FUEL AND LUBRICATION SYSTEM

CONTENTS

5

⚠ WARNING

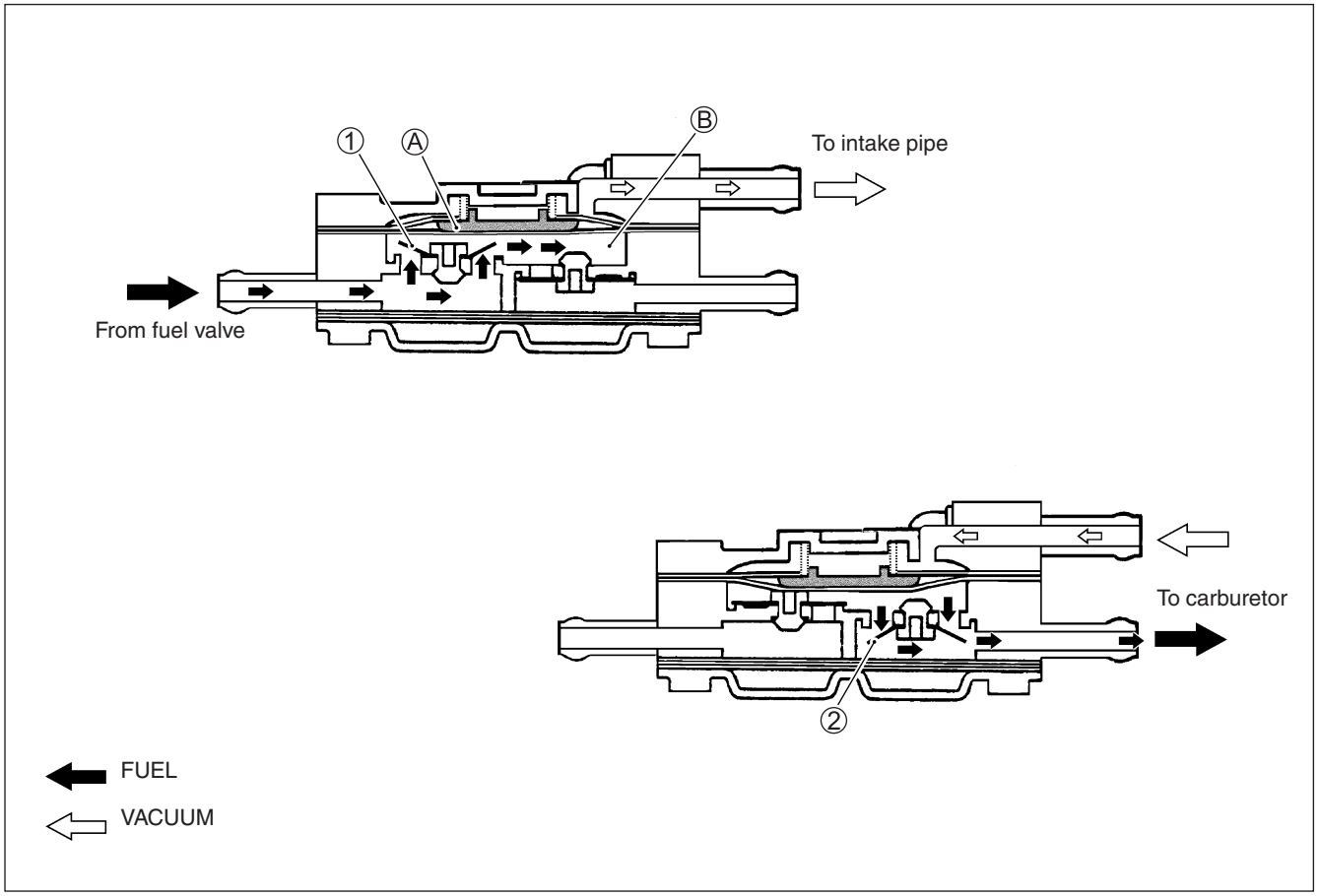
Gasoline must be handled carefully in an area well ventilated and away from fire or sparks.

FUEL SYSTEM

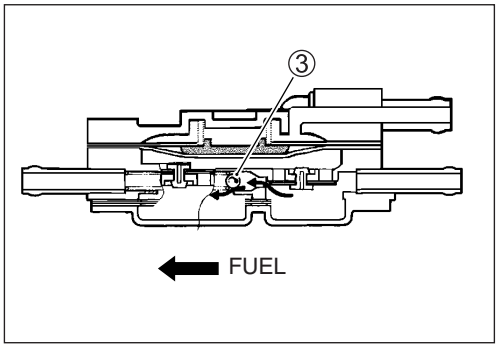
The fuel pump is operated by a vacuum force which is supplied from the carburetor intake pipe. The fuel sent under pressure by the fuel pump flows into the float chamber when the float of the carburetor has dropped and the needle valve is open. When the needle valve closes, the pressure of the fuel in the hose connecting the carburetor and the fuel pump increases, and when the set pressure is reached, the operation of the fuel pump is stopped by the fuel pressure to prevent excessive supply.

FUEL PUMP

Vacuum pulsations from the carburetor intake pipe are used to operate the pump diaphragm Ⓐ. When vacuum is applied to the diaphragm Ⓐ, fuel is drawn from the tank into the diaphragm's chamber Ⓑ. As positive pressure is applied, the diaphragm backs, pushing the fuel through the outlet to the carburetor.
A series of check valves (① and ②) is used in the fuel flow route to allow the fuel to move in only one direction, through the pump body.



If the fuel pressure in the chamber of carburetor side is too high, the return valve ③ is opened so that the fuel pressure is released to the chamber of fuel cock side.



FUEL TANK/FUEL VALVE

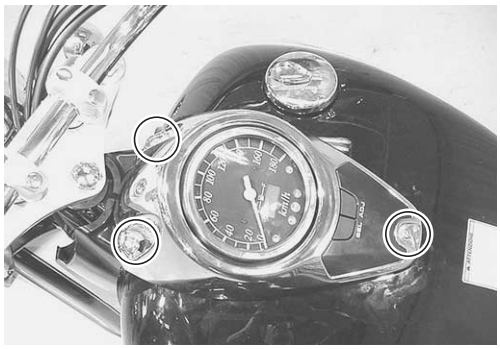
REMOVAL

⚠ WARNING

Gasoline is highly flammable and explosive. Keep heat, sparks, and flames away from gasoline.

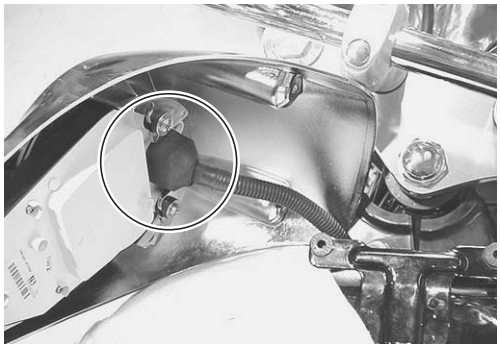
- Remove the front seat. (☞7-2)

- Remove the speedometer.
- Disconnect the speedometer coupler.



⚠ CAUTION

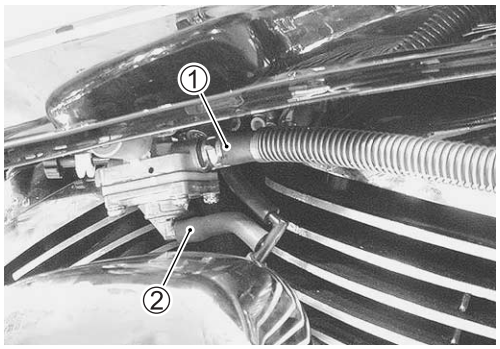
Be careful not to scratch the fuel tank.



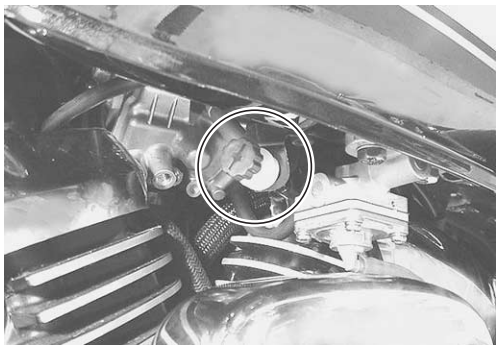
- Remove the fuel tank mounting bolt.

- Disconnect the fuel level gauge coupler.

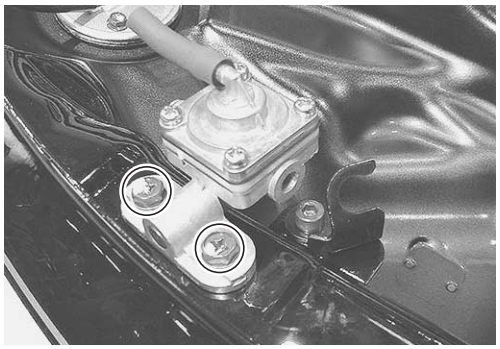
- Disconnect the fuel hose ① and vacuum hose ②.



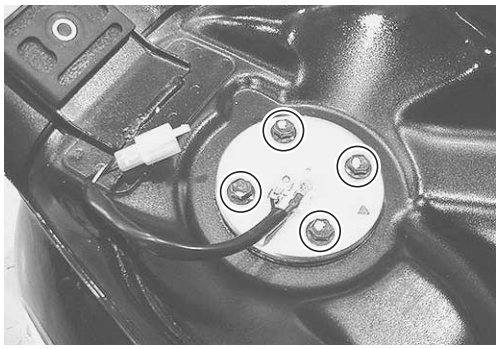
- Remove the throttle stop screw.
- Remove the fuel tank.



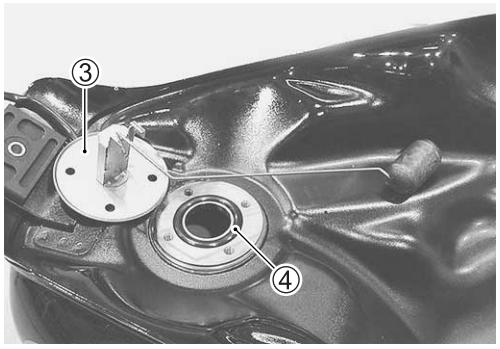
- Remove the fuel valve.



- Remove the fuel level gauge mounting bolts.



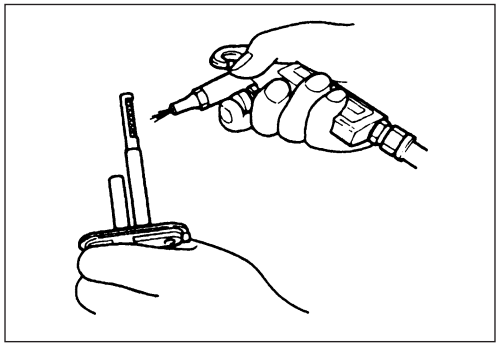
- Remove the fuel level gauge ③.
- Remove the O-ring ④.



INSPECTION

FUEL VALVE

If the fuel filter is dirty with sediment or rust, fuel will not flow smoothly and loss in engine power may result. Clean the fuel filter with compressed air. Also check the fuel valve for cracks.

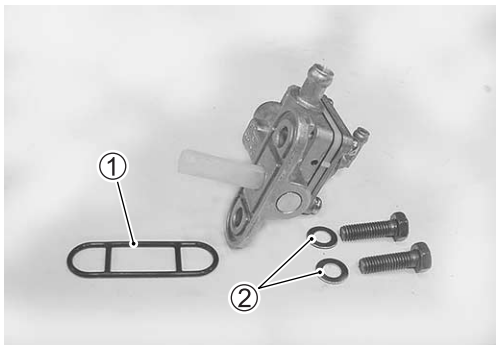


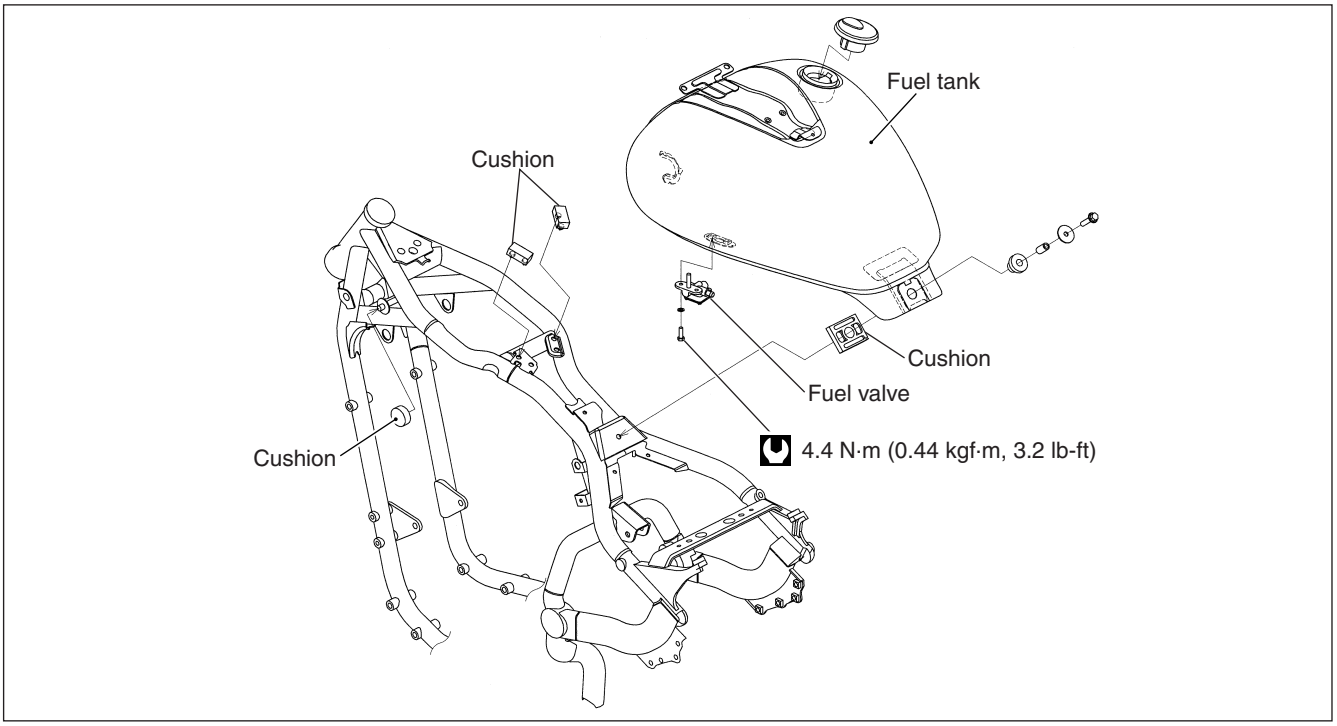
REMOUNTING

- Remount the fuel tank and fuel valve in the reverse order of removal.

⚠ WARNING

*** Gaskets ① and ② must be replaced with new ones to prevent fuel leakage.**
*** Tighten the fuel valve bolts evenly.**

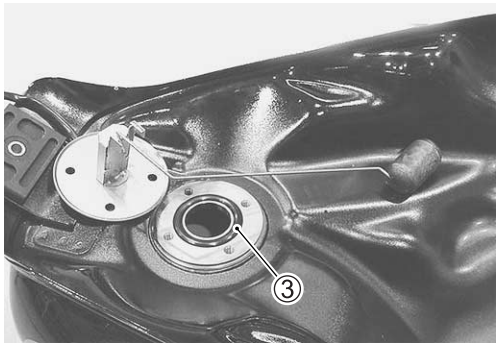


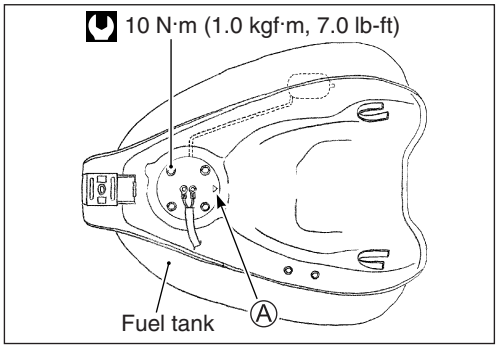


⚠ WARNING

*** Gasket ③ must be replaced with new ones to prevent fuel leakage.**
*** Tighten the fuel level gauge bolts evenly.**

NOTE:
Face △ mark Ⓐ on the fuel level gauge forward.

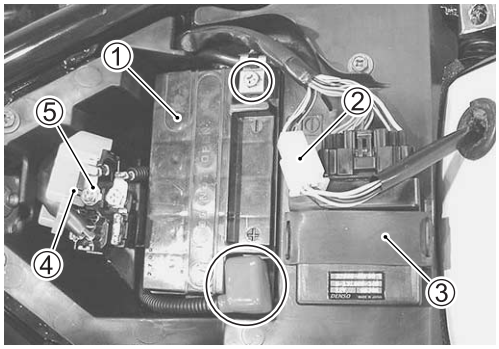




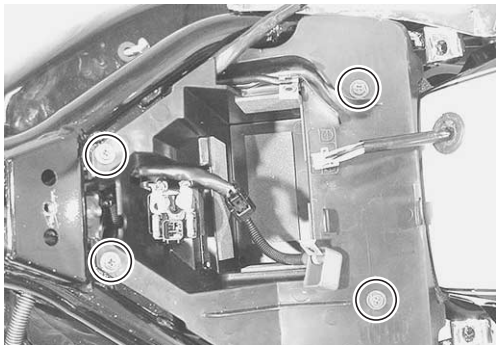
FUEL PUMP

REMOVAL

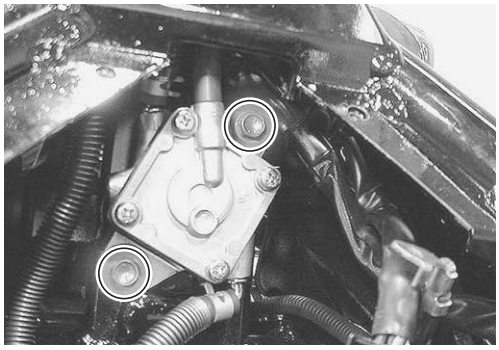
- Remove the battery ①.
- Disconnect the lead wire coupler ②.
- Remove the ignitor ③.
- Disconnect the fuse case coupler ④.
- Remove the starter lead wire ⑤.



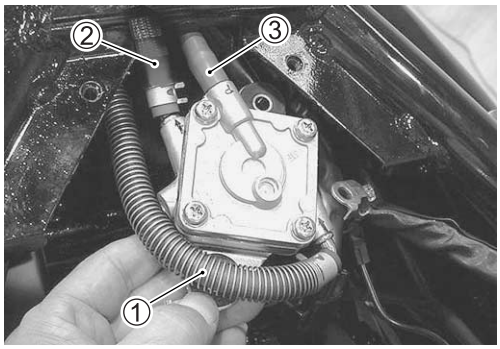
- Remove the battery case.



- Remove the fuel pump mounting bolts.



• Disconnect the fuel hoses ①, ② and vacuum hose ③.



INSPECTION

⚠ WARNING

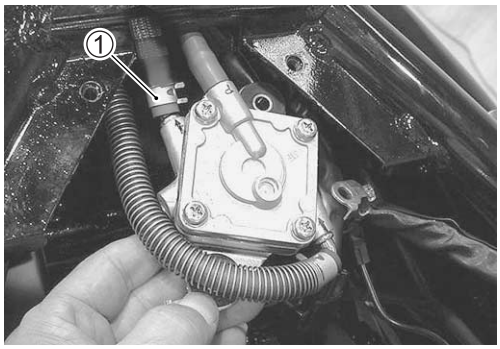
Gasoline is highly flammable and explosive. Keep heat, sparks, and flames away from gasoline.

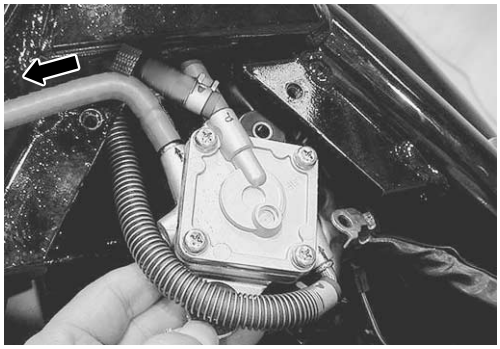
• Disconnect the fuel hose ①, connect the suitable hose and insert the free end of the hose into a receptacle.

Check the fuel flow when cranking the engine for few seconds by pressing the starter button.

If the fuel flow is not found, check the fuel valve. (☞5-5)

If the fuel valve and hoses are not fault, replace the fuel pump.





REASSEMBLY

Carry out the assembly procedure in the reverse order of disassembly.

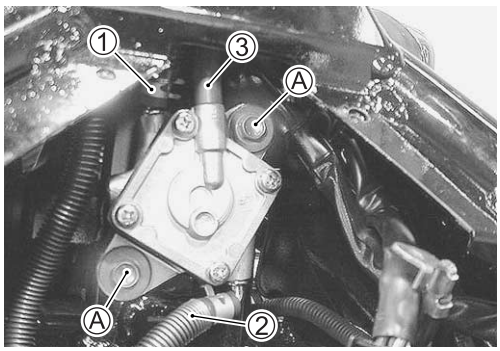
• Connect the fuel hoses ①, ② and vacuum hose ③ securely.
• Tighten the bolts Ⓐ.

FUEL HOSE ROUTING: ☞9-17

Fuel hose ① (To carburetor)

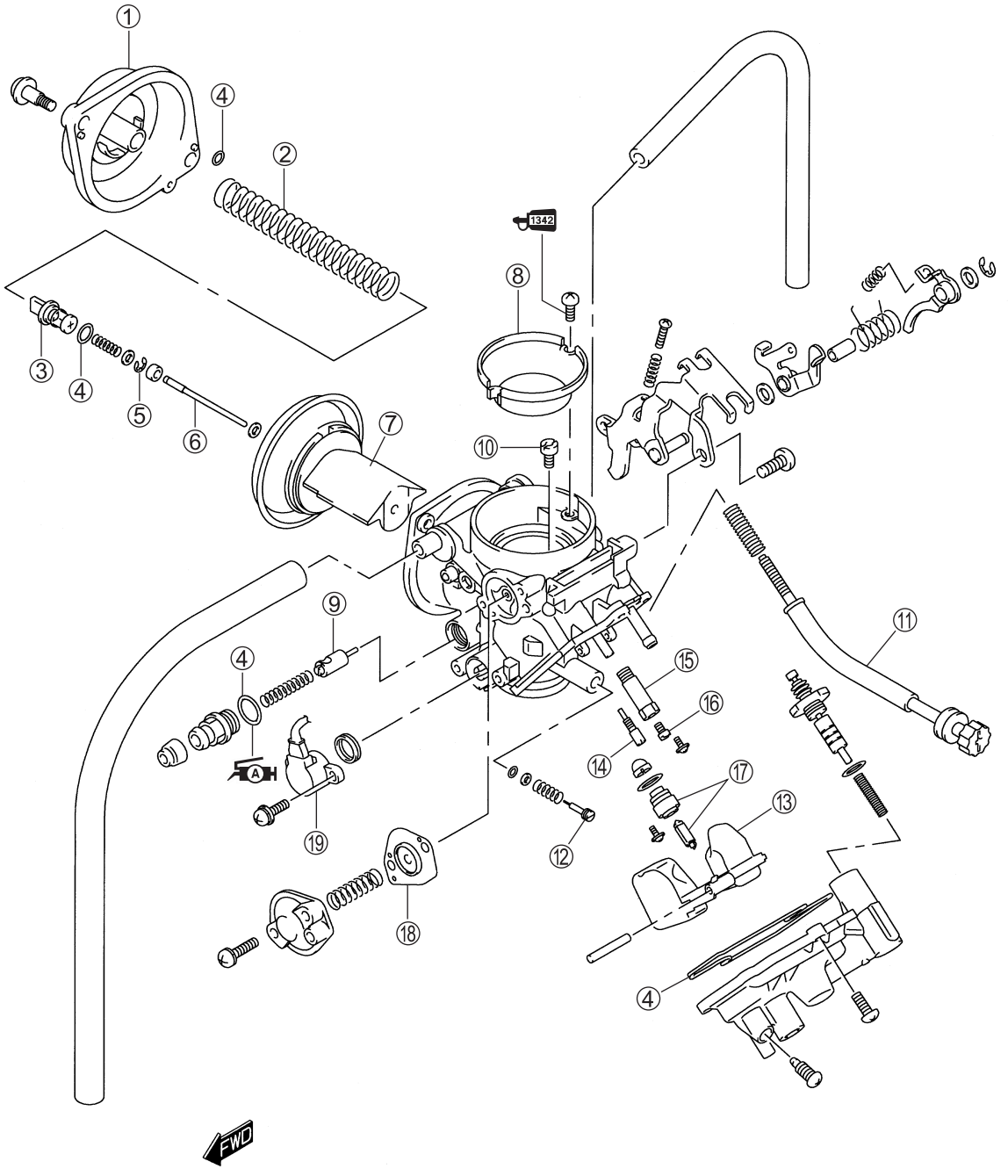
Fuel hose ② (To fuel valve)

Vacuum hose ③ (To intake pipe)



CARBURETOR

CONSTRUCTION



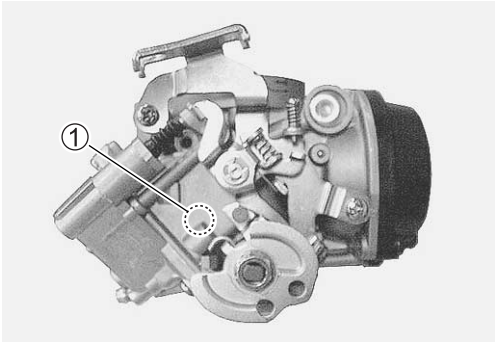
① Top cap
② Spring
③ Jet needle stopper
④ O-ring
⑤ E-ring
⑥ Jet needle
⑦ Diaphragm/Piston valve
⑧ Funnel
⑨ Starter plunger
⑩ Pilot air jet
⑪ Throttle stop screw
⑫ Pilot screw
⑬ Float
⑭ Pilot jet
⑮ Main jet holder
⑯ Main jet
⑰ Needle valve
⑱ Coasting valve
⑲ Throttle position sensor

SPECIFICATIONS

ITEM	SPECIFICATION		
	E-02, 19, 24	E-03, 28	E-33
Carburetor type	MIKUNI BDSR34	←	←
Bore size	34 mm	←	←
I.D. No.	41F1	41F2	41F3
Idle r/min.	1 100 ± 100 r/min.	←	←
Fuel level	—	—	—
Float height	7.0 ± 0.5 mm (2.76 ± 0.02 in)	←	←
Main jet (M.J.)	#132.5	#132.5	←
Main air jet (M.A.J.)	ϕ 1.8	←	←
Jet needle (J.N.)	5E22-3	5E23	←
Needle jet (N.J.)	P-0M	P-0M	←
Throttle valve (Th.V.)	#95	←	←
Pilot jet (P.J.)	#27.5	#27.5	←
Pilot screw (P.S.)	PRE-SET (3.0 turns back)	PRE-SET	←
Throttle cable play	2 – 4 mm (0.08 ± 0.16 in)	←	←

LOCATION OF CARBURETOR I.D. NO.

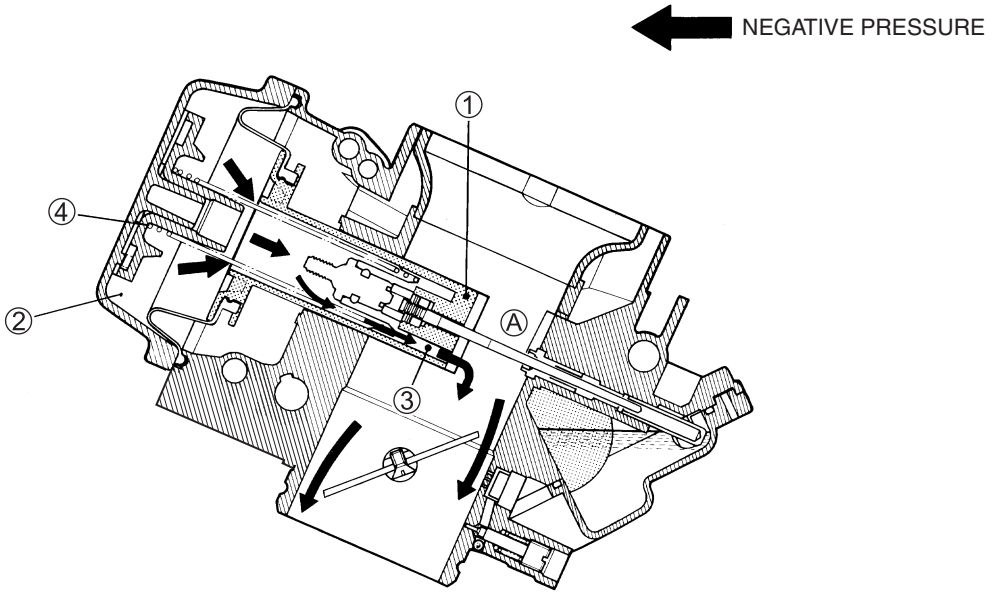
The carburetor I.D. is stamped on the location ① on the carburetor as shown in the right photo.



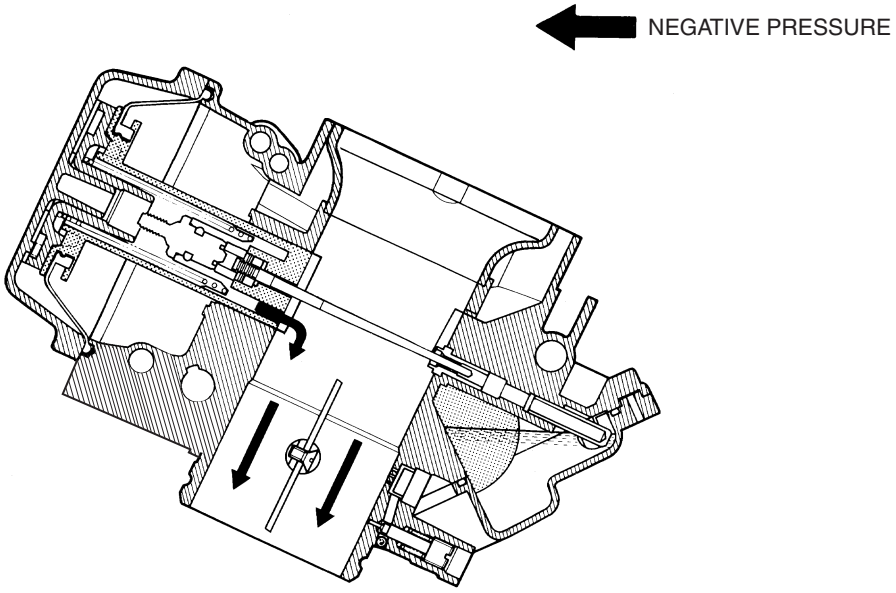
DIAPHRAGM AND PISTON OPERATION

The carburetor is a variable-venturi type, whose venturi cross sectional area is increased or decreased automatically by the piston valve ①. The piston valve moves according to the negative pressure present on the downstream side of the venturi Ⓐ. Negative pressure is admitted into the diaphragm chamber ② through an orifice ③ provided in the piston valve ①.

Rising negative pressure overcomes the spring ④ force, causing the piston valve ① to rise into the diaphragm chamber and prevent the air velocity from increasing. Thus, air velocity in the venturi passage is kept relatively constant for improved fuel atomization and the precise air/fuel mixture.



LOWER POSITION OF THE PISTON VALVE



UPPER POSITION OF THE PISTON VALVE

SLOW SYSTEM

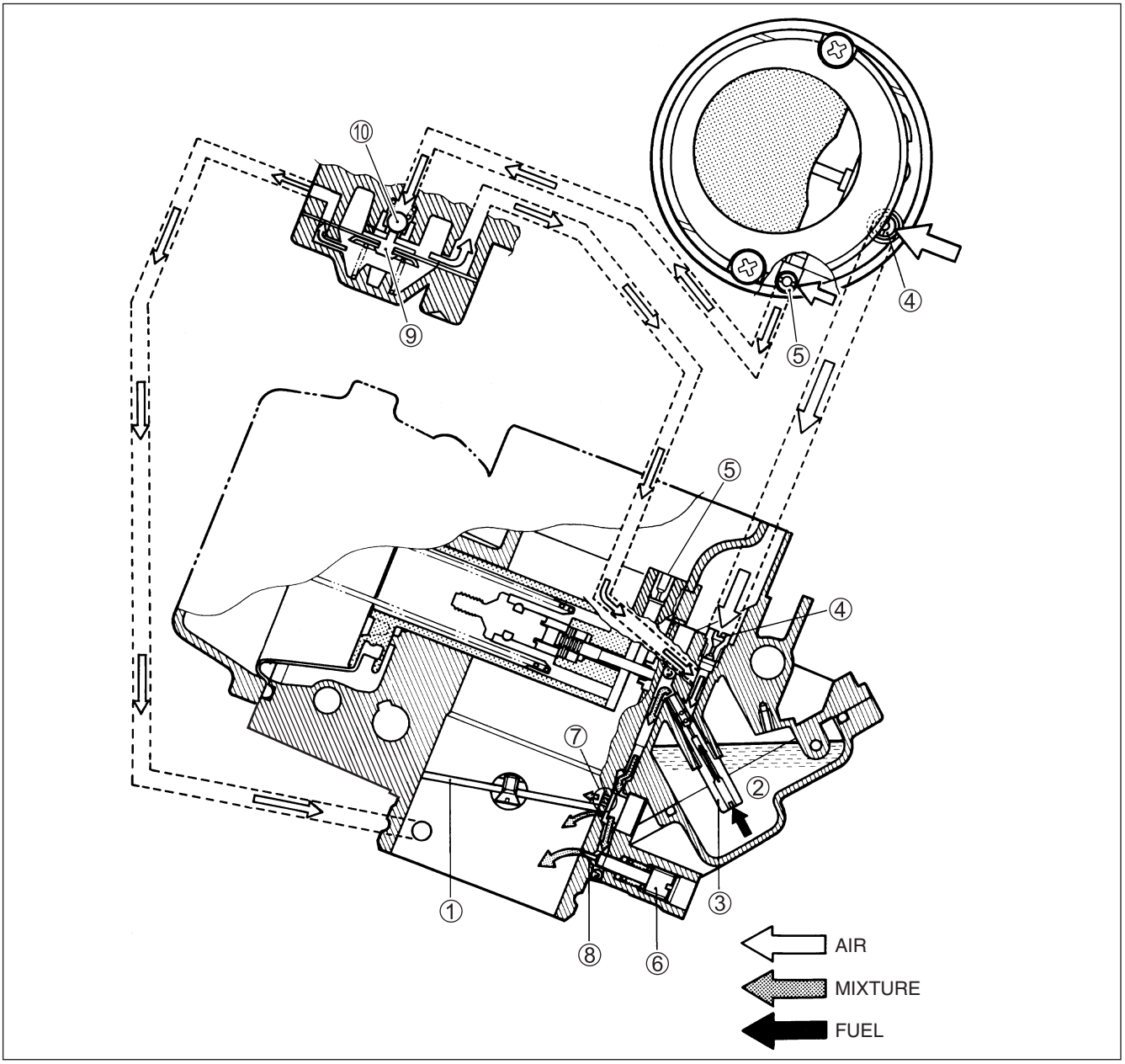
This system supplies fuel to the engine during engine operation with throttle valve ① closed or slight opened. The fuel from the float chamber ② is first passage and metered by the pilot jet ③ where it mixes with air coming in through #1 pilot air jet ④ and #2 pilot air jet ⑤.

This mixture, rich with fuel, then goes up through pilot pipe to pilot screw ⑥. A part of the mixture is discharged into the main bore out of by-pass ports ⑦. The remainder is then metered by pilot screw and sprayed out into the main bore through pilot outlet ⑧.

TRANSIENT ENRICHMENT SYSTEM

The transient enrichment system is a device which keeps fuel/air mixture ratio constant in order not to generate unstable combustion when the throttle grip is returned suddenly during high speed driving. For normal operation, sum of the air from the #1 pilot air jet ④ and #2 pilot air jet ⑤ keeps proper fuel/air mixture ratio. But when the throttle valve is closed suddenly, a large negative pressure generated on cylinder side works on to a diaphragm ⑨. The ball ⑩ held by the diaphragm ⑨ closes the air passage from #2 pilot air jet ⑤, therefore, the fuel/air mixture becomes rich with fuel.

This system is to keep the combustion condition constant by varying the fuel/air mixture ratio by controlling air flow from the pilot air jet.



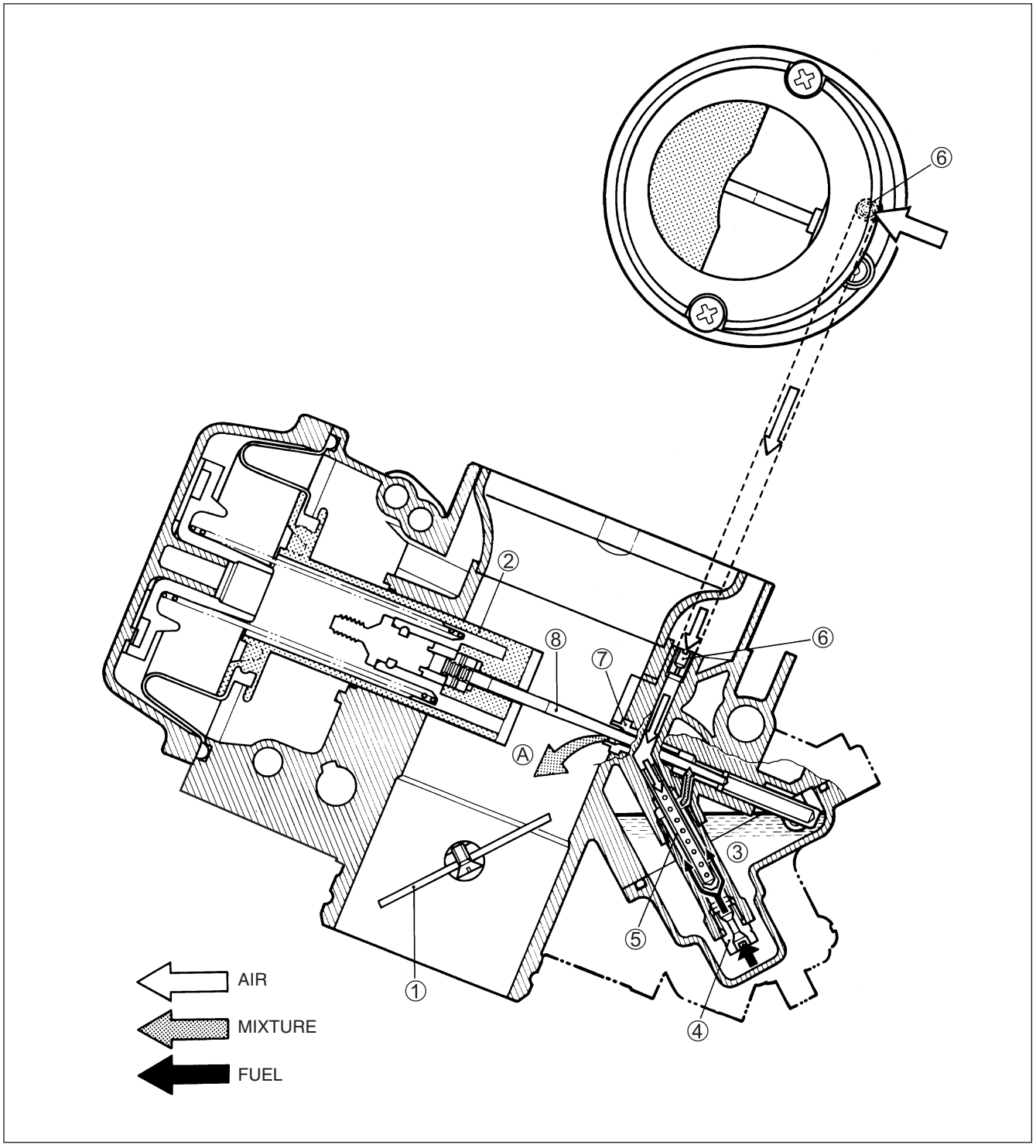
MAIN SYSTEM

As the throttle valve ① is opened, engine speed rises and negative pressure in the venturi Ⓐ increases. This causes the piston valve ② moves upward.

The fuel in the float chamber ③ is metered by the main jet ④. The metered fuel passes around main air bleed pipe ⑤, mixes with the air admitted through main air jet ⑥ to from an emulsion and emulsion fuel enters needle jet ⑦.

The emulsified fuel then passes through the clearance between the needle jet ⑦ and jet needle ⑧ and is discharged into the venturi Ⓐ, where it meets the main air stream being drawn by the engine.

Mixture proportioning is accomplished in the needle jet ⑦. The clearance through which the emulsified fuel must flow ultimately depends on throttle position.



STARTER (ENRICHER) SYSTEM

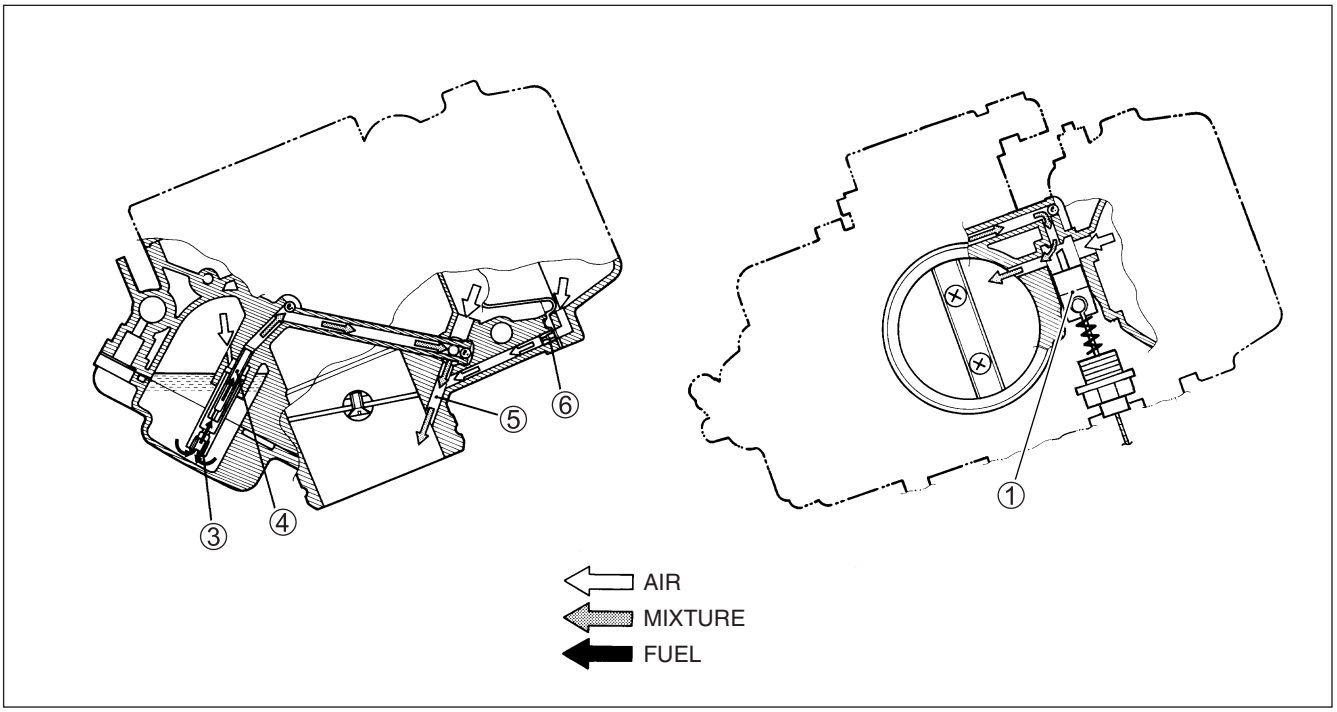
Pulling the starter (enricher) plunger ① causes fuel to be drawn into the starter circuit from the float chamber ②.

The starter jet ③ meters this fuel. The fuel then flows into the fuel pipe ④ and mixes with the air coming from the float chamber ②. The mixture, rich in fuel, reaches starter plunger ① and mixes again with the air coming through starter air jet ⑥ from the diaphragm chamber.

The three successive mixings of the fuel with the air provided the proper fuel/air mixture for starting. This occurs when the mixture is sprayed through the starter outlet port ⑤ into the main bore.

NOTE:

A starter (enricher) system is operated almost the same way as a choke.



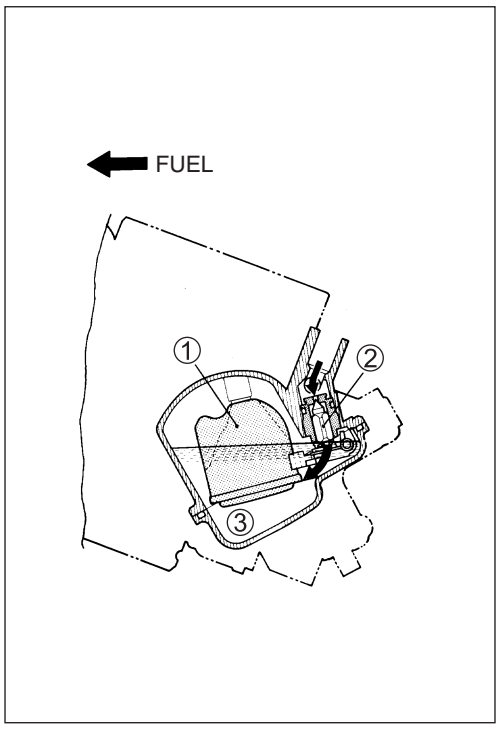
FLOAT SYSTEM

The float ① and needle valve ② work in conjunction with one another. As the float ① moves up and down, so does the needle valve ②.

When there is a high fuel level in float chamber ③, the float ① rises and the needle valve ② pushes up against the valve seat. When this occurs, no fuel enters the float chamber ③.

As the fuel level falls, the float ① lowers and the needle valve ② unseats itself; admitting fuel into the float chamber ③.

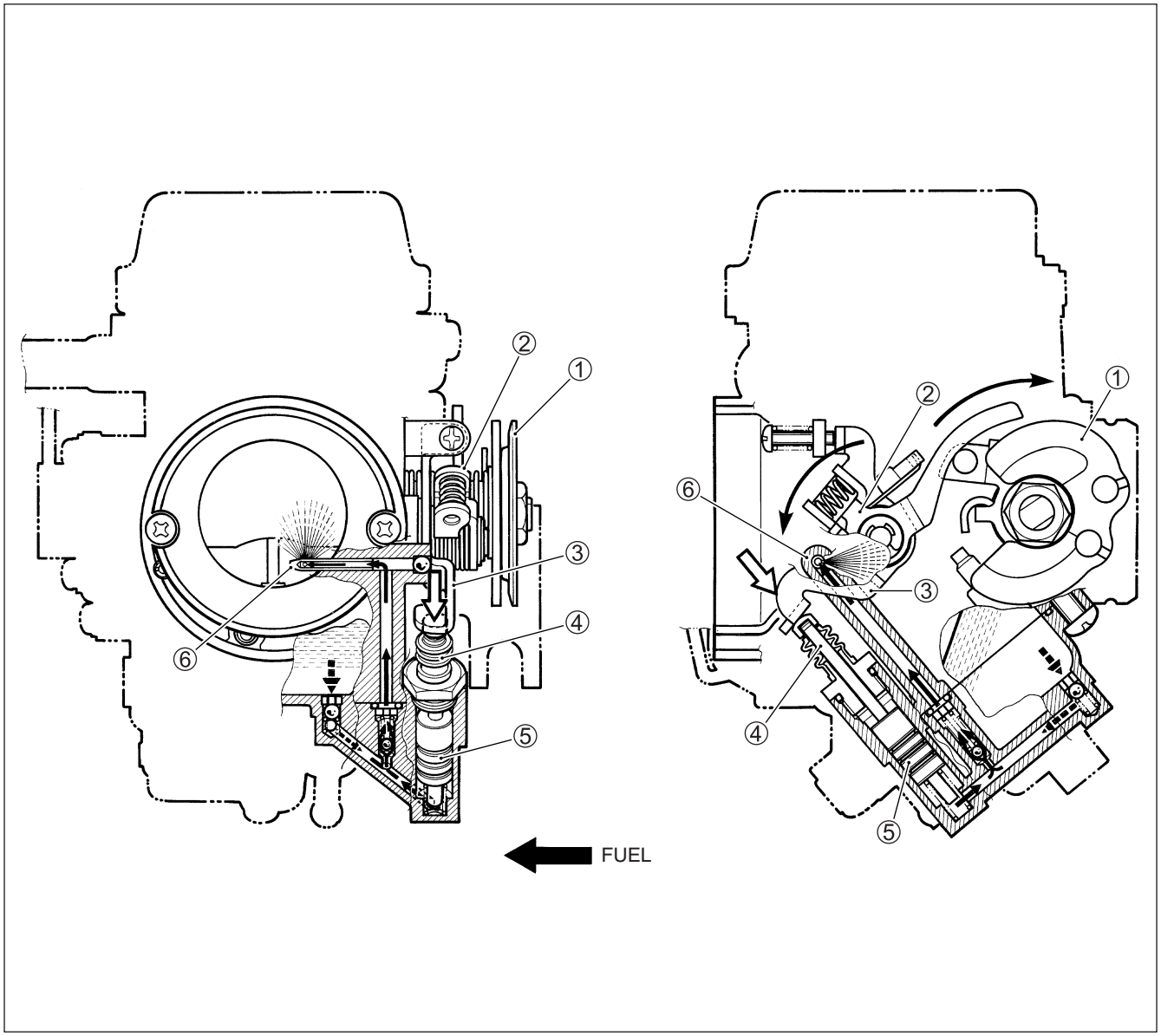
In this manner, the needle valve ② admits and shuts off fuel to maintain the appropriate fuel level inside the float chamber ③.



ACCELERATOR PUMP SYSTEM

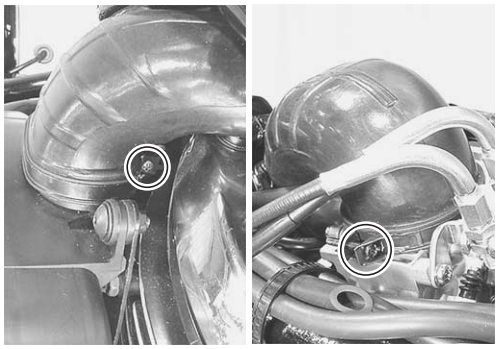
This system works only when the rider opens throttle grip quickly as pump send the necessary amount of fuel to the carburetor bore for correcting fuel/air mixture ratio. When the rider open the throttle grip quickly, the intaken air volume becomes large and air velocity at the bottom of the throttle valve (piston valve) is slow and sucking volume of fuel is less.

The throttle valve lever ① turns lever ②, and lever ③ turns and pushes rod ④. The rod ④ pushes plunger ⑤. This plunger pushes out the fuel through outlet pipe ⑥, spraying fuel into the main bore.

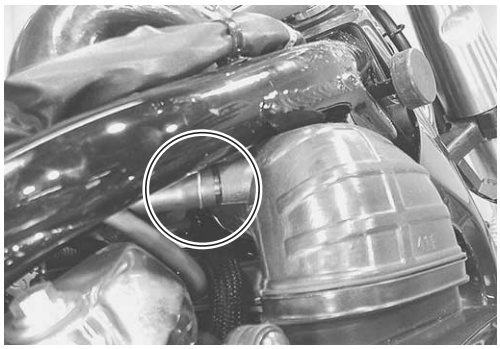


REMOVAL

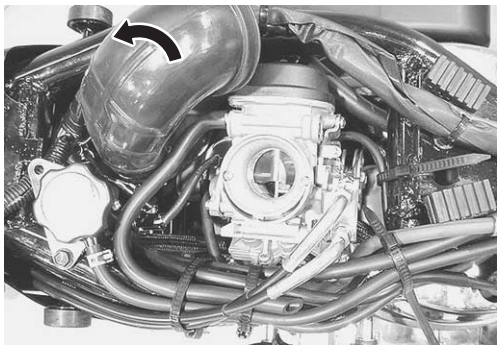
- Remove the fuel tank. (☞5-3)
- Loosen the air intake pipe clamp screws.



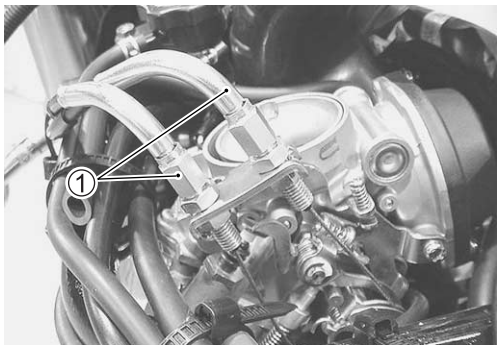
- Disconnect the breather hose.

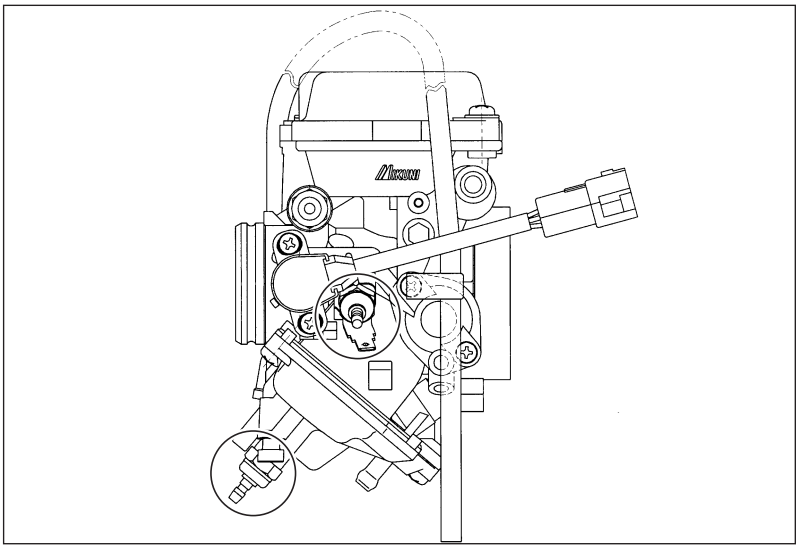


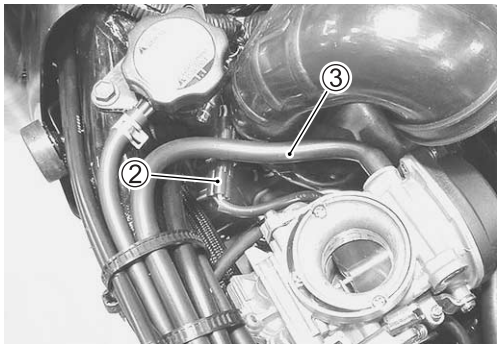
- Move the air inlet pipe to forward.



- Remove the throttle cables ①.
- Disconnect the throttle position sensor coupler ②.
- Disconnect the air vent hose ③.
- Disconnect the carburetor heater terminal lead wire.

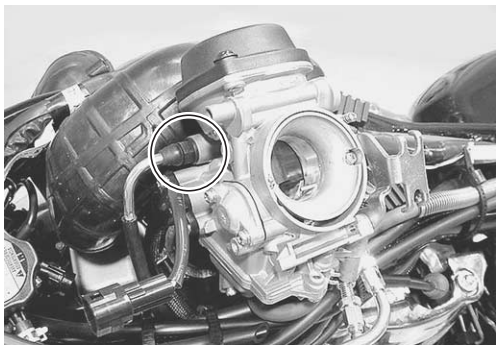






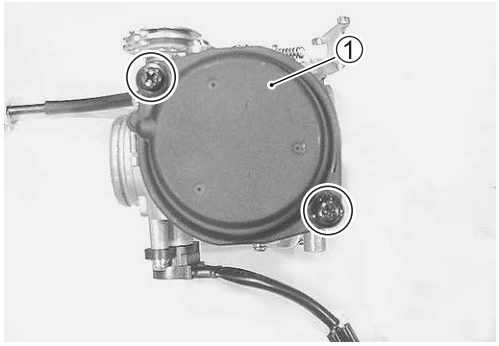
- Loosen the clamp screw and remove the carburetor.

- Remove the starter plunger.

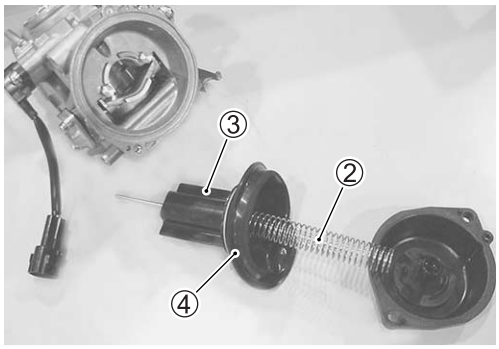


DISASSEMBLY

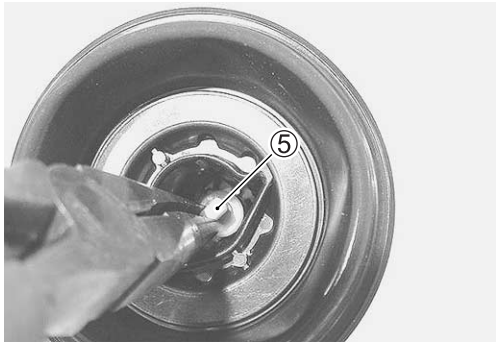
- Remove the carburetor top cap ①.



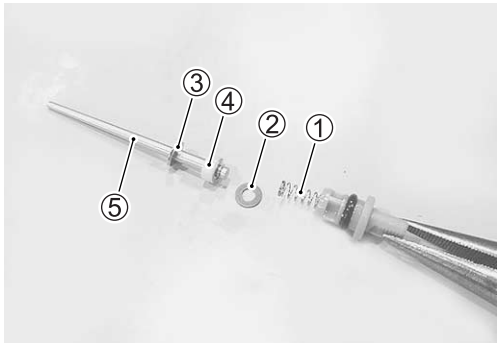
- Remove the spring ② and piston valve ③ along with diaphragm ④.



- Pull out the jet needle holder ⑤.

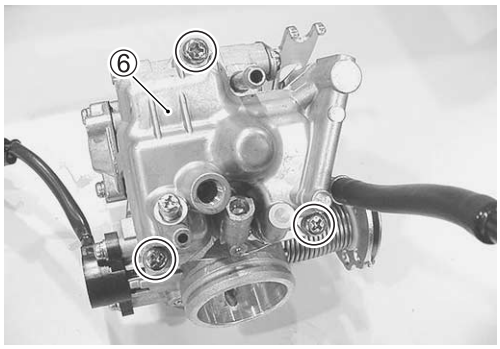


- Remove the spring ①, washers ②, ③, retainer ④ and jet needle ⑤.



- Remove the float chamber ⑥.

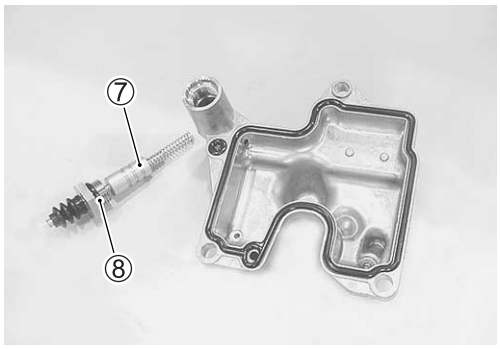
TOOL **09900-09004: Impact driver set**



- Remove the accelerator pump plunger ⑦.
- Remove the O-ring ⑧.

⚠ CAUTION

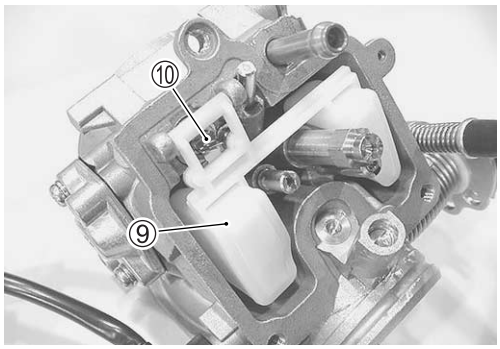
Use a new O-ring to prevent fuel leakage.



- Remove the float ⑨ and needle valve ⑩ by removing the float pin.

⚠ CAUTION

Do not use a wire to clean the valve seat.



- Remove the main jet ⑪, main jet holder ⑫, valve seat ⑬ and pilot jet ⑭.