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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.

TOOLS

Special

Steering Stem Socket	07916-3710100	
Hollow Set Wrench 6 mm	07917-3230000	or Commercially available
Bearing Race Remover	07946-3710500	
Steering Stem Driver	07946-3710600	
Bearing Driver Attachment	07946-3710700	
Bearing race remover	07953-4250001	

Common

Retainer Wrench B	07710-0010200	} or 07910-3230101
Retainer Wrench Body	07710-0010401	
Bearing Driver Outer 42 x 47 mm	07746-0010300	} or 07946-9350200
Bearing Driver Pilot 15 mm	07746-0040300	
Front Fork Oil Seal Driver Body	07747-0010100	} or 07947-3710100
Front Fork Oil Seal Attachment E	07747-0010600	
Lock Nut Wrench Socket 30 x 32 mm	07716-0020400	or Commercially available
Bearing Driver Handle A	07749-0010000	or 07949-6110000
Extension Bar	07716-0020500	or Commercially available

TORQUE VALUES

Front brake disc		2.7-3.3 kg-m (20-24 ft-lb)
Front brake caliper holder		3.0-4.0 kg-m (22-29 ft-lb)
Front brake caliper		1.5-2.5 kg-m (11-18 ft-lb)
Front axle nut		5.5-6.5 kg-m (40-47 ft-lb)
Steering stem nut		8.0-12.0 kg-m (58-87 ft-lb)
Steering top thread nut		1.4-1.6 kg-m (10-12 ft-lb)
Fork top bridge bolt		0.9-1.3 kg-m (7- 9 ft-lb)
Steering stem pinch bolts		4.5-5.5 kg-m (33-40 ft-lb)
Fork cap bolt		1.5-3.0 kg-m (11-22 ft-lb)
Fork drain bolt		0.6-0.9 kg-m (4- 7 ft-lb)
Fork socket bolt		1.5-2.5 kg-m (11-18 ft-lb)
Air hose	right	1.5-2.0 kg-m (11-14 ft-lb)
	left	0.4-0.7 kg-m (3- 5 ft-lb)
Air hose connector		0.4-0.7 kg-m (3- 5 ft-lb)
Air valve		0.4-0.7 kg-m (3- 5 ft-lb)
Axle holder		3.0-4.0 kg-m (22-29 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	Spring A	437.7 mm (17.23 in)	429 mm (16.9 in)
	Spring B	169 mm (6.7 in)	165.5 mm (6.51 in)
Fork tube run out		——	0.2 mm (0.01 in)
Front fork slider bushing O.D.		37.92–38.04 mm (1.493–1.498 in)	37.87 mm (1.491 in)
Front fork tube O.D.		36.950–36.975 mm (1.455–1.456 in)	36.90 mm (1.453 in)
Front fork fluid capacity		280 ± 2.5 cc (9.5 ± 0.08 oz)	——
Front fork air pressure		0.8–1.1 kg/cm ² (11–16 psi)	——
Front fork guide bushing I.D.		38.97–39.04 mm (1.534–1.537 in)	39.09 mm (1.539 in)

TROUBLESHOOTING
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
3. Front fork air pressure incorrect

Head suspension

1. Incorrect fluid weight in front forks
2. Fork air pressure incorrect

Front suspension noise

1. Worn slider or guide bushings
2. Insufficient fluid in forks
3. Loose front fork fasteners
4. Lack of grease in speedometer gear box

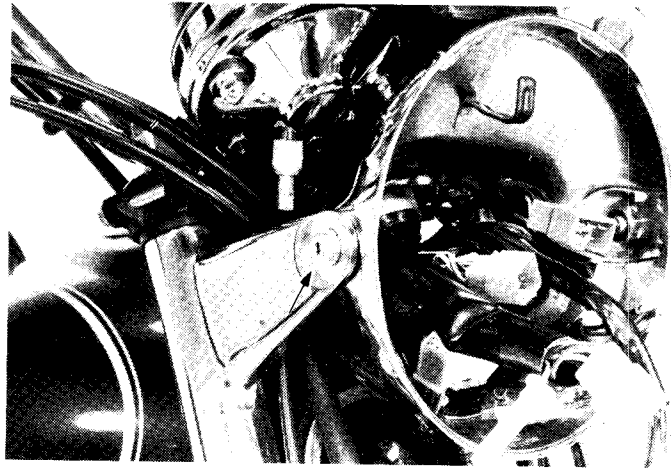


HEADLIGHT

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.



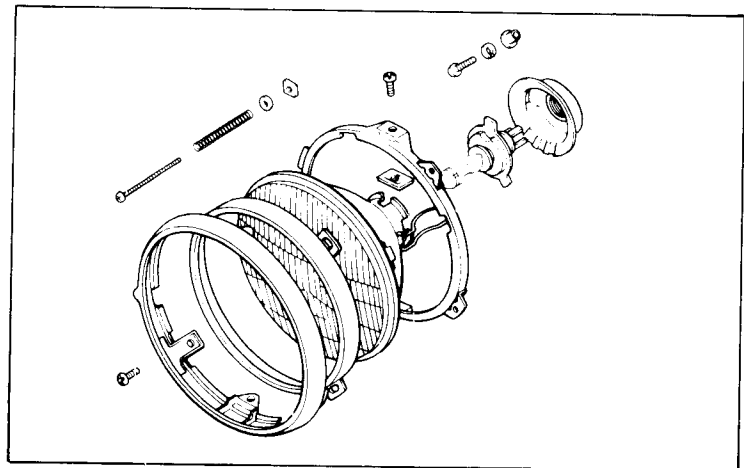
HEADLIGHT DISASSEMBLY/ ASSEMBLY

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.

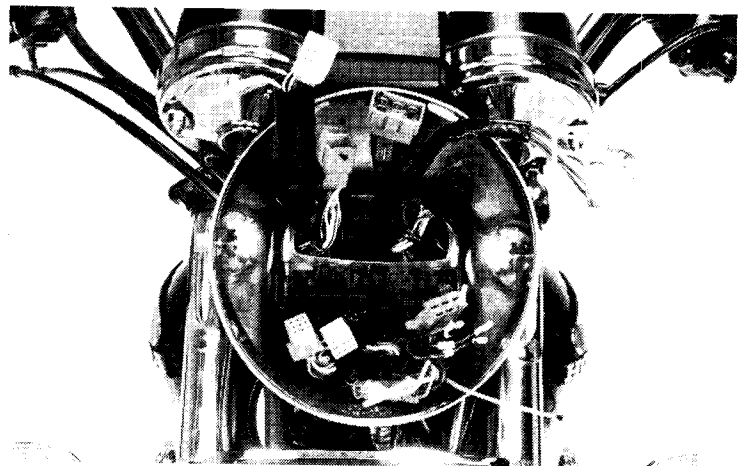
After assembly, adjust the headlight beam (Page 3-16).



HEADLIGHT CASE INSTALLATION

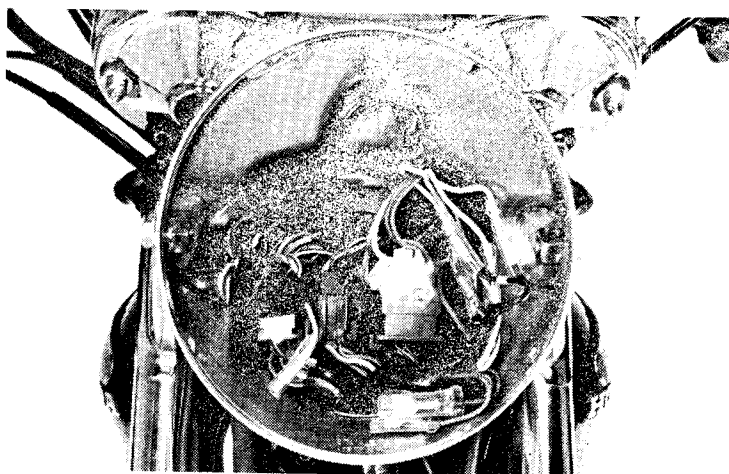
Route the wires into the headlight case through the headlight case hole.

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





Connect the wire connectors and couplers. Install the coupler into the holder in the handlight case.

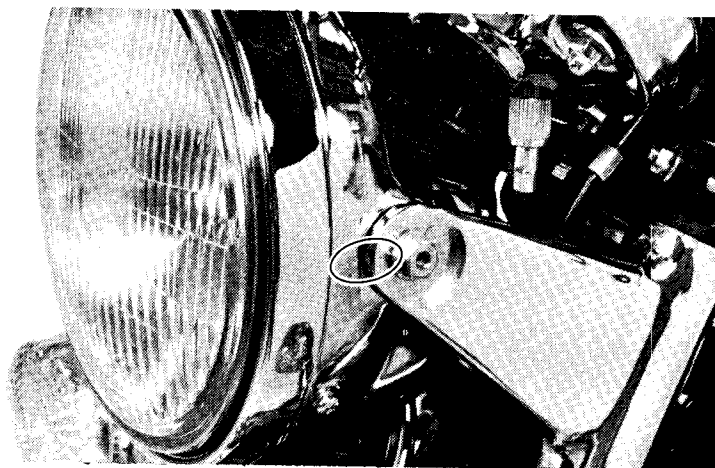


Align the index marks on the headlight case with the punch marks on the brackets.

NOTE

Check each component for operation after assembling.

Install the headlight and reflectors.



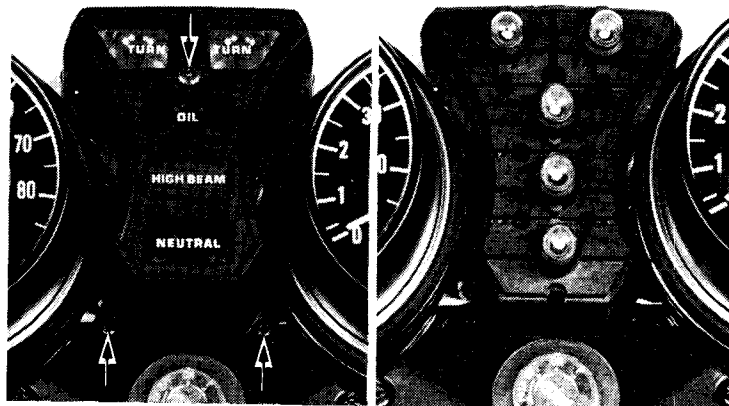
INSTRUMENTS

INDICATOR LIGHT BULB REPLACEMENT

Remove the indicator light panel screws and panel.

Replace the bulb.

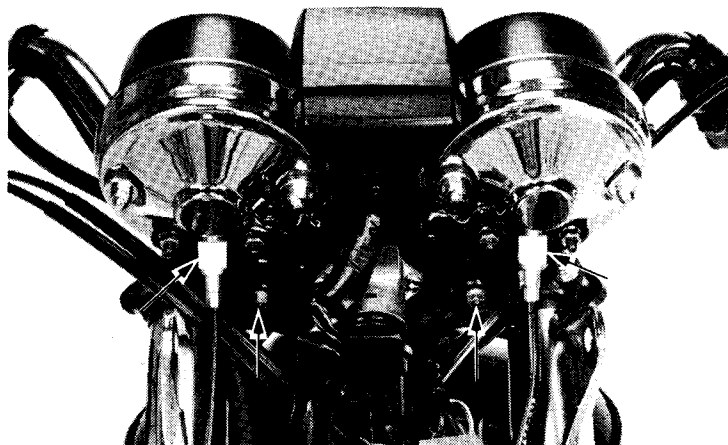
If a replacement bulb does not light, check the wiring for short or open circuit, or loose connections.





REMOVAL

- Remove the headlight (page 14-3).
- Remove the handlebar upper holder (page 14-6).
- Disconnect the speedometer and tachometer cables from the instruments.
- Remove the instrument mounting nuts.

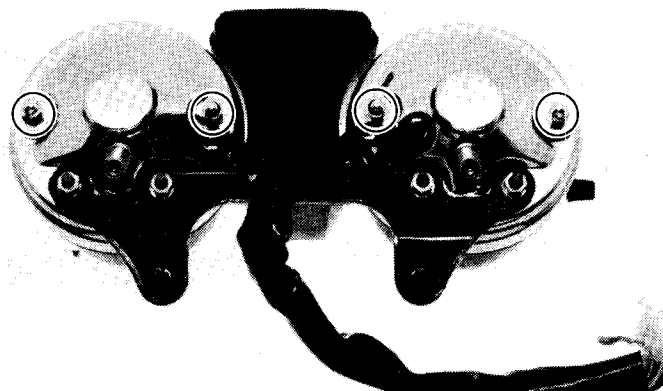


METER BULB REPLACEMENT

Remove the meter setting nuts.

CAUTION:

Do not leave the instrument upside down for a long time.



Replace the bulb.

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.

ASSEMBLY AND INSTALLATION

Assemble and install the instruments in the reverse order of removal.

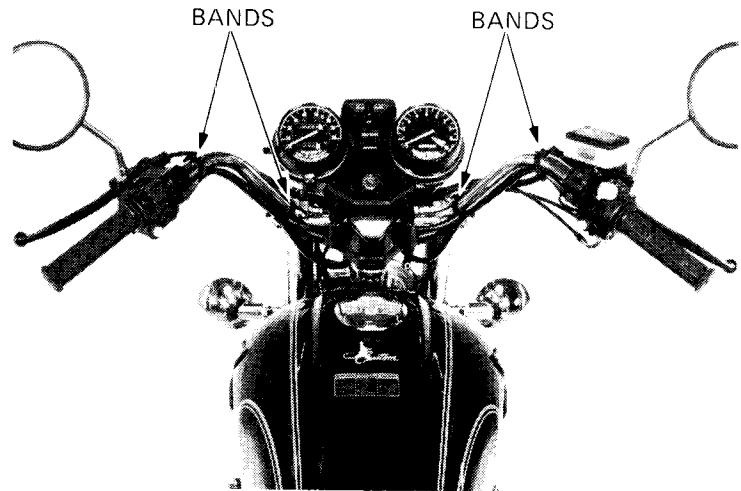




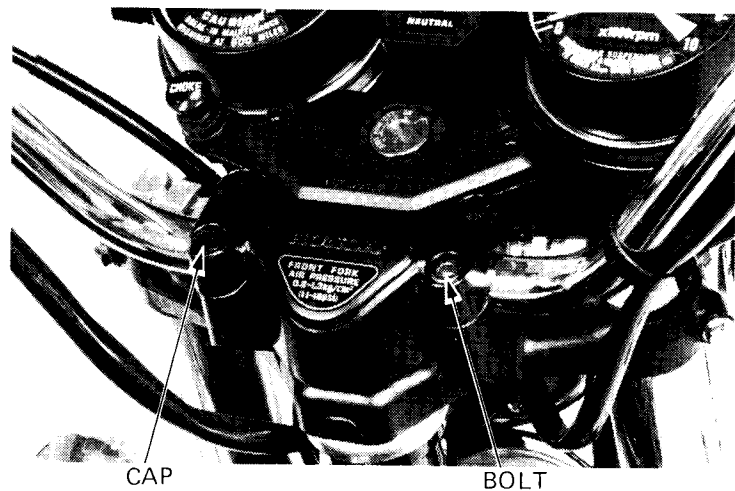
HANDLEBAR

REMOVAL

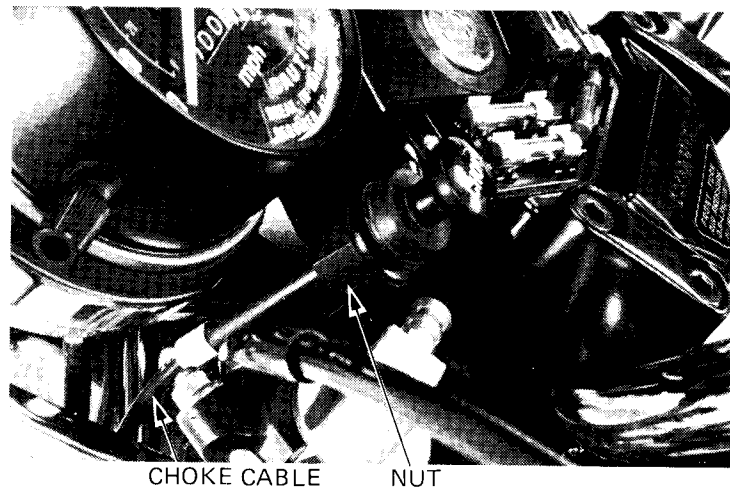
Remove the wire bands.
Remove the headlight case (page 14-3).



Remove the handlebar upper holder bolt caps.

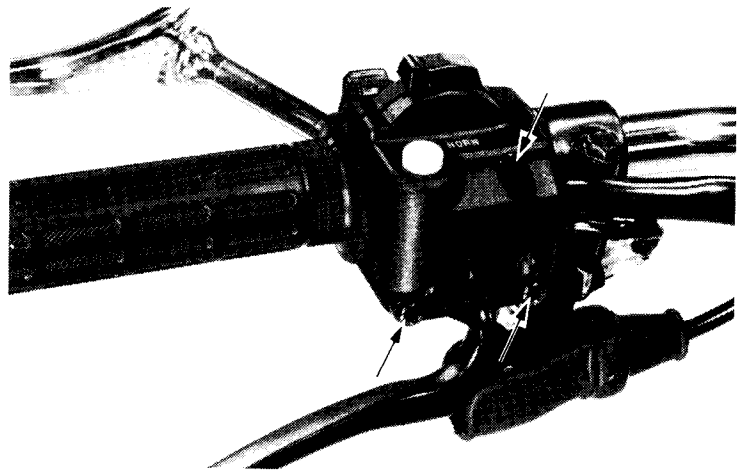


Remove the choke cable from the handlebar upper holder by removing the cable nut.



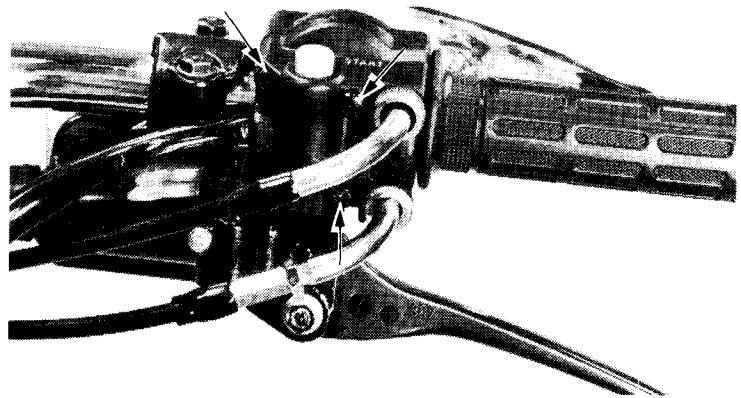


Disconnect the clutch switch wires.
Remove the left handlebar switch.
Disconnect the clutch cable.



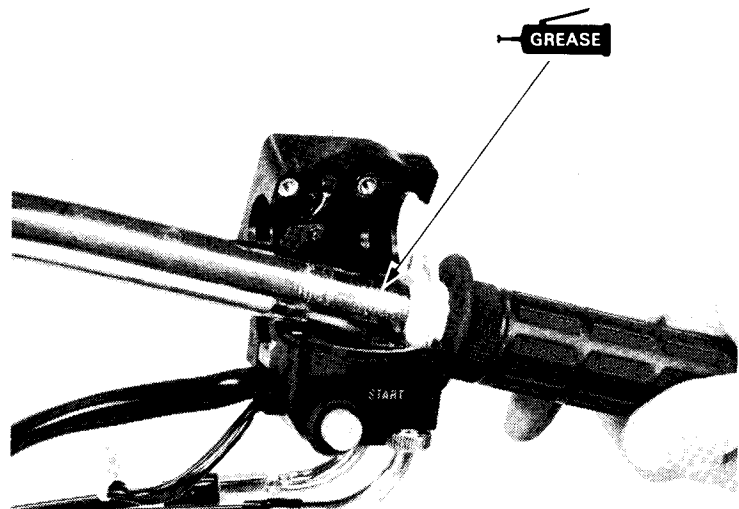
Disconnect the brakelight switch wires.
Remove the right handlebar switch and throttle grip.
Remove the front brake master cylinder with the brake lever.

Remove the handlebar upper holders and handlebar.



INSTALLATION

Apply grease to the throttle grip sliding surface.



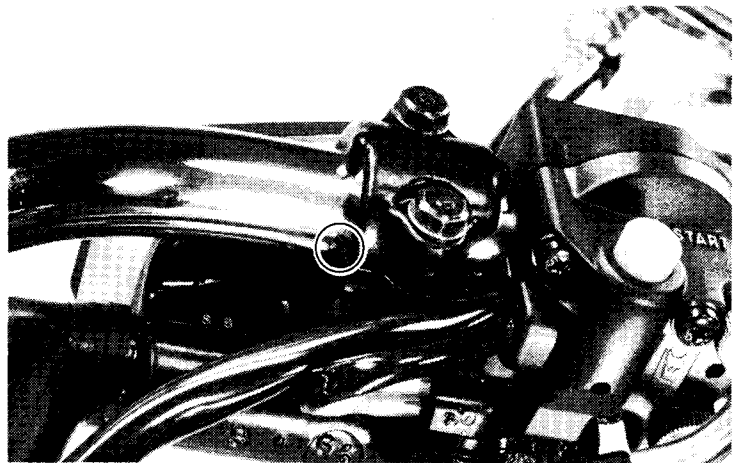


190 FRONT WHEEL/SUSPENSION

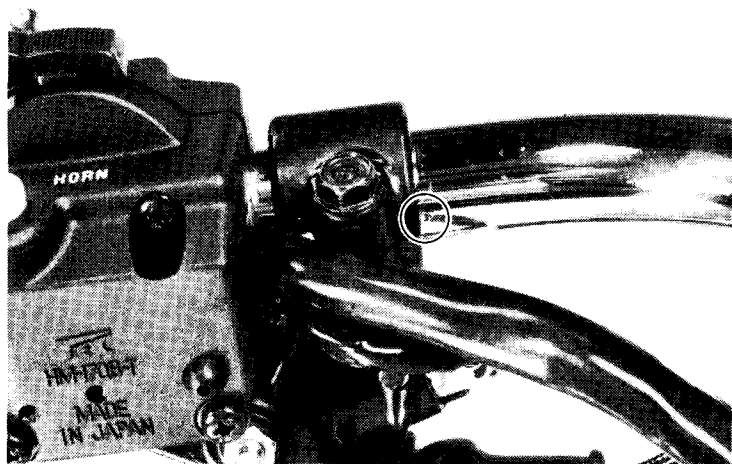
Install the front brake master cylinder with the punch mark facing down.

Align the end of the holder with the handlebar punch mark.
Tighten the upper bolt first, then lower.

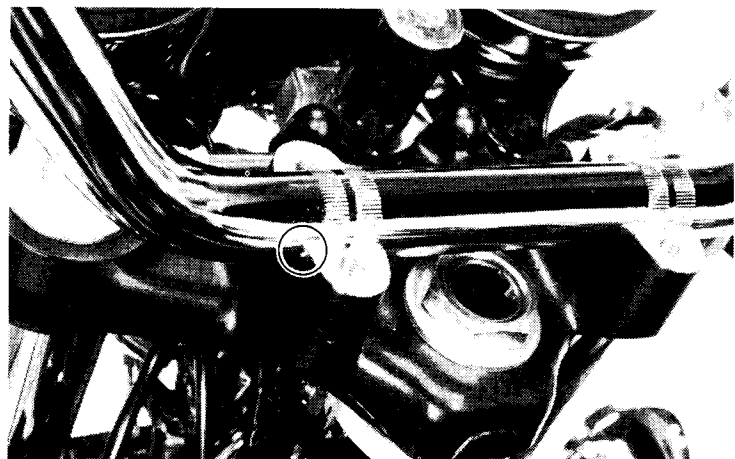
Connect the brake light switch wires.



Install the left handlebar switch.
Tighten the clutch lever bracket pinch bolt by aligning the slit of the bracket with the punch mark.
Connect the clutch switch wire.
Connect the clutch cable.



Place the handlebar onto the lower holder by aligning the punch mark with the upper face of the lower holder.





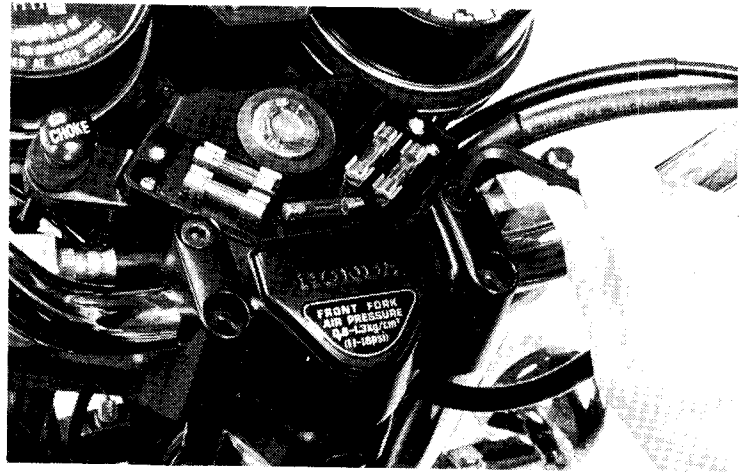
Install the choke cable to the handlebar upper holder.

Install the handlebar upper holder.

Tighten the forward bolts first, then tighten the rear bolts.

TORQUE: 2.5–3.0 kg-m (18–22 ft-lb)

Route the switch wires (page 1–10).
Install the headlight (page 14-3).



FUSE HOLDER REPLACEMENT

Remove the fuse cover.

Unscrew the screws holding the fuse holder.

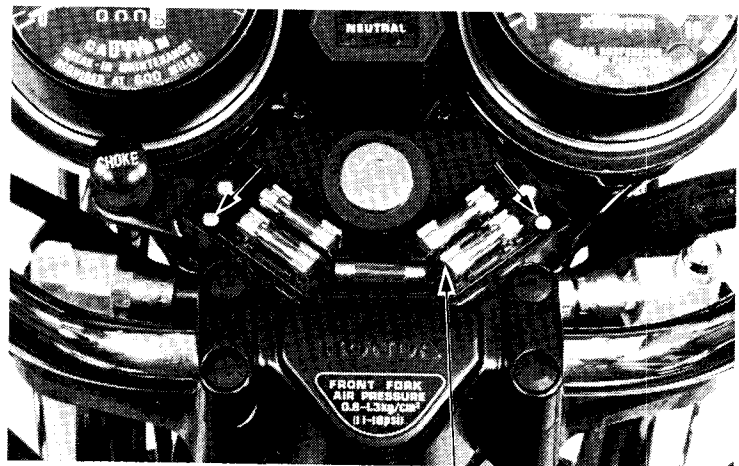
Remove the headlight.

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.



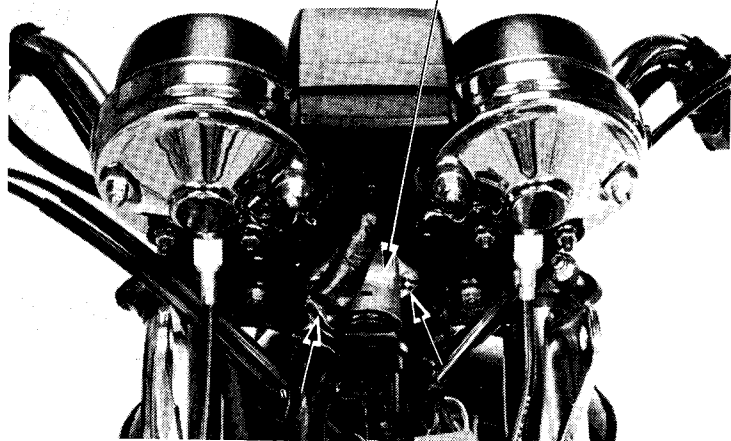
FUSE HOLDER

IGNITION SWITCH REPLACEMENT

Remove the headlight (page 14-3).

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

IGNITION SWITCH





FRONT WHEEL

REMOVAL

Remove the speedometer cable set screw and the speedometer cable.

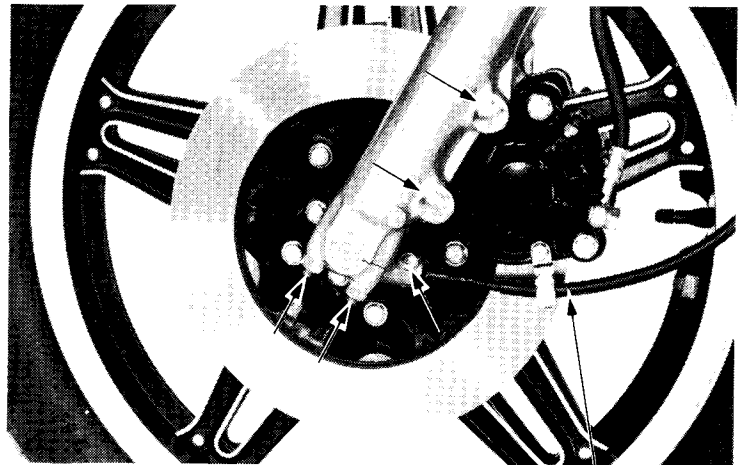
Remove the right or left side caliper assemblies by loosening the bolts.

NOTE

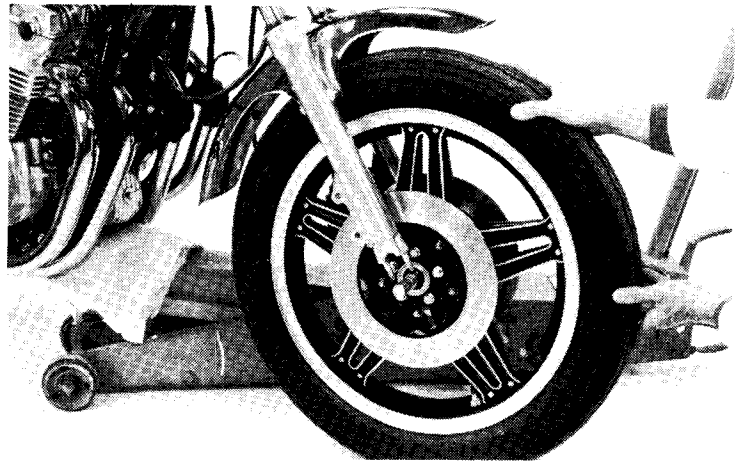
Do not operate the front brake lever after removing the front wheel. To do so will cause difficulty in fitting the brake disc between the brake pads.

Remove the right and left axle holders.

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



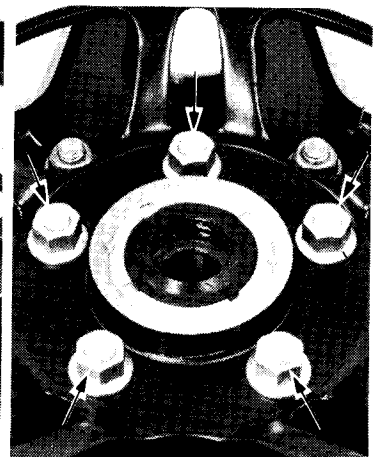
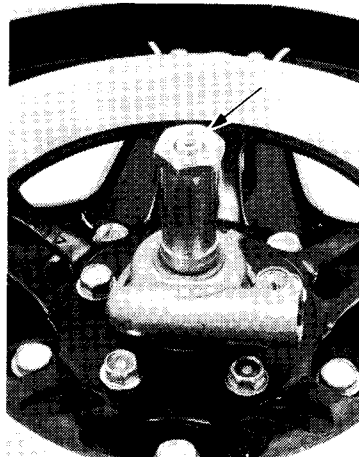
SPEEDOMETER
CABLE



DISASSEMBLY

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

Remove five bolts and discs.

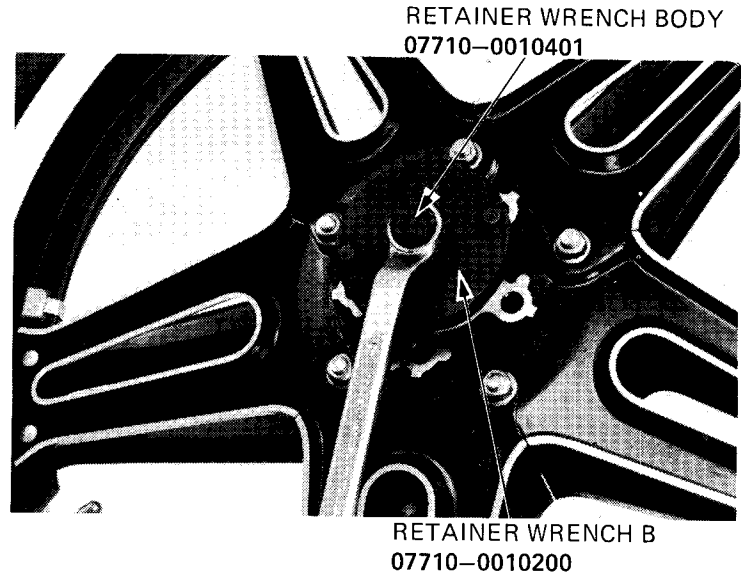




Remove the retainer.
Remove the bearings and the distance collar from the hub.

NOTE

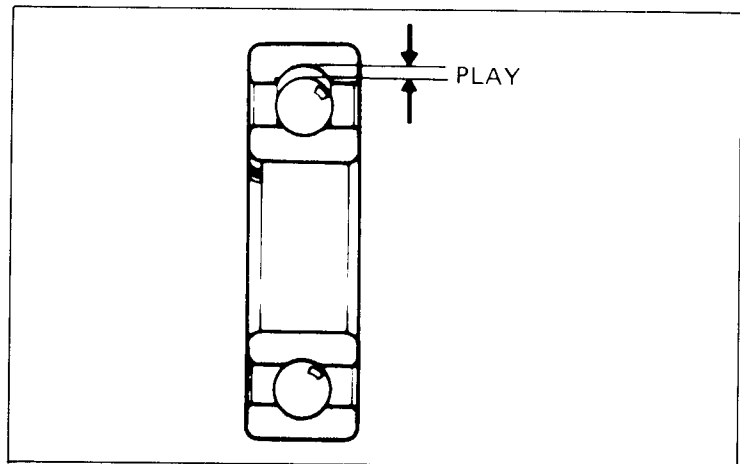
If the bearings are removed, they should be replaced with new ones.



WHEEL BEARINGS:

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.

SERVICE LIMIT: 0.027 mm (0.001 in)



WHEEL INSPECTION

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

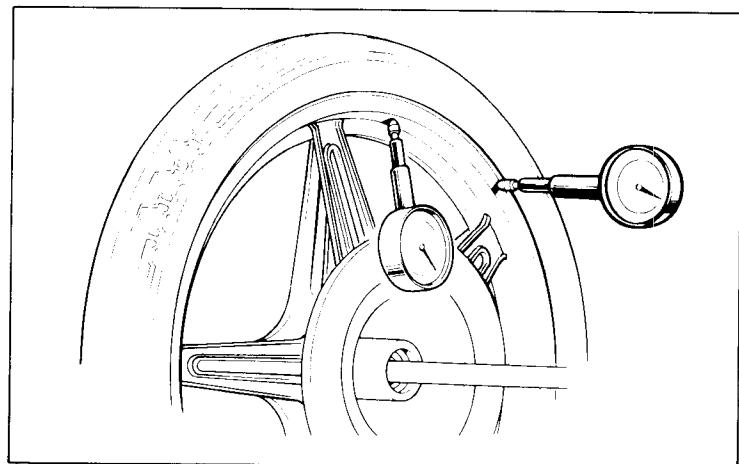
SERVICE LIMITS:

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 with a new one if the service limits are exceeded.

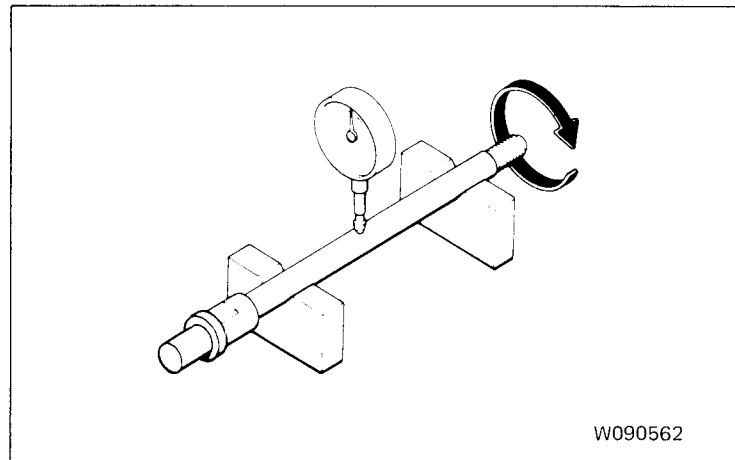




AXLE INSPECTION

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

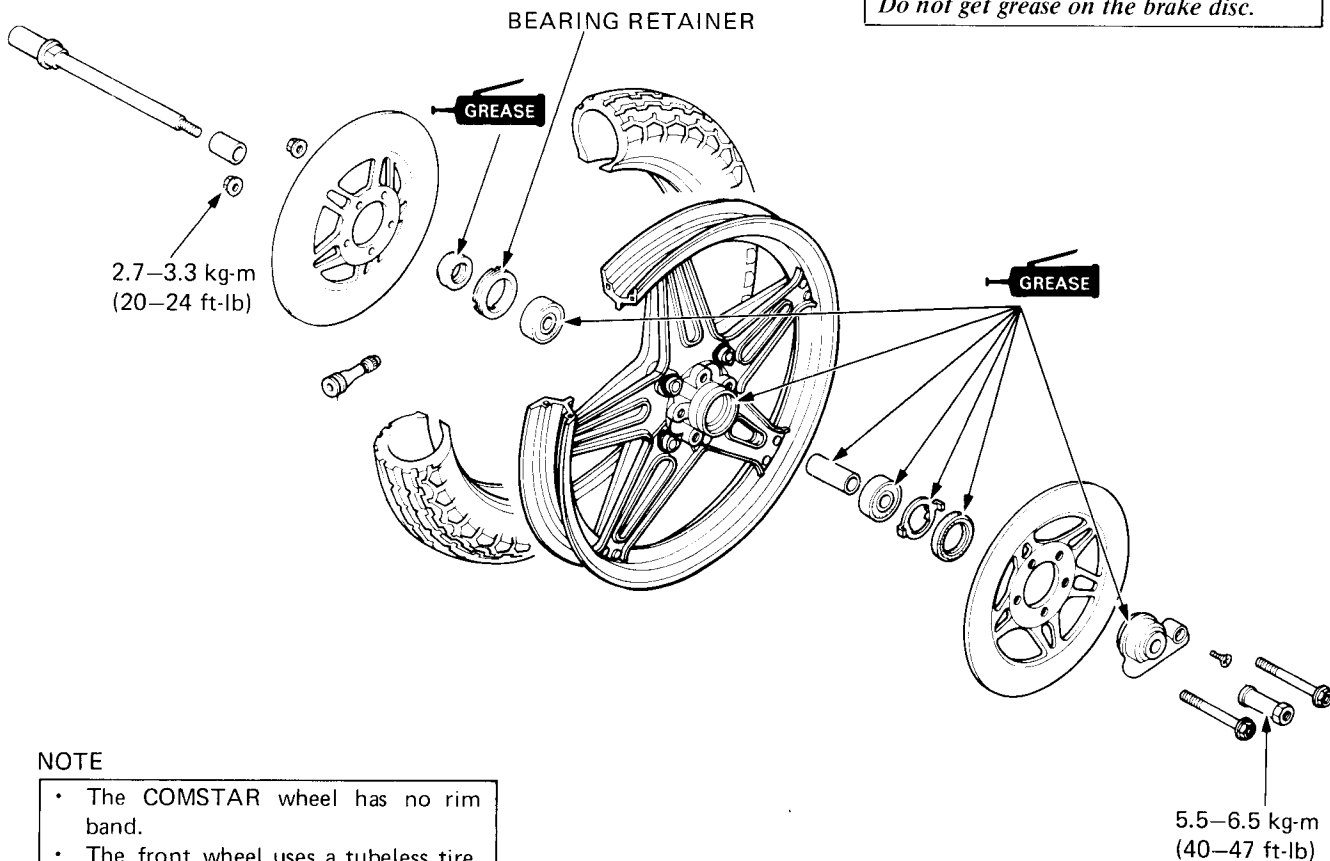
SERVICE LIMIT: 0.2 mm (0.01 in)



ASSEMBLY

WARNING

Do not get grease on the brake disc.



NOTE

- The COMSTAR wheel has no rim band.
- The front wheel uses a tubeless tire. For tubeless tire repair, refer to the HONDA TUBELESS TIRE MANUAL.



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 left and right discs.

TORQUE: 2.7–3.3 kg-m (20–24 ft-lb)

Install the speedometer gear retainer.

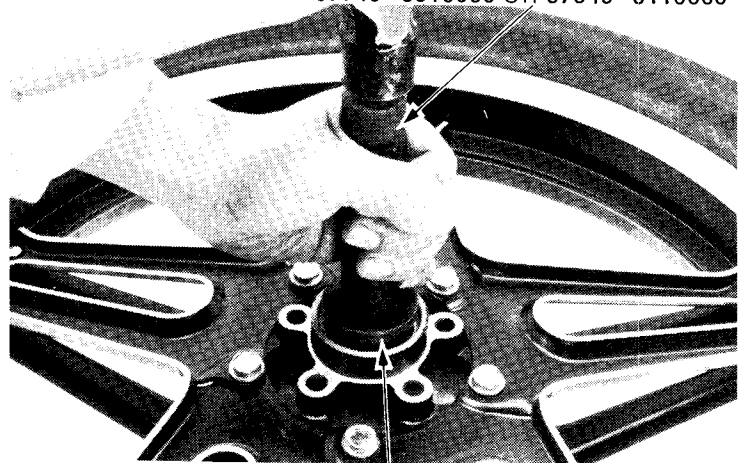
Lubricate the inside of the oil seal and install it.

Remove the speedometer drive gear from the 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.

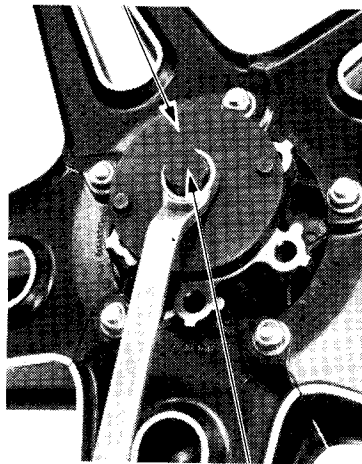
BEARING DRIVER HANDLE A
07749-0010000 OR 07949-6110000



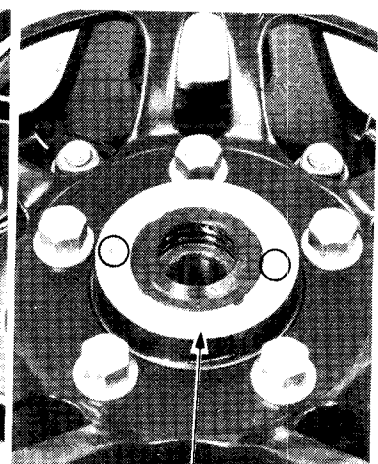
BEARING DRIVER OUTER 42 x 47 mm
07746-0010300 OR 07946-9350200

BEARING DRIVER PILOT 15 mm
07746-0040300 OR 07946-9350200

RETAINER
WRENCH

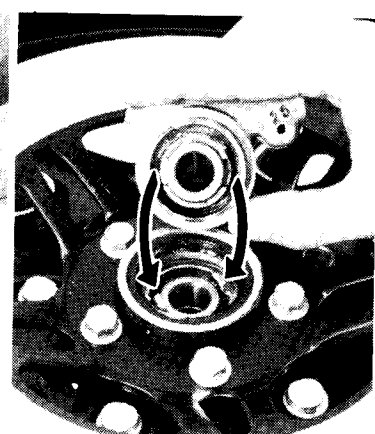
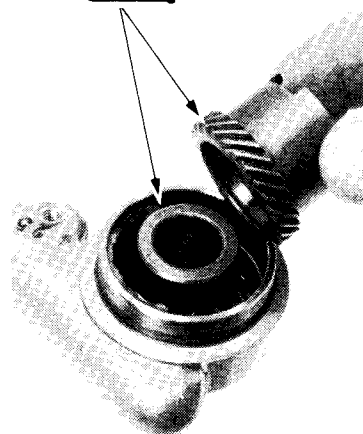


RETAINER
WRENCH BODY



BEARING
RETAINER

GREASE

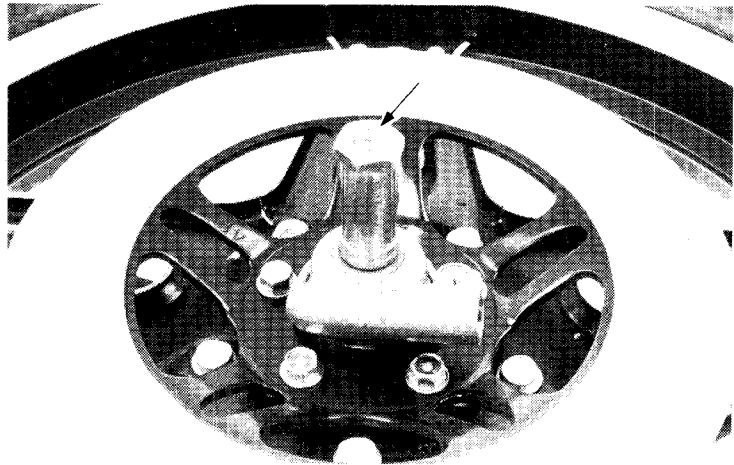




Install the left side collar and axle.
 Install the axle nut.

TORQUE: 5.5–6.5 kg-m (40–47 ft-lb)

Clean the brake discs with a high quality degreasing agent.

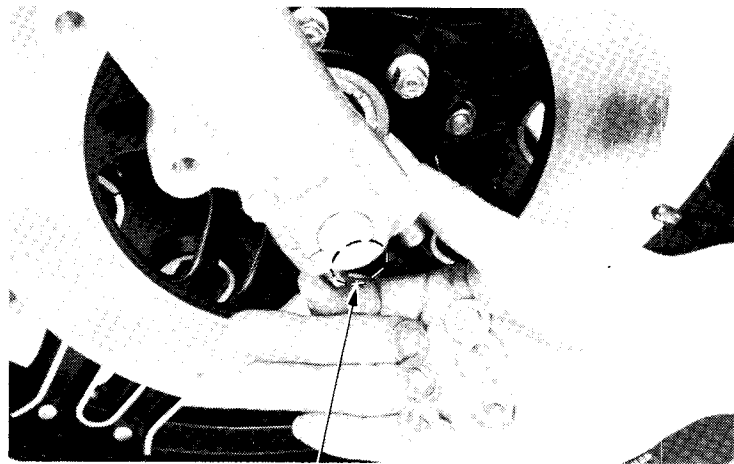


INSTALLATION

Fit the calipers over the discs, taking care not to damage the brake pads. Install the caliper mounting bolts.

TORQUE: 3.0–4.0 kg-m (22–29 ft-lb)

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



"F" ARROW MARK

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

TORQUE: 1.8–2.5 kg-m (13–18 ft-lb)

Measure the outside surface of the left brake disc and the rear of the left caliper holder with a 0.7 mm (0.028 in) feeler gauge.

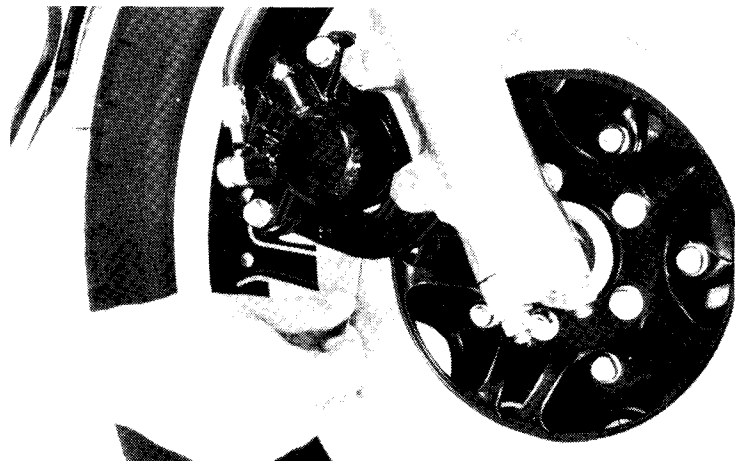
If the gauge cannot be inserted, pull the left fork out until the gauge can be inserted.

Tighten the left holder nuts.

There should be at least 0.7 mm (0.028 in) clearance between the caliper holder and disc.

CAUTION:

After installing the wheel, apply the brakes several times and recheck the clearance on both sides. Failure to provide clearance will damage the brake discs and affect braking efficiency.

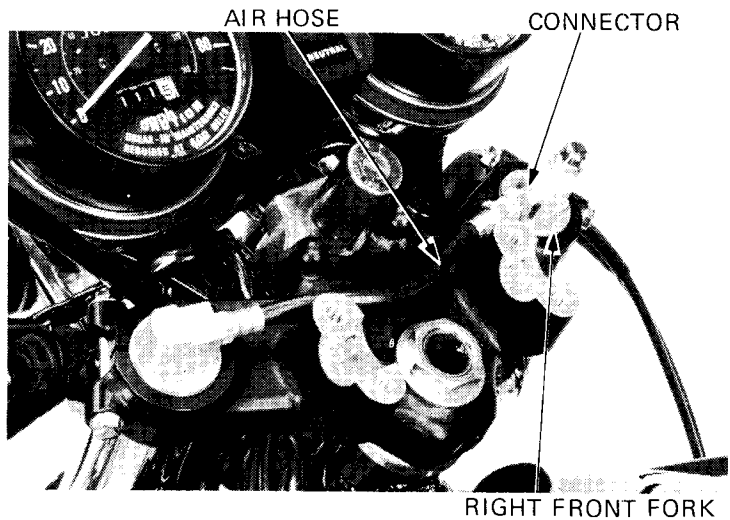




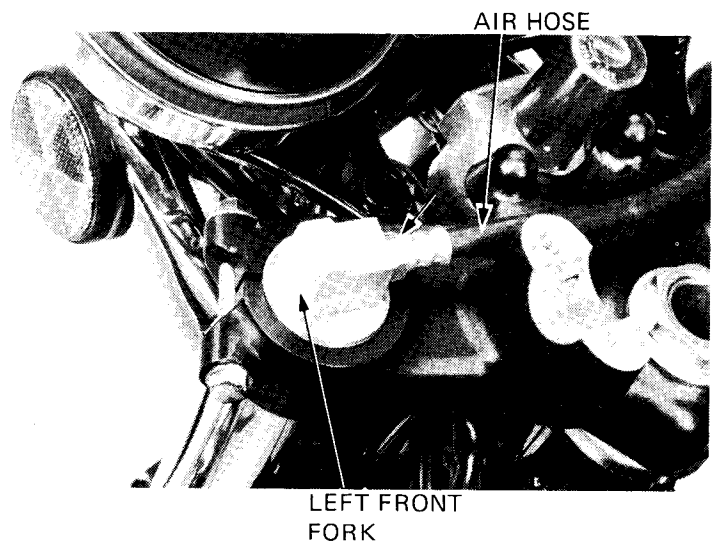
FRONT FORK

REMOVAL

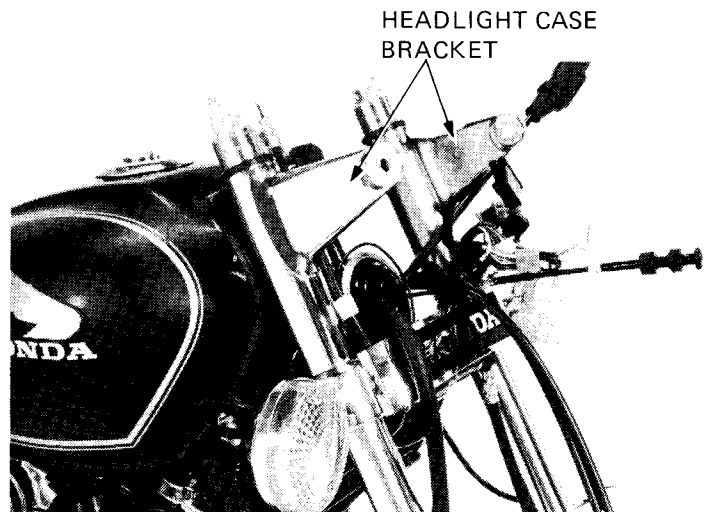
Remove the handlebar.
Disconnect the air hose and remove the connector from the right front fork.



Disconnect the air hose from the left front fork.

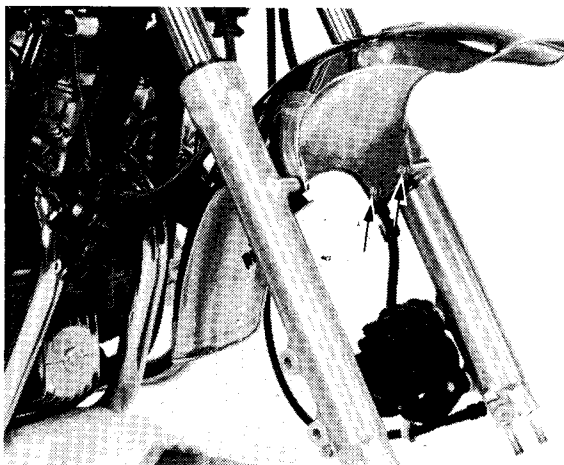


Remove the fork top bridge (page 14-22).
Remove the headlight case bracket.

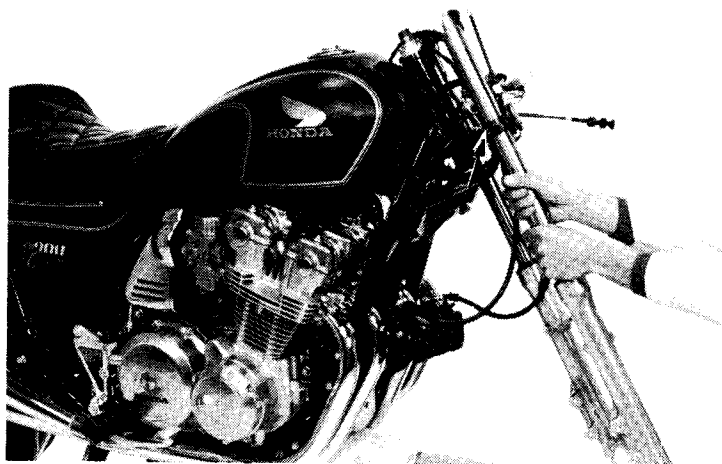




Remove the front wheel (page 14-10).
 Remove the brake caliper.
 Remove the fender.



Loosen the fork lower pinch bolt and remove the front fork.



DISASSEMBLY

Seal Removal

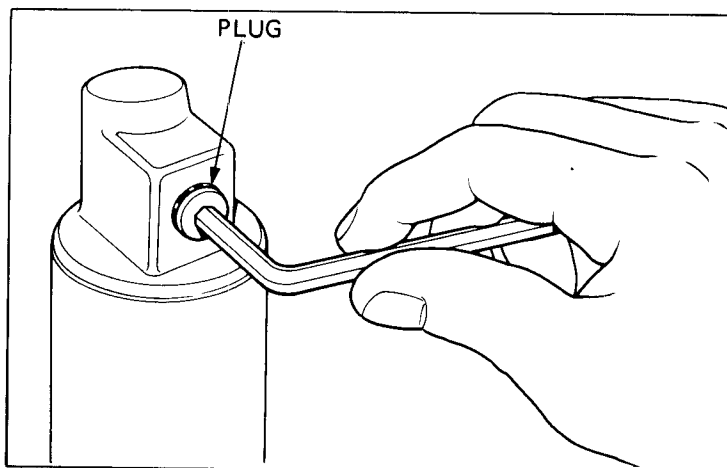
WARNING

The fork tube caps are under air and spring pressure. Front fork air pressure must be relieved and care used when removing the fork tube caps to prevent them from becoming projectiles. Wear eye and face protection.

NOTES

- Fork seal replacement does not require inner fork tube and slider separation.
- This procedure is for air assisted forks only.

Release air pressure and remove valve stem and hose connector (if applicable). Install the special plugs into the cap.





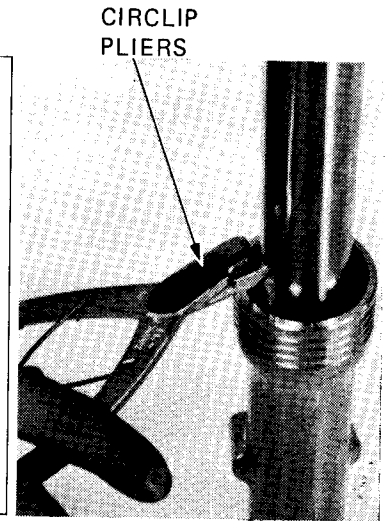
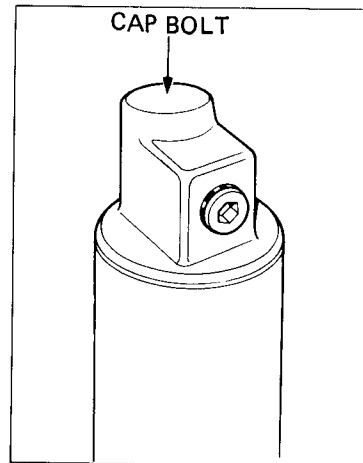
Place the fork inner tube into a vice with soft jaws or shop towel and loosen the fork tube cap.

Remove the fork tube cap.

Remove the oil seal dust cover and snap ring.

Remove the back-up plate with a magnet.

Extend the inner tube up all the way. Pour ATF into the fork tube up to the bottom of the cap threads and install the fork tube cap.



CIRCLIP
PLIERS

Place the seal driver over the fork tube. Wrap a shop towel around the seal area.

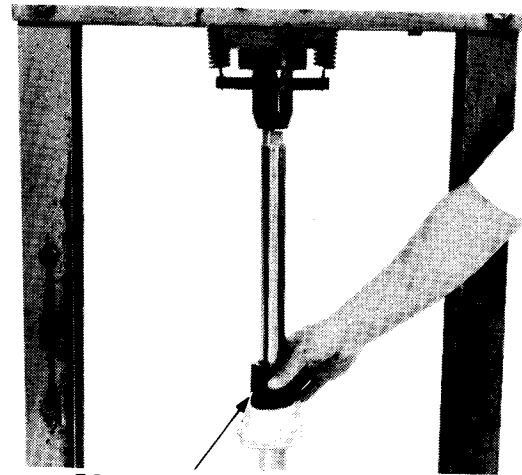
Compress the fork tube with a hydraulic press until the fork seal is forced out. Hold the driver against the seal during removal to keep it from tilting.

Remove the cap, tool and seal and pour the ATF out.

NOTE

For Seal installation See page 14-21.

Remove the back-up ring with a magnet.



FORK SEAL DRIVER
07947-3710100

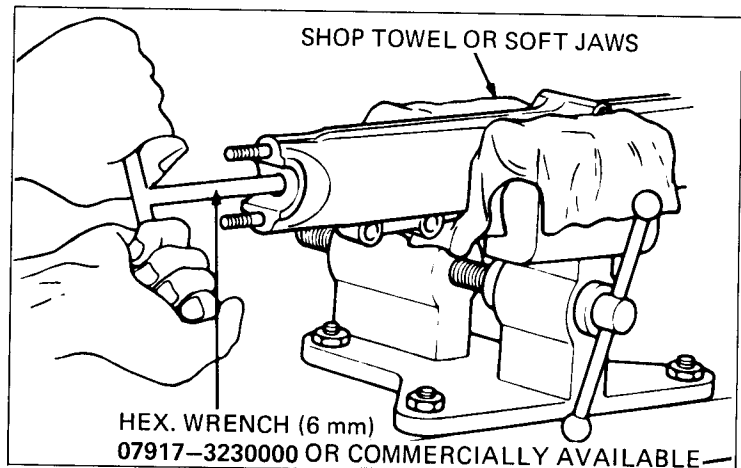
Fork Tube Separation

Hold the fork slider in a vise with soft jaws or a shop towel.

Remove the socket bolt with a hex wrench and pump the remaining ATF out through the socket bolt hole.

CAUTION:

Do not distort the slider in the vise.

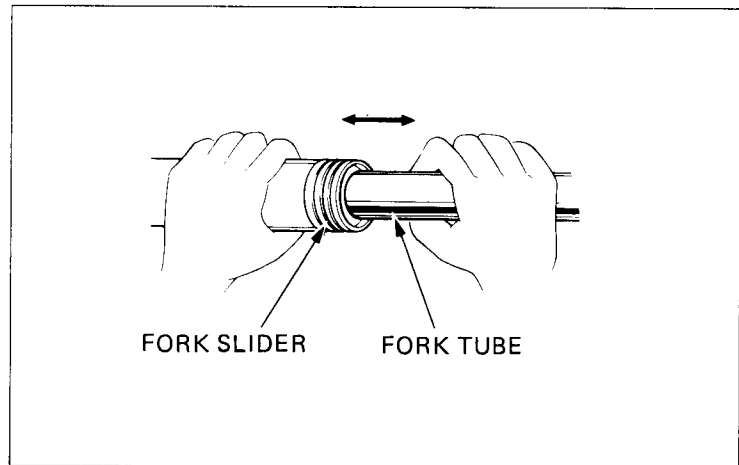


SHOP TOWEL OR SOFT JAWS
HEX. WRENCH (6 mm)
07917-3230000 OR COMMERCIALY AVAILABLE



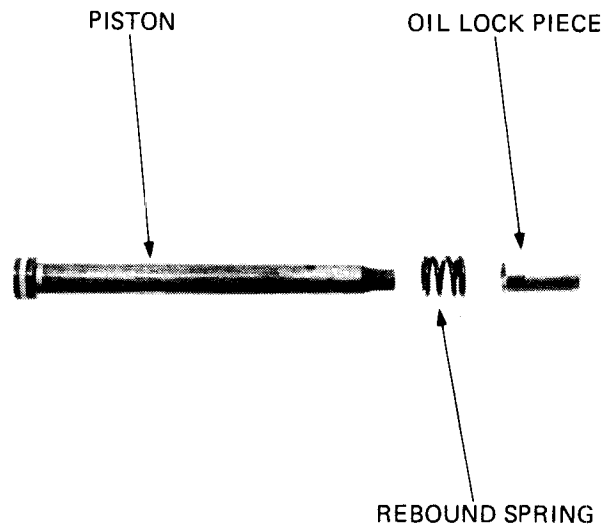
Pull the fork tube out until resistance from the slider bushing is felt. Then move it in and out, tapping the bushing lightly until the fork tube separates from the slider. The slider bushing will be forced out by the fork tube bushing.

Remove the slider bushing from the fork tube.



Remove the piston and rebound spring from the fork tube.

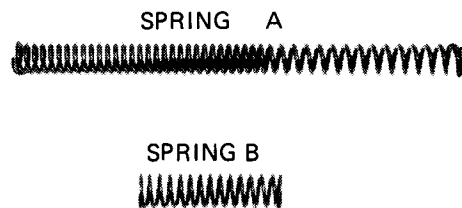
Remove the oil lock piece from inside the slider.



INSPECTION

Check the fork spring free lengths and replace the springs if shorter than the service limit.

	Spring A	Spring B
Standard	437.7 mm (17.23 in)	169 mm (6.7 in)
Service limit	429 mm (16.9 in)	165.5 mm (6.52 in)





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

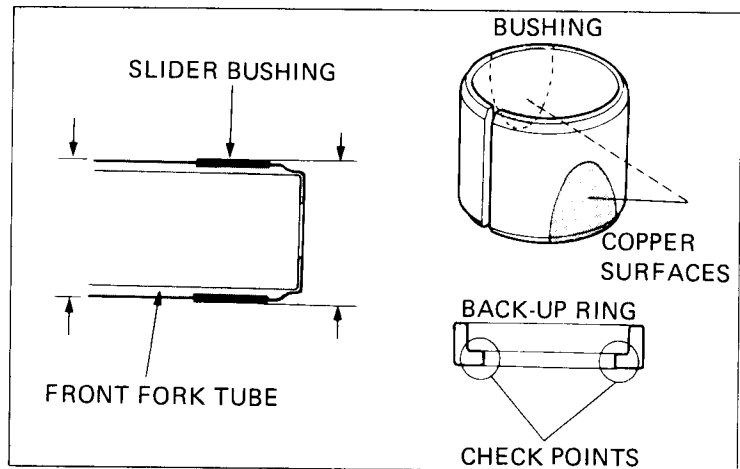
Measure the outside diameter of the fork tube and slider bushing.

FORK TUBE O.D. SERVICE LIMIT:
36.90 mm (1.453 in.)

Visually inspect the slider and fork tube bushings.

Replace if there are excessive scores or scratches, or if the teflon coating is worn so that copper appears over more than 3/4 of the total surface.

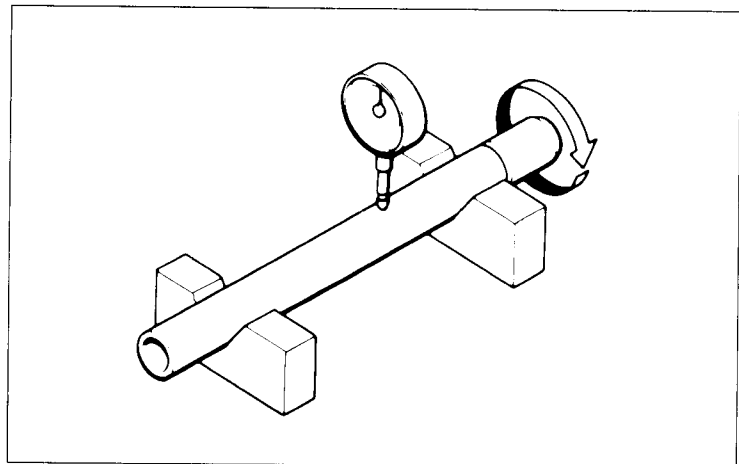
Check the back-up ring at the points shown. Replace if there is any distortion at the points.



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

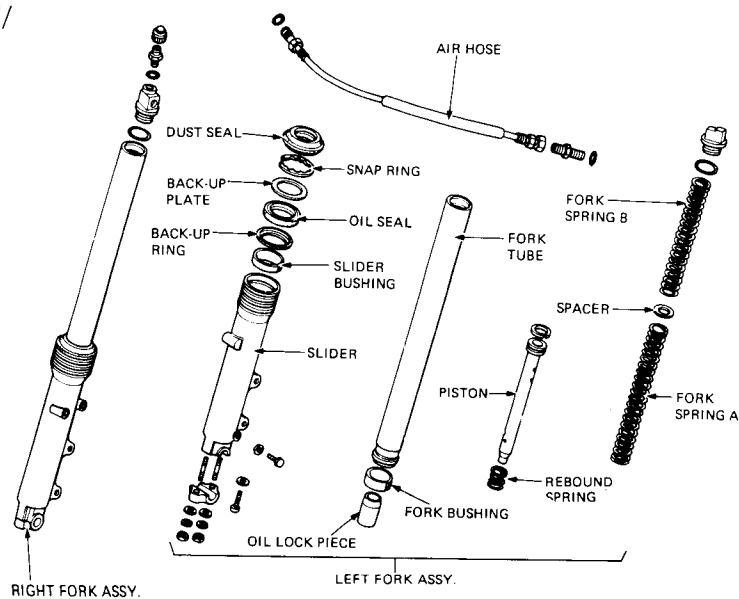
RUN OUT SERVICE LIMIT: 0.2 mm
(0.01 in)

Inspect the fork tube, slider and piston ring for excessive wear and replace if necessary.



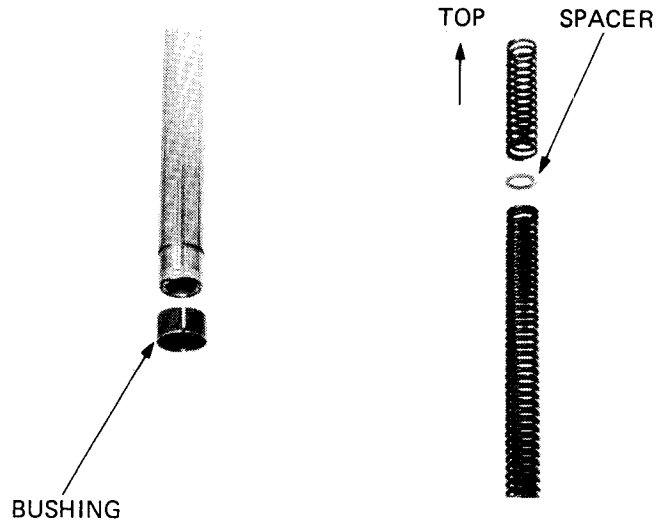
FRONT FORK ASSEMBLY/ INSTALLATION

Assembly





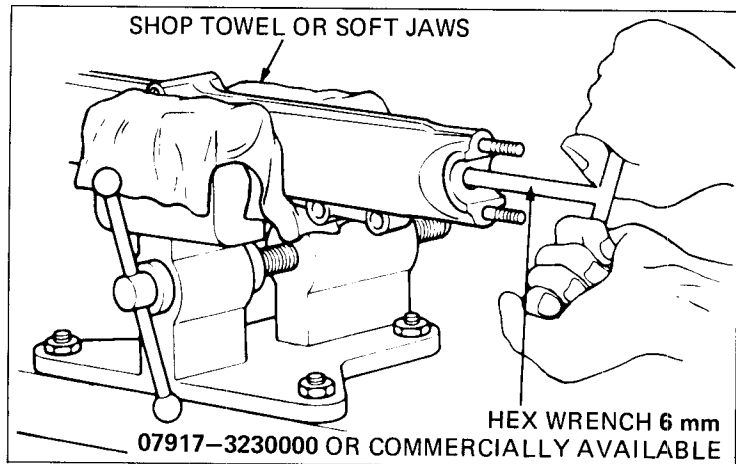
Clean all disassembled parts.
 Install the bushing onto the inner tube.
 Install the rebound spring and piston into the fork tube.
 Place the oil lock piece into the slider and insert the fork tube.
 Install the fork springs with the narrow coils toward the top and spacer between the two springs. Install the fork tube cap loosely.



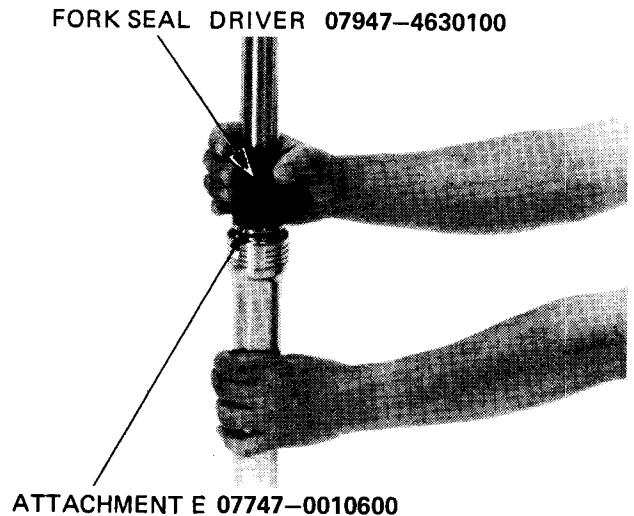
Apply a locking agent to the socket bolt and thread it into the piston. Tighten with a Hex Wrench.

CAUTION:

Do not distort the slider in the vise.



Place the slider bushing over the fork tube and rest it on the slider.
 Drive the bushing into place with the seal driver and attachment E.





Install the back-up ring.

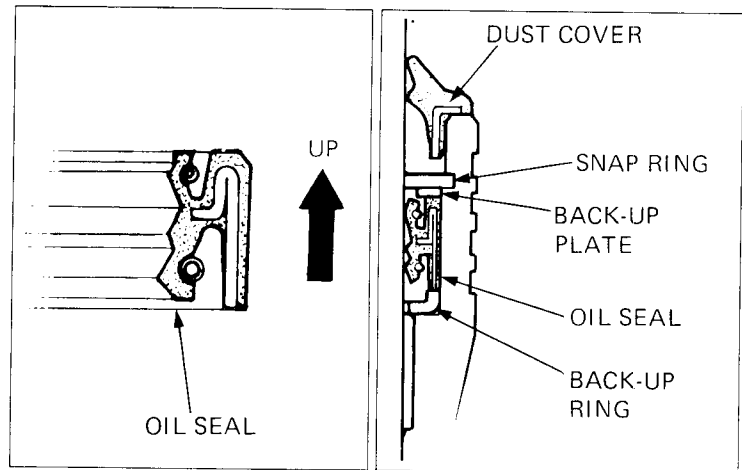
Coat a new oil seal with ATF and install it with the seal markings facing up.

Drive the seal in with the seal driver until the tool bottoms against the slider.

Install the back-up plate, snap ring and dust cover.

NOTES

- Install the snap ring with its radiused edge facing down.
- If additional seal depth is needed, install the back-up plate and repeat driving the seal in.



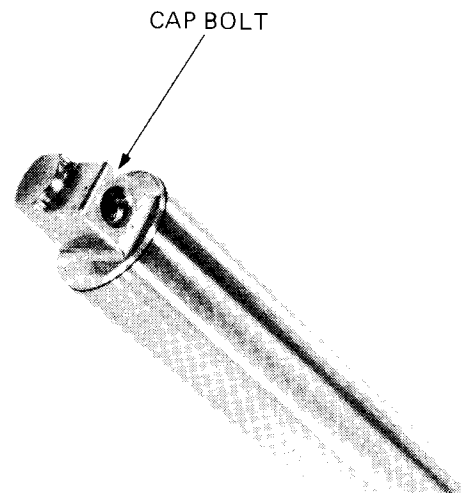
Remove the fork tube cap and pour the specified amount of ATF into the fork tube.

OIL CAPACITY: 280cc (9.5 oz)

Install and torque the fork tube cap bolt.

TORQUE: 1.5 – 3.0 kg-m (11 – 22 ft-lb)

Remove the plug and install the valve stem and connector.



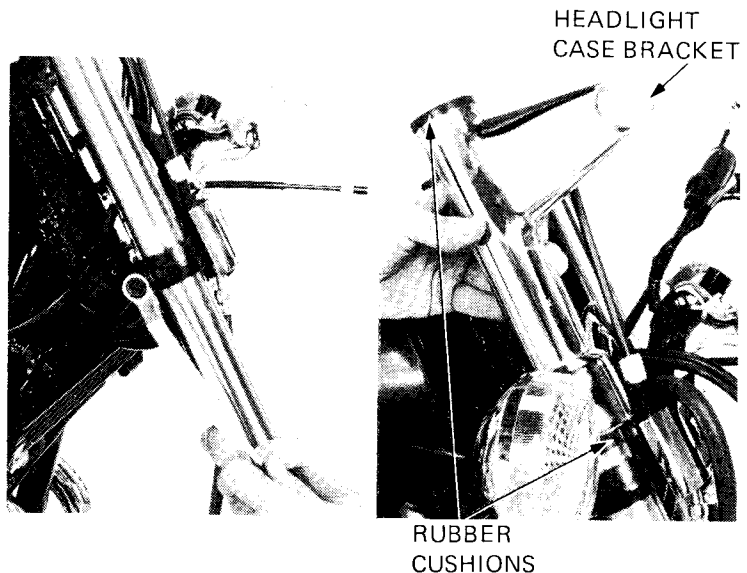
Installation

Install the front forks.

Tighten the steering stem bolts loosely.

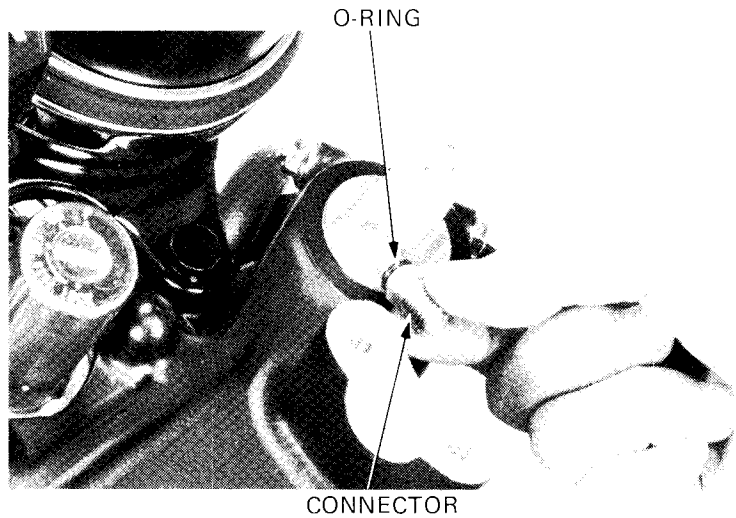
Install the rubber cushions and headlight case bracket.

Install the fork top bridge (page 14-27).



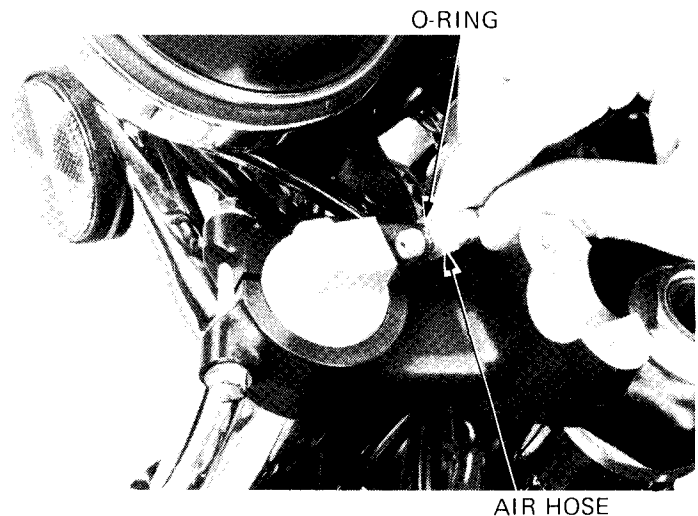
Apply grease to the new O-rings.
 Place new O-rings on the air hose connectors.
 Tighten the air hose connectors.

TORQUE: 0.4–0.7 kg-m (3–5 ft-lb)



Install the air hose to the left fork.

TORQUE: 0.4–0.7 kg-m (3–5 ft-lb)



Connect the air hose to the right fork cap.

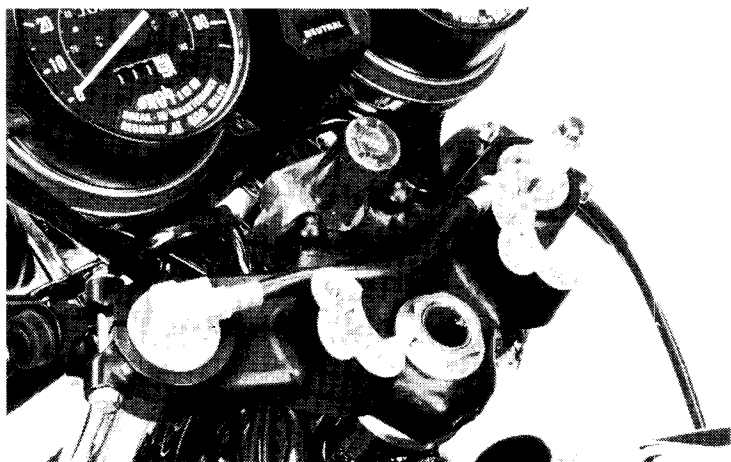
TORQUE: 1.5–2.0 kg-m (11–15 ft-lb)

Install the removed parts in the reverse order of removal.

Fill the fork tubes with air to 0.8–1.1 kg/cm² (11–16 psi).

CAUTION:

- Use only a hand operated air pump to fill the fork tubes.
Do not use compressed air.
- Maximum pressure is 3 kg/cm² (43 psi). Do not exceed this or fork tube component damage may occur.



With the front brake applied, pump the front forks up and down several times. Place the motorcycle on its center stand. Check the air pressure, adjust if necessary.



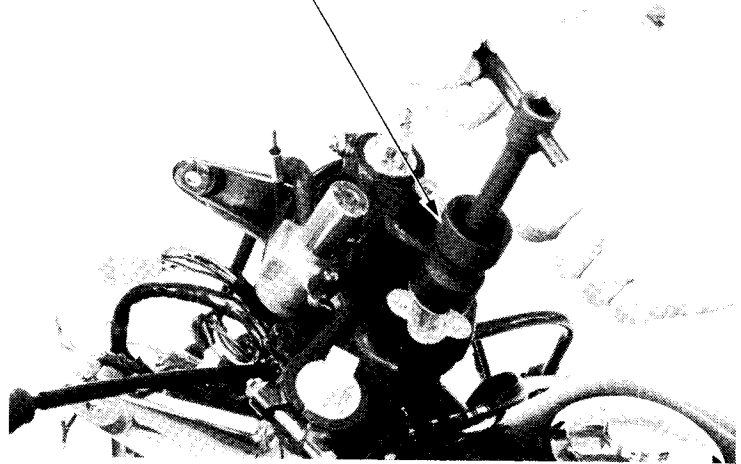
STEERING STEM

REMOVAL

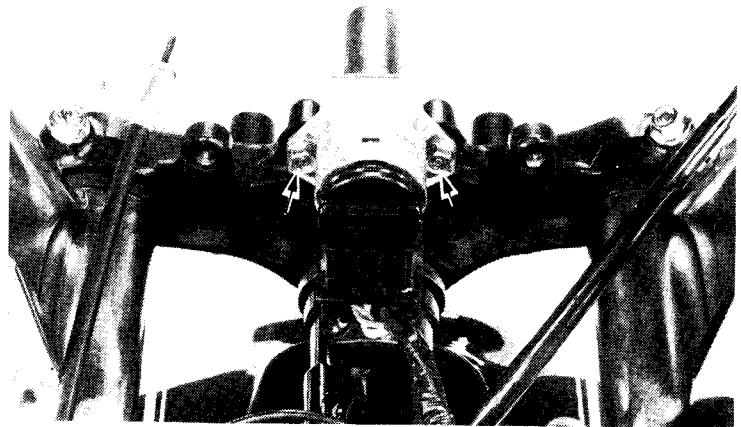
Remove the headlight (page 14-3).
Remove the instruments (page 14-4).
Remove the handlebar (page 14-6).
Remove the front fork air hose and connector (page 14-15).

Loosen the top bridge pinch bolts.
Remove the steering stem nut.

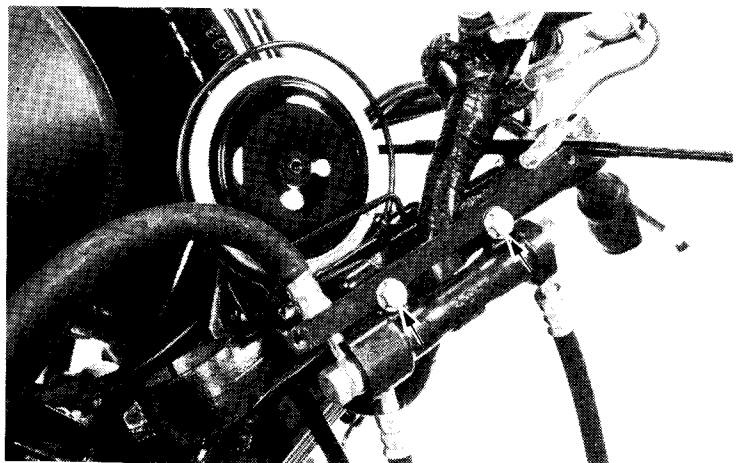
LOCK NUT WRENCH
30 x 32 mm



Disconnect the ignition switch coupler.
Remove the fork top bridge.



Remove the front wheel (page 14-10).
Remove the front fork (page 14-15).
Remove the brake hose 3-way joint and horn.

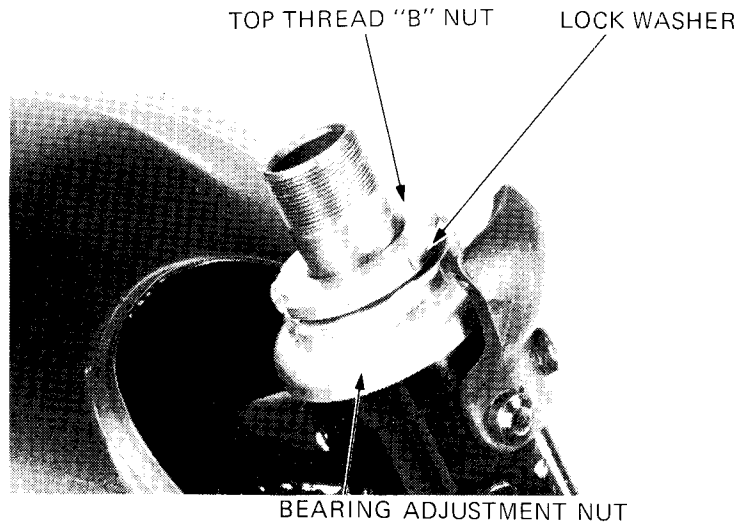




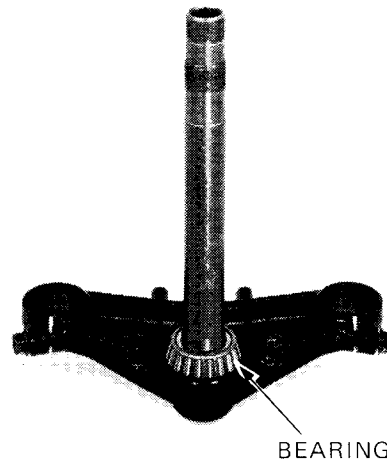
Remove the top thread "B" nut, lockwasher and bearing adjustment nut.

Remove the steering stem.

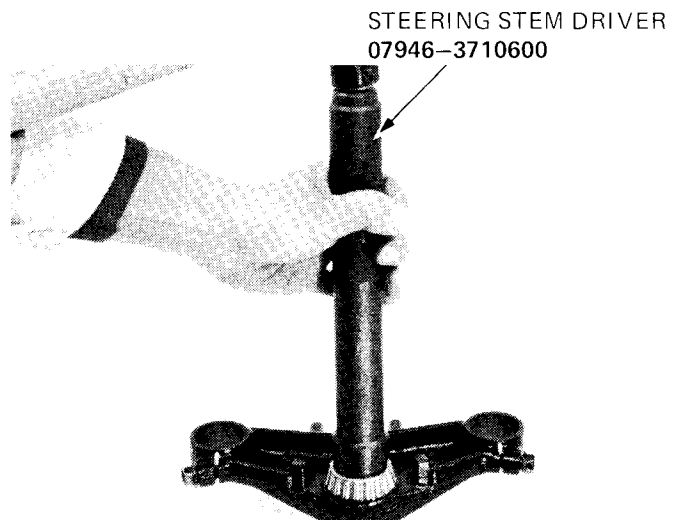
Check the steering stem bearing for damage or wear.



Remove the bearing if necessary.



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

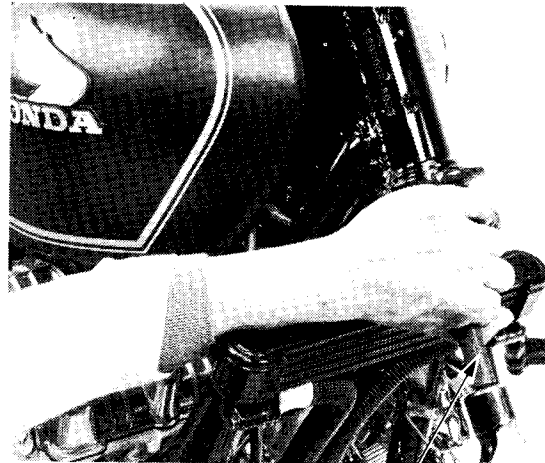




NOTE

Replace the bearing and bearing race as a set.

Remove the upper bearing race with the special tool.

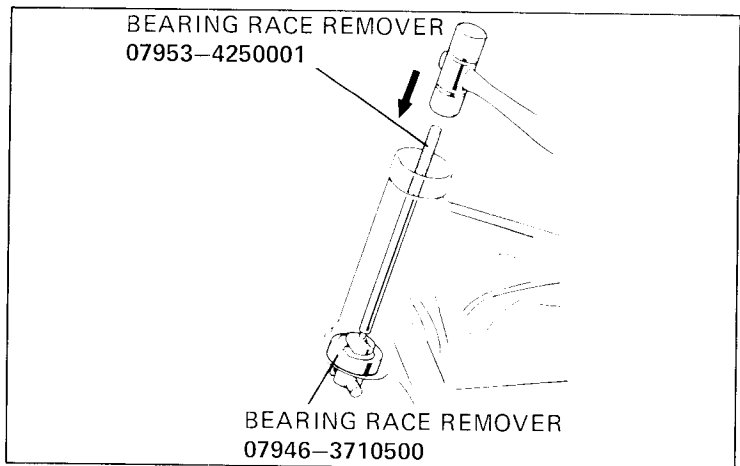


BEARING RACE REMOVER
07953-4250001

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.

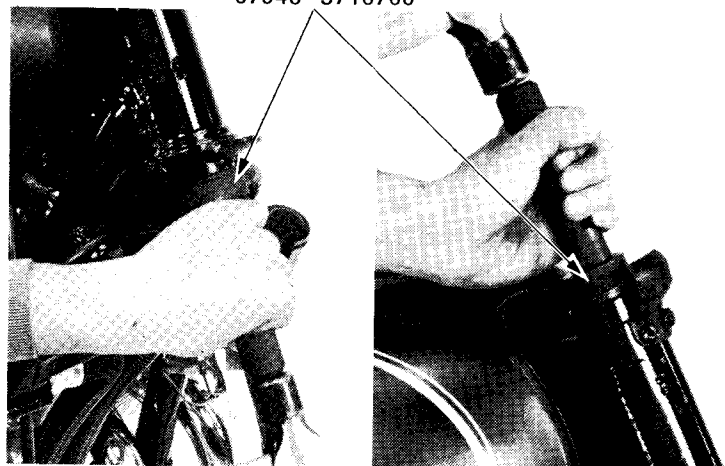


BEARING RACE REMOVER
07953-4250001

BEARING RACE REMOVER
07946-3710500

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

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

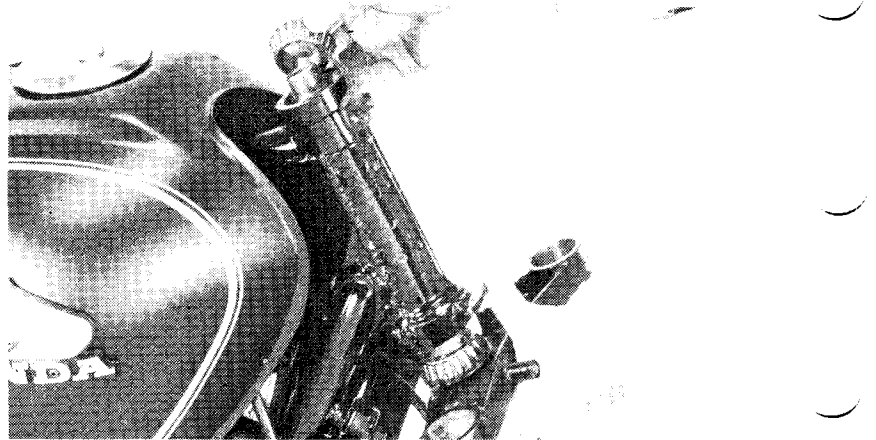


BEARING DRIVER ATTACHMENT
07946-3710700



STEERING STEM INSTALLATION

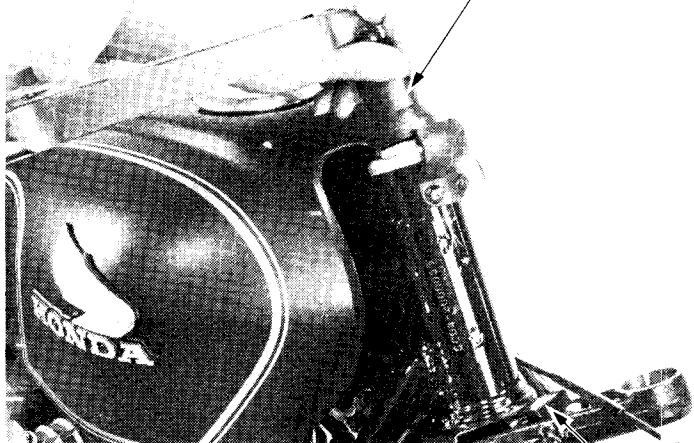
Pack the bearing cavities with bearing grease. Insert the steering stem into the steering head pipe and install the upper bearing inner race.



Install and tighten the adjustment nut.

TORQUE: 1.4–1.6 kg-m (10–12 ft-lb)

STEERING STEM SOCKET
07916–3710100

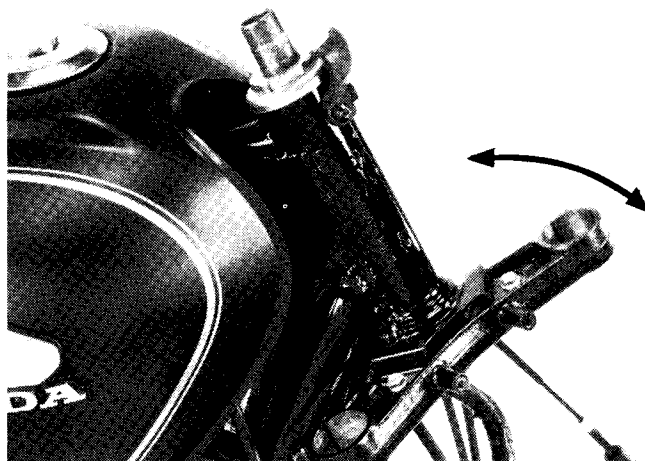


STEERING STEM
SET PLATE

Turn the steering stem lock-to-lock 5 times to seat the bearings.

Repeat the bearing tightening and steering stem turning sequence twice.

If the nut does not tighten after turning the steering stem the first or second time, remove the nut and inspect it and the steering stem threads for dirt or burrs.

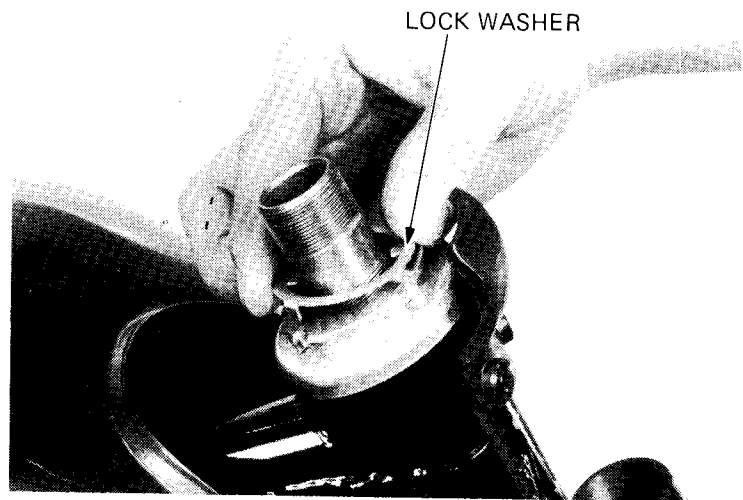




Install a new bearing adjustment nut lock washer aligning the tabs with the nuts grooves.

NOTE

DO NOT install a used bearing adjustment nut lock washer.

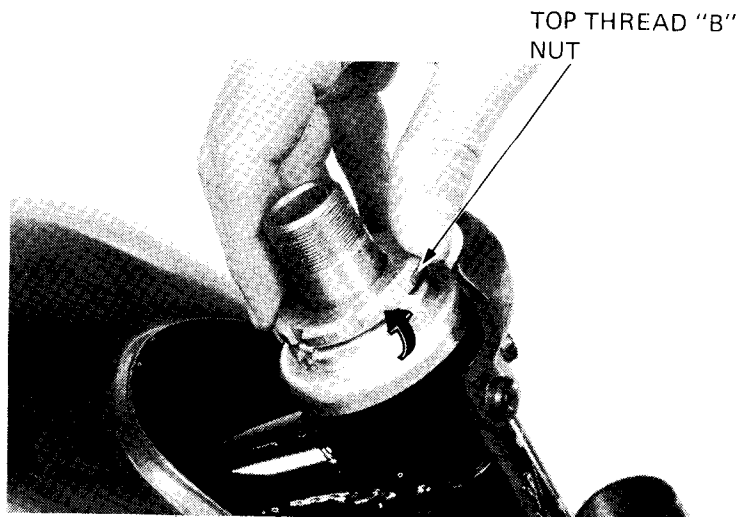


Hand tighten the top thread "B" nut. Hold the adjustment nut and further tighten the "B" nut only to align its grooves with the lock washer tabs.

NOTE

If the top thread "B" nut grooves cannot be easily aligned with the lock washer tabs, remove the nut, turn it over and reinstall.

Bend the other two lock washer tabs up into the top thread "B" nut grooves.



Install the front forks (page 14-21).
Install the top bridge.

Tighten the stem nut.

TORQUE: 8.0–12.0 kg-m (58–87 ft-lb)

Tighten the top bridge pinch bolts.

TORQUE: 0.9–1.3 kg-m (7–9 ft-lb)

Tighten the steering stem pinch bolts.

TORQUE: 4.5–5.5 kg-m (33–40 ft-lb)

