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450 & 500cc TWINS • 1965-1977

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INTERTEC PUBLISHING
P.O. Box 12901, Overland Park, Kansas 66282-2901

FIRST EDITION
First Printing August, 1971

SECOND EDITION
Revised to include 1972 models
First Printing June, 1972

THIRD EDITION
Revised to include 1973 models
First Printing April, 1973

FOURTH EDITION
Revised by Eric Jorgensen to include 1974 models
First Printing October, 1973

FIFTH EDITION
Revised by Jim Combs to include 1975-1976 models
First Printing December, 1976

SIXTH EDITION
Revised by Tim Lockwood to include 1977 models
First Printing September, 1977

SEVENTH EDITION
Revised and expanded by Mike Bishop
First Printing August, 1978
Second Printing April, 1979
Third Printing March, 1980
Fourth Printing January, 1981
Fifth Printing October, 1982
Sixth Printing October, 1983
Seventh Printing February, 1985
Eighth Printing October, 1986
Ninth Printing April, 1988
Tenth Printing December, 1989
Eleventh Printing January, 1992
Twelfth Printing April, 1994
Thirteenth Printing July, 1997
Fourteenth Printing November, 2000

Printed in U.S.A.

ISBN: 0-89287-685-9

COVER: Photographed by Michael Brown Photographic Productions, Los Angeles, California. Motorcycle courtesy of Steven Podrouzek.

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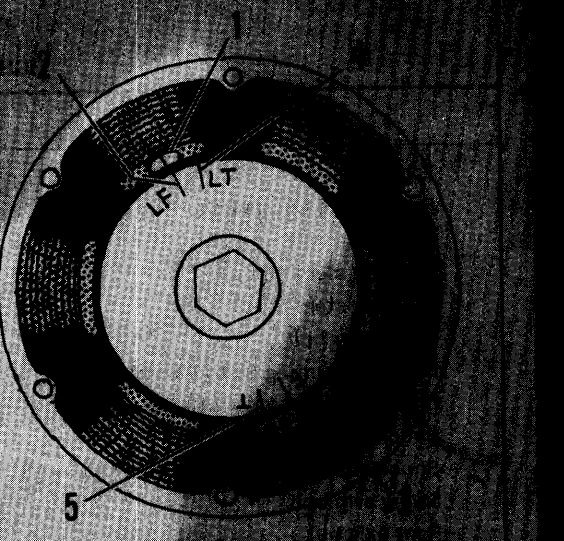


1. Timing
2. "LF"
3. "F"
4. "LT"
5. "T"

RECOMMENDED FUEL AND LUBRICANTS

	Temperature	Capacity	Type
Engine oil			
Multigrade	All	3.0 U.S. qt. (2.8 liters)	SAE 10W-40 or 20W-50, SE
Single grade	Above 59°		SAE 30, SE
	32-59°		SAE 20 or 20W, SE
	Below 32°		SAE 10W, SE
Fork oil			
Early, 2 spring		7.0-7.30 oz. (220-230cc)*	SAE 10W-30
Early, 1 spring		9.0-10.00 oz. (285-295cc)*	SAE 10W-30
K3 and K4		7.0-7.30 oz. (220-230cc)*	SAE 10W-30
K5-K7		4.6-4.90 oz. (135-145cc)*	Automatic transmission fluid
Swing arm bushing	All	—	Lithium grease
Drive chain	All	—	SAE 30 engine oil or special chain lubricant
Brake fluid	—	—	Marked "DOT-3" or "J 1703"
Fuel			
Total	—	3.6 U.S. gal. (13.5 liters)	86 (pump), 91 (research) octane
Reserve	—	0.5 U.S. gal. (1.8 liters)	

*Each fork leg

TIGHTENING TORQUES

	Foot-pounds	Mkg
Front axle nut	54-61	7.5-8.5
Front brake torque bolt	13-20	1.8-2.8
Front fork bolt	47-58	6.5-8.0
Steering stem nut	65-87	9.0-12.0
Steering stem bolt	29-36	4.0-5.0
Handlebar bolt	18-25	2.5-3.5
Engine mounting bolt (10mm)	29-36	4.0-5.0
Engine mounting bolt (8mm)	13-20	1.8-2.8
Shock absorber nut	29-36	4.0-5.0
Shock absorber bolt	29-36	4.0-5.0
Swing arm bolt	51-65	7.0-9.0
Rear axle nut	58-87	8.0-12.0
Kickstarter bolt	13-20	1.8-2.8
Exhaust pipe clamp nut	6-9	0.8-1.2
Driven sprocket nut	29-36	4.0-5.0

CHAPTER ONE

GENERAL INFORMATION

Introduced in 1965, the Honda 450 was the first Japanese bike to make any headway against the British twins and Harley Sportsters. The engine, ahead of its time in 1965, is still exotic and innovative enough to keep this workhorse in the Honda model line in an enlarged version. The CB500T, introduced in 1975, has a refined 498cc dual overhead cam engine that is a direct descendant of the original 450.

MANUAL ORGANIZATION

This book provides service information and procedures for all Honda 450 and 500 twins built from 1965 through 1976. Most dimensions and capacities are expressed in English units familiar to U.S. mechanics, as well as in metric units. Where conversion to inches could introduce errors in critical dimensions, only metric measure is specified. In any case, metric tools *are* required to work on the Honda.

This chapter provides general information specifications. **Figures 1 and 2** show the location of all identification tags.

Chapter Two provides methods and suggestions for finding and fixing troubles fast. Troubleshooting procedures discuss typical symptoms and logical methods to pinpoint the trouble. It also covers some test equipment useful for both preventive maintenance and troubleshooting.

Chapter Three explains all periodic lubrication and routine maintenance required to keep your bike in top running condition. Chapter Three also includes recommended engine tune-up procedures, eliminating the need to constantly consult chapters covering the various subassemblies.

Subsequent chapters describe specific systems such as the engine, transmission, and electrical system. Each chapter provides complete disassembly, repair, and assembly procedures in simple step-by-step form. If a repair is impractical for the home mechanic, it is so indicated. It is usually faster and less expensive to take such repairs to a dealer or competent repair shop. Specifications concerning a particular system are included at the end of the appropriate chapter.

Some of the procedures in this manual specify special tools. In all cases, the tool is illustrated either in actual use or alone. A well-equipped mechanic may find that he can substitute similar tools already on hand or that he can fabricate his own.

The terms NOTE, CAUTION, and WARNING have specific meanings in this manual. A NOTE provides additional information to make a step or procedure easier or clearer. Disregarding a NOTE could cause inconvenience, but would not cause damage or personal injury.

A CAUTION emphasizes areas where equipment damage could result. Disregarding a CAUTION could cause permanent mechanical damage; however, personal injury is unlikely.

A WARNING emphasizes areas where personal injury or even death could result from negligence. Mechanical damage may also occur. WARNINGS *are to be taken seriously*. In some cases, serious injury or death has been caused when mechanics disregarded similar warnings.

SERVICE HINTS

Most of the service procedures covered are straightforward and can be performed by anyone reasonably handy with tools. It is suggested, however, that you consider your own capabilities carefully before attempting any operation involving major disassembly of the engine.

Throughout this manual, keep in mind 2 conventions. "Front" refers to the front of the bike. The front of any component, such as the engine, is that end which faces toward the front of the bike. The left and right side refer to a person sitting on the bike, facing forward. For example, the shift lever is on the left side. These rules are simple, but even experienced mechanics occasionally become disoriented.

Disconnect battery ground cable before working near electrical connections and before disconnecting wires. Never run the engine with the battery disconnected; the alternator could be seriously damaged.

Protect finished surfaces from physical damage or corrosion. Keep gasoline and brake fluid off painted surfaces.

Frozen or very tight bolts and screws can often be loosened by soaking with penetrating oil, then sharply striking the bolt head a few times with a hammer and punch (or a screwdriver for screws). Avoid heat unless absolutely necessary since it may melt, warp, or remove the temper from many parts.

Avoid flames or sparks when working near a charging battery or flammable liquids such as brake fluid or gasoline.

During disassembly of parts, keep a few general cautions in mind. Force is rarely needed to get things apart. If parts are a tight fit, like a magneto on a crankshaft, there is usually a tool designed to separate them. Never use a screwdriver to pry apart components with machined surfaces such as crankcase halves and valve covers. You will mar the surfaces and cause leaks.

Make diagrams wherever similar-appearing parts are found. For instance, case cover screws are often not the same length. You may *think* you can remember where everything came from—but mistakes are costly. There is also the possibility that you may be sidetracked and not return to work for days, or even weeks; carefully laid out parts may become disturbed.

Tag all similar internal parts for location and mark all mating parts for position. Record number and thickness of any shims as they are removed. Small parts, such as bolts, can be identified by placing them in plastic sandwich bags and sealing and labeling bags with masking tape.

Wiring should be tagged with masking tape and marked as each wire is removed. Again, *do not rely on memory alone.*

Read each procedure completely while looking at the actual parts *before* beginning. Many procedures are complicated and errors can be disastrous. When you thoroughly understand what is to be done, follow the procedure step-by-step.

SAFETY FIRST

Professional motorcycle mechanics can work for years and never sustain a serious injury. If you observe a few rules of common sense and safety, you can enjoy many safe hours servicing your own machine. You could hurt yourself or damage the bike if you ignore these rules.

1. Never use gasoline as a cleaning solvent.
2. Never smoke or use a torch in the vicinity of flammable liquids, such as cleaning solvent in open containers.

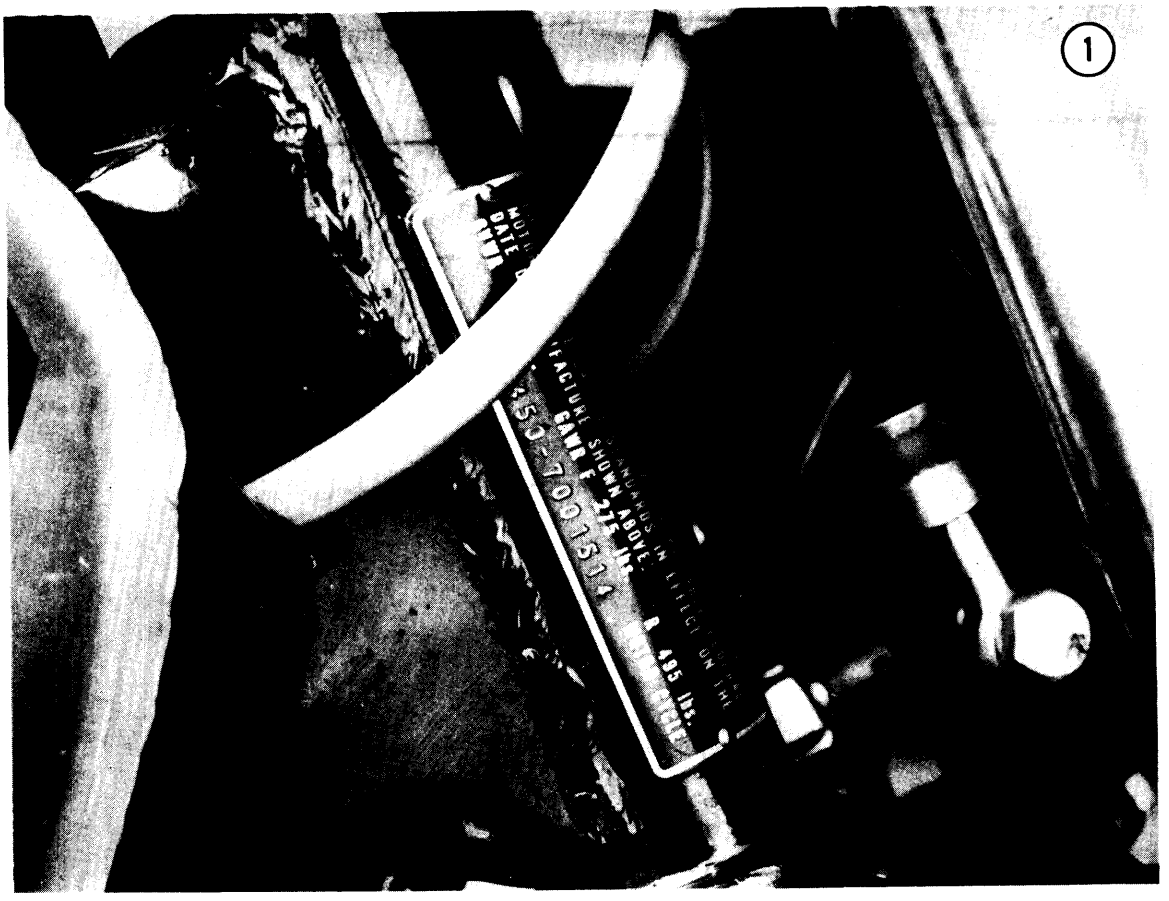
3. Never smoke or use a torch in an area where batteries are being charged. Highly explosive hydrogen gas is formed during the charging process.
4. If welding or brazing is required on the machine, remove the fuel tank to a safe distance—at least 50 feet away. Welding gas tanks requires special safety procedures and must be performed by someone skilled in the process.
5. Use the proper sized wrenches to avoid damage to nuts and injury to yourself.
6. When loosening a tight or stuck nut, think about what would happen if the wrench should slip. Protect yourself accordingly.
7. Keep your work area clean and uncluttered.
8. Wear safety goggles during all operations involving drilling, grinding, or use of a cold chisel.
9. Never use worn tools.
10. Keep a fire extinguisher handy and be sure it is rated for gasoline and electrical fires.

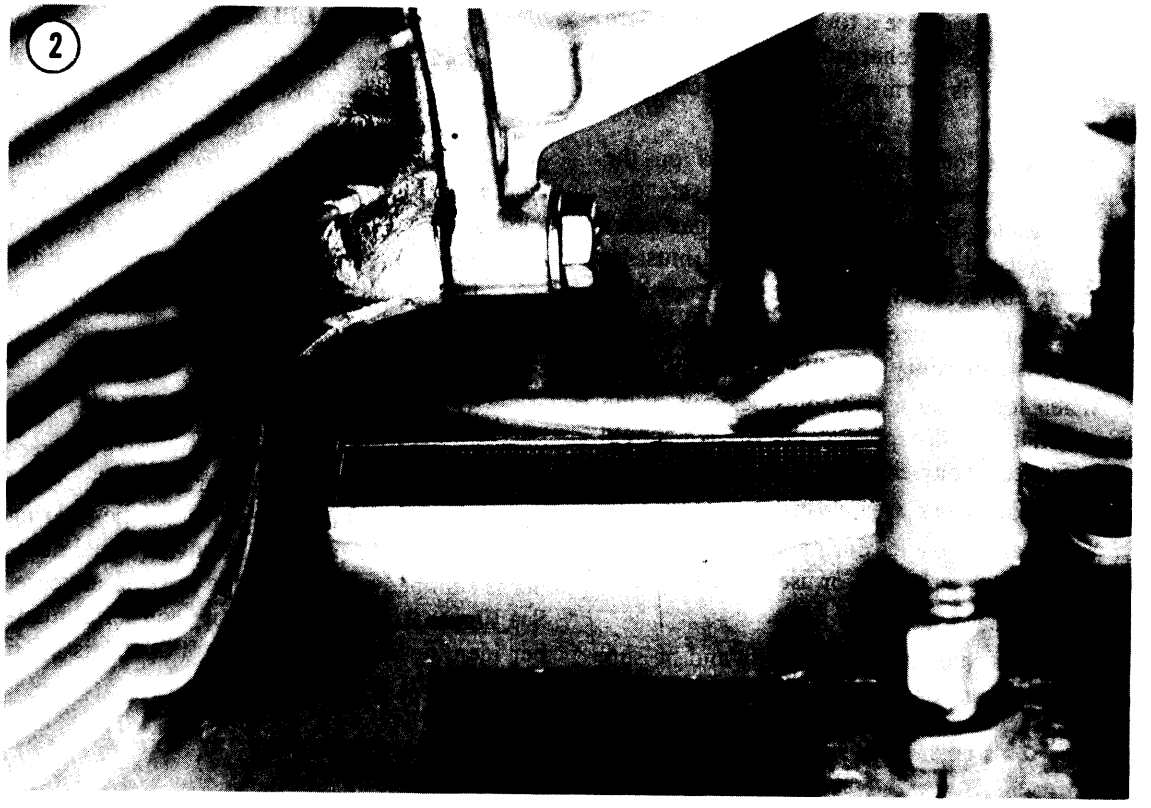
PARTS REPLACEMENT

Honda makes frequent changes during a model year; some minor, some relatively major. When you order parts from the dealer or other parts distributor, *always order by engine and chassis number*. Write the numbers down and carry them with you. Compare the new parts to the old parts before purchasing them. If they are not alike, have the parts clerk expain the difference.

SERIAL NUMBER LOCATION

The frame and engine serial numbers are necessary for registration and parts ordering. The frame serial number is stamped on the steering head tube. See **Figure 1**. The engine serial number is stamped on the left side of the crankcase. See **Figure 2**. The first digit of each serial number identifies the model, e.g., 6000001 is a K6 and 7000001 is a K7 model.





CHAPTER TWO

TROUBLESHOOTING

Diagnosing motorcycle ills is relatively simple if you use orderly procedures and keep a few basic principles in mind.

Never assume anything. Don't overlook the obvious. If you are riding along and the bike suddenly quits, check the easiest, most accessible problem spots first. Is there gasoline in the tank? Is the gas petcock in the ON or RESERVE position? Has a spark plug wire fallen off? Check the ignition switch. Sometimes the weight of keys on a key ring may turn the ignition off suddenly.

If nothing obvious turns up in a cursory check, look a little further. Learning to recognize and describe symptoms will make repairs easier for you or a mechanic at the shop. Describe problems accurately and fully. Saying that "it won't run" isn't the same as saying "it quit on the highway at high speed and wouldn't start," or that "it sat in my garage for three months and then wouldn't start."

Gather as many symptoms together as possible to aid in diagnosis. Note whether the engine lost power gradually or all at once, what color smoke (if any) came from the exhausts, and so on. Remember that the more complicated a machine is, the easier it is to troubleshoot because symptoms point to specific problems.

You don't need fancy equipment or complicated test gear to determine whether repairs can be attempted at home. A few simple checks could save a large repair bill and time lost while the bike sits in a dealer's service department. On the other hand, be realistic and don't attempt repairs beyond your abilities. Service departments tend to charge heavily for putting together a disassembled engine that may have been abused. Some places won't even take on such a job—so use common sense and don't get in over your head.

OPERATING REQUIREMENTS

An engine needs three basics to run properly: correct gas-air mixture, compression, and a spark at the right time. If one or more are missing, the engine won't run. The electrical system is the weakest link of the three. More problems result from electrical breakdowns than from any other source. Keep that in mind before you begin tampering with carburetor adjustments and the like.

If a bike has been sitting for any length of time and refuses to start, check the battery for a charged condition first and then look to the gasoline delivery system. This includes the tank, fuel petcocks, lines and the carburetor. Rust may have formed in the tank, obstructing fuel flow. Gasoline deposits may have gummed up carbu-

retor jets and air passages. Gasoline tends to lose its potency after standing for long periods. Condensation may contaminate it with water. Drain old gas and try starting with a fresh tankful.

Compression, or the lack of it, usually enters the picture only in the case of older machines. Worn or broken pistons, rings, and cylinder bores could prevent starting. Generally, a gradual power loss and harder and harder starting will be readily apparent in this case.

STARTING DIFFICULTIES

Check gas flow first. Remove the gas cap and look into the tank. If gas is present, pull off a fuel line at the carburetor and see if gas flows freely. If none comes out, the fuel tap may be shut off, blocked by rust or foreign matter, or the fuel line may be stopped up or kinked. If the carburetor is getting usable fuel, turn to the electrical system next.

Check that the battery is charged by turning on the lights or by beeping the horn. Refer to your owner's manual for starting procedures with a dead battery. Have the battery recharged if necessary.

Pull off a spark plug cap, remove the spark plug and reconnect the cap. Lay the plug against the cylinder head so its base makes a good connection and turn the engine over with the kickstarter. A fat, blue spark should jump across the electrodes. If there is no spark, or a weak one, there is electrical system trouble. Check for a defective plug by replacing it with a known good one. Don't assume a plug is good just because it's new.

Once the plug has been cleared of guilt, but there's still no spark, start backtracking through the system. If the contact at the end of the spark plug wire can be exposed it can be held about ⅛ inch from the head while the engine is turned over to check for a spark. Remember to hold the wire only by its insulation to avoid a nasty shock. If the plug wires are dirty, greasy, or wet, wrap a rag around them so you won't get shocked. If you do feel a shock or see sparks along the wire, clean or replace the wire and/or its connections.

If there's no spark at the plug wire, look for loose connections at the coil and battery. If all seems in order here, check next for oily or dirty contact points. Clean points with electrical contact cleaner or a strip of paper. With the ignition switch turned on, open and close the points manually with a screwdriver.

No spark at the points with this test indicates a failure in the ignition system. Refer to the *Electrical System* chapter for checkout procedures for the entire system and individual components. Refer to *Periodic Maintenance* chapter to check and set ignition timing.

Note that spark plugs of the incorrect heat range (too cold) may cause hard starting. Set gaps to specifications. If you have just ridden through a puddle or washed the bike and it won't start, dry off plugs and plug wires. Water may have entered the carburetor and fouled the fuel under these conditions, but wet plugs and wires are the more likely problem.

If a healthy spark occurs at the right time, and there is adequate gas flow to the carburetor, check the carburetor itself at this time. Make sure all jets and air passages are clean, check float level and adjust if necessary. Shake the float to check for gasoline inside it and replace or repair as indicated. Check that the carburetors are mounted snugly and no air is leaking past the manifolds. Check for a clogged air filter.

Compression may be checked in the field by turning the kickstarter by hand and noting that an adequate resistance is felt, or by removing a spark plug and placing a finger over the plug hole and feeling for pressure. Use a compression gauge if possible. Compression should generally read 150 lbs. per square inch or more.

Valve adjustments should be checked next. Sticking, burned, or broken valves may hamper starting. As a last resort, check valve timing as described in Chapter Four.

POOR IDLING

Poor idling may be caused by incorrect carburetor adjustment, incorrect timing, ignition system defects, an intake manifold leak, or leakage between the carburetors at the balance tube. Check the gas cap vent for an obstruction.

MISFIRING

Misfirings can be caused by a weak spark or dirty plugs. Check for fuel contamination. Run

the machine at night or in a darkened garage to check for spark leaks along the plug wires and under the spark plug cap. If misfiring occurs only at certain throttle settings, refer to the carburetor service section for the specific carburetor circuits involved. Misfiring under heavy load as when climbing hills or accelerating is usually caused by bad spark plugs.

FLAT SPOTS

If the engine seems to die momentarily when the throttle is opened and then recovers, check for a dirty main jet in the carburetor, water in the fuel, or an excessively lean mixture.

LACK OF POWER

Poor condition of rings, pistons, or cylinders will cause a lack of power and speed. Check valve adjustment. Ignition timing should be checked along with automatic spark advance.

OVERHEATING

If the engine seems to run too hot all the time, be sure you are not idling it for long periods. Air cooled engines are not designed to operate at a standstill for any length of time. Heavy stop and go traffic is hard on a motorcycle engine. Spark plugs of the wrong heat range can burn pistons. An excessively lean gas mixture may cause overheating. Check ignition timing. Don't ride in too high a gear. Broken or worn rings and valves may permit compression gases to leak past them, heating heads and cylinders excessively. Check oil level and use the proper grade lubricants.

BACKFIRING

Check that the timing is not advanced too far. Check the automatic advance mechanism for broken or sticking parts. Check the fuel for contamination.

ENGINE NOISES

Experience is needed to diagnose accurately in this area. Noises are hard to differentiate and harder yet to describe. Deep knocking noises usually mean main bearing failure. A slapping noise generally comes from loose pistons. A light knocking noise during acceleration may be a bad connecting rod bearing. Pinging, which sounds like marbles being shaken in a tin can, is caused by ignition advanced too far or gasoline with too low an octane rating. Pinging should be corrected immediately or damage to pistons will result. Compression leaks at the head-cylinder joint will sound like a rapid on-and-off squeal.

PISTON SEIZURE

Piston seizure is caused by incorrect piston clearances when fitted, fitting rings with improper end gap, too thin an oil being used, incorrect spark plug heat range, or incorrect ignition timing. Overheating from any cause may result in seizure.

VIBRATION

Excessive vibration may be caused by loose motor mounts, worn engine or transmission bearings, loose wheels, worn swinging arm bushings, a generally poor running engine, broken or cracked frame, or one that has been damaged in a collision. See also *Poor Handling*.

HIGH OIL CONSUMPTION

High oil consumption and loss of compression often go hand in hand. Check condition of rings, pistons, cylinders, and valves. Worn valve stems or valve guides may be at fault. Use the correct grade of oil.

CLUTCH SLIP OR DRAG

Clutch slip may be due to worn plates, improper adjustment, or glazed plates. A dragging clutch could result from damaged or bent plates, improper adjustment, or even clutch spring pressure.

TRANSMISSION PROBLEMS

A grinding when shifting may be a result of worn synchronizers on the transmission gears or a sticking or non-disengaging clutch. Bent or broken teeth may cause hard shifting. A bent shifting rod or main shaft or layshaft could cause hard shifting. Popping out of gear could be due to worn dogs on the gears or misadjustment in the shifting mechanism.

POOR HANDLING

Poor handling may be caused by improper tire pressures, a damaged frame or swinging arm, worn shocks or front forks, weak fork springs, a bent or broken steering arm, misaligned wheels, loose or missing spokes, worn tires, bent handlebars, worn wheel bearings, or dragging brakes.

BRAKE SYSTEM

Sticking brakes may be caused by broken or weak return springs, improper cable or rod adjustment, or dry pivot and cam bushings. Grabbing brakes may be caused by greasy linings which must be replaced. Brake grab may also be due to out-of-round drums or linings which have broken loose from the shoes. Glazed linings or braks pads will cause loss of stopping power.

LIGHTING SYSTEM

Bulbs which continuously burn out may be caused by excessive vibration, loose connections that permit sudden current surges, poor battery connections, or installation of the wrong type bulb.

A dead battery, or one which discharges quickly, may be caused by a faulty generator or rectifier. Check for loose or corroded terminals. Shorted battery cells or broken terminals will keep a battery from charging. Low water level will decrease a battery's capacity. A battery left uncharged after installation will sulphate, rendering it useless.

A majority of light and horn or other electrical accessory problems are caused by loose or corroded ground connections. Check those first and then substitute known good units for easier troubleshooting.

TROUBLESHOOTING GUIDE

Table 1 is a "quick reference" guide that summarizes the troubleshooting process. Use it to outline possible problem areas, then refer to the specific chapter or section involved.

Table 1 TROUBLESHOOTING GUIDE

Item	Problem or Cause	Things to Check
Hard starting	Defective ignition system	Choke Breaker point condition Ignition timing Spark plug cables Ignition coil Condenser
	Defective fuel system	Choke Fuel cock Carburetor mounting Clogged fuel lines Clogged fuel tank cap vent Carburetor
	Engine	Piston, rings, cylinders Cylinder head
Loss of power	Poor compression	Piston rings and cylinders Head gaskets Leaking valves

(continued)

Table 1 TROUBLESHOOTING GUIDE (continued)

Item	Problem or Cause	Things to Check
Loss of power (cont.)	Overheated engine	Lubricating oil supply Clogged cooling fins Oil pump Ignition timing Slipping clutch Carbon in combustion chamber
	Improper mixture	Dirty air cleaner Choke lever position Restricted fuel flow Gas cap vent hole
	Miscellaneous	Dragging brakes Tight wheel bearings Defective chain Clogged exhaust system
Gearshifting difficulties	Clutch	Adjustment Springs Friction plates Steel plates Oil quantity
	Transmission	Oil quantity Oil grade Return spring or pin Change lever or spring Drum position plate Change drum Change forks
Steering	Hard steering	Tire pressures Steering stem head Steering head bearings
	Pulls to one side	Unbalanced shock absorbers Drive chain adjustment Front/rear wheel alignment Unbalanced tires Defective swing arm Defective steering head
	Shimmy	Drive chain adjustment Loose or missing spokes Deformed rims Worn wheel bearings Wheel balance
Brakes	Poor brakes	Worn linings Brake adjustment Oil or water on brake linings Loose linkage or cables
	Noisy brakes	Worn or scratched lining Scratched brake drums Dirt in brake housing Disc distortion
	Unadjustable brakes	Worn linings Worn drums Worn brake cams

CHAPTER THREE

PERIODIC LUBRICATION AND MAINTENANCE

A motorcycle, even in normal use, is subjected to tremendous heat, stress, and vibration. When neglected, any bike becomes unreliable and actually dangerous to ride. When properly maintained, the Honda 450 and 500T are among the most reliable bikes available and will give many miles and years of reliable, fast, and safe riding.

Service intervals are based on an average of 6,000 miles per year or 500 miles a month. If you ride more than this, follow the mileage schedule of maintenance. If you ride less than this, follow the time schedule. For example, engine oil must be changed every 1,500 miles or 3 months. If you ride less than 1,500 miles in 3 months, you still change the oil after 3 months.

This chapter describes all periodic maintenance required to keep your bike running properly. Routine checks are easily performed at each fuel stop. Other periodic maintenance appears in order of frequency. The engine tune-up, which must be performed every 3,000 miles or 6 months, is treated separately as the various procedures interact and must be done together. **Table 1** summarizes all periodic maintenance required in an easy-to-use form.

ROUTINE CHECKS

The following simple checks should be performed at each stop at a service station for gas.

Engine Oil Level

Remove dipstick and wipe it clean. Insert dipstick, but do not screw it in. Remove it and check level. It should be between the 2 marks on the dipstick. Top up as necessary with oil recommended in **Table 2**.

General Inspection

1. Quickly examine engine for signs of oil or fuel leakage.
2. Check tires for imbedded stones. Pry them out with the ignition key.
3. Make sure all lights work.

> NOTE: *At least check stoplight. It can burn out anytime. Motorists cannot stop as quickly as you and need all the warning you can give.*

PERIODIC MAINTENANCE

The following procedures are arranged according to frequency. Those listed first are done

every 500 miles or one month; those listed last, every 6,000 miles or 12 months.

Engine tune-up procedures, all of which must be done every 3,000 miles or 6 months, are properly called preventive maintenance. However, they should be done together, so they are treated together under *Engine Tune-up* in this chapter.

500-MILE/MONTHLY MAINTENANCE

Lights

Once a month, check all lights for proper functioning. Replace defective bulbs and fuses as they occur. Be sure to find the cause when replacing a defective fuse. Otherwise, the new fuse will probably burn out, too. Check headlight alignment and adjust if required.

Nuts, Bolts, and Other Fasteners

Constant vibration can loosen many fasteners on a motorcycle. Every 500 miles or monthly, check tightness of all fasteners on the following:

a. Engine mounts
b. Engine covers
c. Handlebars
d. Gearshift lever
e. Kickstarter
f. Exhaust pipe flange
g. Lighting equipment

Table 1 LUBRICATION AND MAINTENANCE SUMMARY

Interval	Item	Check Fluid Level	Replace	Lube	Inspect and/or Clean	Check and/or Adjust
Fuel stop	Engine oil	X				
	General				X	X
500 mile/ 1 month	Lights					X
	Fasteners					X
	Drive chain tension					X
	Tires					X
1,500 mile/ 3 months	Engine oil		X			
	Battery	X				
3,000 mile/ 6 months	Fuel strainer				X	
	Throttle cable				X	X
	Rear fork bushing			X	X	
	Wheels				X	
	Air filters				X	
	Cam chain					X
	Clutch					X
	Brakes (drum)					X
	Brake (disc)	X				X
	Engine tune-up					
	Valve clearance					X
	Spark plugs					X
	Breaker points					X
	Ignition timing					X
	Carburetor					X
6,000 mile/ 12 months	Front fork oil		X			
	Engine oil filter				X	
	Air filter		X			

Table 2 RECOMMENDED LUBRICANTS

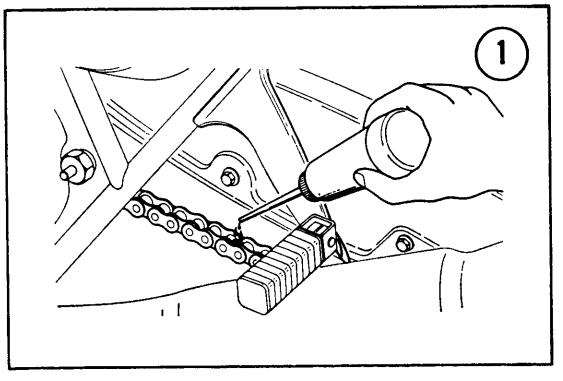
	Temperature	Type
Engine oil	All	SAE 10W-40, SE
Multigrade	Above 59°F	SAE 20W-50, SE
Engine oil	Above 59°F	SAE 30, SE
Single grade	32°-59°F	SAE 20 or 20W, SE
	Below 32°F	SAE 10W, SE
Fork oil	All	Automatic transmission fluid
Rear suspension bushing	All	Multi-purpose grease
Drive chain	All	SAE 30 engine oil or Special chain lubricant

Table 3 TIGHTENING TORQUES — CB450, CL450

	Foot-pounds	Mkg
Front axle nut	54-61	7.5-8.5
Front brake torque bolt	13-20	1.8-2.8
Front fork bolt	47-58	6.5-8.0
Steering stem nut	65-87	9.0-12.0
Steering stem bolt	29-36	4.0-5.0
Handlebar bolt	18-25	2.5-3.5
Engine mounting bolt (10mm)	29-36	4.0-5.0
Engine mounting bolt (8mm)	13-20	1.8-2.8
Shock absorber nut	29-36	4.0-5.0
Shock absorber bolt	29-36	4.0-5.0
Swing arm bolt	51-65	7.0-9.0
Rear axle nut	58-87	8.0-12.0
Kickstarter bolt	13-20	1.8-2.8
Exhaust pipe clamp nut	6-9	0.8-1.2
Driven sprocket nut	29-36	4.0-5.0
Cylinder head	20-22	2.8-3.0

Table 4 TIGHTENING TORQUES — CB500T

Point	Ft.-Lb.	Mkg
Alternator rotor	22-25	3.0-3.5
Drive gear (oil filter rotor)	33-40	4.5-5.5
Spark plug	18-22	2.5-3.0
Cylinder head	20-22	2.8-3.0
Spoke	1.1-1.5	0.15-0.20
Rear fork pivot bolt	72-94	10.0-13.0
Rear axle shaft	60-72	8.0-10.0
Front fork bottom bridge	22-29	3.0-4.0
Steering stem nut	51-65	7.0-9.0
Front wheel axle shaft	40-47	5.5-6.5
5mm screw	2.5-3.6	0.35-0.50
6mm screw	5-8	0.70-1.10
5mm bolt, nut	3.3-4.3	0.45-0.60
6mm bolt, nut	6-9	0.80-1.20
8mm bolt, nut	13-18	1.8-2.5
10mm bolt, nut	22-29	3.0-4.0
12mm bolt, nut	36-43	5.0-6.0
6mm flange bolt	7-10	1.0-1.4
8mm flange bolt	17-22	2.4-3.0
10mm flange bolt	22-29	3.0-4.0



Tables 3 and 4 list torque values for most important hardware.

Drive Chain Tension

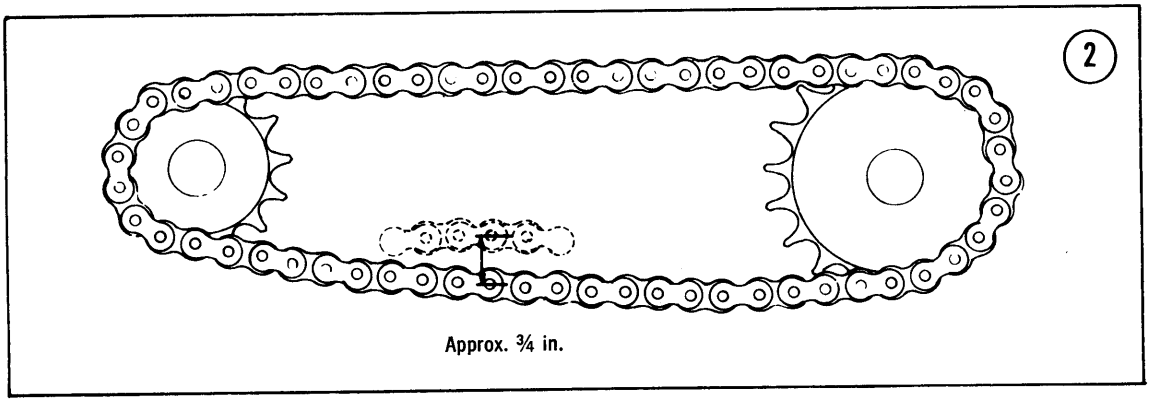
Every 500 miles or monthly, check drive chain condition and tension. Also, liberally apply clean engine oil or special chain lubricant. See **Figure 1**. To check chain tension:

1. Rest motorcycle on centerstand.
2. Shift transmission to NEUTRAL.
3. Check vertical play of chain as shown in **Figure 2**. Play should be about ¾ in.
4. Rotate rear wheel. Chain play should be the same at any position. If not, check for worn, kinked, or binding chain links.

Drive Chain Adjustment

If chain play is not about ¾ in., adjust tension as follows.

1. Rest motorcycle on centerstand.
2. Remove cotter pin from axle nut and loosen nut. See **Figure 3**.
3. Loosen locknuts on both adjusters. Turn adjusters equally in the same direction to increase or decrease tension. Make sure that the index mark on each side aligns at the same point on the graduated scales. See **Figure 3**.
4. Tighten the rear axle nut to 58-87 ft.-lb. (8-12 mkg) and install cotter pin.
5. Tighten adjuster locknuts.
6. Recheck chain tension.
7. Readjust brake pedal free play as described in Chapter Ten.



Tire Inspection

Every 500 miles or monthly, check tire condition and air pressure. **Table 5** lists recommended pressures. Check tread for excessive wear, deep cuts, imbedded stones, and nails. If you find a nail in the tire, mark its location with a light crayon or chalk before pulling it out. This will help locate the hole in the inner tube.

1,500-MILE/3-MONTH MAINTENANCE

Engine Oil Change

Periodic oil changes will contribute more to engine longevity than any other single factor. Change the oil every 1,500 miles or 3 months; more often in dusty areas.

1. Warm the engine to its normal operating temperature.
2. Rest bike on centerstand.
3. Remove oil filler cap/dipstick.
4. Place container with at least 3-quart capacity under crankcase.

NOTE: *Oil drains very quickly and splashes. Use a deep-sided container.*

5. Remove drain plug with 19mm wrench.

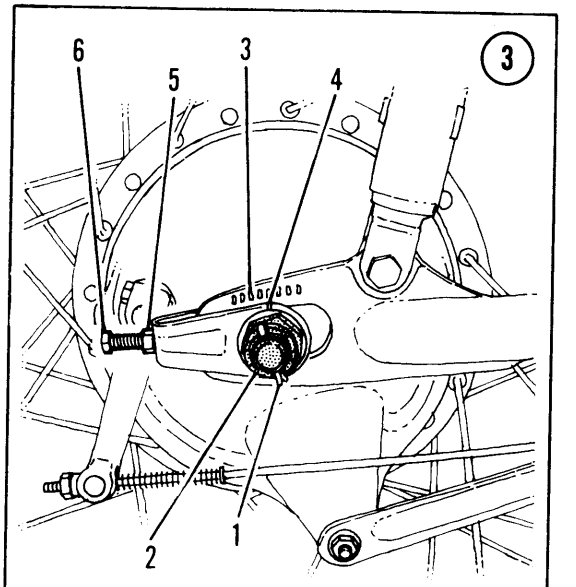
WARNING

Get your hand out of the way as soon as plug is ready to drop out. Hot oil drains very rapidly and could cause painful burns.

6. Let oil drain for at least 10 minutes.
7. Make sure O-ring in drain plug is in good condition, then install plug.
8. Pour waste oil into empty bleach bottle or similar sealable container and dispose of it properly.
9. Fill crankcase with about 3 U.S. qt. (2.5 Imp. qt. or 2.8 liters) of oil. See **Table 2** for recommended types.
10. Check oil level on dipstick with the bike level and on its centerstand.

Battery

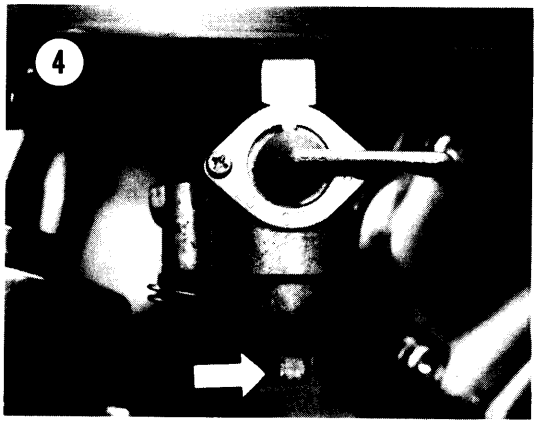
Once every three months, check battery electrolyte level. Unlock and lift seat. Raise battery

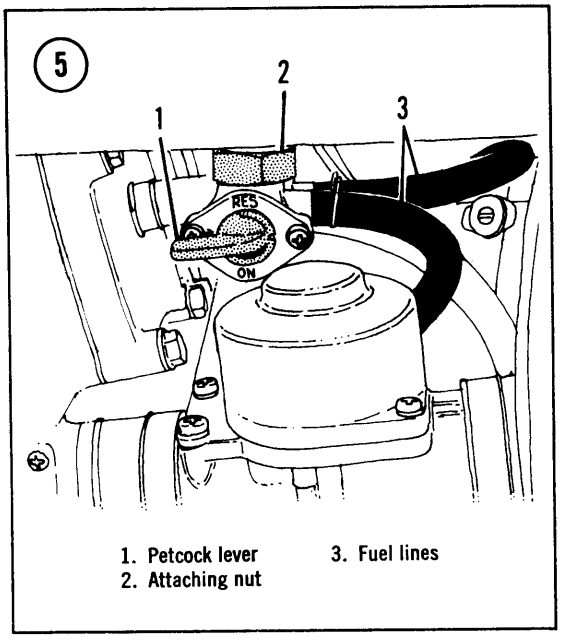


1. Cotter pin
2. Rear axle nut
3. Corresponding scale
4. Index mark
5. Locknut
6. Adjusting bolt

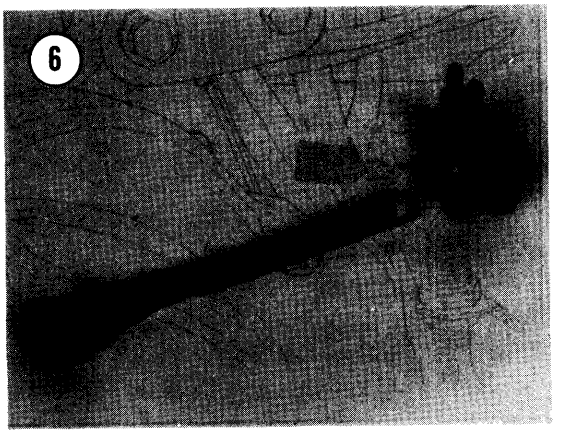
Table 5 TIRE PRESSURES

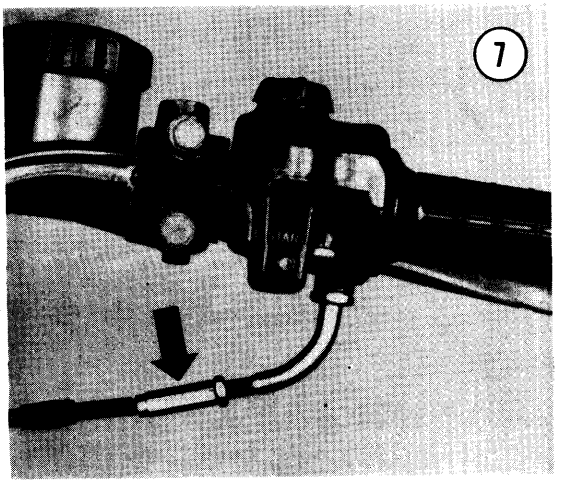
	Front	Rear
CB450, CL450		
Under 200 lb. load	28 psi	28 psi
Over 200 lb. load	28 psi	34 psi
CB500T		
Under 200 lb. load	28 psi	36 psi
Over 200 lb. load	28 psi	40 psi





1. Petcock lever
2. Attaching nut
3. Fuel lines





slightly to check level on side of case. Maintain level between upper and lower lines. Top up as necessary with *distilled* water. Do not overfill.

3,000-MILE/6-MONTH MAINTENANCE

Fuel Strainer Cleaning

The fuel strainer should be cleaned every 3,000 miles or 6 months on CB450 models. Unscrew strainer cap from fuel shut-off valve. See **Figure 4**. Pull out strainer. Wash strainer and cap in solvent. Remove all traces of foreign matter. Reinstall strainer in valve body. Screw on cap with O-ring in place. Turn fuel shut-off valve to ON and check for leaks.

On the CB500T, turn fuel cock lever to OFF, disconnect fuel tubes, and remove fuel tank. Drain fuel, using a well-ventilated area in which no open flames are present. Loosen fuel cock attaching nut (**Figure 5**) and remove fuel cock and filter from tank. Wash fuel filter (**Figure 6**) in solvent and reassemble, using a new gasket. Refill tank and check for leakage. Reinstall tank on bike.

Throttle Cable Inspection

Every 3,000 miles or 6 months, make sure throttle grip rotates smoothly from fully closed to fully open. Check with steering at both full right and full left. Check condition of cable from grip to carburetors.

Make sure throttle grip free play is approximately 10-15° of grip rotation. If not, loosen adjuster locknut (**Figure 7**) and adjust.

Rear Fork Bushing

The rear fork bushing must be lubricated every 3,000 miles or 6 months with multipurpose grease. A fitting is provided on the frame. See **Figure 8** for CB450; **Figure 9** for CB500T.

Check condition of bushing by resting bike on centerstand and pushing hand against side of rear wheel. If there is any play, replace the bushing as described in Chapter Nine.

Wheels

Wheels must be trued to achieve proper handling and tire wear. Every 3,000 miles or 6

months, check for loose, bent, or broken spokes. Replace if necessary.

Air Filter Cleaning

Every 3,000 miles or 6 months, remove the air cleaner case and covers and loosen the connecting tube set screw. Remove the elements and clean them by tapping or blow them out with compressed air. Dry elements should be replaced if they become oil soaked.

When reassembling, be sure all joints, especially on the connecting tube, are airtight or unclean air may be sucked into the engine.

Cam Chain Adjustment

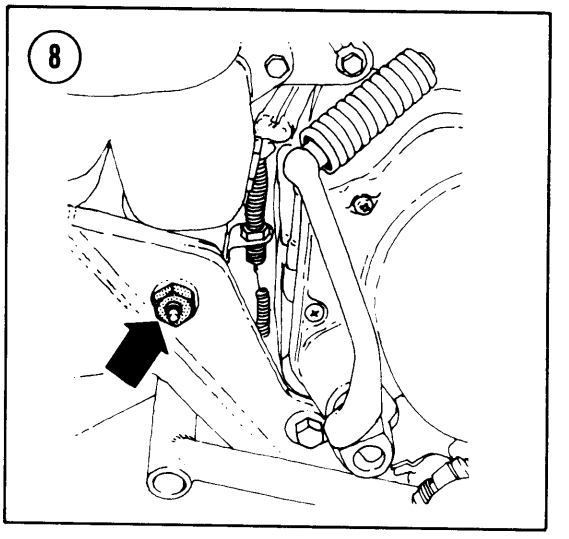
Adjust cam chain every 6 months or 3,000 miles.

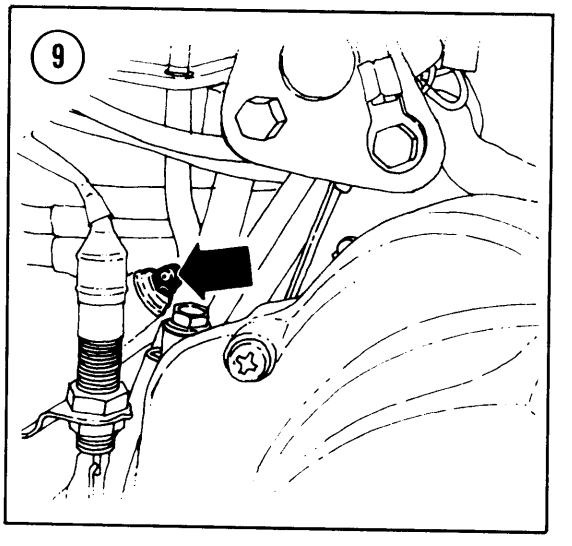
1. Remove alternator cover.
2. Remove spark plugs.
3. Using a wrench on the alternator bolt, turn crankshaft counterclockwise until left piston is at top dead center as described in Steps 5 and 6, *Valve Clearance Adjustment*. On 4-speed models, continue turning a few degrees counterclockwise until the LT mark and index pointer align. On 5-speed models, continue to turn crankshaft 90° counterclockwise from TDC.
4. Loosen locknut (2), then bolt (1). Refer to **Figure 10**. A spring-loaded plunger automatically takes up chain slack.
5. Tighten bolt (1) and locknut (2).

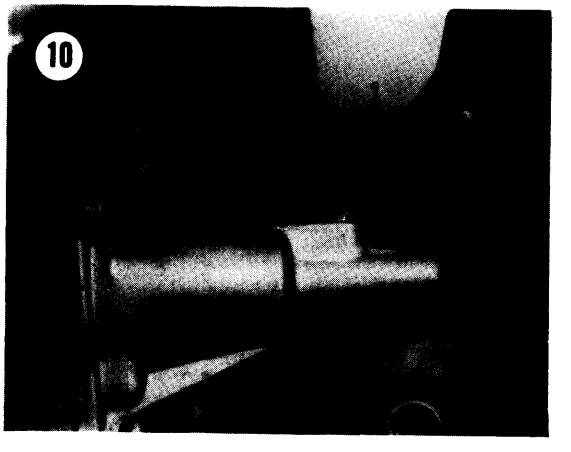
Clutch Adjustment

Every 3,000 miles or 6 months, check clutch lever free play. See **Figure 11**. Free play should be 0.4-1.0 in. (10-25mm). Adjust by loosening locknut at either end of cable and turning the adjusting nut.

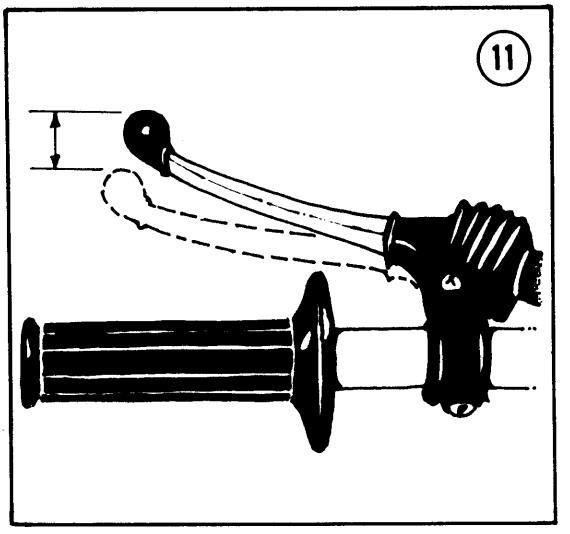
If proper free play is still unattainable, adjust clutch with screwdriver on left crankcase cover. See **Figure 12**. Loosen the locking nut and turn adjusting screw to the left to increase free play and to the right to decrease it. Do not turn more than 90° past index mark in either direction. Lubrication groove must align. Tighten locking nut when proper adjustment has been made.

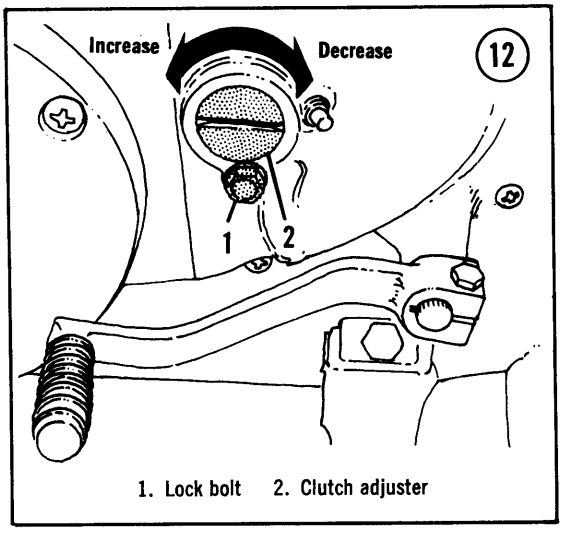




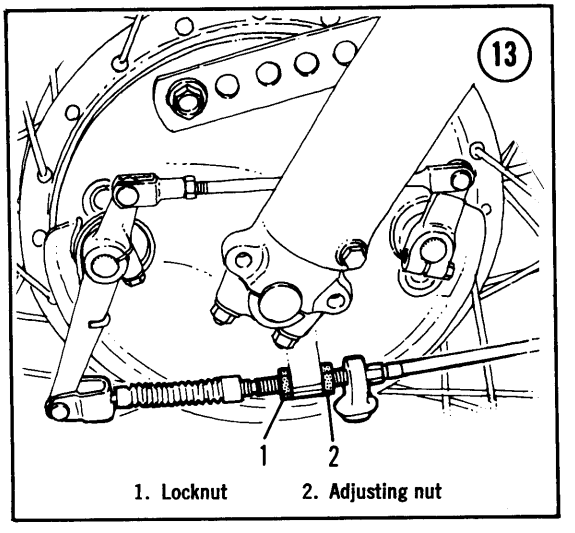


1. Tensioner adjusting bolt 2. Locknut





1. Lock bolt 2. Clutch adjuster



1. Locknut 2. Adjusting nut

Front Brake Adjustment

With the drum-type brake, front brake lever free play should be 0.6-1.2 in. (15-30mm). Adjust by loosening the locknut on the cable end, either at the wheel or at the lever. Normally, the major adjustment is made at the wheel and fine adjustment at the lever adjuster. Refer to **Figure 13**.

Adjust lever play in early disc type front brake by loosening the locknut and turning the adjusting screw to obtain the proper lever play. See **Figure 14**. Late models have no adjustment.

Rear Brake Adjustment

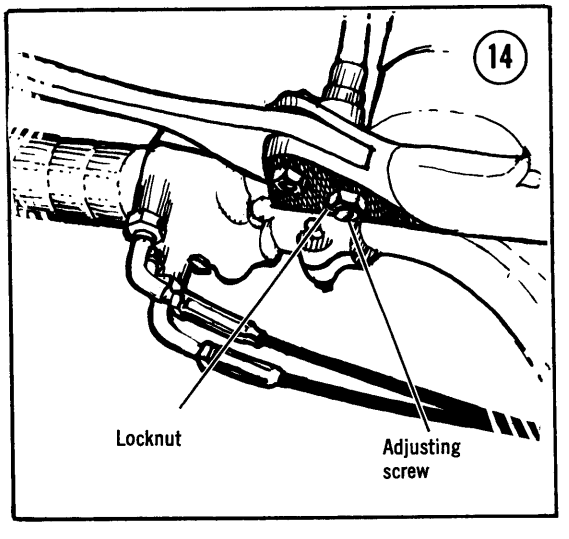
Every 3,000 miles or 6 months, check pedal free play and adjust to 0.8-1.2 in. (20-30mm) if necessary. See **Figure 15**. Loosen the locknut. Turn the adjusting nut clockwise to decrease and counterclockwise to increase the free play. Refer to **Figure 16** for this procedure.

Disc Brake Fluid Level

Every 3,000 miles or 6 months, remove reservoir cap and fill to level mark. See **Figure 17**.

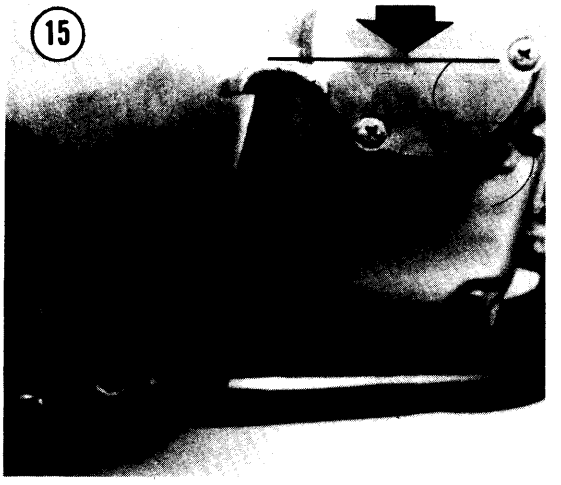
WARNING

Use brake fluid clearly marked DOT 3 and/or SAE J1703 only. Others may vaporize and cause brake failure.



Disc Brake Pad Inspection

Every 3,000 miles or 6 months, check brake pad thickness. Press inner housing of caliper toward disc. Measure clearance between face of inner caliper housing and brake disc. If less than 0.12 in. (3.0mm), replace the pads as described in Chapter Ten.

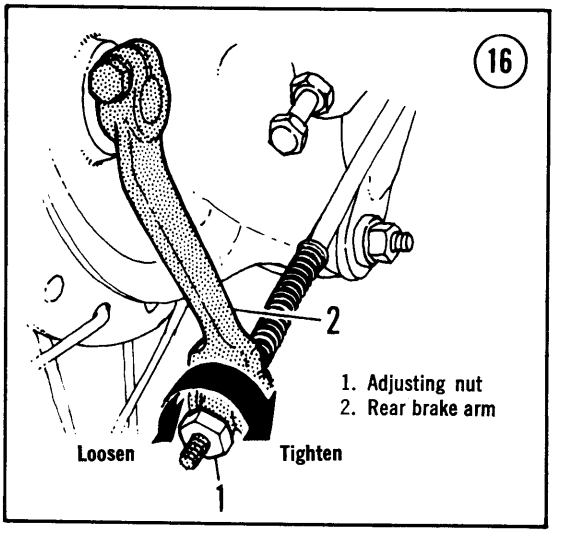


6,000-MILE/12-MONTH MAINTENANCE

Front Fork Oil Change

Every 6,000 miles or 12 months, drain and replace front fork oil.

1. Unscrew drain plug (**Figure 18**) on each fork cylinder.
2. Pump fork up and down several times until oil has completely drained.
3. Install drain plug.
4. Remove both filler plugs (1, **Figure 19**).
5. Fill CB forks with 7.3 oz. (230cc) of 10W-30 oil; fill CL forks with 9.6-10 oz. (285-295cc) of 10W-30 oil.
6. Install filler plugs.



Oil Filter Cleaning

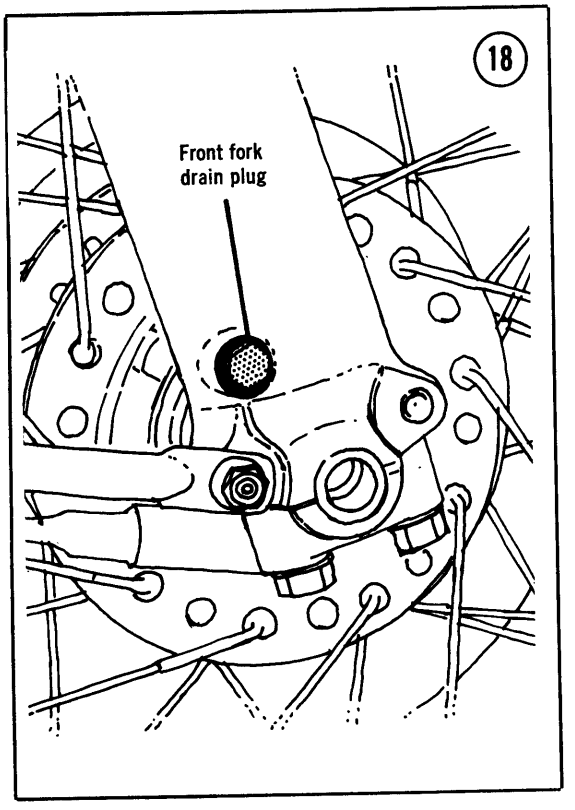
The centrifugal oil filter requires cleaning every 6,000 miles or 12 months; more often if the bike is ridden in dusty areas.

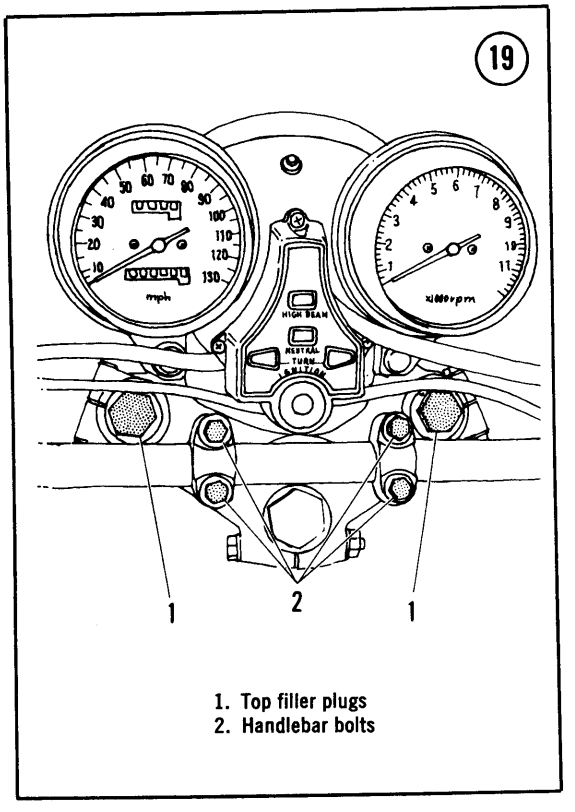
It is best to clean the filter during periodic oil change immediately after drain old oil. If it is cleaned after adding oil, a small amount of oil will be lost; be sure to check level when finished.

1. Remove oil filter cover on right crankcase cover. See **Figure 20**.
2. Remove snap ring securing oil filter cap.
3. Remove oil filter cap.
4. Clean cap in solvent.
5. Wipe rotor clean with solvent-saturated rag.
6. Install cap in rotor. Make sure that rib on cap fits in groove of rotor. See **Figure 21**.
7. Install snap ring.
8. Install oil filter cover. Align holes in cover with matching holes in crankcase. See **Figure 20**.

Air Filter Replacement

Every 6,000 miles or 12 months, remove air





1. Top filler plugs
2. Handlebar bolts

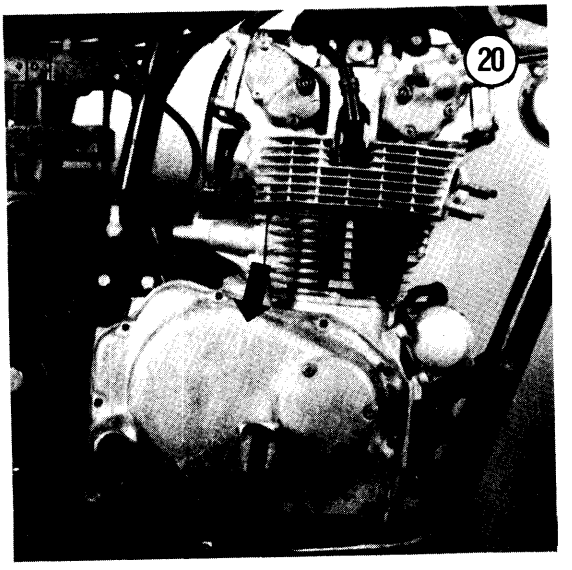
filters as described previously under *Air Filter Cleaning*. Discard filters and install new ones.

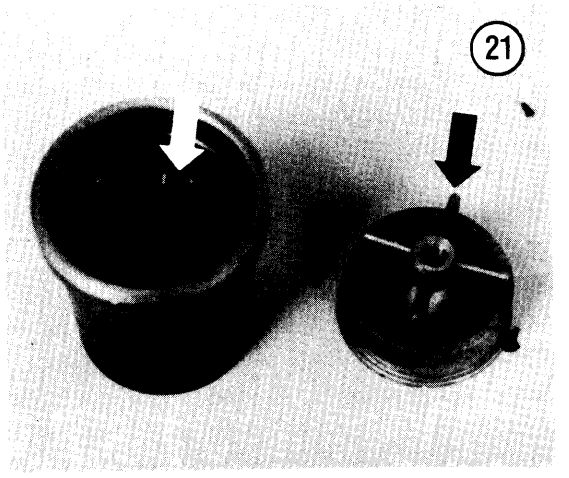
ENGINE TUNE-UP

Engine tune-up consists of several accurate and careful adjustments to obtain maximum engine performance. Since different systems in an engine interact to affect overall performance, tune-up must be accomplished in the following order:

a. Valve clearance adjustment
b. Ignition adjustment and timing
c. Carburetor adjustment

Perform an engine tune-up every 3,000 miles





or 6 months. **Table 6** summarizes tune-up specifications.

Valve Adjustment

Four-stroke engines require periodic valve clearance adjustment. If valve clearance is too small, the valves may become burned, resulting in short life. Excessive clearance results in noise. In either case, engine power is reduced.

Valve clearance must be adjusted with the engine *cold*.

1. Remove fuel tank. See Chapter Six.
2. Remove all valve covers.

NOTE: *Is may be easier to remove the carburetor caps first. Be sure to return each one to the carburetor from which it was removed.*

3. Remove breaker point cover (**Figure 22**) and alternator cover (**Figure 23**).
4. Remove both spark plugs.
5. Using a wrench on the center bolt, turn engine counterclockwise until LT mark on alternator rotor aligns with index pointer (**Figure 24**).
6. Examine marks on both camshafts. If *both* align with their respective indexes, rotate the engine 360 degrees counterclockwise until LT mark aligns again with its index pointer.
7. Insert a 0.0012 in. (0.03mm) feeler gauge between the exhaust valve cam and cam follower (**Figure 25**). A slight drag as the gauge is inserted indicates correct clearance.
8. If clearance is not correct, loosen cam follower locknut, then turn shaft with a screwdriver to adjust clearance. **Table 7** specifies the correct turning direction. Note that the shaft must be turned as shown in **Figure 26**. When clearance is correct, tighten the locknut and recheck clearance.
9. Repeat Steps 7 and 8 for the intake valve.
10. Rotate the engine 180 degrees counterclockwise until T mark aligns with its index.
11. Repeat Steps 7, 8, and 9 for the right cylinder.
12. Install covers, fuel tank, and spark plugs.

Table 6 ENGINE TUNE-UP

Spark plug	
Type	NGK B8ES or ND W24ES
Gap	0.028-0.032" (0.7-0.8mm)
Breaker point gap	0.012-0.016" (0.3-0.4mm)
Valve clearance	0.0012" (0.03mm) cold
Ignition timing	(See text)

Spark Plug Cleaning/Replacement

1. Grasp the spark plug leads as near to the plug as possible and pull them off the plugs.
2. Blow away any dirt which has accumulated in the spark plug wells.

CAUTION

The dirt could fall into the cylinders when the plugs are removed, causing serious engine damage.

3. Remove spark plugs with spark plug wrench.

NOTE: *If plugs are difficult to remove, apply penetrating oil around base of plugs and let it soak in about 10-20 minutes.*

4. Inspect spark plugs carefully. Look for plugs with broken center porcelain, excessively eroded electrodes, and excessive carbon or oil fouling. Replace such plugs. If deposits are light, plugs may be cleaned in solvent with a wire brush or cleaned in a special spark plug sandblast cleaner.
5. Gap plugs to 0.028-0.032 in. (0.7-0.8mm) with a *wire* feeler gauge.
6. Install plugs with a *new* gasket. First, apply a *small* drop of oil to threads. Tighten plugs finger-tight, then tighten an additional ½ turn with a spark plug wrench. If you must reuse an old gasket, tighten only an additional ⅛ turn.

NOTE: *Do not overtighten. This will only squash the gasket and destroy its sealing ability.*

Reading Spark Plugs

Much information about engine and spark plug performance can be determined by careful examination of the spark plugs. This information is only valid after performing the following steps.