Adjustment

THROTTLE CABLES

There are two throttle cables, the accelerator throttle cable for opening the butterfly valves and the decelerator throttle cable for closing them. If the cable adjustment is too loose from either cable stretch or maladjustment, the excessive play in the throttle grip will mean a delay in throttle response, especially at low rpm. Also, the butterfly valves may not open fully at full throttle. On the other hand, if the cable adjustment is too tight, the throttle will be too sensitive and hard to control, and the idling speed will be too high.

- Screw in fully the lock nuts and adjusting nuts at the upper end of the throttle cables so as to give the throttle grip plenty of play.



- Turn back the decelerator throttle cable adjusting nut 3 turns. There must still be play in the throttle grip; if there is not, loosen the lock nut at the lower end of the decelerator throttle cable, turn the adjuster to create a small amount of play, and retighten the lock nut.



- Turn back the accelerator throttle cable adjusting nut until just where the throttle grip play is virtually gone, and tighten the lock nut.

- Turn in the decelerator throttle cable adjusting nut until the desired amount of throttle grip play is obtained. Tighten the lock nut.



CARBURETORS ('74~'77 Model)

Although some internal carburetor parts can be adjusted by replacement, repositioning, etc., these adjustments are covered in the Maintenance Section of this manual. The following procedure covers the idling adjustment, which is the adjustment necessary in periodic maintenance and whenever the idling setting has been disturbed. This procedure also includes the necessary steps for obtaining proper carburetor synchronization.

When the idling speed is too low, the engine may stall, and when the idling speed is too high, the fuel consumption becomes excessive, and a resulting lack of engine brake may make the motorcycle difficult to control. Poor carburetor synchronization will cause unstable idling, sluggish throttle response, and reduced engine power and performance.

The following procedure consists of four parts: preliminary checks, preliminary adjustment (sometimes necessary), idling adjustment, and carburetor synchronization.

Preliminary Checks

- In order to obtain correct idling adjustment, first check and then correct, if necessary, the following:
  - Valve clearance (Pg. 14)
  - Engine oil (Pg. 181)
  - Spark plugs (Pg. 12)
  - Ignition timing (Pg. 12)
  - Cylinder compression (Pg. 114)

Preliminary Adjustment

If the engine idling is especially rough, it may be necessary to make the following adjustment before making the idling adjustment:

•With the carburetors removed (Pg. 28, cable removal not necessary), change the position of the pulley stop screw if necessary so that the pulley rotation is stopped at the point where the butterfly valves are parallel to the carburetor bore. Tighten the lock nut after alteration of the screw position.



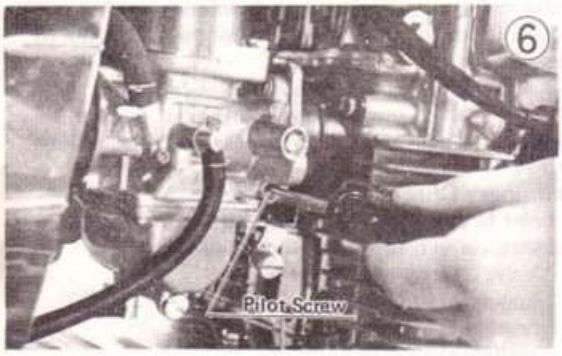
•Install the carburetors (Pg. 29), and check the throttle grip play (Pg. 9).

Idling Adjustment

•Start the engine, and warm it up for 5 minutes.
•Back out the idling screw until the engine is at the lowest rpm that it turns over smoothly.



•Turn both pilot screws to where engine rpm is highest. In this time, pilot screw opening is 1½ turns from 0 throttle open.



•Adjust idling speed to 1,100 ~ 1,300 rpm by turning the idling screw.
•See if the engine rpm rises when the pilot screw positions are altered. If it rises, repeat the last three steps.
•Screw in each pilot screw 1/16 turn after the highest idle position has been determined.
•Turn the throttle grip a few times to make sure that the idling speed does not change. Readjust if necessary.

NOTE: With the engine idling, turn the handlebar to either side. If handlebar movement changes idling speed, then the throttle cables may be improperly adjusted or incorrectly routed, or else they may be damaged. If cable adjustment does not clear up the problem, find the cause and repair it.

Carburetor Synchronization

•Remove the vacuum plugs from each carburetor, and attach the vacuum gauge and adapter (special tools).



•With the engine running at idling speed, close down the vacuum gauge intake valves until gauge needle flutter is less than 3 cm Hg. Normal vacuum gauge reading is 22 ~ 27 cm Hg.



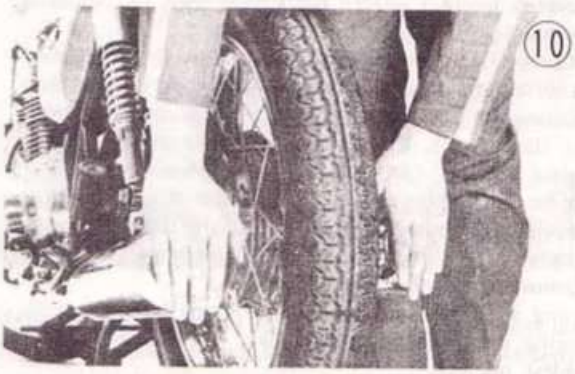
•If there is a difference of more than 1 cm Hg between the two gauges, stop the engine, remove the fuel tank (Pg. 28), and use the balance adjuster (special tool) on the balance adjusting screw to alter screw position to where the difference in readings is below 1 cm Hg. Run the engine with the fuel left in the float bowls. When the screw is properly positioned, tighten the lock nut, stop the engine, and install the fuel tank (Pg. 28).



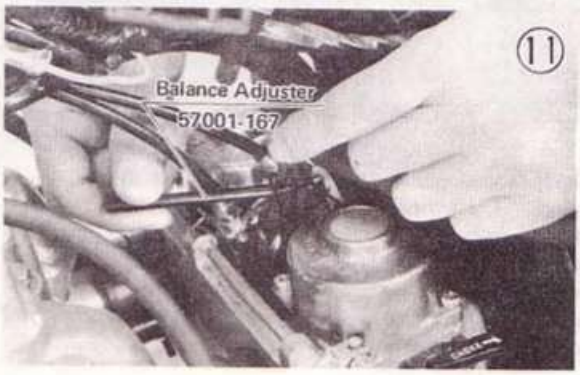
- With the engine running, turn both pilot screws so that the vacuum gauge reading is 22~27 cm Hg, and then turn each pilot screw in 1/16 turn.
- Detach the vacuum gauges, and screw in the vacuum plugs.
- Adjust the idling speed to 1,100~1,300 rpm with the idling screw.

If a set of vacuum gauges is not available, carry out the following steps for carburetor synchronization.

- Listen to exhaust noise, and place your hands at the rear of the mufflers to feel exhaust pressure.



- If there is a difference in noise or exhaust pressure between the cylinders, stop the engine, remove the fuel tank (Pg. 28), and use the balance adjuster (special tool) on the balance adjusting screw to alter screw position to where the difference is minimized. Run the engine with the fuel left in the float bowls. When the screw is properly positioned, tighten the lock nut, stop the engine, and install the fuel tank (Pg. 28).



- Adjust the idling speed to 1,100~1,300 rpm with the idling screw.

CLUTCH

Stretching of the clutch cable causes the clutch lever to develop excessive play. Too much play will prevent the lever from fully disengaging the clutch and will result in shifting difficulty and possible clutch or transmission damage. Most of the play must be adjusted out, but a small amount has to be left so that the clutch release lever will function properly.

Besides cable stretch, clutch plate wear also causes the clutch to go out of adjustment. This wear causes the play between the push rod and the adjusting screw gradually to diminish until the push rod touches the adjusting screw. When this play is lost, the clutch will not engage fully, causing the clutch to slip.

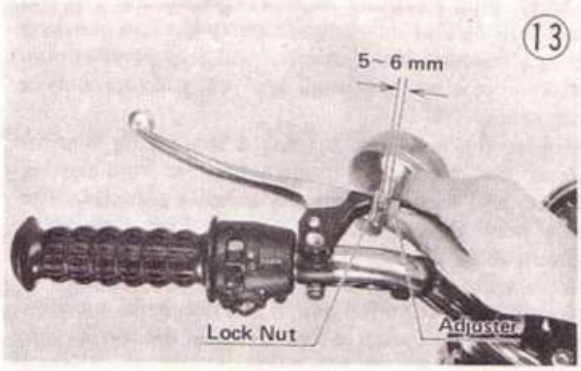
NOTE: Even though there is the proper amount of play at the clutch lever, clutch lever play alone cannot be used to determine whether or not the clutch requires adjustment.

The adjustment procedure which follows compensates for both cable stretch and plate wear.

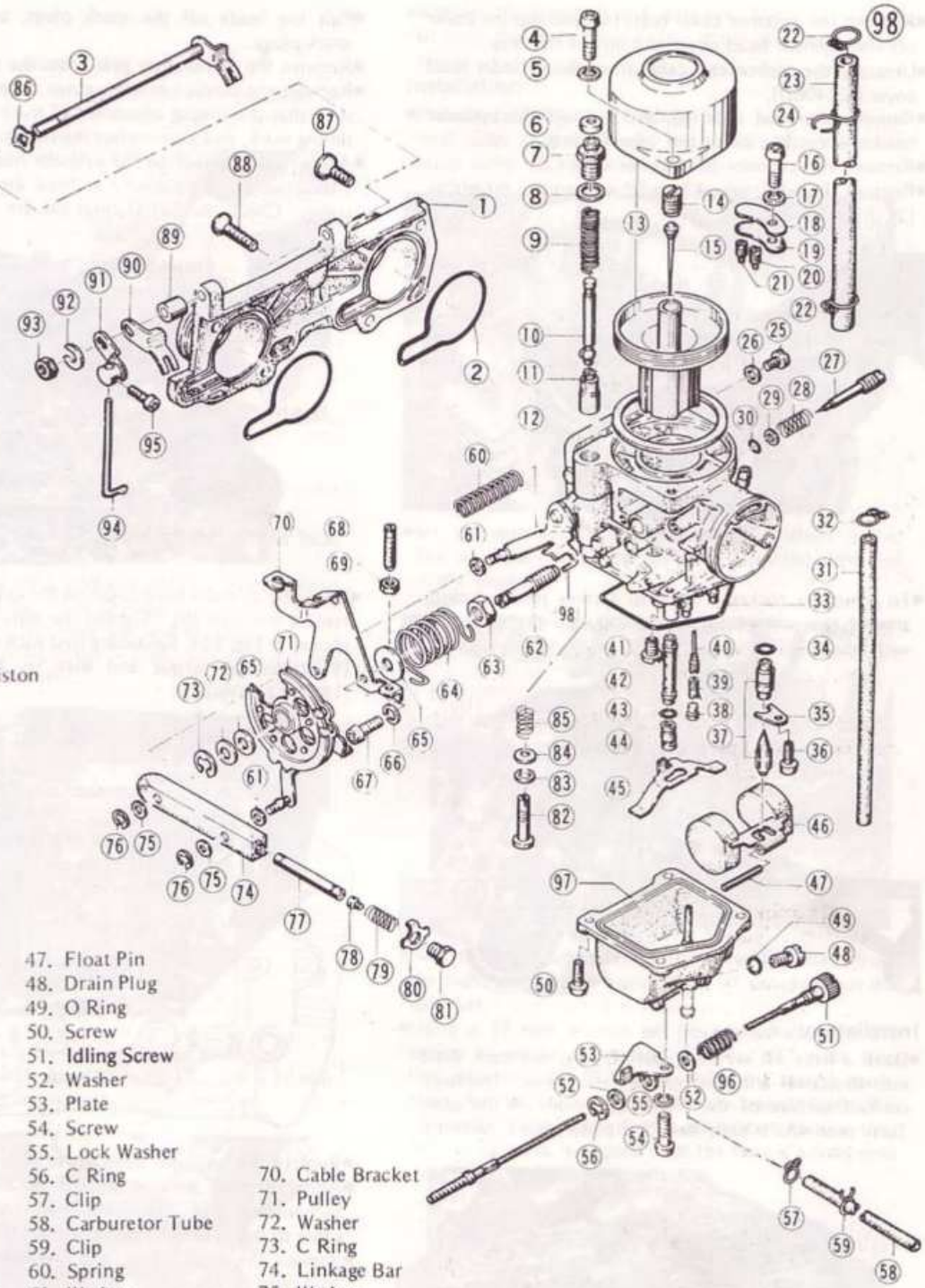
- Slide up the dust cover off the adjusting nut at the center of the clutch cable.
- Screw in fully the lock nut and adjusting nut at the center of the clutch cable to give the cable plenty of play.



- Loosen the lock nut at the clutch lever just enough so that the adjuster will turn freely, and then turn the adjuster to make a 5~6 mm gap between the adjuster and lock nut.



Carburetor



1. Mounting Plate
2. O Ring
3. Linkage Shaft
4. Screw
5. Lock Washer
6. Rubber Cap
7. Cap
8. Washer
9. Spring
10. Plunger Shaft
11. Plunger
12. Gasket
13. Cap & Vacuum Piston
14. Screw
15. Jet Needle
16. Screw
17. Lock Washer
18. Plate
19. Gasket
20. Main Air Jet
21. Slow Air Jet
22. Clip
23. Fuel Hose
24. Clip
25. Vacuum Plug
26. Washer
27. Pilot Screw
28. Spring
29. Washer
30. O ring
31. Carburetor Tube
32. Clip
33. O Ring
34. O Ring
35. Retainer
36. Screw
37. Float Valve Seat & Valve Needle
38. Pilot Passage Plug
39. Pilot Jet
40. Slow Jet
41. Starter Jet
42. Needle Jet
43. O Ring
44. Main Jet
45. Jet Keeper
46. Float
47. Float Pin
48. Drain Plug
49. O Ring
50. Screw
51. **Idling Screw**
52. Washer
53. Plate
54. Screw
55. Lock Washer
56. C Ring
57. Clip
58. Carburetor Tube
59. Clip
60. Spring
61. Washer
62. Pulley Screw
63. Nut
64. Pulley Spring
65. Plastic Washer
66. Lock Washer
67. Screw
68. Pulley Stop Screw
69. Nut
70. Cable Bracket
71. Pulley
72. Washer
73. C Ring
74. Linkage Bar
75. Washer
76. C Ring
77. Bar
78. Pusher
79. Spring
80. Washer
81. Bolt
82. Balance Adjusting Screw
83. Washer
84. Washer
85. Spring
86. Wave Washer
87. Screw
88. Screw
89. Collar
90. Lever
91. Lever
92. Lock Washer
93. Nut
94. Choke Linkage Rod
95. Screw
96. Spring
97. Float Bowl
98. Adjusting Screw Connectio

Maintenance

AIR CLEANER

A properly cared for air cleaner ensures that only clean, filtered air is supplied through the carburetor into the engine. If the air is supplied directly without filtering, not only will dirt and dust from the air plug up carburetor passages causing the engine to run poorly, but also the dust that enters the engine will act like grinding compound wearing down the cylinder, piston, and rings. If the air cleaner element is damaged or too coarse, the result will be the same as though no element were used.

An air cleaner element clogged with dirt chokes the air supply to the engine, resulting in an overly rich fuel/air mixture and inefficient combustion. This in turn causes overheating from carbon build-up, reducing engine power.

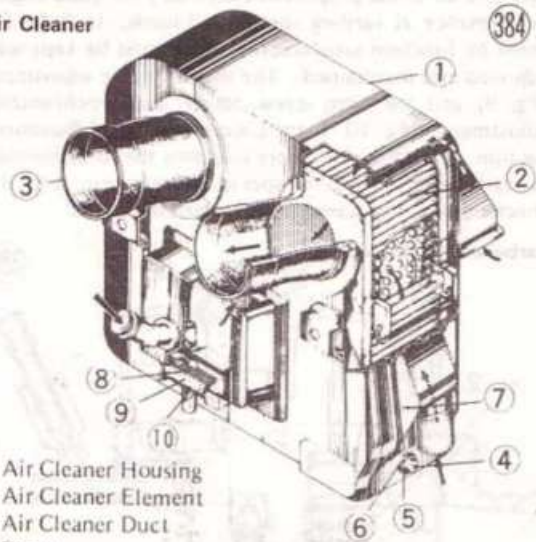
Cleaning and replacement

The air cleaner element must be cleaned periodically (Pg. 180).

Remove the air cleaner element (Pg. 27), clean it by swishing it around in a bath of a high flash point solvent of some kind, and then dry it from the inside using compressed air. Since this is a dry-type element, do not use kerosene or any fluid which would leave the element oily.

NOTE: Because of the danger of highly flammable liquids, do not use gasoline or low flash point solvents to clean the element.

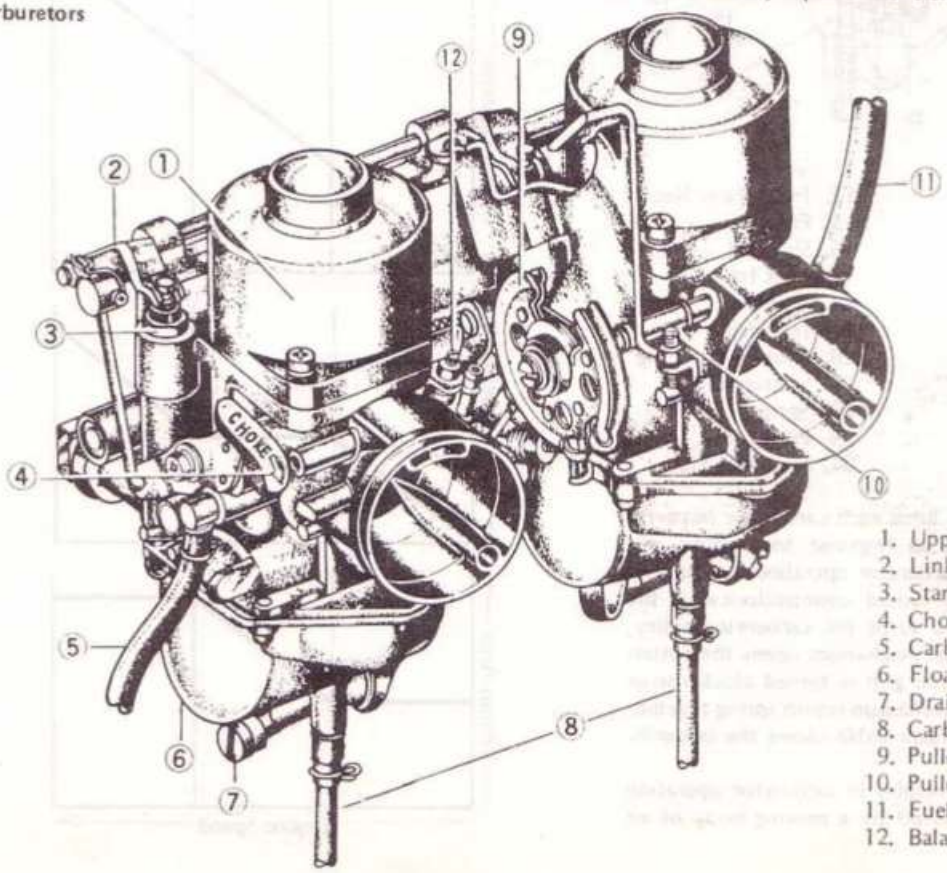
Air Cleaner (384)



1. Air Cleaner Housing
2. Air Cleaner Element
3. Air Cleaner Duct
4. Screw
5. Lock Washer
6. Washer
7. Side Cover
8. Screen
9. Foam Rubber
10. Screen

Since repeated cleaning coarsens the element, replace it with a new one every 10,000 km or after it has been cleaned 5 times, whichever is sooner. Also, if there is a break in the element material or any other damage to the element, replace the element with a new one.

Carburetors (385)

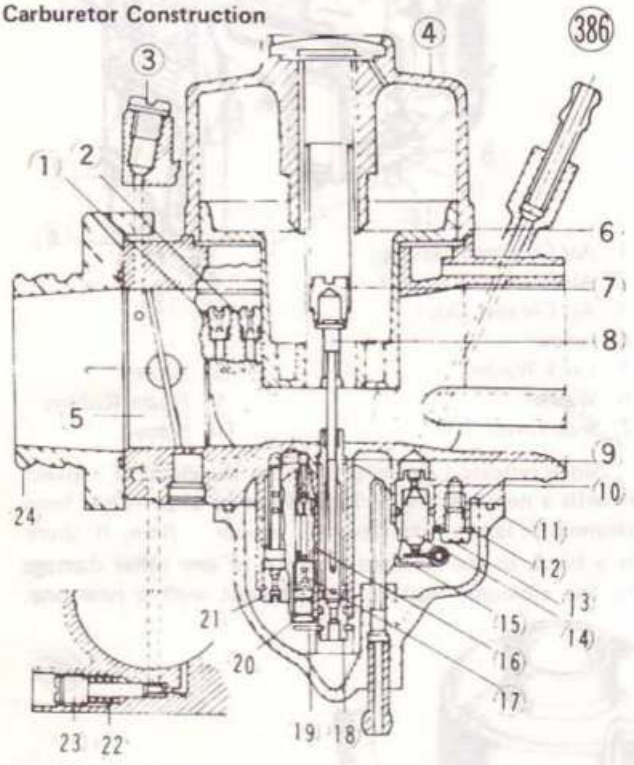


1. Upper Chamber
2. Linkage Mechanism
3. Starter Plunger Unit
4. Choke Lever
5. Carburetor Tube
6. Float Chamber
7. Drain Plug
8. Carburetor Tube
9. Pulley
10. Pulley Stop Screw
11. Fuel Hose
12. Balance Adjusting Screw

CARBURETORS

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 kept well adjusted and maintained. The throttle cable adjustment (Pg. 9) and the pilot screw, idling, and synchronizing adjustments (Pg. 10) are covered in the Adjustment Section. The discussion here concerns the fundamentals of carburetor operation, special adjustments, and the checking and replacement of carburetor parts.

Carburetor Construction



1. Slow Air Jet
2. Main Air Jet
3. Vacuum Plug
4. Carburetor Cap
5. Butterfly Valve
6. Vacuum Piston
7. Screw
8. Jet Needle
9. Needle Jet
10. Float Valve Seat
11. Float Bowl
12. Retainer
13. Screw
14. Float Valve Needle
15. Float
16. Slow Jet
17. Pilot Jet
18. Main Jet
19. Jet Keeper
20. Pilot Passage Plug
21. Starter Jet
22. Spring
23. Pilot Screw
24. Mounting Plate

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

One of the basic principles 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 at atmospheric pressure. This difference in air pressure forces the fuel up through the passages into the carburetor bore where it is then atomized by the air, which is flowing at high speed to 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 air flow speed for pressure difference to force the necessary amount of fuel up through the jets.

Thus, the amount of fuel passing through a jet depends both on the size of the jet (variable in case of the needle 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

Venturi Principle

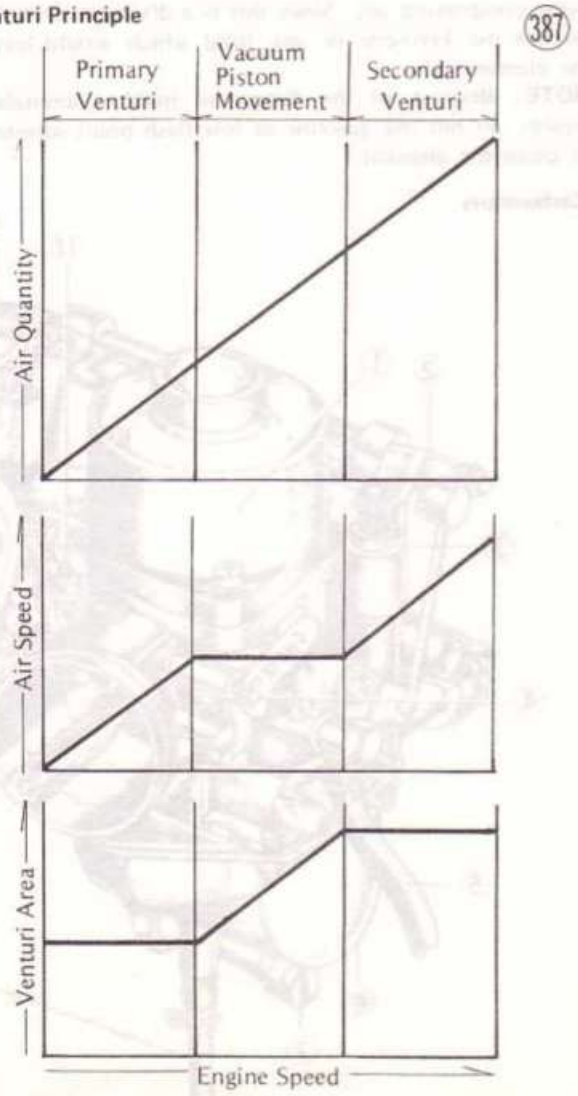


Table 3 Carburetor Specifications

Type	Main Jet	Main Air Jet	Slow Air Jet	Pilot Jet	Butterfly Valve Angle	Pilot Screw	Fuel Level
CVB36	130 (US model) 110 (European model)	40	90	35	10°30'	1 5/8 ± 1/4 turns out	33.5 mm

engine rpm and by the dimensions of the passage (variable by the vacuum piston) just above the jet. The size of the jet openings, the various dimensions of the air passages, and the engine rpm's 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 3) have been chosen for best all around performance, and ordinarily will not require any change. However, sometimes an alteration may be desirable for improved performance under special conditions, and when proper mixture is not obtained after the carburetor has been properly adjusted and all parts cleaned and found to be functioning properly. For example, the quantity of air entering the carburetor bore is less at high altitude due to the lower atmospheric pressure. To obtain the proper carburetor fuel/air mixture, it may be necessary to exchange the main jet on each carburetor for one a size smaller. In particularly cold weather, the increased density of the air may necessitate a size larger main jet for each carburetor.

Since the carburetors regulate and mix fuel and air going to the engine, there are two general types of carburetor trouble: too rich a mixture (too much fuel) and too lean a mixture (too little fuel). Such trouble can be caused by dirt, wear, maladjustment, or improper fuel level in a float chamber. A dirty or damaged air cleaner can also alter the fuel to air ratio.

Table 4 Mixture Trouble Symptoms

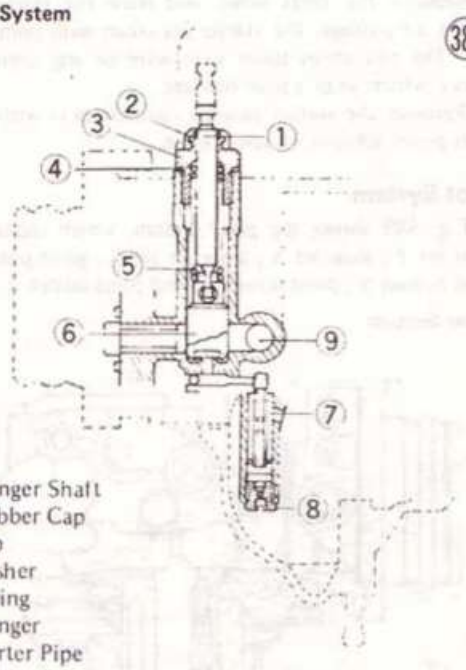
Mixture too rich	Mixture too lean
Engine is sluggish	Engine overheats
Smoky exhaust	Runs better with choke lever pushed down
Runs less well when warm	Spark plug burned white
Spark plug fouled black	Running is unstable
Runs better without air cleaner	No power

The following explanation of the functioning and maintenance of the carburetors covers the four main systems for fuel regulation and supply: the starter system, which supplies the necessary rich mixture for starting the engine; the pilot system, which supplies fuel at idling and low speeds; the main system, which supplies fuel at medium and high speeds; and the float system, which maintains the fuel at a constant level in the float chambers.

Starter System

Fig. 388 shows the starter system, which includes the starter jet ⑧, starter pipe ⑦, starter plunger ⑥, and starter air passage ⑨.

Starter System 388



1. Plunger Shaft
2. Rubber Cap
3. Cap
4. Washer
5. Spring
6. Plunger
7. Starter Pipe
8. Starter Jet
9. Air Passage

The starter system is used for starting to provide the exceptionally rich fuel/air ratio that is necessary to enable easy starting when the engine is cold. When starting the engine, the throttle is left closed, and the starter plunger is pulled fully open by pushing down the choke lever. Since the butterfly valve is closed, a high intake vacuum (low pressure or suction) is developed at the engine side of the carburetor bore. The starter plunger, when raised, opens up the starter passage and an air passage so that they connect to the engine side of the carburetor bore. The intake vacuum from the engine as it is cranked over draws in air through this air passage and the fuel from the float chamber through the starter passage. Fuel metered by the starter jet mixes with a small amount of air drawn in through air bleed holes in the starter pipe as it rises in the starter fuel passage. This small amount of air prepares the fuel for better atomization once it reaches the plunger chamber (the area just below the raised plunger) where the fuel mixes with the air drawn in through the air passage. This mixture is then drawn into the carburetor bore where it, together with a small amount of mixture supplied by the pilot system, is drawn into the engine.

In order for the starter system to work properly, the throttle must be kept closed so that sufficient vacuum can be built up at the starter outlet. Also, the choke lever must be pushed down fully so that the starter plunger will fully open up the air passage and starter

passage to the carburetor bore. Clogged starter jet, starter pipe air bleed holes will cause insufficient atomization, thus impairing starter efficiency. Fuel mixture trouble results if, due to dirt, gum or a defective spring, the plunger does not seat properly in its rest position after the choke lever is returned.

Cleaning

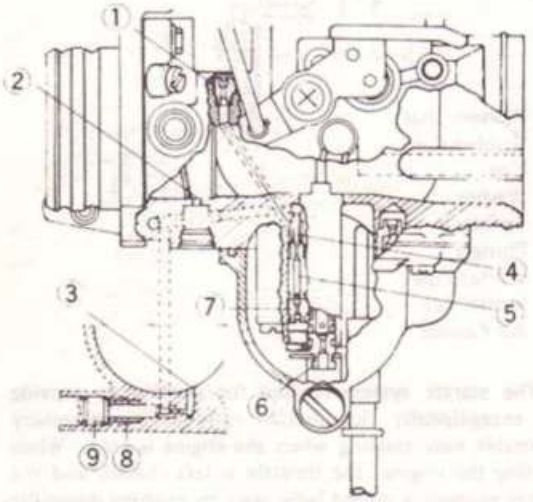
Remove the float bowl, and blow the starter pipe, starter air passage, the starter jet clean with compressed air. Do not clean them with wire or any other hard object which may cause damage.

Remove the starter plunger, and clean it with a high flash point solvent of some kind.

Pilot System

Fig. 389 shows the pilot system, which includes the pilot jet 7, slow jet 5, slow air jet 1, pilot passage 4, pilot bypass 2, pilot screw 9, and pilot outlet 3.

Pilot System (389)



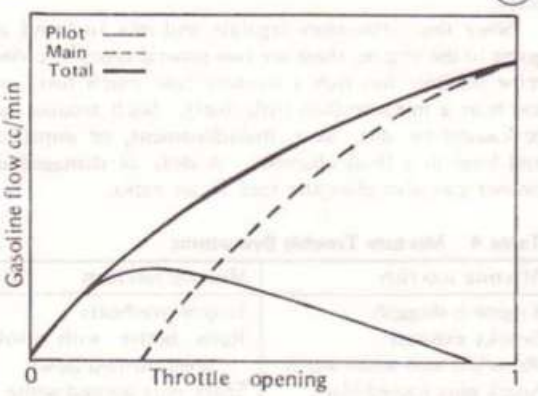
1. Slow Air Jet
2. Pilot Bypass
3. Pilot Outlet
4. Pilot Passage
5. Slow Jet
6. Main Jet
7. Pilot Jet
8. Spring
9. Pilot Screw

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 fuel is drawn through the main, pilot, and slow jets as a result of the low pressure (suction) brought 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. 391. At idling and slightly above, the fuel passes through the main jet, and is then metered at the pilot jet and at the slow jet, where the fuel mixes with air metered by the slow 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. 390 shows throttle 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 be due to maladjustment; a dirty or loose pilot jet, slow jet, or slow air jet; or clogging of the main jet, pilot passage, pilot outlet, or pilot bypass.

Flow Characteristic (390)

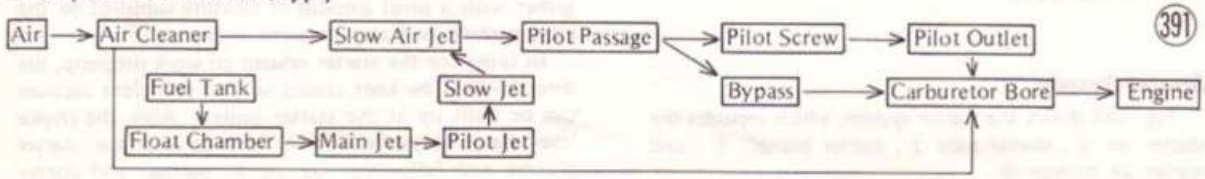


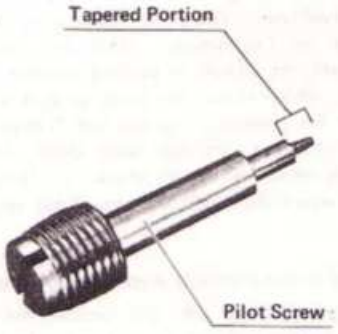
Cleaning and replacement

Wash the main jet, pilot jet, slow jet, and slow air jet with a high flash point solvent of some kind, and blow them clean with compressed air. Use compressed air to clean the pilot passage and slow air jet passage. Do not use wire for cleaning since any sharp instrument may cause damage.

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

Pilot System Fuel and Air Supply (391)





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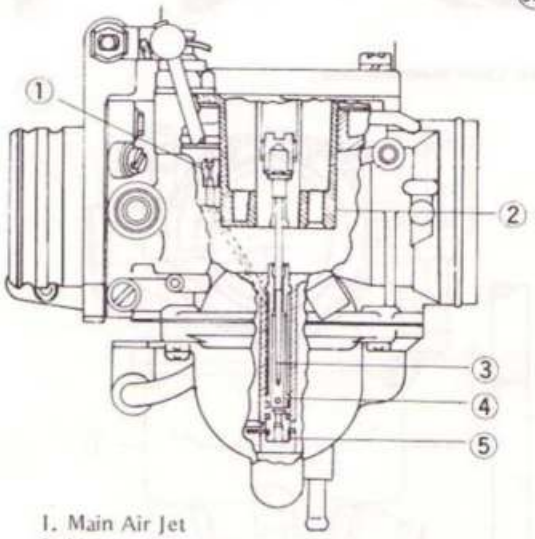
Main System

Fig. 393 shows the main system, which consists of the main jet 5 , needle jet 4 , jet needle 3 , vacuum piston 2 , and main air jet 1 . Fig. 394 shows the supply of fuel and air in the main system.

From about ¼ throttle opening, the air flow past the jet needle outlet is sufficient to cause fuel to be drawn through the main system. The fuel passes through the main jet and then part of it goes through the pilot and slow jets as in the pilot system while the rest of it passes 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.

Main System

393



1. Main Air Jet
2. Vacuum Piston
3. Jet Needle
4. Needle Jet
5. Main Jet

The needle jet has holes to admit the air metered by the main air jet. This air mixes with the fuel in the needle jet 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. It is fixed to the vacuum piston, and thus rises up in the needle jet 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 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 rises only between ¼ and ¾ throttle. Through the hole in the bottom of the piston, the air pressure in the chamber above the vacuum piston is reduced by engine intake. Through another hole, the pressure of the incoming fuel/air mixture is transmitted to the piston. As engine speed increases, the air pressure in the upper chamber decreases, and the difference between the incoming fuel/air mixture pressure and the upper chamber air pressure will overcome the force of the weight of the piston, raising the piston to the extent corresponding to the pressure difference.

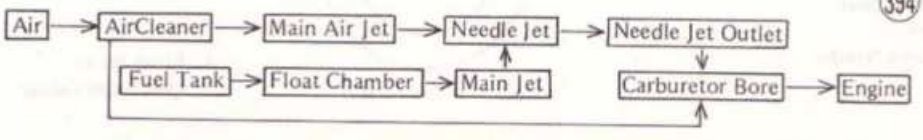
As shown in Fig. 387 the quantity of air drawn in by the engine intake is in direct proportion to engine rpm, and the speed of the air flow is constant while the vacuum piston rises from ¼ to ¾ throttle. Were the size of the air passage above the needle jet to change simultaneously with throttle movement rather than with engine intake (demand), the speed of the air flow in the air passage might even drop during a rapid increase in throttle due to the Venturi effect, causing a slight 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 ¼ 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. A dirty or clogged main jet will cause the mixture to become too lean. An overly rich mixture could be caused by clogging of the main air jet, its air passage, or the air holes in the needle jet; by needle jet or needle wear (increasing clearance); by a loose main jet; or by a loose needle jet.

Main System Fuel and Air Supply

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Cleaning and adjustment

Disassemble the carburetor, and wash the vacuum piston, main jet, needle jet, jet needle, main air jet, and air passage with a high flash point solvent of some kind, blowing them clean with compressed air. Do not use wire for cleaning since a sharp instrument may cause damage.

If the engine still exhibits symptoms of overly rich or lean carburetion after all maintenance and adjustments are correctly performed, the main jet may be replaced with a smaller or larger one. A smaller numbered jet gives a leaner mixture and a larger numbered jet a richer mixture. Many jets are available, but it is recommended that any change be limited to one jet size (10) difference from the standard jet.

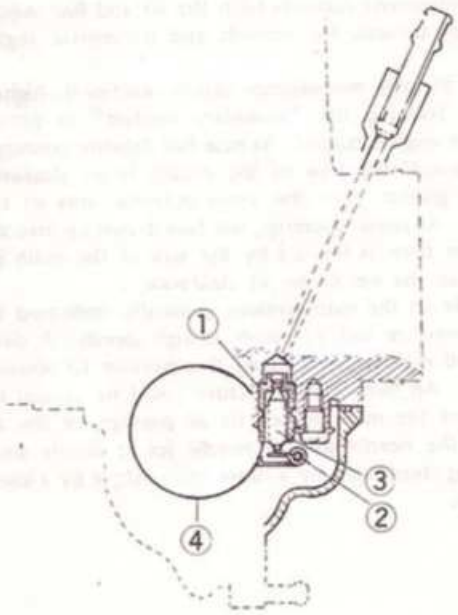
Float System

Fig. 395 shows the float system, which consists of the float 4 , float valve needle 3 , and float valve seat 1 .

The float system serves to keep a more or less fixed level of fuel in the carburetor float chamber at all times so that the fuel mixture 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 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.

Float System (395)

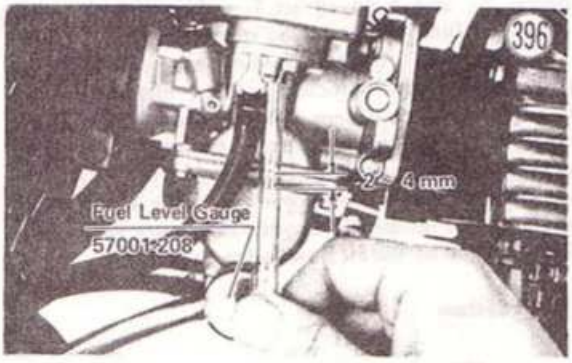


1. Float Valve Seat
2. Float Pin
3. Float Valve Needle
4. Float

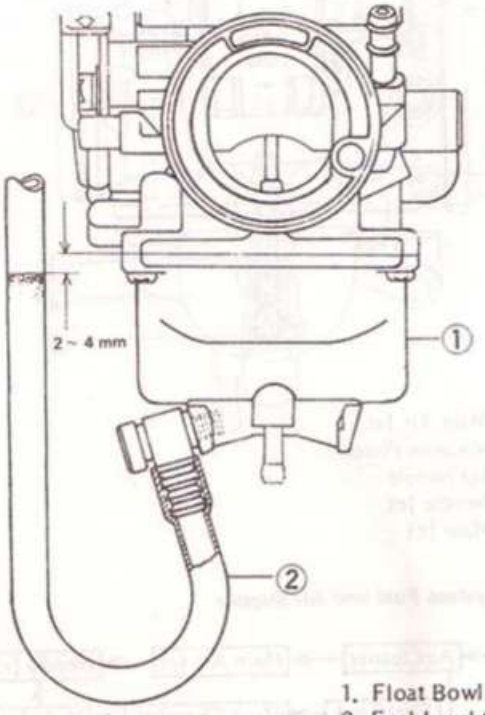
As fuel flows through the float valve into the chamber, the fuel level rises. The float, rising with the fuel level, pushes up on the needle. When the fuel reaches a certain level, the needle is pushed completely into the valve seat, which closes the valve so that no more fuel may enter the chamber. 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 again flows through the float valve into the chamber.

Fuel level measurement and adjustment

Turn the fuel tap off, and remove the drain plug from the bottom of the float bowl. Install the fuel level gauge (special tool). Hold the plastic tube against the carburetor body, and turn on the fuel tap. The fuel level in the plastic tube should come up to 2 ~ 4 mm below the edge of the carburetor body.



Fuel Level Measurement (397)



1. Float Bowl
2. Fuel Level Gauge

If the fuel level is incorrect, remove the float bowl and float. Bend the tang on the float a very slight amount to change the fuel level. Bending it down closes the valve sooner and lowers the fuel level; bending it up raises the level.

After adjustment, measure the fuel level again, and readjust if necessary.



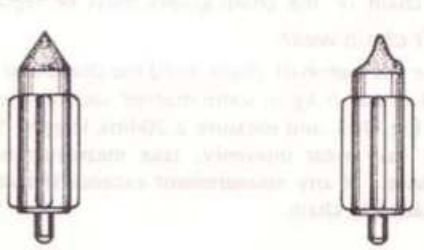
Cleaning and replacement

If dirt gets between the needle and seat, the float valve will not close and fuel will overflow. Overflow can also result if the needle and seat become overworn. If the needle sticks closed, no fuel will flow into the carburetor.

Take off the float bowl and float. Wash the bowl and float parts in a high flash point solvent of some kind. Use carburetor cleaner if necessary. Blow out the fuel overflow pipe with compressed air.

Examine the float, and replace if damaged. If the needle is worn as shown in the diagram, replace the needle and seat as a set.

Needle Valve

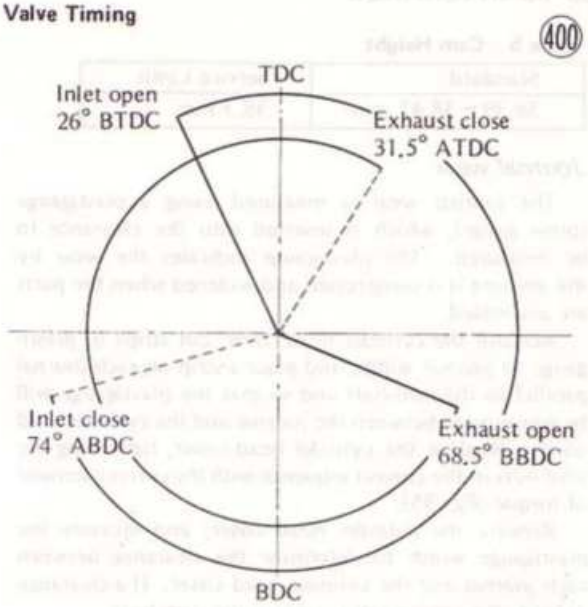


CAMSHAFT

The engine has an overhead camshaft (OHC) at the top of the cylinder head. The camshaft has four cams, two for the two inlet valves and two for the two exhaust valves. At the center of the camshaft is the camshaft sprocket. The sprocket is marked with arrows, which are referred to during camshaft installation for easily and correctly resetting the valve timing.

Engine rotation is transmitted from the crankshaft to the camshaft by a chain running on a sprocket at the center of each shaft. As the camshaft rotates, the cams move against the rocker arms, which open and close the inlet and exhaust valves at the proper intervals (Fig. 400).

Valve Timing



However, since the time, amount, and duration that each valve is opened (valve timing) changes with cam wear, journal wear, and camshaft runout (bend), the camshaft should be inspected periodically and whenever timing trouble is suspected. If the valves do not open at the right times or if they do not open the correct amount or duration, there will be a decrease in combustion efficiency, dropping engine power and leading to serious engine trouble.

Cam wear

Remove the camshaft, and measure the height of each cam with a micrometer. If the cams are worn down past the service limit, replace the camshaft.

Cam Wear Measurement

