

# LOTUS 49 FORD F-1

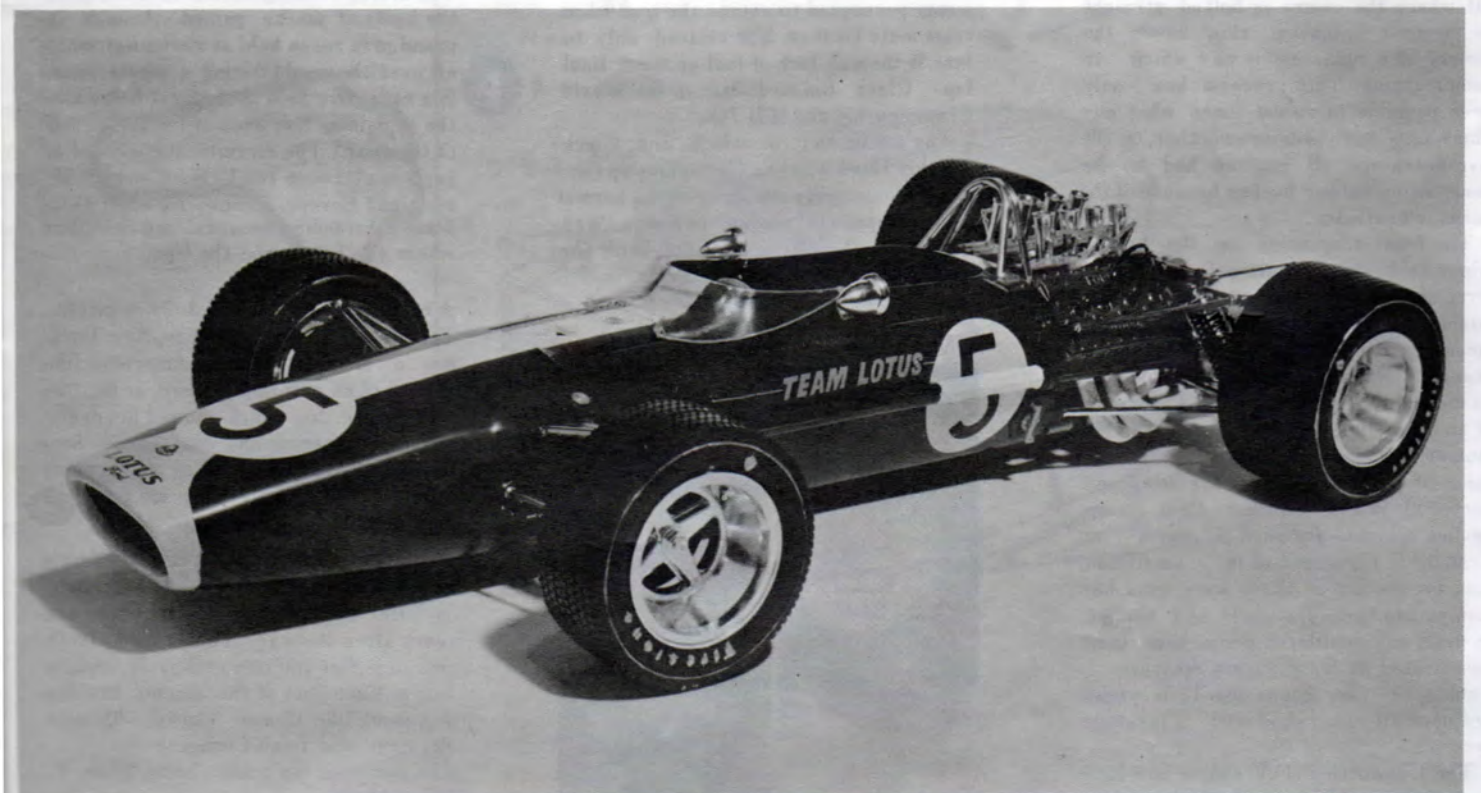


**TAMIYA**  
TAMIYA PLASTIC MODEL CO.

**1:12** IDENTICAL SCALE **BIG SCALE 1/12**



REPRINTED BY THE COURTESY NIGEN-SHA CO. IN JAPAN



# LOTUS 49 FORD F-1



## ★ About the LOTUS 49 FORD

At the end the 1961-1965 Grand Prix Formula, Team Lotus was left without an engine to power its Grand Prix Cars, because of the retirement from the racing scene of the Coventry Climax concern. Colin Chapman, however, made an agreement with Ford, whereby Ford supplied Cosworth with £100,000 to build a Grand Prix Engine for the exclusive use of Team Lotus for one year. The engine, the Cosworth D.F.V.V8 was designed and built in 13 months and at the 1967 Dutch Grand Prix it made its winning debut in Colin Chapman's latest creation the Lotus 49.

The Lotus 49 has an aluminium monocoque chassis which is closed at the top forming a 'cigar' shape, unlike most monocoques which are 'bath tubs' with the top open. Inside the monocoque is carried about 40 gallons of fuel. The monocoque itself which weighs only 75 lbs. stretches from the front suspension mounting points to the rear of the cockpit where the engine is bolted straight to the rear bulkhead; this saves the weight of a subassembly on which to mount engine. This process has only been possible in recent times when engines have much become smoother, up till five years ago all engines had to be mounted on rubber bushes because of the heavy vibrations.

The front suspension on the Lotus, which is fairly conventional by Grand Prix standards is by upper and lower wishbones with coil spring/damper units mounted inside the body, out of the airstream. The rear suspension is hung on to the engine-gearbox unit and consists of an upper link, lower wishbone, twin radius arms and a coil spring/damper unit; the rear suspension units are interconnected by an anti-roll bar. Cast magnesium uprights are used all round, at first these supported 12 in. ventilated disc brakes but as these were becoming too cool (yes, cool) and tending to grab, non-ventilated discs have been substituted as a temporary measure. Four spoke cast magnesium 15 in. wheels are used all round shod with Firestone tyres.

The Cosworth D.F.V. engine is a fairly conventional V.8 with a bore and

stroke of 85.7 mm. x 64.8 mm. giving a capacity of 2,993 cc., it has four valves per cylinder and has excellent 'breathing'. The engine gives out about 420 b.h.p. at 9,000 r.p.m. which is a remarkable figure for a V.8. Lucas fuel injection is used along with the Lucas OPUS ignition system, and Autolite sparking plugs.



For the 1967 season the car was painted the familiar Lotus Green and Yellow colours, however this season it is painted in the red, white and gold colours of the newlyformed Gold Leaf-Team Lotus team. Throughout the 1967 season various changes were made to the car, such as the changing of the brakes, the placing of all the electrics under an aluminium shield between the vee of the engine and the most obvious change, that to the windscreen. The original windscreen consisted of a small screen not unlike that of the Eagles, extending to halfway along the cockpit with an 'intake' at the front to tunnel air over the driver's head, this screen was used only for the car's first two races. On the later type screen as drawn, however, the perspex extends to the rear of the cockpit, and is incidentally, tinted yellow.

The racing career of the Lotus 49 is too well known to go into any great detail about; the highspots are the victories in the Dutch, British, American, Mexican and Spanish Grand Prix in 1967 and its success in the South African Grand Prix and the Tasman series this year. The late Jim Clark had a truly great drive in the Italian Grand Prix last year. After a pit stop to change a tyre, which lost him a lap, he drove like a man possessed to retake the lead when team mate Graham Hill retired, only to lose it through lack of fuel on the final lap. Clark finished 3rd in the World Championship and Hill 7th.

The Lotus 49T in which Jim Clark won his third Tasman Championship this year is outwardly the same as the normal 49, its Cosworth engine, however, was reduced to 2½ litres to comply with the regulations of the Tasman series.

REPRINTED BY THE COURTESY MODEL CARS IN ENGLAND

JIM CLARK



GRAHAM HILL



EMBLEM



C. CHAPMAN

About the Emblem:

The word 'Lotus' means a water plant flower represented in an ancient Egyptian and Hindu arts. It is not clear, however, why Collin Chapman, the originator of this car, selected this flower for his emblem. Since the car is so famous nowadays, most people interested in the racing car, just don't bother about what kind of a flower it is, but immediately think of that energetic and mechanical machine itself and a laurel, the symbol of a victory. The four characters, C, A, B, C, simply represent his full name initials: Collin Antony Bruce Chapman.



The Circuits where the Lotus Won:  
The driver's championship is decided on the basis of marks gained through 11 grand prix races held at various circuits all over the world during a whole year. Six races are held in the first half while the remaining five ones in the latter half of the year. The circuits are located at various places in the U.S., Canada, Africa and Europe. Below, we shall show some outstanding records and circuits where the Lotus won the Gps.

★Watkinsglen, (U.S.): 3.7 km circle.  
The circuit at Watkinsglen, New York, has a simple, genuine American-like course of an extremely small scale. In this course, Jim Clark showed his overwhelming strength and won three times in 1962, 1966 and 1967. (He used a new-type Lotus). The maximum lap time: 1 min 6 sec 0, 201.90 km/h.

★Silverstone, (Britain): 4.715 km circle.  
Here the British Gp race had been held one after the other for seven succeeding years after the war. The 4.715 km circle course is flat and in a relatively simple shape. Each part of the circuit has its own name like 'Chapel Curve', 'Hanger Straight' and 'Crab Corner'. The maximum lap time: 1 min 27 sec 4, 194.918 km/h.

Please read the following instructions very carefully before assembly.

★This kit has a very large number of Parts, almost 100. Please read and study the diagrams very carefully before starting assembly.

Assemble all the parts in their respective numbers.

★You will need the following tools for the construction of this kit; a small screwdriver, tweezers, knife, cello tape and a ruler.

★Remove each part of the twig before you assemble the various parts.

★In the diagrams the sections which have to be fixed either with adhesives or by heat-welding are shaded in blue. Always be certain that you apply the correct adhesive to the correct sections.

**Fig. 1—Assembling Cockpit**  
Cement B8, C36, B11 and E11 to cockpit B15.

**Fig. 2—Cowling Fixing Metal Installation**

Heat fix cowling fixing metal M2 onto B15.

**Fig. 3—Assembling the Body**

Apply cement to fix A1 and A2 together, holding B1 and B10 in place.

**Fig. 4—Front Arm Installation**

Fix D42 and D40 by fitting them to A1 and A2 respectively. Next cement Front Bulkhead B16 to the body.

(Paints Required)

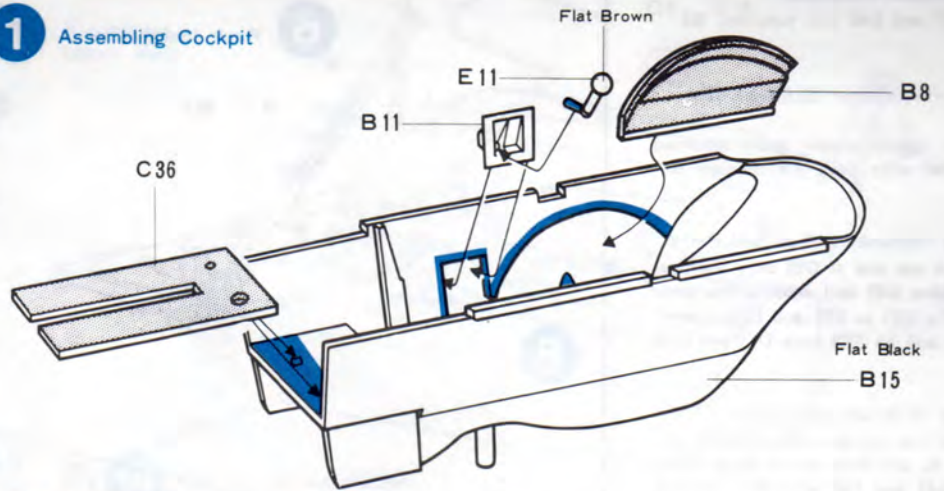
Tamiya Spray Paints

Italian red.....	TS-8
British green.....	TS-9
Yellow.....	TS-16
Gold.....	TS-21
Pure white.....	TS-26

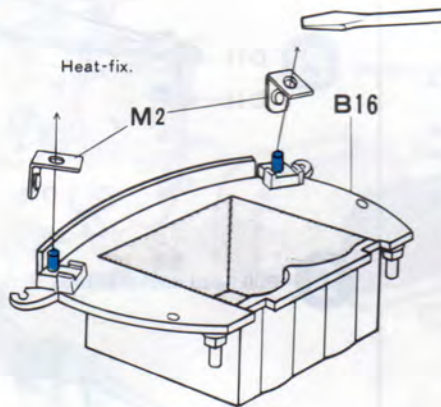
Tamiya Bottle Paints

Black.....	X-1
White.....	X-2
Green.....	X-5
Red.....	X-7
Lemon yellow.....	X-8
Chrome silver.....	X-11
Gold leaf.....	X-12
Flat black.....	XF-1
Flat white.....	XF-2
Flat red.....	XF-7
Flat brown.....	XF-10
Metallic grey.....	XF-56

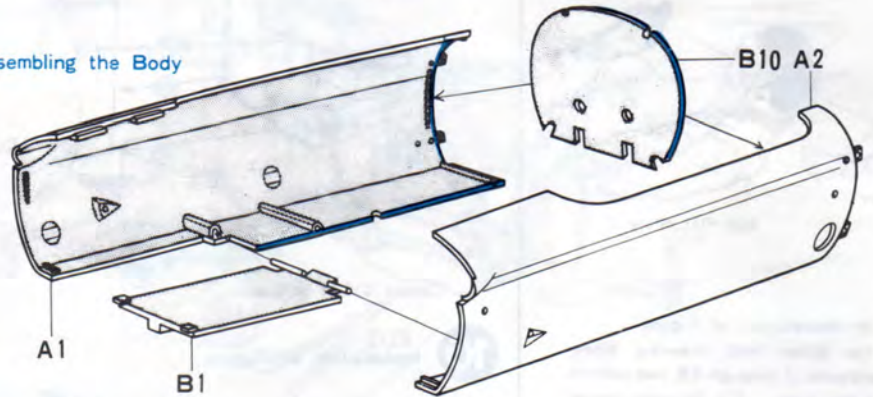
## 1 Assembling Cockpit



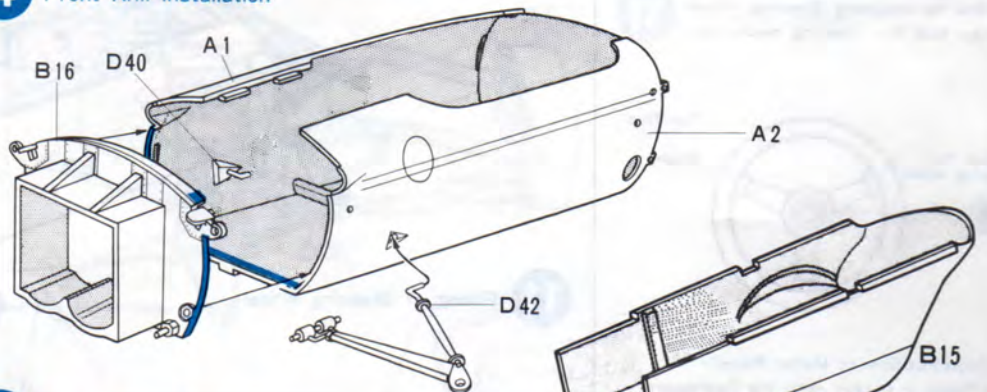
## 2 Battery Mount Installation



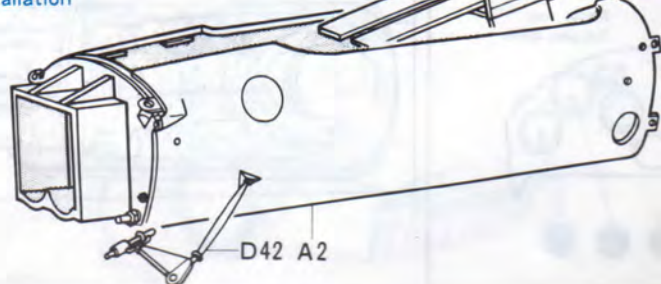
## 3 Assembling the Body



## 4 Front Arm Installation



## 5 Cockpit Installation



**Fig. 6—Rack Installation**  
Fit B17 and D45 into bulkhead B3.

**Fig. 7—Installation of Pinion Gear**

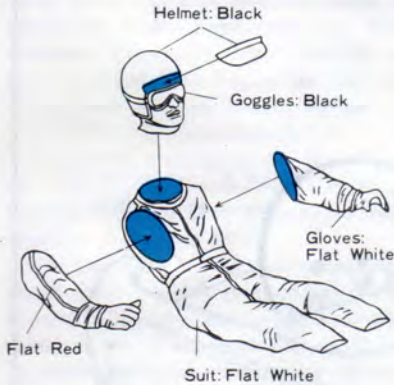
Knock lightly pinion gear mounted shaft M1 onto joint E3 through B3.

**Fig. 8—Assembling Bulkhead Parts**  
Attach one end of D25 onto the pre-assembled D45 and another end onto D38. Fix D21 to D11 and D10 respectively, and fix D38 onto D11 and D10

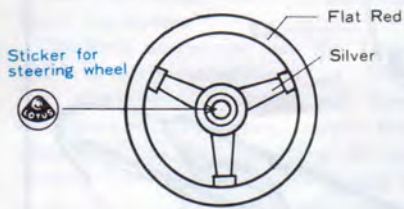
**Fig. 9—Bulkhead Installation**  
Cement the pre-assembled B3 to the body. At this step, do not mount front arms D42 and D40 with B3 and B16. Pass E3 above C36.

**<Construction and Painting of Driver's Figure>**

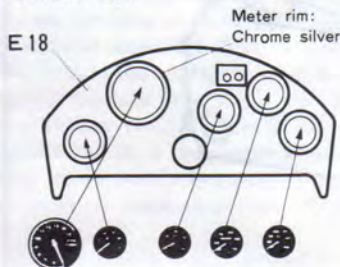
Construct Driver's figure as shown below. Paint Figure before the installation of Figure to the body. Paint Goggles in Black, and Glass in Blue or in Silver.



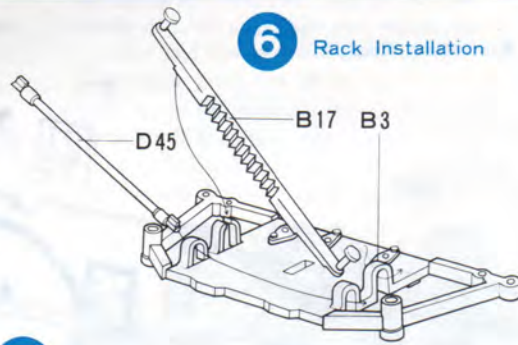
**Fig. 10—Installation of Figure**  
Let the driver hold Steering Wheel E20 and pass it through E8, and cement E8 to the body. Fix Steering Wheel E20 with E3 as shown in the diagram. Now by revolving Steering Wheel you may test the steering mechanism.



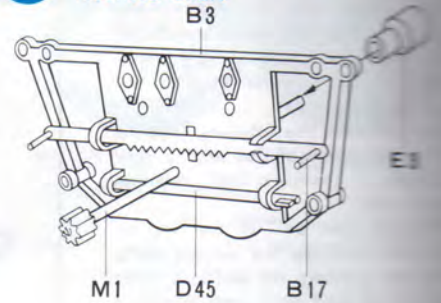
**<Construction of Meter Panel>**  
★Paste a sticker onto the Dashboard of meter E8.



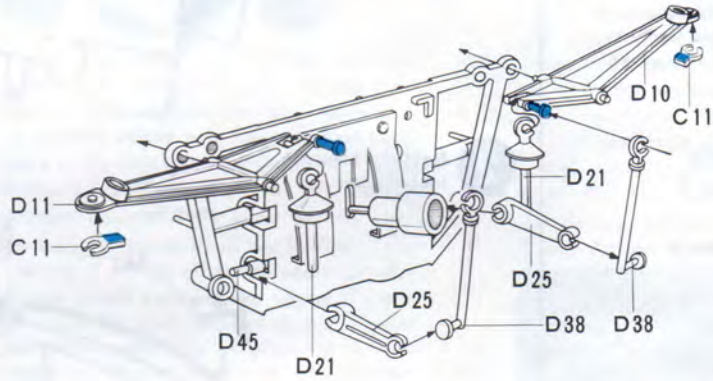
**6 Rack Installation**



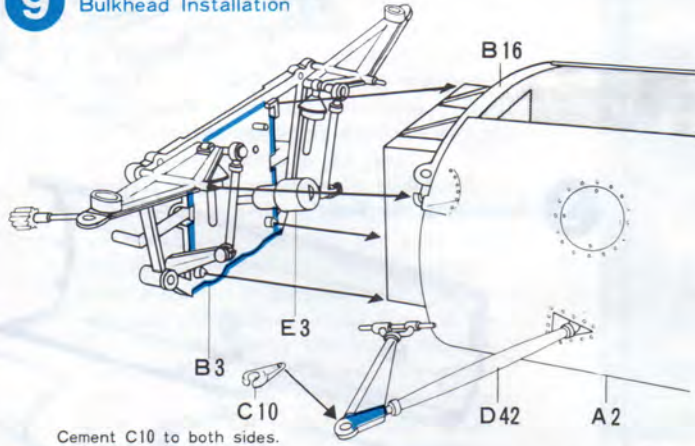
**7 Installation of Pinion Gear Mounted Shaft**



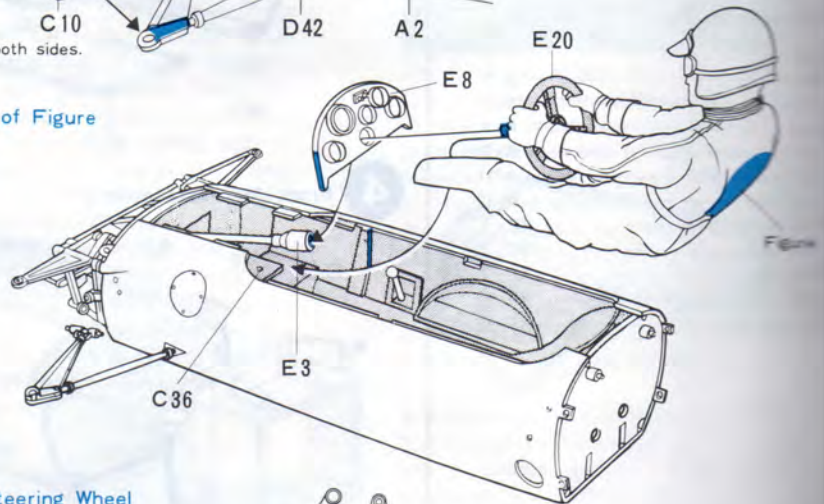
**8**



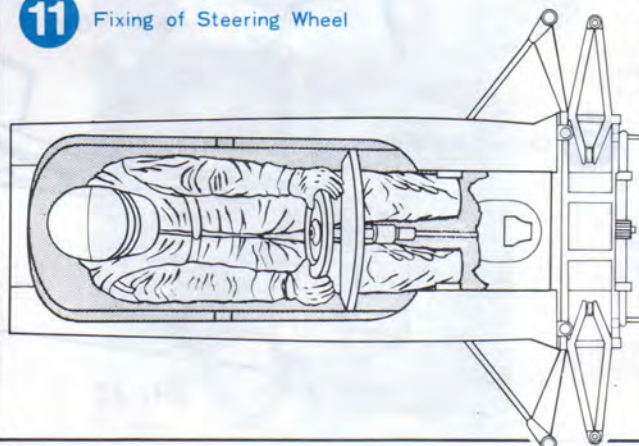
**9 Bulkhead Installation**



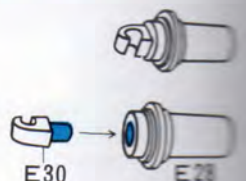
**10 Installation of Figure**



**11 Fixing of Steering Wheel**

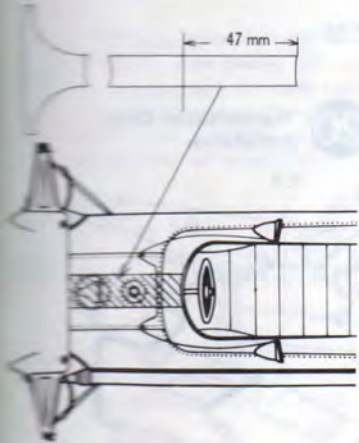


**12 Oil Damper Installation**



**Fig 13—Assembling Upper Body**

Cement upper body A3 to the body. Attach windshield A5, back mirrors D5 and D15, and roll bars D30 and 31 to A3. Before you attempt to cement the silver painted back mirrors and roll bars, be sure that you scrape the cementing points. Apply decal of stripes before cementing Windshield.

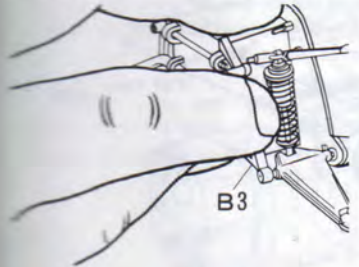


**Fig 14—Coil Spring Installation**

Fit E30 onto front arm D40, Coil Spring M4 onto E28, and D21 onto E28.

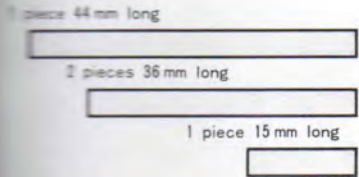


Fit D40 onto B16 and B3 by keeping bulkhead B3 open as illustrated.



**Fig 15—Assembling radiator**

Cut 4 rubber tubes to the lengths specified. Cement E4 to E5 and attach the rubber tubes to E5.



**Fig 16—Oil Tank Installation**

Fix master cylinder C35 and C34 onto bulkhead B3. Cement caps D34 and D32. Fix pre-mounted oil tank C7 with C33 and C8 onto B3. Cement radiator arms D27 and D26 onto B3.

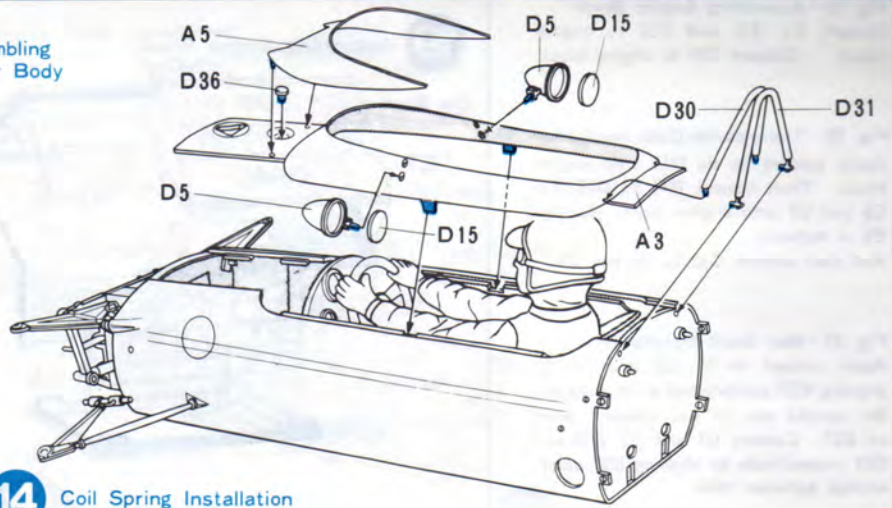
**Fig 17—Radiator Installation**

Hook the rubber tubes from radiator as illustrated.

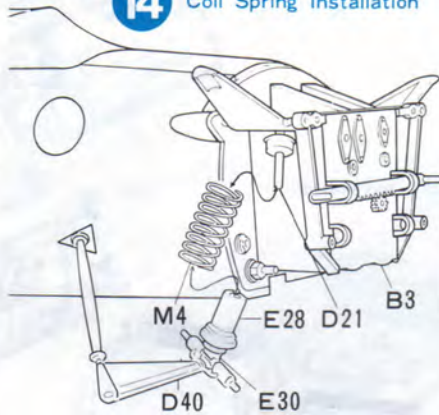
**Fig 18—Assembling Engine Block**

Cement C3, C5, C4, and C37 to C23.

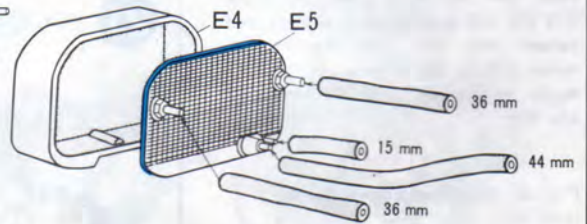
**13 Assembling Upper Body**



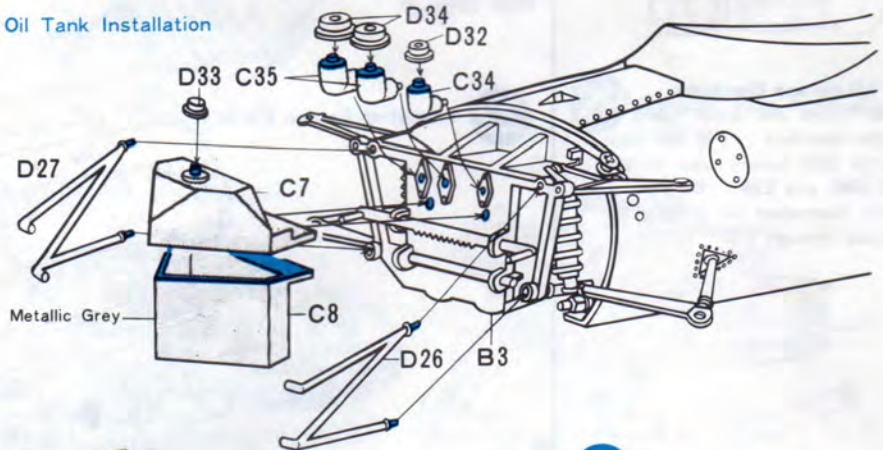
**14 Coil Spring Installation**



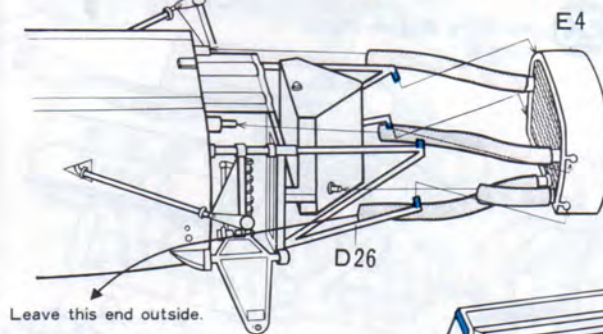
**15 Assembling Radiator**



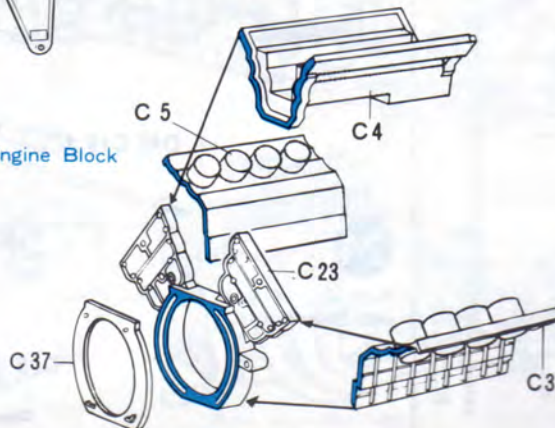
**16 Oil Tank Installation**



**17 Radiator Installation**



**18 Assembling Engine Block**



**Fig. 19—Assembling Engine Block**  
Cement E1, E2, and C24 to engine block. Cement C27 to engine block.

**Fig. 20—Transmission Case Installation**  
Apply cement to fix D19 onto engine block. Then cement D41 to D19. Fix C6 and C9 onto engine block, placing E9 in between. And then cement C32 to C6 and C9.

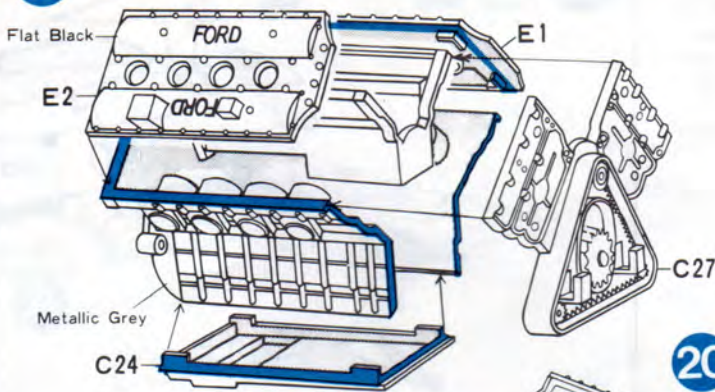
**Fig. 21—Half Shaft Installation**  
Apply cement to fix D8 and D9 by aligning E27 sandwiched as illustrated. Be careful not to get cement down on E27. Cement D1 and D2, D28 and D29 respectively by aligning E27 sandwiched between them.

**Fig. 22—Installing Engine Parts**  
Cement E25, E24, and C20 to ignition mounting board E21. Then cement this completed E21 to transmission case. Now pick water pump C15 where C18 and C16 are mounted already and cement this unit and the starter motor C19 to the engine. Apply decals of Lucas to the C20 and E24.

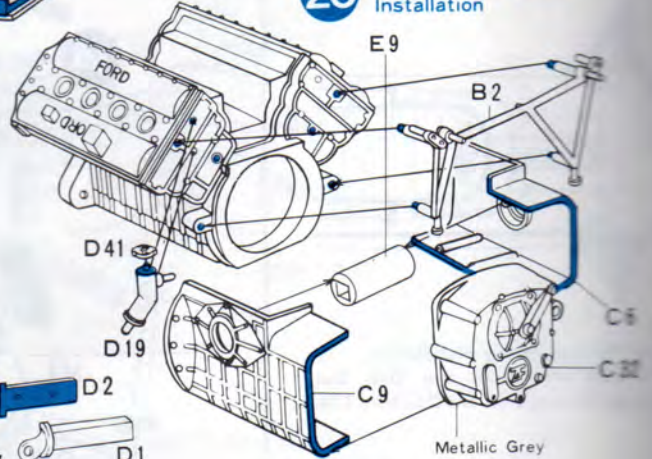
**Fig. 23—Installing Engine Parts (cont'd)**  
Cement C16, C17, C14, and shiftrod D46 to the right side of engine.

**Fig. 24—Pump and Distributor**  
Cut clear tubes and black tubes to the length specified. Fit the clear tubes into C25 before you cement C26, E6, C30, and E26. Be sure to follow the illustration for putting the black tubes through E26.

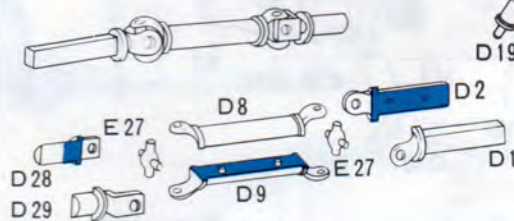
**19 Assembling Engine Block**



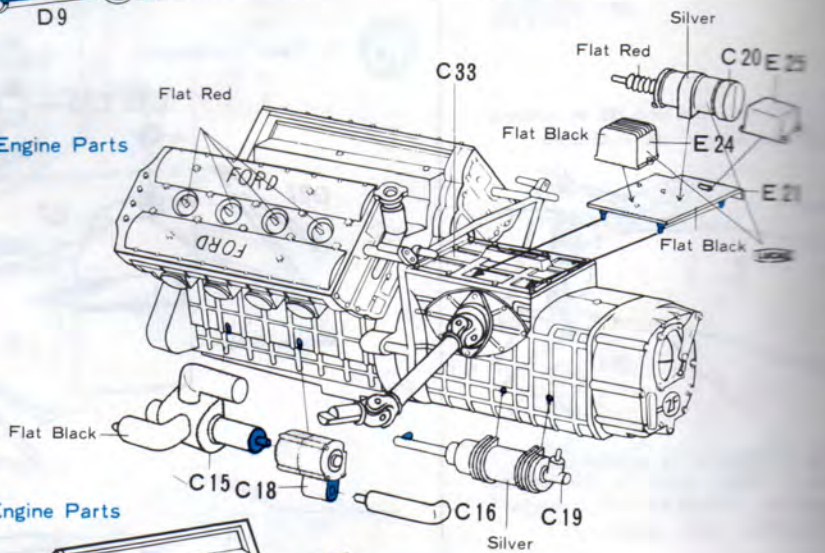
**20 Transmission Case Installation**



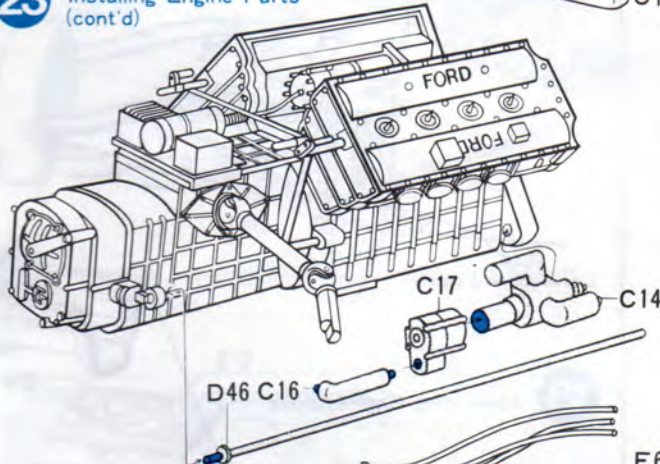
**21 Half Shaft Installation**



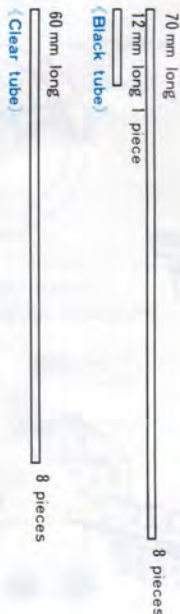
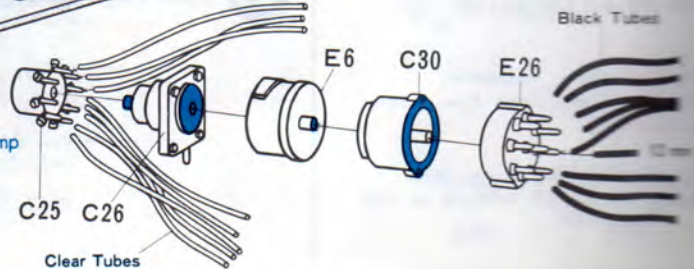
**22 Installing Engine Parts**



**23 Installing Engine Parts (cont'd)**



**24 Assembly of Fuel Injection Pump and Distributor**



**Fig. 25—Reservoir Tank Installation**

Insert the pre-assembled fuel injection pump unit and distributor to the engine.

Cut rubber tube to length of the injection and fix it through D19.



**Fig. 26—Throttle Plate Installation**

Insert the throttle plates C21 and C22 to the engine with the clear tubes attached as illustrated. Cement D43 and D44 to C21 and C22 as shown. Then cement the air intake D13.

**Fig. 27—Wiring**

Study the diagram carefully and fix the wires and black tubes in position.

**Fig. 28—Exhaust Pipe Installation**

Insert the exhaust pipes F1, F2, F3, and F4 to the right side of engine.

**Fig. 29—Exhaust Pipe Installation**

Insert the exhaust pipes F5, F6, F3, and F4 to the left side of engine.

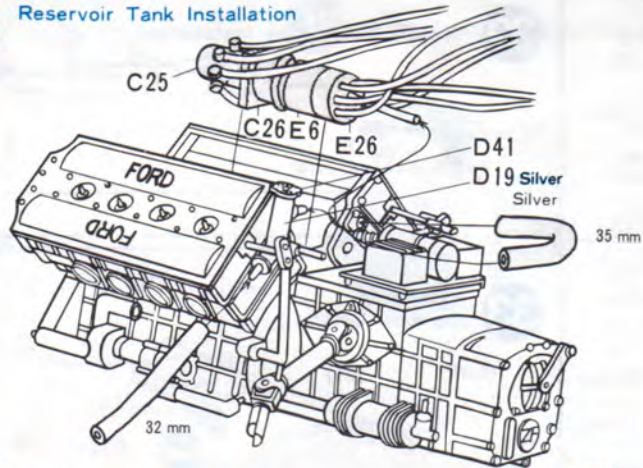
**Fig. 30—Exhaust Pipe Arm Installation.**

Fit the right and left exhaust pipes through the exhaust pipe arm D12 and cement them together.

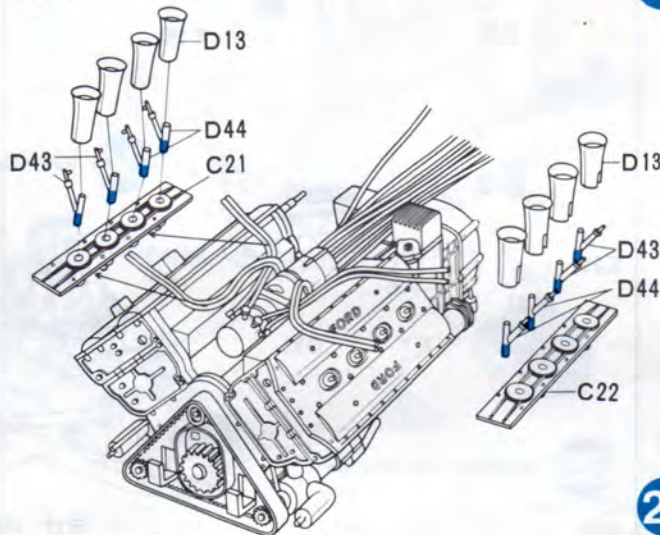
**Fig. 31—Mounting Engine on the Body**

Mount the engine on the body and, by using 10mm long rubber tubes at the top of C15 and C14, make sure that the rubber tubes and the tip of D46 pass through the holes in the body and cement the engine to the body.

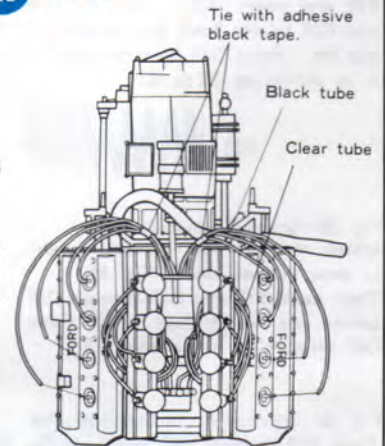
**25 Reservoir Tank Installation**



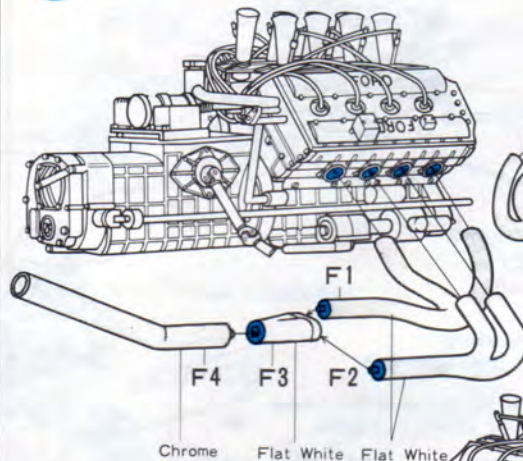
**26 Throttle Plate Installation**



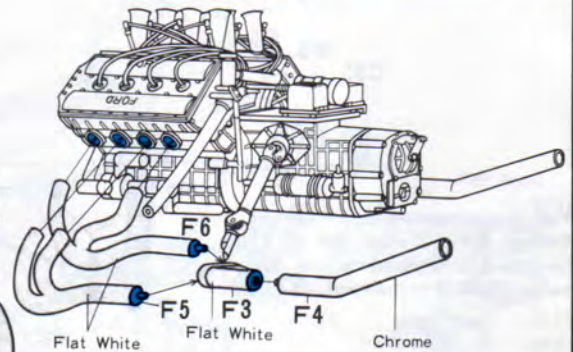
**27 Wiring**



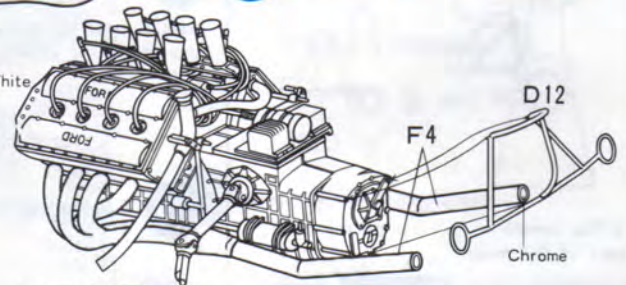
**28 Exhaust Pipe Installation**



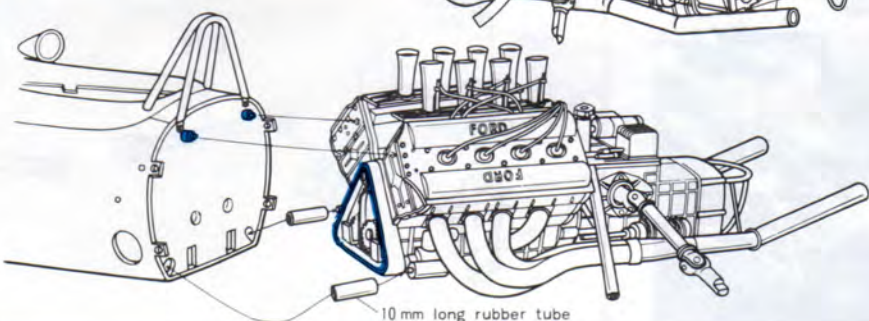
**29 Exhaust Pipe Installation (cont'd)**



**30 Exhaust Pipe Arm Installation**



**31 Mounting Engine on the Body**



**Fig. 32—Coolant Water Pipe Installation**

Cement the water pipe B9 to the body and fix rubber tubes on both on its tips.

**Fig. 33—Assembling the Rear Upright**

Cement E17 to Rear Upright E18 putting D17 in between. Be sure no cement touches D17. Next cement E7 to E18 putting D35 in between.

**Fig. 34—Rear Upright Installation**

Fix D35 to B2, while inserting Half Shaft into E19. Attach Spring M5 to E29 and insert D22. Then fix D16 and D39 to the body and cement B6 and B4. Pass D22 onto B2, and fix it by cementing C2 to B2.



**Fig. 35—Stabilizer Installation**

Install the left part of rear upright in same way as above (Fig. 34). Then pass B12 and B13 through D20 before you cement them to B2. Pass D37 through B2 and cement C2 to B2.

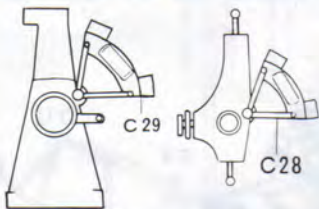
**Fig. 36—Assembling the Stabilizer Rod**

Pass D24 through D23 and heat fix. Fix D23 to the protrusion from E19 and heat fix again. Then insert the tip of D24 into D20. Cement C29 to E18 and E19.

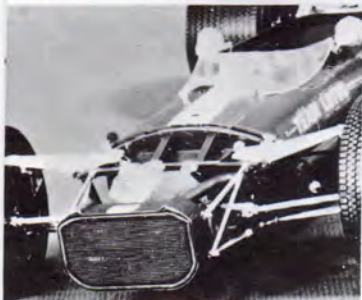
**Fig. 37—Assembling Front Upright**

Cement Brake Caliper C28 to Front Upright E22 referring to the diagram below. Fix D18 to them without cement.

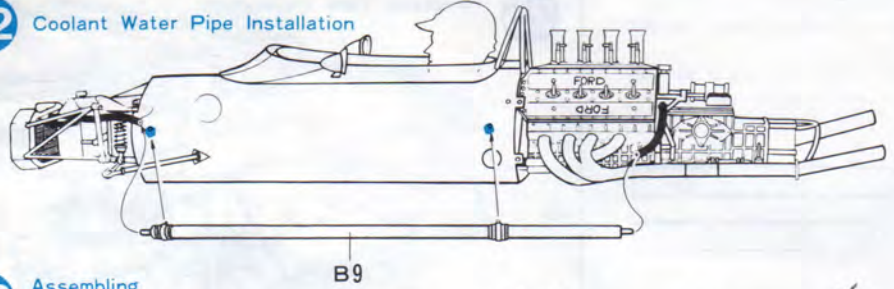
**Position of Disc Caliper**



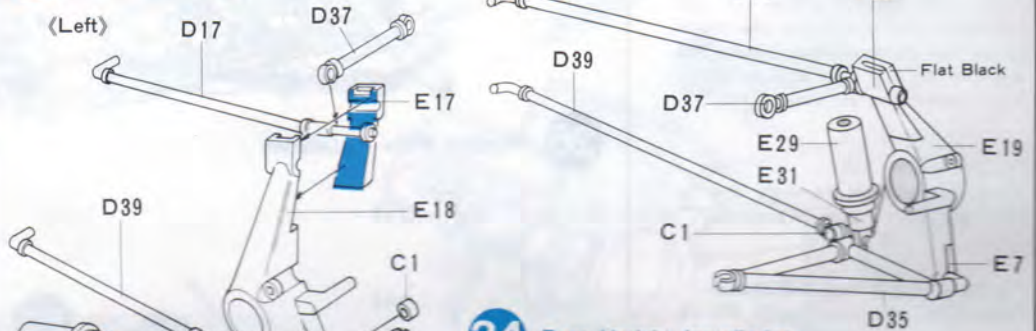
★The completed picture of the front part of the model.



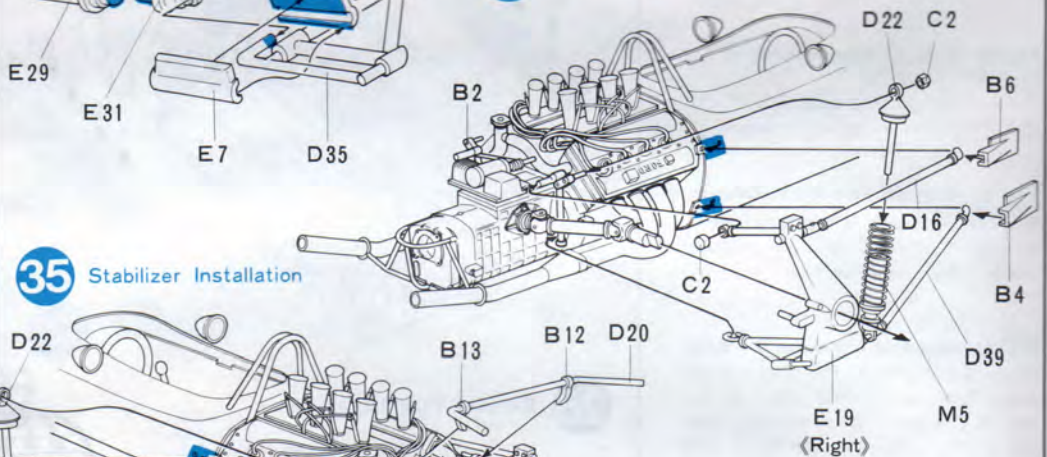
**32 Coolant Water Pipe Installation**



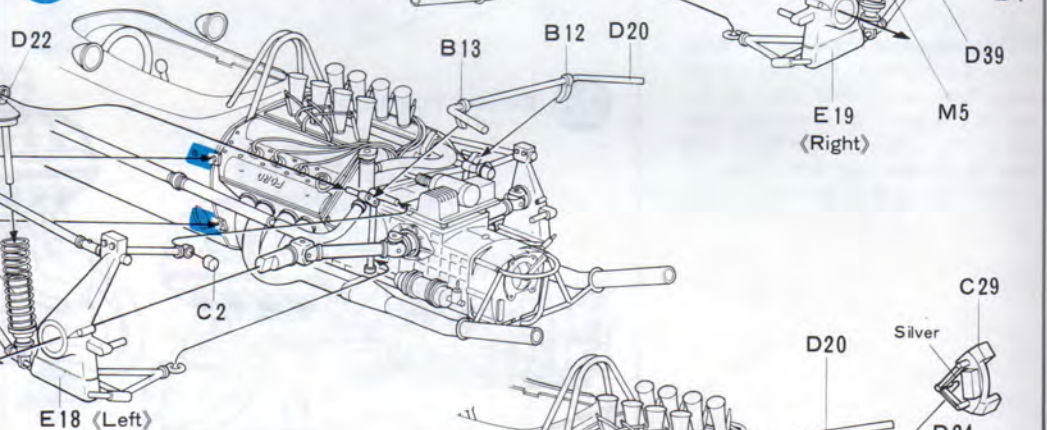
**33 Assembling the Rear Upright**



**34 Rear Upright Installation**

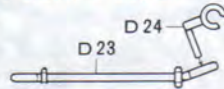


**35 Stabilizer Installation**

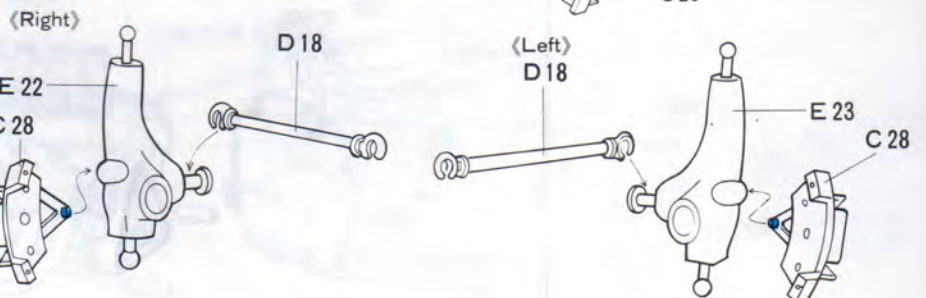


**36 Assembling the Stabilizer Rod**

★Be sure to fix D24 onto the curved end of D23 as shown in diagram.



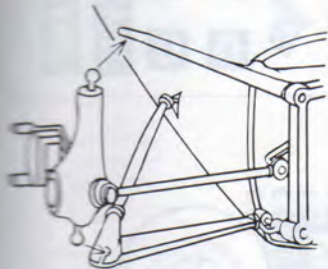
**37 Assembling Front Upright**





**Fig 38—Front Upright Installation**  
Push in the tip of E22 to the end of D11 and D42.

**Fig 39—Front Upright Installation**  
Cut Black Tube into two 40mm-long pieces and insert them to the body and Disc Calipers.



Apply Decal in the diagram to Radiator (E1).

**Fig 40—Assembling the Nose Cowling**  
Cement B7 to A4 before you install M3 by using M3.

**Fig 41—Assembling the wheels**  
Assemble front wheels by cementing F9 to F10, and rear wheels by cementing F7 to F8. After cementing E15 to the front brake disk E13, fix it to F9. Similarly cement E15 to E14 and fix it to F7. Be sure that cement has been dried completely, and fit the front and rear tires on wheels.

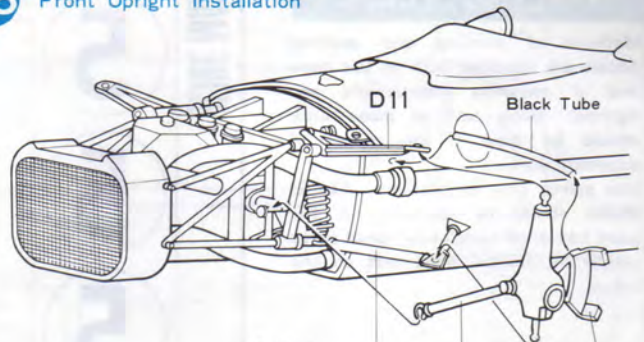
**Fig 42—Front Wheel Installation**  
Fix the assembled front wheel unit with C13 to the front upright E22.

**Fig 43—Rear Wheel Installation**  
Insert the half shaft protruding from the rear upright E18 into the rear wheel as illustrated. Cement them together carefully.

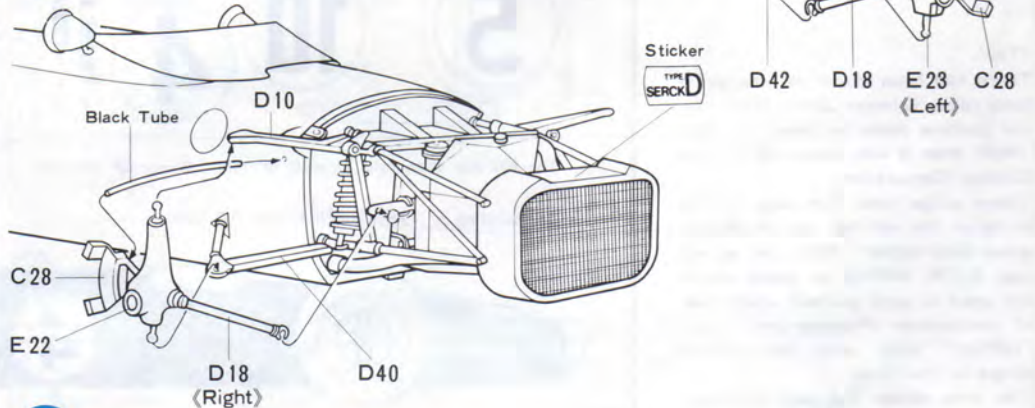


Rear Wheel (inside) Half Shaft

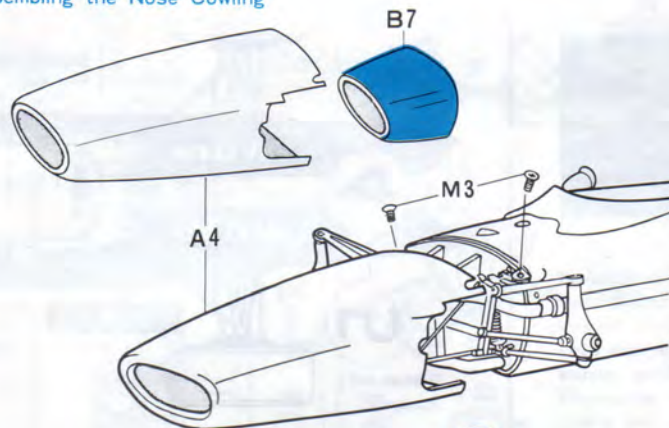
### 38 Front Upright Installation



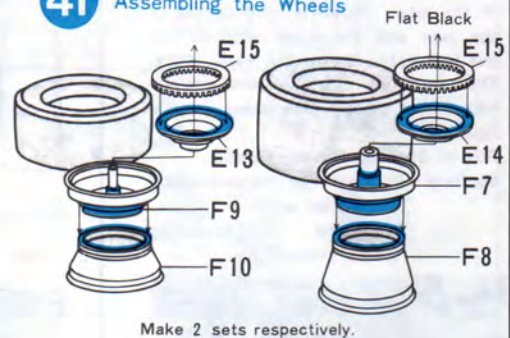
### 39 Front Upright Installation



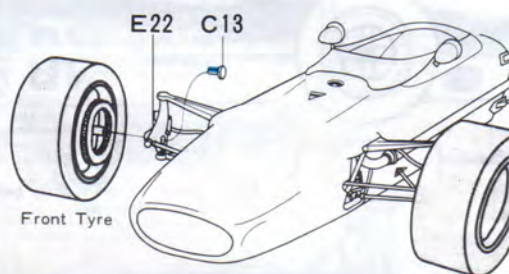
### 40 Assembling the Nose Cowling



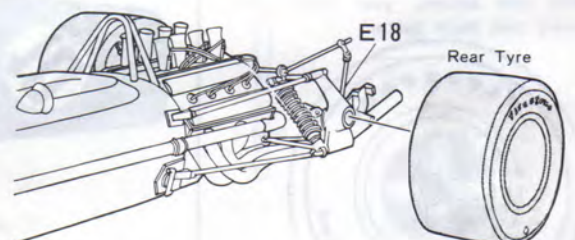
### 41 Assembling the Wheels



### 42 Front Wheel Installation



### 43 Rear Wheel Installation



## PAINTING AND APPLYING DECALS

Methods of painting and applying decals are specified both on this page and in assembly instructions and figures. Some part of these work should be done in the course of assembly work.

Use paints only for plastics. SLIDE MARK should be applied after the paint has dried completely. Small parts should be painted while still on the sprue.

### (Top)

There had been almost no change in body colour between June 1967 when the machine made its debut and May 1968 when it was sponsored by the Goldleaf Corporation.

Yellow stripe runs from nose cowling to below the roll bar against British green body colour. When you do not use SLIDE MARKS of yellow stripe but want to paint yourself, apply that of the emblem of Lotus and letters "LOTUS" alone upon the painted stripe on the nose.

The area where the pipe overlaps number circle should be painted in white to the same width.



### (Below)

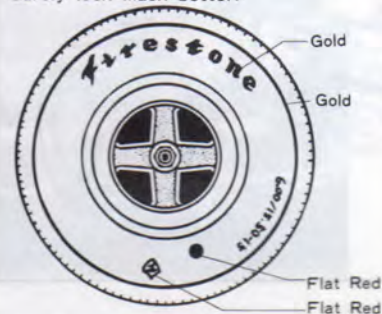
With the sponsorship of the Goldleaf Corporation, a tobacco company, since May 1968, its body colour became more showy than ever. The main body is painted in three distinctive colours of red, gold, and white as in the diagram. The body side line should be located slightly below the position of the pipe. However, the center of the pipe and the upper edge of the line had better be in the same place. The detail paintings of the engine: follow the colour indications in the figures.

Rim of Steering Wheel: Wood  
Mufflers: forward from the connection Flat white  
backward Chrome plating (parts colour)

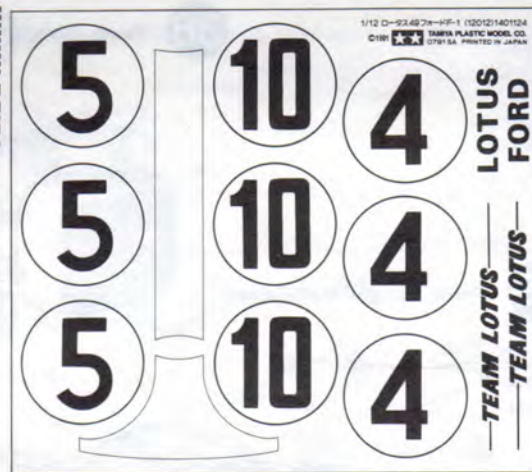


### (Painting the Tyres)

Some places of the tyres (arrowed in the diagram) are coloured as shown. With this accent, your model will surely look much better.

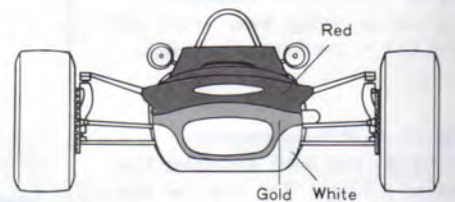
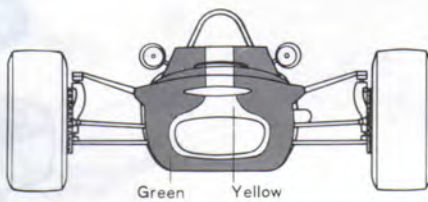
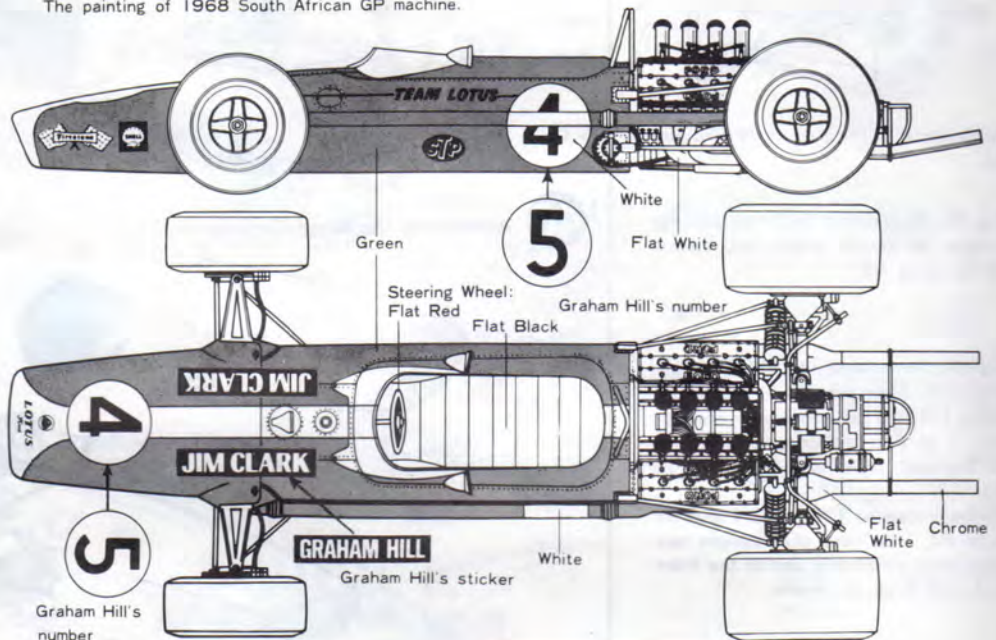


SLIDE MARK

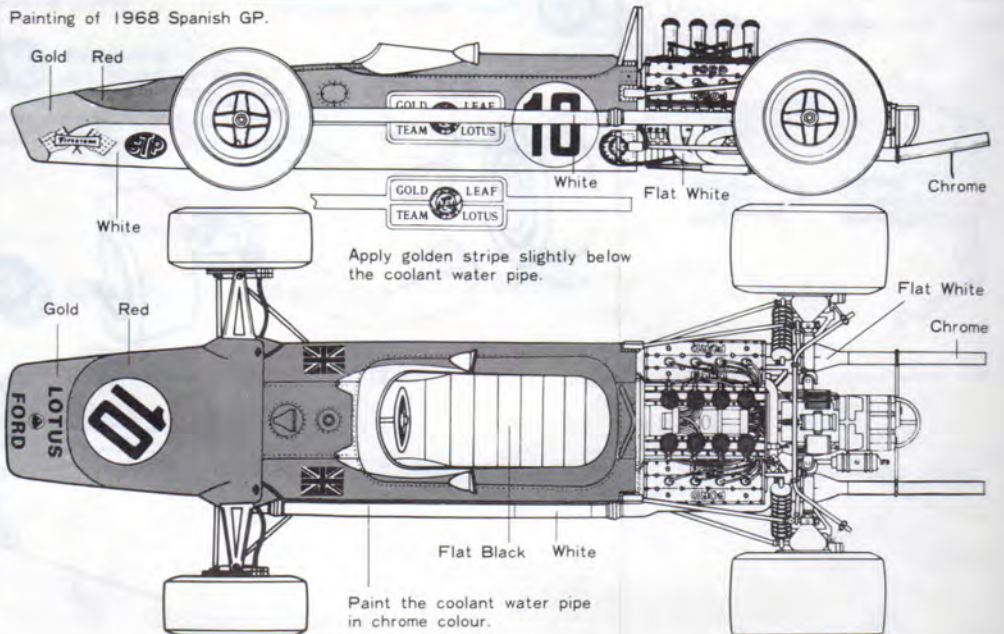


The box top shows the painting of 1967 Dutch GP machine.

The painting of 1968 South African GP machine.



Painting of 1968 Spanish GP.



# PARTS

## A PARTS

1. Right Body
2. Left Body
3. Upper Chassis Panel
4. Cowling
5. Windshield

## C PARTS

1. Cap A
2. Cap B
3. Crank Case (right)
4. Upper Crank Case
5. Crank Case (left)
6. Transmission (right)
7. Upper Oil Tank
8. Lower Oil Tank
9. Transmission (left)
10. Lower Journal Stopper
11. Upper Journal Stopper
12. Cap for Front Wheel
13. Water Pump (right)
14. Water Pump (left)
15. Oil Pipe
16. Oil Scavenge Pump (right)
17. Oil Scavenge Pump (left)
18. Starter Motor
19. Ignition Coil
20. Throttle Plate (right)
21. Throttle Plate (left)
22. Crank Case (rear A)
23. Oilpan
24. Fuel Injection Pump (A)
25. Fuel Injection Pump (B)
26. Crank Case (front)
27. Disk Brake Caliper (front)
28. Disk Brake Caliper (rear)
29. Distributor B
30. Fuel Filter
31. Mission Case (rear)
32. Upper Mission Case
33. Master Cylinder for Clutch
34. Master Cylinder for Brake
35. Battery Holder
36. Crank Case (rear B)

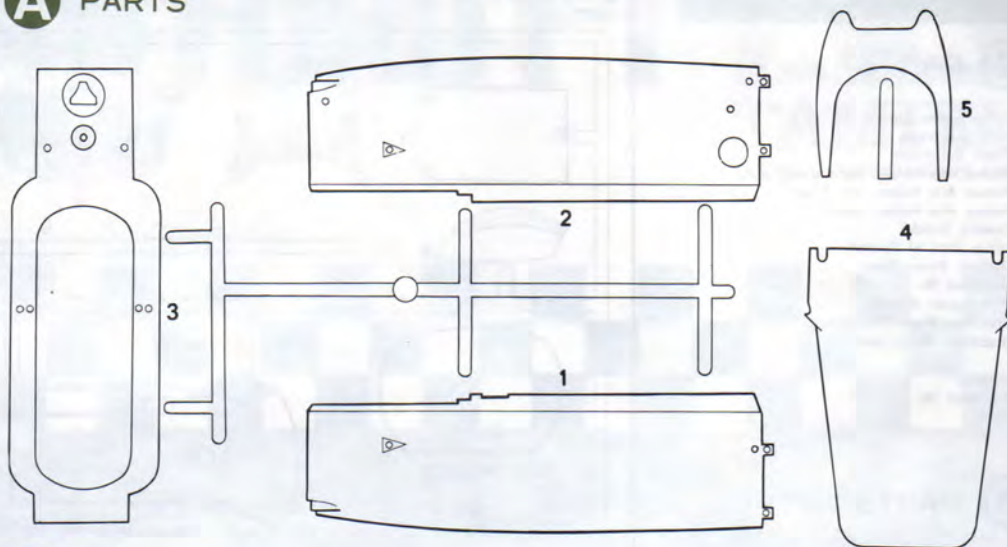
## F PARTS

1. Exhaust Pipe A (right)
2. Exhaust Pipe B (right)
3. Exhaust Pipe C
4. Exhaust Pipe D
5. Exhaust Pipe B (left)
6. Exhaust Pipe A (left)
7. Rear Wheel A
8. Rear Wheel B
9. Front Wheel A
10. Front Wheel B

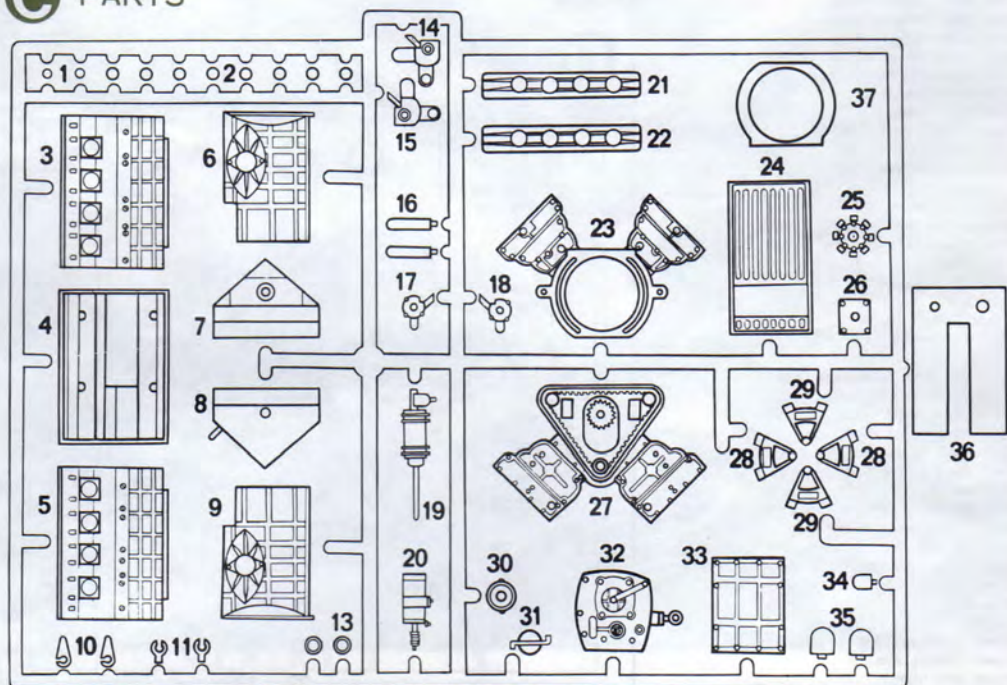
## M PARTS

1. Pinion Gear Mounted Shaft
2. Cowling Fixing Metal
3. Screw
4. Coil Spring (small)
5. Coil Spring (large)

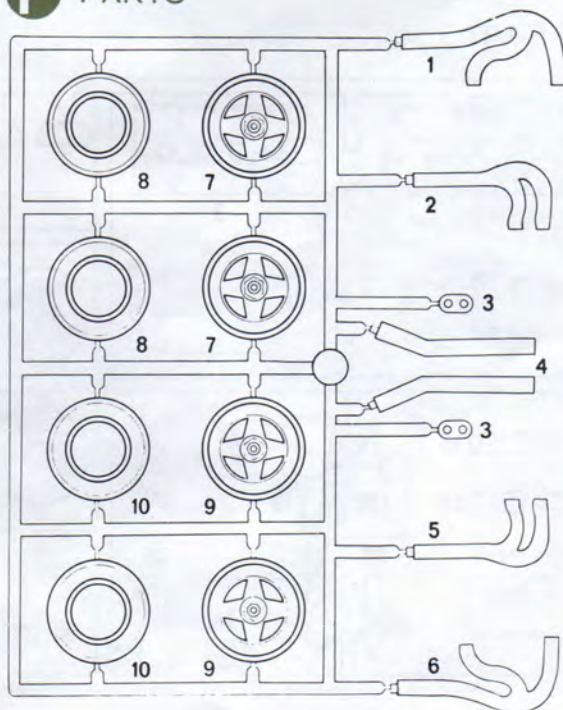
## A PARTS



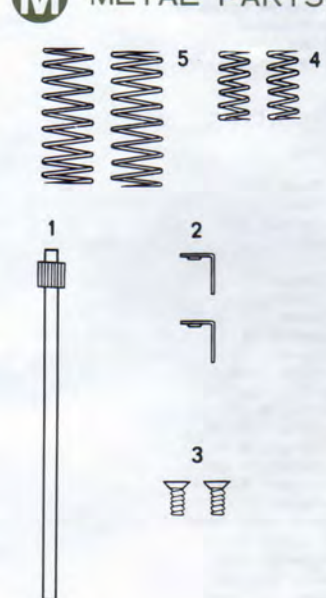
## C PARTS



## F PARTS



## M METAL PARTS

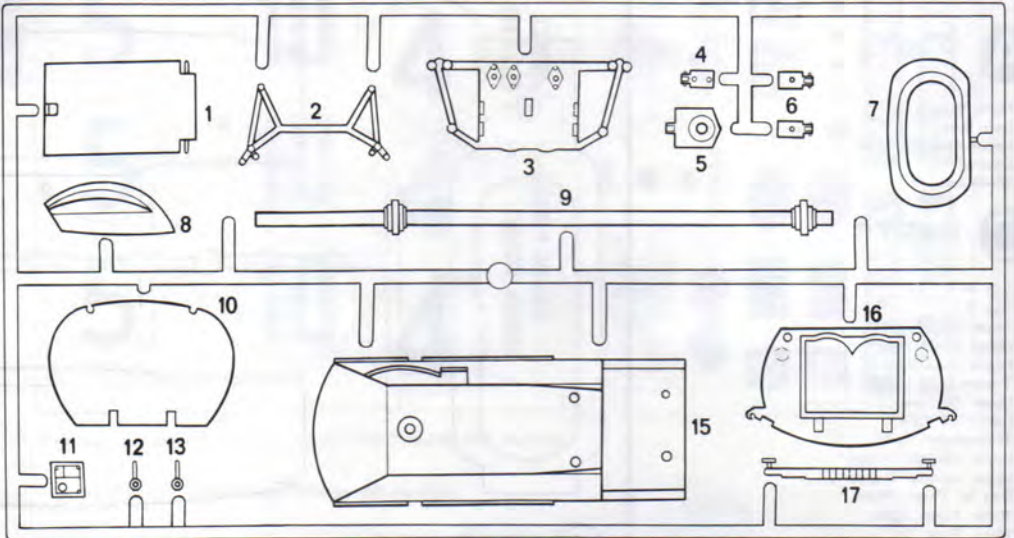


# PARTS

## B PARTS

### B PARTS

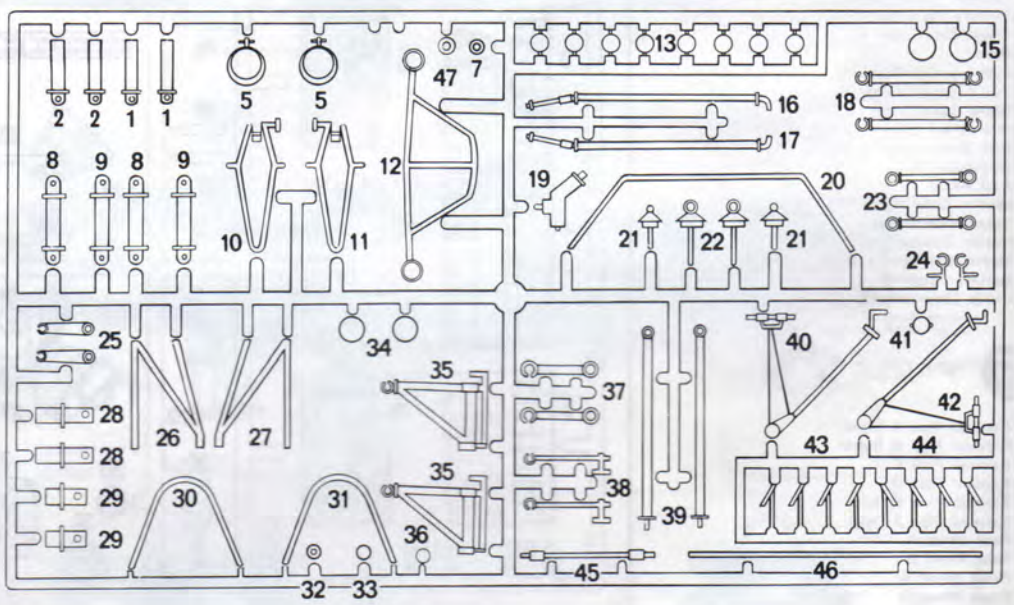
1. Battery Box Lid
2. Rear Sub-frame
3. Front Sub-frame
4. Radius Arm Holder (right lower)
5. Radius Arm Holder (left lower)
6. Radius Arm Holder (upper)
7. Cowling (inside)
8. Inside Part of Cockpit
9. Coolant Water Pipe
10. Bulkhead (B)
11. Shift Lever Parts
12. Stabilizer Mount (right)
13. Stabilizer Mount (left)
- 14.
15. Cockpit
16. Bulkhead (A)
17. Rack
- 18.



### D PARTS

1. Half Shaft (Engine Side)
2. Half Shaft (Engine Side)
3. Half Shaft (Engine Side)
4. Half Shaft (Engine Side)
5. Rear View Mirror (A)
7. Half Shaft Pin (Unnecessary)
8. Half Shaft (Middle)
9. Half Shaft (Middle)
10. Upper Arm (right)
11. Upper Arm (left)
12. Exhaust Pipe Arm
13. Air Intake
15. Rear View Mirror (B)
16. Radius Arm (right upper)
17. Radius Arm (left upper)
18. Lead Arm
19. Reverser Tank
20. Stabilizer
21. Front Damper (A)
22. Rear Damper (A)
23. Stabilizer Rod
24. Stabilizer Rod Adjustment Click
25. Front Stabilizer Crank
26. Radiator Support (left)
27. Radiator Support (right)
28. Half Shaft (wheel side)
29. Half Shaft (wheel side)
30. Roll Bar (A)
31. Roll Bar (B)
32. Master Cylinder Cap for Clutch
33. Oil Tank Cap
34. Master Cylinder Cap for Brake
35. Lower A-Arm
36. Fuel Cap
37. I-Arm
38. Front Stabilizer Rod
39. Lower Radius Arm
40. Front Arm (right)
41. Reverser Tank Cap
42. Front Arm (left)
43. Fuel Injection Nozzle (A)
44. Fuel Injection Nozzle (B)
45. Front Stabilizer
46. Shift Rod
47. Oil Tank Cap (Unnecessary)

## D PARTS



### E PARTS

1. Cam Cover (left)
2. Cam Cover (right)
3. Steering Rod Joint
4. Radiator (A)
5. Radiator (B)
6. A, C Generator
7. Rear Upright C
8. Dashboard
9. Half shaft mount
11. Shift Lever
13. Brake Disk (front A)
14. Brake Disk (rear A)
15. Brake Disk B
16. Rear Upright (B right)
17. Rear Upright (B left)
18. Rear Upright (A left)
19. Rear Upright (A right)
20. Steering Wheel
21. Transistor Box's Panel
22. Front Upright (right)
23. Front Upright (left)
24. Transistor Box (left)
25. Transistor Box (right)
26. Distributor A
27. Cross Section
28. Front Damper B
29. Rear Damper B
30. Front Damper C
31. Rear Damper C

## E PARTS

