

6. EXHAUST SYSTEM

SERVICE INFORMATION

6-1

SYSTEM DESCRIPTION

6-2

TROUBLESHOOTING

6-1

SERVICE INFORMATION

▲WARNING

• **Serious burns may result if the exhaust system is not allowed to cool before components are removed or serviced.**

- Always replace the exhaust pipe gasket when removing the exhaust pipe from the engine.
- Note the positions of the clamps installed between the exhaust pipe and muffler, the tab on the clamp should align with the groove on the muffler.
- When installing the exhaust system, install all the fasteners loosely. Always tighten the exhaust clamp nut first, then tighten the mounting fasteners. If you tighten the mounting fasteners first, the exhaust pipe may not seat properly.
- Always inspect the exhaust system for leaks after installation.

TROUBLESHOOTING

Excessive exhaust noise

- Broken exhaust system
- Exhaust gas leaks

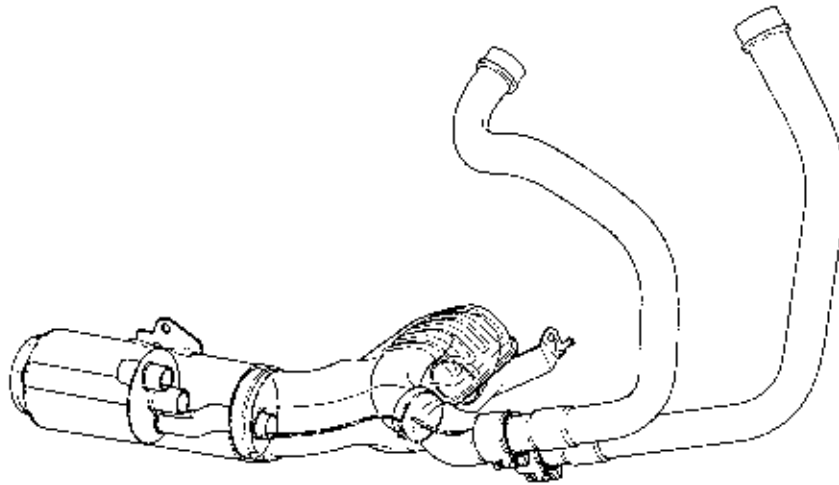
Poor performance

- Deformed exhaust system
- Exhaust gas leaks
- Clogged muffler

SYSTEM DESCRIPTIONS

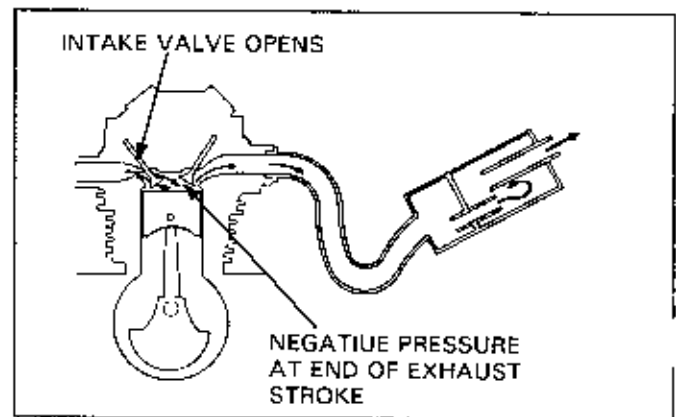
The exhaust system serves other function in addition to discharging the exhaust gas.

Since the exhaust gas discharged from the exhaust port is pressurized and very hot, it swells suddenly and produces a loud noise if it is discharged from the exhaust port directly into the atmosphere. It also lowers the exhaust efficiency as the gas is diffused from the exhaust port. To prevent the above problems, the exhaust gas is drawn from the exhaust port into the muffler to be swelled and is discharged into the atmosphere after its temperature and pressure are lowered. By varying the sizes and diameters of sections of the exhaust system, the air/fuel mixture can be drawn into the cylinder more effectively. This is called the EXHAUST PULSE SCAVENGE EFFECT. Utilizing this effect in exhaust system design results in significant improvements in engine performance, especially on 2-stroke engines.

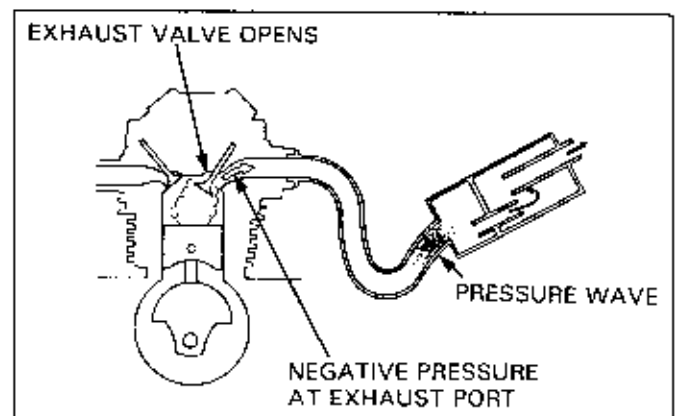


EXHAUST PULSE SCAVENGE EFFECT

When the exhaust valve (or port) opens with the engine on the exhaust stroke, the exhaust gas flows rapidly from the exhaust port into the muffler. At the end of the exhaust stroke, the gas flow slows down, but due to the inertia of liquid mass, pressure in the cylinder goes down below the atmospheric pressure; in other words, negative pressure is applied to the cylinder for a short time. As the intake valve (or scavenge port) opens, the air/fuel mixture quickly drawn into the cylinder.



The discharged gas flows through the muffler forming a high speed pressure wave. Due to the inertia of liquid mass, negative pressure is applied to the exhaust port where the pressure wave had passed. When the exhaust valve (or port) opens on the next exhaust stroke, the exhaust gas is drawn out by the negative pressure, and the exhaust efficiency is improved.



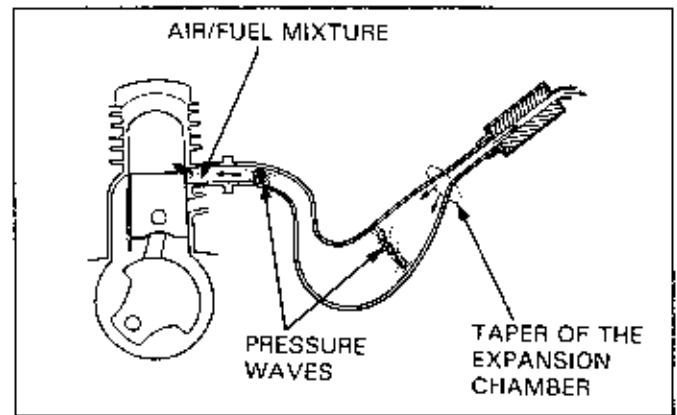
On 2-stroke engines, there is the possibility that the air/fuel mixture that was scavenged just before the end of the exhaust stroke may leak out to some degree and be discharged into the exhaust port.

The gas is discharged into the muffler, forming a high pressure wave. This pressure wave impacts against the taper at the end of the muffler, rebounds, and applies a positive pressure to the exhaust port. The air/fuel mixture that was about to be discharged before the exhaust port closes is thus forced back into the cylinder and the exhaust pulse scavenge effect is improved.

Since the pressure wave cycle changes in accordance with the change in engine speed, the exhaust pulse scavenge effect is not always as effective as it could be at all engine speeds.

The exhaust pulse scavenge effect is regulated to a certain range of engine speed. Therefore, the exhaust system is designed to be most effective and most suitable for each model, depending on its intended use.

Note that if the exhaust system is deformed due to denting or exhaust gas leakage, it can effect the exhaust pulse and result in a drop in engine horsepower.

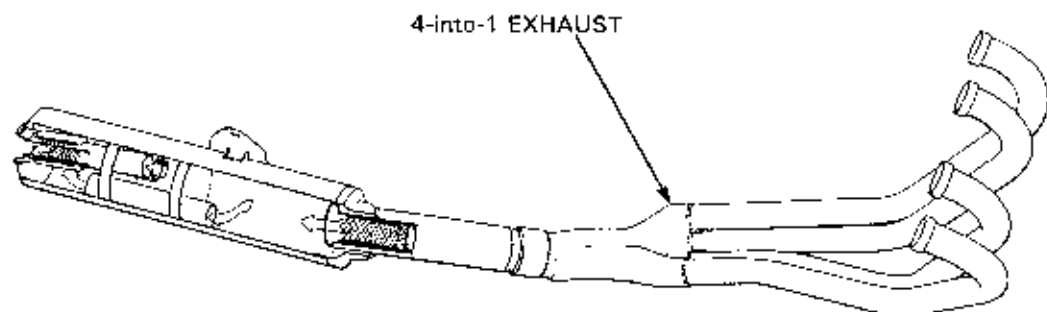


COMMON EXHAUST PIPE

The muffler of the conventional 4-stroke multicylinder engine uses an independent pipe for each cylinder, but most recent models adopt a common exhaust pipe for all cylinders.

The new system features a system in which the exhaust pipes join in the exhaust chamber, and another in which the exhaust pipes are directly joined. In both systems gas pressures exhausted from individual cylinders intermingle. The pulse wave in the muffler, generated by the staggered combustion in adjoining cylinders, promotes the "pulse scavenge effect", which increases exhaust energy absorption and reduces exhaust noise effectively. The resulting smaller muffler has a decreased capacity and increased silencing capability, due to the reduced weight and decreased volume.

The method of exhaust pipe connection depends on the cylinder arrangement or the required engine characteristics. For example, an inline four cylinder engine can be connected with "4-into-1" system or "4-2-2" system etc.



7. EMISSION CONTROL SYSTEMS

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SERVICE INFORMATION

CAUTION

- To prevent damage, be sure to remove the diaphragms before cleaning air and fuel passages with compressed air.
- All hoses used in the secondary air supply and evaporative emission control systems are numbered for identification. When connecting one of these hoses, compare the hose number with the Vacuum Hose Routing Diagram Label (Refer to the Model Specific manual).
- Refer to the Model Specific manual for emission control system application.

TROUBLESHOOTING

Engine stalls, hard to start, rough idling

- Purge control valve faulty
- Air vent control valve faulty
- Hoses in the emission control system faulty

Afterburn when engine braking is used

- Secondary air supply system faulty
- Hoses in emission control system faulty

Poor performance (driveability) and poor fuel economy

- Faulty air vent control valve
- Damaged/misconnected emission control system hoses

SYSTEM DESCRIPTIONS

The U.S. Environmental Protection Agency and California Air Resources Board (CARB) require manufacturers to certify that their motorcycles comply with applicable exhaust emissions standards during their useful life, when operated and maintained according to the instructions provided, and that motorcycles built after January 1, 1983 comply with applicable noise emission standards for one year or 6,000 km (3,730 miles) after the time of sale to the ultimate purchaser, when operated and maintained according to the instructions provided. Compliance with the terms of the Distributor's Warranties for Honda Motorcycle Emission Control Systems is necessary in order to keep the emissions system warranty in effect.

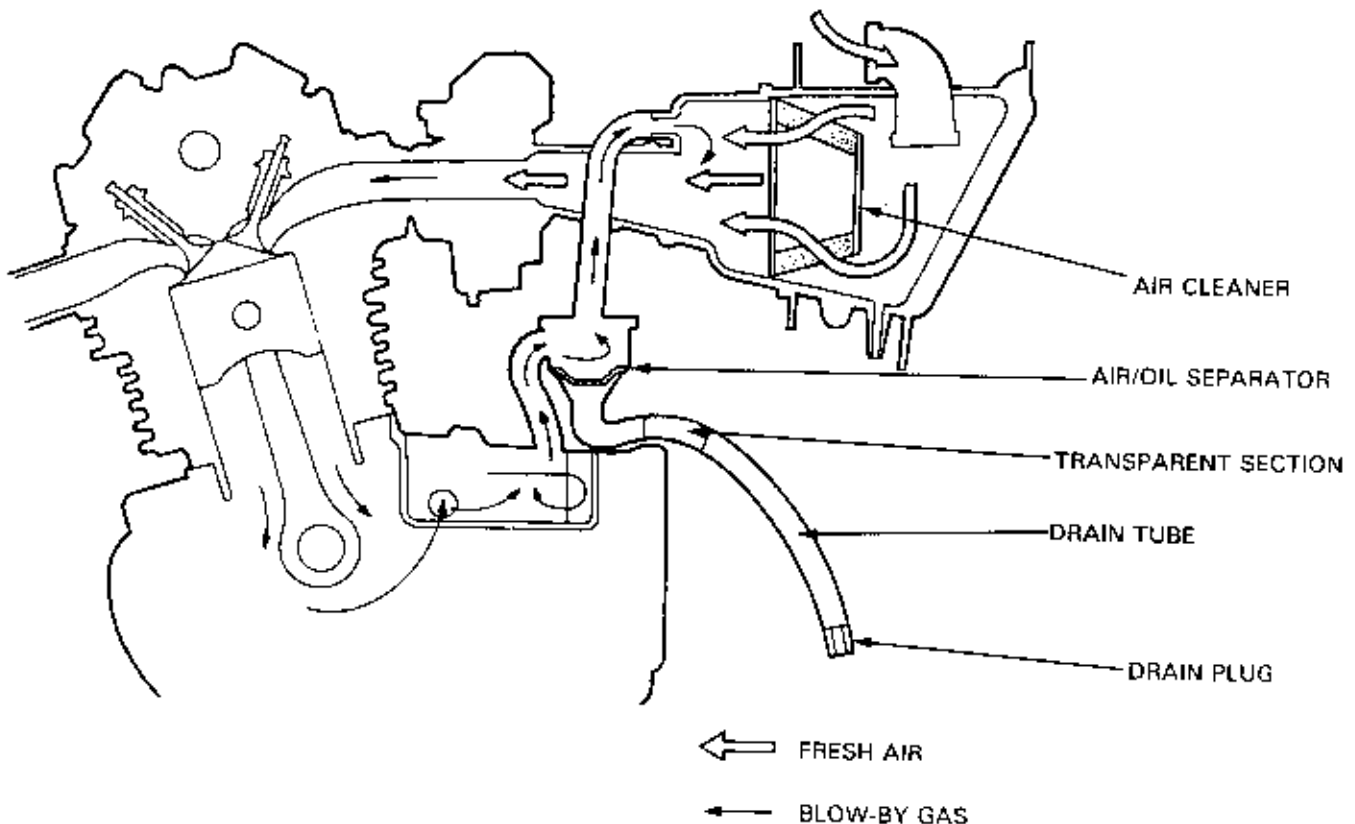
SOURCE OF EMISSIONS

The combustion process produces carbon monoxide and hydrocarbons. Control of hydrocarbons is very important because, under certain conditions, they react to form photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way, but it is toxic.

Honda Motor Co., Ltd. utilized lean carburetor settings as well as other systems, to reduce carbon monoxide and hydrocarbons.

CRANKCASE EMISSION CONTROL SYSTEM

The crankcase emission control system routes crankcase emissions through the air cleaner and into the combustion chamber. Condensed crankcase vapors are accumulated in an air/oil separator and drain tube which must be emptied periodically. Refer to the Maintenance Schedule for each model. The drain tube needs to be checked for oil accumulation more frequently if the machine has been consistently ridden at high speeds or in rain.



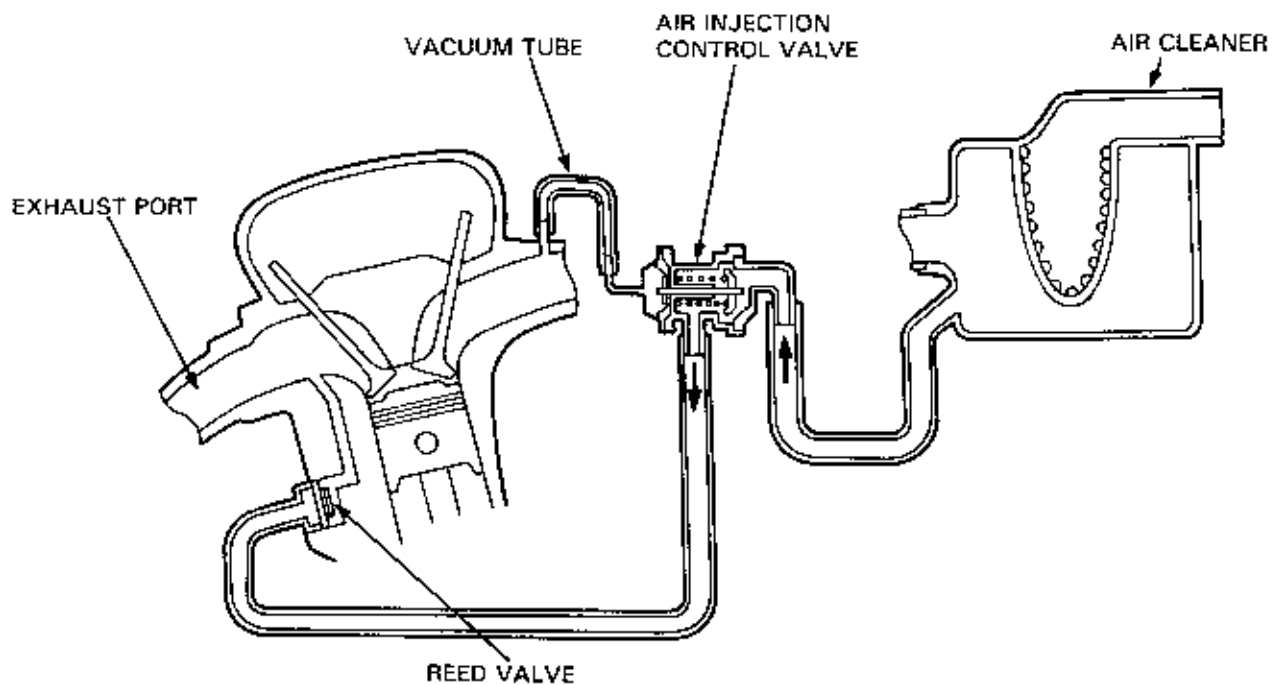
EXHAUST EMISSION CONTROL SYSTEM (SECONDARY AIR SUPPLY SYSTEM)

The exhaust emission control system is composed of lean carburetor settings and no adjustment should be made except idle speed adjustment with the throttle stop screw.

The exhaust emission control system consists of a secondary air supply system which introduces filtered air into the exhaust gases in the exhaust port. Fresh air is drawn into the exhaust port whenever there is a negative pressure pulse in the exhaust system. This charge of fresh air promotes burning of the unburned exhaust gases and changes a considerable amount of hydrocarbons and carbon monoxide into relatively harmless carbon dioxide and water.

A reed valve prevents reverse air flow through the system. The air injection control valve reacts to high intake manifold vacuum and will cut off the supply of fresh air during engine deceleration, thereby preventing afterburn in the exhaust system.

No adjustments to the secondary air supply system should be made, although periodic inspection of the components is recommended.

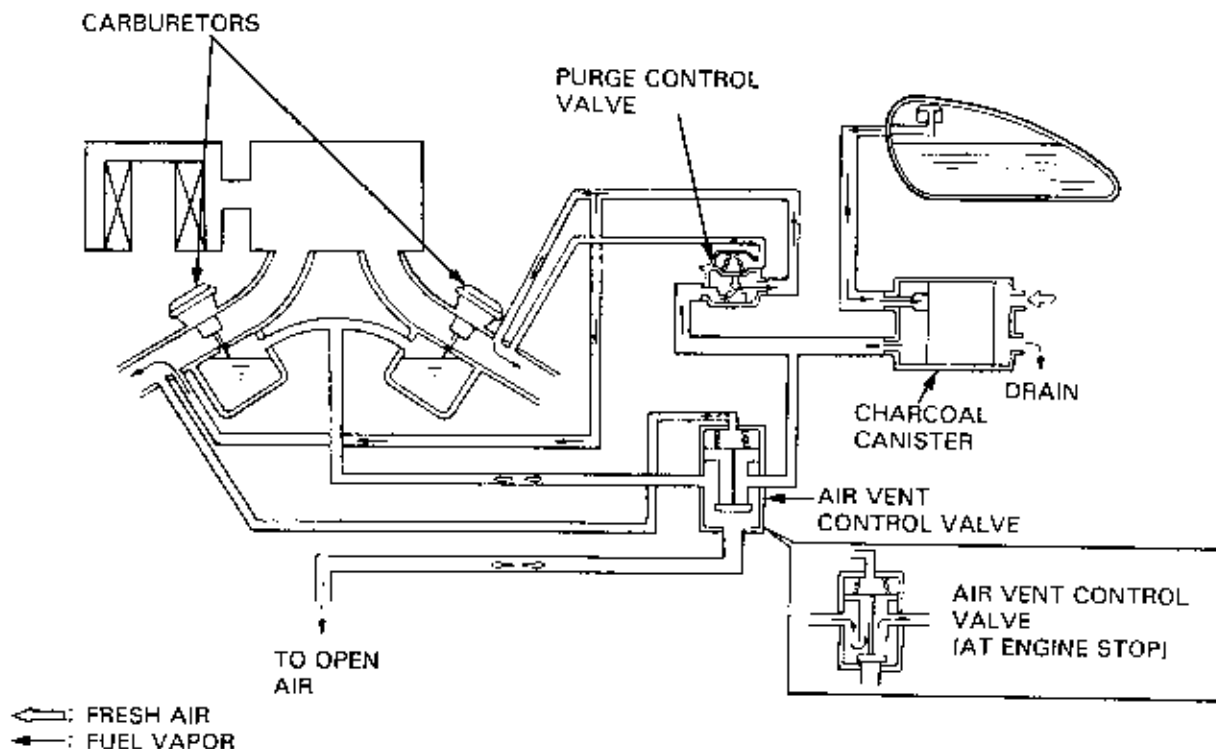


EMISSION CONTROL SYSTEMS

EVAPORATIVE EMISSION CONTROL SYSTEM (California model only)

All Honda motorcycles and scooters sold in California for street use comply with the California Air Resources Board requirements for evaporative emission regulations.

Fuel vapor from the fuel tank and carburetors is routed into the charcoal canister where it is absorbed and stored while the engine is stopped. When the engine is running and the purge control diaphragm valve is open fuel vapor in the charcoal canister is drawn into the engine through the carburetor. At the same time, the air vent control valve is open and air is drawn into the carburetor through the valve.



NOISE EMISSION CONTROL SYSTEM

TAMPERING WITH THE NOISE CONTROL SYSTEM IS PROHIBITED: Federal law prohibits the following acts or the causing thereof: (1) The removal or rendering inoperative by any person, other than for purposes of maintenance, repair or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

AMONG THOSE ACTS PRESUMED TO CONSTITUTE TAMPERING ARE THE ACTS LISTED BELOW:

1. Removal of, or puncturing the muffler, baffles, header pipes or any other component which conducts exhaust gases.
2. Removal of, or puncturing of any part of the intake system.
3. Lack of proper maintenance.
4. Replacing any moving parts of the vehicle, or parts of the exhaust or intake system, with parts other than those specified by the manufacturer.

SYSTEM INSPECTIONS

EVAPORATIVE EMISSION CONTROL SYSTEM (California model only)

Check the system hoses for deterioration, clogging, damage, and loose joints and connections.

Replace any hose that shows signs of damage or deterioration.

Check the canister for cracks or damage.

PURGE CONTROL VALVE (PCV)

NOTE

- The purge control valve should be inspected if hot restart is difficult.

Disconnect the PCV hoses from their connections and remove the PCV from its mount. Refer to the vacuum hose routing diagram label for hose connections.

Connect a vacuum pump to the hose that goes to the vacuum tube fitting.

Apply the specified vacuum to the PCV.

5 TROL

VACUUM PUMP

ST-AH-260-MC7
(U.S.A. only)

SPECIFIED VACUUM: 250 mm (9.8 in) Hg

The specified vacuum should be maintained. Replace the PCV if vacuum is not maintained.

Remove the vacuum pump and connect it to the hose fitting (PCV output port) that goes to the carburetor(s).

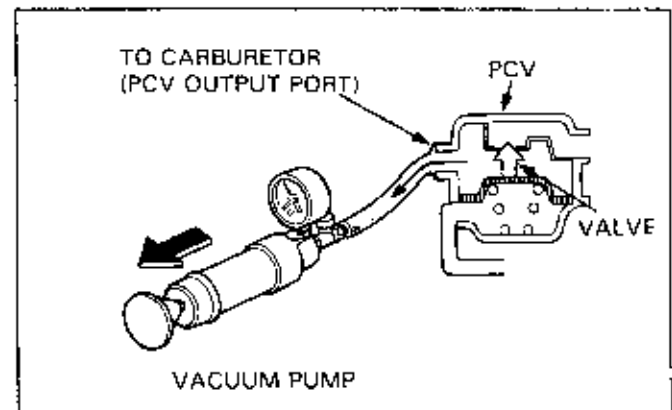
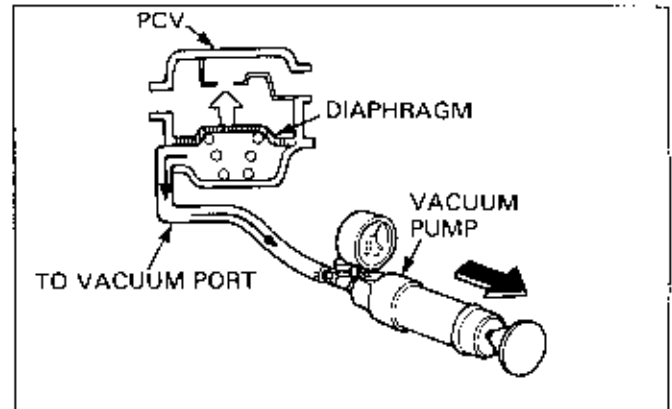
NOTE

- If the PCV has two hose fittings that go to the carburetor(s), connect the blocked tube onto the other fitting to prevent air leaks.

Apply the specified vacuum to the PCV.

SPECIFIED VACUUM: 250 mm (9.8 in) Hg

The specified vacuum should be maintained. Replace the PCV if vacuum is not maintained.



EMISSION CONTROL SYSTEMS

Connect a pressure pump to the hose fitting that goes to the charcoal canister.

NOTE

- If the PCV has two hose fittings that go to the charcoal canister, connect the blocked tube onto the other fitting to prevent air leaks.

While applying the specified vacuum to the PCV hose that goes to the vacuum port, pump air through the canister hose. Air should flow through the PCV and out the hose that goes to the carburetor. Replace the PCV if air does not flow out.

5 Tool

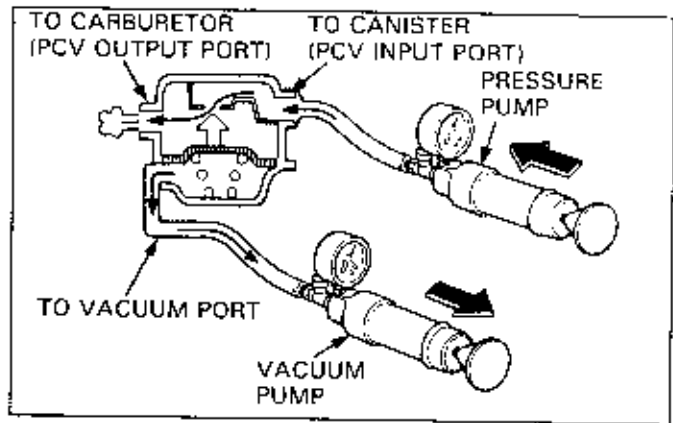
PRESSURE PUMP

ST-AH-255-MC7
(U.S.A. only)

CAUTION

- Damage to the purge control valve may result from use of a high pressure air source. Use a hand-operated air pump only.

Remove the pump, install the PCV on its mount, route and reconnect the hoses according to the vacuum hose routing diagram label.



AIR VENT CONTROL VALVE (AVCV)

NOTE

- The air vent control valve should be inspected if engine restart is difficult.

Disconnect the AVCV hoses from their connections and remove the AVCV from its mount. Refer to the vacuum hose routing diagram label for hose connections.

Connect a vacuum pump to the hose that goes to the vacuum tube fitting.

5 Tool

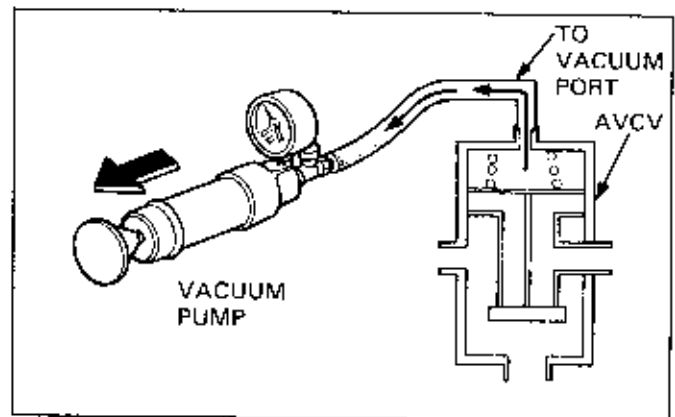
VACUUM PUMP

ST-AH-260-MC7

Apply the specified vacuum to the AVCV.

SPECIFIED VACUUM: 250 mm (9.8 in) Hg

The specified vacuum should be maintained. Replace the AVCV if vacuum is not maintained.

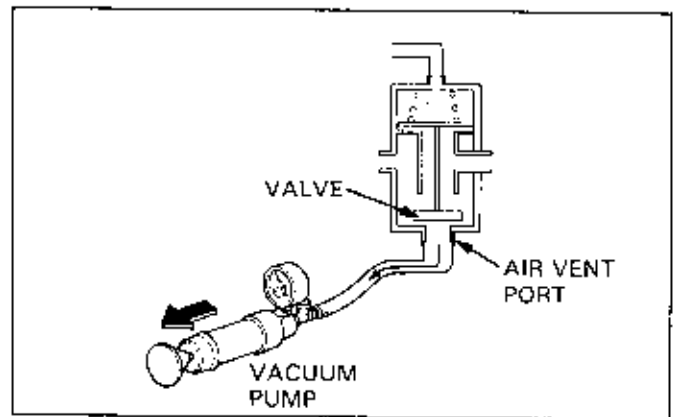


Connect the vacuum pump to the air vent fitting on the AVCV that goes to open air.

NOTE

- If the AVCV has two hose fittings that go to open air, connect the blocked tube onto the other fitting to prevent air leaks.

Apply vacuum to the AVCV. The vacuum should hold steady. Replace the AVCV if vacuum leaks.



Connect the vacuum pump to the hose that goes to the vacuum tube fitting.

5 TOOL

VACUUM PUMP

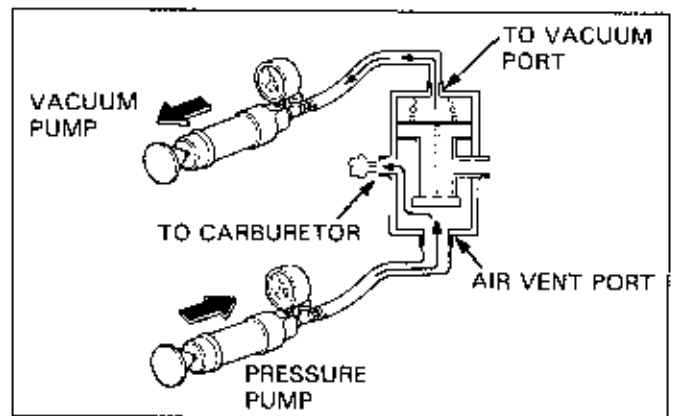
ST-AH-260-MC7
(U.S.A. only)

Connect the pressure pump to the air vent fitting on the AVCV that goes to open air.

5 TOOL

PRESSURE PUMP

ST-AH-255-MC7
(U.S.A. only)



NOTE

- If the AVCV has two hose fittings that go to open air, connect the blocked tube onto the other fitting to prevent air leaks.

While applying the vacuum to the AVCV hose that goes to the vacuum tube fitting, pump air through the air vent fitting. Air should flow through the AVCV and out the hose that goes to the carburetor.

CAUTION

- Damage to the air vent control valve may result from use of a high pressure air source. Use a hand-operated air pump only.

Plug the hose that goes to the carburetor.

NOTE

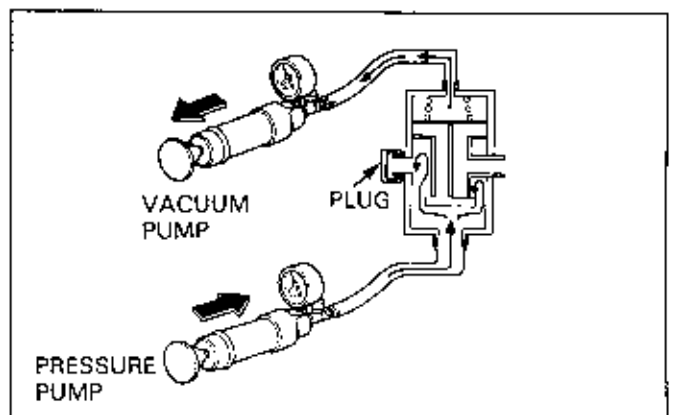
- If the AVCV has two hose fittings that go to open air, connect the blocked tube onto the other fitting to prevent air leaks.

While applying vacuum to the AVCV hose that goes to the vacuum tube fitting, apply air pressure to the air vent fitting.

It should hold steady.

Replace the AVCV if pressure is not retained.

Remove the pumps, install the AVCV on its mount, route and reconnect the hoses according to the vacuum hose routing diagram label.



EMISSION CONTROL SYSTEMS

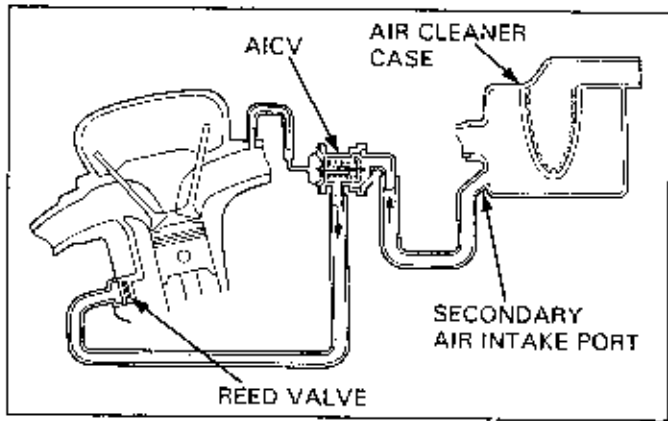
SECONDARY AIR SUPPLY SYSTEM

Start the engine and warm it up to operating temperature.

Stop the engine and remove the air cleaner element.

Check that the secondary air intake ports are clean and free of carbon deposits.

Check the reed valve in the secondary air passage if the ports are carbon fouled.



Disconnect the air cleaner-to-air injection control valve hose from the air cleaner case.

Remove the vacuum tube from the carburetor intake pipe; install a plug to keep air from entering.

Connect a vacuum pump to the vacuum hose.

 TOOL

VACUUM PUMP

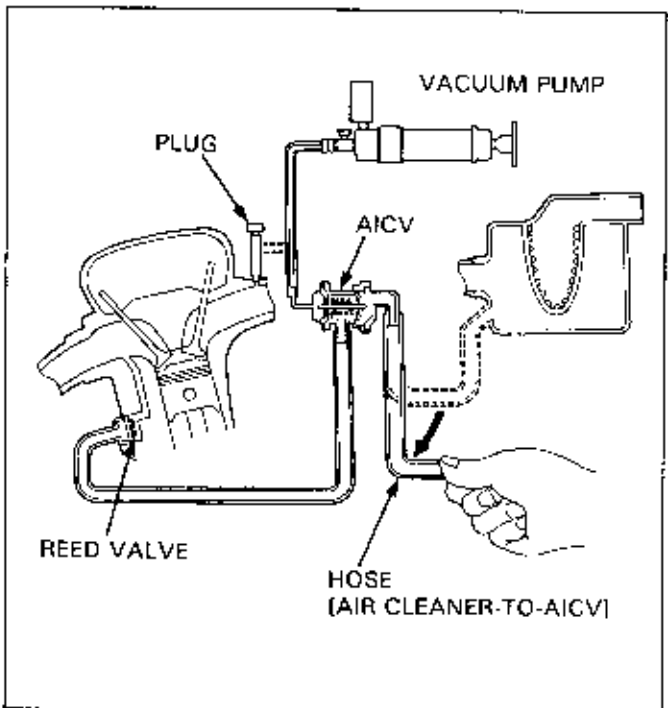
ST-AH-260-MC7
(U.S.A. only)

Start the engine and open the throttle slightly to be certain that air is sucked in through the air cleaner-to-AICV hose.

If air is not drawn in, check the air cleaner-to-AICV hose and vacuum hose for clogging.

With the engine running, gradually apply vacuum to the vacuum hose.

Check that the air intake port stops drawing air, and that the vacuum does not bleed.



SPECIFIED VACUUM: Refer to the Model Specific manual.

If air is still drawn in, or if the specified vacuum is not maintained, install a new AICV.

If afterburn occurs on deceleration, even when the secondary air supply system is normal, check the slow air cutoff valve for correct vacuum operation.

REED VALVE

NOTE

- Certain types of secondary air supply systems have the reed valve built in the AICV. Refer to the Model Specific manual for reed valve location.

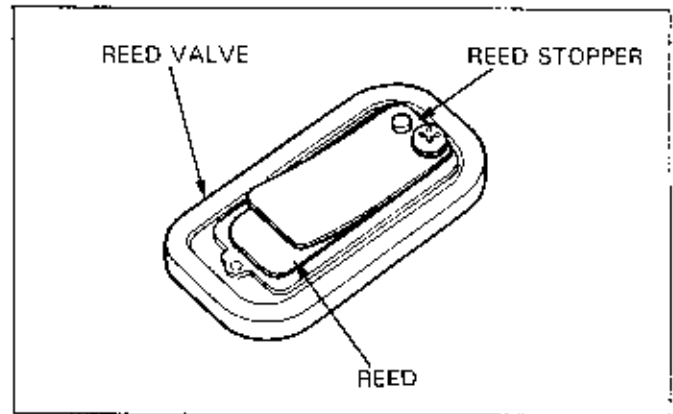
Remove the reed valve covers and reed valves.

Check the reeds for damage or fatigue, and replace if necessary.

Install a new reed valve if the seat rubber is cracked or damaged, or if there is clearance between the reed and seat.

CAUTION

- Disassembling or bending the reed stopper or reed valve will damage it.
- Replace the reed valve as a unit if the stopper, reed, or seat is faulty.



EMISSION CONTROL INFORMATION LABELS

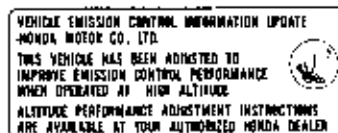
Labels for the emission control system consist of three kinds of information labels as described below.

1. Emission control information label
 - Gives basic tune-up specifications.
2. Emission control information update label
 - After making a high altitude carburetor adjustment, attach this label at the specified location. Instructions for obtaining the update label are given in Service Letter No. 132.
3. Vacuum hose routing diagram label (California model only)
 - Route the vacuum hoses as shown on this label. On after '85 models, all hoses used in the secondary air supply and evaporative emission systems are numbered for identification, so compare the hose number with this label when connecting one of these hoses.

NOTE

- Refer to the Model Specific manual for the location of each label.

EXAMPLE:



8. FUEL SYSTEM

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FUEL LINE	8-8		

SERVICE INFORMATION

⚠ WARNING

- Gasoline is extremely flammable and is explosive under certain conditions.

- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.

CAUTION

- Bending or twisting the control cables will impair smooth operation and could cause the cables to stick or bind, resulting in loss of vehicle control.
- Be sure to remove the diaphragms before cleaning air and fuel passages with compressed air. The diaphragms might be damaged.

- Refer to Model Specific manual for carburetor and reed valve removal/installation.
- When disassembling fuel system parts, note the locations of the O-rings. Replace them with new ones on reassembly.
- Before disassembling the carburetor, place a suitable container under the carburetor drain bolt loosen the bolt and drain the carburetor.
- After removing the carburetor, wrap the intake port of the engine with a shop towel or cover it with piece of rape to prevent any foreign material from dropping into the engine.

NOTE

- If vehicle is to be stored for more than one month, drain the float bowls. Fuel left in the float bowls may cause clogged jets resulting in hard starting or poor driveability.

FUEL FRESHNESS AND TROUBLESHOOTING

Engine performance is directly related to the quality and freshness of the gasoline consumed. Therefore, it is important to be sure the fuel within the motorcycle, scooter or ATV you are servicing is usable for your testing procedures. You may save valuable troubleshooting time by replacing fuel if its quality or age is in doubt.

Detonation (or pinging) on acceleration is an indication that the fuel is either not of good quality or is too low in octane rating for your application.

Fuel should be no more than six to eight weeks old in the case of a minor performance problem, and no more than three months old in the case of more serious performance problems.

TROUBLESHOOTING

Engine won't start

- No fuel to carburetor
 - Fuel strainer clogged
 - Fuel tube clogged
 - Float valve stuck
 - Float level misadjusted
 - Fuel tank breather tube (or hole) clogged
 - Fuel pump malfunction
 - Fuel auto valve malfunction
- Too much fuel getting to the engine
 - Air cleaner clogged
 - Flooded carburetor
- Intake air leak
- Fuel contaminated/deteriorated
- Slow circuit or bystarter circuit clogged

Lean mixture

- Fuel jets clogged
- Float valve faulty
- Float level too low
- Fuel line restricted
- Carburetor air vent hole (or tube) clogged
- Intake air leak
- Fuel pump malfunction
- Fuel auto valve malfunction
- Vacuum piston faulty (CV type only)
- Throttle valve faulty

Rich mixture

- Choke valve or bystarter valve in ON position
- Float valve faulty
- Float level too high
- Air jets clogged
- Air cleaner element contaminated
- Flooded carburetor

Hasitation during acceleration

- Accelerator pump malfunction

Engine stalls, hard to start, rough idling

- Fuel line restricted
- Ignition malfunction
- Fuel mixture too lean/rich
- Fuel contaminated/deteriorated
- Intake air leak
- Idle speed misadjusted
- Fuel pump malfunction
- Fuel auto valve malfunction
- Air screw or pilot screw misadjusted
- Slow circuit or bystarter circuit clogged
- Float level misadjusted
- Fuel tank breather tube (or hole) clogged
- Air vent control valve faulty
- Hoses of the emission control system faulty
- Purge control valve faulty

Afterburn when engine braking is used

- Air cut-off valve malfunction
- Lean mixture in slow circuit
- Secondary air supply system faulty
- Hose of emission control system faulty

Backfiring or misfiring during acceleration

- Ignition system faulty
- Fuel mixture too lean

Poor performance (driveability) and poor fuel economy

- Fuel system clogged
- Ignition malfunction
- Faulty air vent control valve
- Damaged/misconnected emission control system hoses

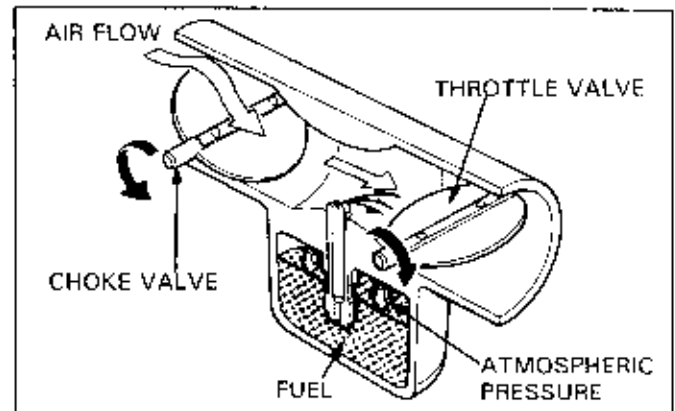
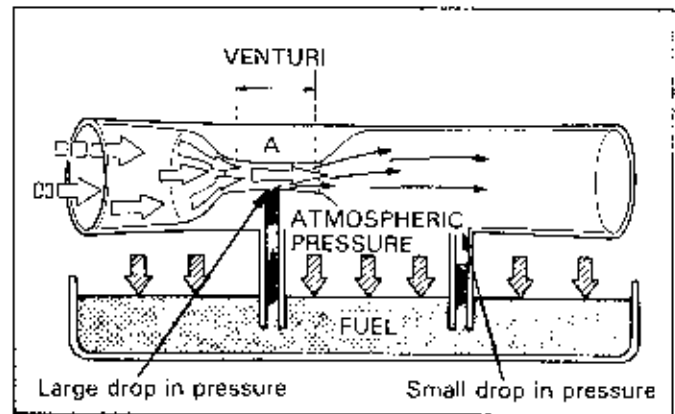
SYSTEM DESCRIPTION

CARBURETOR

As the piston begins its descent at the start of the induction phase (the period when the air-fuel mixture is drawn in), pressure in the cylinder drops, causing air to flow from the air cleaner, through the carburetor and into the cylinder. The function of the carburetor is to atomize the fuel and create an air-fuel mixture.

As in the figures on the right, air drawn into the carburetor passes through constriction A, where it gains speed. The constriction is known as the venturi section of the carburetor. This increase in flow speed is accompanied by a fall in pressure in the venturi, which is used to draw off fuel from the outlet. The fuel is atomized as it is drawn into the venturi under the influence of atmospheric pressure, and is mixed with the incoming air.

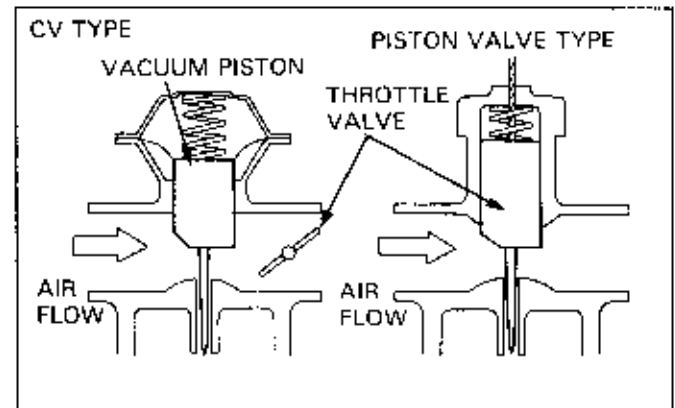
Carburetors are also equipped with mechanisms for regulation of the air and mixture volumes. A throttle valve is used to regulate the flow of air-fuel mixture, and a choke is included for adjusting the air flow under starting conditions.



Types of carburetors

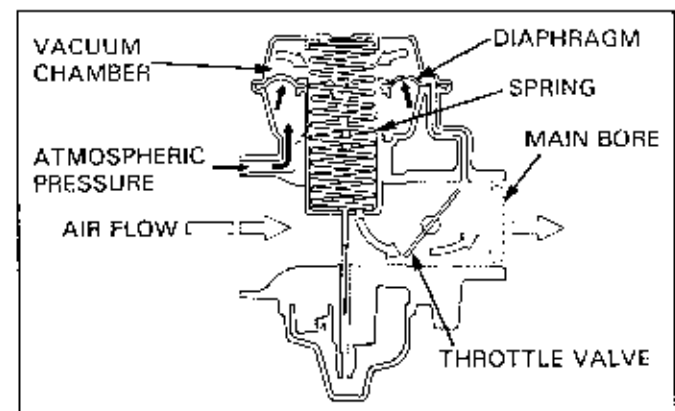
Carburetors which alter the diameter of the venturi by throttle valve movement are known as variable venturi types. Honda uses this kind of carburetor on its motorcycles and scooters. Carburetors in which the venturi diameter is not altered are called fixed venturi type carburetors. The variable venturi continuously changes in diameter from low to high speed in proportion to the intake air volume to give smooth aspiration at low speeds and improved power output in the high speed range. Honda motorcycles, scooters and ATVs use one of two variable venturi designs.

1. The constant venturi type (CV): the venturi diameter is altered automatically by vacuum piston that rises and falls to alter the diameter. (The throttle valve is installed as a separate mechanism.)
2. The piston valve or flat slide type: a throttle-controlled piston is used to alter the venturi diameter.



Principle of the vacuum piston operated CV type

As the engine is started and the throttle valve opens, the air flow in the main bore exerts a strong negative pressure on the lower section of the vacuum piston (see Carburetor theory). At this point air is drawn out of the carburetor's vacuum chamber and pressure in the chamber drops. The diaphragm is lifted due to atmospheric pressure, and the vacuum piston is raised. When the throttle valve is closed, air flow in the main bore is obstructed. Pressure returns to that of the atmosphere and the vacuum piston is lowered by spring force.



FUEL SYSTEM

Operation of systems

The carburetor is comprised of a starting system which uses either a choke valve or bystarter valve, a float system for fuel supply, and slow and main jet systems etc.

The fuel supply system varies with the degree of throttle opening and regulates fuel according to a slow system at low throttle openings (throttle opening: fully closed to 1/4 open). At medium throttle openings (opening: 1/8—3/4), the main system's jet needle is used to regulate the fuel. The straight section of the jet needle regulates at 1/8—1/2, and the jet needle clip position or jet needle tapered section diameter regulates at 1/4 - 3/4. When the throttle is fully open (actually a range of 1/2—fully open) the fuel is regulated by the main jet of the main system.

Float system

The float chamber holds a constant level of fuel in order that the engine may be provided with a stable supply of the required air-fuel mixture.

As fuel is consumed and the level in the chamber falls, the float and float valve are lowered and the chamber is immediately refilled to a specified level. A rise in fuel level causes the float and its valve to rise, the valve contacts the valve seat and the fuel supply is cut off. This operation is repeated continually as the engine is run.

The float valve contains a spring which lightly depresses the valve so that it does not become dislodged from the seat by vibration when the vehicle is running. To keep the inside of the float chamber at atmospheric pressure, there is a connection to the outside of the carburetor known as the air vent passage.

An overflow tube is provided to vent off any excess fuel to the outside of the carburetor, should the valve and seat become separated due to the intrusion of dirt or other foreign matter.

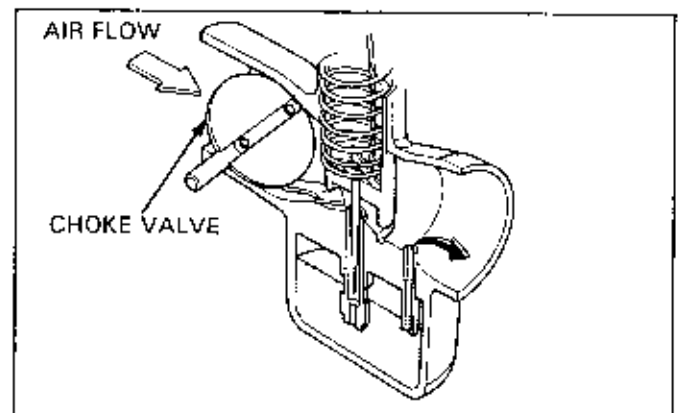
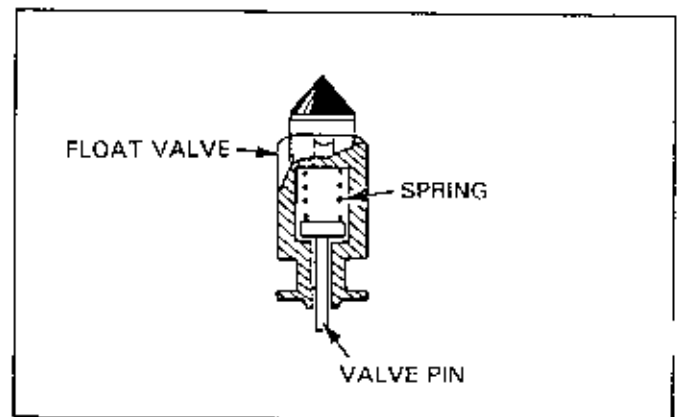
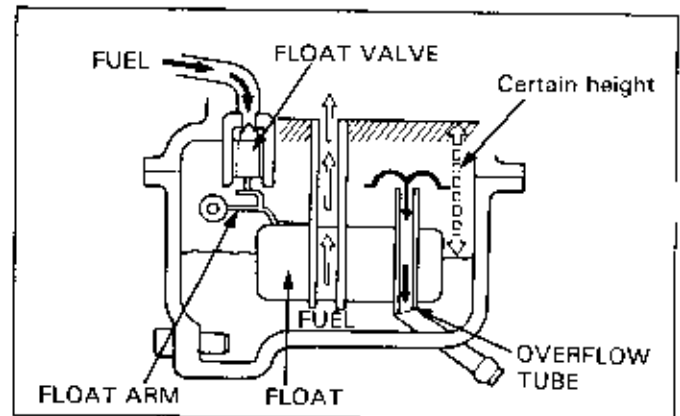
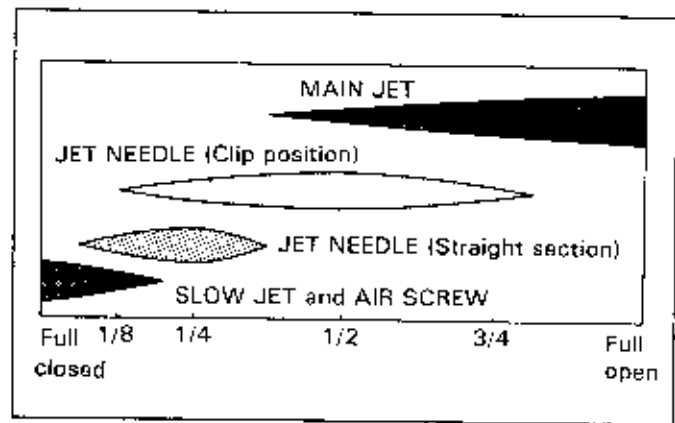
Starting system

To improve starting when the engine is cold and the fuel is not sufficiently gaseous, the carburetor is equipped with either a choke or bystarter to enrich the mixture.

<Choke system>

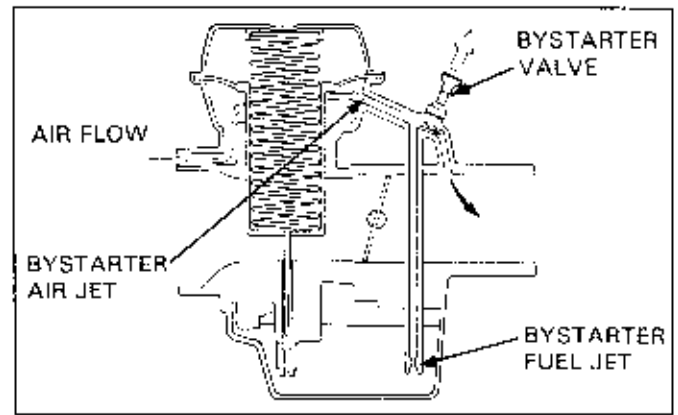
A valve is fitted to the air cleaner side of the carburetor. The valve is shut down during starting to reduce the mass flow of air and create an increase in negative pressure in the main bore. The resulting mixture is rich, having a proportionally low volume of air.

The choke valve is provided with a relief mechanism which ensures the optimum opening of the valve under conditions of negative pressure above a certain level, thus preventing the supply of an over-rich mixture to the engine.



<Bystarter system (manual)>

As the bystarter is opened, the bystarter circuit connects with the main bore. As a vacuum is created in the main bore on starting, air and fuel (drawn from the bystarter air jet and bystarter fuel jet respectively) are injected into the main bore to supply a rich mixture.



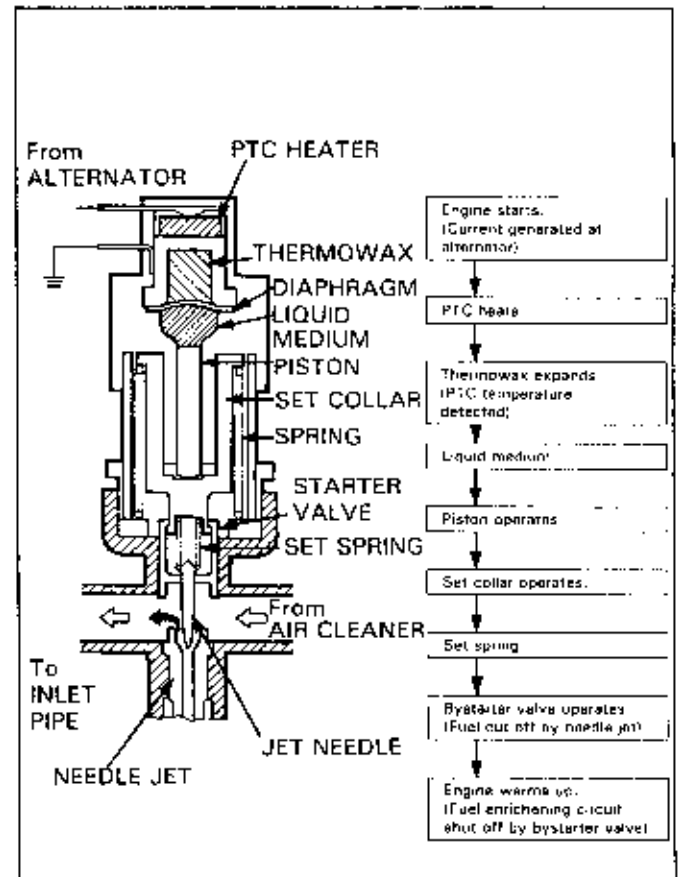
<Auto-bystarter system>

The auto-bystarter PTC is a device for increasing the volume of fuel. It is comprised of components such as a heating element, thermo-wax, a liquid medium, piston and the bystarter valve. The principle of operation is as follows:

When the engine is stopped and there is no production of current from the alternator, the starter valve is maintained in the raised position by a spring. In this position the fuel increase circuit is fully open, ready for supply at any time.

When the engine starts, fuel is supplied through the fuel increase circuit.

At the same time, the alternator sends current to the PTC for heating. The increase in heat is sensed by the thermowax which begins to expand. The movement is transmitted through the liquid medium to the piston, set collar and set spring, and the starter valve is depressed. As the valve is lowered, the jet needle starts to shut off the fuel increase circuit, which, after a few minutes closes fully, ending fuel compensation.

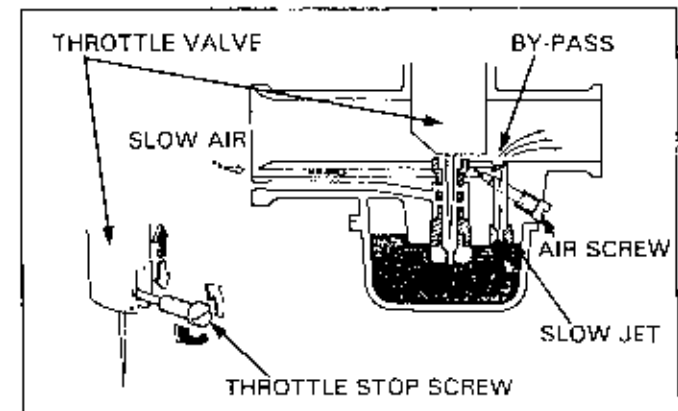


Slow system (low degree of opening)

As the throttle valve is only slightly open at low engine speeds (degree of opening: fully closed - 1/4), pressure on the intake side is low, which allows some residual gas from combustion being sucked back into the intake manifold where it is mixed with fresh charge from the carburetor. The resulting mixture is lean.

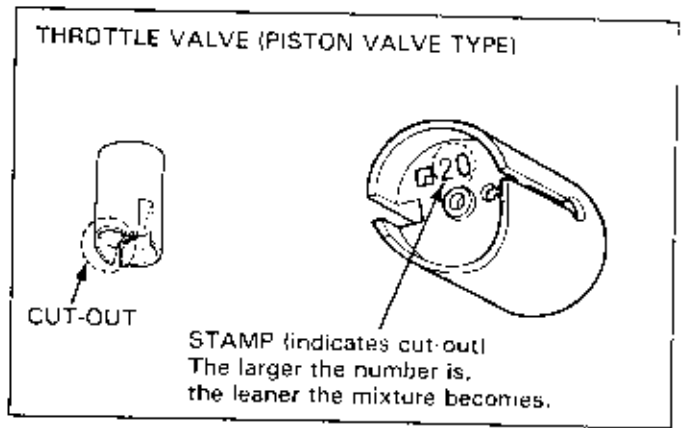
Low engine speed is linked with lower compression in the cylinder, resulting in a richer mixture, and it is necessary to raise the combustion velocity.

For this purpose, the engine includes a slow fuel supply system which is separate from the main system.



FUEL SYSTEM

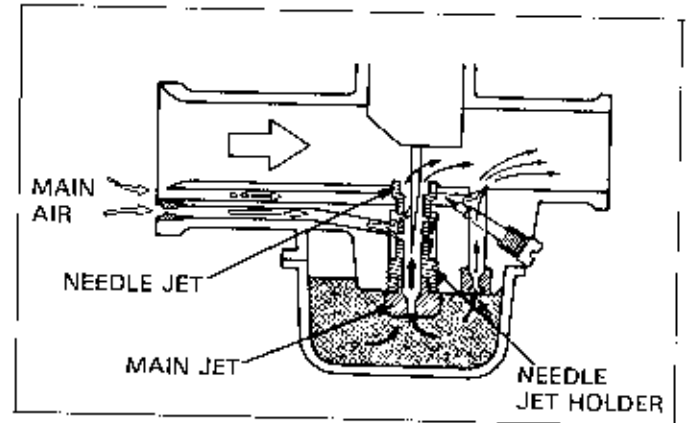
Piston valve type throttle valves have a cut-out on the intake side. The larger the cut-out, the greater the volume of air entering and the leaner the mixture.



Main system (medium throttle opening)

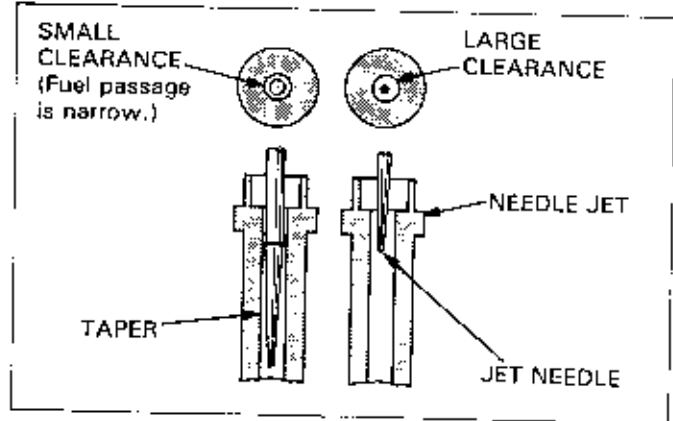
When the throttle valve is opened to raise the engine speed, a greater volume of air-fuel mixture is required than for idling. The carburetor is equipped with the main system for this purpose. The degree of opening of the throttle valve is divided into two stages.

With a degree of opening $1/8 - 1/2$: the air flow in the main bore facilitates a drawing up of the fuel from the gap between the jet needle and needle jet (see Carburetor Theory). The fuel is atomized by air which has entered the air bleed hole of the needle jet holder from the main air jet.



With a degree of opening $1/4 - 3/4$: the fuel drawn from the tapered section of the jet needle is regulated. The greater the valve opening, the further the tapered jet needle rises, increasing the cross sectional area for fuel passage and thus the volume of fuel supplied. In piston type throttle valves, the jet needle contains clip grooves in five stages (Stage 1, 2, 3, etc. counted from the top). The clip position stage number increases, with an increase in the degree of throttle opening, raising the cross sectional area of fuel passage, and hence the volume of fuel.

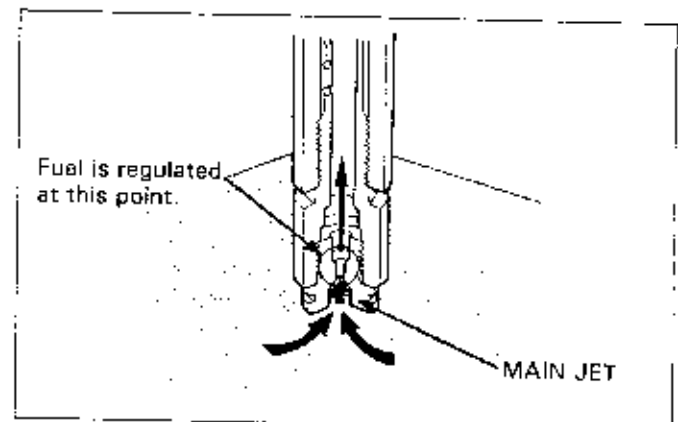
Size of the main jet does not affect the air-fuel mixture ratio at this stage, as the fuel flow at main jet is greater than at the needle jet.



Main system (fully open)

With a degree of throttle opening of $1/2 -$ fully open, the venturi bore diameter and mass flow of air become maximum. At this time the volume of fuel drawn from the gap between the needle jet and jet needle becomes too great and exceeds the flow volume of the main jet.

When the clearance between the needle jet and jet needle is too great, the fuel flow is regulated by the main jet to prevent an overly rich fuel-air mixture.



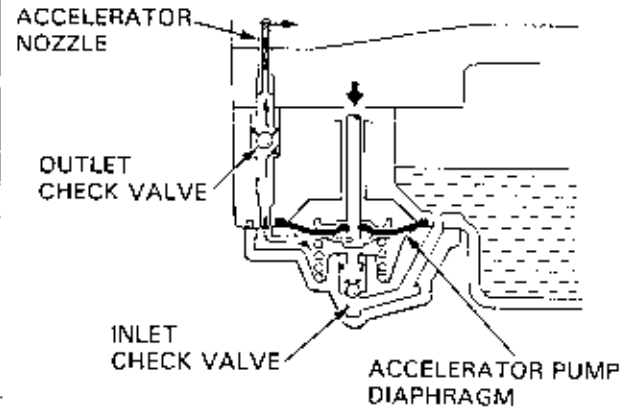
ACCELERATOR PUMP

When the throttle valve is opened suddenly, air-fuel mixture drawn into the cylinder momentarily becomes lean. Because the vacuum at the venturi drops, air flow at the venturi slows down and the drawn-up fuel becomes too little compared with the air. To avoid thinning of the mixture under these conditions, an accelerator pump is used for temporary enrichment. The principle of operation of the pump is as follows.

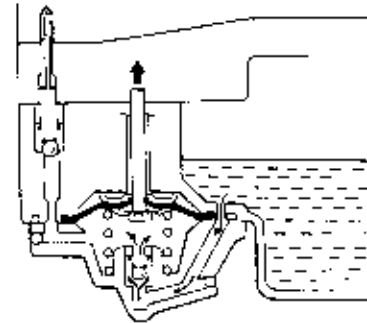
As the throttle valve is opened, the pump's diaphragm is depressed by the pump rod. At this time the inlet check valve is shut, so the pump chamber undergoes a rise in pressure. The outlet check valve is then opened and fuel is supplied to the main bore via the pump hole.

As the throttle valve is shut down, the accelerator pump's diaphragm is returned by spring action. At this time the inlet check valve is opened and fuel from the float chamber enters the pump chamber. The outlet check valve is closed at this point to prevent air being drawn in through the pump hole.

- Throttle valve opens:



- Throttle valve closes:

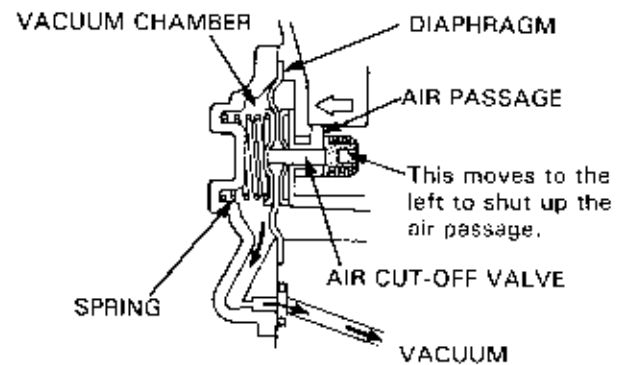


AIR CUT-OFF VALVE

When the throttle lever is turned in the "close" direction and engine braking is applied, the fuel mixture becomes lean. An ignited air/fuel mixture is discharged into the exhaust pipe, resulting the afterburn. To prevent this afterburn, the air cut-off valve shuts the air passage to the slow jet to temporarily make the fuel mixture rich.

With the throttle valve closed and the vacuum in the main bore increased, vacuum in the air cut-off valve also increases and moves the diaphragm to shut the air passage.

With the vacuum in the main bore decreased, the spring moves the diaphragm backward and opens the air passage.



REED VALVE

INSPECTION

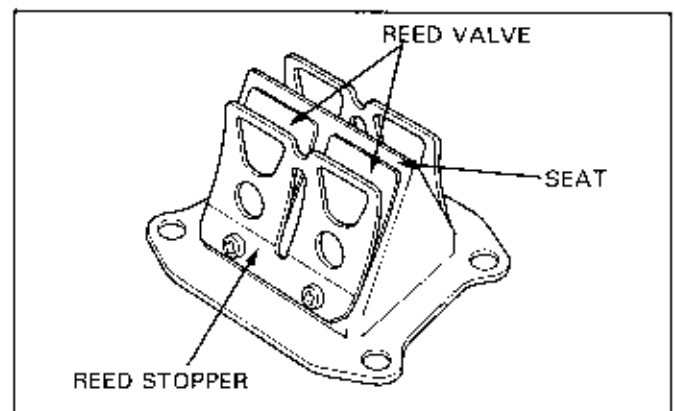
Refer to the Model Specific manual for removal/installation.

Check the reed valve for fatigue or damage and replace the reed valve assembly if necessary.

Check the reed valve seat for cracks, damage and clearance from the reed and replace the reed valve assembly if necessary.

NOTE

- Be sure to replace the reed valve as an assembly. Disassembling or bending the reed stopper will cause engine trouble.



FUEL SYSTEM

FUEL LINE

NOTE

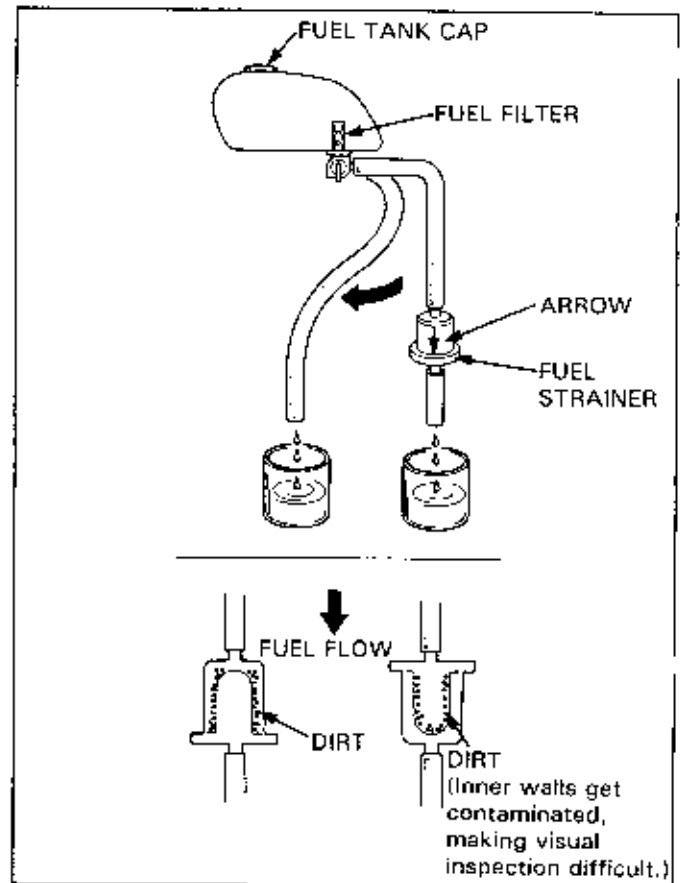
- Refer to section 2 for fuel filter inspection.

1. Check the fuel tank cap and/or fuel tank breather tube for clogging (no breather tube on California, on-road models).
2. Visually inspect the fuel strainer for contamination. Check the fuel flow with the fuel strainer installed and with the strainer removed. Replace the fuel strainer if it is excessively contaminated or if the fuel flow is not smooth.

NOTE

- Note the installation direction of the fuel strainer. Be sure to install it as shown in the drawing, i.e., with the cup facing down. Fuel flows even though the strainer is installed upside down, but it contaminates the inner wall of the strainer and prevents visual inspection of the strainer.

3. Remove the fuel valve lock nut and check the fuel strainer screen for contamination. Tighten the lock nut to the specified torque.

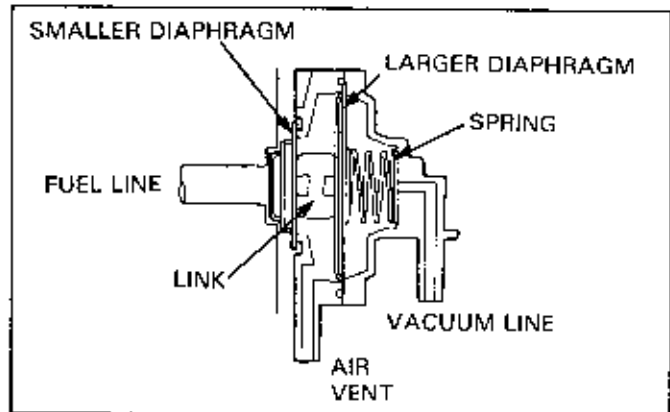


FUEL AUTO VALVE

The fuel auto valve has two diaphragms which are interconnected with an aluminum link.

When the engine is started, vacuum force is applied to the smaller diaphragm through the larger diaphragm and link, the fuel line opens and the fuel starts to flow.

When the engine is stopped, the diaphragms are returned to their original positions by the spring and the fuel line is blocked by the small diaphragm.



INSPECTION

⚠ WARNING

- Gasoline is extremely flammable and is explosive under certain conditions.

Keep flames and sparks away from gasoline and wipe up spilled gasoline at once.

CAUTION

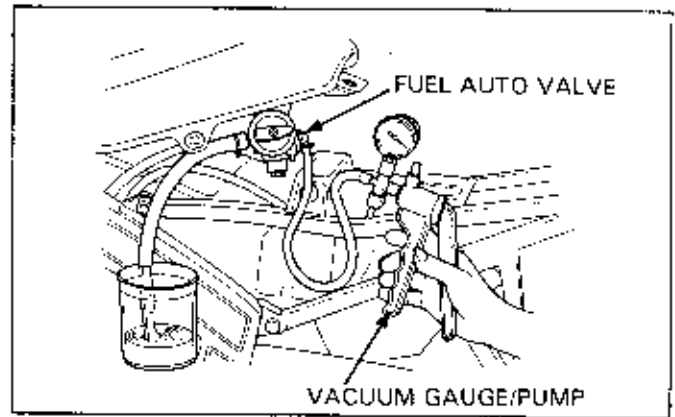
- Be sure to remove the diaphragms from the fuel auto valve before using compressed air to blow out the air passages. Compressed air will damage the diaphragms or may force them off the aluminum link.

1. Disconnect the fuel line and place it in a clean container as shown.

NOTE

- Place a clean container under the fuel tube.
- Refer to the Model Specific manual for replacement.

2. Connect the fuel auto valve vacuum tube to the vacuum pump and apply vacuum. Be sure that the fuel flows out smoothly.
If the vacuum does not remain steady, it indicates the diaphragm is incorrectly installed or damaged.
If the vacuum remains steady, but the fuel flow is not smooth, it indicates a clogged filter or incorrectly installed diaphragm.
3. If the fuel flows without the vacuum applied, the diaphragm is incorrectly installed.



Refer to the Model Specific manual for replacement procedure.

CARBURETOR DISASSEMBLY/INSPECTION

NOTE

- Refer to the Model Specific manual for carburetor removal and disassembly/separation.

THROTTLE VALVE/BYSTARTER VALVE INSPECTON

Move each valve and be sure that it operates smoothly.

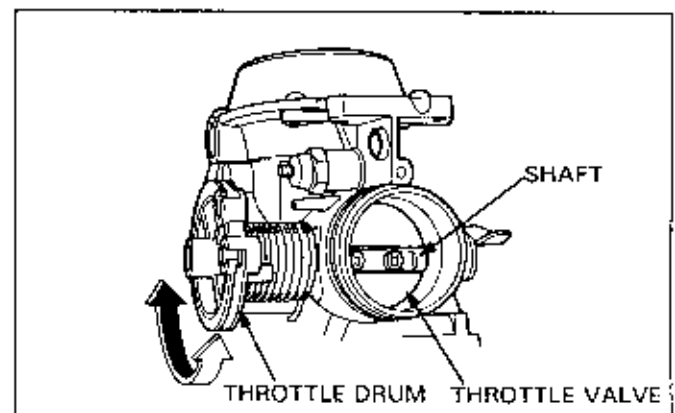
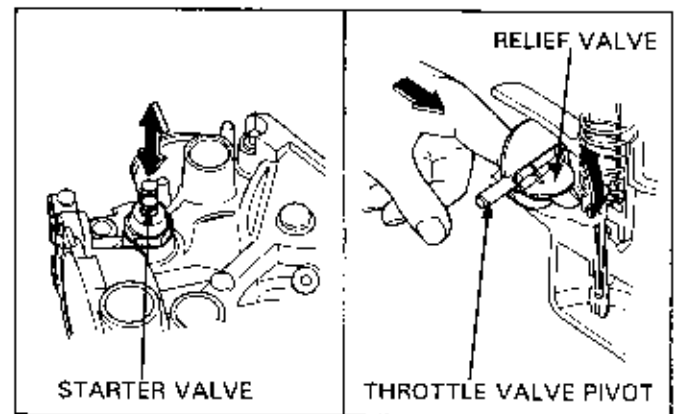
Check the throttle valve shaft for play.

Push the relief valve, if it is installed on the throttle valve, and be sure that it opens and closes smoothly.

THROTTLE VALVE INSPECTION (CV type)

Rotate the throttle drum and be sure that it operates smoothly.

Check the throttle valve shaft for play.

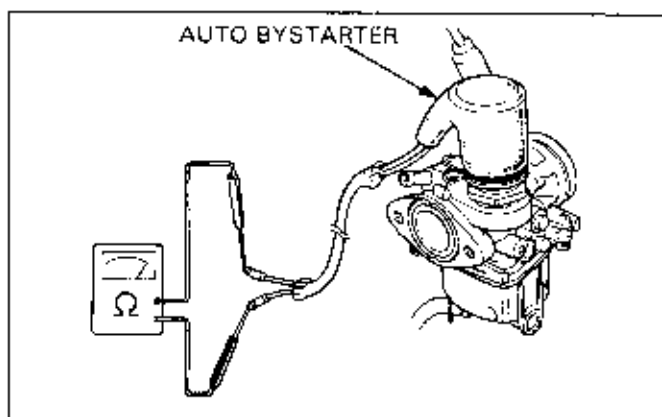


AUTO BYSTARTER VALVE

Connect an ohmmeter to the auto bystarter wire connector terminals and measure the resistance. If the resistance is greatly out of specification, it indicates a faulty PTC in the auto bystarter. Replace the auto bystarter.

NOTE

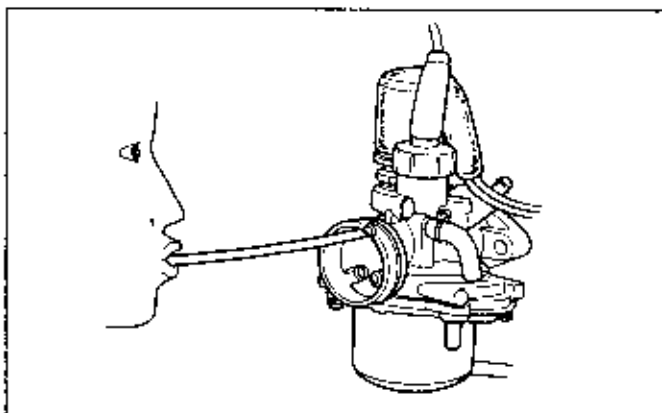
- The auto bystarter might be normal if the resistance is only slightly out of specification. However, be sure to check all related parts for trouble.
- Refer to the Model Specific manual for specified resistance.



Remove the carburetor and let it cool down for 30 minutes. Insert a vinyl tube into the fuel enriching circuit and blow into the tube.

Air should flow into the circuit.

If air does not flow into the circuit, replace the auto bystarter.

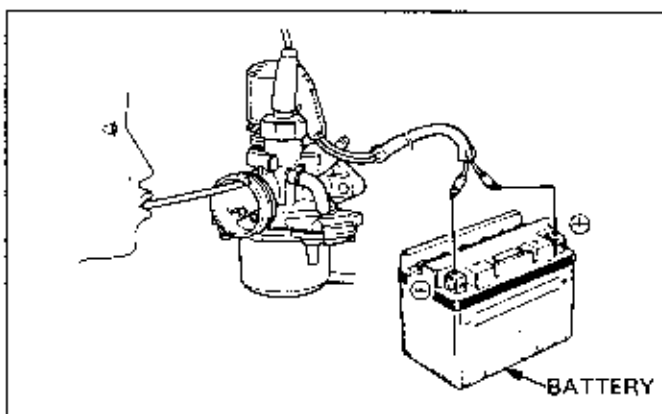


Connect the battery to the auto bystarter terminals and wait for 5 minutes.

Insert a vinyl tube into the fuel enriching circuit and blow into the tube.

Air should not flow into the circuit.

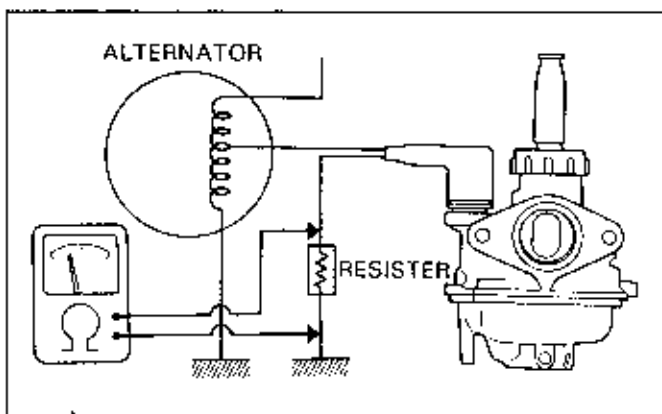
If air flows into the circuit, replace the auto bystarter.



Check the resistor if the auto bystarter is normal but engine is still hard to start.

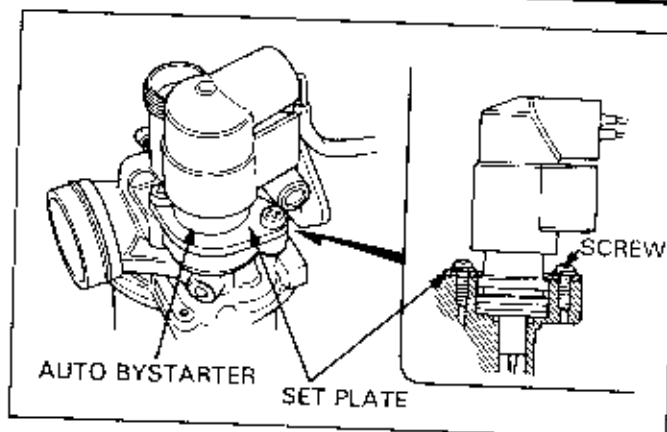
If there is a broken wire in the resistor, current will not flow to the PTC and the auto bystarter will not operate.

If there is a shorted wire in the resistor, current of a higher voltage than specified will reach the PTC. This will cause the fuel enriching circuit to close too soon, and starting will be difficult.



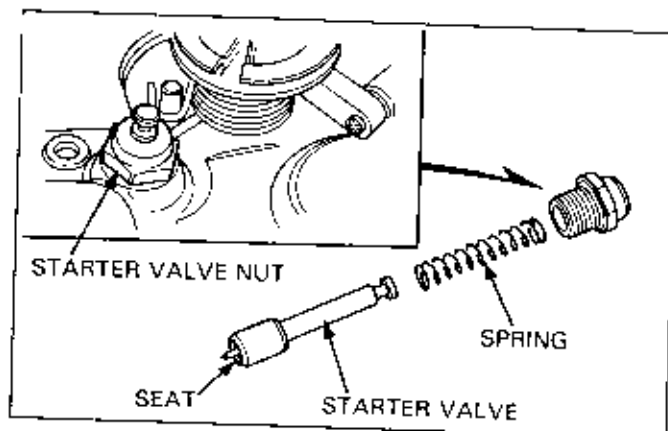
AUTO BYSTARTER REMOVAL

- Remove the bystarter cover.
- Remove the screws and set plate.
- Remove the auto bystarter from the carburetor body.



BYSTARTER VALVE (Manual)

- Loosen the starter valve nut and remove the valve spring and valve.
- Check the valve face for scores, scratches or wear and replace if necessary.
- Check the seat at the tip of the valve for stepped wear and replace if necessary.
- If the valve seat is worn or damaged, it will not close the fuel line of the bystarter circuit, resulting in a constantly rich fuel mixture.

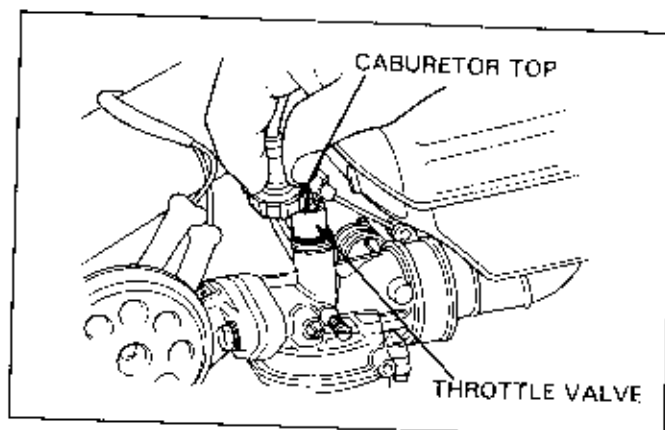


THROTTLE VALVE (Piston valve type)

CAUTION

- Some carburetor/cables have a one-piece throttle cable/carburetor top assembly. Do not try to remove the throttle cable from the carburetor top.

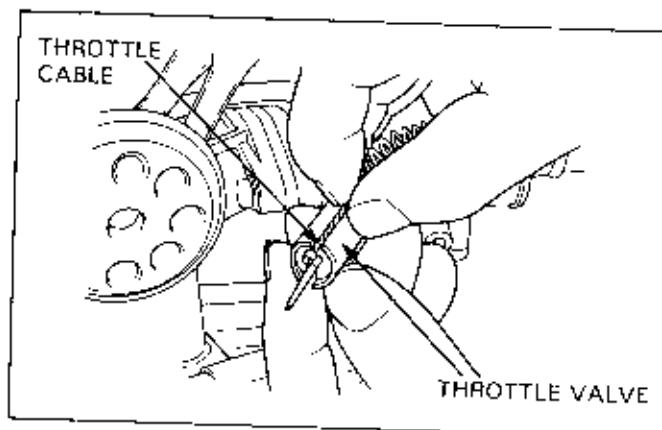
Remove the carburetor top and pull the throttle valve out of the carburetor.



While compressing the spring, disconnect the throttle cable from the throttle valve.

NOTE

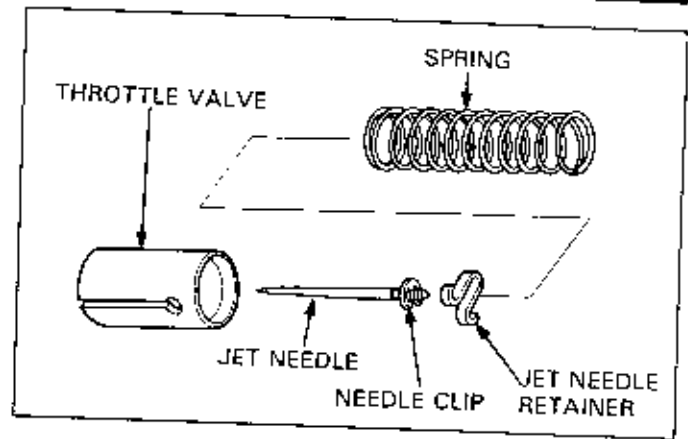
- If the throttle valve is linked to the cable, refer to the Model Specific manual for each model for removal/disassembly steps.



FUEL SYSTEM

Remove the jet needle retainer and jet needle from the throttle valve.

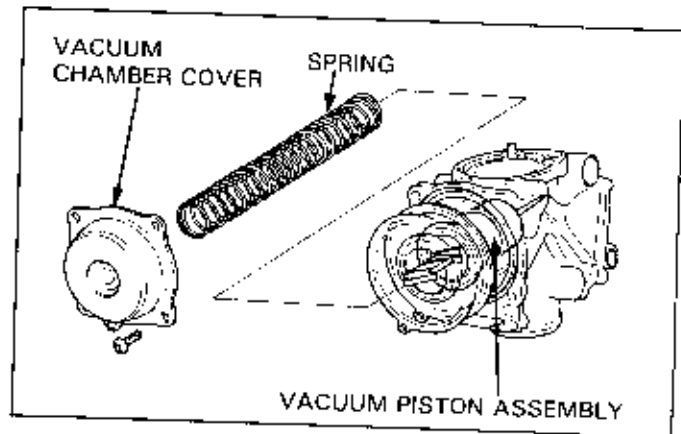
Check the jet needle for stepped wear. The fuel supply to the main circuit cannot be adjusted if the jet needle is worn.



VACUUM PISTON (CV type)

Remove the screws, vacuum chamber cover, spring, and vacuum piston assembly from the carburetor.

Check the piston for smooth operation in the carburetor body.

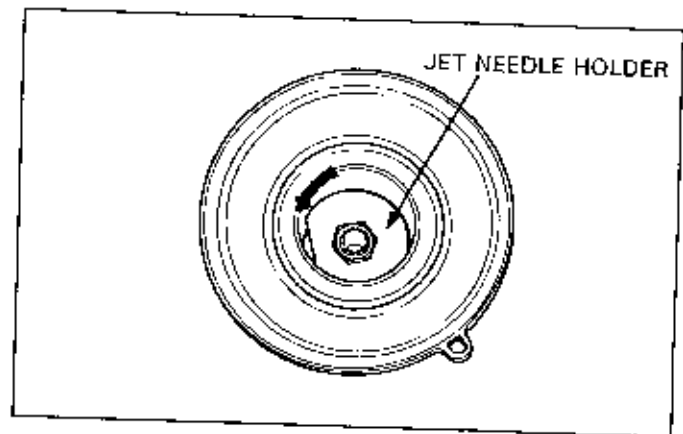


Turn the jet needle holder counterclockwise while prassing it in and remove it.

Remove the spring, spring holder, jet needle, needle holder and washer from the vacuum piston.

NOTE

Certain models are not equipped with a spring holder.

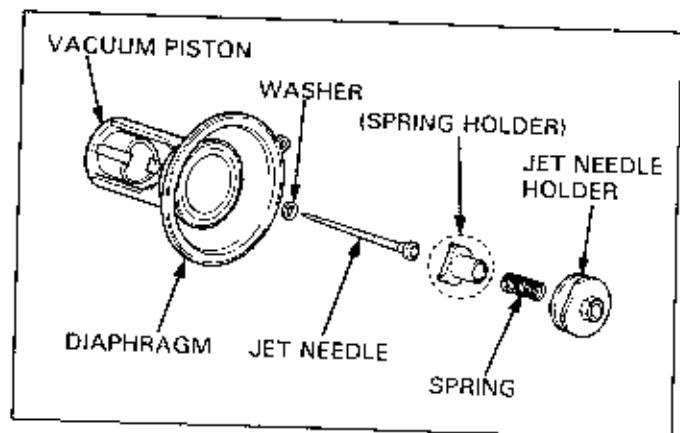


Check the jet needle for stepped wear and replace if necessary.

Check the vacuum piston for damage and replace if necessary.

Check the diaphragm for damage, pin holes, wrinkles and bends and replace if necessary.

Air leaks out of the vacuum chamber if the diaphragm is damaged in any way -- even a pin hole.

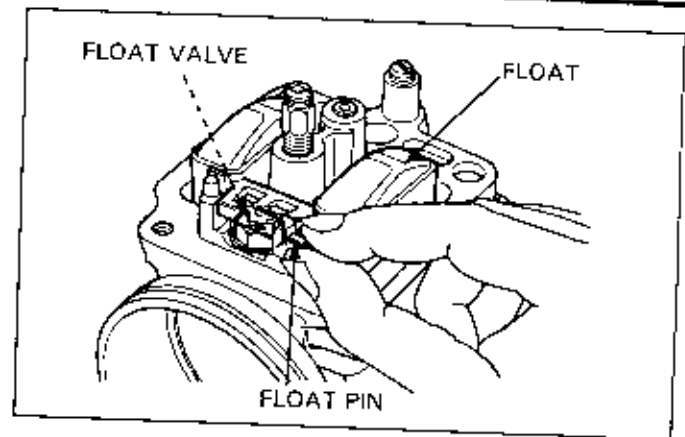


FLOAT/JETS

Remove the float chamber.

Remove the float pin, float and float valve.

Check the float for damage. If it is a hollow float type, also check it for deformation and fuel in the float.



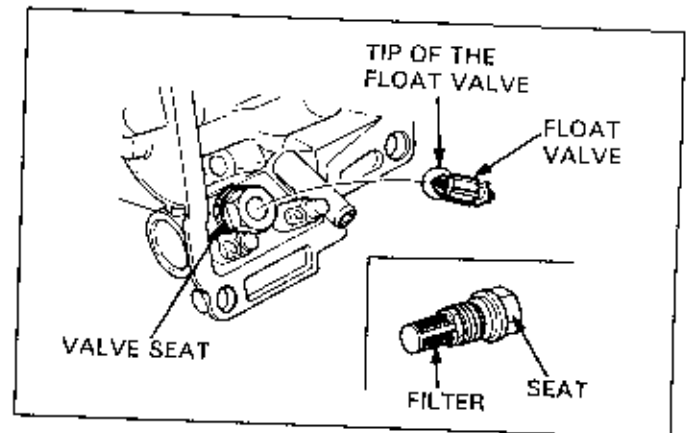
Check the float valve and valve seat for scores, scratches, clogging and damage. Replace if necessary.

Check the tip of the float valve, where it contacts the valve seat, for stepped wear or contamination. Replace the float valve if its tip is worn or contaminated. A worn or contaminated valve does not seat properly and will eventually flood the carburetor.

Remove the valve seat, if it can be removed. (Refer to the Model Specific manual.)

Replace the sealing washer.

Check the filter for damage or clogging. Blow the filter with low pressure air and clean it.



Remove the main jet, needle jet holder, needle jet and slow jet.

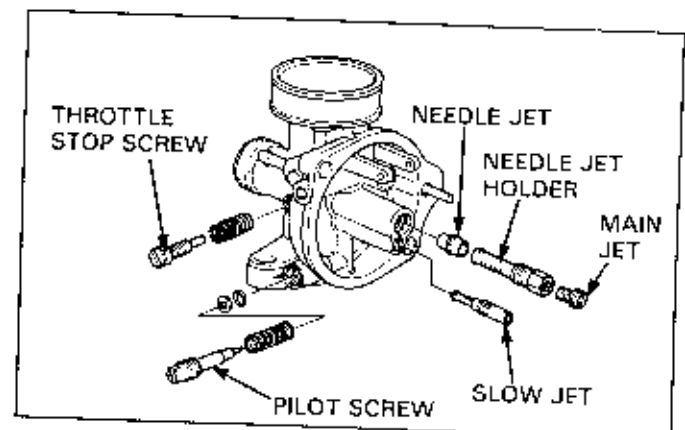
NOTE

- Not all carburetors have a removable needle jet and slow jet. (Refer to the Model Specific manual.)

Turn in the pilot (or air) screw and record the number of turns it takes before it seats lightly.

NOTE

- Do not force the screw against its seat; the seat will be damaged.
- Motorcycles with emission control system: Refer to page 8-18 for pilot (or air) screw removal.



Clean the jets with cleaning solvent and, if necessary, blow open with compressed air.

If the motorcycle is equipped with an accelerator pump, blow open the fuel passages in the float chamber with low pressure air.

FUEL SYSTEM

ACCELERATOR PUMP

Remove the screws and diaphragm cover.

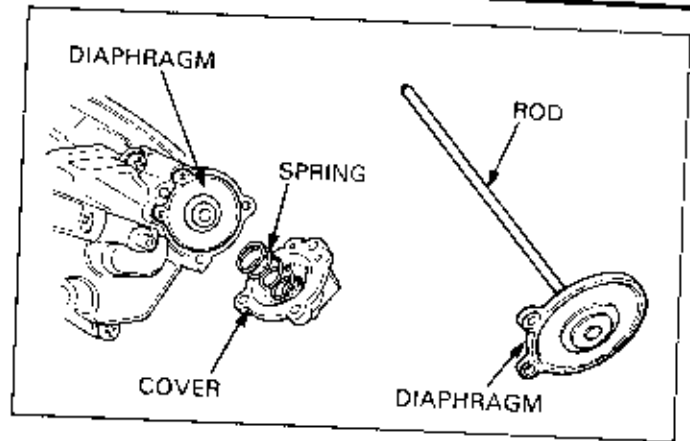
Remove the spring and diaphragm.

Check the rod for bends or damage.

Check the diaphragm for damage or pin holes.

Damage to the rod and/or diaphragm reduces the efficiency of the pump, leading to "hunting" during acceleration.

Blow open the fuel passages in the diaphragm cover with low pressure air.



AIR CUT-OFF VALVE

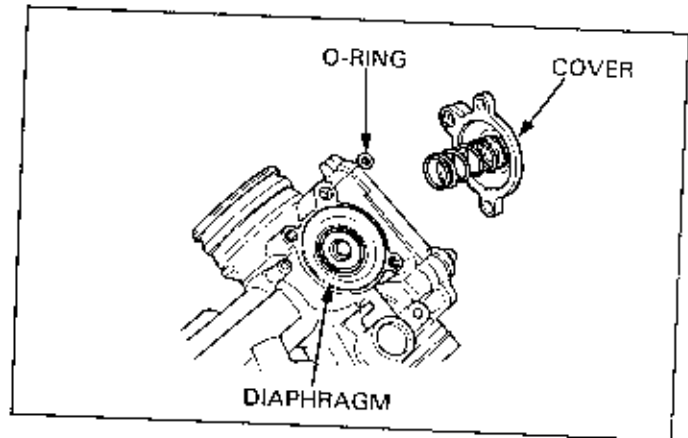
Remove the screws, air cut-off valve cover, spring, diaphragm and O-ring.

Check the diaphragm for damage or pin holes.

Check the O-ring for damage or fatigue.

A worn O-ring and/or damaged diaphragm causes air to leak from the air cut-off valve vacuum chamber.

Blow open air passages in the cover with compressed air.

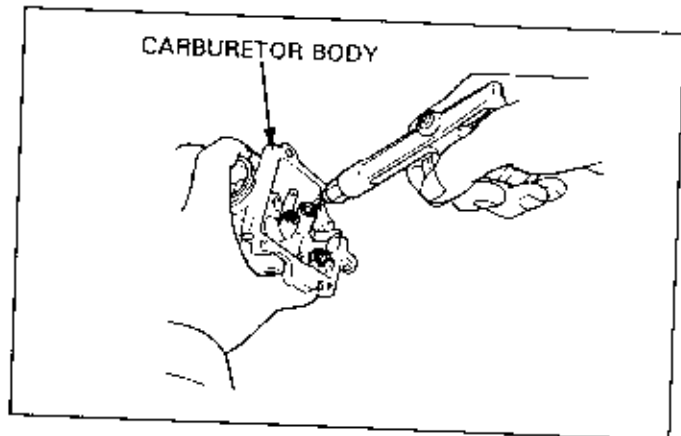


CARBURETOR CLEANING

After removing all parts, blow open air and fuel passages in the carburetor body with compressed air.

CAUTION

- Cleaning the air and fuel passages with a piece of wire will damage the carburetor body or fuel pump.
- Remove the diaphragms to prevent damage to them before using air to blow open the passages.



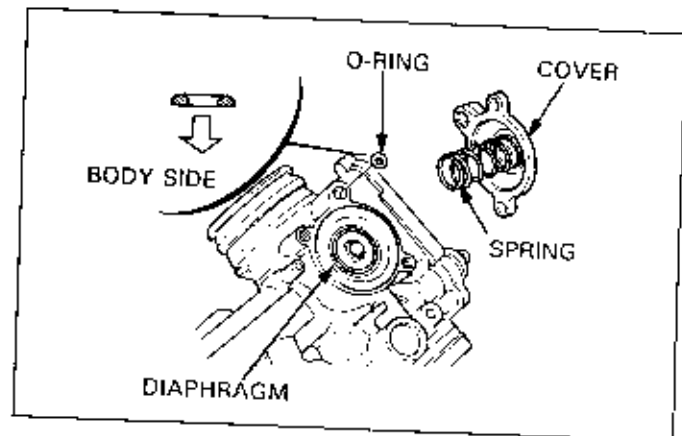
CARBURETOR ASSEMBLY

AIR CUT-OFF VALVE

Install the diaphragm on the carburetor body.

Install the O-ring with its flat side pointed downward.

Install the spring on the cover and install the cover on the carburetor body. Be sure that the diaphragm and O-ring do not interfere with the cover.

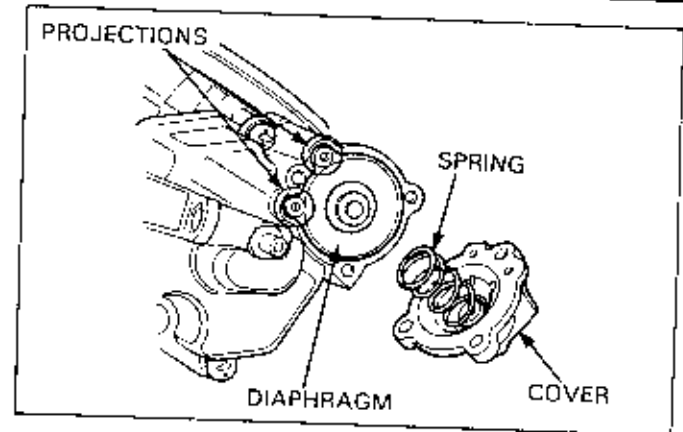


ACCELERATOR PUMP

Align the projections on the diaphragm with the grooves in the float chamber.

Install the spring on the diaphragm cover and install the cover on the float chamber being careful not to pinch the diaphragm.

Adjust the accelerator pump (page 8-24).



FLOAT/JETS ASSEMBLY

Install the needle jet, needle jet holder, main jet, slow jet, throttle stop screw and pilot (or air) screw on the carburetor body.

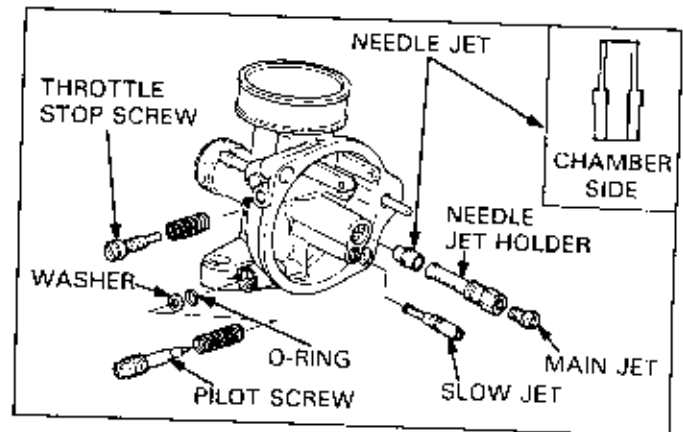
Tighten the pilot (or air) screw until it seats lightly, then turn it out as much as the number recorded during removal.

CAUTION

- Tightening the pilot (or air) screw against its seat will damage the seat.

NOTE

- Be sure to install the needle jet with the smaller hole toward the float chamber.
- Install the pilot (or air) screw and its O-ring and washer in the order as shown in the drawing. If the pilot (or air) screw and carburetor body are replaced with the new ones, adjustment is necessary.
- Motorcycles with emission control systems: Refer to page 8-20 for the pilot (or air) screw installation (U.S.A. only).

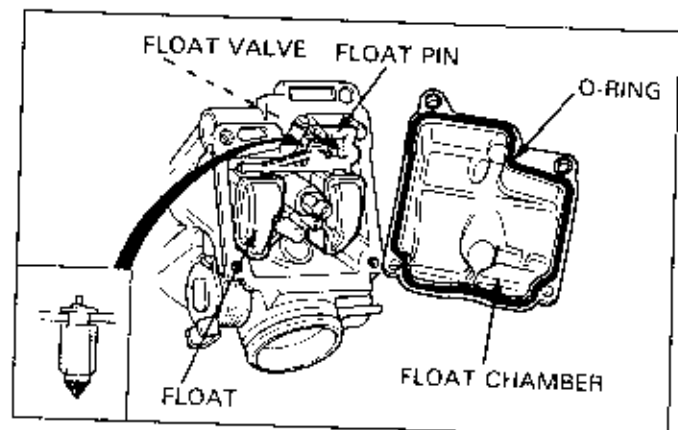


Install the float, float valve and float pin.

Install the O-ring on the float chamber and tighten the float chamber with the screws.

NOTE

- If the float valve must be hung from the float arm lip, note the installation direction of the float valve.



FUEL SYSTEM

FLOAT LEVEL INSPECTION

NOTE

- Check the float level after checking the float valve and float (page 8-13).
- Set the float level gauge so that it is perpendicular to the float chamber face and in line with the main jet.

Set the carburetor so that the tip of the float valve just contacts the float arm lip. Be sure that the float valve is securely in contact with the valve seat.

Measure the float level with the float level gauge.

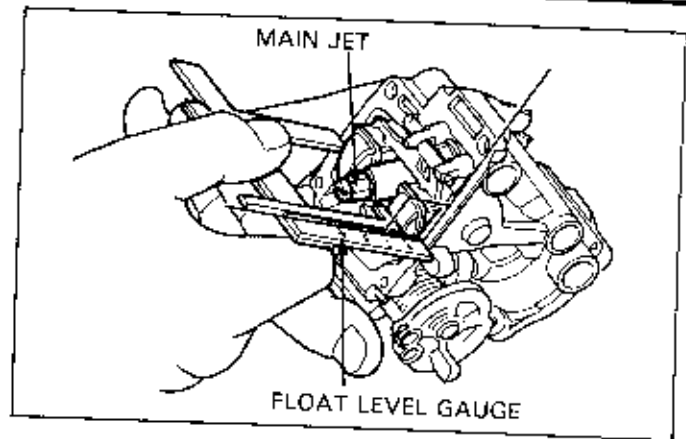
TOOL

FLOAT LEVEL GAUGE 07401-0010000

If the level is out of specification and the float arm lip can be bent, adjust the float level by bending the lip. Non-adjustable floats must be replaced.

NOTE

- Be sure to keep the float level at the specified height. If the float level is low/high, fuel mixture becomes lean/rich.



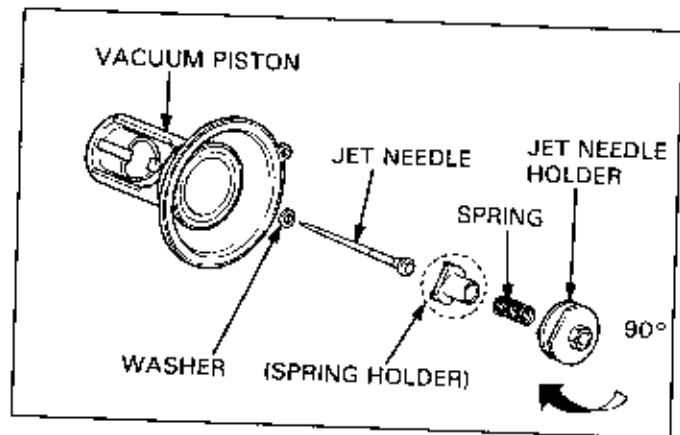
VACUUM PISTON (CV type)

Install the washer on the jet needle and install the jet needle in the vacuum piston.

(Install the spring holder with its pawls aligned with the grooves in the piston, if installed.)

Install the spring.

Turn the jet needle holder clockwise while pressing it into the vacuum piston until it locks. Projections on the vacuum piston and jet needle holder should be aligned after turning.



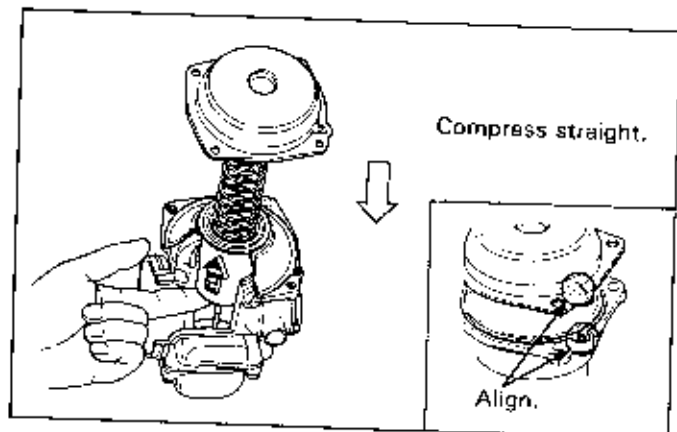
Install the vacuum piston on the carburetor body.

Lift the bottom of the piston with your finger to set the diaphragm rib in the groove in the carburetor body. Install the spring.

Install the vacuum chamber cover with its cutout aligned with the hole in the tab of diaphragm.

NOTE

- Be careful not to pinch the diaphragm, and to keep the spring straight.



THROTTLE VALVE (Piston valve type)

NOTE

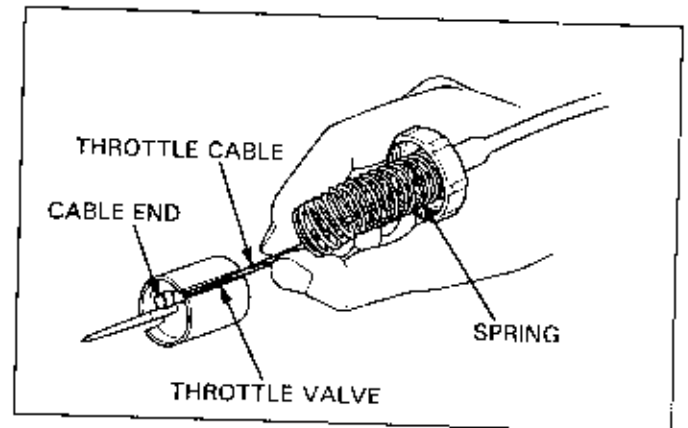
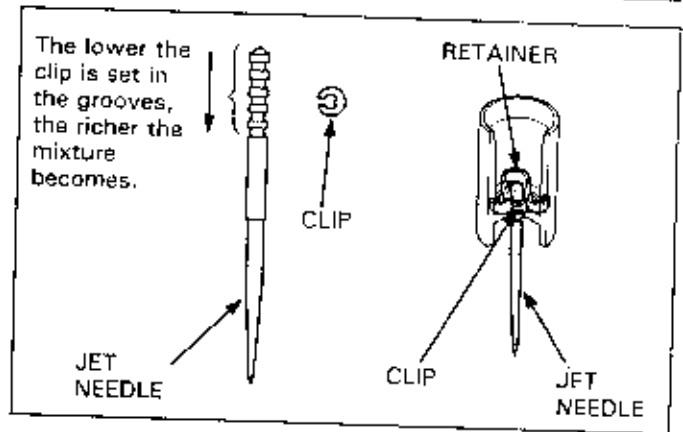
- Cable-operated throttle valve type carburetor (throttle valve is connected to the cable via the link): Refer to the Model Specific manual for throttle valve removal/disassembly.

Install the clip on the jet needle. (Refer to the Model Specific manual for the standard clip position.)

Install the jet needle into the throttle valve and secure with the retainer.

Route the throttle cable through the spring and compress the spring fully.

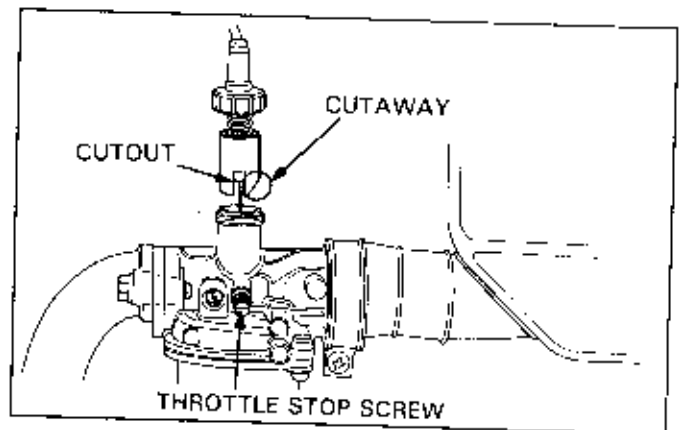
Attach the throttle cable end to the bottom of the throttle valve and thread the throttle cable through the slot in the valve.



Align the cutout in the throttle valve with the throttle stop screw on the carburetor body and install the valve on the carburetor.

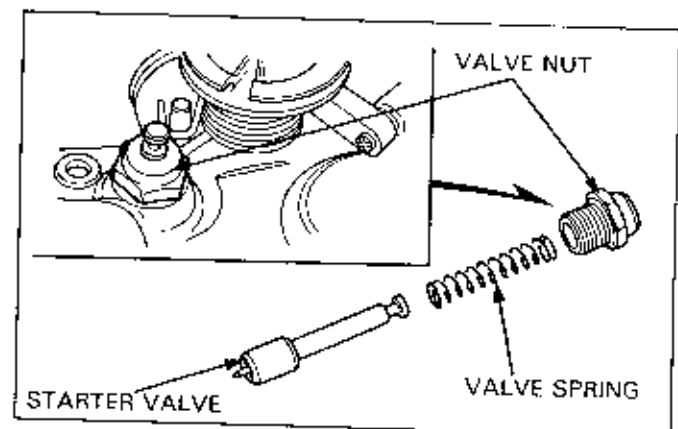
NOTE

- Be sure that the throttle valve cutaway is toward the air cleaner case side as it determines the volume of air for fuel mixture.



BYSTARTER VALVE (MANUAL)

Install the starter valve, spring and nut.

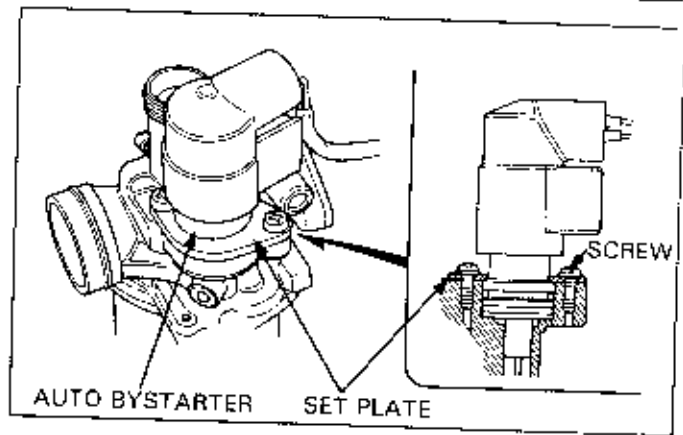


FUEL SYSTEM

AUTO BYSTARTER

Apply a small amount of grease to the O-ring and install the auto bystarter into the carburetor body. Refer to the Model Specific manual for the auto bystarter installation angle.

Secure the auto bystarter with the set plate and screws. Install the auto bystarter cover.



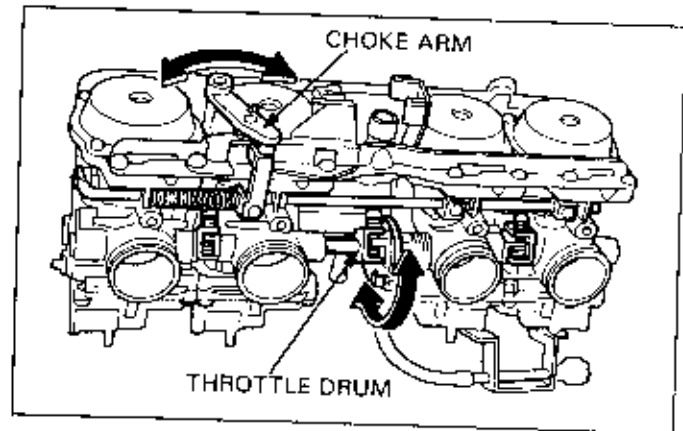
CARBURETOR SEPARATION/ASSEMBLY/ INSTALLATION

Refer to the Model Specific manual for carburetor separation/assembly.

Check and adjust the carburetors as described below after the assembly.

Move the choke arm by hand and be sure that the starter valve operates smoothly.

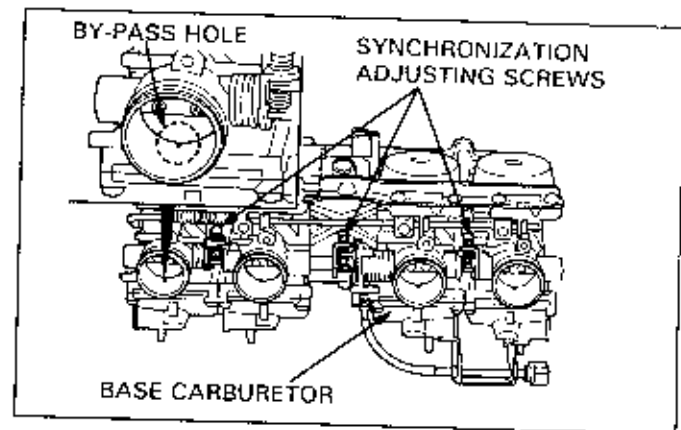
Rotate the throttle drum and be sure that all the throttle valves open and close smoothly.



Turn the throttle stop screw to align the throttle valve with the edge of the by-pass hole in the base carburetor. (Base carburetor is the one on which the throttle stop screw is installed. Refer to the Model Specific manual.)

Align each throttle valve with the by-pass hole edge by turning the synchronization adjusting screws. (Refer to the Model Specific manual for the location of each synchronization screw.)

Install the carburetor and adjust the synchronization.



PILOT (OR AIR) SCREW ADJUSTMENT

PILOT (OR AIR) SCREW REMOVAL

NOTE

- Adjust the pilot (or air) screw after all other engine adjustments are within specifications.
- The pilot screw (or air screw) is factory pre-set and should not be removed unless the carburetor is overhauled.
- The screw limiter cap (or plug) is factory installed to prevent misadjustment. Do not remove the limiter cap (or plug) unless the screw is being removed.
- PLUG TYPE ONLY: Cover all openings with tape to keep metal particles out when the plug is drilled.

Limiter cap type

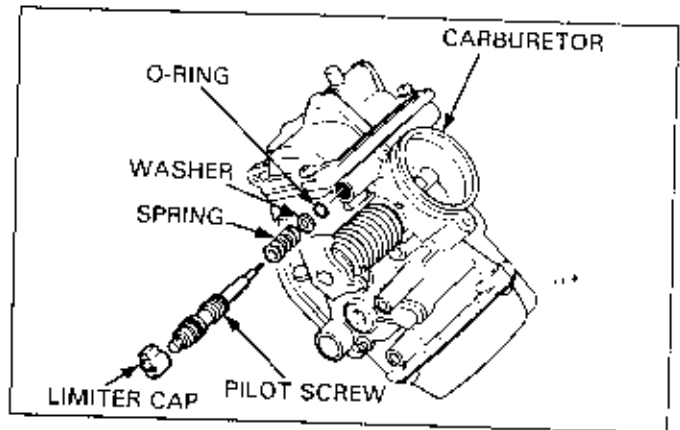
Using a pair of pliers, break off the pilot screw (or air screw) limiter cap and discard it.

Turn the pilot screw (or air screw) in and carefully count the number of turns before it seats lightly.

Make a note of this to use as a reference when reinstalling the pilot screw.

CAUTION

- Tightening the pilot (or air) screw against its seat will damage the seat.



Remove the pilot (or air) screw and inspect it. Replace it if it is worn or damaged.

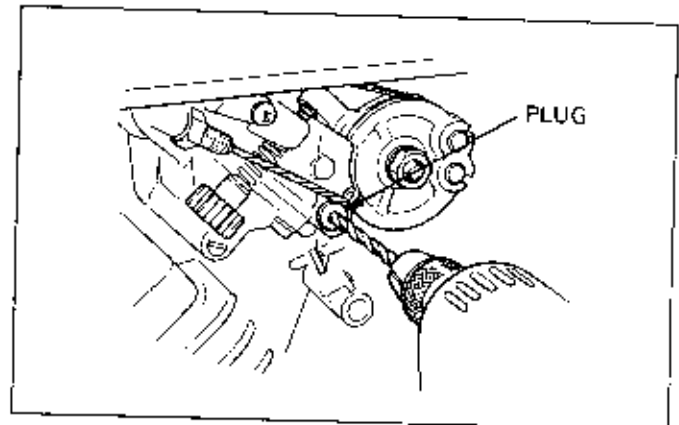
Plug type

Center punch the pilot screw (or air screw) plug to center the drill point.

Drill through the plug with a 4 mm (5/32 in) drill bit. Attach a drill stop to the bit 3 mm (1/8 in) from the end to prevent drilling into the pilot screw.

CAUTION

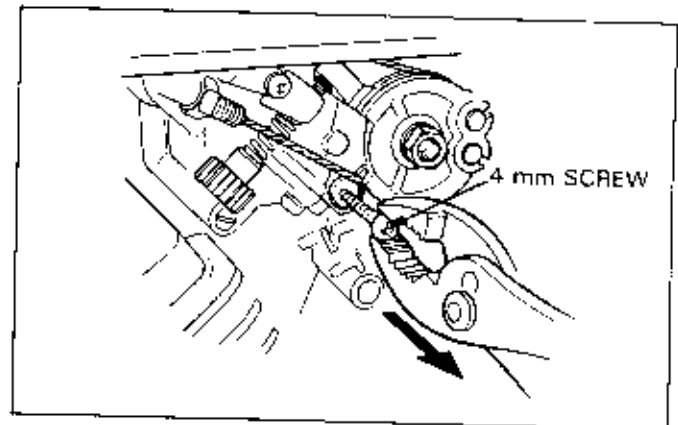
- Use extreme care when drilling into the pilot (or air) screw to avoid damaging it.



Force a self-tapping 4 mm screw (H/C 069399, P/N 93903-3541) into the drilled plug and continue turning the screwdriver until the plug rotates with the screw.

Pull on the screw head with pliers to remove the plug.

Use compressed air to clean the screw area and remove metal shavings.

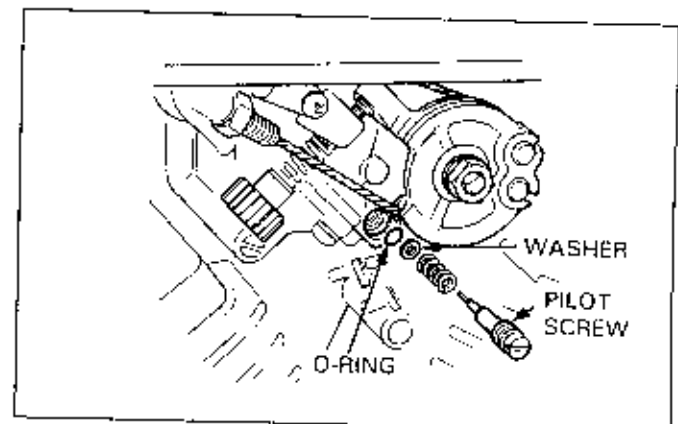


Turn the screw in and carefully count the number of turns until it seats lightly. Make a note of this to use as a reference when reinstalling the screw.

CAUTION

- Tightening the pilot (or air) screw against its seat will damage the seat.

Remove the screw and inspect it. Replace it if it is worn or damaged.



FUEL SYSTEM

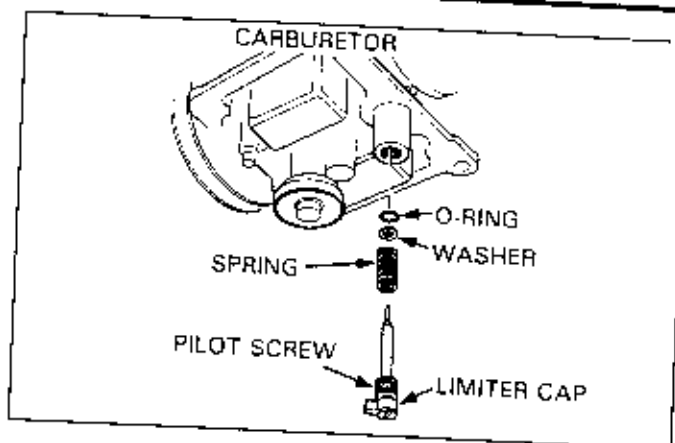
PILOT (OR AIR) SCREW INSTALLATION

Install the screw and return it to its original position as noted during removal.

Perform the pilot screw (or air screw) adjustment if a new screw is installed.

NOTE

- If you replace the pilot screw in one carburetor, you must replace the pilot screws in the other carburetors for proper pilot screw adjustment.
- Do not install a limiter cap or plug over a pilot (or air) screw until the screw has been properly adjusted.



PILOT SCREW ADJUSTMENT

IDLE DROP PROCEDURE (4 stroke, multi-carburetor, emissions control applicable models)

NOTE

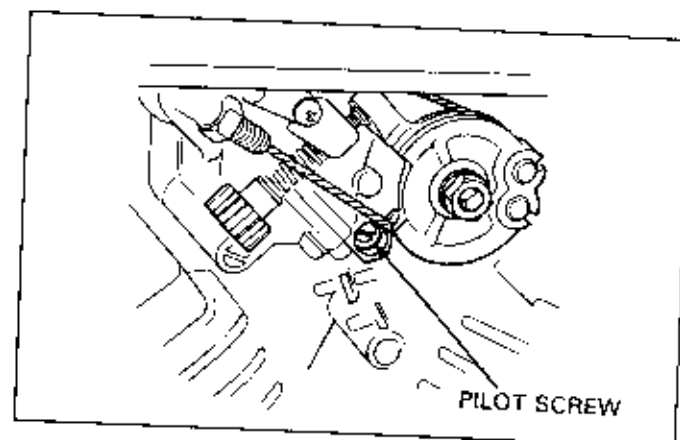
- Make sure the carburetor synchronization is within specification before pilot screw adjustment.
- The pilot screws are factory pre-set and no adjustment is necessary unless the pilot screws are replaced.
- Use a tachometer with graduations of 50 rpm or smaller that will accurately indicate a 50 rpm change.

1. Turn each pilot screw clockwise until it seats lightly, then back it out to the specification given. This is an initial setting prior to the final pilot screw adjustment.

INITIAL OPENING: Refer to the Model Specific manual.

CAUTION

- Tightening the pilot screw against its seat will damage the seat.



2. Warm up the engine to operating temperature. Ten minutes of stop and go driving is sufficient.
3. Attach a tachometer according to its manufacturer's instructions.
4. Adjust the idle speed to the specified rpm with the throttle stop screw.

IDLE SPEED: Refer to the Model Specific manual.

5. Turn all pilot screws 1/2 turn out from the initial setting.
6. If the engine speed increases by 50 rpm or more, turn all pilot screws out by successive 1/2 turn increments until engine speed does not increase.
7. Adjust the idle speed with the throttle stop screw.
8. Turn the No. 1 carburetor pilot screw in until the engine speed drops 50 rpm.

9. Turn the No. 1 carburetor pilot screw counterclockwise to the final opening from the position obtained in step 8.

FINAL OPENING: Refer to the Model Specific manual.

10. Adjust the idle speed with the throttle stop screw.
11. Perform steps 8, 9 and 10 for all the carburetor pilot screws.
12. Install the new limiter cap (or plug) onto the pilot screw head (page 8-23).

IDLE DROP PROCEDURE (4 stroke, single carburetor, emissions control applicable models)

NOTE

- The pilot screw is factory pre-set and no adjustment is necessary unless the pilot screw is replaced.
- Use a tachometer with graduations of 100 rpm or smaller that will accurately indicate a 100 rpm change.

1. Turn pilot screw clockwise until it seats lightly, then back it out to the specification given. This is an initial setting prior to the final pilot screw adjustment.

INITIAL OPENING: Refer to the Model Specific manual.

CAUTION

- Tightening the pilot screw against its seat will damage the seat.

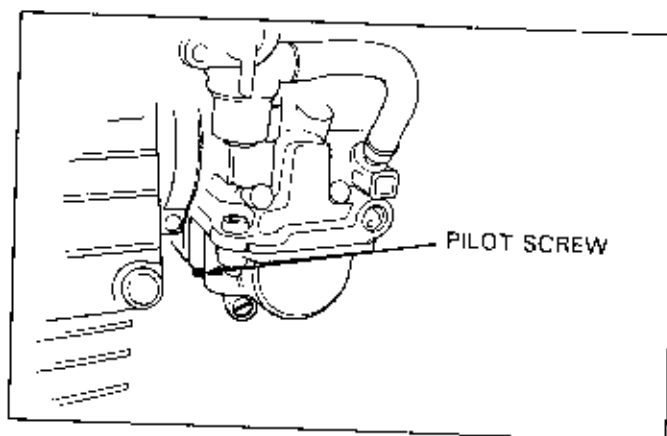
2. Warm up the engine to operating temperature. Ten minutes of stop and go driving is sufficient.
3. Attach a tachometer according to its manufacturer's instructions.
4. Adjust the idle speed with the throttle stop screw.

IDLE SPEED: Refer to the Model Specific manual.

5. Turn the pilot screw in or out slowly to obtain the highest engine speed.
6. Readjust the idle speed with the throttle stop screw.
7. Turn the pilot screw in gradually until the engine speed drops 100 rpm (50 rpm on some models.)
8. Turn the pilot screw counterclockwise to the final opening from the position obtained in step 7.

FINAL OPENING: Refer to the Model Specific manual.

9. Readjust the idle speed with the throttle stop screw.
10. Install the new limiter cap (or plug) onto the pilot screw head (page 8-23).



FUEL SYSTEM

AIR SCREW OR PILOT ADJUSTMENT

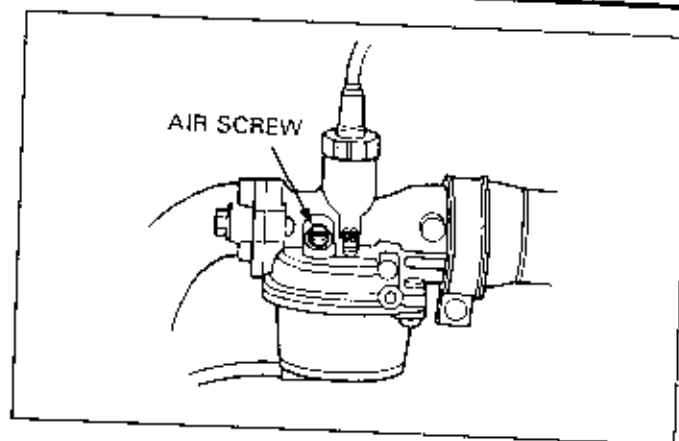
BEST IDLE PROCEDURE (4 stroke, all models)

NOTE

- The air or pilot screw is factory pre-set. Adjustment is not necessary unless the carburetor is overhauled or a new air or pilot screw is installed.

CAUTION

- Tightening the air or pilot screw against its seat will damage the seat.



1. Turn the air or pilot screw clockwise until it seats lightly, then back it out to the specification given. This is an initial setting prior to the final air or pilot screw adjustment.

AIR OR PILOT SCREW OPENING: Refer to the Model Specific manual.

2. Warm up the engine to operating temperature. Ten minutes of stop and go driving is sufficient.
3. Stop the engine and connect a tachometer.
4. Start the engine and adjust the idle speed with the throttle stop screw.

IDLE SPEED: Refer to the Model Specific manual.

5. Turn the air or pilot screw in or out slowly to obtain the highest engine speed.
6. Readjust the idle speed to the specified value with the throttle stop screw.
7. Make sure that the engine does not miss or run erratically. Repeat steps 5 and 6 until engine speed increases smoothly.
8. Readjust the idle speed with the throttle stop screw.
9. Install the limiter cap (or plug) on to the air or pilot screw head (if applicable). (page 8-23).

AIR SCREW ADJUSTMENT (2-stroke engine only)

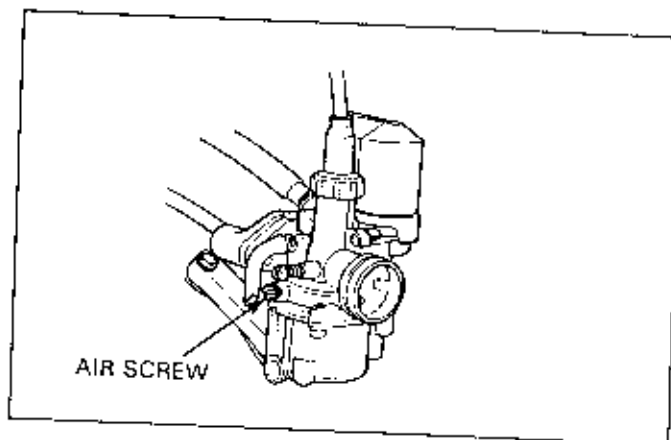
Warm the engine up to operating temperature.

Turn the air screw clockwise until it seats lightly, then back it out to the specification given.

AIR SCREW OPENING: Refer to the Model Specific manual.

CAUTION

- Tightening the air screw against its seat will damage the seat.



Adjust the idle speed with the throttle stop screw.

IDLE SPEED: Refer to the Model Specific manual.

Rev the engine up slightly from the idle speed and make sure that engine speed rises and returns smoothly.

Adjust by turning the air screw in or out within a 1/4 turn if necessary. If the engine cannot be adjusted by turning the air screw within a 1/4 turn, check for other engine problems.

LIMITER CAP (OR PLUG) INSTALLATION

LIMITER CAP

If the pilot screw (or air screw) is removed, a new limiter cap must be installed after the screw is adjusted.

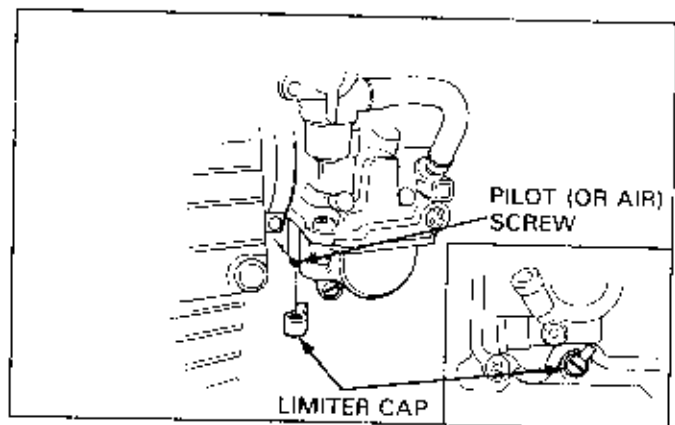
After adjustment, cement the limiter caps over the screws, using LOCTITE® 601 or equivalent. The limiter cap should be placed against its stop as shown preventing further adjustment that would enrich the fuel mixture.

Pilot screw: the limiter cap position permits clockwise rotation and prevents counterclockwise rotation.

Air screw: the limiter cap position permits counterclockwise rotation and prevents clockwise rotation.

NOTE

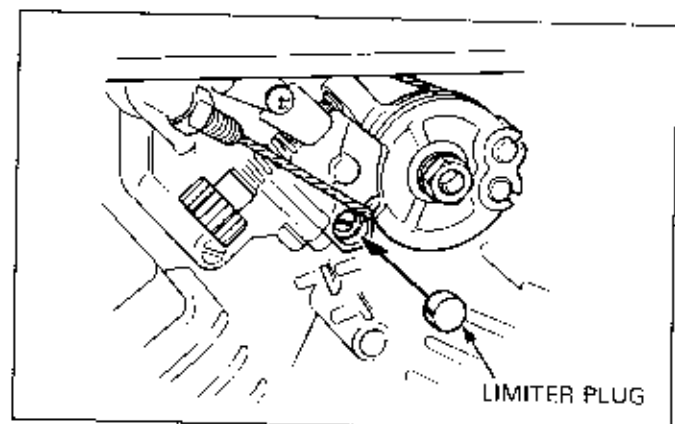
- Do not turn the pilot screw (or air screw) when installing the limiter cap.



LIMITER PLUG

Drive new pilot screw (or air screw) plug into the pilot screw (or air screw) bore with a 7 mm valve guide driver (P/N 07942-8230000).

When fully seated the plug surface will be recessed 1 mm.



FUEL SYSTEM

ACCELERATOR PUMP ADJUSTMENT

NOTE

- Accelerator pump adjustment is not necessary unless the adjusting screw is replaced.

Adjust the idle speed.

Adjust the throttle grip free play.

Measure the clearance between the accelerator pump rod and pump arm.

CLEARANCE: Refer to the Model Specific manual.

If the clearance is not within specification, adjust the clearance by carefully bending the pump arm or by turning the adjusting screw. (Refer to the Model Specific manual.)

HIGH ALTITUDE ADJUSTMENT (U.S.A. only)

When the vehicle is to be operated continuously above 6,500 feet (2,000 m) the carburetor must be readjusted as follows to improve driveability and decrease exhaust emission.

Warm up the engine to operating temperature. Ten minutes of stop and go driving is sufficient.

Turn the pilot screw clockwise to the specified opening (or turn the air screw counterclockwise to the specified opening.)

Refer to the Model Specific manual for standard and high altitude setting.

NOTE

- This adjustment must be made at high altitude to ensure proper high altitude operation.
- On some models the standard main jet must be replaced with an optional, smaller high altitude jet.

Attach a Vehicle Emission Control Information Update Label in the location specified in the label position illustration. (Refer to the Model Specific manual for the specified position.)

NOTE

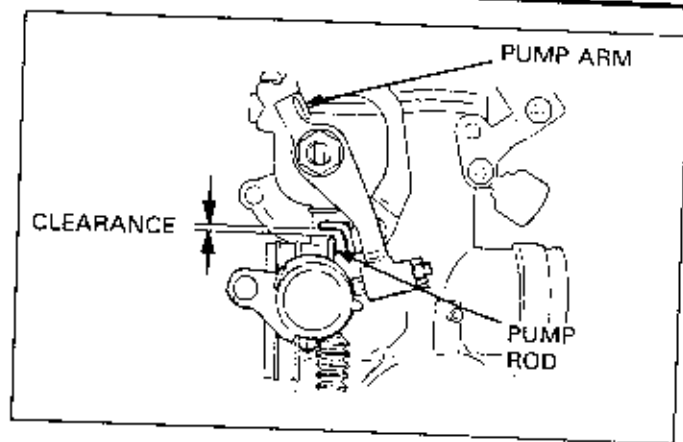
- Do not attach the label to any part that can be easily removed from the vehicle.

WARNING

- Operation at an altitude lower than 5,000 feet (1,500 m) with the carburetors adjusted for high altitudes may cause the engine to idle roughly and the engine may stall in traffic.

When the vehicle is to be operated continuously below 5,000 feet (1,500 m), turn the pilot screw counterclockwise (the air screw clockwise) to its original position and reinstall the standard main jet (as necessary), and adjust the idle speed to the specified rpm.

Be sure to make these adjustments at low altitude.



UPDATE LABEL

VEHICLE EMISSION CONTROL INFORMATION UPDATE
-HONDA MOTOR CO., LTD.
THIS VEHICLE HAS BEEN ADJUSTED TO
IMPROVE EMISSION CONTROL PERFORMANCE
WHEN OPERATED AT HIGH ALTITUDE.
ALTITUDE PERFORMANCE ADJUSTMENT INSTRUCTIONS
ARE AVAILABLE AT YOUR AUTHORIZED HONDA DEALER.

