Canadian WWII Welding Truck

MING WONG

SEPT 2024

Introduction

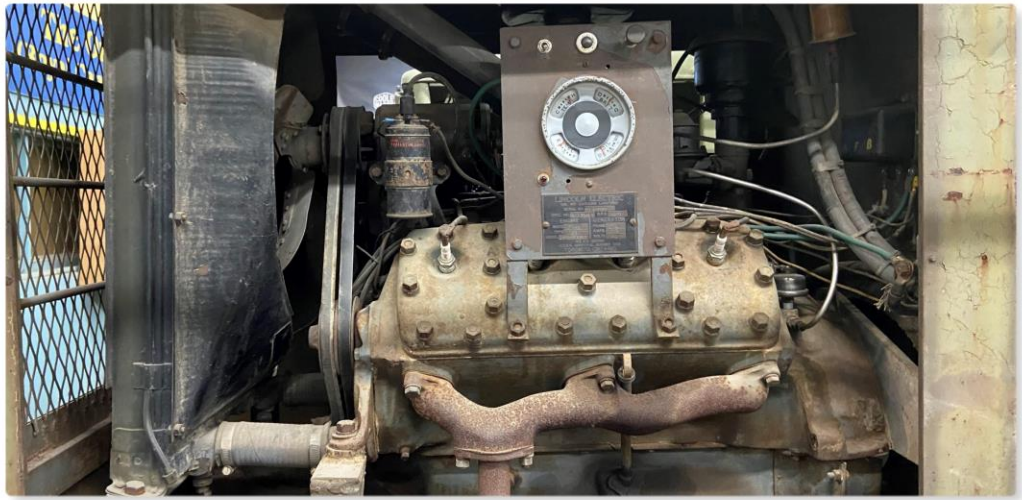
- This truck was a surprise find at the Canadian Tank Museum in Oshawa.
- This kind of trucks were used by for field welding and repair work in WWII such as:
    - fixing broken axles, patching up battle damages and welding additional steel armour.

Introduction

- A standard CMP F15A truck was modified to carry a Lincoln Electric welding unit.
- This truck was made by Ford in Windsor Ontario in 1942.
- The welder was made by Lincoln Electric right here in Toronto.
- The flatbed was made by Brantford Coach and Body.

Introduction

- After 20 months, here's what I have!
- It's been an amazing journey!
- For me, it's the most challenging modelling project to date.
- It's only my 6th model after my retirement so I'm no expert.
- I relied on doing a lot of experiments along the way. I learned a lot.
- Hope some of you find something useful in this presentation.

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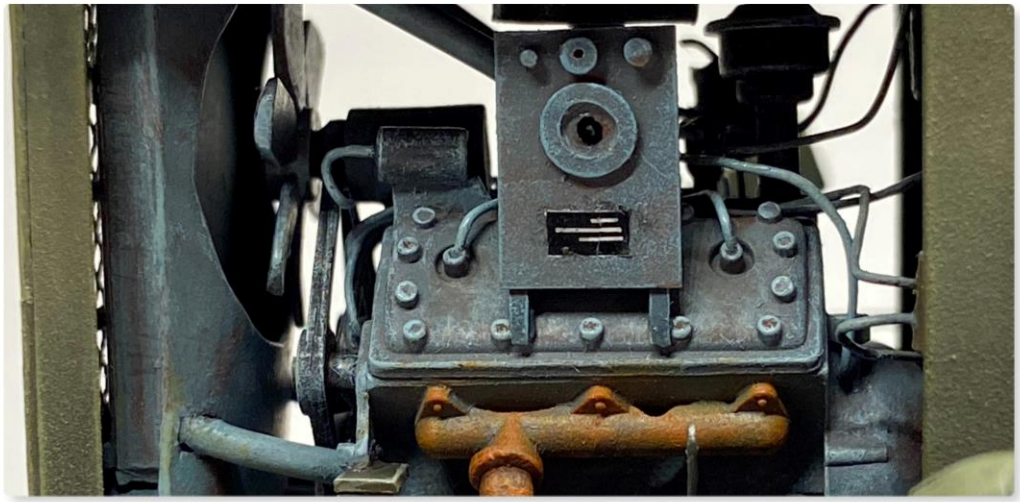

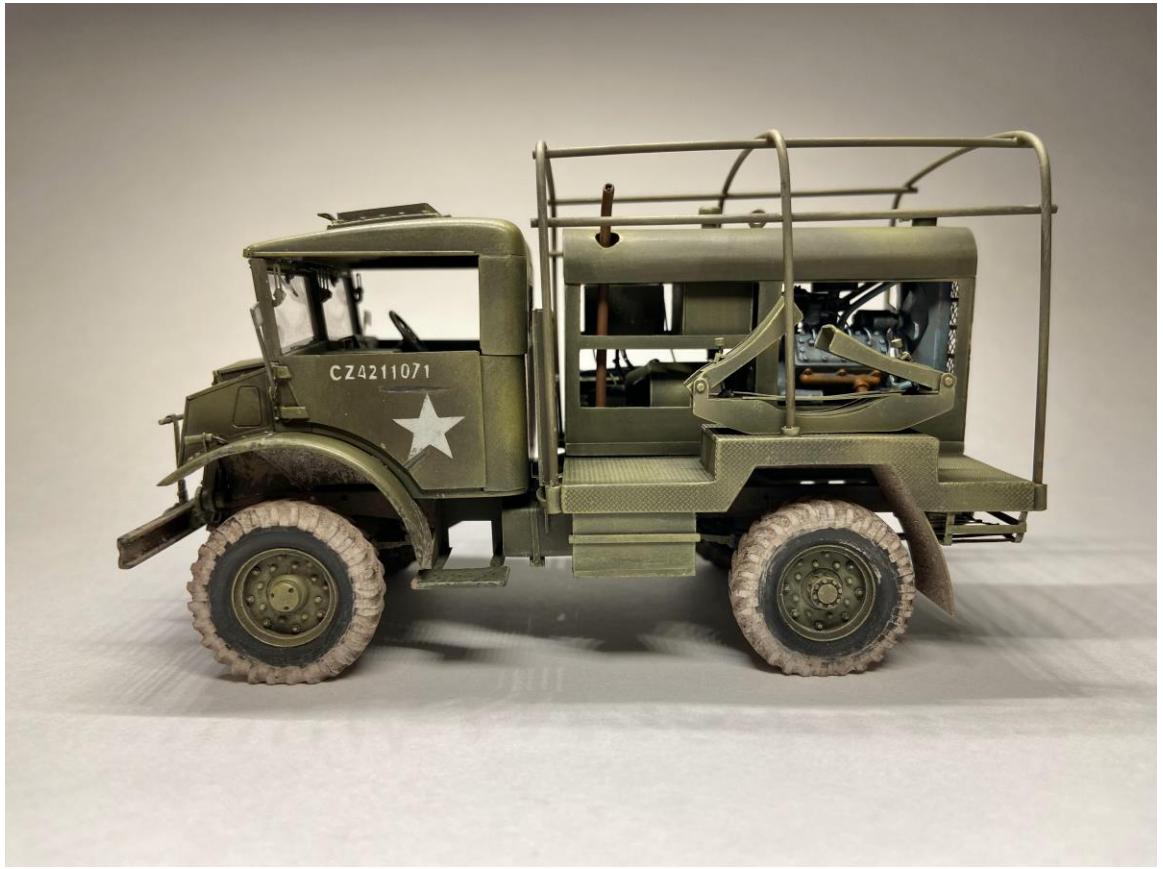
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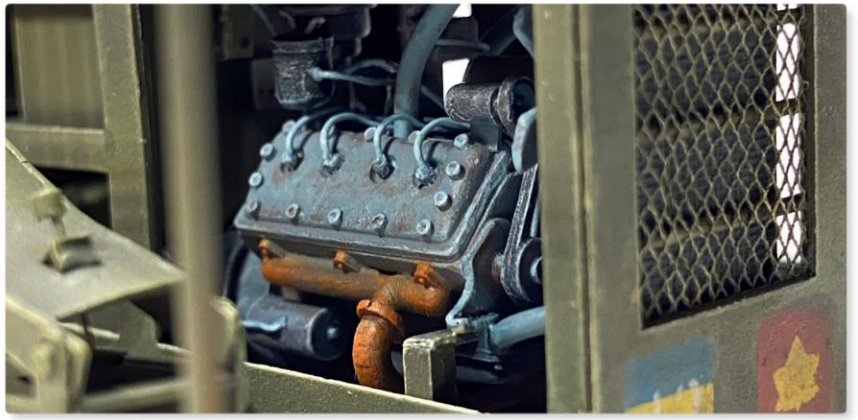


The process

- Research – Understand the history, get reference photos and get dimensions etc..
- Design – What breakdown of parts make sense? How should they be put together and in what order?
- Create parts and sub-assemblies
- Assemble (dry fitting)
- Paint

Research

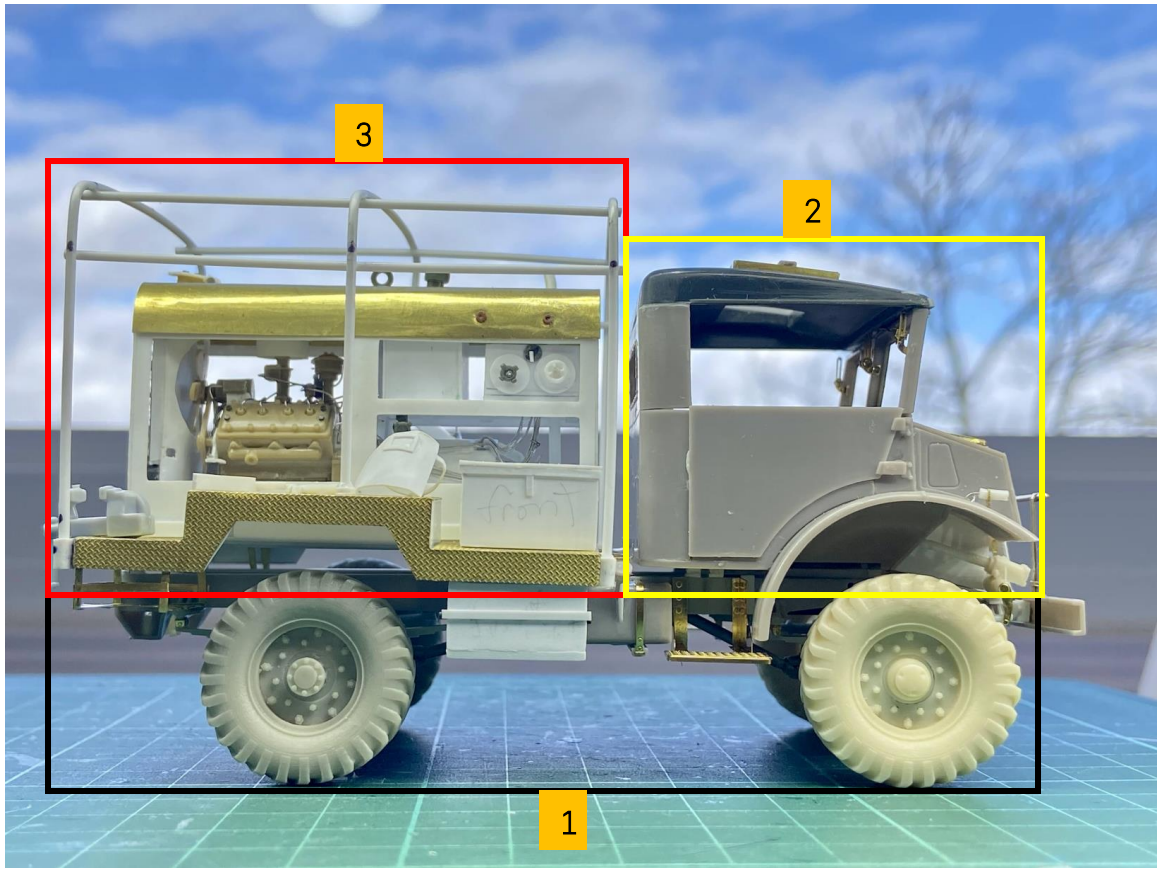
- Measured the truck at the Canadian Tank museum.
- Took lots of photos and some photos sent by a nice museum volunteer
- Another nice volunteer opened up the truck to let me take photos inside and explained the history
- Reviewed another truck at the Camp Borden Museum and took lots of photos
- Connected with folks in relevant Facebook groups to get info. e.g. the detailed differences between F15 and C15 and the proper vehicle markings
- It's a continuous process throughout the project

Design goals

- Ease of painting
  - Interior details can't be painted after the model is fully assembled
  - I needed to design the parts and sub-components based on how/the order I'll paint the components
  - It should allow me to paint the interiors, the sub-components and the entire model in a logical step-by-step process
  - This required looking ahead on the painting process
- Ease of doing dry fitting tests
  - Due to the amount of scratch building, I expected to do many dry fitting tests during the whole build process
  - I needed to design the parts and sub-components to be readily removable and re-installable
  - This required location aids built-in to allow me to re-install the sub-components at the exact position each time

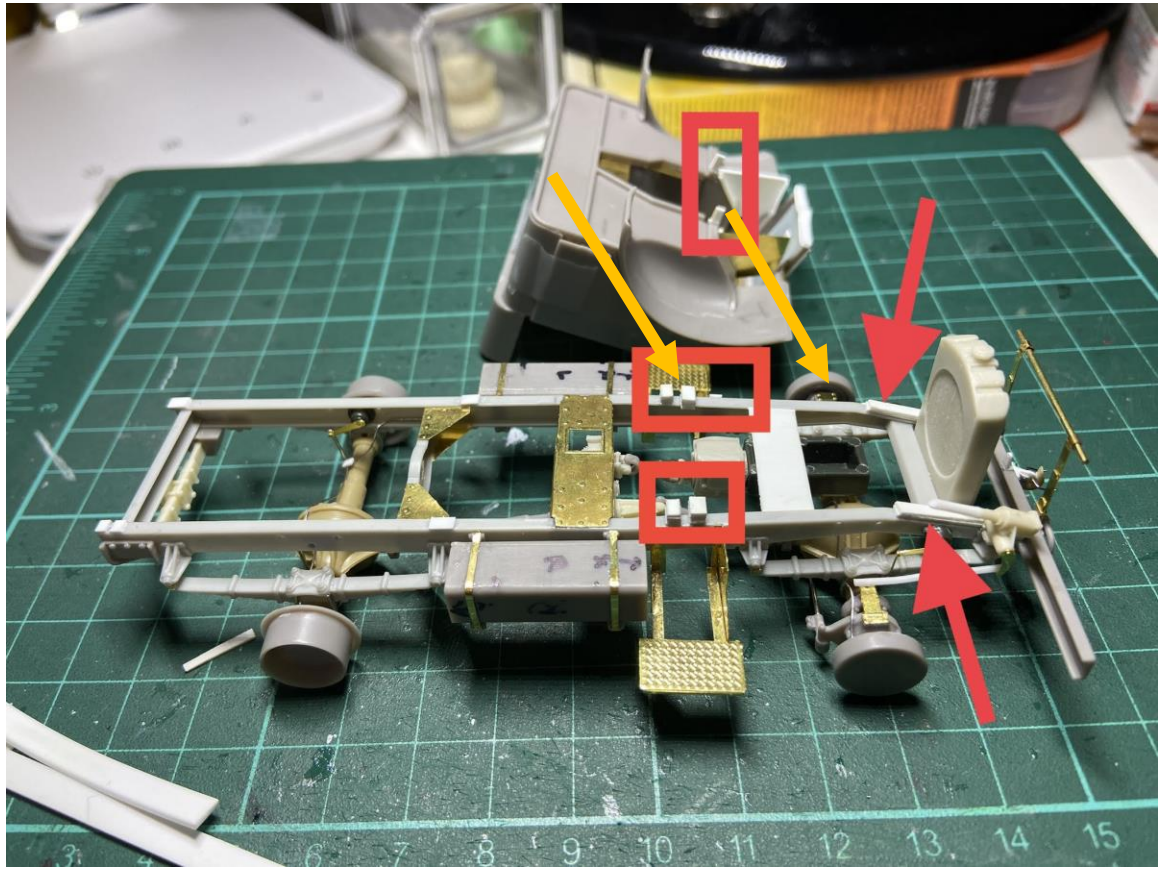
Main components

1. Chassis, wheels and etc., basically the underside
2. Cab
3. Welder and support structure/platform



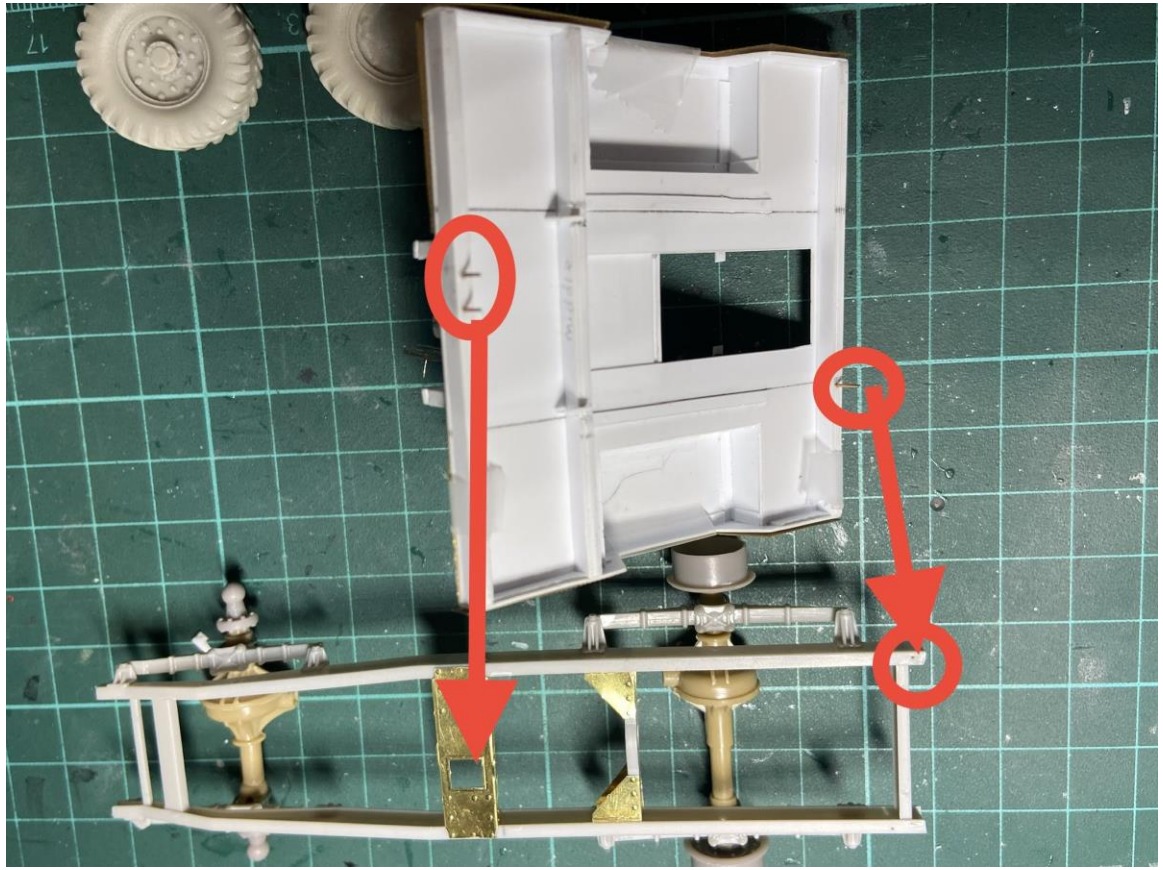
Cab Assembly Design

- Location pins and grooves for installing the cab onto the chassis
- Cap is still removable today



Welder Platform Design

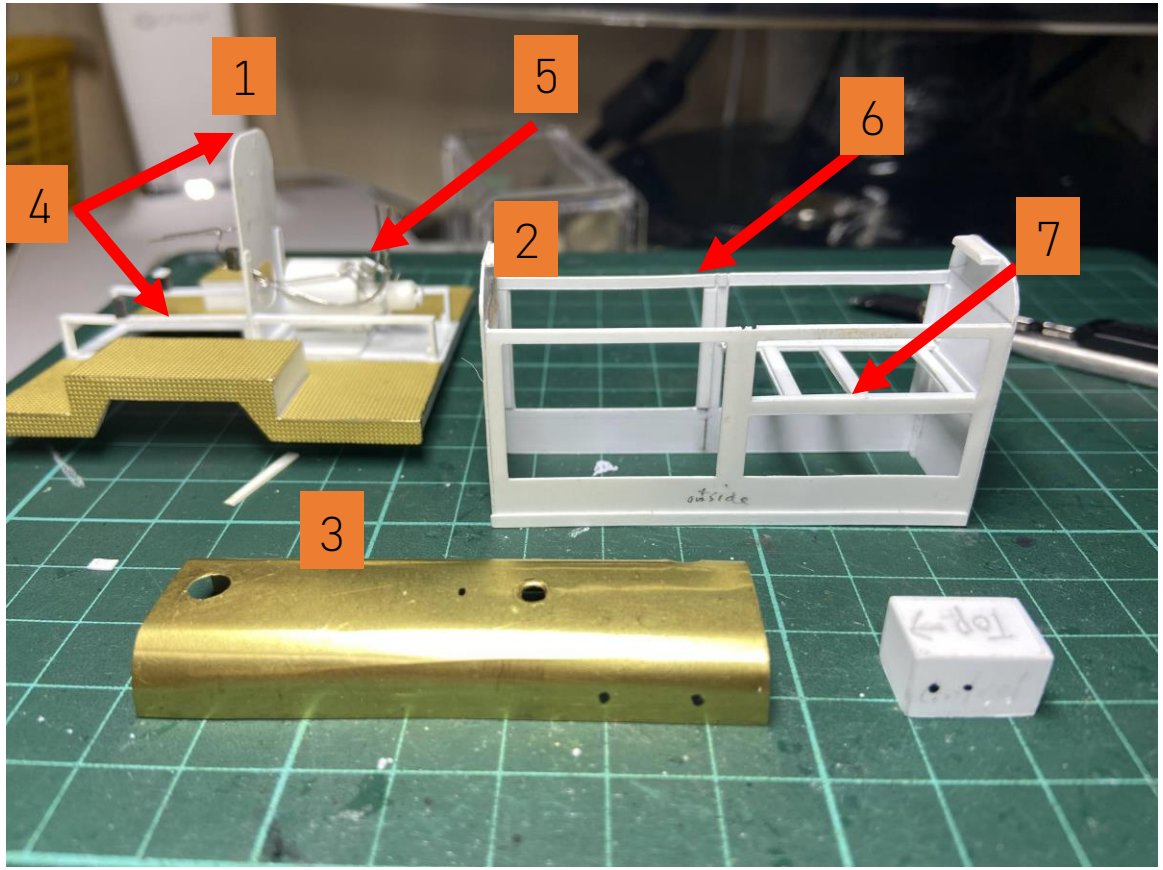
- Metal location pins for installing the welder platform onto the chassis
- Platform is still removable today



Welder Design 1

•Main welder components and features:

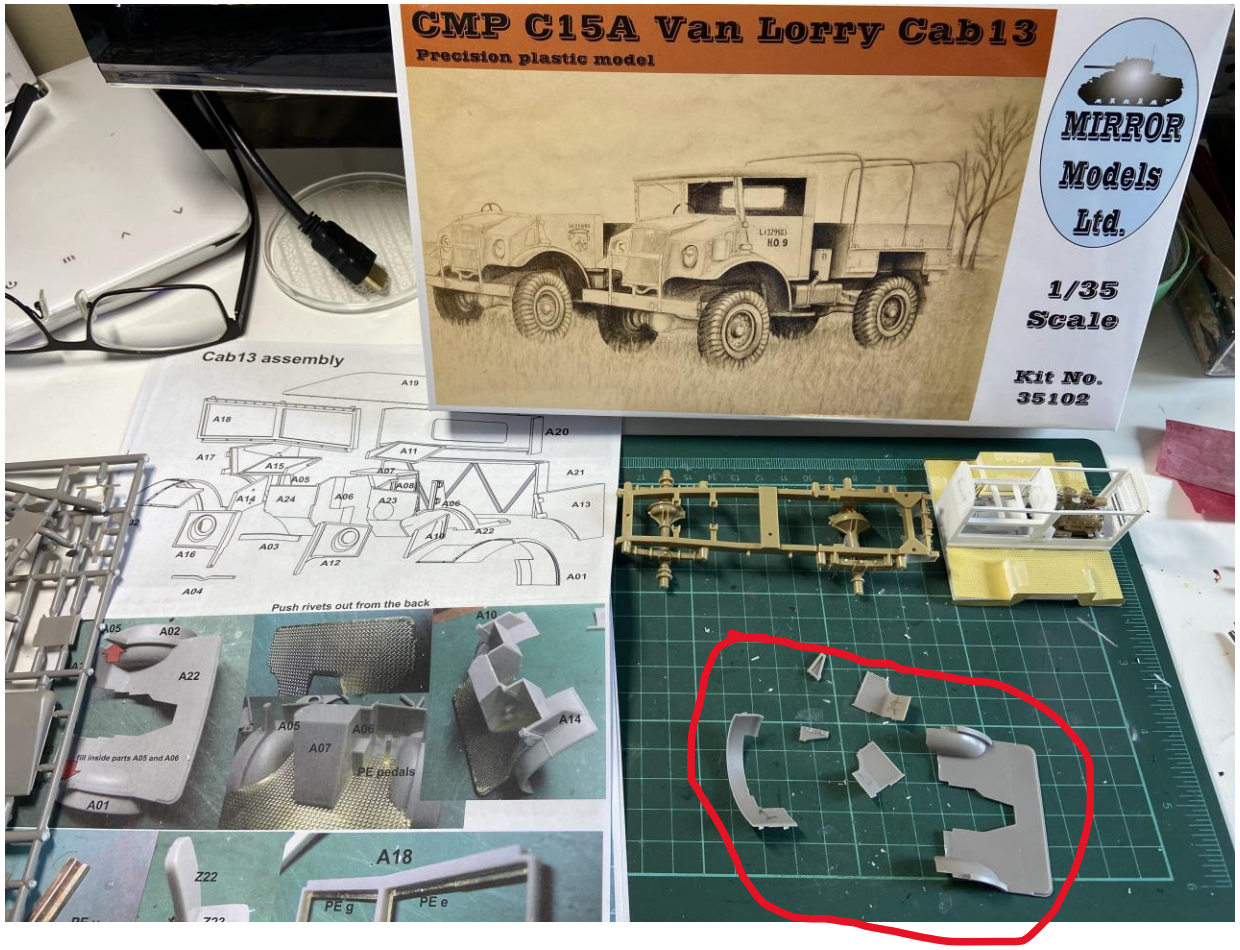
1. Welder platform with supporting middle divider wall
2. Welder enclosure
3. Welder roof
4. Welder engine stand and middle wall help to hold up the enclosure
5. Generator is glued to the welder platform
6. Grooves are made to hold the middle wall in place
7. An upper self is made and glued to the enclosure to hold the gas tank and control box



Welder Design 2

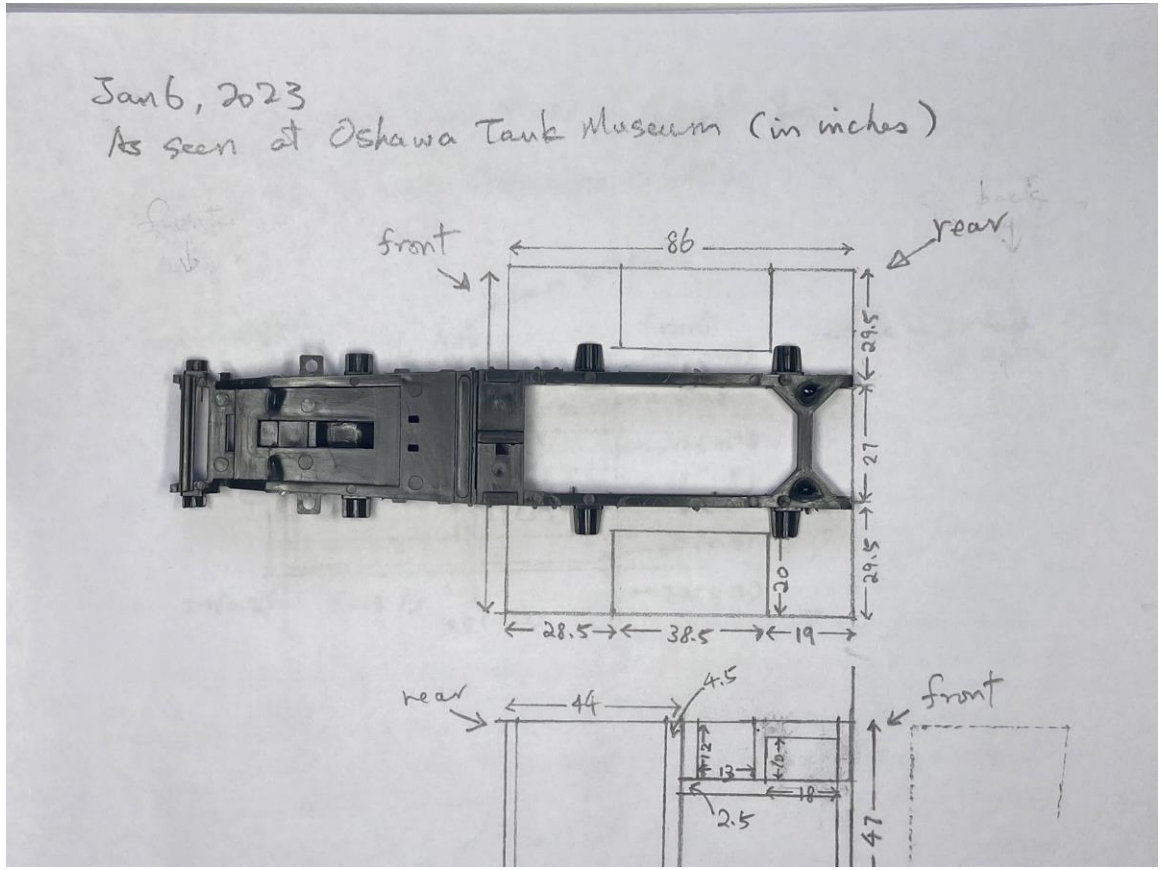
- Generator is glued to the platform right away
  - As it's the same color as the truck body
- An upper shelf is made to hold the gas tank and control box
  - I can slide the enclosure from the top and have the generator wires go into the bottom of the control box
- Gas tank and control box are removable until final assembly
- The welder platform, enclosure and roof are still removable today

Design – make sure my parts fit the parts that I take from other kits

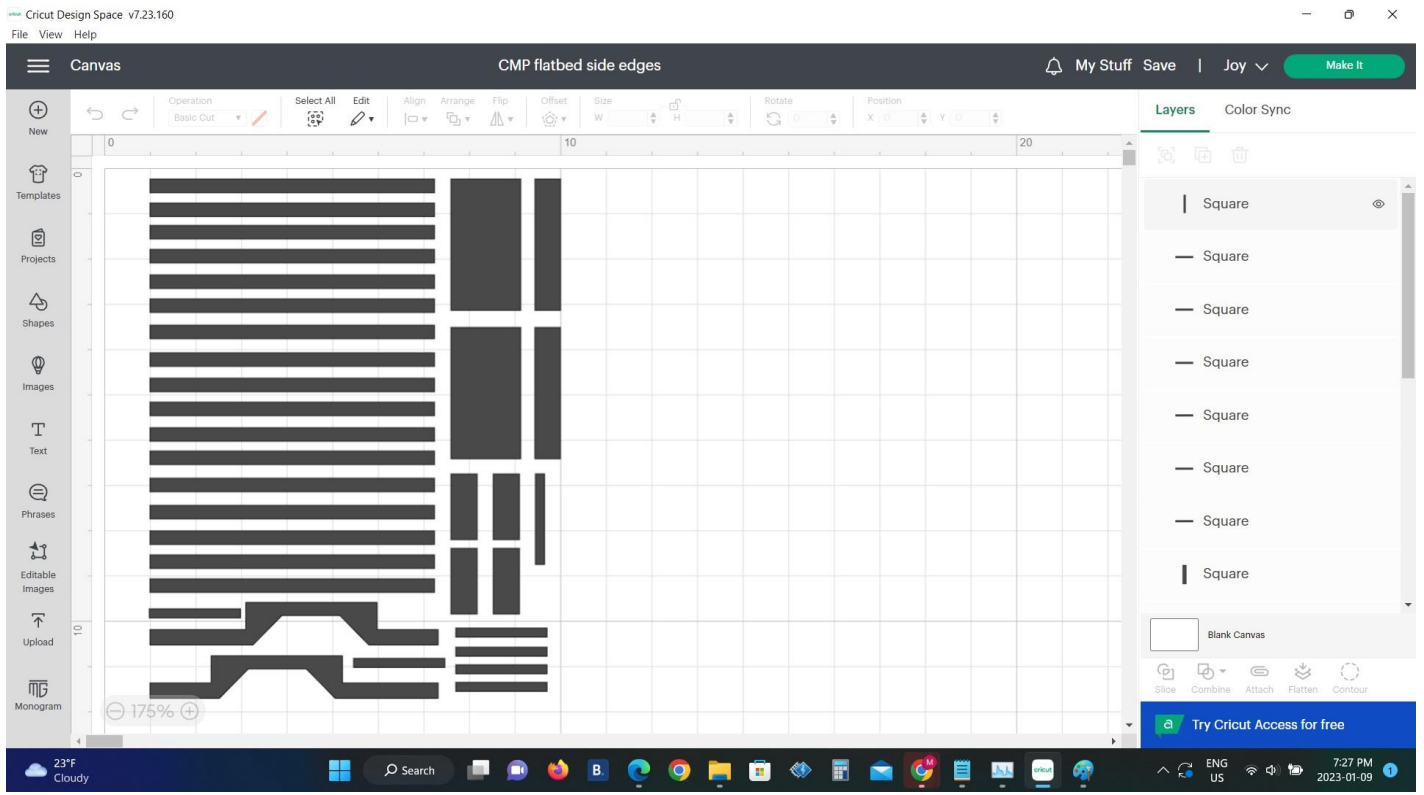


Design – hand drawings

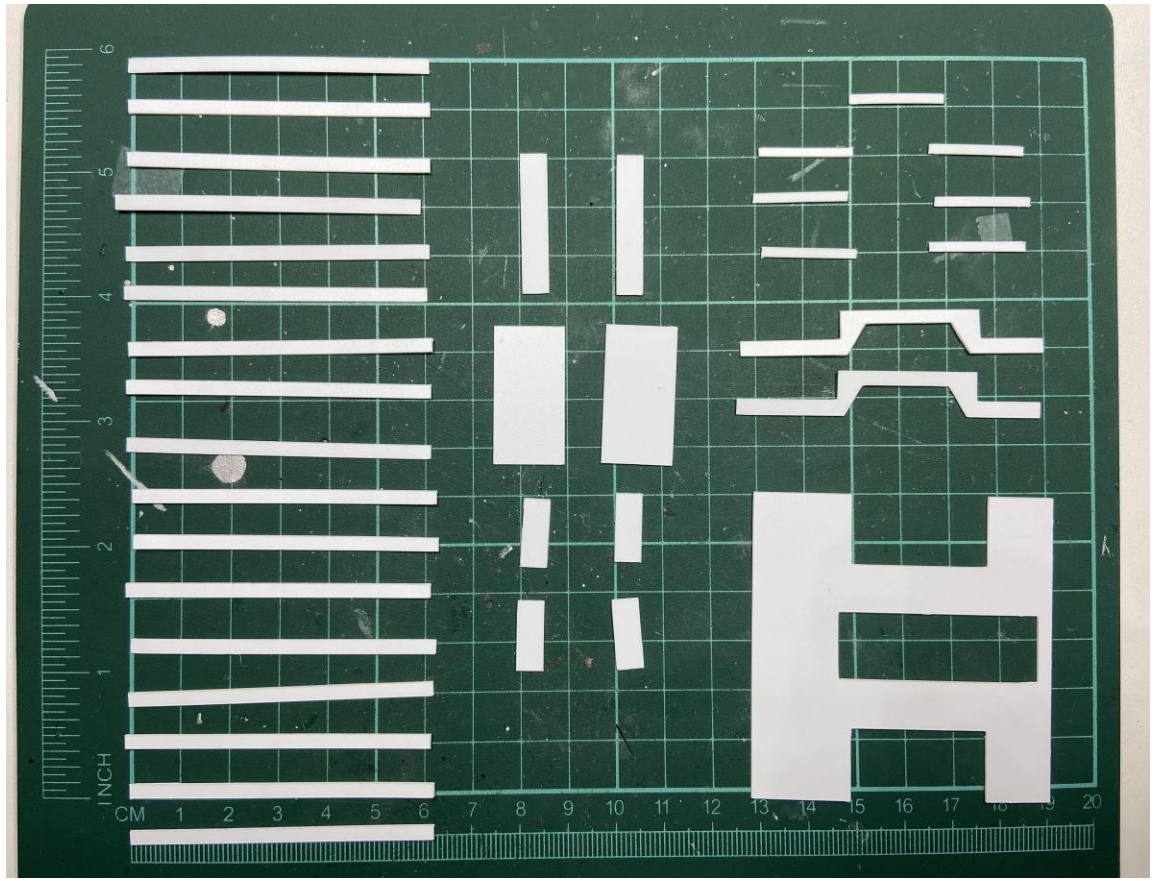
- Draw 1/35th scale diagrams of the parts with the dimensions I took at the museum.
- When two parts overlaps, the thickness of the other side need to be subtracted.
- Measure the drawings against parts from other kits I used,

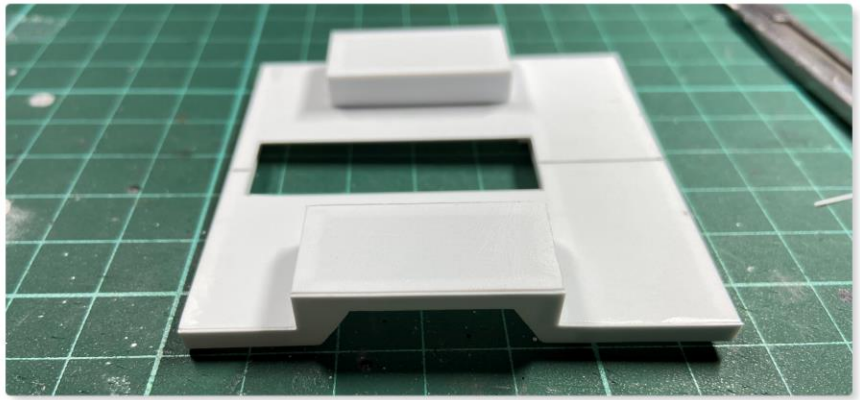


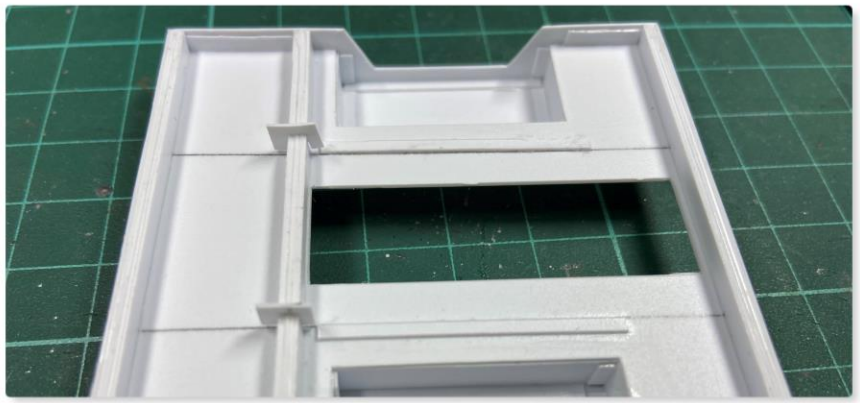
Create parts – translate drawings into Cricut design on my computer



Create parts – Flatbed parts and assembly

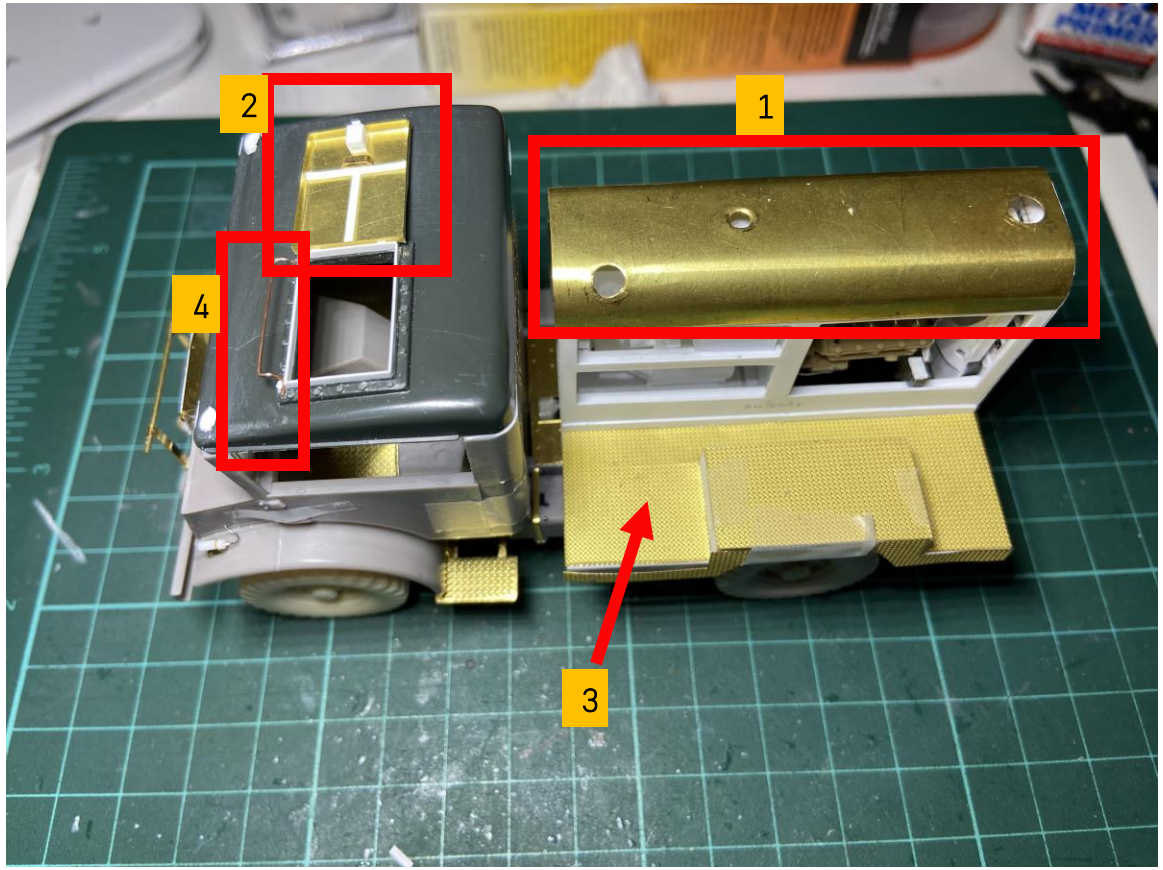






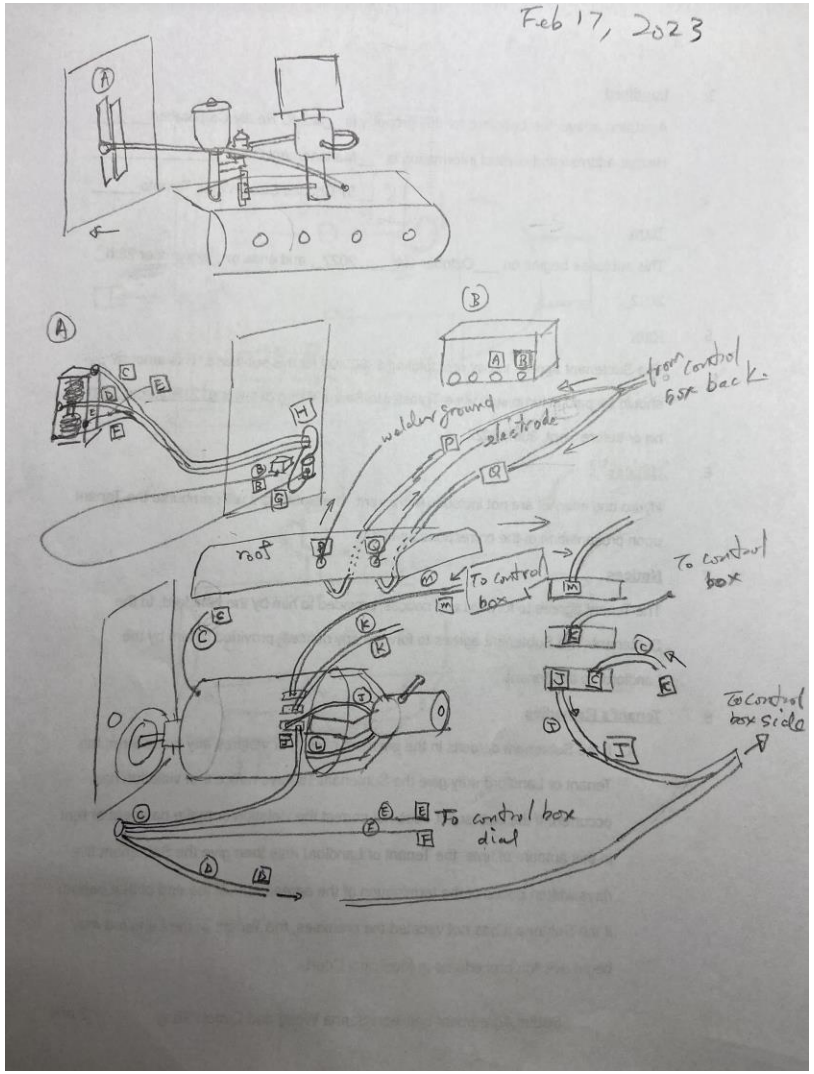
Create parts – examples of metal parts

1. I had to make the welder roof with brass sheet as styrene sheet can't hold the curved shape!
2. Brass sheet for the roof hatch door is much stronger than thin styrene.
3. Can't make anti-skid plates by hand. Bought generic ones and cut them in shape.
4. Brass rod for roof hatch handle for sturdiness
5. All the above were cut and shaped by hand!



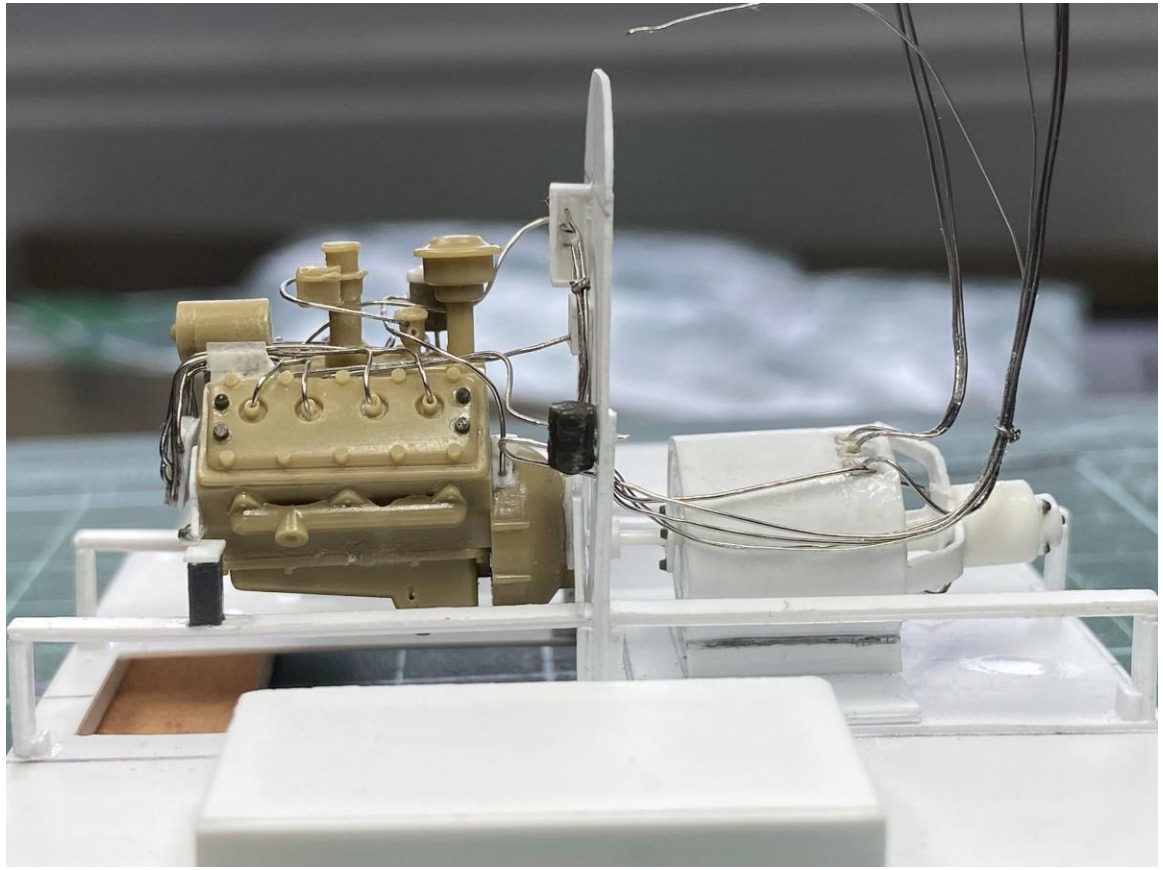
Create parts – wiring 1

- Studied the wiring of the truck based on photos I took and internet search
- Learned a bit about parts of a welder and how it works



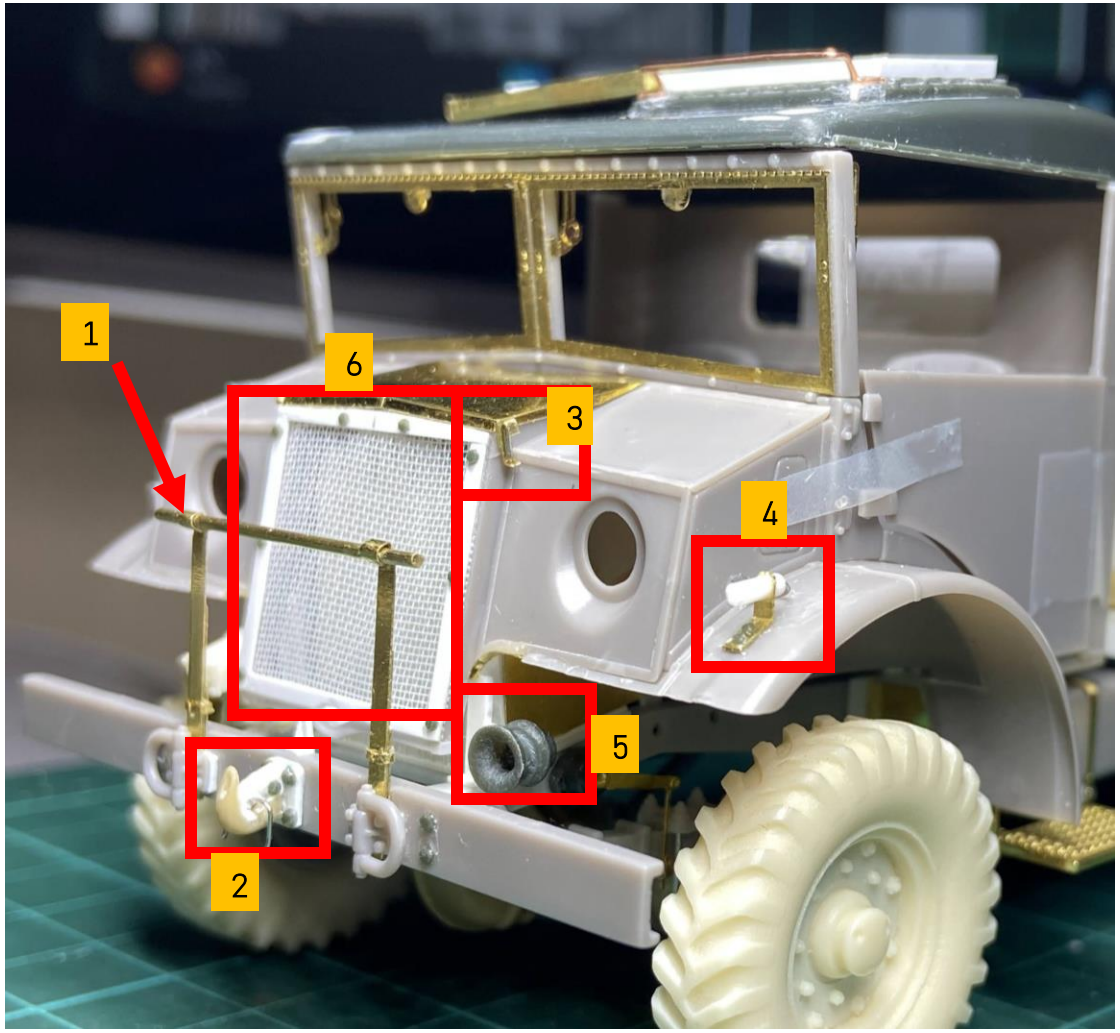
Create parts – wiring 2

- Here's another function of the middle dividing wall. It's used to anchor the wiring.



Create parts – examples of hand crafted parts

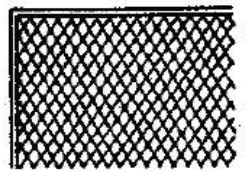
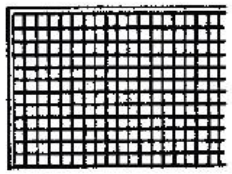
1. 3 layers of brass sheets and brass rod for bumper crash guard
2. Towing hook
3. Bonnet clips
4. Convoy lights
5. Horn
6. Front grille



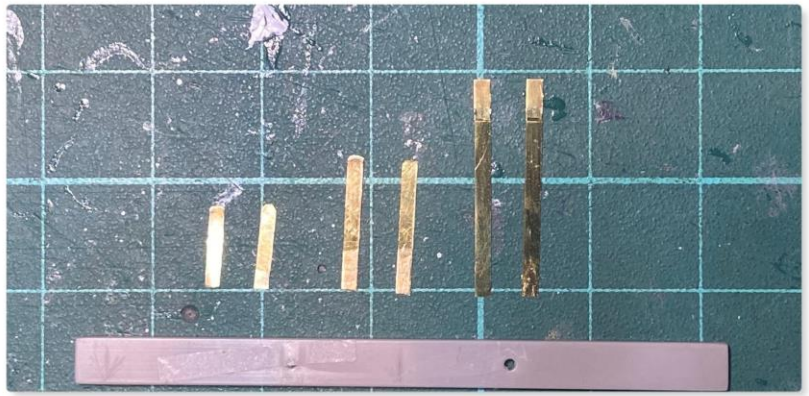
Ford vs Chevy CMP - 1

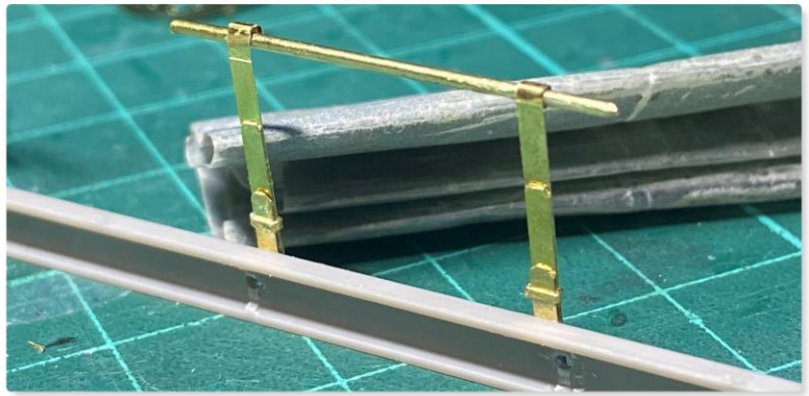
- The Mirror Models kit represents a Chevy CMP truck but the truck I need is a Ford CMP
- Need to understand the visible differences and convert to a Ford

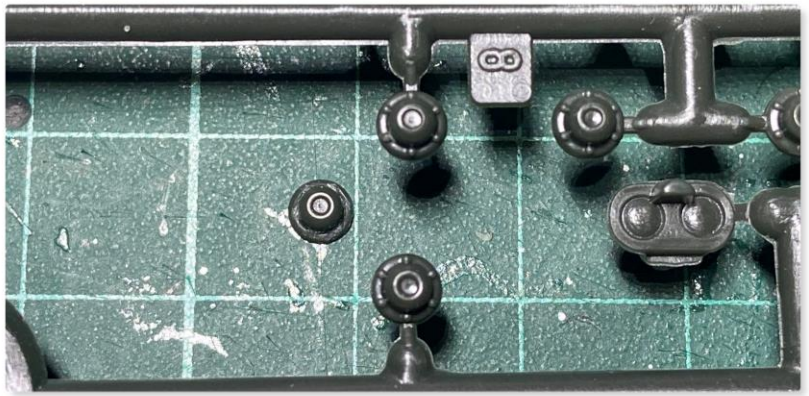
visible differences	
Ford	**Chevrolet**
assen : split cardan	assen : pot cardan
radiatorgrill shape : square	radiatorgrill shape : diamond
radiatorguard : lamilated	radiatorguard : double leaf
horn : opposite the steering box	horn : hidden behind the inlet manifold
	cylindrical radiator overflow tank mounted above the front nearside wing (< 1943)

'Ford Canada' left and right on the front side	
	
Grill Chevrolet	Grill Ford
	
Crashguard Chevrolet	Crashguard Ford

Ford crash guard and horn

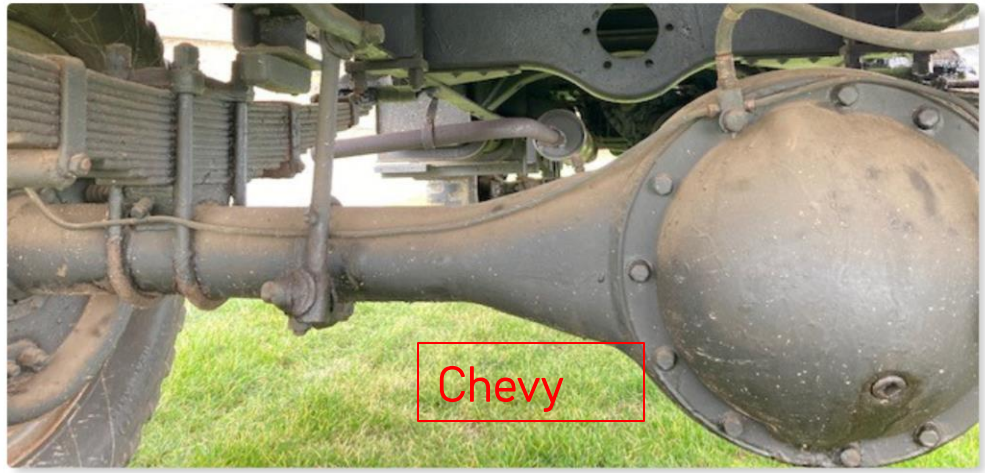


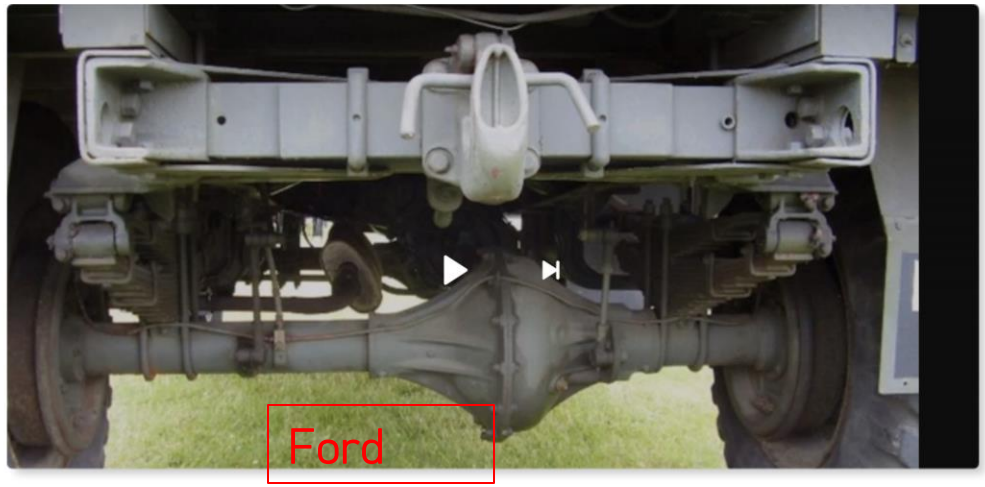


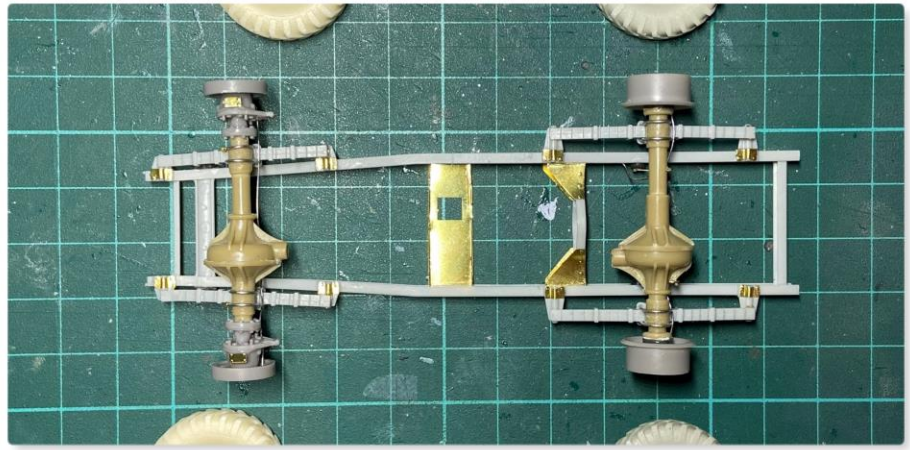


Ford vs Chevy CMP

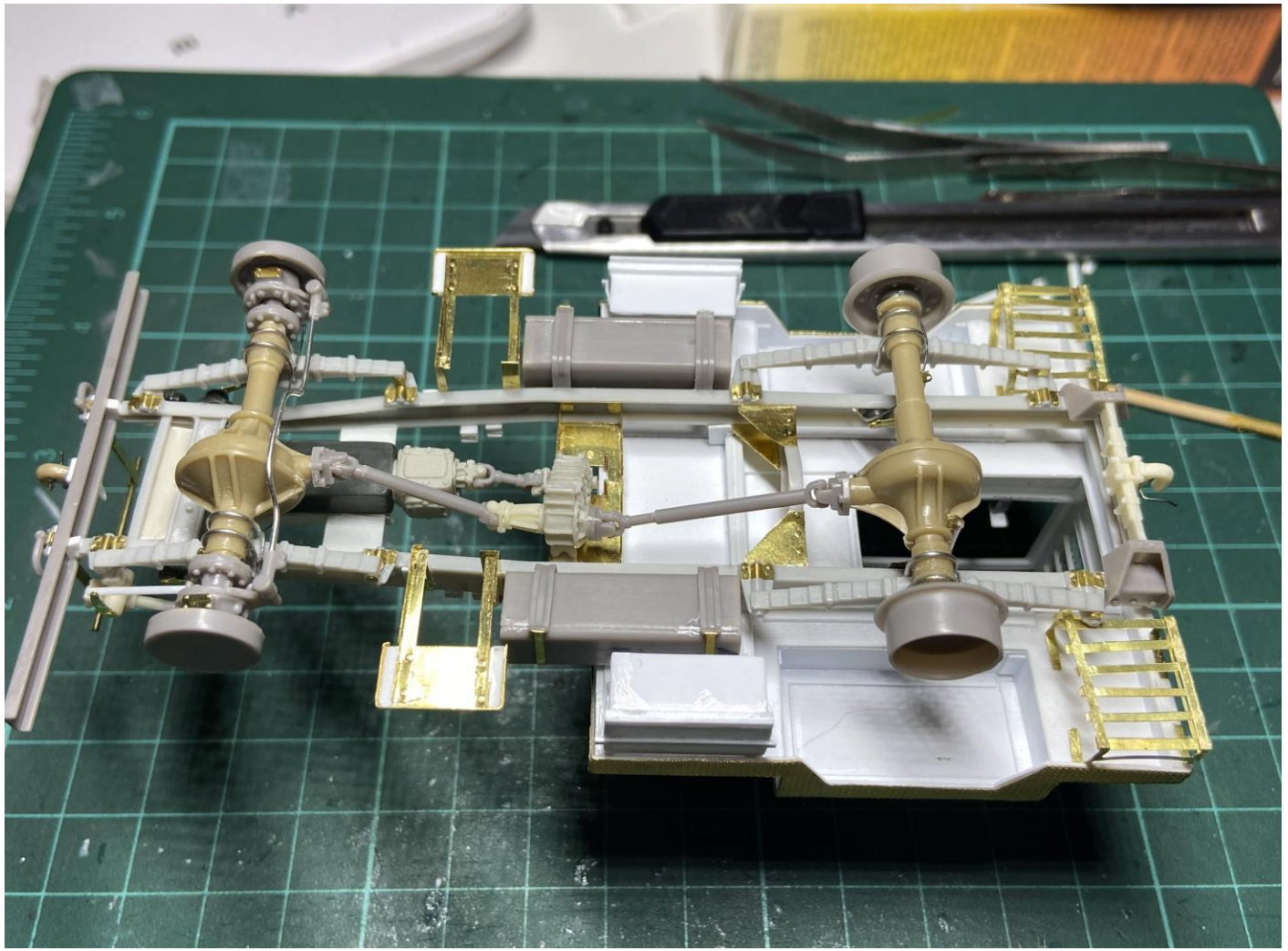
- The difference in axles required a lot of work.
- Took the axles from the Tamiya Quad gun tractor kit and modified for this truck.
- The Tamiya axles need to be cut short and the gear box need to be made smaller.



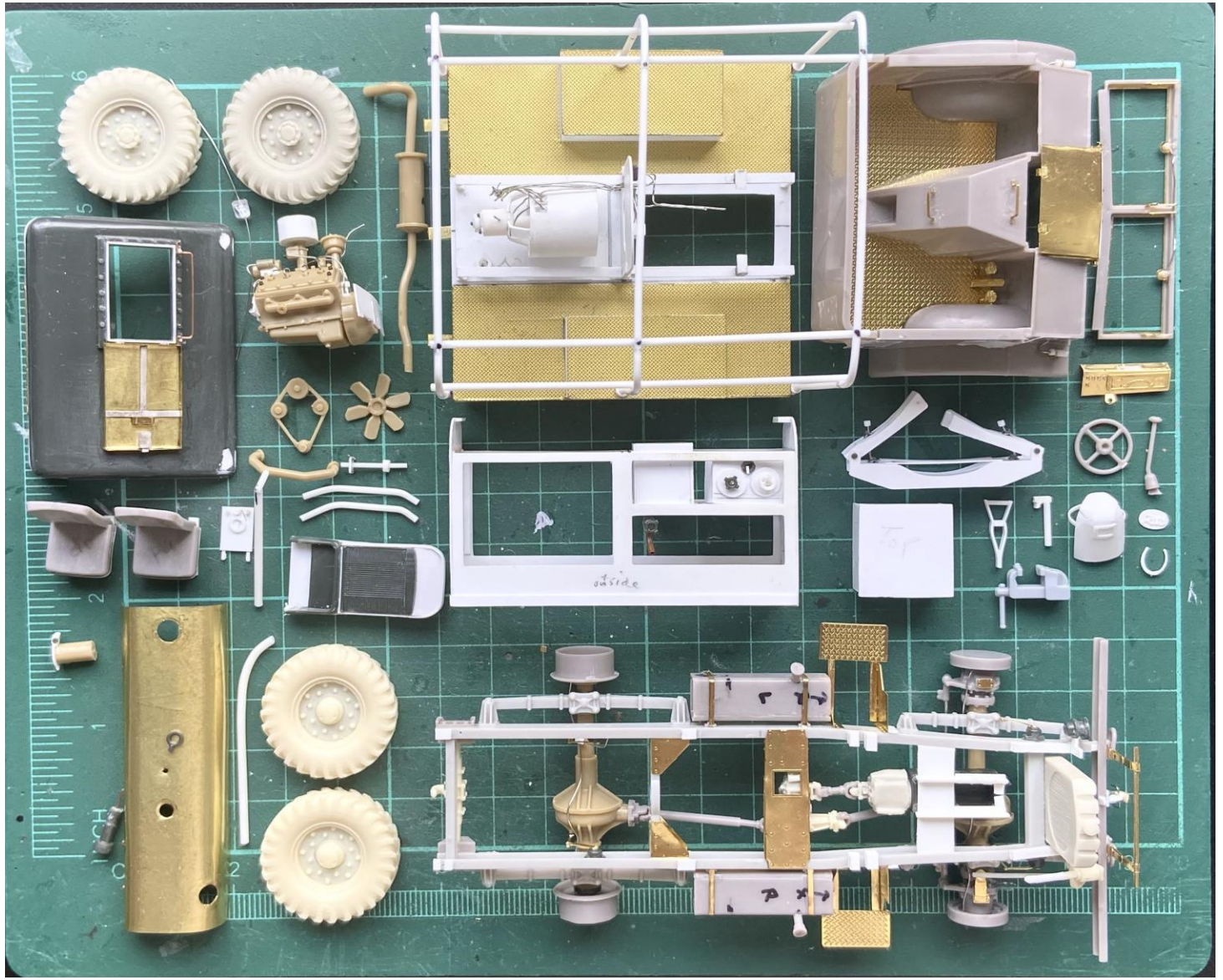




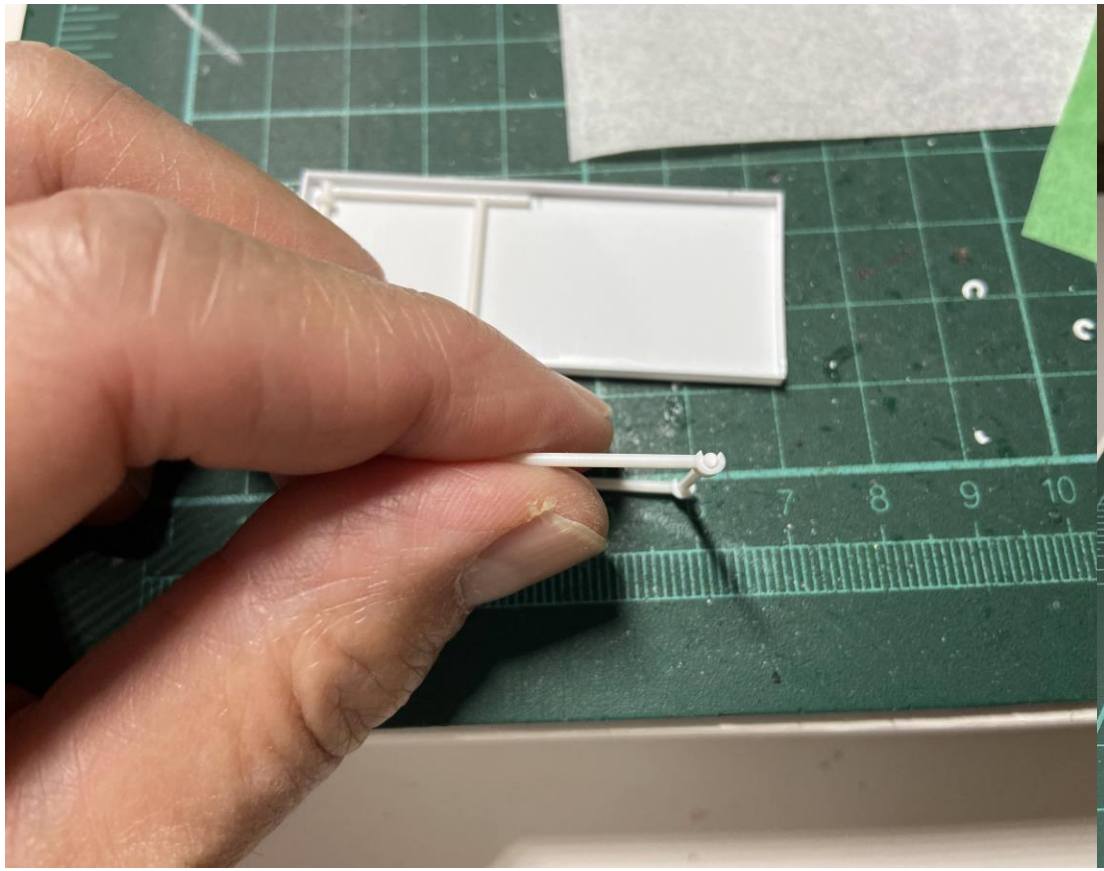
Converted axles and underside details



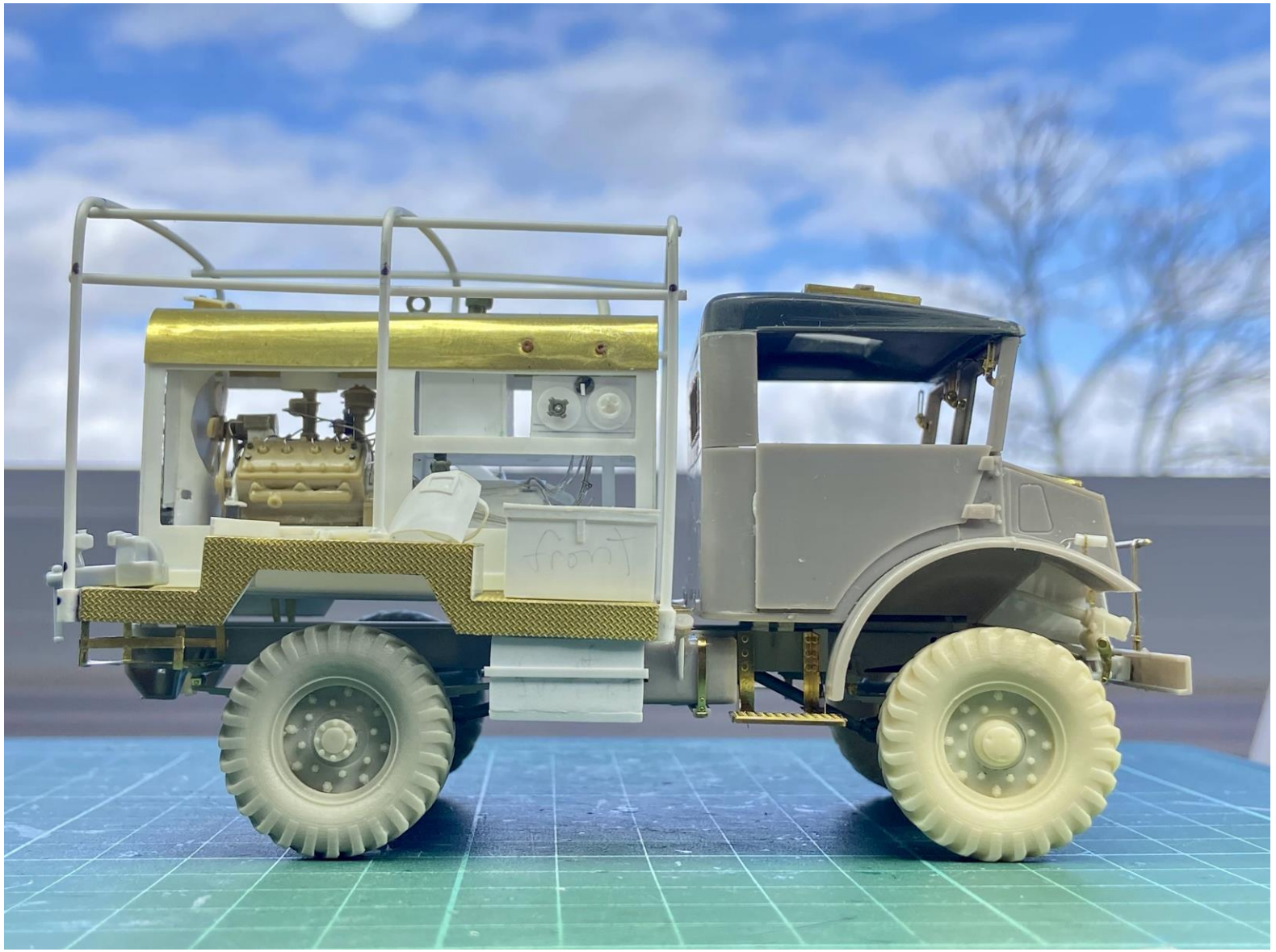
Create parts – all parts



Create parts – wait. There are more parts. I need a work table!



Final dry fit test

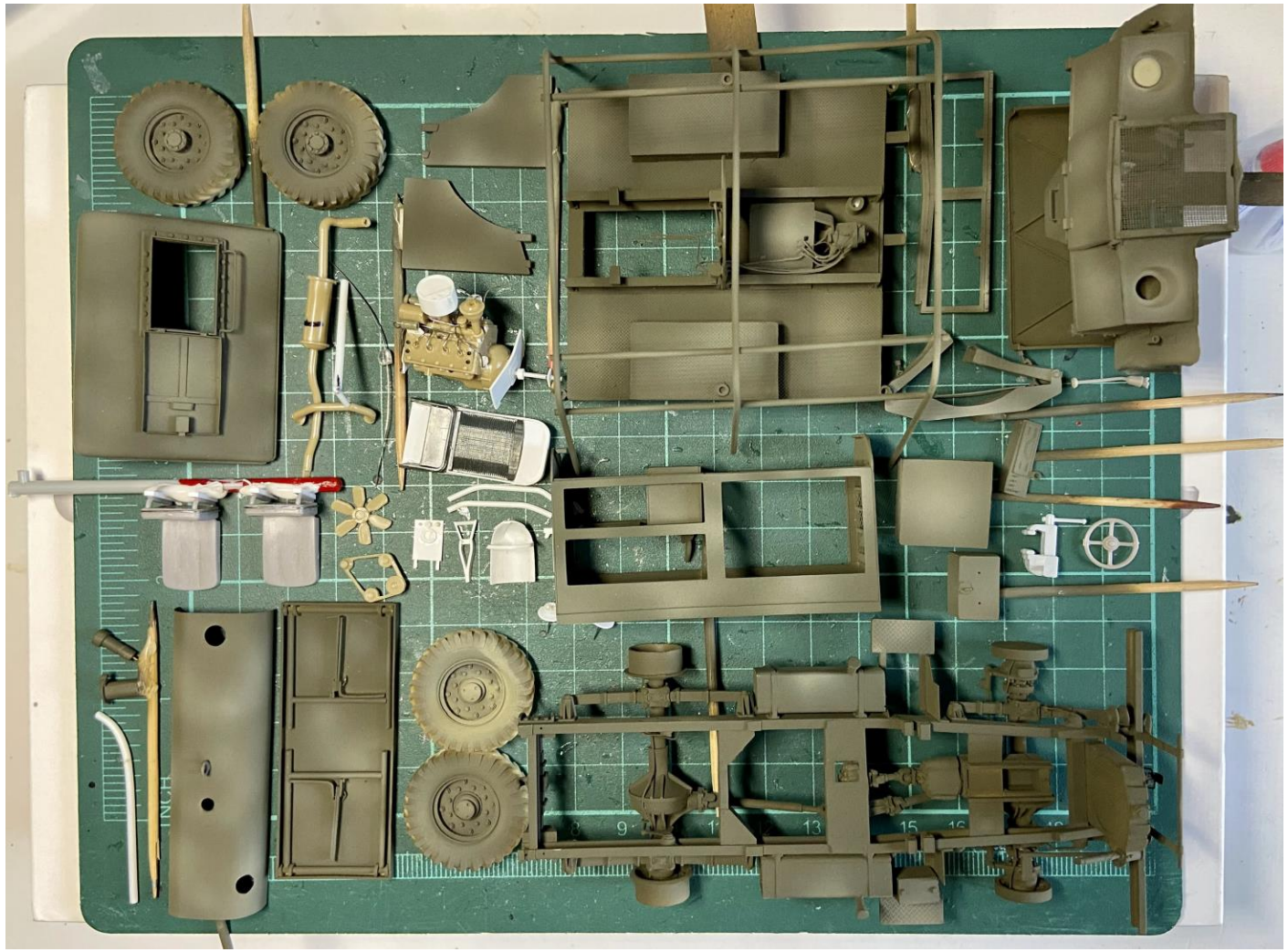


Painting – base coat

- Used Tamiya acrylic paints but thinned using their lacquer thinner.
- Always thought that lacquer paint smell bad but after trying it, I can take it.
- Definitely more durable than using acrylic thinner X-20A! It also seems to produce smoother finish.
- I used 3:2:1 mix ratio of Lacquer thinner, Olive Drab and Dark yellow for my base coat

Painting – pre-shading

- Pre-shading with lighter shade of the base color using an airbrush.

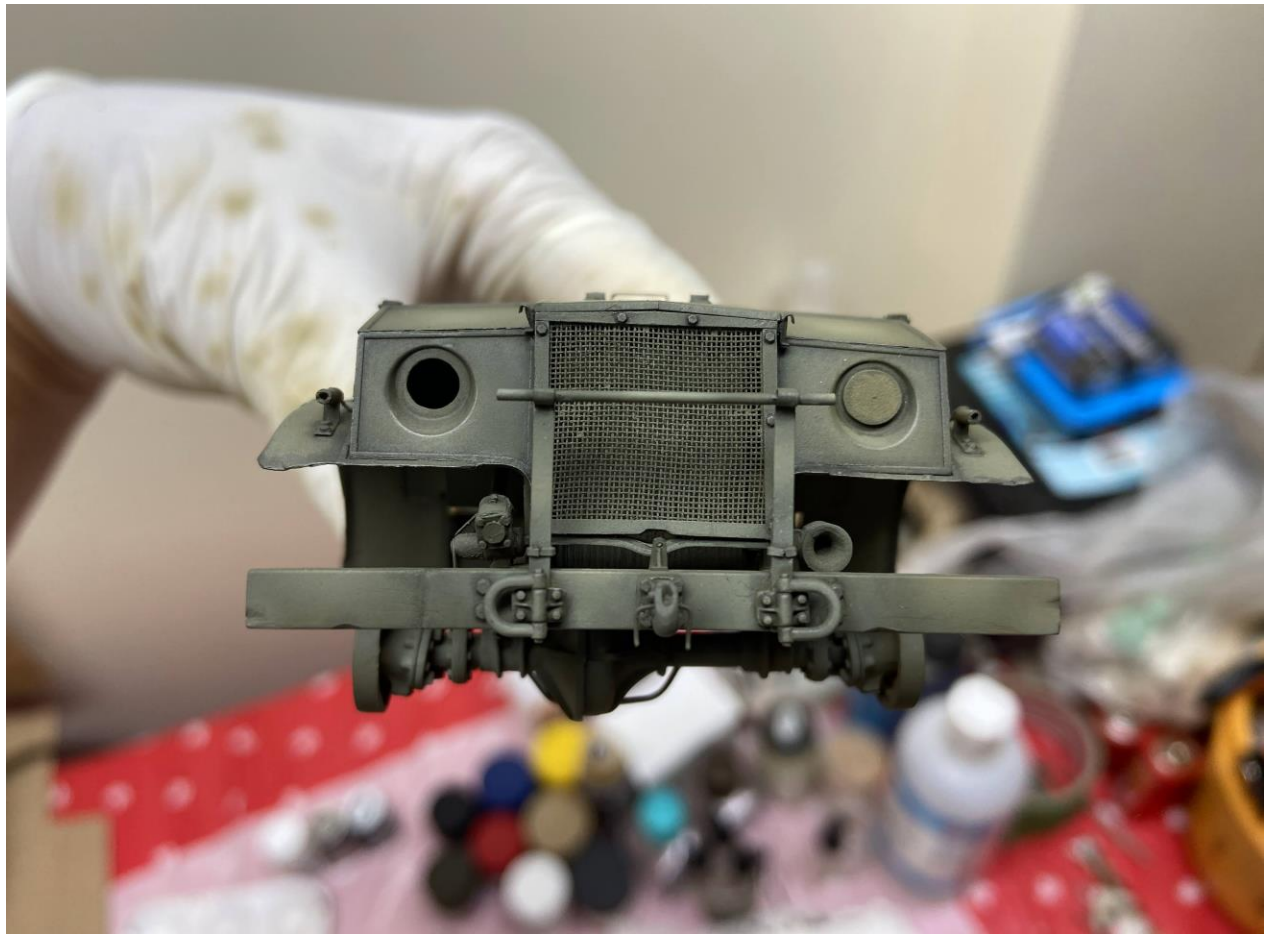


Painting – washing and dry brushing

- I had bad experience with Testor enamel. The smell was too strong for me.
- For this project, I ventured into trying Tamiya enamel. To my surprise, it doesn't smell that bad!
- The advantages of using Tamiya enamel for washing and dry brushing:
  - Washing, even heavy one, doesn't erode into the acrylic paint beneath.
  - I can even clean off the enamel wash/dry brush without hurting the acrylic base coat!
  - Enamel has longer working time
  - I get exactly the same color with same mix ratio when using enamel from Tamiya too.
  - Note: I don't use enamel for airbrushing.

Painting – washing and dry brushing

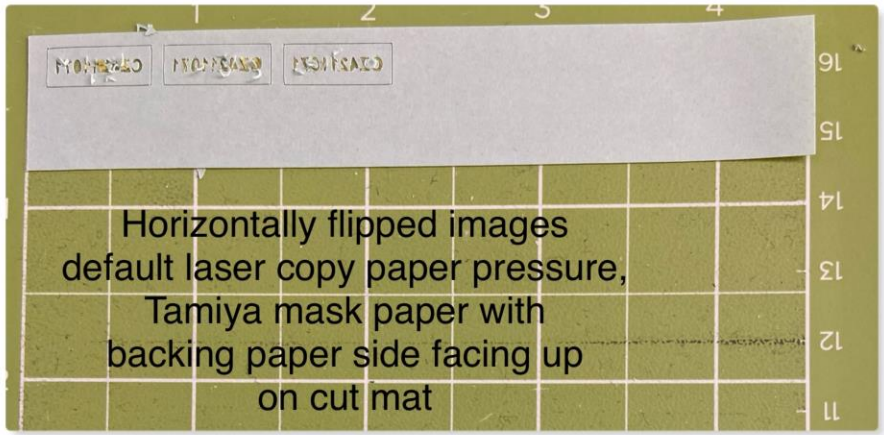
- After wash



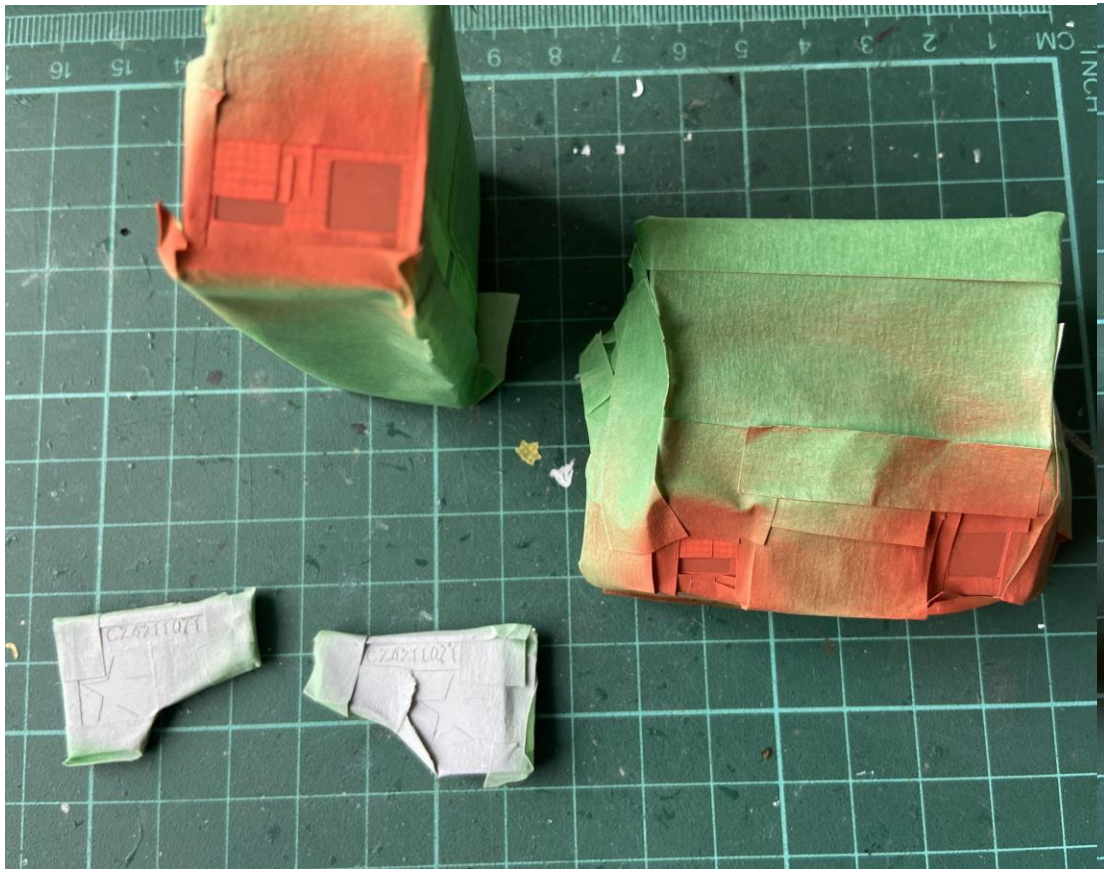
Final dry brushing

- Used a very light tone of base color

Vehicle markings challenge!



More challenges!



Time to get muddy!

Conclusion

- Very enjoyable project! It's well worth the time and effort!
- Very grateful for all the info., advices, suggestions and help from the modelling and museum communities!
- Enjoyed the interactions and learning from the modelling community both in person and online!
- Made some new friends along the way!