8. Inspect the tip of the float needle and the needle seat for dirt or corrosion. Check the needle tip for wear. If worn, the needle should be replaced.

If there is any corrosion or deposits evident on the needle or needle seat, the deposits must be removed, or the parts replaced.

NOTE: *Do not attempt to clean the needle or needle seat by lapping one against the other.*

To check the efficiency of the float needle valve, proceed as follows:

a. With the carburetor assembled except for the float bowl, connect it to its fuel line;

b. Place a number of dry rags beneath the carburetor, and hold it upright (in its normal operating position) with one hand;

c. With the other hand, gently raise the float assembly until the float needle is seated. Have an assistant turn the fuel petcock on ("Prime" position);

d. If the needle and seat are in good condition and forming a good seal, no gasoline will flow out of the carburetor;

e. If a leak is noted, replace the needle and seat.

CAUTION: *While performing this test, be sure that adequate precautions are taken in the event of spillage.*

The float level should be checked prior to assembly.

9. Check that the tapered portion of the pilot screw is smooth and clean. Replace it if it is crushed or blunted.

10. Inspect the float bowl for a warped gasket surface, or stress cracks (especially around the screw holes).

11. Check the throttle slide diaphragm for rips. Replace the assembly if the diaphragm is damaged. Repairs are not possible.

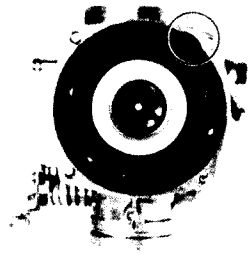
Assembly

Assembly is basically the reverse of the disassembly procedure. Note the following points:

1. Always use new gaskets and O-rings.

2. Exercise care when installing jets—they are made of soft brass and are easily damaged if overtightened.

3. If the throttle slide and needle have been disassembled, check that both needle clips are installed in the correct groove from the top of the needle. Refer to the "Carburetor Specifications" chart at the end of this section for the correct needle clip position.



Be sure that the diaphragm tab is properly seated

4. When installing the pilot screws, turn them in gently until they are lightly seated, then back them out 1½ turns on XS360 models and 1¼ turns on XS400 models. Fit the idler limiter caps.

5. When fitting the throttle slide, be sure to engage the tab on the diaphragm with the cut-out in the carburetor body.

6. Check the float level as outlined in the "Tune-Up" section.

7. When installing the choke rod, be sure that the securing screws fit into the shaft detents.

FUEL PETCOCK

The petcock is the vacuum-activated type which incorporates a mesh filter inside the gas tank.

1. Set the petcock to the "RES" position. Disconnect the fuel line from the petcock and the vacuum line from the manifold.

2. Remove the gas tank. Drain off the fuel.

3. Unscrew the petcock securing nut or two phillips screws depending upon the method of fastening, and pull off the petcock.

4. Clean the filter screen in a solvent. Be sure to remove any foreign matter trapped in the screen as this will impede fuel flow. If the screen cannot be cleaned, or if it is punctured or otherwise damaged, it should be replaced.

5. Check the sealing washer and replace it if it is damaged.

6. Install the petcock. After the tank is refitted, check for leaks before operating the motorcycle.

7. Check operation of the petcock after disconnecting the fuel feed line. No fuel should flow out when the lever is in the "On" or "RES" positions. This should happen only when the lever is set to the "Prime" position. If fuel does flow in the other positions, replace the petcock.

8. In the event that fuel flow is a problem, check that the vacuum line is tightly secured at both ends, and is free from dry-rotting or other damage. Replace the vacuum line if any damage is noted.

Carburetor Specifications

	XS360	*XS400D*	*XS400E, F/2F*	*XS400-2E*	*XS400G/SG,H*
Type	Mikuni BS34	Mikuni BS34	Mikuni BS34	Mikuni BS34	Mikuni BS34
Main jet	135	142.5	132.5	137.5	135
Air jet	0.6	45	45	45	45
Jet Needle	4FP21-3	5Z1-4	5Z1-3	5Z1-3	5GZ9
Needle clip position (from top)	3	4	3	3	na
Needle jet	X-6	X-4	X-6	X-6	Y-2
Throttle slide	145	135	135	135	na
Pilot jet	17.5	42.5	42.5	42.5	42.5
Pilot screw (turns out)	1½	1¼	1¼	Preset	Preset
Float level (mm/in.)	26.6/1.05	32.0/1.26	32.0/1.26	25.7/1.0	27.3/1.1

ELECTRICAL SYSTEM

CHARGING SYSTEM

Alternator

OUTPUT CHECK

NOTE: *To give accurate results, the battery must be in good condition and fully charged before performing the output test.*

1. Connect a D.C. voltmeter across the battery terminals.

2. Start the engine and let it run at about 2,000 or more rpm.

3. Battery voltage on the meter should be 14.5 v with a maximum allowable variation of 0.3 v.

4. If the voltage is greater than this, check the voltage regulator (see below). If it is less, check the alternator wiring, the regulator, and the rectifier.

CAUTION: *Never run the engine with the battery leads disconnected. To do so risks ruining the other charging system components.*

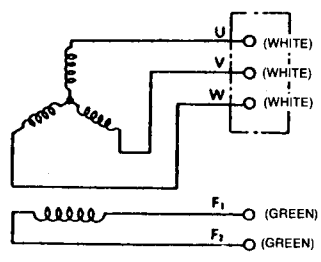
FIELD COIL/ARMATURE TESTS

1. With the engine *off*, disconnect the alternator wiring at the connector. With an ohmmeter, check the resistance between each of the three white leads. Resistance should be 0.72 ohms.

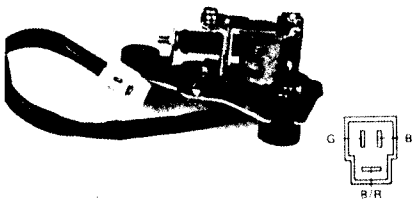
2. If the resistance is not within 10% of this value, the problem is probably with the alternator armature wiring. If the resistance is too high, the wiring is probably broken; if it is too low, the windings may be breaking down. In either event, the armature must be replaced.

3. Check the resistance across the two field coil leads (green-green). Resistance should be 4.0 ohms. If the measured resistance is not within 15% of this figure, replace the field coil.

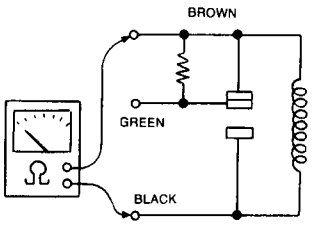
NOTE: *Resistance figures are taken at 20° C (68° F). Therefore, it is preferable to*



Alternator wiring schematic



Voltage regulator



Checking resistance between the brown lead and ground

check them when the engine is cold to ensure accuracy.

Regulator

A mechanical voltage regulator is used on all models. The regulator is adjustable, although this procedure (given below) should not be attempted until the regulator has first been checked for defects.

1. Perform the alternator output test and field coil/armature tests first. If the alternator proves satisfactory, check the regulator.
2. Disconnect the wiring and remove the regulator from the motorcycle.
3. With an ohmmeter, check the resistance between the black regulator lead and the regulator base (black). Resistance should be 10.5 ohms. If the measured resistance is not within 2 ohms of this figure, replace the regulator.
4. Check the resistance between the green and the brown regulator leads. Resistance should be 140 ohms. If the measured resistance is not within 10 ohms of this figure, replace the regulator.
5. If the resistance tests indicate that the regulator winding and resistor are satisfactory, but the charging system is not developing the standard 14.5 v across the battery, the regulator may be in need of adjustment. However, it would be wise to check the rectifier first.
6. Remove the regulator cover. Install the unit on the motorcycle, checking that all wiring connections are correct.
7. Disconnect the fuse box wire leading to the battery. Connect a voltmeter from the fuse box to ground. Start the engine and allow it to run at 2,500 rpm. At this point, the voltmeter should read 14.5–15.0 v. If it does not, turn the regulator adjusting screw to obtain the correct voltage output. Turn the screw *in* to raise the voltage output, and *out* to lower it.

Rectifier

1. The rectifier consists of a six-diode "bridge." A diode will allow current to pass in one direction only. If any diode allows current to pass in both directions, or in neither direction, the operation of the entire unit will be upset and the rectifier will have to be replaced.
2. It is the ability of the diodes to pass current one way and stop it in the other which is tested when checking the rectifier.
3. The rectifier can be checked with an ohmmeter or a self-powered low-voltage test light. Disconnect the rectifier wiring and remove it from the motorcycle.
4. Connect the positive lead of the tester to the rectifier red lead and the negative tester lead to each of the three white leads in turn. Note whether or not there is continuity in each case. Now reverse the tester connections so that the negative tester lead is connected to the red rectifier lead and the positive tester lead is connected to each white lead in turn. Note whether or not there is continuity.

If there was continuity for a certain connection during the first test, there should not be any when the tester leads are reversed. If there was continuity in both cases, or lack of continuity in both cases, a diode is defective and the rectifier must be replaced.

5. Connect the positive lead of the tester to the rectifier black lead and the negative tester lead to each of the three white leads in turn. Repeat the test with these connections. Replace the rectifier if all tests are not satisfactory.

BREAKER POINT IGNITION

Troubleshooting

1. In the event of failure of the ignition system, first check the fuses; if all are in working order, check that the snap connectors for the coils and breaker points are all clean and tight.
2. At this point refer to chapters 2 and 3 for inspection procedures for the breaker points, plugs, and battery. If these items are all in working order, the problem may be isolated to the coils, condensers, or plug caps.
3. If only one cylinder fails to fire, and the problem is not a loose connection or defective spark plug, suspect the plug cap. The caps are fitted with a resistor to prevent radio interference while in operation, and heat and vibration may cause the value of this resistor to increase considerably, even to becoming an open circuit.

The easiest way to see if a misfire is due to a defective cap is to switch the plug cap of the non-firing cylinder with the other cap. If the dead cylinder begins to fire and the other cylinder ceases, the problem is the plug cap. The caps should be replaced as a set.

Functional caps will have a resistance of 9,000 ohms. Usually, when resistance exceeds this valve significantly, the plug for that cap will no longer fire.

Caps are easily removable by unscrewing them from their cables.

4. Defective condensers are seldom a problem, since these are now usually replaced along with the breaker points. Defective condensers will cause considerable arcing or sparking between the breaker point contacts while the machine is running, and this should be cause for replacement before they fail completely. Badly burned or pitted point contact surfaces can also be caused by defective condensers, as well as by improper adjustment. If the points are in bad condition, replace them and the condensers as well.
5. Condenser capacity can be checked with electrical test equipment (if available) in place on the machine, provided the condenser is first disconnected from the primary terminal. Capacitance should be 0.24 MFD. The resistance of the condensers should be in excess of 3 MΩ. A variation of 10% in either reading is allowable.
6. If the condensers are not suspect, check the ignition coils. Coils should be checked for continuity of the windings. First remove the gas tank. Disconnect the red/white coil lead and the other lead which is orange for the left cylinder's coil, or grey for the right. Check resistance across the leads. It should be about 4 ohms. If the resistance is not very close to this figure, the primary winding is defective and the coil must be replaced.
7. To check the secondary coil, first remove the spark plug cap from the plug lead. Check the resistance between the plug lead and the orange or grey lead. Secondary winding resistance should be 9.5 K ohms. If the measured resistance is not very close to this value, the secondary winding is breaking down, and the coil must be replaced.

TRANSISTORIZED IGNITION

Troubleshooting

1. In the event of spark failure, first check the entire electrical system for loose connections.
2. Check that the battery is fully charged. Recharge if necessary.
3. Check all fuses.
4. If all of the above elements are found satisfactory, check the resistance of the ignition coil primary and secondary windings. Primary winding resistance should be about 3 ohms. Secondary resistance should be about 8.6 K ohms.

The primary winding leads at the coils are red/white and orange. The secondary winding resistance is checked between the spark plug lead (minus cap) and the re/white lead.

5. Check the pick-up coils' resistance. It should be about 700 plus/minus 150 ohms.
6. If all of the above elements are satisfactory, replace the TCI unit.

Pick-up Coil

REMOVAL AND INSTALLATION

The pick-up coils are located beneath the cover on the left side of the cylinder head.

1. Centerpunch the blind plug which secures the cover. Use a 5 mm drill bit to drill the plug.
2. Cut internal threads 6 mm diameter x 1.0 mm pitch in the blind plug with a proper sized tap. Thread in the special slide hammer, or a suitable metric bolt, and pull out the plug.
3. Remove the cover screws and take off the cover.
4. Remove the rotor bolt and rotor.
5. Remove the pick-up coil screws and take off the assembly.
6. Installation is the reverse of removal. Install the rotor and tighten the rotor bolt to 7 ft lbs. Check the ignition timing as outlined in "Tune-Up." Rotate the pick-up coil base plate, if necessary, until the timing marks align as specified. After fitting the pick-up coil cover, install a new blind plug. Do not