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A.MIG 4519 - Issue 20 CAMOUFLAGE



CAMOUFLAGE



ENGLISH

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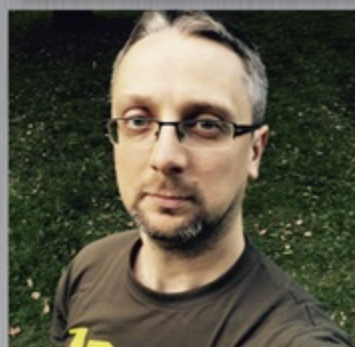
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CAMOUFLAGE

Dear readers - we bring you the 20th and very important issue of our magazine, devoted entirely to the critical subject of military camouflage. This is where the painting of all models begins, and with this issue we explore the innovative techniques used by modelers from around the world. Within this release you will also find two large articles describing the history of camouflage, featuring color profiles with descriptions that can be a great source of inspiration when choosing a camouflage scheme.

Within the following pages, you will see various examples of camouflage patterns used not only on tanks, trains, ships, uniforms, but also on science fiction subjects.

Camouflage is an integral part of the military theme, and thus is inextricably related to the modeling. Although many of you may fear the prospect of applying a more complicated pattern, we will try to show you the devil's not so black as he is painted!

The basis for success is the preparation for work: gathering reference, selecting the proper paint colors and tools, and sometimes doing tests on old models for the most complex schemes.

There will also be a bit of patience needed before you see the final effect - in most cases, it takes more time to apply masking tapes or BluTack rolls than actual airbrushing. It is important to pay attention to this step, as it is critical to achieving the proper result.

From our articles, you will learn how to apply a hard edge camouflage on a tank or a locomotive. We'll show you how to create camouflage on a submarine - adding zenithal lightning as well as combining it with multi-layered chipping. We will explore how to paint one of the most difficult and visually interesting patterns, the well-known disc camouflage used by the Germans in 1944. Sharpen your skills and learn how to implement color modulation on a trichromatic camouflage as expertly shown on the King Tiger, with easy to follow step by step instructions. If someone was still unable to measure their painting skills, we recommend hand-painting camouflage using lacquer paints - something that seems to be doomed to failure, but is possible and gives a very interesting and dynamic range of effects. Finally, for those of you who are fascinated by the art of figure painting, we will show an effective way of painting the German Erbsenmuster uniform pattern, and for winter lovers we have a Stug III in white washable camouflage. Enough talk - it is time to get to work!

Sergiusz Pęczek





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THE AUSSIE



Maxi
Fernández

In 2006, the Australian Army received the first M1A1 AIM Abrams. The first of the more than fifty units ordered to replace its ageing Leopard fleet. The Abrams tanks were delivered in a sand finish and later received the Australian camouflage pattern, undoubtedly a very attractive alternative to the more common NATO or plain sand schemes. It's obvious that the Aussies like to take their vehicles to the limit during manoeuvres: they show dents, broken and missing parts, faded paint. The result is a well-used and abused appearance, almost to the same level of wear as vehicles engaged in real combat as seen on the American Abrams tanks in Iraq. Another interesting fact is that most Australian Abrams tanks are given nicknames, so we can easily identify an individual tank during and after exercises, or even after having been repainted. "Avenger" is one of them.

I have used Rye Field Models kit ref. RM-5004, which allows us to build several versions and has all the necessary parts to build an Australian M1A1 AIM, including T158LL tracks. I have scratch built accessories and extra details like the ice cooler and flag bracket carried by this particular vehicle. Even though we have several photos, I have taken some artistic license by altering a few details of this tank. In this article, I'll show you how to paint the Australian color scheme, while adding a 3D appearance and enhancing small details at the same time. This shall foundation will serve as the base for the weathering phase in the next article, where we will explain how to create a result as close as possible to the images of the real vehicle during training exercises.

AVENGER

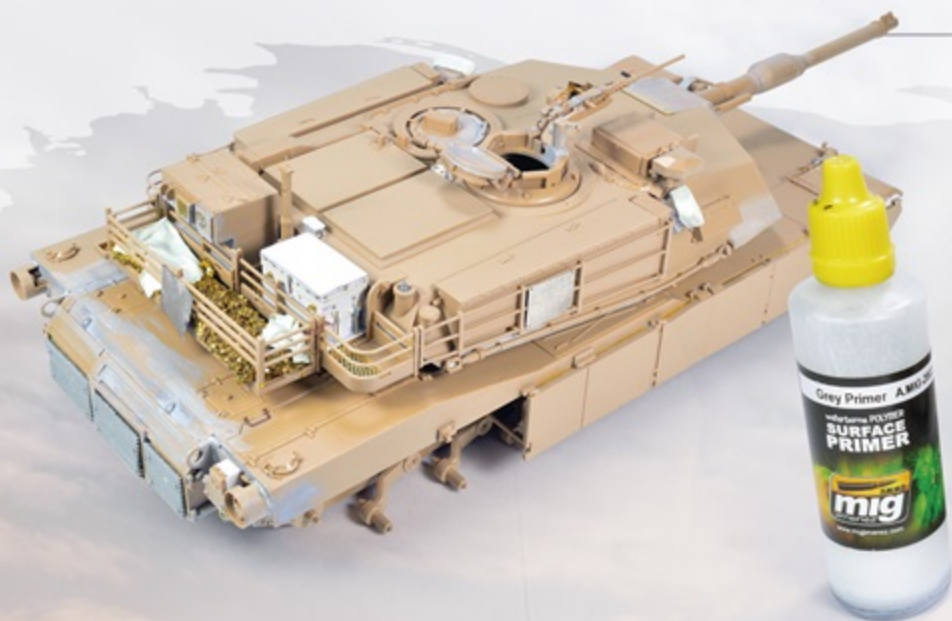


Kit: M1A1 ABRAMS
1/35



W.I.P





- 1 Once the assembly is complete, the model is washed with soapy water to clean any possible remains of dirt, dust or oil residue from our hands that could hinder good paint adhesion.



- 2 The primer is applied in several thin coats, trying not to cover the entire model in one go, especially the first layer. The primer creates a consistent surface when there are different materials, highlights any mistake in the build and improves paint adhesion.



- 3 The green used by the Australian Army is Lusterless Olive Drab. After trying different color mixes, I finally settled on a combination of NATO Green A.MIG-0084, German Sand Brown A.MIG.0026 and Yellow A.MIG-0048 in a 7/3/1 ratio respectively.

- 4 The camouflage patches are masked with poster putty (Patafix from UHU). It was rolled into thin strips and demarcated the areas that must remain green, and was filled in with Tamiya kabuki tape.



- 5 The same process is then repeated on the rest of the model.



6

The brown used in the Australian camouflage is FS30219. It's a controversial color, as it allegedly changes quite a lot in tone in photos, depending on the lighting conditions.



7

I used 4 parts of A.MIG-0202, 4 of German Sand Brown A.MIG-0026 to give the pinkish hue that can be seen in the photos, and 2 parts of white paint.



8

Now the third color is demarcated using poster putty spaghetti as before.



9

Once again, masking tape is used to protect the areas not to be painted in the next camouflage color -black this time-.



10

The last color of the camouflage scheme is Tamiya NATO Black diluted with Tamiya Lacquer Thinner (yellow cap bottle).



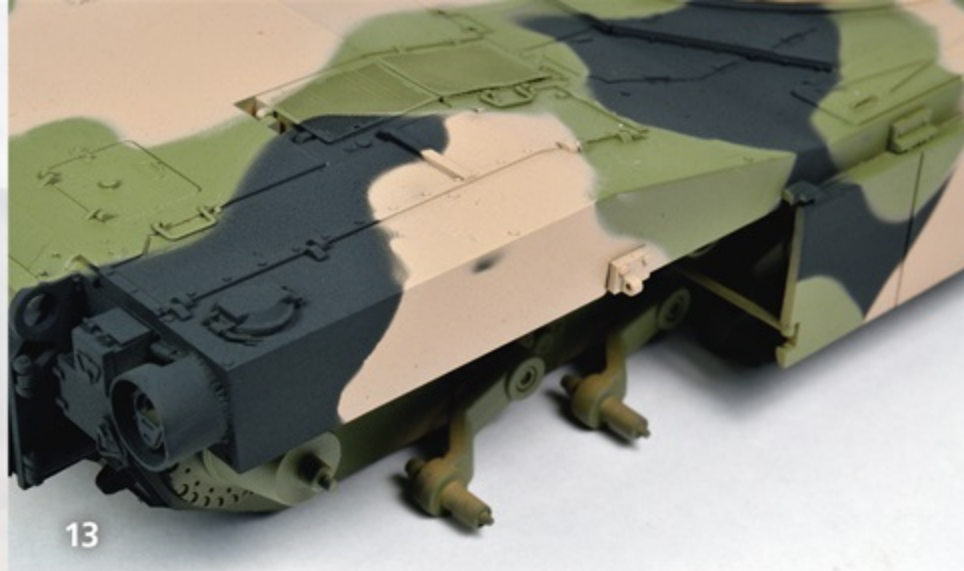
11

The final result appears when the masking is removed. There is no question: the Australian vehicles sport a truly appealing camouflage.



12

With the masking method used, we get a semi-hard demarcation lines, as it should be with this camouflage scheme. Poster putty was used instead of masking putty because the latter tends to flatten on itself, and if we're not careful we could end up with a hard-edge camouflage.



13

It's a good idea to write down the mixes used for the camouflage colors, not only for future builds and to paint small details, but also in case of mistakes like not having protected some area correctly with the tape.



14

Some spare parts are provided in the original color. In this occasion we have used Desert Sand A.MIG-0029 for the US Army CARC paint. The same color is applied to the inner side of the hatches, as can be seen in photos of the real vehicle.



15

Other spares come in NATO Green, as the front mudguard here.



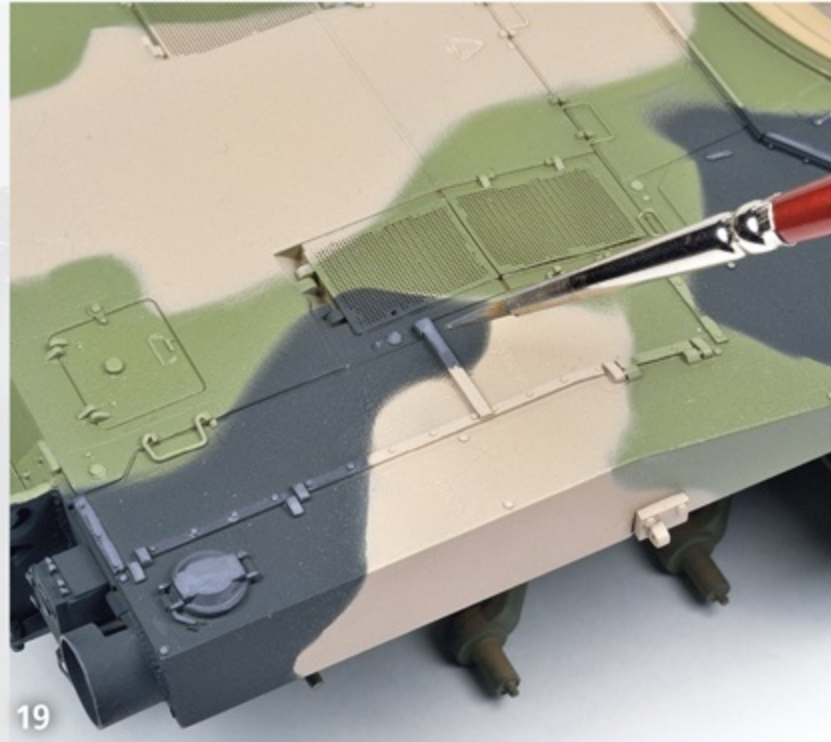
16 The rubber tires are painted with A.MIG-0033 Rubber & Tires.



17 With the basic colors already applied, a more three-dimensional appearance can be added to the model in the next steps.



18



19



20

18 Small details are highlighted using a brush and the base color lightened with white.

19 The same process is repeated on each camouflage color.

20 The bolts and shapes of the wheels are highlighted in the same manner.



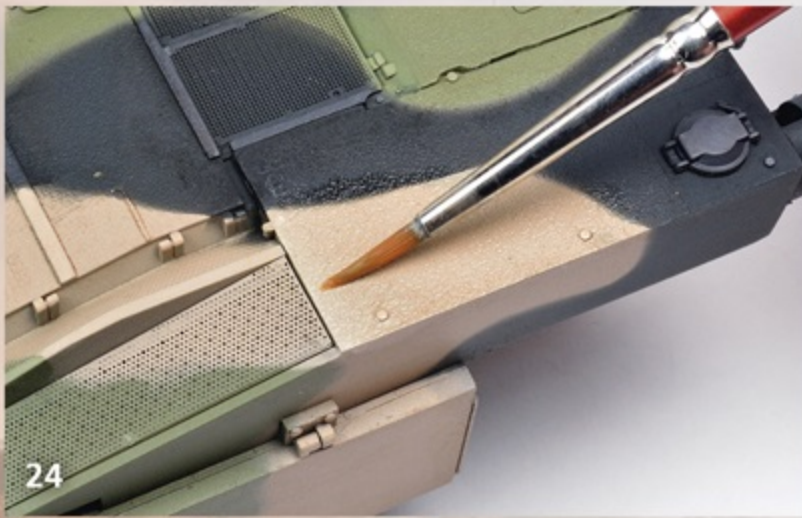
21 The previous work is sealed with satin varnish in preparation for the filters.



22 Before applying the filter, the brush is unloaded onto a paper towel to get rid of the excess filter; otherwise the filter turns into a wash. This operation is done twice.



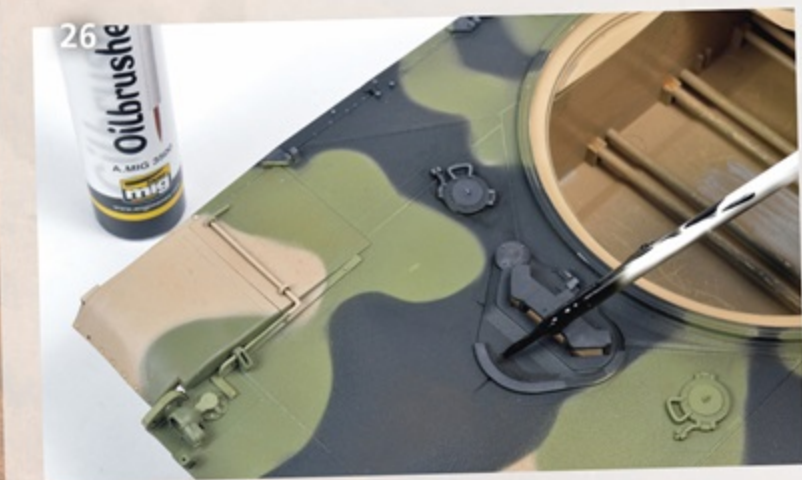
23 Contrast and volumes are enhanced by applying highlights and shadows with oil paints. Light color oils are used for the highlights, in this example Naples yellow mixed with white.



24 The oil is blended with Odorless Enamel Thinner.



25 Finally, we use a dry filbert brush to further blend the area and get rid of any remaining hard edges.



26 For the shadows we use a different oil tone in each camouflage color. In this case we used the new Oilbrusher A.MIG-3500. It's easy to use and you don't waste product at all.

27 The oil is then blended with Odorless Thinner.

28 The highlights and shadows applied with oils combined with the highlights on small details and features create a more visually attractive surface.

29

Gloss varnish is now airbrushed onto the areas where decals are to be placed. First Micro Set is brushed to fix the decals in place and then Micro Sol to adapt them to the surface. It is allowed to dry overnight before continuing.



30



31



30 Pin washes are applied next. Don't overdo this step or the finish will become unduly dark. The surface is first moistened with thinner.

31 Then the wash is brushed on rivets, bolts and weld & panel lines. Use a finer brush for the smaller details.

32 Finally, the excess wash is cleaned with a makeup sponge.

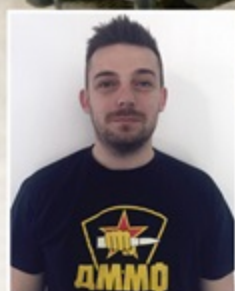
32



TO BE CONTINUED...

WR360 LOCOMOTIVE

CAMO-KRIEGSLOKOMOTIVE



Nicolas Vasseur

The WR 360 C 12 was a railroad locomotive engine used by the German Army during the Second World War. Essentially used on the European front, this locomotive made the connection from one military camp to another possible. Some reference photos show locomotives of the same type used in North Africa as well. One can find a two-tone camouflage applied to some examples. Unfortunately, no official text lists the color code used. So, I took inspiration from photos to create a locomotive with a camouflage different from what can be seen on the armored wagons of the German Army, comprised namely of Dunkelgelb, Olivgrün and Rotbraun.

Being that the basic color of the locomotive is black, I preferred to start from a very dark gray simply for aesthetic purposes. Having no official information on the color of camouflage patterns, I chose to use brown, as it can be found on some German vehicles on the North African front.



1

We start by applying a layer of gray primer on the entire model to break the surface tension of the plastic, enabling excellent adhesion of the paint to follow.



2

The base color is then sprayed with an airbrush over the entire piece. This is a very dark gray mixture of 90% matt black A.MIG-046 and 10% gray stone A.MIG-075.



3

While adding gray in the base mixture, Transparator A.MIG-2017 was added in order to give the paint a translucent power. As a result, transitions to thinner layers are fine and subtle. I spray this mixture on the upper parts of the locomotive.



4

To highlight some parts of the model, masks will be used to spray the paint without effecting the surrounding areas. This step also makes it possible to give more volume to the locomotive, by creating depth to upper and lower areas.



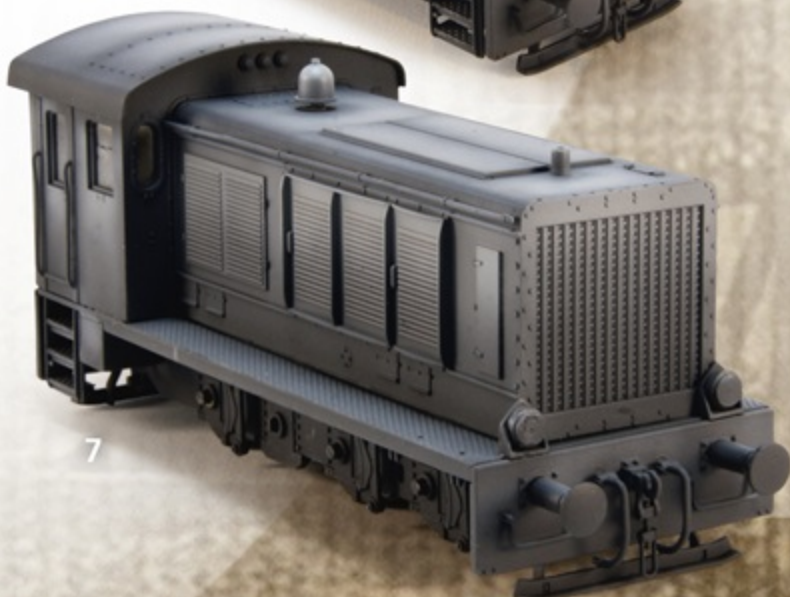
5



6

5 The final highlights are carried out with a proportion of 70% gray to 30% black, always adding Transparator. The areas to be worked are always continuously smaller and smaller. On this area, we will work the center of the panels.

6 On the vertical zones, only the upper areas are worked. The flexible masking tape for curves is used here, for the same principle as previously seen.



7

7 A base color is obtained which is lighted according to the zenithal light technique over the entire model.

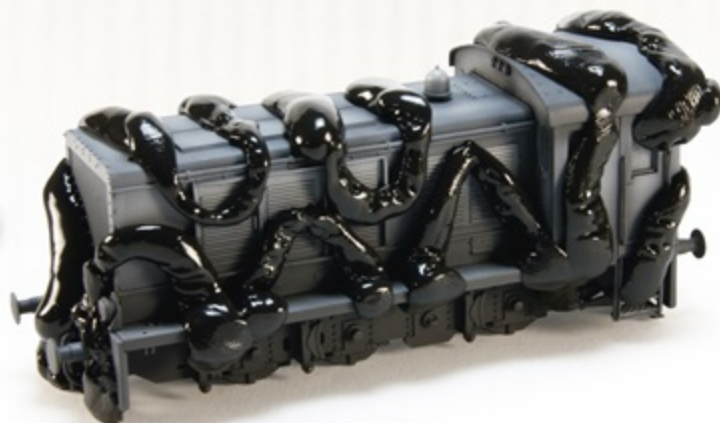


8

In order to achieve the patterns of brown camouflage, Masking Putty is used to hide areas that will not receive this color. In addition to being reusable, this versatile tool is also easy to use and extremely effective. A toothpick will be used to delineate the borders of the camouflage.

Once the future brown zones are well defined with the putty, the band will cover the last visible areas that must remain of the initial color ...

9



10

... then the color Dunkelbaun is applied with the airbrush.



11

The putty is then gently removed ...

12

... and the camouflage created finally appears. Be sure to check for any necessary touch-ups.

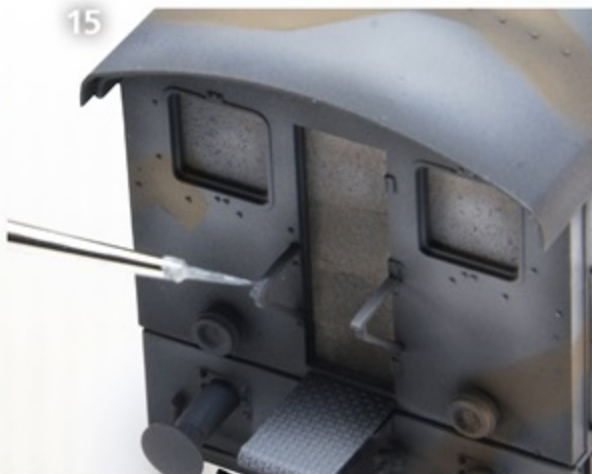
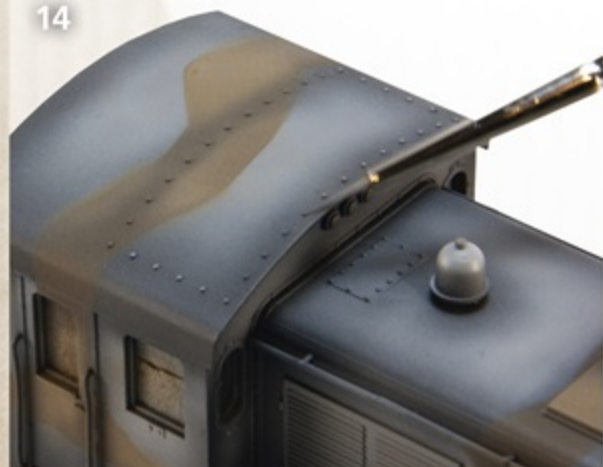


13

The brown zones are then thinned using the same methods used previously for the gray color. The color used here is always dunkelbraun A.MIG-007 mixed with equal parts with A.MIG-071 kaki.

14

15



14 The various details on the whole model are highlighted with a brush using the lighter colors used previously. Thus, the bolts, edges...

15 ... and some small surfaces and details like these guard-rails ...



16

... and the handrails are lightened. Of course, care should be taken to use the light gray on the grey areas and the light brown on the brown parts.



18

Then the upper parts of these pieces are then accented with a thinned pure red



You can see here the different parts treated with these colors and the dynamic effect.

17

Some elements of the chassis of the locomotive are painted red oxide. First, a dark color consisting of a mixture of 50% red brown shadow A.MIG-912 and 50% red A.MIG-049



19



20

Once satisfied with the base color, a coat of satin varnish is applied with the airbrush.

21

A black wash is then applied by brush around the details and in the recesses of the entire model.

22

Then a few minutes later, the effect is moved around the details and removed from the outside of panel lines with the use of a brush humid with enamel odorless thinner.



20



21



22



23

We can see how the wash gives depth to the locomotive once this essential step is complete.



24

The faded color shades are then painted with oil paints. To do this, I use no less than seven different Oilbrushers. Spikes of paint are then spread over the surface of the model. I take care to apply the light colors on the locomotive's light areas, and the dark colors on the areas of shadows ...



25

... then using odorless thinner for enamel, I blend the colors on the surfaces. However, depending on the area on which you are working, the movement of the brush is different. Here I am curving the roof of the cabin to pull the paints downward.



26

We use this technique of oil dot fading on the entire locomotive, always making sure to apply the light colors on the areas of light and the dark colors on the shadows.



27

Always using the appropriate thinner, I blend the colors to the base color. Here, the areas are horizontal, and therefore the movement of the brush is different than the movement for the previous step. In this case, I make a circular movement while delicately progressing from color to color.



28

For vertical areas, I apply oil paints differently while respecting a certain logic. Thus, the Oilbrushers black, starship filth, and dark blue are applied to the lower parts of the vertical areas...

29



30



31



29 ... while the oilbrushers white, buff, medium gray and ochre are distributed on the upper parts.

30 Once again, using a brush damp with the odorless thinner for enamel, I blend these colors by using a movement from top to bottom with the brush ...

31 ... and I repeat this step until the colors are completely blended and I am satisfied with the result.

32 Once this step is done, the camouflage is finished and ready to receive the various phases of weathering.

32





SEEING SPOTS

**GERMAN DISC
CAMOUFLAGE**



Carlos Cuesta

By the end of WWII, the German Army had in a desperate attempt to contain the devastating effects of the Allies' air superiority, started to develop increasingly more complex and perfected camouflage patterns and colors. The most complex scheme was the one known as Disc Camouflage.



1

The kit we have used for this article is Tamiya no. 35340, a simple and easy to build model that requires some additional detailing to bring it up to speed.

- 2 We begin with the indispensable primer coat. This will help the next paint layers to adhere much better and prevent a variety of problems. Here we have used a sand-colored primer.



- 3 The first proper painting step was airbrushing the base color: A.MIG-0011 RAL 7028 DUNKELGELB AUS '44 DG I, the standard color for a German tank in 1945.



- 4 Next, we start painting the green camouflage patches using A.MIG-0003 RAL 6011 RESEDAGRÜN. Good planning is essential to applying attractive and well-distributed color patterns. First, we outline the shapes free hand...



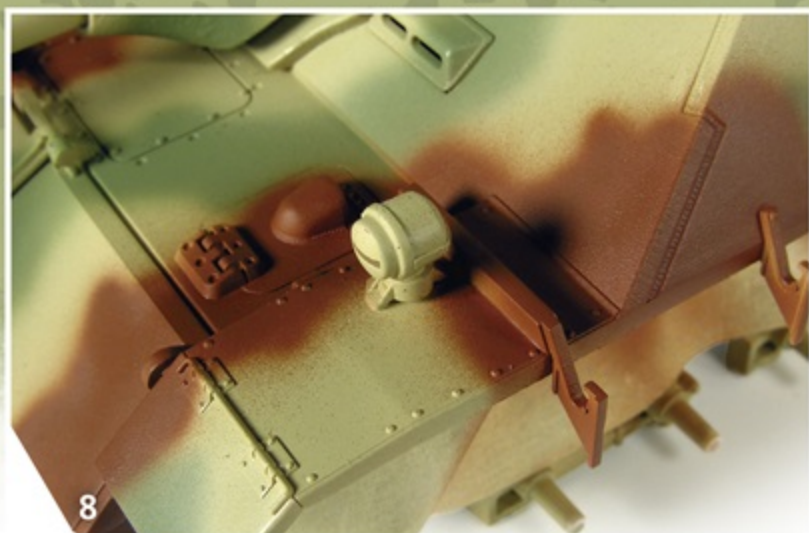
5 ... and then we fill in the patches and touch up the borders where we may not have a tight enough edge.



- 6 The same process is repeated, this time with the standard late war red brown color (A.MIG-0014 RAL 8012 ROTBRAUN). First the placement of each individual patch is selected and outlined.

7 ... so that we can now easily fill them in.





8

Nobody's perfect. Here you can see how the spray pattern isn't tight enough on the headlight area due to too low air pressure and excessive distance from the model's surface.



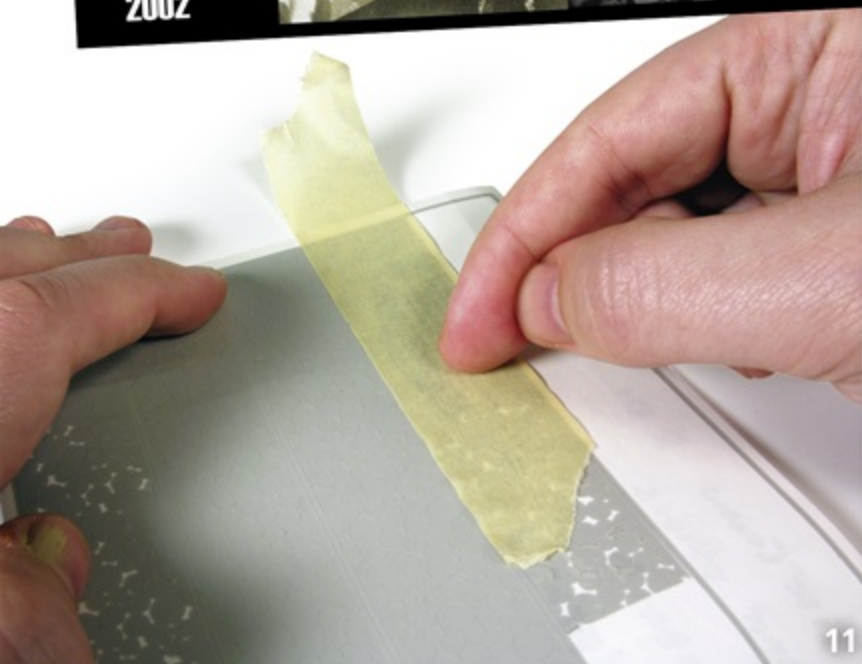
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We simply need to go over the area with the required color in order to resolve this issue. In this case, we used RAL 7028 for the base.

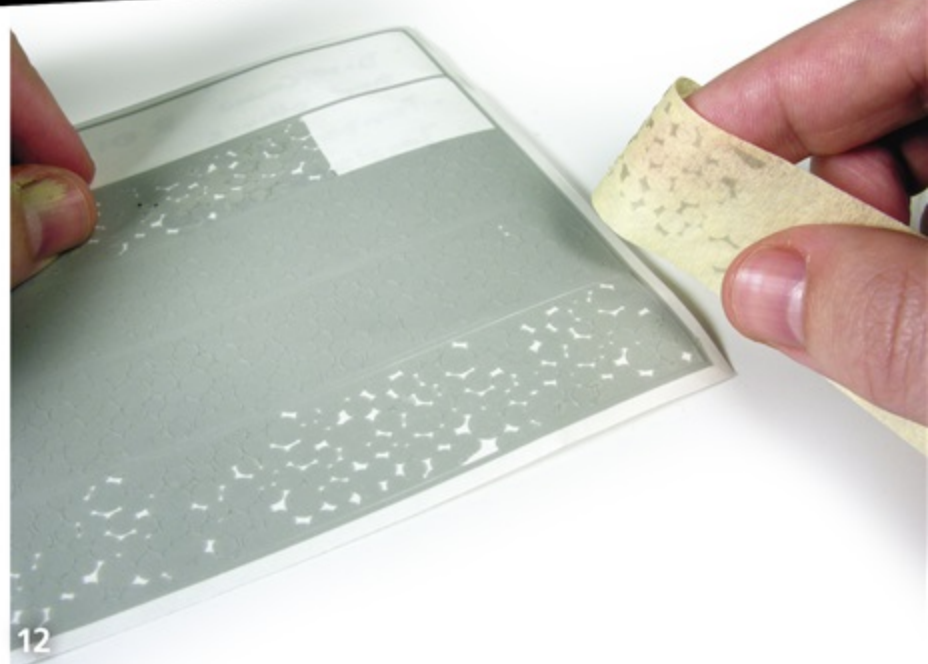


10

The quickest and simplest way to do this complex scheme is by using Uschi Van der Rosten's adhesive masks. They can be bought directly from the manufacturer at: <https://www.uschivdr.com>



11



12

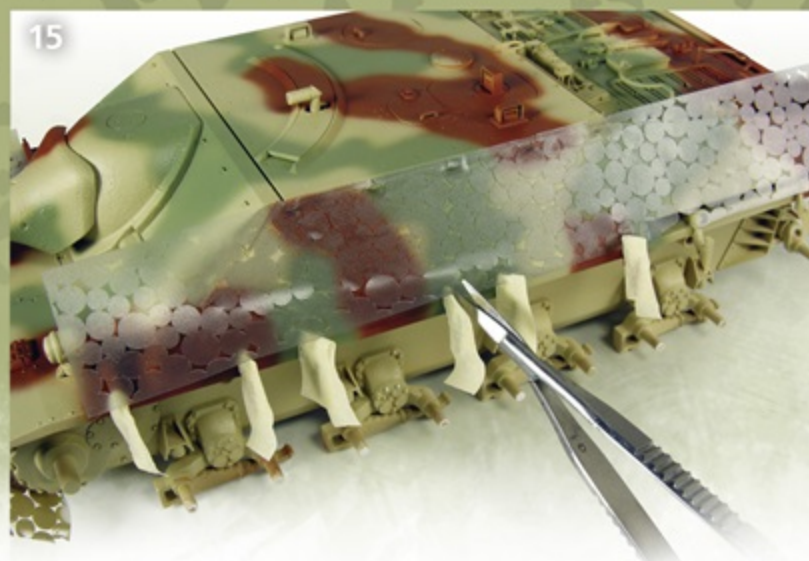
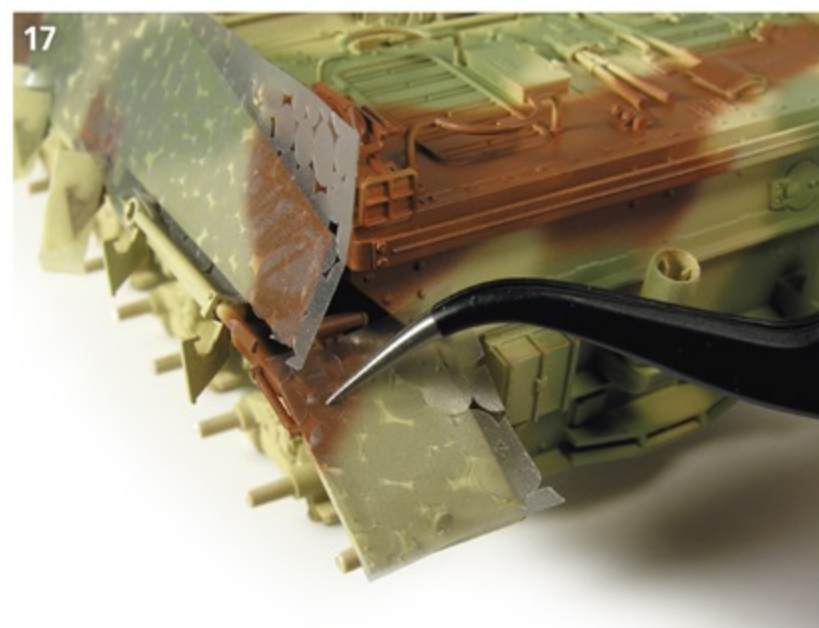
11 We start by adding a piece of household masking tape onto the stencil. To improve adhesion, we rub the entire surface with a nail.

12 When we peel off the masking tape, the remaining parts of the stencil will be attached to it. This will save us lots of work.

13 If there are still some pieces that have not come off, they can be easily removed with a pair of tweezers.



13



14 Before we begin to use the template, the areas we want to remain green and red but without discs are saved.

15 Now we start to attach the stencil onto the camouflage. These masks are really easy to use, and reusable to boot! But it must be adapted to the shapes and contours of the model. For this we have used scissors to carefully cut the mask where necessary.

16 For those areas where we can't use the mask—or it's too difficult—Uschi's set includes loose discs that can be attached individually. We should try to match them with the stencil to avoid the undesirable straight edges otherwise created by the masks.

17 We stick the mask onto the surface with a little care and the help of tweezers or a toothpick. This ensures that it won't come off later and that there won't be paint creeping under the mask.

18 Once we have finished applying the Uschi set in place, the base color A.MIG-0011 RAL 7028 DUNKELGELB AUS '44 DG I is airbrushed on. After leaving it to dry for a few minutes, we can start removing the masks.



19 The result is impressive, with perfectly well-defined edges. But the different applications with the airbrush have caused some unwanted sheen to appear in certain areas. To get a consistent finish and prepare the model for the subsequent weathering process, we now apply a coat of A.MIG-2052 SATIN LUCKY VARNISH.



Ivan Drond

Russian weaponry is likely the most used worldwide, everyone is familiar with the silhouette of the AK-74, T-55 and T-72. Russian equipment is most often involved in all conflicts Worldwide and as a result is a great subject for modelling. Some years ago, Ural Vagon Zavod (UVZ) started making their own exhibitions to promote their tanks and other vehicles. This event received a great deal of coverage and attracted many visitors including different representatives from countries spanning the globe that buy weapons and equipment. Very often, UVZ tries to impress visitors with something interesting and innovative, including obscure subjects, prototypes, live demos, and extreme camouflages.

The BMPT Terminator is one of such vehicles. Not many were built, but they look cool and UVZ always displays them at their Expositions. One year's example featured a very interesting urban camouflage that was used only for Expo and never seen on combat vehicles.



RUSSIAN EXPO CAMOUFLAGE



TIGER MODEL

**Kit: RUSSIAN BMPT-72
TERMINATOR II 1/35**



1 I decided to show this scheme on a kit from Tiger Model. Overall it is a very good kit, which produces an excellent scale replica straight from the box.

2 The model was primed with new AMMO One shot primer. This new primer offers great coverage and a smooth surface, as well as excellent performance from air-brush.



3 Although the BMPT is primarily an expo vehicle, I decided to do some chipping and for that we need to have a rich undercoat with some elements picked out with metallic paint and rest of the vehicle with dark brown to simulate the primer or rust underneath the base colors.



4 The next stage is to airbrushing chipping fluid. Simply apply several thin coats and give it some time to dry in between each layer.

5 When it's dry to touch, the main color is applied with an airbrush. I used A.MIG-119 Cold Grey from Russian Expo Camo scheme set from Ammo. The base color was then chipped a bit with the help of tap water and brush with short bristles.



Now the difficult part – the dynamic and complex urban camouflage. I used the manual provided by Tiger model as a guide and cut masks from masking tape using sharp hobby knife.



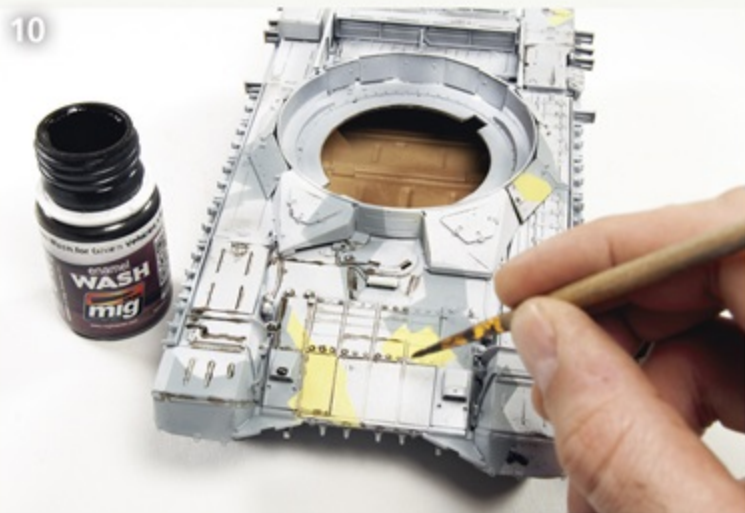
The masks were carefully placed onto the model and the second camouflage color - A.MIG-201 Gray Blue, is applied.



8 And when the masks were completely removed we get the appropriate result.



9 The small yellow patches of A-MIG-130 Faded Yellow were painted in a similar way.

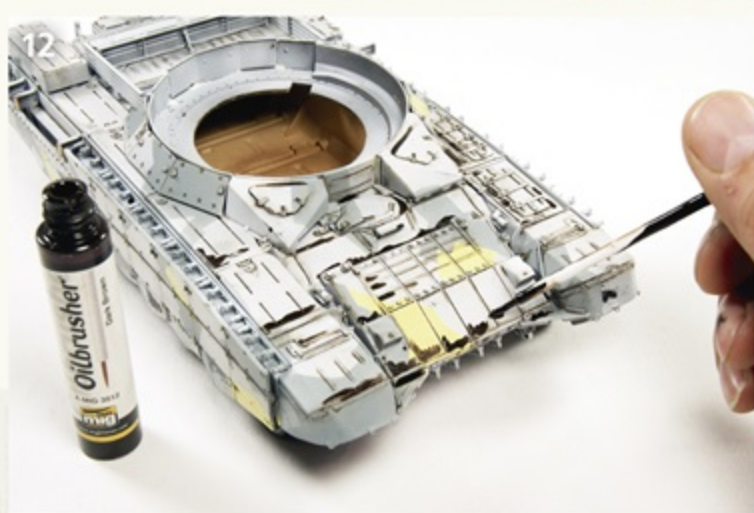


10 Now the weathering begins. I first apply a pin wash into all corners, nooks, and around raised details using a fine brush.

11 Then the excess wash is removed with a brush dampened with enamel thinner.

12 Extra shadows are added using A.MIG-3512 Dark Brown Oulbrusher applied straight from the container, using the convenience of the time saving built-in applicator.

13 After the application has settled for a while, the oil paint is blended into the surface with a brush dampened with thinner creating the effect of false shadows.





14

In the next step, I decided to add some texture and depth by applying pigments using a brush. Two tones are usually enough. Then the pigments are fixed in place using enamel thinner.



15

Some dirt and streaking on the side skirts will improve the appearance of that model, so I began by airbrushed Engine grime on the sides.



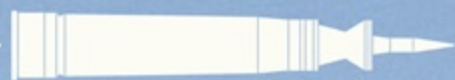
And then I washed it off with a clean, flat brush dampened in enamel thinner. By using downward motions, realistic streaking effects are easy to apply.



Some fine dirt speckles of A.MIG-1753 Turned Dirt enamel product finish the job on the side skirts while adding both texture and an authentic natural detail.



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CAMOUFLAGE COLOURS

PROFILES DESCRIPTIONS



Claudio
Fernández



Roman
Volchenkov

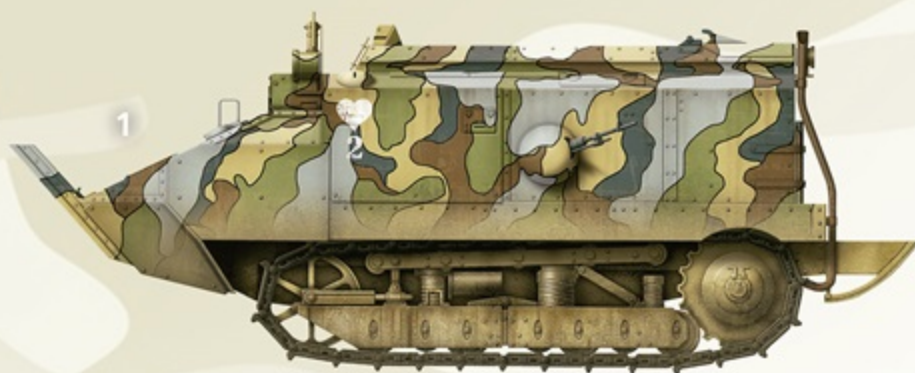


1 During WWII, the German army was likely the first to widely use a camouflage pattern on a uniform, and by the end of the war had developed several variants of it. While it was a good idea for troops to develop different types of clothing suitable for different theatres of war, climates, and seasons, it can be a challenge for the modellers of camouflaged German WWII uniforms. Featured below are a few examples that can be used on your figures.

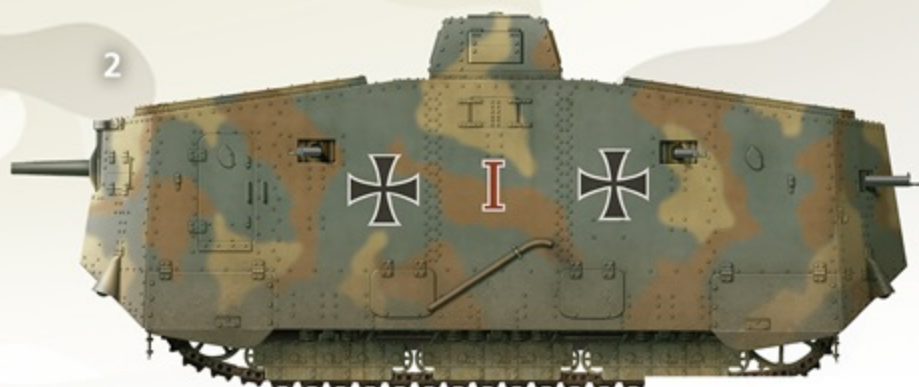
- 1** Eichenlaubmuster or Oak leaf pattern, Autumn 1943, this kind of camouflage was used on German reversible Waffen-SS smocks, parkas, trousers, helmet covers, caps, tanker overalls, and tents.
- 2** Erbsenmuster or Pea Dot pattern, used on Waffen-SS uniform since March 1944 and until the end of the war. It has five colours and was "all-season", can be seen on parkas, trousers, tank jackets and overalls.
- 3** Palmenmuster or Palm tree pattern was used on Waffen-SS smocks only in the early WW2, between 1940 and 1943. It featured leaf shaped spots and was rather rare.
- 4** Splittermuster 41 or Splinter pattern was a further development of an early splinter pattern used by German Heer and Luftwaffe since 1932. 1941 pattern featured smaller geometrical shapes and was first seen during the invasion of Crete. Splinter pattern 41 was used on helmet covers, paratrooper smocks, grenade bags and Luftwaffe field jackets.

2

There are numerous examples of camouflage patterns developed throughout the history of warfare. The earliest examples appeared during WWI, many of which were created by artists who were then involved in developing camouflage theories for the army. One example is that of a British painter named Solomon Joseph Solomon, who made one of the most intricate patterns used on British tanks. Here we will explore some of the patterns, we also recommend checking AMMO reference titles like "Eastern Profiles" or The Weathering Magazine Special "WWI".



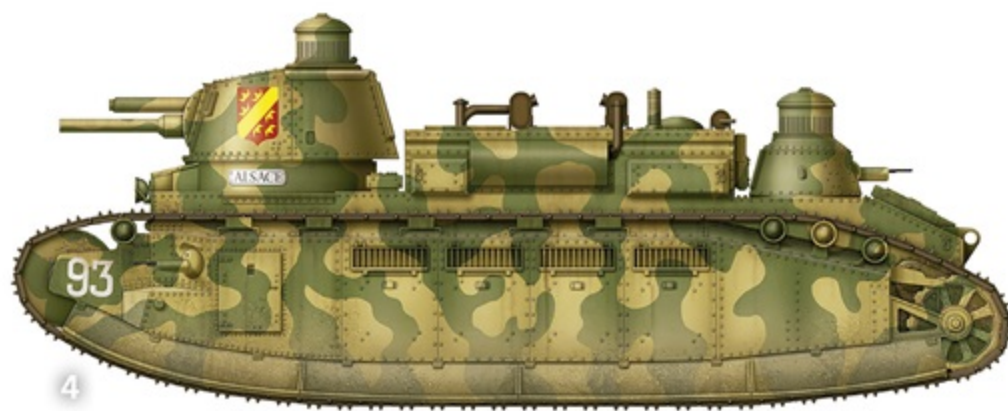
1 The Schneider tank was used by the French army during the first world war, many featuring very sophisticated camouflages like this example with 5 main colours and black outline. One can use AMMO "French vehicles" set for models with similar patterns.



2 The massive A7V was a German response to British and French tanks. German tanks during the Great War featured a three-tone pattern.

3 Lozenge was a polygonal camouflage used by German and Austro-Hungarian aircraft during WWI. This camouflage was printed on fabric and was used to disrupt the silhouette of the aircraft from enemy detection.

4 The Char2C – French super heavy tank was developed at the end of WWI and deployed in combat only in 1940. Each of the ten tanks had a unique name from a region of France.



3

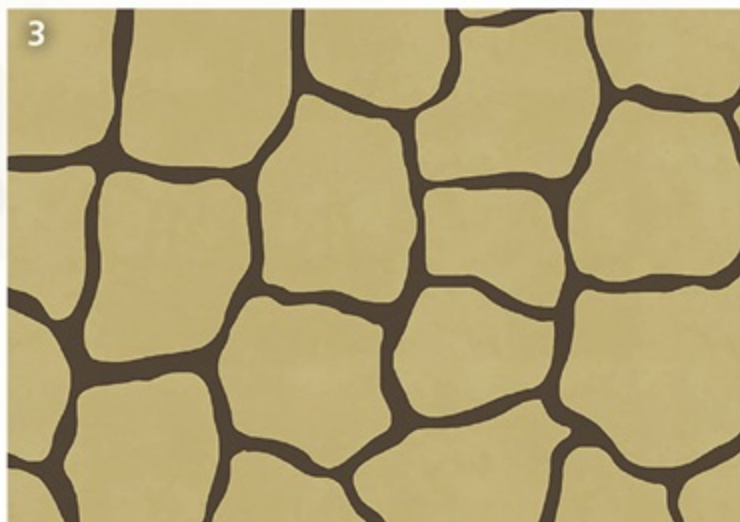
WWII brought new technologies, new machines, and with each came new camouflage patterns. This conflict is likely the most popular modelling subject, as one can find interesting examples of camouflage as represented by many different armies. Here we will show you some specific patterns and unique examples.



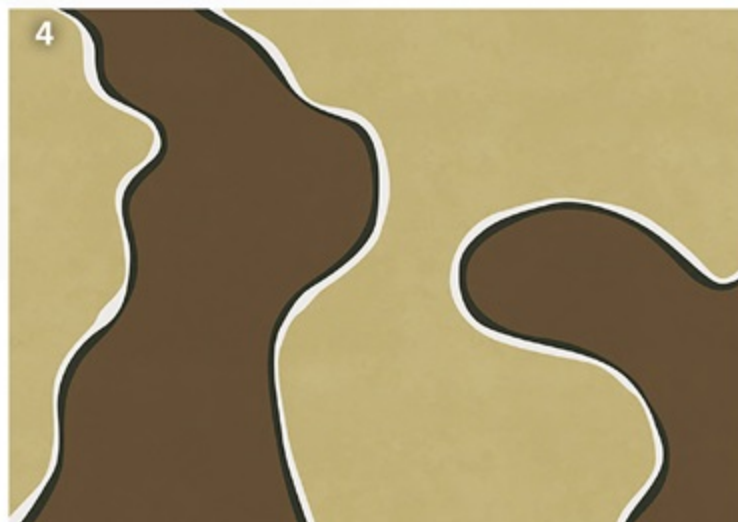
The Caunter scheme is a three-tone, hard edged design. This camouflage pattern was used on British vehicles in the Middle East between 1940 and 1941.



Mickey mouse pattern. Used by the British army in Europe from 1942 through 1944. This scheme featured rounded black spots over a green base.



3 Malta scheme – used by British forces on Malta featuring a series of coloured blocks with sand colour as base and lines of brown “Portland stone”.



4 Desert Grant scheme - this pattern was seen on British Grant tanks, using light stone as base, with brown spots with outlines.



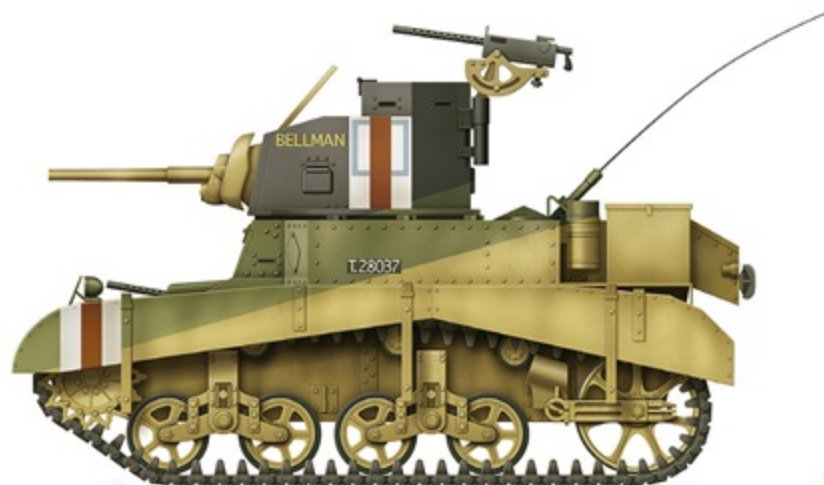
5 This is an example of the Malta scheme on a universal carrier with Khaki green used for stripes.



6 Similar pattern on a Valentine tank.



7 Light tank Mark VI in a two-tone green camouflage typical of the European theatre in the early days of WWII.



8 M3 Stuart light tank in a Caunter scheme used in the Middle East.



9 During WWII, the French again developed very artistic camouflage patterns. A prime example is shown on a Hotchkiss H-39 light tank.



10



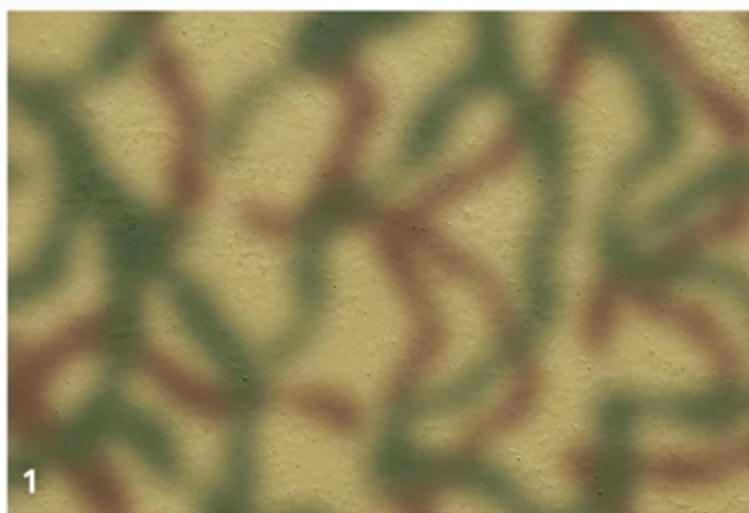
11

10 Similar irregular shaped multi-tone camouflage could be seen on R35 light tanks as well, and often featured colourful markings.

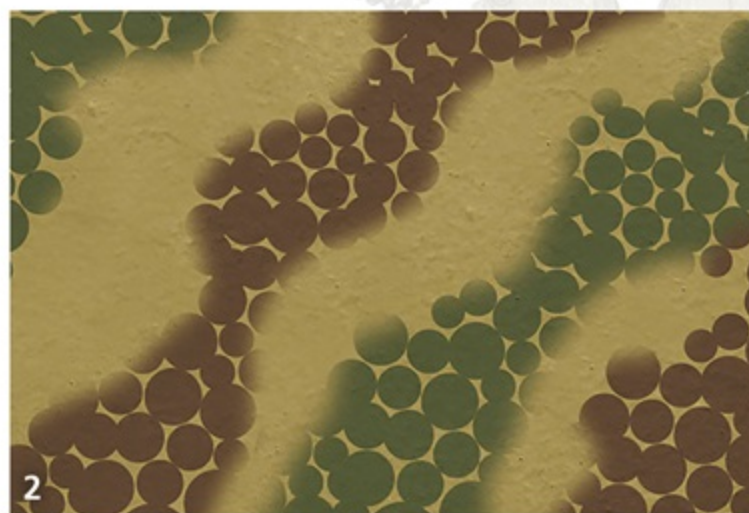
11 Another example is this Somua S35 cavalry tank. Note the combination of stripes on the hull and irregular spots on the turret, an interesting detail for modellers.

4

Meanwhile, the Germans were developing practical and probably less artistically influenced camouflage schemes. However, their patterns worked extremely well in disguising vehicles from view of the enemy. Shown here are some patterns and examples used by the German armies of WWII.



1



2



3

1 When the Germans started using Dark yellow as a base colour, they also began applying disruptive stripes using red brown and olive green camouflage as shown in this example. The patterns look rather random, but this aspect hides the vehicle well. Such patterns were used on the side skirts of Panzer III, IV, and StuG. Camouflage of this type could have been applied in the field workshop by the crew.

2 The Disk pattern was developed in 1944 and included disks of slightly different sizes painted over the base colour, and sometimes overlapped the camouflage spots of contrasting colour.

3 Spotted camouflage was used on some vehicles during the later stages of war.



4

This captured Renault ANH truck is a good example of a three-tone camouflage that was used by the Germans.



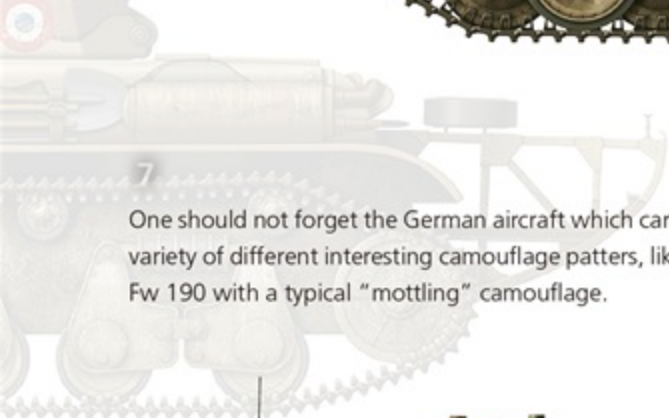
5

Matilda MkII British Infantry tank in a two-tone camouflage with irregular stripes shown in German use.



6

This Panther Ausf G, with an infrared vision device features a typical ambush camouflage used on vehicles from 1944 onward. It featured dots of contrasting colour on top of the larger camouflage spots.



7

One should not forget the German aircraft which carried a variety of different interesting camouflage patterns, like this Fw 190 with a typical "mottling" camouflage.



8

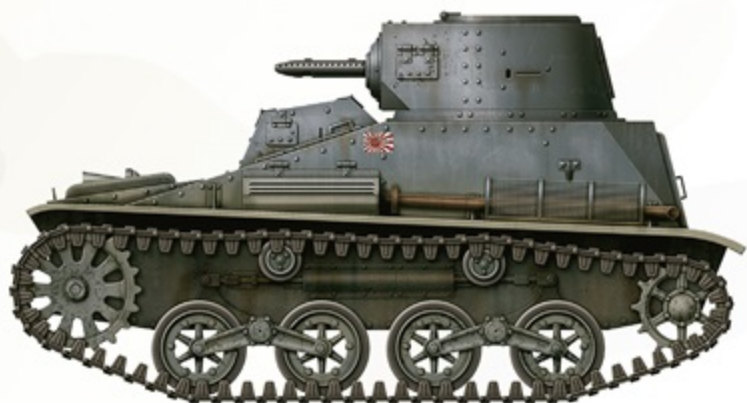
Other axis countries also used three-tone camouflages often, like shown on this Hungarian Turan II tank and Zrinyi II SPG.



9

The Italian army used both two and three-tone schemes, shown on this Semovente 75 SPG or medium tank M15/42. Note that Italian army used a rather reddish tone of the brown colour.





- 10 Another Axis power, Japan, also created unique camouflage patterns. This is a Tankette type 94 belonging to Imperial Japanese Navy (IJN) which was painted blue-grey and another type 94 in three tone camouflage typical for early WWII examples operating in China.

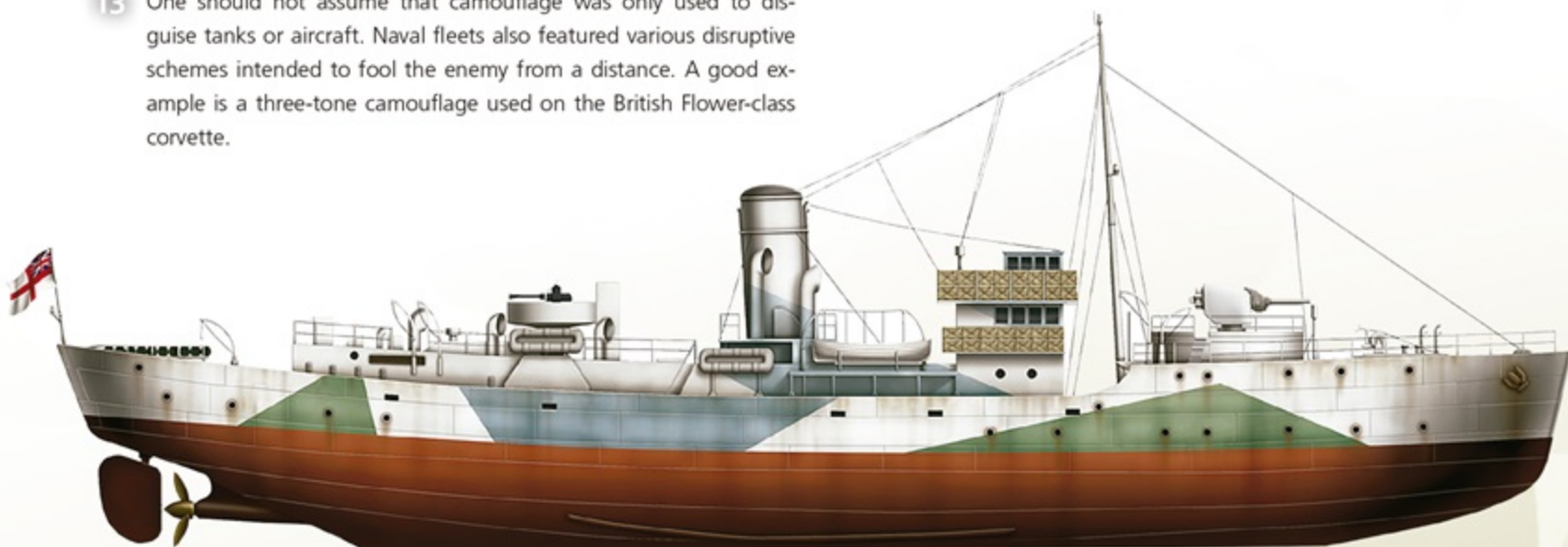


- 11 Later on they started using four tone camouflages for land forces, shown here on a Type 94 with tactical number 101.



- 12 Medium tanks like Ha-go Type 95 and Type 97 Chi-ha (from IJN) also appear in both three or four tone camouflage.

- 13 One should not assume that camouflage was only used to disguise tanks or aircraft. Naval fleets also featured various disruptive schemes intended to fool the enemy from a distance. A good example is a three-tone camouflage used on the British Flower-class corvette.



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MASCHINEN KRIEGER CAMOUFLAGED



Painting camouflage patterns can be a daunting task, especially for models that don't have real life examples! Not to worry, today I would like to share with you one way that I make the Studio Ma.K models spring to life with this Camouflage pattern used for Lunar Operations. The inspiration comes from marine life, and is positioned as a counter shadow to reverse highlight our model. I will paint this entirely by freehand using brushes. Why Handbrush lacquer paints, it's impossible... isn't it?

"It dries too quickly and reactivates the layer underneath!" Yes, this is true... but what if I showed you how to turn this negatives characteristic into a positive "benefit"?

Dries quickly yes, so we can quickly build up layers! Reactivates paint underneath - yes, much like watercolours. And with practice, we can then use this feature to create interesting effects and wet blend our colours while adding weathering effects together with our base colour coats.

It's not easy and takes practice, but over the years I have perfected this technique and feel it allows me to "just paint a model" with very few tools and steps. I feel it's a minimalist approach, it's just you, a model, and some paint.

Now let me show you how!



1 Here I have fully customised this kit by hand sculpting replacement joints from 2-part epoxy putty, adding weld beads for the additional sensor equipment, and cables with tiny covered wires to add detail to the legs.



2 A very simple "primer" and colour base layer in one easy step, Mr. Color "Mahogany" sprayed straight from the can in thin coats. It's a perfect primer, as it dries very quickly and has a lovely satin finish.



3 The super-secret I learned while working for Hobby Japan, using Tamiya TS-7 "Racing White" for "Space White". It's a beautiful off-white gloss and a perfect base, best to build it up in several light coats.



4

The canon Ma.K colour is called "Anti Flash White" and is meant to represent a radiation proof coating on the space suits. In the studio, we add yellow to Gloss White to achieve this colour and I brushed it on with a medium round brush. Easy!

Freehand Camo - Whilst looking at photographs of Sharks and Sting-rays, I free-handed an outline of a pattern to work with and accentuate the shape of this suit with Mr. Color Field Grey.

It doesn't need to be perfect at this stage, Start Loose and Finish Tight™ is my motto!



5



6



7 Now with the outline finished, it's easy to paint inside! Using a slightly lighter shade of green grey with some of the outline poking through helps it to look interesting and detailed.



8 One challenge of hand brushing is getting past this stage - don't panic, keep going. Use thin coats and build up to a nice finish!



9 ade it! Phew, another model not ruined! One tip with brush painting, don't make it too perfect or you might as well have used an airbrush. Leave it a little rough looking for that extra artistic taste and realistic look.



10 For many background details, the Ma.K Studio look is achieved with RLM66 Black Grey. I used this for one of the Radar Pods and for the manipulator.

11 In keeping with a "no airbrush" theme this time, I used my favourite clear spray, Mr. Super Clear Satin before and after decals. Works perfect and so fast and durable, I LOVE it!!



12



12

Outlining - Recently I enjoy making my models look like 2D artworks coming to life, so I have been starting with a very strong and high contrast dark detail wash. AMMO "Dark Wash" is perfect for this!



13

For a little colour variation, I also used some AMMO Dark Streaking Grime, it was perfect for this scheme because it's a dark, black green.



14

Hand Painted markings! I want to make this a very personalised suit, so "L" for Linc! Mr Color Off White is carefully stippled into place to simulate wear. No processes or fancy steps, just paint on what you need and nothing more and that's enough.



15

Drybrushing lacquer paints! - The evillest weathering process and technique ever invented, but it works and I love it!! But use it very carefully and sparingly, here I gently dry brushed with Mr. Color "Propeller Color" upwards on the boots and near the rockets to simulate extreme heat.



16

Now I add some depth with very small chips into the centre of places where the paint appears scratched, using Mr. Color "Propeller Color" again.



17

The Linc "L" suit customised with Mr. Color Off-White!



18

To achieve an authentically dusty Lunar effect, I layered AMMO PLW Light Grey which has a nice, flat finish.



19

To deepen a few key areas of the green, I tried AMMO Grey Green FILTER and again, it is perfect for this scheme.



20

DUST! This colour is warmer than the PLW Light Grey so I added it to the top of the suit to help with a temperature/colour gradient and to accentuate key details such as the welds.



21

In conclusion, I wanted to add interest to the Camo Separation line and used Oil Paints for their soft richness to add a subtle contrast against the sharpness of the lacquer paints.



22

Whilst I had the oil paints out, I add cooler dusty colours to the bottom half of the suit and warmer dusty colours to the top half, saving time while adding more visual interest. The oils also dried more matt which contrasts nicely against the glossiness of the under finish.





MODULATED CAMOUFLAGE

putting both the airbrush & brush to work



Carlos Cuesta

In my opinion, there are two difficult things to do when you airbrush a model: The first one is applying a camouflage scheme, and the second one is to apply modulation. Maybe this is the reason why it is so unusual to find modelers who have completely modulated a camouflage vehicle. Here we will explain how to accomplish such delicate and time consuming work in the best possible way. The King Tiger has big surfaces, so it will be easier to show the process. However it can be done in any kind of model.





1 As a base, we have an out-of-the-box plastic kit detailed with some photo etch parts.

2 The first step is to apply a primer. This is always very important in order to obtain an even acrylic application, and it improves the adhesion of paint. With modulation, it also helps to obtain a uniform base to avoid semitransparent coats of paint which can show different materials or colored parts.

3 As a first step, we apply A.MIG-0900 DUNKELGELB SHADOW in the darkest areas. For this example, we will apply a lateral modulation with the dark color in low and rear areas.

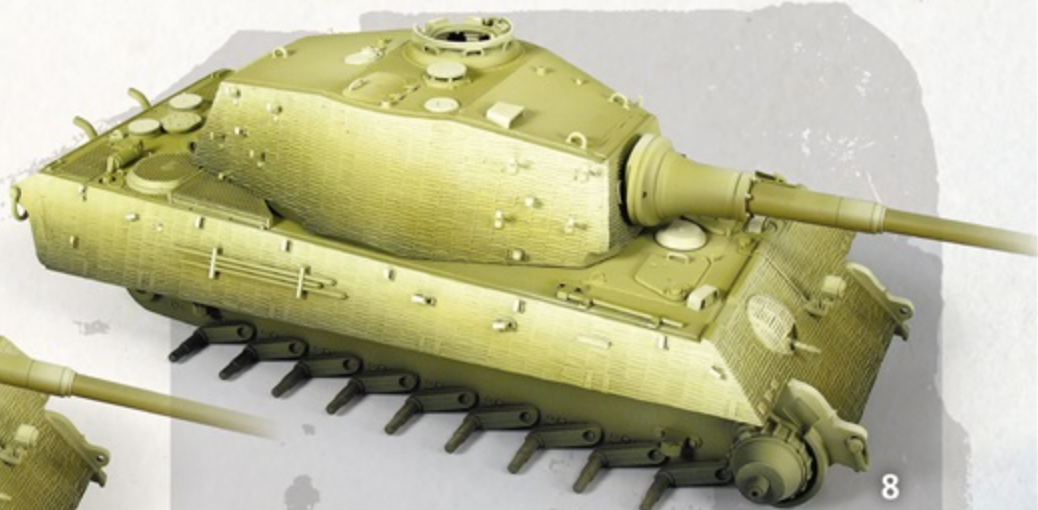
4 We paint a wider area with A.MIG-0901 DUNKELGELB DARK BASE as the main color.

5 A.MIG-0902 DUNKELGELB BASE is applied on the whole model in a very subtle and transparent coat on the darker areas.

6 We continue the process with A.MIG-0903 DUNKELGELB LIGHT BASE. This time we only apply it onto the lighter areas. As we approach our desired spot light, we apply more paint and less transparent coat.



7



8

7 As the final step with the airbrush, we apply a very thin and transparent coat over the lighter points with A.MIG-0904 DUNKELGELB HIGH LIGHT. We can improve the transparency and obtain an easier application with A.MIG-2017 TRANSPARATOR.

8 To finalize the work on the base color, we use a brush to paint A.MIG-0905 DUNKELGELB SHINE onto some small details such as tool and spare tracks clamps & brackets.



9

9 The finished modulated base color changes when we add the wheels and tracks.

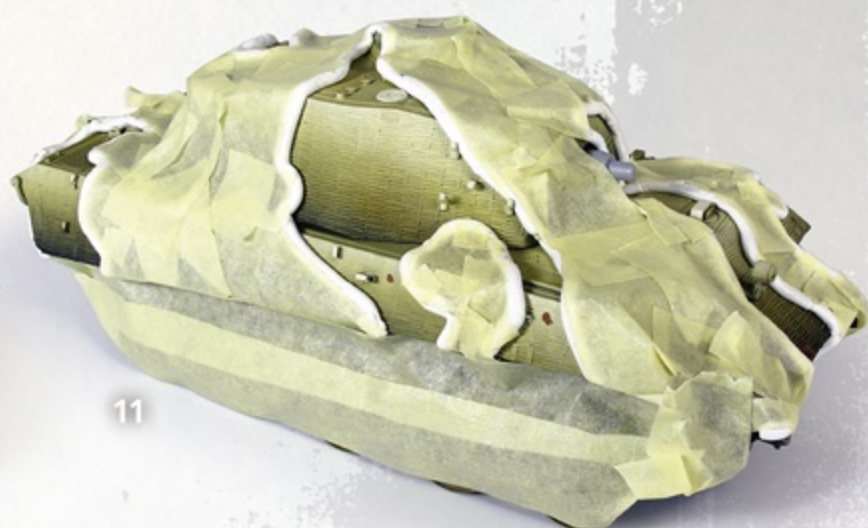


10

10 The outlines of the first camouflage color patches (Rotbraun in this case) are marked off using thin 'snakes' made with rolled Blu-Tack.

11 The areas not to be painted Rotbraun are protected with masking tape.

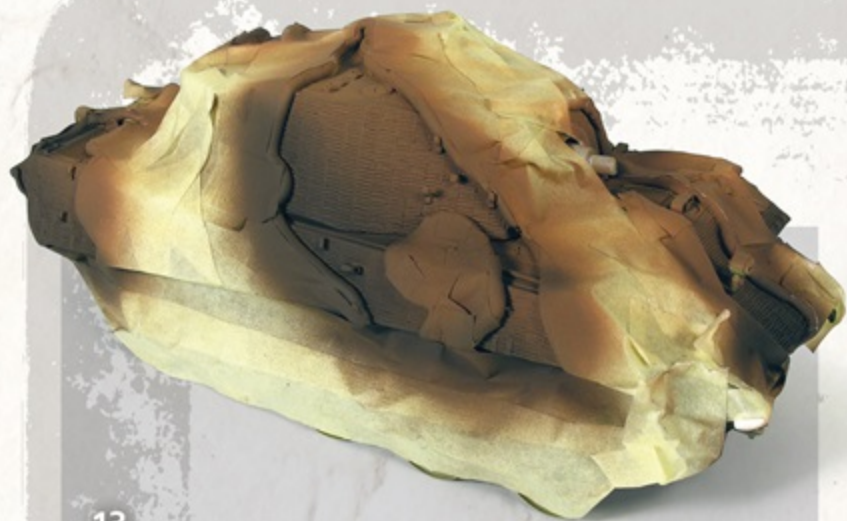
12 We now airbrush A.MIG-0912 RED BROWN SHADOW on the darker zones following the same lighting scheme as before (that is, on the lower rear area).



11



12



13

Then we fill in the color patch and partially cover the previous color with a semitransparent layer of A.MIG-0913 RED BROWN BASE color.



14

Finally, we carefully apply A.MIG-0914 RED BROWN LIGHT, trying to spray it only on the lightest highlighted areas of each camouflage patch.



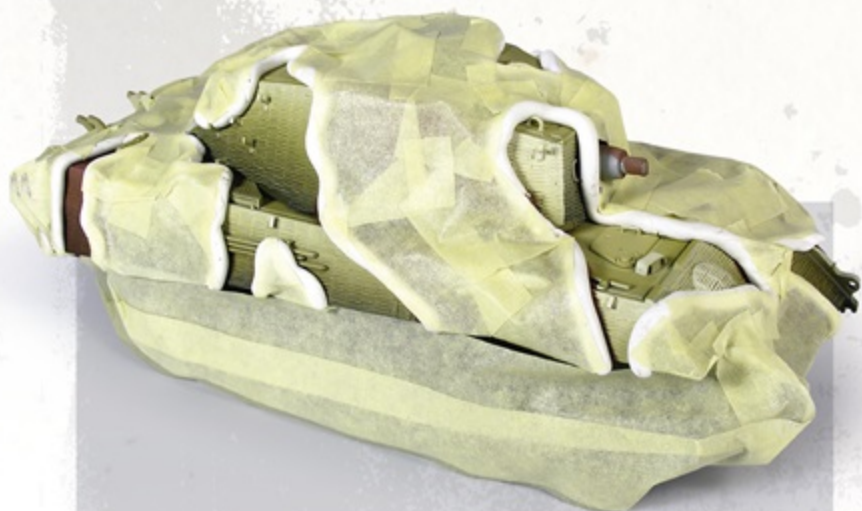
15

After peeling off the masking we can see how the two camouflage colors have been modulated following the same gradation pattern.



16

We start of by marking the Olivegrün camouflage color with Blu-Tack, now it's Olivgrün...



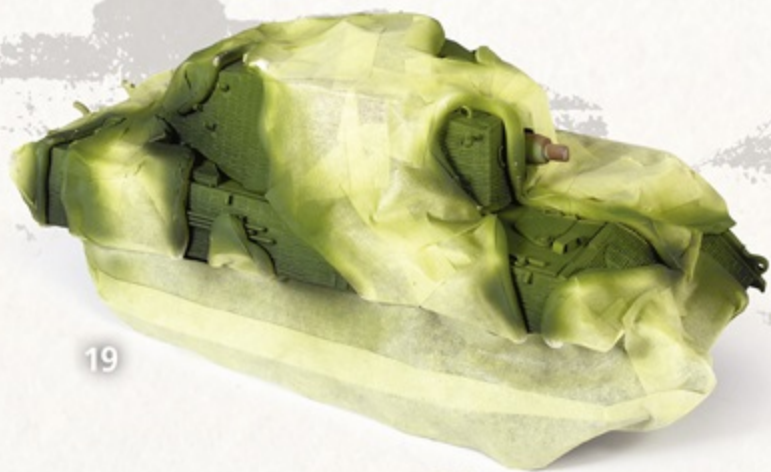
17

... and sealing off with masking tape the areas not to be painted green

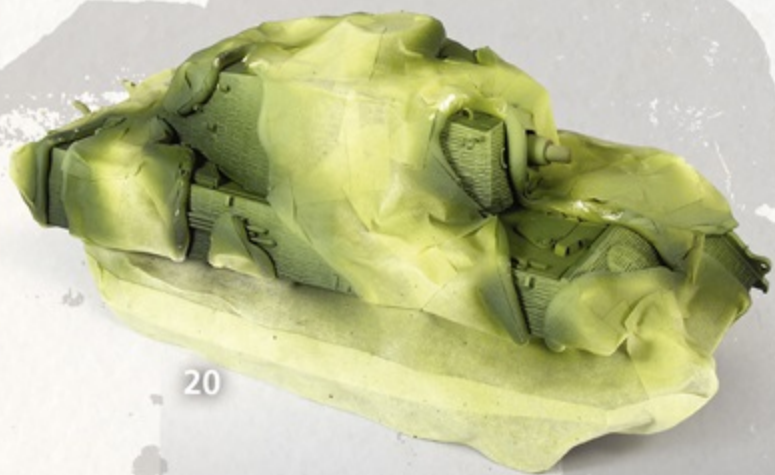


18

Repeating the same process, now we begin applying the darker tone on the darker areas of the other colors using A.MIG-0915 DARK GREEN.



19



20



21

19 A.MIG-0916 GREEN BASE is used as mid-tone to fill the patches only partially covering the previous darker tone.

20 The last color applied via airbrush is A.MIG-0917 LIGHT GREEN used for the lightest highlights.

21 After removing the masking, we can see how the model has gained a more interesting three-dimensional appearance. Remember that the color modulation style doesn't aim for accurate colors and realistic lights and shadows, but for an aesthetically pleasing effect.



22

Again, we take the lightest Olivgrün tone (A.MIG-0917 LIGHT GREEN) and use it to pick out some details over the lightest areas with a fine brush.



23

Finally, we repeat the previous step over the Rotbraun areas and highlight some details with A.MIG-0914 RED BROWN LIGHT.





SS-Erbesenmuster

CAMOUFLAGE REVEALED



César Oliva

The Erbsenmuster or pea-dot pattern (also known as dot 44, dot pattern, or peas 44) was a late war SS camouflage pattern that began to appear in 1944. The pea-dot uniform was designed to replace the earlier reversible camouflage smocks as it was intended for all seasons. It was made of herringbone twill and the pattern itself consisted of five colors, two browns and three greens. Dot size varied depending on the manufacturer. Only camouflage smocks and trouser/shirt uniforms were made in this pattern; neither caps nor helmet covers were released during the war. In this article, we'll show how to paint the pea-dot pattern in a simple way, including some useful tips and techniques applicable to any kind of multicolor camouflage scheme.

1

BASE

We use an excellent figure from the Tank range. It's an Army (Heer) figure, but the SS used a very similar uniform that can be easily adapted with small changes. Besides this, SS suppliers weren't able to keep up with the demand for the new pattern and army uniforms issued to Waffen-SS units was not uncommon.

After priming the figure, we apply the chocolate brown base color. A lighter shade of the original color is used to keep the scale effect: 6 parts of Vallejo US Field Drab (873) and 1 of Chocolate Brown (872). You can add a small amount of flattening agent such as Tamiya X-21 to the colors to get a dead flat finish; but don't add too much or you'll get a chalky surface.



2

INITIAL OUTLINING

Next, thin dark lines are applied to define seams, pockets, etc. Use a good quality kolinsky brush with a sharp point for this task. These represent the deep shadows. Usually we'd apply these only at the end of the highlighting/shading process, but doing it at this stage when painting camouflage uniforms allows us to clearly demarcate the areas where the camo pattern ends. One of the most common mistakes made when painting camouflages is applying a continuous pattern across seams, pockets, collars and other details.



3

BASE HIGHLIGHTS

Now we add one or two basic highlights to the base color by using lightened and diluted version of the base color to apply thin glazes. You can use pure US Field drab or mix in a sand or ochre color to the base. As opposed to a single color uniform, we don't need to be as careful and precise because most will be obscured by the other colors.

It's also important to mention here that there is no single 'real colors' when talking about uniforms, that is: there was a huge variety of hues depending on several factors ranging from different manufacturers producing the fabric, inconsistent quality control, number of times the garment had been washed, sun bleaching, etc.



4

DARK GREEN PATCHES

Now we paint the dark green splotches. We have used AMMO's B RESADAGRÜN A.MIG-004 mixed with a small amount of the base color. Doing this will help to blend the two colors together for a softer, less stark contrast that better mimics the real colors of patterned fabric.

Check your references and try to reproduce the pattern you see. For the areas not visible in the photographs, simply repeat the same distribution and ratios, as real camouflage fabric simply repeats a pattern of varying size. Don't forget to stop at seams, pockets and flaps, as patterns terminate at the edges of each individual piece of fabric.

5

SAND PATCHES

The same process is now repeated with the sand-colored patches. A.MIG-017 CREMEWEISS is used with a little base color mixed in as was seen in the previous step. You can see the covering is not uniform as the color is lighter than the base color.

6

HIGHLIGHTS ON THE SAND PATCHES

We can take advantage of this and leave the darker hue on the shadow areas and only re-apply the color on the tops of the creases and folds where more light gathers. In this manner, we can quickly add some highlighting to the lighter colors.

7

SAND DOTS

Next, and always following our reference material, we start painting the groups of dots that give name to this camouflage pattern; beginning with the sand tones. Use a synthetic brush for this task, as they tend to create rounded shapes when compared to the splintered outline produced by natural sable brushes.



8

LIGHT GREEN DOTS

Now we add the light green dots, notice how these are two slightly different hues. You can choose to use just one color for simplicity, particularly on smaller scales like 1/72. Because of the size, the difference in tone would be barely noticeable on such tiny figures anyway. We have used a dull shade and a brighter one: A.MIG-917 and A.MIG-003 respectively with a little of the base color added for consistency.



9

FINAL DOTS

Finally, we fill in the large camouflage patches with dots of the four other colors of the scheme and add dark green 'peas' onto the brown base color. Notice how the different dots of the same color tend to form clusters. As always, check photographs of real garments when painting the camouflage pattern.



10

PRE-SHADING

This step consists of a very transparent layer of paint or glaze applied to the shadow areas. On a single-color uniform, this step would not be necessary. But as we're going to shade several different colors at the same time, a subtle first layer is used to avoid stark shadows. Mix all of the camouflage colors and add a little black, then dilute the mixture considerably with water, almost to the point of creating dirty or tinted water (1/15 paint to water ratio or more). Unload the brush very well on a kitchen paper to get rid of most of the watery color (if you don't do this, the glaze will run wild everywhere and tide marks will appear when dry). Now you can begin adding it to the shadow areas. Begin with a not so visible area and wait until it's dry (the effect could be too stark -if so, add more water-). You'll need to build up the effect in several layers, creating a subtle and realistic effect.

11

FIRST SHADOWS

Basically, we repeat the previous step, this time using a slightly opaquer glaze in slightly reduced areas. Notice how the shadows help to bring all the colors together for a more natural result and eliminate the painted look.





12

SECOND SHADOWS

Again, we add yet another glaze with a little less water and a bit darker than the previous one. Remember to unload the brush almost completely to avoid tide marks!



13

FINAL SHADOWS AND OUTLINING

To complete the effect, the darkest shadows are added in the deepest recesses of the folds and across seams, pockets, collar, etc. For this you can use a more so opaque, and darker color.



14

HIGHLIGHTS

Now we add another very transparent glaze, this time to the highlighted areas and using only the lightest colors of the camouflage -mostly the sand color- and a bit of white. Don't forget to unload the brush on a paper towel as before; so much so that at first it will look as if nothing has been done. Wait for the glaze to dry and repeat, building up the effect with several passes. This last step will completely unify and blend the camouflage colors for a natural appearance.



15

UNDERCOATING DETAILS

A final step is adding a dark undercoat to the different details which are in front of, or next to the uniform such as: decorations, lapels, belt, buttons, headphones, cap, boots, etc. This 'blocks' the camouflage, allowing us to see it more clearly and thus decide if we have to make some touch-ups or any other adjustments.

Whitewashed StuG

STUG III AUSF. B



Fabrizio
Pincelli

For some time now, I have wanted to build a StuG III with Winterketten snow tracks. Finally, I have a Tamiya kit on my bench - the StuG III Ausf. B which is one of my favorite tanks. I knew that once equipped with the "wide" tracks, it could be a real stunner! Not much upgrading was needed - just an out of the box build with some details. On this project, I preferred to explore painting and weathering rather than spend hours on detailing. At first, I wanted to represent a model covered with a snow, but then after looking at many pictures from the era, I decided for a worn whitewash camouflage covered with a variety of mud effects. Because the representation of mud and earth circulates in my veins, it was the right choice of course. With this project, I thoroughly enjoyed simulating the subtle nuances of the dry and wet mud, trying to vary them according to their position. I could talk for hours about the creation of mud in scale, but let's focus on the winter camouflage first!





- 1 The model is ready for painting.
- 2 After thoroughly cleaning with rubbing alcohol, using an airbrush as a pressure washer, I applied AMMO grey primer and left it to dry for 24 hours.
- 3 I then applied a A.MIG-008 Dunkelgrau base colour, always painting in thin layers.
- 4 Next, I decided to add some highlighting to the base by adding a touch of white A.MIG-050 to the base colour.
- 5 With the help of Micro Sol setting solution for decals, I placed the markings in proper position with perfect adhesion, and sealed the decals with a flat varnish.
- 6 To make a realistic looking whitewash camouflage, I need to apply the A.MIG-2011 Chipping Fluid first.



7 After a few hours of drying, I airbrushed a thick layer of white onto a whole model.

8 Then I used a warm water and an assortment of stiff brushes to chip off the white paint, especially around passageways where the crew had operated.

9 Here you can observe the model after the whitewash application and with tools and other details painted in appropriate colours, readying the winter camouflage for the weathering stages.

10 I started with mud application – for this, I mixed AMMO enamel mud product with dry natural earth, for extra texture.

11 I spread a thick layer of the slurry on the hull walls with an old brush.

12 With the help of a sieve, I then sprinkled on natural earth onto the still wet mud mixture.





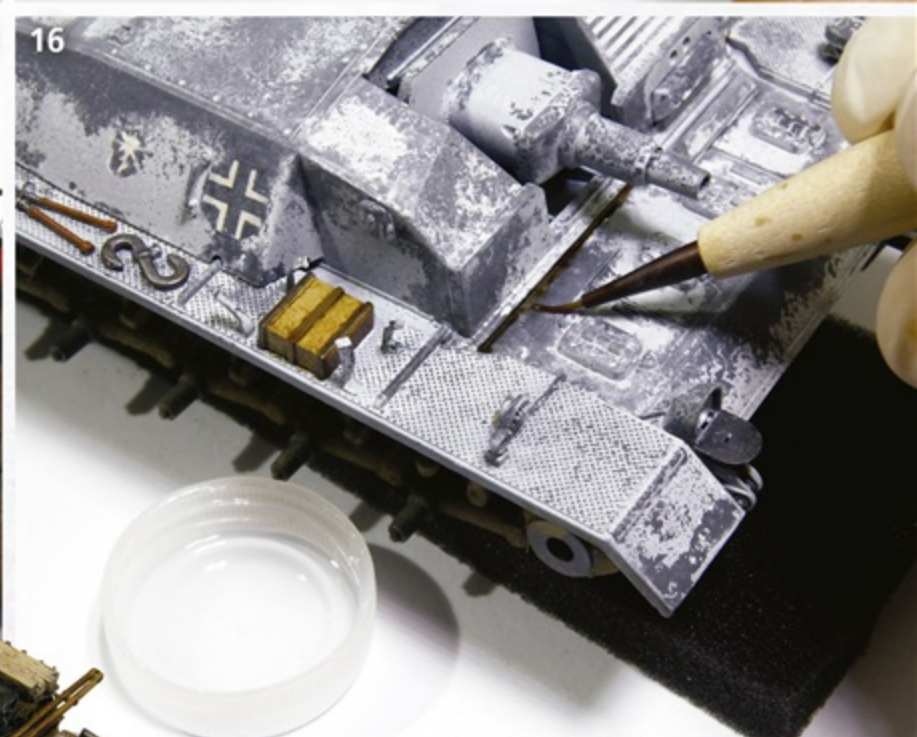
13



14



15



16



17



18

- 13 To simulate damp areas around the suspension details, I applied the enamel Mud product out of the jar again.
- 14 I then mixed to other light tones from the Mud range to simulate the dry areas.
- 15 To simulate the grease leaking from the suspension, I used Fresh Engine Oil enamel around the appropriate areas.

- 16 To create some shadows, grime and dirt collected in the corners as well as around the raised details and along the panel lines, I used oils which give a unique effect unattainable by any other paint.
- 17 The earth colour oils are applied onto the whole model and blended.
- 18 To simulate the dry mud residues on the top surfaces, I again mixed AMMO Mud enamels with a realistic addition of natural dirt.



19

The mixture is spread in a uniform manner onto the surfaces – particularly the fenders where mud tends to accumulate.



20

Using a brush moistened with enamel thinner, I blended the mud mixture to avoid hard edges.



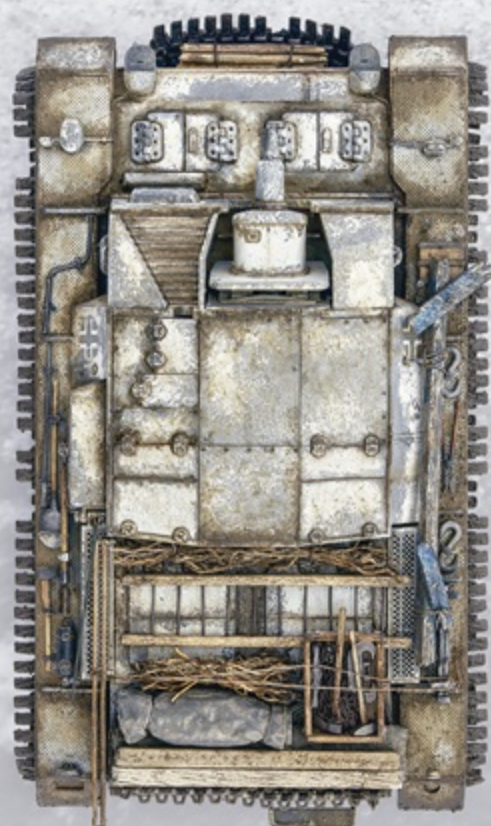
21

With a darker shade mixture, I applied the damp mud residue into the corners and in the logical areas of mud accumulation.



22

Finally, I enhanced the white camouflage with a white enamel, this critical step serves to enhance the contrast and reproduce the streaking white-wash due to rain and wear.



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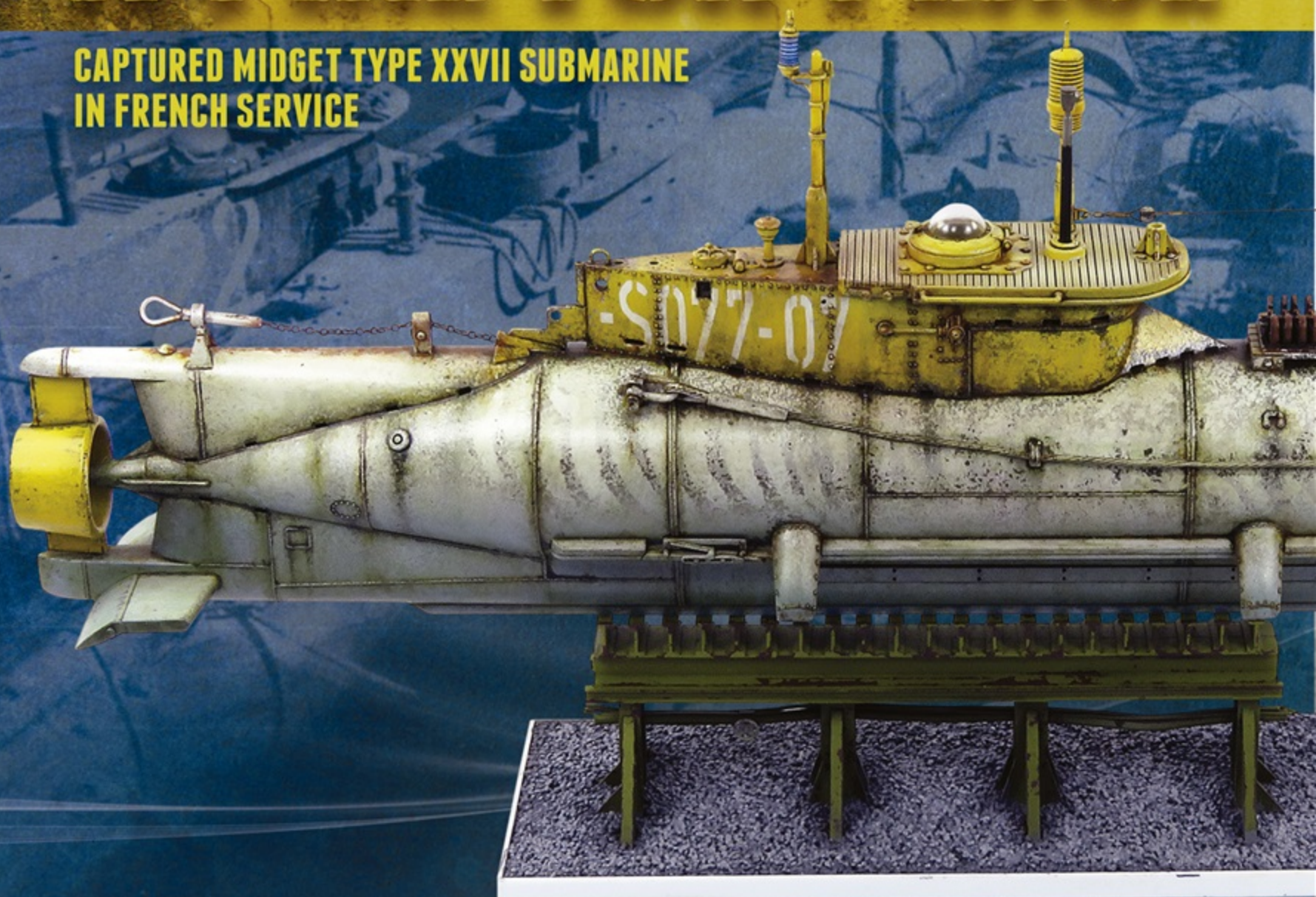
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A PIKE FOR PEACE

CAPTURED MIDGET TYPE XXVII SUBMARINE
IN FRENCH SERVICE



1
The 1/35 Bronco kit: once the assembly is completed, I add some modifications necessary for my subject. This is the correct approach to create a subject with rich details. Equally critical is to make choices regarding the paints to be used and the expanse of the weathering from the beginning. All the further steps will rely on this planning.

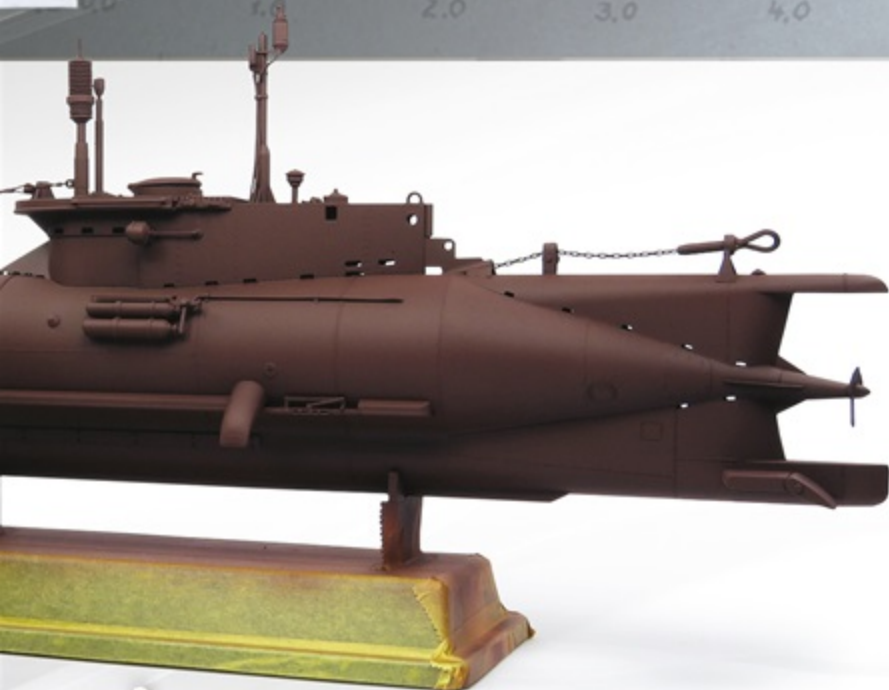


Laurent Tabib

The "Seehund" type XXVII came from a series of German pocket submarines designed during WW2. This new machine was made for a crew of 2 and operated from 1944 through the last months of the war. The Kriegsmarine ordered 1000 units, with more than 60 submarines produced each month. Only 285 "Seehund" were delivered, the first reached the water in December 1944. The "Seehund" was deployed along the German coast and prowled the English Channel. It could sail and attack in both bad weather and in rough sea. However, for an underwater attack, the "Seehund" had to hold a stable position to be sure to strike its target. In May 1945, the war was coming to its end. The Allies had set operation "Deadlight", which planned to sink all the ships belonging to the Kriegsmarine, and here is where the we would expect for this lethal weapon's story to end.

We are now in 1946, and world peace is stable but uncertain while Operation "deadlight" is accomplished. Yet still in the last hours of the operation, it was secretly decided to keep the small ships in order to use them for general wealth.

WWII has left some scars and one can find pockets of weapon traffickers in France. Of the 285 delivered, the 33 "Seehund" that had survived were given a new task – dismantling the networks of weapon trafficking. The River Military Police was created for the mission and the 33 submarines started their new duty in September 1945. Here is the S077-07, operating in the Seine and its estuary. Its new nickname "The Pike" owes a lot to the newly installed enhancements such as the wire-cutter at the front... but mostly to the new original camouflage one can see through its new colors prematurely washed out and damaged. My goal was to keep – while layering the effects – the gradations of the "zenithal" lighting. The result is comforting – the eye perceives the contrasts and the shapes with a focus on the upper surface of the submarine. Another important point: we can still recognize the German camouflage and the new colors blend nicely on the subject, bringing the "Pike" S077-07 to life.



2

Once the kit has been perfectly cleaned with water and soap and has dried completely, I apply a primer in 3 fine successive layers that I let dry half an hour each. Once complete, it is important to let the primer dry for at least 12 hours.



3

Let's start with our first working base color. I apply 2 layers of Heavy Chipping Effects (A.MIG-2011). Each layer dries 30 min.

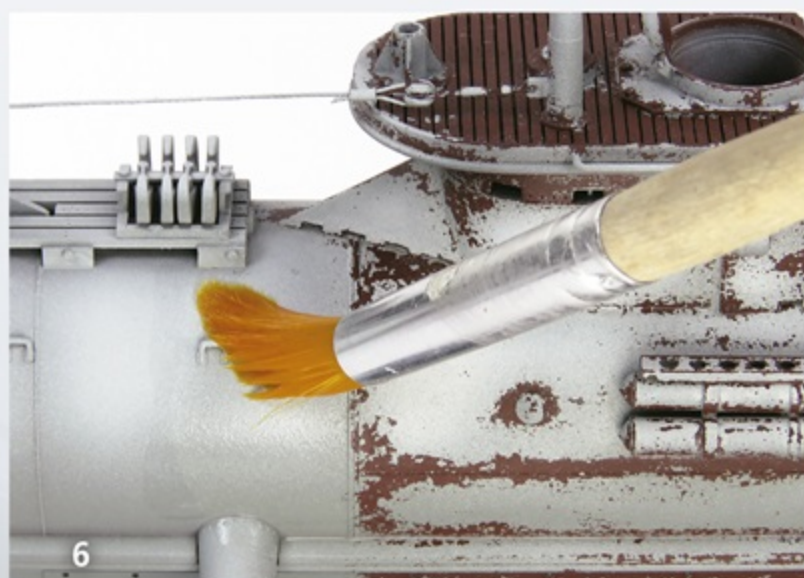


4

I then build the desired light with a quick cartographic distribution of the colors and the white paint. It is crucial to apply each step quickly one after the other so the scratches to come will be easier to create.

5

Then, I continue to work on my base color. I quickly airbrush the main color "Light Blue" with some variations, adding 15% "Blue". Very fine layers are thus applied starting on the "darkest" areas to finish with "very light" layer on all the upper surfaces of the submarine. Finally, we get a Blue finish which lightens progressively as it is airbrushed towards the top. In this example, it is 12, as the sun nearly reaches its zenith.



6

Once the base color is complete, we can start the chipping step. Progressively, I moisten small surfaces (panel after panel, between 2 seams, etc.) before starting to apply the chips.



7

The fact that I work on very small areas allows me to manage the whole process while keeping the intended final result in mind. It is now that we truly start to create effects that will define the final appearance.



8

This next step consists of working our light areas on the upper part of the submarine by softening the chips and creating both dirty and darker areas.



9

We should be totally conscious of our final goal while working with these chips. We must find the correct balance that will serve as our base for the next steps. I create quite stark contrasts for 3 reasons: maintaining the light source, making rust spots visible, and keeping a relative transparency between each layer.



10

I am quite happy with my working base, but I choose not to apply a layer of varnish: I want to keep some interaction between each of the successive layers of Chipping Fluid. Once the model is completely dry, I start masking the surface. The camouflage pattern was thought out and drawn beforehand which allows me to make masks instinctively and custom fit using "Masking Putty" A.MIG-8020.

11

The first surface to work with is chosen and masked. We now have a better view of the whole project, and before painting I check the positions and lengths of the masks for accuracy.



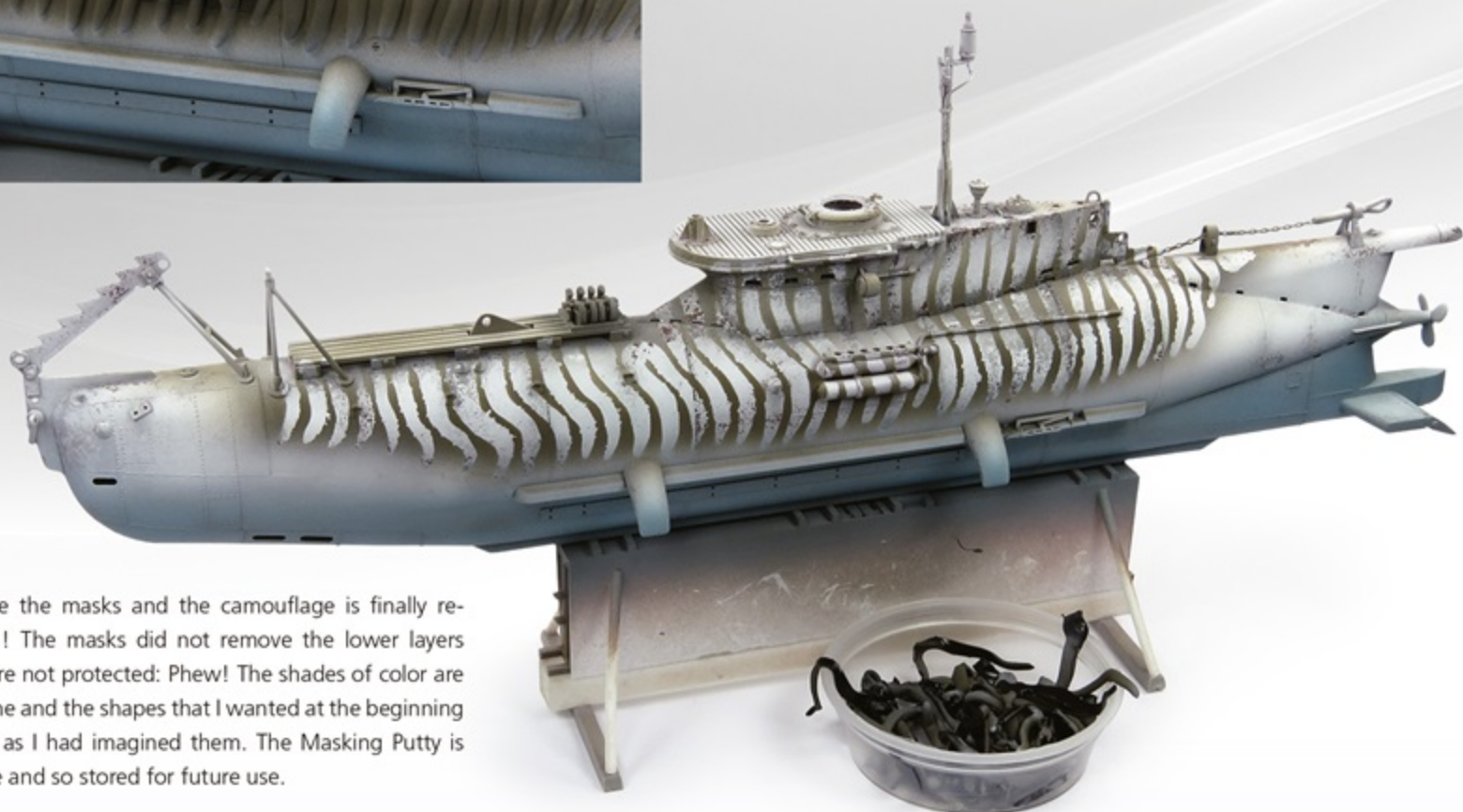
12

My model is left on a flat surface so that the Masking Putty has the time to conform correctly and perfectly to all the details and raised surfaces.





- 13 It is now time to start the camouflage. I airbrush 2 fine layers of Heavy Chipping Effects, A.MIG-2011. This is left to sit for 45 minutes, I then apply the main color "Khaki" which I progressively lighten up with "Matt White" for my highlighting effects.



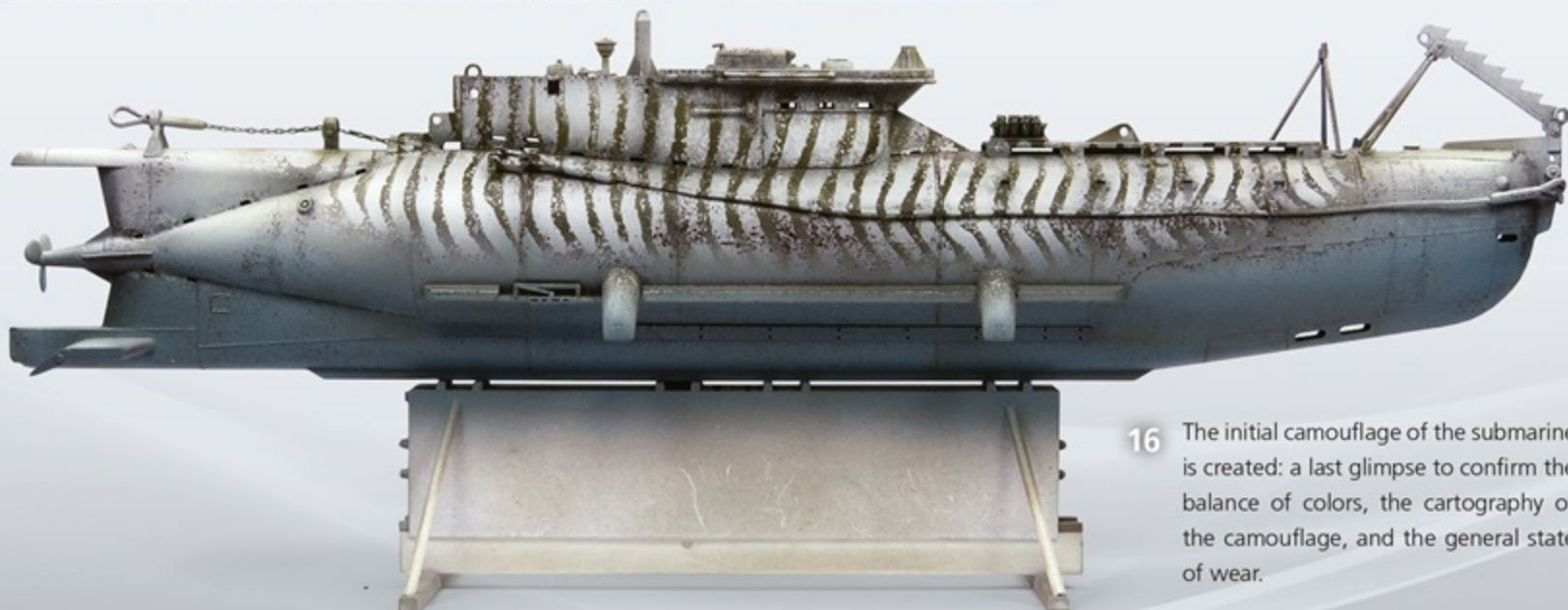
14

I remove the masks and the camouflage is finally revealed!!! The masks did not remove the lower layers that were not protected: Phew! The shades of color are well done and the shapes that I wanted at the beginning are just as I had imagined them. The Masking Putty is reusable and so stored for future use.



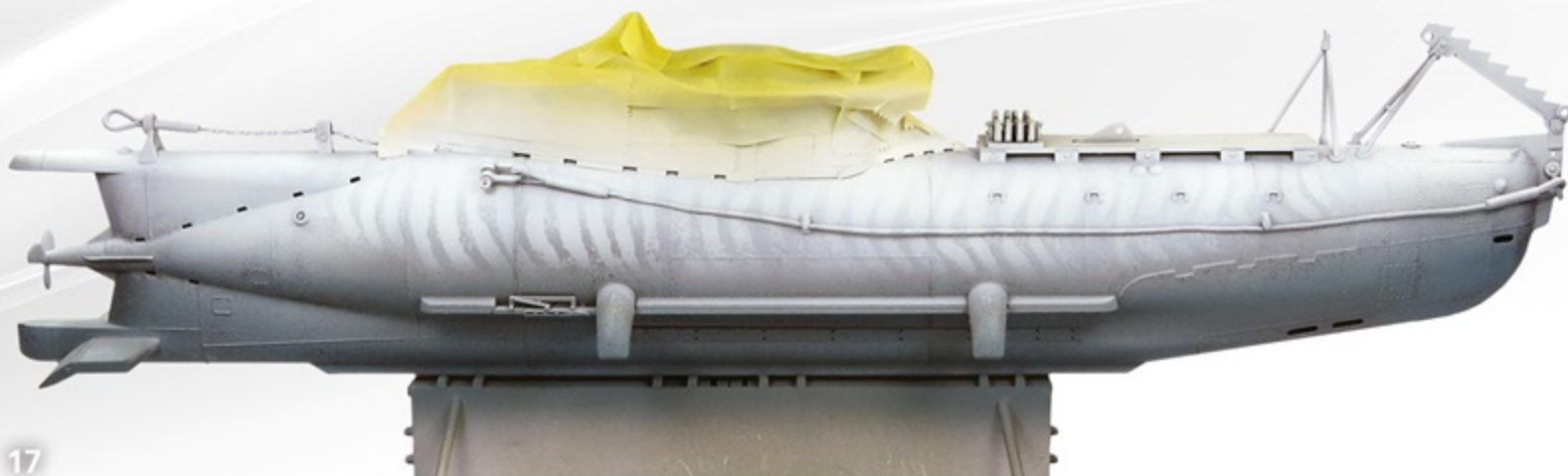
15

This picture allows us to assess both the transparency/intensity brought to each of the previous steps and the importance of the chipping process to come. I always keep the final result in mind.



16

The initial camouflage of the submarine is created: a last glimpse to confirm the balance of colors, the cartography of the camouflage, and the general state of wear.



Once the model is completely dry, I apply 2 layers of Chipping Fluid. I can now begin to paint the French colors for our submarine: Light Blue Matt for the lower area, Matt White for the upper half. Both colors are quickly sprayed and I will be able to start chipping the surface.



I scratched the whole surface of the submarine with the greatest of care. Now I must let the former camouflage show through as well as all the diversity of the details previously created. The goal is to show a more recently applied base color of prematurely worn paints... very subtly...



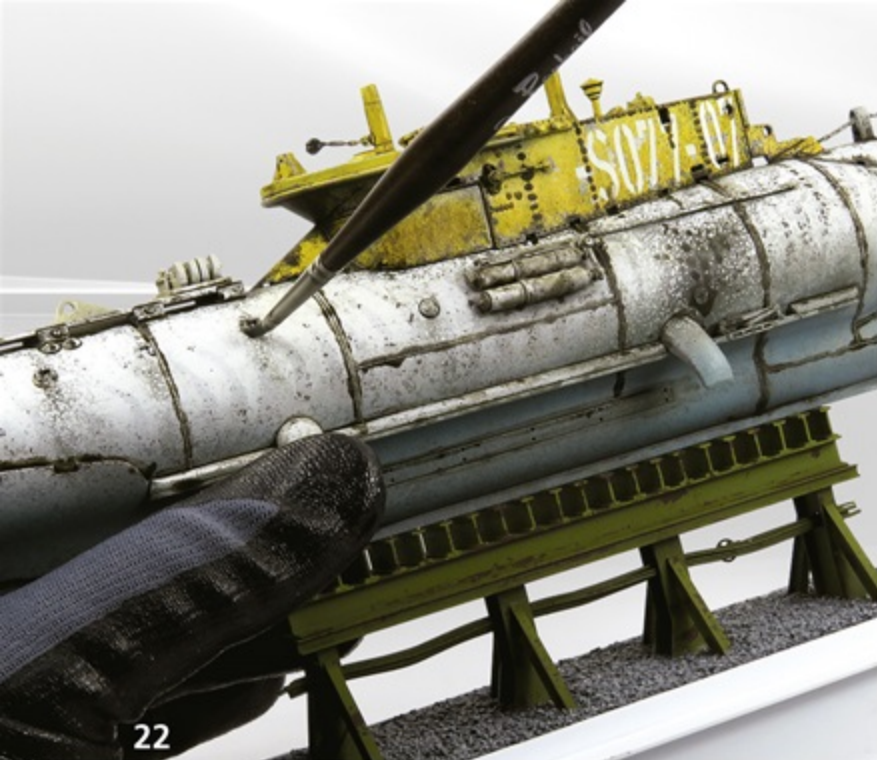
Once the previous steps had dried, I decided to draw 3 stripes on the front of the submarine. The idea is to emphasize the "dangerous" personality of the subject and our model. For this task I have used Tamiya masking tape.



First I apply 2 layers of Chipping Fluid and let it sit for 30 minutes, Matt Whit and Matt NATO Black. The masks are removed; the S077 slowly starts wearing its war paints. With the distinct Black and White completely contrasting with the rest of the hull, we have a dynamic and interesting canvas for weathering.



Planning the weathering begins by choosing the correct paints and the brushes. Here is my shortlist: in general, and during my weathering work, my paints are always thinned with odorless thinner. The paints that I chose and presented in this picture work perfect to apply, work with, and blend the enamels.



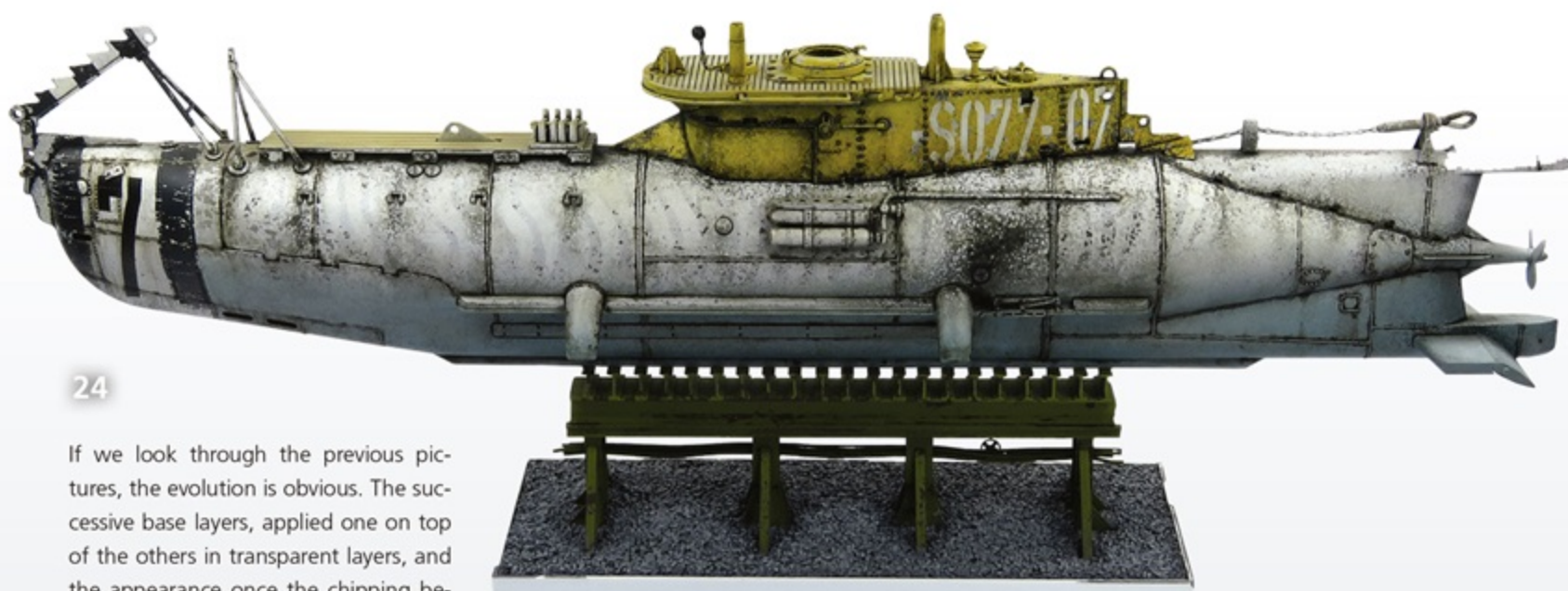
22

With a round and pointed brush, I apply the first layer of weathering. Thanks to capillary action, the Brown Wash for Green Vehicles A.MIG-1005 that I have applied enhances the details. This same color allows me to create dirty areas, mostly around the exhaust and other oily or greasy surfaces.



23

After 6 hours, I start removing the excess: the idea is to bring out the details. Little by little, the S077 comes to life, the details added during the assembly of the kit reveal their result and add a new dimension to my subject.



24

If we look through the previous pictures, the evolution is obvious. The successive base layers, applied one on top of the others in transparent layers, and the appearance once the chipping becomes visible. Once the wash had gathered around the details and the creases, and the access has been removed, a light brown filter is used to softened the stark contrast between each color.

25

The second step of the weathering process is to focus around the waterline, I work 2 layers of enamel colors to show the accumulation of algae and other "greenish" micro-organisms. The enamel colors Slimy Grime Light A.MIG-1411, and Slimy Grime Dark A.MIG-1410, are once more applied randomly around the details such as vents, rivets, accessories, and the seams of each panel.





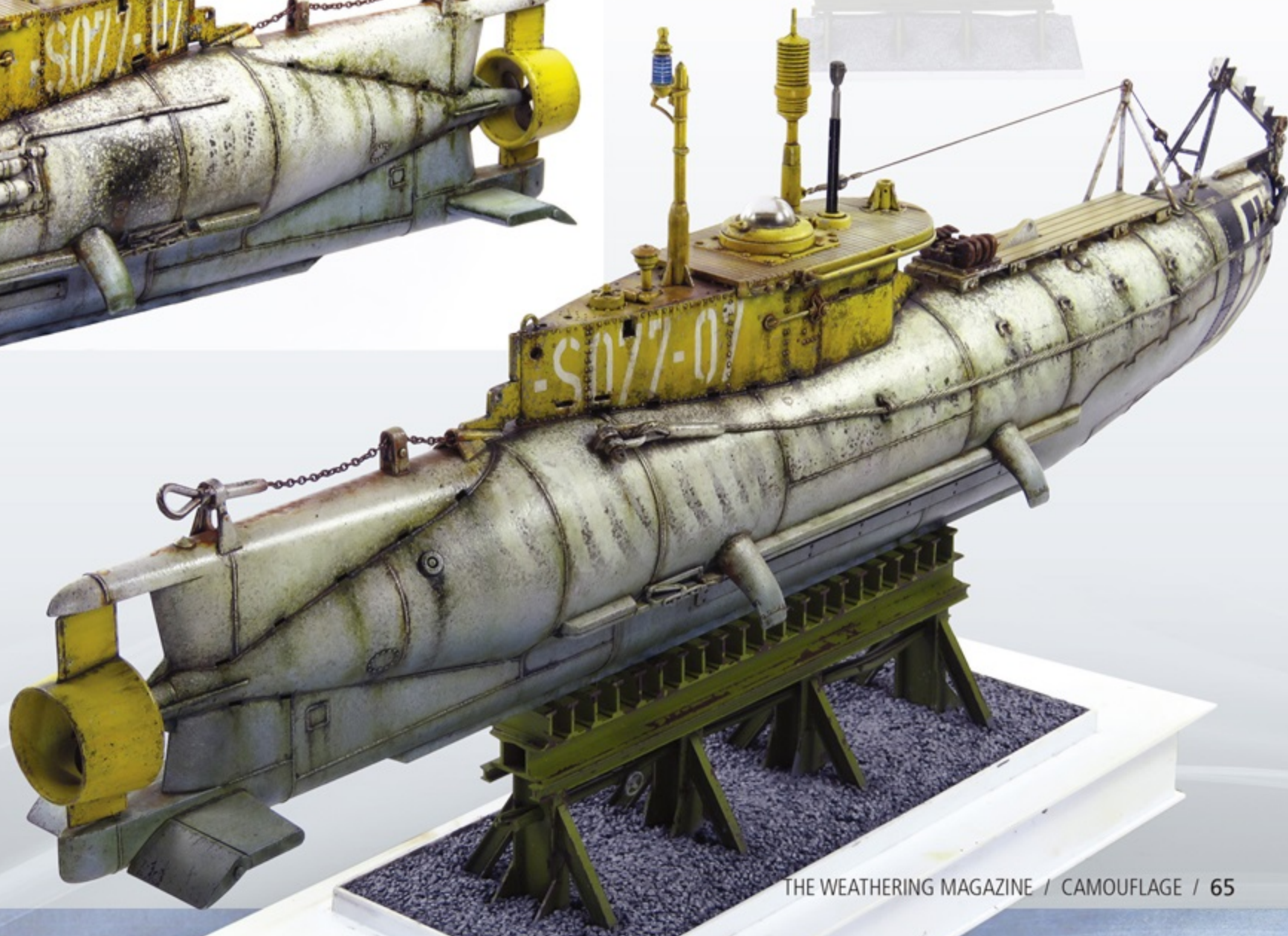
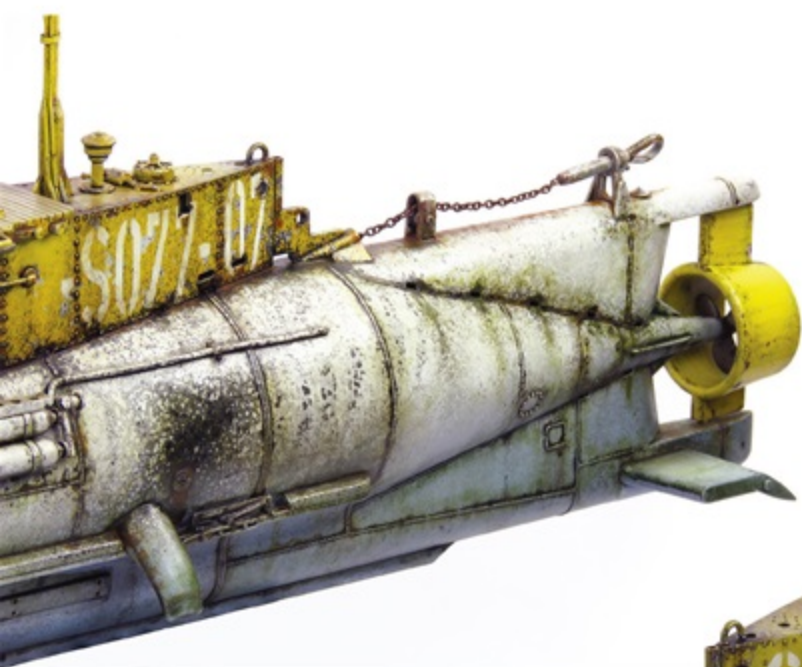
26

At this stage, I let the model dry for 6 hours. With a beveled brush dipped in enamel thinner, I start pulling my colors downward very slowly. I let the model dry half an hour and start the process again, spreading the excess around to realistically blend into the surface. This action is a way to create a very transparent green filter that adds to the last one – Brown Wash for Green Vehicles – which creates a chromatic unity overall.



27

I repeat the last weathering process, but this time I add a wash of Streaking Rust Effects A.MIG-1204. The gradations of rust on the S077 must be logical, so I focus the effect on the areas the most exposed to the work of the elements. I let the model dry for 6 hours, I then pull and blend the wash creating streaks and a very fine filter.



CAMOUFLAGE IN HISTORY



Daniele
Guglielmi



Mario
Pieri

The term "camouflage" is a widely known and familiar concept. For more than a century, it has been used in the military field and – more recently – in paramilitary and civilian environments as well. However, it was above all during the two World Wars and subsequent conflicts that camouflaging colours and practices were applied on a large scale, demonstrating their effectiveness in battle and beyond.

First of all, camouflage is defined as a technique for hiding men, vehicles, buildings, structures and more, making the object as invisible or undetectable by the enemy. Usually the result is obtained by blending the subject with the surrounding environment: earth, sand, snow, foliage, grass, rocks, sea, sky and so on.



French soldiers and wooden building with military camouflage, Western Front, France, 1917. Colour photo (Autochrome Lumière) by F. Cuville. (Galerie Bilderwel - Getty Images)

When discussing camouflage, we do acknowledge disguise, which is a slightly different concept, because it means deceiving the opponent through the concealment of their form, imitating the appearance of non-threatening object. For example, a truck with a wooden superstructure painted to appear to an enemy observer, as a tank (or vice versa) is a case of disguise. A military vehicle entirely painted in white to be almost invisible against a snow-covered terrain is instead a (simple) example of what is properly referred to as camouflage.

Camouflage is part of the protective equipment of a soldier or a combat vehicle. Therefore, it can be as important as a steel armour or any other additional protection including electronic countermeasure. The result is usually achieved with special paintwork and materials, with both specifically designed or sourced in the field, including netting, branches, tarpaulins.

Until the end of the XIX century and earlier, usually ground battles were carried out by men dressed in colourful uniforms, often in a deliberately striking fashion. In fact, due to the absence of any effective means of communication (beyond flags and possibly sound, light or smoke signals, all of them effective only at short and medium distances), it was necessary to be able to identify which force a soldier or a unit belonged to at a glance. The introduction of firearms improved the offensive capability of the contenders, but also worsened the operational cohesion on the battlefield as the gunpowder generated smoke, which contributed to limit even further the already reduced visibility due to dust.

It is believed that the first regulatory camouflage colour for uniforms was a dull yellowish brown, still widely used in different shades: khaki. This word has a Persian Urdu origin meaning dust or dusty. In the middle of the XIX century, British colonial troops stationed in the territory of Pakistan, given the extreme conditions in which they had to operate, decided to replace their regulation uniform with lighter cotton garments. It was not white, but yellowish-coloured, the result of produced using a natural dye. The camouflage effect was considered interesting and useful, although it was not officially adopted for troops until some years later.



Dummy tanks made by a superstructure mounted on trucks. Western Desert, 13 February 1942. The disguise is not strictly part of the camouflage techniques. (IWM E8361)

The need to be less visible became more urgent at first upon the arrival of smokeless black powder, followed by the introduction of ever more efficient and advanced optical devices. The threat of observation from the air was a serious threat, as well as the introduction of aerial photography, even if the speed of radio communication had not yet been implemented or appeared only in a very rudimentary form.

Based on these considerations, and thanks to the experiences acquired in several conflicts between the XIX and XX centuries, most of the armed forces which faced one another at the outbreak of First World War, did so wearing uniforms either camouflaged or at least deliberately inconspicuous. Similar in concept to the previously mentioned khaki for British and American, the feldgrau (field grey) for Germans and the grigioverde (grey-green) for Italians also appeared. In contrast, in 1914 the uniform for active service of French soldiers stationed in Europe was still a jacket

and a greatcoat of iron blue, with red trousers. Within a few months of combat, the troops had resigned themselves to face static trench warfare. At this point the French War Ministry rushed to adapt by adopting a light bluish gray uniform called blue clair or blue horizon. Clearly seeing positive results, by mid-1915 they were the first to assign a detachment of personnel to the design and implementation of camouflages and disguises: the camoufleurs.

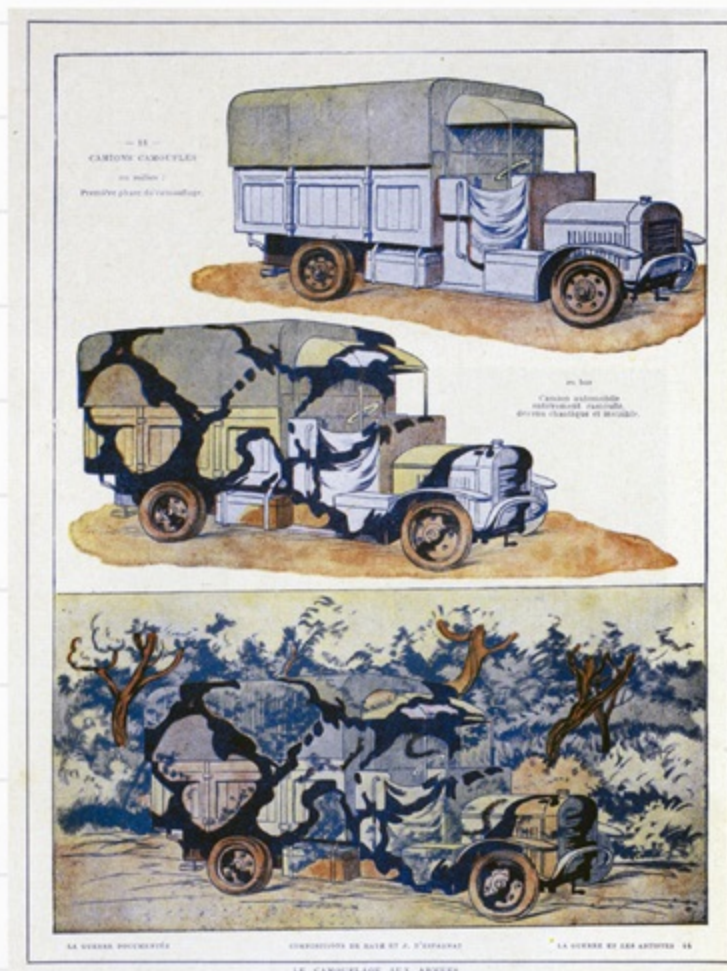
With the progression of the Great War, the armed forces studied the possibility of using "mottled" camouflaged cloths for their soldiers, but the concept never came to be standardized. Almost certainly the first fabric of this kind officially adopted on a large scale was the Telo Tenda Mimetico modello 1929 (camouflaged tent canvas model 1929) that the Royal Italian Army used from the late twenties until almost the present day, and was produced with many variations appropriate to different environments. It was a reversible waterproof square canvas of 1.85 meters each side. On one side, rounded irregular patches were printed in rust red, rotten green, and ochre yellow. On the reverse side, there was a single "umber" colour. It could be used as a tarp tent, poncho, sleeping bag, emergency stretcher, and simple coverage. During WWII, the cloth was also used to wrap the jump gear of Italian paratroopers, while at the same time the Germans and the British among others, were using camouflaged suites.

Initial experiences in the field demonstrated that the use of coloured strips or patches had a dual result: not only was the subject mingled with the surrounding environment (earth, vegetation, and season) but there was also a disruptive effect, making it increasingly difficult for an observer to understand the shape of the camouflaged objective and calculate its distance.



Traditional and khaki British uniforms of the late XIX century.

Let's go back to the Great War. When the tank made its initial appearance on the battlefield in September 1916, camouflages had already been applied to buildings, structures, and military equipment, as well both ships and aeroplanes. At that time, the only existing ironclad battlefield vehicles were armoured cars, who performed the task of patrolling and exploration on and off road, as well as infiltration behind enemy lines or into no man's land, and had been employed to recover downed pilots. Although not operating at the forefront, they could be painted in multicoloured patterns to blend with the terrain. Thanks to the studies of Lieutenant Colonel Solomon (which we will discuss shortly), many tanks would also receive camouflage patterns to make them less visible to enemy artillery gunners, countering their devastating effect on the battlefield. It is worth noting the factory colour of some of the first combat tank examples was a light grey which originated with the Royal Navy, which would later be changed to a monochrome medium brown.



Camouflage techniques during and after the Great War were illustrated, particularly in France, by artists including famous artists. In the issue 49 de La guerre documentée a table shows (from top to bottom), a lorry with the original army colour, camouflaged with colours and disruptive forms to conceal its outline, finally inserted in green surroundings with which it blends.



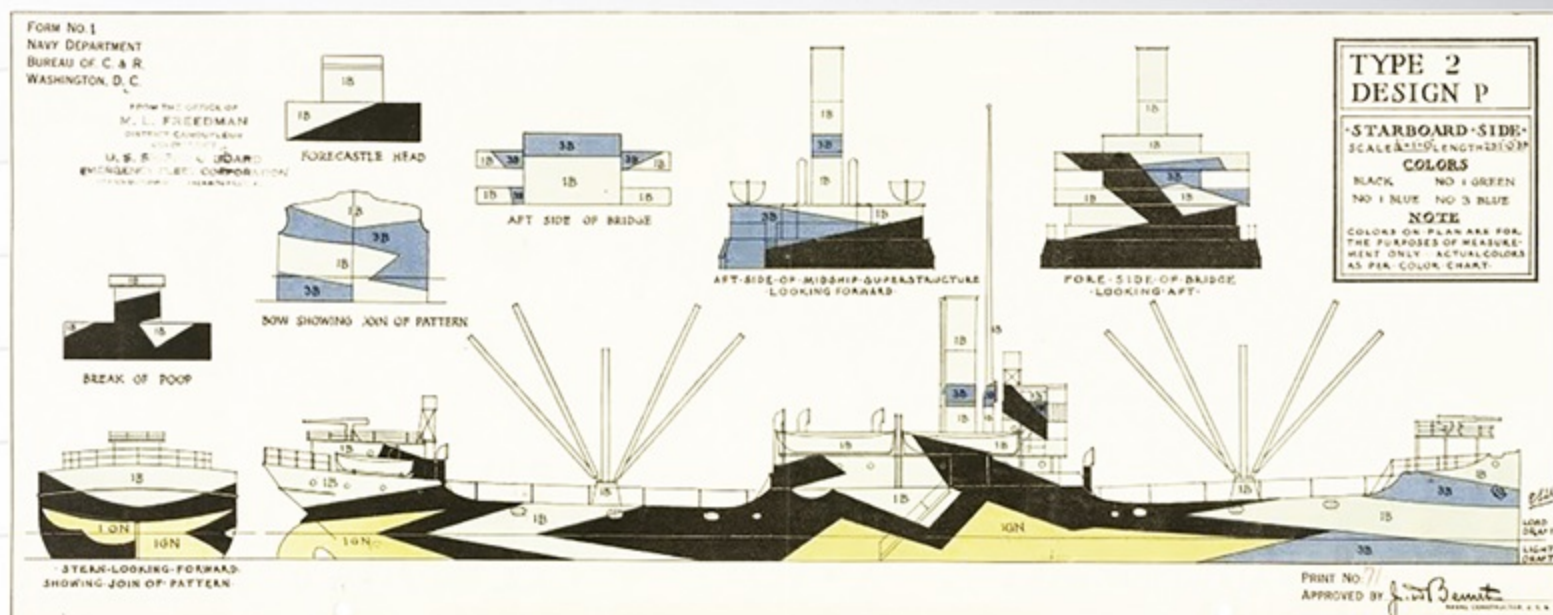
First World War. A camouflaged Rolls-Royce armoured car on the Western Front.

One term employed to initially define the tank was Landship. And even "actual" ships eventually had to adapt their colours during the First World War, to escape detection by optical instruments mounted on boats, and above all, a new deadly weapon: the submarine. Painting the hull and superstructure light grey or blue-grey, a practice adopted for centuries, was no longer enough. Battlefield technology enabled an enemy to calculate size and route of the target ships and sink them with long-range guns and torpedoes. Different solutions were tested including to disguise a warship as a merchant vessel. If not the most effective, the most original system was the so-called "razzle-dazzle" or simply "dazzle camouflage" adopted first by the Royal Navy. This innovation consisted of very defined patterns composed of stripes and broken lines or polygons, in both black and white, and multicolour. The objective was to confuse the observers aboard enemy vessels, they could detect the target but they were not able to determine its shape, the position of its bow, or its general dimensions.

Consequently, they would be unable to define route and speed, making it difficult to set the launch trajectory of the torpedoes or the calculation of gunfire. We cannot say with clarity the real effectiveness of dazzle camo, however, it did remain in use until WWII. The next major adaptation would result from another battlefield innovation, a new range finding system based on electromagnetic waves which would become known as radar. The effectiveness of this technology made virtually all optical systems used by Navies and Air Forces obsolete.



This is considered the first photograph of a tank ready to go into action, on 15 September 1916 at the Battle of Flers-Courcelette, although it is more likely that it was taken at the Elveden training ground. The Mark I portrayed here has camouflage in several colours, likely one of the Solomon experimental schemes. (IWM Q 248)



An example of polychrome dazzle camouflage. (US Navy Department, Bureau of Construction and Repair, 1918-1919 - Fleet Library, Rhode Island School of Design)

In regards to aviation, the aeroplanes debut in military operations dates back to the Italo-Turkish War of 1911. At that time, the aircraft had essentially a wooden structure with few metal parts and were typically covered in fabric (usually linen or raw silk). The natural light colour of the tissue was incidentally very suitable for use in the North African territory, but unlikely that the Italians in Libya did not even question their visibility because their opponents were not equipped with an air force. The issue of camouflage however, became clear a few years later when aircraft were introduced to the Great War. Aeroplanes of different nationalities dualed each other in a new areal arena, and when on the ground, they became targets of the enemies reconnaissance.

In this new combat environment, the main issue to be resolved was the fact that each aircraft could be observed both from below (from the ground) and from above (if parked or in flight at a lower level with respect to the observer). The solution was to paint the underside with light blue or light grey colour to blend with the surrounding sky when observed from below, and to camouflage the upper surfaces using striped or spot-

ted patterns of earth colours such as green, ochre, and brown tones. As mentioned above, the French were the first to study the implications of camouflage and to implement such a solution on planes, closely followed by the other contenders. There were of course exceptions, such is the case with some night bombers which were painted black.

The Germans followed suit but chose a less conventional way which was in some respects, similar to naval dazzle camo in its intended effect. In fact as early as 1916, Germany began to dress their aeroplanes with a scheme composed small multicoloured polygons which would later be named Lozenge Tarnung (lozenge camouflage). Thanks to an optical effect, it was believed that the aircraft could be conceal effectively in multiple environments. The patterns were typically composed of 4 or 5 colours to correspond with multiple backgrounds such as grass, earth, sea, and sky. It should be noted that normally the polygon patterns were not painted on because of the time required and weight added to the aircraft, instead printed canvases were used.



A German plane with Lozenge Tarnung (lozenge camouflage) captured by the Allies in France in 1917. (National Library of Scotland Digital Archive)

Previously, we mentioned Solomon J. Solomon, one of the most renowned experts on camouflage techniques during the First World War. Originally a painter, he was regimented in the British Army. After inspections at the front and considering the experiences of the French, he formulated the basic principles for a multi-tonal camouflage colouring for tanks. He performed preliminary tests on scale models and real vehicles, managing to create various patterns, painting them in person. In 1920, he published the most comprehensive text to date on the subject entitled: Strategic Camouflage. Although by the end of war, all countries had reduced the resources allocated to the war effort, many military manuals and magazines on the subject continued to be published, while studies and theories about camouflage (and disguise) continued to flourish.

However, practical applications in the post-war period were limited, except for the masking of structures, buildings, and of warships. Despite the radical, comprehensive, and often innovative reorganization of the German armed forces in the thirties, they had given limited weight to the issue. Their revolutionary doctrines were the basis of *Bewegungskrieg* (manoeuvre warfare) which established the use of faster armoured forces in cooperation with air superiority. Perhaps this is why visibility to the enemy was not initially a primary consideration, as the often overwhelming tactic often left an adversary with no time to reconnoitre and report. In effect, initially tanks and other land vehicles of the Heer (Army) were painted in dark colours (above all the famous grey *Dunkelgrau*), which was suitable to hide them in shaded parts of buildings and under vegetation.

The outbreak of WWII forced once again, the same considerations of the Great War regarding the colours and patterns used. Perhaps the most significant difference was the vast variety of fronts and theatres of war

in which air, land, and sea vehicles would operate. Many camouflage schemes were used which were handcrafted and that as a general rule, did not have a specific name. Only after the end of war and for classification purpose, the Allied forces attributed names to the most well-known and commonly used patterns. "Ambush camouflage" was then known as a type of polychrome colouration that the Germans applied from the end of 1944 to some of their armoured vehicles and whose official term was *Licht-und-Schatten Tarnung* (light and shadow camo). Staying on the terrestrial sphere, the British produced a camouflage referred to as "Mickey Mouse ears" which was applied to wheeled vehicles. The pattern consisted of large roundish black areas – which resembled the Disney character's ears, which was applied over a yellow sand base. Another example which is also of British origin, was referred to as "Caunter scheme", named for its creator, Colonel Caunter. The pattern was also used in desert areas in 1940 and 1941. This method was based on three colours (sometimes even a higher number) laid in broad diagonal stripes, the concept and intention is similar to that of the Dazzle pattern.



Two Pz.Kpfw. IV Ausf. F tanks near a captured Universal Carrier Mk.I painted in a Caunter camouflage scheme.

The Second World War saw the massive use of aviation by all participants. The aircraft camouflaging technique known as "countershading" became common and consisted of painting a subject with the same base colour, darker on the upper surfaces and lighter tones on the lower with a soft transition between the two (and possibly introducing a third intermediate colour). The light source (the sun) is placed high, therefore it directly illuminates the top surface making it appear bright and clear, while for the lower shady surface the opposite is true. The result is a kind of gradual blending between the "upper" and "lower" surfaces of the subject, which appears low in contrast and is easily confused with the background from multiple perspectives.



Two Grumman F6F-3 Hellcat fighters in a three-colour countershading camouflage: sea blue, intermediate blue, and insignia white. (US Navy National Museum of Naval Aviation)

In the post-war years, the advent of new and deadly armaments such as intercontinental missiles and nuclear weapons, did not cancel the studies of or the need for camouflage. A relevant example is the mid-1970s creation of the XX century, a system including several "standard" camouflage patterns for military vehicles, whose author was the US Army Mobility Equipment Research & Development Command and for this reason was named MERDC.

One of the most radical examples regarding the modern evolution of the camouflage concept appeared in the eighties in the form of stealth technology. In the military sphere, this term indicates something hardly detectable by the enemy thanks to the adoption of specific countermeasures, mainly based on high technology. This is often the combination of paints designed to absorb radar emissions, electronic countermeasure devices, limited thermal signature, special outer shapes, among other considerations.

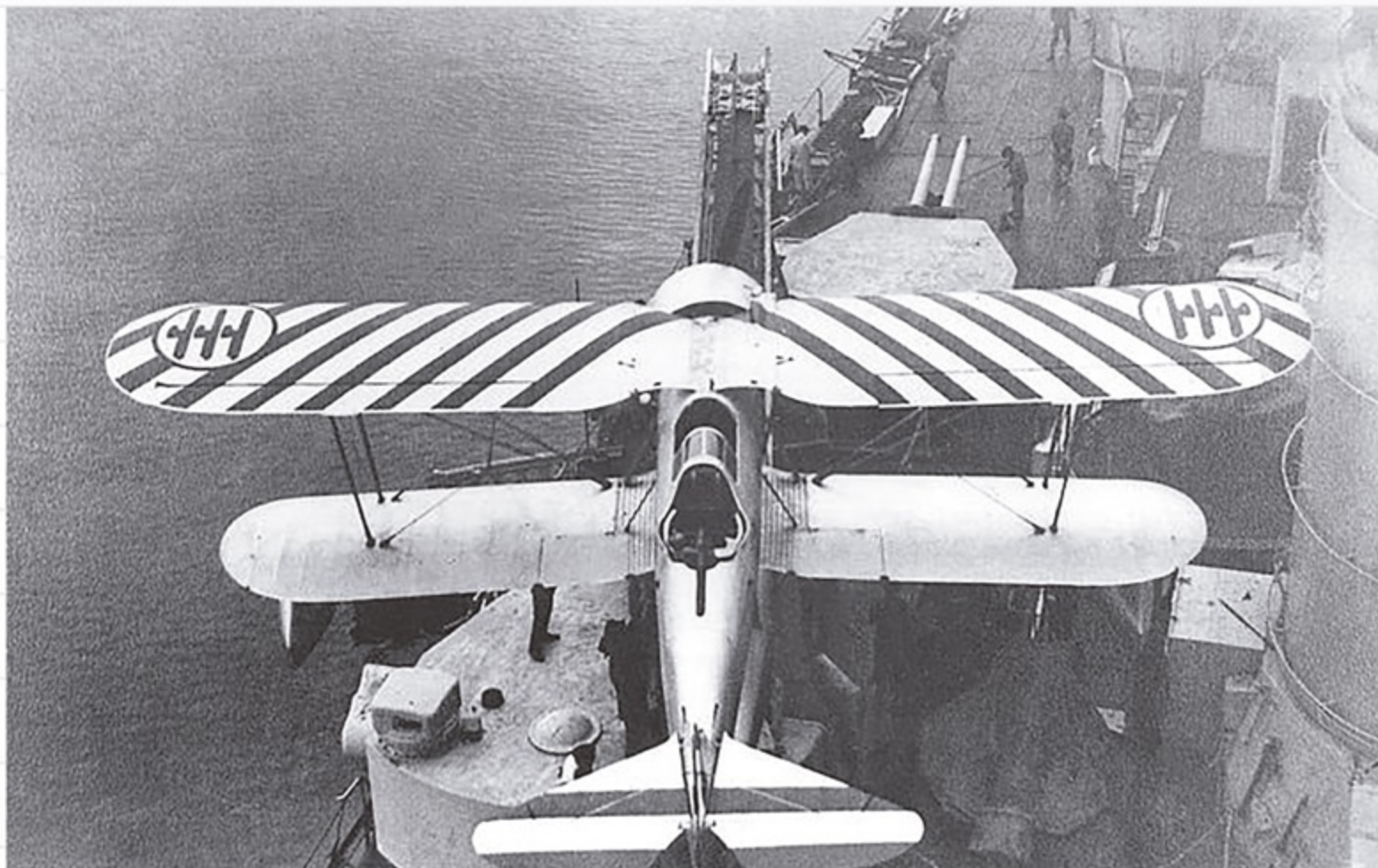
In recent years, we have seen the spread of digital camo, tested for the first time in Canada and the USA (CADPAT and MARPAT) at the end of the nineties. The term initially identified the camouflage pattern drawn with the aid of computers, but now it is commonly used in reference to colouring composed of many small pixels which are indistinguishable from a short distance. The pattern appears to merge into a single loosely defined shape (camouflage patch) which appears vague and the human eye cannot easily or precisely identify the outlines or distances of the object.



A modern digital camouflage type MDU-3 of Serbian Armed Forces. (Boris Dimitrov)

Arriving to the present day, some are experimenting with solutions based on the concept of active thermal camouflage, able to limit the detection by infrared equipment. Currently it is not possible to prevent or completely screen heat emissions by soldiers and vehicles, so these technical solutions aim to change the shape of the thermal footprint to deceive the enemy. The best known is the ADAPTIV technology developed by a Swedish company. It is based on the use of hexagonal tiles – whose dimensions vary depending on the vehicle (tank, ship, etc.) and the role – able to change its temperature to create a fictitious thermal image of the subject making it look like another.

Finally, a special case concerns anti-mimetic camouflages, meaning that the subject shall be clearly visible and distinguishable. To give some examples: emergency vehicles; training aircraft; vehicles forming part of an international coalition force (such as those of the United Nations), as well as vehicles belonging to neutral countries who want to identify and distinguish themselves from the combatants.



An Italian Ro.43 reconnaissance aircraft exposes well visible anti-mimetic strips to avoid the identification as belligerent country at the beginning of WWII.

Two kinds of Italian modern camo uniforms, one lighter than the other; both are based on the pixel scheme.



An example of modern digital camouflage, shown here painted on a Chinese ZLT05 amphibious assault gun. Such complicated schemes are derived from sophisticated computer software and extensive research and testing. (Kevin Frayer / Getty Images)



Two Italian Lince light armoured vehicles show desert and winter camouflage obtained with special cloths, which is also useful in decreasing a thermal signature



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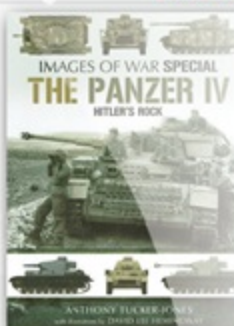
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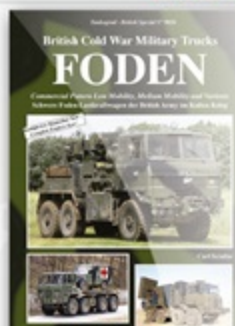
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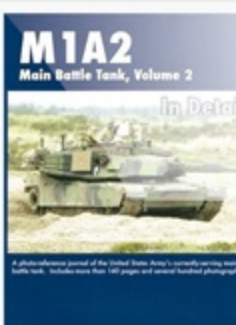
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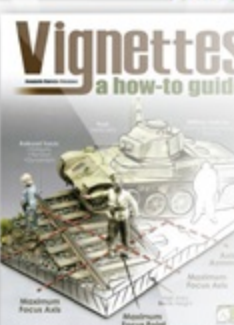
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IN THE NEXT ISSUE...

By Sergiusz Pęczek

FADED

In the next issue, we will show you several ways to obtain the very desirable and highly realistic effect of faded paint. This is a weathering effect that occurs after an object has had prolonged exposure to sunlight, this extremely picturesque effect is used by modelers of all subjects. Faded pale colors, with numerous discolorations and different tones, can bring even the most monotonous surfaces to life. Because the faded paint is also lighter than the original color, the light surfaces are much easier work with when building contrasts and

creating various effects. What is perhaps the most beneficial when working with faded base colors is that even the simplest technique of panel highlighting and adding some light passes with an airbrush gives our work a real dose of realism. We will show you several ways to get convincing results using a variety of techniques, paints, and tools. So, we will see you in the next issue of The Weathering Magazine - where the saying „fade away” will gain a positive meaning!



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