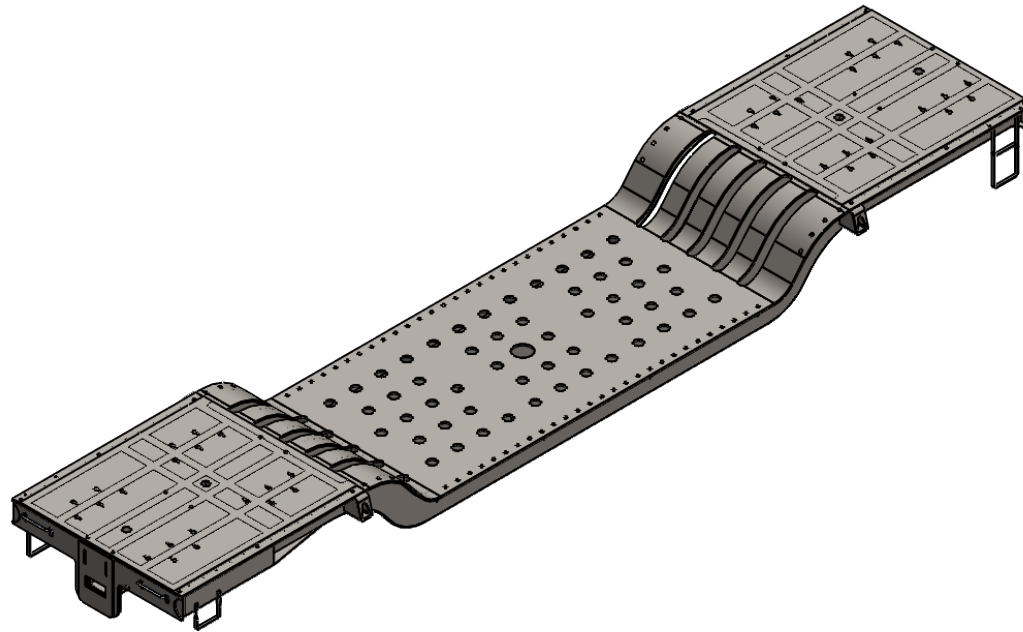


DEPRESSED FLAT CAR FOR 2-AXLE TRUCKS FOR 1/8 SCALE



INSTRUCTION MANUAL

PACIFIC DESIGN SHOPS

REVISION: B
REVISION DATE: 10/20/21

KIT OVERVIEW

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Tools you may need to assemble the kit:

- Welder
- Grinder
- Clamps
- Square
- Cordless Drill
- 4-40 Tap and #43 drill bit

Extra materials you may need:

- Trucks
- Couplers
- Truck and coupler mounting hardware
- Safety chain mounts
- Paint
- Decals

Common acronyms:

- BOM - Bill of Material
- PDS - Pacific Design Shops
- PSC - Precision Steel Car
- MMC - McMaster Carr

Helpful Tips

- Assemble kit together before welding to see how the parts go together.
- Tack weld the pieces together. It is easier to undo a tack than a bead.
- When applying the finishing welds, use skip welds instead of a continuous welding to avoid extreme warping and twisting.
- Weld from one end to the other to avoid warping.
- Use clamps to keep joints tight together when welding.

See the FAQ page for more helpful tips and answers to common questions.

We want your feedback! If you see an area to improve either on the kit or the instructions, please let us know. Send your feedback to info@pacificdesignshops.com.

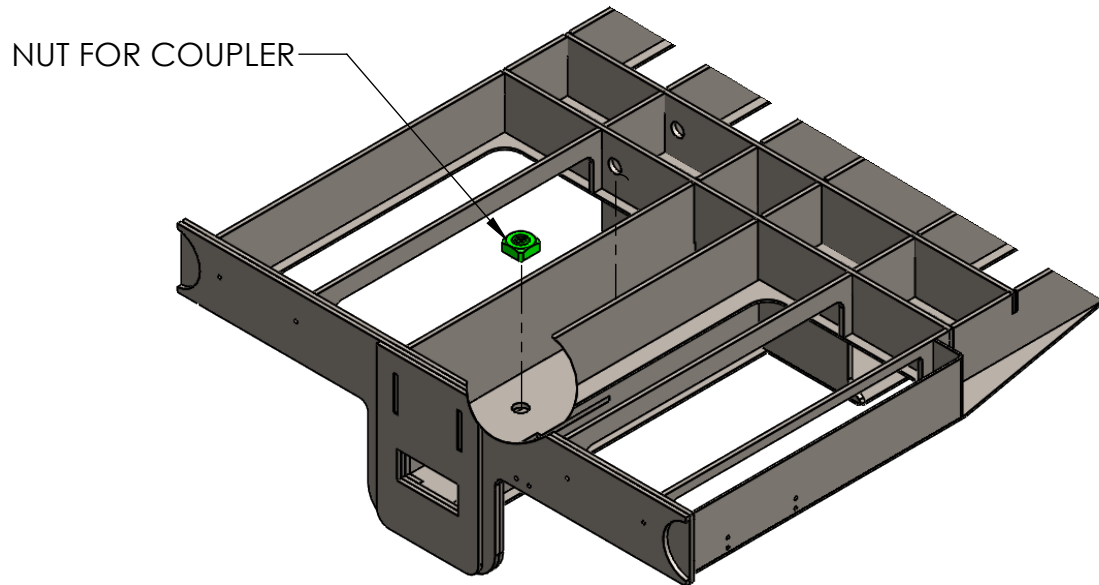
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COUPLER MOUNTING OVERVIEW

The kit comes standard for holes for sprung shank couplers. If using solid shank couplers, drill holes in top and bottom coupler plate accordingly.

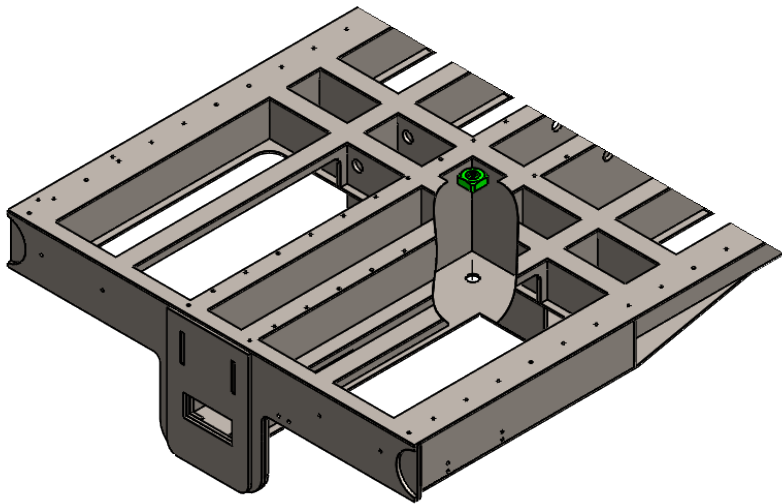
Weld a 3/8" nut to the top coupler plate to allow bolt to be threaded in from below.
recommended nut: McMaster Carr P/N: 93975A300
Repeat on both ends.



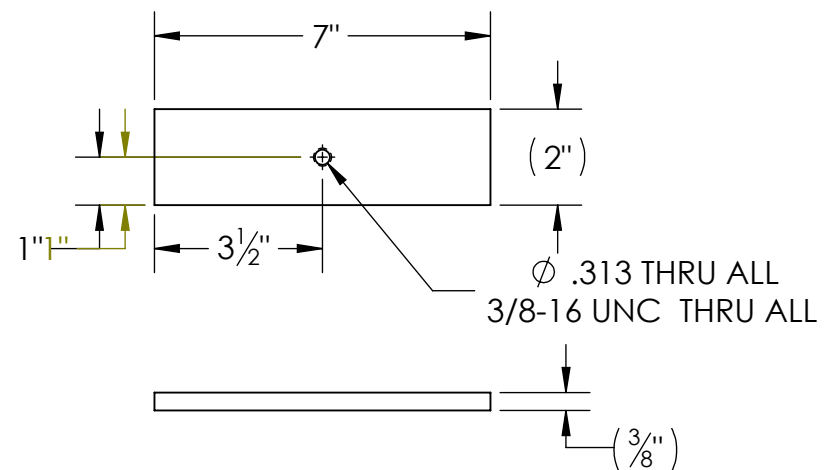
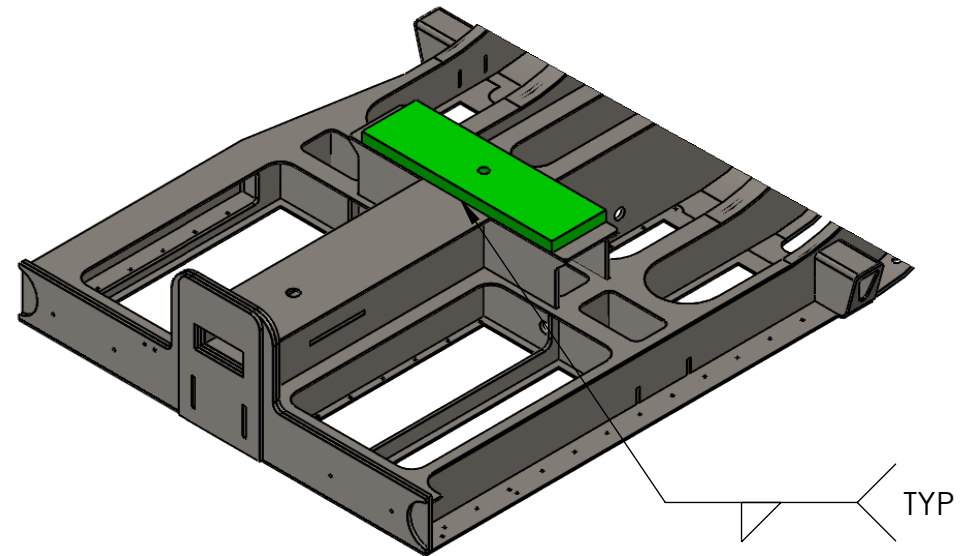
PARTS HIDDEN FOR CLARITY

TRUCK MOUNTING OVERVIEW

Titan Train Mounting: Weld a 3/8" nut to back of bottom plate to bolt truck at bolster hole location. Repeat on both ends.
Recommended nut: McMaster Carr P/N: 93975A300.



Tom Bee/LSP Mounting: Fabricate bolster plate (see below) and weld to bottom plate following the picture below. Repeat on both ends.



BOM OVERVIEW

- Use the BOM's below for pages 4-16

Frame Weldment Parts

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	DFC75_ST11G_A2	Center Frame	2
2	DFC75_ST11G_B2	Mid Frame	2
3	DFC75_ST11G_C2	Outer Frame	2
4	DFB75_ST11G_D4	Center Cross Support	4
5	DFC75_ST11G_F4	Bolster Support	4
6	DFB75_ST11G_H2	End Frame Inner	2
7	DFB75_ST11G_J2	End Frame Mid	2
8	DFB75_ST11G_K2	End Frame Outer	2
9	DFB75_ST11G_L2	Coupler Top Plate	2
10	DFB75_ST11G_M1	Top Deck Center	1
11	DFC75_ST16G_A2	Top Deck End	2
12	DFC75_ST16G_B2	Brake Cover	2
13	DFB75_ST16G_C4	U Brackets	4
14	DFB75_ST16G_D1	Bottom Deck Center	1
15	DFC75_ST16G_E2	Bottom Coupler Plate	2
16	DFC75_ST16G_G2	Bottom Deck A	2
17	DFC75_ST16G_H2	Bottom Deck B	2
18	DFB75_ST16G_N4	U Bracket Covers	4

Frame Detail Parts

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
19	DFB75_ST16G_J2	Ladder Side	2
20	DFB75_ST16G_K2	Ladder Step	2
21	DFC75_ST16G_L2	Bottom Steel End	2
22	DFC75_ST16G_M2	Top Steel End	2

Recommended Detail Parts

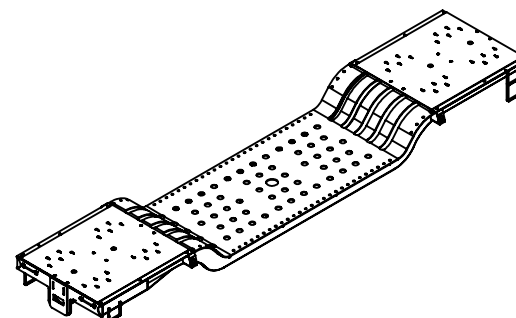
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
23	PSC_F-005	Stirrup Step A	2
24	PSC_G-A-2250	Single Drop Grabiron 2 1/4"	4

Recommended Hardware

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
25	MMC_92949A106	4-40 x 1/4" BHCS, 18-8 SS	28
26	MMC_92949A103	4-40 x 1/8" BHCS, 18-8 SS	20

Optional Wood Decking & Hardware

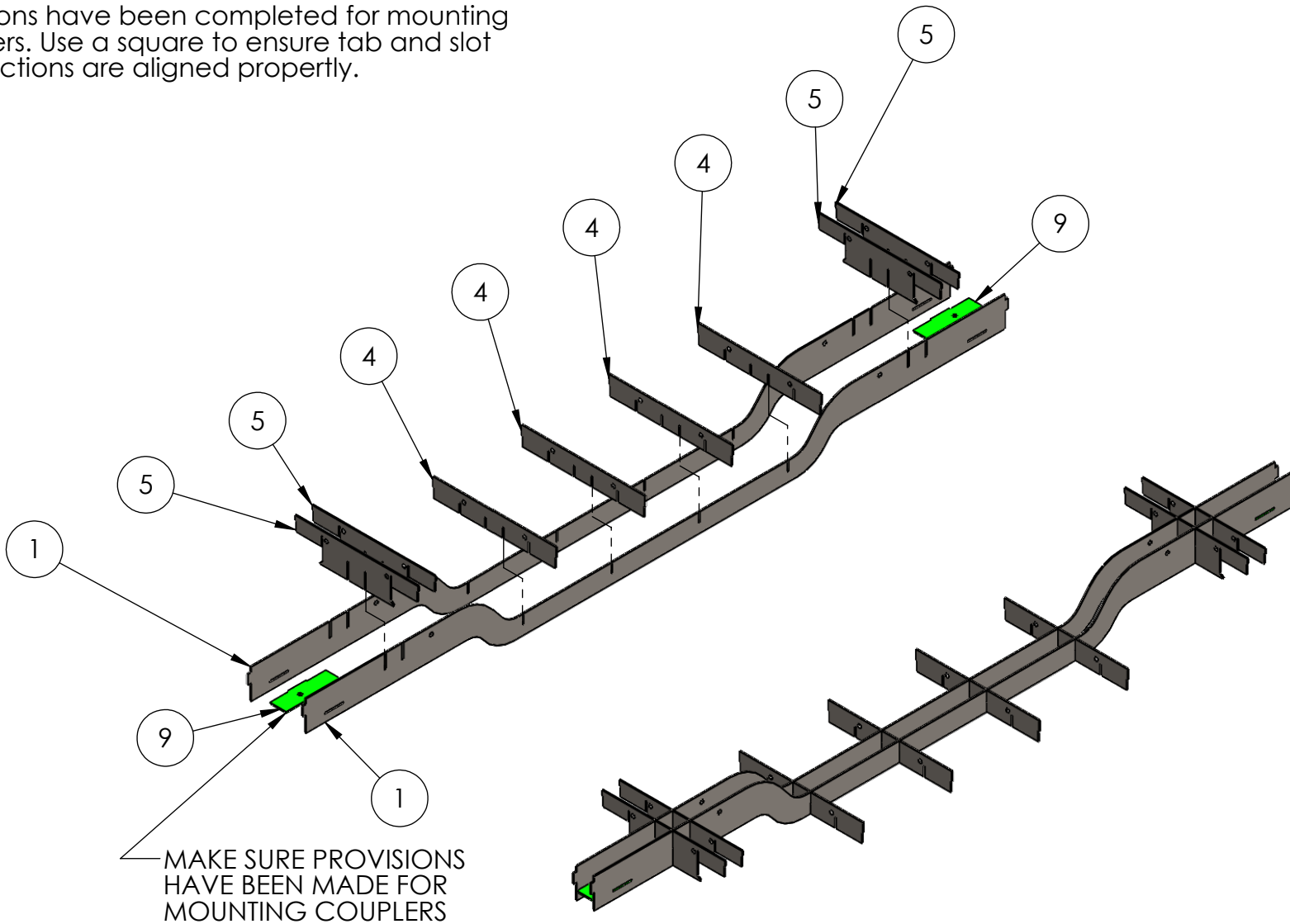
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
27	N/A	Deck Boards	1
28	MMC_92196A108	4-40 x 3/8" SHCS, 18-8 SS	168



STEP 1A: MAIN FRAME

*****TACK WELD ONLY*****

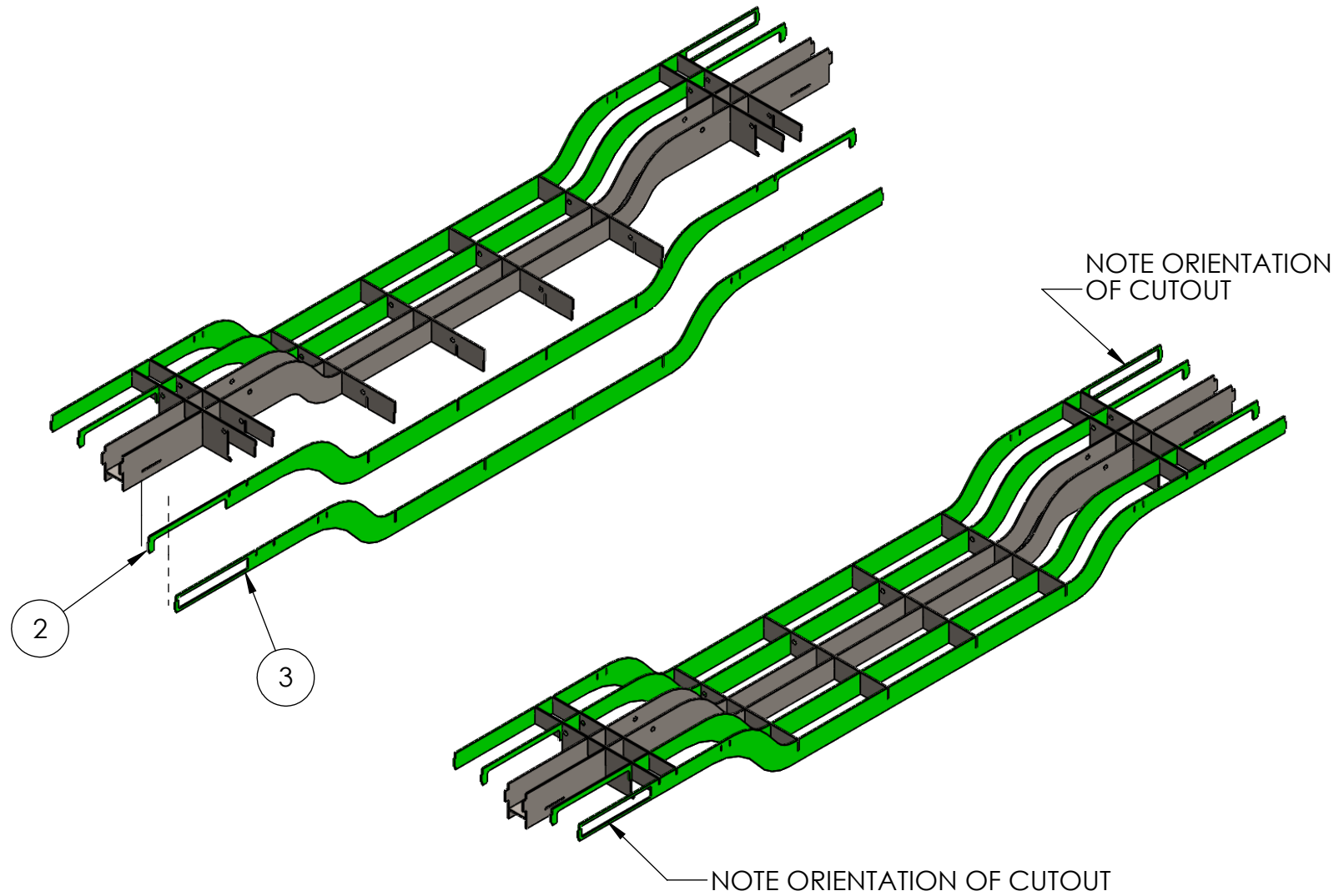
Assemble frame as shown below. Make sure provisions have been completed for mounting couplers. Use a square to ensure tab and slot connections are aligned properly.



STEP 1B: MAIN FRAME

*****TACK WELD ONLY*****

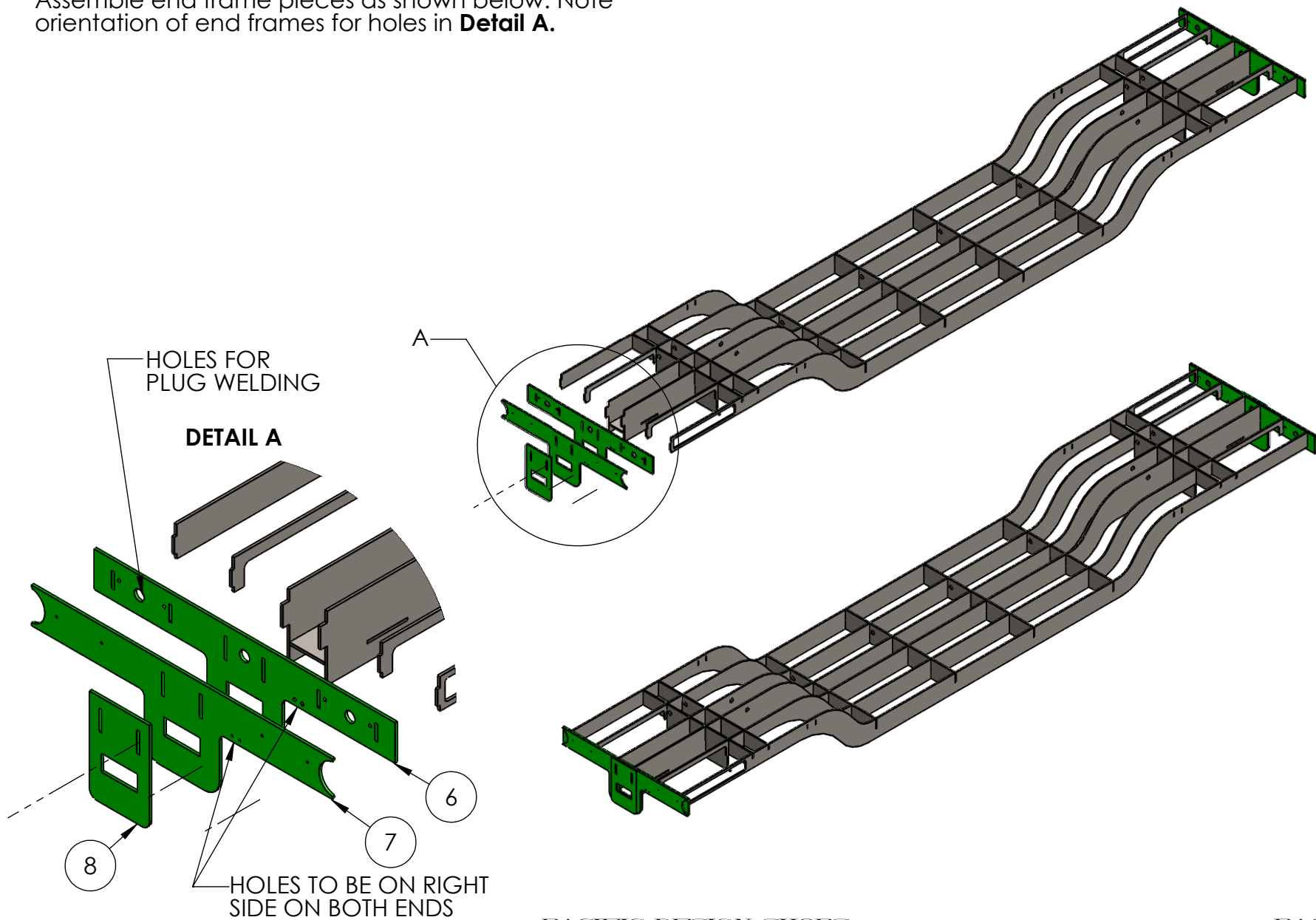
Assemble frame as shown below. Note orientation of outer frames as they are not mirrored. Cutouts to be on opposite corners as shown below.



STEP 2: END FRAME

*****TACK WELD ONLY*****

Assemble end frame pieces as shown below. Note orientation of end frames for holes in **Detail A**.

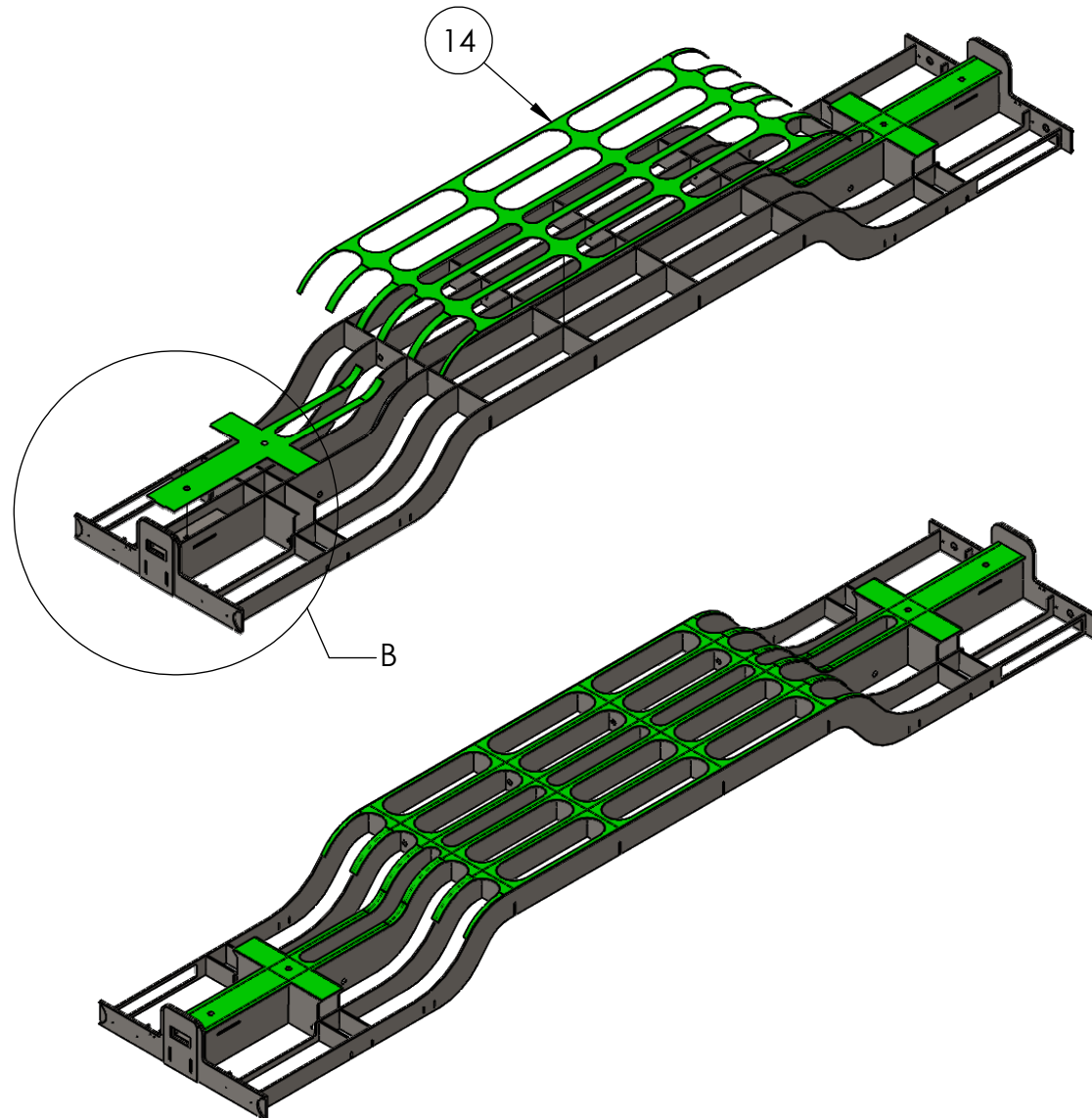
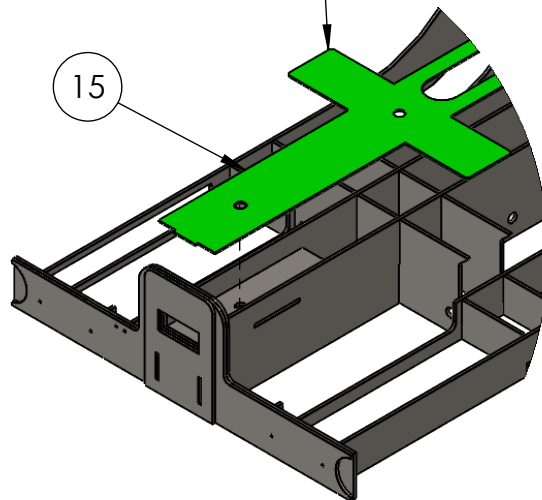


STEP 3: BOTTOM PLATES

Assemble bottom pieces as shown below and in **Detail B**.

*****TACK WELD ONLY*****

DETAIL B
MAKE SURE PROVISIONS
HAVE BEEN MADE FOR
MOUNTING TRUCKS



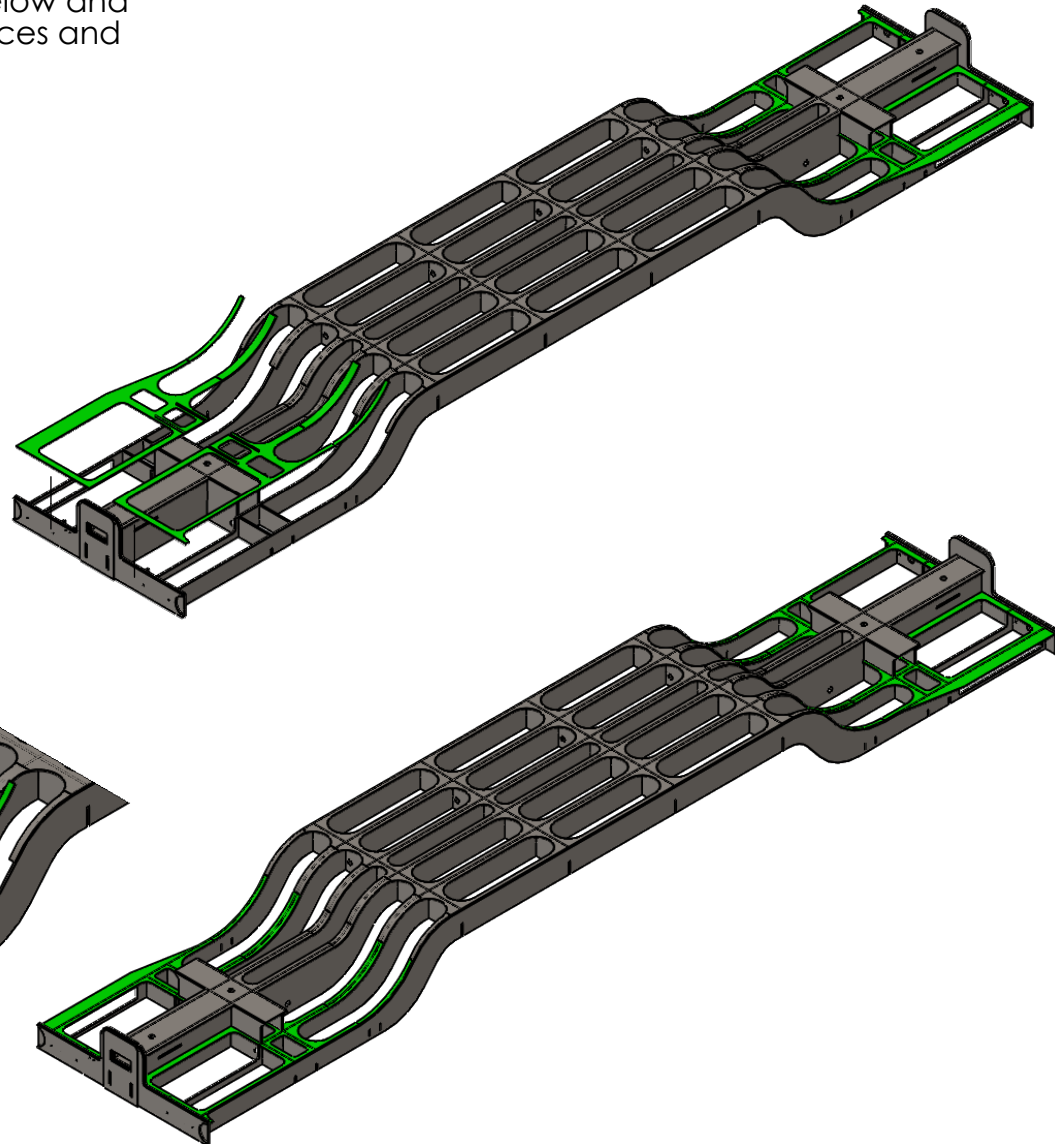
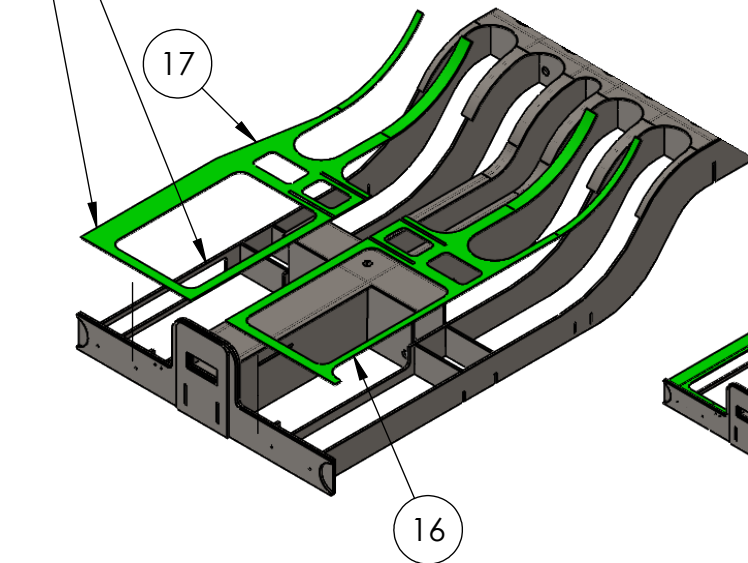
STEP 4: BOTTOM PLATFORMS

*****TACK WELD ONLY*****

Assemble bottom deck pieces as shown below and in **Detail C**. Note shape of bottom deck pieces and cutouts in outer frame.

NOTE SHAPE OF BOTTOM
DECK AND CUTOUTS IN
OUTER FRAME.

DETAIL C

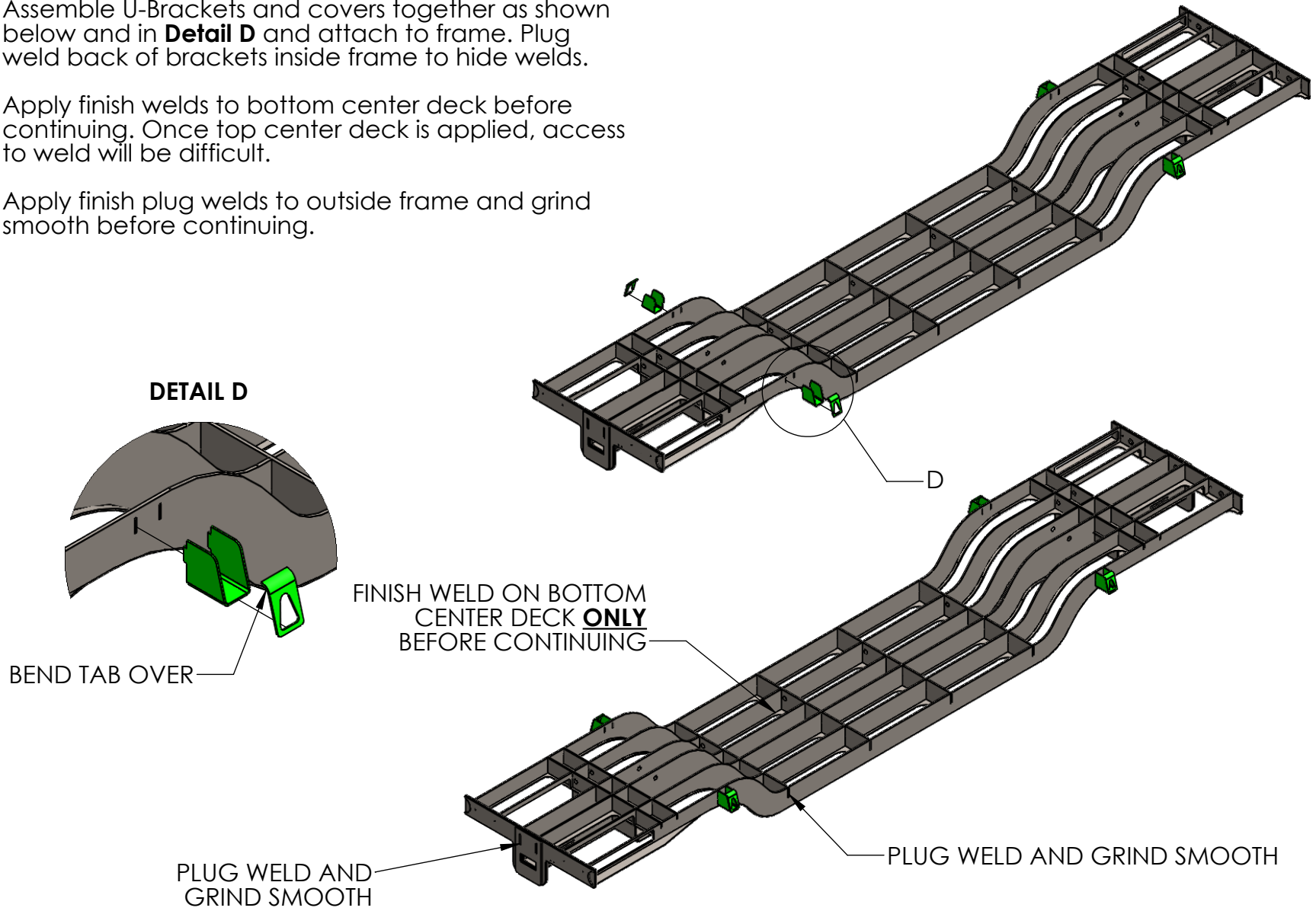


STEP 5: U-BRACKETS

Assemble U-Brackets and covers together as shown below and in **Detail D** and attach to frame. Plug weld back of brackets inside frame to hide welds.

Apply finish welds to bottom center deck before continuing. Once top center deck is applied, access to weld will be difficult.

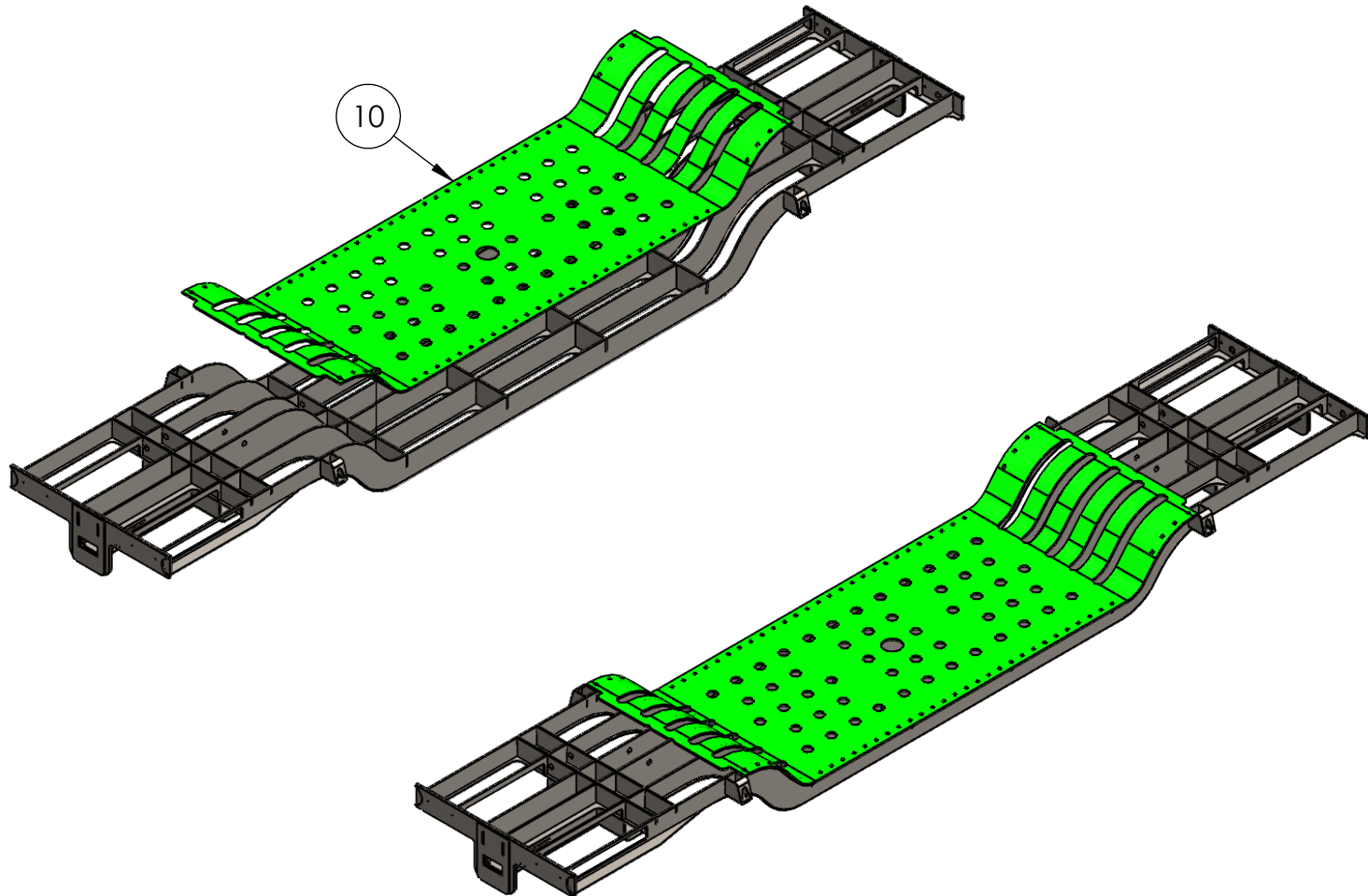
Apply finish plug welds to outside frame and grind smooth before continuing.



STEP 6: TOP CENTER DECK

*****TACK WELD ONLY*****

Assemble top center deck piece as shown below.

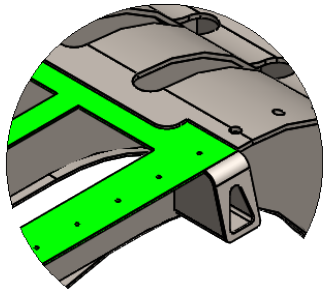


STEP 7: TOP END DECKS

*****TACK WELD ONLY*****

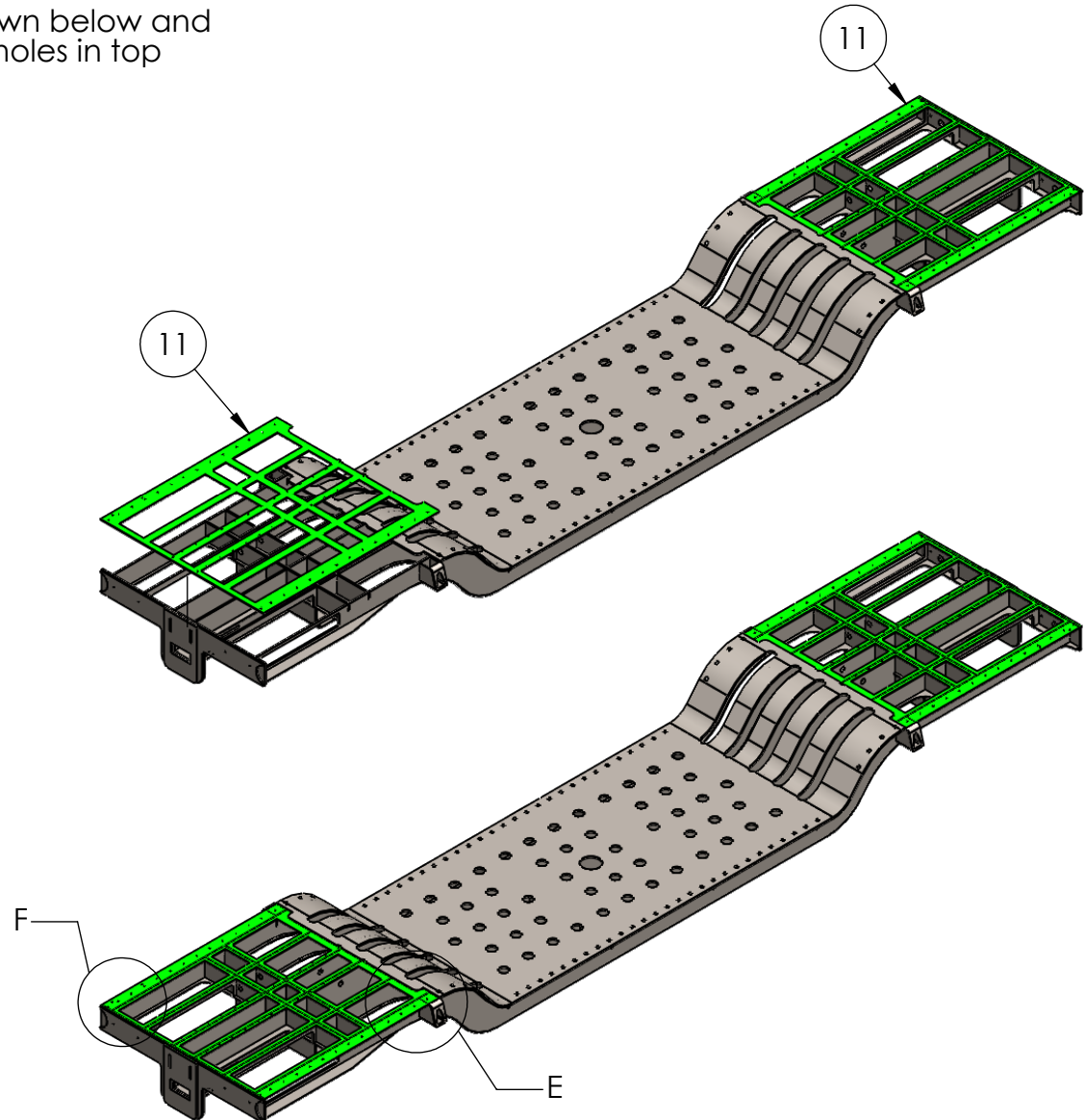
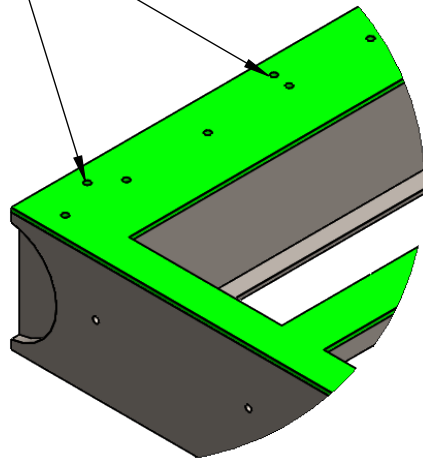
Assemble top end deck pieces as shown below and in **Detail E & Detail F**. Note location of holes in top deck ends.

DETAIL E



DETAIL F

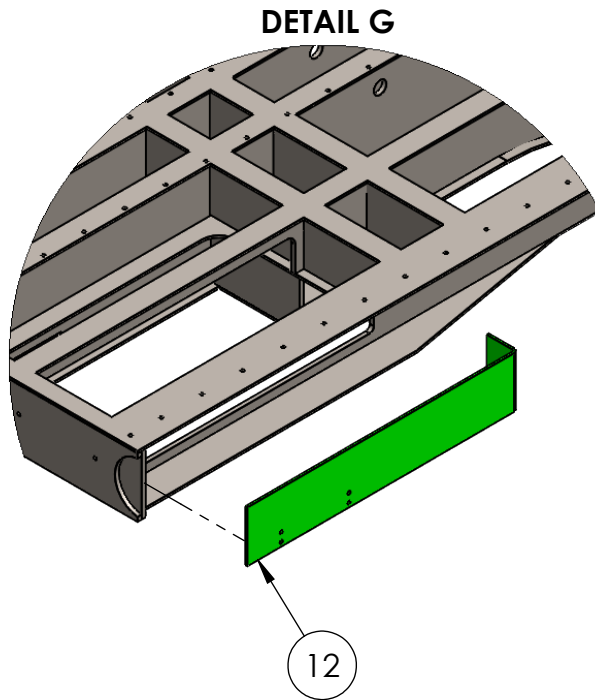
HOLES TO BE ON LEFT SIDE, BOTH ENDS



STEP 8: BRAKE COVERS

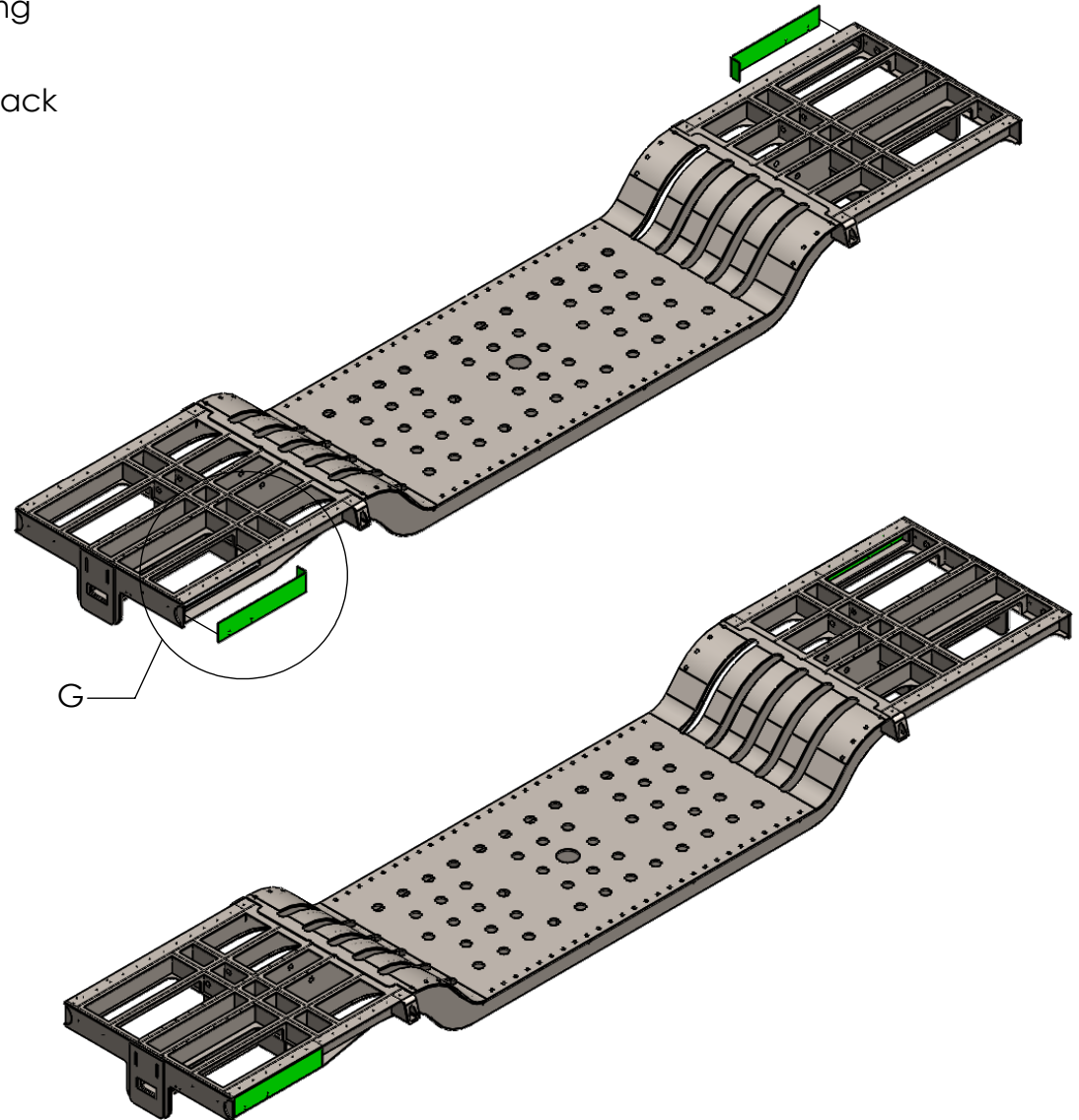
Assemble brake cover pieces as shown below and in **Detail G**. Weld brake covers from inside using cutouts in frame.

Once brake covers are tacked welded, go back and apply finish welds on car.



Once welding is complete, go back and grind welds smooth and clean all metal. Prime and paint all surfaces before adding detail parts.

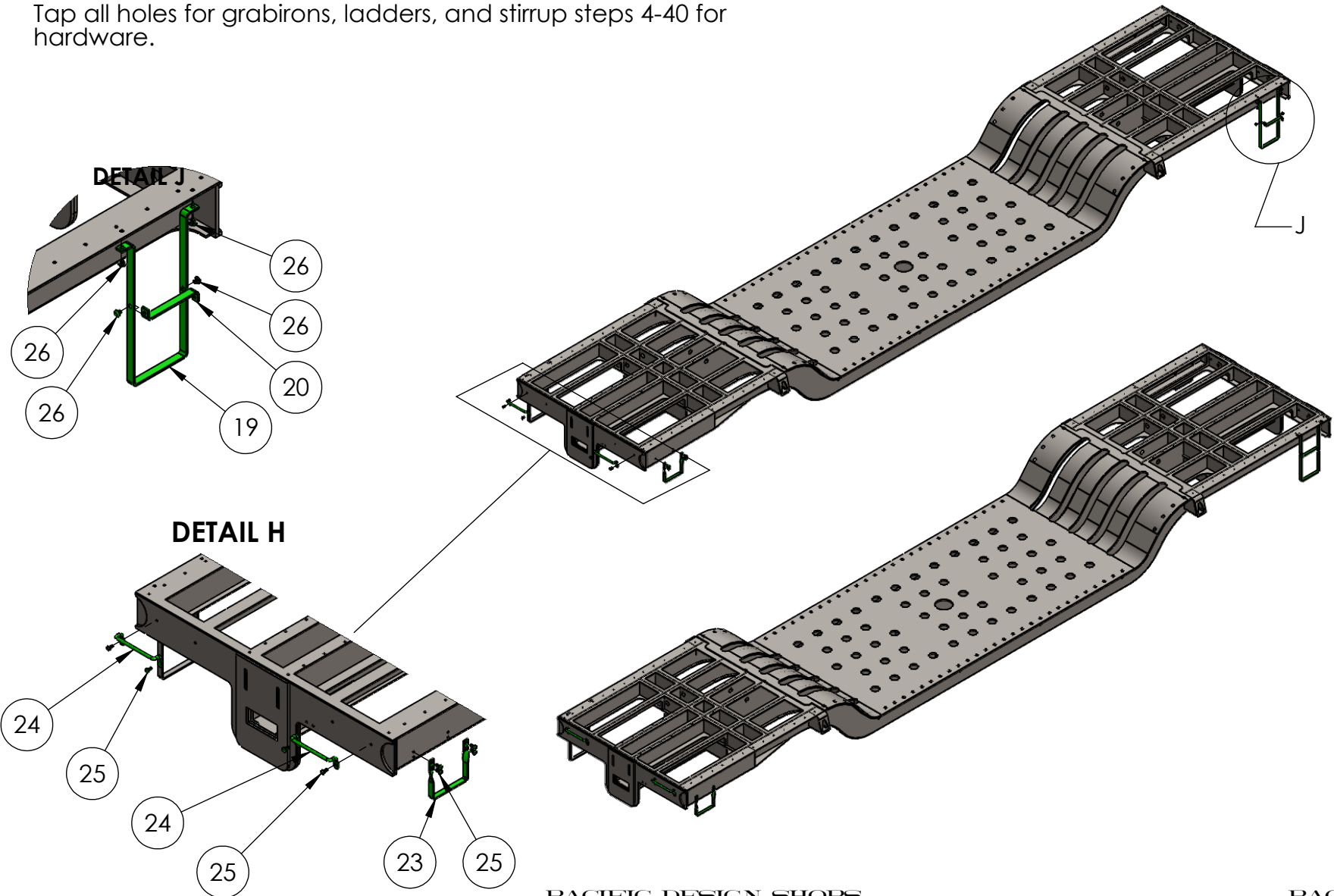
APPLY FINISH WELDS



STEP 9: ATTACHING DETAIL PARTS

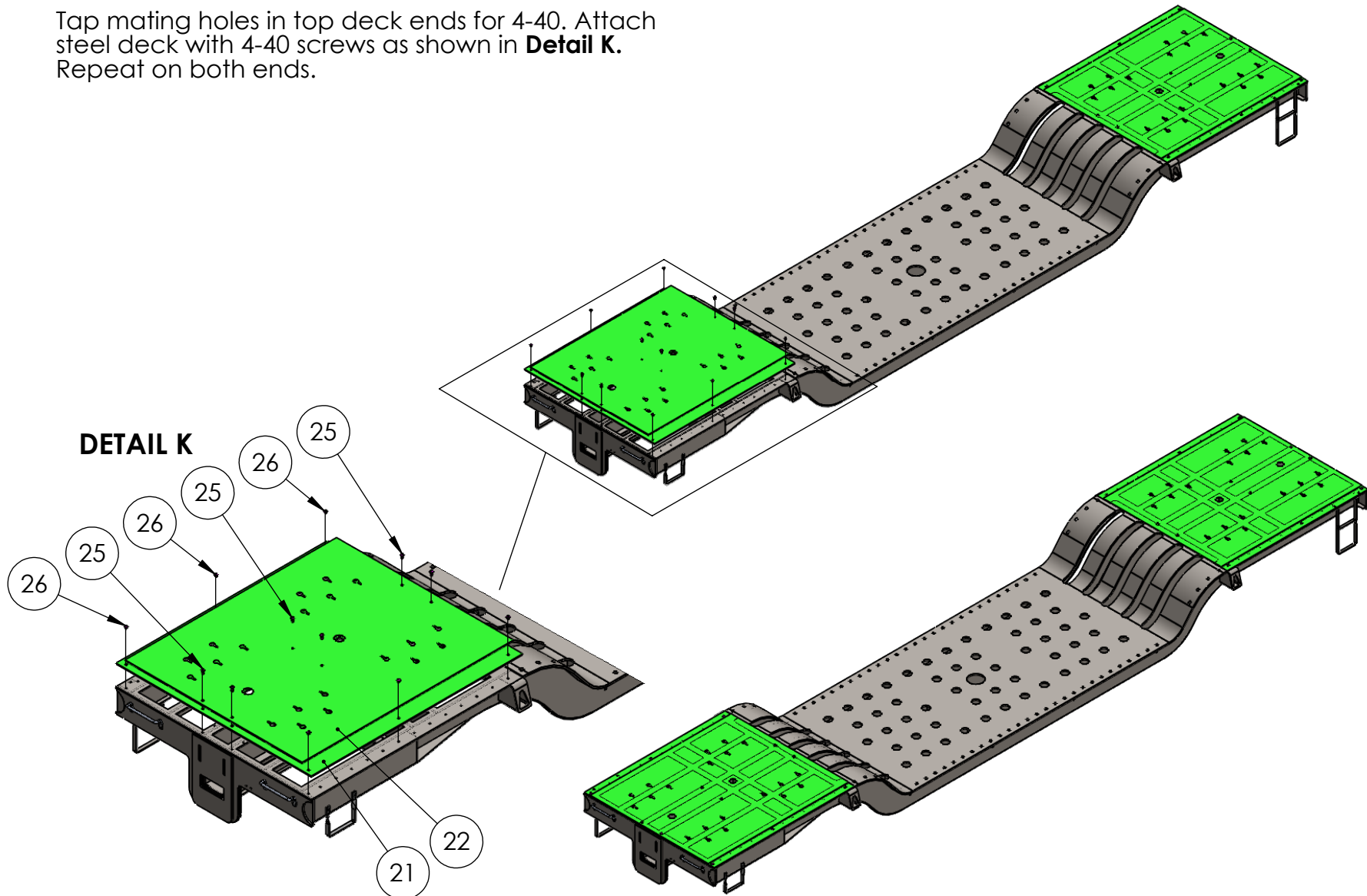
Assemble details parts to ends and sides of car as shown in **Detail H & Detail J**.

Tap all holes for grabirons, ladders, and stirrup steps 4-40 for hardware.



STEP 10A: ATTACHING TOP STEEL DECKS

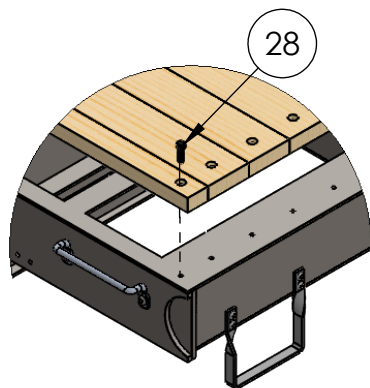
Tap mating holes in top deck ends for 4-40. Attach steel deck with 4-40 screws as shown in **Detail K**. Repeat on both ends.



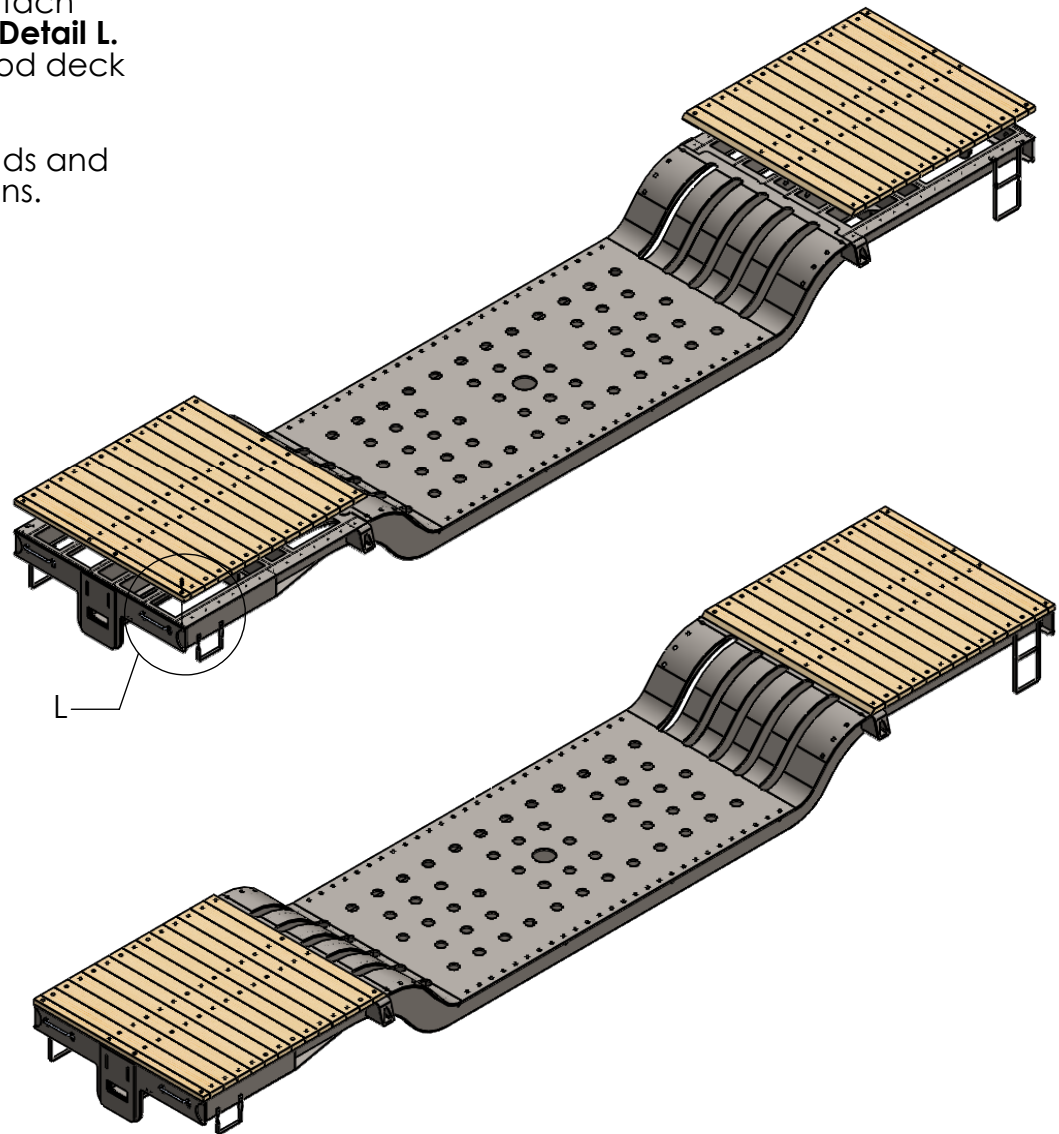
STEP 10B: ATTACHING OPTIONAL WOOD DECK

Tap all holes in top deck ends for 4-40. Attach wood deck with 4-40 screws as shown in **Detail L**. See page 15 for location and sizes of wood deck boards.

Note that hole locations for both steel ends and wood decks are present for both variations.



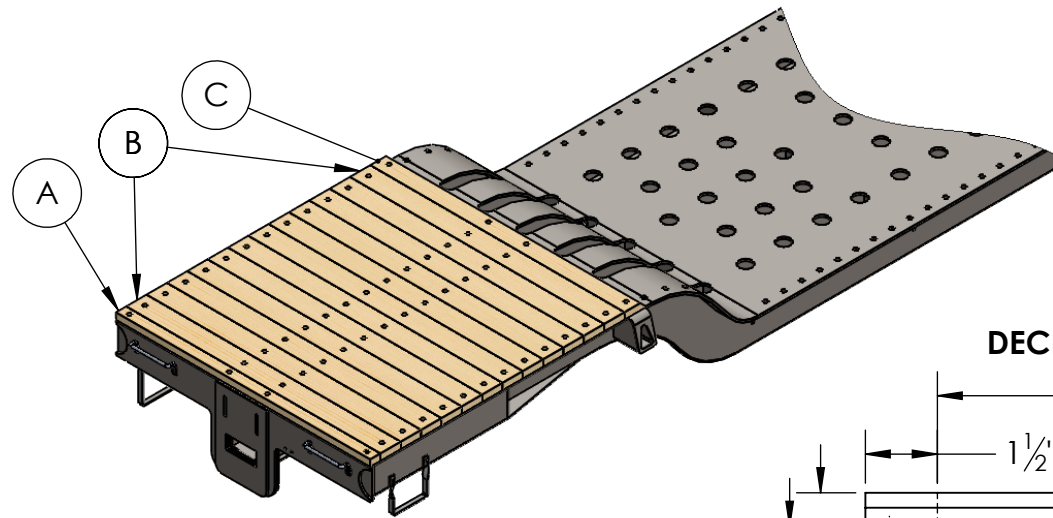
DETAIL L



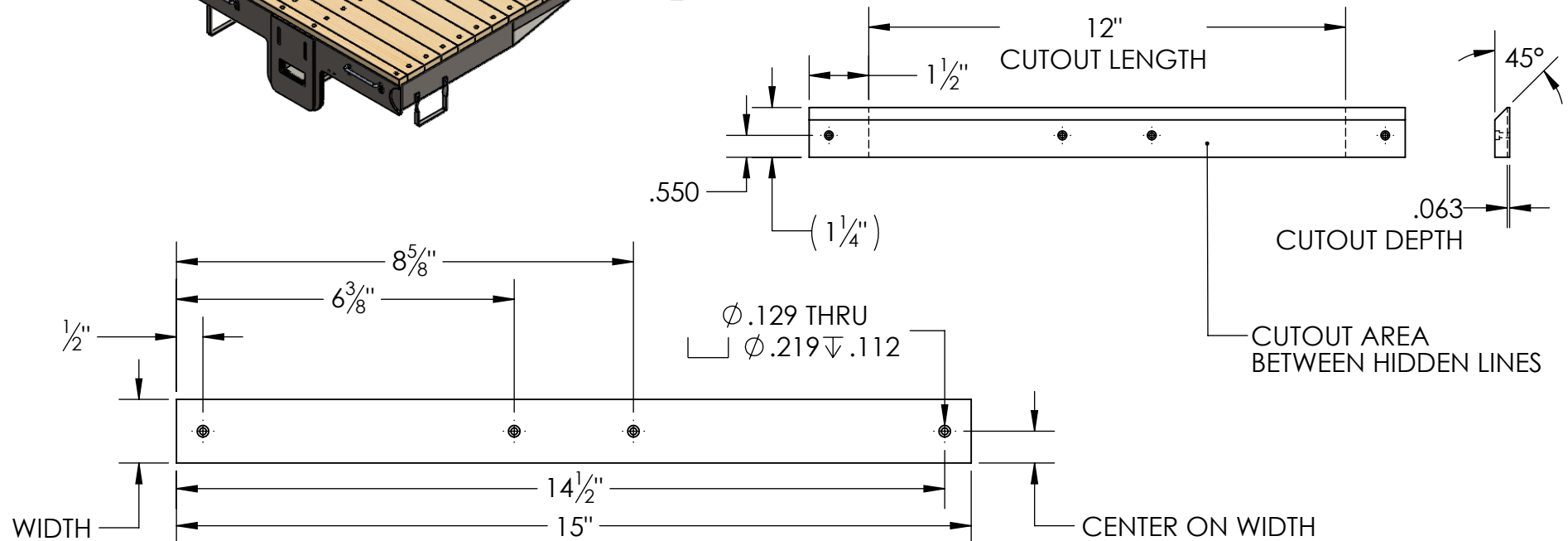
WOOD DECK OVERVIEW

- All deck boards are 3/8" thick.
- If staining deck boards, plane width 0.010" under nominal to allow for swelling.
- Drill deck boards for appropriate fasteners. Recommendations are listed below for a #4 screw.
- Note hole locations and cutouts on board D.
- Repeat pattern on other end.

BOARDS		
Type	QTY	Width
A	2	0.60"
B	24	1.20"
C*	2	1.25"



DECK BOARD "C" DETAILS



FREQUENTLY ASKED QUESTIONS

Q: My frame isn't fitting together and there are gaps, what is going on?

A: Care was taken in the design to incorporate tab and slot construction to avoid having to use jigs or special clamps to hold items in the correct positions for welding but that also increases the locations for interferences to occur. Wiping down all the parts prior to welding is a good first step to remove grit from mating surfaces that may have accumulated from storage or the manufacturing process. Because of the laser cutting process used to cut out the parts, there may be some burrs on the corners. Use a file or grinder to remove them. Making sure to fit all the parts together before welding will help you locate where a problem is before items are welded together. During welding, weld BB's may get stuck to faces and should be grinded off as the steps are followed.

Q: I bought a completed kit that is E-coated. What is E-coating and how do I paint it?

A: E-coating is an immersion wet paint finishing process that uses electrical current to attract the paint product to a metal surface. While the process is similar to powder coating, it differs in that the part is held in a fluid bath that ensures all surfaces are coated helping to protect surfaces that may be difficult to access when painting. Before the part is E-coated, it is dipped in a chemical bath to remove oil and grit from the surface. After the part is E-coated, it is ready to accept almost all paints with minimal prep work required. E-coating does make the part come out black, but if you want your project to be black, you need to protect the coating with a top coat. E-coating is not UV stable and will break down in sunlight if not covered.