

Troubleshooting

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Engine doesn't start or is difficult to start

1 Starter motor doesn't rotate

- 1 Engine kill switch Off.
- 2 Fuse blown. Check fuse block (Chapter 8).
- 3 Battery voltage low. Check and recharge battery (Chapter 8).
- 4 Starter motor defective. Make sure the wiring to the starter is secure. Make sure the starter relay clicks when the start button is pushed. If the relay clicks, then the fault is in the wiring or motor.
- 5 Starter relay faulty. Check it according to the procedure in Chapter 8.
- 6 Starter button not contacting. The contacts could be wet, corroded or dirty. Disassemble and clean the switch (Chapter 8).
- 7 Wiring open or shorted. Check all wiring connections and harnesses to make sure that they are dry, tight and not corroded. Also check for broken or frayed wires that can cause a short to ground (earth) (see wiring diagram, Chapter 8).
- 8 Ignition switch defective. Check the switch according to the procedure in Chapter 8. Replace the switch with a new one if it is defective.
- 9 Engine kill switch defective. Check for wet, dirty or corroded contacts. Clean or replace the switch as necessary (Chapter 8).
- 10 Faulty neutral/gearchange/sidestand/clutch switch. Check the wiring to each switch and the switch itself according to the procedures in Chapter 8.

2 Starter motor rotates but engine does not turn over

- 1 Starter motor clutch defective. Inspect and repair or replace (Chapter 8).
- 2 Damaged idler or starter gears. Inspect and replace the damaged parts (Chapter 8).

3 Starter works but engine won't turn over (seized)

Seized engine caused by one or more internally damaged components. Failure due to wear, abuse or lack of lubrication. Damage can include seized valves, camshaft, pistons, crankshaft, connecting rod bearings, or transmission gears or bearings. Refer to Chapter 2 for engine disassembly.

4 No fuel flow

- 1 No fuel in tank.
- 2 Fuel valve/tap vacuum hose broken or disconnected or turned OFF.
- 3 Tank cap air vent obstructed (not later California models). Usually caused by dirt or water. Remove it and clean the cap vent hole.
- 4 Fuel tap filter clogged. Clean or replace the filter (Chapter 1).
- 5 Fuel line clogged. Pull the fuel line loose and carefully blow through it.
- 6 Inlet needle valve clogged. For all of the valves to be clogged, either a very bad batch of fuel with an unusual additive has been used, or some other foreign material has entered the tank. Many times after a machine has been stored for many months without running, the fuel turns to a varnish-like liquid and forms deposits on the inlet needle valves and jets. The carburetors should be removed and overhauled if draining the float bowls doesn't solve the problem.

5 Engine flooded

- 1 Float height too high. Check as described in Chapter 4.

2 Inlet needle valve worn or stuck open. A piece of dirt, rust or other debris can cause the inlet needle to seat improperly, causing excess fuel to be admitted to the float bowl. In this case, the float chamber should be cleaned and the needle and seat inspected. If the needle and seat are worn, then the leaking will persist and the parts should be replaced with new ones (Chapter 4).

3 Starting technique incorrect. Under normal circumstances (i.e., if all the carburetor functions are sound) the machine should start with little or no throttle. When the engine is cold, the choke should be operated and the engine started without opening the throttle. When the engine is at operating temperature, only a very slight amount of throttle should be necessary. If the engine is flooded, turn the fuel tap off and hold the throttle open while cranking the engine. This will allow additional air to reach the cylinders. Remember to turn the fuel tap back on after the engine starts.

6 No spark or weak spark

- 1 Ignition switch Off.
- 2 Engine kill switch turned to the Off position.
- 3 Battery voltage low. Check and recharge battery as necessary (Chapter 8).
- 4 Spark plug dirty, defective or worn out. Locate reason for fouled plug(s) using spark plug condition chart and follow the plug maintenance procedures in Chapter 1.
- 5 Spark plug cap or secondary (HT) wiring faulty. Check condition. Replace either or both components if cracks or deterioration are evident (Chapter 5).
- 6 Spark plug cap not making good contact. Make sure that the plug cap fits snugly over the plug end.
- 7 Spark unit defective. Check the unit(s), referring to Chapter 5 for details.
- 8 Pulse generator defective. Check the unit, referring to Chapter 5 for details.
- 9 Ignition coil(s) defective. Check the coils, referring to Chapter 5.
- 10 Ignition or kill switch shorted. This is usually caused by water, corrosion, damage or excessive wear. The switches can be disassembled and cleaned with electrical contact cleaner. If cleaning does not help, replace the switches (Chapter 8).
- 11 Wiring shorted or broken between:
 - a) Ignition switch and engine kill switch (or blown fuse)
 - b) Spark unit and engine kill switch
 - c) Spark unit and ignition coil
 - d) Ignition coil and plug
 - e) Spark unit and pulse generator

Make sure that all wiring connections are clean, dry and tight. Look for chafed and broken wires (Chapters 5 and 8).

7 Compression low

- 1 Spark plug loose. Remove the plug and inspect the threads. Reinstall and tighten to the specified torque (Chapter 1).
- 2 Cylinder heads not sufficiently tightened down. If either cylinder head is suspected of being loose, then there's a chance that the gasket or head is damaged if the problem has persisted for any length of time. The head bolts should be tightened to the proper torque in the correct sequence (Chapter 2).
- 3 Improper valve clearance. This means that the valve is not closing completely and compression pressure is leaking past the valve. Check and adjust the valve clearances (Chapter 1).
- 4 Cylinder and/or piston worn. Excessive wear will cause compression pressure to leak past the rings. This is usually accompanied by worn rings as well. A top end overhaul is necessary (Chapter 2).
- 5 Piston rings worn, weak, broken, or sticking. Broken or sticking piston rings usually indicate a lubrication or carburation problem that causes excess carbon deposits or seizures to form on the pistons and

rings. Top end overhaul is necessary (Chapter 2).

6 Piston ring-to-groove clearance excessive. This is caused by excessive wear of the piston ring lands. Piston replacement is necessary (Chapter 2).

7 Cylinder head gasket damaged. If the head is allowed to become loose, or if excessive carbon build-up on the piston crown and combustion chamber causes extremely high compression, the head gasket may leak. Retorquing the head is not always sufficient to restore the seal, so gasket replacement is necessary (Chapter 2).

8 Cylinder head warped. This is caused by overheating or improperly tightened head bolts. Machine shop resurfacing or head replacement is necessary (Chapter 2).

9 Valve spring broken or weak. Caused by component failure or wear; the spring(s) must be replaced (Chapter 2).

10 Valve not seating properly. This is caused by a bent valve (from over-revving or improper valve adjustment), burned valve or seat (improper carburation) or an accumulation of carbon deposits on the seat (from carburation or lubrication problems). The valves must be cleaned and/or replaced and the seats serviced if possible (Chapter 2).

8 Stalls after starting

1 Improper choke action. Make sure the choke rod is getting a full stroke and staying in the out position.

2 Ignition malfunction. See Chapter 5.

3 Carburetor malfunction. See Chapter 4.

4 Fuel contaminated. The fuel can be contaminated with either dirt or water, or can change chemically if the machine is allowed to sit for several months or more. Drain the tank and float bowls (Chapter 4).

5 Intake air leak. Check for loose carburetor-to-intake manifold connections, loose or missing vacuum gauge access port cap or hose, or loose carburetor top (Chapter 4).

6 Engine idle speed incorrect. Turn throttle stop screw until the engine idles at the specified rpm (Chapters 1 and 4).

9 Rough idle

1 Ignition malfunction. See Chapter 5.

2 Idle speed incorrect. See Chapter 1.

3 Carburetors not synchronized. Adjust carburetors with vacuum gauge or manometer set as described in Chapter 1.

4 Carburetor malfunction. See Chapter 4.

5 Fuel contaminated. The fuel can be contaminated with either dirt or water, or can change chemically if the machine is allowed to sit for several months or more. Drain the tank and float bowls (Chapter 4).

6 Intake air leak. Check for loose carburetor-to-intake manifold connections, loose or missing vacuum gauge access port cap or hose, or loose carburetor top (Chapter 4).

7 Air cleaner clogged. Service or replace air filter element (Chapter 1).

Poor running at low speed

10 Spark weak

1 Battery voltage low. Check and recharge battery (Chapter 8).

2 Spark plug fouled, defective or worn out. Refer to Chapter 1 for spark plug maintenance.

3 Spark plug cap or high tension wiring defective. Refer to Chapters 1 and 5 for details on the ignition system.

4 Spark plug cap not making contact.

5 Incorrect spark plug. Wrong type, heat range or cap configuration. Check and install correct plugs listed in Chapter 1. A cold plug or one with a recessed firing electrode will not operate at low speeds

without fouling.

6 Spark unit(s) defective. See Chapter 5.

7 Pulse generator defective. See Chapter 5.

8 Ignition coil(s) defective. See Chapter 5.

11 Fuel/air mixture incorrect

1 Pilot screw(s) out of adjustment (Chapter 4).

2 Pilot jet or air passage clogged. Remove and overhaul the carburetors (Chapter 4).

3 Air bleed holes clogged. Remove carburetor and blow out all passages (Chapter 4).

4 Air cleaner clogged, poorly sealed or missing (Chapter 1).

5 Air cleaner housing poorly sealed. Look for cracks, holes or loose clamps and replace or repair defective parts.

6 Fuel level too high or too low. Check the float height (Chapter 4).

7 Fuel tank air vent obstructed (not later California models). Make sure that the air vent passage in the filler cap is open.

8 Carburetor intake manifolds loose. Check for cracks, breaks, tears or loose clamps or bolts. Repair or replace the rubber boots.

12 Compression low

1 Spark plug loose. Remove the plug and inspect the threads. Reinstall and tighten to the specified torque (Chapter 1).

2 Cylinder heads not sufficiently tightened down. If either cylinder head is suspected of being loose, then there's a chance that the gasket and head are damaged if the problem has persisted for any length of time. The head bolts should be tightened to the proper torque in the correct sequence (Chapter 2).

3 Improper valve clearance. This means that the valve is not closing completely and compression pressure is leaking past the valve. Check and adjust the valve clearances (Chapter 1).

4 Cylinder and/or piston worn. Excessive wear will cause compression pressure to leak past the rings. This is usually accompanied by worn rings as well. A top end overhaul is necessary (Chapter 2).

5 Piston rings worn, weak, broken, or sticking. Broken or sticking piston rings usually indicate a lubrication or carburation problem that causes excess carbon deposits or seizures to form on the pistons and rings. Top end overhaul is necessary (Chapter 2).

6 Piston ring-to-groove clearance excessive. This is caused by excessive wear of the piston ring lands. Piston replacement is necessary (Chapter 2).

7 Cylinder head gasket damaged. If the head is allowed to become loose, or if excessive carbon build-up on the piston crown and combustion chamber causes extremely high compression, the head gasket may leak. Retorquing the head is not always sufficient to restore the seal, so gasket replacement is necessary (Chapter 2).

8 Cylinder head warped. This is caused by overheating or improperly tightened head bolts. Machine shop resurfacing or head replacement is necessary (Chapter 2).

9 Valve spring broken or weak. Caused by component failure or wear; the spring(s) must be replaced (Chapter 2).

10 Valve not seating properly. This is caused by a bent valve (from over-revving or improper valve adjustment), burned valve or seat (improper carburation) or an accumulation of carbon deposits on the seat (from carburation, lubrication problems). The valves must be cleaned and/or replaced and the seats serviced if possible (Chapter 2).

13 Poor acceleration

1 Carburetors leaking or dirty. Overhaul the carburetors (Chapter 4).

2 Timing not advancing. The pulse generator or the spark unit(s) may be defective. If so, they must be replaced with new ones, as they

can't be repaired.

3 Carburetors not synchronized. Adjust them with a vacuum gauge set or manometer (Chapter 1).

4 Engine oil viscosity too high. Using a heavier oil than that recommended in Chapter 1 can damage the oil pump or lubrication system and cause drag on the engine.

5 Brakes dragging. Usually caused by debris which has entered the brake piston seals, or from a warped disc or bent axle. Repair as necessary (Chapter 7).

Poor running or no power at high speed

14 Firing incorrect

1 Air filter restricted. Clean or replace filter (Chapter 1).

2 Spark plug fouled, defective or worn out. See Chapter 1 for spark plug maintenance.

3 Spark plug cap or secondary (HT) wiring defective. See Chapters 1 and 5 for details of the ignition system.

4 Spark plug cap not in good contact. See Chapter 5.

5 Incorrect spark plug. Wrong type, heat range or cap configuration. Check and install correct plugs listed in Chapter 1. A cold plug or one with a recessed firing electrode will not operate at low speeds without fouling.

6 Spark unit(s) defective. See Chapter 5.

7 Ignition coil(s) defective. See Chapter 5.

15 Fuel/air mixture incorrect

1 Main jet clogged. Dirt, water or other contaminants can clog the main jets. Clean the fuel tap filter, the float bowl area, and the jets and carburetor orifices (Chapter 4).

2 Main jet wrong size. The standard jetting is for sea level atmospheric pressure and oxygen content.

3 Jet needle or needle jet worn. These can be replaced individually, but should be replaced as a pair (Chapter 4).

4 Air bleed holes clogged. Remove and overhaul carburetors (Chapter 4).

5 Air cleaner clogged, poorly sealed, or missing (Chapter 1).

6 Air cleaner housing poorly sealed. Look for cracks, holes or loose clamps, and replace or repair defective parts.

7 Fuel level too high or too low. Check the float height (Chapter 4).

8 Fuel tank air vent obstructed (not later California models). Make sure the air vent passage in the filler cap is open.

9 Carburetor intake manifolds loose. Check for cracks, breaks, tears or loose clamps or bolts. Repair or replace the rubbers (Chapter 4).

10 Fuel filter clogged. Clean or replace the filter (Chapter 1).

11 Fuel line clogged. Pull the fuel line loose and carefully blow through it.

16 Compression low

1 Spark plug loose. Remove the plug and inspect the threads. Reinstall and tighten to the specified torque (Chapter 1).

2 Cylinder heads not sufficiently tightened down. If either cylinder head is suspected of being loose, then there's a chance that the gasket and head are damaged if the problem has persisted for any length of time. The head bolts should be tightened to the proper torque in the correct sequence (Chapter 2).

3 Improper valve clearance. This means that the valve is not closing completely and compression pressure is leaking past the valve. Check and adjust the valve clearances (Chapter 1).

4 Cylinder and/or piston worn. Excessive wear will cause compression pressure to leak past the rings. This is usually

accompanied by worn rings as well. A top end overhaul is necessary (Chapter 2).

5 Piston rings worn, weak, broken, or sticking. Broken or sticking piston rings usually indicate a lubrication or carburation problem that causes excess carbon deposits or seizures to form on the pistons and rings. Top end overhaul is necessary (Chapter 2).

6 Piston ring-to-groove clearance excessive. This is caused by excessive wear of the piston ring lands. Piston replacement is necessary (Chapter 2).

7 Cylinder head gasket damaged. If the head is allowed to become loose, or if excessive carbon build-up on the piston crown and combustion chamber causes extremely high compression, the head gasket may leak. Retorquing the head is not always sufficient to restore the seal, so gasket replacement is necessary (Chapter 2).

8 Cylinder head warped. This is caused by overheating or improperly tightened head bolts. Machine shop resurfacing or head replacement is necessary (Chapter 2).

9 Valve spring broken or weak. Caused by component failure or wear; the spring(s) must be replaced (Chapter 2).

10 Valve not seating properly. This is caused by a bent valve (from over-revving or improper valve adjustment), burned valve or seat (improper carburation) or an accumulation of carbon deposits on the seat (from carburation or lubrication problems). The valves must be cleaned and/or replaced and the seats serviced if possible (Chapter 2).

17 Knocking or pinging

1 Carbon build-up in combustion chamber. Use of a fuel additive that will dissolve the adhesive bonding the carbon particles to the crown and chamber is the easiest way to remove the build-up. Otherwise, the cylinder head will have to be removed and decarbonized (Chapter 2).

2 Incorrect or poor quality fuel. Old or improper grades of fuel can cause detonation. This causes the piston to rattle, thus the knocking or pinging sound. Drain old fuel and always use the recommended fuel grade.

3 Spark plug heat range incorrect. Uncontrolled detonation indicates the plug heat range is too hot. The plug in effect becomes a glow plug, raising cylinder temperatures. Install the proper heat range plug (Chapter 1).

4 Improper air/fuel mixture. This will cause the cylinder to run hot, which leads to detonation. Clogged jets or an air leak can cause this imbalance. See Chapter 4.

18 Miscellaneous causes

1 Throttle valve doesn't open fully. Adjust the cable slack (Chapter 1).

2 Clutch slipping. May be caused by loose or worn clutch components. Refer to Chapter 2 for clutch overhaul procedures.

3 Timing not advancing.

4 Engine oil viscosity too high. Using a heavier oil than the one recommended in Chapter 1 can damage the oil pump or lubrication system and cause drag on the engine.

5 Brakes dragging. Usually caused by debris which has entered the brake piston seals, or from a warped disc or bent axle. Repair as necessary.

Overheating

19 Engine overheats

1 Coolant level low. Check and add coolant (Chapter 1).

2 Leak in cooling system. Check cooling system hoses and radiator

for leaks and other damage. Repair or replace parts as necessary (Chapter 3).

3 Thermostat sticking open or closed. Check and replace as described in Chapter 3.

4 Faulty radiator cap. Remove the cap and have it checked at a service station.

5 Coolant passages clogged. Have the entire system drained and flushed, then refill with fresh coolant.

6 Water pump defective. Remove the pump and check the components (Chapter 3).

7 Clogged radiator fins. Clean them by blowing compressed air through the fins from the backside.

20 Firing incorrect

1 Spark plugs fouled, defective or worn out. See Chapter 1 for spark plug maintenance.

2 Incorrect spark plugs.

3 Faulty ignition coil(s) (Chapter 5).

21 Fuel/air mixture incorrect

1 Main jet clogged. Dirt, water and other contaminants can clog the main jets. Clean the fuel tap filter, the float bowl area and the jets and carburetor orifices (Chapter 4).

2 Main jet wrong size. The standard jetting is for sea level atmospheric pressure and oxygen content.

3 Air cleaner clogged, poorly sealed or missing (Chapter 1).

4 Air cleaner housing poorly sealed. Look for cracks, holes or loose clamps and replace or repair.

5 Fuel level too low. Check float height(s) (Chapter 4).

6 Fuel tank air vent obstructed (not later California models). Make sure that the air vent passage in the filler cap is open.

7 Carburetor intake manifolds loose. Check for cracks, breaks, tears or loose clamps or bolts. Repair or replace the rubbers (Chapter 4).

22 Compression too high

1 Carbon build-up in combustion chamber. Use of a fuel additive that will dissolve the adhesive bonding the carbon particles to the piston crown and chamber is the easiest way to remove the build-up. Otherwise, the cylinder head will have to be removed and decarbonized (Chapter 2).

2 Improperly machined head surface or installation of incorrect gasket during engine assembly.

23 Engine load excessive

1 Clutch slipping. Can be caused by damaged, loose or worn clutch components. Refer to Chapter 2 for overhaul procedures.

2 Engine oil level too high. The addition of too much oil will cause pressurization of the crankcase and inefficient engine operation. Check Specifications and drain to proper level (Chapter 1).

3 Engine oil viscosity too high. Using a heavier oil than the one recommended in Chapter 1 can damage the oil pump or lubrication system as well as cause drag on the engine.

4 Brakes dragging. Usually caused by debris which has entered the brake piston seals, from a warped disc or bent axle (disc brake), or sticking operating cam (drum brake). Repair as necessary.

24 Lubrication inadequate

1 Engine oil level too low. Friction caused by intermittent lack of lubrication or from oil that is overworked can cause overheating. The oil provides a definite cooling function in the engine. Check the oil level (Chapter 1).

2 Poor quality engine oil or incorrect viscosity or type. Oil is rated not only according to viscosity but also according to type. Some oils are not rated high enough for use in this engine. Check the Specifications section and change to the correct oil (Chapter 1).

25 Miscellaneous causes

Modification to exhaust system. Most aftermarket exhaust systems cause the engine to run leaner, which make them run hotter. When installing an accessory exhaust system, always reject the carburetors.

Clutch problems

26 Clutch slipping

1 Piston in master cylinder or slave cylinder sticking (Chapter 2).

2 Friction plates worn or warped. Overhaul the clutch assembly (Chapter 2).

3 Steel plates worn or warped (Chapter 2).

4 Clutch spring(s) broken or weak. Old or heat-damaged (from slipping clutch) springs should be replaced with new ones (Chapter 2).

5 Clutch center or housing unevenly worn. This causes improper engagement of the plates. Replace the damaged or worn parts (Chapter 2).

27 Clutch not disengaging completely

1 Air bubbles or lack of fluid in hydraulic system. Check fluid level (Chapter 1) and bleed system (Chapter 7).

2 Clutch plates warped or damaged. This will cause clutch drag, which in turn will cause the machine to creep. Overhaul the clutch assembly (Chapter 2).

3 Clutch spring tension uneven. Usually caused by a sagged or broken spring. Check and replace the spring (Chapter 2).

4 Engine oil deteriorated. Old, thin, worn out oil will not provide proper lubrication for the discs, causing the clutch to drag. Replace the oil and filter (Chapter 1).

5 Engine oil viscosity too high. Using a heavier oil than recommended in Chapter 1 can cause the plates to stick together, putting a drag on the engine. Change to the correct weight oil (Chapter 1).

6 Clutch housing seized on shaft. Lack of lubrication, severe wear or damage can cause the housing to seize on the shaft. Overhaul of the clutch, and perhaps transmission, may be necessary to repair the damage (Chapter 2).

7 Clutch release mechanism defective. Bent or damaged pushrod can stick and fail to apply force to the pressure plate. Overhaul the clutch cover components (Chapter 2).

8 Loose clutch center nut. Causes housing and center misalignment putting a drag on the engine. Engagement adjustment continually varies. Overhaul the clutch assembly (Chapter 2).

9 Hydraulic system leaking. Check all hoses and connections.

10 Piston in master cylinder or slave cylinder sticking (Chapter 2).

Gear shifting problems

28 Doesn't go into gear or lever doesn't return

- 1 Clutch not disengaging. See Section 27.
- 2 Shift fork(s) bent or seized. Often caused by dropping the machine or from lack of lubrication. Overhaul the transmission (Chapter 2).
- 3 Gear(s) stuck on shaft. Most often caused by a lack of lubrication or excessive wear in transmission bearings and bushings. Overhaul the transmission (Chapter 2).
- 4 Shift drum binding. Caused by lubrication failure or excessive wear. Replace the drum and bearing (Chapter 2).
- 5 Shift linkage return spring weak or broken (Chapter 2).
- 6 Shift lever broken. Splines stripped out of lever or shaft, caused by allowing the lever to get loose or from dropping the machine. Replace necessary parts (Chapter 2).
- 7 Shift mechanism stopper arm broken or worn. Full engagement and rotary movement of shift drum results. Replace the arm (Chapter 2).
- 8 Pawl spring broken. Allows arm to 'float', causing sporadic shift operation. Replace springs (Chapter 2).

29 Jumps out of gear

- 1 Shift fork(s) worn. Overhaul the transmission (Chapter 2).
- 2 Gear groove(s) worn. Overhaul the transmission (Chapter 2).
- 3 Gear dogs or dog slots worn or damaged. The gears should be inspected and replaced. No attempt should be made to service the worn parts.
- 4 Shift drum stopper arm broken. Check and replace (Chapter 2).
- 5 Shift drum shaft bent. Check and replace (Chapter 2).

30 Overshifts

- 1 Pawl springs weak or broken (Chapter 2).
- 2 Shift drum stopper arm broken (Chapter 2).

Abnormal engine noise

31 Knocking or pinging

- 1 Carbon build-up in combustion chamber. Use of a fuel additive that will dissolve the adhesive bonding the carbon particles to the piston crown and chamber is the easiest way to remove the build-up. Otherwise, the cylinder head will have to be removed and decarbonized (Chapter 2).
- 2 Incorrect or poor quality fuel. Old or improper fuel can cause detonation. This causes the pistons to rattle, thus the knocking or pinging sound. Drain the old fuel and always use the recommended grade fuel (Chapter 4).
- 3 Spark plug heat range incorrect. Uncontrolled detonation indicates that the plug heat range is too hot. The plug in effect becomes a glow plug, raising cylinder temperatures. Install the proper heat range plug (Chapter 1).
- 4 Improper air/fuel mixture. This will cause the cylinders to run hot and lead to detonation. Clogged jets or an air leak can cause this imbalance. See Chapter 4.

32 Piston slap or rattling

- 1 Cylinder-to-piston clearance excessive. Caused by improper

- assembly. Inspect and overhaul top end parts (Chapter 2).
- 2 Connecting rod bent. Caused by over-revving, trying to start a badly flooded engine or from ingesting a foreign object into the combustion chamber. Replace the damaged parts (Chapter 2).
- 3 Piston pin or piston pin bore worn or seized from wear or lack of lubrication. Replace damaged parts (Chapter 2).
- 4 Piston ring(s) worn, broken or sticking. Overhaul the top end (Chapter 2).
- 5 Piston seizure damage. Usually from lack of lubrication or overheating. Replace the pistons and bore the cylinders, as necessary (Chapter 2).
- 6 Connecting rod upper or lower end clearance excessive. Caused by excessive wear or lack of lubrication. Replace worn parts.

33 Valve noise

- 1 Incorrect valve clearances. Adjust the clearances by referring to Chapter 1.
- 2 Valve spring broken or weak. Check and replace weak valve springs (Chapter 2).
- 3 Camshaft or cylinder head worn or damaged. Lack of lubrication at high rpm is usually the cause of damage. Insufficient oil or failure to change the oil at the recommended intervals are the chief causes. Since there are no replaceable bearings in the head, the head itself will have to be replaced if there is excessive wear or damage (Chapter 2).

34 Other noise

- 1 Cylinder head gasket leaking.
- 2 Exhaust pipe leaking at cylinder head connection. Caused by improper fit of pipe(s) or loose exhaust flange. All exhaust fasteners should be tightened evenly and carefully. Failure to do this will lead to a leak.
- 3 Crankshaft runout excessive. Caused by a bent crankshaft (from over-revving) or damage from an upper cylinder component failure. Can also be attributed to dropping the machine on either of the crankshaft ends.
- 4 Engine mounting bolts loose. Tighten all engine mount bolts (Chapter 2).
- 5 Crankshaft bearings worn (Chapter 2).
- 6 Camshaft chain tensioner defective. Replace according to the procedure in Chapter 2.
- 7 Camshaft chain, sprockets or guides worn (Chapter 2).

Abnormal driveline

noise 35 Clutch noise

- 1 Clutch housing/friction plate clearance excessive (Chapter 2).
- 2 Loose or damaged clutch pressure plate and/or bolts (Chapter 2).

36 Transmission noise

- 1 Bearings worn. Also includes the possibility that the shafts are worn. Overhaul the transmission (Chapter 2).
- 2 Gears worn or chipped (Chapter 2).
- 3 Metal chips jammed in gear teeth. Probably pieces from a broken clutch, gear or shift mechanism that were picked up by the gears. This will cause early bearing failure (Chapter 2).
- 4 Engine oil level too low. Causes a howl from transmission. Also affects engine power and clutch operation (Chapter 1).

37 Final drive noise

- 1 Oil level too low (Chapter 1).
- 2 Excessive backlash between pinion and ring gear (Chapter 6).
- 3 Scored driven flange or wheel hub. Inspect the components (Chapter 6).
- 4 Worn or damaged internal components in the driveshaft or final drive unit. Have a Honda dealer overhaul the assembly.

Abnormal frame and suspension noise 38**Front end noise**

- 1 Low fluid level or improper viscosity oil in forks. This can sound like spurting and is usually accompanied by irregular fork action (Chapter 6).
- 2 Spring weak or broken. Makes a clicking or scraping sound. Fork oil, when drained, will have a lot of metal particles in it (Chapter 6).
- 3 Steering head bearings loose or damaged. Clicks when braking. Check and adjust or replace as necessary (Chapters 1 and 6).
- 4 Fork triple clamps loose. Make sure all fork clamp pinch bolts are tight (Chapter 6).
- 5 Fork tube bent. Good possibility if machine has been dropped. Replace tube with a new one (Chapter 6).
- 6 Front axle or axle clamp bolt/nut loose. Tighten them to the specified torque (Chapter 6).

39 Shock absorber noise

- 1 Fluid level incorrect. Indicates a leak caused by defective seal. Shock will be covered with oil. Replace shock (Chapter 6).
- 2 Defective shock absorber with internal damage. This is in the body of the shock and can't be remedied. The shock must be replaced with a new one (Chapter 6).
- 3 Bent or damaged shock body. Replace the shock with a new one (Chapter 6).
- 4 Loose shock or shock linkage fasteners on Sabre models (Chapter 6).

40 Disc brake noise

- 1 Brake disc-to-caliper bracket clearance incorrect (front brake) (Chapter 7).
- 2 Squeal caused by dust on brake pads. Usually found in combination with glazed pads. Clean using brake cleaning solvent (Chapter 7).
- 3 Contamination of brake pads. Oil, brake fluid or dirt causing brake to chatter or squeal. Clean or replace pads (Chapter 7).
- 4 Pads glazed. Caused by excessive heat from prolonged use or from contamination. Do not use sandpaper, emery cloth, carborundum cloth or any other abrasive to roughen the pad surfaces as abrasives will stay in the pad material and damage the disc. A very fine flat file can be used, but pad replacement is suggested as a cure (Chapter 7).
- 5 Disc warped. Can cause a chattering, clicking or intermittent squeal. Usually accompanied by a pulsating lever and uneven braking. Replace the disc (Chapter 7).
- 6 Loose or worn wheel bearings. Check and replace as needed (Chapter 7).

Oil pressure indicator light comes on 41**Engine lubrication system**

- 1 Engine oil pump defective (Chapter 2).

- 2 Engine oil level low. Inspect for leak or other problem causing low oil level and add recommended oil (Chapters 1 and 2).
- 3 Engine oil viscosity too low. Very old, thin oil or an improper weight of oil used in the engine. Change to correct oil (Chapter 1).
- 4 Camshaft or journals worn. Excessive wear causing drop in oil pressure. Replace cam and/or/cylinder head. Abnormal wear could be caused by oil starvation at high rpm from low oil level or improper weight of type of oil (Chapter 1).
- 5 Crankshaft and/or bearings worn. Same problems as paragraph 4. Check and replace crankshaft and/or bearings (Chapter 2).
- 6 Clogger oil strainer. Clean in (Chapter 2).

42 Electrical system

- 1 Oil pressure switch defective. Check the switch according to the procedure in Chapter 8. Replace it if it is defective.
- 2 Oil pressure indicator light circuit defective. Check for pinched, shorted, disconnected or damaged wiring (Chapter 8).

Excessive exhaust smoke 43**White smoke**

- 1 Piston oil ring worn. The ring may be broken or damaged, causing oil from the crankcase to be pulled past the piston into the combustion chamber. Replace the rings with new ones (Chapter 2).
- 2 Cylinders worn, cracked, or scored. Caused by overheating or oil starvation. The cylinders will have to be rebored and new pistons installed.
- 3 Valve oil seal damaged or worn. Replace oil seals with new ones (Chapter 2).
- 4 Valve guide worn. Perform a complete valve job (Chapter 2).
- 5 Engine oil level too high, which causes the oil to be forced past the rings. Drain oil to the proper level (Chapter 1).
- 6 Head gasket broken between oil return and cylinder. Causes oil to be pulled into the combustion chamber. Replace the head gasket and check the head for warpage (Chapter 2).
- 7 Abnormal crankcase pressurization, which forces oil past the rings. Clogged breather/separator or hoses usually the cause (Chapter 4).

44 Black smoke

- 1 Air cleaner clogged. Clean or replace the element (Chapter 1).
- 2 Main jet too large or loose. Compare the jet size to the Specifications (Chapter 4).
- 3 Choke stuck, causing fuel to be pulled through choke circuit (Chapter 4).
- 4 Fuel level too high. Check and adjust the float height(s) as necessary (Chapter 4).
- 5 Inlet needle held off needle seat. Clean the float bowls and fuel line and replace the needles and seats if necessary (Chapter 4).

45 Brown smoke

- 1 Main jet too small or clogged. Lean condition caused by wrong size main jet or by a restricted orifice. Clean float bowl and jets and compare jet size to Specifications (Chapter 4).
- 2 Fuel flow insufficient. Fuel inlet needle valve stuck closed due to chemical reaction with old fuel. Float height incorrect. Restricted fuel line. Clean line and float bowl and adjust floats if necessary.
- 3 Carburetor intake manifolds loose (Chapter 4).
- 4 Air cleaner poorly sealed or not installed (Chapter 1).

Poor handling or stability

46 Handlebar hard to turn

- 1 Steering stem nut too tight (Chapter 6).
- 2 Bearings damaged. Roughness can be felt as the bars are turned from side-to-side. Replace bearings and races (Chapter 6).
- 3 Races dented or worn. Denting results from wear in only one position (e.g., straight-ahead), from a collision or hitting a pothole or from dropping the machine. Replace races and bearings (Chapter 6).
- 4 Steering stem lubrication inadequate. Causes are grease getting hard from age or being washed out by high pressure car washes. Disassemble steering head and repack bearings (Chapter 6).
- 5 Steering stem bent. Caused by a collision, hitting a pothole or by dropping the machine. Replace damaged part. Don't try to straighten the steering stem (Chapter 6).
- 6 Front tire air pressure too low (Chapter 1).

47 Handlebar shakes or vibrates excessively

- 1 Tires worn or out of balance (Chapter 7).
- 2 Swingarm bearings worn. Replace worn bearings by referring to Chapter 6.
- 3 Rim(s) warped or damaged. Inspect wheels for runout (Chapter 7).
- 4 Wheel bearings worn. Worn front or rear wheel bearings can cause poor tracking. Worn front bearings will cause wobble (Chapter 7).
- 5 Handlebar clamp bolts loose (Chapter 6).
- 6 Steering stem or fork triple clamps loose. Tighten them to the specified torque (Chapter 6).
- 7 Engine mounting bolts loose. Will cause excessive vibration with increased engine rpm (Chapter 2).
- 8 Loose axle (Chapter 7).

48 Handlebar pulls to one side

- 1 Frame bent. Definitely suspect this if the machine has been dropped. May or may not be accompanied by cracking near the bend. Replace the frame (Chapter 6).
- 2 Wheel out of alignment. Caused by improper location of axle spacers or from bent steering stem or frame (Chapter 6).
- 3 Swingarm bent or twisted. Caused by age (metal fatigue) or impact damage. Replace the arm (Chapter 6).
- 4 Steering stem bent. Caused by impact damage or by dropping the motorcycle. Replace the steering stem (Chapter 6).
- 5 Fork leg bent. Disassemble the forks and replace the damaged parts (Chapter 6).
- 6 Fork oil level uneven. Check and add or drain as necessary (Chapter 6).
- 7 Defective shock absorber on one side (Magna models).

49 Poor shock absorbing qualities

- 1 Too hard:
 - a) Fork oil level excessive (Chapter 6).
 - b) Fork oil viscosity too high.
 - c) Fork tube bent. Causes a harsh, sticking feeling (Chapter 6).
 - d) Anti-dive passages clogged (Chapter 6).
 - e) Shock shaft or body bent or damaged (Chapter 6).
 - f) Fork internal damage (Chapter 6).
 - g) Shock internal damage.
 - h) Tire pressure too high (Chapter 1).

- 2 Too soft:
 - a) Fork or shock oil insufficient and/or leaking (Chapter 6).
 - b) Fork oil level too low (Chapter 6).
 - c) Fork oil viscosity too light (Chapter 6).
 - d) Fork springs weak or broken (Chapter 6).
 - e) Shock internal damage or leakage (Chapter 6).

Braking problems

50 Disc brakes are spongy, don't hold

- 1 Air in brake line. Caused by inattention to master cylinder fluid level or by leakage. Locate problem and bleed brakes (Chapter 7).
- 2 Pad or disc worn (Chapters 1 and 7).
- 3 Brake fluid leak. See paragraph 1.
- 4 Contaminated pads. Caused by contamination with oil, grease, brake fluid, etc. Clean or replace pads. Clean disc thoroughly with brake cleaner (Chapter 7).
- 5 Brake fluid deteriorated. Fluid is old or contaminated. Drain system, replenish with new fluid and bleed the system (Chapter 7).
- 6 Master cylinder internal parts worn or damaged causing fluid to bypass (Chapter 7).
- 7 Master cylinder bore scratched by foreign material or broken spring. Repair or replace master cylinder (Chapter 7).
- 8 Disc warped. Replace disc (Chapter 7).

51 Brake lever or pedal pulsates

- 1 Disc warped or drum out-of-round (Chapter 7).
- 2 Axle bent. Replace axle (Chapter 7).
- 3 Brake caliper or bracket bolts loose (Chapter 7).
- 4 Brake caliper sticking on its mounting bolt shafts, causing caliper to bind. Lube the shafts or replace them if they are corroded or bent (Chapter 7).
- 5 Wheel warped or otherwise damaged (Chapter 7).
- 6 Wheel bearings damaged or worn (Chapter 7).

52 Brakes drag

- 1 Master cylinder piston seized. Caused by wear or damage to piston or cylinder bore (Chapter 7).
- 2 Lever balky or stuck. Check pivot and lubricate (Chapter 7).
- 3 Brake caliper binds. Caused by inadequate lubrication or damage to caliper sliders (Chapter 7).
- 4 Brake caliper pistons seized in bore. Caused by wear or ingestion of dirt past deteriorated seal (Chapter 7).
- 5 Brake pad damaged. Pad material separated from backing plate. Usually caused by faulty manufacturing process or from contact with chemicals. Replace pads (Chapter 7).
- 6 Pads improperly installed (Chapter 7).
- 7 Drum brake operating cam sticking or broken/sagged shoe return strings (Chapter 7).
- 8 Rear brake pedal freeplay insufficient.

Electrical problems 53

Battery dead or weak

- 1 Battery faulty. Caused by sulfated plates which are shorted through sedimentation or low electrolyte level. Also, broken battery terminal making only occasional contact (Chapter 8).
- 2 Battery cables making poor contact (Chapter 8).

3 Load excessive. Caused by addition of high wattage lights or other electrical accessories.

4 Ignition main (key) switch defective. Switch either grounds (earths) internally or fails to shut off system. Replace the switch (Chapter 8).

5 Regulator/rectifier defective (Chapter 8).

6 Alternator stator coil open or shorted (Chapter 8).

7 Wiring faulty. Wiring grounded (earthed) or connections loose in ignition, charging or lighting circuits (Chapter 8).

54 Battery overcharged

1 Regulator/rectifier defective. Overcharging is noticed when battery gets excessively warm or boils over (Chapter 8).

2 Battery defective. Replace battery with a new one (Chapter 8).

3 Battery amperage too low, wrong type or size. Install manufacturer's specified amp-hour battery to handle charging load (Chapter 8).