



M109G

155mm
self-propelled howitzer

Since WWII, the self-propelled guns in the United States Army inventory have been developed from tank chassis. Operationally, such chassis could not fulfill the requirements for mounting a howitzer. Moreover, they lacked armor protection for its crew.

At the end of WWII, the Cold War heightened. In response, the Army expressed a need for new, fully armored, tracked type, self-propelled artillery during a meeting in Washington in January of 1952. Development of such concept commenced soon after the meeting. The design consisted an aluminum-alloyed chassis with amphibious capability and a turret with 360° traverse which carried either a 110mm or a 156mm barrel. Two variants differing only in armament were designated T195 and T196. The barrel sizes were later replaced with the more traditional 105mm and 155mm, respectively.

The T196E1 with a 155mm barrel and officially designated the M109 began production in 1961 following improvements to both its diesel power train and suspension systems.

The M109 howitzer was first deployed to Vietnam in June of 1966; often to fire support bases. By 1968 as many as 108 M109s, which utilized a 23 caliber cannon, had been deployed. To increase firing range, the cannon relied on a stronger propellant, which caused corrosion inside the barrel thus shortening the cannon's useful life. The problem was solved by adapting a cannon with 39 caliber. The new vehicle was designated the M109A1. Existing M109s were later upgraded to M109A1 standards. The short-barreled M109 was in production until 1969 with a total of 3786 units produced. Among them 1675 units were exported. West Germany received the most exported units.

Between 1964 and 1972 West Germany purchased 586 M109A1's and -A2's from United States. Post procurement modifications included a new cannon barrel from Rheinmetall, which consisted of a horizontal sliding gun breach and a new muzzle break. The new cannon was capable of firing up to six rounds per minute at a range of 18,500 meters. In addition, the firing control system was switched to a German designed unit and a three-barreled smoke launcher was installed on each side of forward turret. The commander's cupola was changed to the same unit used on the M113 troop carrier and the original Browning M2 machine gun was replaced by a German MG3. Lastly, a new designation (M109G) was given to the modified vehicles. The M109G served the German Army throughout the 1980's of the last century and was succeeded by the long barreled M109A3GA1.

Text Edited by

John D. Miller, Ph.D.

CEO Model Paint Solutions.com

第二次世界大戦以来、米軍の自走砲は戦車のシャーシをもとに開発されました。運用上、このタイプの自走砲は榴弾砲を取り付けるための要件を満たしておりませんでした。さらに、装甲も乗組員の安全を守るのに十分とは言えませんでした。

第二次世界大戦終了後、東西間の冷戦が激化しました。1952年1月にワシントンD.C.で開催された会議の中で、米国陸軍代表者は完全装甲履帯式自走砲の必要性を訴えた。会議の後、概念研究が行われ、新型の自走砲は新しく開発したアルミニウム合金製のシャーシを採用し、浮遊機器の設置により水陸両用作戦に投入できるようになりました。360度回転できる砲塔は、110mm口径もしくは156mm口径の大砲を搭載することができ、それぞれT195とT196と命名されました。しかしすぐに従来の105mmと155mmの大砲に置き換えられました。

ディーゼルエンジンの交換とサスペンションの改良後、155mm口径のT196E1は1961年に量産を開始し、正式にM109を名付けられた。1966年6月にM109は初めてベトナムの戦場に投入し、支援基地内での使用がメインでした。1968年には108台のM109戦場に投入し、支援基地内での使用がメインでした。1968年には108台のM109の配備数は108台とピークに達しました。M109に使用する23口径の大砲の射程を伸ばすため、より強力な推進剤に頼らなければなりません。しかし砲身が侵食され、寿命が短くなる原因となりました。この問題は39口径の大砲を開発することで解決しました。新しい車両の型式番号はM109A1とされ、既存のM109も徐々にM109A1にアップグレードを行ないました。短い砲身のM109は1969年まで合計3786台生産され、そのうち1675台は輸出用でした。西ドイツは最も輸入したユーザーでした。

1964年から1972年の間、西ドイツはアメリカからM109A1及びM109A2自走砲を586台購入しました。調達後の変更として、ラインメタル社製の砲身に置き換えられました。新しい主砲の射程は18,500メートル、発射速度は毎分最大6発でした。西ドイツの発射制御システムを採用し、砲塔の前に3連式スモークランチャーを2基追加されました。車長用キューポラはM113兵員輸送車で使用していたタイプに置き換え、M2機関銃もドイツのMG3機関銃に置き換えました。改良を加えた自走砲は新たにM109Gと命名され、1980年間にM109Gと命名され、1980年代後半までドイツ軍で使用されたのち、より砲身の長いM109A3GA1に置き換えられました。

二次大戰以來，美國軍隊使用由戰車底盤發展而來的自走砲。這種底盤的自走砲在運用上未必能滿足發射榴彈的需要，通常也沒有足夠的裝甲來保護乘員的安全。

二戰結束後，東西方冷戰持續加劇。1952年1月，美國陸軍代表在華盛頓特區的一場會議中，反應了對全裝甲履帶式自走砲需求迫切的態度。會議之後隨即展開概念研究，新型自走砲採用全新鋁合金材質底盤，在安裝了浮渡設備後能夠進行兩棲作戰。能夠360°旋轉的砲塔，可選擇搭載110毫米與156毫米兩種口徑火炮，分別被命名為T195與T196。但很快的，火炮被更換成105毫米與155毫米兩種傳統的口徑。在經過更換柴油發動機以及進行懸吊的改良後，155毫米口徑的T196E1在1961年開始量產，被賦與了M109的正式型號。

1966年6月M109首度在越南投入戰場，最常被安排在火力基地當中使用，1968年時的部署達到了108輛的高峰。M109使用的23倍徑火炮為了增加其射程，必須仰賴更強力的發射藥，這對砲管的侵蝕作用使得砲管的壽命縮減。為了解決射程的問題，日後產生了39倍徑的M109A1，既有的M109也被陸續升級至M109A1標準。

1964至1972年間，西德先後兩次向美國採購586輛M109A1與M109A2自走砲。將這批自走砲更換萊茵金屬公司生產的砲管，採用水平滑楔式砲栓與新型砲口制退器。修改後火炮射程達到18500公尺，每分鐘發射的速度達到六發。火炮採用西德的射控系統，並在砲塔前增設兩具三聯裝煙幕發射器。車長塔更換為M113裝甲運兵車所使用的型式，並以德國的MG3機槍取代原本的白朗寧M2機槍。修改完成的自走砲型號稱為M109G，在德國軍隊中服役至上個世紀八零年代末，由長砲管的M109A3GA1所取代。

Illustration:圖示說明



Method For Applying Decals:

1. Clean Model Surface With Wet Cloth.
2. Cut Out Of Decal Sheet And Dip Them In Warm 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. 將貼紙剪下泡入溫水中浸泡約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

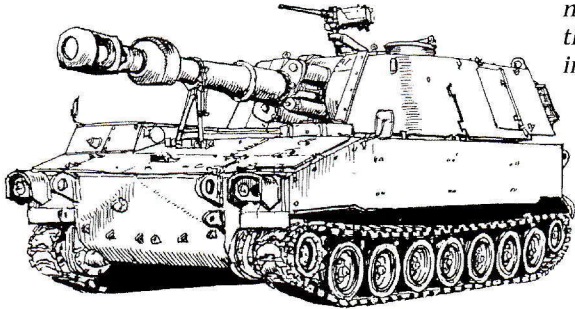
Color list: 塗料表

Color	Brand	GSI Creos			Humbrol	AV Vallejo	Lifecolor
		Hobby Color	Mr.Color	Mr.Color Spray			
Black	黑	H2	C2	S2	21	70861	LC52
Bright blue	寶藍	H15	C65	S65	14	70841	LC60
Flat black	消光黑	H12	C33	S33	33	70950	LC02
Flat red	消光紅	H13			73	70957	LC06
Flat white	消光白	H11	C62	S62	34	70919	LC01
Olive drab(2)	橄欖褐	H78	C38	S38	66	71043	UA106
Red	紅	H3	C3	S3	19	70926	LC56
Russian green(1)	蘇軍綠		C135			70894	UA258
Russian green(2)	蘇軍綠		C136		114	71017	UA260
Sail color	帆布	H85	C45		28	72149	UA099
Sandy yellow	砂黃	H79/H403	C39	S39	83	70916	UA081
Steel	黑鐵	H18	C28	S28	53	77712	LC76
Tire black	輪胎黑	H77	C137		85	70950	LC02

M109 155mm self-propelled howitzer forms the backbone of US Army artillery units.

M109 (1962)

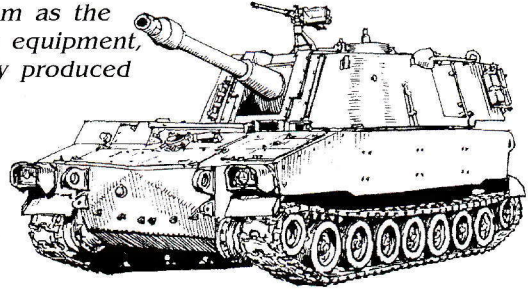
The maximum range 14,600 meters.



M108 105mm self-propelled howitzer (1963)

Share the same chassis and turret as M109

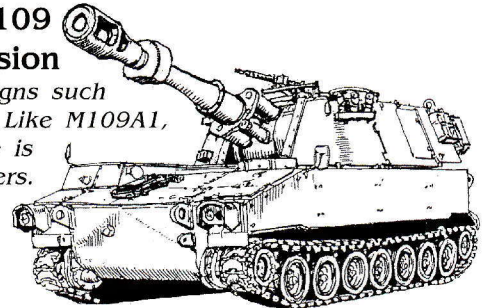
US Army use 155mm as the mainstream artillery equipment, therefore M108 only produced in small numbers.



M109

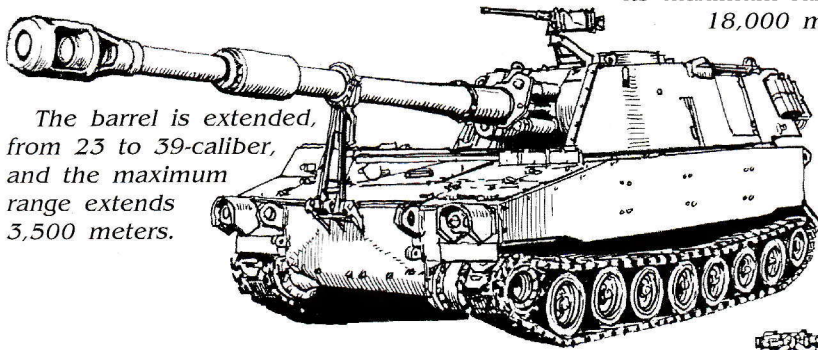
West German Army version

Distinguished by unique designs such as short barrel, and lock bolt. Like M109A1, its maximum range is 18,000 meters.



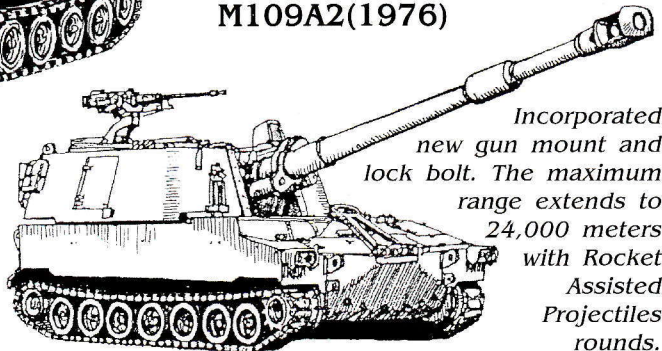
M109A1 (1970)

The barrel is extended, from 23 to 39-caliber, and the maximum range extends 3,500 meters.



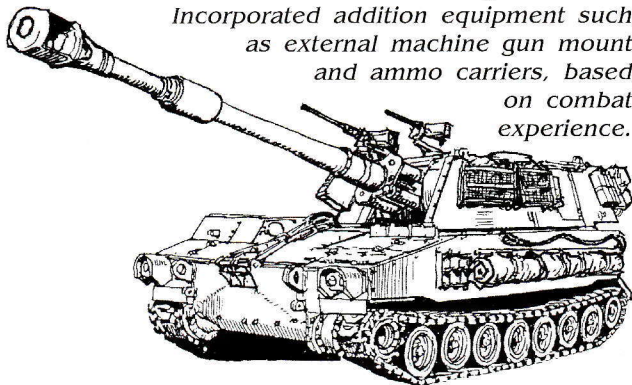
M109A2(1976)

Incorporated new gun mount and lock bolt. The maximum range extends to 24,000 meters with Rocket Assisted Projectiles rounds.



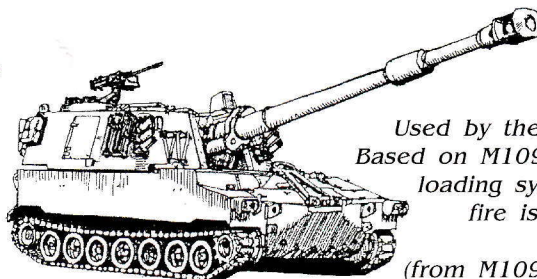
M109AL Israeli Army version

Incorporated addition equipment such as external machine gun mount and ammo carriers, based on combat experience.



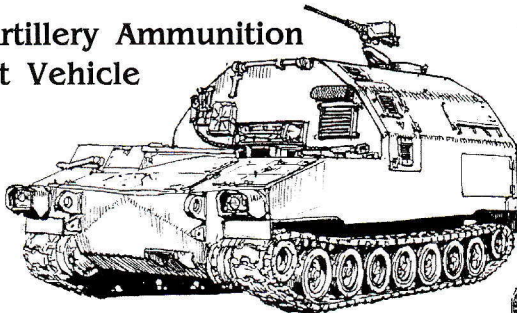
PzH74

Used by the Swiss Army. Based on M109A1 with new loading system, rate of fire is improved to 6 rpm (from M109A1's 4 rpm).



M992

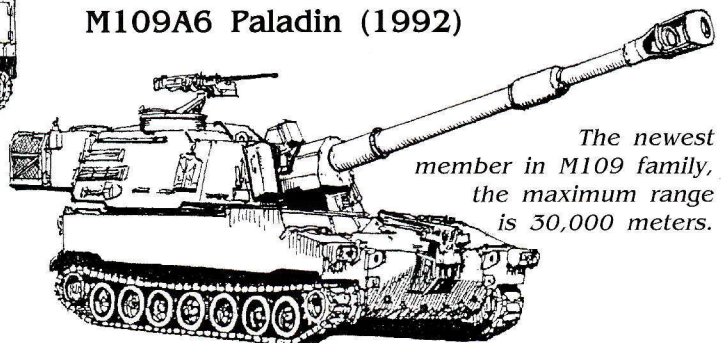
Field Artillery Ammunition Support Vehicle



It can transfer 8 round per minute to M109 through its back door.

M109A6 Paladin (1992)

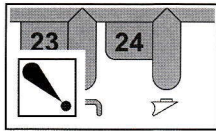
The newest member in M109 family, the maximum range is 30,000 meters.



Shin.ueda

上田 信

1



B24

B24

F2

F2

A5

A5

A5

A5

A5

A5

2

E4

E1

F5

F4

F3

F6

E5

AD40

3

C24

C23

A15

A4

A11

A6

A16

A16

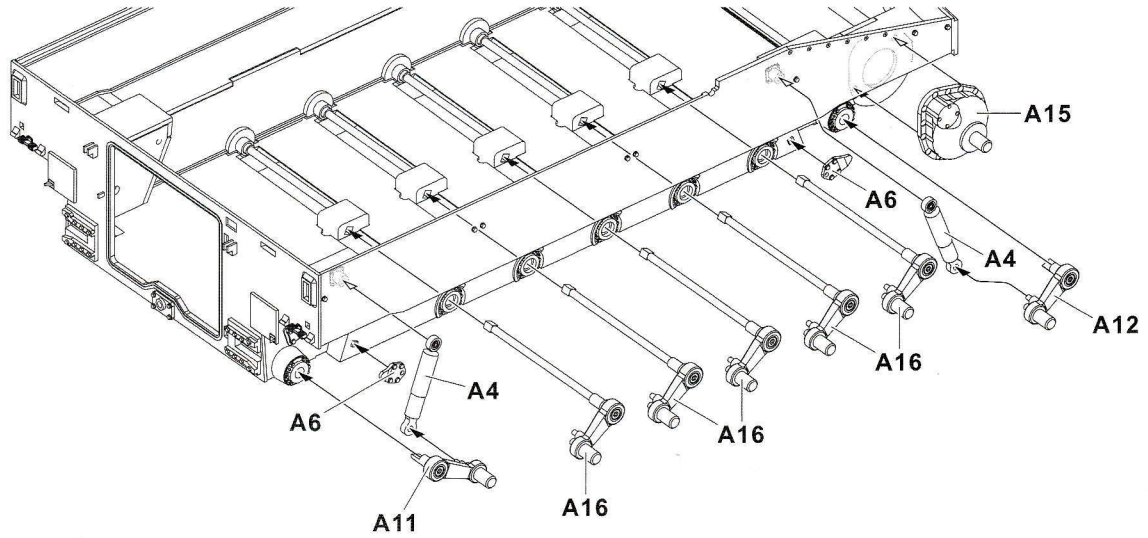
A6

A16

A4

A12

4

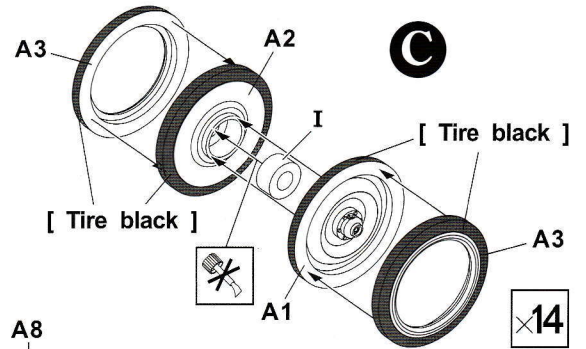
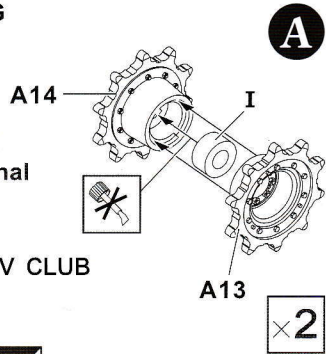


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German Army M109G
(Early version)
德國陸軍(初期型)

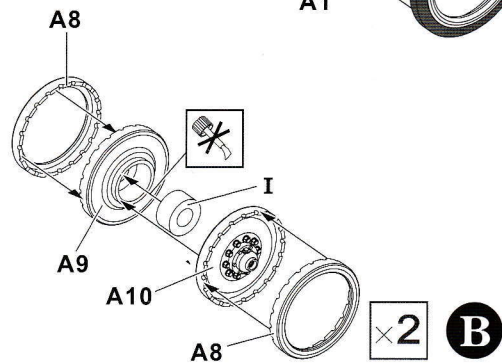
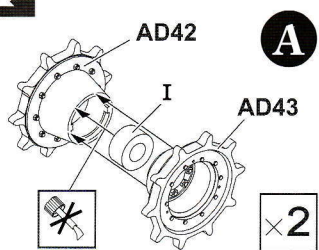
Notice: To match this sprocket
wheels, must purchase additional
AFV CLUB product No.

AF 35335 T-136 track.
注意:配合此驅動輪,須另行購買AFV CLUB
產品編號AF 35335的T-136履帶。

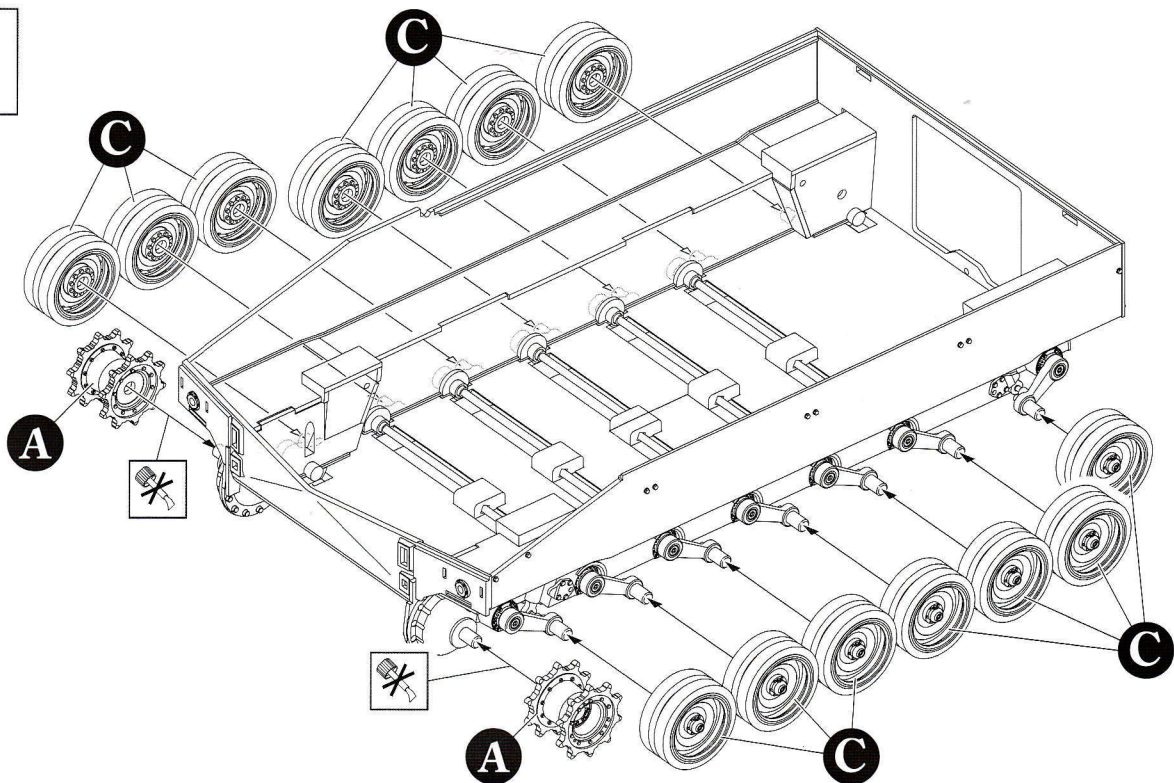


German Army M109G
(Late version)
德國陸軍(後期型)

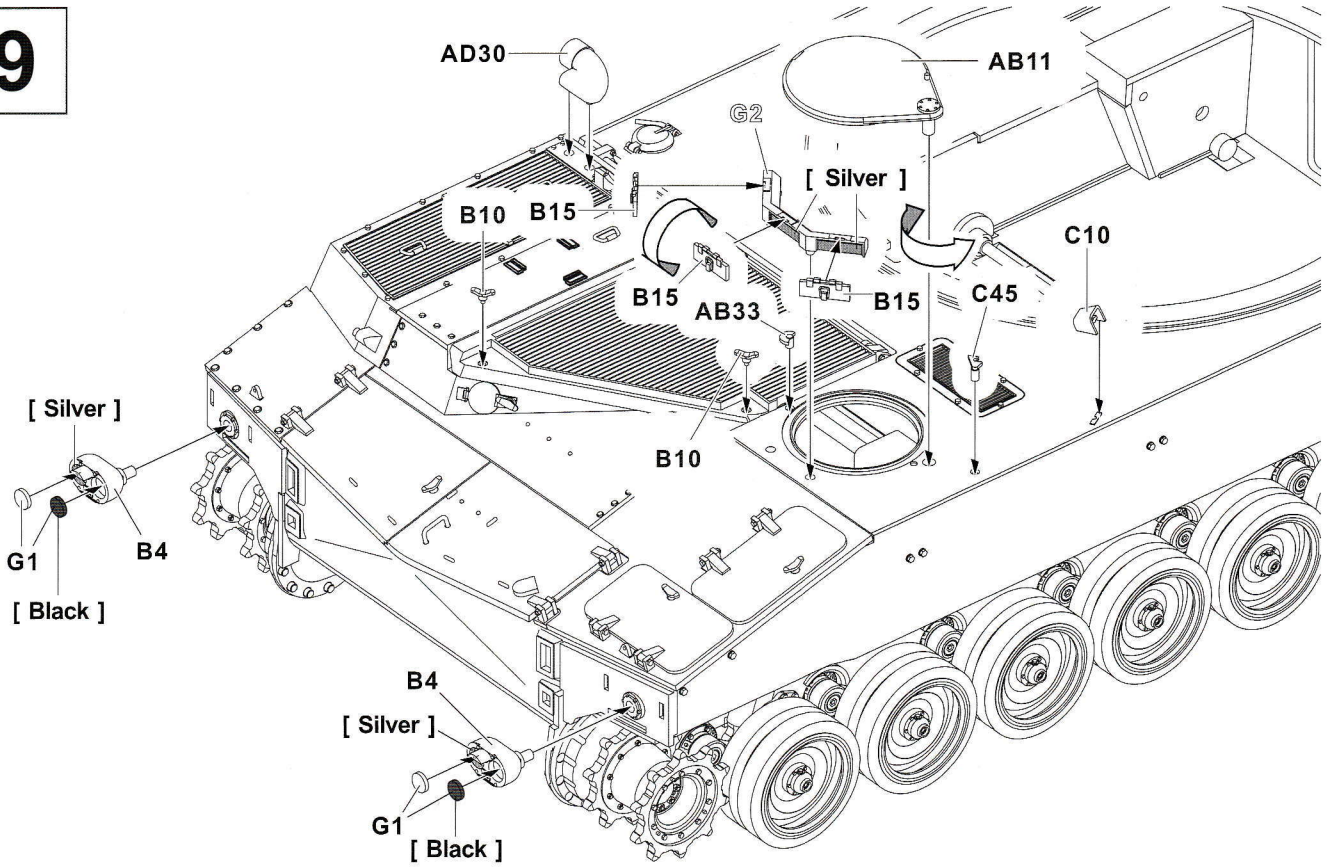
Norwegian Army M109GN
挪威陸軍



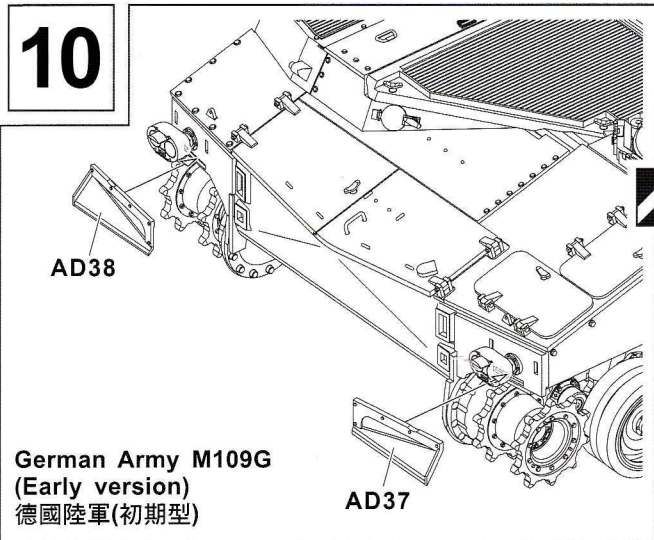
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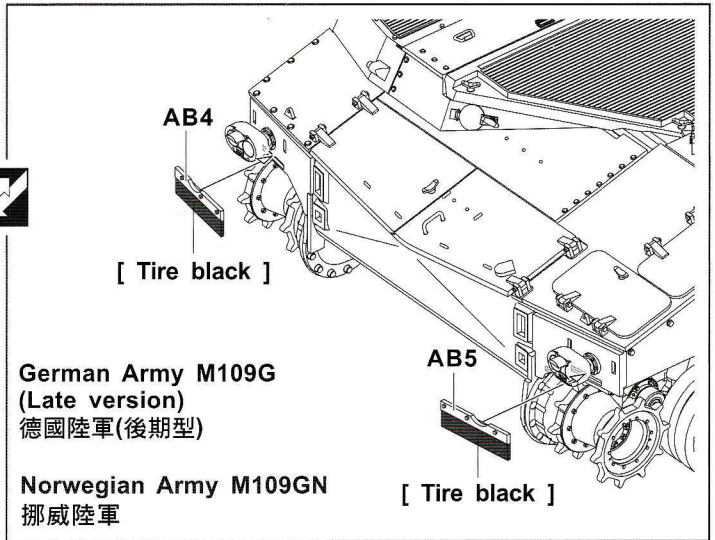
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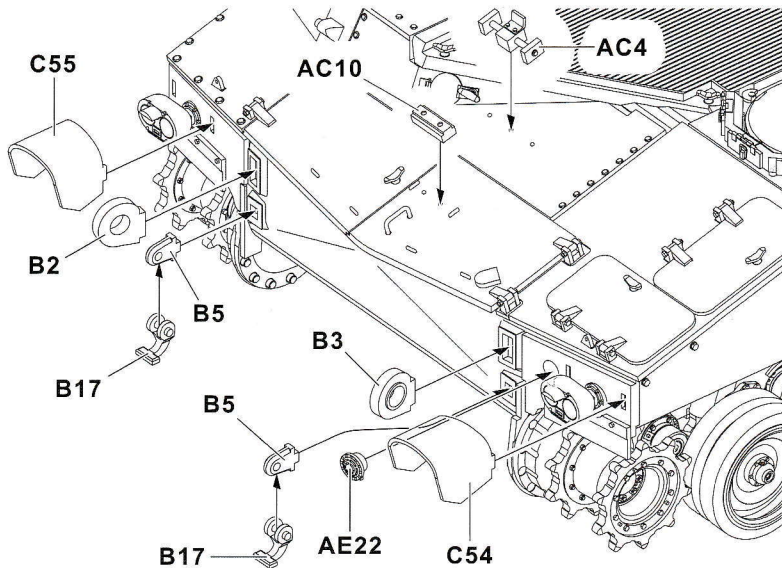
German Army M109G
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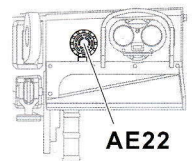
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(Late version)
德國陸軍(後期型)

Norwegian Army M109GN
挪威陸軍

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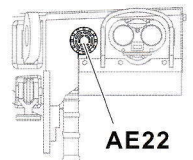
German Army M109G
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德國陸軍(初期型)



AE22

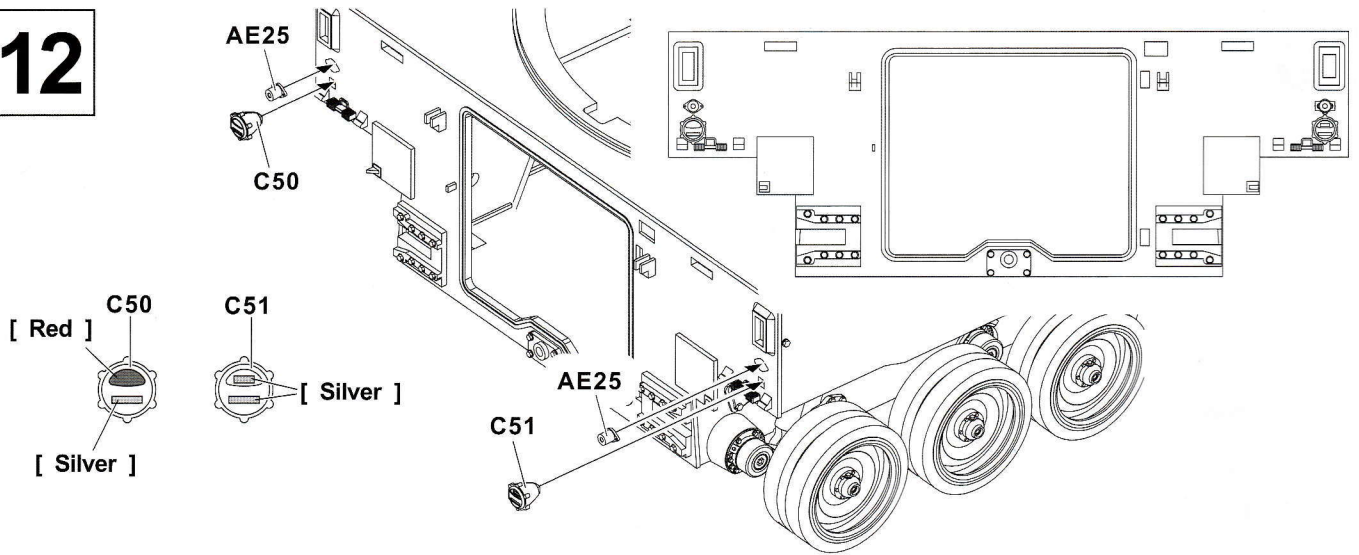
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(Late version)
德國陸軍(後期型)

Norwegian Army M109GN
挪威陸軍

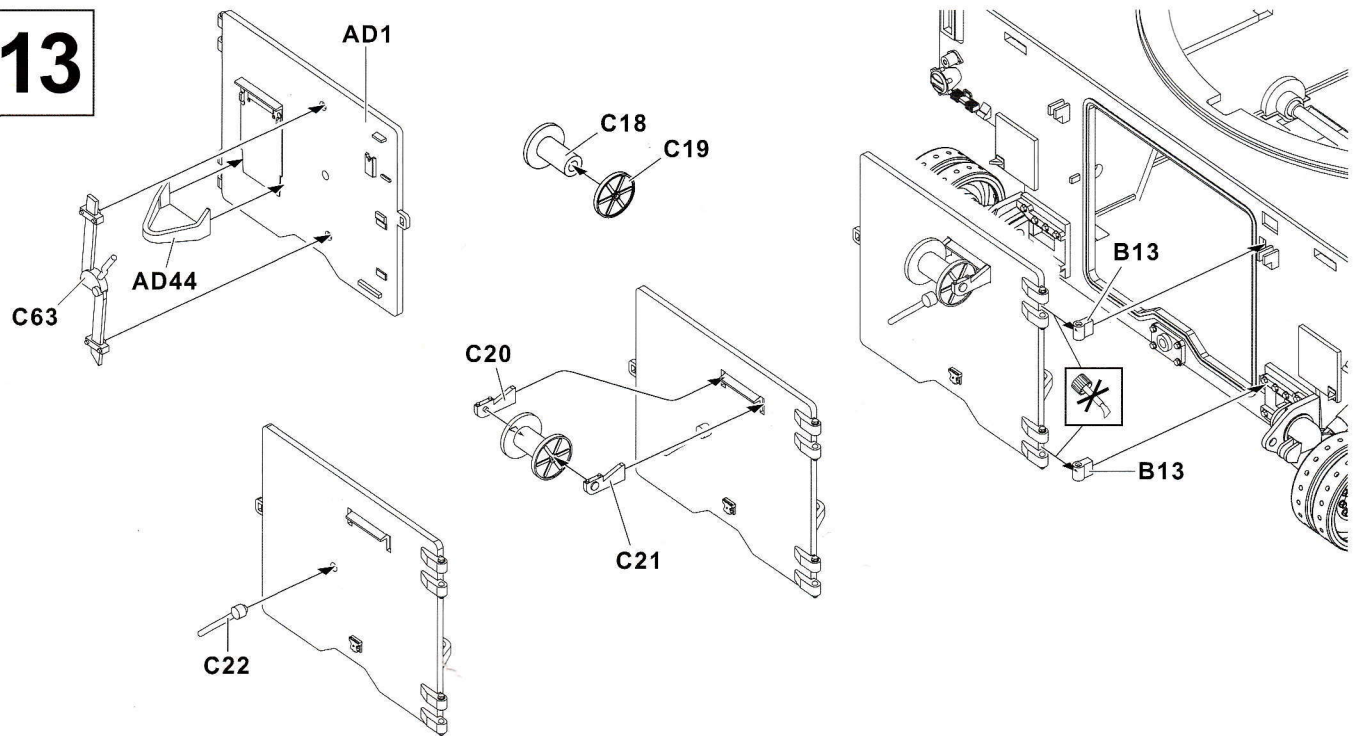


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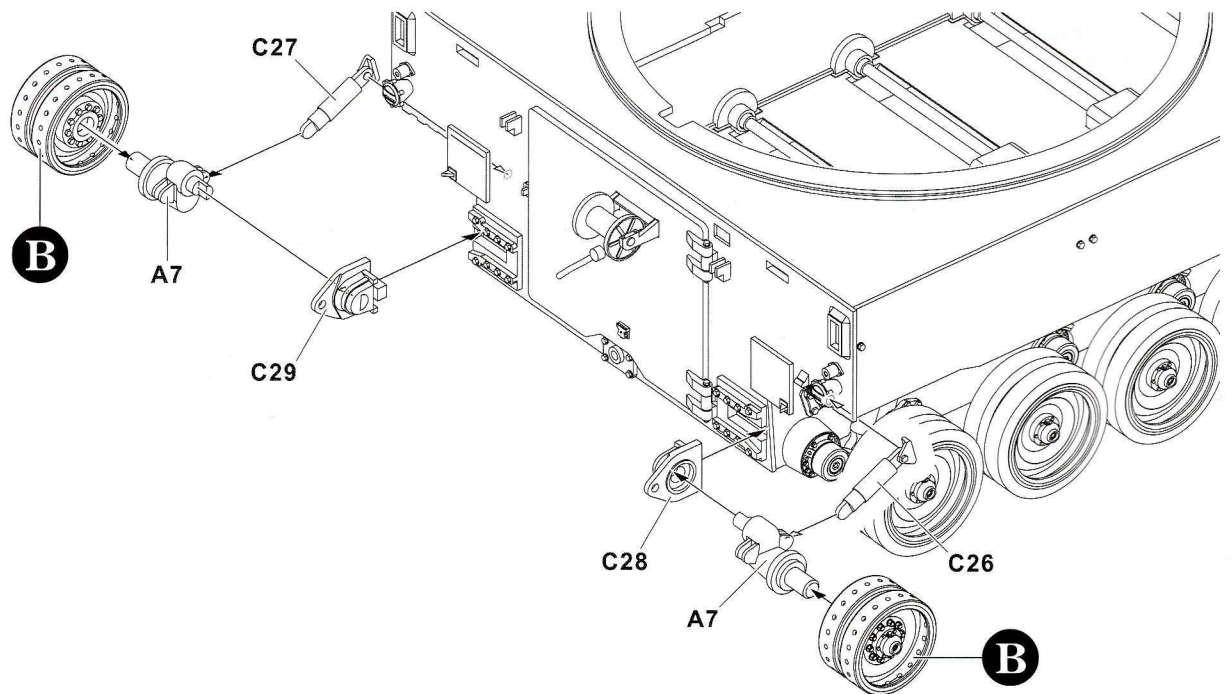
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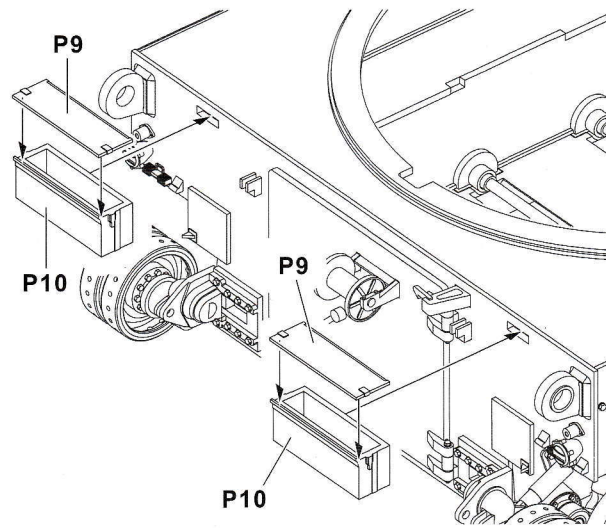
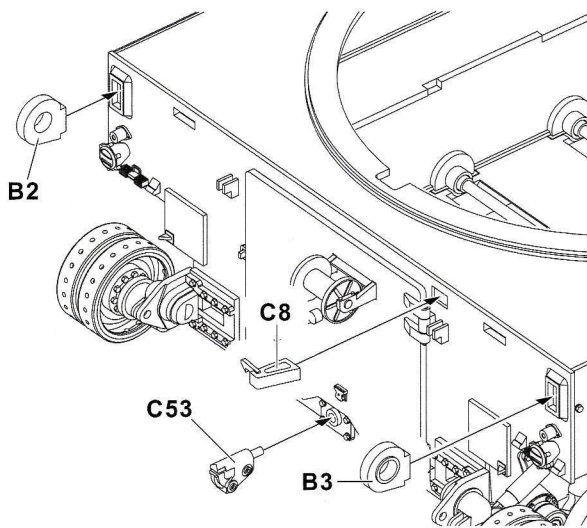
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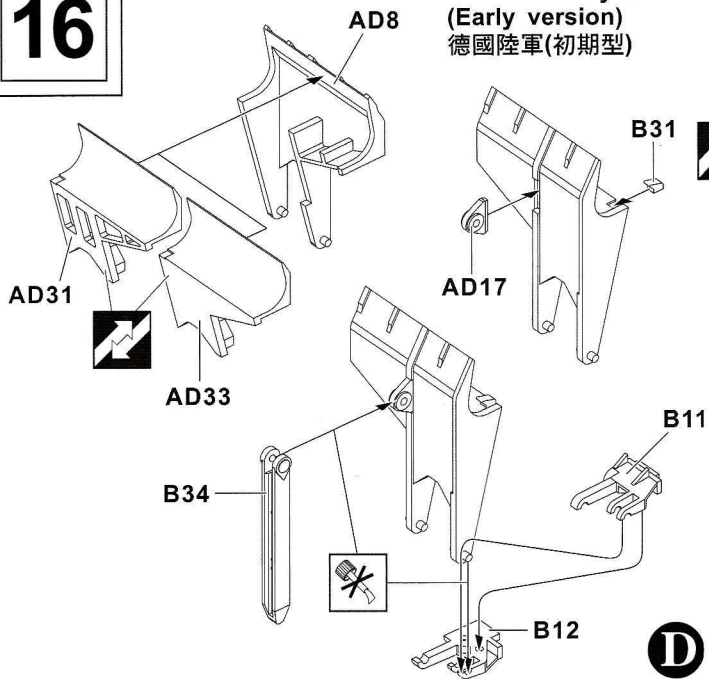


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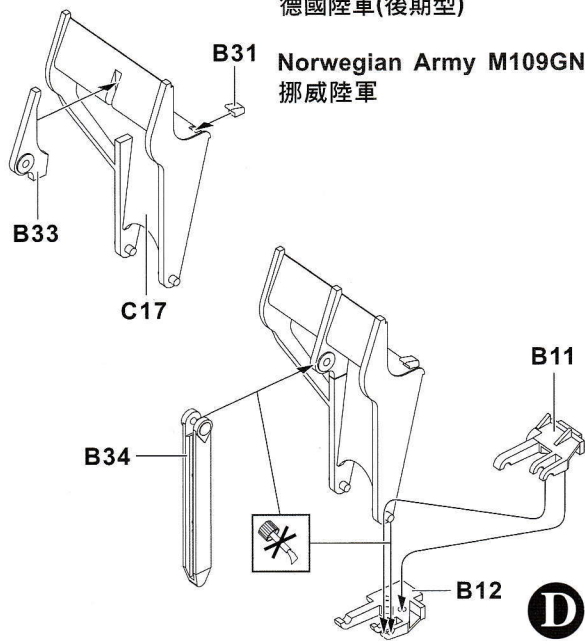
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German Army M109G
(Early version)
德國陸軍(初期型)



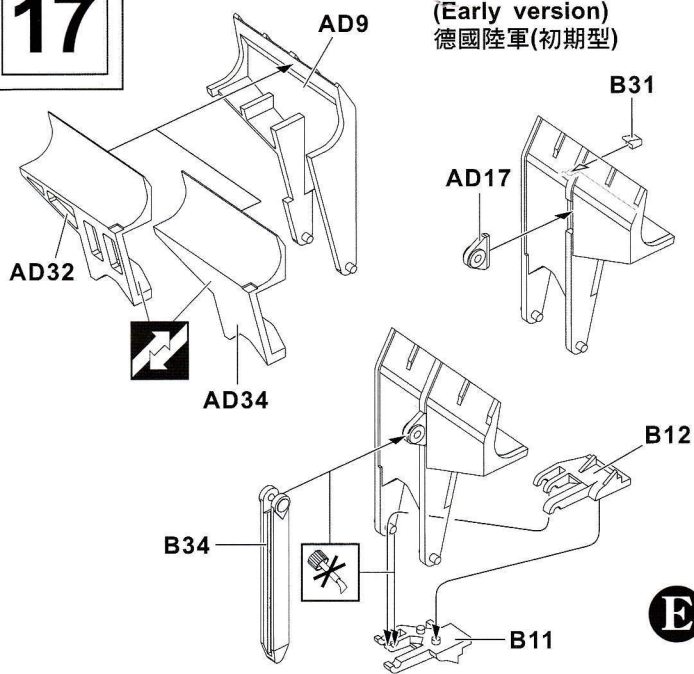
German Army M109G
(Late version)
德國陸軍(後期型)

Norwegian Army M109GN
挪威陸軍



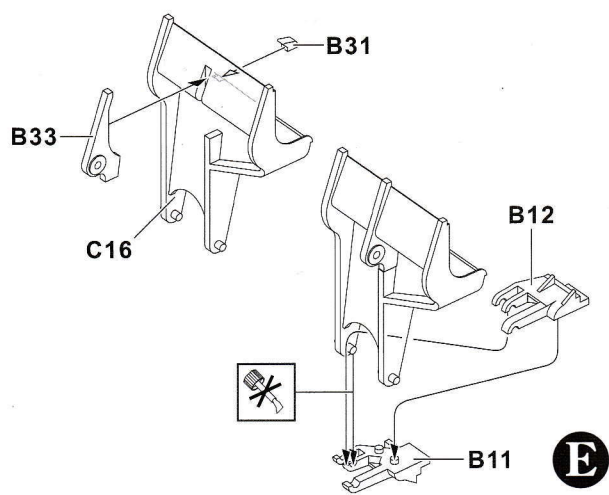
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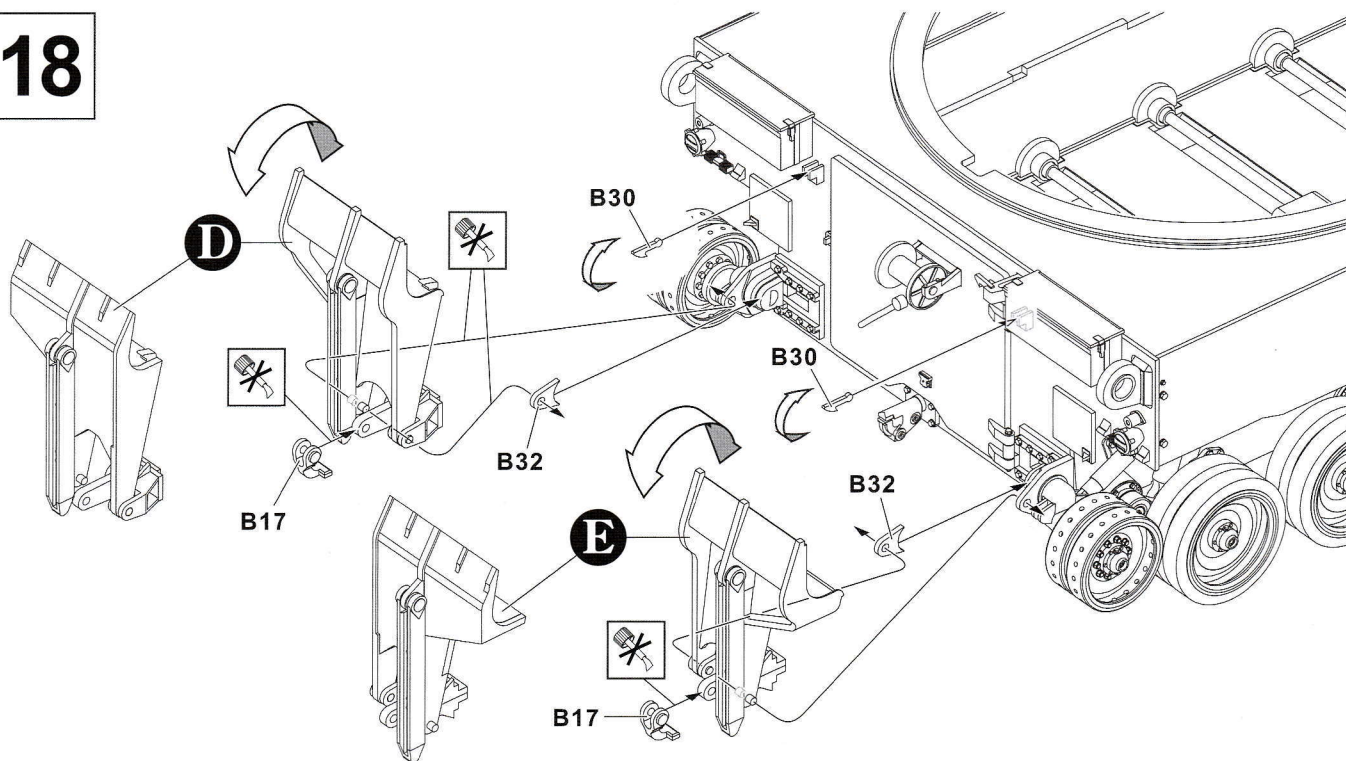


German Army M109G
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Norwegian Army M109GN
挪威陸軍

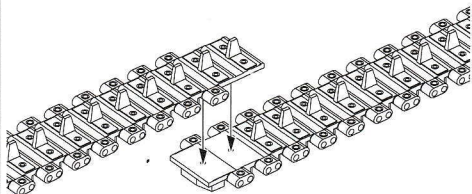


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German Army M109G
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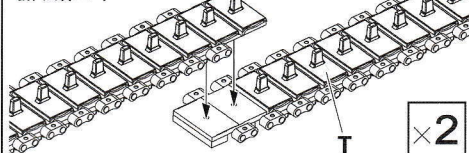
※need buy separately.
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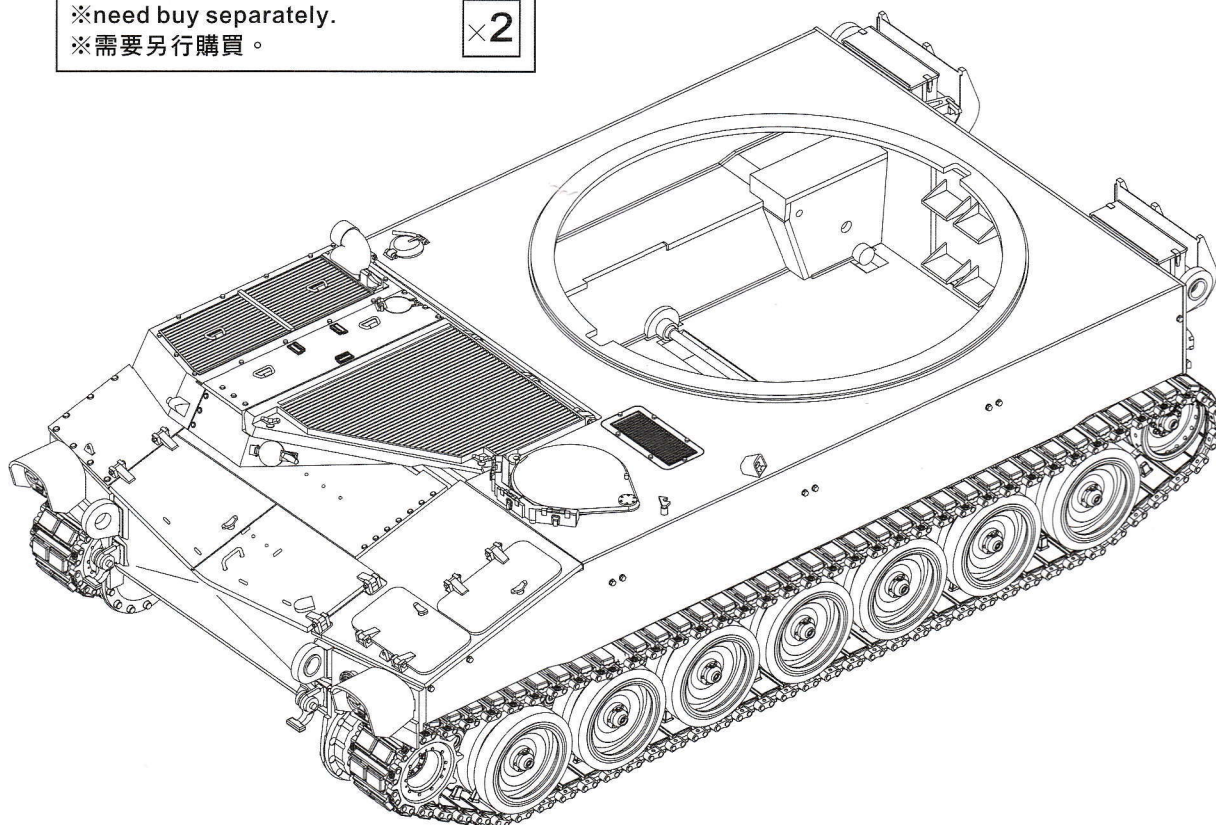
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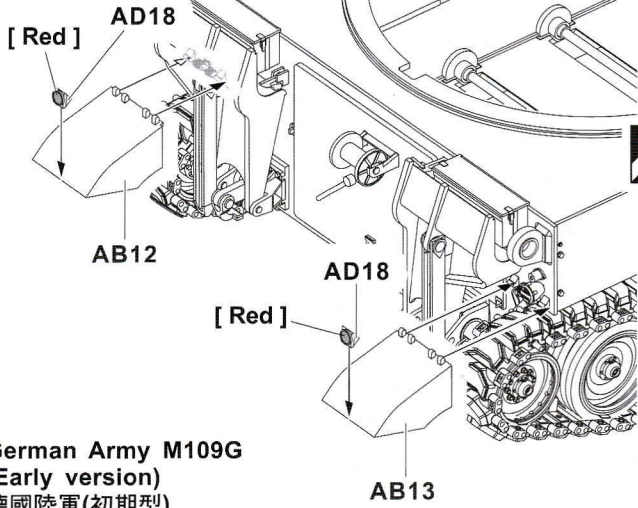
Norwegian Army M109GN
挪威陸軍



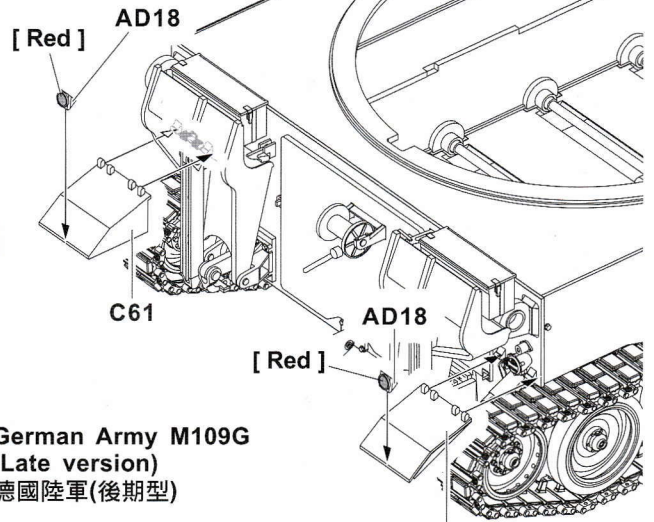
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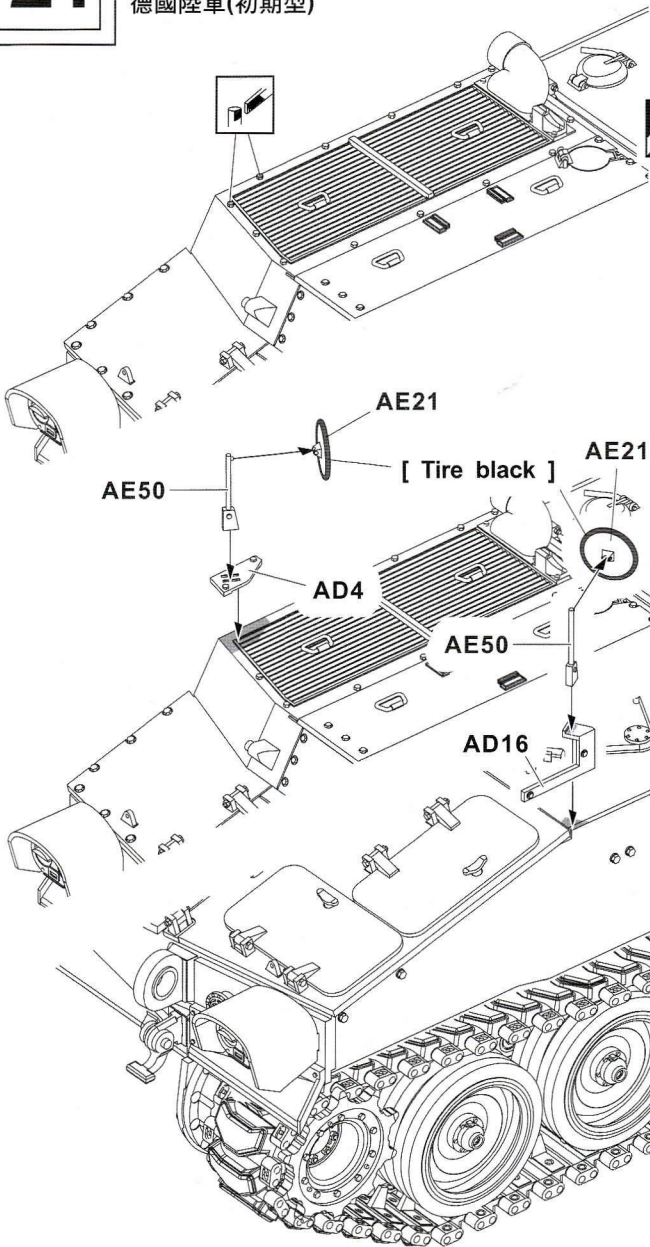


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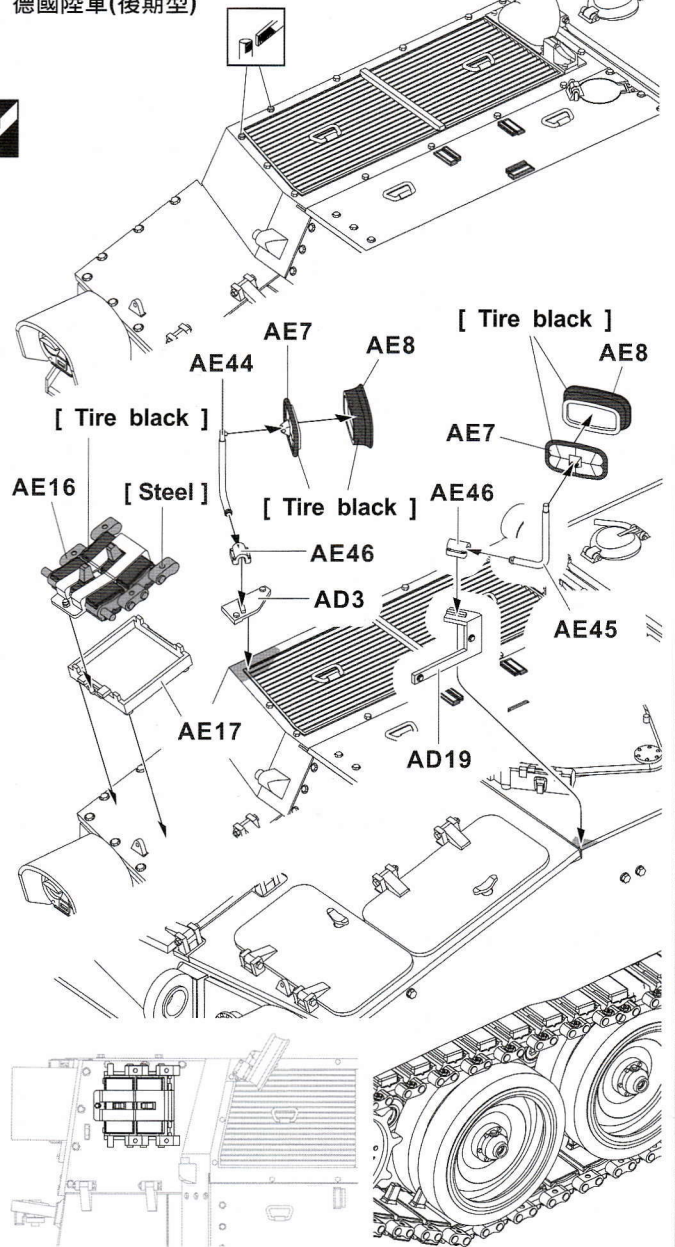
Norwegian Army M109GN
挪威陸軍

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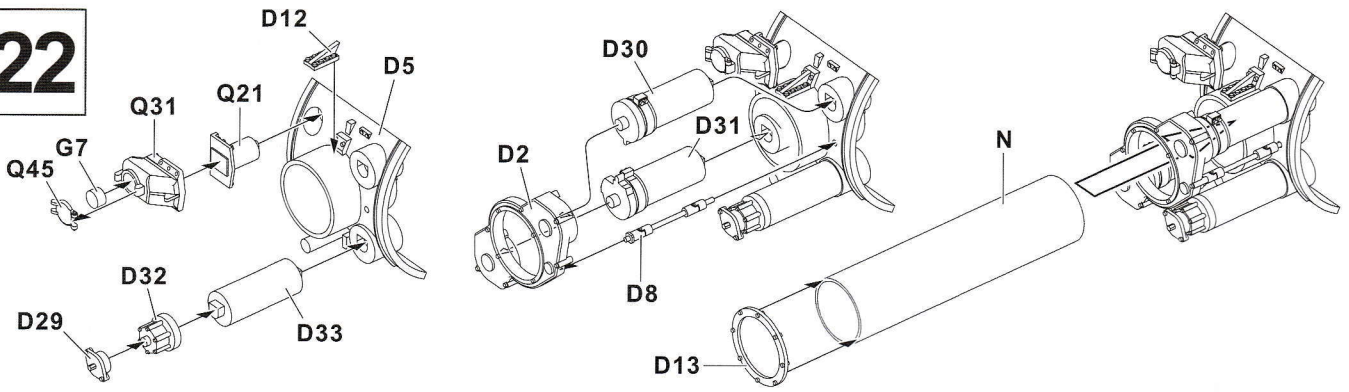
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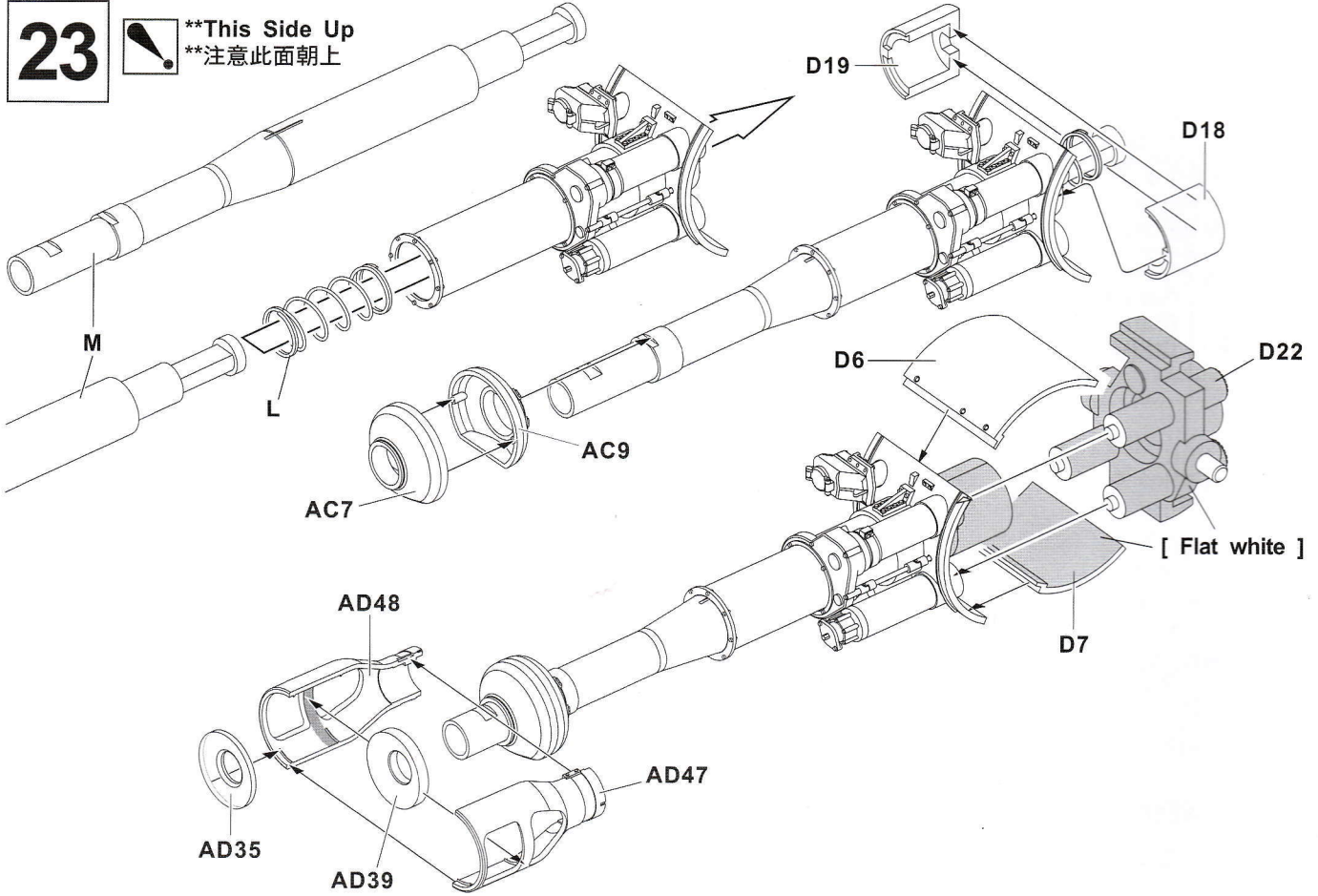
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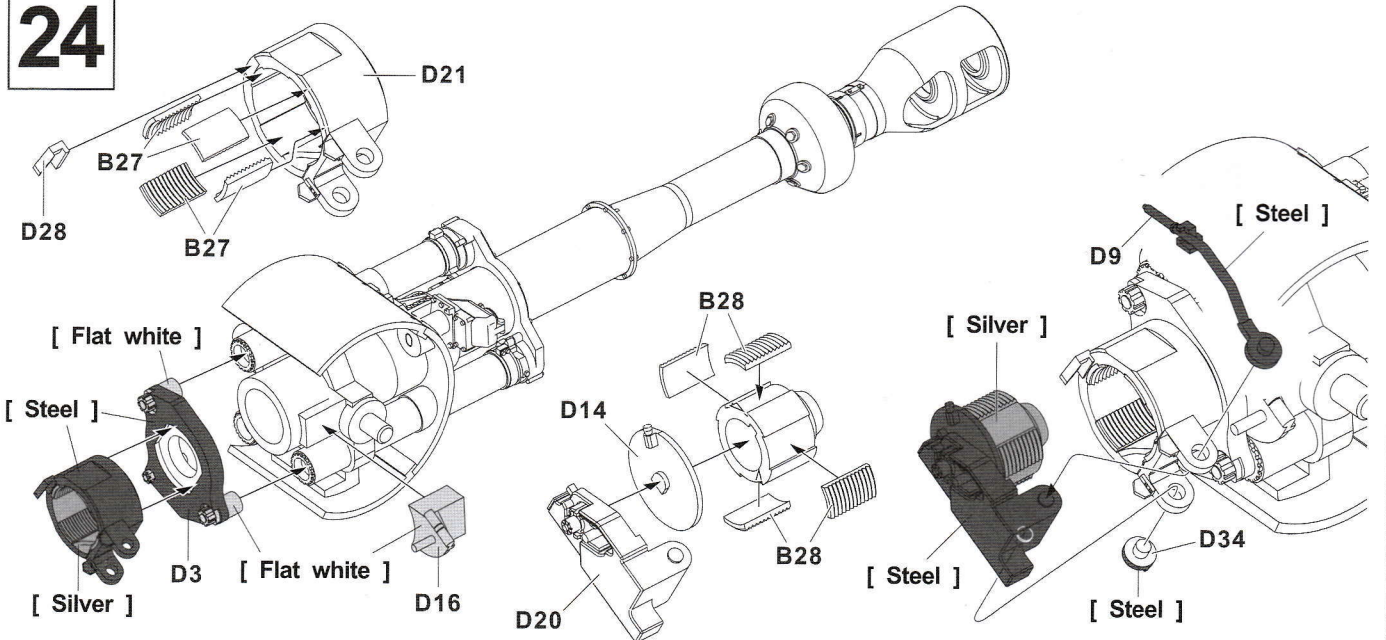
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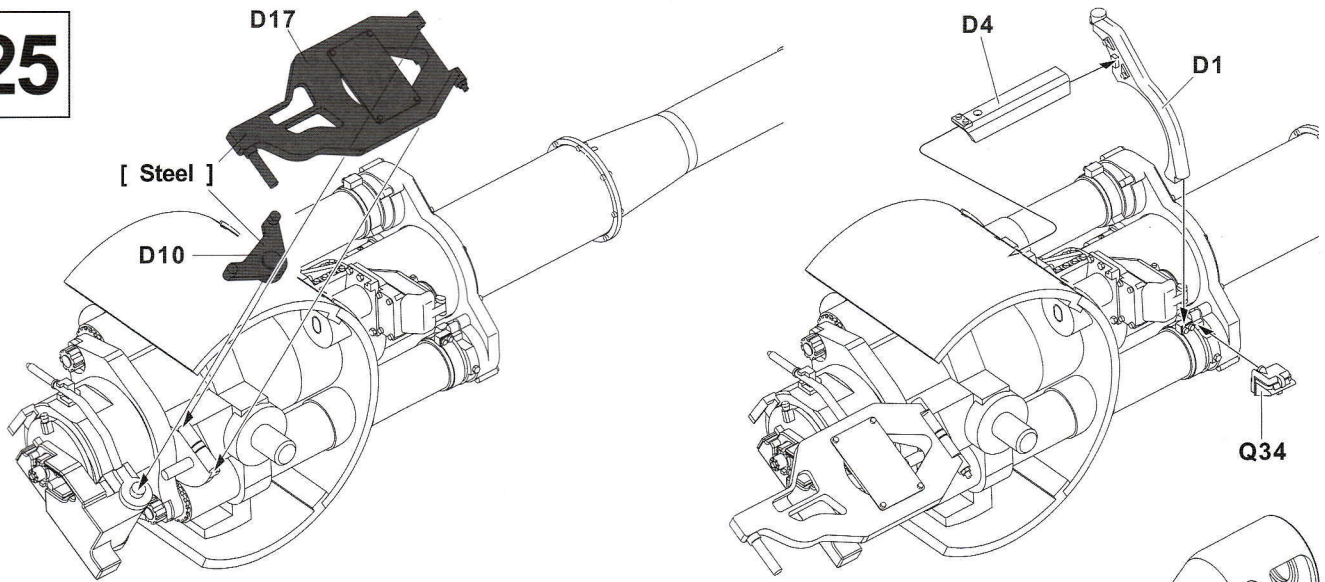
**This Side Up
 **注意此面朝上



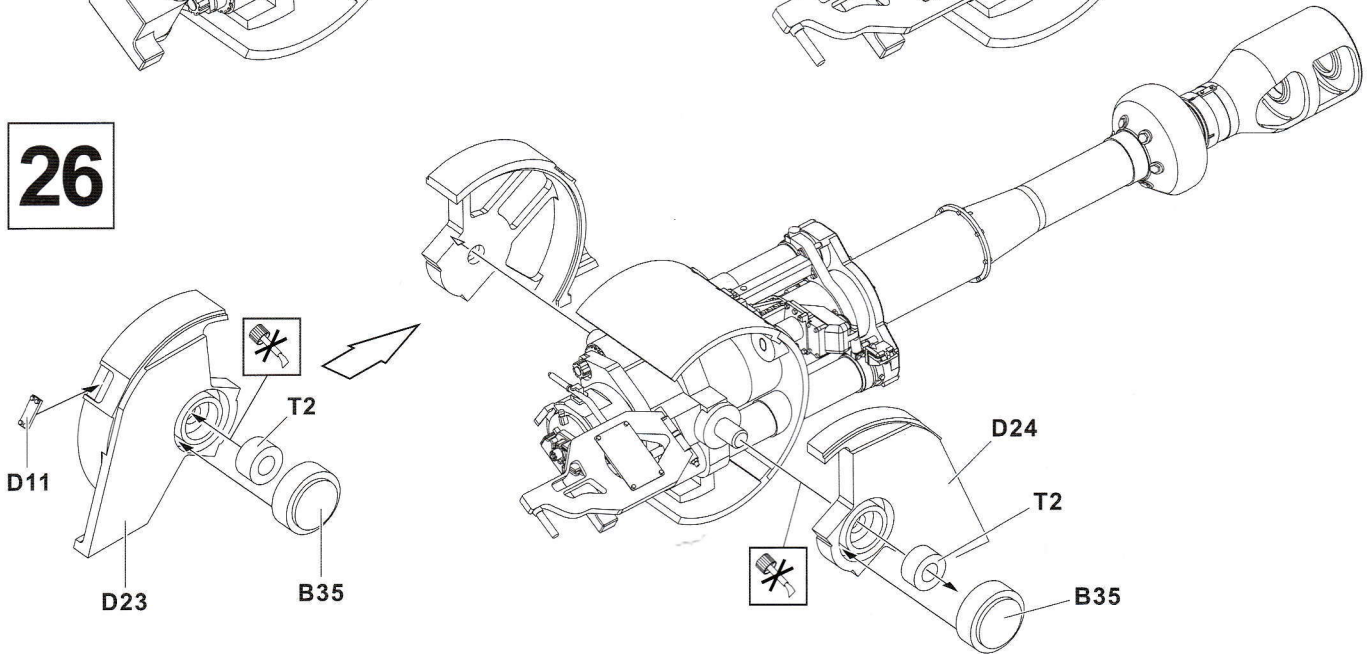
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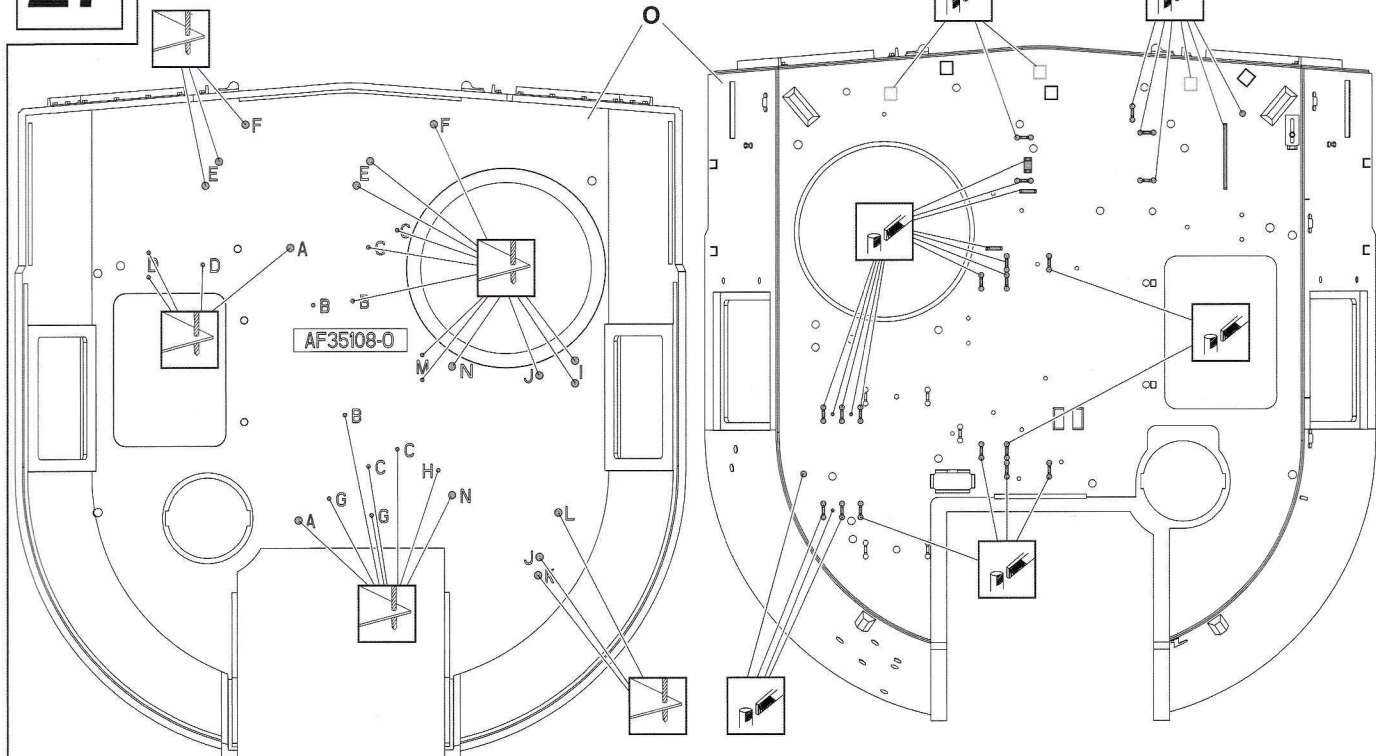
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27

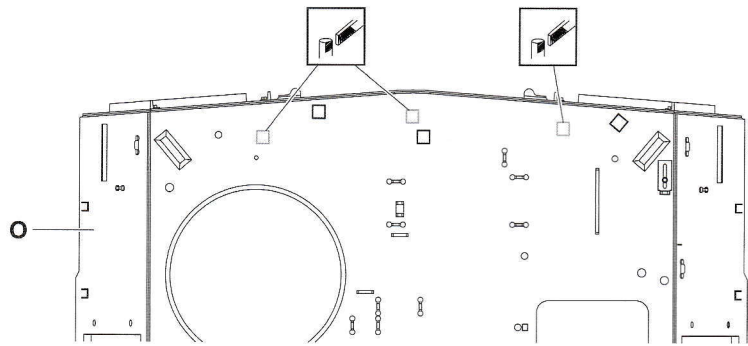


German Army M109G
德國陸軍

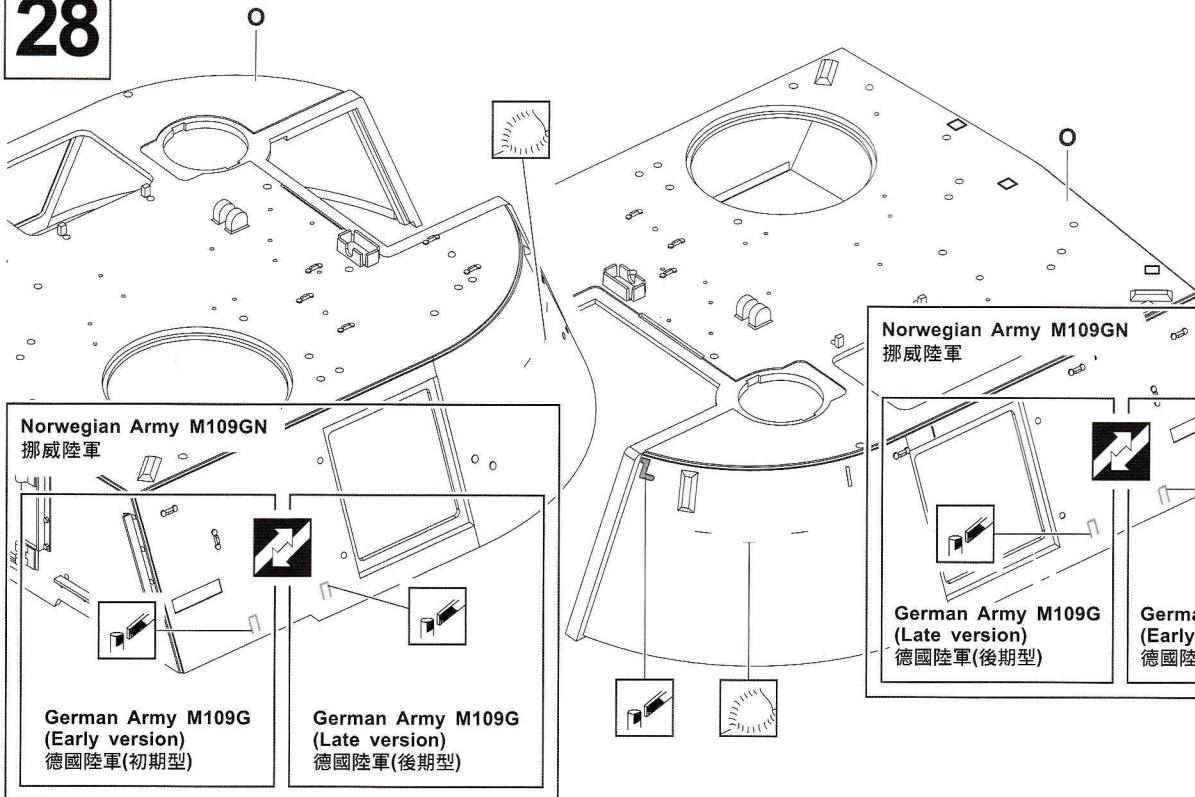




Norwegian Army M109GN
挪威陸軍



28



Norwegian Army M109GN
挪威陸軍

挪威陸軍



German Army M109G
(Early version)
德國陸軍(初期型)

German Army M109G
(Late version)
德國陸軍(後期型)

Norwegian Army M109GN
挪威陸軍

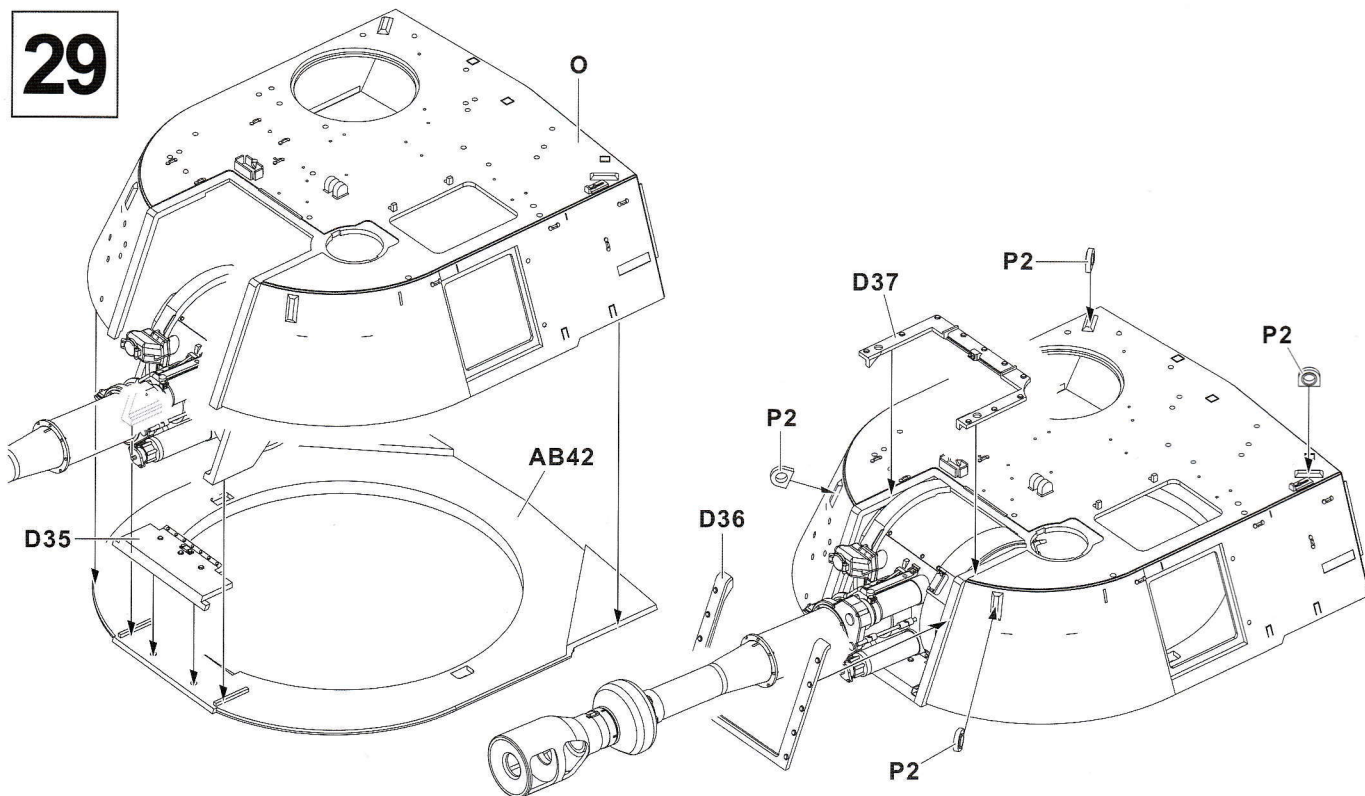
挪威陸軍



German Army M109G
(Late version)
德國陸軍(後期型)

German Army M109G
(Early version)
德國陸軍(初期型)

29



AB42

D35

D36

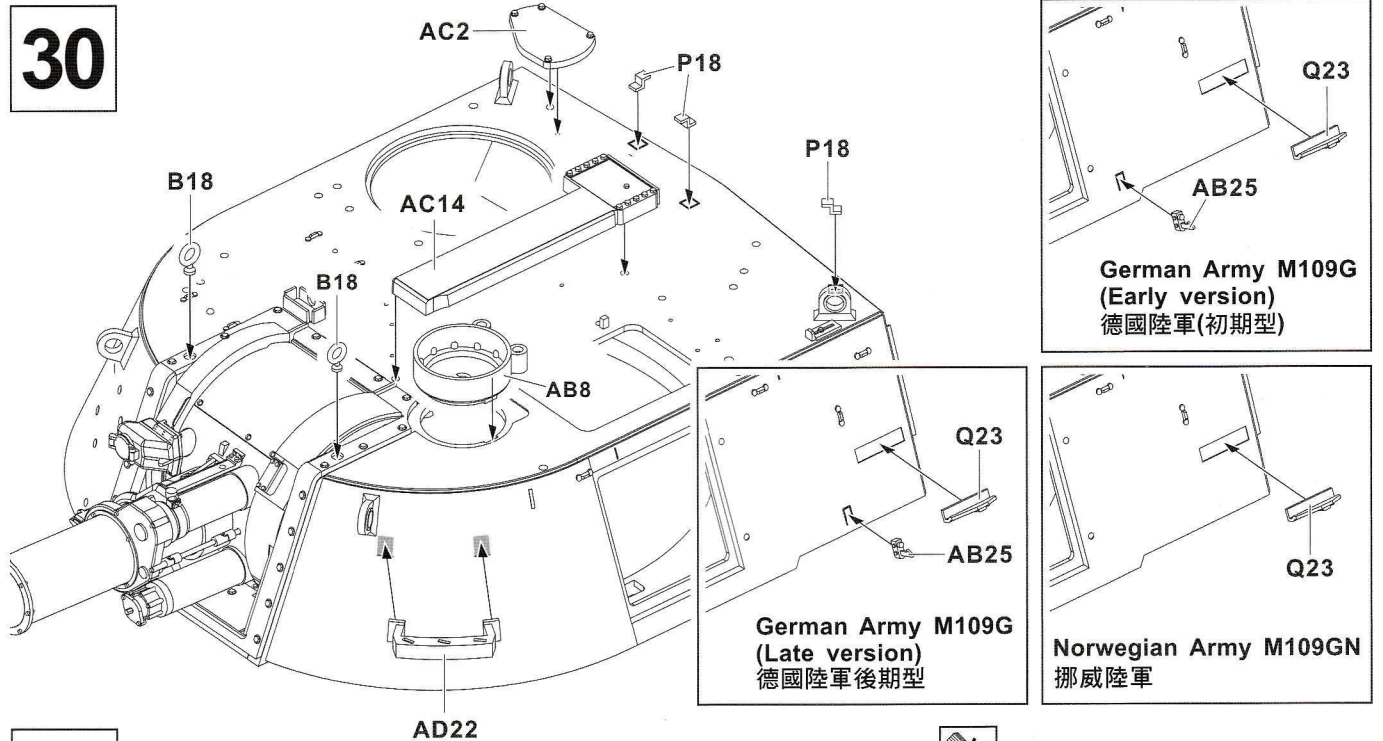
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P2

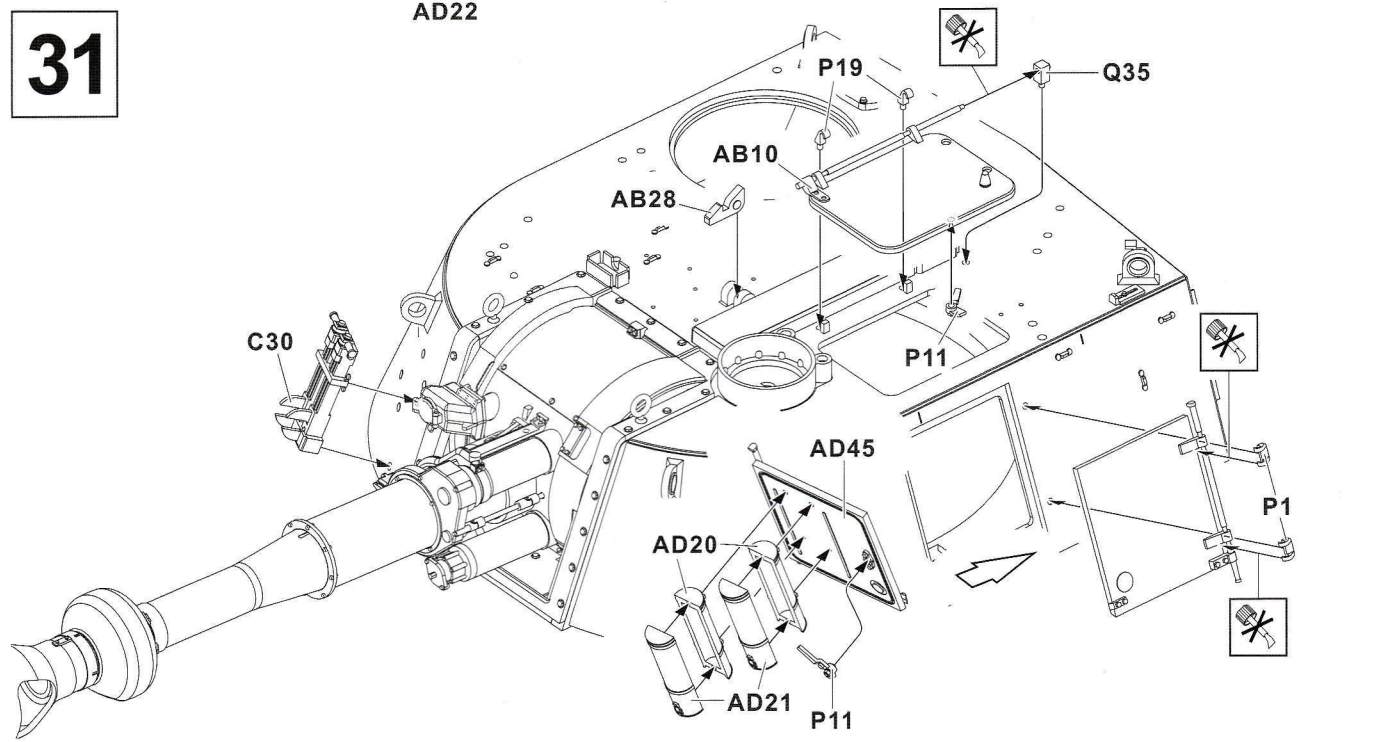
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P2

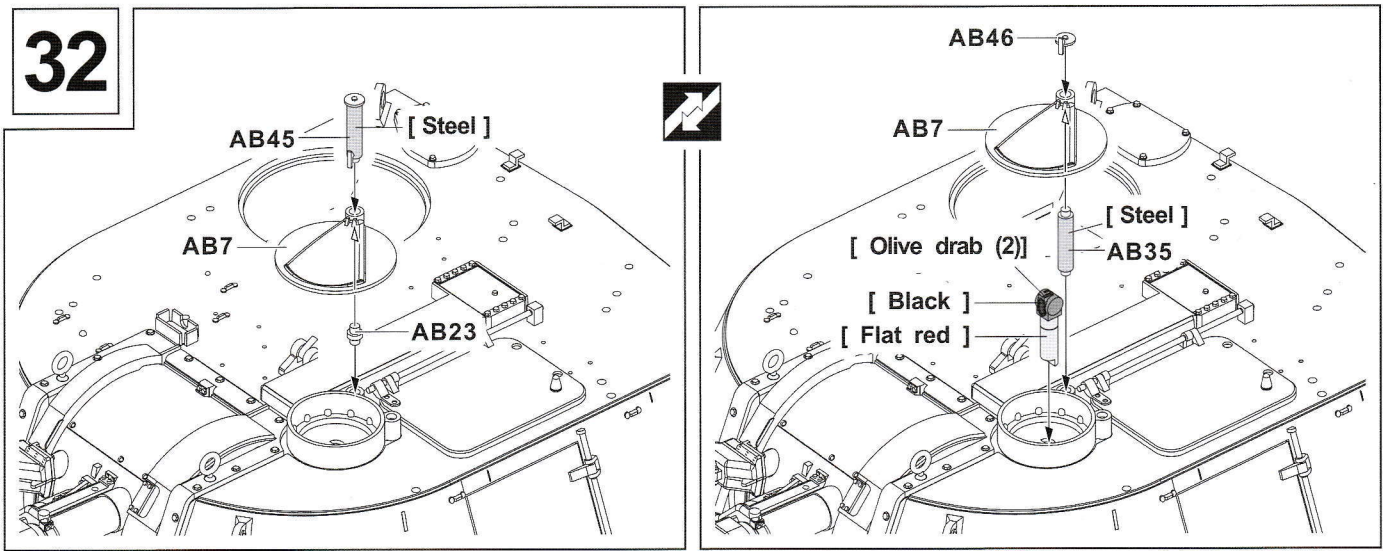
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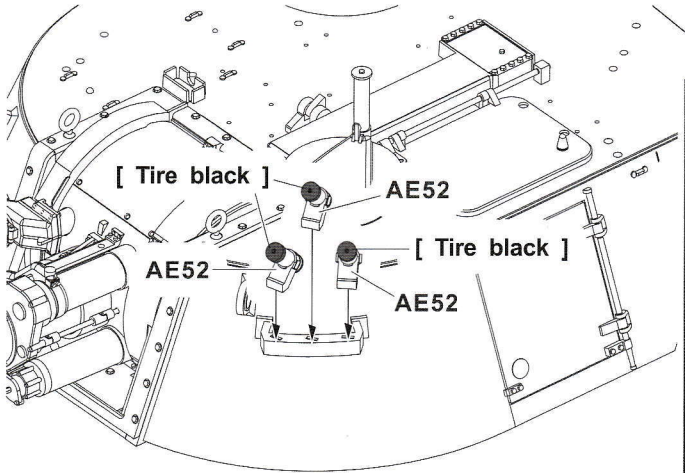
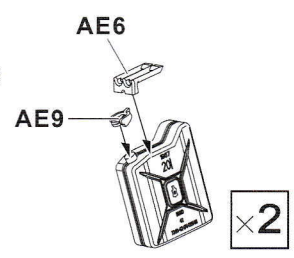
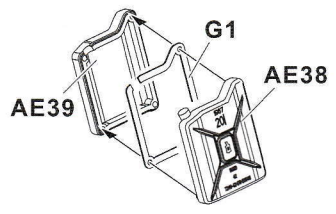
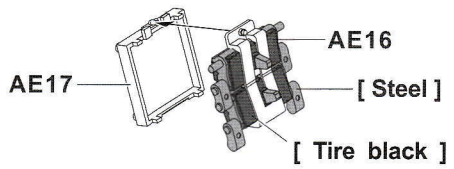
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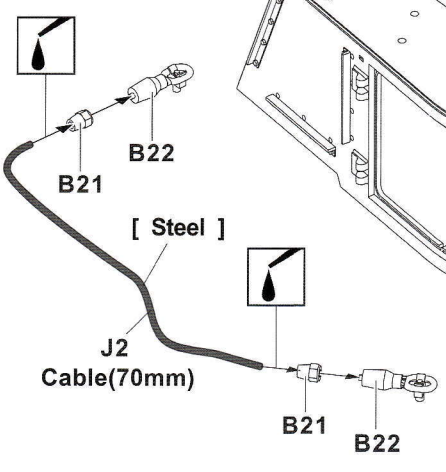
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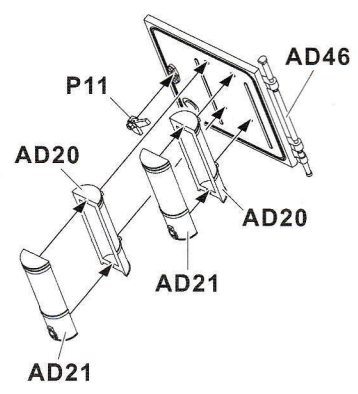
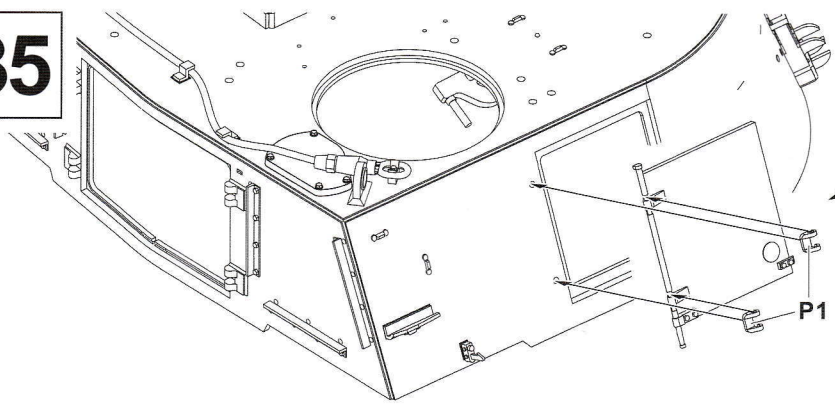
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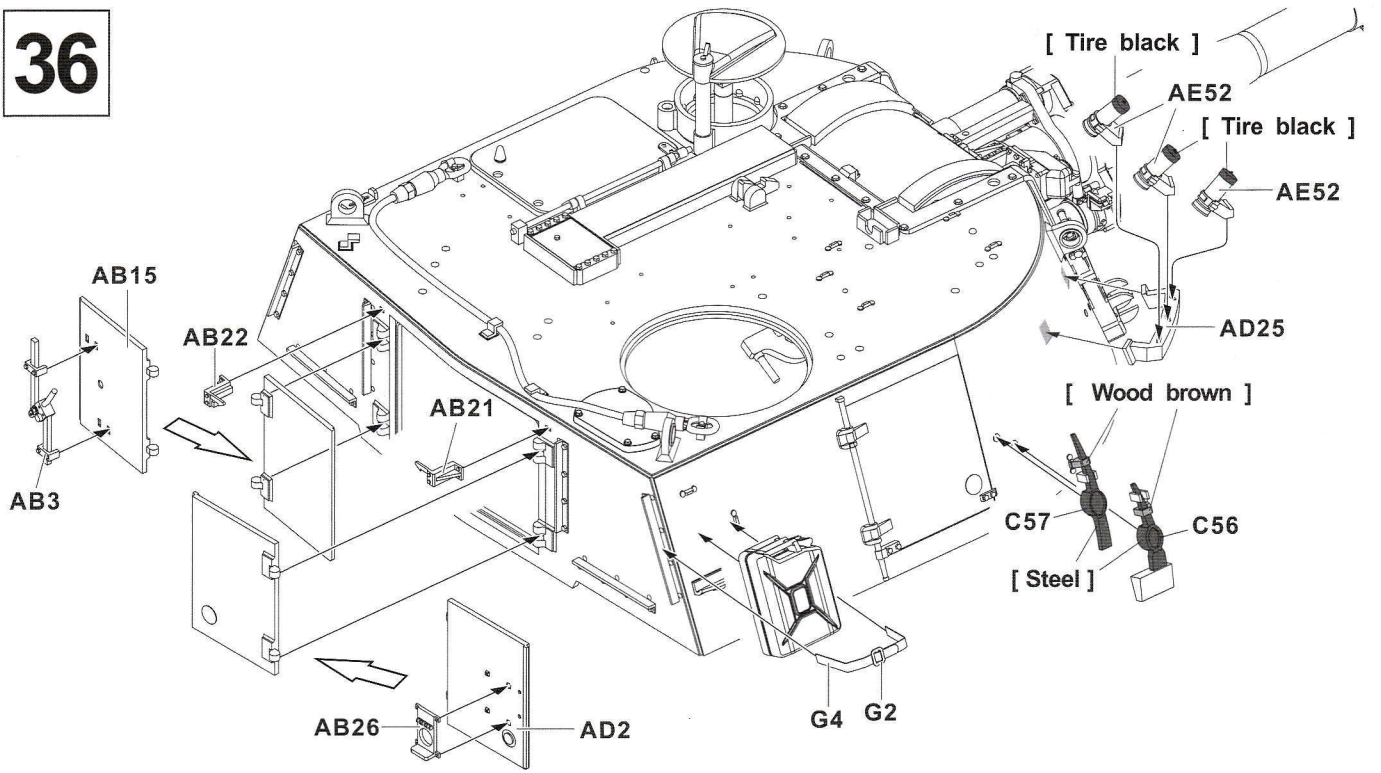
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35



36

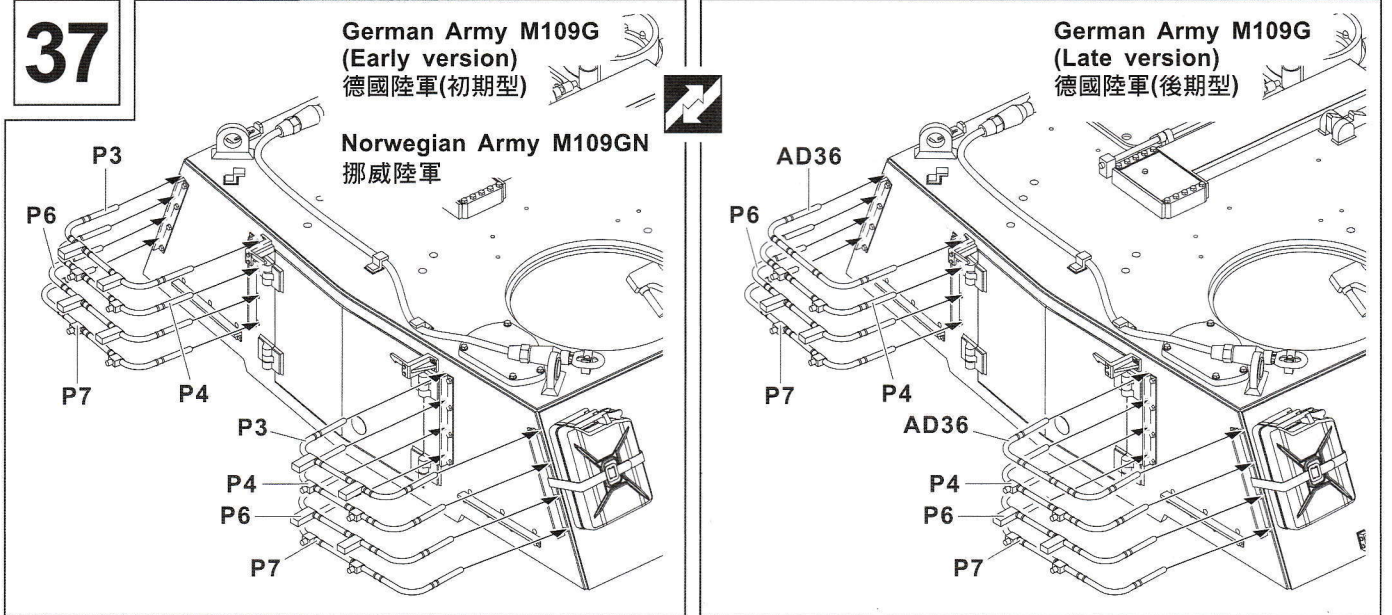


37

German Army M109G
(Early version)
德國陸軍(初期型)

Norwegian Army M109GN
挪威陸軍

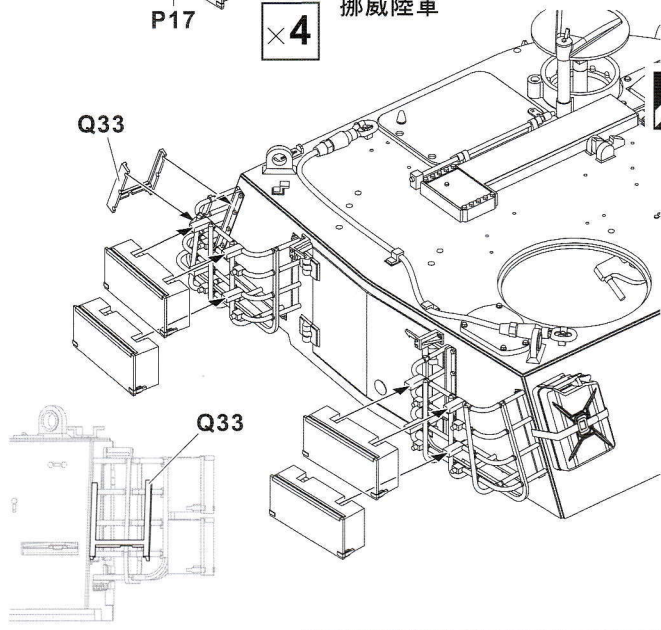
German Army M109G
(Late version)
德國陸軍(後期型)



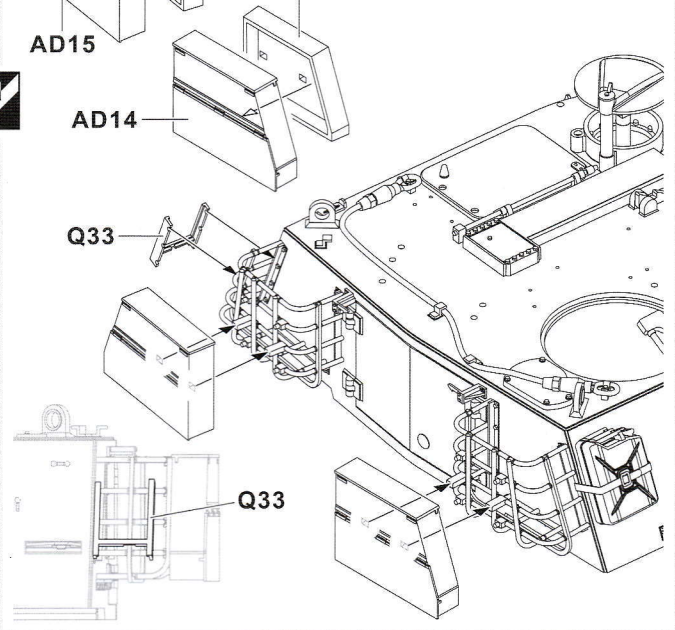
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German Army M109G
(Early version)
德國陸軍(初期型)

Norwegian Army M109GN
挪威陸軍

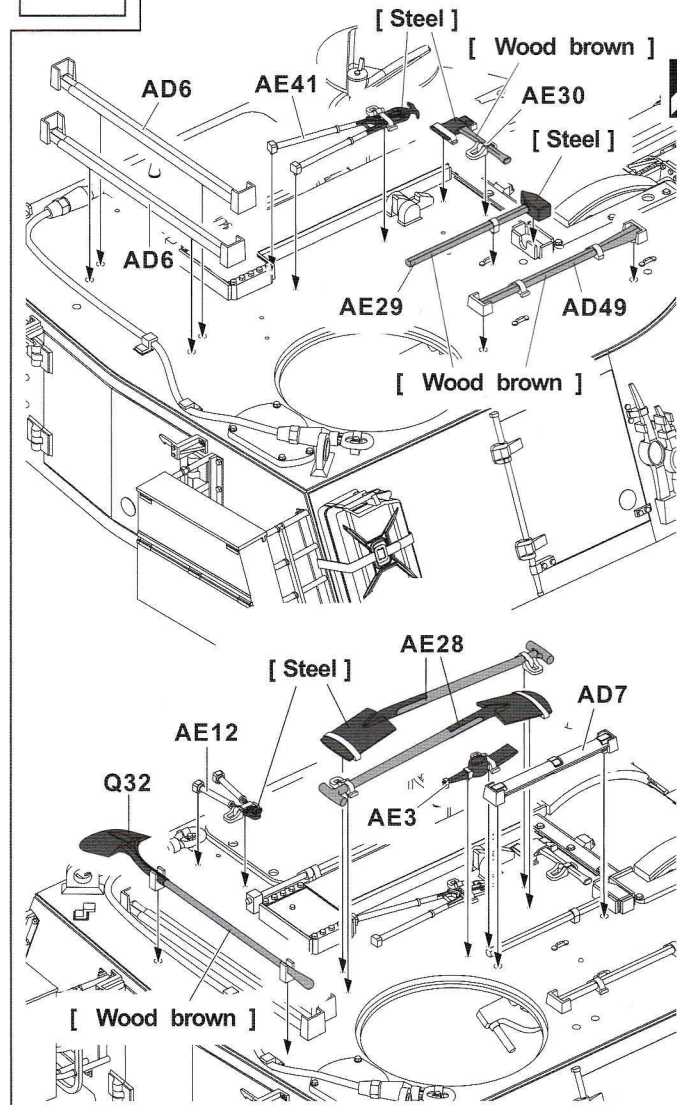


German Army M109G
(Late version)
德國陸軍(後期型)

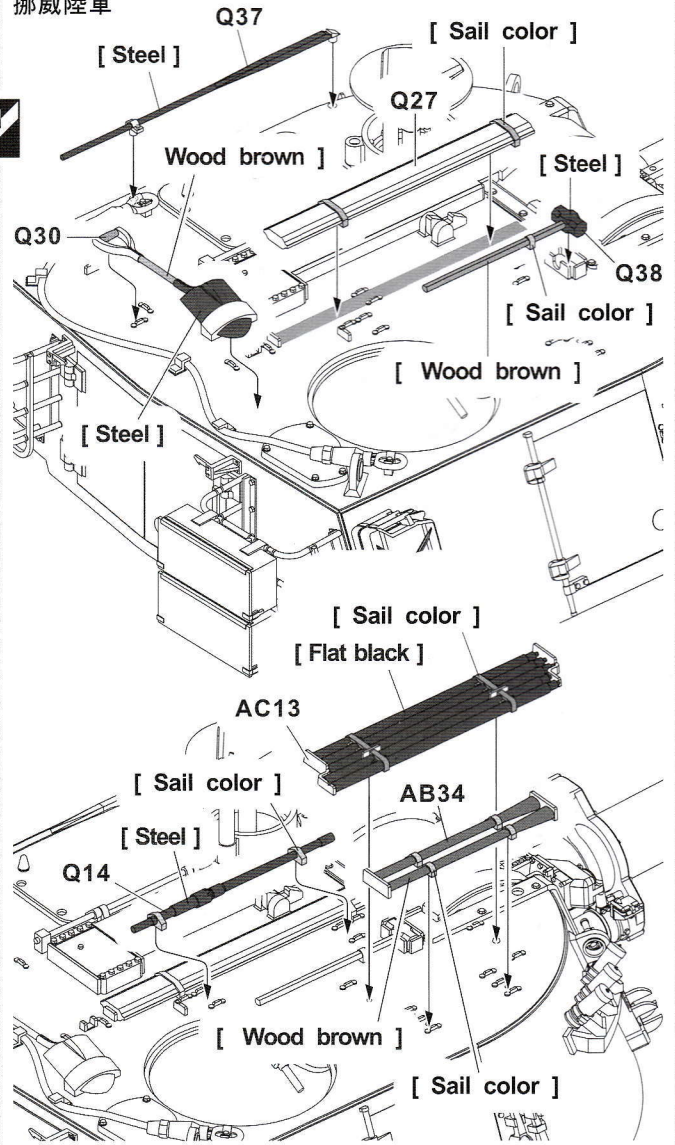


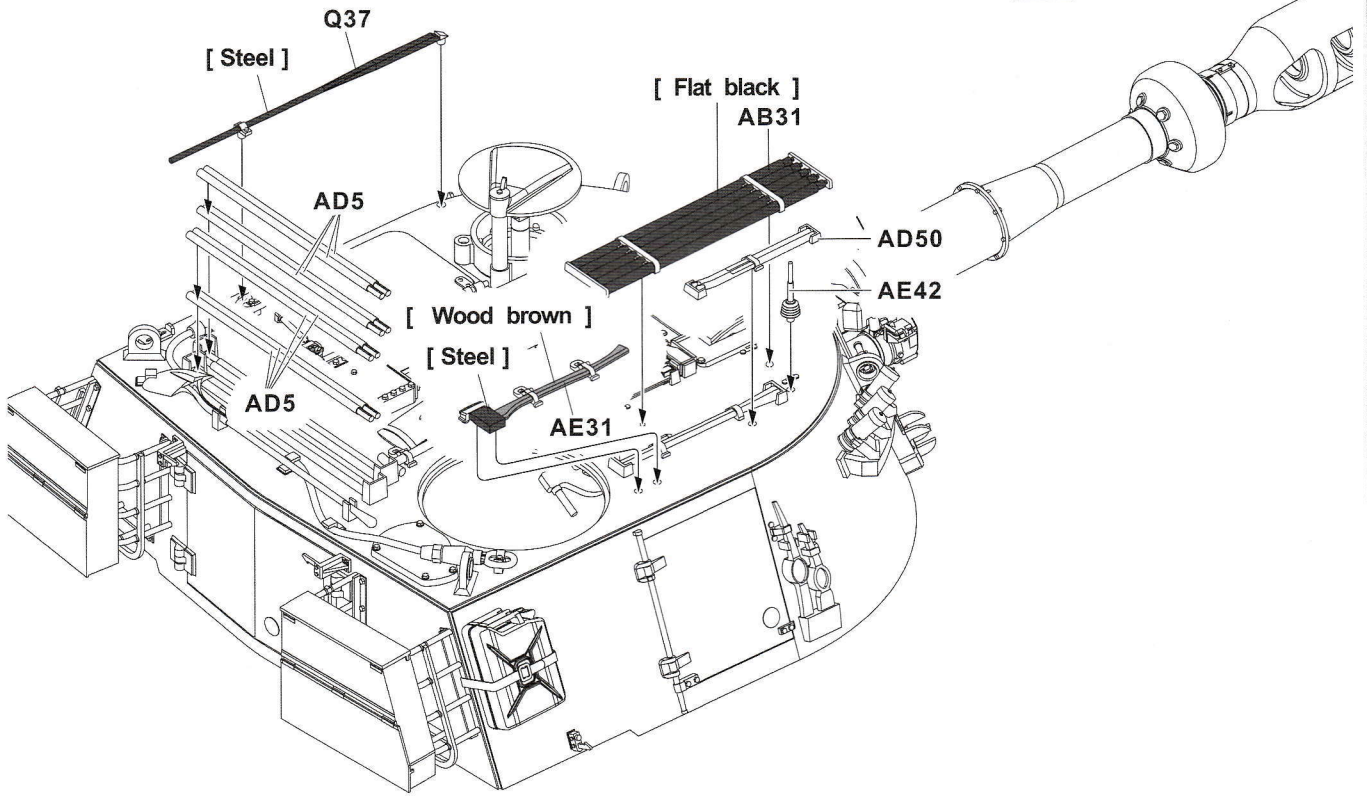
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German Army M109G
德國陸軍



Norwegian Army M109GN
挪威陸軍

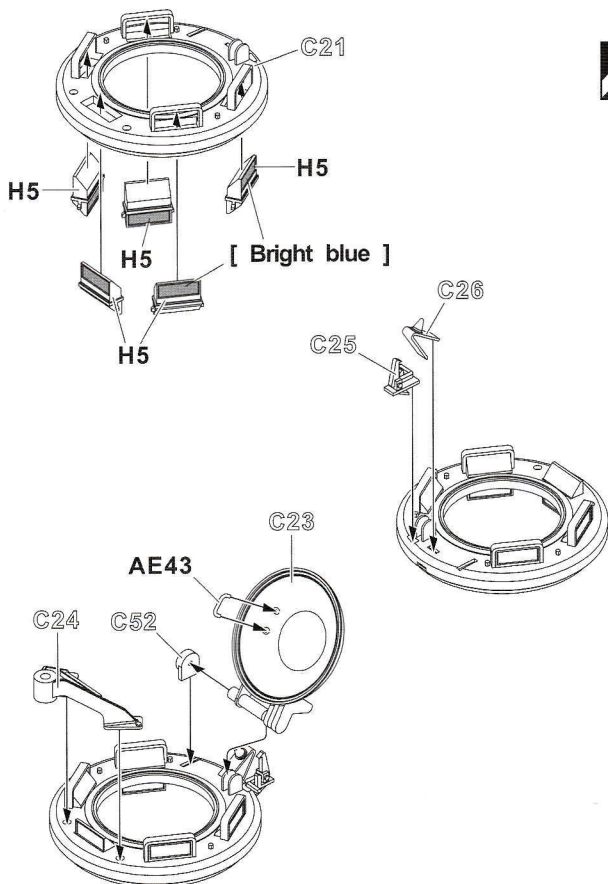




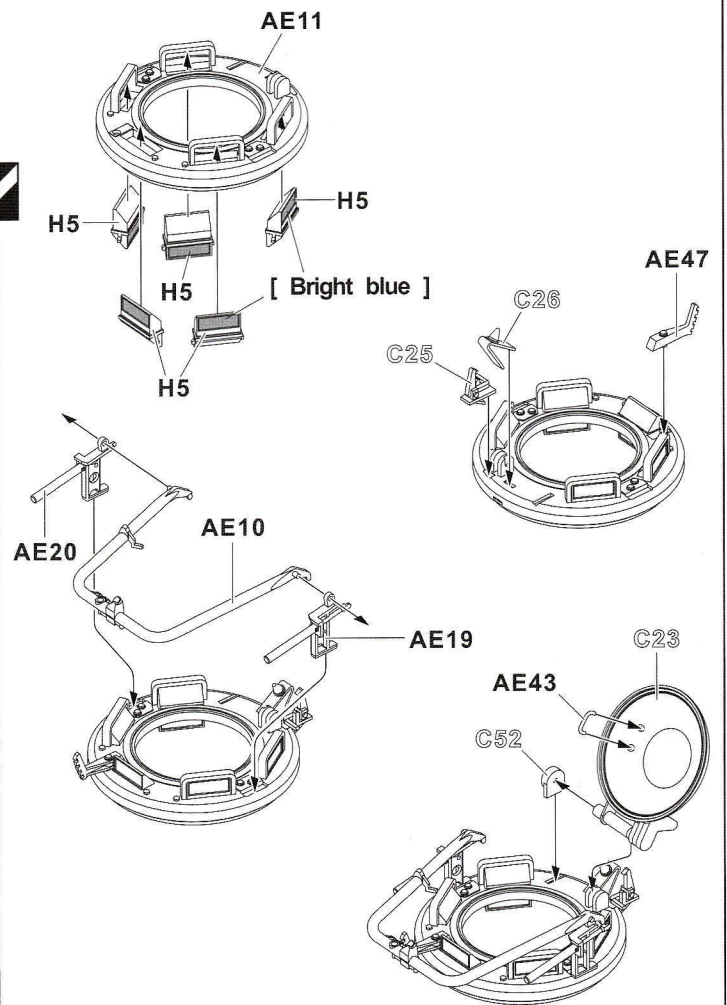
40

German Army M109G
(Early version)
德國陸軍(初期型)

Norwegian Army M109GN
挪威陸軍

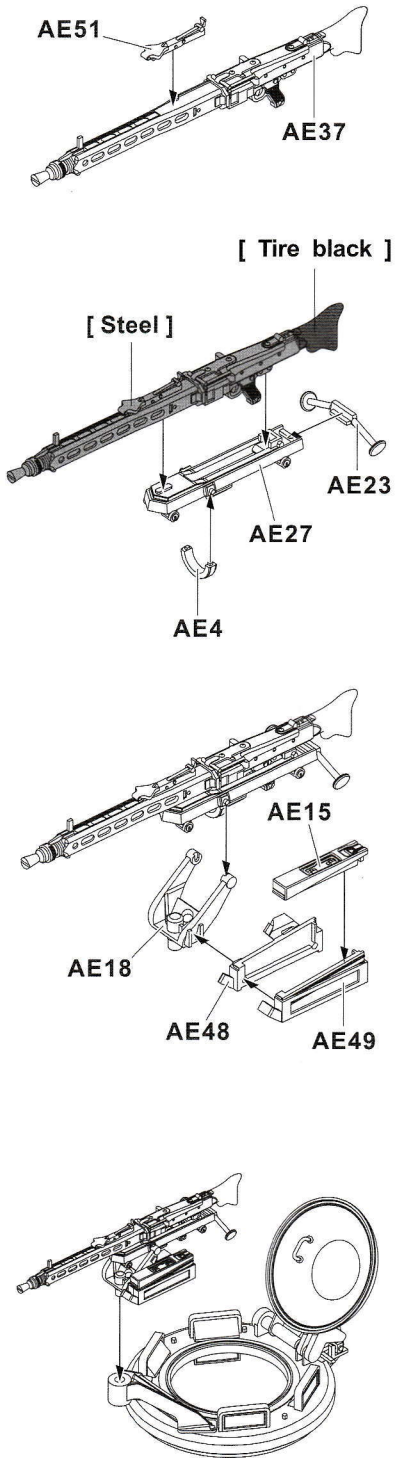


German Army M109G
(Late version)
德國陸軍後期型

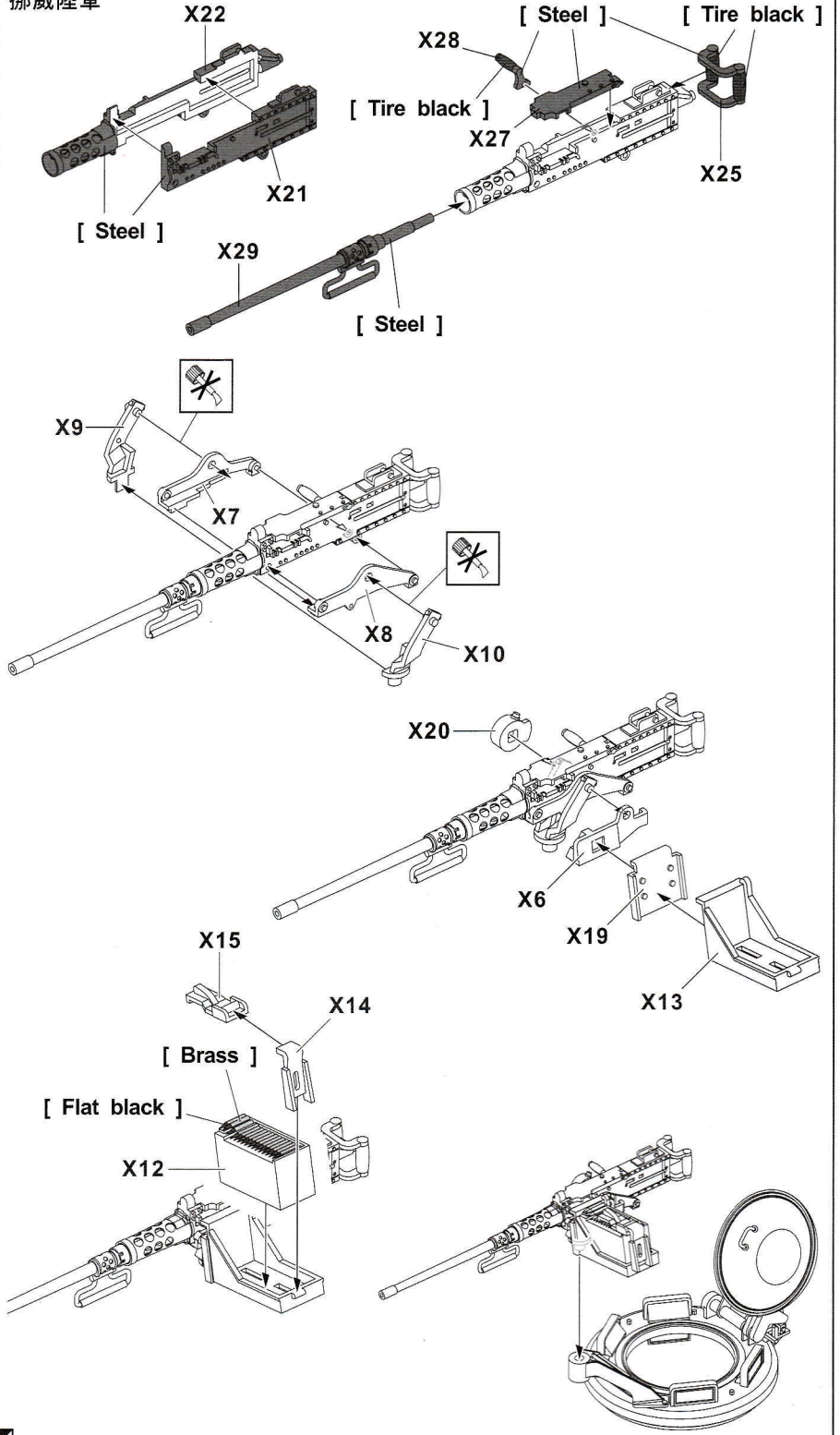


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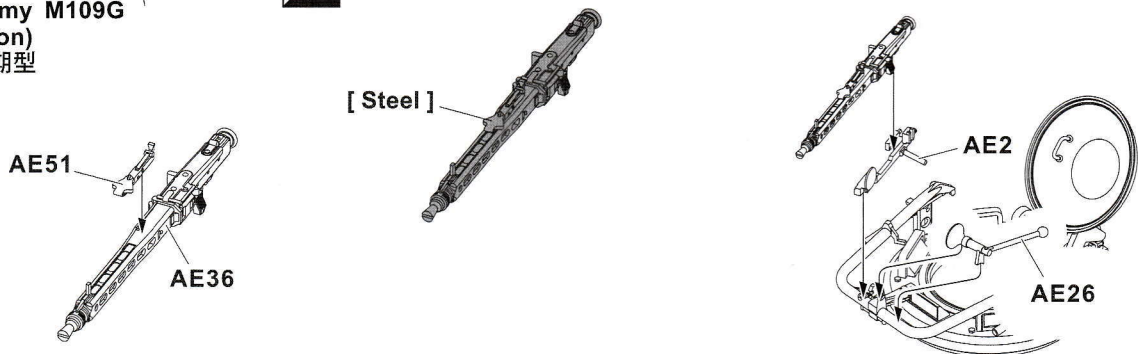
German Army M109G
(Early version)
德國陸軍(初期型)



Norwegian Army M109GN
挪威陸軍

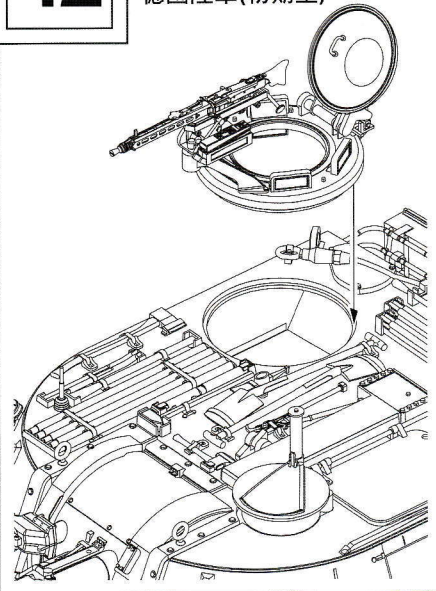


German Army M109G
(Late version)
德國陸軍後期型

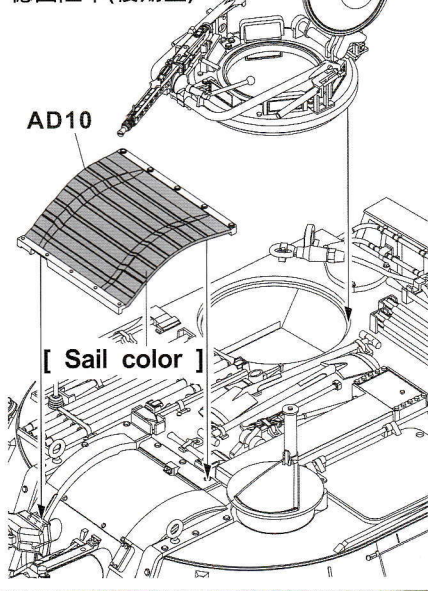


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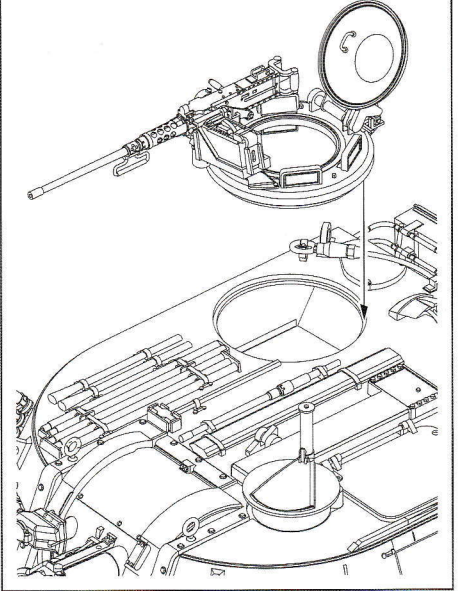
German Army M109G
(Early version)
德國陸軍(初期型)



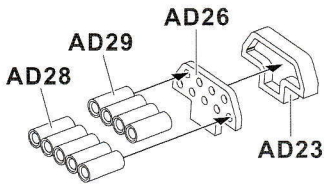
German Army M109G
(Late version)
德國陸軍(後期型)



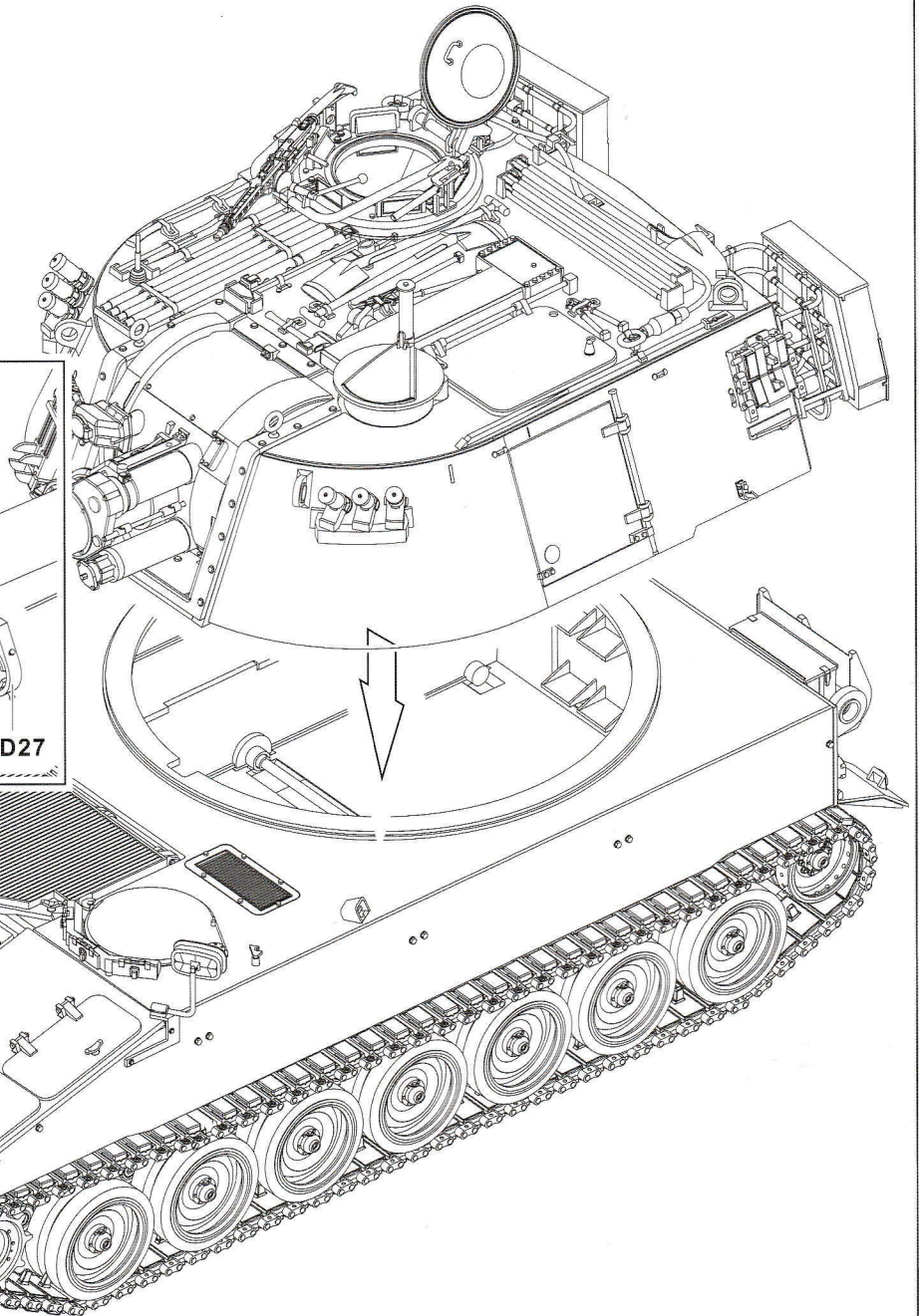
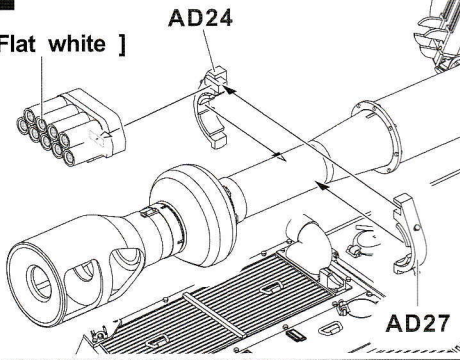
Norwegian Army M109GN
挪威陸軍



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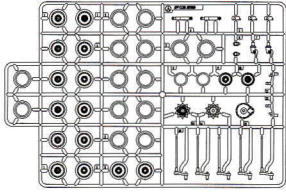


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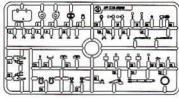


PARTS LIST 零件表

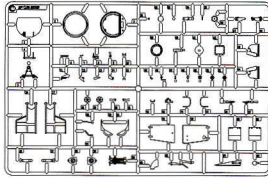
A X2 AF 35109



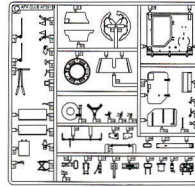
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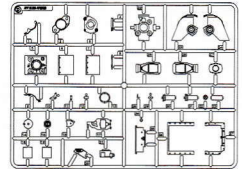
C X1 AF 35109



C X1 AF 35113



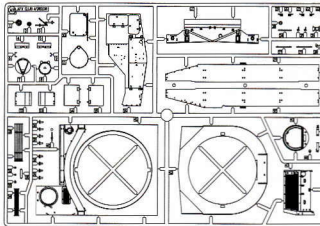
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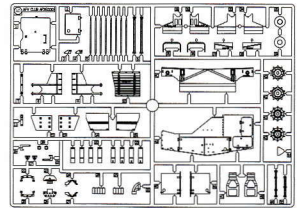
I X1 AF 35S41



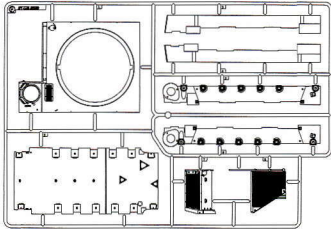
AB X1 AF 35108



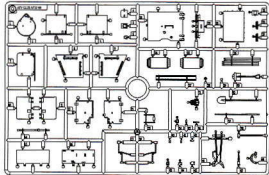
AD X1 AF 35330



F X1 AF 35109



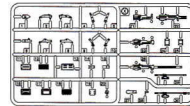
Q X1 AF 35109



G X1 AF 35109



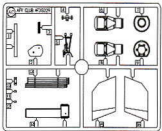
X X1 AF 35246



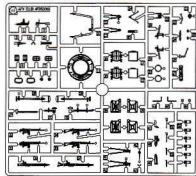
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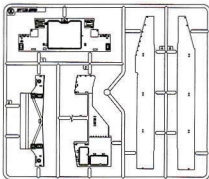
AC X1 AF 35329



AE X1 AF 35330



E X1 AF 35109



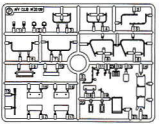
H X1 AF 35113



N X1 AF 35109



P X2 AF 35109



O X1 AF 35108



G X1 AF 35330



M X1 AF 35329



L X1 AF 35109



T X2 AF 35330



限臺灣地區使用 For Taiwanese use only!



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 35330 Parts Replacement Form

- | | | |
|--------------------------------------|-------------------------------------|-------------------------------------|
| <input type="checkbox"/> AF 35109-A | <input type="checkbox"/> AF 35109-D | <input type="checkbox"/> AF 35109-L |
| <input type="checkbox"/> AF 35108-AB | <input type="checkbox"/> AF 35109-E | <input type="checkbox"/> AF 35329-M |
| <input type="checkbox"/> AF 35329-AC | <input type="checkbox"/> AF 35109-F | <input type="checkbox"/> AF 35109-N |
| <input type="checkbox"/> AF 35330-AD | <input type="checkbox"/> AF 35109-G | <input type="checkbox"/> AF 35108-O |
| <input type="checkbox"/> AF 35330-AE | <input type="checkbox"/> AF 35330-G | <input type="checkbox"/> AF 35109-P |
| <input type="checkbox"/> AF 35109-B | <input type="checkbox"/> AF 35113-H | <input type="checkbox"/> AF 35109-Q |
| <input type="checkbox"/> AF 35109-C | <input type="checkbox"/> AF 35S41-I | <input type="checkbox"/> AF 35330-T |
| <input type="checkbox"/> AF 35113-C | <input type="checkbox"/> AF 35330-J | <input type="checkbox"/> AF 35246-X |

Reason for replacement: Missing
 Broken

Signature: _____

總代理戰鷹企業客服部收本公司將儘速為您處理。
請將本表與該部品相同金額之郵政匯票一同寄至。



AF 35330 零件補充申請表

申請人
姓名 地址 電話

- | | |
|--------------------------------------|----------|
| <input type="checkbox"/> AF 35109-A | NT\$ 300 |
| <input type="checkbox"/> AF 35108-AB | NT\$ 280 |
| <input type="checkbox"/> AF 35329-AC | NT\$ 250 |
| <input type="checkbox"/> AF 35330-AD | NT\$ 380 |
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| <input type="checkbox"/> AF 35109-B | NT\$ 200 |
| <input type="checkbox"/> AF 35109-C | NT\$ 200 |
| <input type="checkbox"/> AF 35113-C | NT\$ 270 |
| <input type="checkbox"/> AF 35109-D | NT\$ 200 |
| <input type="checkbox"/> AF 35109-E | NT\$ 180 |
| <input type="checkbox"/> AF 35109-F | NT\$ 200 |
| <input type="checkbox"/> AF 35109-G | NT\$ 120 |
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| <input type="checkbox"/> AF 35329-M | NT\$ 280 |
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| <input type="checkbox"/> AF 35109-P | NT\$ 220 |
| <input type="checkbox"/> AF 35109-Q | NT\$ 200 |
| <input type="checkbox"/> AF 35330-T | NT\$ 280 |
| <input type="checkbox"/> AF 35246-X | NT\$ 180 |

+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 _____

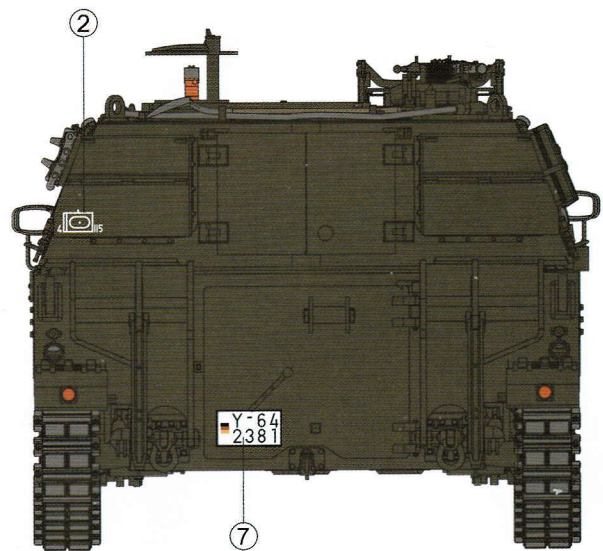
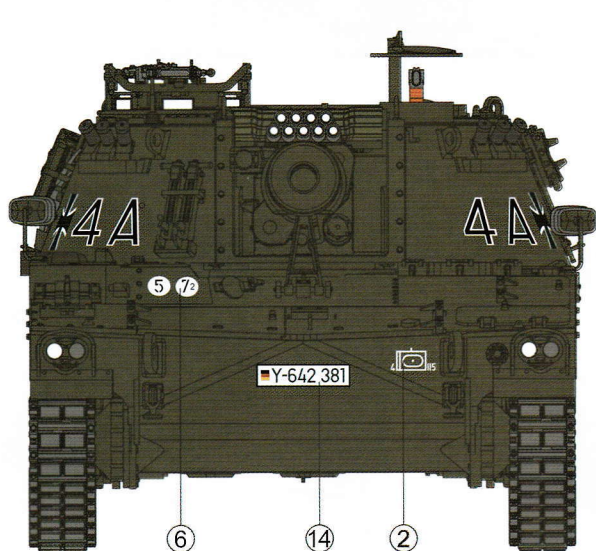
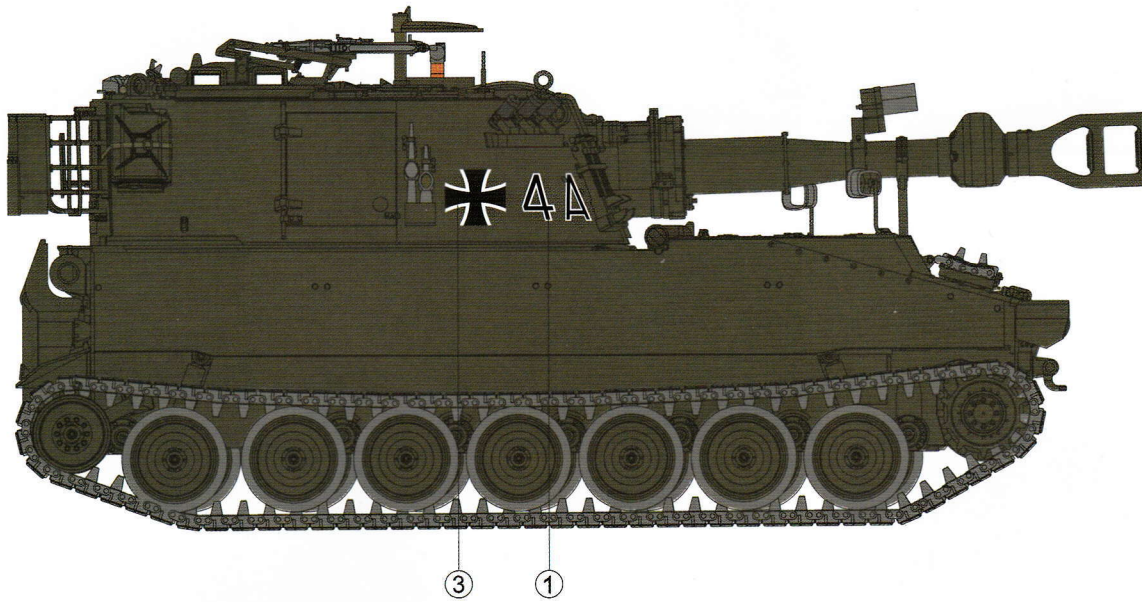
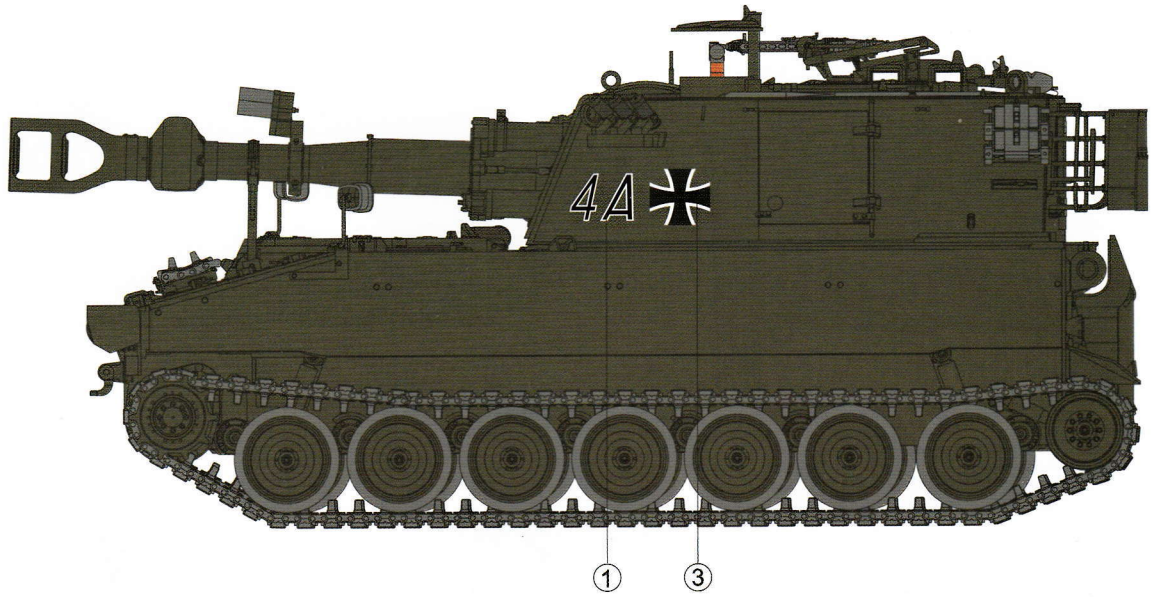
A

PzArtBtl 115, 1980.

115裝甲砲兵營，1980年。

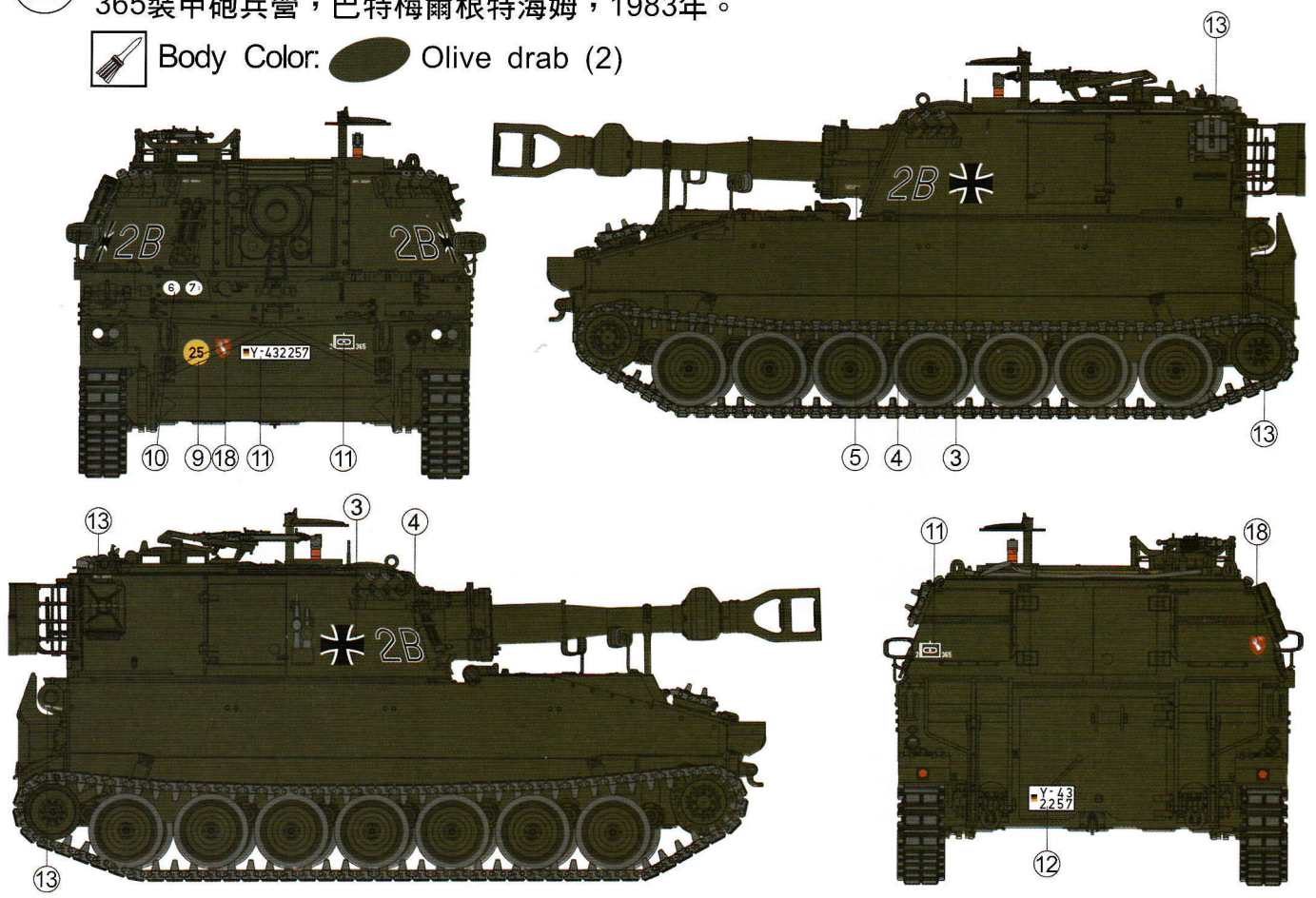


Body Color:  Olive drab (2)



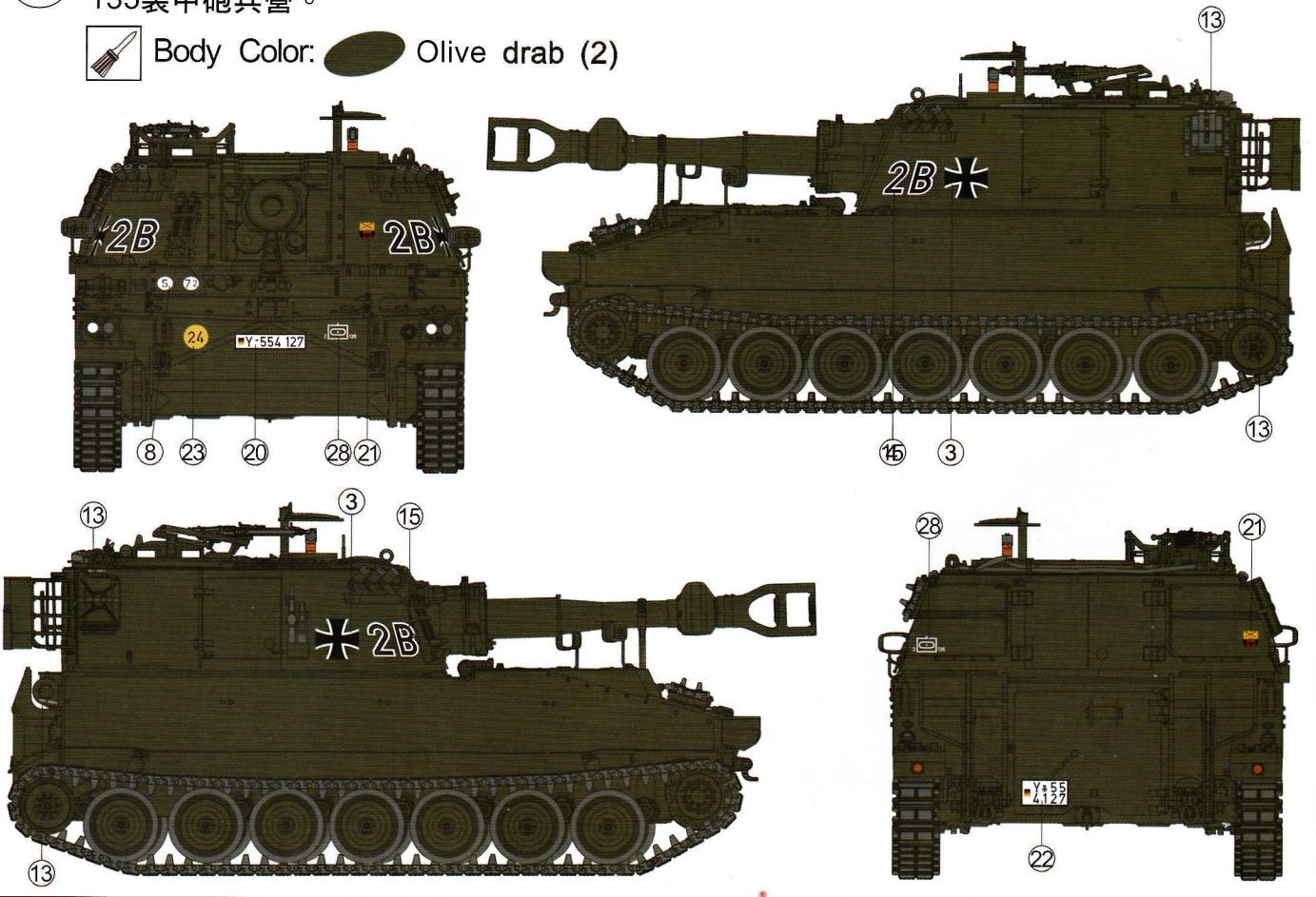
B PzArtBtl 365, Bad Mergentheim, 1983.
365裝甲砲兵營，巴特梅爾根特海姆，1983年。

Body Color:  Olive drab (2)



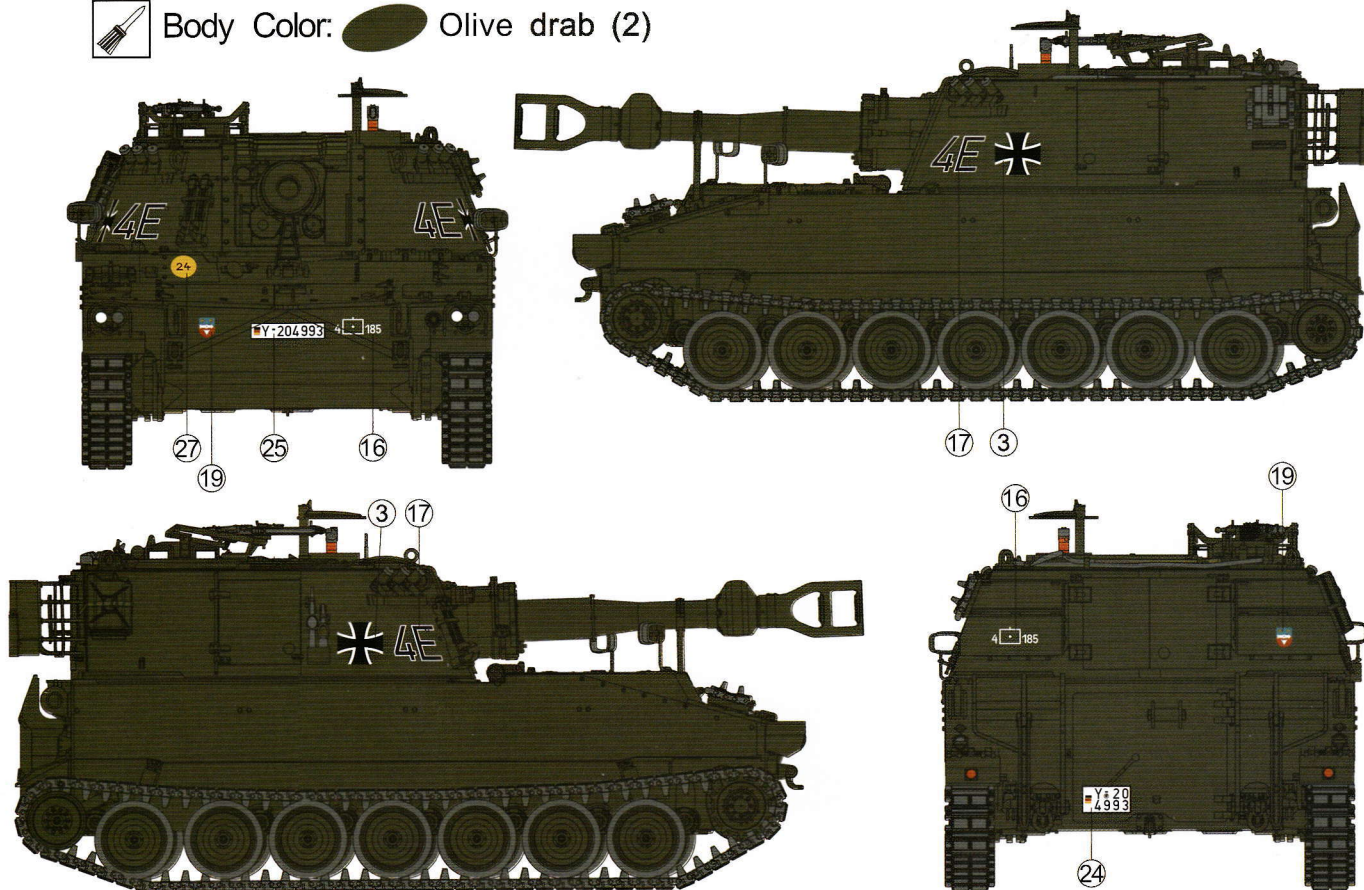
C PzArtBtl 135.
135裝甲砲兵營。

Body Color:  Olive drab (2)



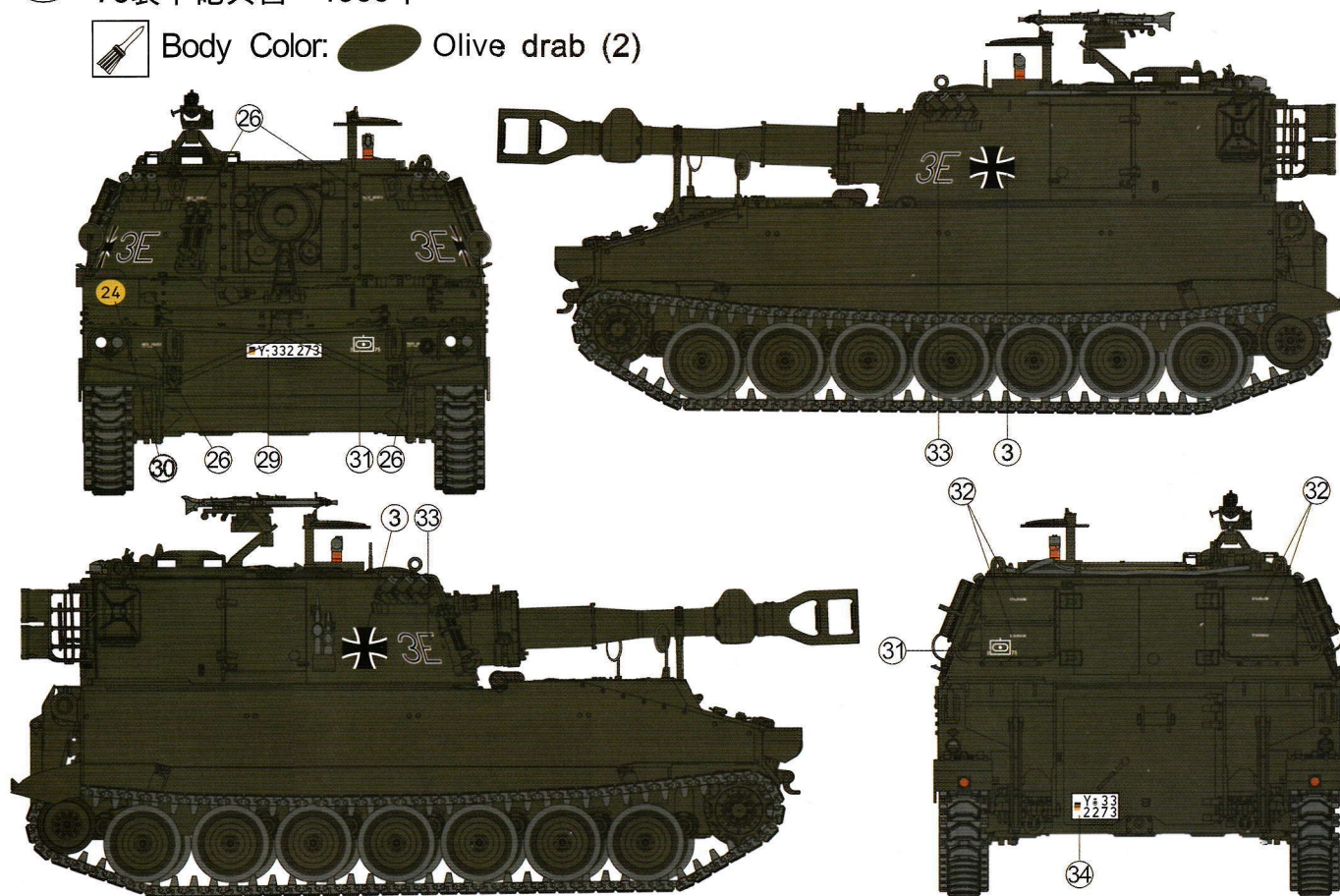
D PzArtBtl 185.
185装甲砲兵營。

Body Color:  Olive drab (2)



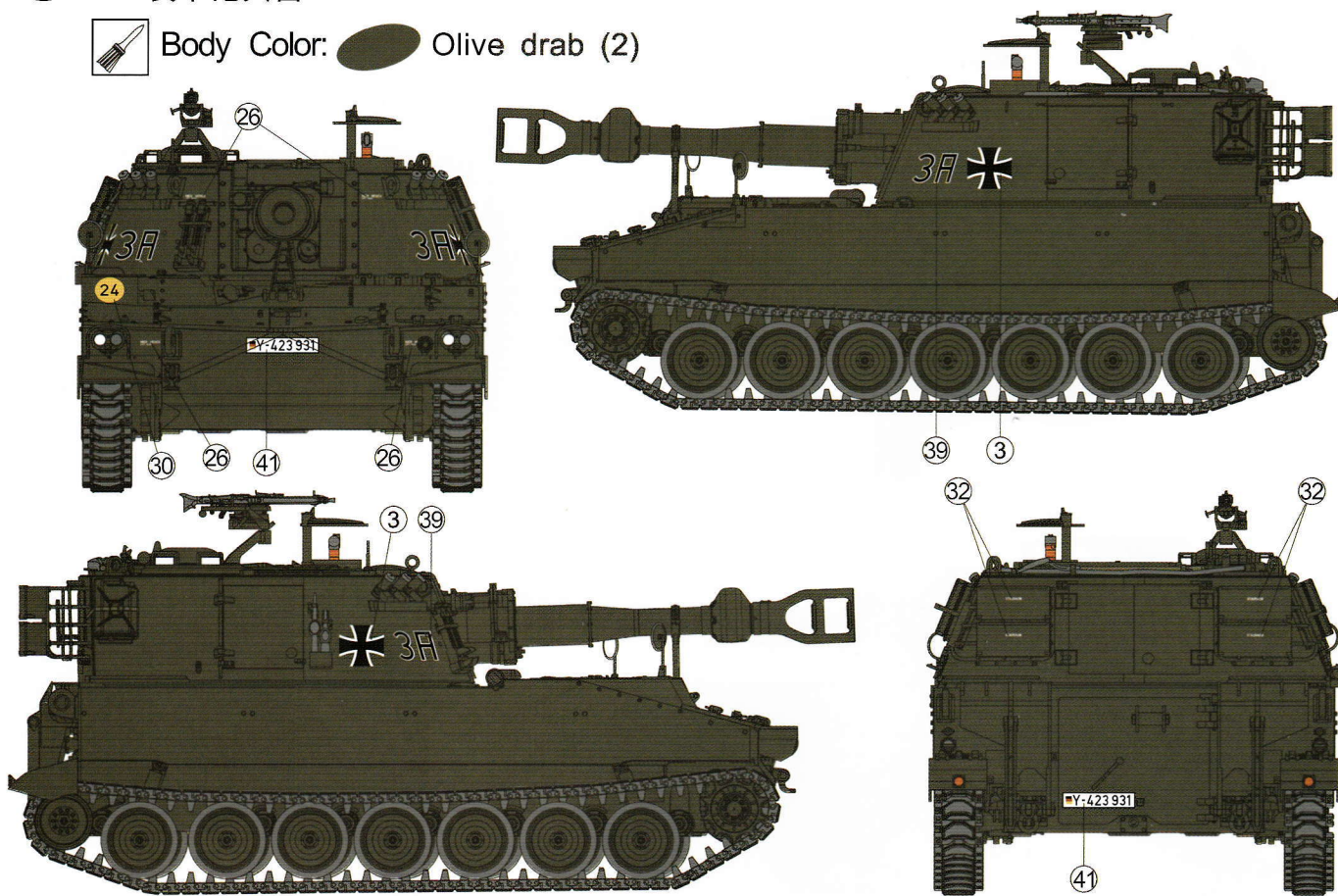
E PzArtBtl 75, 1966.
75装甲砲兵營，1966年。

Body Color:  Olive drab (2)



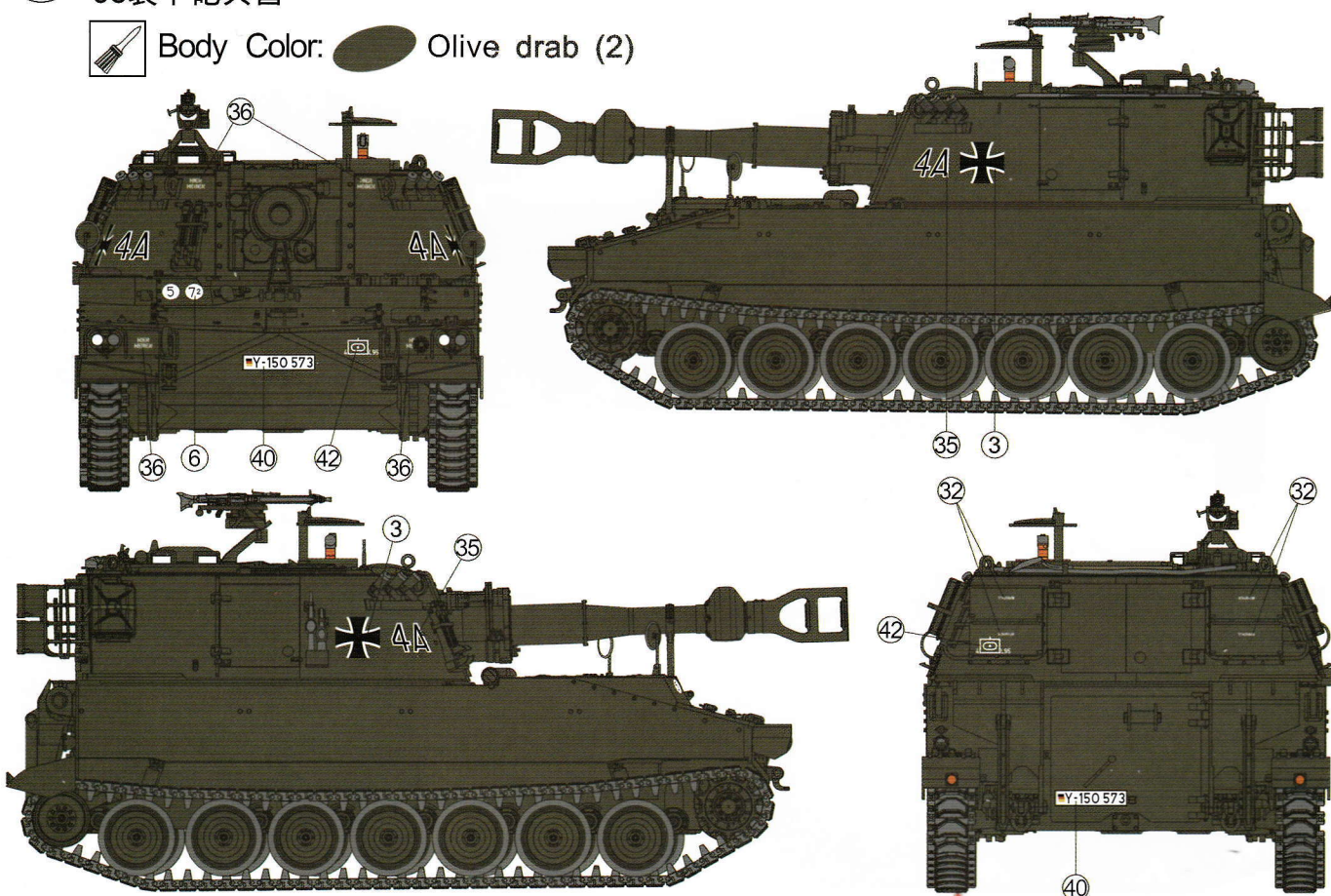
F PzArtBtl 185.
185裝甲砲兵營。

Body Color:  Olive drab (2)



G PzArtBtl 95.
95裝甲砲兵營。

Body Color:  Olive drab (2)



H

Brigade Nord, Norwegian Army.

挪威陸軍，北方旅。



Body Color:



Russian green(1)



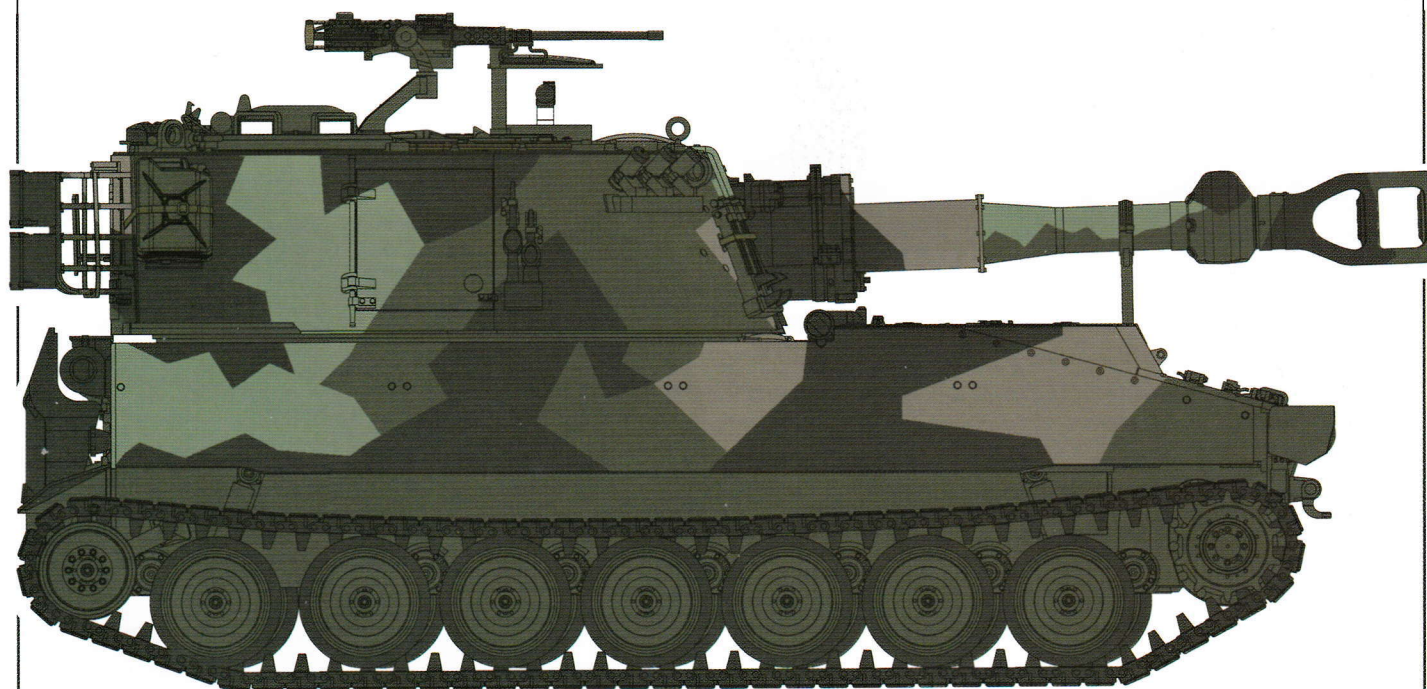
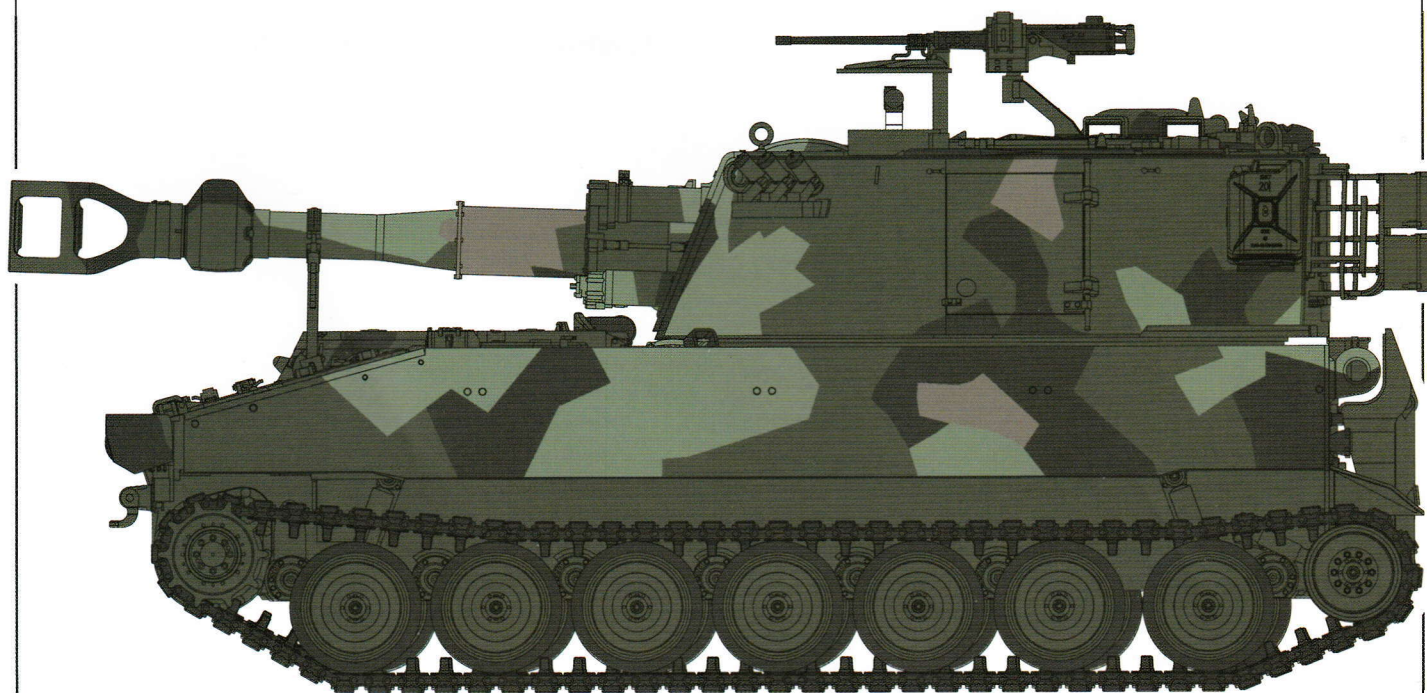
Russian green(2)



Sandy yellow



Flat black





Body Color:



Russian green(1)



Russian green(2)



Sandy yellow



Flat black

