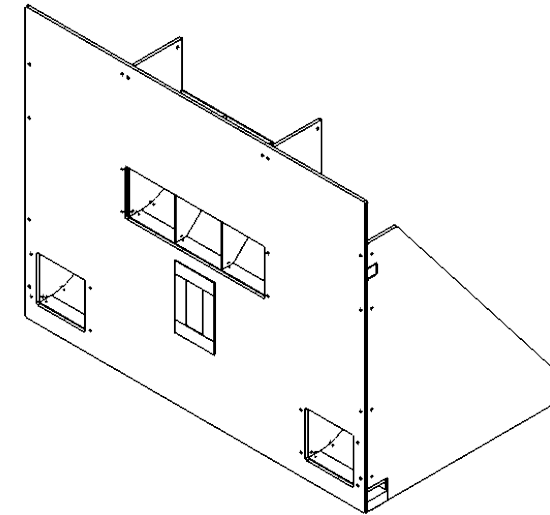


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1

| 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 |



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



Note:

1. 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.

| 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 |

| | | | | | | | | |
|--|---------|-------------|---|-----------|------|-------------|---|-----------------------------------|
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| | | | DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .01 THREE PLACE DECIMAL ± .001 | DRAWN | | | | TITLE: |
| | | | INTERPRET GEOMETRIC TOLERANCING PER: | CHECKED | | | | <h1>Team Version Loading Bay</h1> |
| | | | MATERIAL | ENG APPR. | | | | |
| | | | FINISH | MFG APPR. | | | | |
| NEXT ASSY | USED ON | | Q.A. | | | SIZE | DWG. NO. | REV |
| | | APPLICATION | DO NOT SCALE DRAWING | COMMENTS: | | A | TE-20000 | A |
| | | | | | | SCALE: 1:24 | WEIGHT: | SHEET 1 OF 16 |

2

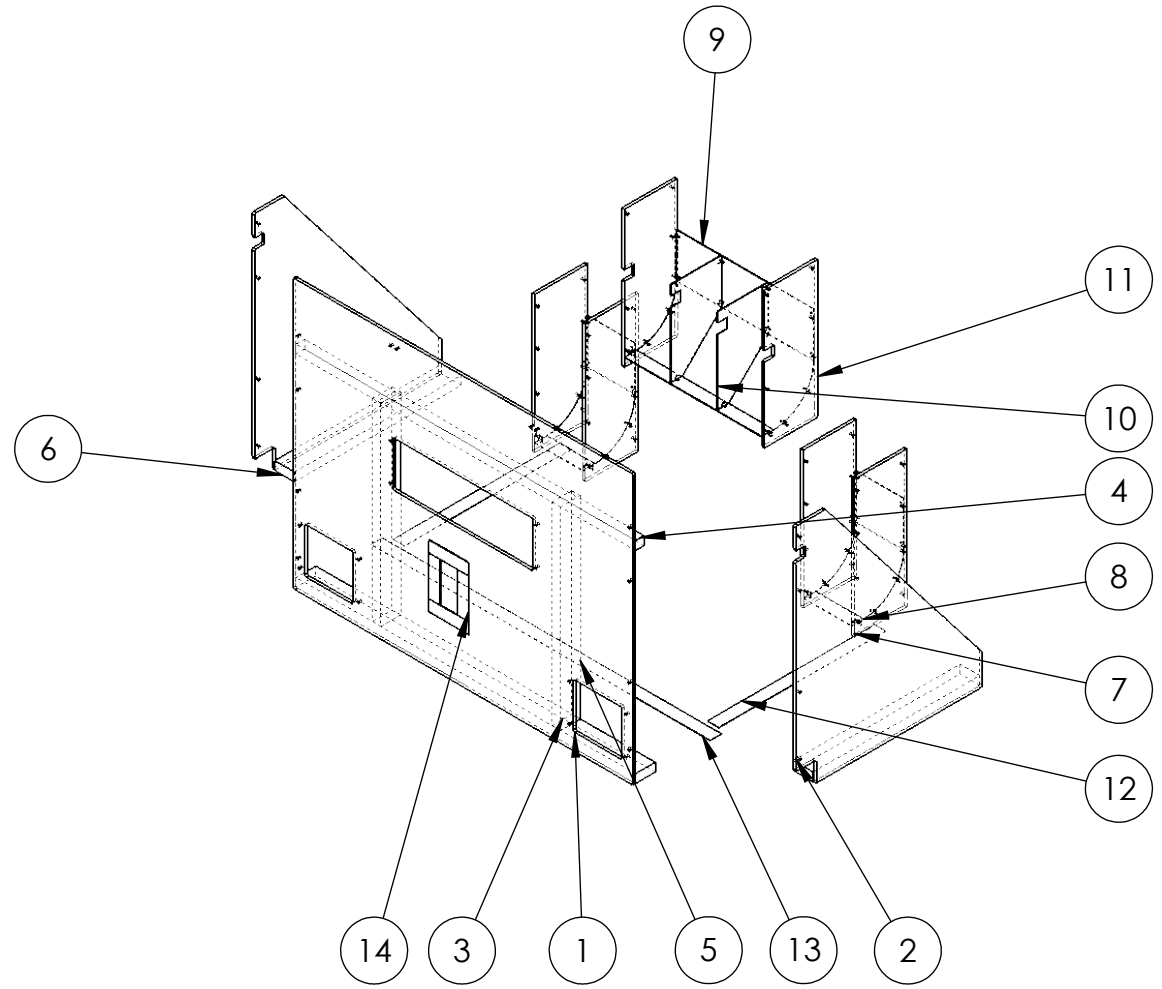
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| | | DIMENSIONS ARE IN INCHES | DRAWN | | |
| | | TOLERANCES: | CHECKED | | |
| | | FRACTIONAL ± 1/16 | ENG APPR. | | |
| | | ANGULAR: MACH ± 1° BEND ± 1° | MFG APPR. | | |
| | | TWO PLACE DECIMAL ± .01 | Q.A. | | |
| | | THREE PLACE DECIMAL ± .001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

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Team Version Loading Bay

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|----------|-----------------|----------|
| SIZE | DWG. NO. | REV |
| A | TE-20000 | A |

SCALE: 1:24 WEIGHT: SHEET 2 OF 16

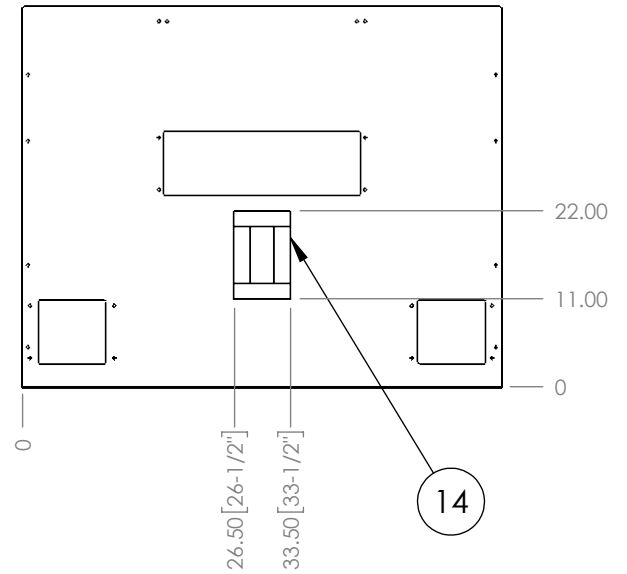
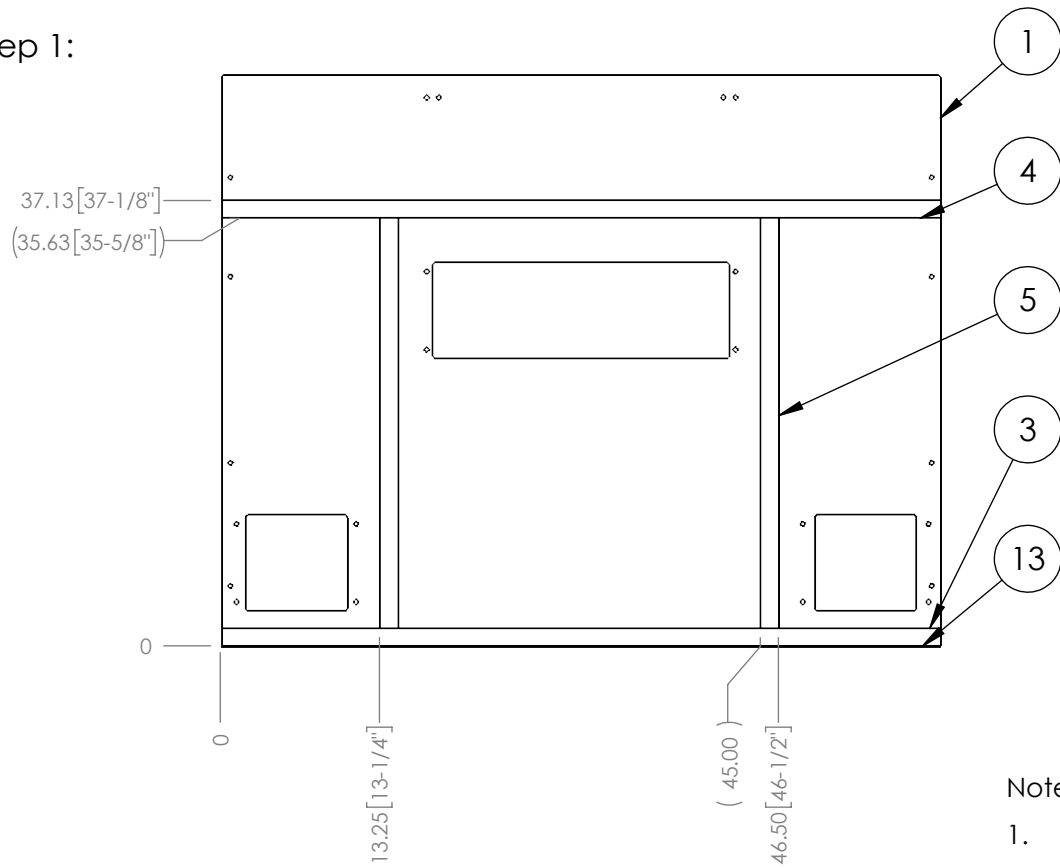
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Step 1:



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



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|---|-----------------------------|-----------------|
| TITLE: Team Version Loading Bay | | |
| SIZE A | DWG. NO. TE-20000 | REV A |
| SCALE: 1:24 WEIGHT: | | SHEET 3 OF 16 |

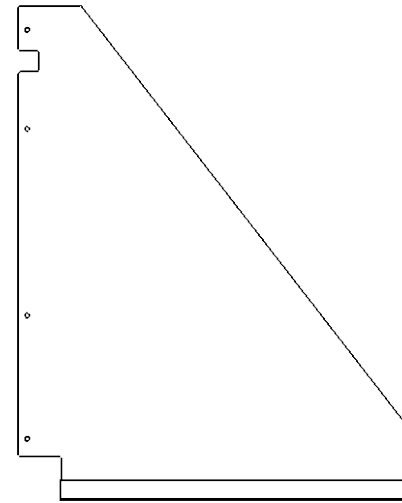
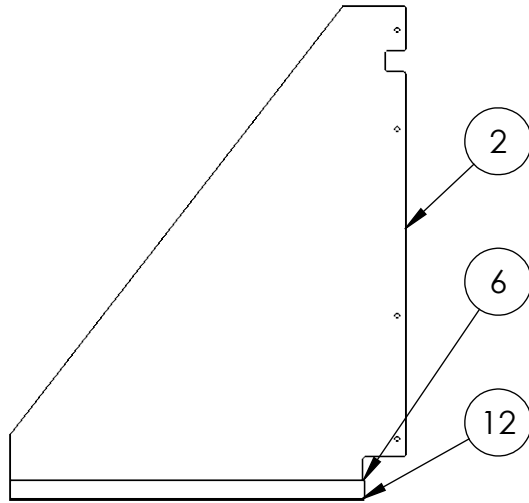
2

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



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|---|-----------------------------|-----------------|
| TITLE: Team Version Loading Bay | | |
| SIZE A | DWG. NO. TE-20000 | REV A |
| SCALE: 1:24 WEIGHT: | | SHEET 4 OF 16 |

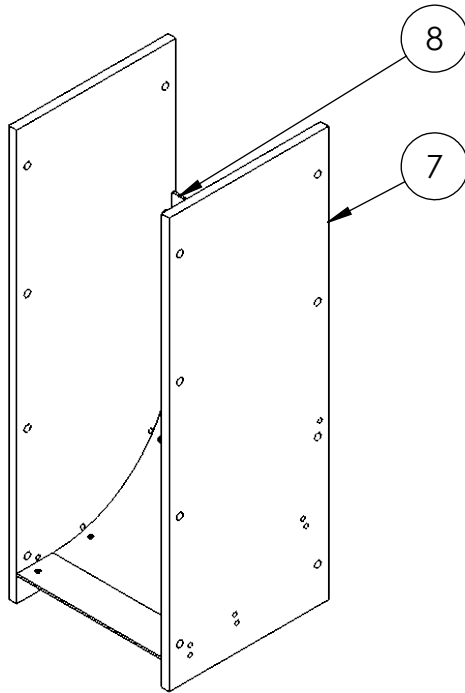
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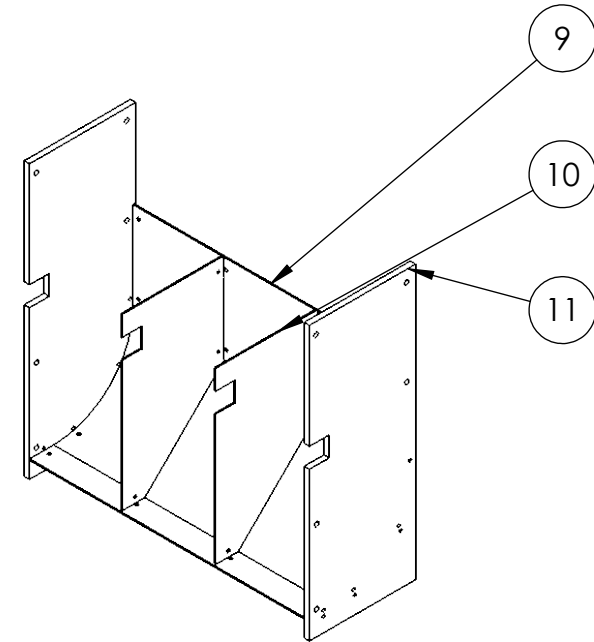
Step 4:



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

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|-------------|---------|---|--|-----------|------|---|
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| | | DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .01 THREE PLACE DECIMAL ± .001 | | DRAWN | | |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | | CHECKED | | <h1 style="text-align: center;">Team Version Loading Bay</h1> |
| | | MATERIAL | | ENG APPR. | | |
| | | FINISH | | MFG APPR. | | DWG. NO. |
| NEXT ASSY | USED ON | | | Q.A. | | REV |
| APPLICATION | | DO NOT SCALE DRAWING | | COMMENTS: | | A TE-20000 A |
| | | | | | | SCALE: 1:24 WEIGHT: |
| | | | | | | SHEET 5 OF 16 |

2

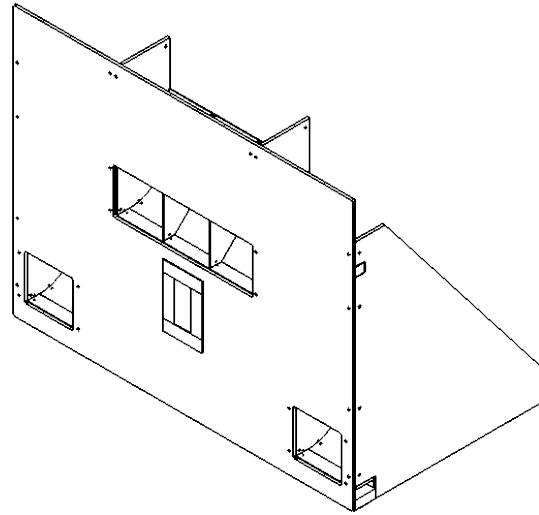
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Notes:

- 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.

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

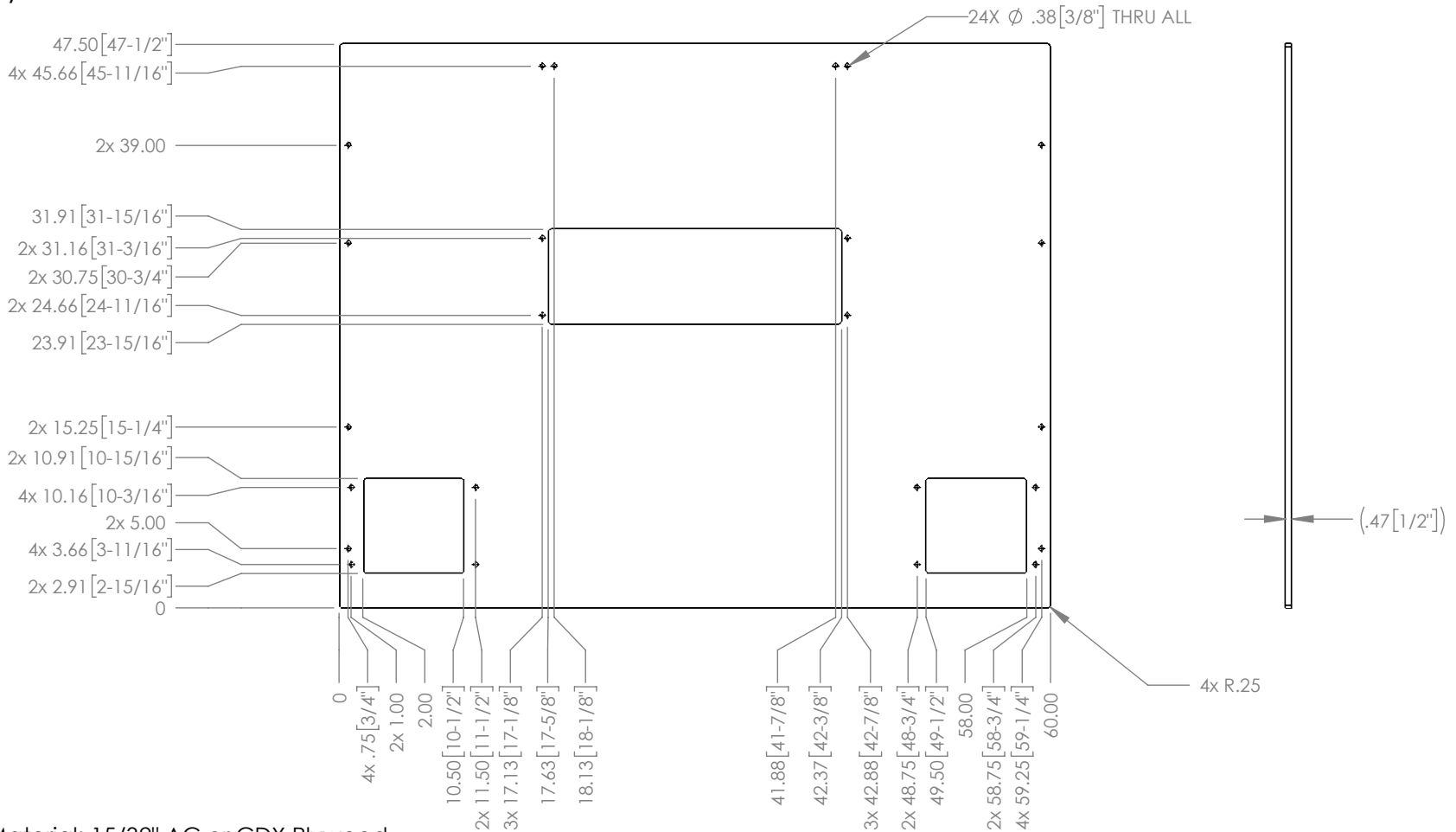


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|--------------------------|-----------------|---------------|
| TITLE: | | |
| Team Version Loading Bay | | |
| SIZE | DWG. NO. | REV |
| A | TE-20000 | A |
| SCALE: 1:24 WEIGHT: | | SHEET 6 OF 16 |

2

1

TE-20000-01
QTY (1)



Notes:

- Material: 15/32" AC or CDX Plywood
- Fillet corners are optional

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

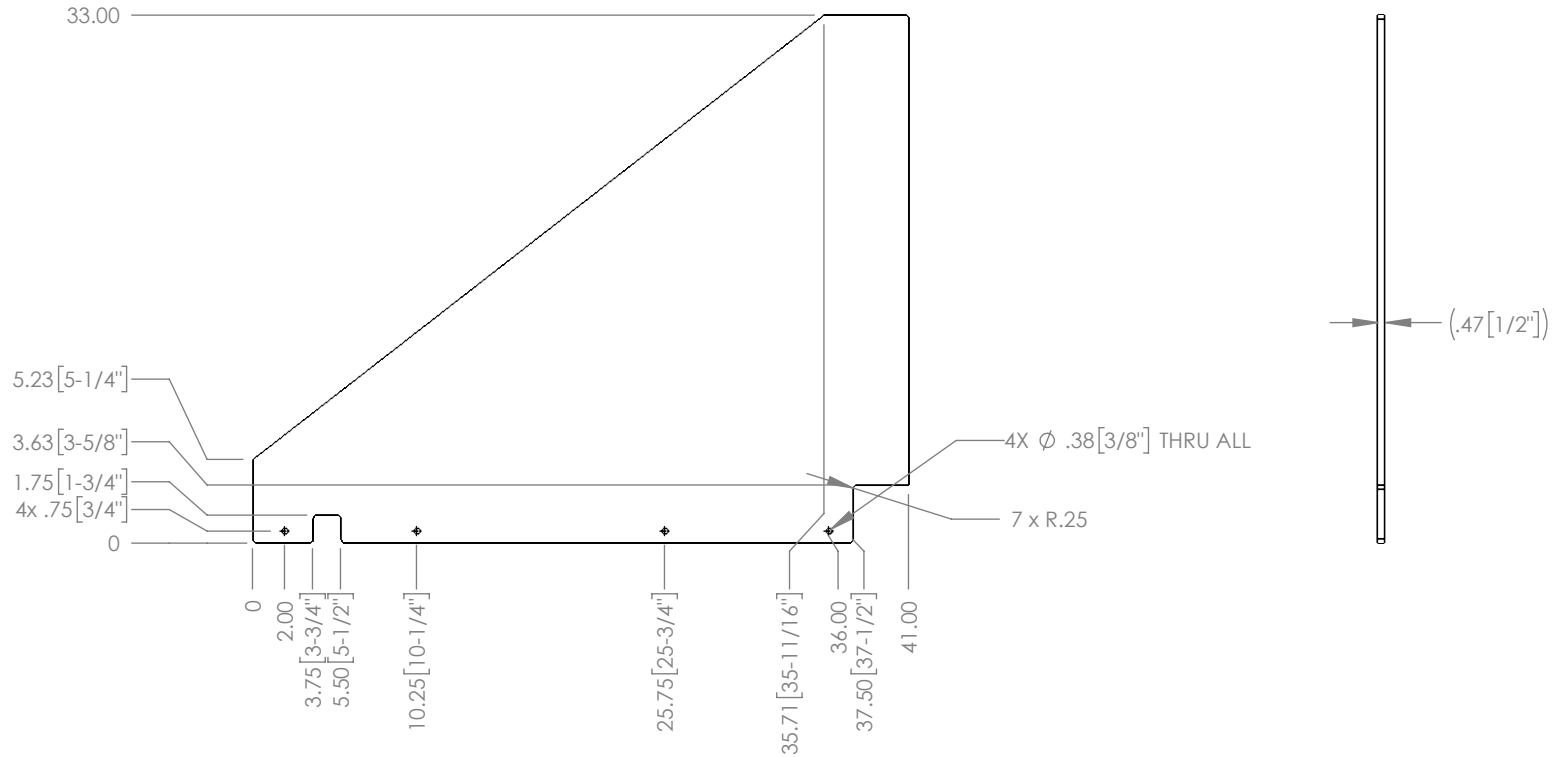
FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Team Version Loading Bay

| | | |
|----------|-----------------|----------|
| SIZE | DWG. NO. | REV |
| A | TE-20000 | A |

SCALE: 1:24 WEIGHT: SHEET 7 OF 16

TE-20000-02
QTY (2)



Notes:

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

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

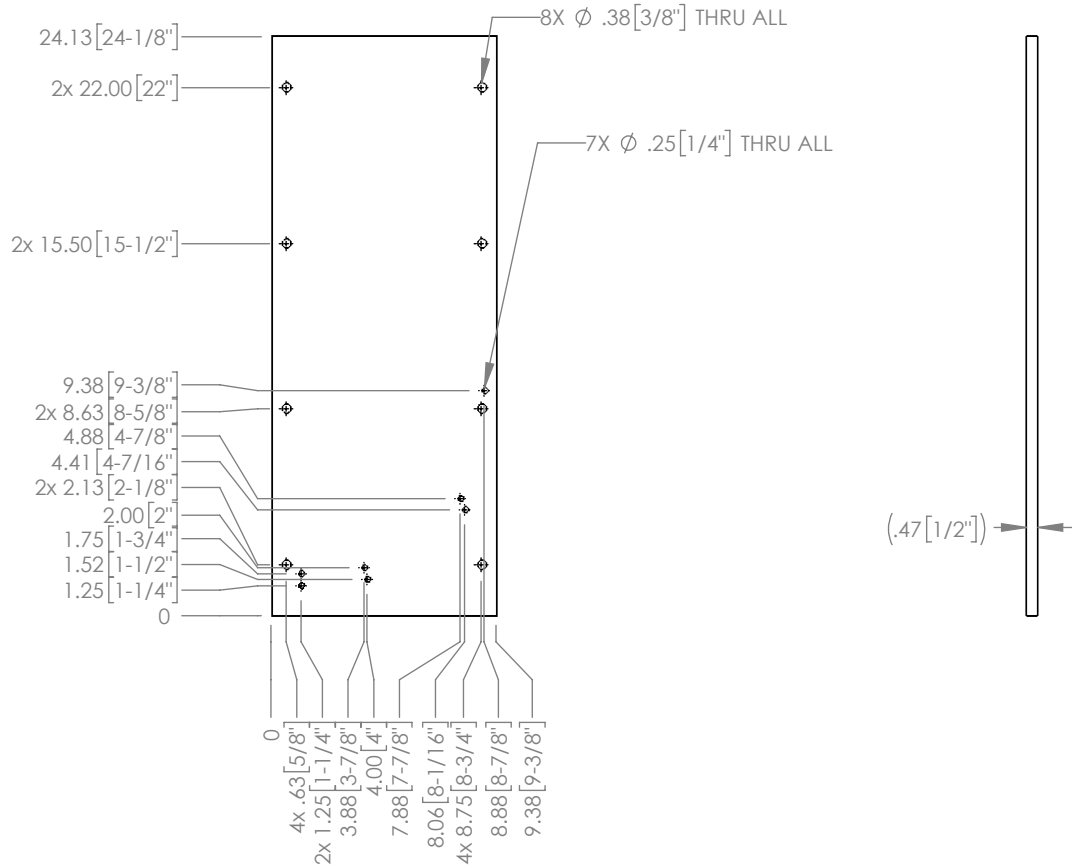
FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
Team Version Loading Bay

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

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TITLE:
Team Version Loading Bay

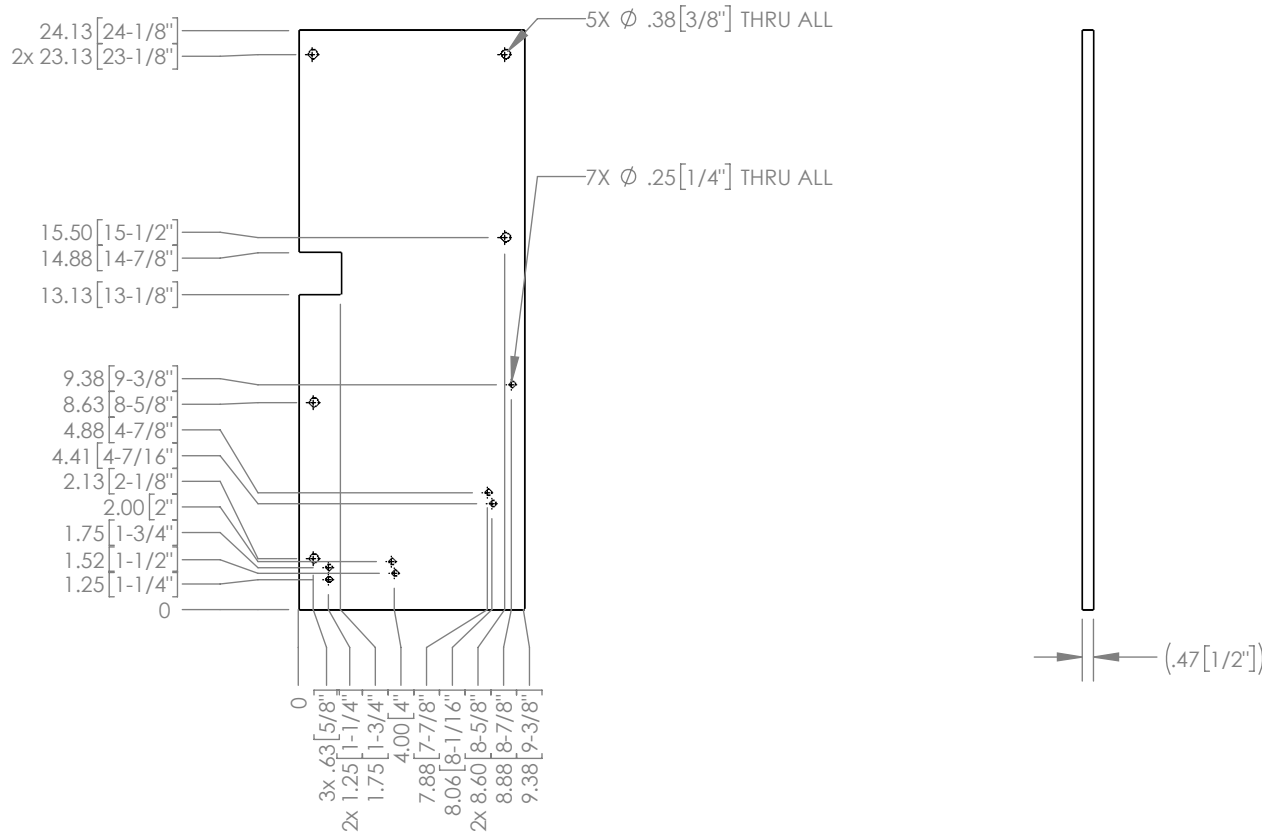
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|----------|-----------------|----------|
| SIZE | DWG. NO. | REV |
| A | TE-20000 | A |

SCALE: 1:24 WEIGHT: SHEET 9 OF 16

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TE-20000-11
QTY (2)



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

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



| | | |
|---|-----------------------------|-----------------|
| TITLE: Team Version Loading Bay | | |
| SIZE A | DWG. NO. TE-20000 | REV A |
| SCALE: 1:24 WEIGHT: | | SHEET 10 OF 16 |

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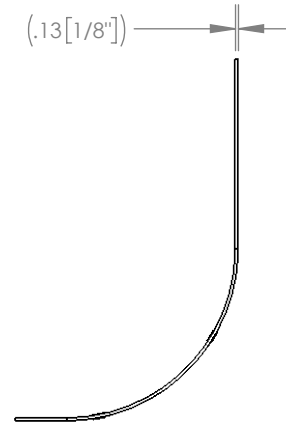
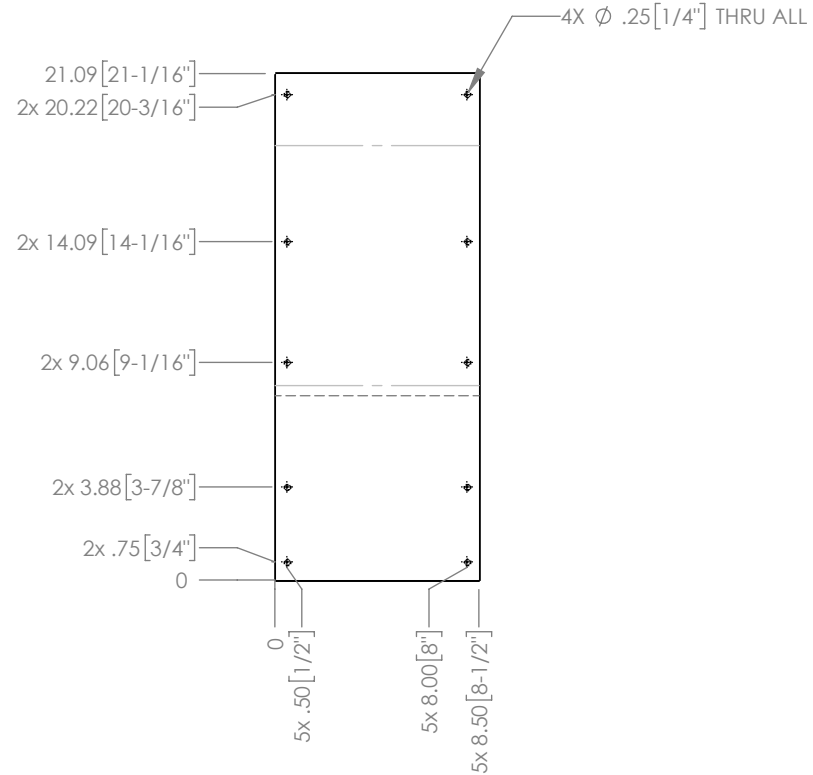
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TE-20000-08
QTY (1)



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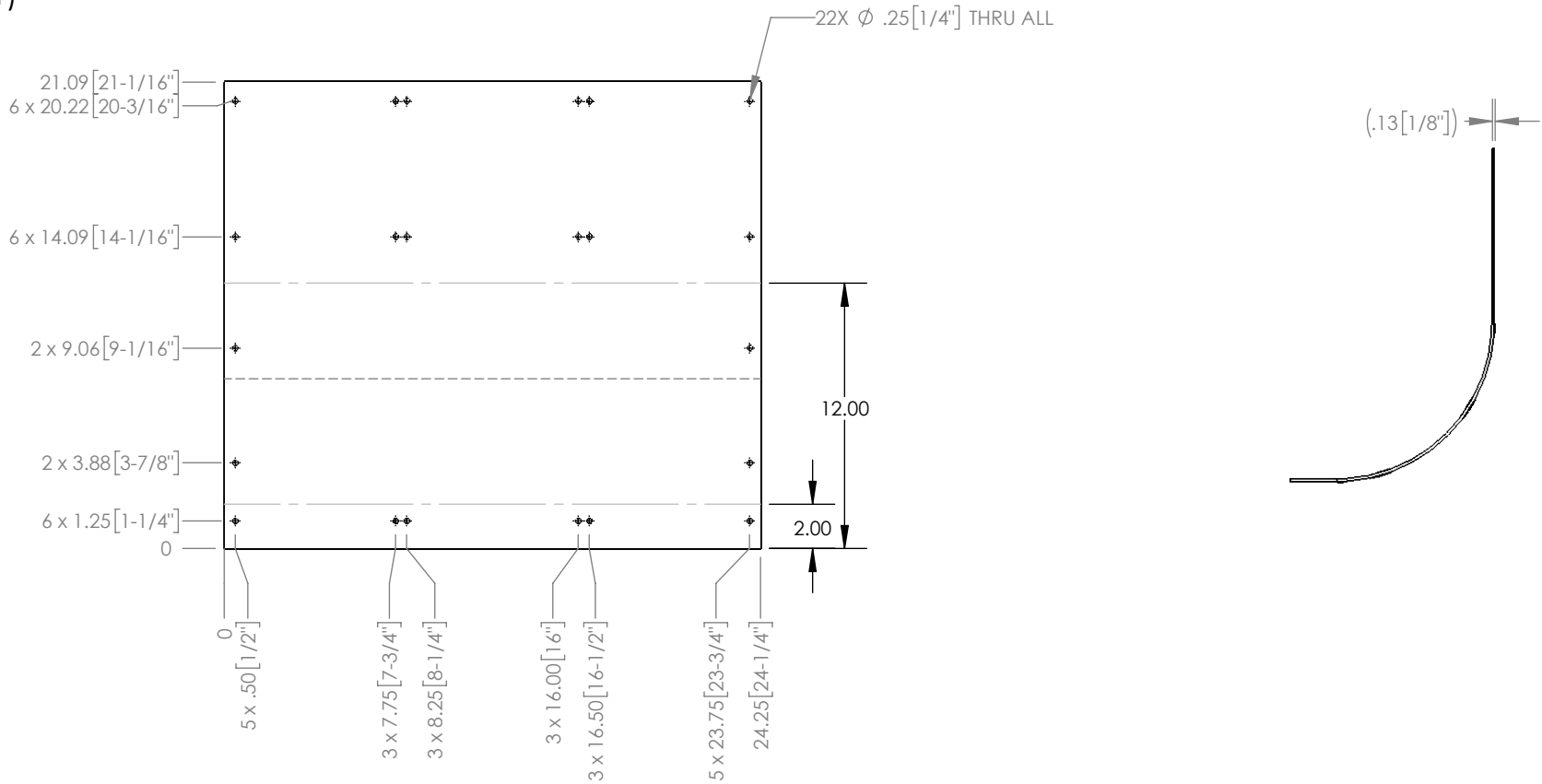


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|---|-----------------------------|-----------------|
| TITLE: Team Version Loading Bay | | |
| SIZE A | DWG. NO. TE-20000 | REV A |
| SCALE: 1:24 WEIGHT: | | SHEET 11 OF 16 |

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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

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| | | INTERPRET GEOMETRIC TOLERANCING PER: | CHECKED | | |
| | | MATERIAL | ENG APPR. | | |
| | | FINISH | MFG APPR. | | |
| NEXT ASSY | USED ON | | Q.A. | | |
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TITLE:
Team Version Loading Bay

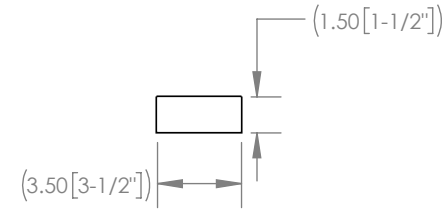
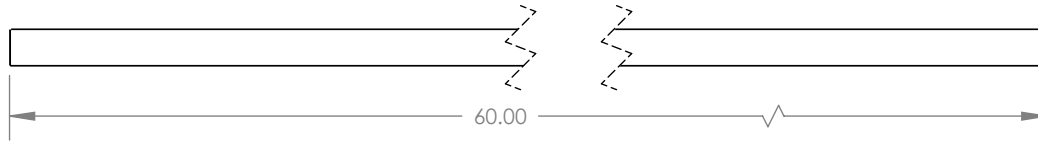
SIZE **A** DWG. NO. **TE-20000** REV **A**

SCALE: 1:24 WEIGHT: SHEET 12 OF 16

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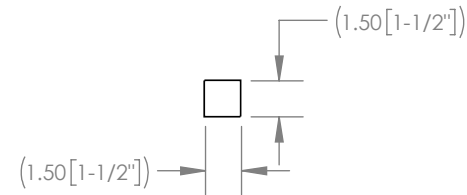
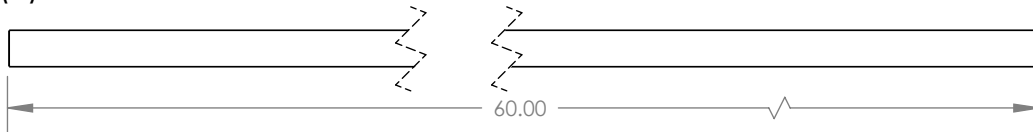
1

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



TITLE:
Team Version Loading Bay

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|----------|-----------------|----------|
| SIZE | DWG. NO. | REV |
| A | TE-20000 | A |

SCALE: 1:24 WEIGHT: SHEET 13 OF 16

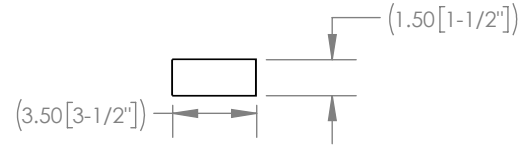
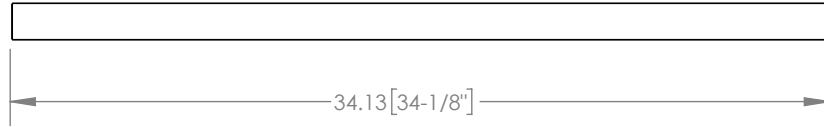
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TE-20000-05
QTY (2)

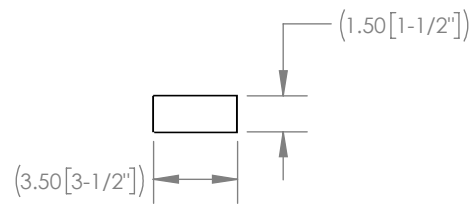
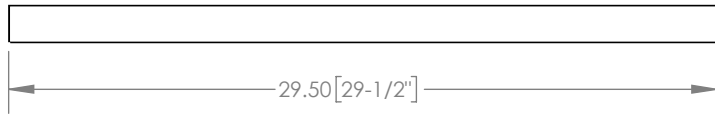


Note:
1. Material: 2" x 4" Pine

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TE-20000-06
QTY (2)



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

A

A

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



TITLE:
Team Version Loading Bay

| | | |
|----------|-----------------|----------|
| SIZE | DWG. NO. | REV |
| A | TE-20000 | A |

SCALE: 1:24 WEIGHT: SHEET 14 OF 16

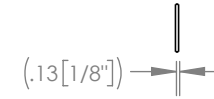
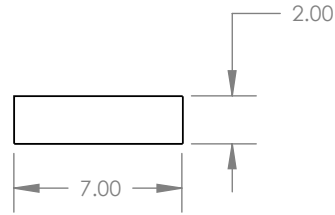
2

1

2

1

Vision_LoadingBay
QTY (4)



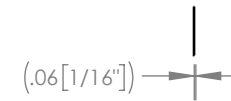
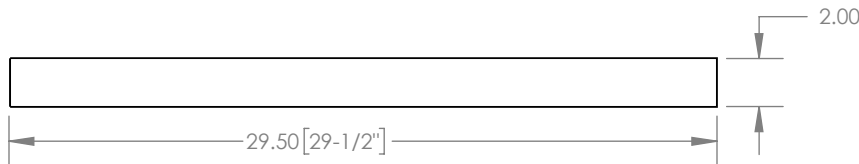
Notes:

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

B

B

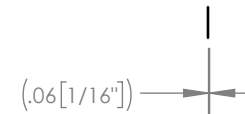
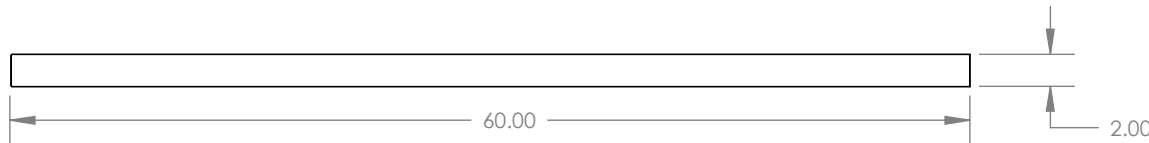
TE-20000-12
QTY (2)



Notes:

- 1. 2" wide Hook

TE-20000-13
QTY (1)



Notes:

- 1. 2" wide Hook

A

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



TITLE:
Team Version Loading Bay

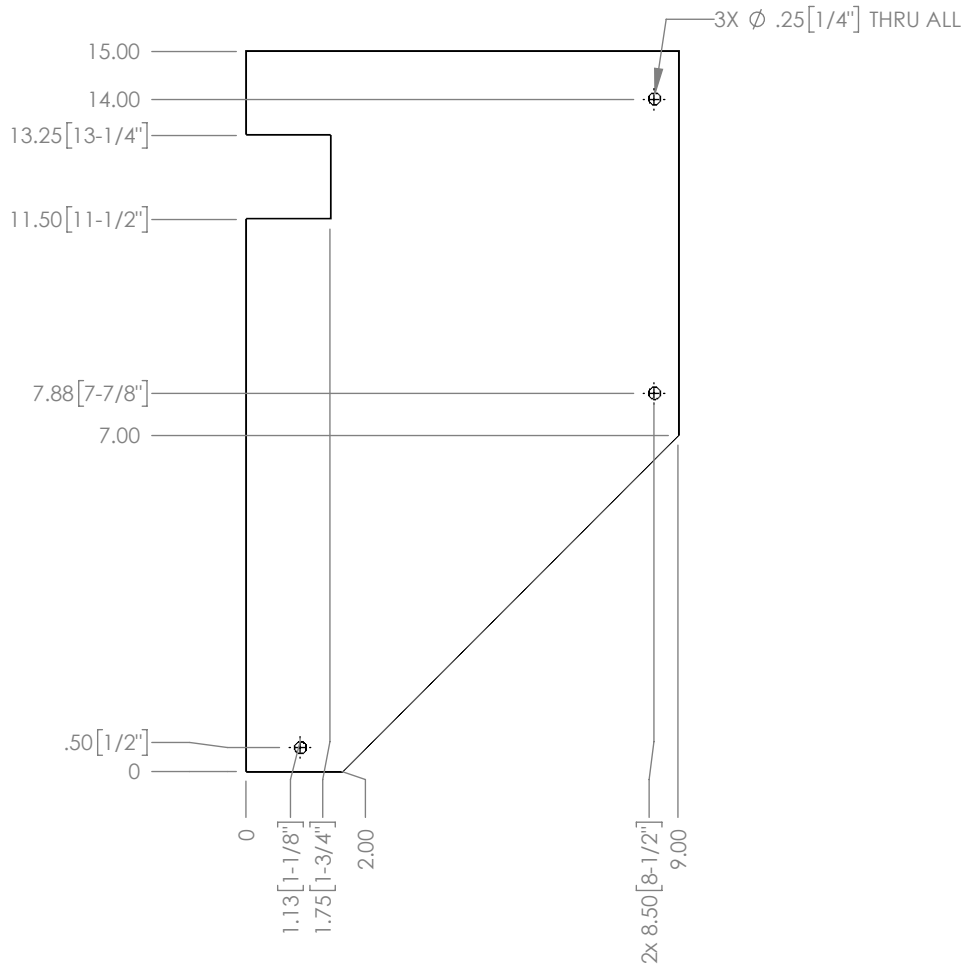
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|----------|-----------------|----------|
| SIZE | DWG. NO. | REV |
| A | TE-20000 | A |

SCALE: 1:24 WEIGHT: SHEET 15 OF 16

2

1

TE-20000-10
QTY (2)



Notes:
1. 1/8" Hardboard

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

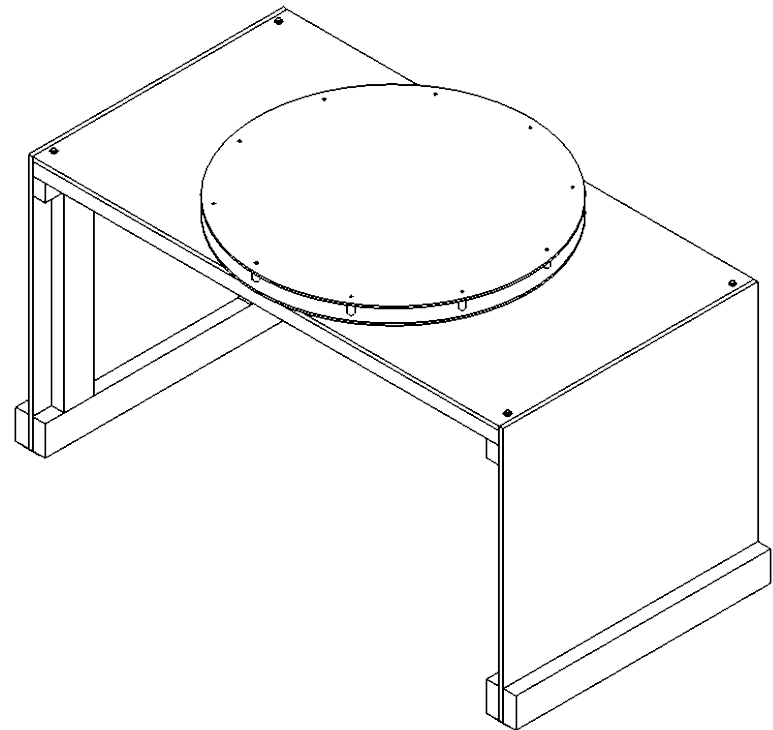
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|-----------------------------------|-----------------|----------|----------------|
| | | | |
| | | | |
| <h1>Team Version Loading Bay</h1> | | | |
| SIZE | DWG. NO. | REV | |
| A | TE-20000 | A | |
| SCALE: 1:24 | | WEIGHT: | SHEET 16 OF 16 |

2

1

| 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 |





B

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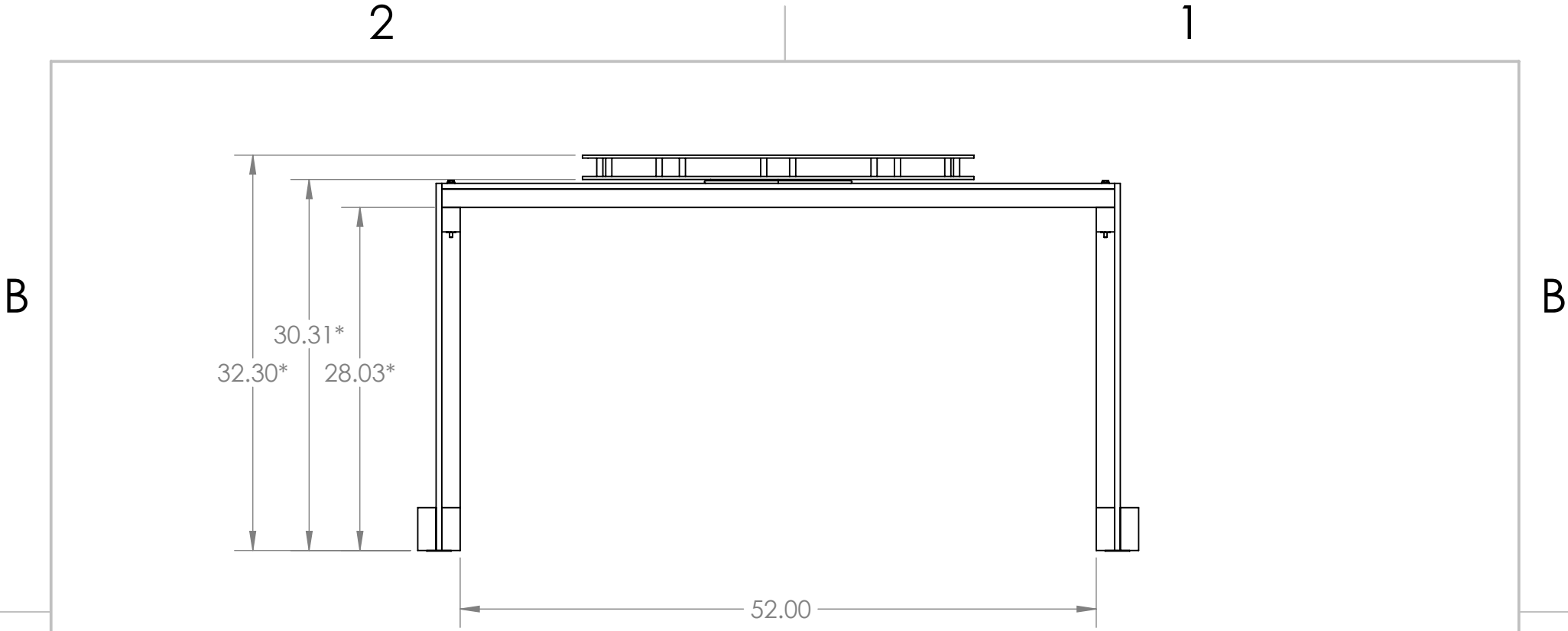
A

| | | | | | | | | | | | |
|-------------|-----------------|---|-----------|------|---|---------------------------|----------|---------------|----------|-----------------|----------|
| | | UNLESS OTHERWISE SPECIFIED: | NAME | DATE |   | | | | | | |
| | | DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .01 THREE PLACE DECIMAL ± .001 | DRAWN | | | TITLE: <h1>Trench</h1> | | | | | |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | CHECKED | | <table border="1"> <tr> <td>SIZE</td> <td>DWG. NO.</td> <td>REV</td> </tr> <tr> <td>A</td> <td>TE-20001</td> <td>A</td> </tr> </table> | SIZE | DWG. NO. | REV | A | TE-20001 | A |
| SIZE | DWG. NO. | REV | | | | | | | | | |
| A | TE-20001 | A | | | | | | | | | |
| | | MATERIAL | ENG APPR. | | <table border="1"> <tr> <td>SCALE: 1:24</td> <td>WEIGHT:</td> <td>SHEET 1 OF 12</td> </tr> </table> | SCALE: 1:24 | WEIGHT: | SHEET 1 OF 12 | | | |
| SCALE: 1:24 | WEIGHT: | SHEET 1 OF 12 | | | | | | | | | |
| | | FINISH | MFG APPR. | | | | | | | | |
| NEXT ASSY | USED ON | | Q.A. | | | | | | | | |
| APPLICATION | | DO NOT SCALE DRAWING | COMMENTS: | | | | | | | | |



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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.

| | | | | | | | | | | | | |
|---|--------------------------------------|------------------------------|-----------|------|------|---|---|----------|---------------|----------|-----------------|----------|
| <p>PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST®. Any REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED.</p> | | UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |   | | | | | | |
| | | DIMENSIONS ARE IN INCHES | DRAWN | | | | <p>TITLE:</p> <h1 style="text-align: center;">Trench</h1> | | | | | |
| | | TOLERANCES: | CHECKED | | | | | | | | | |
| | | FRACTIONAL ± 1/16 | ENG APPR. | | | | | | | | | |
| | | ANGULAR: MACH ± 1° BEND ± 1° | MFG APPR. | | | | | | | | | |
| | TWO PLACE DECIMAL ± .01 | Q.A. | | | | | | | | | | |
| | THREE PLACE DECIMAL ± .001 | COMMENTS: | | | | | | | | | | |
| | INTERPRET GEOMETRIC TOLERANCING PER: | MATERIAL | | | | <table border="1"> <tr> <td>SIZE</td> <td>DWG. NO.</td> <td>REV</td> </tr> <tr> <td>A</td> <td>TE-20001</td> <td>A</td> </tr> </table> | SIZE | DWG. NO. | REV | A | TE-20001 | A |
| SIZE | DWG. NO. | REV | | | | | | | | | | |
| A | TE-20001 | A | | | | | | | | | | |
| | NEXT ASSY | USED ON | FINISH | | | <table border="1"> <tr> <td>SCALE: 1:24</td> <td>WEIGHT:</td> <td>SHEET 2 OF 12</td> </tr> </table> | SCALE: 1:24 | WEIGHT: | SHEET 2 OF 12 | | | |
| SCALE: 1:24 | WEIGHT: | SHEET 2 OF 12 | | | | | | | | | | |
| | APPLICATION | DO NOT SCALE DRAWING | | | | | | | | | | |

B

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2

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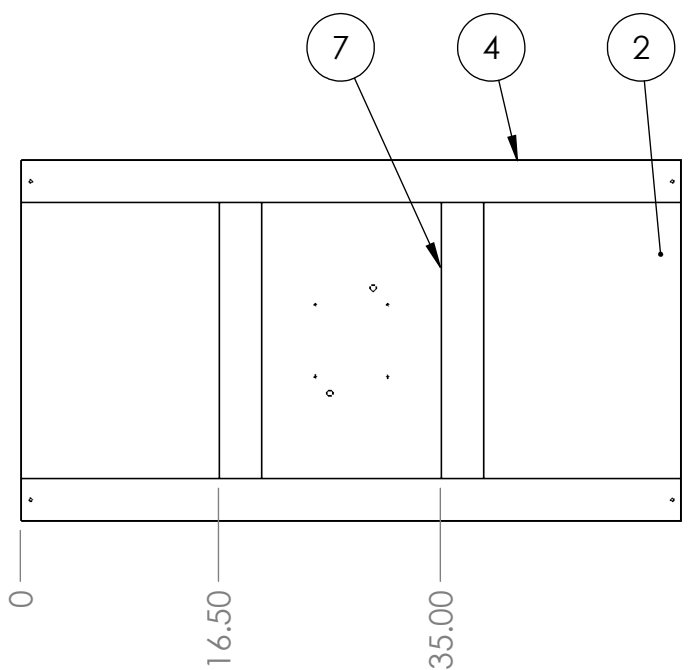
2

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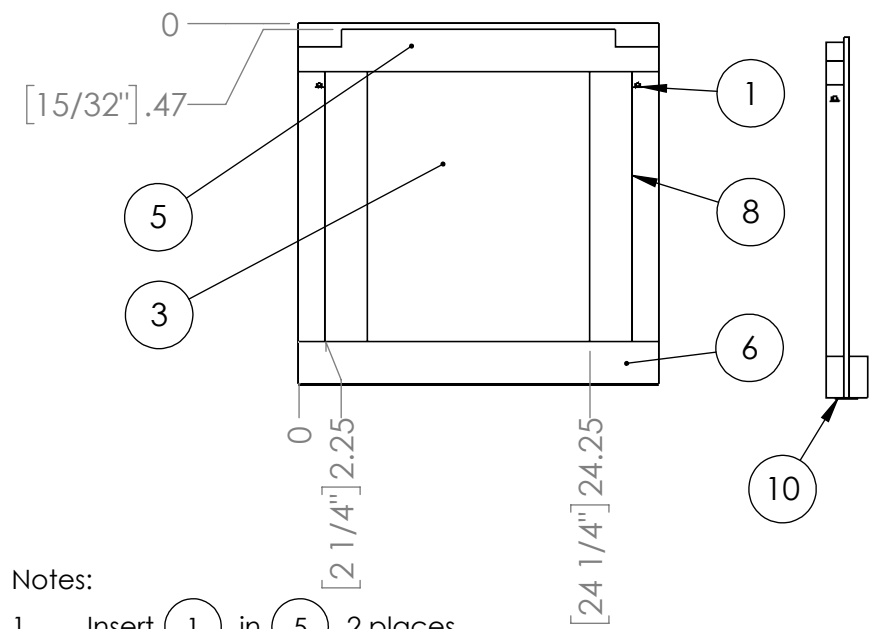
Step 1:



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.

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.

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

TITLE: **Trench**

| | | |
|----------|-----------------|----------|
| SIZE | DWG. NO. | REV |
| A | TE-20001 | A |

SCALE: 1:24 WEIGHT: SHEET 3 OF 12

2

1

2

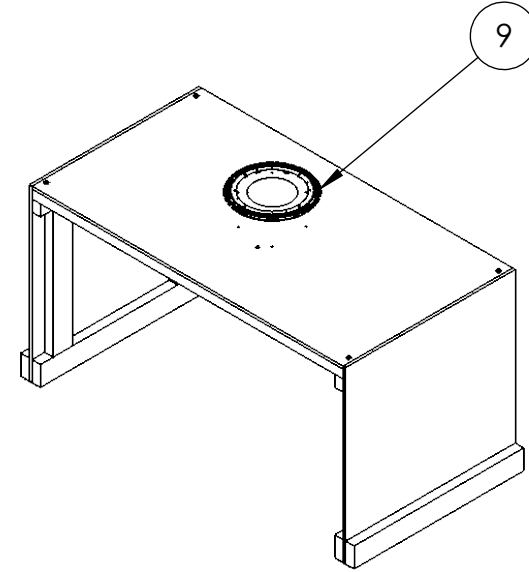
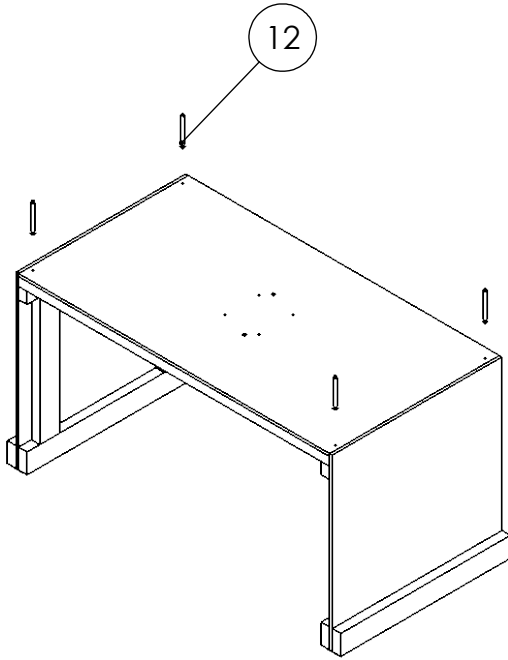
1

Step 4:

Step 5:

B

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Notes:

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

Notes:



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

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

TITLE:

Trench

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

Step 5:

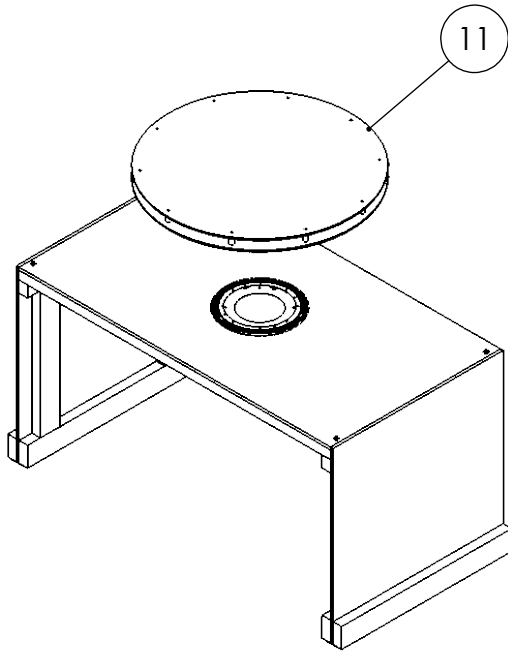
2

1

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



| | | |
|---------------------|-----------------|---------------|
| TITLE: | | |
| <h1>Trench</h1> | | |
| SIZE | DWG. NO. | REV |
| A | TE-20001 | A |
| SCALE: 1:24 WEIGHT: | | SHEET 5 OF 12 |

2

1

TE-20001-01
QTY (1)

30.00
2 x [28 1/4"] 28.25

A

[19 3/8"] 19.37
2X [18"] 18.01

2 x [12"] 11.99
[10 5/8"] 10.63

2 x [1 3/4"] 1.75

0

2 x [3/4"] .75

2 x [24 1/2"] 24.49

[25 11/16"] 25.69

[29 5/16"] 29.31

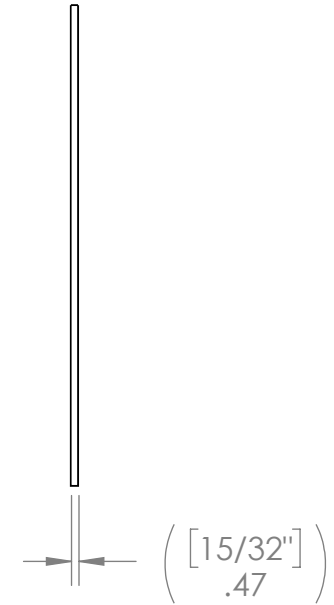
2 x [30 1/2"] 30.51

2 x [54 1/4"] 54.25
55.00

2X ϕ .50 THRU ALL

4X ϕ .20 THRU ALL

4X ϕ .27 THRU ALL



Notes:

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

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

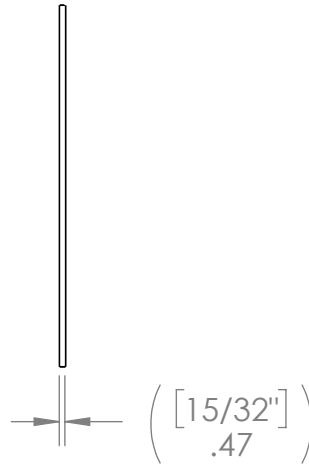
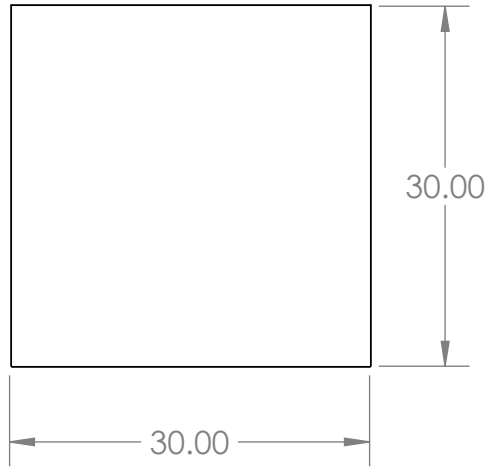


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|---------------------------|-----------------------------|-----------------|
| TITLE: <h1>Trench</h1> | | |
| SIZE A | DWG. NO. TE-20001 | REV A |
| SCALE: 1:24 WEIGHT: | | SHEET 6 OF 12 |

2

1

TE-20001-02
QTY (2)



Notes:

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

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

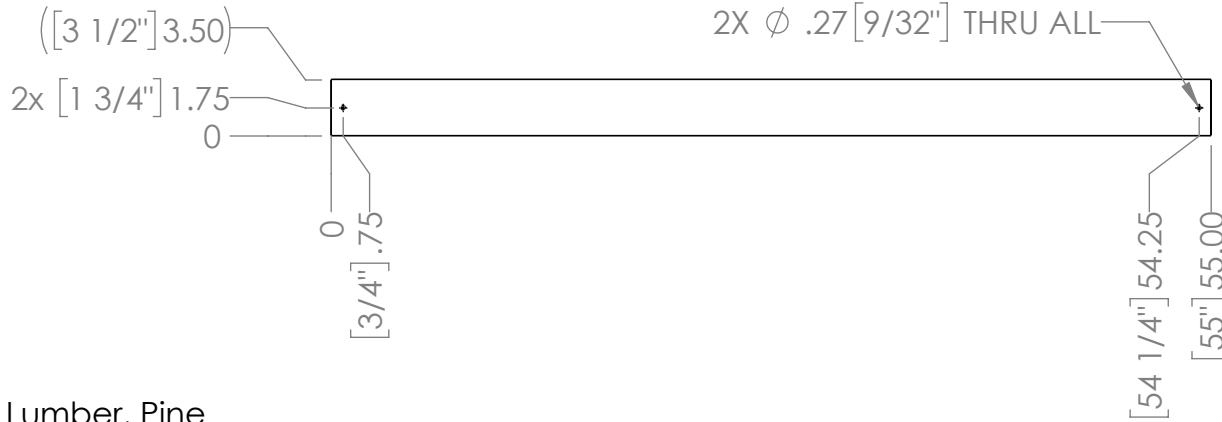


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|-------------------------|-----------------------------|-----------------|
| TITLE: Trench | | |
| SIZE A | DWG. NO. TE-20001 | REV A |
| SCALE: 1:24 WEIGHT: | | SHEET 7 OF 12 |

2

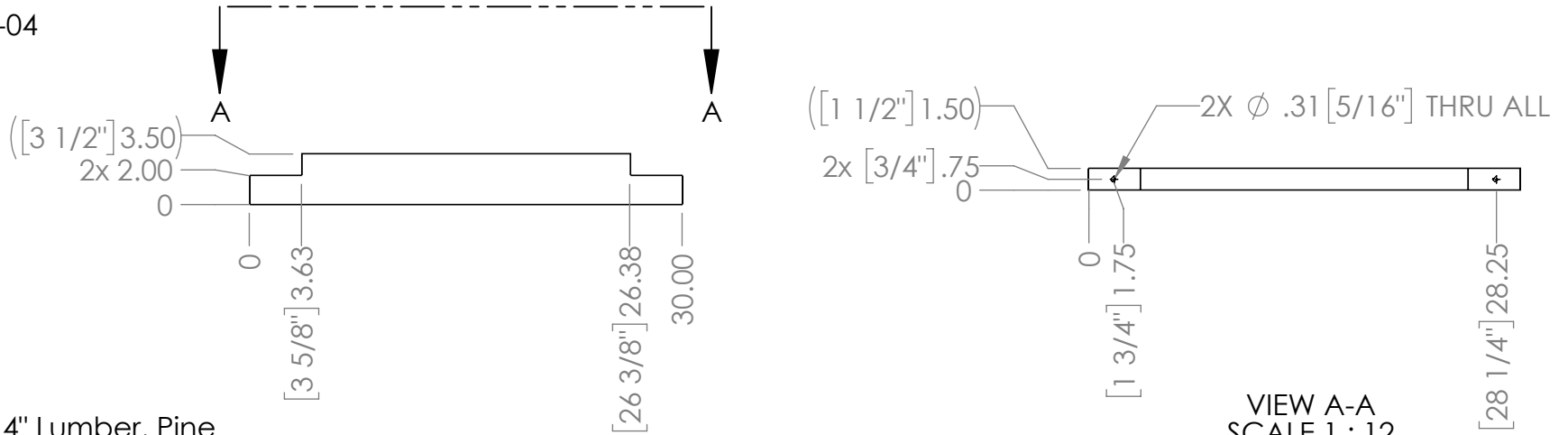
1

TE-20001-03
QTY (2)



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

TE-20001-04
QTY (2)



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

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

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Trench**

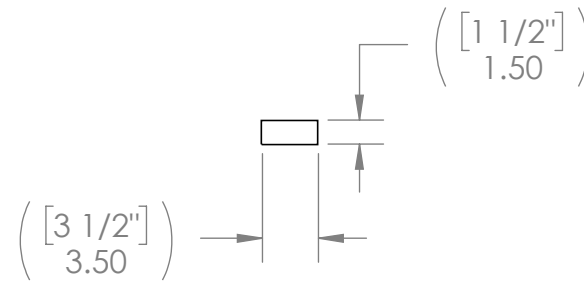
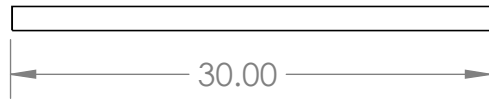
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|----------|-----------------|----------|
| SIZE | DWG. NO. | REV |
| A | TE-20001 | A |

SCALE: 1:24 WEIGHT: SHEET 8 OF 12

2

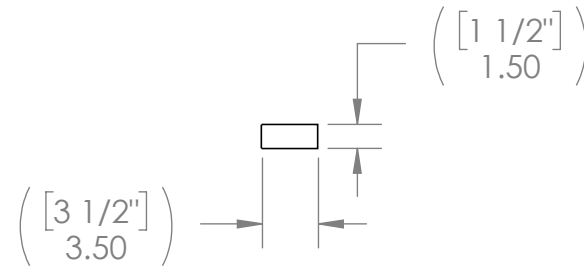
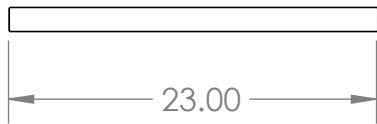
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TE-20001-05
QTY (4)



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

TE-20001-06
QTY (2)



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

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



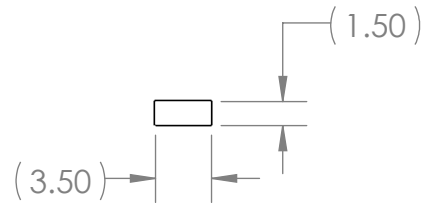
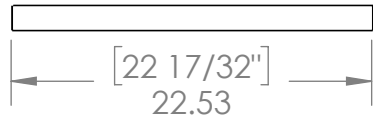
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|---------------------------|-----------------------------|-----------------|
| TITLE: <h1>Trench</h1> | | |
| SIZE A | DWG. NO. TE-20001 | REV A |
| SCALE: 1:24 WEIGHT: | | SHEET 9 OF 12 |

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2

1

TE-20001-07
QTY (4)



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

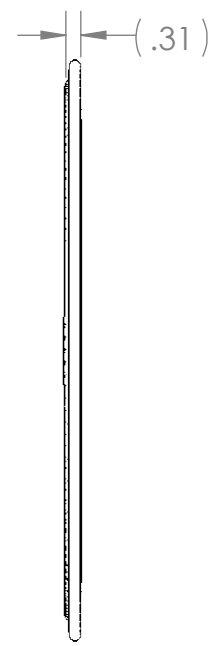
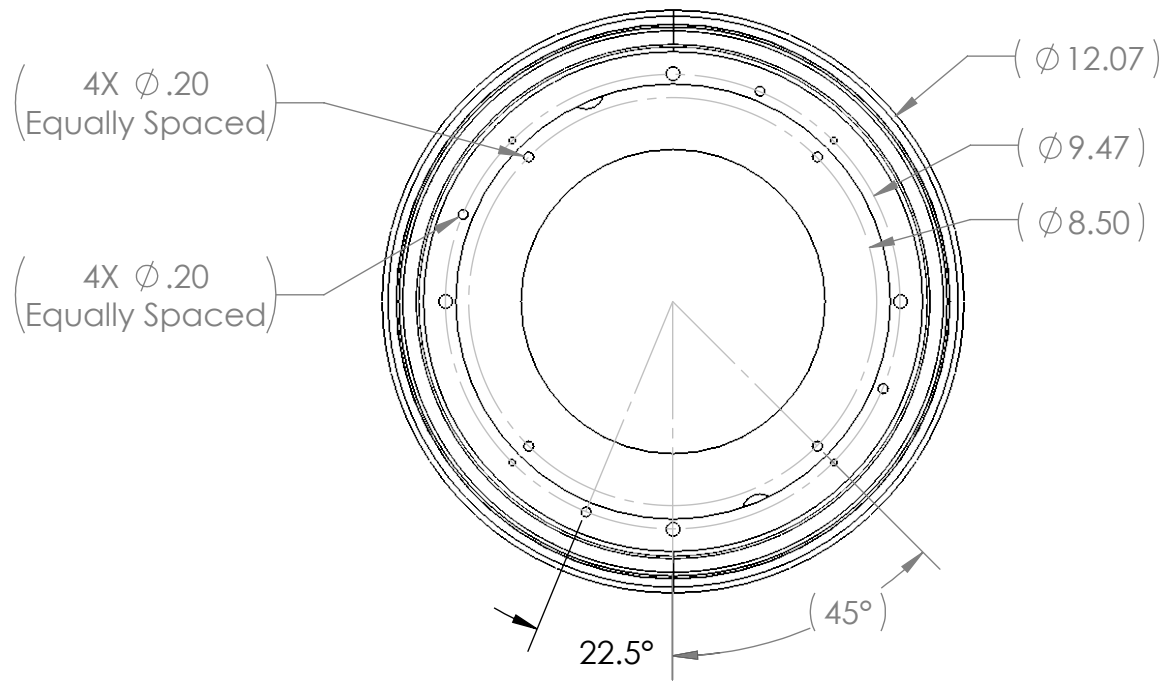
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| | | UNLESS OTHERWISE SPECIFIED: | NAME | DATE |
|-------------|---------|--------------------------------------|-----------|------|
| | | DIMENSIONS ARE IN INCHES | DRAWN | |
| | | TOLERANCES: | CHECKED | |
| | | FRACTIONAL ± 1/16 | ENG APPR. | |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



| | | |
|-------------------------|-----------------------------|-----------------|
| TITLE: Trench | | |
| SIZE A | DWG. NO. TE-20001 | REV A |
| SCALE: 1:24 WEIGHT: | | SHEET 10 OF 12 |

TE-20001-08





Notes:

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

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

TITLE: **Trench**

| | | |
|----------|-----------------|----------|
| SIZE | DWG. NO. | REV |
| A | TE-20001 | A |

SCALE: 1:24 WEIGHT: SHEET 11 OF 12

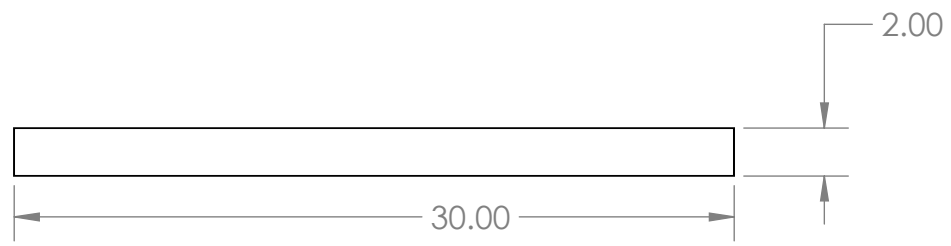
2

1

B

B

TE-20001-09
QTY (2)



- Notes:
1. Material: 2" Hook, Adhesive Backed

A

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



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

2

1

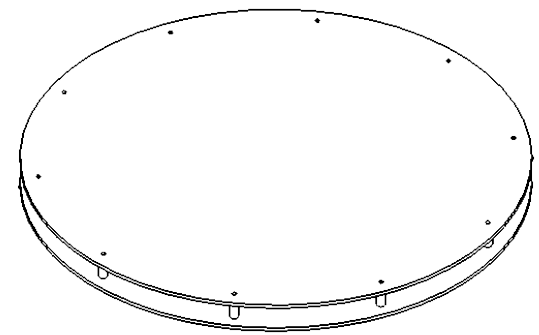
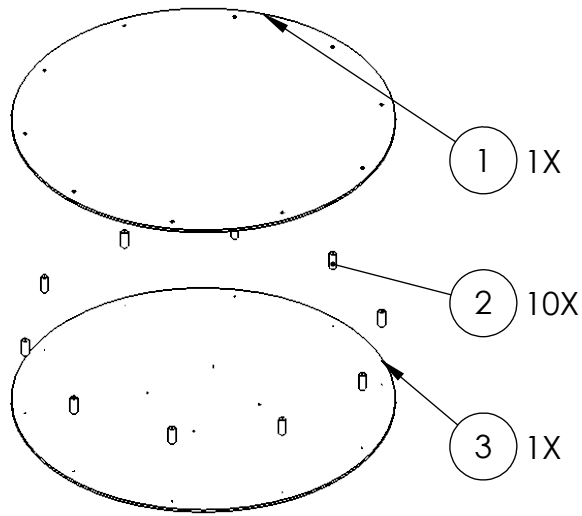
2

1

| 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 |

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



TITLE:
Control Panel

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

2

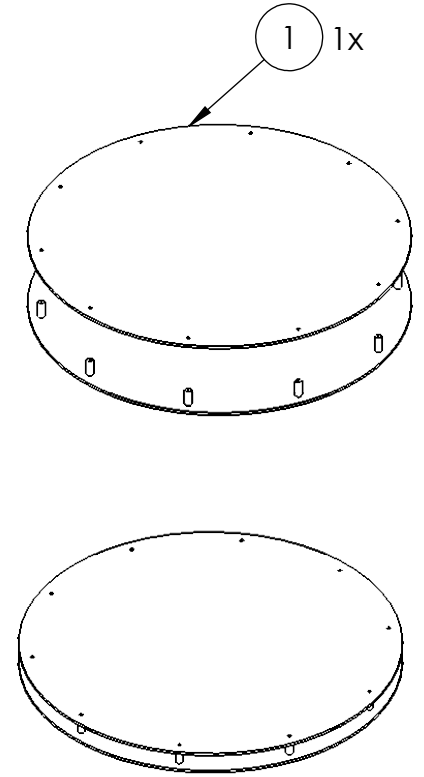
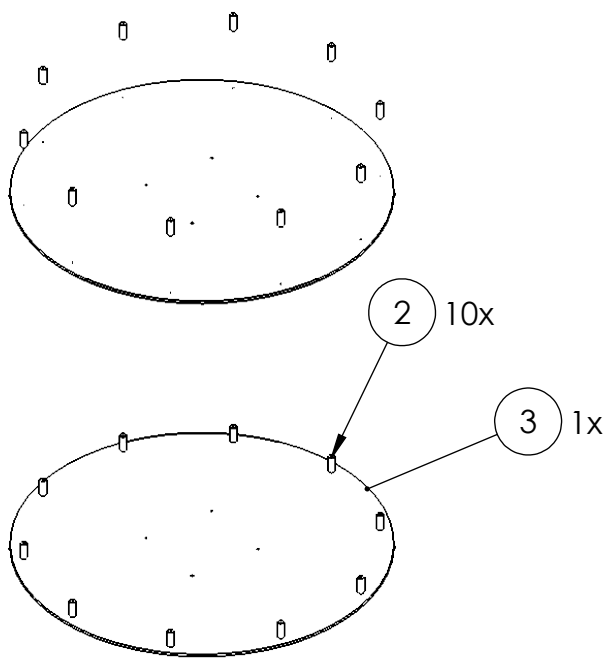
1

2

1

Step 1:

Step 2:



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

B

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



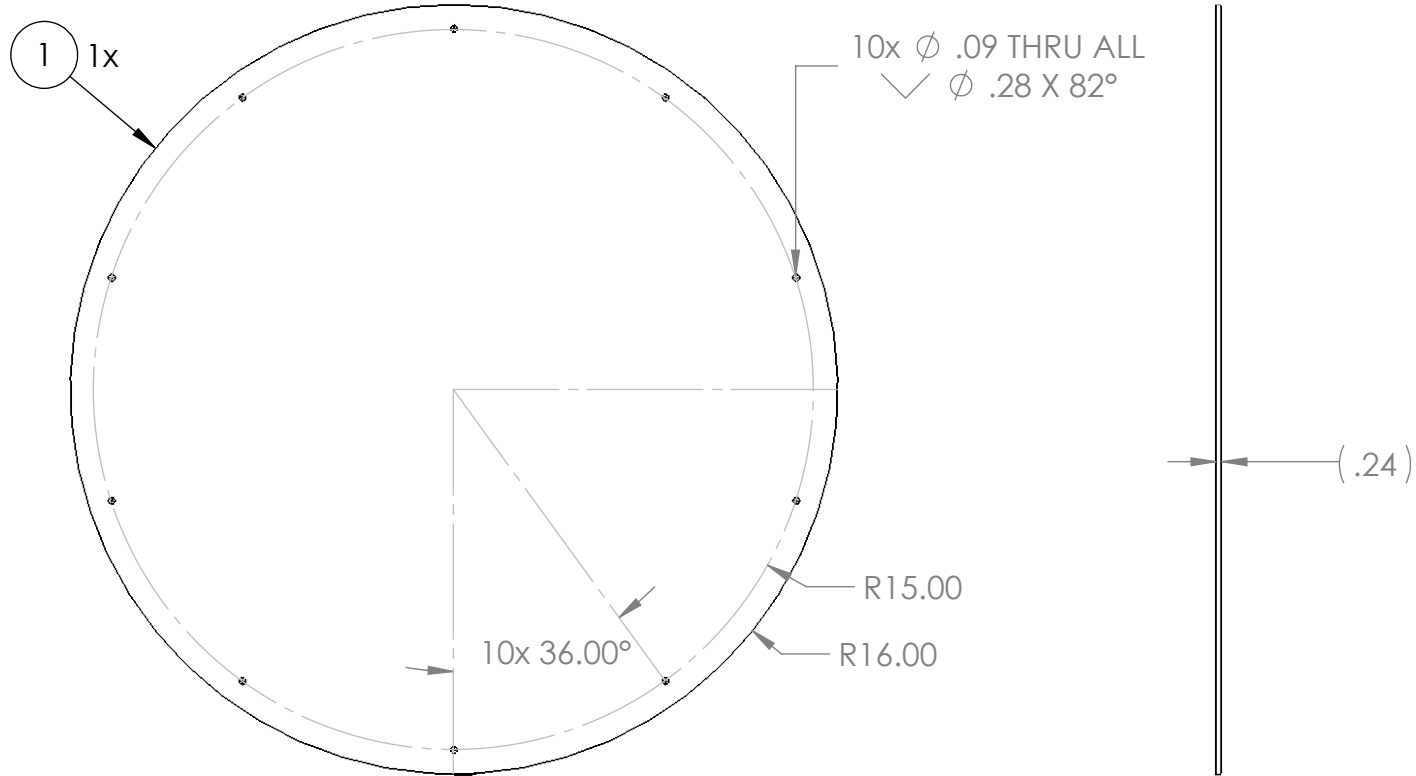
TITLE:
Control Panel

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

2

1

TE-20002-01



Note:

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

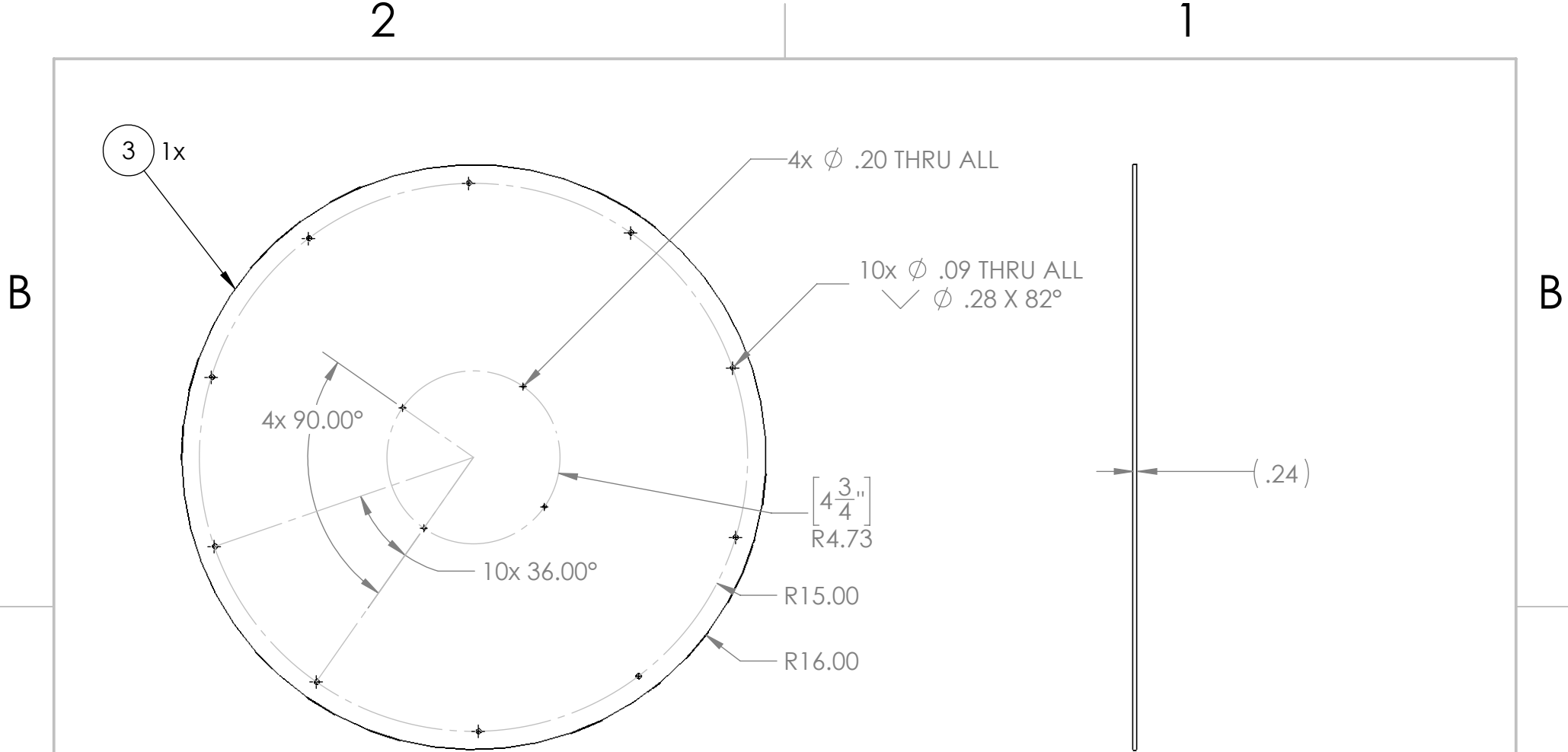
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| | | UNLESS OTHERWISE SPECIFIED: | NAME | DATE |
|-------------|---------|--------------------------------------|-----------|------|
| | | DIMENSIONS ARE IN INCHES | DRAWN | |
| | | TOLERANCES: | CHECKED | |
| | | FRACTIONAL ± 1/16 | ENG APPR. | |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



TITLE:
Control Panel

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





Note:

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

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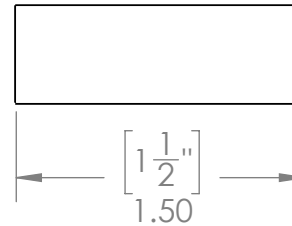
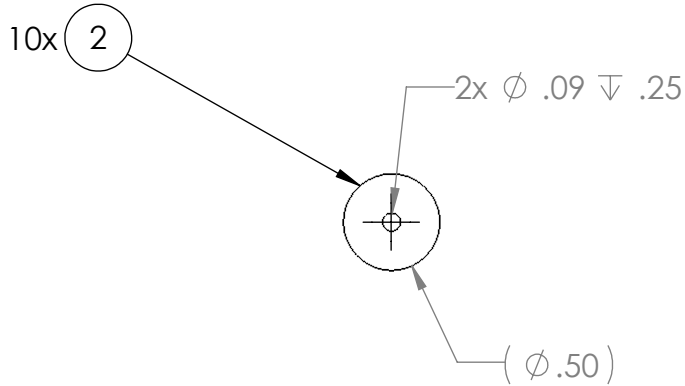
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|-------------|---------|--------------------------------------|-----------|------|
| | | DIMENSIONS ARE IN INCHES | DRAWN | |
| | | TOLERANCES: | CHECKED | |
| | | FRACTIONAL ± 1/16 | ENG APPR. | |
| | | ANGULAR: MACH ± 1° BEND ± 1° | MFG APPR. |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

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

2

1

TE-20002-02



Note:

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

B

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



TITLE:
Control Panel

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

2

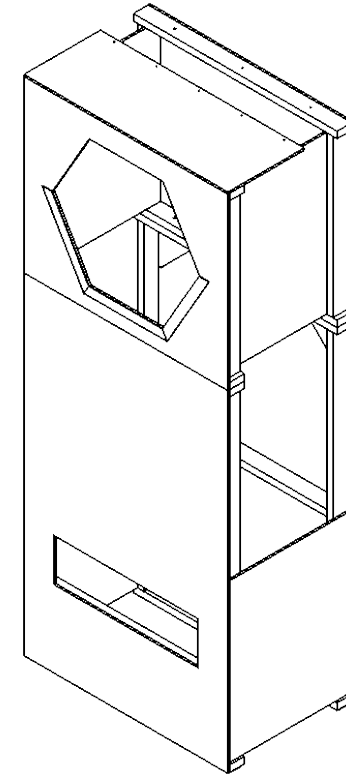
1

2

1

| 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 |



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

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| FIRST ROBOTICS COMPETITION | | 3D SOLIDWORKS Modeling Solutions Partner | |
|--------------------------------|-----------------------------|---|---------------|
| TITLE: TE Power Port | | | |
| SIZE A | DWG. NO. TE-20003 | REV | |
| SCALE: 1:32 | | WEIGHT: | SHEET 1 OF 16 |

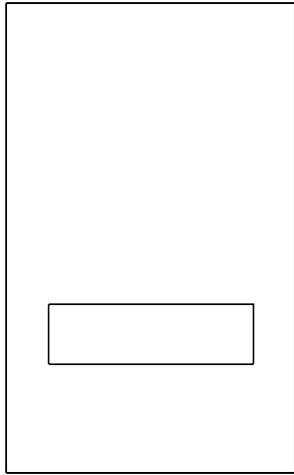
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1

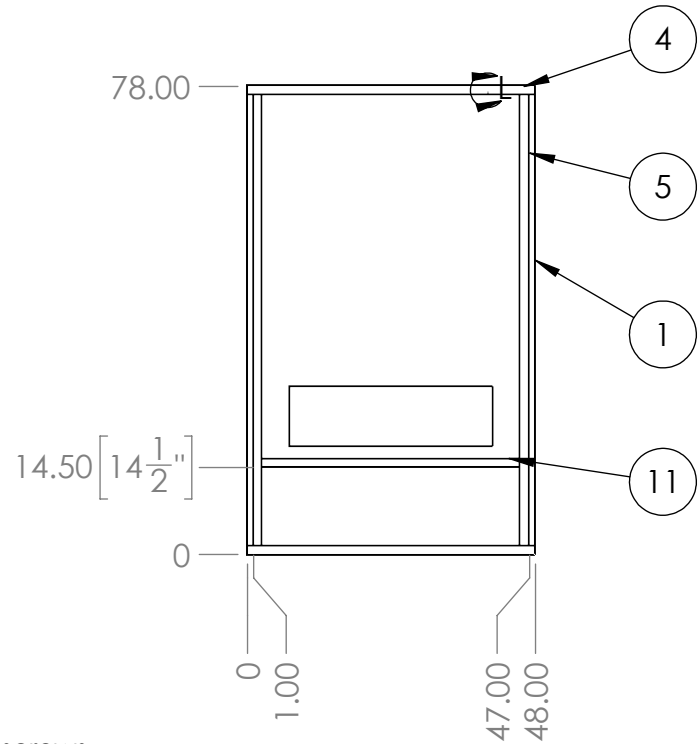
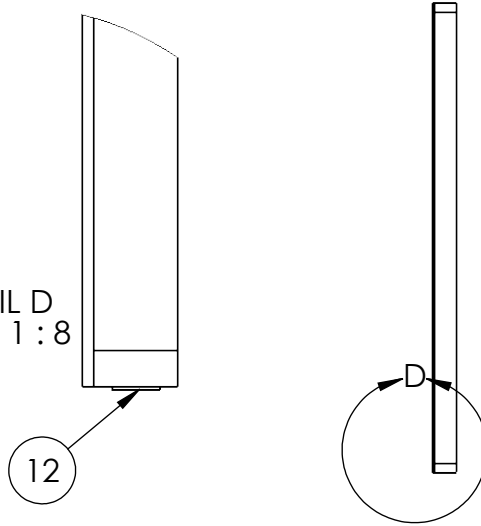
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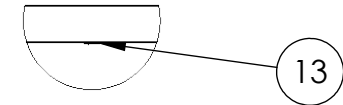
Front Lower Frame Assembly



DETAIL D
SCALE 1 : 8



DETAIL L
SCALE 1 : 8



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 stapels 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)

B

B

A

A

| | | | | | | |
|-------------|--|---|--|-----------|------|---|
| | | UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |   |
| | | DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .01 THREE PLACE DECIMAL ± .001 | | DRAWN | | |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | | CHECKED | | SIZE DWG. NO. REV A TE-20003 |
| | | MATERIAL | | ENG APPR. | | |
| NEXT ASSY | | USED ON | | MFG APPR. | | SCALE: 1:32 WEIGHT: SHEET 2 OF 16 |
| APPLICATION | | DO NOT SCALE DRAWING | | Q.A. | | |
| | | | | COMMENTS: | | |

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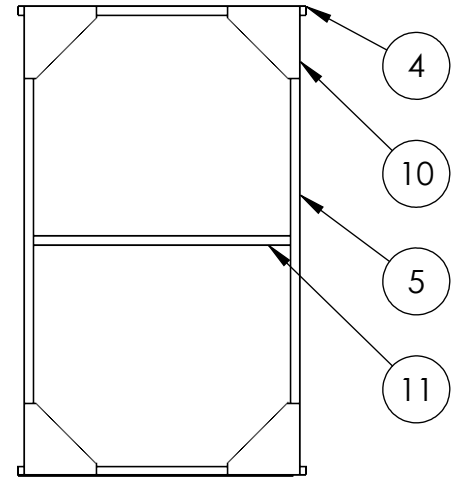
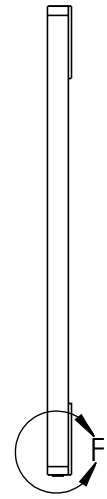
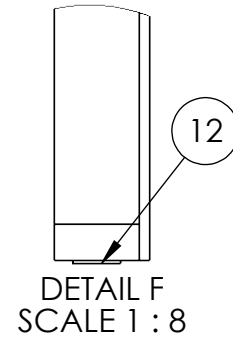
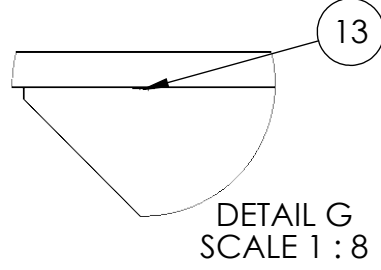
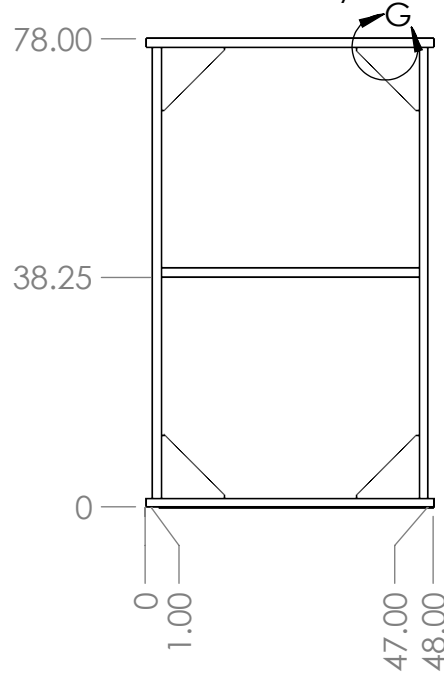
2

1

2

1

Back Lower Frame Assembly



B

B

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)

A

A

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



TITLE:
TE Power Port

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

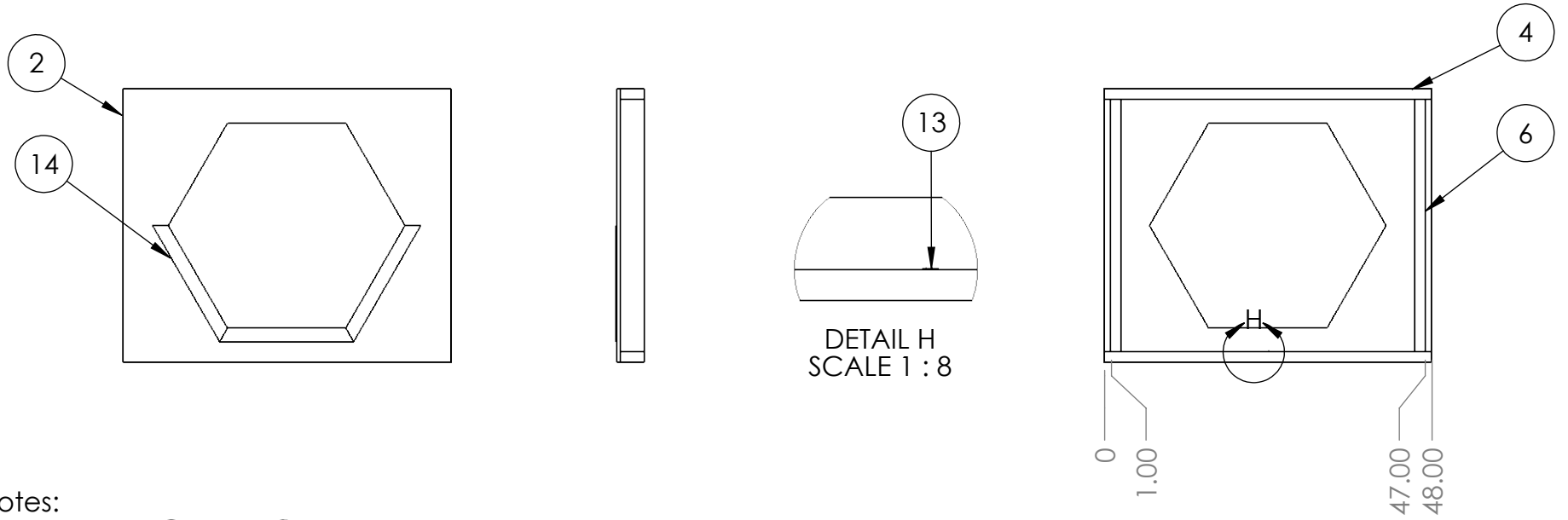
2

1

2



1

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

| | | | | | | | | |
|---|-----------|---------|---|-----------|------|------|---|--------------------------------|
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| | | | DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .01 THREE PLACE DECIMAL ± .001 | DRAWN | | | | TITLE: TE Power Port |
| | | | INTERPRET GEOMETRIC TOLERANCING PER: | CHECKED | | | | |
| | | | MATERIAL | ENG APPR. | | | | |
| | | | FINISH | MFG APPR. | | | | |
| | NEXT ASSY | USED ON | | Q.A. | | | SIZE DWG. NO. REV | |
| | | | APPLICATION | COMMENTS: | | | A TE-20003 | |
| | | | DO NOT SCALE DRAWING | | | | SCALE: 1:32 WEIGHT: SHEET 4 OF 16 | |

2

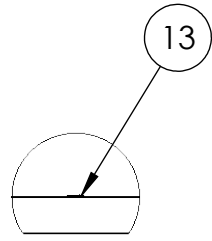
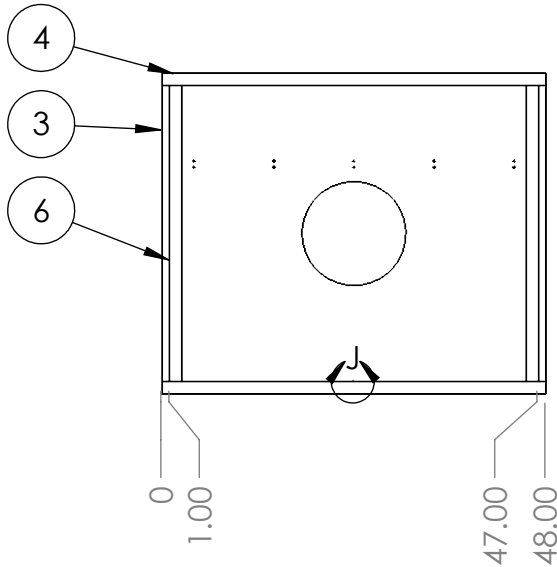
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2

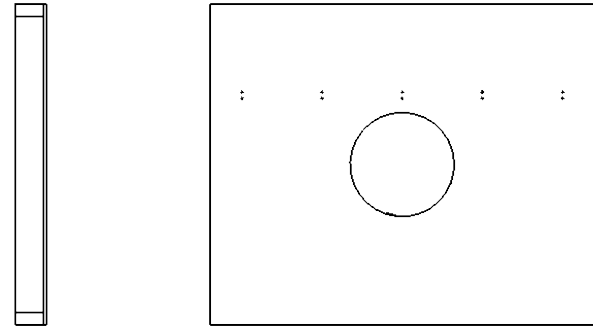
1

Back Upper Frame Assembly

B



DETAIL J
SCALE 1 : 8



B

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.

A

A

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



TITLE:
TE Power Port

SIZE **A** DWG. NO. **TE-20003** REV

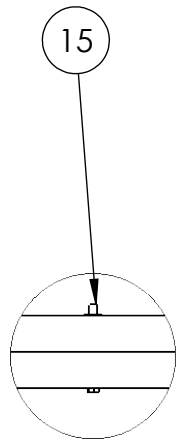
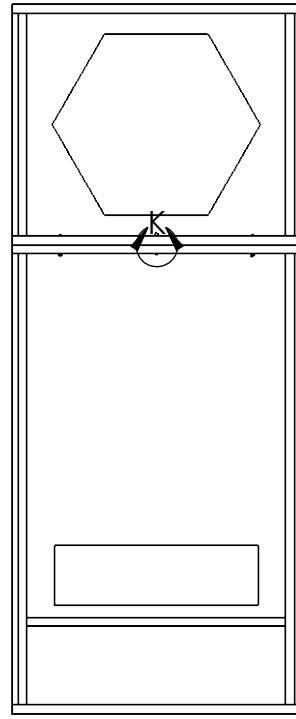
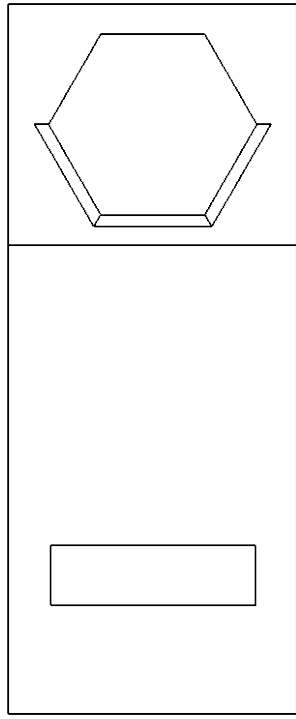
SCALE: 1:32 WEIGHT: SHEET 5 OF 16

2

1

2

1



DETAIL K
SCALE 1 : 8

B

B

Note:

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

A

A

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



TITLE:
TE Power Port

SIZE **A** DWG. NO. **TE-20003** REV

SCALE: 1:32 WEIGHT: SHEET 6 OF 16

2

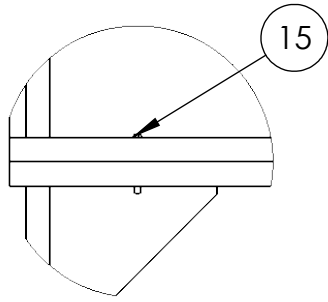
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2

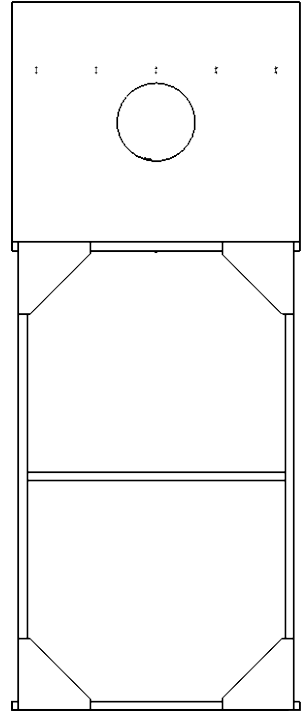
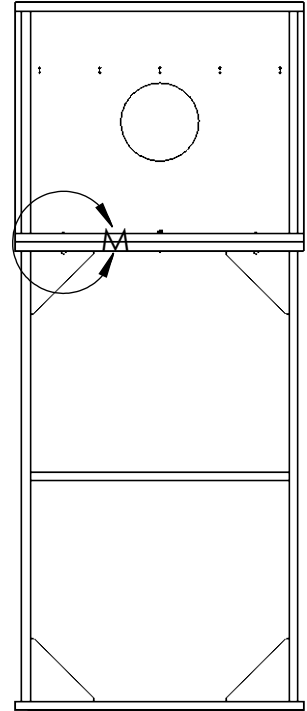
1

B

B



DETAIL M
SCALE 1 : 12



Nores:

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

A

A

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



TITLE:
TE Power Port

SIZE DWG. NO. REV
A TE-20003

SCALE: 1:32 WEIGHT: SHEET 7 OF 16

2

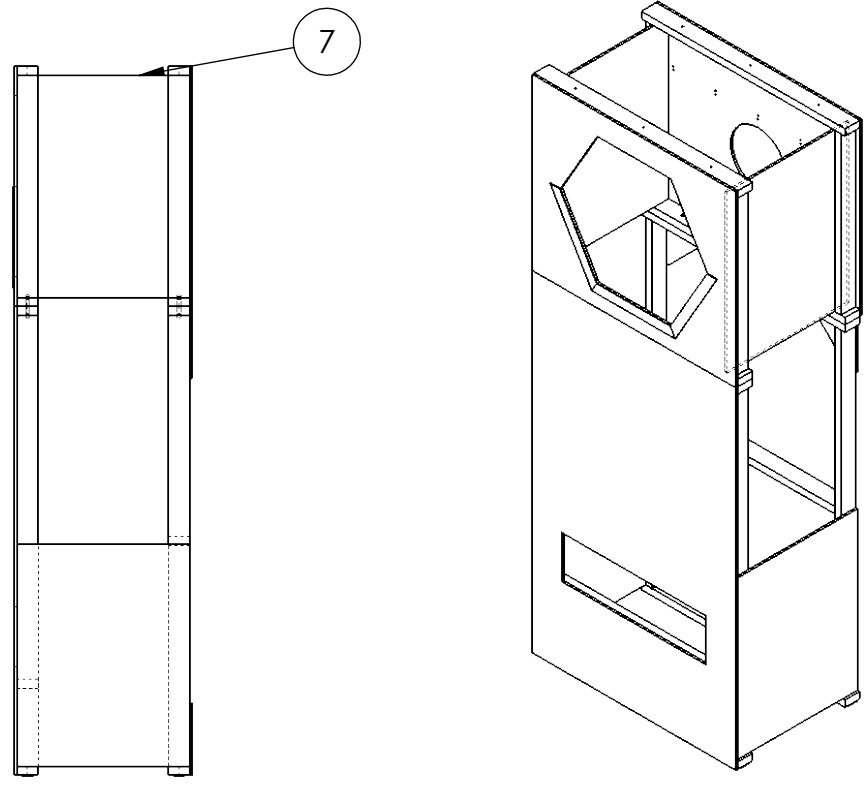
1

2

1

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

TITLE:
TE Power Port

| | | |
|----------|-----------------|-----|
| SIZE | DWG. NO. | REV |
| A | TE-20003 | |

SCALE: 1:32 WEIGHT: SHEET 8 OF 16

2

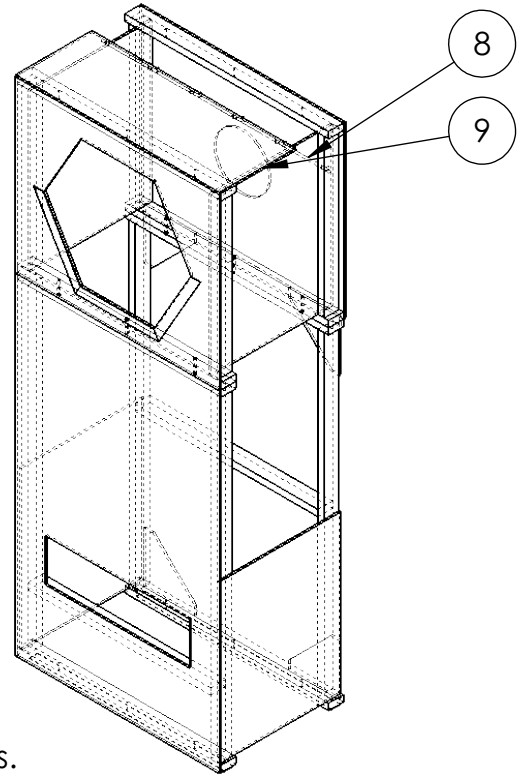
1

2

1

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.

A

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



TITLE:
TE Power Port

SIZE DWG. NO. REV
A TE-20003

SCALE: 1:32 WEIGHT: SHEET 9 OF 16

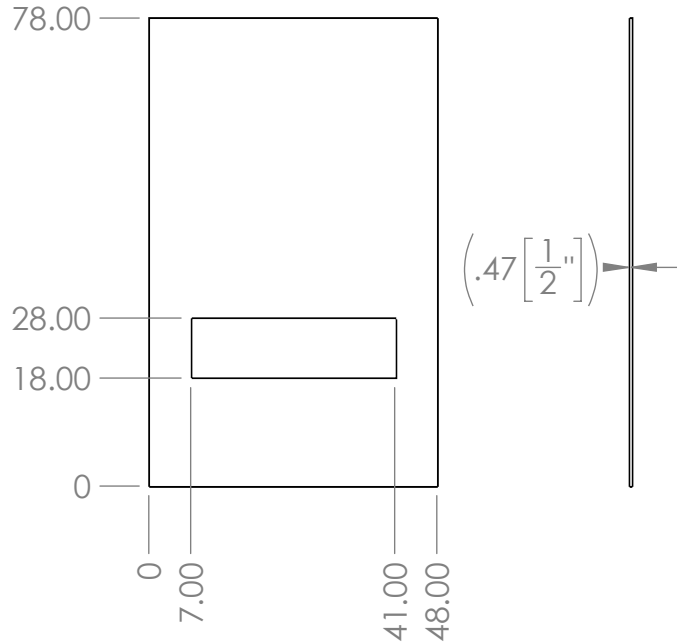
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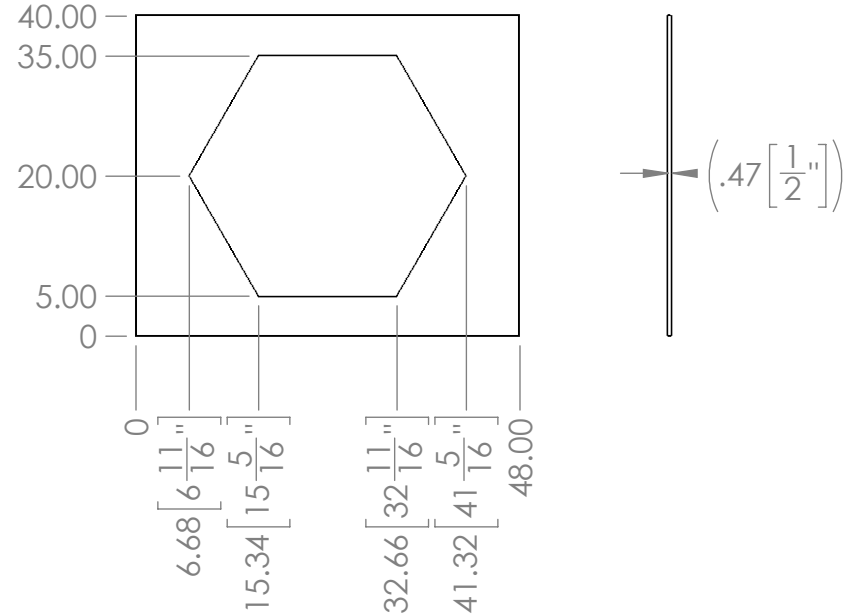
2

1

TE-20003-01
QTY (1)



TE-20003-02
QTY (1)



Notes:

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

Notes:

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

B

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



TITLE:
TE Power Port

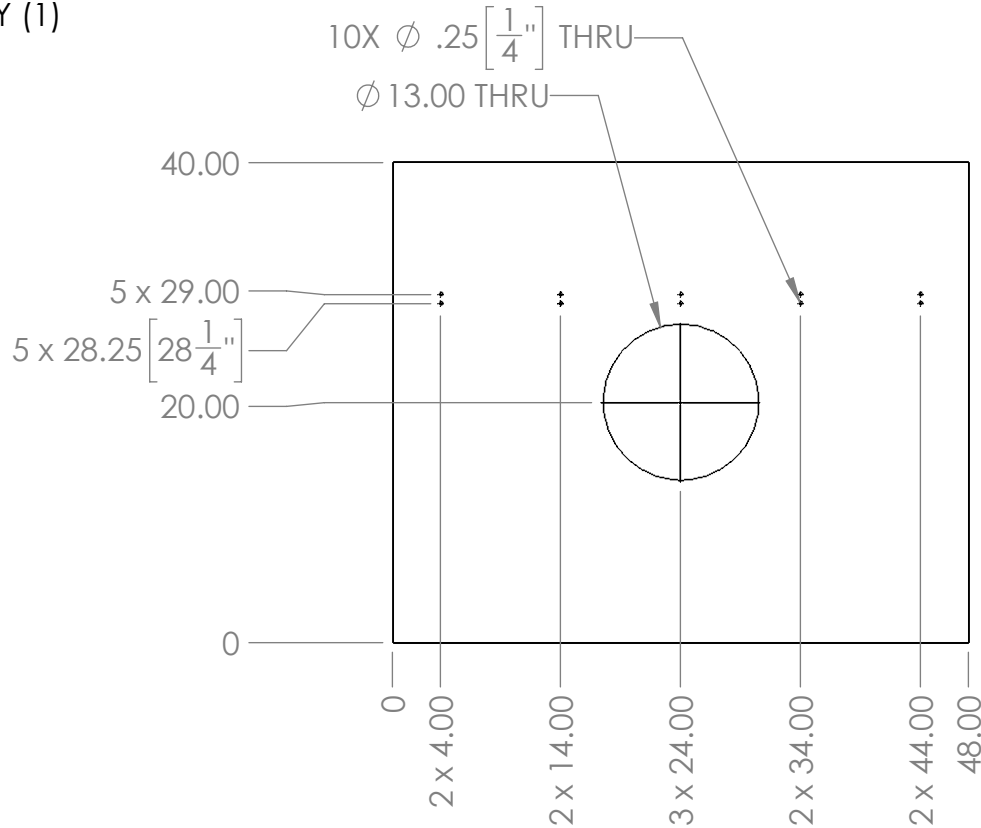
SIZE DWG. NO. REV
A TE-20003

SCALE: 1:32 WEIGHT: SHEET 10 OF 16

2

1

TE-20003-03
QTY (1)





Notes:

1. Material: 15/32 (1/2") AC or CDX Plywood
2. 10X ϕ .25 $\left[\frac{1}{4}\right]$ THRU optional if adding deflector

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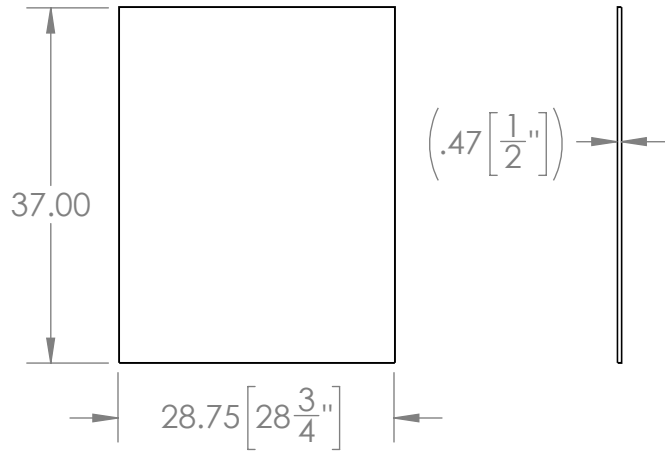
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| | | UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |
| | | DIMENSIONS ARE IN INCHES | DRAWN | | |
| | | TOLERANCES: | CHECKED | | |
| | | FRACTIONAL $\pm 1/16$ | ENG APPR. | | |
| | | ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ | MFG APPR. | | |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

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|---|----------|----------------|
|   | | |
| TITLE: | | |
| TE Power Port | | |
| SIZE | DWG. NO. | REV |
| A | TE-20003 | |
| SCALE: 1:32 | | WEIGHT: |
| | | SHEET 11 OF 16 |

2

1

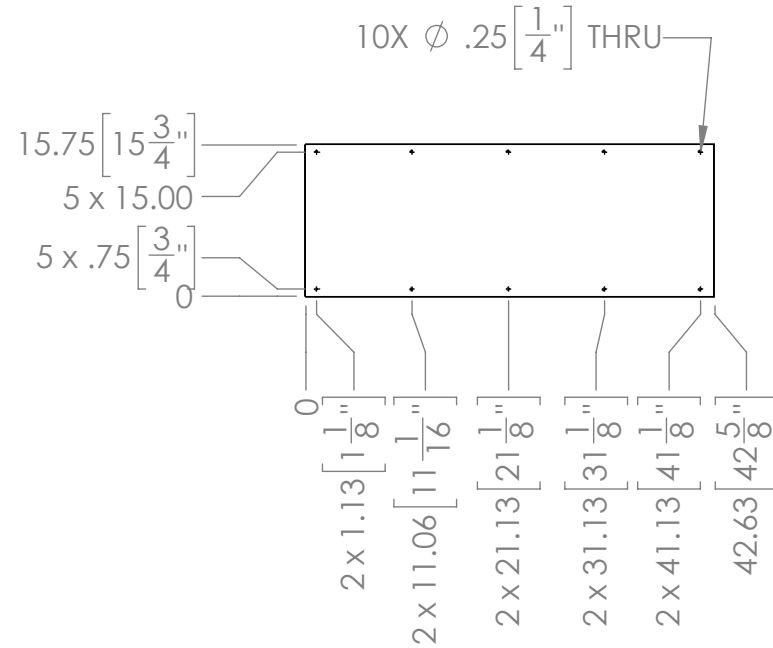
TE-20003-07
QTY (4)



Notes:

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

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



TITLE:
TE Power Port

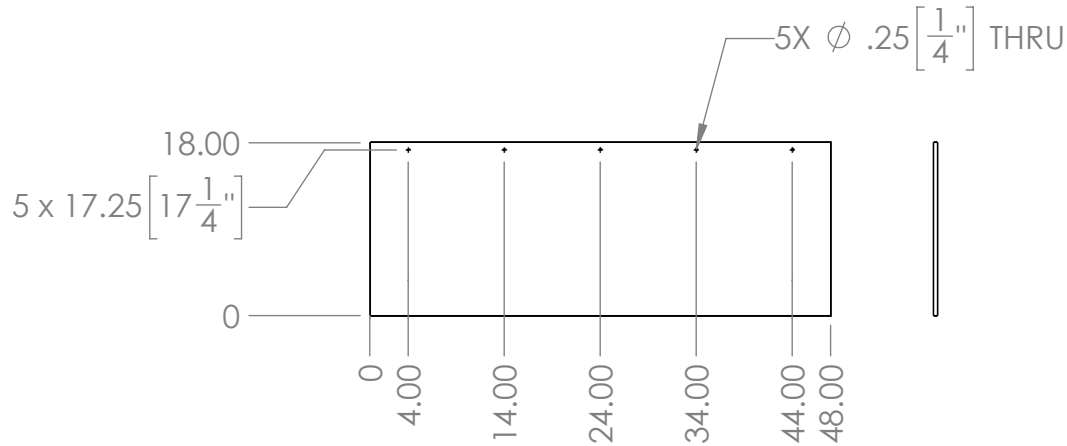
SIZE DWG. NO. REV
A **TE-20003**

SCALE: 1:32 WEIGHT: SHEET 12 OF 16

2

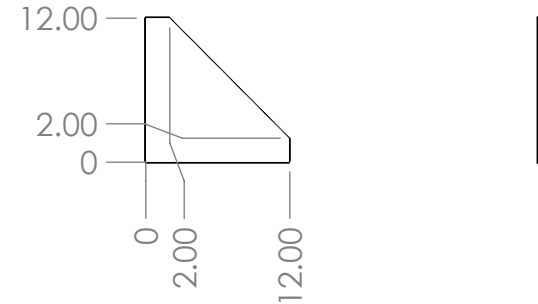
1

TE-20003-09
QTY (1)



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

TE-20003-10
QTY (4)



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

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



TITLE:
TE Power Port

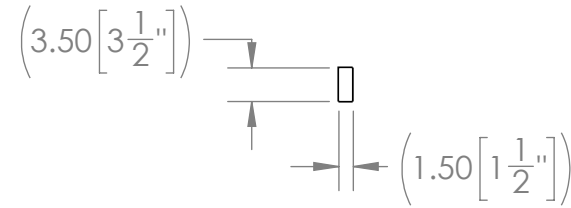
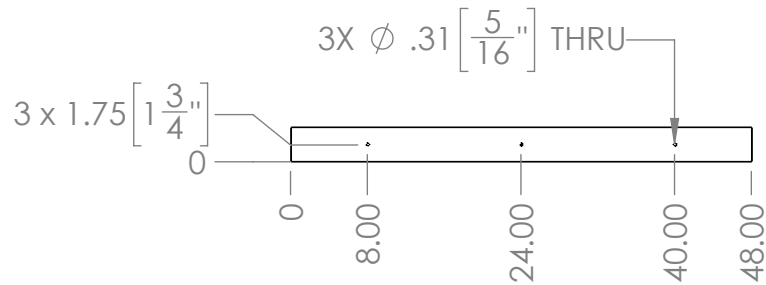
SIZE DWG. NO. REV
A **TE-20003**

SCALE: 1:32 WEIGHT: SHEET 13 OF 16

2

1

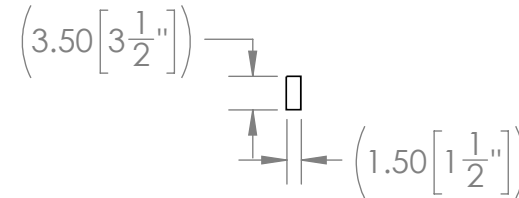
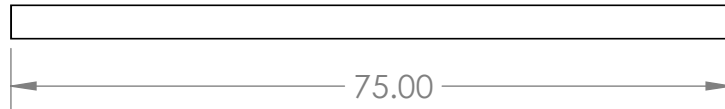
TE-20003-04
QTY (8)



Notes:

- 1. 2x4" Pine Lumber

TE-20003-05
QTY (4)



Notes:

- 1. 2x4" Pine Lumber

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



TITLE:
TE Power Port

SIZE DWG. NO. REV
A **TE-20003**

SCALE: 1:32 WEIGHT: SHEET 14 OF 16

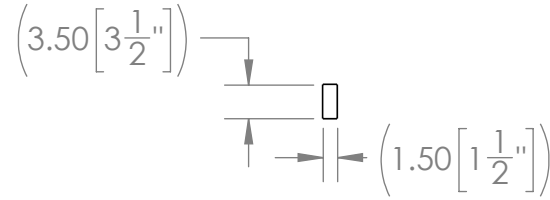
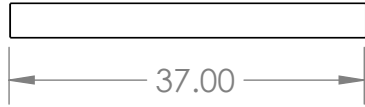
2

1

2

1

TE-20003-06
QTY (4)

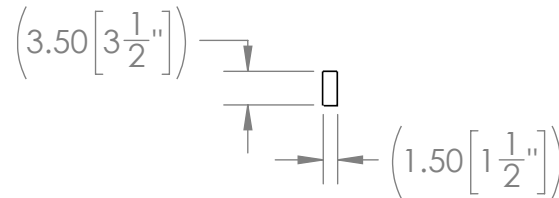
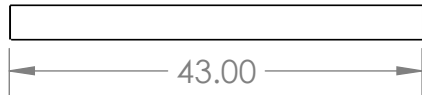


Notes:
1. 2x4" Pine Lumber

B

B

TE-20003-11
QTY (2)



Notes:
1. 2x4" Pine Lumber

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



TITLE:
TE Power Port

SIZE DWG. NO. REV
A TE-20003

SCALE: 1:32 WEIGHT: SHEET 15 OF 16

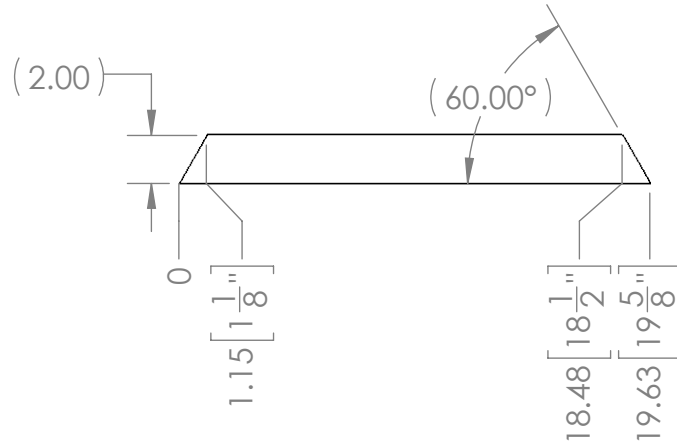
2

1

2

1

Vision_PowerPort
QTY (3)



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

Hook_2_48
QTY (2)



Notes:
1. 2" wide Hook

B

B

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



TITLE:
TE Power Port

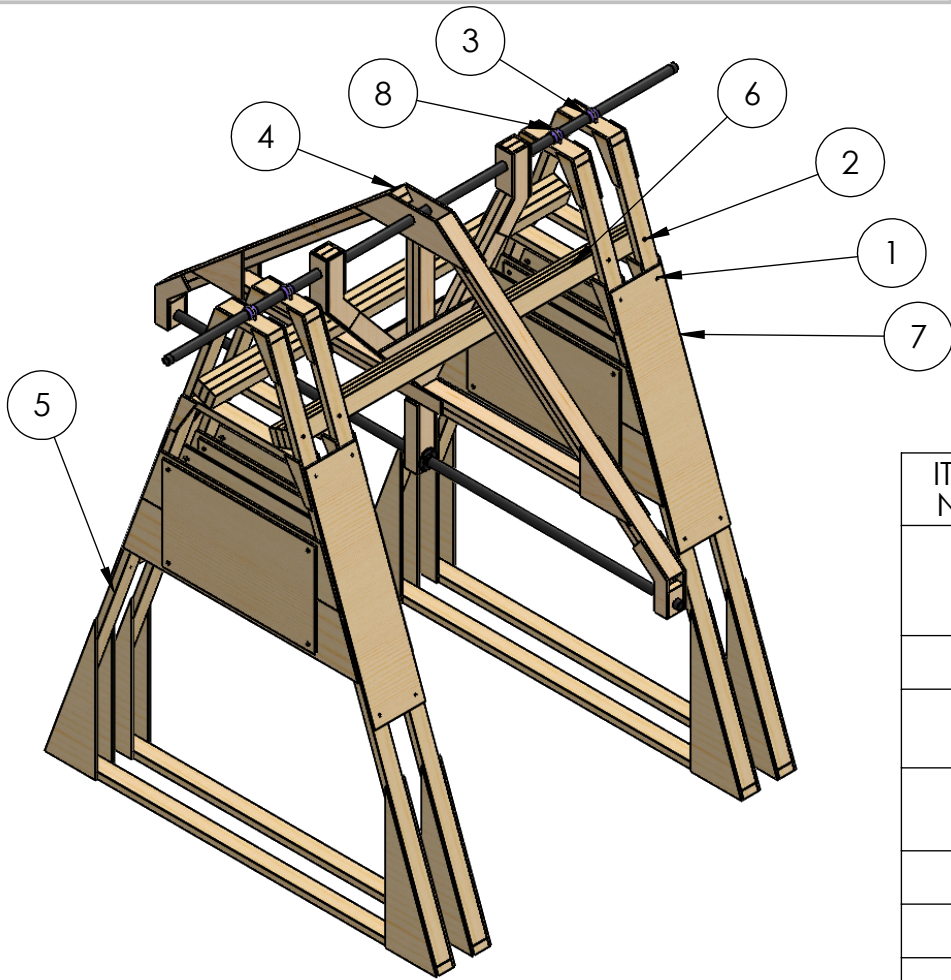
SIZE DWG. NO. REV
A **TE-20003**

SCALE: 1:32 WEIGHT: SHEET 16 OF 16

2

1

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| ITEM NO. | PART NUMBER | DESCRIPTION | |
|----------|--------------------|---|----|
| 1 | hex_.25_20_1.5 | Steel Hex Head Screw, 1/4"-20 x 1-1/2" long, fully threaded | 16 |
| 2 | Pan_.25_20_2.5 | Pan Head 1/4-20 x 2.5" | 8 |
| 3 | tape | tape (duct, gaffers, electrical, or equivalent) | 4 |
| 4 | TE-20004-20 | Generator Switch Top Level | 1 |
| 5 | TE-20004-21 | A Frame, Assembled | 4 |
| 6 | TE-20004-24 | Hard Stop Assembled | 2 |
| 7 | TE-20004-42 | Side Plate | 4 |
| 8 | UBolt_.3125_2_3.75 | U Bolt 5-16 x 2 x 3-3/4 | 4 |

Notes:
1. Material list for entire assembly shown on Sheet 2.

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

TITLE:
Shield Generator

| | | |
|----------|-----------------|-----|
| SIZE | DWG. NO. | REV |
| A | TE-20004 | |

SCALE: 1:32 WEIGHT: SHEET 1 OF 8

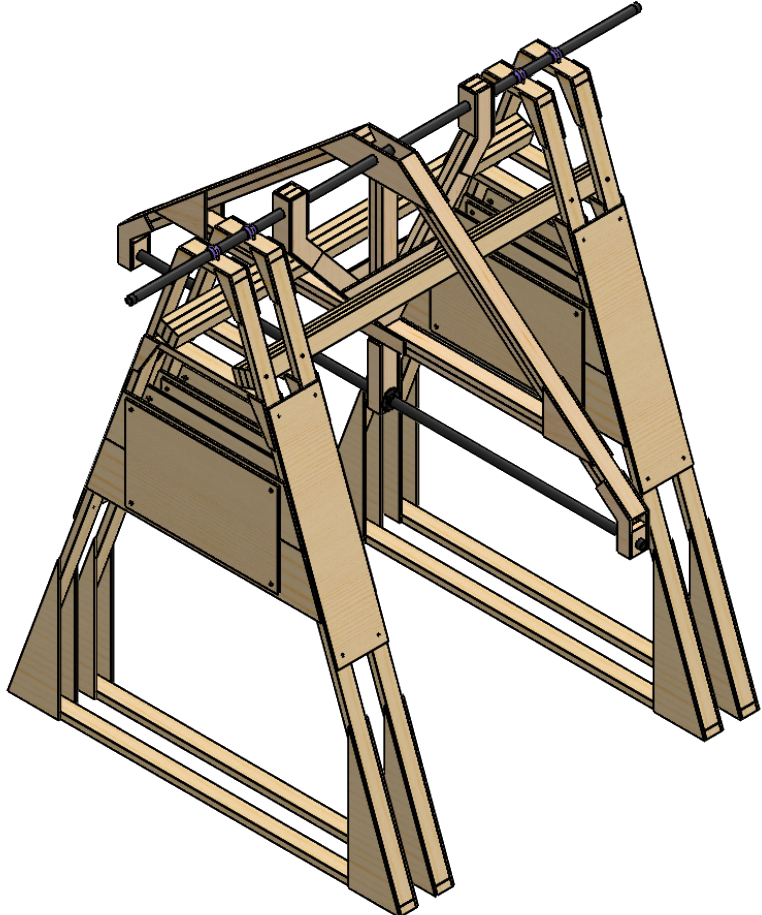
A

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B

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| Material | Qty |
|------------------------------------|--------|
| 2" x 4" x 8' | 36 |
| 1/2" Plywood | 3 |
| 1-1/4" Schedule 40 Black Iron Pipe | 2 |
| 1-1/4" Black Iron Floor Flange | 2 |
| 1/4-20 TeeNuts | 32 |
| 1/4-20 x 1.5" Hex Head Bolts | 48 |
| 1/4-20 x 2.5" Pan Head Bolts | 16 |
| 1/4-20 Wing Nuts | 32 |
| 1/4" Washers | 64 |
| 5/16 x 2 x 3-3/4" U Bolts | 4 |
| Tape | 1 roll |
| 2.5" Screws | ~30 |
| 1.5" Screws | ~60 |



Note:
 1. For full assembly of TE-20004, we recomend having 8 people and 2 ladders which allow reaching ~10'.

A

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

TITLE:
 Shield Generator

| | | |
|----------|-----------------|-----|
| SIZE | DWG. NO. | REV |
| A | TE-20004 | |

SCALE: 1:32 WEIGHT: SHEET 2 OF 8

2

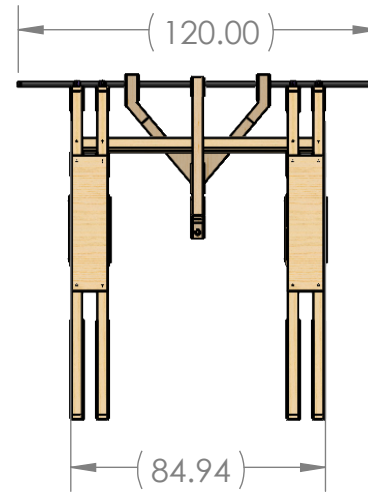
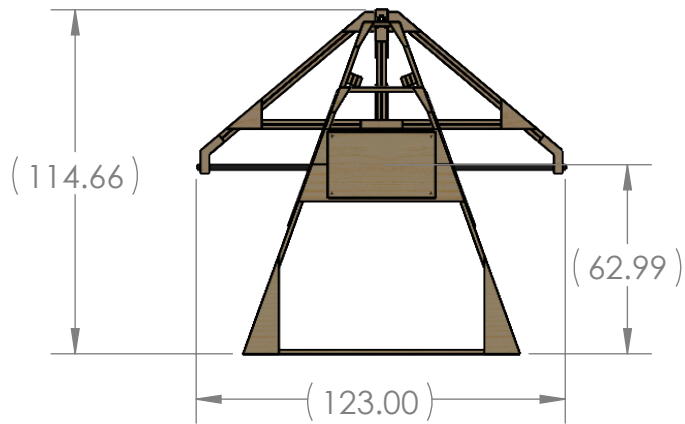
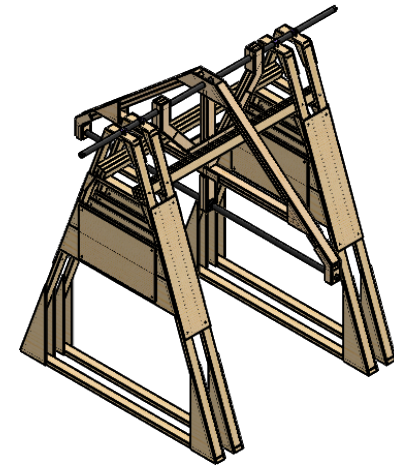
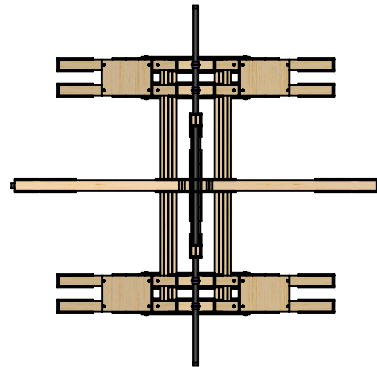
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|-------------|---------|--------------------------------------|-----------|------|------|
| | | UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |
| | | DIMENSIONS ARE IN INCHES | DRAWN | | |
| | | TOLERANCES: | CHECKED | | |
| | | FRACTIONAL ± 1/16 |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



TITLE:
Shield Generator

SIZE DWG. NO. REV
A TE-20004

SCALE: 1:64 WEIGHT: SHEET 3 OF 8

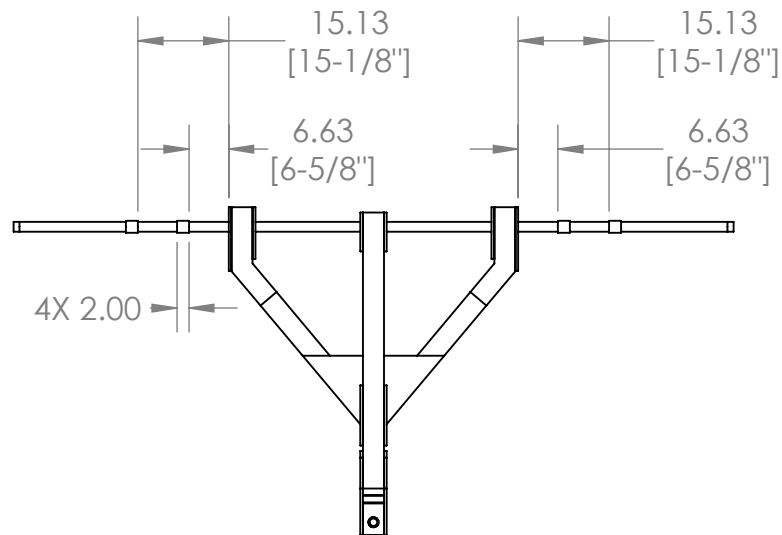
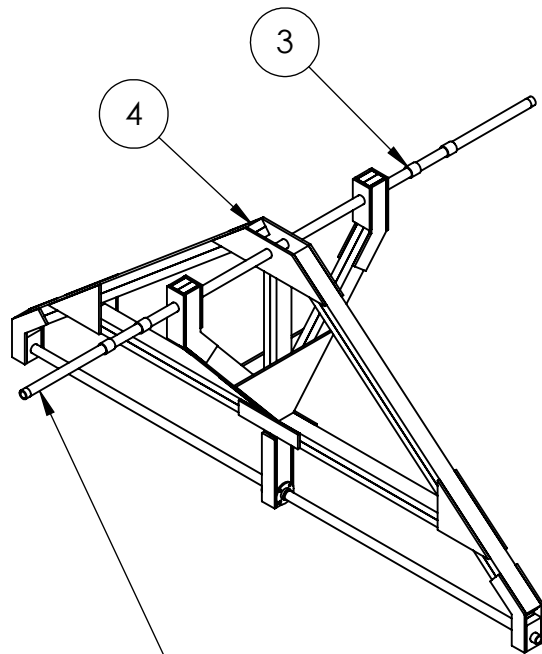
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Step 1:



Note: Pole of 4 may be between 84" and 120".

Notes:

1. Add 4x 3 to 4 as shown. Wrap the pipe at least 2x.

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



TITLE:
Shield Generator

| | | |
|---------------------|-----------------|--------------|
| SIZE | DWG. NO. | REV |
| A | TE-20004 | |
| SCALE: 1:32 WEIGHT: | | SHEET 4 OF 8 |

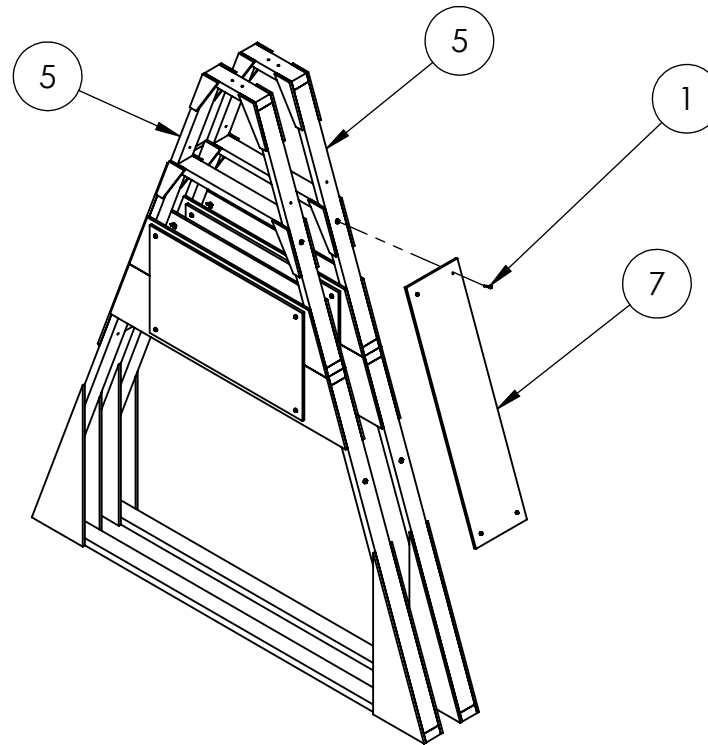
2

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Step 2:
QTY: 2



Notes:

1. Assembly can be assembled standing upright or on its side.
2. Attach (5) and (5) to (7) using (1) into TeeNuts.
3. Repeat on other side.

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



TITLE:
Shield Generator

| | | |
|-------------|-----------------|--------------|
| SIZE | DWG. NO. | REV |
| A | TE-20004 | |
| SCALE: 1:32 | | WEIGHT: |
| | | SHEET 5 OF 8 |

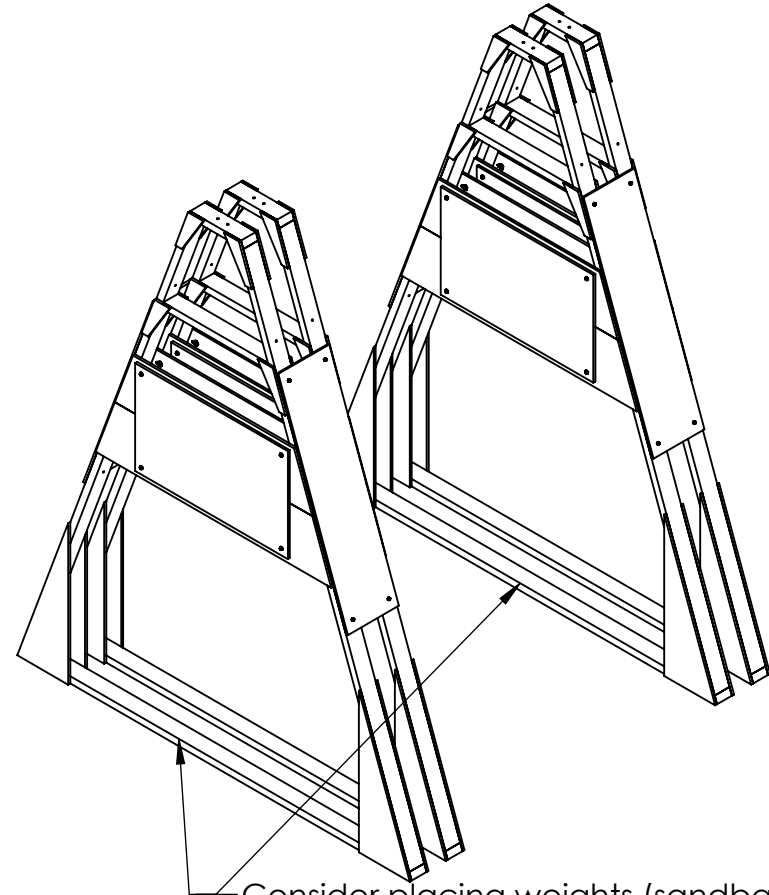
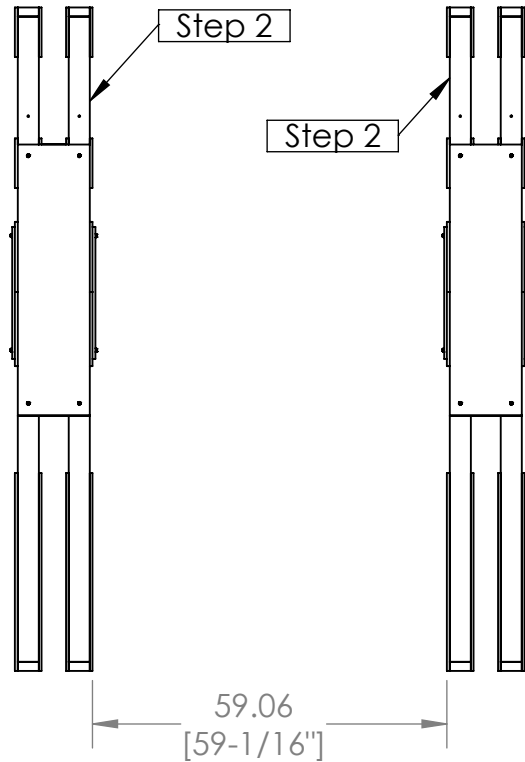
2

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1

Step 3:



Consider placing weights (sandbags, cinder blocks, ROBOT batteries, etc) on bases to help keep in place in addition to humans supporting the assemblies.

Notes:

- Space Step 2 assemblies as shown. If upright, people should support assemblies.

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



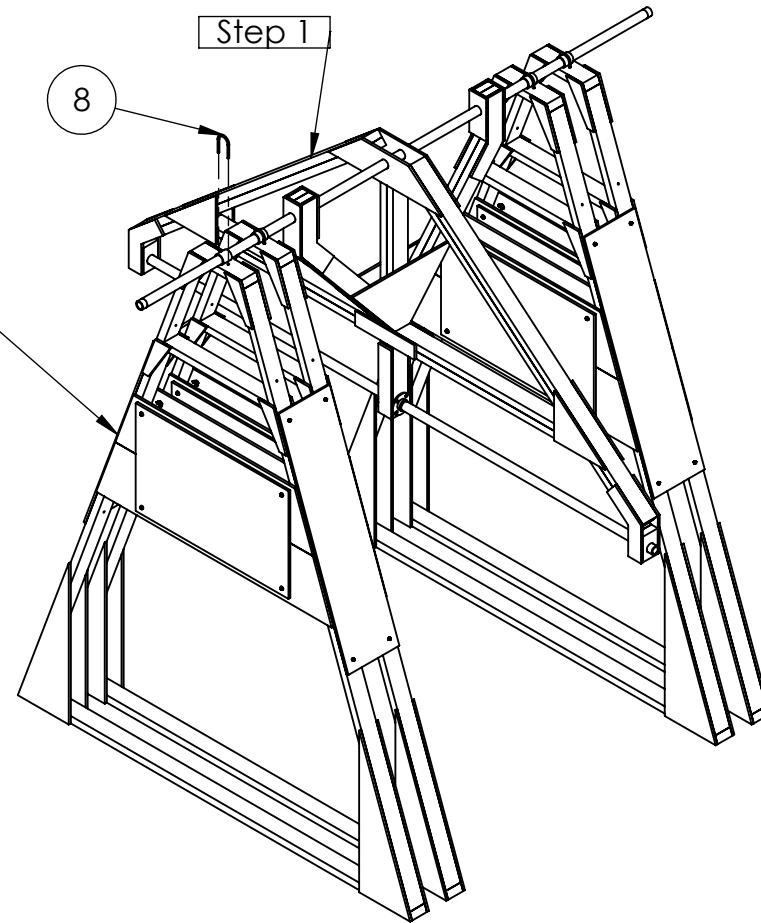
TITLE:
Shield Generator

| | | |
|-------------|-----------------|--------------|
| SIZE | DWG. NO. | REV |
| A | TE-20004 | |
| SCALE: 1:32 | | WEIGHT: |
| | | SHEET 6 OF 8 |

2

1

Step 4:



Notes:



1. Place **Step 1** on top of **Step 2** and connect with 4x **8**. Ensure the connection is snug, but will be fully tightened in a later step.
2. We recommend:
 1. Lifting **Step 1** with a minimum of 3 people but recommended 4 people. It is a heavy lift with a very high center of mass.
 2. Practicing lifting **Step 1** before putting in place.
 3. 1 person support each **Step 2** assembly.
 4. After **Step 1** is on top of **Step 2**, bring 2 ladders and have 2 additional people place and secure **8** while remaining people support the assembly.

B

B

A

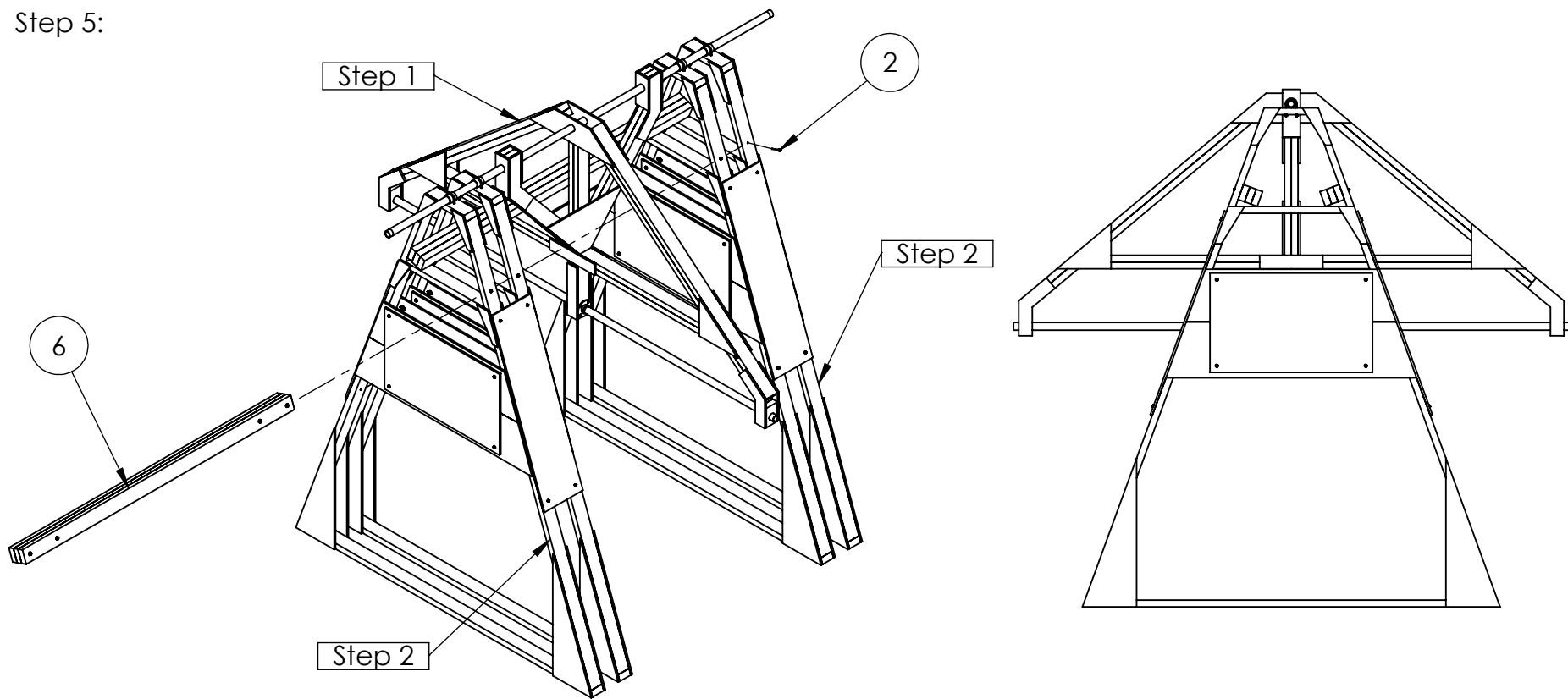
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| | | | DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .01 THREE PLACE DECIMAL ± .001 | DRAWN | | | | TITLE: Shield Generator |
| | | | INTERPRET GEOMETRIC TOLERANCING PER: | CHECKED | | | | |
| | | | MATERIAL | ENG APPR. | | | | |
| | | | FINISH | MFG APPR. | | | | |
| | NEXT ASSY | USED ON | COMMENTS: | | | Q.A. | | |
| | APPLICATION | | DO NOT SCALE DRAWING | | | | SIZE A DWG. NO. TE-20004 REV SCALE: 1:32 WEIGHT: SHEET 7 OF 8 | |

2

1

Step 5:



Notes:

- Slide (6) through [Step 1] and connect to [Step 2] using (2) screwed into TeeNuts.

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



TITLE:
Shield Generator

| | | |
|---------------------|-----------------|--------------|
| SIZE | DWG. NO. | REV |
| A | TE-20004 | |
| SCALE: 1:36 WEIGHT: | | SHEET 8 OF 8 |

4

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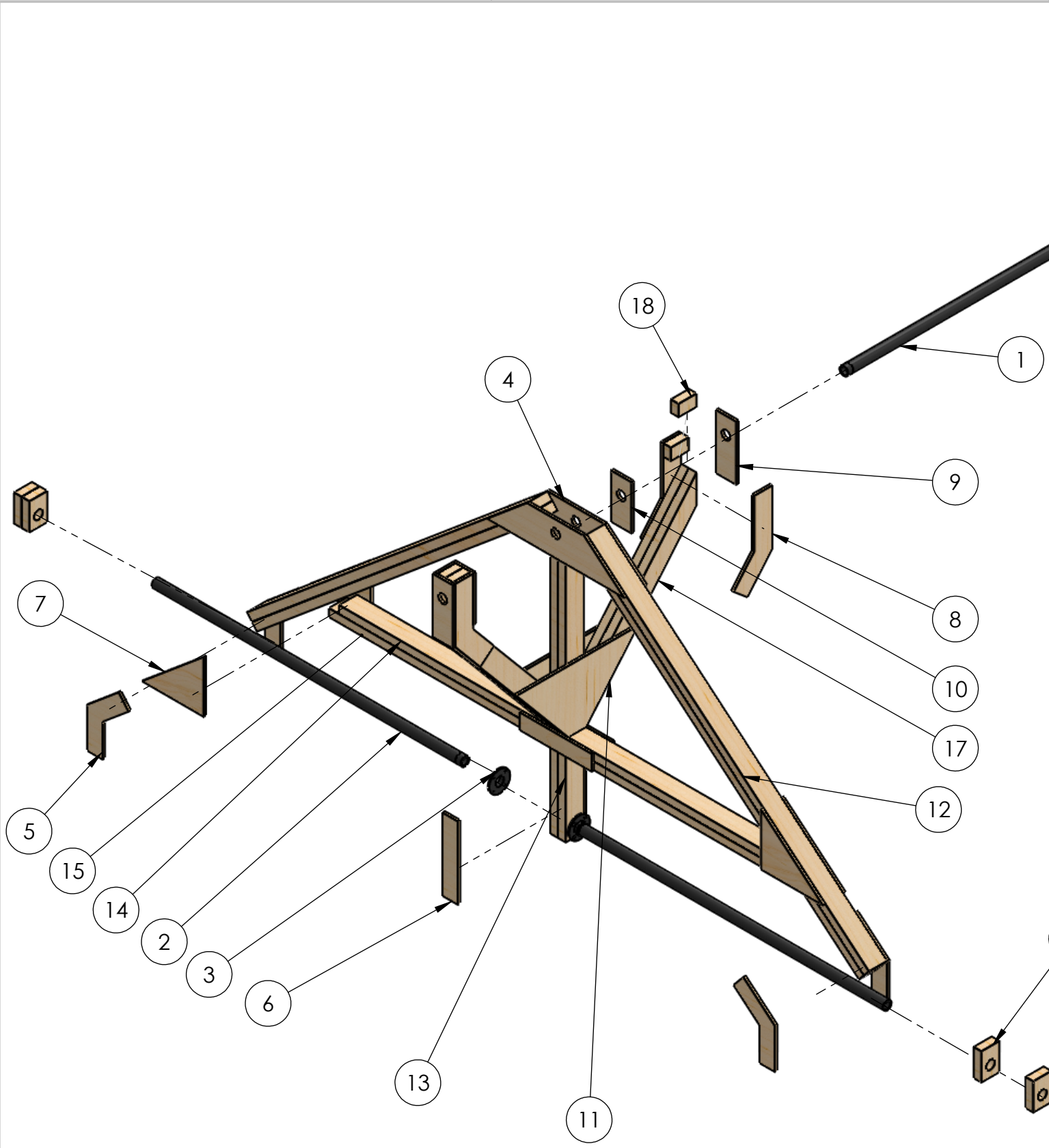
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| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|--|------|
| 1 | TE-20004-01 | 1-1/4" Schedule 40 Black Iron Pipe, Full | 1 |
| 2 | TE-20004-02 | 1-1/4" Schedule 40 Black Iron Pipe, Cut | 2 |
| 3 | TE-20004-03 | 1-1/4" Floor Flange | 2 |
| 4 | TE-20004-04 | Top | 2 |
| 5 | TE-20004-05 | Pole Holder, Face, Rung | 4 |
| 6 | TE-20004-06 | Center | 4 |
| 7 | TE-20004-07 | Cross Bar Gusset | 4 |
| 8 | TE-20004-08 | Pole Holder, Face, Pivot | 4 |
| 9 | TE-20004-09 | Pole Holder, Large, Pivot | 2 |
| 10 | TE-20004-10 | Pole Holder, Small, Pivot | 2 |
| 11 | TE-20004-11 | Hanger to Brace Mount | 2 |
| 12 | TE-20004-12 | Side Leg | 4 |
| 13 | TE-20004-13 | Center Leg | 2 |
| 14 | TE-20004-14 | Cross Bar, Top | 2 |
| 15 | TE-20004-15 | Cross Bar, Bottom | 2 |
| 16 | TE-20004-16 | Pole Holder, Rung | 4 |
| 17 | TE-20004-17 | Brace Leg | 4 |
| 18 | TE-20004-18 | Pole Holder, Support, Pivot | 4 |

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|---|----------------------|-----------|------|---|
| UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |   |
| DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001 | | DRAWN | | |
| INTERPRET GEOMETRIC TOLERANCING PER: | | CHECKED | | TITLE: |
| MATERIAL | | ENG APPR. | | Generator Switch Top Level |
| FINISH | | MFG APPR. | | SIZE DWG. NO. REV |
| TE-20004 | | Q.A. | | B TE-20004-20 |
| NEXT ASSY | USED ON | COMMENTS: | | SCALE: 1:18 WEIGHT: SHEET 1 OF 20 |
| APPLICATION | DO NOT SCALE DRAWING | | | |

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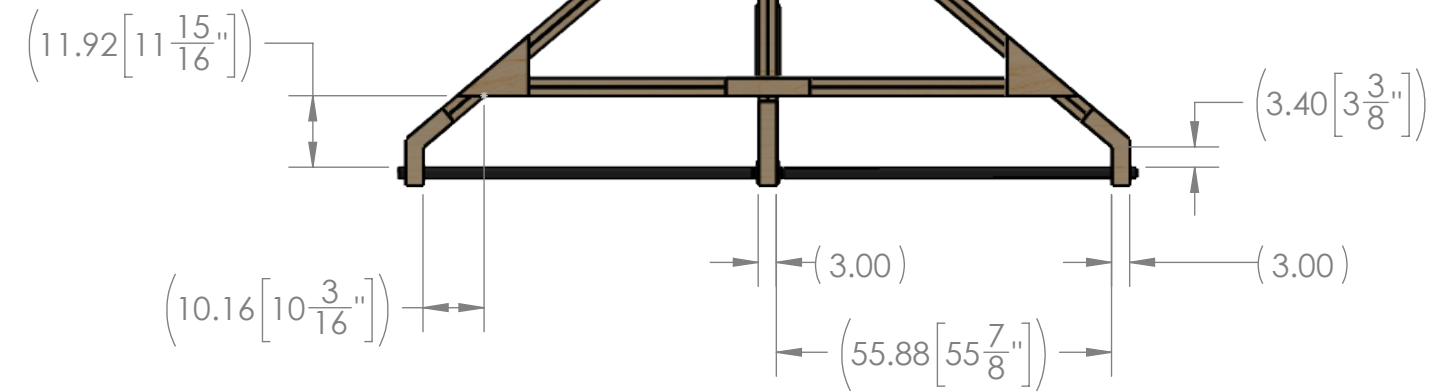
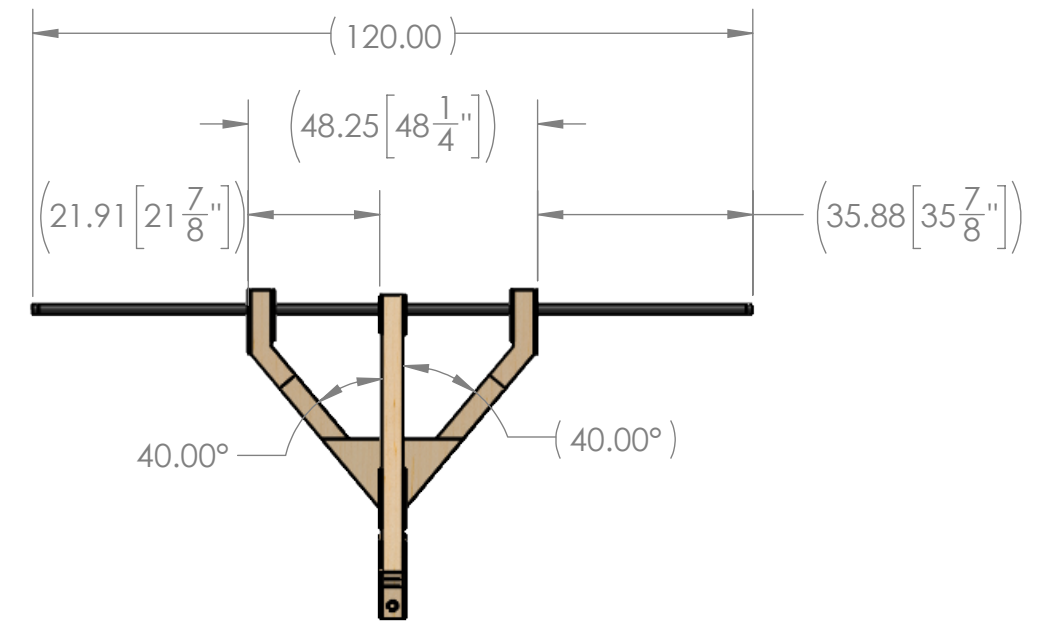
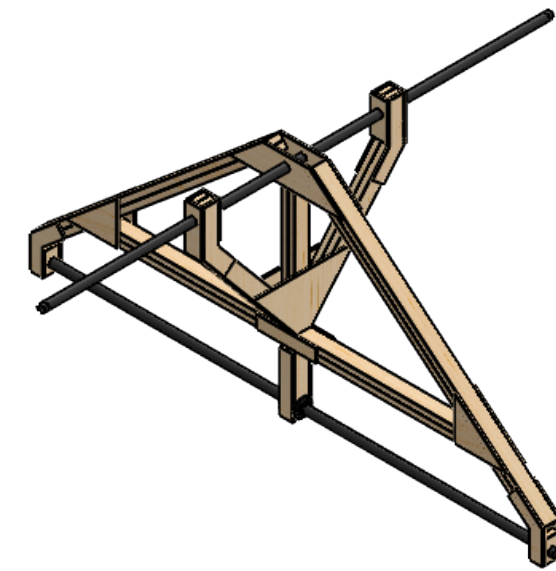
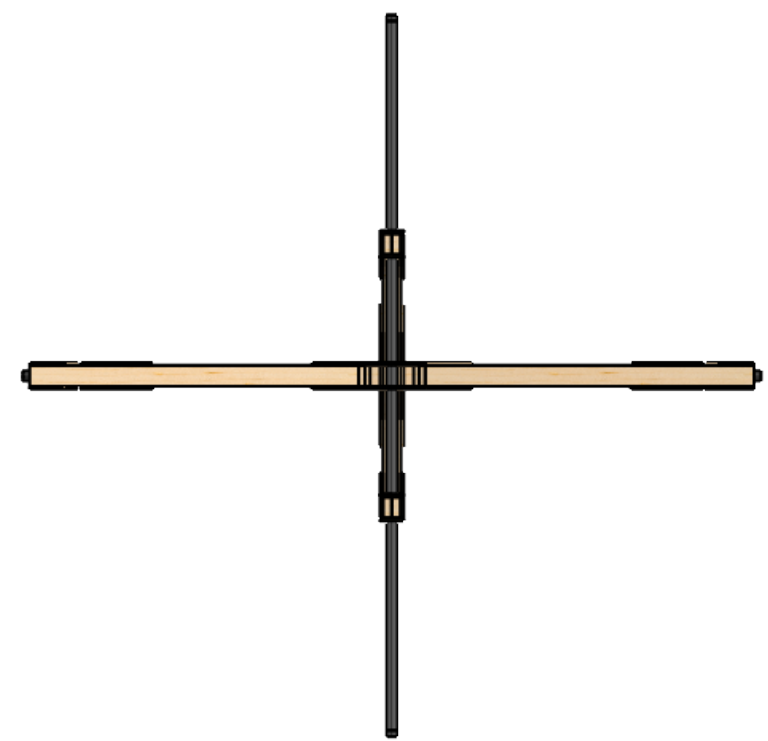
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| | | UNLESS OTHERWISE SPECIFIED: | NAME | DATE |
| | | DIMENSIONS ARE IN INCHES | DRAWN | |
| | | TOLERANCES: | CHECKED | |
| | | FRACTIONAL ±1/16 | ENG APPR. | |
| | | ANGULAR: MACH ±1° BEND ±1° | MFG APPR. | |
| | | TWO PLACE DECIMAL ±.01 | Q.A.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



TITLE: **Generator Switch Top Level**

SIZE DWG. NO. REV
B TE-20004-20

SCALE: 1:32 WEIGHT: SHEET 2 OF 20

4

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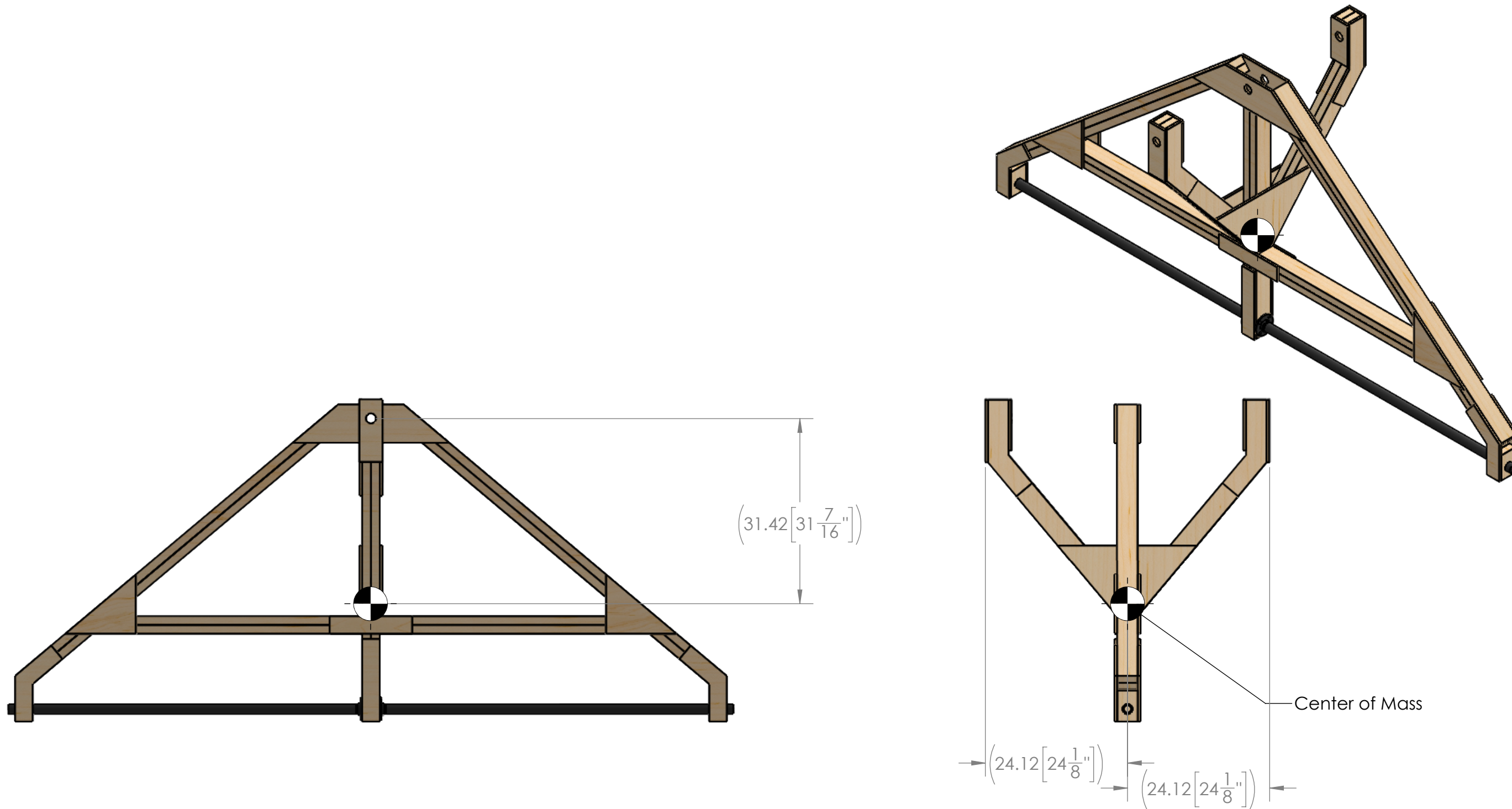
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NOTE:
 1. Only pieces that pivot are shown here. Approximate mass of pivoting system is 111 lbs.

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|-------------|---------|---|-----------|------|---|
| | | UNLESS OTHERWISE SPECIFIED: | NAME | DATE |   |
| | | DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001 | DRAWN | | |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | CHECKED | | SIZE DWG. NO. REV |
| | | MATERIAL | ENG APPR. | | B TE-20004-20 |
| NEXT ASSY | USED ON | FINISH | MFG APPR. | | SCALE: 1:18 WEIGHT: SHEET 3 OF 20 |
| APPLICATION | | DO NOT SCALE DRAWING | Q.A. | | |
| | | | COMMENTS: | | |

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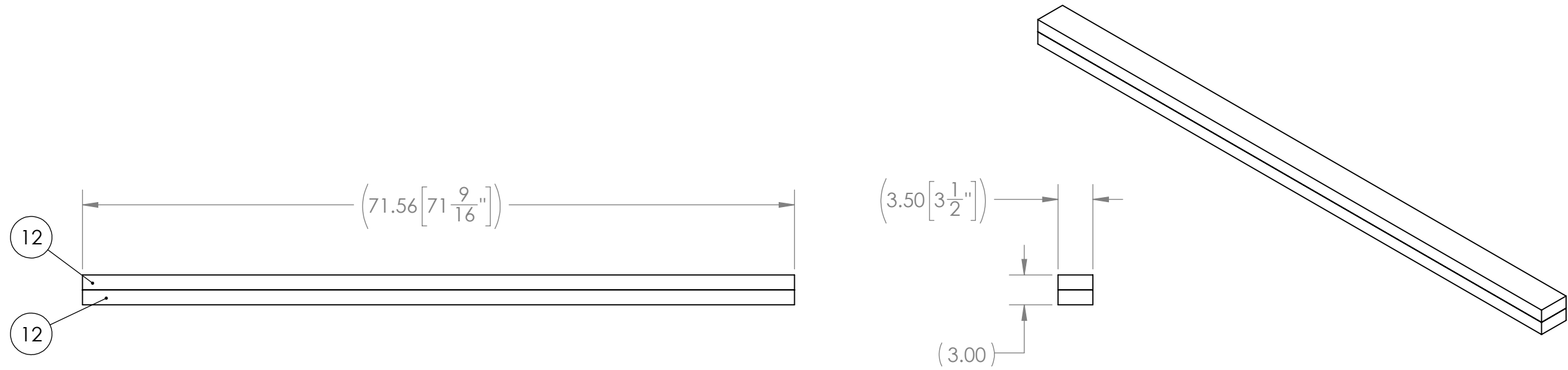
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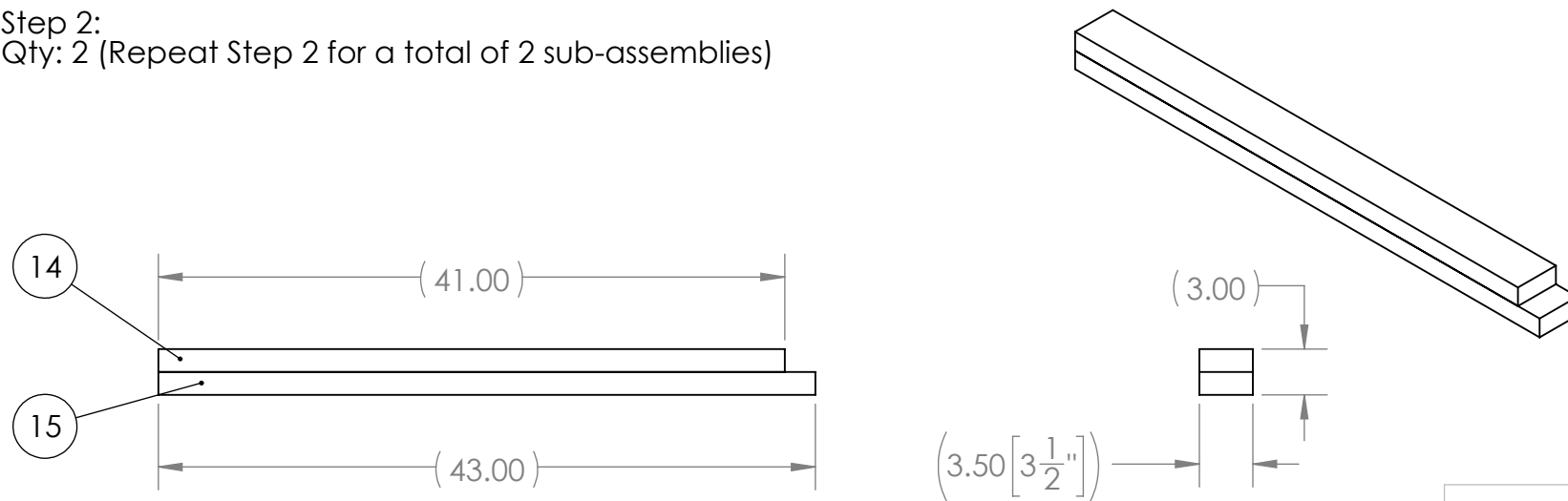
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Step 1:
Qty: 2 (Repeat Step 1 for a total of 2 sub-assemblies)



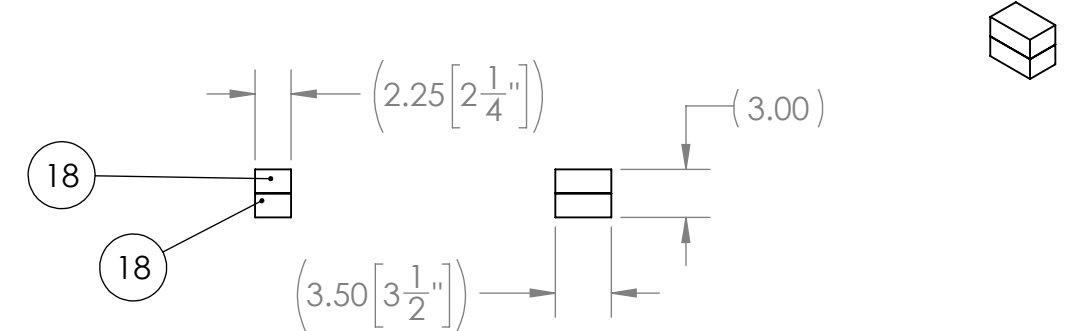
Note:
Attach (12) and (12) with 2.5" screws, alternating screws on top and bottom. Pre drill if needed.

Step 2:
Qty: 2 (Repeat Step 2 for a total of 2 sub-assemblies)



Note:
Align (14) and (15) to be flush on one side.
Attach (14) and (15) with 2.5" screws, alternating screws on top and bottom. Pre drill if needed.

Step 3:
Qty: 2 (Repeat Step 3 for a total of 2 sub-assemblies)



Note:
Attach (18) and (18) with 2.5" screws, alternating screws on top and bottom.
Pre drill if needed.

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

| | | |
|--|--------------------|---------------|
| | | |
| TITLE: Generator Switch Top Level | | |
| SIZE | DWG. NO. | REV |
| B | TE-20004-20 | |
| SCALE: 1:12 WEIGHT: | | SHEET 4 OF 20 |

4

3

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1

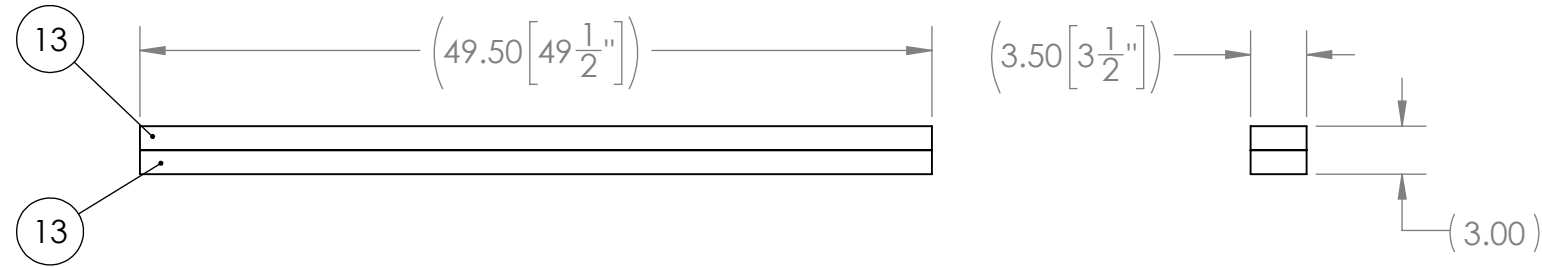
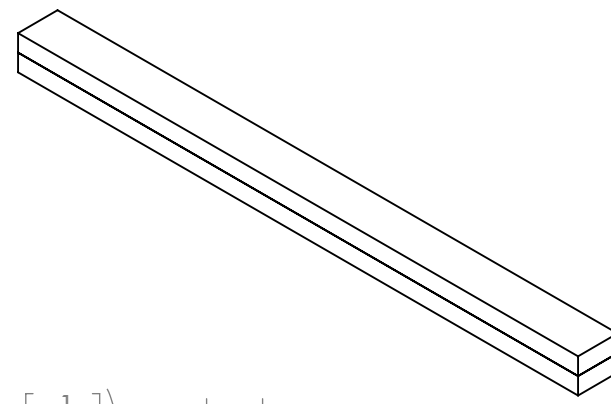
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3

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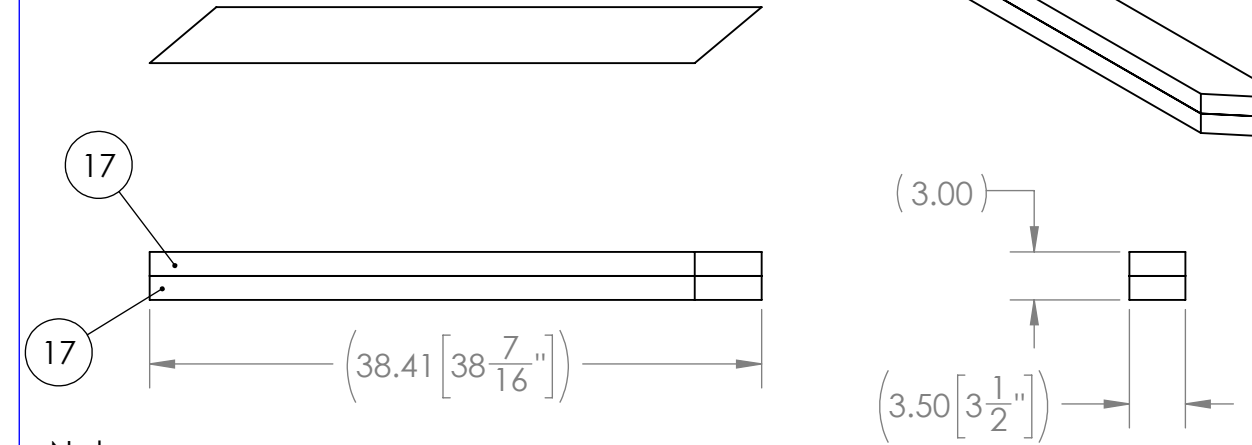
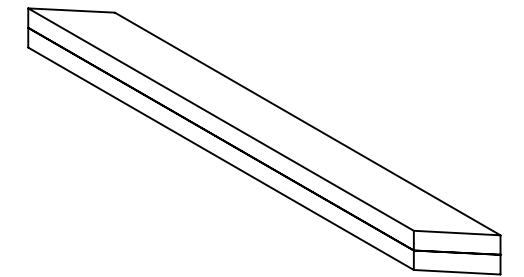
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Step 4:
Qty: 1



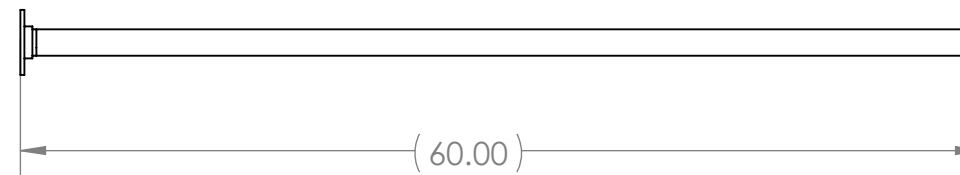
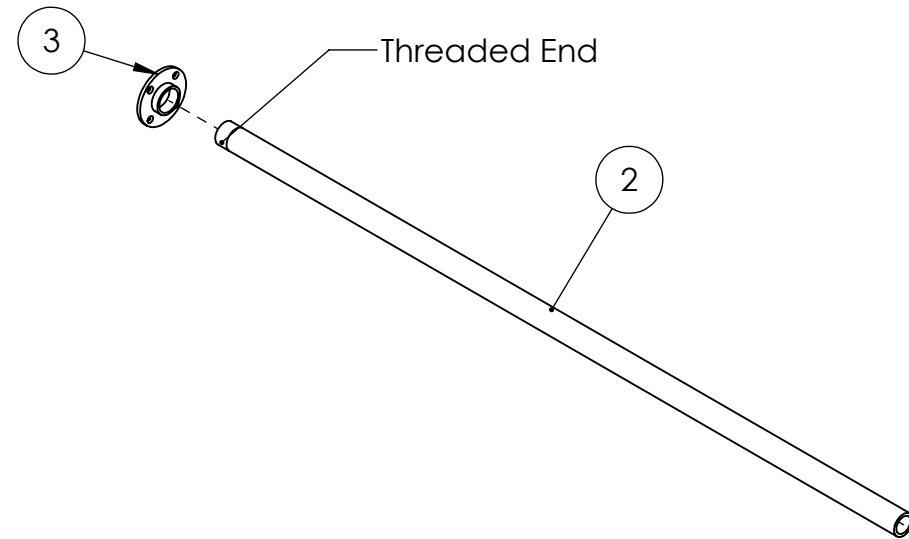
Note:
Attach 13 and 13 with 2.5" screws, alternating screws on top and bottom. Pre drill if needed.

Step 5:
Qty: 2 (Repeat Step 5 for a total of 2 sub-assemblies)



Note:
Attach 17 and 17 with 2.5" screws, alternating screws on top and bottom. Pre drill if needed.

Step 6:
Qty: 2 (Repeat Step 6 for a total of 2 sub-assemblies)



Note:
Using the threads on 2, attach 2 to 3. 2 should be firmly attached but should not extend out the back of 3.

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|--------------------------------------|---------|---|--------------------|
| UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |
| DIMENSIONS ARE IN INCHES | | DRAWN | |
| TOLERANCES: | | CHECKED | |
| FRACTIONAL ± 1/16 | | ENG APPR. | |
| ANGULAR: MACH ± 1° BEND ± 1° | | MFG APPR. | |
| TWO PLACE DECIMAL ± .01 | | Q.A. | |
| THREE PLACE DECIMAL ± .001 | | COMMENTS: | |
| INTERPRET GEOMETRIC TOLERANCING PER: | | TITLE: Generator Switch Top Level | |
| MATERIAL | | SIZE | DWG. NO. |
| FINISH | | B | TE-20004-20 |
| NEXT ASSY | USED ON | SCALE: 1:12 | WEIGHT: |
| APPLICATION | | DO NOT SCALE DRAWING | |
| | | REV | |
| | | SHEET 5 OF 20 | |



4

3

2

1

B

B

A

A

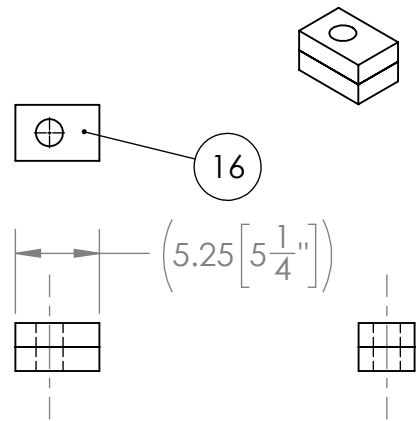
4

3

2

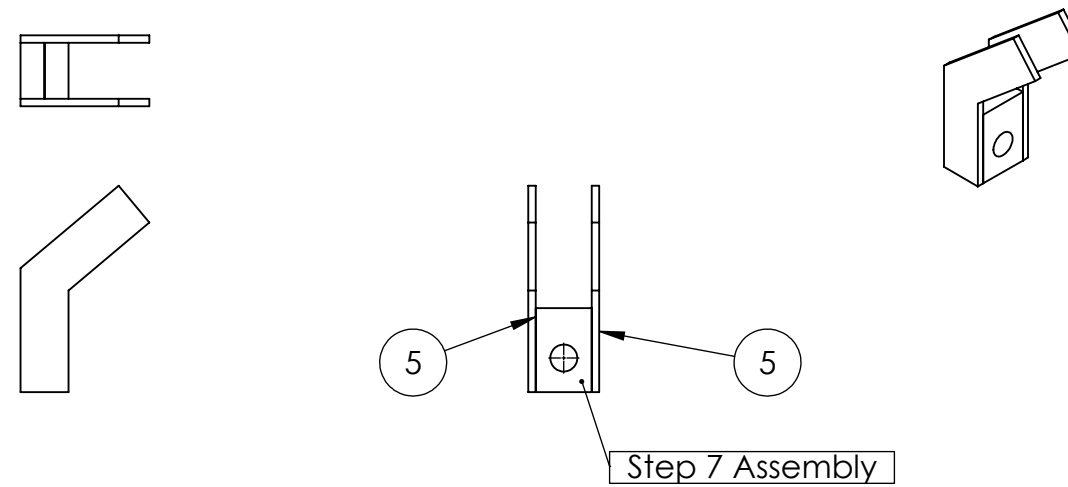
1

Step 7:
Qty: 2 (Repeat Step 7 for a total of 2 sub-assemblies)



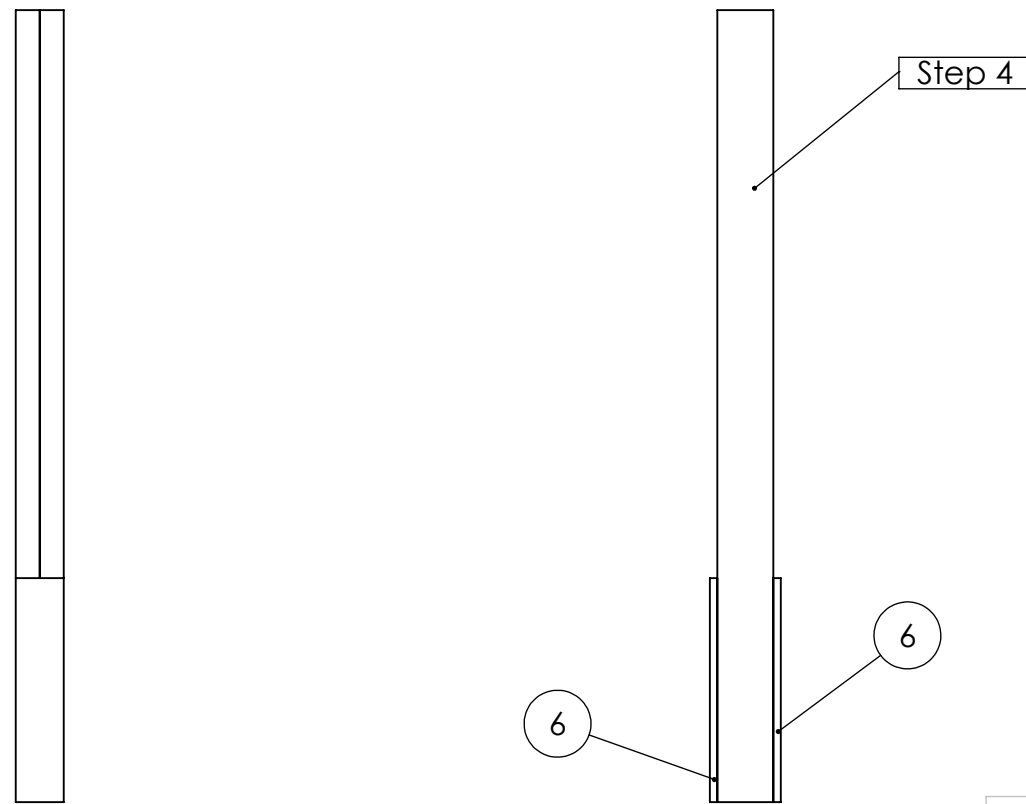
Note:
Align holes. The assembly from **Step 6** can be used as a guide to ensure holes are properly aligned.
Attach (16) and (16) with 2.5" screws, alternating screws on top and bottom. Pre drill if needed.

Step 8:
Qty: 2 (Repeat Step 8 for a total of 2 sub-assemblies)





Note:
Attach (5) to either side of the **Step 7** assembly using 1.5" screws. Ensure the bottom and sides are flush. Pre drill if needed.

Step 9:
Qty: 1



Note:
Attach (6) to either side of the **Step 4** assembly using 1.5" screws. Ensure the bottom and sides are flush. Pre drill if needed.

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| | | | | | |
|---------------------|-------------|--|---------------|---|------|
| | | UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |
| | | DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001 | | DRAWN | |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | | CHECKED | |
| | | MATERIAL | | ENG APPR. | |
| | | FINISH | | MFG APPR. | |
| NEXT ASSY | USED ON | | | Q.A. | |
| APPLICATION | | DO NOT SCALE DRAWING | | COMMENTS: | |
| | | | |   | |
| | | | | TITLE: | |
| | | | | Generator Switch Top Level | |
| SIZE | DWG. NO. | | | REV | |
| B | TE-20004-20 | | | | |
| SCALE: 1:12 WEIGHT: | | | SHEET 6 OF 20 | | |

4

3

2

1

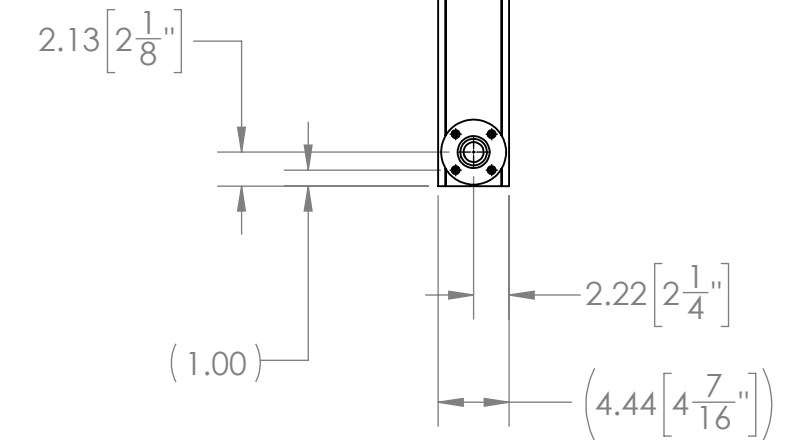
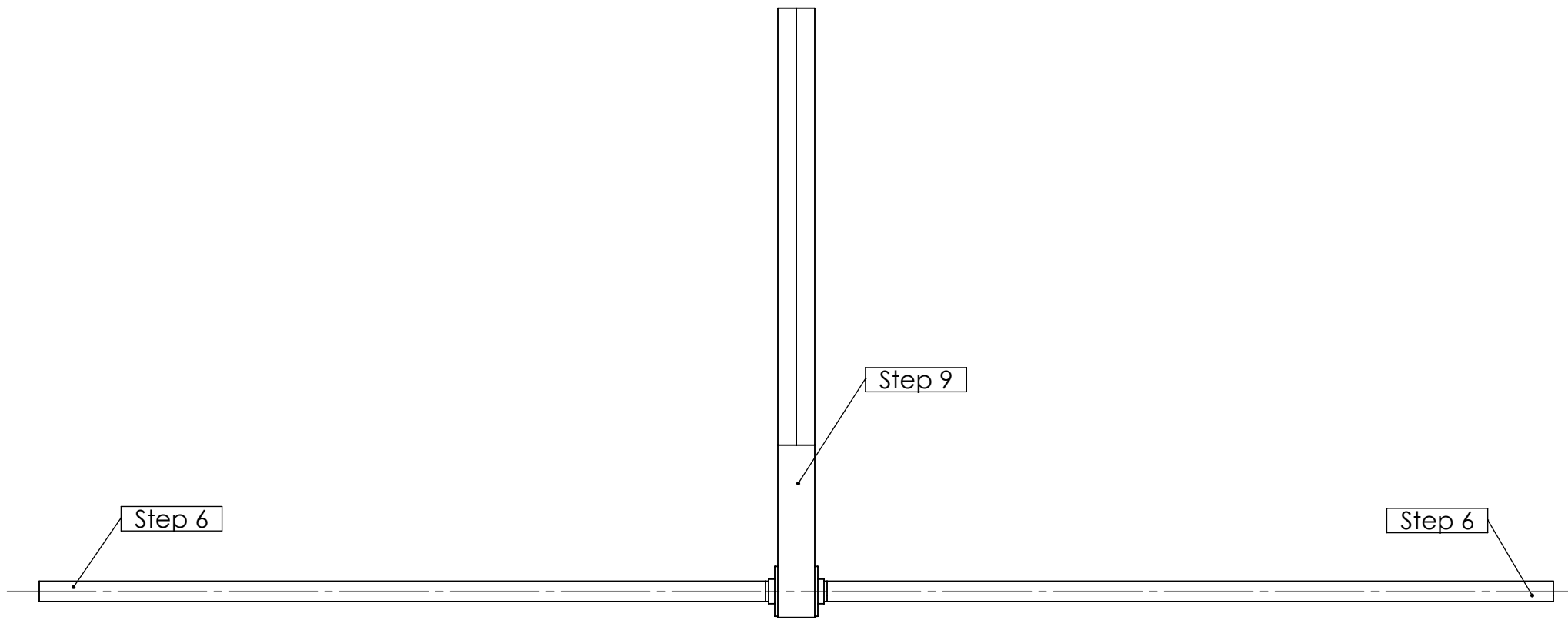
B

B

A

A



Step 10:
Qty: 1



Note:
Attach **Step 6** to either side of the **Step 9** assembly using 1.5" screws. Pre drill if needed.
Add additional screws as needed to ensure the **Step 9** assembly is rigidly connected.

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

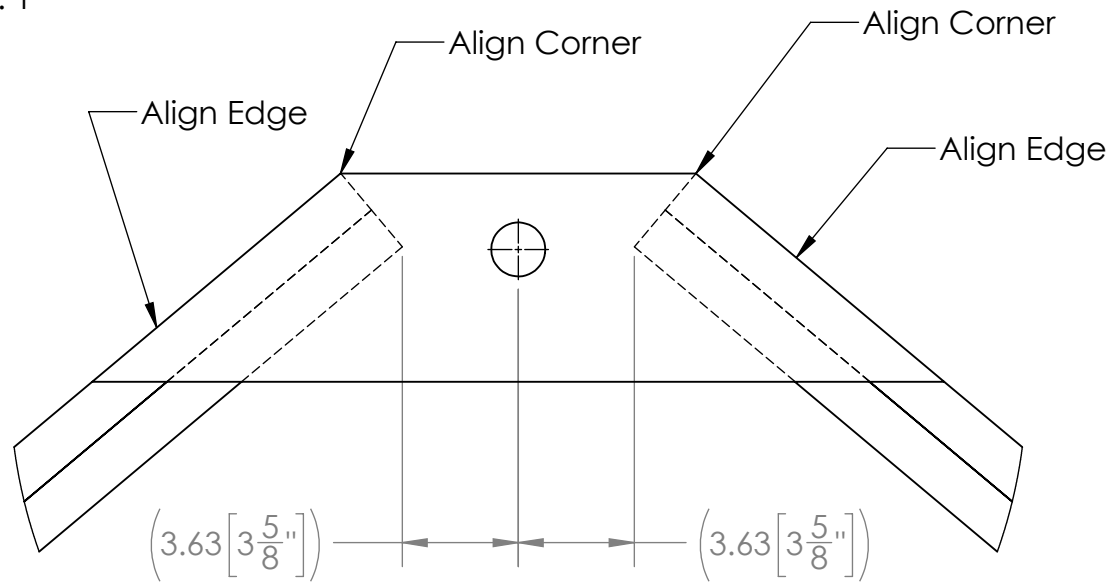



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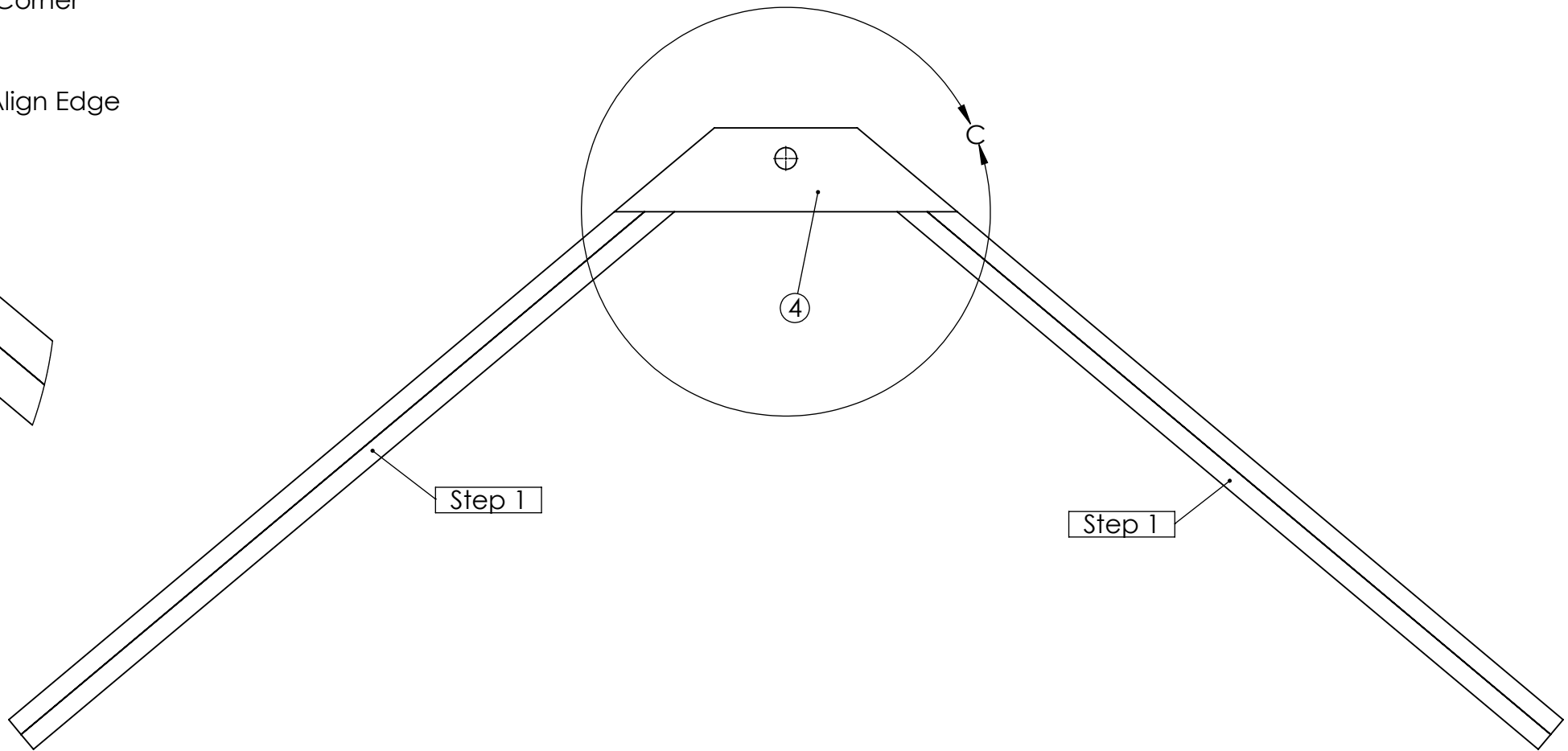
Generator Switch Top Level

| | | |
|-------------|--------------------|---------------|
| SIZE | DWG. NO. | REV |
| B | TE-20004-20 | |
| SCALE: 1:12 | WEIGHT: | SHEET 7 OF 20 |

Step 11:
Qty: 1





DETAIL C
SCALE 1 : 6

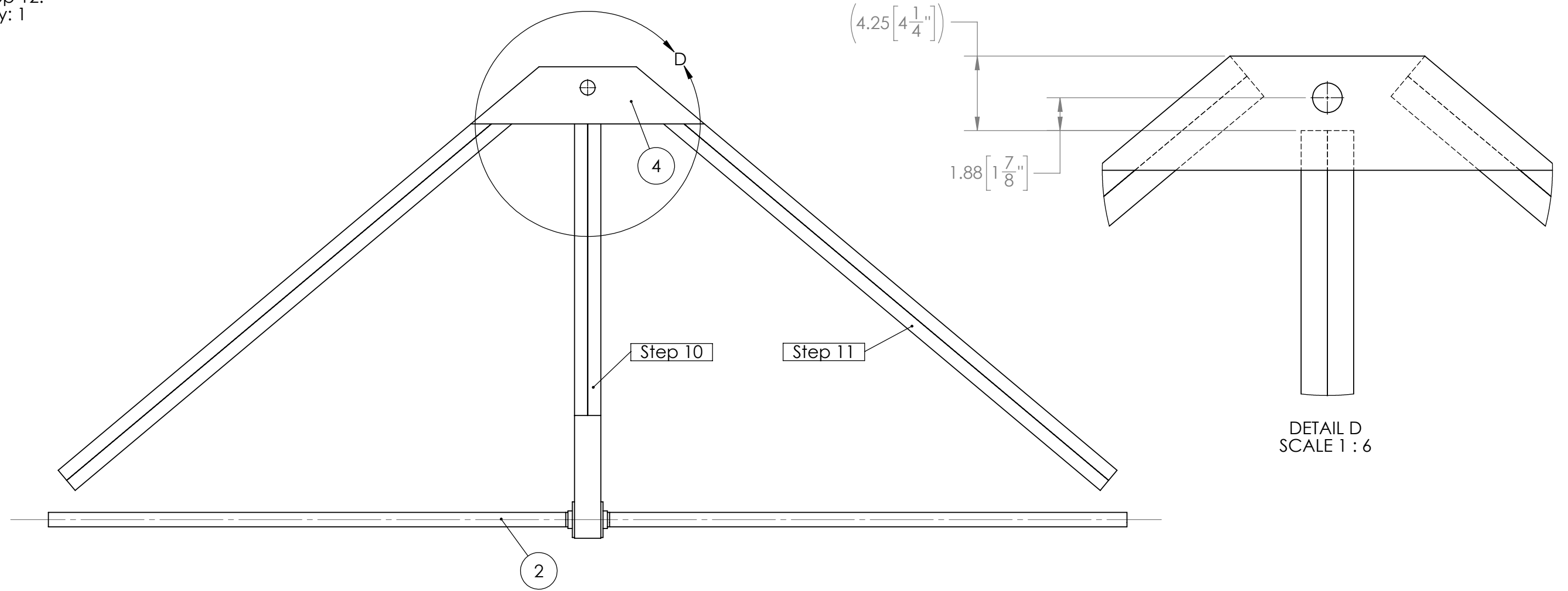


Note:
Attach ④ to 2X [Step 1] as shown, using 1.5" screws. Pre drill if needed.

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| | | | | | |
|-------------------------------------|--------------------|--|--|---|------|
| | | UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |
| | | DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001 | | DRAWN | |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | | CHECKED | |
| | | MATERIAL | | ENG APPR. | |
| NEXT ASSY | USED ON | FINISH | | MFG APPR. | |
| APPLICATION | | DO NOT SCALE DRAWING | | Q.A. | |
| | | | | COMMENTS: | |
| | | | |   | |
| TITLE: | | | | | |
| <h1>Generator Switch Top Level</h1> | | | | | |
| SIZE | DWG. NO. | REV | | | |
| B | TE-20004-20 | | | | |
| SCALE: 1:12 WEIGHT: | | | | SHEET 8 OF 20 | |

Step 12:
Qty: 1





DETAIL D
SCALE 1 : 6

Note:
Attach **Step 10** to **Step 11** as shown, using 1.5" screws. Pre drill if needed.
Be careful to ensure that **Step 10** is centered on **Step 11**, and that **2** is parallel to the top of **4**.

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

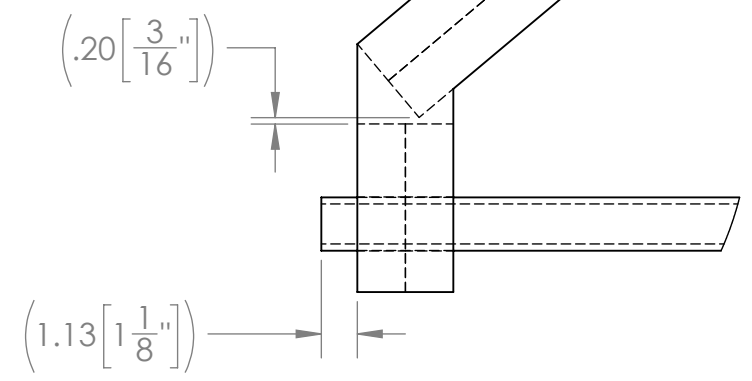
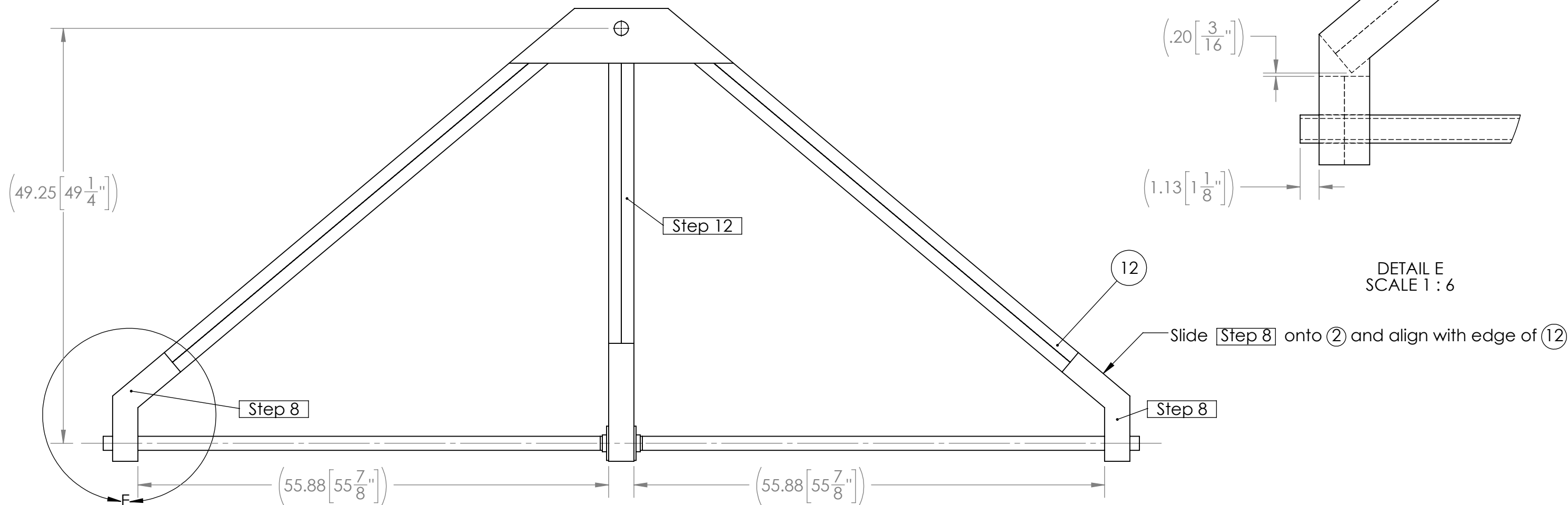



TITLE:

Generator Switch Top Level

| | | |
|-------------|--------------------|---------------|
| SIZE | DWG. NO. | REV |
| B | TE-20004-20 | |
| SCALE: 1:12 | WEIGHT: | SHEET 9 OF 20 |

Step 13:
Qty: 1





DETAIL E
SCALE 1 : 6

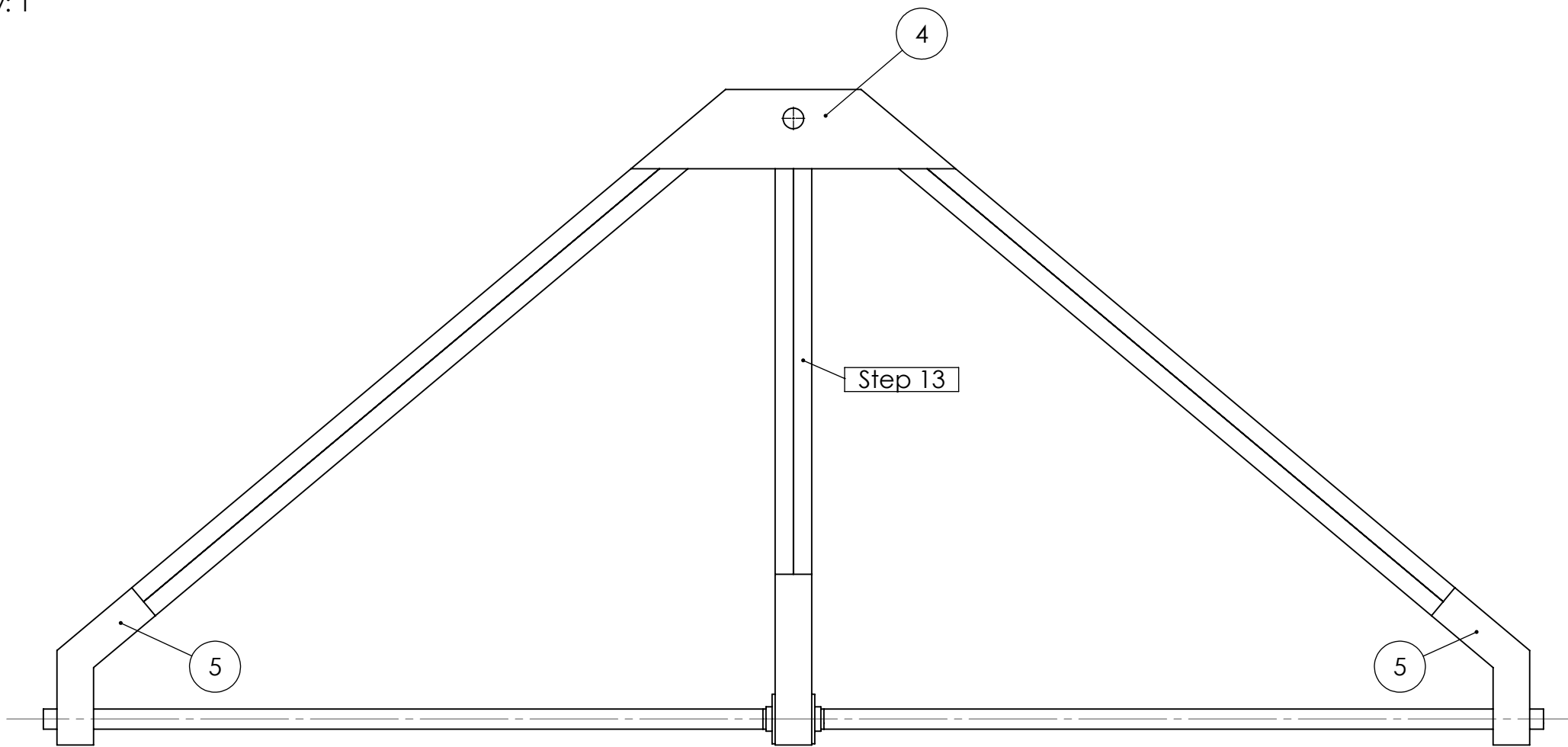
Slide **Step 8** onto **②** and align with edge of **⑫**

Note:
Align **Step 8** with **Step 12** by sliding **Step 8** onto **②**. Attach 2X **Step 8** to **Step 12** as shown, using 1.5" screws. Pre drill if needed.

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|-------------|-------------|--|---------|---|------|
| | | UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |
| | | DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001 | | DRAWN | |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | | CHECKED | |
| | | MATERIAL | | ENG APPR. | |
| NEXT ASSY | USED ON | FINISH | | MFG APPR. | |
| APPLICATION | | DO NOT SCALE DRAWING | | Q.A. | |
| | | | | COMMENTS: | |
| | | | |   | |
| | | | | TITLE: | |
| | | | | Generator Switch Top Level | |
| SIZE | DWG. NO. | REV | | | |
| B | TE-20004-20 | | | | |
| SCALE: 1:12 | | | WEIGHT: | SHEET 10 OF 20 | |



Step 14:
Qty: 1



Note:
Flip **[Step 13]** over and attach **(4)** with 1.5" screws. Ensure holes in both part **(4)** are aligned (consider using **(1)** to align the holes). Pre drill if needed.
Add 1.5" screws to connect **(5)** to **[Step 13]** in the same manner as was done in **[Step 13]**. Pre drill if needed.

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

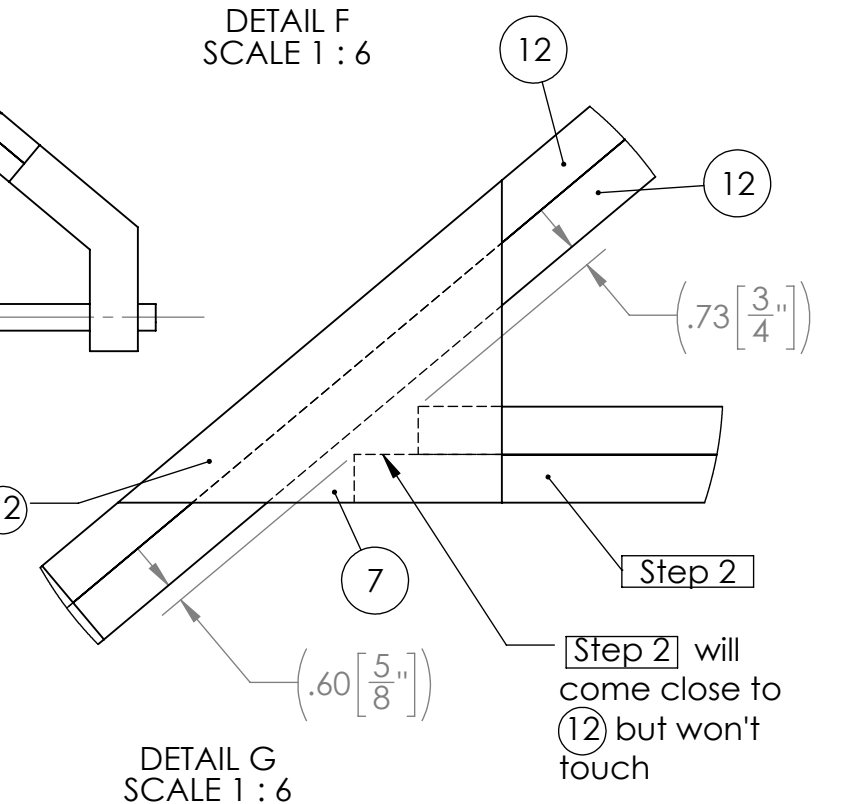
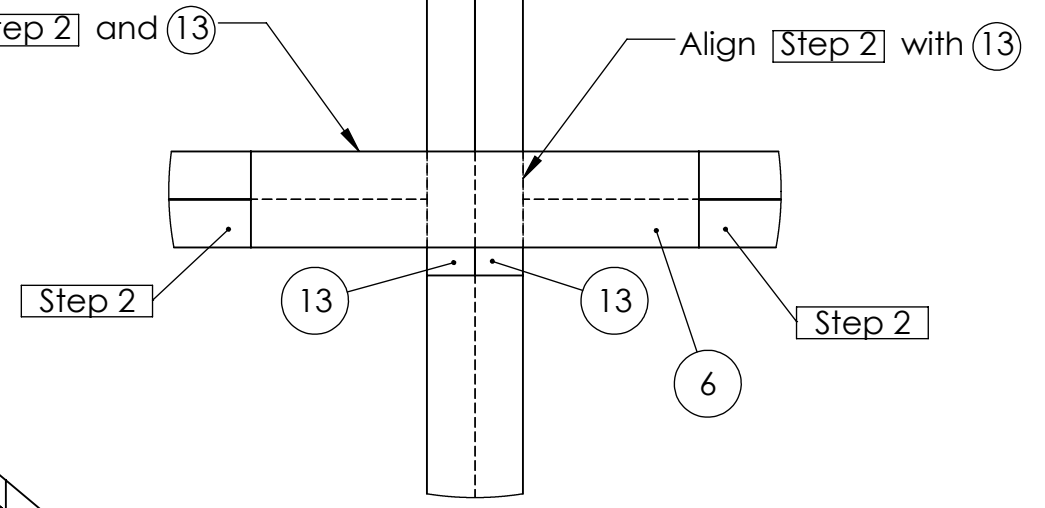
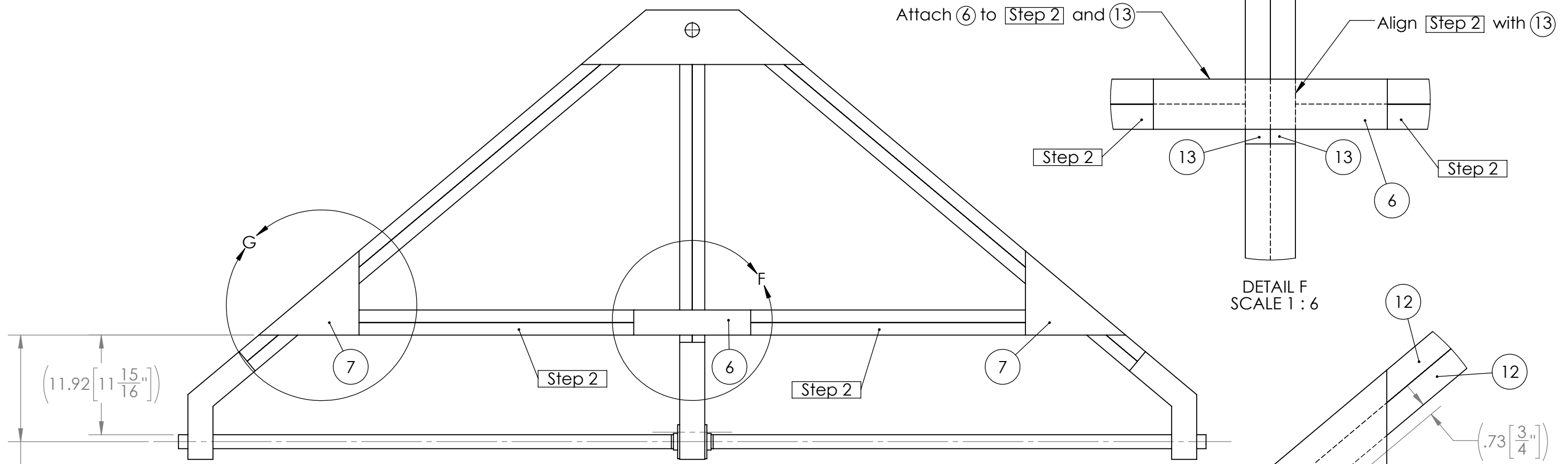
TITLE:

Generator Switch Top Level

| | | |
|----------|--------------------|-----|
| SIZE | DWG. NO. | REV |
| B | TE-20004-20 | |

SCALE: 1:12 WEIGHT: SHEET 11 OF 20

Step 15:
Qty: 1



Note:
Add 2X [Step 2] as shown. Attach to [Step 14] with 2X (7) and 1X (6) using 1.5" screws. Pre drill if needed.

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

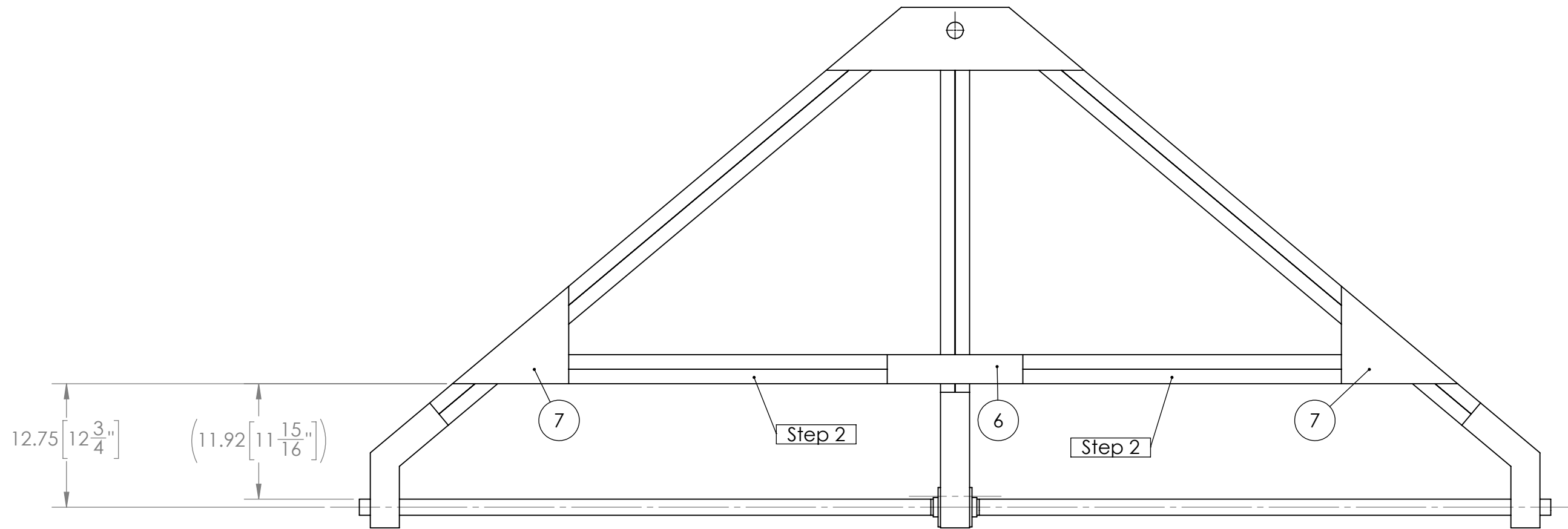
FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Generator Switch Top Level**

SIZE DWG. NO. REV
B TE-20004-20



SCALE: 1:12 WEIGHT: SHEET 12 OF 20

Step 16:
Qty: 1



Note:
Flip over and repeat **Step 15** on the other side. Pre drill if needed.

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| | | | | | |
|-------------|---------|---|-----------|------|---|
| | | UNLESS OTHERWISE SPECIFIED: | NAME | DATE |   |
| | | DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .001$ | DRAWN | | |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | CHECKED | | <h1>Generator Switch Top Level</h1> |
| | | MATERIAL | ENG APPR. | | |
| NEXT ASSY | USED ON | FINISH | MFG APPR. | | SIZE DWG. NO. REV |
| APPLICATION | | DO NOT SCALE DRAWING | Q.A. | | B TE-20004-20 |
| | | | COMMENTS: | | SCALE: 1:12 WEIGHT: SHEET 13 OF 20 |

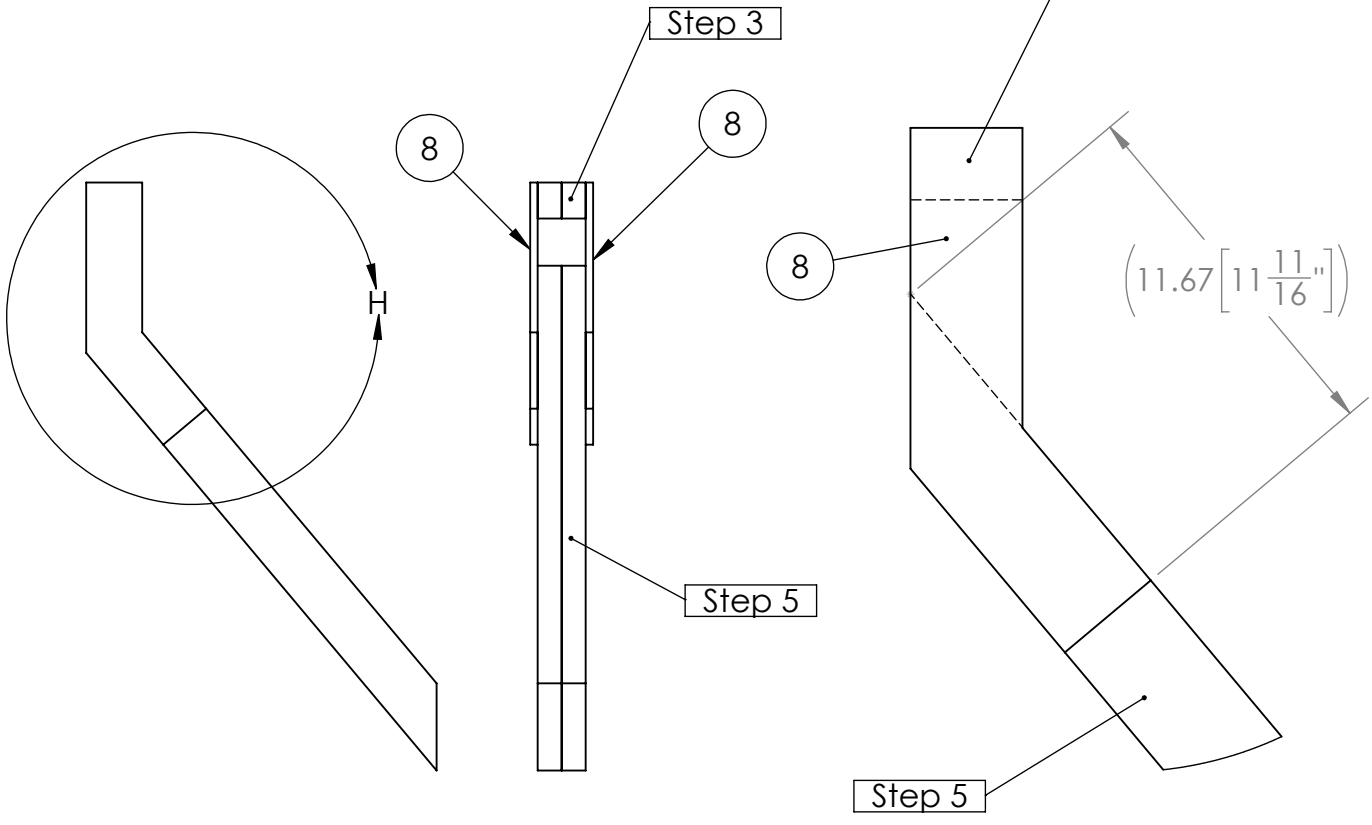
4

3

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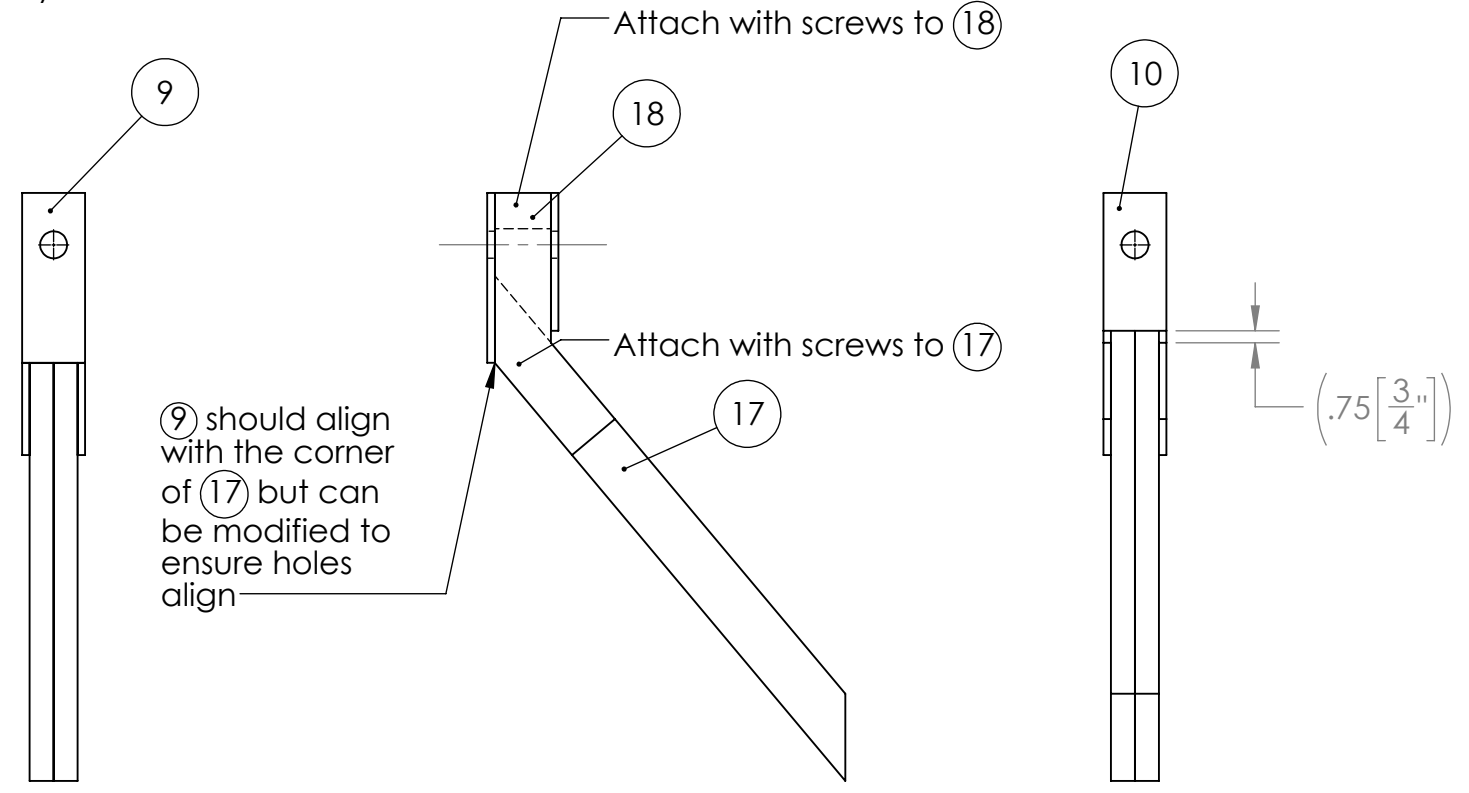
Step 17:
Qty: 2



DETAIL H
SCALE 1 : 6

Note:
Attach 2X (8) to [Step 5] as shown using 1.5" screws. Pre drill if needed.
Attach [Step 3] as shown using 1.5" screws. Pre drill if needed.



Step 18:
Qty: 2



Note:
Attach (9) and (10) to [Step 17] as shown using 1.5" screws. Ensure the holes are aligned and not blocked (consider using (1) to align the holes). Pre drill if needed.

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

TITLE:

Generator Switch Top Level

| | | |
|---------------------|--------------------|----------------|
| SIZE | DWG. NO. | REV |
| B | TE-20004-20 | |
| SCALE: 1:12 WEIGHT: | | SHEET 14 OF 20 |

4

3

2

1

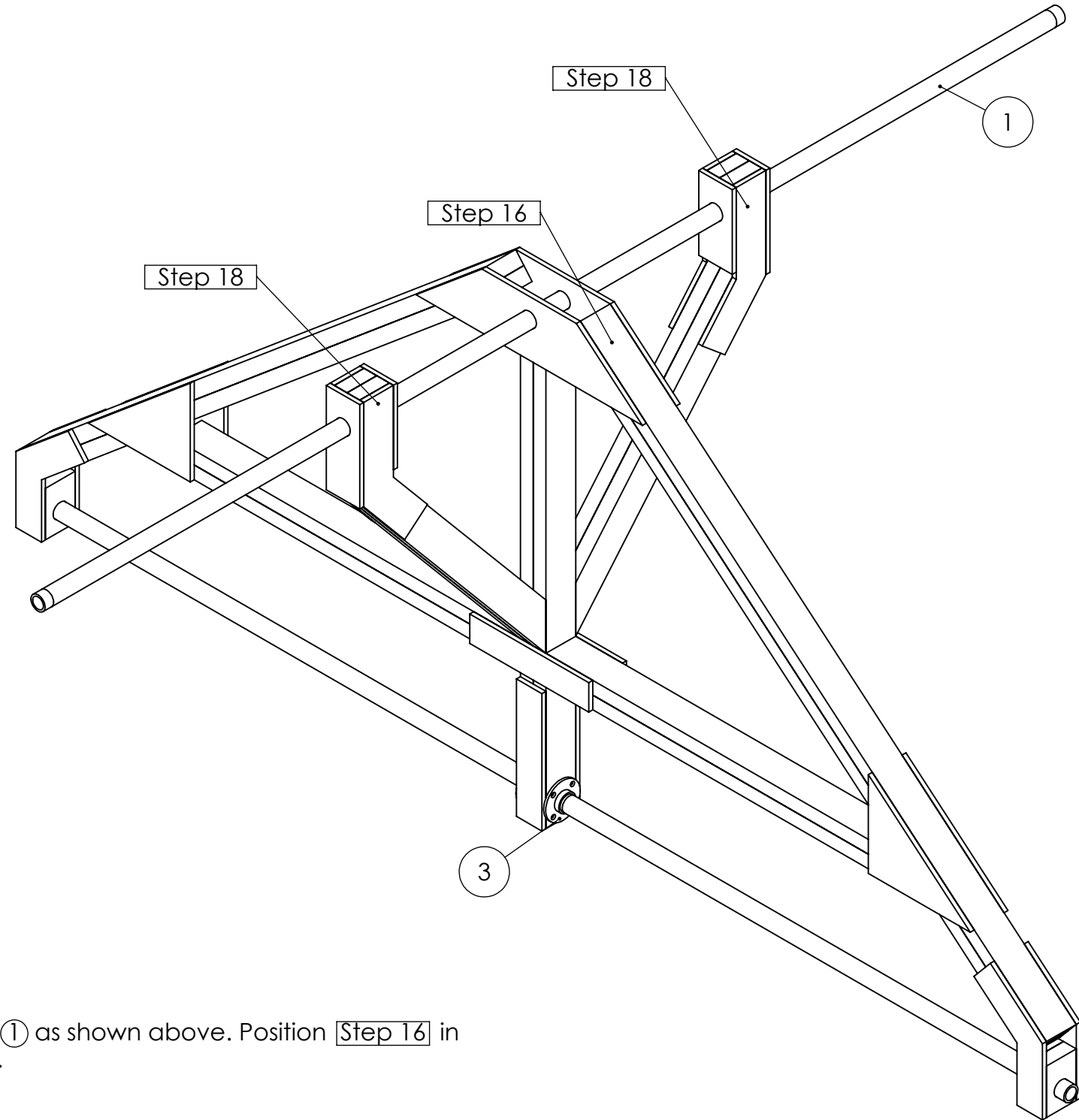
4

3

2

1

Step 19:
Qty:1



Note:
Slide 2X **Step 18** and **Step 16** onto ① as shown above. Position **Step 16** in approximately the center of the bar.

Consider either standing ends of **Step 16** on 2" x 4" since the center will not sit flush on the floor due to ③ OR consider placing ① on something apx. 60" tall to allow **Step 16** to be lifted off the ground.

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



TITLE:
Generator Switch Top Level

SIZE DWG. NO. REV
B TE-20004-20

SCALE: 1:12 WEIGHT: SHEET 15 OF 20

4

3

2

1

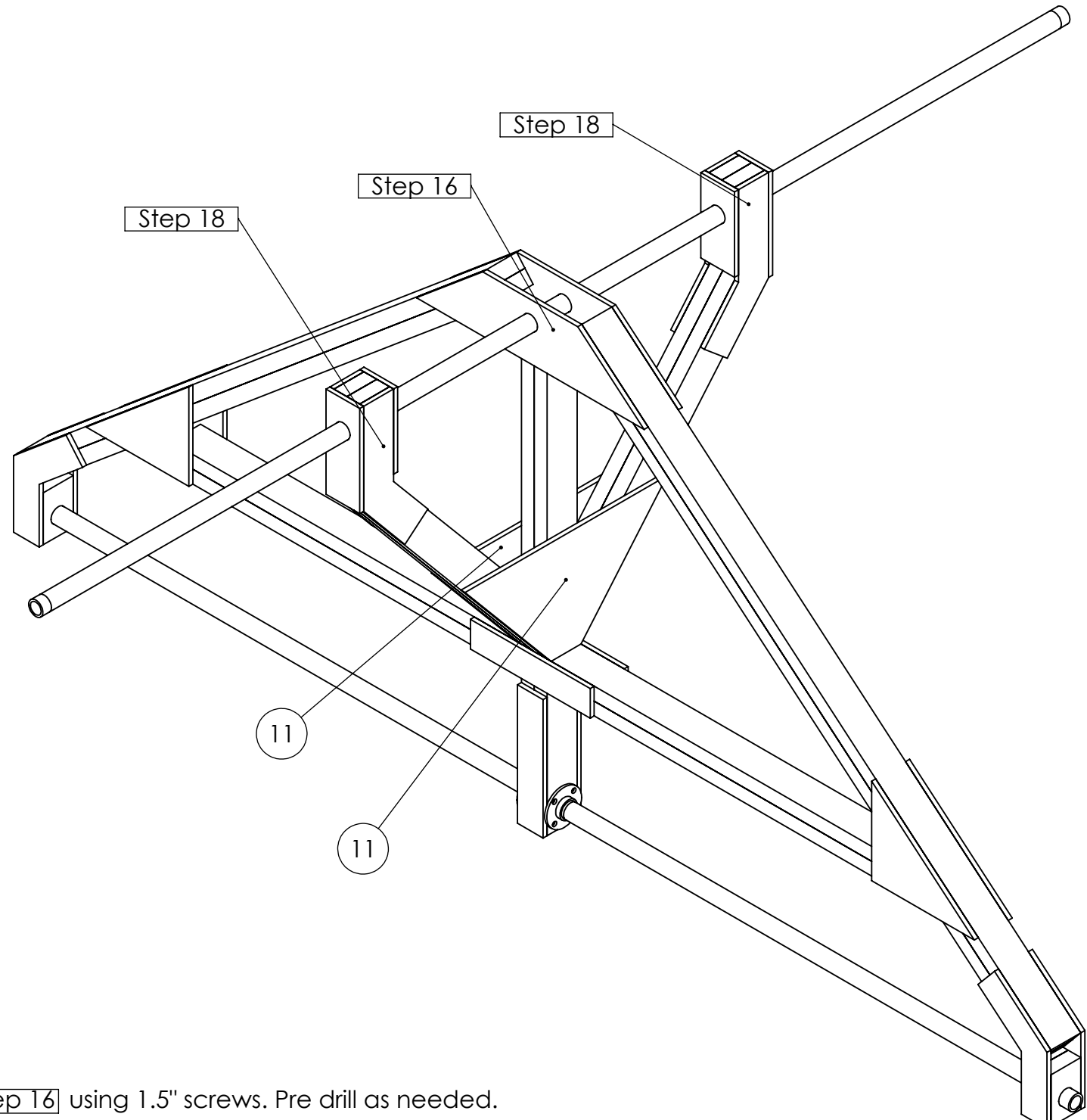
A

A

B

B

Step 20:
Qty:1



Note:
Attach 2X (11) to [Step 18] and [Step 16] using 1.5" screws. Pre drill as needed.

Consider placing (1) on something apx. 60" tall to allow the assembly to be lifted off the ground - this will help the assembly be perpendicular to the ground once (11) is screwed in place.

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



| | | |
|-------------------------------------|--------------------|----------------|
| TITLE: | | |
| <h1>Generator Switch Top Level</h1> | | |
| SIZE | DWG. NO. | REV |
| B | TE-20004-20 | |
| SCALE: 1:12 WEIGHT: | | SHEET 16 OF 20 |

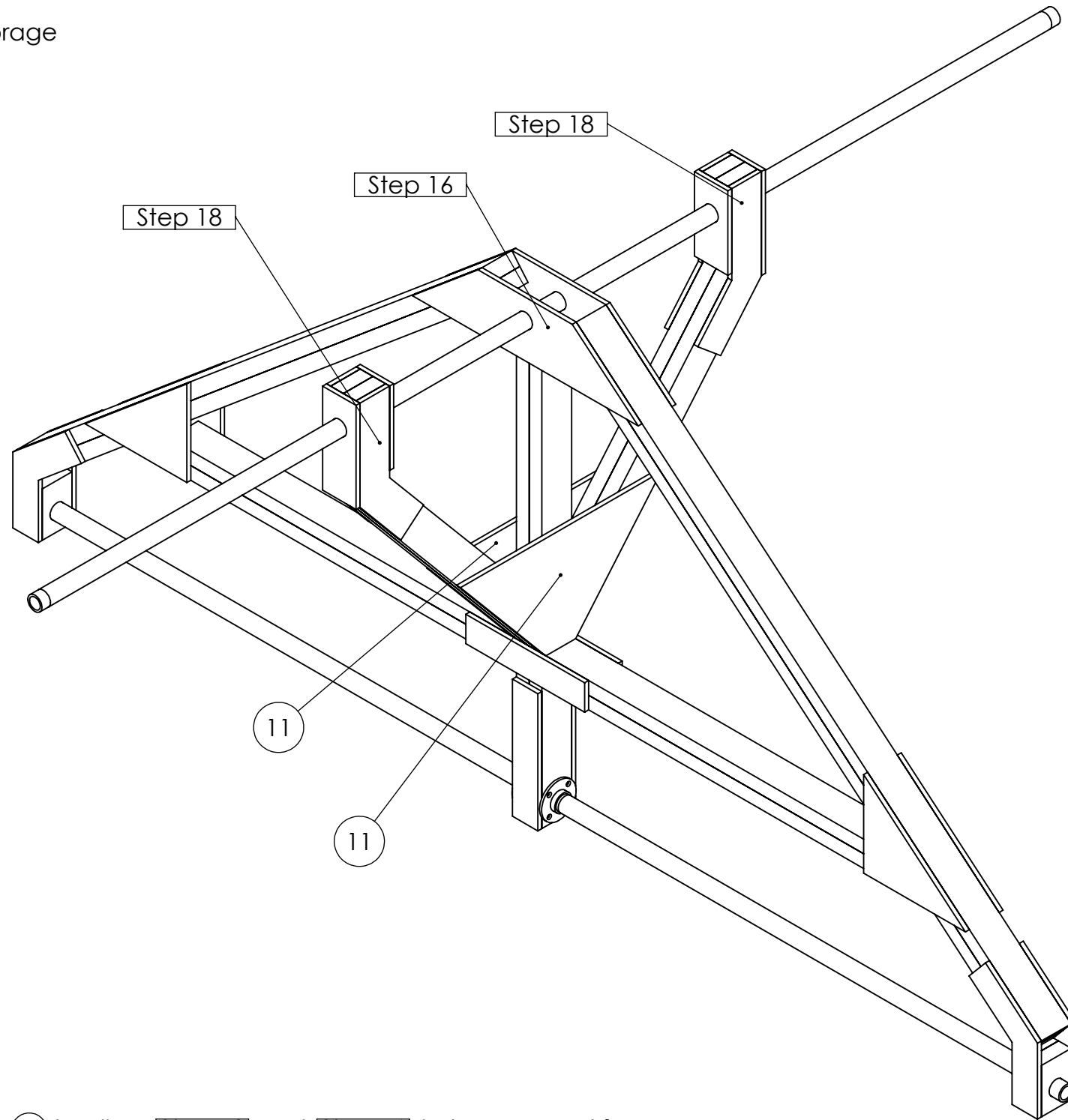
4

3

2



1

Optional: Disassembly for Storage



Note:
Screws can be removed from (11) to allow Step 18 and Step 16 to be removed from (1), to allow for more compact storage.

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|-------------|---------|--|-----------|------|---|
| | | UNLESS OTHERWISE SPECIFIED: | NAME | DATE |   |
| | | DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.001 | DRAWN | | |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | CHECKED | | <h1>Generator Switch Top Level</h1> |
| | | MATERIAL | ENG APPR. | | |
| NEXT ASSY | USED ON | FINISH | MFG APPR. | | B TE-20004-20 |
| APPLICATION | | DO NOT SCALE DRAWING | Q.A. | | SCALE: 1:12 WEIGHT: SHEET 17 OF 20 |
| | | | COMMENTS: | | |

4

3

2

1

B

B

A

A

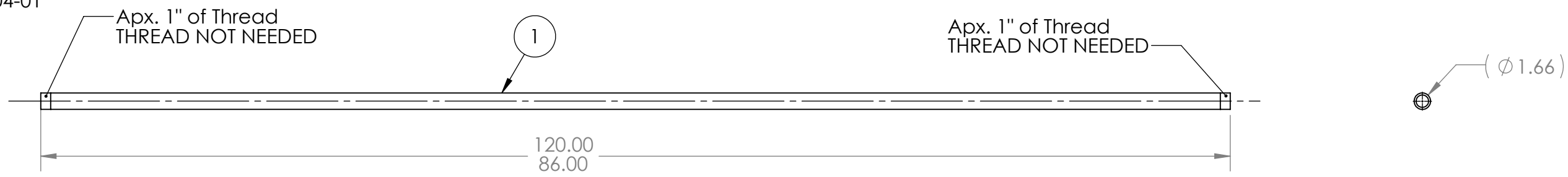
4

3

2

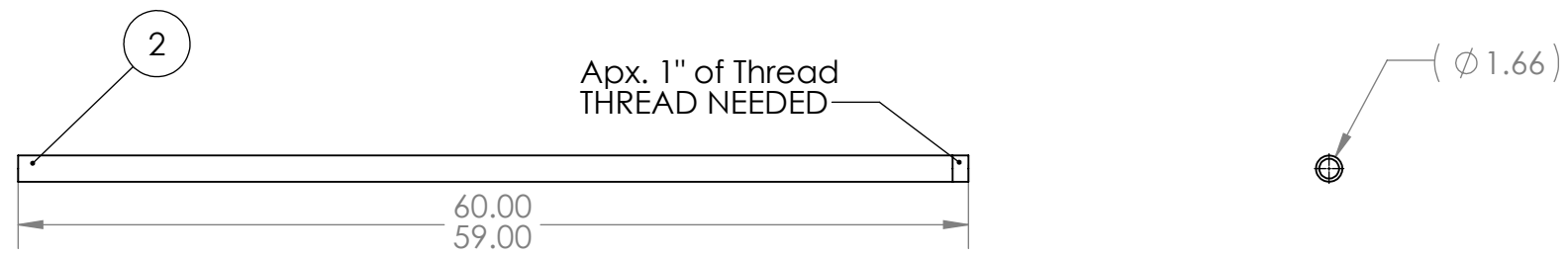
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TE-20004-01
QTY: 1



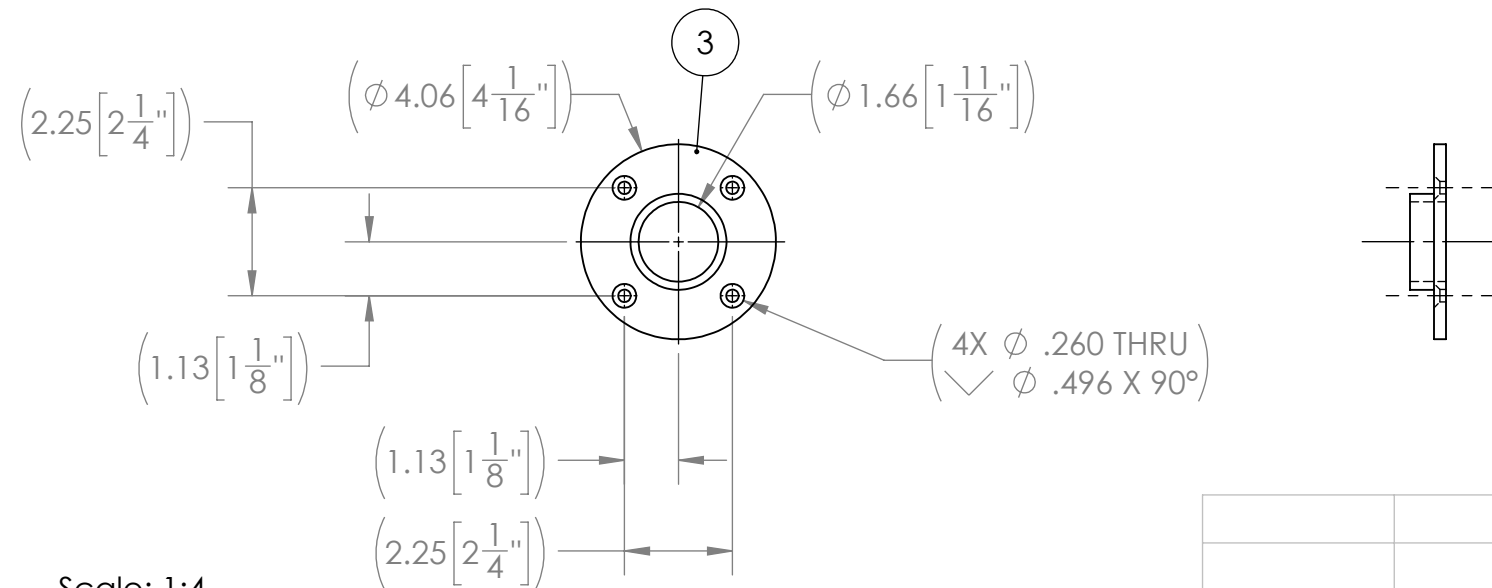
- Note:
1. Material: 1-1/4" Schedule 40 Black Iron Pipe
 2. 86" is the recommended pipe length. Longer pipe may allow easier access to robot.

TE-20004-02
QTY: 2





Note:
Material: 1-1/4" Schedule 40 Black Iron Pipe

TE-20004-03
QTY: 2



Note:
Material: 1-1/4" Black Iron Floor Flange
Home Depot PN (Store SKU): 564331

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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. | |
| | | | | COMMENTS: | |
|   | | | | | |
| TITLE: Generator Switch Top Level | | | | | |
| SIZE | DWG. NO. | REV | | | |
| B | TE-20004-20 | | | | |
| SCALE: 1:12 WEIGHT: | | | | SHEET 18 OF 20 | |

4

3

2

1

B

B

A

A

4

3

2

1

TE-20004-07
QTY: 4

NOTE:
Material: 1/2" Plywood

TE-20004-06
QTY: 4

NOTE:
Material: 1/2" Plywood

TE-20004-04
QTY: 2

NOTE:
Material: 1/2" Plywood

B

B

TE-20004-05
QTY: 4

NOTE:
Material: 1/2" Plywood

TE-20004-08
QTY: 4

NOTE:
Material: 1/2" Plywood

TE-20004-09
QTY: 2

NOTE:
Material: 1/2" Plywood

TE-20004-10
QTY: 2

NOTE:
Material: 1/2" Plywood

A

A

TE-20004-11
QTY: 2

NOTE:
Material: 1/2" Plywood

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



TITLE:
Generator Switch Top Level

SIZE DWG. NO. REV
B TE-20004-20

SCALE: 1:12 WEIGHT: SHEET 19 OF 20

4

3

2

1

4

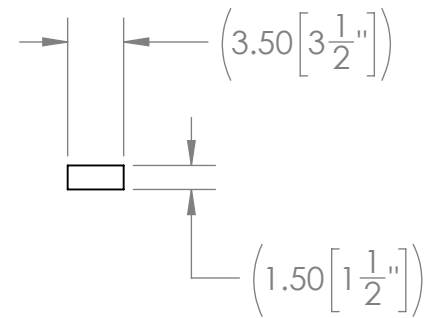
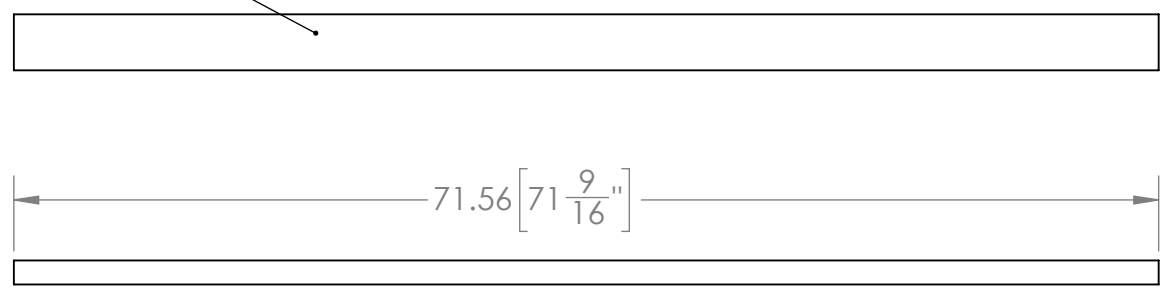
3

2

1

TE-20004-12
QTY: 4

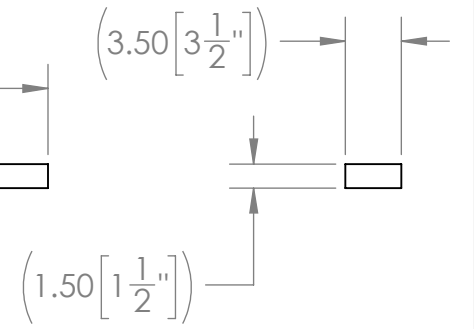
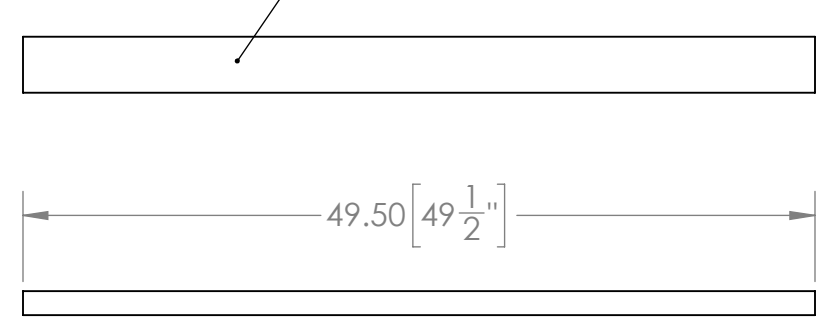
12



NOTE:
Material: 2" x 4" Pine Lumber

TE-20004-13
QTY: 2

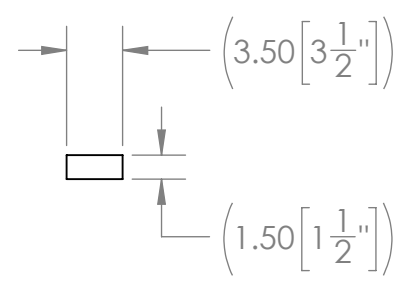
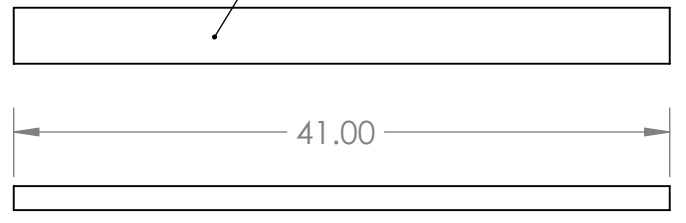
13



NOTE:
Material: 2" x 4" Pine Lumber

TE-20004-14
QTY: 2

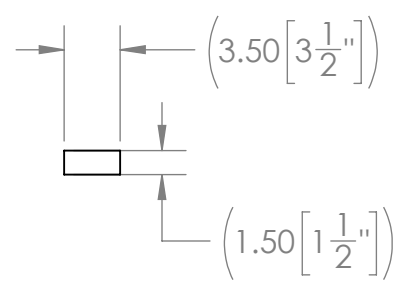
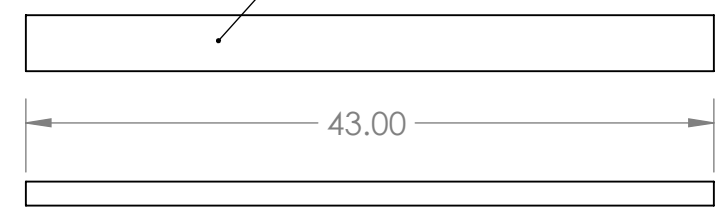
14



NOTE:
Material: 2" x 4" Pine Lumber

TE-20004-15
QTY: 2

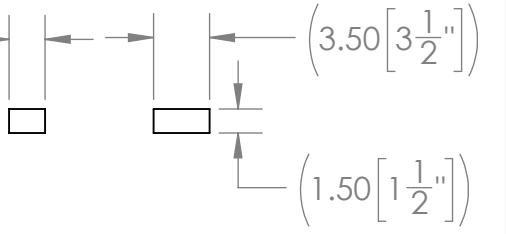
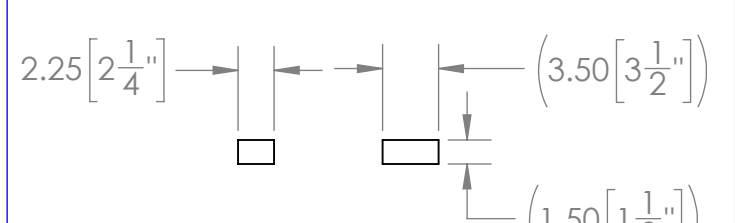
15



NOTE:
Material: 2" x 4" Pine Lumber

TE-20004-18
QTY: 4

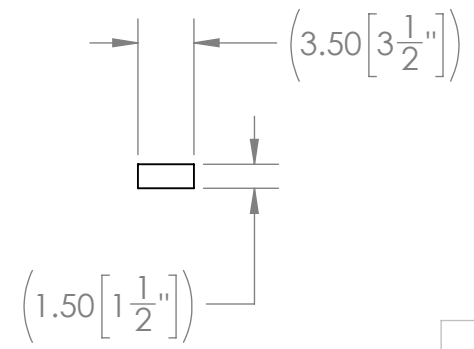
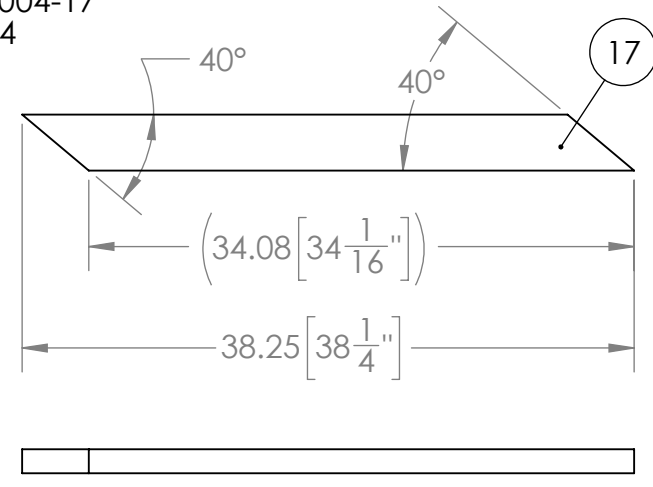
18



NOTE:
Material: 2" x 4" Pine Lumber

TE-20004-17
QTY: 4

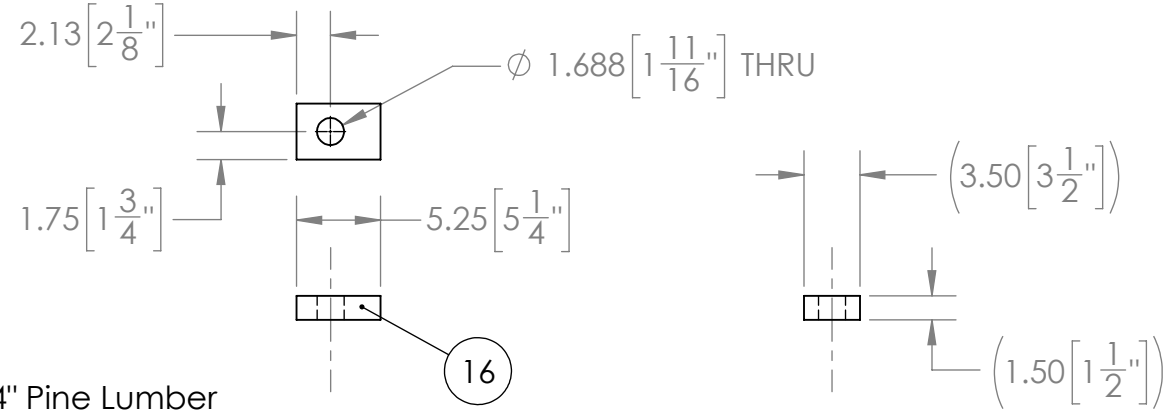
17



NOTE:
Material: 2" x 4" Pine Lumber

TE-20004-16
QTY: 4

16



NOTE:
Material: 2" x 4" Pine Lumber

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



TITLE:
Generator Switch Top Level

SIZE DWG. NO. REV
B TE-20004-20

SCALE: 1:12 WEIGHT: SHEET 20 OF 20

4

3

2

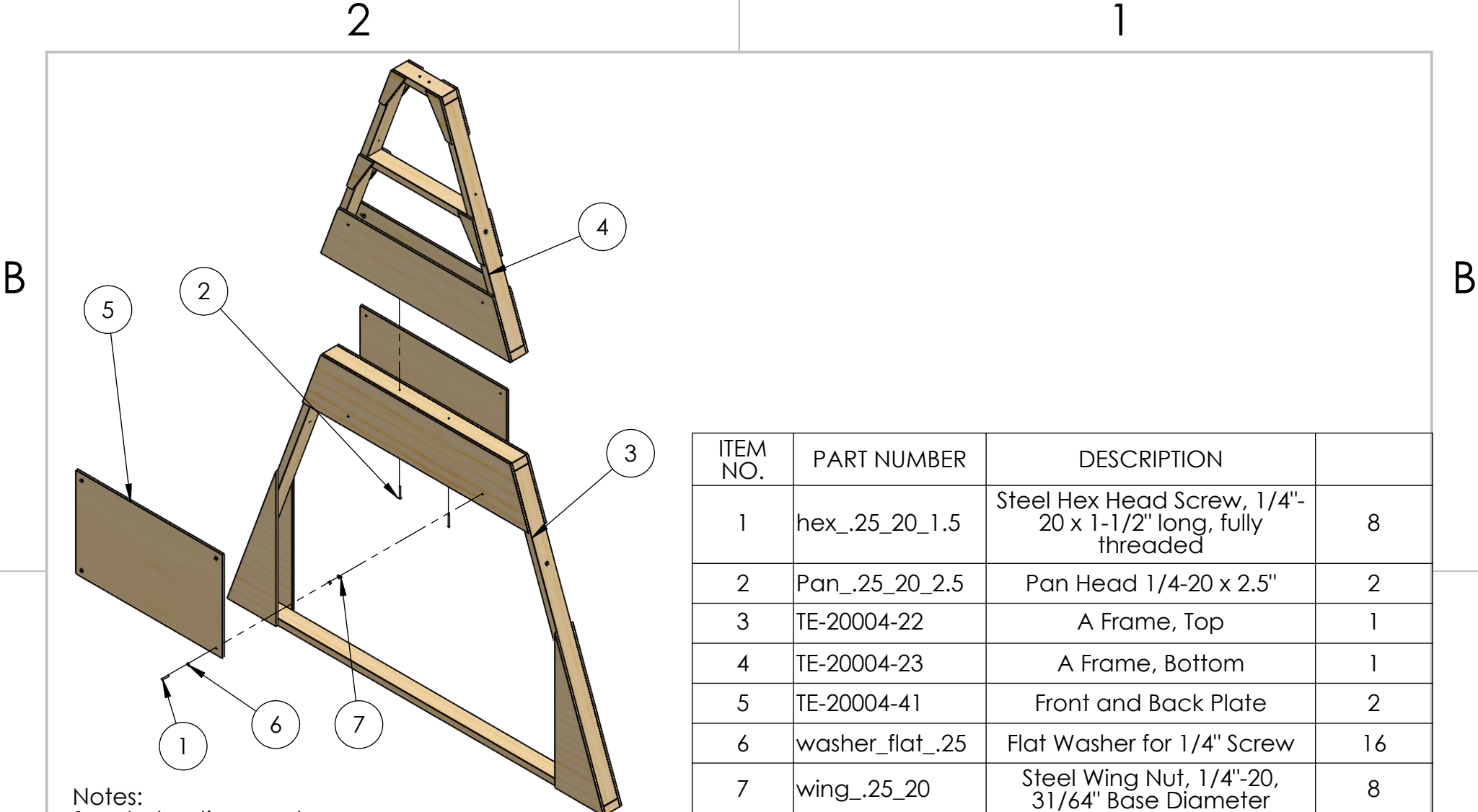
1

B

B

A

A





| ITEM NO. | PART NUMBER | DESCRIPTION | |
|----------|-----------------|---|----|
| 1 | hex_.25_20_1.5 | Steel Hex Head Screw, 1/4"-20 x 1-1/2" long, fully threaded | 8 |
| 2 | Pan_.25_20_2.5 | Pan Head 1/4-20 x 2.5" | 2 |
| 3 | TE-20004-22 | A Frame, Top | 1 |
| 4 | TE-20004-23 | A Frame, Bottom | 1 |
| 5 | TE-20004-41 | Front and Back Plate | 2 |
| 6 | washer_flat_.25 | Flat Washer for 1/4" Screw | 16 |
| 7 | wing_.25_20 | Steel Wing Nut, 1/4"-20, 31/64" Base Diameter | 8 |

Notes:
 1. Instructions and quantities shown are for 1 assembly. 4 assemblies total are needed.

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|-------------|---------|---|--|-----------|------|
| | | UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |
| | | DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .01 THREE PLACE DECIMAL ± .001 | | DRAWN | |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | | CHECKED | |
| TE-20004 | | MATERIAL | | ENG APPR. | |
| NEXT ASSY | USED ON | FINISH | | MFG APPR. | |
| APPLICATION | | DO NOT SCALE DRAWING | | Q.A. | |
| | | | | COMMENTS: | |

TITLE:

A Frame, Assembled

| | | |
|----------|--------------------|-----|
| SIZE | DWG. NO. | REV |
| A | TE-20004-21 | |

SCALE: 1:24 WEIGHT: SHEET 1 OF 5

A

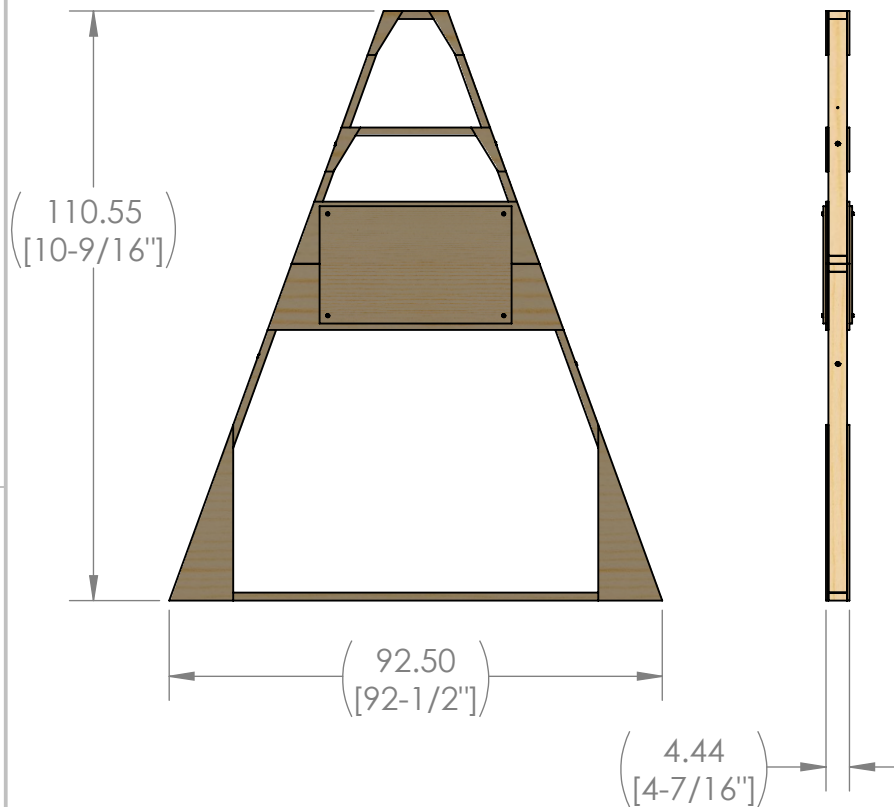
A

2

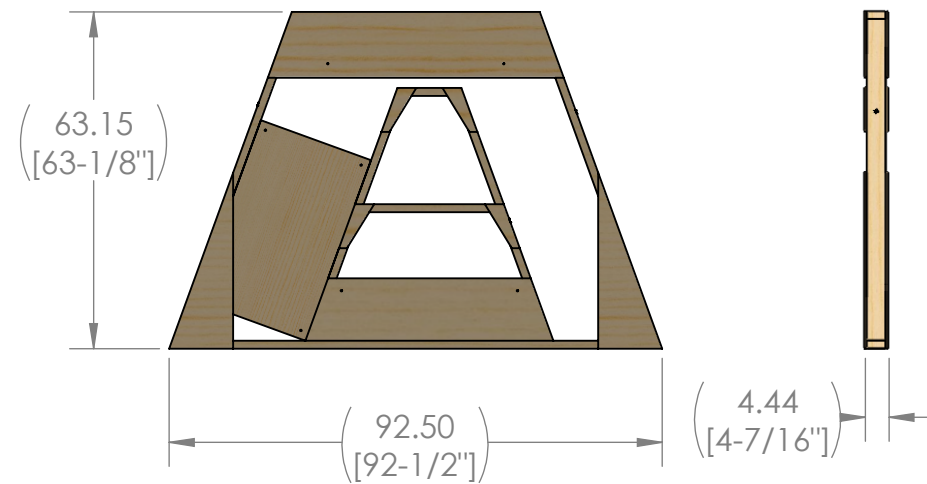
1

B

B



Note: subassemblies can nest for storage



A

A

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



| | | |
|-----------------------------|--------------------|--------------|
| TITLE: | | |
| <h1>A Frame, Assembled</h1> | | |
| SIZE | DWG. NO. | REV |
| A | TE-20004-21 | |
| SCALE: 1:36 WEIGHT: | | SHEET 2 OF 5 |

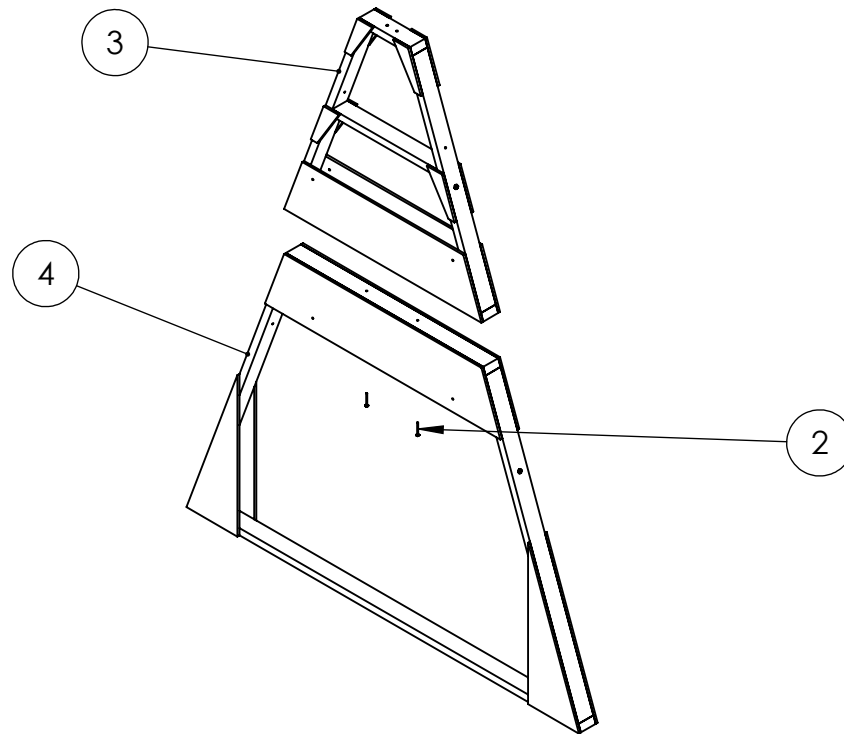
2

1

2

1

Step 1:



Note:

1. Assembly can be done with parts upright, on the ground, or on their side.
2. Attach (3) to (4) using 2x (2) into TeeNuts.

B

B

A

A

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



| | | |
|-------------------------------------|--------------------|--------------|
| TITLE: A Frame, Assembled | | |
| SIZE | DWG. NO. | REV |
| A | TE-20004-21 | |
| SCALE: 1:32 | WEIGHT: | SHEET 3 OF 5 |

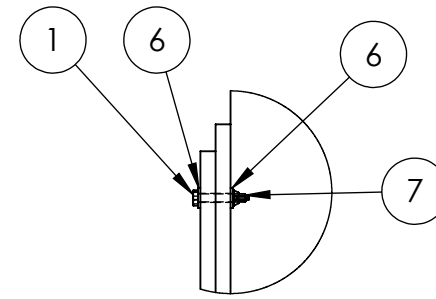
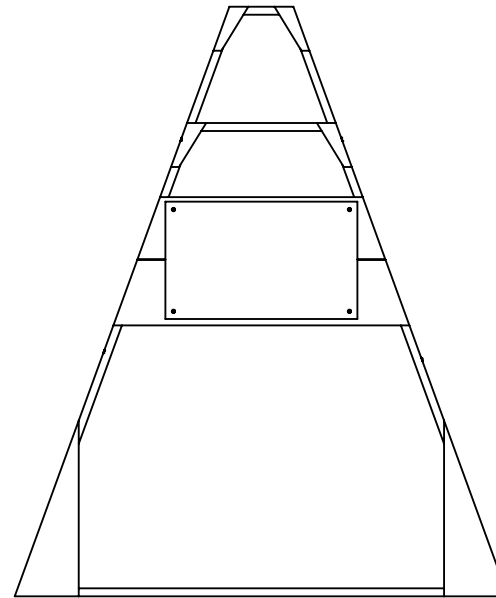
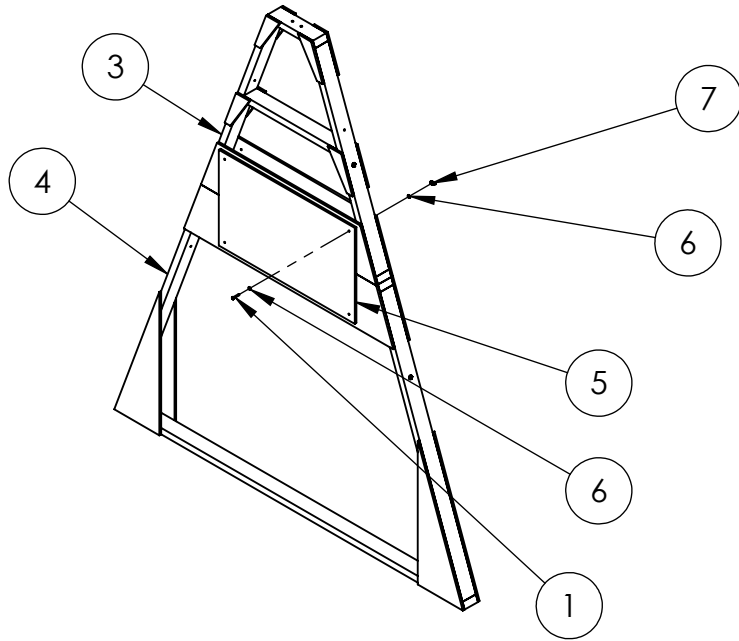
2

1

2

1

Step 2:



DETAIL A
SCALE 1 : 6



Notes:

1. Attach (5) to (3) using (1) , 2x (6) , and (7) .
2. Repeat on remaining holes on (3) and (4) .

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



| | | |
|-------------------------------------|--------------------|--------------|
| TITLE: A Frame, Assembled | | |
| SIZE | DWG. NO. | REV |
| A | TE-20004-21 | |
| SCALE: 1:36 WEIGHT: | | SHEET 4 OF 5 |

2

1

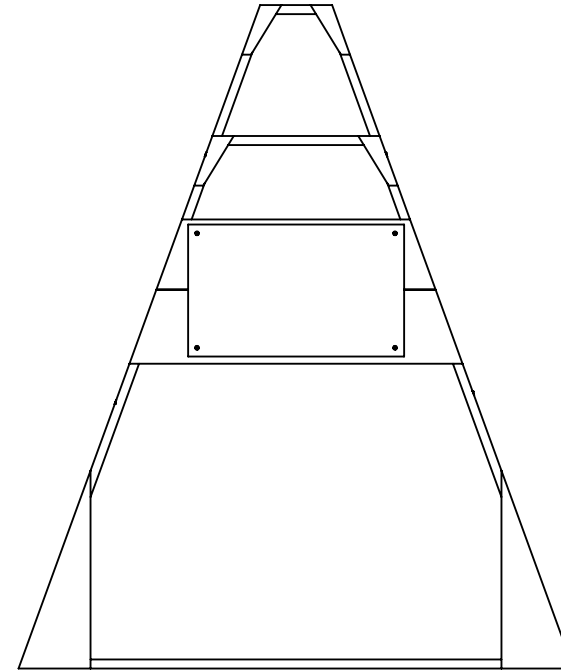
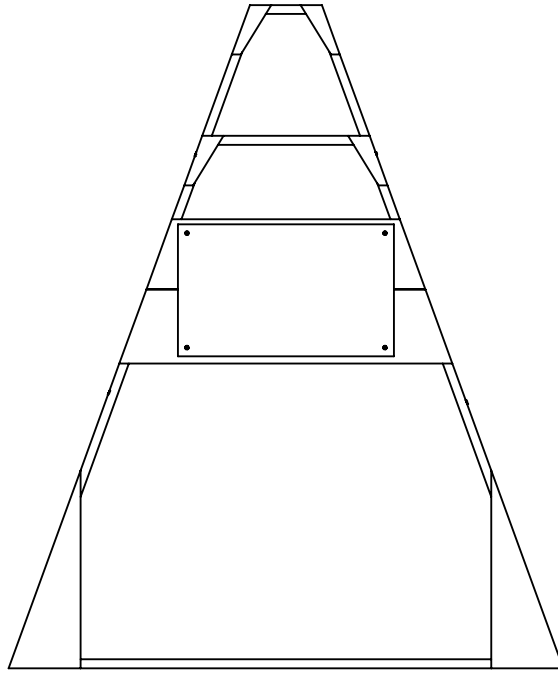
2

1

Step 3:

FRONT

BACK



Notes:



- 1. Repeat Step 2 on other side.

B

B

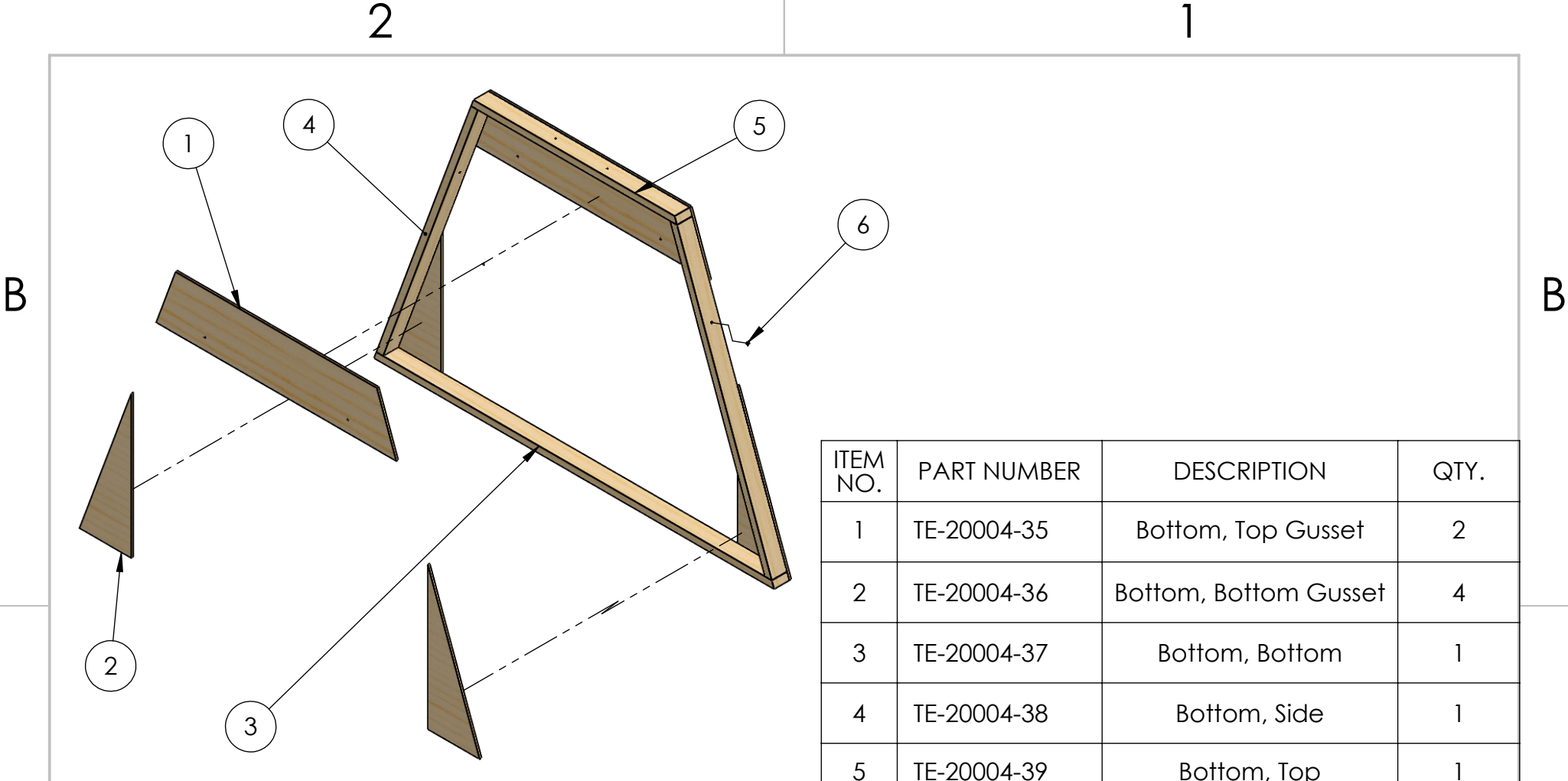
A

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 | | | | TITLE: |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | | CHECKED | | | <h1 style="text-align: center;">A Frame, Assembled</h1> | |
| | | MATERIAL | | ENG APPR. | | | | SIZE DWG. NO. REV <h2 style="text-align: center;">A TE-20004-21</h2> |
| | | FINISH | | MFG APPR. | | | | |
| PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST IS PROHIBITED. | | NEXT ASSY | USED ON | Q.A. COMMENTS: | | | | |
| | | APPLICATION | | DO NOT SCALE DRAWING | | SCALE: 1:32 WEIGHT: | | SHEET 5 OF 5 |

2

1





| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|---------------|-----------------------|------|
| 1 | TE-20004-35 | Bottom, Top Gusset | 2 |
| 2 | TE-20004-36 | Bottom, Bottom Gusset | 4 |
| 3 | TE-20004-37 | Bottom, Bottom | 1 |
| 4 | TE-20004-38 | Bottom, Side | 1 |
| 5 | TE-20004-39 | Bottom, Top | 1 |
| 6 | TeeNut_.25_20 | 1/4-20 Tee Nut | 2 |

Notes:

- Instructions and quantities shown are for 1 assembly. 4 assemblies total are needed.

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|-------------|---------|---|--|-----------|------|
| | | UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |
| | | DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .01 THREE PLACE DECIMAL ± .001 | | DRAWN | |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | | CHECKED | |
| TE-20004-21 | | MATERIAL | | ENG APPR. | |
| NEXT ASSY | USED ON | FINISH | | MFG APPR. | |
| APPLICATION | | DO NOT SCALE DRAWING | | Q.A. | |
| | | | | COMMENTS: | |

TITLE: **A Frame, Bottom**

| | | |
|------|----------------------|-----|
| SIZE | DWG. NO. | REV |
| | A TE-20004-22 | |

SCALE: 1:24 WEIGHT: SHEET 1 OF 10

B

B

A

A

2

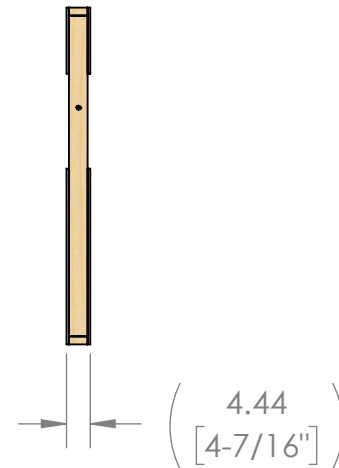
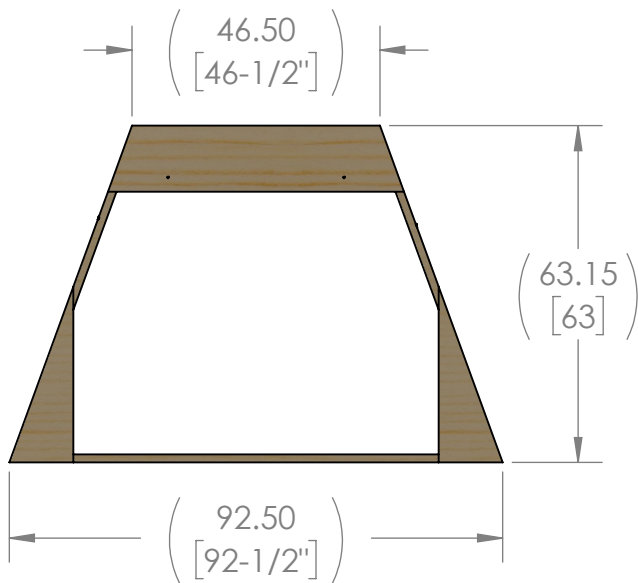
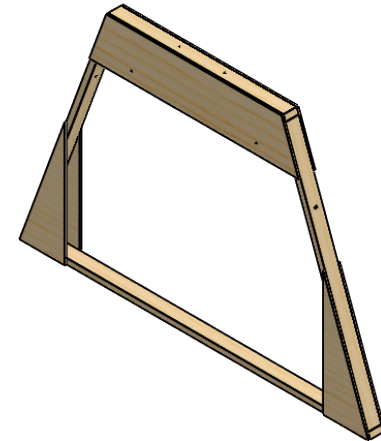
1

2

1

2

1



B

B

A

A

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



TITLE:
A Frame, Bottom

SIZE DWG. NO. REV
A TE-20004-22

SCALE: 1:36 WEIGHT: SHEET 2 OF 10

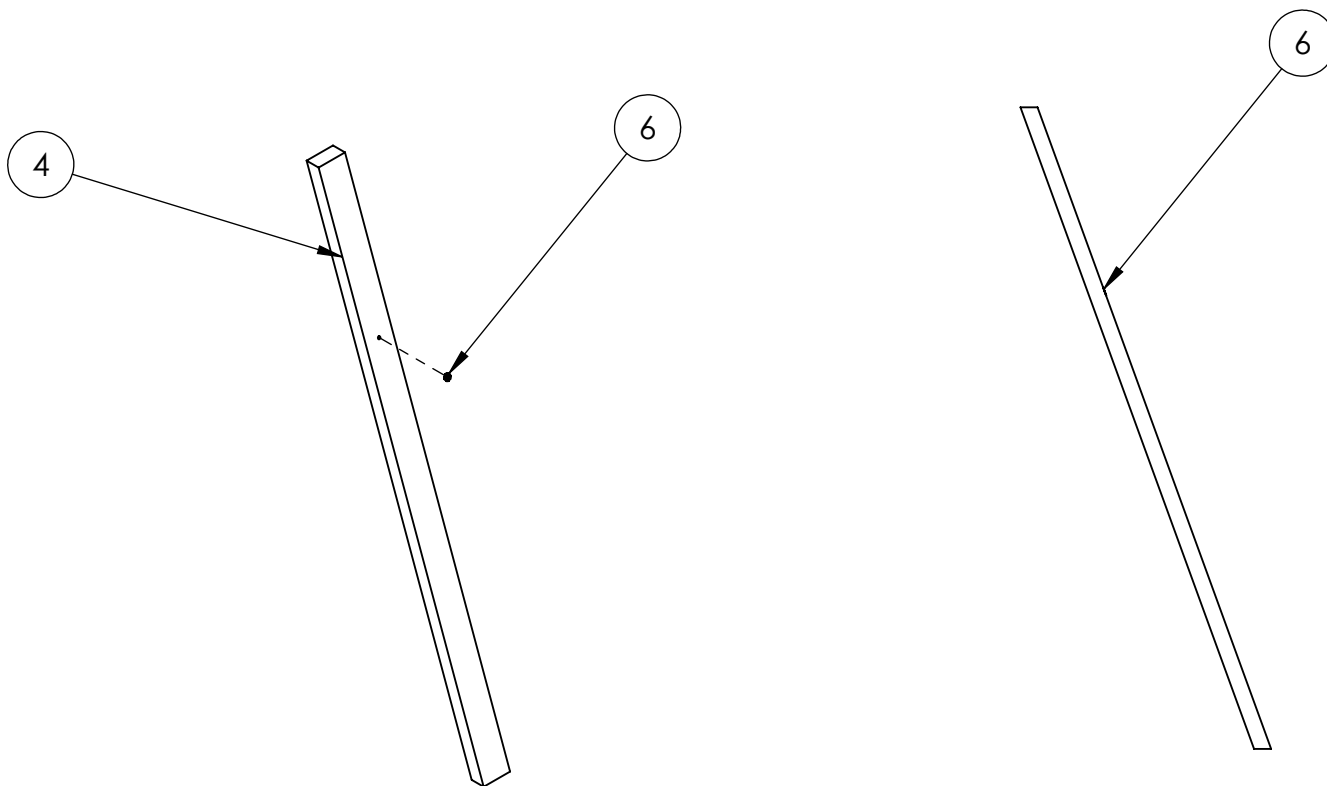
2

1

2

1

Step 1:
Qty: 2



Notes:

1. Insert **6** into **4** using a hammer or mallet as needed.

B

B

A

A

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



TITLE:
A Frame, Bottom

SIZE DWG. NO. REV
A TE-20004-22

SCALE: 1:18 WEIGHT: SHEET 3 OF 10

2

1

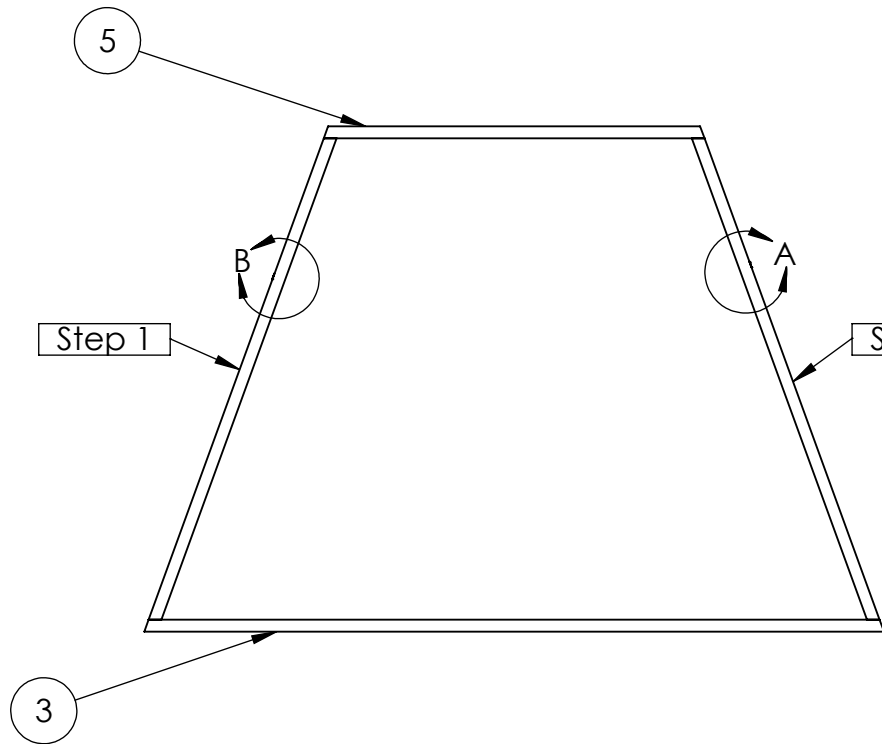
2

1

Step 2:

TeeNut facing out

DETAIL B
SCALE 1 : 12



TeeNut facing out

DETAIL A
SCALE 1 : 12

Note:

1. Align (3), [Step 1], (5).
2. Use 2.5" Screws to attach. Pre-drill as needed.

A

A

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



TITLE:
A Frame, Bottom

| | | |
|---------------------|----------------------|---------------|
| SIZE | DWG. NO. | REV |
| | A TE-20004-22 | |
| SCALE: 1:24 WEIGHT: | | SHEET 4 OF 10 |

2

1

2

1

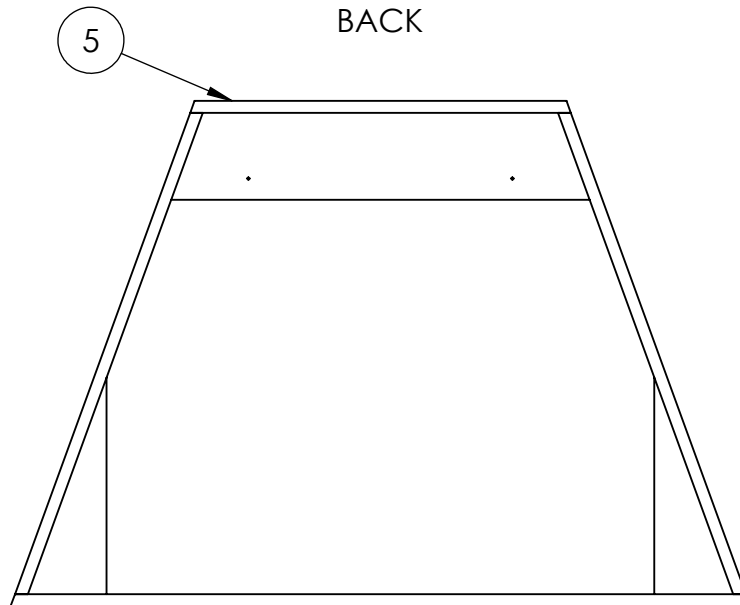
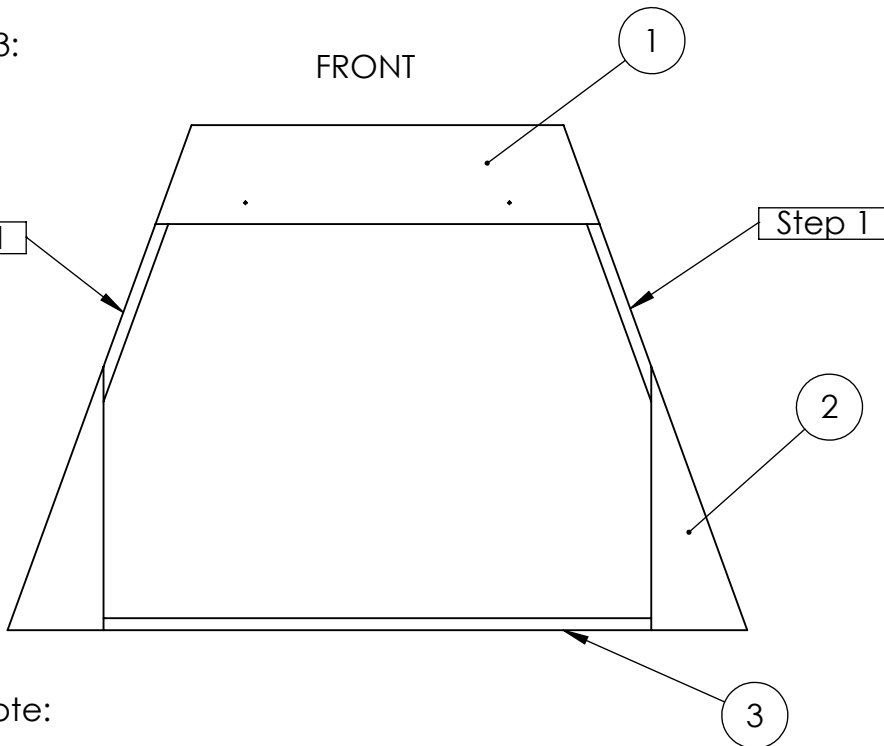
Step 3:

FRONT

BACK

Step 1

Step 1



Note:



1. Screw (3), [Step 1], to (2) with 1.5" screws. Pre drill as needed.
2. Repeat.
3. Screw (5), [Step 1] to (1) with 1.5" screws. Pre drill as needed.
4. Repeat.

B

B

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 | | |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | | CHECKED | | SIZE DWG. NO. REV A TE-20004-22 |
| | | MATERIAL | | ENG APPR. | | |
| NEXT ASSY | | USED ON | | MFG APPR. | | |
| APPLICATION | | DO NOT SCALE DRAWING | | Q.A. | | |
| | | | | COMMENTS: | | |

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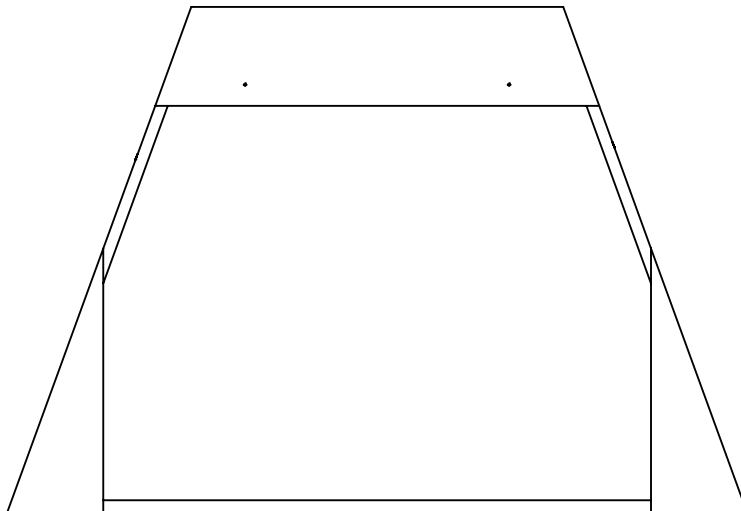
2

1

2

1

Step 4:



B

B

Note:

- 1. Flip over and repeat Step 3.

A

A

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



TITLE:
A Frame, Bottom

| | | |
|-------------|--------------------|---------------|
| SIZE | DWG. NO. | REV |
| A | TE-20004-22 | |
| SCALE: 1:24 | WEIGHT: | SHEET 6 OF 10 |

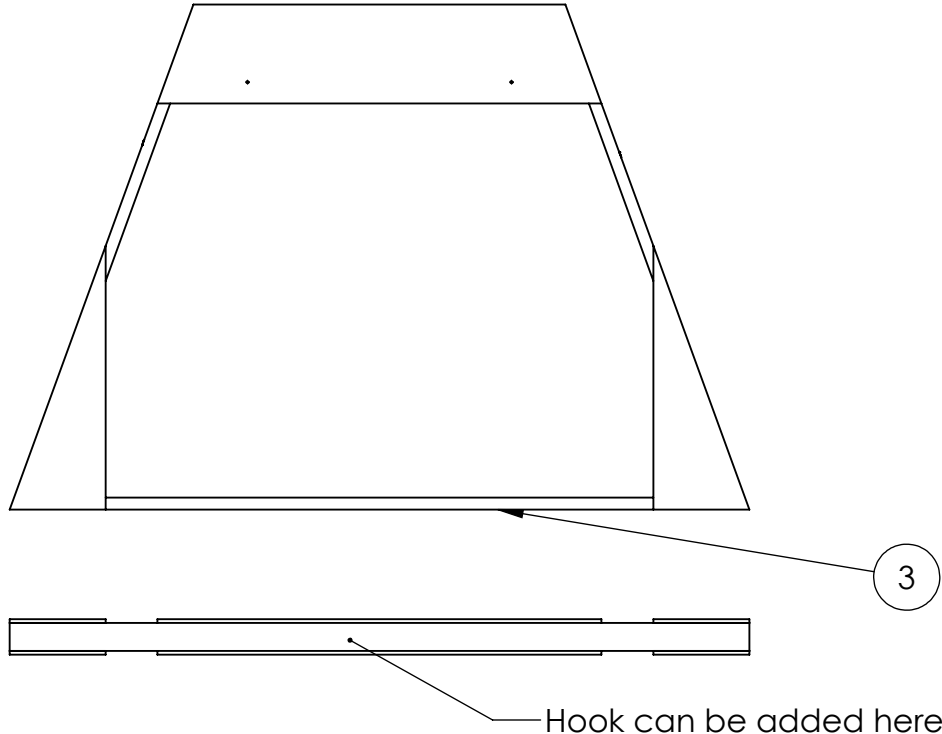
2

1

2

1

Step 5:



Note:

- 1. Optional: Add hook to the bottom of (3).

B

B

A

A

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



TITLE:
A Frame, Bottom

SIZE DWG. NO. REV
A TE-20004-22

SCALE: 1:24 WEIGHT: SHEET 7 OF 10

2

1

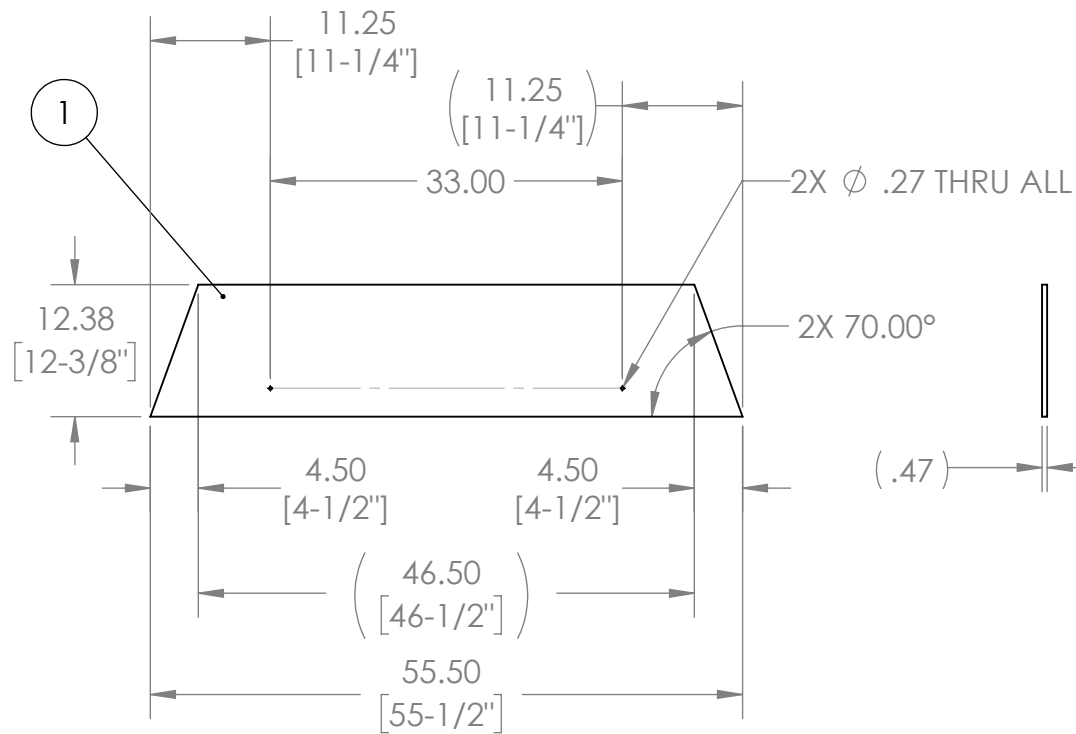
2

1

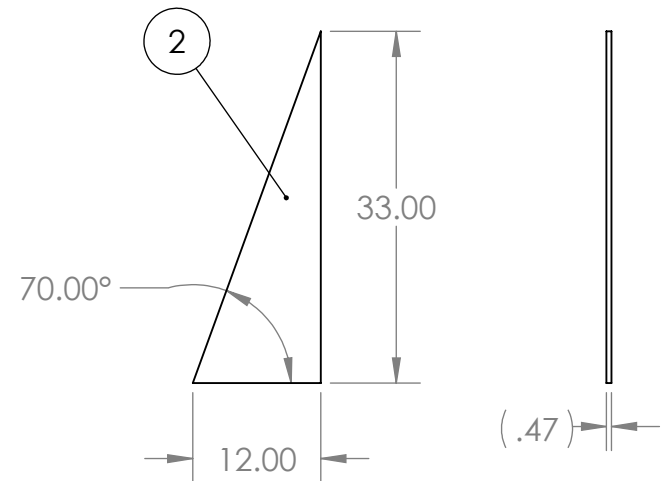
TE-20004-35
QTY: 2

TE-20004-36
QTY: 4

B



B



NOTE:
Material: 1/2" Plywood

A

NOTE:
Material: 1/2" Plywood

A

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

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
A Frame, Bottom

| | | |
|-------------|----------------------|---------------|
| SIZE | DWG. NO. | REV |
| | A TE-20004-22 | |
| SCALE: 1:18 | WEIGHT: | SHEET 8 OF 10 |

2

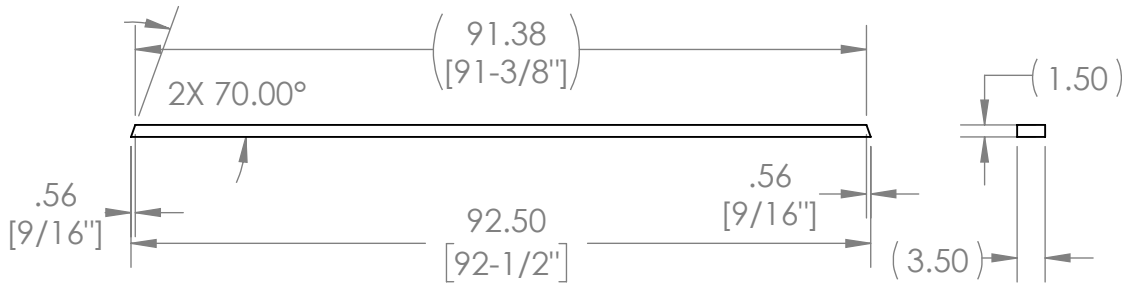
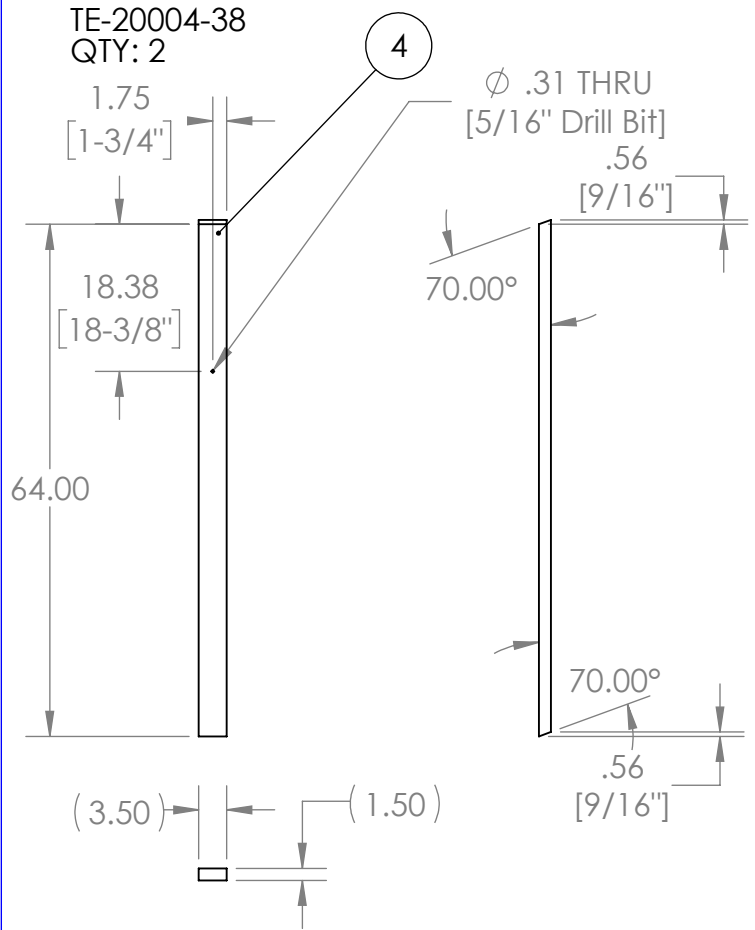
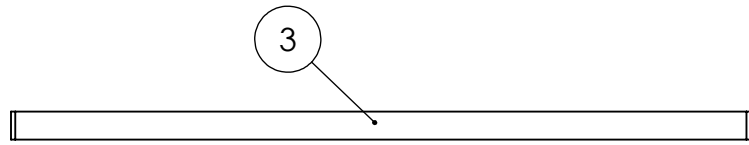
1

2

1

TE-20004-37
QTY: 1

TE-20004-38
QTY: 2



NOTES:
Material: 2" x 4" Pine Lumber

NOTES:
Material: 2" x 4" Pine Lumber

B

B

A

A

UNLESS OTHERWISE SPECIFIED:

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

INTERPRET GEOMETRIC
TOLERANCING PER:

MATERIAL

FINISH

DO NOT SCALE DRAWING

NAME DATE

DRAWN

CHECKED

ENG APPR.

MFG APPR.

Q.A.

COMMENTS:



TITLE:

A Frame, Bottom

SIZE

DWG. NO.

REV

A TE-20004-22

SCALE: 1:24 WEIGHT:

SHEET 9 OF 10

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NEXT ASSY

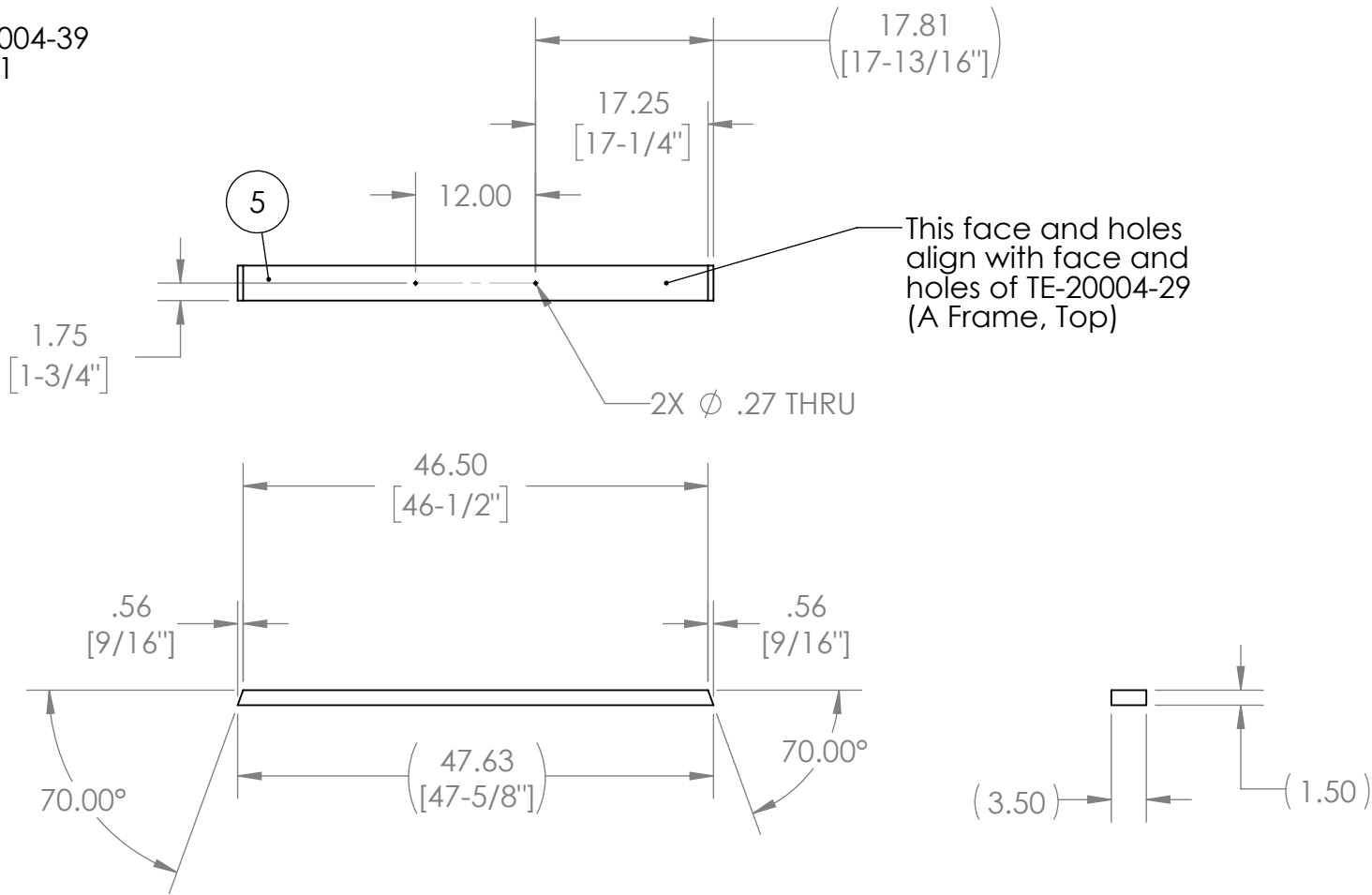
USED ON

APPLICATION

2

1



TE-20004-39
QTY: 1



NOTES:
Material: 2" x 4" Pine Lumber

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

TITLE: **A Frame, Bottom**

| | | |
|----------|--------------------|-----|
| SIZE | DWG. NO. | REV |
| A | TE-20004-22 | |

SCALE: 1:18 WEIGHT: SHEET 10 OF 10

B

B

A

A

2

1

2

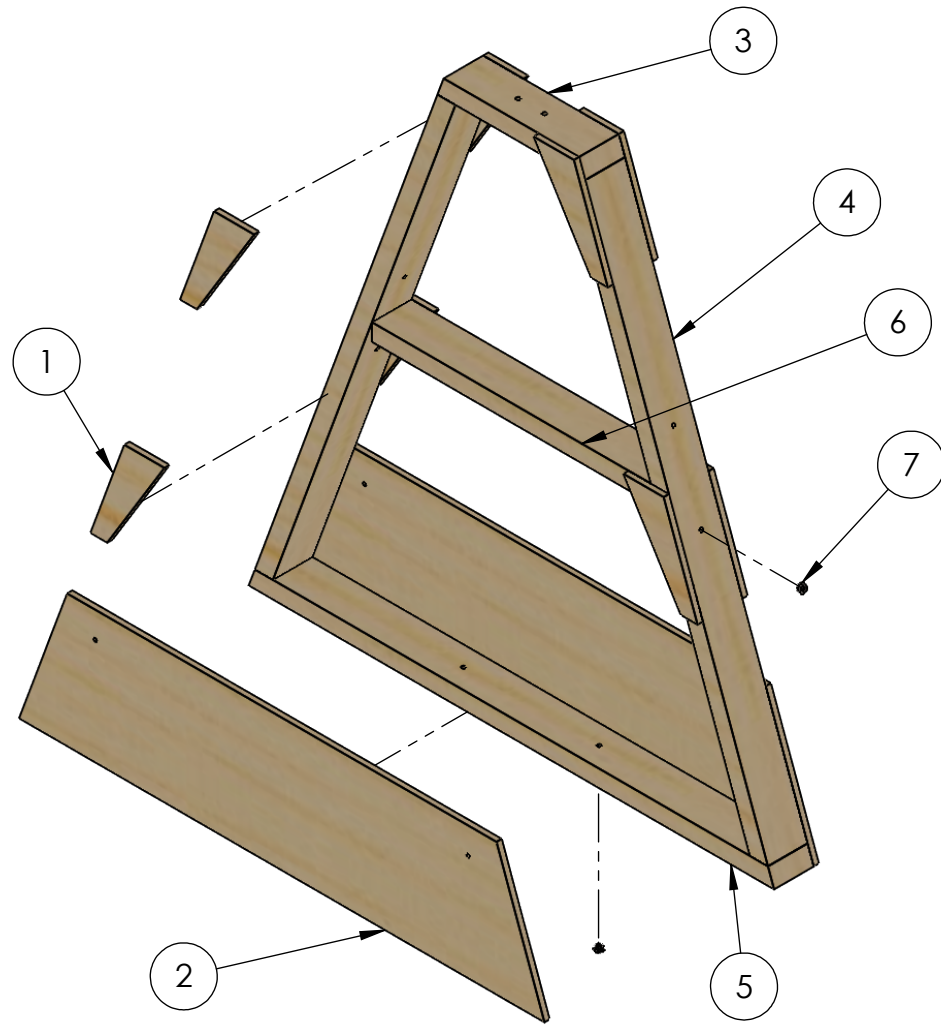
1

2

1

B

B



| REVISIONS | | | | |
|--------------|------|------------------|----------|----------|
| ZONE | REV. | DESCRIPTION | DATE | APPROVED |
| 11-A1, 11-A2 | A | UPDATED MATERIAL | 1/5/2020 | KAMC |



| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|---------------|--------------------|------|
| 1 | TE-20004-25 | Top, Cross Gusset | 8 |
| 2 | TE-20004-26 | Top, Bottom Gusset | 2 |
| 3 | TE-20004-27 | Top, Top | 1 |
| 4 | TE-20004-28 | Top, Side Leg | 2 |
| 5 | TE-20004-29 | Top, Bottom | 1 |
| 6 | TE-20004-30 | Top, Middle | 1 |
| 7 | TeeNut_.25_20 | 1/4-20 Tee Nut | 4 |

Notes:
 1. Instructions and quantities shown are for 1 assembly. 4 assemblies total are needed.

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| | | |
|-------------|---------|--|
| | | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .01 THREE PLACE DECIMAL ± .001 |
| TE-20004-21 | | INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL |
| NEXT ASSY | USED ON | FINISH |
| APPLICATION | | DO NOT SCALE DRAWING |

| | NAME | DATE |
|-----------|------|------|
| DRAWN | | |
| CHECKED | | |
| ENG APPR. | | |
| MFG APPR. | | |
| Q.A. | | |
| COMMENTS: | | |

TITLE:

A Frame, Top

| | | |
|----------|--------------------|----------|
| SIZE | DWG. NO. | REV |
| A | TE-20004-23 | A |

SCALE: 1:12 WEIGHT: SHEET 1 OF 13

A

A

2

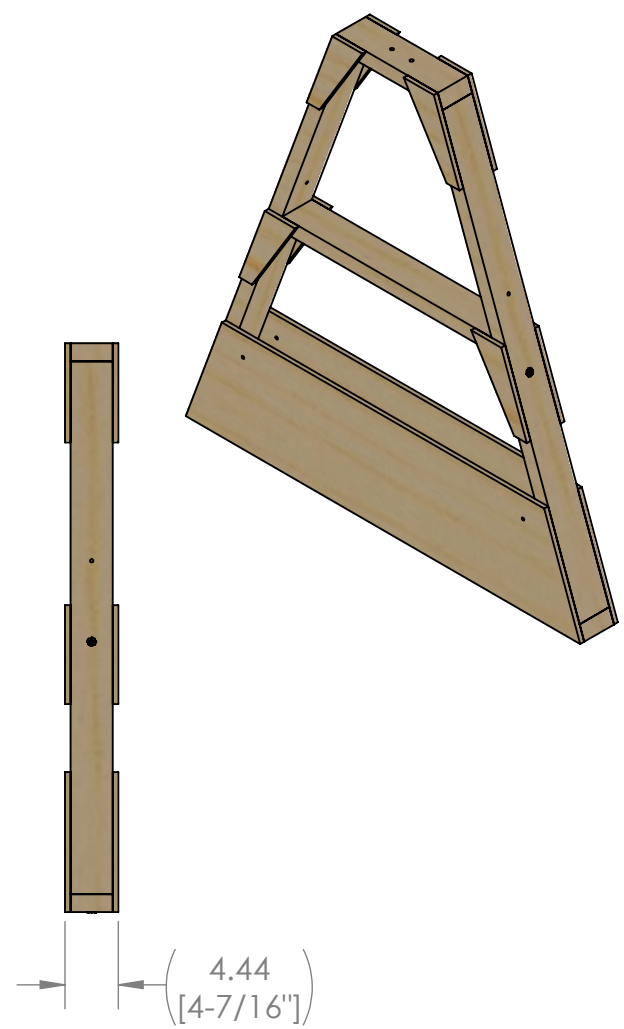
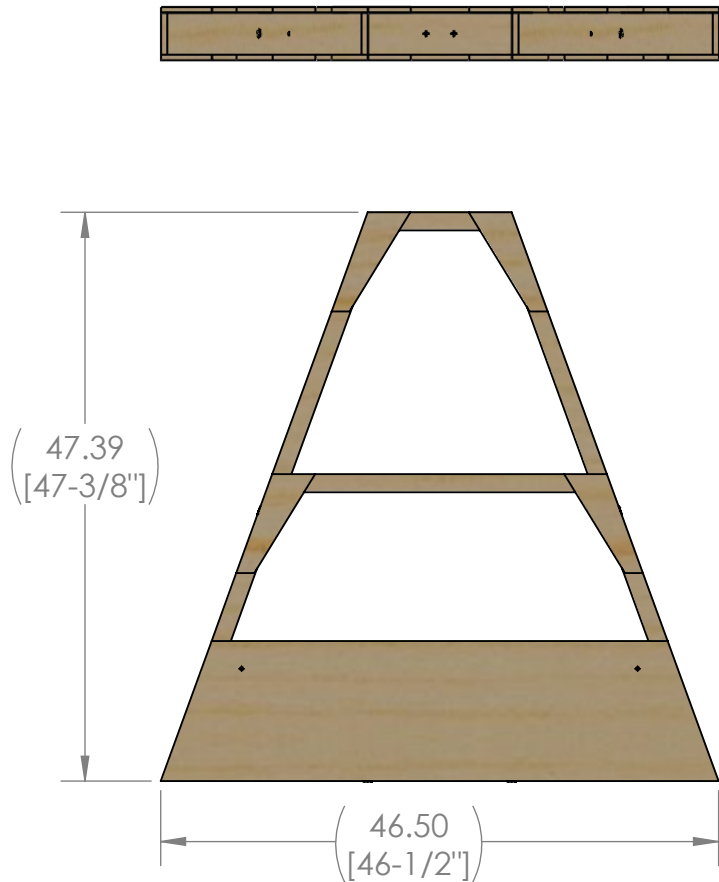
1

2

1

B

B



A

A

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

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE:
A Frame, Top

| | | |
|-------------|--------------------|---------------|
| SIZE | DWG. NO. | REV |
| A | TE-20004-23 | A |
| SCALE: 1:16 | | WEIGHT: |
| | | SHEET 2 OF 13 |

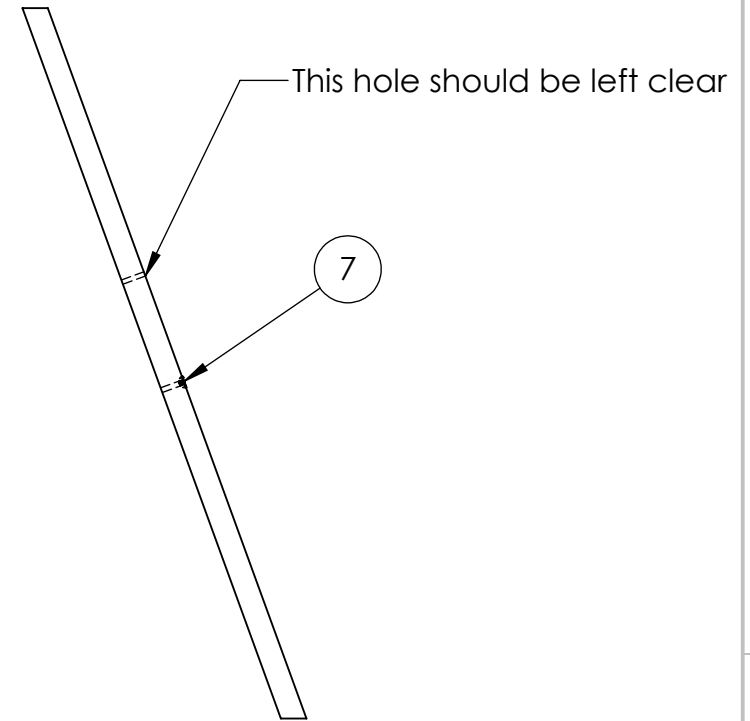
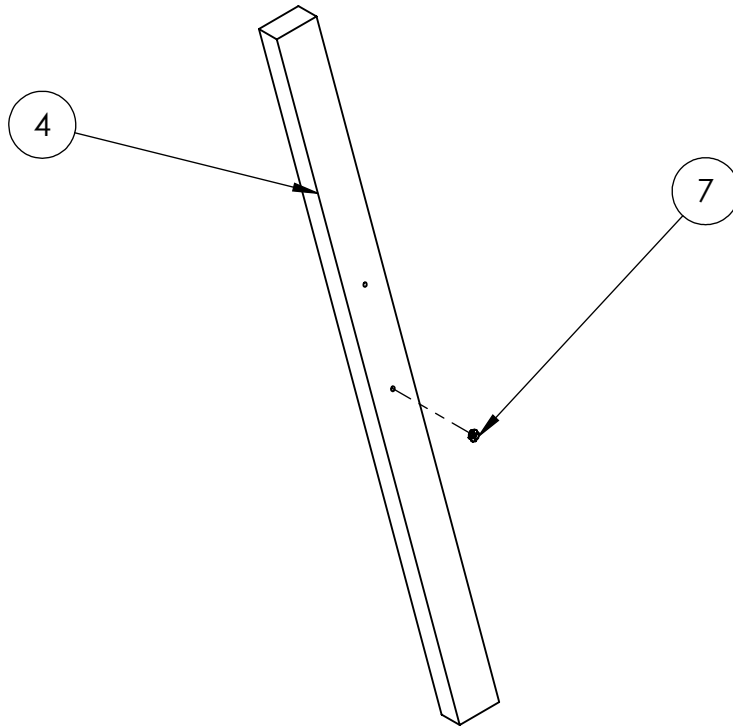
2

1

2

1

Step 1:
Qty: 2



B

B

Notes:

1. Insert (7) into (4) using a hammer or mallet as needed.

A

A

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



TITLE:
A Frame, Top

| | | |
|---------------------|--------------------|---------------|
| SIZE | DWG. NO. | REV |
| A | TE-20004-23 | A |
| SCALE: 1:12 WEIGHT: | | SHEET 3 OF 13 |

2

1

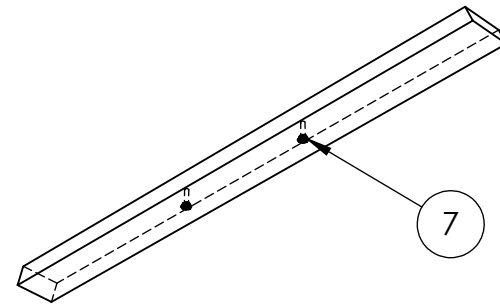
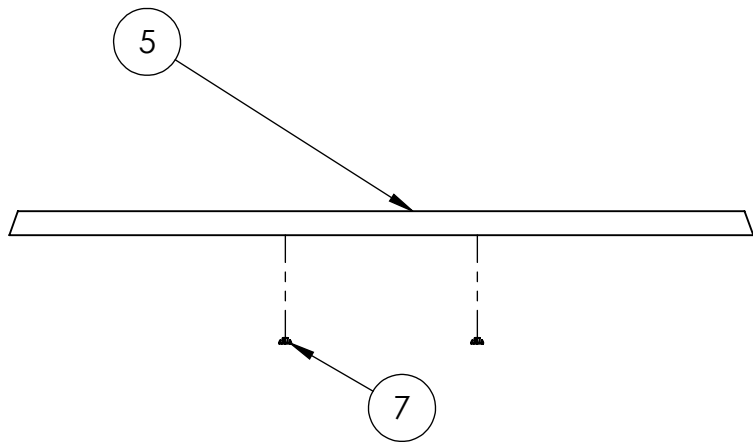
2

1

Step 2:

B

B



Notes:

1. Insert 2X (7) into (5) using a hammer or mallet as needed.

A

A

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



TITLE:
A Frame, Top

| | | |
|---------------------|--------------------|---------------|
| SIZE | DWG. NO. | REV |
| A | TE-20004-23 | A |
| SCALE: 1:12 WEIGHT: | | SHEET 4 OF 13 |

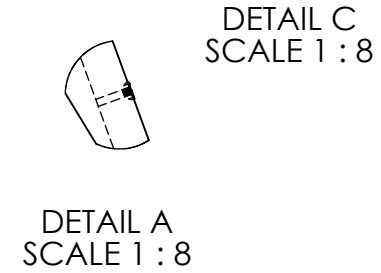
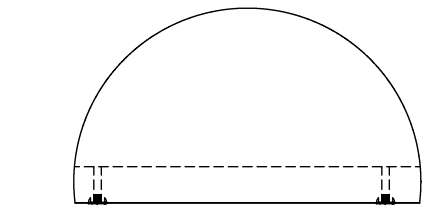
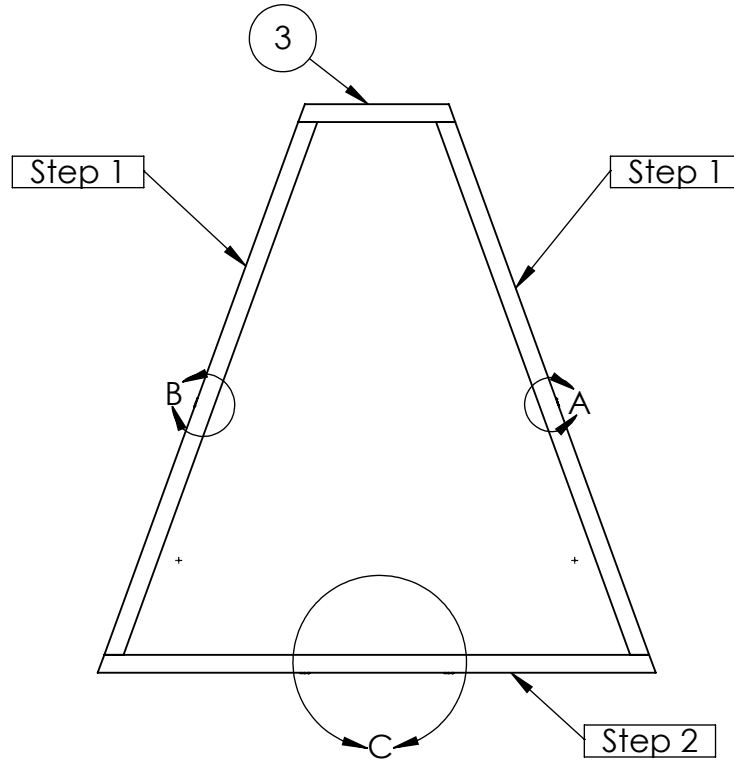
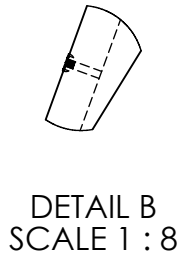
2

1

2

1

Step 3:



Notes:

1. Align **Step 2** , **Step 1** , **3** .
2. Use 2.5" Screws to attach. Pre-drill as needed.

B

B

A

A

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



TITLE:
A Frame, Top

| | | |
|---------------------|--------------------|---------------|
| SIZE | DWG. NO. | REV |
| A | TE-20004-23 | A |
| SCALE: 1:16 WEIGHT: | | SHEET 5 OF 13 |

2

1

2

1

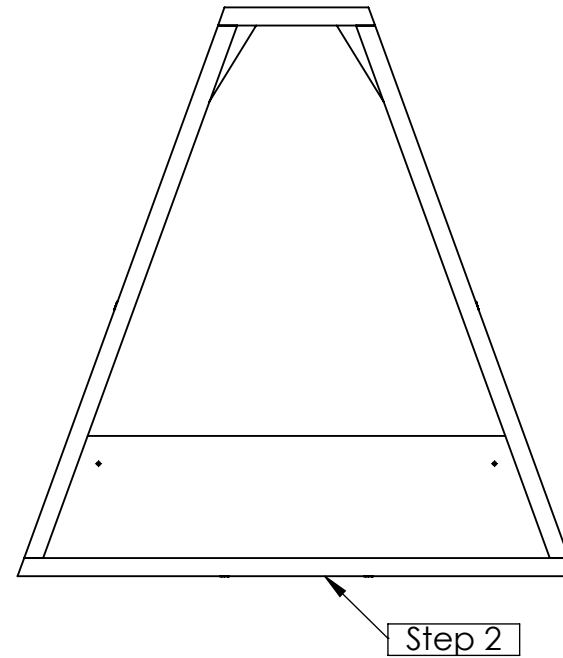
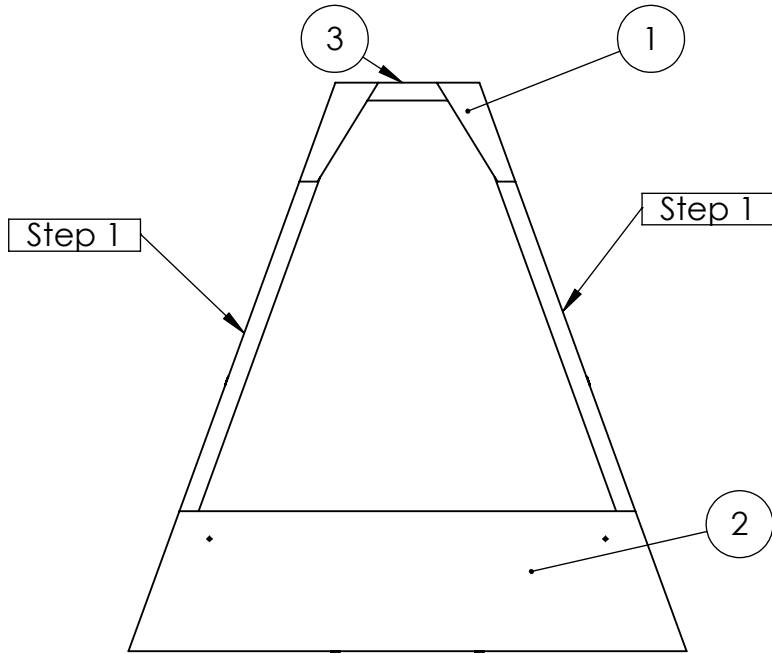
Step 4:

FRONT

BACK

B

B



Notes:

1. Screw (3) and [Step 1] to (1) with 1.5" screws. Pre drill as needed.
2. Repeat.
3. Screw [Step 2] and [Step 1] to (2) with 1.5" screws. Pre drill as needed.
4. Repeat.

A

A

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



TITLE:
A Frame, Top

| | | |
|-------------|--------------------|---------------|
| SIZE | DWG. NO. | REV |
| A | TE-20004-23 | A |
| SCALE: 1:16 | | WEIGHT: |
| | | SHEET 6 OF 13 |

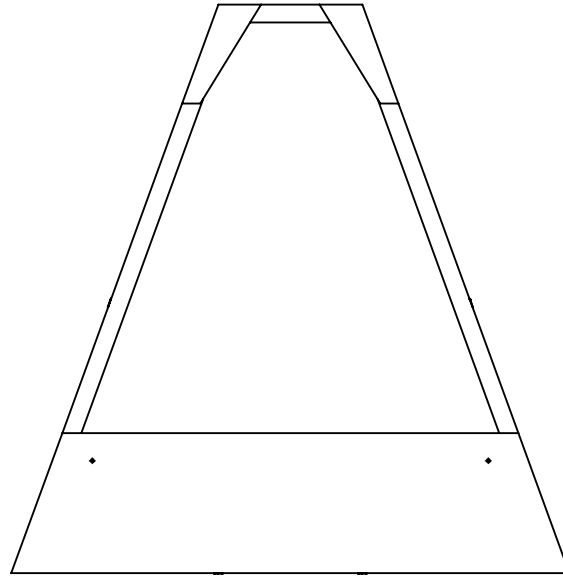
2

1

2

1

Step 5:



B

B

Note:

- 1. Flip over and repeat Step 4.

A

A

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



TITLE:
A Frame, Top

| | | |
|-------------|--------------------|---------------|
| SIZE | DWG. NO. | REV |
| A | TE-20004-23 | A |
| SCALE: 1:16 | WEIGHT: | SHEET 7 OF 13 |

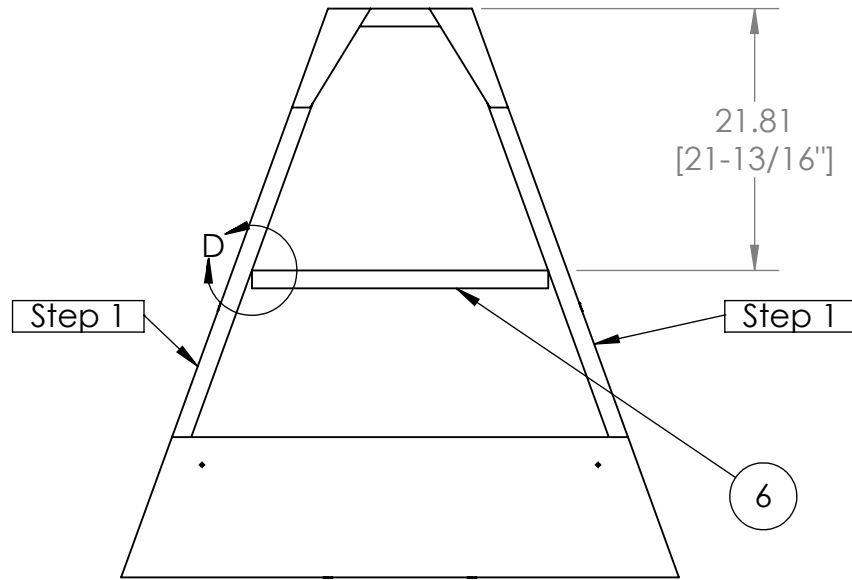
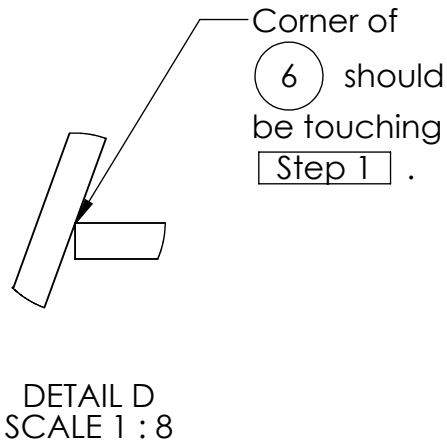
2

1

2

1

Step 6:



Notes:

- Align **6** to **Step 1**.

B

B

A

A

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



TITLE:
A Frame, Top

| | | |
|-------------|--------------------|---------------|
| SIZE | DWG. NO. | REV |
| A | TE-20004-23 | A |
| SCALE: 1:16 | | WEIGHT: |
| | | SHEET 8 OF 13 |

2

1

2

1

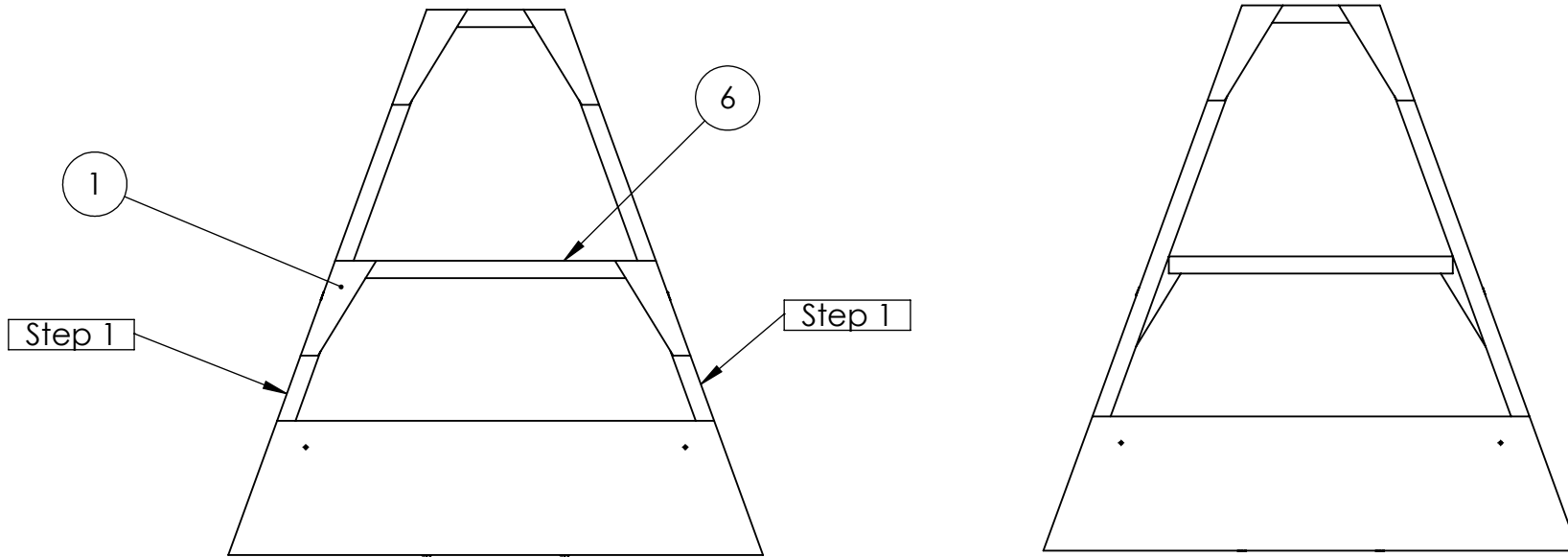
Step 7:

FRONT

BACK

B

B



Notes:



1. Screw (6) and [Step 1] to (1) with 1.5" screws. Pre drill as needed.
2. Repeat.

A

A

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

TITLE:
A Frame, Top

| | | |
|---------------------|--------------------|---------------|
| SIZE | DWG. NO. | REV |
| A | TE-20004-23 | A |
| SCALE: 1:16 WEIGHT: | | SHEET 9 OF 13 |

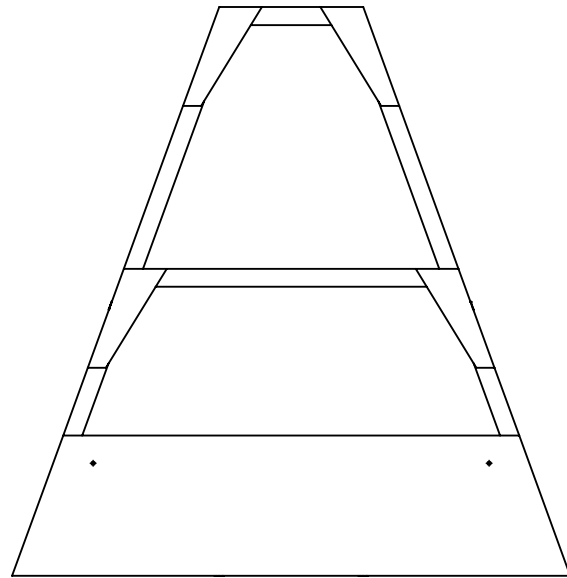
2

1

2

1

Step 8:



B

B

Note:

1. Flip over and repeat Step 7.

A

A

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



TITLE:
A Frame, Top

| | | |
|----------|--------------------|----------|
| SIZE | DWG. NO. | REV |
| A | TE-20004-23 | A |

SCALE: 1:16 WEIGHT: SHEET 10 OF 13

2

1

2

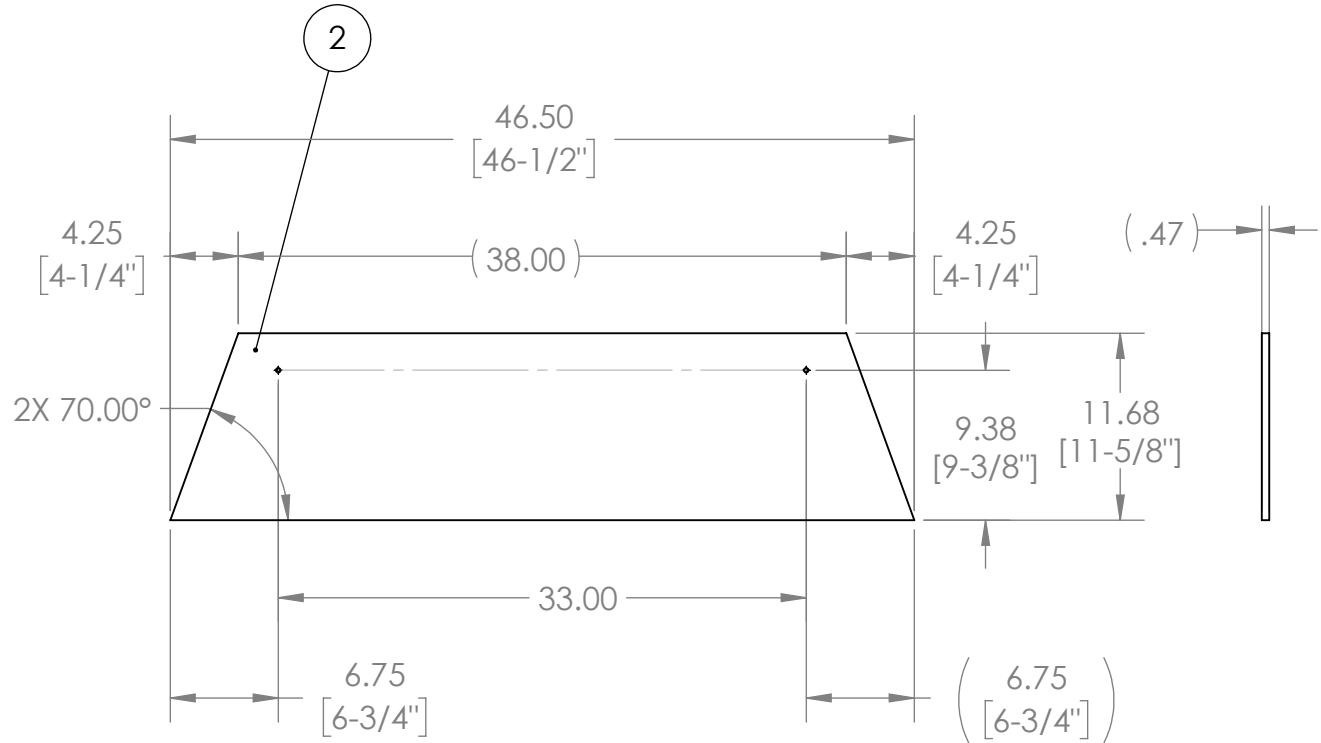
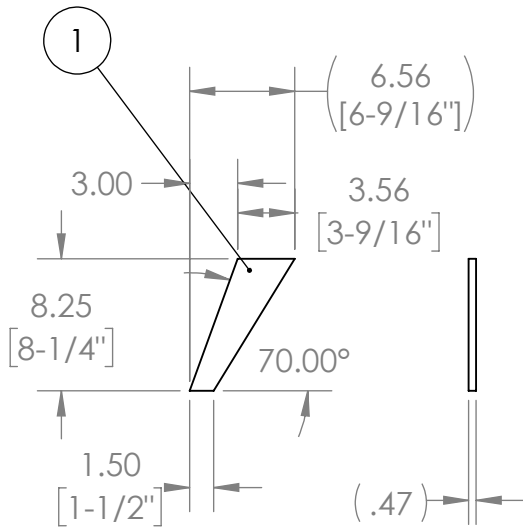
1

TE-20004-25
Qty: 8

TE-20004-26
Qty: 2

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

B



B

Notes:
Material: 1/2" Plywood

Notes:
Material: 1/2" Plywood

A

A

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



TITLE:
A Frame, Top

SIZE DWG. NO. REV
A TE-20004-23 **A**

SCALE: 1:12 WEIGHT: SHEET 11 OF 13

2

1

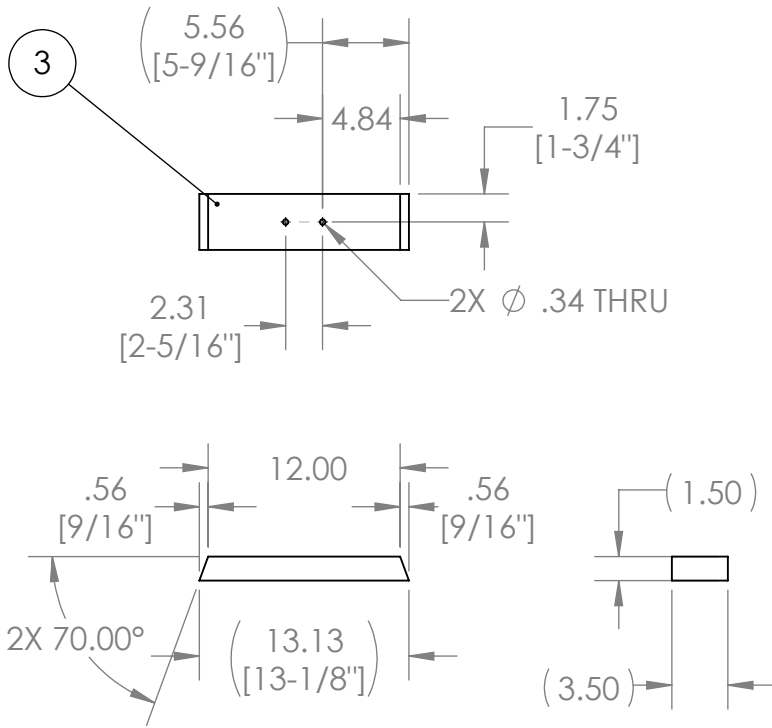
2

1

TE-20004-27
QTY: 1

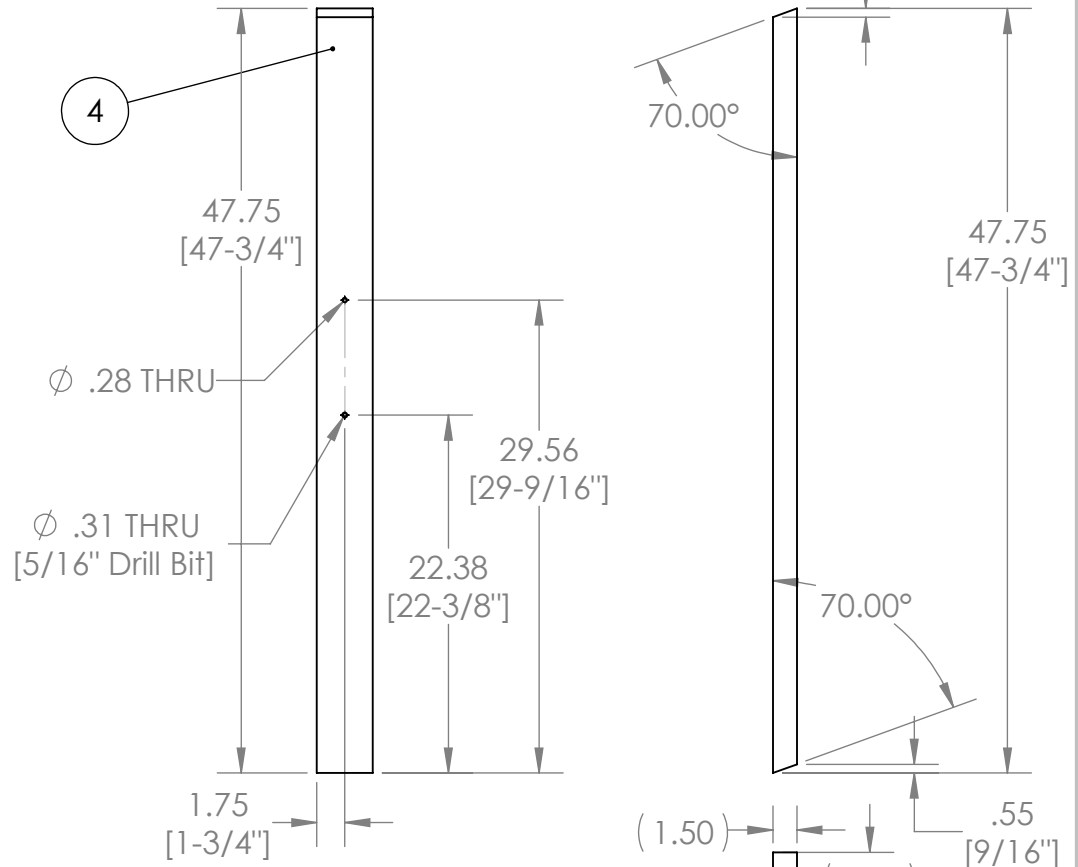
TE-20004-28
QTY: 2

B



Notes:
Material: 2" x 4" Pine Lumber

4



Notes:
Material: 2" x 4" Pine Lumber

A

A

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

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **A Frame, Top**

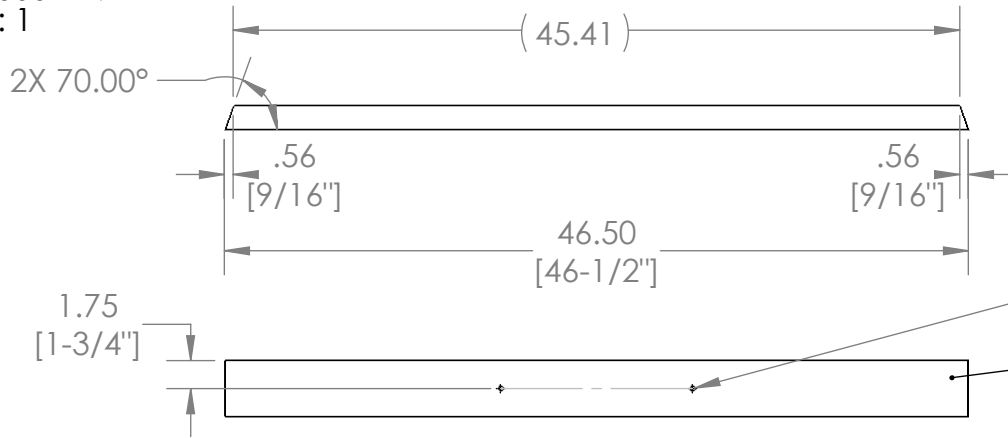
| | | |
|----------|--------------------|----------|
| SIZE | DWG. NO. | REV |
| A | TE-20004-23 | A |

SCALE: 1:12 WEIGHT: SHEET 12 OF 13

2

1

TE-20004-29
QTY: 1

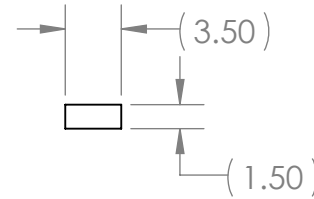
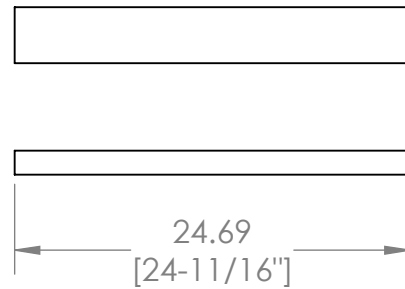


2X ϕ .31 THRU
[5/16" Drill Bit]

This face and holes align with face and holes of TE-20004-39 (A Frame, Bottom)

Notes:
Material: 2" x 4" Pine Lumber

TE-20004-30
QTY: 1



Notes:
Material: 2" x 4" Pine Lumber

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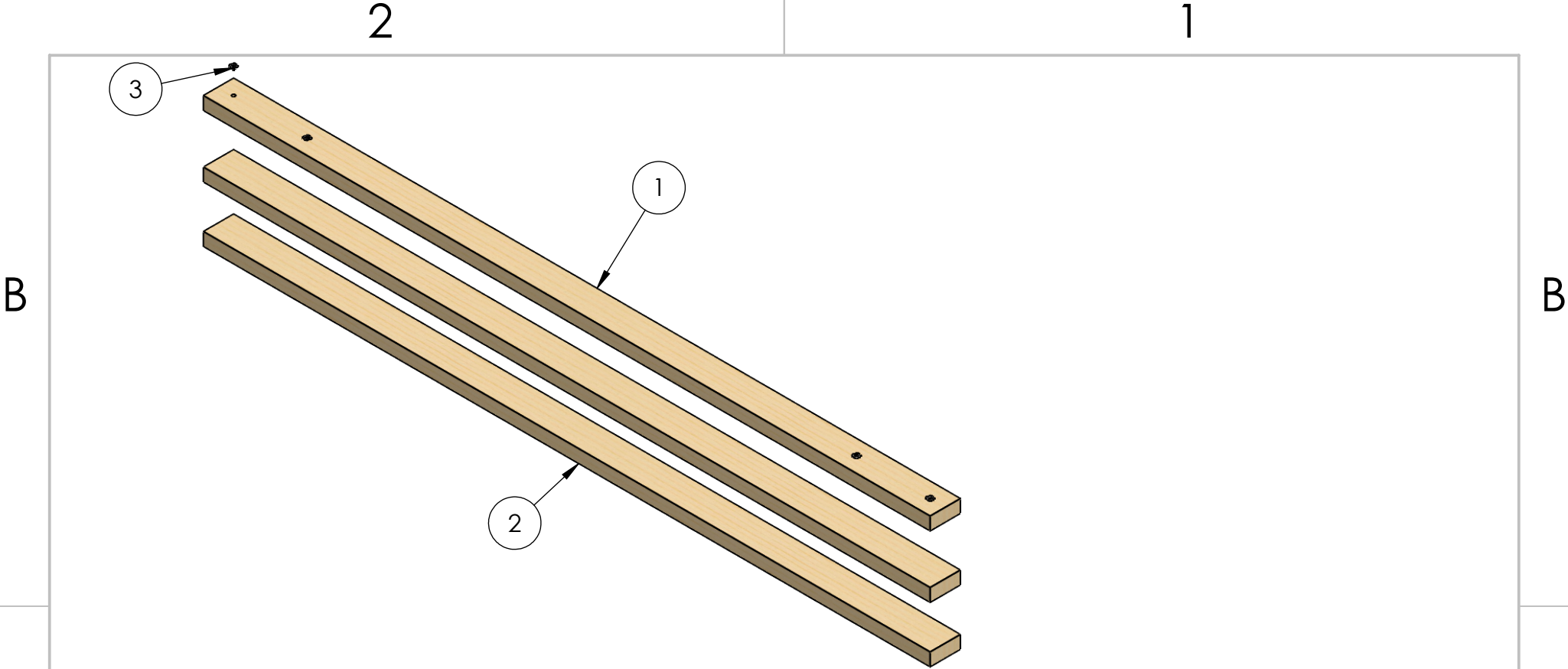
| | | UNLESS OTHERWISE SPECIFIED: | NAME | DATE |
|-------------|---------|--|-----------|------|
| | | DIMENSIONS ARE IN INCHES | DRAWN | |
| | | TOLERANCES: | CHECKED | |
| | | FRACTIONAL $\pm 1/16$ | ENG APPR. | |
| | | ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ | MFG APPR. | |
| | | TWO PLACE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



TITLE:
A Frame, Top

SIZE DWG. NO. REV
A TE-20004-23 **A**

SCALE: 1:12 WEIGHT: SHEET 13 OF 13



Notes:

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

| ITEM NO. | PART NUMBER | DESCRIPTION | |
|----------|---------------|-------------------------|---|
| 1 | TE-20004-32 | Hard Stop with Holes | 1 |
| 2 | TE-20004-33 | Hard Stop | 2 |
| 3 | TeeNut_.25_20 | Soft wood fiber tee nut | 4 |

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| | | | | | |
|-----------|-------------|--------------------------------------|-----------|------|------|
| | | UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |
| | | DIMENSIONS ARE IN INCHES | DRAWN | | |
| | | TOLERANCES: | CHECKED | | |
| | | FRACTIONAL ± 1/16 | ENG APPR. | | |
| | | ANGULAR: MACH ± 1° BEND ± 1° | MFG APPR. | | |
| | | TWO PLACE DECIMAL ± .01 | Q.A. | | |
| | | THREE PLACE DECIMAL ± .001 | COMMENTS: | | |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | | | |
| TE-20004 | | MATERIAL | | | |
| NEXT ASSY | USED ON | FINISH | | | |
| | APPLICATION | DO NOT SCALE DRAWING | | | |



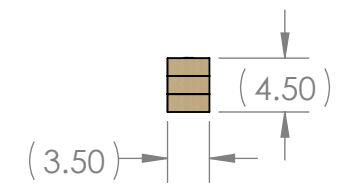
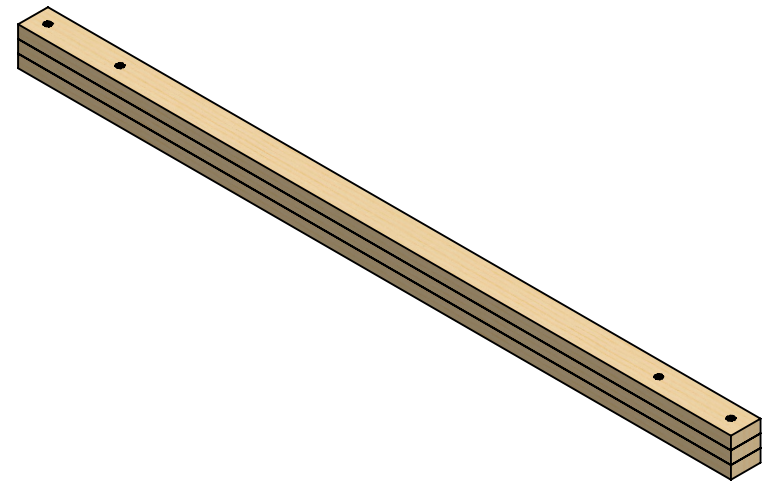
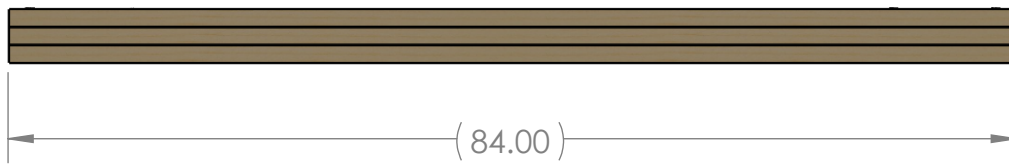
| | | |
|------------------------------|--------------------|--------------|
| TITLE: | | |
| <h1>Hard Stop Assembled</h1> | | |
| SIZE | DWG. NO. | REV |
| A | TE-20004-24 | |
| SCALE: 1:12 | WEIGHT: | SHEET 1 OF 5 |

2

1

B

B



A

A

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

FIRST ROBOTICS COMPETITION **SOLIDWORKS** Modeling Solutions Partner

TITLE: **Hard Stop Assembled**

SIZE DWG. NO. REV
A TE-20004-24

SCALE: 1:16 WEIGHT: SHEET 2 OF 5

2

1

2

1

TE-20004-32
QTY: 1

1.75
[1-3/4"]

8.50
[8-1/2"]

4X ϕ .34 THRU
(5/16" Drill Bit)

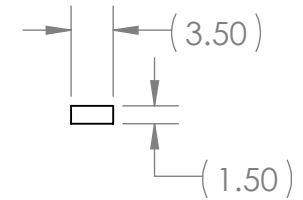
8.50
[8-1/2"]

1.75
[1-3/4"]

(10.25)
[10-1/4"]

(10.25)
[10-1/4"]

84.00

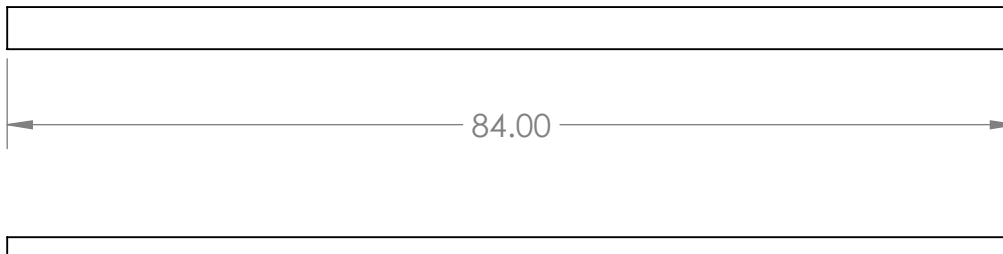


B

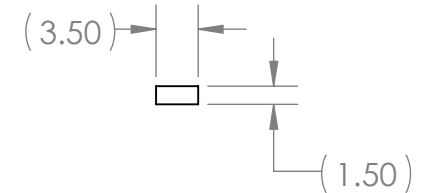
B

NOTES:
Material: 2" x 4" Pine Lumber

TE-20004-33
QTY: 2



84.00



NOTES:
Material: 2" x 4" Pine Lumber

A

A

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



| | | |
|--------------------------------------|--------------------|--------------|
| TITLE: Hard Stop Assembled | | |
| SIZE | DWG. NO. | REV |
| A | TE-20004-24 | |
| SCALE: 1:16 | WEIGHT: | SHEET 3 OF 5 |

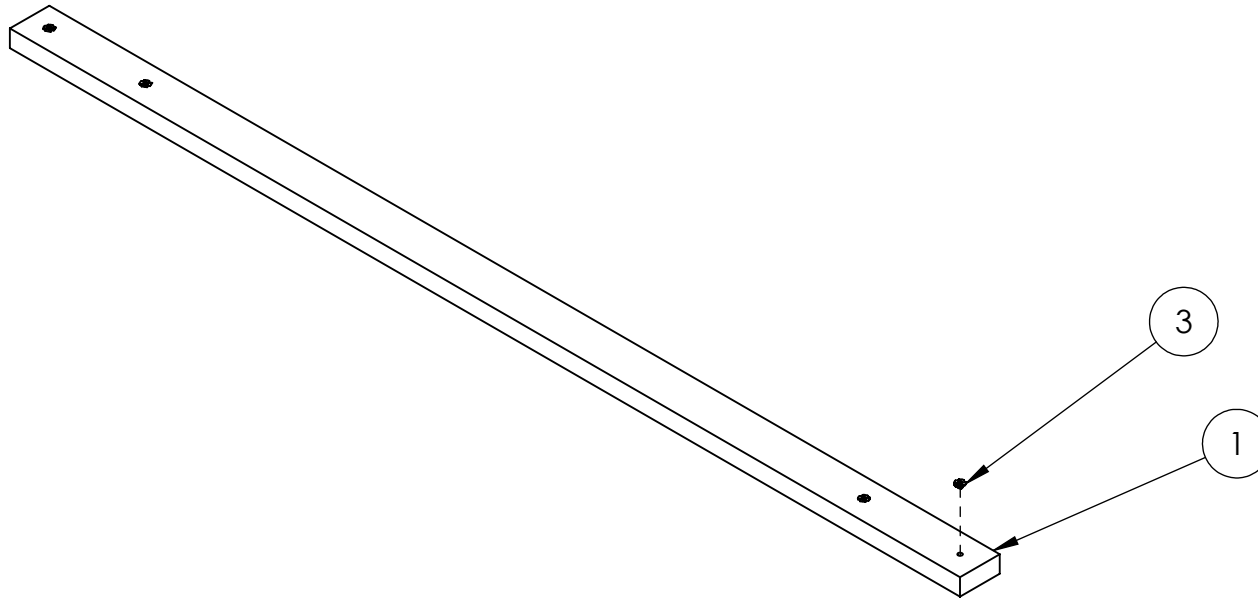
2

1

2

1

Step 1:



B

B

Notes:

1. Insert 4x **3** into **1** using a hammer or mallet as needed.

A

A

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



| | | |
|------------------------------|--------------------|--------------|
| TITLE: | | |
| <h1>Hard Stop Assembled</h1> | | |
| SIZE | DWG. NO. | REV |
| A | TE-20004-24 | |
| SCALE: 1:12 | WEIGHT: | SHEET 4 OF 5 |

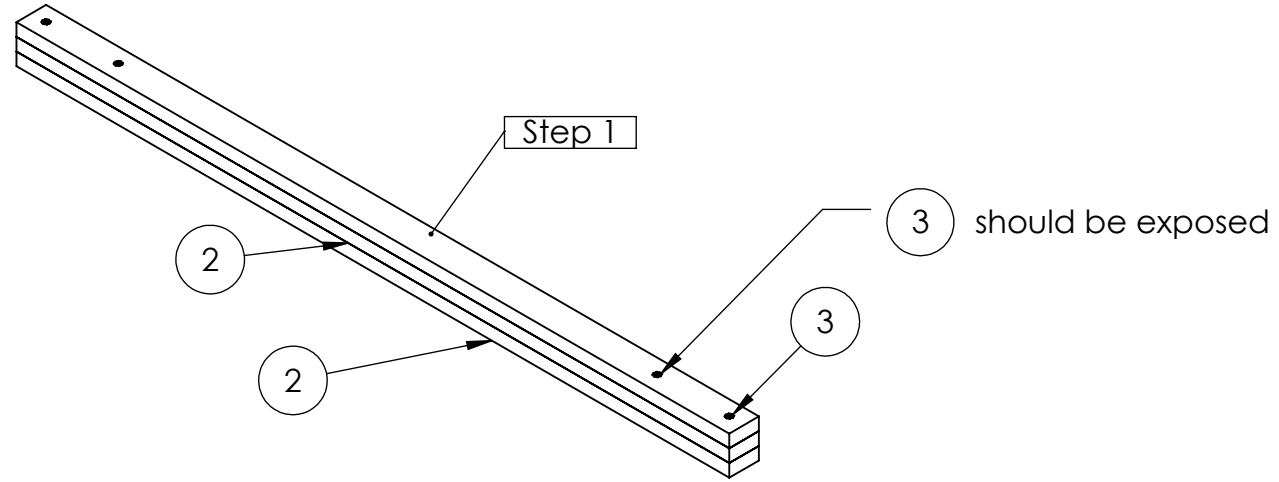
2

1

2

1

Step 2:



Notes:

1. Attach (2) to (2) using 2.5" screws. Then attach to [Step 1] using 2.5" screws. Make sure (3) are exposed.

B

B

A

A

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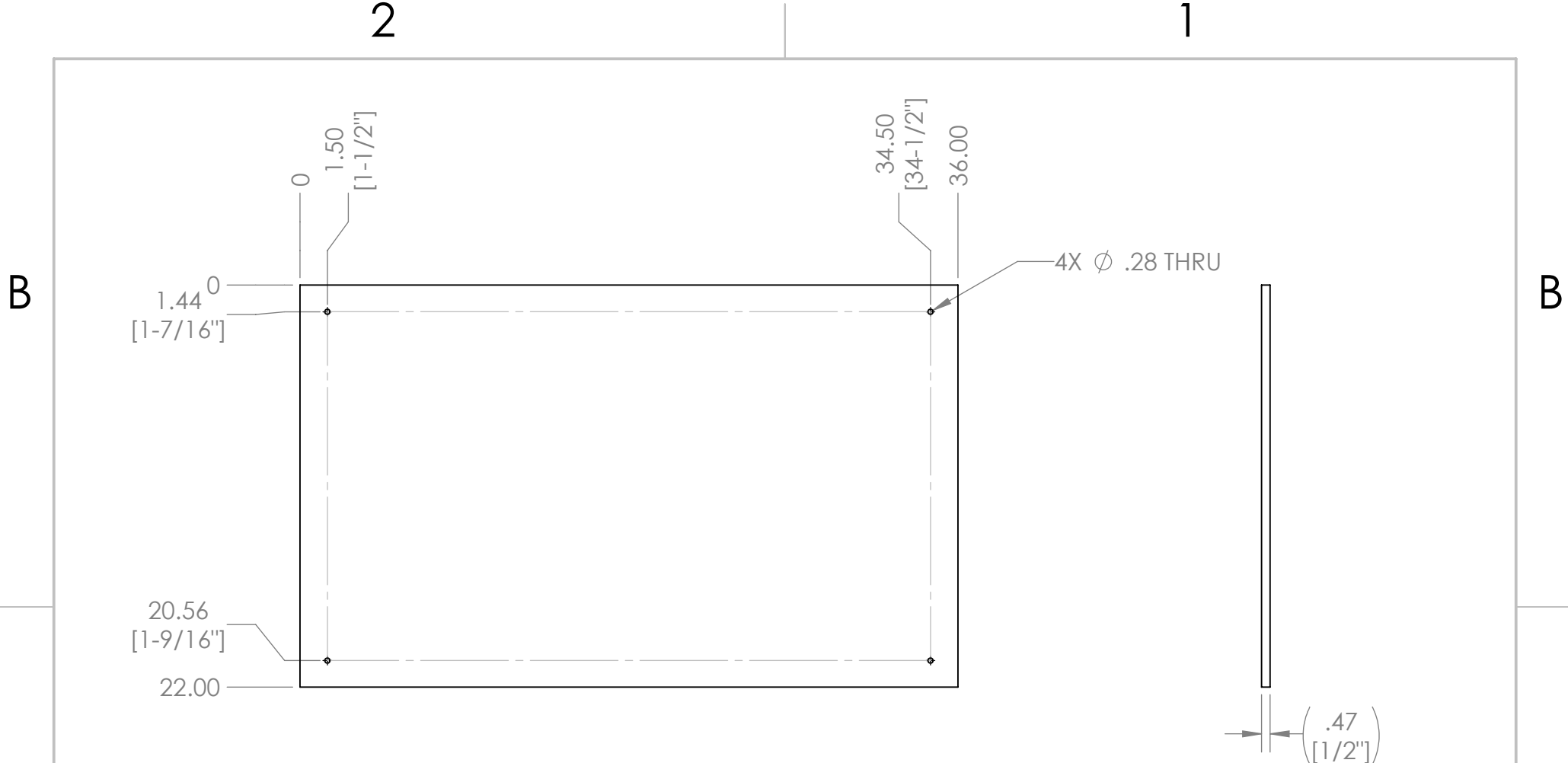
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|-------------|---------|--------------------------------------|-----------|------|------|
| | | UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |
| | | DIMENSIONS ARE IN INCHES | DRAWN | | |
| | | TOLERANCES: | CHECKED | | |
| | | FRACTIONAL ± 1/16 |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



| | | |
|------------------------------|--------------------|--------------|
| TITLE: | | |
| <h1>Hard Stop Assembled</h1> | | |
| SIZE | DWG. NO. | REV |
| A | TE-20004-24 | |
| SCALE: 1:16 | WEIGHT: | SHEET 5 OF 5 |

2

1





Note:

1. Material: 1/2" Plywood
2. Qty: 8 needed
3. Remove sharp edges.

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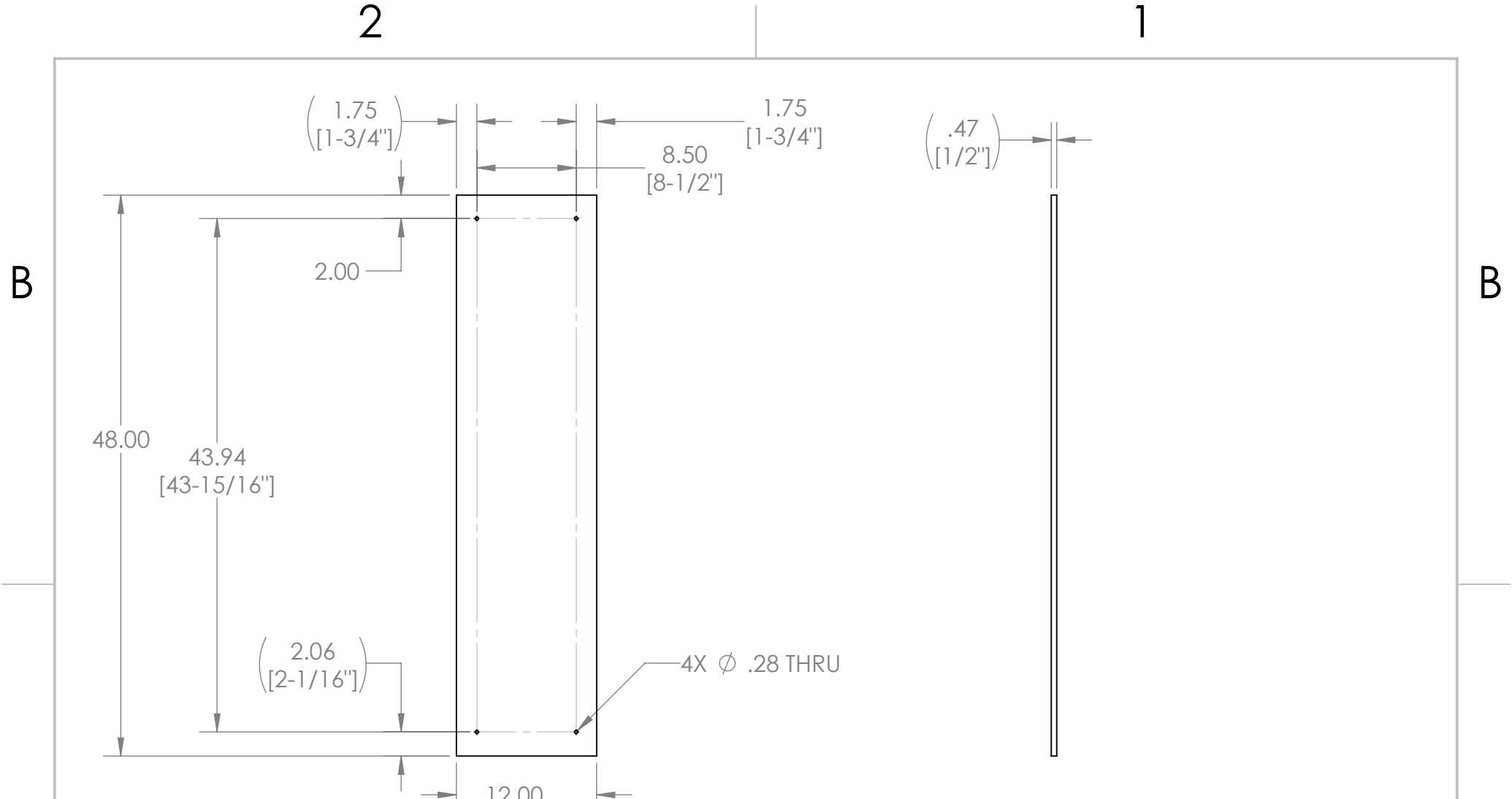
| | | | | | |
|-------------|---------|--|-----------|------|------|
| | | UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |
| | | DIMENSIONS ARE IN INCHES | DRAWN | | |
| | | TOLERANCES: | CHECKED | | |
| | | FRACTIONAL $\pm 1/16$ | ENG APPR. | | |
| | | ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ | MFG APPR. | | |
| | | TWO PLACE DECIMAL $\pm .01$ | Q.A. | | |
| | | THREE PLACE DECIMAL $\pm .001$ | COMMENTS: | | |
| | | INTERPRET GEOMETRIC TOLERANCING PER: | | | |
| TE-20004-21 | | MATERIAL | | | |
| NEXT ASSY | USED ON | FINISH | | | |
| APPLICATION | | DO NOT SCALE DRAWING | | | |

TITLE:
Front and Back Plate

| | | |
|----------|--------------------|-----|
| SIZE | DWG. NO. | REV |
| A | TE-20004-41 | |

SCALE: 1:8 WEIGHT: SHEET 1 OF 1



Notes:

1. Material: 1/2" Plywood
2. Qty: 4 needed
3. Remove sharp edges.

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



| | | |
|---------------------|--------------------|--------------|
| TITLE: | | |
| <h1>Side Plate</h1> | | |
| SIZE | DWG. NO. | REV |
| A | TE-20004-42 | |
| SCALE: 1:12 | WEIGHT: | SHEET 1 OF 1 |