Frame	1
2	TE-20005-23	Pipe Assembly	1
3	TE-20005-31	Vertical Leg, Level Range, Max, Side A	1
4	TE-20005-32	Vertical Leg, Level Range, Max, Side B	1

		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			
SIZE		DWG. NO.	REV		
A		TE-20005	A		
SCALE: 1:24		WEIGHT:	SHEET 19 OF 25		



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TITLE:

Generator Switch Modified

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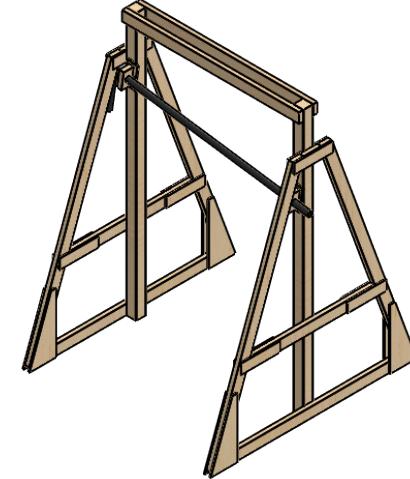
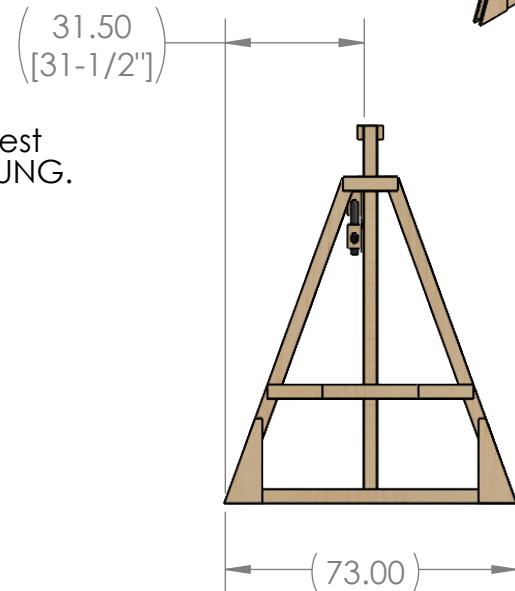
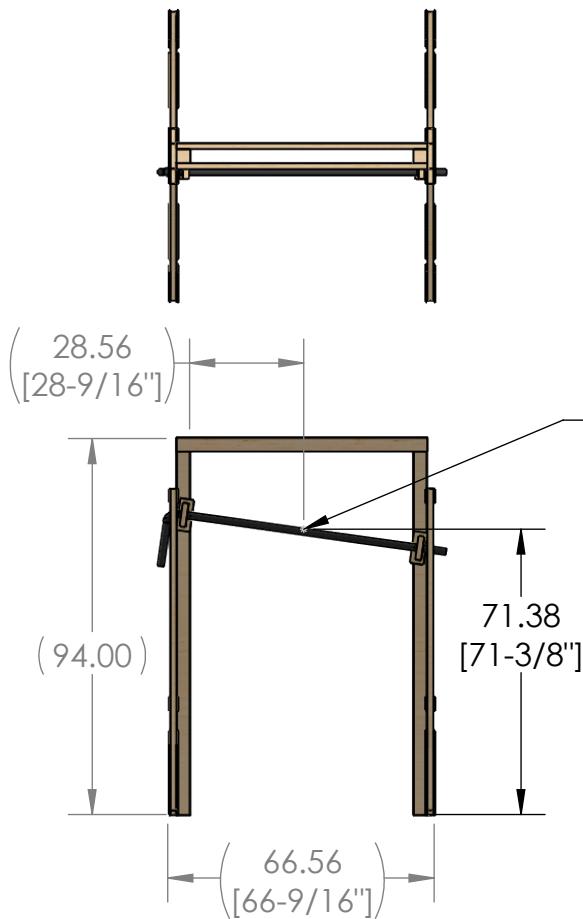
2

1

2

1

Level Range, Max



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

TITLE: **FIRST[®] ROBOTICS COMPETITION**

SOLIDWORKS
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SIZE DWG. NO. REV
A TE-20005 A

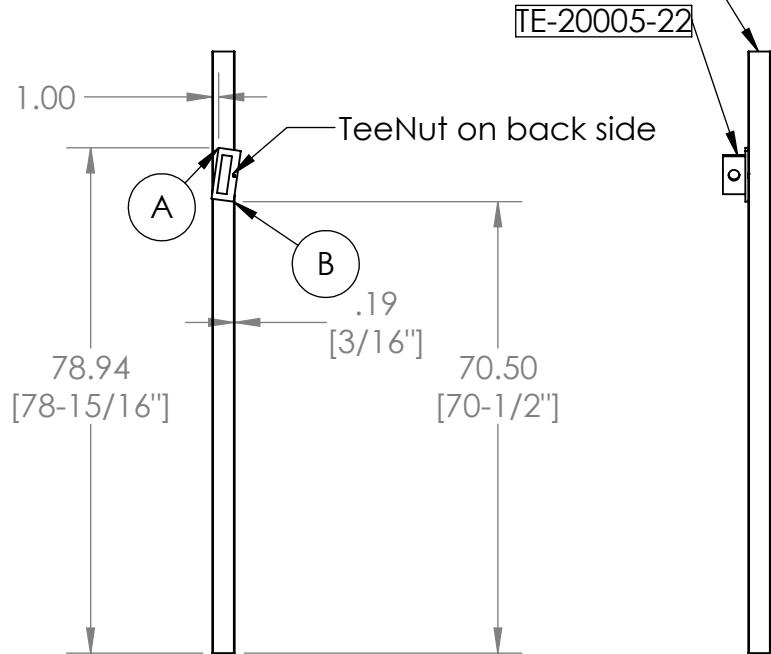
SCALE: 1:48 WEIGHT: SHEET 20 OF 25

2

1

Level Range, Max

TE-20005-31



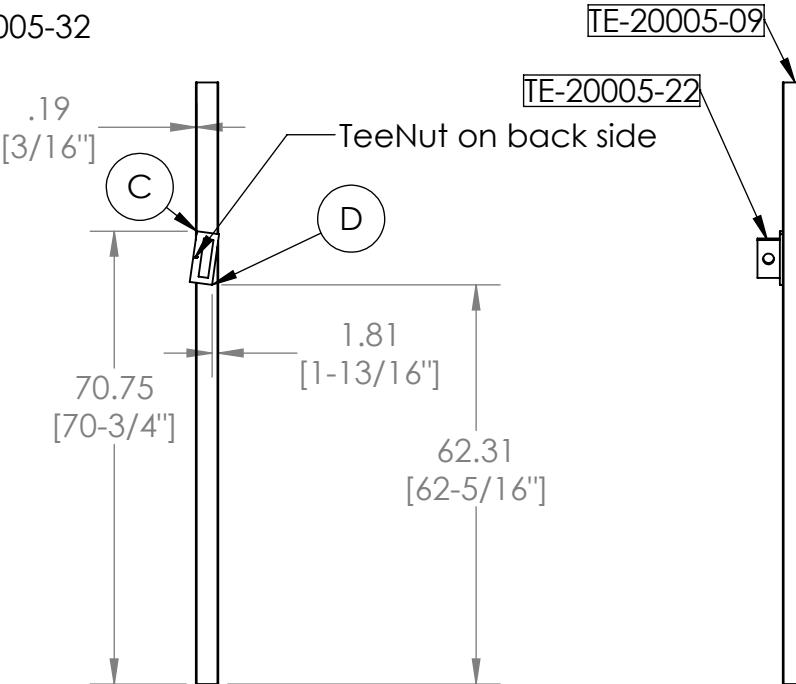
Notes:

1. Locate (A) and (B).
2. Align corners of TE-20005-22 with (A) and (B).
3. Attach TE-20005-22 to TE-20005-09 as shown using 2.5" screws. Predrill as needed.

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Level Range, Max

TE-20005-32



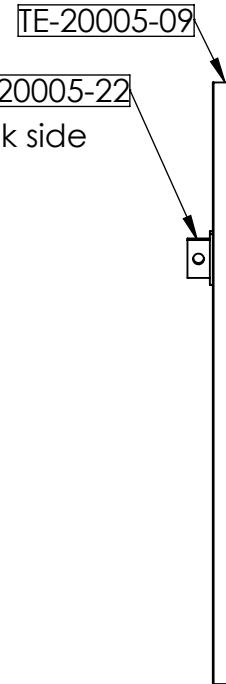
Notes:

1. Locate (C) and (D).
2. Align corners of TE-20005-22 with (C) and (D).
3. Attach TE-20005-22 to TE-20005-09 as shown using 2.5" screws. Predrill as needed.

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

Level Range, Max

TE-20005-32



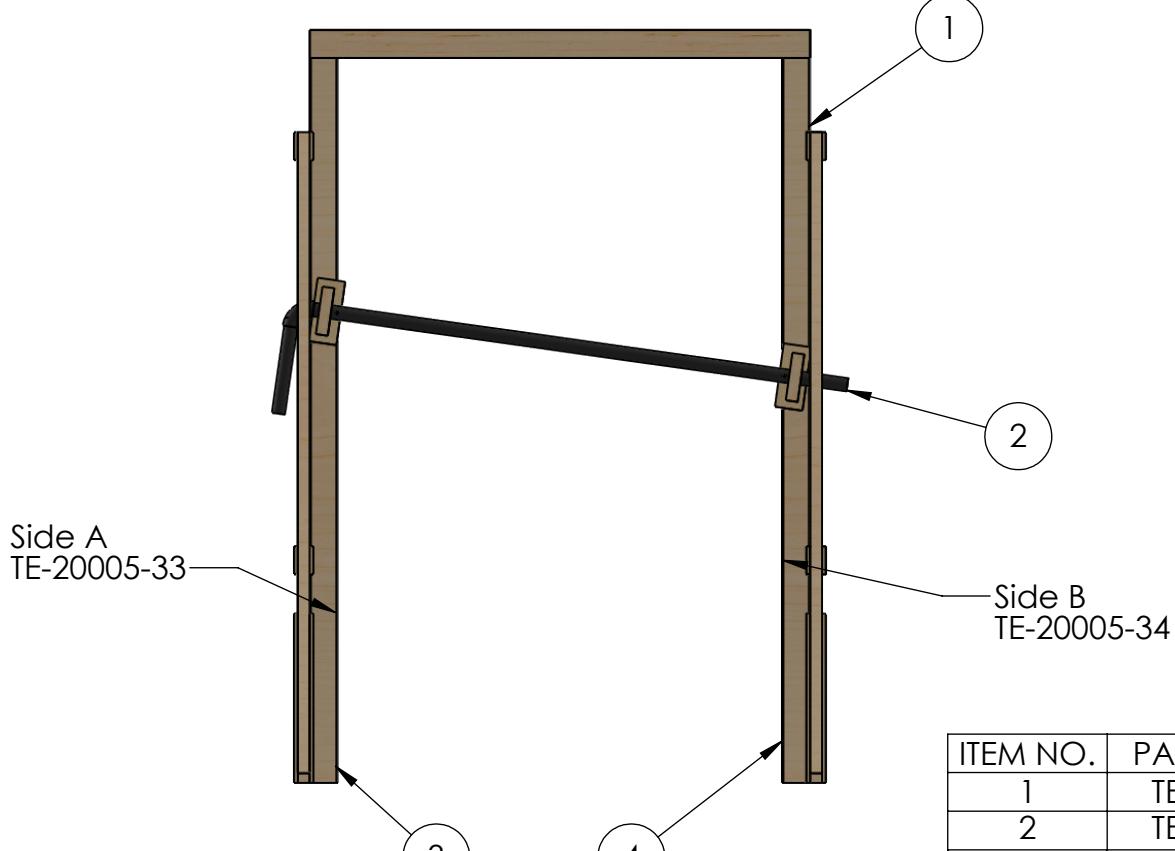
TITLE:


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2

1

Level Range, Min



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-20005-21	Basic Frame	1
2	TE-20005-23	Pipe Assembly	1
3	TE-20005-33	Vertical Leg, Level Range, Min, Side A	1
4	TE-20005-34	Vertical Leg, Level Range, Min, Side B	1

		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			
SIZE	DWG. NO.		REV		
A	TE-20005		A		
SCALE: 1:24	WEIGHT:		SHEET	22	OF 25

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TITLE:

Generator Switch Modified

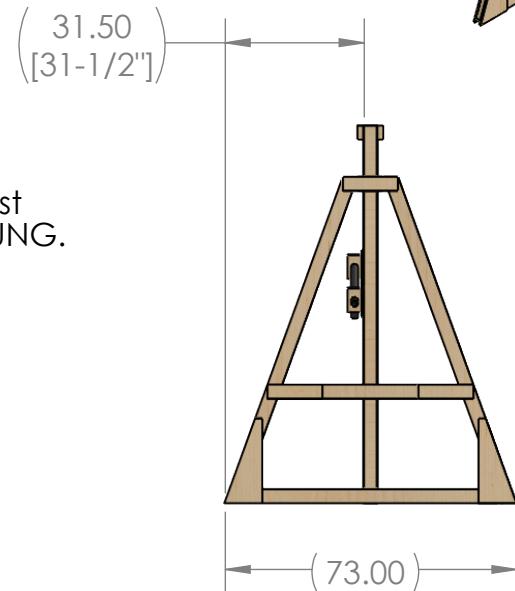
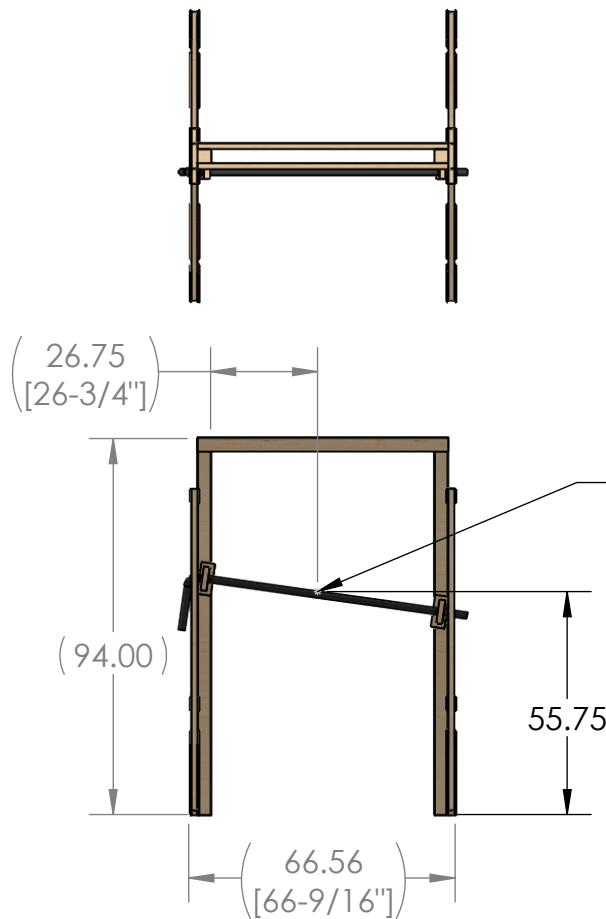
2

1

2

1

Level Range, Min



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

SIZE	DWG. NO.	REV
A	TE-20005	A
SCALE: 1:48	WEIGHT:	SHEET 23 OF 25

FIRST[®] ROBOTICS COMPETITION 
TITLE: **Generator Switch Modified**
SIZE DWG. NO. REV
A TE-20005 A
SCALE: 1:48 WEIGHT: SHEET 23 OF 25

2

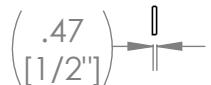
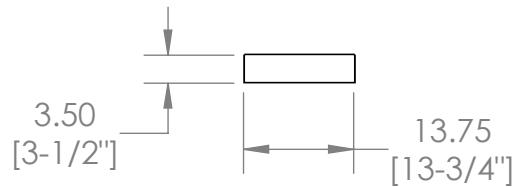
1

2

1

Basic Frame

TE-20005-02:
QTY: 2

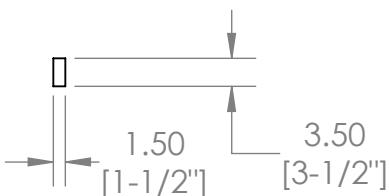
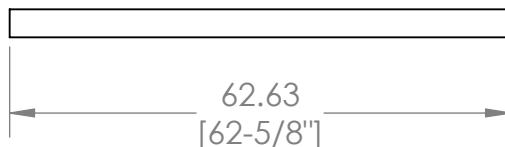


B

Notes:
Material: 1/2" Plywood

Basic Frame

TE-20005-10:
QTY: 2



Notes:
Material: 2" x4" Pine Lumber

Notes:
Material: 4" x4" Pine Lumber

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		UNLESS OTHERWISE SPECIFIED:		NAME	DA
		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		
		MATERIAL	ENG APPR.		
		FINISH	MFG APPR.		
NEXT ASSY	USED ON		Q.A.		
APPLICATION		DO NOT SCALE DRAWING	COMMENTS:		



TITLE

 SOLIDWORKS
Modeling Solutions Partner

Generator Switch Modified

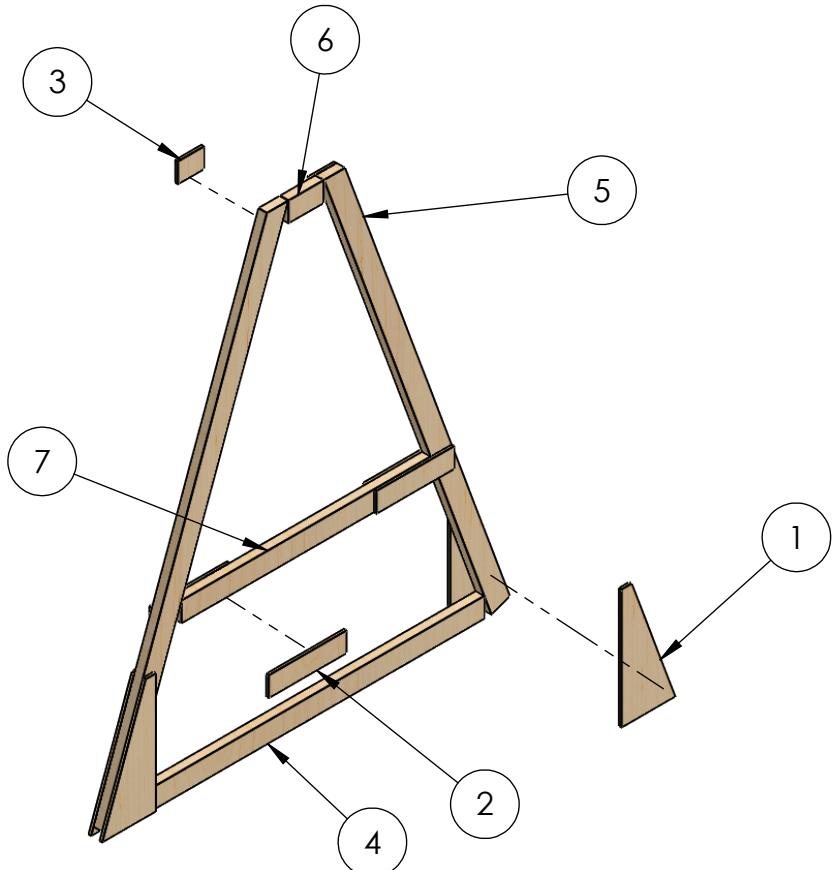
SIZE A	DWG. NO. TE-20005	REV A
SCALE: 1:24 WEIGHT:		SHEET 25 OF 25

2

1

2

1



Notes:

1. Instructions and quantities shown are for 1 assembly. 2 assemblies total are needed.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-20005-01	Bottom Gusset	4
2	TE-20005-02	Top Support, Full	4
3	TE-20005-03	Top Support, Half	2
4	TE-20005-05	Bottom	1
5	TE-20005-06	Side Leg	2
6	TE-20005-07	Top	1
7	TE-20005-14	Horizontal Support	1

		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:

A Frame Assembly

SIZE	DWG. NO.	REV
A	TE-20005-20	
SCALE: 1:24	WEIGHT:	SHEET 1 OF 10

2

1

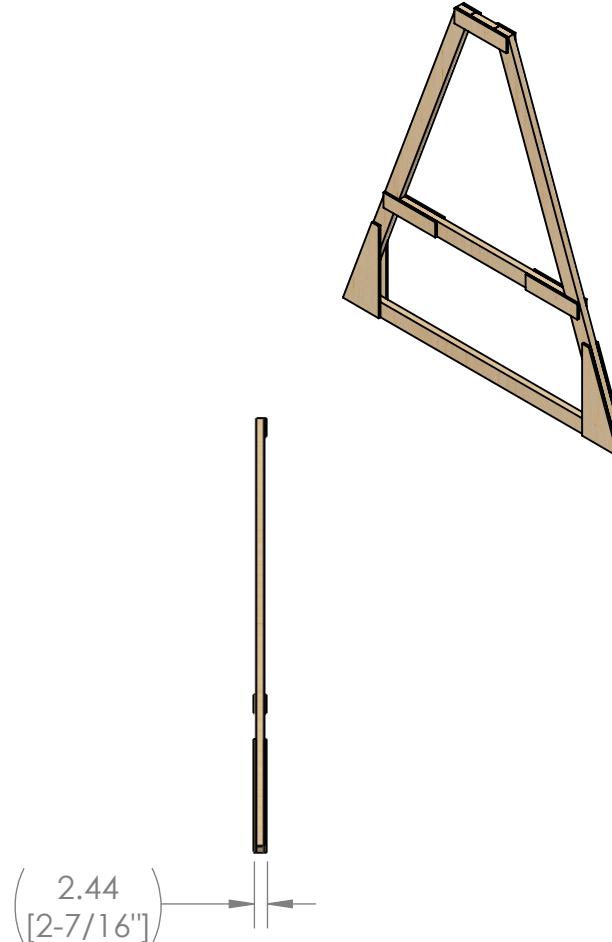
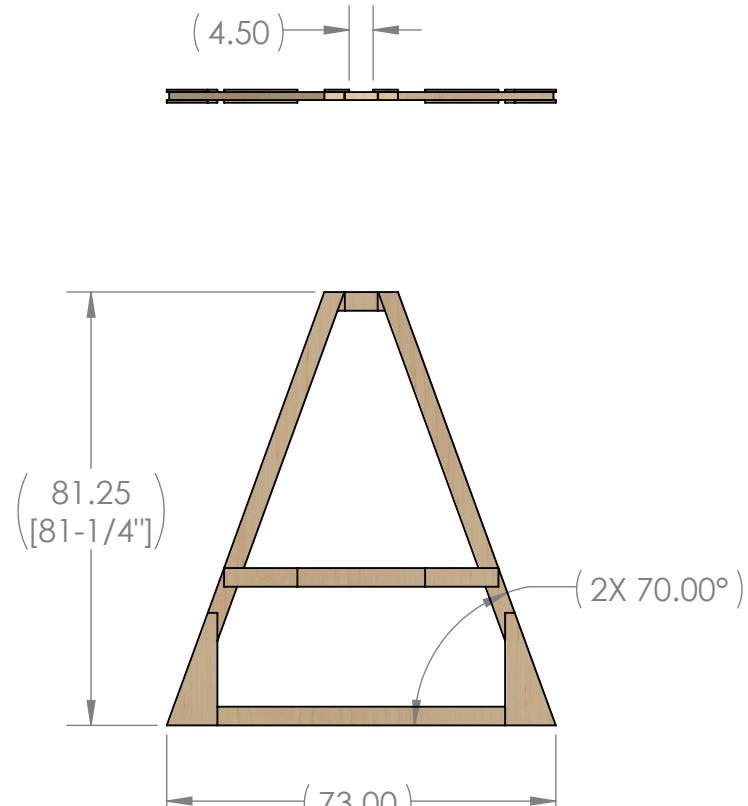
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2

1

B

B



A

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				
NEXT ASSY	USED ON	FINISH				
APPLICATION		DO NOT SCALE DRAWING				

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TITLE:

A Frame Assembly

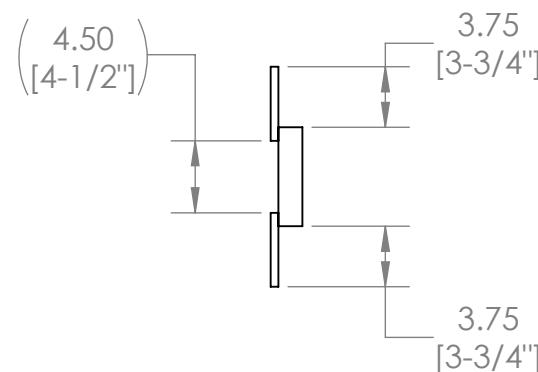
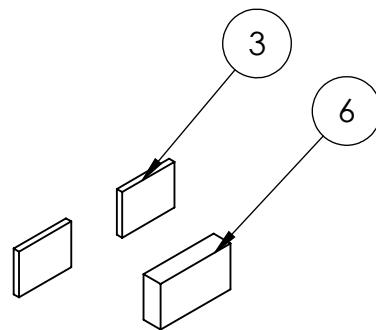
SIZE	DWG. NO.	REV
A	TE-20005-20	
SCALE: 1:36	WEIGHT:	SHEET 2 OF 10

2

1

Step 1:

B



B

Notes:

1. Attach (3) and (3) to (6) as shown. Use 1.5" screws. Predrill as needed.

A

		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		
		MATERIAL	ENG APPR.		
			MFG APPR.		
			Q.A.		
		COMMENTS:			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

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TITLE:

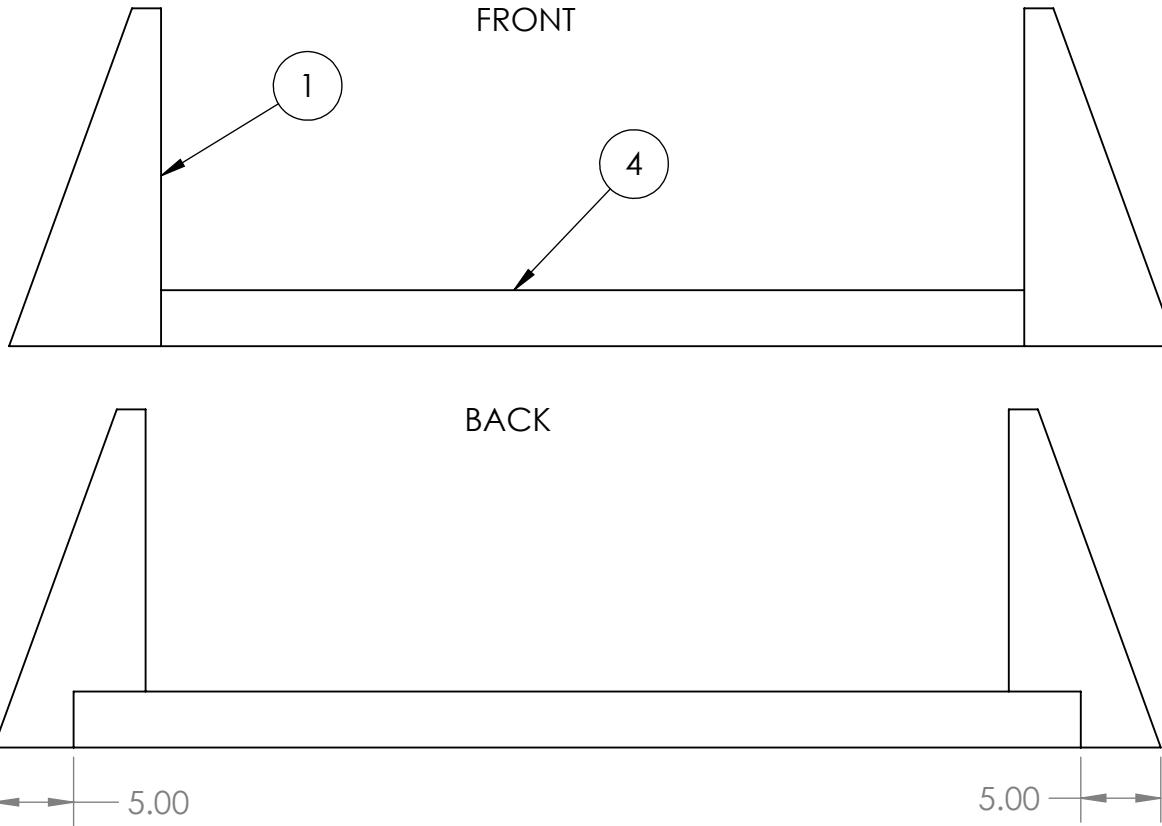
A Frame Assembly

SIZE	DWG. NO.	REV
A	TE-20005-20	
SCALE: 1:12	WEIGHT:	SHEET 3 OF 10

2

1

Step 2:



Notes:

1. Attach to as shown. Use 1.5" screws. Predrill as needed.
2. Repeat.

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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			



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Modeling Solutions Partner

TITLE:

A Frame Assembly

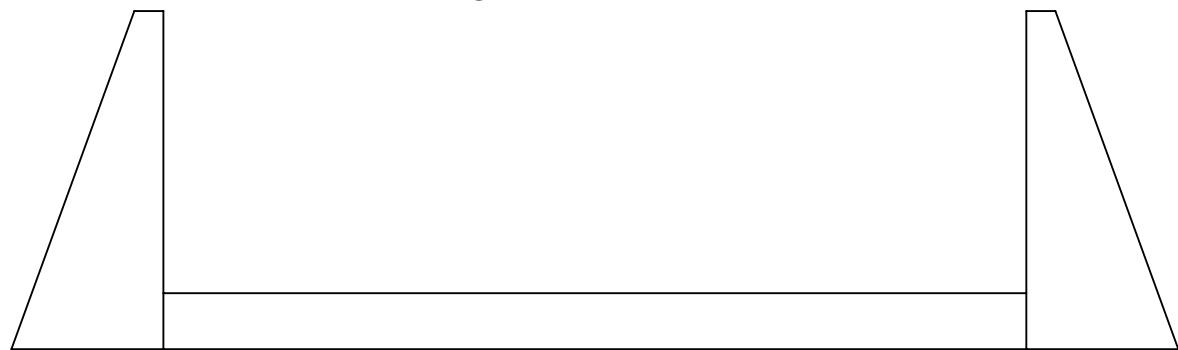
SIZE	DWG. NO.	REV
A	TE-20005-20	
SCALE: 1:12	WEIGHT:	SHEET 4 OF 10

2

1

Step 3:

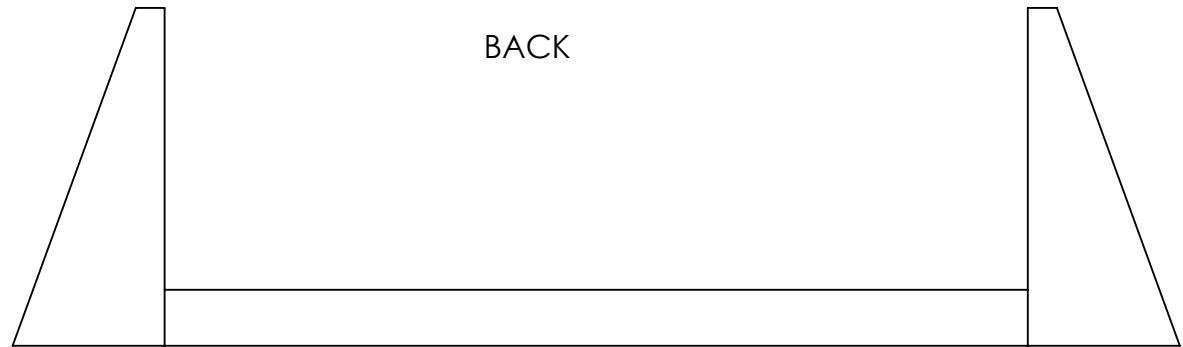
FRONT



B

B

BACK



Notes:

1. Flip over and repeat [Step 2].

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



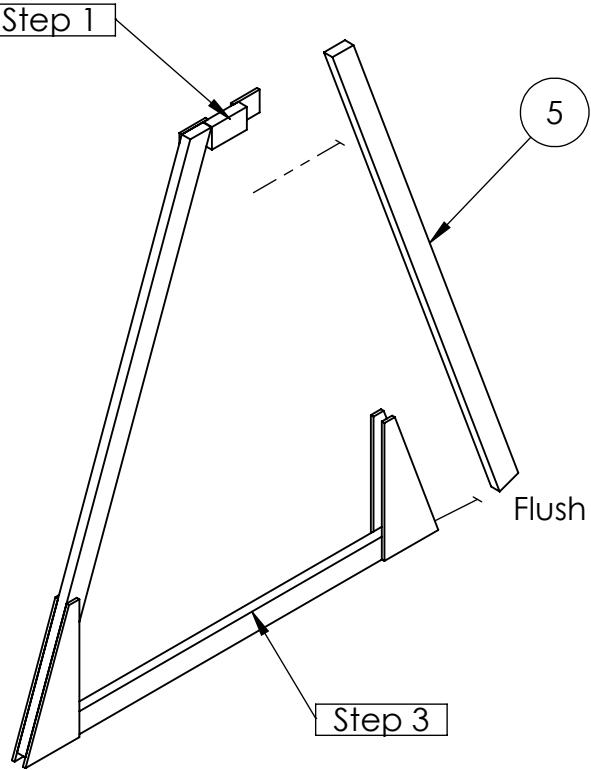
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TITLE:

A Frame Assembly

SIZE	DWG. NO.	REV
A	TE-20005-20	
SCALE: 1:12	WEIGHT:	SHEET 5 OF 10

Step 4:



Flush to edge

Touching

DETAIL B
SCALE 1 : 12

Flush to edge

Touching

DETAIL A
SCALE 1 : 12

Notes:

1. Slide (5) into [Step 1] and [Step 3] as shown. Use 1.5" screws to attach. Predrill as needed.
2. Repeat.
3. As needed, flip over to attach with 1.5" screws to back side.

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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			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			



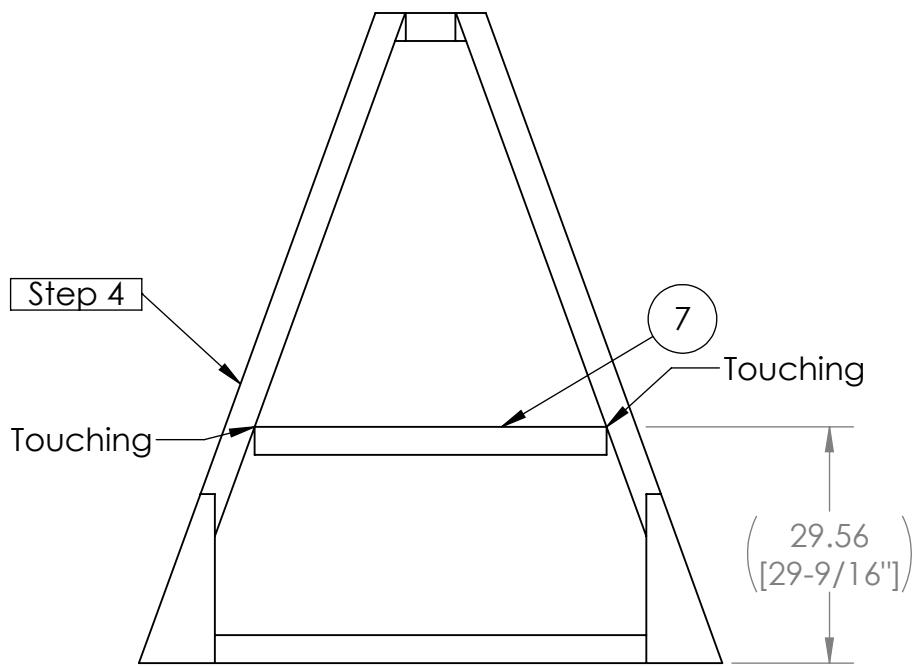
TITLE:

A Frame Assembly

SIZE	DWG. NO.	REV
A	TE-20005-20	
SCALE: 1:24	WEIGHT:	SHEET 6 OF 10

2

Step 5:



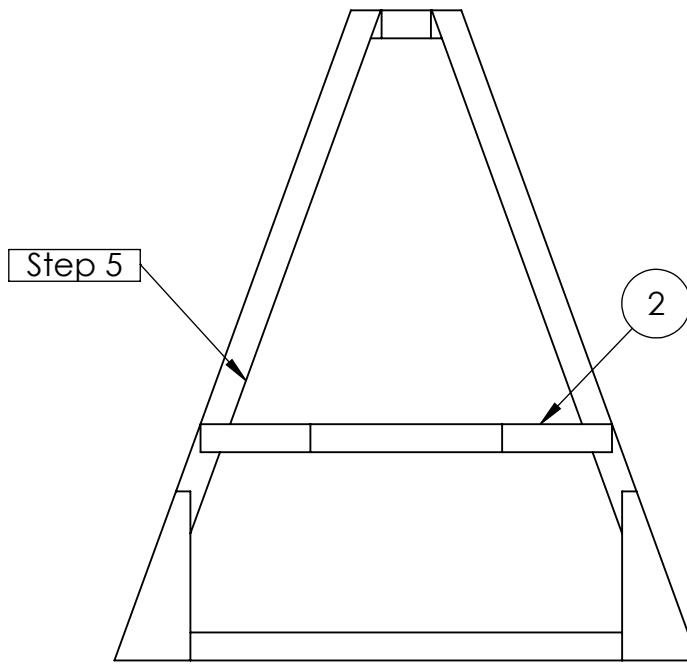
Notes:

1. Insert 7 into Step 4 so that its corners touch Step 4.

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Step 6:



Notes:

1. Attach 2 to Step 5 using 1.5" Screws.
Predrill as needed.

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

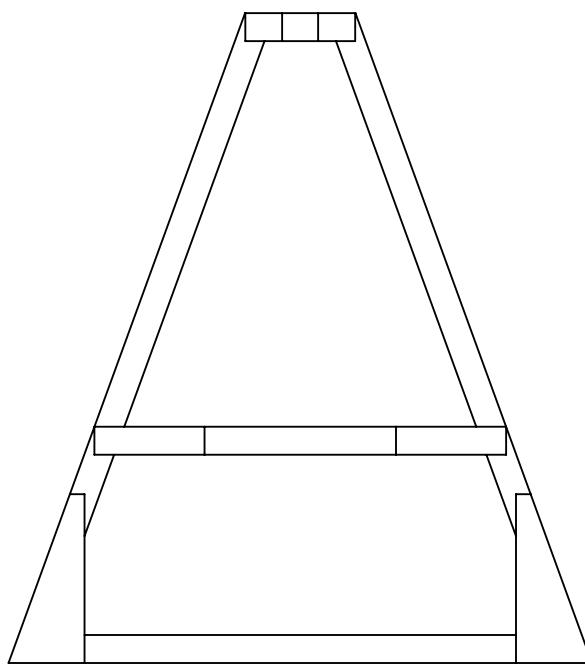
SIZE	DWG. NO.	REV
A TE-20005-20		
SCALE: 1:24	WEIGHT:	SHEET 7 OF 10

2

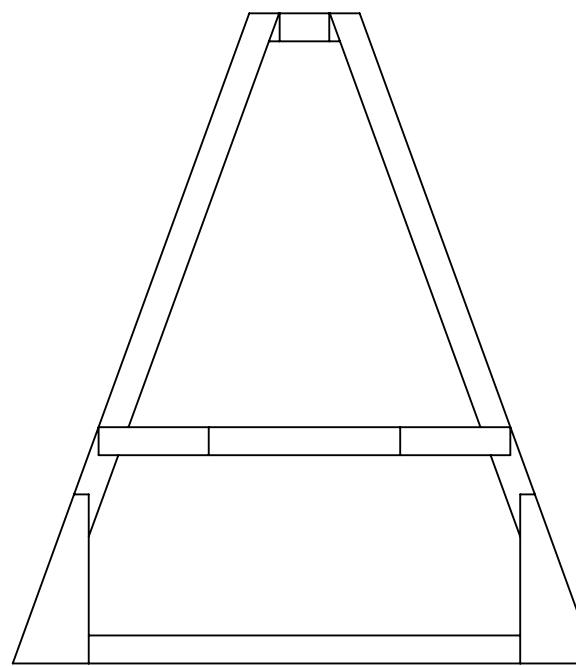
1

Step 7:

FRONT



BACK



Notes:

1. Flip over and repeat Step 6.

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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			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

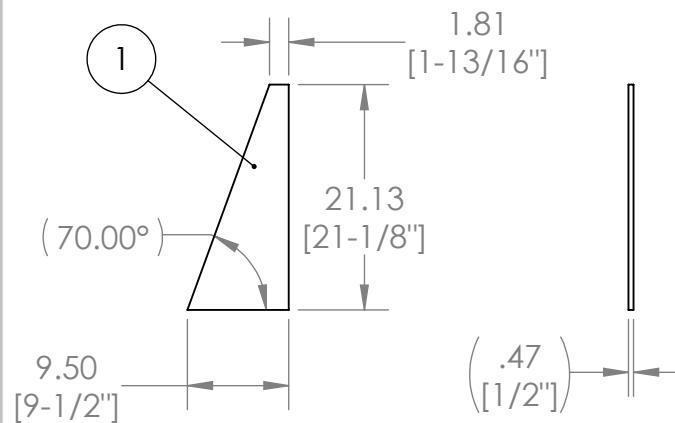


TITLE:

A Frame Assembly

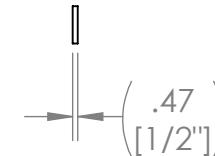
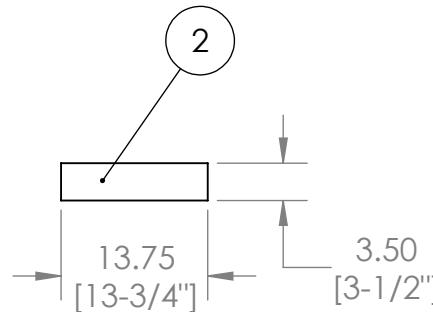
SIZE	DWG. NO.	REV
A	TE-20005-20	
SCALE: 1:24	WEIGHT:	SHEET 8 OF 10

TE-20005-01:
QTY: 4



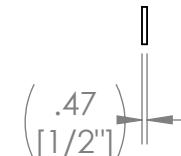
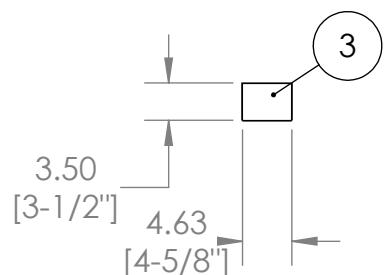
Notes:
Material: 1/2" Plywood

TE-20005-02:
QTY: 4



Notes:
Material: 1/2" Plywood

TE-20005-03:
QTY: 2



Notes:
Material: 1/2" Plywood

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

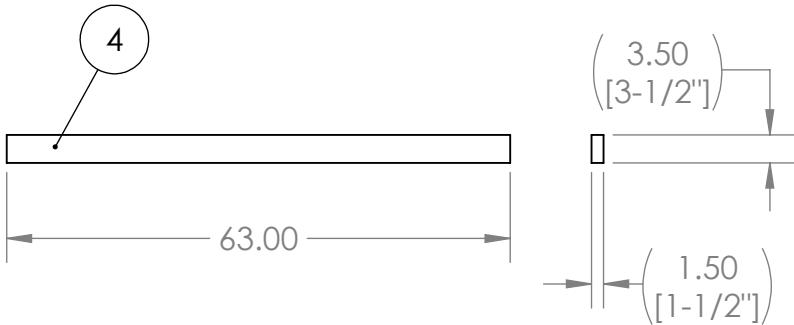
A Frame Assembly

SIZE	DWG. NO.	REV
A	TE-20005-20	
SCALE: 1:18	WEIGHT:	SHEET 9 OF 10

2

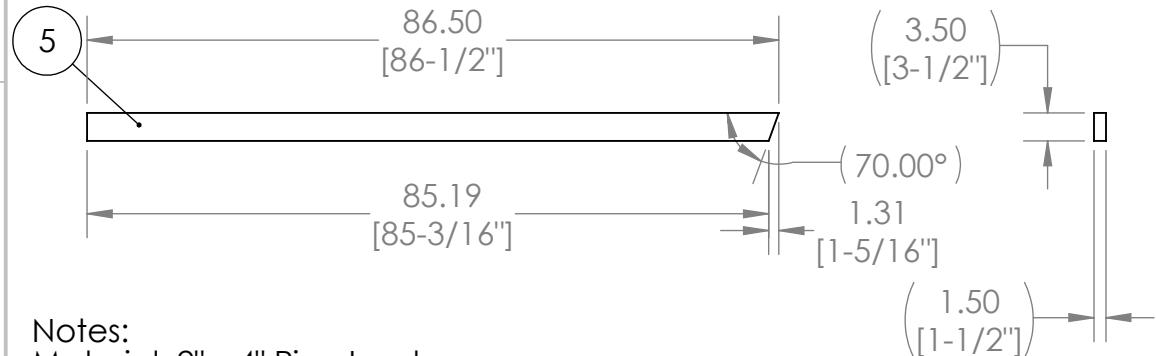
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TE-20005-05:
Qty: 1



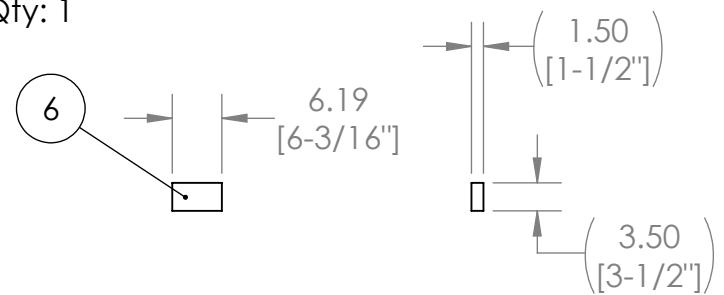
Notes:
Material: 2" x 4" Pine Lumber

TE-20005-06:
Qty: 2



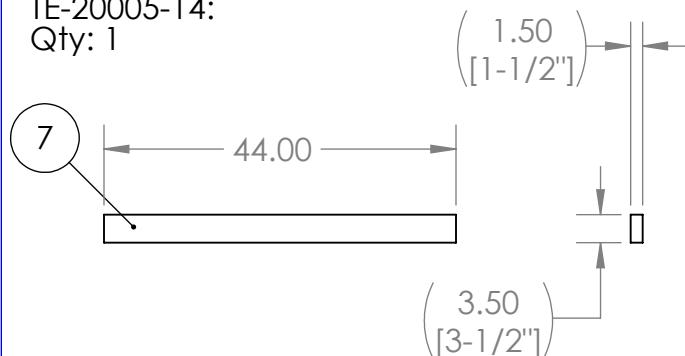
Notes:
Material: 2" x 4" Pine Lumber

TE-20005-07:
Qty: 1



Notes:
Material: 2" x 4" Pine Lumber

TE-20005-14:
Qty: 1



Notes:
Material: 2" x 4" Pine Lumber

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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 $\pm .001$							
INTERPRET GEOMETRIC TOLERANCING PER:									
MATERIAL		ENG APPR.		MFG APPR.					
NEXT ASSY		MFG APPR.		Q.A.					
USED ON		COMMENTS:							
FINISH									
APPLICATION		DO NOT SCALE DRAWING							



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TITLE:

A Frame Assembly

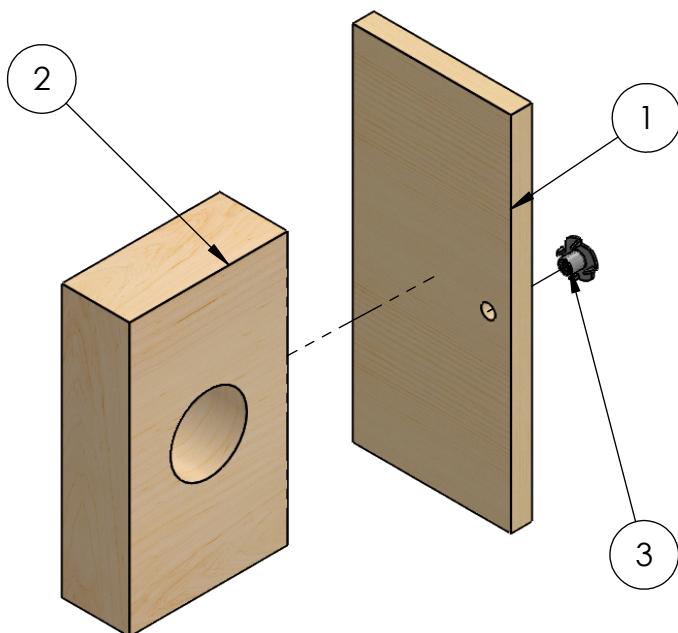
SIZE	DWG. NO.	REV
A	TE-20005-20	
SCALE: 1:24	WEIGHT:	SHEET 10 OF 10

2

1

2

1



B

B

Notes:

- Instructions and quantities shown are for 1 assembly. Up to 10 assemblies total are needed.

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ITEM NO.	PART NUMBER	DESCRIPTION		
1	TE-20005-04	Mount	1	
2	TE-20005-08	Pole Holder	1	
3	TeeNut_.25_20	Soft wood fiber tee nut	1	
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			
	CHECKED			
	ENG APPR.			
	MFG APPR.			
	Q.A.			
COMMENTS:				
NEXT ASSY		MATERIAL		
USED ON		FINISH		
APPLICATION		DO NOT SCALE DRAWING		

 **FIRST[®]
ROBOTICS
COMPETITION** 
SOLIDWORKS
Modeling Solutions Partner

TITLE:

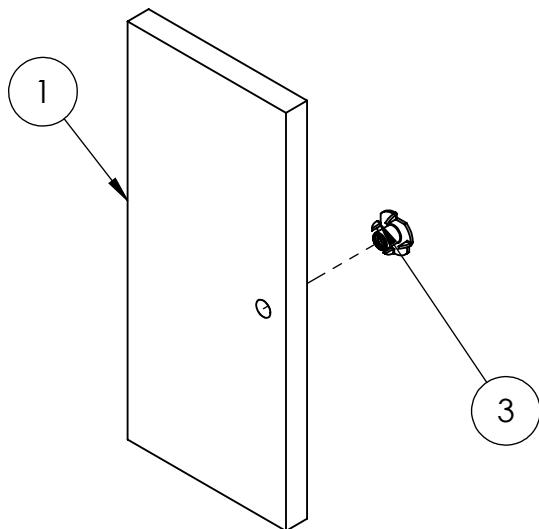
Pole Holder Assembly

SIZE	DWG. NO.	REV
A	TE-20005-22	
SCALE: 1:3	WEIGHT:	SHEET 1 OF 4

2

1

Step 1:



Notes:

1. Insert (3) into (1) using a mallet or hammer as needed.

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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			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

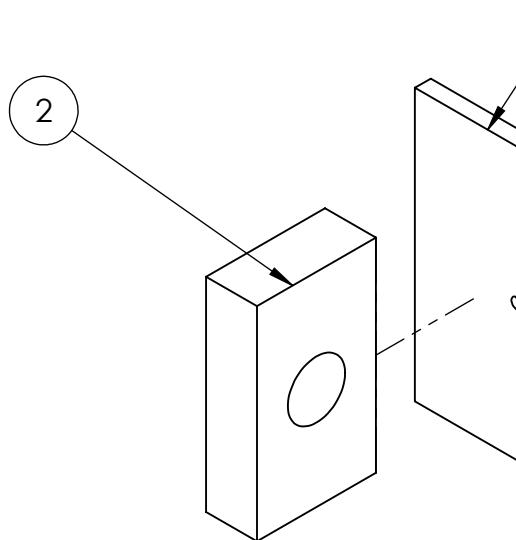


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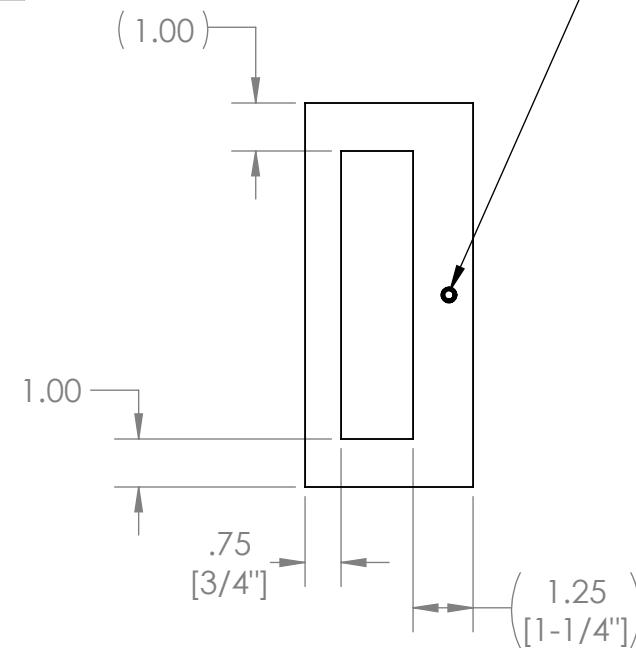
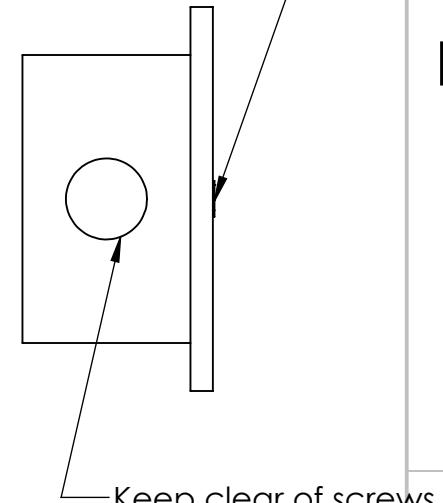
Pole Holder Assembly

SIZE	DWG. NO.	REV
A	TE-20005-22	
SCALE: 1:3	WEIGHT:	SHEET 2 OF 4

Step 2:



Step 1

TeeNut should be on
opposite side of 2

B

B

Notes:

1. Attach (2) to Step 1 as shown, using 1.5" and/or 2.5" Screws. Predrill as needed.

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



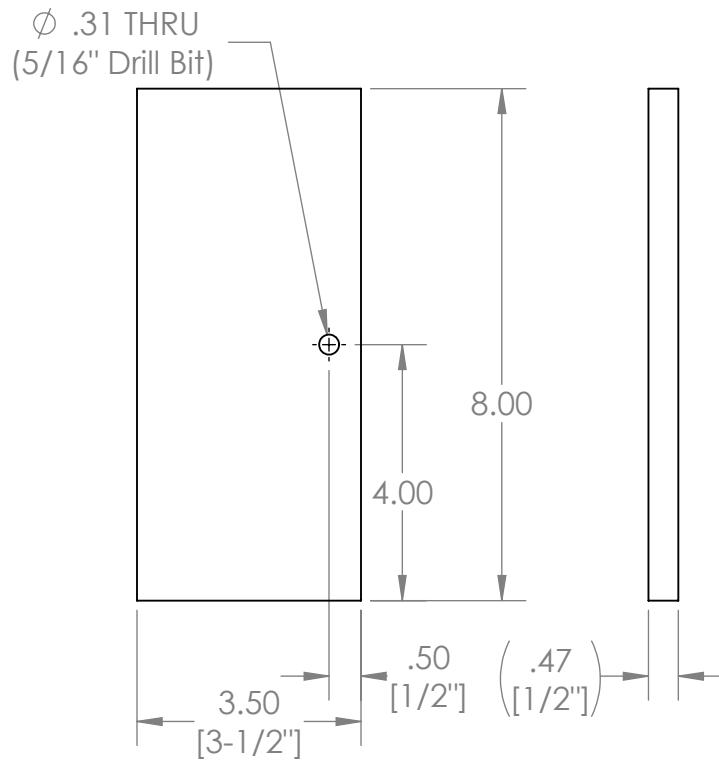
TITLE:

Pole Holder Assembly

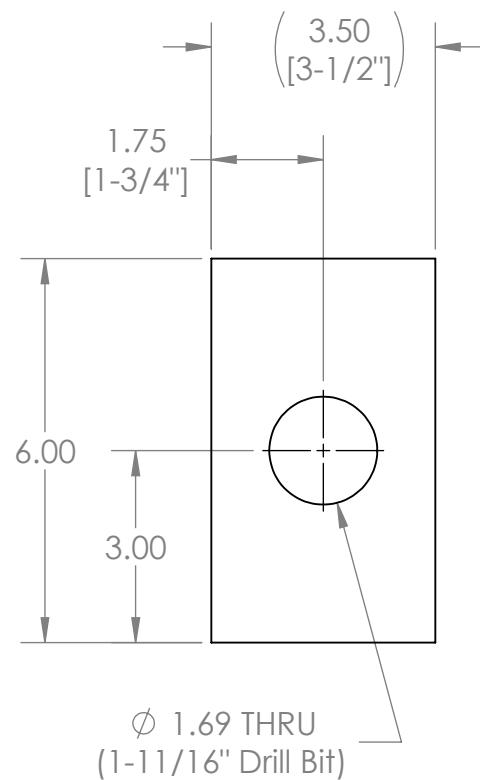
SIZE	DWG. NO.	REV
A	TE-20005-22	
SCALE: 1:4	WEIGHT:	SHEET 3 OF 4

2

TE-20005-04:
Qty: 1



TE-20005-08:
Qty: 1



Note:
Material: 1/2" Plywood

Note:
Material: 2" x 4" Pine Lumber

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

1

1

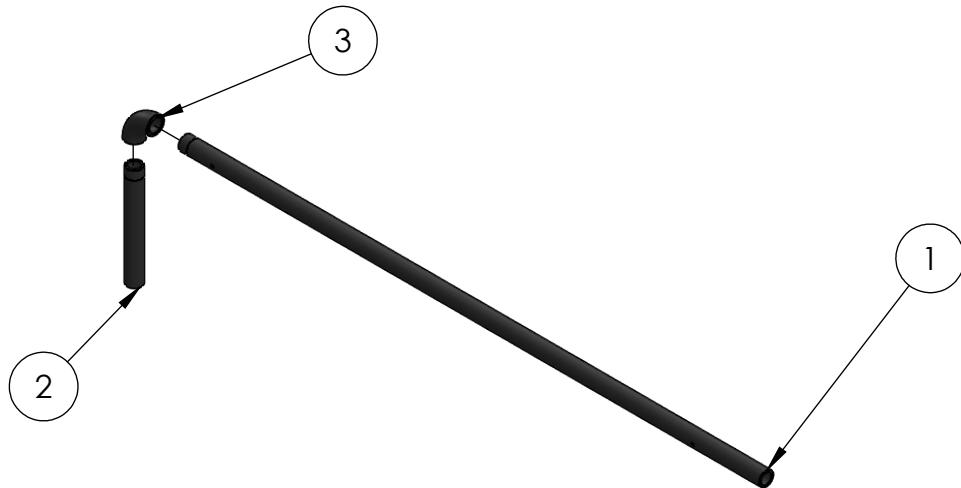


Pole Holder Assembly

SIZE	DWG. NO.	REV
A	TE-20005-22	
SCALE: 1:3	WEIGHT:	SHEET 4 OF 4

2

1



B

B

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-20005-11	1-1/4" Schedule 40 Black Iron Pipe, Long	1
2	TE-20005-12	1-1/4" Schedule 40 Black Iron Pipe, Short	1
3	TE-20005-13	1-1/4" Schedule 40 Black Iron Pipe, Elbow	1

		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			
DWG. NO.			REV		
A TE-20005-23					
SCALE: 1:16		WEIGHT:	SHEET 1 OF 4		

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TITLE:

Pipe Assembly

2

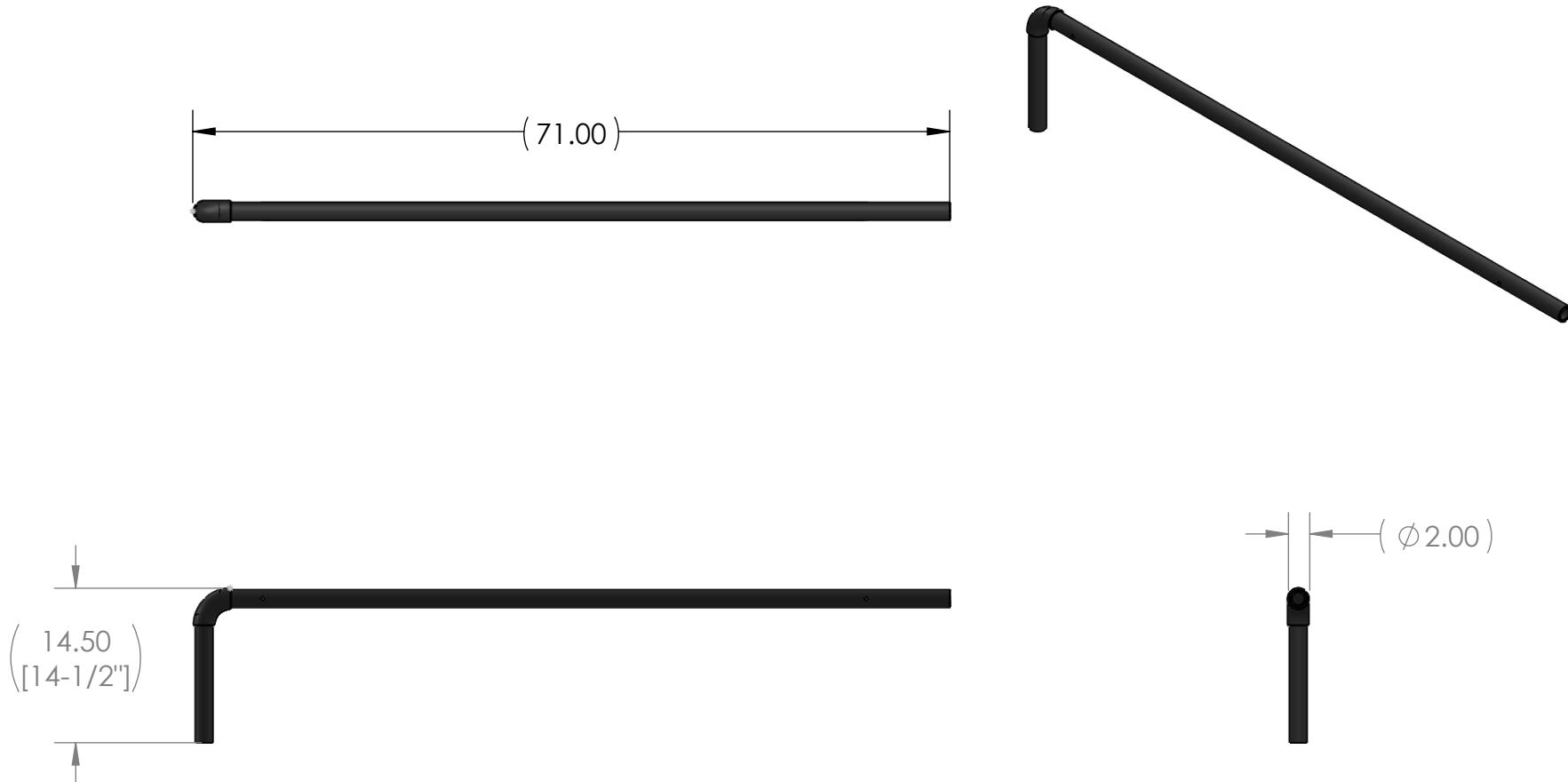
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2

1

B

B



A

A

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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				
NEXT ASSY	USED ON	FINISH				
		APPLICATION		DO NOT SCALE DRAWING		

2

1

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TITLE:

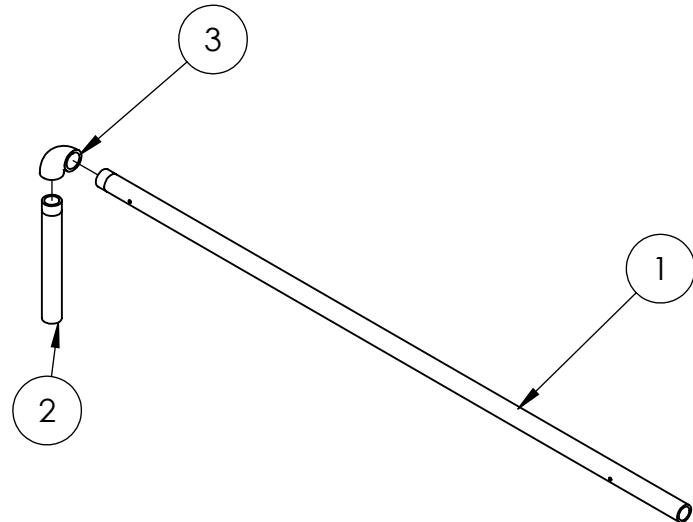
Pipe Assembly

SIZE	DWG. NO.	REV
A	TE-20005-23	
SCALE: 1:16	WEIGHT:	SHEET 2 OF 4

2

1

Step 1:



B

B

Notes:

1. Thread (1) and (2) into (3).
2. Holes on (1) should be perpendicular to (2).

A

A

		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		
				CHECKED		
				ENG APPR.		
				MFG APPR.		
				Q.A.		
		INTERPRET GEOMETRIC TOLERANCING PER:		COMMENTS:		
		MATERIAL				
NEXT ASSY	USED ON	FINISH				
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TITLE:

Pipe Assembly

SIZE	DWG. NO.	REV
A	TE-20005-23	
SCALE: 1:16	WEIGHT:	SHEET 3 OF 4

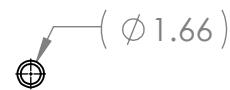
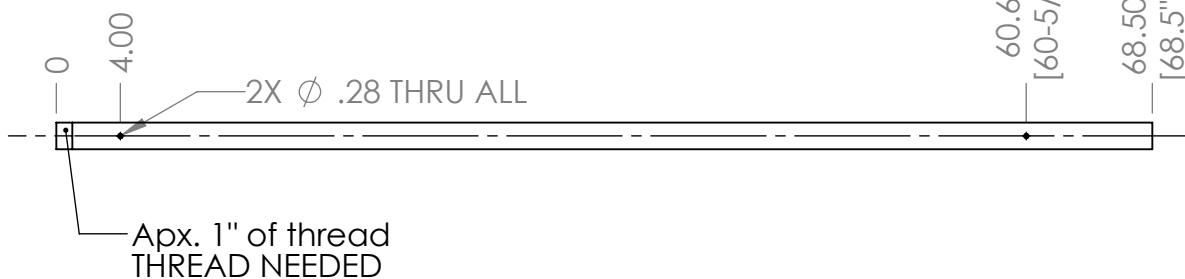
2

1

2

1

TE-20005-11
Qty: 1



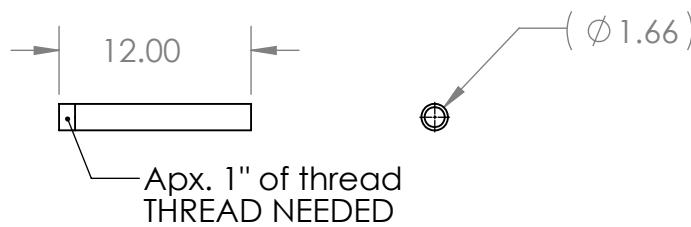
B

B

Note:

1. Material: 1-1/4" Black Iron Pipe (Schedule 40 Black Iron Pipe)
2. One 10' pipe can be cut and used for TE-20005-11 and TE-20005-12. Threaded ends are needed for both parts.

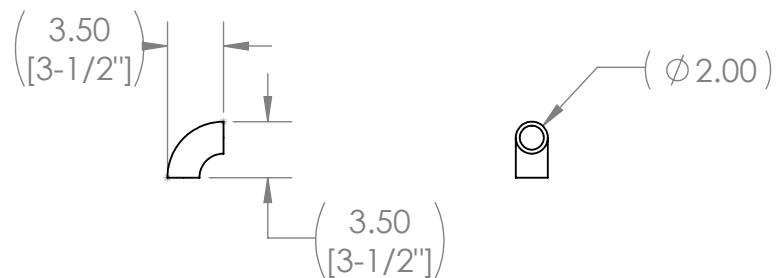
TE-20005-12
Qty: 1



Note:

1. Material: 1-1/4" Black Iron Pipe (Schedule 40 Black Iron Pipe)
2. One 10' pipe can be cut and used for TE-20005-11 and TE-20005-12. Threaded ends are needed for both parts.

TE-20005-13
Qty: 1



Note:

1. Material: 1-1/4" Black Iron 90deg. Elbow, FPT x FPT
2. Home Depot PN (Store SKU): 564264

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

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TITLE:

Pipe Assembly

SIZE	DWG. NO.	REV
A	TE-20005-23	
SCALE: 1:12	WEIGHT:	SHEET 4 OF 4

2

1