Large Transformer Loads

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NMRA Convention, Cleveland OH., July 13 – 19, 2014

Today's Agenda

- A little history about this project
- Discuss different types of heavy haul cars
- Preparing the car, painting the trucks, wheel sets, and couplers
- Adding air line detail to platforms
- Weathering the car
- Building the transformer
- Installing the transformer on the car
- Questions and Answers
- Pass out clinic handout (17 pages)

A little history about this project

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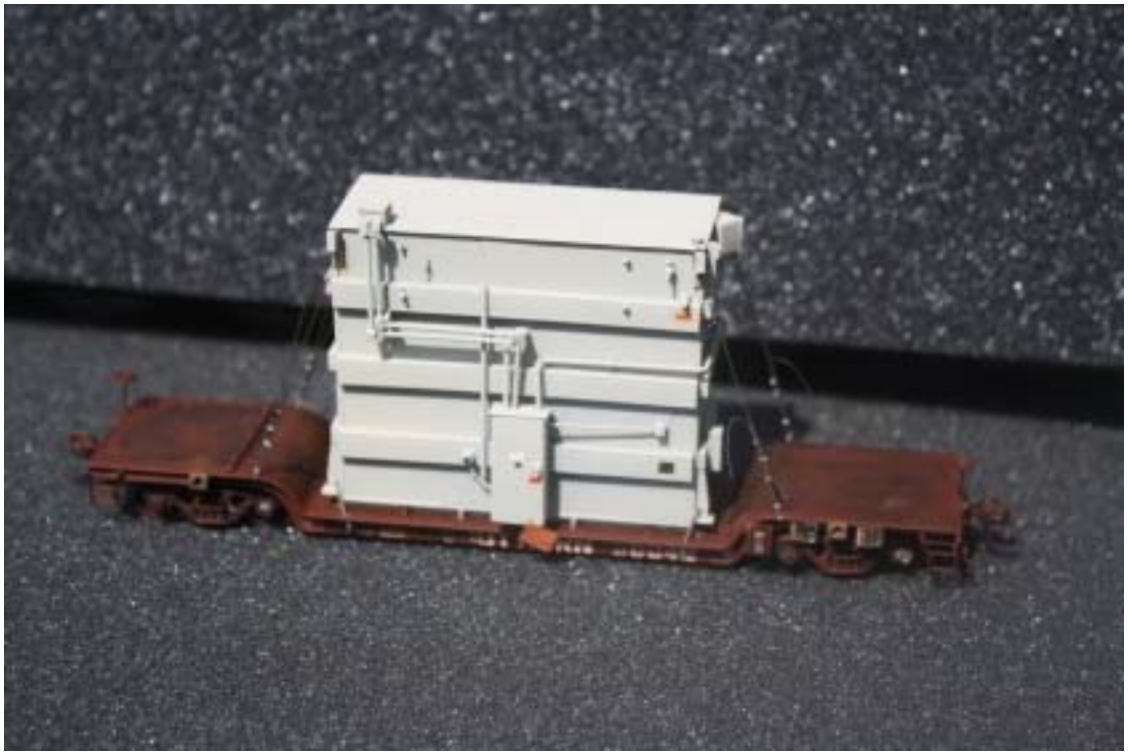


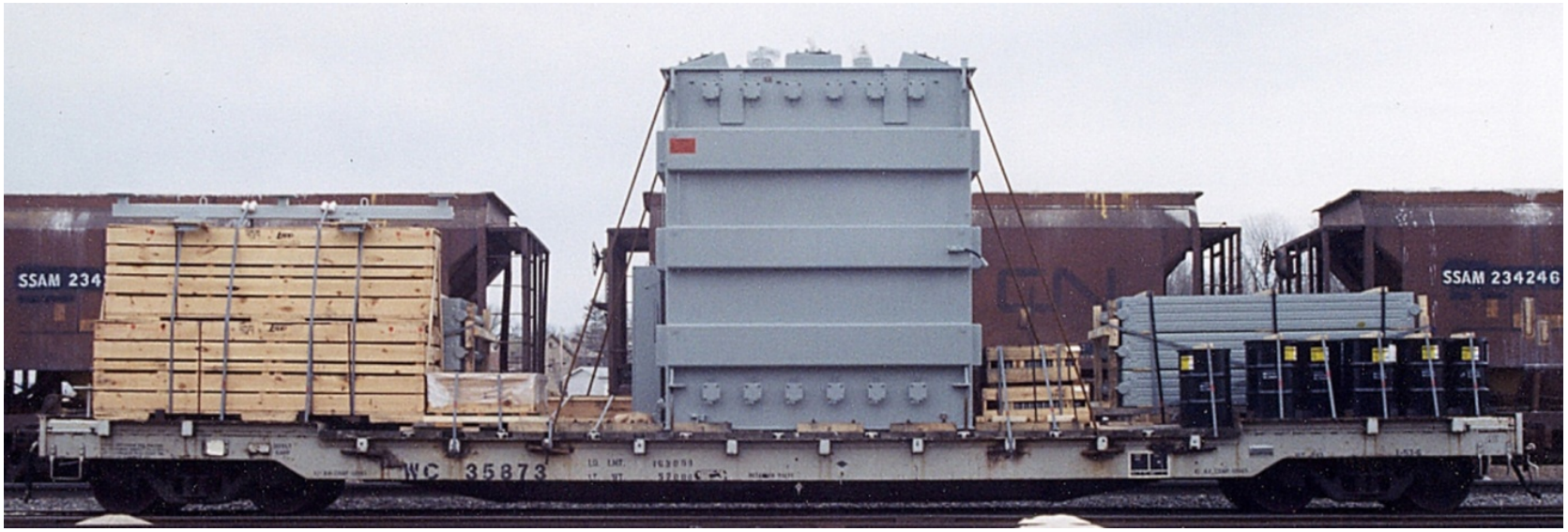
A little history about this project

Prototype cars and transformers

Standard flatcar

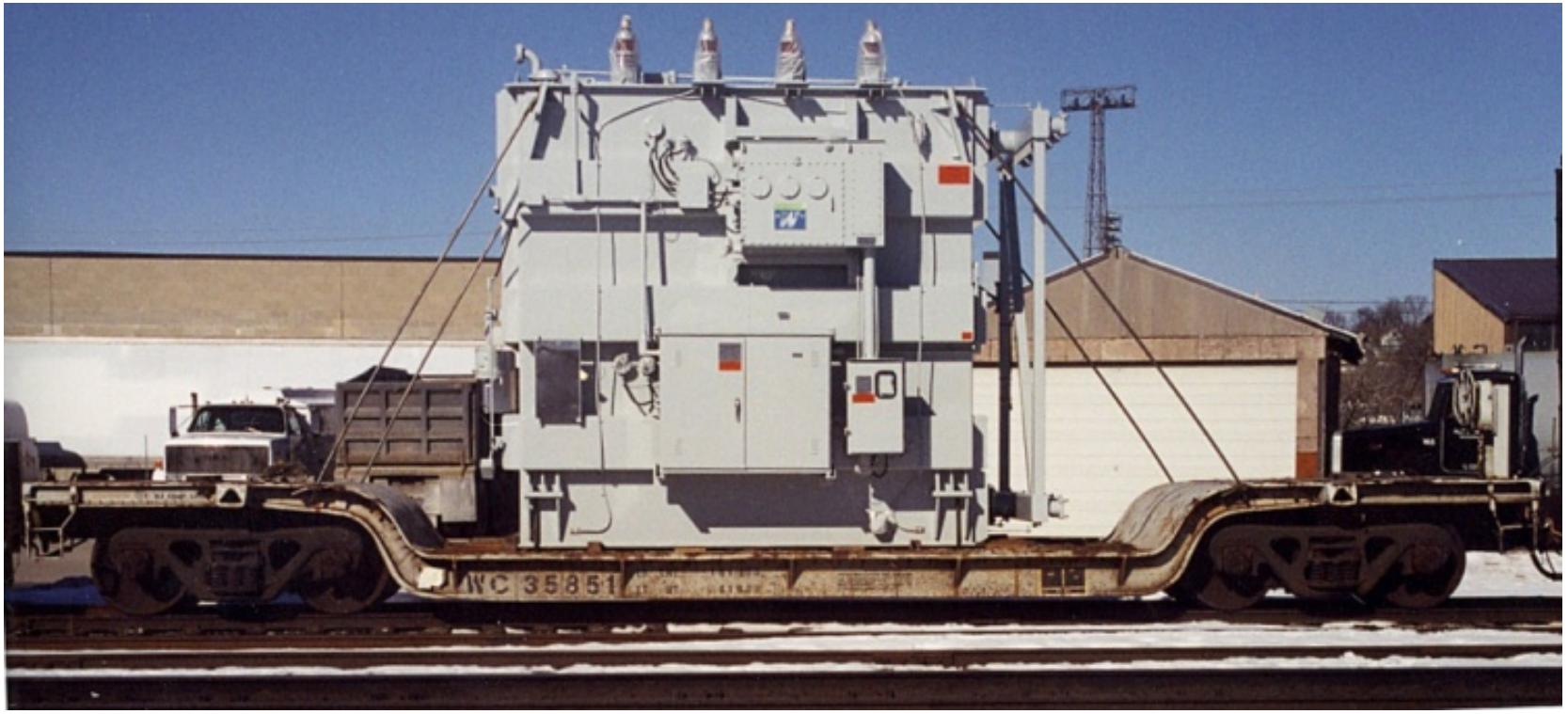
Standard flatcar

Standard flatcar



Single truck depressed center flatcar

Single truck depressed center flatcar



Four Truck – flat deck flatcar

Four Truck – depressed center flatcar

Four Truck – depressed center flatcar

Four Truck – depressed center flatcar

Four Truck – depressed center flatcar

Four Truck –depressed center flatcar
Notice the counter weight on the car

Four Truck –depressed center flatcar
Notice the counter weight on the car

Large transformer on six truck depressed center flatcar

Extreme Heavy load depressed center flatcar

Extreme Heavy load depressed center flatcar complete train

40 wheel Schnabel Car

Transformer prototypes

Transformer prototypes

Transformer prototypes

Transformer prototypes

Tie downs for large transformers

Tie downs for large transformers

Tie downs for large transformers

Tie downs for large transformers

Required Items

- Walthers four truck flatcar
- Pin vice with #56, #74, #76, #77, and #80 bits
- Small adjustable machinist square
- Kadee coupler gauge
- Scale ruler (metal)
- Small file set
- Round nose pliers
- Northwest Short Lines Chopper
- Reeboxx Exxact Socket tool

Required Item (continued)

- X-Acto knife with sharp #11 blades
- Touch-N-Flow glue applicator
- Tweezers
- Miter boxes and razor saw
- Leather punch
- Dial Caliper (micrometer)
- Proto 2000 36 inch flat back metal wheel sets (optional)

Materials needed for the project

- Evergreen .030 sheet styrene #9030
- Evergreen .080 X .125 rectangle styrene rod #166
- Evergreen .060 X .060 square styrene rod #153
- .015 piano wire
- .046 brass rod
- .020 brass rod
- Model Master Camouflage Gray (spray) #1933
- Model Master Gunship Gray (spray) #1923
- Model Master Gunship Gray (brush on) #1723

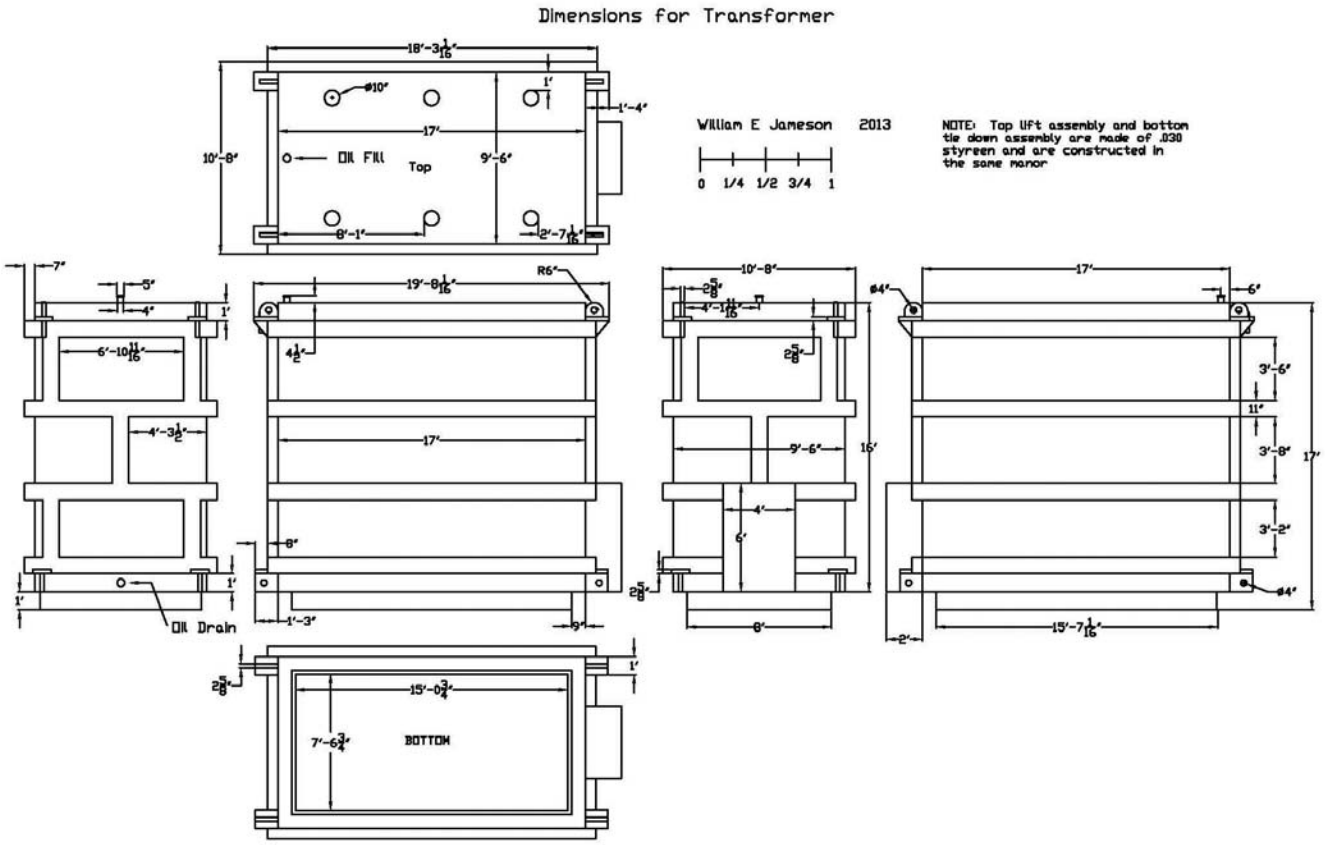
Materials needed for the project (continued)

- Model Master Insignia Red #FS31136
- Model Master Flat Clear Finish (brush on) # 2015
- Paint to match the car that you are building
- Testors Dull Coat #1260
- Testors Brown (spray) #1240
- Testors Rust (brush on) #1185
- Testors Flat Black #
- RustAL
- Weathing chalks

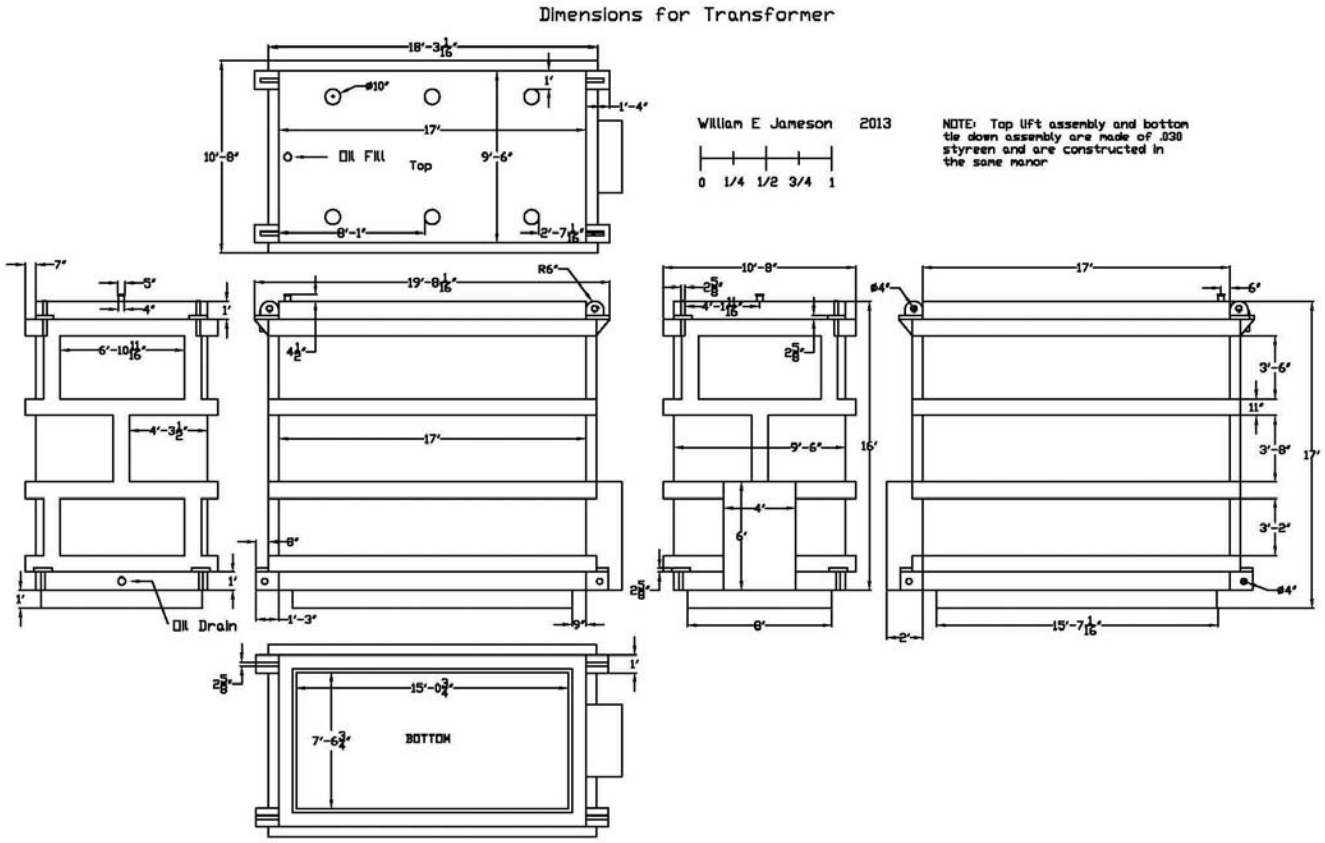
Materials needed for the project (continued)

- Tenax XR7
- Sand paper, 400 grit (wet / dry)
- Squadron Green filler putty
- Super Glue
- Details Associates Sand Hatch Covers #SD3001
- Walthers Goo

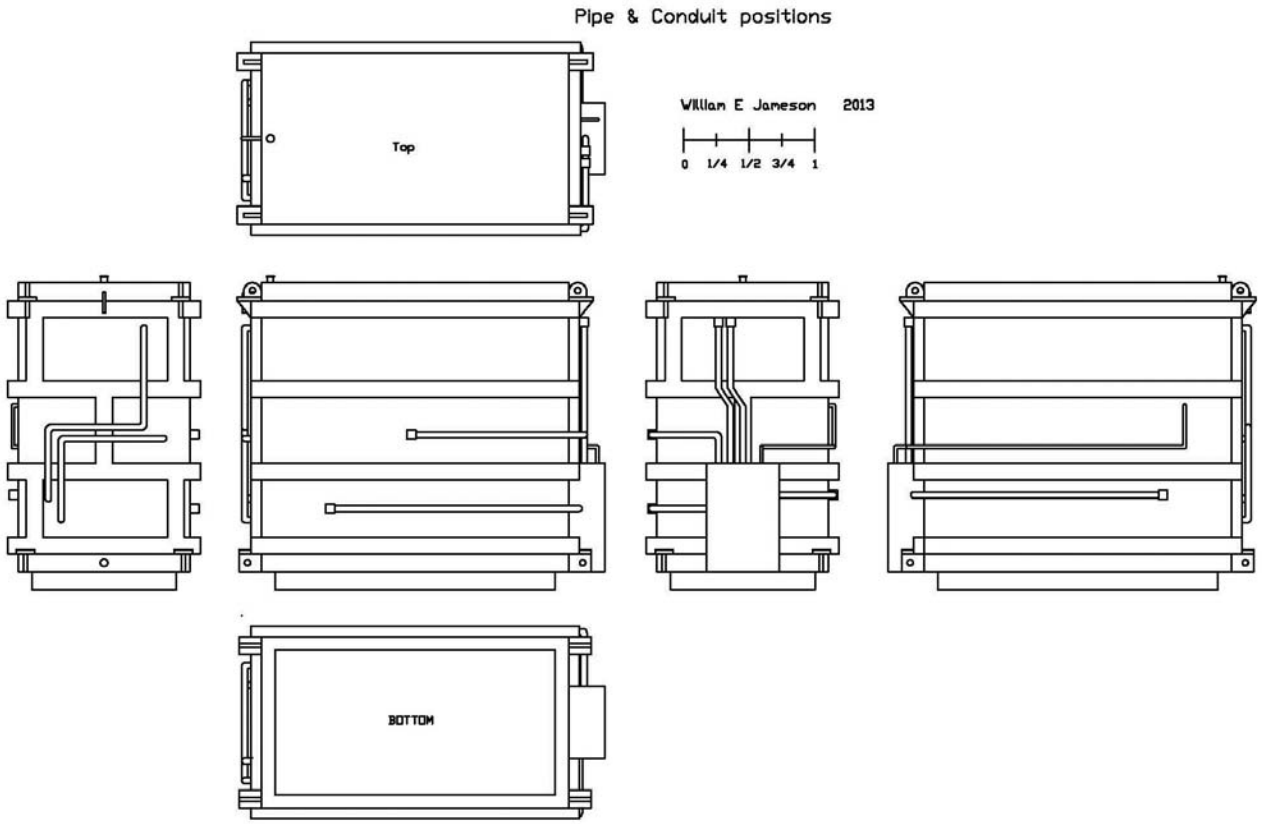
Line Drawings – Basic transformer



Line Drawings - Dimensions



Line Drawings – Pipe and conduit positions

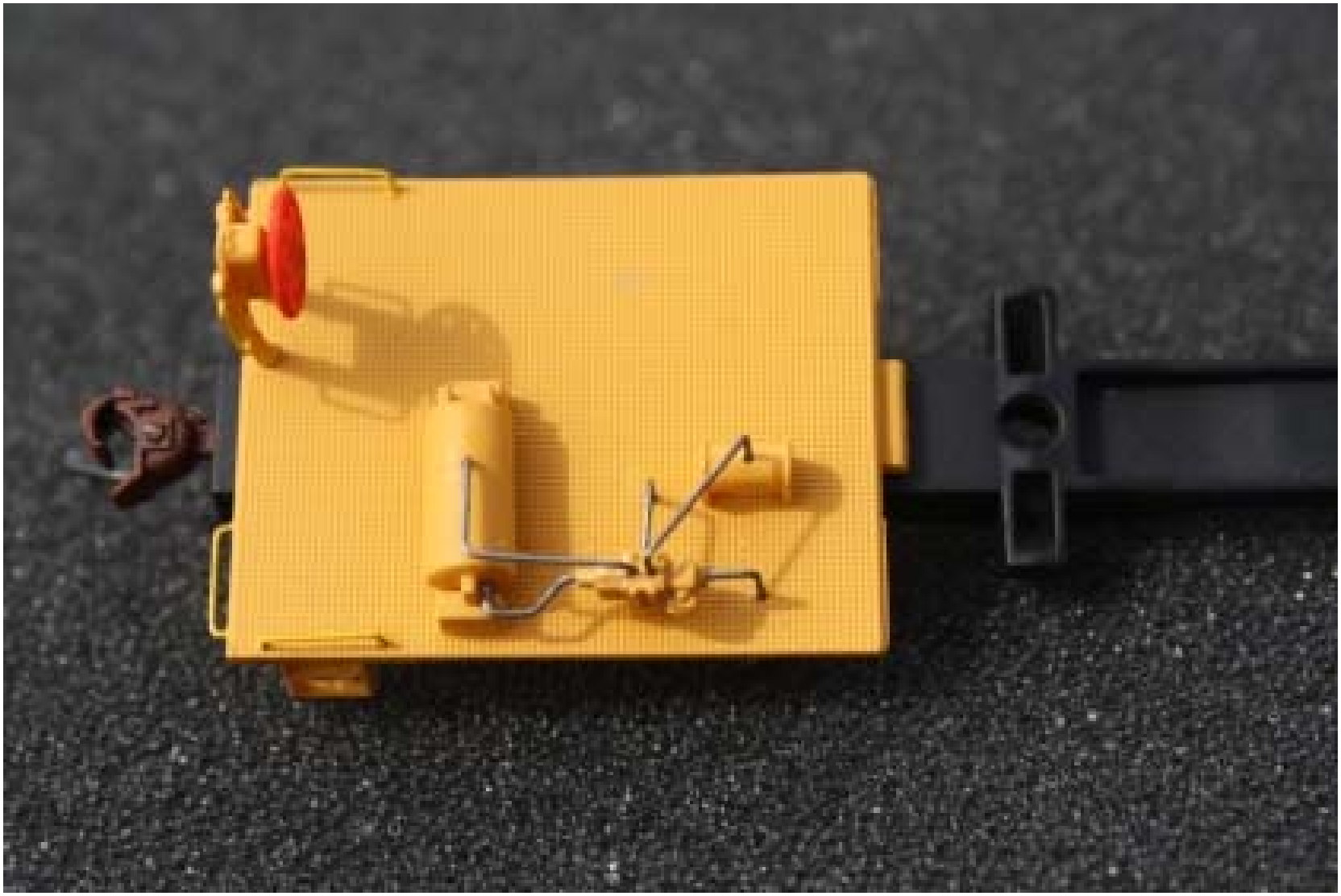


Preparing the car

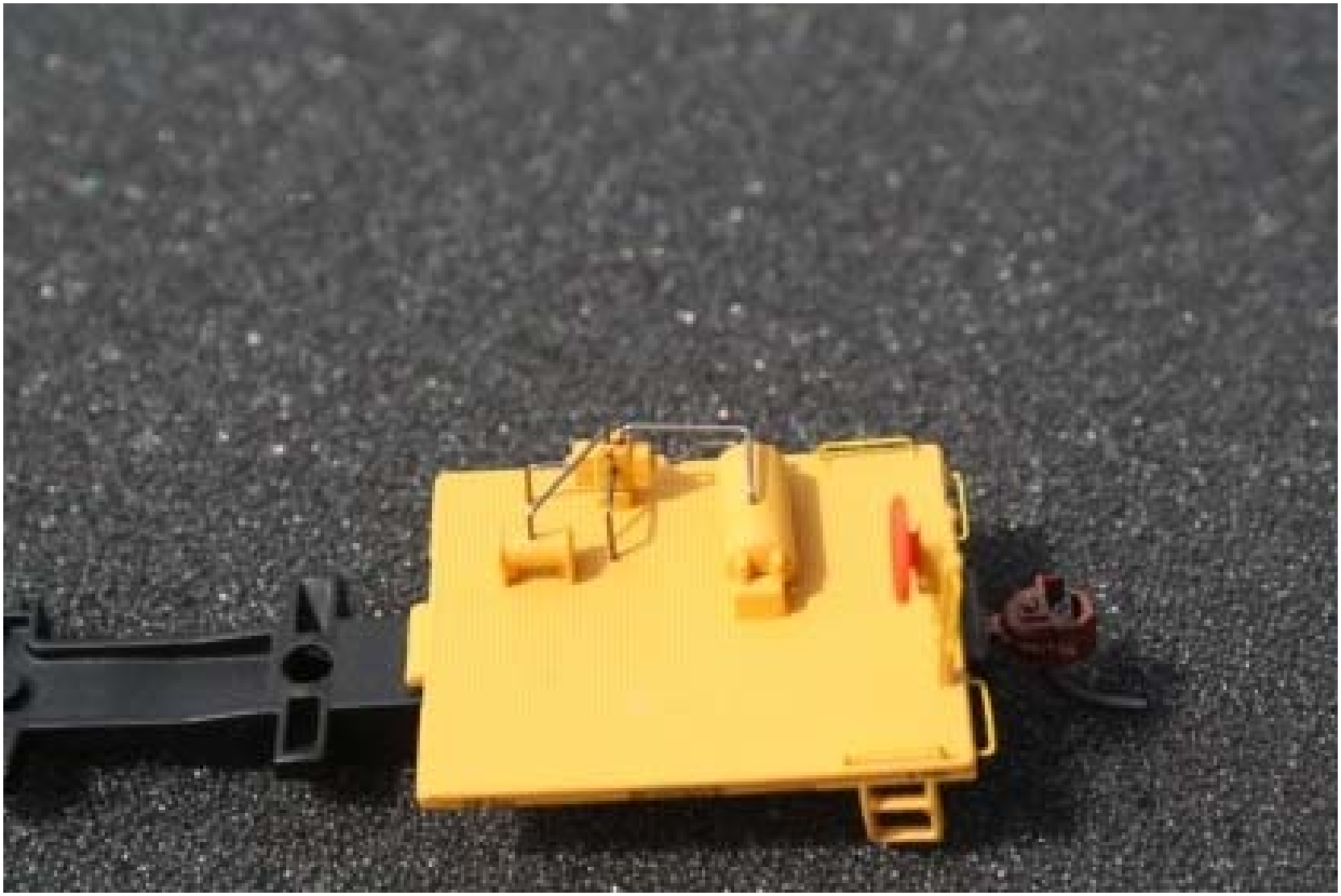
Painting the trucks and wheels

Painting the couplers

Modifying the car - Brake piping detail



Modifying the car - Brake piping detail



Modifying the car - Tie down holes

Modifying the car - Tie down holes

Weathering the car

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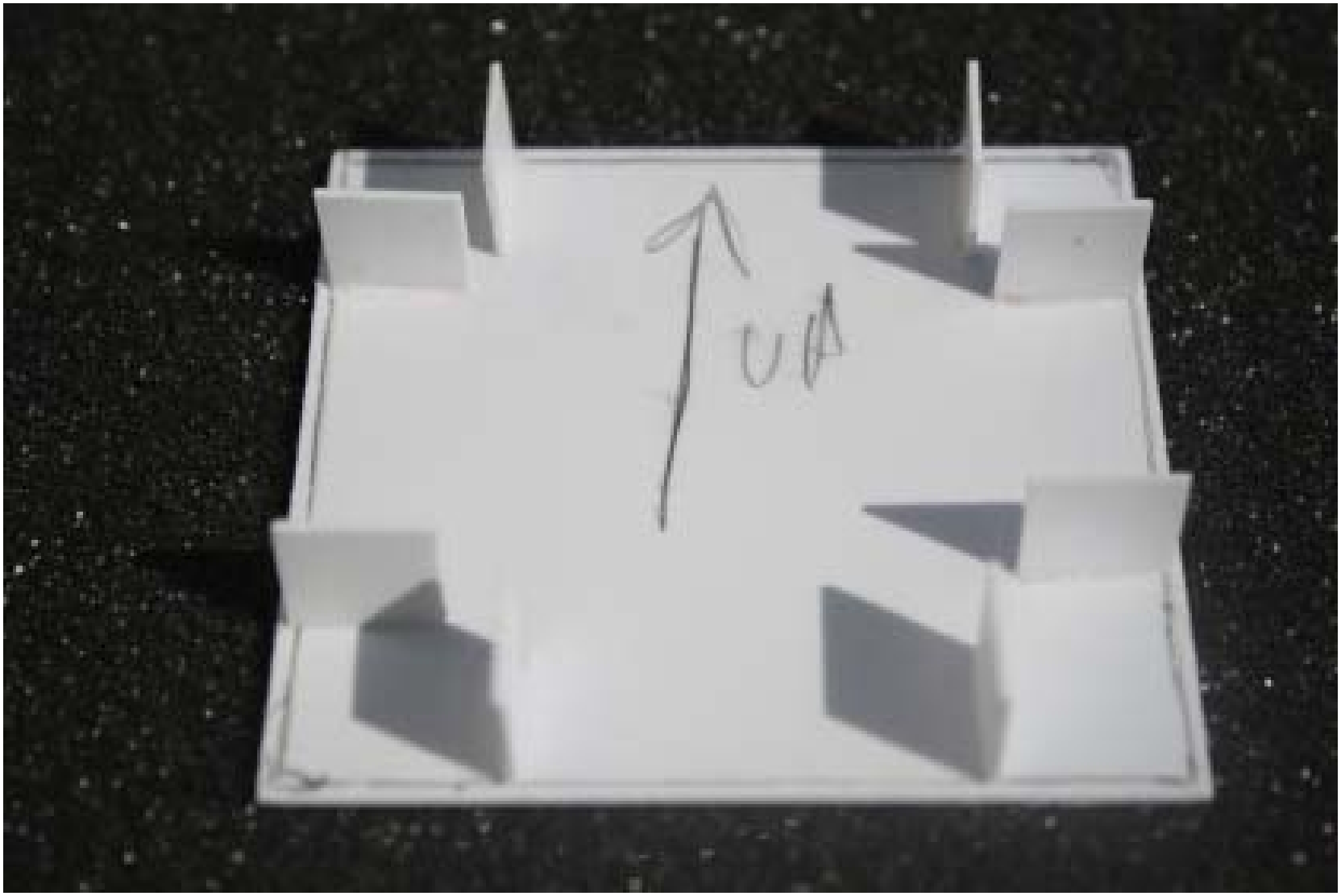
Weathering the car

Building the transformer

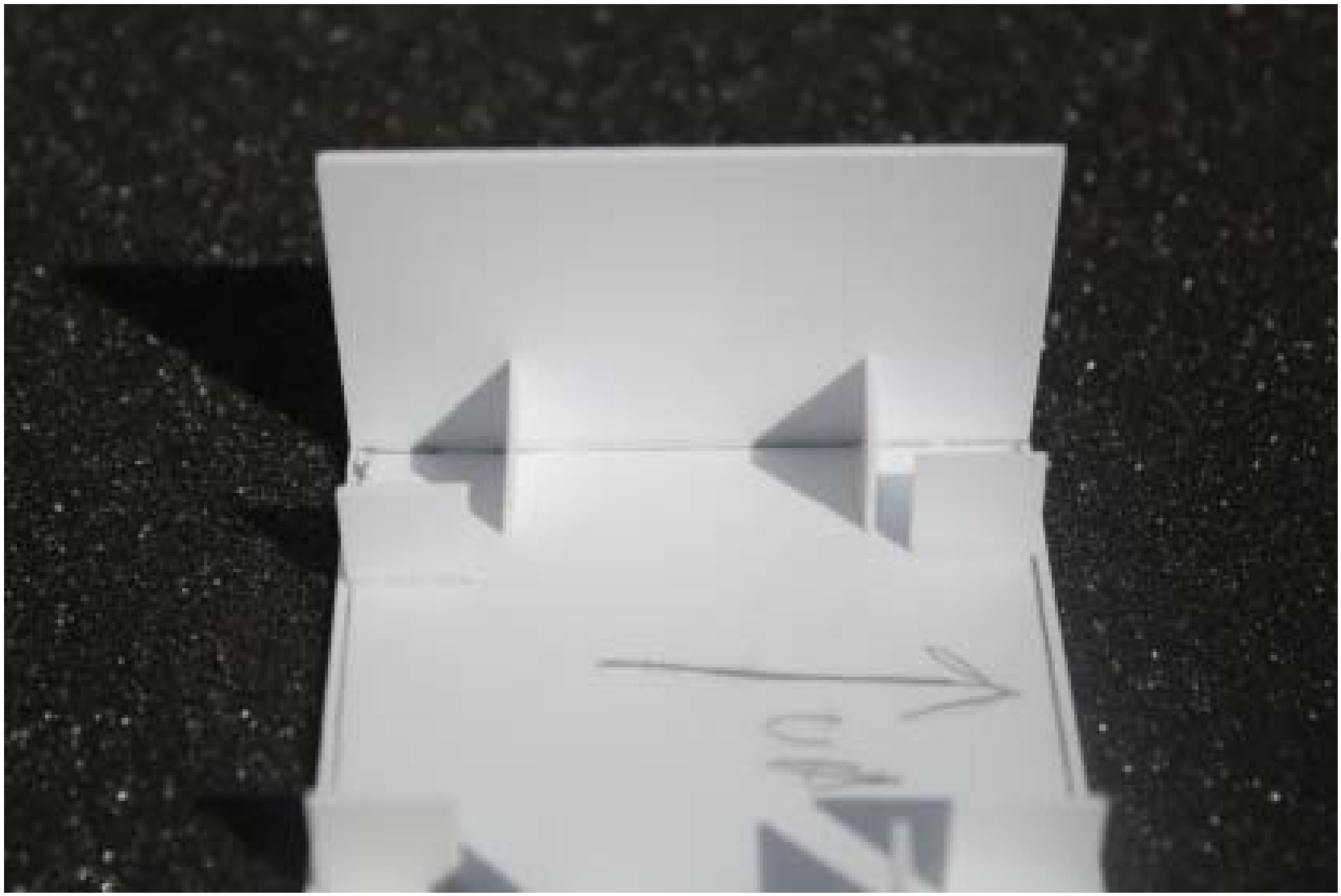
- Both sides **MUST** be the same height and width
- Both ends **MUST** be the same width, and the same height as the sides
- The top and bottom **MUST** be the same width as the ends, and the same length as the sides are wide, less .060 inches

Scribe .030 in from the edge of the side panel

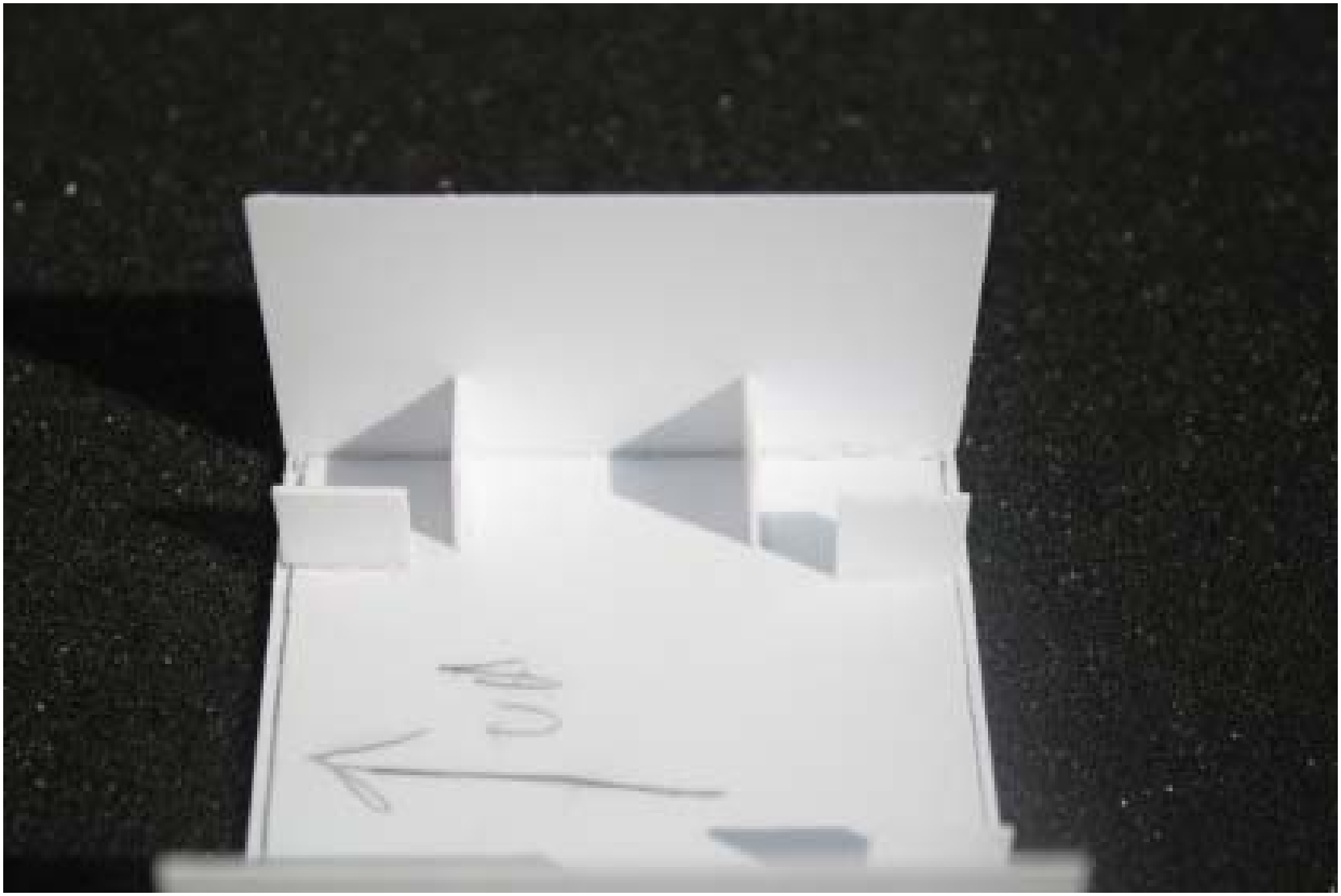
Braces on Side Panel



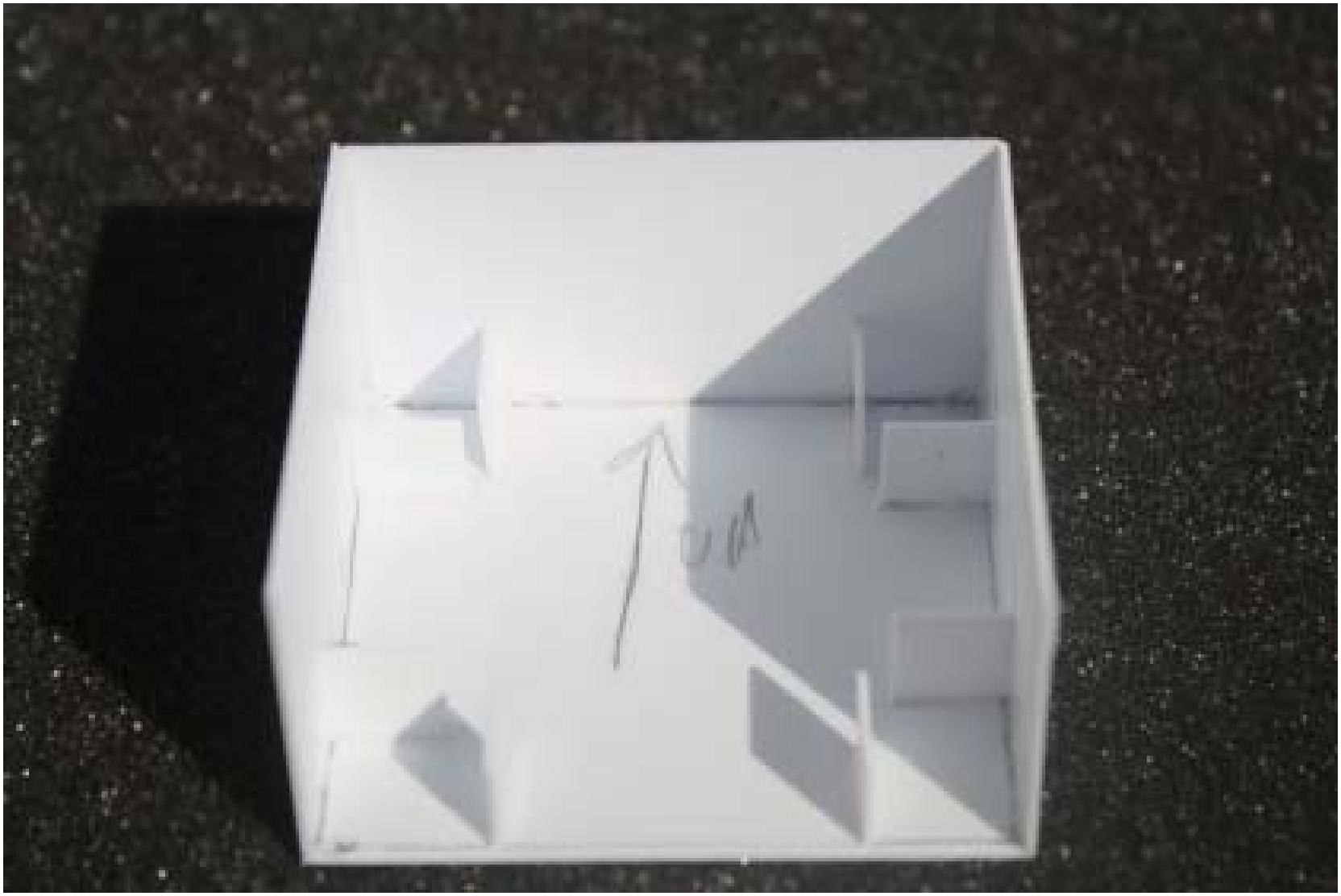
Glue in the first end panel



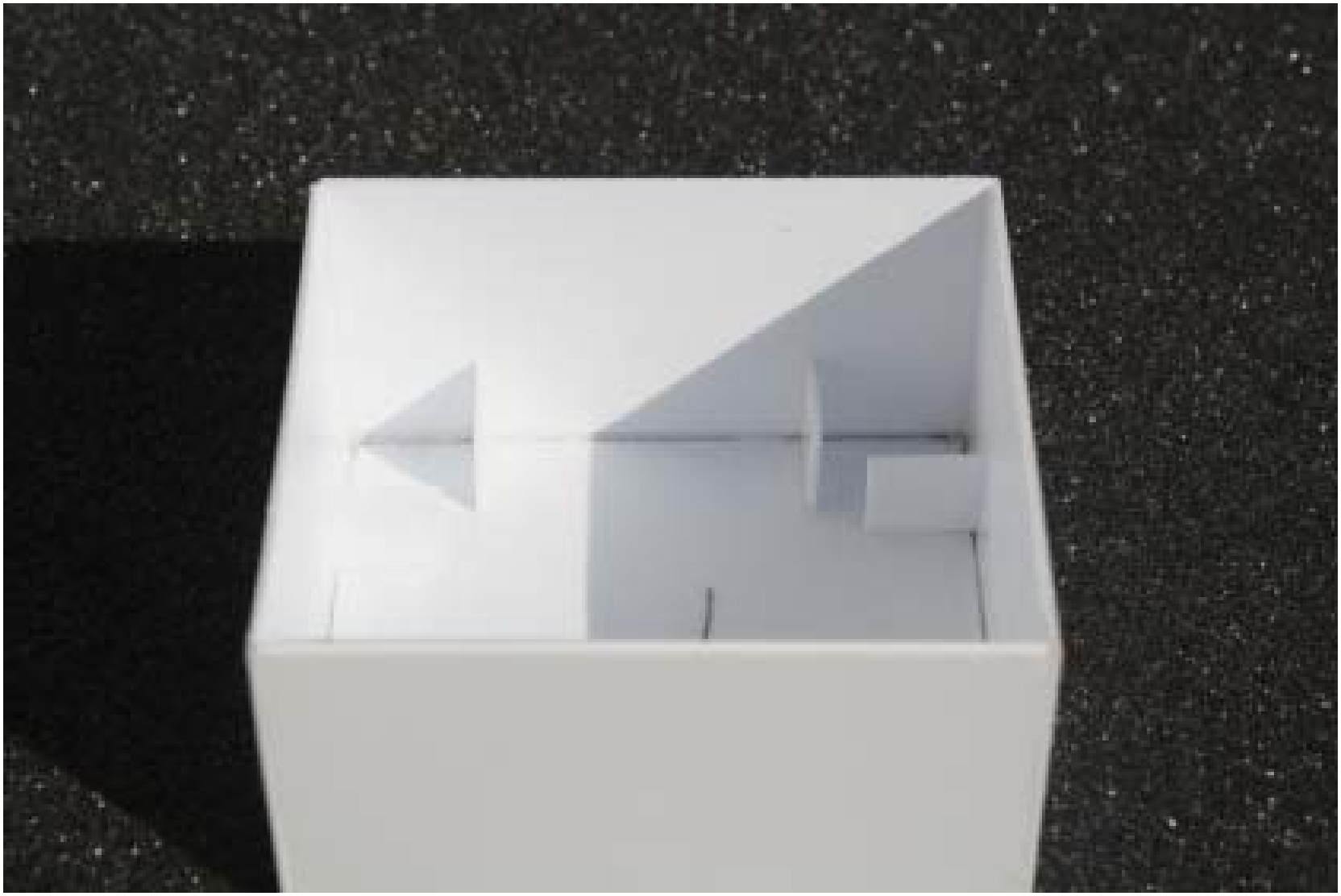
Glue in the second end panel



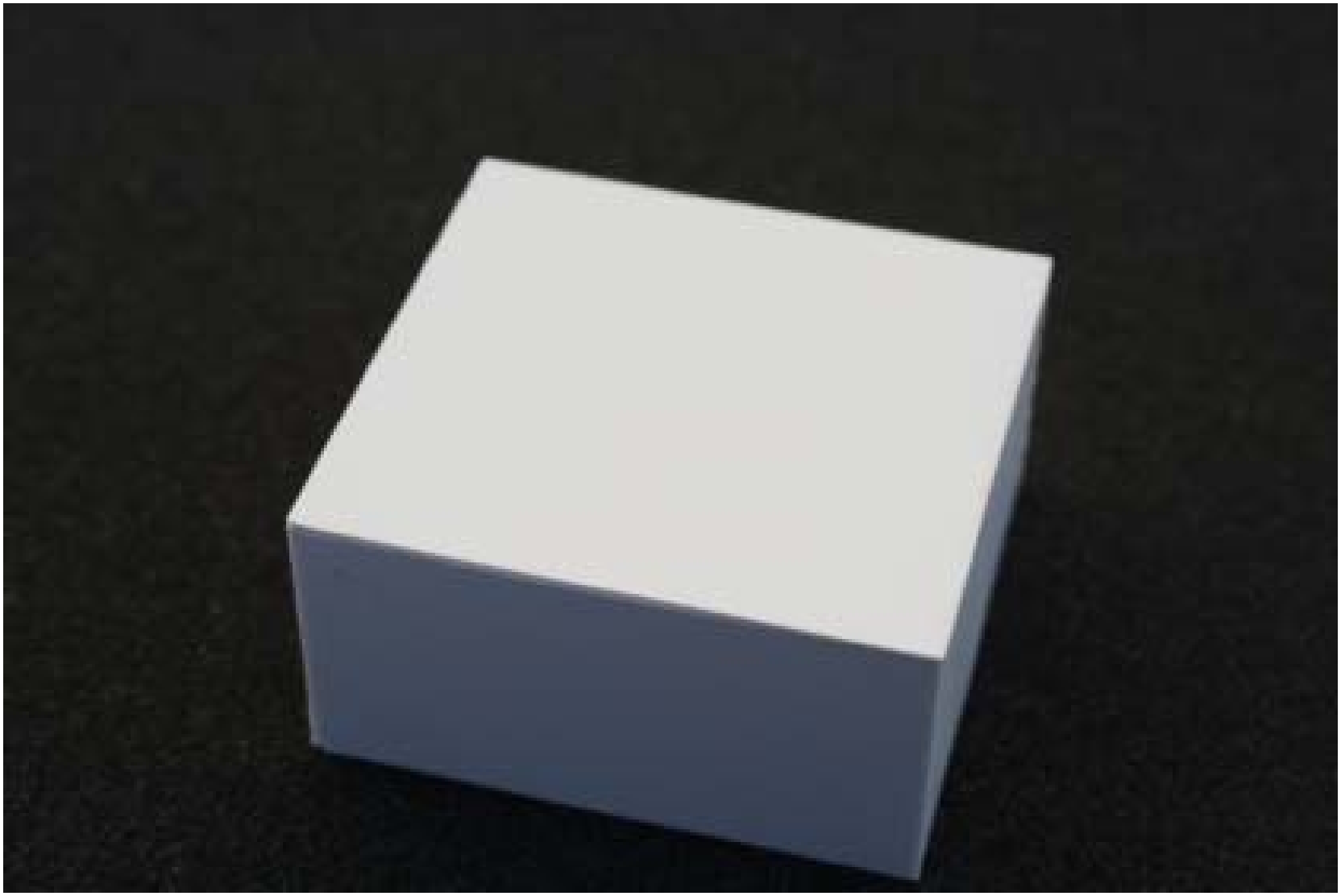
Glue in the top panel



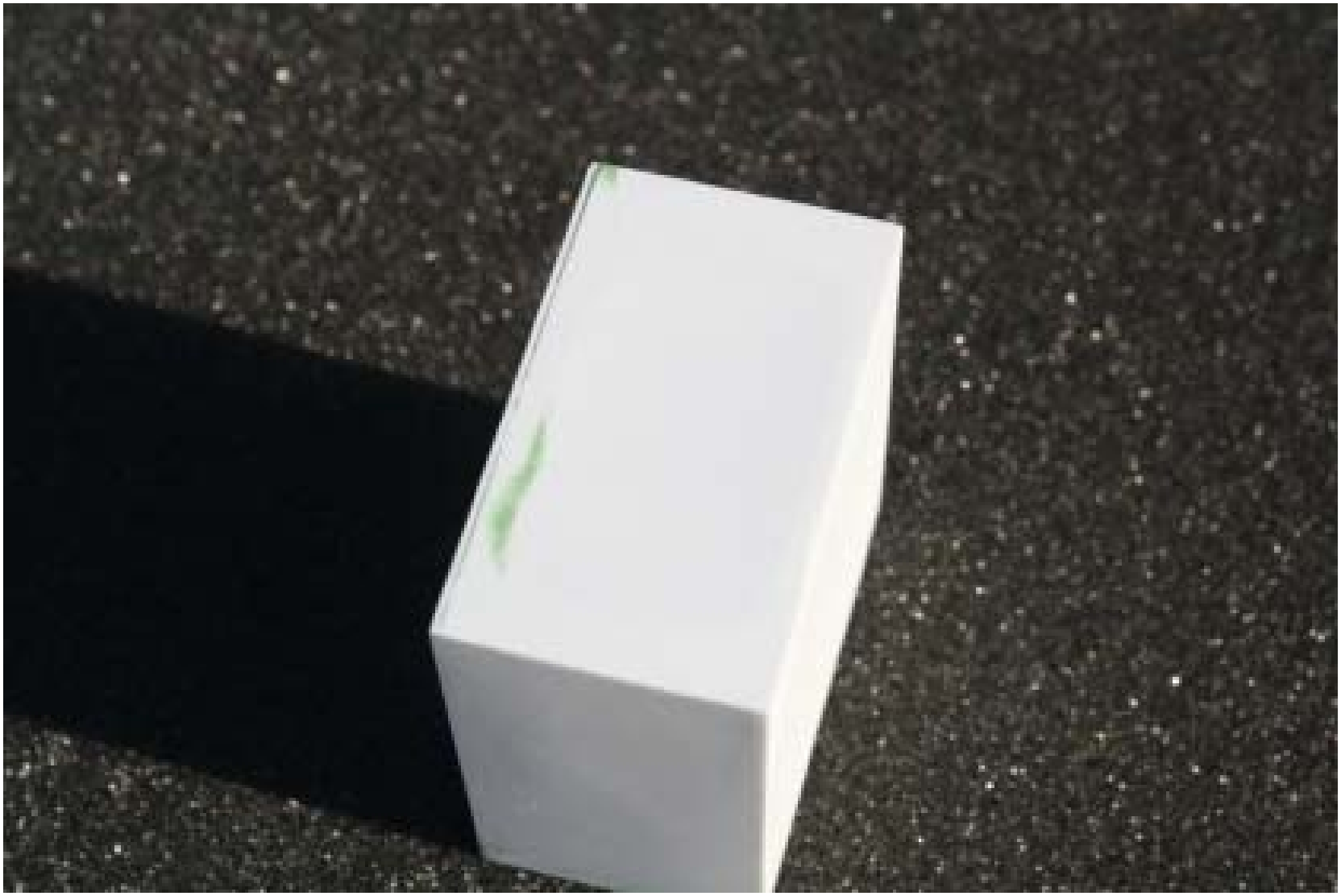
Glue in the bottom panel



Glue in the second side panel



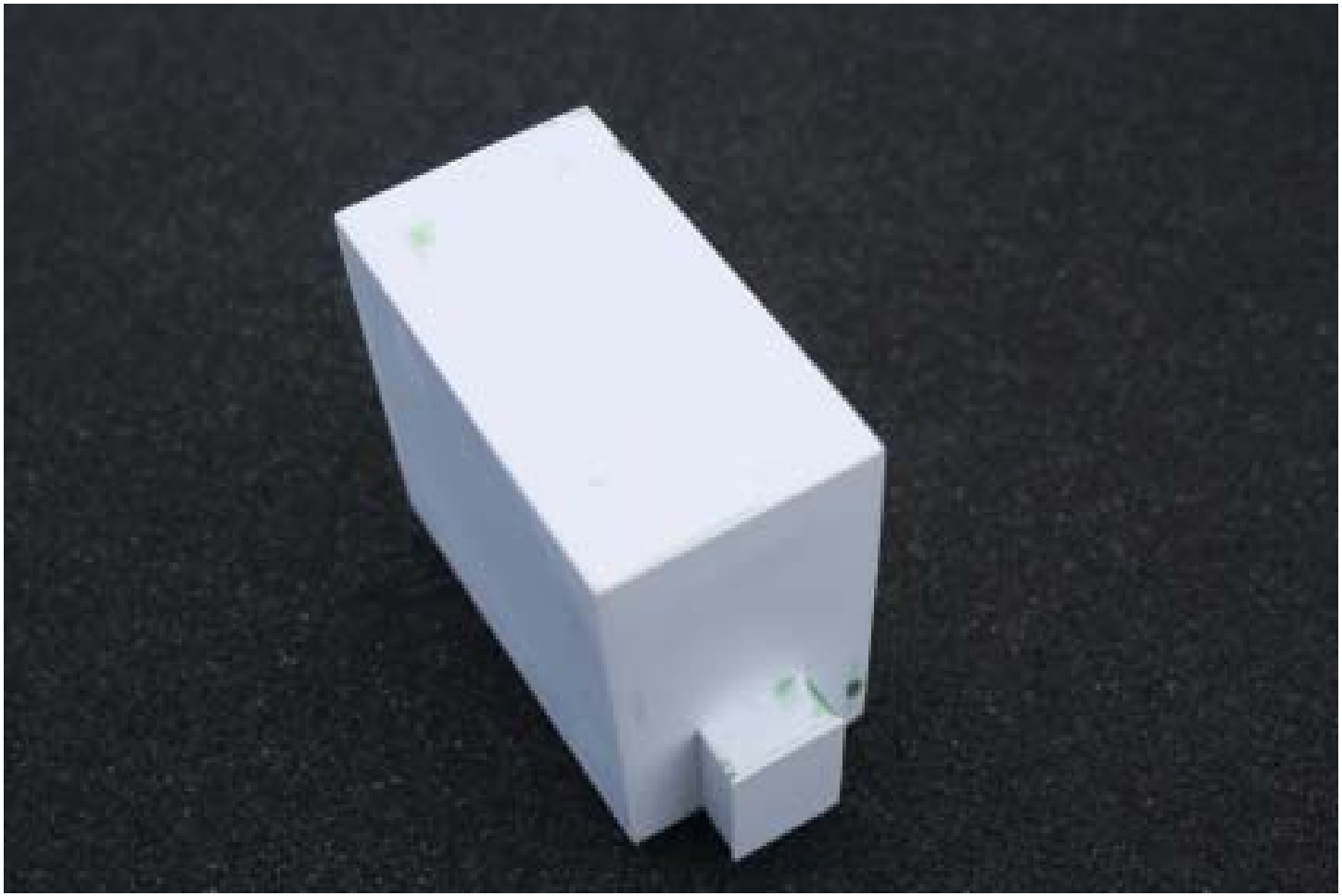
Completed “box,” after putty and wet sanding



Control panel

Control panel

Attach control panel to “box.” Remember to drill a vent hole before you mount the control panel



Build up the base, drill a vent hole

Build up for mounting, use a triangle file to cut a vent reliefs in the base

Building the bottom rib

Building the bottom rib

Building the bottom rib

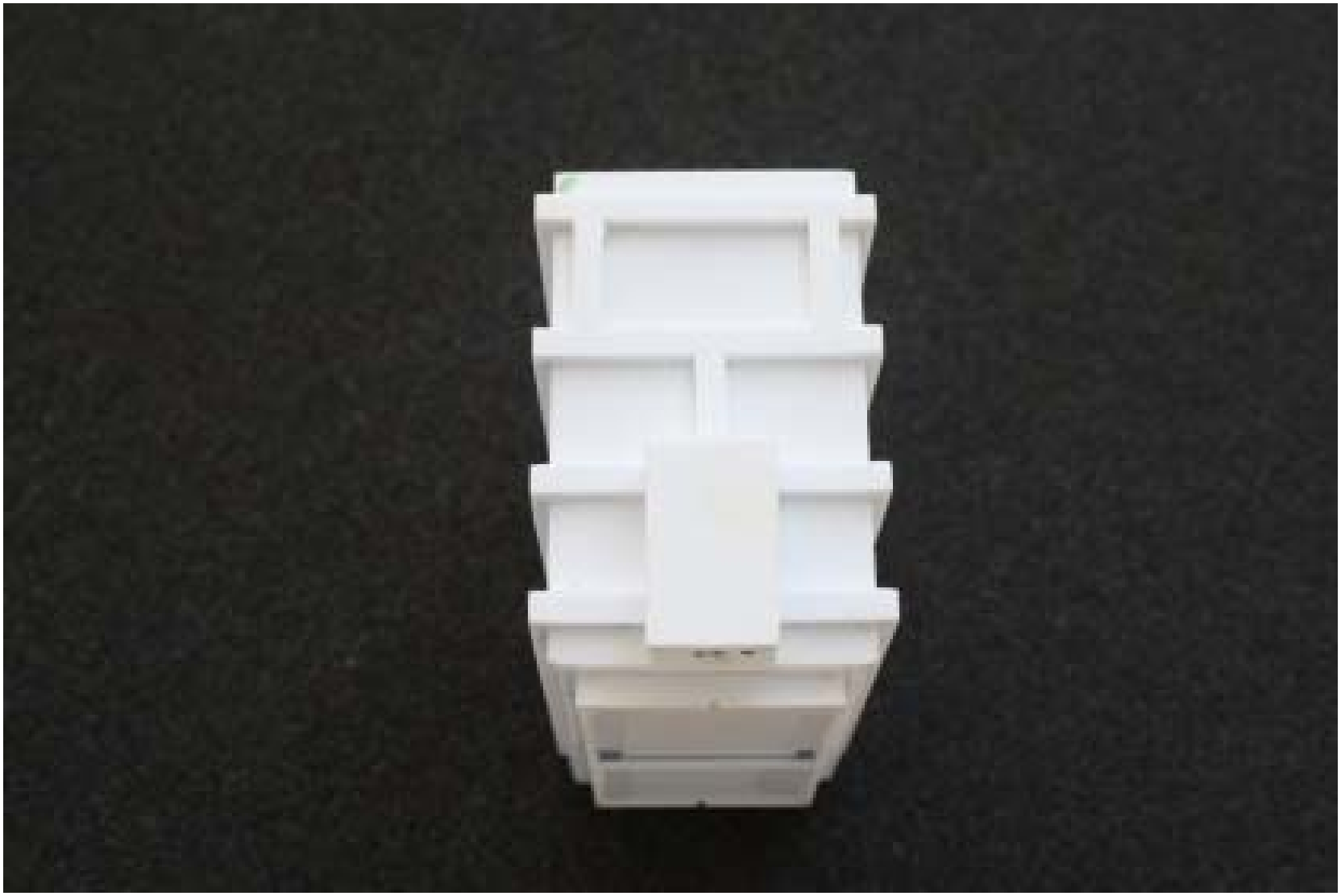
Building the bottom rib

Building the bottom rib

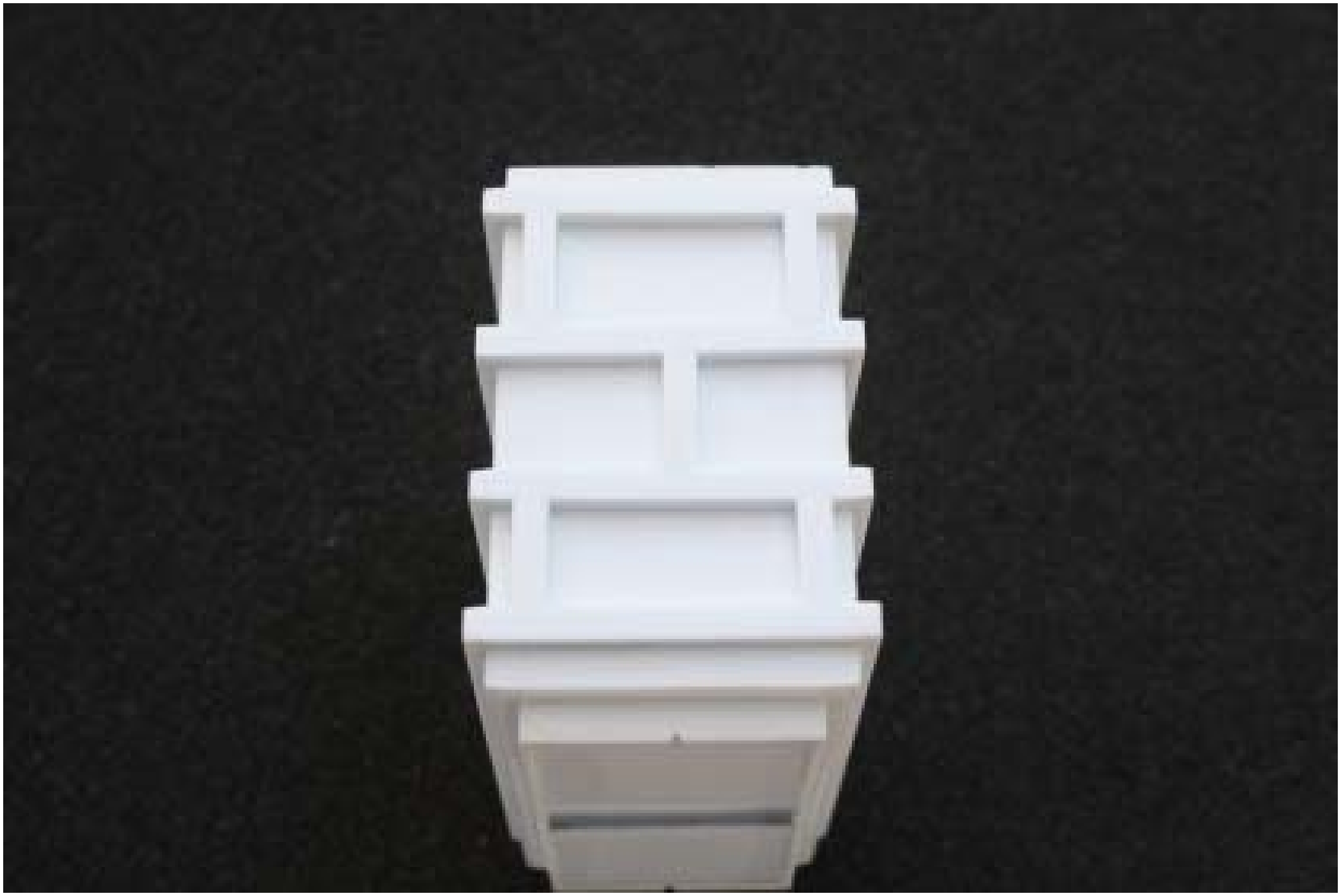
Building the bottom rib

Building the bottom rib

Install the front upright braces



Install the rear upright braces

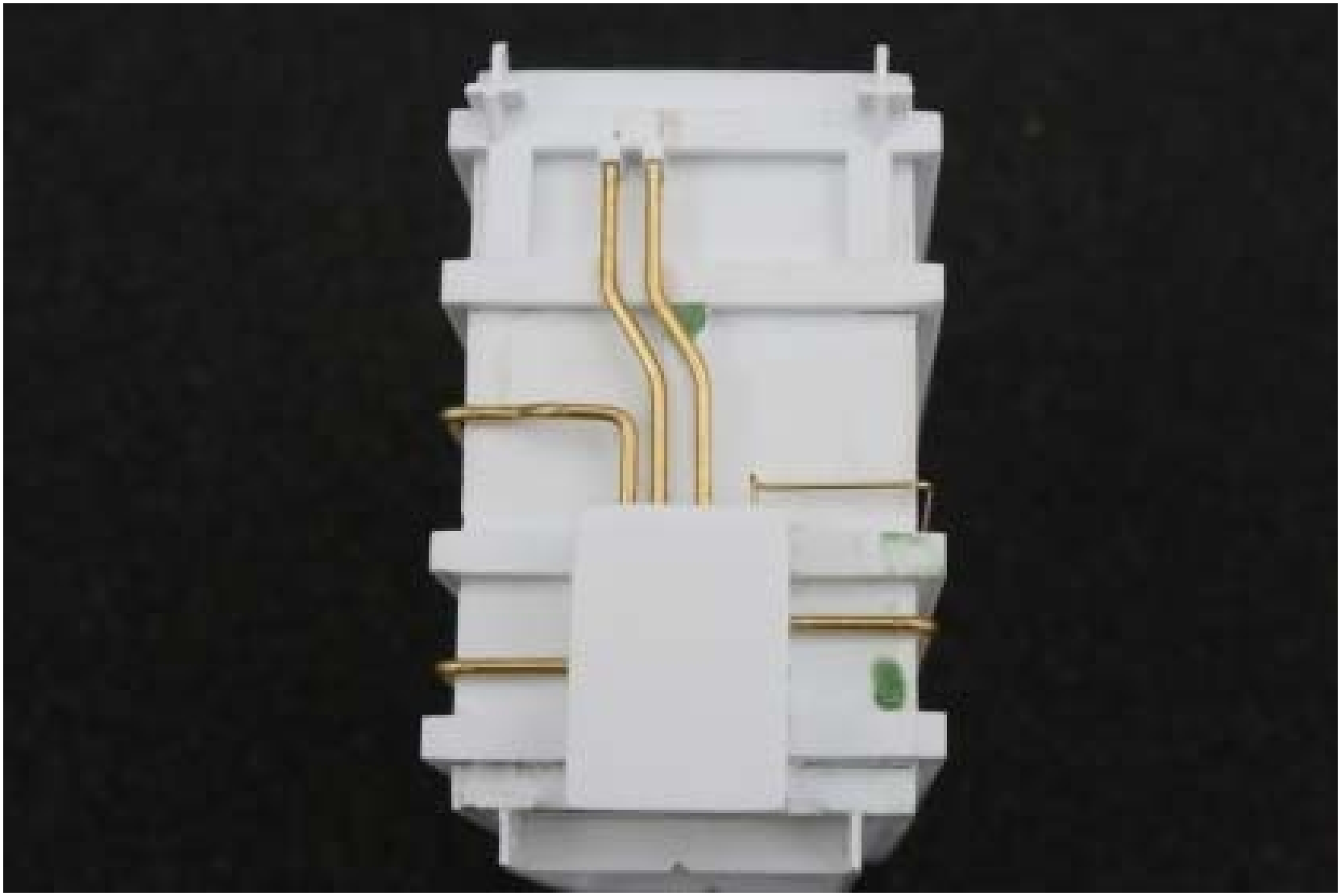


Finished “box” - Use putty on ribs to fill any problem areas and wet sand – be CAREFUL sanding around the control panel

Bottom tie downs

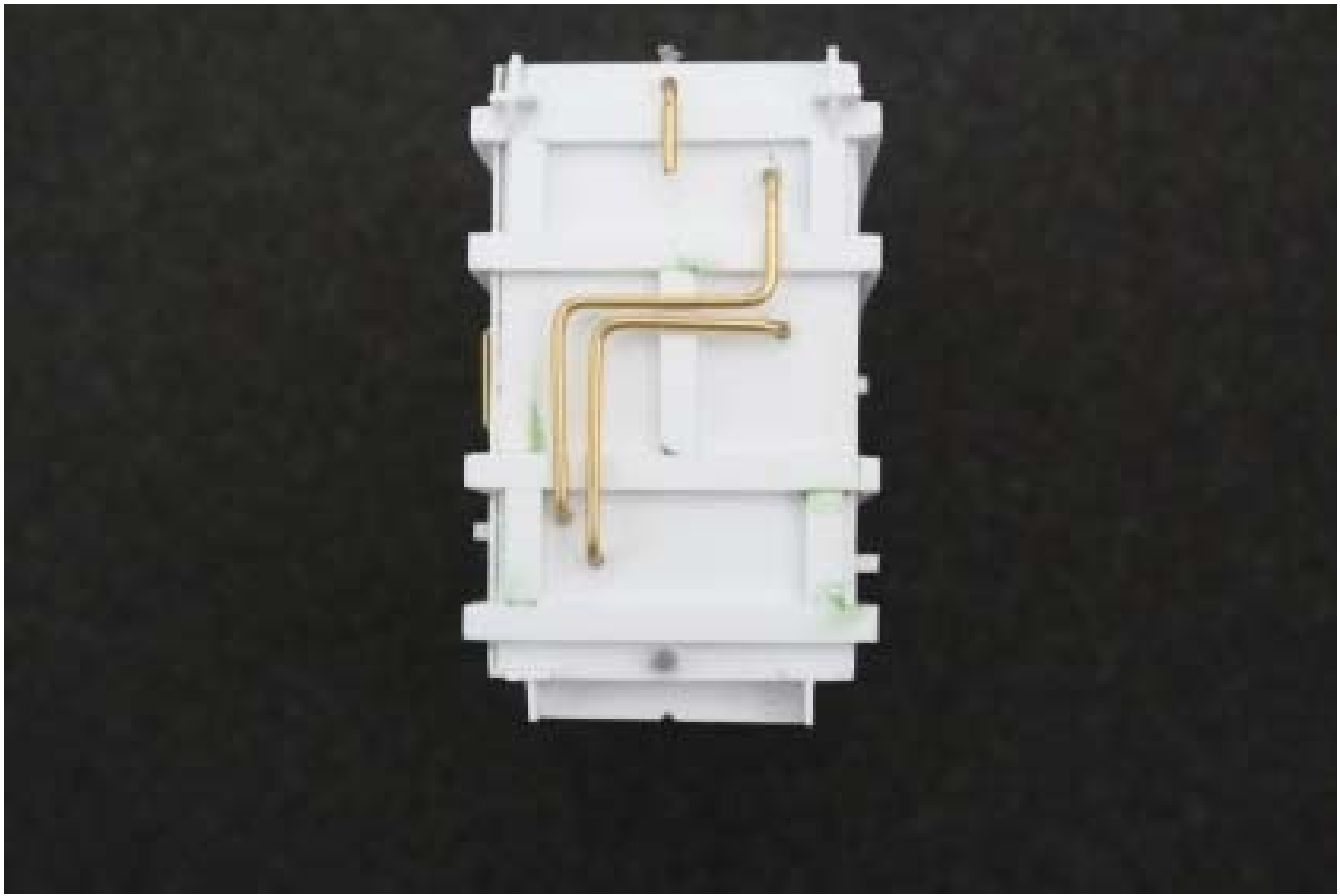
Lift rings

Conduit, panel end (front)



Conduit (right side)

Conduit (rear) – notice oil drain on bottom, vent on the top of the end, and oil filler on top



Conduit (left side) - notice the lower tie down holes

Top with covers and oil fill

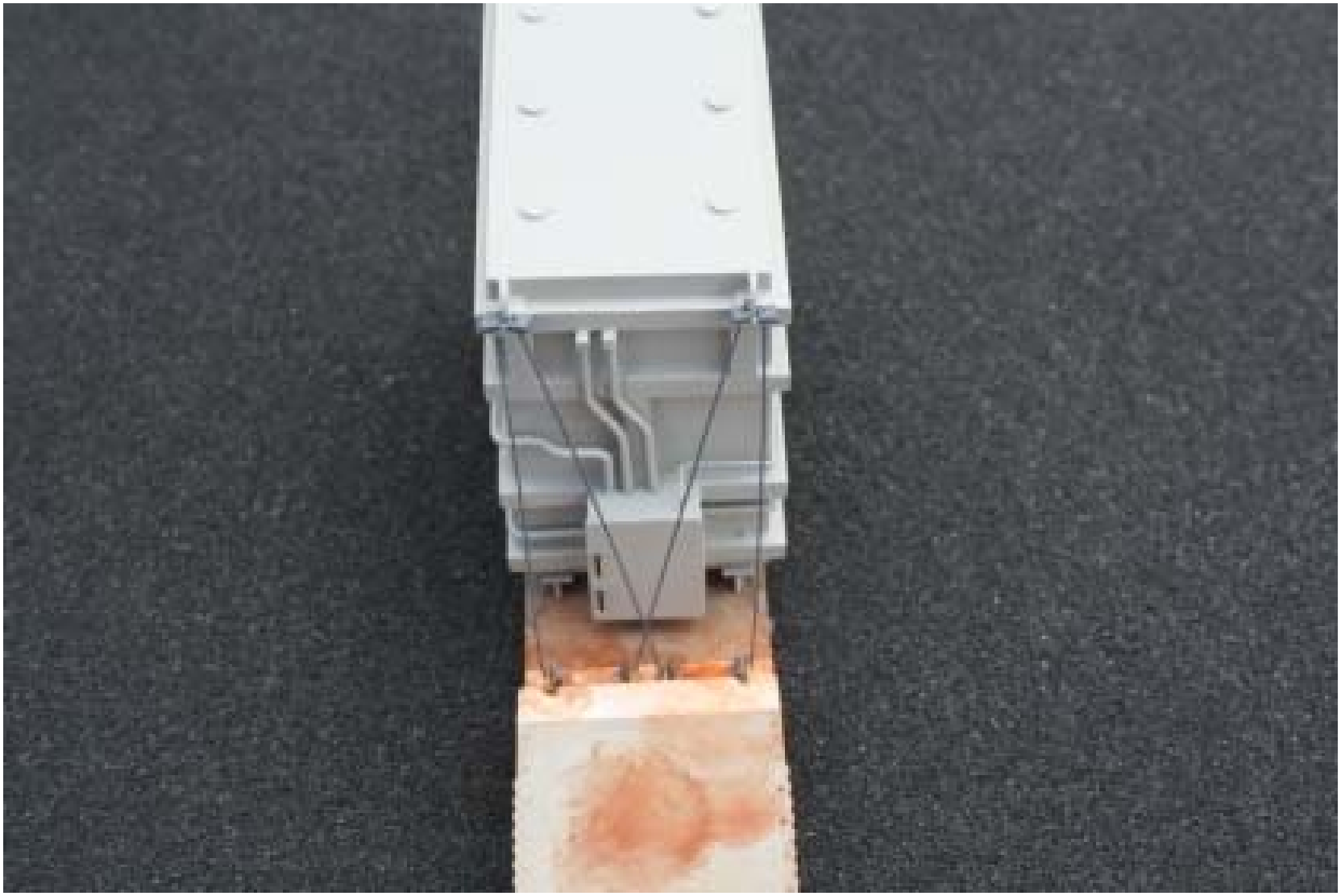
Install handles on control panel door

Paint Transformer

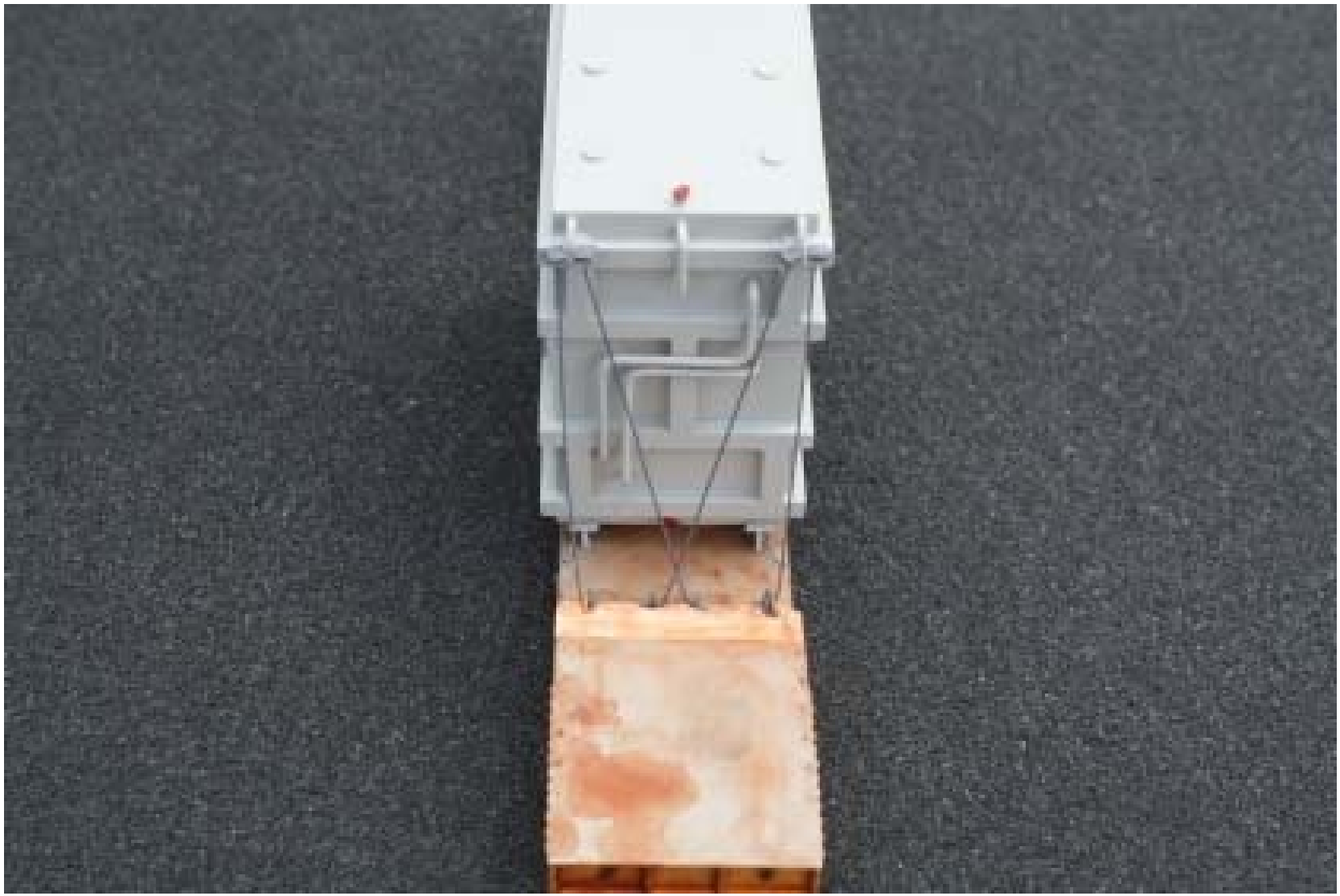
- Wash in warm soapy water
- Remove any large water spots with a paper towel and set aside to dry
- Paint transformer with Camouflage Gray and set aside to dry
- Paint the oil fill and drain covers Insignia Red
- Paint control panel handles Flat Black
- After transformer is completely dry, paint with Dull Coat and set aside to dry

Mounting the transformer

Tie downs (front)



Tie downs (rear)



Lower tie downs

Finished model

Finished model

I hope that you enjoyed learning how to build the large transformer and weathering a four truck depressed center flatcar.

Thanks for attending my clinic, and we hope that you enjoy the rest of the convention!

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Questions?