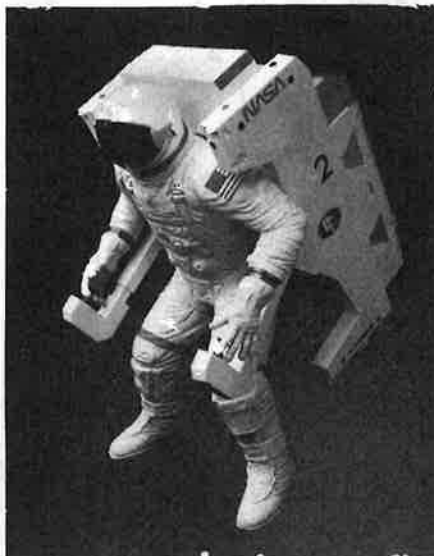




# ASTRONAUT with MMU

4731-3800



As man first went into space his usefulness was limited by his dependence on the life support systems in his spacecraft. His first venture directly into space came with the tethered space walk. The one was still attached to his spacecraft and his mobility was limited by the length of the connecting line to the ship.

With the Martin Marietta-built Manned Maneuvering Unit (MMU) the space man is freed from his spaceship and can venture directly into near space. Using this remarkable "Flying Chair" our astronauts have been able to travel from the shuttle to a malfunctioning satellite, tow the satellite back to the shuttle and repair it inside the shuttle's cargo bay. Once the repairs were accomplished, the satellite was reorbited.

The MMU is actually a tiny spacecraft which an astronaut attaches to his back. The control system is similar to that of the shuttle itself, and is operated by hand controls mounted to the movable arm rests on the MMU. With four thrusters, you move the MMU in six different ways, allowing the astronaut to make precise maneuvers during his extra vehicular activities. These thrusters are powered by gaseous nitrogen (GN<sub>2</sub>) stored in two tanks inside the unit. A gauge on each side of the MMU seat shows the amount of propellant remaining in each tank. Enough fuel is provided for up to six hours of extra vehicular activity. The MMU fully loaded, weighs 330 lbs. Include one astronaut with all his gear and the entire unit can weigh up to 741 lbs., but of course in space they are weightless.

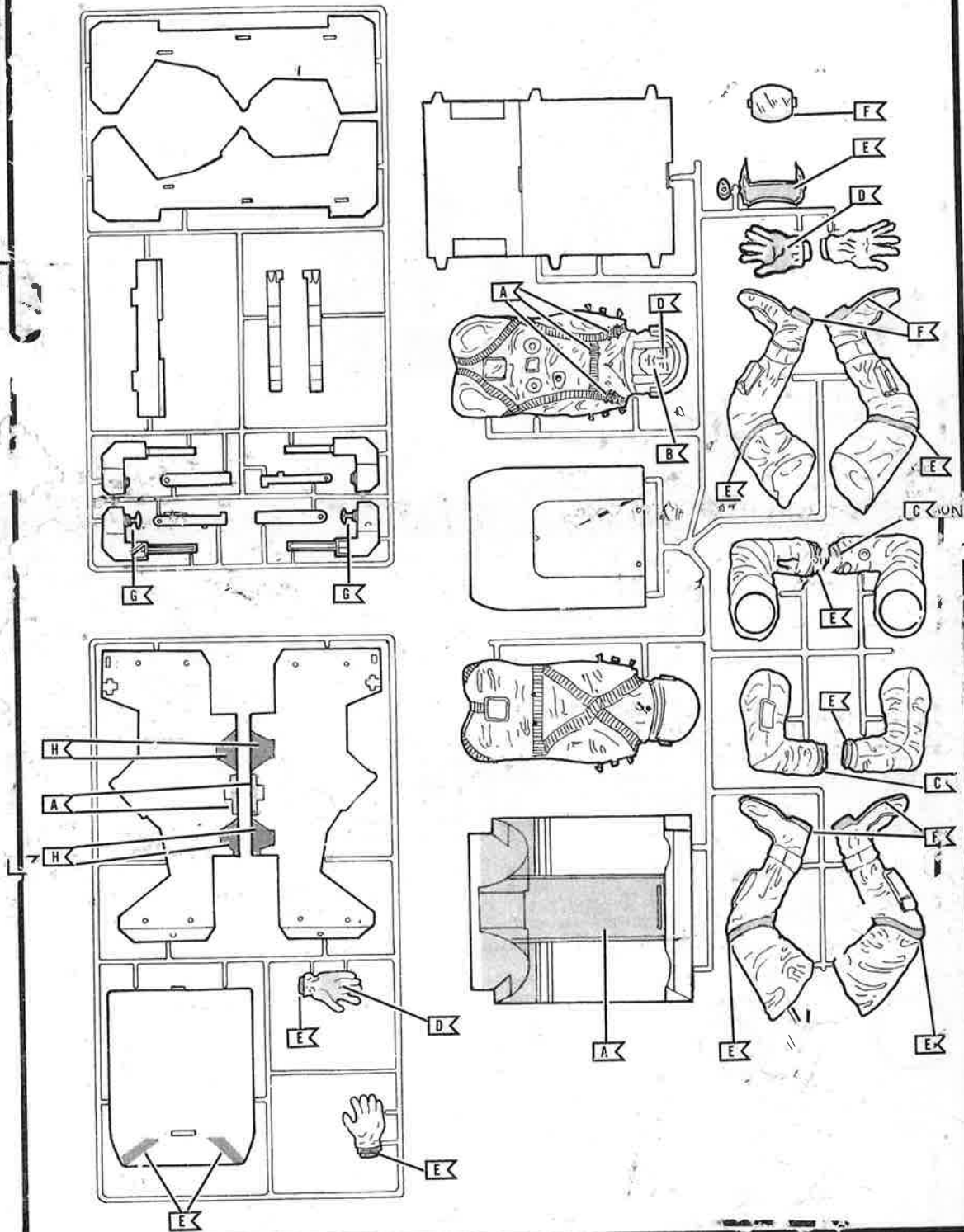
**ENGLISH:** ASSEMBLY DRAWINGS SHOULD BE REVIEWED BEFORE PROCEEDING WITH CONSTRUCTION. A NUMBER IDENTIFIES EACH PLASTIC PART FOR YOUR CONVENIENCE. PAINT SMALL PARTS ON RUNNER BEFORE REMOVING. ALLOW PAINT TO DRY THOROUGHLY BEFORE CONTINUING ASSEMBLY OF KIT. SCRAPE CHROME OR PAINT AT AREA TO BE GLOUED. WASH PLASTIC IN MILD DETERGENT SOLUTION. RINSE AND LET AIR DRY FOR BETTER PAINT AND DECAL ADHESION.

**ESPAÑOL:** DIBUJOS DE ENSAMBLAJE DEBEN SER REVISADOS ANTES DE EMPEZAR CON LA CONSTRUCCIÓN. UN NÚMERO IDENTIFICA CADA PARTE DEL KIT PARA SU CONVENIENCIA. PINTA PARTES PEQUEÑAS DEL KIT ANTES DE SEPARARLAS. DEJE SECAR BIEN LA PINTURA ANTES DE SEGUIR EL ENSAMBLAJE. RAPELLE CRÓMO O LA PINTURA DEL SITIO ANTES DE SER PEGADO. LAVE EL PLÁSTICO EN UNA SOLUCIÓN SUAVE DETERGENTE, ENJUAGUE, Y DEJE SECAR EN EL AIRE PARA MEJOR ADHESIÓN DE LA PINTURA Y CALCOMANÍA.

GLUE COLLE PEGA	NO GLUE REQUIRED LA COLLE N'EST PAS NECESSAIRE NO NECESITA PEGA	DO IT THIS MANY TIMES LE FAIRE CE NOMBRE DE FOIS HAGALO ESTA CANTIDAD DE VECES	OPTIONAL FACULTATIF OPCIONAL	APPLY DECALS COLLER LES DECALCOMANIES APLICAR CALCAS
	SHOWN ASSEMBLED VU ASSEMBLE MOSTRADO ARMADO	CLEAR TRANSPARENT TRANSPARENTE	WHITE BLANC BLANCO	

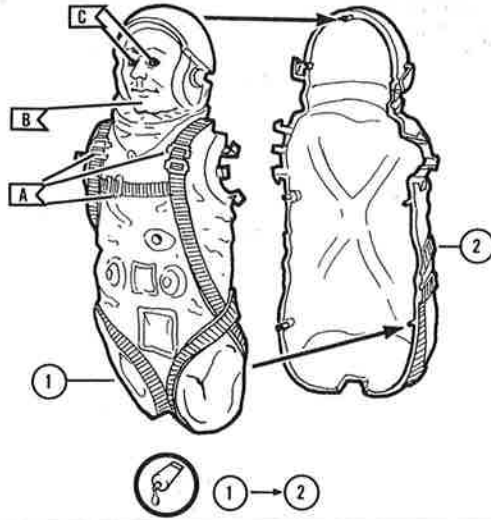
<b>A</b>	SILVER	ARGENT	PLATA
<b>B</b>	FLESH	CHAIR	PIEL
<b>C</b>	BLUE	BLEU	AZUL
<b>D</b>	MATT YELLOW	JAUNE MAT	AMARILLO MATE
<b>E</b>	RED	ROUGE	ROJO

<b>F</b>	LIGHT GRAY	GRIS CLAIR	GRIS CLARO
<b>G</b>	MATT BLACK	NOIR MAT	NEGRO MATE
<b>H</b>	GOLD	DORE	ORO



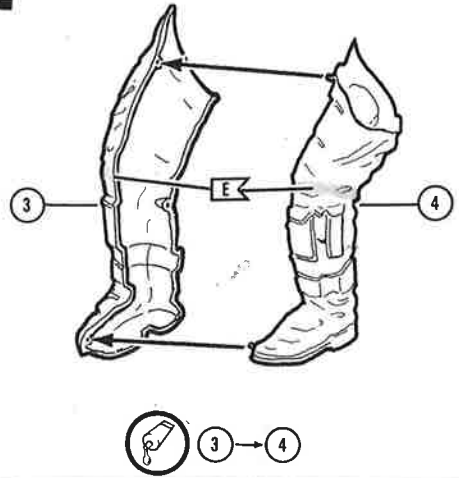
1

1 BODY - FRONT HALF  
2 BODY - BACK HALF



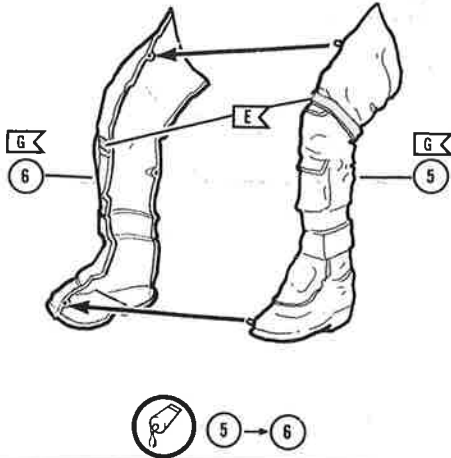
2

3 RIGHT LEG - OUTSIDE HALF  
4 RIGHT LEG - INSIDE HALF

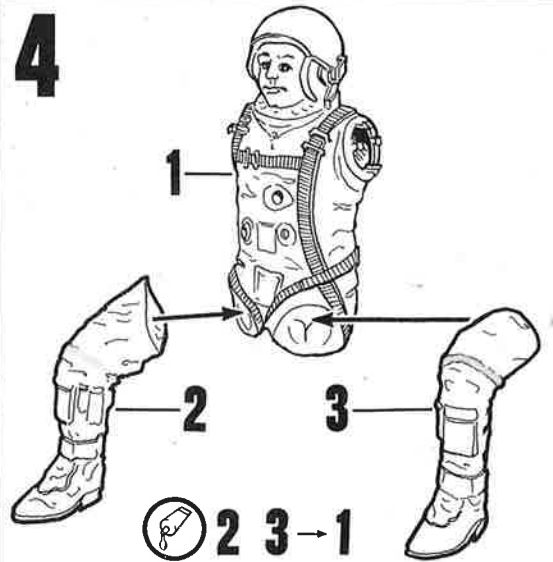


3

5 LEFT LEG - OUTSIDE HALF  
6 LEFT LEG - INSIDE HALF

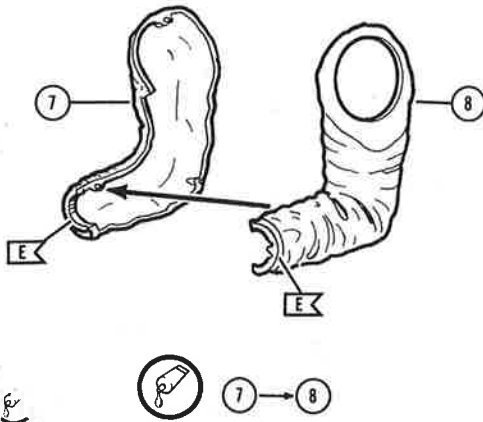


4



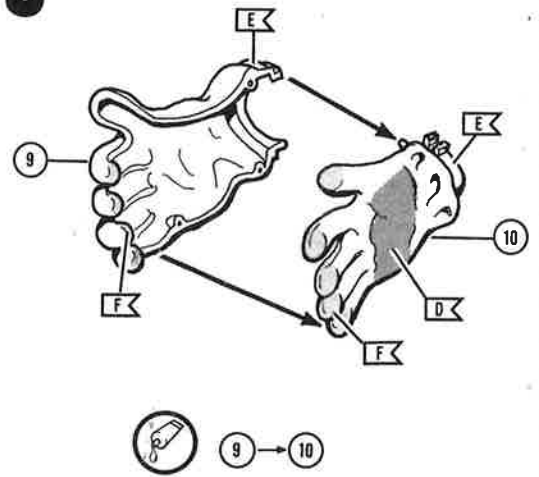
5

7 RIGHT ARM - OUTSIDE HALF  
8 RIGHT ARM - INSIDE HALF

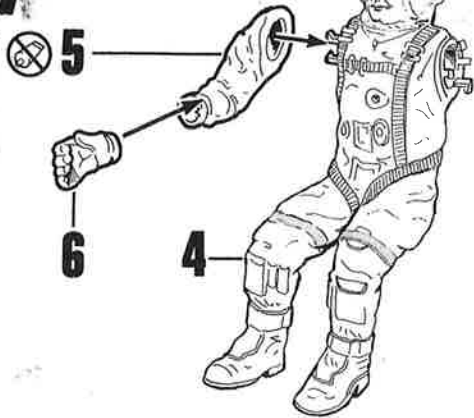


6

9 RIGHT HAND - OUTSIDE HALF  
10 RIGHT HAND - INSIDE HALF



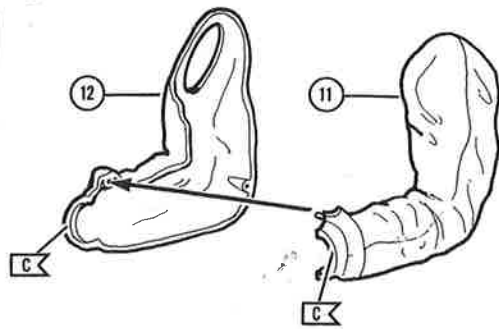
**7**



⊗ 5 4  
 6 → 5 ⊗ 5 4

**8**

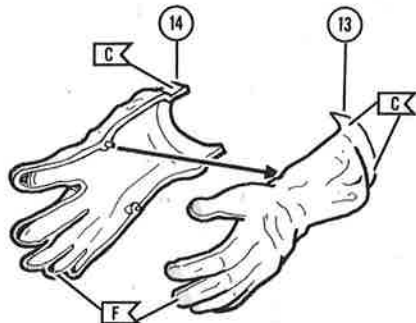
11 LEFT ARM - OUTSIDE HALF  
 12 LEFT ARM - INSIDE HALF



⊗ 11 → 12

**9**

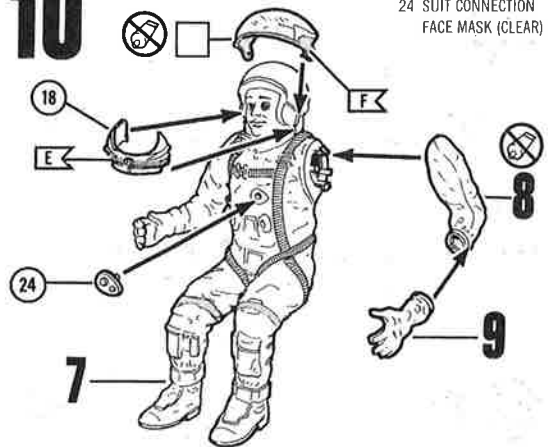
13 LEFT HAND - OUTSIDE HALF  
 14 LEFT HAND - INSIDE HALF



⊗ 13 → 14

**10**

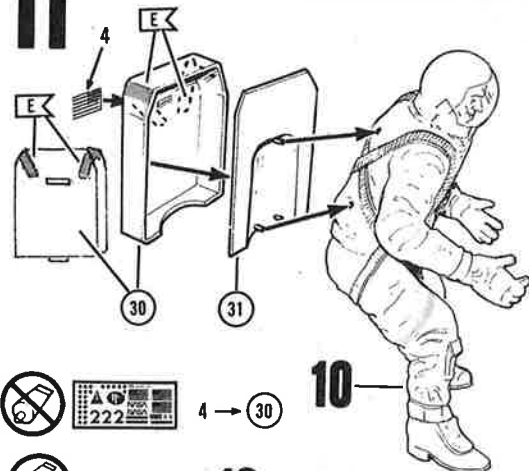
18 SPACE SUIT COLLAR  
 24 SUIT CONNECTION  
 FACE MASK (CLEAR)



⊗ □ 18 24 → 7  
 ⊗ 9 → 8 ⊗ □ 8 → 7 ⊗ 18 24 → 7

**11**

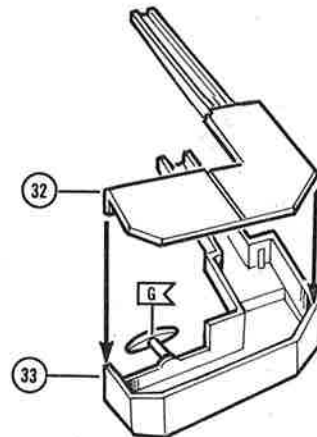
30 LIFE SUPPORT UNIT - BACK HALF  
 31 LIFE SUPPORT UNIT - FRONT HALF



⊗ 4 → 30  
 ⊗ 30 → 31 → 10

**12**

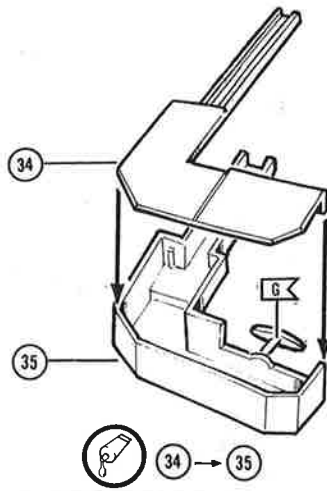
32 RIGHT CONTROL ARM - INSIDE HALF  
 33 RIGHT CONTROL ARM - OUTSIDE HALF



⊗ 32 → 33

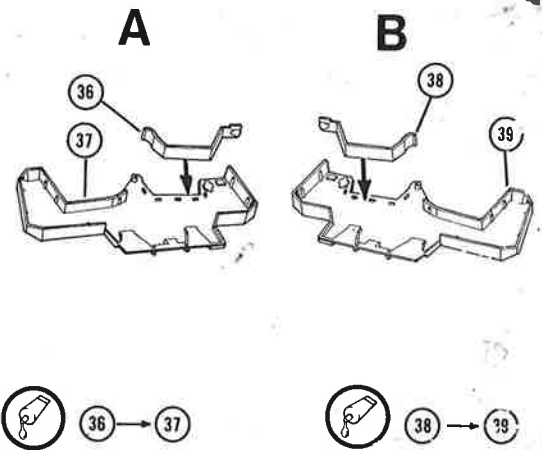
# 13

34 LEFT CONTROL ARM - INSIDE HALF  
35 LEFT CONTROL ARM - OUTSIDE HALF



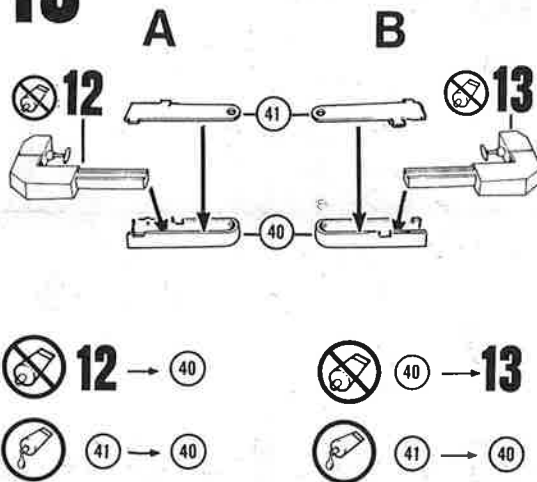
# 14

36 SIDE FRAME RIGHT FRONT PANEL - TOP  
37 SIDE FRAME RIGHT FRONT PANEL - BOTTOM  
38 SIDE FRAME LEFT FRONT PANEL - TOP  
39 SIDE FRAME LEFT FRONT PANEL - BOTTOM



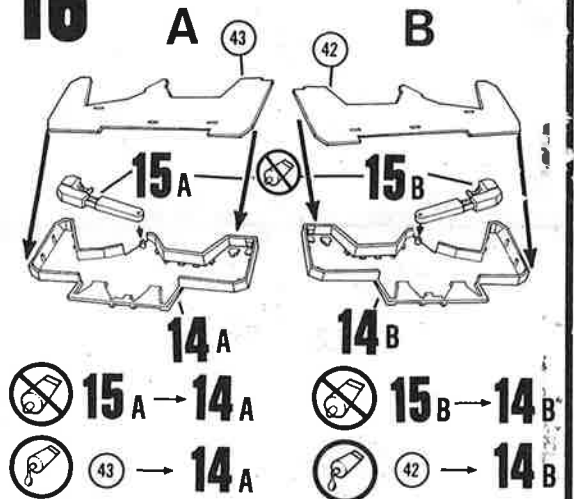
# 15

40 CONTROL SLEEVE - EXTERIOR HALF  
41 CONTROL SLEEVE - INTERIOR HALF



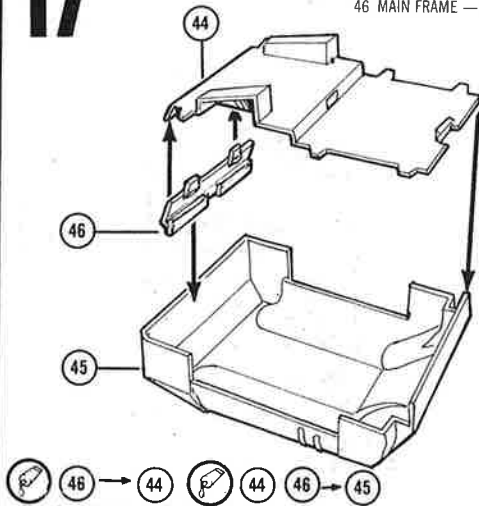
# 16

42 SIDE FRAME - RIGHT INSIDE HALF  
43 SIDE FRAME - LEFT INSIDE HALF

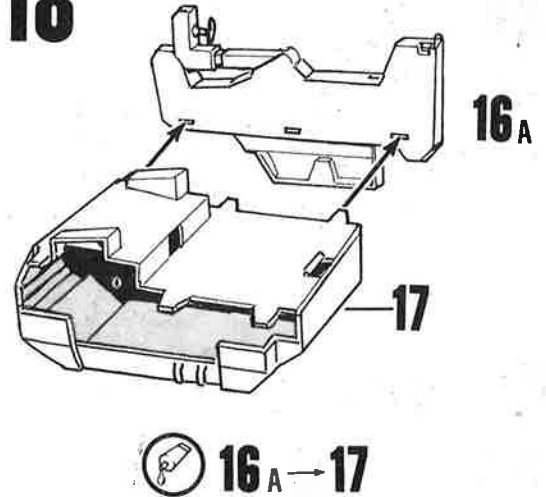


# 17

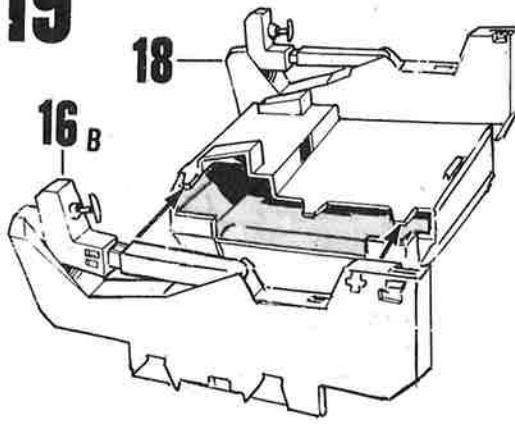
44 MAIN FRAME - FRONT HALF  
45 MAIN FRAME - BACK HALF  
46 MAIN FRAME - BOTTOM



# 18




# 19




 16 B → 18

# 20



11 

 11 → 21

# 21

