



AR-0069

1/35 EARLY A BERGEPANTHER CONVERSION

For DML Kit 6299
Mastered by Joe Bakanovic

CAUTION

Tigermodels uses mold release agents to aid in de-molding. Mold release agents may prevent paint from properly adhering to resin surfaces. To avoid painting problems, Tigermodels recommends that you wash the resin pieces in this kit in warm, soapy water. For an even better result, use an appropriate primer before applying the finished paint.

Resin is a soft plastic, and is susceptible to warping. In most cases, it is possible to repair warped parts by placing them in hot water or heating them with a heat gun or hair dryer. After heating the resin enough to return to its original shape, simply set it aside and allow it to cool slowly. If it does not work, please contact Tigermodels for a replacement part.

Resin pieces can be difficult to remove from their casting gates. We recommend a razor saw or rotary tool with a circular cutting blade.

CAUTION: Resin dust can be harmful to your health. Always work in a well ventilated area, and wear a dust mask while sawing or sanding.

CAUTION: This product may contain lead products. Lead can be very harmful to your health. Always wash your hands after handling these materials.

CAUTION: This product may contain photo-etched pieces. Photo-etched parts may be sharp. Care should be used to avoid cutting yourself while handling these parts.

CAUTION: This product is not be meant for children less than 10 years of age. This product may contain materials that may be harmful to your health, and small parts that may present a choking hazard.

KEEP OUT OF REACH OF SMALL CHILDREN.

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IF YOU DO NOT READ THIS, THIS KIT WILL SELF-DESTRUCT IN 5 SECONDS!!!

What you have in your hot little hands is the best resin Tigermodels can produce. We've worked hard to make sure this kit is as accurate as possible while making it as easy to build as possible. We're very proud of this conversion. And we hope you will be as happy with it as we are. At the same time, we know that no kit is perfect. This kit is no different. That's why we'd like to discuss a few things about it with you **BEFORE** you start building. Yes, we said **B-E-F-O-R-E** you start building, so put that knife down and read this...**NOW!** (*Uh, excuse us, but this means you, too. Yes, YOU! The guy who thinks he's built enough resin to ignore this page.*)

First, this is what I refer to as a builder's kit. By that, I mean this conversion has a lot of parts – and I mean a L-O-T of parts. If you are one of those guys who likes to shake your model out of the bag and have it fall together, you will not be happy with this conversion. Please put it up on Ebay and sell it now. You heard me right: sell it **BEFORE** you try to build it, get frustrated and start thinking everything Tigermodels makes is too hard to build. This conversion was designed this way on purpose. It is meant to be as accurate as possible; as complete as possible; and to provide the modeler with as many building options as possible. That said, if you are a competent builder with moderate patience, you should have no problem assembling this conversion. Anyone who can build one of the new DML Smart Kits can build this conversion. There's nothing difficult here, you just need to take your time and test fit everything before you glue it in place. If you can do that, I think you're in for a real treat.

Next, there is next to NOTHING in the way of detailed reference out there about the Ausf D/A Bergepanther. We've listed everything we worked from in our bibliography below. You probably have a lot of these books in your own library already. This all means we had a lot of blanks to fill in and, in some cases, we had to take our "best guess" about how certain details may have looked. The problem of accuracy is further complicated by the Germans, themselves. They had this aggravating little tendency to build every vehicle just a bit different from the next – even on the same assembly line. So, we designed our master for this kit to represent a "generic" Panther Ausf D/early A hull. When we ran into a part of the bergepanther where we lacked detailed references, we used references on the base Panther D/A to help fill in the blanks. And, rather than make wild speculations, when we couldn't find any references to help us figure out specific details, we deliberately left those parts out of our kit. We make note of this in the instructions. So, if you're curious, watch for **DESIGNER'S NOTE:** as you read the instructions for explanations as to why we did something the way we did.

Finally, and most important, **DO NOT SKIP STEPS IN THIS BUILD!!!** I cannot stress this enough. I have done my very best to provide you with a comprehensive guide on how to build this conversion, so please follow it. **READ THE INSTRUCTIONS! DO NOT SKIP STEPS!** If you do not do this, you **WILL** have trouble with this kit. *Test fit everything before you glue it in place.* Also, I strongly suggest you paint this kit as you assemble it. You won't be able to get to many of the parts that will still be visible after assembly. Look for **PAINTING GUIDE:** as you read the instructions for color suggestions.

That's about it. If you have questions, please email us. If you lose, break or have poorly cast parts, email us: we will be happy to send replacements. If you have any comments or suggestions about the kit, please email us. Otherwise, read the instructions and have fun.

DID I MENTION HOW IMPORTANT IT IS TO READ THESE INSTRUCTIONS BEFORE YOU START BUILDING?

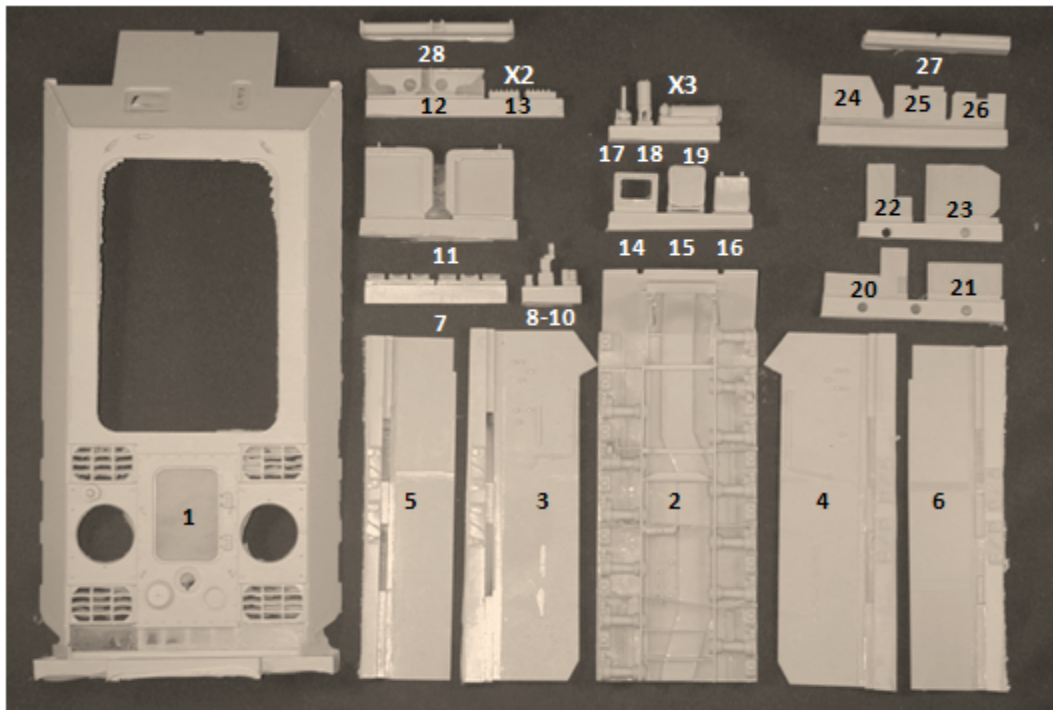
I want to give special thanks to Saul Garcia and Chris "toadman" Hughes for helping me with the research on this project. Without their selfless help, this kit would have fallen far short of what it is.

I would also like to thank Paul Owen and Bill Bradley. Paul for allowing us to post a blog on his site, Track-Link.net while this kit was in development, and Bill for his outstanding work and enduring patience with me while building our pre-production conversion. Check out the blogs on Track-Link.net for Bill's amazing work on this project.

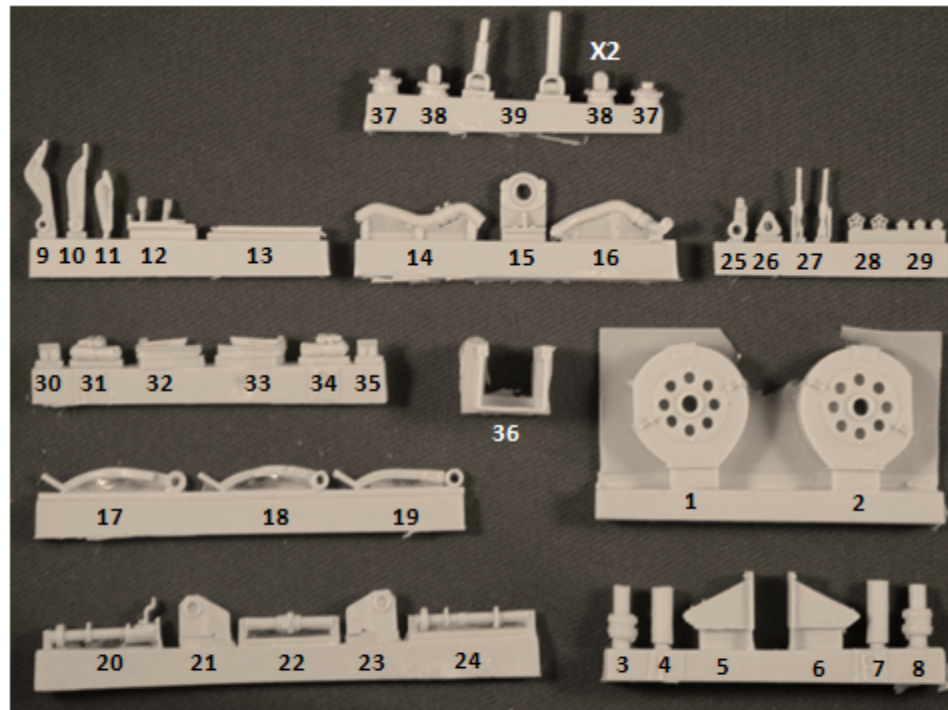
BIBLIOGRAPHY:

AJ Press's 's PzKpfw. V Panther vol. 1-7 by Waldemar Trojca
MK Editions' WW2 Tanks and Military Vehicles vol.1, edited by G. Deygas
Model Graphix Achtung Panzer No.4 Panther, Jagdpanther & Brumbar edited by Hiromu Araki
Panzer Tract's No.5-1 Panther Ausf D ad No. Panther Ausf A by Thomas L. Jentz ad Hilary Louis Doyle
Ryton's Panther in Detail by Culver & Feist
Schiffer's Germany's Panther Tank: The Quest for Combat Supremacy by Thomas L. Jentz
Schiffer's Panther & Its Variants by Walter J. Spielberger
Tanks in Detail's PzKpfw V Ausf A, D & G by Jonathan Forty

If you want to really super-detail your model and have limited funds, I would recommend either Spielberger's book, or Jentz's two On Track books. – in that order. Both will give you about everything you need to add the little extras we couldn't cast, and they are both an absolutely worth while investment for anyone who is fond of the Panther tank and its variants.

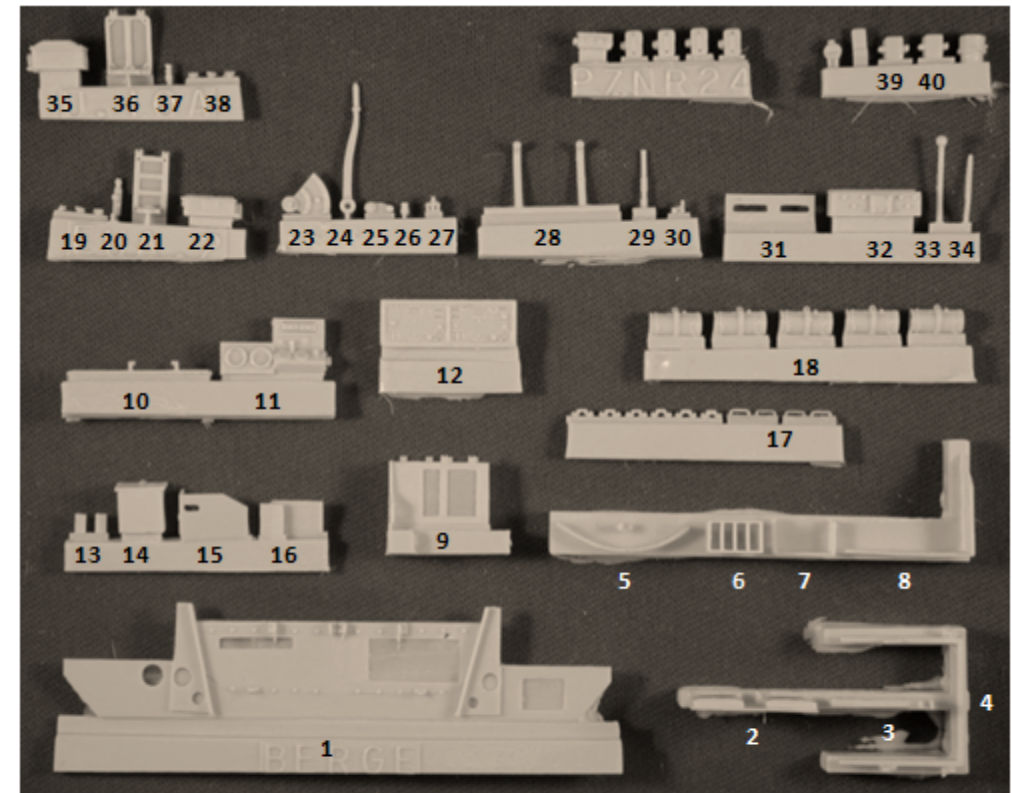


- | | | |
|--------------------------------|-----------------------------|----------------------------------|
| 1 - Upper hull (1) | 12 - sponson supports (4) | 23 - right rear plate (9) |
| 2 - floor (1) | 13 - lubricating points (4) | 24 - protective plate (8) |
| 3 - left sidewall (1) | 14 - seat mount (9) | 25 - driver's foot plate (4) |
| 4 - right sidewall (1) | 15 - seat back (12) | 26 - co-driver's foot plate (4) |
| 5 - left sponson floor (1) | 16 - seat bottom (12) | 27 - outboard floor supports (1) |
| 6 - right sponson floor (1) | 17 - shock head (8) | 28 - inboard floor supports (1) |
| 7 - hull side braces (3) | 18 - shock body (8) | |
| 8 - clutch linkage (1) | 19 - covered shock (8) | |
| 9 - right rear shock mount (1) | 20 - left front plate (9) | |
| 10 - double flange (5) | 21 - left rear plate (9) | |
| 11 - l/r hull braces (4) | 22 - right front plate (9) | |

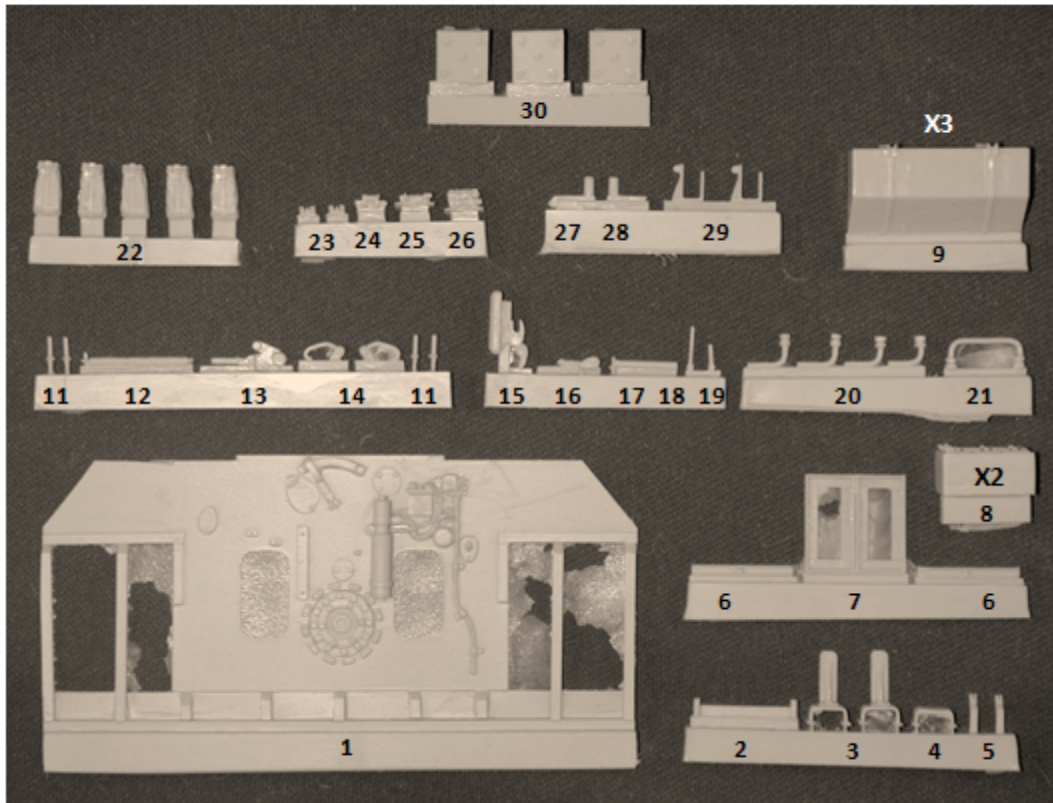


- | | |
|----------------------------------|---------------------------------------|
| 1 - right brake housing (6) | 23 - left bracket (10) |
| 2 - left brake housing (6) | 24 - right steering shaft (10) |
| 3 - right output shaft (6) | 25 - brake pawl (10) |
| 4 - right cross vent tube (6) | 26 - hull mount (10) |
| 5 - right vent housing (6) | 27 - l/r adjusting rods (10) |
| 6 - left vent housing (6) | 28 - adjusting knobs (10) |
| 7 - left cross vent tube (6) | 29 - right fitting plate (11) |
| 8 - left output shaft (6) | 30 - right ram Assy (11) |
| 9 - clutch pedal (7) | 31 - right mounting arm (11) |
| 10 - brake pedal (7) | 32 - left mounting arm (11) |
| 11 - gas pedal (7) | 33 - left ram Assy (11) |
| 12 - pedal bracket (7) | 34 - left fitting plate (11) |
| 13 - clutch spring (10) | 35 - drive shaft guard (13) |
| 14 - right transmission vent (5) | 36 - tranny/foote side coupling s(18) |
| 15 - rear transmission mount (5) | 37 - drive shaft side couplings (18) |
| 16 - left transmission vent (5) | 38 - 2pc drive shaft Assy (18) |
| 17 - parking brake arm (10) | |
| 18 - right steering arm (10) | |
| 19 - left steering arm (10) | |
| 20 - right steering shaft (10) | |
| 21 - right bracket (10) | |
| 22 - center steering shaft (10) | |

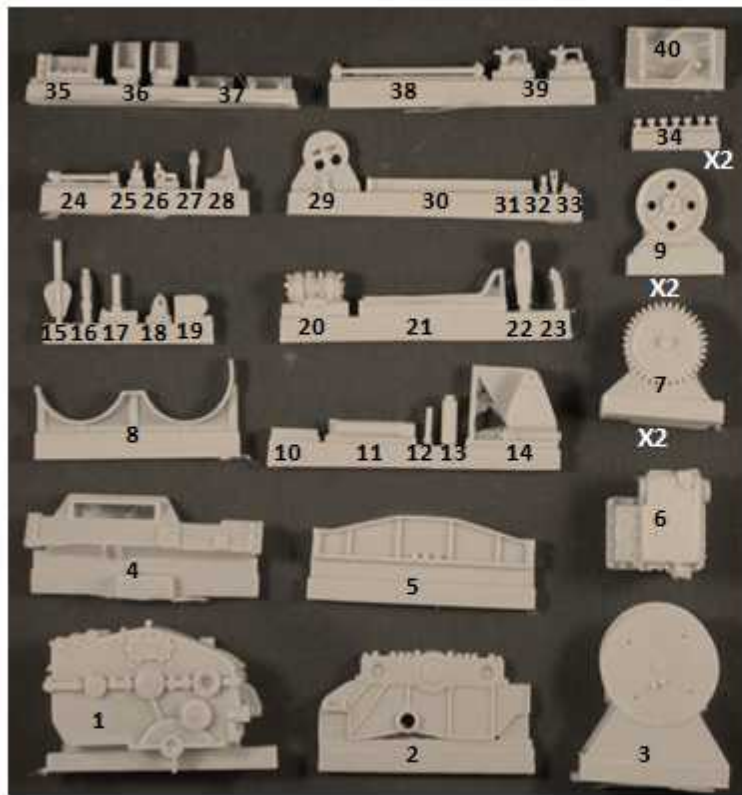
The drive shafts are OPTIONAL because they are nearly impossible to glue in their proper position once the winch is installed.



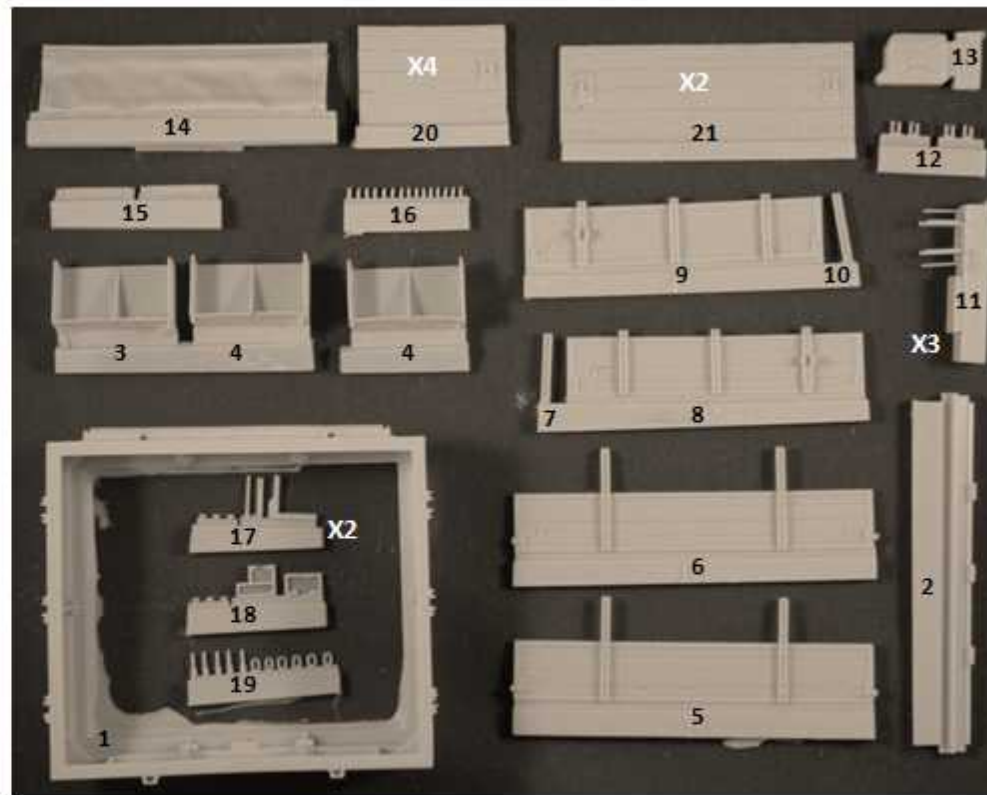
- | | |
|---|---------------------------------|
| 1 - roof support (14) | 24 - winch control arm (17) |
| 2 - jump seat cushions (14) | 25 - lever (17) |
| 3 - jump seat back rest (14) | 26 - lever end (17) |
| 4 - jump seat support (13) | 27 - small handle Assy (14) |
| 5 - parking brake lock mechanism ad bracket (9) | 28 - arm rest (13) |
| 6 - spare periscope box (15) | 29 - arm rest support (14) |
| 7 - retainer handle (15) | 30 - seat Assy keeper (14) |
| 8 - forward storage box (15) | 31 - control box top plate (14) |
| 9 - transformer rack (15) | 32 - control box (14) |
| 10 - instrument panel mount (13) | 33 - outside control arm (14) |
| 11 - instrument panel (13) | 34 - inside control arm (14) |
| 12 - radio Assy (16) | 35 - lower transformer (15) |
| 13 - radio mounts (16) | 36 - not used |
| 14 - head phone box (16) | 37 - insulator (15) |
| 15 - upper mount (16) | 38 - wing nuts (15) |
| 16 - forward mount (16) | 39 - antenna relay (16) |
| 17 - radio handles (16) | 40 - antenna relay (15) |
| 18 - gas mask containers (17) | |
| 19 - wing nuts (15) | |
| 20 - insulator (15) | |
| 21 - not used | |
| 22 - upper transformer (15) | |
| 23 - winch control plate (17) | |



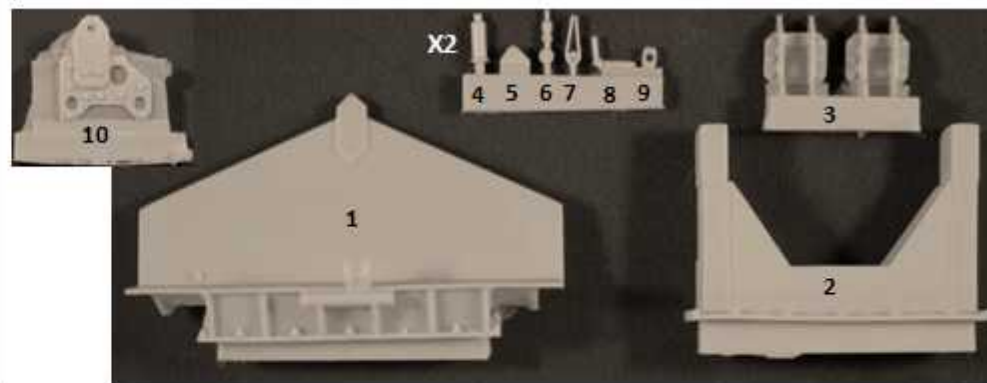
- | | |
|---------------------------------|------------------------------------|
| 1 - rear bulkhead (19) | 17 - MG coverspring (20) |
| 2 - MG bag hanger () | 18 - MG cover lower hold down (20) |
| 3 - l/r periscope cover (26) | 19 - MG cover upper hold down (20) |
| 4 - center periscope cover (26) | 20 - fuel cross-overs (19) |
| 5 - tarp hold-downs (26) | 21 - fuel cross-over (19) |
| 6 - battery hold-down bars (19) | 22 - MG bags |
| 7 - batter box (19) | 23 - retainer bolts (20) |
| 8 - batteries (19) | 24 - upper holder - empty (20) |
| 9 - fuel tanks (19) | 25 - lower holder - empty (20) |
| 11 - vision block handles (20) | 26 - periscope holder filled (20) |
| 12 - vision cover spring (20) | 27 - left tow cable stay (26) |
| 13 - vision cover handle (20) | 28 - right tow cable stay (26) |
| 14 - vision block locks (20) | 29 - jack mounting brackets (26) |
| 15 - MG cover (20) | 30 - push points (26) |
| 16 - MG cover handle (20) | |



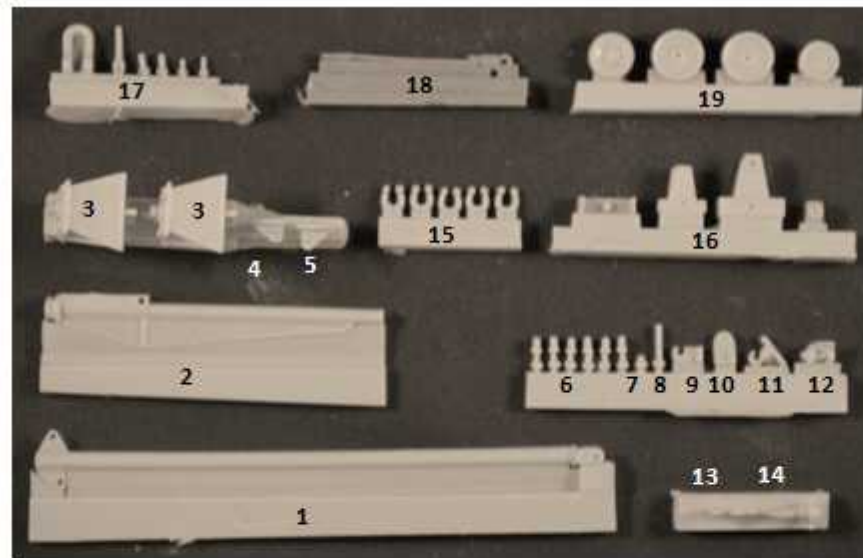
- | | |
|------------------------------|--|
| 1 - main winch body (18) | 26 - optional (18) |
| 2 - center structure (18) | 27 - optional (18) |
| 3 - cable storage drum (18) | 28 - brake band arm (18) |
| 4 - forward mount (18) | 29 - brake pulley (18) |
| 5 - rear mount (18) | 30 - brake band (18) |
| 6 - foot (18) | 31 - adjusting bolt (18) |
| 7 - winch pulleys (18) | 32 - rod connector (18) |
| 8 - gear guard (18) | 33 - brake band stop (18) |
| 9 - idler pulleys (18) | 34 - knobs (18) |
| 10 - cable keeper (18) | 35 - bottom rear bracket (18) |
| 11 - idler mounting arm (18) | 36 - rear hull mounting brackets (18) |
| 12 - pulley pin (18) | 37 - forward hull mounting brackets (18) |
| 13 - spacer (18) | 38 - cross bar (18) |
| 14 - idler assy (18) | 39 - spring pulleys (18) |
| 15 - tube assy (18) | 40 - front/rear support arms (18) |
| 16 - knuckle (18) | |
| 17 - pivot head (18) | |
| 18 - center support (18) | |
| 19 - gear box (18) | |
| 20 - brake pump (18) | |
| 21 - vent tube (18) | |
| 22 - tow hawser | |
| 23 - tension spring (18) | |
| 24 - optional (18) | |
| 25 - optional (18) | |



- | | |
|---------------------------------|---------------------------------------|
| 1 - box structure (22) | 12 - jerry can mounting brackets (22) |
| 2 - cross member (22) | 13 - jerry can jig (22) |
| 3 - right rear storage box (22) | 14 - tarp (22) |
| 4 - rr/lf storage boxes (22) | 15 - tarp arms (22) |
| 5 - forward board (22) | 16 - chain loops (22) |
| 6 - rear board (22) | 17 - push beam mounting assy (22) |
| 7 - left support bracket (22) | 18 - jib boom mounting assy (22) |
| 8 - left board (22) | 19 - latch assy (22) |
| 9 - right board (22) | 20 - half boards (22) |
| 10 - right support bracket (22) | 21 - center boards (22) |
| 11 - jerry can holder (22) | |

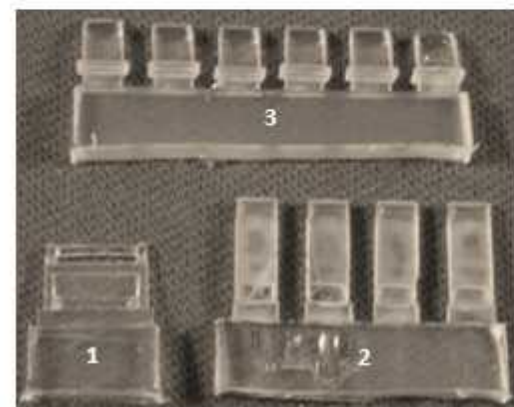
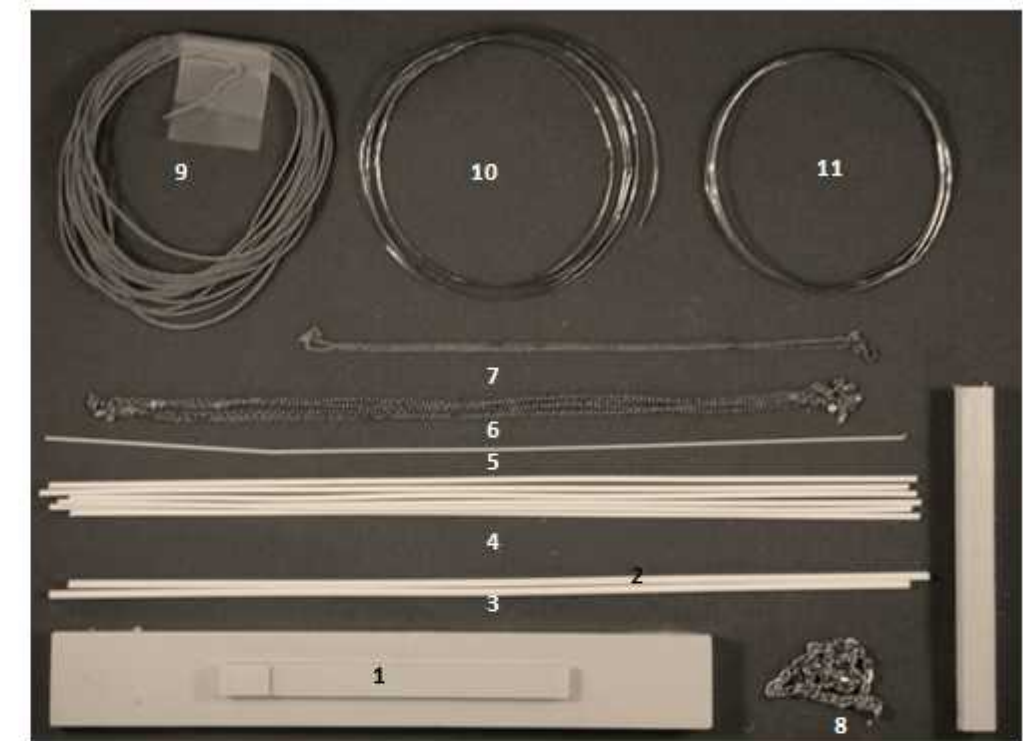


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|---------------------------|
| 1 - spade (27) |
| 2 - spade arms (27) |
| 3 - spade mounts (27) |
| 4 - mounting pins (27) |
| 5 - stay mounts (27) |
| 6 - retainer screw (27) |
| 7 - retainer screw (27) |
| 8 - retainer pin (27) |
| 9 - retainer plate (27) |
| 10 - tow pintel assy (27) |



- | | |
|---|------------------------------|
| 1 - jib boom arm (28) | 13 - small hoist hook (28) |
| 2 - Jib Boom (28) | 14 - large hoist hook (28) |
| 3 - jib boom mounts (26) | 15 - clevises (28) (28) |
| 4 - left rear support arm mount (26) | 16 - hoist assy (28) |
| 5 - right rear support arm mount (26) | 17 - hoist shackle assy (28) |
| 6 - adjustable support arm ends (25/28) | 18 - attachment cable (28) |
| 7 - jib boom arm retaining nut (28) | 19 - hoist pulleys (28) |
| 8 - jib boom arm retaining pin (28) | |
| 9 - right jib boom storage bracket (25) | |
| 10 - left jib boom storage bracket (25) | |
| 11 - jib boom hook (25) | |
| 12 - jib boom top bracket (25-28) | |

- | |
|-------------------------|
| 1 - road wheel arm jig |
| 2 - push beam |
| 3 - 2X7" 0.062 in rod |
| 4 - 6X7" 0.047 in rod |
| 5 - 1X7" 0.020 in rod |
| 6 - 20" 27 lpi chain |
| 7 - 10" 42 lpi chain |
| 8 - 6" heavy chain |
| 9 - 6' synthetic thread |
| 10 - 5' 0.015 in solder |
| 11 - 2' 0.020 in solder |



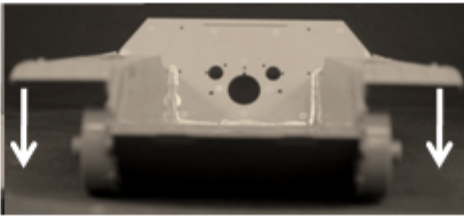
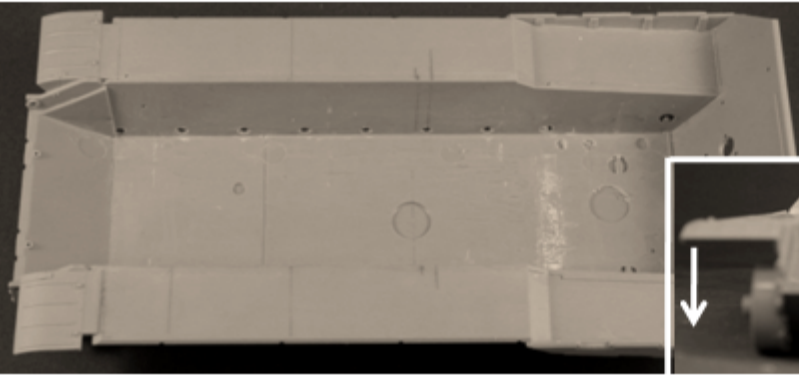
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|----------------------------------|
| 1 - driver's vision block (20) |
| 2 - installed periscopes (20) |
| 3 - stowed periscope halves (15) |

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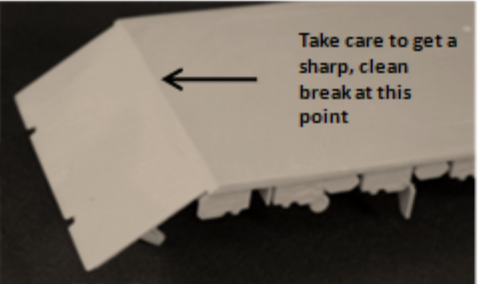
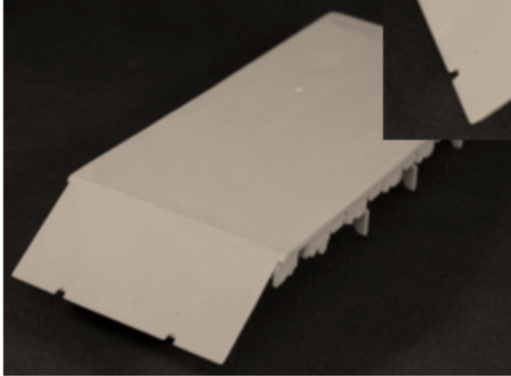
HULL, SUBFLOOR AND SIDEWALL PREPARATIONS

Remove the torsion bar anchors and hull braces from the DML lower hull and smooth out the hull floor and sidewalls as much as possible. Then glue the sponson floors (or tops of the fenders) to the side of the hull as shown below.

NOTE: We strongly suggest you use tube cement or CA glue to attach the sponson floors to the sides of your kit hull. During our build, we found that liquid cement had a tendency to make the sponson floors curl downward and to warp the sides of the hull as shown in the picture below.



Next, you will have to sand down the bottom of the subfloor. For best results, try to get it between 0.020 and 0.040 inches thick.



Take care to get a sharp, clean break at this point

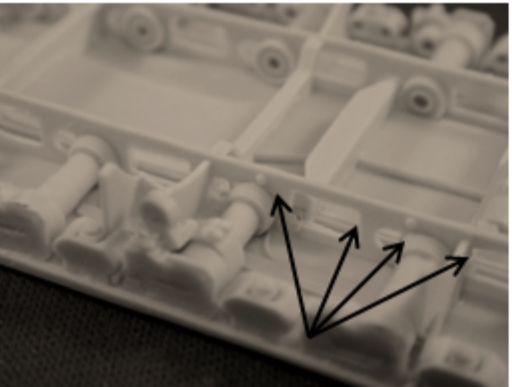
DESIGNER'S NOTE: We tried to use a different type of mold so you wouldn't have to sand the bottom of the subfloor, but it did not work. This is just one of the uglier sides of working with resin. Still, we did our best to keep your sanding to an absolute minimum.



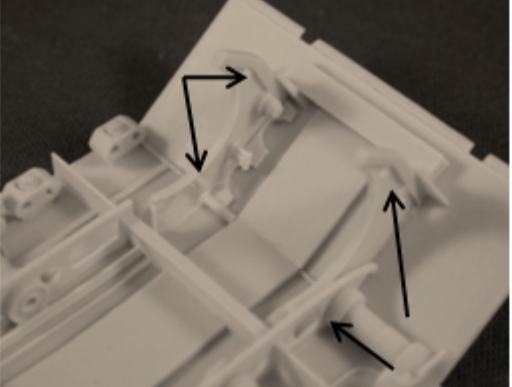
Cut the 3/64 (0.047) inch diameter rod supplied in your kit to make the individual torsion bars as shown in the picture to the left.

DESIGN NOTE: The floor is a complex piece. As a result, not all of the floor structures are perfectly to scale and there may be some obstructions in the way of the torsion bars. You might want to do a little "shaving" to prevent bowing in your torsion bars.

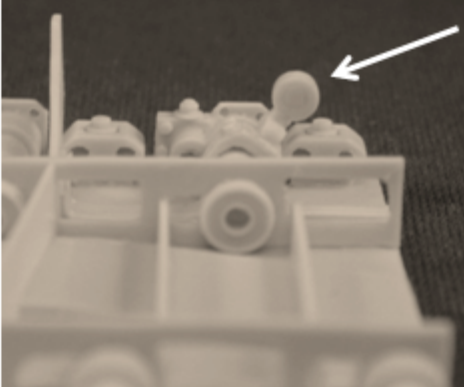
Next, use a sharp #11 blade to carefully remove the flashing from the longitudinal floor supports and transmission mounts. You might need to look for any other holes that may have remained flashed over after casting and for "clumps" of resin that may be in the crevices of your kit floor. These "clumps" are caused when small pieces of the mold tear away during de-molding and are replaced by resin in the next casting. We try to keep our molds as new as possible, but this does happen. If you have a small dremel grinder, you should have no problem removing these "clumps." In most cases, you might be able to just ignore them, as they probably won't be visible after assembly, or they can be painted to look like debris on the hull floor.



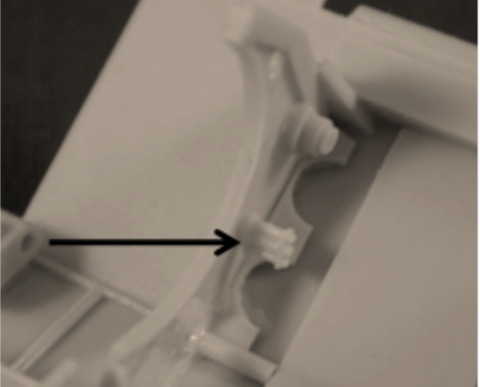
Look for the smaller cut-outs along the longitudinal support beams and openings that are split by internal braces.



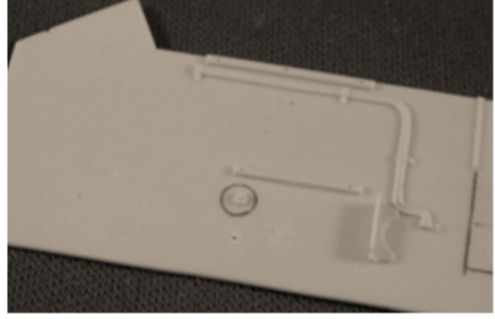
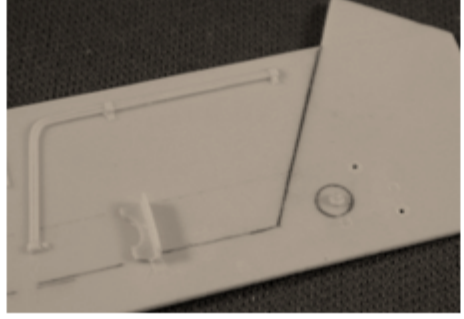
Look for other areas that may still be flashed over after casting, especially around the transmission mounts and conduit tubing.



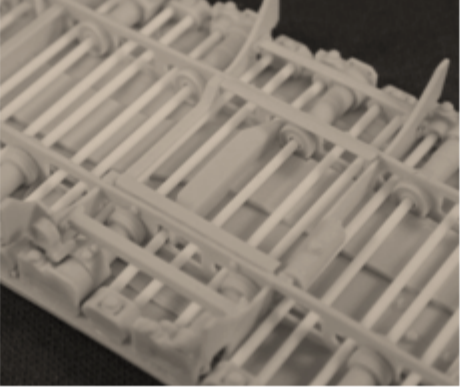
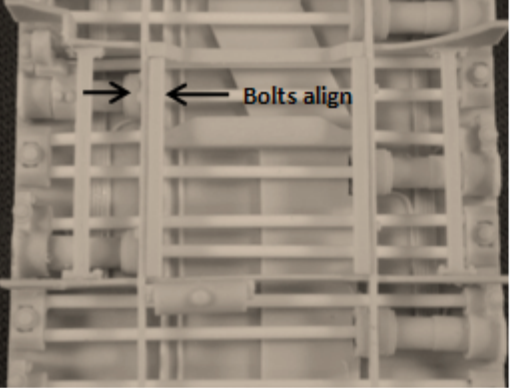
Glue the right rear shock mount in place as shown above. It goes on the last torsion bar arm on the right side of the hull. Use the forward mount to aid in proper positioning.



Glue the clutch linkage rocker assembly to the inside of the left transmission mount as shown in the picture to the left. It should incline slightly forward.



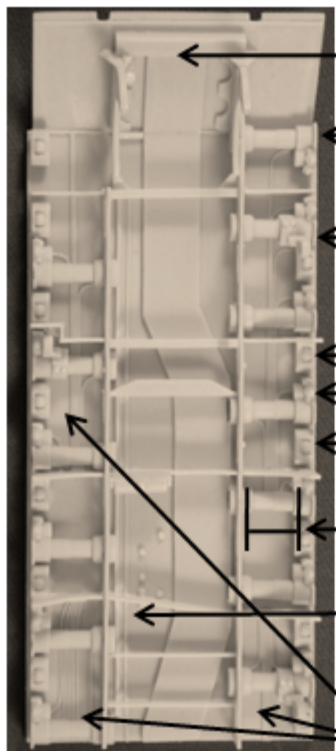
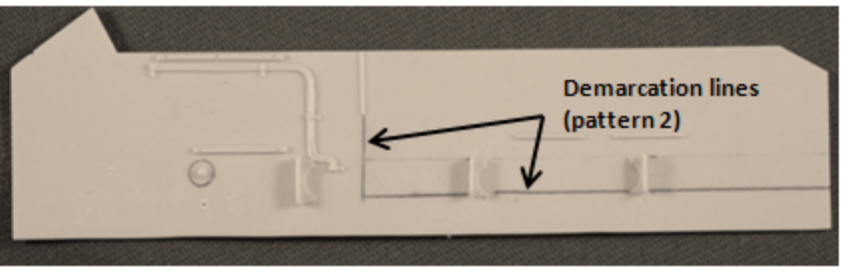
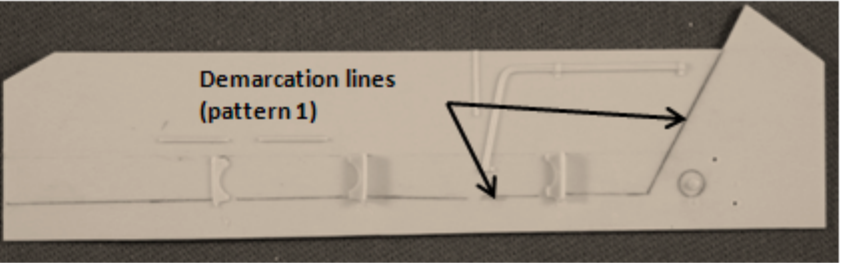
If you are building your kit with the floor plates in place, remove ALL the bolt details cast into the sidewalls EXCEPT for the bolt circled in the pictures to the left. If you are building your kit to show it in some state of repair, you will need to leave the bolts on and then remove them as you find out which ones may be in the way during assembly.



Glue the flooring supports in place as shown. Be sure to keep them all level as shown.

NOTE: The supports are NOT identical. Test fit them to determine which goes where. The bolts on the inside braces will align with bolts on the backside of the longitudinal floor brace.

At this point, you need to decide how you will paint the interior of your model. We identified at least two patterns. One is like the standard Panther interior (1), only the horizontal demarcation line runs closer to the bottom of the hull, along the top of the torsion bar mounting points and then diagonally upward toward the front of the hull as shown in the top left hand picture. The other painting pattern (2) is similar to the first only, instead of running diagonally upward, it runs vertically to the top of the sidewall at the point where the upper hull support bulkhead joins the sidewall as shown in the bottom left picture. In both cases, the portion of the sidewall below the demarcation line should be painted primer red, and the portion above the line should be panzer yellow. (There is some evidence to suggest some vehicles may have had the entire interior structure painted primer red.)



- ← Primer red (floor assembly)
- ← Torsion bar arm
- ← Torsion bar anchor
- ← Steel (anchor)
- ← Steel (bolt)
- ← Flat black (bolt)
- ← Shiny metal
- ← Conduit
- ← Lubrication lines

PAINTING GUIDE	
Please keep in mind, these are only suggestions and are based on our interpretation of black & white photos	
All structural parts below the Demarcation line	-- primer red
All structural parts above the demarcation line, including the sponson floors	-- panzer yellow
Bolts on torsion bar anchors	-- flat black
Bolts on torsion bar arms	-- steel
Shaft on torsion bar arms	-- shiny metal
Torsion bar arms	-- primer red
Torsion bar anchors	-- steel
Torsion bars	-- semi-gloss or flat black
Transmission	-- panzer gray or primer red
Hydraulic lines	-- primer red, bare metal, panzer gray and/or flat black
Conduit lines	-- primer red and/or bare metal
Lubrication lines	-- primer red, bare metal, panzer gray and/or flat black

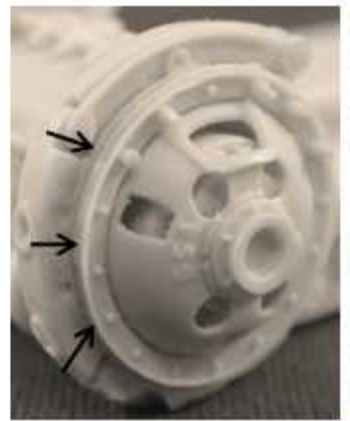
2 PREPARATION OF TRANSMISSION



Remove the casting block from the bottom of the transmission.

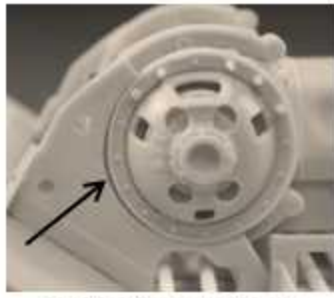


PAINTING GUIDE: Paint the area inside the circle in oily or shiny bare metal (both sides)

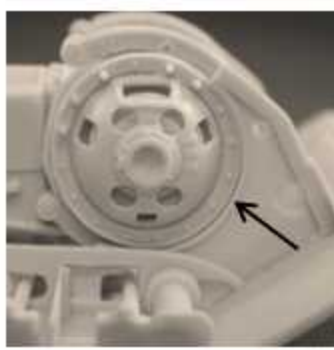


Align front edge of housing with front edge of the machined area on transmission body

NOTE: Be careful not to break of the tips on the housings. These are mounting points for other pieces.

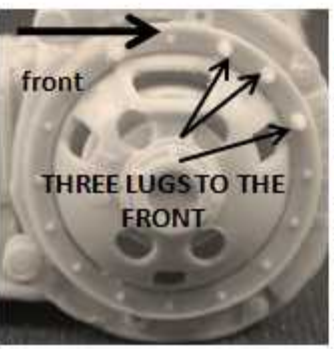


Right housing may have a gap



Left housing usually fits snug

Test fit your transmission at this time. The transmission mounts cast into the hull will be tight and may bow out a bit, but it will not be a problem. Just make sure your transmission fits all the way forward in its mounts and can be aligned down the center axis of the hull and that the drive shafts will align side to side.



front
THREE LUGS TO THE FRONT

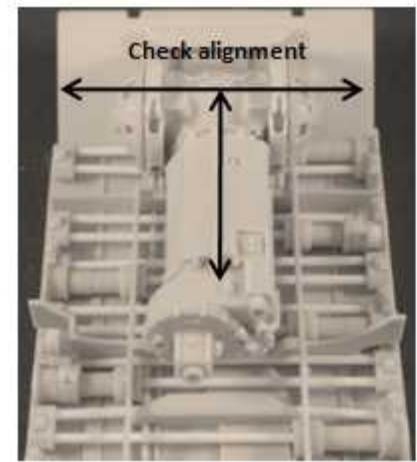
Glue the left and right transmission housings to the transmission body as shown. How well your transmission fits into its mounts will depend on how well you align these two housings.



center housing here



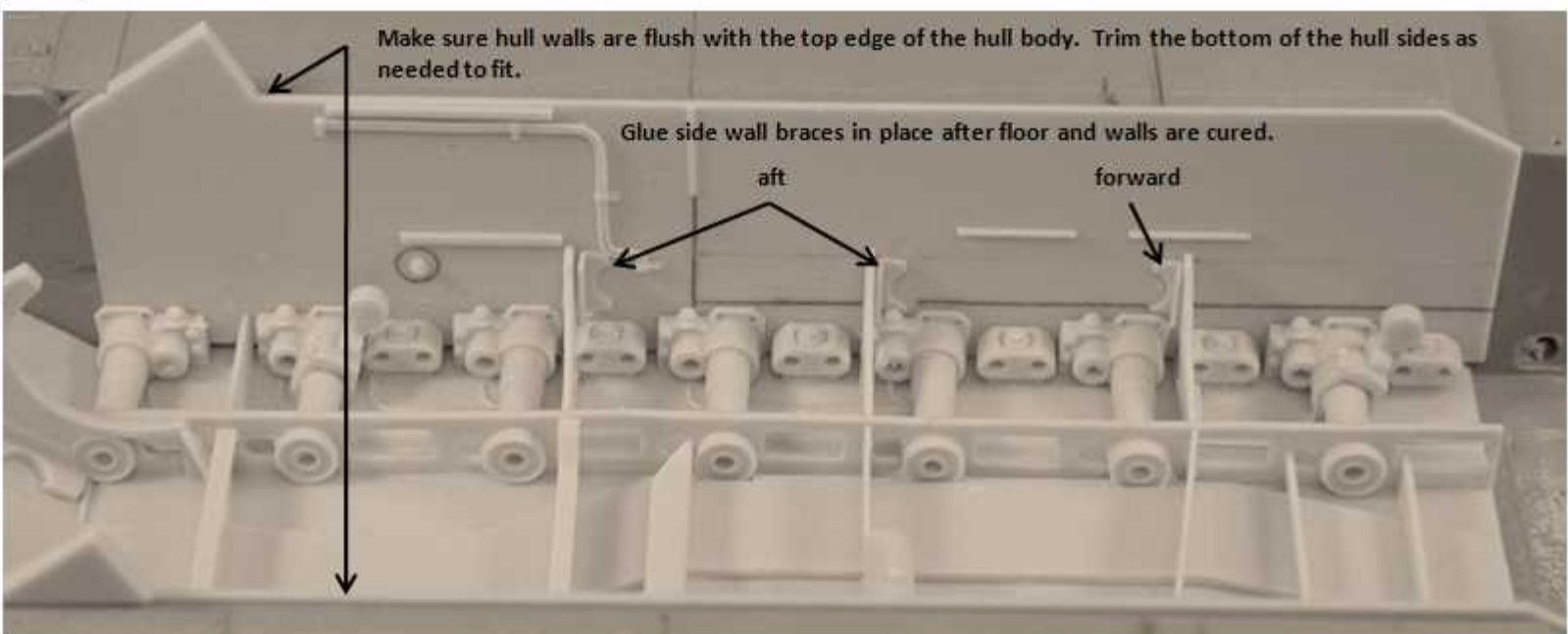
Align the tops of both housings



Check alignment

3 INSTALLATION OF FLOOR, HULL SIDES AND SPONSON FLOORS

Make sure the floor and hull sides all fit together tightly. The tops of the hull sides should be even with the top of the hull. Sand the bottom of the hull sides as needed to fit. Then glue wall brace sections in place.

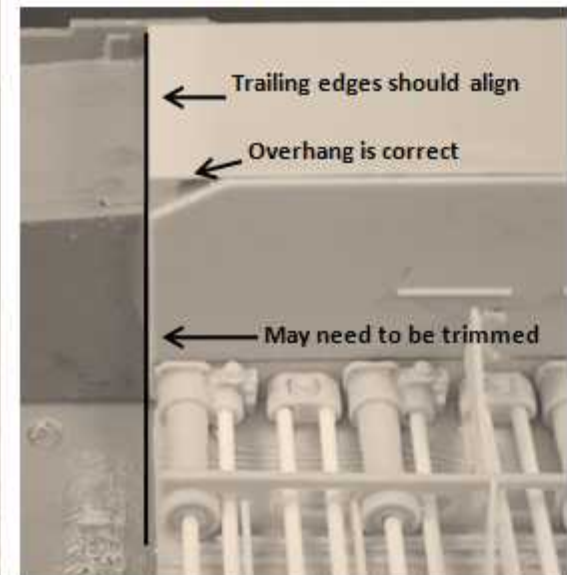


Make sure hull walls are flush with the top edge of the hull body. Trim the bottom of the hull sides as needed to fit.

Glue side wall braces in place after floor and walls are cured.

aft forward

Depending on how well your floor laminate goes in, you may need to trim the trailing edge(s) of the hull side laminates. **BE SURE TO CUT THEM STRAIGHT!** When done right, they will align with the trailing edges of the floor and the sponson laminates as shown in the picture to the right.

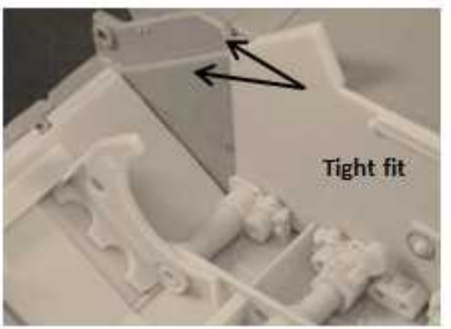


Trailing edges should align

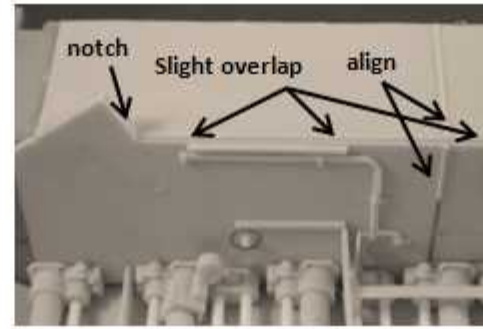
Overhang is correct

May need to be trimmed

NOTE: the first two braces on the hull sides fit aft of the floor braces while the third hull side brace fits forward of the floor brace (see picture above). It is recommended you glue these in AFTER the floor and side walls are in place.



Tight fit



notch slight overlap align

The sponson sides are notched to fit against the hull side extensions. Be sure to align the hull roof support locating strips. Also, the sponson floor should slightly overlap the hull side laminate.

Glue the laminates into your hull **IN THIS ORDER:** floor, left/right sides and then the sponson floors. This is the **ONLY WAY** they will fit correctly.

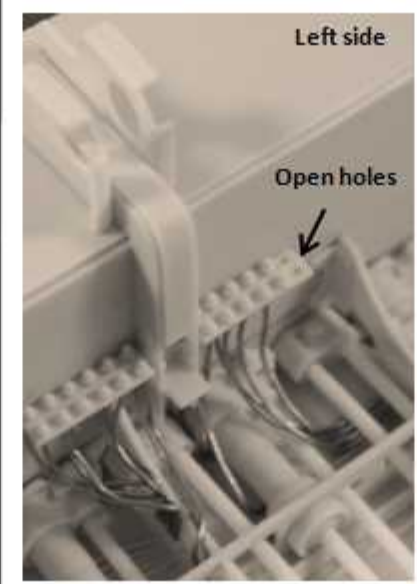
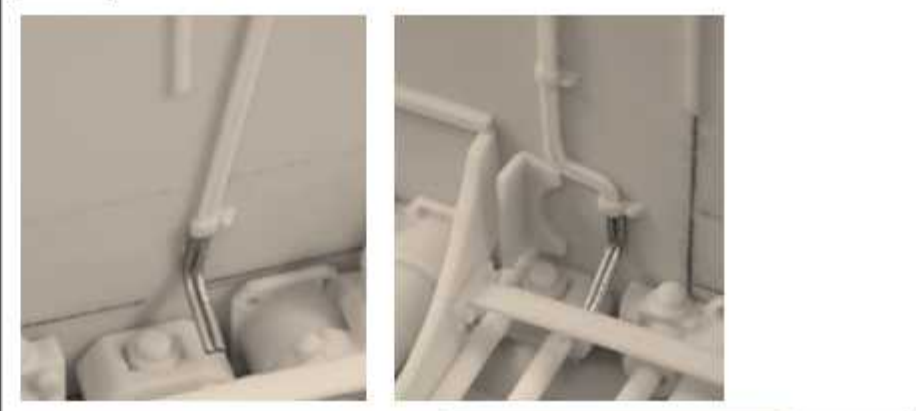
NOTE: I strongly recommend the use of 5 minute epoxy for securing the laminates. It will give you more time to work and a much better bond. Just be sure to securely clamp each piece down flat and let it dry all the way before moving to the next section.



FLOOR GOES DOWN FIRST!

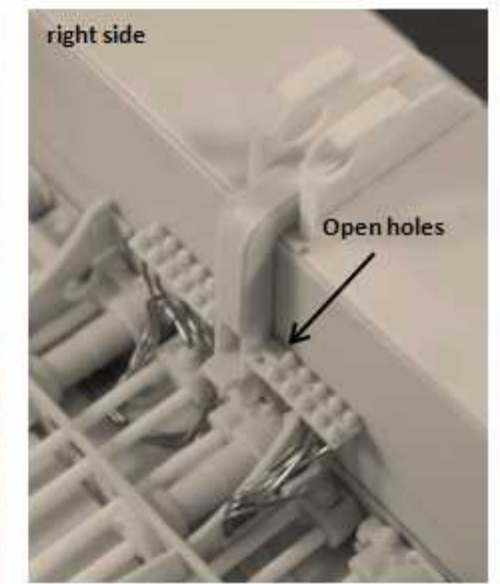
4 HULL & TRANSMISSION SUB-ASSEMBLIES

OPTIONAL: Cut several small pieces of 0.015 in solder and make continuations of the brake lines as shown. They only need to be long enough to run under the outside floor braces.



Left side

Open holes

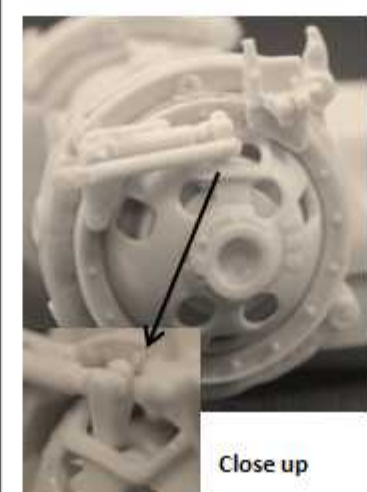


right side

Open holes

Assemble the sponson support, hull braces and lubrication points as shown in the pictures to the left. There are two scribe lines on the sponson floor laminates to assist in properly placing the hull support brace. Then the lubricating point plates sit on top of the two strips cast into the side wall and the small triangle plates on the hull support arms.

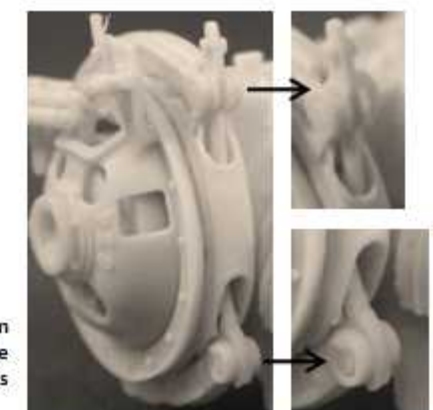
NOTE: The open holes on the lubricating point plates are different on each side. See pictures for clarification. Also, the two roof supports that go on either side of the support brace should align with the outside edges of the sponson floor laminate.



Close up

Assemble the left and right differential brake assemblies. Glue the arm in place first, then the forward and aft brackets and then the return spring.

NOTE: You may need to drill out the locating holes on the front and rear brackets. It is easiest to do this while they are still on the sprues. Also, be careful with the springs.

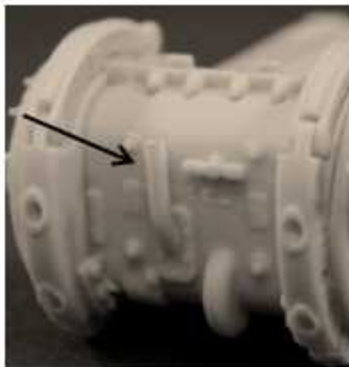


Glue the upper and lower brake band anchors in place as shown. Be sure to align the ends of the connecting rods so they appear to pass through as one piece.

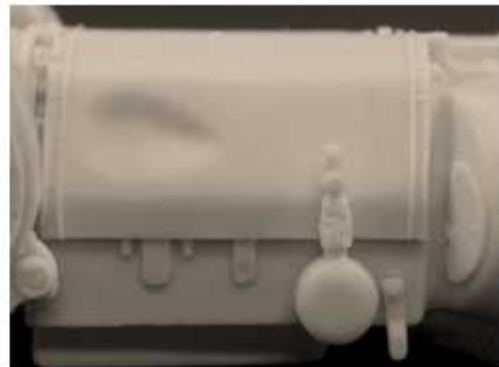
4

HULL & TRANSMISSION SUB-ASSEMBLIES CONT.

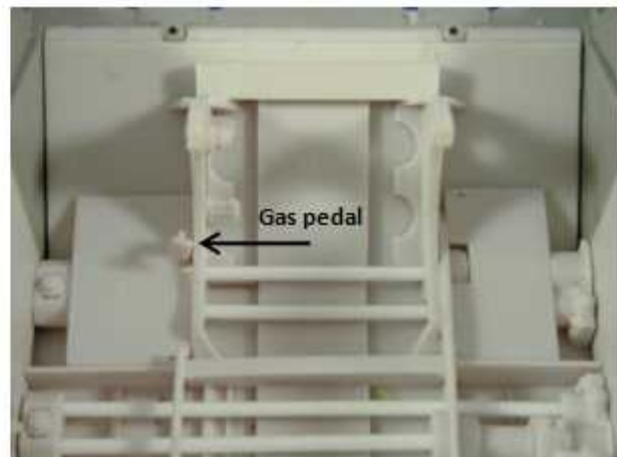
NOTE: From the last step on the previous page: You may need to remove some resin from the slots on the brake arm so the anchors will fit snugly in place. The anchors need to fit as deeply as possible.



Glue the transmission case vent tube to the plate on the front of the transmission as shown.



Glue the shifting arm and clutch lever in place as shown.



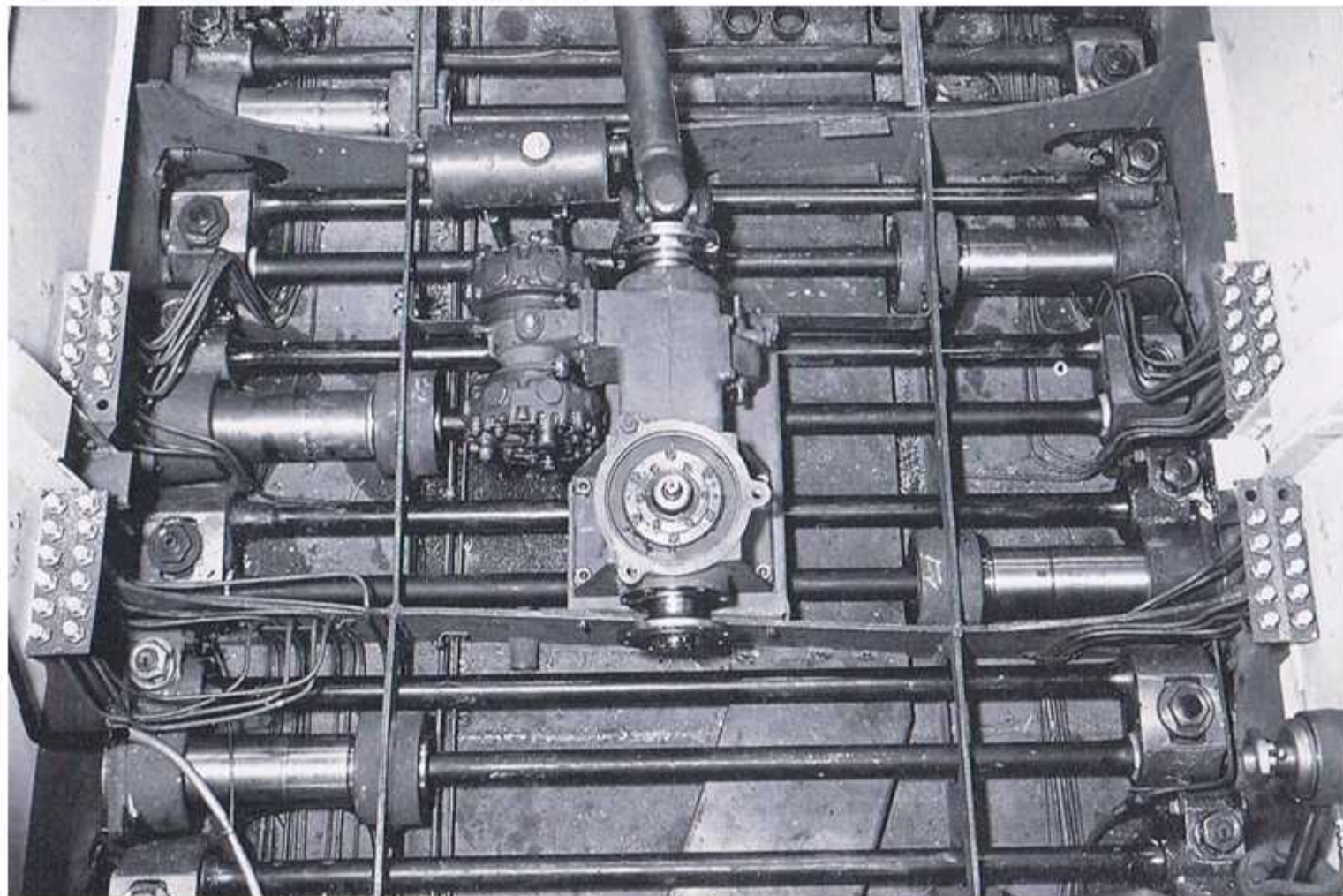
Gas pedal



Gas pedal

Glue the driver's and co-driver's foot plates into place as shown. Fit the gas pedal through the hole in the driver's foot plate. You may need to trim the opening a little, but the pedal should be slightly inclined to the front.

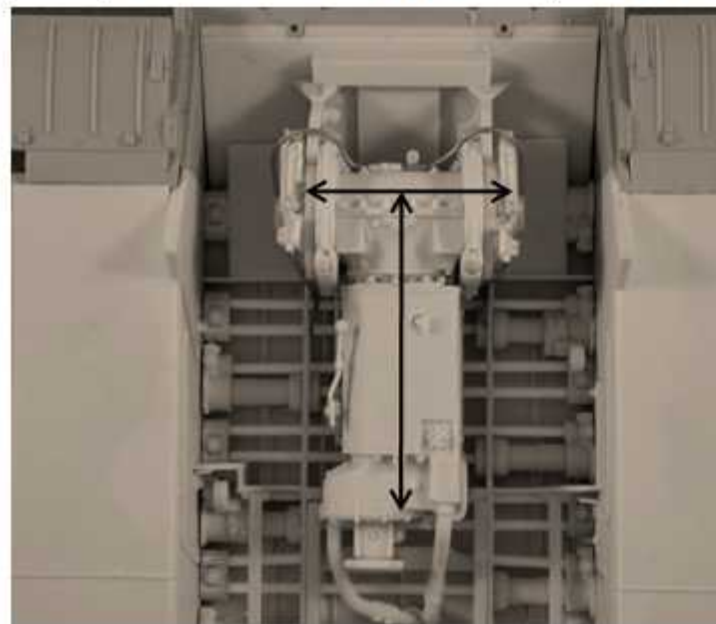
OPTIONAL: Use 0.015 solder to make the lubricating line extensions from under the lubricating points to the cast in detail on the subfloor. Use the picture to the below to assist you in this task. We recommend you glue the lines starting from the floor, let them set thoroughly and then just push the ends approximately into place under the lubricating points. You won't be able to see the bottom of the plates after assembly, but you CAN see the lines.



5

INSTALLING THE TRANSMISSION

Glue the transmission body in place as shown. Make sure it is as far forward as it can go, that the output shafts are centered side to side and the drive shaft flange is centered front to back.



Rear transmission mount.

Glue the vent tubes in place as shown, below

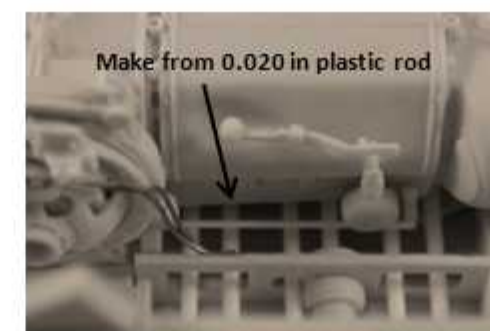
NOTE: I found it easiest to put the left tube into the double flange assembly, then cut the transmission end so this combined piece fit properly. Then I cut the transmission end of the right hand tube to fit. Just make small, careful cuts.



PAINTING GUIDE

Hull brace; roof supports and lubricating plates	- panzer yellow
Lubricating points	- bare metal
Lubricating lines	- primer red, panzer gray, flat black or bare metal
Brake lines	- primer red, panzer gray, flat black or bare metal
Actuator brackets	- color of transmission
Actuator arm and Actuator return spring	- bare metal
Gas Pedal	- flat black
Gas Pedal	- flat black
Floor plates	- panzer gray or flat black
Brake band anchors should be the color of the transmission, but the connecting rod can be bare metal	
Trans vent pipes	- primer red or panzer gray
Tube couplings	- flat black, may be orange or lt gray
Clamps on vent tube couplers	- bright metal
Clutch arm	- bare metal
Cover on shifting arm	- canvas
Tip of shifting arm	- bare metal
Rear trans mount	- primer red

Make the clutch rod from 0.020 in plastic rod. Glue it to the clutch with the other end under the transmission.



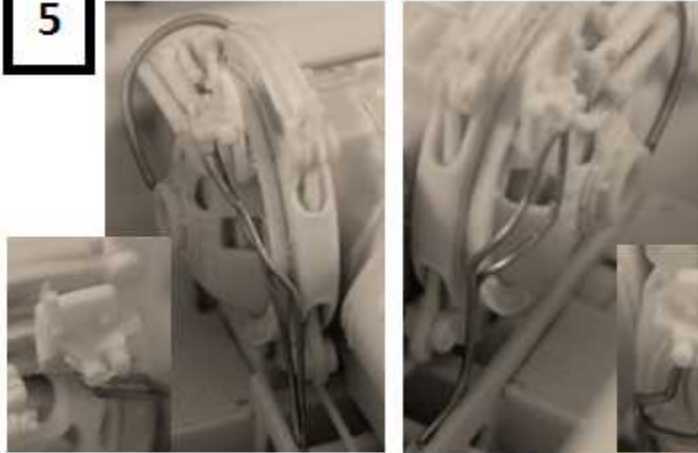
Make from 0.020 in plastic rod



Use the 0.032 in lead solder supplied in your kit to make two vent lines. First, glue the two pieces of solder to the vent assembly on the front of the transmission, then let the glue set. Next, gently fold the solder over the actuator assemblies and cut it to length so you can glue the other end to the flat area on the front of each housing. See the above pictures for reference.

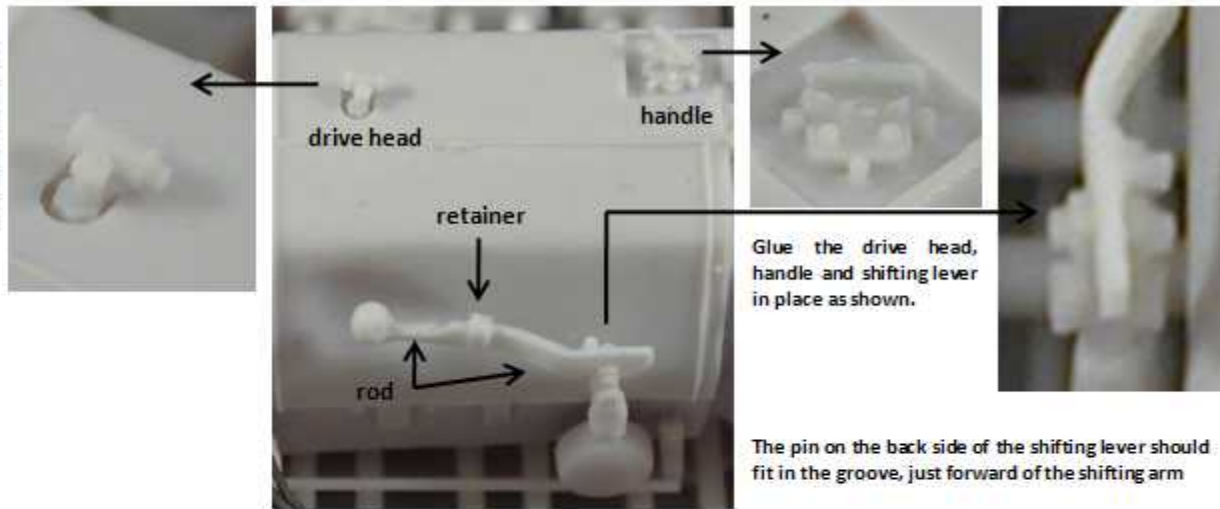
5

INSTALLING THE TRANSMISSION CONT.



OPTIONAL: This is *very optional*, but it is visible after the kit is completed, so you have to decide if you want to do it. Use the 0.015 in solder in the kit to cut two brake lines for each side of the transmission. One end of each line should be glued to the bottom of the rear actuator bracket assembly. Let the glue set all the way, then gently push the solder into a rough position as shown in the pictures. Glue the free ends to the inside of the longitudinal floor braces and cut them so they appear to run under the seat positions.

DESIGNER'S NOTE: I consider this a two-beer+ operation, but MAN does it look good when it's done.



Glue the drive head, handle and shifting lever in place as shown.

The pin on the back side of the shifting lever should fit in the groove, just forward of the shifting arm

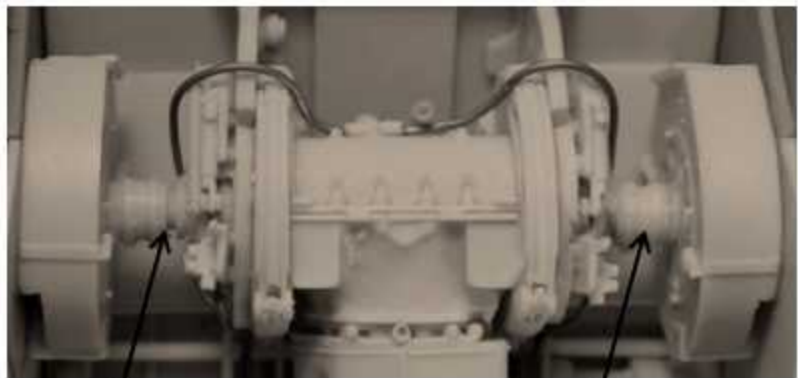
PAINTING GUIDE

- Shifting lever – color of tranny w/flat black knob and bare meta rod and rod and rod retainer (rod runs under arm and retainer around arm)
- Clutch rod – primer red, flat black or panzer gray
- Vent line – flat black
- Vent line fitting – bare metal
- Brake lines – primer red, panzer gray, flat black or bare metal
- Drive head – bare metal
- Handle – bare metal
- Brake housings – panzer gray or primer red
- Cooling ducts – panzer gray or primer red
- Cross vent tubes – panzer gray or primer red
- Cross drive shafts – same as the vent tube couplings from step 5: flat black, but may have been either orange or light gray.

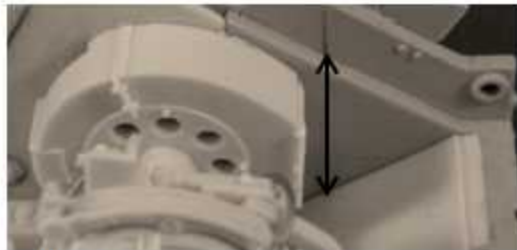
6

BRAKE HOUSINGS AND OUTPUT SHAFTS

NOTE: Some of the cross drive castings sprues are marked incorrectly. The right hand cross shaft is marked as the left and the left is marked as the right. The body of the right drive shaft should be the shortest of the two. Please be sure to test fit your pieces before gluing them in place. Also, you may want to trim the locating pin on the transmission side of both shafts to make it easier to fit them in place.

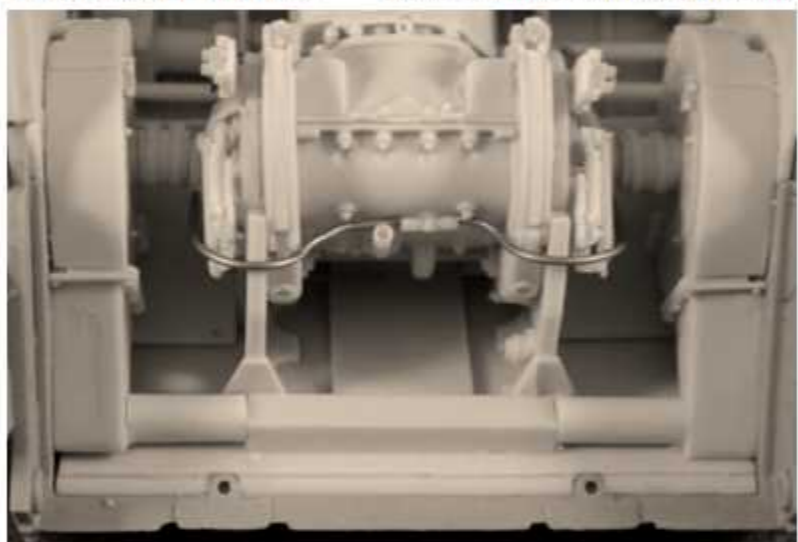
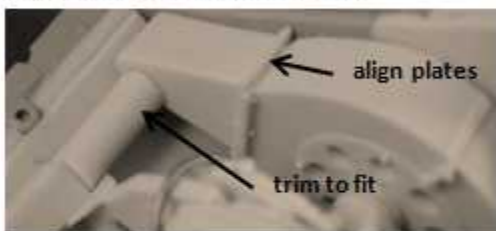


This gap should NOT be here Shorter shaft goes here, on the right.



NOTE: We recommend the use of 5 minute epoxy to glue the brake drum assemblies in place. This will give you more time than CA glues.

Make sure the front of both brake drum assemblies are sanded flat and mounted straight up and down (90 degrees to the floor, not the front slope)



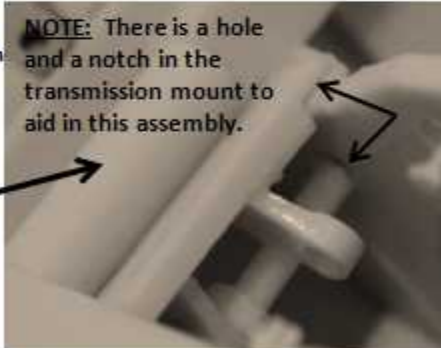
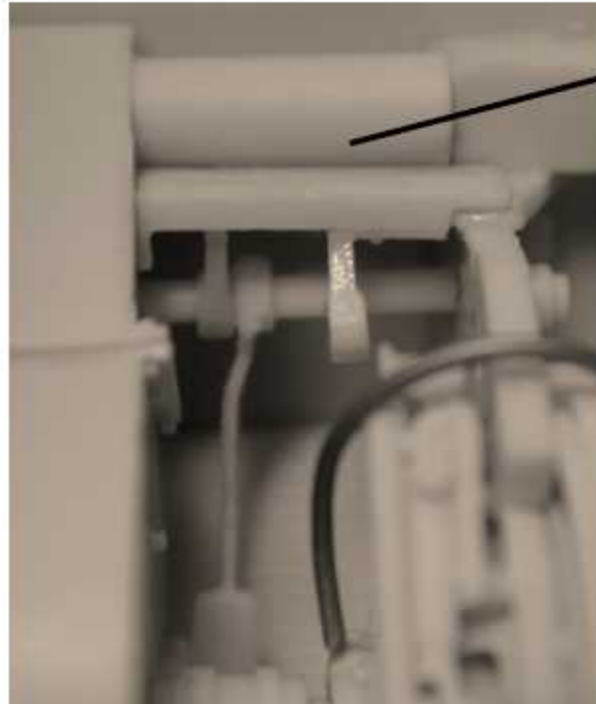
Glue both brake drum cooling vent housings in place and then fit the cross ventilation tubes in place as shown in the picture above. Be sure to align the mounting plates on the brake drum and cooling duct housings.

NOTE: Remember, some of the sprues may have the cooling duct housings and cross ventilation tubes marked incorrectly. Be sure to test fit these pieces before you glue them in place. Vent tubes may still need trimming.

7

BRAKE & CLUTCH PEDAL ASSEMBLY

NOTE: This is another 2+ beer job, and we consider it the hardest assembly in this kit.

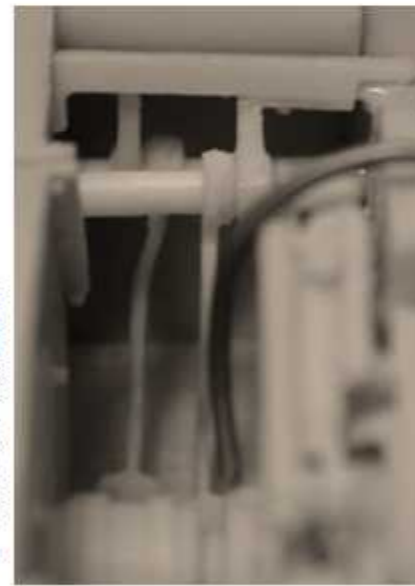


NOTE: There is a hole and a notch in the transmission mount to aid in this assembly.

Fit the pedal mounting bracket in place. There is a notch in the driver's side transmission mounting bracket to hold that side of the pedal mount, and a flat mounting plate cast into the mounting bracket that fits square against the brake cooling duct assembly on the other side. Next, cut a piece of 0.047 inch plastic rod to fit the entire width of the pedal mounting bracket. You will find a round hole in the transmission mounting bracket that is meant to hold this end of the rod during final assembly. Make several test fits to make sure the mount and shaft fit. Now, take the pedal mount out and slide the clutch pedal on the plastic rod. **DO NOT GLUE IN PLACE AT THIS TIME!** First, glue the pedal mounting bracket and rod in place. **THEN** glue the pedal in place as shown. Make sure the pedal does NOT touch the floor plate.



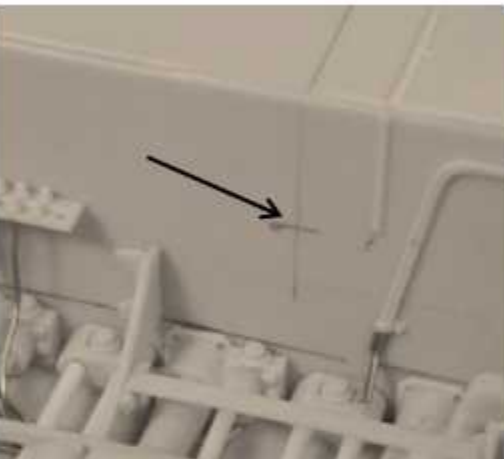
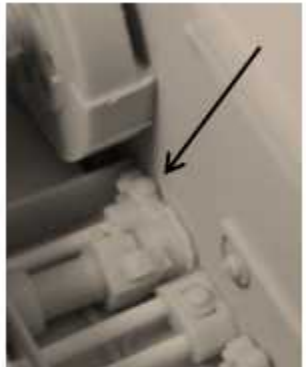
Now, use another piece of the same size plastic rod to cut a shaft that fits as shown in the picture to the left. You will need to take your time and be careful not to damage or dislodge the pedal mounting bracket in the process. Once you have this plastic rod in place, slide it toward the transmission far enough to slip the brake pedal onto the shaft. **DO NOT GLUE THE PEDAL IN PLACE AT THIS TIME!** Then glue the shaft all the way up against the cooling duct housing as shown. Finally, glue the brake pedal in place. Try to align the pedal with the clutch pedal as much as possible.



8

SHOCKS & OTHER STRUCTURAL PIECES

Remove front right shock mounting arm.

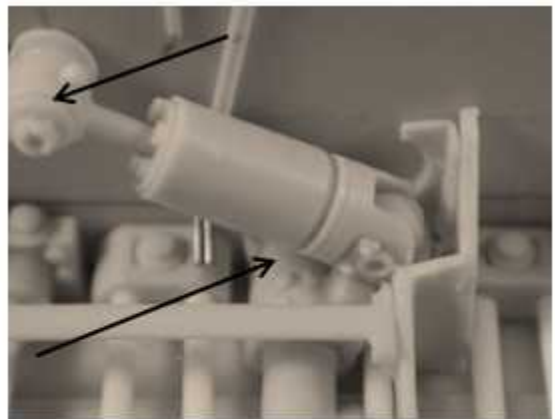


Mark interior location of the left and right rear shock bushing as shown in the picture to the left.

NOTE: Measure the location of the bushing mount on the outside of the hull as a guide for locating the proper placement on the inside hull walls.



Glue the front right shock assembly in place as shown. Then glue the protective plate in place. The bolt pattern on the top and bottom of this plate should align with the mounting strips molded into the right hull side.



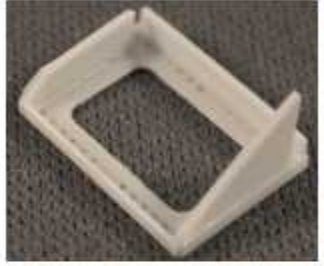
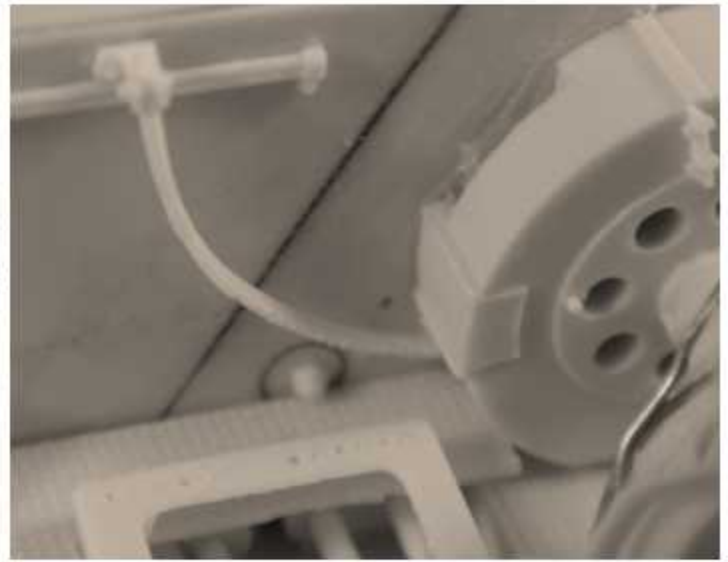
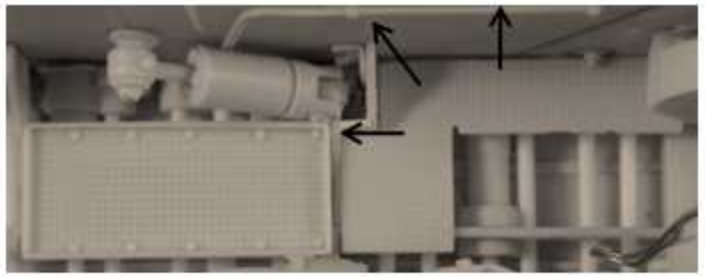
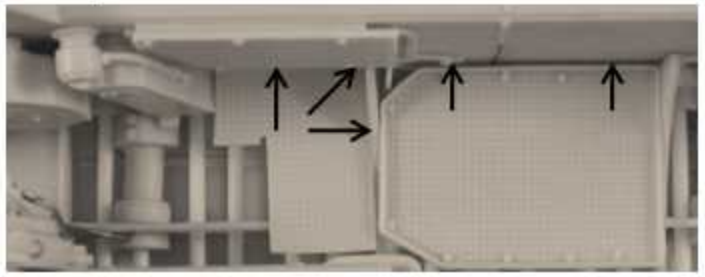
NOTE: You will need to test fit the mounting heads on the shocks so you can cut them to the proper length. Also, the lower bushing pin detail on the main shock body is only on one side of the casting. Make sure you glue the main shock body so this detail is visible (i.e. faces the inside of the tank hull).

OPTIONAL: We did NOT do this, but you can consult your own references to plumb the lubrication lines as they come off the floor and lead to the grease fittings on the shocks. Be advised that each of the three shocks is plumbed differently.

9

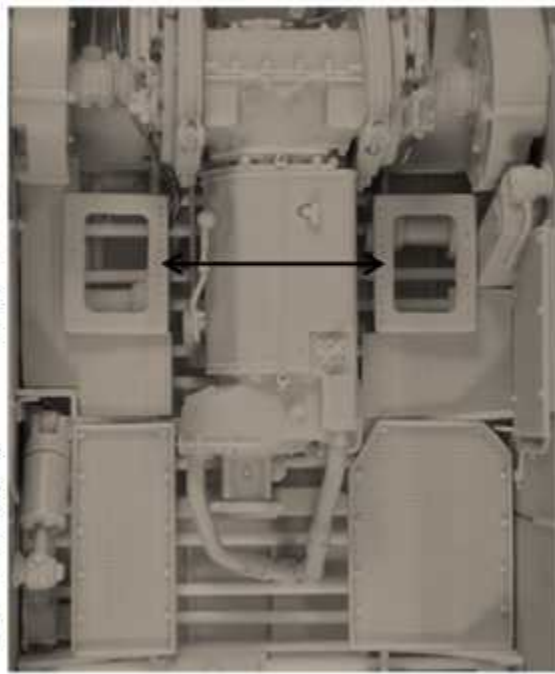
FLOORPLATES AND SEAT MOUNTS

Glue the drivers and co-driver's floor plates in place as shown. There are strips under these plates on the sides that butt up against the hull walls. You may need to sand them off to get a good fit. Make sure you glue these plates tight against the wall and as square against the hull cross brace. Line the rear floor plates up as shown. Make sure the rear plate behind the co-driver is tight against the hull wall.



Cut the leading edge of the co-driver's seat mount as shown so it will fit over the torsion bar beneath it.

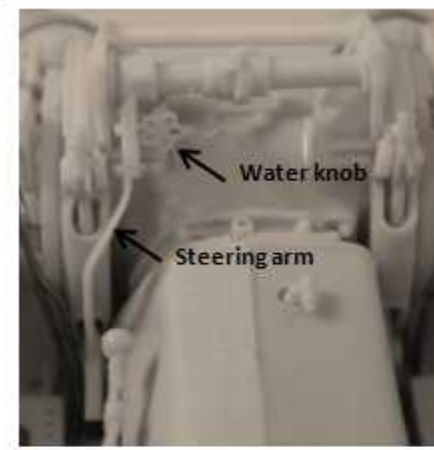
Glue the driver and co-driver's seat mounting brackets in place as shown. Keep them as level as possible. The brackets have a lip molded into them that fits over the longitudinal hull brace to assist you in doing this. Again, test fitting before you glue will help a great deal here.



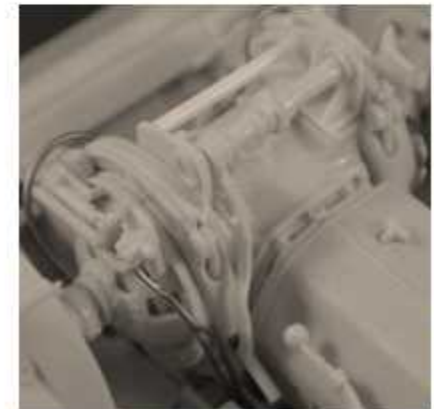
Glue the parking brake locking assembly to the left hull side as shown in the pictures above. The locking bar fits into the locking bracket, and the bracket goes on the side of the hull. The other end of the locking bracket should be glued to the bottom of the brake housing. Be sure to keep an even gap between the locking bar and the side of the hull. Also, the locking bracket should be positioned so it has a semi-circular shape. If you care to measure the arc, you will want to use the parking brake lever to get an accurate measurement.

PAINTING GUIDE

- Pedal mounting bracket – Flat black; primer red or possibly panzer gray
- Brake and clutch pedals – same color as mounting bracket
- Shock assembly – panzer gray or primer red possibly panzer yellow
- Bushings and bushing pins – bare metal
- Cast-in lubricating lines – flat black
- Retaining pin and grease fitting – bare metal
- Solder lube lines – to match the lines from step 1
- Floor plates – panzer gray or primer red possibly flat black
- Seat mounting brackets – flat black
- Parking brake lock – panzer gray or flat black



Water knob
Steering arm



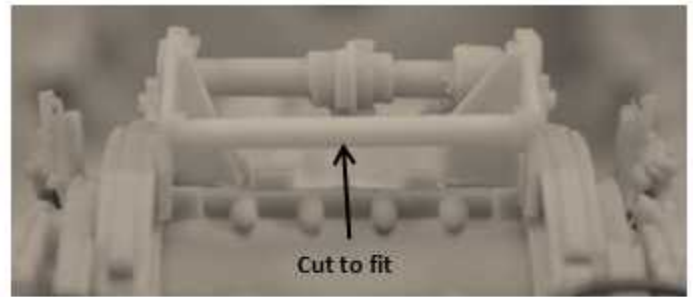
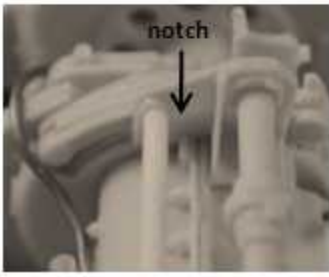
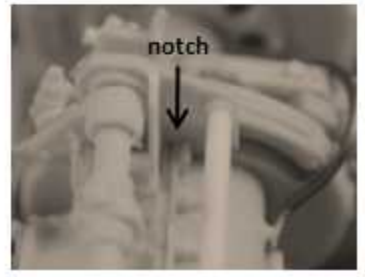
Glue the left and right center mounting brackets to the top of the transmission. There is a notch in the bottom of these brackets to fit over the joint in the transmission casing. The two top pictures to the left show the proper positioning of the brackets. Next, trim the right steering arm from the casting gate and slip it over the center section of the steering/brake shaft. **DO NOT GLUE THE STEERING ARM IN PLACE AT THIS TIME!** Then gently fit the center steering/brake shaft into the locating holes on the mounting brackets. Next, cut a piece of 0.047 in. plastic rod and glue it in place as shown. Make sure it is level and straight from side to side. Finally, glue the cooling water control knob to the left mounting bracket and then glue the right steering arm in place.

NOTE: We found it easier to shave the bottom of the mounting rod on the front end of the return springs so they fit snugly against the transmission assembly. We also removed the round locating point on the arm that extends upward from the upper brake band head. Once again, if you test fit the springs, you should see what we are taking about and make the necessary adjustments to your kit pieces.

10

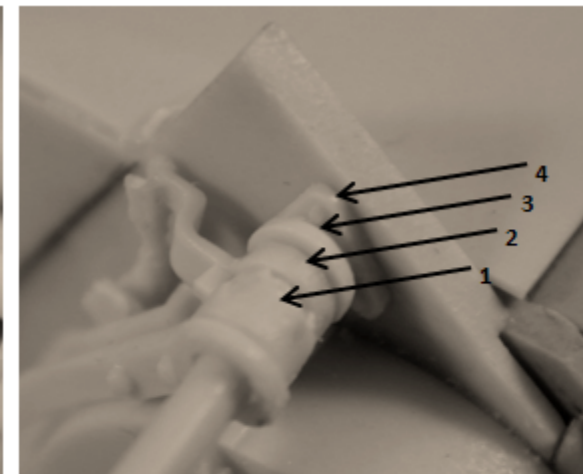
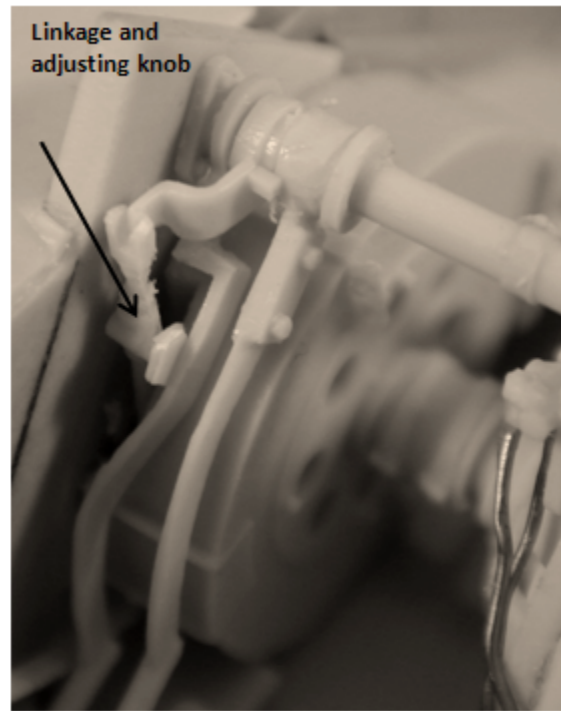
STEERING AND BRAKE ASSEMBLIES

Assemble the center section of the steering assembly. Study the following pictures to help you with assembly.

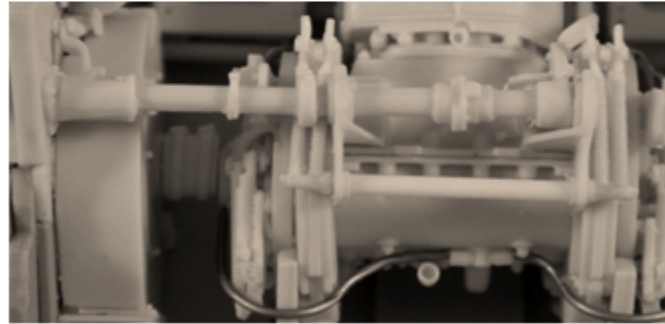
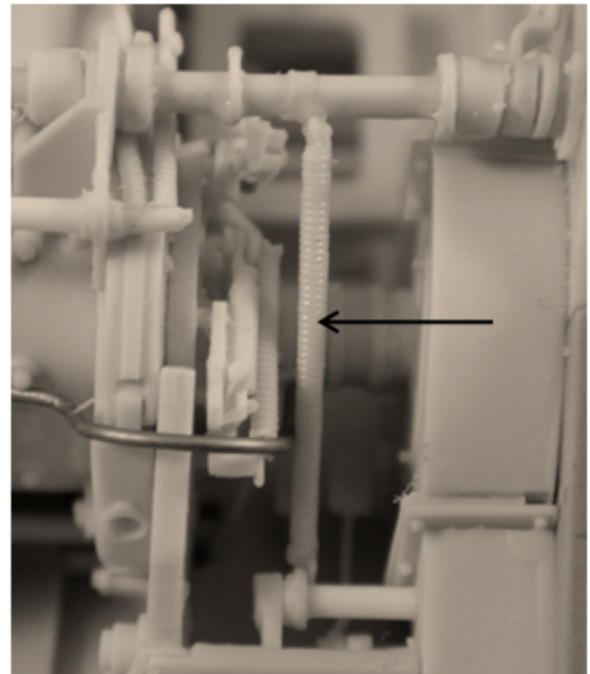


Round locating points either side of arm

Glue the two upper brake band return springs as shown in the pictures to the left and right.



Now glue the clutch pedal return spring to the top rear part of the clutch pedal and to the back of the bushing on the brake/steering control shaft as shown.



Glue the right section of the brake/steering shaft assembly in place. Be sure to align it so it is level and straight from left to right. The three pictures to the left will help you with this assembly. Next, glue the brake adjusting rod to the adjusting arm on the brake/steering shaft. The rod should extend down into the opening at the top of the brake housing. Finally, glue the adjusting knob to the adjusting rod as shown in the close up above.

Assemble the left section of the brake and steering linkage assembly as shown in these two pictures. Slide the left steering arm (1), brake pawl (2), parking brake arm (3) and hull mount (4) on the shaft, BUT DO NOT GLUE THEM IN PLACE AT THIS TIME! Once you have trimmed and fit the other end of this assembly and you know how everything will fit, THEN glue the assembly in place. Finally, glue the linkage and adjusting handle in place. You may need to trim the bottom of the linkage. It should end behind the left brake housing.



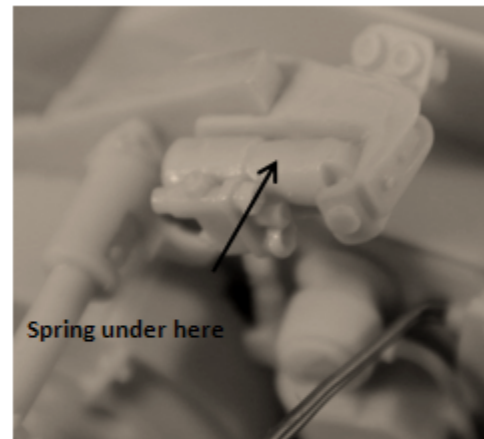
PAINTING GUIDE

Shaft on front of brake/steering shaft assembly made from plastic rod -- bright metal
 All Springs -- graphite or steel
 Handles on steering and brake arms -- flat black
 Cool water knob on left brake/steering shaft transmission mount -- flat black

The rest of the pieces in this assembly – the entire brake/steering shaft and arm assembly – should be painted the same color. We suggest either flat black or panzer gray. It is possible that these pieces could also be primer red in some mid-war vehicles.

HYDRAULIC BRAKE ACTUATOR ASSEMBLIES

Assemble the left and right hydraulic brake actuator assemblies as shown in these two pictures. Be sure the spring on the bottom of the ram goes down, and the fitting plate is on the bottom lip of the mounting arm with a slight upward angle.



Use some of the 0.015 in lead solder to make the hydraulic lines that run from the bottom of the fitting plate to the lines molded into the left and right hull sides. It is easiest if you glue two short sections to the hull side and let them set all the way and then bend and cut the lines to fit the bottom of the fitting plate. Use 0.020 in lead solder to make the heavier cross-over lines across the top of the actuator assembly. These pictures of the driver's side (left) actuator assembly should help you plumb your actuators.



DRIVER'S AND CO-DRIVER'S SEAT ASSEMBLY

Glue the seat backs to the pegs on the seat bottoms, and then fix the seat assemblies to the mounting plates as shown below.

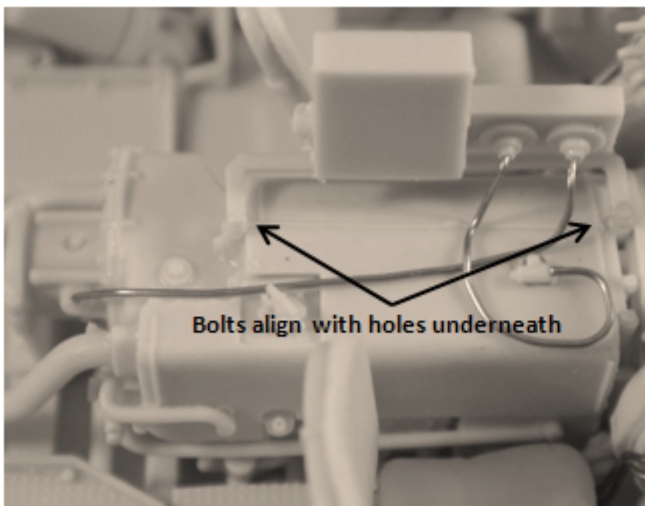


Actuator assembly -- to match brake/steering assembly
 Small lines -- to match hull wall line color
 Large lines -- flat black
 Seat Frames -- flat black or panzer gray
 Seat cushions -- flat black (leather)
 Seat springs -- to match frame
 Seat hold-down straps -- light gray w/silver buckles

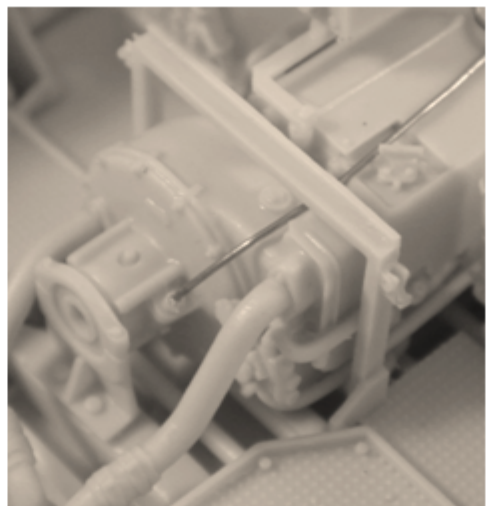
13

INTERMEDIATE TRANSMISSION ACCESSORIES

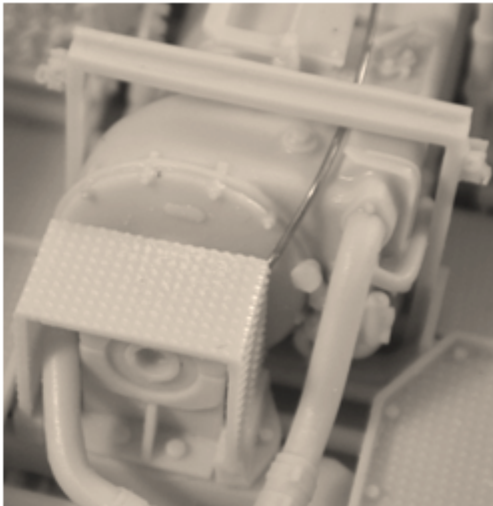
Glue the instrument panel mounting bracket to the transmission. The bolts on the bracket line up with the holes in the top of the transmission. Then glue the instrument panel to the two mounting points on the bracket and wire with 0.015 in solder as shown.



Bolts align with holes underneath



Glue seat support bracket in place as shown. Be sure to align it so the bracket is straight up and down and squared from side-to-side. Locate the seat support as far forward as possible WITHOUT touching the instrument mounting bracket.



Next, glue the transmission drive shaft guard in place as shown above. You may need to push the solder "drive cable" out of the way.



Mounting points



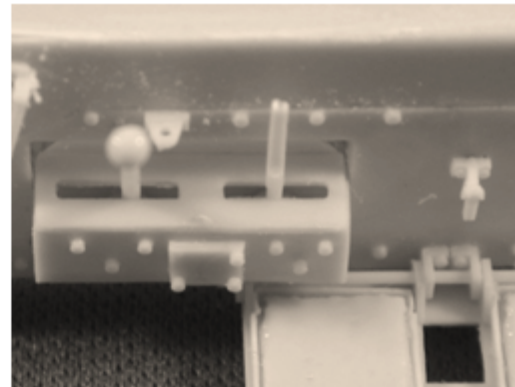
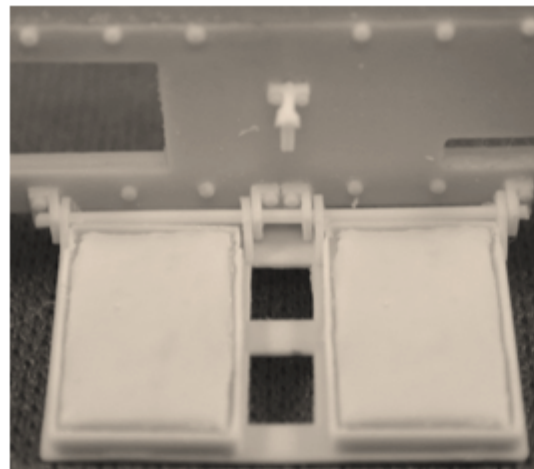
Finally, glue the jump seat arm rest to the front edge of the seat support bracket as shown. Again, center the arm rest on the seat support, make sure it is straight up and down and squared from side-to-side.



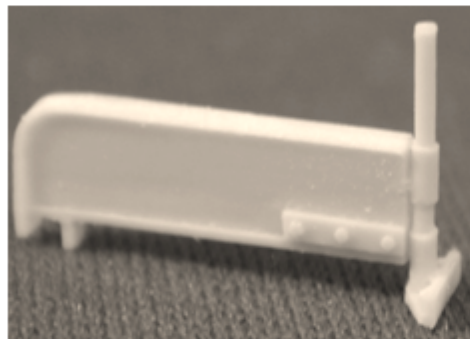
14

ROOF SUPPORT AND JUMP SEAT ASSEMBLY

Use a piece of 0.020 in plastic rod to attach the jump seat to the hull roof support as shown. The glue the latch to the roof support. Be sure to center it on the jump seat.



Next, glue the top on the control box assembly. The shorter slot on the cover goes to the driver's side of the control box. Then glue the control box in place on the lower lip cast into the roof support as shown in the pictures. Be sure to leave enough room to insert the control handles. When you glue the handles into the locating holes in the control box, the neutral position for the handles is centered, straight up and down.



It is easiest to glue the seat back support to the back edge of the seat back at this time as shown in the picture to the left.



PAINTING GUIDE

Roof Support	- panzer Yellow	Instrument panel	- flat black
Jump seat frame	- flat black, panzer gray or panzer yellow	Mounting bracket	- flat black
Jump seat cushions	- flat black (leather)	Drive shaft guard	- primer red or panzer gray
Seat back assembly	- panzer yellow	Seat support	- flat black, panzer gray or panzer yellow
Control box	- flat black	Arm rest	- flat black, panzer gray or panzer yellow
Control levers	- flat black or bare metal w/flat black knob	Wires in this step	- bare metal or flat black
Transformer rack	- panzer yellow		
Antenna relay	- panzer yellow or panzer gray		
Antenna relay wire tubes	- panzer yellow		
Transformer bodies	- panzer gray or panzer yellow		
Transformer wiring	- flat black or signal brown		
Small Handle assy	- flat black		

15

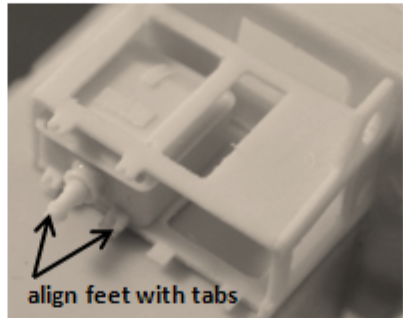
TRANSFORMER RACK ASSEMBLY

Remove flashing from transformer rack while it is still on the sprue, then glue in place as shown below, left. Be sure to keep the rack snug against the roof support brace..



Keep seam tight

NOTE: You may need to remove roof support locating strip on sponson floor

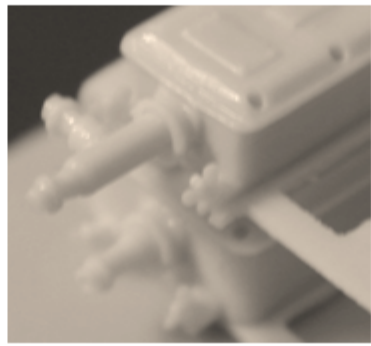


align feet with tabs

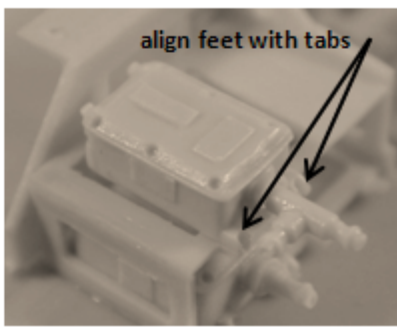
Glue wing nuts to the top of the "feet" on the transformer body.



Glue the insulator from each transformer sprue to the transformer body as shown in the picture below.



align feet with tabs



CONTINUED NEXT PAGE

Glue bottom and then top transformers to transformer rack as shown in the pictures to the left. Be sure to align the "feet" on the bottom front of the transformer body with the tabs on the rack.



Glue the roof support assembly in place as shown. The vertical strengthening ribs should fit snugly BEHIND the locating strips cast into the hull sides. Make sure the jump seat fits snugly down on the seat support as shown. Then glue the seat back assembly to the arm rest and the seat back mounting rod to the roof support assembly. The seat back should be centered on the arm rest and the top edge should be parallel with the floor of the vehicle.

Glue the small handle assembly to the lower corner of driver's side of the roof support as shown in the picture to the left.



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TRANSFORMER RACK ASSEMBLY CONT.



Glue the antenna relay to the side of the transformer rack and then plum the wiring tubes with 0.025 or 0.030 in solder as shown in the picture to the left.
NOTE: Be sure to push the lower piece of solder as far back against the roof support as possible.



Trim the leading edge from 4 periscope halves as shown in the picture to the left.

Use 0.02 in solder to wire the transformers as shown. Just glue the dead ends of the solder to the outside wall of the transformer rack where they won't be seen after assembly.

Glue the storage box to the right sponson floor. Align with the forward and outside edges of the sponson floor as shown in these pictures. You can use upper hull to aid in test fitting clearance.



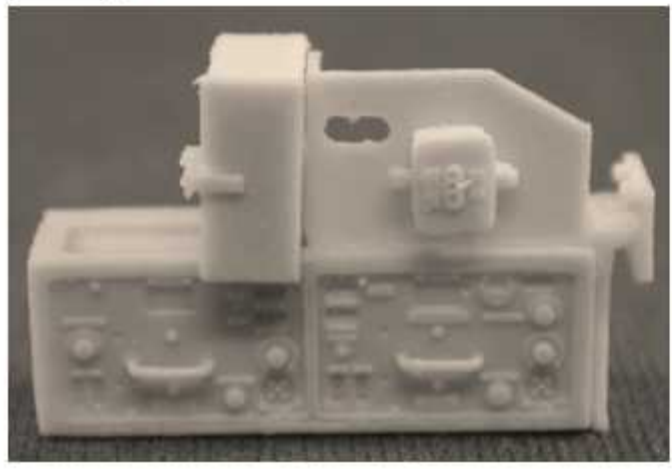
Glue the four periscope halves into the holder box, add the retaining handle and then glue the assembly to the driver's side sponson floor as shown.

NOTE: You need to glue the periscope box as far forward and to the outside of the sponson floor as possible without getting in the way of the hull slope. Use the outside angle of the forward storage box as a guide.

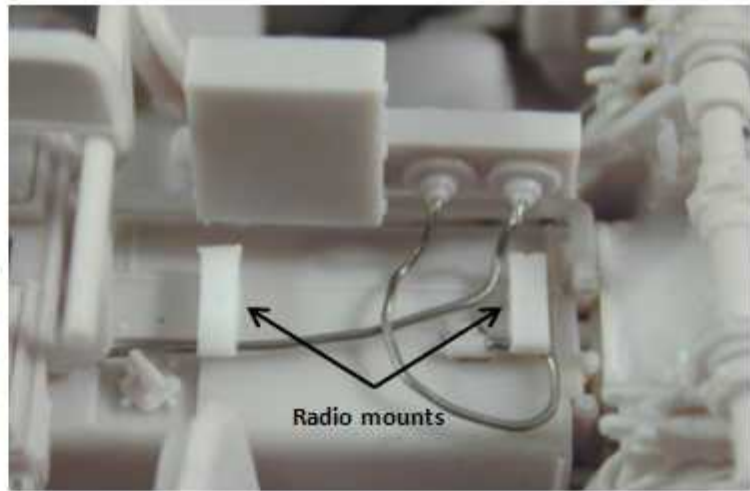
16

RADIO AND RADIO MOUNTS

Assemble the radio, mounts and headphone box as shown in the pictures below. Don't forget to attach the handles to the R/T set.

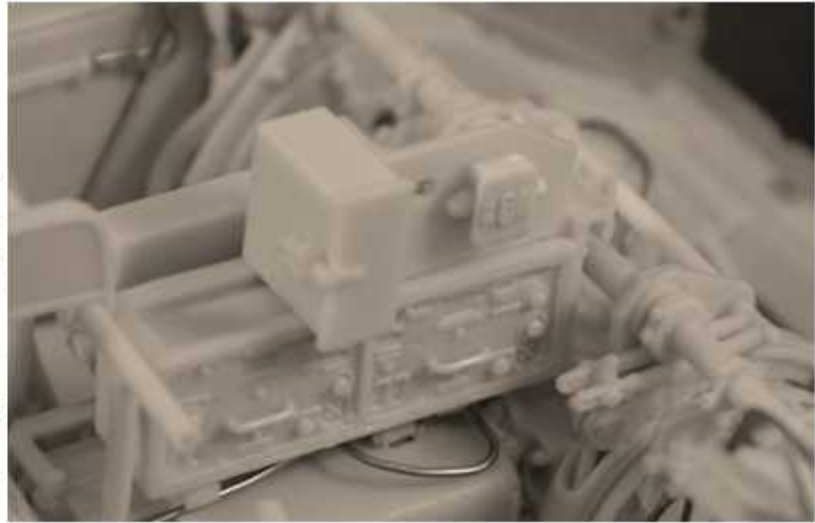


Glue the two radio mounts to the top of the transmission as shown here. These pieces raise the radio above the drive head and help level the base of the radio on the slope of the tranny.



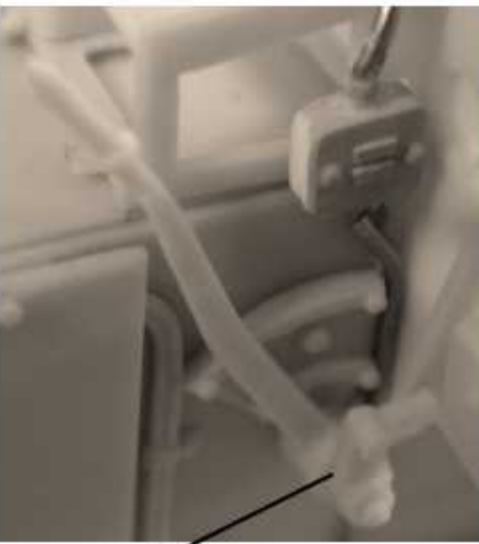
Glue the radio assembly to the radio mounts as shown. The radio needs to set as far forward as possible, but you may want to test fit it along with the upper hull to make sure there is enough clearance for the roof.

NOTE: Even if you do EVERYTHING right, you may still need to trim a little of the top radio mounting bracket and even sand the headphone box to keep them from hitting the top of the hull. It's just "one of those things."



WINCH CONTROL ASSEMBLY

17



We couldn't determine exactly where the gas masks were supposed to be located in the war time bergepanther. We found evidence to suggest there was no standard location. These pictures are our "best guess" for where at least two masks were most often located.

Glue the winch control arm mounting plate to the hull wall as shown above. You need the round section to be just below the bottom edge of the roof support. Then glue the arm in place. Finally, glue the connecting end to the lever and the lever to the end of the winch control arm. See picture to the left for details.



PAINTING GUIDE

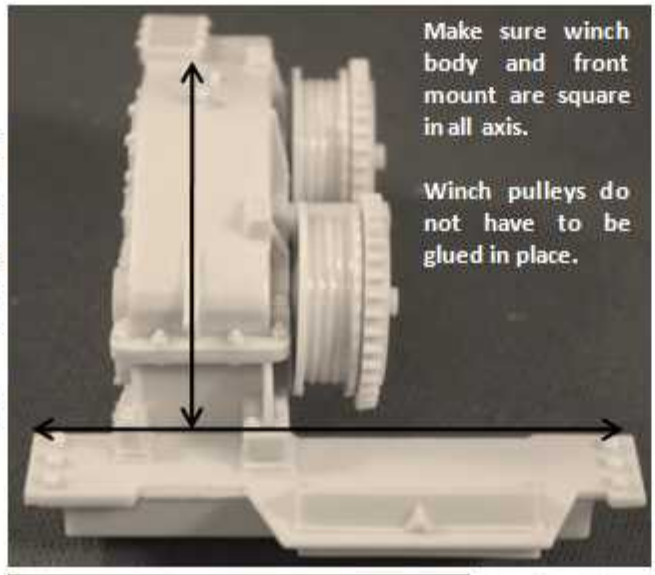
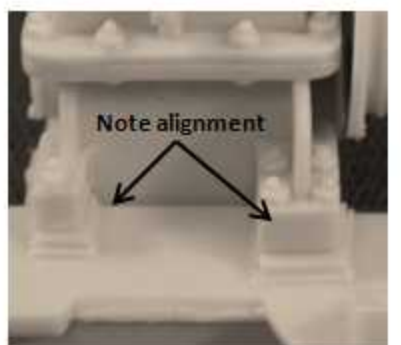
- Storage box -- panzer yellow
- Periscope halves -- mask vision panes, paint chrome silver, then flat black then remove masking
- Periscope box & handle -- panzer yellow
- Gas Masks -- panzer or field gray
- Gas mask bracket -- panzer yellow
- Winch control assy -- flat black
- Driver side handle assy -- flat black
- Radio bodies -- panzer gray
- Knobs on radio face -- flat black
- Radio racks, mounts and Head phone box -- panzer yellow
- Antenna relay -- panzer yellow, panzer gray
- Relay wiring tube -- panzer yellow

MAIN WINCH ASSEMBLY

18

The winch assembly can be tricky. It requires test fitting - over and over again. If you test fit your pieces before you glue them in place, the winch will go together fairly easily. You may need to do some trimming and sanding here and there, but patience and test fitting will carry the day in this step. Please, read carefully and take your time.

NOTE: This is another area where 5 minute epoxy may be of use. It will give you more time and a stronger bond.



Make sure winch body and front mount are square in all axis.

Winch pulleys do not have to be glued in place.



NOTE: Keep front of center structure flush and square. You may need to trim the locating tab on the front mount.

WARNING! The pieces in this assembly don't always play well together. Test fit them - A LOT!

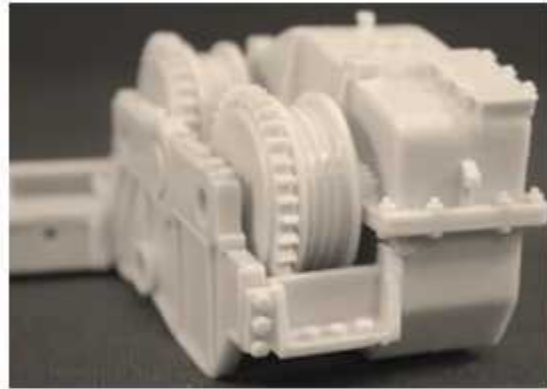
CONTINUED NEXT PAGE

Remove the main winch body, forward mount, center brace and two winch pulleys from their casting gates. Then glue them in place as shown in the three pictures above.

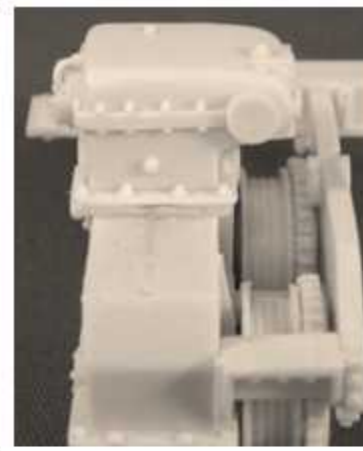
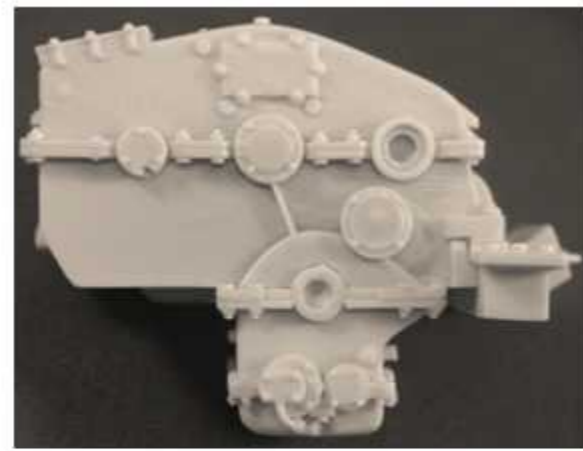
NOTE: It will be very important that you get the front mount as tight against the front of the main winch body as possible. Also, make sure to square everything. The mount should be square side-to-side and the winch body should be square up and down. You do not have to glue the winch pulleys in place, it may even help if you don't.

MAIN WINCH ASSEMBLY CONT.

Assemble the center structure as shown. The rear mounting bracket will aid in proper alignment, as will the locating holes for the winch pulleys. You may need to trim the locating tabs on the front mount a bit to get the center structure squared. Keep the center structure as close to the main winch body as possible while still keeping it parallel to the main body.



NOTE: Keep bottom of rear mounting bracket flush with bottom of center structure.



Straight forward: glue the lower foot in place as shown. Pay attention to the alignment.



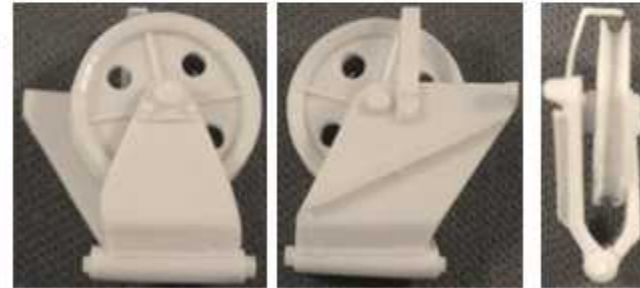
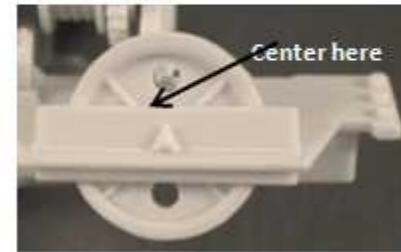
Assemble the idler pulley assembly as shown above. **DO NOT GLUE THE IDLER IN PLACE!** This assembly actually pivoted from side to side on the real winch, and you will need to be able to move it later for final positioning.

PAINING GUIDE

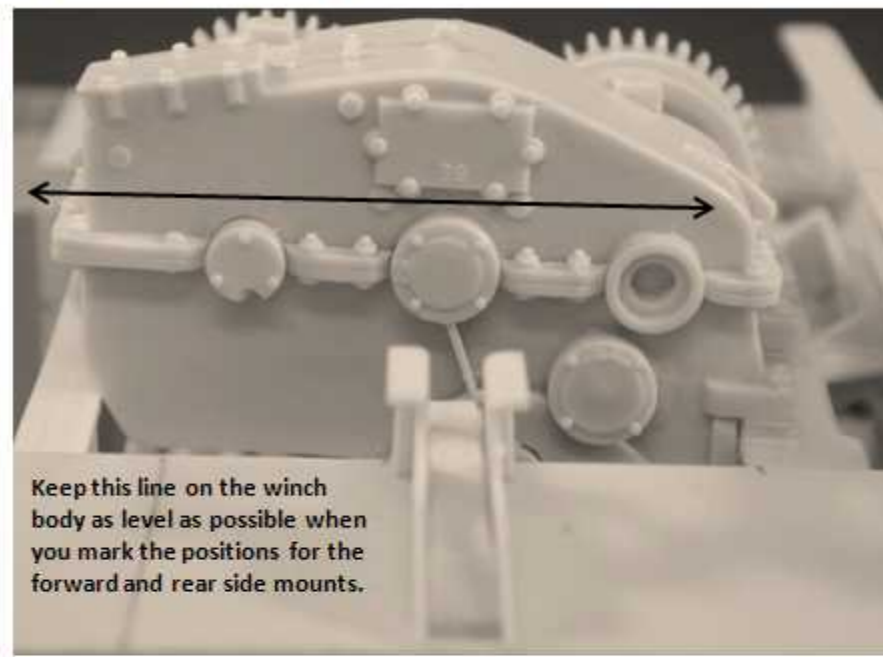
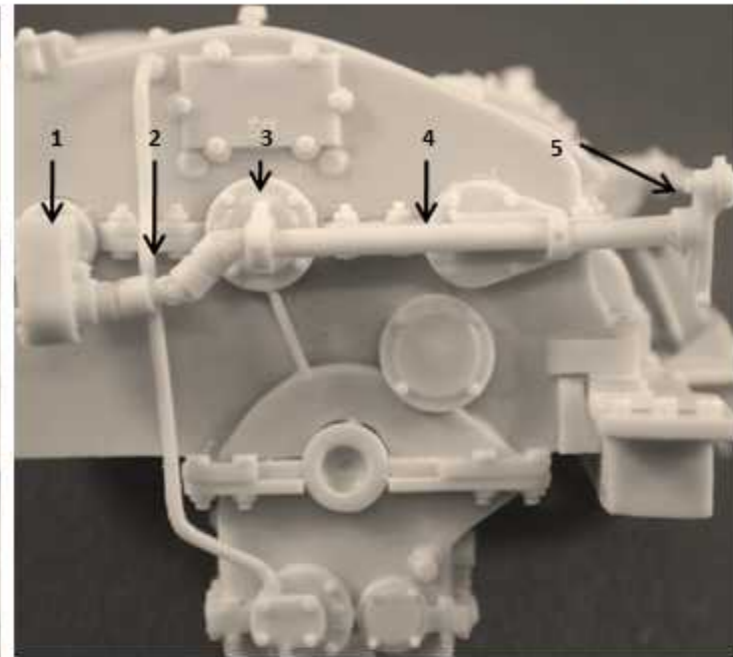
- Entire winch assembly -- primer red or panzer gray
- Live grooves in pulleys -- bare metal
- Cable -- bare metal or flat black dry brushed in bare metal
- Bearing & retainer ends -- bare metal

Glue the vent tube in place as shown above left. You may need to trim the ends a bit to get a good fit. Then, starting from the back and working forward, glue the gear box (1) to the side of the winch body; then the knuckle (2) to the gear box; the center support (3) to the side of the winch body; the forward support and tube assembly (4) to the side of the winch body and the pivot head (5) to the forward support and tube assembly as shown above.

NOTE: the pivot head can be positioned optionally, see cross bar above right before gluing in place.



Glue one of the two idler pulleys into place on the front mount as shown. Center the pulley on the bearing retainer. Assemble the cable storage and play-out idler assembly as shown above.



Keep this line on the winch body as level as possible when you mark the positions for the forward and rear side mounts.



Rear side mount



Forward side mount

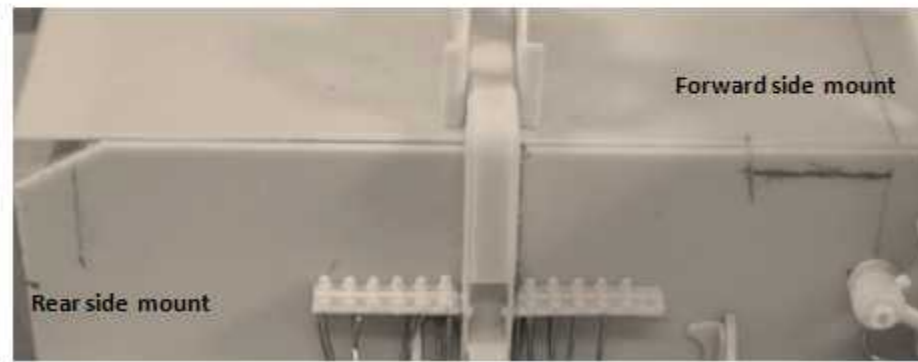


Use the rear mount and side mounting brackets to assist in locating the final position of the rear side mounting brackets. **NO GLUE NEEDED HERE!**

Use the rear mount and rear side mounting brackets to set the winch in position in the main hull as shown. Align the main winch body so it is level and squared in the hull. The top of the front mount and rear side mounts should be flush with the sponson floors. Mark the positions with a pencil, remove the winch and glue the forward and rear side mounts in place as shown in the pictures below.

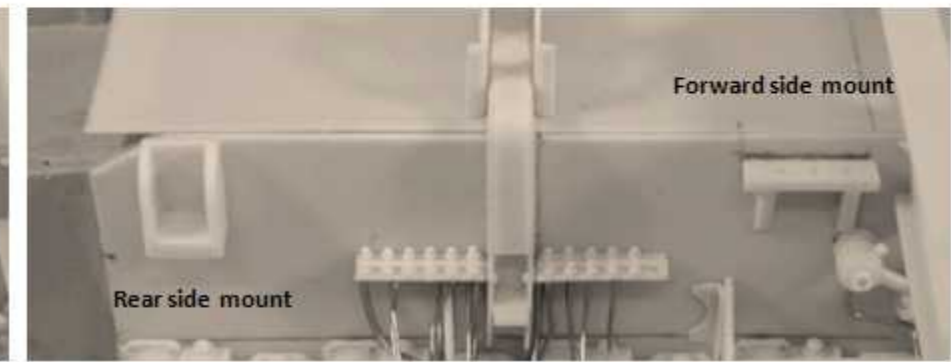


Glue the main cable storage winch in place as shown in the picture to the left.



Rear side mount

Forward side mount



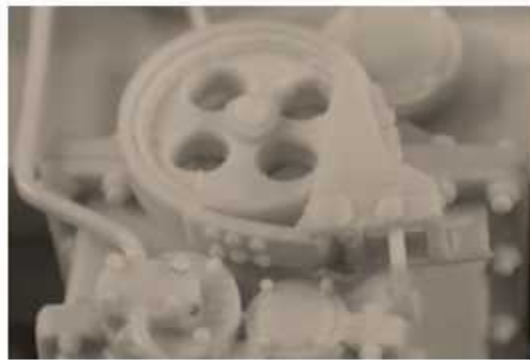
Forward side mount

Rear side mount

NOTE: The cross bar ties the pivot head to the cable storage/pay-out idler assembly. You will have to position the pivot head depending on how far left/right you want the idler assembly to be so the bolt details on the cross bar line up with the bolts on the idler/pivot head.

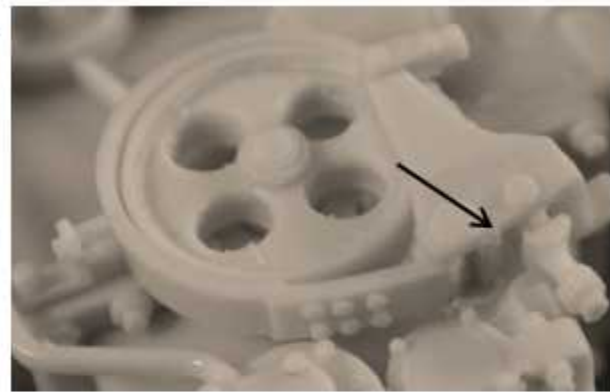


Pre-roll the brake band, glue the anchor end to the brake arm and just fit the live end of the brake band into the opening in the brake arm without gluing.

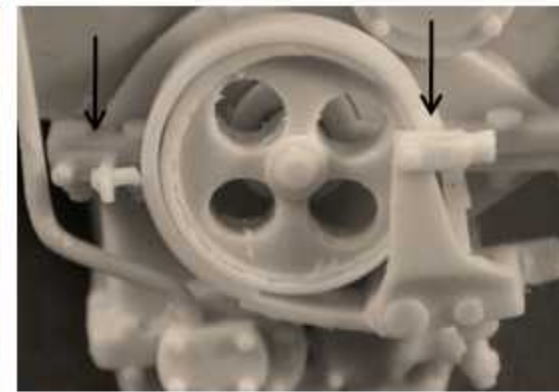


Glue the brake pulley to the winch body, then fit the brake band around the pulley and glue the brake arm to the pin as shown.

NOTE: You may need to trim down the locating pin for the brake arm.

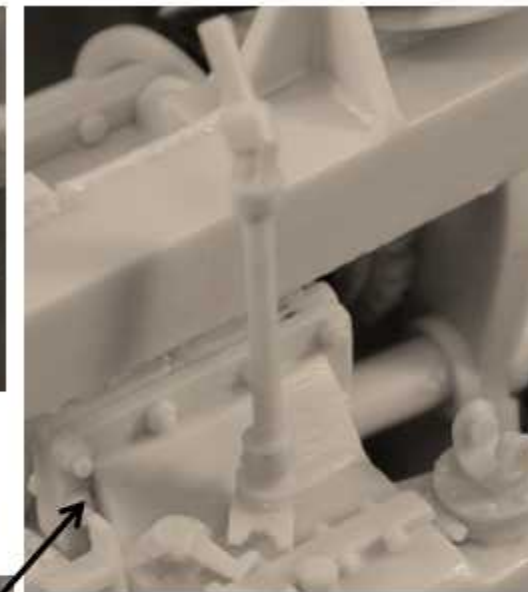


Cut the live end of the brake band and glue the adjusting bolt to the end of the brake band as shown.

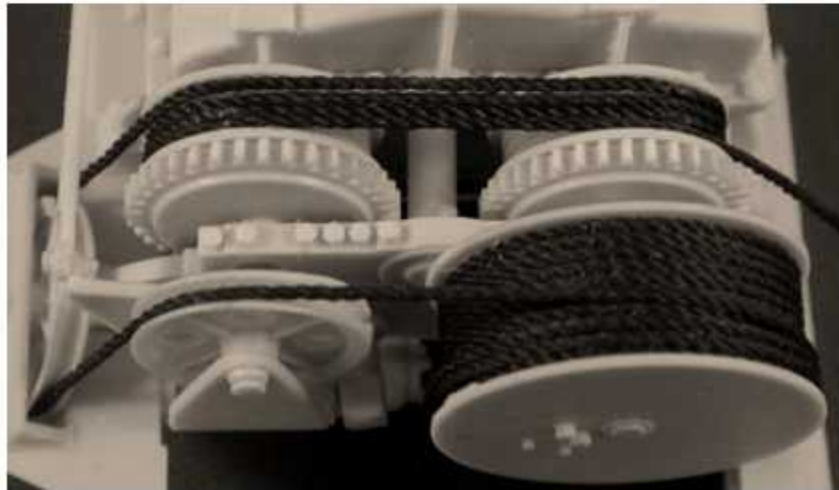


Glue the rod connector to the brake arm and the brake band stop to the side of the winch body behind the brake band as shown above.

NOTE: You can add a small piece of plastic rod to the brake band stop to act as the bolt extension.

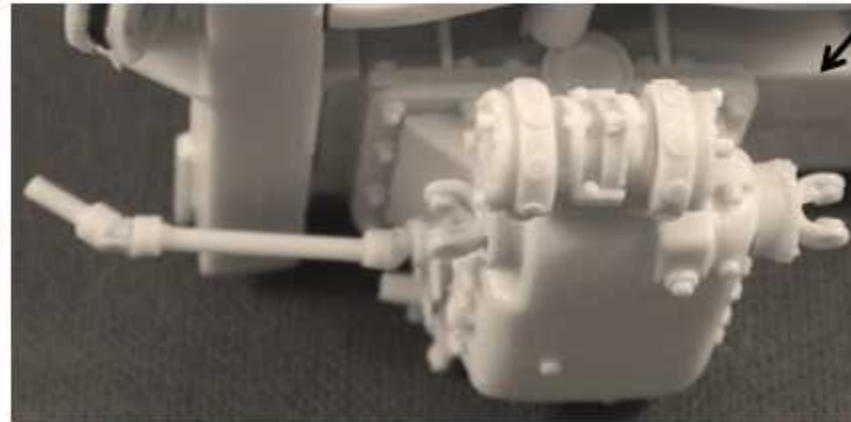
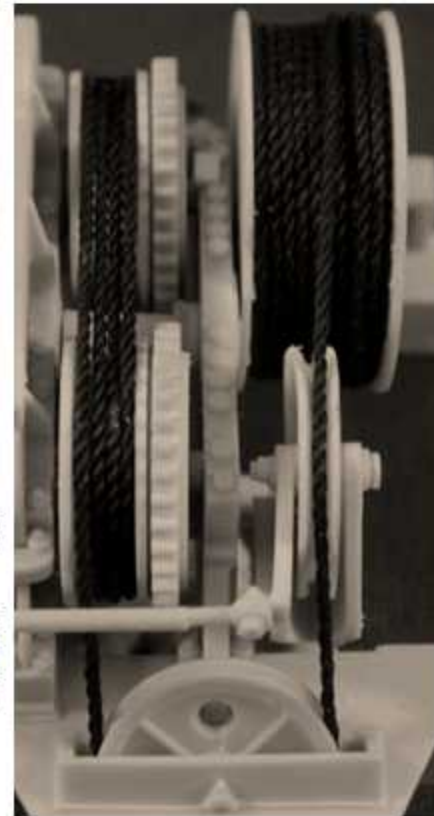


OPTIONAL: At this point, if you are going to display your model with the winch assembly removed, you can glue the brake lock and release pieces to the front of the winch foot as shown. If you are going to install your winch in the vehicle, these pieces will not be seen and can be omitted. The 2 pc shaft in this picture connected somewhere under the control box from the roof support assembly, but we couldn't find out where or how, and we doubt you could connect it after the winch is installed if we knew.

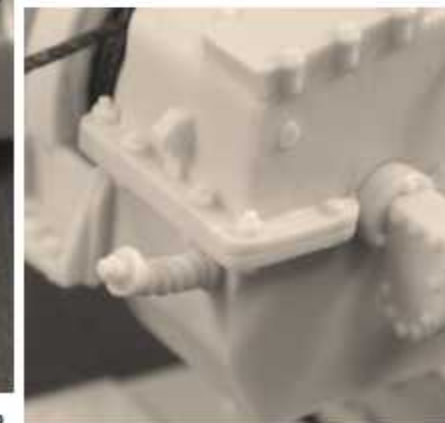


You can rig the tow cable at any point, but I strongly suggest you do it before you start adding the smaller details to the winch body. Once you glue these small pieces on the winch, they are easy to knock off.

Start the winding by gluing the thread to the bottom of the main storage drum and wind it FORWARD until it starts a second layer, then aligns with the idler assembly. Then run the thread through the idler pulley, through the second idler and onto the winch pulleys. Glue the thread down in several places as you rig the drums. Leave enough on the live end to run to the back of the model to rig the towing hook.



Glue the hydraulic brake pump to the flat section on the left side of the winch foot and add two of the universal joint sections to the forward and aft drive shaft locations as shown in the picture above. You can see the pump from some angles when the winch is installed, but we have not shown the drive shaft assembly as we have not figured out how to assemble them once the winch is in place. The pieces are included in your kit, and if you figure out to do it, you bested us by one here.

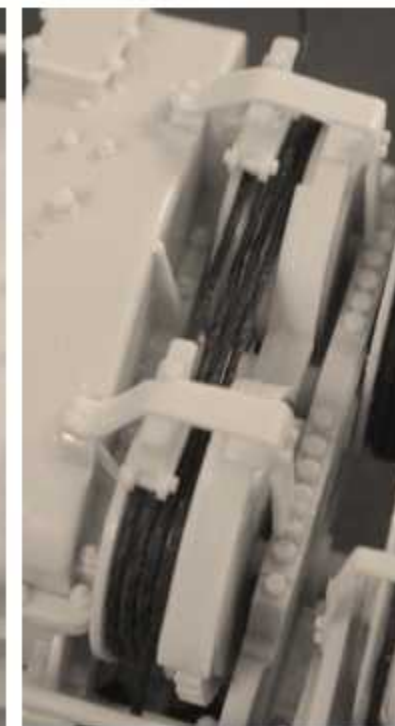
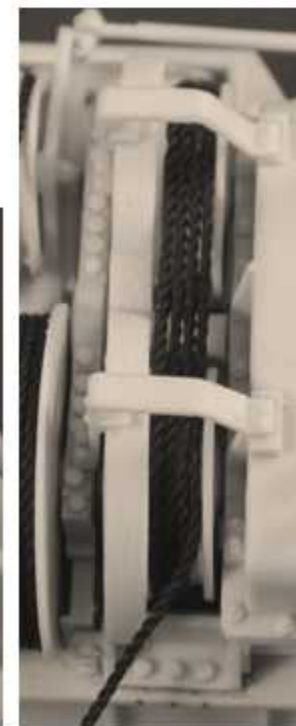
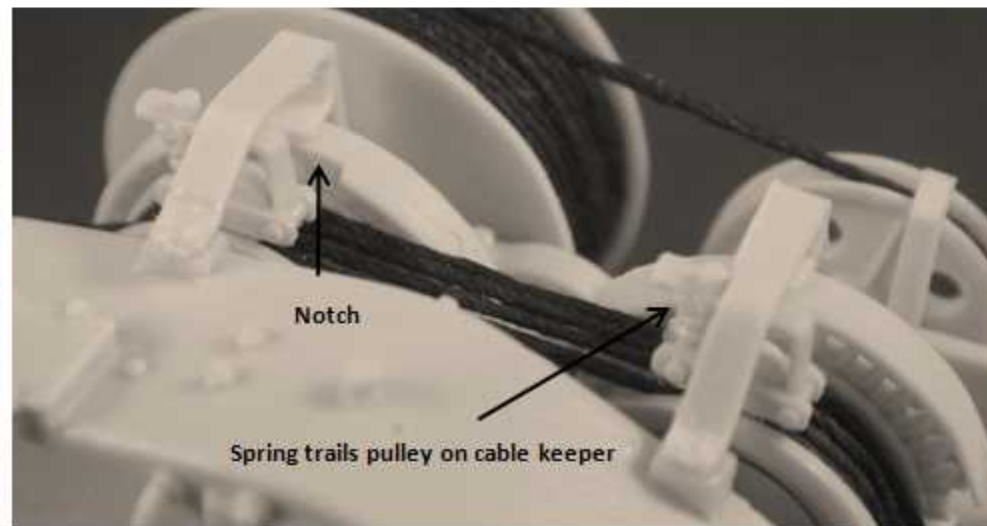
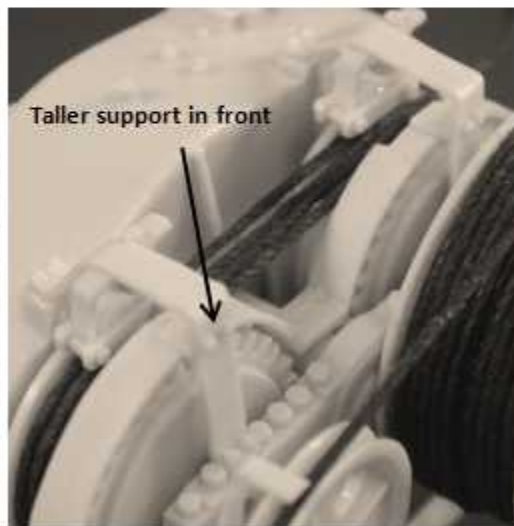


Glue the tension spring to the right rear of the winch body as shown above.

PAINTING GUIDE

Braking surface of brake pulley	- bare meta
Brake band	- primer red or panzer gray
Pad on brake band	- dark gray
All else this page	- primer red or panzer gray

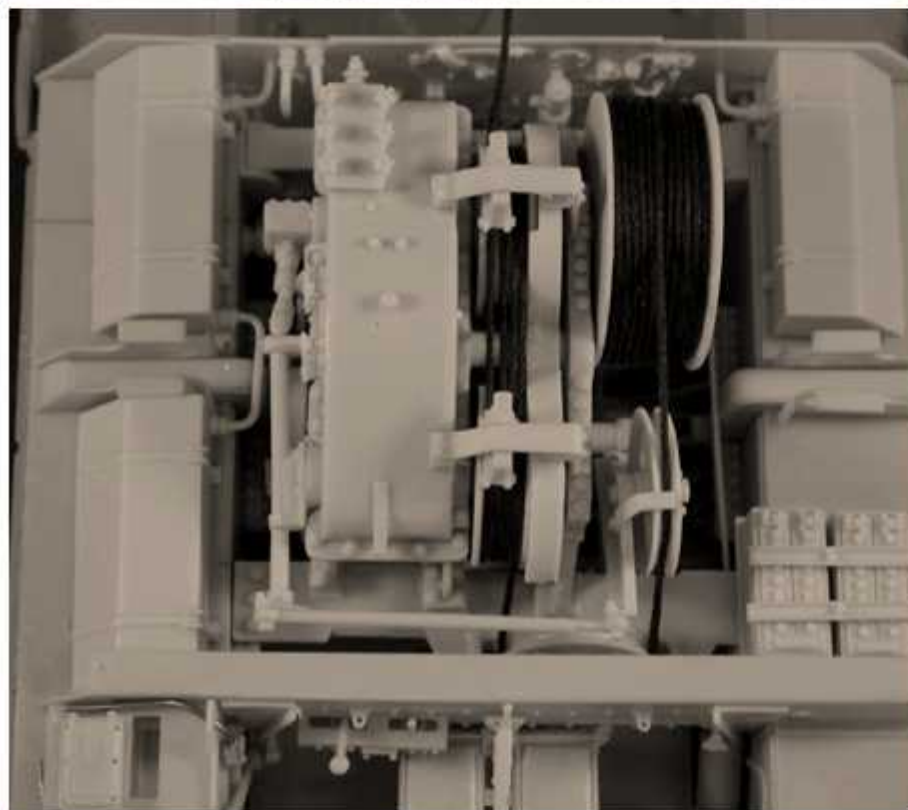
Glue the gear guard and cable keeper assemblies in place as shown in the series of pictures to the right. There are two hangar brackets for the gear guard. One has a longer vertical leg. That hangar goes in the front, the shorter one goes in the rear. Make sure the mounting points on the main winch body fit flat to the mount pads on the winch. You may need to bend them just a bit. Then glue the guard to the bottom of the hangar brackets (they have tabs cast into them for the guard). Finally, glue the cable keeper assemblies to the bottom of the hangars. The spring on the cable keepers goes to the rear. The pulley on the keepers should go on top of the final cable winding as it passes out the rear of the vehicle.



OPTIONAL: There was a rod than ran from the handle behind the driver and down the left side of the hull. Make from 0.02 in. plastic rod.

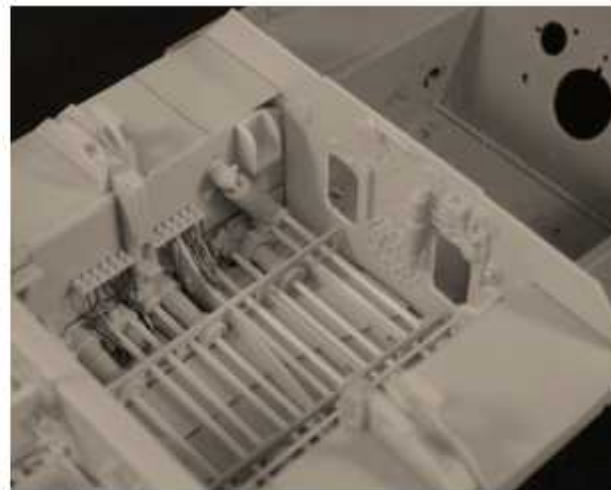


Handle behind driver



Use these pictures to assist you in assembling and wiring the batteries; fuel tanks and fuel cross over and dump lines.

NOTE: We are not sure of the battery cable details.



Glue the rear bulkhead in place. Keep it tight against the trailing edge of the hull floor, sidewalls, sponson bottoms

At this point, we recommend you glue the extra fuel tanks to the sponson floors, and then assemble the batteries and hold downs. Next, set or glue the winch assembly in place and tuck the live end of the tow cable thread down inside the hull somewhere. This will keep it out of the way until it's needed. Don't worry, you will be able to get it back out. Next, glue the cross over fuel lines to the two fuel tanks on the right side, and a feed line from each of the rear fuel tanks to the aft bulkhead. Finally, use the 0.025 lead solder to make battery cables.

PAINTING GUIDE

Rear Bulkhead	-- panzer yellow with primer red along demarcation line
Fly wheel	-- flat black
Bolts on fly wheel	-- bare metal
Fire extinguisher	-- flat red, flat black panzer gray or panzer yellow
Primer Box	-- flat black
Conduit	-- bare metal
Wiring	-- flat black or signal brown
Batteries	-- flat black w/white caps and bare metal ties
Battery hold-downs	-- panzer yellow
Battery cables	-- flat black
Fuel tanks	-- panzer yellow w/bare metal straps
Fuel cross-over lines	-- panzer yellow
Rod (along left side)	-- bare metal or flat black
Visor/MG flap structure	-- panzer yellow
Visor opening handles	-- flat black
Counter balance springs	-- bare metal
Head pad on driver's vision block	-- flat black
Periscope holders	-- flat black or panzer gray
Retaining bolts	-- flat black

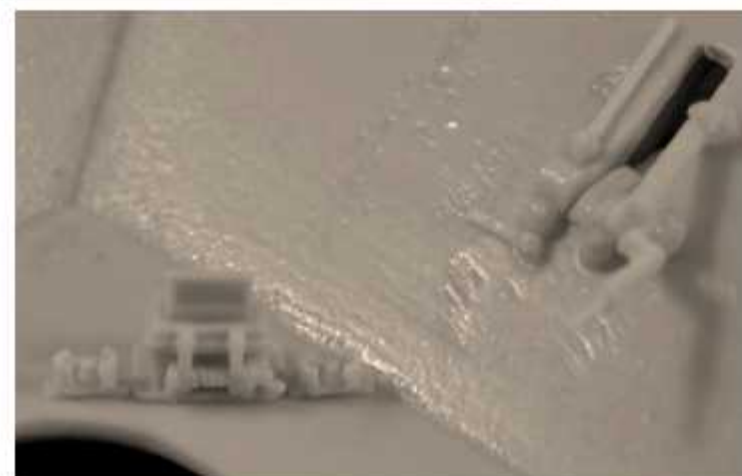
WARNING!

No matter how careful you have been to this point, there may be a few assemblies that will get in the way of the upper hull. We strongly recommend you test fit the upper hull **BEFORE** you continue with this step, and correct any fit issues you might find.

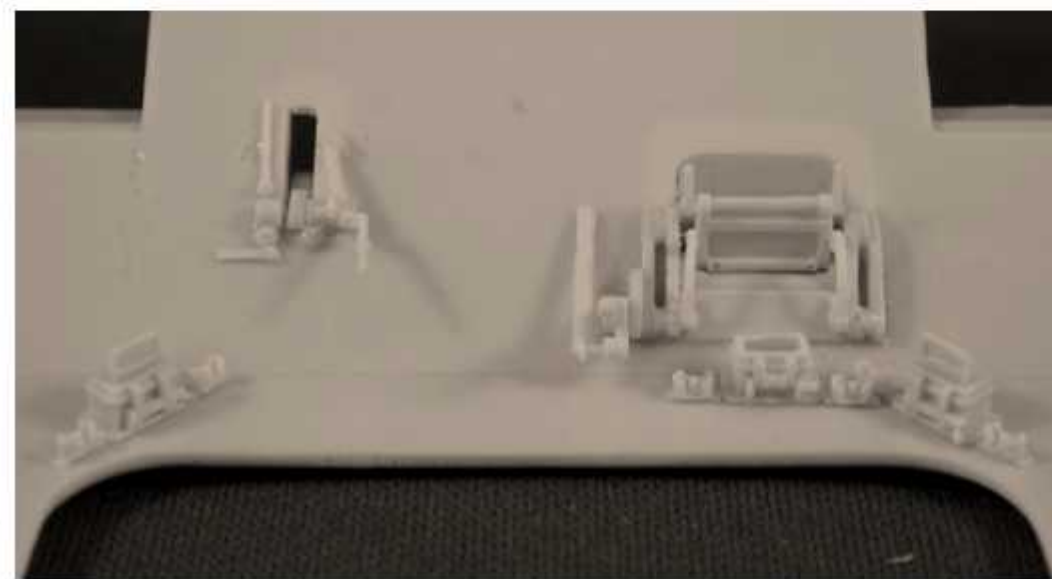
Glue the bow plate to the upper hull and the driver's vision block as shown (vision block shown here in regular resin for clarity of pictures). Then glue the opening handle and counter balance spring in place, the vision block retaining handles and the two grab handles to the bottom of the visor assembly as shown in the picture to the right.



Glue the MG flap in the open position, then glue the short retaining rod to the top and the long retaining rod to the right side as shown. Then glue the opening arm and counter balance spring in place as shown in the picture to the left.



Glue the periscope assemblies in place as shown. It is easier to fit the periscopes into their holders and then glue the holders to the hull roof. If you wish to show the holder empty, use the two piece assembly. Otherwise, use the one piece holder. Then glue a retaining bolt to either side of each periscope holder. The retaining bolts should align with the rear edge of the periscope holder (edge farthest from the bow of the tank). Use these pictures as a guide. (periscopes shown in regular resin for clarity of detail)



CAUTION:
TEST FIT THAT UPPER HULL!!!

At this point, you need to glue the upper hull to the lower hull. I cannot tell you how strongly I recommend test fitting the upper hull BEFORE you apply any glue. I found that some areas in the front of the driver's compartment, the radios, the roof support and the rear bulkhead can all cause fit problems – especially the rear bulkhead. If the rear bulkhead is sitting too high, it can cause the upper hull to bow and then the box structure will not sit flat on the top of the hull and trouble will follow. SO PLEASE RESOLVE AND FIT ISSUES BEFORE YOU GLUE!

NOTE: The upper hull is another assembly where we recommend epoxy. I used contact cement for the upper hull, BUT I DO NOT RECOMMEND THIS UNLESS YOU ARE VERY COMFORTABLE WITH IT (once you stick those pieces together with contact cement, THEY'RE STUCK!)



High end of jig fits tight against trailing edge of armor plate

Because there was no turret, the bergepanther tended to ride nose high. We have provided a jig to help you align the road wheel arms to get this nose high look on your finished model. It works for either side, just make sure to align it properly and hold it firmly to the bottom of the hull as you align the road wheel arms.

NOTE: Higher end of the jig goes directly behind the trailing edge of the armor plate.



Holding the jig tight against the bottom of the hull and firmly forward against the trailing edge of the armor plate, glue the 1st and 3rd-7th road wheel arms in place. This will require some sanding and/or liberal amounts of liquid cement because the DML pieces (1 and 3) have hexagon shaped locating tabs to help align the arms on the tank model. You will have to make sure the road wheel arms are repositioned so that the arms fit firmly against the overhang on the jig. Let these pieces set thoroughly before moving on.



Because the 2nd and 8th road wheel arm have a rectangular cross section, they have to be aligned differently. Glue these two road wheel arms to the hull (DML part# 2) and use the jig as a straight edge to align the ends of all 8 road wheel arms as shown. Then let the road wheel arms set for at least 24 hours so the bond will be strong enough to hold up to the road wheel assembly.

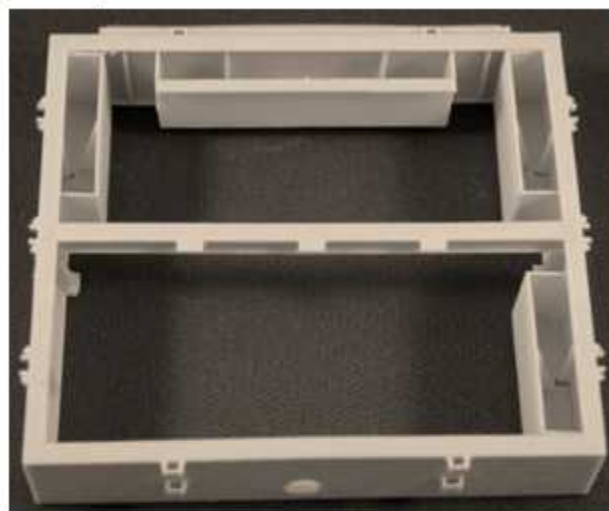


Here, we have installed the running gear and you can see a slight upward slope to the front of the vehicle. You can increase the downward angle on the first three road wheel arms just a bit if you want more angle, but don't over do it.

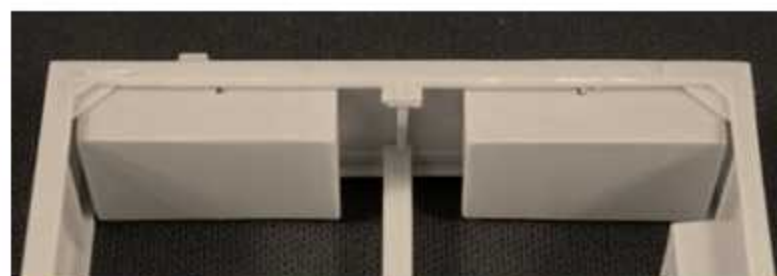
NOTE: At this point in your assembly, we are going to rely on you to integrate the kit instructions. The build gets much easier from here on out, and, honestly, you can start to jump around a bit. Pay attention to our pictures and you will see at what point we start to include the kit pieces. We will point out the basics, but this part should be pretty straight forward.

BOXSTRUCTURE STORAGE BINS

Glue the storage boxes and upper cross member to the box structure as shown below. See additional pictures for construction details and proper alignment.

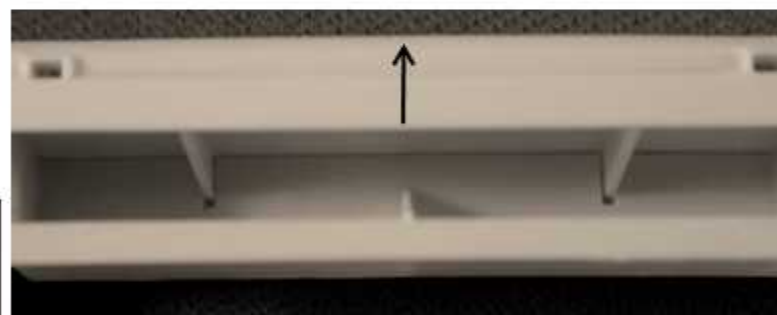


Cross member alignment – tabs point to the rear



The side storage boxes have a notch in the bottom to fit over the ribs on the inside of the box structure. These notches are NOT centered. The longer end of the storage box goes to the front/rear of the box, NOT toward the center. Be sure to note that two of the side storage boxes are identical. They go in right rear and left forward positions.

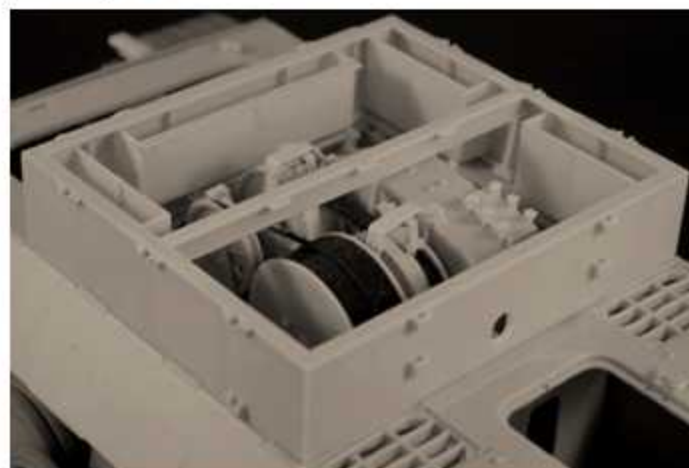
NOTE: The forward center storage box is optional. It was not installed on every bergepanther.



These pictures should assist you in understanding how to glue all the storage boxes in place.

BOXSTRUCTURE INSTALLATION

Glue the box structure to the top of the hull. Refer to the pictures below for proper location. Be sure it fits flat to the upper hull on all four corners.



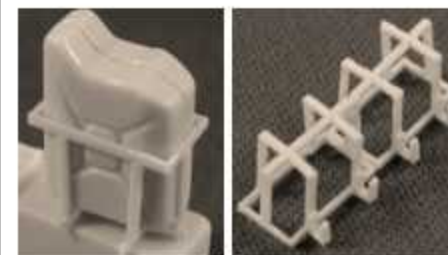
The rear edge of the box should be aligned parallel to the hull line between the upper hull and the engine deck just forward of the grills. It should also be centered side-to-side and fit just inside the weld beads on the plate interlock along both sides of the hull. If you have positioned the box structure correctly, the forward edge should sit over and aligned with the roof support behind the driver's compartment.



You may have to sand, trim or remove the vent on top of the winch body. It all depends on how your cross member fits in your box structure and how high the winch body is on your build.

BOXSTRUCTURE SIDE BOARDS AND FITTINGS

Most of the following assembly is done in simple pictures with explanations where we think they are needed. You should decide whether or not you will model sides down, or removed and the jib boom stowed or erected BEFORE you start this step.



Use the jerry can blank provided to support the fragile holder pieces as you glue the upper section to the lower "cage" piece together. Keep the blank in place as you remove the assembled holder from the casting gate and sand the bottom flat. Glue two holders together and then attach the mounting brackets to the side as shown in the second picture. Finally, glue the double jerry can holder to the left rear wall of the box structure. Center the holder assembly on the strengthening rib cast into the wall, and make sure the bottom of the holder rests on the upper hull.



NOTE: I know this is not an easy assembly, but it can be done. This was necessary to keep from having to make a single set of PE just for this kit. And, because we know it is not an easy assembly, we gave you an extra jerry can holder – just in case.



Remove the bolt or stub from one side of each hinge and glue as shown above.

PAINING GUIDE

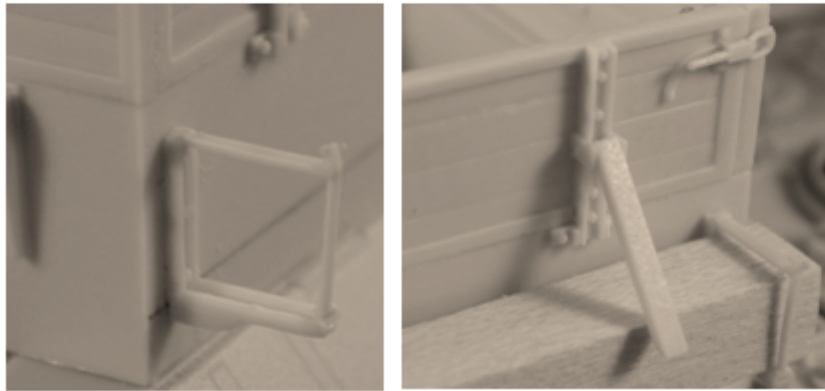
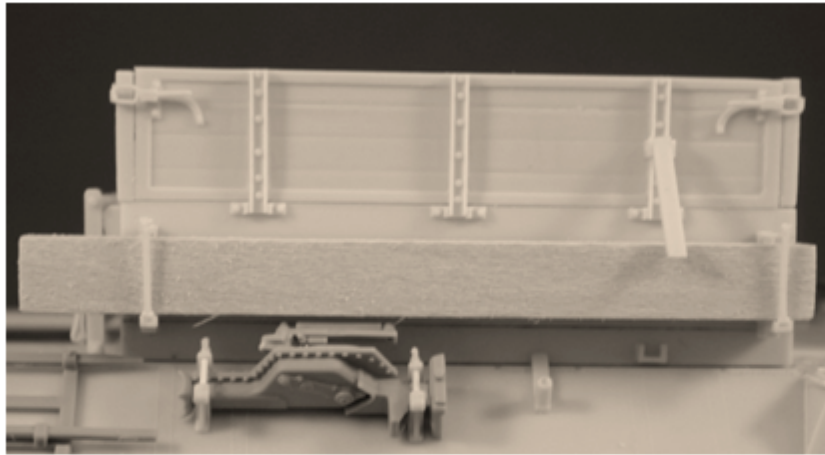
ALL pieces on this page are base panzer yellow, but subject to whatever camo scheme you have chosen.

Canvas tarp – field gray
Hinge arm – flat black or panzer gray

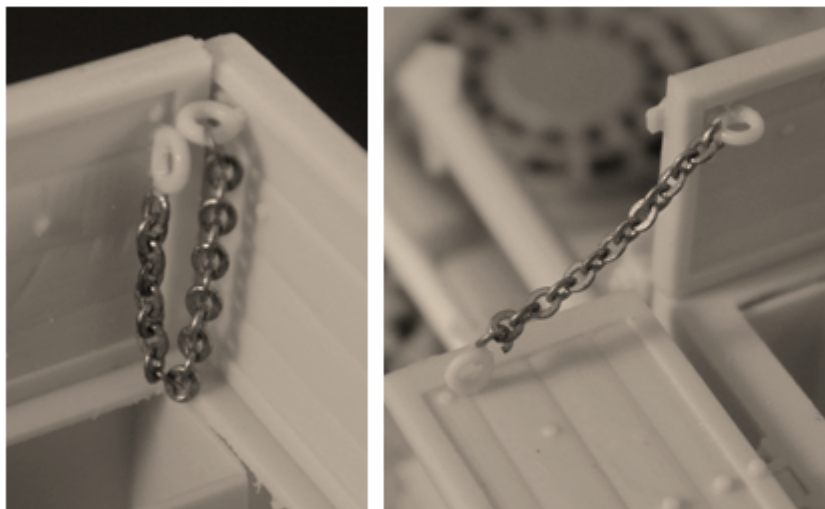
Glue the front side board in place (it is marked "P"). Then glue the canvas weather tarp in place. There is a lip on the back side of the tarp that fits under the rain drip cast into the side of the box structure. Then glue the two tarp hinge pieces in place as shown in the close up picture (above right). You need to remove the bolt detail from one side of the hinge to get it to fit tight against the canvas tarp/frame. Keep the bracketed end firm against the top of the hull.

BOX STRUCTURE SIDE BOARDS AND FITTINGS CONT.

Assemble the mounting brackets and push beam to the left side of the box as shown. Glue the left side wall (marked "L") in place either up or down as desired. Then the support brace and front/rear latches as shown in the close up.

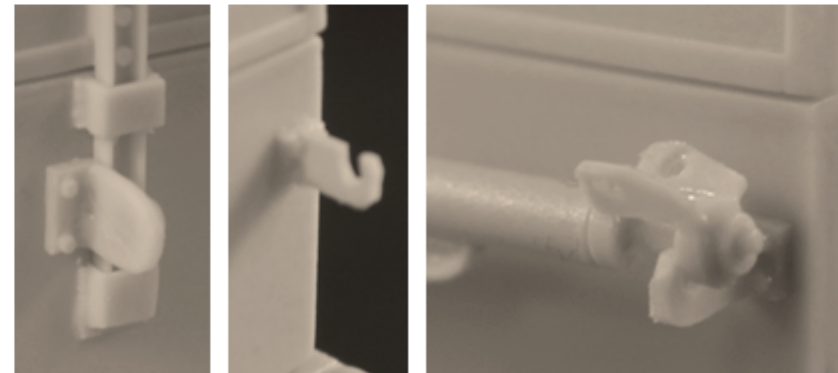


The latches are made from two pieces: a latch ring and a handle assembly. If you wish to show the latch closed, glue these two pieces end-to-end and then fix them to the sides of the boards as shown here. If you wish to show them open, then glue them in an angled position (see right side board for picture).

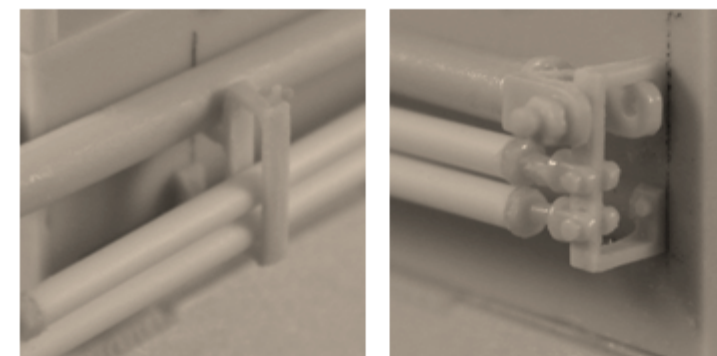
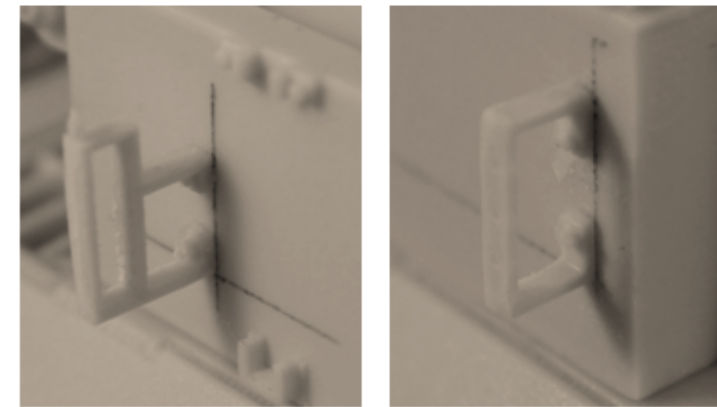
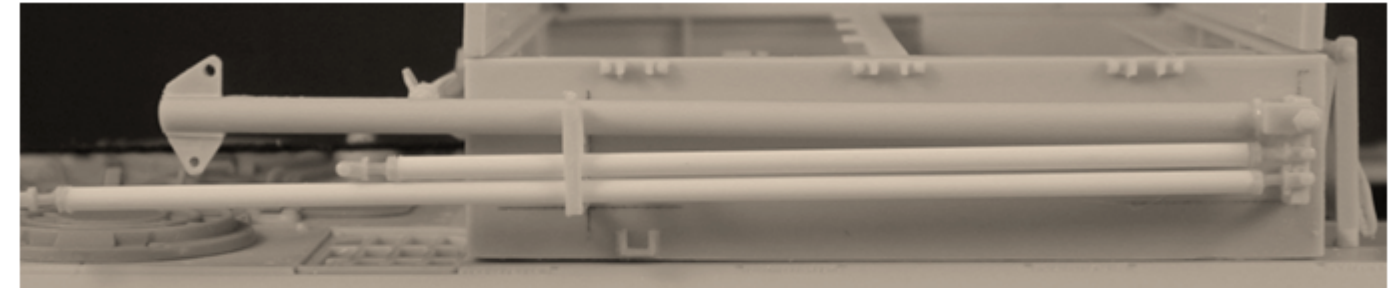


Use the two pictures above to assemble the chain supports for the side boards. Use the medium sized chain (the size you have the most of) for this assembly. You may want to use fine wire to make attachment loops for the chain, or, if you are patient enough, you might be able to open a link on the end of the chain and fit it to the resin loops. Use your best judgment for how to do this.

Glue the rear side board in place (it's marked "R"). Then glue the left and right jib boom mounting brackets in place as shown. Use the boom to assist in positioning the right bracket. If the boom is to be shown in the stowed position, mount it as shown. You will need to glue the top onto the main boom assembly before mounting it.



If you are going to show the jib boom erected, glue the mounting brackets to the right side of the box structure as shown. If you are going to show the boom in the stowed position, glue the remaining boom pieces in their mounting brackets as shown. The forward mounting bracket has three holes in it. The ends of the boom pieces were bolted into these holes and the other ends were just left inside the rear bracket while the boom was stored. Cut two pieces of 0.06 in rod and glue an adjustable mounting bracket to each end of these rods to make the boom supports.



The short arm should be 60 mm long, and the longer arm should be 82 mm long.

NOTE: These are approximate lengths. If you build your jib boom erected, your arms may need to be slightly longer/shorter depending upon small variations in your build.

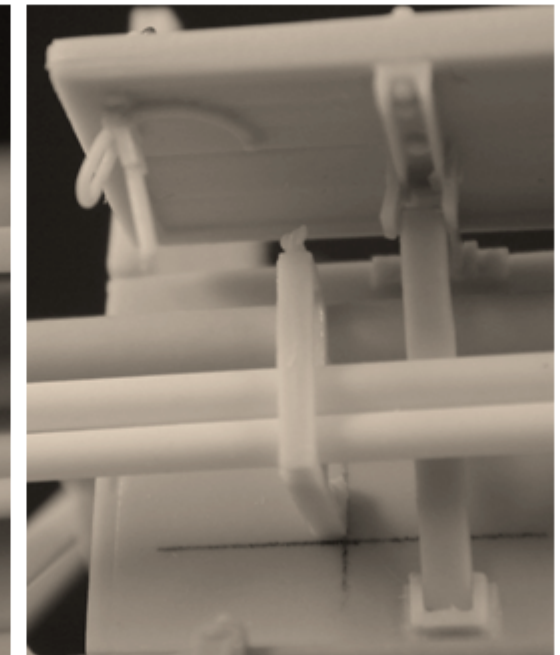
PAINTING GUIDE

Chains	--bare metal
Push beam	-- weathered wood

All other pieces in this assembly are subject to the camo scheme you are using on your model. The only suggestion we have is to try lightening the wooden sections of your paint to simulate the heavier weathering and fading that would show up on wooden components.

If you chose to model your kit with one or more of the side boards lowered, fit the three feet of the left or right sideboard JUST below the hinge sections molded into the left/right sides of the box structure.

NOTE: Technically, it is not correct, but I glued the feet of the right side board IN and level with the top of the hinges molded to the box structure. It makes a stronger joint.

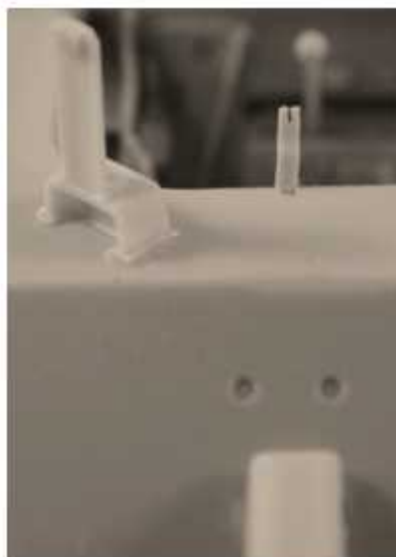
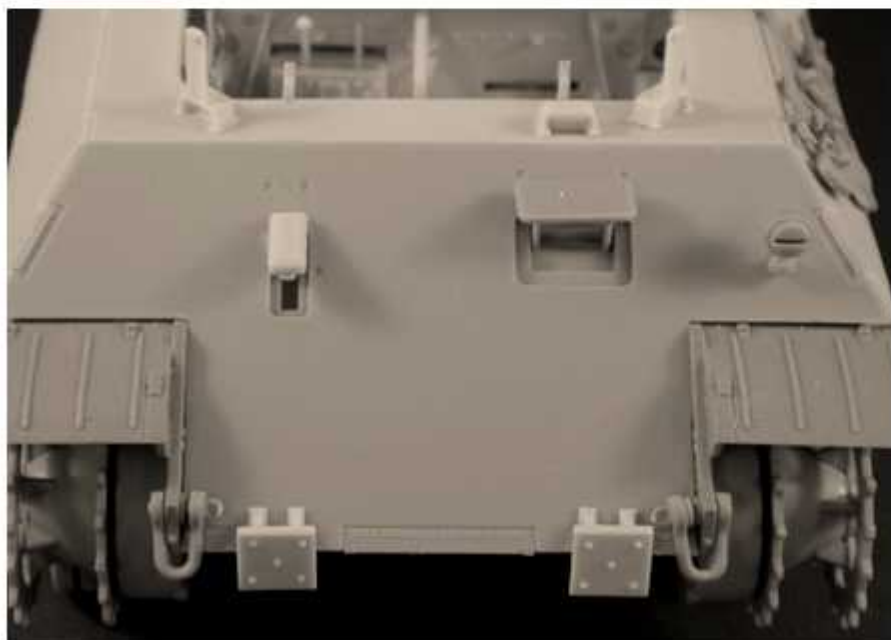


These pictures show how the side board support arm was positioned when the boards were folded down. They also show how the latch assembly would dangle when the boards were down. Use them to aid your assembly accordingly.

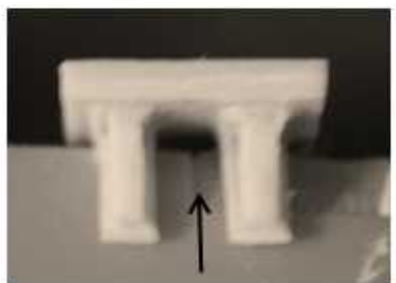
BOW AND HULLSIDE ASSEMBLIES

You will need to be careful to note the areas that will need to be filled on the hull during this step. We used the kit pieces to build the masters, and some of the locating holes will not be needed for this conversion. Find, fill and sand them. Also, you will need to re-work some of the kit pieces to replicate the pictures you see here.

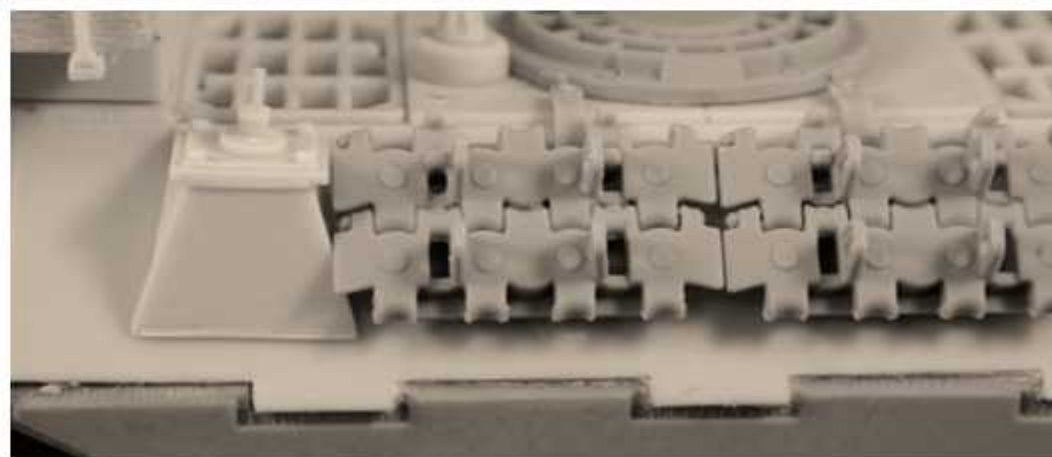
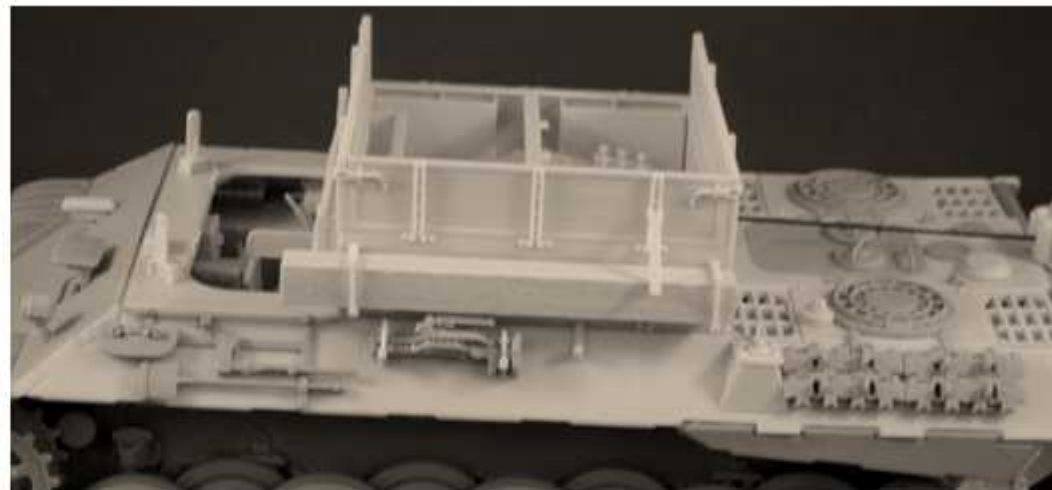
NOTE: As a rule, the early A bergepanther equipment storage was generally identical to the Panther D. The pictures should point out the few differences you'll need to note.



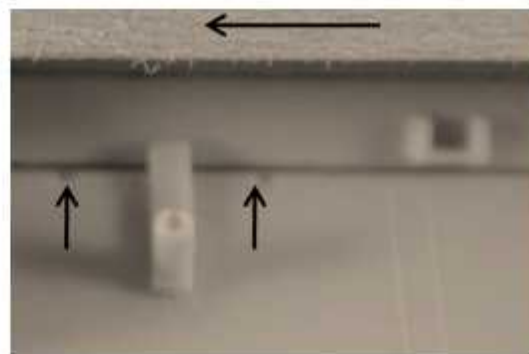
The new periscope guards should be self-explanatory. Glue the weather tarp hold downs centered on the MG and Vision covers as shown. The bottom of the hold downs should fit on the lower lip along the inside of the upper hull and fit tight against the front edge of the hull. You may want to shorten the hold downs a bit, just be careful to make them both even length if you do.



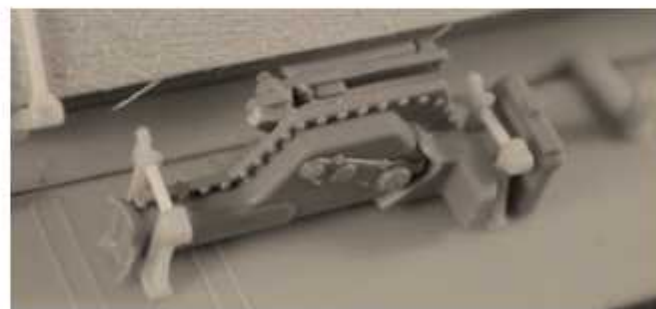
Glue the push points to the bow as shown. They should be centered on the inner edge of the joint line indicated by the arrow in the picture. Keep the push points as squared and level as possible.



Be careful when sanding the jib boom mount. You want it to fit flat and level against the side of the hull. Modify the kit pieces to make the spare track racks.



Glue the tow cable retainer to the left side of the hull as shown. It should be forward of the side board support and centered on the upper hull joint as indicated by the arrows. If you are modeling the boom erected, you should make and use the short support arm to help locate the rear job boom support arm mount as shown. If the boom is stowed or on the other side, an approximate location is fine.



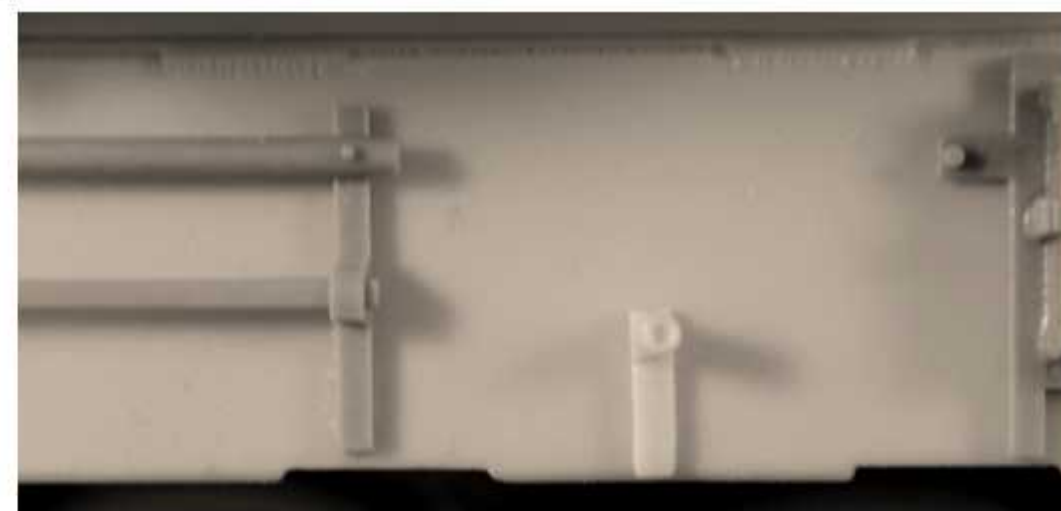
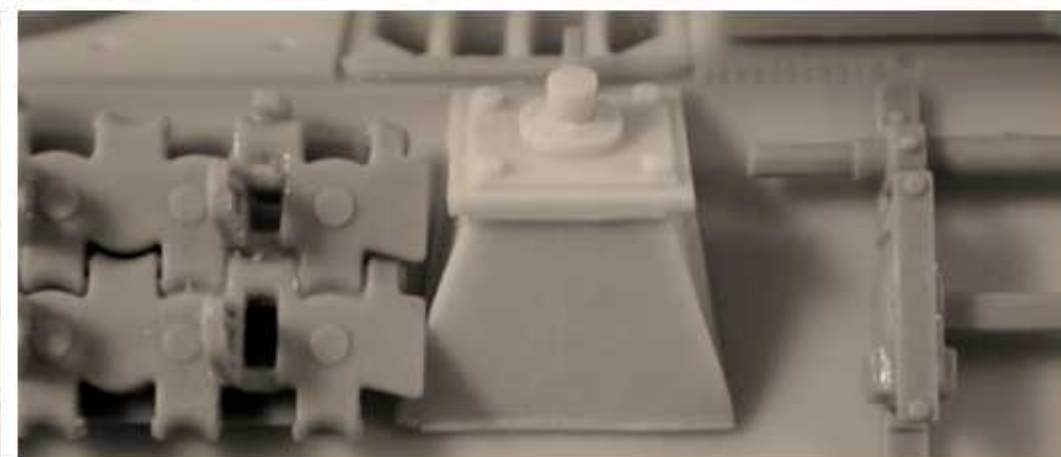
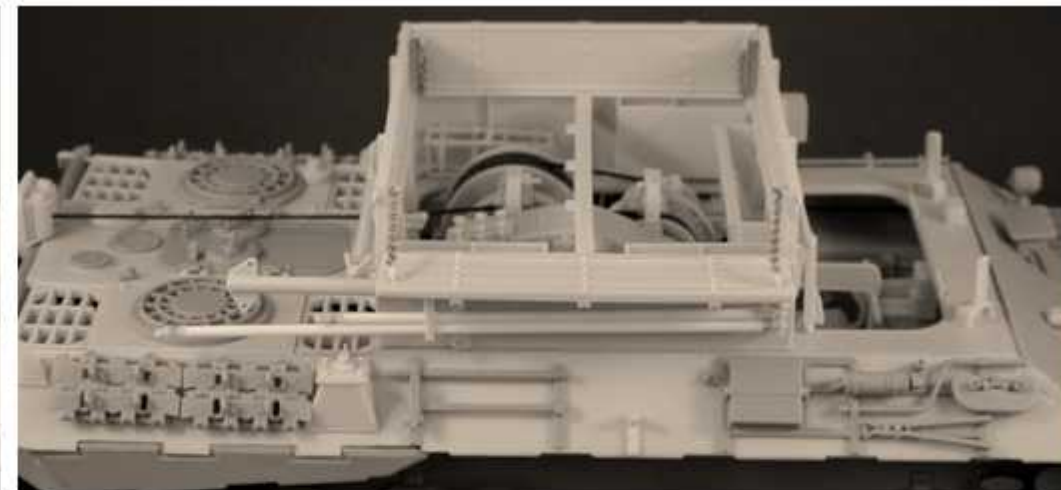
We have provided modified copies of the kit pieces to mount the jack on the side of the hull as shown. Make the retaining rods out of scrap 0.020 in plastic rod as shown.

PAINTING GUIDE

Hold-down clips -- flat black or panzer gray

Again, the pieces in this assembly are subject to the camo scheme of your vehicle.

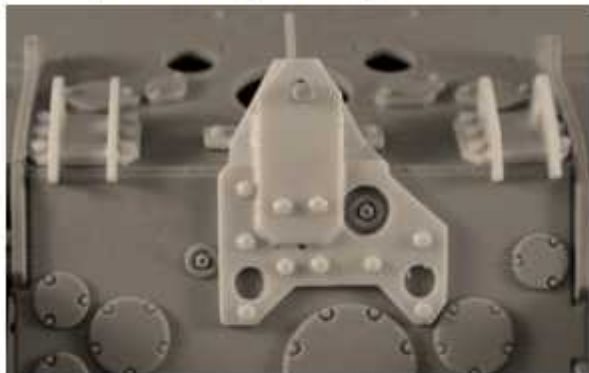
At this point, you should start incorporating the kit painting instructions for the kit pieces.



Repeat the same process for the right side of the hull. The rear boom support arm mounting point should be located using the short support arm if you are going to show the boom erected on the right side. Also, glue the right tow cable retainer to the lower right side of the hull as shown in the detail picture. And again, make sure the boom mounting point is flat and level against the side of the hull. And you have to use the kit pieces to make the spare track hanger again. Otherwise, this kit instructions apply to everything else on this page.

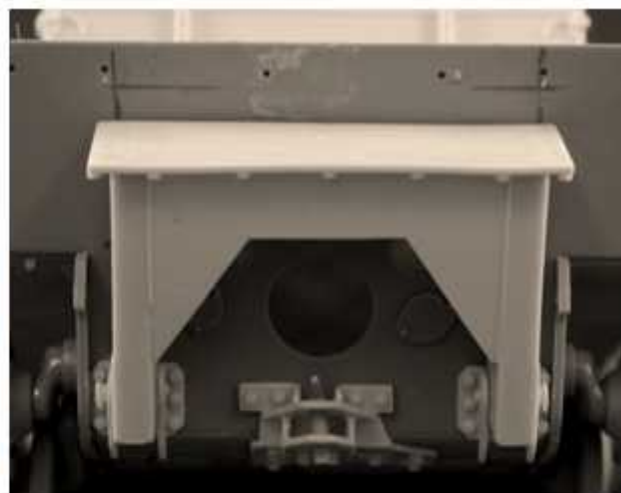
SPADE AND REAR HULL SIDE ASSEMBLIES

Once again, incorporate the kit pieces as shown in this assembly. Study these pictures to see what areas need to be filled and sanded on the kit rear armor plate. Follow the pictures and notes to assemble the spade assembly.



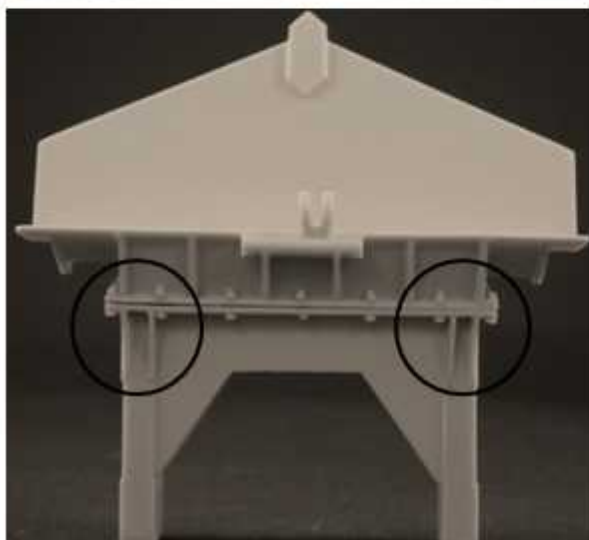
Glue the tow pintle and spade mounts to the hull as shown. Be sure to keep the spade mounts as far outside as possible or the spade may not fit properly. Test fit if you have any doubts. You may want to sand the outside edges of the spade mounts just a bit to make sure you won't have trouble mounting the spade.

Use the spade arms to mark the location of the stay mounts as shown in the picture to the right.



Glue the spade stay mounts to the rear hull as shown. Then modify the kit parts as shown.

NOTE: The convoy tail light needs to be relocated as shown under the left sponson. The upper clamps on the exhaust should be modified to resemble the late Panther G style clamps.



Glue the spade arms to the spade assembly.

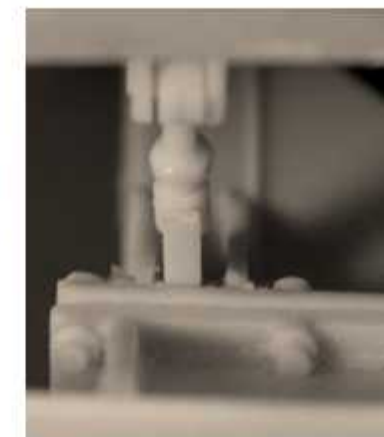
CAUTION: There is a top and bottom to the spade arm assembly. The two brackets on the spade arm should go up.

NOTE: Sand the casting blocks down until they are just barely left, then hollow them down a bit **WITHOUT** sanding the outer edges of the spade and spade arm. This way, you can get a good, flat fit between the mounting plates on these two pieces.



Attach the spade to the mounting points using the mounting pins and retainer plates as shown. The pins should be inserted from the outside. There is no "right" alignment for the retainer plate (it rotated).

CAUTION: DO NOT glue the mounting pin in place. Glue the retainer plate to the side of the mounting pin and spade arm on the inside of the spade arm. This way, the spade assembly will move up and down and allow you to position it where you want it for your final build.



Make two adjustable retaining screw assemblies as shown in the top left close-up. The ends of the right hand piece have been intentionally made a bit longer than necessary. Trim them to fit as needed. Just make sure you trim each side to fit accordingly to allow for minor variations in the retainer mounts on the back hull. Next, fit the adjustable retainer into the mount **BUT DO NOT GLUE IT!** Then fit it to the bracket on the spade arm and insert the retaining pin as shown in the right hand close-up. At this point, if you like, glue the adjustable retainer to the mount from the bottom side so the glue will not be as noticeable.

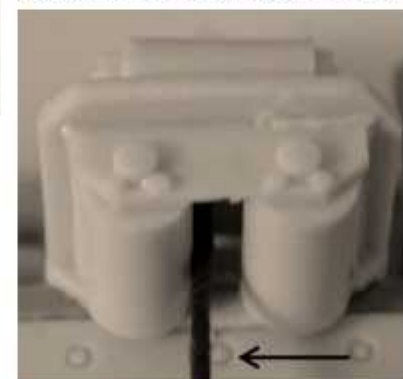
NOTE: If you show your spade in a lowered position, the adjustable retainer assemblies should be shown hanging straight down, and the retaining pins should still be in position in the spade arm brackets.



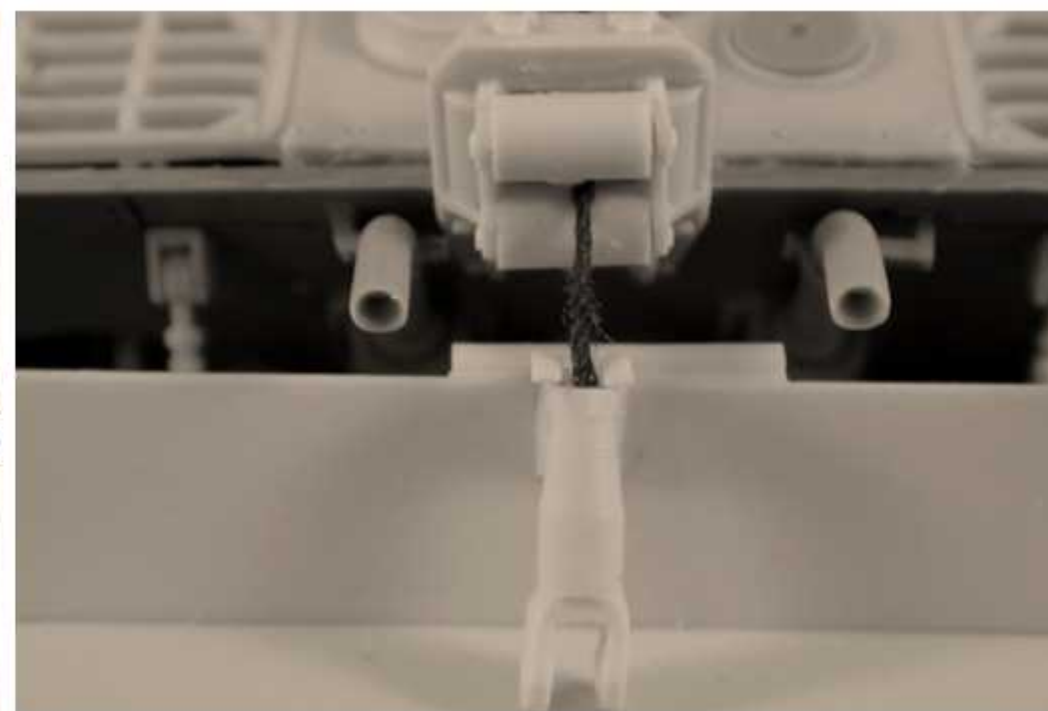
Glue the tension spring roller assembly in place on the inside of the box structure as shown.



Glue the two rear rollers in place as shown.



Glue the roller assembly as shown. Center it on the indicated bolt on the rear deck.



Glue the roller assembly to the rear hull as shown. Then glue the tow hawser to the end of the tow cable as needed for your model.

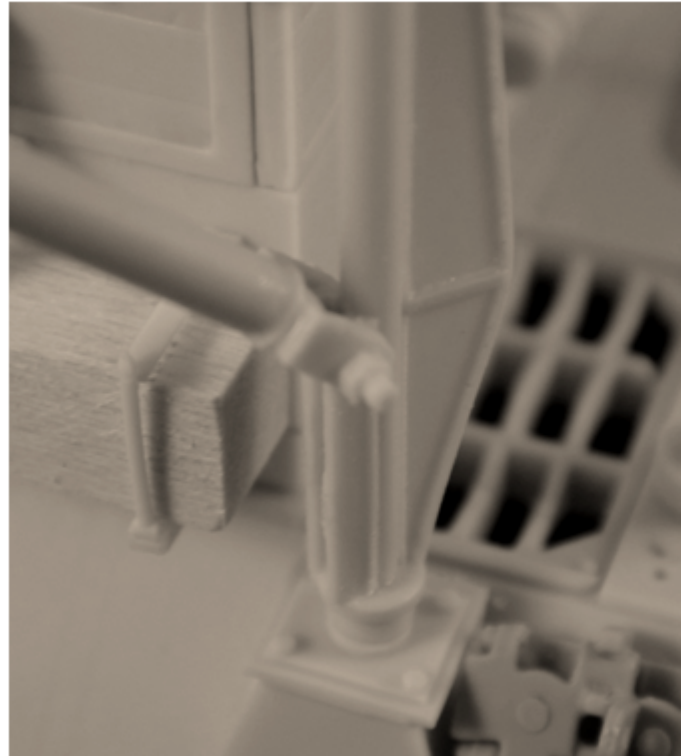
NOTE: The cable should be slightly offset to the left side of the tank. Run your tow cable straight back to help align the roller assembly. Remember that the tow hawser is what lifted the spade, so, if your spade is in the "up" position, the hawser needs to be tight against the back of the spade.

PAINING GUIDE

As with the last few steps, the base color for ALL parts in this step should be panzer yellow. That is subject to your camo scheme. Some things to keep in mind are the areas that would be scraped and weathered due to dirt on the spade face and the tow cable rubbing on the rollers. Also, there would likely be oil and grease stains around the roller assemblies.

JIB BOOM AND HOIST ASSEMBLY

If you will show the jib boom erected, use this step to construct it. Keep in mind, there are many positions in which you can put your boom. Feel free to use your own initiative to do so, these pictures are only a guide. Also, remember, if you position your boom on the right side, some of the detail pictures in this step need to be reversed.



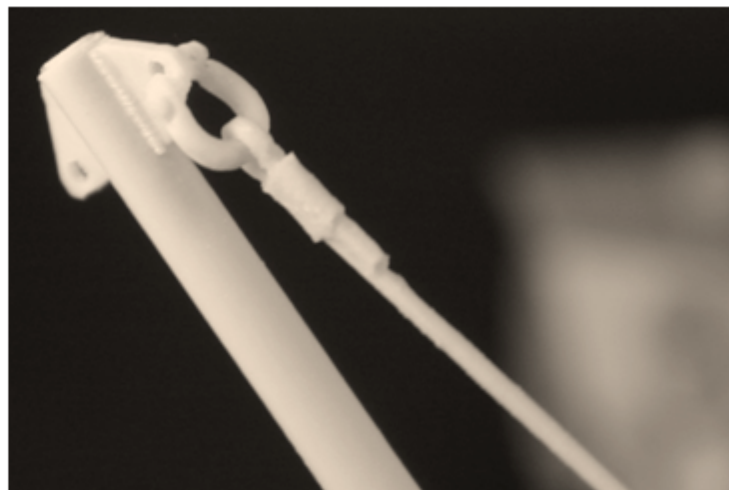
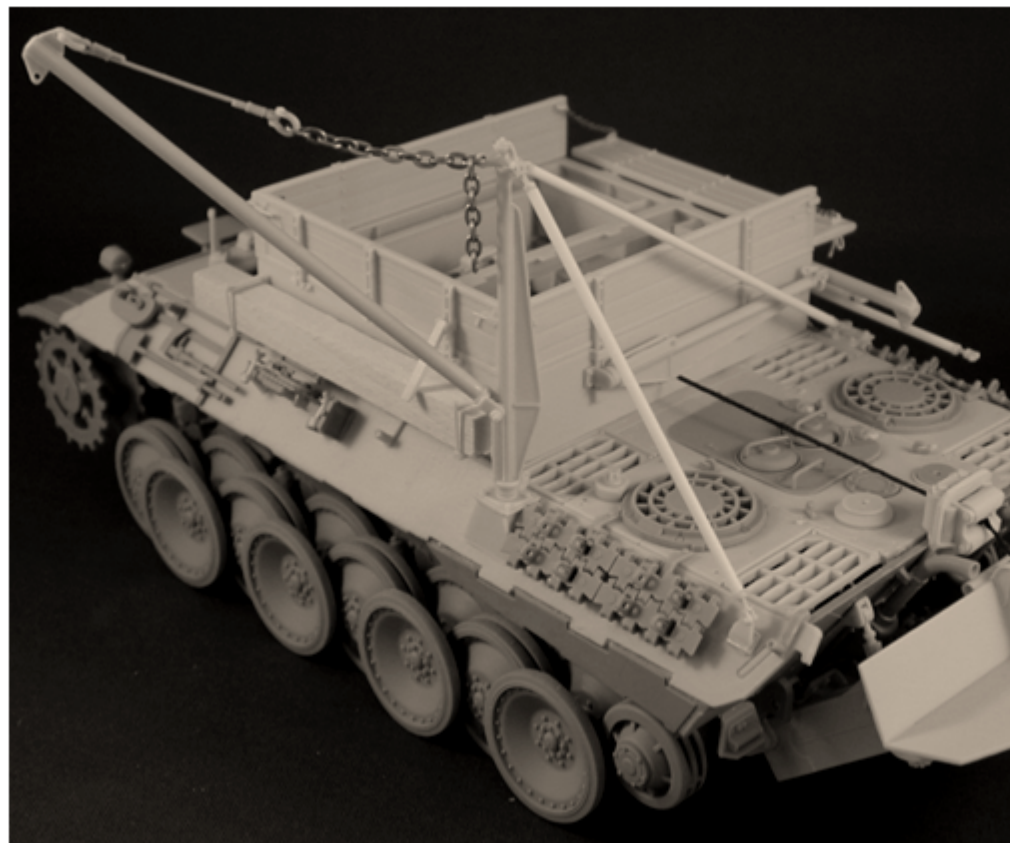
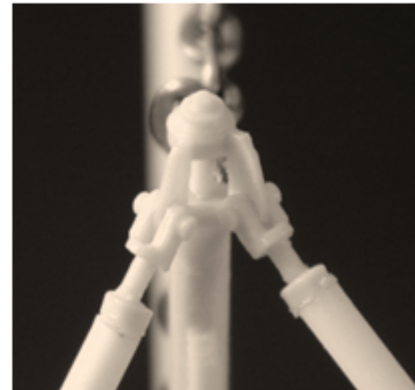
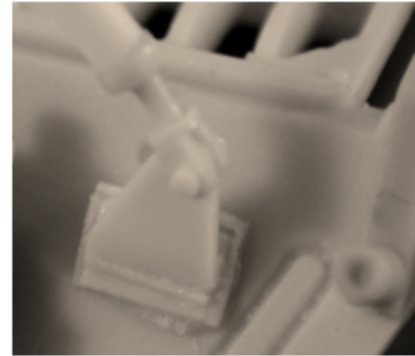
The boom assembly fits over the tab on the mounting points. You may need to trim the tab or drill out the boom a bit. The boom should sit all the way down on the mounting point.

Use the pin and nut to attach the boom arm to the boom as shown in this picture and the nut detail close-up. If you trim the pin and then glue the nut to it, the boom arm will remain free to move up and down.



Retaining nut detail close-up

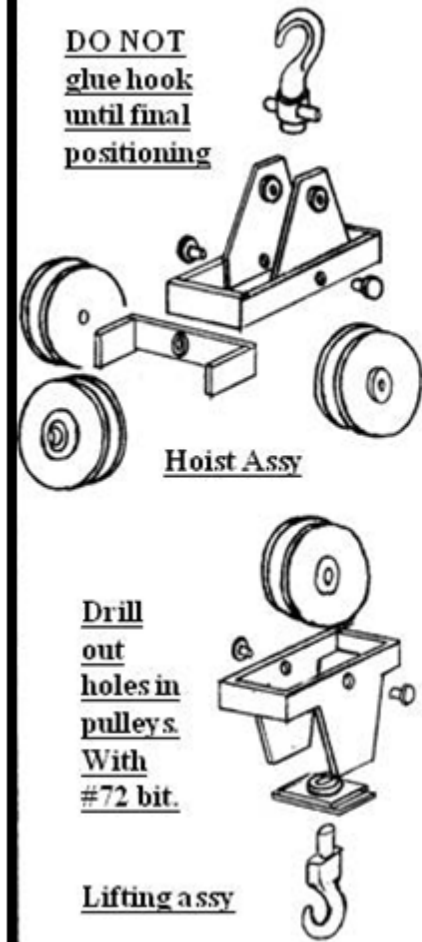
The adjustable ends of the support arms fit to the mounting points on the boom mount pads and hull support brackets and to the top boom mounting bracket as shown in these last three pictures. Use the 0.062 in plastic rod to make the support arms. Remember to cut the plastic rod to fit your kit. See step 25 for rough measurements of these rods.



There are many ways to assemble the boom arm support. IN our demo, we use one system often seen on the early bergepanthers. The larger chain – which is adjustable by how much of it you use – was attached to a cable by devises. The cable was then attached to the end of the boom arm. You ca also use nothing more than the large chain and a devis on the end of the boom arm. Feel free to model this detail as you see fit. In reality, there is no "right" way to do it. The crew would have rigged the boom whatever way they could that would hold the weight of the load they were lifting.



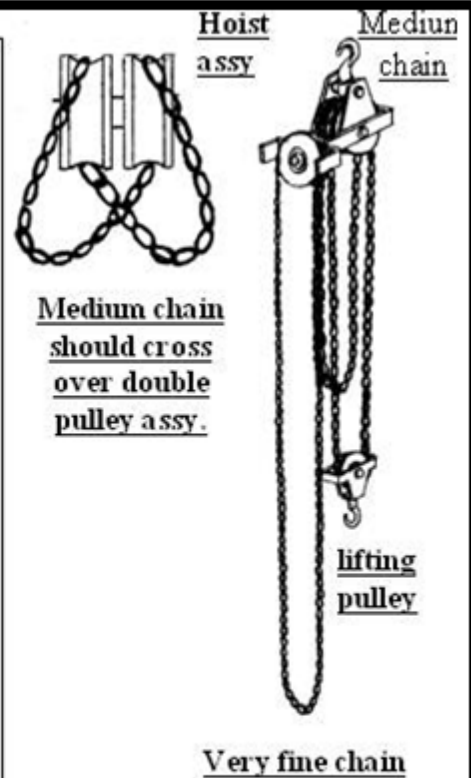
NOTE: Slip the hook into the boom head mounting bracket. You may need to trim it a bit. Try not to glue the hook so it can swing to allow proper alignment of the boom arm and support cable/chain assembly.



. Assembly is pretty straightforward. Locate your pieces and assemble them as shown in the drawings. You will have to carefully glue the 2 identical pulleys together to make the double pulley assembly: flat sides facing each other.

. If you are careful how you glue the pulley axles in, the pulleys will remain functional. You will have to drill the holes through the pulleys.

. When rigging chain, we recommend gluing the chain to the pulleys on the top hoist assy so the frames around the pulleys hide the glue joints. If you DO NOT glue the chain to the single lifting pulley, it will remain adjustable until you finally set it with a drop of glue.



The drawings from our jib boom hoist #2 are actually easier to understand than pictures would be, so we have provided them for you here. This should be all you need to assemble the hoist.

