SECTION 14

FUEL SYSTEM

A. Carburetor

a. Description

The carburetor in a gasoline engine has the following requirements.

1. Controls engine output by adjusting the amount of air fed into the engine.
2. Feeds a uniform fuel and air mixture to the engine.
3. Efficiently vaporizes the fuel to effectively feed it into the engine.

Attempts have been made to meet the above requirements through carburetor improvements. In addition, the recent trend toward higher engine output and wider speed ranges requires modification and improvement of the carburetor. Higher engine output requires a greater intake of air and the diameter of the carburetor must therefore be made larger. Consequently, conventional single barrel carburetors have the following disadvantages although they are efficient during high-speed operation.

1. Good economic operation is difficult to obtain when cruising.
2. Maintenance of engine power is lost during low-speed operation with the throttle wide open.

The two-stage double barreled carburetor has been developed to overcome these disadvantages. In this type of carburetor, the primary carburetor is used for low and medium speed operation and with light loads while the secondary carburetor is used for high-speed operation and with heavy loads. Most existing four wheel vehicles employ a double barreled carburetor.

However, this type of carburetor also has several disadvantages which can be attributed to its structural features. One of the most important of these is the unsmooth switching between the primary and secondary carburetors caused by the slow air speed when the secondary venturi tube is started as shown in Fig. 14A-1.

The CV carburetor used in the Honda engine has been developed to eliminate the disadvantages of the double barreled carburetor. This carburetor consists of one large diameter venturi tube (which corresponds to the secondary venturi) throttled with a vacuum piston as shown in Fig. 14A-3 so that it can operate as the primary venturi. As the negative intake pressure of the engine increases, the vacuum piston automatically rises to maintain the amount of intake air the same. At maximum output, the vacuum piston moves fully up and the secondary venturi is completely actuated. Consequently, when the secondary ventri begins to move it acts as a ventri whose area is continously variable. Under this condition, the air flow speed does not drop even when the secondary venturi begins to operate as shown in Fig. 14A-2 thus eliminate the major shortcoming of conventional double barreled carburetors.

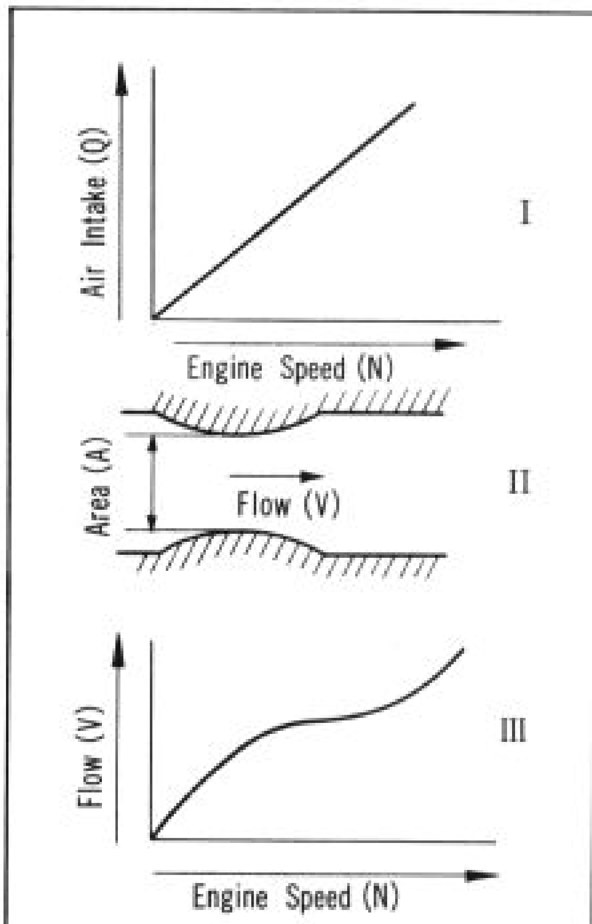

Fig. 14A-1

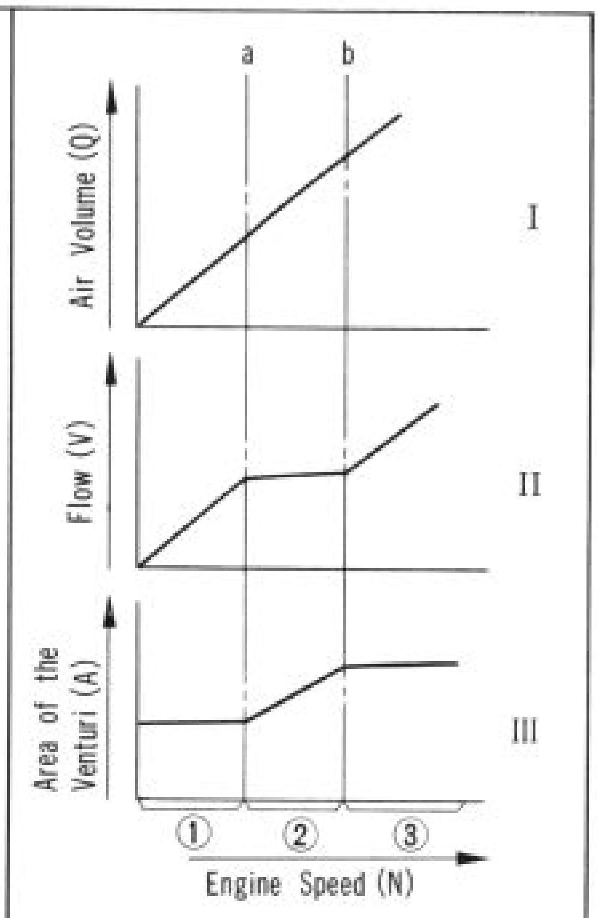

Fig. 14A-2

Theory of Operation

No matter what type of carburetor is used, the amount of air (Q) fed to the engine must increase proportionally with engine speed (N) as shown in **Fig. 14A-2** in order to satisfy engine performance.
If the air speed in the venturi is assumed to be V as shown in **Fig. 14A-1** or the volume fed into the engine (Q) is Q=A x V.

Since venturi area A of conventional fixed venturi carburetors remains constant, flow V increases in proportion to engine speed N but is retarded at about the midpoint of the curve as shown in **Fig. 14A-1 III.**
In respect ot the venturi area, the flow and air velocity of the CV carburetor in the range marked ① in **Fig. 14A-2** or before the vacuum piston starts to function remains at the bottom and acts as a primary venturi, venturi area A remains constant as in the case of a fixed venturi. Air velocity V increases in proportion to engine speed N and so does the air volume. On the other hand, the vacuum pistons starts operating in the range of ② and venturi area A increases in proportion to engine speed N, while a velocity V remains unchanged, but the result is again an increase of air volume Q in proportion to the engine speed N.
At the final stage of the vacuum piston stroke, ③ in the figure, where it is completely opened, it becomes a secondary venturi, the area equals that of the fixed venturi carburetor resulting in air velocity V againe increasing to a volume proportional to the engine speed N as in the case of ①.
Fir volume Q therefore increases with the speed but is independent of the area of the venturi as shown in **Fig. 14A-2.**

Air System (Fig. 14A-3)

Air is fed to the engine through the venturi and throttle valve. The vacuum piston is pressed toward the venturi by a spring in the direction which reduces the venturi area. When the air volume fed to the engine is small, the vacuum piston moves to its lowest position, becomes a primary venturi, and maintains the air flow in the venturi constant. As the air flow and venturi negative pressure increase, the negative pressure applied to the top surface of the diaphragm above the vacuum piston automatically increases the venturi area to maintain the required air volume.

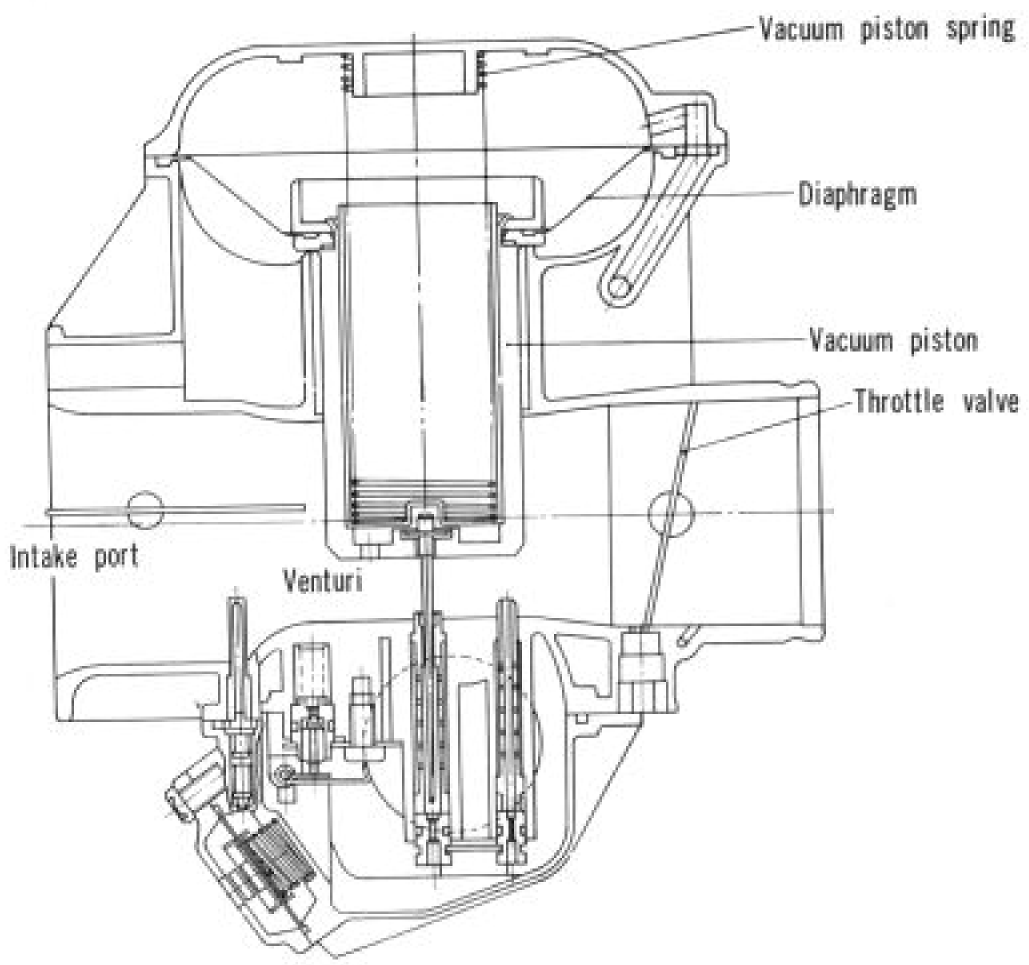

Fig. 14A-3

Float System (Fig. 14A-4)

Fuel from the fuel tank passes through path, valve seat, float valve, and enters float chamber. Strainer above the valve seat filters foreign matter from the fuel. The float is raised as fuel is stopped when the float valve blocks the seat. As the fuel in the float chamber decreases, the float lowers with the drip in the fuel level and the float valve moves from the valve seat thus allowing fuel to enter the float chamber. This closing and opening action of the valve is alternately repeated o maintain the fuel in the float chamber at a constant level.

The float valve has a spring between itself and the lip. This speing serves to stablize the fuel level even under abnormal vibrations produced during vehicle operation on rough road surfaces and to prevent valve wear due to the friction between the valve and seat.

Idle System (Fig. 14A-4)

During idling, the throttle valve is held nearly closed by a stop screw. The volume of fuel is subjected to a coarse regulation by the primary main jet, fine adjustment by the slow jet, and then mixed with the air supplied from the idle air passage, before being ejected through the pilot outlet connected from the solenoid valve. The adjustment of the fuel and air mixture is performed by the pilot screw, which, is turned to the right (clockwise) to reduce the air and to the left to increase it. The idling speed is adjusted with the throttle stop screw.

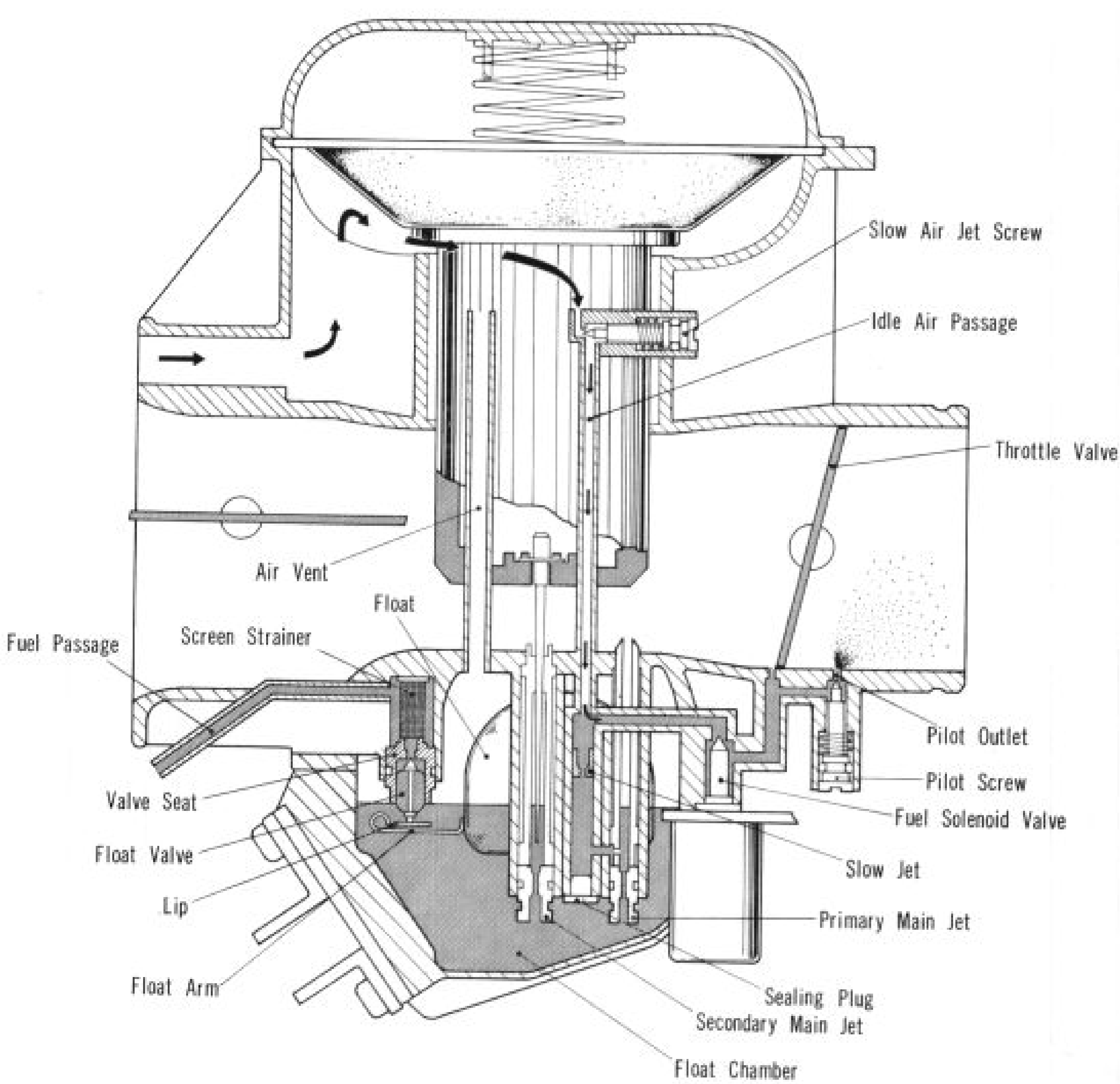

Fig. 14A-4

The slow air jet of 360 and 400 vehicles is fixed and cannot be adjustable. The slow air jet of 600 vehicles can be adjusted by means of a screw. However, adjustment is not normally necessary since it is already factory adjusted. The adjustment diameter of the orifice is 1.2mm.
This is at a position 1-½ backed off from the complete close position of the screw. It is advisable to use a gas density meter for this adjustment to permit as little gas as possible to keep the atmosphere clean.

Off-idle System (Fig. 14A-5)

Since the throttle valve is somewhat open in this state, the fuel will be chiefly exhausted from the orifice discharge port. The orifice discharge port continues to discharge the fuel until the speed of the air ejected from the primary main jet reaches the required value at the venturi. The fuel injected by the primary main jet nozzle when the throttle valve opens does not stop at the orifice idle discharge port but only decreases to a volume proportional to the speed of the engine.

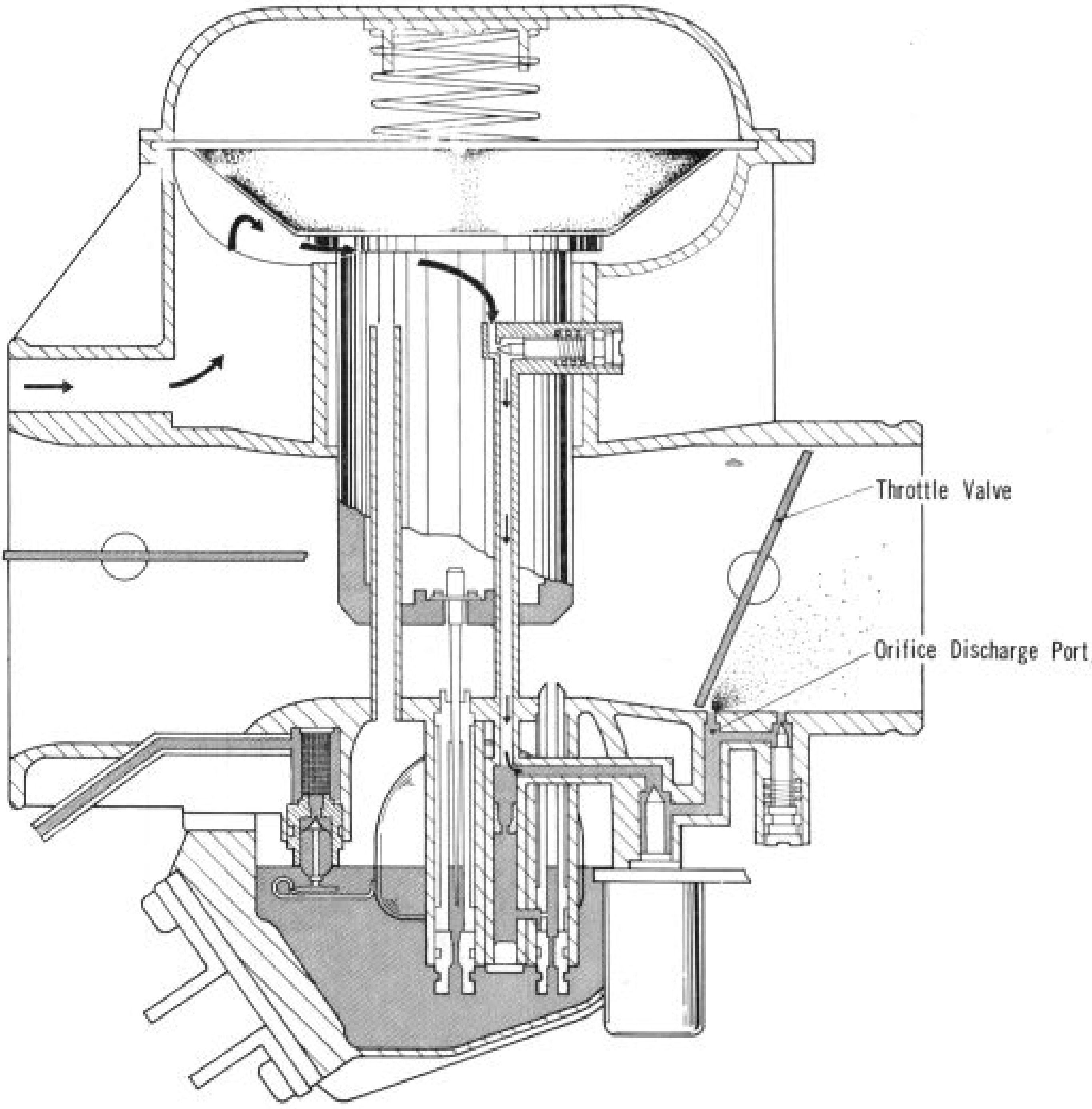

Fig. 14A-5

Medium Speed System (Fig. 14A-6)

The throttle valve aperture is further increased, but not to the extent that the vacuum piston starts. The fuel is regulated by the primary main jet, mixed with air by the primary main air jet, and ejected through the primary main jet nozzle.
Therefore, the adjustment of the air mixture requires replacement of the primary main jet for the different sizes of the orifice. For details of this adjustment refer to the next stage of operation since the secondary main jet nozzle also participates in injection of the fuel in unison with this jet and hence they affect each other.

High-speed System (Fig. 14A-7)

The aperture of the throttle valve becomes still wider and the vacuum piston starts moving up with the carburetor functioning as a variable venturi.
The flow of air in the venturi increases, the vacuum piston chamber is set pu in a negative pressure condition, the piston stroke advances upward as it overcomes the force of the spring, and the jet needle move up.
The fuel regulated by the secondary main jet, is then mixed with the air supplied from the air bleeder and is blown out of the secondary main jet nozzle. The jet needle keeps rising as the air flow increases, increasing the injection of the fuel.

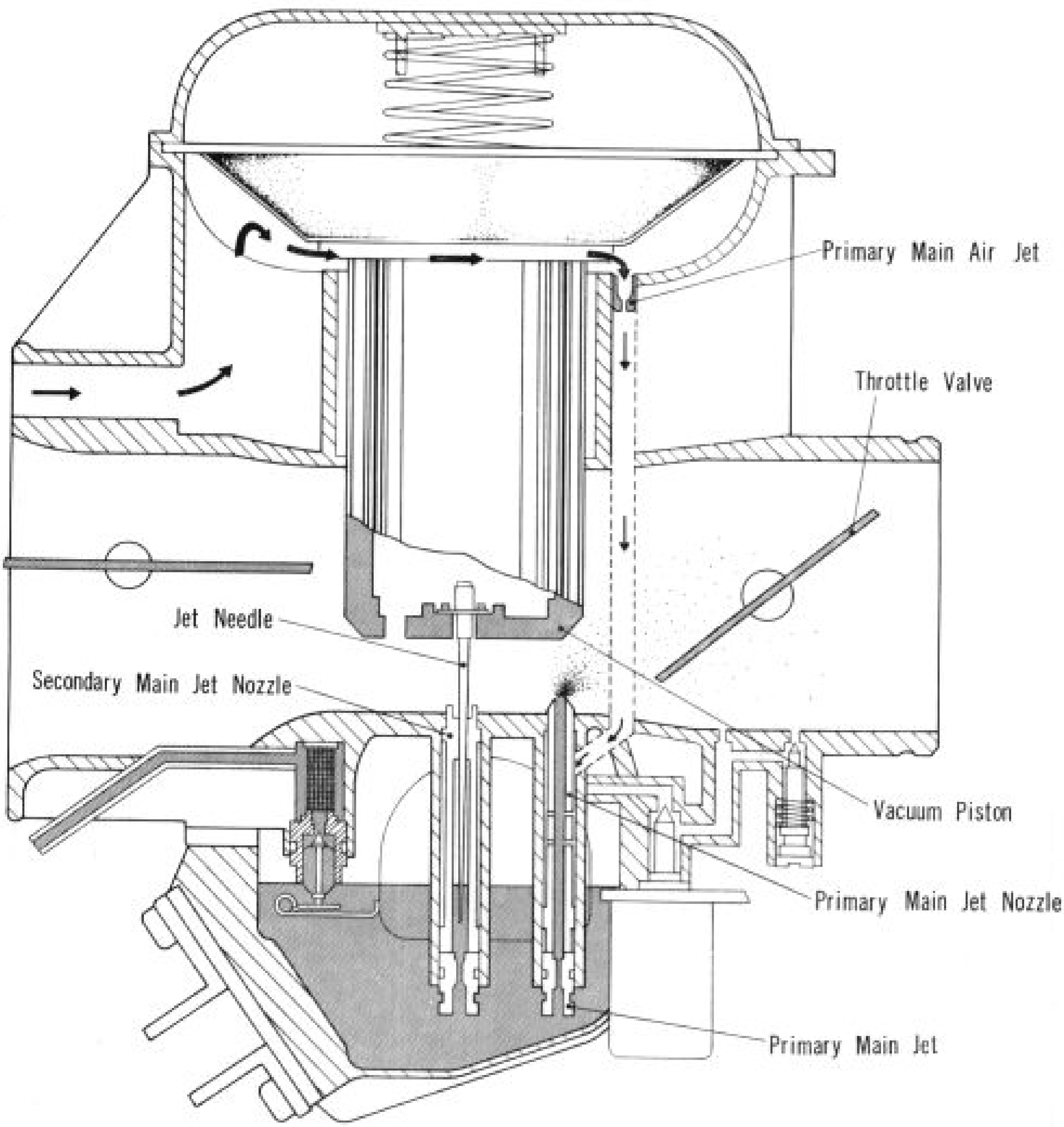

Fig. 14A-6

Acceleration System (Fig. 14A-8)

This is provided to maintain the required rate of fuel mixture or even to make it thicker for greater power when the accelerator pedal is depressed suddenly from low speed operation.

Its operating sequence is such that when the acceleration pedal is depressed, the pump rod strokes to press down the diaphragm which forwards the fuel from the pump chamber to be ejected through the pump nozzle. As the accelerator pedal is released, the rod returns, the diaphragm is returned by the force of the spring to return the fuel to the pump chamber from the float chamber. The pump chamber has check valves at the inlet and outlet.

Starting System (Fig. 14A-9)

The necessity of supplying a thicker fuel mixture to the engine at the start of vehicle operation in extremely cold weather is met by the use of the fast idle mechanism and choke button at the front of the drivers seat which is pulled out to actuate the throttle lever through the choke link cam which then sets the throttle valve to the predetermined aperture.

The choke valve closes at the same time to reduce the air intake. (Cont'd)

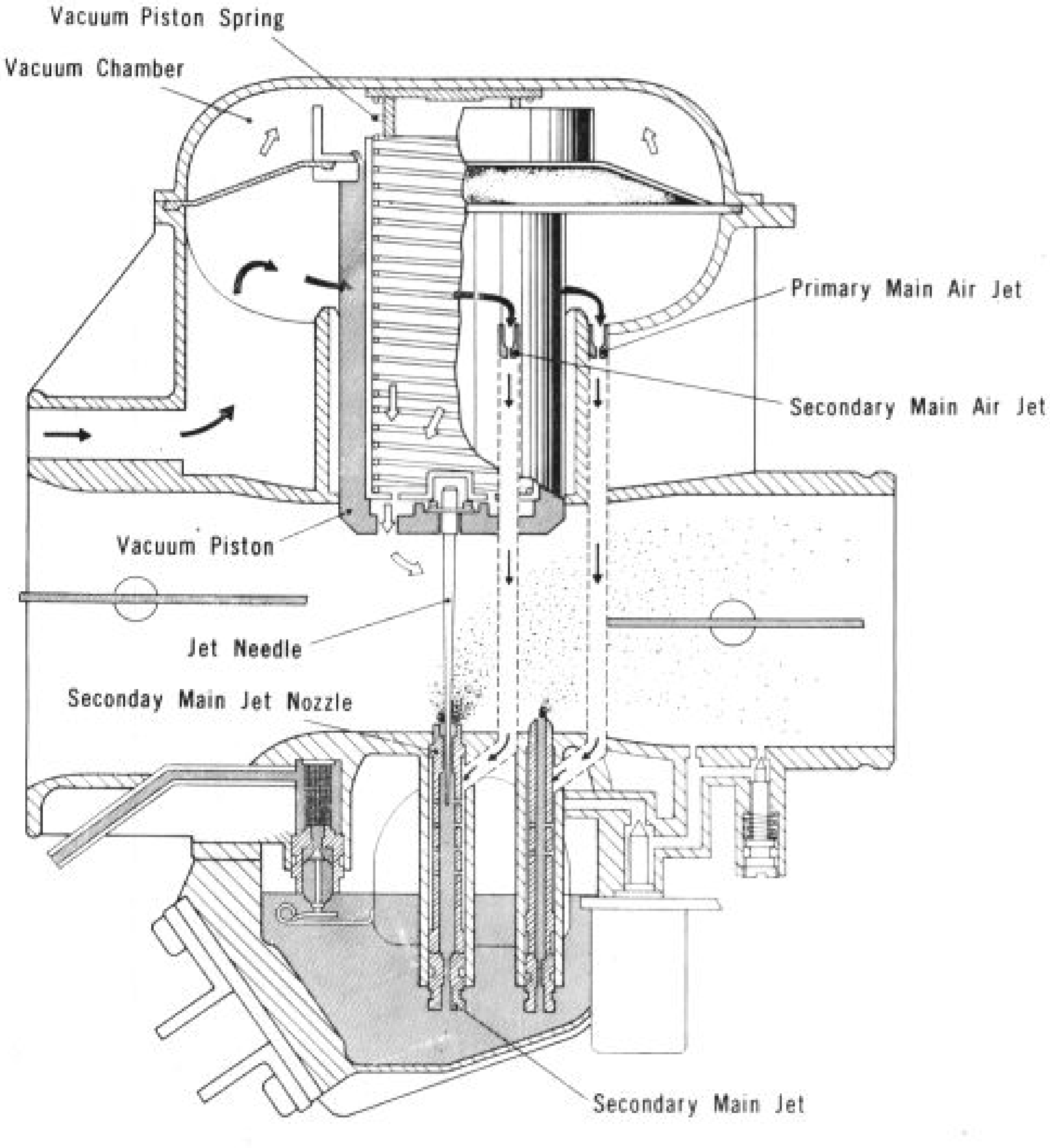

Fig. 14A-7

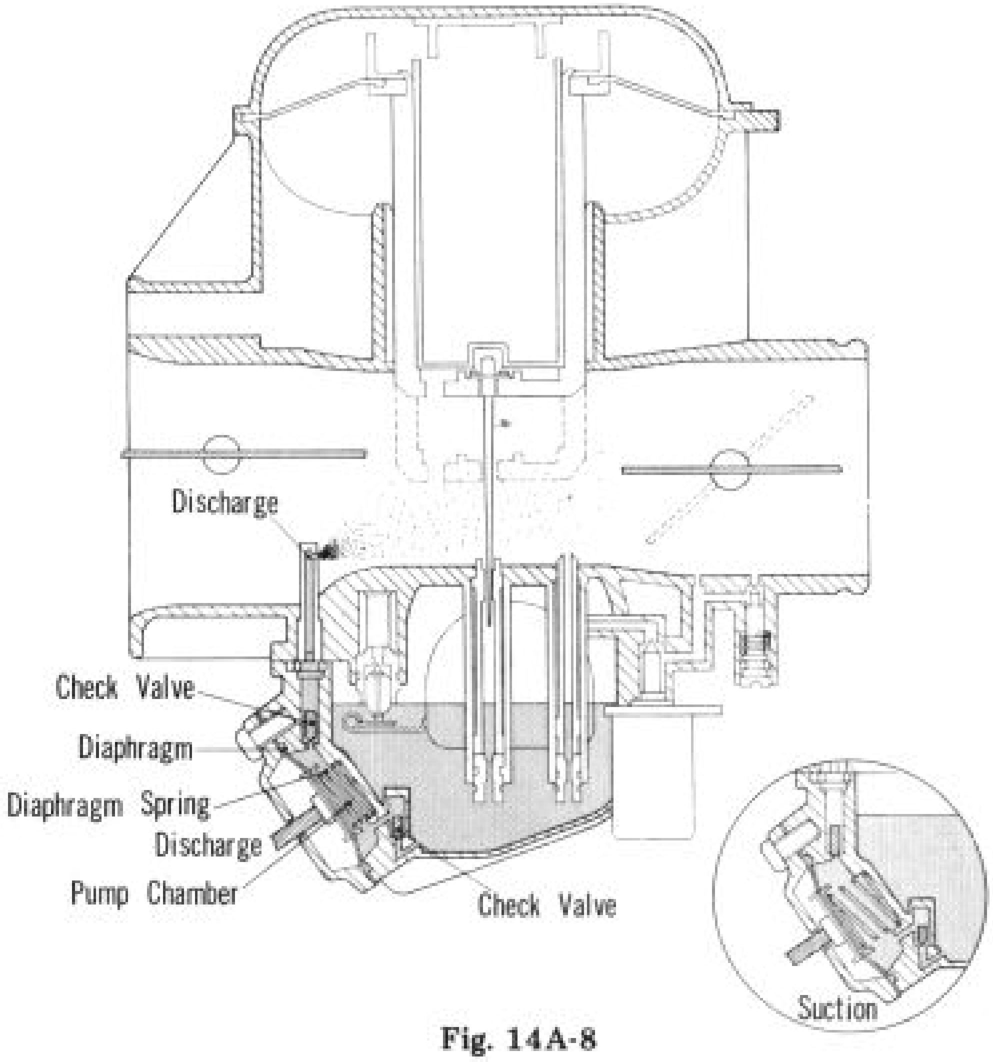

Fig. 14A-8

Reduction of the air supply increases the negative pressure in the main bore and causes an outlet of fuel from the needle jet, orifice discharge port, and pilot outlet, and also causes the choke valve to open to the extent determined by the suction negative pressure in order to adjust the air to the amount required for an optimum fuel mixture for starting. Resetting the choke button recovers the normal idling condition with the choke valve opening and throttle valve returning to the idling position.

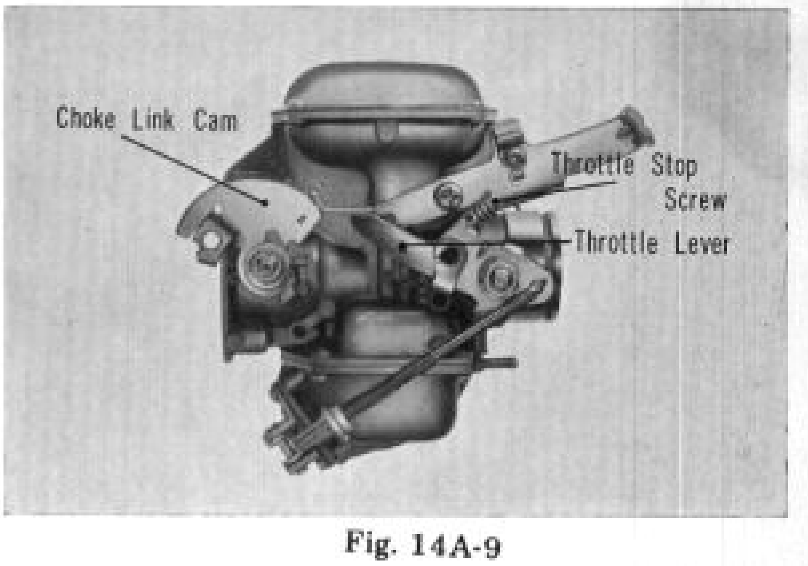

Fig. 14A-9

Setting Mark

Setting marks are printed on the body of the carburetor for identification of the carburetor settings. (Fig. 14A-10)
The 360 vehicles have an improved setting system, effected with NE.
The mark "N4A" is printed on the 400 vehicle, "N6B" "N6C" or "N6D" on the 600 vehicles, and thereafter, requiring confirmation of the marks during disassembly.

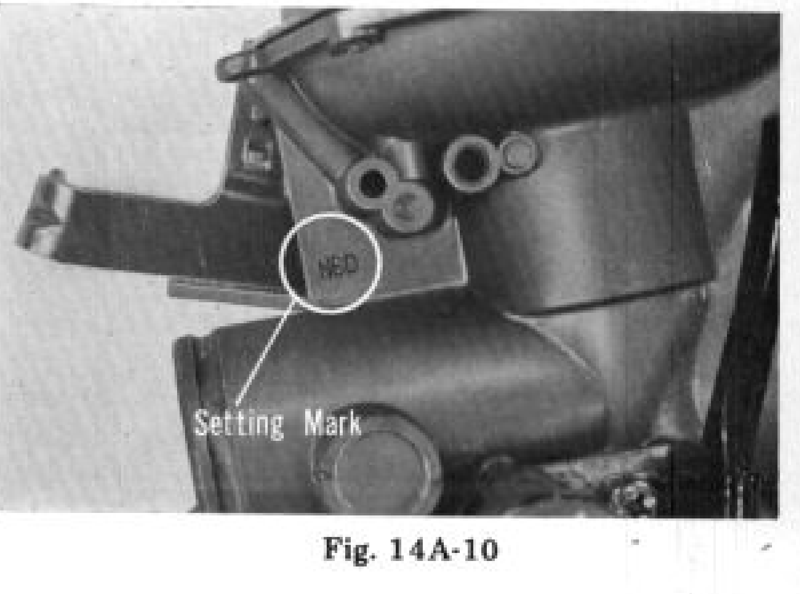

Fig. 14A-10

TABLE OF CARBURETOR SETTING MARK

Model	Setting Mark	Advance	Main Jet		Air Jet		Jet Needle	Slow Jet	Slow Air Jet	Pilot Screw	Valve Seat Diameter	Float Level	Fast idle Dimension	Accelerator Pump		Remarks
			Secondary (No.)	Primary (No.)	Secondary (No.)	Primary (No.)		(No.)	(No.)		(φ)	(mm)	(mm)	Volumn /Stroke (cc)	Stroke (mm)	
360	NE	Performance improvement	145	80	90	50	223302	35	90	3/4	1.4	17	0~0.5	0.25±0.05	2.4±0.5	See Note 1
	NF	Feeling performance improved	145	80	90	50	223302	35	80	5/8	1.4	17	0~0.5	0.20±0.05	2.4±0.5	See Note 1
	NH	Corrosion proofing for vacuum piston	135	82	90	50	223303	35	80	5/8	1.4	17	0~0.5	0.20±0.05	1.6±0.5	See Note 1
	NI	Feeling performance improved	135	82	90	50	223303	35	80	5/8	1.4	17	0~0.5	0.20±0.05	2.3±0.5	See Note 2
	NJ	Overall performance improved	135	82	90	50	223303	35	100	5/8	1.4	17	0~0.5	0.20±0.05	2.3±0.5	See Note 3
			145	82	130	90	304304	Primary 45 Secondary 100	Rimary 90 Secondary 100	1-3/8	1.4	20.5		0.15±0.05		Idle limitter jet 75 Note 4
400	N4A		135	82	90	50	223307	35	100	5/8	1.4	23.5	0~0.5	0.20±0.05	1.6±0.5	
600	N6B	Entering mass production stage	150	85	70	70	234301	35	Identical to 120	1-1/4	1.8	16	0.5~1.0	0.20±0.05	1.6±0.5	
	N6C	Overall performance improved	140	88	50	50	234002	35	Identical to 120	1-1/4	1.8	16	0.5~1.0	0.35±0.05	2.8±0.5	
	N6D	Acceleration performance improved	140	88	50	50	234003	35	Identical to 120	1-1/4	1.8	16	0.5~1.0	0.20±0.05	1.6±0.5	
	N6D1	Overall performance improved	140	88	50	50	〃	35	Identical to 120	2-1/8	1.8	22	0.5~1.0	0.20±0.05	2.3±0.5	
	N6D2		〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	
	6NM		135	92	90	50		6	130	1-1/4		23.5		0.30	2.3±0.5	

Note:
1. Misposition of the jet needle (Model 360 NE~NH) can be corrected by replacing the jet needle retainer of the one used in NI or NJ.
2. The float chamber is not interchangeable with type NH or ealier vehicle.
3. Type NJ carburetor is only for vehicles A360.

b. Maintenance

Disassembly

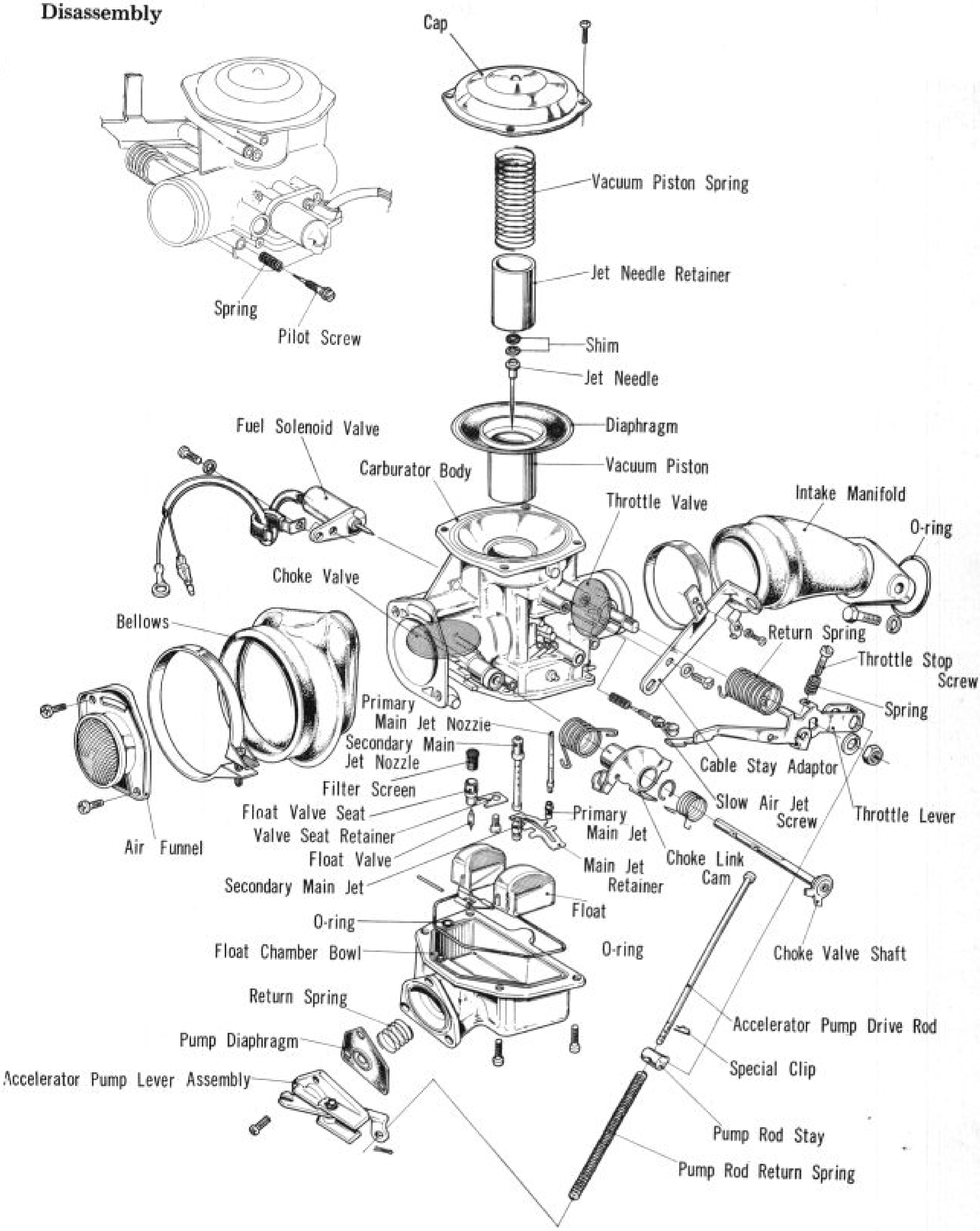

Fig. 14A-11 Disassembled View, N6D Carburetor

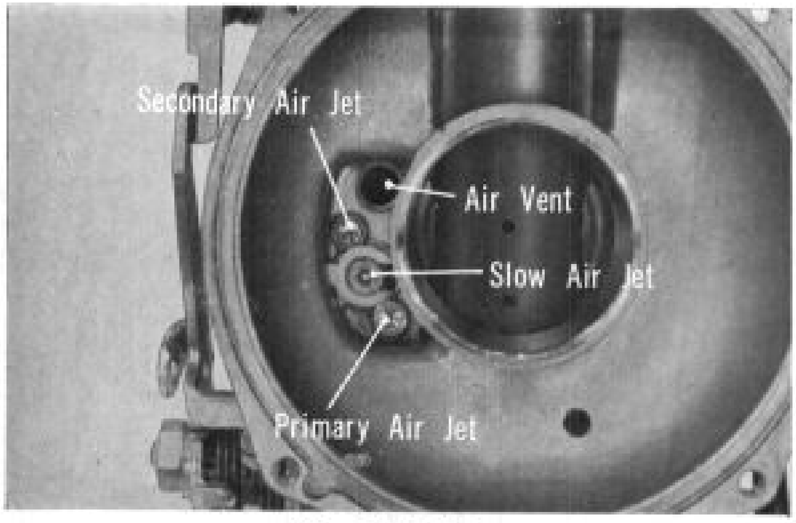

Fig. 14A-12

Perform disassembly as illustrated in **Fig. 14A-11.**

Note:

1. Avoid disassembling the throttle valve and choke valve, since they are assembled by the factory for utmost precision.
2. The primary and secondary main air jets are force fitted and cannot be disassembled, except for the slow air jet which is held by screws. (Fig. 14A-12)
3. The check valve collar of the accelerator pump is made of resin, and should not be disassembled.

Inspection

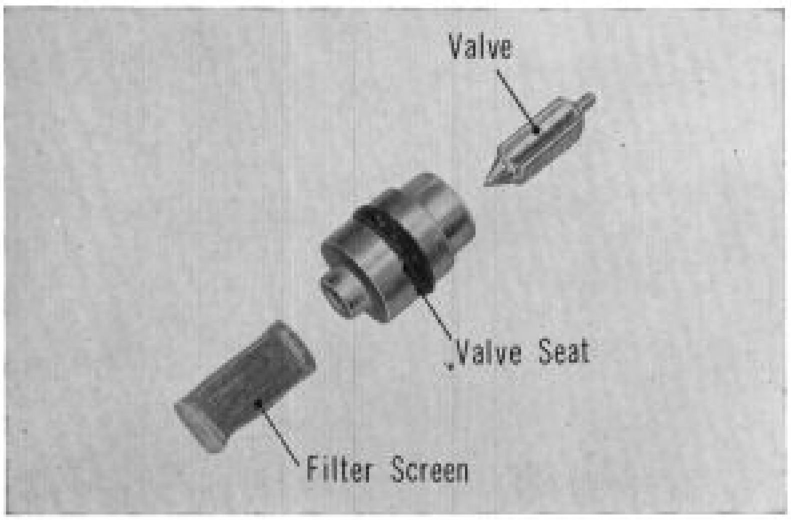

Fig. 14A-13

1. Wash the valve, valve seat, and the filter screen in clean gasolin.

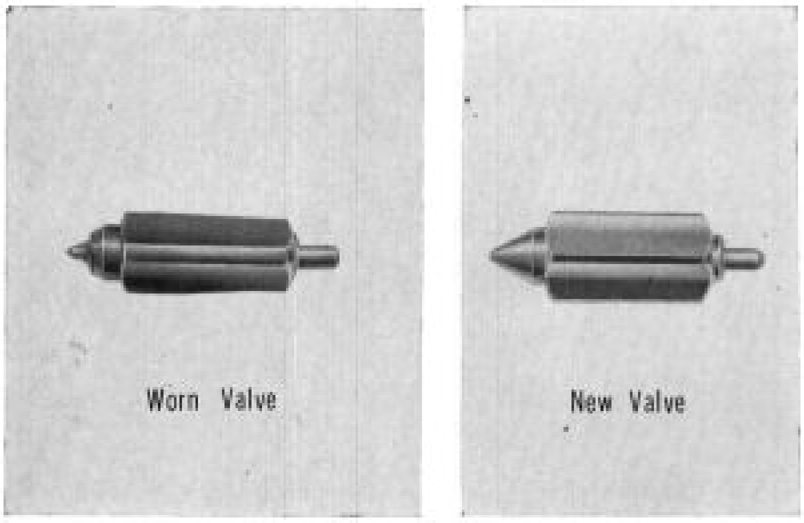

Fig. 14A-14

2. Inspect the float valve for wear of the seat contact area.
3. Inspect the O-ring for cuts, damages and folds; replace if defective.

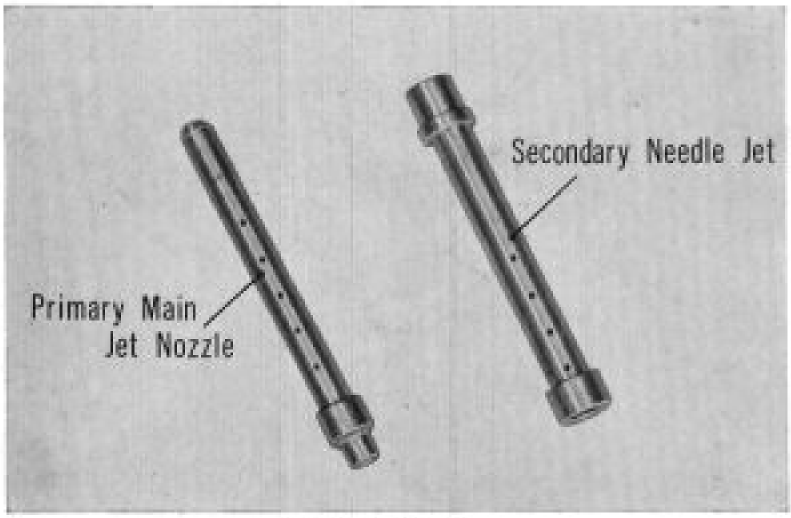

Fig. 14A-15

4. Clean out the primary main jet nozzle, secondary needle jet, and the various fuel and air passages by applying compressed air.

5. Clean the primary and secondary main jets and the slow air jet.
   Also inspect the main jet O-ring for damage.

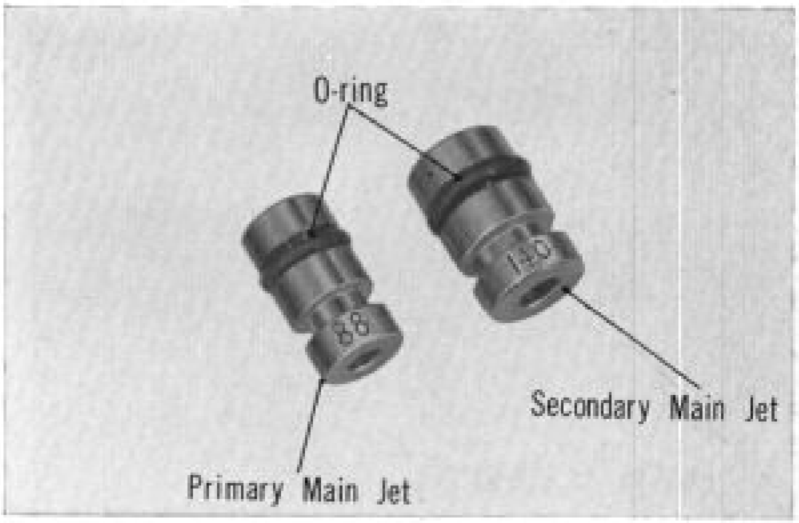

Fig. 14A-16

6. Clean the interior of the accelerator pump and inspect the diaphragm, spring and check valve.

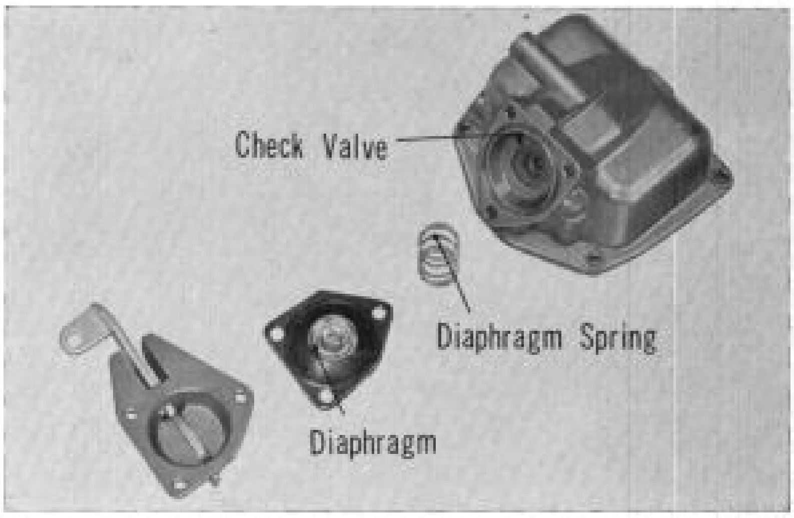

Fig. 14A-17

Assembly and Adjustment

Perform reassembly in the reverse order of disassembly. Note the following items.

1. Note the bend in the valve seat retainer spring. Make sure that it is not installed in reverse. The curved side of the valve retainer spring is installed against the float chamber bowl.

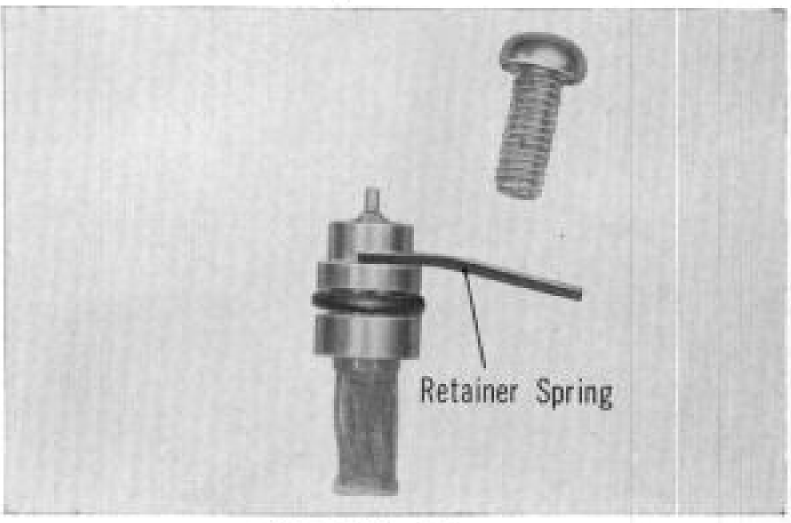

Fig. 14A- 18

2. Inspect the float level and adjust if necessary. Set the carburetor on its end as shown in the fugure and with the finger lightly move the float back and forth and locate the point where the tip of the float valve is just barely touching or there exists a clearance of 0.1mm between the tip of the float valve and the float arm. In this condition measure the distance "h". There is a spring incorporated in the end of the float valve which will permit the end of the float valve to submerge into the valve and will result in improper measurement; therefore, exercise care in determining the point of contact between the float valve and the float arm.
   "h" 360 . . . . 16.0 to 18.0mm (0.63 to 0.70 in.)
   "h" 400 . . . . 22.5 to 24.5mm (0.93 to 0.96 in.)
   "h" 600 . . . . 15.0 to 17.0mm (0.59 to 0.67 in.)

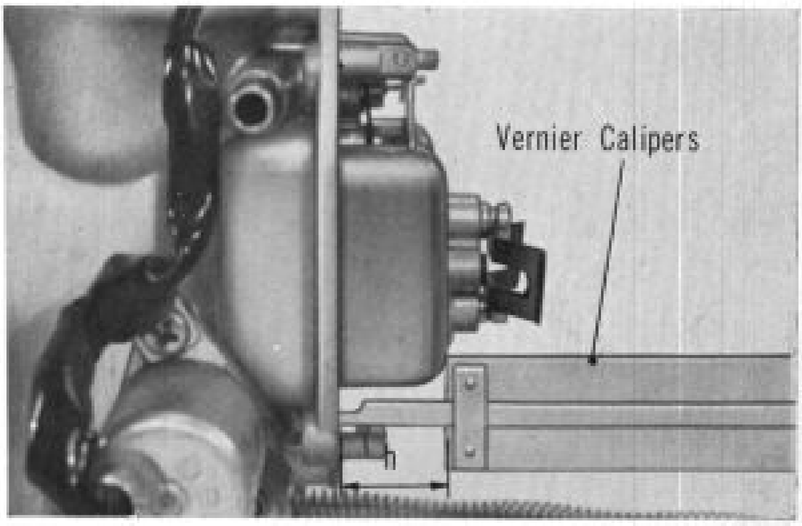

Fig. 14A-19

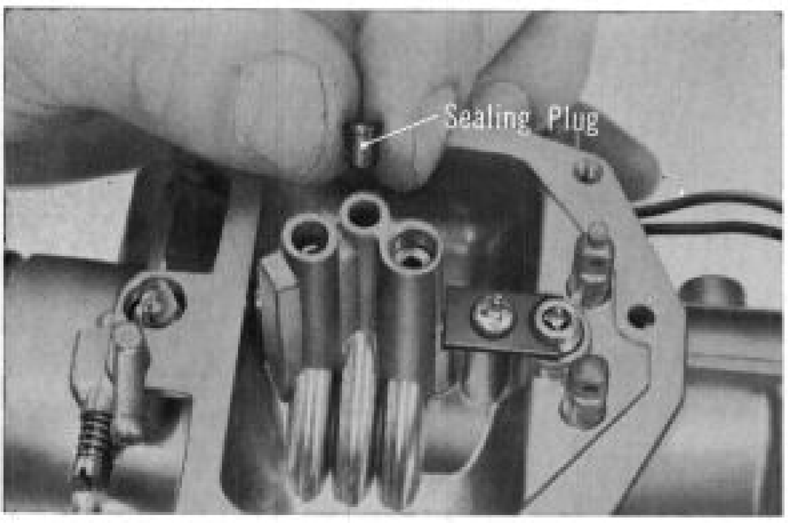

Fig. 14A-20

3. Do not forget the slow jet sealing plug which must be installed securely to prevent loosening.

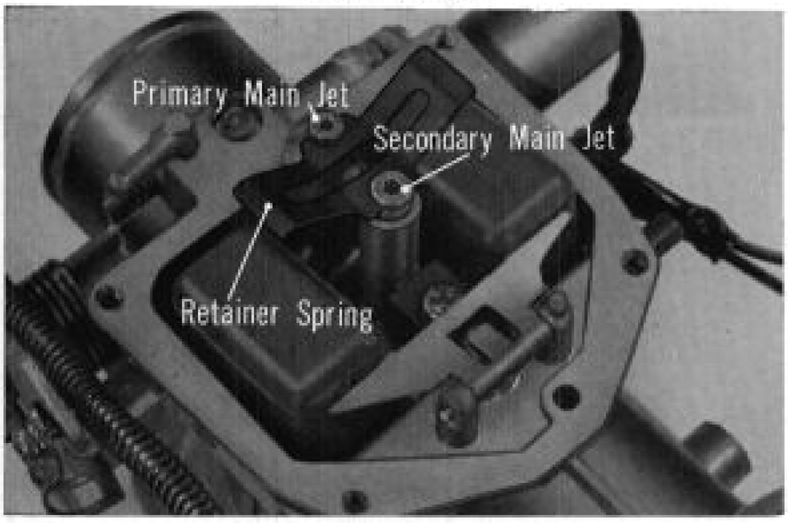

Fig. 14A-21

4. Notice the direction of the retainer spring.
The tips of the retainer spring is installed against the float chamber bowl as shown in Fig. 14A-21.

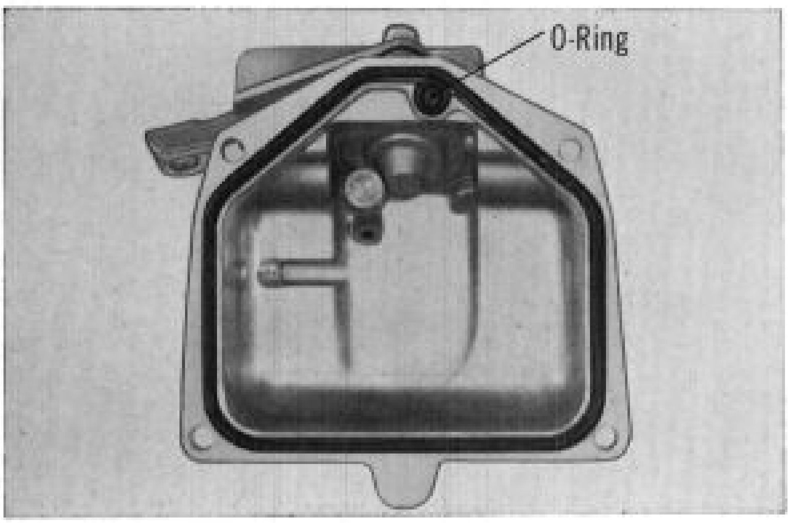

Fig. 14A-22

5. When assemblling the float chamber bowl, the installation of the O-ring must not be forgotten at the accelerator pump passage outlet.

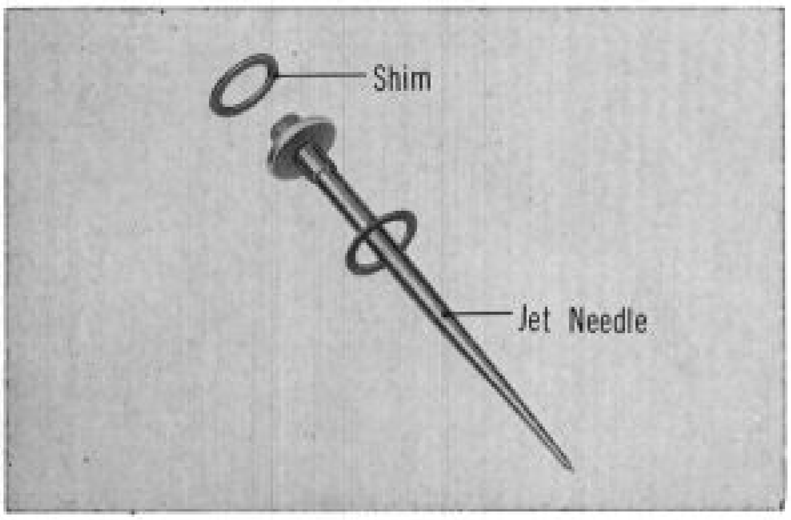

Fig. 14A-23

6. There are two adjusting shims (0.4mm thickness x 2) provided at the top and bottom of the jet needle upper flange.
When it is necessary to raise gas density in a cold district or on a high land, attach two shims to the bottom of the jet needle upper flange.

7. After installing the jet needle on the vacuum piston, install the jet needle retainer into the piston and fix in place with the vacuum piston spring.

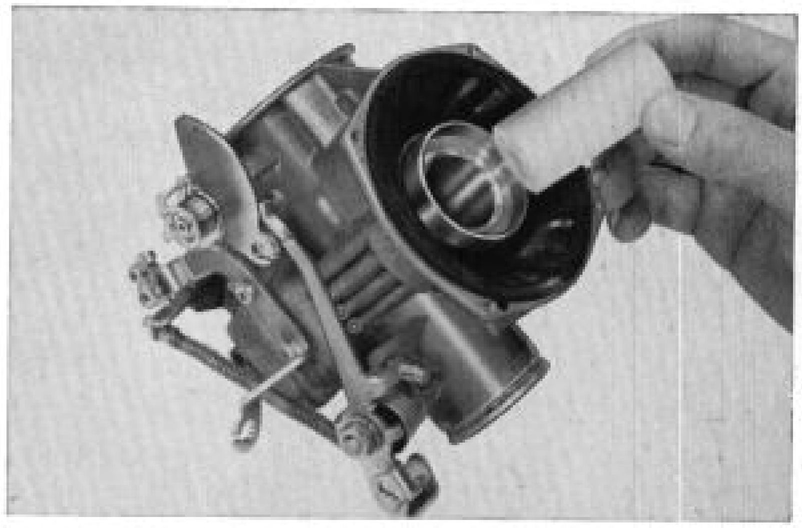

Fig. 14A-24

8. There is a small protruding section on the outside perimeter of the cacuum piston upper diaphragm which is used to determine the position of the vacuum piston. By aligning this protruding section onto the groove in the body, the position of the vacuum piston will be set.

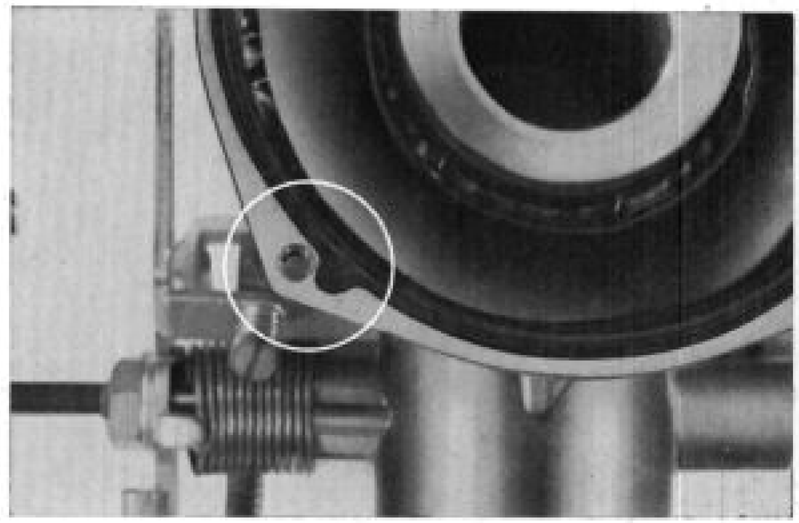

Fig. 14A-25

9. Inspect the operation of the vacuum piston. Install the carburetor cap without assembling the vacuum piston spring and then gently tilt the carburetor. If the piston slides by its own weight, the operation of the vacuum piston is satisfactory.

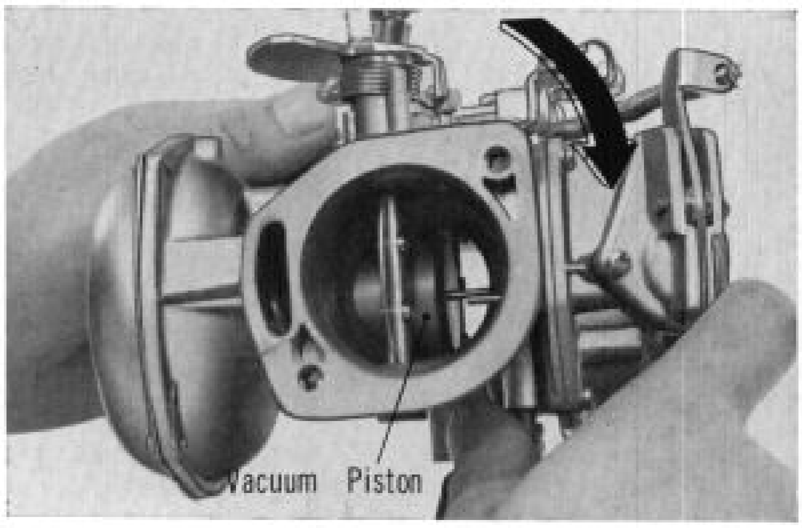

Fig. 14A-26

10. Adjusting pilot screw
    (a) Back-off pilot screw the standard number of turns.
    (b) Bring engine speed down to an idle with the throttle stop screw.
    (c) Then turn the pilot screw one half of a rotation and set it to the point where the engine run smoothly at the highest speed within the range.
    (d) Back off the throttle screw and set the engine to the normal idling speed (1,100 to 1,300 rpm).
    (e) Make sure that this is the normal speed by turning the pilot screw a little to the right.

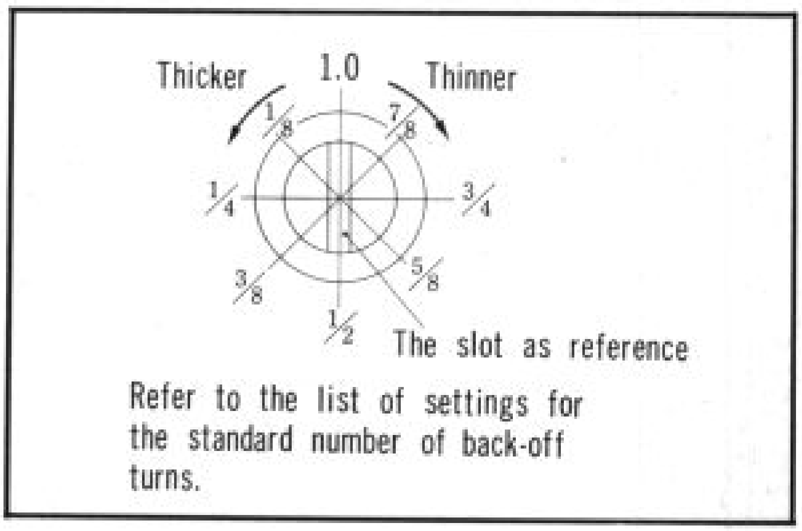

Fig. 14A-27

Note:
Pilot screw adjustment should be made when the engine is warm.

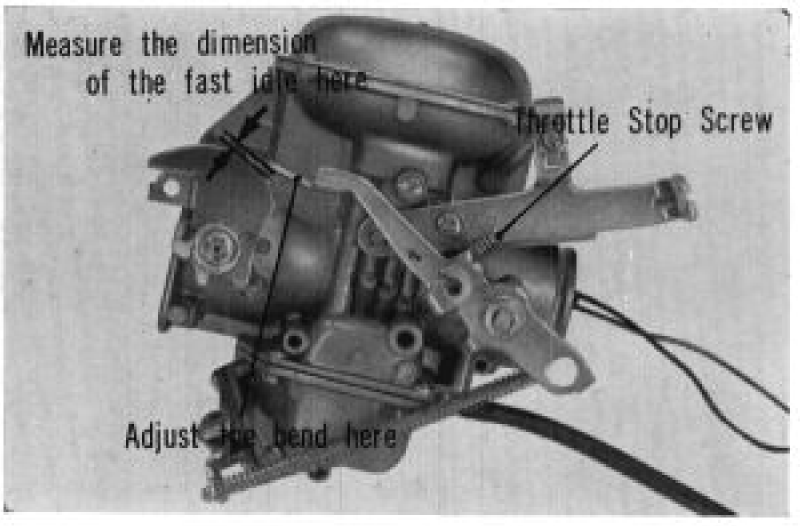

Fig. 14A-28

11. Adjusting for fast idling
    (a) Completely open the choke valve.
    (b) Completely close the throttle valve by backing off the throttle stop screw.
    (c) Next, adjust the degree of bend at the tip of the throttle lever to an angle at whcih the specified clearance is obtained between the throttle lever and the fast idle cam.
    (d) The standard fast idling speeed is 3,500 to 4,500 rpm when the engine is warm. (with the choke button set to the highest engine speed). Refer to the list of setting for dimensions. (page 14-8)

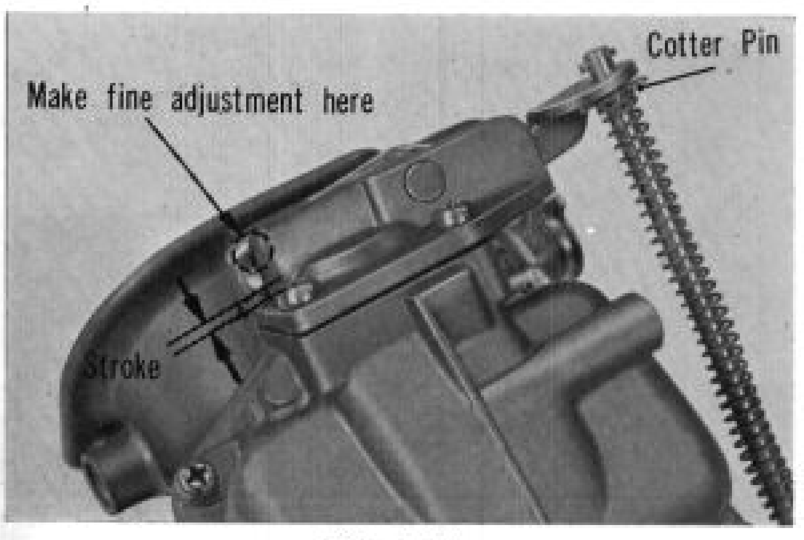

Fig. 14A-29

12. Adjusting accelerator pump discharge volume. See Figs. 14A-29 and 14A-30, and 14A-31, 14A-32 for the former carburetor in 360 and 600 vehicles.
    - Carry out the adjustment with the throttle stop screw threaded fully out.
    - The adjustment method will differ depending upon the setting.
    - Refer to the list of setting for the correct stroke. (page 14-8)

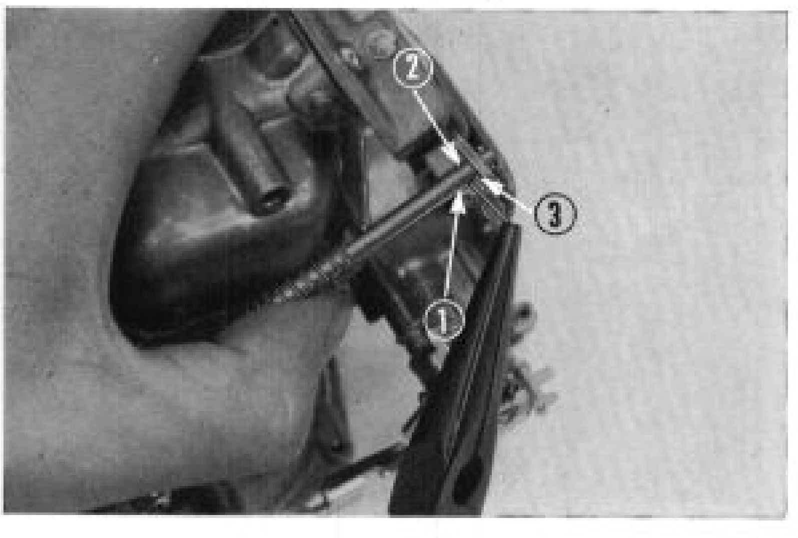

Fig. 14A-30

Fig. 14A-29 and 14A-30
Position ② is standard.
Discharge is approximately 0.35 to 0.40cc/stroke at position ① and 0.08 to 0.10cc/stroke at position ③.

Fig. 14A-31
Discharge volume is increased by threading in the adjusting nut.

Fig. 14A-32
Discharge volume is reduced by threading in the adjusting nut.

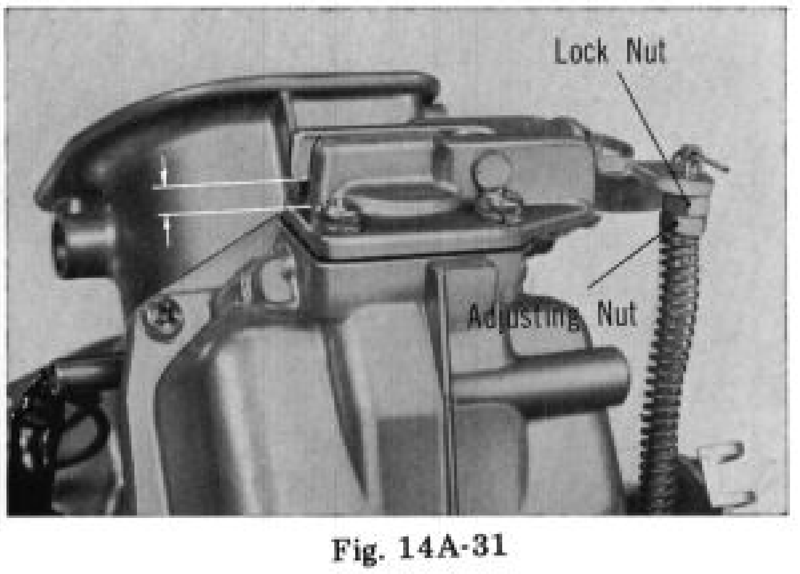

Fig. 14A-31

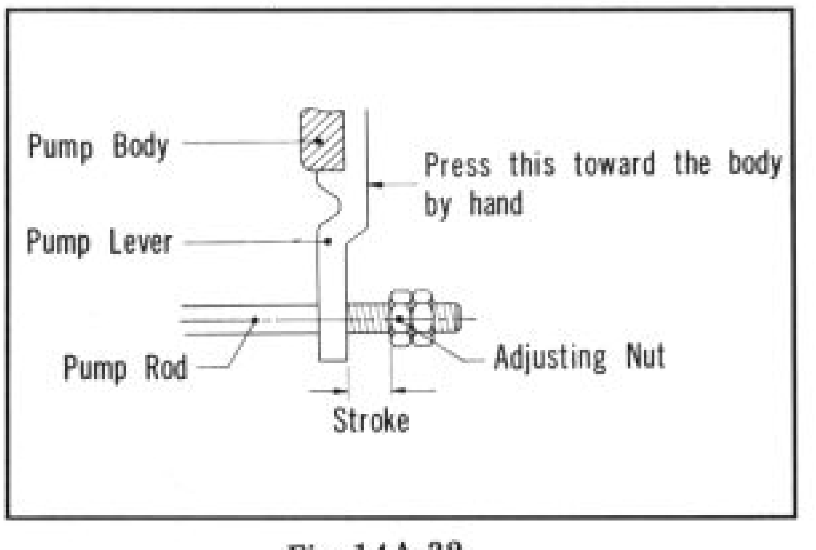

Fig. 14A-32

13. Checking solenoed valve
The solenoid valve is provided to prevent "run-off" once the ignition switch is set to OFF. At this time, the electric current is removed from the solenoid, and the valve is forced out by the spring contained in the valve to block the flow of the fuel to the orifice discharge port and pilot outlet.
   (a) To check the operation of the solenoid valve, set the engine switch to ON with the vehicle parked in a quiet location, and disconnect and reconnecting the lead of the solenoid valve at the plug (connection), checking for either an operating sound or vibration at the time of contact.
   (b) Emergency engine starting procedure when the solenoid valve malfuctions:
   Since the solenoid valve serves to open and close the fuel path of slow system (idling and low speed operation), emergency starting may be made by either removing the solenoid valve and sealing the port with a flat plate or by fixing the valve while in the depressed potition.

Note:
Replace only the solenoid valve when this part is defective, not the carburetor assembly. Neither nor should the assembly be replaced together with the solenoid valve when the carburetor is defective.

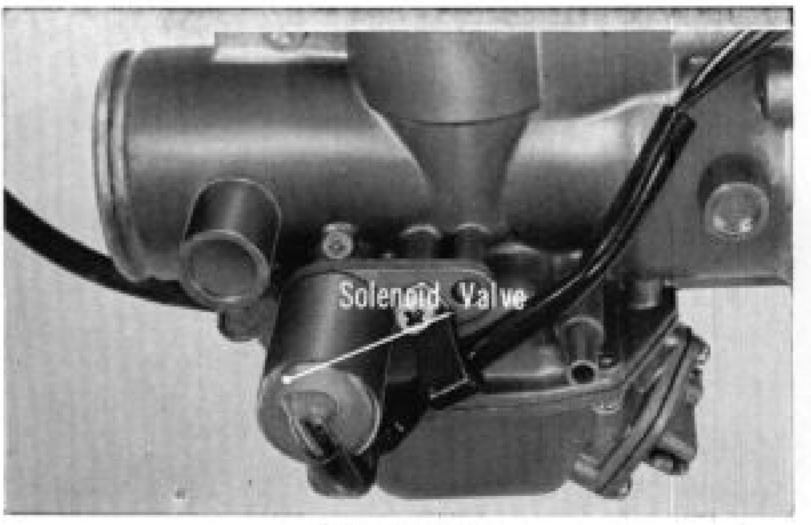

Fig. 14A-33

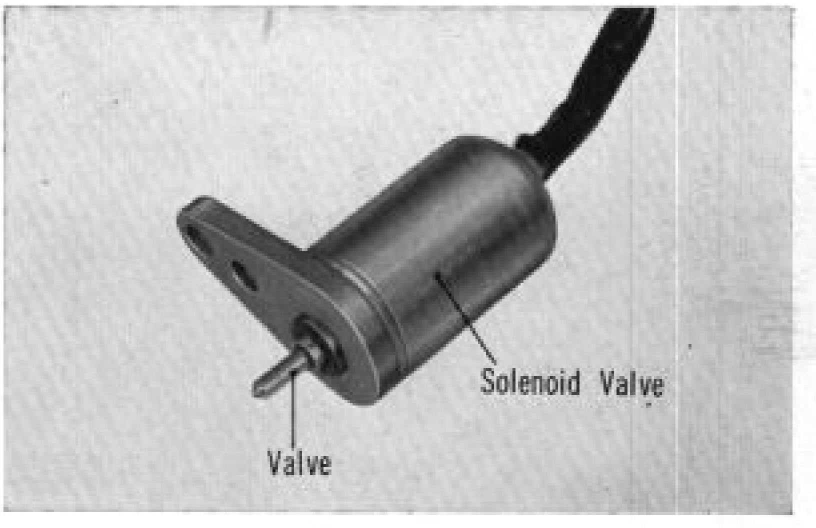

Fig. 14A-34

c. Trouble Diagnosis

Suggestions on trouble shooting:

- ○ The adjustment of the carburetor should be begun after confirming that there are no defects in the engine and the electrical system. (engine compression, ignition timing, sparking, tappet clearance, valve timing, etc.)
- ○ Take caution to avoid misplacement of parts, contamination, and hitting the parts with hard material during disassembly. Clean off dirt and water by blowing with air. (In case the body happens to be droped, check that there might not be malfunction of the parts.)
- ○ If the wires, etc. are removed, check operations for the complete close and open. (throttle valve and choke valve)
- ○ In the column of "check point", mark • indicates the adjustments are chiefly applicable to N360 (NB to ND), mark ○ to N360 (NE) and thereafter, and 400 and 600, and ♦ to the setting of all vehicles.

Defects	Check point	Repair and Adjustment
Defective starting	♦ Is the fuel supplied to the carburetor?	Turn on the ignition switch and disconnect the fuel tube from the carburetor fuel joint.
	♦ Does overflow not exist?	Clean the carburetor. (Refer to the column of "Overflow".)
	♦ Does the choke valve functions correctly?	Repair so that the choke moves smoothly.
	♦ Is the relief spring hooked to the right position?	Replace to the specified position.
	♦ Does the engine start? Since an accelerator pump is used, fuel will be sucked in excess if the accelerator pedal is stepped on many times.	Start the engine with the accelerator pedal at complete press to floor. (in case of fuel is sucked in excess.)
Defective idling	♦ Are the pilot screw adjustment method and the number of back-off turns proper?	Adjust the pilot screw.
	♦ Is the idling speed normal?	Adjust the stop screw to Engine speed 1,200 rpm±100. If the speed is not reduced by loosening the stop screw, check for contact of the fast idling lever.
	♦ Is the solenoid valve operating?	Replace if defective
	♦ Does the solenoid valve have the O-ring?	Provide if not.
	♦ Is the slow jet not clogged?	Clean with air.
	• Is the slow jet loose?	Tighten.
Defective slow speed	♦ Are the method of the pilot screw adjustment and the number of back-off turns proper?	Adjust the pilot screw.
	♦ Is the slow jet not clogged?	Clean with air.
	• Is the slow jet not loose?	Tighten.
	○ Is the slow path provided with the rubber cap or is the rubber cap not damaged?	Porvide or replace if damage.
	♦ Is the slow jet not clogged?	Clean with air.
	♦ Is the vaccum unit tube provided or, if provided, not damaged?	Provide or replace if damaged.

Defects	Check point	Repair and Adjustment
Defective medium and high speeds	● Is the diaphragm not cracked?	Replace the vacuum piston assembly.
	♦ Is the vacuum piston installed in the correct position?	Correct.
	♦ Does the vaccum piston operate normally?	Clean
	♦ Is the vacuum piston spring expanded too long?	Replace the spring.
	● Is the needle jet set screw loose?	Tighten.
	○ Is the jet needle installed properly?	Replace the jet needle retainer with modified one
	♦ Is the jet needle not lost or is the bushing not loose?	Replace the jet needle.
	♦ Is fuel supplied to the specified level?	Adjust to the specified level.
	♦ Are the jets not clogged or loose?	Clean and tighten.
	○ Is the main jet O-ring not broken?	Replace the O-ring.
	○ Is the jet needle retainer installed properly?	Correct.
Defective acceleration	♦ Is the discharge volume of the accelerator pump adjusted correctly?	Adjust the discharge volume of the pump.
	♦ Is the pump ejecting?	If air is contained in the pump, fully stroke the pump lever 4 to 5 times by hand.
	○ Are the U-ring, colar, and outlet valve installed?	Reinstall or replace.
	○ Is the path to the pump not clogged?	Clean with air and replace the float chamber.
	○ Is the locker arm not interfered by anything?	Replace the pump cover.
	♦ Is fuel supplied to the specified level?	Adjust to the specified level.
	♦ Does the vacuum piston operate properly?	Clean.
	♦ Is the diaphragm not broken?	Replace the vacuum piston assembly.
Increased fuel consumption	♦ Are the method of the pilot screw adjustment and the number of back-off turns proper?	Adjust the pilot screw.
	● Is the slow jet not loose?	Tighten.
	♦ Are the air jets not clogged?	Clean.
	♦ Is the pump discharge volume not too great?	Adjust the pump discharge volume
	♦ Is float level normal?	Adjust to the specified float level.
	♦ Is the vacuum unit tube not damaged or is it installed?	Replace the tube or install as required.
	♦ Does overflow or fuel leakage not exist?	Clean (Refer to "Overflow")
	♦ Is the jet needle shim positioned properly?	Adjustable 0.5 of a step by means of shims.

Defects	Check point	Repair and Adjustment
Overflow	♦ Is the float functioning properly?	Adjust.
	♦ If float valve contact good?	Replace the valve seat assembly.
	♦ Does any foreign matter exist between the float valve and the valve seat?	Clean.
	♦ Is the discharge pressure of the fuel pump normal?	Replace the pump.
	♦ Is float level normal?	Adjust to the specified float level.
	♦ Is the float lip set right angles to the float valve?	Adjust it as specified.
	♦ Is the valve seat retainer spring installed properly?	Adjust it as specified.
	♦ Is the valve seat O-ring not damaged?	Replace the O-ring.

B. Air Cleaner

a. Description

The air cleaner is mounted in the engine compartment on the upper dashboard, and the filter element is made of paper. Air used to cool the engine is introduced to the nozzle of the air cleaner cause through a hot air feed tube. The hot air prevents the carburetor from icing and improves the engine performance by facilitating the fuel atomization.
The gas produced in the engine crankcase is introduced from the breather tube into the air cleaner case The case contains chambers which separate oil from the gas. The gas is fed into the carburetor through a filter element, and the oil is discarded from the chamber through a drain tube.
Models to be exported to the U.S. will have no drain tube, and the port will be sealed with a rubber plug. Periodically drain the oil by removing the plug.

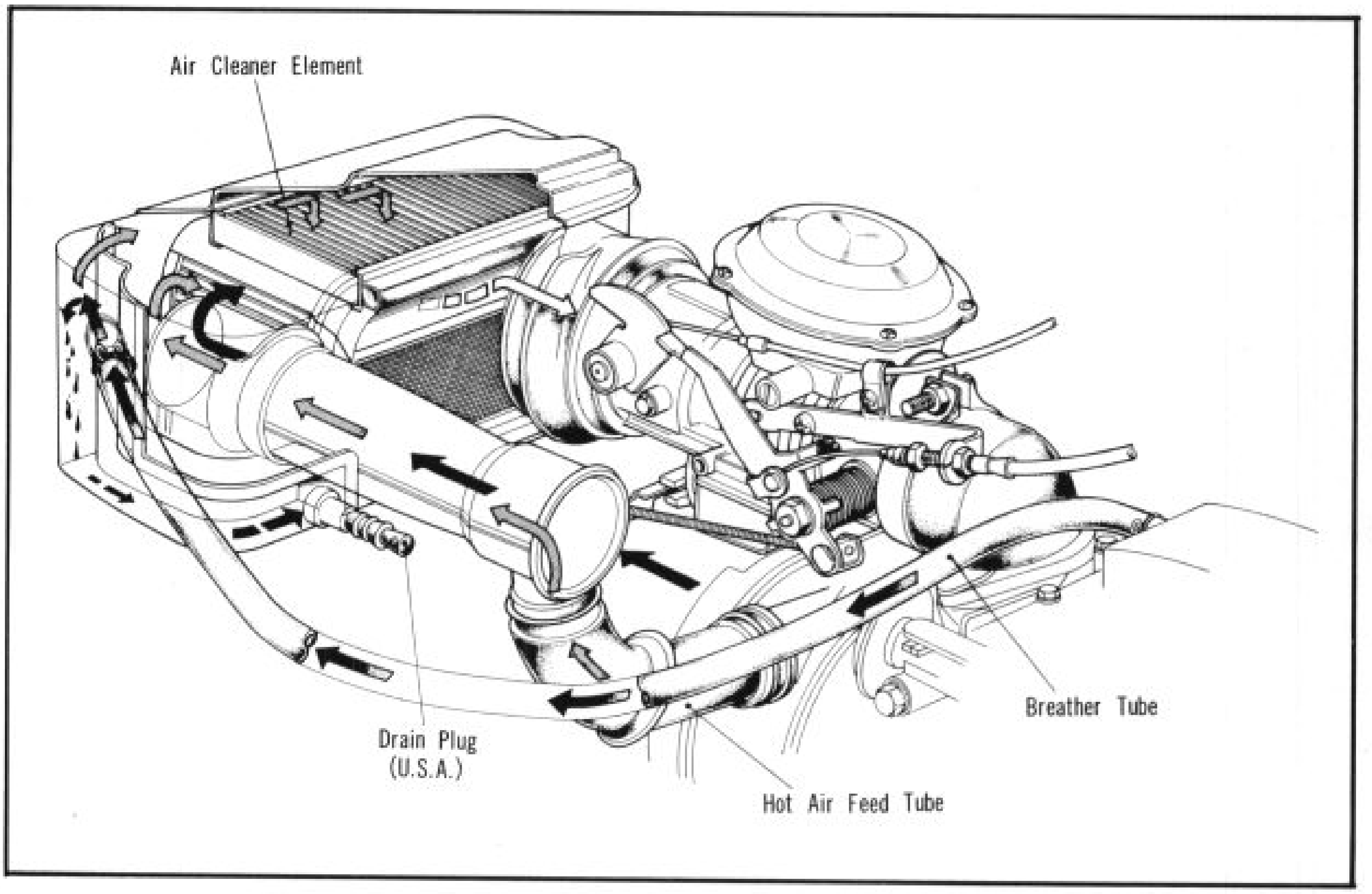

Fig. 14B-1

The drain tube has a slit in the tip, through which accumulated oil is automatically discharged. **(Fig. 14B-2)**

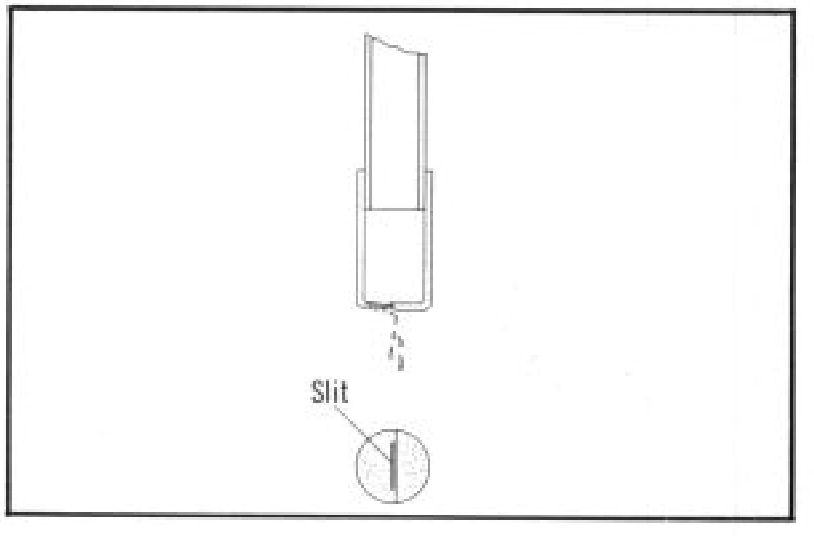

Fig. 14B-2

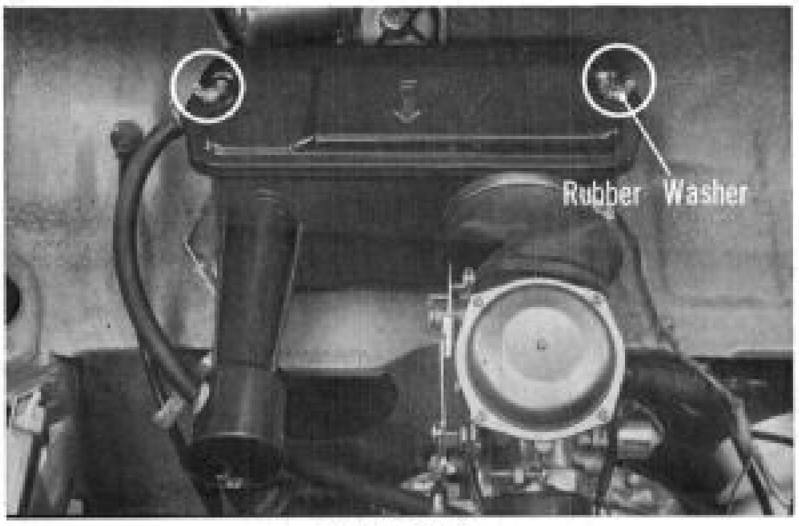

Fig. 14B-3

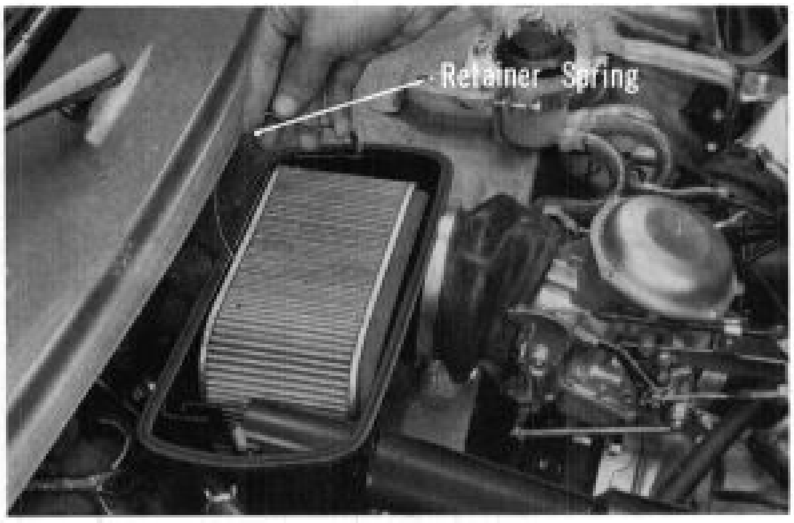

Fig. 14B-4

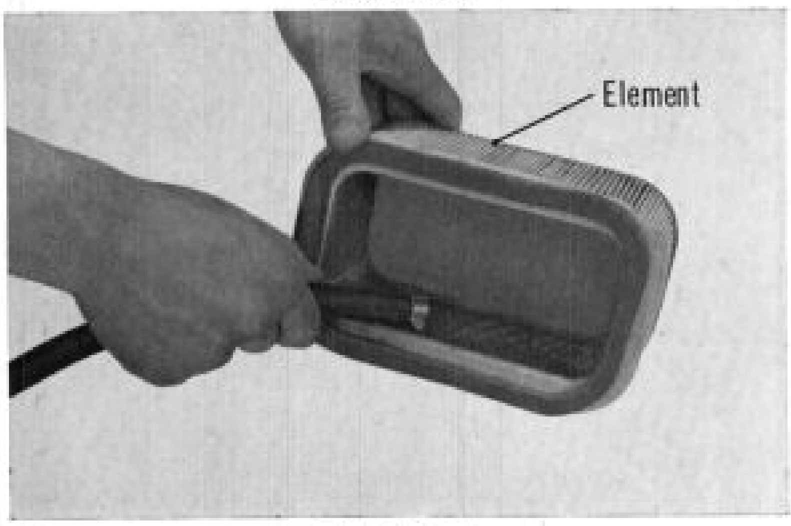

Fig. 14B-5

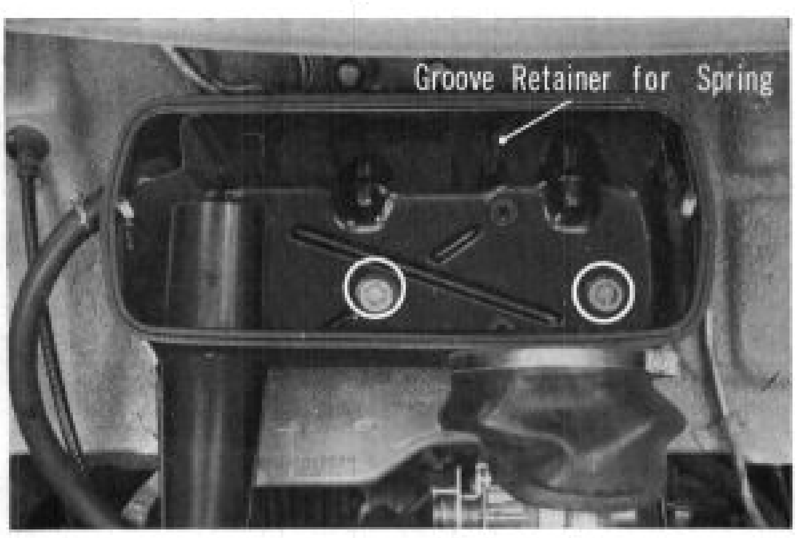

Fig. 14B-6

b. Maintenance

The air cleaner element is generally cleaned after 5,000km (3,000 miles) of vehicle operation, replaced after 15,000km (9,000 miles), cleaned after 25,000km (15,000 miles), and then, replaced again after 35,000km (21,000 miles), after which cleaning and replacement are alternated every 15,000km.
These periods are standard, but can modified depending upon the local conditions under which the vehicle is used. Cleaning and replacement may be necessary more frequently in dusty environments.

1. Remove the cover from the air cleaner by unthreading the wing nuts.
   Note:
   Since the rubber washer serves to prevent water from entering, be sure to install it. **(Fig. 14B-3)**

2. Remove the element by removing the retainer spring.
   The tension of the retainer spring functions in the direction to hold the element toward the carburetor. Install the spring in the correct direction. **(Fig. 14B-4)**

3. Clean the element by blowing out dust with compressed air from the inside. Replace it if it is extremely dusty or cloggged. **(Fig. 14B-5)**

4. The air cleaner is fixed to the upper dashboard with two bolts by way of a rubber washer.
   When removing the case, remove the bellows band, and separate it from the carburetor; remove the breather tube, and case mounting bolts. The case has a groove for the retainer spring. **(Fig. 14B-6)**

5. The 600 series air cleaner case will be modified as of 1969 for the purpose of reducing suction noise. Where as the current type is directly attached to the dashboard upper simply using a rubber washer, the new one will be installed with supporters as well as with a rubber washer. (Fig. 14B-7)

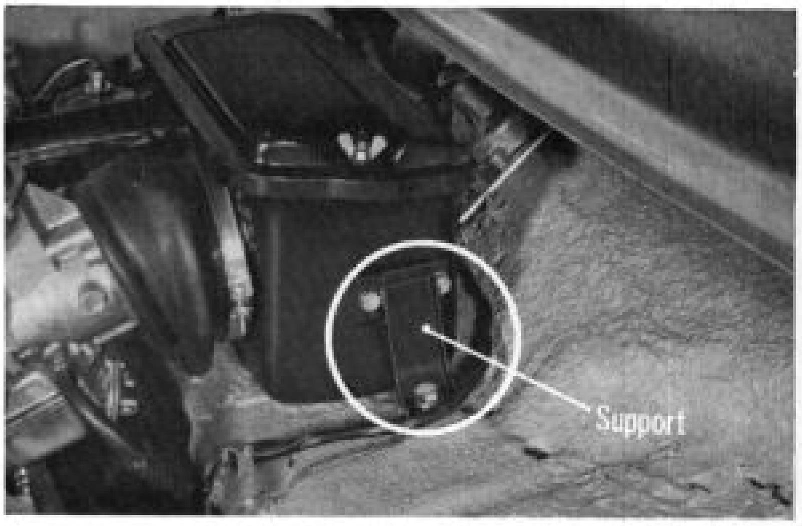

Fig. 14B-7

C. Fuel Pump

a. Description (See Fig. 14C-1 and 14C-2)

The fuel pump is an electromagnetic type mounted on the left side of the engine compartment. The pump is divided into a pump and electromagnetic section.
The pump section consists of a pump base ⑫, diaphragm ⑩, valve chamber ③, cap ①, and valve ⑦. A suction valve is mounted in the cap and a discharge valve in the valve chamber. The valve chamber is divided into two sections, suction side (a) and discharge side (b). Each valve is mounted in the valve chamber with a stopper ring ④, and is pressed against the surface of a seat ⑧, by a valve slring ⑥.
The section and discharge valves are located opposite each other. When the section side opens, the discharge side closes. When the discharge side opens, the suction side closes, thereby preventing reverse flow of fuel.
The diaphragm ⑩, mounted to one end of the diaphragm shaft ⑭ accomplishes the function of sucking and discharging fuel. It is held down by a spring ⑪. The plunger ⑮ of the electode section is mounted to the diaphragm shaft with a pin ⑯. The lower bearing ⑬, is located between the diaphragm and plunger.
The electomagnetic section consists of a coil and a switch. One end of the coil ⑳ is connected to the lead ㉝ and the other end to the fixed ontact ㉗ of the switch. The moving contact ㉖ is grounded through the lever B ㉔ to the main body.
Current flows from the connector plug ㉞ to the main body ⑰ via the coil ⑳, fixed contact ㉗, moving contact ㉖, and lever B ㉔ and is grounded through the pump mountijg screws. In the meantime if a current flows through the coil, the magnetic lines form a circuit from the plunger holder ⑱ to the plunger ⑮ via the main body ⑰ and the magnetic conductor ⑲ and attracts the plunger to the plunger holder.
The lever ㉓ is driven by the motion of the diaphragm shaft ⑭ mounted to the plunger and is switched by the function of the spring ㉙.

b. Specification

Rated voltage	12V
Minimum operating voltage	Less than 9V
Out blocked discharge	Below 0.145kg/cm^2
Current	Less than 0.6A (average value)
Insulation resistance	More than 5MΩ with 500V megger
Discharge capacity 10V	More than 220cc/min.
12V	More than 250cc/min.

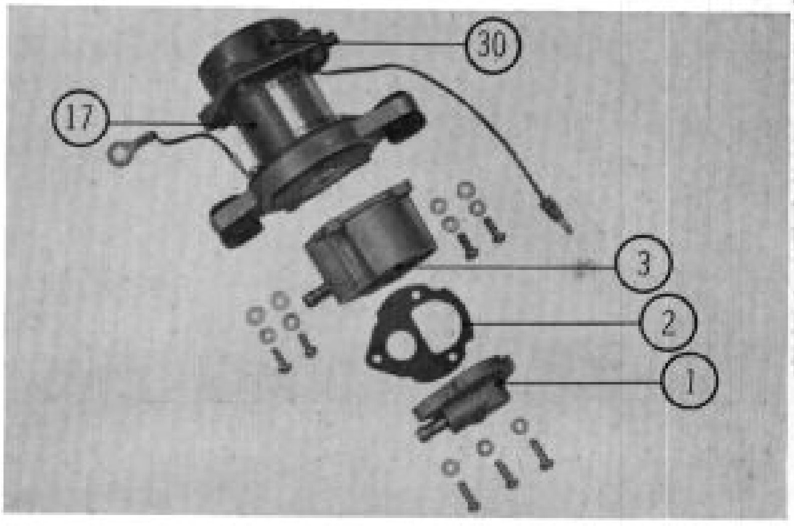

Fig. 14C-1

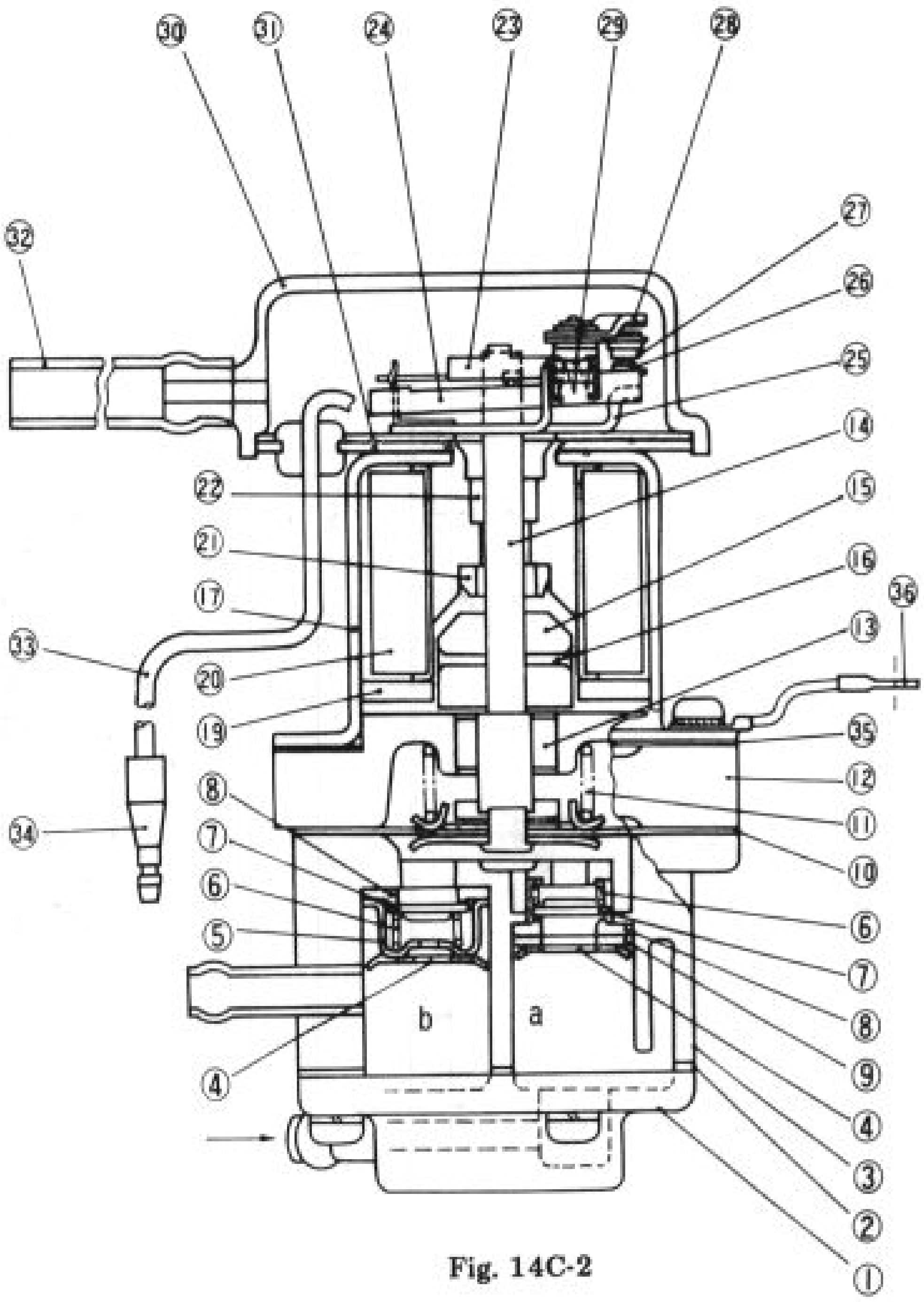

Fig. 14C-2

①Cap
②Gasket
③Valve chamber
④Stopper ring
⑤Valve holder
⑥Valve spring
⑦Valve
⑧Valve seat
⑨Washer
⑩Diaphragm
⑪Spring
⑫Pump base
⑬Lower bearing
⑭Diaphragm shaft
⑮Plunger
⑯Pin
⑰Main body
⑱Plunger holder
⑲Magnetic conductor
⑳Coil
㉑Cushion spring
㉒Upper bearing
㉓Lever A
㉔Lever B
㉕Lower stopper
㉖Moving contact
㉗Fixed contact
㉘Upper stopper
㉙Fast switching spring
㉚Cover
㉛Cover packing
㉜Breather pipe
㉝Lead
㉞Connector plug
㉟Adjusting sandwich plate
㊱Ground cable

c. Maintenance

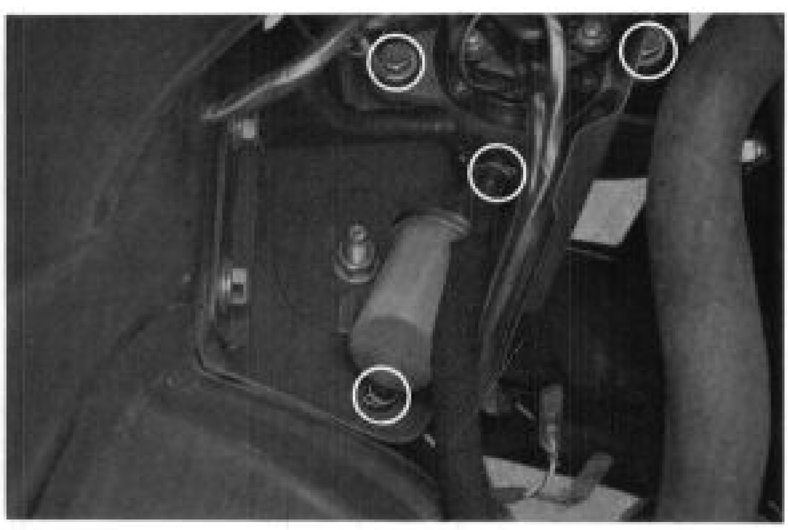

Fig. 14C-3

Removal and Installation

1. Disconnect leads at the connector and remove the rubber tubes at the intake of the fuel strainer and at the outlet of the fuel pump.
2. Remove two mounting bolts from the fuel pump and separate the pump from the body.
3. Install the pump by reversing the above procedure.

   Note:
   Do not disassemble the electromagnetic components.

Inspection and Trouble Shooting

1. Measure the pump terminal voltage. Turn on the engine key switch. Connect a DC voltmeter across the (+) terminal of the pump and the body. If 12V is not indicated, check the terminal voltage of the battery or look for open wiring in the harness.

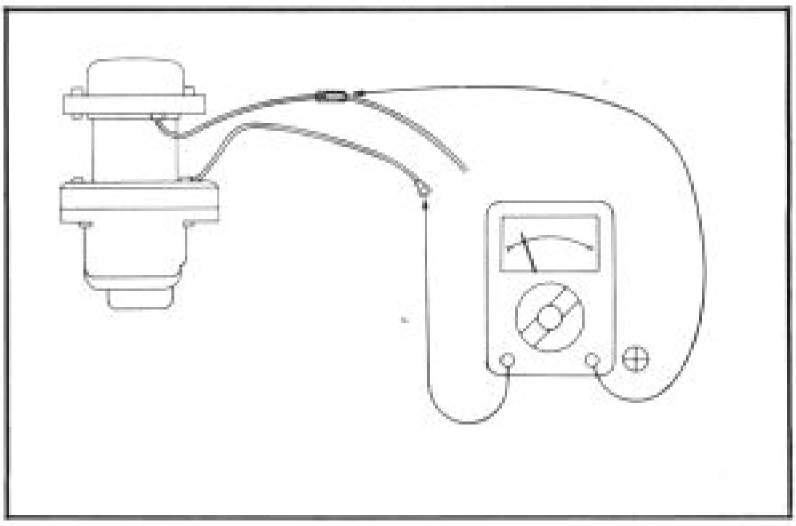

Fig. 14C-4

2. Check the resistance of the pump coil. Disconnect the connector at the (+) terminal and measure with an ohmmeter between the (+) terminal and ground (body). A reading of 5Ω is satisfactory.

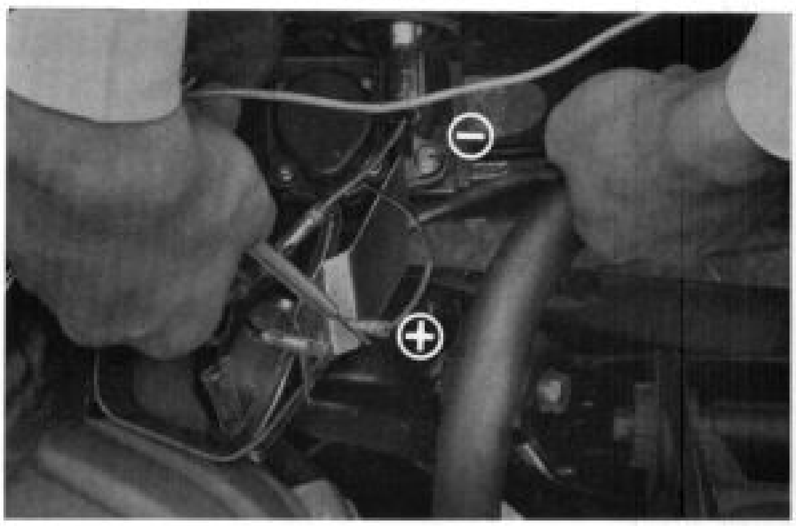

Fig. 14C-5

3. Pump Discharge Test
   Simple Test Procedure:
   Disconnect the fuel line from the carburetor and place the end in a container. Turn on the engine switch and check the fuel flow. If extremely low, check clogging of the fuel strainer. Replace the pump if there is no operating noise.

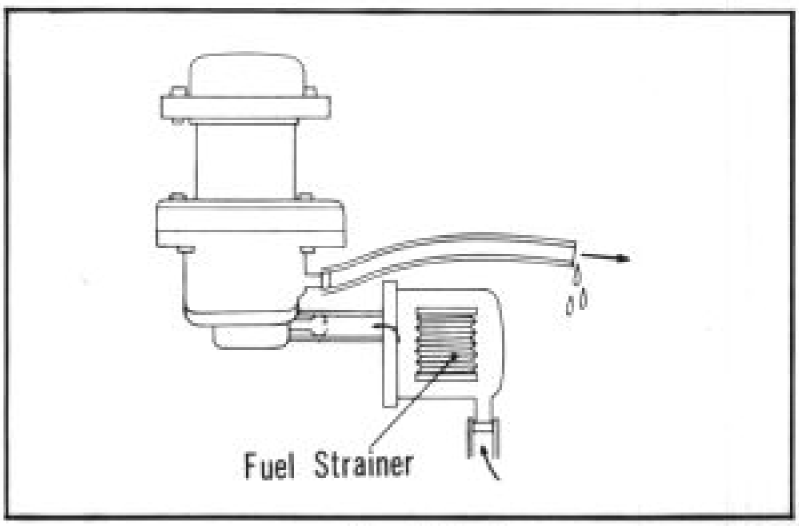

Fig. 14C-6

   Precision Test Procedure:
   Separate the pump body and strainer. Fit vinyl tubes of 6mm (0.236 in.) inside diameter to the inlet and outlet. Extend the tube 500mm (19.7 in.) below the inlet and 500mm above the outlet. Turn on the switch. The fuel flow should be more than 500cc/min. (30.5cu in/min.) For more precise measurement reduce the inside diameter of the outlet to 1.4mm (0.055 in.). The flow should exceed 250cc/min. (15.2cu in/min.) at this time, and the discharge pressure should be 0.145kg/cm² (2.1 lb/sq in.).

4. If no trouble of the pump body is found, check the contact of the ground cable secured by the mounting bolt. A loose or corroded ground will cause pump failure even if the pump is in good condition.

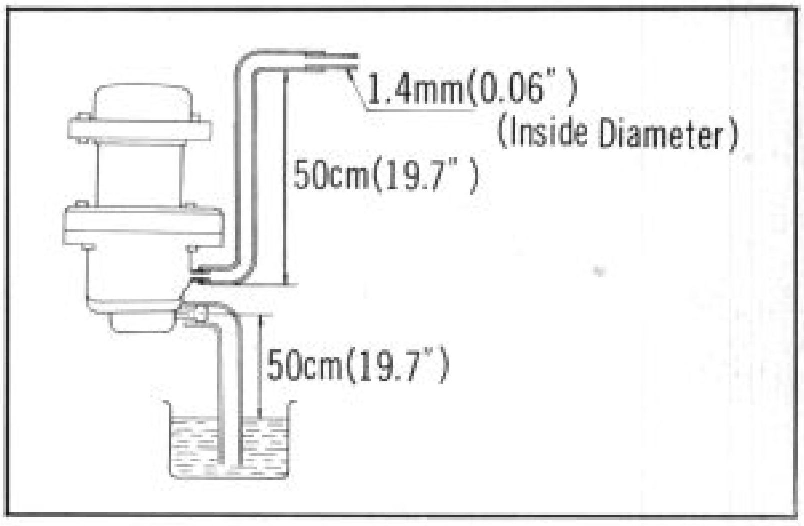

Fig. 14C-7

D. Fuel Tank

a. Description

The fuel tank is rubber mounted under the rear floor of the rear axle. The fuel tank capacity is 26 liters (6.86 U.S. gal or 5.72 Imp. gal.). To fill the tank, open the door on the left side, pull the filler release lid knob and remove the filler cap.

b. Maintenance

1. Before removing the fuel tank, remove the plug and drain the fuel.

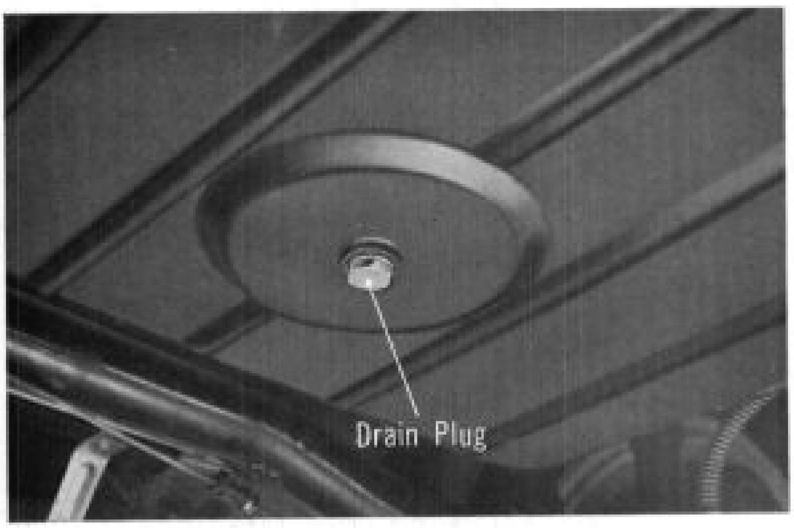

Fig. 14D-1

2. Remove the rear right side gadget tray and disconnect the fuel meter lead wire in the connector position.

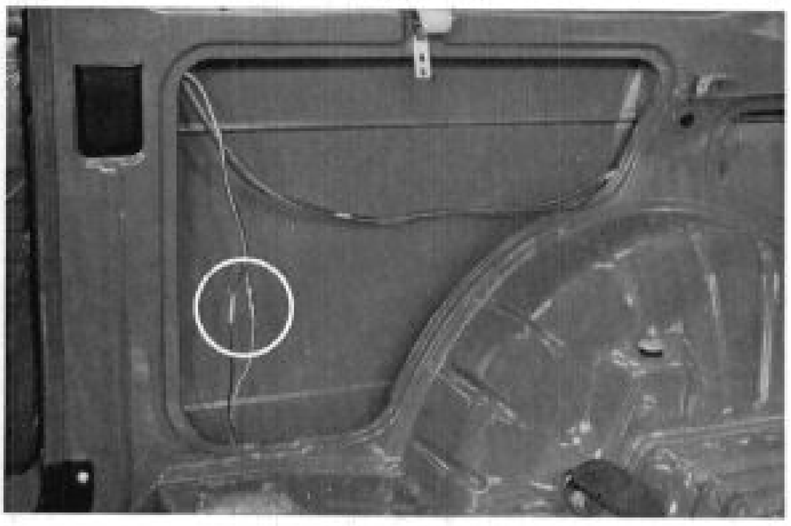
Fig. 14D-2

3. Remove the hose connected to the fuel tank and the filler neck.
4. Disconnect the parking brake cable guide from the tank.

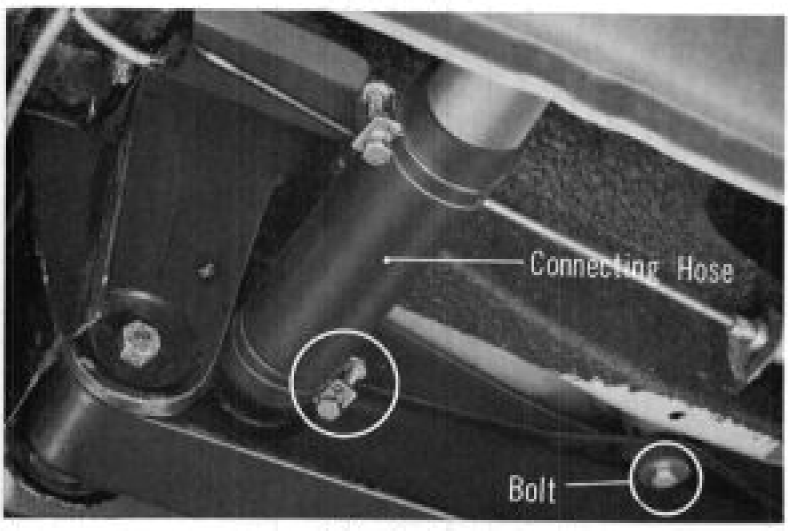

Fig. 14D-3

5. Remove the rubber tube between the fuel tank and pipe. Remove the four mounting bolts and lower the tank. Check the fuel pipe for chafing, corrosion and other damages. Check the fuel tube for deterioration and any damage.

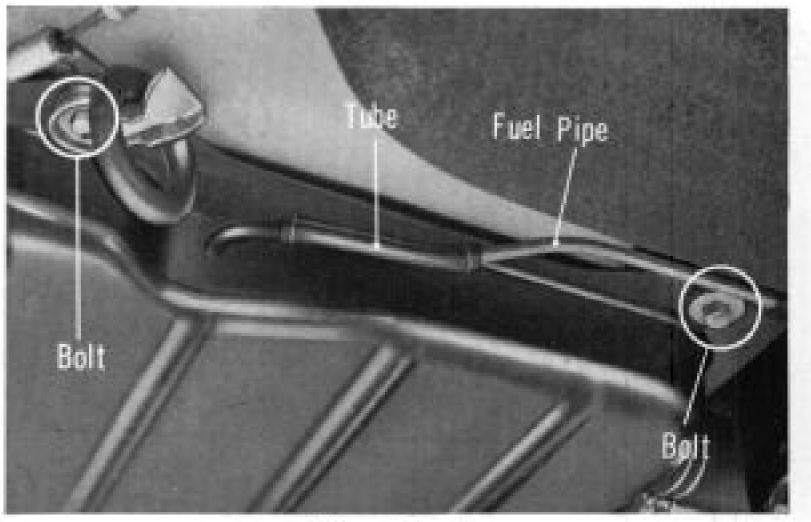

Fig. 14D-4

To dismount the tank, disconnect the breather tube. Inspect the breather tube if it is not kinked nor compressed between the tank and the body when installing the fuel tank. Always secure the tube connections.

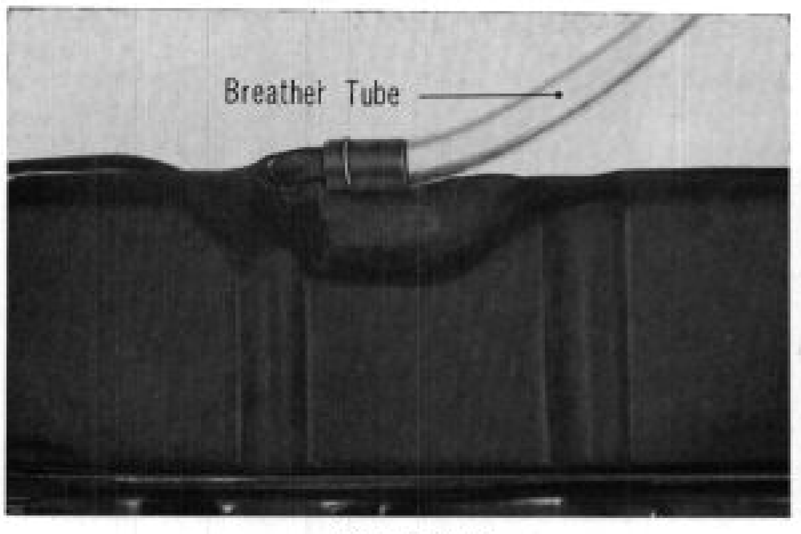

Fig. 14D-5a

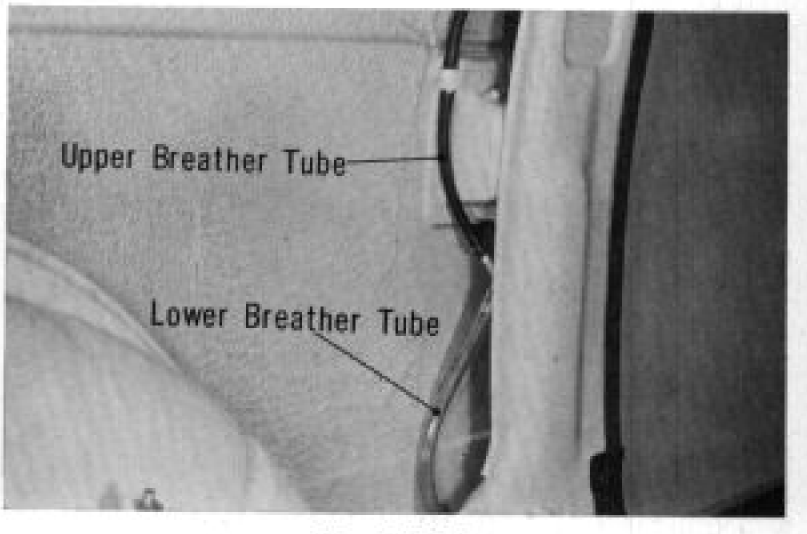

Fig. 14D-5b

When assembling the meter unit, apply liquid sealer to position of thread of mounting screw and gasket to prevent fuel leakage.

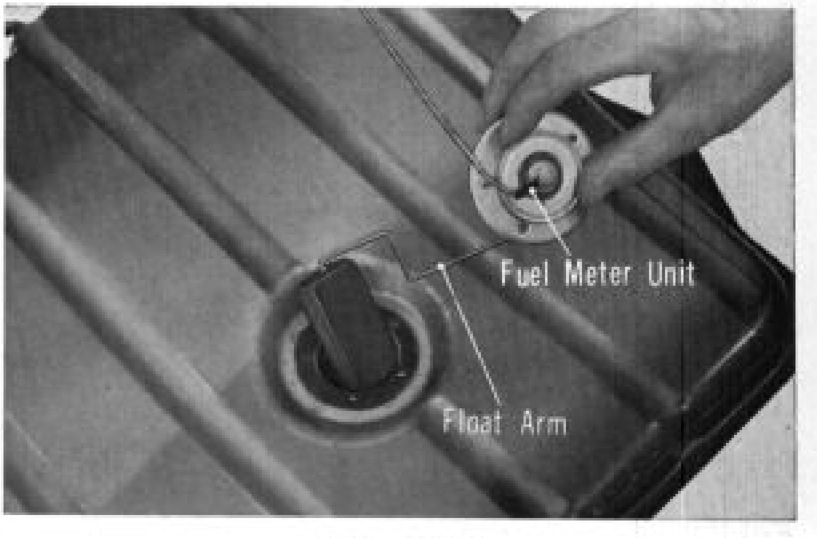

Fig. 14D-6

M E M O