

## FUEL SYSTEM

4-A. CARBURETOR .....	4 : 1
4-A-1. Disassembling of Carburetor .....	4 : 1
4-A-2. Carburetor Inspection .....	4 : 2
4-A-3. Assembling of Carburetor .....	4 : 2
4-A-4. Carburetor Adjustment .....	4 : 2
4-B. FUEL PUMP .....	4 : 3
4-B-1. Testing of Fuel Pump .....	4 : 3
4-B-2. Disassembling of Fuel Pump .....	4 : 3
4-B-3. Fuel Pump Inspection .....	4 : 4
4-C. FUEL FILTER .....	4 : 5
4-D. FUEL LINE .....	4 : 5
4-E. FUEL TANK .....	4 : 5
4-F. AIR CLEANER .....	4 : 5

## FUEL SYSTEM

The fuel system consists of the fuel tank, fuel line, fuel filter, fuel pump, carburetor and air cleaner. The fuel tank capacity is 50 liters (13.2 U.S. gallons, 11.0 Imp. gallons).

### 4-A. CARBURETOR

MAZDA 616 is equipped with two barrel, Stromberg carburetor, model Nikki 215282-231.

#### 4-A-1. Disassembling of Carburetor

The procedures for disassembling the carburetor after removing from the engine are as follows:

1. Remove the throttle return spring.
2. Remove the split pin and washer from the pump connecting and separate the rod from the lever. Remove the spring and washer from the rod.

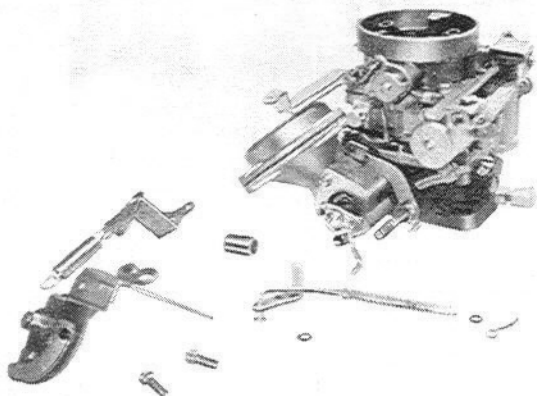


Fig. 4-1 Removing of connecting rod

3. Remove the pump lever retainer and remove the pump lever from the air horn and pump piston rod.
4. Disconnect the choke rod from the lever.
5. Remove the screws that attach the air horn and brackets to the main body. Remove the brackets and lift the air horn straight up and away from the main body.

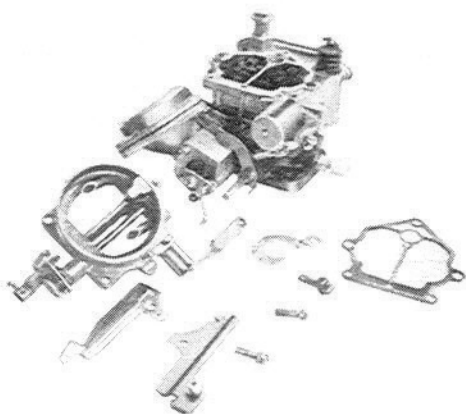


Fig. 4-2 Removing of air horn

6. Remove the pump piston assembly.
7. Invert the main body and remove the bolts that attach the throttle body to the main body. One of

them is underside of the main body. Separate the throttle body and main body.

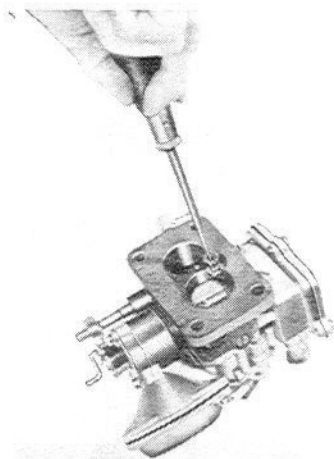


Fig. 4-3 Separating of main body

8. Remove the bowl cover attaching screws and remove the bowl cover and rubber gasket.
9. Invert the main body and remove the collar and float from the float pin. Remove the needle valve assembly.
10. Remove the fuel inlet fitting, noting the number of copper seat gaskets.

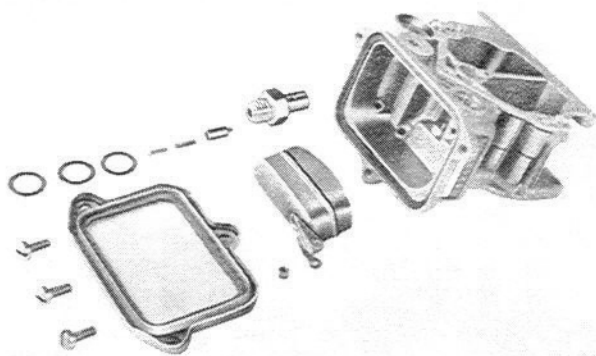


Fig. 4-4 Removing of float

11. Remove the solenoid assembly.
12. Remove the main air bleeds, slow air bleeds and slow jets.

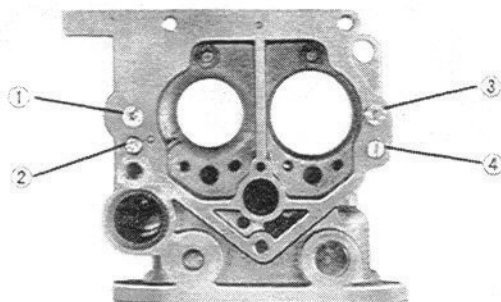


Fig. 4-5 Jets and bleeds

1. Slow air bleed
2. Slow jet
3. Step air bleed
4. Step jet

13. Remove the main jets after removing the plugs from the main body.

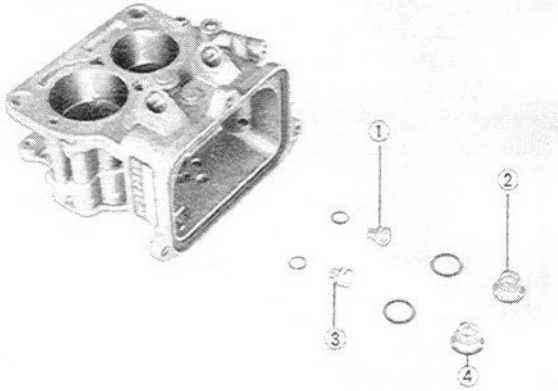


Fig. 4-6 Main jets

- |                     |                       |
|---------------------|-----------------------|
| 1. Primary main jet | 3. Secondary main jet |
| 2. Plug             | 4. Plug               |

14. Remove the power valve with the screwdriver (49 0118 870A)

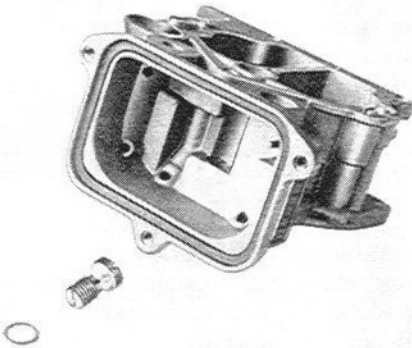


Fig. 4-7 Removing of power valve

15. Remove the idle adjusting needle and spring from the throttle body.

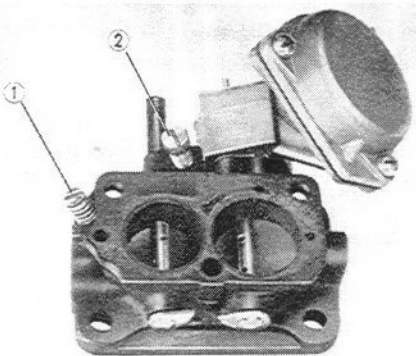


Fig. 4-8 Removing of idle adjusting needle

- |                         |                             |
|-------------------------|-----------------------------|
| 1. Idle adjusting screw | 2. Throttle adjusting screw |
|-------------------------|-----------------------------|

16. Remove the split pin and washer from the throttle lever connecting link and separate the link from the primary throttle shaft arm.

17. Remove the diaphragm cover attaching screws and remove the cover and return spring.

18. Remove the throttle return lever and dust cover from the diaphragm body. Remove the clip, disconnect the diaphragm rod and remove the diaphragm and rod assembly.

**Note:** Do not remove the primary throttle valve and shaft, secondary valve and shaft, venturis unless they are defective.

#### 4-A-2. Carburetor Inspection

1. Thoroughly clean all parts in clean solvent and dry with compressed air. Especially, blow out all passages of the carburetor carefully.

2. Inspect the air horn and the main body for cracks and breakage.

3. Inspect the choke shaft and the throttle shaft for wear. Worn throttle shaft allows air to enter into the cylinder and the mixture at low speed becomes lean.

4. Examine all jets and air bleeds for clog. If it exists, clean in solvent and blow with compressed air. **Never use wire.**

5. Inspect the pump plunger cup. Replace the plunger if it is worn or damaged.

6. Inspect the valves for accelerating pump if they operate properly.

7. Check the float needle and seat for wear.

8. Check the float for damage.

9. Inspect the idle adjusting needle for burrs or ridges.

10. Check the diaphragm for damage.

11. Check the solenoid for fuel cut-off valve and replace if it does not work properly.

12. Discard the old gaskets and use new gaskets when reassembling.

#### 4-A-3. Assembling of Carburetor

Assemble the carburetor in the reverse order of disassembling, noting the following points.

1. Make sure that all parts are in good condition and clean.

2. Both the primary and secondary barrels have their respective parts which are of the same shape. Therefore, when assembling particular care should be taken so as not to mistake one for the other.

3. When installing the throttle valve or choke valve, take care so as to eliminate the gap between the valve and wall.

#### 4-A-4. Carburetor Adjustment

##### a. Idle adjustment

Idle adjustment should be attempted after making certain that the engine ignition and compression are in good order.

1. Connect an accurate tachometer to the engine.

2. Warm up the engine sufficiently and make sure the choke valve is wide open.

3. Adjust the throttle adjusting screw to set the idle speed to **600 rpm**.

4. Adjust the idle adjusting screw to obtain highest tachometer reading.

5. After highest reading is obtained by the idle adjusting screw, readjust the throttle adjusting screw as

required to obtain 20 rpm faster than the specified idle. Next turn the idle adjusting screw in (lean) as required to reduce the engine speed 20 rpm.

**Note:** This method of adjusting idle mixture should be used to keep hydrocarbon and carbon monoxide emissions to a minimum.

#### b. Adjusting of accelerator pump lever

At the end of the accelerator pump lever, there are two holes for the connecting rod, which provide two changes in the pump injection amount.

The injection amount per piston stroke is 0.6 cc when the pump connecting rod is fitted to "A" hole and 0.8 cc, to "B" hole.

Select and use these holes in consideration of the atmospheric temperature and the engine condition.

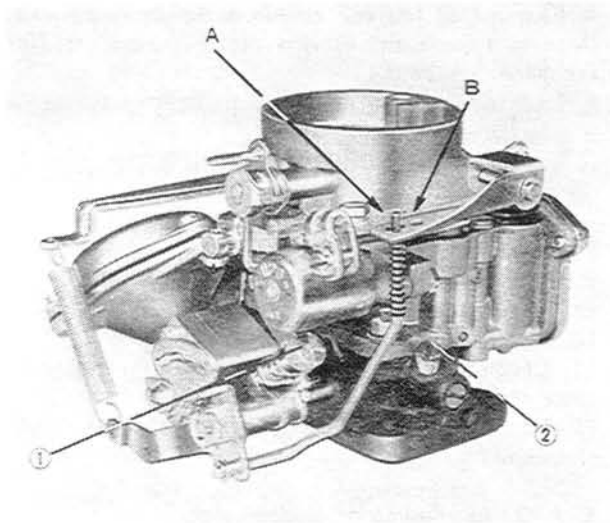


Fig. 4-9 Pump adjustment

1. Throttle adjusting screw    2. Idle adjusting screw

#### c. Adjusting of float level

The float level can be readily checked through the transparent bowl cover.

To adjust the float level, remove the carburetor. Then, remove the bowl cover and invert the carburetor. Bend the float seat lip so that the distance between the top of the float chamber and the float becomes 6 mm (0.236 in).

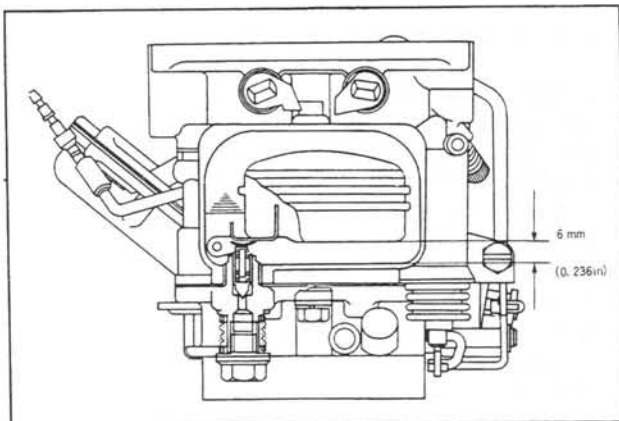


Fig. 4-10 Float level adjustment

#### d. Adjusting of choke connecting rod

When the choke valve is completely closed, the primary throttle valve automatically opens to 18 degrees for easy starting by a choke connecting rod.

At this time, the clearance between throttle valve and wall is 1.29 mm (0.0508 in), as shown in Fig. 4-11. To adjust, bend the choke connecting rod until the correct clearance is obtained.

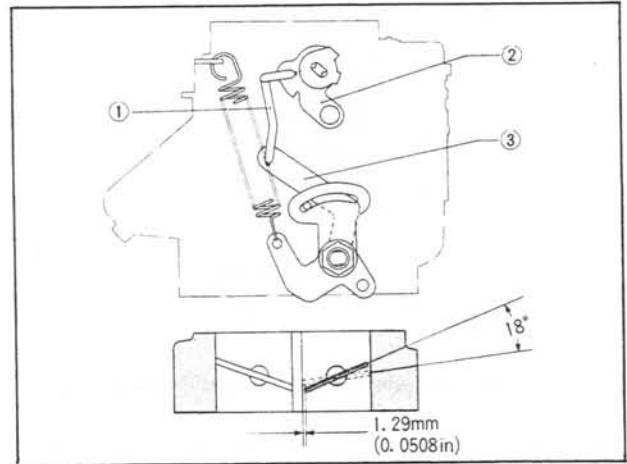


Fig. 4-11 Choke connecting rod adjustment

1. Choke connecting rod    3. Choke connecting lever  
2. Choke lever

### 4-B. FUEL PUMP

#### 4-B-1. Testing of Fuel Pump

If the fuel pump fails to supply fuel properly to the carburetor, the following tests should be made before removing the fuel pump from the vehicle.

##### a. Pressure test

Test the fuel pressure of the pump, as follows:

1. Connect the gauge to the discharge port of the fuel pump.
2. Switch the ignition on. (**Do not start the engine**).
3. If the reading of the gauge is 0.20 to 0.25 kg/cm<sup>2</sup> (2.8 to 3.6 lb/in<sup>2</sup>), the fuel pump is in proper order.

##### b. Volume test

The fuel pump should supply 1,000 cc (0.26 U.S. gallon, 0.22 Imp. gallon) of fuel in 1 minute.

#### 4-B-2. Disassembling of Fuel Pump

1. Apply the identification marks on the air chamber, valve chamber and diaphragm assembly so that the inlet and outlet valve are properly located when the pump is reassembled.
2. Loosen the screws attaching the air chamber and valve chamber to the diaphragm assembly. Remove the air chamber, gasket and valve chamber.
3. Loosen the attaching screw of the valve retainers and remove the retainer and valves from the valve chamber.
4. Remove the cover by loosening the screws.
5. Disconnect the wiring from the switch.

6. Remove the switch from the body by loosening the screws.

7. Remove the body from the diaphragm assembly by loosening the screws.

#### 4-B-3. Fuel Pump Inspection

##### a. Checking of diaphragm shaft stroke

After installing the body on the diaphragm assembly, depress the diaphragm with a finger and check the diaphragm shaft stroke at the end of the shaft. The specified stroke is **2.8 to 3.0 mm (0.11 to 0.12 in)**. If the stroke exceeds the standard, thin the adjusting plate between the diaphragm assembly and the body. If it is less than the standard, increase the thickness of the adjusting plate. **0.1, 0.25 and 0.5 mm (0.004, 0.010 and 0.020 in)** adjusting plates are available.

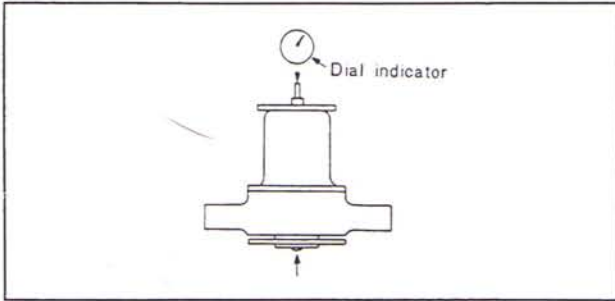


Fig. 4-12 Checking of diaphragm shaft stroke

##### b. Checking of switch for make and break

After fitting switch to the body, contact the dial indicator with the diaphragm shaft and check when the point opens and closes by depressing and releasing the diaphragm. The specified switching position is **0.5 to 1.0 mm (0.02 to 0.04 in)** from each stroke end. When the switch position deviates from the specified, adjust it according to any of the following methods.

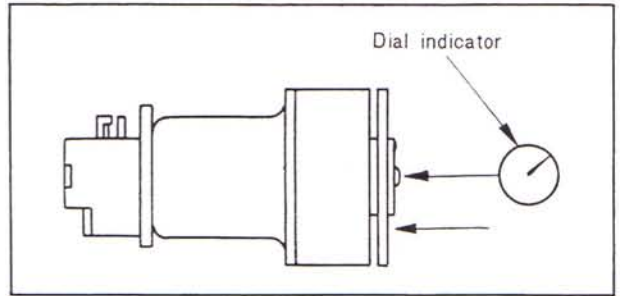


Fig. 4-13 Checking of switch

If the points opens too early and closes too late, decrease the thickness of the adjusting washer located between the diaphragm shaft and the lever, if it opens too late and closes too early, increase it.

**0.25 and 0.6 mm (0.010 and 0.024 in)** adjusting washers are available.

If the point opens earlier than the standard, bend the upper stopper upward if the point opens too late, bend

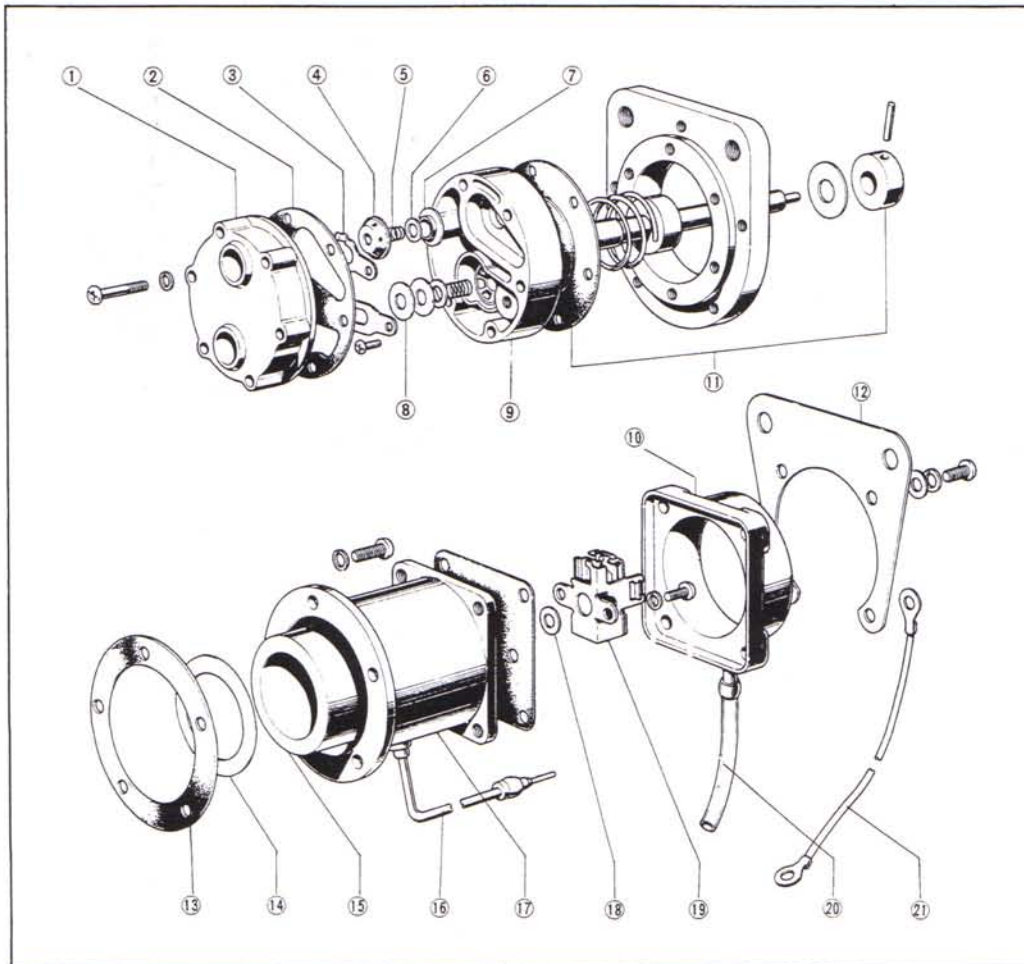


Fig. 4-14

#### Fuel pump assembly

1. Air chamber
2. Gasket
3. Valve retainer
4. Valve holder
5. Spring
6. Valve
7. Valve seat
8. Valve seat holder
9. Valve chamber
10. Cover
11. Diaphragm assembly
12. Bracket
13. Adjusting plate
14. Magnetic permeable plate
15. Coil
16. Lead wire
17. Body
18. Adjusting washer
19. Switch
20. Air bent pipe
21. Earth wire

it downward. If the point closes later than the standard, bend the lower stopper upward; if the point closes too early, bend it downward.

Therefore, adjustment by stoppers actually requires to bend both upper and lower stoppers simultaneously, because when the point opens too early, it closes too late and when the point closes too late, it opens too early. The point gap should be **1.0 mm (0.04 in)** when the point opens.

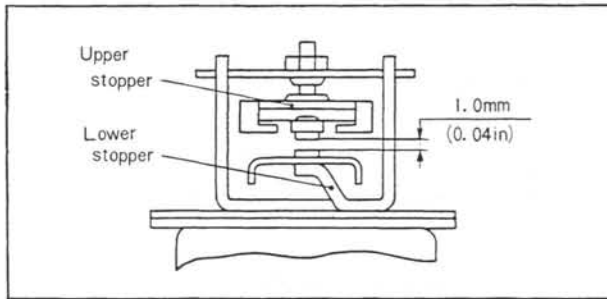


Fig. 4-15 Adjusting of point

#### 4-C. FUEL FILTER

The fuel filter is of a cartridge type, and the element is made integrally with the case.

The fuel filter cartridge should be replaced every **18,000 km (12,000 miles)**.

To replace the fuel filter cartridge, open the trunk lid and remove the service hole cover from the luggage compartment floor.

The cartridge is fitted to the underside of the service hole cover.

Disconnect the fuel pipes from the cartridge and change the cartridge. Reconnect the fuel pipes. Start the engine and check for leaks.

#### 4-D. FUEL LINE

Inspect the fuel lines for leaks and tighten the fuel line connections to prevent leakage.

It is important to keep the fuel system clean and free from water. If an excessive amount of dirt or water is found, drain the fuel tank and blow out the fuel lines with compressed air.

#### 4-E. FUEL TANK

The capacity of the tank is **50 liters (13.2 U.S. gallons, 11.0 Imp. gallons)**.

The fuel gauge unit is mounted into the top of the fuel tank. The air vent pipe is provided on the fuel tank. A restriction in the air vent pipe will cause difficulty in filling the fuel tank.

#### 4-F. AIR CLEANER

The air cleaner is of the dry type and the air cleaner element is made of the none-woven fabrics.

The air cleaner element should be cleaned every **3,000 km (2,000 miles)**. Under dusty or sandy conditions, the element should be cleaned frequently. The air cleaner element should be changed with a new one every **36,000 km (24,000 miles)**. To clean the element, unscrew the wing nut and remove the air cleaner cover. Take out the element and blow out the dust from the element with a low compressed air. Reinstall the element and cover.

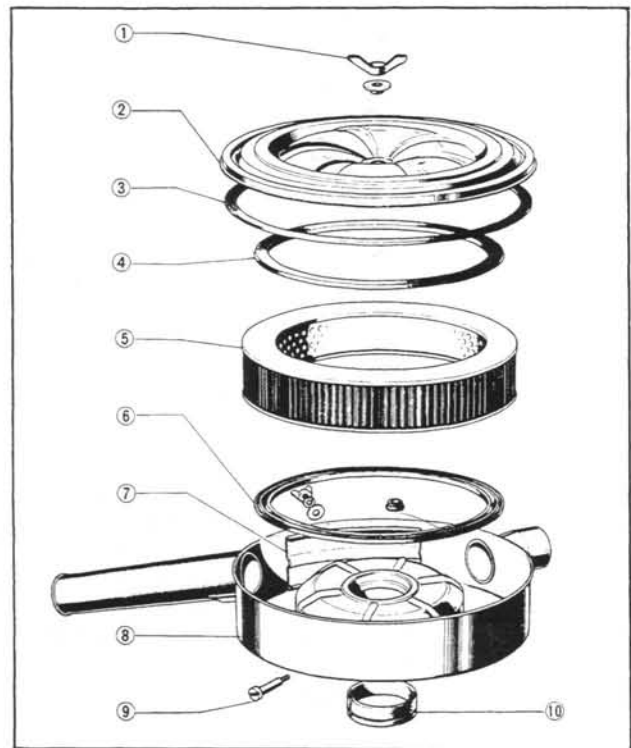


Fig. 4-16 Air cleaner

- |             |               |
|-------------|---------------|
| 1. Wing nut | 6. Packing    |
| 2. Cover    | 7. Shutter    |
| 3. Packing  | 8. Body       |
| 4. Packing  | 9. Clamp bolt |
| 5. Element  | 10. Packing   |

#### SPECIAL TOOL

49 0118 870A

Screwdriver