

Sd.kfz 222 LEICHTER PANZERSPÄHWAGEN

1/35 MILITARY MINIATURE SERIES

4/4



1.063070



Story by Chris Ellis

In the years preceding World War 2, Germany carried out an extensive programme of armoured car development which gave the armed forces, in 1939, a commanding lead over all other military powers in design of this type of vehicle. To a considerable extent the interest of the German Army in this type of armoured vehicle was influenced by the terms of the Versailles Treaty which prevented the truncated Reichswehr from having tanks of any kind and allowed only a few old armoured cars for border patrol and police work. As is well-known, however, by the late 1920s, the German arms ministry (Reichswehrministerium), were engaged in some clandestine development work on new armoured vehicles with the discreet assistance of the Soviet Union who provided test facilities at Kazan on the River Volga. Some tank designs were tested under the designation of "agricultural tractors" and some armoured cars were produced under the name of Gepanzerter Mannschaftstransportwagen (armoured personnel carriers). This designation kept them just about inside the legal definition of allowable armoured vehicles under the Versailles Treaty terms. Early specifications put out by the motor vehicle bureau of the Armaments Ministry (Heerswaffenamt Wa Prüf 6) called for some very elaborate and sophisticated designs to meet demanding requirements. Among many specific points, the new vehicles had to have six or more wheels with all axles driven, a top road speed of 65 km/hr (40 mph), cover 125 miles minimum a day, sustain a good average speed for three days continuous running, drive up 1 in 3 grades across country, cross trenches nearly 5 ft wide, have forward and reverse drive and steering, facilitate a quick change-over and equal performance in each direction, a small turning circle, ability to drive along standard gauge rail tracks, and amphibious capability without special preparation. The specifications were issued only to wholly-German owned companies (for security reasons), and Daimler-Benz, Magirus, and Bussing-NAG were all invited to tender prototypes in 1927. The first two firms produced eight-wheel designs, and Bussing-NAG offered a ten-wheel prototype, all being ready for testing in 1929. Development was brought to a premature end by the great financial collapse of Germany in 1929-30 when it was realised that the high production cost of these designs put them beyond the limited scope of the defence budget.

In the meantime, the limitations of both the defence budget and the Versailles Treaty combined to push armoured car development in Germany in a new and more realistic direction. In order to train an army officially deprived of tanks in anti-tank tactics and tank warfare it was necessary to find some substitute for actual tanks. In a military exercise of 1928

a commercial truck was disguised to look like a tank and the success of this idea led Wa Prüf 6 to have some Panzernachbildung (simulated armoured fighting vehicles) made up for use on a more extensive scale. Made of wood or card outline, the earliest of these "paper panzers" was simply a sectional dummy tank body which fitted round the Hanomag or Dixi light cars then in military service. In 1930 came a standardized design, this time for a simulated armoured car, which featured an aluminium body on an Adler Standard 6 car chassis. Later thin sheet steel was used. The Adler had a dummy rotating turret and carried a full crew of commander, gunner (the gun was dummy), radio operator, and driver. (This idea proved so successful that dummy armoured cars and tanks were in service for training up to the end of World War 2, thus releasing valuable fighting vehicles for actual service).

Having put into service a dummy armoured car on the Adler Standard 6 chassis, the next logical step was to use this readily available 4x2 chassis as the basis for an actual armoured car, resulting in Kfz 13 series which were designated as Mittlerer Gepanzerter Personenkraftwagen (medium armoured passenger car). The requirement for this vehicle was issued in 1932, and it entered service in 1934, remaining in use into the early 1940s. Daimler headed the production consortium. The vehicle portrayed its standard motor car ancestry in its front engine layout and conventional leaf spring suspension. A radio/command version was produced, the Kfz 14. In 1936, when re-armament was fully under way in Germany, there came the adoption of a number of Einheits (standard) chassis which were to serve as the basis for all new wheeled vehicle designs. Among them was the Einheitsfahrzeugstell I für Schwerer Personenkraftwagen (standard chassis No I for heavy passenger cars) which had a rear-mounted engine and was intended specifically for armoured car use (Einheitsfahrzeugstell II was similar but had a front-mounted engine and was used for conventional military vehicles of the "personnel carrier" type). Most of the requirements originally put out for armoured cars were built into the specification, albeit in a less demanding form, and in addition there was a stress on maximum standardization and interchangeability of components throughout the Einheitsfahrzeugstell range. The motor industry had to design new chassis to meet all these requirements - existing ones were not strong enough. Chassis prototypes were displayed at the 1936 Berlin Motor Show and the first armoured cars on this chassis, intended to replace the Kfz 13 and 14, appeared in service the following year. The full designation was Leichter Panzerspahwagen mit Einheitsfahrzeugstell I für Schwerer Personen-

kraftwagen, light armoured reconnaissance car with the standard chassis No I for the heavy passenger car. The original requirement was for a weapons carrier (Waffenwagen) with a single machine gun, but this was later changed to a 2 cm tank gun, and a radio car (Funkwagen) for command and communication use. In actual fact there were several variations, the most important models being: Leichter Panzerspahwagen (MG) (Sd Kfz 221) mit 7.92mm MG 34. Leichter Panzerspahwagen (Sd Kfz 221) mit 2.8cm sPzB 41 (sPzB 39) (This was a World War 2 period conversion of the original model with a tapered bore anti-tank rifle replacing the machine gun).

Leichter Panzerspahwagen (2 cm) (Sd Kfz 222). (This model had the 2cm KwK tank gun to meet the revised "Waffenwagen" requirement).

Leichter Panzerspahwagen (Fu) (Sd Kfz 223). (This model was radio equipped to meet the original "Funkwagen" requirement). Kleiner Panzerfunkwagen (Sd Kfz 260). (This was a specialised radio car development with more extensive equipment, intended for use by HQ units for communication on divisional or regimental networks. Its turret was set further back than on the Sd Kfz 223 and it rarely carried a machine gun).

Kleiner Panzerfunkwagen (Sd Kfz 261). (This model was a later development of Sd Kfz 260 and was externally similar, but mechanical changes gave it a slightly better cross-country performance).

All models in the Sd Kfz 221/222 series were based on a Horch/Auto-Union chassis (built by Horch-Werke of the Auto-Union combine) and Eisenwerk Weserhütte was the parent firm of the production contractors. 1936-38 production was on the Aufst (model) A chassis which had a 3.5 litre 75HP engine, and 1939-42 production was on the Aufst B chassis with a 3.8 litre 81 HP engine. Production ceased in 1942 but these useful little vehicles remained in service for the duration of the war and the layout and style had some influence on British, French, and Russian light armoured car design from 1940 onwards. The chassis had four-wheel drive, fully independent suspension, optional four wheel steering (later this was dispensed with), and a self-locking differential which ensured both wheels on each side received power whatever the ground conditions. The hull was of welded armour plate, had a door each side, hinged visors front and rear, and a hand-turned turret traversed from the gun mounting in the case of the Sd Kfz 221. The turret was open topped, seven-sided in the Sd Kfz 221 and ten-sided in the Sd Kfz 222. Hinged wire-mesh screens on top were intended to deflect grenades. On the Sd Kfz 222 the rear hull was steepened to give the driver a better rear view. In this vehicle traverse and elevation were by hand wheel.

PAINTING



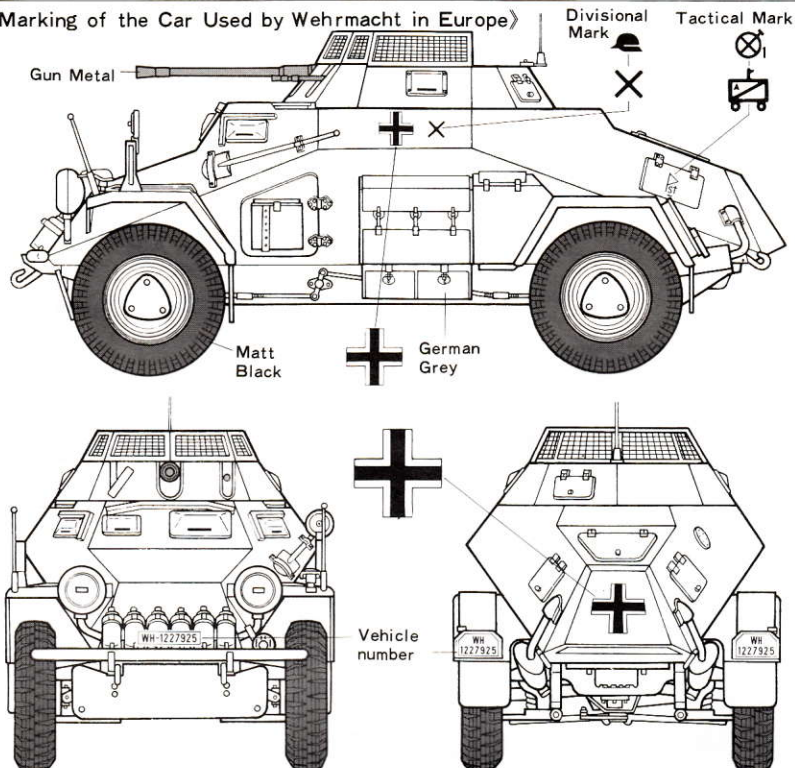
APPLYING DECALS

《Painting of German Military Vehicles》

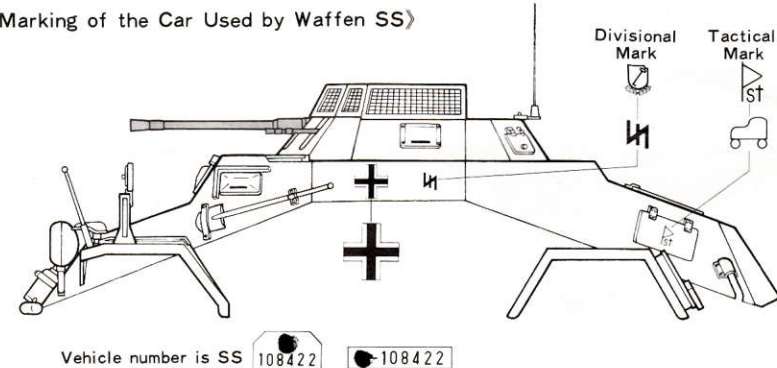
From 1935 to February 1943, German military vehicles for use in Africa wore uniform painting of dark yellow, camouflage of reddish brown on a dark yellow ground or camouflage of dark green on a German Grey ground, while those for use in Europe were painted German Grey overall. In 1942, the two kinds of camouflage for Africa were replaced with camouflage of reddish brown on a dark yellow ground. In Russia, German vehicles were painted in water paint of flat white in winter.

On 18th February 1943, the military authorities decided to accept only dark yellow as the basic colour. Field forces applied other colours on the basic colour according to the terrains and gave various camouflage patterns. Applied for camouflage on the dark yellow ground were reddish brown, olive drab and dark green.

《Marking of the Car Used by Wehrmacht in Europe》



《Marking of the Car Used by Waffen SS》



《Marking of Sdkfz 222》

German marking generally consisted of divisional marks and tactical marks. The "Afrika Korps" used its own mark in addition to them.

Divisional Mark

	Wehrmacht 5th Tank Division European Theatre		Africa Corps 15th Tank Division
	Africa Corps 21st Tank Division		Wehrmacht Tank Grenadier Division "Gross- deutschland"
	Waffen SS 1st SS Tank Division		Waffen SS 2nd SS Tank Division
	Africa Corps		

Tactical Marks

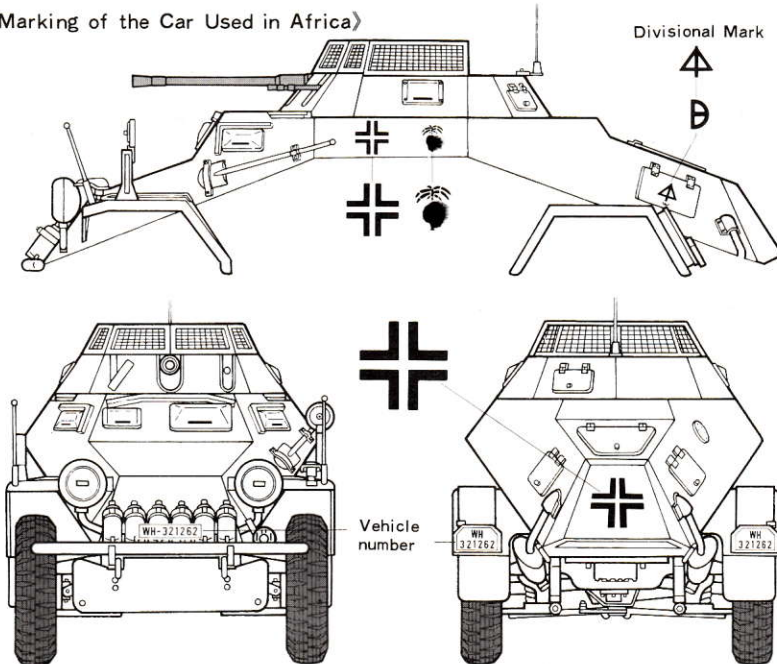
	Armoured Vehicles Unit		Motorcycle Infantry Battalion
	Tank Reconnaissance Battalion		Battalion H.Q. Vehicle

Combination of divisional and tactical marks are free.

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《Marking of the Car Used in Africa》



PARTS

A PARTS

1. Rear View Mirror
2. Cap
3. Front Visor A
4. Winker, Left
5. Winker, Right
6. Front Visor B
7. Headlight, Left
8. Headlight, Right
9. Smoke Dischargers
10. Pent Roof
11. Side Visor, Left
12. Side Visor, Right
13. Front Fender, Left
14. Front Fender, Right
15. Wire Mesh Hinges
16. Turret Side Visor
17. Side Cover
18. Antenna Stay
19. Turret Hatch
20. Turret
21. Figure (Lower Half)
22. Figure (Upper Half)
23. Figure (Left Arm)
24. Figure (Right Arm)
25. Black Light
26. Wire Mesh, Left
27. Wire Mesh, Right
28. Turret, Lower
29. Jerrycans
30. Machine Gun Base
31. Empty Shell Holder
32. Seat
33. Seat Stay
34. Handles
35. MG 34
36. KwK 38
37. Cartridge
38. MG Base Stay, Left
39. MG Base Stay, Right
40. MG Base Handle
41. Gun Barrel Tip
42. Sight
43. Spare Tyre
44. MG Base Support
45. Sight Stay

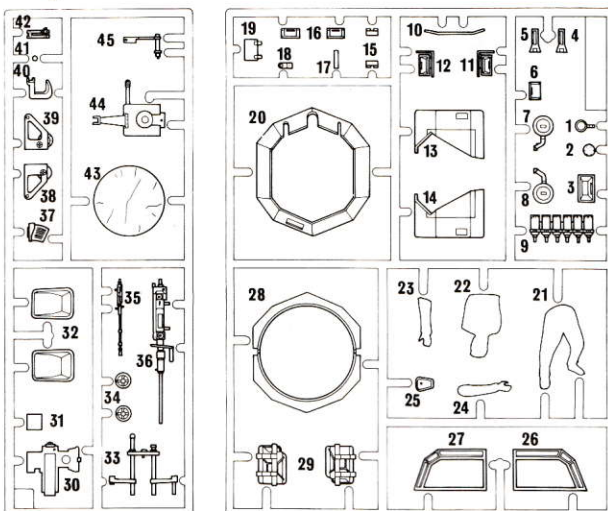
B PARTS

1. Shovel
2. Front Hook, Right
3. Tyres, Inside
4. Wheel Covers
5. Front Hook, Left
6. Drum A
7. Number Plate
8. Engine Room Hatch
- 9-a. Tool Box A Right 9-b. Tool Box A Left
10. Drum B
11. Jack Handle
12. Jack
13. Pole
14. Side Hatch, Right
15. Side Hatch, Left
16. Tool Box
17. Rear Fender, Right
18. Rear Fender, Left
19. Front Mudguard
20. Tyres, Outside
21. Tool Box B

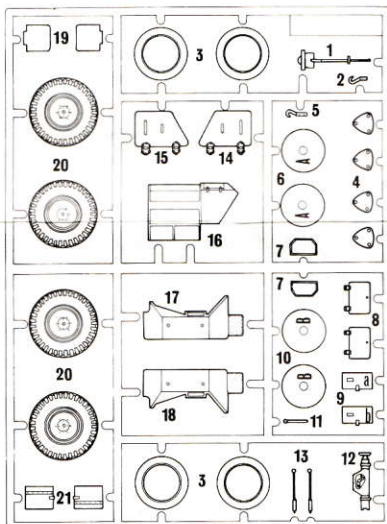
C PARTS

1. Front Bumper
2. Front Underguard
3. Wire Rope Parts
4. Exhaust Pipe, Left
5. Exhaust Pipe, Right
6. Rear Tie Rod
7. Front Tie Rod
8. Side Frame, Left
9. Rear Hook, Right
10. Rear Hook, Left
11. Side Frame, Right
12. Upright Arm
13. Fire Extinguisher
14. Differential & Shaft
15. Lead Arm B
16. Brake Rod
17. Lead Arm A
18. Tail Cover
19. Engine Rear Cover
20. Muffler, Left
21. Muffler, Right
22. Support
23. Rear Mudguard

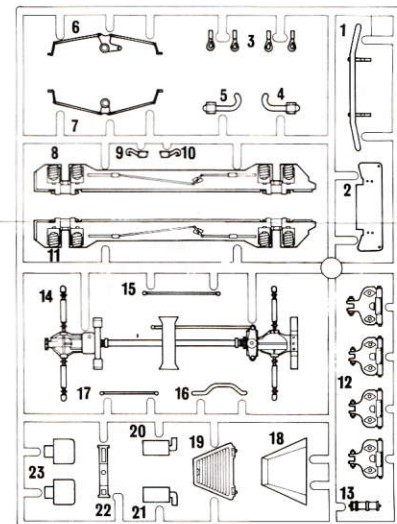
A PARTS



B PARTS




C PARTS



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- ★ Study the instructions and photographs before commencing assembly.
- ★ Do not break parts away from sprue, but cut off carefully with a pair of pliers.
- ★ Use glue sparingly. Use only enough to make a good bond. Apply cement to both parts to be joined.
- ★ When you paint the model.....
- Small parts and internal parts should be painted while still on the sprue.
- ★ You will need a sharp knife, a pair of tweezers, a file, and a pair of pliers.

 This mark shows the colour this part should be painted.

1 Construction of Lower Hull

C16 is not symmetric. Make sure of direction, and fix it in place as shown in the figure. Fix B21 and B14 on one side and B21 and B15 on the other side.

2 Construction of Wheels

Wheel parts B6 and B10 are marked with "A" and "B" respectively. These marks show the arrangement of wheels and must be kept in mind. B6 and B10 should be constructed to revolve freely.



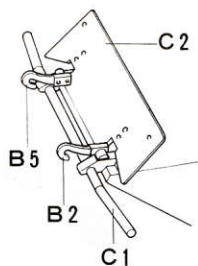
Wheel A

Wheel B

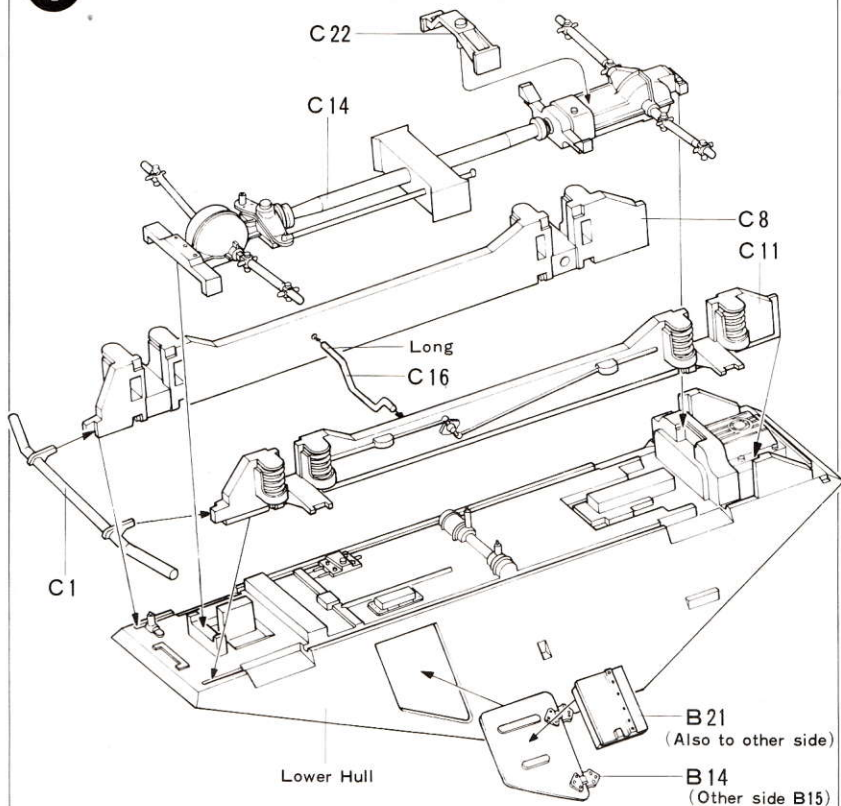
3 Installation of Wheels

Do not confuse wheels A and wheels B.

Front Hook Fixing Illustration



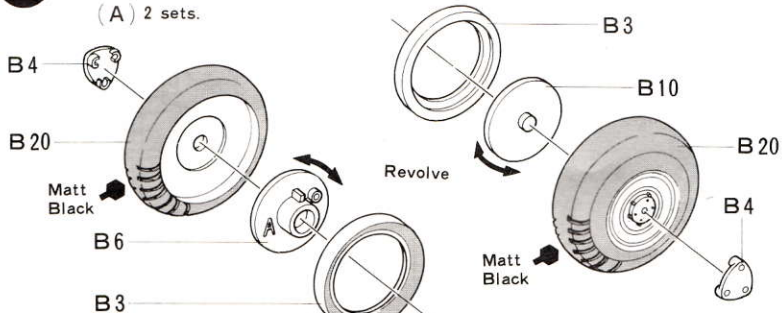
1 Construction of Lower Hull



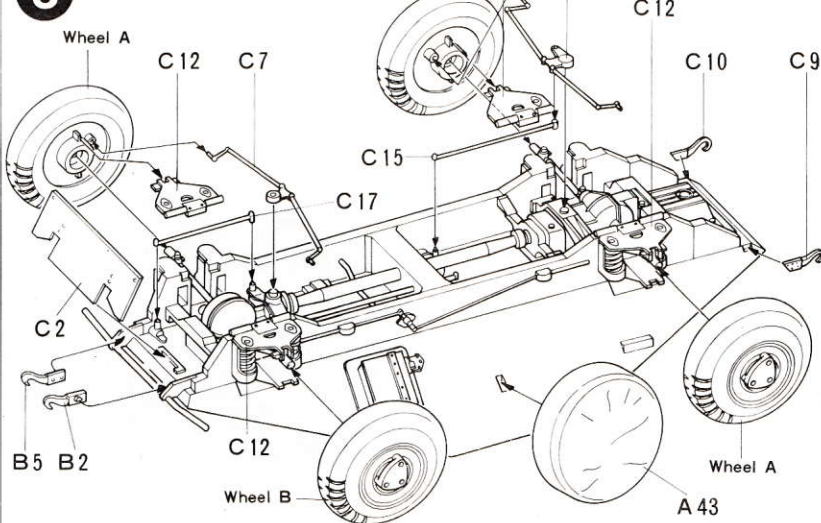
2 Construction of Wheels

(A) 2 sets.

(B) 2 sets.



3 Installation of Wheels

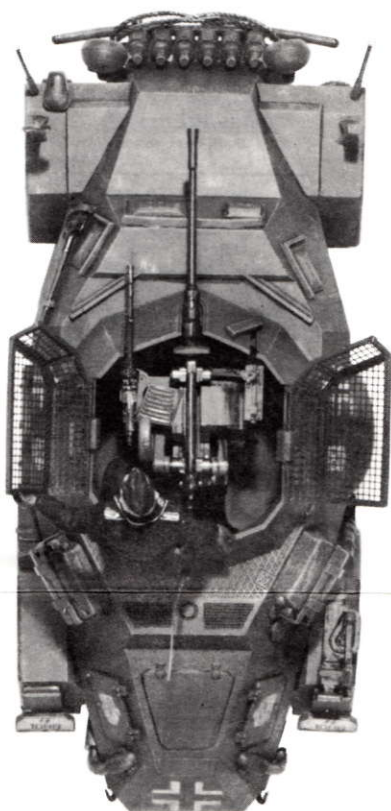


4 Construction of 20 mm Machine Gun

A36 is designed to move up and down. Put it between A38 and A39 and fix them to A30.

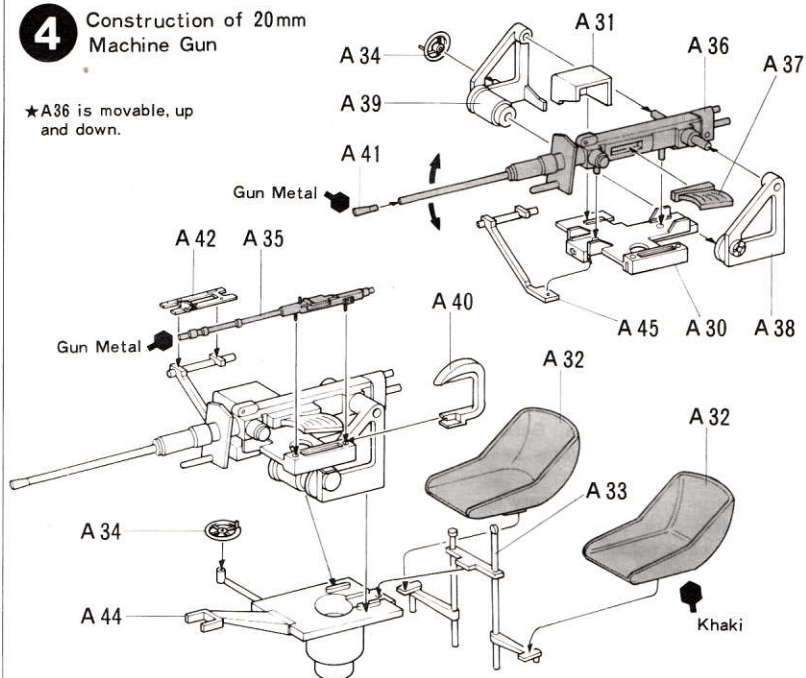
5 Construction of Upper Hull

Fix parts in place as shown in the figure. A29 and C18 are optional parts.

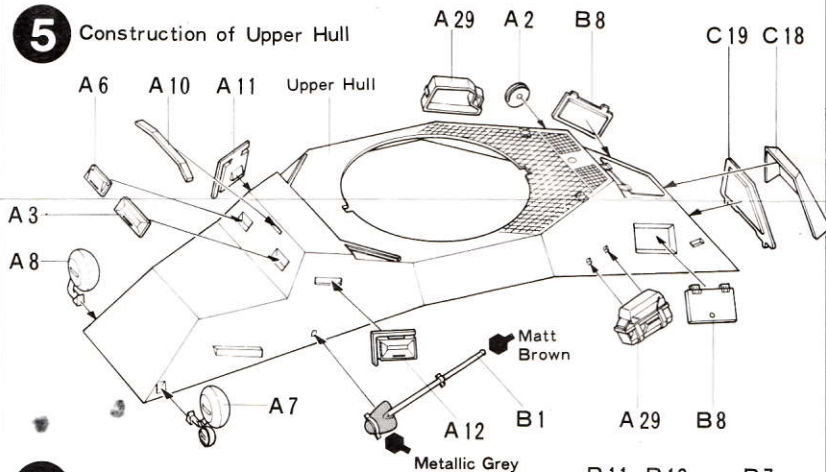


4 Construction of 20mm Machine Gun

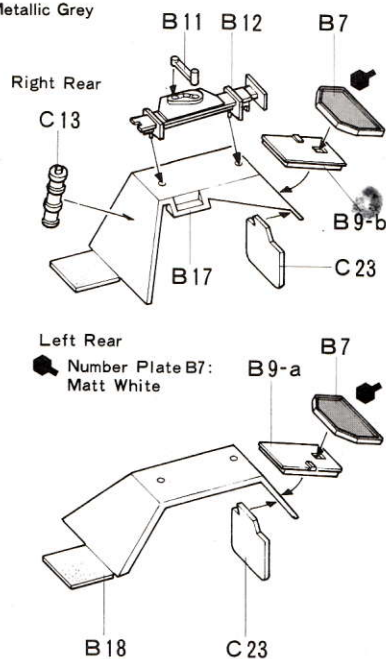
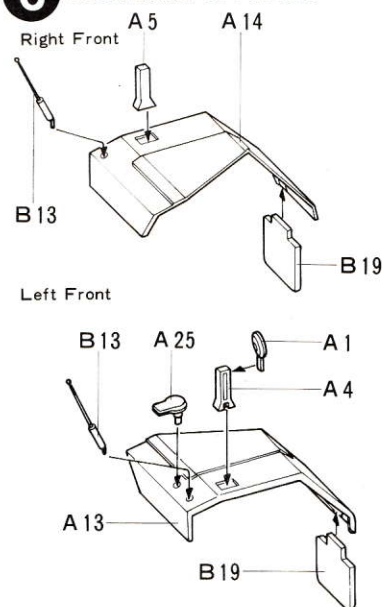
★A36 is movable, up and down.



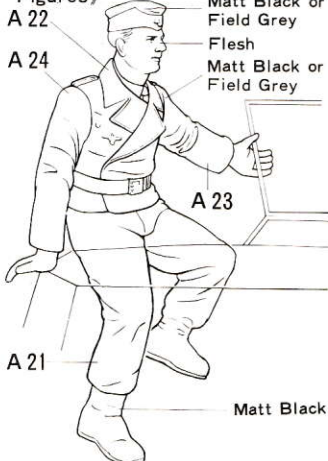
5 Construction of Upper Hull



6 Construction of Fenders

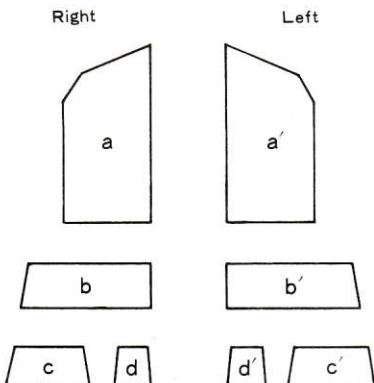


Construction and Painting of Figures



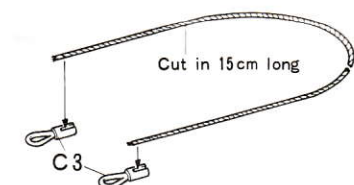
7 《Fixing Upper Hull to Lower Hull》
There are large areas to be cemented together. Firmly cement upper body to lower body and hold them together for a while with adhesive tape or the like. A9 is an optional part.

8 《Fixing of Meshes》
Mesh patterns in actual size are given below. Reproduce them on other paper to facilitate use.



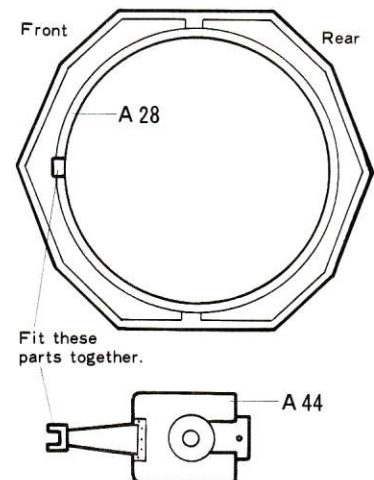
9 《Construction of Turret》
A26 and A27 may be fixed in either an open or a closed position. When fixed in an open state, they should be held in place with A15. A17 may be fixed at an arbitrary angle.

《Construction of Wire Rope》

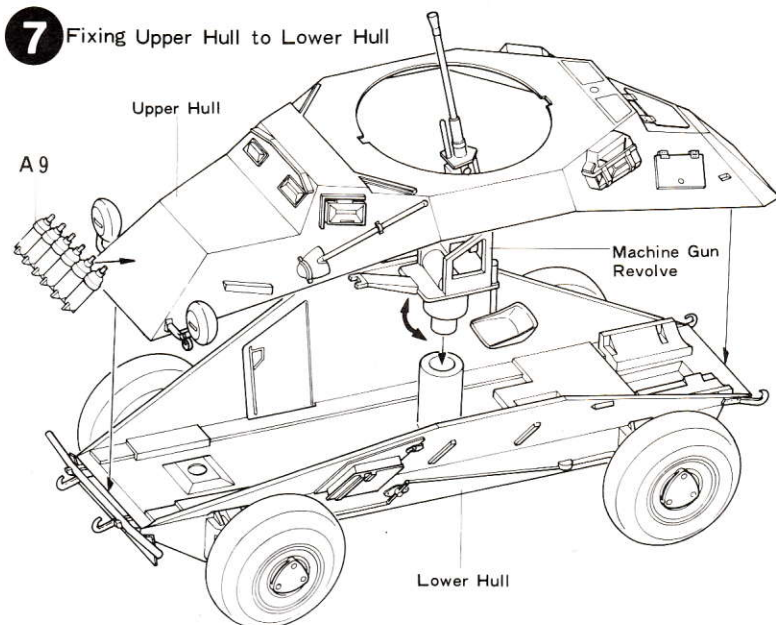


★Make an antenna by heat-stretching one of runner.

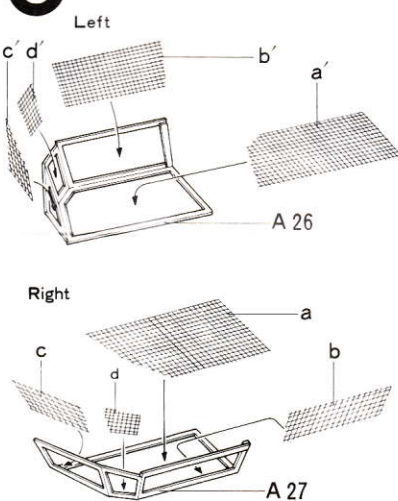
10 《Completion of Sdkfz 222》
Mount turret with machine gun positioned as shown in the figure, and fit turret pin into machine-gun guide.



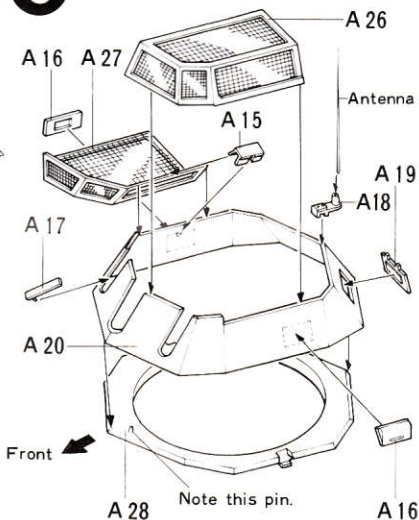
7 Fixing Upper Hull to Lower Hull



8 Fixing of Meshes



9 Construction of Turret



10 Completion of Sdkfz 222

