Chapter 7
Brakes, wheels, tires and final drive

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Specifications

Brakes

Brake fluid type	See Chapter 1
Front brake disc thickness	
VT600	
Standard	5.0 mm (0.20 inch)
Minimum*	4.0 mm (0.16 inch)
VT750	
Standard	5.8 to 6.2 mm (0.23 to 0.24 inch)
Minimum*	5.0 mm (0.2 inch)
Disc runout limit	0.30 mm (0.012 inch)
Front brake pad minimum thickness	To bottom of wear groove
Rear brake drum inside diameter	
VT600	
Standard	160 mm (6.30 inches)
Maximum	161 mm (6.34 inches)*
VT750	
Standard	180 to 180.3 mm (7.09 to 7.10 inches
Maximum	181 mm (7.13 inches)*
Rear brake shoe lining thickness	
Standard	5 mm (0.20 inch)
Minimum	2 mm (0.08 inch)

**Refer to marks on the disc or drum (they supersede information printed here)*

Wheels and tires

Wheel runout	
Radial (up-and-down)	2.0 mm (0.08 inch)
Axial (side-to-side)	2.0 mm (0.08 inch)
Tire pressures	See Chapter 1
Tire sizes	
Front	
VT600	100/90-19 57S
VT750	120/90-17 64S
Rear	170/80-15 M/C 77S

Torque specifications

Brake disc mounting bolts	
VT600	
1988 through 1998	39 Nm (29 ft-lbs)
1999 on	42 Nm (31 ft-lbs)
VT750	42 Nm (31 ft-lbs)
Brake caliper bracket mounting bolts	
1988, 1989, 1991 through 1993 VT600	27 Nm (20 ft-lbs)
1994 on VT600, VT750	30 Nm (22 ft-lbs)
Brake hose banjo bolt	34 Nm (25 ft-lbs)
Brake lever pivot bolt nut	6 Nm (53 in-lbs)
Brake pad pin	18 Nm (159 in-lbs)
Front axle	
VT600	74 Nm (55 ft-lbs)
VT750	59 Nm (44 ft-lbs)
Front axle pinch bolts	22 Nm (16 ft-lbs)
Master cylinder mounting bolts	12 Nm (108 in-lbs)
Rear axle nut	
VT600	
1988 and 1989, 1991 through 1996	90 Nm (66 ft-lbs)
1997 on	88 Nm (65 ft-lbs)
VT750	93 Nm (69 ft-lbs)
Rear brake stopper arm bolts/nuts	
VT600	22 Nm (16 ft-lbs)
VT750	20 Nm (15 ft-lbs)

1 General information

The models covered in this Chapter are equipped with a hydraulic disc brake at the front and a mechanical drum brake at the rear. All models are equipped with wire spoke wheels and tube-type tires. And all models are chain-driven. **Caution:** *Disc brake components rarely require disassembly. Do not disassemble components unless absolutely necessary. If any hydraulic brake line connection in the system is loosened, the entire system should be disassembled, drained, cleaned and then properly filled and bled upon reassembly. Do not use solvents on internal brake components. Solvents will cause seals to swell and distort. Use only clean brake fluid, brake cleaner or alcohol for cleaning. Use care when working with brake fluid as it can injure your eyes and it will damage painted surfaces and plastic parts.*

2 Brake pads - replacement

Warning: *The dust created by the brake system may contain asbestos, which is harmful to your health. Never blow it out with compressed air and don't inhale any of it. An approved filtering mask should be worn when working on the brakes.*

Refer to illustrations 2.3, 2.4, 2.5, 2.7, 2.9 and 2.12

1 Turn the handlebar so that the brake master cylinder is level, then remove the master cylinder reservoir cover, set plate and diaphragm (see Section 5).

2 Depress the caliper pistons by pushing the caliper in (toward the disc) with your thumbs. Watch the level of the brake fluid in the master cylinder reservoir; it will rise as you depress the caliper pistons. If it gets too close to the top, siphon off a little fluid from the reservoir. If you can't depress the pistons with thumb pressure, try using a C-clamp. If the pistons stick, remove the caliper and overhaul it (see Section 3).

3 Remove the pad pin plug **(see illustration)**.

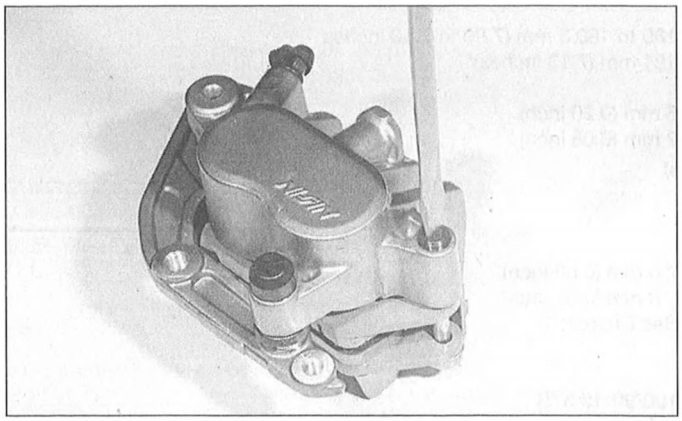
4 Remove the pad pin **(see illustration)**.

5 Remove the brake pads **(see illustration)**.

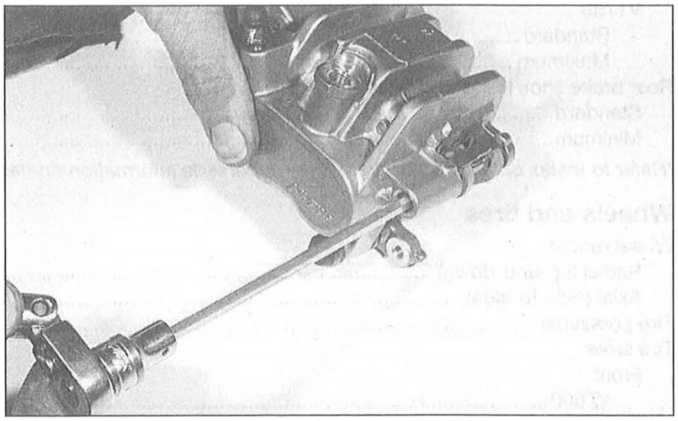
6 If the pads have removable shims, remove the shims from the old pads.

7 Note whether the friction material on the pads has been worn down to the bottom of the wear grooves, *i.e.* if the wear grooves have disappeared, or are about to disappear **(see illustration)**. If so, replace the pads, as a pair. If the pads are fouled with oil or are damaged, replace them.

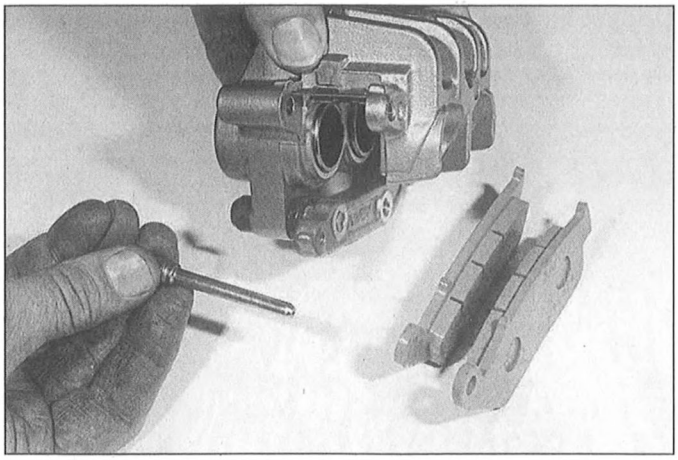
8 Inspect the condition of the brake disc (see Section 4). If it needs to be machined or replaced, follow the procedure in that Section to remove it. If the disc is okay, deglaze it with sandpaper or emery cloth, using a swirling motion.



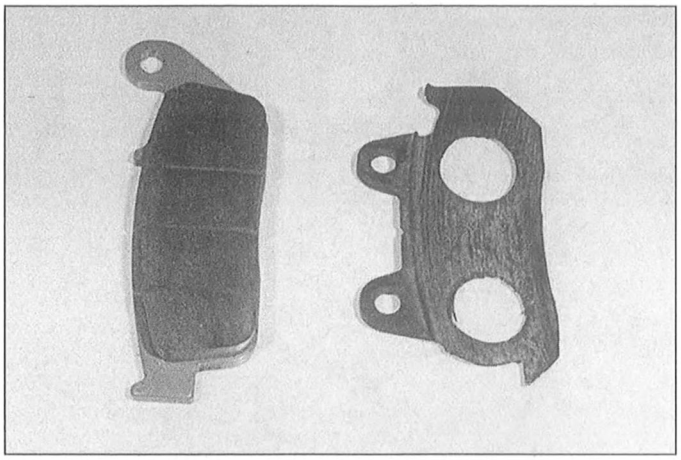
2.3 Unscrew and remove the pad pin plug



2.4 Unscrew the pad pin



2.5 Pull out the pad pin plug and remove the brake pads; the holes for the pad pin at the lower end of the caliper



2.7 There are grooves in new pads (left); if they're worn away (right), replace the pads immediately

9 Inspect the condition of the pad retainer and the pad spring **(see illustration)**. If either of them is distorted or damaged, replace it. If you remove the retainer or the spring, make sure that the new part fits into the caliper exactly as shown. If either of these parts is incorrectly installed, the pads will not fit into the caliper correctly.

10 Install the shims on the new brake pads.

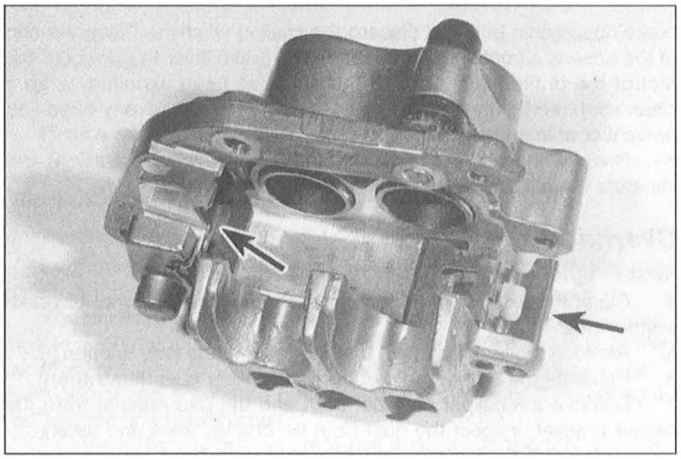
11 Install the pads in the caliper so that their upper ends rest against the pad retainer.

12 Push the pads against the pad spring, align the holes in the lower ends of the pads with the hole in the caliper, insert the pad pin **(see illustration)** and tighten it to the torque listed in this Chapter's Specifications.

13 Install the pad pin plug and tighten it securely.

14 Refill the master cylinder reservoir (see Chapter 1) and install the diaphragm and cover.

15 Operate the brake lever several times to bring the pads into contact with the disc. Check the operation of the brakes carefully before riding the motorcycle.



2.9 Replace the pad retainer (left arrow) and pad spring (right arrow) if they're damaged or worn

3 Brake caliper - removal, overhaul and installation

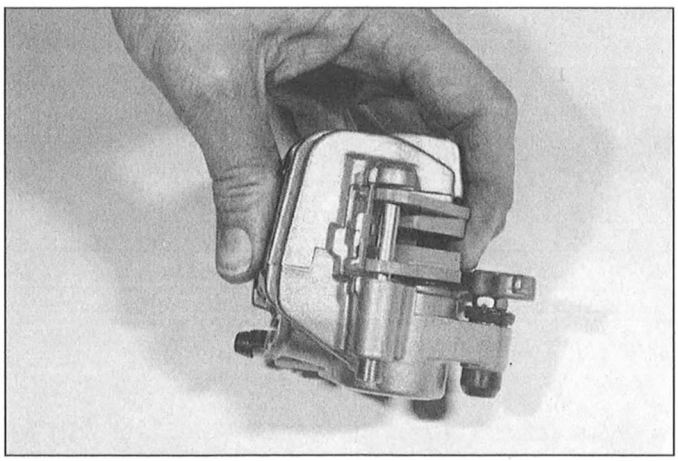
Warning: *The dust created by the brake system may contain asbestos, which is harmful to your health. Never blow it out with compressed air and don't inhale any of it. An approved filtering mask should be worn when working on the brakes. Do not, under any circumstances, use petroleum-based solvents to clean brake parts. Use brake cleaner or denatured alcohol only!*

Removal

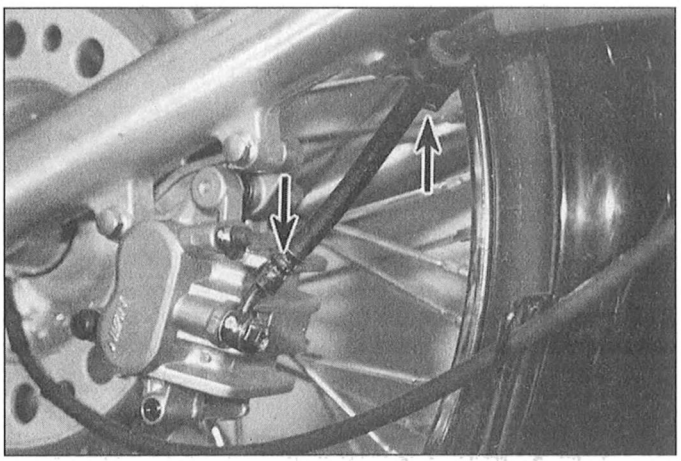
Refer to illustrations 3.2a, 3.2b and 3.3

1 Remove the cover, set plate and diaphragm from the master cylinder and siphon out all of the old brake fluid.

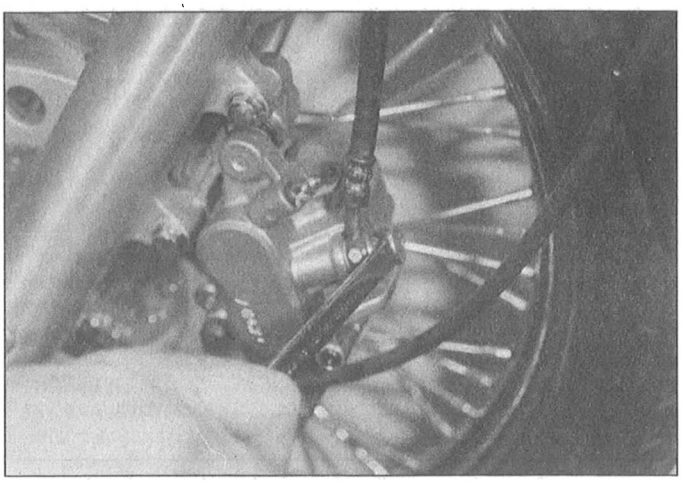
2 Detach the brake hose from the fork slider **(see illustration)**. Disconnect the brake hose from the caliper **(see illustration)**. Remove the



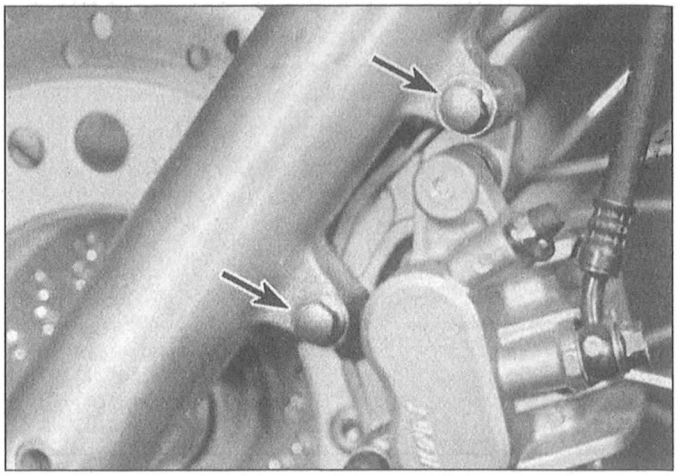
2.12 This is how the pads and the pad pin should look right before the pad pin is screwed into the caliper



3.2a Brake hose clamp (upper arrow); the neck of the hose must be in this notch (lower arrow)



3.2b To disconnect the brake hose from the caliper, remove the banjo bolt; discard the old sealing washers



3.3 To detach the brake caliper from the fork slider, remove these two bolts (arrows)

brake hose banjo bolt and discard the sealing washers. Place the end of the hose in a container and operate the brake lever to pump out the rest of the brake fluid. After all the fluid has been expelled, wrap a clean shop rag tightly around the hose fitting to soak up any drips and prevent contamination.

3 Remove the caliper bracket mounting bolts **(see illustration)** and separate the caliper from the fork slider.

Overhaul

Refer to illustrations 3.6, 3.11, 3.12 and 3.13

4 Clean the exterior of the caliper with denatured alcohol or brake system cleaner.

5 Remove the brake pad pin and the brake pads (see Section 2).

6 Separate the caliper bracket from the caliper **(see illustration)**.

7 Remove the caliper pin dust boot and the pad retainer from the caliper bracket. Inspect the dust boot for cracks, tears and deterioration; replace it if it's damaged or worn. Make sure the retainer is neither bent nor damaged; if it is, replace it.

8 Remove the caliper bracket pin dust boot and the pad spring from the caliper. Inspect the boot for cracks, tears and deterioration; replace it if it's damaged or worn. Make sure the pad spring is neither bent nor damaged; if it is, replace it.

9 Place a few rags between the piston and the caliper frame to act as a cushion, lay the caliper on the work bench so that the pistons are facing down, toward the work bench surface, then use compressed air, directed into the fluid inlet, to remove the pistons. Use only small quick blasts of air to ease the pistons out of the bore. If a piston is blown out with too much force, it might be damaged. **Warning:** *Never place your fingers in front of the pistons in an attempt to catch or protect them when applying compressed air. Doing so could result in serious injury.*

10 If compressed air isn't available, reconnect the caliper to the brake hose and pump the brake lever until the piston is free. (You'll have to put brake fluid in the master cylinder reservoir and get most of the air out of the hose to use this method.)

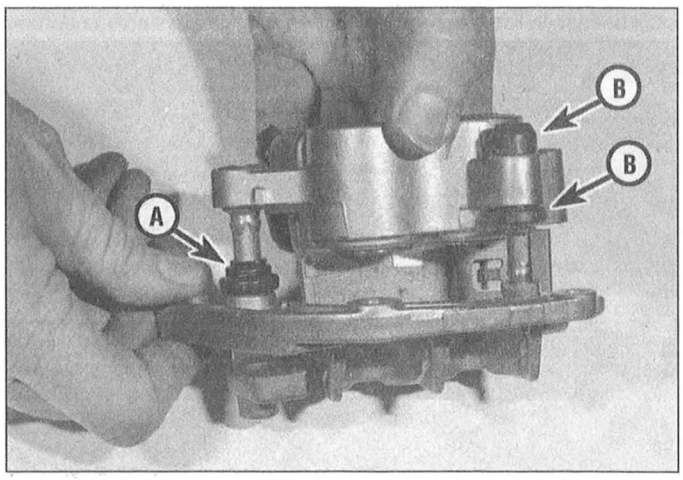
11 Once the pistons are protruding from the caliper, remove them **(see illustration)**.

12 Using a wood or plastic tool, remove the dust seals and the piston seals **(see illustration)**.

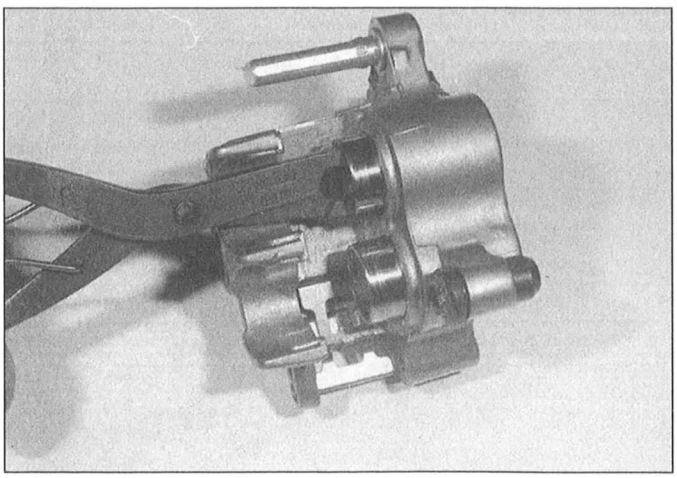
13 Clean the pistons and the piston bores with denatured alcohol, fresh brake fluid or brake system cleaner and dry them off with filtered, unlubricated compressed air. Inspect the surfaces of the pistons **(see illustration)** and the piston bores for nicks and burrs and loss of plating. If you find defects on the surface of either piston or piston bore, replace the caliper assembly (the pistons are matched to the caliper). If the caliper is in bad shape, inspect the master cylinder too.

14 Lubricate the new piston seals and dust seals with clean brake fluid and install them in their grooves in the caliper bore. Make sure they're not twisted and are fully and correctly seated.

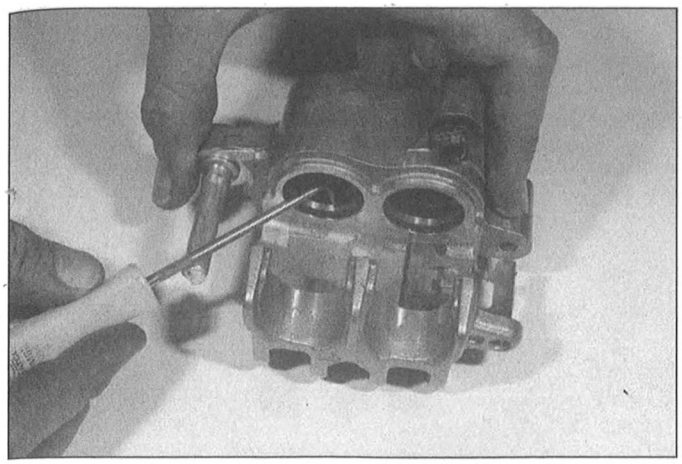
15 Lubricate the pistons with clean brake fluid and install them into their bores in the caliper. Using your thumbs, push each piston all the



3.6 Pull the caliper and bracket apart; inspect the caliper pin dust boot (A) and the bracket pin boot (B)



3.11 After popping the pistons loose with compressed air, insert a pair of pliers inside each piston and pull them out of their bores



3.12 Remove the dust (outer) seals and the piston (inner) seals from both bores; be careful not to scratch the surface of the bores

way in; make sure it doesn't become cocked in the bore.

16 The caliper body should be able to slide in relation to its mounting bracket. If it was seized or operated stiffly prior to disassembly, inspect the slider pins on the caliper and the bracket for excessive wear. Minor blemishes can be cleaned up with crocus or emery cloth. If either pin shows signs of serious damage, replace it. The pins can be unscrewed from the bracket and caliper. If you remove either pin, be sure to tighten the new pin to the torque listed in this Chapter's Specifications. Coat the pins with high-temperature disc brake grease.

17 Reassemble the caliper and the caliper bracket. Make sure that the two parts slide smoothly in and out on the pins.

18 If the pad retainer or pad spring was removed, install it now **(see illustration 2.9)**.

19 Install the brake pads (see Section 2).

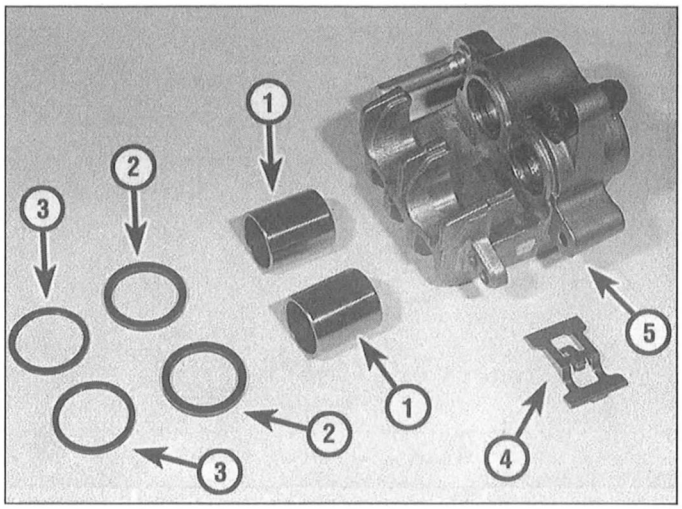
Installation

20 Install the caliper on the fork slider, install the caliper bracket mounting bolts and tighten them to the torque listed in this Chapter's Specifications.

21 Connect the brake hose to the caliper, using new sealing washers on each side of the banjo bolt.

22 Fill the master cylinder with the recommended brake fluid (see Chapter 1) and bleed the system (see Section 7). Check for leaks.

23 Check the operation of the brakes carefully before riding the motorcycle.



3.13 Front brake caliper assembly

1	*Pistons*	3	*Piston seal*	5	*Caliper*
2	*Dust seal*	4	*Pad springs*		

4 Brake disc - inspection, removal and installation

Inspection

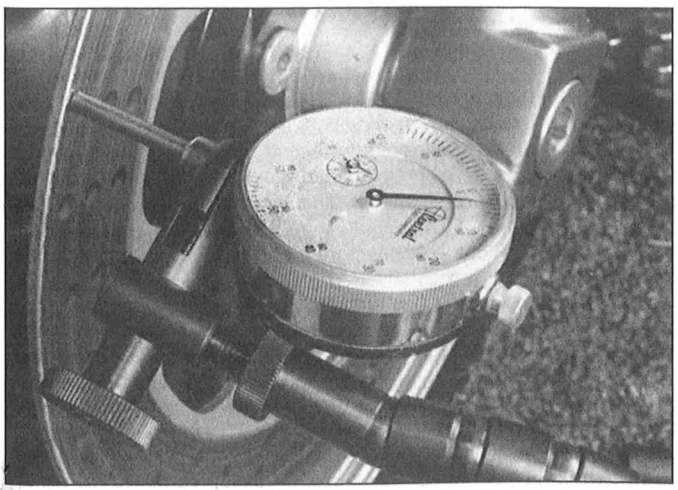
Refer to illustrations 4.3, 4.4a and 4.4b

1 Support the bike securely so it can't be knocked over during this procedure.

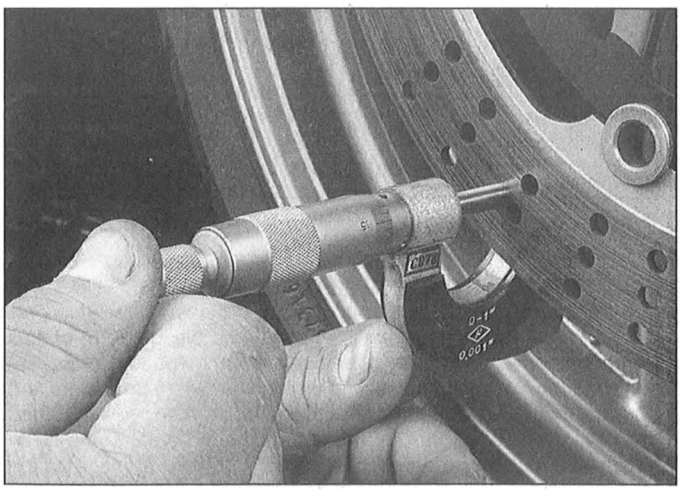
2 Visually inspect the surface of the disc for score marks and other damage. Light scratches are normal after use and won't affect brake operation, but deep grooves and heavy score marks will reduce braking efficiency and accelerate pad wear. If the disc is badly grooved it must be machined or replaced.

3 To check disc runout, mount a dial indicator to the fork leg with the plunger on the indicator touching the surface of the disc about 1/2-inch from the outer edge **(see illustration)**. Slowly turn the wheel and watch the indicator needle, comparing your reading with the limit listed in this Chapter's Specifications or stamped on the disc itself. If the runout is greater than allowed, replace the disc.

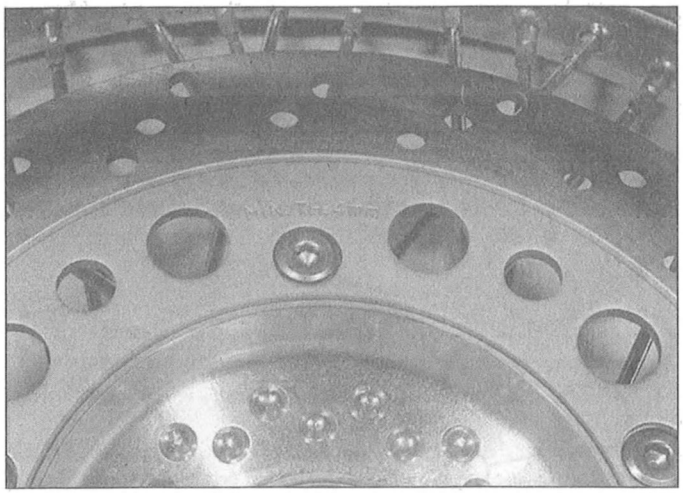
4 The disc must not be machined or allowed to wear down to a thickness less than the minimum allowable thickness, listed in this Chapter's Specifications. The thickness of the disc can be checked with a micrometer **(see illustration)**. If the thickness of the disc is less



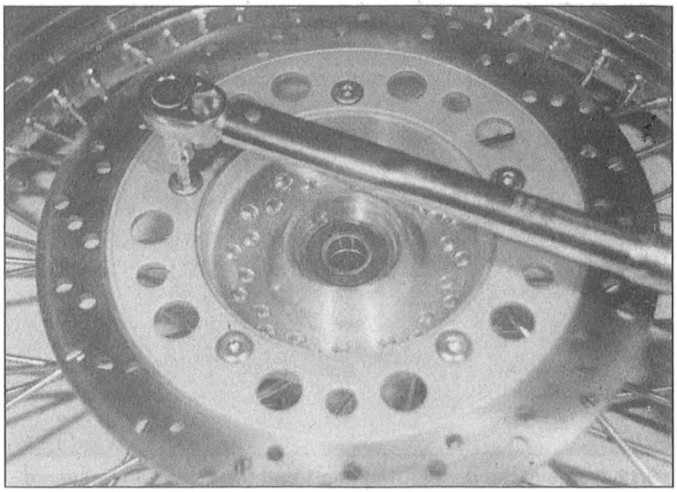
4.3 Set up a dial indicator with the probe touching the surface of the disc, turn the wheel slowly and measure runout



4.4a Use a micrometer to measure the thickness of the disc at several points



4.4b The minimum thickness is also stamped into the disc (if it differs from the value listed in this Chapter's Specifications, the information here supersedes the specs)



4.6 To detach the disc from the wheel, remove these five Allen bolts in a criss-cross fashion

than the minimum allowable, it must be replaced. The minimum thickness is also stamped into the disc **(see illustration)**.

Removal

Refer to illustration 4.6

5 Remove the wheel (see Section 11).

6 Mark the relationship of the disc to the wheel, so it can be installed in the same position. Remove the bolts that retain the disc to the wheel hub **(see illustration)**. Loosen the bolts a little at a time, in a criss-cross pattern, to avoid distorting the disc. Once all the bolts are loose, take the disc off.

7 Take note of any paper shims that may be present where the disc mates to the hub. If there are any, mark their position and be sure to include them when installing the disc.

Installation

8 Position the disc on the wheel, aligning the previously applied match marks (if you're reinstalling the original disc). Make sure the arrow (stamped on the disc) marking the direction of rotation is pointing in the correct direction (the direction that the wheel rotates when the bike is moving forward).

9 Apply a non-hardening thread locking compound to the threads of the bolts. Install the bolts with new lockwashers, tightening them a little at a time, in a criss-cross pattern, until the torque listed in this Chapter's Specifications is reached. Clean off all grease from the brake disc using acetone or brake system cleaner.

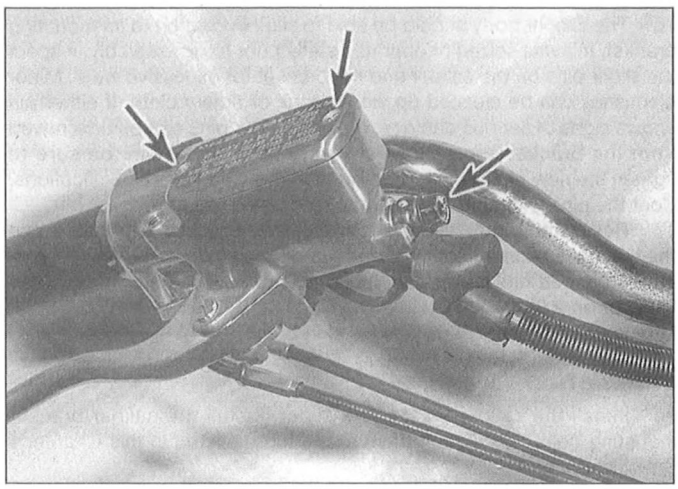
10 Install the wheel (see Section 11).

11 Operate the brake lever several times to bring the pads into contact with the disc. Check the operation of the brakes carefully before riding the motorcycle.

5 Front brake master cylinder - removal, overhaul and installation

1 If the master cylinder is leaking fluid, or if the lever does not produce a firm feel when the brake is applied, and bleeding the brakes does not help, master cylinder overhaul is recommended. Before disassembling the master cylinder, read through the entire procedure and make sure that you have the correct rebuild kit. Also, you will need some new, clean brake fluid of the recommended type, some clean rags and internal snap-ring pliers. **Note:** *To prevent damage to the paint from spilled brake fluid, always cover the top cover or upper fuel tank when working on the master cylinder.*

2 **Caution:** *Disassembly, overhaul and reassembly of the brake master cylinder must be done in a spotlessly clean work area to avoid contamination and possible failure of the brake hydraulic system components.*



5.4 Reservoir cover screws (left arrows) and brake hose banjo bolt (right arrow)

Removal

Refer to illustrations 5.4 and 5.7

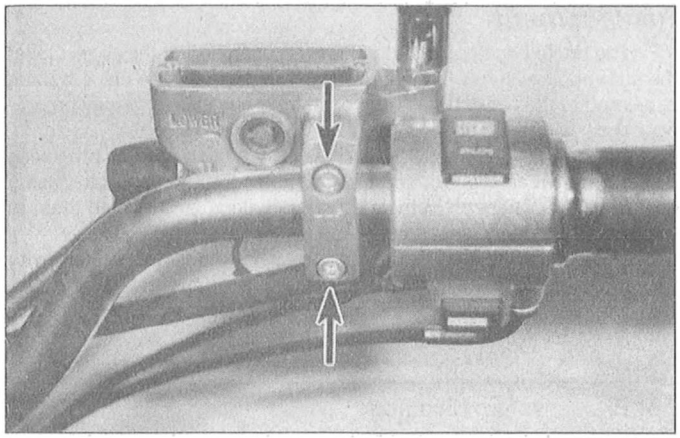
3 Remove the rear view mirror.

4 Remove the reservoir cover retaining screws **(see illustration)**. Remove the reservoir, the set plate and the rubber diaphragm. Siphon as much brake fluid from the reservoir as you can to avoid spilling it on the bike.

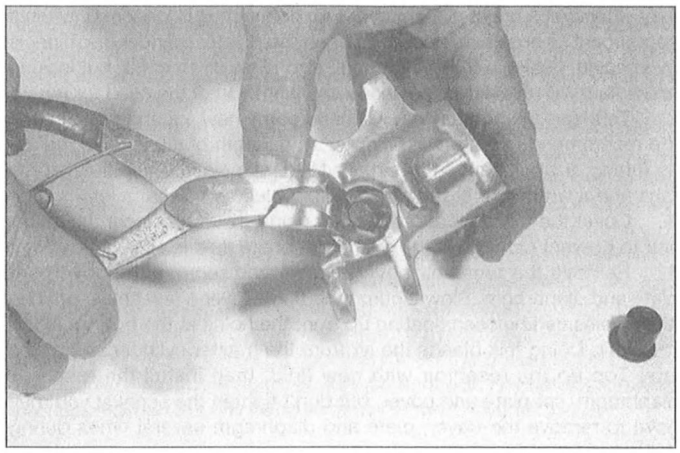
5 Unplug the electrical connectors from the brake light switch (see Chapter 9).

6 Pull back the rubber dust boot, loosen the brake hose banjo bolt **(see illustration 5.4)** and separate the brake hose from the master cylinder. Wrap the end of the hose in a clean rag and suspend the hose in an upright position or bend it down carefully and place the open end in a clean container. The objective is to prevent excessive loss of brake fluid, fluid spills and system contamination.

7 Remove the master cylinder mounting bolts **(see illustration)** and separate the master cylinder from the handlebar. **Caution:** *Do not tip the master cylinder upside down or any brake fluid still in the reservoir will run out.*



5.7 Detach the master cylinder mounting bolts (arrows); the UP mark must be upright when the master cylinder is installed



5.9b . . . and remove the snap-ring from the bore

Overhaul

Refer to illustrations 5.9a, 5.9b, 5.9c, 5.10 and 5.15

8 Remove the brake lever pivot bolt nut, remove the pivot bolt and remove the lever.

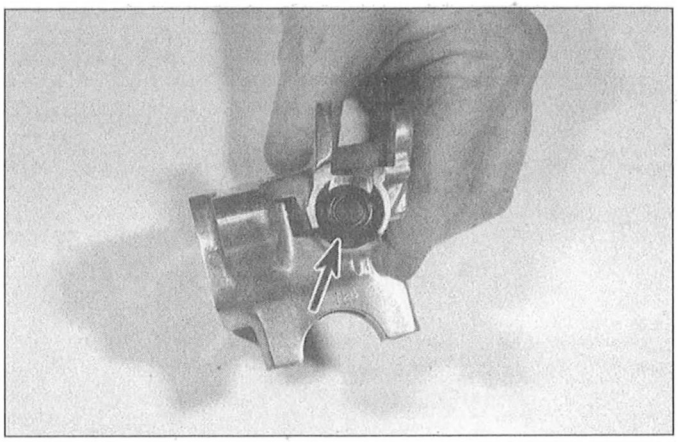
9 Carefully remove the rubber dust boot from the end of the piston **(see illustration)**. Using snap-ring pliers, remove the snap-ring **(see illustration)** and slide out the piston assembly and the spring. Remove the baffle from the bottom of the reservoir **(see illustration)**.

10 Lay the parts out in the order in which they're removed to prevent confusion during reassembly **(see illustration)**.

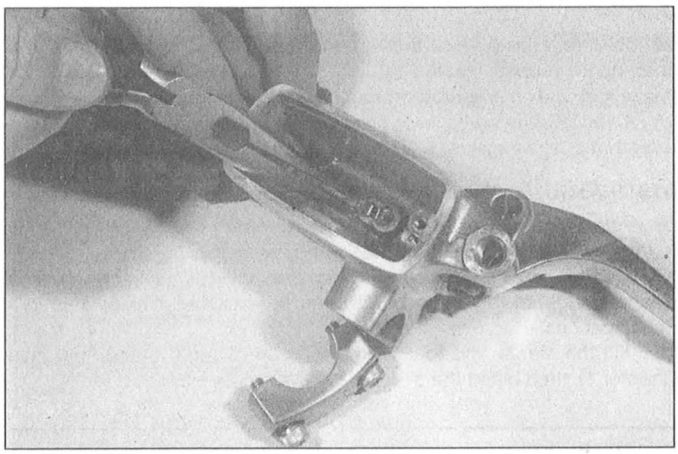
11 Clean all of the parts with brake system cleaner (available at motorcycle dealerships and auto parts stores), isopropyl alcohol or clean brake fluid. **Caution:** *Do not, under any circumstances, use a petroleum-based solvent to clean brake parts. If compressed air is available, use it to dry the parts thoroughly (make sure it's filtered and unlubricated). Check the master cylinder bore for corrosion, scratches, nicks and score marks. If damage is evident, the master cylinder must be replaced with a new one. If the master cylinder is in poor condition, then the calipers should be checked as well.*

12 The dust seal, piston assembly and spring are included in the rebuild kit. Use all of the new parts, regardless of the apparent condition of the old ones.

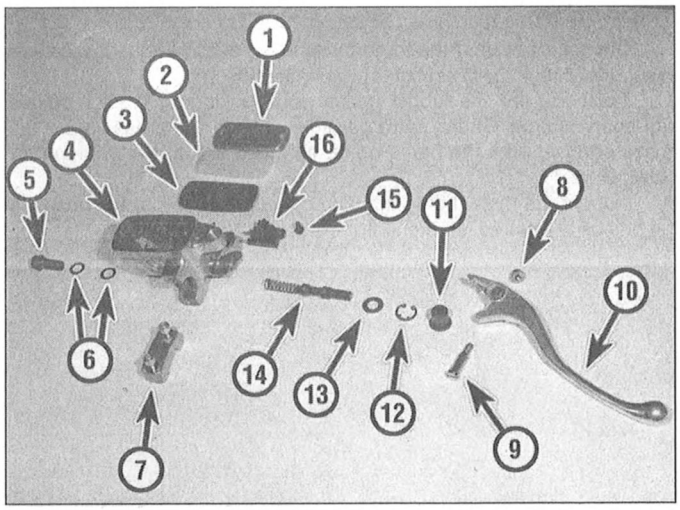
13 Before reassembling the master cylinder, soak the piston and the rubber cup seals in clean brake fluid for ten or fifteen minutes. Lubricate the master cylinder bore with clean brake fluid, then carefully insert the piston and related parts in the reverse order of disassembly. Make sure the lips on the cup seals do not turn inside out when they are slipped into the bore.



5.9a Remove the rubber dust boot (arrow) . . .

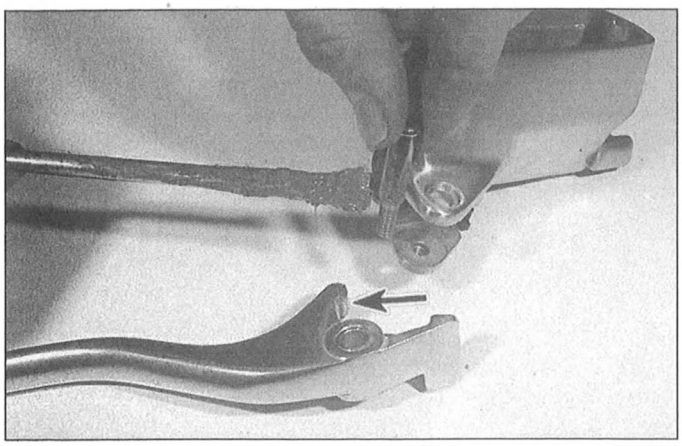


5.9c Pry the baffle plate from the bottom of the reservoir



5.10 Master cylinder assembly

1	*Reservoir cover*	9	*Brake lever pivot bolt*
2	*Set plate*	10	*Brake lever*
3	*Rubber diaphragm*	11	*Rubber dust boot*
4	*Master cylinder body*	12	*Snap-ring*
5	*Brake hose banjo bolt*	13	*Washer*
6	*Sealing washers*	14	*Piston/spring assembly*
7	*Master cylinder mounting bracket*	15	*Brake light switch mounting screw*
8	*Brake lever pivot bolt nut*	16	*Brake light switch*



5.15 Lubricate the brake lever pivot bolt and the part of the lever (arrow) that pushes against the piston assembly

14 Depress the piston, then install the snap-ring (make sure the snap-ring is properly seated in the groove). Install the rubber dust boot (make sure the lip is seated properly in the piston groove).

15 Lubricate the brake lever pivot bolt and the friction surface on the lever that pushes against the piston assembly **(see illustration)**.

Installation

16 Attach the master cylinder to the handlebar and tighten the bolts to the torque listed in this Chapter's Specifications.

17 Connect the brake hose to the master cylinder, using new sealing washers. Tighten the banjo bolt to the torque listed in this Chapter's Specifications.

18 Fill the master cylinder with the recommended brake fluid (see Chapter 1), then bleed the air from the system (see Section 7).

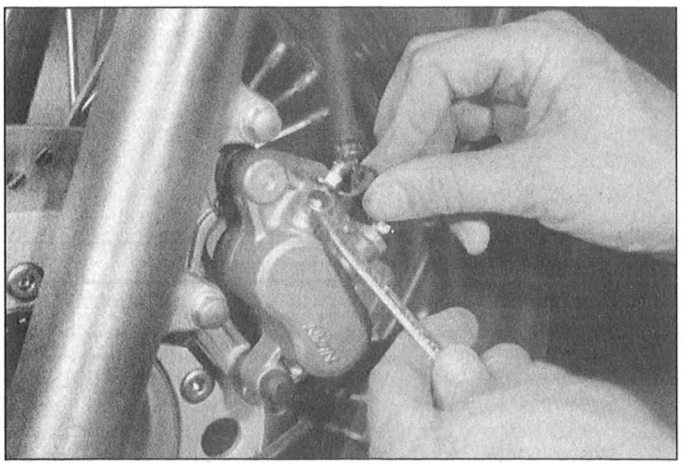
6 Brake hose - inspection and replacement

Inspection

1 Once a week or, if the motorcycle is used less frequently, before every ride, check the condition of the brake hose.

2 Twist and flex the rubber hoses while looking for cracks, bulges and seeping fluid. Check extra carefully around the areas where the hoses connect with the banjo bolts, as these are common areas for hose failure.

3 Inspect the metal banjo fittings connected to the brake hoses. If the fittings are rusted, scratched or cracked, replace them.



7.5a Remove the rubber dust boot from the bleed valve, place a box wrench over the bleed valve . . .

Replacement

4 The brake hose has a banjo fitting on each end of the hose. Cover the surrounding area with plenty of rags and unscrew the union bolt on either end of the hose. Detach the hose from any clips that may be present and remove the hose.

5 Position the new hose, making sure it isn't twisted or otherwise strained, between the two components. Install the union bolts, using new sealing washers on both sides of the fittings, and tighten them to the torque listed in this Chapter's Specifications.

6 Flush the old brake fluid from the system, refill the system with the recommended fluid (see Chapter 1) and bleed the air from the system (see Section 7). Check the operation of the front brake carefully before riding the motorcycle.

7 Brake system bleeding

Refer to illustrations 7.5a and 7.5b

1 Bleeding the brake system removes all the air bubbles from the brake fluid reservoirs, the lines and the brake calipers. Bleeding is necessary whenever a brake system hydraulic connection is loosened, when a component or hose is replaced, or when the master cylinder or caliper is overhauled. Leaks in the system may also allow air to enter, but leaking brake fluid will reveal their presence and warn you of the need for repair.

2 To bleed the brakes, you will need some new, clean brake fluid of the recommended type (see Chapter 1), a length of clear vinyl or plastic tubing, a small container partially filled with clean brake fluid, some rags and a wrench to fit the brake caliper bleeder valves.

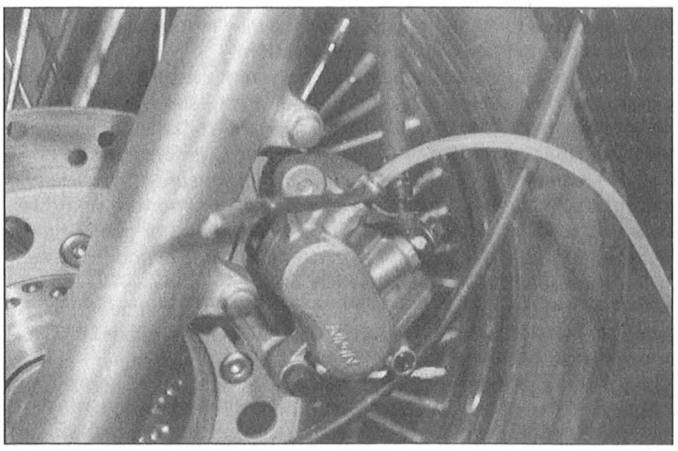
3 Cover the fuel tank and any other painted surfaces near the reservoir to prevent damage in the event that brake fluid is spilled.

4 Remove the reservoir cover screws and remove the cover, set plate and diaphragm. Slowly pump the brake lever a few times, until no air bubbles can be seen floating up from the holes at the bottom of the reservoir. Doing this bleeds the air from the master cylinder end of the line. Top up the reservoir with new fluid, then install the reservoir diaphragm, set plate and cover, but don't tighten the screws; you may have to remove the cover, plate and diaphragm several times during the procedure.

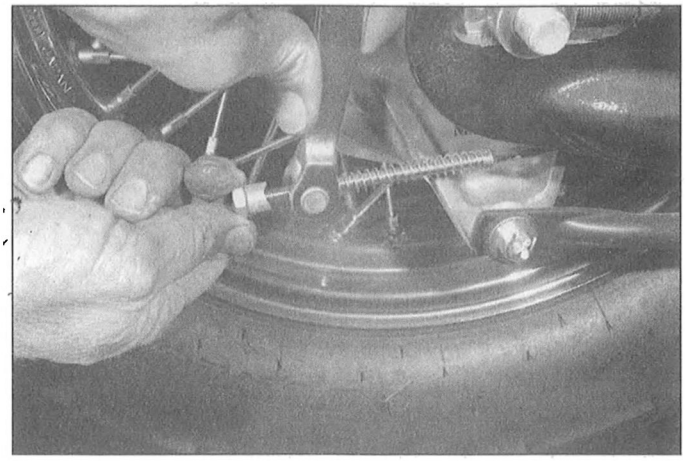
5 Remove the rubber dust cover from the bleeder valve **(see illustration)** and slip a box wrench over the caliper bleed valve. Attach one end of the clear vinyl or plastic tubing to the bleed valve **(see illustration)** and submerge the other end in the brake fluid in the container.

6 Carefully pump the brake lever three or four times and hold it while opening the caliper bleeder valve. When the valve is opened, brake fluid will flow out of the caliper into the clear tubing and the lever will move toward the handlebar. Retighten the bleed valve, then release the brake lever gradually.

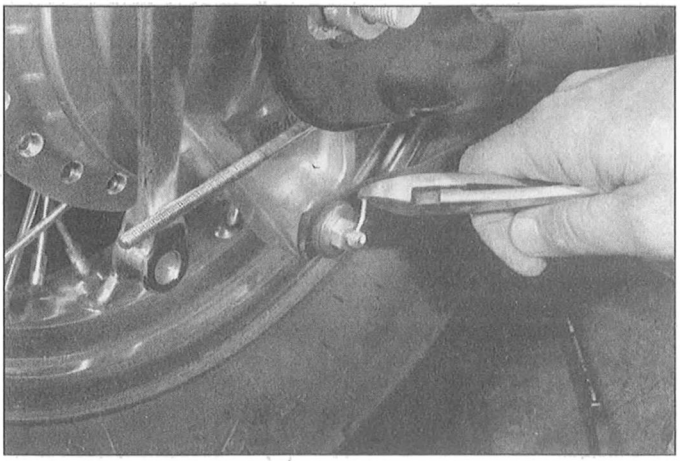
7 Repeat this procedure until no air bubbles are visible in the brake



7.5b . . . then connect a length of clear plastic tubing to the valve and submerge the other end of the tubing in a jar of clean brake fluid



8.2 Push the brake arm forward, unscrew the adjuster nut from the brake rod and disengage the rod from the clevis pin



8.3a To detach the stopper arm from the brake panel, remove the cotter pin . . .

fluid leaving the caliper and the lever is firm when applied. **Note:** *Remember to add fluid to the reservoir as the level drops. Use only new, clean brake fluid of the recommended type. Never re-use the fluid lost during bleeding.*

8 Keep an eye on the fluid level in the reservoir, especially if there's a lot of air in the system. Every time you crack the bleed valve open, the fluid level in the reservoir drops a little. Do not allow the fluid level to drop below the lower mark during the bleeding process. If the level looks low, remove the reservoir cover, set plate and diaphragm and add some fluid.

9 When you're done, inspect the fluid level in the reservoir one more time, add some fluid if necessary, then install the diaphragm, set plate and reservoir cover and tighten the screws securely. Wipe up any spilled brake fluid and check the entire system for leaks. **Note:** *If bleeding is difficult, it may be necessary to let the brake fluid in the system stabilize for a few hours (it may be aerated). Repeat the bleeding procedure when the tiny bubbles in the system have settled out.*

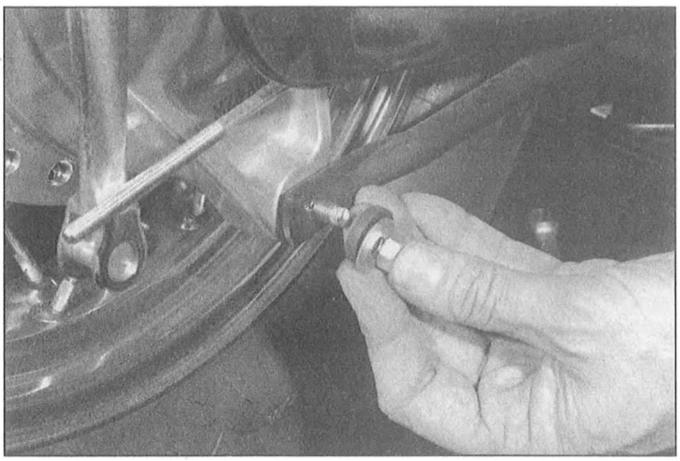
8 Drum brake - removal, inspection and installation

Removal and disassembly

Refer to illustrations 8.2, 8.3a, 8.3b, 8.5, 8.6a, 8.6b, 8.7a, 8.7b and 8.7c

1 Before you start, inspect the rear brake wear indicator (see Chapter 1). If the shoes are excessively worn, replace them.

2 Disconnect the brake rod from the brake arm **(see illustration).** Store the adjuster nut, the clevis pin and the brake rod spring in a plastic bag.



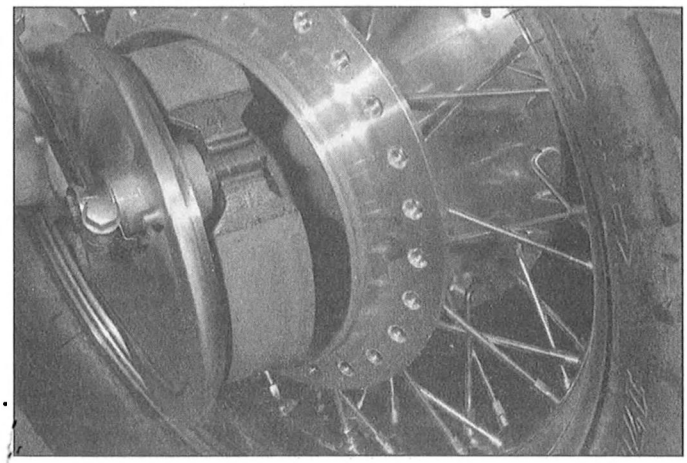
8.3b . . . remove the nut and the metal and rubber washers from the bolt, slide off the stopper arm and remove the bolt

3 Disconnect the rear brake stopper arm **(see illustrations).** Store the nut, bolt and metal and rubber washers in a plastic bag.

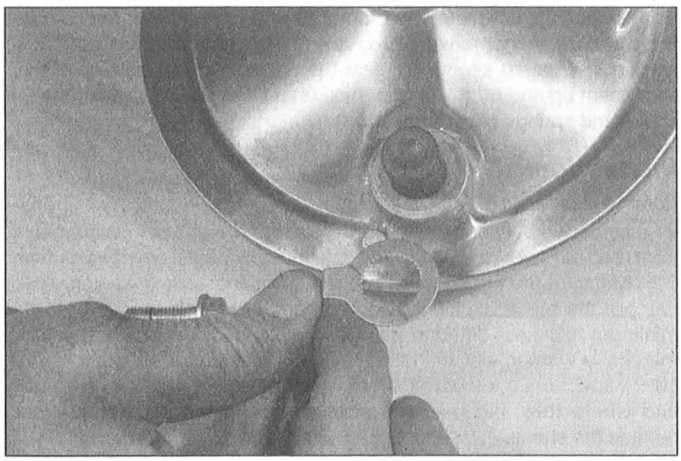
4 Remove the rear wheel (see Section 12).

5 Remove the brake panel from the wheel **(see illustration).**

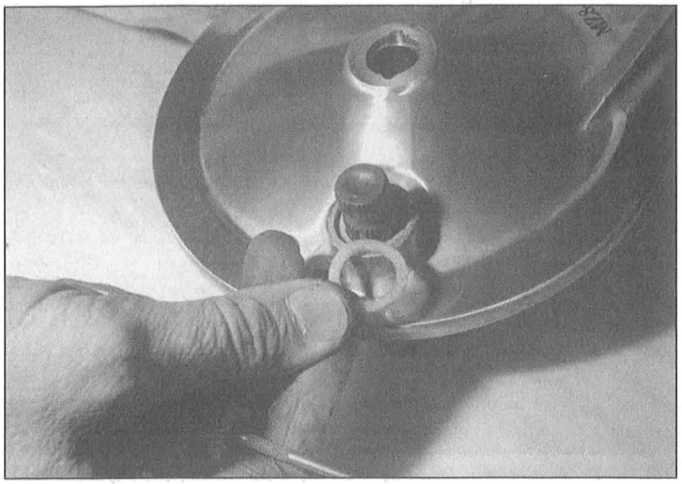
6 Remove the brake arm pinch bolt **(see illustration 12.3b)** and remove the brake arm from the splined spindle end of the brake cam. Note the punch mark on the end of the brake cam spindle **(see illus-**



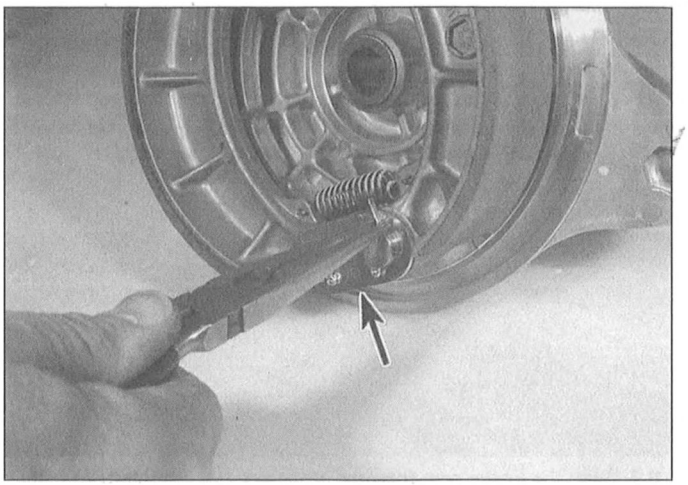
8.5 Remove the brake panel from the wheel



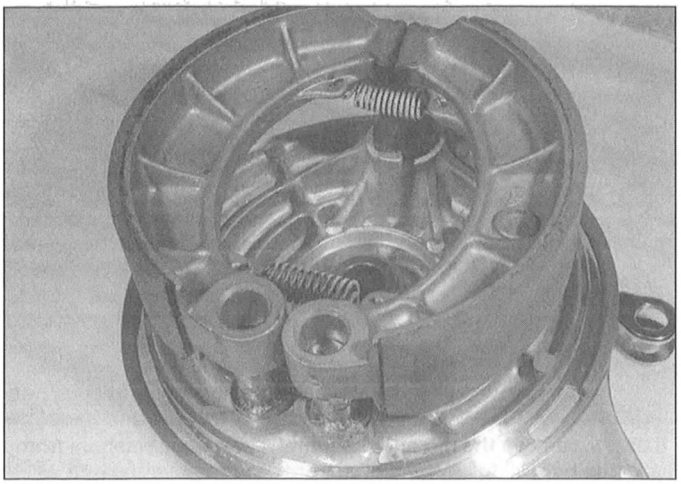
8.6a Remove the indicator plate from the brake cam spindle



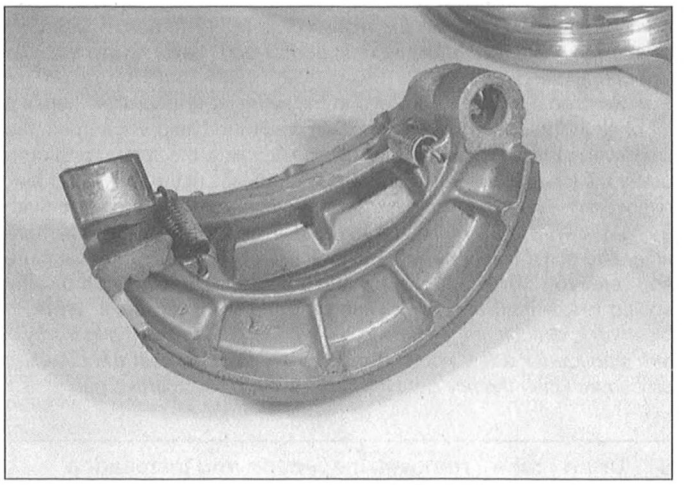
8.6b Remove the felt seal from the brake cam spindle



8.7a Remove the cotter pins from the anchor pins and remove the set plate (arrow)



8.7b Pull the upper ends of the shoes apart and pull the shoes off the anchor pins



8.7c Disengage the brake shoes and springs

tration 12.3b); this mark indicates the location of the wider spline on the spindle. This wider spline must be aligned with the corresponding wider spline on the brake arm when the arm is installed. Remove the indicator plate and the felt seal **(see illustrations)**. Pull the brake cam out of the brake panel.

7 Remove the cotter pins from the anchor pins **(see illustration)** and remove the set plate (the oblong-shaped spacer that fits over the ends of both anchor pins). To remove the shoes from the brake panel, spread them apart slightly to clear the ridges on the brake cam, then slide them up and off the anchor pins **(see illustration)**. Disengage the shoes and springs **(see illustration)**.

Inspection

Refer to illustration 8.12

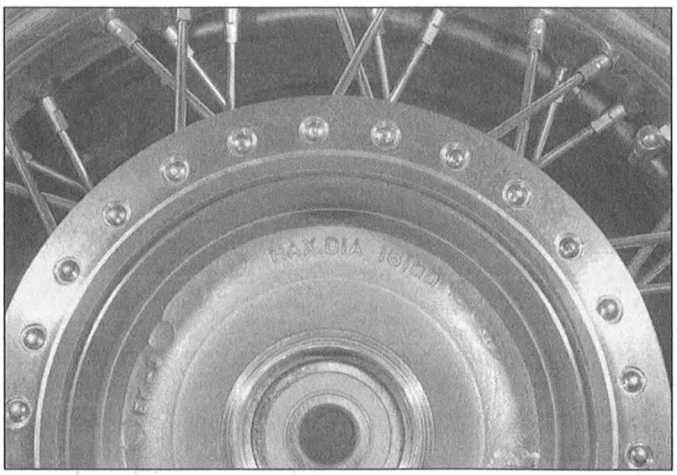
8 Inspect the linings for wear, damage and signs of contamination from road dirt and water. If the linings are visibly defective, replace them.

9 Measure the thickness of the lining material (just the lining material, not the metal backing) and compare your measurements to the minimum thickness listed in this Chapter's Specifications. If the lining material is worn to less than the minimum, replace the shoes.

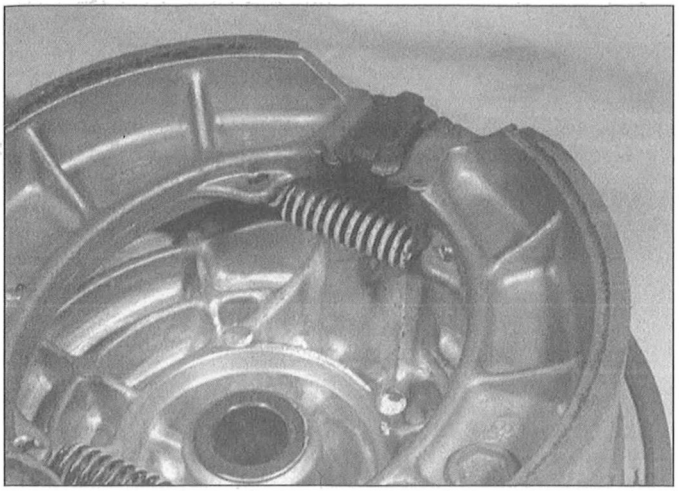
10 Inspect the ends of the shoes, where they contact the brake cam and where they slip over the anchor pins. If there's visible wear, replace the shoes.

11 Check the fit of the brake cam in the brake panel hole. If it feels loose, replace the brake cam or the panel, depending on which part is worn. Inspect the anchor pins for wear and damage. If the anchor pins are worn, replace the brake panel.

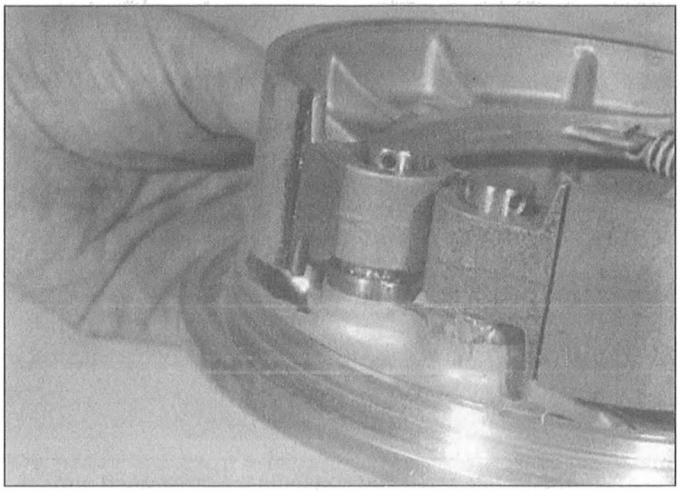
12 Inspect the brake drum (inside the wheel) for wear or damage. Measure the diameter at several points with a brake drum micrometer (or



8.12 The maximum diameter of the brake drum is cast into the drum; if it differs from that listed in this Chapter's Specifications, use the specification on the drum

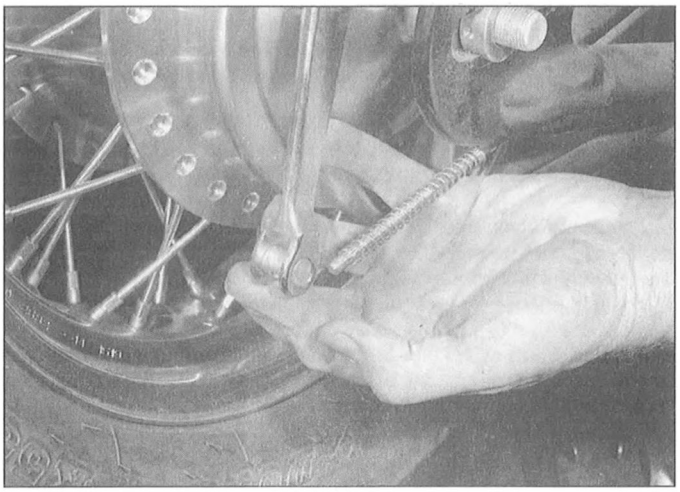


8.14a When installing the brake shoes, make sure the upper ends of the shoes are correctly seated against the brake cam . . .



8.14b . . . and the lower ends are correctly seated against the shoulders at the lower ends of the anchor pins

8.14c Once the shoes are correctly positioned on the brake panel, install the set plate and secure the plate with a pair of new cotter pins in the anchor pins



8.17 To attach the brake rod to the brake arm clevis pin, push the brake arm forward and install the adjuster nut

have this done by a Honda dealer). If the measurements are uneven (the brake drum is "out-of-round") or if there are scratches deep enough to snag a fingernail, have the drum turned by a dealer service department or a motorcycle machine shop to correct the surface. If the drum has to be turned beyond the wear limit to remove the defects, replace it. You'll find the maximum diameter of the drum cast into the wheel **(see illustration)**. If the specified maximum diameter on the wheel is different from the maximum diameter listed in this Chapter's Specifications, the spec on the wheel supersedes the value in the Specifications.

Installation

Refer to illustrations 8.14a, 8.14b, 8.14c and 8.17

13 Apply high-temperature brake grease to the ends of the springs, the brake cam and the anchor pins. Install the brake cam, the felt seal and the indicator plate. Install the brake arm. Make sure the punch marks on the brake arm and the brake cam spindle are aligned. Install the brake arm pinch bolt and tighten it securely.

14 Hook the springs to the shoes. Position the shoes over the brake panel, slide the lower ends of the shoes onto the ends of the anchor pins, spread the upper ends of the shoes apart far enough to clear the ridges on the brake cam, push the shoes down onto the anchor pins and release the upper ends of the shoes. Make sure the upper ends of the shoes fit correctly against the brake cam and the lower ends are fully seated on the anchor pins **(see illustrations)**. Install the set plate and install new cotter pins on the anchor pins **(see illustration)**.

15 Install the brake panel and brake shoe assembly in the wheel.

16 Install the wheel (see Section 12).

17 To reattach the brake rod to the brake arm clevis pin, install the spring on the rod, insert the rod in the hole in the clevis, push the brake arm forward and install the adjuster nut **(see illustration)**.

18 Align the wheels (see Section 15).

19 Adjust the rear brake pedal freeplay (see Chapter 1).

20 Adjust the rear brake light switch (see Chapter 1).

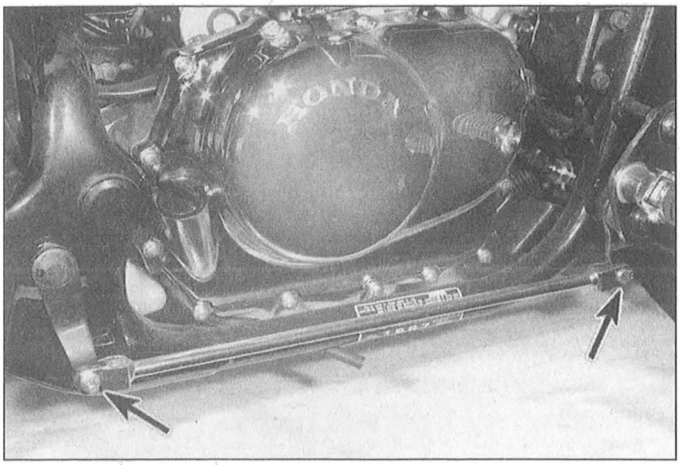
9 Rear brake pedal and linkage - removal and installation

1 If you're planning to service either the middle brake rod or the brake pedal assembly, remove the exhaust system (see Chapter 4).

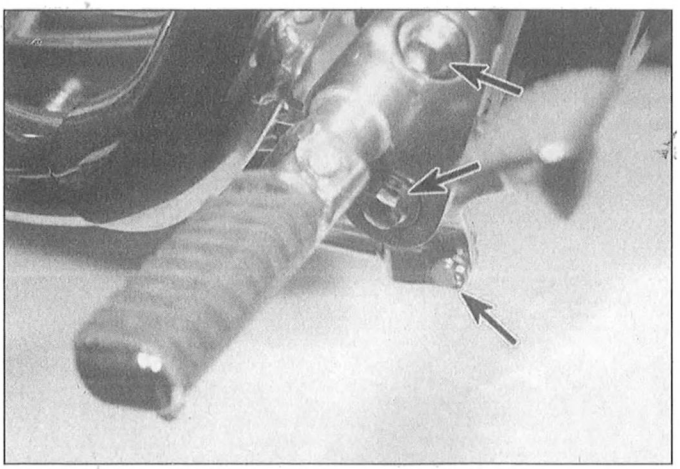
Middle brake rod

Refer to illustration 9.2

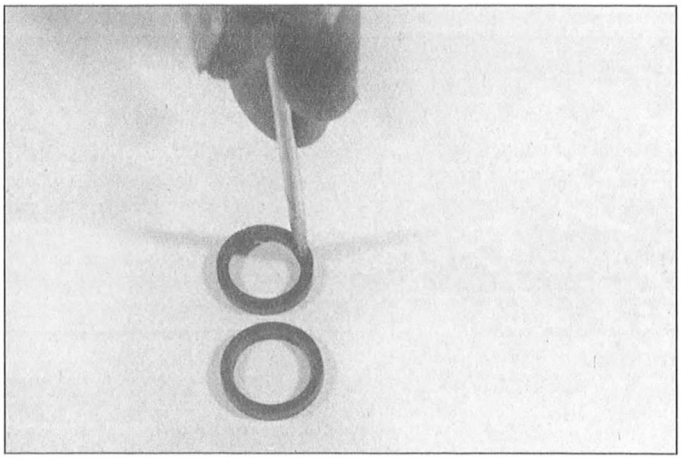
2 Remove the cotter pins, nuts and bolts from both ends of the



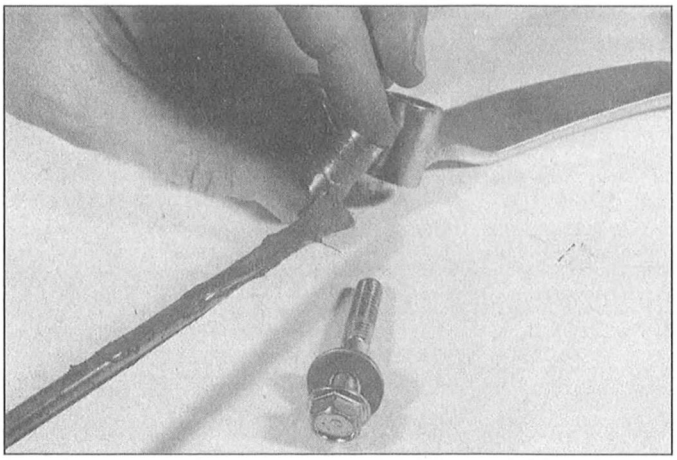
9.2 The middle brake rod connects the brake shaft arm (left arrow) and brake pedal arm (right arrow)



9.4 Disconnect the middle brake rod from the brake pedal arm (lower arrow) and remove the footpeg bracket bolts (arrows) (VT600 shown; VT750 similar)



9.8 The open side of each seal faces inward



9.9 Grease the collar and the inside of the pivot bore in the pedal before reassembling them

middle brake rod and disconnect the rod from the rear brake pedal and from the brake shaft arm (VT600 models) **(see illustration)** or the middle rod joint (VT750 models). On VT750 models, note the return spring for the rod (at the middle rod joint) and the return spring for the rear brake light switch (at the pedal). Disengage both springs from the rod.

3 Installation is the reverse of removal. Tighten the nuts securely and install new cotter pins. Check and, if necessary, adjust the brake pedal height and the rear brake light switch (see Chapter 1).

Brake pedal

Refer to illustrations 9.4, 9.8, 9.9 and 9.10

4 Disconnect the middle brake rod from the rear brake pedal **(see illustration)**.

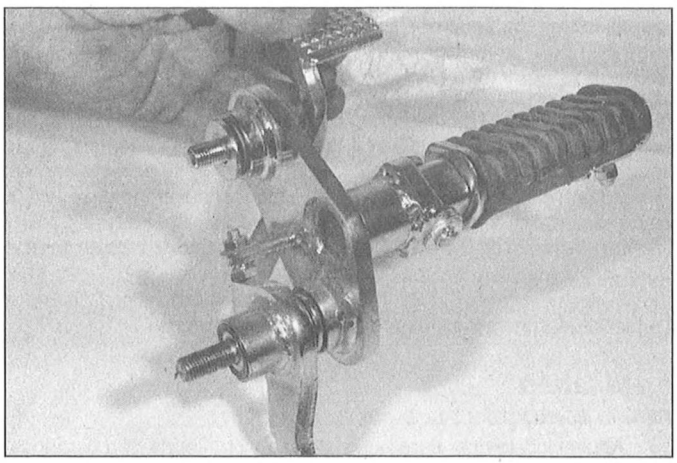
5 Unbolt the right footpeg bracket from the frame **(see illustration 9.4)**.

6 On VT600 models, remove the brake pedal, the pivot collar (bushing) and the dust seals from the footpeg bracket. On VT750C/CD models, remove the pedal pivot bolt, pedal and washer. On VT750DC models, remove the snap-ring and bushing washer. Clean the parts thoroughly and dry them off for inspection. Clean out the pivot bore of the pedal (that fits over the collar or pivot bolt) with a cylindrical wire brush.

7 Inspect the collar or pivot bolt for scoring and other damage. If it's worn or damaged, replace it.

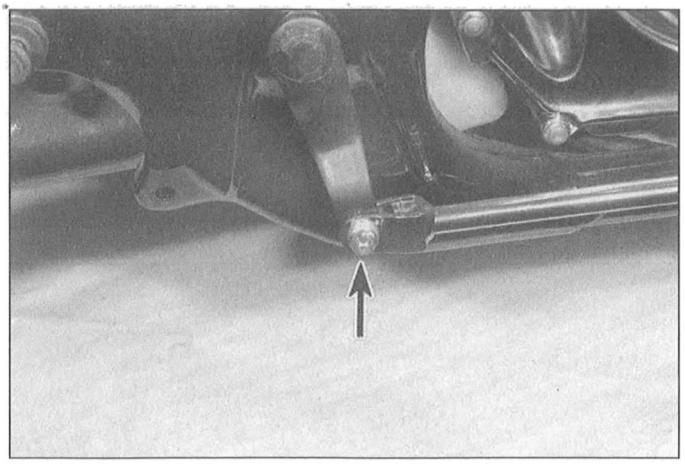
8 On VT600 models, inspect the dust seals **(see illustration)**. If they're torn, cracked or deteriorated, replace them.

9 Grease the collar **(see illustration)** or pivot bolt. Make sure the surface of the bore in the pedal that fits over the collar or pivot bolt is clean and free of debris and old grease.

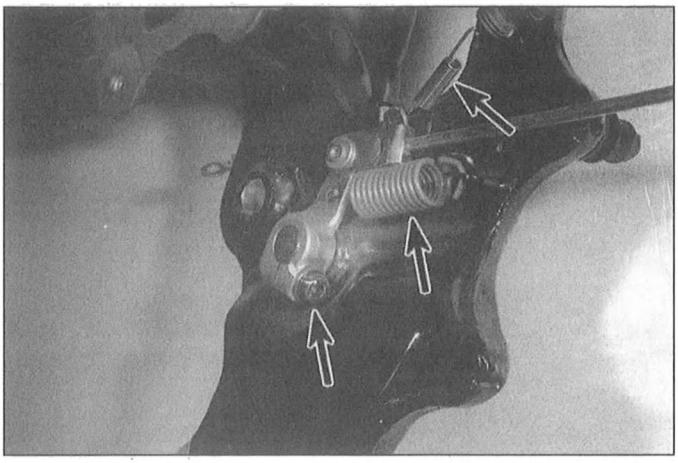


9.10 The assembled footpeg bracket and rear brake pedal should look like this (VT600 shown)

10 On VT600 models, reassemble the collar, dust seals and brake pedal **(see illustration)**. On VT750 models, install the washer, pedal and pivot bolt; tighten the pivot bolt securely.



9.14 Disconnect the middle brake rod from the brake shaft arm (arrow)



9.18 Middle brake arm pinch bolt (lower arrow), middle brake arm return spring (middle arrow) and brake light switch return spring (upper arrow)

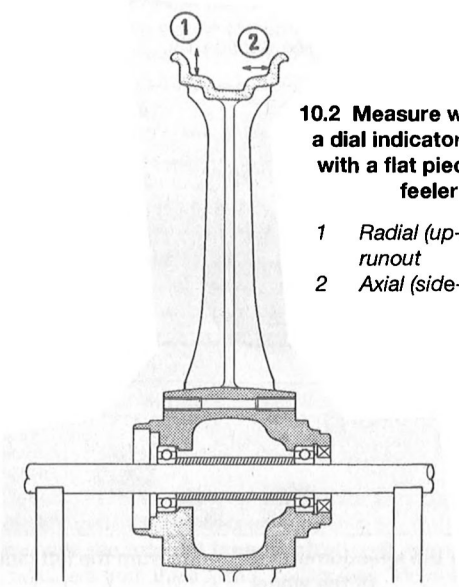
11 Installation is the reverse of removal. Tighten the footpeg bracket bolts securely.
12 Reconnect the middle brake rod to the brake pedal and install a new cotter pin.
13 Check and, if necessary, adjust the rear brake pedal height and the rear brake light switch (see Chapter 1).

Brake rod

VT600

Refer to illustrations 9.14 and 9.18

14 Disconnect the middle brake rod from the brake shaft arm **(see illustration)**.
15 Disconnect the brake rod from the brake arm (see Section 8).
16 Remove the rear wheel (see Section 12).
17 Remove the swingarm (see Chapter 6).
18 Remove the pinch bolt from the middle brake arm **(see illustration)** and slide the middle brake arm off the brake shaft arm spindle. Note the punch marks on the brake shaft arm spindle and on the middle brake arm. These marks must be aligned when the middle brake arm is reinstalled on the brake shaft arm spindle.
19 Disengage the middle brake arm return spring and the brake light switch return spring and remove the middle brake arm.
20 Pull the brake shaft arm out of the frame.



10.2 Measure wheel runout with a dial indicator, if available, or with a flat piece of metal and feeler gauge

1 Radial (up-and-down) runout
2 Axial (side-to-side) runout

VT750 models

21 Disconnect the brake rod from the brake arm (see Section 8).
22 Remove the cotter pin, pull out the clevis pin and disconnect the brake rod from the middle rod joint.

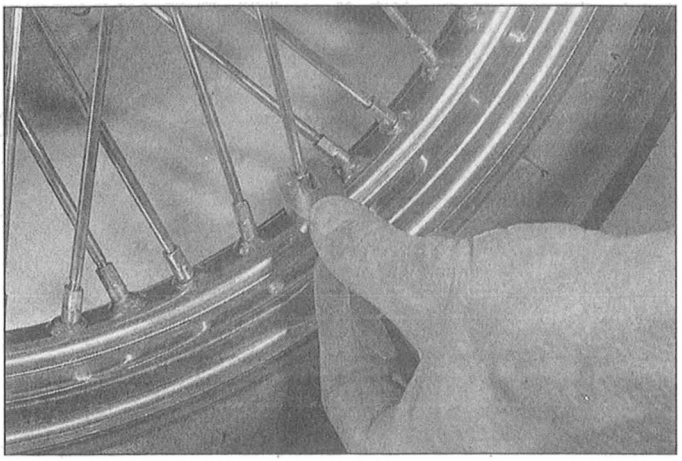
All models

23 Clean and inspect the parts for wear and damage. Replace worn or damaged parts. Be sure to clean out the bore in the frame for the brake shaft arm spindle.
24 Installation is the reverse of removal. Grease the brake shaft arm spindle before inserting it through the frame. Make sure that the punch marks on the brake shaft arm spindle and on the middle brake arm are aligned. Don't forget to install the middle brake arm return spring and the brake light switch arm.
25 Check and, if necessary, adjust the rear brake pedal height and freeplay and the rear brake light switch (see Chapter 1).

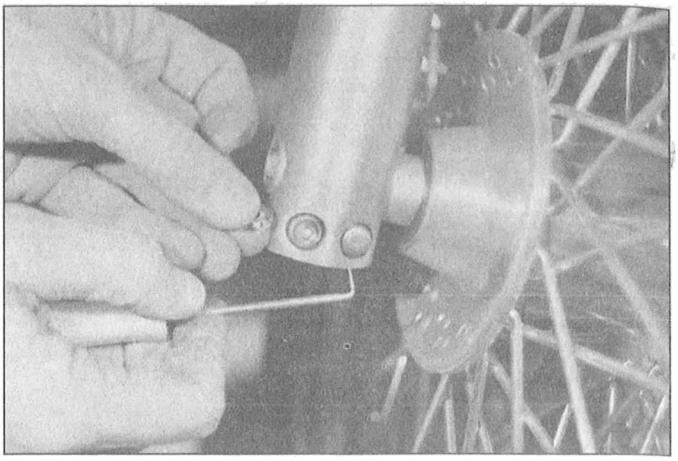
10 Wheels - inspection and repair

Refer to illustrations 10.2 and 10.5

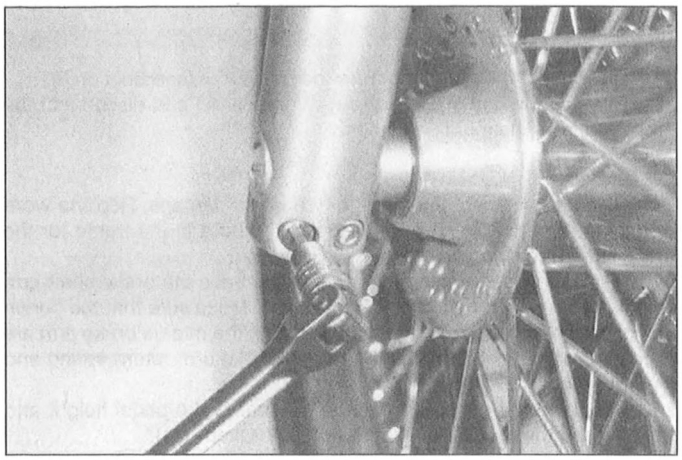
1 Clean the wheels thoroughly to remove mud and dirt that may interfere with the inspection procedure or mask defects. Make a general check of the wheels and tires as described in Chapter 1.
2 Support the bike securely so it can't be knocked over during this procedure. Place a jack beneath the engine to raise the front wheel off the ground, or beneath the frame to raise the rear wheel off the ground. Attach a dial indicator to the fork slider or the swingarm and position the stem against the side of the rim. Spin the wheel slowly and check the side-to-side (axial) runout of the rim, then compare your readings with the value listed in this Chapter's Specifications **(see illustration)**. In order to accurately check radial runout with the dial indicator, the wheel would have to be removed from the machine and the tire removed from the wheel. With the axle clamped in a vise, the wheel can be rotated to check the runout.
3 An easier, though slightly less accurate, method is to attach a stiff wire pointer to the fork or the swingarm and position the end a fraction of an inch from the wheel (where the wheel and tire join). If the wheel is true, the distance from the pointer to the rim will be constant as the wheel is rotated. Repeat the procedure to check the runout of the rear wheel. **Note:** *If wheel runout is excessive, refer to the appropriate Section in this Chapter and check the wheel bearings very carefully before replacing the wheel or paying to have it trued.*
4 The wheels should also be visually inspected for cracks, flat spots on the rim, bent spokes and other damage.
5 Tap the spokes with a metal screwdriver blade or similar tool and



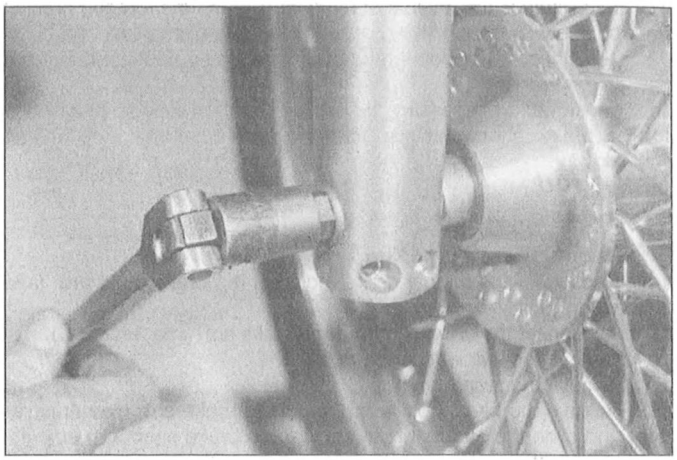
10.5 If a spoke is loose, tighten the spoke nipple with a spoke wrench (available at any motorcycle dealership or accessory store)



11.3a Pry out the pinch bolt plugs . . .



11.3b . . . loosen the axle pinch bolts . . .



11.3c . . . and unscrew the axle

listen to the sound. If the spoke makes a "clunk" or low-pitched sound, it's loose. Tighten the spoke **(see illustration)**.

6 If damage is evident, or if runout in either direction is excessive, the wheel will have to be trued or, if damage is severe, replaced with a new one.

11 Front wheel - removal and installation

Removal

Refer to illustrations 11.3a, 11.3b, 11.3c, 11.5a and 11.5b

1 Support the bike securely so it can't be knocked over during this procedure. Raise the front wheel off the ground by placing a floor jack, with a wood block on the jack head, under the engine.

2 Disconnect the speedometer cable from the speedometer gearbox (see Chapter 9).

3 Loosen the axle pinch bolts and unscrew the axle **(see illustrations)**.

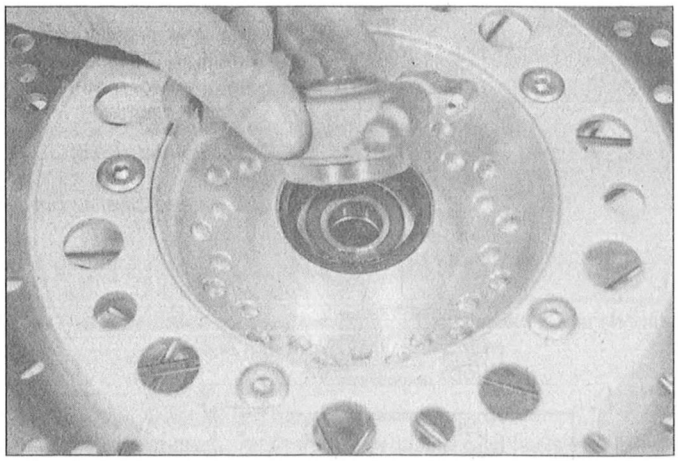
4 Support the wheel, then pull out the axle and carefully lower the wheel from the forks.

5 Remove the speedometer gearbox unit from the left side of the wheel and remove the collar from the right side **(see illustrations)**. Set the wheel aside. **Caution:** *When you lay down the wheel and allow it to rest on the brake disc - the disc could become warped. Set the wheel on wood blocks so the disc doesn't support the weight of the wheel.* **Note:** *Don't operate the front brake lever with the wheel removed.*

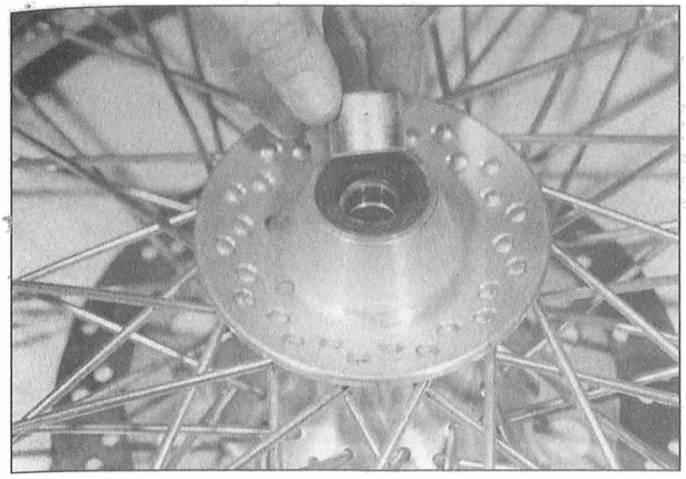
Inspection

6 Roll the axle on a flat surface such as a piece of plate glass. If it's bent, replace it. If the axle is corroded, remove the corrosion with fine emery cloth.

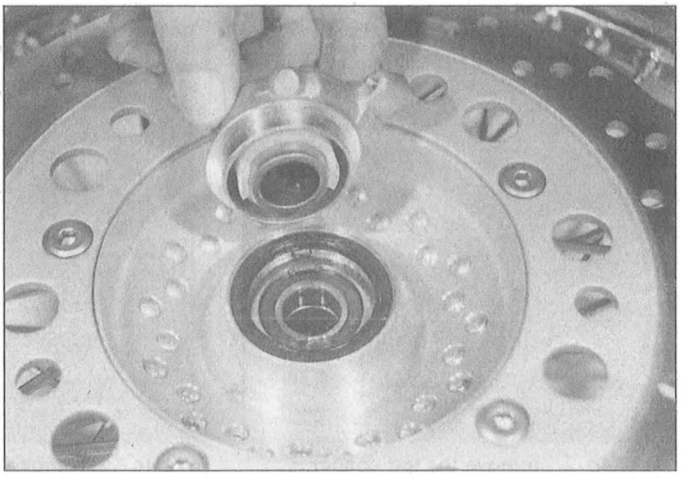
7 Inspect the wheel bearings (see Section 13).



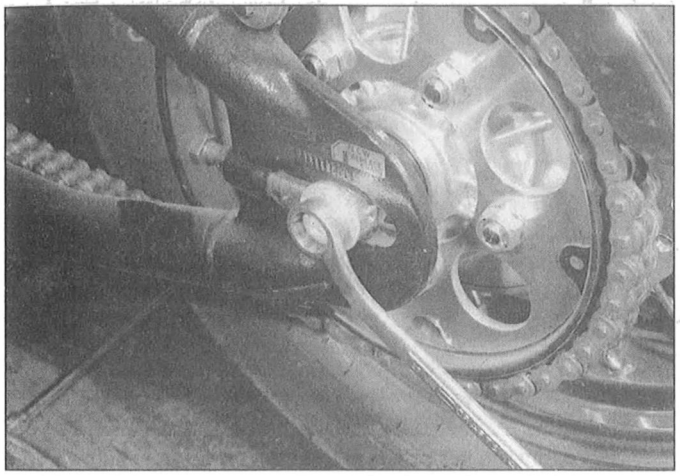
11.5a Remove the speedometer drive unit from the left side of the wheel . . .



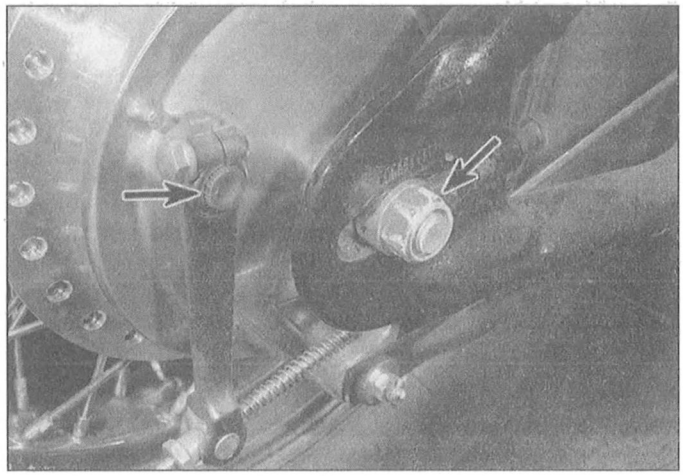
11.5b . . . and remove the collar from the right side



11.8 When installing the speedometer drive unit, make sure the tangs align with the slots



12.3a Hold the rear axle bolt . . .



12.3b . . . and remove the axle nut (right arrow); the punch mark on the end of the brake cam spindle (left arrow) is used for brake arm and spindle alignment

Installation

Refer to illustration 11.8

8 Installation is the reverse of removal. Apply a thin coat of grease to the seal lip, then slide the axle into the hub. Slide the wheel into place. Make sure the lugs in the speedometer drive clutch line up with the notches in the speedometer drive unit **(see illustration)**. Make sure the protrusion on the inner side of the left fork fits into the notch in the speedometer drive unit.

9 Slip the axle into place, then tighten the axle to the torque listed in this Chapter's Specifications. Tighten the axle pinch bolts to the torque listed in this Chapter's Specifications.

10 Apply the front brake, pump the forks up and down several times and check for binding and proper brake operation.

12 Rear wheel - removal and installation

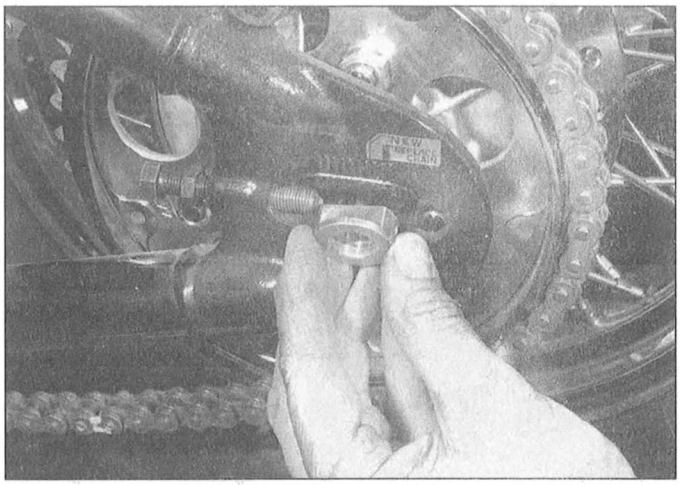
Removal

Refer to illustrations 12.3a, 12.3b and 12.4a through 12.4e

1 Support the bike securely so it can't be knocked over during this procedure.

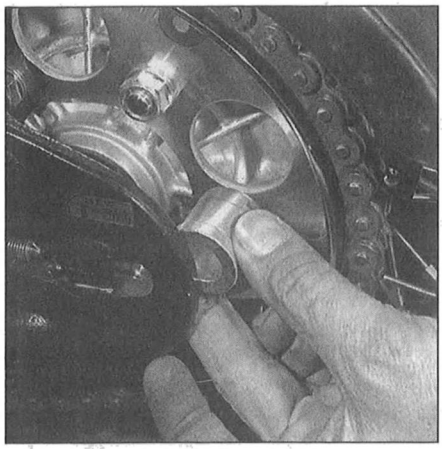
2 Detach the brake rod from the brake arm and the stopper arm from the brake panel (see Section 8).

3 Remove the axle nut **(see illustrations)** and unscrew the drive chain adjusters from the adjuster collars (see "Drive chain and sprockets - check, adjustment and lubrication" in Chapter 1).

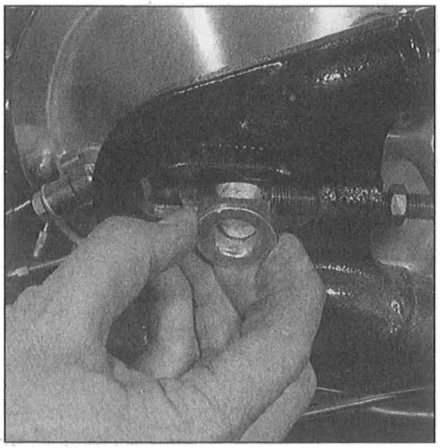


12.4a Remove the left side collar . .

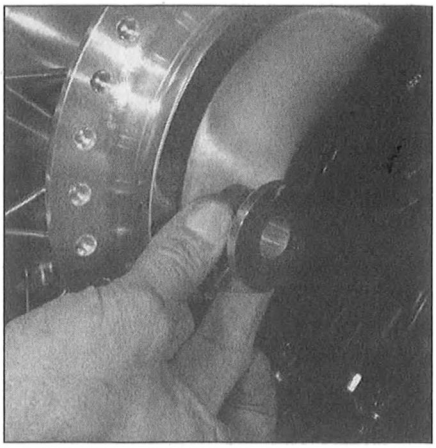
4 Support the wheel, pull out the axle and remove the adjuster collars and the spacers **(see illustrations)**. Pull the wheel to the right and



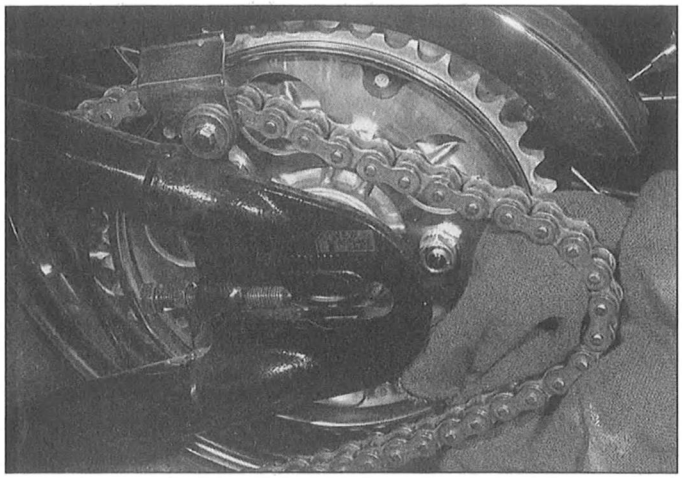
12.4b . . . remove the left spacer . . .



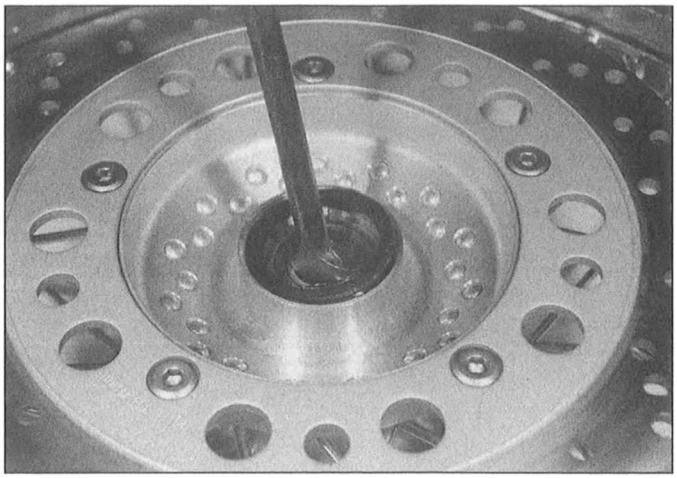
12.4c . . . remove the right side collar . . .



12.4d . . . remove the right spacer . . .



12.4e . . . disengage the driven sprocket from the drive chain and remove the wheel



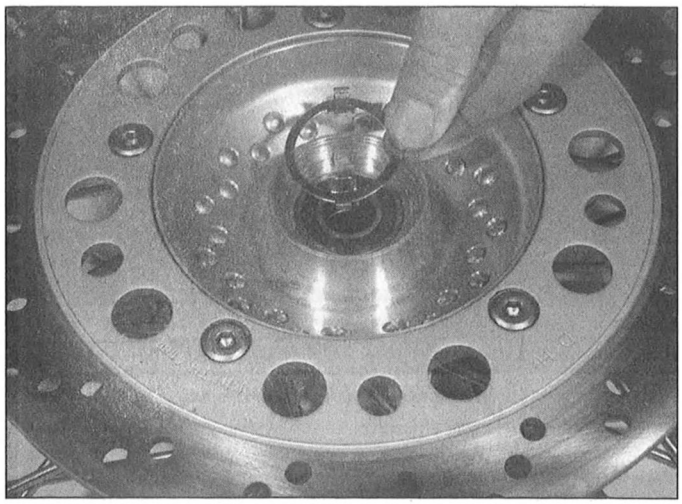
13.3a Pry out the left side seal from the front wheel hub with a seal removal tool

disengage the drive chain from the sprocket **(see illustration)**.

5 Before installing the wheel, check the axle for straightness by rolling it on a flat surface such as a piece of plate glass (if the axle is corroded, first remove the corrosion with fine emery cloth). If the axle is bent, replace it.

6 Inspect the sprocket (see Section 17) and inspect the driven flange and the rubber dampers (see Section 18).

7 Inspect the seals and the wheel bearings (see Section 13).



13.3b Remove the speedometer clutch

Installation

8 Installation is the reverse of removal. Apply a light coat of multi-purpose lithium-based grease to the lips of the oil seals. Tighten the axle nut to the torque listed in the Chapter 1 Specifications.

9 Adjust the drive chain (see "Drive chain and sprockets - check, adjustment and lubrication" in Chapter 1).

10 Adjust the rear brake pedal (see Chapter 1).

11 Carefully check the operation of the brake before riding the motorcycle.

13 Wheel bearings - inspection and maintenance

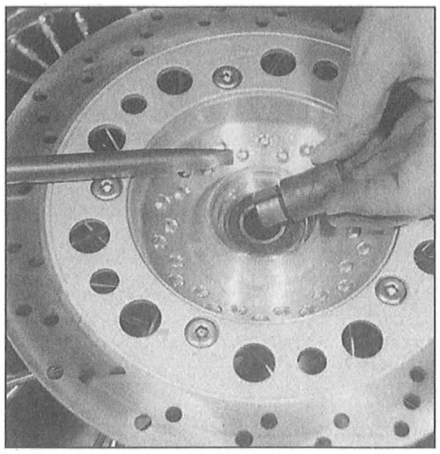
1 Support the bike securely so it can't be knocked over during this procedure and remove the wheel. Remove the front wheel (see Section 11) or remove the rear wheel (see Section 12).

2 Set the wheel on blocks so as not to allow the weight of the wheel to rest on the brake disc or hub.

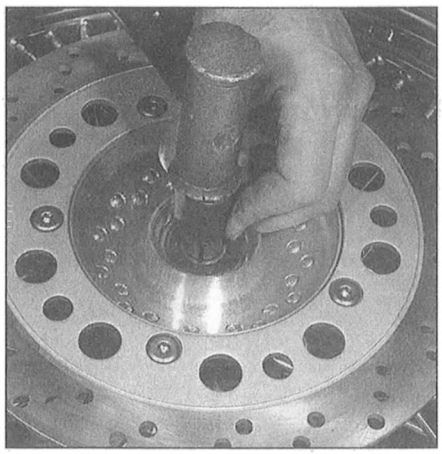
Front wheel bearings

Refer to illustrations 13.3a, 13.3b, 13.5a, 13.5b, 13.5c and 13.10

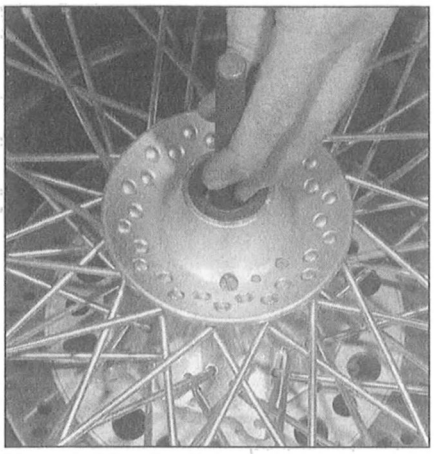
3 From the left side of the wheel, remove the speedometer gearbox unit **(see illustration 11.5a)**, then pry out the grease seal **(see illustration)** and remove the speedometer clutch **(see illustration)**.



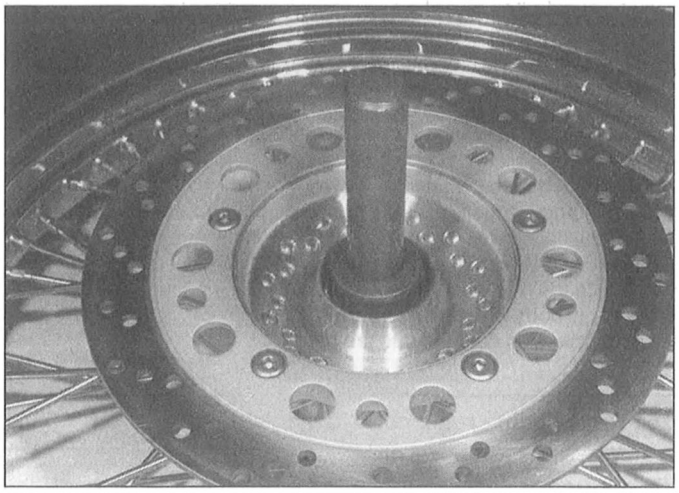
13.5a Bearing remover head (right) and wedged shaft (left)



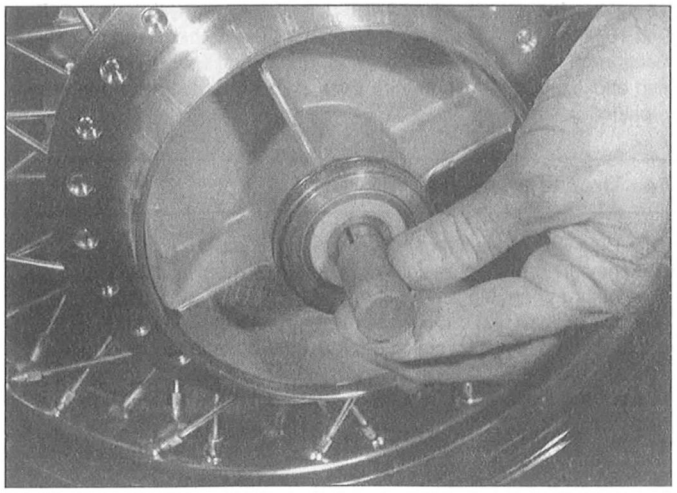
13.5b Tap the head into place (the slotted end goes into the bearing)



13.5c From the other side of the wheel, tap the wedge end of the shaft into the head's slot and drive out the bearing



13.10 Install the new bearings with a seal driver or socket



13.17a Install the 17 mm bearing remover head . . .

4 From the right side of the wheel, remove the collar **(see illustration 11.5b)**.

5 The usual method of removing wheel bearings is to insert a brass punch through one side of the hub, place it against the inner race of the opposite bearing, then tap on the punch to drive the bearing out. There may not be enough clearance for this method; if not, you'll need Honda special tools or equivalents **(see illustration)**. The remover head goes inside the bearing to be removed. The wedge part of the remover rod is then tapped into the slot of the remover head from the opposite side of the hub. This expands the remover head and locks it to the bearing. Tapping some more on the rod will drive the remover head and bearing out of the hub **(see illustrations)**.

6 Turn the wheel over and pry out the right side grease seal.

7 Remove the right side bearing the same way you removed the left one.

8 Clean the bearings with a high flash-point solvent (one which won't leave any residue) and blow them dry with compressed air (don't let the bearings spin as you dry them). Apply a few drops of oil to the bearing. Hold the outer race of the bearing and rotate the inner race - if the bearing doesn't turn smoothly, has rough spots or is noisy, replace it with a new one.

9 If the bearing checks out okay and will be re-used, wash it in solvent once again and dry it, then pack the bearing with high-quality bearing grease.

10 Thoroughly clean the hub area of the wheel. Install the left side bearing into the recess in the hub, with the marked or sealed side facing out. Using a bearing driver or a socket large enough to contact the outer race of the bearing, drive in the bearing until it's completely seated **(see illustration)**.

11 Install the speedometer gearbox retainer on top of the new bearing. Make sure the tangs on the retainer are aligned with the slots in the hub. Install a new left side grease seal with its closed side out. It should be possible to push the seal in with even finger pressure but, if necessary, use a seal driver, a large socket or a flat piece of wood to drive the seal into place.

12 Turn the wheel over and install the right side bearing as described in Step 10. Install a new right side seal as described in Step 11.

13 Install the speedometer gearbox unit, making sure the tangs on the speedometer gearbox are aligned with the slots in the retainer **(see illustration 11.8)**.

14 Clean off all grease from the brake disc using acetone or brake system cleaner.

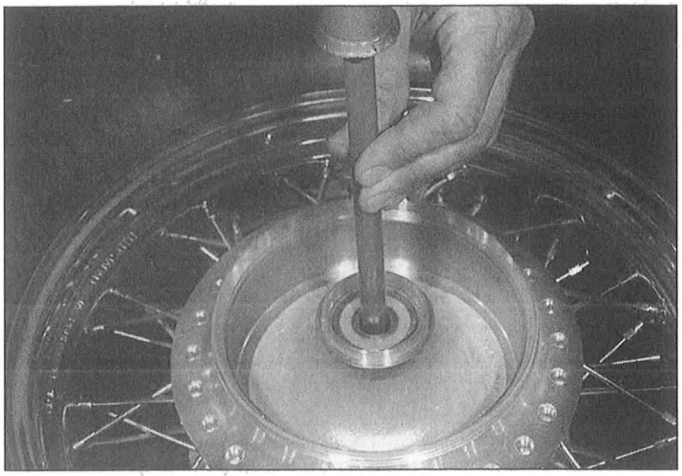
15 Make sure the right side collar is in place **(see illustration 11.5b)** and install the wheel (see Section 11).

Rear wheel bearings

Refer to illustrations 13.17a, 13.17b and 13.17c

16 Remove the sprocket, driven flange and rubber dampers (see Section 18).

17 The rear wheel bearings are removed the same way as the front wheel bearings, in Steps 5 through 10 above **(see illustrations)**.



13.17b . . . from the other side of the wheel, install the bearing remover shaft and drive out the left side bearing

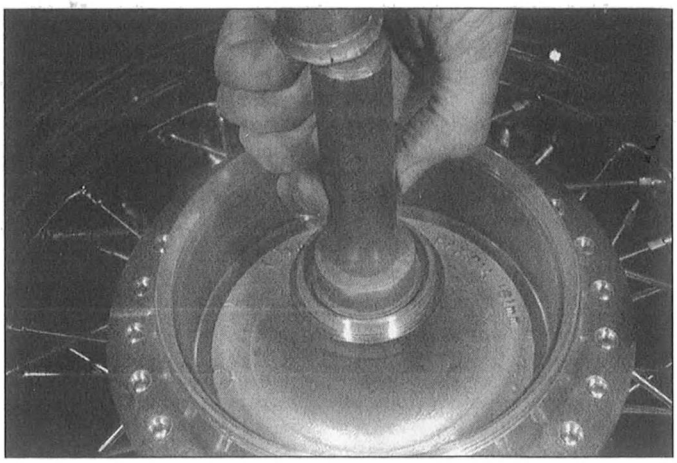
18 While the rear wheel is removed, inspect the drive chain (see Section 16), the driven sprocket (see Section 17) and the driven flange (see Section 18). The driven flange has an outer dust seal, a bearing, an O-ring and a collar that should be inspected for wear and, if necessary, replaced.

14 Tires - general information

1 Tires with tubes are used as standard equipment on this motorcycle. They are generally easier to change than tubeless tires.
2 Before changing a tire yourself, check with your local dealership or repair shop to find out the labor charge for changing a tire. Although the procedure is not complicated, it is time-consuming, and for safety, it must be done correctly. For these reasons, it may be more practical to have the job done. Watching a professional technician do the job before attempting it yourself can provide valuable information.
3 The accompanying illustrations can be used to replace a tube-type tire in an emergency.

15 Wheels - alignment check

1 Misalignment of the wheels, which may be due to a cocked rear wheel or a bent frame or triple clamps, can cause strange and possibly serious handling problems. If the frame or triple clamps are at fault, repair by a frame specialist or replacement with new parts are the only alternatives.
2 To check the alignment you will need an assistant, a length of string or a perfectly straight piece of wood and a ruler graduated in 1/64 inch increments. A plumb bob or other suitable weight will also be required.
3 Support the motorcycle in a level position, then measure the width of both tires at their widest points. Subtract the smaller measurement from the larger measurement, then divide the difference by two. The result is the amount of offset that should exist between the front and rear tires on both sides.
4 If a string is used, have your assistant hold one end of it about halfway between the floor and the rear axle, touching the rear sidewall of the tire.
5 Run the other end of the string forward and pull it tight so that it is roughly parallel to the floor. Slowly bring the string into contact with the front sidewall of the rear tire, then turn the front wheel until it is parallel with the string. Measure the distance from the front tire sidewall to the string.
6 Repeat the procedure on the other side of the motorcycle. The distance from the front tire sidewall to the string should be equal on both sides.



13.17c Install the new bearings with a seal driver or socket

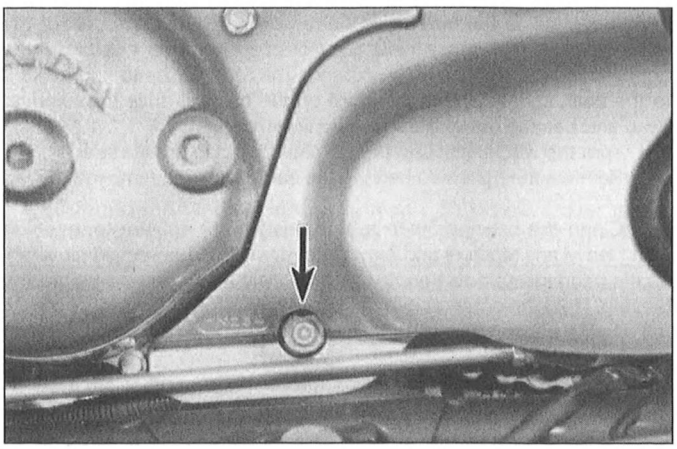
7 As was previously pointed out, a perfectly straight length of wood may be substituted for the string. The procedure is the same.
8 If the distance between the string and tire is greater on one side, or if the rear wheel appears to be cocked, make sure the swingarm pivot bolt and nut are tight ("Swingarm bearings - check" in Chapter 6).
9 If the front-to-back alignment is correct, the wheels still may be out of alignment vertically.
10 Using the plumb bob, or other suitable weight, and a length of string, check the rear wheel to make sure it is vertical. To do this, hold the string against the tire upper sidewall and allow the weight to settle just off the floor. When the string touches both the upper and lower tire sidewalls and is perfectly straight, the wheel is vertical.
11 Once the rear wheel is vertical, check the front wheel in the same manner. If both wheels are not perfectly vertical, the frame and/or major suspension components are bent.

16 Drive chain - removal, cleaning and installation

Removal

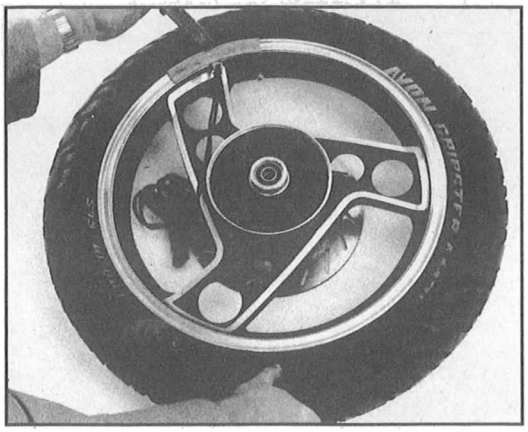
Refer to illustrations 16.2a, 16.2b, 16.2c and 16.2d

1 Loosen the rear axle nut and back off the axle adjuster bolts to loosen the drive chain (see "Drive chain and sprockets - check, adjustment and lubrication" in Chapter 1). Push the rear wheel forward as far as possible to create as much chain slack as possible.
2 Remove the Allen bolt from the left rear cover, remove the retaining clip (VT600 models only) and pull off the left rear cover **(see illustrations)**. After removing the cover on VT750 models, remove the col-

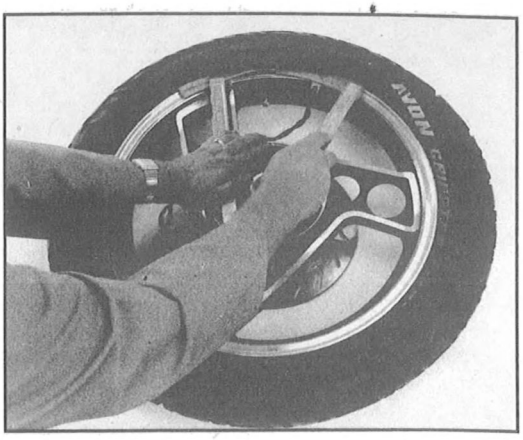


16.2a To remove the left rear cover, remove this Allen bolt . . .

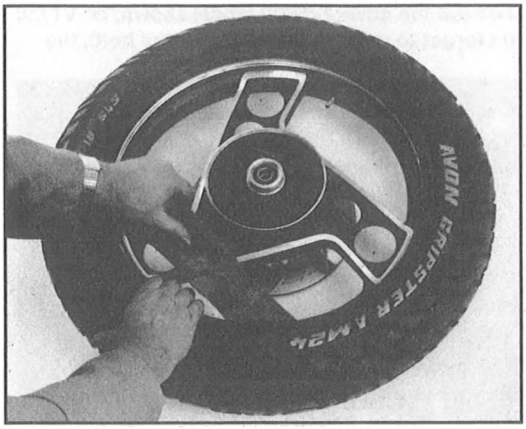
TIRE CHANGING SEQUENCE - TUBED TIRES



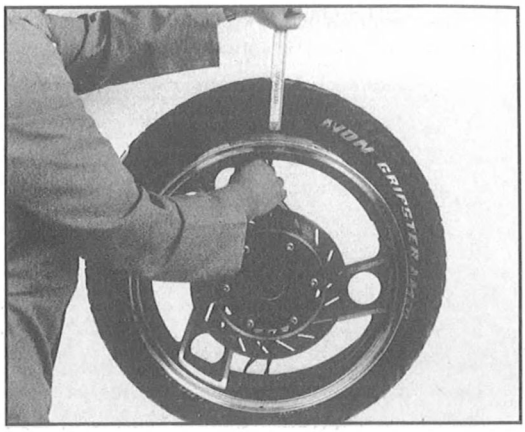
A Deflate tire. After pushing tire beads away from rim flanges push tire bead into well of rim at point opposite valve. Insert tire lever next to valve and work bead over edge of rim.



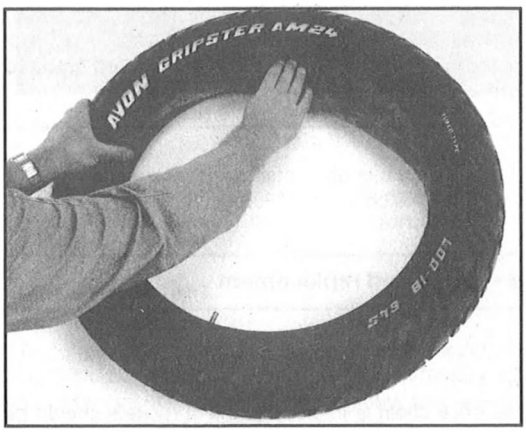
B Use two levers to work bead over edge of rim. Note use of rim protectors



C Remove inner tube from tire

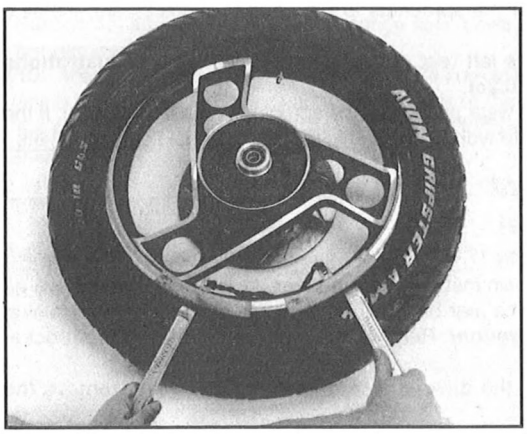


D When first bead is clear, remove tire as shown

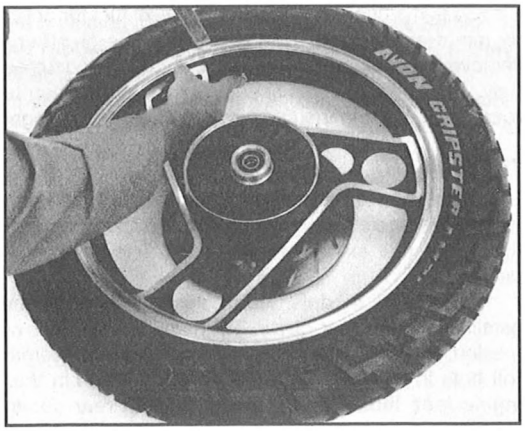


E To install, partially inflate inner tube and insert in tire

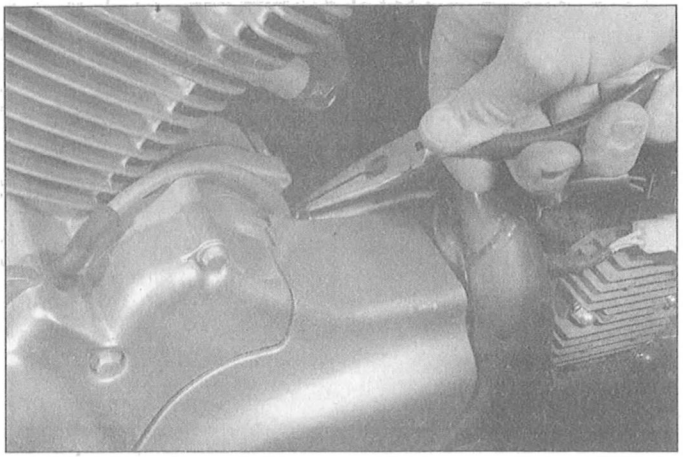
F Work first bead over rim and feed valve through hole in rim. Partially screw on retaining nut to hold valve in place.



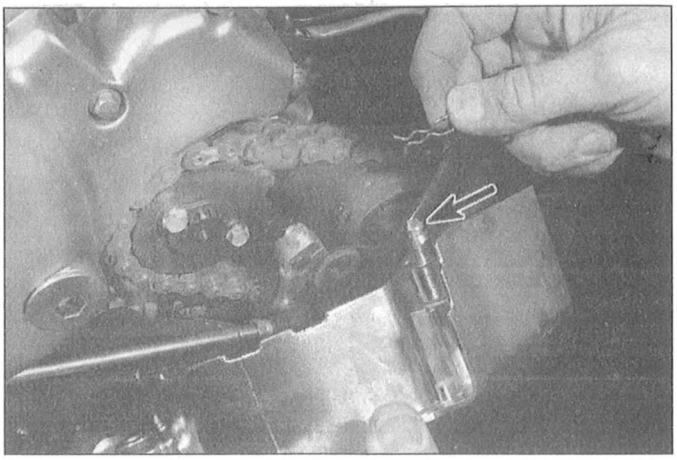
G Check that inner tube is positioned correctly and work second bead over rim using tire levers. Start at a point opposite valve.



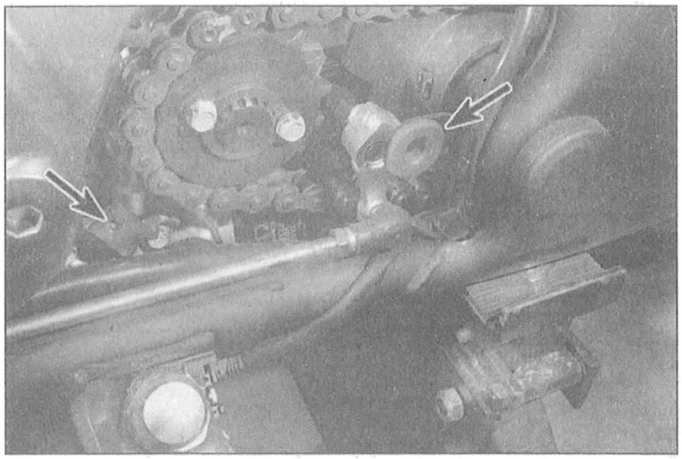
H Work final area of bead over rim while pushing valve inwards to ensure that inner tube is not trapped.



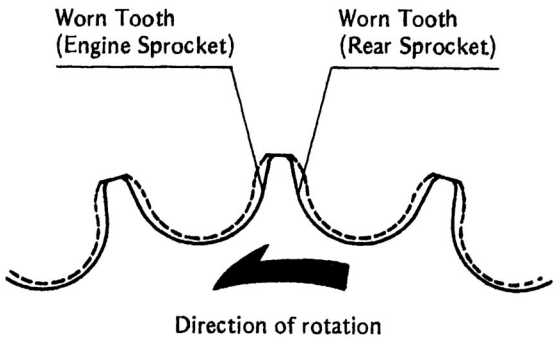
16.2b . . . pull off this retaining clip (only on VT600 models) . . .



16.2c . . . and remove the cover (VT600 model shown; on VT750 models, don't forget to retrieve the collar for the bolt); the post (arrow) . . .



16.2d . . . engages this grommet



17.3 Inspect the teeth on both sprockets in the indicated areas to determine whether they are excessively worn

lar for the bolt.

3 Remove the gearshift lever from the gearshift spindle (see "Gearshift linkage - removal, inspection and installation" in Chapter 1).

4 Remove the rear wheel and lift the chain off the driven sprocket (see Section 12).

5 Detach the swingarm from the frame (see Chapter 6). Pull the swingarm back far enough to allow the chain to slip between the frame and the front of the swingarm. Lift the chain off the drive sprocket and remove it.

Cleaning

6 Soak the chain in kerosene or diesel fuel for approximately five or six minutes. **Caution:** Don't use gasoline or other cleaning fluids. Remove the chain, wipe it off then dry it with compressed air immediately. The entire process shouldn't take longer than ten minutes - if it does, the O-rings in the chain rollers could be damaged.

Installation

7 Installation is the reverse of removal. Be sure to tighten the suspension fasteners to the torque listed in the Chapter 6 Specifications. Tighten the rear axle nut to the torque listed in this Chapter's Specifications.

8 On VT750 models, don't forget to install the collar before installing the left rear cover. To install the left rear cover, place it in position, push the cover positioning pin into the grommet and align the bolt hole in the cover with the threaded hole in the bracket on the engine **(see illustration)**. Install the left rear cover Allen bolt and tighten it securely. On VT600 models, install the retaining clip.

9 Lubricate and adjust the chain (see Chapter 1).

17 Sprockets - check and replacement

Check

Refer to illustration 17.3

1 Whenever the drive chain is inspected, the sprockets should be inspected also. If you are replacing the chain, replace the sprockets as well. Likewise, if the sprockets are in need of replacement, install a new chain also.

2 Remove the left rear cover from the engine **(see illustrations 16.2a through 16.2c)**.

3 Inspect the wear pattern on the sprockets **(see illustration)**. If the sprocket teeth are worn excessively, replace the chain and sprockets.

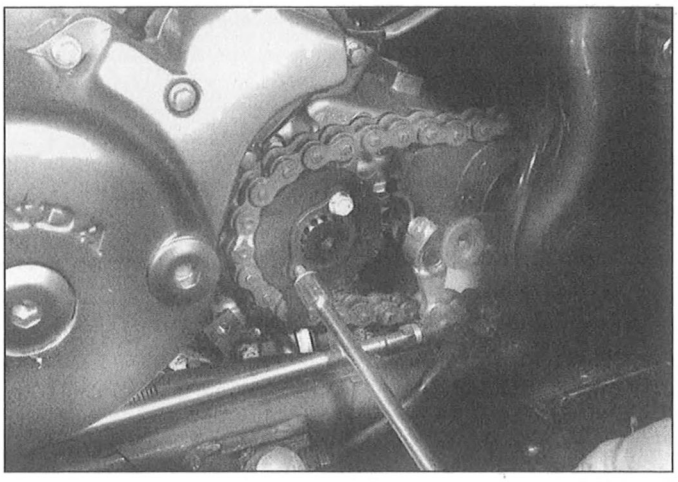
Replacement

Drive sprocket

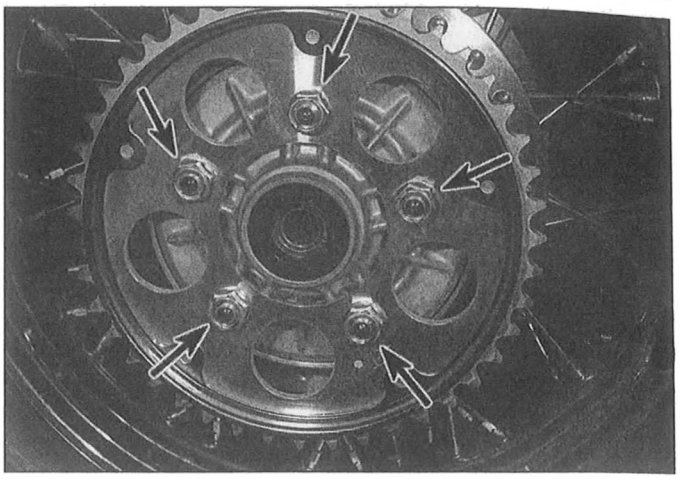
Refer to illustration 17.4

4 With the chain installed and the rear tire on the ground, have an assistant apply the rear brake while you loosen the sprocket retaining bolts **(see illustration)**. Remove the bolts and remove the sprocket setting plate.

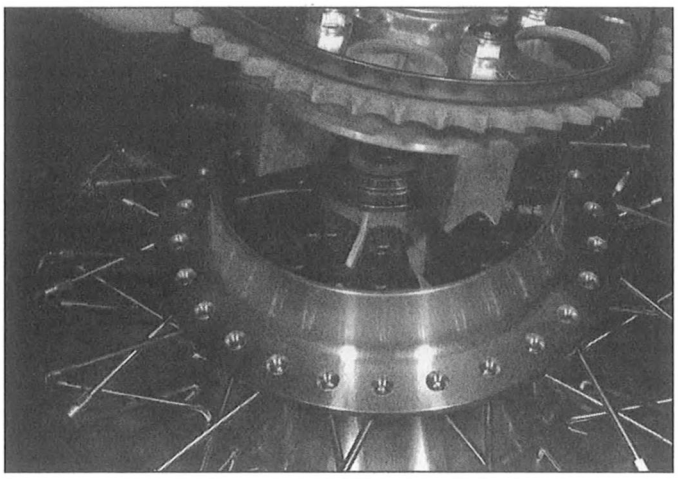
5 Disengage the drive sprocket from the chain and remove the sprocket.



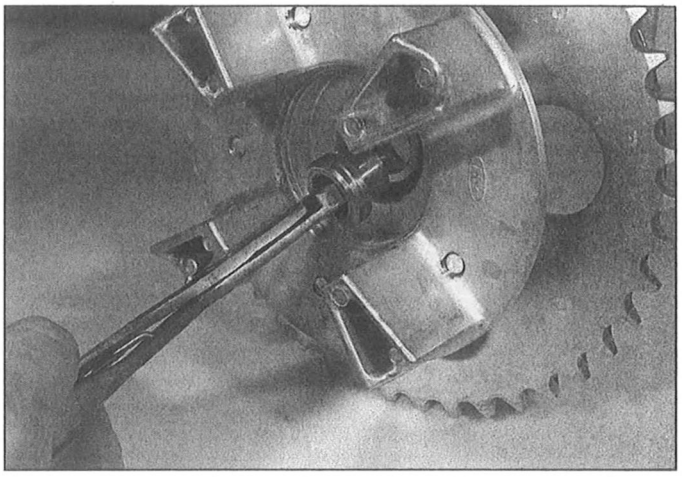
17.4 Remove the sprocket bolts and retaining plate



17.8 To remove the driven sprocket, remove these nuts (arrows) . . .



18.2 . . . and lift the sprocket/driven flange assembly from the wheel



18.3 Remove the collar from the driven flange

6 Installation is the reverse of removal. Be sure to tighten the sprocket retaining bolts to the torque listed in this Chapter's Specifications.

Driven sprocket

Refer to illustration 17.8

7 If you're going to remove the drive sprocket, do it before removing the chain. Remove the rear wheel (see Section 12).

8 Remove the sprocket retaining nuts **(see illustration)** and detach the driven sprocket from the driven flange.

9 While the rear wheel is removed, inspect the wheel bearings (see Section 13) and inspect the driven flange seal, collar, bearing and rubber dampers (see Section 18).

10 Installation is the reverse of removal. Be sure to apply a non-hardening thread locking compound to the threads of the studs and tighten the sprocket retaining nuts to the torque listed in this Chapter's Specifications.

18 Driven flange and rubber dampers - removal, inspection and installation

Refer to illustrations 18.2 and 18.3

1 Remove the rear wheel (see Section 12).

2 Lift the sprocket/driven flange off the wheel **(see illustration)** from the wheel and check it for cracks, hardening and general deterioration. Replace it with a new one if necessary.

3 Remove the collar from the driven flange **(see illustration)**.

4 Inspecting and replacing the driven flange bearing and seal is just like checking and replacing a wheel bearing and seal (see Section 13).

5 Inspect the rubber dampers inside the wheel hub. If they're cracked, torn, dried out or deteriorated, replace them.

6 Installation is the reverse of removal. **Caution:** *Don't forget to install the collar, or the coupling bearing will be damaged when the axle nut is tightened.*

Notes