



SERVICE INFORMATION	3- 1	<CHASSIS>	
<ENGINE>		BATTERY	3-14
FUEL LINES	3- 3	BRAKE FLUID	3-14
THROTTLE OPERATION	3- 3	BRAKE PAD WEAR	3-15
CARBURETOR CHOKE	3- 4	BRAKE SYSTEM	3-15
AIR CLEANER	3- 4	BRAKELIGHT SWITCH	3-16
CRANKCASE BREATHER	3- 5	HEADLIGHT AIM	3-16
SPARK PLUGS	3- 5	CLUTCH	3-17
VALVE CLEARANCE	3- 6	SIDE STAND	3-18
CAM CHAIN TENSIONER	3-10	SUSPENSION	3-19
CARBURETOR SYNCHRONIZATION	3-10	NUTS, BOLTS, FASTENERS	3-20
CARBURETOR IDLE SPEED	3-11	WHEELS	3-20
IGNITION TIMING	3-12	STEERING HEAD BEARINGS	3-21
SPARK ADVANCER	3-13		
CYLINDER COMPRESSION	3-13		

## SERVICE INFORMATION

### GENERAL INSTRUCTIONS

- Engine oil See page 2- 3
- Engine oil filter See page 2- 3
- Subtransmission oil See page 2- 9
- Final drive gear oil See page 2-12

### TOOLS

#### Special

- Valve lifter holder 07964-4220001
- Vacuum gauge 07404-0020000 or M937B-021-XXXXX (U.S.A. only)
- Carburetor adjusting wrench 07908-4220100
- Clutch adjusting wrench 07908-3230000

### SPECIFICATIONS

#### <Engine>

Spark plug: Recommended spark plug [ ] Canada model

For cold climate below 5°C (41°F)		Standard	
ND	NGK	ND	NGK
X24ES-U	D8EA	X27ES-U	D9EA
[X24ESR-U]	[DR8EA]	[X27ESR-U]	[DR9EA]

Plug gap 0.6-0.7 mm (0.02-0.03 in)



**32 INSPECTION AND ADJUSTMENT**

Ignition timing

- At idle : 10° BTDC
- Advance start : 1,700 rpm
- Full advance : 38°30' BTDC at 3,200 rpm

Valve clearance:

- Cold (Below 35°C/95°F) Intake/Exhaust : 0.06–0.13 mm (0.002–0.005 in)

- Idle speed : 1,000 ± 100 rpm
- Carburetor synchronization : Vacuum difference of each cylinder  
60 mm Hg (2.4 in Hg) or less
- Cylinder compression : 12 ± 2kg/cm<sup>2</sup> (170 ± 28 psi)
- Throttle grip free play : 2–6 mm (1/8–1/4 in)

<CHASSIS>

- Clutch lever free play : 10–20 mm (3/8–3/4 in)

Tire

Tire size		Front	Rear
		110/90 – 19 62H	130/90 – 16 67H
Cold tire pressures kg/cm <sup>2</sup> (psi)	Up to 90 kg (200 lbs) load	2.25 (32) [2.8 (40 psi)]	2.25 (32)
	90 kg (200 lbs) load to vehicle capacity load	2.25 (32) [2.8 (40 psi)]	2.8 (40)
Tire brand	BRIDGESTONE	S703	G504
	DUNLOP	F11	K127

[ ] When a genuine Honda fairing is installed

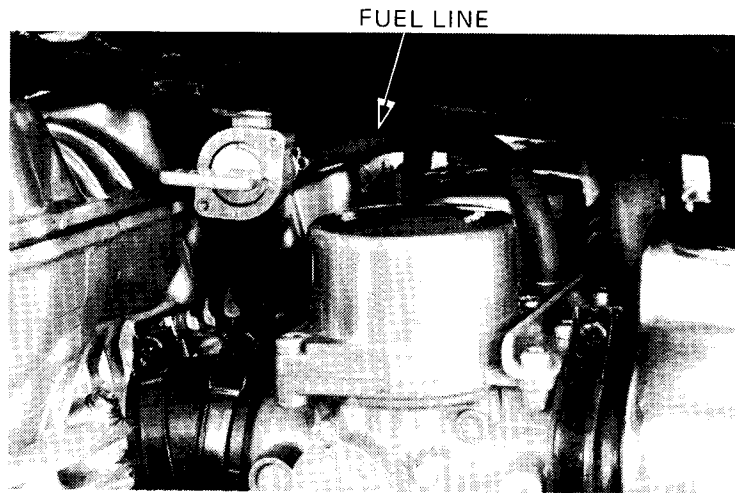
- Suspension air pressure : Front 0.8–1.1 kg/cm<sup>2</sup> (11–16 psi)  
Rear 2.0–4.5 kg/cm<sup>2</sup> (28–64 psi)



## ◁ENGINE▷

### FUEL LINES

Replace any parts which show deterioration, damage or leakage.



### THROTTLE OPERATION

#### NOTE

The accelerator pump may flood the carburetors during this inspection.

Check for smooth throttle grip full opening and automatic full closing in all steering positions. Check the throttle cables and replace them if they are deteriorated, kinked or damaged.

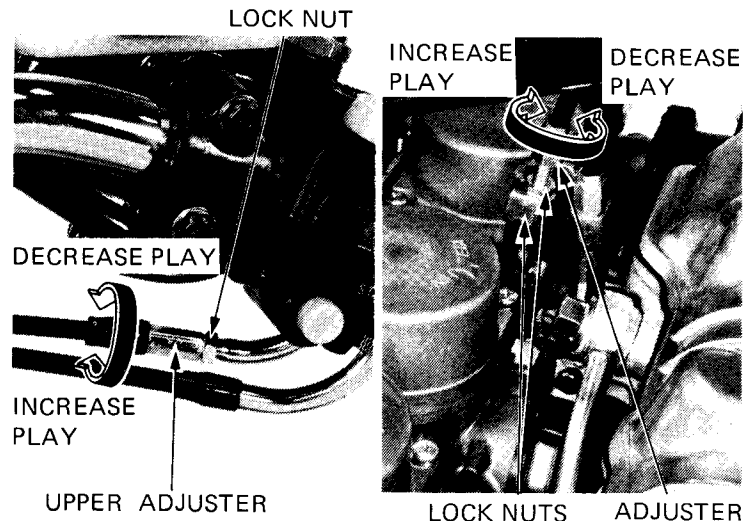
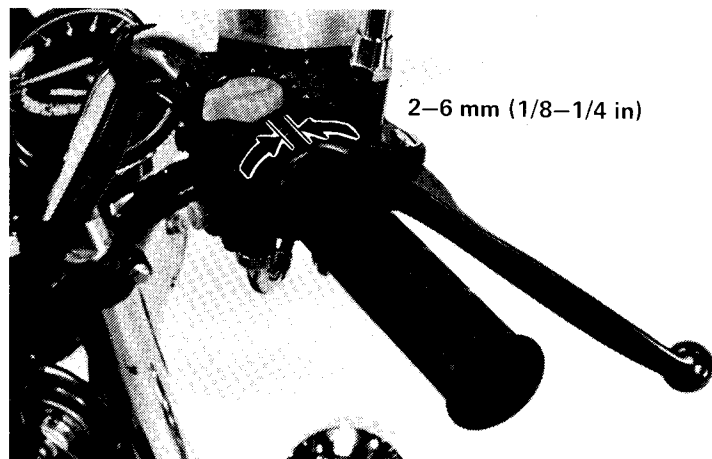
Lubricate the throttle cables (page 2-13) if throttle operation is not smooth.

Measure throttle grip free play at the throttle grip flange.

**FREE PLAY: 2–6 mm (1/8–1/4 in)**

Adjustment can be made at either end of the throttle cable. Minor adjustments are made at the upper end and major adjustments are made at the lower end, after removing the fuel tank.

Adjust by loosening the lock nut and turning the adjuster.  
Tighten the lock nut.  
Recheck throttle operation.



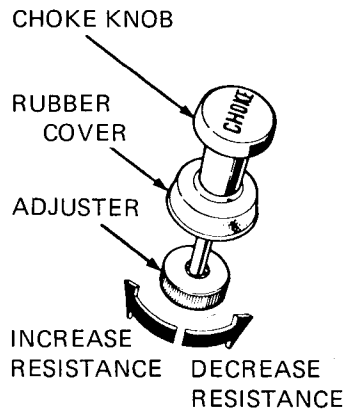
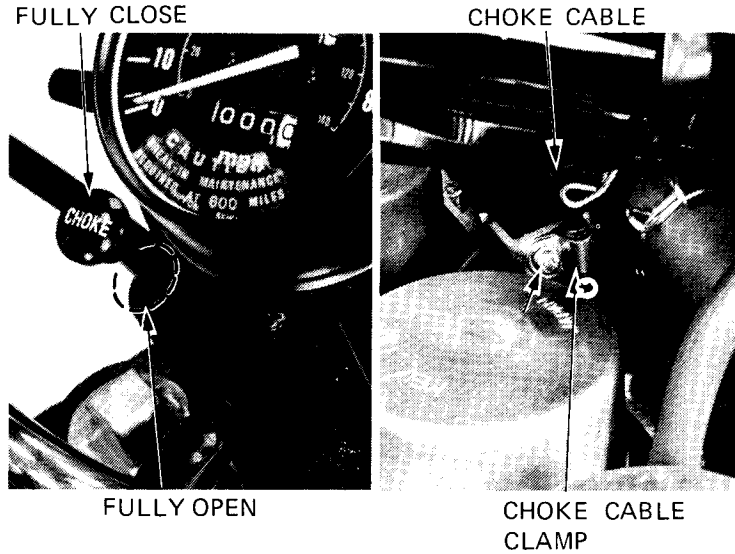


## CARBURETOR CHOKE

Remove the fuel tank.  
Operate the choke knob and check for smooth operation.  
Pull the choke knob up all the way to fully closed. Make sure that the choke valve is fully closed at the carburetors by moving the lever.  
Adjust by loosening the choke cable clamp and moving the choke cable casing.  
Tighten the clamp, holding the choke lever fully closed.

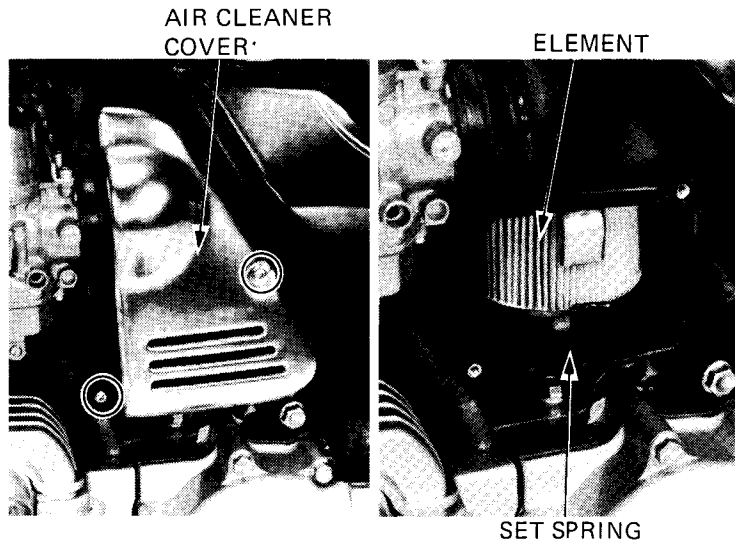
Push the choke knob down all the way to fully open.  
Make sure the choke valve is fully open by checking for free play in the cable between the lever and cable casing.  
Install the fuel tank.

Adjust the choke operating friction by turning the adjuster.  
The choke knob must move smoothly and stay where positioned.



## AIR CLEANER

Remove the two air cleaner cover screws and cover.  
Pull out the air cleaner element set spring and remove the element.

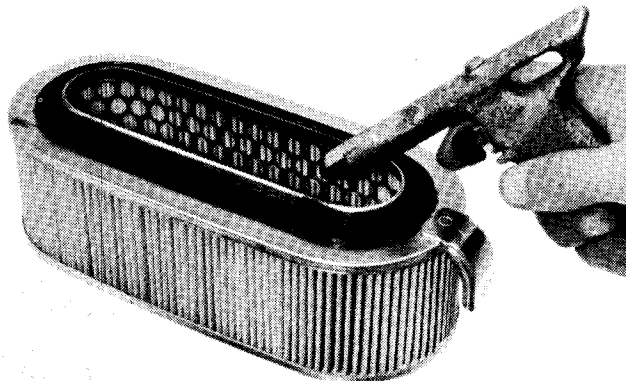




Clean the element by tapping it lightly to loosen dust. Blow away the remaining dust by applying compressed air from inside the element.

Replace the element if it is excessively dirty, torn or damaged.

Install the element, element set spring and air cleaner cover.



## CRANKCASE BREATHER

Remove the plug from the drain tube to drain deposits.

Install the drain plug.

### NOTE

Service more frequently when ridden in rain, or at full throttle or if the deposit level can be seen in the transparent section of the drain tubes.

## SPARK PLUGS

### RECOMMENDED SPARK PLUG

Standard	ND	X27ES-U [X27ESR-U]
	NGK	D9EA [DR9EA]
For cold climate below 5°C (41°F)	ND	X24ES-U [X24ESR-U]
	NGK	D8EA [DR8EA]

[ ] Canada model

Clean any dirt from around the spark plug base.

Disconnect the spark plug caps.

Remove and discard the spark plugs.

Measure the new spark plug gaps using a wire-type feeler gauge.

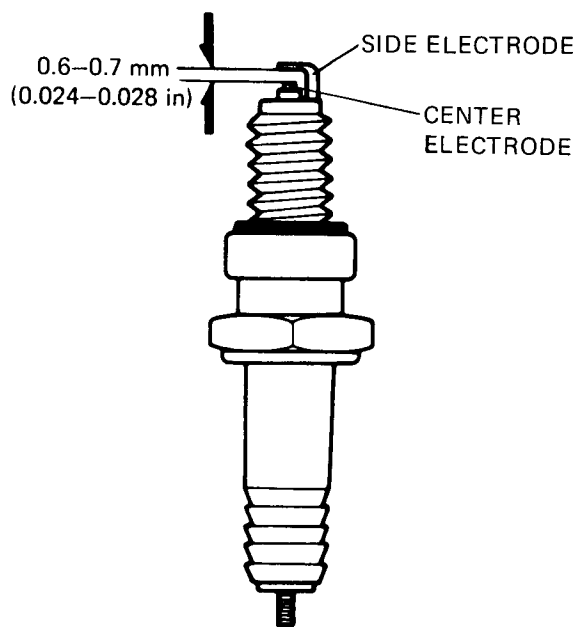
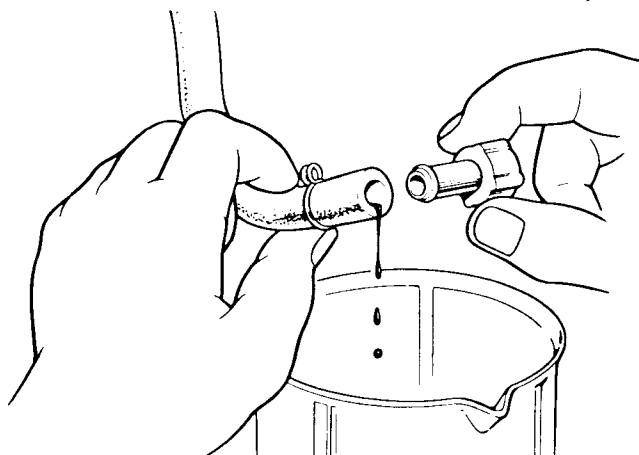
**SPARK PLUG GAP: 0.6–0.7 mm  
(0.024–0.028 in)**

Adjust by bending the side electrode carefully.

With the plug washer attached, thread the spark plugs in by hand to prevent cross-threading.

Tighten the spark plugs another 1/2 turn with a spark plug wrench to compress the plug washer.

Connect the spark plug caps.





## VALVE CLEARANCE

### NOTE

- Inspect and adjust valve clearance while the engine is cold. (Below 35°C, 95°F).
- Lean the motorcycle right and left to drain residual oil from the cylinder head.

Remove the right and left side covers and seat. Turn the fuel valve OFF and remove the fuel tube and fuel tank.

Remove the tachometer cable.

Remove the spark plug caps.

Remove the cylinder head cover bolts and cylinder head cover.

Remove the A.C. generator cover.

### INSPECTION

Measure intake and exhaust valve clearances by inserting a feeler gauge between the camshaft and valve lifter shim.

#### VALVE CLEARANCE:

0.06–0.13 mm (0.002–0.005 in)

Rotate the crankshaft clockwise (from the right side) and align the index mark on the exhaust camshaft right end with the front cylinder head mating surface.

Check and record the valve clearance: of the No. 1 EX. and No. 3 EX.

Rotate the camshaft 90° clockwise (via the crankshaft 180°) and check the:

No. 1 IN. and No. 3 IN.

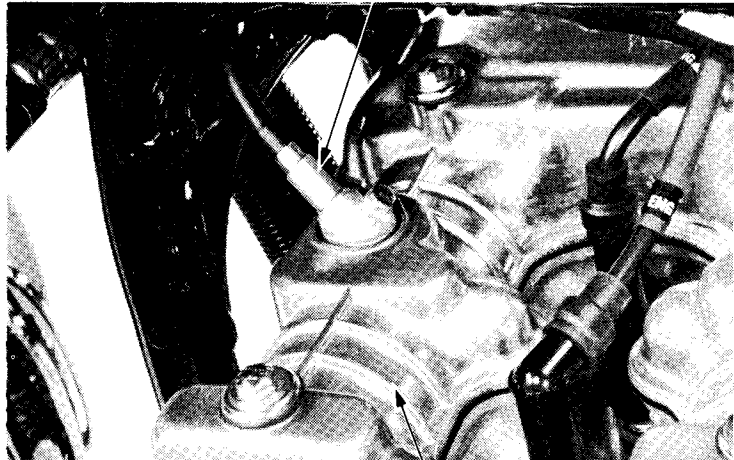
Rotate the camshaft 90° clockwise and check the:

No. 2 EX. and No. 4 EX.

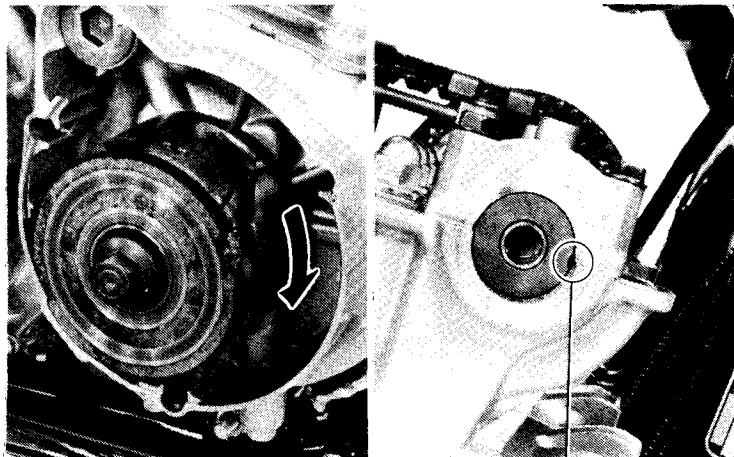
Rotate the camshaft 90° clockwise and check the:

No. 2 IN. and No. 4 IN.

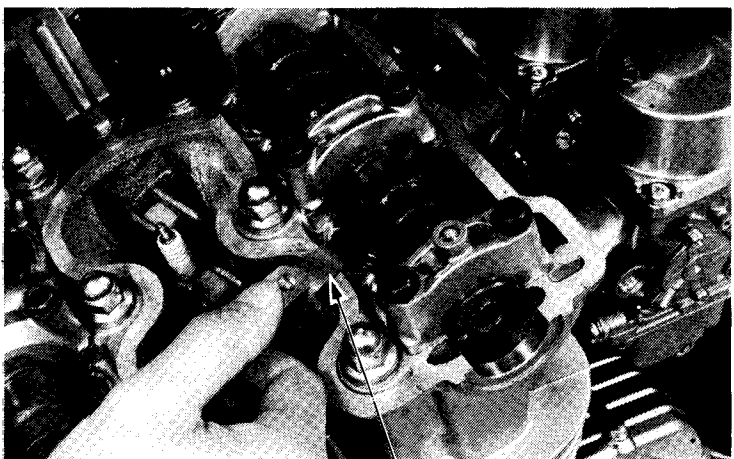
TACHOMETER CABLE



CYLINDER  
HEAD COVER



INDEX  
MARK



FEELER GAUGE



## ADJUSTMENT

### NOTE

- Adjustment shims are available in 0.05 mm increments, from 2.30 to 3.50 mm.
- The No. 2 EX. shim must be removed from the front.

Select a replacement shim to achieve the specified valve clearance, using the following procedures.

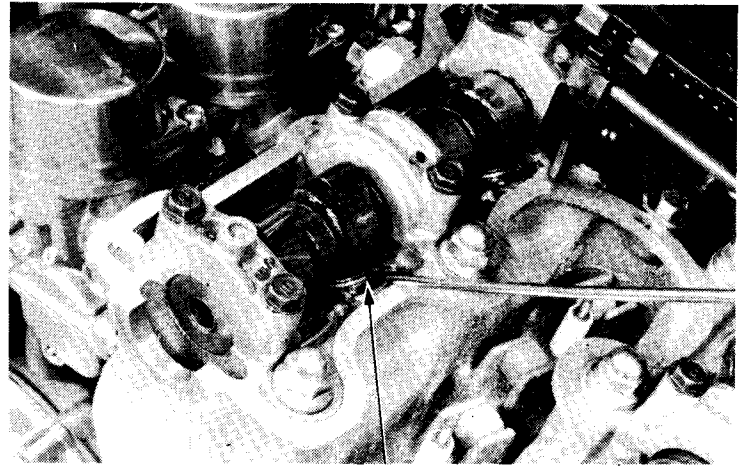
Rotate the valve lifter until the notch is facing the spark plug.

Rotate the crankshaft so that the valve being adjusted is at maximum lift.

Insert the Valve Lifter Holder tool between the camshaft and two adjacent lifters.

### CAUTION:

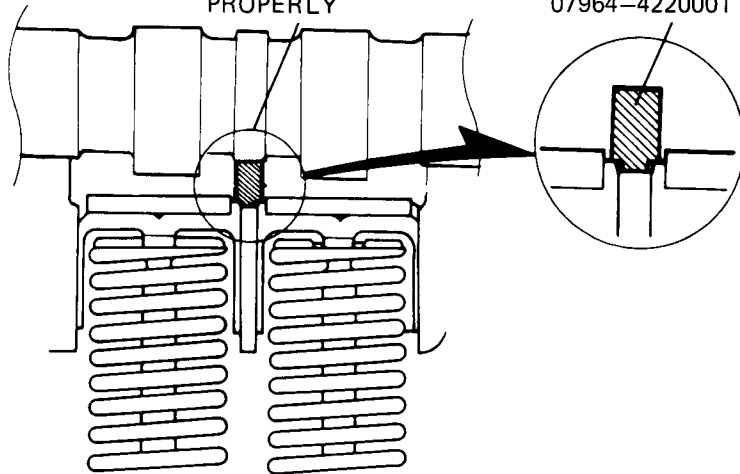
*When the valve lifter holder is depressing a pair of valves, make sure the opposite pair of valves does not open. Rotating the crankshaft too far or in the wrong direction may cause the intake and exhaust valves to strike and damage each other.*



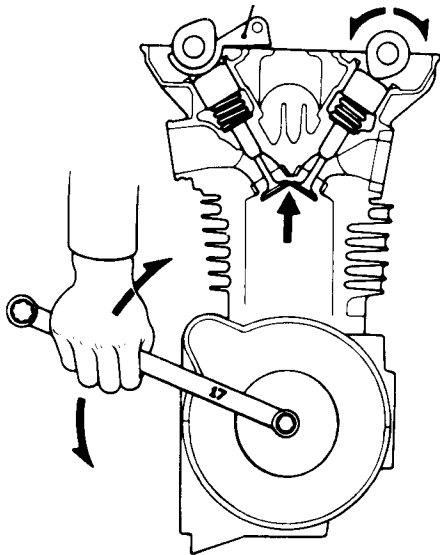
NOTCH

INSTALL THE SPECIAL TOOL PROPERLY

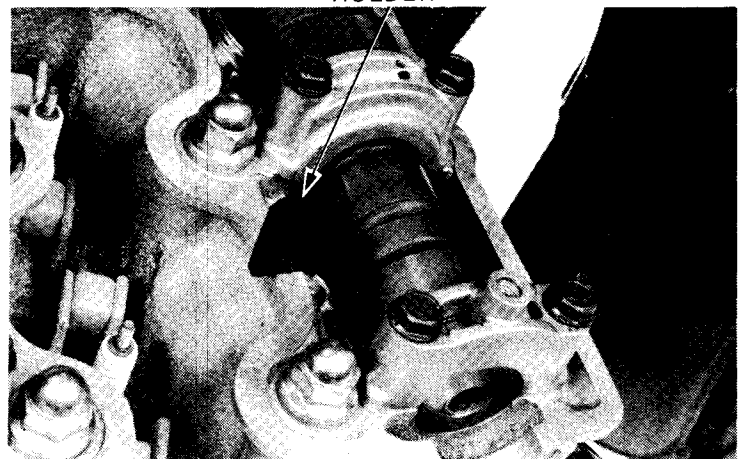
VALVE LIFTER HOLDER  
07964-4220001



VALVE LIFTER HOLDER  
07964-4220001



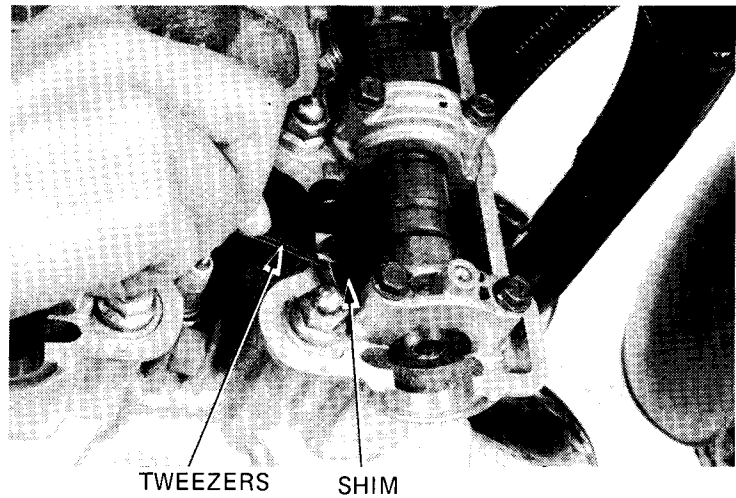
VALVE LIFTER  
HOLDER



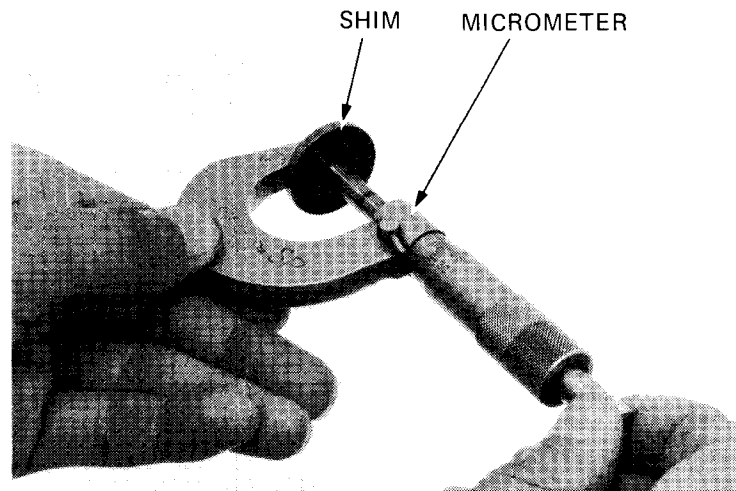
Rotate the crankshaft one turn so the cam lobes turn away from the valve lifter holder.



Remove the shim with tweezers.



Measure the thickness of the removed shim with a micrometer. Select a replacement shim using the chart on Page 3-9.



Insert the replacement shim.

**CAUTION:**

*Make sure the opposite pair of valves does not open. The valves could be bent or damaged if the crankshaft is rotated incorrectly.*

Rotate the crankshaft in the proper direction until the valves are at maximum lift. Remove the special tool "Valve Lifter Holder". Rotate the crankshaft 2-3 revolutions to fully seat the replacement shim. Recheck the valve clearance.





EXAMPLE: 1. Measure valve clearance = 0.16 mm      3. Refer to chart. (See shaded columns)  
 2. Measure present shim size = 2.50 mm      4. Replacement shim size = 2.55 mm

## VALVE SHIM SELECTION CHART      STANDARD VALVE CLEARANCE = 0.06-0.13 mm (0.002-0.005 in)

VALVE CLEARANCE mm	PRESENT SHIM SIZE mm																									
	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	
0.01-0.05																										
0.06-0.13																										
<b>0.14-0.16</b>																										
0.17-0.21																										
0.22-0.26																										
0.27-0.31																										
0.32-0.36																										
0.37-0.41																										
0.42-0.46																										
0.47-0.51																										
0.52-0.56																										
0.57-0.61																										
0.62-0.66																										
0.67-0.71																										
0.72-0.76																										
0.77-0.81																										
0.82-0.86																										
0.87-0.91																										
0.92-0.96																										
0.97-1.01																										
1.02-1.06																										
1.07-1.11																										
1.12-1.16																										
1.17-1.21																										
1.22-1.26																										
1.27-1.31																										

EX ↑

EX ↓

**NOTE**

1. Measure the valve clearance while the engine is cold.
2. For shim replacement, see page 3-7.
3. Measure old and new shims with a micrometer.
4. The chart is for reference purpose only. After installing new shims, recheck the valve clearance and adjust if necessary. Before rechecking, rotate the camshafts several times to seat the shims in the lifters.
5. If the shim thickness required exceeds 3.5 mm, there is carbon build-up on the valve seat. Remove the carbon and reface the seat.

REPLACE WITH THIS SHIM



## CAM CHAIN TENSIONER

### • DYNAMIC

Start the engine and allow it to idle.  
Loosen and tighten the cam chain tensioner lock nut and bolt at the front of the cylinder head.

Loosen and tighten both top and bottom lock nuts on the rear cam chain tensioner.

When the tensioner front lock bolt and rear lock nuts are loosened, the tensioners will provide the correct tension.

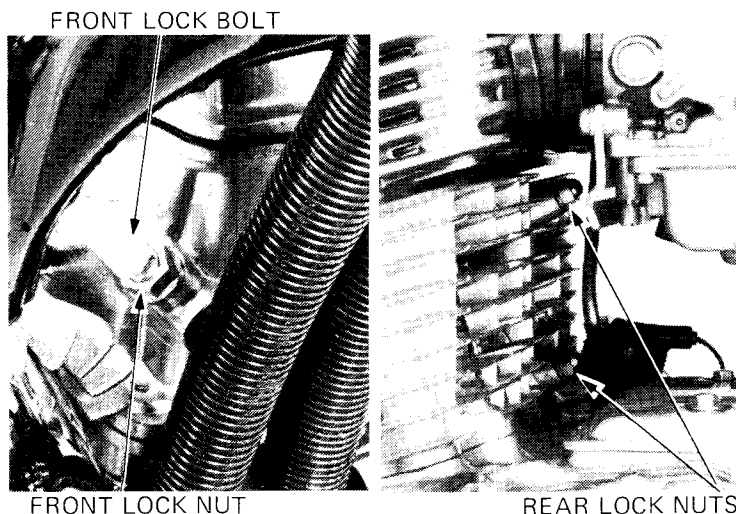
### • STATIC

#### NOTE

Adjust cam chain tension while the engine is cold.

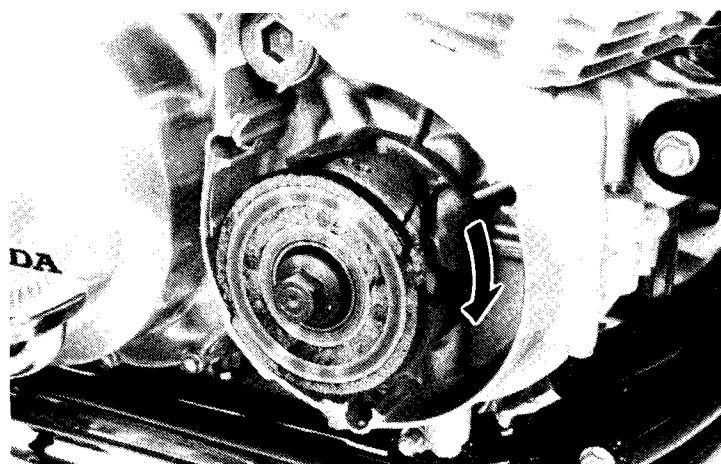
Remove the A.C. generator cover.  
Loosen the front cam chain tensioner lock nut and bolt.  
Tighten the bolt while rotating the crankshaft clockwise.  
Tighten the lock nut.

Loosen both top and bottom lock nuts on the rear cam chain tensioner.  
Tighten the lock nuts while rotating the crankshaft clockwise.  
When the tensioner front lock bolt and rear lock nuts are loosened, the tensioners will provide the correct tension.



FRONT LOCK NUT

REAR LOCK NUTS



## CARBURETOR SYNCHRONIZATION

#### NOTE

Synchronize the carburetors with the engine at normal operating temperature, transmission in neutral and motorcycle on the center stand.

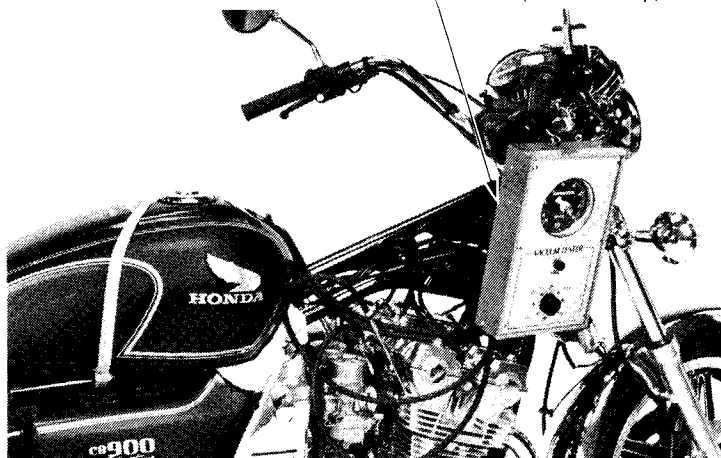
Remove both side covers and seat.  
Turn the fuel valve OFF and remove the fuel line and fuel tank.

Prepare a longer fuel line and connect it between the fuel tank and carburetor.

Position the fuel tank higher than normal.

Remove the cylinder head port plugs and install the vacuum gauge adapters.  
Connect the vacuum gauges.

VACUUM GAUGE  
07404-0020000 or M937B-021-XXXXX  
(U.S.A. only)





## ADJUSTMENT

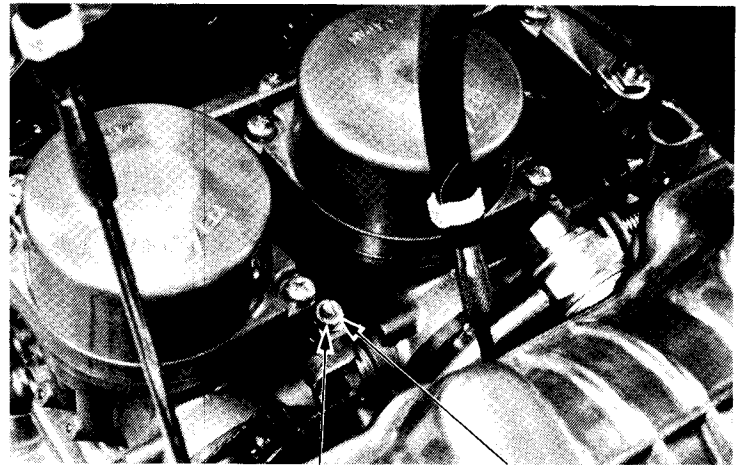
### NOTE

The No.2 carburetor cannot be adjusted; it is the base carburetor.

Start the engine and adjust the idle speed.

**IDLE SPEED: 1,000 ± 100 rpm**

Check that the difference in vacuum readings is 60 mm Hg (2.4 in Hg) or less.



LOCK NUT      ADJUSTING SCREW

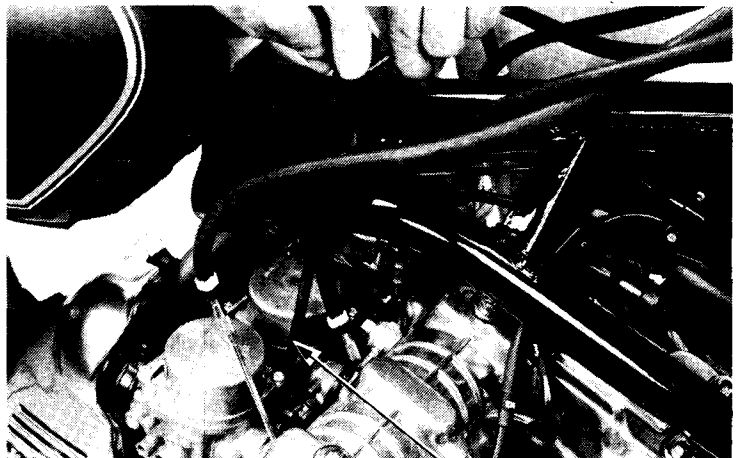
Adjust by loosening the lock nuts and turning the adjusting screws with the carburetor adjusting wrench.

Hold the adjusting screws and tighten the lock nuts.

Recheck the idle speed and synchronization.

Remove the gauge and install the plugs.

Install the fuel tank, fuel tube, seat and both side covers.



CARBURETOR  
ADJUSTING WRENCH  
07908-4220100

## CARBURETOR IDLE SPEED

### NOTE

Inspect and adjust idle speed after all other engine adjustments are within specifications.

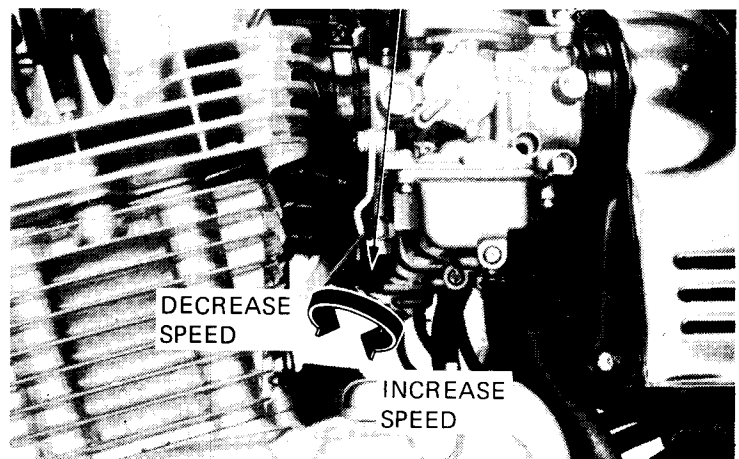
The engine must be warm for accurate idle adjustment. Ten minutes of stop-and-go riding is sufficient.

Warm up the engine, shift to NEUTRAL, and place the motorcycle on its center stand.

Turn the throttle stop screw as required to obtain the specified idle speed.

**IDLE SPEED: 1,000 ± 100 rpm**

THROTTLE STOP SCREW



DECREASE  
SPEED

INCREASE  
SPEED



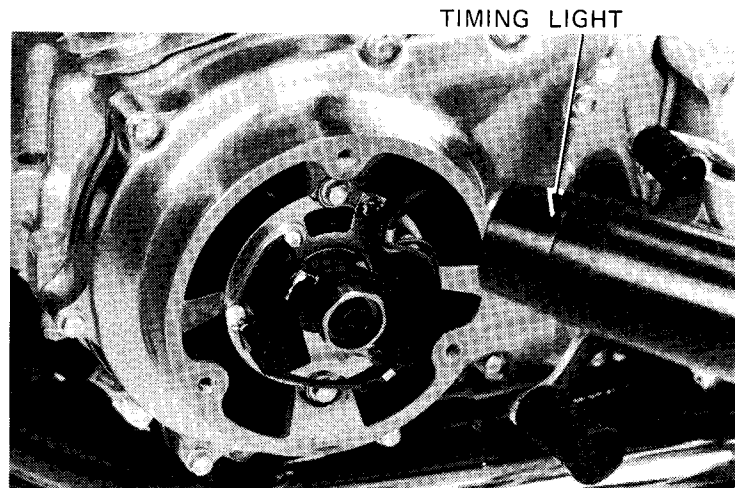
## IGNITION TIMING

- DYNAMIC

Remove the pulser generator cover.  
 Connect a stroboscopic timing light to the No. 1 cylinder's high tension wire.  
 Start the engine and let it idle.

**IDLE SPEED: 1,000 ± 100 rpm**

Aim the timing light at the timing mark.  
 The "1.4 F-I" mark should align with the index mark.



## ADJUSTMENT

Adjust by loosening the two pulser base plate screws and rotating the plate.  
 Tighten the screws and recheck the timing.



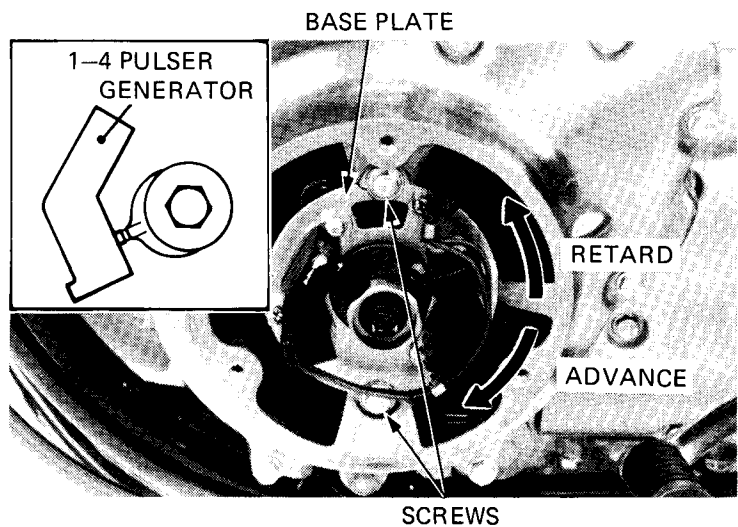
- STATIC

Remove the pulser generator cover.  
 Rotate the crankshaft counterclockwise and align the "1.4 S-F" mark with the index mark.

### NOTE

Either No. 1 or No. 4 piston must be near T.D.C. of the compression stroke at this time.

The timing is correct if the narrow projection of "1.4" pulser generator aligns with the rotor tooth.





## SPARK ADVANCER

Remove the pulser generator cover.  
 Connect a timing light to the No. 1 high tension wire.  
 Start the engine.  
 Bring engine speed to 3,100 rpm or above and check that the index mark is between the full advance marks.

### CAUTION:

*Do not allow engine speed to exceed 8,500 rpm or engine damage may result.*

Replace the advancer assembly if it is not functioning properly.  
 Install the pulser generator cover.



ADVANCE MARK

## CYLINDER COMPRESSION

Warm up the engine.  
 Stop the engine and remove the fuel tank.  
 Disconnect the spark plug caps and remove the spark plugs.  
 Insert the compression gauge.  
 Open the choke and throttle valves fully.  
 Crank the engine with the starter motor.

### NOTE

Crank the engine until the gauge reading stops rising. The maximum reading is usually reached within 4-7 seconds.

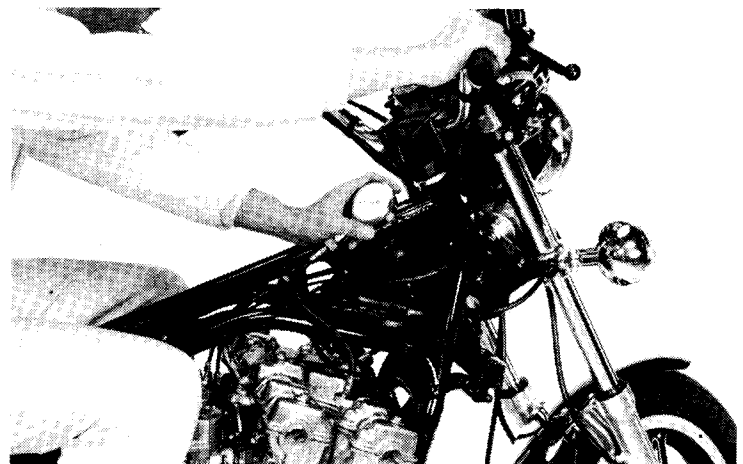
### COMPRESSION PRESSURE:

$12 \pm 2 \text{ kg/cm}^2$  ( $170 \pm 28 \text{ psi}$ )

If compression is low, check the following:

- Leaky valves
- Improper valve clearance
- Leaking cylinder head gasket
- Worn piston/ring/cylinder

If compression is high, it indicates that carbon deposits have accumulated on the combustion chamber or the piston crown.





## < CHASSIS >

### BATTERY

Remove the right and left side covers.  
 Remove the seat.  
 Disconnect the ground cable at the battery terminal.  
 Disconnect the positive cable at the starter relay.  
 Remove the battery holder plate bolt.  
 Remove the battery.  
 Inspect the battery fluid level.  
 When the fluid level nears the lower level, refill with distilled water to the upper level.

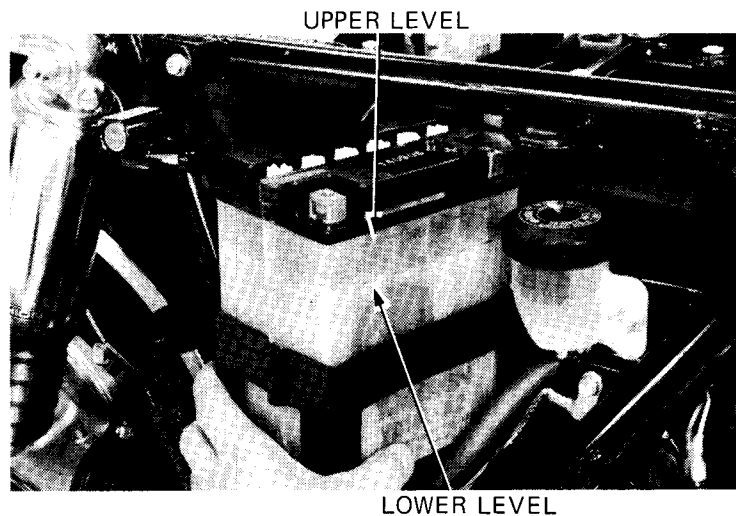
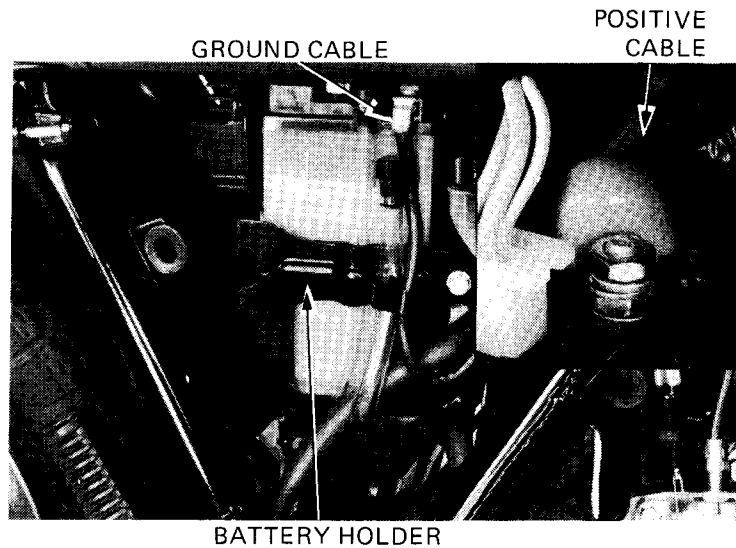
#### NOTE

Add only distilled water. Tap water will shorten the service life of the battery.

#### ⚠ WARNING

*The battery electrolyte contains sulfuric acid. Protect your eyes, skin and clothing. In case of contact, flush thoroughly with water and call a doctor if electrolyte gets in your eyes.*

Replace the battery, if sulfation forms or sediments accumulate on the bottom.



### BRAKE FLUID

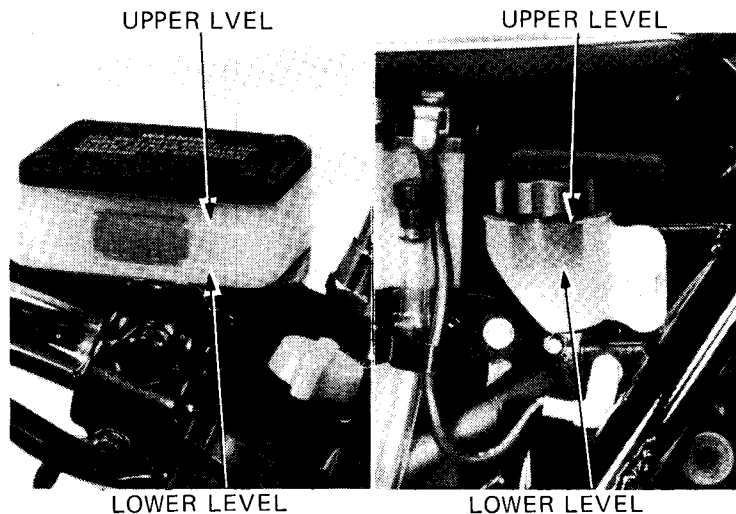
Check the front and rear brake fluid reservoir level.

If the level nears the lower level mark, fill the reservoir with SAE J1703 or DOT-3 BRAKE FLUID to the upper level mark.

Check the entire system for leaks, if the level is low.

#### CAUTION:

- Do not remove the cover until the handlebar has been turned so that the reservoir is level.
- Avoid operating the brake lever with the cap removed.  
 Brake fluid will squirt out if the lever is pulled.





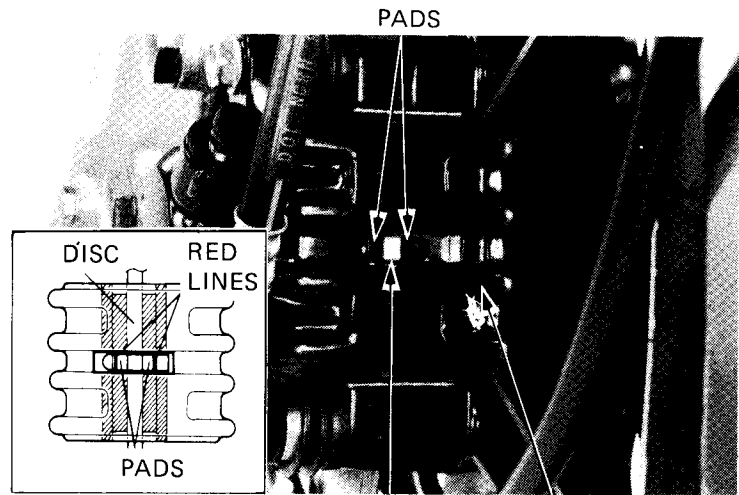
## BRAKE PAD WEAR

Remove the cap from the caliper and check for brake pad wear.

Replace the brake pads if the red line on the top of the pads reaches the edge of the brake disc (Refer to Section 17).

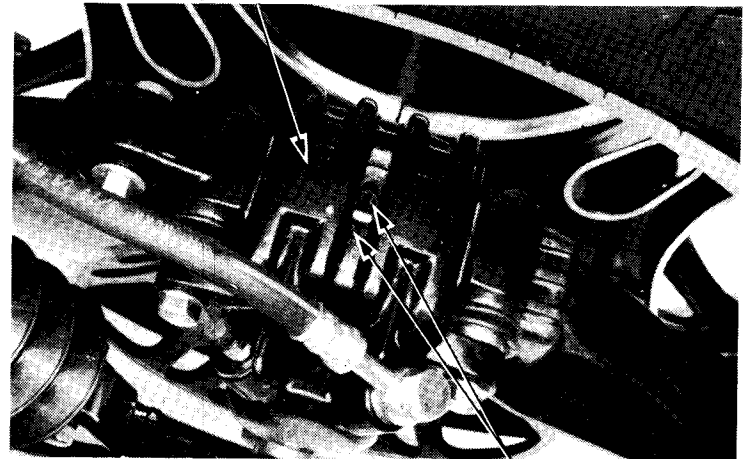
### CAUTION:

*Always replace the brake pads in pairs to assure even disc pressure.*



DISC FRONT  
BRAKE  
CALIPER

REAR BRAKE  
CALIPER



PADS

## BRAKE SYSTEM

Check that there is no deterioration, damage or leaks in brake lines or fittings.

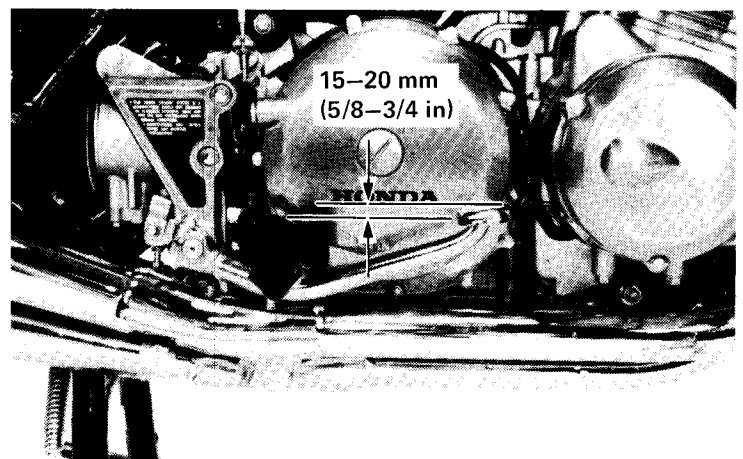
### REAR BRAKE PEDAL HEIGHT

Adjust the pedal height so that the distance between the pedal and upper face of the footpeg is correct.

### CAUTION:

*Improper brake pedal height adjustment can cause brake drag.*

**PEDAL HEIGHT: 15–20 mm (5/8–3/4 in)**





Adjust as follows;

Loosen the stopper bolt lock nut.

Screw in the stopper bolt.

Loosen the adjusting bolt lock nut.

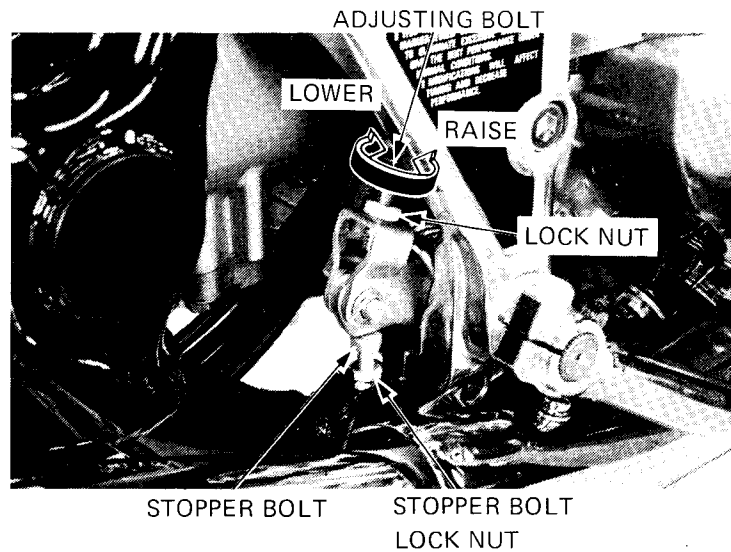
Turn the adjusting bolt until the correct pedal height is obtained.

Tighten the lock nut securely.

Screw out the stopper bolt until it touches the brake pivot arm, then turn the stopper bolt clockwise 1/2–1 turn.

Tighten the stopper bolt lock nut.

After adjusting pedal height, adjust the brake light switch.



## BRAKE LIGHT SWITCH

Adjust the brake light switch so that the brake light will light when the brake pedal is depressed and the brake begins engagement.

### NOTE

- Do not turn the switch body.
- The front brake light switch does not require adjustment.

Adjust by turning the switch adjusting nut as shown.



## HEADLIGHT AIM

Adjust vertically by loosening both headlight case mounting bolts.

Adjust horizontally by turning the adjusting screw on the headlight rim.

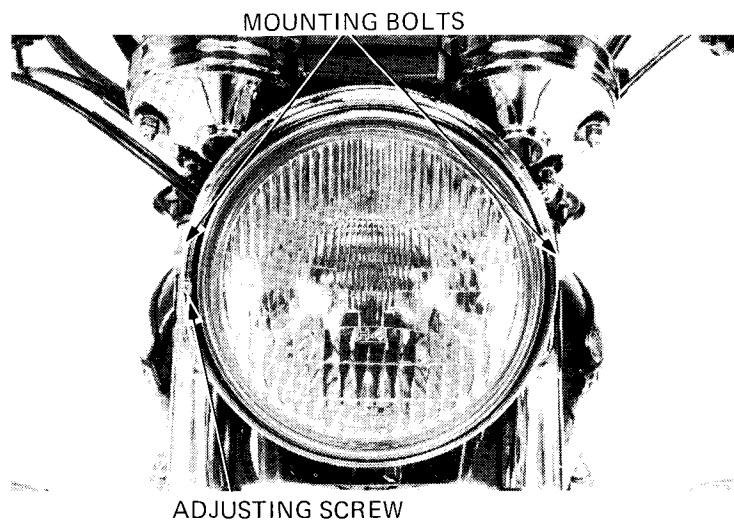
Turn the adjusting screw clockwise to direct the beam toward the right side of the rider.

### NOTE

Adjust the headlight beam as specified by local laws and regulations.

### WARNING

*An improperly adjusted headlight may blind oncoming drivers, or it may fail to light the road for a safe distance.*



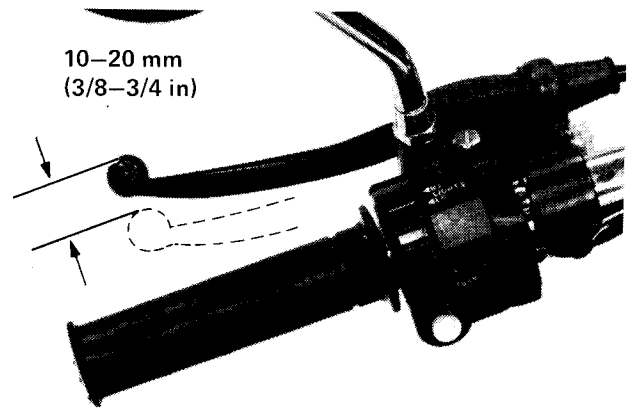




## CLUTCH

Inspect the clutch lever free play at the end of the lever.

**FREE PLAY: 10–20 mm (3/8–3/4 in)**



## ADJUSTMENT

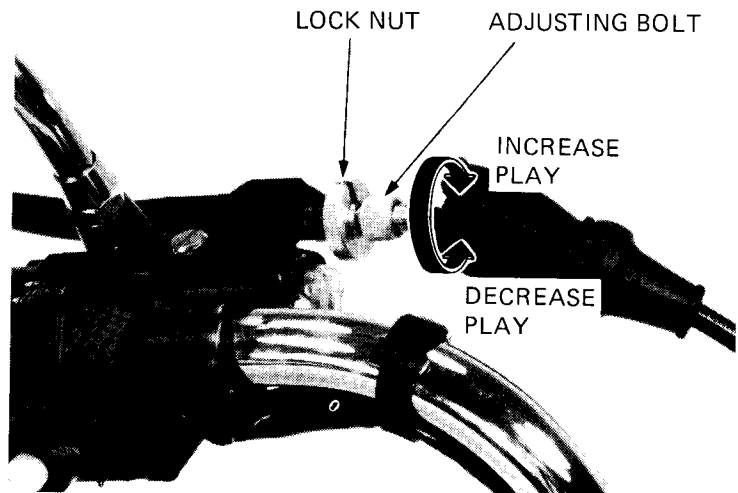
Loosen the upper adjusting bolt's lock nut and turn the adjusting bolt until the correct free play is obtained.

Tighten the lock nut.

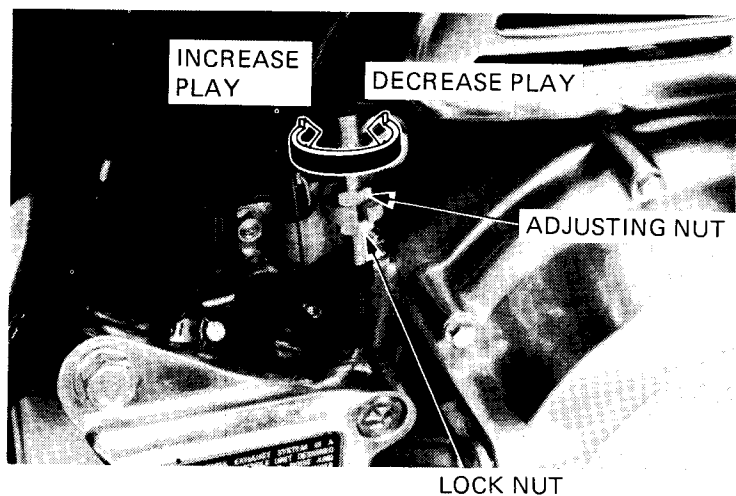
### NOTE

Do not expose the adjusting bolt threads more than 8 mm (5/16 in).

If adjustment cannot be made with the clutch lever adjusting bolt, screw the adjusting bolt all the way in and back out 1 turn. Adjustment must be made at the clutch housing.



Loosen the lower clutch cable adjusting lock nut and turn the adjusting nut all the way out to obtain maximum free play.





**48 INSPECTION AND ADJUSTMENT**

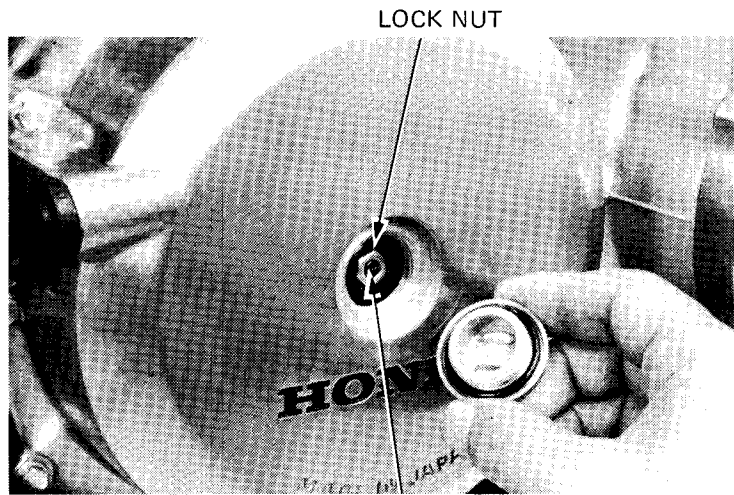
Remove the clutch lifter cap, loosen the clutch lifter lock nut. Then turn the adjusting screw clockwise until a slight resistance is felt. From this position, turn the clutch adjusting screw counterclockwise 1-1/2 turn, and tighten the lock nut. Install the lifter cap.

Turn the clutch cable lower adjusting nut so that there is 10-20 mm (3/8-3/4 in) of free play at the end of the clutch lever. Tighten the lock nut.

Any minor adjustment necessary can be obtained with the adjusting bolt and lock nut at the clutch lever.

After adjustment, be sure all lock nuts are tightened securely.

Check to see that the clutch is not slipping and is properly disengaging.

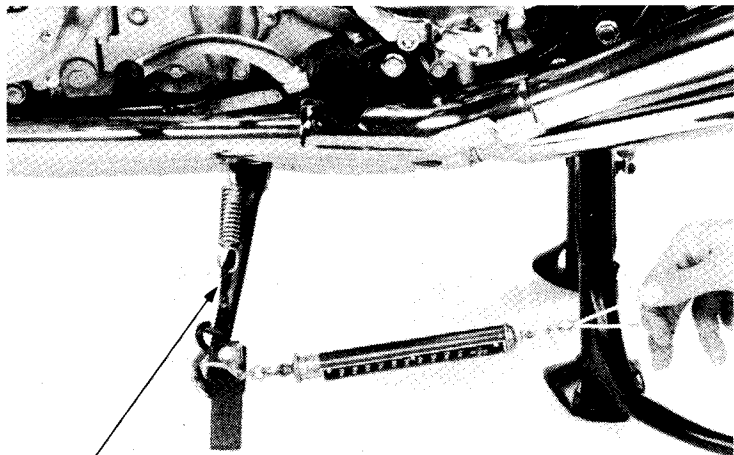


ADJUSTING SCREW  
CLUTCH ADJUSTING WRENCH  
07908-3230000

**SIDE STAND**

Check the rubber pad for deterioration or wear. Replace if any wear exceeds to the wear line as shown.

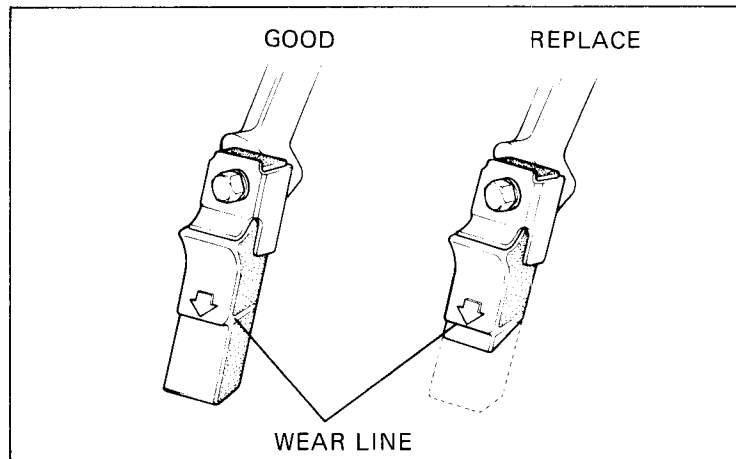
Check the side stand spring for damage and loss of tension, and the side stand assembly for freedom of movement and bending.



SIDE STAND

**NOTE**

When replacing, use a rubber pad with the mark "OVER 260 lbs ONLY". Spring tension is correct if the measurements fall within 1.5-2.5 kg (3.3-5.5 lb) when pulling the side stand lower end with a spring scale.





## SUSPENSION

**WARNING**

*Do not ride a vehicle with faulty suspension. Loose, worn or damaged suspension parts impair vehicle stability and control.*

### FRONT

Check the action of the front forks by compressing them several times.

Check the entire fork assembly for leaks or damage.

Replace damaged components which cannot be repaired.

Tighten all nuts and bolts.



Place the vehicle on its center stand.

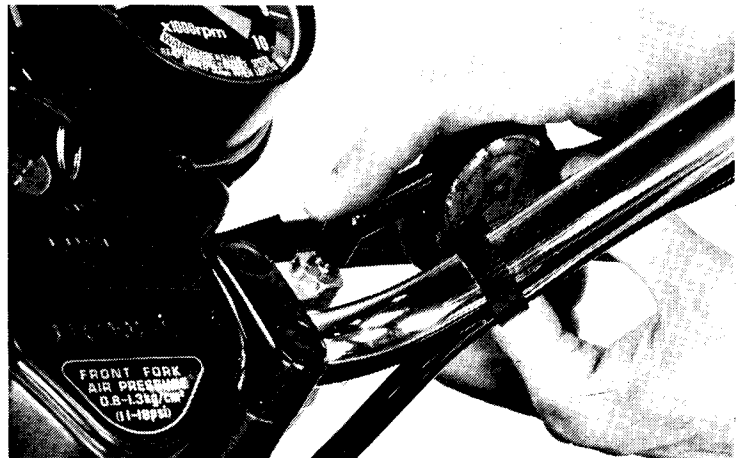
Remove the valve cap and measure the front fork air pressure.

### FRONT FORK AIR PRESSURE:

0.8–1.1 kg/cm<sup>2</sup> (11–16 psi)

### NOTE

Check the front fork air pressure when the front forks are cold.



### REAR

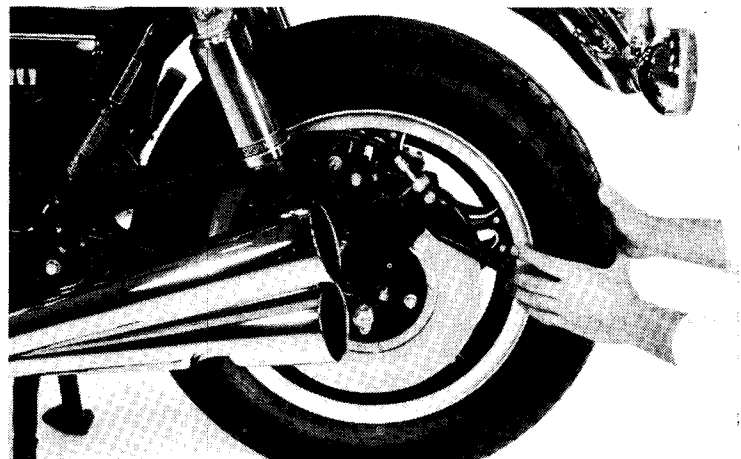
Place the motorcycle on its center stand.

Move the rear wheel sideways with force to see if the swing arm bearings are worn.

Replace if excessively worn (page 15-13).

Check the shock absorbers for leaks or damage.

Tighten all rear suspension nuts and bolts.





**50 INSPECTION AND ADJUSTMENT**

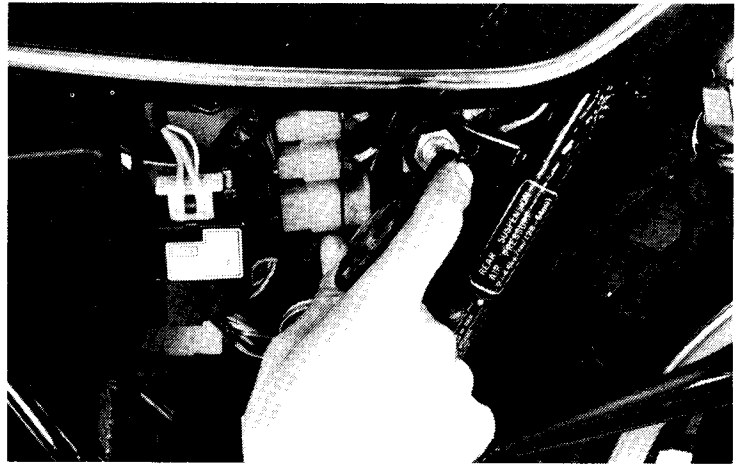
Remove the left side cover.  
Remove the valve cap and measure the rear shock absorber air pressure.

**REAR SHOCK ABSORBER AIR PRESSURE:**

2.0–4.5 kg/cm<sup>2</sup> (28–64 psi)

**NOTE**

Check the air pressure when the rear shock absorbers are cold.



**NUTS, BOLTS, FASTENERS**

Check that all chassis nuts and bolts are tightened to correct torque values.  
Check all cotter pins and safety clips.

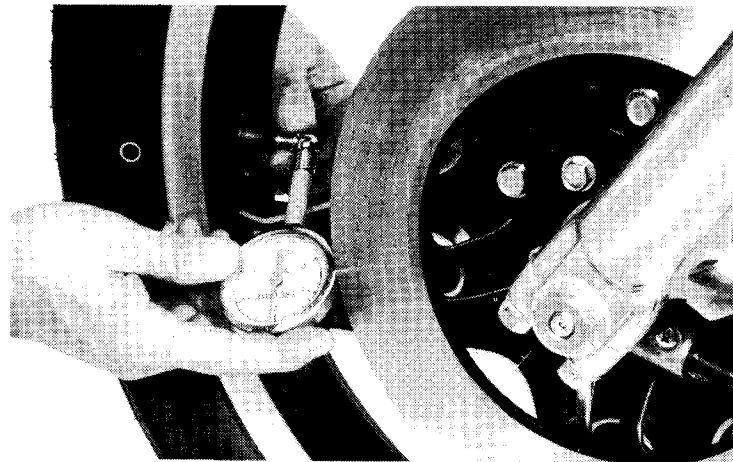
**WHEELS**

**NOTE**

Tire pressure should be checked when tires are **COLD**.

Check the tires for cuts, imbedded nails, or other sharp objects.

**RECOMMENDED TIRE PRESSURE AND TIRE SIZE:**



		Front	Rear
Tire size		110/90-19 62H	130/90-16 67H
Cold tire pressures kg/cm <sup>2</sup> (psi)	Up to 90 kg (200 lbs) load	2.25 (32) [2.8 (40)]	2.25 (32)
	Up to vehicle capacity load	2.25 (32) [2.8 (40)]	2.8 (40)
Tire brand	BRIDGE- STONE	S703	G504
	DUNLOP	F11	K127

[ ] When a genuine Honda fairing is installed.

Check the front and rear wheels for trueness.

Measure the tread depth at the center of the tires.

Replace the tires if the tread depth reaches the following limit.

**Minimum tread depth:**

**Front: 1.5 mm (1/16 in)**

**Rear: 2.0 mm (3/32 in)**



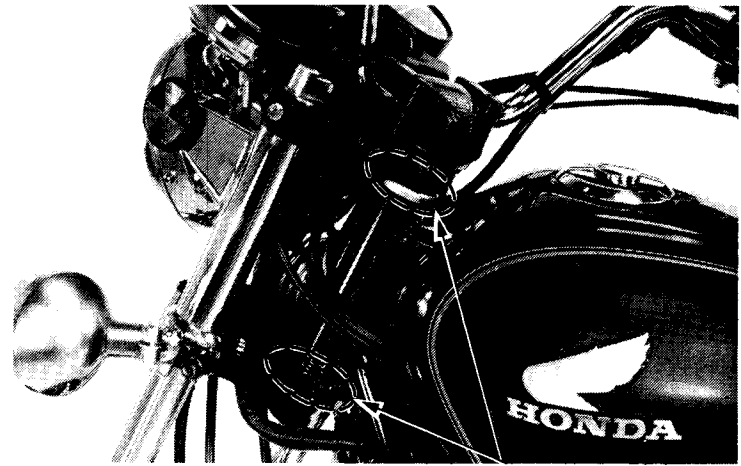
## STEERING HEAD BEARINGS

### NOTE

Check that the control cables do not interfere with handlebar rotation.

Raise the front wheel off the ground.  
Check that the handlebar rotates freely.

If the handlebar moves unevenly, binds, or has vertical movement, adjust the steering head bearing by turning the steering head adjusting nut (page 14-25).



HEAD BEARINGS