



SERVICE INFORMATION	13-1
TROUBLESHOOTING	13-2
HEADLIGHT	13-3
INSTRUMENTS	13-6
HANDLEBAR SWITCH/HANDLEBAR	13-8
FRONT WHEEL	13-14
FRONT FORK	13-19
STEERING STEM	13-25

## SERVICE INFORMATION

### GENERAL INSTRUCTIONS

A jack or other support is required to support the motorcycle.  
 Never ride on the rim or try to bend the wheel.

### SPECIAL TOOLS

#### Special Tools

Steering Stem Socket	07916-3710100
Hollow Set Wrench (6 mm)	07917-3230000
Bearing Race Remover	07946-3710500
Steering Stem Driver	07946-3710600
Bearing Driver Attachment	07946-3710700
Bearing driver	07947-6340000
Steering Stem Driver	07953-4250000

#### Common Tools

Retainer Wrench (B)	07710-0010200
Retainer Wrench Body	07710-0010400
Bearing Driver Outer (42 x 47 mm)	07746-0010300
Bearing Driver Pilot (15 mm)	07746-0040300
Front Fork Oil Seal Driver Body	07747-0010100
Front Fork Oil Seal Attachment (E)	07747-0010600
Lock Nut Wrench Socket (30 x 32)	07716-0020400
Bearing Driver Handle (A)	07749-0010000
Extension Bar	07716-0020500

### TORQUE VALUES

Front brake disc	2.7- 3.3 kg-m (20-24 ft-lb)
Front axle nut	5.5- 6.5 kg-m (40-47 ft-lb)
Front caliper carrier	3.0- 4.0 kg-m (22-29 ft-lb)
Front axle holder nut	1.8- 2.5 kg-m (13-18 ft-lb)
Front fork cap bolt	2.0- 3.0 kg-m (15-22 ft-lb)
Handlebar mounting bolt	1.8- 2.5 kg-m (13-18 ft-lb)
Fork bottom bridge	3.0- 4.0 kg-m (22-29 ft-lb)
Fork top bridge	0.9- 1.3 kg-m ( 7- 9 ft-lb)
Steering bearing adjustment nut	10.0-12.0 kg-cm (0.7-1.4 ft-lb./ 9-17 in-lb)
Steering stem nut	8.0-12.0 kg-m (58-87 ft-lb)

### SPECIFICATIONS

		STANDARD	SERVICE LIMIT
Axle shaft runout		—	0.2 mm ( 0.01 in)
Front wheel rim runout	Radial	—	2.0 mm ( 0.08 in)
	Axial	—	2.0 mm ( 0.08 in)
Fork spring free length		507.8 mm (20.0 in)	492.6 mm (19.4 in)
Tube bend		—	0.2 mm ( 0.01 in)
Front fork slider I.D.		35.042-35.104 mm (1.3796-1.3820 in)	35.15 mm ( 1.384 in)
Front fork tube O.D.		34.93 mm-34.95 mm (1.3752-1.3760 in)	34.90 mm ( 1.374 in)
Front fork oil capacity		172.5-177.5 cc (5.8-6.0 ozs) after assembly 155 cc (5.2 ozs) at oil change	—



## TROUBLE SHOOTING

### Hard steering

1. Steering stem nut too tight
2. Faulty steering stem bearings
3. Damaged steering stem bearings
4. Insufficient tire pressure

### Steers to one side or does not track straight

1. Unevenly adjusted right and left shock absorbers
2. Bent front forks
3. Bent front axle; wheel installed incorrectly

### Front wheel wobbling

1. Distorted rim
2. Worn front wheel bearing
3. Faulty tire
4. Axle not tightened properly

### Soft suspension

1. Weak fork spring
2. Insufficient fluid in front forks

### Hard suspension

1. Incorrect fluid weight in front forks

### Front suspension noise

1. Slider binding
2. Insufficient fluid in forks
3. Loose front fork fasteners
4. Lack of grease in speedometer gear box



## HEADLIGHT

### HEADLIGHT CASE REMOVAL

Remove the headlight and disconnect all wires at their couplers and connectors.

To remove the headlight case, unscrew the headlight case mounts.

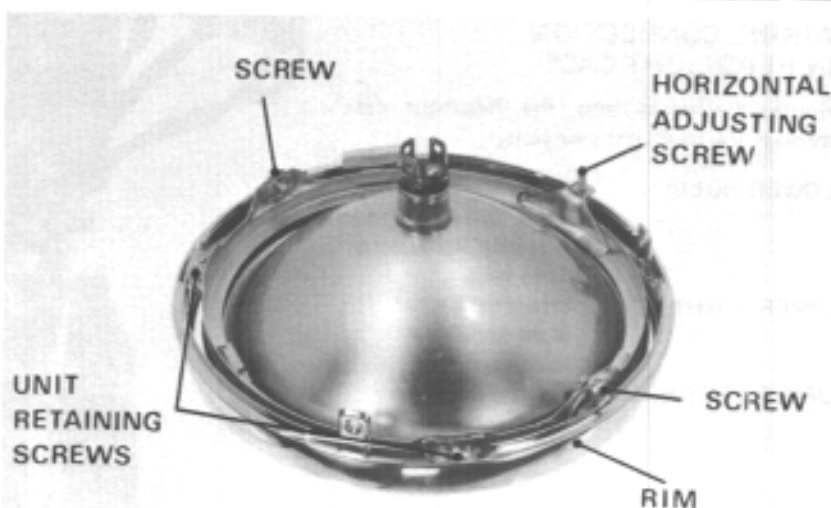


### HEADLIGHT DISASSEMBLY/ASSEMBLY

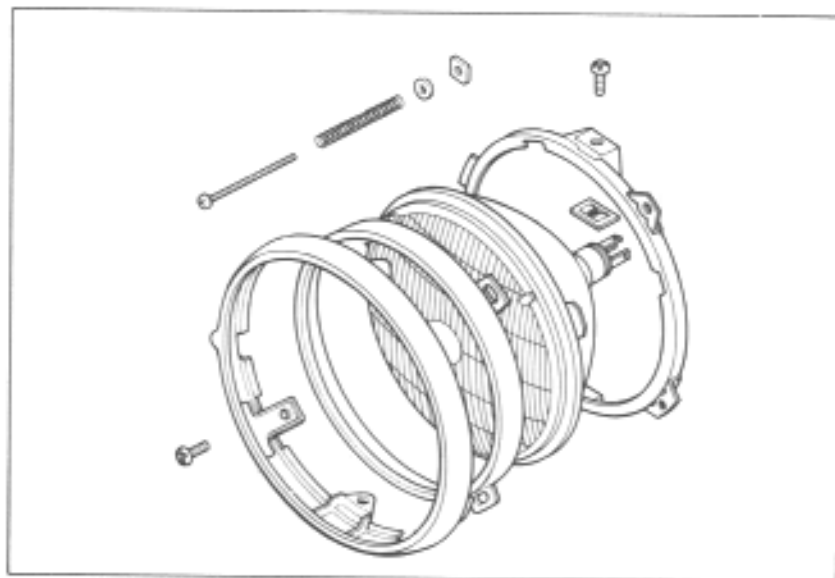
Remove the retaining screws and horizontal adjusting screw from the rim.

Remove the two sealed beam unit retaining screws, and sealed beam unit.

Assembly is essentially the reverse of disassembly.



After assembly, adjust the headlight beam (Page 3-19).



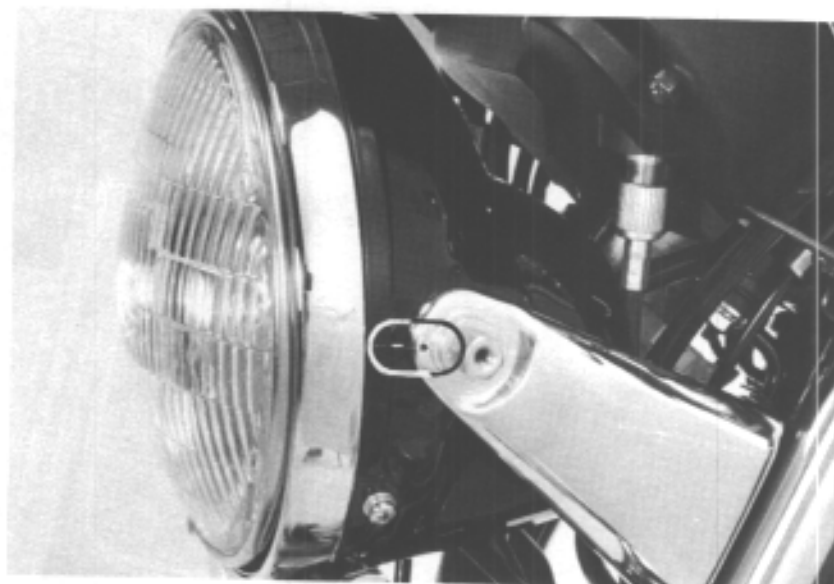


## HEADLIGHT CASE INSTALLATION

Align the index marks on the headlight case with the punch marks on the brackets.

### NOTE

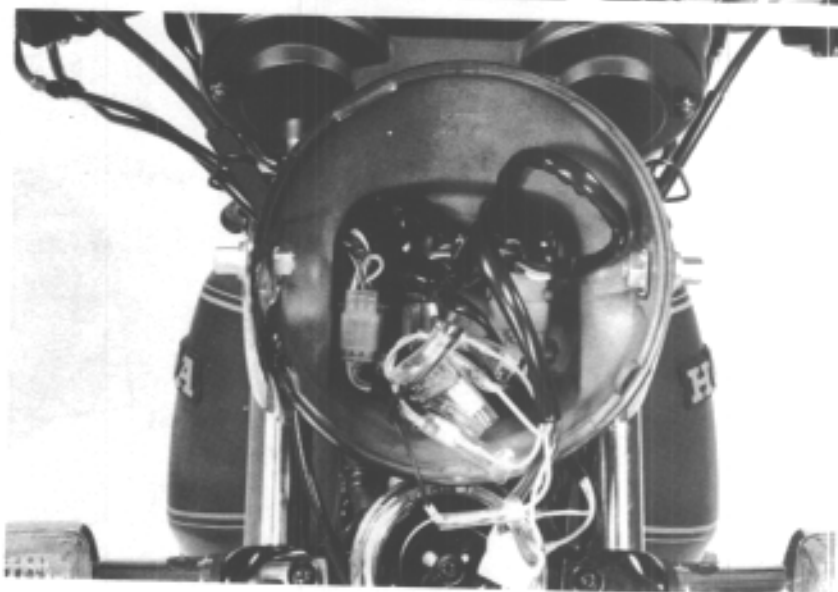
Check each component for operation after assembling



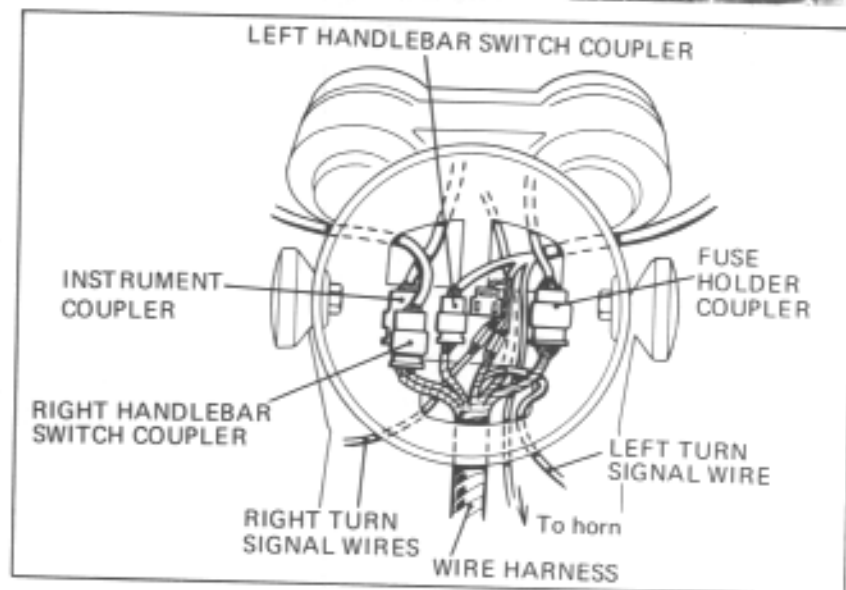
## WIRING CONNECTION IN HEADLIGHT CASE

Route the wires into the headlight case through the headlight case hole.

- |                   |  |
|-------------------|--|
| LOWER HOLE:       | Main wire harness<br>Right turn signal wires<br>Left turn signal wires<br>Horn wires |
| UPPER RIGHT HOLE: | Instrument wires<br>Right handlebar switch wires                                     |
| UPPER LEFT HOLE:  | Fuse holder wires<br>Left handlebar switch wires                                     |

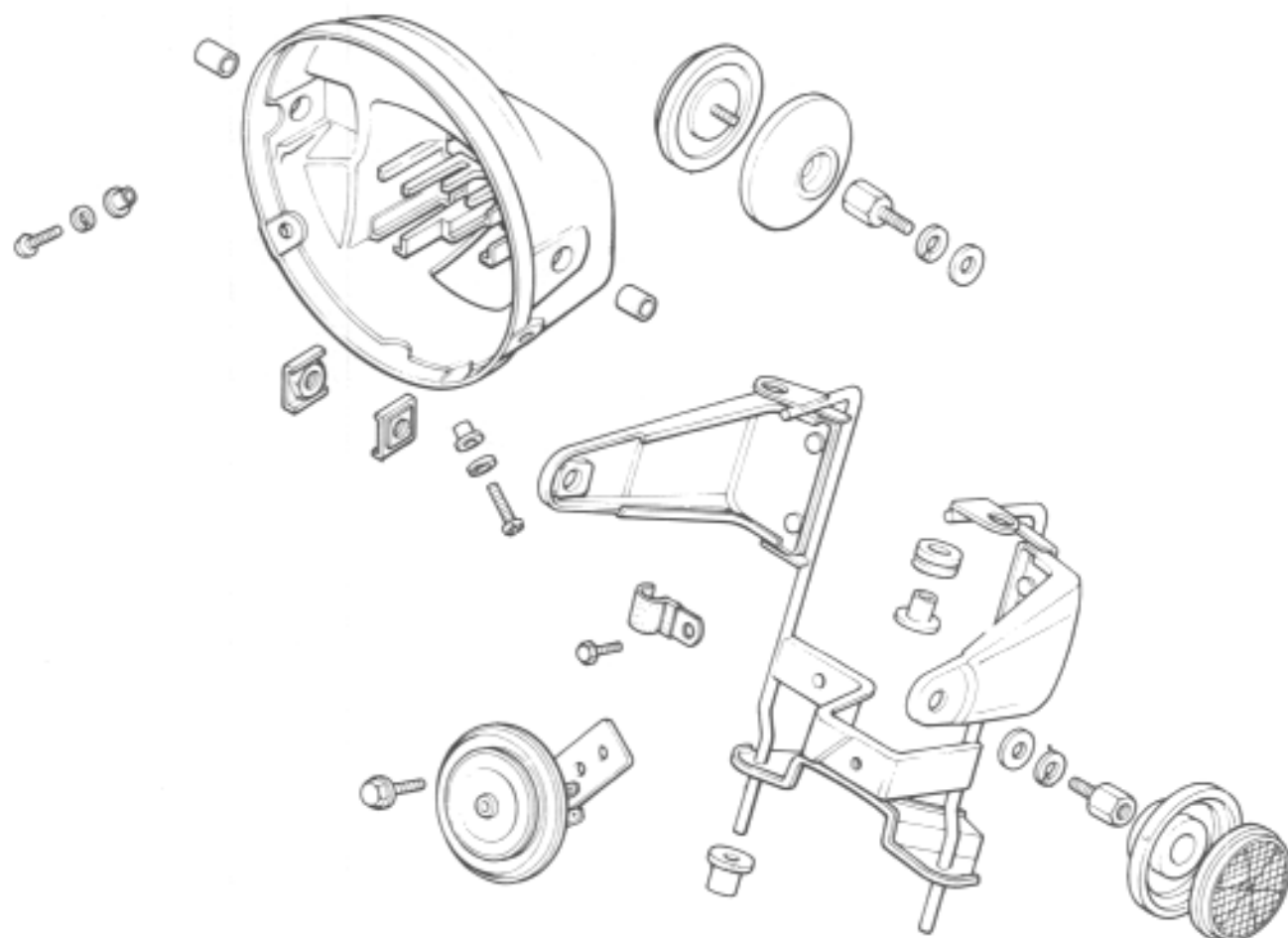


Connect the color-coded wires and couplers.





**HEADLIGHT CASE BRACKET  
DISASSEMBLY/ASSEMBLY**



Remove the headlight and disconnect all wires and wire couplers inside the case.  
Disconnect the brake hose from the front brake master cylinder.

**NOTE**

Avoid spilling fluid on painted surfaces.  
Place a rag over the fuel tank whenever the brake hose is disconnected.

Remove the instruments.  
Disconnect the throttle, clutch and choke cables at the handlebar.  
Remove the main harness clamp.  
Remove the headlight case bracket.





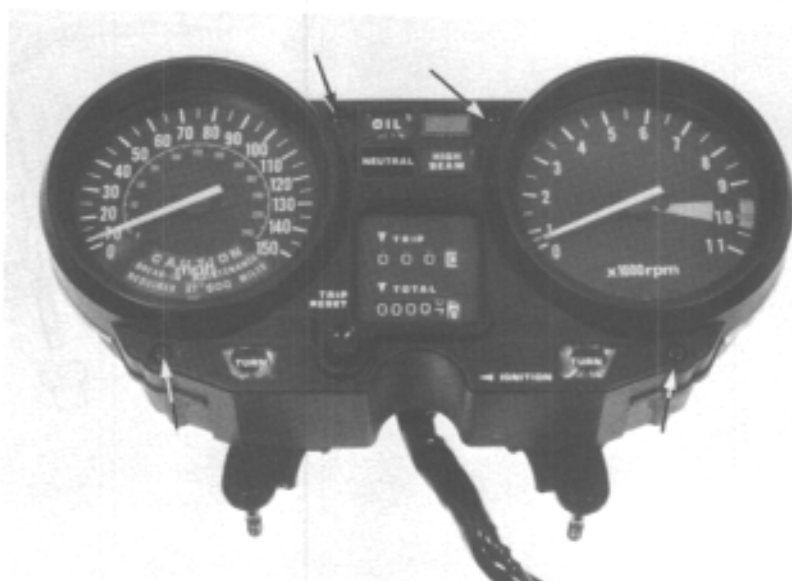
## INSTRUMENTS

### DISASSEMBLY

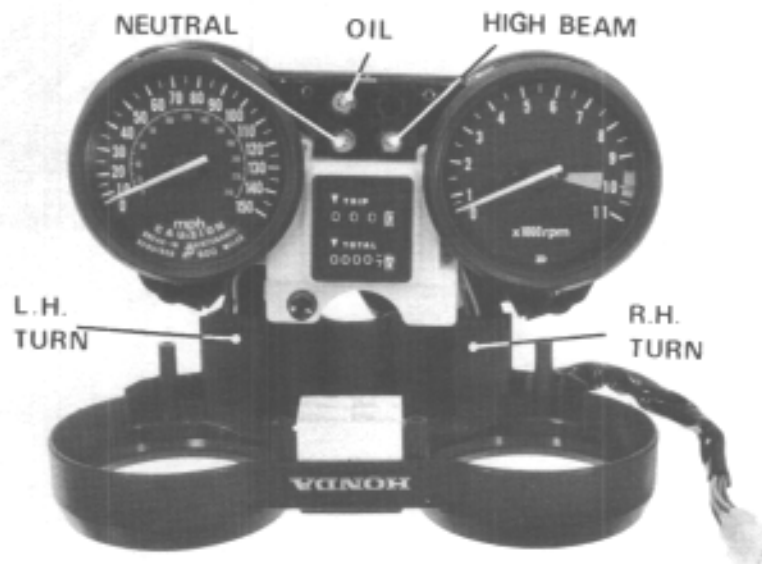
Remove the headlight.  
 Disconnect the instrument wire connectors in the headlight case.  
 Remove the speedometer and tachometer cables from the instruments.  
 Remove the instrument mounting nuts and instruments.



Remove the four screws and instrument cover.



Remove the instrument lamp bulbs.

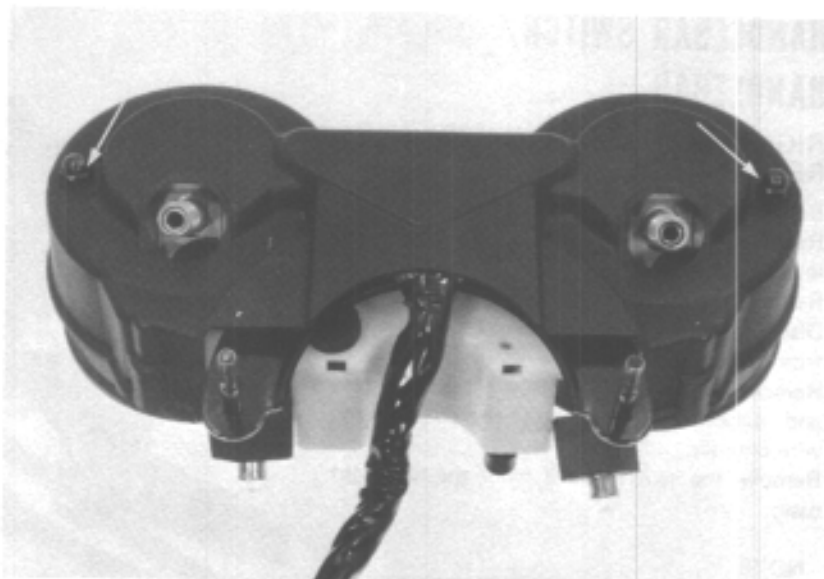




Remove the lower instrument case by removing two cap nuts.

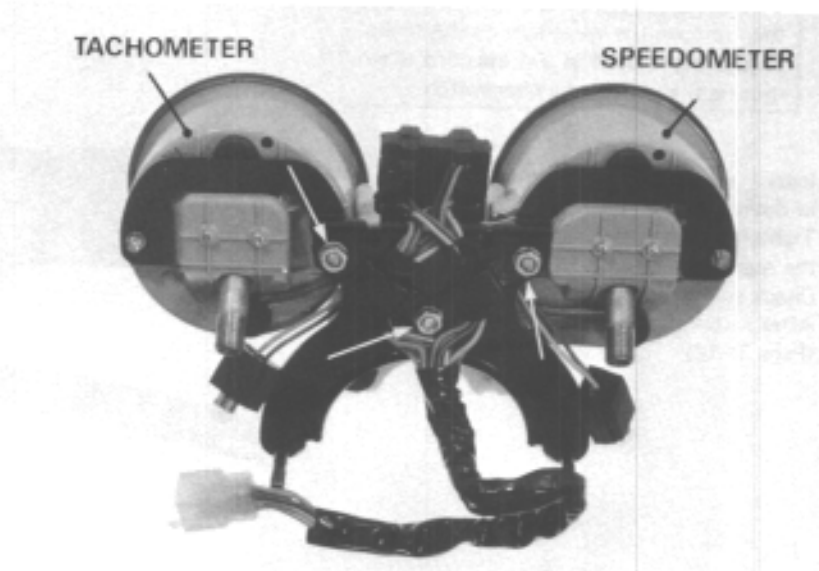
**CAUTION**

*Do not leave the instrument upside down or damping fluid leakage may occur.*



Separate the speedometer and tachometer from the mounting bracket by removing the three nuts.

Check the meter cable if the needle swings abnormally.



### ASSEMBLY

After installing a new bulb, check for continuity. If the bulb does not light, inspect the wiring for open or short circuits.

Lubricate the speedometer and tachometer cables before reconnecting.





## HANDLEBAR SWITCH/ HANDLEBAR

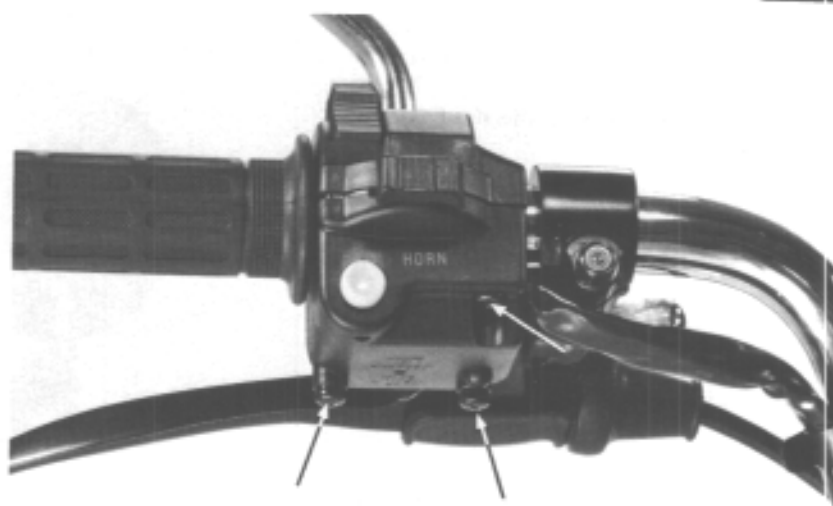
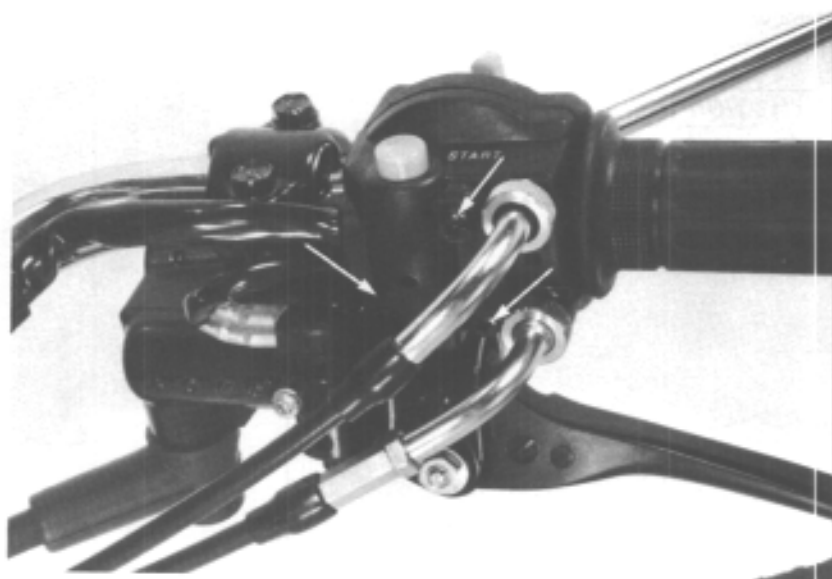
### RIGHT HANDLEBAR SWITCH REPLACEMENT

Remove the fuel tank.  
 Remove the screws holding the upper and lower switch housings.  
 Remove the throttle cables.  
 Disconnect the front brakelight switch wires from the switch.  
 Remove the headlight from the headlight case and disconnect the right handlebar switch wire coupler.  
 Remove the switch wires from the headlight case.

#### NOTE

Connect a string to the switch wires and then remove the wires leaving the string. This string is used as a draw cord when routing the wiring of a new switch.

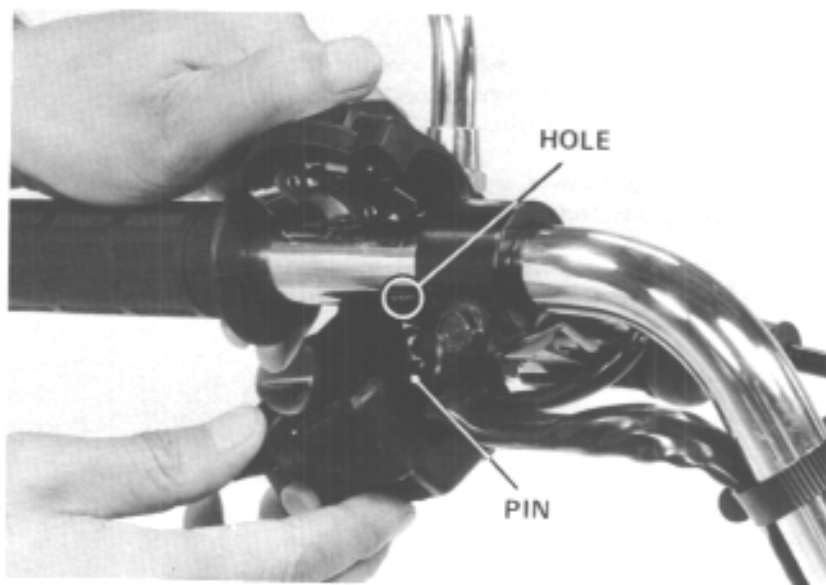
Install a new switch aligning with the hole in the handlebar.  
 Tighten the forward screw first, then tighten the rear screw.  
 Check switch operation.  
 After installing, adjust throttle cable free play. (Page 3-12)



### LEFT HANDLEBAR SWITCH REPLACEMENT

Refer to RIGHT HANDLEBAR SWITCH REPLACEMENT.

Loosen the clutch lever bracket bolt.  
 Disconnect the left handlebar switch wires.





### HANDLEBAR REMOVAL

Loosen the three screws attaching the throttle grip/switch housing.  
Remove the right handlebar switch wires from the handlebar.



Remove the brake master cylinder.

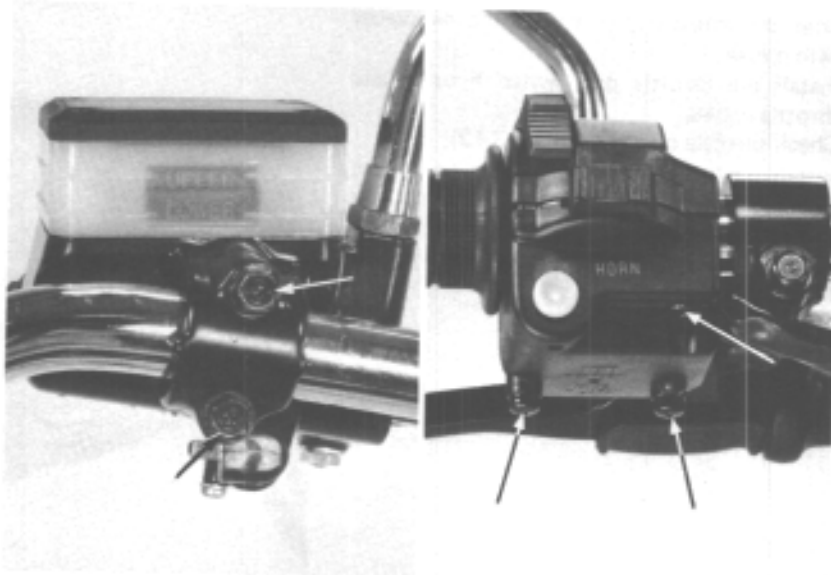
#### CAUTION

*Secure the brake cylinder in an upright position to prevent the fluid from leaking and damaging the paint and to prevent air from entering the brake system*

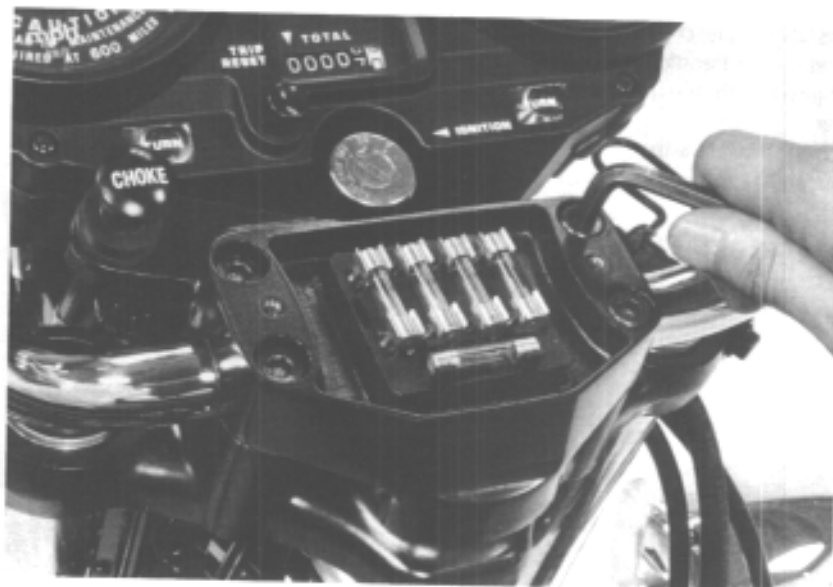
#### NOTE

Do not loosen the brake hose unless necessary.

Remove the left grip.  
Remove the left handlebar switch assembly.  
Loosen the clutch lever bracket bolt.  
Remove the clutch lever assembly.



Remove the handlebar upper holder.  
Remove the handlebar.  
Remove the throttle grip and switch assembly.





## HANDLEBAR INSTALLATION

### NOTE

Apply grease to the throttle grip area of the handlebar.

Position the handlebar on the fork bridge with the punch marks on the handlebar in line with the top.

Place the upper holder on the handlebar.

Tighten the forward bolts first, then the rear bolts.



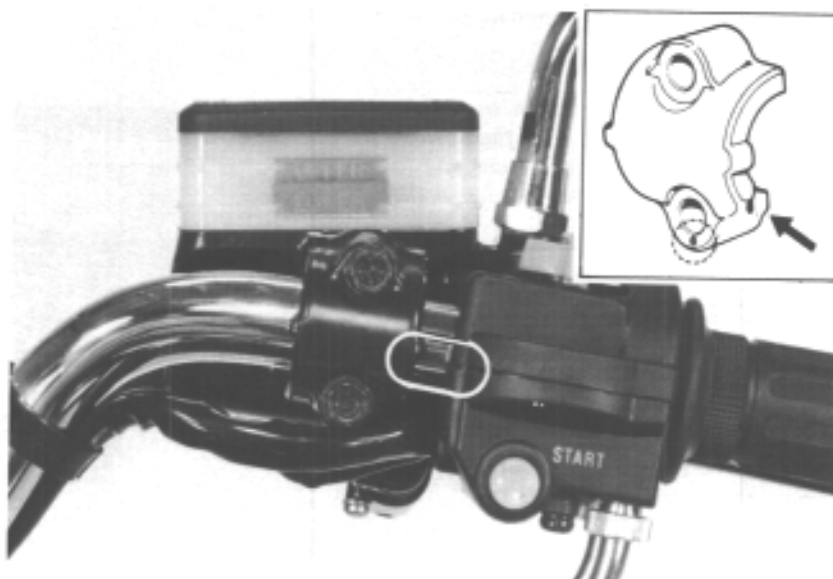
Coat the throttle grip area of the handlebar with grease.

Install the throttle grip switch housing and throttle cables.

Check throttle operation (Page 3-12).

Install the master cylinder on the handlebar. The lug of the holder with the switch case mating surface and wire relief facing down.

Tighten the upper bolt first, then tighten the lower bolt.

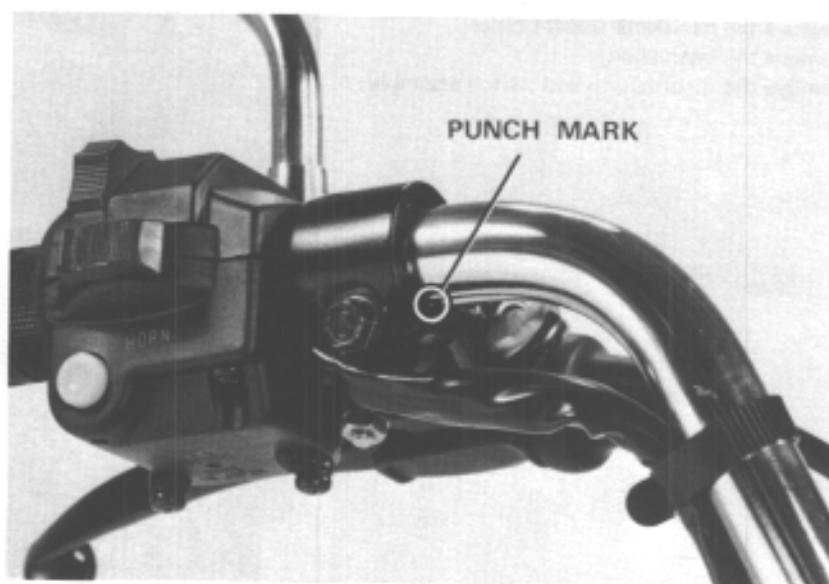


Install the clutch lever assembly.

Install the handle lever bracket with the split aligned with the punch mark on the handlebar.

Install the left grip.

Install the left switch housing.

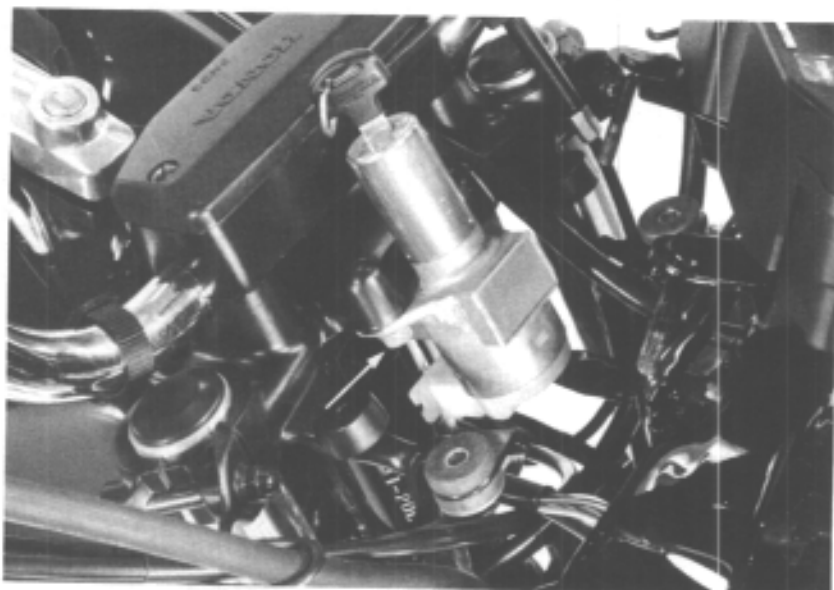




### IGNITION SWITCH REPLACEMENT

Remove the two bolts holding the instrument cluster.

Remove the bolts holding the ignition switch and disconnect the wire harness coupler.



### FUSE HOLDER REPLACEMENT

Remove the fuse cover.

Remove the handlebar upper holder.

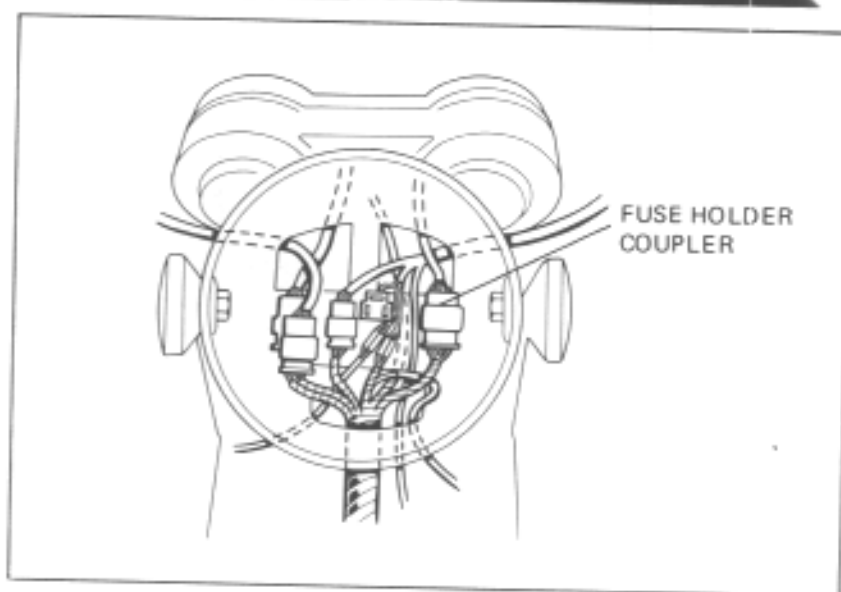
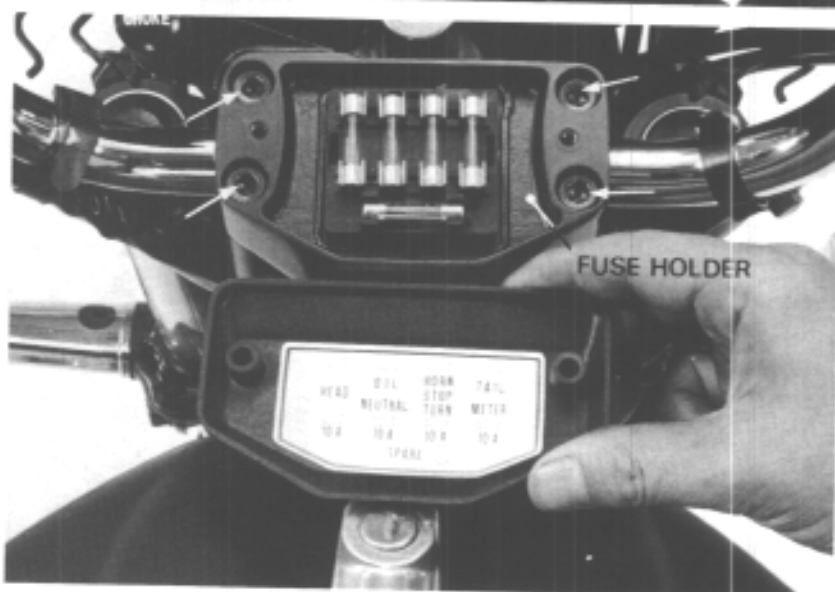
Remove the headlight.

Disconnect the wire coupler.

Remove the fuse holder.

#### NOTE

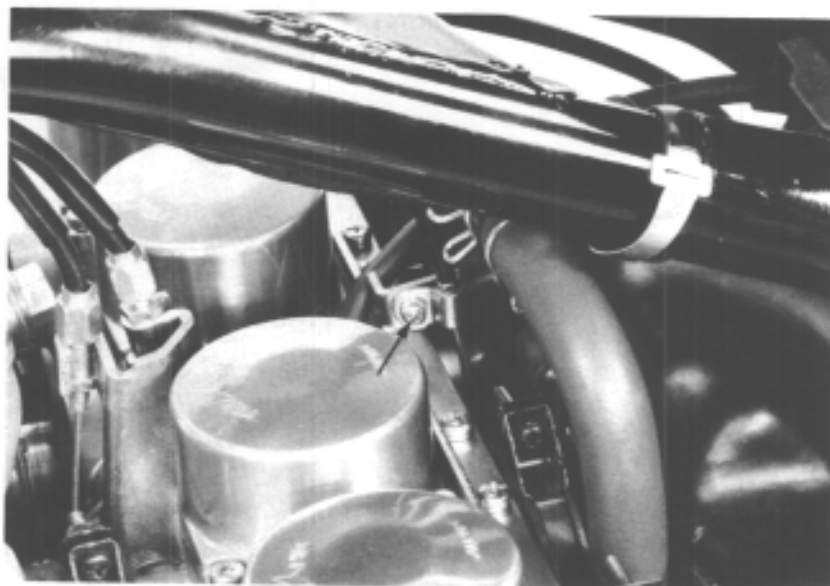
Before disconnecting the holder wires, tie a string to them. This string can be used as a draw cord when installing a new holder.





### CHOKE CABLE REPLACEMENT

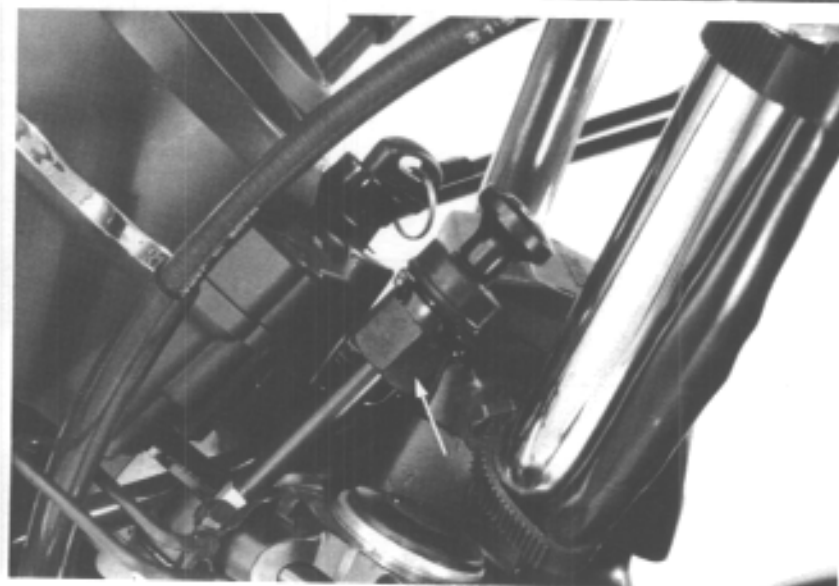
Remove the fuel tank.  
Disconnect the choke cable from the lower  
choke cable bracket.  
Remove the cable end from the choke lever.



Remove the choke cable from the choke cable  
bracket on the handlebar.

#### NOTE

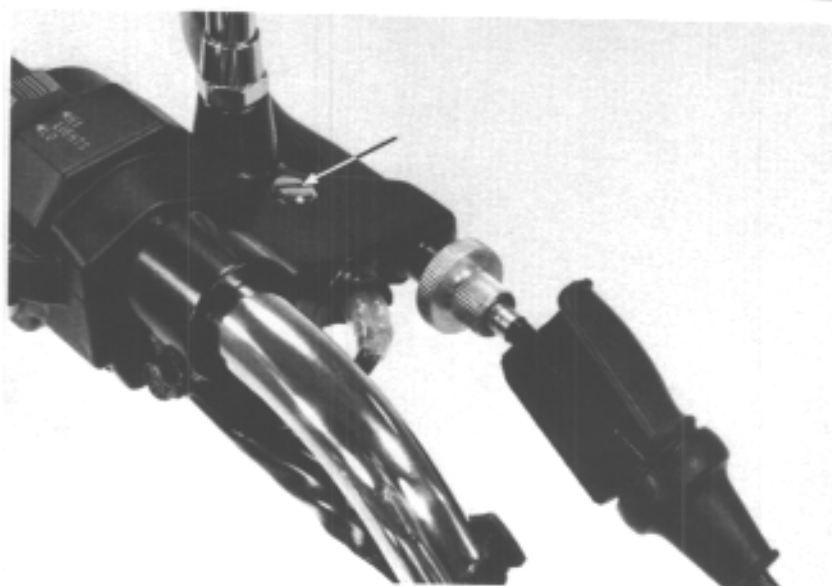
Before removing the cable, tie a string  
to the cable end. This string can be  
used as a draw cord when installing a  
new choke cable.



Lubricate choke cable.

### CLUTCH CABLE REPLACEMENT

Remove the fuel tank.  
Remove the clutch cable from the lever.





Loosen the clutch adjuster lock nuts and remove the clutch cable from the clutch lever.

**NOTE**

Before removing the clutch cable, connect a string to the end of the cable so that a new cable can be installed easily by using this string as a draw cord.

Lubricate clutch cable.

Adjust the clutch cable after replacement (Page 3-20).

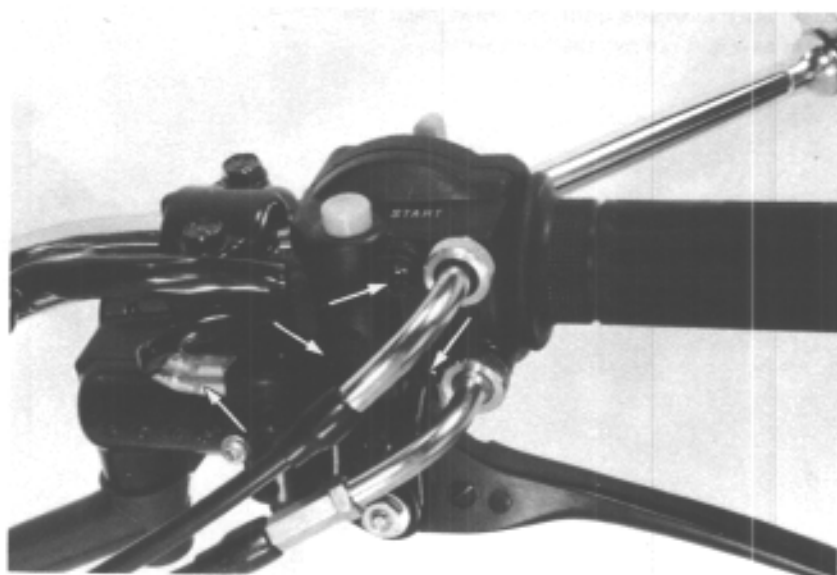


**THROTTLE CABLE REPLACEMENT**

Remove the fuel tank.

Remove the right handlebar switch/throttle housing.

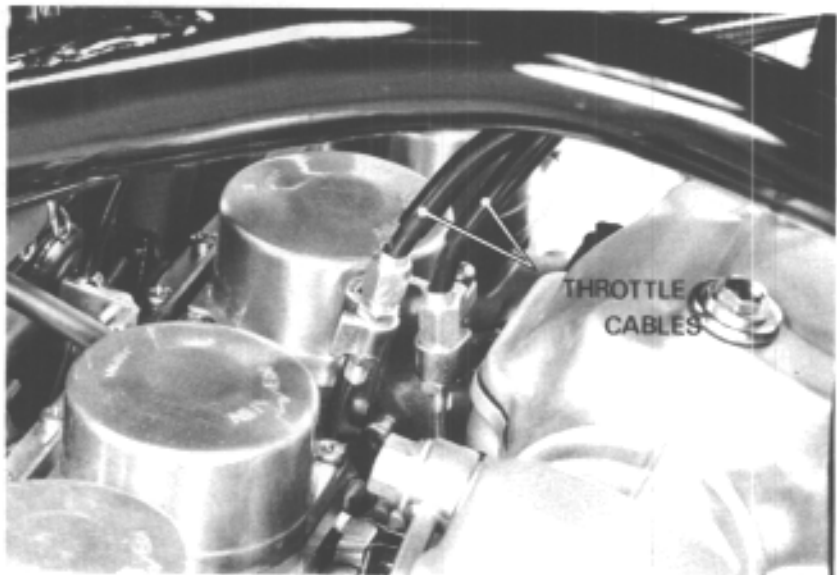
Remove the throttle cables from the throttle housing.



Remove the throttle cables from the carburetors.

Lubricate throttle cables.

Adjust throttle cable free play (Page 3-12).







## FRONT WHEEL

### FRONT WHEEL REMOVAL

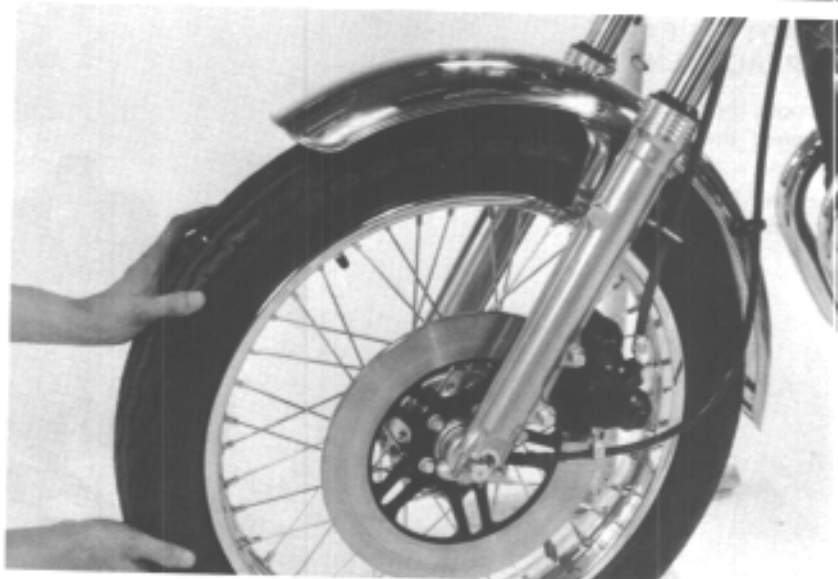
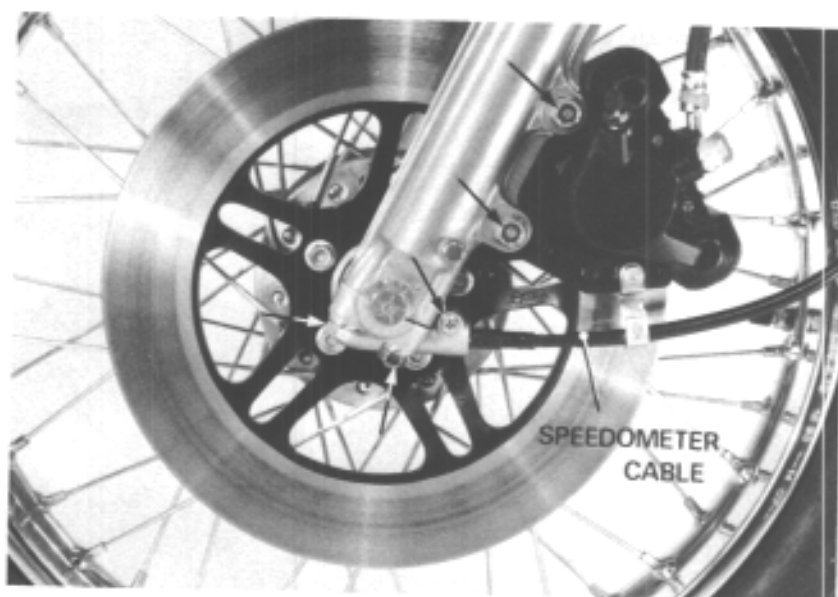
Remove the speedometer cable set screw and the speedometer cable.

#### NOTE

Do not operate the front brake lever after removing the front wheel. To do so will cause difficulty in fitting the brake disc between the brake pads.

Remove the right and left axle holders.

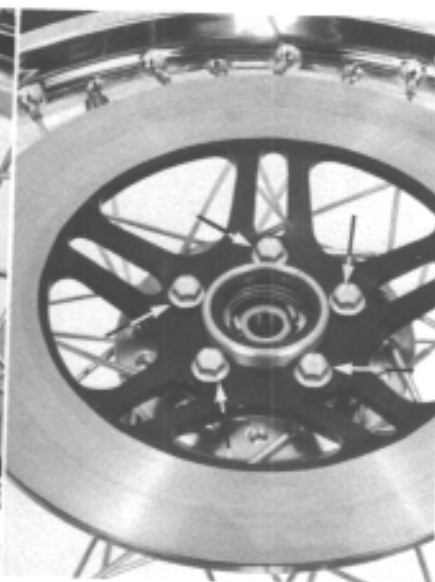
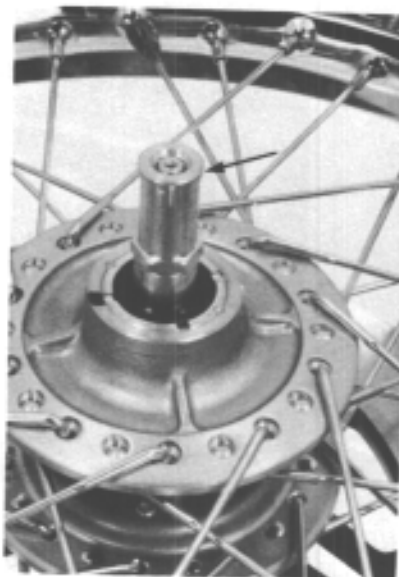
Jack up the engine until the forks clear the front axle and remove the front wheel.



### FRONT WHEEL DISASSEMBLY

Remove the axle nut, speedometer gear box, axle and collar.

Remove five bolts and disc.





Remove the retainer.  
Remove the bearings and the distance collar from the hub.

#### NOTE

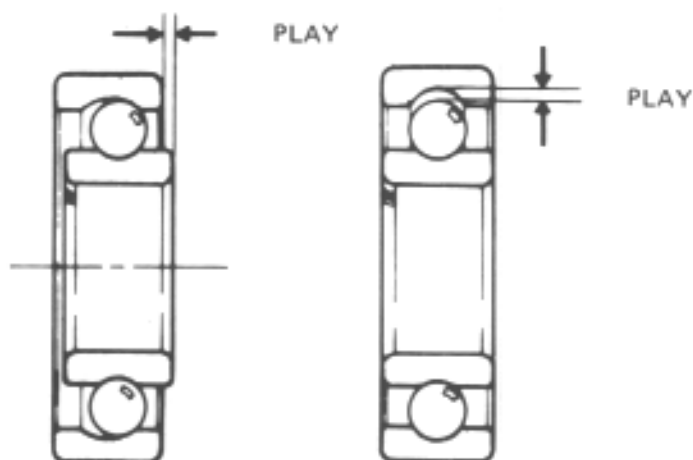
If the bearings are removed, they should be replaced with new ones.



### FRONT WHEEL INSPECTION

#### WHEEL BEARING:

Check wheel bearing play by placing the wheel in a truing stand and spinning the wheel by hand. Replace the bearings with new ones if they are noisy or have excessive play.



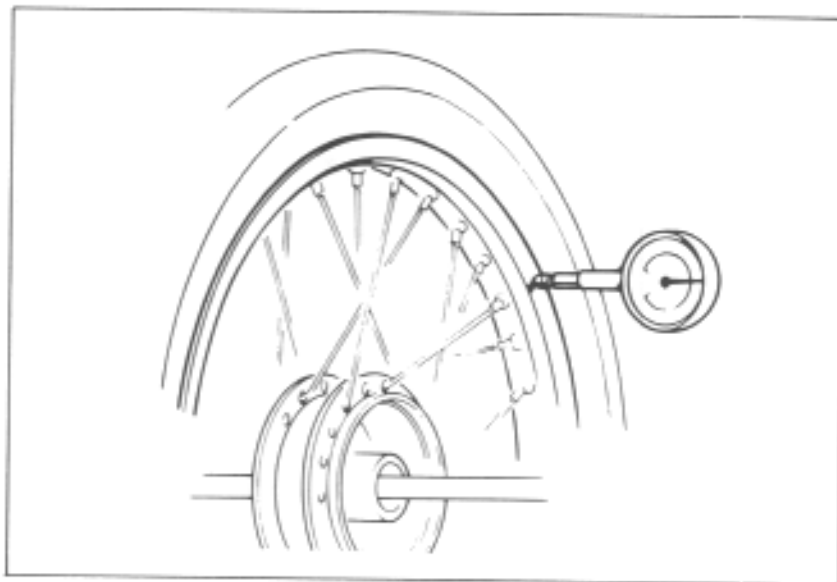
#### WHEEL INSPECTION

Check rim runout by placing the wheel in a truing stand. Spin the wheel slowly and read the runout using a dial indicator gauge.

#### SERVICE LIMITS:

RADIAL RUNOUT: 2.0 mm (0.08 in)

AXIAL RUNOUT: 2.0 mm (0.08 in)



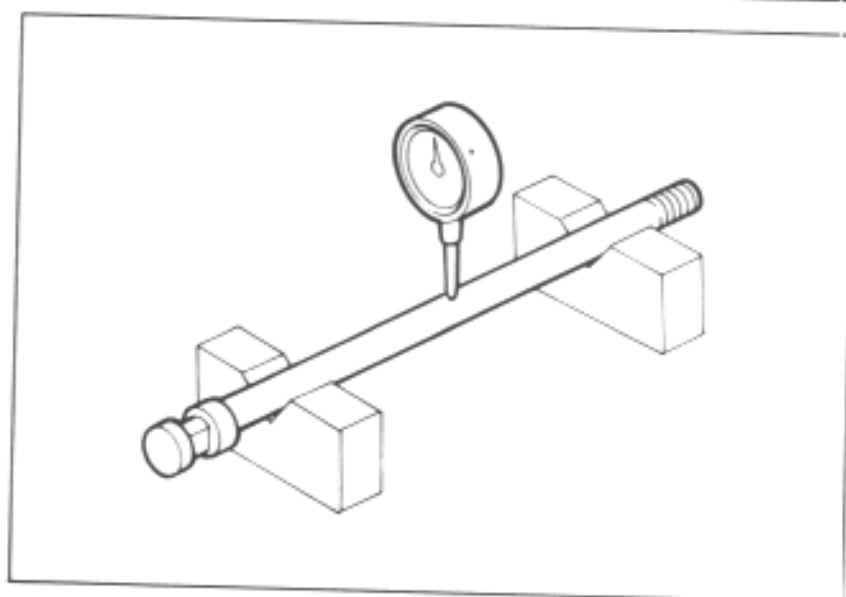




### AXLE INSPECTION

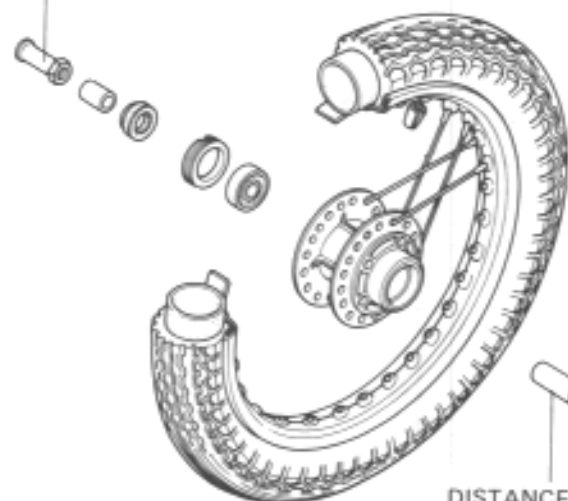
Set the axle in V blocks and measure the runout. The actual runout is 1/2 of TIR (Total Indicator Reading).

**SERVICE LIMIT: 0.2 mm (0.01 in)**



### FRONT WHEEL ASSEMBLY

5.5–6.5 kg-m (40–47 ft-lb)



BEARING

DISTANCE  
COLLAR

BEARING  
RETAINER



SPEEDOMETER

2.7–3.3 kg-m (20–24 ft-lb)

Balance weight installation



Align the balance mark with the tire valve.



Pack all bearing cavities with grease.  
Drive in the right bearing first.  
Press the distance collar into place.

**NOTE**

Be certain the distance collar is in position before installing the bearings.

Drive in the left bearing.

**NOTE**

- Drive the bearing squarely.
- Drive the bearing into position, making sure that it is fully seated and that the sealed side is facing out.

Install the bearing retainer with the tool used to remove it.

**NOTE**

Inspect the retainer. If the threads are damaged, it should be replaced.

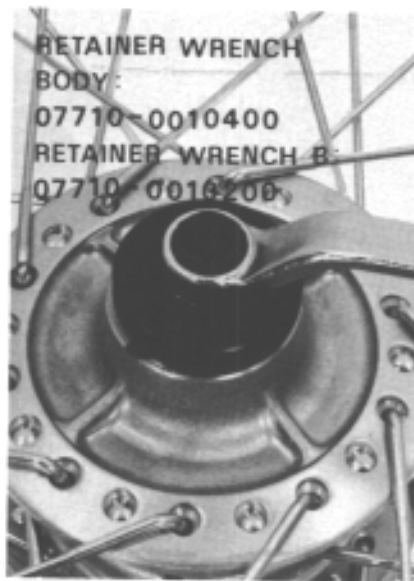
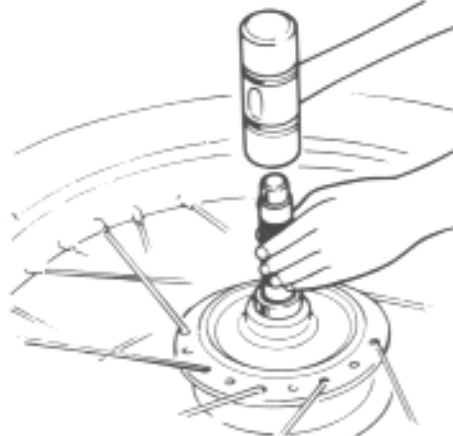
Install the seal and the bearing retainer and peen the edge of the retainer.

Install the speedometer gear retainer.  
Lubricate the inside of the oil seal and install it.

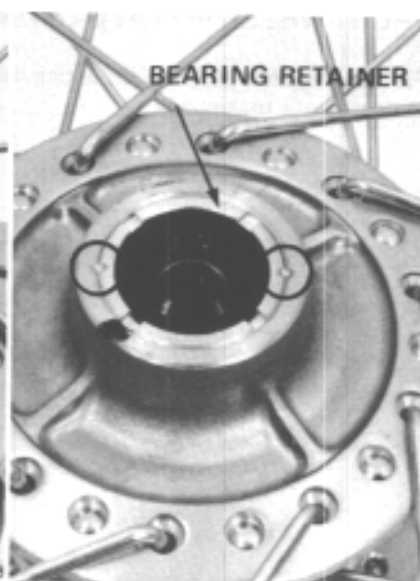
Remove the speedometer drive gear from the gear box. Wipe old grease off, check the sliding surfaces for wear or damage. Replace the drive gear and/or gear box if necessary. Fill the gear box with grease and install the drive gear.

Install the speedometer gear in the wheel hub, aligning the tangs with the slots.

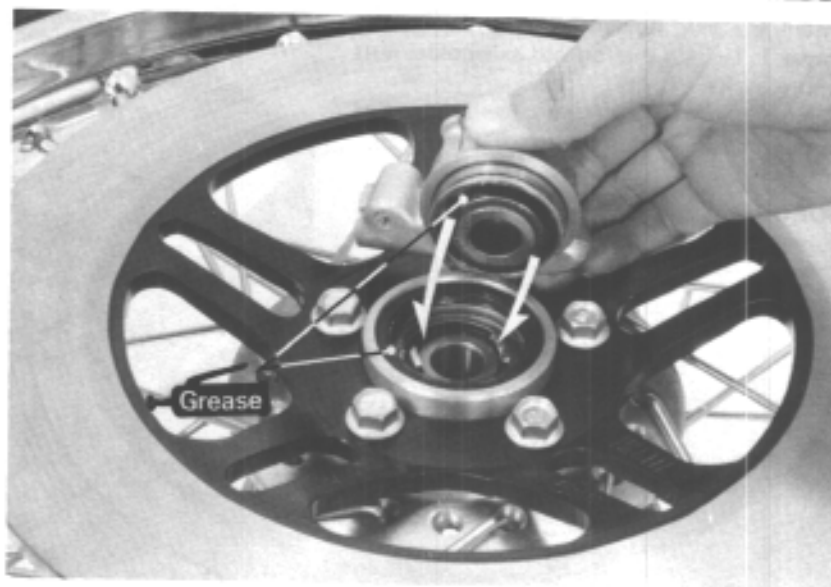
BEARING DRIVER HANDLE (A): 07749-0010000  
BEARING DRIVER OUTER (42 x 47 mm): 07746-0010300  
BEARING DRIVER PILOT (15 mm): 07746-0040300



RETAINER WRENCH  
BODY:  
07710-0010400  
RETAINER WRENCH B:  
07710-0010200



BEARING RETAINER



Grease



Install the disc and disc bolts.

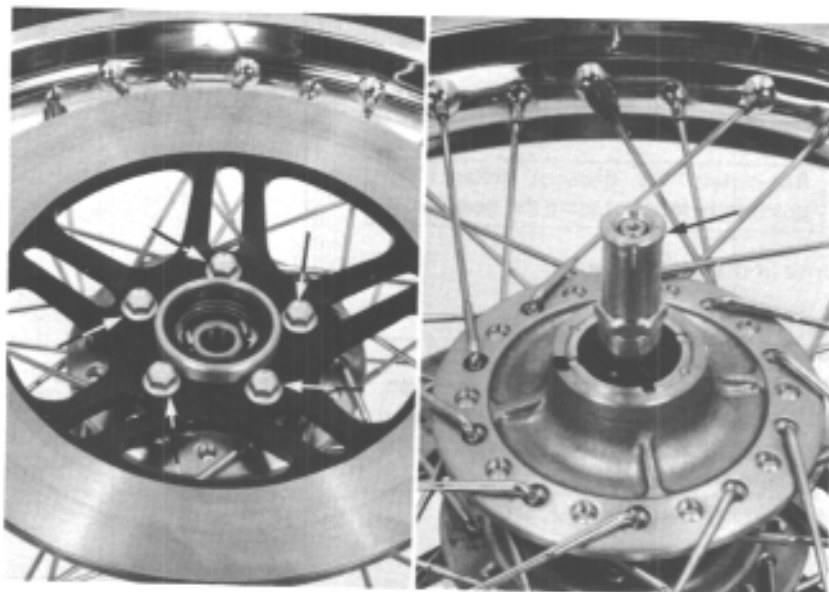
**TORQUE: 2.7–3.3 kg-m (20–24 ft-lb)**

Install the left side collar and axle.

Install the axle nut.

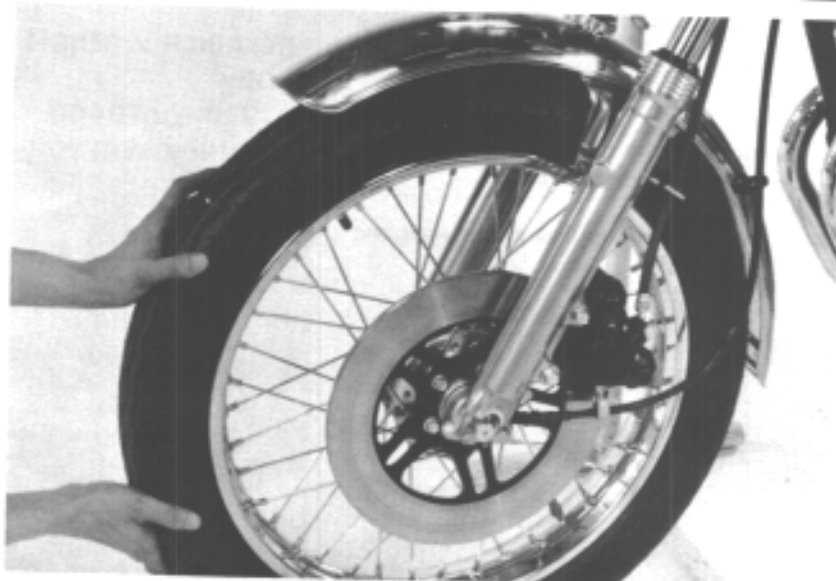
**TORQUE: 5.5–6.5 kg-m (40–47 ft-lb)**

Clean the brake disc with a high quality degreasing agent.



### FRONT WHEEL INSTALLATION

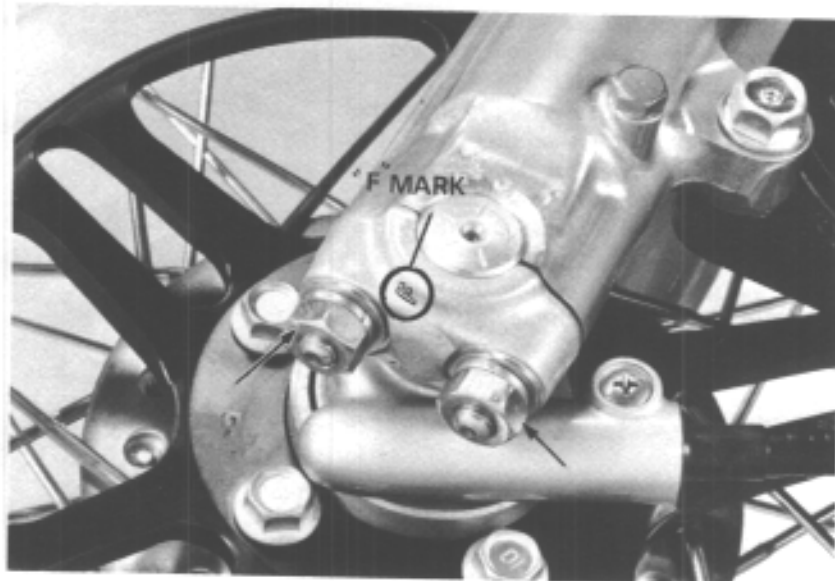
Fit the calipers over the disc, taking care not to damage the brake pads.



Install the axle holders with the "F" arrow forward. Tighten the forward axle holder nuts lightly.

Tighten the axle holder nuts to the specified torque, starting with the forward nuts.

**TORQUE: 1.8–2.5 kg-m (13–18 ft-lb)**





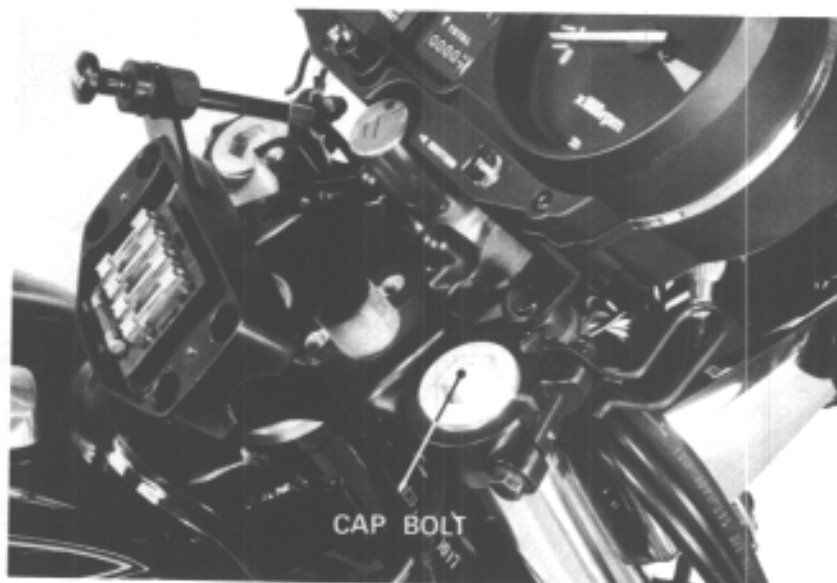
## FRONT FORK

### FRONT FORK OIL CHANGE

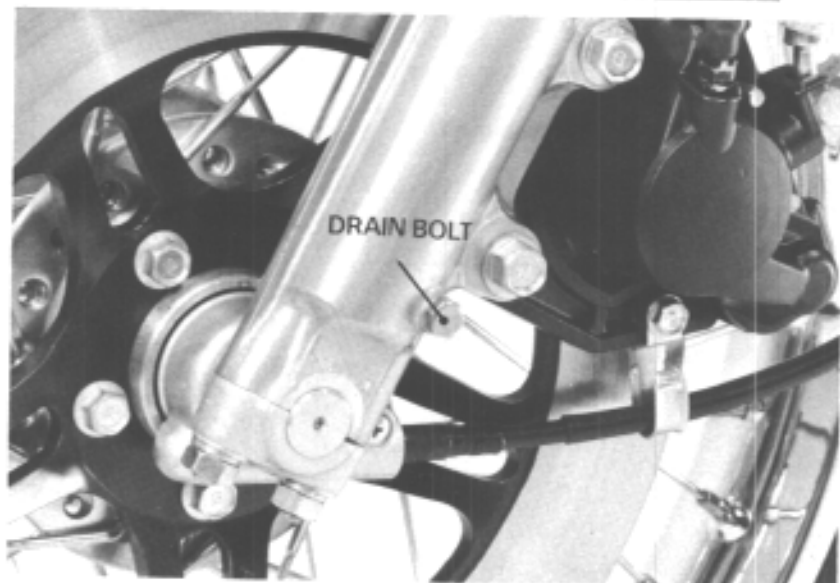
Remove the handlebar and cap bolt.  
Place a pan below the fork, remove the drain plug and allow the fork oil to drain.  
Compress the suspension to completely drain the fork.

Refill the fork, page 13-23.

REFILL CAPACITY: 155 cc (5.2 ozs)



Repeat this operation for the remaining fork leg.



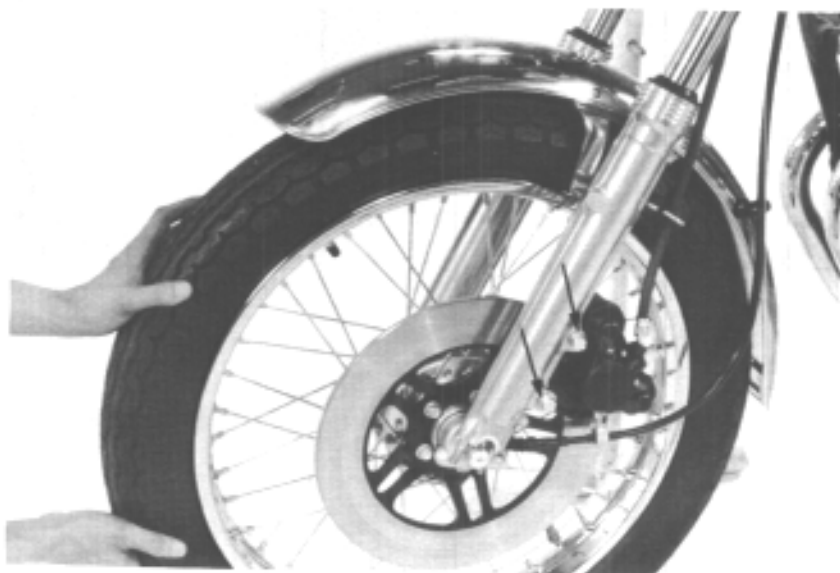
### FORK REMOVAL

Remove the front wheel.  
Remove the brake caliper.

#### NOTE

Do not loosen the brake hose unless necessary.

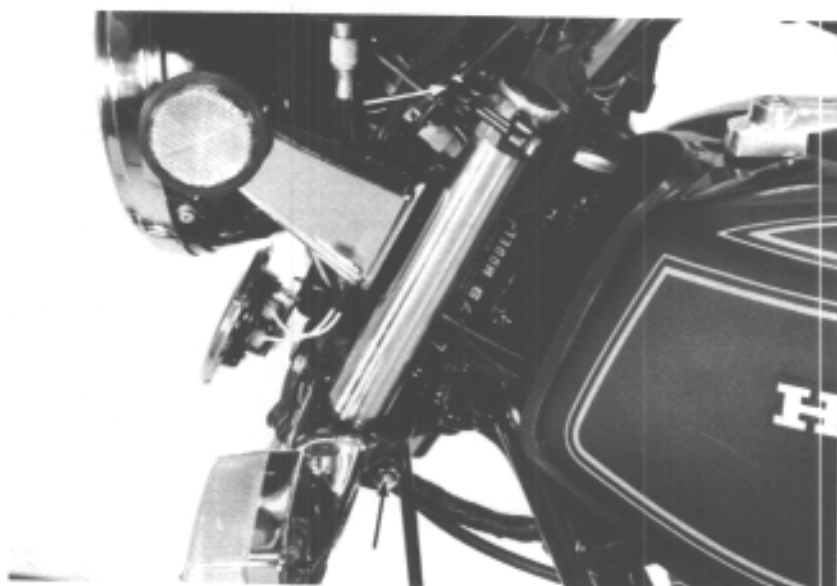
Remove the front fender.




**NOTE**

Loosen the fork cap bolt to facilitate disassembly later.

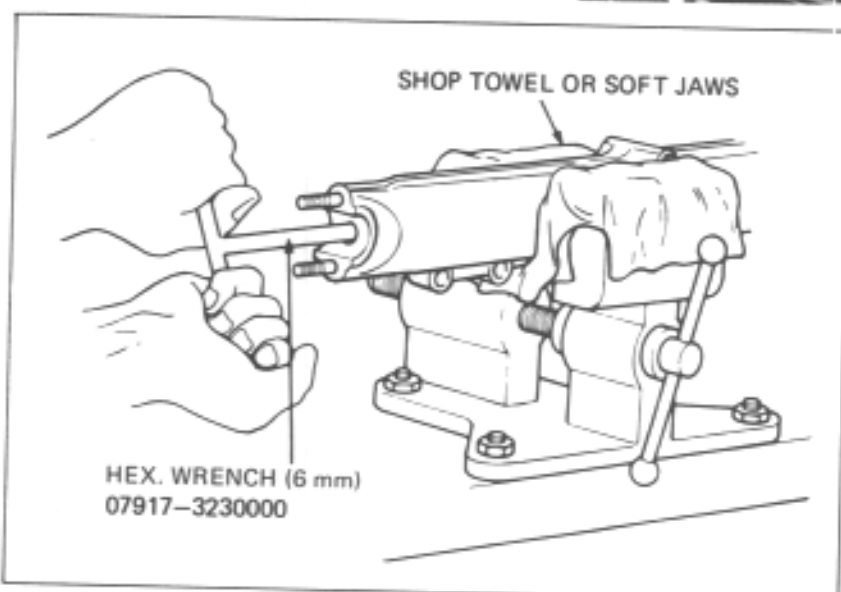
Loosen the clamp bolts on the fork upper and lower bridges.  
 Pull the assembly down and out while turning the fork tube.


**FORK DISASSEMBLY**

Remove the bolt from the bottom of the fork leg.  
 Remove the fork tube and components.

**NOTE**

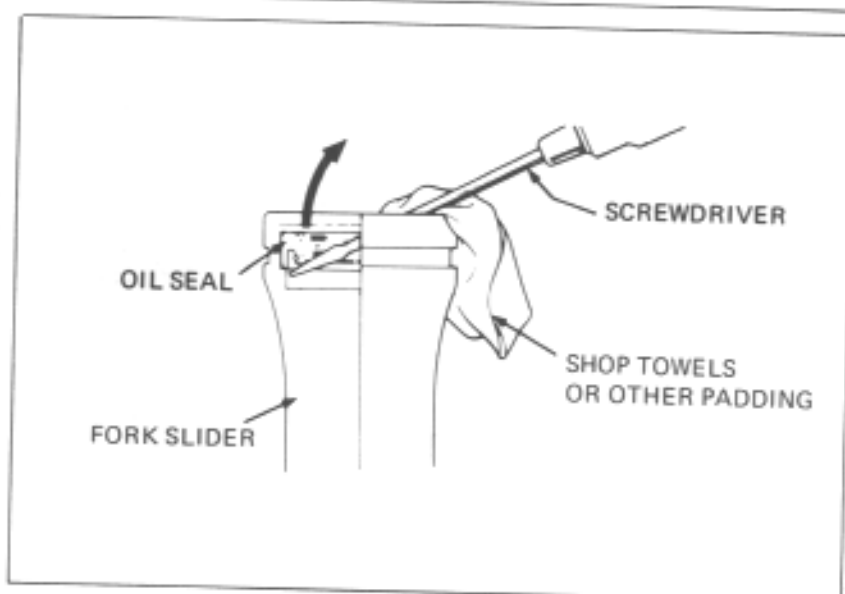
Hold the fork slider in a vise, being careful not to overtighten it.


**OIL SEAL REMOVAL**

Carefully remove the oil seal with a screwdriver.

**CAUTION**

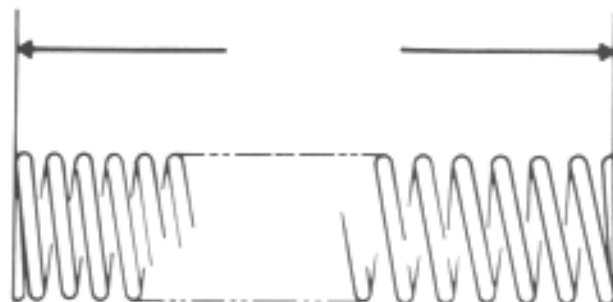
*Avoid damaging the inner and outer surfaces of the slider when removing the seal.*



**SPRING FREE LENGTH INSPECTION**

Check the free length of the fork spring. Replace it if it does not meet the specification.

**SERVICE LIMIT: 492.6 mm (19.4 in)**

**FORK TUBE/FORK SLIDER/PISTON INSPECTION**

Check the fork tubes, fork sliders and pistons for score marks, scratches, or excessive or abnormal wear, replacing those which cannot be reused.

Remove the fork seal. Measure the inside diameter of the slider.

Measure the outside diameter of the fork tube and check the condition of the tube piston and rings.

Front fork slider I.D.

**SERVICE LIMIT: 35.15 mm (1.384 in)**

Front fork tube O.D.

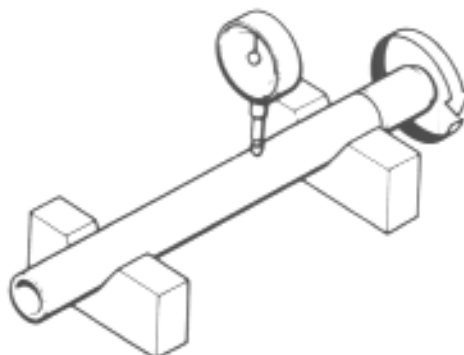
**SERVICE LIMIT: 34.90 mm (1.374 in)**

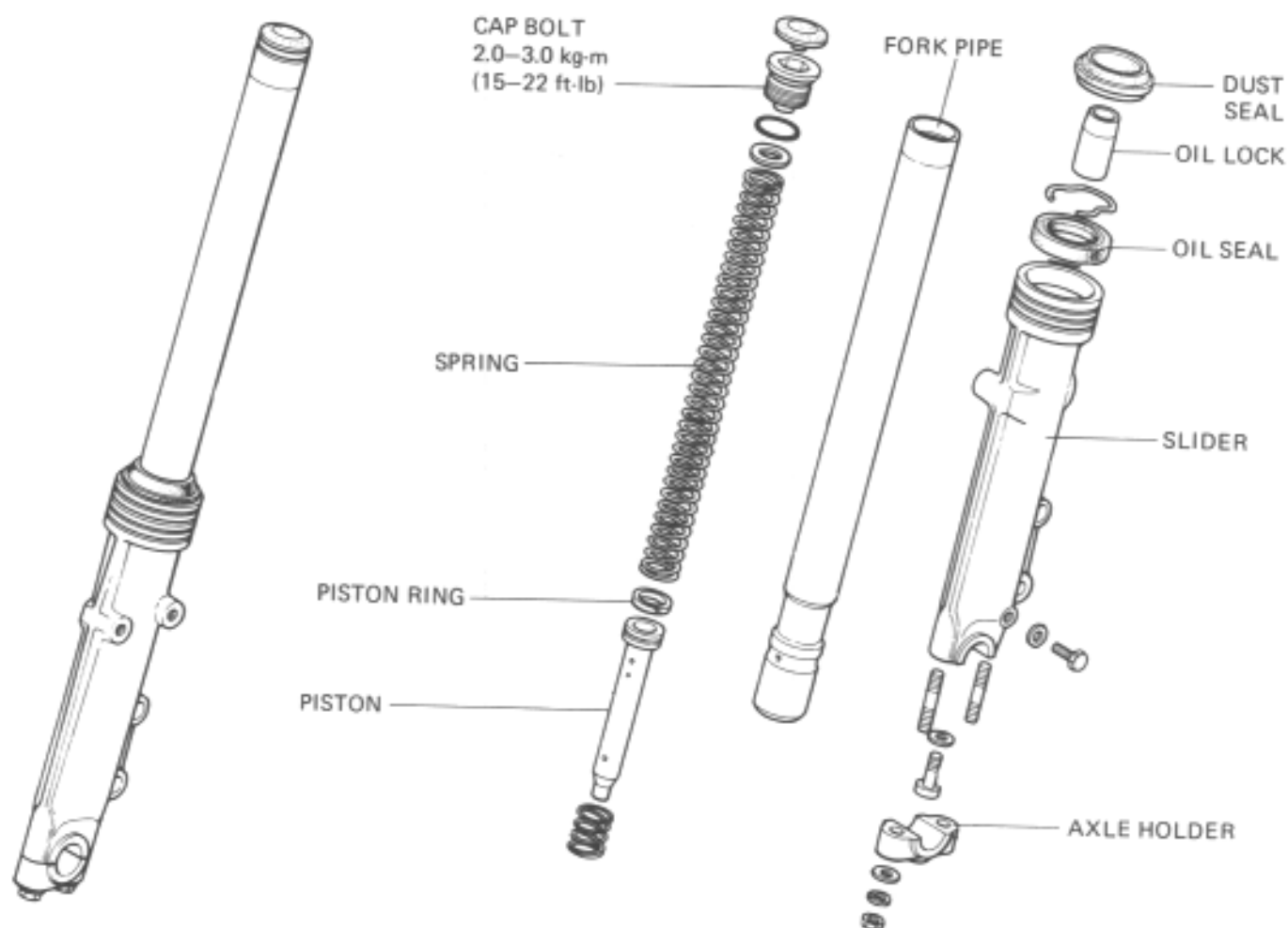
**FORK SLIDER****FORK TUBE INSPECTION**

Set the fork tube in V blocks and read the runout. Take 1/2 TIR to determine the actual runout.

**RUNOUT**

**SERVICE LIMIT: 0.2 mm (0.01 in)**

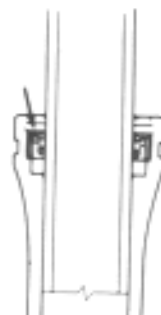
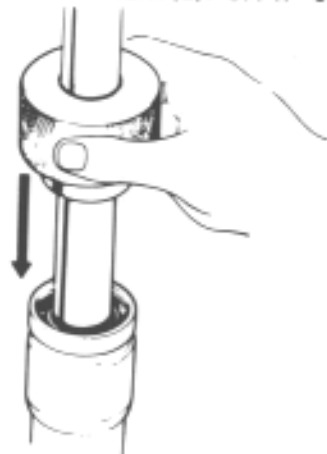



**FORK ASSEMBLY**

**OIL SEAL INSTALLATION**

Dip the new fork seal in ATF and install it in the slider using the fork leg as a guide for the seal driver.

Drive the oil seal into position until the snap ring groove appears.  
 Install the snap ring and dust cover.

FORK OIL SEAL DRIVER BODY: 07747-0010100  
 FORK OIL SEAL ATTACHMENT(E): 07747-0010600



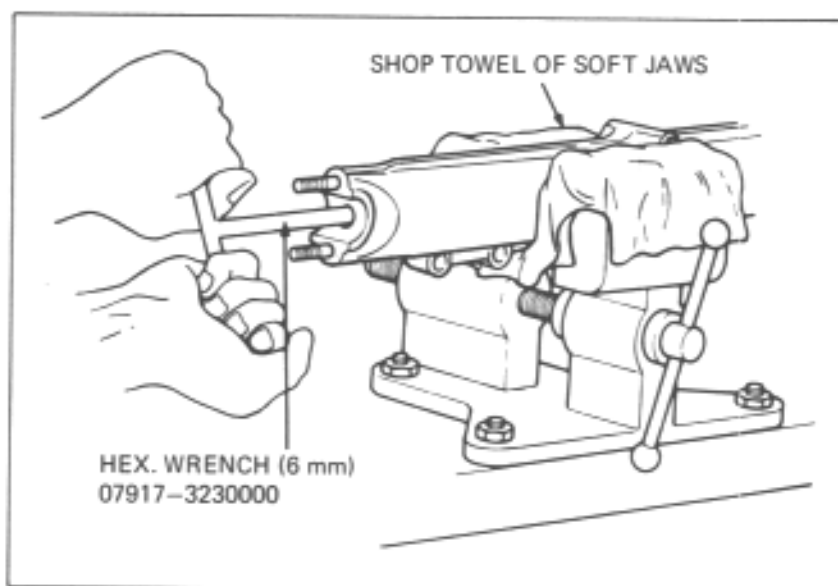


Install the piston and fork tube.  
Apply a locking agent to the bolt threads  
and underside of the bolt and tighten.

**TORQUE:** 0.8–1.2 kg-m (6–9 ft-lb)

**CAUTION**

*Do not overtighten the fork slider in a vise.*



### FILLING WITH OIL

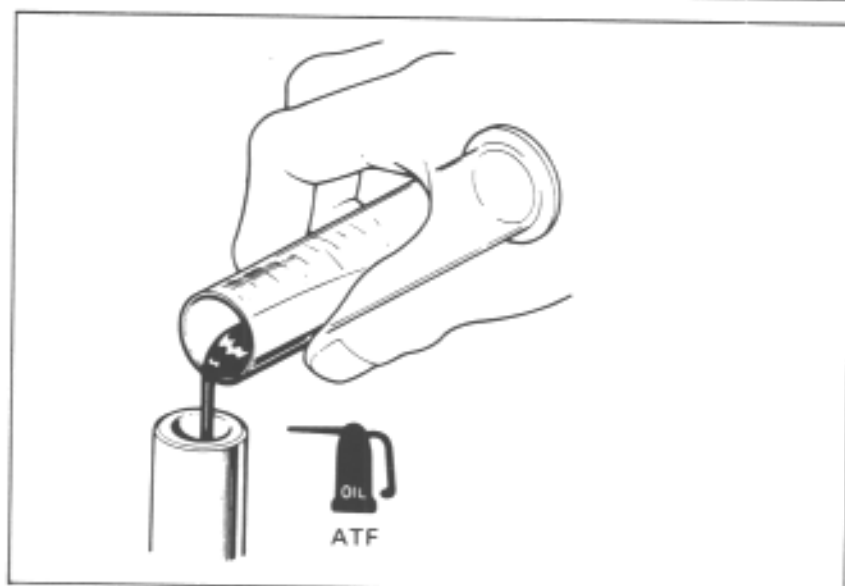
Use ATF (Automatic Transmission Fluid) to  
fill the front fork.

**OIL CAPACITY:**

172.5–177.5 cc (5.8–6.0 ozs) at assembly

**NOTE**

Pour the specified amount of ATF. Do  
not overfill.

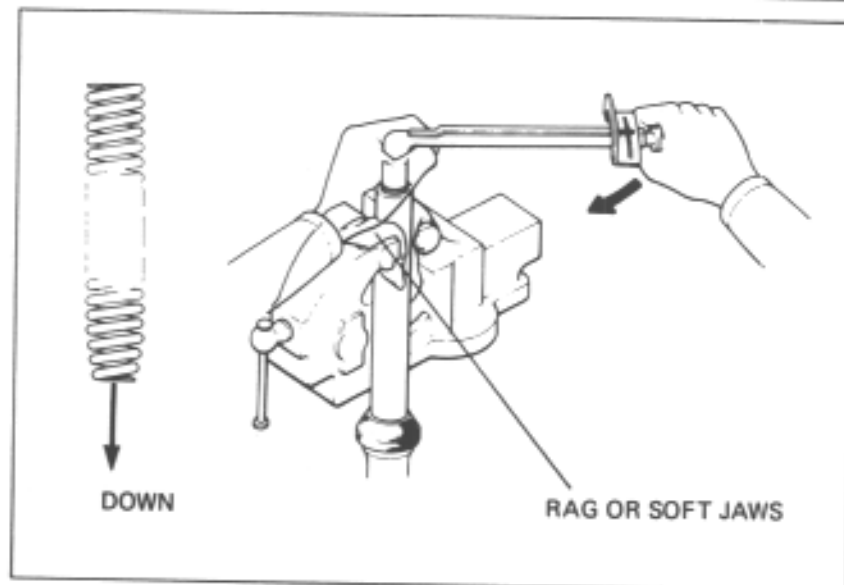


Slide the fork spring and spring seat into  
position and tighten with the cap bolt.

**TORQUE:** 2.0–3.0 kg-m (15–22 ft-lb)

**NOTE**

- Place the fork tube in a vise with  
shop towel, avoiding the sliding  
surface.
- Note the spring direction.



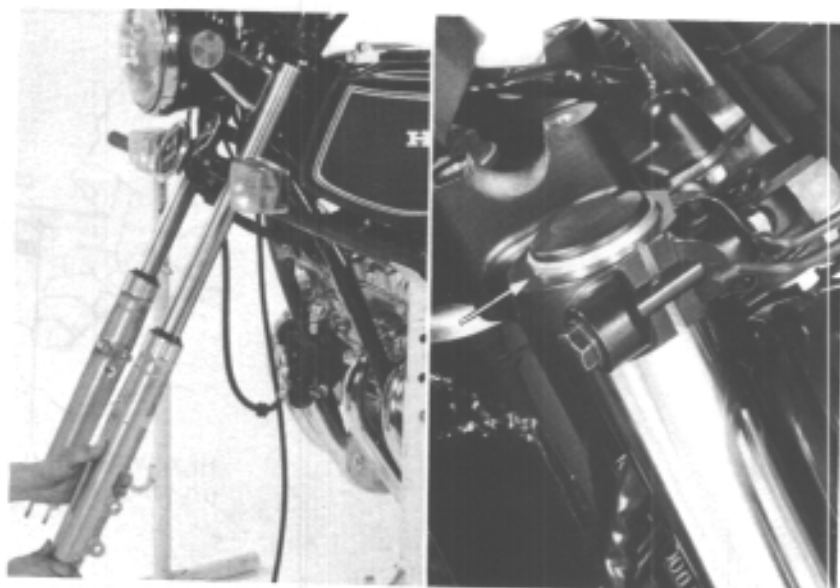




## FORK INSTALLATION

Install the fork tubes in the fork top bridge and steering stem, while rotating them by hand.

Position the fork tubes so that the fork tube upper end lines are even with the fork top bridge as shown.

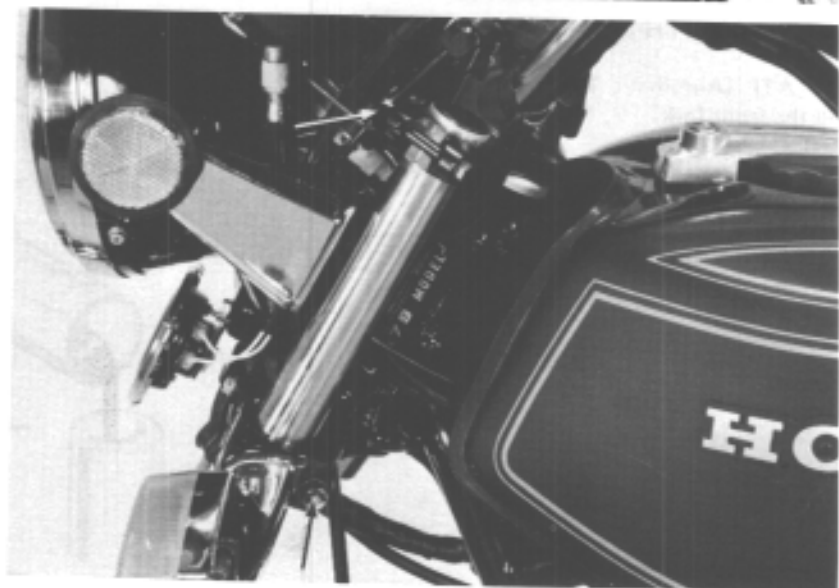


Tighten the fork tube pinch bolts at the steering stem.

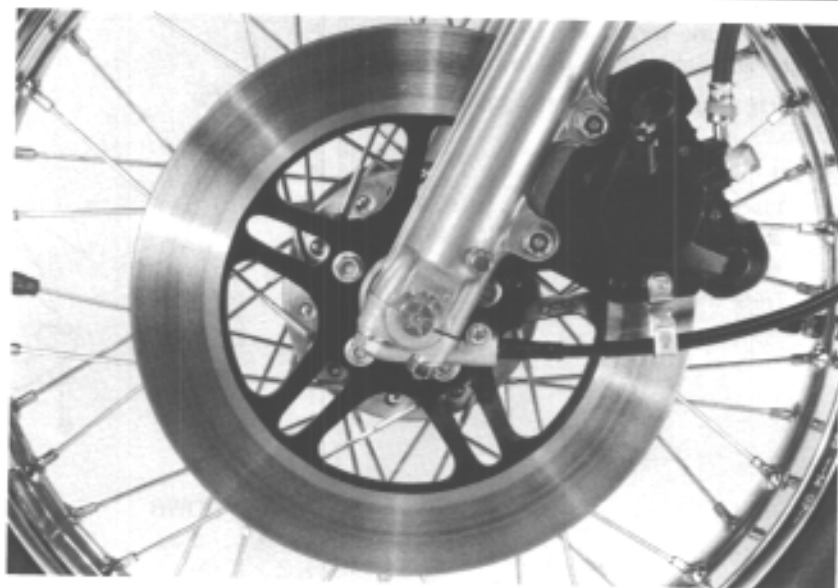
**TORQUE: 3.0–4.0 kg-m (22–29 ft-lb)**

Tighten the fork tube pinch bolts at the top bridge.

**TORQUE: 0.9–1.3 kg-m (7–9 ft-lb)**



Install the fender.  
Install the brake caliper.  
Secure the brake hose.  
Install the front wheel.





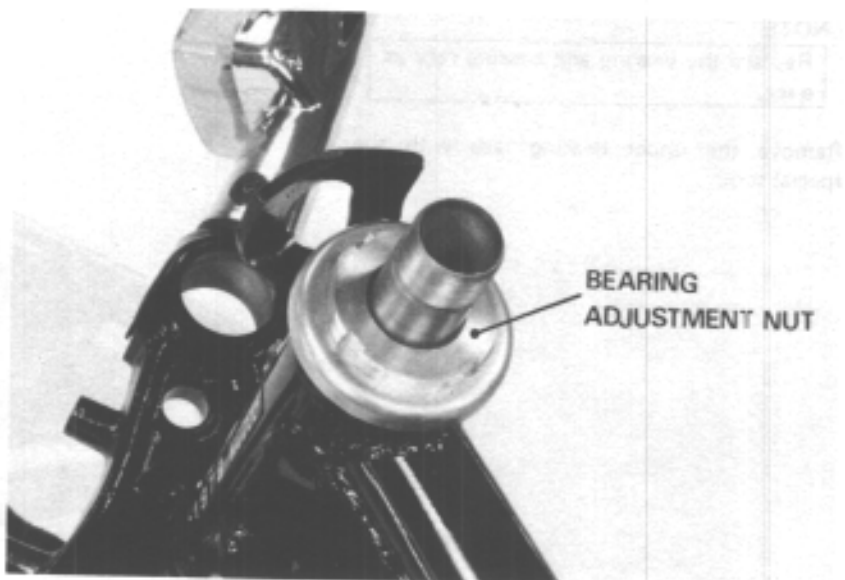
## STEERING STEM

### STEM REMOVAL

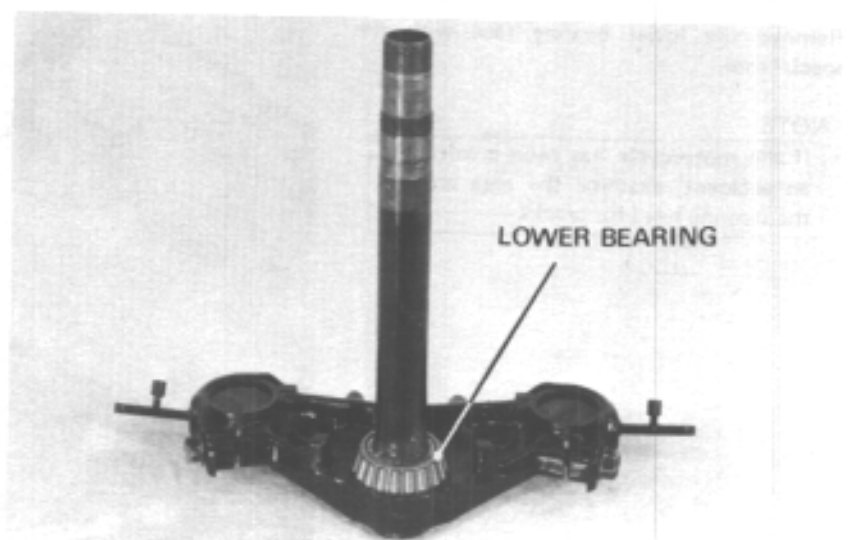
- Remove the handlebar.
- Remove the instruments (Page 13-6).
- Remove the headlight assembly and disconnect the wiring (Page 13-4).
- Remove the steering stem nut.
- Remove the headlight case bracket.
- Remove the wheel and forks.
- Remove the fork top bridge.



- Remove the bearing adjustment nut.
- Remove the steering stem.

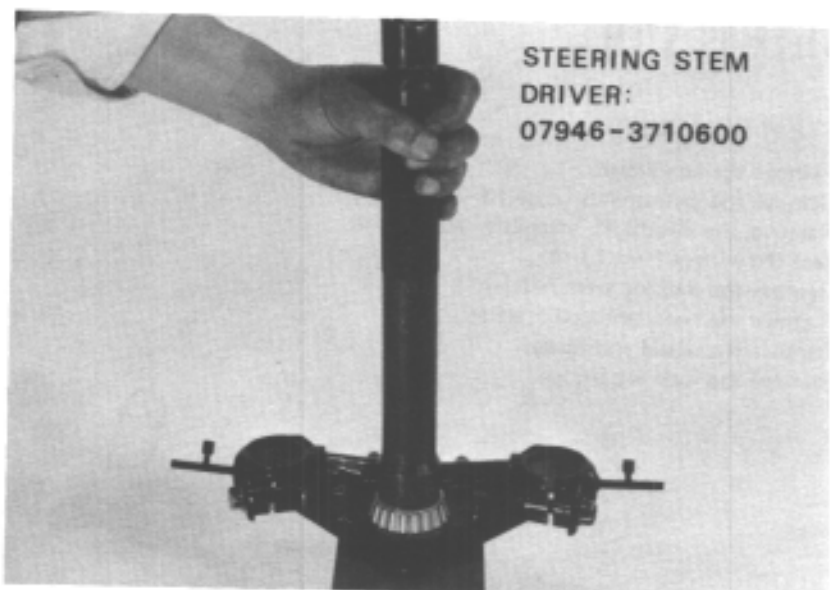


- Remove the lower steering stem bearing.





Install a dust seal on the steering stem and drive the lower bearing inner race over the stem with the special tool.


**NOTE**

Replace the bearing and bearing race as a set.

Remove the upper bearing race with the special tool.



Remove the lower bearing race with the special tool.

**NOTE**

If the motorcycle has been involved in an accident, examine the area around the steering head for cracks.





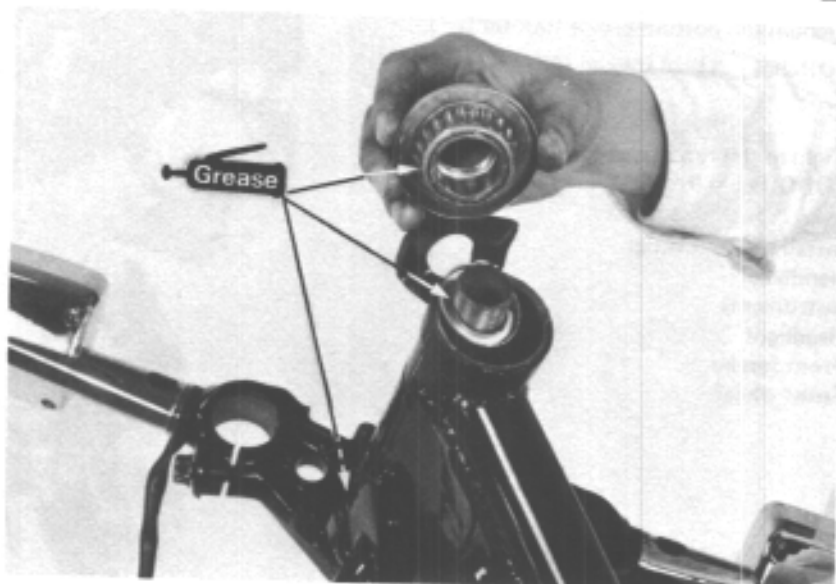
Drive the upper bearing outer race into the steering head with the special tools.

Drive the lower bearing outer race into the steering head with the special tool.

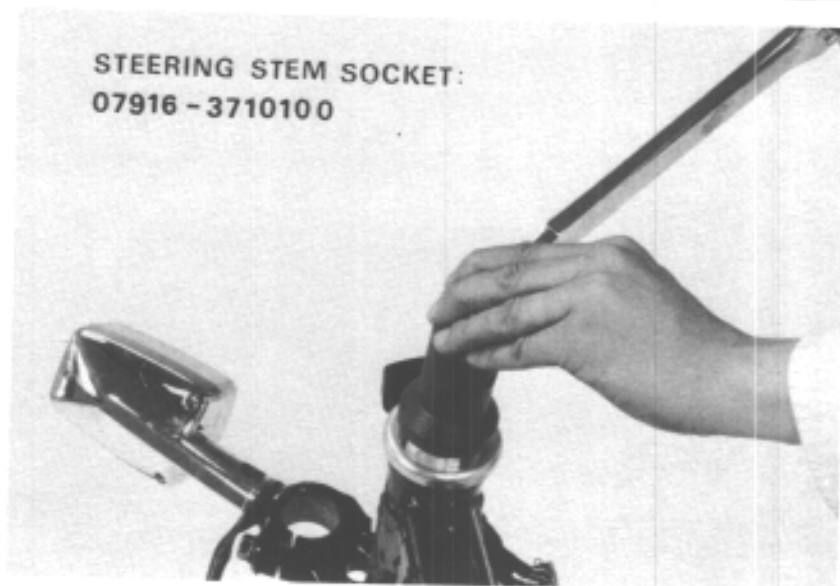


### STEERING STEM INSTALLATION

Pack the bearing cavities with bearing grease. Insert the steering stem into the steering head and install the upper bearing inner race.



Install the bearing adjustment nut and tighten it to 3.0–4.0 kg-m (22–29 ft-lb). Loosen the nut and retighten it to 10–20 kg-cm (0.7–1.4 ft-lb/9–17 in-lb).

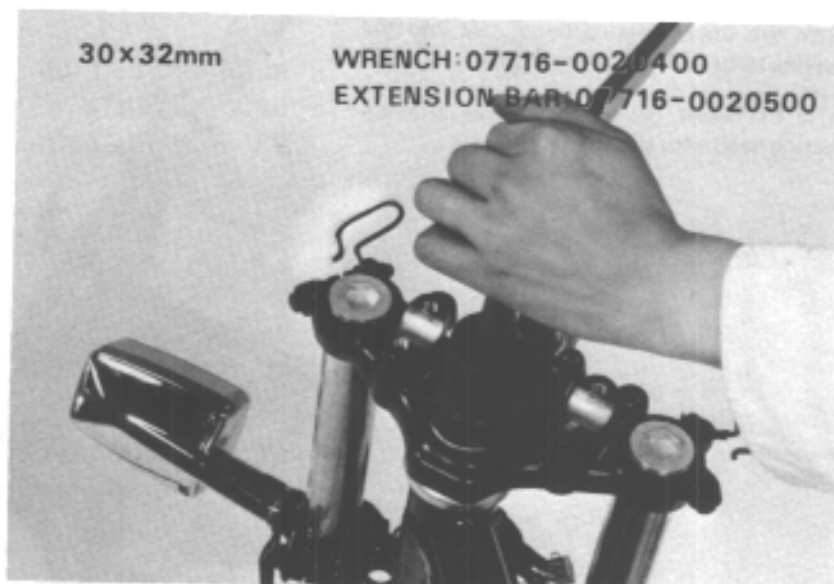


**TOP BRIDGE INSTALLATION**

Install the front fork legs.

Temporarily hold the front fork legs by tightening the steering stem fork pinch bolts. Tighten the steering stem nut.

**TORQUE: 8.0–12.0 kg-m (58–87 ft-lb)**



Tighten the bottom bridge fork bolts.

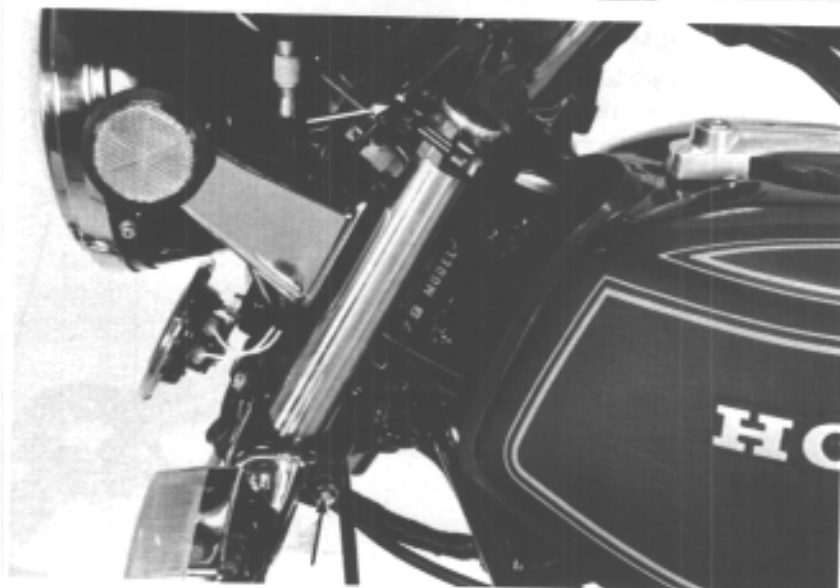
**TORQUE: 3.0–4.0 kg-m (22–29 ft-lb)**

Tighten the top bridge fork bolts.

**TORQUE: 0.9–1.3 kg-m (7–9 ft-lb)**

Install the following:

Handlebar  
Instruments  
Headlight  
Front fender  
Front wheel





MEMO