Build Instructions for 1/16th Scale RC
Steel Wheeled Tamiya Panther G tank Kit #56022 w/ Modifications

Started: October 4, 2023 On & Off work. Finished: June 14, 2024

by Paul E. Howald

Notes:

1. This construction article will discuss the modification made to the standard Tamiya full option kit which include adding Zimmerit, Steel Wheels, metal Schurzen, and few other upgrades.

2. There are many, many books available for this tank (see partial list below) and I also researched pictures on the internet for modeling information, prototype pics, and color choices. I chose a Normandy late war 3 pattern camouflage theme.

Parts used:

1.	Tamiya Panther kit. I paid $500 in 2007, but today it sells for	$990.00
2.	Radio: FlySky 6 channel FS-i6, 2.4 Ghz w/ RX	$ 47.00
3.	Impact brand metal Panther Late tracks and sprockets	$ 91.00
4.	Impact PE set….did not use all of it	$ 45.00
5.	Tamiya PE Grille set #49437	$ 18.00
6.	One Torro resin crew member; pre-painted	$ 30.00
7.	Misc. brass pieces and plastic parts	$ 5.00
8.	One metal tow cable to replace the plastic kit parts	$ 30.00
9.	Smoke grenade launchers (2) EMCT5389	$ 18.00
10.	Steel Wheels from Tamiya King Tiger kit (see Section 6 below)	$100.00
11.	3D printed IR night vision Rangefinder	$ 40.00
12.	Zimmerit: ATAK Models of Poland; product #ZM-1605	$ 58.00
13.	White Metal Cast Track Hangers	$ 25.00
14.	Decals:	$ 18.00
15.	Modeling time and talent	$300.00
	Total Cost	$1,815.00

Research Materials used:

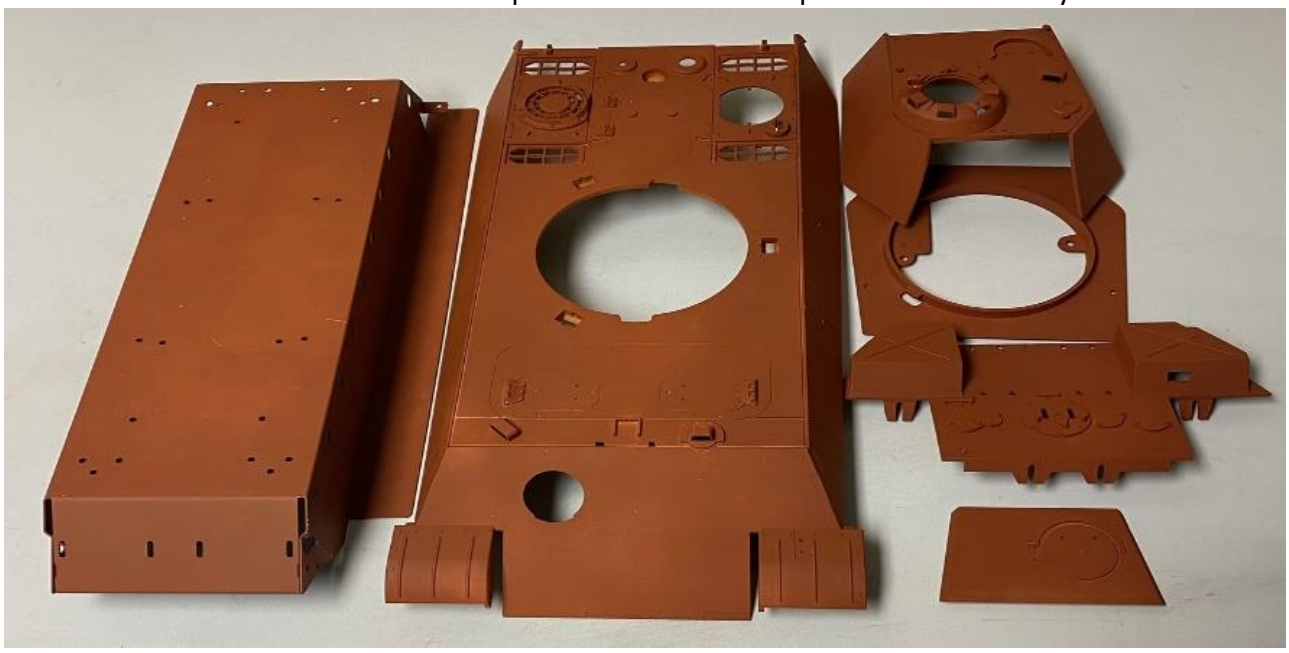
1. Waldemar Trojca Panther Vol 1-5 by AJ Press
2. Panzerkampfwagen V Panther, Compendium #22, by Euro Modelismo
3. New Vanguard #22 Panther Variants
4. Panther by MIG Ammo, Visual Modelers Guide, Steel Series Vol 2
5. Panther in Action, Squadron Signal Armor #11
6. Concord Pub 7006 Panther
7. Kangero #11, Panther A/G
8. Waldemar Trojca Panther in Color
9. AK Press German Armour in Normandy 1944
10. Panzer Magazine ISSBN 978-1-911276-96-8
11. How to Paint WWII German Late Vehicles by MIG Ammo
12. Panther Variants in Color by Waldemar Trojca

Commence Work:

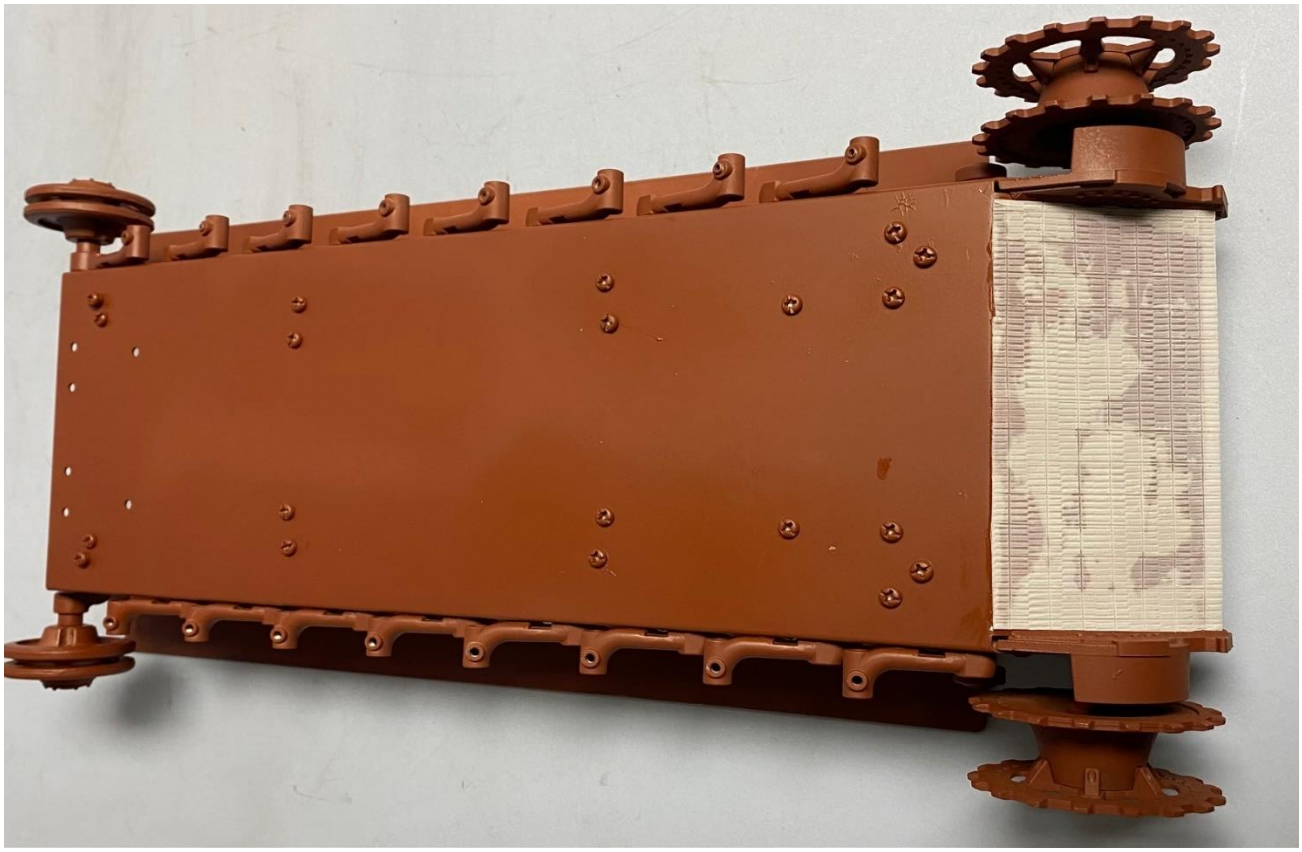
1. **Open the Kit and remove parts:** Make sure all your parts are there and make sure you read all of these and the kit's instructions first before you commence any work.

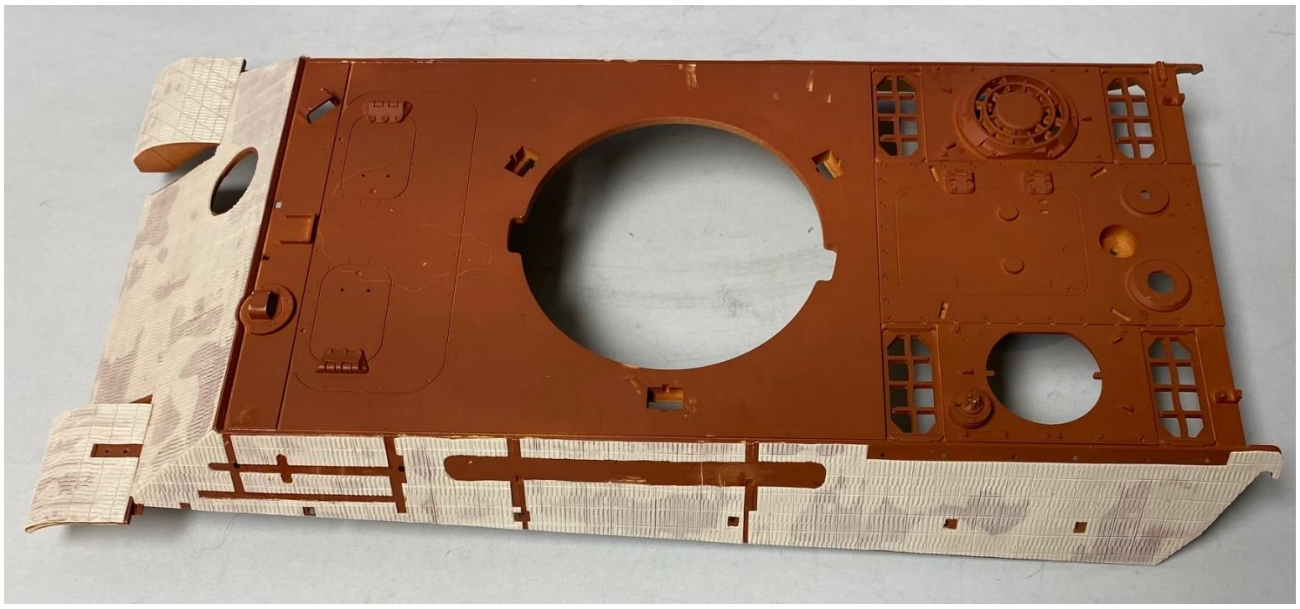
   Gather any additional parts that you plan to substitute in the kit. I had metal tracks and sprockets, Zimmerit patterns to glue on which also include an early run Mantlet (w/o chin), all the extra KT wheels so I could make a Steel Wheeled Panther, a metal sleeve for the aluminum barrel, metal tow cable, metal Schurzen and I plan to alter the Exhaust Stacks.

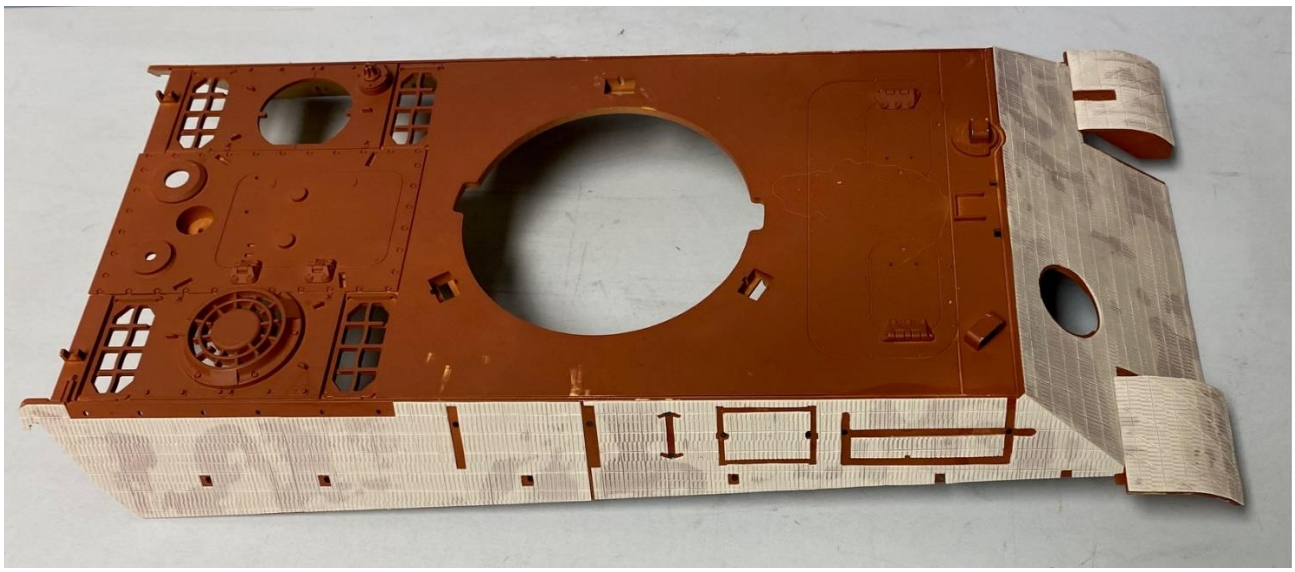
2. **Primer Paint:** I used Ace Hardwar red primer to cover these parts….one coat only.

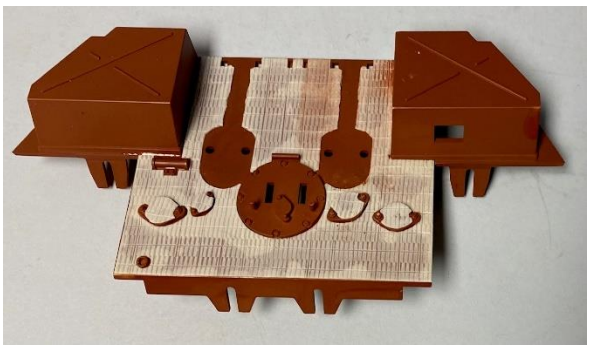


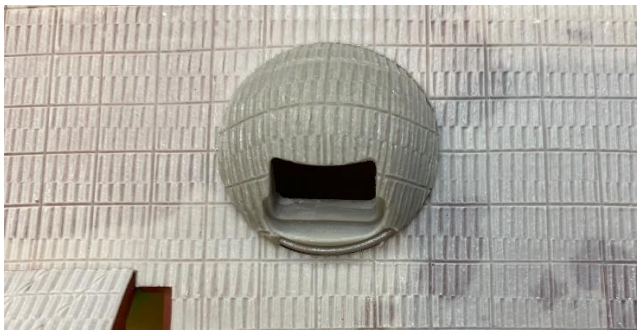
3. **Add Zimmerit:** I wanted my Panther to have Zimmerit, so I installed most of the material from the Atak Models Zimmerit kit # ZM-1605. But before you do the rear wall, "if" you are going to make the rear stowage locker lids operable, make that conversion first. See Step 4 for additional details on that conversion. Also, you may want to complete Tamiya Steps 33 and 34 as part of putting the Zimmerit on the front of the Turret. In the pics below you will see darkened areas under the Zimmert plastic. This is where the liquid CA glue pooled before it set. I used Gold CA – "thin" from Balsa USA to affix all the Zimmerit. Glue one side or one strip so it is positioned properly and then tenderly pry up and run some liquid glue under the last part of the Zimmerit. BE CAREFULL…the glue flows fast, can get on other parts and easily stick to you. ☹ I also use Balsa USA's Quick-Shot Accelerator to cause the glue to dry faster.

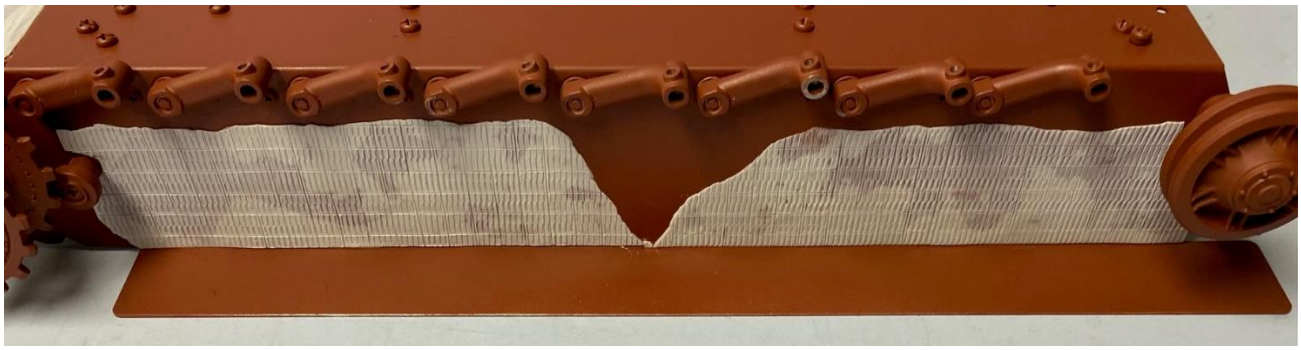


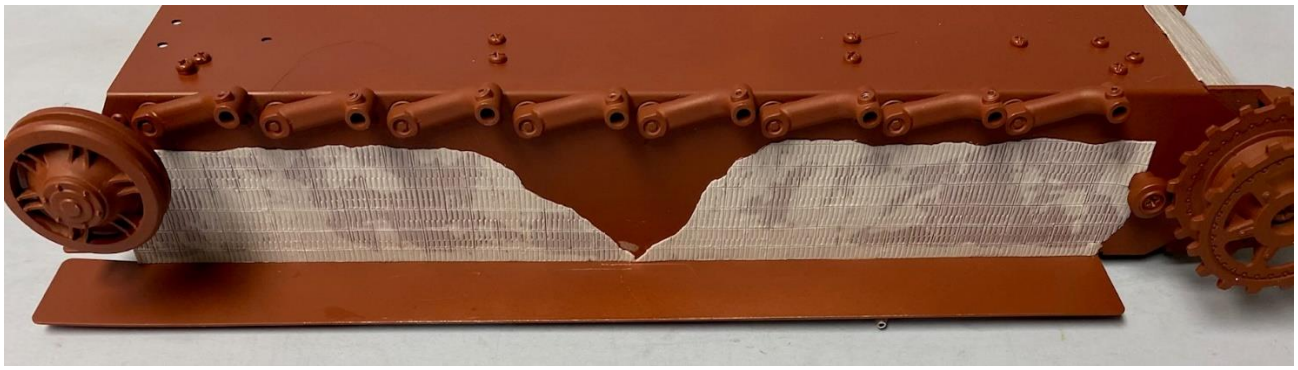


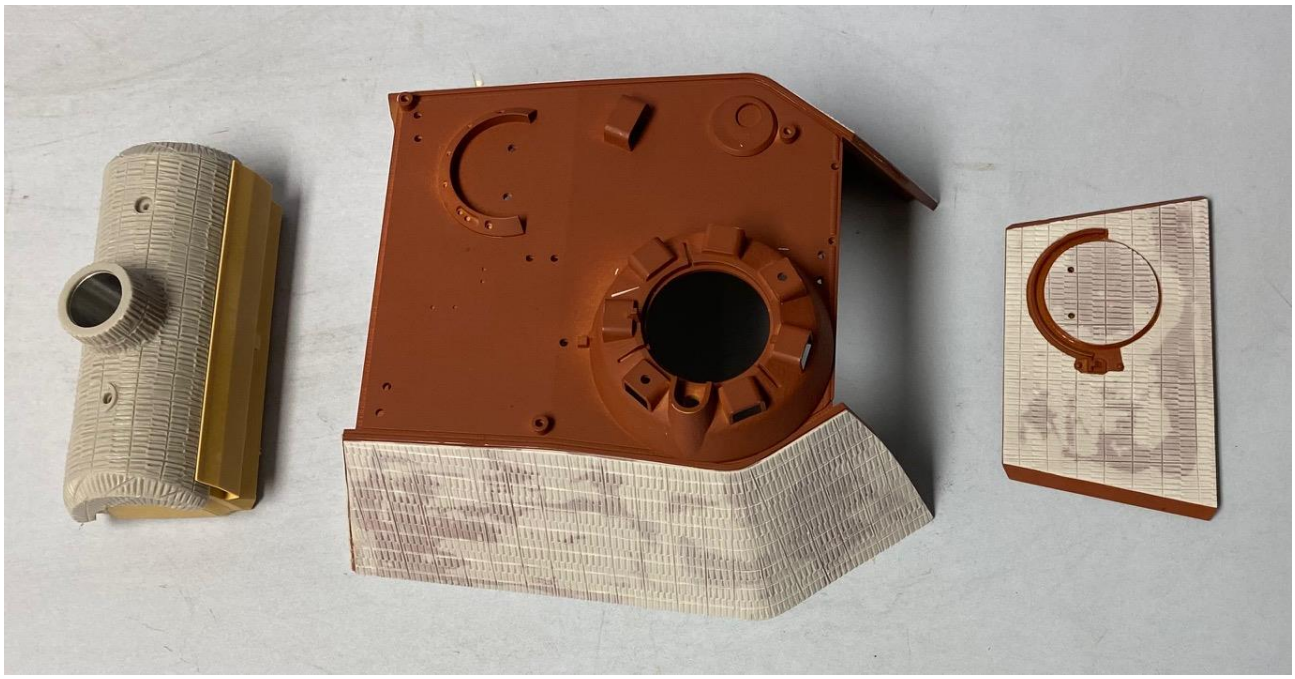




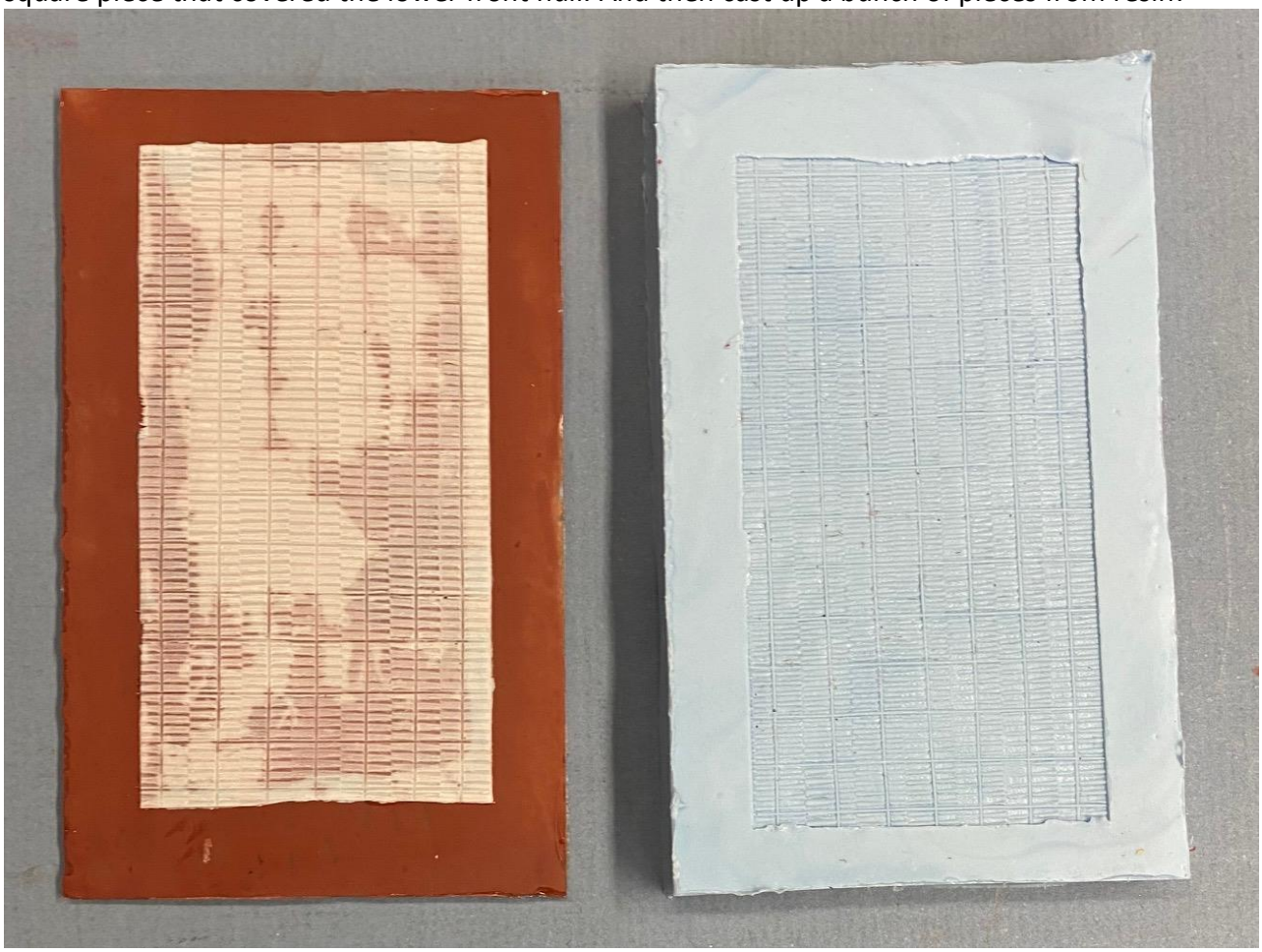




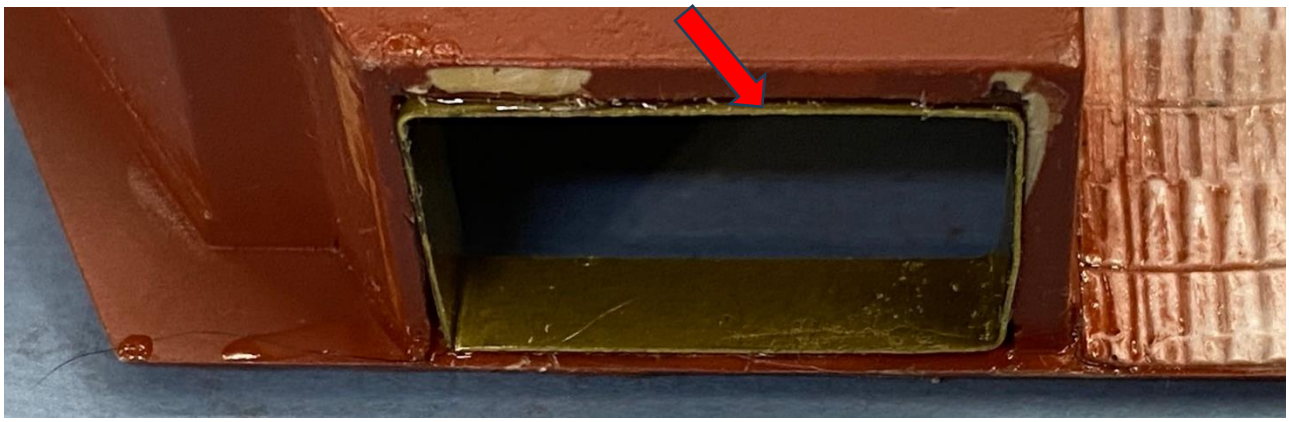




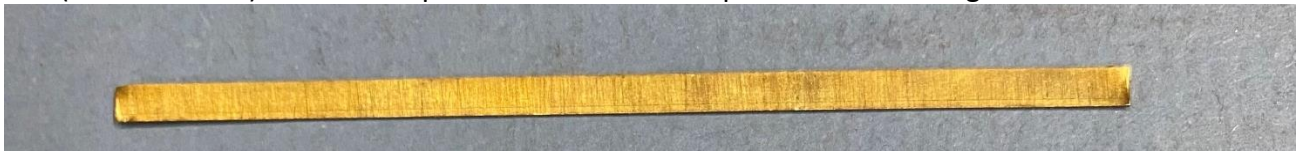
Extra Zimmerit: I also wanted extra Zimmerit for the Schirtzen, so I made a rubber mold of the big square piece that covered the lower front hull. And then cast up a bunch of pieces from resin.

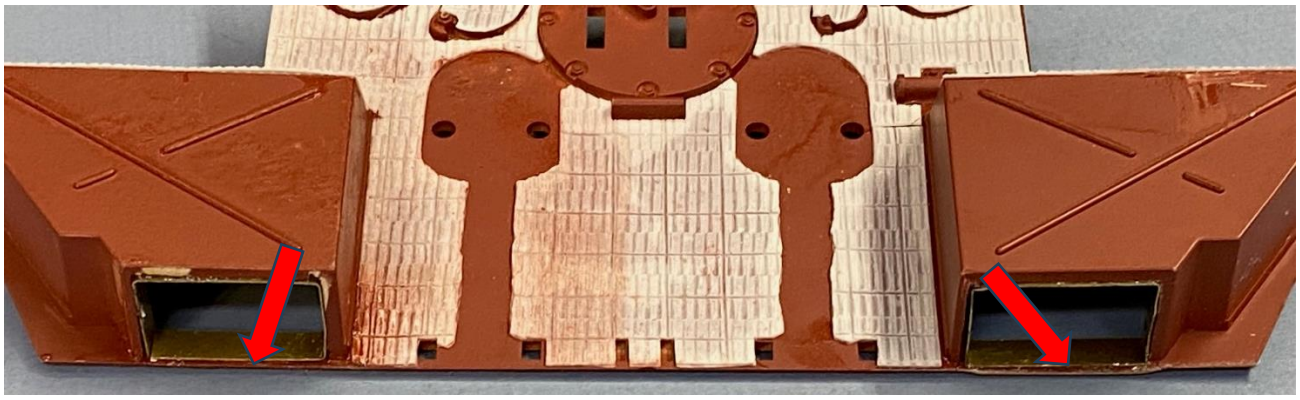


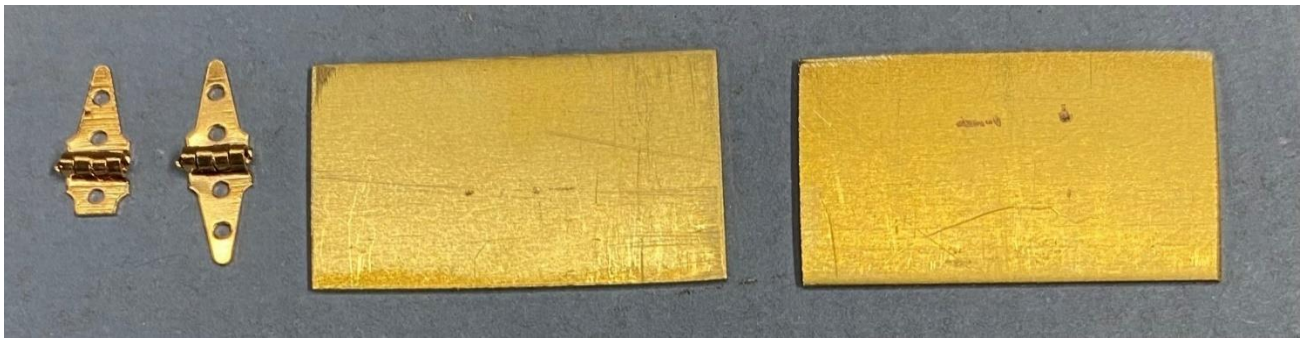
4. **Rear Stowage Boxes:** As stated before, I wanted my rear stowage boxes to have operable lids. There is a PE kit from Aber #16 019, which provides the entire storage boxes out of brass, but I elected not to make those…..b/c they are too delicate when done, but the instructions helped me to make the lids from brass sheet. Searching for close-up pics also helps.



I started by drilling small holes in the top of Tamiya's plastic stowage boxes, so that I could cut away this material and then cut and file the edges. Be careful where you drill….make sure not to damage the thickness of the walls. Once the openings are square, then take a brass strip .010" wide by .008" thick and make a boxlike insert. Fix this inside the box opening with only .035" sticking up out of the box (see red arrow) and second picture below. Glue in place with thin CA glue.







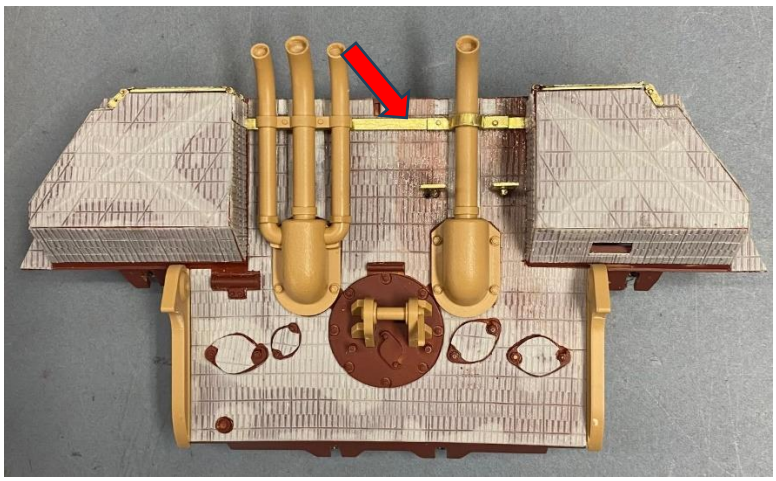
Now cut out two pieces of brass flat stock for the lids. I used brass so I could solder the hinges and locks to it. Gluing hinges and locks to plastic lids never holds up under operation. The lids are .026" thick x 16.2mm wide x 24.7mm long. The hinges are dollhouse parts. Cut one side as shown on (4) hinges, which is soldered to the lid. The other side of the hinge will slide under the Zimmerit and be glued in place. Fill the hole on the soldered side w/ glue, so once painted it is not seen.

These are the parts to make the locks. Scratch build all from wire and 0.011" thick brass sheet except the lock key which is 0.008" thick. I tried to use the parts from the Aber #16 019 PE kit but they were too tiny and out of scale, so making originals was the only choice.

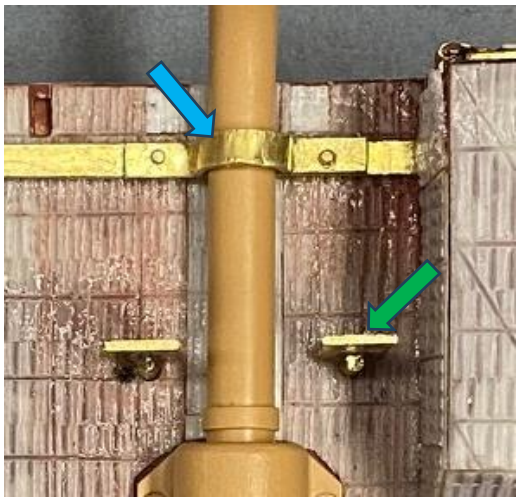
This is the finished lid with locks, and with Zimmerit in place.

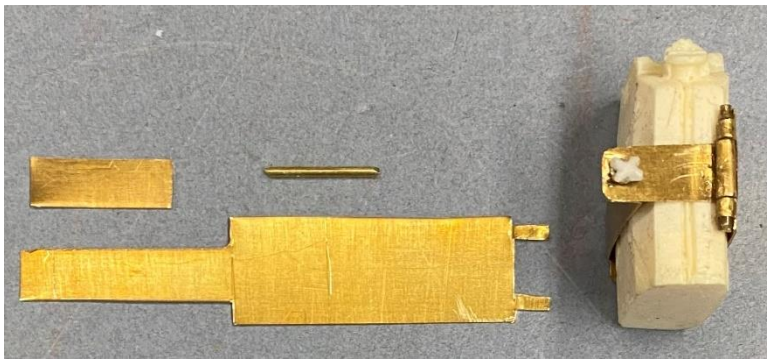
5. **Assemble Tank:** Once the prior steps have been completed, you can now assemble the model per the Tamiya kit instructions thru Step 6. Skip 7. Do Step 8. Skip Step 9 & 11-13 (other than insert the Drive Sprockets in Step 13. Now go back and do Steps 7 & 9.

   I wanted a different rear exhaust stack configuration used on the Panther G model, so in Step 9, I installed these parts to create the 4 exhaust pipes. The parts came from a Tamiya Jagdpanther kit.



For the bracing on the single stack, I added a brass bar stock 0.125" wide x 0.031" thick across the width between the stowage boxes (red arrow). Under the triple stack I added a small piece of the same bar stock to fill in the gap. On the single stack, I added a "U" shaped piece (blue arrow below) with ½" long wings thru which a brass bolt was anchored. My plan is to add two Jerry cans, one on each side of the single stack, so I glued 2 small brass flat stock steps as shown below (green arrow) for them to set on. Next will be a locking bracket to wrap around each Jerry can.

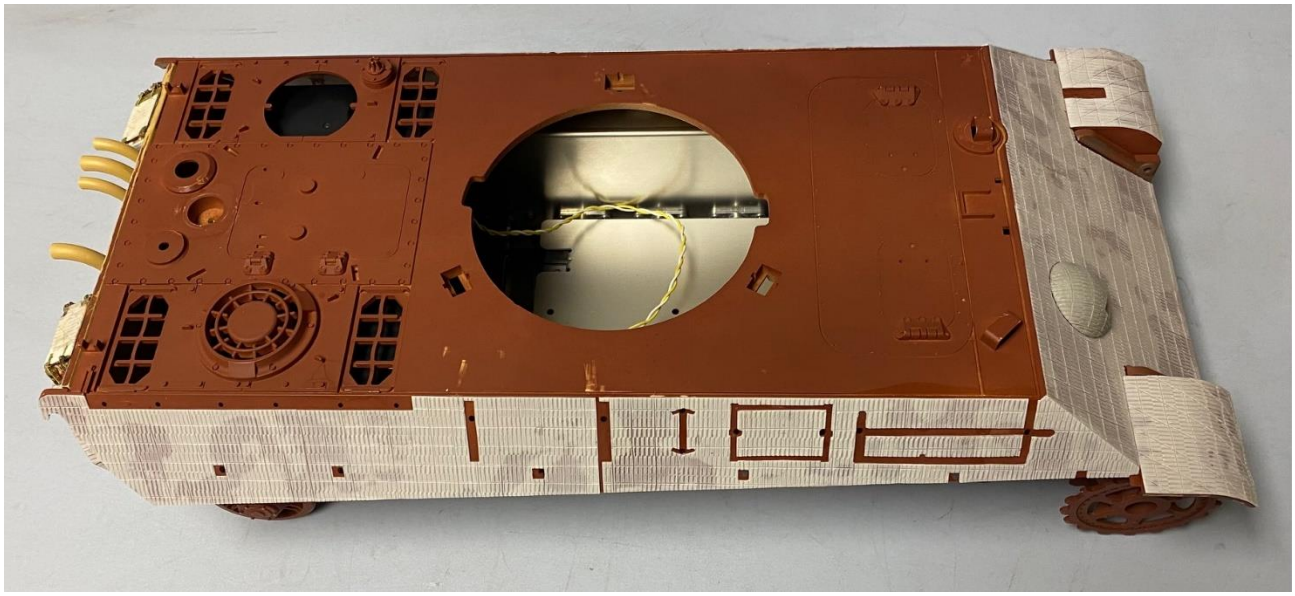


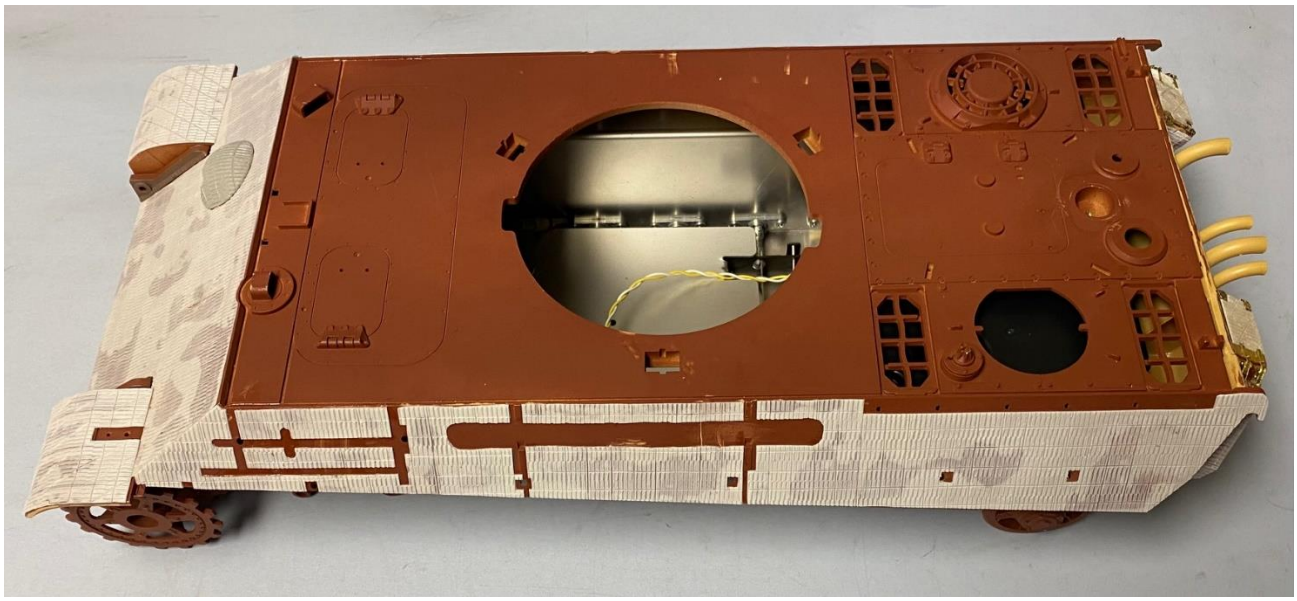


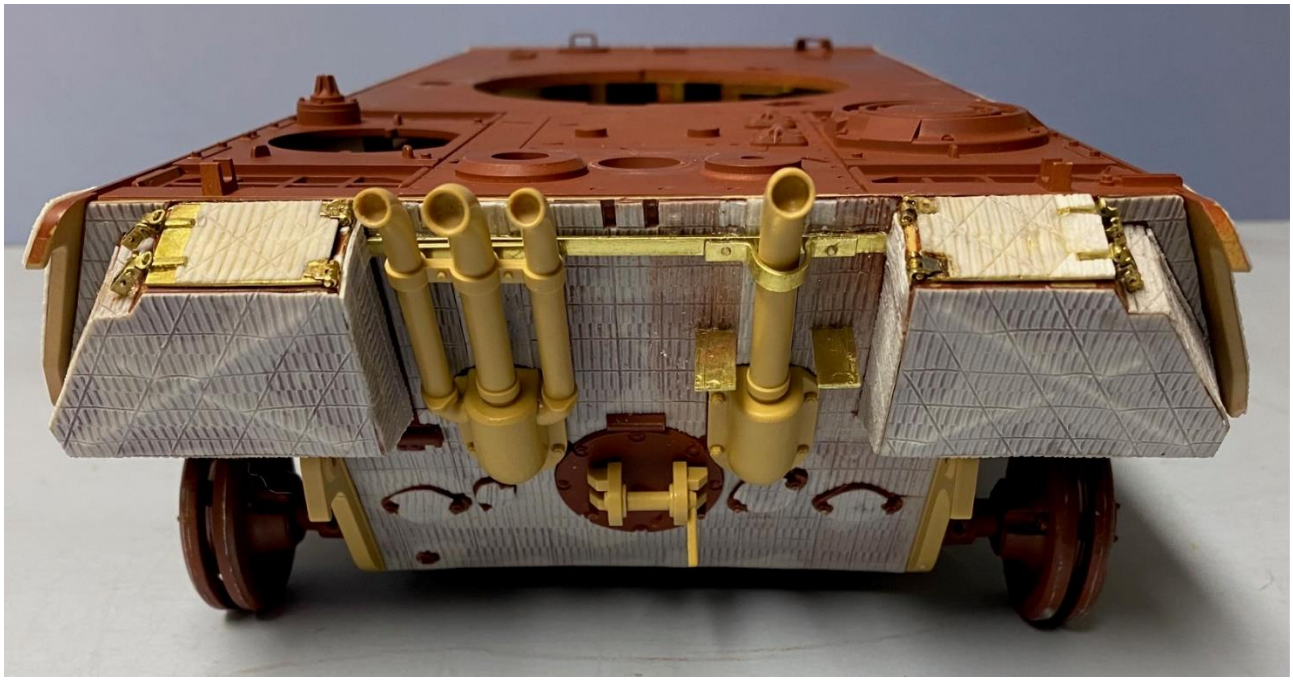
The 2 brass locking brackets are made from 0.011" thick brass sheet and are free-hand designed from 2 pictures on Page 29 of Panther by MIG Ammo, Visual Modelers Guide, Steel Series Vol 2. The hinge pin is 0.046" dia. brass rod, and the resin star handle came from a mold I had from a truck model.

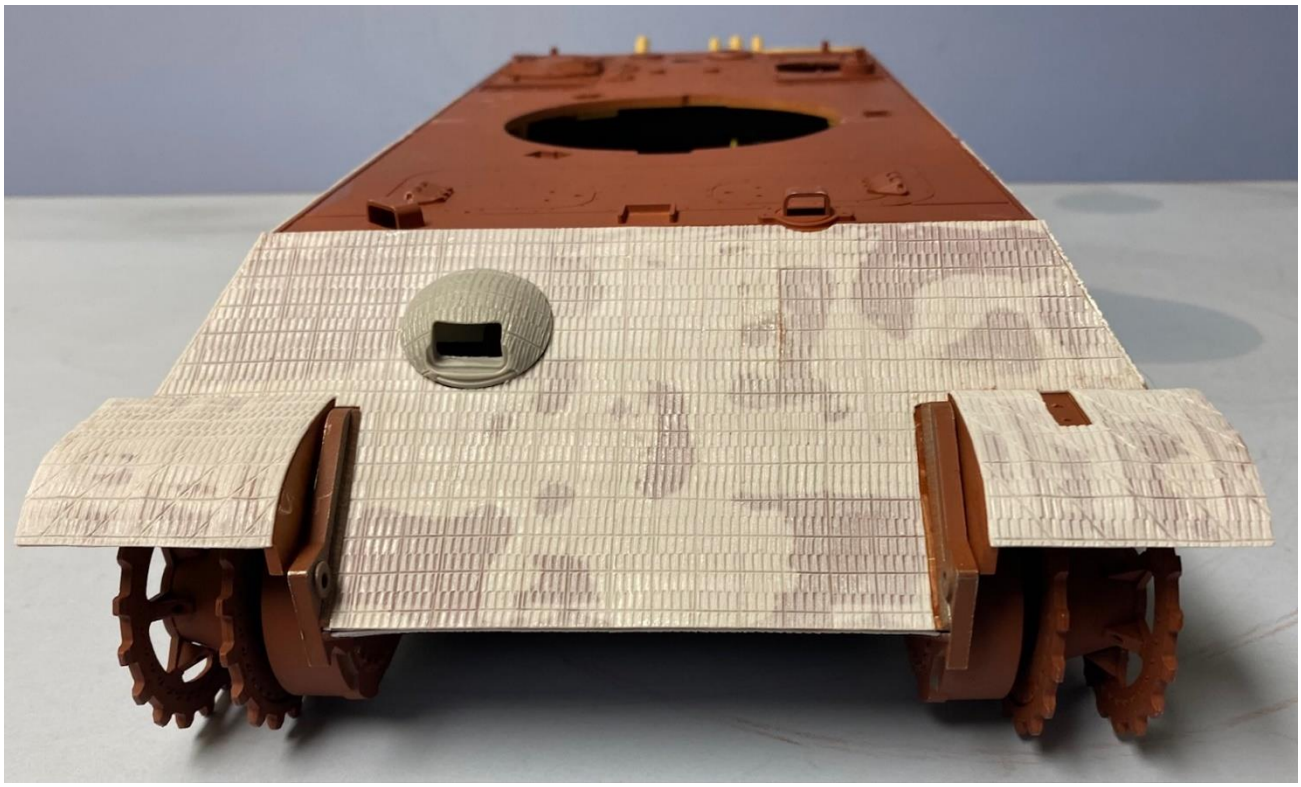
You might ask why install the water cans in this position? Because the exhaust stack heated the water in the cans for cooking and washing purposes. Very handy during the cold winter. 😊

6. **Pictures So Far:**

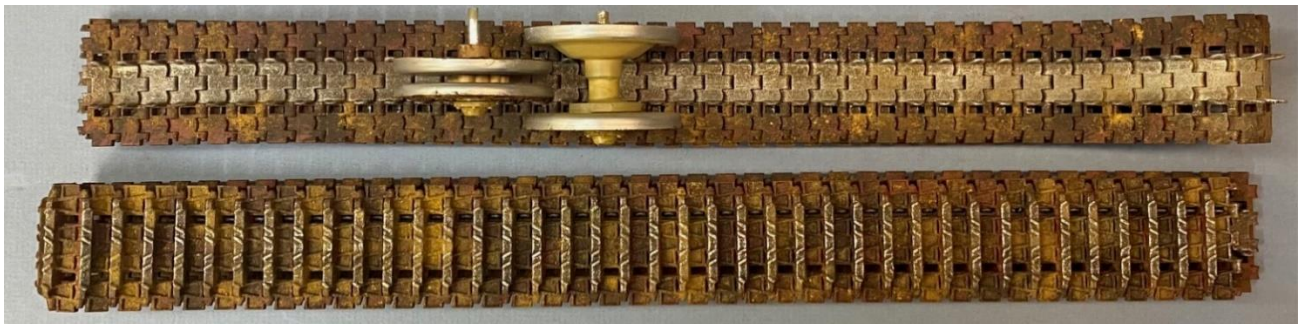


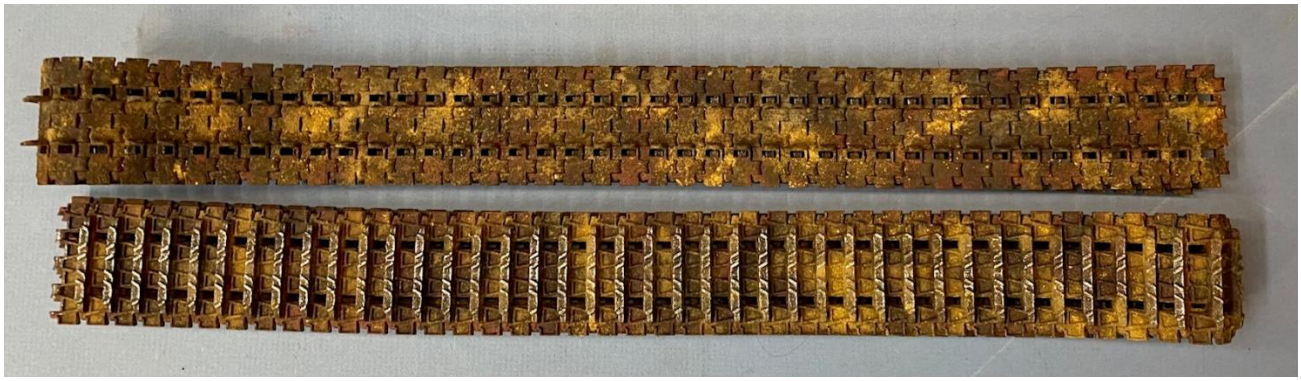






7. **Paint Tracks:** I like my tracks to have a base coat of Red Primer on both sides, and then I add heavy coatings of AIM Products Weathering Powders #110-3104 “Dirty Yellow” and #110-3122 “Dark Buff” to both sides in “splotches and spots”, which is then sealed with Testor’s Dullcoat. The teeth of the treads and the area where the wheels run, are accented with silver paint to replicate a steel on steel look where the paint would wear off. Also coat the outward facing track links with a light steel look to replicate wear and tear of the track on ground or pavement.



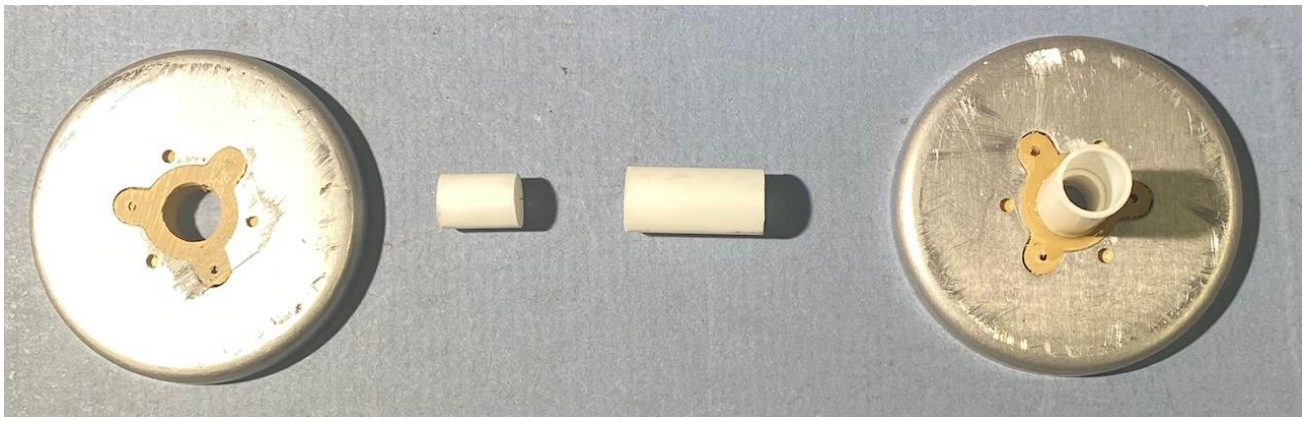


Extra Track Links: Be sure to paint the extra track links that get mounted on the Hull and Turret, but do not make them as dirty as the main tracks….these extras may not have seen any action yet. These are located on the sprues that contain the Panther wheels you did not use.

8. **New Steel Wheels:** As stated before, I wanted a steel wheeled version of my Panther G. To create this arrangement, you need to buy the following King Tiger parts from Tamiya.
   (6) bags of A Part #0005225
   (1) bag of Metal Road Wheels Part #9405055
   (1) bag of Wheel Bushings Part #9406061
   (1) Screw bag C Part #9465038
   (1) Shaft/Axel bag Part #9405057
   And you will need the
   (8) parts 4 on Sprue A
   (1) Metal Bearing bag from the Panther kit Part #9400599
   (2) Bags of 1/32” x #6 plastic washers (8 per bag) from Gary Ramond G scale parts (or equivalent)
   (1) Bag of 5/16” styrene tube Part #230 from Evergreen Scale Models
   (1) Bag of 3/8” styrene tube Part #232 from Evergreen Scale Models, and
   A small sheet of .100” thick styrene or acrylic plastic (for 8 washers you will make.

Follow the instruction for each picture: **For the Wide Wheel set…make 8:**

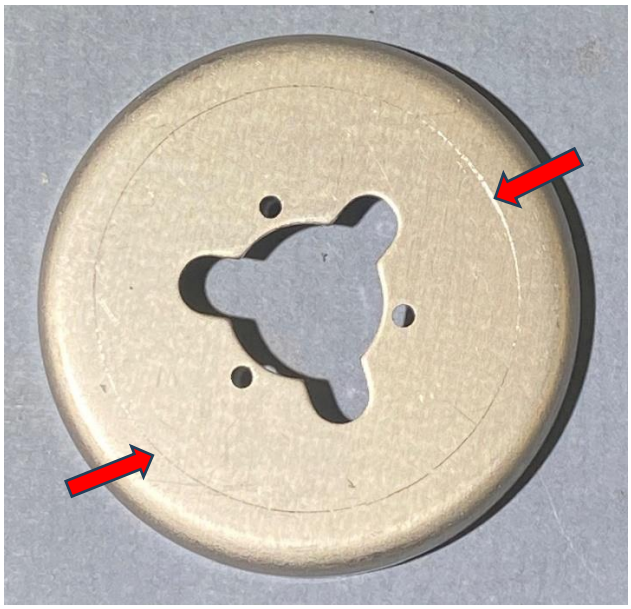
First glue the front wheel insert to the metal road wheel…be sure to center it by lining up the screw holes. Then cut off the plastic triangle shaped part on the back, which is used on the rear wheel assy.



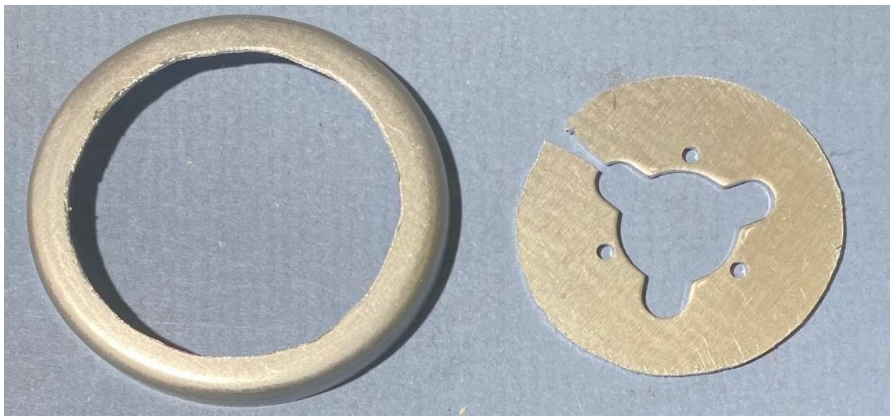
Next cut a 11.35mm long piece of the smaller 5/16” dia. styrene tube and a 18.5mm long piece from the bigger 3/8” dia. styrene tube. Shove the smaller tube piece all the way thru to the outside edge

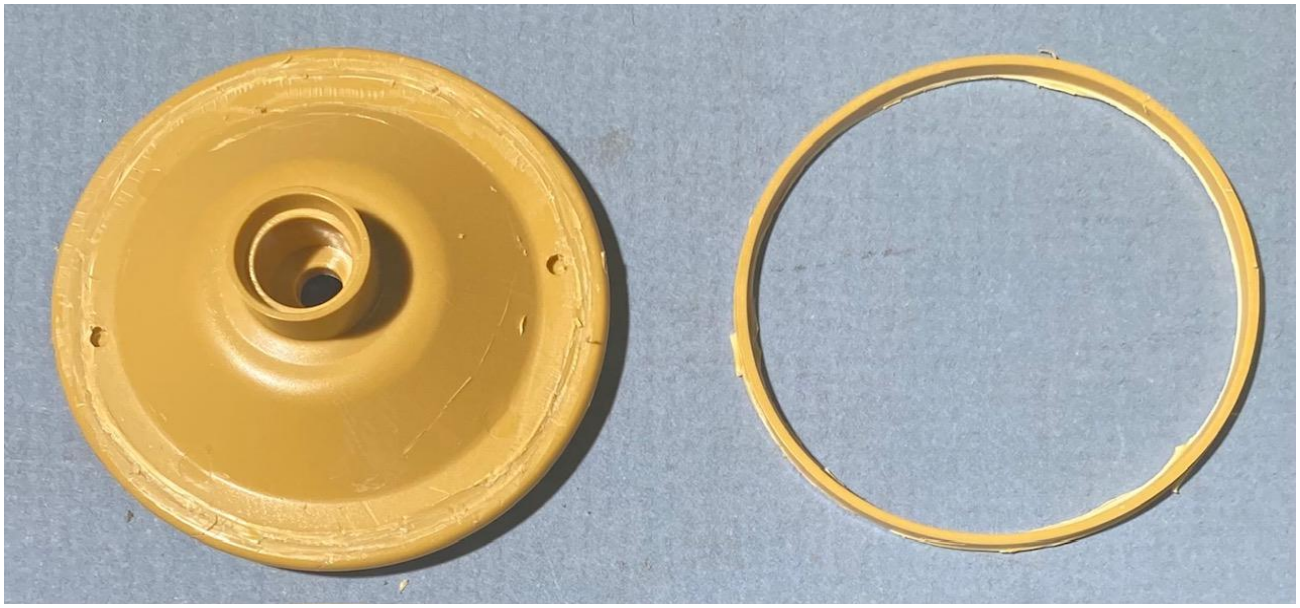
of the front wheel insert, so it is flush with the front. Then glue it and shove the larger tube over it quickly and glue it.

Now cut a 7/8" dia. washer from the .100" thick plastic sheet and drill a 3/8" dia. hole in the center. Clean up burrs and you may have to bevel one side of the hole so it will set flat over where you glued the 3/8" tube to the front wheel insert.

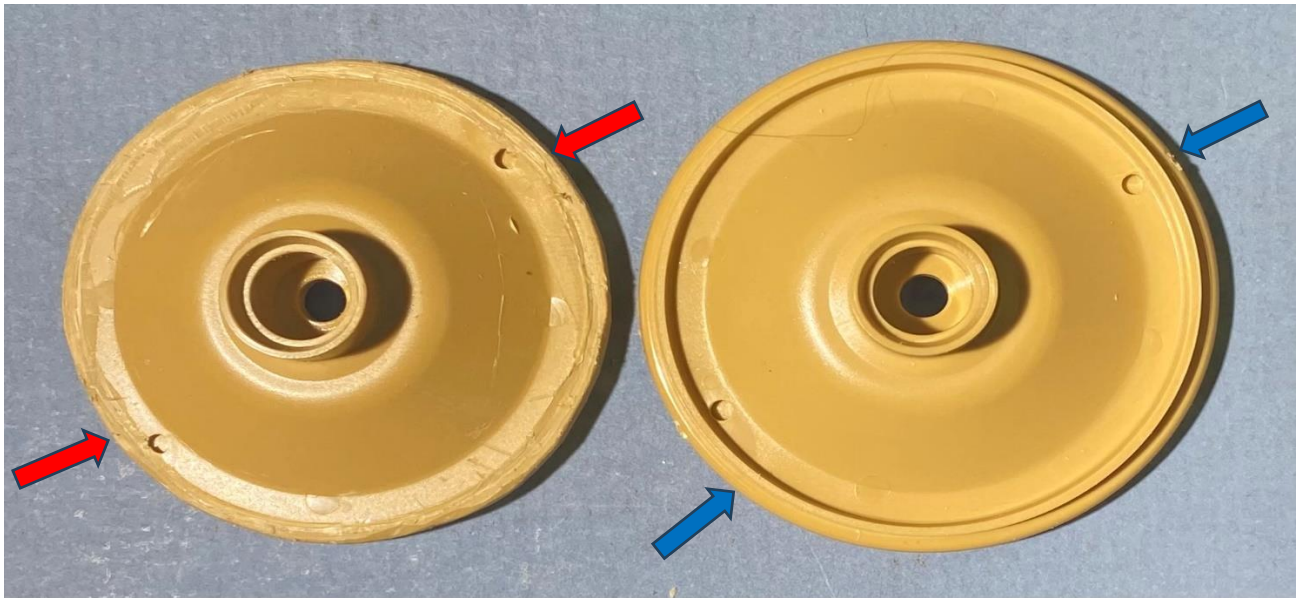


Next scribe a 1.5" dia. circle on the outside of one of the metal road wheels (see red arrows above). Now you need a small jigsaw with a blade that can be removed, so the metal road wheel will slip down over it. Now cut along the scribed line and you end up with the two parts in the third picture below. Discard the cutout. Then use a Dremel tool with a small griding wheel or a round file to smooth out the sharp edges of the circle that was just cut.

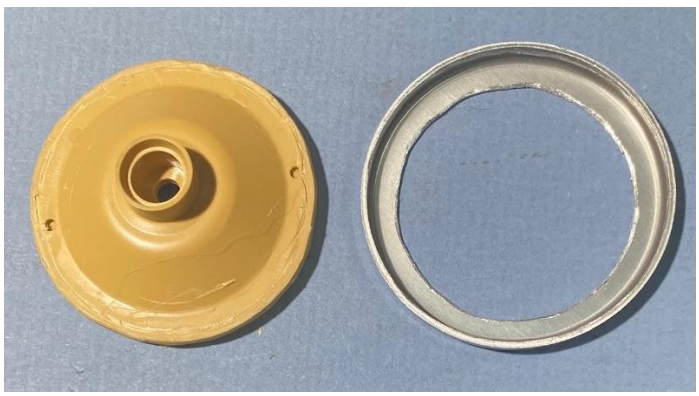




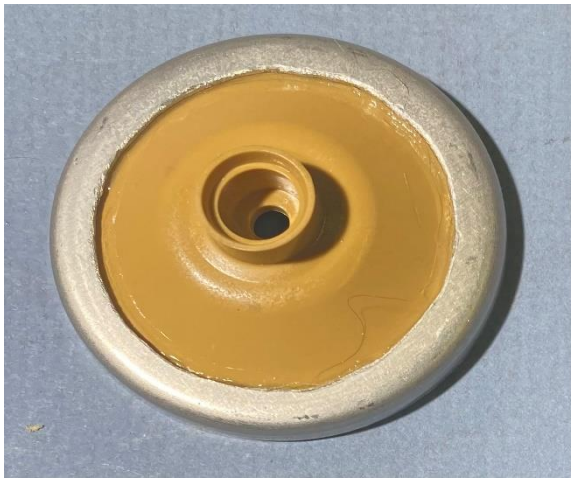
Now take part 4 from the Tamiya Panther sprue A … this is the indented rear part which allows the wheel to set inward over the suspension arm. Cut off the inside lip with a #11 Xacto blade.



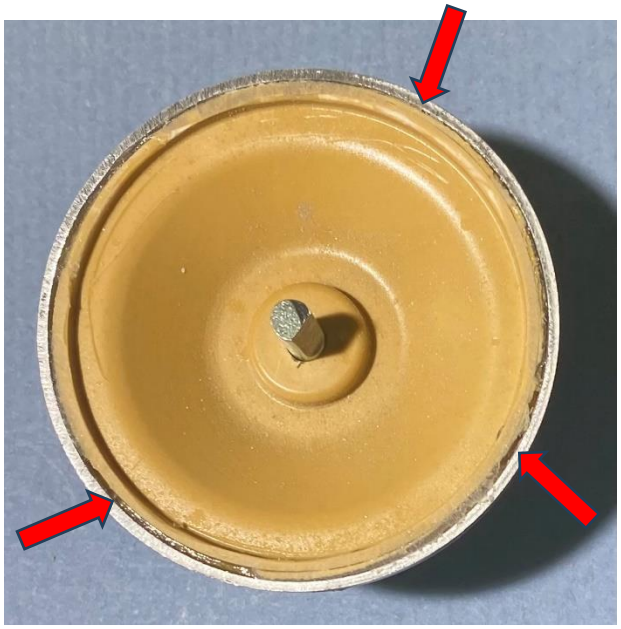
Now grind off about half of the flange that would have anchored the Panther rubber tire if you were building that type wheel. See red arrows above where the part was ground off. Blue arrows above show the part beforehand. The purpose of grinding some of the plastic away is so the plastic wheel will set into the metal road wheel.



These are the (2) parts before mating. Put some ACC glue on the inside of the metal pc. to join.

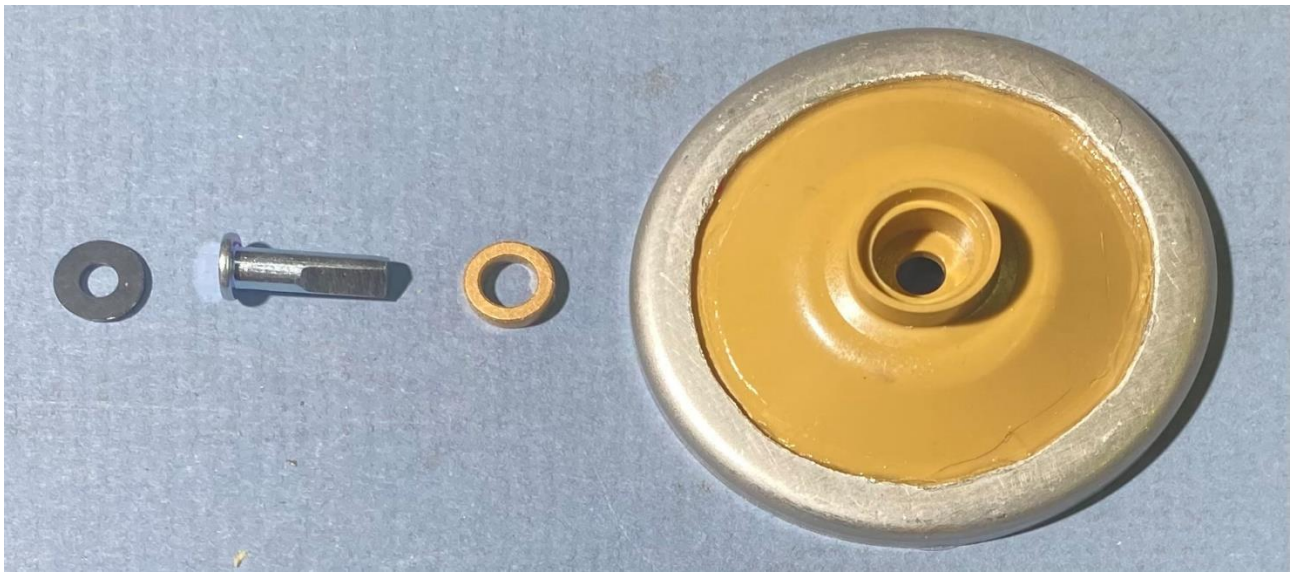


View after mating.

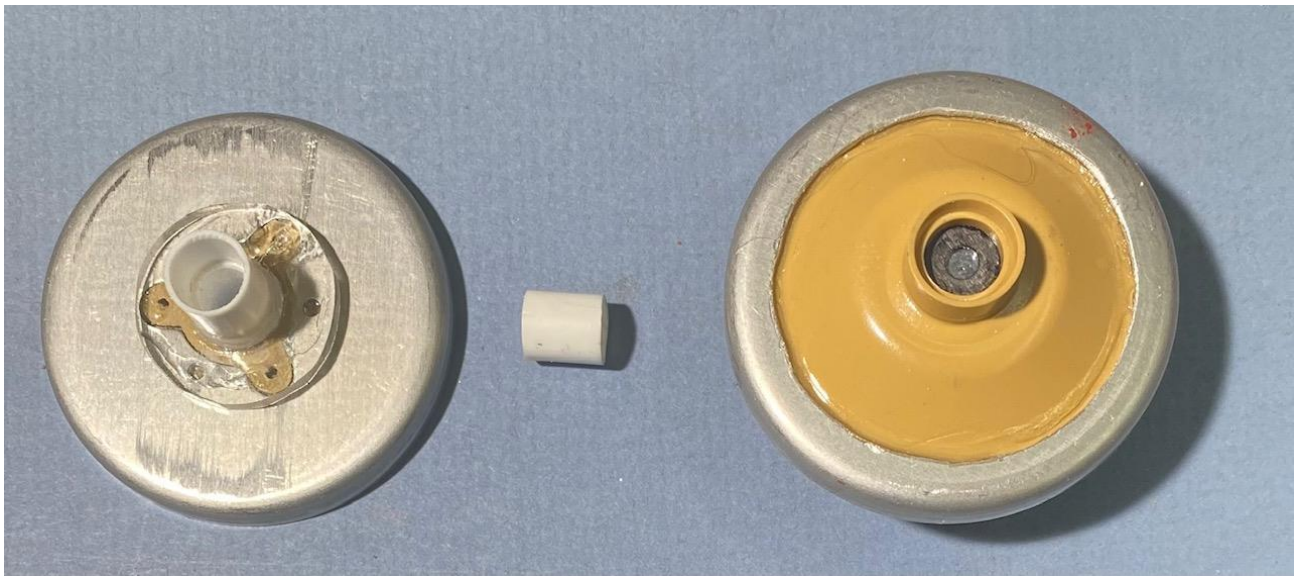


Be sure you mount the metal road wheel from the inside facing outward. There will be a little bit of the outside plastic lip that you then need to grind or file off. And then glue between the that lip metal edge to fill in any gaps and grind/sand everything flat again (see red arrows above).

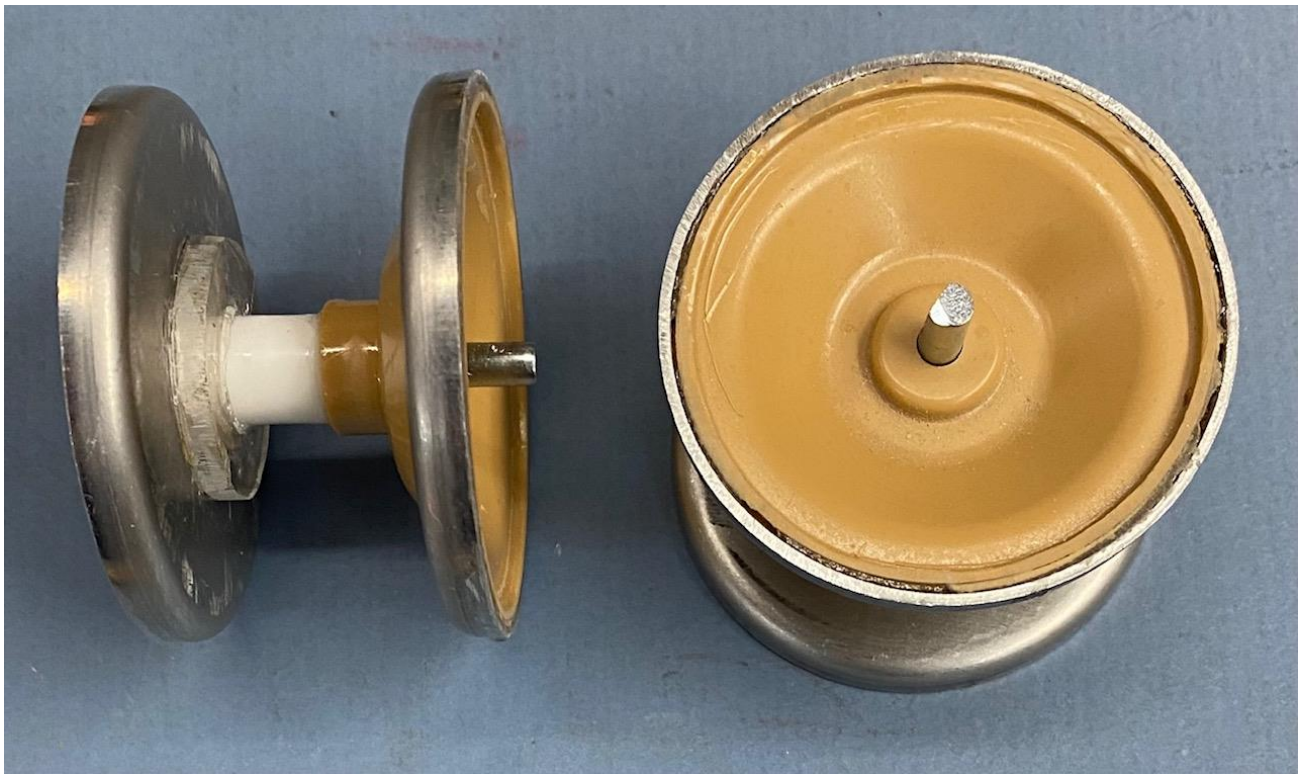
Next cut down one of the KT long axles to a 14mm length and grind off a flat area .280mm long from the end.



Now insert the copper bushing from the Tamiya Panther kit, then the axel, and then the black spacer into the rear wheel part.



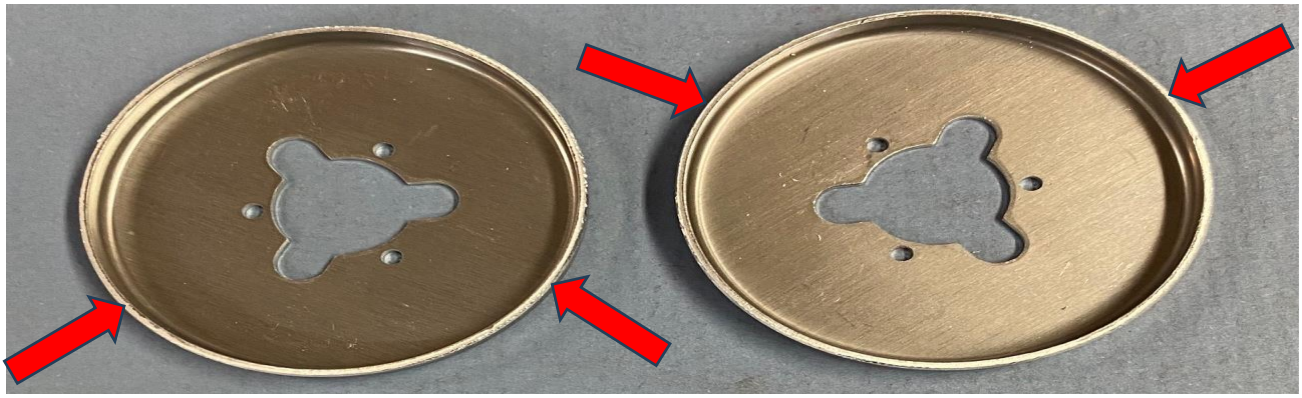
Cut another small 5/16” dia. styrene tube 9.5mm long and insert into the bigger tube on the front of the wheel. Some of it should stick out.



Now join the two wheel assemblies together and the axle shaft should stick out the rear. The total width from the edge of the front metal wheel to the back of the shaft should be 36.6mm. If this dimension is long or short, you will have to recut the second small tube that you inserted over the shaft to the proper length. Once this total width dimension is correct, glue the big tube to the rear wheel assembly. Make sure you are not getting any glue on the steel shaft, and make sure the wheels are square/parallel.

The last step in this assembly is to glue the Hub onto the wheel. This Hub comes from a step in making the Narrow Wheel below. Make sure it is centered.

For the Narrow Wheel set…make 8:



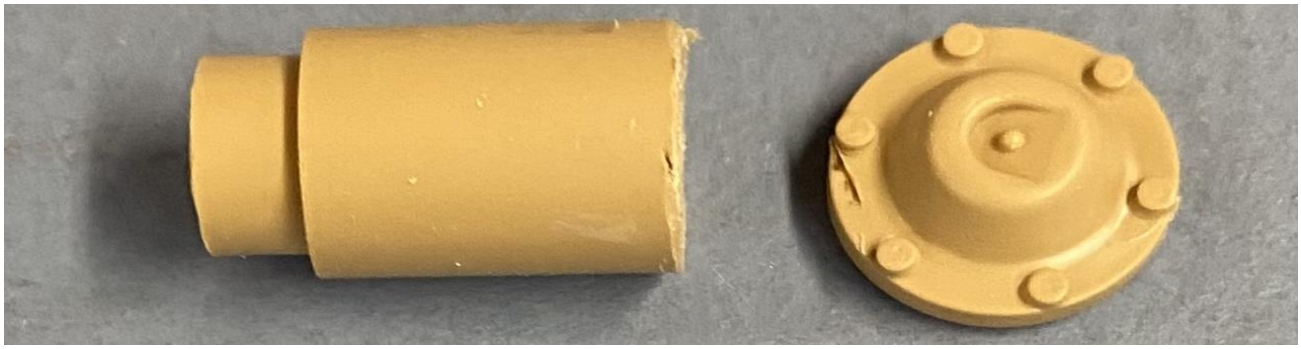
Start with (2) of the metal road wheels and file or grind off about .75mm of the rim of each one to make them thinner (see red arrows). Then round the sharp edges with a file for safety and this also allows the wheel to roll a bit more freely between the teeth of the track. This is the goal, to roll ever so freely, so grind and round the edges until this is achieved. I am using Impact metal tracks and more would need to be ground off if you are using the Tamiya tracks that came in the kit.

Next glue the rear wheel insert into one of the metal road wheels, with the (3) pegs sticking up.

Now glue the front wheel insert into one of the metal road wheels, with the hub sticking up.

Now insert the bushing into the rear wheel recessed position and join the (2) halves together and secure with the (3) screws.

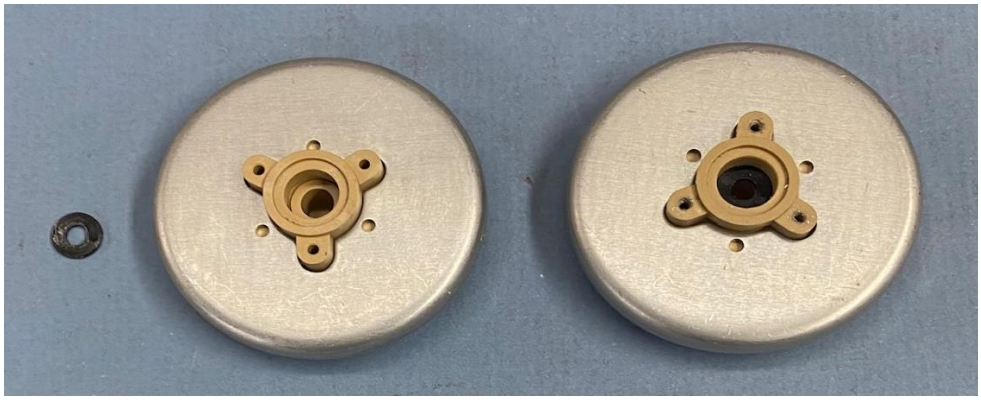
Grind down the steel shaft to be 25.6mm long. Then grind off a flat area .280mm long from the end of the steel shaft like you did for the wide wheel. This is to anchor the set screws later.



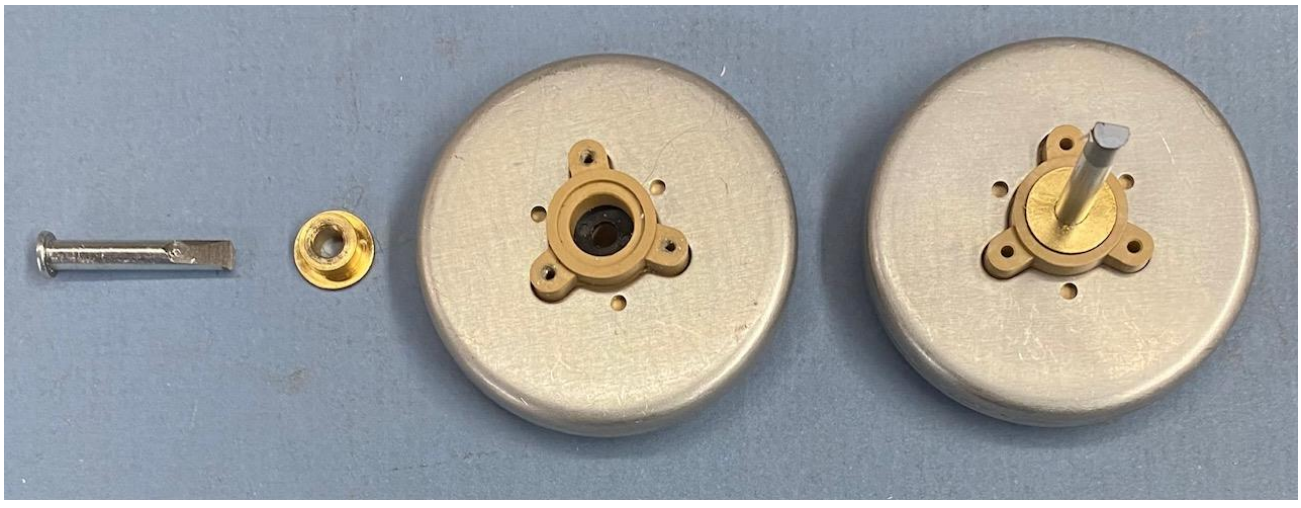
Cut off part of the plastic Hub that is on the long plastic insert, Part 4 from the KT sprue A, and file the back of it smooth. This is the Hub that you glue to the front of the Wide Wheel assembly above.

Now cut or grind 2.15mm off the small diameter end and cut the longer diameter end to 9.2mm for an overall length. Call this part the Yellow Insert.

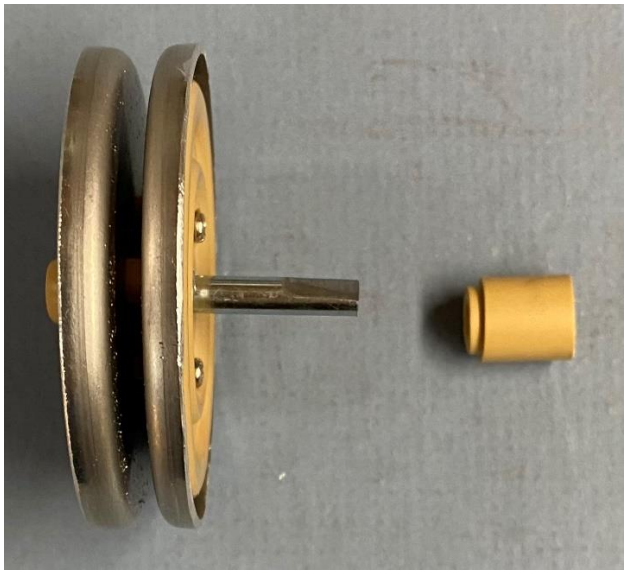
Now glue the Hub to the front wheel part.

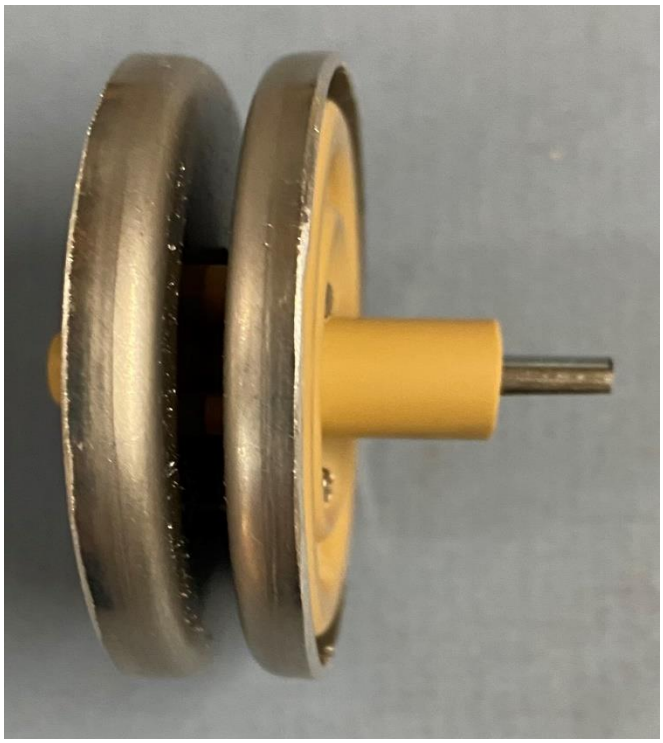


Now insert one of the black plastic washers.



Now insert the bushing over the axel and set into place in the front wheel part.

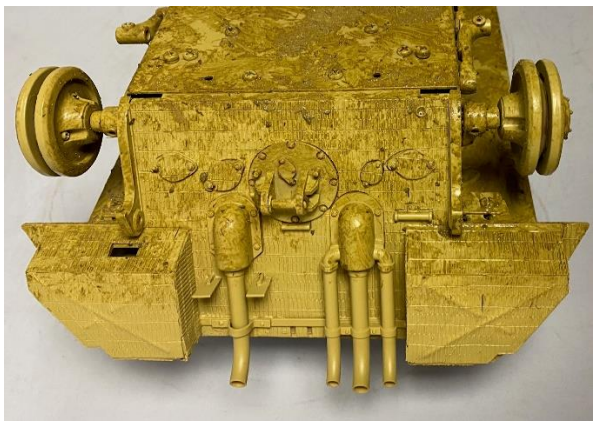




Assemble the front and rear wheel parts together, and insert and tighten the 3 small screws. Then glue the Yellow Insert into the rear side of the wheel, making sure it is centered. This will leave about 7.7mm of the shaft sticking out the back. The Narrow Wheel is now done. Add oil down the shaft if you need to make it turn more freely, or loosen the 3 screws a tad.

Last Steps with wheels: Paint them all in the base color used on your tank model (mine is yellow), add the camo scheme (such as red and greens) if you are using one, and you can add a little silver to the outer running edges of both metal wheel parts to replicate metal on metal wearing away of paint.. Now complete Steps 14-15 in Tamiya instructions.

9. **Paint Lower Hull and Suspension**: Before putting all the wheels on, the bottom Hull must be painted and weathered. The base paint coat is Tamiya TS-3 Dark Yellow over which is daubed splotches of Vallejo 73.807 European Thick Mud (thinned down a lot).

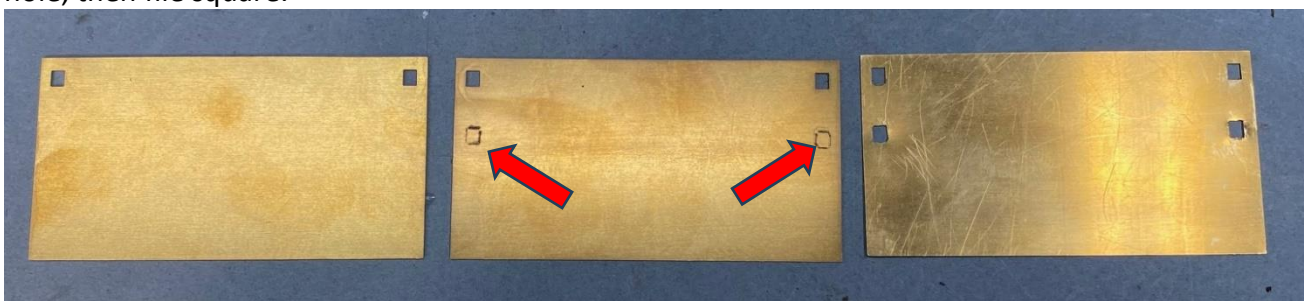


Once this is dry, smaller spaced out splotches of Vallejo 73.811 Dark Brown Mud will be added. The picture below shows this splotching on the bottom, but it is also applied to the sides, and more sparingly to the lower front and rear.

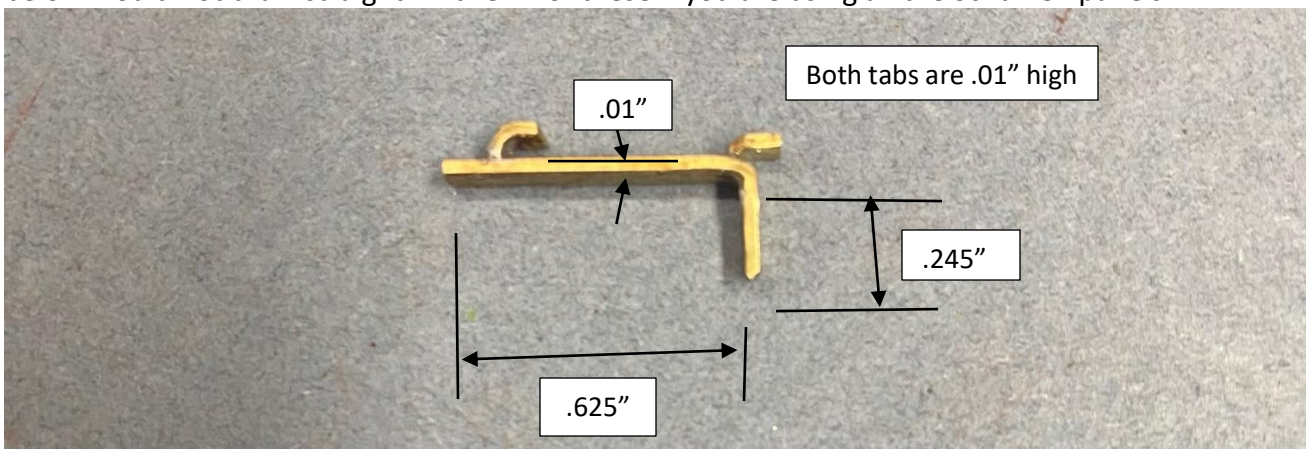
10. **Lower Hull w/ Wheels and Track:** Once the wheels are also cover with the Vallejo 73.811 Dark Brown Mud to replicate that the tank drove thru a muddy area about 6” deep, the Lower Hull is assembled and looks like this.

11. **Finish Building Model:** You can now finish the steps in the Tamiya instructions, but when you come to Step 25, you may want to mount the side walkways with a different method of hanging the Schurzen. I used the 10 brass Schurzen panels from the Impact PE parts for 1/16 Panther G, made by Lion Roar Models. In order to use these, you need to cut an extra row of square holes in each plate and modify the plastic brackets D5 & D6 to hold the supports that will secure the Schurzen panels in

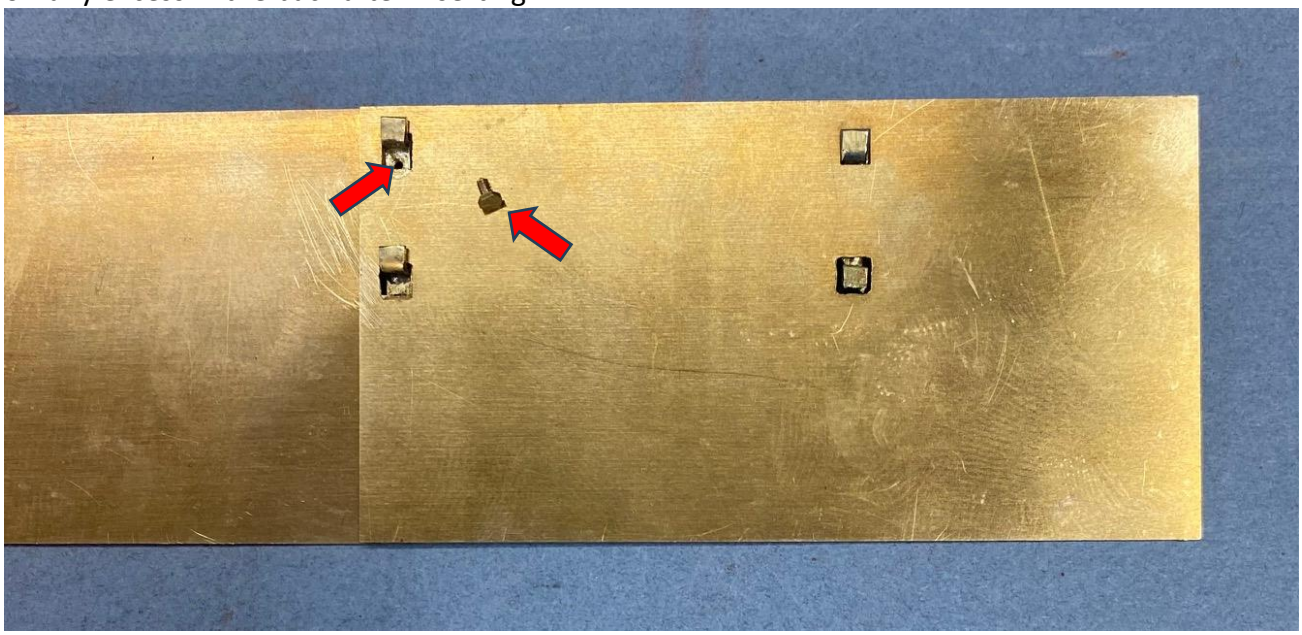
place. To make the square holes, scribe them onto the brass panel (red arrows) and drill a center hole, then file square.



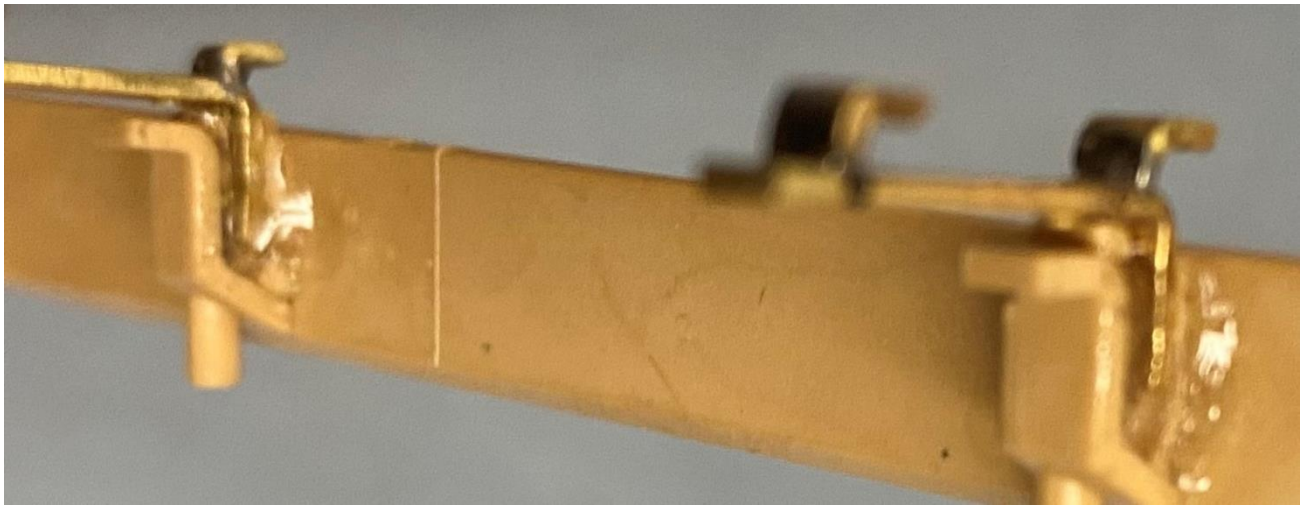
I then made the hanger supports from brass strip…. .010” wide x .039” thick. Sorry, dimension lines below would not draw straight. Make 12 of these if you are using all the Schurzen panels.



To keep the Schurzen panels from coming off the hanger supports, I drilled and tapped a hole for an 0.090 brass bolt (see red arrows below). Grind the head of the bolt to half its normal thickness. Cut off any excess in the back after inserting.



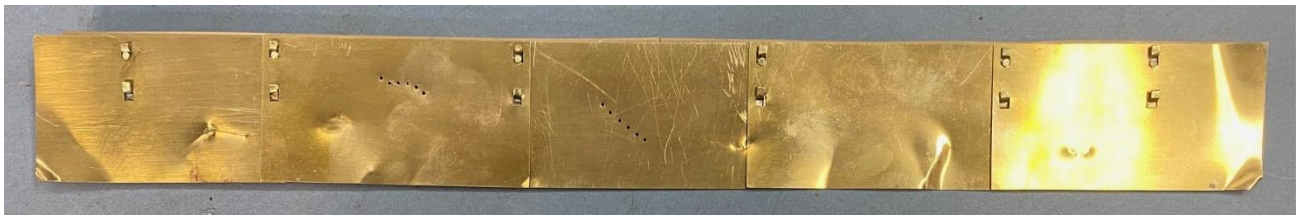
The hanger support is inserted into plastic brackets D5 & D6 like this. Glue all around it to provide a solid connection. **HOWEVER**…do not glue them in until the D5 & D6 parts are glued in place first in the side walkways (D9/D2 & D8/D1).



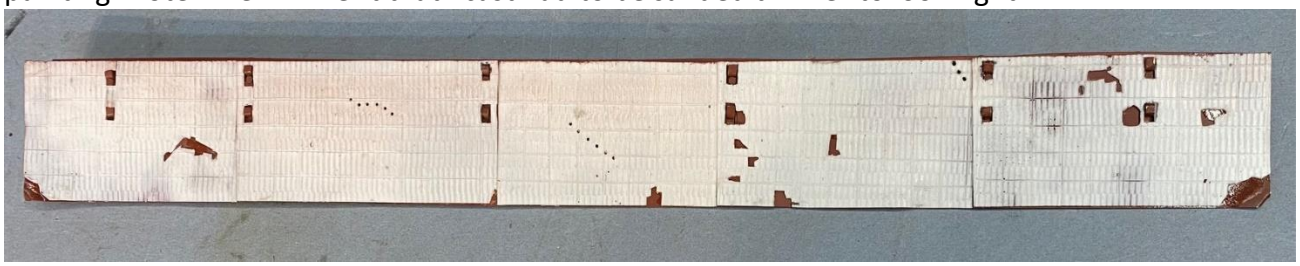
All supports mounted to plastic part D9/D2 & D8/D1 strips look like this with the support installed. Do this before you hang the brass plates on. You will also have to drill thru the D5 & D6 parts so the 0.090" brass bolt will seat properly.

(Picture is on next page)

This is what a Schurzen side panel (left side) looks like before adding any Zimmerit (if you elect to do that). Battle damage is added before the Zimmerit is added, so you know where missing Zimmerit should be. On the back side of the brass panels, I have soldered a small ¼" long strip of brass across each panel joint so they reinforce each other. You may also want to soak the panels in Birchwood-Casey's Brass Black to etch the brass surface with acid, which allows the paint and glue to adhere better.

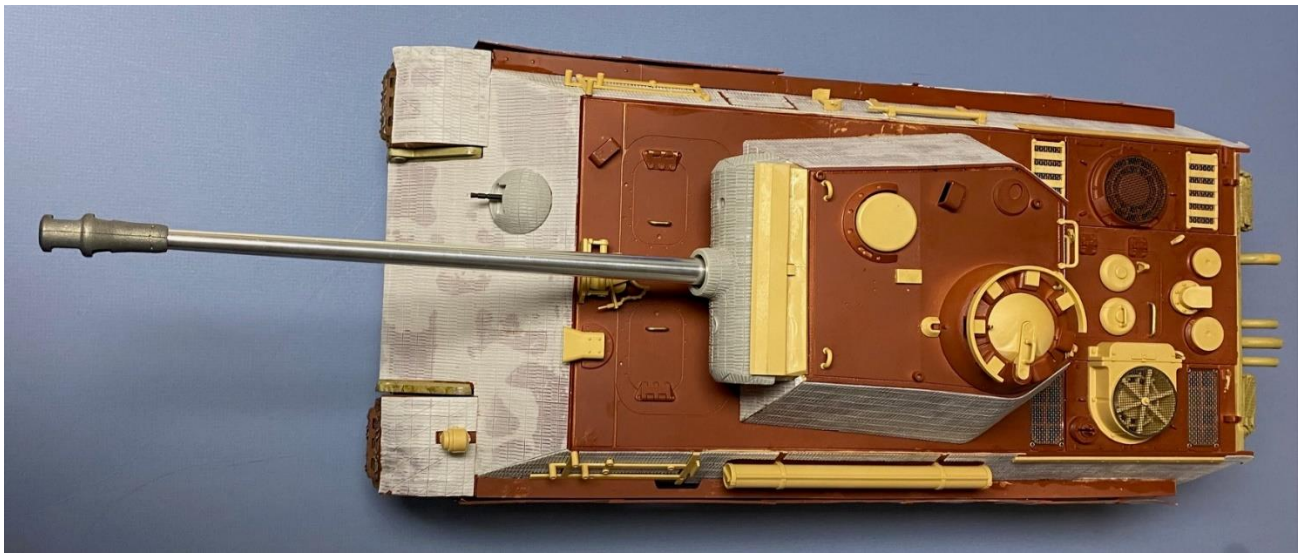


Bellow: This is a completed left side Schurzen panel with damaged Zimmerit before final painting and weathering. Notice how red primer shows thru in damaged areas. Do not cover this up with final painting. Note: The Zimmerit that I cast had to be sanded thinner to look right.



This is the completed right side panel. Notice in the center where a Bazooka round hit the panel, damaged it and caused the missing panel to fall off the tank……in theory at least 😊

12. Progress Pictures:

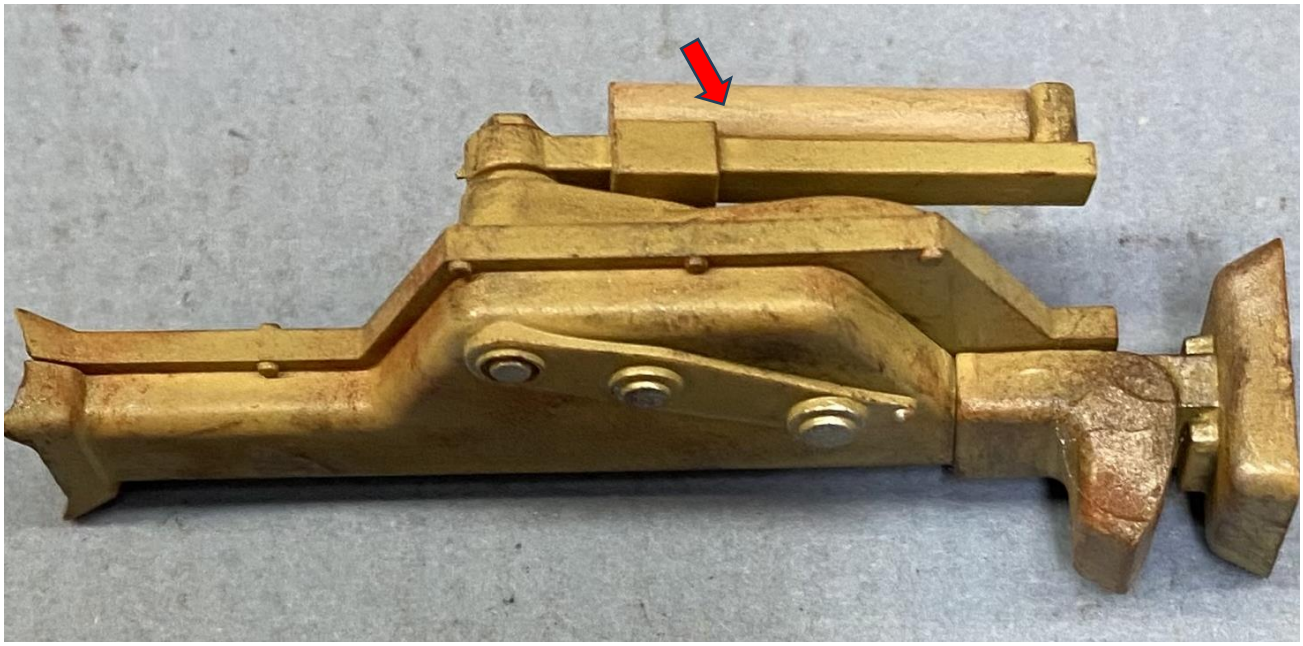


13. Paint Tools, Cables and Extras:

(1) Paint the various tools with a wood color for those parts, and gunmetal for the steel parts. Tone the gunmetal down with dark dirt and rust dry pigments. The wood handle parts need to be scraped with a very fine saw blade and then sanded to replicate wood grain before painting. Add German clasps (Aber part #16013) to all the mounting areas of the tools. Leave the small nubbins that insert into the holes in the tank sides, & add the clasp around these (glue in place).

(2) I only used one of the large towing cables and 1 small wire cable that wraps around the bracket on the tank's right side. I dipped these into Birchwood-Casey's Brass Black liquid to etch the surfaces which turns the material black. Over this you can add light coats of gunmetal here and there, and then dirt and rust with dry pigments (over sprayed with Testor's Dullcoat.

(3) I left the Jack Stand yellow and dirtied it up with rust and dirt colored dry pigments (over sprayed with Testor's Dullcoat. Later I decided to paint the long handle a dark color. See red arrow below.



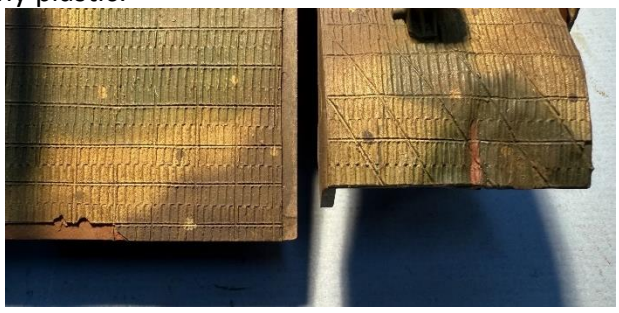
(4) I painted the 2 German Jerry cans grey, that set next to the Exhaust Stack, but the mounting brackets are yellow. Again, use rust and dirt colored dry pigments for shading (over sprayed with Testor's Dullcoat). Note: Don't forget to remove the resin under the handles, like I did. I decided it was too late after all the painting and weathering was done.

(5) The wood Jack Bock that mounts to the RH side of the tank, has wood grain scratched into the plastic, then sanded, and painted with a wood color. Once more, use dirt colored dry pigments for shading (over sprayed with Testor's Dullcoat). Parts of the metal frame holding the wood block, may have some camo paint sprayed on it, but be careful, don't spray the wood. Note that the Jack Bock, the middle Tool Rack and Cable Rack, may catch on the Turret when it rotates. Adjust if needed.

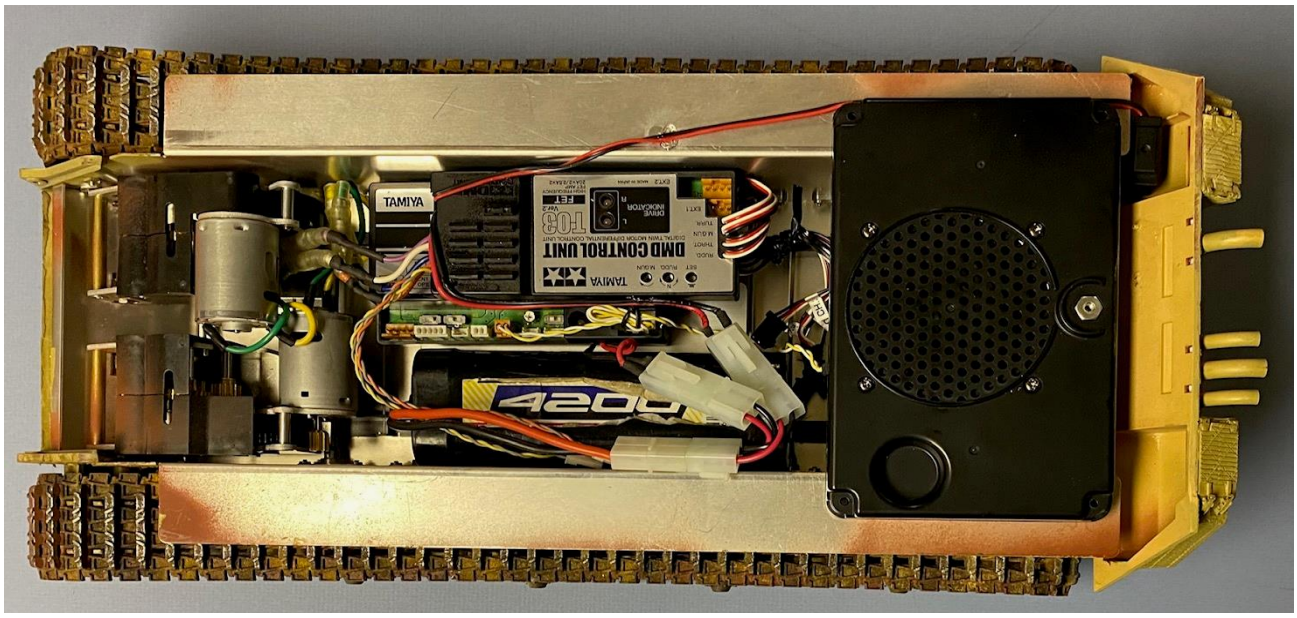
14. A Few Details to Consider Adding:

(1) My prototype Panther used an IR night vision Rangefinder. I found a 3D version printed by Battleground Models. I threaded a hole for an 0-90 bolt to hold it to the Turret hatch MG ring.

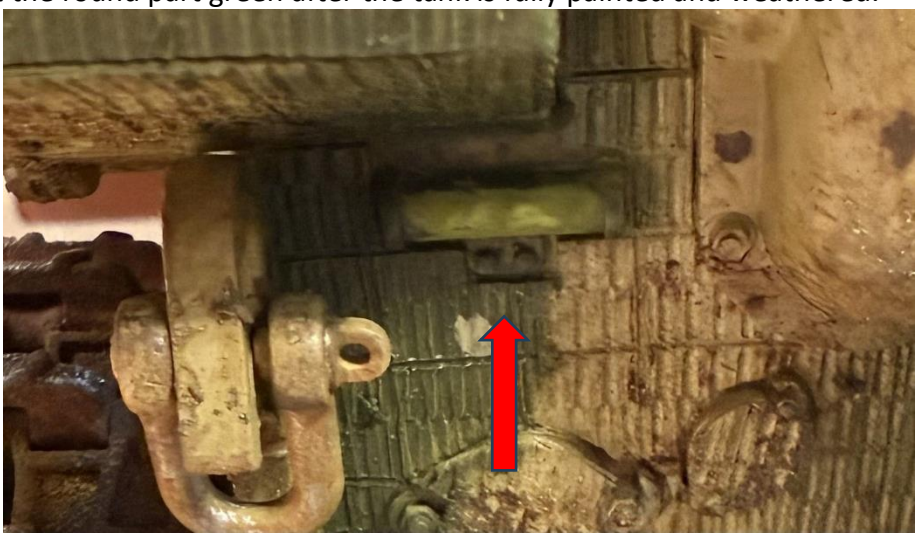
(2) Bend the front fenders to give the model a little flavor. To do this, use a model micro torch to soften the plastic, but be careful not to scorch any plastic.



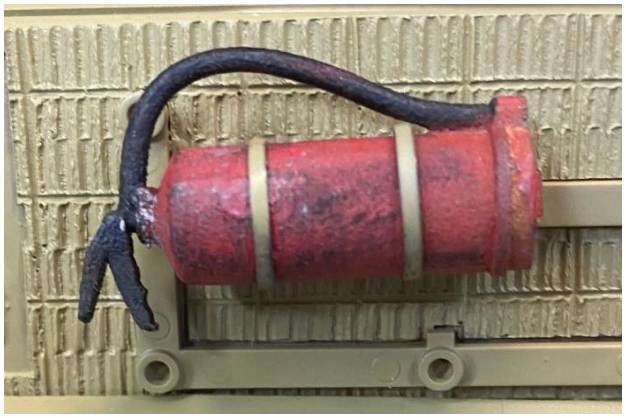
(3) Shorten all the wires from the control boxes inside the tank because they are way too long and shortening makes for a more compact, less cluttered model…..but do not shorten any wires going to or from the Turret and do not shorten the RX wires.



(4) The Panther kit has a convoy light cast into the rear wall on the left under the Stowage Box. Be sure to paint the round part green after the tank is fully painted and weathered.

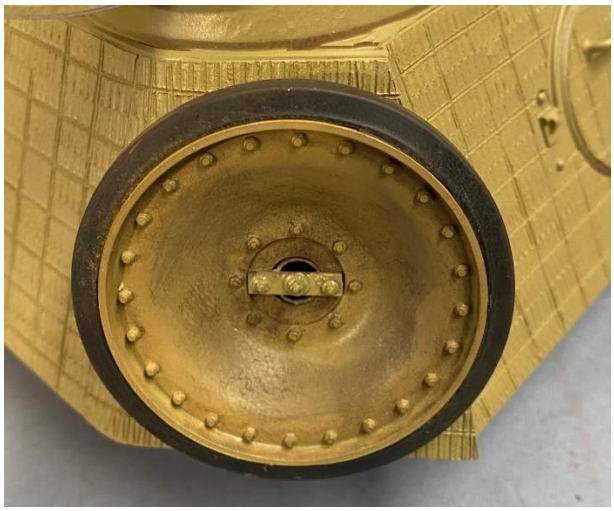


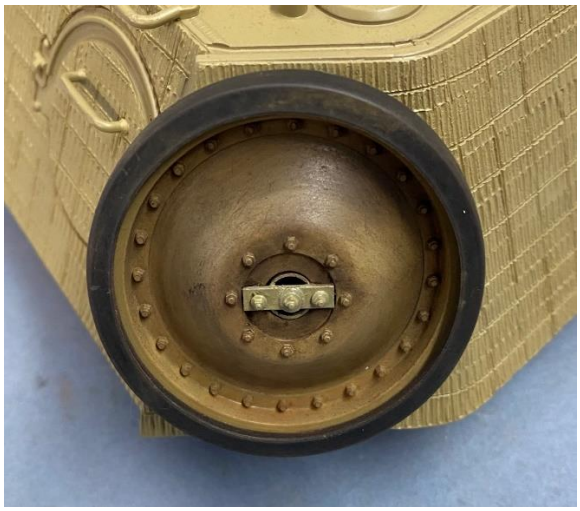
(5) My Tamiya kit did not have a Fire Extinguisher part so I used a 3D printed one. It is added to the right side forward tool rack. I drilled 2 holes for .040” dia. x .250” long wires into the Extinguisher and the tool rack. These wires mount the Extinguisher to the tool rack. Glue in place later.



Note: The difference in red color above was due to different lighting for the camera.

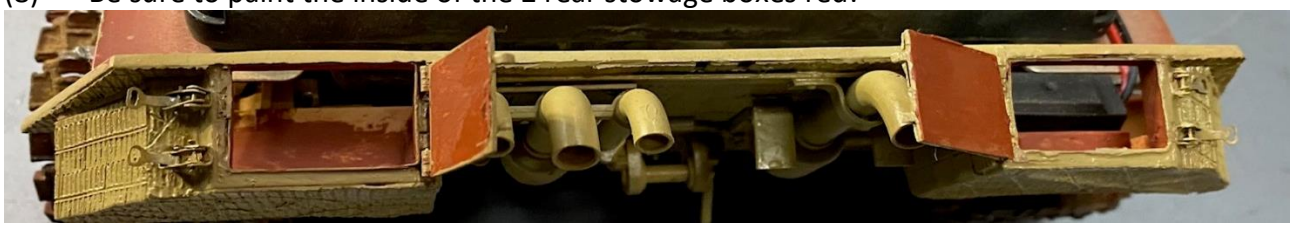
(6) Mount 2 extra wheels on the rear Turret sides. I had to use rubber tire wheels because there were no extra steel wheels, which no doubt actually happened during the war. Use .250” dia brass tube and some .125” wide x .031” thick brass bar stock…drill 3 holes for brass bolt and washer castings. Solder all together and then glue to wheel. Then glue to Turret sides.





(7) I still wanted an MG42 on the Turret, so I made a wire mount like the prototype, to use with part E22.

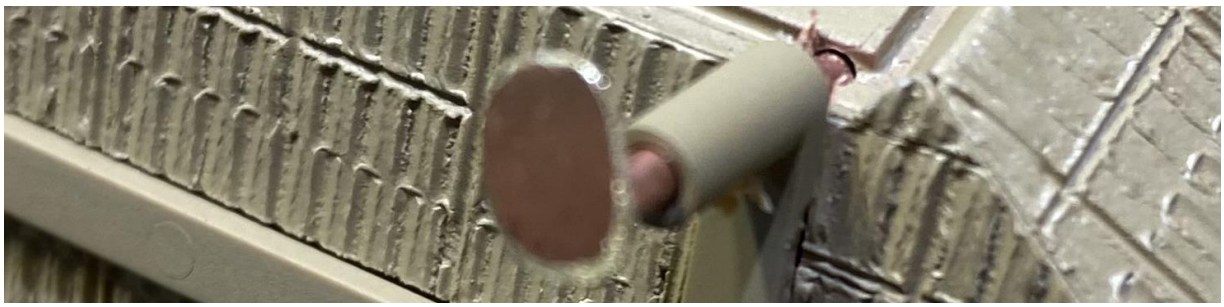
(8) Be sure to paint the inside of the 2 rear stowage boxes red.



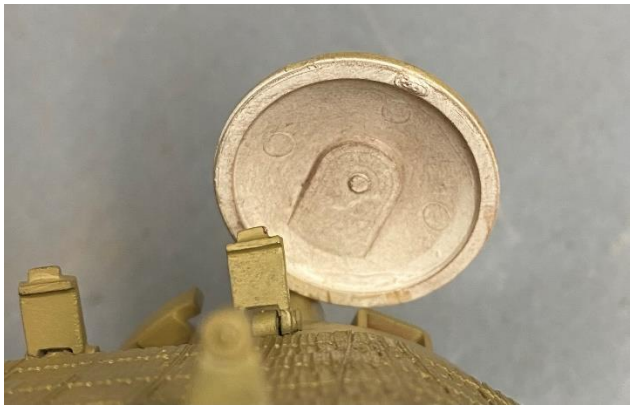
(9) Add lock and handle to end of barrel cleaning rod tube. I used parts from Impact's 1/16 Panther PE set.

(10) Add chains and pins to hold C-Hooks in brackets….make 4.

(11) Add a brass insert all the way thru to the inside of the Upper Hull, with flat brass head top, to the extended plastic pipe that the end of the long cable hangs on. Otherwise, this plastic part tends to get broken off and the cable does not stay secured.



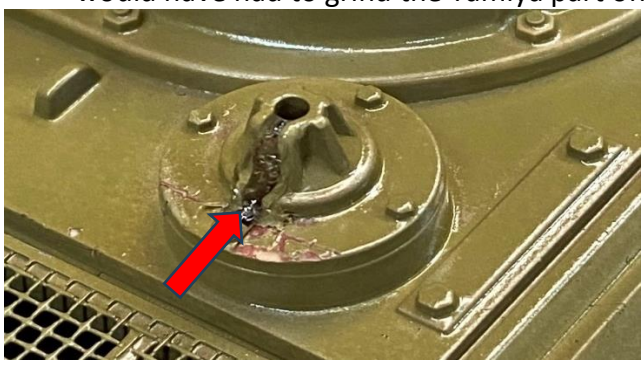
(12) Paint the underside of the Commander's Hatch lid white.

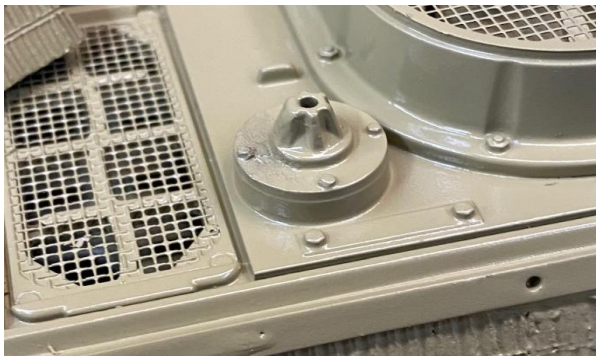


(13) Hang a bucket on the rear of hull. I treated it with Brass Blackening and added dents.

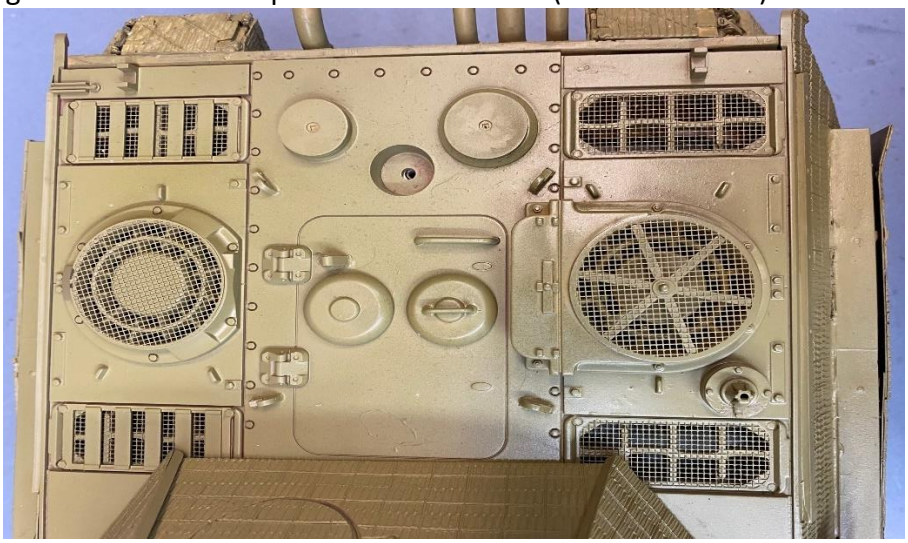
(14) Add a coil of thick rope to side of hull.

(15) Fill in the slot in the antenna mount. I had a resin cast replacement part for this mount but would have had to grind the Tamiya part off and decided it was not worth the effort.



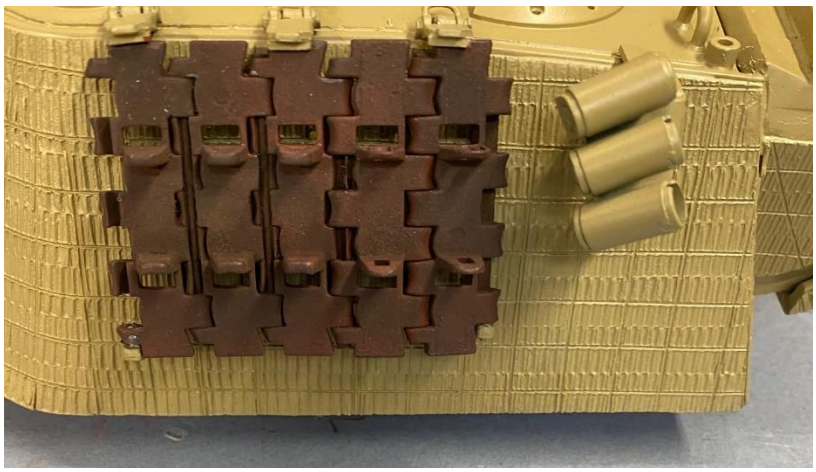


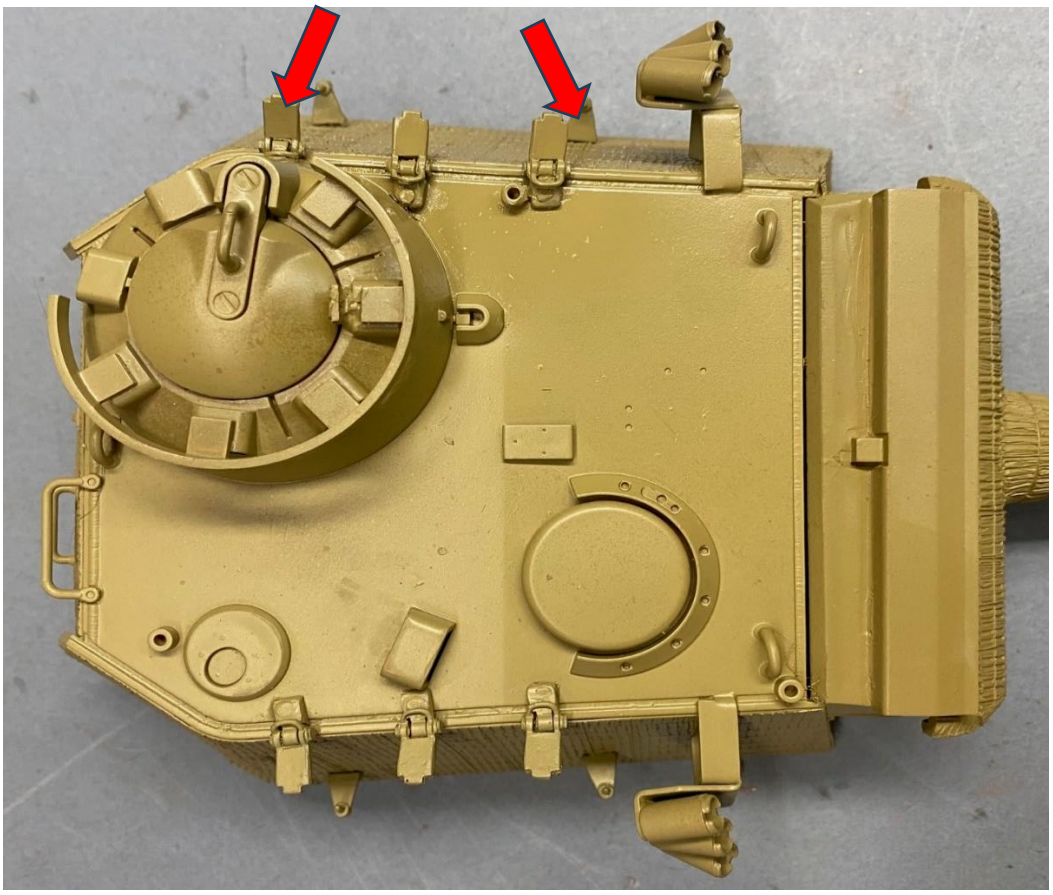
(16) Add the steel PE grille work from the Tamiya #49437 Panther G Grille set. I also added brass rod hand grabs instead of the plastic ones in the kit (Part #s B1 & F1).



(17) I did not install the barrel flash unit as we do not use them at FRAG. Instead, we insert the IR emitter bulb with a Restrictor tube in the barrel and muzzle brake.

(18) Add extra track links to the Turret sides to provide additional Improvised Armor protection. I used cast White Metal Track Hangers, but this required drilling a lot of holes for .040" dia. brass wire and the Turret to hold the parts in place. Either glue the mounting brackets to the upper track holder piece or drill holes for wire axles so these parts pivot (your choice). I mounted the top parts to the Turret with 090 brass screws and glued the bottom parts w/rods into holes.

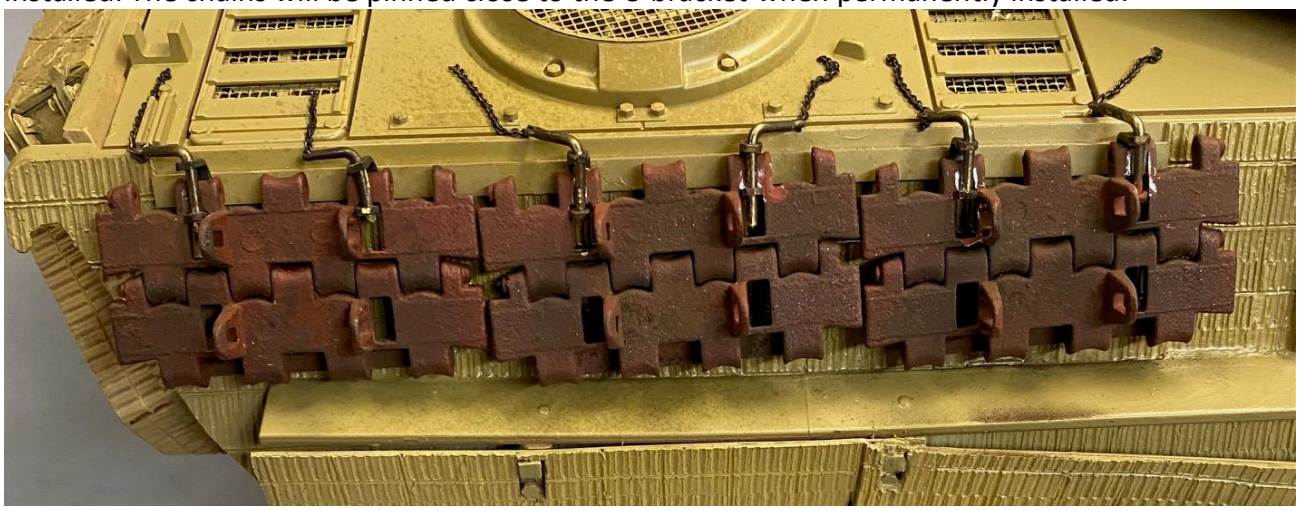




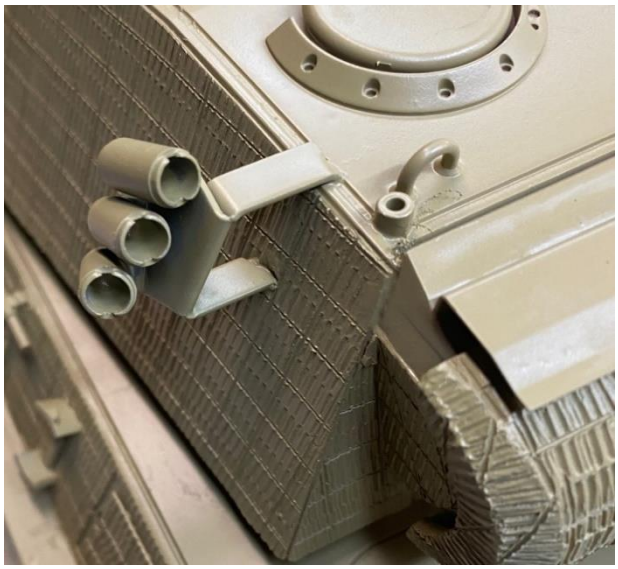
(19) There were no mounting brackets for the track links that hang on the rear of both sides of the Upper Hull, so I made some from .125” x .030 brass bar stock. After drilling the 3 holes, bending into a “U” shape, I used an 090 brass flat head screw (countersink the hole in the bar stock to make the screw set flush) to mount to the Upper Hull, and an “L” shaped 0.046” dia. brass rod (“L Pin”) with an 0.024” dia. hole drilled in the one end for a 0.012” dia. bass wire, which holds the tiny chain to the L Pin and the Upper Hull with a tiny brass pin.

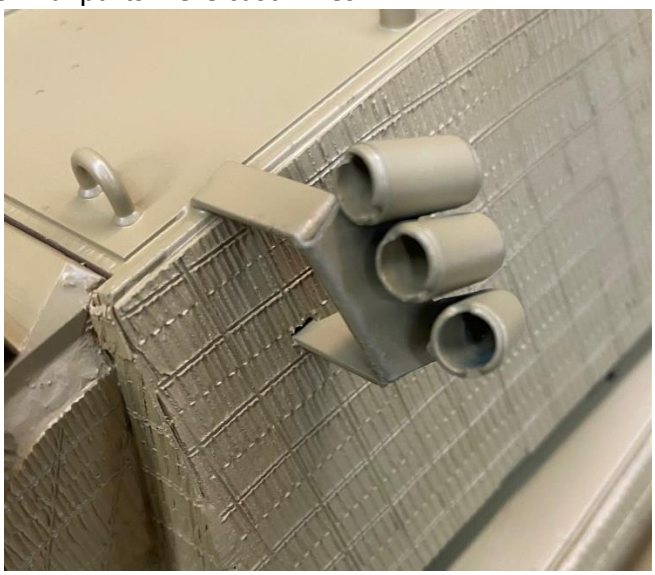
The following picture is of the parts after soaking in Birchwood Casey’s Brass Black for a half minute. It etches the brass so that paint will stick better. Still missing a few screws and one U Bracket that was already mounted on the tank for testing. Also I ended up cutting the long shaft on the L Pin down by 1/8”.

This shows the U brackets and L Pins mounted to the tank before painting the yellow, and track links installed. The chains will be pinned close to the U bracket when permanently installed.

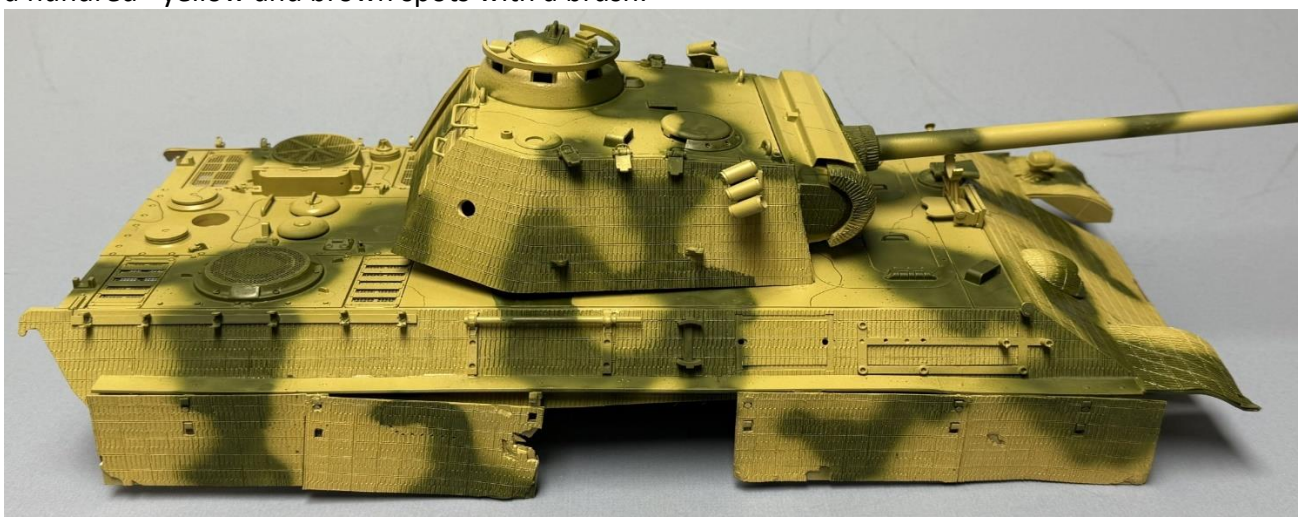


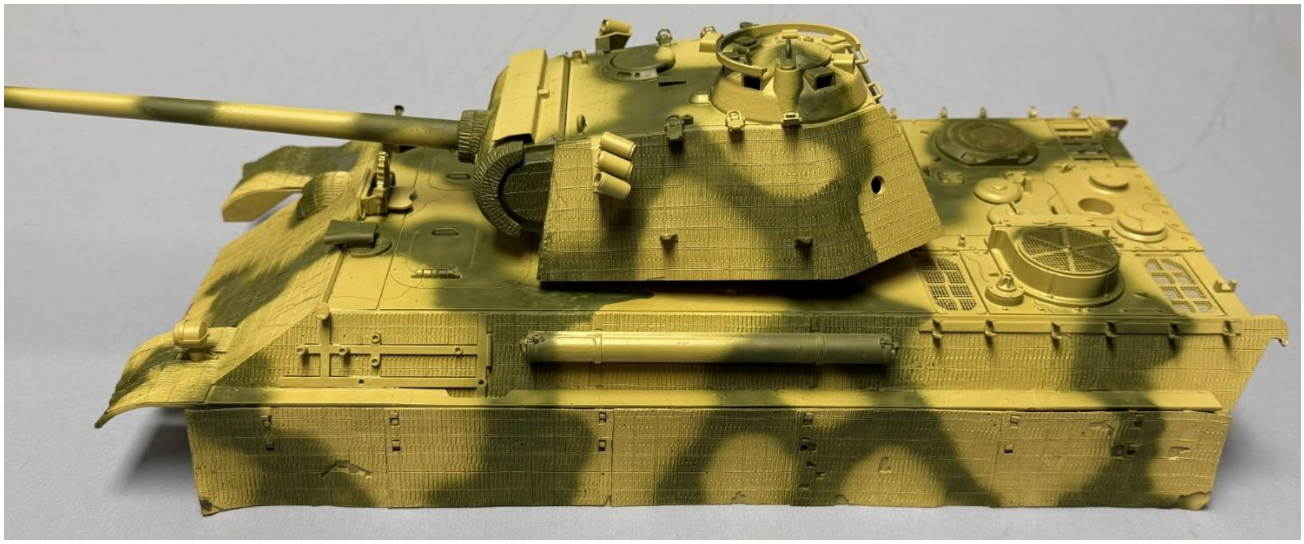
(20) Add smoke grenade launchers to the front sides of the Turret (some Panthers had this addition). If you do this, add some grenade inserts after final painting. These are made from spare parts that were used to make a mold and then the final parts were cast in resin.

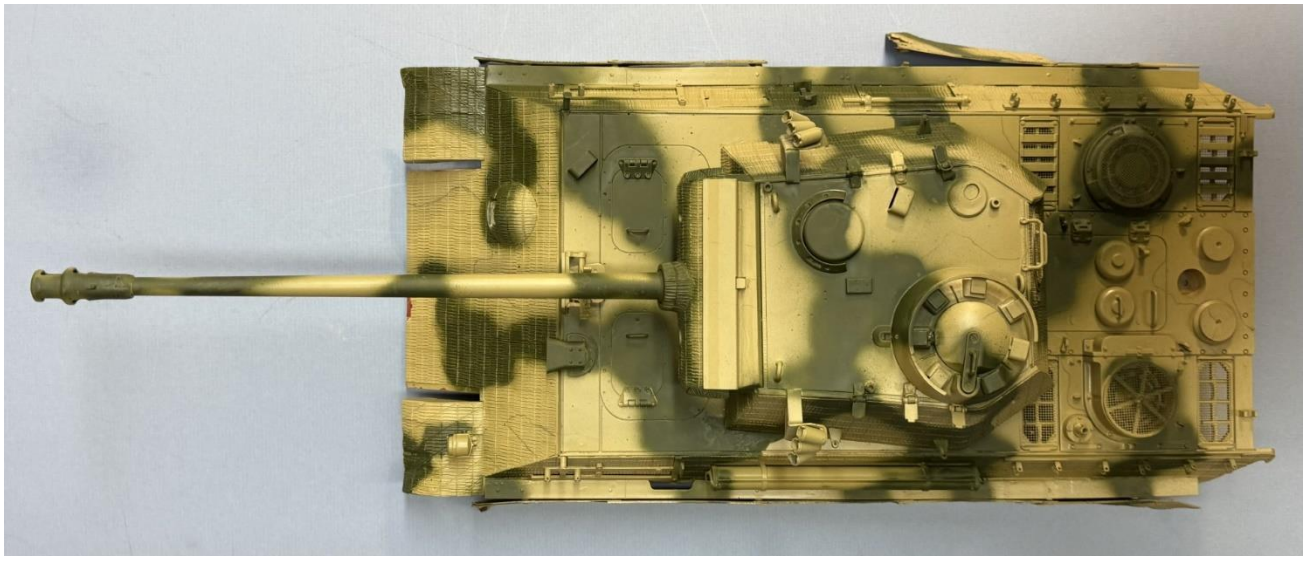


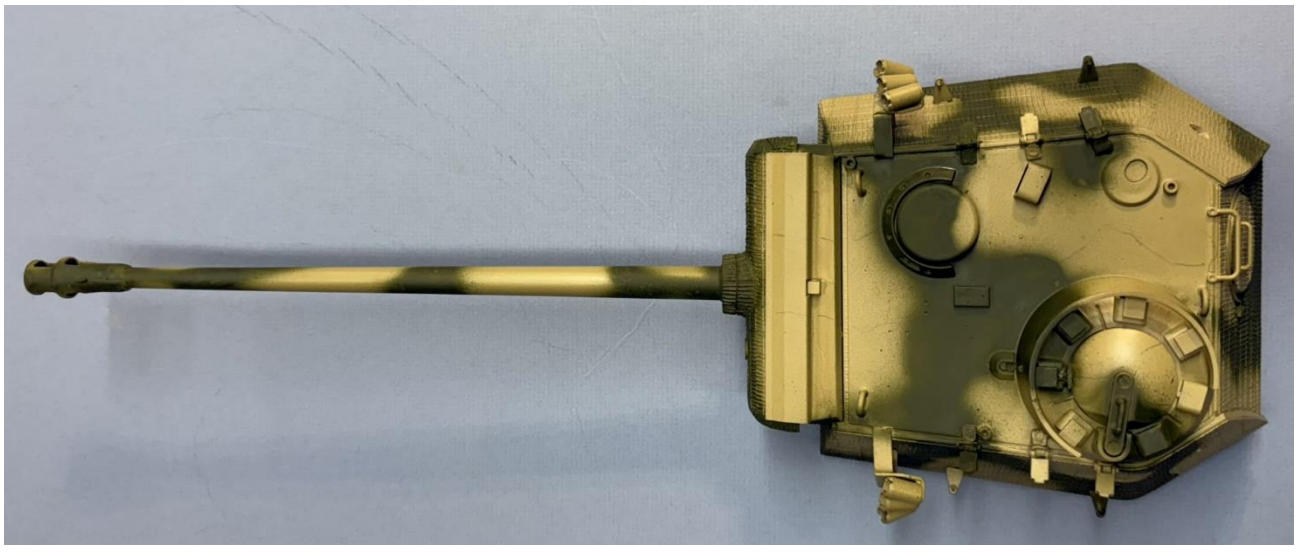


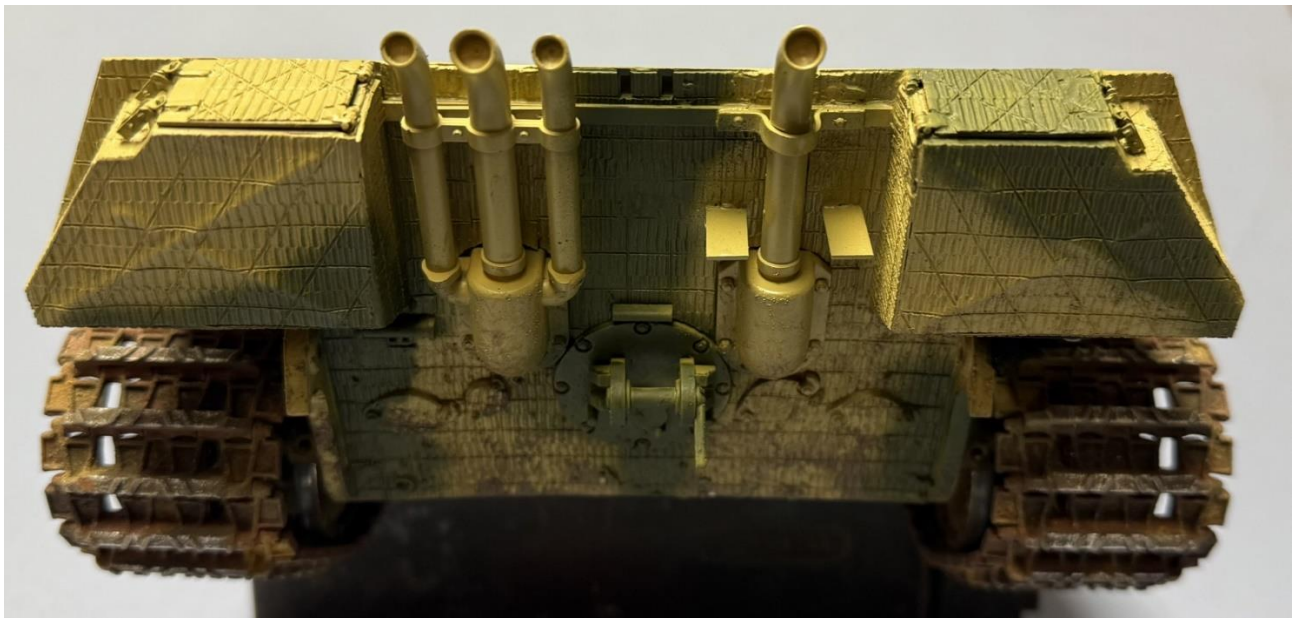
15. **Paint Tank Body with Camo Scheme:** Here are a series of pictures showing the camo painting process. I started with spraying the entire tank with a coat of Tamiya TS-3 Dark Yellow. Over this was first sprayed the green pattern using Model Masters Dark Green #FS34079, and then Model Masters Schokoladen Braun #20960. All these paints are enamel based. Over this 3 color pattern was applied a hundred+ yellow and brown spots with a brush.

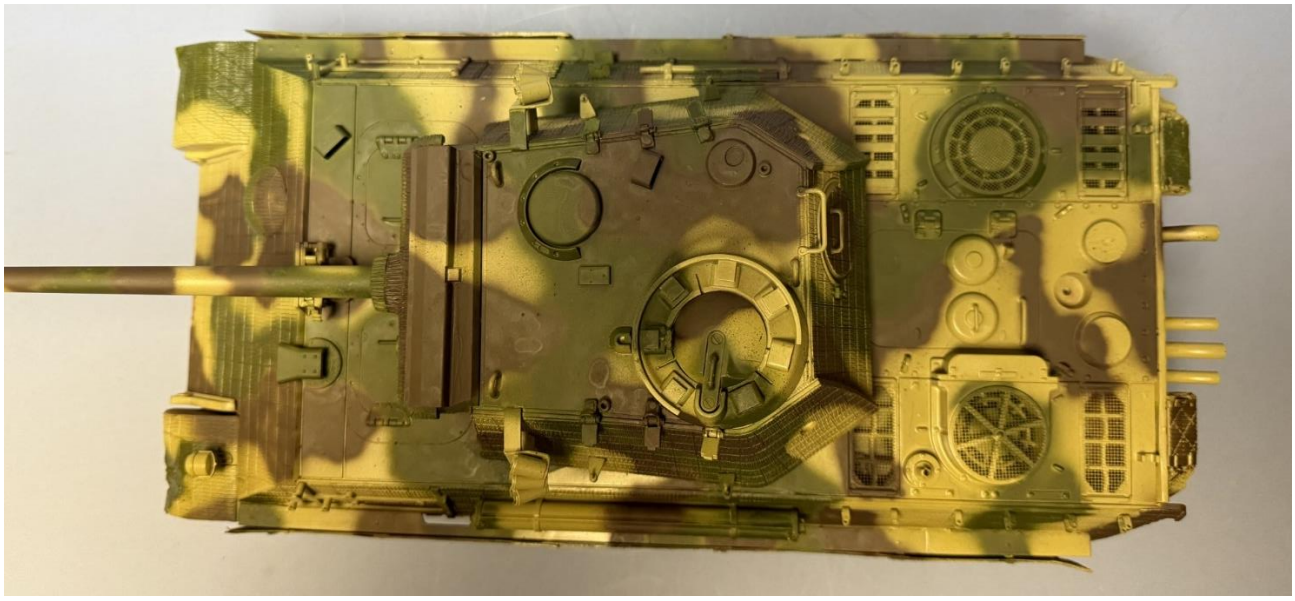


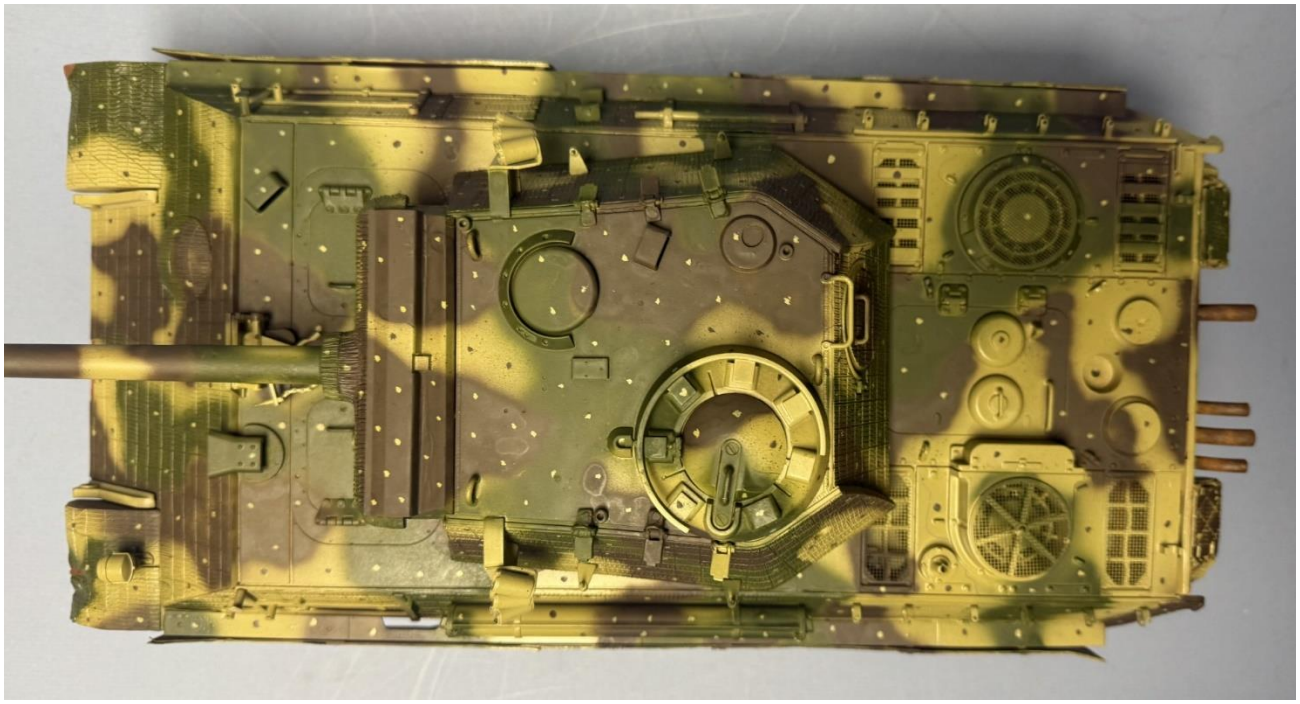




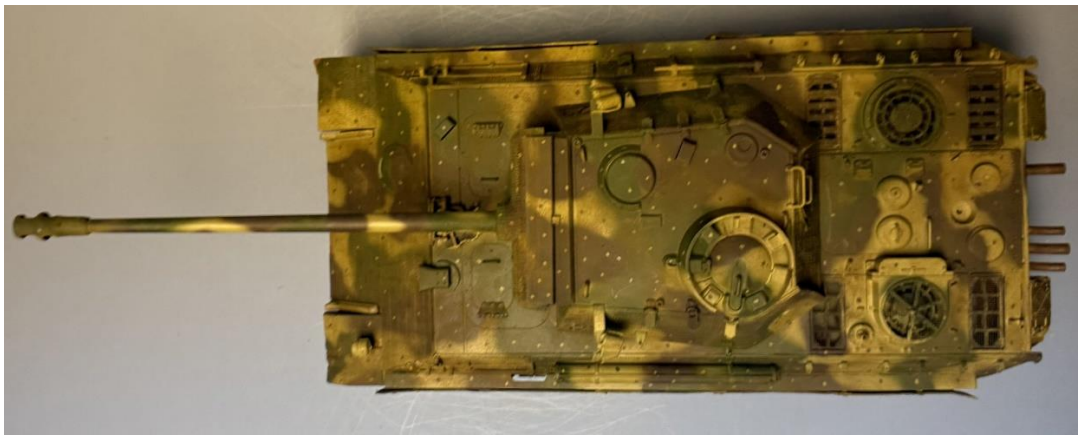






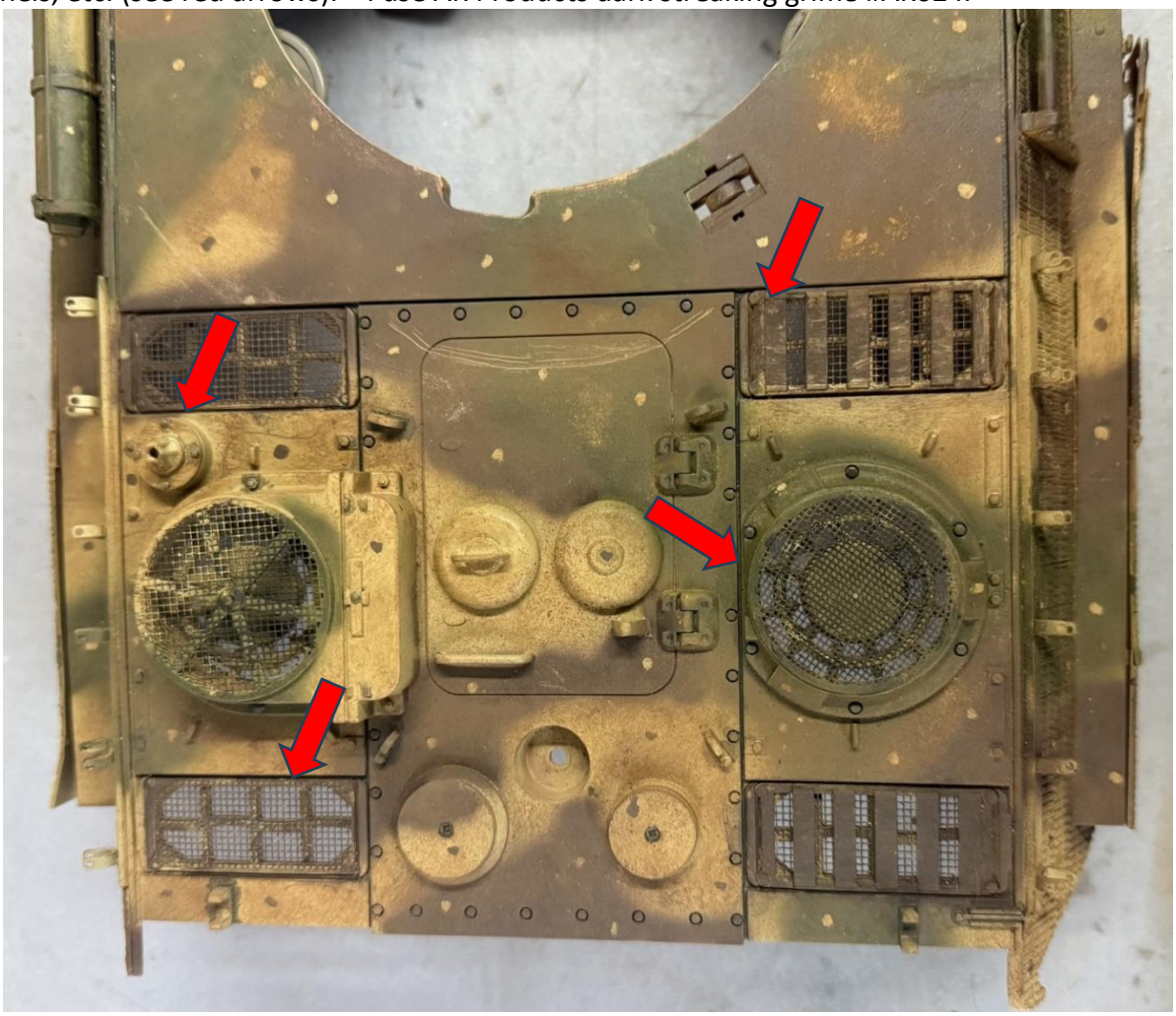


16. **Final Weathering and Foliage:** **BEFORE YOU COMPLETE THESE NEXT STEPS, BESURE YOU HAVE ADDED THE DECALS.**
    A. I felt the camo green and brown was too bright, so I brushed on some AIM Products Weathering Powders #110-3104 “Dirty Yellow” and #110-3122 “Dark Buff”, and then sprayed Testor’s Dullcoat all over.

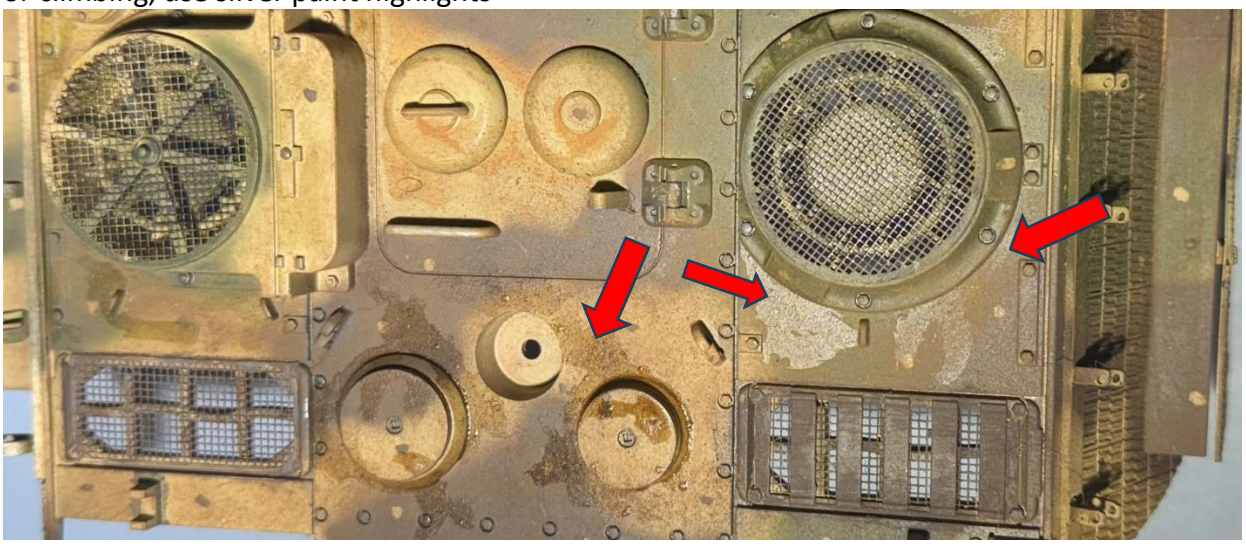


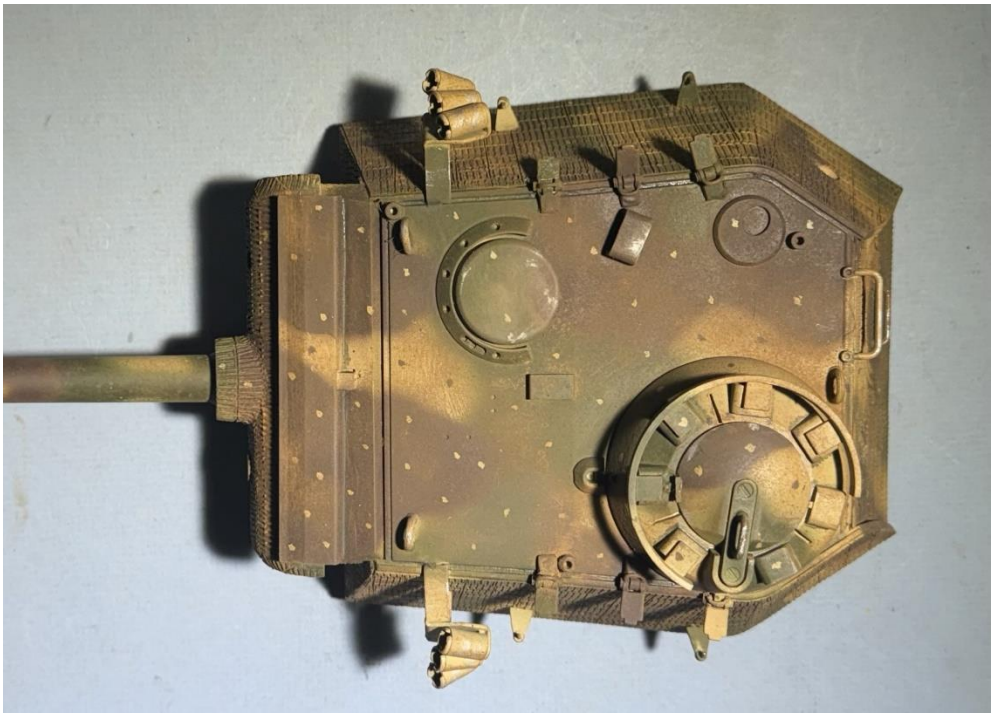
B. Touch-up with a red color the places where you have chipped off small areas of Zimmerit. This replicates where the factory primer coat would show thru when Zimmerit would have been knocked off from bullet penetration and striking trees or running up against strong objects. You should also see some scratches on the paint.

C. H-light joints on the Upper Hull for such areas as where engine decking meets, hinges, access panels, etc. (see red arrows). I use AK Products dark streaking grime #AK024.

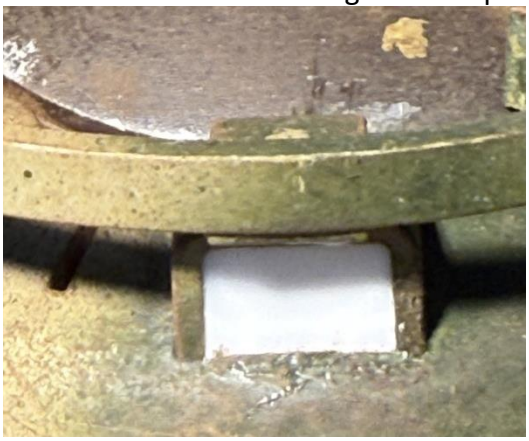


D. Add fuel spills and stains. I use Vallejo Fuel Stains #73.814 and Oil Stains #73.813. For engine grime use Vallejo #73.815 & #73.824 If you desire some rusting effects, use A.MIG #1204 and 1004, or AK light rust wash #AK046. For places where paint would have worn off from grabbing or climbing, use silver paint highlights

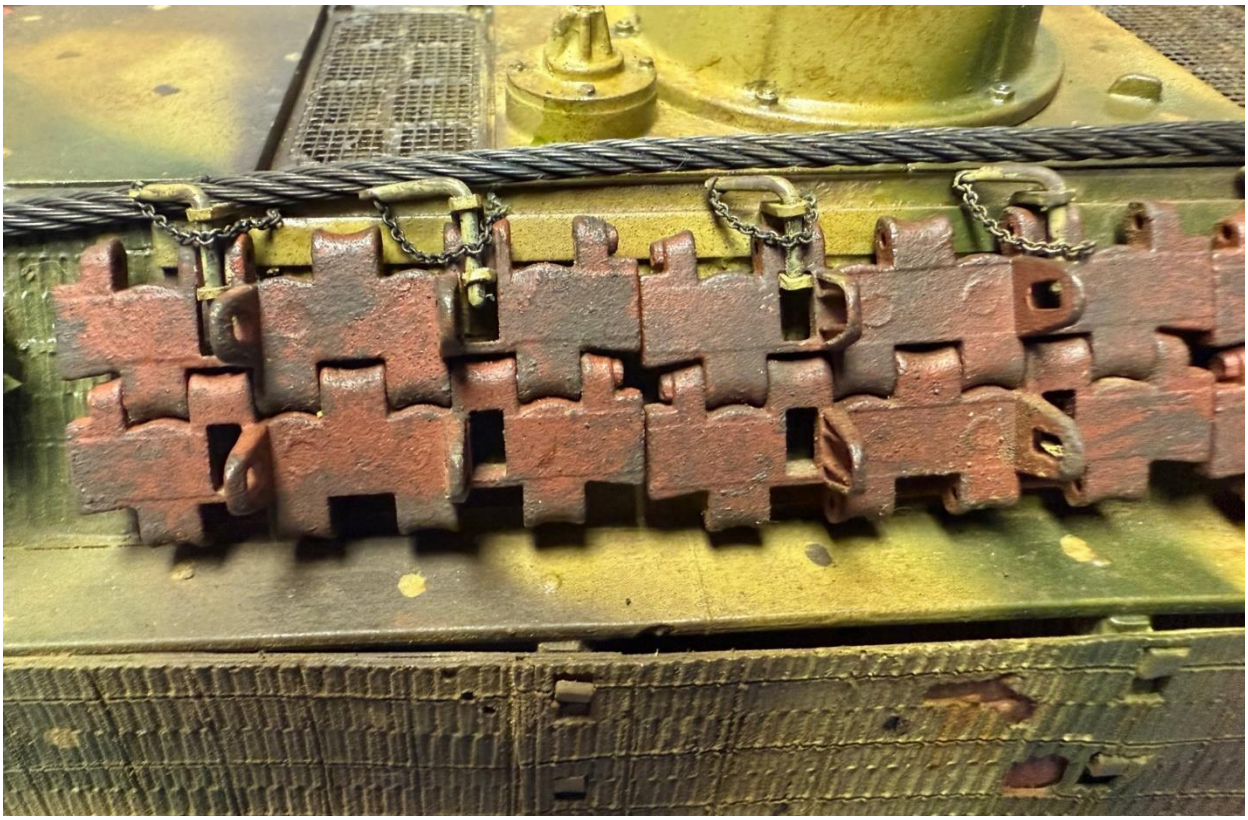


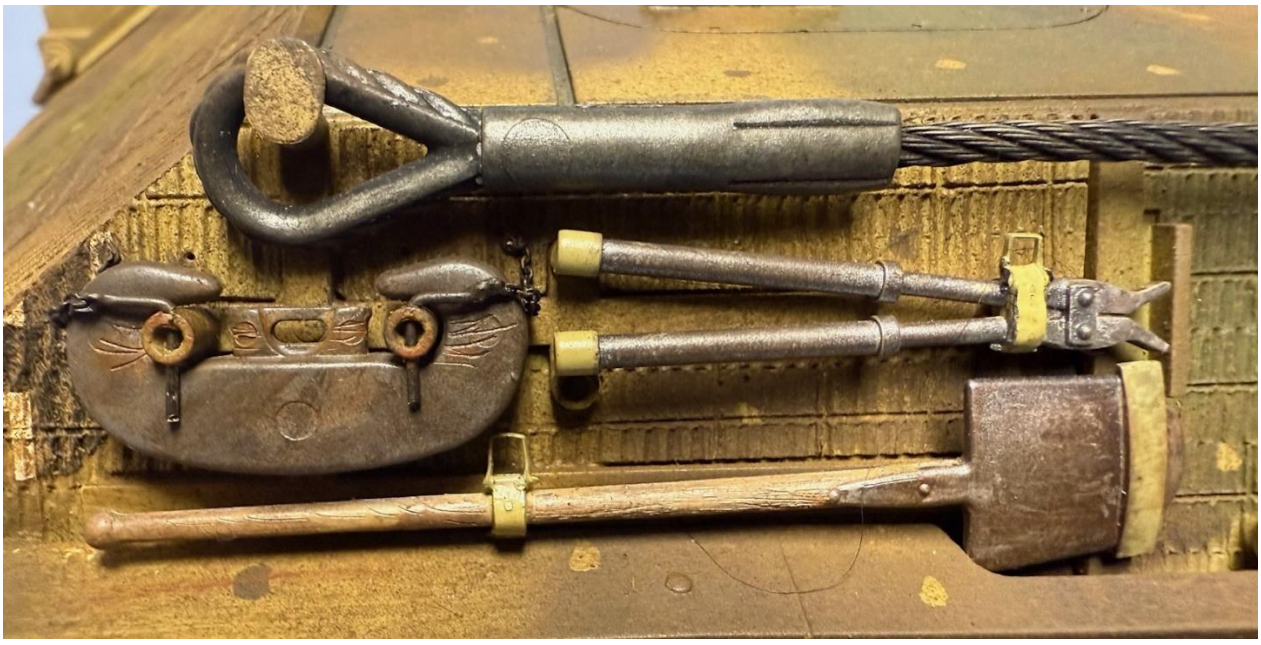


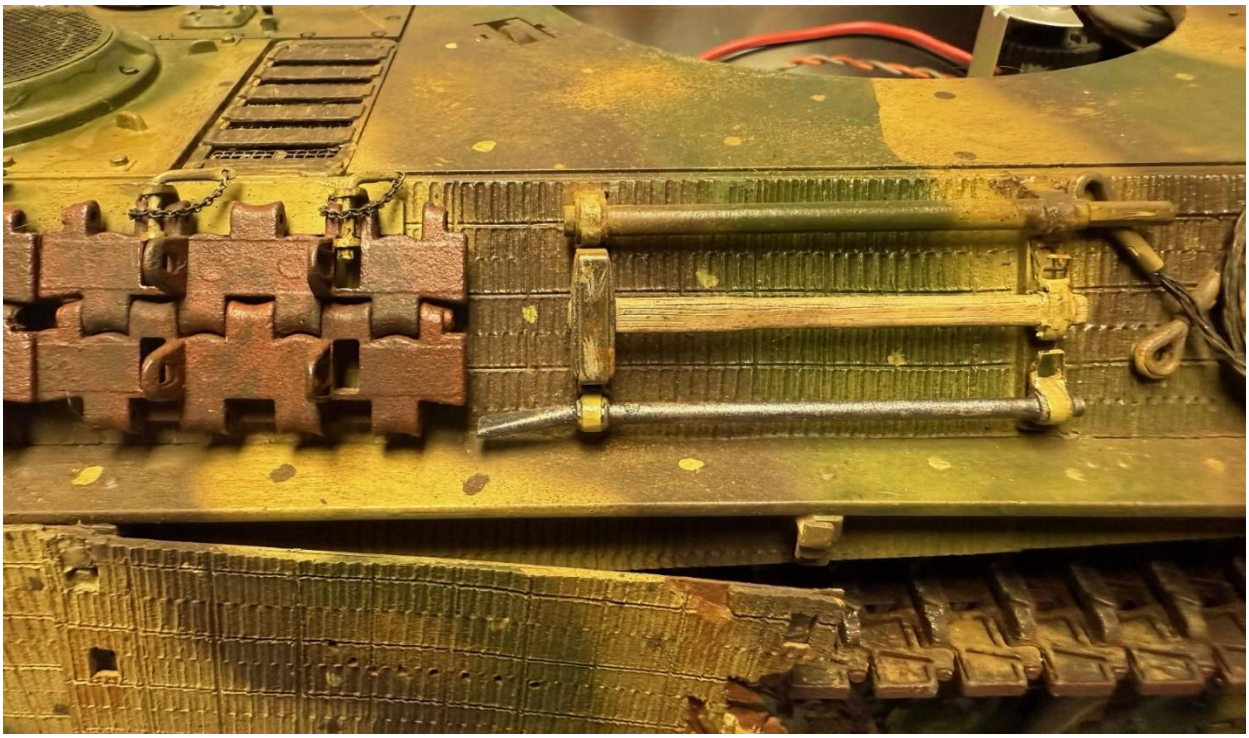
E. There are 7 vision ports around the Commander's Cupola, which can be filled in using Micro Krystal Klear which is a white glue like liquid that when dried will look like clear glass lenses.

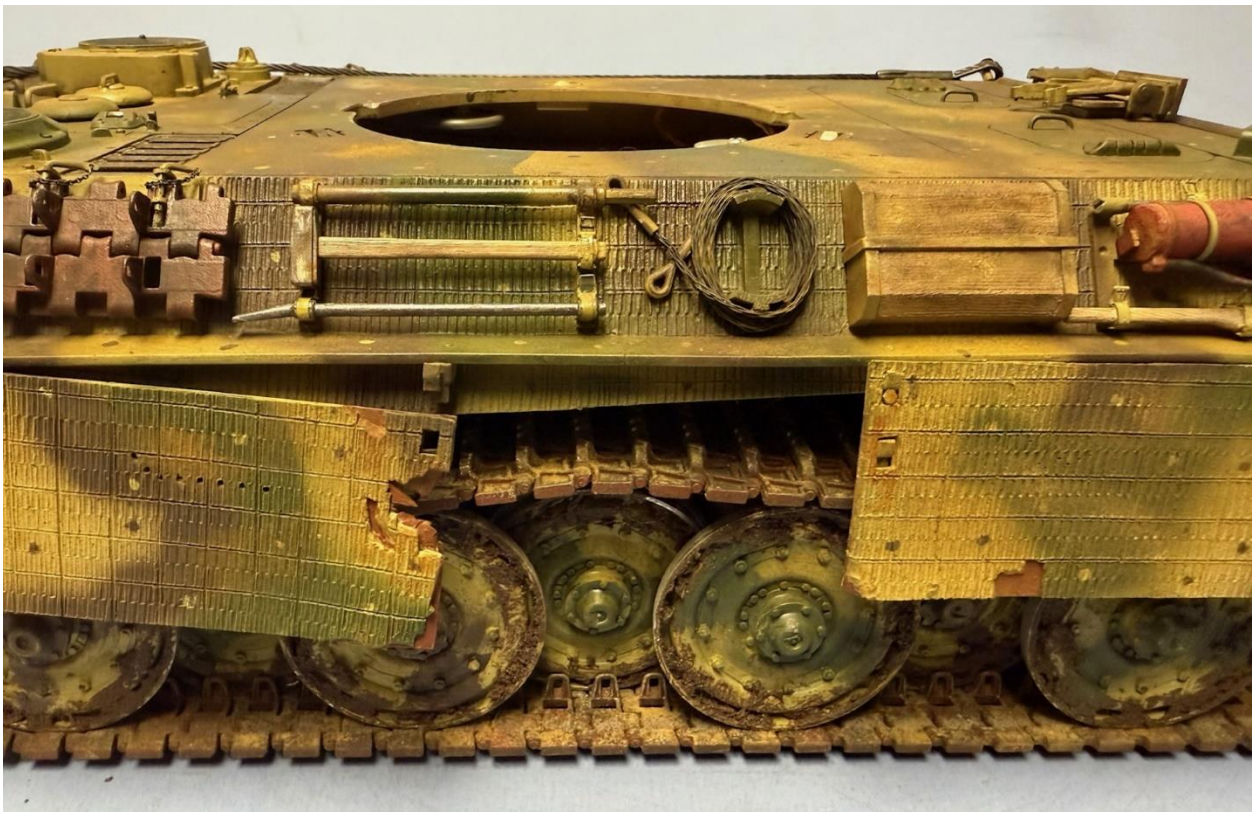


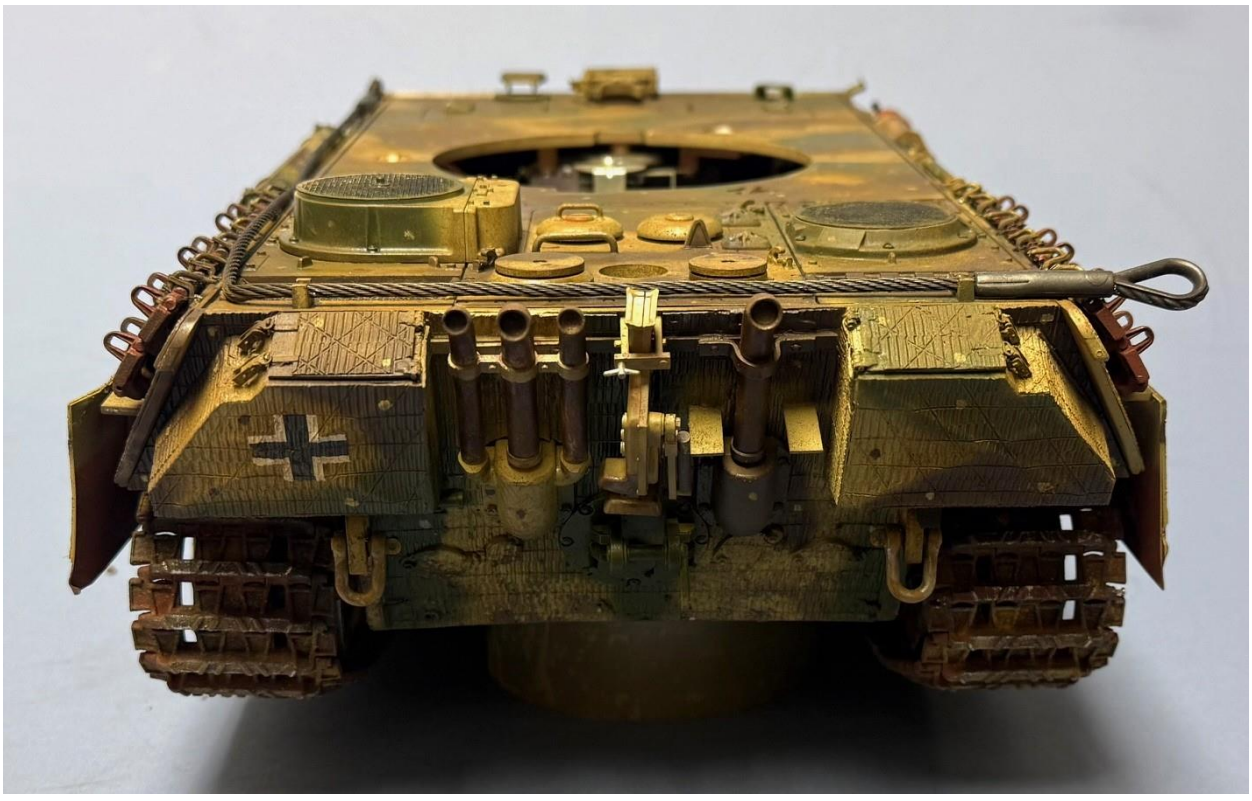
F. Detail Parts: Next step is to install all the detail parts to the model and to add foliage if desired.











Do not glue this rope to the tank as it must be removed to open Upper Hull to be able to access batteries.

G. Foliage: It is hard to find foliage that is small enough to replicate tree and bush branches. I always check with Hobby Lobby first. This time I found a small leaf plastic fern. I painted the limbs brown to match the brown camo color. The leaves were painted 2 different colors of green that are similar in shades. But I did not like the results (too shiny and rubbery looking) and thus did not add any foliage to this model.

17. Finished Pictures: The completed model looks like this.