Build Instructions for 1/16th Scale GMC CCKW
2½ Ton and 1½ Ton Trucks

Started: 2016-2017 Finished: Feb 4 - May 16, 2023

by Paul E. Howald

Notes:

1. This construction article will be brief as compared to my more detailed articles. I only intend to show the general construction process for building 5 types of US Army WWII 6x6 trucks in 1/16th scale. They are: **(1)** Chevy G-506 1½ ton steel cab w/ short cargo bed and single rear axle; **(2)** 2½ ton CCKW type 353 open cab, long cargo bed w/ canvass cover, dual rear axles and MG mount type M36 **(3)** 2½ ton CCKW type 353 long cargo bed w/ dual rear axles and MG mount type M37 (**motorized RC model**); **(4)** CCKW type 353 (1944) open cab w/ all steel cargo bed w/ dual rear axles and M55 quad 50 MG mount (**motorized RC model**); and **(5)** 2½ ton CCKW type 353 steel cab w/ long cargo bed, dual rear axles and MG mount type M37 w opening in steel cab roof.

2. I researched pictures on the internet and referred to the 6 books listed below for modeling information, plans and measurements.

Parts used per truck:

1.	3D printed cab, hood & sides, steps and fenders	$ 80.00
2.	3D files for above printing	$ 65.00
3.	Two of the trucks used Highway 61 diecast cabs …**add $30 per truck**	$ 60.00
4.	Two trucks have an Electronics Board…**add $35 per truck**	$ 70.00
5.	72 mHZ radio and RX	$ 30.00
6.	Rubber mold and Resin casting parts	$ 90.00
7.	Misc. brass pieces and parts	$ 20.00
8.	Modeling time and talent	$ 200.00
	Total Cost	$ 615.00

Research Materials used:

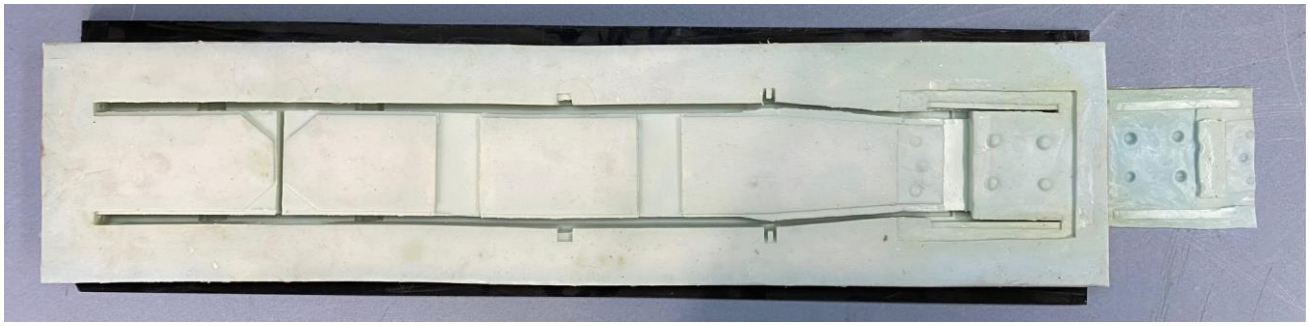
1. Tankograd Tech Manual 6015: GMC CCKW 6x6 2½ ton cargo trucks
2. Tankograd Tech Manual 6019: GMC CCKW 6x6 2½ ton dump, gun & bomb trucks
3. Tankograd Tech Manual 6023: GMC CCKW 6x6 2½ ton service, mess and rocket trucks
4. Allied-Axis Journals #16
5. Squadron Signal #5718 GMC CCKW 2½ ton truck “walk around”
6. Wydawnictwo Militaria #166: GMC

Commence Work:

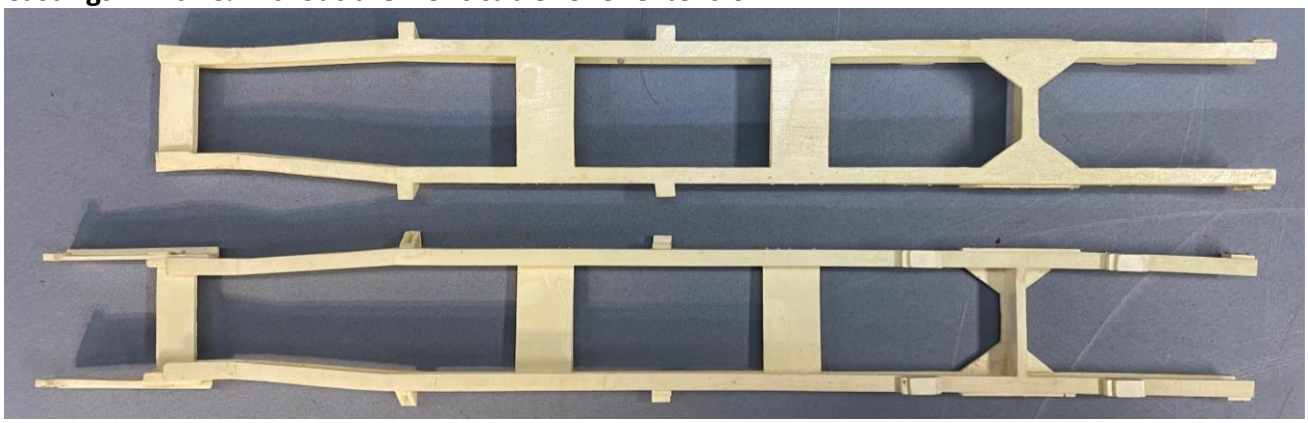
1. **Main Frame:** Most of the following comments are for the GMC CCKW 353 trucks. Those for the Chevy 1½ ton truck are noted separately. First I reviewed all the reference books and found plans to fit what I wanted to build. I next made a master of the CCKW long bed frame and then made a mold of that. I later determined that a 3 mm steel rod needed to be cast into each long side of the frame to keep the frame from sagging. This should be done even for the static models, not just the RC versions.

Master Frame:

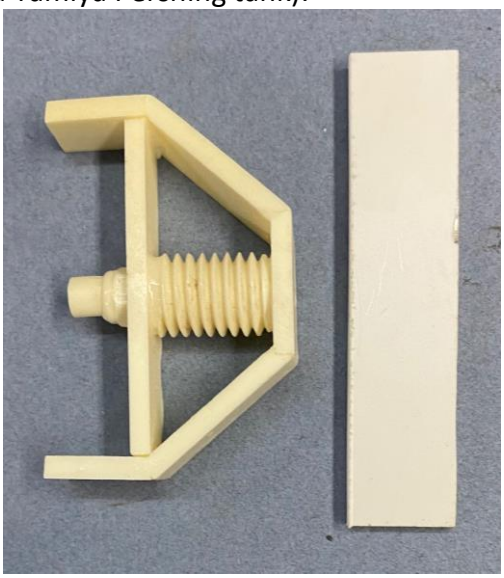
Mold:

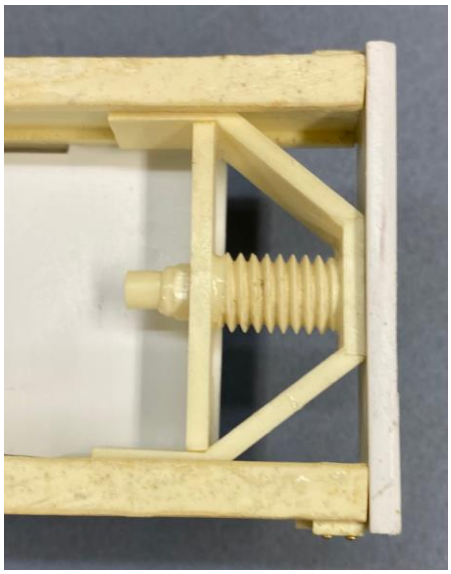


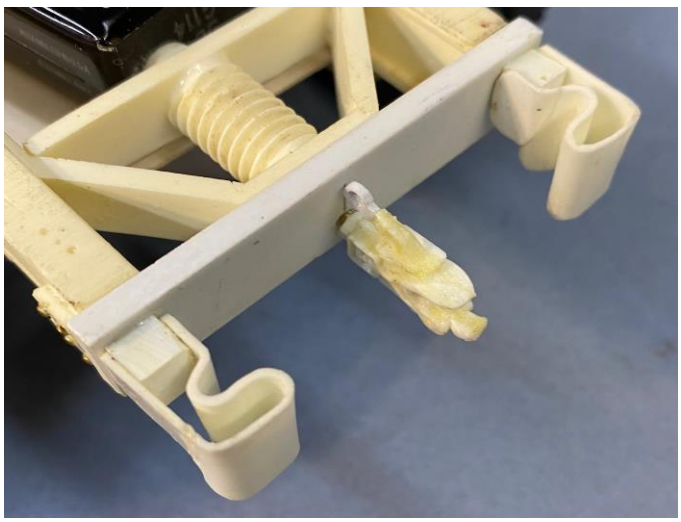
Castings: With & without the front cable roller extension

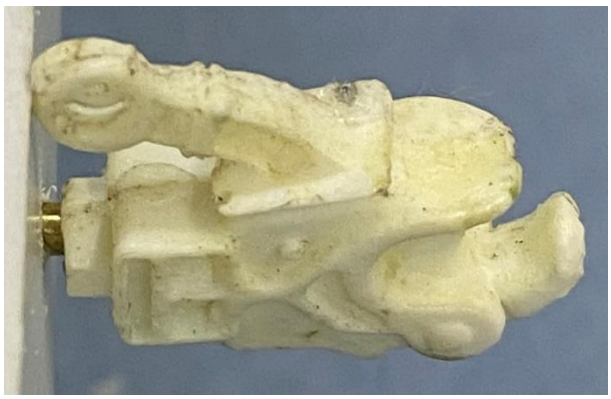


You also need to make the rear compression parts and bumper pads, as well as a tow hook (master is from a Tamiya Pershing tank).

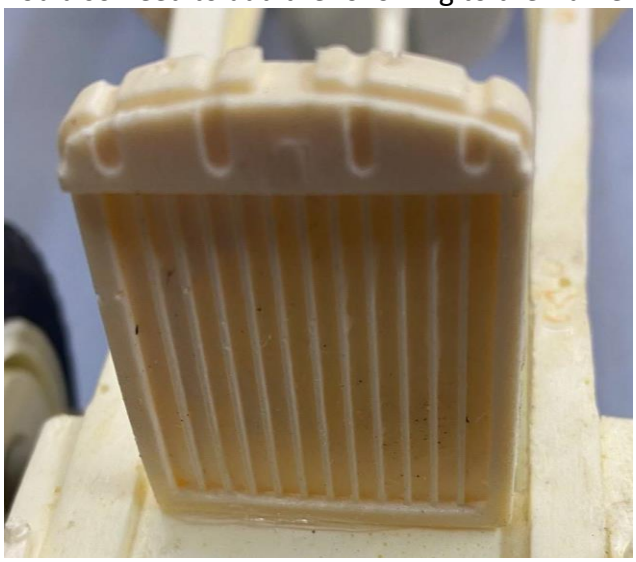


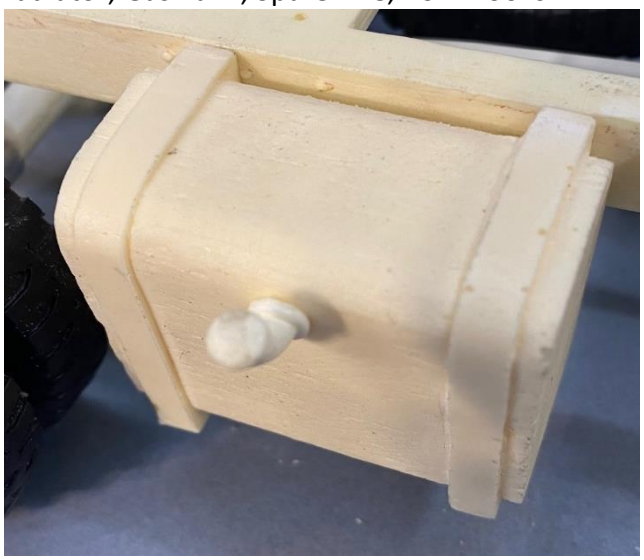


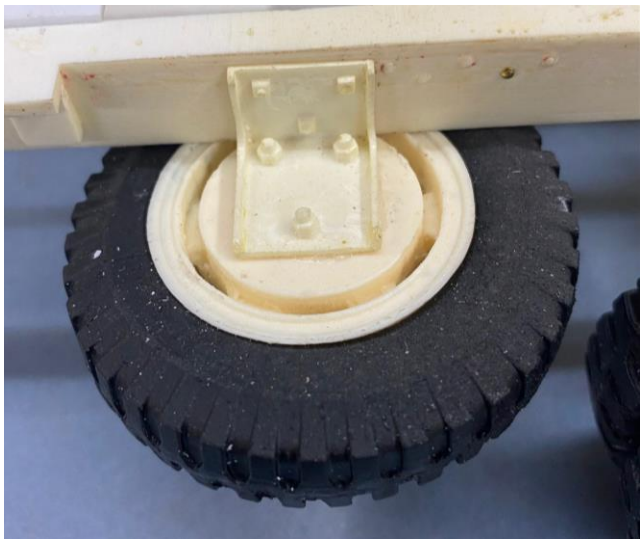




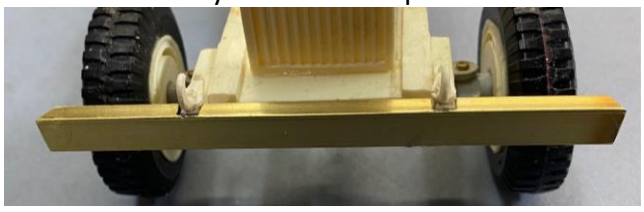
You also need to add the following to the frame: Radiator, Gas Tank, Spare Tire, Tow Hooks

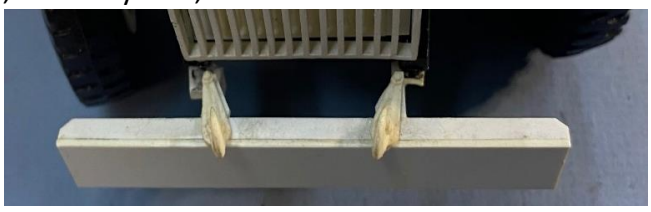


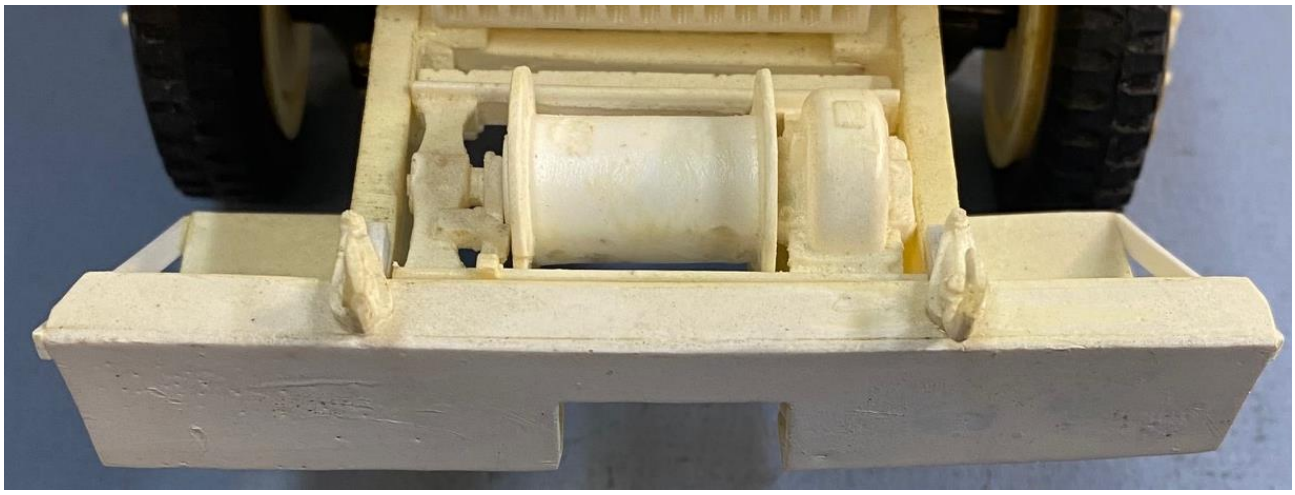




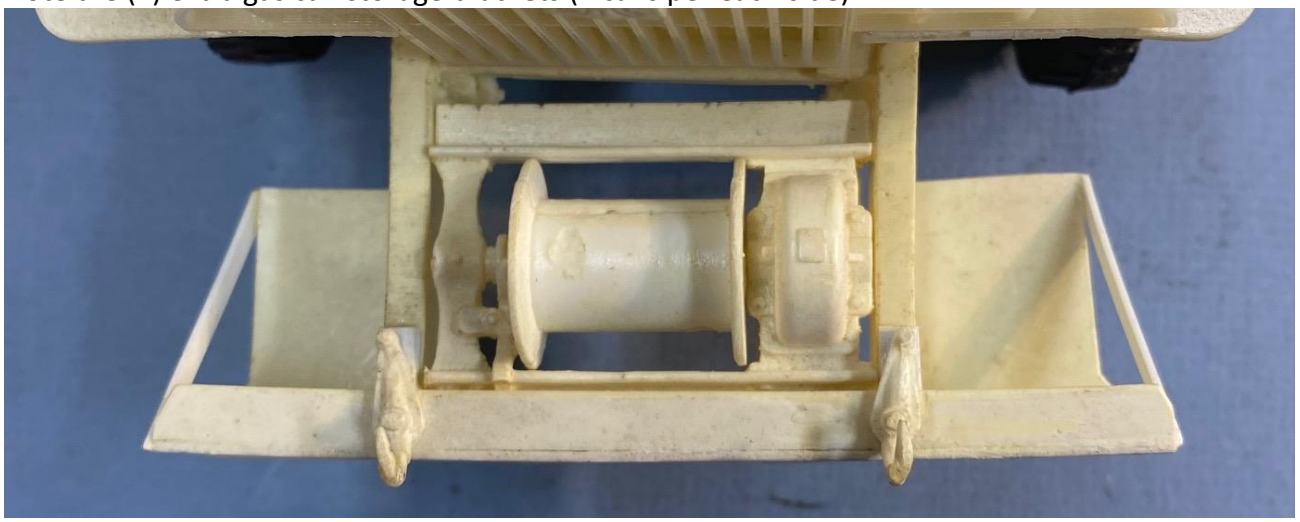
There are variety of Front Bumpers…. Some metal, some styrene, some with a winch mechanism.



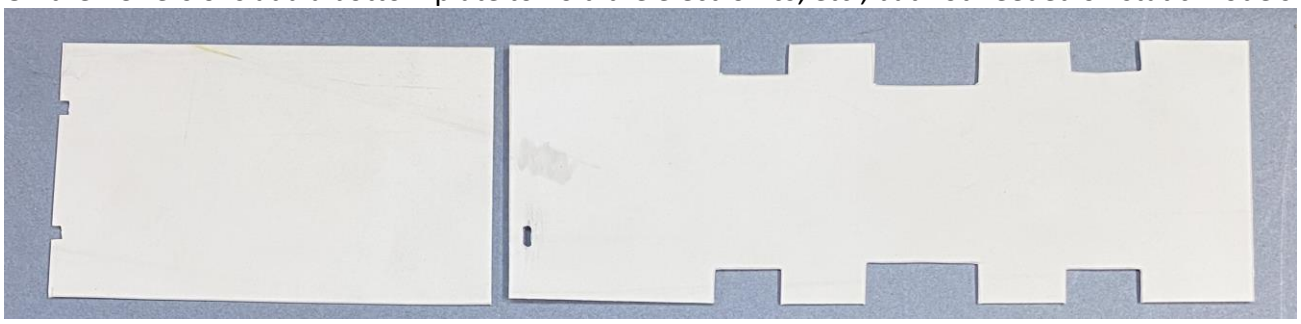


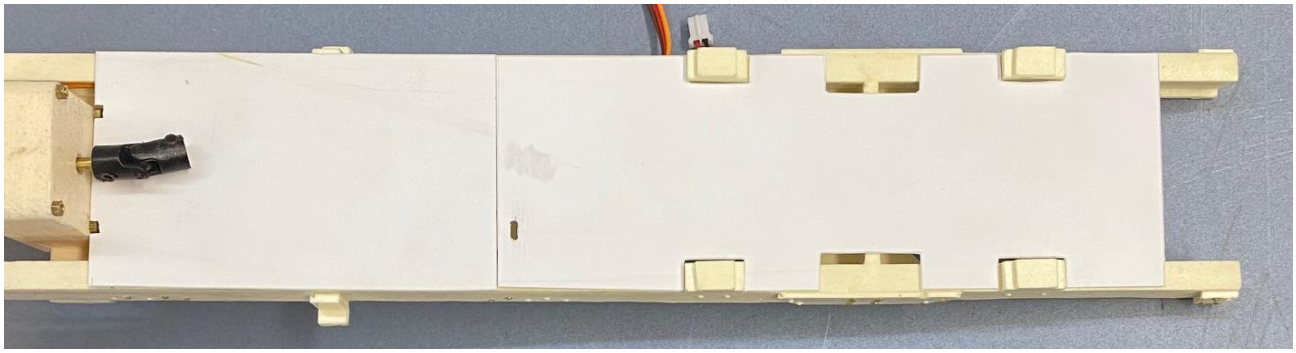


Note the (2) extra gas can storage brackets (2 cans per each side).



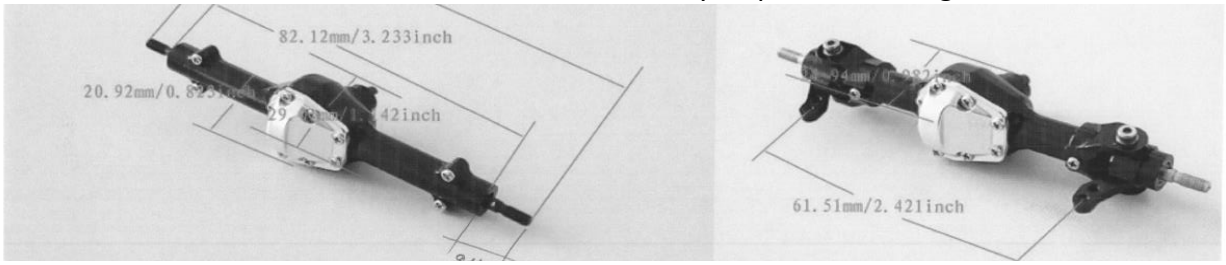
On the RC versions add a bottom plate to hold the electronics, etc., but not needed on static models.





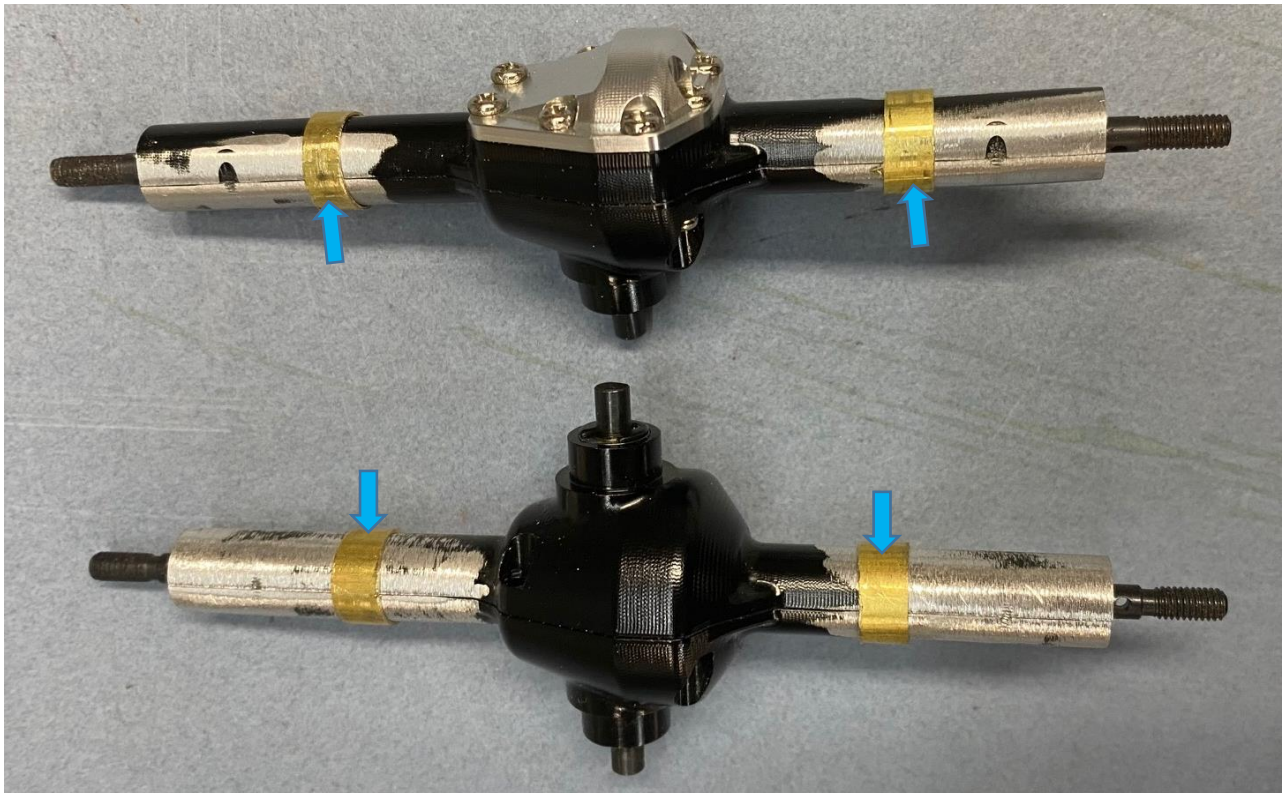
NOTE: I used the frame for the Chevy 1½ ton truck that came with the Highway 61 model.

2. **Front & Rear Suspension:** Next build the axles and suspension system. The RC version needs working axles, etc., so use 1/18th scale T-Rex RC car axles, cut and fit to the right size. The two rear axles are lined up and the center axle is converted to a double sided differential, so a total of (3) rear axles are needed for all the modifications. The front axle assembly requires no changes.

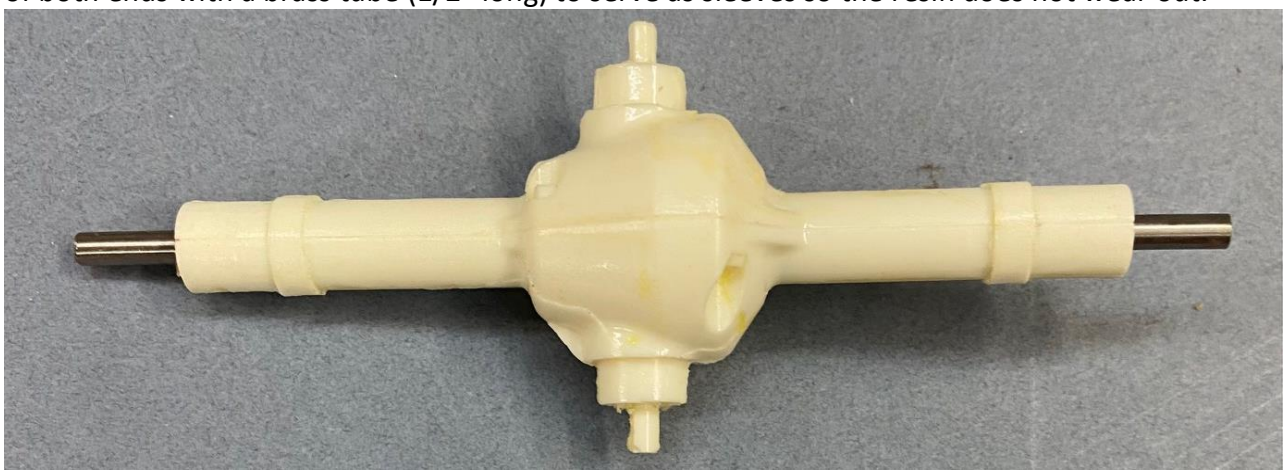


Rear Axles Front Axle

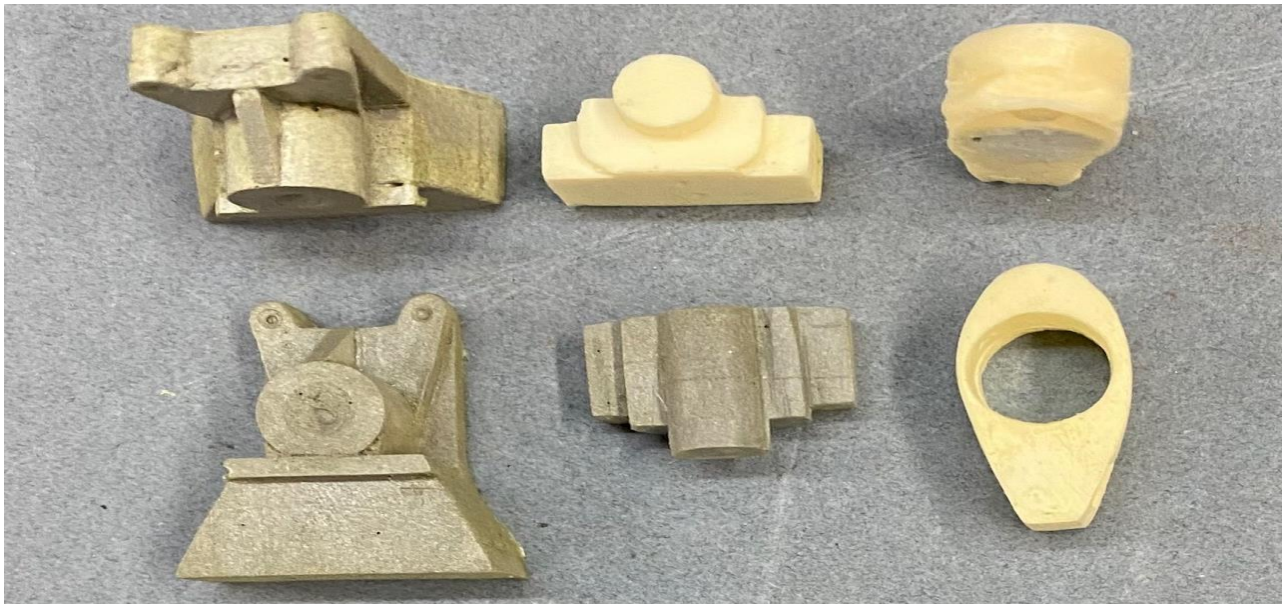
For both rear axles, file/grind off all the protruding nubbins (total of 6) at the outer edges of the housings (red arrow shows where they are ground off). Slide on brass tube locator rings (3/16" wide) to hold the housing in place (blue arrows in second picture). Glue these in position later on.



This is a picture of a static model differential w/a 3mm steel rod serving as the axle. Line the inside of both ends with a brass tube (1/2” long) to serve as sleeves so the resin does not wear out.



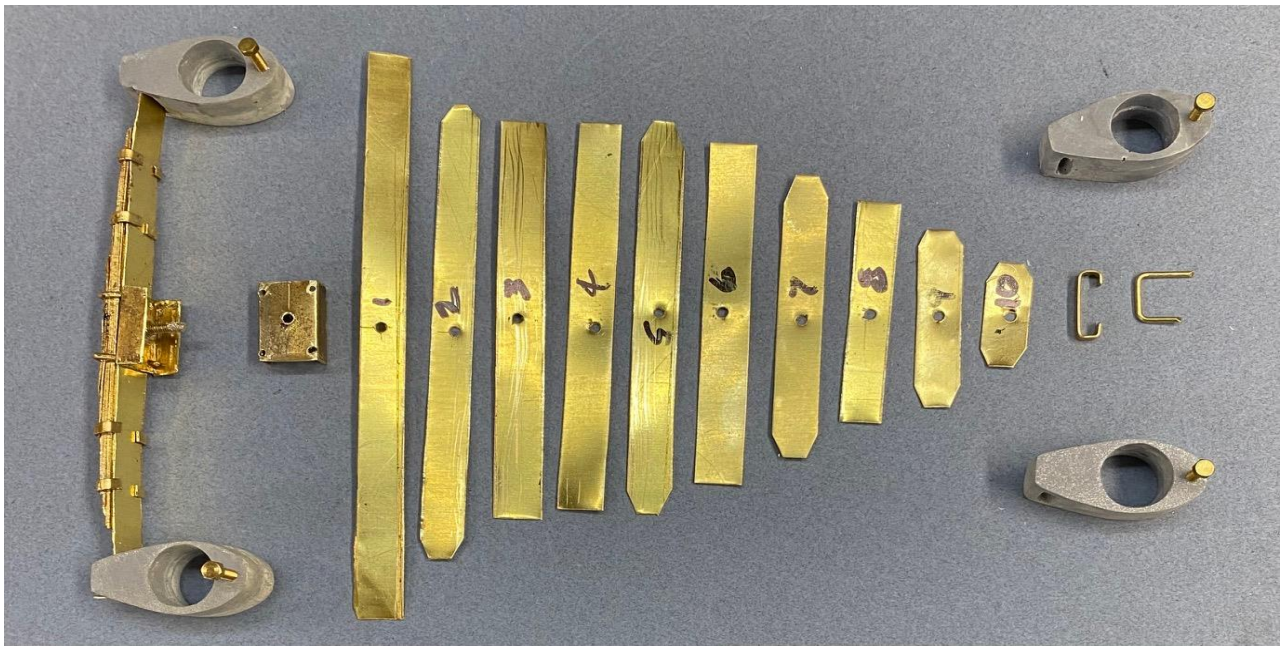
See next pictures. Make rear axle mount masters and then molds. Cast the parts for the RC versions in resin mixed with powered aluminum which strengthens the casting (grey color). Otherwise regular resin castings (whitish color) work for the static models.



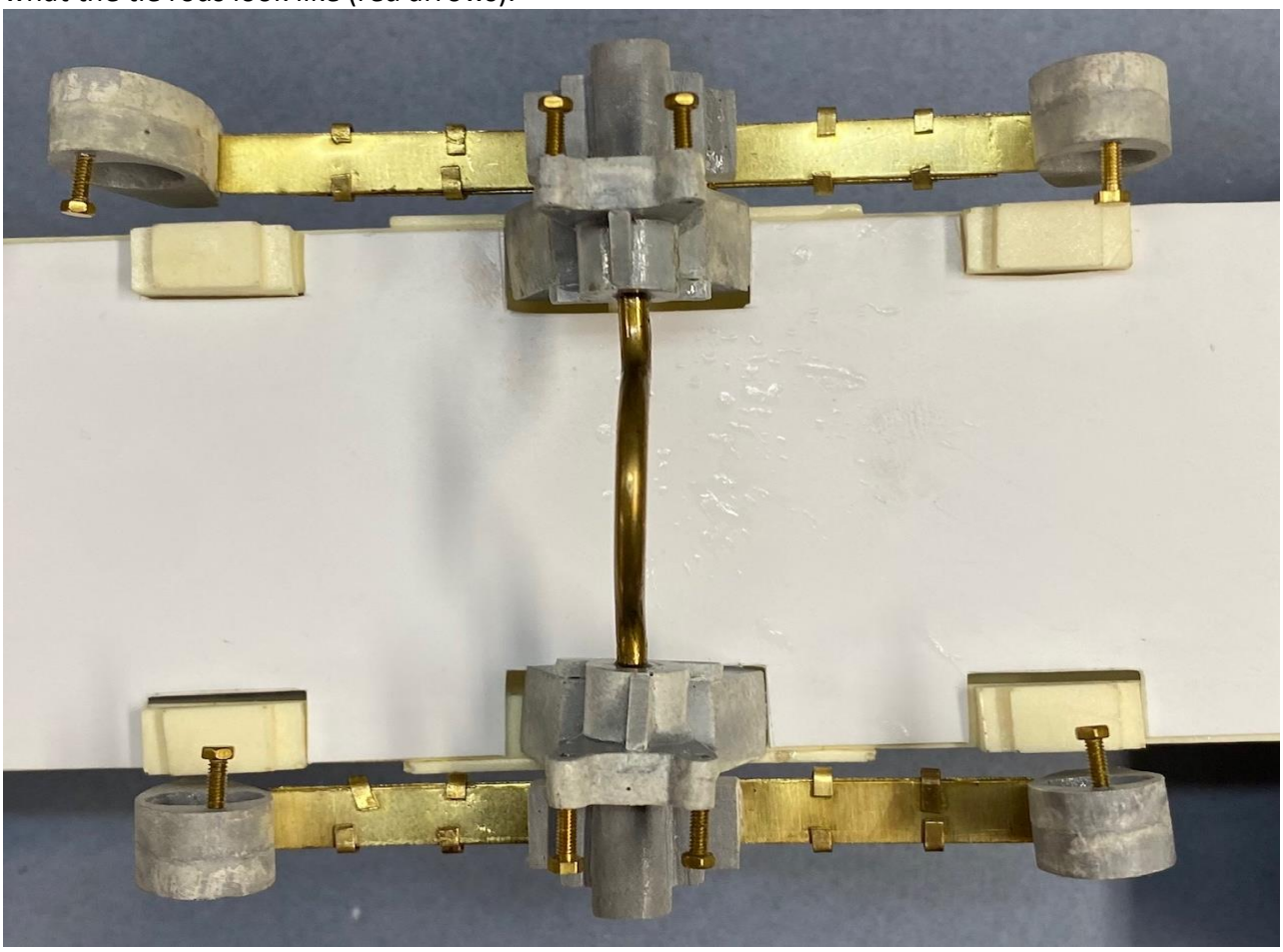
These parts need to be drilled for the axles and tie rods. Once assembled they look like this.

The RC version of the rear suspension requires actual working brass leaf springs.

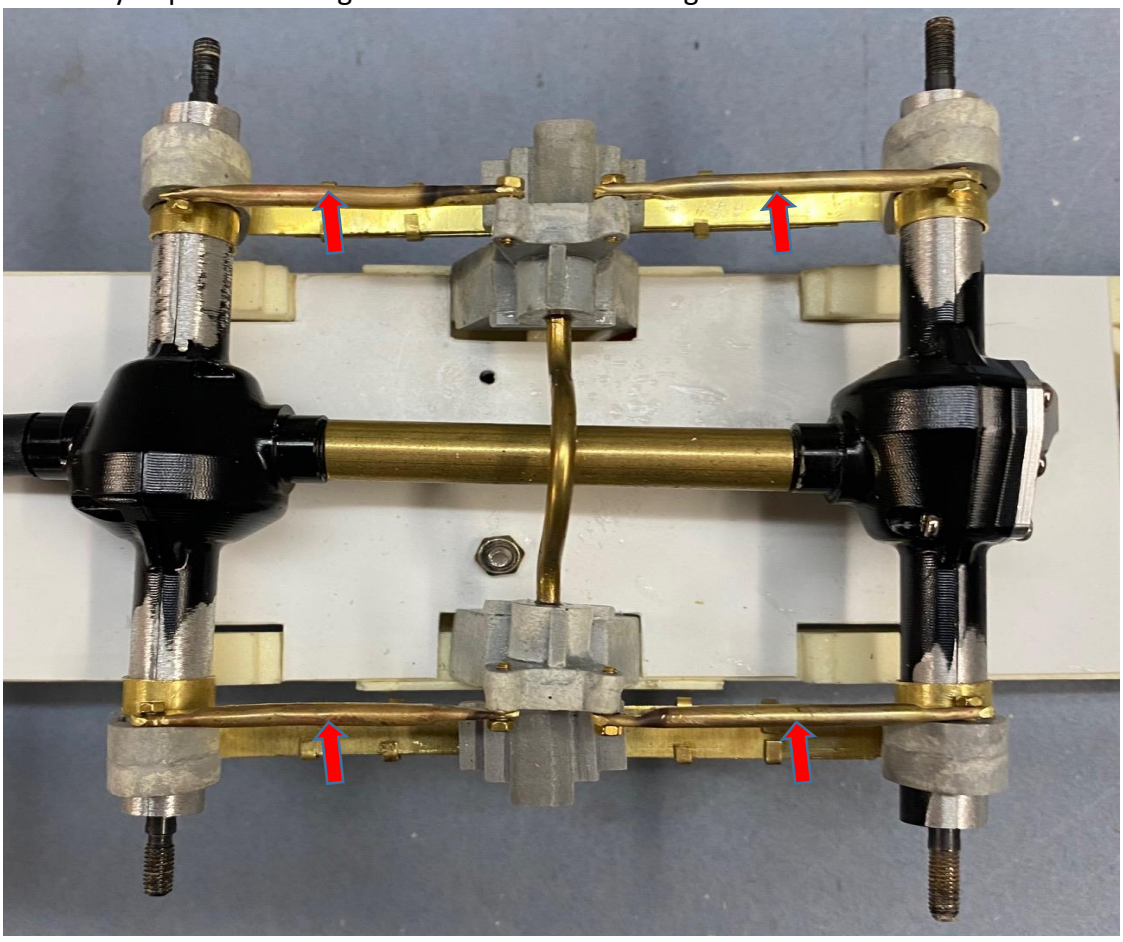
Make from 0.010” thick brass sheet



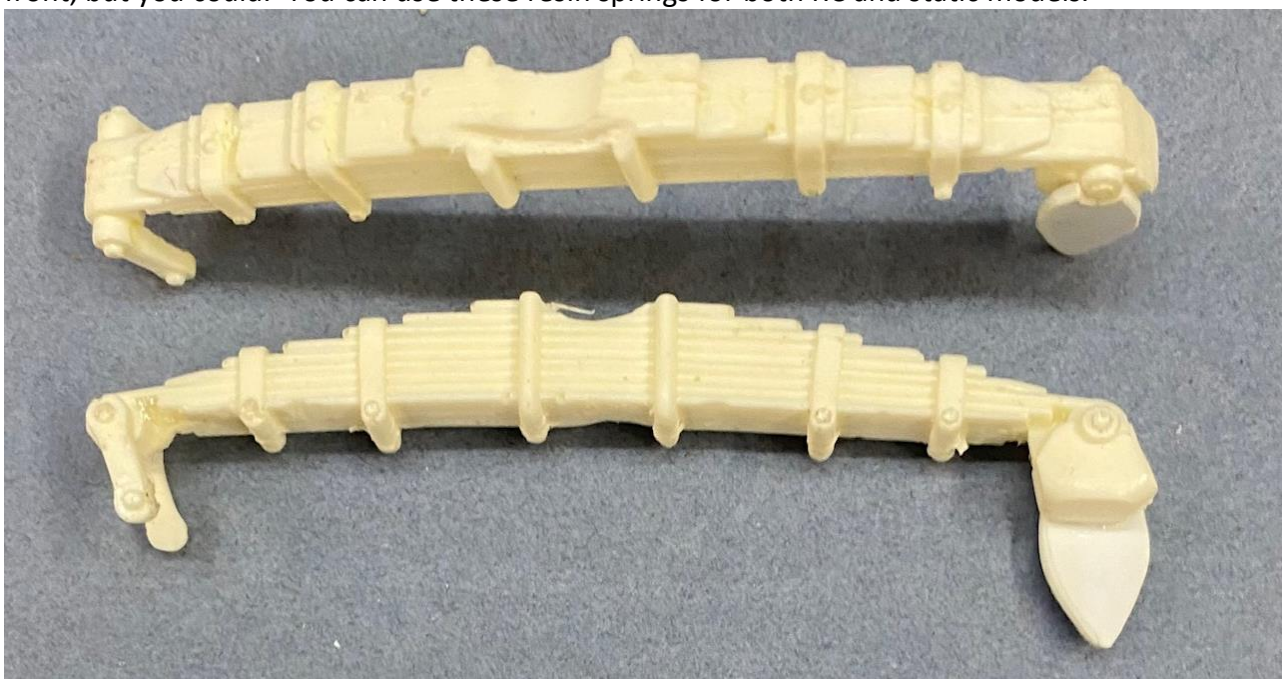
The 8 brass bolts (1-72 size) anchor 4 tie rods made from 2mm brass rod. See second picture for what the tie rods look like (red arrows).



This is where you position and glue the 4 brass locator rings.

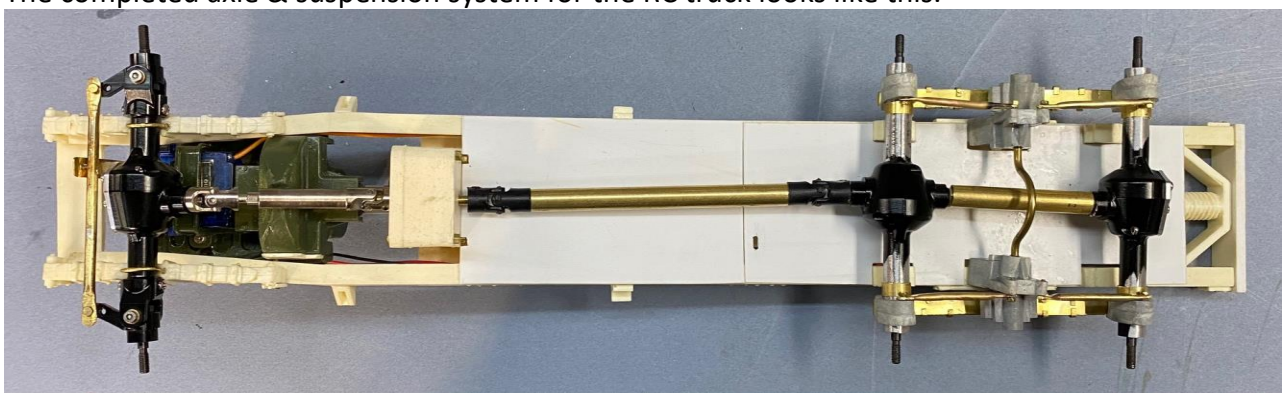


Front axle mounts and leaf springs look like this. I did not make working brass leaf springs for the front, but you could. You can use these resin springs for both RC and static models.

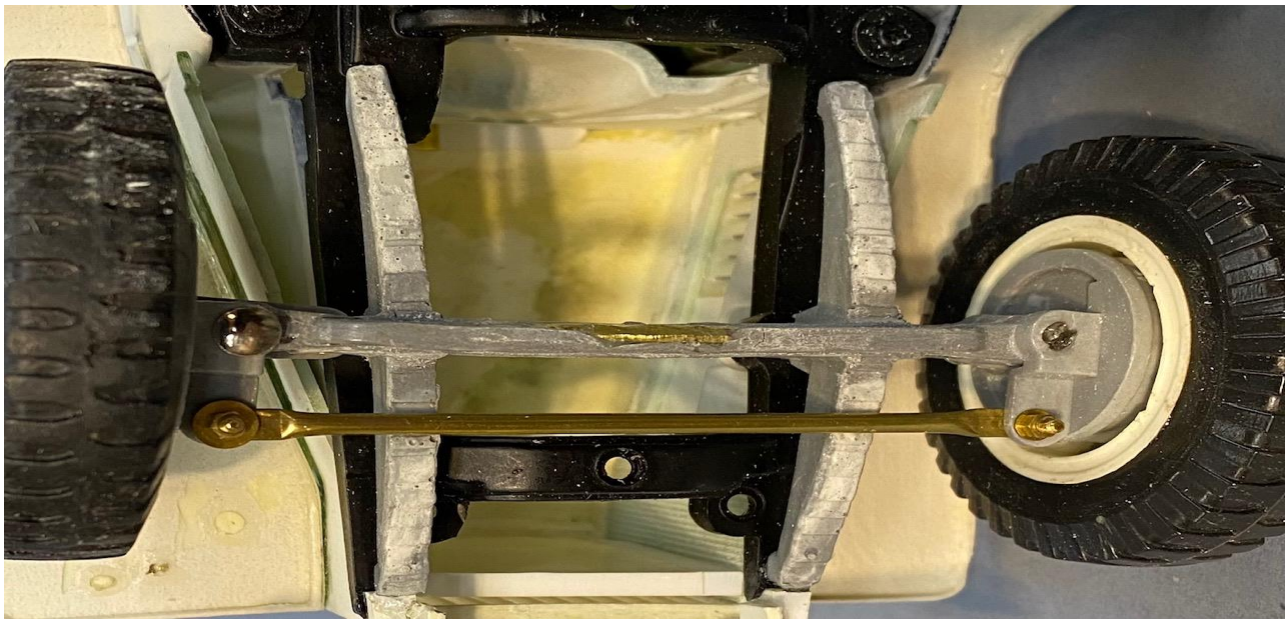


The static model rear leaf spring look like this.

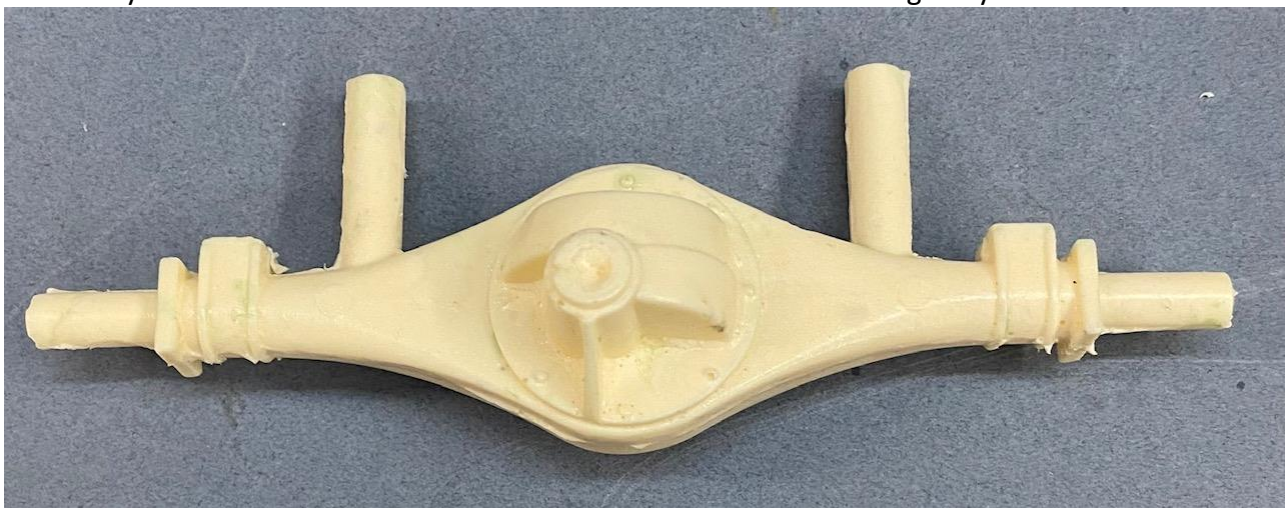
The completed axle & suspension system for the RC truck looks like this.



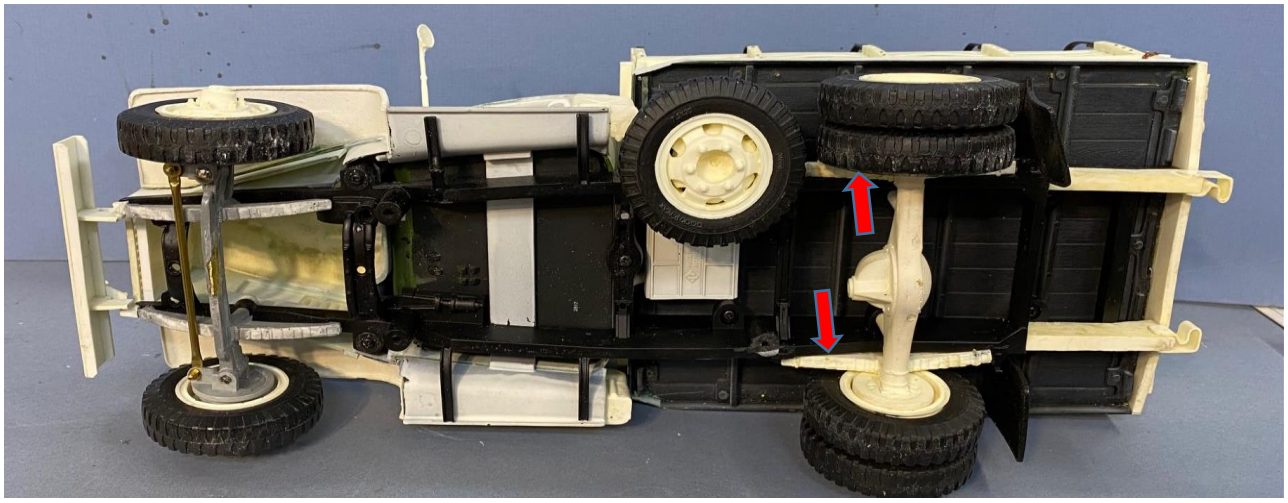
The front axle and leaf spring assembly for the Chevy 1½ ton truck looks like this. Use what came with the Highway 61 truck for a master.



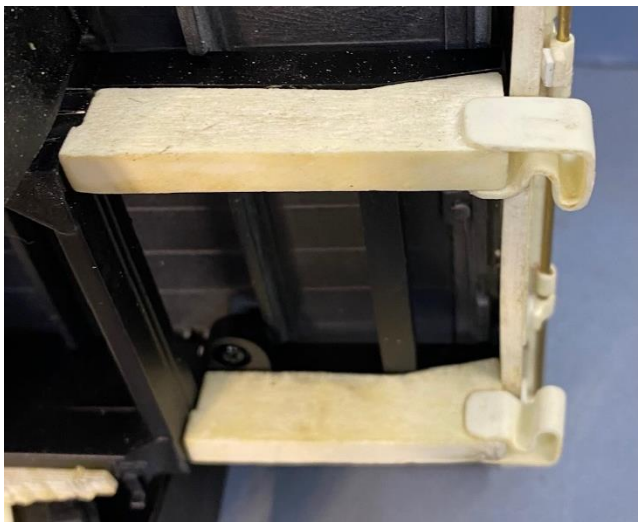
The Chevy 1½ ton rear axle looks like this. I used what came on the Highway 61 truck for a master.



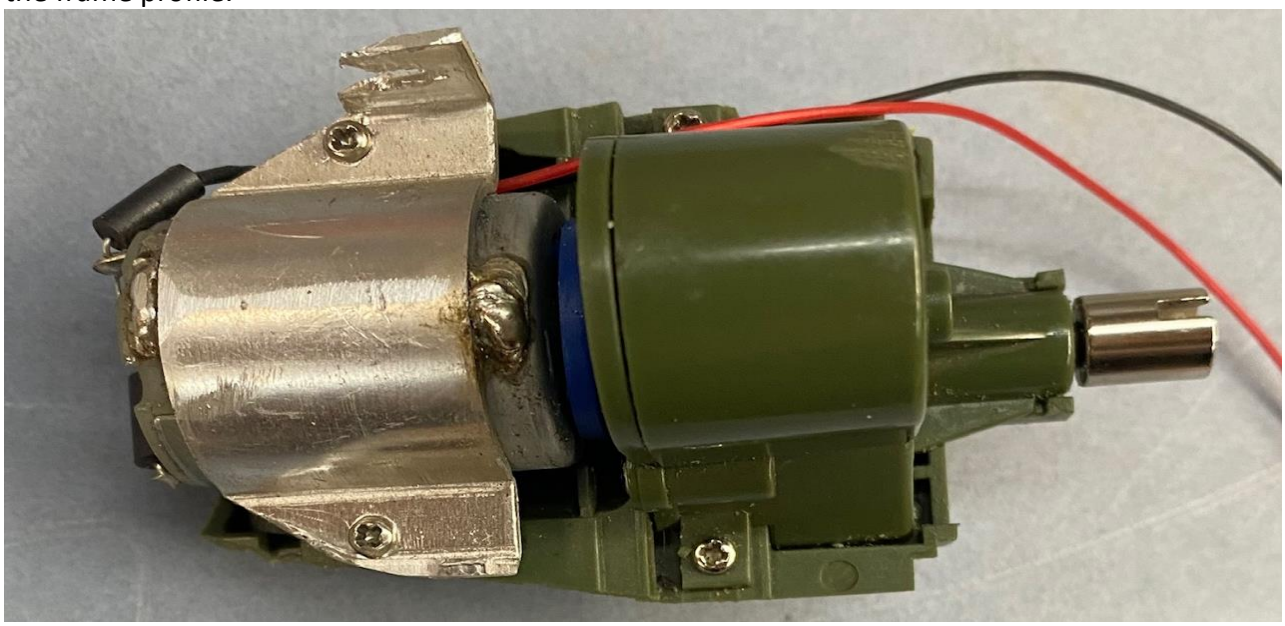
The rear leaf spring is just the CCKW rear spring cut down to fit. See red arrows in second picture.

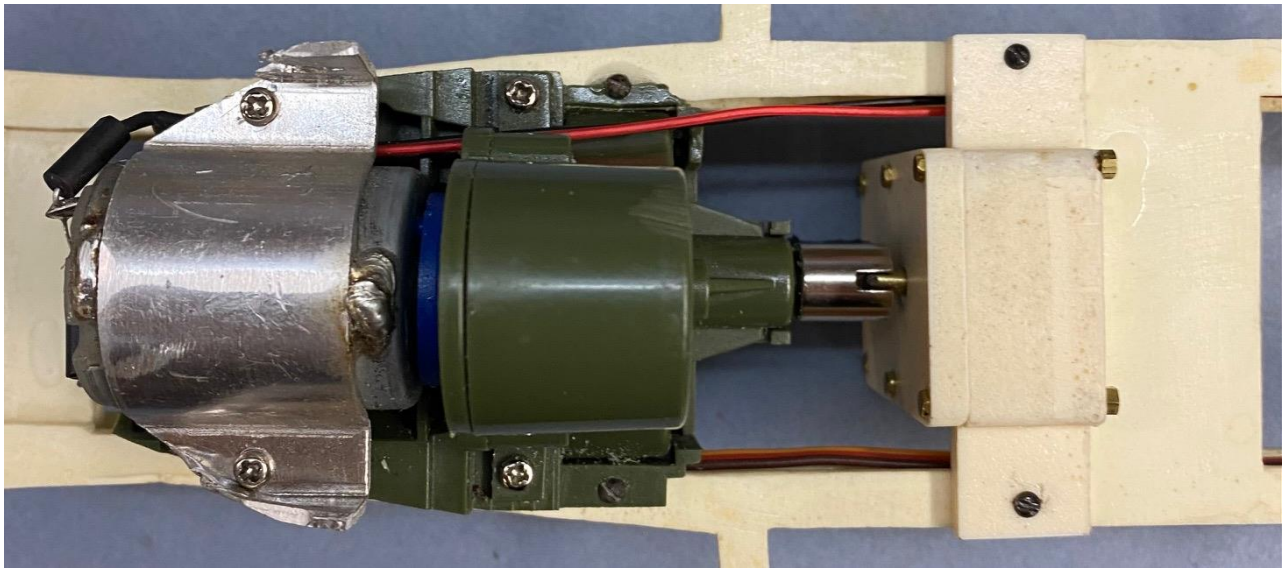


Cast a short section of the CCKW rear frame to add to the Chevy 1½ ton truck's frame for the bumpers.

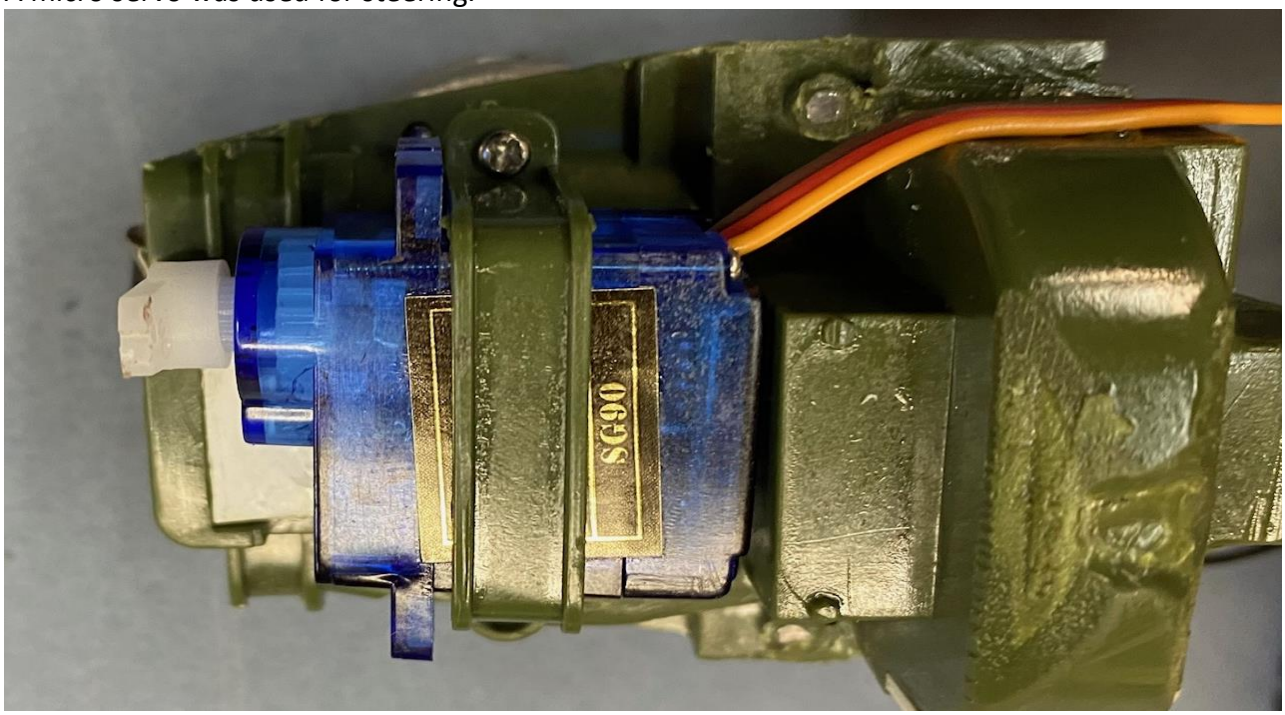


3. **Motor and Electronics:** For the RC Quad 50 truck, you can use a motor from the Torro 1/16th Halftrack. Other motors would also work. The motor heat sink had to be cut and ground down to fit the frame profile.

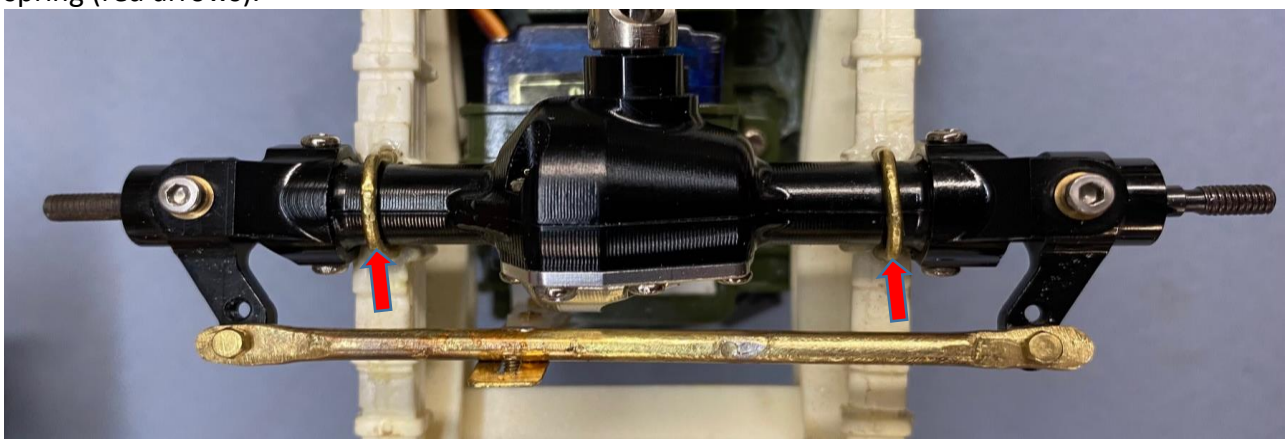




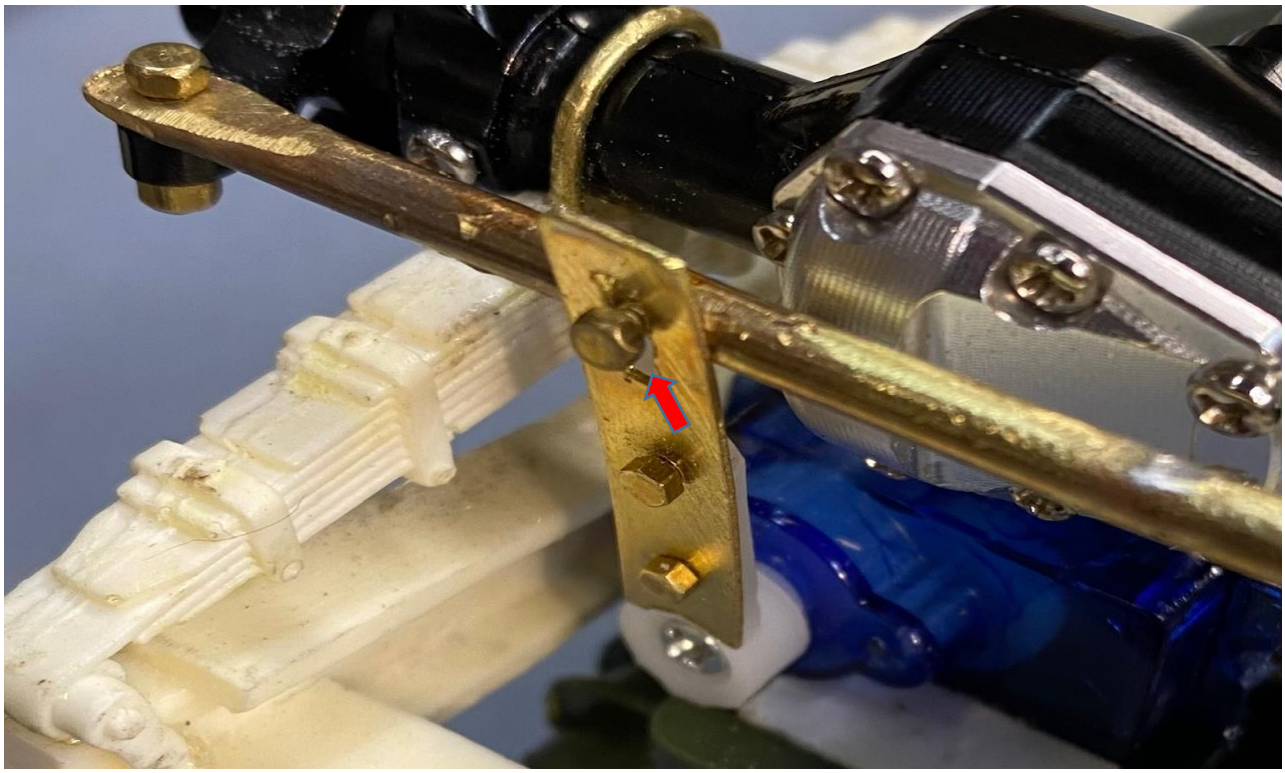
A micro servo was used for steering.



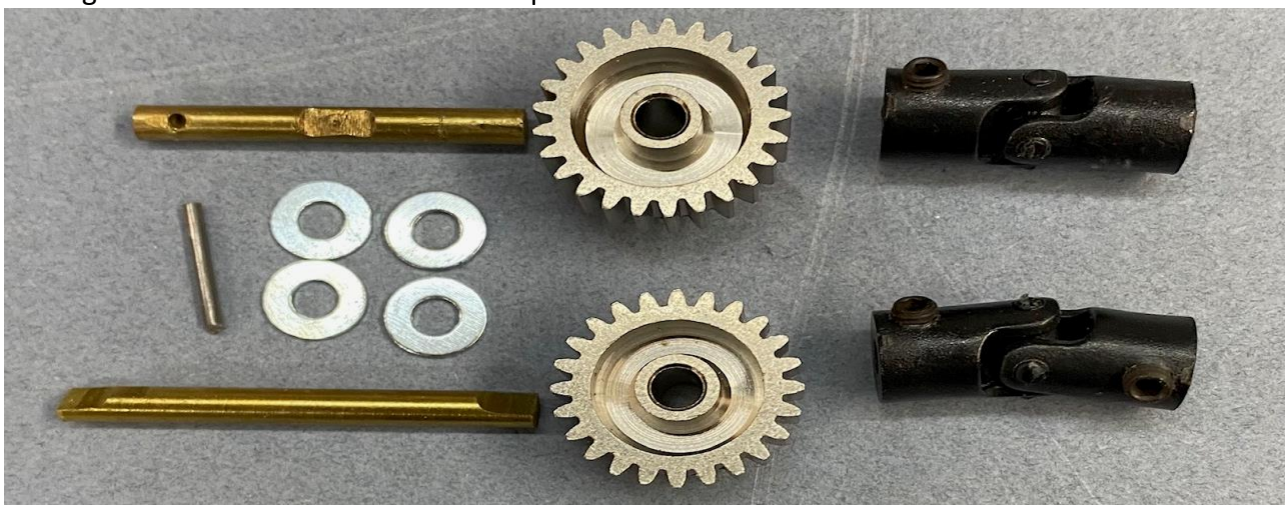
The steering mechanism for the RC trucks look like this. Note the brass rods to hold the axle to the spring (red arrows).

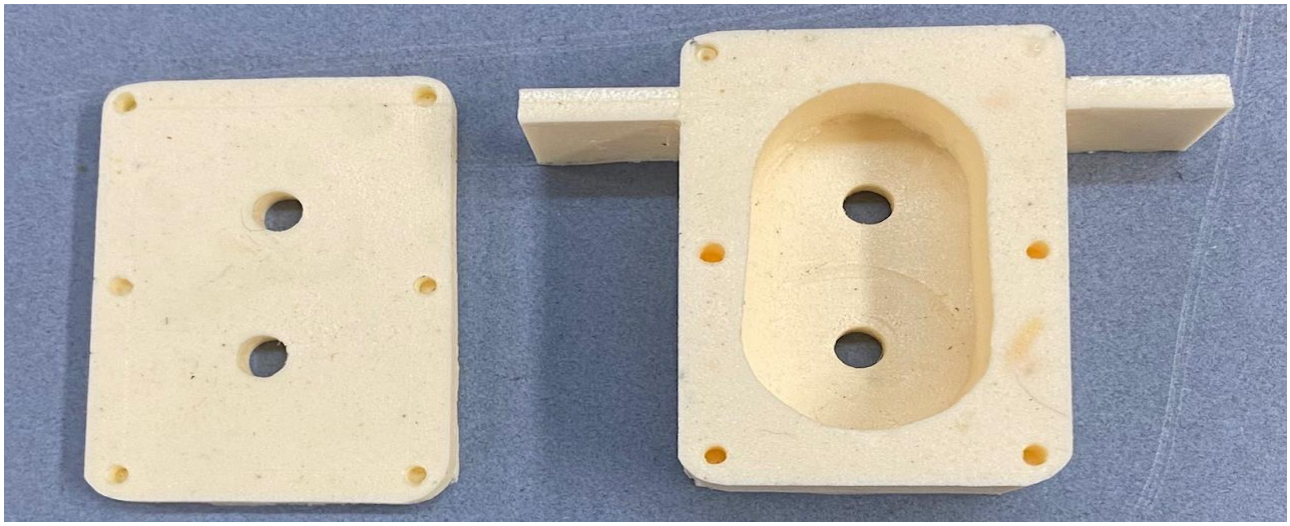


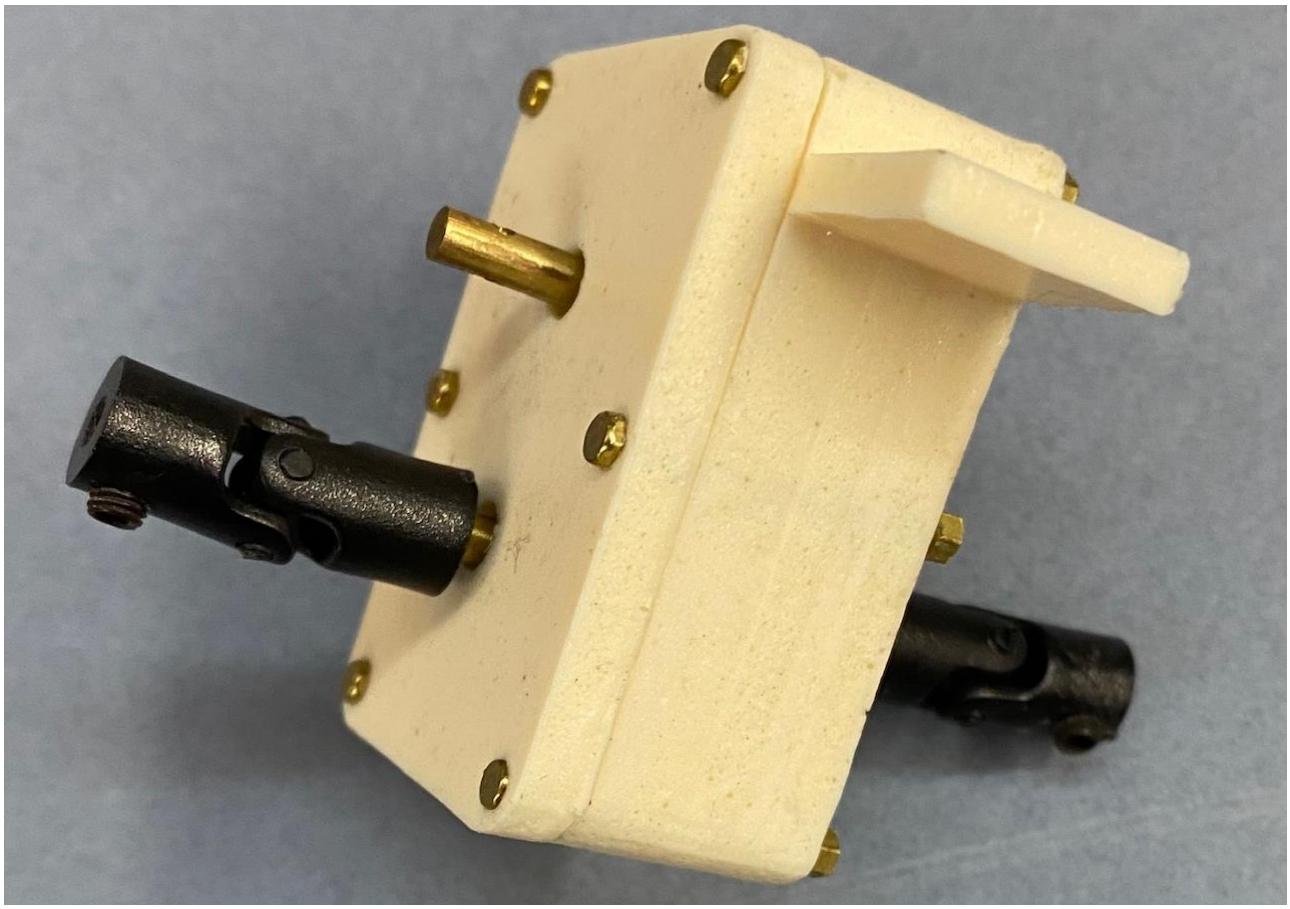
Note the slot (red arrow in next picture) cut into the servo linkage. This allows for the tie rod travel when the truck wheels turn.



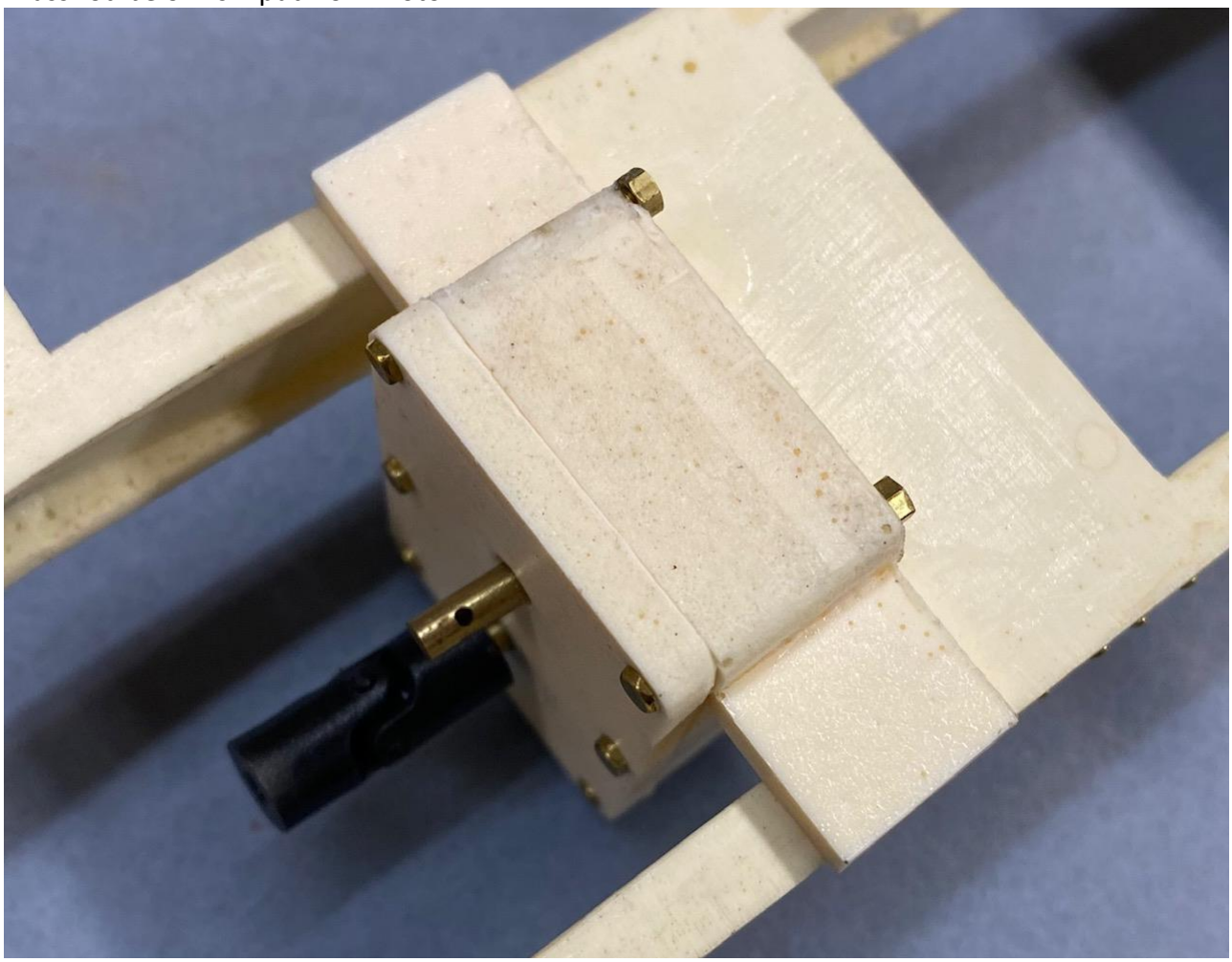
For the RC cars a working gearbox is needed. Design a master and cast the parts in resin as you will need more than one of these if you are also making static trucks. The (2) gears are just std. steel 24 teeth gears. There is no reduction in torque.



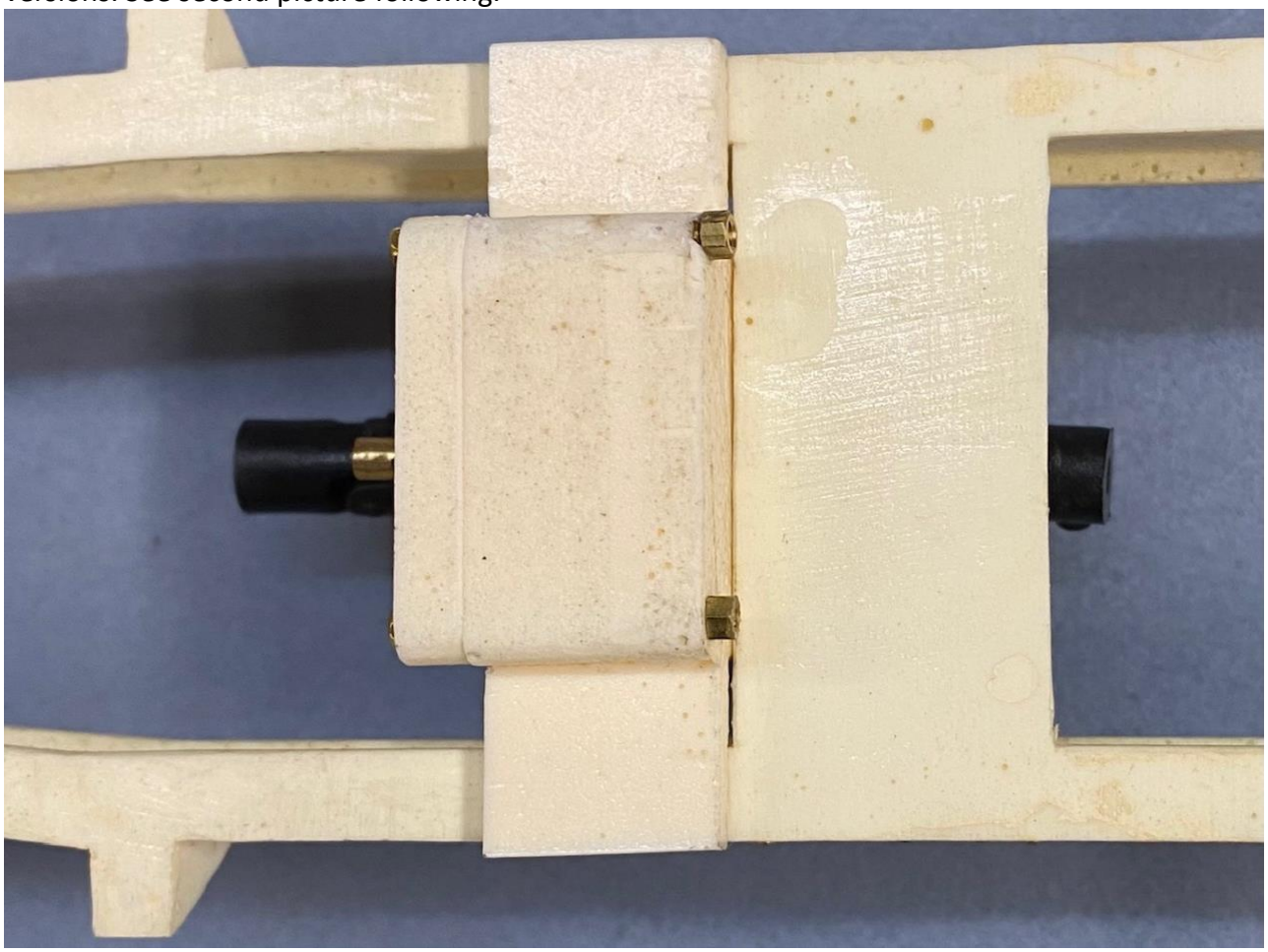


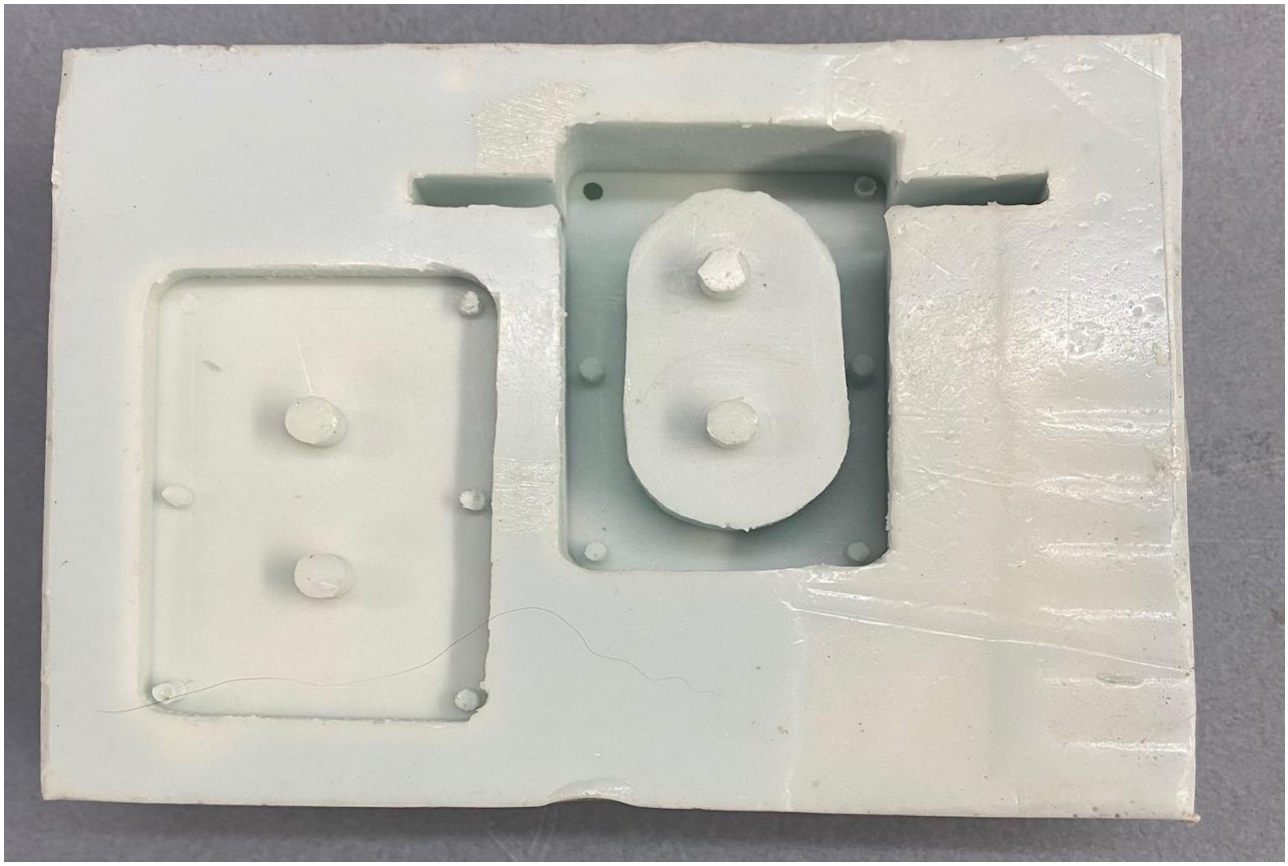


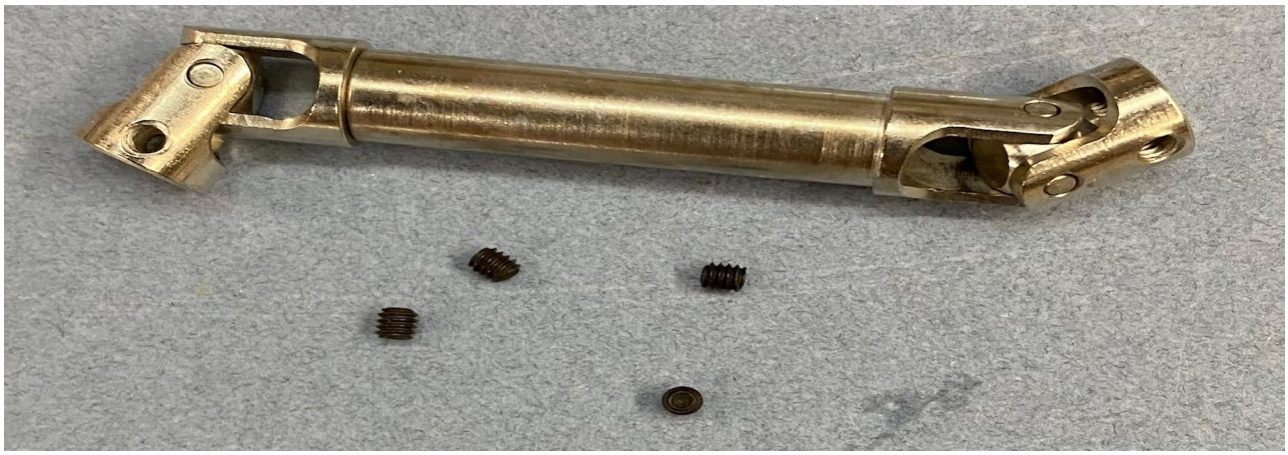
Brass rod below is input from motor.

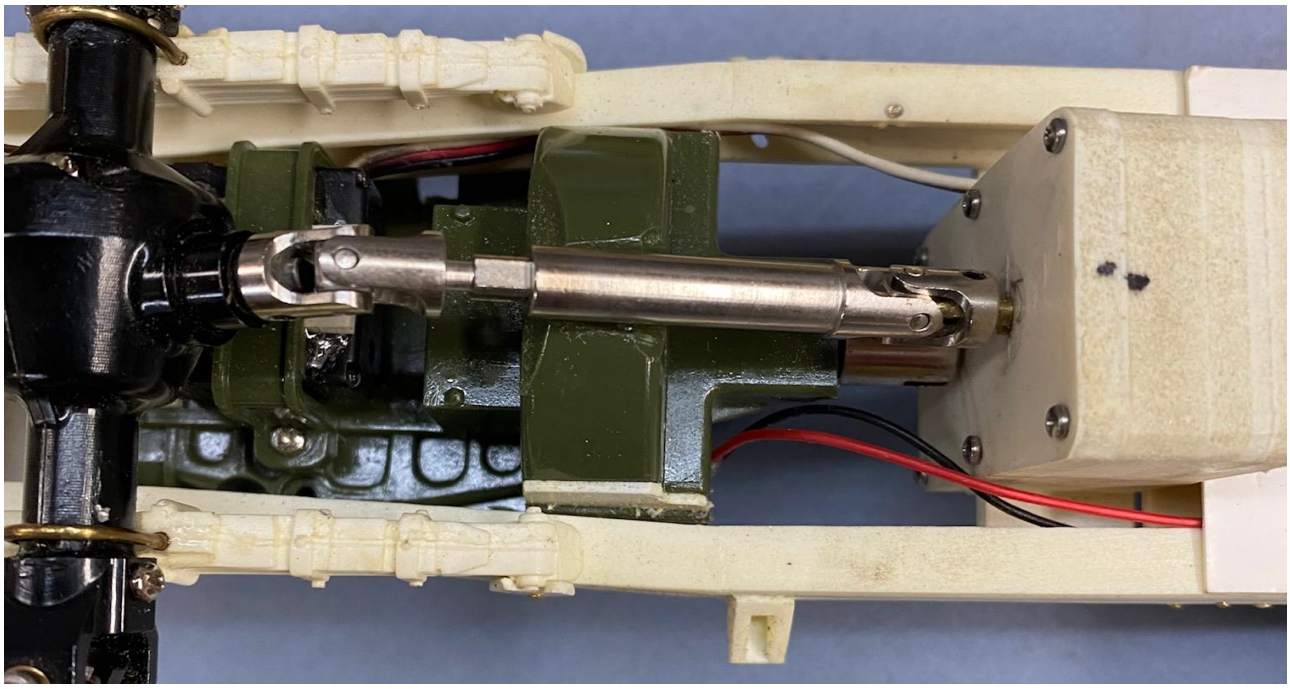


The plastic universal joints shown below did not work for the RC trucks. I switched to all metal versions. See second picture following.

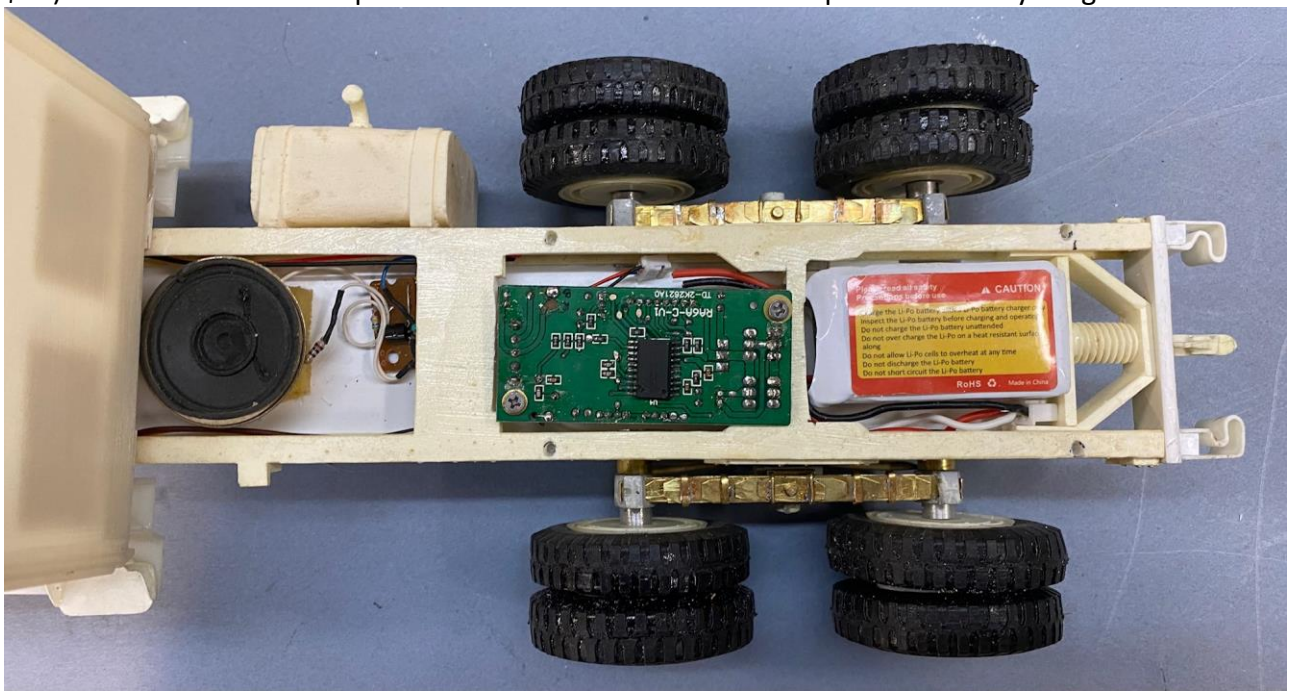




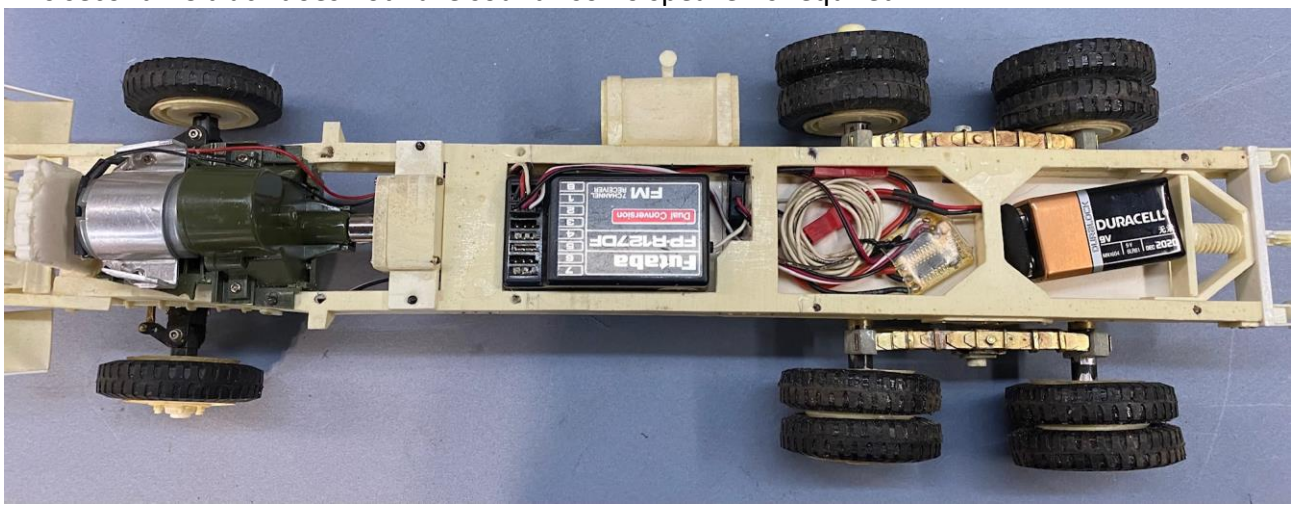




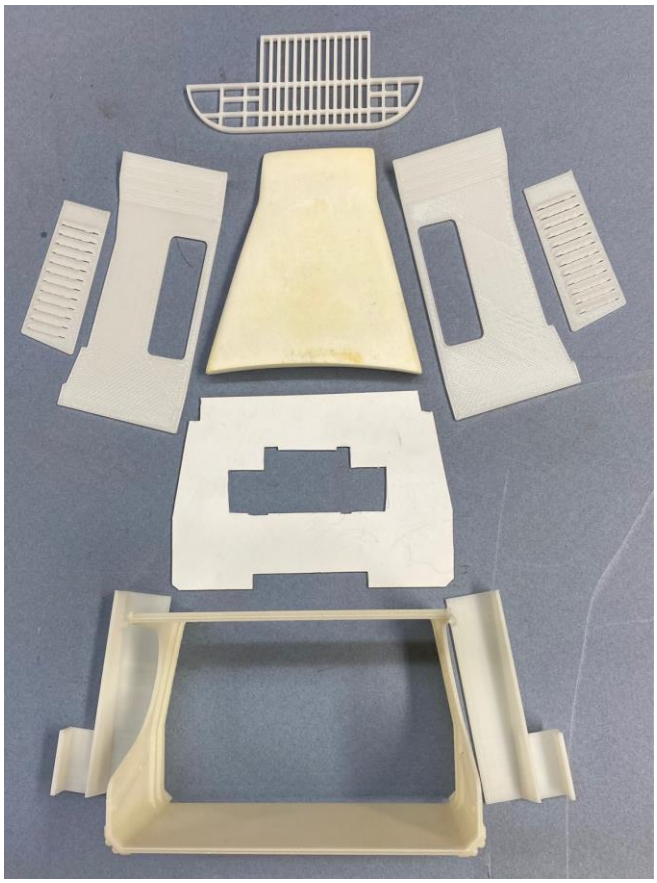
The electronics for the two RC trucks are: (1) the controller (and radio) from a Torro Quad 50 halftrack and (2) a typical 10 amp brushed controller in 2nd picture w/o brake (found on eBay for $10). Batteries are 2 cell Lipos or 9 volt Alkaline Duracell. The speakers are anything small that fits.

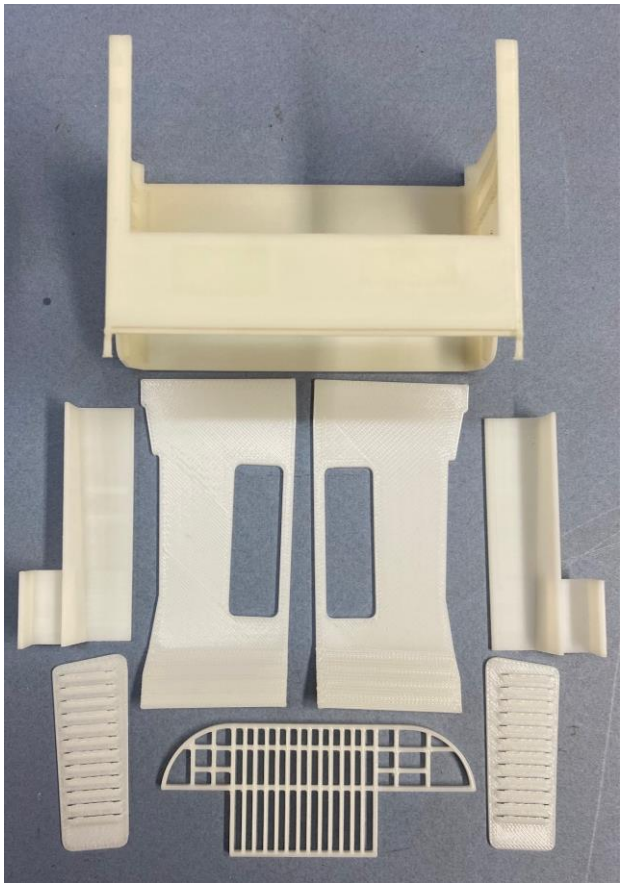


This second RC truck does not have sound…so no speaker is required.



4. **Cab and Engine Compartment:** The CCKW truck engine compartment is from a 3D program I bought from a guy in France. I made a mold of the hood so it could be added to the Chevy 1½ ton truck. One of the FRAG Club members has these files and can print the parts for you. Contact us at FRAGRCClub@aol.com

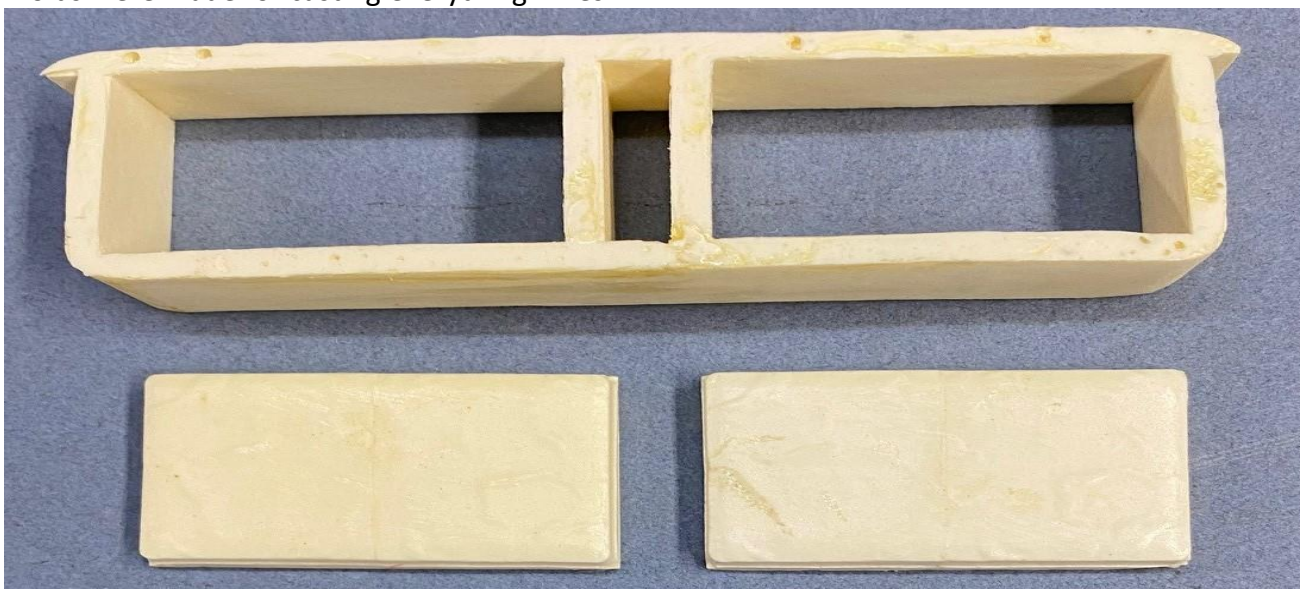




Also make a mold and cast the hood joiner part.

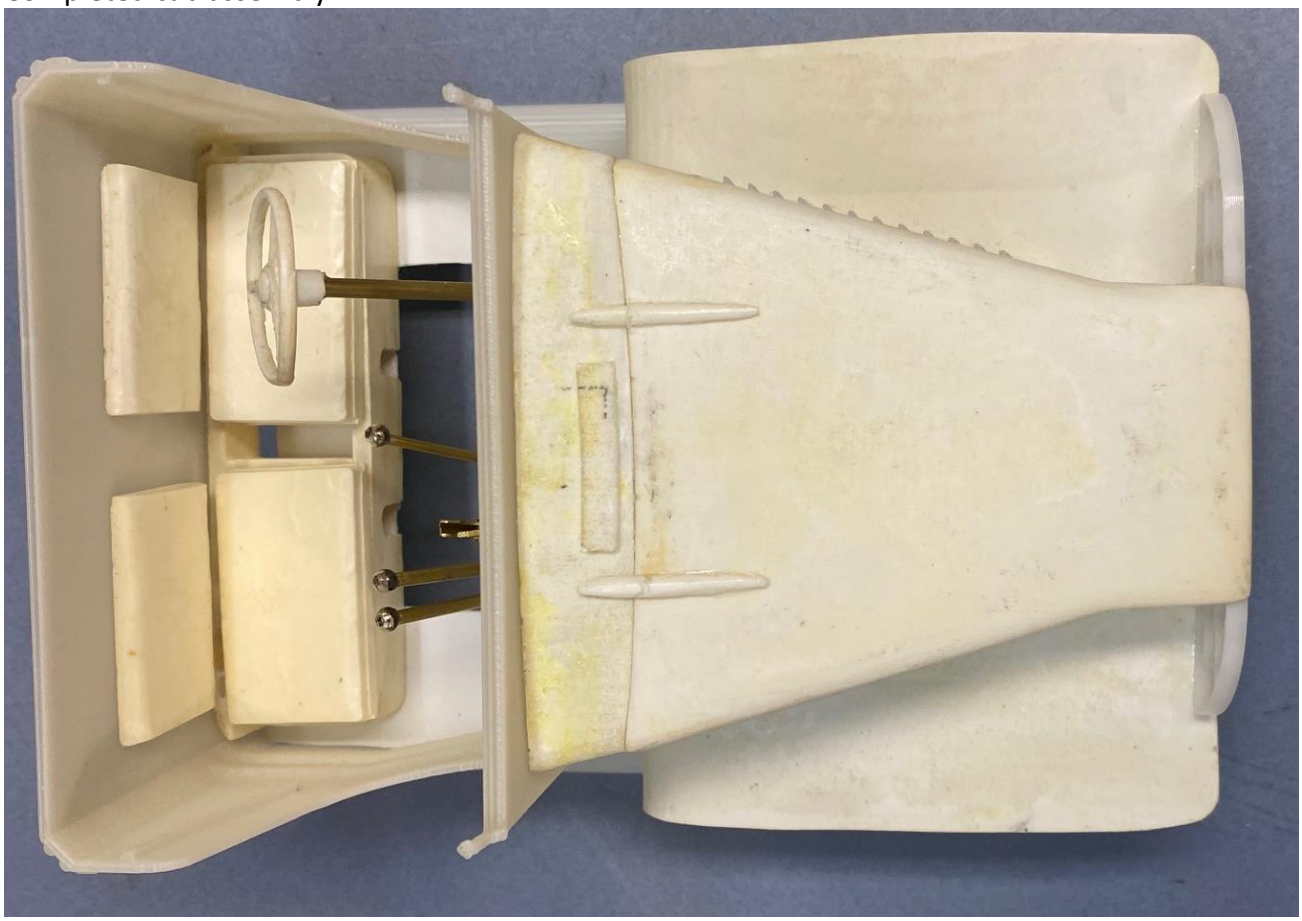
Note: Yellow stains (see picture below) on resin castings sometimes show up when the resin is not mixed thoroughly, but it usually still cures solid. If not, then remake the part.

The bench seats and support frame look like this. The master was made from thick styrene. The seats and back cushion masters were made from splicing cushions from the Torro halftrack. Then molds were made for casting everything in resin.



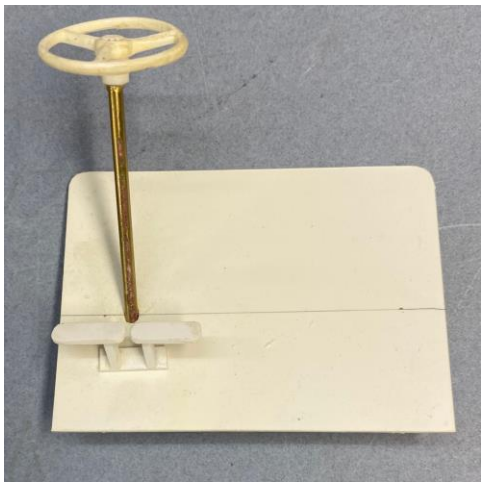
There are also rear seat pads. See next picture. Make these from thick styrene.

Completed cab assembly.

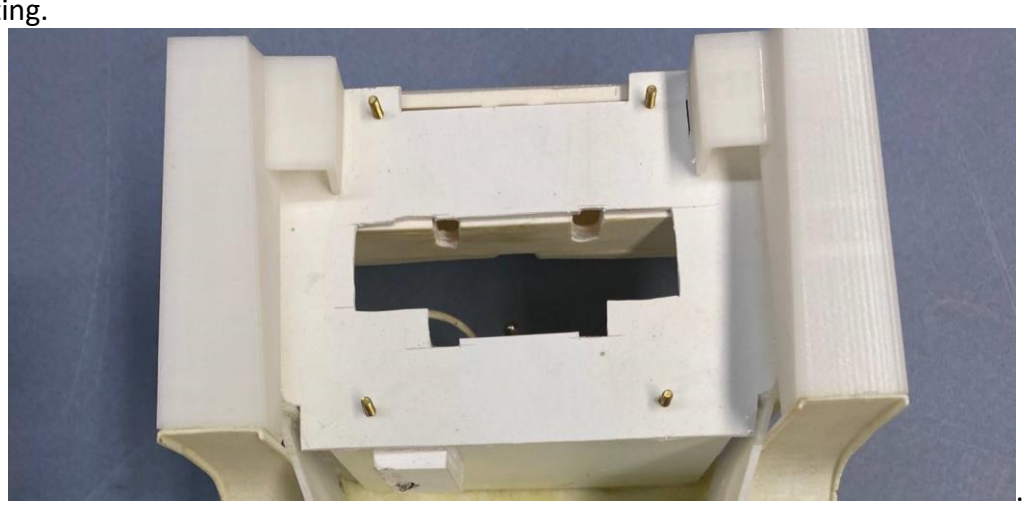


Misc. parts for the cab and hood look like this. Windshield wipers, side mirrors and the hood hinges. I made molds from Highway 61 truck parts and scratch built the hinges.

Make the internal cab details like this from brass rod and misc parts.



The opening in the cab floor fits over the gear box on RC models. The opening is not needed for the static models as the gear box is trimmed to fit flush, since there are no gears inside. Also note the 4 threaded bolt stems in the corners….these fit into holes in the frame to properly locate the cab. Glue after painting.



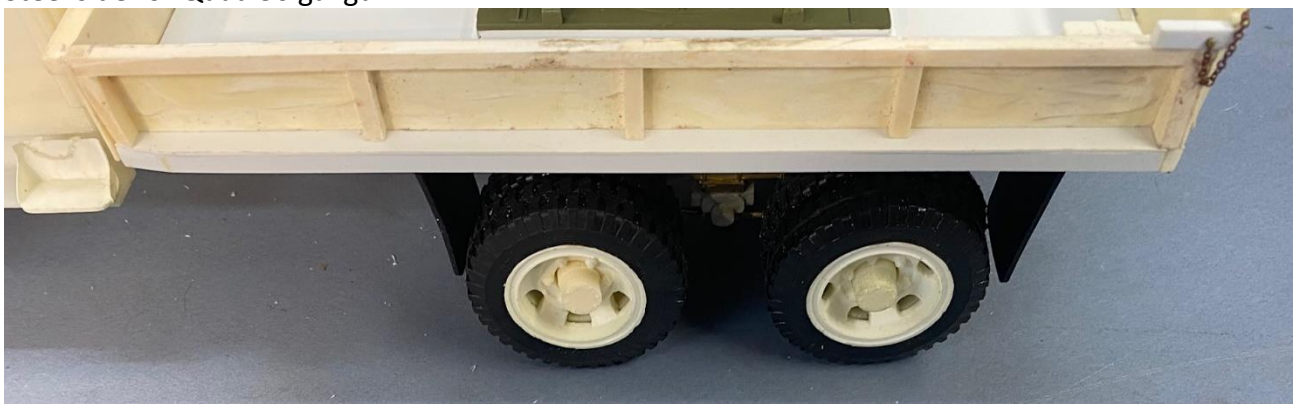
The cab also has a foldable window frame and insert. Drill the required holes in the 2 arms that stick up from the cab. Put plastic in the insert to replicate glass. Glue the insert into the frame.

The details for both sides of the window look like this. Note the star handle for locking the window in any position. It is non-functional. The small eyelet is for the leather door strap.

The two fenders also need headlights, siren, etc.

5. **Rear Cargo Bed:** There are various types of cargo beds…some wood….some steel…..some a combo. I wanted different types so I made 5 different models. The Quad 50 gun is all steel. 3 of the others have metal lower side panels, wood slats above, steel tail gates and the cargo floor is steel with wood runner boards. The GMC Chevy 1 ½ ton truck has a wood floor with no runner boards.

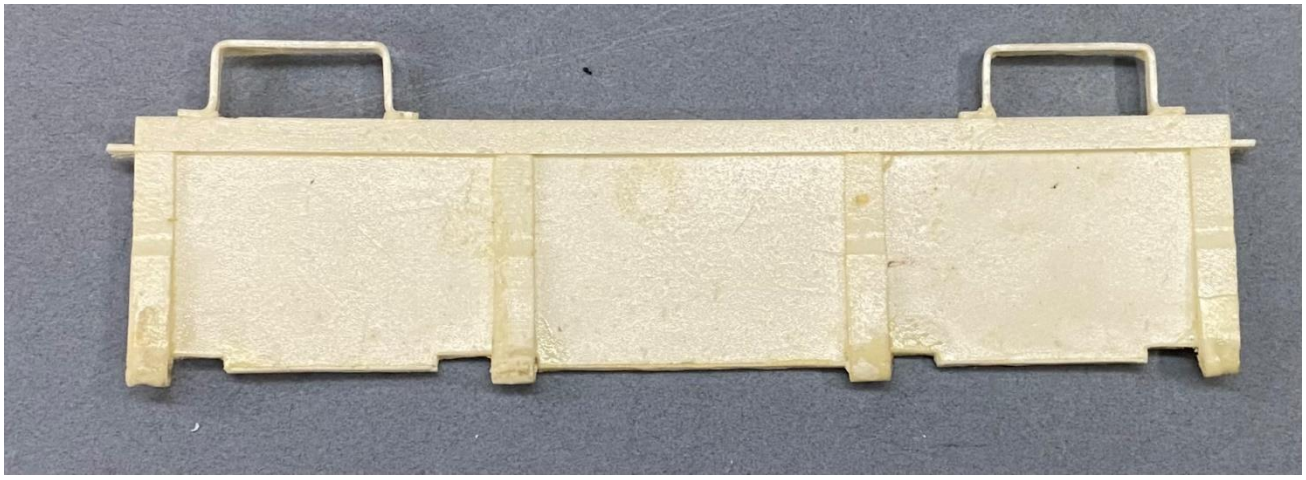
   Steel side for Quad 50 gal gun.

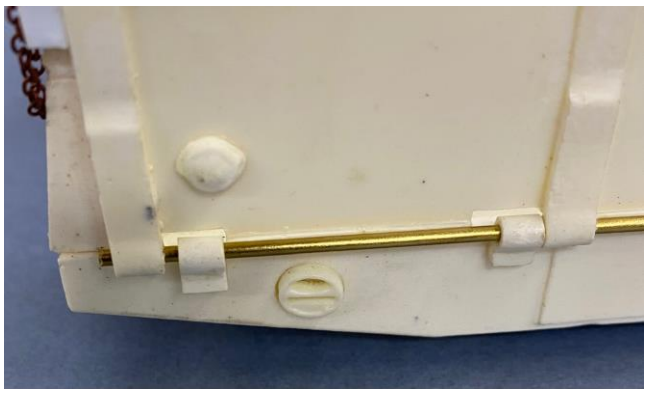


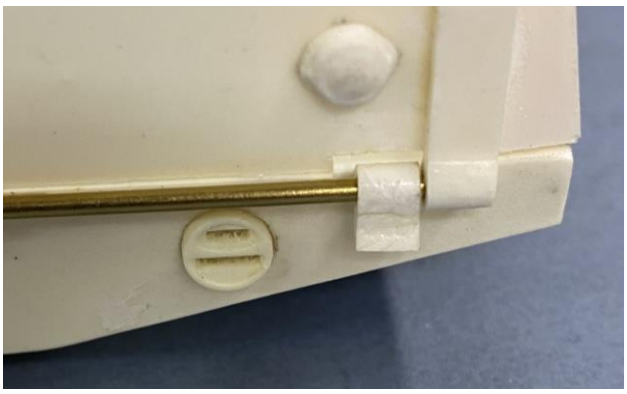
   GMC Chevy 1½ ton sides are metal with wood slats and metal canvas staves (hoops).

Wood lower side panels and wood slats for the GMC CCKW long trucks. The (4) mud flaps are made from a mold and Alumalite “Flex 40” casting rubber, with drops of black enamel for color.

Steel tailgate with 1/16th” dia. brass rod. The (2) reflectors and (2) tail lights are separate castings.

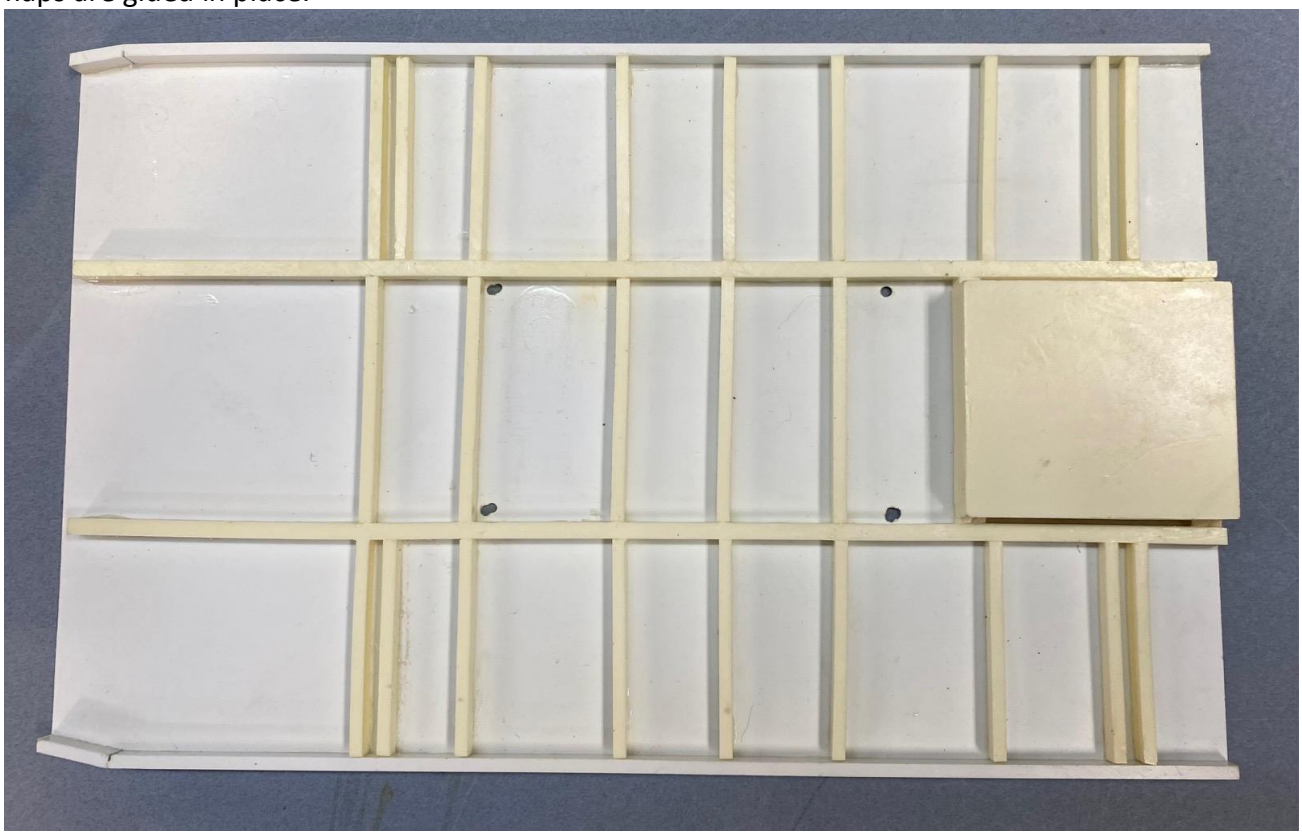




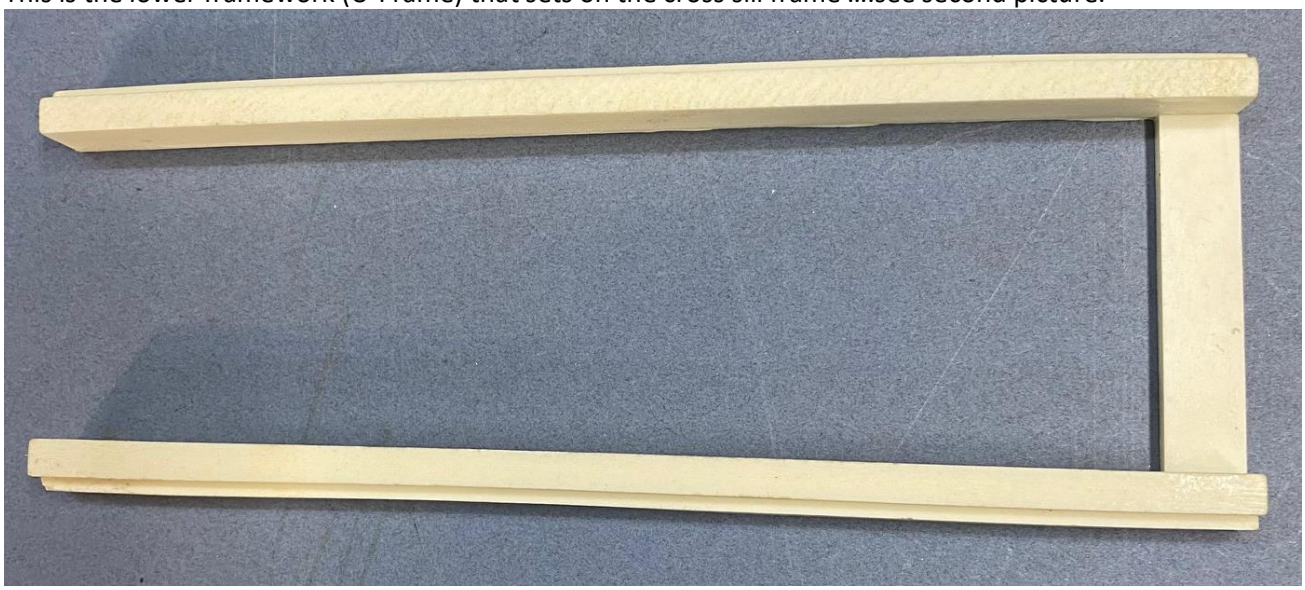


The front wall of each cargo deck is a lower steel frame with wood slats above.

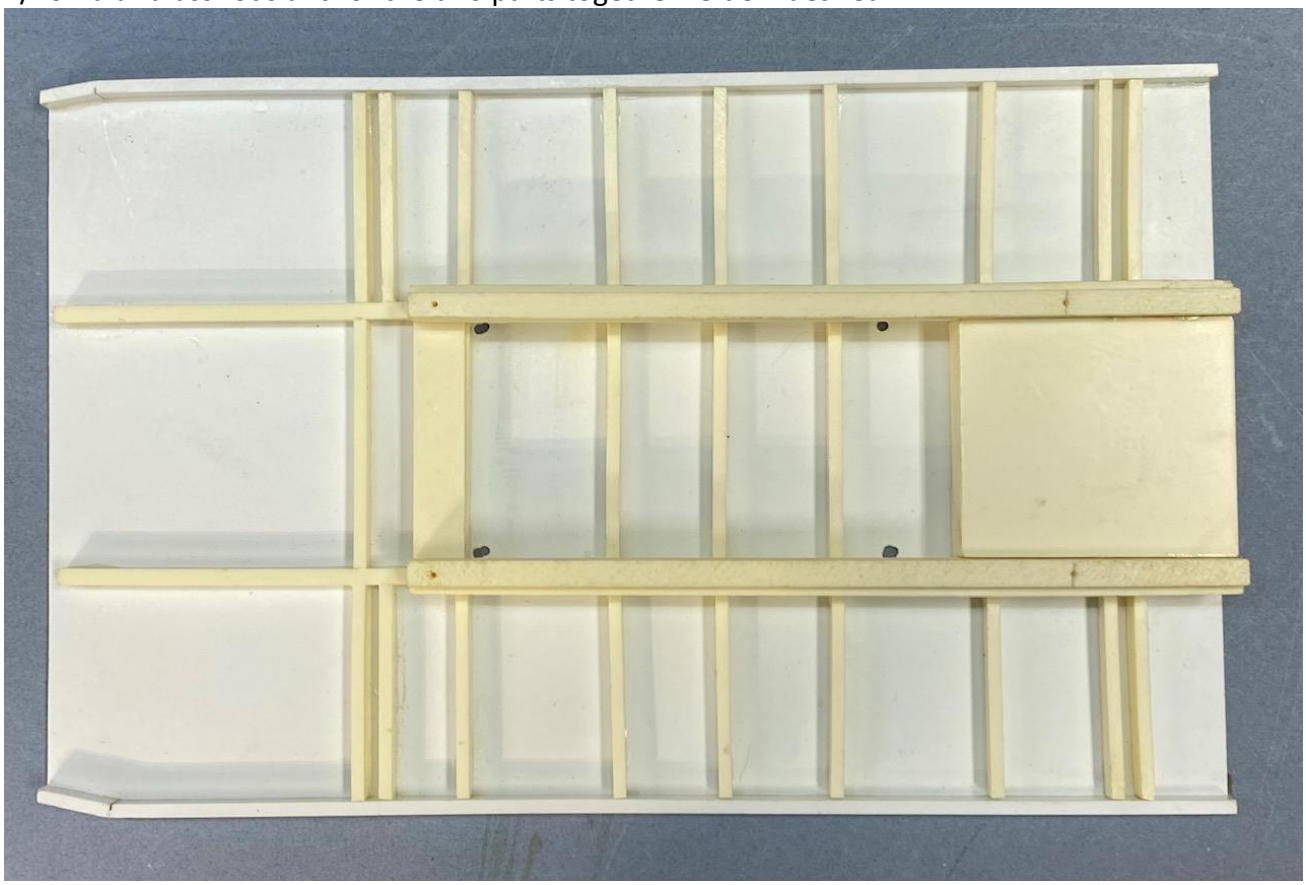
The cargo deck is made from 0.040” styrene sheet with a cross sill framework casting (whitish color cross pieces) glued to the bottom. The (4) areas with two sills close together are where the mud flaps are glued in place.



This is the lower framework (U-Frame) that sets on the cross sill frame ….see second picture.

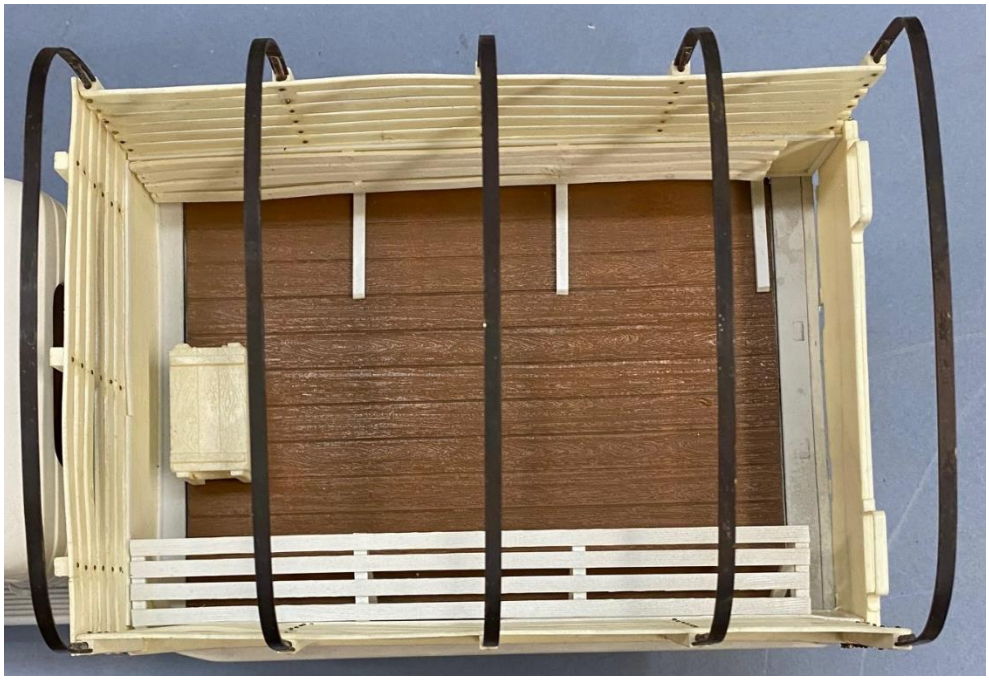


The (4) dots are the location where holes for 2mm brass rods (1/2” long) are drilled into the U-Frame (not the floor) and corresponding holes are drilled into the main truck’s long bed frame. Then (4) 1/16th dia. brass rods anchor the two parts together. Glue if desired.

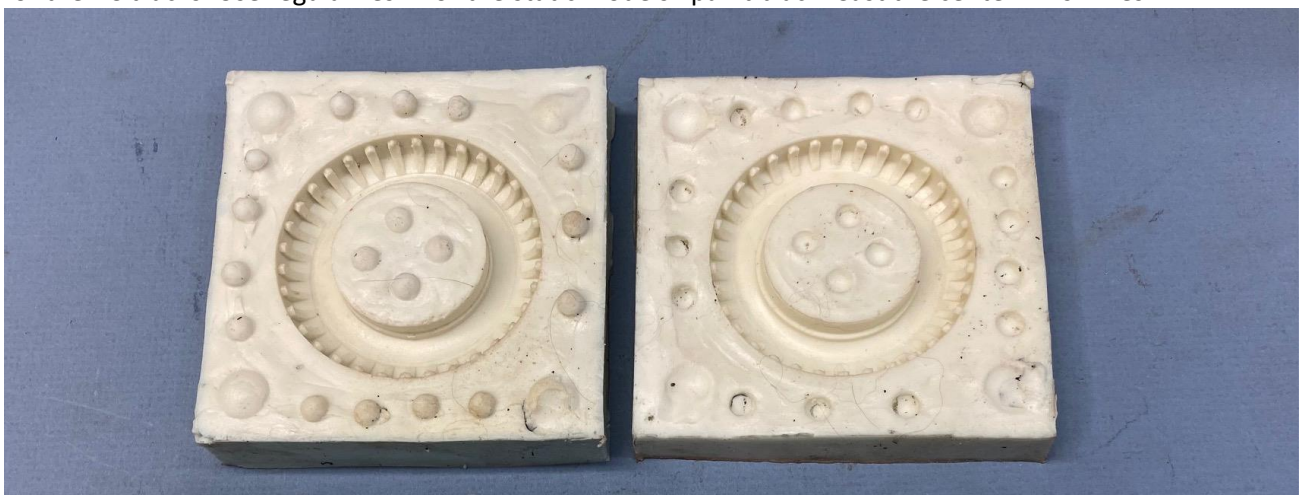


Note the chain and pin assembly for locking the tailgate.

The cargo staves (hoops) are made of K&S brass 1/32” x 1/16” brass bar stock and shaped over a wood form. Then ½” long 1/16th” dia. brass rod is soldered to each end. These anchor the staves to holes drilled on top of the wood cargo posts. Once completed these are dunked in Birchwood-Casey Brass Black to etch them so that the paint stays on.



6. **Wheels, Tires and Hubs:** You need a master for the wheel. Tires/Wheels are commercially available from 3D print companies. Buy two. Cut out the center wheel rims (front and back) and make a mold of each. Cut the second one so you have a tire with a hole in it. Make a mold of this. Cast the tires in Alumalite "Flex 40" rubber for the RC trucks. Use regular resin for the static models…paint black. Cast the center rims in resin.



You will also need a mold of the center drum that holds the (2) rear wheels together.

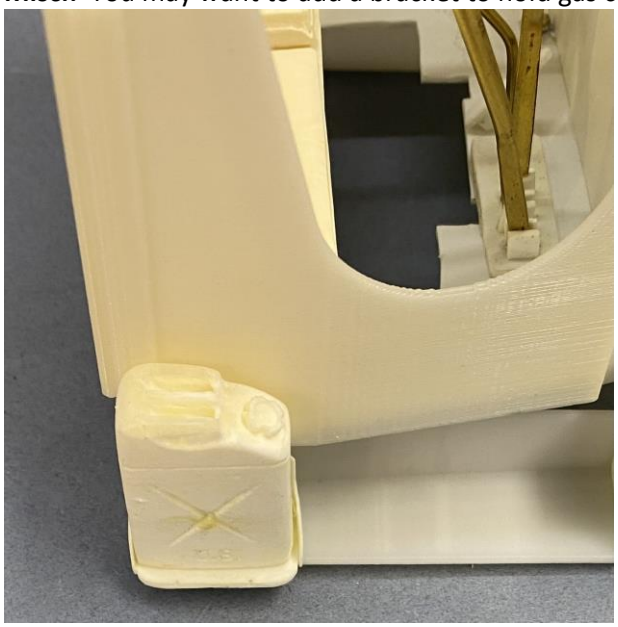
This is the outside rear rim.

This is the backside rear and front wheel rim. Note the slot for the axel pin location on the RC trucks.

This is the front wheel outside rim.

These are the hubs for the wheels. Small for front.

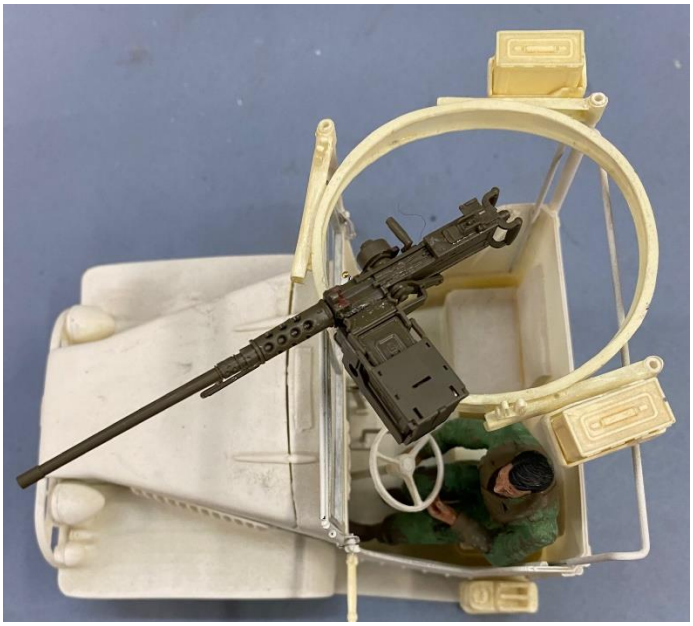
7. **Misc.:** You may want to add a bracket to hold gas cans on the side of the cab.



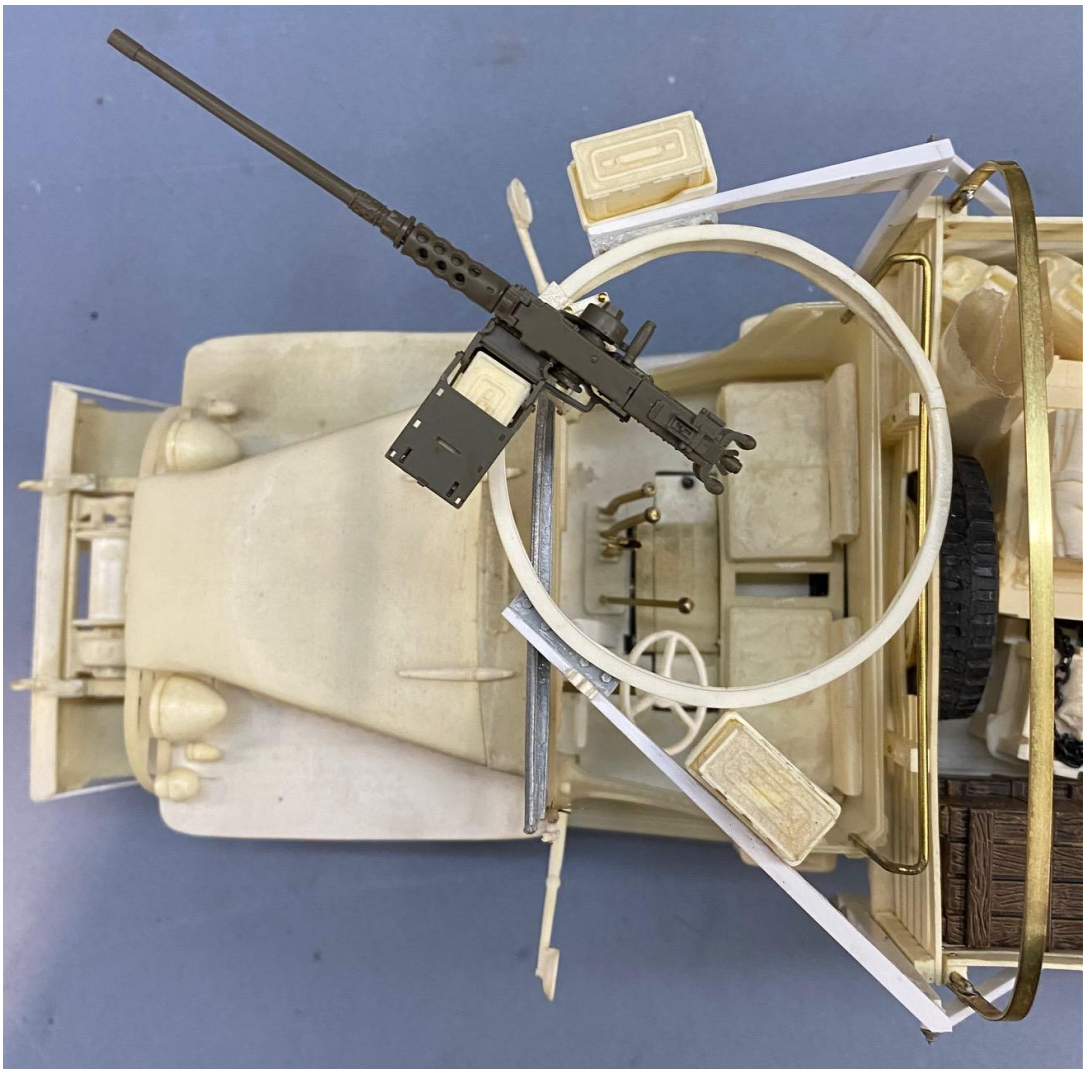
And a fire extinguisher for cab safety. This one came from a 3D print company.

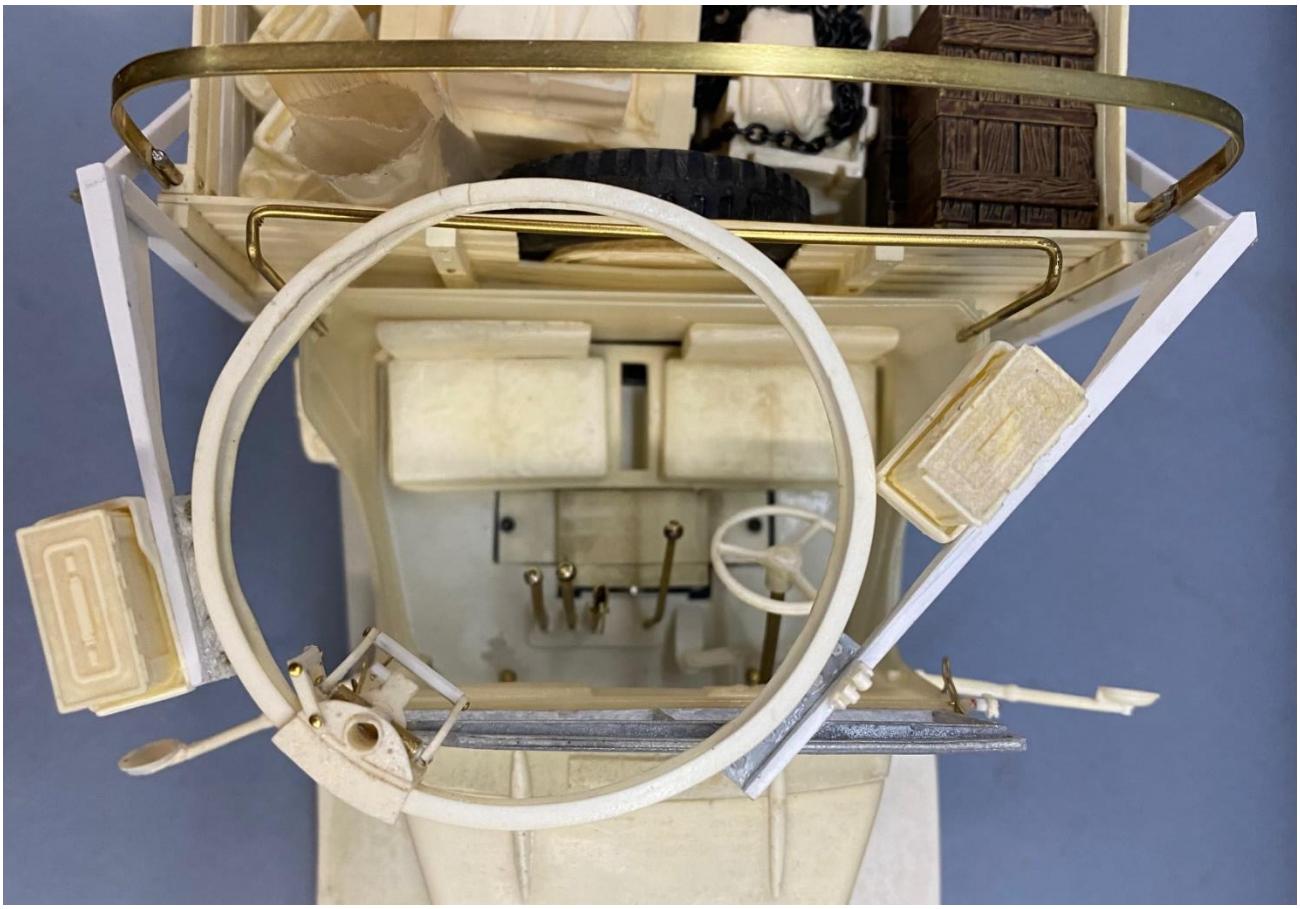
8. **MG Mounts:** There are (2) mounts that were used…..the M36 and the M37. The M36 sets on vertical poles and the M37 is tied to the rear cargo deck with various size flange pieces.

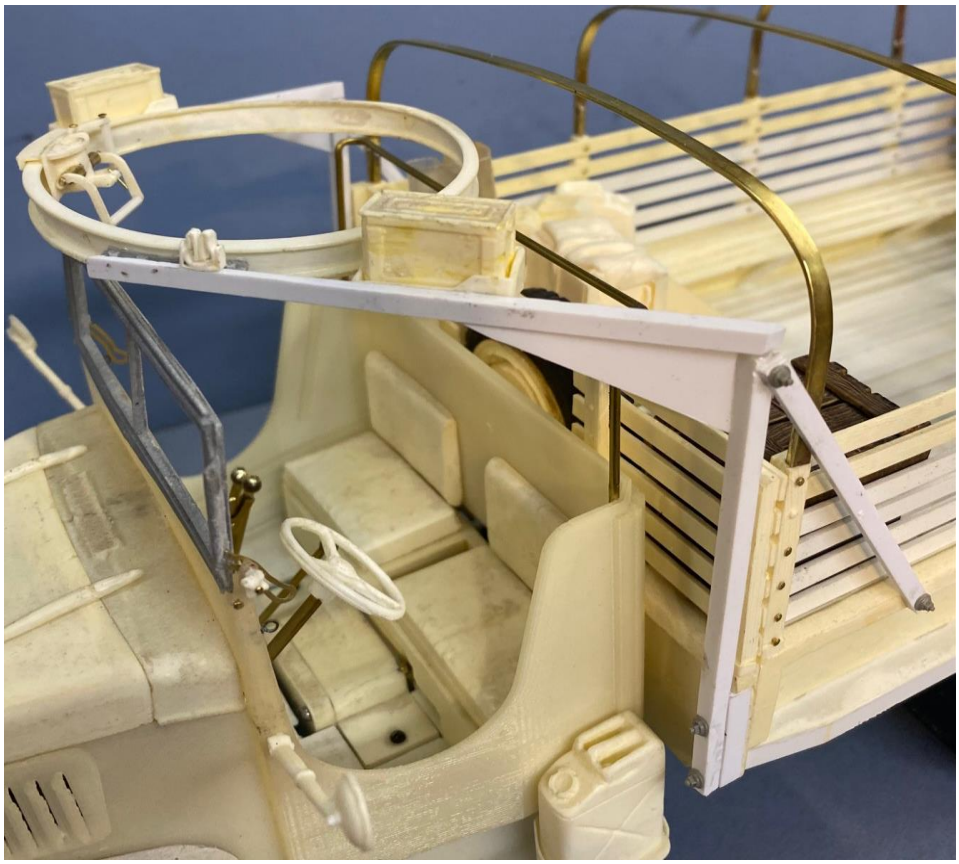
This is the M36 mount: The ring is made from a brass I-beam master wrapped around a wood form and soldered together . Then an RTV mold was made and parts cast in resin which sometimes warps a little, so mixing the resin with powdered aluminum might solve this problem.

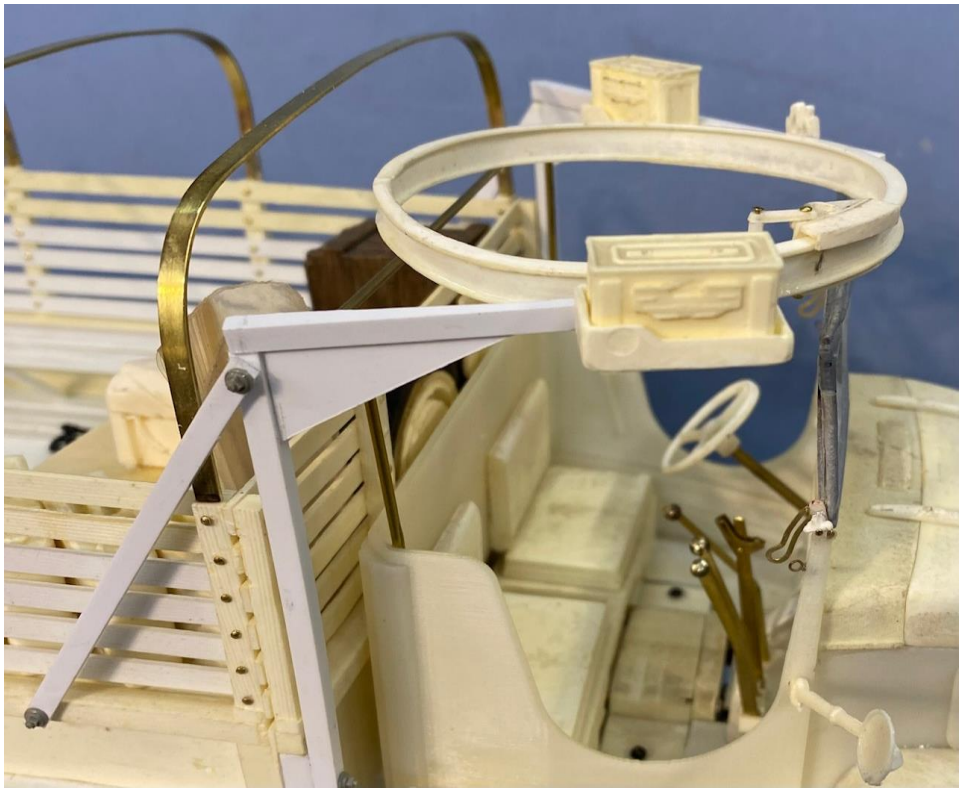


This is one of the M37 mounts:

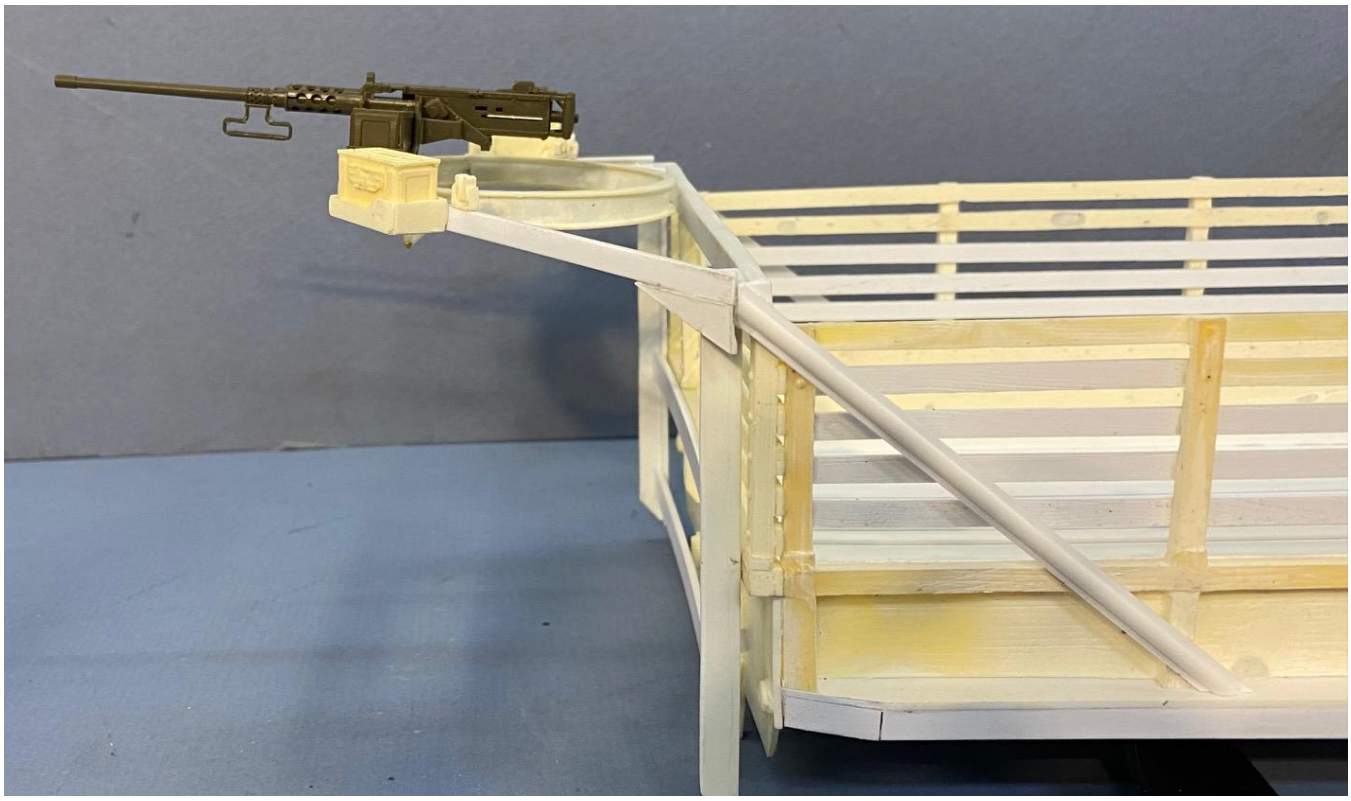


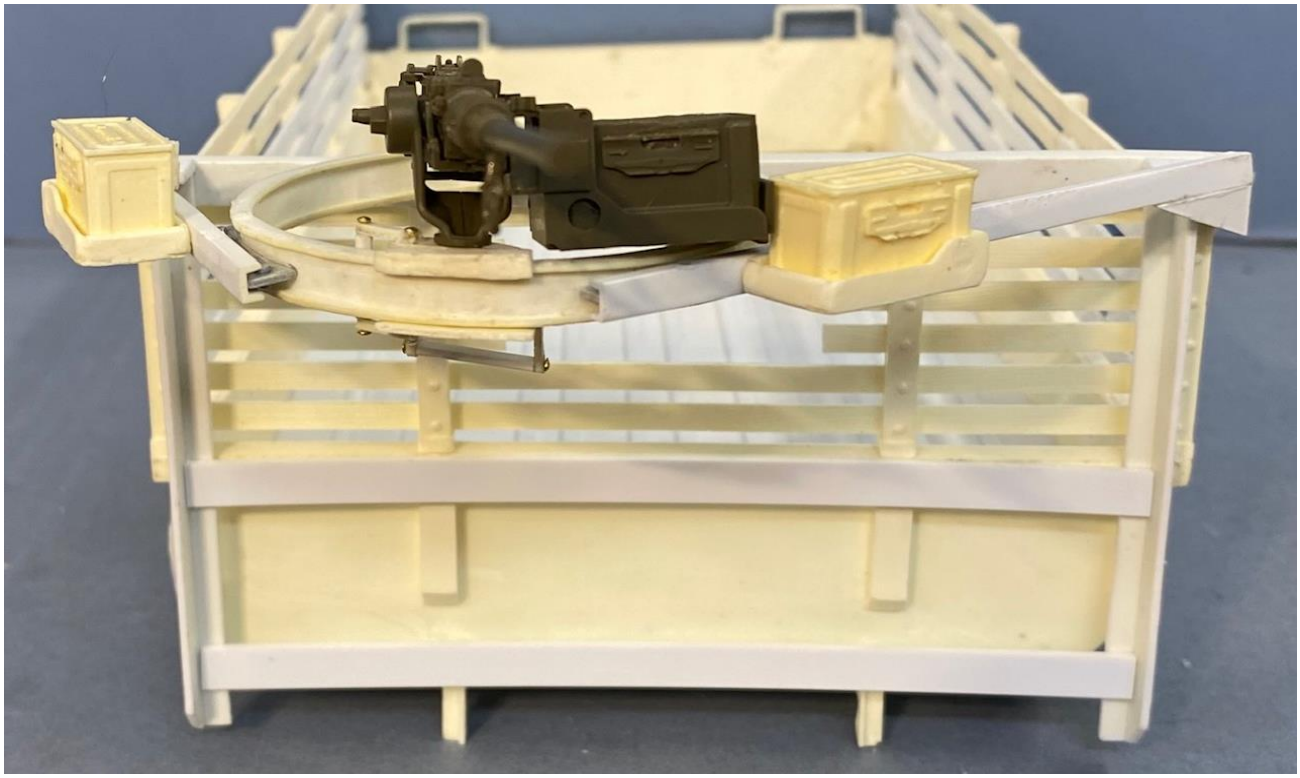


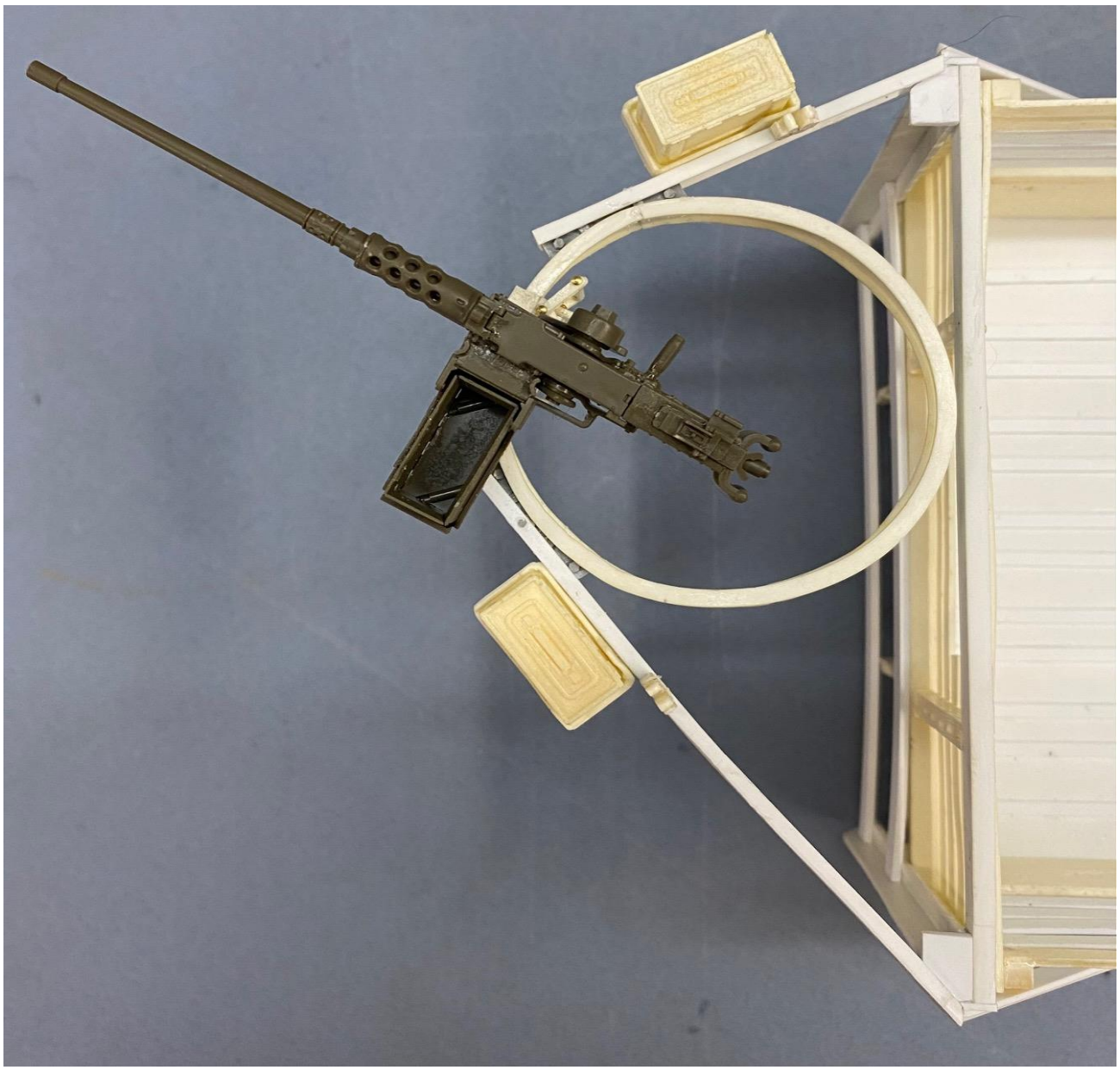




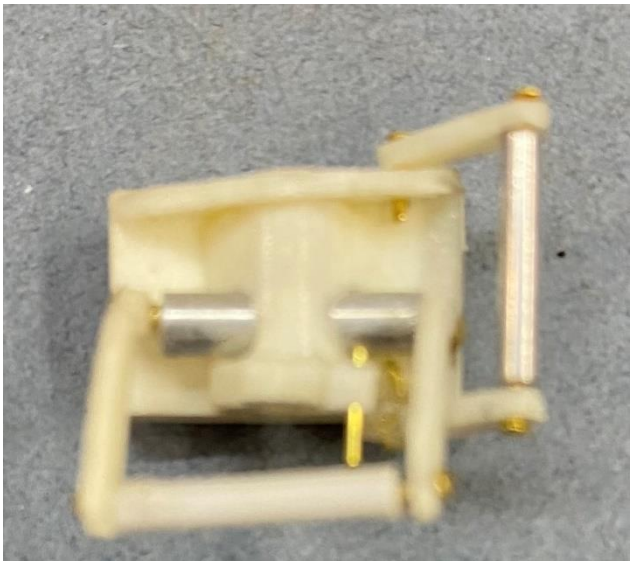
This is the second type M37 mount:

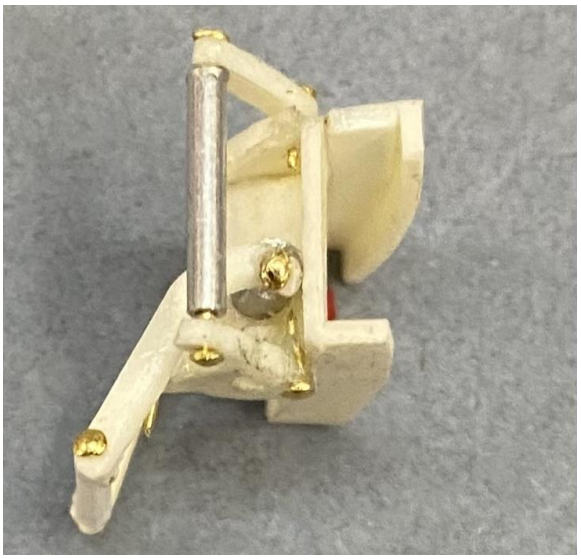




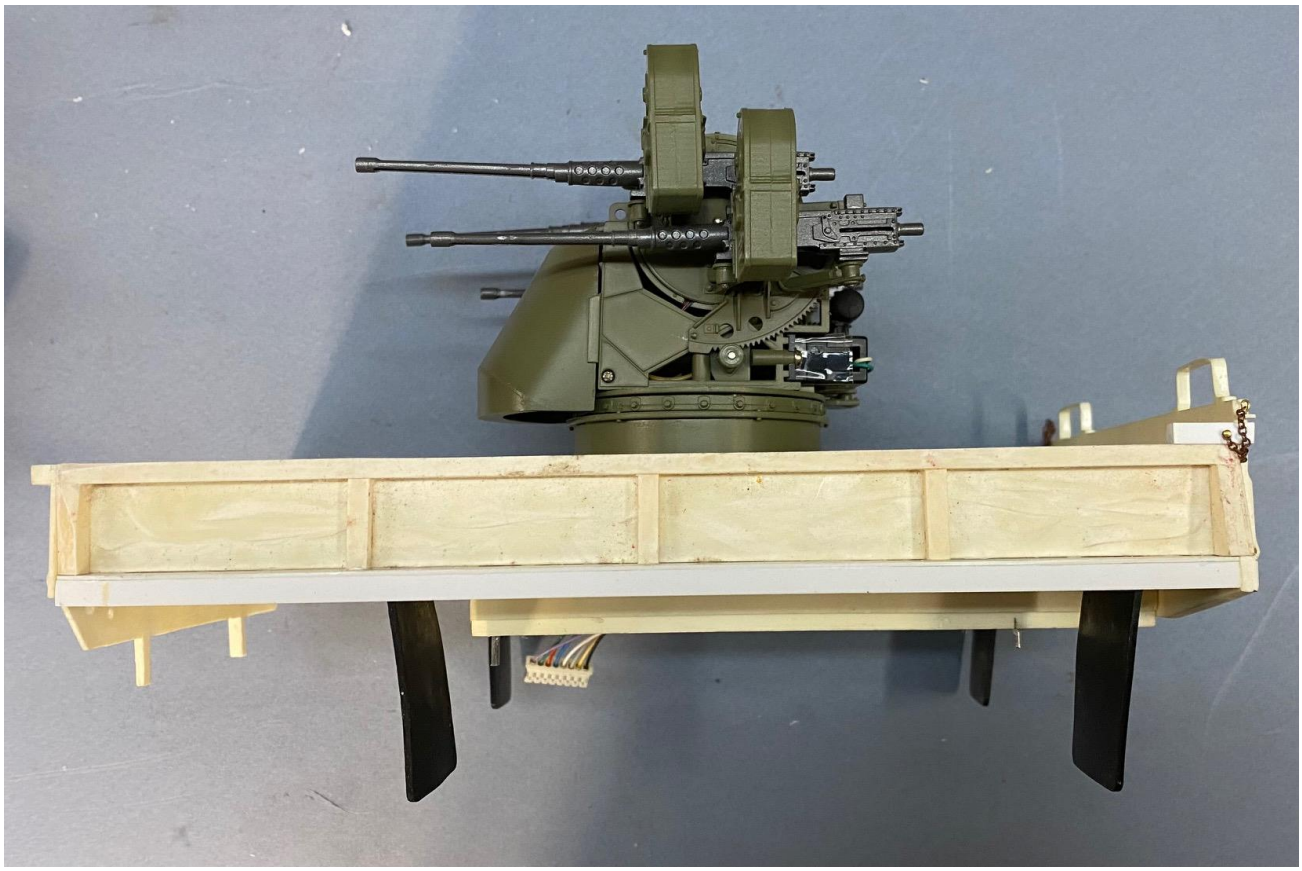


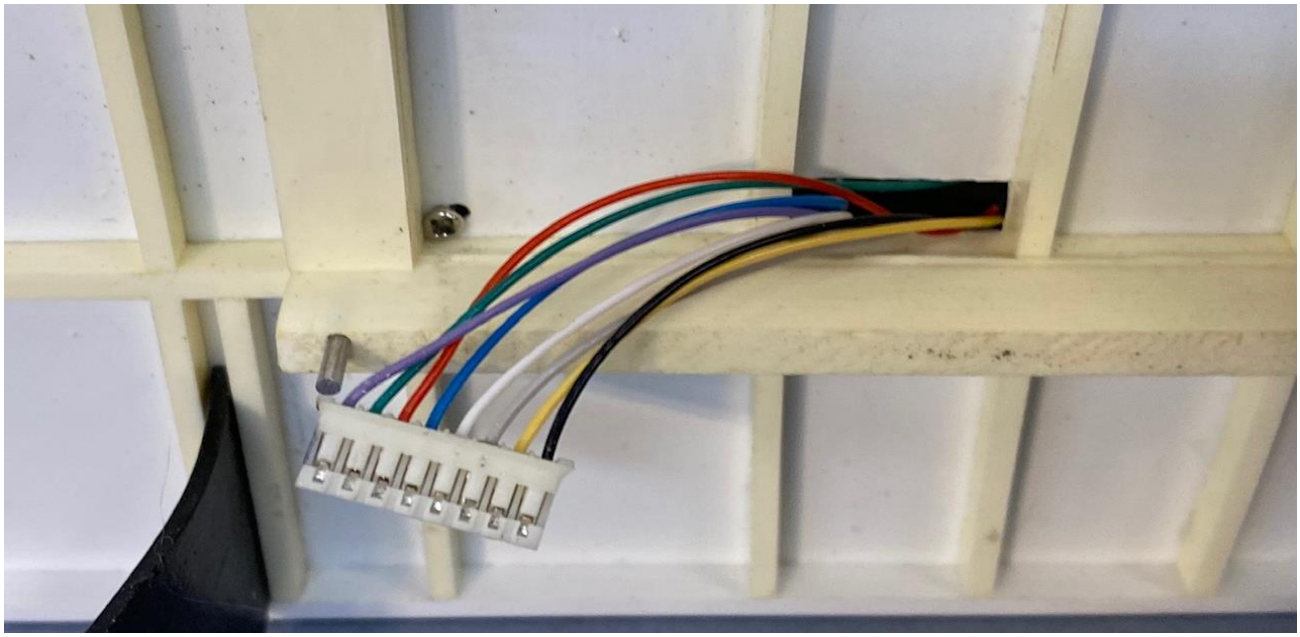
This is the 50 cal swivel mount. Make master parts, a rubber mold of each, so you can cast many swivels.





9. **Quad Gun Truck:** These are pictures of the 50 cal Quad gun set-up for operation and sound.

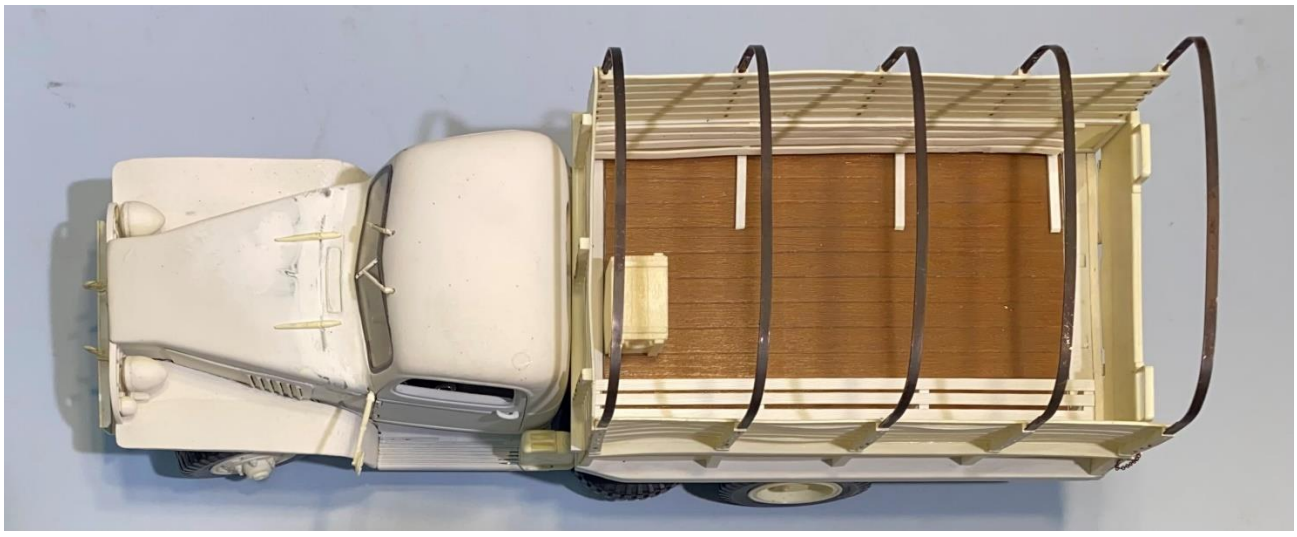


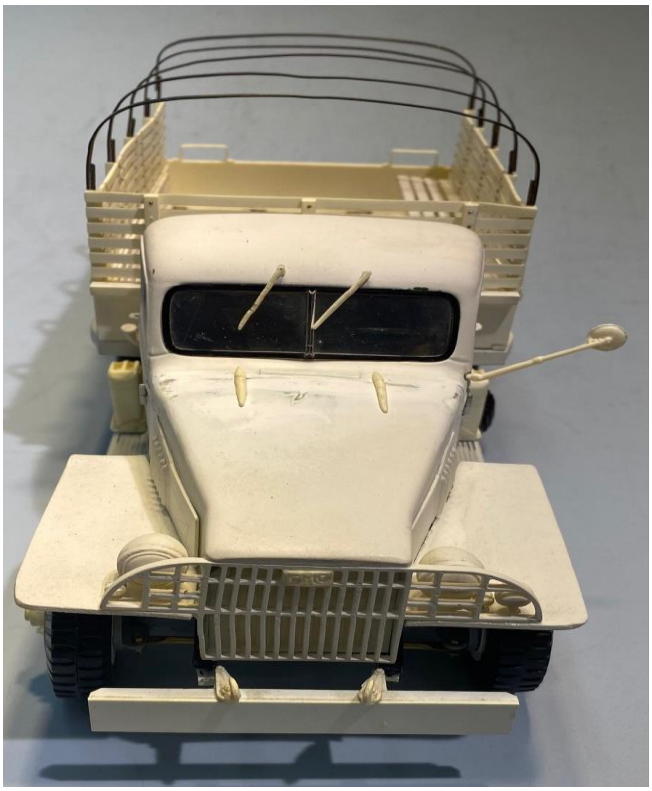


Last Note: On the RC trucks, I had to drill a hole clear thru one side of each rear rim part (both for the front and rear wheels) so that I could slide the locking pin thru the hole into the axel. The hole lines up with the small slot…see red arrow in picture under Instruction Step #6. The wheels and rims mounted too close to the axel holes to be able to use the short pins ones supplied by the axel maker. Do this before gluing the wheel castings onto the rims. The wheels then hold the long rods in place.

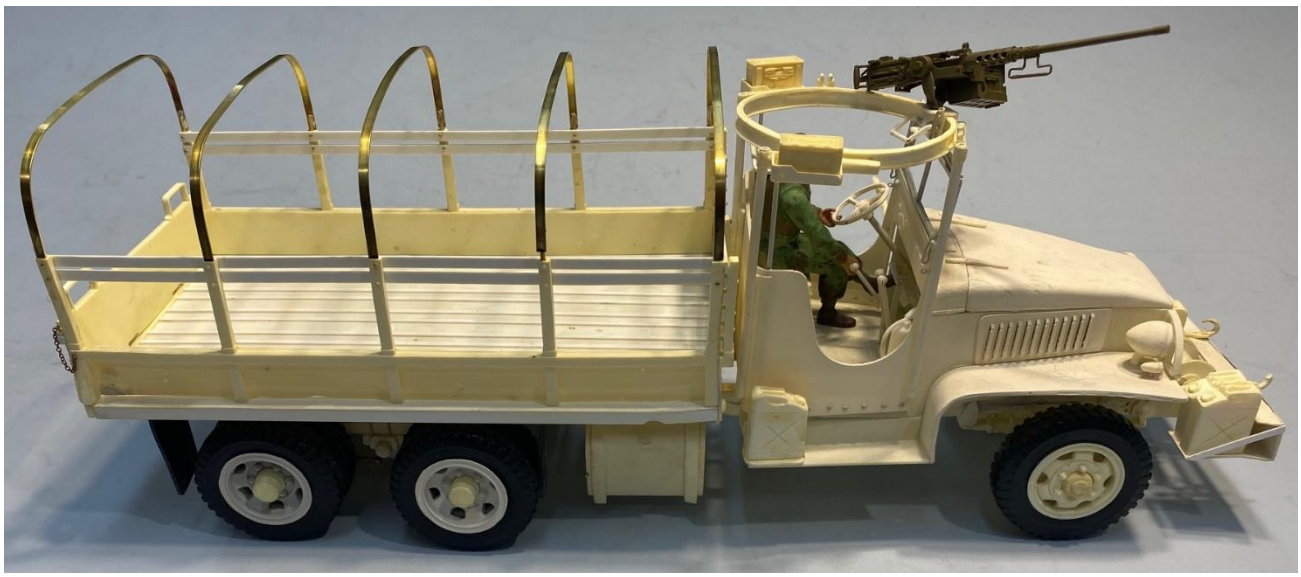
10. Truck Pictures Before Painting: **Note: Some trucks have seating for troops.**

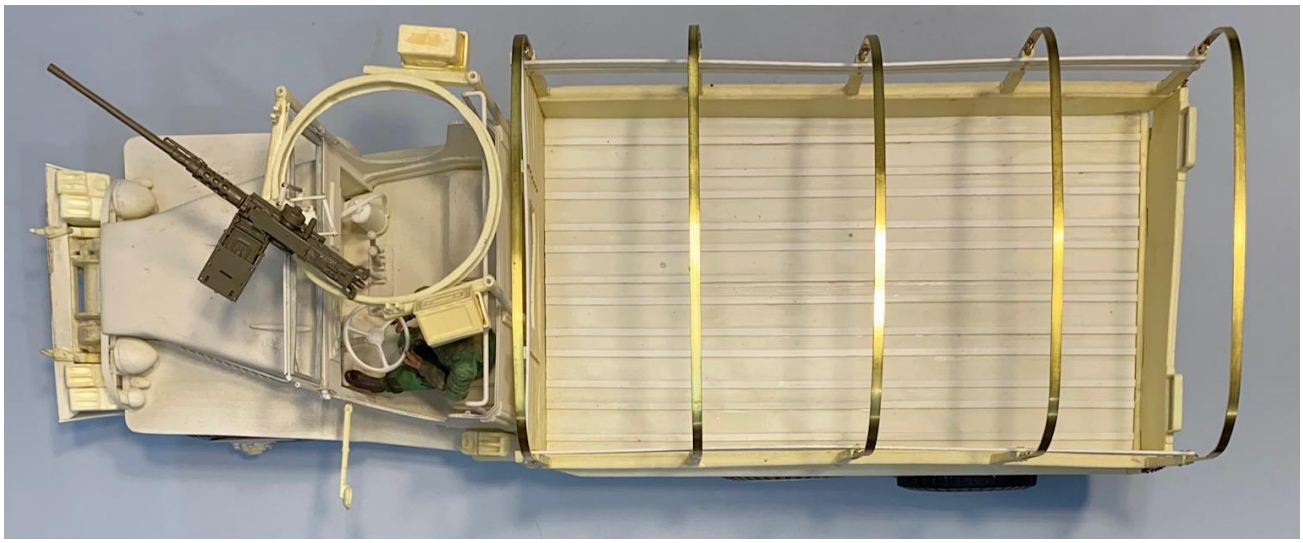
Truck #1: Chevy G-506 1½ ton steel cab w/ short cargo bed and single rear axle

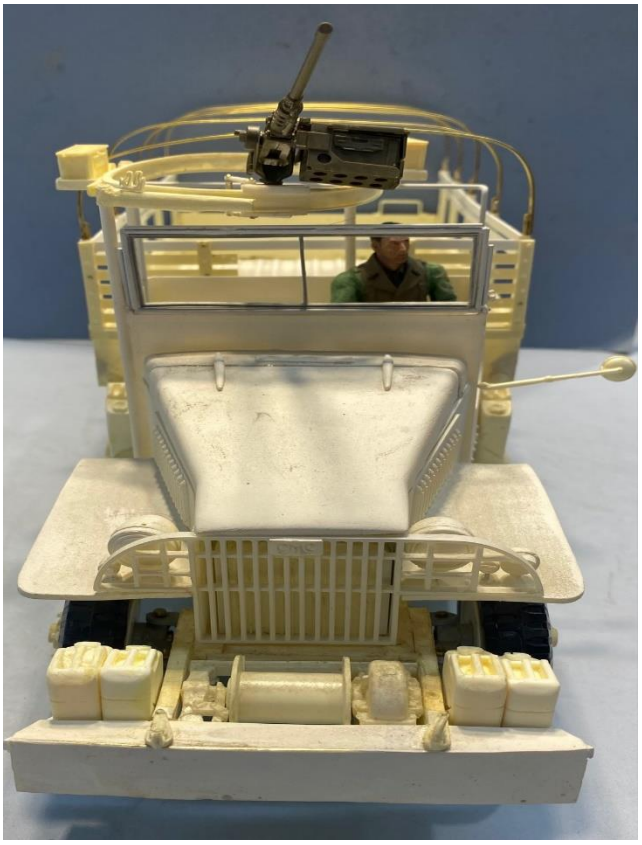




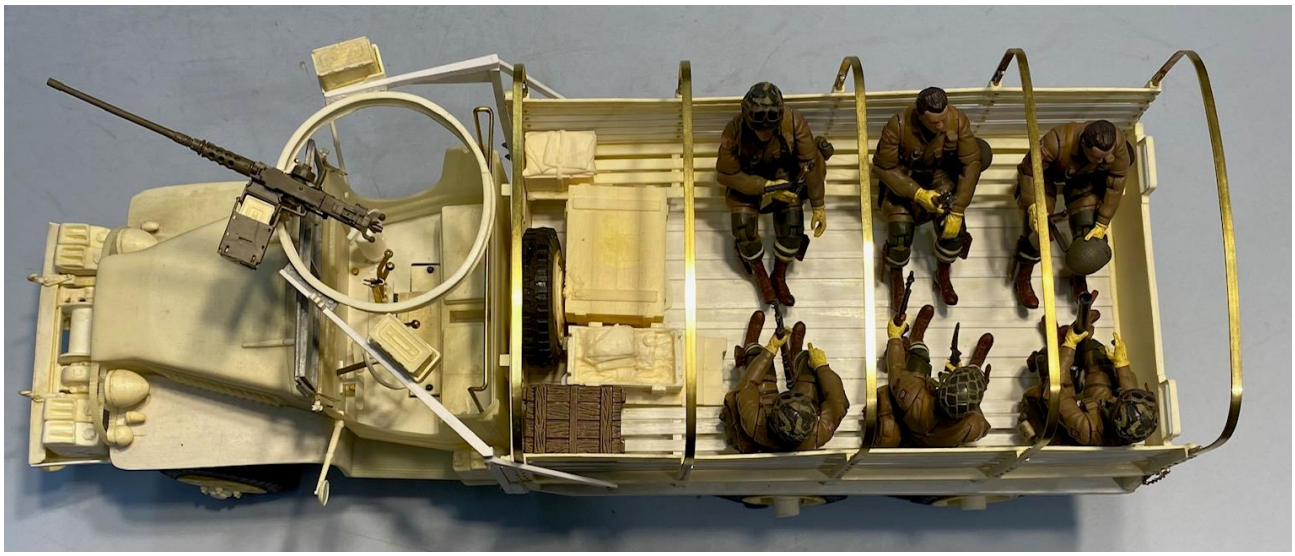
Truck #2: 2½ ton CCKW type 353 open cab, long cargo bed w/ canvass cover, dual rear axles and MG mount type M36

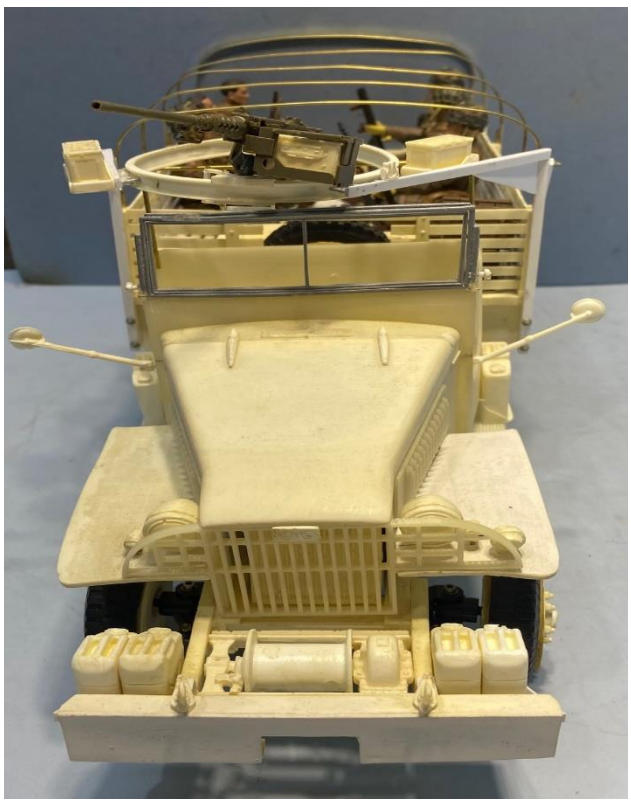


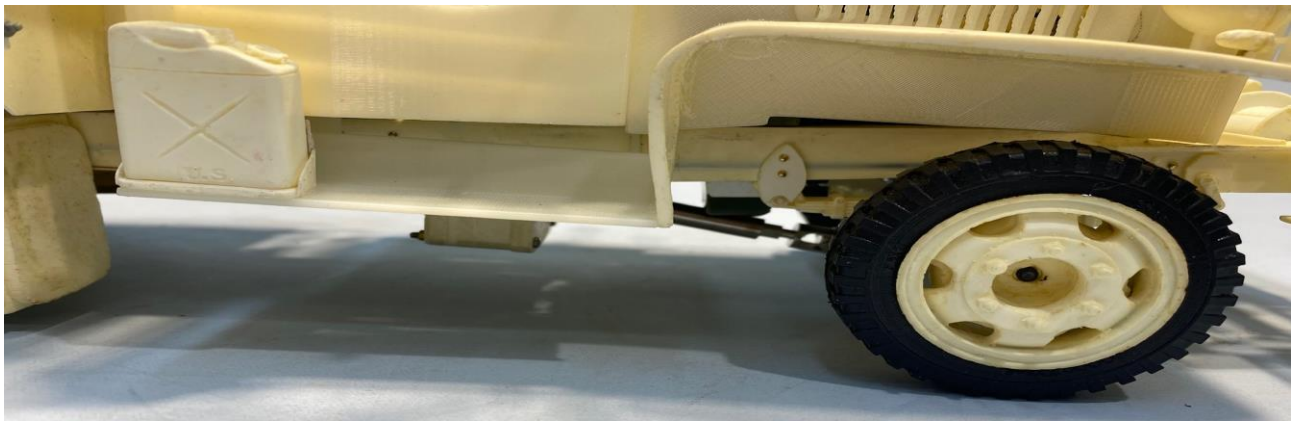




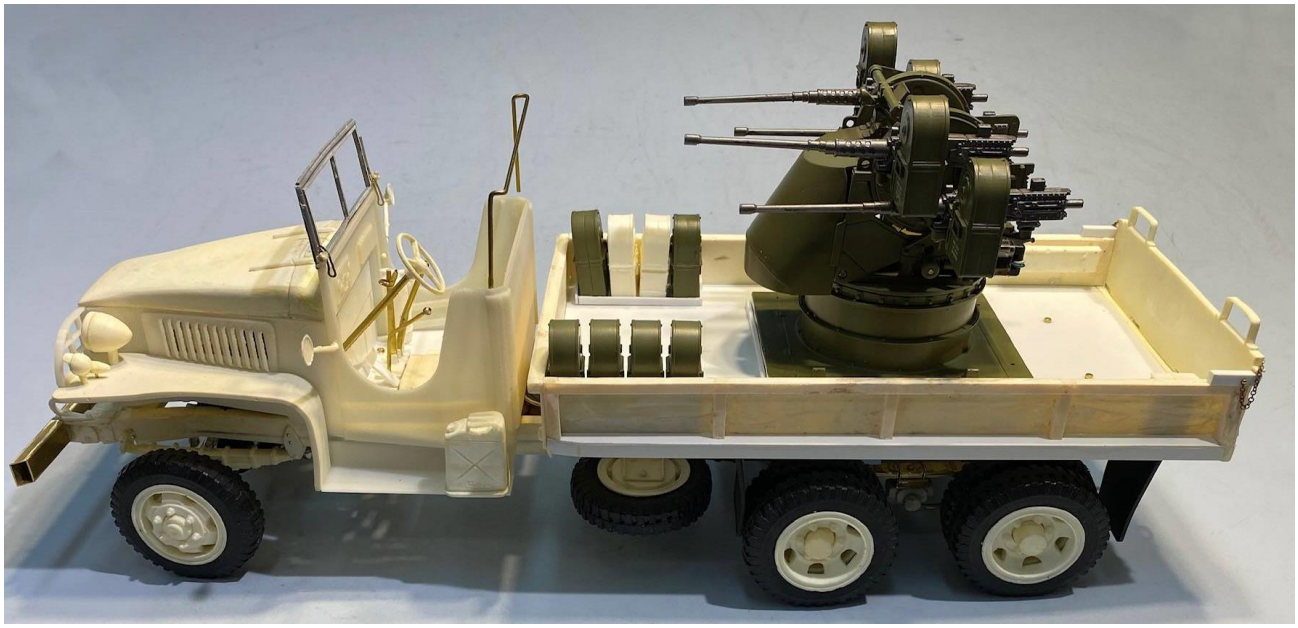
Truck # 3 - motorized RC model: 2½ ton CCKW type 353 long cargo bed w/ dual rear axles and MG mount type M37

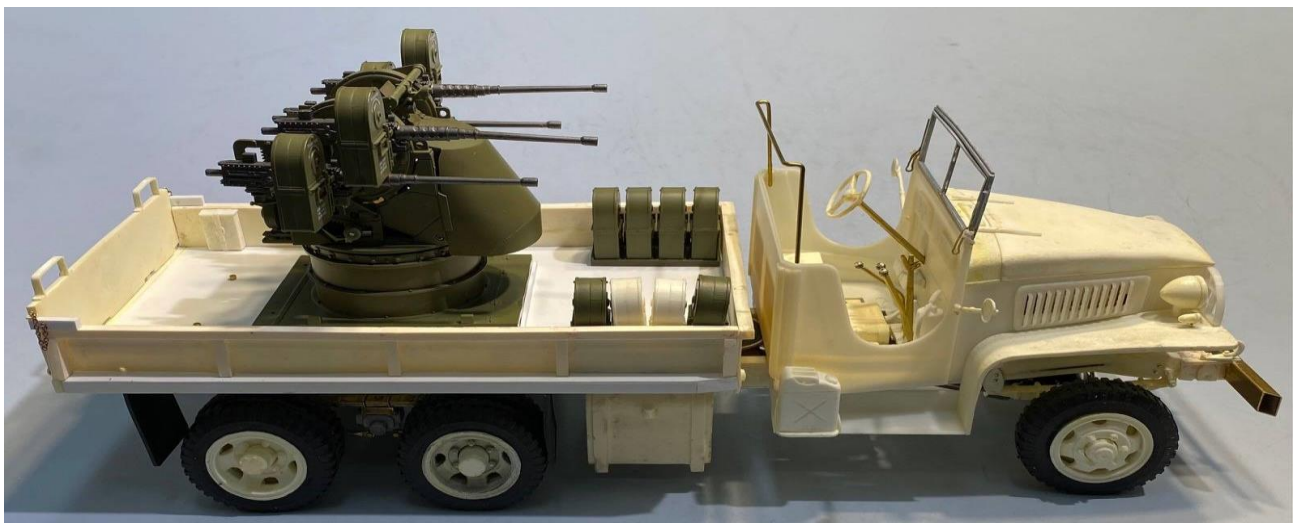


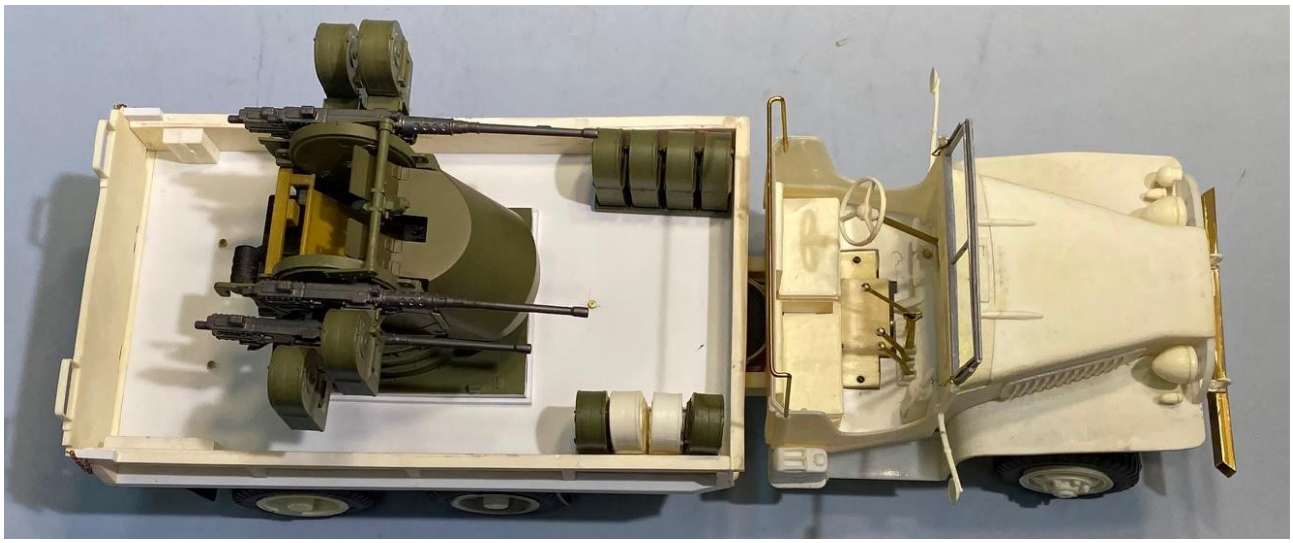


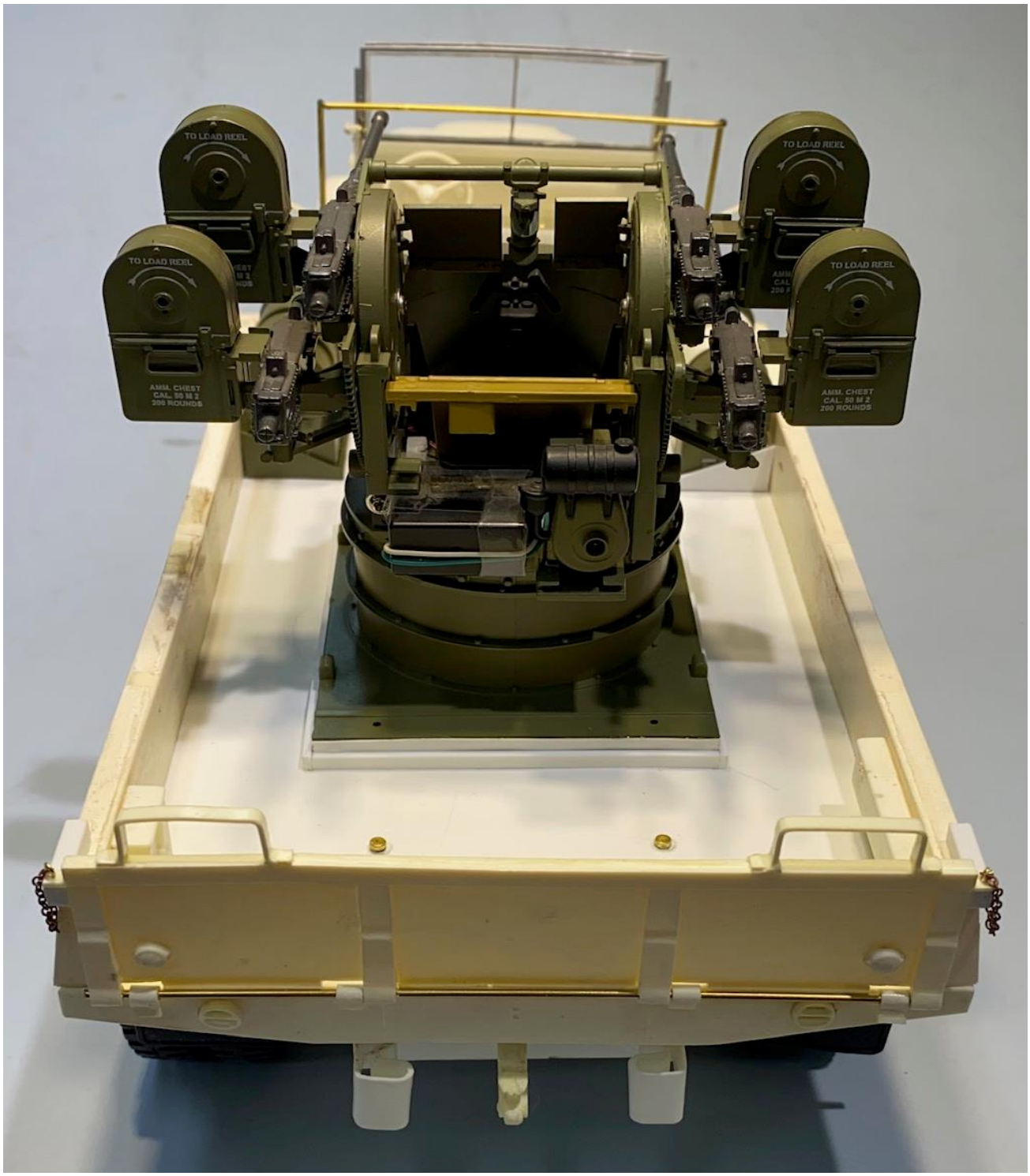


Truck #4 - motorized RC truck: CCKW type 353 (1944) open cab w/ all steel cargo bed w/ dual rear axles and M55 Quad 50 MG mount

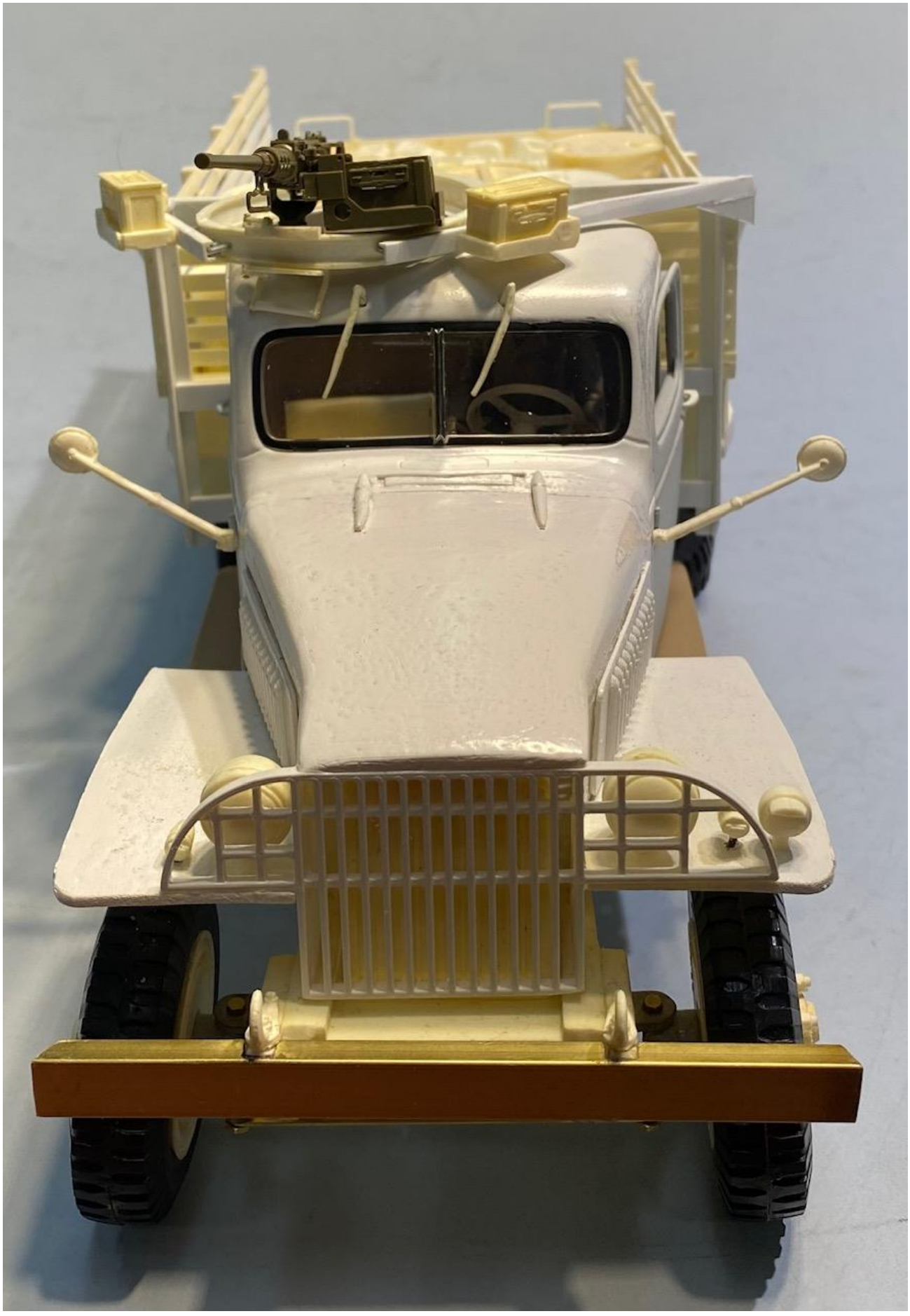







TO LOAD REEL
TO LOAD REEL
TO LOAD REEL
TO LOAD REEL
AMM. CHEST
CAL. 50 M 2
200 ROUNDS
AMM. CHEST
CAL. 50 M 2
200 ROUNDS

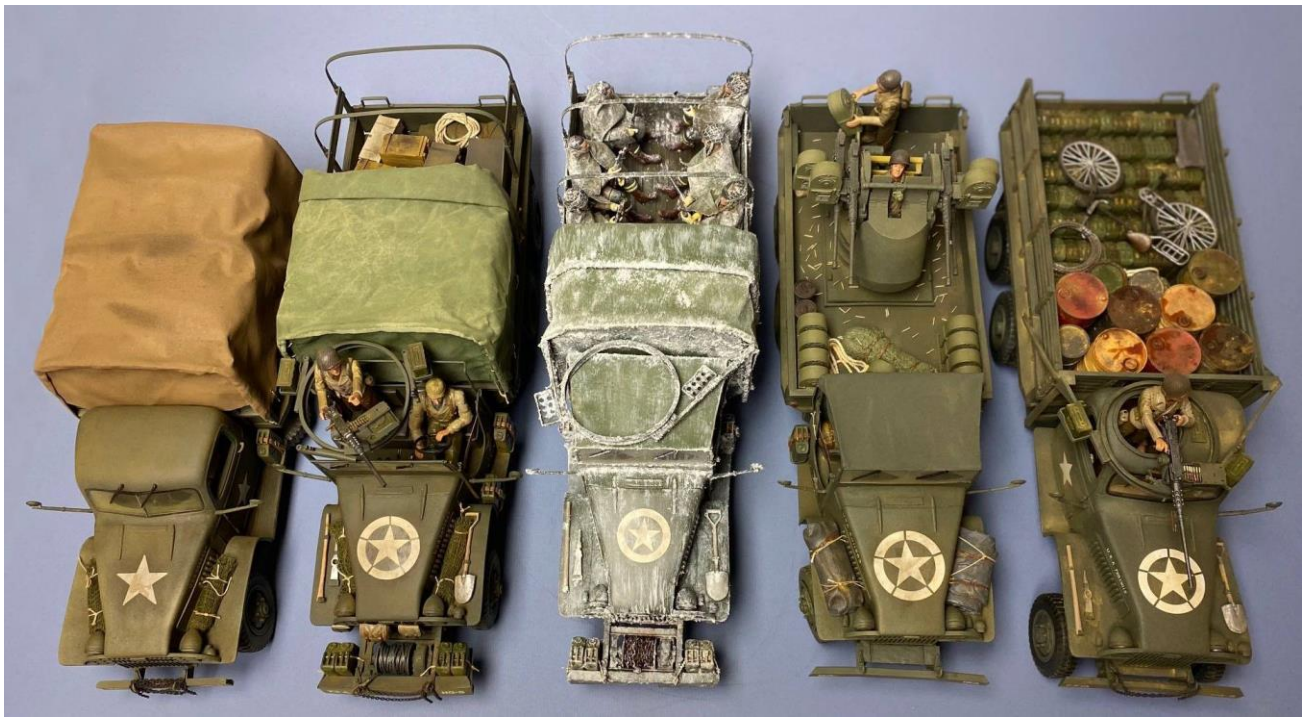
Truck # 5: 2½ ton CCKW type 353 steel cab w/ long cargo bed, dual rear axles and MG mount type M37 w opening in steel cab roof.



All 5 Trucks:

11. All Trucks Painted and Weathered:

All 5 painted



Truck #1: Chevy G-506 1½ ton steel cab w/ short cargo bed and single rear axle


USA 3066524


USA 3066524


HQ-5


USA 3066524

Truck #2: 2½ ton CCKW type 353 open cab, long cargo bed w/ canvass cover, dual rear axles and MG mount type M36

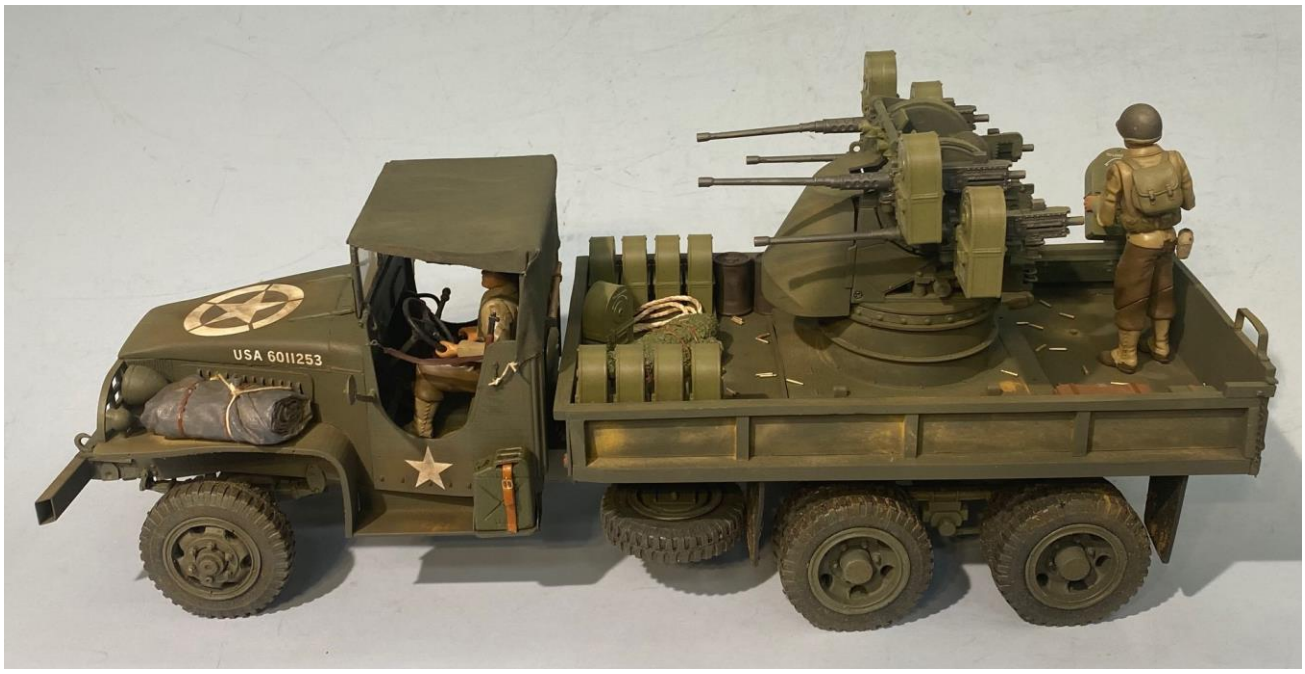

30
73 △
HQ-5

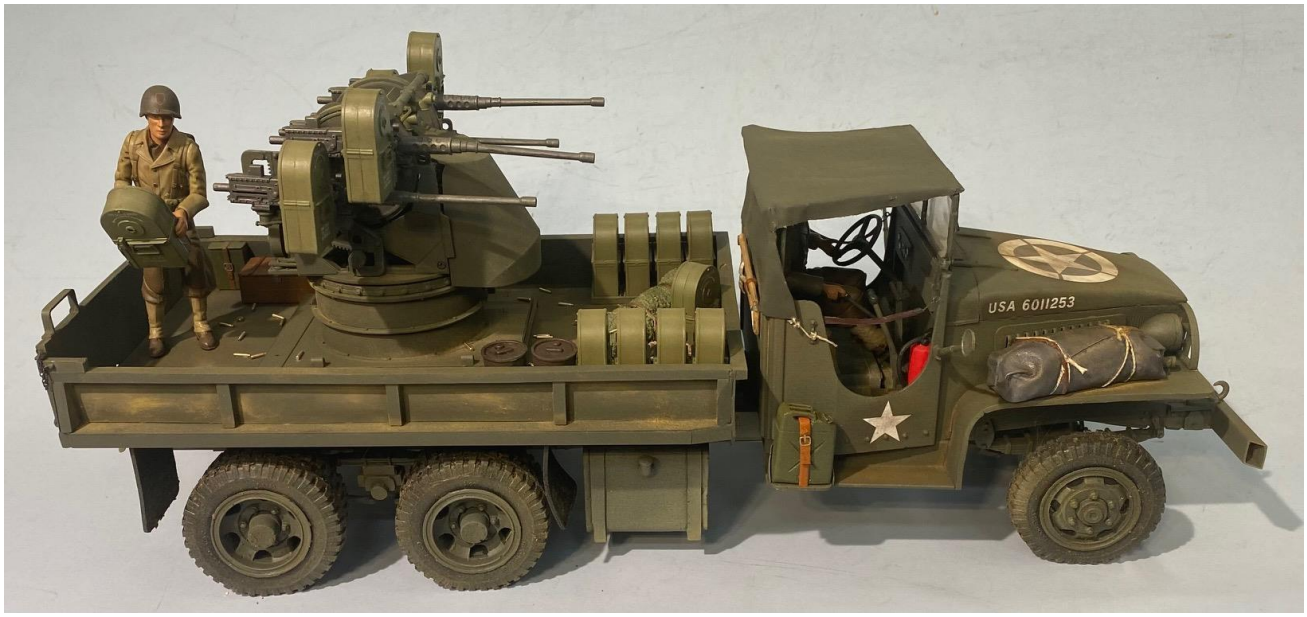

USA 3033967

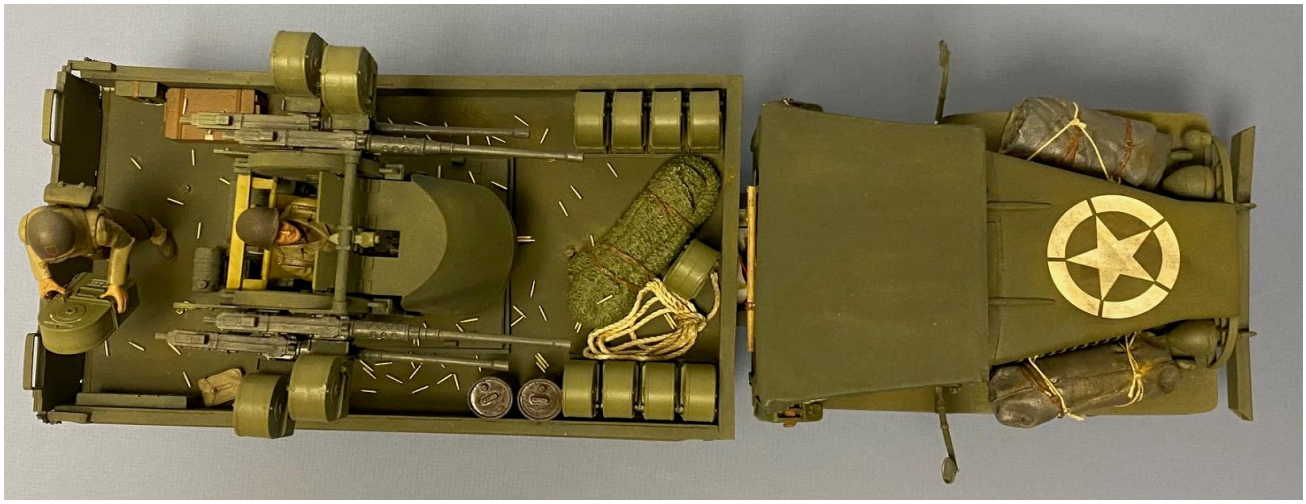
Truck # 3 - motorized RC truck: 2½ ton CCKW type 353 long cargo bed w/ dual rear axles and MG mount type M37. Depicted as if driving into a snow storm headed to Bastogne.

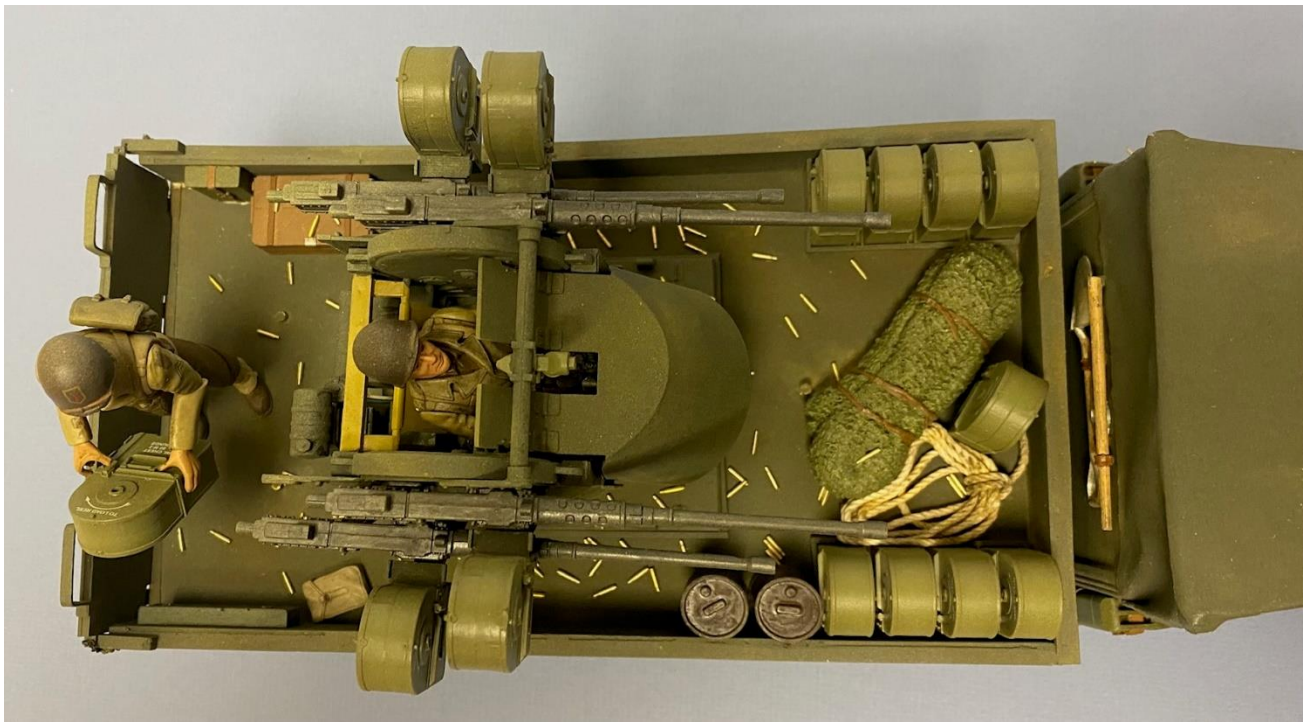

USA 30112417

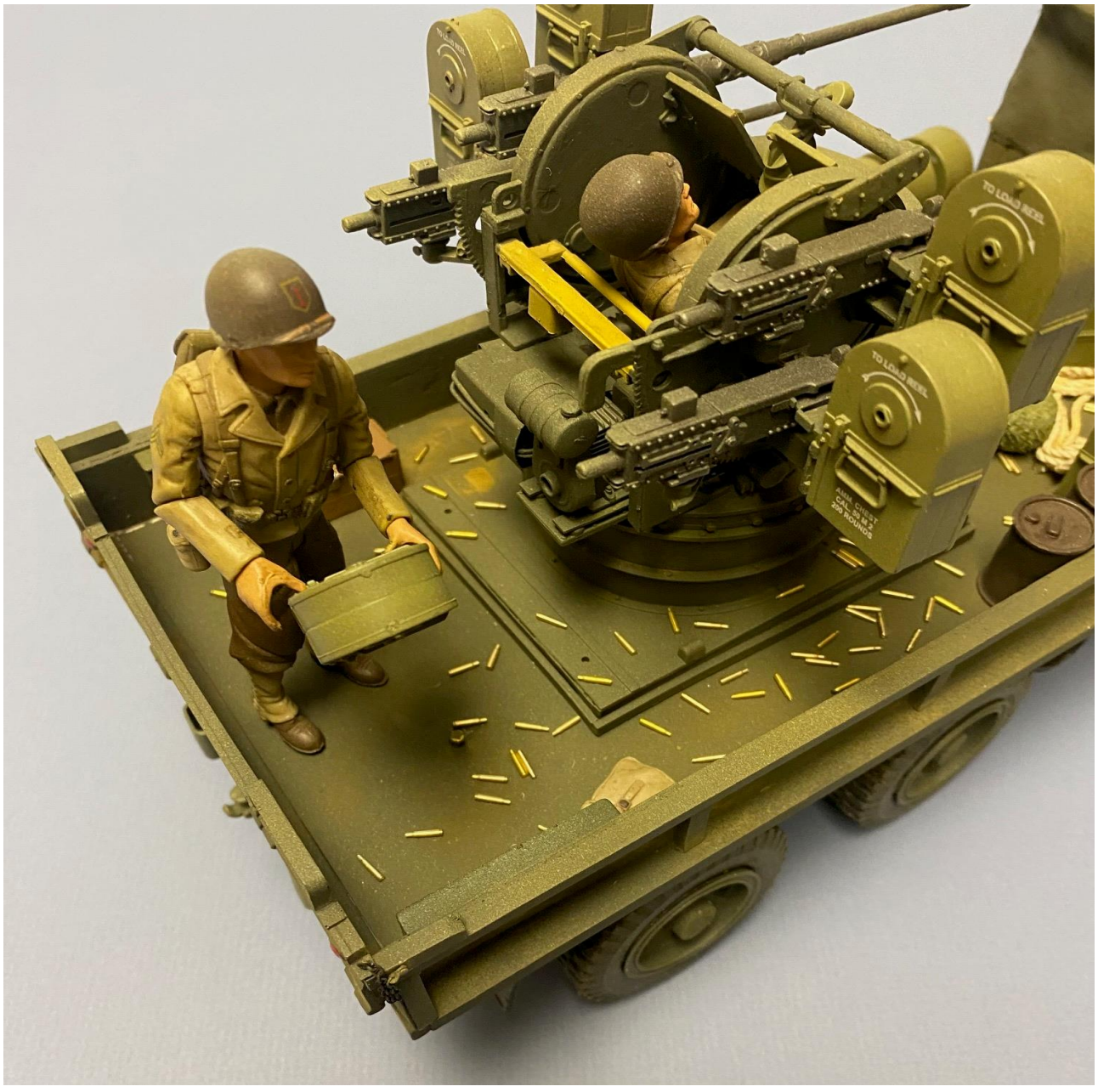
Truck #4 - motorized RC model: CCKW type 353 (1944) open cab w/ all steel cargo bed w/ dual rear axles and M55 Quad 50 MG mount

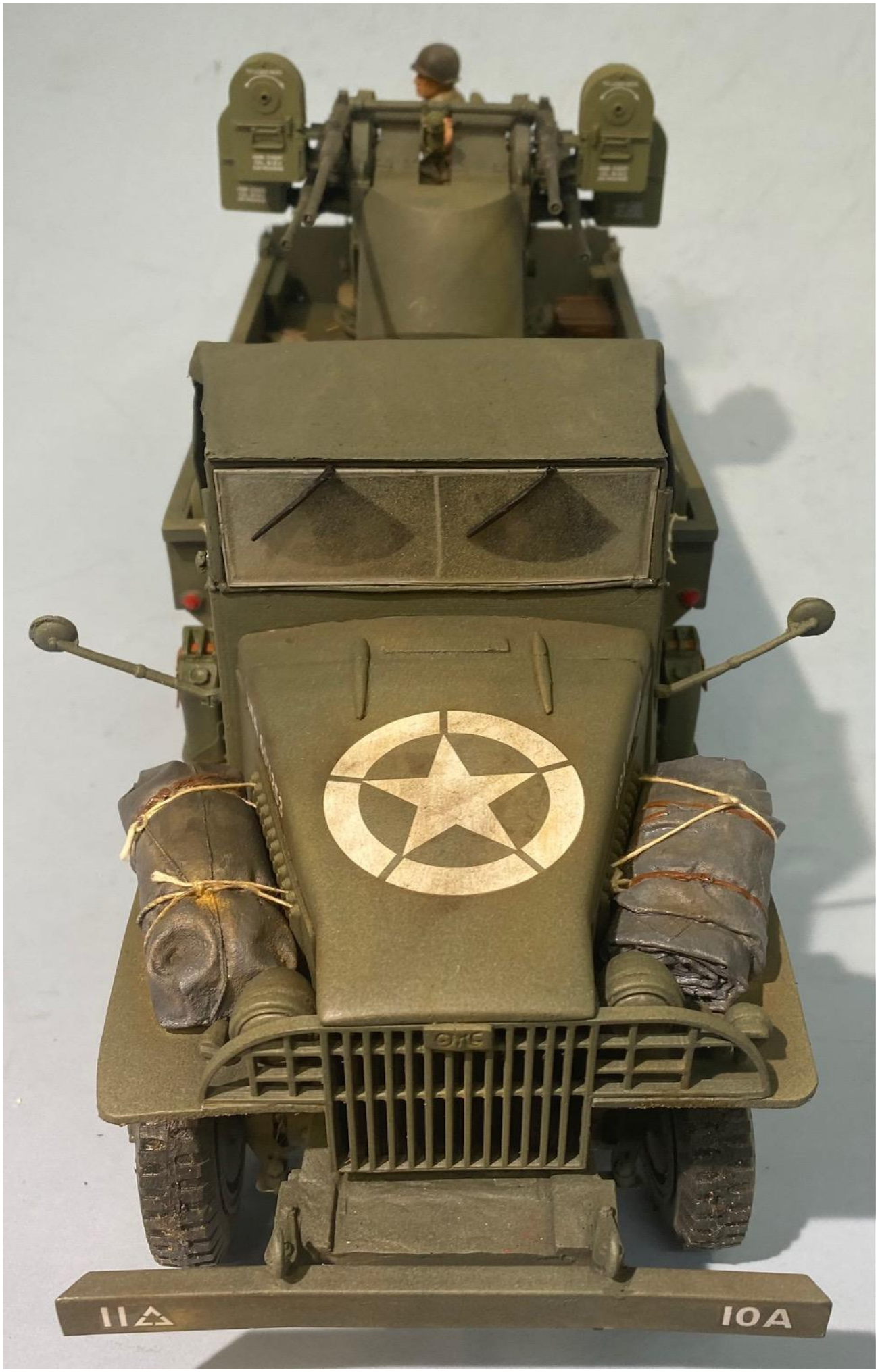






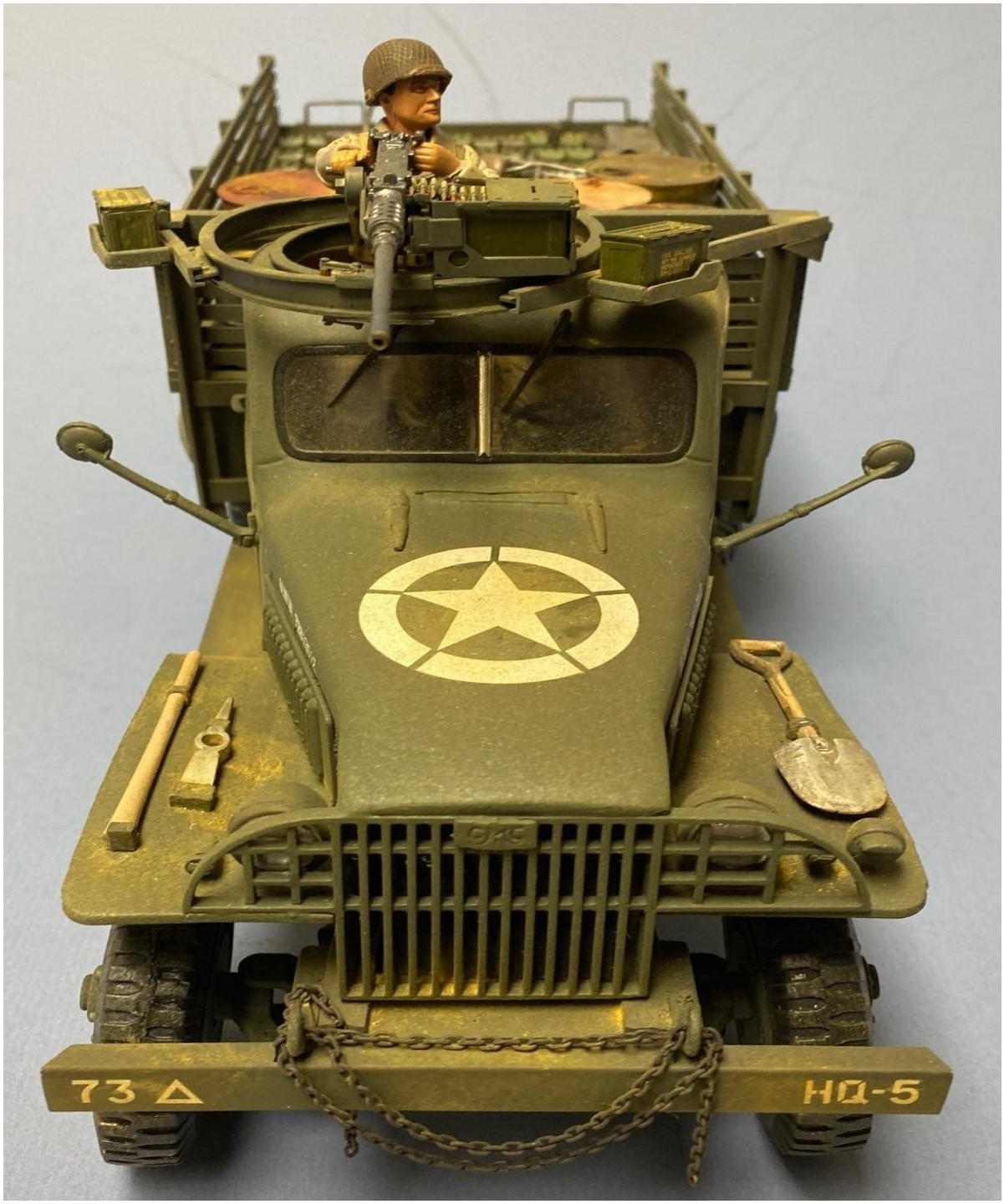



TO LOAD BELT
TO LOAD BELT


11
10A


TO LOAD REEL
TO LOAD REEL
TO LOAD REEL
TO LOAD REEL
AMM. CHEST
CAL. 50 M 2
200 ROUNDS

Truck # 5: 2½ ton CCKW type 353 steel cab w/ long cargo bed, dual rear axles and MG mount type M37 w opening in steel cab roof.


73 △
HQ-5

And finally……. To make the tarps, I used light cotton white dress shirt material, which was ironed and then a very tight stich was sown along the edge about 1/16” inward. Cut out the pieces a bit larger than the final size will be and cut off the excess after sewing. The end piece looks like this after sewing and painting. The eyelets are inserted after painting and then everything is given one last coat of spray paint. The eyelets are 1.5mm diameter x about 2.4 mm long, found on Amazon. I ground the eyelet down to about 1.5mm which makes flattening easier. You have to use a machinist’s center punch tool to flare out and flatten the back side of each eyelet.

There are 4 eyelets per each side of the top canvass sheets and the string is fed thru the end closest to the cab and pulled a bit to tighten it down around the above piece.