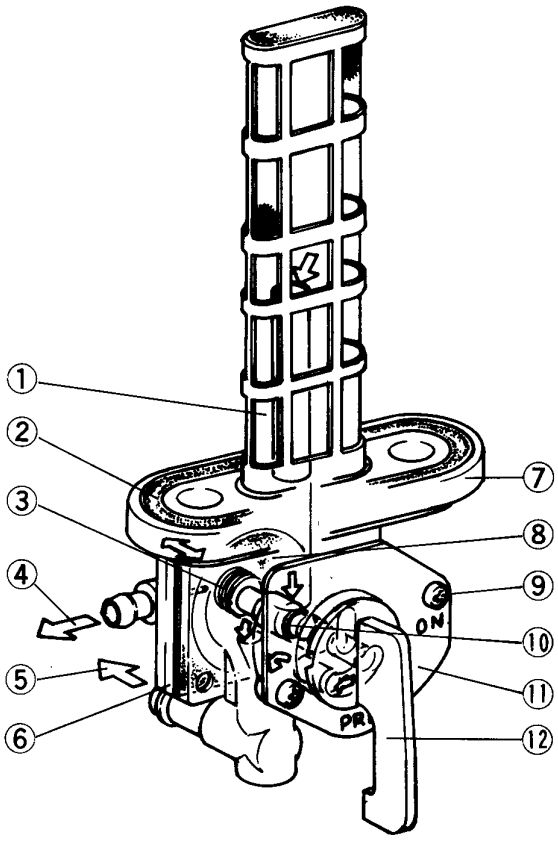
FUEL TANK, FUEL TAP

The fuel tank capacity for KZ750-E is 17.3 ℓ, 1.7 ℓ of which forms the reserve supply. For KZ750-H, the tank capacity is 12.4 ℓ, 1.8 ℓ of which forms the reserve supply. A cap is attached to the top of the tank, and a fuel tap to the bottom. An air vent is provided in the cap to prevent an air lock, which would hinder fuel flow to the carburetors.

Fuel tap construction is shown in Fig. H3. The fuel tap is an automatic type which shuts off the fuel supply when the engine is stopped in the **ON** or **RES** position. The fuel tap has three positions: **ON**, **RES** (reserve), and **PRI** (prime). With the tap in the "On" position, fuel flows through the tap by way of the main pipe until only the reserve supply is left in the tank; with the tap in the "Reserve" position, fuel flows through the tap from the bottom of the tank. The "Pri" position bypasses the automatic control and is useful for priming the engine after running out of gas, or for completely draining the tank. The fuel tap contains a filter to filter out dirt.

Fuel Tap (H3)



1. Filter
2. **O** Ring
3. Spring
4. Vacuum
5. Fuel
7. Body
8. Diaphragm
9. Screw
10. **O** Ring
11. Holding Plate

The automatic valve in the fuel tap operates as follows: When the engine is running, negative pressure (vacuum) is created at the carburetor due to engine intake. This engine intake vacuum is transmitted to the diaphragm vacuum chamber in the fuel tap through the vacuum hose and the check valve. The vacuum pulls the diaphragm ⑧ against its spring pressure, and the **O** ring ⑩ on the diaphragm assembly ⑧ is pulled out of its seat, permitting fuel to flow between the **O** ring and seat. When the engine stops and vacuum is lost, air enters the diaphragm vacuum chamber through the vacuum hose, bringing chamber pressure back up to atmospheric and allowing the diaphragm spring ③ to push the diaphragm back into place and hold the **O** ring against the seat.

The check valve in the diaphragm cover keeps the pressure in the diaphragm vacuum chamber negative in spite of the pulsation of the intake vacuum while the engine is running so that fuel flows smoothly.

Inspection and cleaning

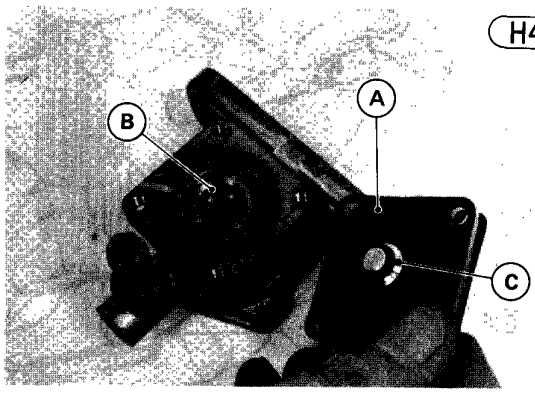
If fuel leaks from the tank cap or from around the fuel tap, the cap gasket or tap **O** ring may be damaged. Visually inspect these parts, and replace them if necessary.

Examine the air vent in the tank cap to see if it is obstructed. Use compressed air to clear an obstructed vent.

Any water in the fuel tank and the carburetors can be drained through the drain plugs (Pg. 19). If water cannot be drained completely by loosening the drain plugs, remove the fuel tap (Pg. 43), and flush out the tank with a high flash-point solvent. For thorough cleaning of the carburetors, remove and disassemble the carburetors (Pg. 45).

If there is any doubt about the condition of the fuel tap, remove and disassemble the fuel tap (Pg. 44), and inspect the parts. Especially examine the diaphragm assembly. Make sure the **O** ring and its seat are clean and undamaged; if the **O** ring is prevented from seating properly or if it is damaged, fuel flow will not stop when the engine is stopped, and may overflow from the carburetors. Visually inspect the diaphragm. If there is any tear or other damage, the diaphragm assembly should be replaced.

(H4)



A. Diaphragm Assembly C. "O" Ring

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Clean the air and fuel passages by lightly applying compressed air to the passage openings.

CAUTION **Do not use wire for cleaning as this could damage the check valve, O ring seat, and diaphragm mating surfaces.**

CARBURETOR

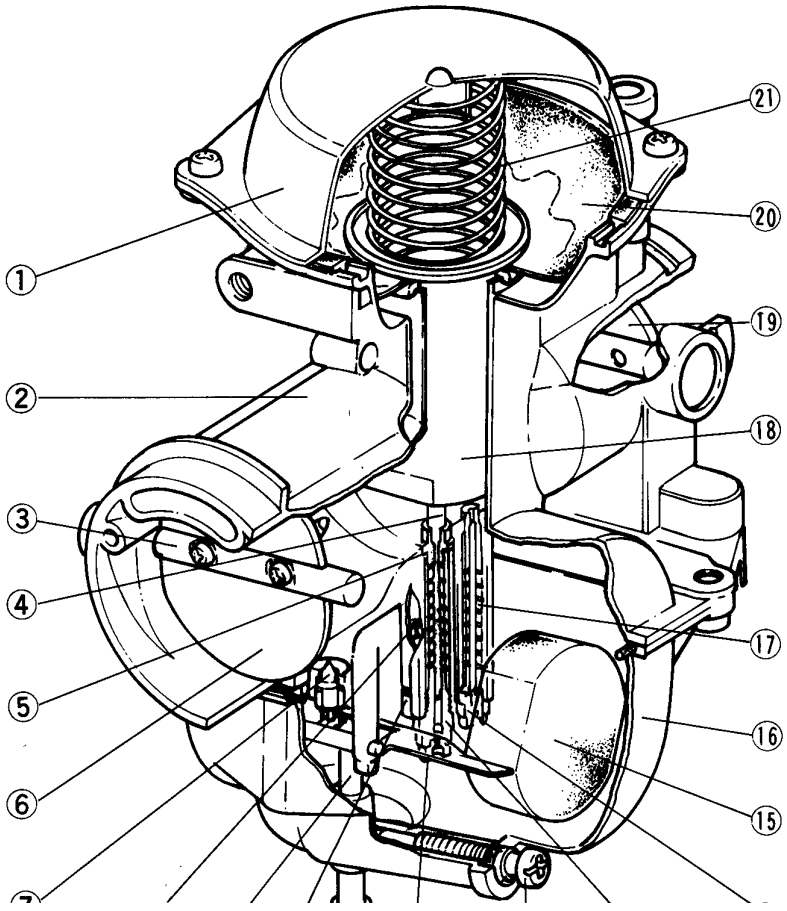
The carburetors perform the function of mixing the fuel and air in the proportions necessary for good engine performance at varying speeds and loads. In order for them to function satisfactorily, they must be properly adjusted and maintained. The throttle cable adjustment, idling adjustment, and synchronizing adjustment are covered in the Adjustment Section. The discussion here concerns the fundamentals of carburetor operation, fuel level adjustment, and cleaning and replacement of carburetor parts.

A linkage mechanism opens each carburetor butterfly valve the same amount in response to throttle grip movement so that the carburetors operate in unison. As the throttle grip is turned counterclockwise, the throttle accelerator cable turns the carburetor pulley. Through the linkage mechanism the pulley opens the butterfly valves. As the throttle grip is turned clockwise or is released, the linkage mechanism return spring closes the butterfly valves.

One of the basic principlies in carburetor operation is that the pressure exerted by a moving body of air is less than atmospheric pressure. As the engine draws air in through the carburetor bore, the air pressure in the carburetor bore is less than the air pressure in the float chamber, which is vented to the atmosphere. This difference in air pressure forces fuel up through the passages into the carburetor bore, where it is atomized by the high-speed air flowing into the engine.

Another important principle is the Venturi Principle, which states that when an air passage narrows, moving air flows faster, exerting even less pressure. For example, at low speeds (0～¼ throttle) the vacuum piston is at its lowest position, forming what is called the "primary venturi". Since the engine intake requires less air at lower engine speeds, there would not be enough air flow speed for sufficient fuel to be forced up through the jets unless the passage (carburetor bore) above the jets is constricted. The low position of the vacuum piston constricts this passage so that there will be sufficient

Carburetor Constructions H5



1. Upper Chamber Cover
2. Carburetor Body
3. Choke Shaft
4. Jet Needle
5. Needle Jet
6. Choke Valve
7. Float Valve Needle
8. Pilot Jet
9. Overflow Pipe
10. Plastic Plug
11. Secondary Main Jet
12. Drain Screw
13. Needle Jet Holder
14. Primary Main Jet
15. Float
16. Float Chamber
17. Bleed Pipe
18. Vacuum Piston
19. Throttle Shaft
20. Diaphragm

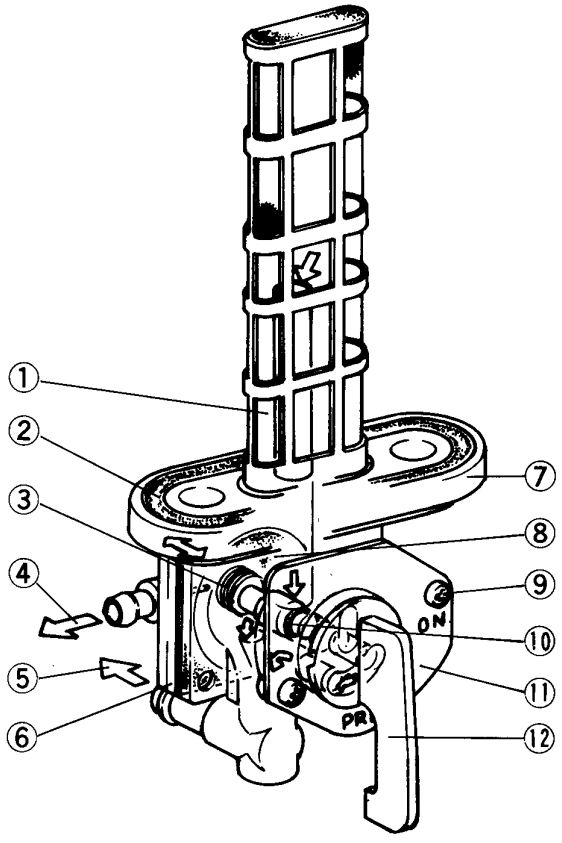
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FUEL TANK, FUEL TAP

The fuel tank capacity for KZ750-E is 17.3 ℓ, 1.7 ℓ of which forms the reserve supply. For KZ750-H, the tank capacity is 12.4 ℓ, 1.8 ℓ of which forms the reserve supply. A cap is attached to the top of the tank, and a fuel tap to the bottom. An air vent is provided in the cap to prevent an air lock, which would hinder fuel flow to the carburetors.

Fuel tap construction is shown in Fig. H3. The fuel tap is an automatic type which shuts off the fuel supply when the engine is stopped in the **ON** or **RES** position. The fuel tap has three positions: **ON, RES** (reserve), and **PRI** (prime). With the tap in the "On" position, fuel flows through the tap by way of the main pipe until only the reserve supply is left in the tank; with the tap in the "Reserve" position, fuel flows through the tap from the bottom of the tank. The "Pri" position bypasses the automatic control and is useful for priming the engine after running out of gas, or for completely draining the tank. The fuel tap contains a filter to filter out dirt.

Fuel Tap (H3)



1. Filter
2. **O** Ring
3. Spring
4. Vacuum
5. Fuel
7. Body
8. Diaphragm
9. Screw
10. **O** Ring
11. Holding Plate

The automatic valve in the fuel tap operates as follows: When the engine is running, negative pressure (vacuum) is created at the carburetor due to engine intake. This engine intake vacuum is transmitted to the diaphragm vacuum chamber in the fuel tap through the vacuum hose and the check valve. The vacuum pulls the diaphragm ⑧ against its spring pressure, and the **O** ring ⑩ on the diaphragm assembly ⑧ is pulled out of its seat, permitting fuel to flow between the **O** ring and seat. When the engine stops and vacuum is lost, air enters the diaphragm vacuum chamber through the vacuum hose, bringing chamber pressure back up to atmospheric and allowing the diaphragm spring ③ to push the diaphragm back into place and hold the **O** ring against the seat.

The check valve in the diaphragm cover keeps the pressure in the diaphragm vacuum chamber negative in spite of the pulsation of the intake vacuum while the engine is running so that fuel flows smoothly.

Inspection and cleaning

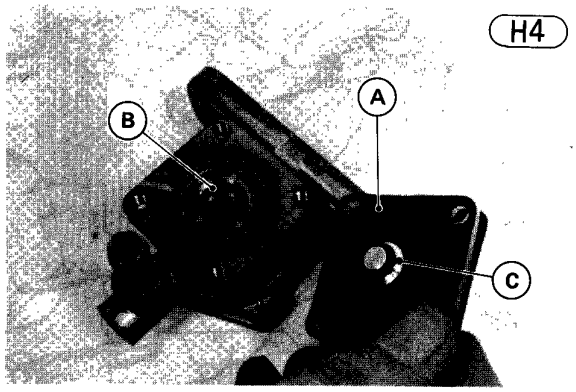
If fuel leaks from the tank cap or from around the fuel tap, the cap gasket or tap **O** ring may be damaged. Visually inspect these parts, and replace them if necessary.

Examine the air vent in the tank cap to see if it is obstructed. Use compressed air to clear an obstructed vent.

Any water in the fuel tank and the carburetors can be drained through the drain plugs (Pg. 19). If water cannot be drained completely by loosening the drain plugs, remove the fuel tap (Pg. 43), and flush out the tank with a high flash-point solvent. For thorough cleaning of the carburetors, remove and disassemble the carburetors (Pg. 45).

If there is any doubt about the condition of the fuel tap, remove and disassemble the fuel tap (Pg. 44), and inspect the parts. Especially examine the diaphragm assembly. Make sure the **O** ring and its seat are clean and undamaged; if the **O** ring is prevented from seating properly or if it is damaged, fuel flow will not stop when the engine is stopped, and may overflow from the carburetors. Visually inspect the diaphragm. If there is any tear or other damage, the diaphragm assembly should be replaced.

(H4)



A. Diaphragm Assembly
C. "O" Ring

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air flow speed for pressure difference to force the necessary amount of fuel up through the jet.

The amount of fuel passing through a jet depends both on the size of the jet and on the speed of the air flow over the jet. The speed of this air flow is in turn determined both by the engine rpm and by the dimensions of the passage (varied with the vacuum piston) various dimensions of the air passages, and the engine just above the jet. The size of the jet openings, the various dimensions of the air passages, and the engine rpm are correlated through carburetor design so that, when properly adjusted, the carburetor meters (measures) the fuel and air in the correct proportions at different throttle openings.

The carburetor specifications (Table H4) have been chosen for best all around performance.

Carburetor trouble can be caused by dirt, wear, maladjustment, or improper fuel level in the float chamber. A dirty or damaged air cleaner can also alter the fuel-to-air ratio.

Table H1 Mixture Trouble Simptoms

Poor running
Overheating
Exhaust smokes excessively

The following explanation of the functioning and maintenance of the carburetors covers the four main systems for fuel regulation and supply.

Table H2 Carburetor Systems

System	Function
Starter System	Supplies the necessary rich mixture for starting a cold engine.
Pilot System	Supplies fuel at idling and low speeds.
Main System	Supplies fuel at medium and high speeds.
Float System	Maintains the fuel at a constant level in the float chamber.

CAUTION

1. **Remove the diaphragm and float before cleaning the carburetor with compressed air, or they will be damaged.**
2. **Remove as many rubber or plastic parts from the carburetors (Table H3) as possible before cleaning the carburetors with a cleaning solution. This will prevent damage or deterioration of the parts.**
3. **The carburetor body has plastic parts (Table H3) that cannot be removed. DO NOT use a strong carburetor cleaning solution which could attack these parts; instead, use a mild cleaning solution safe for plastic parts.**
4. **Do not use wire for cleaning as this could damage the jets.**

Table H3 Carburetor Rubber Parts and Plastic Parts

Parts	Quantity
Butterfly Valve Shaft Washers	6
Cable Bracket Washers	4
Choke Valve Linkage Dust Covers	2
Drain Screws	4
Fast Idle Cam Washers	2
Floats	4
Float Bowl O Rings	4
Fuel Hose	1
Idle Adjusting Screw	1
Overflow Tubes	4
Pilot Screw O Rings	4
Pilot Jet Plugs	4
Pilot jet Plug O Rings	4
Vacuum Gauge Fitting Cap	1
Vacuum Hose	1
Vacuum Piston and Diagram Assemblies	4
2-way Joint O Rings	4
3-way Joint	1
3-way Joint O Rings	4

Starter System

Fig. H6 shows the starter system, which includes the choke lever, choke valve ①, choke link spring, idling cam, and idling link.

The starter system provides the exceptionally rich fuel/air ratio that is necessary to enable easy starting when the engine is cold. When starting the engine, the choke valves close down the carburetor bores by pulling up the choke lever. Since the choke valves close down the carburetor bores, a high intake vacuum (suction or low pressure) is developed at the engine side of the carburetor bores. The choke valves are opened by a high intake vacuum, and air is drawn into the carburetor bores. As the engine is cranked over, fuel is drawn in from the float chamber through the main jets and pilot jet. This fuel is then drawn into the carburetor, mixed with the air drawn in through the choke valve, and drain into the engine.

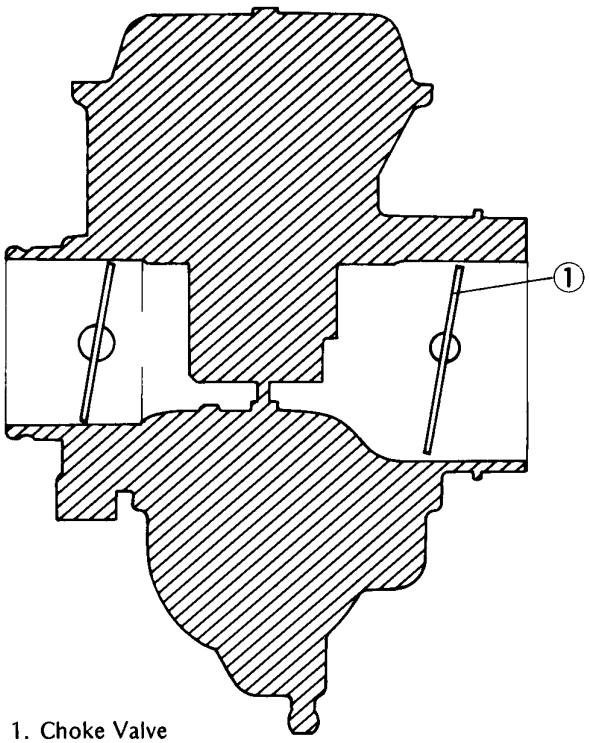
Table H4 Carburetor Specifications

Type	Jet Needle	Main Jet		Air Jet			Pilot Jet	Pilot Screw	Fuel Level (mm)	
		Primary	Secondary	Pilot	Primary Main	Secondary Main			Design	Service
CV34 Ⓤ CV34-30	N01A	#62	#125	#110	#130	#60	#35	2 turns out Ⓤ(——)	36.5 ± 1	4.0 ± 1

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The engine must be run at a faster than normal idle speed to prevent the engine from stalling until it reaches operating temperature. To accomplish this, the fast idle cam pushes the idling link when the choke lever is pulled up, and the butterfly valve is held open an amount sufficient to prevent stalling.

Starter System H6



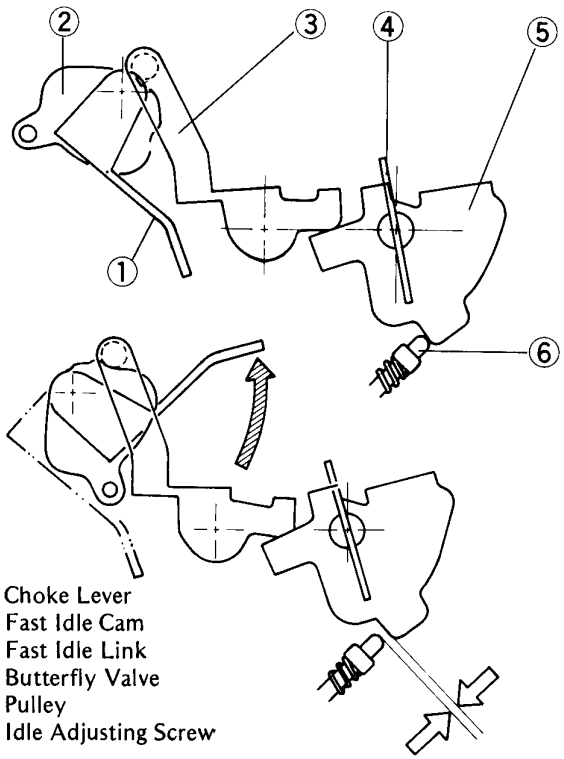
1. Choke Valve

In order for the starter system to work properly, the choke lever must be pushed up fully so that the choke valve will be kept closed and sufficient vacuum can be built up at the engine of the carburetor bore. Clogged pilot jet, main jets, pilot air jet, needle jet holder, and main jet bleed pipe will cause insufficient atomization, thus impairing starter efficiency. Fuel mixture trouble results if choke lever link mechanism, pilot and main system is defective. A damaged choke valve will cause insufficient vacuum, this impairing starter system efficiency. Fuel mixture trouble results if the choke valve does not open fully after the choke lever is returned.

Cleaning and inspection
(See cautions on Pg. 151)

Disassemble the carburetor, and wash the main jets, pilot jet, needle jet holder, main jet bleed pipe, air jets, and air passage with a high flash-point solvent, blowing them clean with compressed air. If necessary,

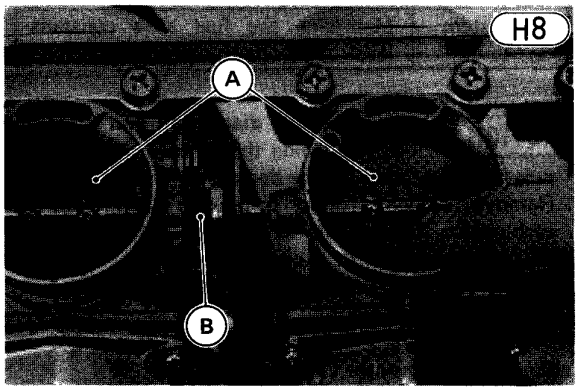
Fast Idle Mechanism H7



1. Choke Lever
2. Fast Idle Cam
3. Fast Idle Link
4. Butterfly Valve
5. Pulley
6. Idle Adjusting Screw

Pull up and push down the choke lever to check that the choke valves move smoothly. The choke valves must close the carburetor bores completely when the lever is pulled up, and must open fully when the lever is pushed down. To check that the choke link spring is working properly, push on the choke valve itself. The choke valve must move smoothly, and must close by spring tension.

If the choke valve or the choke link spring does not work properly, replace the carburetor body.



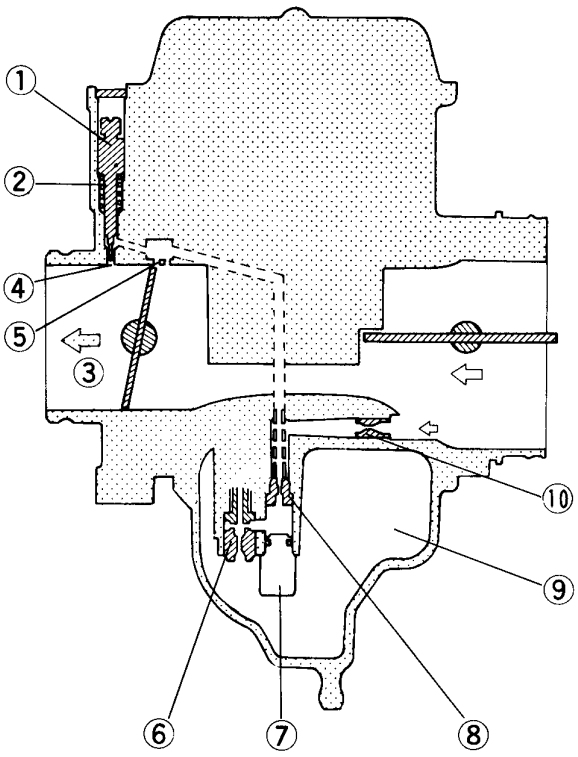
A. Choke Valves **B. Choke Link Spring**

Pilot System

Fig. H9 shows the pilot system, which includes the pilot air jet ⑩, pilot jet ⑧, primary main jet ⑥, bypass

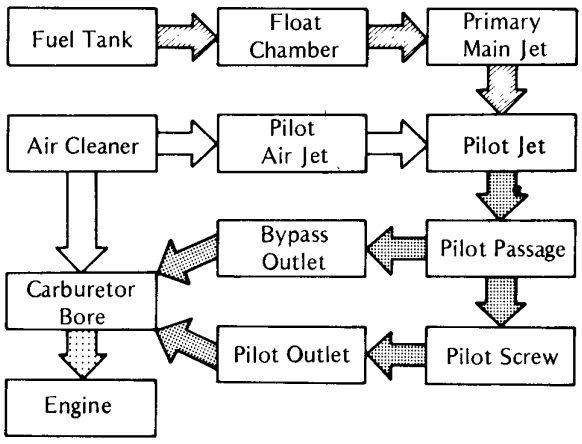
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Pilot System H9



1. Pilot Screw
2. Spring
3. Carburetor Bore
4. Pilot Outlet
5. Bypass Outlet
6. Primary Main Jet
7. Plastic Plug
8. Pilot Jet
9. Float Chamber
10. Pilot Air Jet

Pilot System Fuel and Air Supply H10

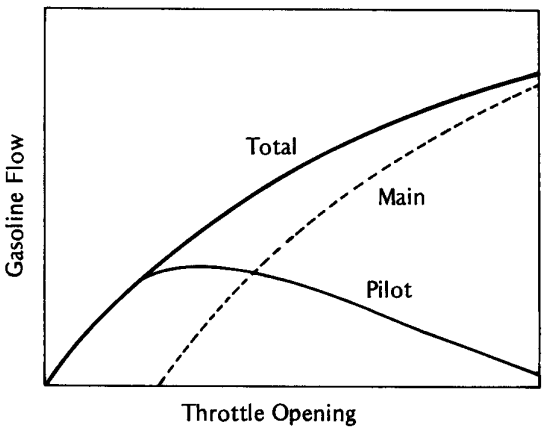


The pilot system determines the operation of the carburetor from 0 to ¼ throttle opening. At small throttle openings, almost no fuel is drawn through the main system due to insufficient air flow. Instead, the of the low pressure (suction) brough about by the demand for air by the engine and the limited but relatively fast flow of air past the pilot outlet. The almost closed position of the butterfly valve restricts the carburetor bore air flow, preventing it from relieving the low pressure created by the engine around the pilot outlet while the Venturi effect (the narrower the air passage, the faster the flow of air) at the engine side of the butterfly valve further reduces the low pressure.

The supply of the fuel and air in the pilot system is shown in Fig. H10. At idling and slightly about, the fuel passes through the main jet, and is then metered at the pilot jet, where the fuel mixes with air metered by the pilot air jet. Then, the fuel passes through the pilot passage, where the pilot screw affects the flow, through the pilot outlet into the carburetor bore, and to the engine. As the butterfly valve turns a little more, the butterfly valve position extends the low pressure area to the pilot bypass, allowing fuel to bypass part of the pilot passage to go directly to the carburetor bore such that the supply of fuel increases sufficiently with engine need.

Fig. H11 shows through opening versus fuel flow for the main and pilot systems. If trouble occurs in the pilot system, not only are starting and low speed running affected, but the transition from pilot to main system is not smooth as the throttle is opened, causing a drop in engine efficiency. Pilot system trouble might to be to maladjustment; a dirty or loose, pilot jet, or pilot air jet; or clogging of the main jet, pilot passage, pilot outlet, or pilot bypass.

Fuel Flow Characteristics H11



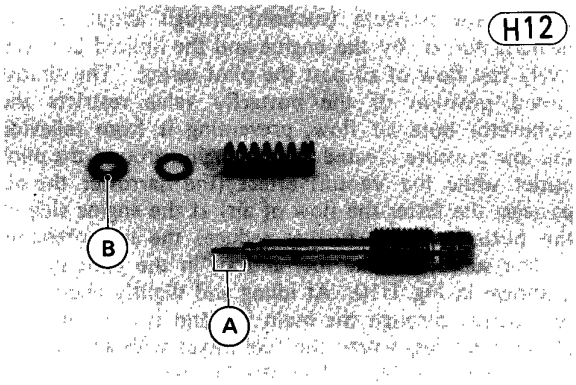
Cleaning and replacement

(See cautions on Pg. 151)

Disassemble the carburetor, and wash the primary main jet, pilot jet, pilot air jet, and air passage with a high flash-point solvent, blowing them clean with compressed air. If necessary, use a bath of automotive type carburetor cleaning.

Remove the pilot screw, and check that the tapered portion is not worn or otherwise deformed. If it is, replace the screw. If the screw O ring is damaged, replace

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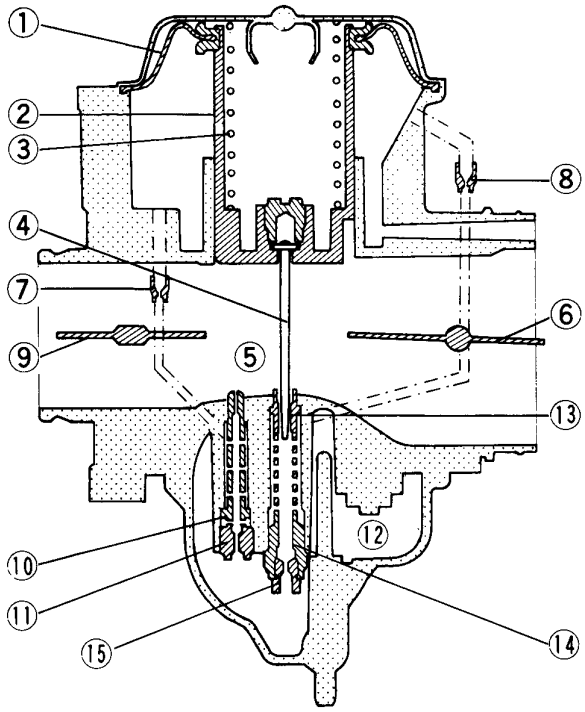


A. Tapered Portion **B. "O" Ring**

Main System

Fig. H13 shows the main system, which consists of the main jets ⑪, ⑮, main jet bleed pipe ⑩, needle jet holder ⑭, jet needle ④, needle jet ⑬, vacuum piston ②, spring ③, and main air jets ⑦, ⑧.

Main System H13



1. Diaphragm
2. Vacuum Piston
3. Spring
4. Jet Needle
5. Carburetor Bore
6. Choke Valve
7. Primary Main Air Jet
8. Secondary Main Air Jet
9. Butterfly Valve
10. Bleed Pipe
11. Primary Main Jet
12. Float Chamber
13. Needle Jet
14. Needle Jet Holder
15. Secondary Main Jet

Main System Fuel and Air Supply H14

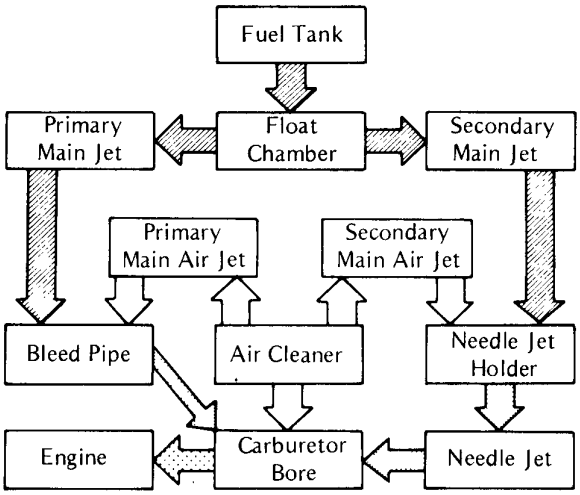


Fig. H14 shows the supply of fuel and air in the main system. From about ¼~½ throttle opening, the air flow past the main jet bleed pipe is sufficient to cause fuel to be drawn through the main system, and from about ½ throttle opening, the air flow past the needle jet outlet is sufficient too. The fuel passes through the primary main jet and then part of it goes through the slow jet as in the pilot system while the rest of it passes straight up through the main jet bleed pipe at about ¼ ~ ½ throttle opening, and from about ½ throttle opening, the fuel passes through the secondary main jet and then it goes straight up through the space in the needle jet not blocked by the jet needle and into the carburetor bore, where it is atomized by the air flow to the engine.

The needle jet holder and main jet bleed pipe have holes to admit the air metered by the main air jets. This air mixes with the fuel in the needle jet holder and main jet bleed pipe to prepare the fuel for better atomization in the carburetor bore.

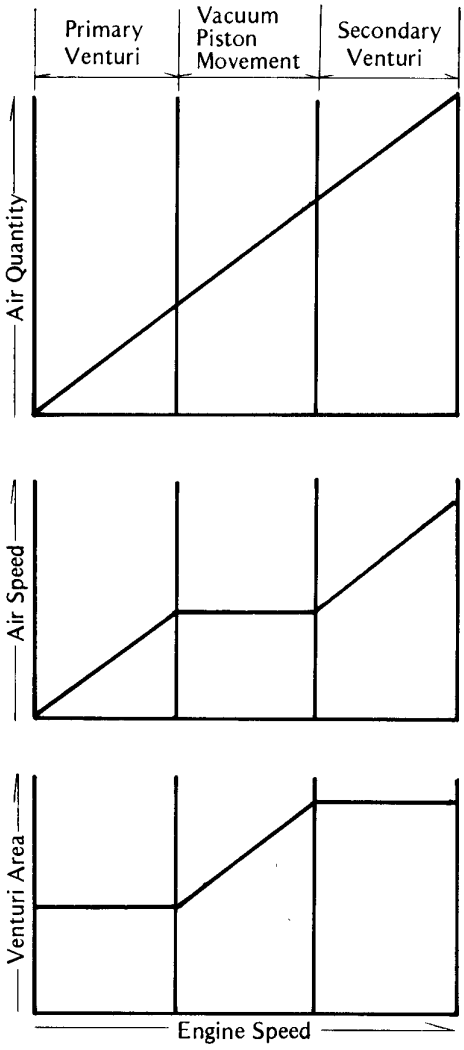
The lower part of the jet needle is tapered and extends down into the needle jet and needle jet holder. It is fixed to the vacuum piston, and thus rises up in the needle jet and needle jet holder as the vacuum piston rises. From the time the vacuum piston starts rising, from about ¼ throttle, until it reaches most of the way up in the carburetor bore, the fuel is metered primarily by the primary main jet and secondarily by the jet needle taper. As the jet needle rises, the needle to jet clearance increases, thereby increasing the amount of fuel that can pass up through the jet.

The vacuum piston is attached to the diaphragm and rises only between ¼ and ¾ throttle. Through the holes in the bottom of the piston, the air pressure in the chamber above the diaphragm is reduced by engine intake vacuum. The air vent maintains atmospheric pressure in the chamber under the diaphragm. As engine speed increases, air pressure in the upper chamber decreases. The difference between this pressure and at-

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greater. The force of the spring and the weight of the piston are overcome, and the piston rises to an extent corresponding to this pressure difference. The diaphragm is made of rubber and absorbs the vibration caused by engine intake pulsing to prevent the vacuum piston from wearing.

Venturi Pinciple (H15)



As shown in Fig. H15 the quantity of air drawn in by the engine intake is in direct proportion to engine rpm, and the speed of the air flow is constant while the vacuum piston rises from ¼ to ¾ throttle. Were the size of the air passage above the needle jet to change simultaneously with throttle movement rather than with engine intake (demand), the speed of the air flow in the air passage might even drop during a rapid increase stall in acceleration. However, the vacuum piston-butterfly valve arrangement controls both the air and fuel supply at sudden throttle for smooth and immediate engine response.

At ¾ throttle the vacuum piston reaches its highest position, forming the "secondary venturi" to permit maximum engine output. At near full throttle openings, the cross-sectional area of the needle to jet clearance becomes greater than the cross-sectional area of the main jet. At these openings, the fuel drawn up into the carburetor bore is limited by the size of the main jet rather than the needle to jet clearance.

Trouble in the main system is usually indicated by poor running or lack of power at high speeds. Dirty or clogged main jets will cause the mixture to become too lean. An overly rich mixture could be caused by clogging of the main air jets, its air passage, or the air holes in the main jet bleed pipe and needle jet holder; by needle jet or needle wear (increasing clearance); by loose main air jets; or by a loose needle jet.

Cleaning and adjustment (See cautions Pg. 151)

Disassemble the carburetor, and wash the vacuum piston, main jets, main jet bleed pipe, main jet holder, needle jet, jet needle, main air jets, and air passage with a high flash-point solvent, blowing them clean with compressed air. If necessary, use a bath of automotive type carburetor cleaner.

Visually inspect the diaphragm. If there is any tear or other damage, the piston and diaphragm should be replaced.

Float System

Fig. H16 shows the float system which consists of the float ⑤, float valve needle ②, float valve seat ①, and overflow pipe ④.

The float system serves to keep a relatively constant level of fuel in the carburetor float chamber at all times so that the fuel supply to the engine will be stable. If the fuel level in the float chamber is set too low, it will be more difficult for fuel to be drawn up into the carburetor bore, resulting in too lean a mixture. If the level is set too high, the fuel can be drawn up too easily, resulting in too rich a mixture.

The design fuel level is defined as the vertical distance from the center of the carburetor bore to the surface of the fuel in the float chamber. The fuel level is maintained at a constant value by the action of the float valve, which opens and closes according to the fuel level. As fuel flows through the float valve into the chamber, the fuel level rises. The float, rising with the fuel level, pushes up on the needle. When the fuel reaches a certain level, the needle is pushed completely into the valve seat, which closes the valve so that no more fuel may enter the chamber. As the fuel is drawn up out of the float chamber, the fuel level drops, lowering the float. The needle no longer blocks the float valve, and fuel once

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