Notes:

1. Follow instructions on drawing TE-22301 to build each half. Fasten halves of assembly together via the middle beams using wood screws or bolts. Take care with alignment to ensure hinges will work properly once full assembly is fastened together.

2. See drawing TE-22301 for notes about comparison to real field element (GE-22300).

<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>everbilt312x58Hinge_t</td>
<td>3-1/2 in. x 5/8 in. Radius Satin Nickel Door Hinge or equivalent</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>TE-23302</td>
<td>CHARGE STATION - Top Surface Panel</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>TE-23303</td>
<td>CHARGE STATION - Ramp Panel</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>TE-23304</td>
<td>CHARGE STATION - Ramp Slider Base Panel</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>TE-23305</td>
<td>CHARGE STATION - Hinge Tower Base</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>TE-23306</td>
<td>CHARGE STATION - Ramp Slider Spacer Panel</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>TE-23307</td>
<td>CHARGE STATION - Ramp Mount Spacer</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>TE-23308</td>
<td>CHARGE STATION - Ramp Tip Limiter</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>TE-23309</td>
<td>CHARGE STATION - Ramp Slide</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>TE-23310</td>
<td>CHARGE STATION - Double Hinge Strap</td>
<td>8</td>
</tr>
<tr>
<td>11</td>
<td>TE-23311</td>
<td>CHARGE STATION - Double Hinge Core</td>
<td>8</td>
</tr>
<tr>
<td>12</td>
<td>TE-23312</td>
<td>CHARGE STATION - Outer Support</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>TE-23313</td>
<td>CHARGE STATION - Double Hinge Mount</td>
<td>2</td>
</tr>
<tr>
<td>14</td>
<td>TE-23314</td>
<td>CHARGE STATION - Inner Brace</td>
<td>4</td>
</tr>
<tr>
<td>15</td>
<td>TE-23315</td>
<td>CHARGE STATION - Tip Limiter</td>
<td>8</td>
</tr>
<tr>
<td>16</td>
<td>TE-23316</td>
<td>CHARGE STATION - Double Hinge Auxiliary Support</td>
<td>8</td>
</tr>
<tr>
<td>17</td>
<td>TE-23317</td>
<td>CHARGE STATION - Hinge Tower Vertical</td>
<td>8</td>
</tr>
<tr>
<td>18</td>
<td>TE-23318</td>
<td>CHARGE STATION - Hinge Tower Top</td>
<td>4</td>
</tr>
<tr>
<td>19</td>
<td>TE-23319</td>
<td>CHARGE STATION - Ramp Mount</td>
<td>4</td>
</tr>
<tr>
<td>20</td>
<td>hex_25_20_3.75_parti</td>
<td>Steel Hex Head Bolt, 1/4-20 x 3.75, partially threaded</td>
<td>8</td>
</tr>
<tr>
<td>21</td>
<td>nylock_25_20</td>
<td>Steel Nylon-Insert Locknut, 1/4&quot;-20</td>
<td>8</td>
</tr>
<tr>
<td>22</td>
<td>loop_2x48</td>
<td>2&quot; x 48&quot; Loop, Adhesive Backed</td>
<td>4</td>
</tr>
<tr>
<td>23</td>
<td>washer-flat_25</td>
<td>Flat Washer for 1/4&quot; Screw</td>
<td>32</td>
</tr>
</tbody>
</table>
Notes:
1. TE-23310, TE-23311, hex_.25_20_3.75_partial, washer_flat_.25, and nylock_.25_20 can be replaced if manufacturing your own field version hinges (GE-23328) or purchasing them from AndyMark (am-4940_2 or am-4940_4).
2. Driving surface of real CHARGE STATION is polycarbonate. To more accurately represent driving scenarios, a thin layer of polycarbonate can be attached to top surfaces.
Per Note 3, weight would be added along underside of bridge in approximately these locations.

Notes:
1. Dimensions shown are approximate and will vary depending on build quality. Dimensions shown are to allow comparison to real CHARGE STATION.
2. Field CHARGE STATION features a double hinge (GE-23328) with a pivot center to center of 5.3 in. For ease of manufacturing, TE-23311 features a center to center distance of 5.25 in. If delta is deemed important, TE-23311 should be manufactured with a 5.3 in. center distance, and mounting reference dimensions may vary slightly.
3. Pivoting assembly of field CHARGE STATION has a CAD-estimated weight of 209 lbs. To better emulate field behavior, weights can be added to achieve a more similar weight, center of mass, and moment of inertia. Weight of TE builds will vary heavily based on types of lumber used. CAD-model estimated version approximates 67.5 lbs of weight should be added per side if building only a half CHARGE STATION, or 33.5 lbs of weight per side if building a full CHARGE STATION. These estimates are with a CAD-estimated weight of the pivoting assembly of 74 lbs.
Step 1:
Attach (12) x2 and (13) to (2) as shown using #8 wood screws.

Step 2:
Attach (8), (19), (7) stack to (2) on both sides of subassembly as shown using #8 wood screws.

All pieces aligned with face of (12) and pressed flush against it.

Align (12) flush to edge of (2).

(13) is slightly undersized, may or may not end up flush against either (12).

Remove all burrs and sharp edges.
Step 3:
Attach (14)x2 and (16)x2 to the subassembly as shown using #8 wood screws.

Precise alignment of (14) not critical to function.
Step 4:
Attach 11 x2 and 15 x4 to assembly as shown using #8 wood screws.
When attaching 11, predrill holes to avoid splitting the lumber.
If using metal tubing for 11 instead of lumber, consider fastening with 1/4" lag bolts.

If using GE-23328, am-4940_2, or am-4940_4, replace each 11 with a double hinge block (with bushings already installed if press-fit). Attach with 1/4" lag bolts.
Step 5:
Build 2x assemblies of 5, 16, 17 x2, and 18 as shown. Fasten using #8 wood screws. Dimensions of part on 5 are not critical to function. Alignment and spacing between 16 and 18 is important.

Step 6:
Attach 11 to 18 and 16 as shown using #8 wood screws. Predrill holes to avoid splitting 11. Repeat to have 2 assemblies like this.

If using GE-23328, am-4940_2, or am-4940_4, replace 11 with a double hinge block (with bushings already installed if press-fit). Attach with 1/4" lag bolts.

Align edge of 11 with edge of 16.

Approximately centered on thickness of 16. Not critical to function.
Step 7: 
Attach 1 x2 to 3 using #8 wood screws. Note orientation of 1 as shown in detail view.
Attach 22 to 3 in location shown. 22 should be on same face of 3 as 1. Narrower 22 can be used if needed. 22 must wrap over corner of 3.
Repeat Step 7 to have two subassemblies.

Step 8: 
Attach 9, 2x 6, and 4 together as shown using #8 wood screws.
Repeat step 8 to have two subassemblies.

All parts aligned along this edge.
Step 9:
Attach 10 x2 to each 11 on the assembly from step 4 using 20, 23, and 21 as shown. Do not overtighten! 10 should freely rotate.
If using GE-23328, am-4940_2, or am-4940_4, replace 10 with hinge bars with bushings installed (bushings should face bushings of hinge block) and fasten using shoulder bolts.

Step 10:
Attach subassembly from step 6 to assembly from step 9 by connecting 11 and 10 using same hardware pattern as step 9. Do not overtighten bolts.
Step 7 subassembly should be centered on width of step 10 subassembly. Small gaps on left and right end expected.

Face of 3 should be planar with face of 2.

Step 11:
Attach 2x Step 7 Subassemblies to assembly from Step 10 as shown using wood screws. Connect by attaching 1 to 19.
Step 12:
Carefully flip over assembly from previous step and place on floor. Place subassemblies from step 8 on floor approximately in locations shown. Subassemblies from step 8 may need to be taped down or held in place using hook fastener. Assembly should freely tilt back and forth and naturally return to level.
Fiberglass Reinforced Plastic (FRP)

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: $\pm\frac{1}{16}$
ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$
TWO PLACE DECIMAL: $\pm 0.13$
THREE PLACE DECIMAL: $\pm 0.125$

MATERIAL/FINISH:
09 Fiberglass Reinforced Plastic (FRP)

COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

UNLESS OTHERWISE SPECIFIED:

TITLE: CHARGE STATION - Ramp Slide

SCALE: 1:4

TEAM | NAME | DATE
--- | --- | ---
CO | 12/28/2022

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DO NOT SCALE DRAWING
Notes:
1. Per note in TE-23301, GE-23328 (field version CHARGE STATION) features a pivot hinge center to center distance of 5.3". For ease of team manufacturing, this design changes this value to 5.25". Part can be manufactured with a hole spacing of 5.3" if desired, ideally paired with some minor alignment tweaks on assembly.

2X @ .27[.27] THRU ALL
(H drill bit. Clearance for 1/4" bolt)

Per note in TE-23301, GE-23328 (field version CHARGE STATION) features a pivot hinge center to center distance of 5.3". For ease of team manufacturing, this design changes this value to 5.25". Part can be manufactured with a hole spacing of 5.3" if desired, ideally paired with some minor alignment tweaks on assembly.
Notes:
1. If metal square tubing is utilized, additional holes will need to be drilled during assembly to mount piece. These holes can be drilled during assembly based on chosen fasteners.
2" x 4" Lumber

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: \( \frac{1}{16} \)
ANGULAR, MACH: \( \frac{1}{16}^\circ \) BEND: \( \frac{1}{16}^\circ \)
TWO PLACE DECIMAL: \( \frac{1}{10} \)
THREE PLACE DECIMAL: \( \frac{1}{20} \)

MATERIAL/FINISH:
2" x 4" Lumber

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COMMENTS:
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DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR: MACH: ±1° BEND: ±1°
TWO PLACE DECIMAL: ±0.13
THREE PLACE DECIMAL: ±0.125

MATERIAL/FINISH:
2" x 4" Lumber

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2" x 4" Lumber

DIAMETERS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/16
ANGULAR, MACH: ±1° BEND: ±1°
TWO PLACE DECIMAL: ±.13
THREE PLACE DECIMAL: ±.125

MATERIAL/FINISH:
2" x 4" Lumber

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED:
SCALE: 1:3
REVDWG. NO.
COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

TEAM
NAME
DATE
DRAWN
12/20/2022

TITLE: CHARGE STATION - Ramp Mount
SIZE: C
REV: TE-23319
SCALE: 1:3