### Set of 3 GRIDS

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23010</td>
<td>Middle Divider</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>GE-23020</td>
<td>Lower Pole Base</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>GE-23021-BLK</td>
<td>Black Middle Goal Cover</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>GE-23021-BLU</td>
<td>Blue Center Goal Cover</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>GE-23022-BLU</td>
<td>Blue End Goal Cover</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>GE-23025</td>
<td>Right End Divider</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>GE-23026</td>
<td>Left End Divider</td>
<td>1</td>
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<tr>
<td>8</td>
<td>GE-23030</td>
<td>Upper Pole Base</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>GE-23040</td>
<td>Upper Pole Crossbar</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>GE-23045</td>
<td>Upper Shelf Corner Light</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>GE-23045-ALT</td>
<td>Upper Shelf Corner Light</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>GE-23050</td>
<td>Upper Pole End Crossbar</td>
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<tr>
<td>13</td>
<td>GE-23055</td>
<td>Upper Shelf Middle Light</td>
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<tr>
<td>14</td>
<td>GE-23060</td>
<td>Upper Pole End Base (HP Station End)</td>
<td>1</td>
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<tr>
<td>15</td>
<td>GE-23060</td>
<td>Upper Pole End Base (Side Border End)</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>GE-23070</td>
<td>Lower Pole End Base (HP Station End)</td>
<td>1</td>
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<td>17</td>
<td>GE-23070</td>
<td>Lower Pole End Base (Side Border End)</td>
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<tr>
<td>18</td>
<td>GE-23075</td>
<td>Upper Shelf Cube Light</td>
<td>3</td>
</tr>
<tr>
<td>19</td>
<td>GE-23080</td>
<td>Cube Shelf</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>GE-23091</td>
<td>Shark Fin Poly</td>
<td>6</td>
</tr>
<tr>
<td>21</td>
<td>GE-23097</td>
<td>Shark Fin Bracket with PEM Nuts installed</td>
<td>12</td>
</tr>
<tr>
<td>22</td>
<td>GE-23099</td>
<td>Goal Side Wall</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>FE-00081-ID6</td>
<td>AprilTag Target</td>
<td>1</td>
</tr>
<tr>
<td>24</td>
<td>FE-00081-ID7</td>
<td>AprilTag Target</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>FE-00081-ID8</td>
<td>AprilTag Target</td>
<td>1</td>
</tr>
<tr>
<td>26</td>
<td>hex-.25_20_2.5</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 2&quot;-1/2&quot; long, Fully threaded</td>
<td>12</td>
</tr>
<tr>
<td>27</td>
<td>90566-A029</td>
<td>1/4-20 x 1&quot; Hex Head Bolt</td>
<td>30</td>
</tr>
<tr>
<td>28</td>
<td>92865-A542 and 250</td>
<td>1/4-20 x 1&quot; Hex Head Bolt and Washer</td>
<td>96</td>
</tr>
<tr>
<td>29</td>
<td>92865-A542</td>
<td>Medium-Strength Grade 5 Steel Hex Head Screw</td>
<td>18</td>
</tr>
</tbody>
</table>

**UNLESS OTHERWISE SPECIFIED:**

- **FIELD**
- **NAME**
- **DATE**
- **DRAWN BY**

**Drawing Title:**

- **Set of 3 GRIDS**

**Scale:** 1:16

**Sheet:** 1 of 11

**Material/Finish:**

- **TOLERANCES:**
  - Fractional:
  - Angular: Machined ±1°
  - Two Place Decimal: ±.50

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**Comments:**

- Remove all burrs and sharp edges.
Step 1: Place 7 down.
Step 2: Slide 12, 14, and 16 over the connector pins and push them all the way on.
Step 3: Slide 1 into the connector pin holes on the other end.
Step 4: Use 2x 26 and 27 to fasten the assembly together.
Slide 19 and 1 onto the assembly, while taking care to not leave any gaps.
Slide 2, 8, and 9 on to connector pins
Slide 1 on to assembly
Use 2x 26 and 27 to fasten assembly together.
Continue until full goal assembly frame is built.
Shark Fin assembly shown above. Note that for each goal, there is a left hand and right hand version of each cover plastic. The semi-circular notch shown in Detail A can be used to determine left and right for middle covers.
Slide Plastic Covers with Shark Fins over poles and onto frame, attach with 1/4-20 x 1" bolts and washers.
Attach 10, 11, 13, 18, 22 and 25 as shown.

For Red Goal, 22 is on the opposite side.
Cube Shelf Dimensions
PEM nut protrudes inside of channel

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23001</td>
<td>Divider Base A</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_.25_20_.054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
<td>1</td>
</tr>
</tbody>
</table>
All PEM nuts protrude on inside of channel.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23002</td>
<td>Divider Base B</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_.25_20_.054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
<td>1</td>
</tr>
</tbody>
</table>

**Divider Base B**

Config 1

PEM Nut protrudes on inside of channel
PEM Nuts protrude on inside of channel.

ITEM NO. | PART NUMBER | DESCRIPTION | QTY.
--- | --- | --- | ---
1 | GE-23002 | Divider Base B | 1
2 | pem_clinchnut_.25_20_.054 | 1/4-20 self-clinching nut, .054 shank | 5
Divider
End Cap

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR: ±1°
BEND: ±1°
TWO PLACE DECIMAL: ±0.01
THREE PLACE DECIMAL: ±0.005

MATERIAL/FINISH:
1/2" BLACK ORANGE PEEL HDPE

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING
<table>
<thead>
<tr>
<th>ITEM NO.</th>
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<th>DESCRIPTION</th>
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<tbody>
<tr>
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<td>GE-23004</td>
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<tr>
<td>2</td>
<td>pem_clinchnut_.25_20_054</td>
<td>1/4-20 self-clinching nut, .054 Shank</td>
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</table>

**Diagram Notes:**
- PEM Nuts protrude on inside of channel
- Remove all burrs and sharp edges.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23005</td>
<td>Divider Vertical B</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_.25_20_.054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
<td>4</td>
</tr>
</tbody>
</table>

PEM Nuts protrude on inside of channel
PEM Nuts protrude on inside of channel
PEM Nuts protrude on inside of channel
PEM Nuts protrude on inside of channel

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
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<tr>
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<td>Divider Angle Brace</td>
<td>1</td>
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<tr>
<td>2</td>
<td>pem_clinchnut_.25_20_.054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
<td>9</td>
</tr>
</tbody>
</table>

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR: MACH ±1° BEND: ±1°
TWO PLACE DECIMAL: ±0.01
THREE PLACE DECIMAL: ±0.005

MATERIAL/FINISH:

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING
3x PEM nuts in far wall

PEM Nuts protrude on inside of channel

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
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<tbody>
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<td>GE-23009</td>
<td>Divider Angle Brace</td>
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<tr>
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<td>pem_clinchnut_.25_20_.054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
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</table>
### Middle Divider

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1</td>
<td>GE-23003</td>
<td>Divider End Cap</td>
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</tr>
<tr>
<td>2</td>
<td>GE-23006</td>
<td>Divider Middle Bottom Connector Pin</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>GE-23007</td>
<td>Divider Angle Brace Connector Pin</td>
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<tr>
<td>4</td>
<td>GE-23019</td>
<td>Middle Divider Sheetmetal</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>FHCS 1/4-20x1</td>
<td>1/4-20 x 1&quot; Flat Head Cap Screw</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>hex_ 25_20 2.5</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 2-1/2&quot; long, fully threaded</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>RS566A029</td>
<td>1/4-20 Locknut</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>Hook_2_10</td>
<td>2&quot; x 10&quot; Hook, Adhesive Backed</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Hook_2_17.5</td>
<td>2&quot; x 12.5&quot; Hook, Adhesive Backed</td>
<td>2</td>
</tr>
</tbody>
</table>

**Assembly Notes:**
1. Ensure Unused Holes on A are vertical after installation.

**Do Not Scale Drawing**

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**Material/Finish:**

- Do not report burrs and sharp edges.

**Tolerances:**

- Dimensions are in inches.
- Fractional: ±1/2
- Angular: Mach 1° bend ±1°
- Two place decimal: ±1/32

**Scale:** 1:5

**Drawing Date:** 9/29/2022

**Drawn by:** JO

**Title:** Middle Divider

**Size:** GE-23010

**Sheet:** 1 of 1


**Title:** Lower Pole Base Top

**Material/Finish:** BGA 5052 AL

**Scale:** 1:3

**Comments:**

- Remove all burrs and sharp edges.

**Dimensions:**

- **Outside Diameter:** 1.725
- **R.13:**
  - 2x 1.81
  - 2x 2.88
  - 3x .191 ± .002
- **R.13 through THRU THIS FACE:**
  - 2x
- **2x 8.13:**
  - 2x 9.13
  - 2x 10.13
- **2x 18.00:**
  - 2x 18.25
- **2x 5.13:**
  - 2x 9.13
  - 3x 13.13
- **2x 4.17:**
  - 2x 2.17
- **2x R.13:**
  - .13

**Angles:**

- 35°
- 145°

**Tolerances:**

- Fractional: ± 1/16
- Two Place Decimal: ± .02
- Three Place Decimal: ± .010

**Notes:**

- UNLESS OTHERWISE SPECIFIED:
  - DIMENSIONS ARE IN INCHES
  - TOLERANCES:
    - FRACTIONAL: ± 1/16
    - ANGULAR: MACH ± 1° BEND ± 1°
    - THREE PLACE DECIMAL: ± .010

**Revisions:**

- **REVDWG. NO.:** GE-23011
- **DRAWN:** NAL
- **DATE:** 9/23/2022

**Description:**

- Style of Qty callouts, even hole tolerance

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**Zone Rev. Description:**

- B2, B3, B4, C1, C2, C4, D3, D4

**Date Approved:** 9/23/2022

**Approval:** JO
4x R.13 ± .002 THRU

17x Ø .191 ± .002 THRU

DO NOT SCALE DRAWING
**Title:** Lower Pole Pipe Brace

**Material/Finish:** 8GA 5052 AL

**Scale:** 1:1

**Comments:** Remove all burrs and sharp edges.

**UNLESS OTHERWISE SPECIFIED:**
- Dimensions are in inches.
- Tolerances:
  - Fractional: ±1/16
  - Angular: MACH ±1° BEND ±1°
  - Two Place Decimal: ±0.02
  - Three Place Decimal: ±0.010

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**Drawn by:** NAL
**Date:** 9/23/2022

---

**REVISIONS**

<table>
<thead>
<tr>
<th>REVISION</th>
<th>DESCRIPTION</th>
<th>DATE</th>
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<tr>
<td>D2 A</td>
<td>Style of Qty callouts, Rivet Hole Tolerance</td>
<td>9/23/2022</td>
<td>JO</td>
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<tr>
<td>D3 B</td>
<td>Changed Range Holes to Slots</td>
<td>12/13/2022</td>
<td>JO</td>
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</table>
2x .83

2x .266 THRU ALL

A Style of qty callout, changed .257 holes to .266 holes for assembly
9/23/2022 JO

C2 B Overall Length: Small Error
12/14/2022 JO

1.25IN SCH40 AL TUBE

REVISIONS
ZONE REV. DESCRIPTION DATE APPROVED
B2 C4 A Style of qty callout, changed .257 holes to .266 holes for assembly
9/23/2022 JO

C2 B Overall Length: Small Error
12/14/2022 JO

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: 1/16
ANGULAR: MACH 1° BEND
TWO PLACE DECIMAL: 0.01
THREE PLACE DECIMAL: 0.005
MATERIAL/FINISH:
1.25IN SCH40 AL TUBE

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

VEND DRAWN NAME DATE
NAL 9/23/2022 NAL

TITLE: Lower Pole

SIZE DWG. NO. REV
C GE-23016 B
SCALE: 1:1 SHEET 1 OF 1
Assembly Notes:
1. Seam of Tape should be perpendicular to thru-holes
Assembly Notes:
1. Start Tape from top edge of pipe
2. Seam of Tape should be Perpendicular to Thru-Holes
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
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<tbody>
<tr>
<td>1</td>
<td>GE-23001-01</td>
<td>Divider Base A Config 1</td>
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<tr>
<td>2</td>
<td>GE-23002-01</td>
<td>Divider Base B Config 1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23004</td>
<td>Divider Vertical A</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23005-01</td>
<td>Divider Vertical B Config 1</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>GE-23008</td>
<td>Divider 90 Gusset</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>GE-23009-01</td>
<td>Divider Angle Brace Config 1</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>187 pop rivet</td>
<td>3/16&quot; Steel Rivet</td>
<td>60</td>
</tr>
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</table>

**Middle Divider Sheetmetal**

DIMENSIONS ARE IN INCHES

TOLERANCES:
- FRACTIONAL: 1/16
- ANGULAR: MACH 1° BEND
- TWO PLACE DECIMAL: .01
- THREE PLACE DECIMAL: .005

MATERIAL/FINISH:

UNLESS OTHERWISE SPECIFIED:

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COMMENTS:

DO NOT SCALE DRAWING

REMOVE ALL BURRS AND SHARP EDGES.
**Middle Goal Covers**

**Material/Finish:**
- 1/2" HDPE ORANGE PEEL TEXTURE
- SEE PART NUMBER FOR COLOUR

**Tolerances:**
- FRACTIONAL: ±1/16
- ANGULAR: Mach ±1° BEND
- TWO PLACE DECIMAL: ±0.01
- THREE PLACE DECIMAL: ±0.005

**Revisions:***

- ZONE
- REV.
- DESCRIPTION
- DATE
- APPROVED

<table>
<thead>
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<th>REV</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
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<tbody>
<tr>
<td>A</td>
<td>Cut 3/8&quot; off left side and 1/8&quot; off right side, adjusted all horizontal dimensions, opened up holes for poles</td>
<td>12/4/2022</td>
<td>JRO</td>
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**Dimensions:**
- DIMENSIONS ARE IN INCHES
- UNLESS OTHERWISE SPECIFIED:
  - DRAWN:
  - NAME:
  - DATE:

**Notes:**
- DO NOT SCALE DRAWING
- PROPRIETARY AND CONFIDENTIAL
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**Comments:**
- REMOVE ALL BURRS AND SHARP EDGES.

**Scale:**
- SCALE: 1:5

**Sheet:**
- SHEET 1 OF 1

**Materials:**
- GE-23021-BLU BLUE
- GE-23021-RED RED
- GE-23021-BLK BLACK
REVISIONS

ZONE REV. DESCRIPTION DATE APPROVED
B2, B3, B4, C4, D3 A Cut 3/8" off left side and 1/8" off right side, adjusted all horizontal dimensions, opened up slots for poles 12/4/2022 JRO

End Goal
Covers

VEND NAME DATE
GE-23022 BLU BLUE NAL 8/30/2022
GE-23022 RED RED

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: \( \frac{1}{16} \)
ANGULAR: MACH: \( \pm 1^\circ \) BEND: \( \pm 1^\circ \)
THREE PLACE DECIMAL: \( \pm 0.005 \)
TWO PLACE DECIMAL: \( \pm 0.01 \)

MATERIAL/FINISH:
1/2" HDPE ORANGE PEEL TEXTURE

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING

PROPRIETARY AND CONFIDENTIAL

SEARCH NUMBER FOR COLOUR

FIRST®

SHEET 1 OF 1

DRAWN NAL 8/30/2022

SCALE 2 : 3

SCALE: 1:5

VEND NAME DATE
GE-23022 A

END GOAL COVERS

6x .266 THRU

6x .50

6x .50

6x 1.875 THRU

2x 1.00 THRU

8x R.26

2x 1.875 THRU
<table>
<thead>
<tr>
<th>ITEM NO.</th>
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<th>DESCRIPTION</th>
<th>QTY.</th>
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<td>Divider Base A Config 2</td>
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</tr>
<tr>
<td>2</td>
<td>GE-23002-01</td>
<td>Divider Base B Config 1</td>
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<td>3</td>
<td>GE-23004-01</td>
<td>Divider Vertical A Config 1</td>
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<td>4</td>
<td>GE-23005-01</td>
<td>Divider Vertical B Config 1</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>GE-23008</td>
<td>Divider 90 Gusset</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>GE-23009-03</td>
<td>Divider Angle Brace Config 3</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>187 pop rivet</td>
<td>3/16&quot; Steel Rivet</td>
<td>60</td>
</tr>
</tbody>
</table>
Assemble as shown. Note that 3 and 4 stick out the side opposite any PEM nuts.

Note the hole on the segment of 4 that is sticking out is vertical when assembled.
Assemble as shown. Note that 3 and 4 stick out the side opposite any PEM nuts.

Note the hole on the segment of 4 that is sticking out is vertical when assembled.
Notes:
1. Label Assembly with Part Number
2. 1-1/4" SCH 40 Pipe (1.66" OD) Fits between the two brackets. Use a Pipe during assembly to get a slip fit between the brackets.
### Upper Pole Base

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
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<tbody>
<tr>
<td>1</td>
<td>GE-23035</td>
<td>Upper Pole</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23043</td>
<td>Upper Pole Base Sheetmetal</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>CCF-RT-13-1</td>
<td>Pole Cap</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>tape_VISIONTARGET</td>
<td>tape_VISIONTARGET</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>pin_quick_ring_.25_2.5</td>
<td>Pin, Ring Gpi Quick-Release with SS Ring, 1/4&quot; Diameter, 2.5&quot; Usable Length</td>
<td>2</td>
</tr>
</tbody>
</table>

**Unless Otherwise Specified:**
- Dimensions are in inches.
- Tolerances: Fractional ±1/16, Angular Machinable ±1°, Bend ±1°, Two Place Decimal ±.02, Three Place Decimal ±.010.
- Material/Finish: Various.

**Comments:**
- Remove all burrs and sharp edges.

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**Drawn By:**
- NAL 9/29/2022

**First Robotics Competition**

**Scale:** 1:4

**Sheet:** 1 of 1
**Title:** Upper Pole Base Pole Brace

**Material/Finish:** BGA 5052 AL

**Scale:** 1:1

**Drawing Number:** GE-23034

**UNLESS OTHERWISE SPECIFIED:**

**DIMENSIONS ARE IN INCHES**

- **TOLERANCES:**
  - FRACTIONAL: ±1/16
  - ANGULAR: ±1° BEND ±1°
  - TWO PLACE DECIMAL: ±0.02
  - THREE PLACE DECIMAL: ±0.010

**MATERIAL/FINISH:** BGA 5052 AL

**DO NOT SCALE DRAWING**

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**Comments:**

Remove all burrs and sharp edges.

---

**Revisions:**

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<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
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<tr>
<td>A 3</td>
<td>B</td>
<td>Style of Qty callouts, Riel Hole Tolerance</td>
<td>9/23/2022</td>
<td>JD</td>
</tr>
<tr>
<td>D 3</td>
<td>B</td>
<td>Changed Flange Holes to Slots</td>
<td>12/13/2022</td>
<td>JD</td>
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</table>
NOTE: TAG ASSEMBLY WITH PART NUMBER

<table>
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<th>Description</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23041</td>
<td>Upper Pole Crossbar A</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23042</td>
<td>Upper Pole Crossbar B</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>1B7 pop rivet</td>
<td>3/16&quot; Steel Rivet</td>
<td>12</td>
</tr>
</tbody>
</table>
A3, B2 Moved BOM Table, added note for assembly 12/13/2022 JO

Notes:
1. Label Assembly with Part Number
2. 1-1/4" SCH 40 Pipe (1.66" OD) Fits between the two brackets. Use a Pipe during assembly to get a slip fit between the brackets.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23031</td>
<td>Upper Pole Base Top</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23032</td>
<td>Upper Pole Base Bottom</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23033</td>
<td>Upper Pole Base Side</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>GE-23034</td>
<td>Upper Pole Base Pole Brace</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>187 pop rivet</td>
<td>3/16&quot; Steel Rivet</td>
<td>32</td>
</tr>
</tbody>
</table>

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR: MACH +1° BEND ±1°
TWO PLACE DECIMAL ±.01
THREE PLACE DECIMAL ±.005

MATERIAL/FINISH:
DO NOT SCALE DRAWING

VEND: Name: JO
DATE: 9/30/2022

TITLE: Upper Pole Base Sheetmetal
SIZE: 1:8
SCALE: 1 OF 1
Note: GE-23045-ALT is the same assembly with these double slots on the opposite end.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>GE-23036</td>
<td>Upper Shelf Corner Front Cover</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23038</td>
<td>Upper Shelf Corner Top Cover</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23065</td>
<td>Light Cover Angled Bracket with PemNuts</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>92865A542 and 250 Washer</td>
<td>1/4-20 x 1&quot; Hex Head Bolts with Washer</td>
<td>10</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>PART NUMBER</td>
<td>Description</td>
<td>QTY.</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>----------------------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>GE-23042</td>
<td>Upper Pole Crossbar B</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23051</td>
<td>Upper Pole End Crossbar A</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23053</td>
<td>Upper Pole Crossbar C</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>187 pop rivet</td>
<td>3/16&quot; Steel Rivet</td>
<td>18</td>
</tr>
</tbody>
</table>

NOTE: TAG ASSEMBLY WITH PART NUMBER

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR: MACH ±1° BEND: ±1°
TWO PLACE DECIMAL: ±0.02
THREE PLACE DECIMAL: ±0.010
MATERIAL/FINISH:
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COMMENTS:
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DO NOT SCALE DRAWING

SCALE: 1:2 SHEET 1 OF 1

TITLE: Upper Pole End Crossbar

DRAWN NAL 9/29/2022
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>GE-23037</td>
<td>Upper Shelf Front Cover</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23039</td>
<td>Upper Shelf Top Cover</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23065</td>
<td>Light Cover Angled Bracket with PemNuts</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>72865A542 and 250 Washer</td>
<td>1/4-20 x 1&quot; Hex Head Bolt and Washer</td>
<td>8</td>
</tr>
</tbody>
</table>

UNLESS OTHERWISE SPECIFIED:

- DIMENSIONS ARE IN INCHES
- TOLERANCES: FRACTIONAL ±1/2, ANGULAR, ALL MACH ±1° BEND ±1°, TWO PLACE DECIMAL ±.001

MATERIAL/FINISH:

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COMMENTS:

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- DO NOT SCALE DRAWING

SIZE | DWG. NO. | REV |
-----|---------|-----|
C    | GE-23055 |    |

SCALE: 1:2  SHEET 1 OF 1

TITLE: Upper Shelf Middle Light
18x ø .191±.002 THRU

2x ø 1.725 THRU

R.13 TYP
18x \( \phi 0.191 \pm 0.002 \) THRU

A

6.00
3x 5.52
2x 5.50

2x 3.19
2x 2.86

2x 0.88

0

2x 1.94

(2.44)

4x \( \phi 0.191 \pm 0.002 \) THRU

A

R.13 TYP

(0.13)
Notes:
1. Label Assembly with Part Number
2. 1-1/4" SCH 40 Pipe (1.66" OD) Fits between the two 4 brackets. Use a Pipe during assembly to get a slip fit between the brackets.
C3 A Changed hole size from .391 to .344 for PEM nuts instead of Riv-nuts 9/28/2022 JO

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: 1/16
ANGULAR: 1° BEND
TWO PLACE DECIMAL: 0.01
THREE PLACE DECIMAL: 0.001

MATERIAL/FINISH:
11 GA CRS ZINC PLATED

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COMMENTS:
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DO NOT SCALE DRAWING

TITLE: Light Cover
Angled Bracket

SIZE: C
DWG. NO. GE-23064
REV

SCALE: 2:1
SHEET 1 OF 1
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
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<th>QTY.</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23064</td>
<td>Light Cover Angled Bracket</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_.25_20_.054</td>
<td>1/4-20 PEM nut</td>
<td>2</td>
</tr>
</tbody>
</table>
REVISIONS

ZONE REV. DESCRIPTION DATE APPROVED
A2, C3, C4 A Style of Qty callouts, changed hole size from .391 to .344 for PEM nuts instead of Riv-nuts. Block Tolerance 9/26/2022 JO

DIMENSIONS ARE IN INCHES

TOLERANCES:
FRACTIONAL: $\frac{1}{16}$
ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$
TWO PLACE DECIMAL: $\pm .01$
THREE PLACE DECIMAL: $\pm .005$

MATERIAL/FINISH:
11 GA CRS
ZINC PLATED

DO NOT SCALE DRAWING

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

VEND NAME DATE
DRAWN NAL 9/26/2022

PROPERTY OF FIRST®

UNLESS OTHERWISE SPECIFIED:

SCALE: 2:1

TITLE: Light Cover
Flat Bracket

SIZE DWG. NO. REV
C GE-23067
Notes:
1. Label Assembly with Part Number
2. 1-1/4" SCH 40 Pipe (1.66" OD) Fits between the two brackets. Use a Pipe during assembly to get a slip fit between the brackets.

<table>
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<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
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<tr>
<td>1</td>
<td>GE-23071</td>
<td>Lower Pole End Base Top</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23072</td>
<td>Lower Pole End Base Bottom</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23013</td>
<td>Lower Pole Base Side A</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23014</td>
<td>Lower Pole Base Side B</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>GE-23015</td>
<td>Lower Pole Pipe Brace</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>187 pop rivet</td>
<td>3/16&quot; Steel Rivet</td>
<td>45</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>PART NUMBER</td>
<td>DESCRIPTION</td>
<td>QTY.</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>-------------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>GE-23039</td>
<td>Upper Shelf Top Cover</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23068</td>
<td>Light Cover Flat Bracket with PemNuts</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>hex_.25_20_1</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 1&quot; long, fully threaded</td>
<td>4</td>
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Title: Upper Shelf Cube Light

Material/Finish:

Dimensions are in inches

Tolerances:
Fractional: ±1/2
Angular, Machined: ±1°
Two place decimal: ±0.01

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Comments:
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Do not scale drawing.
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DIMENSIONS ARE IN INCHES

TOLERANCES:
- FRACTIONAL: ±1/16
- ANGULAR: ±1° BEND
- TWO PLACE DECIMAL: ±0.01
- THREE PLACE DECIMAL: ±0.005

MATERIAL/FINISH:
- .220 POLYCARBONATE CLEAR

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- DO NOT SCALE DRAWING

DRAWN NAL 9/28/2022

DRAWING TITLE: Cube Shelf

Upper Front Panel

SIZE DWG. NO. REV
C GE-23079 1:2 SHEET 1 OF 1
Step 1: Bolt 4 and 5 together with 1/4-20 x 1" bolts 12 and 1/4-20 locknuts 11. Quantity 2x

Step 2: Bolt 6 onto side of assembly with 1/4-20 x 1" bolts and washers into the existing PEM Nuts. Put the plastic on as shown for one assembly, and on the opposite side on the other assembly, so there is a “Left” and “Right”
Step 3: Bolt 2x 1, 2, 3, 7, and 9 in between the "Left" and "Right" assemblies with 1/4-20 x 1" bolts and washers. Note the orientation of unused holes on 2 and 3.
Step 4: Attach 8 brackets into the front corners with 1/4-20 x 1" bolts and washers.
PEM Nuts protrude on inside of channel

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
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<tr>
<td>1</td>
<td>GE-23081</td>
<td>Cube Shelf Long Horizontal Channel</td>
<td>1</td>
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<tr>
<td>2</td>
<td>pem_clinchnut_.25_20_.054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
<td>2</td>
</tr>
</tbody>
</table>
PEM Nuts protrude on inside of channel
A Style of Qty Callouts, changed .391 hole to .625 for clearance, Rivet Hole Tolerance, Block Tolerance 9/23/2022 JO

Material/Finish: BGA 5052 Al

Dimensions are in inches

Tolerances:
- Fractional: ±1/16
- Angular: Mach ±1° Bend ±1°
- Two Place Decimal: ±.01
- Three Place Decimal: ±.005

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Comments:
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Do not scale drawing

UNLESS OTHERWISE SPECIFIED:

REV
VEND
NAME
DRAWN
DATE

ZONE
REV
DESCRIPTION
DATE
APPROVED

GE-23083
Lower Pin Socket Plate

Scale: 1:2
Sheet 1 of 1

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Comments:
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Do not scale drawing

UNLESS OTHERWISE SPECIFIED:

REV
VEND
NAME
DRAWN
DATE

ZONE
REV
DESCRIPTION
DATE
APPROVED

GE-23083
Lower Pin Socket Plate

Scale: 1:2
Sheet 1 of 1
<table>
<thead>
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<th>DESCRIPTION</th>
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<td>GE-23084</td>
<td>Cube Shelf Corner Gusset</td>
<td>1</td>
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<tr>
<td>2</td>
<td>pem_clinchnut_.25_20_.054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
<td>1</td>
</tr>
</tbody>
</table>

PEM nut in opposite side of GE-23084-02

Dimensions are in inches.

Tolerances:
- Fractional: ±1/16
- Angular: ±1° bend
- Two place decimal: ±0.01
- Three place decimal: ±0.005

Material/Finish:

Proprietary and Confidential:
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Comments:
- Remove all burrs and sharp edges.
<table>
<thead>
<tr>
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<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
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<tbody>
<tr>
<td>1</td>
<td>GE-23084</td>
<td>Cube Shelf Corner Gusset</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_20 20 .054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
<td>1</td>
</tr>
</tbody>
</table>

PEM nut in opposite side from GE-23084-01
TITLE: Cube Shelf Lower Vertical Channel

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
FRACTIONAL: 1/16
ANGULAR: Machine 1° BEND
TWO PLACE DECIMAL: 0.00
THREE PLACE DECIMAL: 0.001

MATERIAL/FINISH: BGA 5052 AL

BEND NAME DATE
DRAWN NAL 9/23/2022

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING

REV: 1

SCALE: 1:2 SHEET 1 OF 1

DRAWN NAL 9/23/2022

TITLE: Cube Shelf Lower Vertical Channel

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
FRACTIONAL: 1/16
ANGULAR: Machine 1° BEND
TWO PLACE DECIMAL: 0.00
THREE PLACE DECIMAL: 0.001

MATERIAL/FINISH: BGA 5052 AL

BEND NAME DATE
DRAWN NAL 9/23/2022

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING

REV: 1

SCALE: 1:2 SHEET 1 OF 1
1. PEM Nuts protrude on inside of channel.

2. 5th PEM nut is in line with this one on other tab.
**REVISIONS**

<table>
<thead>
<tr>
<th>ZONE</th>
<th>REV.</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2x</td>
<td>Style of M6 holes, changed hole size from .391 to .344 for PEM nuts instead of Riv-nuts, Rivet Hole Tolerance</td>
<td>9/23/2022</td>
<td>JD</td>
</tr>
</tbody>
</table>

**UNLESS OTHERWISE SPECIFIED:**

- **DIMENSIONS ARE IN INCHES**
- **TOLERANCES:**
  - FRACTIONAL: $\frac{1}{16}$
  - ANGULAR: $\pm 1^\circ$
  - BEND: $\pm 1^\circ$
  - TWO PLACE DECIMAL: 0.02
  - THREE PLACE DECIMAL: 0.010

**MATERIAL/FINISH:**

- BGA 5052 AL

**DO NOT SCALE DRAWING**

---

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**COMMENTS:**

- REMOVE ALL BURRS AND SHARP EDGES.
PEM Nuts protrude on inside of channel.

### Table

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
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</thead>
<tbody>
<tr>
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<td>GE-23086</td>
<td>Cube Shelf Upper Vertical Channel</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_.25_20_054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
<td>2</td>
</tr>
</tbody>
</table>
INSTALL 3/16" STEEL RIVETS AS SHOWN MULTIPLE LOCATIONS

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>Description</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23081</td>
<td>Cube Shelf Long Horizontal Channel</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23081-01</td>
<td>Cube Shelf Long Horizontal Channel Config 1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23083</td>
<td>Cube Shelf Lower Pin Sockel Plate</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>GE-23084-01</td>
<td>Cube Shelf Corner Gusset Config 1</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>GE-23084-02</td>
<td>Cube Shelf Corner Gusset Config 2</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>GE-23085-01</td>
<td>Cube Shelf Lower Vertical Channel Config 1</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>GE-23085-02</td>
<td>Cube Shelf Lower Vertical Channel Config 2</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>1/8 pop rivet</td>
<td>3/16&quot; Steel Rivet</td>
<td>66</td>
</tr>
</tbody>
</table>

NOTE: LABEL ASSEMBLY WITH PART NUMBER

NOTE: DO NOT SCALE DRAWING

CUBE SHELF LOWER HOOP

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING

SCALE: 1:4 SHEET 1 OF 1

REVDWG. NO. C
NOTE: DRAWN NAL 9/29/2022

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: 1/16
ANGULAR: MACH 1° BEND 1°
TWO PLACE DECIMAL 0.02
THREE PLACE DECIMAL 0.010

MATERIAL/FINISH:

UNLESS OTHERWISE SPECIFIED:

NOTE: LABEL ASSEMBLY WITH PART NUMBER
<table>
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<th>QTY.</th>
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<tr>
<td>1</td>
<td>GE-23082</td>
<td>Cube Shell Horizontal Channel</td>
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</tr>
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<td>GE-23082-01</td>
<td>Cube Shell Short Horizontal Channel Config</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23086-01</td>
<td>Cube Shelf Upper Vertical Channel Config</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>GE-23093-01</td>
<td>Cube Shelf Upper Corner Gusset Config</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>GE-23093-02</td>
<td>Cube Shelf Upper Corner Gusset Config</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>187 pop rivet</td>
<td>3/16 Steel Rivet</td>
<td>48</td>
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NOTE: INSTALL 3/16" STEEL RIVETS MULTIPLE LOCATIONS

NOTE: LABEL ASSEMBLY WITH PART NUMBER

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR: MACH 1° BEND 1°
TWO PLACE DECIMAL: ±0.02
THREE PLACE DECIMAL: ±0.01

MATERIAL/FINISH:

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING

SCALE: 1:3
SHEET 1 OF 1

CUBE SHELF UPPER HOOP

DRAWN NAL 9/29/2022

FIRST®
UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR, MACH: ±3° BEND: ±1°
TWO PLACE DECIMAL: ±.005
THREE PLACE DECIMAL: ±.010

MATERIAL/FINISH:
Various

SCALE: 1:4

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DO NOT SCALE DRAWING

ITEM NO. PART NUMBER DESCRIPTION QTY.
1 GE-23091 Shark Fin Poly 1
2 GE-23097 Shark Fin Bracket with PEM Nuts installed 2
3 90566A029 1/4-20 Locknut 3
4 92865A542 Medium-Strength Grade 5 Steel Hex Head Screw 3
5 T2860A542 and 250 Washer 1/4-20 x 1” Bolt and Washer 6

PROPRIETARY AND CONFIDENTIAL

COMMENT:
REMOVE ALL BURRS AND SHARP EDGES.
### Revisions

<table>
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<th>ZONE</th>
<th>REV.</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
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<tr>
<td>A</td>
<td>3x</td>
<td>Style of Qty callouts, changed hole size from .391 to .344 for PEM nuts instead of Riv-nuts</td>
<td>9/23/22</td>
<td>J0</td>
</tr>
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</table>

### Shark Fin Bracket

**Title:** Shark Fin Bracket

<table>
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<tr>
<th>Dimension</th>
<th>Name</th>
<th>Date</th>
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<tr>
<td>0.13</td>
<td>A</td>
<td>9/23/22</td>
</tr>
<tr>
<td>1.25</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>1.38</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>7.38</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>14.75</td>
<td>E</td>
<td></td>
</tr>
</tbody>
</table>

**Material/Finish:**
- BGA 5052 AL

**Tolerances:**
- Fractional: ±1/16
- Angular: Machined: ±1° bend: ±1°
- Two Place Decimal: ± .001
- Three Place Decimal: ± .0001

**Scale:** 1:1

**Do Not Scale Drawing**

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**Comments:**
- Remove all burrs and sharp edges.
Dimensions are in inches.

Tolerances:
- Fractional: \( \pm \frac{1}{16} \)
- Angular: Machined \( \pm 1° \)
- Two place decimal: \( \pm 0.01 \)
- Three place decimal: \( \pm 0.005 \)

Material/Finish: 80/52 5052 Al

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Comments: Remove all burrs and sharp edges.

Do not scale drawing.

Unless otherwise specified:

Title: Cube Shelf
Upper Corner Gusset

Revision: GE-23093

Scale: 1:1

Sheet 1 of 1
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23093</td>
<td>Cube Shelf Upper Corner Gusset</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_25_20_.054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
<td>1</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>PART NUMBER</td>
<td>Description</td>
<td>QTY.</td>
</tr>
<tr>
<td>---------</td>
<td>---------------</td>
<td>----------------------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>GE-23096</td>
<td>Inside Corner Bracket</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_25_20_054</td>
<td>1/4-20 PEM nuts</td>
<td>2</td>
</tr>
</tbody>
</table>

FOR BOTH FACES

LABEL OR BAG ASSEMBLIES WITH PART NUMBER

DO NOT SCALE DRAWING

TITLE: Cube Shelf Inside Corner Bracket with PEMnuts

SCALE: 2:1 SHEET 1 OF 1

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: 1/16
ANGULAR: MACH 1° BEND 1°
TWO PLACE DECIMAL: .001
THREE PLACE DECIMAL: .0001

MATERIAL/finish:

BEND NAME DATE
DRAWN NAL 9/29/2022

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING
C4 A Changed hole size from .391 to .344 for PEM nuts instead of Riv-nuts 9/28/2022 JO

A

R.13 TYP

FOR BOTH FACES

\( \phi \, 0.344 \, \text{THRU} \)

1.50

1.00

0

0

1.50
<table>
<thead>
<tr>
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<th>PART NUMBER</th>
<th>Description</th>
<th>QTY.</th>
</tr>
</thead>
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<tr>
<td>1</td>
<td>GE-23092</td>
<td>Shark Fin Bracket</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_25_20_054</td>
<td>1/4-20 PEM Nut</td>
<td>3</td>
</tr>
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</table>

**Shark Fin Bracket With PEM nuts Installed**

**Comments:**
- Remove all burrs and sharp edges.

**Scale:** 1:2

**Drawing No.:** GE-23097

**Drawn By:** NAL

**Date:** 9/29/2022

**UNLESS OTHERWISE SPECIFIED:**
- **Scale:** 1:2
- **Dimensions are in inches**
- **Tolerances:**
  - Fractional: ±1/16
  - Angular, Machined: ±1° bend, ±1°
  - Two Place Decimal: ±0.005
  - Three Place Decimal: ±0.001

**Material/Finish:**

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<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FE-00001</td>
<td>Drivers Station Support</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>FE-00002 Right</td>
<td>Corner Supports, Right</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23122</td>
<td>GE-23101 and GE-23102 riveted</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>GE-23106</td>
<td>top rail assembly</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>GE-23110</td>
<td>slide assembly</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>GE-23107</td>
<td>Loading station lower plastic</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>GE-23123</td>
<td>GE-23113 w/ hook</td>
<td>1</td>
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<tr>
<td>8</td>
<td>GE-23124</td>
<td>GE-23114 w/ hook</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>GE-23127</td>
<td>GE-23111 w/ hook</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>GE-23120</td>
<td>Grill, brace to frame</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>GE-23116</td>
<td>Grill, front connector plate</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>GE-23117</td>
<td>connector plate to frame</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>GE-23104</td>
<td>Loading station top plastic assembly (left)</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>GE-23104</td>
<td>Loading station top plastic assembly (right)</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>GE-23126</td>
<td>GE-23108 w/ hook</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>GE-23118</td>
<td>front grill plastic</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>FE-00071</td>
<td>FE-00070 w/ hook</td>
<td>2</td>
</tr>
<tr>
<td>18</td>
<td>washer flat .25</td>
<td>Flat Washer for 1/4&quot; Screw</td>
<td>19</td>
</tr>
<tr>
<td>19</td>
<td>nylock .25_20</td>
<td>Steel Nylon-Insert Locknut, 1/4&quot;-20</td>
<td>19</td>
</tr>
<tr>
<td>20</td>
<td>pin_quick_ring .25_20</td>
<td>Pin, Ring-Grip Quick-Release with SS Ring, 1/4&quot; Diameter, 0.5&quot; Usable Length</td>
<td>4</td>
</tr>
<tr>
<td>21</td>
<td>91772A540</td>
<td>Pan head .25_20</td>
<td>19</td>
</tr>
<tr>
<td>22</td>
<td>pin_quick_ring .25_20_0625</td>
<td>Pin, Ring-Grip Quick-Release with SS Ring, 1/4&quot; Diameter, 0.625&quot; Usable Length</td>
<td>4</td>
</tr>
<tr>
<td>23</td>
<td>FE-00081-04</td>
<td>AprilTag Target</td>
<td>1</td>
</tr>
<tr>
<td>24</td>
<td>GE-23112</td>
<td>Ramp plastic</td>
<td>2</td>
</tr>
<tr>
<td>25</td>
<td>GE-23128</td>
<td>FJ Spacer DSST</td>
<td>2</td>
</tr>
<tr>
<td>26</td>
<td>GE-23129</td>
<td>Plywood DSST Spacer</td>
<td>2</td>
</tr>
</tbody>
</table>
Notes:
1. slide the opening of 3 into 1 that is attached to the Driver Station Diamond Plate.
2. slide 1 into the other end of 3.
3. repeat step 1.
4. Slide 2 into 3.
5. ** Andymark field border pin 3 to uprights.

Notes:
1. Insert 4 into the openings on top of the uprights in two locations.
Step 3.

Notes:
1. Place 17 centered on the frame flush and to the carpet.
2. Insert 13 and 14 under step 2 and resting on the frame.

DOUBLE SUBSTATION

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/2
ANGULAR, MACH: ±1° BEND: ±1°
TWO PLACE DECIMAL: ±.01

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MATERIAL/FINISH:

DO NOT SCALE DRAWING

Comments:

REMOVE ALL BURRS AND SHARP EDGES.
Step 4.

Notes:
1. Place 12 and pin with 22 at the center location using the top set of holes.
2. Place 10 and pin with 22 in two locations using the bottom set of holes.

Step 5.

Notes:
1. Place 9 on the floor in 4 locations centered and flush to the frame uprights.
**Notes:**
1. Place 8 in place aligning tabs and bolt hole locations with step 4 and 5.
2. Bolt step 4 to 8 with 18, 19, and 21 in 7 locations bolting up.

**Notes:**
1. Insert and bolt 11 to step 6 in 3 locations bolting away from field.
Step 8.

Notes:
1. Place 7 together like step 6 in 7 locations.
2. Repeat part of step 7 bolting in remaining 3 locations of step 7.

Step 9.

Notes:
1. Insert 6 in two locations and attach with 120lb cable ties.
**Step 10.**

Notes:
1. Lay 25 on to step 5 attached with hook and loop.

**Step 11.**

Notes:
1. Insert 5 in two locations in the frames of Step 1 and resting on the front frames.
2. Adjust tension as needed. Slide should be retained and move easily.
Step 12.

Notes:
1. Attach 16 to the front with 120lb cable ties.

Step 13.

Notes:
1. Attach 15 to the front frames with hook and loop.
2. Attach the back to the plastic with 120lb cable ties.
Step 14.

Notes:
1. Attach 23 to step 13 with .25-20 hardware.
2. Place 25 and 26 as shown.

For more details on how this assembly interacts with the rest of the field, see FE-2023.
For more details on how this assembly interacts with the rest of the field, see FE-2023.
Note changes to the assembly if being built on an AndyMark field border.
### Notes:
1. No weld allowed at hole location.

### Item Details
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<th>ITEM NO.</th>
<th>WELD SIZE</th>
<th>SYMBOL</th>
<th>WELD LENGTH</th>
<th>WELD MATERIAL</th>
<th>QTY.</th>
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<td>△</td>
<td>3.5</td>
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<td>8</td>
</tr>
<tr>
<td>2</td>
<td>0.25</td>
<td>△</td>
<td>1.5</td>
<td></td>
<td>4</td>
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<tr>
<td>3</td>
<td>0.25</td>
<td>△</td>
<td>0.75</td>
<td></td>
<td>9</td>
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<td>4</td>
<td>0.25</td>
<td>□</td>
<td>1.5</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>0.25</td>
<td>△</td>
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<td></td>
<td>4</td>
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### Item Specifications
<table>
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<th>DESCRIPTION</th>
<th>QTY.</th>
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<tr>
<td>1</td>
<td>GE-23101-01</td>
<td>Frame, Horizontal</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>GE-23101-02</td>
<td>Frame, Vertical</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>GE-23101-03</td>
<td>Frame, Spacer tab</td>
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</table>

**Title:** HP lower frame (welded)
Frame, Horizontal

Material/Finish:
1.75" x .125" square tubing 6061

Dimensions are in inches:
Tolerances: Fractional: ±1/16
Angular: Mach ±1° Bend ±1°
Two Place Decimal: ±0.01
Three Place Decimal: ±0.005

Comments:
Remove all burrs and sharp edges.

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DRAWN NW 6/28/2022

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED:

Scale: 1:5
2X ø .194±.002 THRU ALL

2x R.25

3.22
2.82

DO NOT SCALE DRAWING
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<th>QTY.</th>
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<td>GE-23105</td>
<td>1.5&quot; Angle Bracket</td>
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<tr>
<td>2</td>
<td>GE-23121</td>
<td>Loading station top plastic</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>nylock_.25_20</td>
<td>Steel Nylon-Insert Locknut; 1/4&quot;-20</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>round_hex_.25_20_.75_ful</td>
<td>Steel Button Head Hex Drive Screw; 1/4&quot;-20 x 3/4&quot; long, fully threaded</td>
<td>4</td>
</tr>
</tbody>
</table>

Right

Left

Field

Loading station top plastic assembly (right)

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/2
ANGULAR, MACH: ±1° BEND: ±1°
TWO PLACE DECIMAL: ±.00

MATERIAL/FINISH:

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING

Title:
Loading station top plastic assembly (right)

Size
C

DWG. NO.
GE-23104

Scale: 1:8

Sheet 1 of 1

Drawn
NW

Date
7/13/2022

First Robotics

SoftwareWorks

Competition
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<th>PART NUMBER</th>
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<td>GE-23106-01</td>
<td>Top Rail, Angle</td>
<td>1</td>
</tr>
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<td>2</td>
<td>FE-00060</td>
<td>Top Rail, Post</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>round_hex_.25_20_.62_full</td>
<td>Steel Button Head Hex Drive Screw, 1/4&quot;-20 x 5/8&quot; long, fully threaded</td>
<td>2</td>
</tr>
</tbody>
</table>
top rail assembly
13X Ø .42 THRU

1.75
3.00
5.38
5.50
7.75
7.88
12.75
23.75
34.75
39.88
40.13
42.13
45.75
47.75

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: 1/16
ANGULAR: MACH 1° BEND 1°
TWO PLACE DECIMAL: .01
THREE PLACE DECIMAL: .005

MATERIAL/FINISH:
0.25" polycarbonate, clear

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COMMENTS:
REMOVE ALL BURRS AND SHARP
EDGES.

DO NOT SCALE DRAWING
### Table

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<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>GE-23110-01</td>
<td>Base, Slide</td>
</tr>
<tr>
<td>2</td>
<td>GE-23110-02</td>
<td>Angle capture, Slide</td>
</tr>
<tr>
<td>3</td>
<td>round_hex_.25_20_1_fu</td>
<td>Steel Button Head Hex Drive Screw, 1/4&quot;-20 x 1&quot; long, fully threaded</td>
</tr>
<tr>
<td>4</td>
<td>knob_round_threaded hole_.25_20</td>
<td>Comfort-Grip Plastic Ball Knob</td>
</tr>
<tr>
<td>5</td>
<td>teeNut Ultra_split_rst_.25_20</td>
<td>25-20 TeeNut ultra split resistant</td>
</tr>
<tr>
<td>6</td>
<td>hex_.25_20_0.75</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 0.75&quot; long, fully threaded</td>
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<tr>
<td>7</td>
<td>washer_flat_.25</td>
<td>Flat Washer for 1/4&quot; Screw</td>
</tr>
<tr>
<td>8</td>
<td>loop_.1_12</td>
<td>1&quot; x 13&quot; Loop, Adhesive Backed</td>
</tr>
<tr>
<td>9</td>
<td>loop_.1_14</td>
<td>1&quot; x 14&quot; Loop, Adhesive Backed</td>
</tr>
<tr>
<td>10</td>
<td>loop_.1_11</td>
<td>1&quot; x 1&quot; Loop adhesive backed</td>
</tr>
</tbody>
</table>

### Diagram

- **Title:** slide assembly

### Notes

1. Spacing between 2 may vary per field set to slide easily per double substation.
2. Range for spacing on 9 and 10 may vary per field set to land at any point on the frame.

### Drawing Information

- **Title:** slide assembly
- **Scale:** 1:4
- **Drawing Number:** GE-23110
- **Designated:** FIRST®
- **Material/Finish:**
  - **Notes:**
    - Proprietary and Confidential
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    - Comments: Remove all burrs and sharp edges.
    - Do not scale drawing

- **Drawn by:** NW 12/29/2022
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<th>QTY.</th>
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<tbody>
<tr>
<td>1</td>
<td>GE-23111-01</td>
<td>brace, foot/ramp</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23111-03</td>
<td>brace, Z bracket</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>rivet,1875_.376-.5</td>
<td>3/16&quot; Aluminum Rivet, .376-.5 Grip Range</td>
<td>2</td>
</tr>
</tbody>
</table>
### Notes:
1. Weld intermittent to keep from warping.
2. Rivet in 8 places prior to welding.

### Table

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<th>PART NUMBER</th>
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<tr>
<td>1</td>
<td>GE-23113-01</td>
<td>grill, base (field)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23113-02</td>
<td>Grill, Bar 2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>GE-23113-03</td>
<td>Grill, Top 2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23113-04</td>
<td>Grill, Side 2</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>rivet_1.875_..251-.375</td>
<td>3/16&quot; Aluminum Rivet, 251-.375 Grip Range</td>
<td>8</td>
</tr>
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</table>

### Revisions

<table>
<thead>
<tr>
<th>ZONE NO.</th>
<th>REV.</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
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<tbody>
<tr>
<td>C4</td>
<td>A</td>
<td>Removed holes, and now welds flat to under surface</td>
<td>9/12/2022</td>
<td>NTW</td>
</tr>
<tr>
<td>B2, B3</td>
<td>B</td>
<td>removed bottom hole for weld and dims. for jig</td>
<td>10/24/2022</td>
<td>NTW</td>
</tr>
<tr>
<td>A3, A4</td>
<td>C</td>
<td>Added dimensions to back view</td>
<td>11/17/2022</td>
<td>CFQ</td>
</tr>
<tr>
<td>A4</td>
<td>D</td>
<td>overall length change: 1&quot;</td>
<td>12/16/2022</td>
<td>NTW</td>
</tr>
</tbody>
</table>

### Tolerances:
- Fractional: ±1/16
- Angular, Machined: ±1°
- Bend: ±1°
- Three place decimal: ±0.015

### Scale

- Scale 1:4

### Material/Finish

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- Any reproduction in part or as a whole without the written permission of FIRST® is prohibited.

### Comments

- Remove all burrs and sharp edges.
Notes:
1. Weld intermittent to keep from warping.
2. Rivet in 8 places prior to welding.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
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<tbody>
<tr>
<td>1</td>
<td>GE-23114-01</td>
<td>Grill, lower</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23114-02</td>
<td>Grill, Pipe</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>GE-23114-03</td>
<td>Grill, Upper horizontal</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23114-04</td>
<td>Grill, Vertical</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>rivet_.1875_.251-.375</td>
<td>3/16&quot; Aluminum Rivet, .251-.375 Grip Range</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ZONE</th>
<th>REV.</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2</td>
<td>A</td>
<td>Removed holes, and now welds flat to under surface</td>
<td>9/12/2022</td>
<td>NW</td>
</tr>
<tr>
<td>C3, C4</td>
<td>B</td>
<td>removed hole for welding on -01 and add dims for jig</td>
<td>10/24/2022</td>
<td>NW</td>
</tr>
<tr>
<td>C3, C4</td>
<td>C</td>
<td>Added more dimensions to view for clarity for manufacturing</td>
<td>11/11/2022</td>
<td>CFQ</td>
</tr>
<tr>
<td>C3, C4</td>
<td>D</td>
<td>Updated dims for removing length</td>
<td>12/4/2022</td>
<td>NW</td>
</tr>
</tbody>
</table>

TITLE: Grill Outer, Loading Station

UNLESS OTHERWISE SPECIFIED:

| DIMENSIONS ARE IN INCHES |
| TOLERANCES: |
| FRACTIONAL: 1/16 |
| ANGULAR, MACH: 1° |
| BEND: 1/8 |
| TWO PLACE DECIMAL: .02 |
| THREE PLACE DECIMAL: .015 |

MATERIAL/FINISH:

UNLESS OTHERWISE SPECIFIED: WELD NAME DATE DRAWN NW 8/24/2022

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COMMENTS:
Remove all burrs and sharp edges.
**REVISIONS**

<table>
<thead>
<tr>
<th>ZONE</th>
<th>REV.</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
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</thead>
<tbody>
<tr>
<td>B3, C3</td>
<td>A</td>
<td>Remove Hole for welding</td>
<td>10/26/2022</td>
<td>NTW</td>
</tr>
<tr>
<td>A2, A4</td>
<td>B</td>
<td>Adjusted profile width to increase assembly tolerance. Added dimensions to flat pattern. Reorganized drawing to better align with GE-23113-01.</td>
<td>11/16/2022</td>
<td>CPO</td>
</tr>
<tr>
<td>A2, B4</td>
<td>C</td>
<td>Changed over all length minus 1&quot;</td>
<td>12/6/2022</td>
<td>NTW</td>
</tr>
</tbody>
</table>

**DIMENSIONS ARE IN INCHES**

TOLERANCES:
- FRACTIONAL: \(*\frac{1}{16}\)
- ANGULAR MACH: \(*\frac{1}{16}\)
- ANGULAR: MACH: \(*\frac{1}{8}\)
- THREE PLACE DECIMAL: \(*0.001\)
- TWO PLACE DECIMAL: \(*0.00\)

**MATERIAL/FINISH:**
- .125 AL 6061 or 5052

**COMMENTS:**
- REMOVE ALL BURRS AND SHARP EDGES.

**UNLESS OTHERWISE SPECIFIED:**

**BEND**

**NAME**

**DATE**

**DRAWN**

**SCALE:** 1:4

**TITLE:** Grill, lower

**REV:** C

**DWG. NO.:** GE-23114-01

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REVISIONS

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<th>REV</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
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<tr>
<td>C3</td>
<td>A</td>
<td>36.752 woa 36.75</td>
<td>9/12/2022</td>
<td>NTW</td>
</tr>
<tr>
<td>C3</td>
<td>B</td>
<td>36.625 to 36.5</td>
<td>10/26/2022</td>
<td>NTW</td>
</tr>
</tbody>
</table>

DO NOT SCALE DRAWING.

Grill, Pipe

MATERIAL/FINISH:

1.25 sch 40, 6061 AL

COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.

SCALE: 1:5

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES TOLERANCES:

FRACTIONAL: 1/16
ANGULAR: MACH 1° BEND 1°
TWO PLACE DECIMAL: 0.01
THREE PLACE DECIMAL: 0.005

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Grill, Upper horizontal

UNLESS OTHERWISE SPECIFIED:
- DIMENSIONS ARE IN INCHES
- TOLERANCES:
  - FRACTIONAL: ±1/16
  - ANGULAR: MACH. ±1° BEND
  - TWO PLACE DECIMAL: ±.02
  - THREE PLACE DECIMAL: ±.010

MATERIAL/FINISH:
- .125 AL 6061 or 5052

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COMMENTS:
- REMOVE ALL BURRS AND SHARP EDGES.

PROPRIETARY AND CONFIDENTIAL

DRAWN: NW
DATE: 7/21/2022

REV. REV. DESCRIPTION DATE APPROVED
D3 A Removed holes from top face for welding 9/12/2022 NTW
A3, A4, B3, B4, C3 B Added various dimensions to flat pattern. 11/16/2022 CPO
A3, C2, C3, C4 C Removed 1" over all and holes 12/6/2022 NTW

TITLE: GE-23114-03 C
SIZE: 1:6 SHEET 1 OF 1

SCALE: 1:6
Title: Grill, Vertical

Dimensions are in inches. Tolerances:
- Fractional: ±1/16
- Angular, Machined: ±1° Bend
- Three place decimal: ±0.010

Material/Finish: .125 AL 6061 or 5052

Comments: Remove all burrs and sharp edges.

Drawing: GE-23114-04

Scale: 1:6

Sheet 1 of 1

Zone Rev.

Description

Date

Approved

A

Added various dimensions to flat pattern.

11/14/2022

CPO
UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES:
FRACTIONAL: \( \pm \frac{1}{16} \)
ANGULAR: MACH \( \pm \frac{1}{8} \) BEND
TWO PLACE DECIMAL: \( \pm 0.01 \)
THREE PLACE DECIMAL: \( \pm 0.005 \)

MATERIAL/FINISH:
.125" AL 6061 or 5052

DO NOT SCALE DRAWING

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

Grill, front connector plate

VEND | NAME | DATE
--- | --- | ---
 | | 7/18/2022

DRAWN | DWG. NO. | SHEET | REV
--- | --- | --- | ---
DF | C | 1 OF 1 | 1

SCALE: 1:1
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<td>GE-23101</td>
<td>HP lower frame (welded)</td>
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<td>2</td>
<td>GE-23102</td>
<td>slide retainer</td>
<td>1</td>
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<tr>
<td>3</td>
<td>rivet .1875-.251-.375 3/16&quot; Aluminum Rivet, .251-.375 Grip Range</td>
<td>8</td>
<td></td>
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<td>PART NUMBER</td>
<td>DESCRIPTION</td>
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<tr>
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<td>GE-23113</td>
<td>Grill, Loading Station (field)</td>
<td>1</td>
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<td>2</td>
<td>Hook_2_48</td>
<td>2&quot; x 48&quot; Hook, Adhesive Backed</td>
<td>1</td>
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<tr>
<td>3</td>
<td>Hook_2_10</td>
<td>2&quot; x 10&quot; Hook, Adhesive Backed</td>
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<td>DESCRIPTION</td>
<td>QTY.</td>
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<td>GE-23114</td>
<td>Grill Outer, Loading Station</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Hook_2_48</td>
<td>2' x 48&quot; Hook, Adhesive Backed</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Hook_2_10</td>
<td>2' x 10&quot; Hook, Adhesive Backed</td>
<td>1</td>
</tr>
<tr>
<td>ITEM NO.</td>
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<td>DESCRIPTION</td>
<td>QTY.</td>
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<td>1</td>
<td>GE-23108</td>
<td>loading station front safety</td>
<td>1</td>
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<td>2</td>
<td>Loop_1_10</td>
<td>3M 1&quot; adhesive backed loop</td>
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<tr>
<td>ITEM NO.</td>
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<td>DESCRIPTION</td>
<td>QTY.</td>
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<tr>
<td>1</td>
<td>GE-23111</td>
<td>Grill, Brace foot/ramp</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Hook_2_10</td>
<td>2&quot; x 10&quot; Hook, Adhesive Backed</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Hook_1_13.25</td>
<td>1&quot; x 13&quot; Hook, Adhesive Backed</td>
<td>1</td>
</tr>
</tbody>
</table>
Note: 2x4 Board may be used as a substitute.
A piece of 2"x10.5" adhesive backed hook will be used to attach to the field carpet.
DIMENSIONS ARE IN INCHES

TOLERANCES:
FRACTIONAL ±1/16
ANGULAR, MACH ±1° BEND, ±1°
TWO PLACE DECIMAL ±0.13
THREE PLACE DECIMAL ±0.013

MATERIAL/FINISH:
1/2" Plywood

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COMMENTS:
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DO NOT SCALE DRAWING

TITLE: Plywood DSST Spacer

UNLESS OTHERWISE SPECIFIED:

SCALE: 2:1

REV

C

GE-23129

SHEET 1 OF 1
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<td>GE-23210</td>
<td>Blue Fence</td>
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<td>2</td>
<td>GE-23214</td>
<td>Chute Guard</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23235</td>
<td>Extended Pin</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23240</td>
<td>Blue Chute</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>hex_.25_20</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 0.75&quot; long, fully threaded</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>nylock_.25_20</td>
<td>Steel Nylon-Insert Locknut, 1/4&quot;-20</td>
<td>2</td>
</tr>
</tbody>
</table>
USE 120LB CABLE TIES TO ATTACH 2 TO ASSEMBLY, STARTING WITH HOLES BENEATH THE CHUTE.

3 REPLACES THE CORNER PIN OF THE FIELD PERIMETER
NOTE: THE DISTANCE BETWEEN THIS FACE AND THE INSIDE OF THE FIELD PERIMETER CHANGES A SMALL AMOUNT DEPENDING ON FIELD PERIMETER MANUFACTURER.
<table>
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<th>DESCRIPTION</th>
<th>QTY.</th>
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<tr>
<td>1</td>
<td>GE-23211</td>
<td>Blue Bottom Channel</td>
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</tr>
<tr>
<td>2</td>
<td>GE-23212</td>
<td>Blue Top Channel</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23216</td>
<td>Shin Guard W Loop</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23225</td>
<td>Blue Standard Fence Vertical With Hook</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>GE-23230</td>
<td>Blue Corner Fence Vertical</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>GE-23266</td>
<td>ULINE Grid</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>hex_.25_20_0.75</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 0.75&quot; long, fully threaded</td>
<td>18</td>
</tr>
<tr>
<td>8</td>
<td>nylock_.25_20</td>
<td>Steel Nylon-Insert Locknut, 1/4&quot;-20</td>
<td>2</td>
</tr>
</tbody>
</table>

**UNLESS OTHERWISE SPECIFIED:**
- **SCALE:** 1:7
- **DIMENSIONS ARE IN INCHES**
- **TOLERANCES:** FRACTIONAL ±1/2, ANGULAR, MACH ±1° BEND, ±1°
- **TWO PLACE DECIMAL ±.05**

**MATERIAL/FINISH:**

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**COMMENTS:**
- REMOVE ALL BURRS AND SHARP EDGES.

**TITLE:** Blue Fence

**FILE:**
- **NAME:** NE
- **DATE:** 12/21/2022

**DRAWN:**
- **SIZE:** GE-23210
- **DWG. NO.:** C
- **REV.:** SHEET 1 OF 6

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ATTACH USING 3 OF 7 AND 2 OF 8

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL 1/2
ANGULAR, MACH: 1° BEND 1/16
TWO PLACE DECIMAL 1/100

MATERIAL/FINISH:

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COMMENTS:
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DO NOT SCALE DRAWING

ATTACH USING 4 OF THE SCREWS

REVDWG. NO.

SCALE: 1:8

SHEET 3 OF 6

Blue Fence

C

GE-23210

12/21/2022 NE
ATTACH USING CABLE TIES
SURROUNDING THE GRIDS AND
HOOK/LOOP FOR THE PLASTIC

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ± 1/2
ANGULAR, MACH ± 1° BEND ± 1°
TWO PLACE DECIMAL ± 0.05

MATERIAL/FINISH:

PROPRIETARY AND CONFIDENTIAL
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PROPERTY OF FIRST®. ANY
REPRODUCTION IN PART OR AS A
WHOLE WITHOUT THE WRITTEN
PERMISSION OF FIRST® IS
PROHIBITED.

COMMENTS:
REMOVE ALL BURRS AND SHARP
EDGES.
ITEM NO.  PART NUMBER  DESCRIPTION  QTY.
1  GE-23213  Shin Guard  1
2  Loop_1_5  1" x 5" Loop, Adhesive Backed  4

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
FRACTIONAL: 1/2
ANGULAR, MACH: 1°
TWO PLACE DECIMAL: .50

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REPRODUCTION IN PART OR AS A
WHOLE WITHOUT THE WRITTEN
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PROHIBITED.

MATERIAL/FINISH:

DO NOT SCALE DRAWING

COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DRAWN  NE  1/3/2023
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23221</td>
<td>Blue Primary Vertical with PEMs</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23222</td>
<td>Blue Secondary Vertical with PEMs</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23223</td>
<td>Floor Anchor</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23224</td>
<td>Blue Lower Corner Bracket</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>rivet_1875_126-25</td>
<td>3/16&quot; Rivet, .126-.25 Grip Range</td>
<td>14</td>
</tr>
</tbody>
</table>
Insert PEM nuts as shown, protruding inwards.
Install PEM nuts as shown, both facing same direction

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23222-01</td>
<td>Blue Secondary Vertical</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_.25_20_.054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
<td>2</td>
</tr>
</tbody>
</table>

**REVISIONS**

<table>
<thead>
<tr>
<th>ZONE</th>
<th>REV.</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td>This Part # is now used for PEM nut installation</td>
<td>10/11/2022</td>
<td>JO</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>PART NUMBER</td>
<td>DESCRIPTION</td>
<td>QTY.</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>------------------------------------------------------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>GE-23232</td>
<td>Blue Pin Anchor</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>GE-23236</td>
<td>Corner Guard Plastic</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>GE-23237</td>
<td>Blue Corner Vertical W/O Pin</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Hook_1_5</td>
<td>1&quot; x 5&quot; Hook, Adhesive Backed</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Hook_2_10</td>
<td>2&quot; x 10&quot; Hook, Adhesive Backed</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>hex_.25_20_0.75</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 0.75 long, fully threaded</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>rivet_.1875_.251-.375</td>
<td>3/16&quot; Aluminum Rivet, .251-.375 Grip Range</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/2
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ± 0.00

MATERIAL/FINISH:

PROPRIETARY AND CONFIDENTIAL
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COMMENTS:
- REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING
Install PEMs as shown.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23231-01</td>
<td>Blue Tertiary Vertical</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_.25_.20_.054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
<td>5</td>
</tr>
</tbody>
</table>

REVISIONS

<table>
<thead>
<tr>
<th>ZONE</th>
<th>REV.</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2</td>
<td>A</td>
<td>PEM NUTS ADDED</td>
<td>10/14/2022</td>
<td>NE</td>
</tr>
</tbody>
</table>

Tertiary Vertical with PEMs
ITEM NO. | PART NUMBER | DESCRIPTION       | QTY.
---------|-------------|-------------------|------
1         | GE-23233    | Pin Anchor Plate  | 1    
2         | GE-23234    | Pin Anchor Tube   | 1    

NO WELD PERMISSIBLE IN TUBE

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: \( \frac{1}{16} \)
ANGULAR: MACH 1° BEND
TWO PLACE DECIMAL: \( \frac{1}{64} \)
THREE PLACE DECIMAL: \( \frac{1}{256} \)

MATERIAL/FINISH:

PROPRIETARY AND CONFIDENTIAL
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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING

Blue Pin Anchor
UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES:
FRACTIONAL 1/16
ANGULAR MACH 1° BEND 1°
TWO PLACE DECIMAL .01
THREE PLACE DECIMAL .005

MATERIAL/FINISH:
6061 AL 1/4" Plate

DO NOT SCALE DRAWING

PIN ANCHOR PLATE

DO NOT SCALE DRAWING

UNCUT
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23235-01</td>
<td>Extended Corner Pin</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pin_25_2.375_wireloc_klifeis</td>
<td>Wire-Lock Clevis Pin</td>
<td>1</td>
</tr>
</tbody>
</table>

**Title:** Extended Pin

**Drawn:** NE  1/3/2023

**Material/Finish:**

- **Tolerances:**
  - Fractional: ±1/2
  - Angular: MACH ±1°
  - Bend: ±1°
  - Two Place Decimal: ±.01

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- **Comments:**
  - Remove all burrs and sharp edges.

**Scale:** 1:2

**Design:**

- Extended Pin
ITEM NO. | PART NUMBER | DESCRIPTION | QTY.
--- | --- | --- | ---
1 | GE-23221 | Blue Primary Vertical with PEMs | 1
2 | GE-23223 | Floor Anchor | 1
3 | GE-23224 | Blue Lower Corner Bracket | 1
4 | GE-23231 | Tertiary Vertical with PEMs | 1
5 | rivet_.1875_.126-.25 | 3/16" Rivet, .126-.25 Grip Range | 9
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23241</td>
<td>HP Protection Plastic</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23242</td>
<td>Blue Chute Cover</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23243</td>
<td>Blue Chute Top Connector</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23244</td>
<td>Blue Crossbeam</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>GE-23245</td>
<td>Short Chute Vertical</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>GE-23246</td>
<td>Chute Door</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>GE-23247</td>
<td>Blue Crossbeam With Loop</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>GE-23250</td>
<td>Side Fence</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>GE-23260</td>
<td>Blue Ramp Assembly</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>hex_.25_20_0.75</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 0.75&quot; long, fully threaded</td>
<td>27</td>
</tr>
<tr>
<td>11</td>
<td>nylon_.25_20</td>
<td>Steel Nylon Insert Locknut, 1/4&quot;-20</td>
<td>17</td>
</tr>
</tbody>
</table>

**UNLESS OTHERWISE SPECIFIED:**

- **SCALE:** 1:6
- **DRAWN:** NE 12/22/2022
- **PROPRIETARY AND CONFIDENTIAL:**
- **MATERIAL/FINISH:**
- **DIMENSIONS ARE IN INCHES;
  - FRACTIONAL: \( \frac{1}{2} \);
  - ANGULAR: \( 1^\circ \);
  - BEND: \( 1^\circ \);
  - TWO PLACE DECIMAL: \( \pm 0.05 \)
- **TOLERANCES:**
  - FRACTIONAL
  - ANGULAR, MACH: \( 1^\circ \)
  - BEND: \( 1^\circ \)
  - TWO PLACE DECIMAL: \( \pm 0.05 \)
- **COMMENTS:**
  - REMOVE ALL BURRS AND SHARP EDGES.
Layer plastic between 3 and 8. Attach with 6 of 10 and 6 of 11.
NOTE: 7 IS THE SAME PART AS 4 WITH LOOP ON ONE FACE. LOOP IS DOWNWARD FACING IN ASSEMBLY TO INTERACT WITH THE FLOOR.
ATTACH 6 TO 2 WITH 4 CABLE TIES LOOSE ENOUGH TO FUNCTION AS A HINGE

ATTACH 2 TO THE OUTSIDE OF THE RAMP WITH 4 OF 10

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
- FRACTIONAL: ±1/16
- ANGULAR: MACH ±1° BEND ±1°
- TWO PLACE DECIMAL: ±0.02
- THREE PLACE DECIMAL: ±0.010
MATERIAL/FINISH:
8 GA Aluminum 5052

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING

TITLE: Blue Chute Top Connector

SCALE: 1:3
SHEET 1 OF 1

REV
GE-23243
C

DRAWN
CO
9/14/2022

DATE

REVIEW

REV.
A

DESCRIPTION

DATE

APPROVED

ZONE REV.
DESCRIPTION
DATE
APPROVED

B3, B4
Added 2 more holes
10/11/2022
JO

REVISIONS

D 3
C 4
B 2
A 1

A 3x .27 THRU
B 2x .75
C 2x 1.50
D 0

B 4x .27 THRU
C 2x 1.25
D 3x 1.13
E 0

C 3x .75 THRU
D 2x 2.488
E 2x .50

D 22.88
C 24.38
B 25.13
A 25.38

A 4x
B 3x
C 2x
### REVISIONS

<table>
<thead>
<tr>
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<th>REV.</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1, B2, B4, C2, C4</td>
<td>A</td>
<td>Flipped Orientation and ordinates of part, added identification hole</td>
<td>10/12/2022</td>
<td>JO</td>
</tr>
<tr>
<td>B2, B4</td>
<td>B</td>
<td>Changed size and location of identification hole to move away from bend</td>
<td>11/7/2022</td>
<td>JO</td>
</tr>
</tbody>
</table>

---

### UNLESS OTHERWISE SPECIFIED:

- **DIMENSIONS ARE IN INCHES**
- **TOLERANCES:**
  - FRACTIONAL 1/16
  - ANGULAR 1°
  - BEND 1°
  - TWO PLACE DECIMAL 0.02
  - THREE PLACE DECIMAL 0.010

### MATERIAL/FINISH:

- **B GA Aluminum 5052**

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### COMMENTS:

- REMOVE ALL BURRS AND SHARP EDGES.

---

**TITLE:** Blue Crossbeam

**SCALE:** 1:2

**DWG. NO.:** GE-23244

**REVISION:** B

**DRAWN:** CO 9/14/2022

**DATED:** 9/14/2022

**COPYRIGHT:** FIRST®

**NOTE:** DO NOT SCALE DRAWING

---

**REVDWG. NO.:**

**NAME:**

**DATE:**

**COMMENTS:**
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<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23244</td>
<td>Blue Crossbeam</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Loop_1_18</td>
<td>1&quot; x 18&quot; Loop, Adhesive Backed</td>
<td>1</td>
</tr>
</tbody>
</table>

DO NOT SCALE DRAWING

REVDWG. NO. C

SCALE: 1:2 SHEET 1 OF 1

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COMMENTS:

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UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/2
ANGULAR, MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.01

MATERIAL/FINISH:

Field NAME DATE
DRAWN NE 1/3/2023

TITLE:
Blue Crossbeam With Loop
<table>
<thead>
<tr>
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<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23251</td>
<td>Side Fence Horizontal</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>GE-23252</td>
<td>Side Fence Vertical</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>GE-23253</td>
<td>Side Fence Horizontal With Hook</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23266</td>
<td>ULINE Grid</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>hex_.25_20_0.75</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 0.75&quot; long, fully threaded</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>nylock_.25_20</td>
<td>Steel Nylon-Insert Locknut, 1/4&quot;-20</td>
<td>12</td>
</tr>
</tbody>
</table>

**DIMENSIONS ARE IN INCHES**
**TOLERANCES:**
FRACTIONAL: ±1/2
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL: ±0.01

**MATERIAL/FINISH:**

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**COMMENTS:**
REMOVE ALL BURRS AND SHARP EDGES.

**DO NOT SCALE DRAWING**

**SCALE: 2:1**
**SHEET 1 OF 3**
ATTACH 1 AND 3 TO 2 WITH 12 OF 5 AND 12 OF 6

1 AND 3 ARE THE SAME PART.
3 HAS HOOK ATTACHED TO ONE FACE. HOOK MUST FACE DOWN TO ADHERE TO CARPET.
ATTACH 4 WITH CABLE TIES ON ALL SIDES
UNLESS OTHERWISE SPECIFIED:

- DIMENSIONS ARE IN INCHES
- TOLERANCES:
  - FRACTIONAL: ±1/16
  - ANGULAR: MACH ±1° BEND ±1°
  - TWO PLACE DECIMAL ±.02
  - THREE PLACE DECIMAL ±.010

MATERIAL/FINISH:
- 8 GA Aluminum 5052

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COMMENTS:
- REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING

TITLE:
Side Fence Horizontal

SIZE
GE-23251

SCALE: 1:2
SHEET 1 OF 1
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23261</td>
<td>Ramp Front Rail with PEMs</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23262</td>
<td>Ramp Back Rail with PEMs</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23263</td>
<td>Blue Ramp HP Side with PEMs</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23264</td>
<td>Ramp Side Fence Rail</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>GE-23265</td>
<td>Chute Floor</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>hex_.25_20_0.75</td>
<td>Steel Hex Head Screw, 1/4”-20 x 0.75” long, fully threaded</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>nylock_.25_20</td>
<td>Steel Nylon-Insert Locknut, 1/4”-20</td>
<td>10</td>
</tr>
</tbody>
</table>
ATTACH 1, 2, 3, AND 4 TO 5 WITH 10 OF 6 AND 10 OF 7
Install PEM nuts as shown.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23261-01</td>
<td>Ramp Front Rail</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_25_20_0.054</td>
<td>1/4-20 self-clinching nut, 0.054 shank</td>
<td>4</td>
</tr>
</tbody>
</table>

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: 1/16
ANGULAR: MACH 1° BEND
TWO PLACE DECIMAL: 0.01
THREE PLACE DECIMAL: 0.005

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COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.
Install PEMs as shown.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23263-01</td>
<td>Blue Ramp HP Side Rail</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_25_20_.054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
<td>4</td>
</tr>
</tbody>
</table>

**Install PEMs as shown**

**REVISIONS**

<table>
<thead>
<tr>
<th>ZONE</th>
<th>REV.</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>C4</td>
<td>A</td>
<td>PEM NUTS ADDED TO 4 LOCATIONS</td>
<td>10/14/2022</td>
<td>NE</td>
</tr>
</tbody>
</table>

**CHECKLIST**

- Blue Ramp HP Side with PEMs

**UNLESS OTHERWISE SPECIFIED:**

- DIMENSIONS ARE IN INCHES
- TOLERANCES:
  - FRACTIONAL ±1/16
  - ANGULAR, MACH 1° BEND ±1°
  - TWO PLACE DECIMAL ±0.01
  - THREE PLACE DECIMAL ±0.005

**MATERIAL/FINISH:**

**PROPRIETARY AND CONFIDENTIAL**

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**COMMENTS:**

- REMOVE ALL BURRS AND SHARP EDGES.

**DO NOT SCALE DRAWING**

**SCALE: 3:4**

**DRAWN: JO**

**DATE: 10/11/2022**

**TITLE:** Blue Ramp HP Side with PEMs

**DRAWING NUMBER:** GE-23263

**REV:** A

**VEND NAME DATE**

**DRAWN:** JO

**VEND NAME DATE**

**DRAWN:** JO

**DATE:** 10/11/2022
NOTES:
1. DESCRIPTION: 3’ STANDARD GRID, GRIDWALL PANEL - 2X5’, BLACK
2. SOURCE: ULINE
3. ITEM #: H-6277BL
4. EQUIVALENT SUBSTITUTIONS ALLOWED
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23214</td>
<td>Chute Guard</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23235</td>
<td>Extended Pin</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23280</td>
<td>Red Fence</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23290</td>
<td>Red Chute</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>hex_.25_20_0.75</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 0.75&quot; long, fully threaded</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>nyllock_.25_20</td>
<td>Steel Nylon-Insert Locknut, 1/4&quot;-20</td>
<td>2</td>
</tr>
</tbody>
</table>

**Dwg No:** GE-23270
**Scale:** 1:10
**Rev:** C

_**Red Single Substation**_

---

**Material/Finish:**
- Remove all burrs and sharp edges.

**Comments:**
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---

**Drawing Information:**
- Scale: 1:10
- Sheet: 1 of 4
- Drawn: NE 12/29/2022
- Proprietary and Confidential
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ATTACH 4 TO 3 WITH 7 OF 5 AND 2 OF 6
USE 120LB CABLE TIES TO ATTACH TO ASSEMBLY, STARTING WITH HOLES BENEATH THE CHUTE.

2 REPLACES FIELD PERIMETER PIN WHEN ATTACHING TO THE FIELD

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/2
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL: ± .50

TITLE: Red Single Substation

DRAWN NE 12/29/2022

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MATERIAL/FINISH:

COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING

SHEET 3 OF 4
NOTE: THE DISTANCE BETWEEN THIS FACE AND THE INSIDE OF THE FIELD PERIMETER CHANGES A SMALL AMOUNT DEPENDING ON THE FIELD PERIMETER MANUFACTURER.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23216</td>
<td>Shin Guard W Loop</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23266</td>
<td>ULINE Grid</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>GE-23281</td>
<td>Red Bottom Channel</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23282</td>
<td>Red Top Channel</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>GE-23287</td>
<td>Red Corner Fence Vertical</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>GE-23298</td>
<td>Red Standard Vertical With Hook</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>hex_ .25 _20 .75</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x .75&quot; long, fully threaded</td>
<td>18</td>
</tr>
<tr>
<td>8</td>
<td>nylock_ .25 _20</td>
<td>Steel Nylon-Insert Locknut, 1/4&quot;-20</td>
<td>2</td>
</tr>
</tbody>
</table>

**Material/Finish:**

- **Dimensions are in inches**
- **Tolerances:** Fractional: ±1/2, Angular: ±1°, Bend: ±1/2
- **Two place decimal:** ±0.05

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**Comments:**

- Remove all burrs and sharp edges.
- Do not scale drawing.

**Title:** Red Fence

**Scale:** 1:8  **Sheet:** 1 of 6  **Drawing No.:** GE-23280
ATTACH USING CABLE TIES SURROUNDING THE GRIDS AND HOOK/LOOP FOR THE PLASTIC.

PROPRIETARY AND CONFIDENTIAL
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DO NOT SCALE DRAWING

RED FENCE
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23223</td>
<td>Floor Anchor</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23284</td>
<td>Red Primary Vertical With PEMs</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23285</td>
<td>Red Secondary Vertical With PEMs</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23286</td>
<td>Red Lower Corner Bracket</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>rivet_.1875_.126-.25</td>
<td>3/16&quot; Rivet, .126-.25 Grip Range</td>
<td>14</td>
</tr>
</tbody>
</table>
ITEM NO. | PART NUMBER | DESCRIPTION | QTY.
--- | --- | --- | ---
1 | GE-23284-01 | Red Primary Vertical | 1
2 | pem_clinchnut_25_20_.054 | 1/4-20 self-clinching nut, .054 shank | 3

**INSERT PEM NUTS AS SHOWN, PROTRUDING INWARD**
INSTALL PEM NUTS AS SHOWN, BOTH FACING THE SAME DIRECTION.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23285-01</td>
<td>Red Secondary Vertical</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_.25_20_.054</td>
<td>1/4-20 self-clinching nut, 0.054 shank</td>
<td>2</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>PART NUMBER</td>
<td>DESCRIPTION</td>
<td>QTY.</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>-------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>GE-23236</td>
<td>Corner Guard Plastic</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23289</td>
<td>Red Pin Anchor</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23297</td>
<td>Red Corner Vertical W/O Pin</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Hook_1_5</td>
<td>1&quot; x 5&quot; Hook, Adhesive Backed</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Hook_2_10</td>
<td>2&quot; x 10&quot; Hook, Adhesive Backed</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>hex_.25_20_0.75</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 0.75&quot; long, fully threaded</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>rivet_.1875_.251-.375</td>
<td>3/16&quot; Aluminum Rivet, .251-.375 Grip Range</td>
<td>4</td>
</tr>
</tbody>
</table>

**UNLESS OTHERWISE SPECIFIED:**

- **DIMENSIONS ARE IN INCHES**
- **TOLERANCES:**
  - FRACTIONAL: ±1/2
  - ANGULAR: MACH ±1° BEND ±1°
  - TWO PLACE DECIMAL: ±.00

- **MATERIAL/FINISH:**

- **PROPRIETARY AND CONFIDENTIAL:**
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- **COMMENTS:**
  - REMOVE ALL BURRS AND SHARP EDGES.

**NOTE:**

- **REMOVE ALL BURRS AND SHARP EDGES.**

**SCALE:** 1:5

**DRAWN:** NE 1/3/2023

**TITLE:** Red Corner Fence Vertical

**REV:** C

**SIZE:** DWG. NO. C

**SHEET:** 1 OF 1
ITEM NO. | PART NUMBER | DESCRIPTION | QTY.  
--- | --- | --- | ---  
1 | GE-23288-01 | Red Tertiary Vertical | 1  
2 | pem_clinchnut_.25_20_.054 | 1/4-20 self-clinching nut, .054 shank | 5  

INSERT PEMS AS SHOWN

**MATERIAL/FINISH:**

**DIMENSIONS:**
- INCHES
- FRACTIONAL: 1/16
- ANGULAR: MACH 1° BEND
- TWO PLACE DECIMAL: .01
- THREE PLACE DECIMAL: .005

**TOLERANCES:**
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**COMMENTS:**
- REMOVE ALL BURRS AND SHARP EDGES.

**SCALE:** 1:1

**TITLE:** Red Tertiary Vertical With PEMs

**DRAWN:** NE 10/13/2022

**VEND.**

**NAME.**

**DATE.**

**REV.**

**SIZE:**

**DWG. NO.:**

**SHEET:** 1 OF 1
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23233</td>
<td>Pin Anchor Plate</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23234</td>
<td>Pin Anchor Tube</td>
<td>1</td>
</tr>
</tbody>
</table>

NO WELD PERMISSIBLE INSIDE TUBE

UNLESS OTHERWISE SPECIFIED:

- SCALE: 1:1
- DRAWN: NE 10/13/2022

DIMENSIONS ARE IN INCHES

MATERIAL/FINISH:

- NO REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED.

COMMENTS:

- REMOVE ALL BURRS AND SHARP EDGES.
- DO NOT SCALE DRAWING.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23241</td>
<td>HP Protection Plastic</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23245</td>
<td>Short Chute Vertical</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23246</td>
<td>Chute Door</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23250</td>
<td>Side Fence</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>GE-23291</td>
<td>Red Chute Cover</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>GE-23292</td>
<td>Red Chute Top Connector</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>GE-23293</td>
<td>Red Crossbeam</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>GE-23294</td>
<td>Red Ramp Assembly</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>GE-23299</td>
<td>Red Crossbeam With Loop</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>hex_.25_20_0.75</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 0.75 long, fully threaded</td>
<td>27</td>
</tr>
<tr>
<td>11</td>
<td>nylock_.25_20</td>
<td>Steel Nylon-Insert Locknut, 1/4&quot;-20</td>
<td>17</td>
</tr>
</tbody>
</table>

UNLESS OTHERWISE SPECIFIED:

- DIMENSIONS ARE IN INCHES
- TOLERANCES:
  - FRACTIONAL: ±\(1/2\)
  - ANGULAR: MACH ±1° BEND ±1°
  - TWO PLACE DECIMAL: ±\(0.05\)

MATERIAL/FINISH:

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COMMENTS:

- REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING
Layer plastic between 4 and 6, attach with 6 of 11 and 6 of 10.
(ROTATED 90 DEGREES FOR VISIBILITY)

ATTACH WITH 8 OF 10 AND 8 OF 11

NOTE: 9 IS THE SAME PART AS 7 WITH LOOP ON ONE FACE. LOOP IS DOWNWARD FACING IN ASSEMBLY TO INTERACT WITH THE FLOOR.

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
  FRACTIONAL: ±1/2
  ANGULAR: MACH ±1° BEND ±1°
  TWO PLACE DECIMAL: ±.05

MATERIAL/FINISH:

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING.

Red Chute

C  GE-23290

SCALE: 1:8  SHEET 4 OF 6
ATTACH 5 TO THE OUTSIDE OF THE RAMP WITH 4 OF 10

ATTACH 3 TO 5 WITH 4 CABLE TIES LOOSE ENOUGH TO FUNCTION AS A HINGE

REMOVE ALL BURRS AND SHARP EDGES.

MATERIAL/FINISH:
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23261</td>
<td>Ramp Front Rail with PEMs</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23262</td>
<td>Ramp Back Rail with PEMs</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23264</td>
<td>Ramp Side Fence Rail</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23265</td>
<td>Chute Floor</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>GE-23295</td>
<td>Red Ramp HP Side With PEMs</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>hex_.25_20_0.75</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 0.75 long, fully threaded</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>nylock_.25_20</td>
<td>Steel Nylon-Insert Locknut, 1/4&quot;-20</td>
<td>10</td>
</tr>
</tbody>
</table>

**UNLESS OTHERWISE SPECIFIED:**

- SCALE: 1:3
- MATERIAL/FINISH:
- TOLERANCES:
  - FRACTIONAL: ±1/2
  - ANGULAR: ±1°
  - TWO PLACE DECIMAL: ±0.01
- DIMENSIONS ARE IN INCHES
- 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.
- COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.

**RED Ramp Assembly**

**DRAWN:** NE

**DATE:** 12/27/2022
ATTACH 1, 2, 3, AND 5 TO 4 WITH 10 OF 6 AND 10 OF 7
ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
--- | --- | --- | --- |
1 | GE-23295-01 | Red Ramp HP Side | 1 |
2 | pem_clinchnut_.25_20_.054 | 1/4-20 self-clinching nut, .054 shank | 4 |

**INSERT PEMS AS SHOWN**

**LABEL WITH PART NUMBER**

**UNLESS OTHERWISE SPECIFIED:**

**SCALE:** 1:2

**DIMENSIONS ARE IN INCHES**

**TOLERANCES:**
- FRACTIONAL: 1/16
- ANGULAR: Mach: 1° Bend
- TWO PLACE DECIMAL: .01
- THREE PLACE DECIMAL: .005

**MATERIAL/FINISH:**

**VEND** | **NAME** | **DATE**
--- | --- | ---

**DRAWN** | **NE** | **10/13/2022**

**MATERIAL/FINISH:**

**PROPRIETARY AND CONFIDENTIAL**

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**COMMENTS:**
- REMOVE ALL BURRS AND SHARP EDGES.

**DO NOT SCALE DRAWING**

**TITLE:** Red Ramp HP Side With PEMs

**SIZE** | **DWG. NO.** | **REV**
--- | --- | ---

**C** | **GE-23295** | **SHEET 1 OF 1**
Red Ramp HP
Side

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: $\frac{1}{16}$
ANGULAR: MACH $\pm 1°$ BEND $\pm 1°$
TWO PLACE DECIMAL: $\pm 0.05$
THREE PLACE DECIMAL: $\pm 0.01$

MATERIAL/FINISH:
8 GA 5052 AL

BEND | NAME | DATE
---|---|---

DO NOT SCALE DRAWING

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

SCALE: 1:3 SHEET 1 OF 1

GE-23295-01

10/13/2022
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
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<tbody>
<tr>
<td>1</td>
<td>GE-23223</td>
<td>Floor Anchor</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23284</td>
<td>Red Primary Vertical With PEMs</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23286</td>
<td>Red Lower Corner Bracket</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23288</td>
<td>Red Tertiary Vertical With PEMs</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>3/16&quot; Rivet...</td>
<td>3/16&quot; Rivet... 0.126-.25 Grip Range</td>
<td>9</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>PART NUMBER</td>
<td>DESCRIPTION</td>
<td>QTY.</td>
</tr>
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<td>-------------</td>
<td>-------------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>GE-23293</td>
<td>Red Crossbeam</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Loop_1_18</td>
<td>1&quot; x 18&quot; Loop, Adhesive Backed</td>
<td>1</td>
</tr>
</tbody>
</table>
Note: After assembly, the top surface of \( \textcircled{8} \) has a layer of Blaster Products Advanced Dry Lube (or equivalent) applied to it.
Notes:
1. Attach 6 to 7 using 12.

Notes:
1. Attach 9 on each end of the assembly using 13.
2. Attach 2x 11 on each end of the assembly using 13.
3. Attach 8 using 16.
Notes:
1. Attach 1 to assembly via 5 using 14, 17, and 15.

Notes:
1. Attach 2, 3, and 4 to 1 using 13.

Charge Station

UNLESS OTHERWISE SPECIFIED:
- FIELD
- NAME
- DATE

DRAWN
CO
12/12/2022

PROPRIETARY AND CONFIDENTIAL
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MATERIAL/FINISH:
- DO NOT SCALE DRAWING

COMMENTS:
- REMOVE ALL BURRS AND SHARP EDGES.

DIMENSIONS ARE IN INCHES
TOLERANCES:
- FRACTIONAL: 1/2
- ANGULAR MACH: 1° BEND: 1°
- TWO PLACE DECIMAL: ± 0.50

TOLERANCES:
- FRACTIONAL: ± 1/2
- ANGULAR MACH: 1° BEND: 1°
- TWO PLACE DECIMAL: ± 0.50

SCALE: 1:12
REVDWG NO.
C
Sheet 3 of 6
Notes:

1. Slide (10) into place on each side of the assembly.
### Charge Station

**Flat Charge Station**

- **Top platform length**: 48.00
- **Top platform width**: 96.00

**Fully tilted Charge Station**

- **Angle**: 11°
- **Angle 2**: 15°
- **Angle 3**: 71.5°

**Dimensions**

- **34.25°**
- **9.19**
- **13.11**

**Notes**

- **Comment**: Remove all burrs and sharp edges.

---

**Table: Dimensions**

<table>
<thead>
<tr>
<th>Field</th>
<th>Name</th>
<th>Date</th>
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</thead>
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<tr>
<td>Drawn</td>
<td>CO</td>
<td>12/12/2022</td>
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</table>

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**Material/Finish**: UNLESS OTHERWISE SPECIFIED:

- **Dimensions are in inches**
- **Tolerances**:
  - Fractional: ±1/2
  - Angular: Mach ±1° Bend ±1°
  - Two place decimal: ±.50

**Scale**: 1:10

**Title**: Charge Station

**Drawing Number**: GE-23300

**Scale**: 1:10

**Sheet**: 5 of 6
Notes:
1. CAD-estimated weight of all pivoting components: 209 lbs.
2. CAD-estimated moment of inertia, calculated in orientation shown, rotating about center of mass: 84,156 lbs-in²
3. CAD-estimated moment of inertia, calculated in orientation shown, rotating about a double-hinge pivot: 85,788 lbs-in²

Notes:
1. CAD-estimated moment of inertia, calculated in orientation shown, rotating about active double-hinge pivot: 79,024 lbs-in²
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23303</td>
<td>Charge Station Top Frame with Ramps</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>GE-23320</td>
<td>Charge Station Light Cover</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>flat_phl_25_20_625</td>
<td>Steel Phillips Flat Head Screw, 1/4&quot;x20 x 5/8&quot; long, fully threaded</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>hex_25_20_4_partial</td>
<td>Steel Hex Head Bolt, 1/4&quot;-20 x 4&quot;, partially threaded</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>nylock_25_20</td>
<td>Steel Nylon-Insert Locknut, 1/4&quot;-20</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>washer_flat_25</td>
<td>Flat Washer for 1/4&quot; Screw</td>
<td>10</td>
</tr>
</tbody>
</table>
Attach 1 frames together using 4, 5, and 6.

Attach 2 to each side of assembly using 3.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
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<tbody>
<tr>
<td>1</td>
<td>GE-23305</td>
<td>Charge Station Top Frame</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23314</td>
<td>Charge Station Ramp Assembly</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>GE-23318</td>
<td>Charge Station Ramp Hinge</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>rivet_.1875_.126-.25</td>
<td>3/16&quot; Rivet, .126-.25 Grip Range</td>
<td>18</td>
</tr>
<tr>
<td>5</td>
<td>rivet_.1875_.251-.375_largeHead</td>
<td>3/16&quot; Large Head Aluminum Rivet, .251-.375 Grip Range</td>
<td>18</td>
</tr>
</tbody>
</table>

UNLESS OTHERWISE SPECIFIED:

- MATERIAL/FINISH:
- DIMENSIONS ARE IN INCHES
- TOLERANCES:
  - FRACTIONAL: ±1/2
  - ANGULAR: ±1° BEND
  - TWO PLACE DECIMAL: ±.005
- 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.
- COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING
Attach 3 to 1 using 4. Note orientation of hinge knuckle.
Attach 2 to assembly from previous step using 5.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23305-01</td>
<td>1.5&quot; x .125&quot; thk. Square Tubing, 6061 Aluminum</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>GE-23305-02</td>
<td>1.75&quot; x .125&quot; thk. Square Tubing, 6061 Aluminum</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23305-03</td>
<td>1.75&quot; x .125&quot; thk. Square Tubing, 6061 Aluminum</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23305-04</td>
<td>1.75&quot; x .125&quot; thk. Square Tubing, 6061 Aluminum</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>GE-23305-05</td>
<td>1.5&quot; x .125&quot; thk. Square Tubing, 6061 Aluminum</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>GE-23305-06</td>
<td>1/4&quot; thk. 6061 Aluminum Plate</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>GE-23305-07</td>
<td>10 ga. Aluminum 5052</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>pem_clinchnut_.25_20_.054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>rivet_.1875_.126-.25</td>
<td>3/16&quot; Rivet, .126-.25 Grip Range</td>
<td>6</td>
</tr>
<tr>
<td>10</td>
<td>rivnut_.25_20_.027-.165</td>
<td>Rivnut, 1/4&quot;-20 bolt, material thickness: .027&quot;-.165</td>
<td>8</td>
</tr>
</tbody>
</table>
No weld on this face permissible.

Top of all square tubes coincident.

Align hole on 6 with hole on 1. Optionally may pin in place using a 3/16" rivet.

Note orientation of 1 to ensure these dimensions.
Notes:
1. Attach 7 to assembly using 9, oriented as shown.
2. Install 8x 10 in top surface holes as shown.
**Notes:**
1. Approximate weight: 13.33 lbs

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23315</td>
<td>Charge Station Ramp Polycarbonate</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23316</td>
<td>Charge Station Ramp Brace</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>GE-23317</td>
<td>Charge Station Ramp HDPE</td>
<td>1</td>
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<tr>
<td>4</td>
<td>rivet_.1875_.251-.375_largeHead</td>
<td>3/16&quot; Large Head Aluminum Rivet, .251-.375 Grip Range</td>
<td>30</td>
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</table>

**UNLESS OTHERWISE SPECIFIED:**

<table>
<thead>
<tr>
<th>FIELD</th>
<th>NAME</th>
<th>DATE</th>
<th>SIZE</th>
<th>DWG. NO.</th>
<th>REV</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRWN</td>
<td>CO</td>
<td></td>
<td>12/12/2022</td>
<td>GE-23314</td>
<td>C</td>
<td>Charge Station Ramp Assembly</td>
</tr>
</tbody>
</table>

**SCALE: 1:5 SHEET 1 OF 2**

**DIMENSIONS ARE IN INCHES**

**TOLERANCES:**

- FRACTIONAL: \(\pm\frac{1}{2}\)
- ANGULAR: MACH \(\pm 1°\)
- BEND: \(\pm 1°\)
- TWO PLACE DECIMAL: \(\pm 0.5\)

**MATERIAL/FINISH:**

- PROPRIETARY AND CONFIDENTIAL

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**COMMENTS:**

- REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING

**NOTES:**

1. Approximate weight: 13.33 lbs
Notes:
Attach 1 and 3 to 2 using 4.

Ensure filleted edge is facing down as shown.
27x Ø .194±.002 THRU ALL

Notes:
1. Tag or label with part number.

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR: ±1°
THREE PLACE DECIMAL: ±.005
MATERIAL/FINISH:
1/4 polycarbonate, clear

TITLE: Charge Station Ramp Polycarbonate
VEND: GE-23315
NAME: CO
DATE: 8/17/2022
DRAWN: FIRST
CHANGE: SHEET 1 OF 1

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COMMENTS:
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DO NOT SCALE DRAWING
Charge Station Ramp Brace

Dimensions are in inches. Tolerances:
- Fractional: ±1/16
- Angular, Machined: ±1°
- Two place decimal: ±0.02
- Three place decimal: ±0.010

Material/Finish:
10 ga. Aluminum 5052

UNLESS OTHERWISE SPECIFIED:
- Remove all burrs and sharp edges.

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Comments:
- Do not scale drawing.

Title: Charge Station Ramp Brace

REVISIONS

<table>
<thead>
<tr>
<th>ZONE</th>
<th>REV.</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td>Changed overall width and adjusted profile angle. Changed part name.</td>
<td>9/28/22</td>
<td>CPO</td>
</tr>
</tbody>
</table>

Scale: 1:3

Sheet 1 of 1
Notes:
1. Tag or label with part number.
Note: This is a custom hinge and not available as a COTS item.
McMaster part numbers 1608A54 or 12145A25 can be modified by drilling holes to match the drawing above.
Notes:
1. Tag or label with part number.

Charge Station Light Cover

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR: ±1° BEND: ±1°
TWO PLACE DECIMAL: ±0.01
THREE PLACE DECIMAL: ±0.005

MATERIAL/FINISH:
1/4" Polycarbonate, Clear

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WHOLE WITHOUT THE WRITTEN
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COMMENTS:
REMOVE ALL BURRS AND SHARP
EDGES.
Notes:
1. Tag or label with part number.
Trim vinyl at hole locations 4 places

Do not trim vinyl at slot locations

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

Notes:
1. QTY per field: 2

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MATERIAL/FINISH:

COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING
Notes:
1. Tag or label with part number.
2. Vinyl to be applied to face.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23329</td>
<td>Charge Station Hinge Outer Bar</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>GE-23331</td>
<td>Charge Station Hinge Drilled Block</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>GE-23332</td>
<td>Charge Station Hinge Bushing</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>nylock_thin_3/16&quot;_18</td>
<td>Thin Steel Nylon-Insert Locknut, 5/16&quot;-18</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>shoulderbolt_3/16&quot;_2.25</td>
<td>5/16-18 Socket Head Shoulder Screw, 3/8&quot; x 2-1/2&quot; Shoulder</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>washer_flat_.375</td>
<td>Flat Washer for 3/8&quot; Screw</td>
<td>4</td>
</tr>
</tbody>
</table>
Step 1:
Press 3 into both sides of 2.

Step 2:
Press 3 into each hole of 1.

Step 3:
Fasten items from Step 2 to items from Step 1 using 4, 5, and 6.

Note orientation of 3. Do not overtighten. 2 should freely rotate.
2X 0.50
- 0.010
.000 THRU ALL

Notes:
1. Tag or label with part number.

Material/Finish:
3/8" x 1" A36 HR Steel, black oxidized

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: 1/16
ANGULAR: 1°
THREE PLACE DECIMAL: 0.005
TWO PLACE DECIMAL: 0.01

Charge Station
Hinge Outer Bar

DO NOT SCALE DRAWING

Notes:
1. Tag or label with part number.
Description: Ultra-Low-Friction Oil-Embedded Sleeve Bearing, flanged, for 3/8" Shaft Diameter and 1/2" Housing ID, 3/8" Long
Vendor: McMaster-Carr
Part Number: 1677K325
Note: Equivalent Substitutions Allowed
Notes:
1. Make sure surface of 1 is clean prior to hook application.
2. Attach 2 to 1 in locations shown.

### Parts Table

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23337</td>
<td>Charge Station Base Frame</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Hook_2_46</td>
<td>2' X 46&quot; Hook, Adhesion Backed</td>
<td>1</td>
</tr>
</tbody>
</table>

### Technical Details

- **UNLESS OTHERWISE SPECIFIED:**
  - **SCALE:** 1:3
  - **DIMENSIONS ARE IN INCHES**
  - **TOLERANCES:**
    - **FRACTIONAL:** 1/2
    - **ANGULAR, MACH:** 1° BEND: 1°
    - **TWO PLACE DECIMAL:** ± 0.00

- **MATERIAL/FINISH:**
  - **DRAWN**
  - **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.**

- **COMMENTS:**
  - REMOVE ALL BURRS AND SHARP EDGES.
  - DO NOT SCALE DRAWING
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23337-01</td>
<td>Charge Station Base Bot</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23337-03</td>
<td>Charge Station Base Diag</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>GE-23337-05</td>
<td>Charge Station Base Top</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>GE-23337-06</td>
<td>Charge Station Base Support</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>rivet_.1875_.126-.25</td>
<td>3/16&quot; Rivet, .126-.25 Grip Range</td>
<td>48</td>
</tr>
</tbody>
</table>

**Dimensions:**
- (3.33) x (47.00)

**Notes:**
- DO NOT SCALE DRAWING
- PROPRIETARY AND CONFIDENTIAL
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**Comments:**
- REMOVE ALL BURRS AND SHARP EDGES.
Ensure PEM fasteners on 4 are oriented as shown - facing interior of assembly.
4x PEM nuts installed on interior face

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23337-02</td>
<td>10 ga. Aluminum 5052</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>pem_clinchnut_.25_20 .054</td>
<td>1/4-20 self-clinching nut, .054 shank</td>
<td>4</td>
</tr>
</tbody>
</table>
### Title:
Charge Station Base Diag

#### Tolerances:
- **Fractional:** ±1/16
- **Angular:** Mach 1° Bend ±1°
- **Two Place Decimal:** ±.02
- **Three Place Decimal:** ±.010

#### Material/Finish:
10 ga. Aluminum 5052

#### Dimensions:
Dimensions are in inches.

#### Comments:
- Remove all burrs and sharp edges.

#### Revisions:

<table>
<thead>
<tr>
<th>Zone</th>
<th>Rev.</th>
<th>Description</th>
<th>Date</th>
<th>Approved</th>
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<tbody>
<tr>
<td>A3, B3, B4</td>
<td>A</td>
<td>Notch location moved, Location of Hole B4 updated, File name updated</td>
<td>9/29/2022</td>
<td>CPO</td>
</tr>
</tbody>
</table>

#### Scale:
1:2

### Sheet Information:
Sheet 1 of 1

**UNLESS OTHERWISE SPECIFIED:**
- **Bend**
- **Drawn**
- **Material/Finish**
- **Comments**
- **Scale**
- **Title**
- **Drawing No.**

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**Remove all burrs and sharp edges.**

**Charge Station**

**Base Diag**

**GE-23337-03**

**A**
ITEM NO. | PART NUMBER | DESCRIPTION | QTY.
--- | --- | --- | ---
1 | GE-23337-04 | 10 ga. Aluminum 5052 | 1
2 | pem_clinchnut_.25_20_.054 | 1/4-20 self-clinching nut, .054 shank | 3

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR: MACH 1° BEND ±1°
TWO PLACE DECIMAL: ±0.02
THREE PLACE DECIMAL: ±0.010

MATERIAL/FINISH:
10 ga. Aluminum 5052

REVISIONS

ZONE | REV. | DESCRIPTION | DATE | APPROVED
--- | --- | --- | --- | ---
A3, B2, B4 | A | Clearance holes changed to PEM nuts. Part name and number adjusted. | 9/30/2022 | CPO

DO NOT SCALE DRAWING
Notes:
1. Make sure surface of 1 is clean prior to hook application.
2. Attach 2 to 1 in locations shown.

ITEM NO. | PART NUMBER | DESCRIPTION | QTY.
--- | --- | --- | ---
1 | GE-23339 | Charge Station Base Connector | 1
2 | Hook_2_20 | 2" x 22" Hook, Adhesive Backed | 2

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/2
ANGULAR: MACHINE BEND ±1°
TWO PLACE DECIMAL ±.50

MATERIAL/FINISH:

DO NOT SCALE DRAWING

REMOVED ALL BURRS AND SHARP EDGES.

Charge Station Base Connector with Hook
Notes:
1. Tag or label with part number.

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR: ±1°
THREE PLACE DECIMAL: ±0.005
MATERIAL/FINISH:
10 ga. Aluminum 5052

BEND NAME DATE
DRAWN CO 8/18/2022

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING

Charge Station
Base Connector

GE-23339
SCALE: 1:3
Notes:
1. Make sure surface of 1 is clean prior to hook application.
2. Attach 2 to 1 in locations shown.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23341</td>
<td>Charge Station Ramp Support</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Hook_2_10</td>
<td>2’ x 10” Hook, Adhesive Backed</td>
<td>2</td>
</tr>
</tbody>
</table>
Notes:
1. Tag or label with part number.

<table>
<thead>
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<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
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<tbody>
<tr>
<td>1</td>
<td>GE-23341-01</td>
<td>10 ga. 5052 Aluminum</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23341-02</td>
<td>10 ga. 5052 Aluminum</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>rivet_1875_126-25</td>
<td>3/16&quot; Rivet, 126-25 Grip Range</td>
<td>4</td>
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</table>
4x Ø .194±.002 THRU ALL

1.63
2.25
2.87
3.25
4

R.13 Typ.

2x .194±.002 THRU ALL

2x .35
2x 1.25
2x .73
2x 2.73
2x .73

.88
2.50
1.25
1.63
0

.50
0

1°  BEND
TWO PLACE DECIMAL .02
THREE PLACE DECIMAL .010

MATERIAL/FINISH:
10 ga. 5052 Aluminum

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: 1/16
ANGULAR, MACH: 1° BEND: 1°
TWO PLACE DECIMAL .02
THREE PLACE DECIMAL .010

R.13 Typ.

.10

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COMMENTS:
REMOVE ALL BURRS AND SHARP
EDGES.

Charge Station
Ramp Support
Notes:
1. Attach 2 to 3 using 50 lb. cable tie in center two holes.
2. Attach 1 to 2 using 5 and 4.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>802BLimitSwitch</td>
<td>Limit Switch</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23343</td>
<td>Charge Station Sensor Mount</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23344</td>
<td>Charge Station Sensor Spacer</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>nylock_10_32</td>
<td>Low-Strength Steel Nylon-Insert Locknut, Zinc-Plated, 10-32 Thread Size</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>round_hex_10_32_1_full</td>
<td>Round Head Hex, 10-32 x 1.00&quot; long, fully threaded</td>
<td>2</td>
</tr>
</tbody>
</table>
Notes:
1. Tag or label with part number.

Charge Station Sensor Mount

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR, MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±0.01
THREE PLACE DECIMAL ±0.005

MATERIAL/FINISH:
1/4" Polycarbonate, Clear

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WHOLE WITHOUT THE WRITTEN
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PROHIBITED.

COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

VEND DRAWN COMMENT
NAME DATE
CO 8/18/2022

First Robotics

Charge Station Sensor Mount

GE-23343

SCALE: 2:1 SHEET 1 OF 1
3X .27 THRU ALL
12x R .25

Notes:
1. Tag or label with part number.

Charge Station Sensor Spacer

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: 1/16
ANGULAR, MACH: ±1° BEND: ±1°
TWO PLACE DECIMAL: ±0.01
THREE PLACE DECIMAL: ±0.005

MATERIAL/FINISH:
3/8" HDPE, black, smooth

DO NOT SCALE DRAWING

TITLE: Charge Station Sensor Spacer

VEND NAME DATE
DRAWN CO 8/18/2022

SCALE: 2:1 SHEET 1 OF 1

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.
Attach 1, 2, 3, and 4 to each other using 5 and 6.

ITEM NO. | PART NUMBER | DESCRIPTION | QTY.
--- | --- | --- | ---
1 | GE-23347 | Charge Station Side Plastic | 1
2 | GE-23348 | Charge Station Side Left Brace with Hook | 1
3 | GE-23350 | Charge Station Side Right Brace with Hook | 1
4 | GE-23352 | Charge Station Side Top Brace | 1
5 | hex_25_20_2.5_partial | Steel Hex Head Screw, 1/4"-20 x 2-1/2" long, partially threaded | 7
6 | nylock_25_20 | Steel Nylon Insert Locknut, 1/4"-20 | 7

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: 1/2
ANGULAR: MACH 1° BEND: 1°
TWO PLACE DECIMAL: ± 0.02

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

DO NOT SCALE DRAWING
Notes:
1. Tag or label with part number.

Title:
Charge Station
Side Plastic

Material/Finish:
1/4" Polycarbonate, Clear
Notes:
1. Make sure surface of 1 is clean prior to hook application.
2. Attach 2 to 1 in locations shown.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23349</td>
<td>Charge Station Side Left Brace</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Hook_1_10</td>
<td>1&quot; x 10&quot; Hook, Adhesive Backed</td>
<td>2</td>
</tr>
</tbody>
</table>
Notes:
1. Tag or label with part number.
2. Assembly is a mirror of GE-23351. Parts are the same, assembly orientation differs.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23349-01</td>
<td>1.5&quot; x .125&quot; thk. Square Tube, 6061 Aluminum</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>GE-23349-02</td>
<td>1.5&quot; x .125&quot; thk. Square Tube, 6061 Aluminum</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23349-03</td>
<td>.125&quot; thk. 6061 Aluminum Plate</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>rivet_1875_251-375</td>
<td>3/16&quot; Aluminum Rivet, .251-.375 Grip Range</td>
<td>13</td>
</tr>
</tbody>
</table>
Notes:
1. Make sure surface of 1 is clean prior to hook application.
2. Attach 2 to 1 in locations shown.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23351</td>
<td>Charge Station Side Right Brace</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Hook_1_10</td>
<td>1&quot; x 10&quot; Hook, Adhesive Backed</td>
<td>2</td>
</tr>
</tbody>
</table>
### Notes:
1. Tag or label with part number.
2. Assembly is a mirror of GE-23349. Parts are the same, assembly orientation differs.

### Item List

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part Number</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23351-01</td>
<td>1.5&quot; x .125&quot; thk. Square Tube, 6061 Aluminum</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>GE-23351-02</td>
<td>1.5&quot; x .125&quot; thk. Square Tube, 6061 Aluminum</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23351-03</td>
<td>.125&quot; thk. 6061 Aluminum Plate</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>rivet_1875_251-375</td>
<td>3/16&quot; Aluminum Rivet, .251-.375 Grip Range</td>
<td>13</td>
</tr>
</tbody>
</table>
### Notes:
1. Tag or label with part number

### Table:

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23352-01</td>
<td>1.5&quot; x .125&quot; thk. Square Tube, 6061 Aluminum</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>GE-23352-02</td>
<td>1.5&quot; x .125&quot; thk. Square Tube, 6061 Aluminum</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GE-23352-03</td>
<td>.125&quot; thk. 6061 Aluminum Plate</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>rivet_.1875_.251-.375</td>
<td>3/16&quot; Aluminum Rivet, .251-.375 Grip Range</td>
<td>10</td>
</tr>
</tbody>
</table>

### Drawing:
- **Title:** Charge Station Side Top Brace
- **Scale:** 1:2
- **Drawing Number:** GE-23352
- **Date:** 9/29/2022

**Material/Finish:**
- Dimensions are in inches
- Tolerances:
  - Fractional: ±1/16
  - Angular Mach, ±1° Bend: ±1°
  - Two place decimal: ±.001
  - Three place decimal: ±.005

**Comments:**
- Remove all burrs and sharp edges.

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Notes:
1. Tag or label with part number.
2. Other colors or textures acceptable.

Title: Charge Station
Side Plastic Locater

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: 1/16
ANGULAR: MACH 1°
TWO PLACE DECIMAL: ±.01
THREE PLACE DECIMAL: ±.005

MATERIAL/finish:
1/2" HDPE, natural smooth

DO NOT SCALE DRAWING

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COMMENTS:
REMOVE ALL BURRS AND SHARP
EDGES.
Attach 1 to 2 with 3 and 4.

Attach 5 across the top edge of 1, so that it is folded over both sides evenly.

---

### Part List

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23402</td>
<td>Plastic Wall</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23403</td>
<td>Red Divider Wall Panel with Hook</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>hex_25_20_1.5_partial</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 1-1/2&quot; long, partially threaded</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>nylock_25_20</td>
<td>Steel Nylon-Insert Locknut, 1/4&quot;-20</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>Barrier Tape</td>
<td>2' x 74' White Gaffer Tape</td>
<td>1</td>
</tr>
</tbody>
</table>

---

### Instructions

- Attach 1 to 2 with 3 and 4.
- Attach 5 across the top edge of 1, so that it is folded over both sides evenly.

### Notes

- **DOUBLE-SIDED**
- **NO SCALE DRAWING**

---

**Title:** Red Divider Wall

**Drawing:** GE-23400

**Scale:** 1:12
### Notes:
1. Tag or Label with Part Number

### Table

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23401-01</td>
<td>Base Plate</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23401-02</td>
<td>Wall Angle</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>GE-23401-03</td>
<td>Goal Angle</td>
<td>2</td>
</tr>
</tbody>
</table>

### Diagram

```
\(8.00\)

\(10.00\)

\(0.25\) \(2-3\) \(2\) \(\text{places}\)

\(0.25\) \(3-11.5\) \(2\) \(\text{places}\)
```

### Revisions

<table>
<thead>
<tr>
<th>ZONE</th>
<th>REV.</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>A3</td>
<td>A</td>
<td>Moved extensions to more useful side for welding. Added width dimension for order specified angle brackets.</td>
<td>11/9/2022</td>
<td>JO</td>
</tr>
</tbody>
</table>

### Scale

UNLESS OTHERWISE SPECIFIED:

- **DIMENSIONS ARE IN INCHES**
- **TOLERANCES:**
  - FRACTIONAL: \(\frac{1}{16}\)
  - ANGULAR: MACH \(1^\circ\) BEND \(1^\circ\)
  - TWO PLACE DECIMAL \(0.01\)
  - THREE PLACE DECIMAL \(0.001\)

- **MATERIAL/FINISH:**

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- **COMMENTS:**
  - REMOVE ALL BURRS AND SHARP EDGES.
R.13 x2

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: 1/16
ANGULAR: MACH 1° BEND:
TWO PLACE DECIMAL: .02
THREE PLACE DECIMAL: .01

MATERIAL/FINISH:
1/4" 6061 Aluminum Plate

DO NOT SCALE DRAWING

REFERENCES:
A2: A Loosened Tolerancing 9/20/2022 JO

SCALE: 1:12
TITLE: Base Plate
SIZE: GE-23401-01 A
REV: 1/4" 6061 Aluminum Plate

REVISIONS
ZONE REV. DESCRIPTION DATE APPROVED
A2 A Loosened Tolerancing 9/20/2022 JO
Notes:
1. Tag or Label with Part Number
Apply Hook as shown. 4" wide hook is also acceptable.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23401</td>
<td>Red Divider Wall Weldment</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Hook_2_88</td>
<td>2&quot; x 88&quot; Hook, Adhesive Backed</td>
<td>4</td>
</tr>
</tbody>
</table>
Attach 1 to 2 with 3 and 4.
Attach 5 across the top edge of 1, so that it is folded over both sides evenly.

---

**ITEM NO.** | **PART NUMBER** | **DESCRIPTION** | **QTY.**
---|---|---|---
1 | GE-23402 | Plastic Wall | 1
2 | GE-23412 | Blue Divider Wall Weldment with Hook | 1
3 | hex, .25_20_1.5_partial | Steel Hex Head Screw, 1/4"-20 x 1-1/2" long, partially threaded | 7
4 | nylock, .25_20 | Steel Nylon-Insert Locknut, 1/4"-20 | 7
5 | Barrier Tape | 2" x 74" White Gaff Tape | 1

---

**VENDOR** | **NAME** | **DATE**
---|---|---
| | JO | 8/23/2022

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**COMMENTS:**

REMOVE ALL BURRS AND SHARP EDGES.
Notes:
1. Tag or Label with Part Number
Apply Hook as shown. 4" wide hook is also acceptable.
Notes:
1. Insert 4 into predrilled holes in 2 and 3.
2. Attach 1 to 2 and 3 with 5.
3. Apply 6 post production.
135°

3X Ø .31 THRU ALL

0.5" HDPE, smooth black

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR: MACH ±1° BEND ±1°
THREE PLACE DECIMAL ± 0.005
TWO PLACE DECIMAL ± 0.01

MATERIAL/FINISH:
0.5" HDPE, smooth black

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COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

TITLE: 2023 protector
right side

VEND: FIRST®
NAME: NW
DATE: 9/28/2022

DRAWN: NW
DATE: 9/28/2022

SCALE: 1:2
REV: C

Sheet 1 of 1
Notes:
1. Description: 1 ft. 13/16 in. tall Rubber Marker Cone
2. Source: Flaghouse
3. Closest Item# sold by Flaghouse: 41583.
4. Available to teams as ami-4702_syc from AndyMark.
9.50

Notes:
1. Description: Inflatable Move Cube
2. Source: Flaghouse
3. Closest item sold by Flaghouse: 17810
4. Available to teams as 4700_bpc from AndyMark

FIRST logo may be applied in white.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GE-23703</td>
<td>CMJ Middle</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GE-23704</td>
<td>CMJ Side</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>hex_.25_20_1.75_parti al</td>
<td>Steel Hex Head Screw, 1/4&quot;-20 x 1.75&quot; long, partially threaded</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>nylock_.25_20</td>
<td>Steel Nylon-Insert Locknut, 1/4&quot;-20</td>
<td>4</td>
</tr>
</tbody>
</table>

**UNLESS OTHERWISE SPECIFIED:**

- **SCALE:** 4:5
- **REVDWG. NO.:** C
- **DRAWN:** NE 12/30/2022
- **TITLE:** Cube Measuring Jig
- **SIZE:** DWG. NO. C
- **REV:** SHEET 1 OF 2
- **MATERIAL/FINISH:**
- **DIMENSIONS ARE IN INCHES**
- **TOLERANCES:**
  - FRACTIONAL: ±1/2
  - ANGULAR: MACH ±1° BEND ±1°
  - TWO PLACE DECIMAL: ±.005
- **PROPRIETARY AND CONFIDENTIAL**
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- **COMMENTS:**
  - REMOVE ALL BURRS AND SHARP EDGES.
- **DO NOT SCALE DRAWING**
ATTACH 2 TO 1 USING 4 OF 3 AND 4 OF 4

NOTE: TARGET MASS FOR THE CUBE MEASURING JIG IS 20 OUNCES. ADD WASHERS/REMOVING MATERIAL TO ACHIEVE TARGET MASS WILL PRODUCE CUBES THAT ARE MOST SIMILAR TO MATCH CONDITIONS.

REMOVE ALL BURRS AND SHARP EDGES.