TE-23300 CHARGE STATION



Description: This is a Charge Station, designed so that teams can practice driving and balancing.

FILES INCLUDED

In this compressed folder, you will find all of the drawings, CAD Files and STEP Files for this design.

Drawings: For your convenience, all drawing files have been exported to PDF Format. Each major field assembly will have both assembly drawings and component drawings.

CAD Files: All SOLIDWORKS files required to build or modify the assembly.

STEP files: STEP files of the assembly are included for the convenience of non-SOLIDWORKS users.

Notes:

- Any reference to real field hinges is referring to GE-23328, which can also be purchased from AndyMark, part number am-4940_2 and am-4940_4.
- This design does not include polycarbonate the driving surface on the field CHARGE STATION. If surface characteristics are important, teams should attach a thin layer of polycarbonate to the top of the drivable surface of the bridge.
- 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 30.5 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.

SHOPPING LIST

Plywood and Lumber (Example Cut List is at end of Readme):

- 2" x 4" x 8' Lumber 7 Pieces
- 4' x 8' x 1/2" Thick Plywood 1 Sheet
- 4' x 8' x 3/4" Thick Plywood 2 Sheets
- 1" Square Wooden Dowel (Hardwood preferred) 4x 6" long and 8x 6 5/8" long pieces (these can be replaced with the real field hinges or 1" square metal tubes, see drawings for more details).

Hardware:

- ¼-20 hex head bolt 3.75" long 8 Pieces
- ¼-20 lock nuts 8 Pieces
- 1/4" Washers 32 Pieces
- #8 Wood Screws x 1.5" long Approximately 80 Pieces
- #8 Wood Screws x 3" long Approximately 110 Pieces
- Everbilt 3-1/2" x 5/8" Hinges 8 Pieces
- If using real field hinges or 1" square metal tubes in place of wooden dowels, 1/4-20 x 2" lag bolts 16 Pieces

Other:

- 48" x 15.75" x .09" Fiberglass Reinforced Plastic (FRP) 4 Pieces
- 2" x 47.5" pieces of loop side adhesive 4 Pieces

Notes about materials:

- Plywood and Hardboard Sheets quality of plywood is up to the user. Plywood of lower qualities may contain voids and may warp more than high quality plywood. All dimensions listed are "nominal". For example, ½" plywood is typically 15/32".
- Lumber quality of lumber is up to the user. Please keep in mind that lumber of lower qualities may warp more than high quality lumber. All dimensions below are the "mill cut" dimensions. For example, 2" x 4" lumber is really 1½" x 3½".

Example Cut List (All units are Inches):

2x4 Lumber (does not include some angled cuts):

Repetition 1x	Stock length	Part length / Label	Qty	Waste	
IX	90	41.25 / TE-23312	1	Material remnant	C
		44.75 / TE-23313	1	Cut	0.5
		4.75 / TE-23315	2		
	41.25 / TE-23312		44.75 / TE-23313	4.75 / TÆ72	25 / TE-2
Repetition	Stock length	Part length / Label	Qty	Waste	
2x	96	18.625 / TE-23314	2	Material remnant	C
		4.75 / TE-23315	1	Cut	0.562
		5.438 / TE-23316	1		
		48 / TE-23319	1		
18.625 / T		233144.75 / 195423 / TE-2	48 / TE-2	3319	
18.625 / T	E-23314 18.625 / TE-	233144.75 / 155428 / TE-2	48 / TE-2	3319	
Repetition	Stock length	233144.75 <mark> / 1€428</mark> β / TE-2		3319 Waste	
			48 / TE-2 Qty 1		0.124
Repetition	Stock length	Part length / Label	Qty	Waste	
Repetition	Stock length	Part length / Label 41.25 / TE-23312	Qty 1	Waste Material remnant	
Repetition	Stock length	Part length / Label 41.25 / TE-23312 44.75 / TE-23313	Qty 1 1	Waste Material remnant	0.124
Repetition	Stock length	Part length / Label 41.25 / TE-23312 44.75 / TE-23313 5.438 / TE-23316	Qty 1 1 1	Waste Material remnant Cut	0.5
Repetition	Stock length	Part length / Label 41.25 / TE-23312 44.75 / TE-23313 5.438 / TE-23316	Qty 1 1 1	Waste Material remnant	0.5
Repetition 1 x Repetition	Stock length 96 41.25 / TE-23312 Stock length	Part length / Label 41.25 / TE-23312 44.75 / TE-23313 5.438 / TE-23316	Qty 1 1 1 1	Waste Material remnant Cut	0.5
Repetition	Stock length 96 41.25 / TE-23312	Part length / Label 41.25 / TE-23312 44.75 / TE-23313 5.438 / TE-23316 3.938 / TE-23317	Qty 1 1 1 1 44.75 / TE-23313	Waste Material remnant Cut 5.43 <mark>8 /319</mark> 2	0.5
Repetition 1 X Repetition	Stock length 96 41.25 / TE-23312 Stock length	Part length / Label 41.25 / TE-23312 44.75 / TE-23313 5.438 / TE-23316 3.938 / TE-23317 Part length / Label	Qty 1 1 1 1 44.75 / TE-23313 Qty	Waste Material remnant Cut 5.438 /319 Waste	0.5 338 / TE-
Repetition 1 x Repetition	Stock length 96 41.25 / TE-23312 Stock length	Part length / Label 41.25 / TE-23312 44.75 / TE-23313 5.438 / TE-23316 3.938 / TE-23317 Part length / Label 41.25 / TE-23312	Qty 1 1 1 1 44.75 / TE-23313 Qty 2	Waste Material remnant Cut 5.43 <mark>8 /319</mark> Waste Material remnant	0.5

Repetition	Stock length	Part length / Label	Qty	Waste	
1x	90	4.75 / TE-23315	2	Material remnant	0.06
		5.438 / TE-23316	5	Cut	1.25
		5 / TE-23318	2		
		48 / TE-23319	1		
/ 1/1 = 7/5 / 14 = 4/28	2 / THE 47212 / THE 47212 / THE 47212 /	TE428 / TE52 TE-283 TE-233	48 / TE-2	23310	
/ 1742-7253 / 1952-423(8	8 / 75242318 / 75242318 / 75242318 /	TEE428 / TE524 TE-253 TE-233	48 / TE-2	23319	
Repetition	Stock length	TEE4228 / TE524 TE-253 TE-233 Part length / Label	48 / TE-2 Qty	Waste	
					12.685
Repetition	Stock length	Part length / Label	Qty	Waste	12.685 1.125
Repetition	Stock length	Part length / Label 4.75 / TE-23315	Qty 2	Waste Material remnant	

3/4" Plywood:

Repetition 1x		Stock dimensions 96 x 48					Panel 48 x 48 / TE-23302	Qty 1
48 x 48 / TE-23302	14.25 x 47 5 / TE 23303	14.05 × 47.5 / TE-293808			14,25X 47,57 15:2303	4.75 x 48	14.25 x 47.5 / TE-23303	3
Repetition 1x	Stock dimer 96 x 4						Panel 48 x 48 / TE-23302	Qty 1
48 x 48 / TE-23302	14.25 <i>x 47.5 /</i> TE-23303	7 x 48 / TE-23304	7 x 48 / TE-23304	7 x 48 / TE-23304	7 x 48 / TE-23304	5 x 48	14.25 x 47.5 / TE-23303 7 x 48 / TE-23304	1

1/2" Plywood:

Repe		n				ck dimensions			Panel	Qty							
									18 x 12 / TE-23005	4							
				4	18 x 3.375 / TE-23007												
				4	8 x 3.375 / TE-23007				48 x 2.5 / TE-23006	8							
				4	18 x 3.375 / TE-23007												
				4	18 x 3.375 / TE-23007				4.25 x 48 / TE-23008	4							
			48 x 2.5 / TE-2300	48 x 2.5 / TE-23006													
8008	8 8 8 4	48 x 2.5 / TE-23006		30.375 x 34.875		48 x 3.375 / TE-23007	4										
TE-23008	E E		48 x 2.5 / TE-23006 48 x 2.5 / TE-23006		-												
48 / 1	48/T		48 x 2.5 / TE-23006														
×	4.25 x 4	55 × 2	×	48 x 2.5 / TE-23006													
4.2	4.25:4.25:4.25:4.25:4.25:4.25:4.25:4.25:		40 x 2.07 12 20000														
												48 x 2.5 / TE-23006					
				18 x 12 / TE-23005	18 x 12 / TE-23005	18 x 12 / TE-2300	05 18 x 12 / TE-23005	6 x 12									