



# Leichte Zugkraftwagen 3t

## Sd.Kfz. 11

### GERMAN 3 TON HALF-TRACK

德國三噸輕型半履帶牽引車  
特種動力機械車輛第11型



#### Sd.kfz.11 3 ton half-track

After the conclusion of WWI, German Army Weapons Bureau began development for a series of tow vehicle for artillery for future battlefield requirement in order to be the transportation backbone for mechanized artillery units. But due to restriction posed by the Treaty of Versailles, this plan needed to be executed covertly.

Being an artillery-towing vehicle, the first design objective is to determine the configuration most suitable for its intended application. At the time, German automotive industry was not able to meet the capacity requirement to mass-produce tracked towing vehicle and wheeled vehicle was considered to have limited maneuverability in adverse terrain, thus limiting its tactical application. A compromise was reached with a half-track design; driven by tracks and directional control with front wheels, the half-track solution seemed to be the best solution at that time.

In 1932, Section 6, German Army Weapons Bureau was assigned the responsibility to supervise development for a series of half-track towing vehicle. Based on its towing capacity ranging from 1 to 18 tons, this series was divided into 3 levels: light, medium, and heavy; to be developed, and produced by various automotive factories, all vehicles in this series were given the type classification of sd.kfz. In order to simplify logistical support, importance on interchangeability and commonality of parts used for vehicles in this series were also emphasized. For small to medium caliber artillery towing applications, there was sd.kfz.11 3-ton half-track, initial production Version numbered 505 units by 1937. In 1938, engine output was increased from 83 to 110 hp, and standardized as final production model. By end of 1944, total of 7021 units were produced. During later stage of WWII, cab and troop compartment was changed to a uni-body design and extensive use of wood for hull construction material, signifying lack of resources in Axis Germany.

Artillery towed by sd.kfz.11 were, 105 mm leFH18, 75 mm Pak40, Quad-mount 20 mm Flak38, and 37 mm Flak2. During later period, some units were used to tow 88 mm Pak43, plus variants developed to disperse gas, transport rockets, and ambulance applications.

#### Sd. K f z 1 1 / 3 t ハーフトラック

第一次世界大戦の終結後ドイツ陸軍は、将来の戦場における機械化された砲兵部隊の迅速な移動に対応する輸送手段の必要性を感じていました。ヴェルサイユ条約下の制限の中、ドイツ陸軍は、機械化砲兵輸送の根幹をなす牽引車輛のシリーズの開発計画を密かに実行に移したのです。しかしこの当時のドイツの自動車産業には、全装軌式の牽引車輛を大量生産する能力は無く、また、生産の容易な装輪式の車輛では不整地での行動に限界がありました。そこで折衷案として、後方のキャタピラ（トラック）により駆動し、前方のタイヤによってステアリングを切る、半装軌車輛～ハーフトラック～の形状が採用されたのです。この決定は、当時としては最善の妥協策であったといえるでしょう。そして1932年、「Sd. K f z」のタイプ分類名称が与えられた数種類のハーフトラックが、1tから18tにおよぶ牽引能力に基づいて軽、中、重の3レベルに区分され異なった自動車メーカーによって開発・生産が行われることとなりました。

Sd. K f z 1 1 3 t ハーフトラックは、小・中口径火砲用の牽引車輛として、1937年までに最初の生産型の505輛が製造されました。1938年、出力をそれまでの83馬力から110馬力に強化したエンジンを搭載したタイプが登場し、これが最終生産型まで標準となり、1944年末までに、合計で7021輛が製造されました。第二次大戦の末期には、物資の不足の表れとして、デザインを簡略化し、車体の部材に木材を多用するといった変更がおこなわれました。Sd.K f z. 1 1 3 t ハーフトラックによって牽引された火砲には、105mm榴弾砲、Pak 40 / 75 mm対戦車砲、Flak 38 / 20mm4連装対空砲、Flak 36 / 37 mm対空砲等があり、大戦末期にはPak 43 / 88 mm対戦車砲の牽引にも使用され、ガス散布やロケット弾の運搬用、そして野戦救急車へと様々な目的の車輛に改造されて、終戦まで活躍したのです。

### sd.kfz.11 3t半履帶牽引車

第一次世界大戰結束後,德國陸軍兵器局基於未來戰爭的考量,計畫開發一系列火炮牽引車輛,做為機械化砲兵的運輸骨幹,但在<凡爾賽和約>的制約下,此計畫只能在保密的情形下推動。

做為火炮牽引車輛,其走行裝置的構型便成為首先考慮的目標,由於輪型車輛的路外運動能力不佳,戰術運用上受到侷限,而另一方面,當時德國的汽車工業產能尚不足以支應全履帶車輛的全面化需求,因此以履帶驅動,而以車輪換向的半履帶設計便脫穎而出,成為當時最佳的折衷方案。

1932年陸軍兵器局第六課負責督導此一系列半履帶牽引車輛的開發工作,並以其牽引能力由1t至18t分別歸納為輕,中,重三種等級,分別由不同的汽車工廠進行開發,並均冠予sd.kfz的制式型號,同時為了追求部品的一致,各車種間零件的互換性也獲得高度的重視。

其中以輕,中口徑火炮牽引為目標的sd.kfz11 3t半履帶車之先期量產車於1937年完成505輛的生產,1938年起將引擎出力由83HP增加至110HP,外觀上並無太大差異,成為標準量產型,至1944年止共生產7021輛,至大戰末期為提高生產性縮短工時,駕駛室與兵員室構造一體化,並使用木材製造車身,更凸顯了資材缺乏的窘境。

在實際的運用上, sd.kfz11主要用來牽引的火炮包含:105mm leFH18, 75mm Pak40, 4聯裝20mm Flak38及37mm Flak43, 後期並有少數用來牽引88mm Pak43, 此外,尚有部分衍生型供毒氣散佈, 搭載火箭彈及救護車之用。

### Illustration:圖示說明



Agglutinate  
用膠黏合



No Agglutinate  
不用黏合



Make 2 Sets  
二組製作



Cut Off  
切除



Optional  
選擇使用



Remove  
將其磨去



File Hole  
把孔填平



Instant Glue  
使用瞬間膠

### Method For Applying Decals:

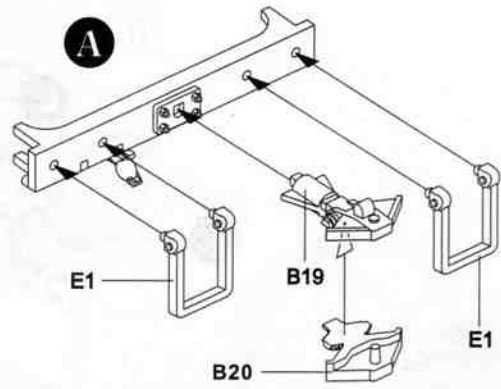
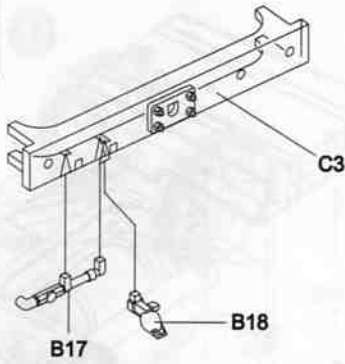
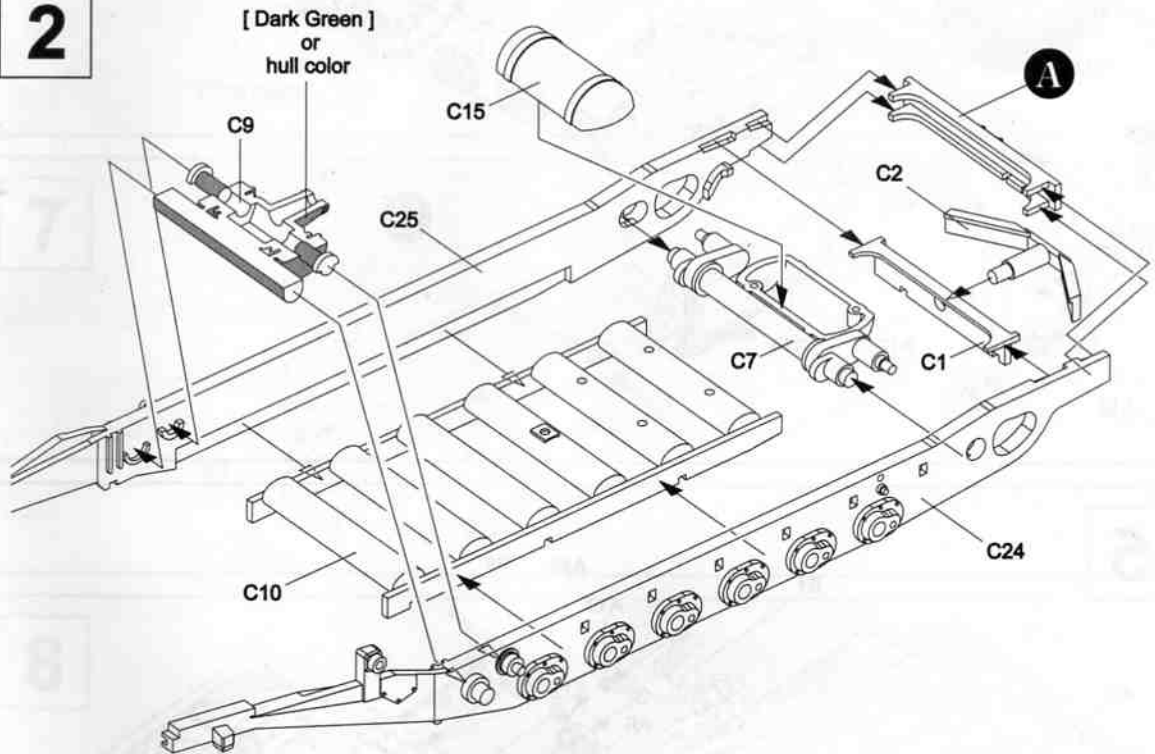
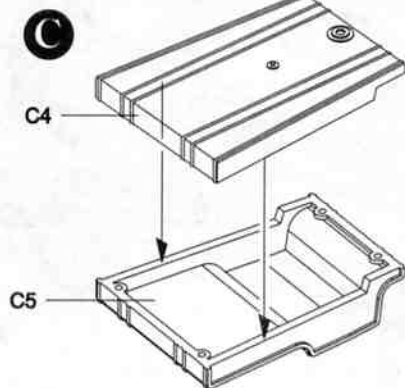
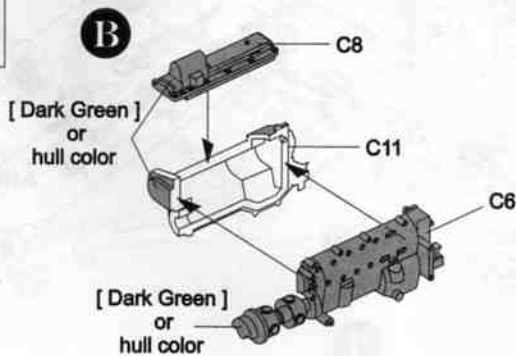
1. Clean Model Surface With Wet Cloth.
2. Cut Out Of Decal Sheet And Dip Them In Water For 15 Seconds.
3. Place it on proper position on model.
4. Slide off base paper leaving decals on Model With Wet Finger Tip.
5. Move Decals To Exact Position, Push Out Excess Water Under Decal With Soft Cotton Cloth.
6. When Decals Get Dry Then Complete.

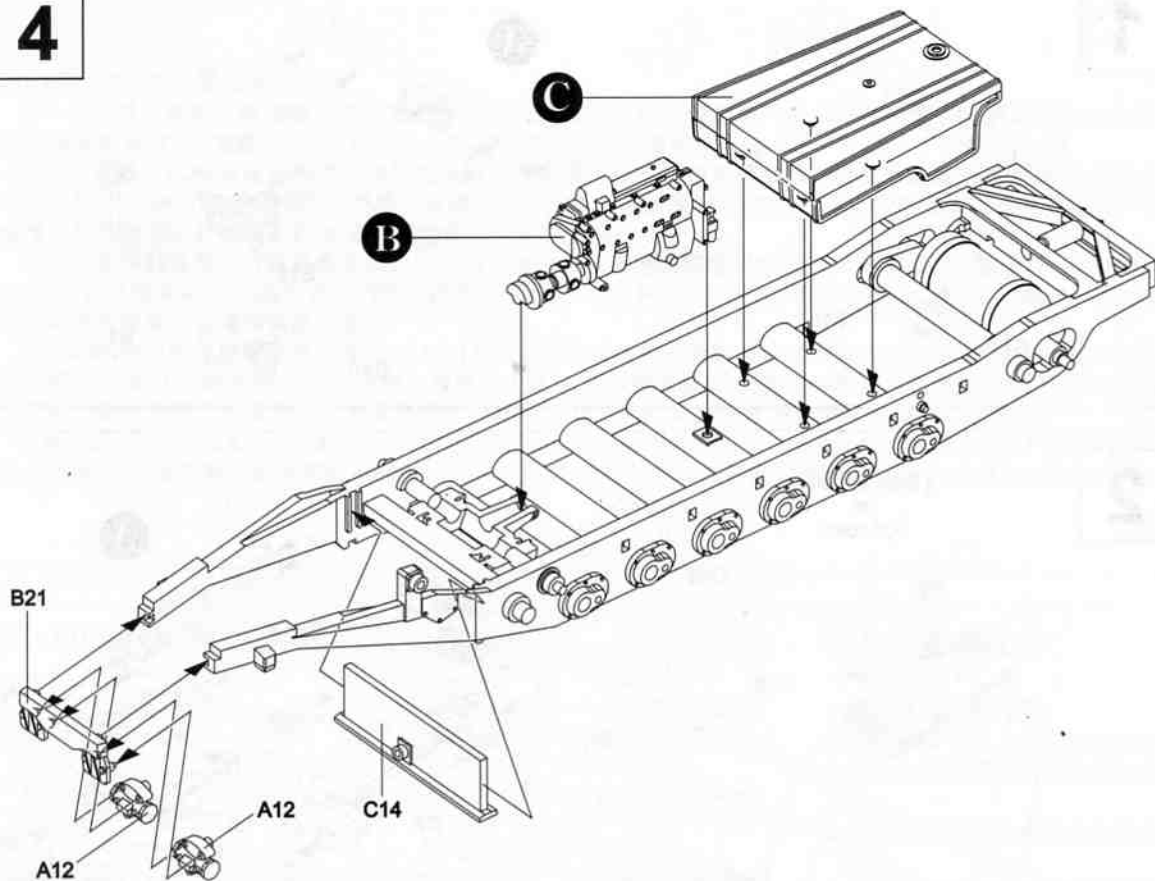
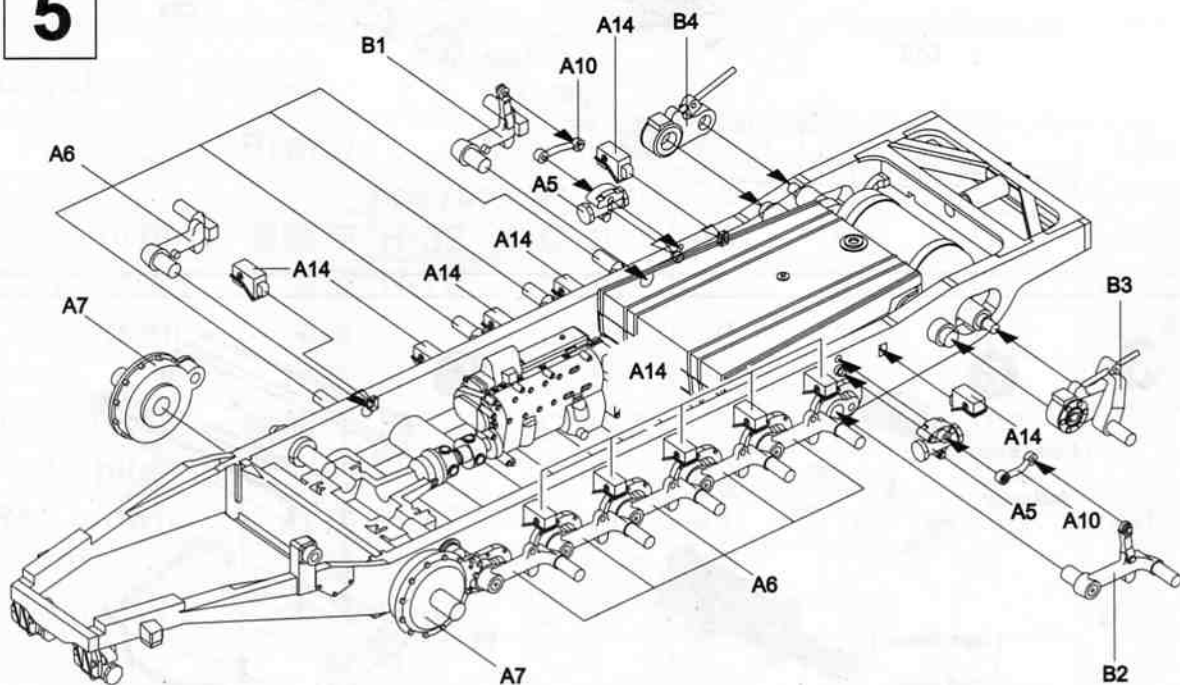
### 水貼紙使用說明:

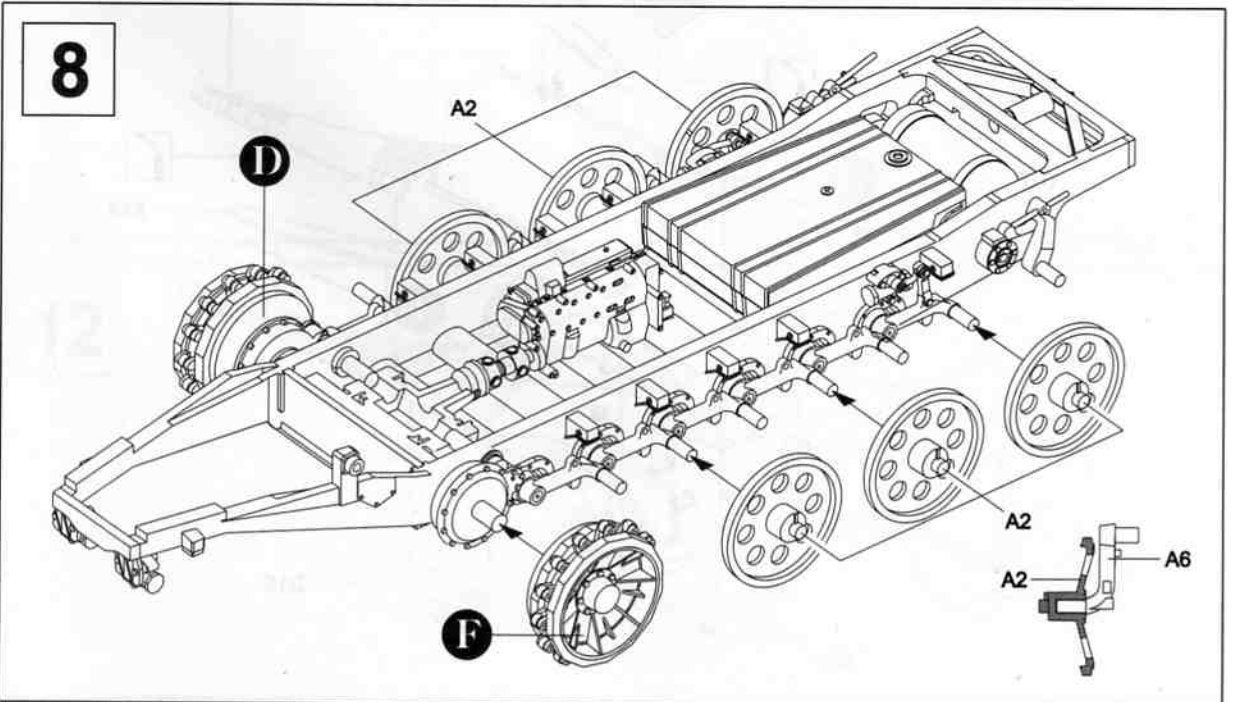
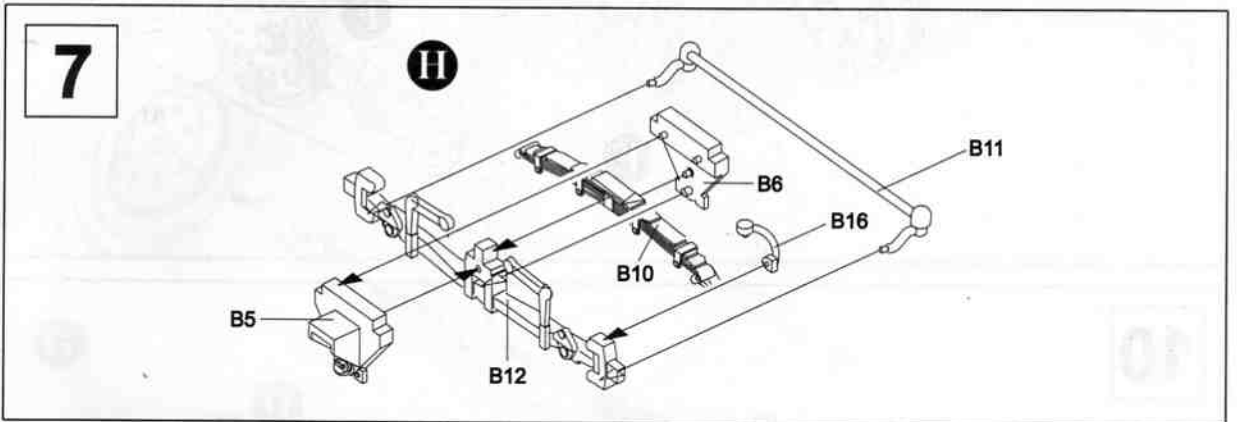
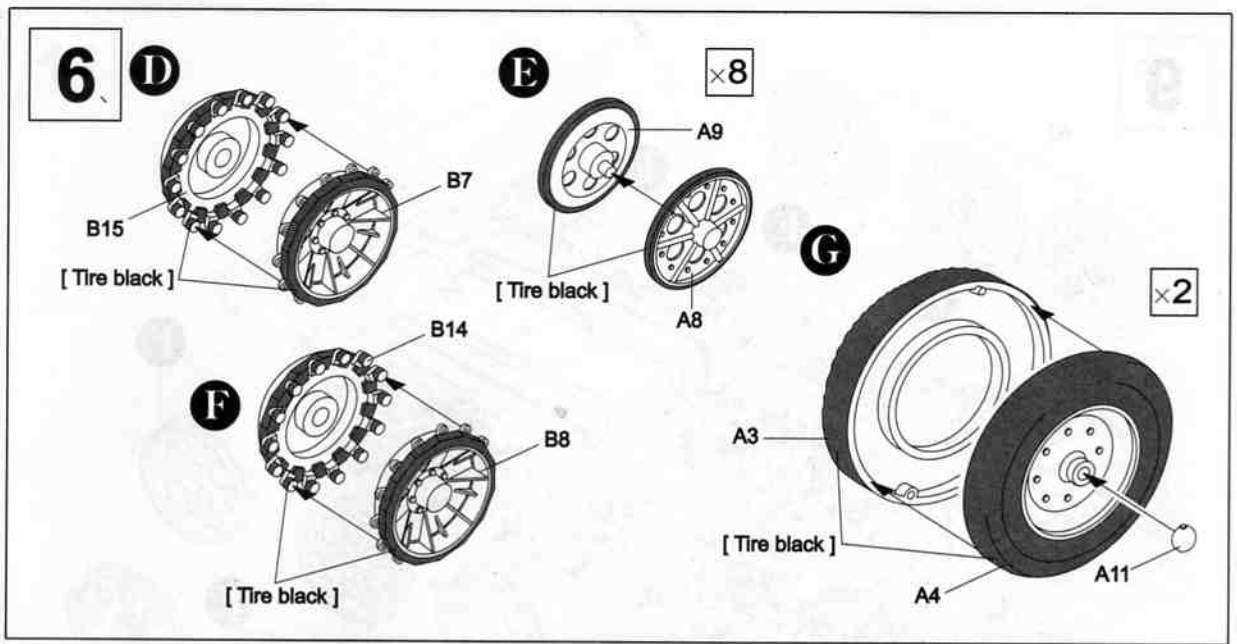
1. 將模型表面擦乾淨
2. 將貼紙剪下泡入清水中約15秒
3. 將泡濕之貼紙取出置於欲貼處旁
4. 用指尖輕推貼紙表面使其滑出底紙
5. 將貼紙調整至適當位置並輕擦拭水份
6. 待其自然乾燥後即完成

### Color list: 塗料表

Color	Brand	MR. HOBBY			Humbrol	Revell	Life Color
		Hobby Color	Mr. Color	Mr. Color Spray			
German gray	德國灰	H-32	C-40	J-40	92	79	UA073
Dark yellow	深黃	H-79	C-39	J-39	63	16	UA081
Dark green	深綠		C-70	J-70	149	363	UA083
Steel	黑鐵	H-18	C-28	J-28	53	91	LC76
Tire black	輪胎黑	H-77	C-137		85	302	LC02
Flat white	消光白	H-11	C-62	J-62	34	05	LC01
Red brown	紅褐	H-47	C-41	J-44	160	383	UA082
Silver	銀	H-8	C-8	J-8	11	90	LC74
Khaki	卡其	H-81	C-55		159		UA097
Red	紅	H-3	C-3	J-3	19	31	LC56
Metallic green	亮綠	H-89	C-77	J-77	131	364	

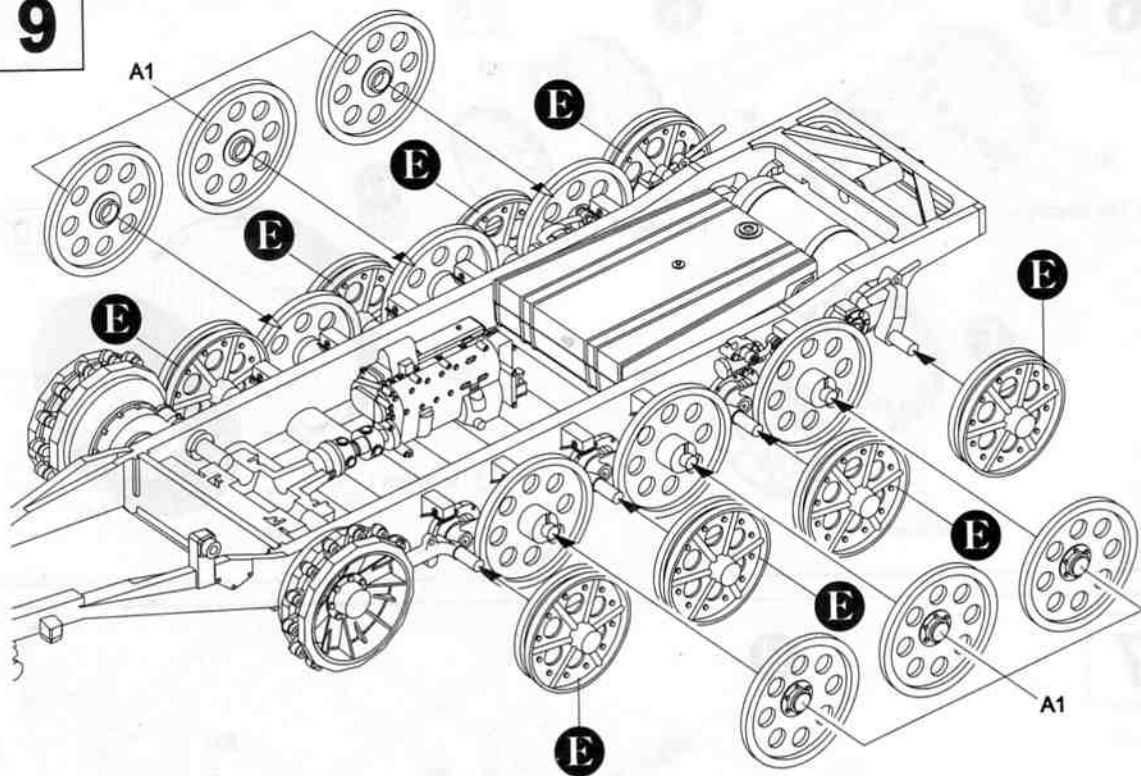
**1****2****3**

**4****5**

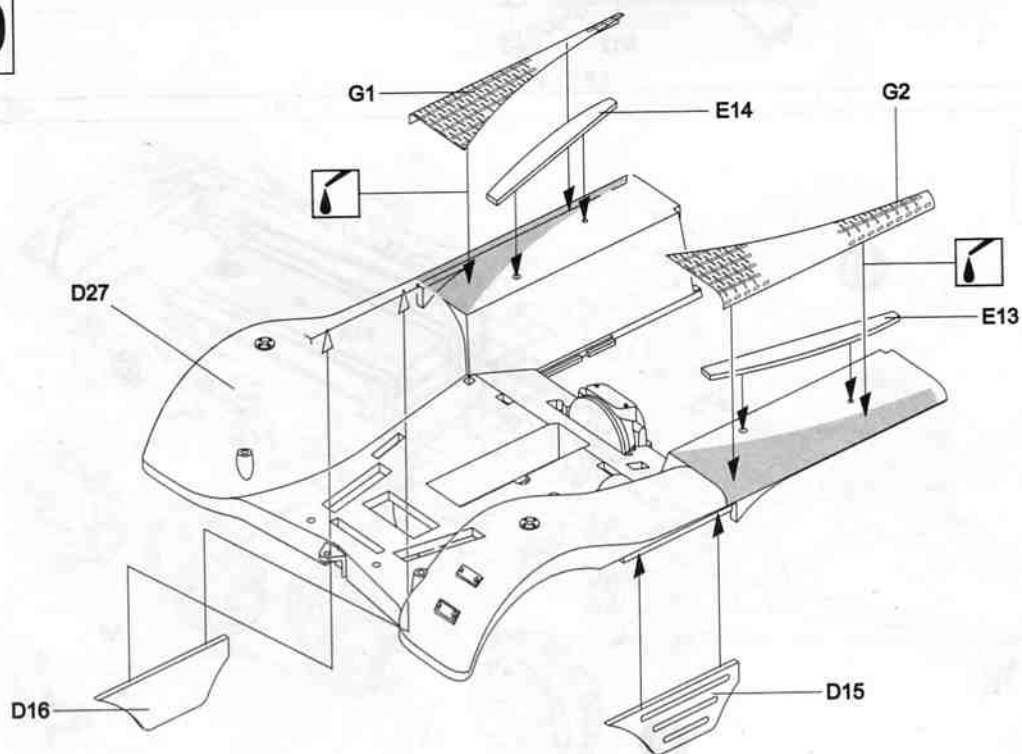




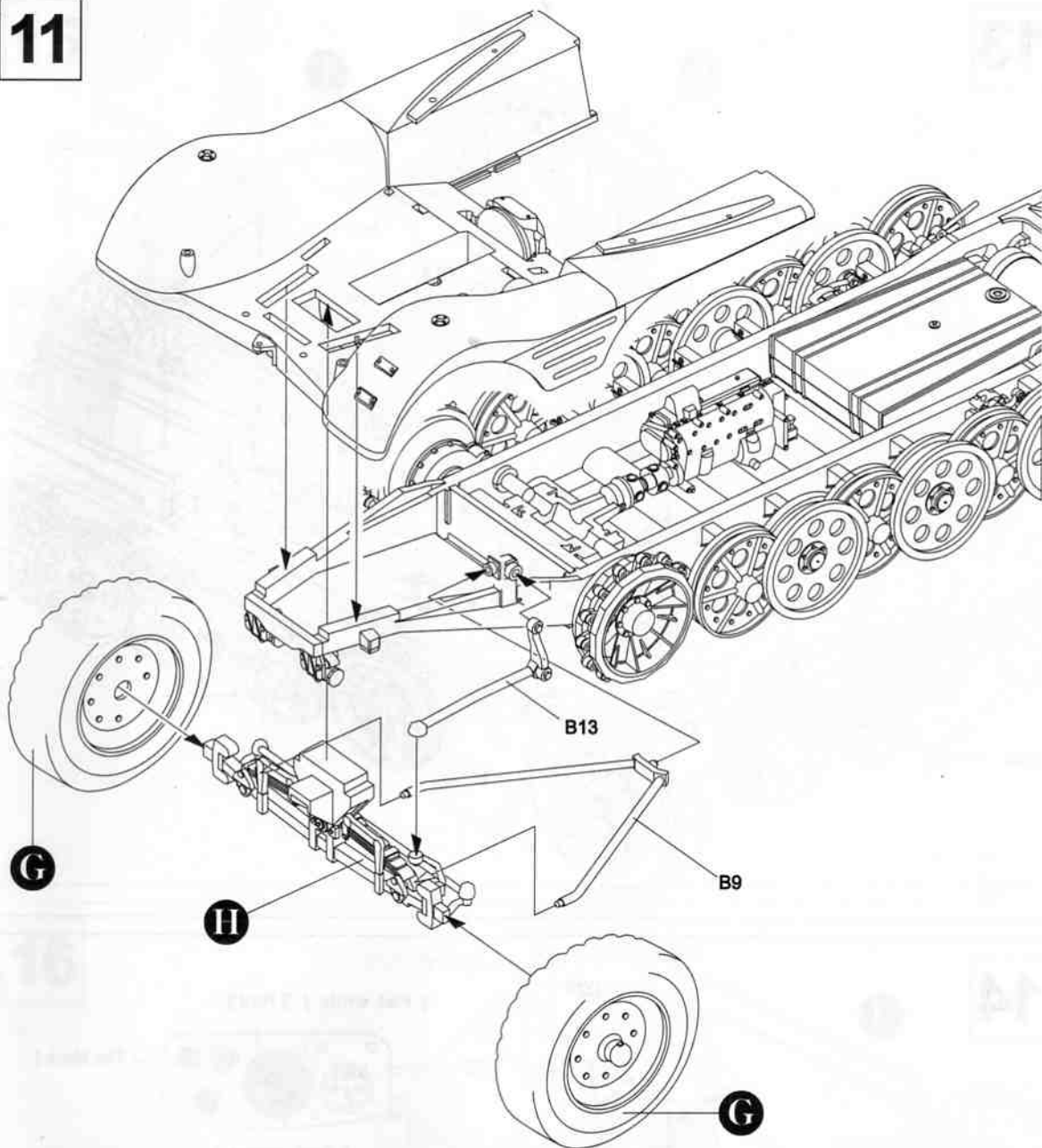
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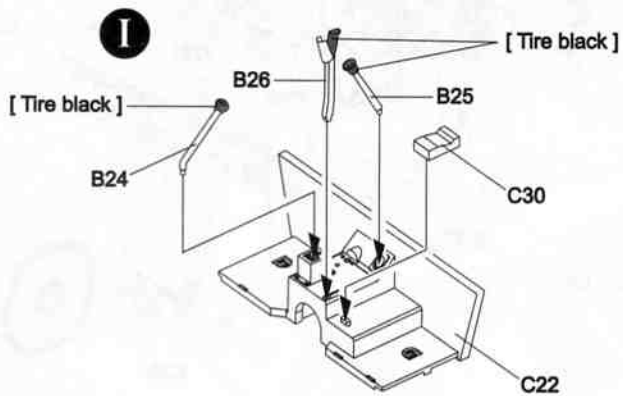
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11



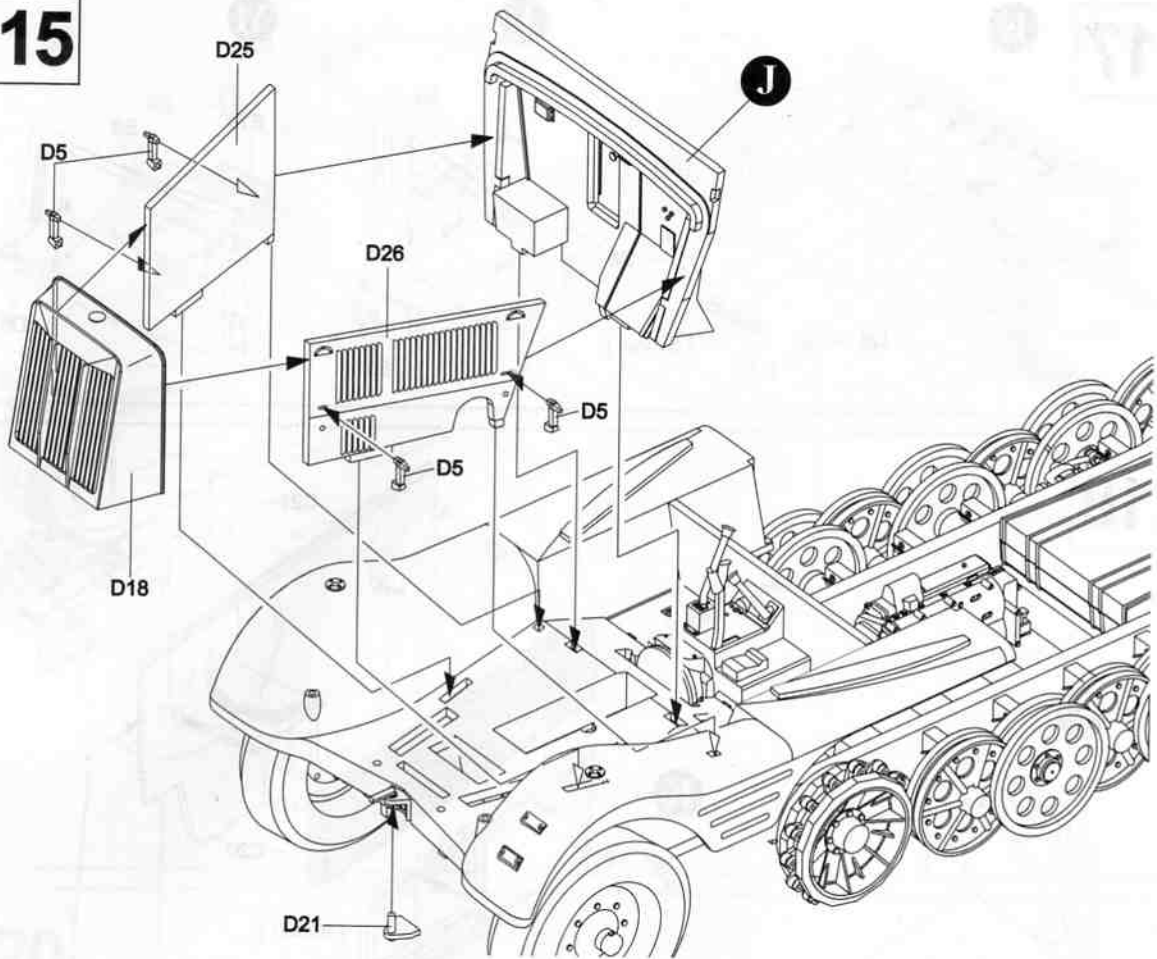
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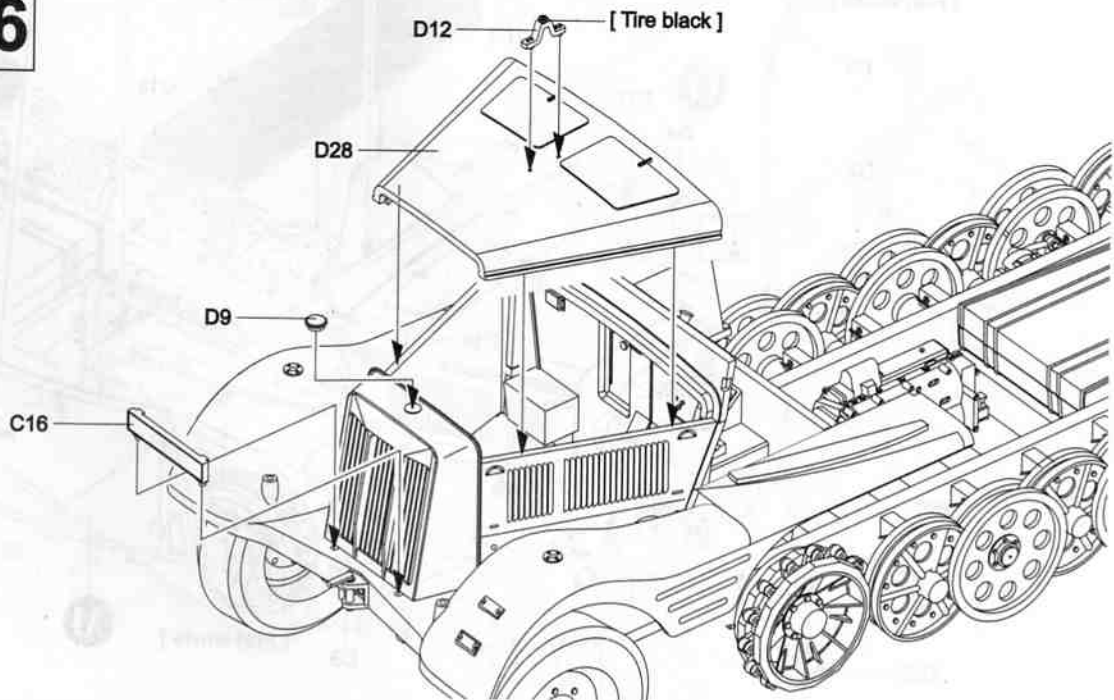




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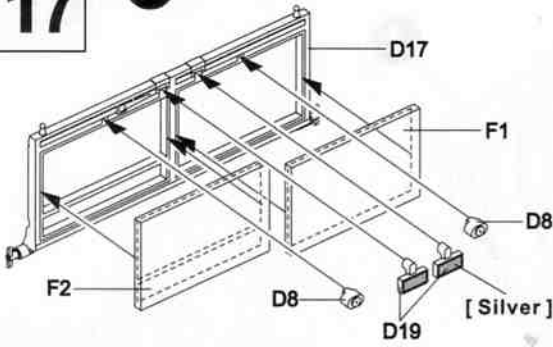


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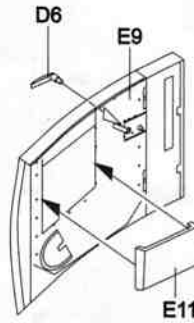


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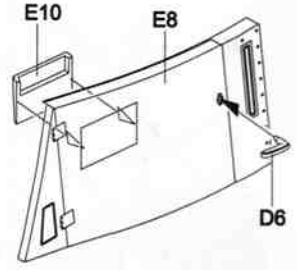
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L

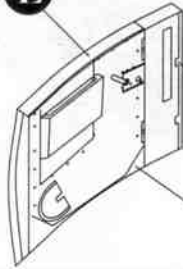


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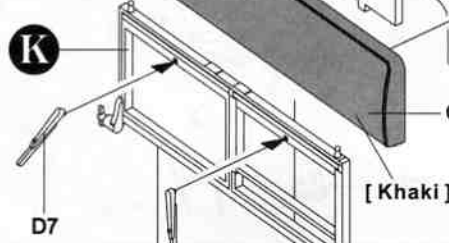


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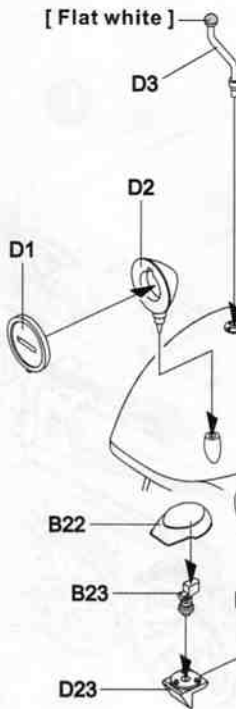
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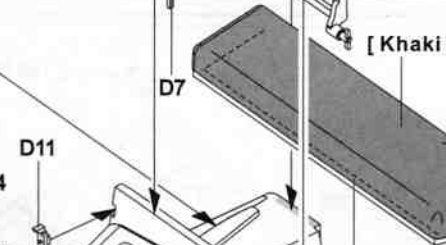
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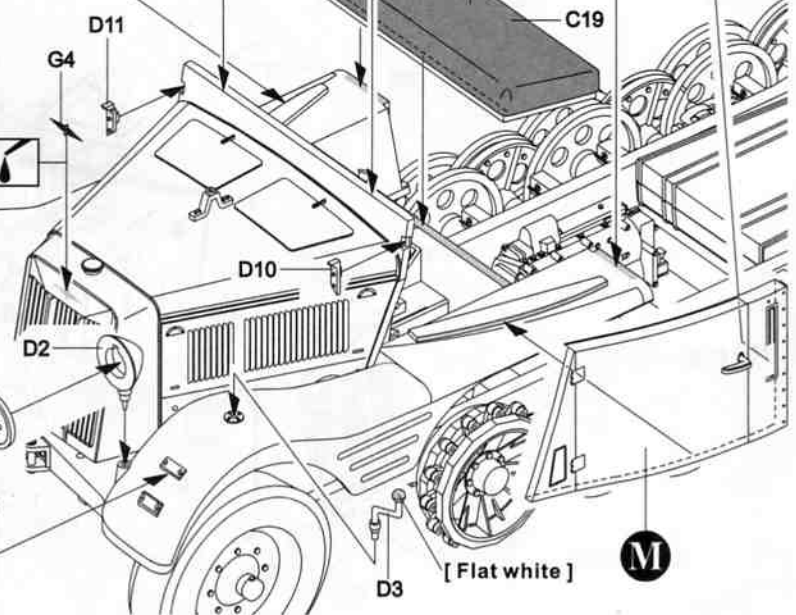
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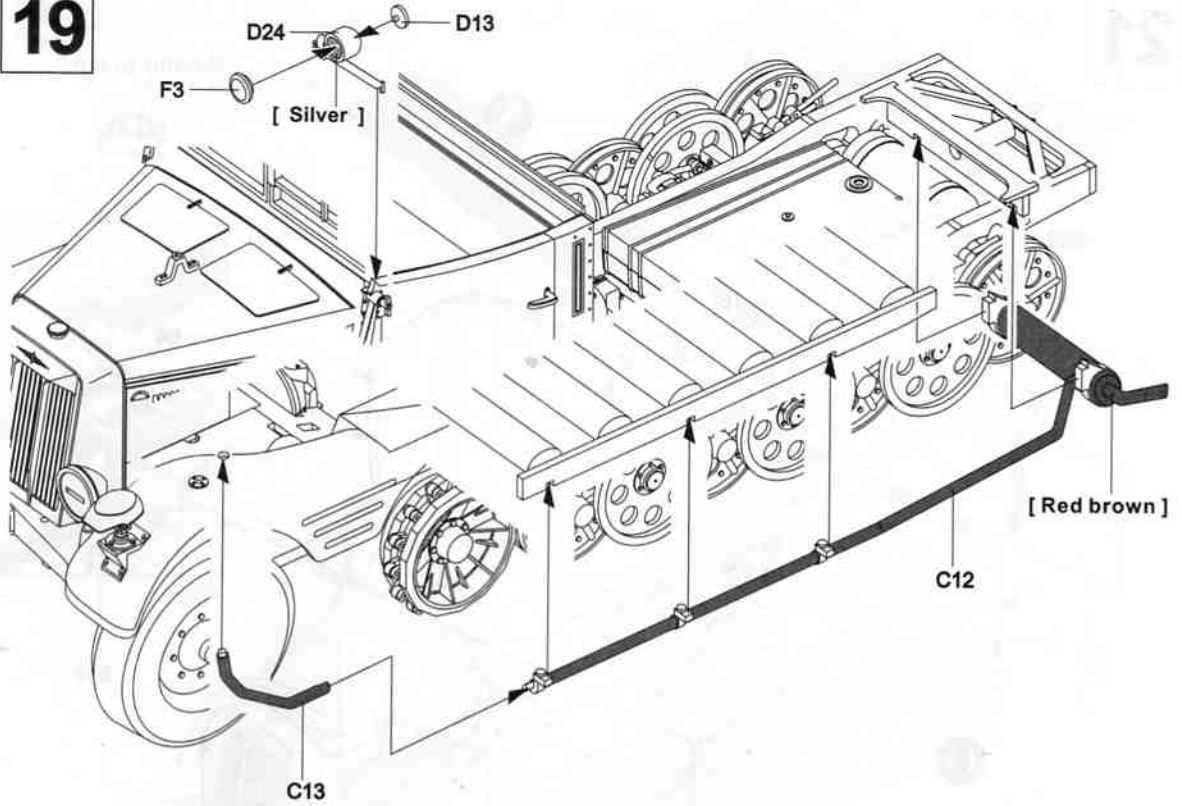
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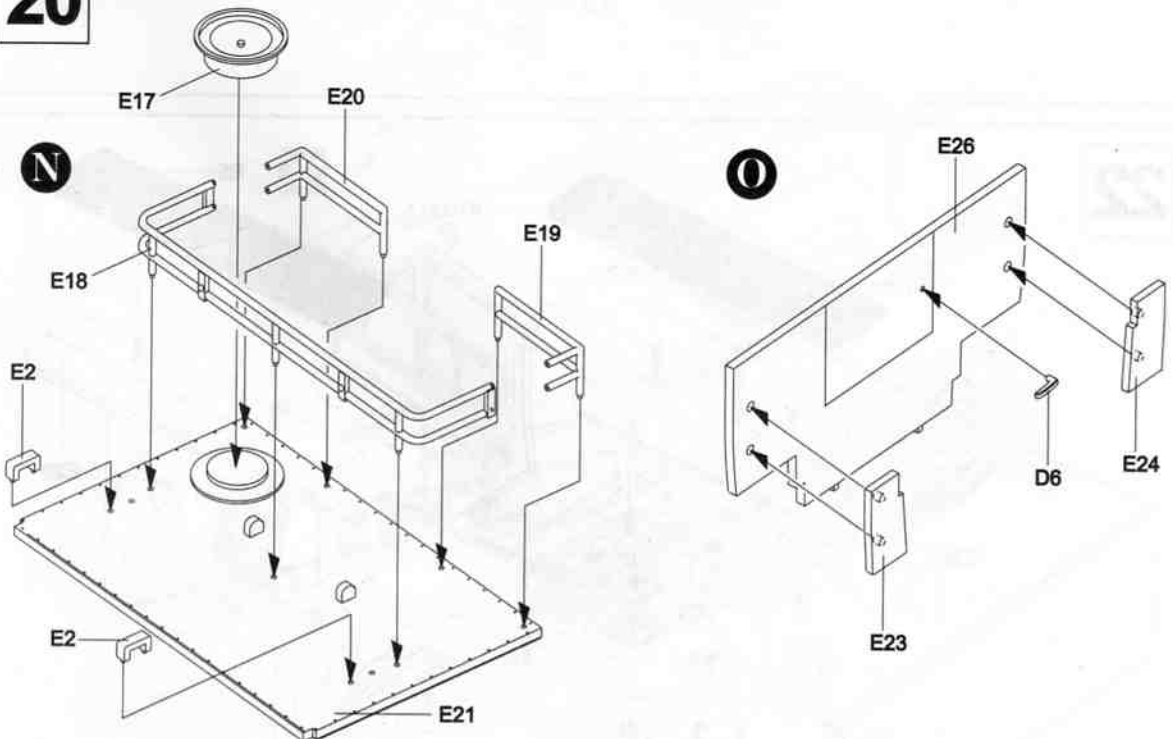
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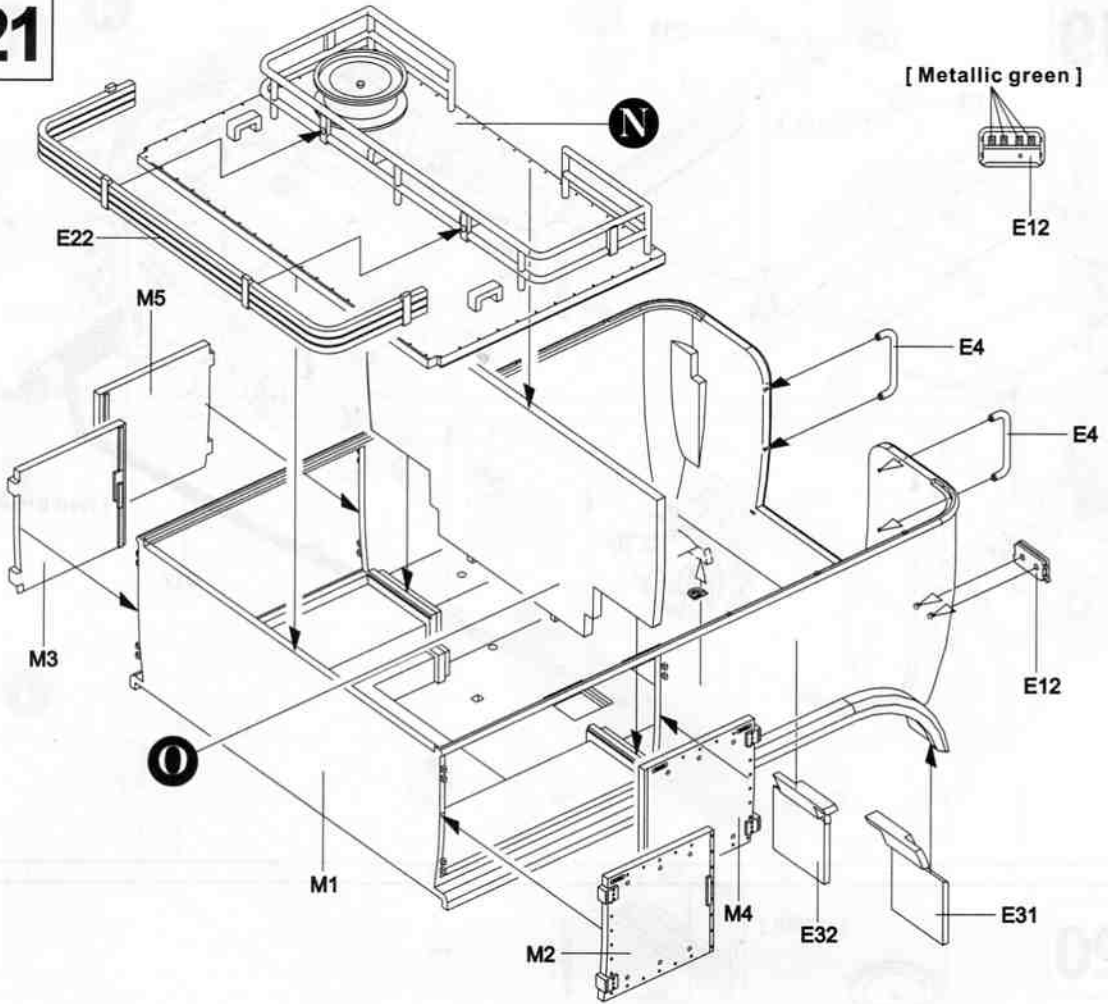
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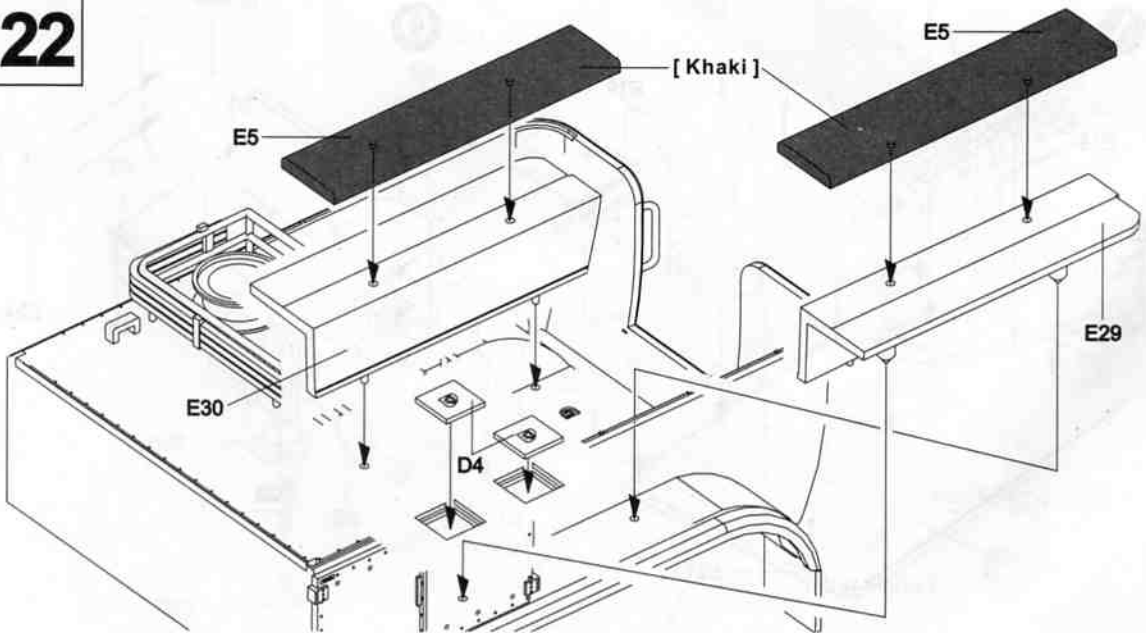
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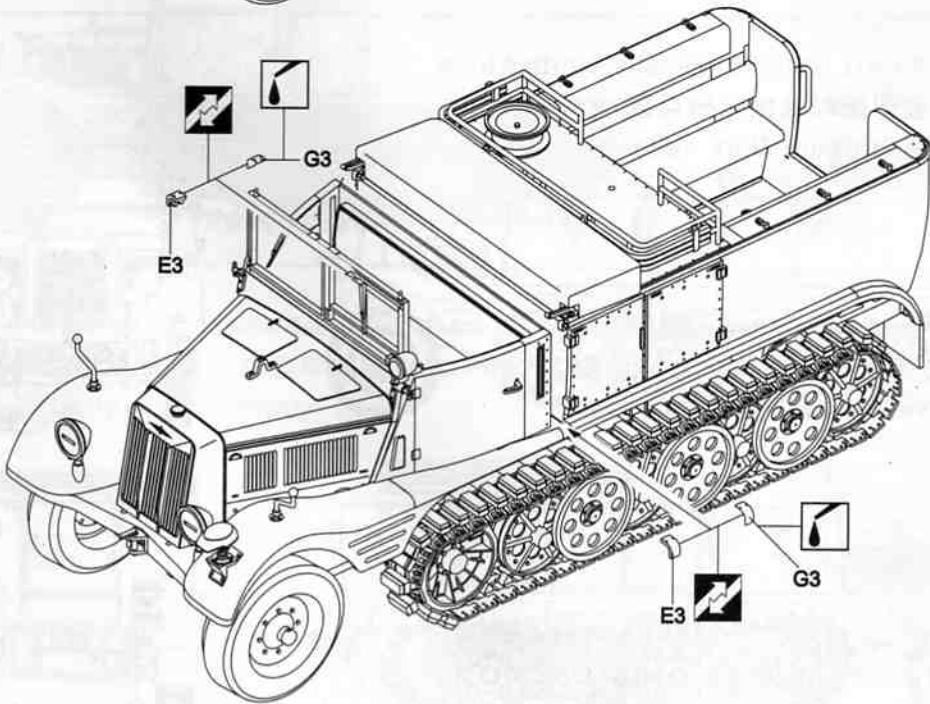
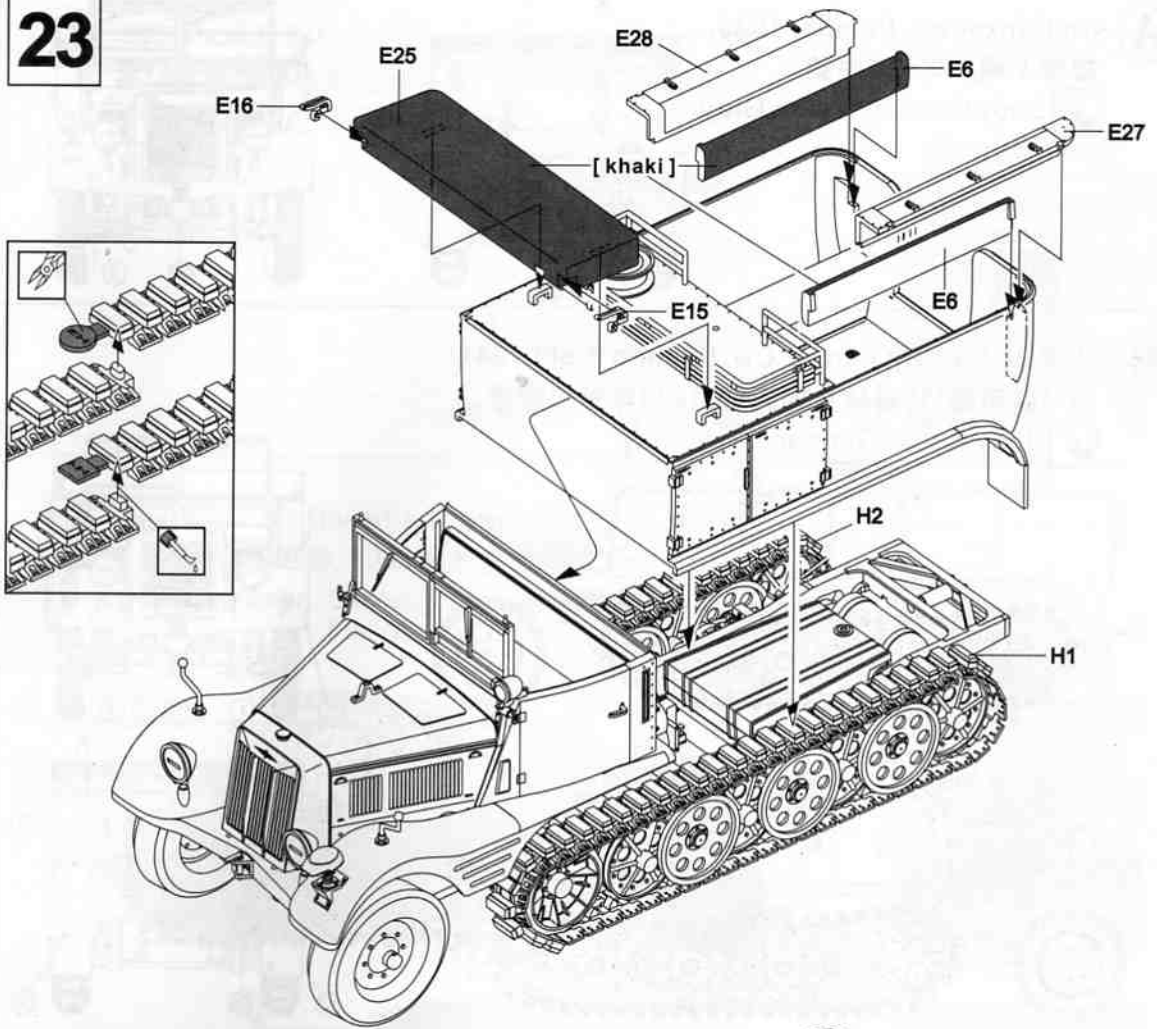
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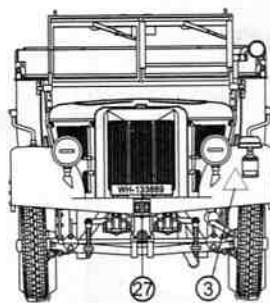
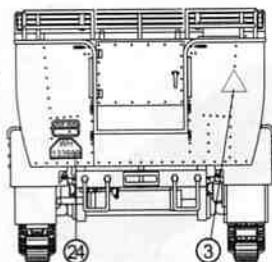
23



**A** Unit Unknown, Poland, 1939.


部隊不明, 1939年波蘭

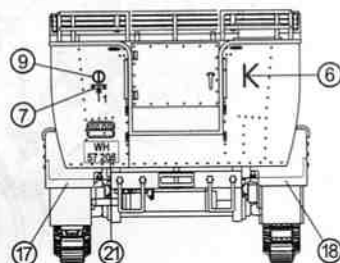
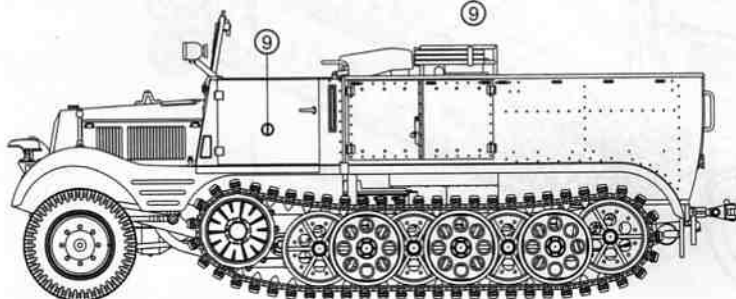
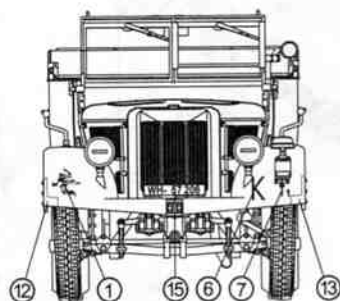
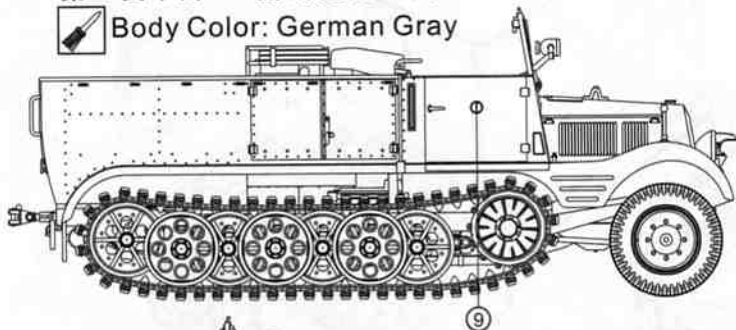
 Body Color: German Gray



**B** 119 Pz Art, 11th Panzer Div, Eastern Front 1941.


第11裝甲師119機械化砲兵營, 1941年東部戰線.

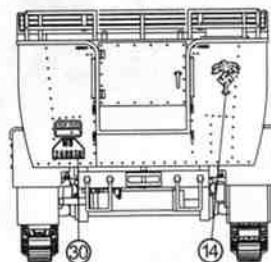
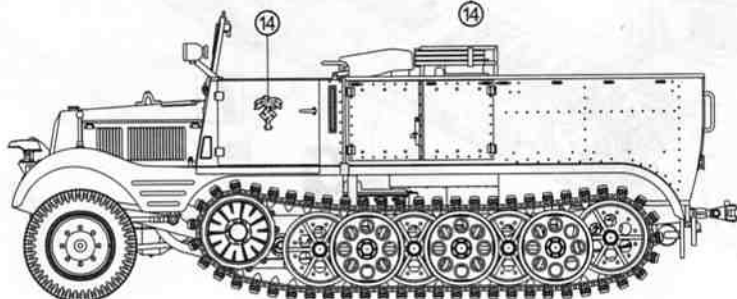
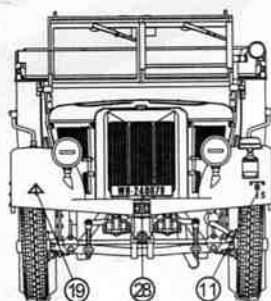
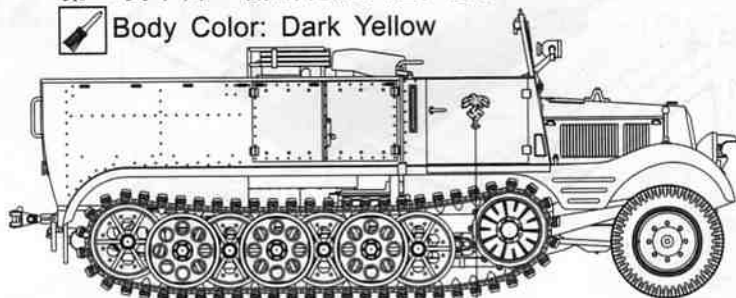
 Body Color: German Gray



**C** 33th Pz Art, 15th Panzer Div, North Africa

第15裝甲師33機械化砲兵營, 北非


 Body Color: Dark Yellow

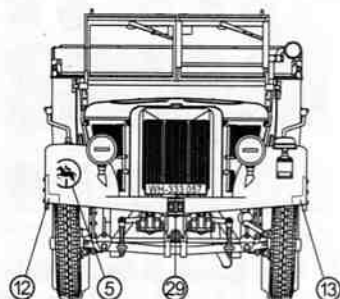
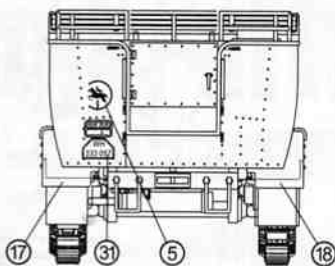




**D** 89th Pz Art, 24th Panzer Div, Eastern Front 1942.




第24装甲師89機械化砲兵營, 1942年東部戰線.

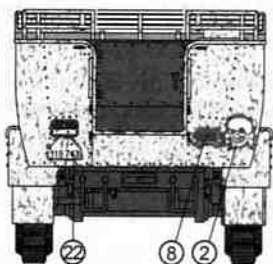
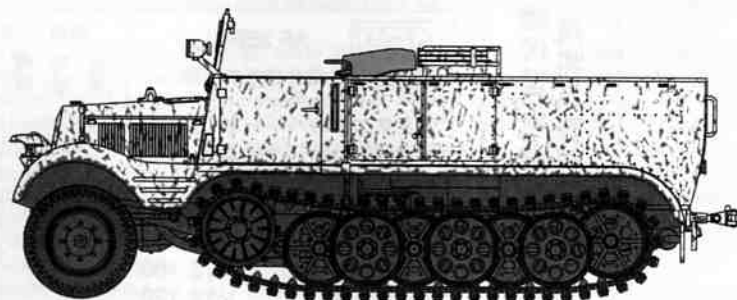
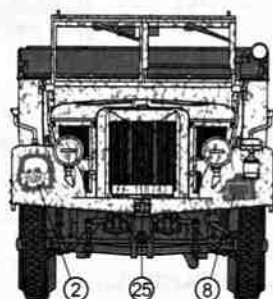
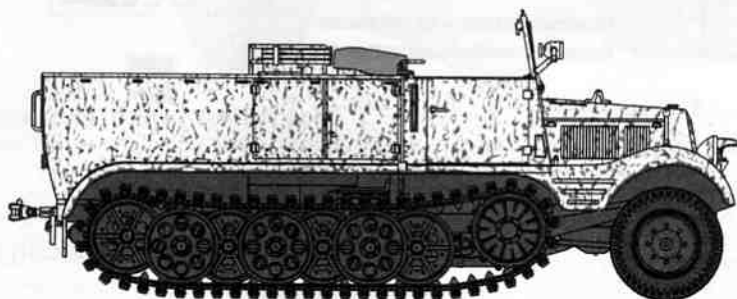
 Body Color: German Gray



**E** SS 3th Panzer Div, Kharkov, 1943


黨衛軍第3装甲師. 1943年卡爾可夫

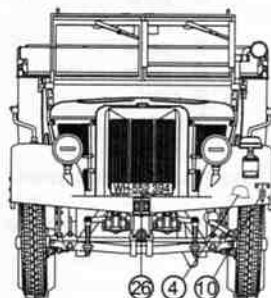
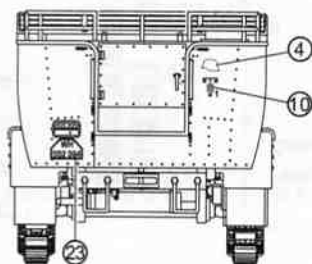
 Body Color: German Gray   
Flat White 



**F** 4th Pz Kp "Grossdeutschland" Panzergrenadier Division . July 1942.

第4装甲軍, 大德意志装甲擲彈兵師. 1942年7月

 Body Color: German Gray



# PARTS LIST 零件表

Parts :

A	2	D	1	M	1	I	1
B	1	E	1	G	1		
C	1	F	1	H	1		

## Instructions:

If for some reason, you are not fully satisfied or have questions concerning our product; Please use the form provide, and send it to our nearest representative or mail it directly to our office.

We will deal with that A.S.A.P.



### AF 35040 Parts Replacement Form

- |                                  |                                  |
|----------------------------------|----------------------------------|
| <input type="checkbox"/> A parts | <input type="checkbox"/> H parts |
| <input type="checkbox"/> B parts | <input type="checkbox"/> I parts |
| <input type="checkbox"/> C parts | <input type="checkbox"/> M parts |
| <input type="checkbox"/> D parts |                                  |
| <input type="checkbox"/> E parts |                                  |
| <input type="checkbox"/> F parts |                                  |
| <input type="checkbox"/> G parts |                                  |

Reason for replacement:  Missing  broken

Signature: \_\_\_\_\_

限台灣地區使用 For Taiwanese use only!

總代理：戰鷹企業 客服部收 本公司將盡速為您處理  
請將本表與該部品相同金額之郵政匯票一同寄至



AF 35040

零件補充申請表

- |                                 |          |
|---------------------------------|----------|
| <input type="checkbox"/> A 部品零件 | NT\$ 280 |
| <input type="checkbox"/> B 部品零件 | NT\$ 120 |
| <input type="checkbox"/> C 部品零件 | NT\$ 240 |
| <input type="checkbox"/> D 部品零件 | NT\$ 200 |
| <input type="checkbox"/> E 部品零件 | NT\$ 200 |
| <input type="checkbox"/> F 部品零件 | NT\$ 60  |
| <input type="checkbox"/> G 部品零件 | NT\$ 120 |
| <input type="checkbox"/> H 部品零件 | NT\$ 160 |
| <input type="checkbox"/> I 部品零件 | NT\$ 160 |
| <input type="checkbox"/> M 部品零件 | NT\$ 160 |

郵寄費---- NT\$ 80

請填 總計 NT\$:

零件補充原因:(請於  打 )

原包裝即  遺失或  毀損,

製作途中  遺失或  毀損,

其他原因 \_\_\_\_\_

申請人  
姓名 地址 電話  
: : :