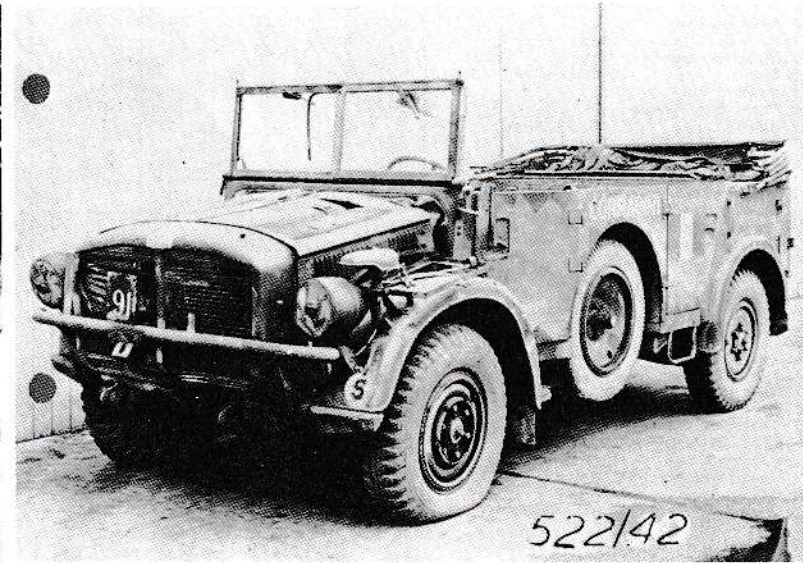


HORCH 4x4 TYPE 1a



1/35 MILITARY MINIATURE SERIES



SCHWERER EINHEITS PKW A.U. HORCH TYPES 1a and 1b
As the Reichswehr of the 1920s was very much limited both in size and scope by the terms of the Versailles Treaty, and as the economic situation did not, in any case, allow lavish spending on equipment, most of the transport needs of the army were met by using adapted commercial vehicles. Most widely used of all vehicle types, because they were cheap and very mobile, were personnel carriers based on commercial car chassis fitted with a simple open body of the type known as the Kubelsitzer (literally "bucket-seater"). This type of vehicle, as the name implies, consisted of little more than the chassis and normal front end, as in the normal motor-car, with sturdy metal-backed seats secured to the chassis frames. Folding canvas screens took the place of doors, and there was a canvas cover, as in a sports car, to be erected in foul weather. Though cross-country performance was very limited, the style of the vehicle was something of a trend-setter and small utility personnel carriers have since become common equipment in all armies.

To improve on cross-country ability, these early "Kubelwagens" had large section tyres, strengthened springs, and lower axle ratios than their commercial equivalents. During the 1930s, this type of vehicle saw ever wider use with the German army and was one of its most characteristic and distinctive types. These "Kubelwagens" were used as light gun tractors, staff cars, radio cars, command cars, artillery survey vehicles, and signal line layers, as well as serving as personnel carriers for motorised units. Trials held in 1930 had established that the car chassis made by Daimler-Benz, Adler and Wanderer were the best, and these makes predominated in service.

From 1933, when the National Socialists took power and began overt re-arming of the German forces, there was an expansion on an increasing scale with mechanisation of the greatly enlarged army among priority schemes. At that time the various cars on adapted commercial chassis were categorised as follows:

Leichte Personenkraftwagen (light passenger car) approved make up to 1500cc engine capacity.

Mittlerer Personenkraftwagen (medium passenger car) approved make up to 3,000cc engine capacity.

Schwerer Personenkraftwagen (heavy passenger car) approved make with over 3,000cc engine capacity.

The light passenger car types were each given a designation according to their intended purpose. Thus Kfz (Kraftfahrzeug) 1 was the designation for the basic light personnel carrier; Kfz 2 designated a light signals car (Kraftfahrzeug; motor vehicle). The medium vehicles were designated similarly from Kfz 11 upwards according to function. In the heavy class only the Kfz 21 heavy cross-country personnel carrier was produced, as this was the last type to be approved and ordered. It entered service in 1937 and was based on the Auto-Union/Horch EFm chassis, remaining in production until 1940 (after Austria was annexed, the Steyr 1500A was also built to this "heavy" requirement, however, also designated Kfz 21). The Auto-Union/Horch EFm model had a V-8 80 hp engine and four-wheel drive. Because of its length it had three rows of two seats, seating six men in all. Spare wheels were carried on the side panels flanking the first and second rows of seats. The ordinary commercial tourer car on which the military "Kubelwagen" model was based, was also taken into military service as

a senior officers' staff car. The Kfz 21 was described in German as the "Schwerer gelandegänger personenkraftwagen (6-sitzer)" — heavy cross-country passenger car (6 seater). It had the normal sort of open Kubelsitzer body and a folding canvas top. Overall length was 15 ft 11 inches.

The 'Einheits' Programme

One of the problems presented by the original policy of purchasing commercially-based vehicles was the vast diversity of makes taken on to the inventory, and the associated maintenance and spares supply problem. Different makes of engine, transmission, chassis, and so on meant that the stock of spares needed was immense. Thus, once the big re-arming programme got under way, it was decided in 1934 to replace the range of commercially-based chassis with a new range of standardised chassis types. It was intended that the three classes of field car, light, medium and heavy, would have many parts in common, including suspension units, and that the light and heavy cars would have steerable wheels at the front and back, and would have four-wheel drive. This proved to be too ambitious an ideal, even from the start, for the cost and time factor involved in developing such a sophisticated series of vehicles was immense. Only the early vehicles had rear wheel steering, and this requirement was dropped in 1940 to simplify production.

Auto-Union/Horch were the main builders of both the medium and heavy passenger cars in the Einheits programme (einheitsfähiggestellt: standard motor chassis). The Auto-Union/Horch Chassis I for heavy passenger cars (schwerer personenkraftwagen) was produced in 1935. As part of the overall plan it was intended to use this chassis with a rear-mounted engine for armoured cars and with a front-mounted engine for passenger cars. The original chassis with steerable wheels front and back was designated 1a, and the later production chassis (from 1939-40) was designated 1b. The chassis featured four-wheel drive. There was a torque converter with a limited differential action to prevent winding-up in the transmission. The front axle was driven directly from the main gearbox, which included a third differential. There were five forward gear ratios, one reverse, and an auxiliary low gear for cross-country work. There was a self-locking differential on the rear axle with a normal differential at the front, this arrangement ensuring that all wheels received driving power no matter what the nature of the terrain. There was fully independent suspension, each wheel having two radius arms sprung by two coil springs between the power radius arm and a bracket on the chassis frame. Shock absorbers were incorporated into the suspension to prevent damage to the steering arms. The four-wheel steering facility proved to be unsatisfactory in the long term. The rear wheel steering was optional, controlled by a dog-clutch operated by a lever from the driving position. Using four-wheel steering and driving fast, the vehicle was found to slew sideways; thus it was not popular and after some experience four-wheel steering was forbidden altogether at speeds over 13 mph. This limitation made the whole facility of such slight value that it was dropped entirely from the 1940-onward production chassis. All initial heavy passenger car chassis production under the Einheits programme was diverted to armoured car manufacture since this was the priority requirement —

medium passenger car chassis were used to supply field car requirements in the meantime. The armoured cars produced with this heavy chassis were the Sd Kfz 221, 222 and 223 Series, all with the rear-mounted engine. The heavy passenger car had the same chassis but with the front-mounted engine, known as chassis II.

Field car production with this chassis started late in 1938. Externally all Auto-Union/Horch heavy cars looked alike irrespective of actual chassis model, however. By 1940 the chassis had been simplified considerably, and the Berlin Ford factory was also by then engaged in production. Ford-built vehicles had a Ford 3.6 litre V-8 78 hp engine in place of the Horch unit. The late 1940 models lacked recesses in the body and chassis-mounted support arms for spare wheels. Production ceased in 1941 in favour of a new scheme under the Schell-Programm which sought to rationalise car production completely. In this scheme the heavy car shared the chassis of the 1.5 ton light truck. Auto-Union/Horch heavy cars remained in service throughout World War 2, however, and were among the most common of German vehicles on every front. The Auto-Union/Horch on the heavy passenger car chassis was used in several roles, and though the layout of the open body followed the old Kubelsitzer idea, all but the very earliest had the added refinement of metal side doors rather than canvas side screens.

The following were among the types based on this chassis: Fernsprechkraftwagen (Kfz 23) Telephone Truck. Leichter Scheinwerferkraftwagen I (Kfz 83) Light Searchlight Truck I. Leichter Scheinwerferkraftwagen II (Kfz 83) Light Searchlight Truck II. Protzkräftwagen (Kfz 59) Limber (or towing) Vehicle for Light Guns. Mannschaftskraftwagen (Kfz 70): Reconnaissance Car (or Weapons Carrier). Leichter Flakkräftwagen (Kfz 81): Light AA Vehicle (some with 2 cm Flak Gun mounted).

All the above had the open body but differed in function and, in some cases, internal stowage and equipment.

In addition, the following were built on the chassis:

Sanitätskraftwagen (Kfz 31): Ambulance. Verstärkerkraftwagen (Kfz 24): Maintenance Truck. Both of these had a closed van-type body.

TYPICAL DATE:

Length overall:	4850 mm
Width overall:	2000 mm
Height overall:	2040 mm
Ground Clearance:	250 mm
Track:	1645 mm
Wheelbase:	3000 mm
Fording depth:	550 mm
Gross Weight:	4800 KGs
Net Weight:	3600 KGs
Payload:	1200 KGs
Engine:	6 men, including driver.
Seating:	Auto-Union/Horch V-8, 3,823 cc of 81 bhp at 3,600 rpm
Fuel:	120 Litres
Range — Road:	400 km.
Cross Country:	300 km.

Story by Chris Ellis

PARTS

A PARTS

1. Wire Rope Parts
2. Seat Stays (Left)
3. Seat Stays (Right)
4. Sub Fuel Tank
5. Chassis
6. Front Seats B
7. Front Seats A
8. Fuel Tank
9. Width Identification Lights
10. Rear Bumper
11. Direction Indicator (Left)
12. Direction Indicator (Right)
13. Shovel
14. Muffler A
15. Muffler B
16. Front Sub Bumper
17. Bonnet
18. Front Panel
19. Bonnet Side Panel (Left)
20. Bonnet Side Panel (Right)
21. Front Bumper
22. Instrumentation Panel
23. Black Light
24. Figure (Right Arm)
25. Figure (Upper Half)
26. Figure (Lower Half)
27. Helmet
28. Figure (Left Arm)
29. Front Grille

B PARTS

1. Tyres (Inside)
2. Tyres A
3. Tyres B
4. Front Tie Rod
5. Rear Hooks B
6. Rear Differential
7. Rear Tie Rod
8. Tool Container
9. Front Differential
10. Battery Case
11. Tool Box
12. Rear Hook A
13. Coil Springs
14. Lower Arms
15. Brake Drums
16. Drums
17. Step Right
18. Step Left
19. Front Upper Arms
20. Rear Upper Arms
21. Front Hooks

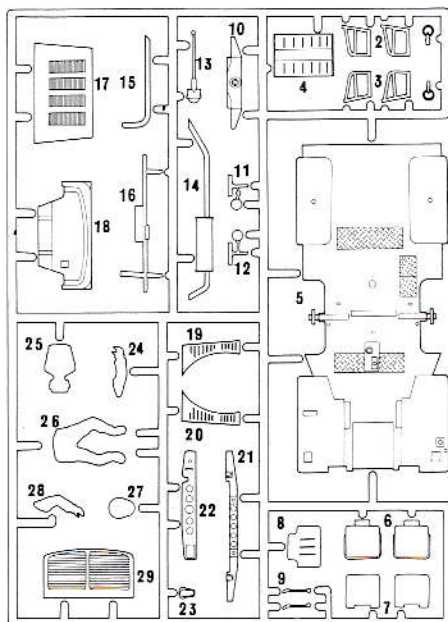
C PARTS

1. Body Side Panel (Right)
2. Front Door (Right)
3. Headlights A
4. Headlights B
5. MG Stay
6. Rear Door (Left)
7. Rear Door (Right)
8. Rear Panel
9. Hood Stay A (Right)
10. Hood Stay A (Left)
11. Hood B
12. Windscreen with Hood
13. Body Side Panel (Left)
14. Front Door (Left)
15. MG 34
16. Seat Back Rest
17. Plate
18. Mud Flaps
19. Hood Stay B (Right)
20. Hood Stay B (Left)
21. Hood A
22. Seat Back Rest B
23. Drum Magazine
24. Horn
25. Steering Shaft
26. Rear Seats
27. Steering Wheel
28. Transfer Lever
29. Shift Lever
30. Side Brake

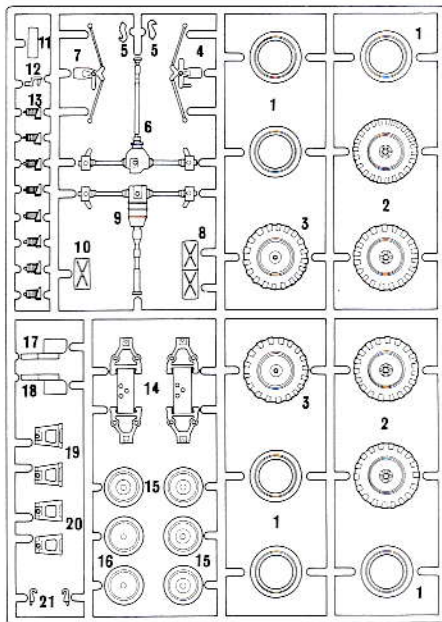
Transparent PARTS

1. Side Window (Left)
2. Side Window (Right)
3. Windscreen

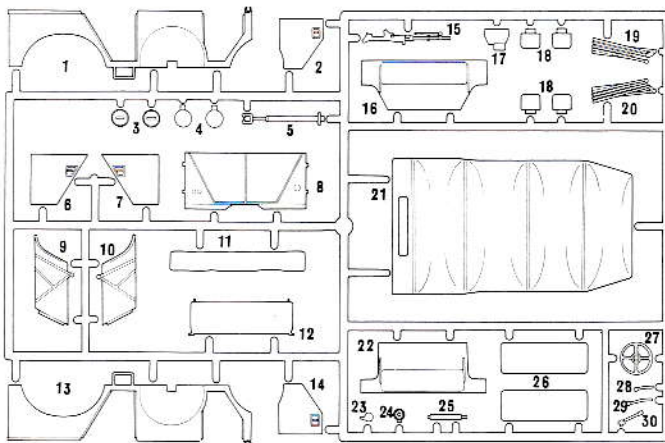
A PARTS



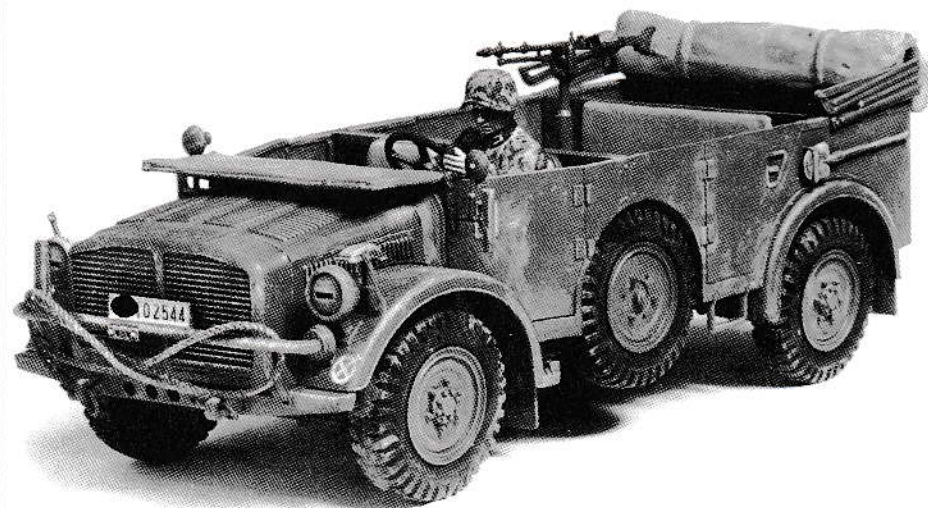
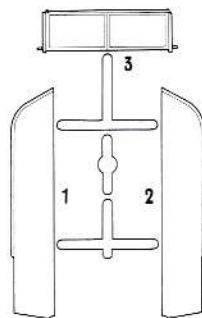
B PARTS



C PARTS



Transparent Parts



TAMIYA COLOR CATALOGUE

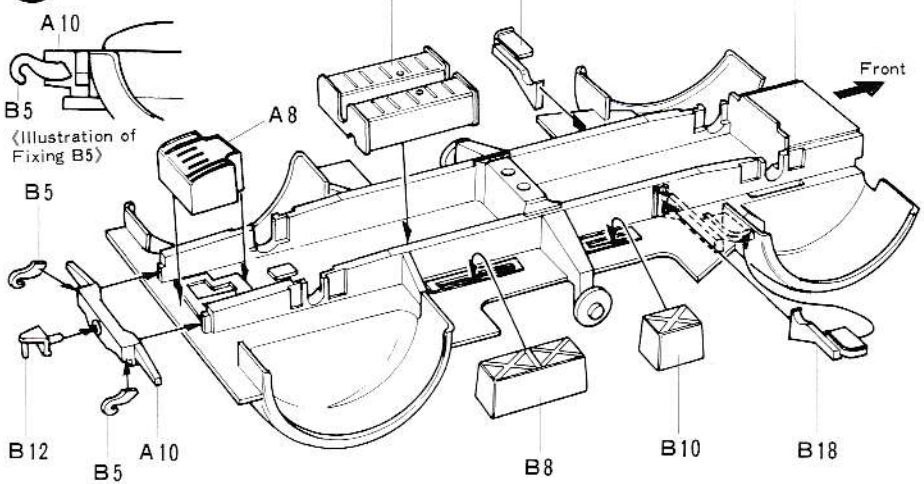
The latest in cars, boats, tanks and ships. Motorized, radio controlled and museum quality models are all shown in full color in Tamiya's latest catalogue. English, German, French and Japanese versions available.



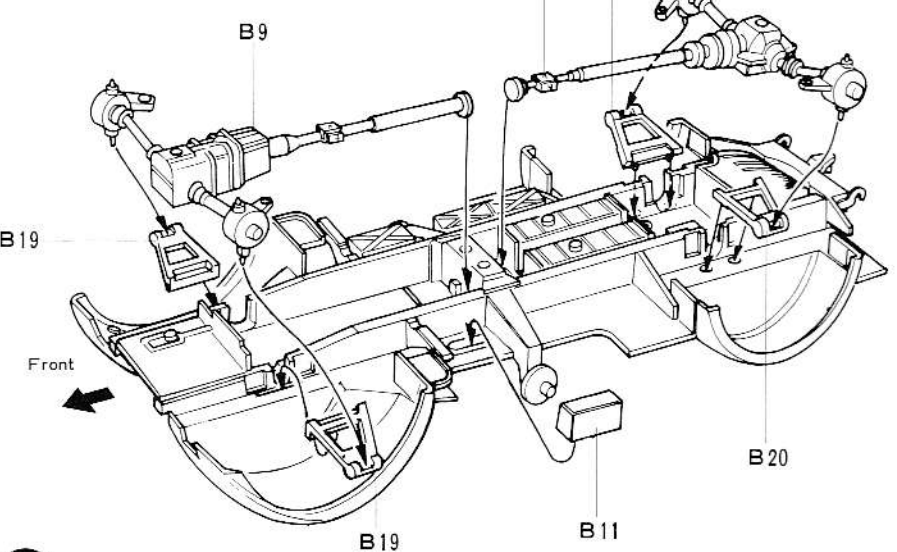
Please read this before commencing assembly

(Read before Your Assembly Work)
 ★Be sure to read the following instructions carefully before starting assembly work.
 ★This kit can be assembled into a model vehicle with the top pulled up or folded back. For fixing of optional parts i.e. top, windscreen and machine gun, see the instructions at ② and ③ and make sure that which part should be cemented.
 ★You will need a sharp knife, a pair of tweezers, a file, and a pair of pliers.
 ★Do not break parts away from sprue, but cut off carefully with a pair of pliers.
 ★For overall painting, see page 8. For painting of parts, see the instructions given in the assembly drawings.

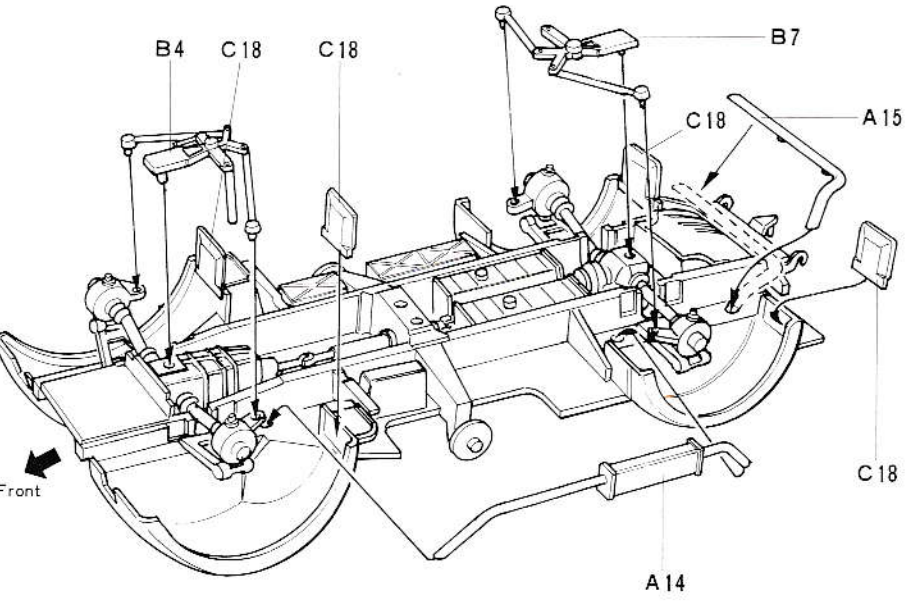
1 Fixing of Lower Parts



2 Fixing of Differentials



3 Fixing of Tie Rods



1 (Fixing of Lower Parts)

Cement parts with reference to the figure. For fixing of Hook B5, see the side view at top left side of section ①.

2 (Fixing of Differentials)

First, fix Front Upper Arms B19 and Rear Upper Arms B20. Then, fix each Differential to guides on Upper Arms and Chassis.

3 (Fixing of Tie Rods)

Fix Tie Rods B4 and B7 to Differentials. In so doing, make sure of their direction, front or rear. Also fix other parts as shown in the figure.

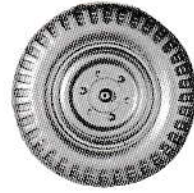


4 <Construction of Wheels>

Make sure of Wheel parts numbers. Wheel A and Wheel B can be distinguished from each other by the number of center bolts. B15 and B16 are designed to rotate. Do not apply cement to B15 and B16.



Wheel A



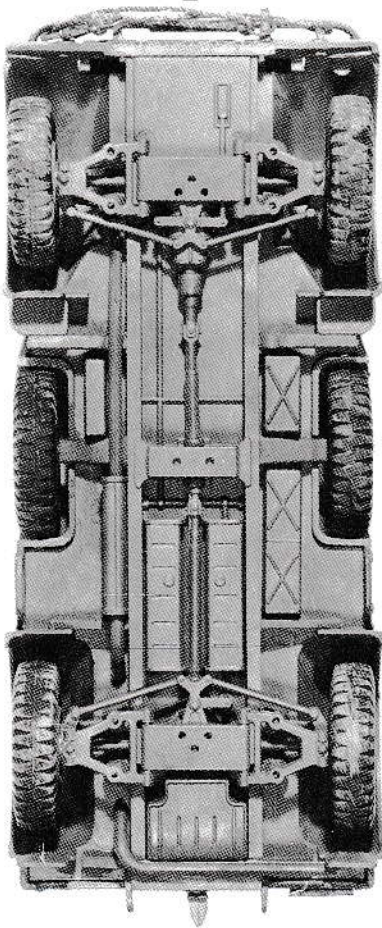
Wheel B

5 <Construction of Lower Arms>

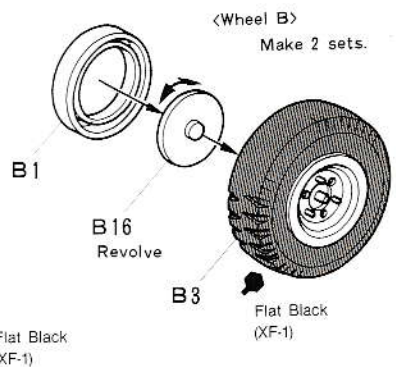
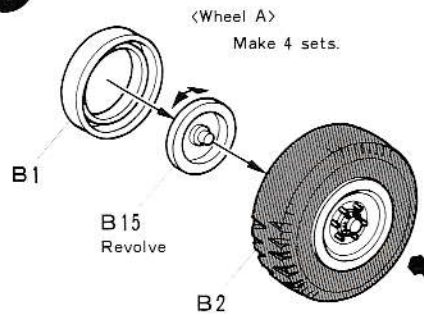
Construct two Lower Arms. Parts B13 should be cemented in the direction shown in the assembly drawing.

6 <Installation of Wheels>

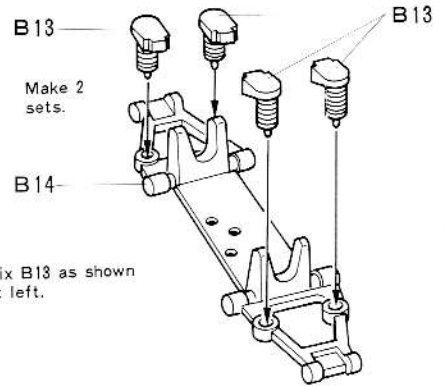
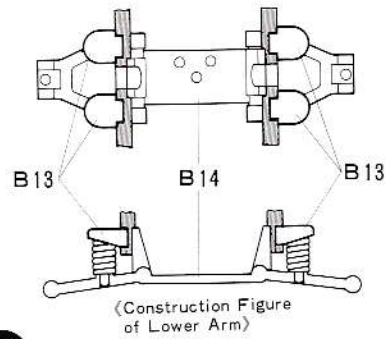
Fit Lower Arms carefully to Chassis. Then, install Wheels A which have been constructed at 4



4 Construction of Wheels

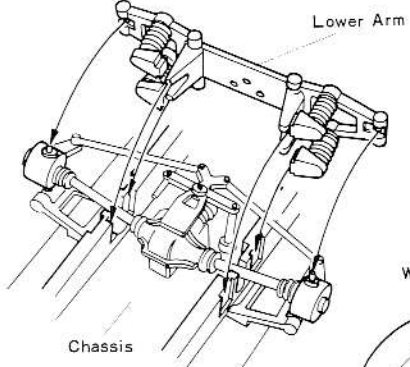


5 Construction of Lower Arms

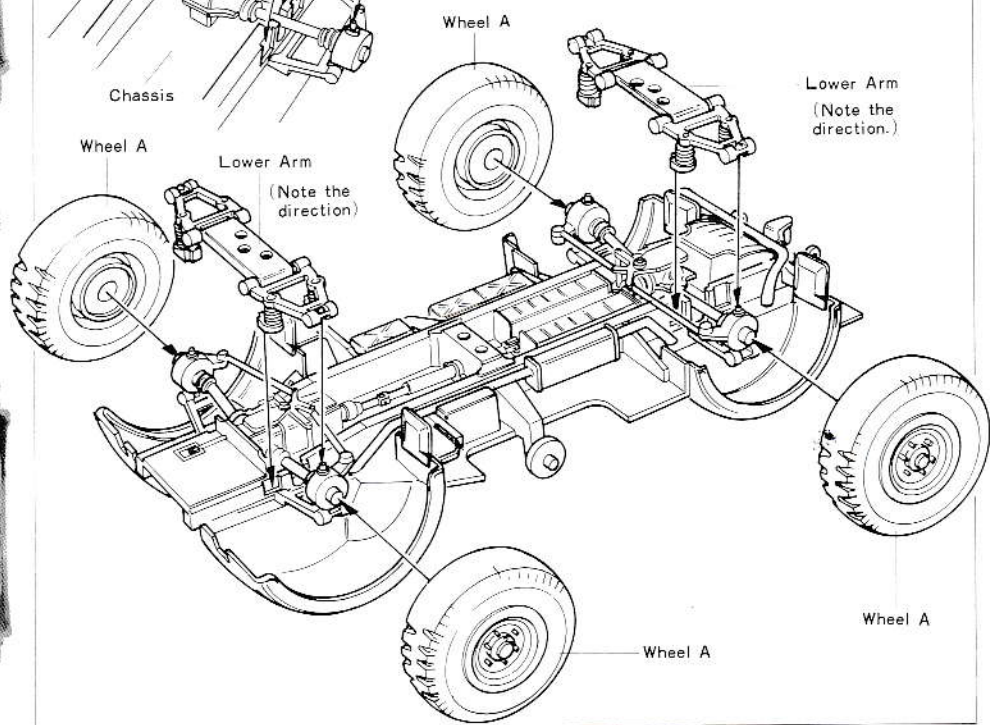
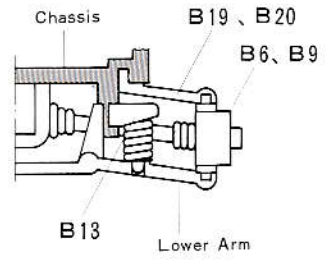


6 Installation of Wheels

<Fixing of Lower Arm>

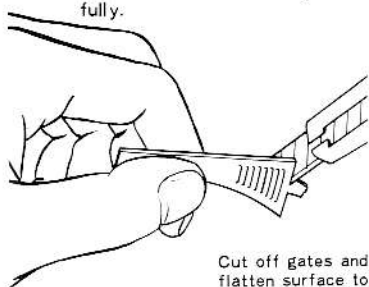


<Sectional View of Lower Arm>



7 (Construction of Engine Hood)

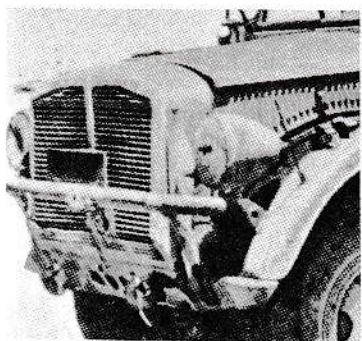
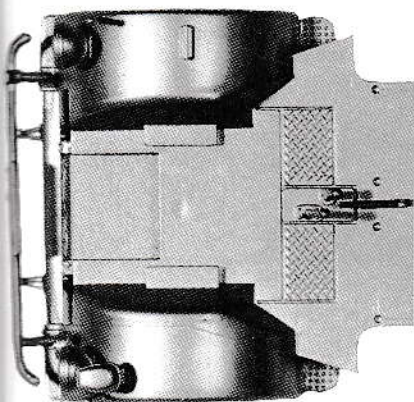
Gates (connection between parts and runner) should be cut off very carefully.



Cut off gates and flatten surface to be cemented.

8 (Fixing of Front Parts)

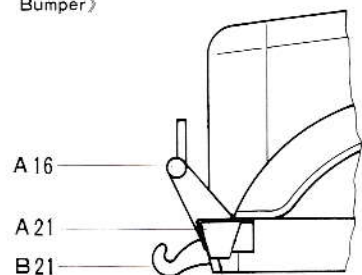
Fix parts in place as shown in the figure.



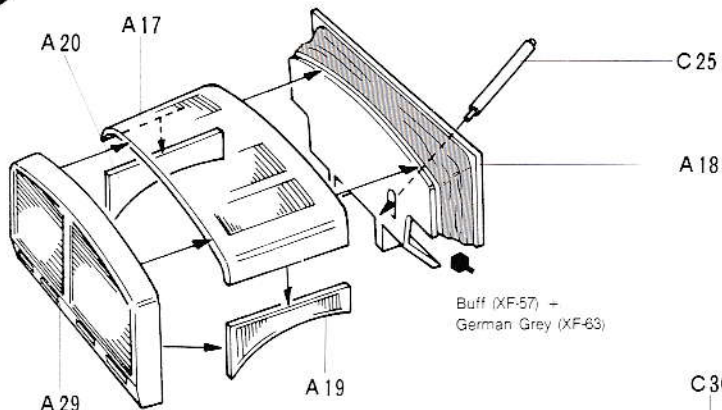
9 (Construction and Fixing of Body)

Body should be fixed after being constructed. Spare Wheels and Bumper should be fixed after the body is fixed to Chassis.

(Reference Illustration of Fixing Bumper)

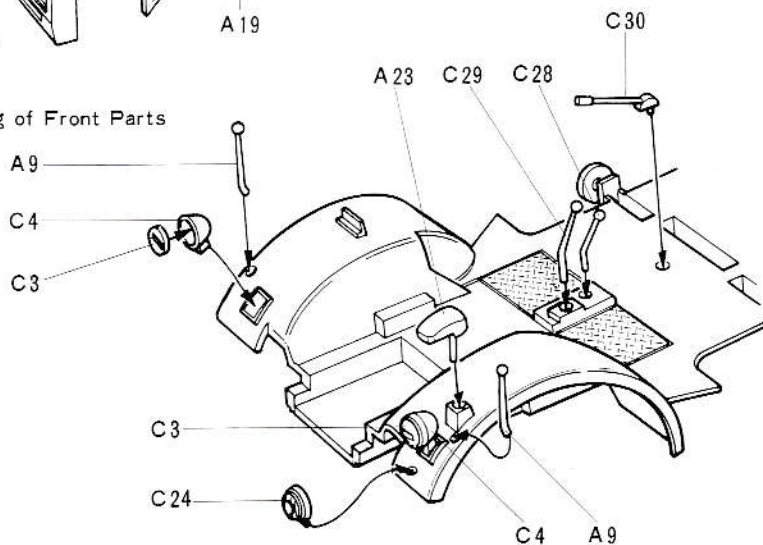


7 Construction of Engine Hood

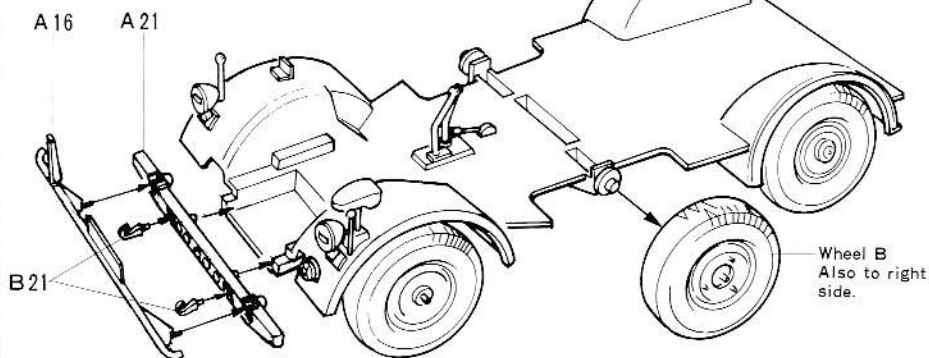
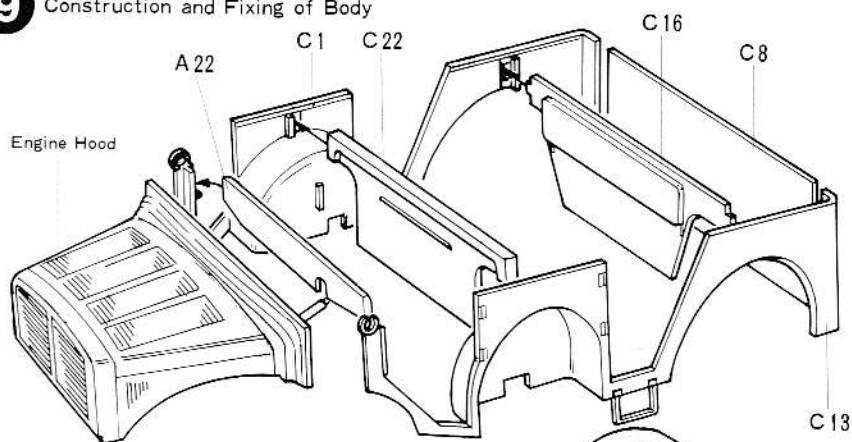


Buff (XF-57) - German Grey (XF-63)

8 Fixing of Front Parts



9 Construction and Fixing of Body

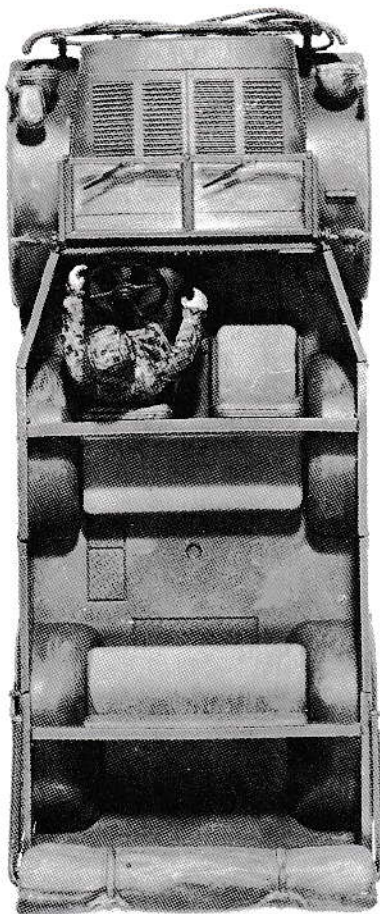


10 <Fixing of Interior Parts>

Construct two Front Seats and fix them to the body.

★Just fit Windscreen with Hood C12 or Transparent Part 3 without using cement so that they may be exchanged later.

★Windscreen of glass which reflected sunlight had a disadvantage of being easily spotted by the enemy and becoming an obvious target of attack. Therefore the windscreen of military vehicles was often laid down and covered with sheet or blanket. Also in Horch vehicles whose top was folded back, the windscreen was laid down and covered with sheet to prevent the reflection of sunlight.



11 <Construction and Fixing of Model Figure>

Model Figure should be mounted on the body after being constructed and painted. It wears a camouflage suit of the German Army. For camouflage pattern, see the box top. The helmet is also covered with camouflage cloth.

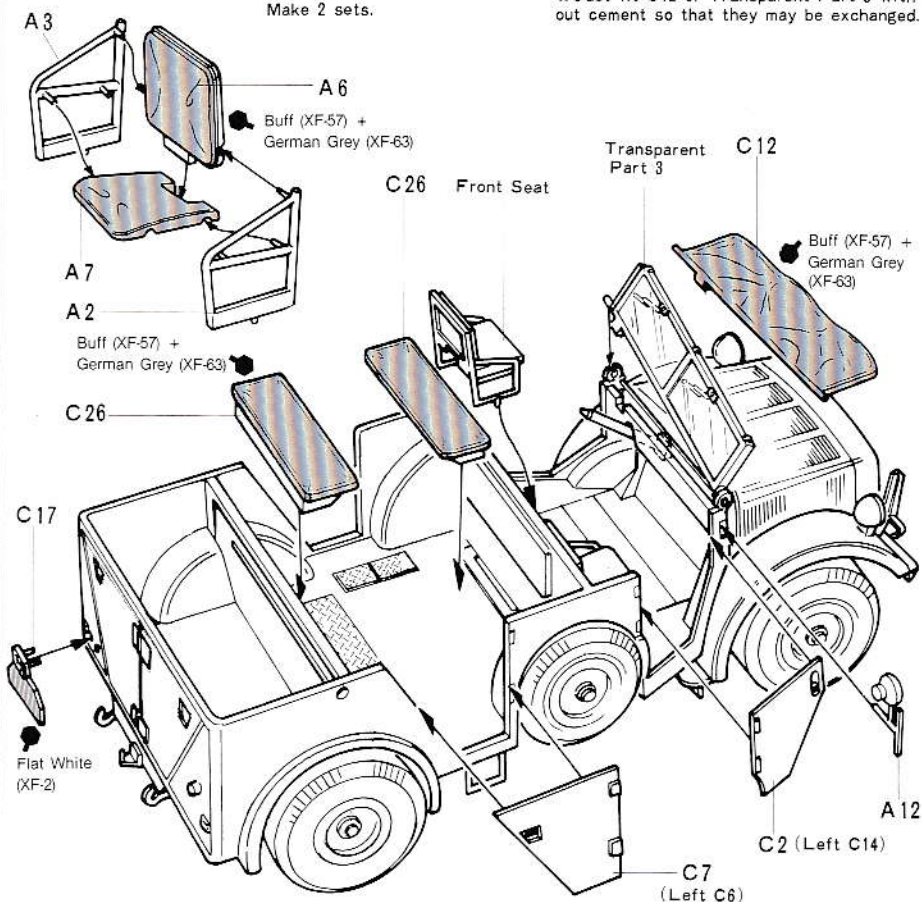


Tamiya Acrylic Paints

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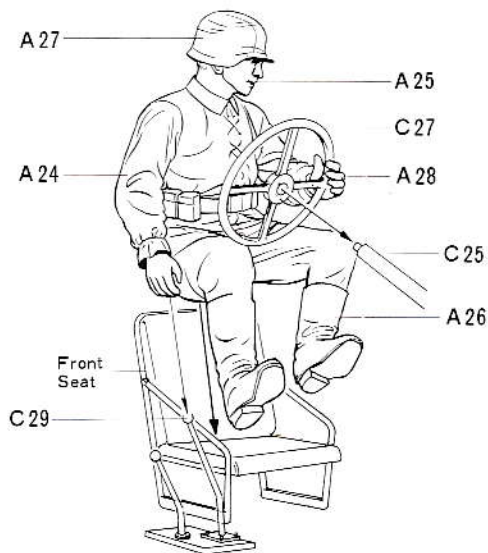
10 Fixing of Interior Parts

(Construction of Front Seats)
Make 2 sets.

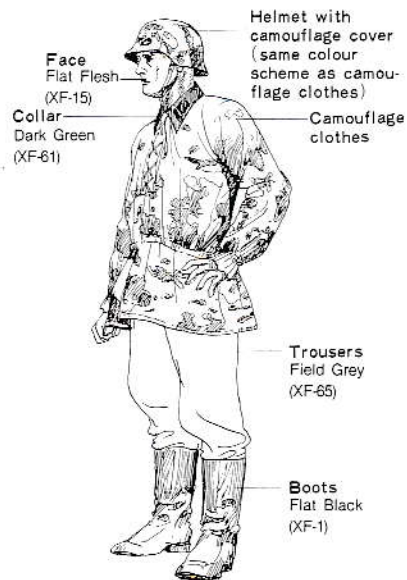


★Just fit C12 or Transparent Part 3 without cement so that they may be exchanged.

11 Construction and Fixing of Model Figure



(Painting of Figure)

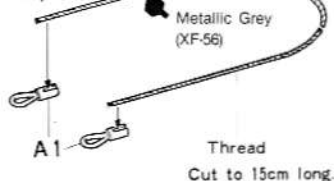


★Fix Figure onto Front Seat. Cement Shift Lever C29 to Right Arm, and Steering Wheel C27 to Left Arm. Mount Figure onto the body after being painted.

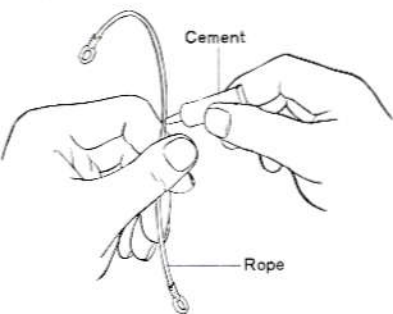
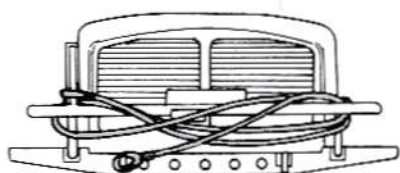
12 Construction of Tops

The kit contains two Tops, one is folded up and the other is spread out. Assemble them with cement. In so doing, adjust them so that their pins may fit well in the holes on the body. When fixing Transparent Parts 1 and 2 to Spread Top, apply cement only to the edge of the parts as shown in the figure.

Construction of Rope



How to Stretch Rope



★If you apply cement to the rope before stretching it around Bumper, the rope will be added the natural curve when dried.

13 Completion
(Vehicle with the Top Pulled Up)
Fix the Spread Top constructed at 12 to the body with Windscreen (Transparent Part 3) between Side Windows (Transparent Parts 1 and 2).

(Vehicle with the Top Folded Back)
Construct Machine Gun and fit it to the body without using cement.

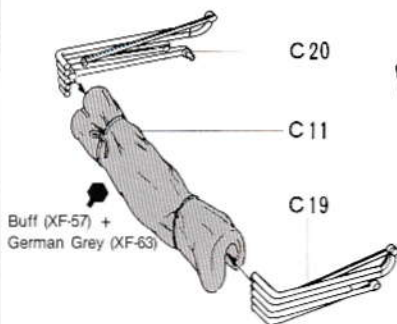
★It is possible to convert the model vehicle by exchanging the Top, mounting or dismounting the Machine Gun and levelling or erecting the Windscreen. Convert it as you like or according to your own plan.

PAINT MARKER

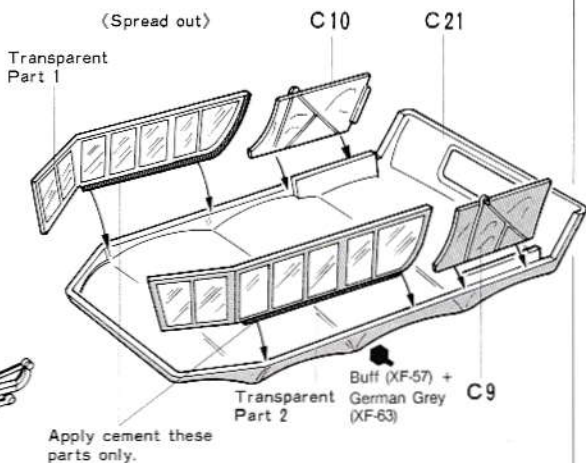
Hand held, Tamiya enamel paint markers. For the final detail touch, and professional results. 12 of the most popular colors used in modeling. See and test them at your local hobby supply house.

12 Construction of Tops

(Folded up)

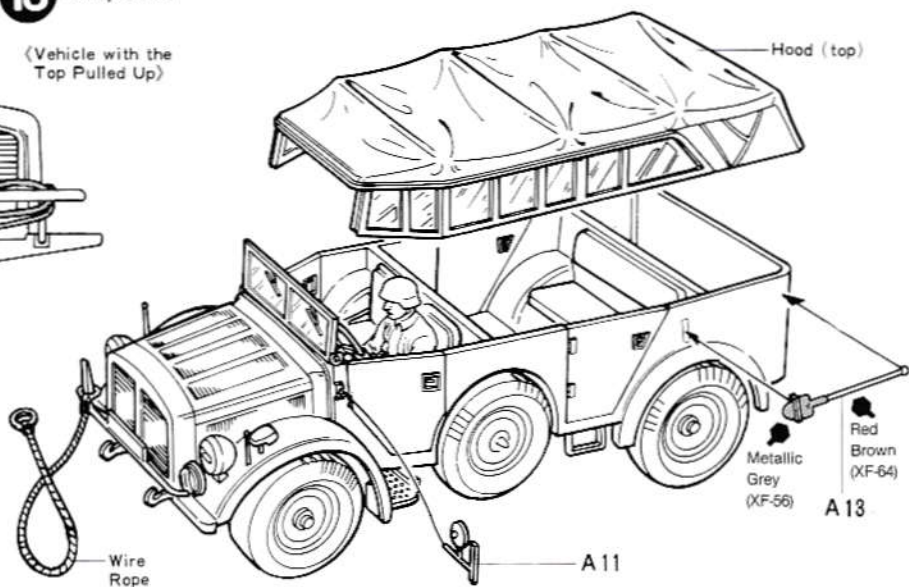


(Spread out)

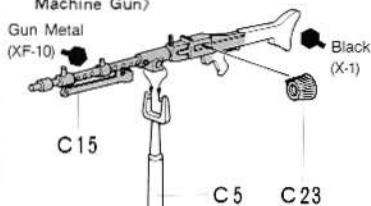


13 Completion

(Vehicle with the Top Pulled Up)



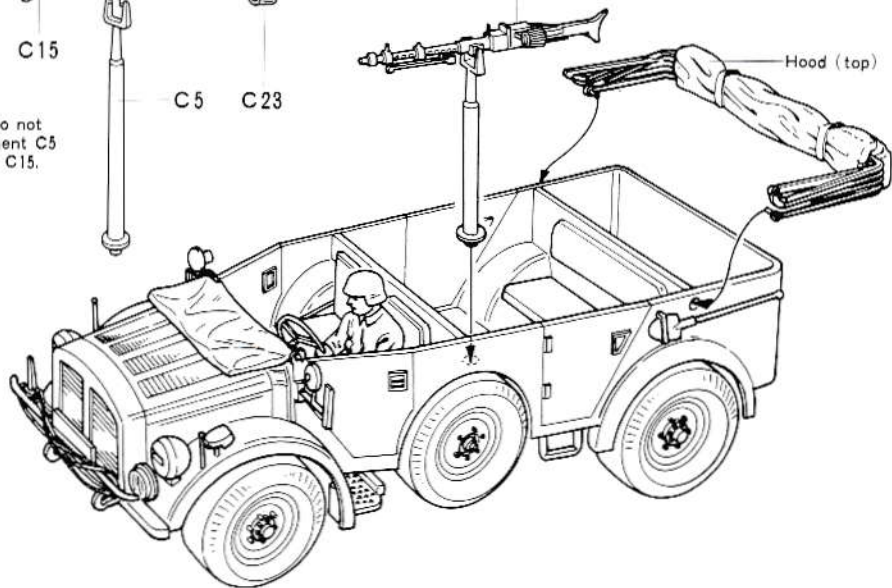
(Vehicle with the Top Folded Back)
(Construction of Machine Gun)



★Do not cement C5 and C15.

Machine Gun

Just insert without cement.



PAINTING



APPLYING DECALS

⟨Painting of the Horch Type 1a⟩

German military vehicles were painted differently according as they were used before or after August 1943. Before that time, German military vehicles in Europe were painted in the basic colour of German Grey and those in Africa wore uniform painting of dark yellow, reddish-brown camouflage pattern on a dark-yellow ground or dark-green camouflage pattern on a German Grey ground. In August 1943, the German military authorities ordered to use only dark yellow as the basic colour. The Horch Type 1a manufactured in 1937-41 was painted in German Grey (Europe) or dark yellow (Africa). It was rare that Horch vehicles wore camouflage.


⟨Marking of the Horch Type 1a⟩

German military vehicles wore divisional marks and tactical marks. Vehicles of the Afrika Korps used corps marks in addition to them.



⟨Divisional Mark⟩


European Theatre

Wehrmacht Car No.: WH

 Grossdeutschland
Panzer Grenadier Div.

Waffen SS Car No.: SS

 "Adlf Hitler"
1st SS Pz. Div.  "Das Reich"
2nd SS Pz. Div.

 "Totenkopf"
3rd SS Pz. Div.



Luftwaffe Car No.: WL



  Hermann Göring
Pz. Div.

African Theatre Car No.: WH

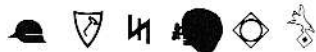
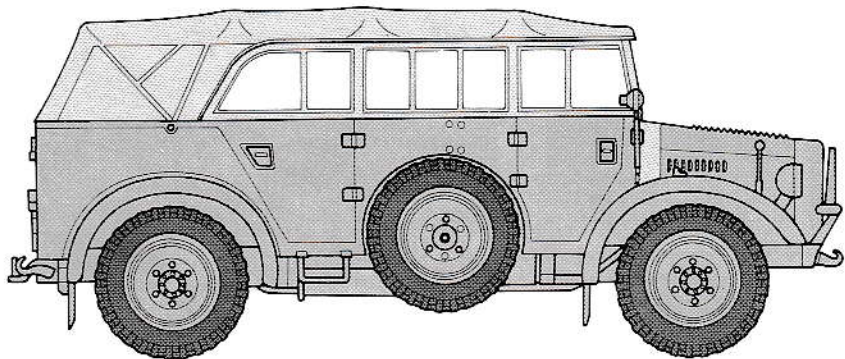
 Wehrmacht
21st Pz. Div.  Symbol of
Afrika Korps

Tactical Mark

 Motorcycle
Infantry
Battalion  Mechanized
Artillery
Battalion

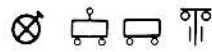
 Mechanized
Infantry
Battalion  Transportation
Battalion

⟨Vehicle on the European Theatre⟩: Body colour German Grey(TS-4, XF-63)

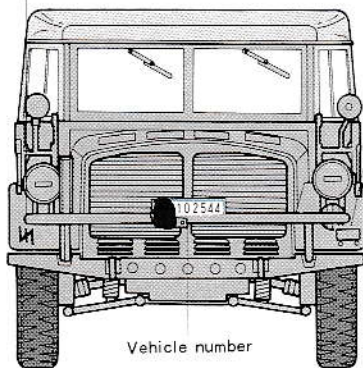


Divisional mark

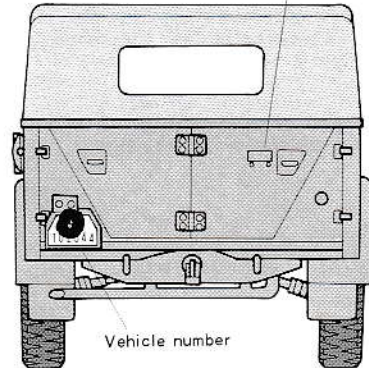
Tactical mark



Tactical mark

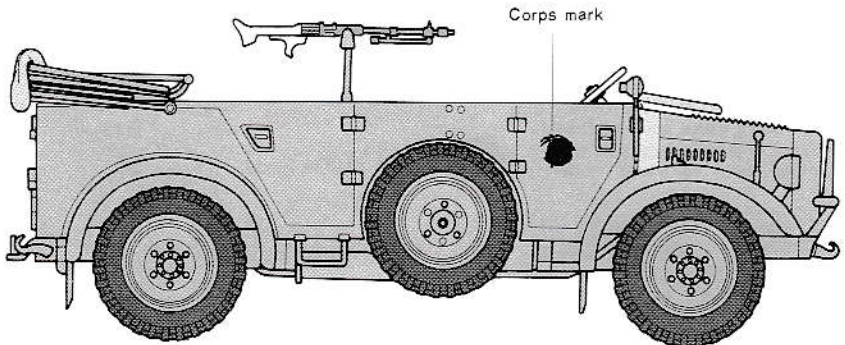


Vehicle number



Vehicle number

⟨Vehicle on the African Theatre⟩ : Body colour Dark Yellow(TS-3, XF-60)



Corps mark

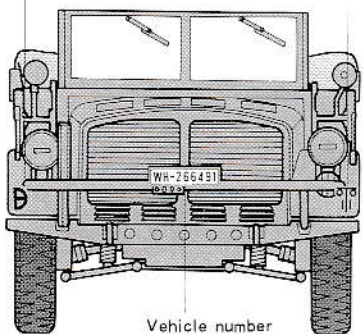


Divisional mark

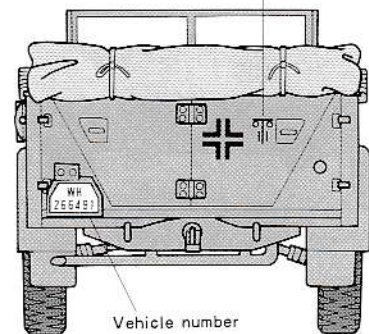
Tactical mark



Tactical mark



Vehicle number



Vehicle number