



| | |
|----------------------------|-------|
| SERVICE INFORMATION | 13-1 |
| TROUBLESHOOTING | 13-2 |
| HEADLIGHT | 13-3 |
| INSTRUMENTS | 13-6 |
| HANDLEBAR SWITCH/HANDLEBAR | 13-7 |
| FRONT WHEEL | 13-11 |
| FRONT FORK | 13-16 |
| STEERING STEM | 13-22 |

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- Do not remove rivets, nuts and pins from the rims, spoke plate and hub.
- Never ride on the rim or try to bend the wheel.
- Avoid damaging the aluminum alloy rim.

SPECIAL TOOLS

| | |
|--|---------------|
| Special Tools | |
| Hex. Wrench (6 mm) | 07917-3230000 |
| Ball Race Remover | 07953-3330000 |
| Bearing Driver Attachment | 07946-3290000 |
| Bearing Driver Attachment | 07947-6710100 |
| Common Tools | |
| Pin Spanner | 07702-0010000 |
| Retainer Wrench (B) | 07710-0010200 |
| Retainer Wrench Body | 07710-0010401 |
| 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 |
| Bearing Driver Handle (A) | 07749-0010000 |
| Lock Nut Wrench Socket (30 x 32 mm) | 07716-0020400 |
| Extension Bar | 07716-0020500 |

TORQUE VALUES

| | |
|-----------------------------|-----------------------------|
| Front brake disc | 2.7-3.3 kg-m (20-24 ft-lb) |
| Front brake axle nut | 5.5-6.5 kg-m (40-48 ft-lb) |
| Front brake caliper carrier | 3.0-4.0 kg-m (22-29 ft-lb) |
| Front brake caliper A | 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 | 2.8-3.2 kg-m (20-23 ft-lb) |
| Steering stem | 3.0-4.0 kg-m (22-29 ft-lb) |
| Fork top bridge | 0.9-1.3 kg-m (7-9 ft-lb) |
| Steering stem nut | 8.0-12.0 kg-m (58-87 ft-lb) |


SPECIFICATIONS

| ITEM | | 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 | | 501.7 mm (19.8 in) | 492.7 mm (19.4 in) |
| Front fork tube bend | | — | 0.2 mm (0.01 in) |
| 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. | | 34.930–34.950 mm (1.3752–1.3760 in) | 34.90 mm (1.374 in) |
| Front fork oil capacity | | 170 cc (5.7 ozs) at assembly 150 cc (5.0 ozs) when draining | |

TROUBLESHOOTING
Hard steering

1. Steering adjustment 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

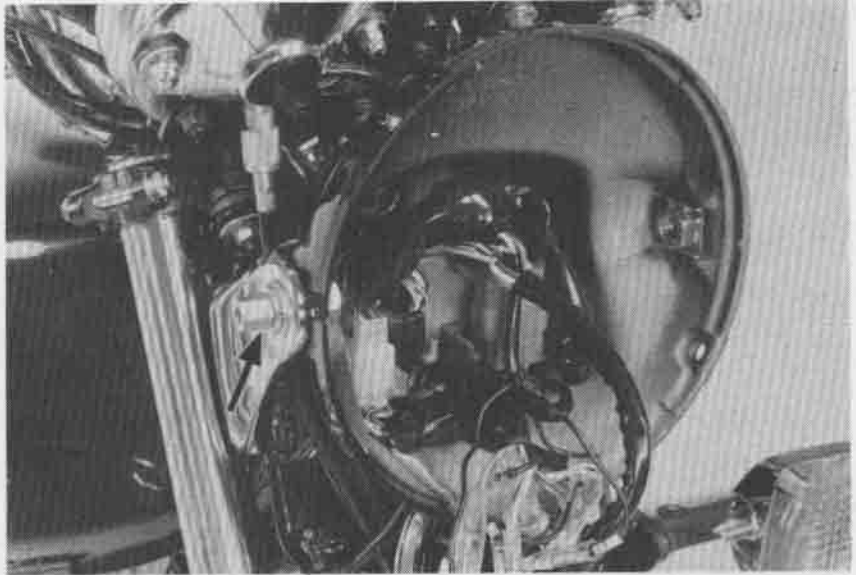


HEADLIGHT

HEADLIGHT CASE REMOVAL

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

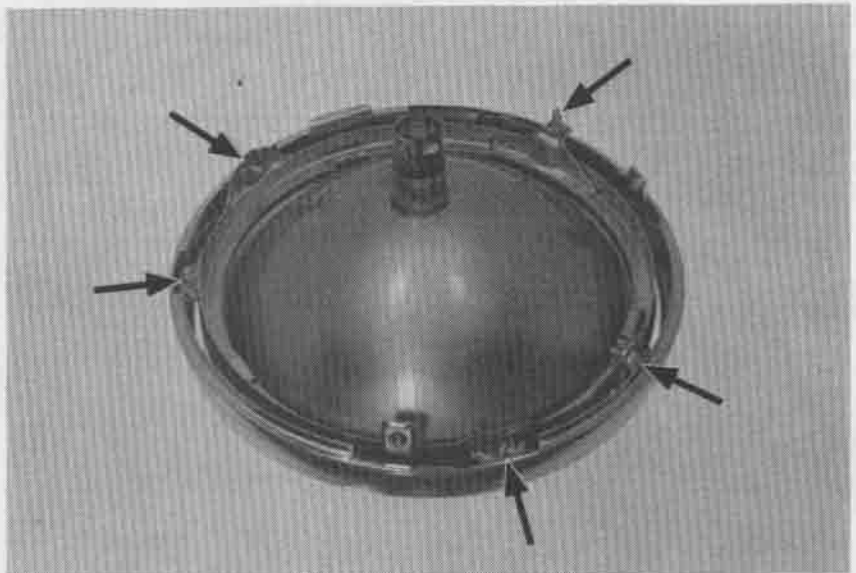
Unscrew the headlight case mounts and remove the case.



HEADLIGHT DISASSEMBLY/ ASSEMBLY

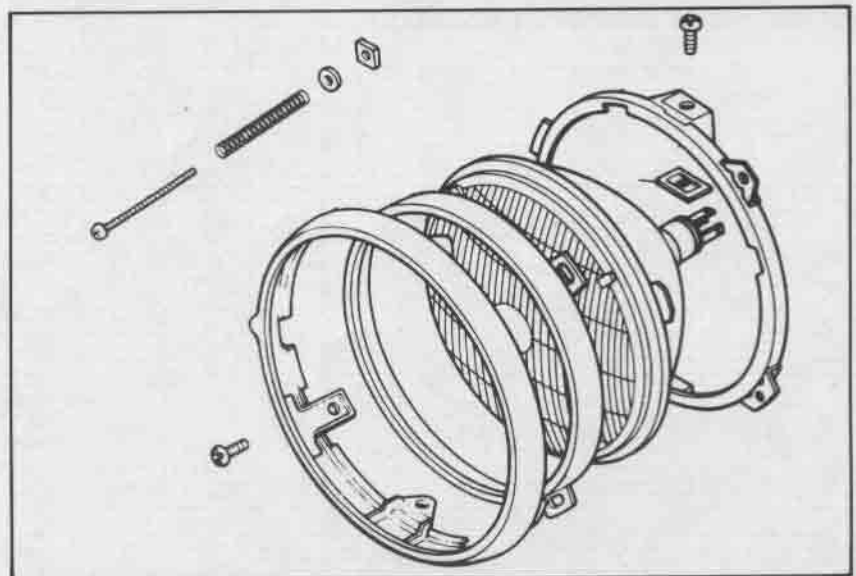
Remove the retaining screws and horizontal adjusting screw from the rim.

Remove the two headlight unit retaining screws and headlight unit.



Assembly is essentially the reverse of disassembly.

After assembly, adjust the headlight beam (Page 3-15).





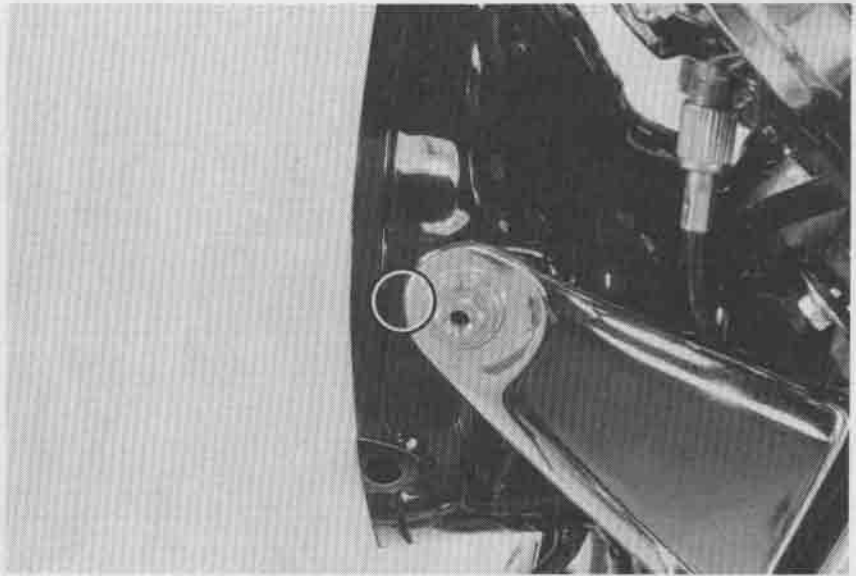
HEADLIGHT CASE INSTALLATION

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

Connect all wires at their couplers and connectors. (See below).

NOTE

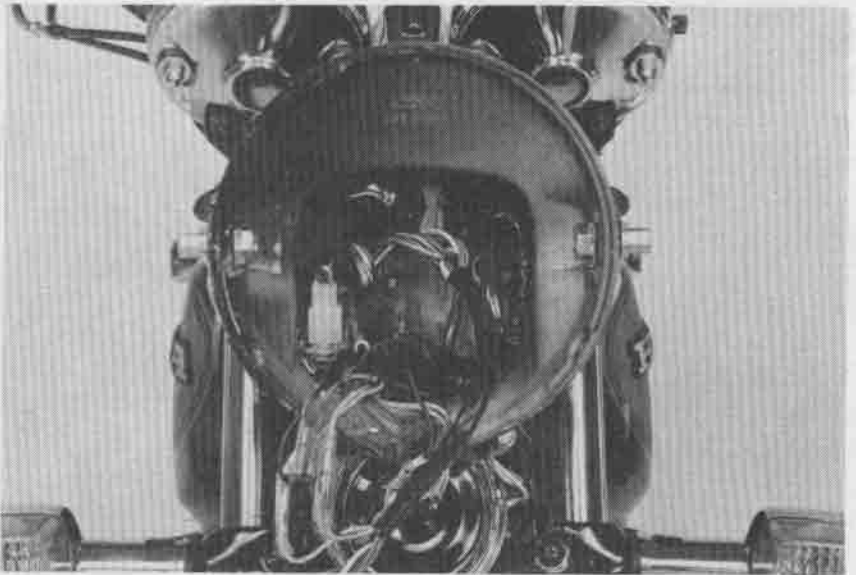
Check each component for operation after assembling.



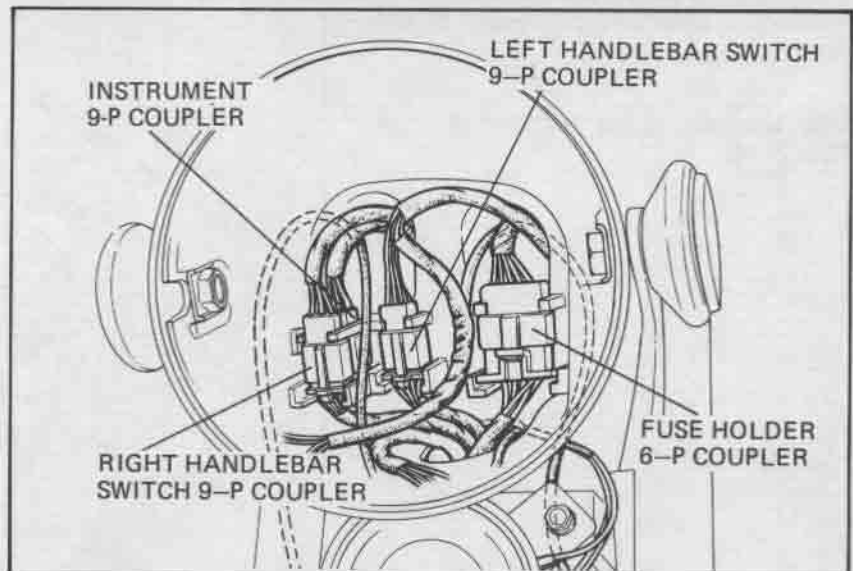
WIRING CONNECTIONS IN HEADLIGHT CASE

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

- LOWER HOLE:** Main wire harness
- UPPER RIGHT HOLE:** Instrument wires
Right handlebar switch wires
Right turn signal wires
- UPPER LEFT HOLE:** Fuse holder wires
Left handlebar switch wires
Left turn signal wires

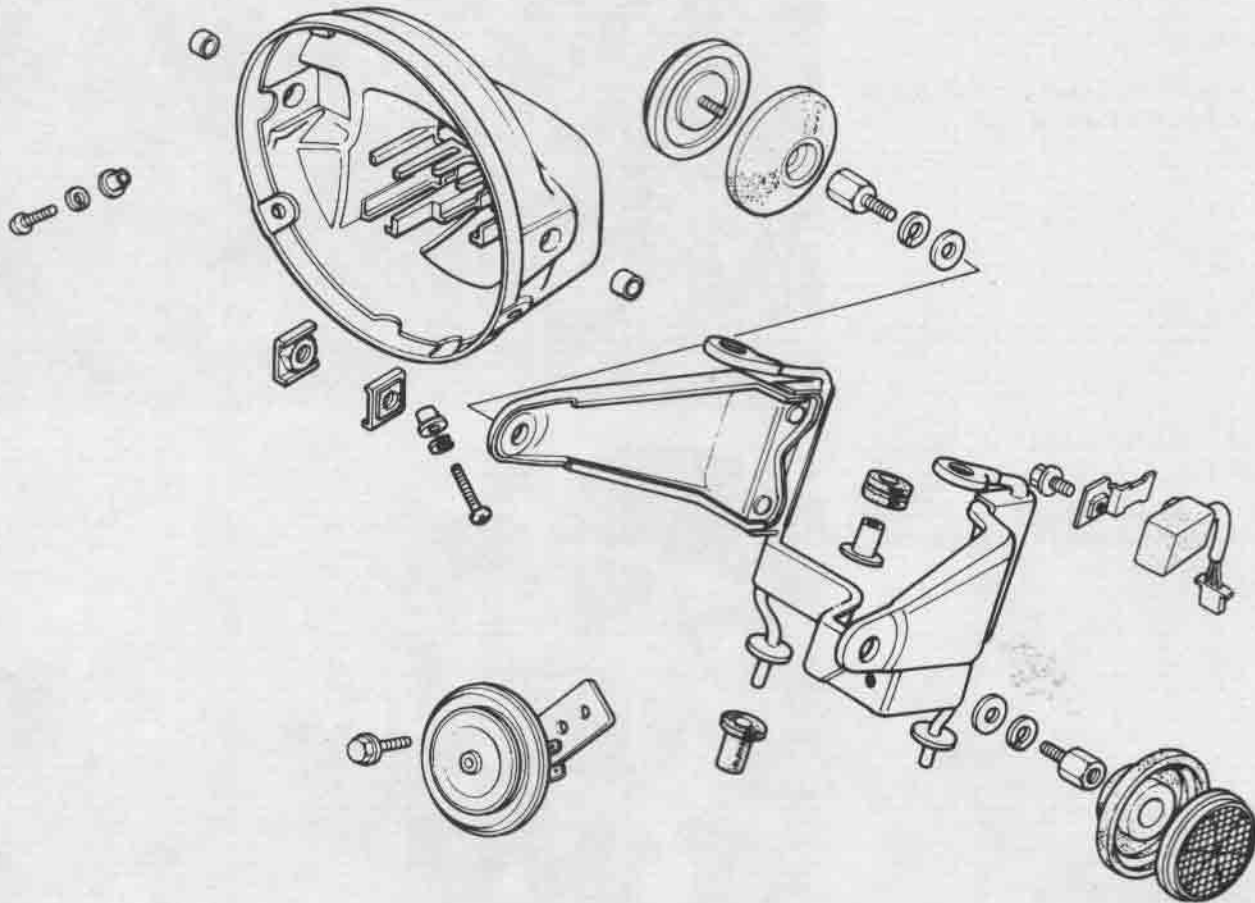


Connect the color-coded wires and couplers.





**HEADLIGHT CASE BRACKET
DISASSEMBLY/ASSEMBLY**

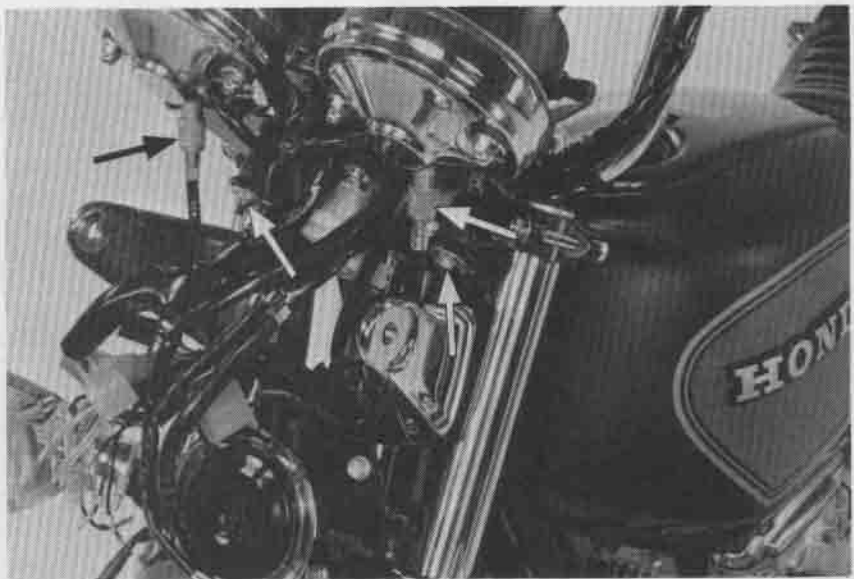


Remove the headlight and disconnect all wires and wire couplers inside the case.

Remove the headlight case.

Remove the instruments.

Remove the headlight case bracket.





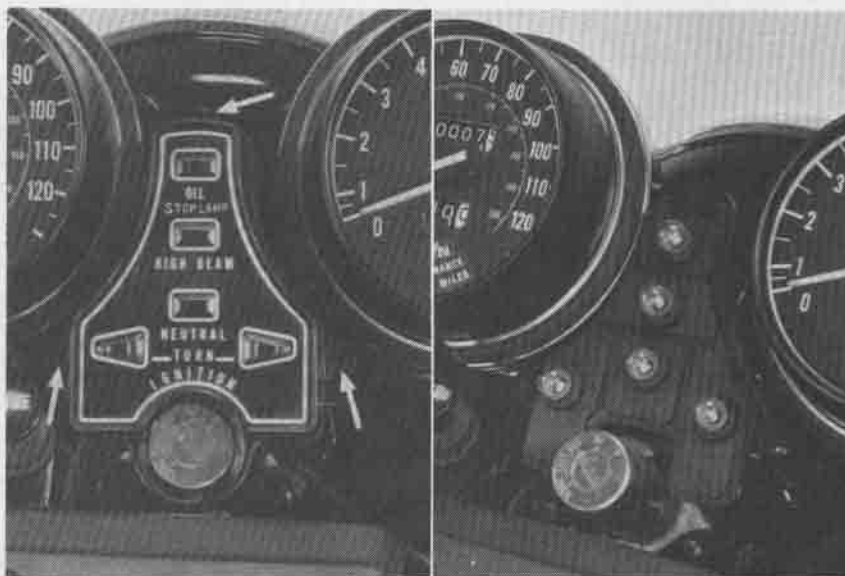
INSTRUMENTS

INDICATOR LIGHT BULB REPLACEMENT

Remove the indicator light panel screws and panel.

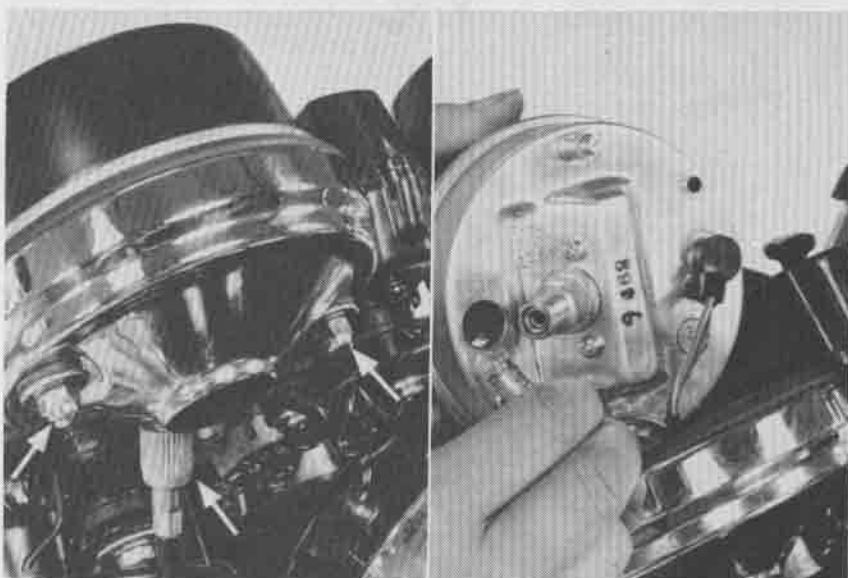
Replace the bulb.

If the replacement bulb does not light, check for loose connections and a short or open circuit.



METER ILLUMINATION LIGHT BULB REPLACEMENT

Disconnect the meter cable.
 Remove the meter mounting nuts and meter.
 Remove the bulb socket.
 Replace the bulb.

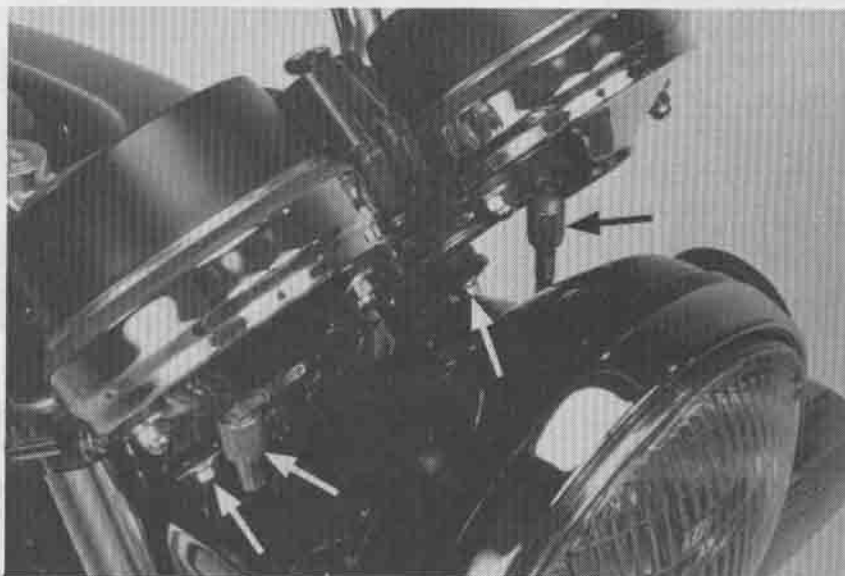


INSTRUMENT REMOVAL

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.





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 through the headlight case. This string is used as a draw cord when routing the wiring of a new switch.

Align the new switch with the hole in the handlebar and install the switch.

Tighten the forward screws first, then the rear screw.

Connect the switch wires in the headlight case.

Connect the wires to the brakelight switch.

Connect the throttle cables.

Install the fuel tank.

Check switch operation.

After installing, adjust the throttle cable free play (Page 3-7).

LEFT HANDLEBAR SWITCH REPLACEMENT

Remove the screws holding the upper and lower switch housings.

Loosen the clutch lever bracket bolt.

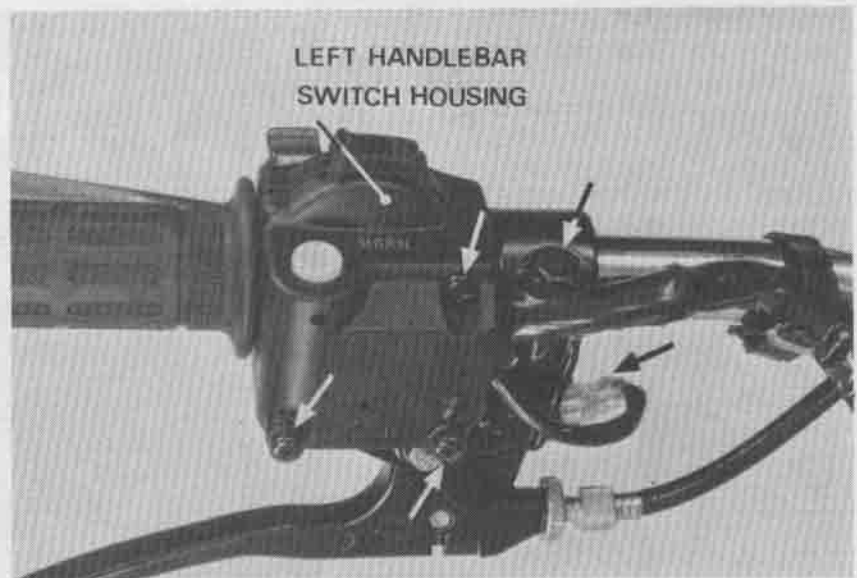
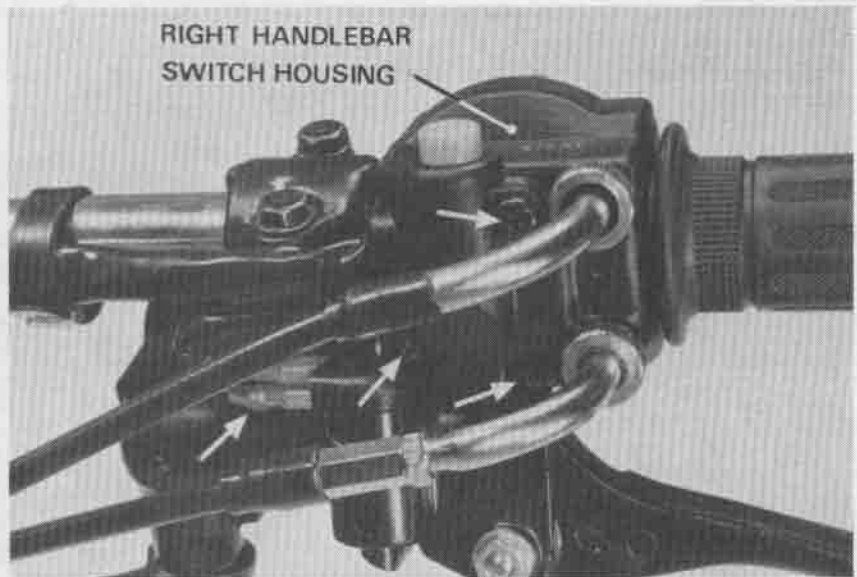
Disconnect the clutch switch wire from the switch.

Remove the headlight and disconnect the left 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 through the headlight case. This string is used as a draw cord when routing the wiring of a new switch.

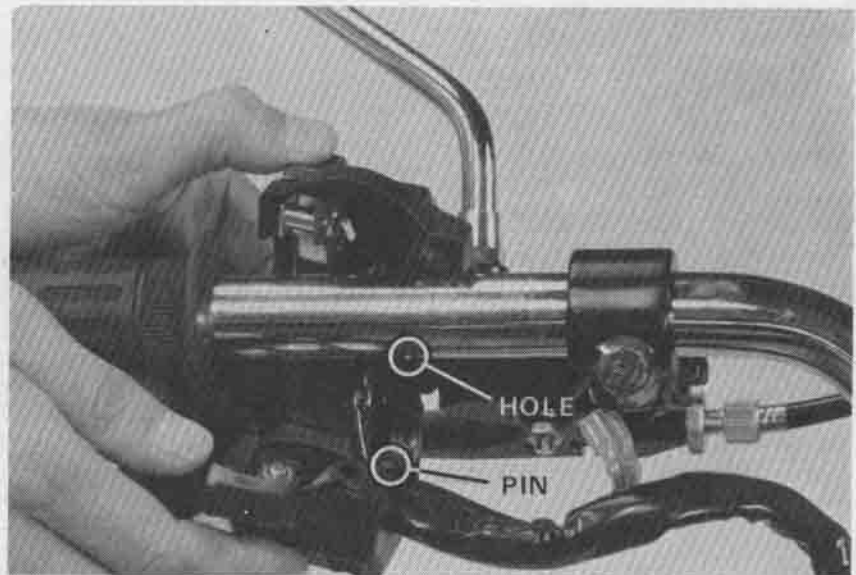




Align the new switch with the hole in the handlebar and install the switch.
Tighten the forward screws first, then the rear screw.

Connect the switch wires in the headlight case.

Connect the wires to the clutch switch.
Check switch operation.



HANDLEBAR REMOVAL

Remove the handlebar switch wires from the handlebar.

Remove the right handlebar switch housing screws.

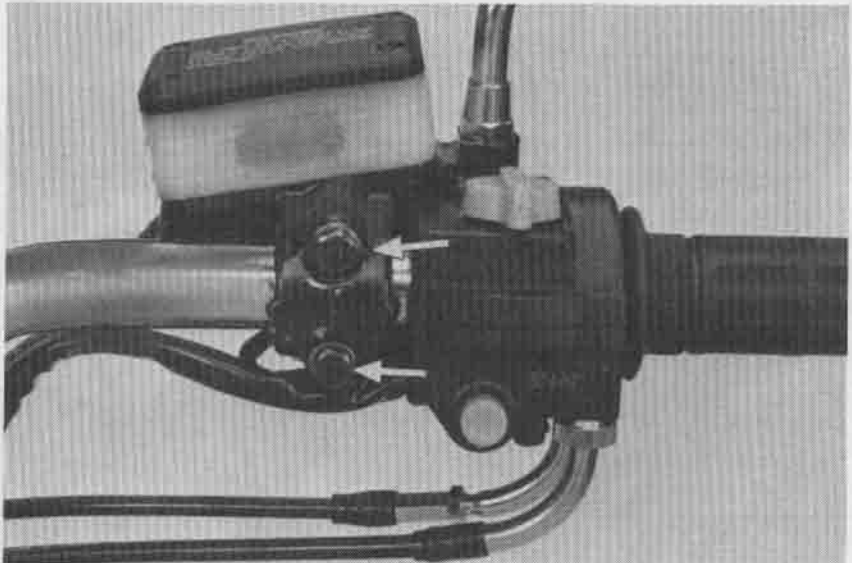
Remove the brake master cylinder.

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. Avoid getting brake fluid on painted surfaces.

NOTE

Do not loosen the brake hose unless necessary.



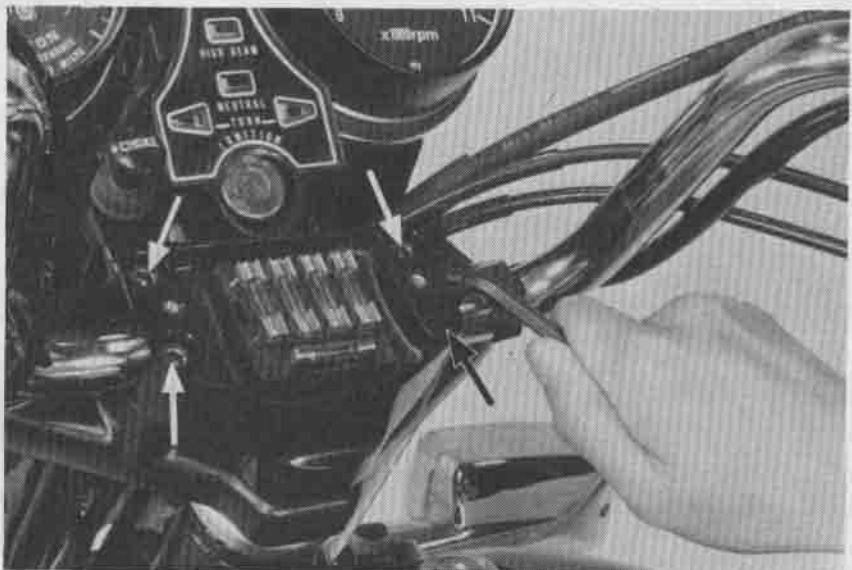
Remove the left grip.

Remove the left handlebar switch assembly. (See Page 13-7).

Loosen the clutch lever bracket bolt.
Remove the clutch lever assembly.

Remove the handlebar upper holder and remove the handlebar.

Remove the throttle grip and switch housing.



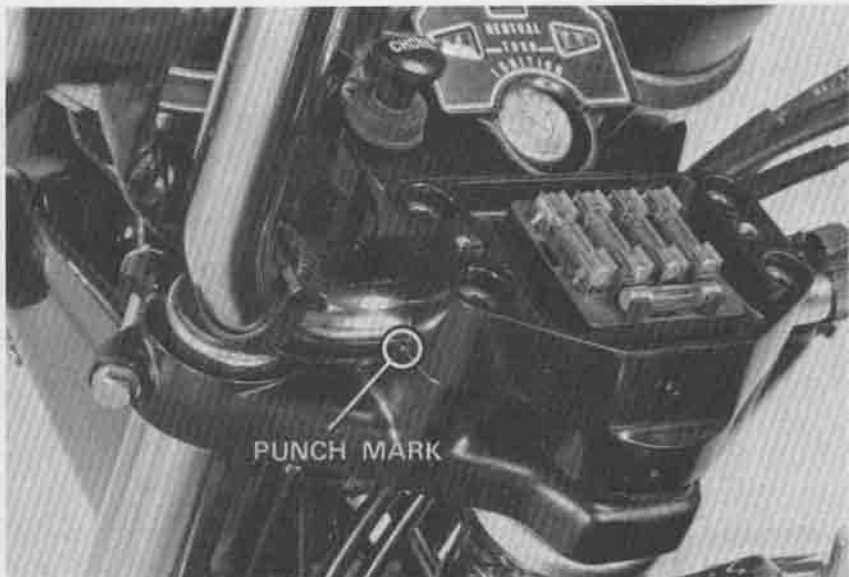


HANDLEBAR INSTALLATION

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 tighten the rear bolts.

TORQUE: 2.8–3.2 kg-m (20–23 ft-lb)



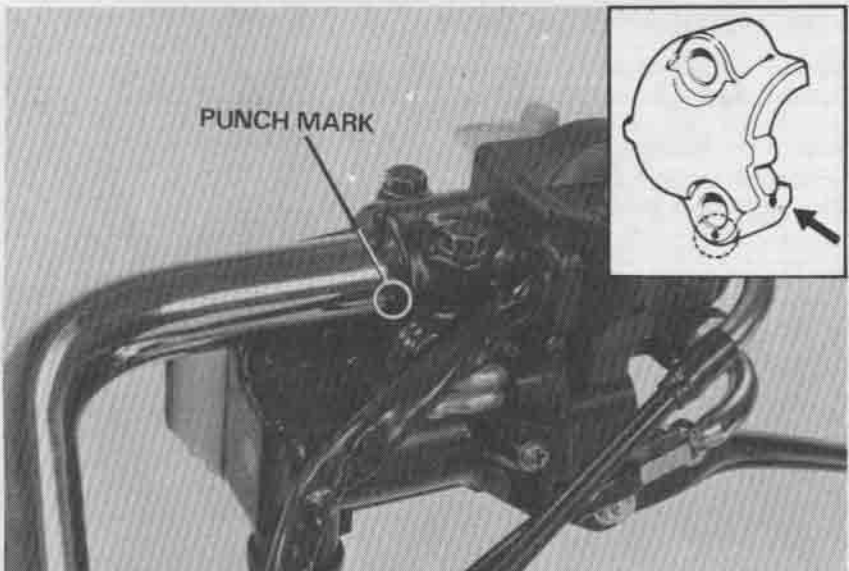
Coat the throttle grip area of the handlebar with grease.

Install the throttle grip switch housing and throttle cables.

Check throttle operation (Page 3–7).

Install the master cylinder on the handlebar. Align the holder mating surface with the punch mark on the handlebar and wire relief facing down.

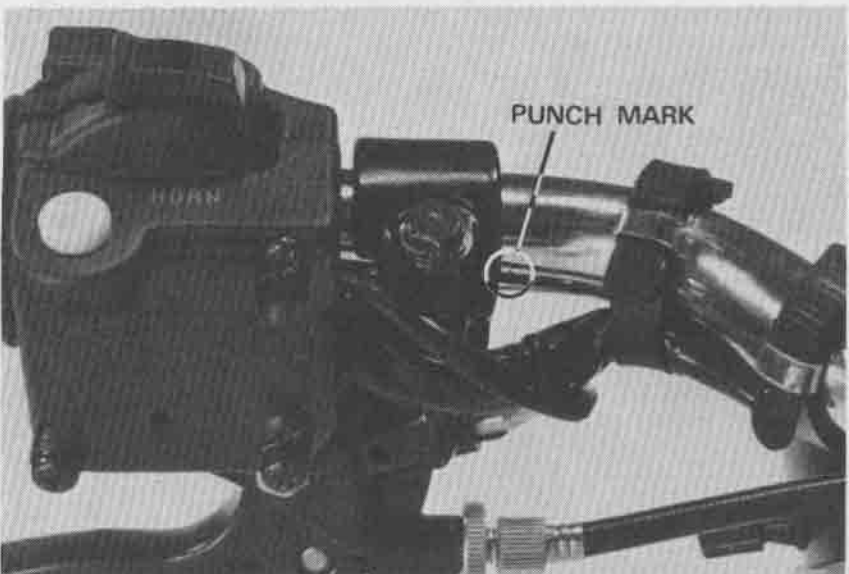
Tighten the upper bolt first, then tighten the lower bolt.



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

Install the left switch housing. Attach the switch wires.

Check clutch free play (Page 3–16).

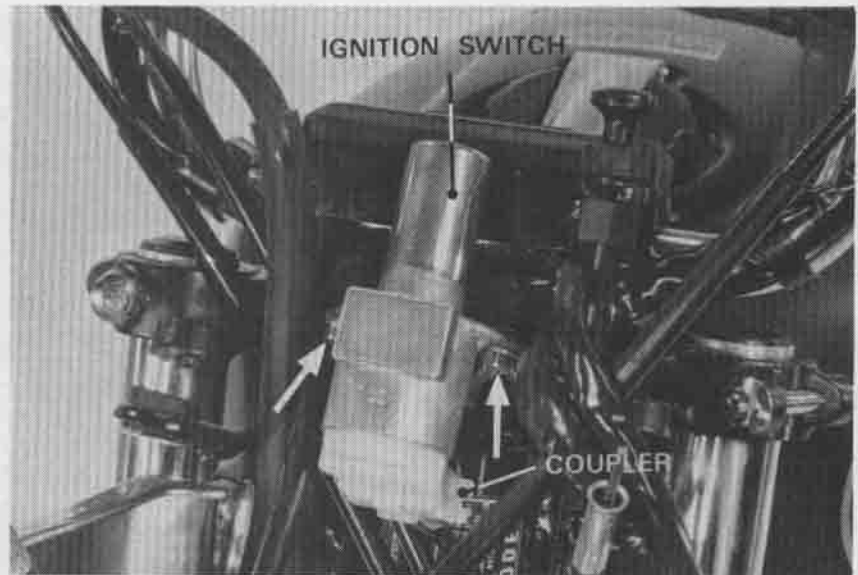




IGNITION SWITCH REPLACEMENT

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.

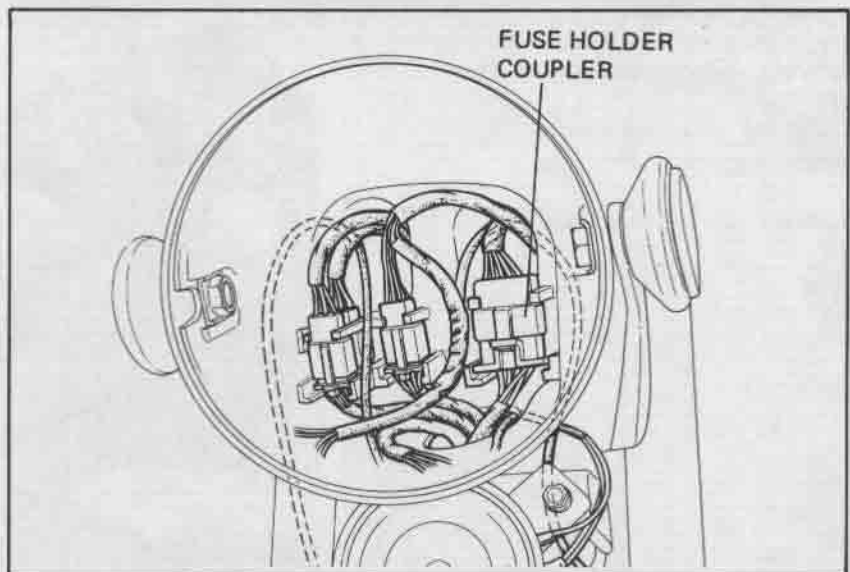
Disconnect the wire coupler.

Remove the fuse holder.



NOTE

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





FRONT WHEEL

FRONT WHEEL REMOVAL

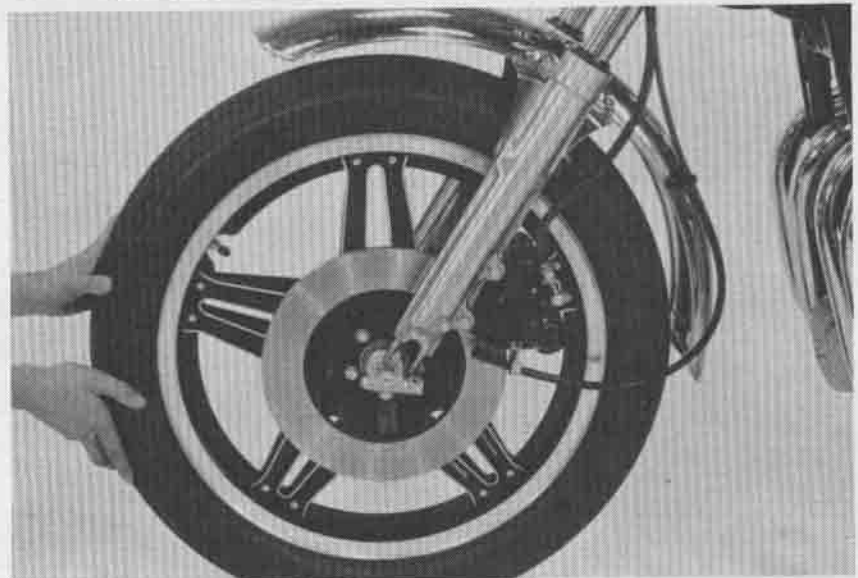
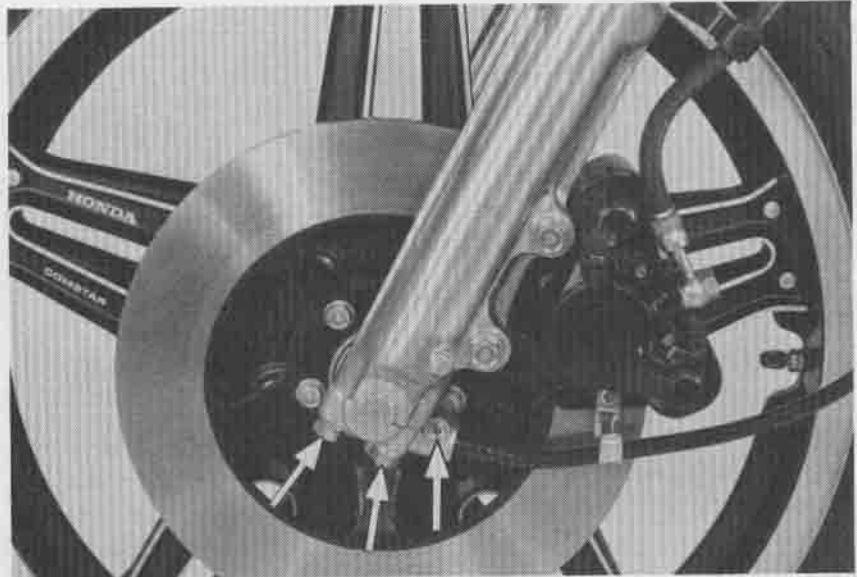
Remove the speedometer cable set screw and speedometer cable.

NOTE

Do not operate the front brake lever after removing the front wheel. This would cause difficulty in fitting the brake disc between the brake pads.

Remove the right and left axle holders.

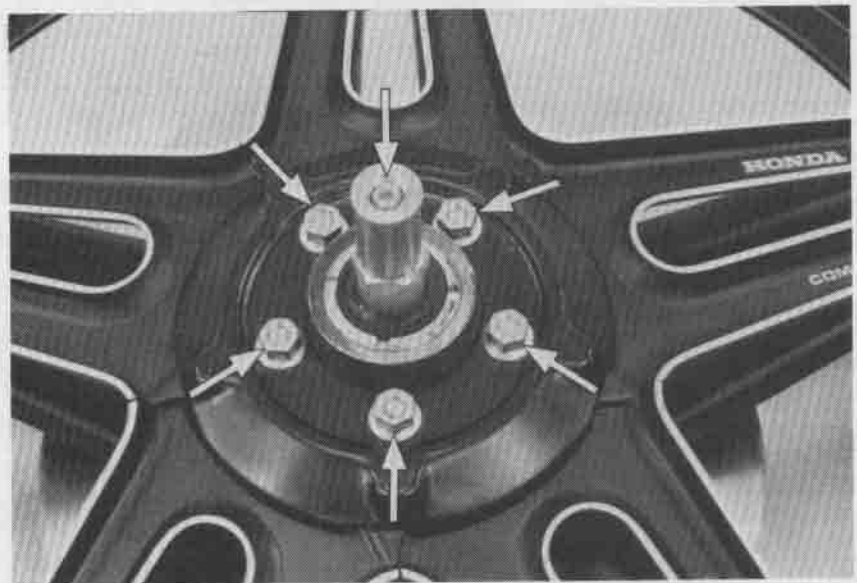
Jack up the engine until the forks clear the front axle and remove the front wheel.



FRONT WHEEL DISASSEMBLY

Remove the axle nut, speedometer gearbox, axle and collar.

Remove the five bolts and disc.





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

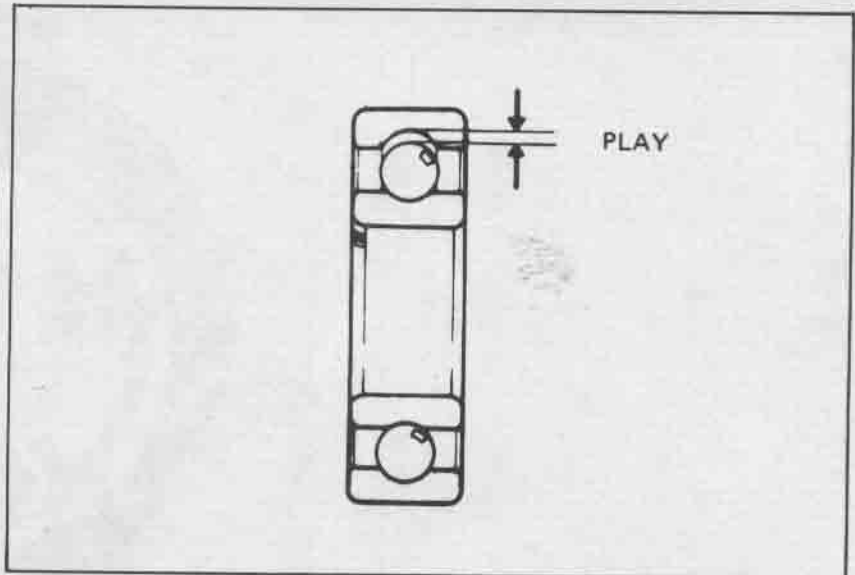
NOTE

If the bearings are removed, replace them with new ones.


WHEEL BEARING INSPECTION

Place the wheel in a truing stand and spin it by hand. Replace the bearing with a new one if it is noisy or has excessive play.

SERVICE LIMIT: 0.042 mm (0.0017 in)


WHEEL INSPECTION

Place the wheel in a truing stand. Spin the wheel slowly and measure the runout with a dial indicator gauge.

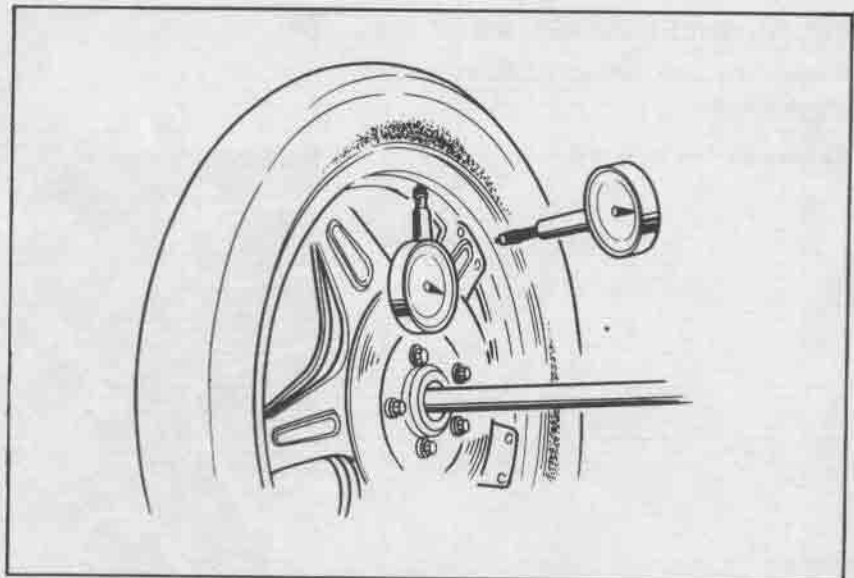
SERVICE LIMITS:

RADIAL RUNOUT: 2.0 mm (0.08 in)

AXIAL RUNOUT: 2.0 mm (0.08 in)

NOTE

The COMSTAR WHEEL cannot be repaired and must be replaced if the service limits are exceeded.

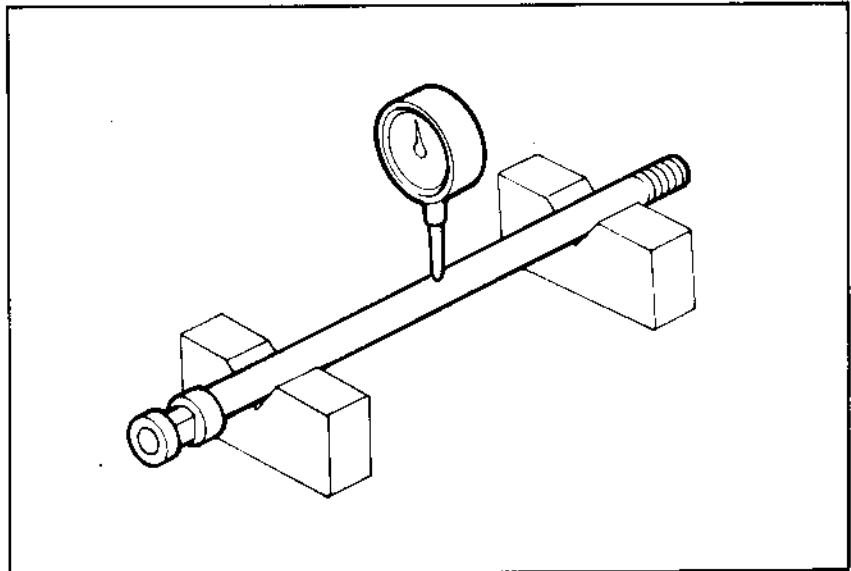




AXLE INSPECTION

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

NOTE

The COMSTAR WHEEL has no rim band.

WARNING

Do not get grease on the brake disc.

5.5–6.5 kg-m
(40–48 ft-lb)

2.7–3.3 kg-m
(20–24 ft-lb)

BEARING RETAINER

GREASE

HONDA
COMSTAR



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 left bearing.

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.

BEARING DRIVER HANDLE (A)
 BEARING DRIVER OUTER (42x47mm)
 BEARING DRIVER PILOT (15mm)



Install the bearing retainer.

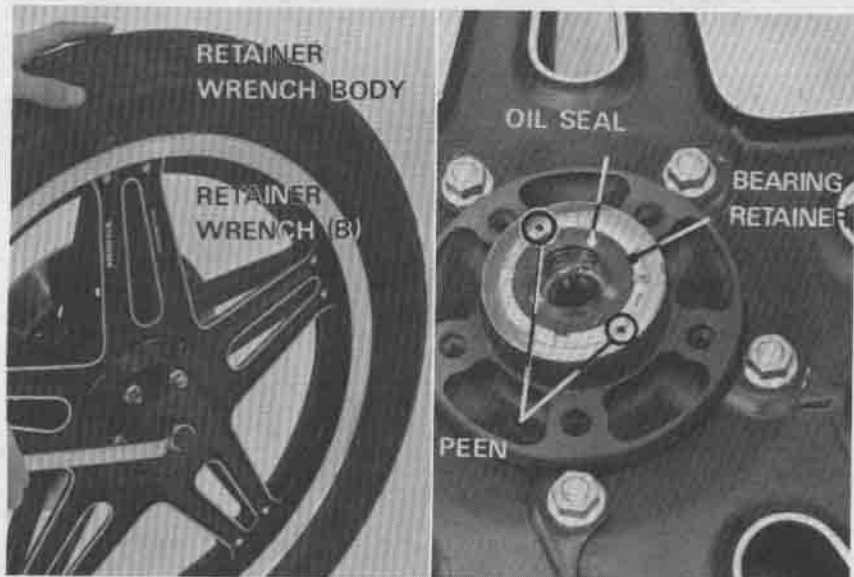
NOTE

Inspect the retainer. If the threads are damaged, replace the retainer.

Install the oil seal.
 Peen the edge of the retainer.

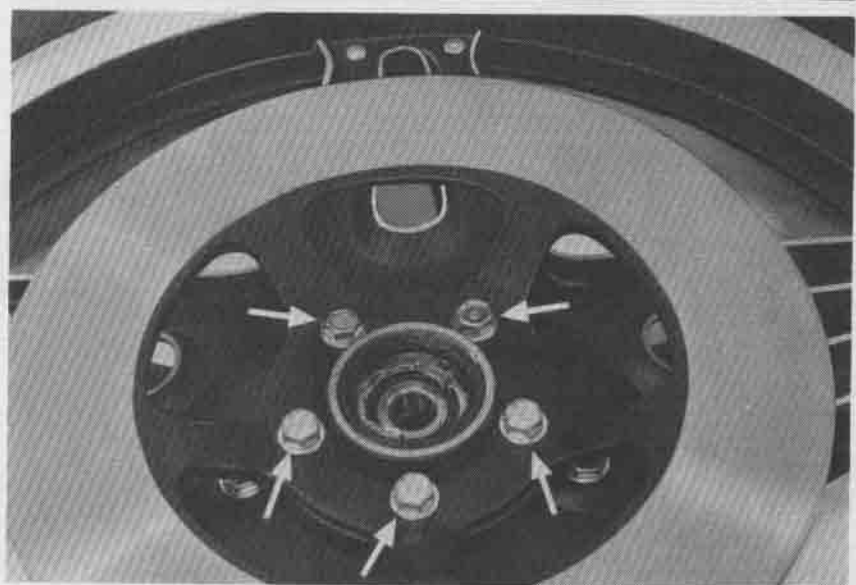
NOTE

The spoke plate bolts and nuts require no retightening since they are secured with lock pins. Do not remove the pins.



Install the disc, disc bolts and nuts.

TORQUE: 2.7–3.3 kg-m (20–24 ft-lb)





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

Remove the speedometer drive gear from the gearbox. Wipe any old grease off. Check the sliding surfaces for wear or damage. Replace the drive gear and/or gearbox if necessary.

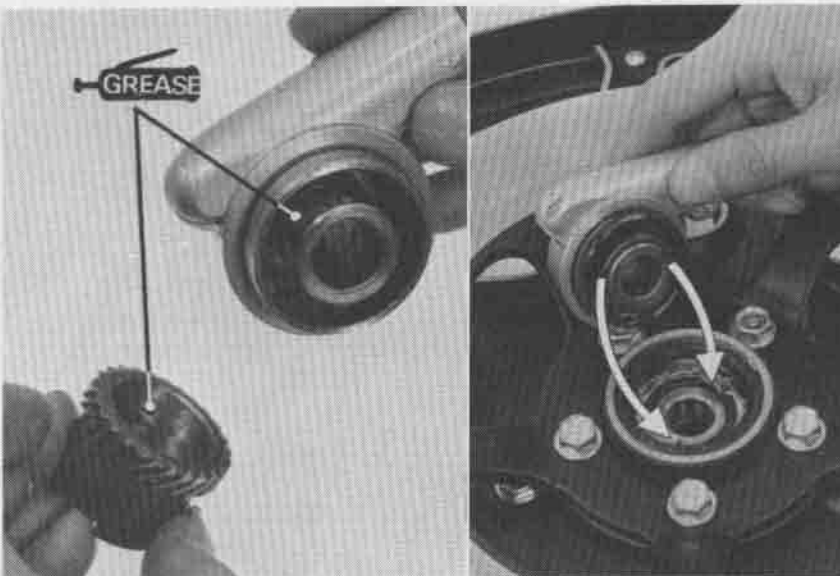
Fill the gearbox with grease and install the drive gear.

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

Install the left side collar and axle. Install the axle nut.

TORQUE: 5.5–6.5 kg-m (40–48 ft-lb)

Clean the brake disc with a high quality degreasing agent.



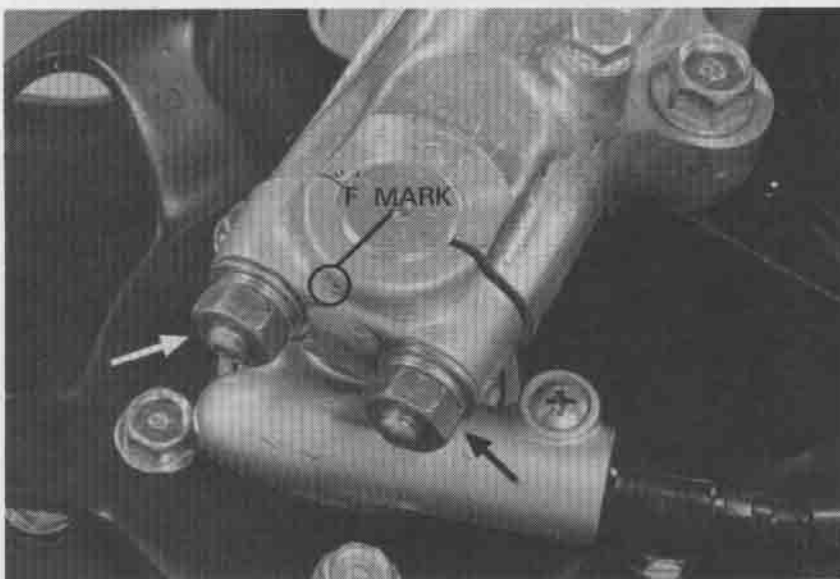
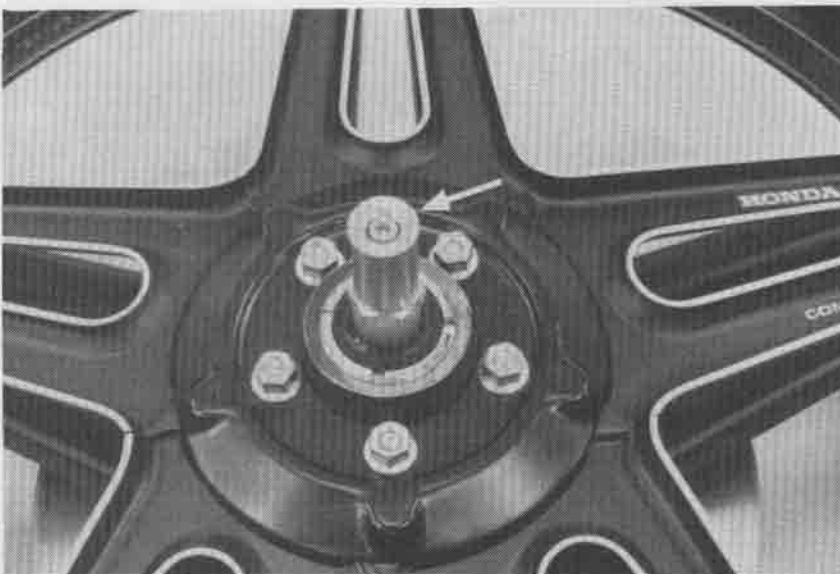
FRONT WHEEL INSTALLATION

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

Install the axle holders with the "F" arrow forward.

Tighten the axle holders nuts starting with the forward nuts.

TORQUE: 1.8–2.5 kg-m (13–18 ft-lb)





FRONT FORK

FRONT FORK OIL CHANGE

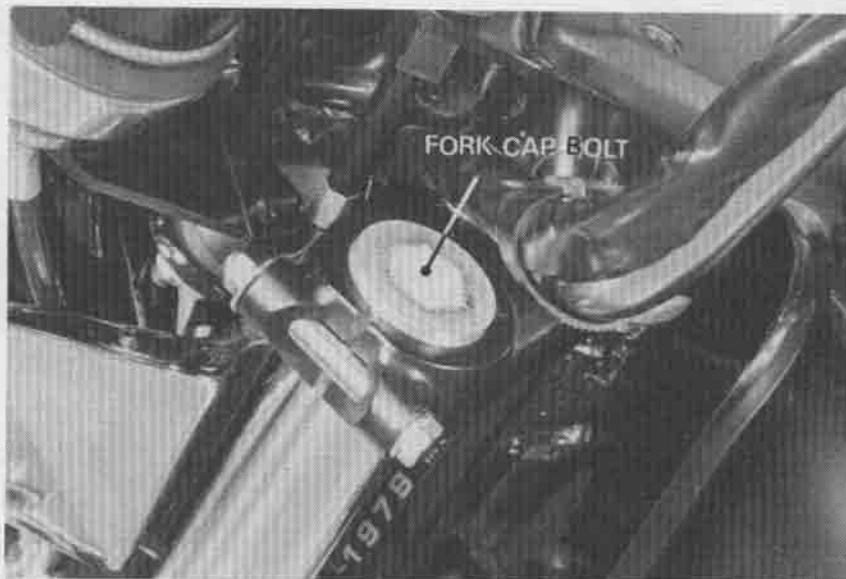
Remove the cap bolt.

Place a pan below the fork, remove the drain plug and allow the fork oil to drain.

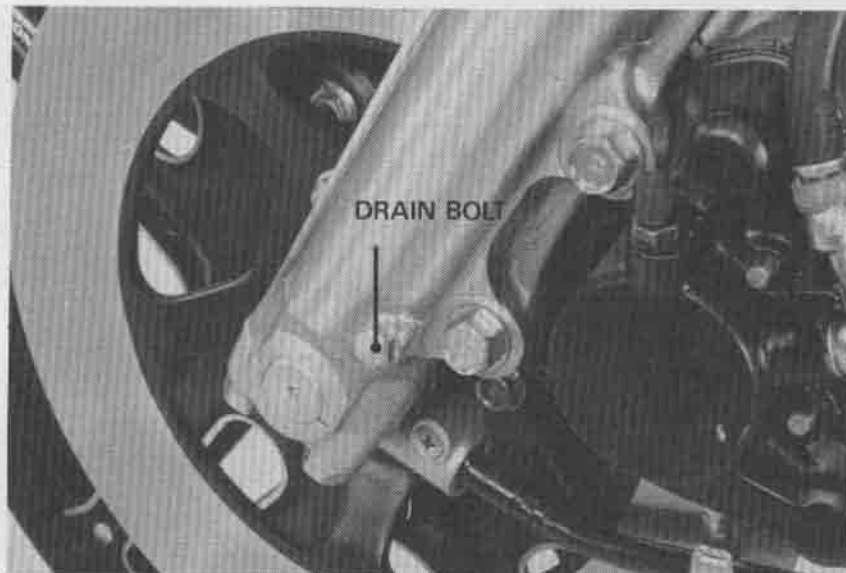
Compress the suspension to completely drain the fork.

Refill the fork (page 13-20.)

REFILL CAPACITY: 150 cc (5.0 ozs)



Repeat this operation for the other fork leg.



FORK REMOVAL

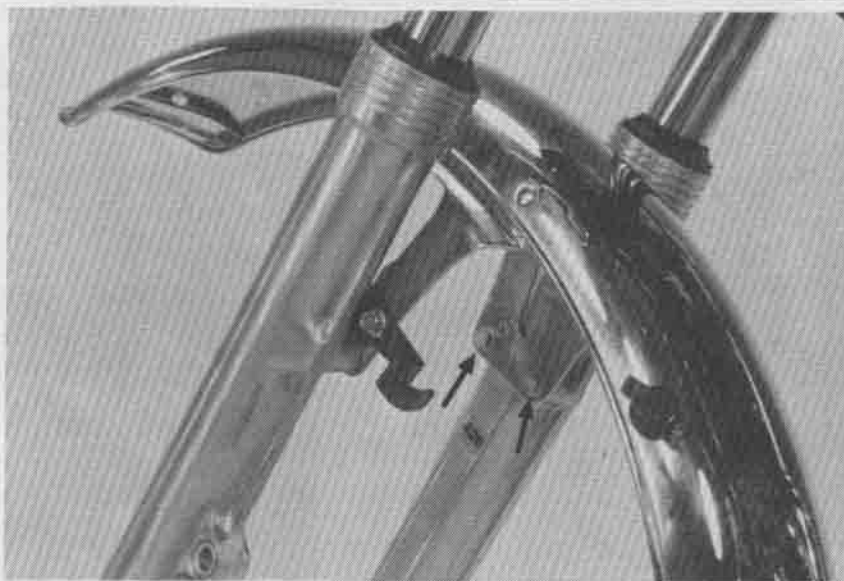
Remove the front wheel.

Remove the brake caliper.

NOTE

Do not loosen the brake hose unless necessary.

Remove the front fender.



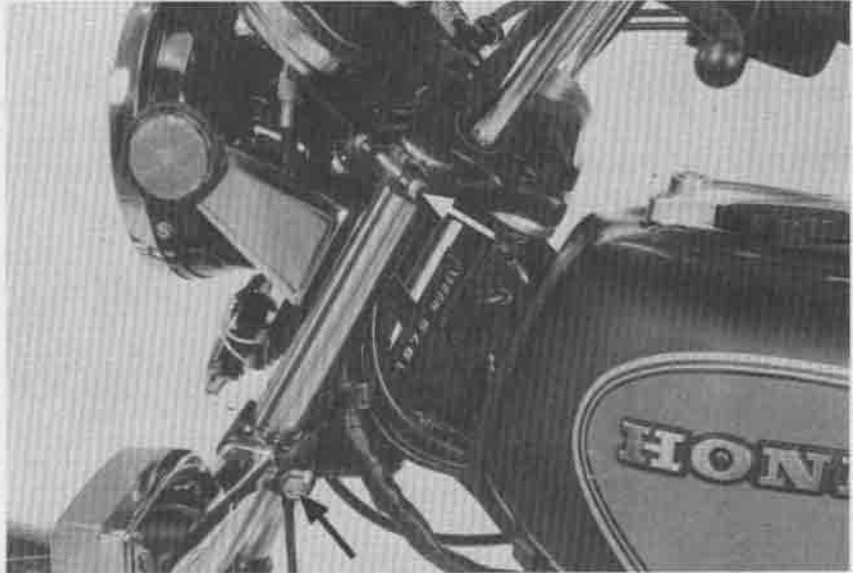


NOTE

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.

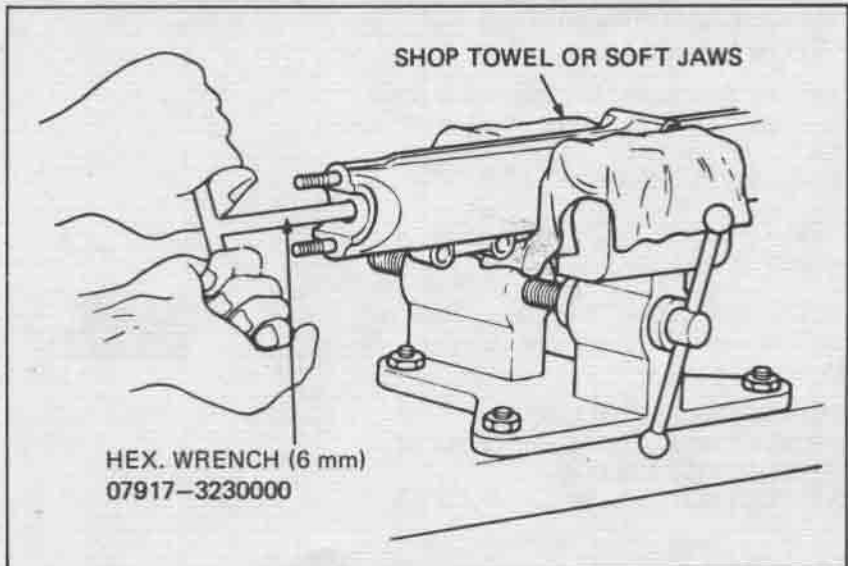


FORK DISASSEMBLY

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

CAUTION

Do not overtighten the fork slider in the vise.

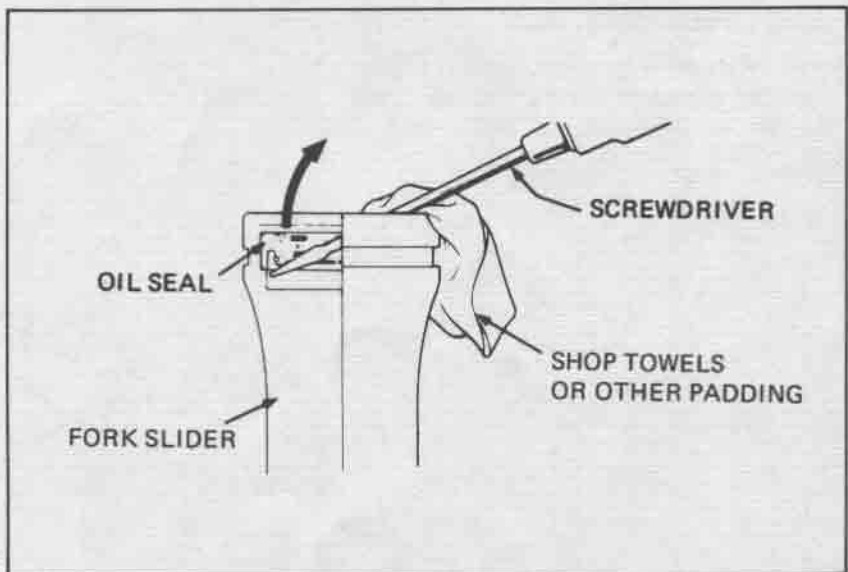


OIL SEAL REMOVAL

Carefully remove the oil seal with a screwdriver.

CAUTION

Do not damage the inner or outer surfaces of the slider when removing the seal.

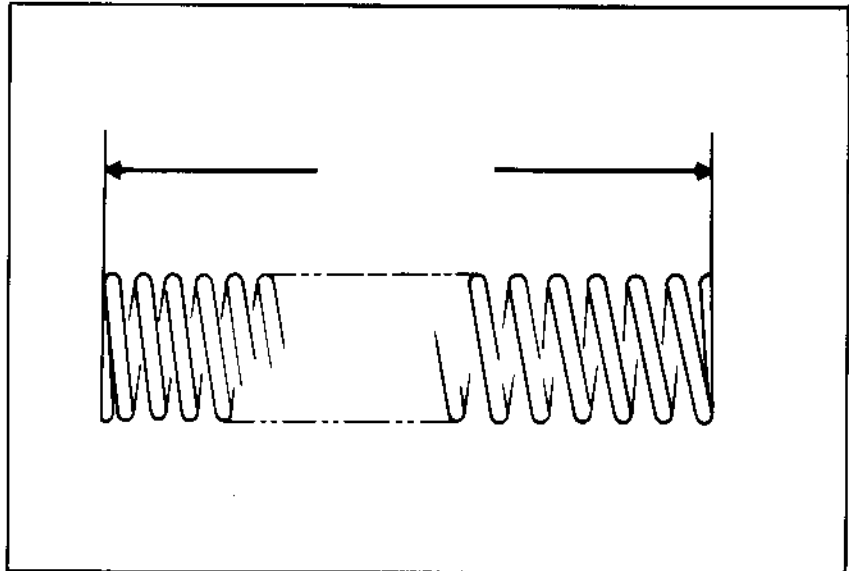




SPRING FREE LENGTH INSPECTION

Check the free length of the fork spring.
 Replace it if it is below the limit.

SERVICE LIMIT: 492.7 mm (19.4 in)



FORK TUBE/FORK SLIDER/ PISTON INSPECTION

Check the fork tubes, fork sliders and pistons for scores, scratches, excessive or abnormal wear.

Replace any damaged parts.

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

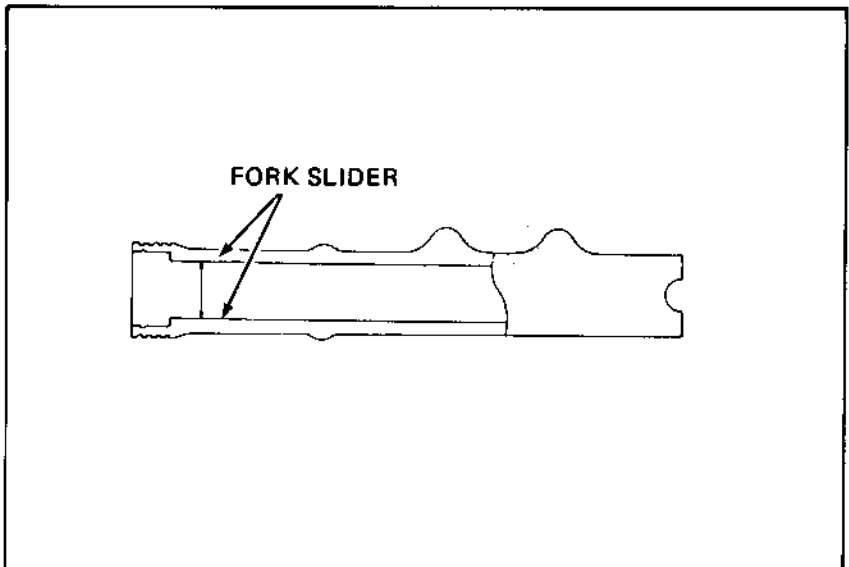
Measure the outside diameter of the fork tube. Check the tube piston and rings for damage.

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)

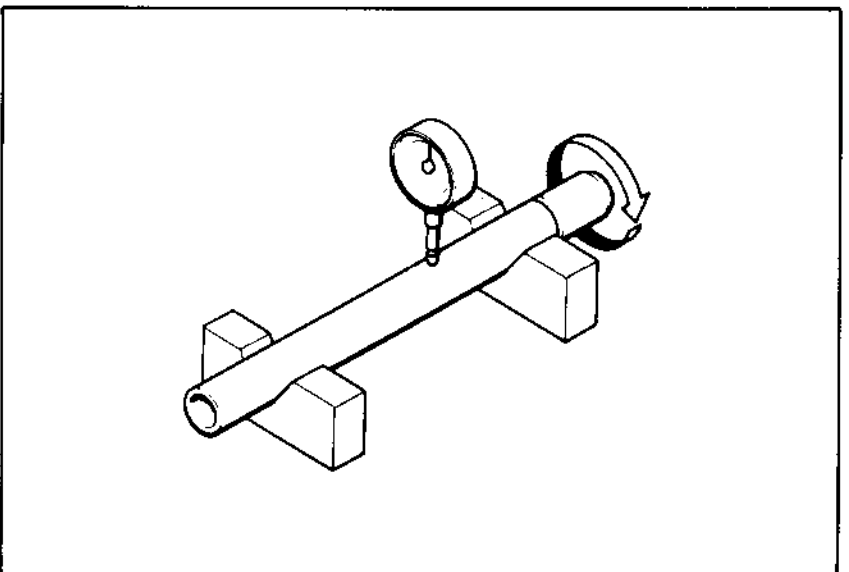


FORK TUBE INSPECTION

Set the fork tube in V blocks.

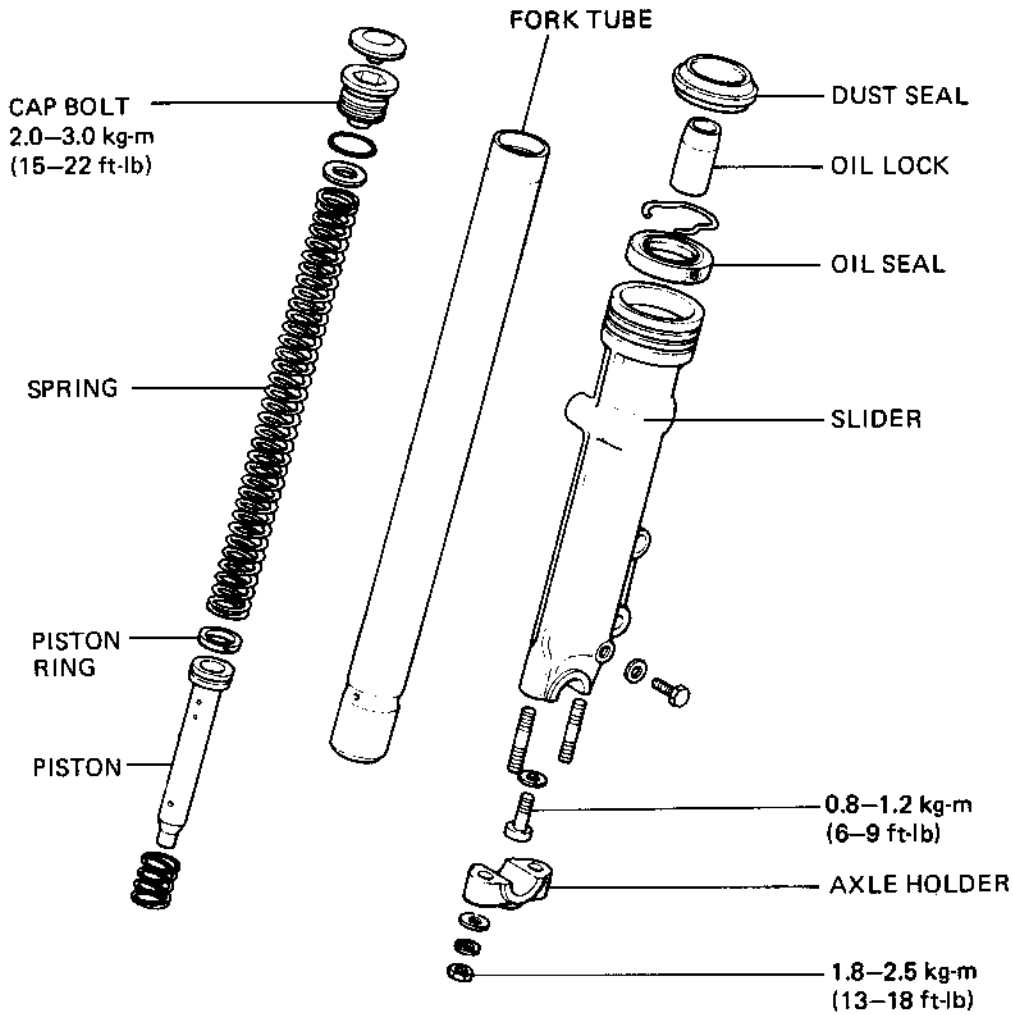
Check the runout with a dial indicator. Use 1/2 TIR to determine the actual runout.

SERVICE LIMIT: 0.2 mm (0.01 in)





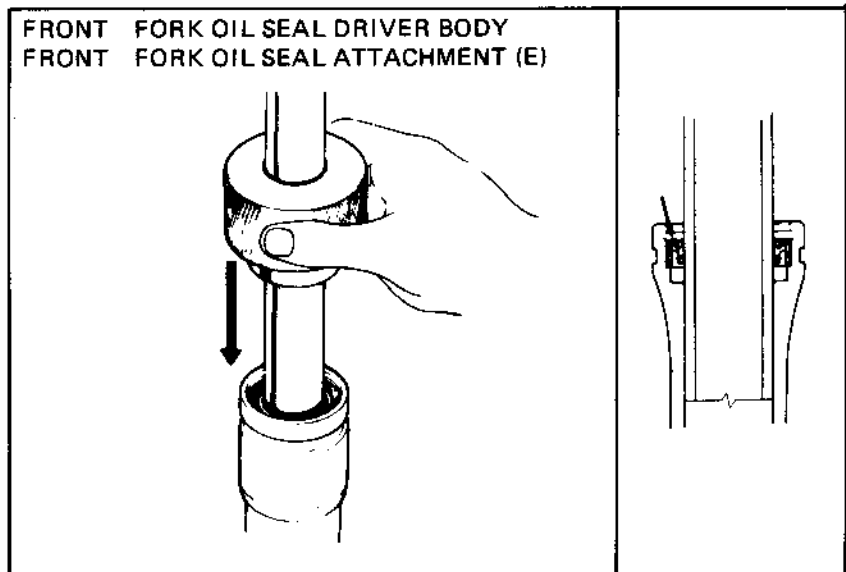
FORK ASSEMBLY



OIL SEAL INSTALLATION

Dip the new fork seal in ATF and install it in the slider using the fork tube 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.



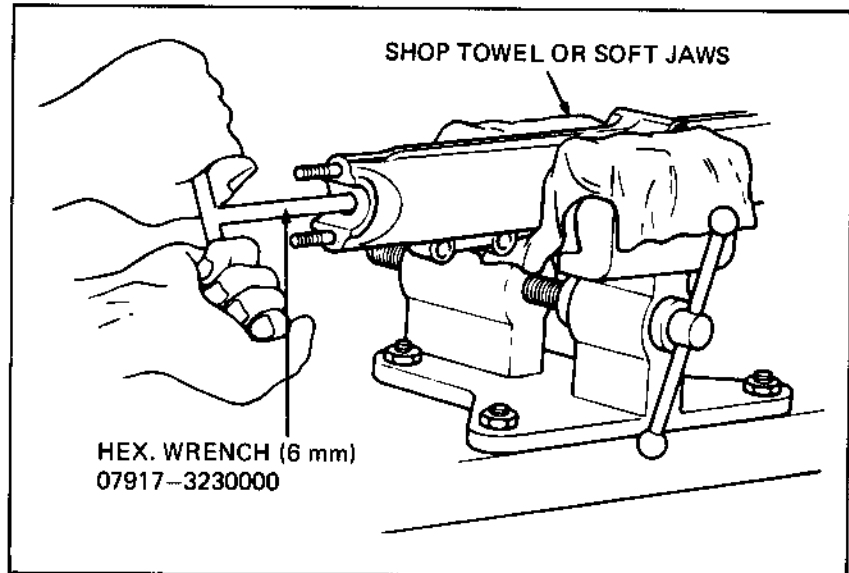


Install the piston and fork tube.
 Apply liquid sealant to the bolt threads and underside.
 Tighten the bolt.

TORQUE: 0.8–1.2 kg-m (6–9 ft-lb)

CAUTION

Do not overtighten the fork slider in the vise.



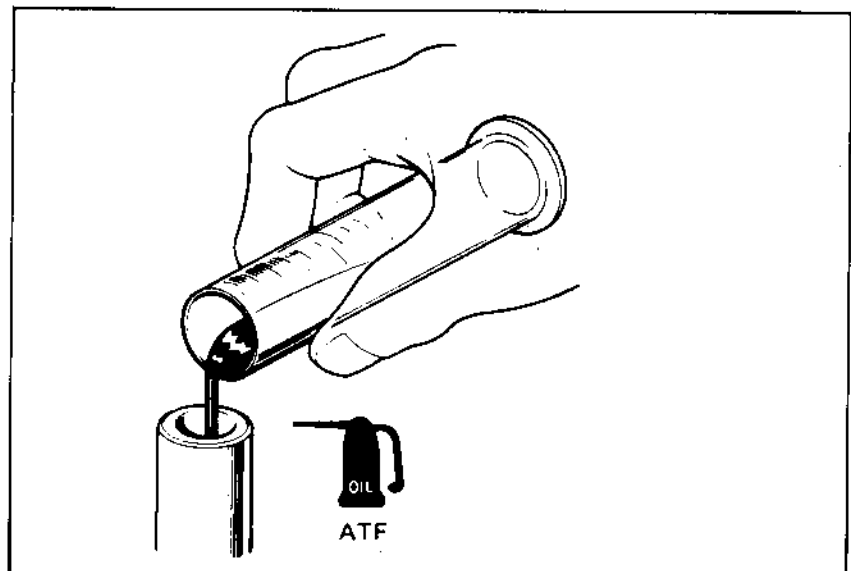
FILLING WITH OIL

Fill the fork with the specified amount of ATF (Automatic Transmission Fluid).

OIL CAPACITY: 170 cc (5.7 ozs)
 at assembly

NOTE

Do not overfill.



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

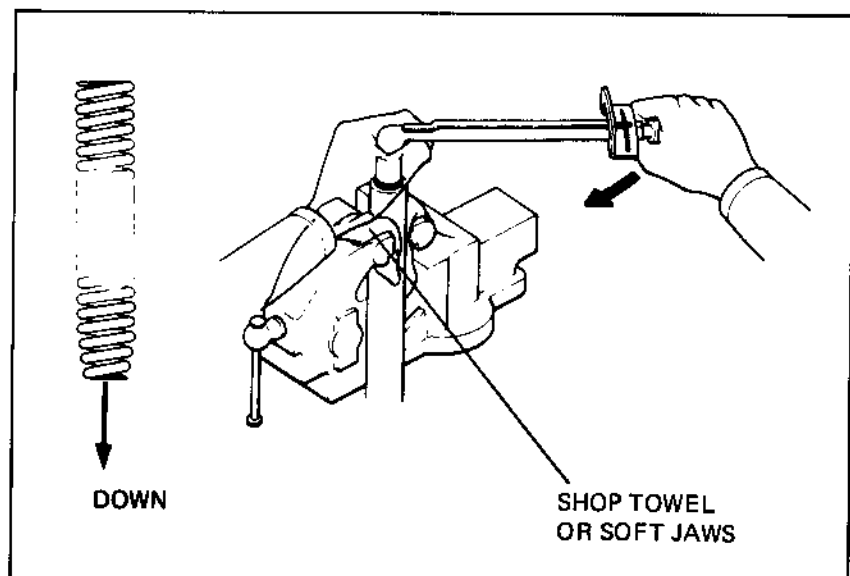
TORQUE: 3.0–4.0 kg-m (22–29 ft-lb)

CAUTION

Place the fork tube in a vise with a shop towel or soft jaws, avoiding the sliding surface.

NOTE

Note the spring direction.

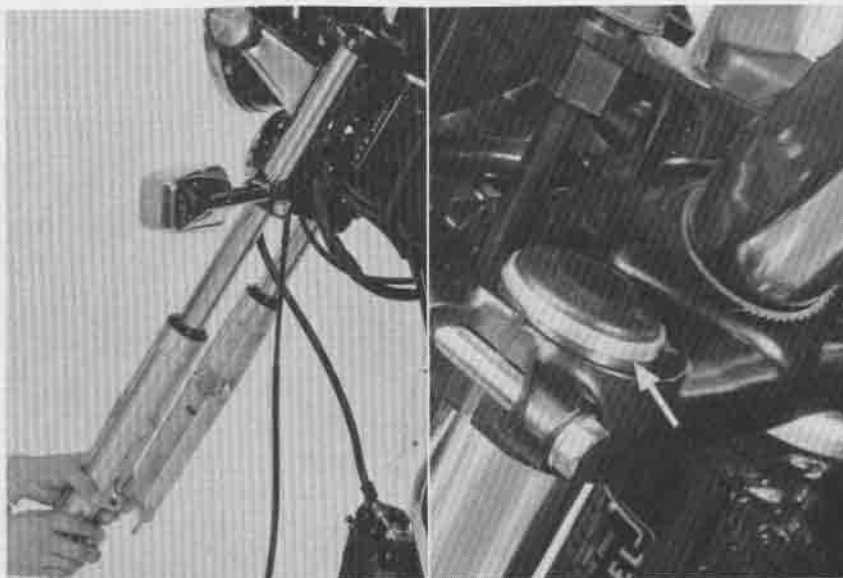




FORK INSTALLATION

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

Position the fork tubes so that the upper end is flush 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)

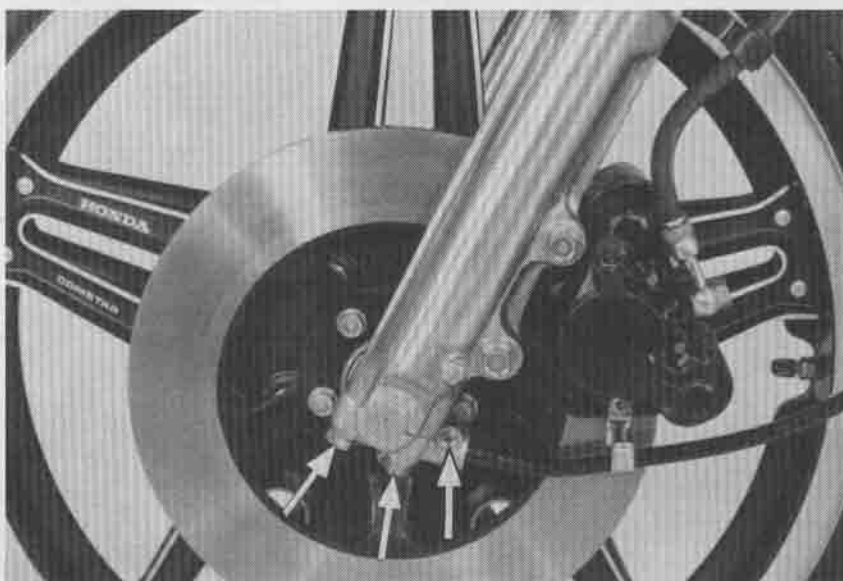
Tighten the fork tube pinch bolts at the top bridge.

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. (Page 13–15)



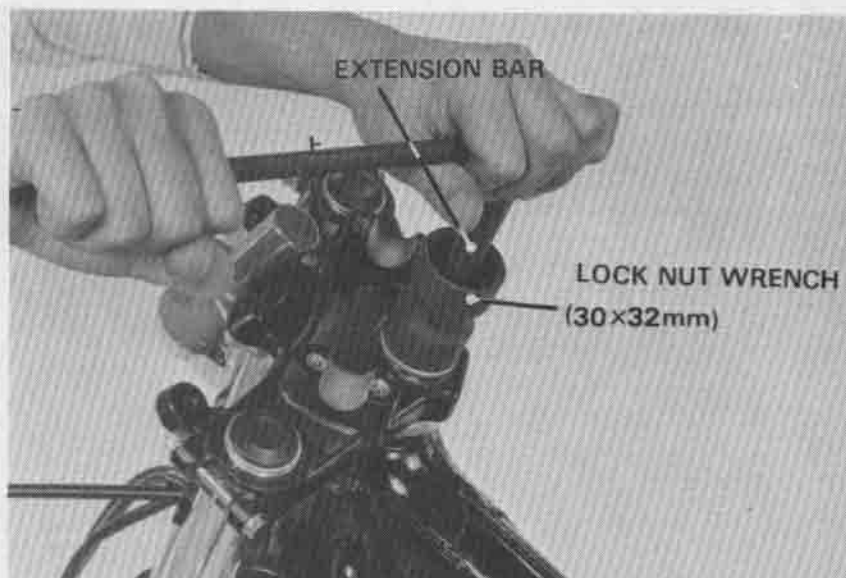


STEERING STEM

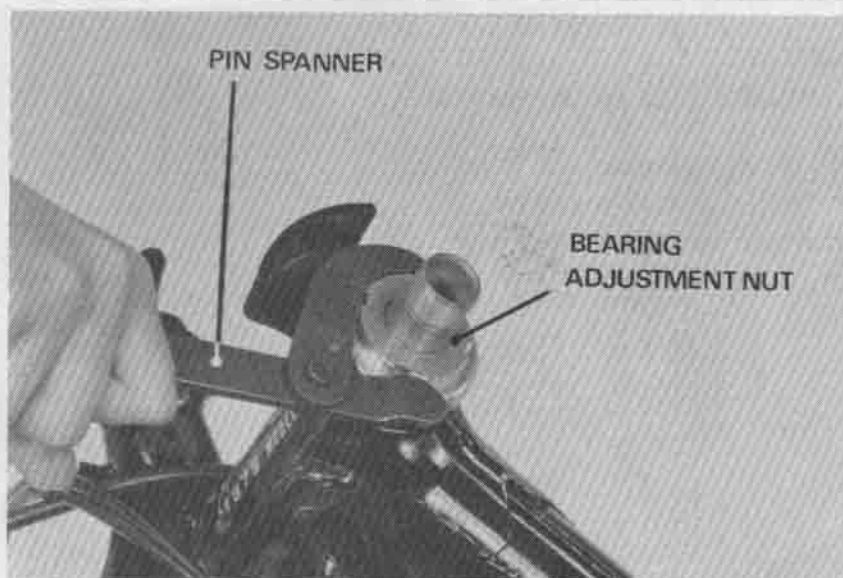
STEM REMOVAL

Remove the handlebar (Page 13-8).
 Remove the instruments (Page 13-6).
 Remove the headlight assembly and disconnect the wiring (Page 13-4).

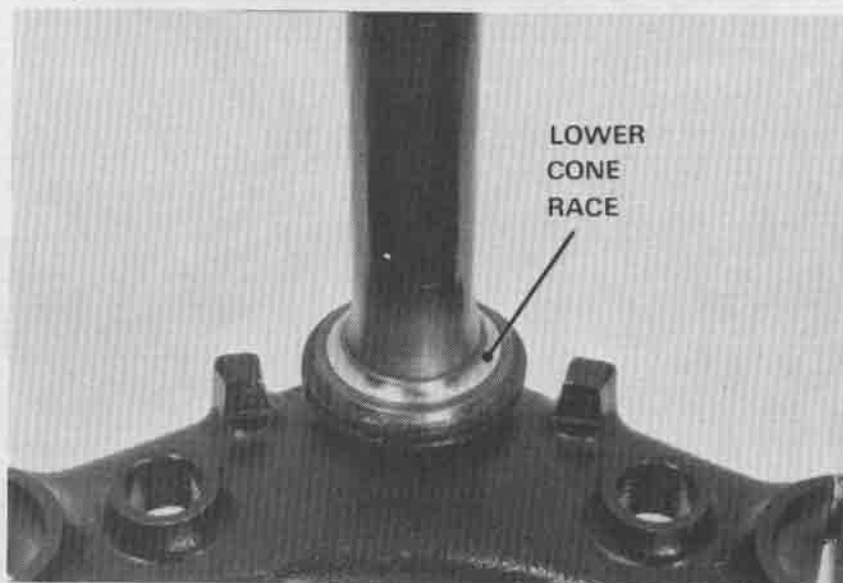
Remove the steering stem nut.
 Remove the headlight case bracket (Page 13-5).
 Remove the wheel and forks.
 Remove the fork top bridge.



Remove the bearing adjustment nut.
 Remove the steering stem, upper cone race and steel balls.

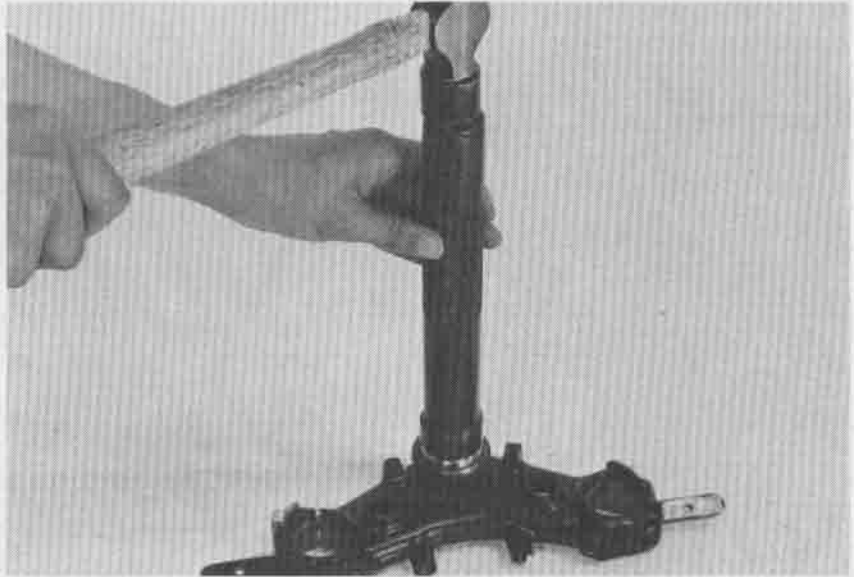


Remove the lower cone race, dust seal and washer.

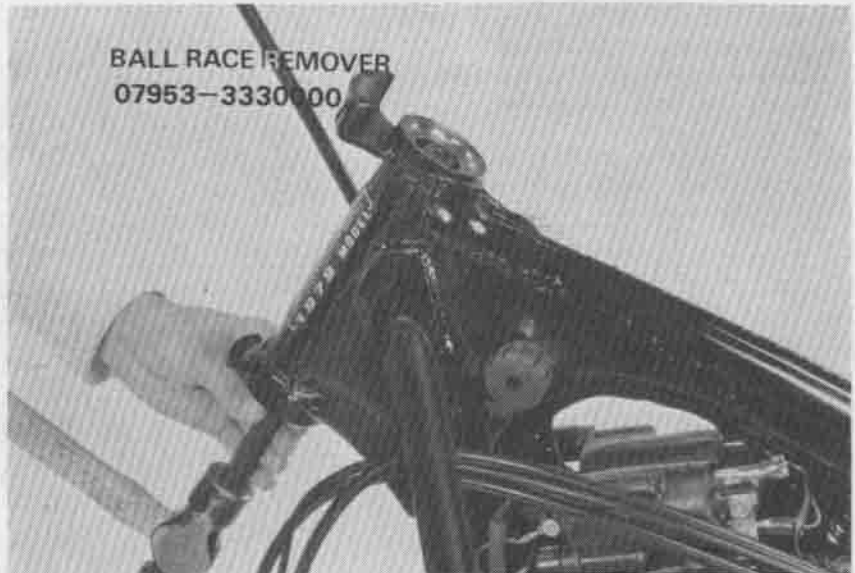




Install a dust seal and washer on the steering stem.
Drive the lower cone race over the stem.



Remove the upper ball race with the special tool.



Remove the lower ball race with the special tool.

NOTE

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





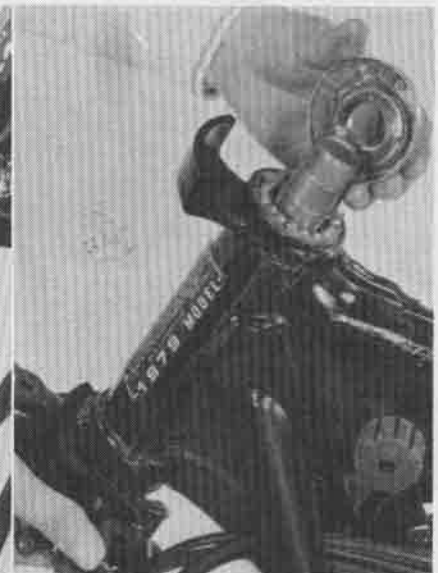
Drive the upper ball race into the steering head with the special tools.

Drive the lower ball race into the steering head with the special tool.



Apply a coat of bearing grease to the upper ball race and install 18 steel balls.
 Apply a coat of bearing grease to the lower cone race and install 19 steel balls.

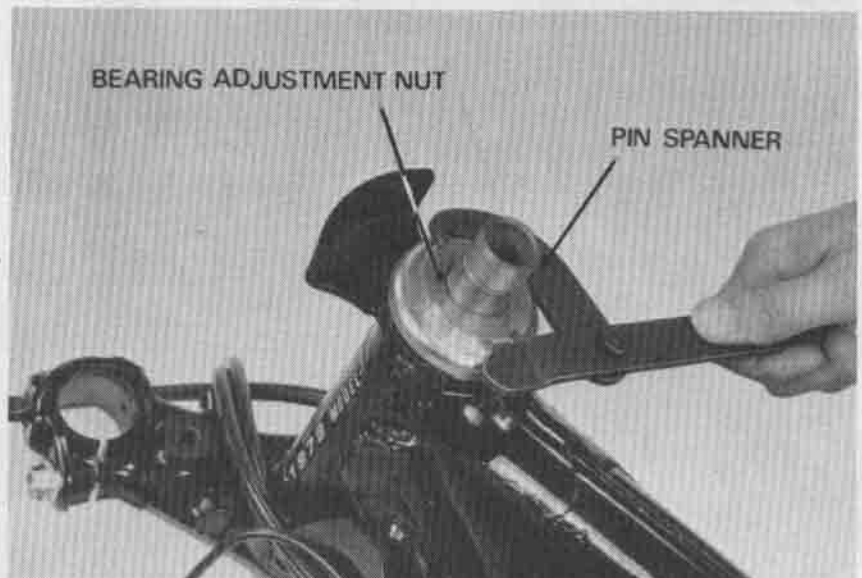
Insert the steering stem into the steering head and install the upper cone race and bearing adjustment nut.



Tighten the adjustment nut until snug against the upper cone race.

Then, loosen it 1/8 turn.

Check that there is no vertical movement and that the stem rotates freely.



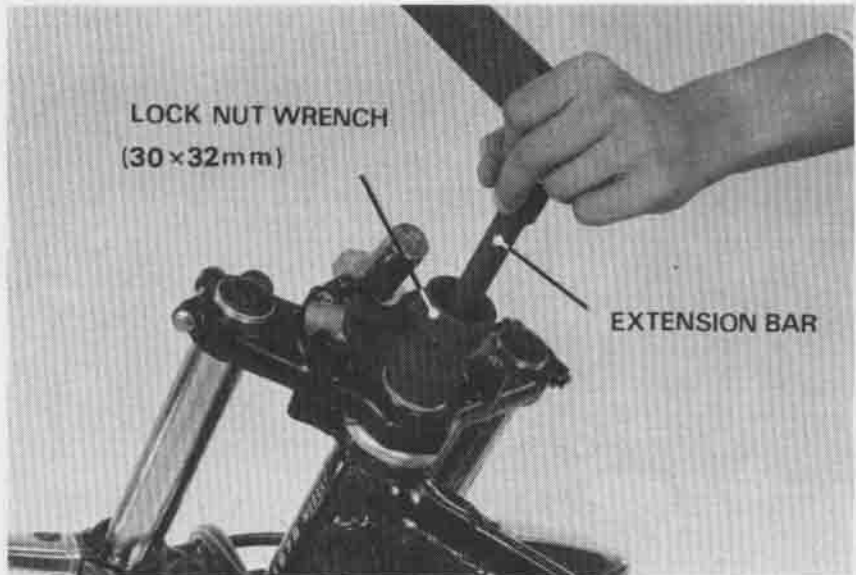


TOP BRIDGE INSTALLATION

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 steering stem 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 (Page 13–9)
- Instruments (Page 13–6)
- Headlight and Bracket (Page 13–4, 13–5)
- Front fender
- Front wheel (Page 13–15)

