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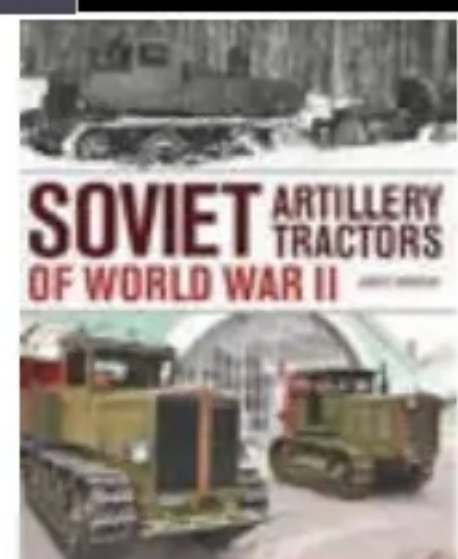


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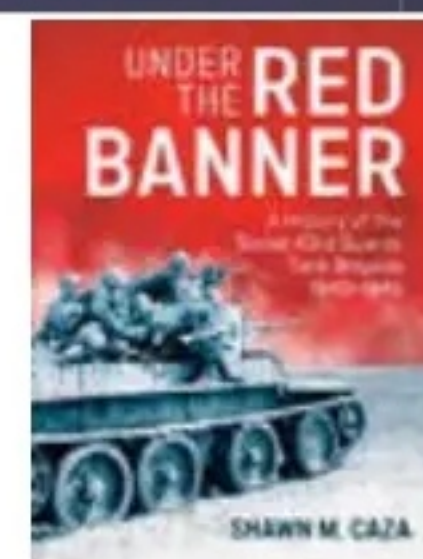
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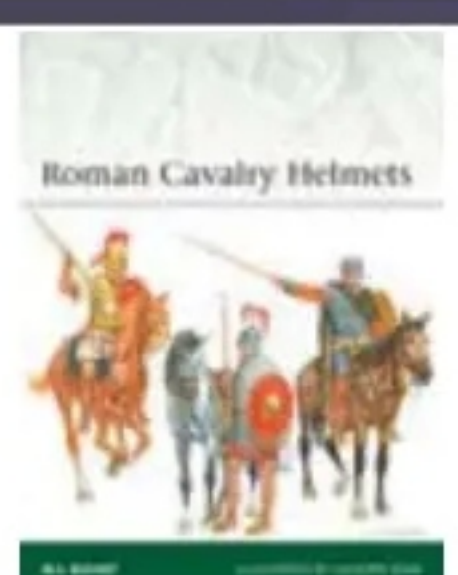
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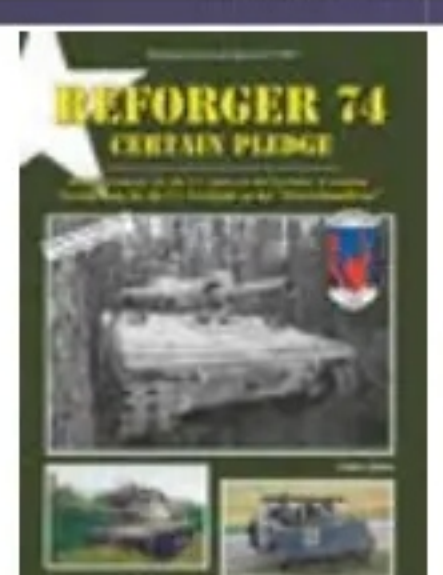
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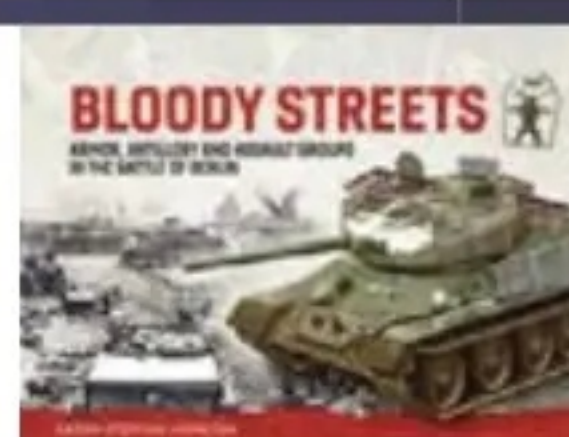
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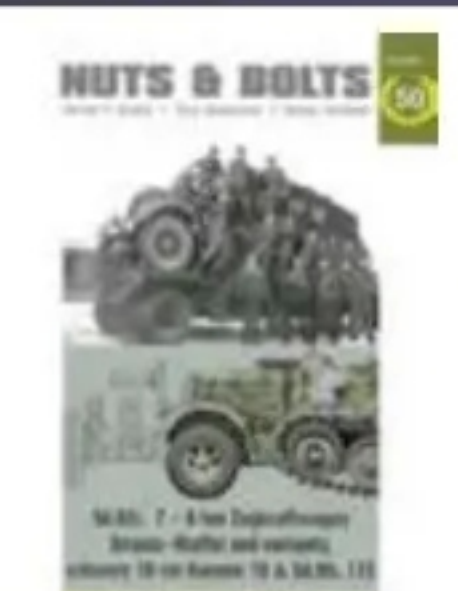
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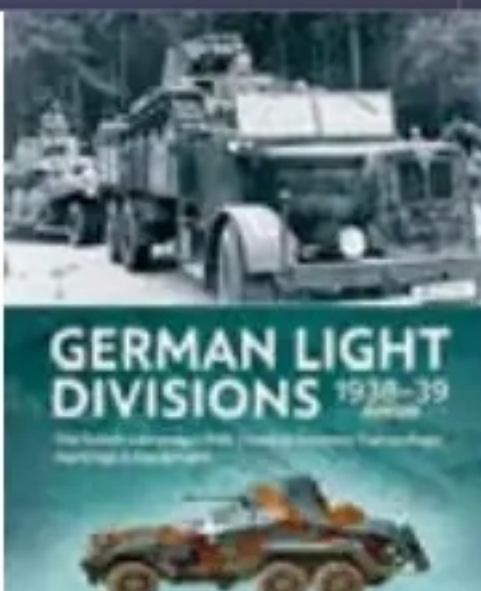
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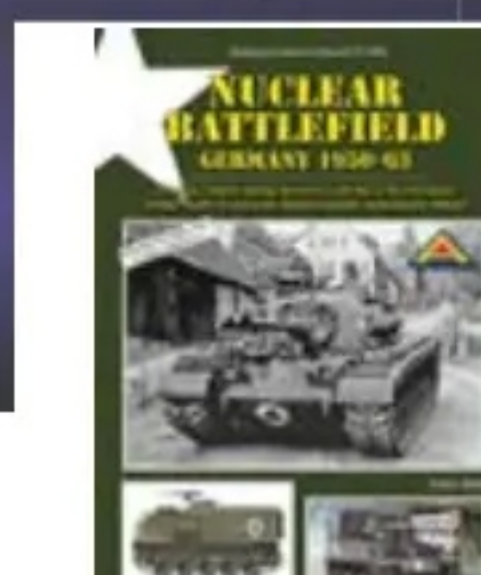
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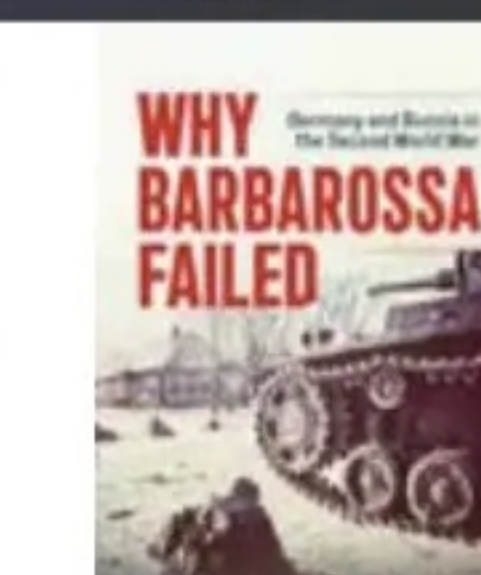
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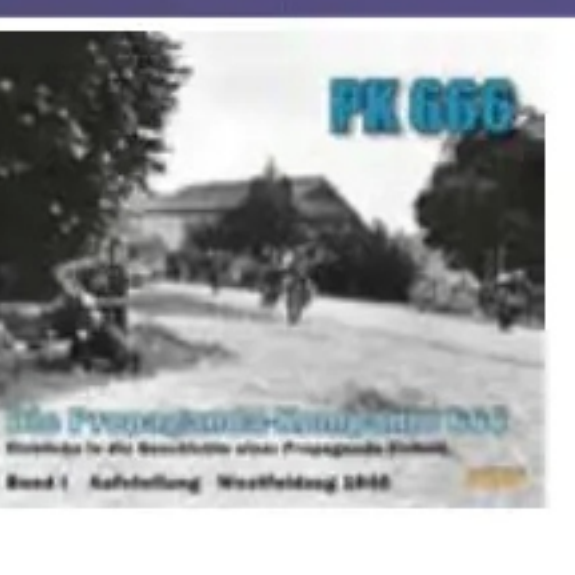
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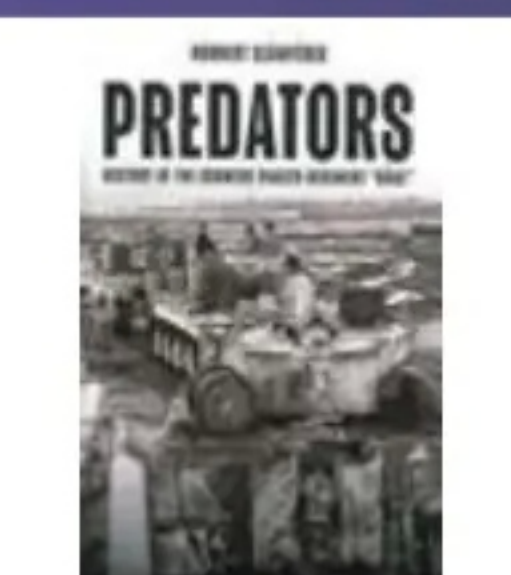
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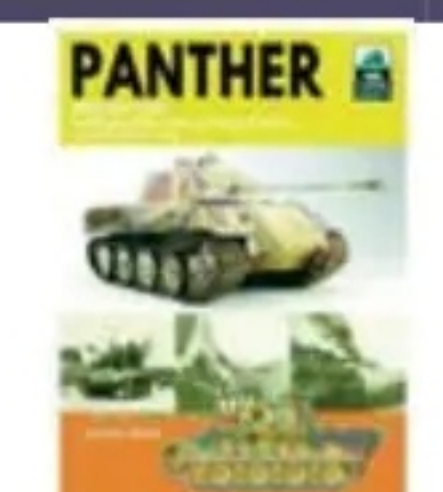
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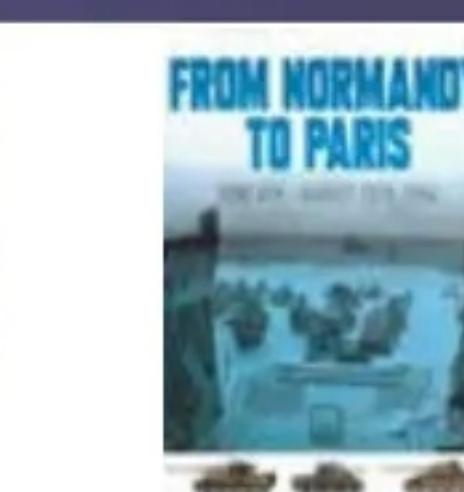
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CONTENTS

- | | |
|----|--|
| 2 | Roadkill
Tracy Hancock's Panther G in 1:35. |
| 14 | Half-print Half-track Part Two
The Editor gets Funk-y with his Sd.Kfz 251/3 conversion in 1:16 |
| 32 | Hellcat
Antonio Martin Tello shares his build of the new Tamiya M18 in 1:35. |
| 42 | Afghan B-27
Zack Sex builds Trumpeter's heavy hitter in 1:35. |
| 56 | Canadian Cougar
UN-phased,Ian Barraclough creates the commander's ride. |

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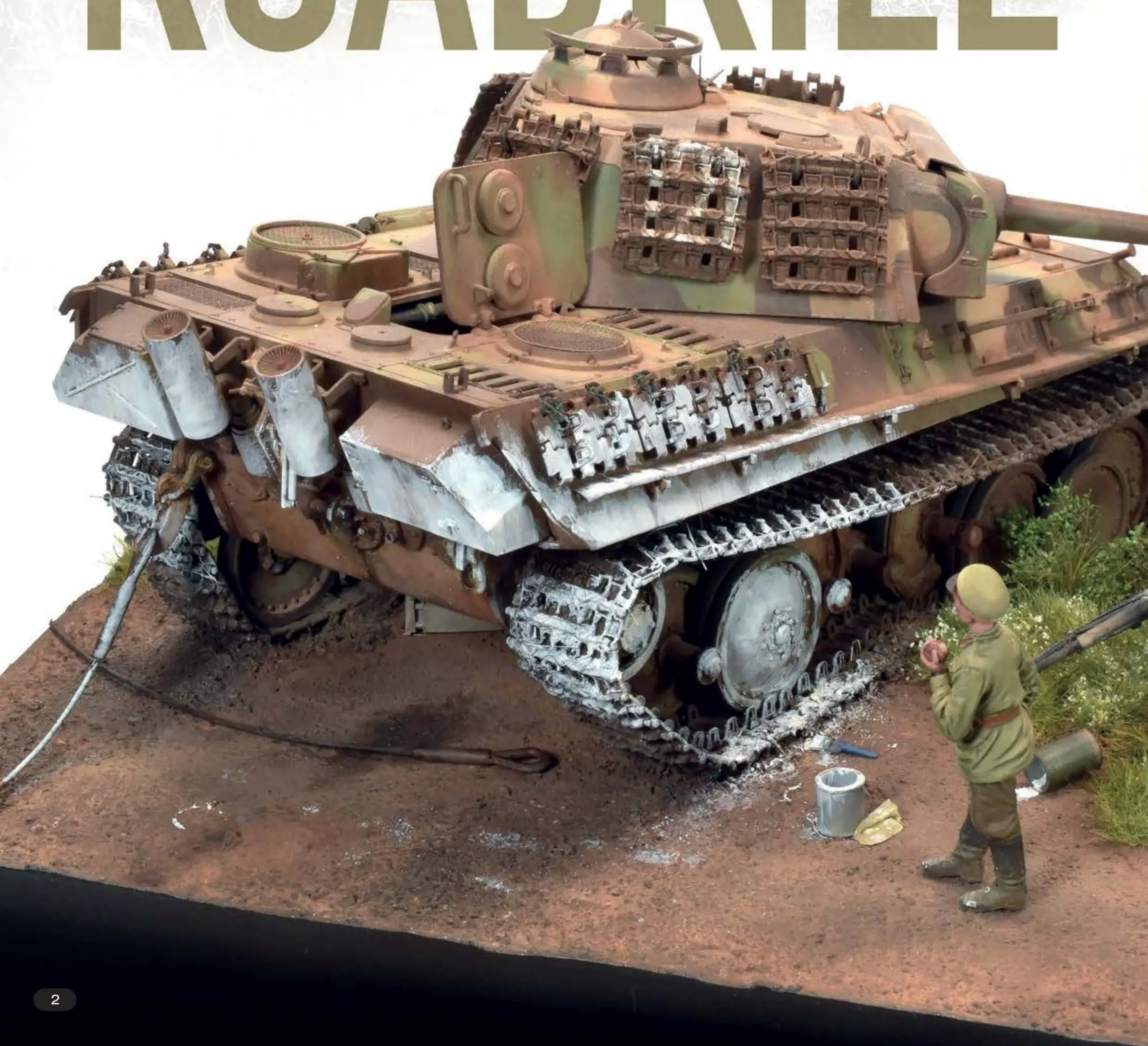
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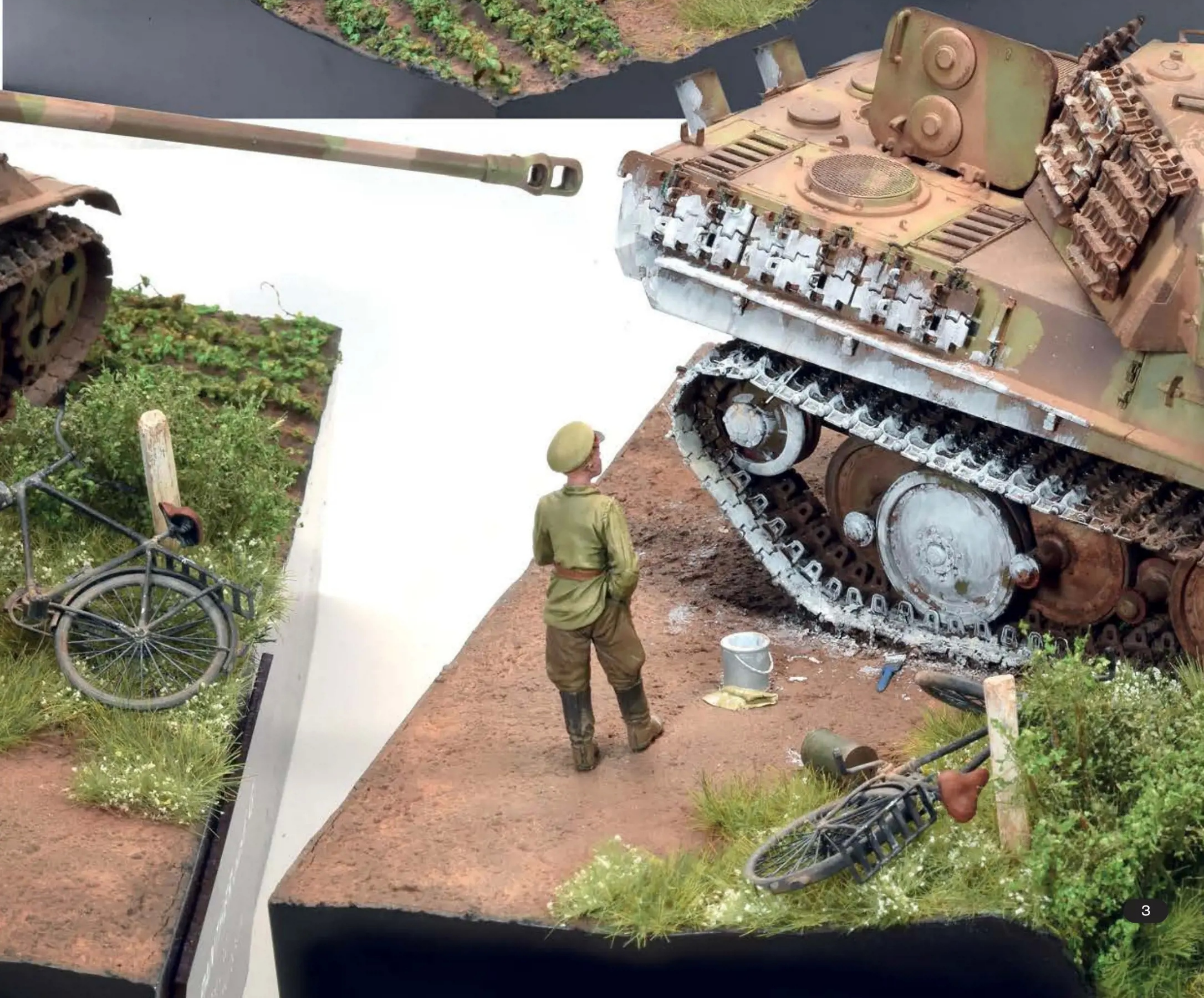
We all have projects like this; the kind that simmer in the background until everything seems to come together with the aligning of stars, and then it must be built. Case in point: for ages I'd had an image of a Panther G abandoned crossing a ditch into a field, its rear half painted in white anti-collision markings used by the Russians as they advanced west. This small, low-res image resided on my phone until the publication of Panzer Wrecks 20 where the same

vehicle was shown from the opposite side and identified as belonging to 1./Pz. Rgt. 24 with the trophy number "61". Some sleuthing by some friends produced photos of a neighbouring Panther G with the trophy number "62", which confirmed the unit markings on the front hull. Another appealing aspect of this particular vehicle is that the locals had already begun stripping the tools and external road wheels from both sides, adding a bit of interest as a modelling

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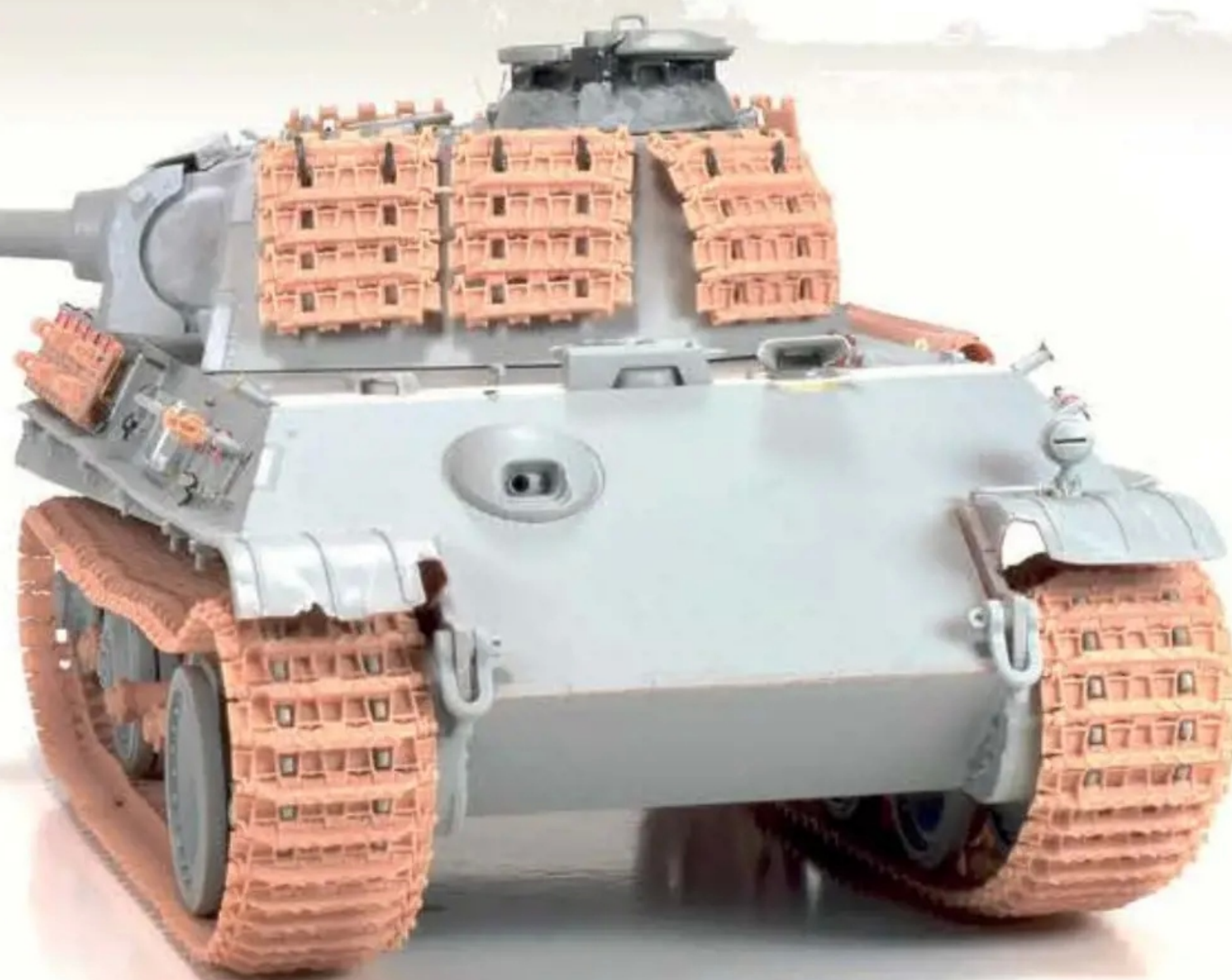


TRACY HANCOCK'S ABANDONED PANTHER Ausf.G

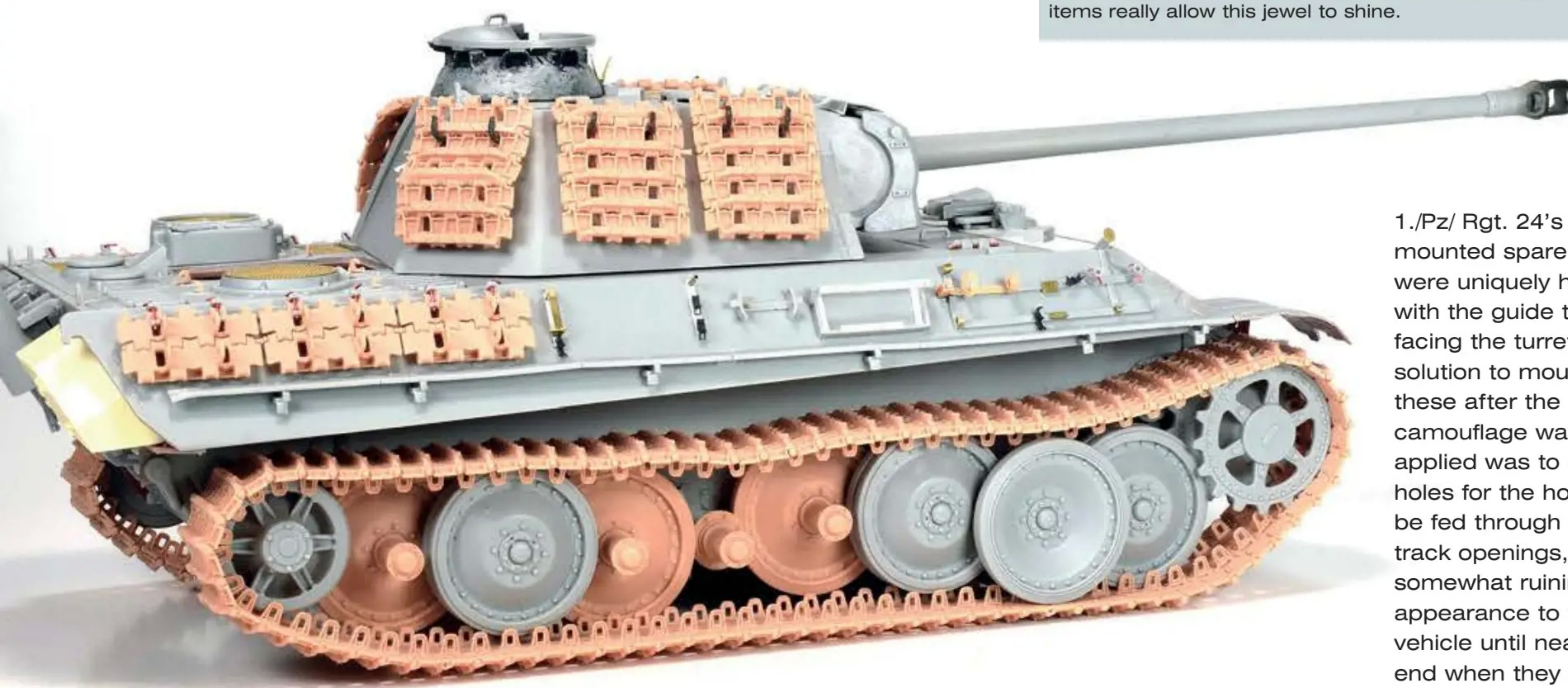


Dragon's brilliant Panther G Late Production kit 6268 was exhumed from the stash and adorned with after-market in the form of T-Rex 3D printed tracks, tool clamps, lifting hooks, fire extinguisher brackets, hubs and wheels; Panzerart cupola and IR compatible storage bin, and a Heavy Hobby gun cleaning tube.

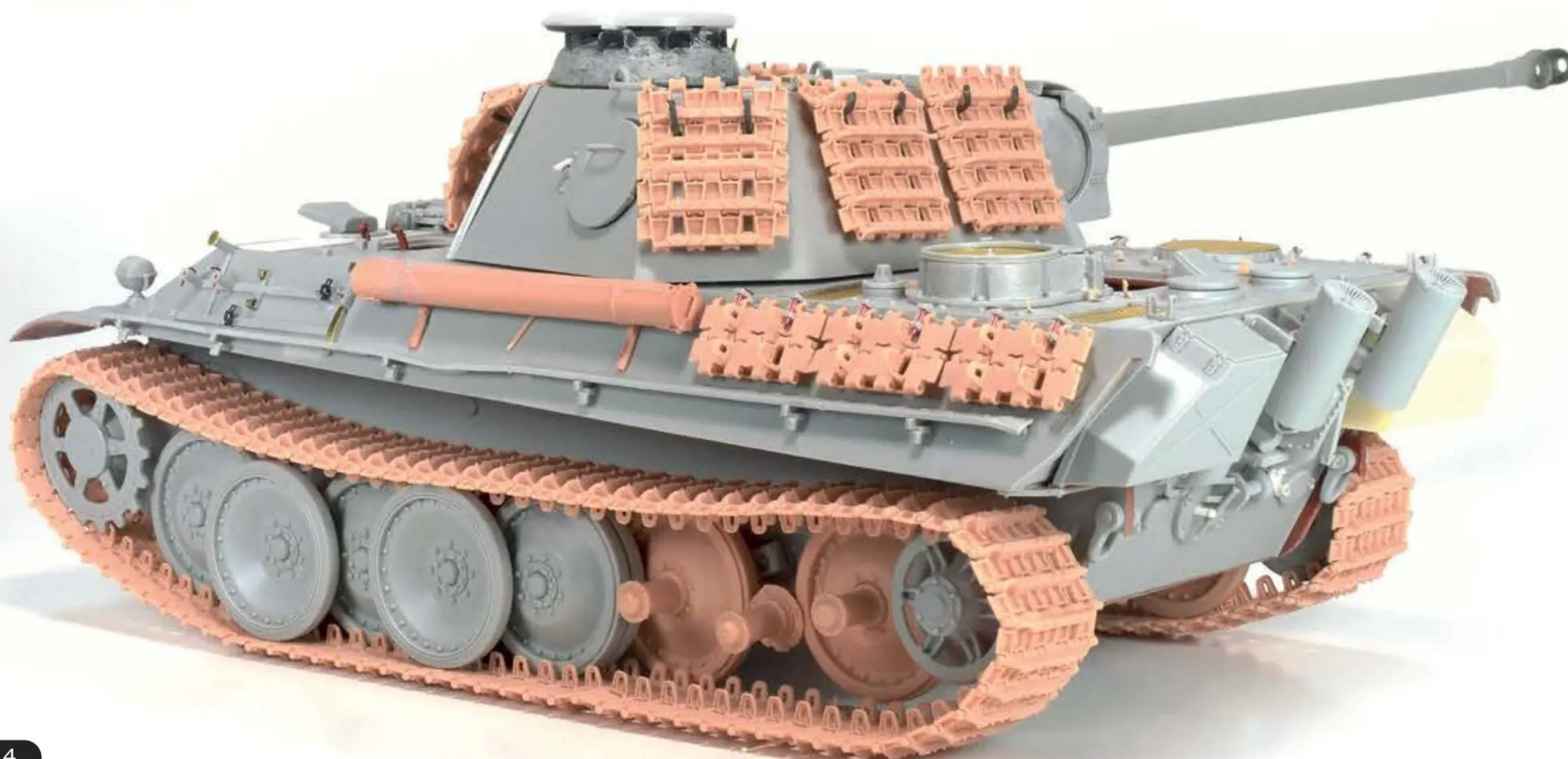
Since the engine hatch was to be posed open, I used the CMK engine and engine bay; which once painted up looked great! The thickened armour above the driver and radio operator was achieved by removing the driver's visor and using an Olfa cutter to remove the section of armour, replacing it with thicker plastic sheet and replacing the driver's visor, and reestablishing the weld bead with putty. Knowing that the driver's hatch would remain open, relevant bits of a CMK interior set were installed for the driver's compartment and painted and weathered as well.



Dragon's Panther kits are still some of their finest, with a trouble-free build, and the addition of 3D printed goodies from T-Rex and Heavy Hobby and a few scratch built items really allow this jewel to shine.



1./Pz/ Rgt. 24's turret mounted spare tracks were uniquely hung with the guide teeth facing the turret; my solution to mounting these after the camouflage was applied was to drill holes for the hooks to be fed through the track openings, somewhat ruining the appearance to the vehicle until near the end when they are permanently affixed.



Once the construction was completed, the entire model was given a coat of Mr. Hobby Red Oxide primer and hairspray before the application of camouflage was applied.

Using the excellent Panther: External Appearance and Design Changes by Roddy Doyle and the wonderful masks by Solid Scale, the camouflage for a December '44 Daimler Benz built vehicle was applied using AK Real Colors: the base dunkelgelb was achieved using AKRC060 Dunkelgelb and a small amount of AK RC002 Cream White and AKRC014 Buff as lightening tones. These same tones were used to fine tune the green (AKRC047) and brown (AKRC068). Removing masking, especially for such a complicated scheme can be nerve wracking, but having used small bits of poster adhesive to fill areas which the masks did not conform, I was hoping to find that the extra effort was worth it and the result was a fine version of the highly researched scheme. A tribute to both Roddy and Alexander at Solid Scale.



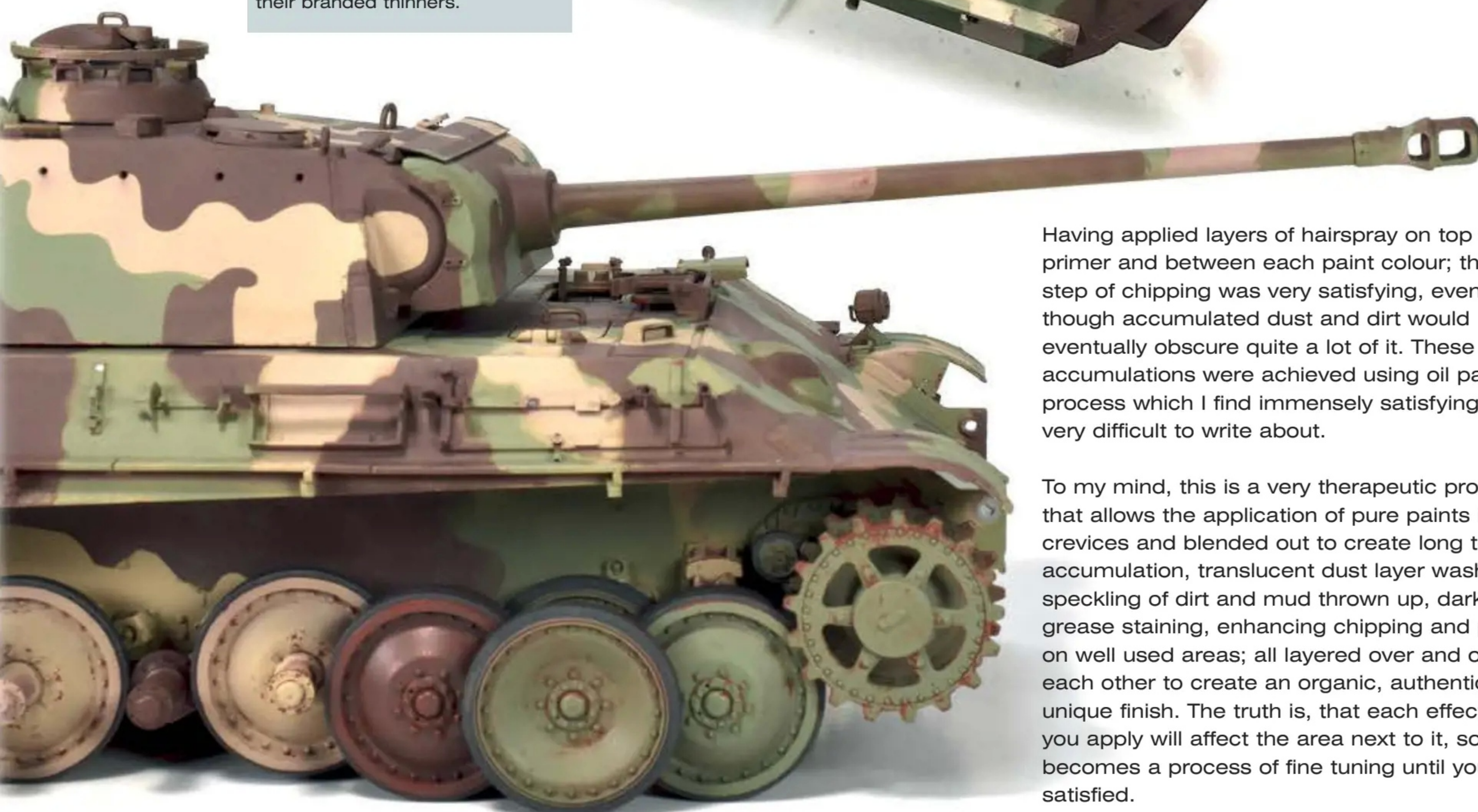
One can only imagine the anxiety of removing the wonderful Solid Scale masks on such a complex camouflage scheme; but they worked fantastically!

AK Real Colors performed very well; and were sprayed using their branded thinners.



Having applied layers of hairspray on top of the primer and between each paint colour; the next step of chipping was very satisfying, even though accumulated dust and dirt would eventually obscure quite a lot of it. These accumulations were achieved using oil paints, a process which I find immensely satisfying, but very difficult to write about.

To my mind, this is a very therapeutic process that allows the application of pure paints into crevices and blended out to create long term accumulation, translucent dust layer washes, speckling of dirt and mud thrown up, dark grease staining, enhancing chipping and patina on well used areas; all layered over and over each other to create an organic, authentic, and unique finish. The truth is, that each effect that you apply will affect the area next to it, so it becomes a process of fine tuning until you are satisfied.





This type of chipping rewards closer inspection and allows the effect to be built up slowly and with control, while still producing pleasingly random results.





Weathering tracks can be a multistage process and can require what seems like “everything but the kitchen sink” before you are satisfied with the results.



Once the weathering is well enough under way to inform the next steps, I begin to weather the tracks. While I do love 3D printed tracks, I would be lying if I said that I didn’t miss the quick satisfaction of dunking a set of white metal tracks into some blackening solution.

My process for the 3D printed tracks was to base coat them in a mixture of Tamiya XF-69 Nato Black, XF-9 Hull Red, and a touch of XF-52 Flat Earth; followed by burnt umber oil pin washes, deposits of thinned Wilder Aqua Line Dry Earth, and a Vallejo rusty orange acrylic both sponged on and laid into nooks and crannies as washes.

I find that once the tracks have been weathered, they provide a great guide to weathering the road-wheels and lower



Much like any type of weathering, getting the tracks where you want them is a process. A second session using dark washes, as well as Lifecolor’s acrylic rust set in washes, deposits, and speckles produced results that I was happy with, remembering to keep the tones of the spare tracks different from those to be mounted on the vehicle.

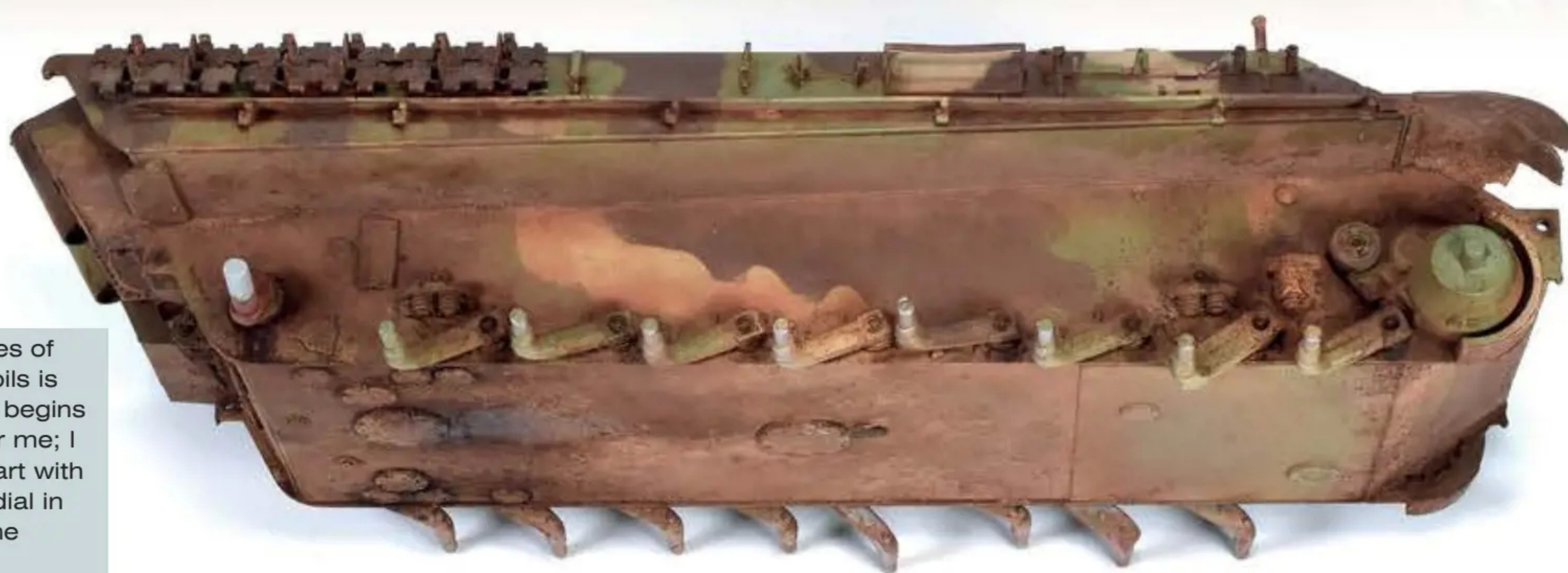
Pigments have fallen out of fashion, but I still find them to be an integral part of achieving the look that I’m after with my

weathering. For me, the key is to mix up a dark, medium, and light tone and to apply them in much heavier amounts than you would expect. Once fixed with liquid, the quantity of pigments shrinks considerably, and multiple applications are often the best way to get the best from them. The lower hull sides, wheels, and tracks received multiple passes, as well as dark and dust oil paint pin-washes and speckling before being mounted.

At this stage I am excited to begin the pin-washes and oil



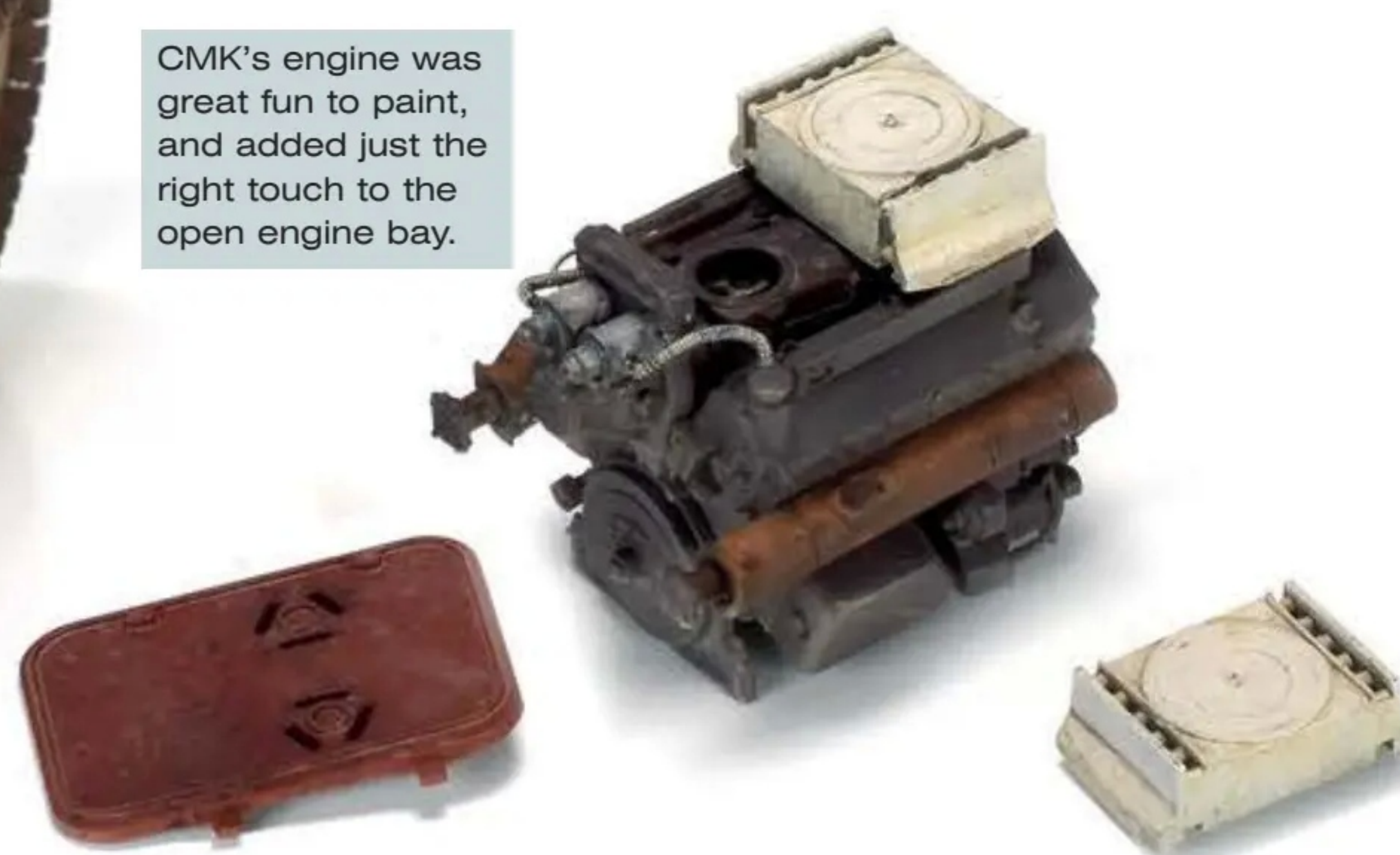
These initial stages of weathering with oils is where the model begins to come to life for me; I almost always start with the lower hull to dial in the effects and the colours.



This is also the stage where I begin to establish some of the darker tones and contrast.



CMK's engine was great fun to paint, and added just the right touch to the open engine bay.



Marrying the previously weathered road-wheels and tracks to the vehicle really makes a huge visual difference here, and will guide the weathering of the rest of the hull.



Note that the vehicle's running gear has already been glued in place to conform with the base, which was well underway at this stage.



Things are getting quite grubby now, with the weathering creeping up onto the hull sides and upper surfaces.

At this stage, in addition to the oil work, pigments have begun to be added, with oil work continuing over these in places.



These colours and tones will be used on the turret weathering as well, albeit in a more restrained

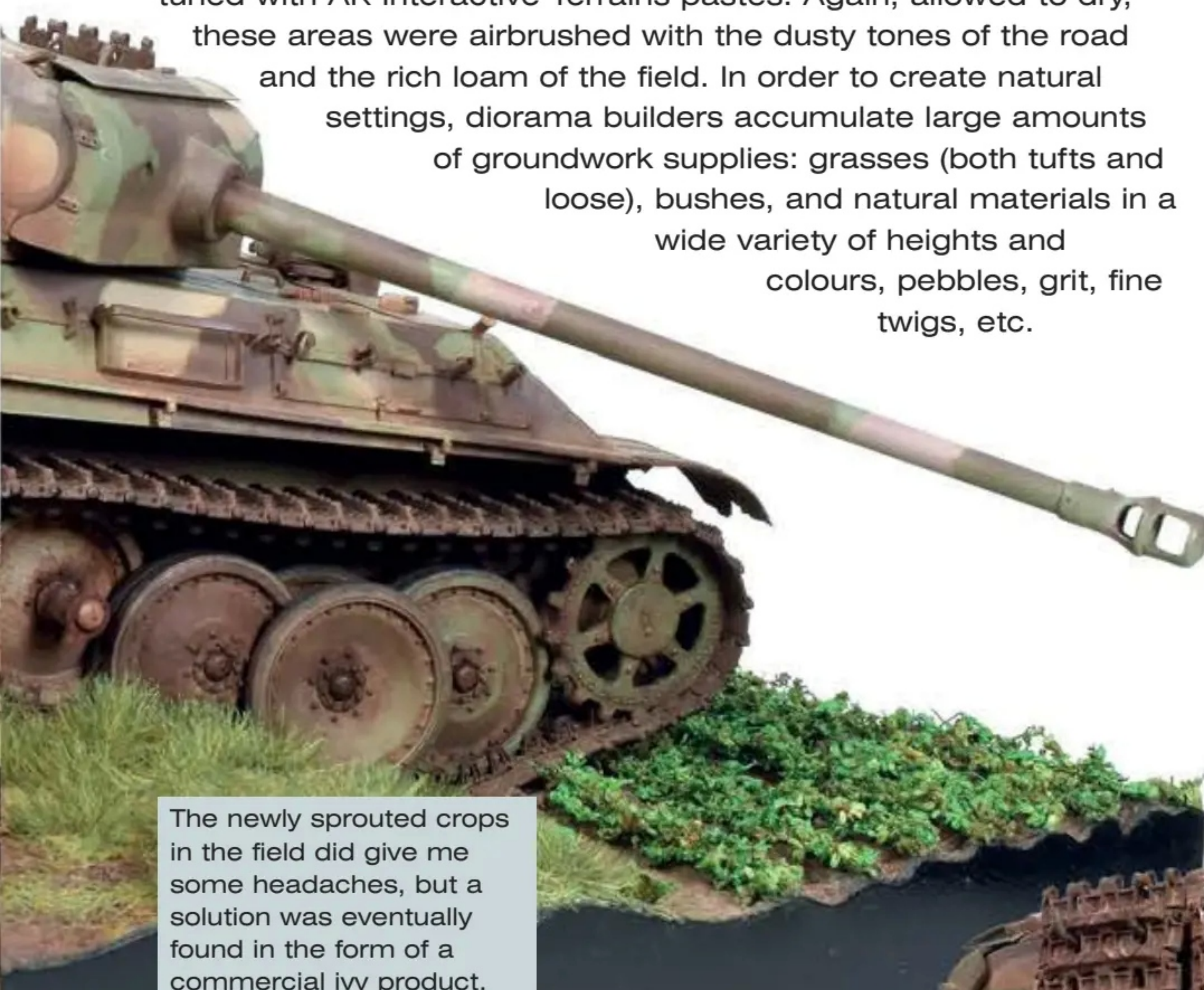


While this piece was based on photographs, I did take the liberty of increasing the angle of the vehicle for a more dramatic effect.

It is important to work on your base alongside your vehicle, if you are hoping to create the right "sit" to the vehicle and it's articulated running gear.

Alongside the model, I was also busy laying out the composition of the base and working on the groundwork. An important aspect that I wanted to incorporate was the angle of the vehicle rolling through the roadside ditch and into the lower elevation of the field, so it was important to have those elements set so that I could accurately position the articulation of the road wheels and get the "sit" of the vehicle right. Multiple layers of styrofoam sheet were cut and laminated together to form the roadway, ditch, and field, as well as to give the base some elevation.

Paper mache powder, craft store earth tone acrylics paint, mixed with seagrass and tea leaves was used to create the slight rise next to the roadside, and plowed earth next to the field. Once dry, these areas, along with the plowed furrows in the field were fine tuned with AK Interactive Terrains pastes. Again, allowed to dry, these areas were airbrushed with the dusty tones of the road and the rich loam of the field. In order to create natural settings, diorama builders accumulate large amounts of groundwork supplies: grasses (both tufts and loose), bushes, and natural materials in a wide variety of heights and colours, pebbles, grit, fine twigs, etc.



The newly sprouted crops in the field did give me some headaches, but a solution was eventually found in the form of a commercial ivy product, glued down in short strands to create the look I was after.

Turning to this hoard of materials, I was able to create the basics of the setting, knowing this would continue to evolve as the build went on; in fact, I still had no idea what I could use to create believable new crops in the field! But, problems aside, I had the basis for positioning my vehicle. The weathering of the lower hull, suspension, road wheels and tracks of the Panther was complete, so the first step was to mount the road wheels and tracks (and snap a few photos of the vehicle in this state). Next a hole was tapped into the bottom of the tank and a drill followed through the base; allowing me to use a bolt and nut to gradually cinch the vehicle to the uneven terrain. A thin layer of AK Terrains paste was applied under the tracks before cinching the vehicle into place, assuring adhesion and giving the vehicle a feeling of weight, especially in the soft earth of the field, and some high grasses were glued under the vehicle to obscure the bolt. Once in position, the swing arms could be glued and were allowed to cure in situ. The turret, engine hatch, and other fragile bits were glued in place once this had all cured, and I turned my attention back to the groundwork.

My quest to find a believable solution to the young crops in the field came in the form of a product marketed as vines. These fragile strands were snipped into short pieces, gluing some of the loose leaves in the bottom of the package in place to fill them out, and attached to the tops of the furrow humps; a time consuming process, but producing a more than satisfactory result. The ground on the sides of the roadside ditch were then built up, using short and tall grass clumps, as well as shrub material. A white painted wooden roadside marker was added, along with some tiny white wildflowers, in the hopes that these would visually guide the eye to the soon-to-be white painted hull side.



While there are still taller grasses and plants to add, this is one of my favourite stages of the build, and generated massive amounts of motivation for the remainder of the project.



The Russian advance was so rapid at this stage of the war that supply convoys travelling through the night were in danger of colliding with knocked out vehicles littering the roadsides, so the simple solution implemented was to paint those portions of the disabled vehicles in white to increase visibility.

Taking a brush and white paint to a completed model felt daunting, but that was the only way, so out came the white acrylic! A small flat brush roughly the size of what would have been used and a bit of courage and the job was done.

Jumping back to the Panther, I tackled the massive white areas of the anti-collision painted areas just as they would have been done at the time. Using a small flat brush and some flat white paint, I jumped in with both feet. My reference photo showed that the exhausts and sides of the storage bins received the same treatment, as did the extended C-Hook. Later I added a tow cable to this C-Hook, painting it white as well. Both of my reference photos showed the Russian trophy number "61" painted on the front armour and the front left hull; these were also added at this time. At this point some paint spatter was added to the ground

below the painted areas. I also beefed up the track impressions on the road behind the vehicle and added staining on the ground; this, combined with the open engine hatch, discarded air filters, and tow cable underlined the story of a vehicle broken down and abandoned mid-recovery effort.

The final touches were a tipped over paint can and brush, a superb 3D printed bicycle from SSR Models, and a teenage Russian soldier from Master Club, eating an apple and surveying his brushwork.

A big shout out to my normal supporting cast for feedback and encouragement: Sam Dwyer, Chris Meddings, and Lester Plaskitt.





PANTHER ausf. G
I.Pz.Rgt 24
Börgönd, Hungary
April, 1945





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‘FUNKWAGEN’ HALF PRINT

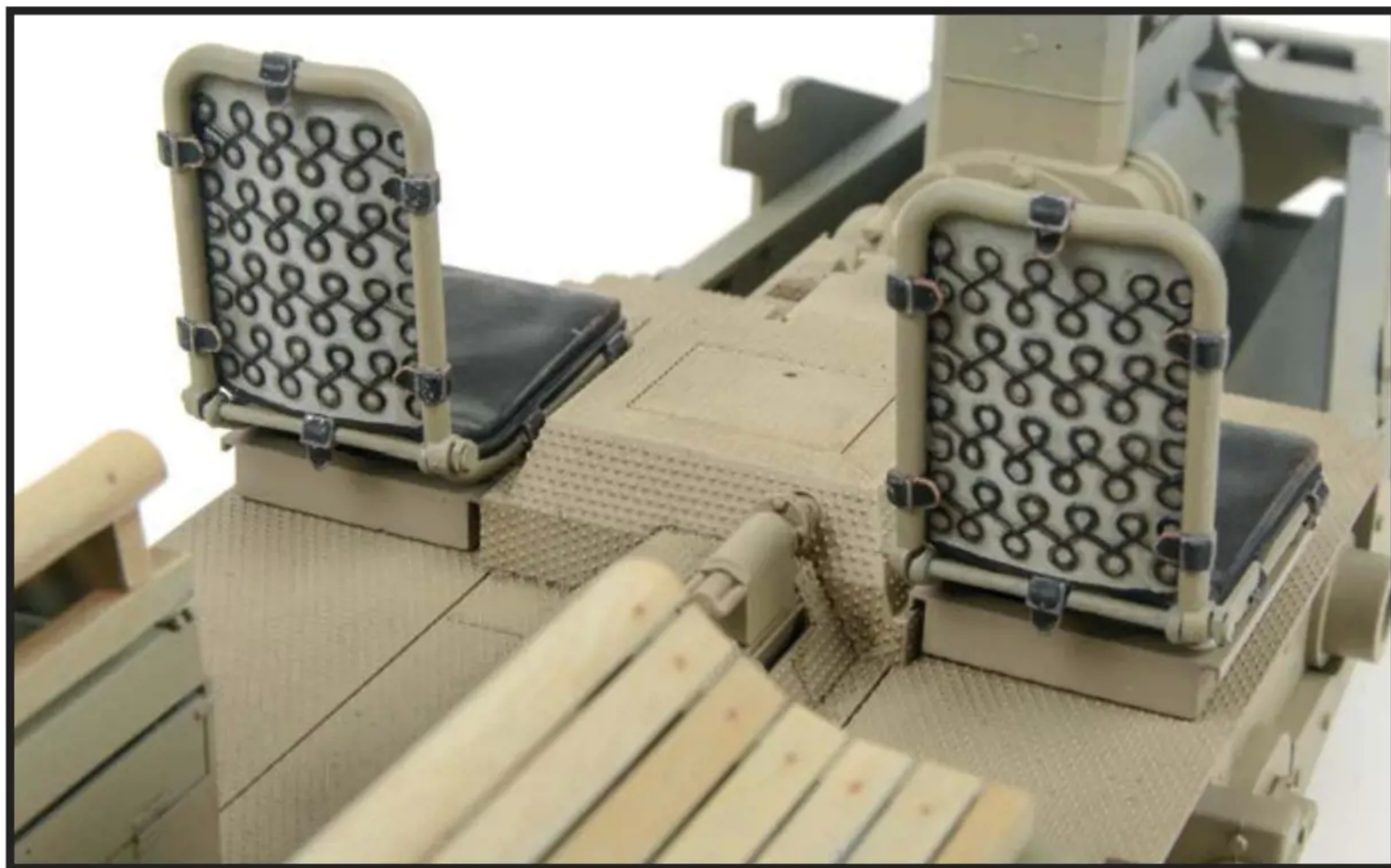


PART TWO

HALF TRACK



David Parker builds a Panzer Lehr Command Halftrack using the Das Werk 1:16 kit and AFV Modeller conversion parts



Front Row Seats

As I outlined in the previous part I had made the easy decision to replace the two kit front crew seats with new versions that I had designed and 3D printed. These seats were a rare example of German manufacturing standardisation with this design being used across a wide range of German armoured vehicles although it is worth noting that the Ausf A Sd.Kfz.251 had a different design altogether. The seat consists of a tubular metal frame with a hinged backrest and a clamp operated using a bar at the side of the seat base to fix the backrest at a desired angle as well as allowing the back rest to be folded flat quickly which was critical in the event of a hasty evacuation. The seat base frame had pegs at each of the four contact points with the floor frame (which in the case of the 251 also serves as a small hinged stowage box). The floor frame has two parallel rows of holes to accept the pins which allows the crew to adjust their seat position forwards or backwards. Both seat frames were fitted with rows of springs secured to the frame onto which a seat pad was fitted. The seat pads were usually a leather cover, stuffed with horse hair and with a simple hessian backing and secured to the frame using leather straps sewn into the edges of the pads which were tied onto the seat frame rails.

I had already painted the my new seats and I was not unhappy with the finished results but as per my usual methodology I had not fixed them into the hull. They were printed in two parts, seat back and seat base with the pads and straps all in position and yet over the progress of the project I decided to see if I could enhance them further by splitting up the component parts, the sprung seat backs being one of the most visible aspects of the

My first set of crew seats test fitted in position. The sprung seat backs are a prominent feature so I decided to see if I could enhance them.



Above My experiments in splitting up the seat elements, at the top the separate rows of springs and at the bottom the springs printed as a part of the frames. In both versions the thinness of the springs pushed the limits of what is possible but ultimately cleaning up the individual springs was the

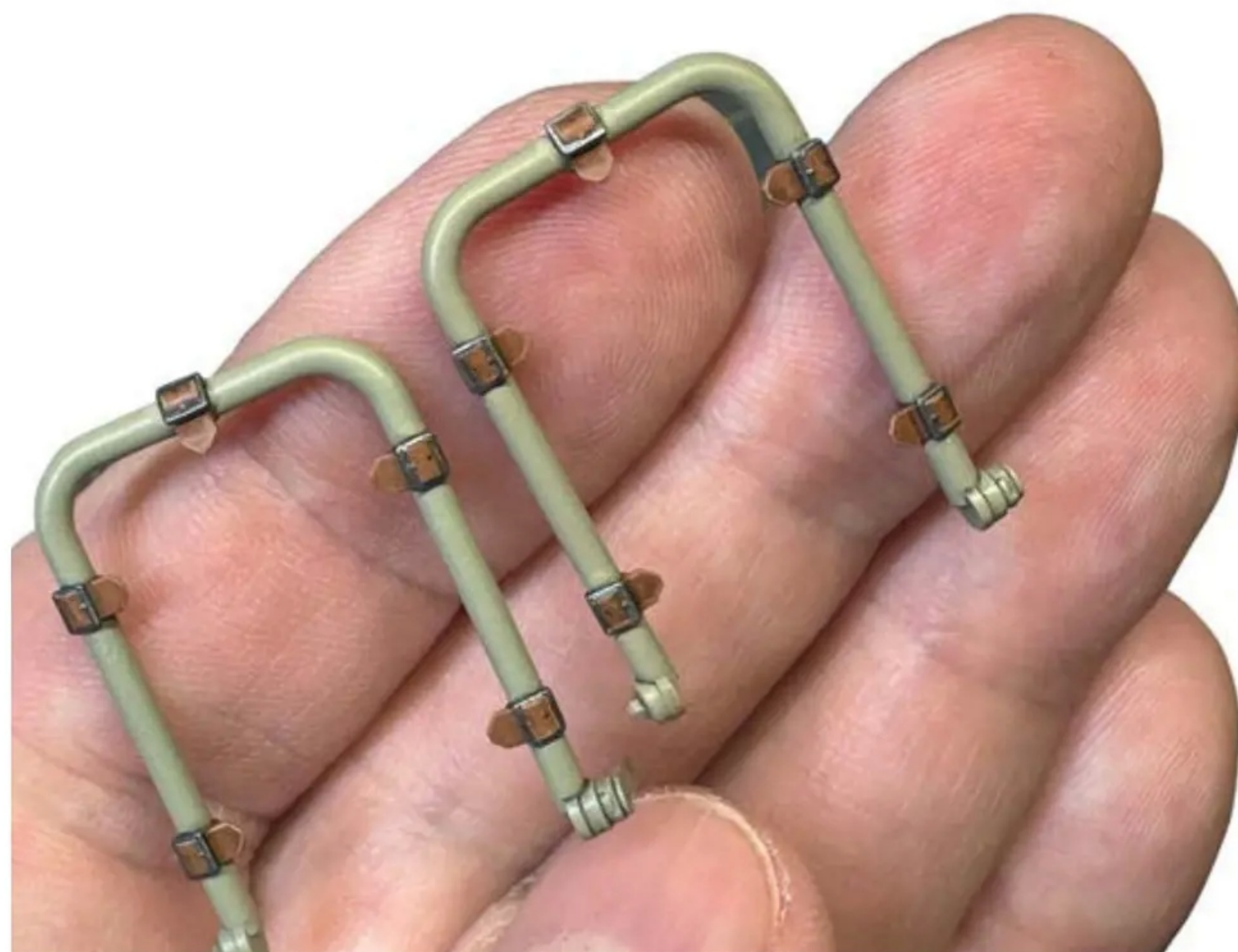


Centre The leather seat pads were given a coat of Mr Surfacer Black 1500 can-sprayed from a distance to create a speckled finish which dries to give a great leather texture.



Above The hessian back panel of the seat pad was painted using acrylics to build up a grid of tones to give the effect of the coarse fabric texture before the individual rows of springs were glued in position using the recessed patterns as an alignment guide.

completed seats. I left the seat base unchanged as there was nothing to be gained from having a separate seat pad in terms of overall finished appearance. However for the seat back rest I separated the pad leaving the straps in place around the frame and I tried thinning the springs, printing two versions of the frame - one with the springs attached and then just the frame with separate individual rows of the springs. Positioning the inevitable print supports meant that the version with integrated springs was the least successful whereas the individual rows worked much better and I was also able to spray paint them on the supports before removing them. Even so, handling these extremely fragile springs resulted in a few breakages along the way and a growing realisation that these would not be commercially viable as they were simply too difficult to put together. Nevertheless I persisted with the assembly and aligning the rows of springs was more difficult than I had expected, despite there being a cut out in the seat back to accept them. Getting them to sit evenly and flush across each row required the use of some matt varnish to act as a glue as any sections standing off the the seat pad immediately caught the viewer's eye as 'wrong'.



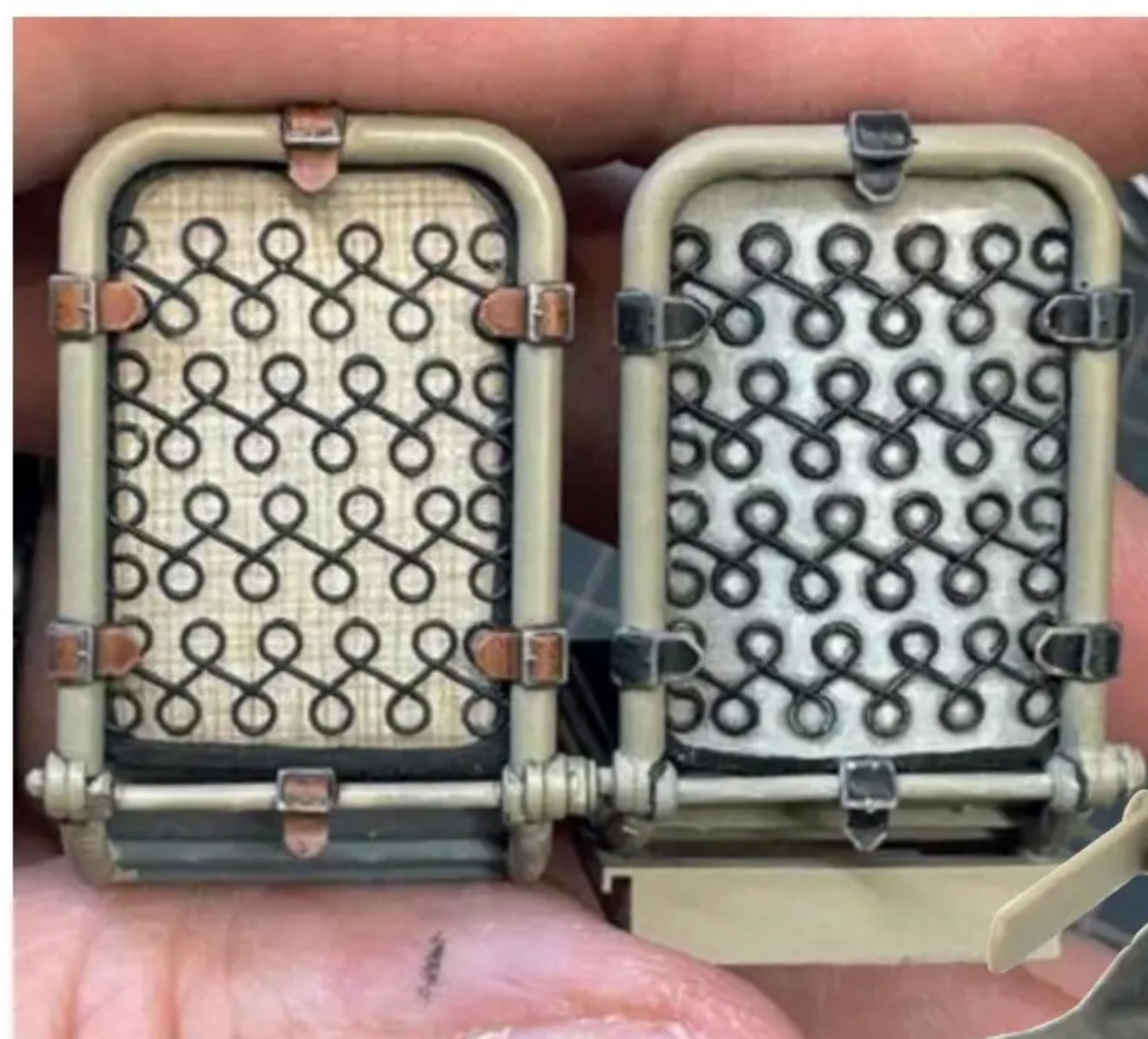
Above The seat back frames ready to have the pads glued to them.



The seat back frames were pre-painted ahead of the final assembly which made painting the individual straps and buckles much easier. Strap colours like the seat pad colours varied so I used as tan leather partly to help me differentiate them from my existing pair of seats.

Turning to the leather seat pads now, these were 'primed' with a spray can of Mr Surfacers Black 1500 which when sprayed from a distance speckles the surface and then dries to give an excellent leather texture. I then worked over this with Vallejo Air Black and then began drybrushing a mix of black and tan to highlight the textures and to build areas of wear like the top edges of the seat back pad. This colour was gradually lightened by mixing in more tan whilst the areas where I applied were reduced. Small random scratches were applied with a fine brush and a dirty off white was used to hint at the stitching around the edge of each pad.

Above A comparison shot showing the enhanced delicacy of the new seat backs



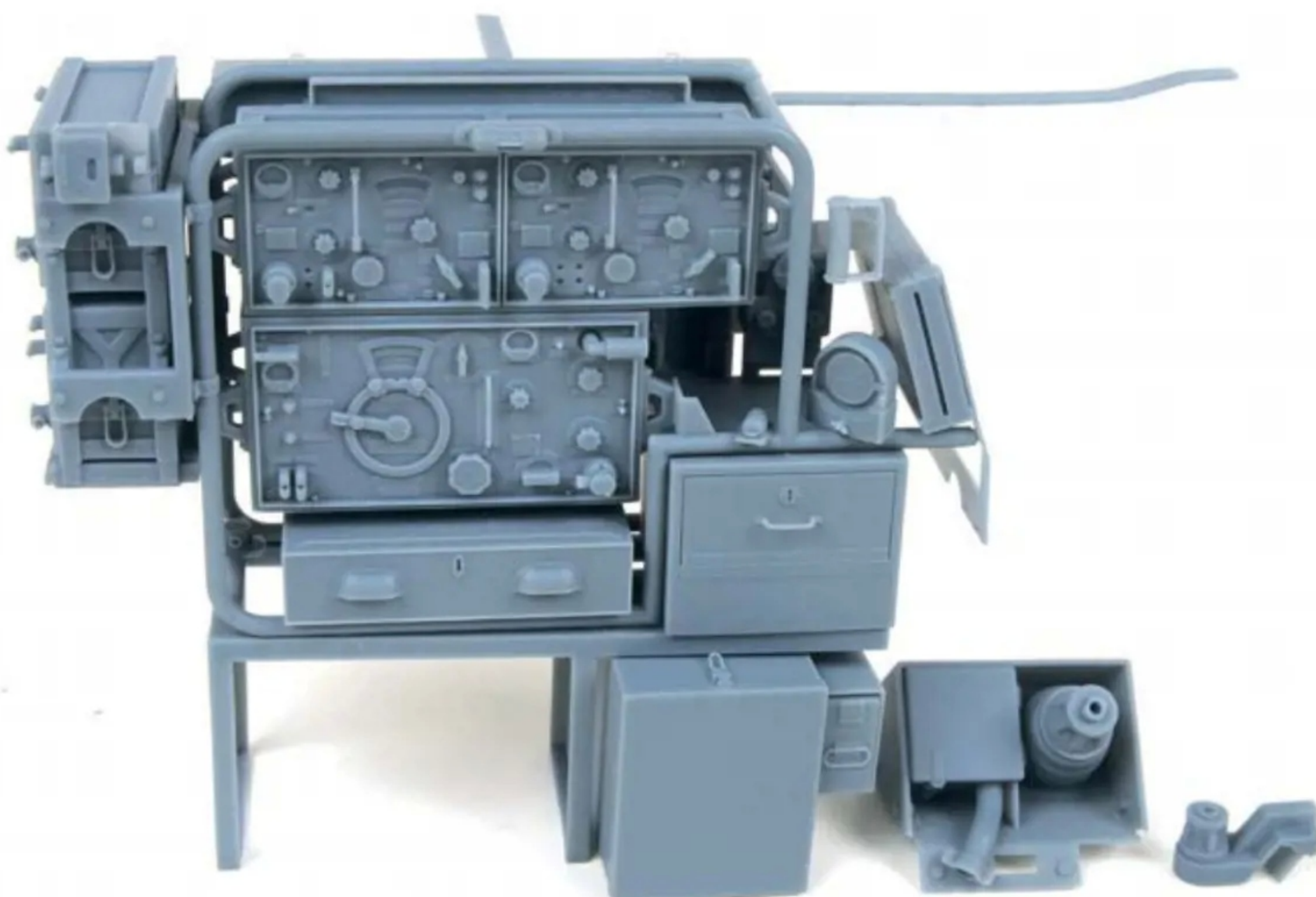
The revised seat at first glance looks very similar to version one and given the amount of fiddly work it required to complete I might well question if it was worth doing but I think that the extra delicacy of the springs was worth making that extra effort.



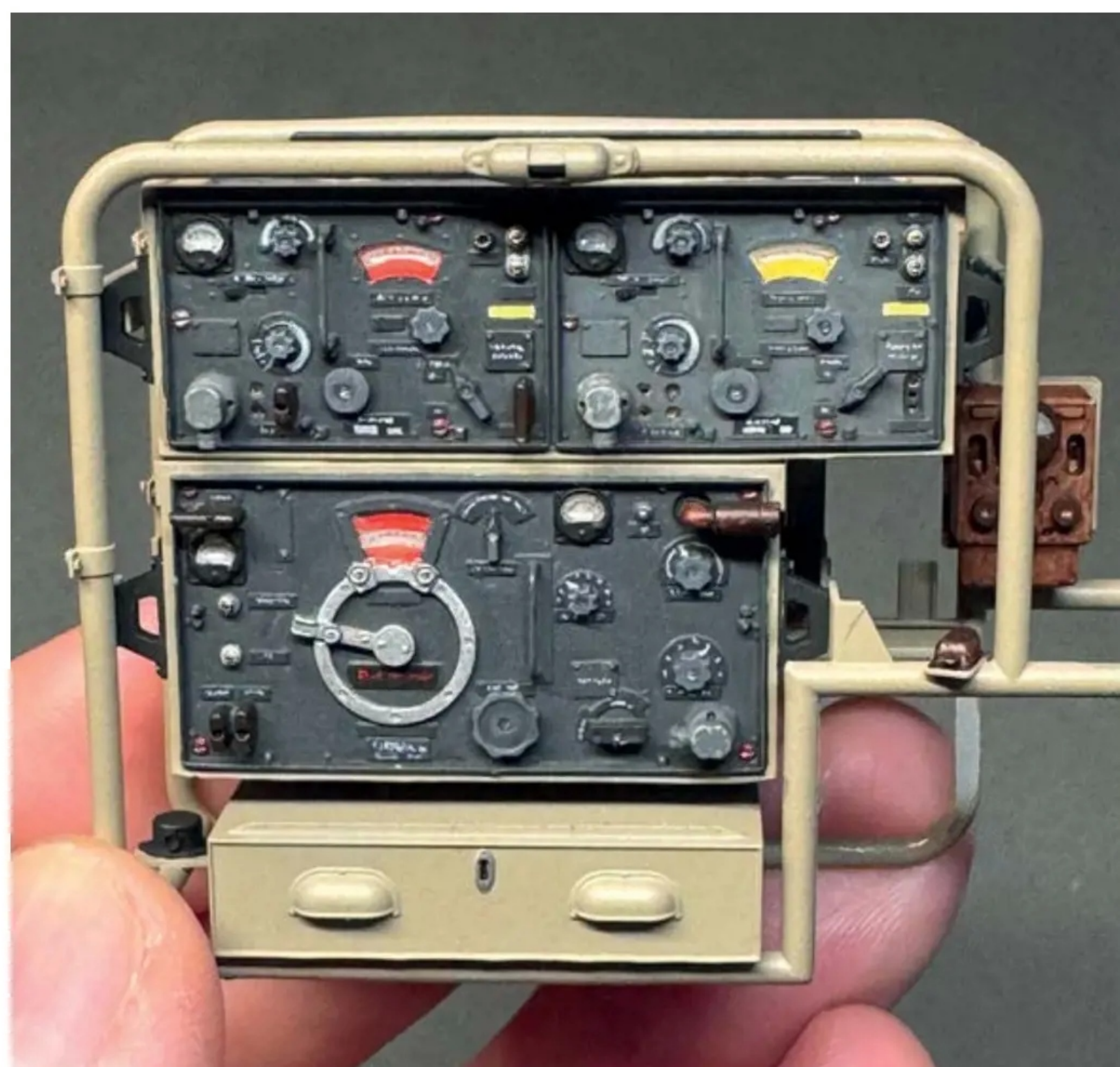
Radio Ga Ga

The huge radio racks mounted in the back of the 251/3 are very much the focal point of the whole model and their intricacy and interconnection only adds to the challenge and to the appeal and I do love a challenge. At the time I started work to recreate the set up there were no 1:16 kits of this and surprisingly few good photos of the installation. The best images are well know views looking into an Sd.Kfz.250/3 Neu which whilst certainly helpful dont show the same set up and the 250 fuel tank at the back of the vehicle means that the way the racks are installed is completely different. When I began to research to project its seemed only logical to me that the radio would be mounted directly onto one of the bench seat bases with the wooden slats removed, however more research showed that this was not the case. The missing piece of the puzzle was the arrival of Panzer Wrecks 25 Normandy 4, which has a photo of a knocked out 251/3 with the entire RHS hull armour section blown away, exposing just enough of the frame that the radio racks sit on to be able to recreate it.

Knowing the sizes of the various radio sets carried by the 251/5 I was able to reverse engineer the entire rack along with photos from vintage radio enthusiasts who have reassembled the same set up for their collections. As usual each radio set is supplied with a protective cover for the facia and the rack includes storage space for these covers when the sets are being operated. There are a couple of storage boxes and a pull-out shelf for the Funker on top of the drawer. On the rear of the rack are the huge power transformers that provide power to the radio sets. The whole system requires its own power supply to operate and this is provided by the portable GG 400 generator which has its own stowage box with integrated spare parts box which sits on the floor. Finally there are the additional antenna mounts including the large armoured box for the 30WSa transmitter with its star antenna. All this fits into the space usually occupied by the RHS rear bench seat and is tethered to the hull with two bars that run from the top of the rack to the hull.



Above The facia details were brush painted with a very subtle wash applied to define the details.



Painting the the radio racks was done without fully assembling everything to help with accessing parts in the complicated set up and I began by spraying a coat of Mission Models Dunkelgelb over the rack components mixed with some satin varnish. The radio set facias were then brush painted using a selection of greys as the colour of these did vary but a dark grey is most common. The two smaller Mw Ec sets at the top of the rack are identical but a slight shift in tone of grey helps to add interest. The same approach was used for the stowed facia covers rather than using a uniform shade of grey.

The small bakelite box at the back of the frame, the Schaltkasten Fu.b, was painted using Vallejo Air browns over a base coat of Lifecolor tan to recreate the marbled effect of the bakelite. The same Vallejo Air paints were used on the plug connectors on the radio facias and on the morse key. Time to tackle all the tiny placard details on the radio facias and brush painting is the only practical approach for these. Individual decals would simply be too small and fitting them in and around the assortment of dials and switches would be a nightmare. My approach here is always to have a good reference image of the set to hand as you work. for the lettering, never use a pure white, it is too stark and a pale grey or off white gives a much better appearance. The aim here is not to paint every number and letter exactly but for example, a series of evenly spaced dots around a dial recreates the numbers that are on the real thing.



Above The only decals used were the warning placards on the transformers on the back of the racks and these come from the AFV Modeller Panzer IV decal set.

Right The connecting cables and power supply cables were added using flexible resin 'rod' which I had custom made but lead or copper wire would do the same job.



Similarly, text can be replicated with random shapes instead of individual letters which trick the eye into seeing lettering even though it is unreadable. Faces of the dials were also picked out in off white with dark grey characters or more accurately fine lines or dots in grey rather than black to avoid a high contrast. Faces of the dials and the clock were 'glazed' with a gloss varnish with the clock needing multiple coats to build up the domed glass cover. A light pin wash was used to help define the features of the facias and a stronger wash was applied to the dunkelgelb elements of the rack.

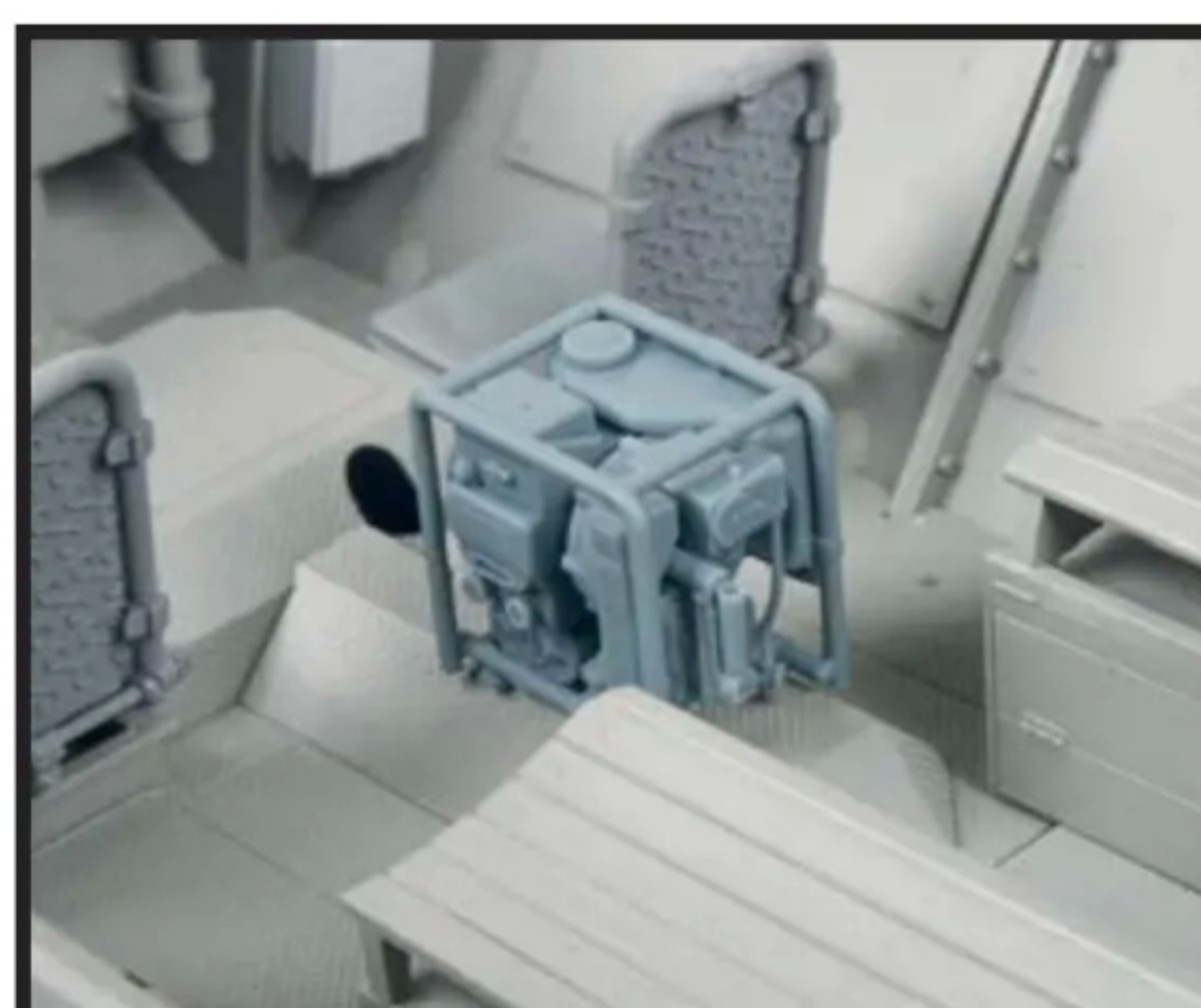


More of my jumping around in the course of the project meant that the radio rack was complete for the moment and stored away, but always to hand to check for the fit of everything as in this picture. I would not be permanently fixed and the final connections made until quite near the end of the project.

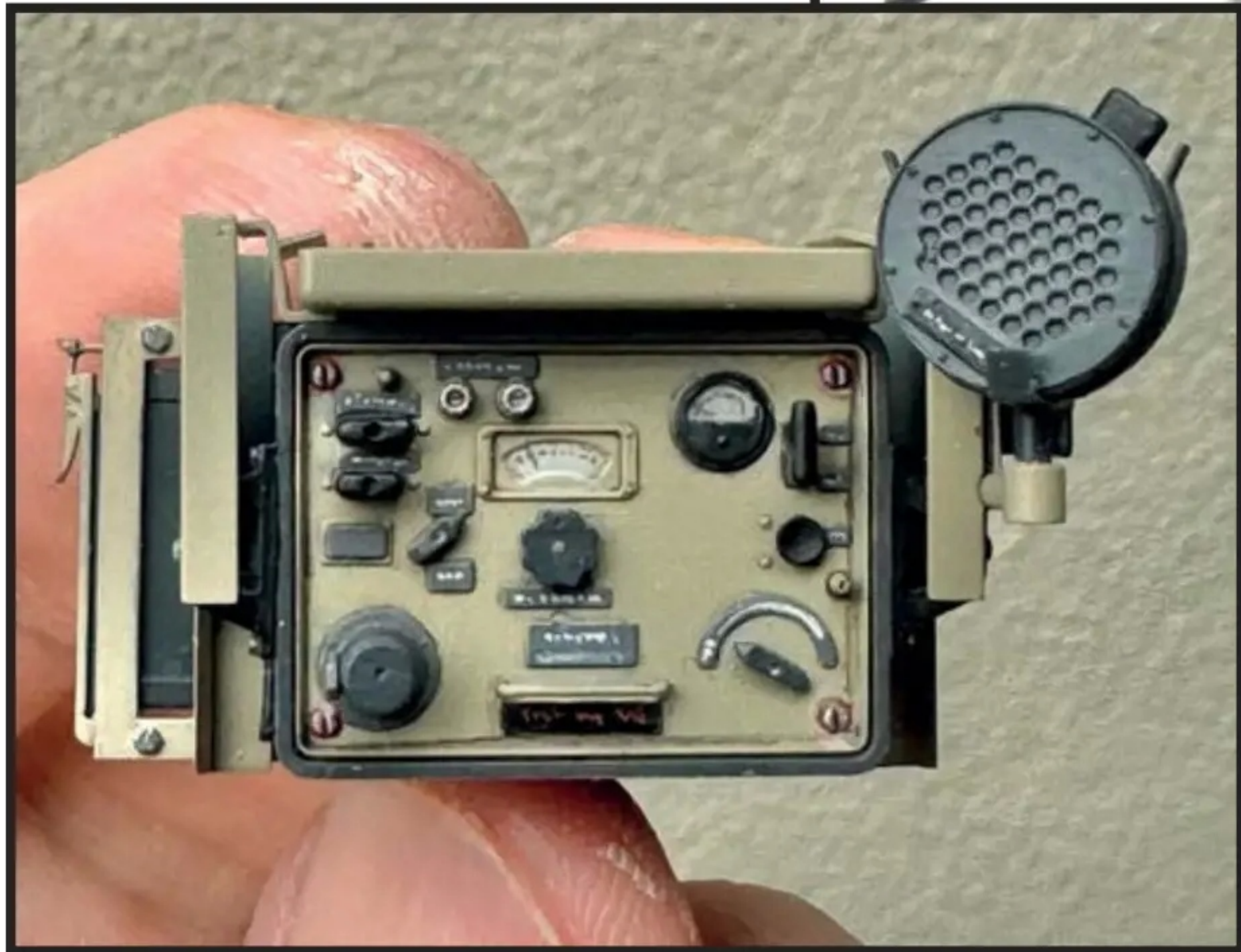


The GG400 portable generator which powers the radio installation was another of my designs for the AFV Modeller range and designed as to compliment the 251/3 conversion although this is the same generator used to equip Command Panzers with the additional Fu8 radios. These 2 stroke petrol generators manufactured by Auto Union remain quite plentiful today because of their usefulness and you can find versions in both Panzer Grey and Dunkelgelb but I chose to paint mine Panzer Grey so that it wouldn't blend in with the rest of the Dunkelgelb interior. I brush painted the placards and number '26' which seems to feature on all the preserved examples. I wanted a fairly weathered example with a build up of dust on the upper surfaces and fuel stains around the filler cap. No doubt this would be placed outside the vehicle when it was

stationary although there is a German manual image which shows it balanced on the transmission hump behind the Driver. I decided to add an improvised exhaust pipe to vent the fumes outside the vehicle. This was made using MDC flexible Oxygen hose (designed for aircraft cockpits) which fitted nicely into the generator exhaust and feeds up over the hull side.



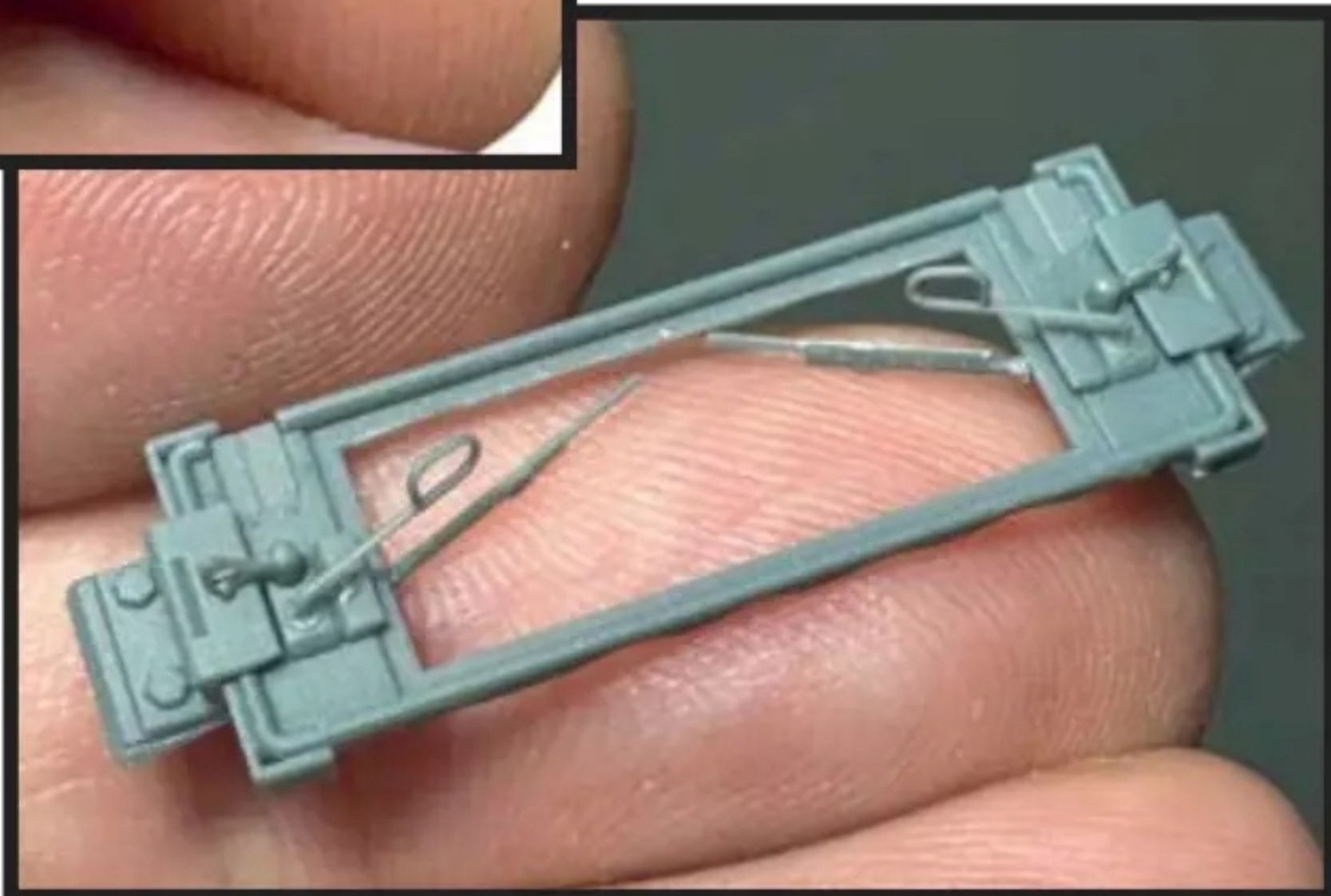
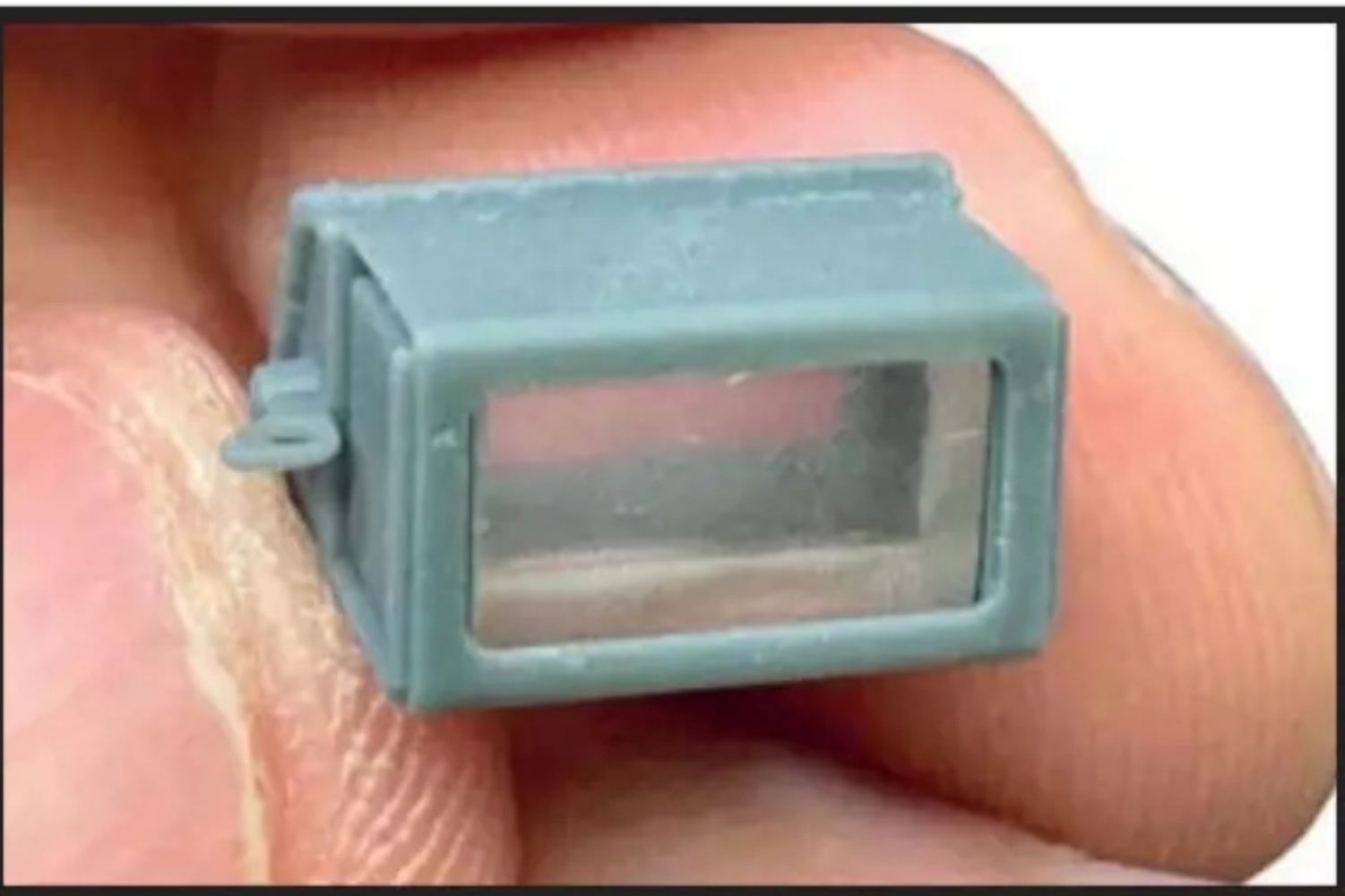
The 251/3 still carried the standard FuspRech radio set in the front with the First Aid kit stowed behind it. I replaced the kit radio which lacked the loudspeaker, its mount, the facia cover, connecting plugs and the First Aid box, with my corrected version. Just like the bigger radio sets in the back, the FuspRech has a facia cover that stows in a tray above the actual set. Facia colours varied but I went for Dunkelgelb which seems to have been more commonly used on later sets. My approach was the same as I used on the big radio rack with labels and dials hinted at with small brush marks, not forgetting the red rings around the four corner screw heads. The First Aid kit that is stowed behind the radio set was painted in grey to contrast



with the surrounding parts. Cables were added again using flexible resin 'rod' but the final connections to the power transformer and the antenna could not be made until the cab and bonnet section were finally glued in place so having estimated the required cable length I coiled it around the First Aid box with some tape holding it in place until it was required.

Cab details

At this stage the cab and bonnet section were still a separate part as I still needed to detail them and as I mentioned in Part 1 I never glue anything in position until the final assembly process. To complete the front radio installation i added my corrected SEUa, power transformer to the reinforced armour on the RHS of the hull.



Left New side vision blocks and stowed windscreens for the front visors were designed to replace the incorrect kit parts.



Above The windscreens were painted and then glazed with pieces of acetate.

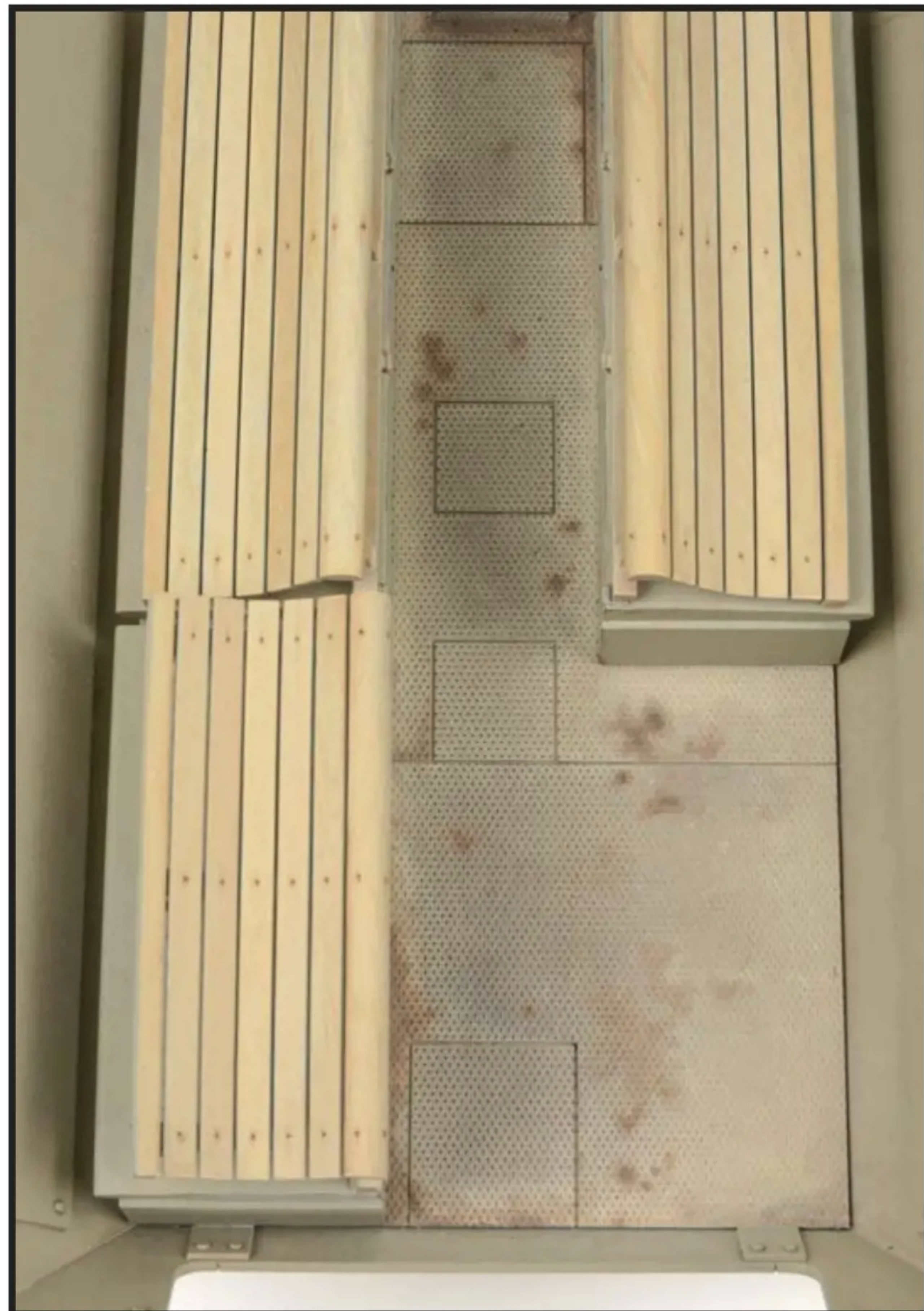
Above I used the Das Werk clear parts for the spare vision block stowage but I designed and printed new stowage racks.

added a pair of stowed MP40's that I had originally designed for the Stug III as they are so much more detailed than the kit versions. I added slings to both from strips of Green Stuff putty. The big orange warning label inside the cab was copied from an example on a preserved vehicle where the label was still in place pre-restoration. The black text was printed on clear decal film and applied to an orange painted rectangle. I created and printed new vision block stowage, using the kit clear parts which were all sprayed with a mist of transparent green to replicate the thickness of the glass.

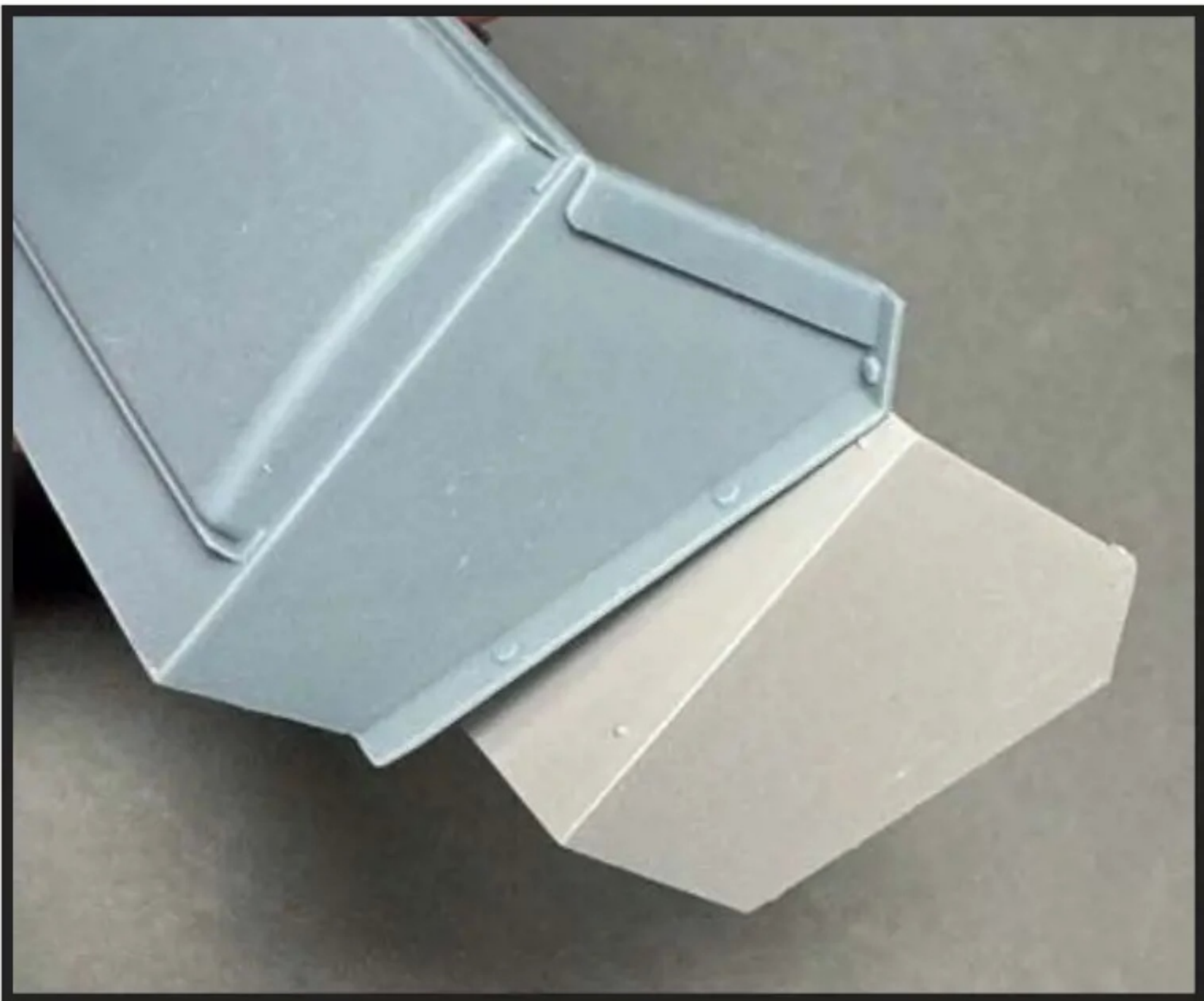




Although the floor had already had some weathering applied it was nowhere near where I wanted it to be yet and I applied a series of dirty and oily patches using different acrylic shades. The ones in the driver's compartment were the heaviest as this is an area in constant use and maintenance with consequent spillages. Those over the rest of the floor were less contrasted but I hope reflecting the day to day spills of men living in cramped conditions. The raised tread pattern and edges of the transmission covers was drybrushed with a dark black/brown and certain edges burnished with graphite stick or pencil.



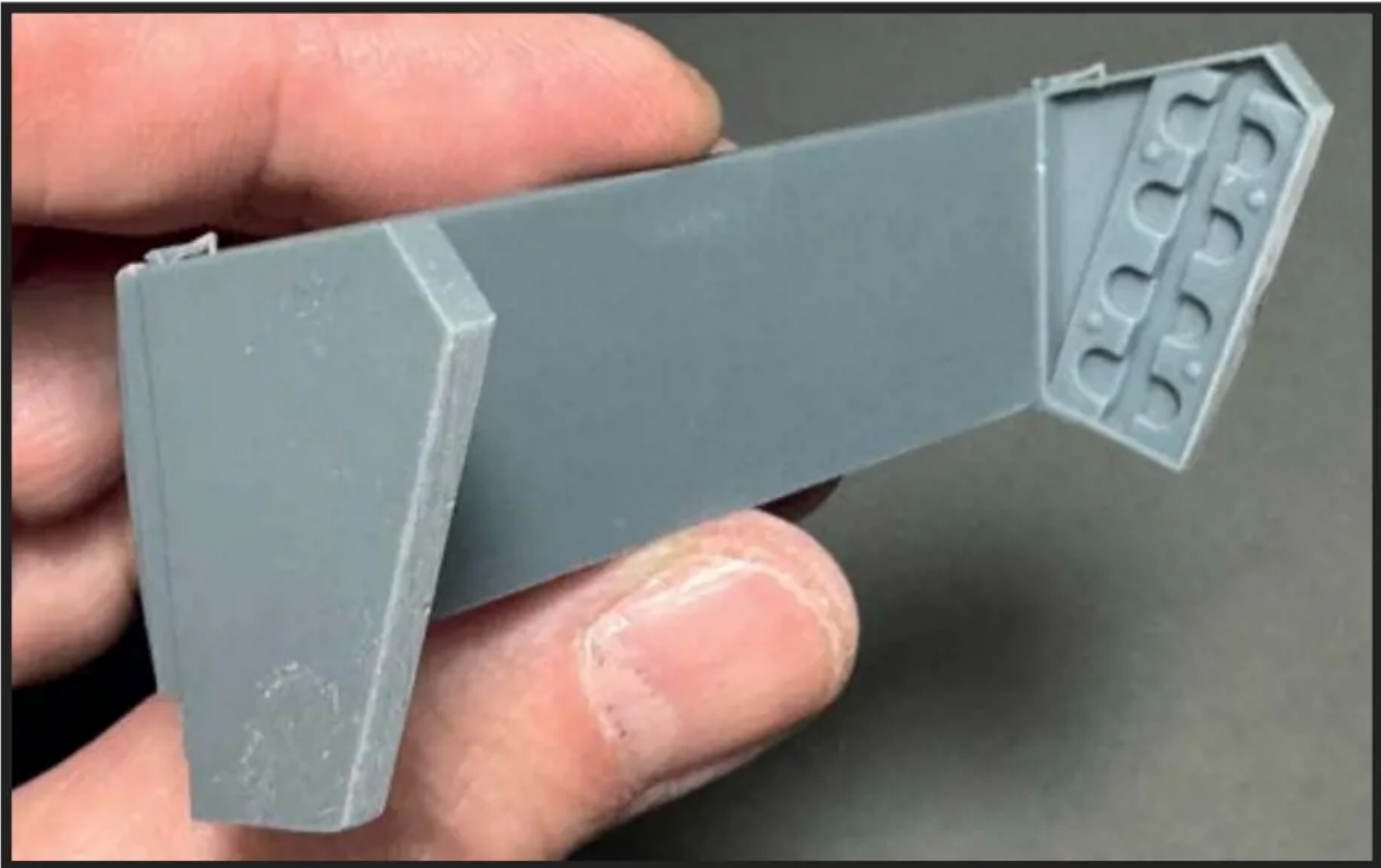
Time now to look at the internal stowage which also form the back rests for the bench seats (the bench seat bases are hinged to permit stowage within them as well). These upper stowage lockers / back rests on the 251 are different designs the longer one towards the front of the vehicle is a hinged padded panel which folds forward to access a rifle rack for 4 rifles. On the back of the panel are stowage positions for a twin and single spare MG barrel case and an extension pole for the MG tripod (stowed behind the rear bench base). The other smaller seat back is fixed with a base used to form an open-topped bin. I had hoped to be able to use the kit seat backs and rifle racks as a basis for my build but as I studied these areas in more detail I realised that the kit parts were lacking in detail and more importantly were the wrong profile. The rifle racks were the wrong shape having been copied from the Ausf.C bins and the rifles themselves were overscale. None of the barrel case stowage was provided nor were the stowed tripods or the stowage rails for the MG42s. Instead I designed and printed



Above The difference in end profile between my parts and the kit, which also lacks the flange details.



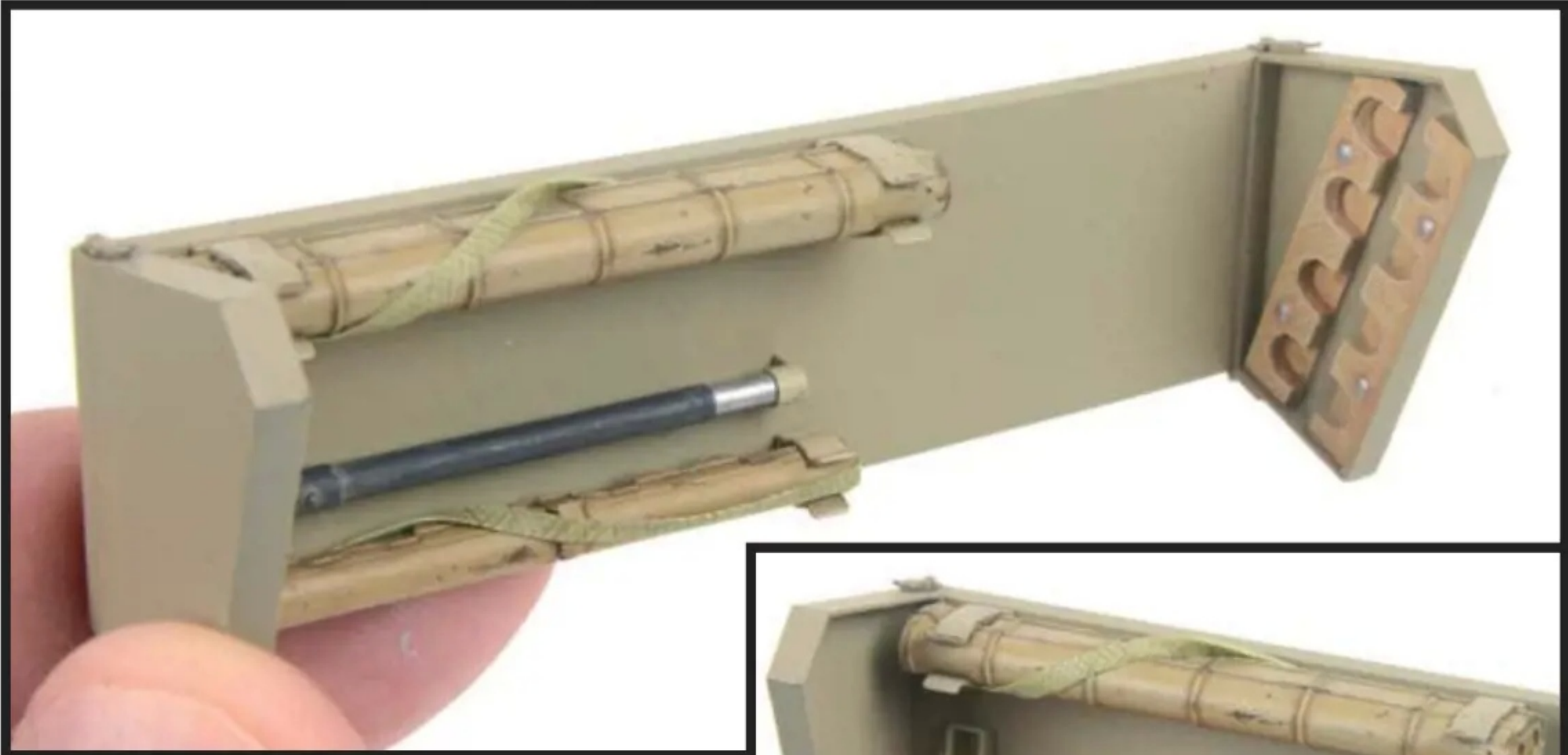
Above The clasp detail that holds the fold-down section was also missing from the DW kit parts.



Above On the Ausf.D simple machined wood blocks were used to hold the buttstock of the rifles in the end plate instead of the strip metal cups depicted in the kit versions, which were used on the Ausf C.



Above The two types of spare barrel cases, single and double, were given different slings and finished in different tones.

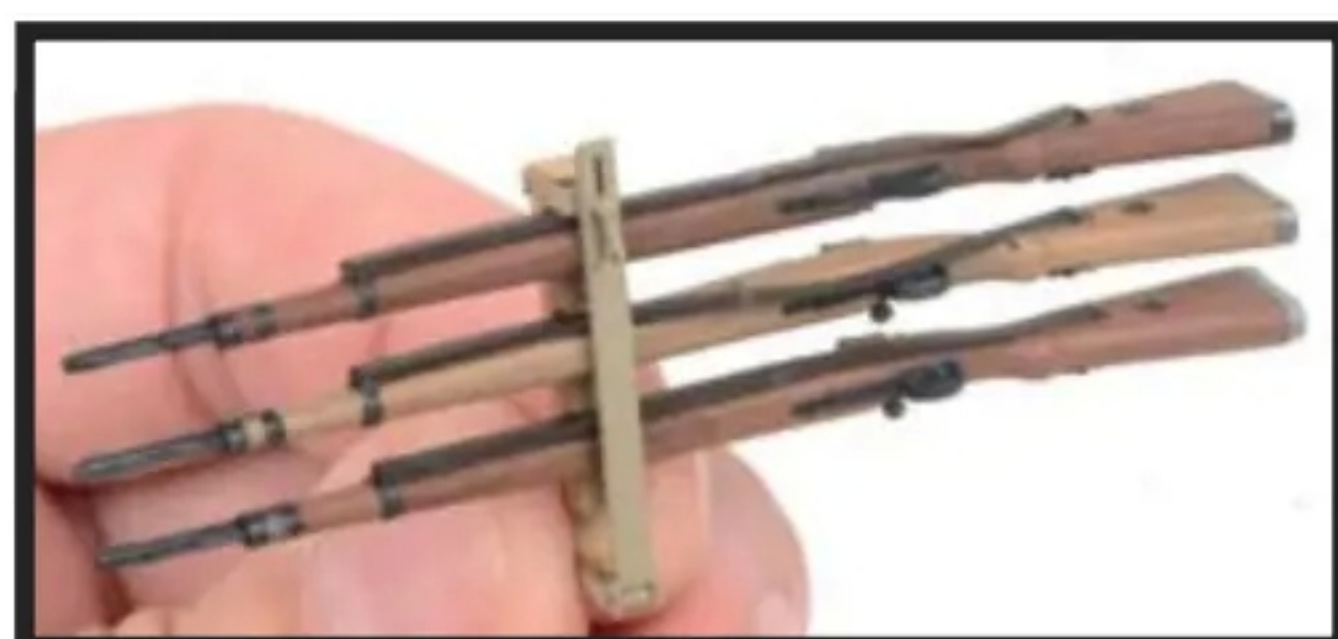


Above The completed stowage fitted inside the fold down backrest panel with the unpainted wooden rifle racks

Left This picture brings out the effects applied to the padded backrests on all the lockers. Just like the front crew seats the edges and corners of the padding were drybrushed with tones of black and tan and assorted scuffs and scratches applied. To complete them I wetted the surface before airbrushing a coat of dust along the bottom edge which was immediately blended out with a large clean wet brush.



Above The AFV Modeller rifles were painted in acrylics with a touch of graphite powder to add a sheen in selected areas.



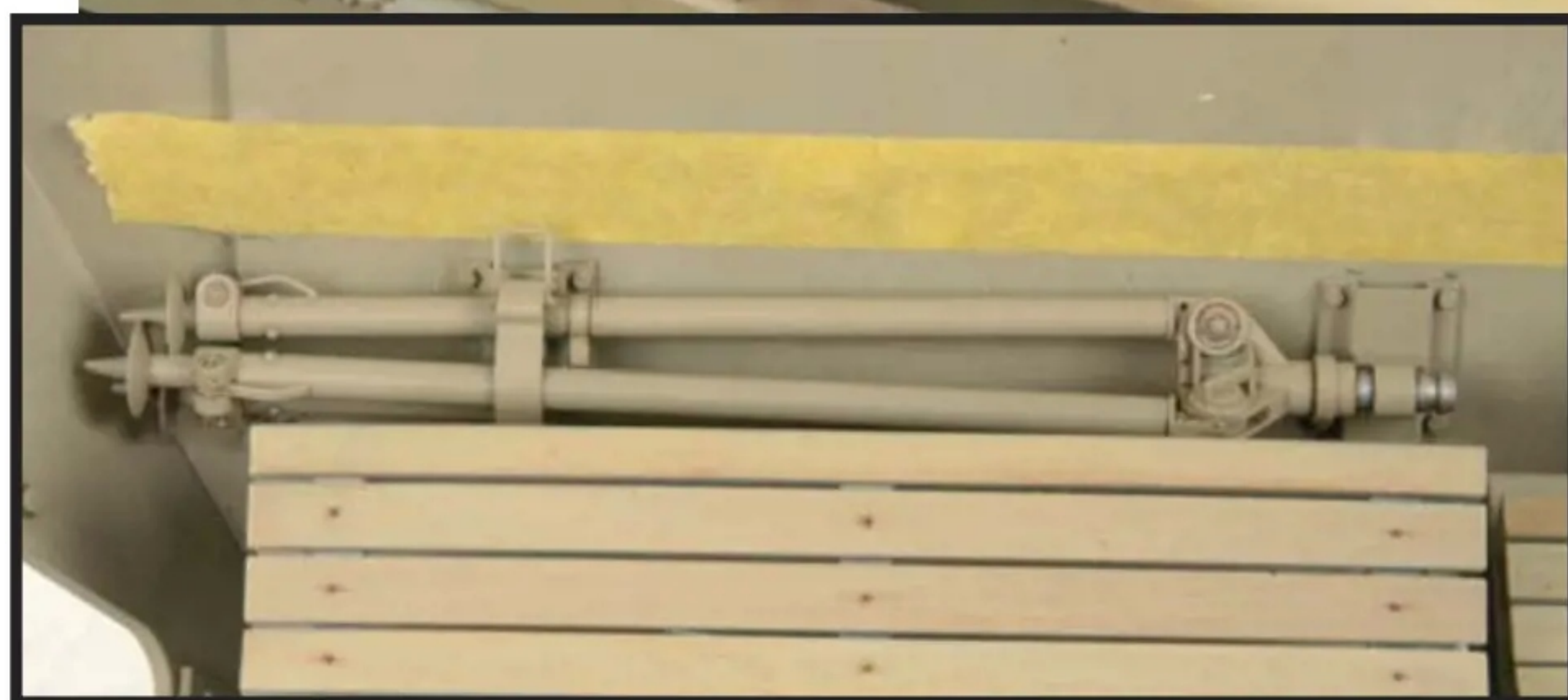
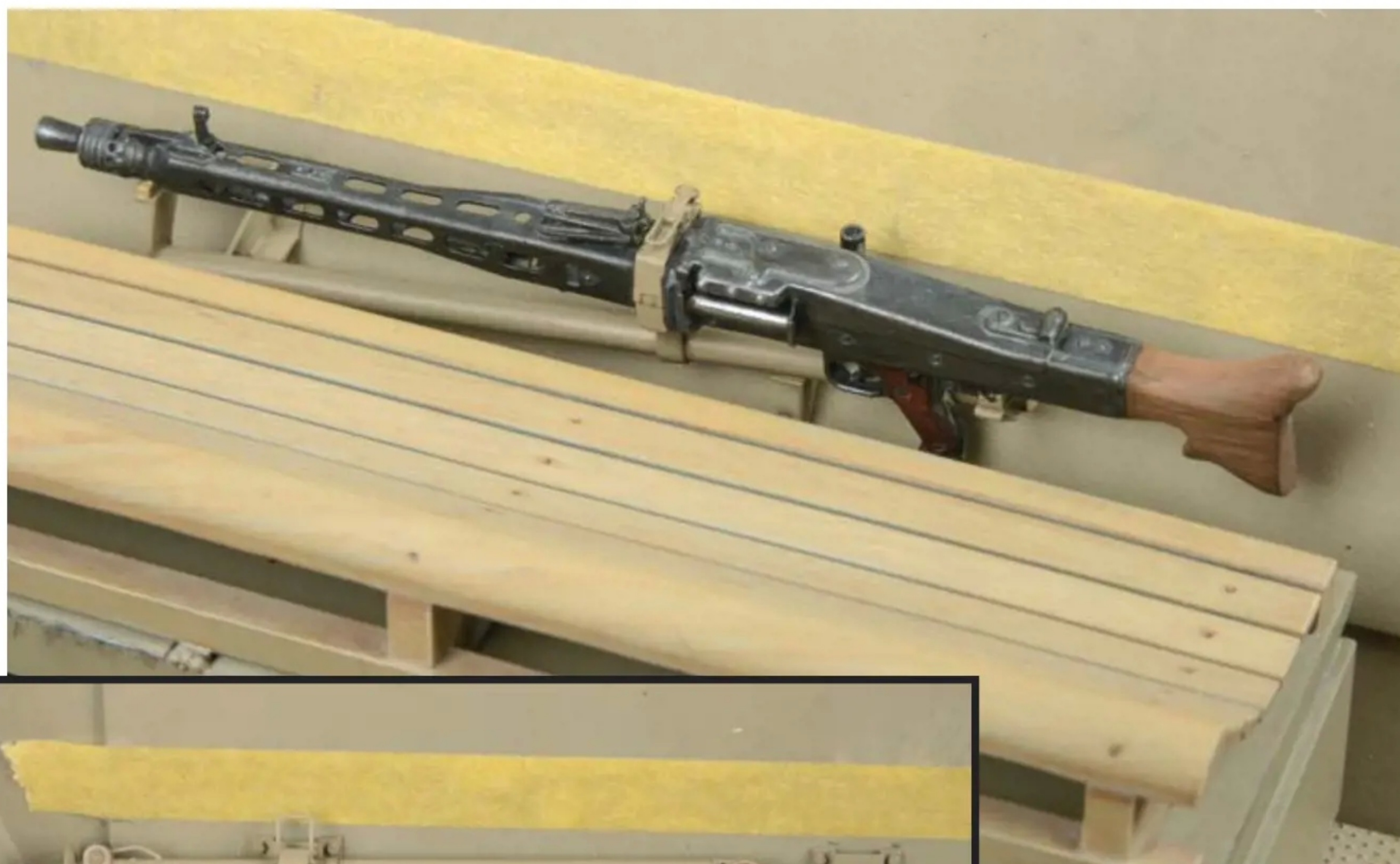
Above Fitting the rifles was not easy, they were firstly glued into the clamp and then with the desk acting as the hull wall I was able to position the rifle butts into the rack, glued with 5 minute epoxy to check the alignment before they were set.

my own corrected seat backs, rifle racks, rifles, and other stowed equipment for the standard Sd.Kfz.251/1.

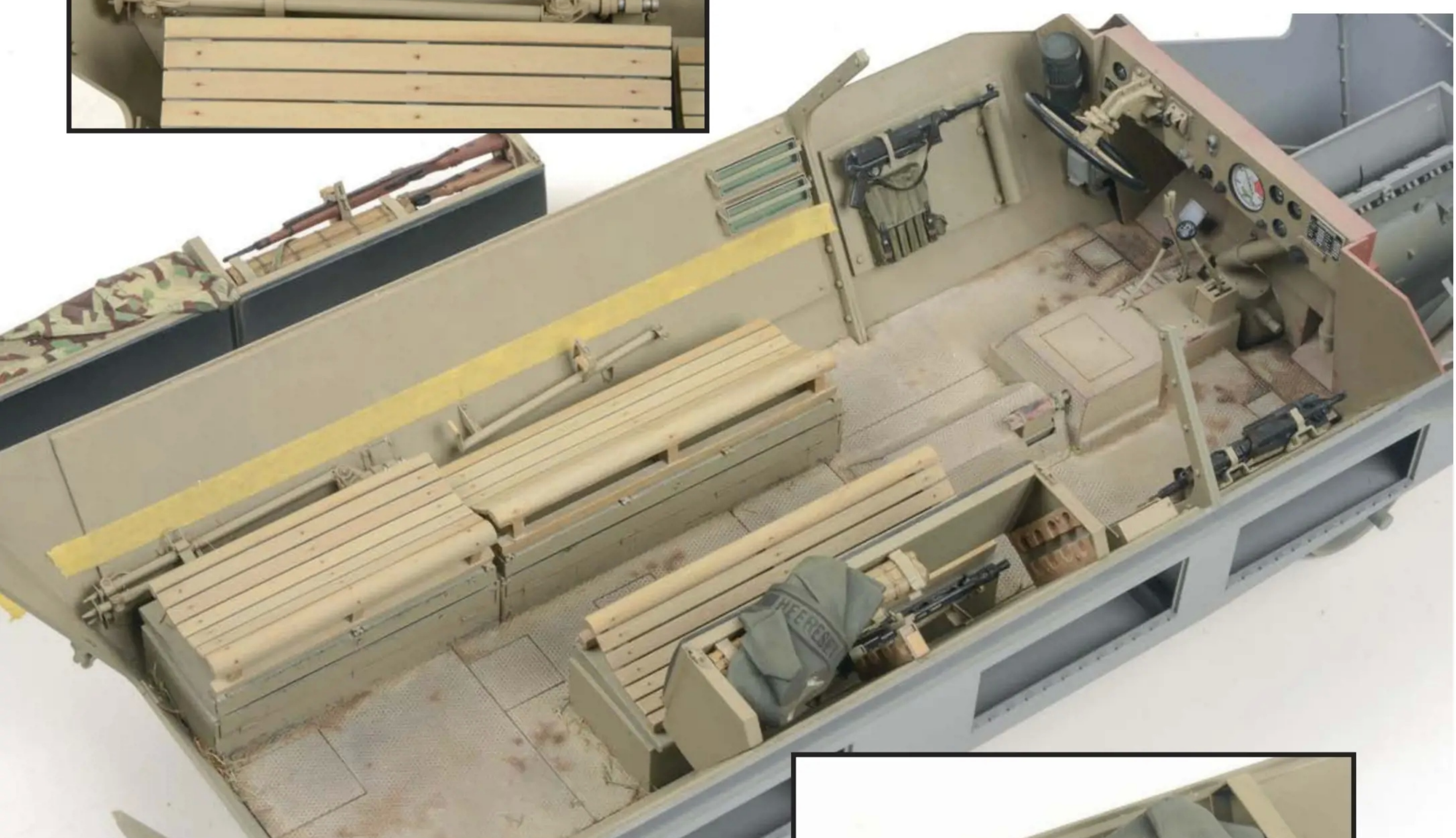
The stowed rifles were quite a bit of work for items that will be mostly hidden in a stowage locker but sometimes there are no shortcuts. The KaR 98 rifles are my own designs now part of the AFV Modeller range and I used a mix of colours for the wooden elements to reflect the variations I had seen on preserved examples. As it turned out I had painted more than I needed because once the radio sets were installed in the back I realised that they would prevent the folding forward of the seat back on that side so it seemed logical that rifles would be unlikely to be stored there and without the need to carry eight infantrymen that made sense so the RHS racks were left empty.



Above When not fitted to the front or rear pintle mounts the MG42 could be stowed on this rail that is attached to the hull between the front bench seats and the back rest. Fortunately I have my own MG42 design so it was no problem to drop the dreadful kit MG or to design the rail mount which was missing from the kit. the MG is painted using Vallejo Air Black mixed with a small amount of Vallejo Metal Color Gun Metal Grey.

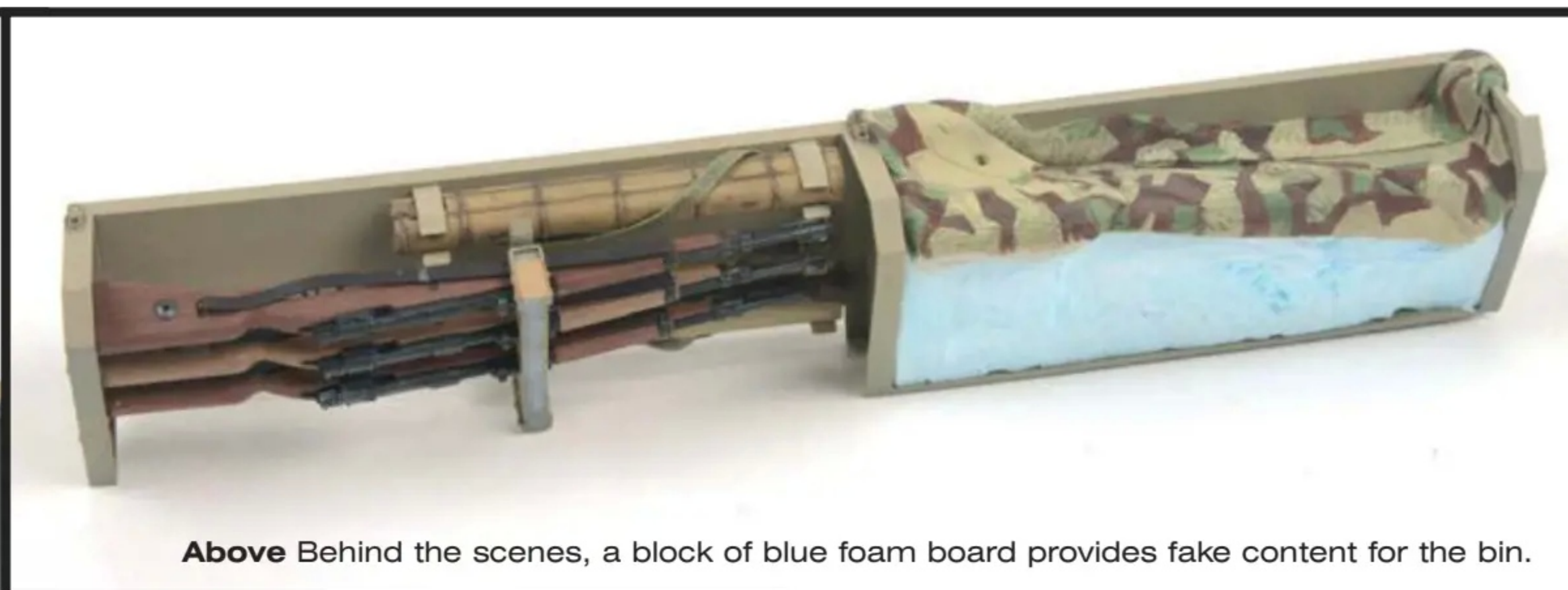
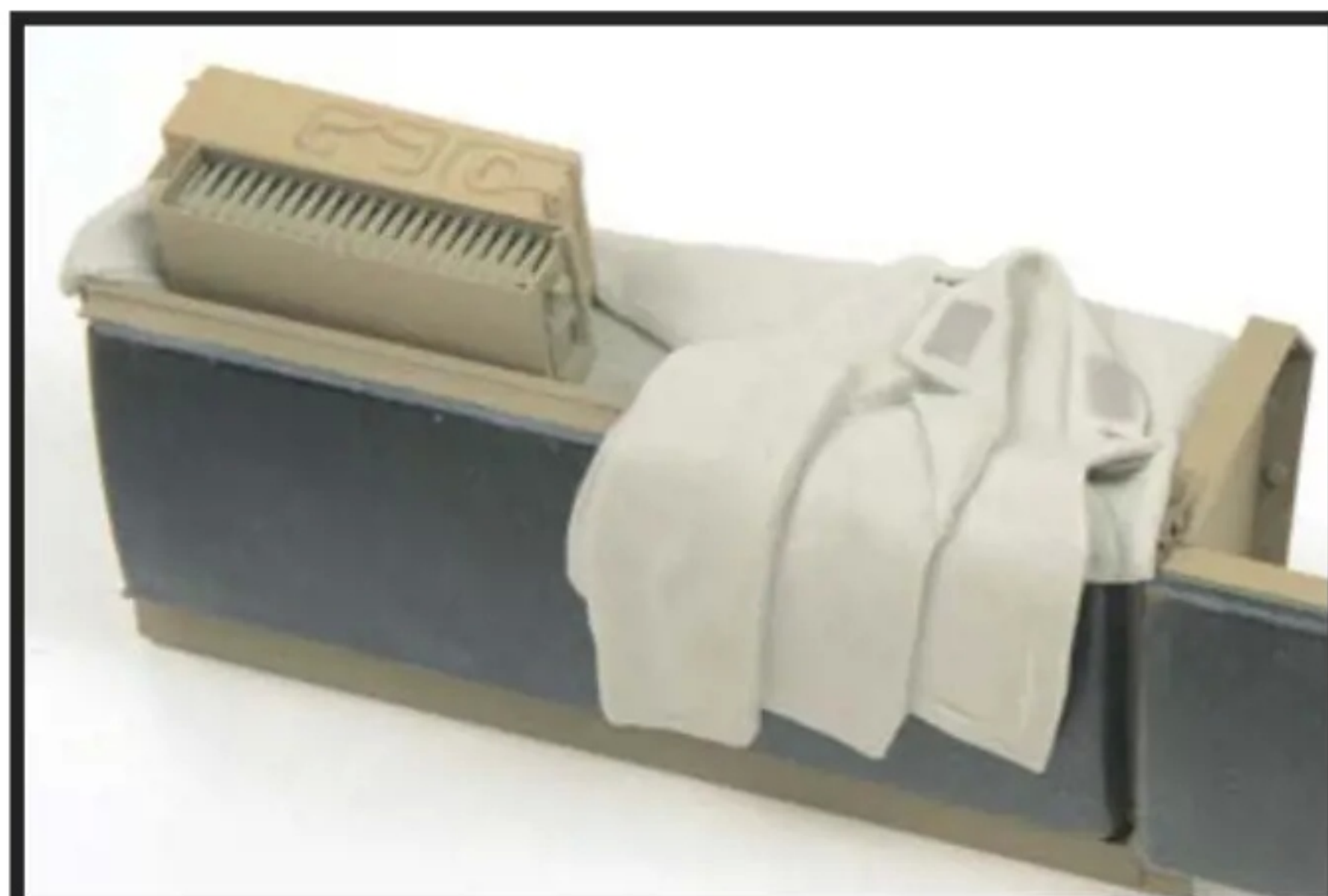


To fit the MG stowage rails and the AA tripod behind the bench seats some preparations were needed to make sure the backrest lockers would not be interfered with by them. I marked the position of the bottom of the backrests on the hull sides and added a line of tape each side as a guide to position the stowed items. The strange sloping offset positioning of the MG rail makes it tricky to align, especially the empty example but careful planning and some pencil lines helped everything to be positioned correctly and I was then able to glue the RHS backrest locker in position. The rear bin/back rest was deleted in the 251/3 to accommodate the radio rack.

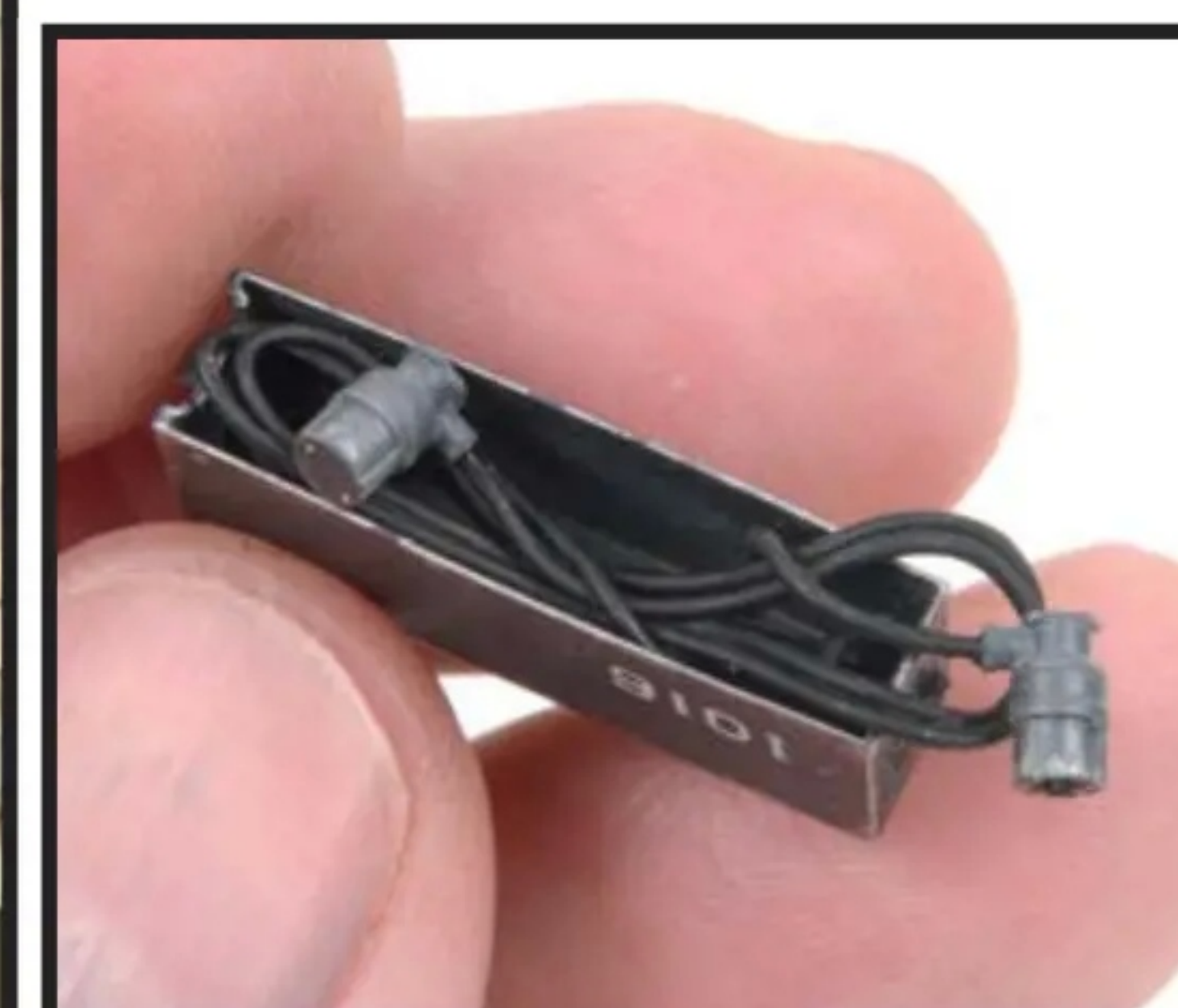
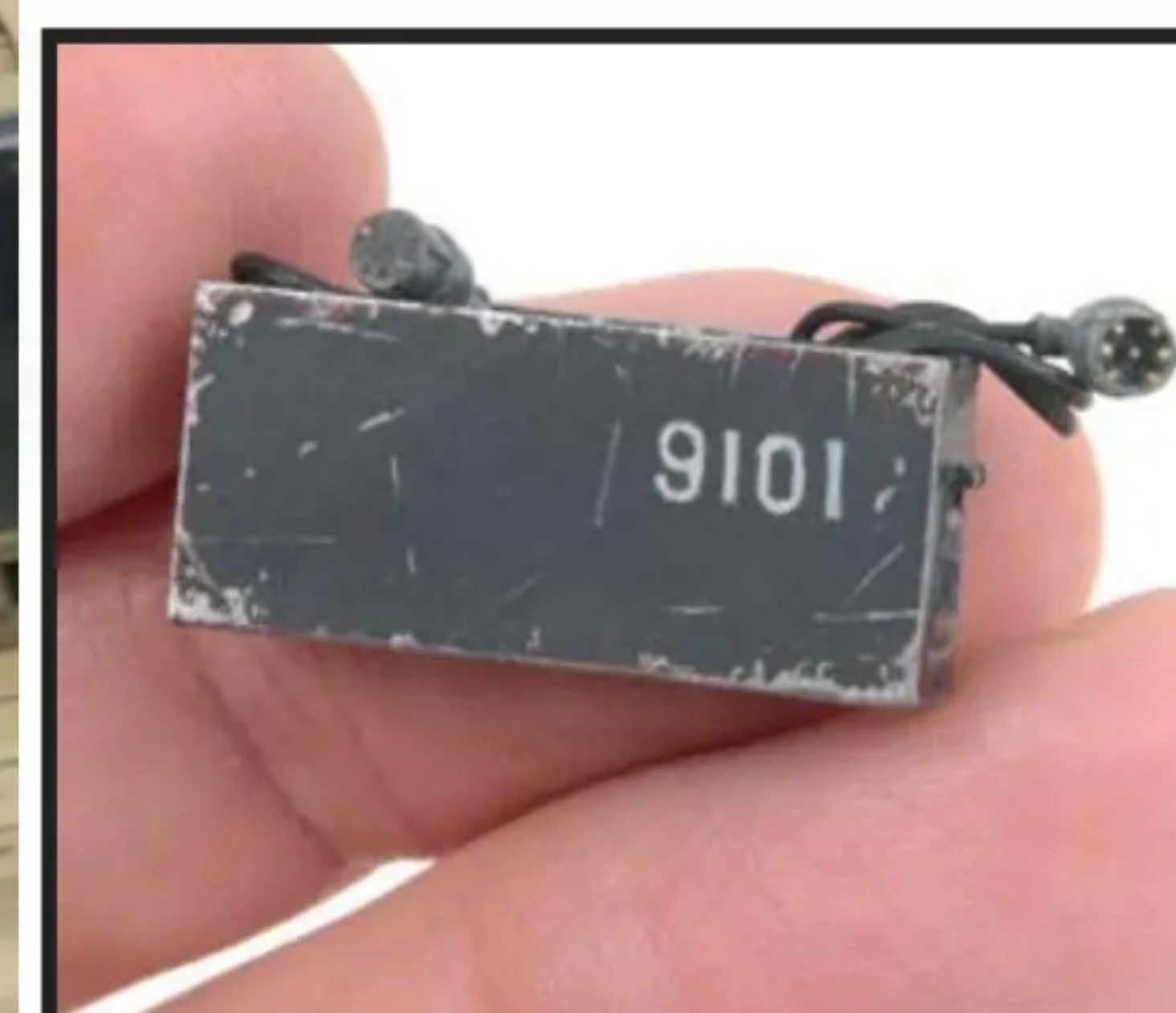


Left The RHS Seatback/Locker installed

Above I made a German Army blanket from some 2 part epoxy putty to drape over the top of the locker.



Above Behind the scenes, a block of blue foam board provides fake content for the bin.



On the LHS I had to come up with some stowage for the bin and the easiest way was to have the contents covered with a Zeltbahn so I shaped some blue foam board to fill up the bin covering it with a sheet of rolled out Magic Sculp putty. I planned to have two MG ammunition boxes sitting on top and I sculpted a Panzer wrap jacket to be draped over the backrest. Not the easiest thing to sculpt as I had to sculpt it flat before positioning it over the bin to dry. My plans to have two boxes on top of the bin had to change when I realised that I had not allowed for the sloping upper hull sides and one bin would have to suffice. I decided on depicting an ammunition box re-used by the crew to stow spare radio power cables. I modified the designs for my cable connectors to add the parts that are usually plugged into the radio with their associated pins and these were printed. The cable was made from copper wire and as the sockets seem to lose their paint I added some exposed aluminium to them. I also added the vehicle number 9101 to the box to assert ownership. At the same time I also made another coiled cable to be used later in the project.

CONTINUES IN THE NEXT ISSUE

NEW RANGE OF AIRBRUSHES

INNOVATOR

Gravity system | Two in one



Ref. 90001



An exclusive, precise and high-quality tool that will amaze you. This is a unique, ultra-light alloy model. Featuring both needle travel adjustment and air flow and pressure control, this airbrush is ergonomically designed and original. It features a dual independent action function with a gravity system and a floating nozzle system. It is easy to disassemble and clean. It includes a 0.2 and 0.3 mm needles, a 9 ml cup and a quick-disconnect hose coupling.



A multi-purpose and accurate airbrush that will meet all your requirements. The Profinish airbrush features a sleek chrome design with an innovative needle travel and paint control adjuster. With a floating nozzle, it includes an independent double-action gravity feed system. The set includes a 0.2 & 0.3 mm needles, three screw-on cups (3, 9 & 15 ml) and a quick-disconnect hose coupling.

PROFINISH

Gravity system | Two in one



Ref. 90002

EasyAir

Gravity system



Ref. 90003



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Handle with care. Read the instructions before use. Not suitable for children under 14 years old.

INNOVATOR

Gravity system | Two in one

High professional
quality airbrush

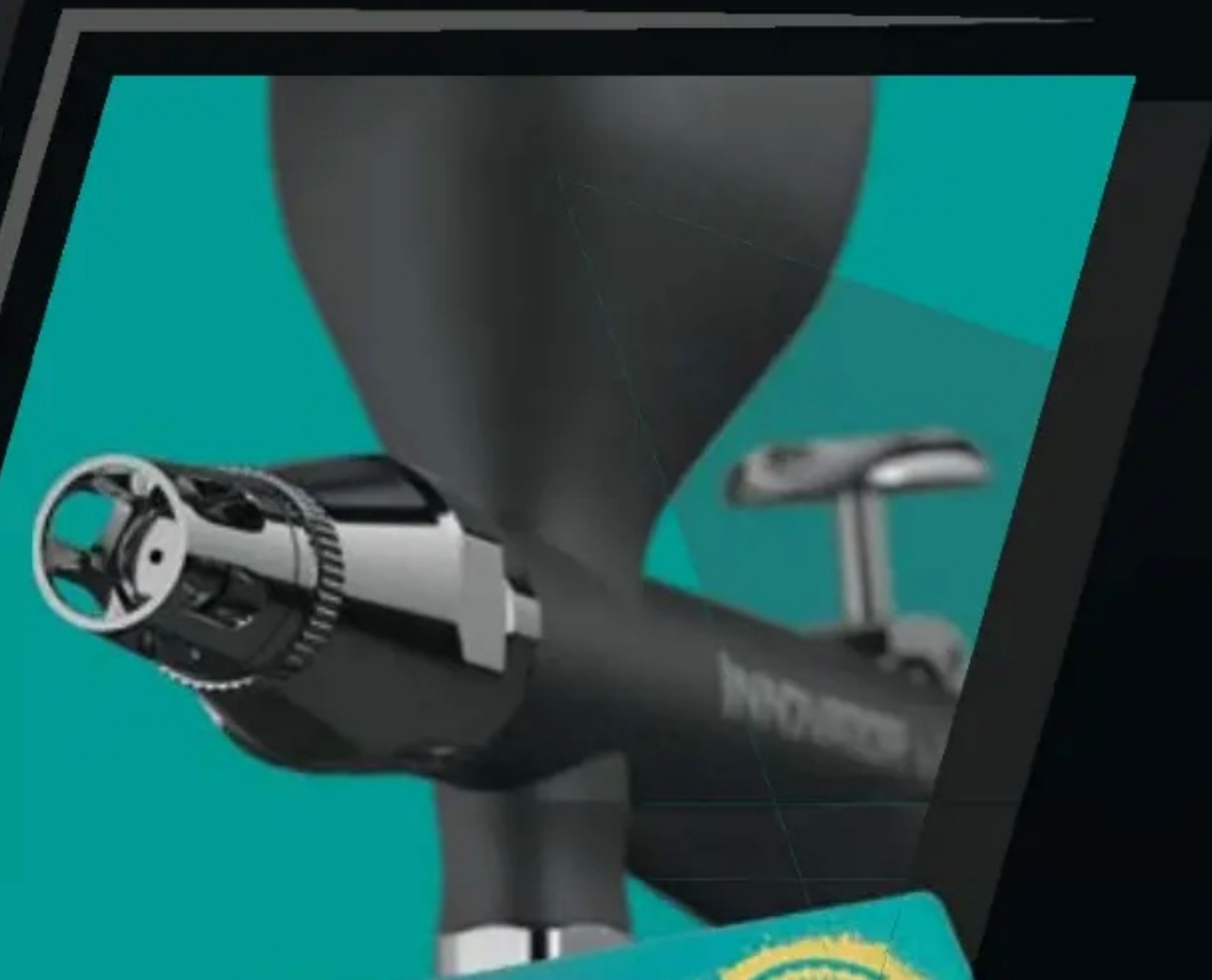
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in control!



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NEW RANGE
OF AIRBRUSHES



Innovator Vallejo Airbrush
High professional quality airbrush

Double action | Gravity system | Two in one
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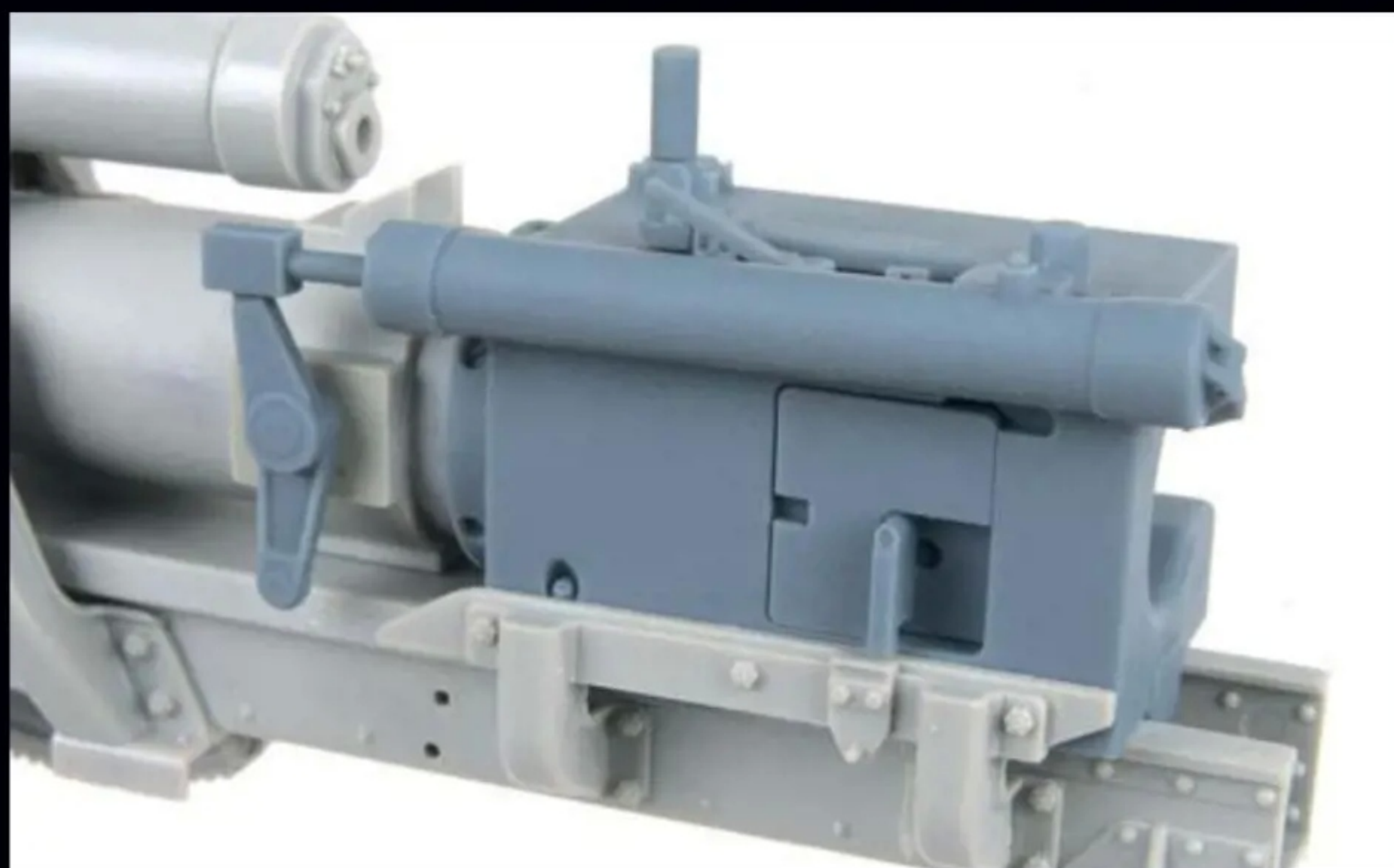
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Handle with care. Read the instructions before use. Not suitable for children under 14 years old.

NASHORN



SCAN ME!

AFV
modeller
1:16



Nashorn PaK.43 Corrected Breech

This 3D printed Breech corrects various areas of dimension and detail with the kit breech and as it is printed in one piece it avoids the problems of filling and sanding the gaps in the kit multi-part breech. We have also added the serial number on the face of the breech and the 'safe and fire' settings on the breech block. The block is a separate part to make painting easier and the block levers are also separate parts. It also corrects the actuator to open the breech as the gun recoils.



Nashorn Corrected Muzzle Brake for the Trumpeter Kit

Printed in one piece to eliminate the need to remove seam lines this also provides enhanced details when compared with the kit parts.



Corrected SflZf.1a Gun Sight for Trumpeter Nashorn Kit

This 3D printed set corrects the errors in the kit parts and offers that extra level of enhanced detail for this very visible part of the model. Printed in 7 separate parts it comes with assembly instructions and drops in to replace the whole kit sight assembly.



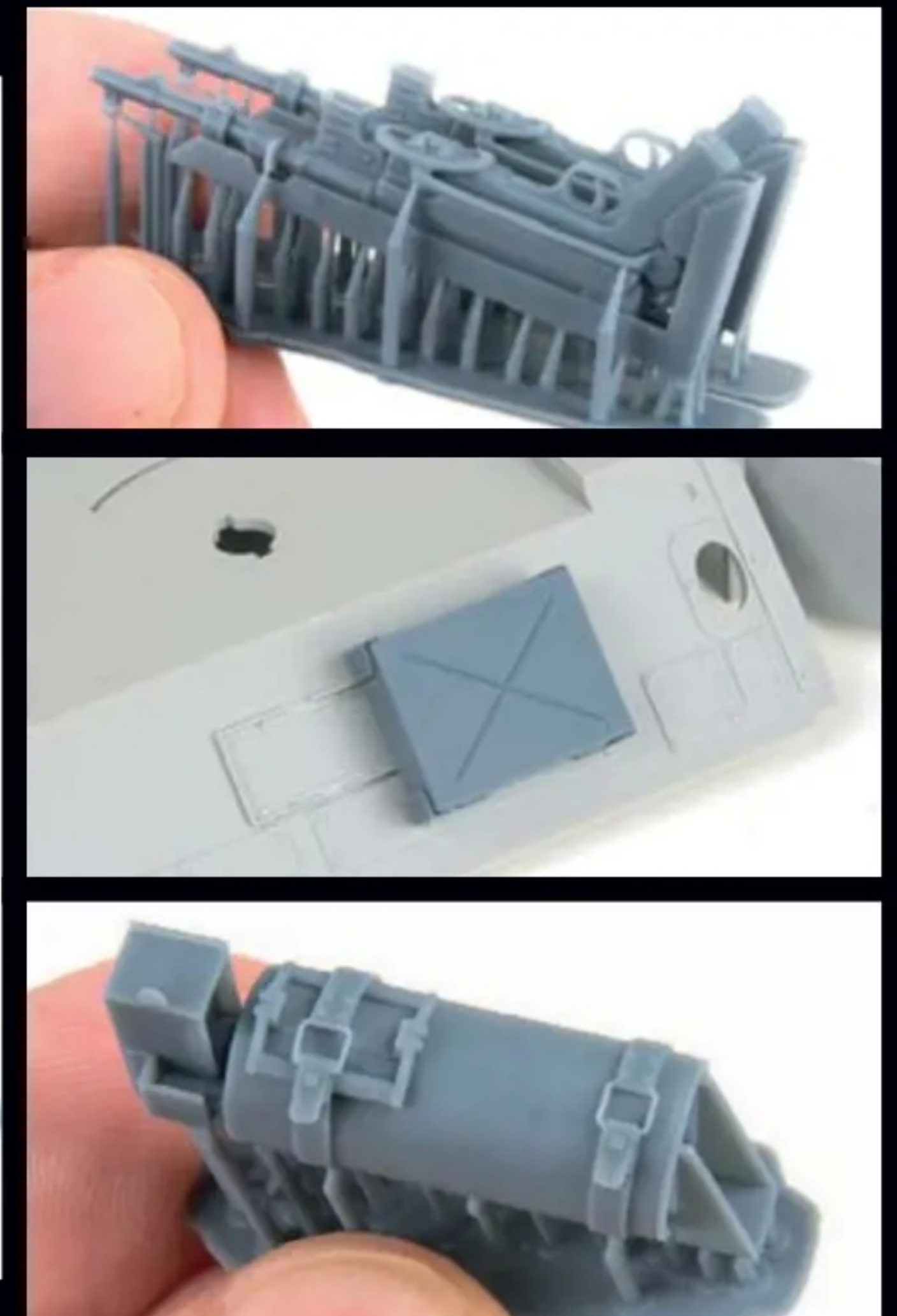
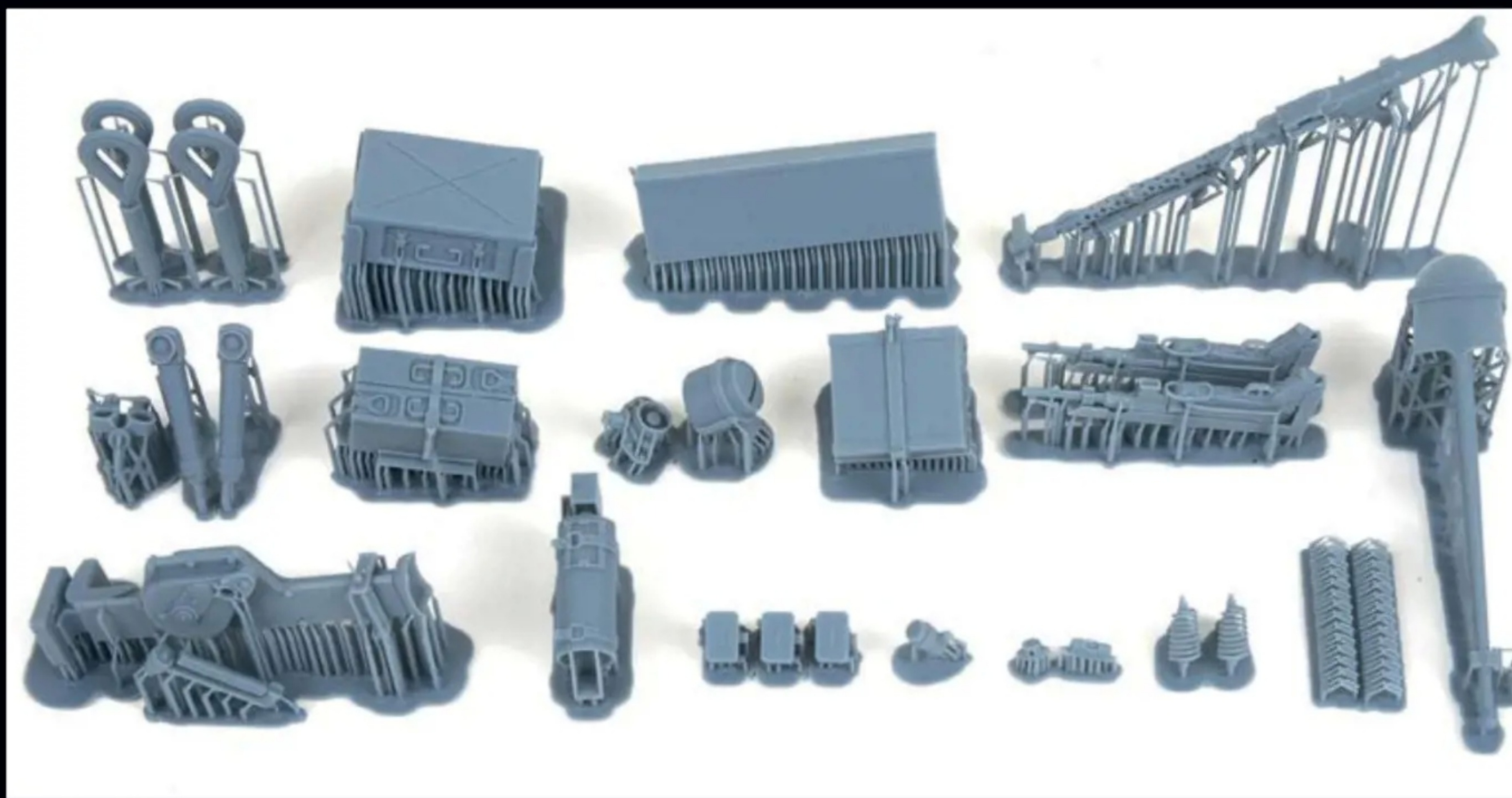
Entfernungsmesser 0.9m Telescopic Rangefinder

Seen in use on the Nashorn in place of the Scissor Scopes supplied in the Nashorn kit this Telescopic Rangefinder was used to compliment the long range of the potent 8.8cm PaK.43. The Rangefinder is 3D printed in three parts for easy assembly.

Entfernungsmesser 0.9m Telescopic Rangefinder Stowage Case

The folded Rangefinder was stored in this case when not in use. We have provided it as a separate part for anyone wishing to add this to their Nashorn model although its location inside the vehicle has not been established.





Nashorn Detail set

This 3D printed set provides a welcome upgrade to many of the smaller details in the Trumpeter kit. Beginning with the stowed MG34 which is mounted onto its stowage brackets and feature an accurate hollow barrel sleeve and configured with folded down sights for stowage. Along with this is a set of two stowed MG ammunition boxes, complete with strap securing them and we have included one of our spare MG barrel cases. Two stowed MP40 along with their stowage frame are included and three intercom boxes, light fitting and power socket for the

interior side wall. The missing secondary back up gun trigger, replacement springs for the Gunner's seat, and one of our Scissors Periscopes are included along with the stowage box for the gun optics and a corrected stowage box for the left hand side wall along with a Fire Extinguisher. Externally we have one of our detailed panzer spades complete with fixings, replacement Bosch headlamp and new Jack and jack block with the correct stowage fittings. There are four Panzer IV pattern tow rope eyes and finally replacement tarpaulin loops for the top edges of the superstructure.



88mm KwK.43 Ammunition

3D printed upgrade parts providing highly detailed seam-free and support-free finished rounds with 4 different types, 8 in total and 2 spent cases. Suitable for Tiger II, Jagdpanther, Nashorn and Ferdinand/Elephant.

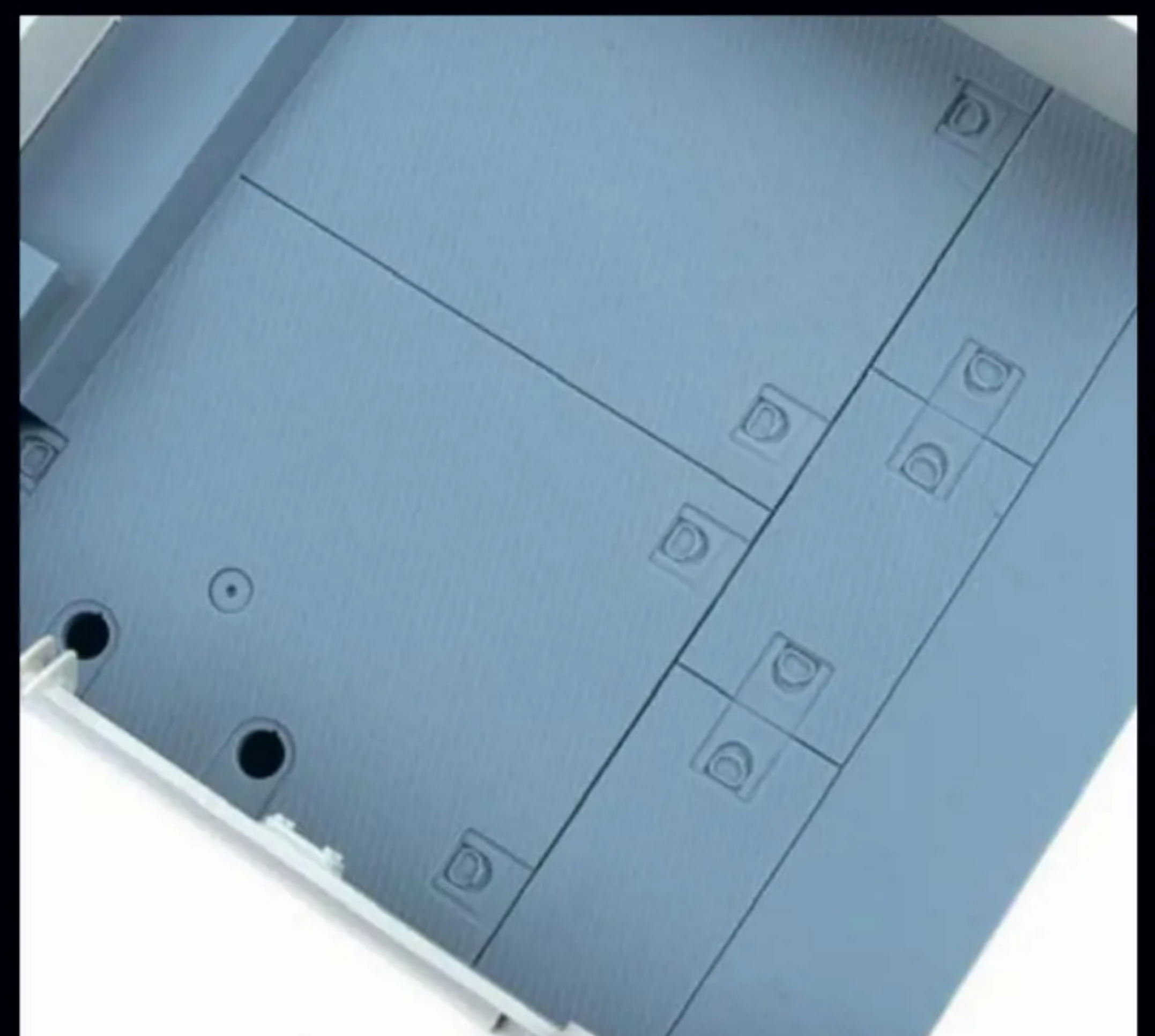
88mm KwK.43 Ammunition Tube

Set of 5 3D printed transport tubes for the KwK.43 ammunition. Printed in two parts with separate cap. Suitable for Tiger II, Jagdpanther, Nashorn and Ferdinand/Elephant.



Nashorn Corrected Fighting Compartment Floor

This 3D printed part replaces the kit fighting compartment floor with the correctly scaled tread plate pattern in place of the overscale kit pattern. Simple to substitute, just trim the two triangular flanges on the kit firewall part A2 which we have integrated into the new floor parts for a better finished appearance.



88mm KwK.43 Ammunition Transport Case

Set of 5 3D printed transport cases for the KwK.43 ammunition. Printed as a single piece with hollow underside. Suitable for Tiger II, Jagdpanther, Nashorn and Ferdinand/Elephant.





HELLCAT

M18 GUN MOTOR CARRIAGE

TAMIYA'S NEW 1:35 KIT MODELLED BY
ANTONIO MARTIN TELLO





The M18 Gun Motor Carriage Hellcat was the swan song of the US “tank destroyer” concept. It was the only one of its class designed from scratch, with no parts from previous vehicles (as it was the case with the M10 or M36, based on the Sherman). The result was a modern, fast and reliable vehicle, although poor armoured, which performed well in the last stages of WWII. Aesthetically, it was one of my favourite vehicles, with a compact size and sleek aspect. When a couple of years ago, Tamiya released a state of the art kit of the Hellcat, I knew that I would build it...

The kit is one of the most recent releases from Tamiya (ref. 35376). This guarantees that the assembly will not offer any problems at all. The detail is very good and the fit is perfect. I would like to give as an example the protective canvas for the gun mantlet. Despite its complicated shapes, Tamiya solves this area with three pieces that fit together perfectly.

I'm sure that built from the box the resulting model is probably magnificent. However, and this is one thing I like about Tamiya models, the modeller can decide if he wants to take his model easily to the next level by adding some complements. In my case, I opted for this possibility and got some aftermarkets such as a

set of Eureka XXL containing the towing cable and an aluminium turned barrel (ref. ER-3568), and some 3D printed link by link tracks from Quicktracks (ref. T-35004). Tamiya includes in the box the now standard length and link tracks, which are not bad but have a lot of ejector marks on the inside face. The Quicktracks tracks are well detailed, are easy to assemble with a click and stay articulated. The only downside is that they fit very tightly to the sprocket and have to be ‘coaxed’ into place. I also used some photoetched parts, mainly from Eduard (ref 36478) and some from the spare box. The stowage on the turret is from Eureka XXL (ref. ER-3569).

I also replaced the Browning machine gun in the turret with a finer and more delicate one from Tasca (ref. 35-L9).

Finally, I added some 3D printed parts from STL files purchased in the web. They were basically the headlight guards, turret handles and the numerous small tie downs that grace the model all over the place. This was my first experience with this type of material and, although the result is not bad, the pieces are very brittle and you have to be patient and have leftovers.

As I said, apart from these additions, the assembly was completely standard, following the steps in the instructions.



The only precaution to be taken, being the Hellcat an open topped vehicle, is that the inside of the hull is visible (although in the end much less than I expected) and must be painted before closing the two halves. Anyway, I didn't overwork this area because, as I say, in the end it is barely visible.

The base color is a mixture of Tamiya "Olive drab" (XF-62) and "Sky" (XF-21) since I always prefer to start with a light colour. I used a lighter version of this mixture (with a higher proportion of "Sky") on the horizontal surfaces that were supposed to receive more light. Additionally, I painted with a brush the more prominent details (screws, hinges, fuel caps...) with an even lighter mixture to make them stand out even more. Before applying the decals, I varnished the whole model with a coat of Tamiya X-22 gloss varnish. This provides an optimum surface for the decals to sit on. The decals are the ones supplied by Tamiya in the box.

They correspond to one of the two colourful decorations included for two vehicles of the US 805th tank destroyer battalion operating in Italy at the end of WWII. The decals are of good quality, they are very well thought to avoid details such as screws or hinges of the surfaces on which they should be placed, and in some cases it is necessary to complete the motif with white paint. I used the Microsol and Microset liquid routine in their application with good results. Another general coat of gloss varnish protects the decals and leaves the model ready for subsequent treatments.

The weathering process starts with a couple of filters which contributes to unify the base coat and integrate the decals. These filters were made with extremely diluted earth-coloured oil paints, and are applied over all the model, without puddling, subtly changing the colour.



Once dry, the chipping was painted with a very fine brush and in a controlled manner. Special attention was paid to the edges and the zones most prone to wear and tear, but in general this effect must be subtle. The colour used is the “camouflage black brown” (70.822) from Vallejo Model Color acrylic range.

Treatment with oils followed. This medium is, in my opinion, the most versatile tool for depicting the effects of wear and dirt on our model. The coat of gloss varnish favours the oils to flow and spread properly. In a first phase, I use lighter colours, such as ochres, greys, buff, and even white. A colour that produces very interesting effects is “faded dark yellow” (ABT020) from 502 Abteilung, which actually has an orange tone. The application of oil colours is a somewhat time-consuming process. With a fine brush, small portions of the oil paints are taken individually and deposited on a particular spot of the model, blending it with the brush slightly moistened with solvent.

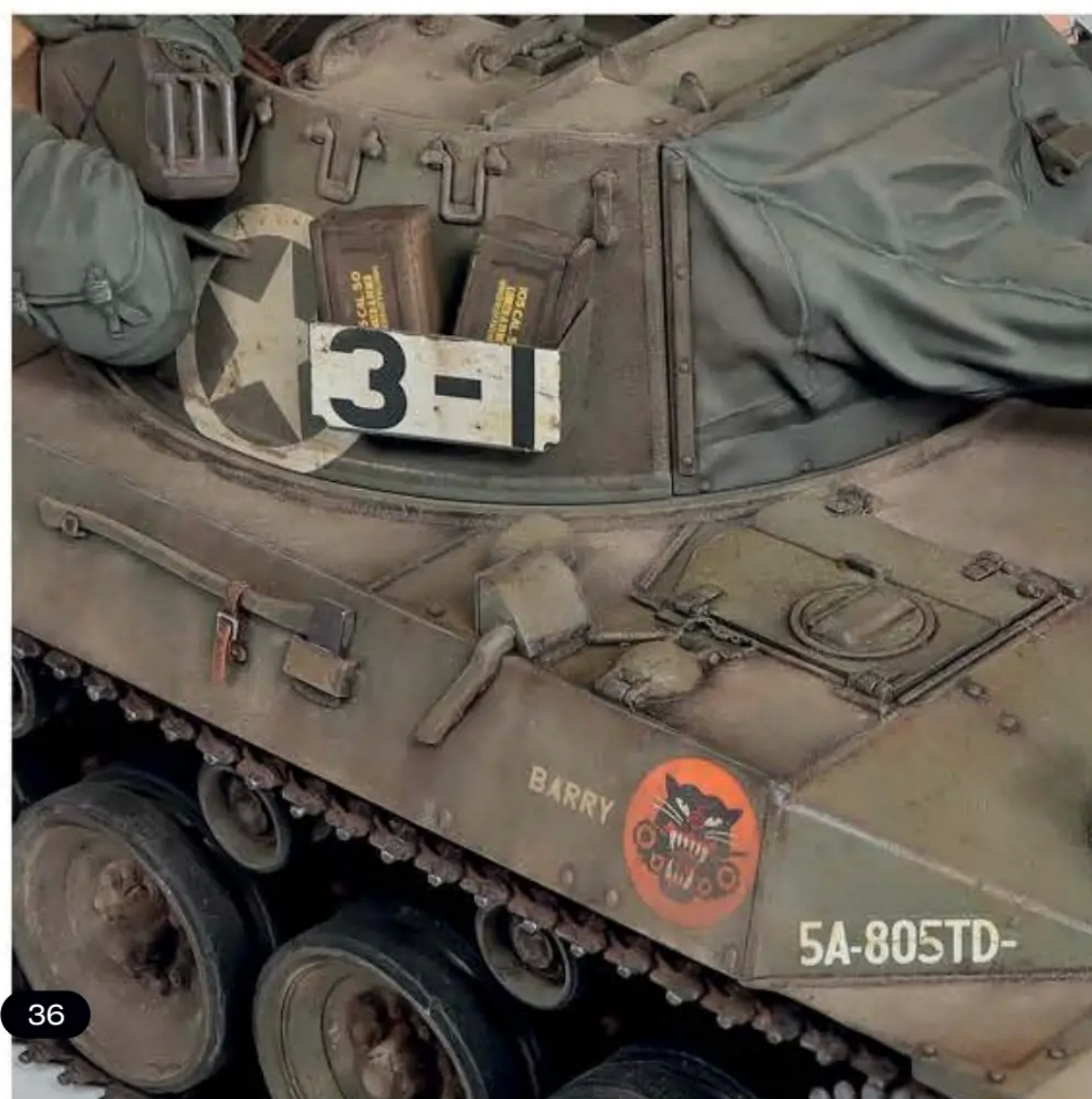
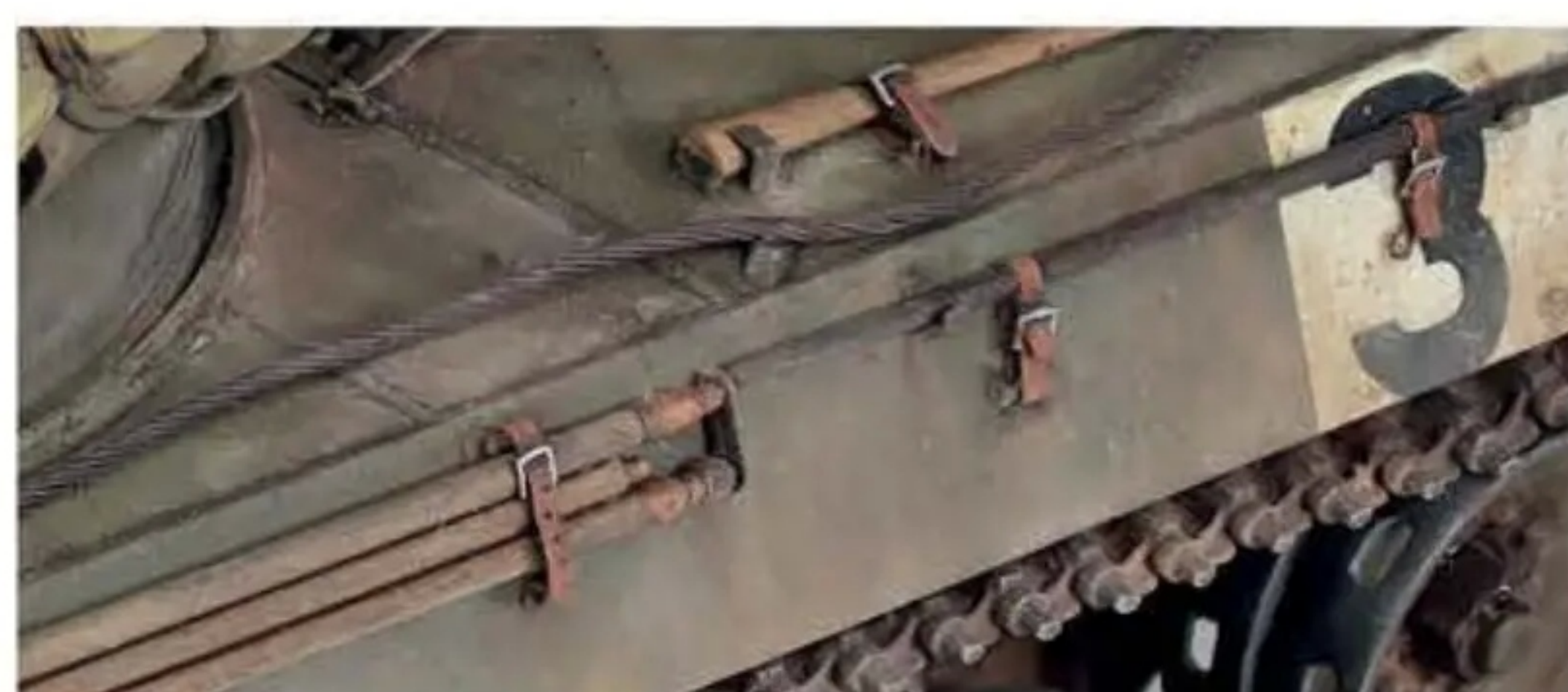
The area worked on should be small so that we can achieve subtle tonal variations with respect to its surroundings. For example, we can modify the tone of a hatch with respect to the surrounding area. Once the whole model has been worked on, I move on to a palette of dark colours, burn umber, sepia, dark brown, dark rust...

working in the same way on specific areas such as nooks and crannies or deeper areas, to represent the shadows. Also with these colours, I paint very blurred streaks on the vertical surfaces to simulate dirt or subtle rust stains.

The oil painting phase is finished with an outline with a sepia oil solution in the nooks and crannies and engraved lines. This is a very attractive tool that helps to highlight the lines and volumes of the model. With a fine brush, the sepia oil solution is deposited in the right places, allowing it to flow around the details. To avoid darkening the rest of the surface, a brush dipped in clean thinner is used to wipe off the excess oil. Folder “Chipping + oils”

To unify the surface of the model, which is now covered with random gloss, a general coat of matt varnish is applied. The final dusting is done with pigments, either dry or moistened with enamel solvent where it is intended to simulate a larger accumulation of earth.

The tracks were painted on a black base coat and then dirtied with pigments. On the outermost parts, metal wear was simulated by applying gun metal with a dry brush and graphite from a soft lead pencil.



I almost always place my models on a more or less complicated scenic base. In this case, this base is very simple, a small piece of ground with a suitable background to frame the vehicle. The composition is the classic diagonal, with the highest element (the ruins) in a rear corner and another lower element in the centre so that there is also a kind of diagonal line in the height of the background.

The base is a sheet of insulating foam (actually the one I finally used is not the one in the photos, but a thicker one with a smaller area, in order to keep the scene as compact as possible). The ruins are leftovers of a plaster church that I used in a big diorama that I made recently and the tree is made with different sticks and

branches of "aristata teloxys" glued together, their joints puttied, painted in a gray-brown colour, and treated with oil washes. Folder "diorama layout"

At the base, a very basic relief is moulded with school modelling clay, and once dry, sand, pebbles and coffee grounds are glued with white glue to create texture. This "ground" is painted with different acrylic earth tones and treated with washes and pigments. On top of it, leaf litter and vegetation composed of various materials, both natural (birch seed pods, crushed parsley, minced sea weed...) and artificial (leaves of paper cut with a die-cutter, plants for modelling...) are added. The ruins were painted with grey acrylics, trying to add tonal variety in the different blocks, and weathered with oils.





The figures represent two officers conversing. One of them is the one included in the Tamiya kit and like all the latest ones from the Japanese brand, it is of great quality. I replaced the head with a Hornet head to add a different touch. The other is a resin figure of the brand The Bodi (ref. 35020), of great fineness in the sculpture, to which I ended up adding the head that I had not used from the previous Tamiya figure. The figures are painted with Vallejo acrylics following the concept of zenithal light and creating the lights and shadows with glazes.

The figures occupy the free front corner filling this space, and

again creating a diagonal of heights with respect to the ruin in the opposite corner.

I really enjoyed this project. The quality of the Tamiya kit makes for a very pleasant assembly experience and with a little extra work I think you can achieve a very attractive result. As for the paintwork, I think olive drab is a colour that can be used to great effect, despite its dull appearance.

Finally, the small scene manages to frame the vehicle in a compact, but I think balanced space, adding interest to the final result.





NEWS

AFV modeller

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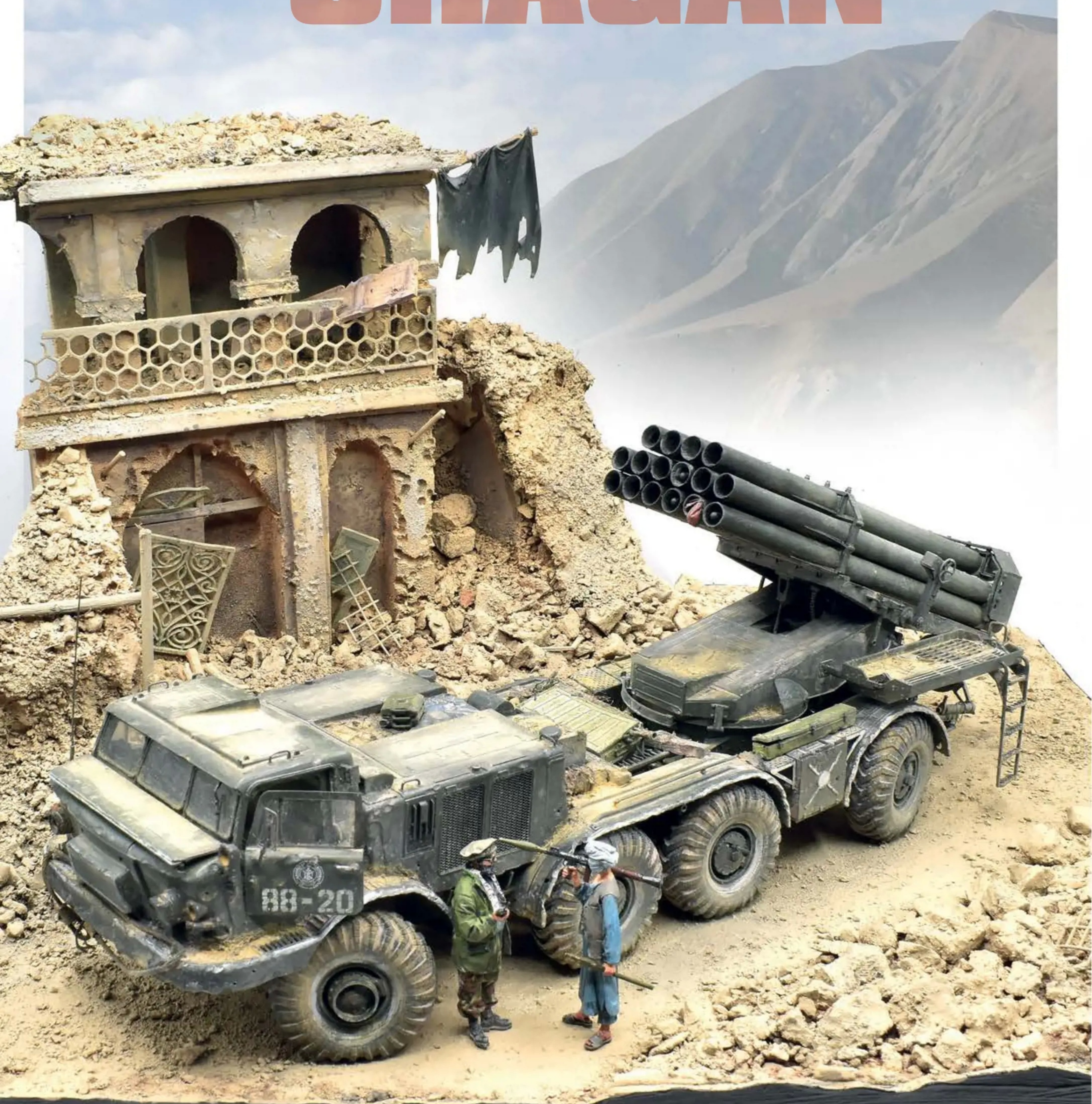


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AFGHAN

BM27 URAGAN



**ZACK SEX REINS DESTRUCTION ON
TRUMPETER'S HEAVY HITTER WITH SOME
SCALE-X WHEELS AND A FIST FULL OF RUBBLE**



The BM 27 Uragan was part of a Soviet triptych of MRLS systems that built on the development and combat experience of the Red Army with its BM 13 Katyusha during the Great Patriotic War. The new post-war variants included the BM 21, BM 27, and BM 30. The Soviets also deployed the Frog 7 and Scud missile systems designed for long-range strategic targets.

The Uragan filled the mid rocket launcher role between the lighter BM 21 and heavy BM 30. The BM 27 typically operates in batteries of six or seven vehicles with these units playing a vital role in the chessboard of Soviet and later Russian rocket and tube artillery. Designed in the early 1970s by the Splyav state research and production enterprise, and entering production in 1975 the BM 27 Uragan was the first Soviet multiple rocket launcher system to use spin and fin stabilised rockets that were capable of delivering cluster bomb munitions and a range of other ammunition, a barrage of 16 rockets could saturate an area of 42 hectares in explosives. The BM 27 uses the tried and tested Zil-

135 chassis that had developed for the FROG 7 (Free Rocket Over Ground) 9K52 Luna M produced in the 1960s. It runs on two 6.9L Zil-375 YA V8 gasoline engines, one of which drives the left hand four wheels and the other on the right-hand side.

The 16 rocket launching tubes can fire a salvo of 220 mm rockets to an effective range of 35kms and a maximum range of 70kms depending on munitions used. The Uragan first saw major combat service in Afghanistan with Soviet and Afghan forces against the Mujahadeen and was of particular importance when Soviet ground attack air assets were threatened by the supply to the rebel factions of US Stinger MANPADs. The BM 27s next big campaigns were in the two wars in Chechen wars where the Uragan was used to a terribly destructive effect of Grozny along with Russian air power and traditional tubed artillery.



1:35

It was perhaps in Chechnya that the Russian rediscovered their modern intervention through the overwhelming firepower model that had served the Red army so well during the Great Patriotic war, vast amounts rockets, artillery, and airpower (chiefly in the form of close air support aircraft). This model had been used against Budapest and Berlin when crushing the remnants of Hitler's forces. Now, the Russians would use this overwhelming firepower in modern battle fronts such as Syria and in a massive fashion in the up and coming Ukrainian invasion. Whole cities would be reduced to seas of rubble, with no differentiation made between military and civilians, and any and all infrastructure being considered legitimate targets whether it be Schools, hospitals, shopping centres or military barracks. This was total war Putin style. In Syria Russian and Syrian forces deployed large amounts of BM 27 Uragans, along with BM 21s, BM 30 and some home made Syrian systems in an attempt to shore up Assad's genocidal regime from various Syrian resistance groups. Interestingly enough, Syrian army BM 27s were taken from Russian stocks and operated with Russian paratrooper markings on their cab doors.

The BM 27 Uragan would see extensive use by both sides in the Ukrainian ATO campaign, which ran from 2014 to 2018. The Anti Terrorist Operation in the Donbass and Lugansk. Initially, after the Orange revolution in Kyiv Russian backed militants attempted to take or took over towns and cities in Eastern Ukraine, while Russian forces in uniforms stripped of military markings took over Crimea. As the Ukrainian army and volunteers fought back the nature of the ATO conflict changed fairly rapidly and Russian forces became involved. The Kremlin created a pretence or lie that these were just local miners and farmers fighting the Ukrainian forces with tanks and weaponry they managed to find. In some cases, Ukrainian units were being targeted by Uragan and

Smerch MRLS systems from inside Russian territory and heavy rocket launchers and artillery became involved in messy and brutal border campaign along with all manner of late Soviet and more modern Russian MBTs. Open source reporters such as Bellingcat uncovered the use of many Russian army units in this campaign, which in many ways was a prelude of much bigger plans that Putin had for Ukraine. On the 24th February 2022 as we all know Russia started its full scale invasion of Ukraine, it was to be a short war or special military operation that would rap up all resistance in a few days and Ukraine would return to the motherland or that was the piped dream in Moscow. Four years on after vast death and destruction the nature of modern warfare itself has changed due to the evolution of warfare in the Ukrainian conflict. Yes tanks, APCs are still required but they must have nets and wire frames to protect their upper hulls and turrets.

While the BM 27 is no longer the big ticket news item, it and other former Soviet stable mates were, they have been over shadowed by Himars, Flamings, and all manner of Kamikaze drones. The BM 27 is still battling away in the background, and being targeted as is evident in the grainy black and white footage released by Ukrainian drone units of the most recent hits on Russian BM 27s in occupied Crimea and Zaporizhzhia. Russia has attempted to modernise the Uragan with the BM 27M on a modern chassis but these seen scarce if not present at the front and even resorted to make up for loses by employing North Korean M1991 240mm MRLS systems at least one of which Ukraine forces spectacularly destroyed with a drone hit and cook off. It seems that the future of rockets systems in this new age of drones will head more towards long range accuracy Himars and away from area saturation Uragan style but only time will tell.

Building the Uragan:

Having built the Trumpeter BM 27 before I had a fair idea of what lay ahead with this build. The Trumpeter Uragan chassis being the same as their FROG 7 kit is a complex set of support frames and constructions, this takes time to build and careful following of the instructions. The big bonus with this build was that I'd got my hands on a set of eight BM 27 weighted wheels from Ukrainian company ScaleX.





These wheels add an extra dimension to any kit but as one can imagine are particularly visible and effective with large truck bodies such as the Zil-135 used on the Uragan. Having built a fairly clean Ukrainian example before I had a bit of a desire to try something a bit more 'banjaxed' (Irish slang for wrecked). I had seen former Afghan DRA BM 27s along with Frog and Scud missile launchers that seemed suitably vandalised, complete with the remains of hand painted parade white stripes along the chassis and wheels. These white lines with white wall tires used to be all the rage during Soviet and Warsaw Pact parades and seem to still find favour in Afghanistan today.

To spike up my Afghan Uragan I started by smashing it up a little with an orbital head in my Dremel. Next I added little patches of grit and sand in spots (I might have overdone this). My favourite addition to the upper body of the vehicle was a pair of Tamiya T55 zip boxes along with various bits of detritus that I imagined might end up on a fairly worn old Afghan MRLS. I added a tow cable on the front bumper with more rough sanding, dents and bullet holes I decided at some point the model is in danger of falling apart if I don't stop.





Painting and weathering the brute:

The paint job was going to be the real test to see if I'd gone too far with all the destruction, having primed the model grey, I mixed a dark green using Tamiya acrylics having masked off the cab windows I merrily blasted away with my simple airbrush and perhaps unsurprisingly the model looked quite reasonable.

I made use of a set of Trumpeter Urgan door numbers from their Afghan decals but replaced the Afghan forces markings with superior decals from a Miniart Afghan T55 kit. The white stripes and decorations were next, but in many ways these would be overshadowed by pigments and washes, I wanted my Afghan BM 27 to look well worn. While I was happy with the trashed vibe of the Urgan, it needed a proper base and background.

To this end, I decided on a suitable Afghan ruin. Having searched the Internet I found a dusty ruin of a building from Herat, I scaled it down a little so it wouldn't completely overwhelm the model as it was going to be a relatively large undertaking. The building itself was constructed using Styrofoam and foam card.

The foam card was obtained from Marks models in Dublin, and as usual, a big thanks goes to Simon Hand and Louis King for their help and assistance with all things foam card and more. Having cut, sanded, and 'Dremeled' the foam card building, I used 3D sprues from the ScaleX wheels set to make balcony railings and various window frames from old Miniart kits to enhance the ruin. Lastly, I had an old games workshop flag, which I simplified by removing extra tassels from its sides to make a simple torn and worn black flag as one would find in this neck of the woods.



The base and of the diorama were then covered with PVA and crushed house red brick. The crushed brick was simply hammered into tiny pieces, which I used in a range of sizes.



This process is very simple and straightforward beat a brick with a hammer and depending on size required hammered the pieces to the size required, I found this a great way of knocking out very suitable rubble for next to nothing. This rubbly ruin was then sprayed with Humbrol sand acrylic spray and a mix of Tamiya colours and some pigments.

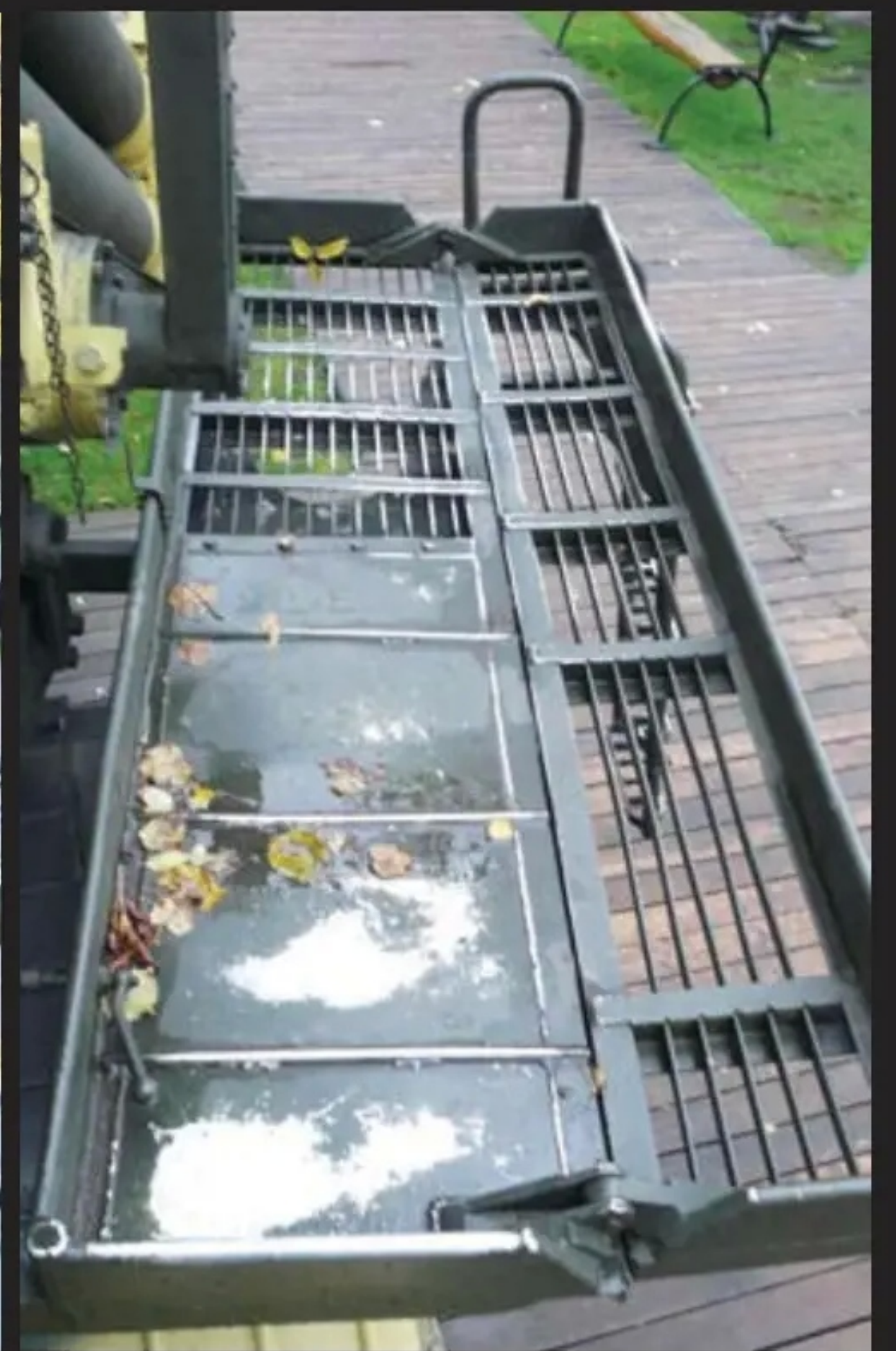
The last act in this little production was a pair of suitable Afghan Mujahedin fighters to this end. Paul Kunkels provided me with a number of Afghan figures he had in his large collection. I think they're (Russian made) Stalingrad figures, but they were purchased before the invasion of Ukraine, otherwise, I wouldn't be using them. No money for Putin's war machine is my motto. They were fun to paint, and I surprised myself with the result.

Conclusion: I enjoyed this Afghan BM 27 Uragan project a fair bit. In the end, perhaps the background ruin took over somewhat. The pair of Afghans might have stolen the show too, but that's how the cookie crumbles, the BM 27 became part of the overall composition rather than the centre of it. I'm keen to try more ruined buildings now and perhaps a suitably shattered Berlin scene might be the next avenue of adventure, till next time stay safe and happy modelling.





BM-27 IN DETAIL



BM-27





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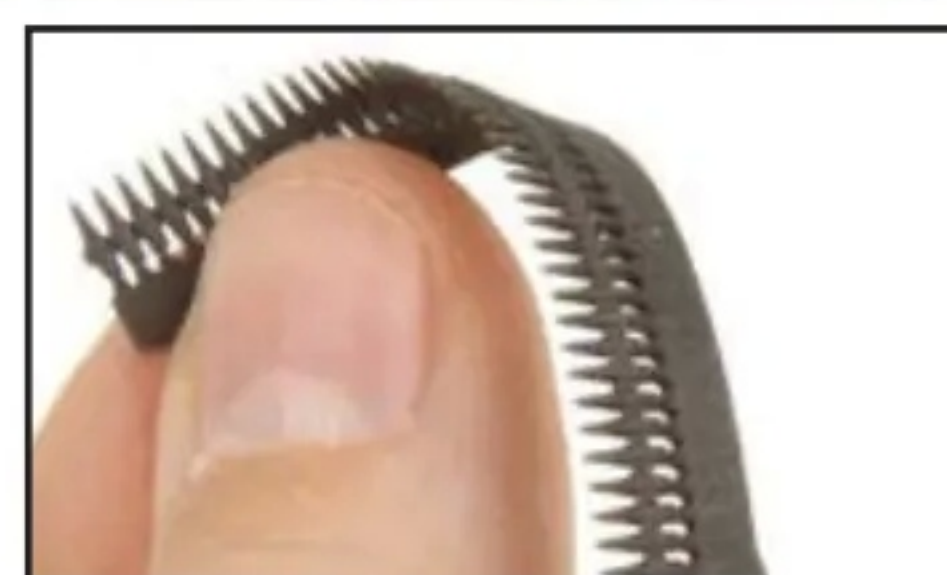
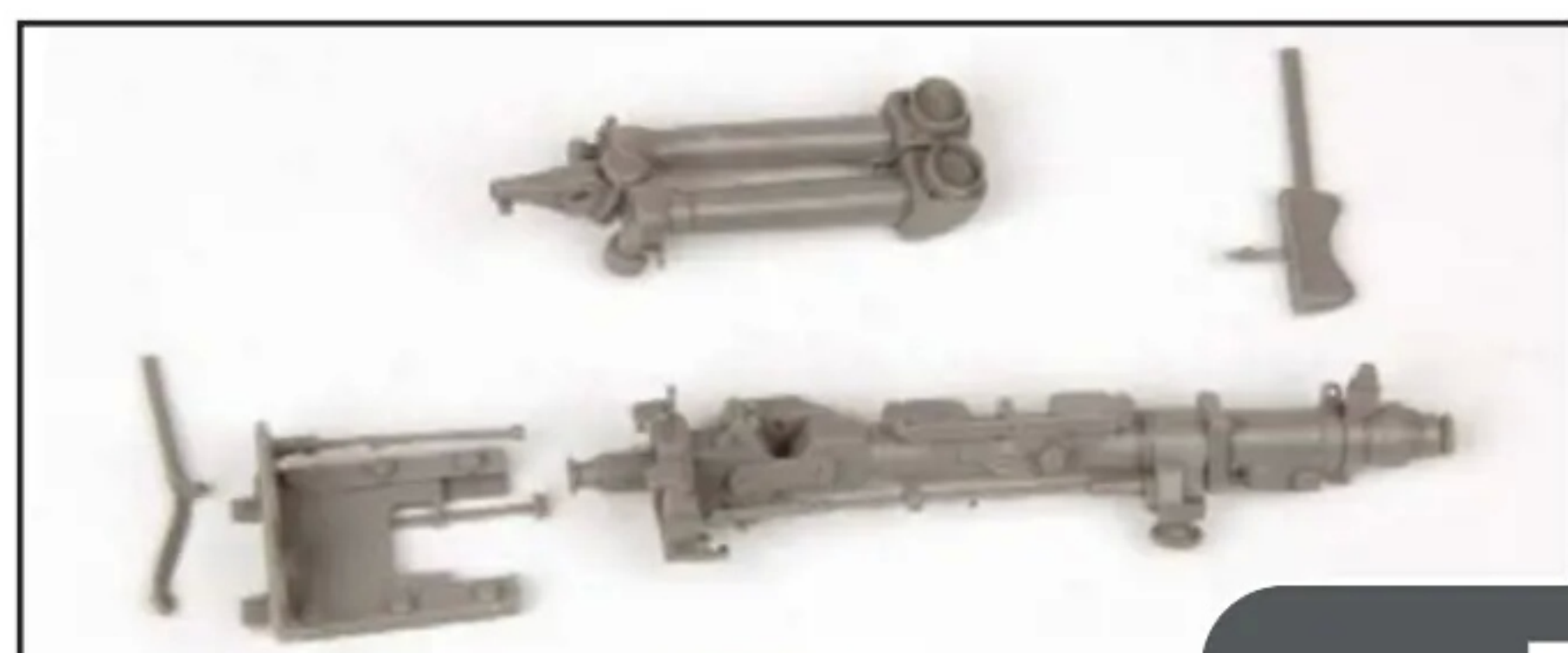
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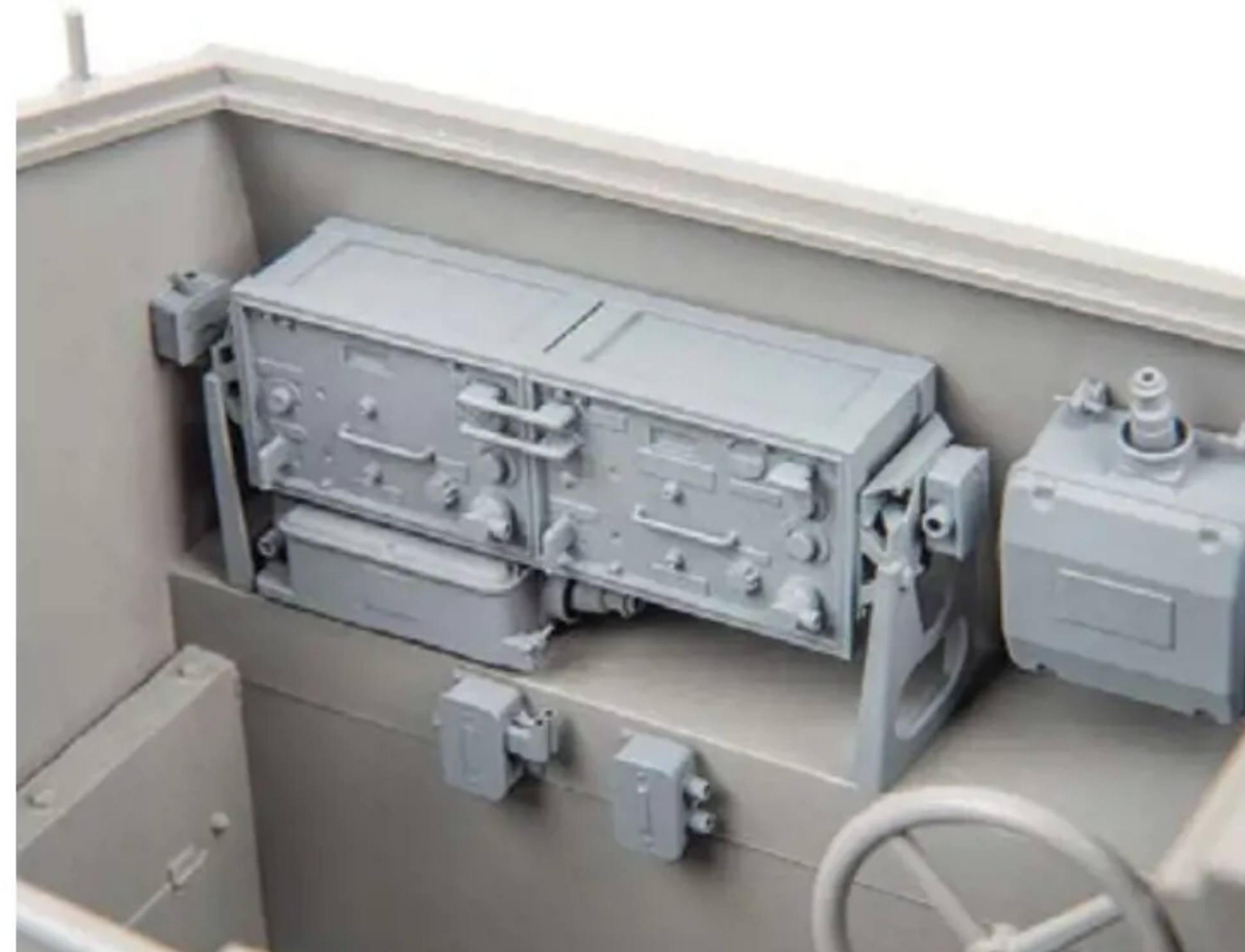
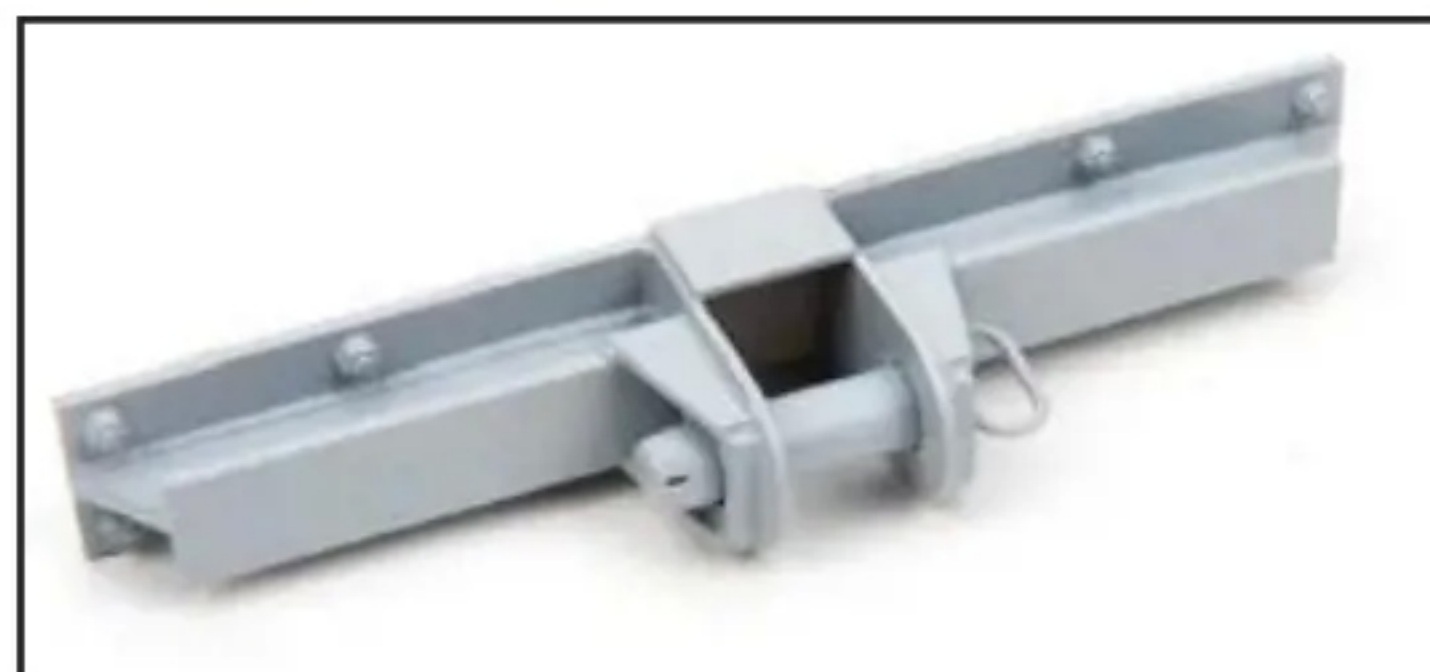
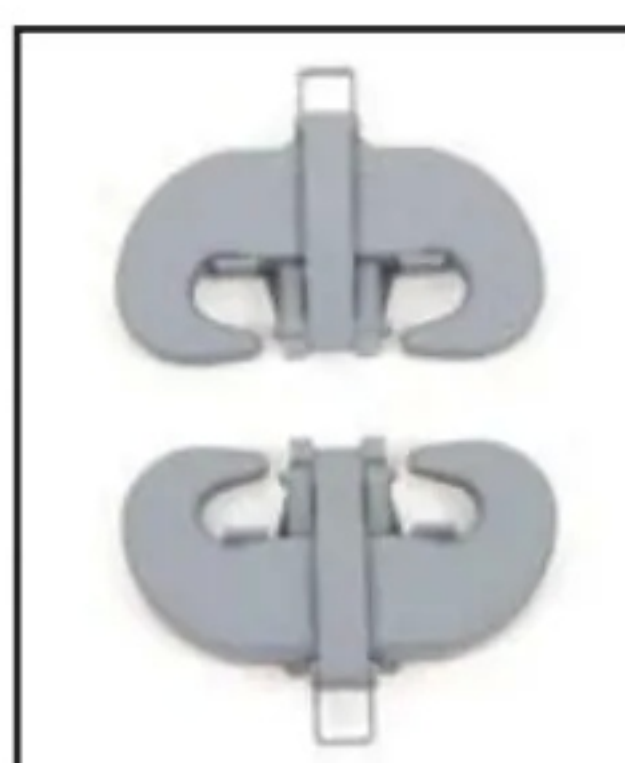
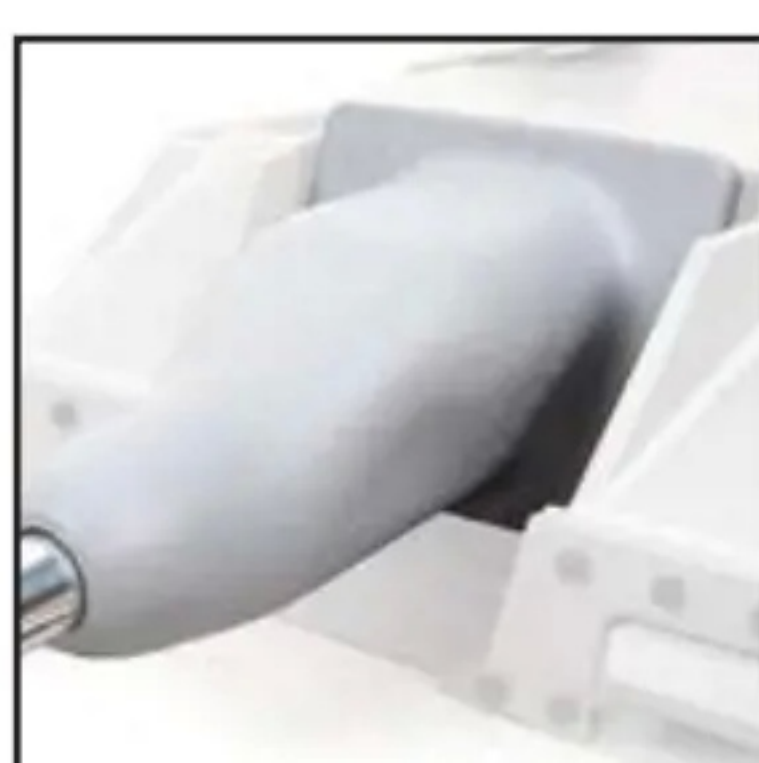
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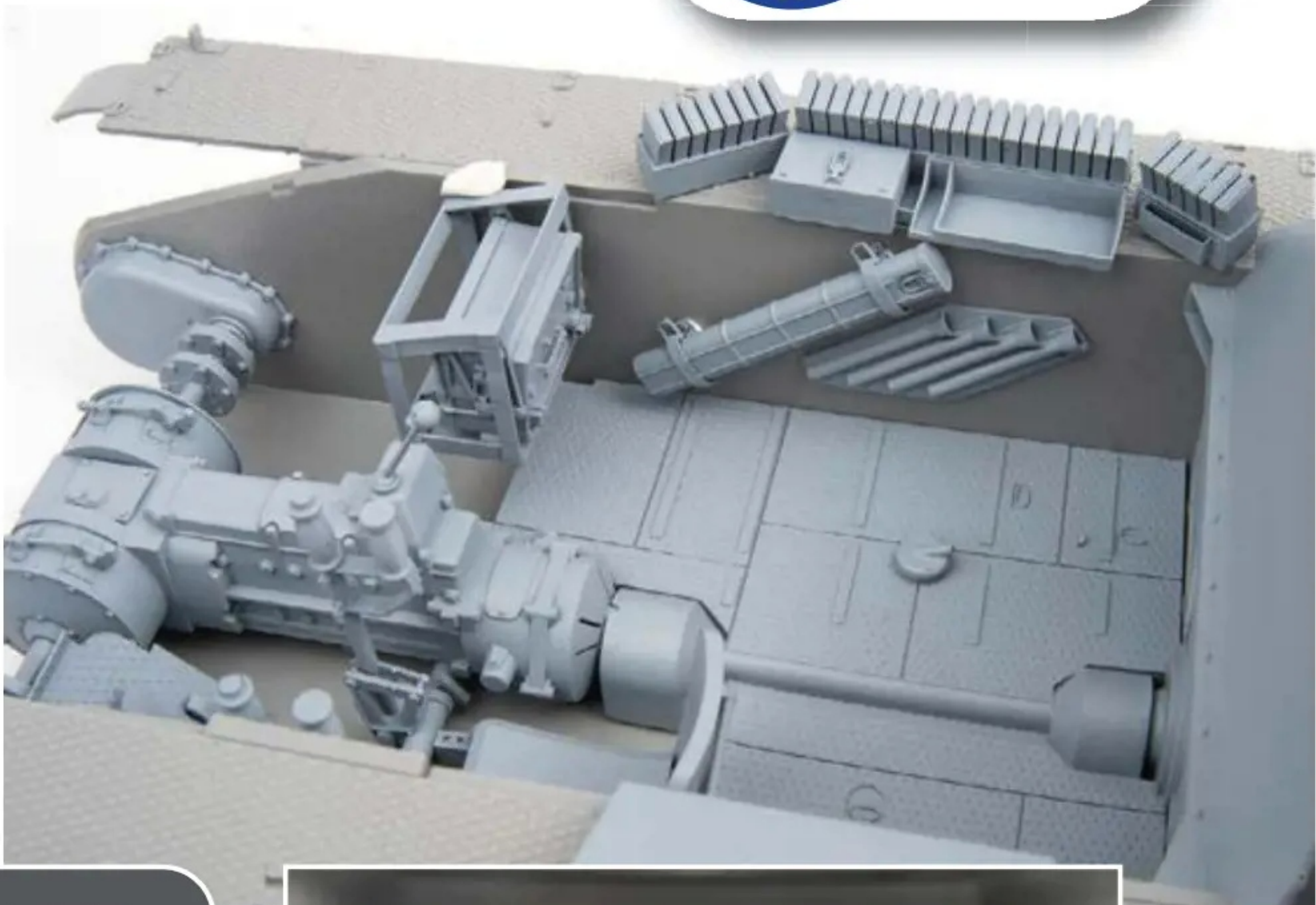
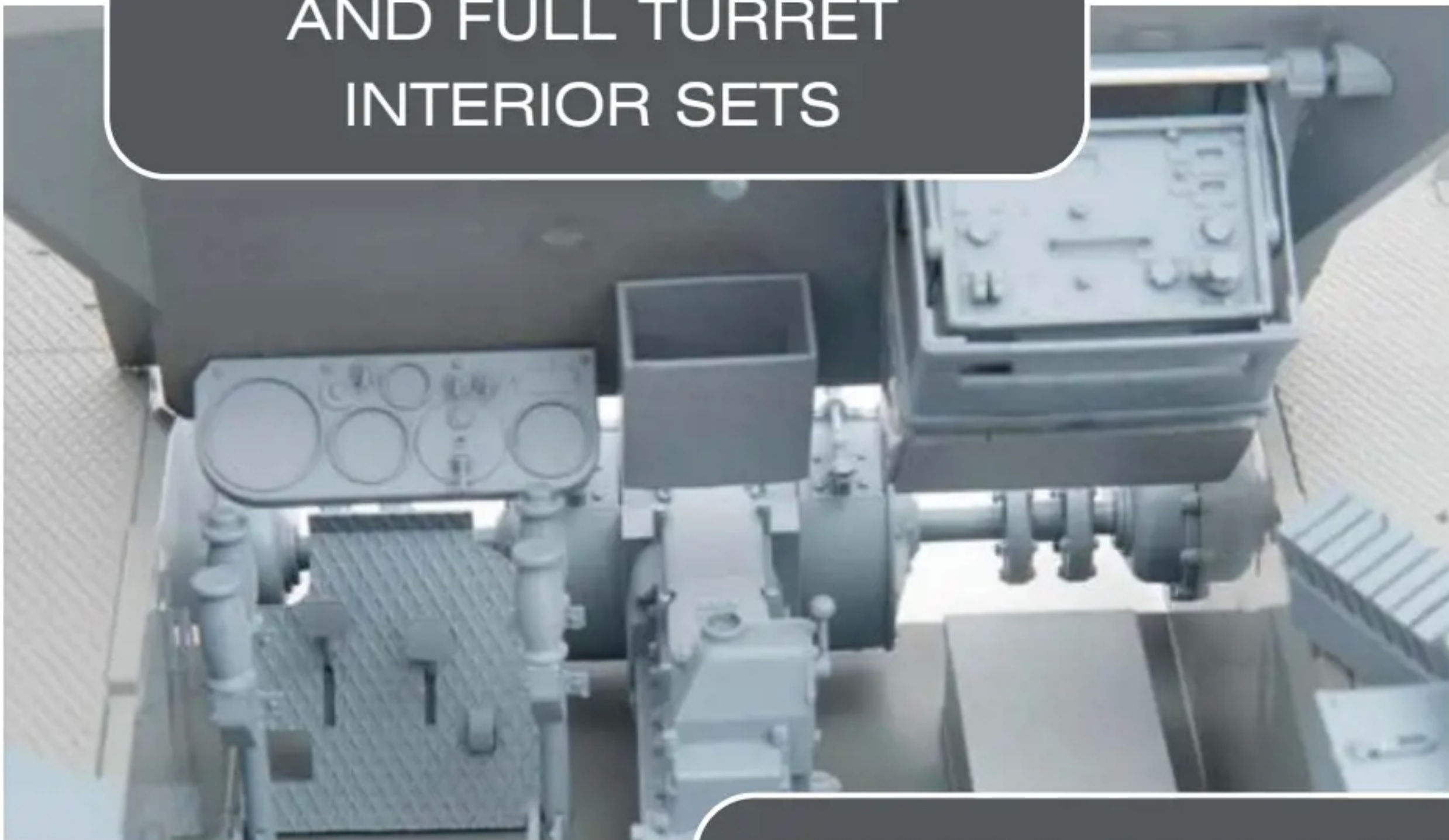
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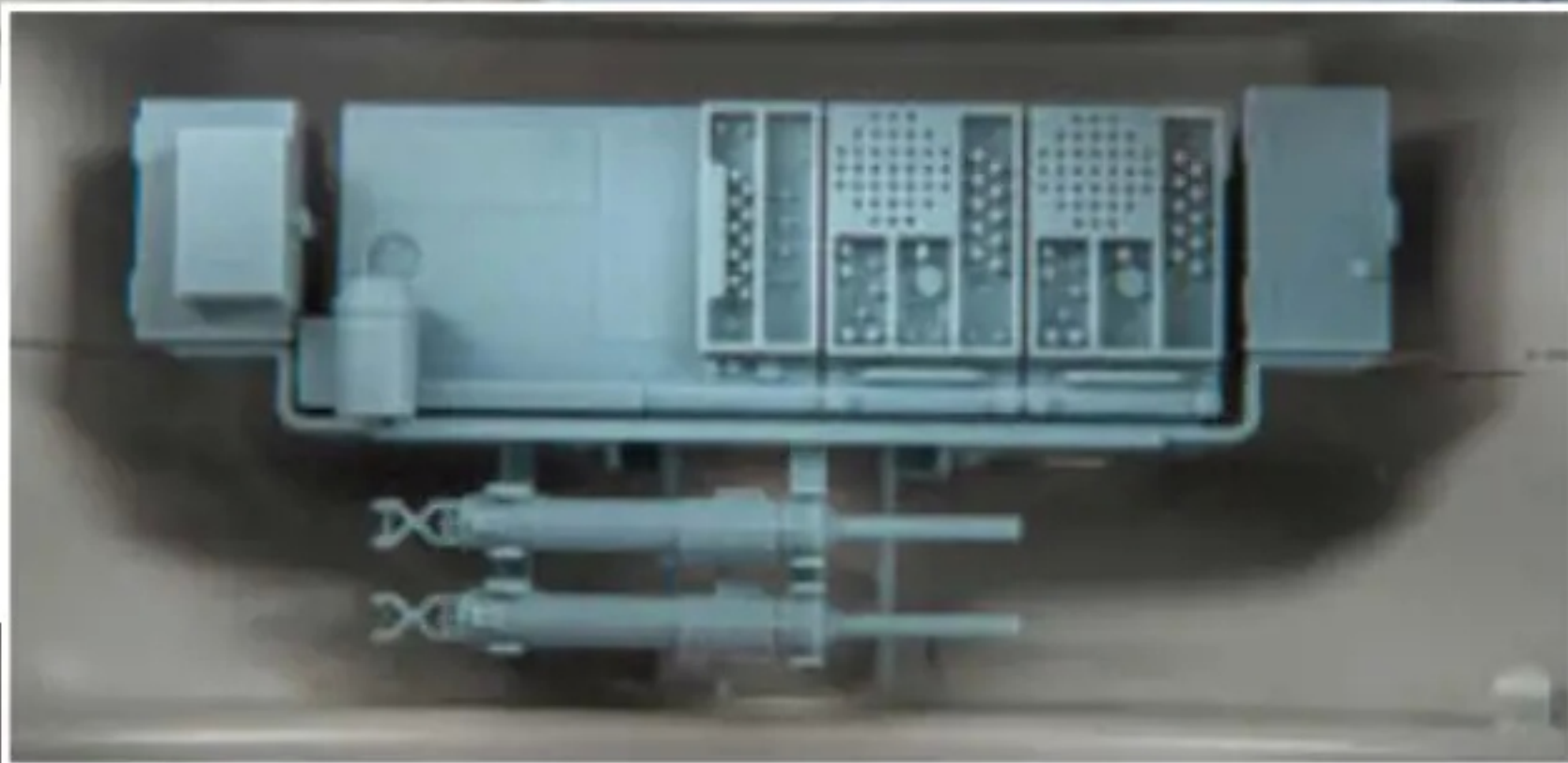
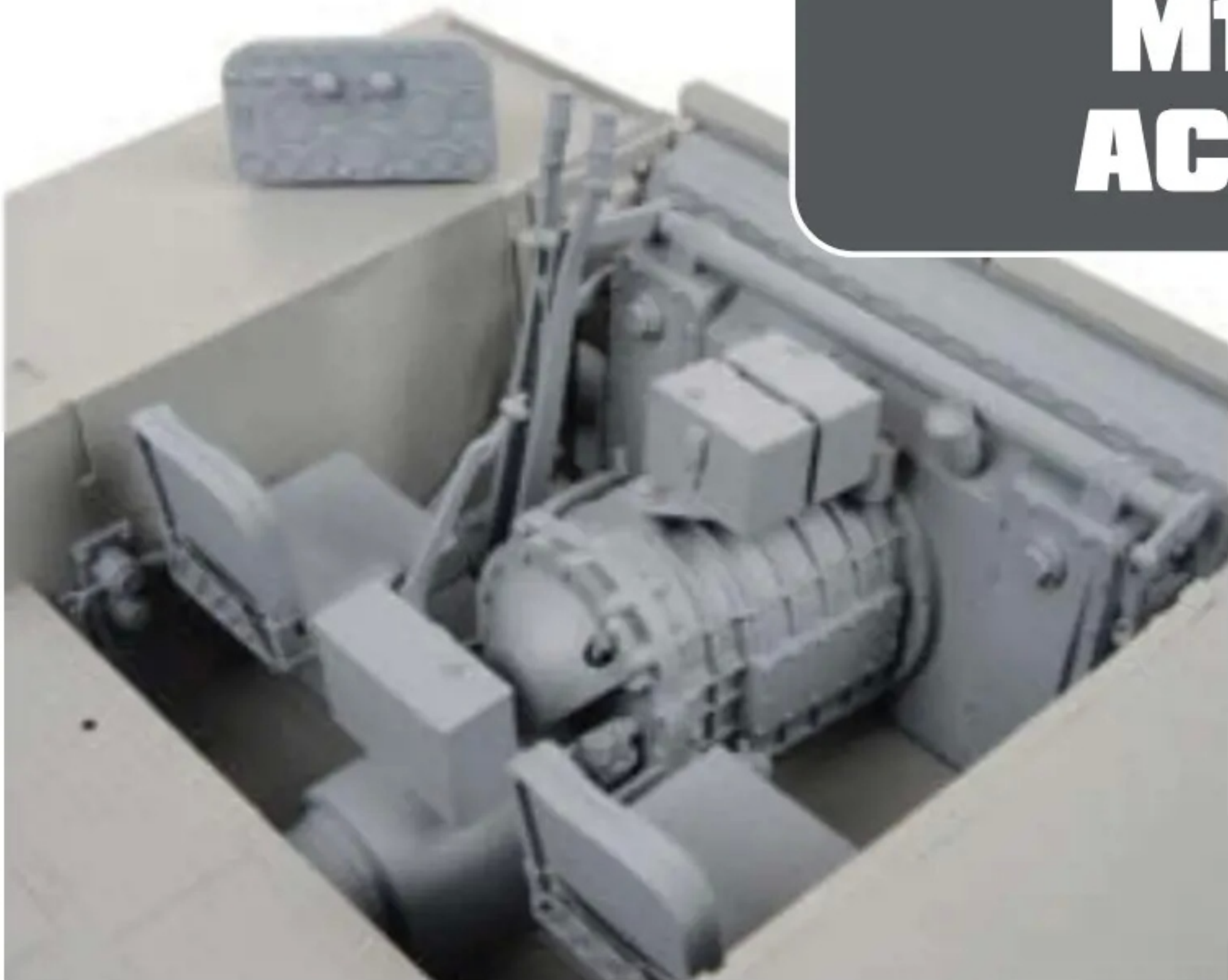


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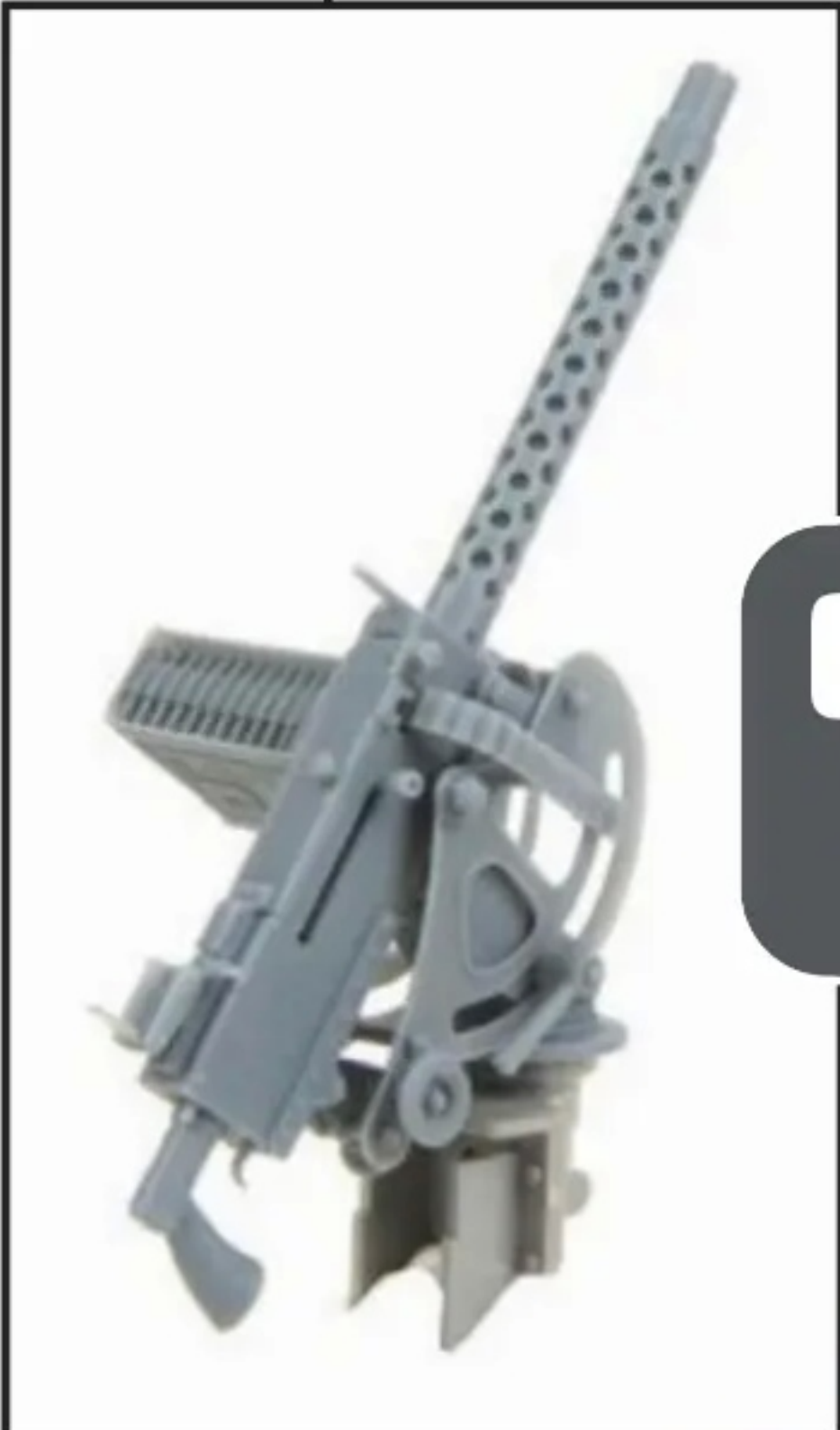
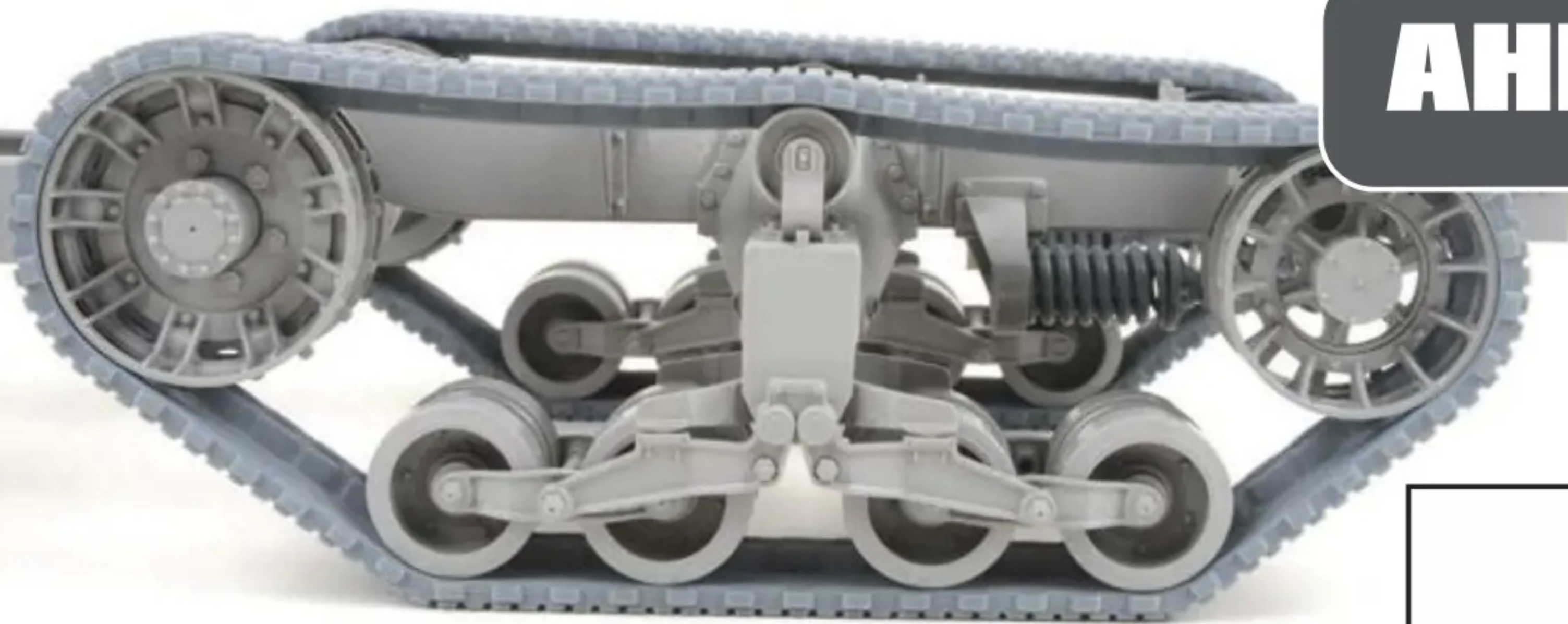
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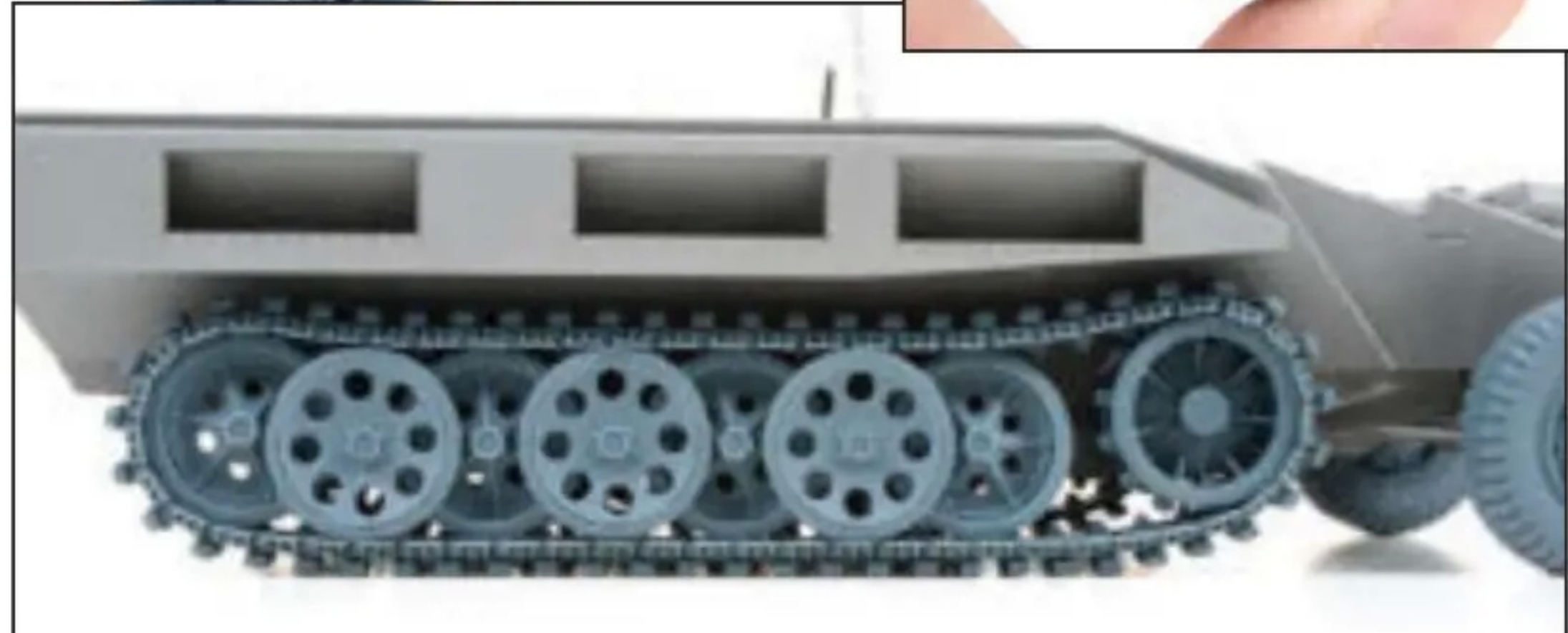
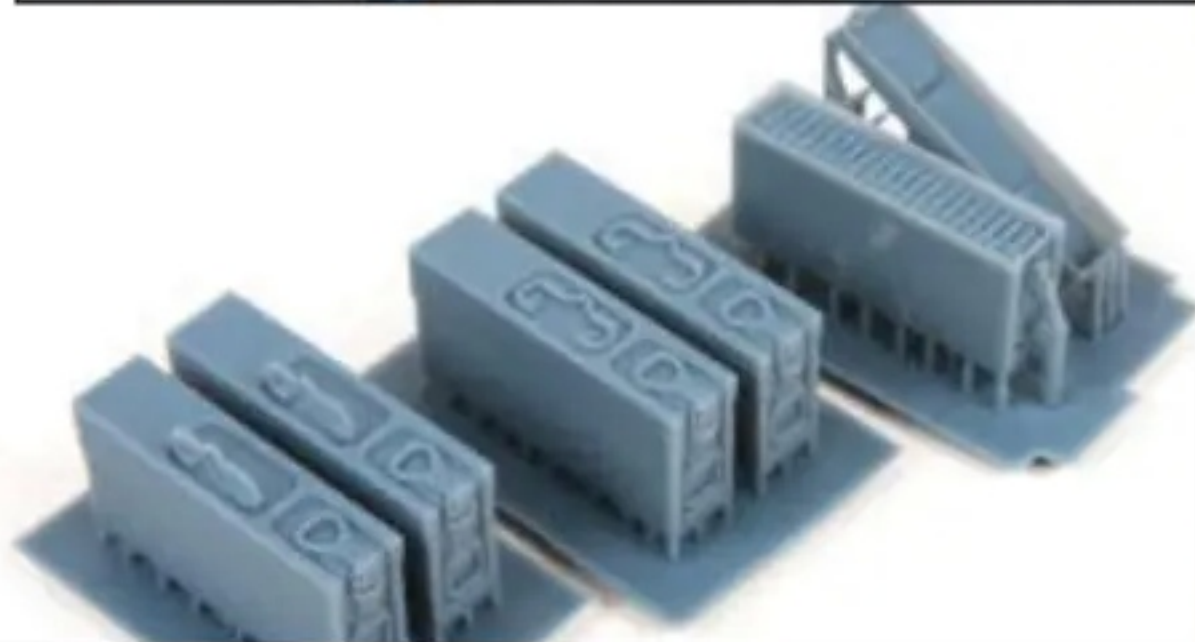
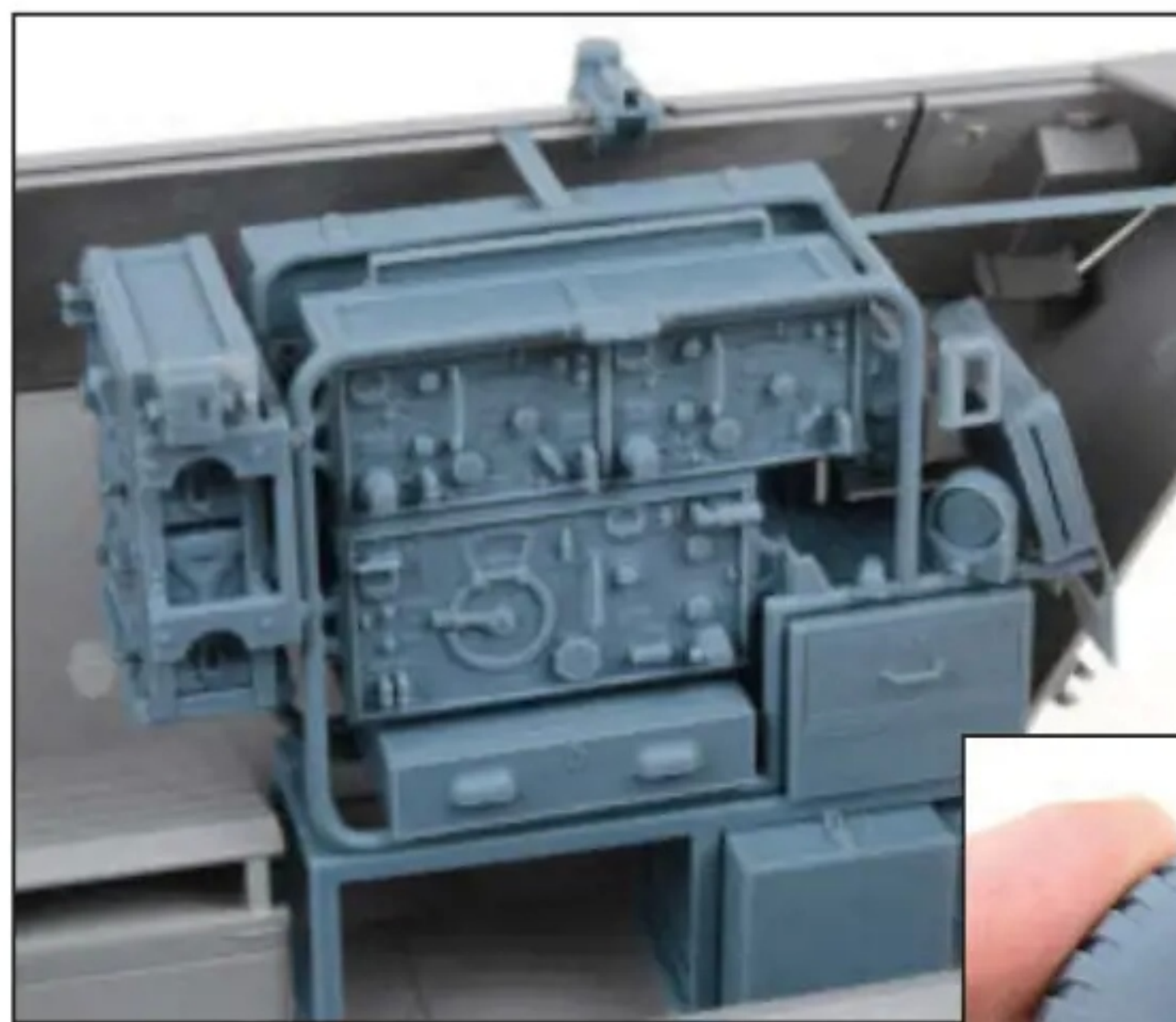
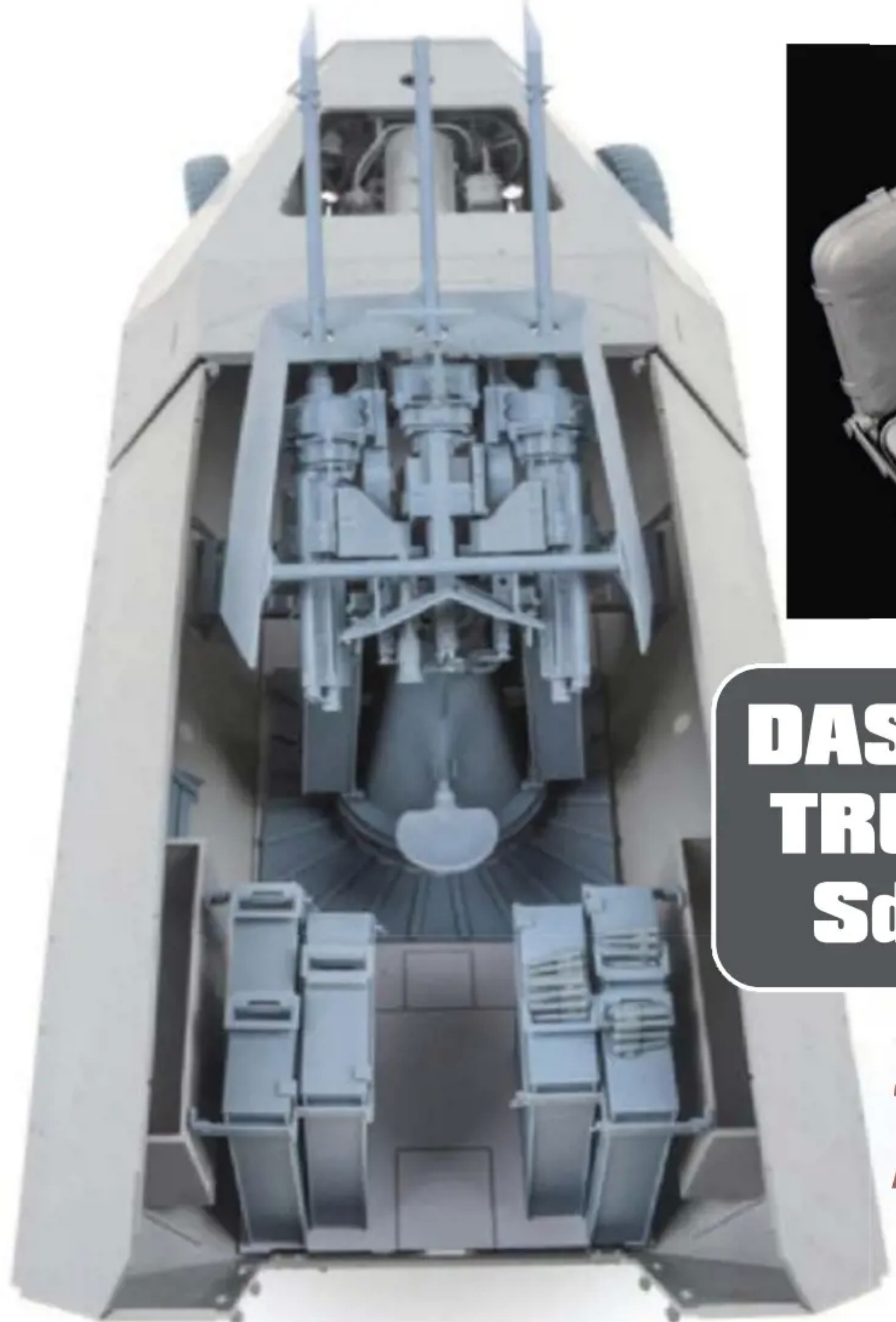


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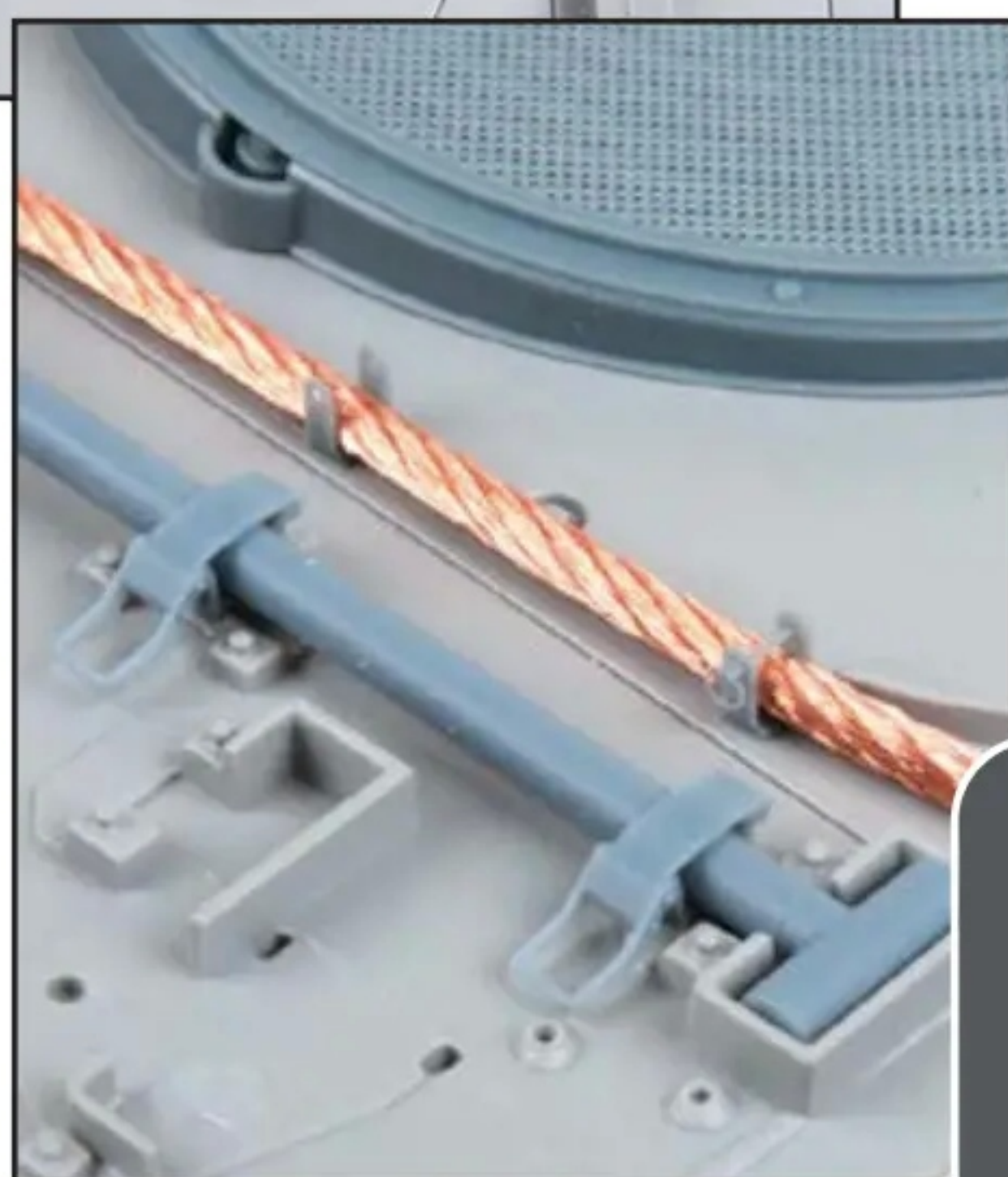
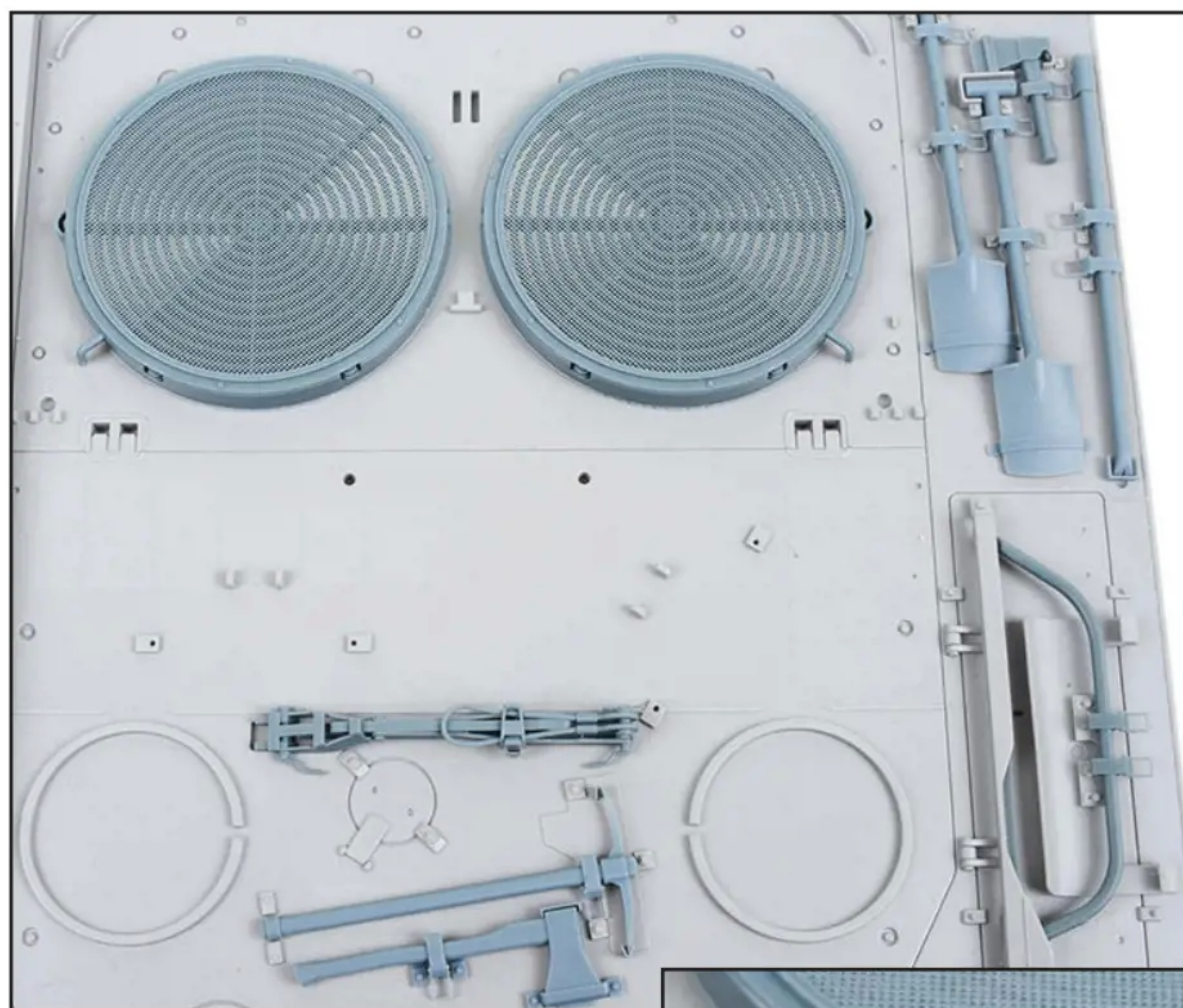
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IS UN-PHASED

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CANADIAN

Caiman



BUILD THE BOAT

The Cougar was one of three vehicles in the Armoured Vehicle General Purpose (AVGP) program, trialled and ordered by Canadian military in the 1970's. The Husky, Grizzly and Cougar were all amphibious vehicles based on the venerable Swiss Mowag Piranha hull, which once selected would be produced in Canada by General Motors Diesel and fitted with a six-cylinder turbo-charged engine, driving all 6 wheels through automatic transmission.

Coming into service in the late 70's The Cougar was used initially as a light reconnaissance training vehicle in Canada and later, used by armoured units as a fire support vehicle. Fitted with the turret of a British Scorpion reconnaissance vehicle, it was armed with a 76mm main gun and coaxial 7.62mm C6 machine gun. Often known as the 'Boat', the Cougar was crewed by a commander, gunner and driver. The turret was cramped and busy, with the commander having to also load the main gun and clear any stoppages. At the rear hull there was room for two mounted infantry/cavalry soldiers, although this was rarely used and mainly utilised for crew equipment.

Cougars were never intended for operational use, although operation necessity meant that they were deployed on some peacekeeping operations. Cougars were used both in Somalia (1992-93) and were also deployed to the former Yugoslavia (1992-95). The deployment to Yugoslavia resulted in protests and question in Canadian parliament about the use of training vehicles on operations. The Cougar was retired from Canadian service in 2005, although is still used by other militaries worldwide.

I'm sometimes lucky enough to be asked to do commission work for people who actually crewed the machines in question. This is always a huge privilege, although also places a great deal of pressure on me to get all the details right. In this instance the Commander of this Cougar had served in Bosnia; and sent me some scanned images of his mount, so I was lucky enough to be

able to see it from all sides, as well as specific details such as the Canadian Military Numberplate.

Excited to get started I quickly ordered the Trumpeter Cougar (Improved Version), only to eventually realise that the Cougars used in Bosnia were the early version, that still had the water propulsion propellers and vanes fitted at the rear. Lesson learned, I then ordered the Trumpeter Cougar (early Version) and got started.

Trumpeter have used their LAV1 (Piranha) hull in this kit, which requires the hull top (engine deck) and rear hull to be modified for Canadian spec.

Trackjam Models of Canada produce both items as well as footman loops, which are moulded into the hull sides of the Trumpeter kit. Trackjam were also gracious enough to send me some free 3D print smoke dischargers for the turret. I also used the Scorpion Miniature Models (SMM) resin Scorpion Turret, as the Trumpeter item has dimensional issues. I replaced the vinyl kit wheels with 3D printed items from Replikator Model Corps, also of Canada; and ordered some crew figures and fuel/water jerry cans from the same company. To finish preparation, I ordered the Eduard etched brass set for the AVGP Grizzly. Eduard do produce a set for the Cougar, but I couldn't find it anywhere, and the Grizzly set uses many of the same parts around the hull.

Starting the build with the hull, I chopped out the engine deck as per the Trackjam instructions and sanded off the moulded footman loops. These steps require some heavy handling, so are best done when no other parts are fitted. The rest of the hull was built up as per the instructions, replacing some parts with the etched brass from the Eduard set to add some extra finesse where needed. The rear hull wall is a direct swap with the kit part and simply slotted into place with very little sanding required. I 3D designed and printed a Canadian spec crew telephone box and added it to the rear left-hand door.



Replicator cold war Canadian crew. Replicator 1990s crew.



Replikator fuel and water jerry cans. These are specific to canadian vehicles.

...and the Replikator wheel set; such an improvement over the kit parts.



Trackjam, SMM and Eduard parts...plenty of aftermarket parts to produce an accurate replica and a pretty heavy model!





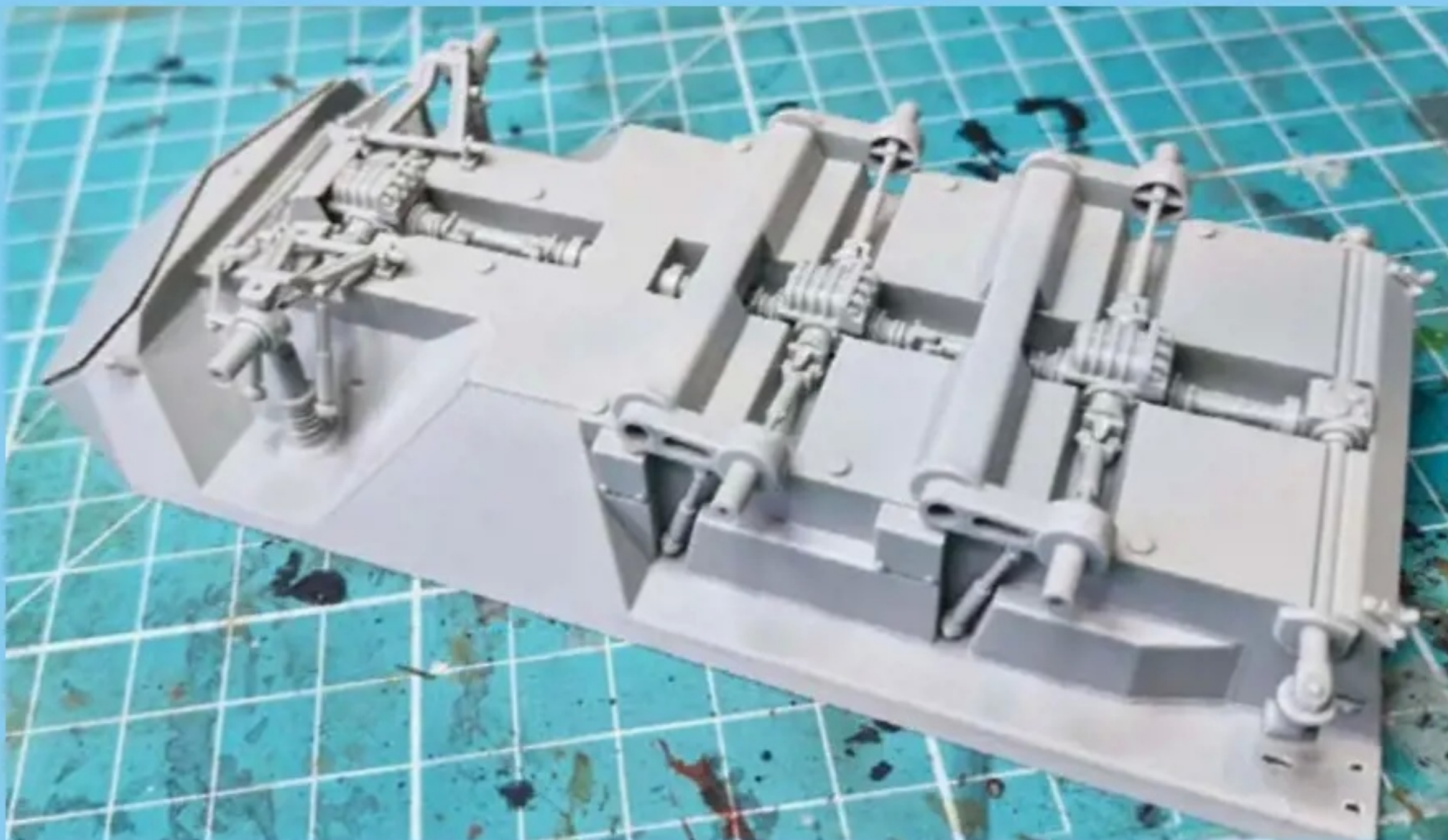
Hull mounted on my magnetic stand. Note the Trackjam and SMM instructions in the background...a busy bench!



Eduard etched brass parts add finesse to this older kit.



New rear hull added.



Suspension parts fitted. Trumpeter mould the parts solid so the wheels cannot be turned.



Trackjam engine deck added with a small amount of filler. The new engine means that this differs from the Swiss hull. Turret and kit wheels added. The kit wheels were later replaced with 3D printed ones.

Moving onto the turret the Canadian variant differs slightly from the British version, in that the boxes on the turret sides differ. I chopped and sanded the resin turret and replaced the boxes with the ones from the kit. I used the Trackjam smoke dischargers and added etched brass holders for the jerry cans at the sides of the rear stowage box. Studying my reference material, I noticed that some Cougars in Bosnia were fitted with a SS125 Radnis day/night

sight in the Gunner's position. Trumpeter does provide this sight for the Commander's position, so I copied it and scratchbuilt it for the Gunner's side. At the front of the turret, I 3D designed and printed a new cover for the sight housing, with the prominent cast text included; and new wire cutters for the mantlet top, which are noticeably too short as supplied by Trumpeter.



rear doors were chained closed to stop nosey locals!

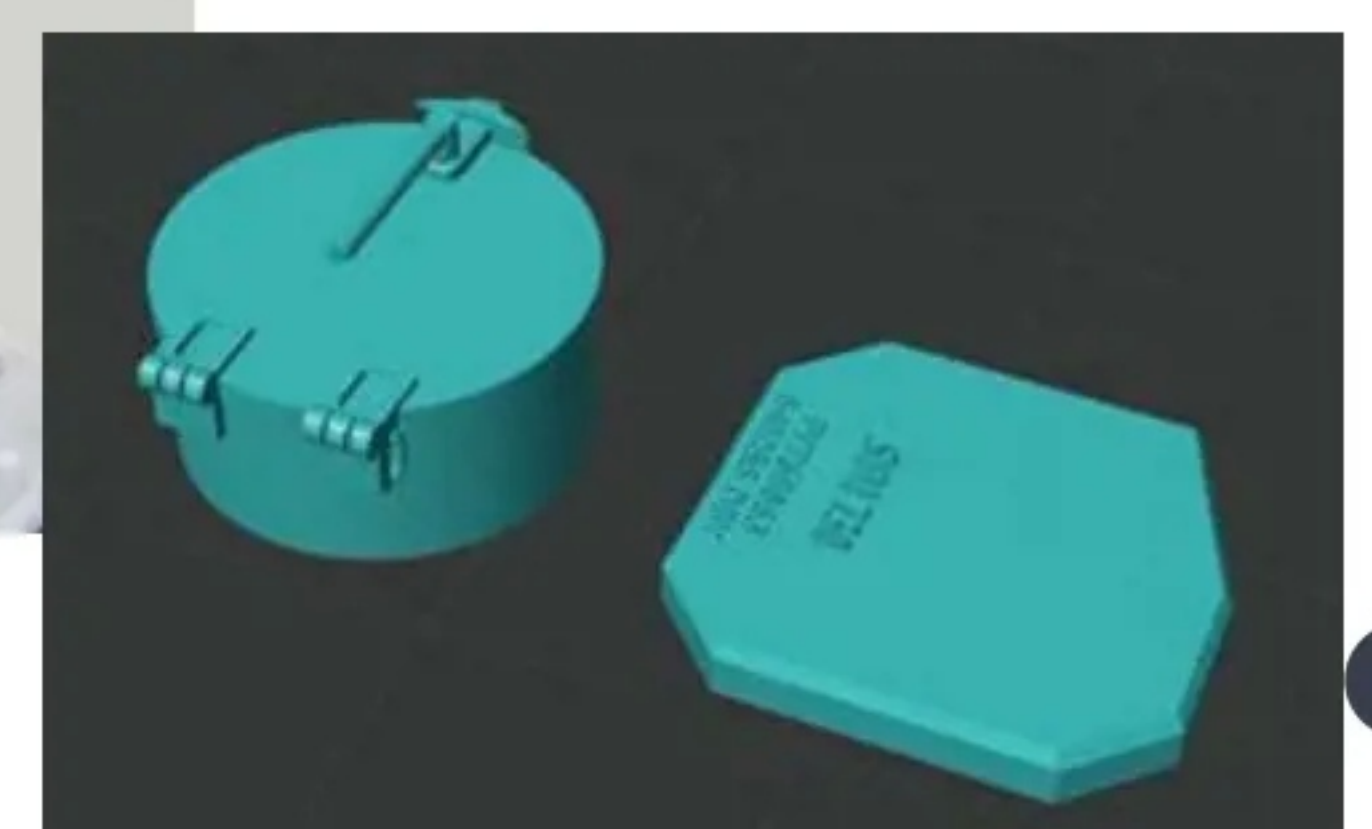


Darker grey parts are all 3D printed. Canvas cover added with lead foil to the lower gun barrel.



The metal gun barrel is supplied in the Trumpeter kit.

The antennal springs are provided as part of the Clansman antenna set from SMM



3D designed telephone box and sight cover

ALL WHITE NOW



Primed matt black.



Building up layers of progressively lighter greys and whites.



Various details were hand painted. Note that tow cables were attached with canvas straps, allowing quick release in an emergency.



I found some pearlescent clear sheet and it makes fantastic sight glass.

After a warm bath of soapy water, the model was primed in flat black from a rattle can. I then used progressively lighter coats of acrylic greys and off whites, finishing off with a mottled coat of Tamiya flat white to build up a white finish that is not glaringly white. Once completely dry, I sprayed the model all over with Future Klear (my bottle's running out!) and applied the kit UN decals. I also had specific turret number (11) and numberplate (44513) decals made up, matching the reference material of the customer. A second overall coat of Future Klear was applied to seal the decals and ensure that the upcoming oil washes wouldn't seep into the white coat underneath.

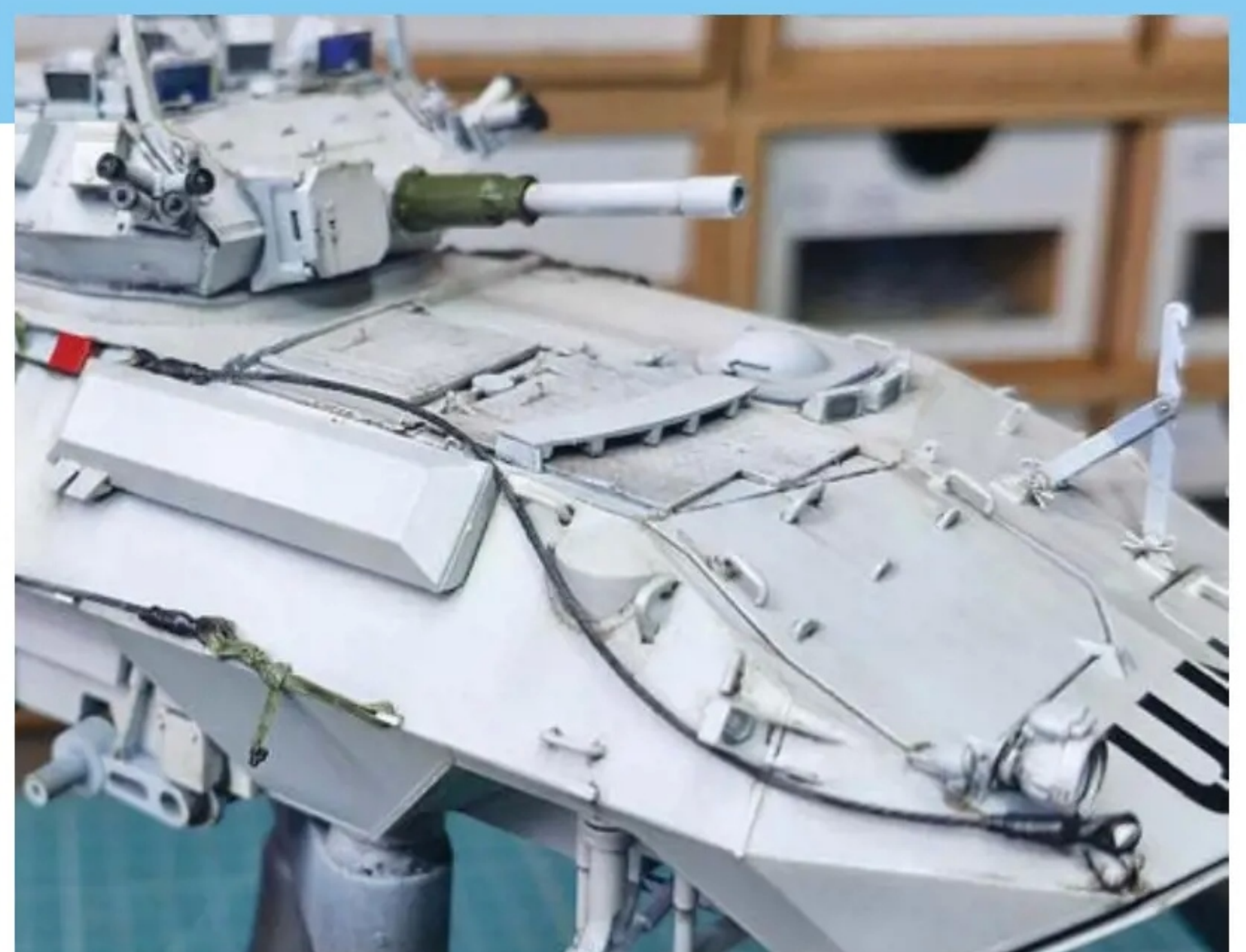
I applied a dark oil pin wash around the details, allowing the oil to run into crevices and dips. On a white model this must be done carefully and sparingly, as it's very easy to end up with a grey model! After allowing to dry for an hour in the unseasonable British

sun, I wiped off the excess oil with a soft brush and cotton cue tip. Whilst still dampened, I used a wide brush to add streaks in a downwards motion, tidying and adjusting as required. I'm advised that even though these machines were used daily, they were well maintained and looked after. Using this mantra, I also added some very minor chipping effects in dark green, applied with a sponge in areas of heavy wear. I added some light mud and fuel/oil staining around the hull top, turret top and engine decks and called it a day for the main colours.

For The lower hull I mixed up a concoction of wet and dry mud weathering powders and products and flicked these on to the lower hull and into the wheel wells, using an old toothbrush and my Mk1 thumb. The same mixture was applied around the treads of the wheels and finished off with wet mud effects product.



Oil pin wash added. care must be taken not to over do this on a white model.



Oil wash wiped off, leaving deposits in the crevices and dips.



Light streaking and dust effects. these machines were well maintained but used daily.



Ready for the base with the lower hull and wheels muddied up..



Wet weathering effects were added around the outer tyres.



Building up the base from high density foam. Note the tracks marked out with pen. The building ruin and tank trap are my own 3D prints from files sourced on Cults3D.

Such a heavily weathered model cannot sit on a nice clean base, so it was always my intention to create a small diorama based on the brief I had been given. On an MDF base, I built up groundwork from high density foam and added a 3D print destroyed house (sourced free on Cults3D). With grooves pushed into the foam for the trackway and vehicle wheels, I slopped a mixture of white glue, grout and dark mud weathering powder onto the base. Whilst still wet, I sprinkled fine sand and a thick mix of crushed brickwork and broken plaster around the destroyed house and along the back edge of the base.

Again, I allowed this to dry in the British sun (we had a whole week!) before priming the whole base in black. Over this I heavily dry-brushed various shades of mud brown and brick reds, building up brighter colours from the dark base. Dry-brushing here is a great option, as it allows the darker mud and brick colours to sit deeper on the base, as it would when washed by rain in this early/late winter scene.

The house was initially also dry-brushed in brick red, before picking out individual bricks with differing shades of dark red and brown. Wood and concrete parts were hand painted before splashing on thinned coats of Lifecolor Liquid Pigments Fouling and Slime greens, applied with a thick bush.

The various scattered items on the base, as well as the hedgehog tank trap (a direct copy of the ones found on the Normandy beaches) are all 3D printed items, printed on my own printer. I used Vallejo still water, stained with dark brown for the pooled water and in the track marks.

The figure is an amalgamation of two Trackjam 3D print figures (body and head), FoxHopp model Modern British figure arms, Red Zebra resin hands and Aber etch brass sunglasses. A true multimedia item!



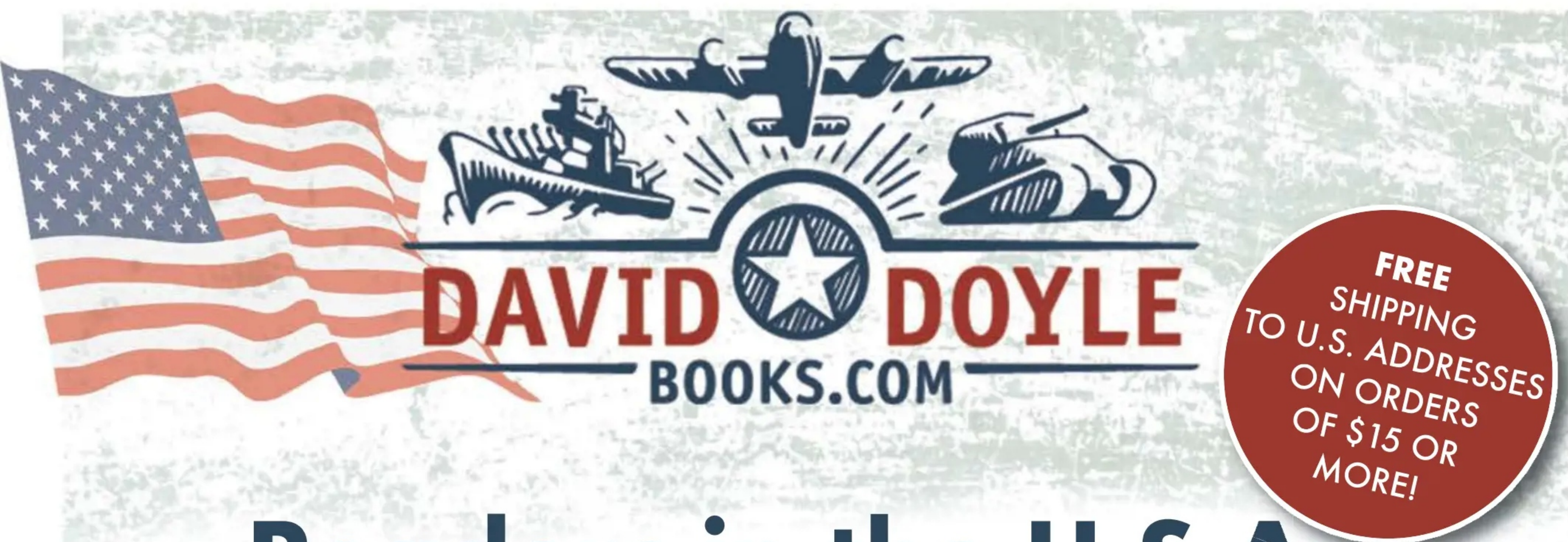
So, another happy customer?
I hope so.

Modelling to a specific vehicle that was crewed by the final model owner was certainly demanding. Overall, this was a really enjoyable project that took me out of my comfort zone of British/Soviet era models.

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