






# Chapter 6

## Frame, suspension and final drive

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### Degrees of difficulty

Easy, suitable for novice with little experience		Fairly easy, suitable for beginner with some experience		Fairly difficult, suitable for competent DIY mechanic		Difficult, suitable for experienced DIY mechanic		Very difficult, suitable for expert DIY or professional	
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### Specifications

#### Front forks

##### Oil level\*

J model . . . . .	182 mm
K, M and P models . . . . .	123 mm
S and T models . . . . .	106 mm

##### Oil capacity

J model . . . . .	405 cc
K, M and P models . . . . .	466 cc
S and T models . . . . .	482 cc

Oil type . . . . .	ATF
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##### Fork spring free length

J model	
Standard . . . . .	Not available
Service limit . . . . .	321 mm
K, M and P models	
Standard . . . . .	320 mm
Service limit . . . . .	314 mm
S and T models	
Standard . . . . .	371 mm
Service limit . . . . .	Not available

Fork tube runout limit . . . . .	0.2 mm
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\*Oil level is measured from the top of the tube with the fork spring removed and the leg fully compressed.

## 6•2 Frame, suspension and final drive

### Rear shock absorber

Spring free length

J model

Standard ..... 151 mm

Service limit ..... 148 mm

All other models

Standard ..... 175 mm

Service limit ..... 171 mm

### Final drive

Oil type ..... Hypoid gear oil SAE 80

Oil capacity

After draining ..... 0.11 litres

After disassembly ..... 0.12 litres

### Torque settings

Footrest bracket bolts ..... 27 Nm

Gearchange lever pivot bolt ..... 12 Nm

Centre stand pinch bolts ..... 25 Nm

Side stand pivot bolt ..... 38 Nm

Handlebar mounting bolts ..... 30 Nm

Front brake master cylinder assembly clamp bolts ..... 12 Nm

Clutch lever assembly clamp bolts ..... 12 Nm

Top yoke fork clamp bolts ..... 23 Nm

Bottom yoke fork clamp bolts ..... 50 Nm

Fork top bolt ..... 23 Nm

Fork damper rod bolt ..... 20 Nm

Steering head bearing adjuster nut

J model ..... 22 Nm

All other models ..... 28 Nm

Steering stem nut ..... 105 Nm

Rear shock absorber

J model

Upper mounting bolt ..... 95 Nm

Lower mounting bolt ..... 45 Nm

All other models

Upper mounting bolt ..... 110 Nm

Lower mounting bolt ..... 45 Nm

Swingarm pivot bolts

Left-hand pivot bolt ..... 100 Nm

Right-hand pivot bolt

Pre-load setting ..... 12 Nm

Normal setting ..... 10 Nm

Right-hand pivot bolt locknut (using special tool) ..... 90 Nm

Final drive housing nuts ..... 65 Nm

## 1 General information

All models use a lightweight twin hexagonal-section tube frame.

Front suspension is by a pair of conventional oil-damped telescopic forks.

At the rear, a single-sided swingarm acts on a single shock absorber which is adjustable for pre-load and rebound damping (pre-load only on J models).

The drive to the rear wheel is by shaft, rather than the more commonly-found chain, and the shaft is housed inside the longitudinal section of the swingarm. The final drive housing turns the drive through 90° to the rear wheel.

## 2 Frame - inspection and repair

1 The frame should not require attention unless accident damage has occurred. In most cases, frame replacement is the only satisfactory remedy for such damage. A few frame specialists have the jigs and other equipment necessary for straightening the frame to the required standard of accuracy, but even then there is no simple way of assessing to what extent the frame may have been over stressed.

2 After the machine has accumulated a lot of miles, the frame should be examined closely for signs of cracking or splitting at the welded joints. Loose engine mount bolts can cause ovaling or fracturing of the mounting tabs.

Minor damage can often be repaired by welding, depending on the extent and nature of the damage.

3 Remember that a frame which is out of alignment will cause handling problems. If misalignment is suspected as the result of an accident, it will be necessary to strip the machine completely so the frame can be thoroughly checked.

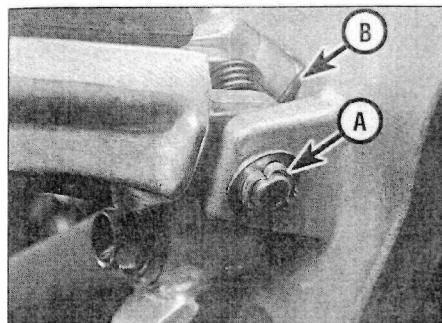
### Footrests and brackets - removal and installation



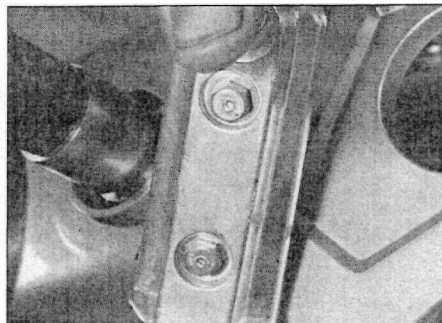
### Rider's footrests

#### Removal

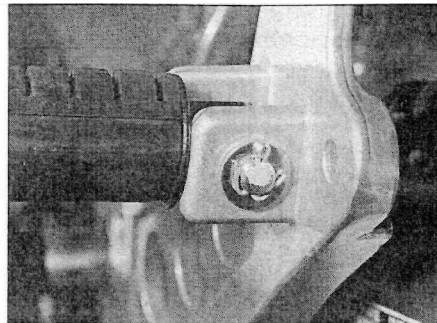
1 Remove the split pin and washer from the bottom of the footrest pivot pin, then



**3.1 Remove the split pin (A) and withdraw the pivot pin from the front. Note the fitting of the return spring (B)**



**3.2 The rubber is secured to the footrest by two bolts**



**3.4 Remove the split pin and withdraw the pivot pin from the front to free the passenger footrest**

withdraw the pivot pin and remove the footrest, noting how the return spring is located (see illustration). Discard the split pin as a new one must be used.

2 If necessary, the footrest rubber can be separated from the footrest by unscrewing the two bolts on the underside of the footrest (see illustration).

#### Installation

3 Installation is the reverse of removal, using a new split pin to secure the pivot pin. Make sure the return spring is correctly located.

### Passenger's footrests

#### Removal

4 Remove the split pin and washer from the bottom of the footrest pivot pin, then withdraw the pivot pin and remove the footrest (see illustration). Discard the split pin as a new one must be used.

5 If necessary, the footrest rubber can be separated from the footrest by removing the washer from the inner end of the footrest and sliding the rubber off the footrest.

#### Installation

6 Installation is the reverse of removal, using a new split pin to secure the pivot pin.

### Footrest brackets

#### Right-hand bracket

##### Removal

7 Remove the rider's footrest (see Step 1).

8 Unscrew the bolt securing the silencer to the bracket (see illustration 13.2a in Chapter 4), noting the spacer (S and T models only), and the two bolts securing the bracket to the frame. Carefully manoeuvre the bracket to provide access to the rear brake pedal and master cylinder which are mounted on the back of the bracket. Take care not to twist the brake hose.

9 Unhook the brake pedal return spring from the bracket and the brake light switch spring from the brake pedal (see illustration). Remove the circlip securing the brake pedal to its pivot shaft. Remove the split pin and clevis pin from the master cylinder pushrod link, then separate the brake pedal from the

master cylinder. Slip the brake pedal and its washer off the pivot. Depress the retaining tabs on the underside of the brake light switch adjuster nut and remove the switch from its bracket. Free the switch wiring from its clamp.

10 Unscrew the two bolts securing the master cylinder to the bracket and remove the bracket (see illustration). Support the master cylinder so that no strain is placed on its hoses.

##### Installation

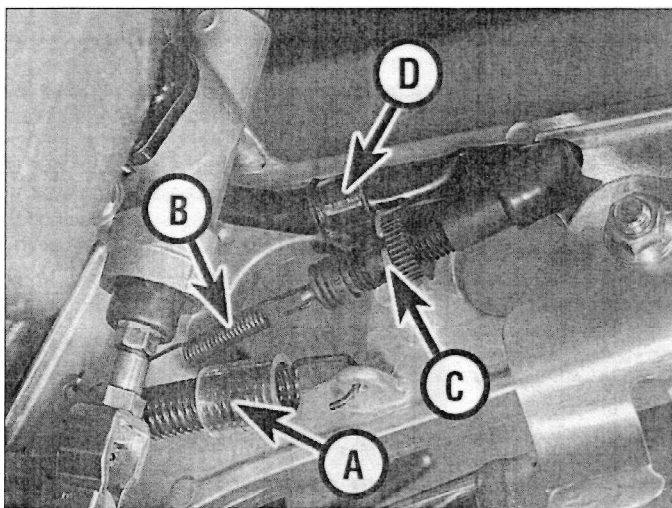
11 Installation is the reverse of removal. Use a new split pin to secure the pushrod clevis pin. Tighten the footrest bracket mounting bolts to the torque setting specified at the beginning of the Chapter.

#### Left-hand bracket

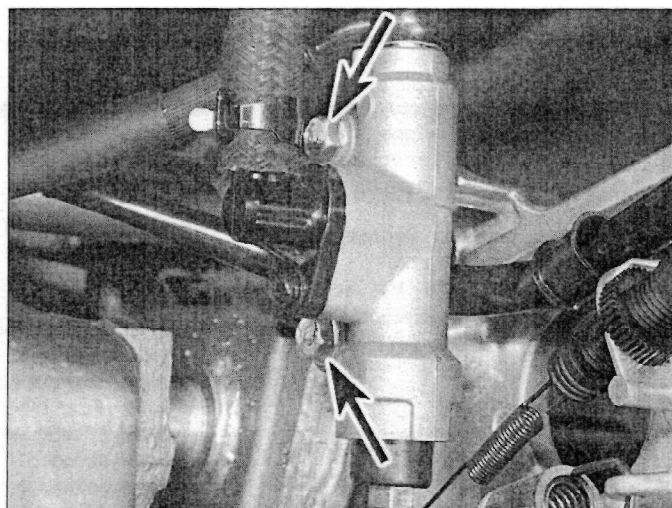
##### Removal

12 Remove the rider's footrest (see Step 1).

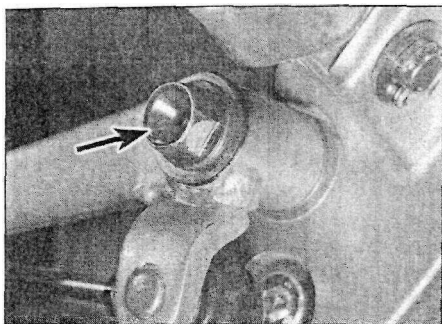
13 Unscrew the bolt securing the gearchange lever to the bracket (see illustration). Remove the lever from the bracket but leave it attached to its linkage arm.



**3.9 Brake pedal return spring (A), brake light switch spring (B), brake light switch adjuster nut retaining tabs (C), wiring clamp (D)**



**3.10 The master cylinder is secured to the back of the footrest bracket by two bolts (arrows)**



3.13 Gearchange lever bolt (arrow)

14 Unscrew the two bolts securing the bracket to the frame and remove the bracket.

#### Installation

15 Installation is the reverse of removal. Tighten the gearchange lever pivot bolt and the footrest bracket mounting bolts to the specified torque setting.

#### 4 Stands- removal and installation

##### Centre stand - J, K and M models only

1 The centre stand is secured in the frame by a pivot shaft which is held in lugs on the frame by two pinch bolts. Support the bike on its side stand and free one end of the centre stand return spring. Remove the split pin from the left-hand end of the pivot shaft, then slacken both shaft pinch bolts and, supporting the stand, withdraw the shaft. Remove the stand. Discard the shaft split pin as a new one must be used.

2 Inspect the stand and shaft for signs of wear and replace if necessary. Apply a smear of grease to the shaft and fit the stand back on the bike, tightening the pinch bolts to the torque setting specified at the beginning of the Chapter. Use a new split pin on the pivot shaft end. Reconnect the return spring.

3 Make sure the return spring is in good condition and is capable of holding the stand up when not in use. A broken or weak spring is an obvious safety hazard.

##### Side stand

4 The side stand is attached to a bracket on the frame. An extension spring anchored to the bracket ensures that the stand is held in the retracted position. The side stand incorporates a switch which cuts out the ignition if the side stand is extended when the engine is running and in gear.

5 Support the bike on its centre stand (if fitted), or on an auxiliary stand.

6 Free the stand spring and unscrew the nut from the pivot bolt. Withdraw the pivot bolt to free the stand from its bracket.

7 On installation apply grease to the pivot bolt shank and tighten the nut to the torque setting specified at the beginning of the Chapter. Reconnect the side stand spring and check that it holds the stand securely up when not in use - an accident is almost certain to occur if the stand extends while the machine is in motion.

8 For check and replacement of the side stand switch see Chapter 9.

#### 5 Handlebars - removal and installation

##### J, K and M models

###### Right-hand handlebar

**Note:** If required, the handlebar can be displaced for access to the fork top bolt or the top yoke without removing the switch housing and the front brake master cylinder assembly.

1 Remove the right-hand handlebar switch housing (see Chapter 9).

2 Remove the front brake master cylinder assembly (see Chapter 7).

3 Unscrew the two bolts securing the instrument cluster and displace the cluster to provide access to the handlebar mounting bolts. There is no need to disconnect the instrument cluster wiring or speedometer cable.

4 Prise out the caps from the bolts securing the handlebar to the top yoke, then unscrew the bolts and remove the handlebar.

5 If necessary, unscrew the handlebar end-weight retaining screw, then remove the weight from the end of the handlebar and slide off the throttle twistgrip. If replacing the grip, it may be necessary to slit it using a sharp knife as it is adhered to the throttle twist.

6 Installation is the reverse of removal, noting the following:

- If a new grip is being fitted, secure it to the throttle twist using a suitable adhesive (Honda bond A).
- If removed, apply a smear of grease to the inside of the throttle twistgrip and a suitable non-permanent locking compound to the handlebar end-weight retaining screw.
- Tighten the handlebar mounting bolts to the torque setting specified at the beginning of the Chapter.
- Make sure the front brake master cylinder assembly clamp is installed with its "UP" mark facing up and with the clamp mating surfaces aligned with the punch mark on the handlebar (see illustrations 5.19a and 5.19b). Tighten the upper bolt first, then the lower bolt, to the torque setting specified at the beginning of the Chapter.

##### Left-hand handlebar

**Note:** If required, the handlebar can be displaced for access to the fork top bolt or the top yoke without removing the switch housing and the clutch lever assembly.

7 Remove the left-hand handlebar switch (see Chapter 9).

8 Unscrew the two bolts securing the clutch lever assembly clamp to the handlebar and remove the assembly, noting the "UP" mark on the clamp face and the punch mark on the handlebar which must align with the clamp mating surfaces on installation.

9 Unscrew the two bolts securing the instrument cluster and displace the cluster to provide access to the handlebar mounting bolts. There is no need to disconnect the instrument cluster wiring or speedometer cable.

10 Prise out the caps from the bolts securing the handlebar to the top yoke, then unscrew the bolts and remove the handlebar.

11 If necessary, unscrew the handlebar end-weight retaining screw, then remove the weight from the end of the handlebar. If replacing the grip, it may be necessary to slit it using a sharp knife as it is adhered to the handlebar.

12 Installation is the reverse of removal, noting the following:

- If a new grip is being fitted, secure it to the handlebar using a suitable adhesive (Honda bond A).
- If removed, apply a suitable non-permanent locking compound to the handlebar end-weight retaining screw.
- Tighten the handlebar mounting bolts to the torque setting specified at the beginning of the Chapter.
- Make sure the clutch lever assembly clamp is installed with its "UP" mark facing up and with the clamp mating surfaces aligned with the punch mark on the handlebar (see illustrations 5.19a and 5.19b). Tighten the upper bolt first, then the lower bolt, to the torque setting specified at the beginning of the Chapter.

##### P, S and T models

###### Removal

**Note:** If required, the handlebars can be displaced for access to the fork top bolts or the top yoke without removing the switch housings, the front brake master cylinder assembly and the clutch lever assembly.

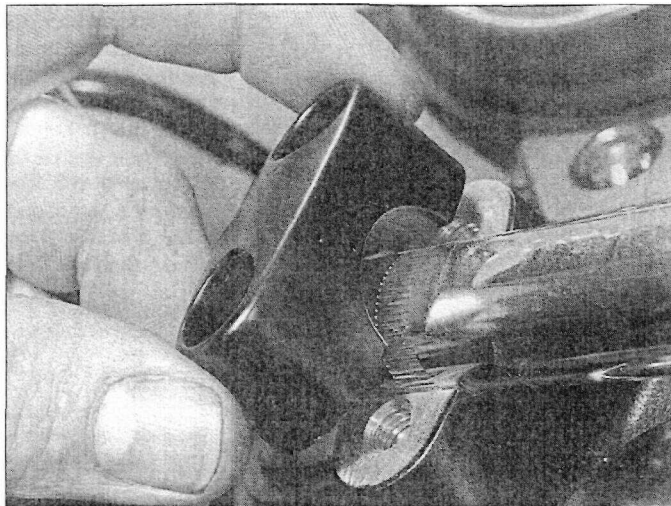
13 Remove both left and right-hand handlebar switches (see Chapter 9).

14 Remove the front brake master cylinder assembly (see Chapter 7).

15 Unscrew the two bolts securing the clutch lever assembly clamp to the handlebar and remove the assembly, noting the "UP" mark on the clamp face and the punch mark on the handlebar which must align with the clamp mating surfaces on installation (see illustrations 5.19a and 5.19b).



5.16a Remove the handlebar clamp bolt caps . . .



5.16b . . . then unscrew the bolts and remove the clamps

16 Prise out the caps from the bolts securing the handlebar clamps to the top yoke, then unscrew the bolts and remove the clamps and the handlebars (**see illustrations**).

17 If necessary, unscrew the handlebar end-weight retaining screws, then remove the weights from the end of the handlebars. If replacing the grips, it may be necessary to slit them using a sharp knife as they are adhered to the throttle twistgrip (right-hand) and the handlebar (left-hand).

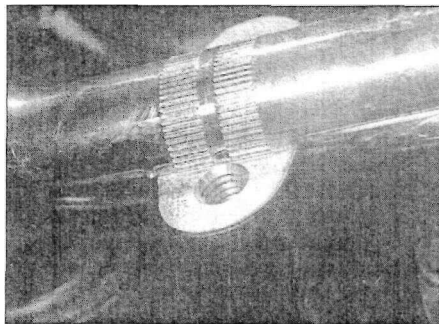
### Installation

18 Installation is the reverse of removal. Align the handlebars so that the ridges are central in the clamp mounts (**see illustration**). Fit the clamps with the punch mark facing forward (**see illustration**). Tighten the handlebar mounting bolts to the torque setting specified at the beginning of the Chapter.

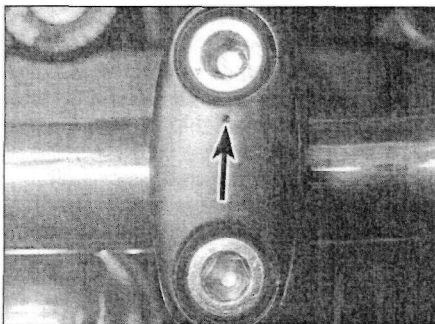
19 If removed, apply a suitable non-permanent locking compound to the handlebar end-weight retaining screws. If new grips are being fitted, secure them using a suitable adhesive (Honda bond A). Make sure

the front brake master cylinder and clutch lever assembly clamps are installed with their "UP" mark facing up and with the clamp mating surfaces aligned with the punch mark on the handlebar (**see illustrations**). Tighten the upper bolt first, then the lower bolt, to the torque setting specified at the beginning of the Chapter.

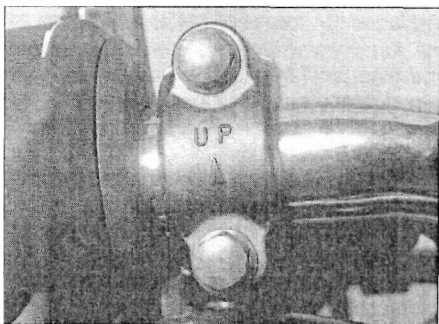
## 6 Forks - removal and installation



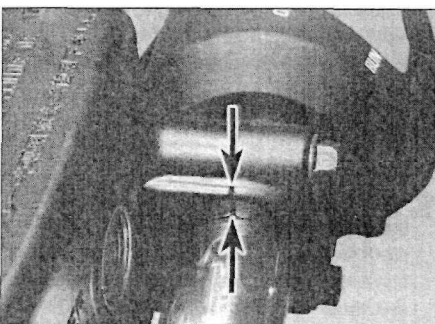
5.18a The ridged areas on the handlebar must be central in the clamps



5.18b The punch mark on each clamp must face forward (arrow)



5.19a Fit the clamp with the "UP" mark facing up . . .



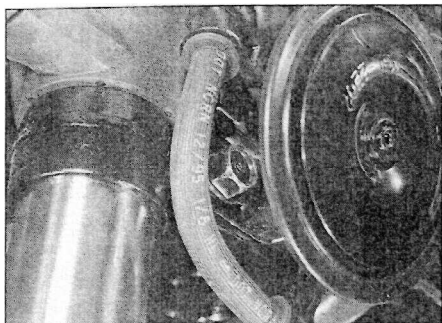
5.19b . . . and with the mating surfaces aligned with the punch mark (arrows)

### Removal

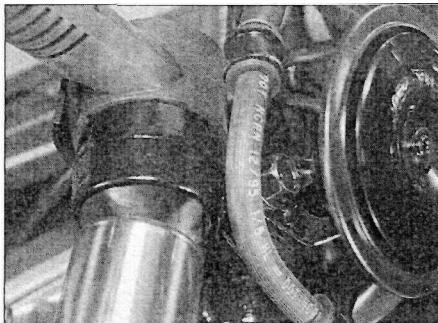
- 1 Remove the front wheel (see Chapter 7).
- 2 Remove the front mudguard (Chapter 8).
- 3 On J, K and M models, displace the handlebars (see Section 5). Support the right-hand handlebar so the master cylinder is upright and no strain is placed on the hose. On P, S and T models, displace the handlebars only if the forks are being dismantled. This provides access to the fork top bolt (not necessary if the forks are not being disassembled).
- 4 Slacken, but do not remove, the fork clamp bolts in the top yoke (**see illustration**). If the



6.4 Top yoke fork clamp bolt



6.5 Bottom yoke fork clamp bolt



6.6 Install the forks through the bottom yoke and the turn signal bracket

forks are to be disassembled, it is advisable to slacken the fork top bolts at this stage.



**Slackening the fork pinch bolts in the top yoke before slackening the fork top bolt releases pressure on the top bolt. This makes it much easier to remove and helps to preserve the threads.**

5 Note the position of fork tubes relative to the top yoke so that they are installed in the same position. Slacken but do not remove the fork clamp bolts in the bottom yoke, and remove the forks by twisting them and pulling

them downwards (see illustration). Note how the forks pass through the turn signal brackets.



**If the fork legs are seized in the yokes, spray the area with penetrating oil and allow time for it to soak in before trying again.**

## Installation

6 Remove all traces of corrosion from the fork tubes and the yokes and slide the forks back into place (see illustration). On J, K and M

models align the groove in the fork tube with the underside of the top yoke. On P, S and T models, align the upper edge of the fork tube with the top surface of the top yoke (see illustration 6.4).

7 Tighten the bottom yoke pinch bolts to the torque setting specified at the beginning of the Chapter (see illustration 6.5). If the fork legs have been dismantled, the fork tube top bolts should now be tightened to the specified torque setting. Now tighten the top yoke pinch bolts to the specified torque setting (see illustration 6.4).

8 Install the front mudguard (see Chapter 8), the front wheel (see Chapter 7) and the handlebars if removed (see Section 5).

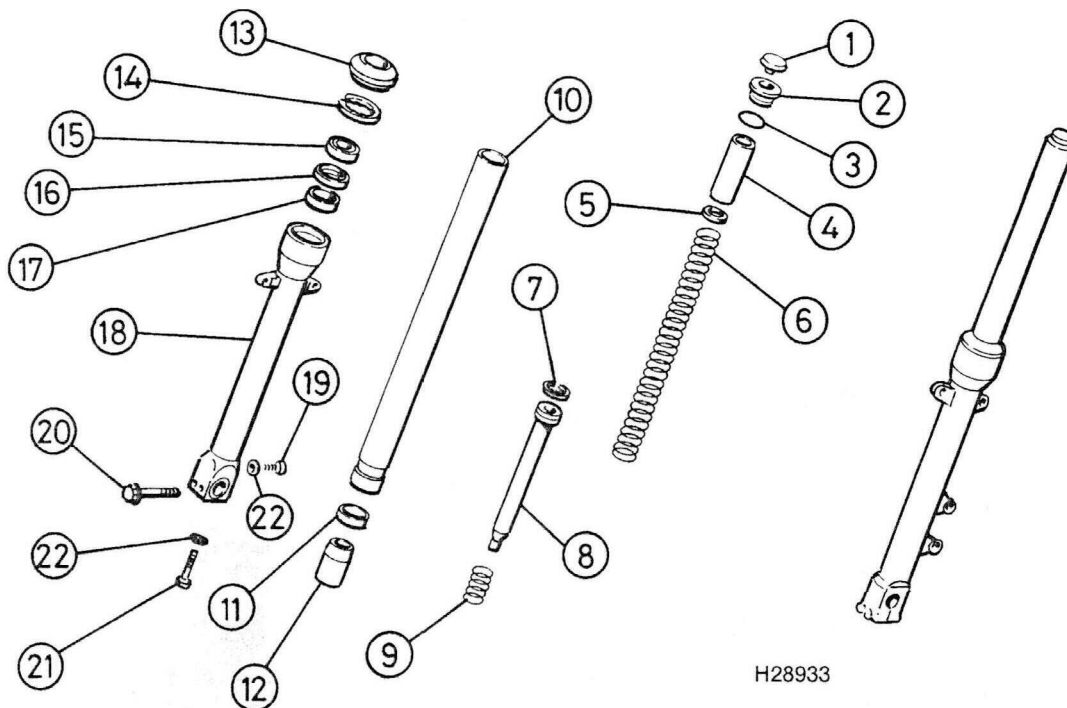
9 Check the operation of the front forks and brake before taking the bike out on the road.

## 7 Forks - disassembly, inspection and reassembly



### Disassembly

1 Always dismantle the fork legs separately to avoid interchanging parts and thus causing an accelerated rate of wear. Store all components in separate, clearly marked containers (see illustration).

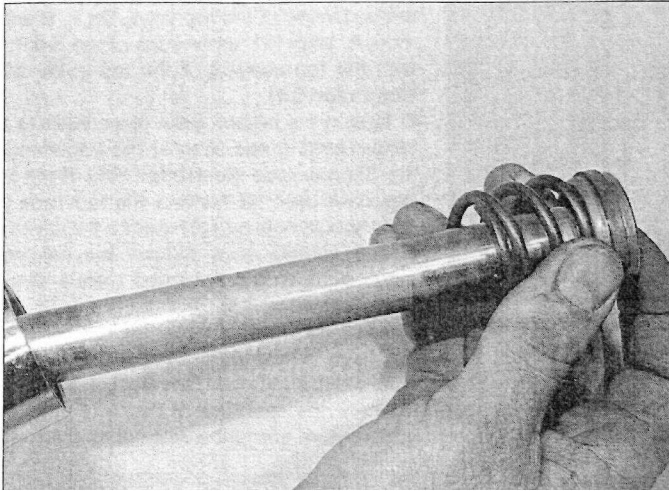


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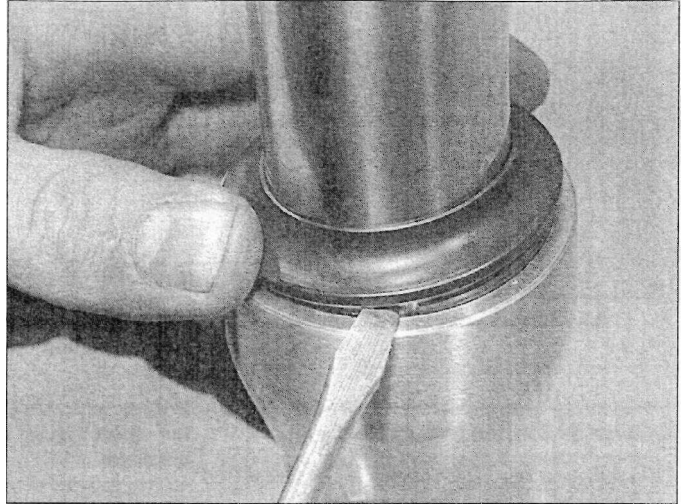
### 7.1 Front fork components

- |                |                  |                    |                |                    |
|----------------|------------------|--------------------|----------------|--------------------|
| 1 Top bolt cap | 6 Spring         | 11 Bottom bush     | 16 Washer      | 20 Axle clamp bolt |
| 2 Top bolt     | 7 Piston ring    | 12 Damper rod seat | 17 Top bush    | 21 Damper rod bolt |
| 3 O-ring       | 8 Damper rod     | 13 Dust seal       | 18 Fork slider | 22 Sealing washer  |
| 4 Spacer       | 9 Rebound spring | 14 Retaining clip  | 19 Drain screw |                    |
| 5 Spring seat  | 10 Fork tube     | 15 Oil seal        |                |                    |





7.8 Withdraw the damper rod and rebound spring from the tube



7.9 Prise out the dust seal using a flat-bladed screwdriver

2 Before dismantling the fork, it is advised that the damper rod bolt be slackened at this stage. Compress the fork tube in the slider so that the spring exerts maximum pressure on the damper rod head, then have an assistant slacken the damper rod bolt in the base of the fork slider.

3 If the fork top bolt was not slackened with the fork in situ, carefully clamp the fork tube in a vice, taking care not to overtighten or score its surface, then slacken the fork top bolt.

4 Unscrew the fork top bolt from the top of the fork tube.

**Warning:** The fork spring is pressing on the fork top bolt with considerable pressure. Unscrew the bolt very carefully, keeping a downward pressure on it and release it slowly as it is likely to spring clear. It is advisable to wear some form of eye and face protection when carrying out this operation.

5 Slide the fork tube down into the slider and withdraw the spacer, spring seat and the spring from the tube, noting which way up they fit.

6 Invert the fork leg over a suitable container and pump the fork vigorously to expel as much fork oil as possible.

7 Remove the previously slackened damper rod bolt and its copper sealing washer from the bottom of the slider. Discard the washer as a new one must be used on reassembly. If the damper rod bolt was not slackened before dismantling the fork, it may be necessary to re-install the spring, spring seat, spacer and top bolt to prevent the damper rod from turning. Alternatively, a broom handle or tapered length of wooden dowel passed down through the fork tube, can be pressed hard into the damper rod head and held to stop it turning.

8 Withdraw the damper rod from the fork tube, and remove the rebound spring (see illustration).

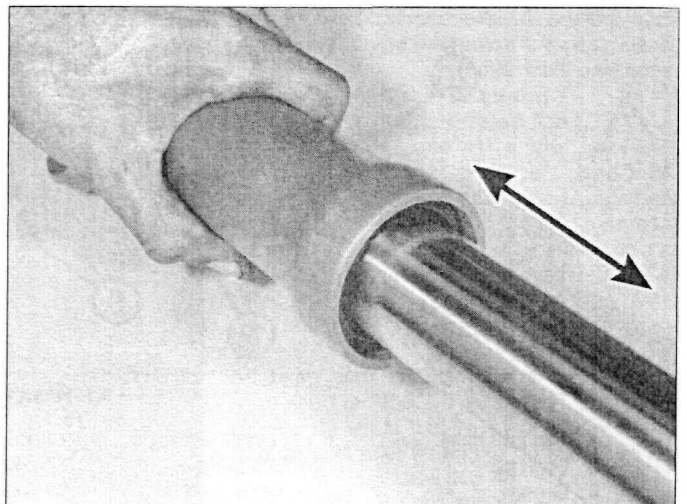
9 Carefully prise out the dust seal from the top of the slider to gain access to the oil seal retaining clip (see illustration). Discard the dust seal as a new one must be used.

10 Carefully remove the retaining clip, taking care not to scratch the surface of the tube (see illustration).

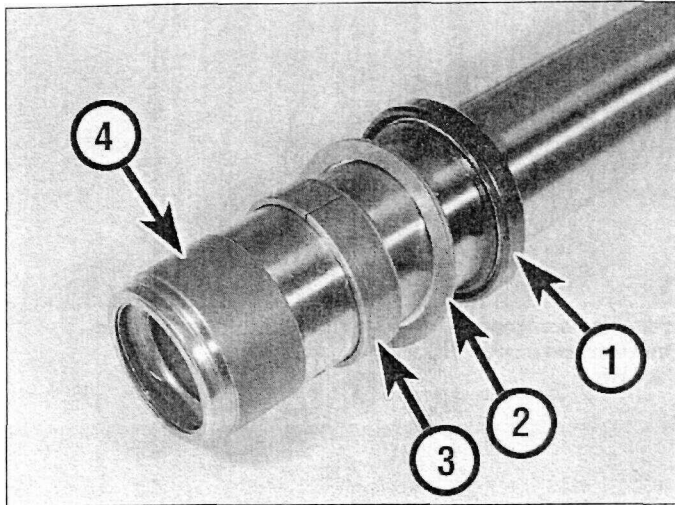
11 To separate the tube from the slider it will be necessary to displace the top bush and oil seal. The bottom bush should not pass through the top bush, and this can be used to good effect. Push the tube gently inwards until it stops against the damper rod seat. Take care not to do this forcibly or the seat may be damaged. Then pull the tube sharply outwards until the bottom bush strikes the top bush. Repeat this operation until the top bush and seal are tapped out of the slider (see illustration).



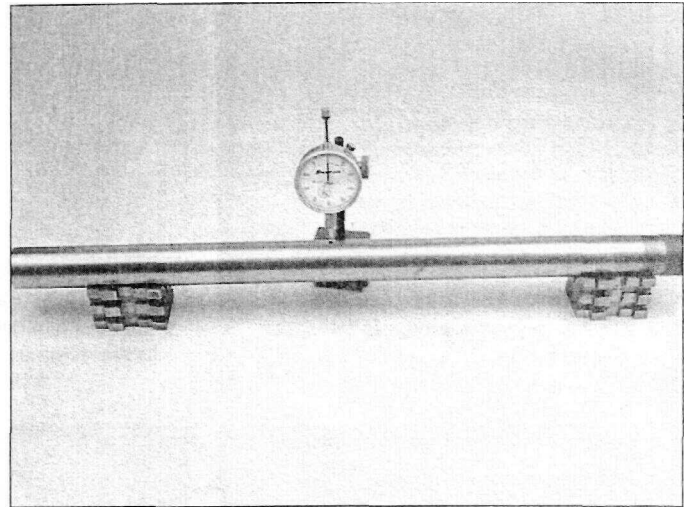
7.10 Prise out the retaining clip using a flat-bladed screwdriver



7.11 To separate the slider and fork tube, pull them apart firmly several times - the slide-hammer effect will pull them apart



7.12 The oil seal (1), washer (2), top bush (3) and bottom bush (4) will come out with the fork tube



7.15 Check the fork tube for runout using V-blocks and a dial indicator

12 With the tube removed, slide off the oil seal and its washer, noting which way up they fit (**see illustration**). Discard the oil seal as a new one must be used. The top bush can then also be slid off its upper end. Do not remove the bottom bush from the tube unless it is to be replaced.

13 Tip the damper rod seat out of the slider, noting which way up it fits.

### Inspection

14 Clean all parts in solvent and blow them dry with compressed air, if available. Check the fork tube for score marks, scratches, flaking of the chrome finish and excessive or abnormal wear. Look for dents in the tube and replace the tube in both forks if any are found. Check the fork seal seat for nicks, gouges and scratches. If damage is evident, leaks will occur.

15 Check the fork tube for runout using V-blocks and a dial gauge, or have it done at a dealer service department or other repair shop (**see illustration**).



**Warning:** If it is bent, it should not be straightened; replace it with a new one.

16 Check the spring for cracks and other damage. Measure the spring free length and compare the measurement to the specifications at the beginning of the Chapter. If it is defective or sagged below the service limit, replace the springs in both forks with new ones. Never replace only one spring.

17 Examine the working surfaces of the two bushes; if worn or scuffed they must be replaced. To remove the bottom bush from the fork tube, prise it apart at the slit using a screwdriver and slide it off (**see illustration**). Make sure the new one seats properly.

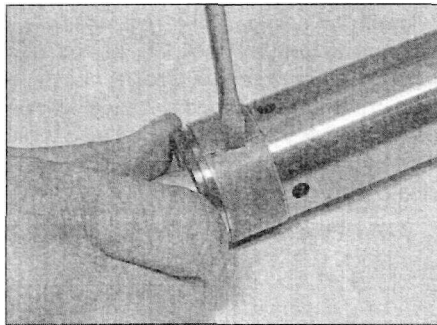
18 Check the damper rod assembly components for damage and wear, and replace any that are defective (**see illustration**).

### Reassembly

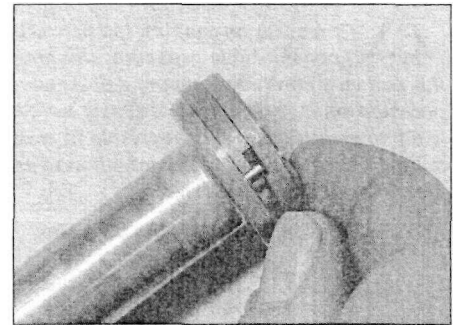
19 Install the rebound spring and piston ring (if removed) onto the damper rod (**see illustration**). Insert the damper rod into the fork tube and slide it into place so that it projects fully from the bottom of the tube, then install the seat on the bottom of the damper rod (**see illustration**).

20 Oil the fork tube and bottom bush with the specified fork oil and insert the assembly into the slider (**see illustration**). Fit a new copper

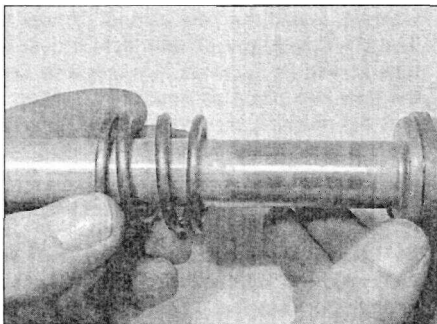
sealing washer to the damper rod bolt and apply a few drops of a suitable thread locking compound to its threads then install the bolt into the bottom of the slider (**see illustration**). Tighten the bolt to the specified torque setting. If the damper rod rotates inside the tube, temporarily install the fork spring and top bolt (see Steps 26 and 27) and compress the fork to hold the damper rod. Alternatively, a broom handle pressed hard into the damper rod head quite often suffices.



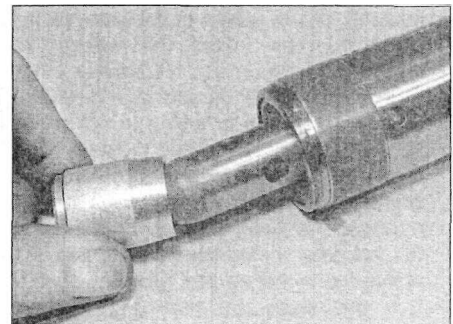
7.17 Prise off the bottom bush using a flat-bladed screwdriver



7.18 Replace the damper rod piston ring if it is worn or damaged

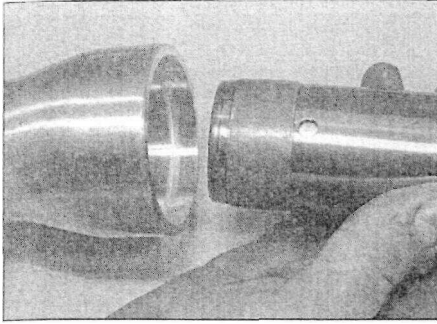


7.19a Slide the rebound spring onto the damper rod

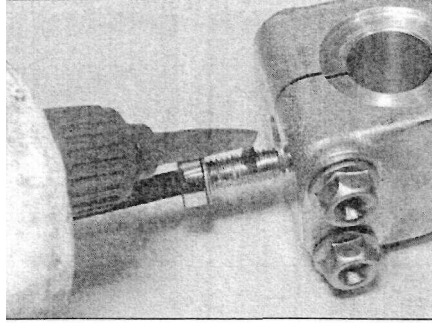


7.19b Fit the seat to the bottom of the damper rod





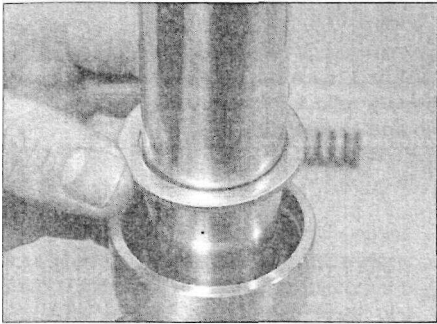
**7.20a** Slide the tube into the slider



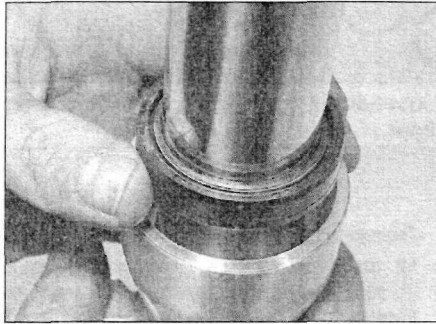
**7.20b** Apply a thread-locking compound to the damper rod bolt and use a new sealing washer



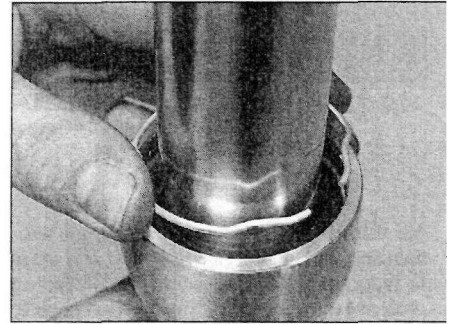
**7.21a** Install the top bush ,



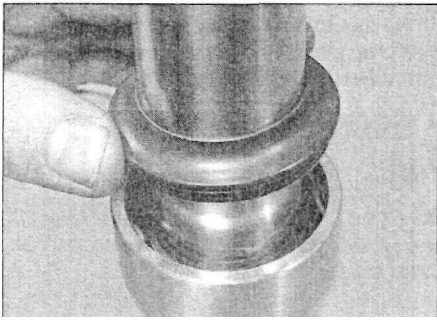
**7.21b** . . . followed by the washer



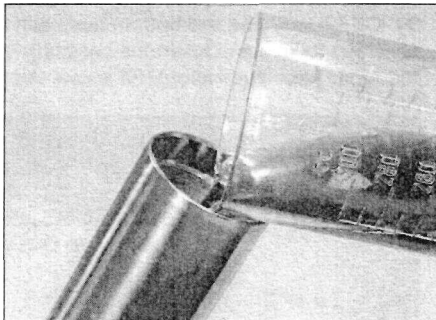
**7.22** Make sure the oil seal is the correct way up



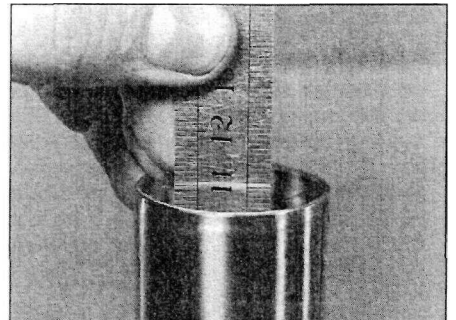
**7.23** Install the retaining clip .



**7.24** . . . followed by the dust seal



**7.25a** Pour the oil into the top of the tube



**7.25b** Measure the oil level with the fork held vertical

**21** Push the fork tube fully into the slider, then oil the top bush and slide it down over the tube (**see illustration**). Press the bush squarely into its recess in the slider as far as possible, then install the washer (**see illustration**). Either use the service tool (Pt. Nos. 07947-KA50100 and 07947-KF00100) or a suitable piece of tubing to tap the bush fully into place; the tubing must be slightly larger in diameter than the fork tube and slightly smaller in diameter than the bush recess in the slider. Take care not to scratch the fork tube during this operation; it is best to make sure that the fork tube is pushed fully into the slider so that any accidental scratching is confined to the area above the oil seal.

**22** When the bush is seated fully and squarely in its recess in the slider (remove the washer to check, wipe the recess clean, then reinstall the washer), install the new oil seal. Smear the seal's lips with fork oil and slide it over the tube so that its markings face upwards. Drive the seal into place as described in Step 21 until the retaining clip groove is visible above the seal. (**see illustration**).

**23** Once the seal is correctly seated, fit the retaining clip, making sure it is correctly located in its groove (**see illustration**).

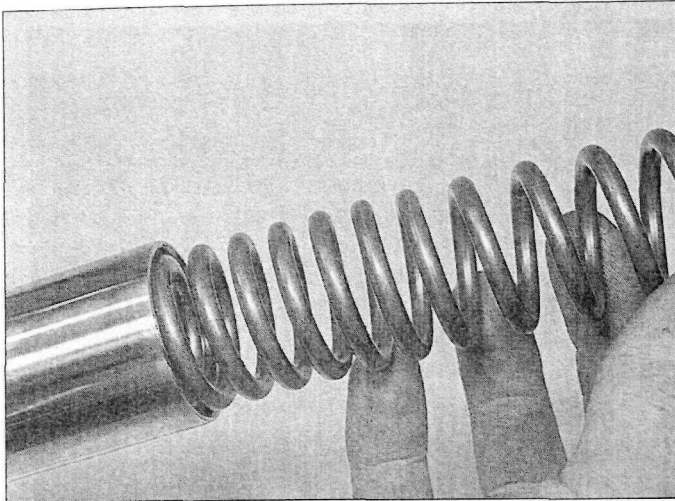
**24** Lubricate the lips of the new dust seal then slide it down the fork tube and press it into position (**see illustration**).

**25** Slowly pour in the specified quantity and grade of fork oil (**see illustration**) and pump

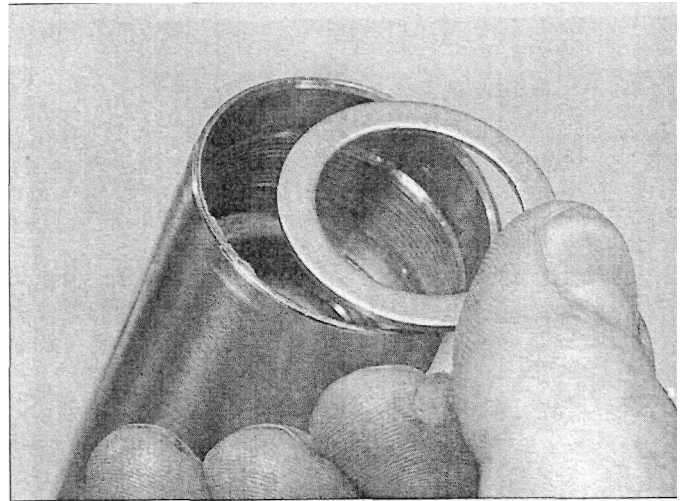
the fork to distribute the oil evenly. The oil level should also be measured and adjustment made by adding or subtracting oil. Fully compress the fork tube into the slider and measure the fork oil level from the top of the tube (**see illustration**). Add or subtract fork oil until the oil is at the level specified in the Specifications Section of this Chapter.

**26** Pull the fork tube out of the slider as far as possible then install the spring, with its closer-wound coils at the bottom, followed by the spring seat and the spacer (**see illustrations**).

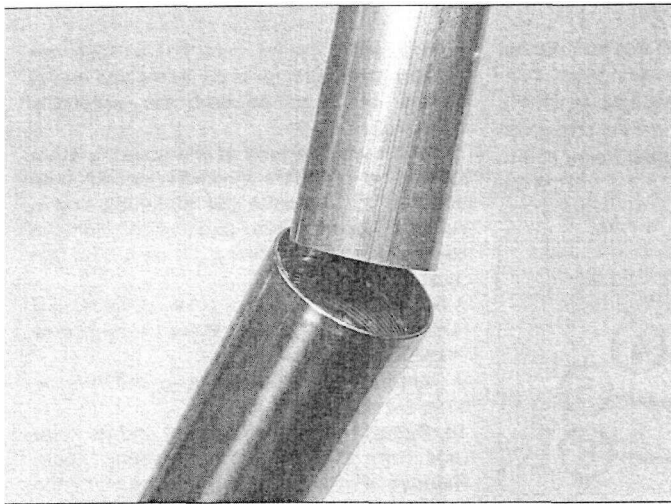
**27** Fit a new O-ring to the fork top bolt and thread the bolt into the top of the fork tube (**see illustration**). Wipe off any excess oil before starting to prevent the possibility of the fork tube slipping whilst it is being held. Keep the



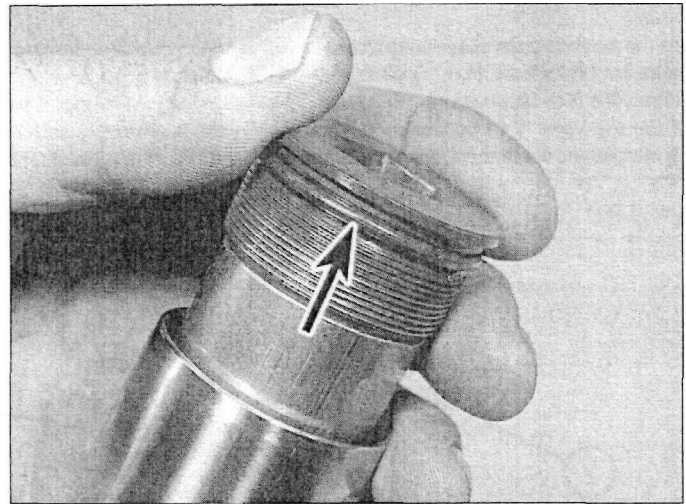
7.26a Install the spring with its closer-wound coils at the bottom



7.26b Install the spring seat .



7.26c . . . followed by the spacer



7.27 Fit a new O-ring (arrow) onto the top bolt and thread the bolt into the fork tube

fork tube fully extended whilst pressing on the spring. Screw the top bolt carefully into the fork tube making sure it is not cross-threaded.



**Warning:** It will be necessary to compress the spring by pressing it down using the top bolt to engage the threads of the top bolt with the fork tube. This is a potentially dangerous operation and should be performed with care, using an assistant if necessary.

28 The top bolt can be tightened to the specified torque setting at this stage if the tube is held between the padded jaws of a vice, but do not risk distorting the tube by doing so. A better method is to tighten the top bolt when the fork has been installed in the bike and is securely held in the yokes (see Tool Tip).

29 Install the forks as described in Section 6.



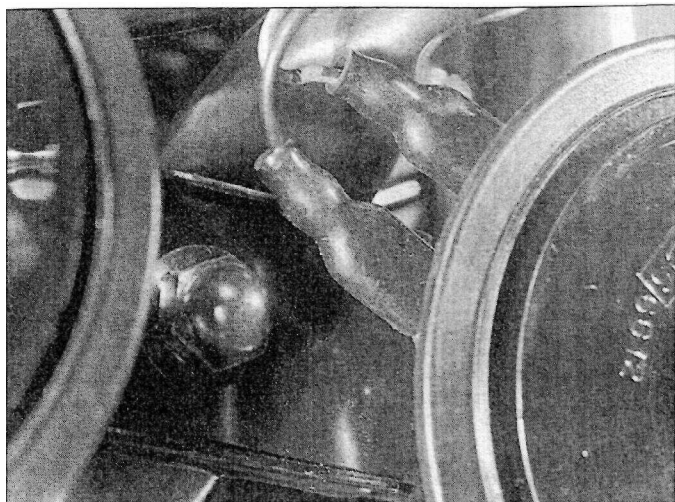
**Use a ratchet-type tool when installing the fork top bolt. This makes it unnecessary to remove the tool from the bolt whilst threading it in, making it easier to maintain a downward pressure on the spring.**

#### Steering stem - removal and installation

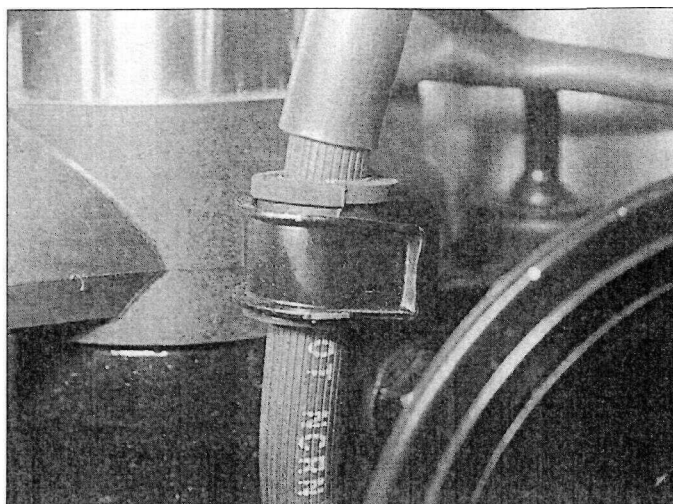
**Caution:** Although not strictly necessary, before removing the steering stem it is recommended that the fuel tank be removed. This will prevent accidental damage to the paintwork.

#### Removal

- 1 Remove the front forks (see Section 6).
- 2 On J, K and M models, unscrew the fuse box cover retaining screws and remove the cover, then unscrew the screws securing the fuse box to the top yoke and move the fuse box aside, leaving its wiring connected and noting its routing.
- 3 On P, S and T models, unscrew the bolts securing the instrument cluster to the top yoke and move the cluster aside to allow the top yoke to be removed. There is no need to disconnect the instrument cluster wiring or speedometer cable. Also displace the handlebars (see Section 5) if not already done.
- 4 Disconnect the horn wires, then unscrew the horn mounting bolt/nut and remove the horn(s)



**8.4a** Disconnect the horn wires and remove the horn mounting bolt



**8.4b** Release the brake hose from its clamps

from the bottom yoke (see illustration). Also release the brake hose from its clamps on the bottom yoke (see illustration).

5 If the top yoke is to be removed from the bike altogether, disconnect the ignition switch wiring at its connector in the headlight housing (see Chapter 9).

6 Remove the steering stem nut and washer and lift the top yoke off the steering stem (see illustration). Support the headlight as the top yoke is removed, and note how the prongs on the top of the headlight bracket frame fit into the holes in the underside of the yoke. Lift the headlight and its frame out of the holes in the

bottom yoke, taking care not to lose the rubbers on the prongs of the frame and noting how it fits, and support the assembly carefully.

7 Bend back the tabs of the steering stem lockwasher to release it from the locknut, then unscrew and remove the locknut using a suitable C-spanner (see illustration). Remove the lockwasher and discard it as a new one must be used.

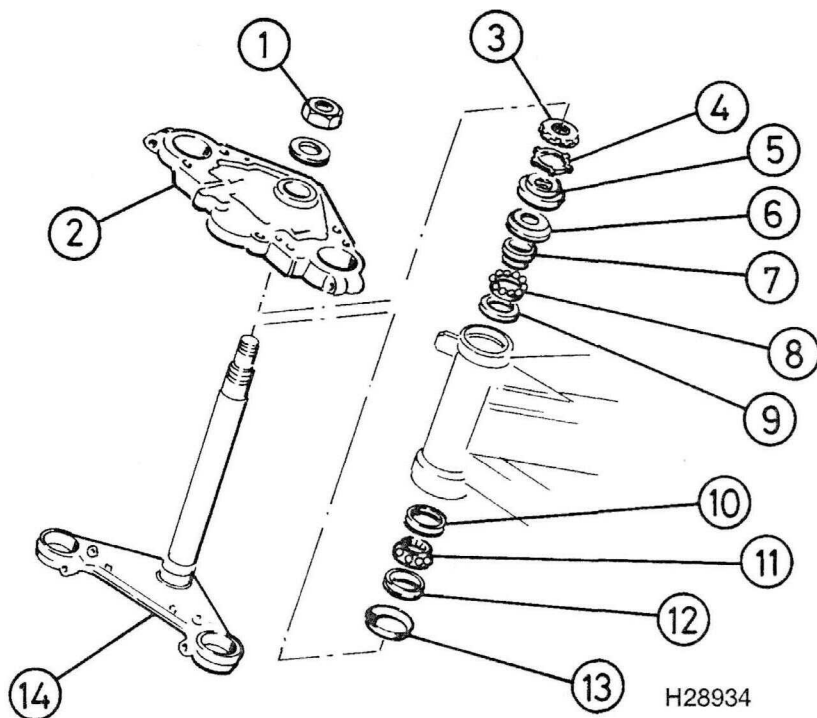
8 Supporting the bottom yoke, unscrew and remove the adjuster nut and the bearing cover from the steering stem.

9 Gently lower the bottom yoke and steering stem out of the frame.

10 Remove the upper bearing and its inner race from the top of the steering head. Remove all traces of old grease from the bearings and races and check them for wear or damage as described in Section 9. *Note: Do not attempt to remove the races from the frame or the lower bearing from the steering stem unless they are to be replaced.*

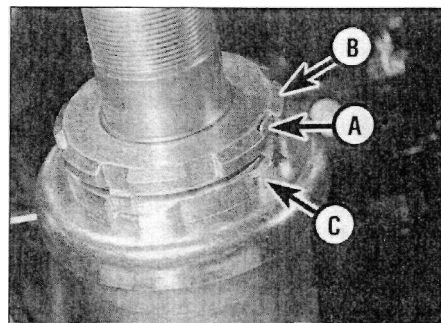
### Installation

11 Smear a liberal quantity of grease on the bearing outer races in the frame. Work the grease well into both the upper and lower bearings.



**8.6** Steering stem components

- |                     |                            |                             |                                  |
|---------------------|----------------------------|-----------------------------|----------------------------------|
| 1 Steering stem nut | 6 Bearing cover            | 9 Upper bearing outer race  | 12 Lower bearing inner race      |
| 2 Top yoke          | 7 Upper bearing inner race | 10 Lower bearing outer race | 13 Dust seal                     |
| 3 Locknut           | 8 Upper bearing            | 11 Lower bearing            | 14 Bottom yoke and steering stem |
| 4 Lockwasher        |                            |                             |                                  |
| 5 Adjuster nut      |                            |                             |                                  |



**8.7** Steering stem lockwasher (A), locknut (B), adjuster nut (C)

**12** Carefully lift the steering stem/bottom yoke up through the frame. Install the upper bearing and its inner race in the top of the steering head. Install the bearing cover and thread the adjuster nut on the steering stem. Tighten the adjuster nut to the torque setting specified at the beginning of the Chapter, then turn the steering stem through its full lock four or five times and tighten the adjuster nut again to the specified setting. If it is not possible to apply a torque wrench to the adjuster nut, tighten the nut sufficiently to remove freeplay (yet still allowing free steering movement) and adjust the bearings as described in Chapter 1.

**Caution:** Take great care not to apply excessive pressure because this will cause premature failure of the bearings.

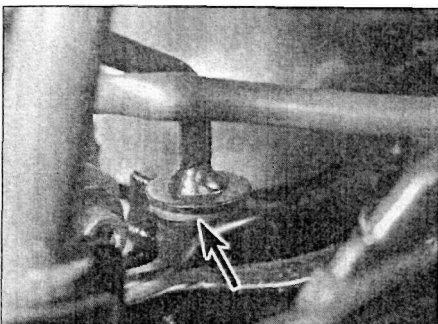
**13** When the bearings are correctly adjusted, install the new lockwasher onto the adjuster nut and bend down two of its opposite tabs. Install the locknut and tighten it finger-tight, then tighten it further (to a maximum of 90°) until its slots align with the remaining tabs on the lockwasher. Hold the adjuster nut to prevent it from moving if necessary. Bend up the lockwasher tabs to secure the locknut.

**14** Install the headlight frame bottom prongs into their holes in the bottom yoke, making sure the rubbers are in place (see illustration), then install the top yoke onto the steering stem, making sure the top prongs of the headlight frame fit into the holes in the underside of the top yoke and their rubbers are in place. Install the steering stem nut and its washer and tighten it finger-tight at this stage. Temporarily install one of the forks to align the top and bottom yokes, and secure it by tightening the bottom yoke clamp bolt only.

**15** Tighten the steering stem nut to the specified torque setting. If disconnected, reconnect the ignition switch wiring connector.

**16** Install the fork legs (see Section 6).

**17** Install the horn(s) on the bottom yoke and tighten the retaining bolt/nut securely, then fit the horn wires (see illustration 8.4a). Secure the brake hose in its clamps on the bottom yoke (see illustration 8.4b).



**8.14** Make sure the headlight frame prongs fit into their holes (arrow)

**18** On P, S and T models install the handlebars (see Section 5) and the instrument panel.

**19** On J, K and M models, install the fuse box, making sure its wiring is correctly routed.

**20** Carry out a check of the steering head bearing freeplay as described in Chapter 1, and if necessary re-adjust.

## 9 Steering head bearings - inspection and replacement

### Inspection

**1** Remove the steering stem as described in Section 8.

**2** Remove all traces of old grease from the bearings and races and check them for wear or damage. Also check the condition of the dust seal beneath the lower bearing.

**3** The races should be polished and free from indentations. Inspect the bearing balls for signs of wear, damage or discoloration, and examine their retainer cage for signs of cracks or splits. Spin the bearings by hand. They should spin freely and smoothly. If there are any signs of wear on any of the above components both upper and lower bearing assemblies must be replaced as a set.

### Replacement

**4** The races are an interference fit in the steering head and can be tapped from position with a suitable drift. Tap firmly and evenly around each race to ensure that it is driven out squarely. It may prove advantageous to curve the end of the drift slightly to improve access.

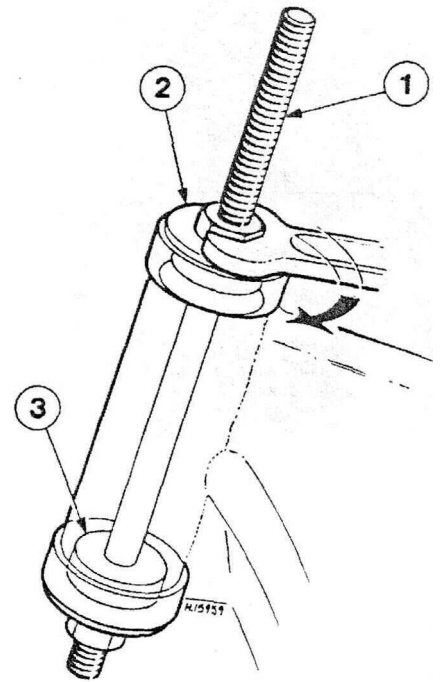
**5** Alternatively, the races can be removed using a slide-hammer type bearing extractor; these can often be hired from tool shops.

**6** The new outer races can be pressed into the head using a drawbolt arrangement (see illustration), or by using a large diameter tubular drift which bears only on the outer edge of the race. Ensure that the drawbolt washer or drift (as applicable) bears only on the outer edge of the race and does not contact the working surface. Alternatively, have the races installed by a Honda dealer equipped with the bearing race installing tools.



**Installation of new head bearing races is made much easier if the races are left overnight in the freezer. This causes them to contract slightly making them a looser fit.**

**7** To remove the lower bearing inner race from the steering stem, use two screwdrivers placed on opposite sides of the race to work it free. If the bearing is firmly in place it will be necessary to use a bearing puller, or in extreme circumstances to split the bearing's inner section.



**9.6** Drawbolt arrangement for fitting steering stem bearing races

- 1 Long bolt or threaded bar
- 2 Thick washer
- 3 Guide for lower race

**8** Fit the new lower bearing inner race onto the steering stem. A length of tubing with an internal diameter slightly larger than the steering stem will be needed to tap the new bearing into position. Ensure that the drift bears only on the inner edge of the bearing and does not contact its working surface.

**9** Install the steering stem as described in Section 8.

## 10 Rear shock absorber - removal, inspection and installation

### Removal

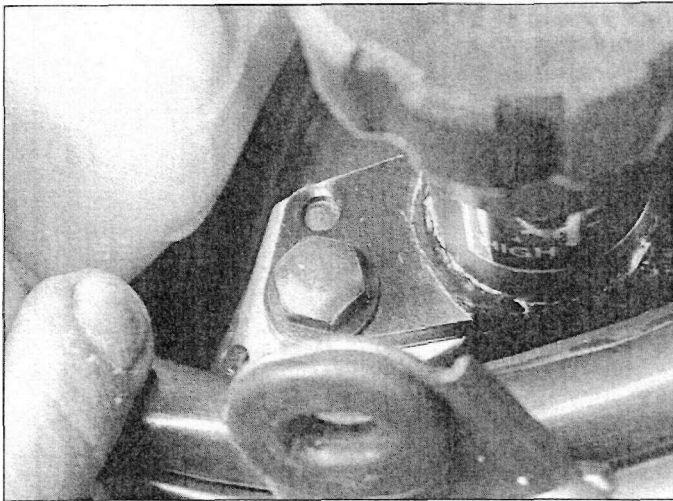
**1** Place the machine on the centre stand (if fitted), or support it using an auxiliary stand so that the rear wheel is raised off the ground.

**2** Remove the seat and side panels (see Chapter 8).

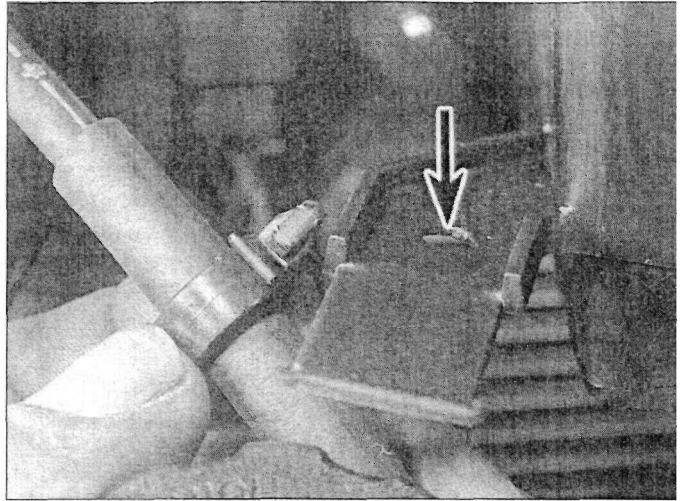
**3** Remove the rear wheel (see Chapter 7).

**4** On all except J models, unscrew the bolt securing the shock absorber pre-load adjuster to the frame (see illustration). Pull the adjuster hose clip from its hole in the battery case (see illustration).





10.4a Shock absorber pre-load adjuster mounting bolt



10.4b Pull the hose clip out of its hole (arrow,

5 Unscrew the shock absorber lower mounting bolt nut, then support the swingarm and withdraw the bolt (see illustrations).

6 Unscrew the upper mounting bolt nut, then support the shock absorber and withdraw the bolt (see illustrations).

7 Manoeuvre the shock absorber and its remote pre-load adjuster (except J models) out of the back of the frame, noting how it fits (see illustration). Do not attempt to separate

the adjuster from the shock absorber. Note the routing of the drain tube.

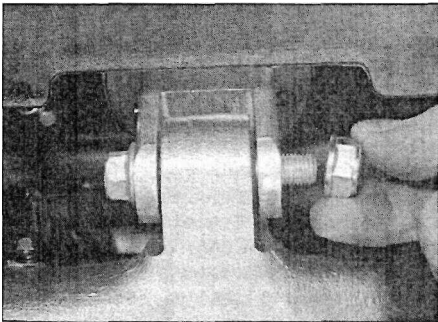
### Inspection

8 Inspect the shock absorber for obvious physical damage and the coil spring for looseness, cracks or signs of fatigue.

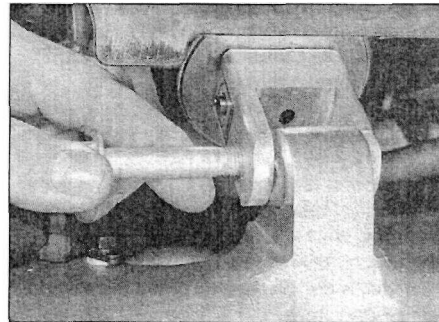
9 Inspect the damper rod for signs of bending, pitting and oil leakage.

10 Inspect the pivot hardware at the top and bottom of the shock for wear or damage.

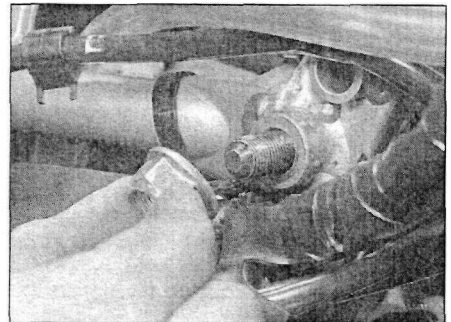
11 If the shock absorber on J, K, M and P models is in any way damaged or worn, it can be disassembled and the damaged or worn components replaced. Disassembly of the shock absorber requires the use of an hydraulic press or spring compressor. It is therefore advised that the unit is taken to a Honda dealer or specialist repair shop. On S and T models replacement parts are not available for the shock absorber.



10.5a Unscrew the shock absorber lower mounting bolt nut . . .



10.5b . . . and remove the bolt



10.6a Unscrew the shock absorber upper mounting bolt nut . . .



10.6b . . . and remove the bolt

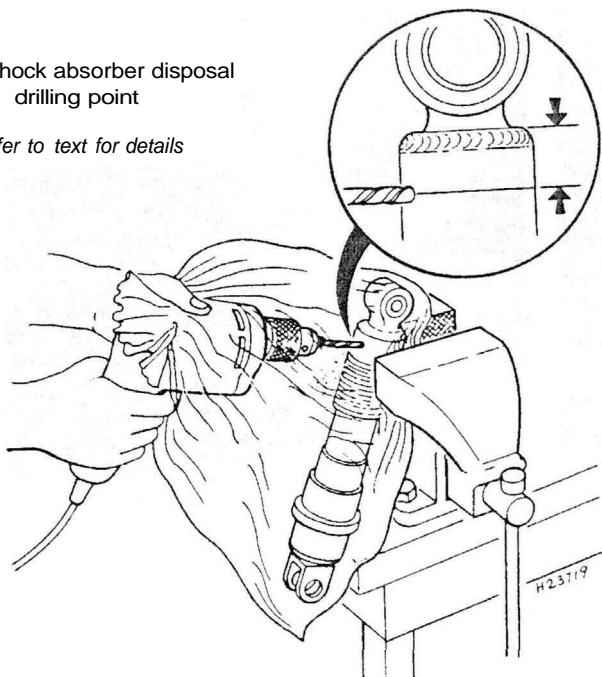


10.7 Remove the shock absorber from the back of the frame



## 10.12 Shock absorber disposal drilling point

Refer to text for details



**12** Honda specifies releasing the nitrogen gas pressure before discarding the shock absorber. To do this a 2 to 3 mm hole must be drilled 20 mm from the top of the shock absorber (**see illustration**). If in doubt, take the shock to a dealer for disposal.

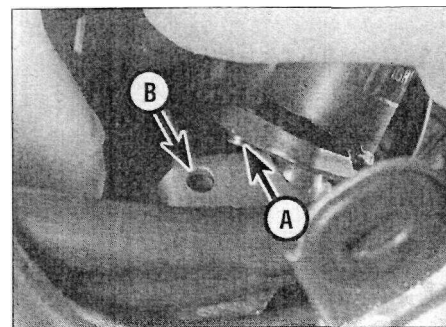


**Warning:** Wear eye protection while drilling to prevent possible injury from escaping gas or flying metal chips. Honda specify that the drill and damper be placed inside a plastic bag during the operation as protection against the escaping gas. Do not drill the hole any farther down the body than specified otherwise you may drill into the oil chamber, causing oil to be expelled under pressure. Also ensure that the drill bit is sharp; a blunt drill bit could cause an excessive build-up of heat which could lead to an explosion and severe personal injury.

### Installation

**13** Installation is the reverse of removal, noting the following.

- Apply multi-purpose lithium grease to the pivot points and engine oil to the threads of the mounting bolts.
- Install the shock absorber with the drain tube facing forward. Make sure it is correctly routed and secured.
- Install the upper mounting bolt first, but do not tighten it until the lower bolt is installed.
- On all except J models, make sure the pre-load adjuster is correctly installed with the pin on its base located in the hole in the frame (**see illustration**).
- Tighten the mounting bolts to the torque setting specified at the beginning of the Chapter.
- Secure the adjuster hose with its clip (except J models) (**see illustration 10.4b**).
- If the shock absorber has been disassembled, adjust the settings as required (**see Section 11**).



**10.13** Make sure the pin (A) on the pre-load adjuster locates in the hole (B)

## 11 Suspension - adjustments

### Front forks

**1** The front forks are not adjustable.

### Rear shock absorber

#### J models

**2** The rear shock absorber is adjustable for spring pre-load. Adjustment is made by rotating the numbered collar at the bottom of the shock absorber.

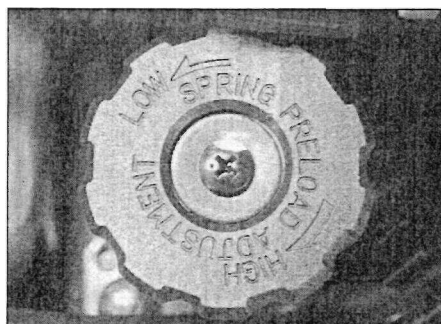
**3** There are seven positions. Position 1 is the softest setting, position 7 is the hardest. Adjustment is made using a suitable C-spanner (one is provided in the toolkit) in the cutouts of the collar. Align the setting number required with the adjustment stopper.

**4** To increase the pre-load, turn the spring seat clockwise. To decrease the pre-load, turn the spring seat anti-clockwise.

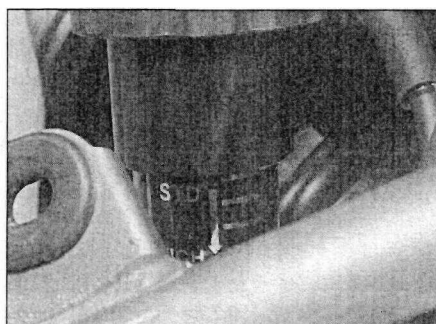
#### All other models

**5** The rear shock absorber is adjustable for spring pre-load and rebound damping.

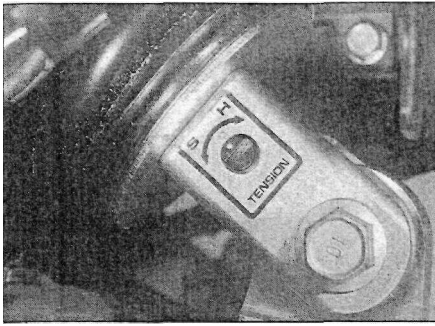
**6** Spring pre-load adjustment is made by turning the adjuster knob on the remote adjuster located behind the left-hand side panel (**see illustration**). There are six positions indicated by lines marked on the adjuster. Align the position required with the lip on the adjuster body. The standard position is the second line and is marked "STD" on the adjuster (**see illustration**).



**11.6a** Spring pre-load adjuster



**11.6b** "STD" denotes the standard pre-load setting



11.9 Rebound damping adjuster

7 To increase the pre-load, turn the adjuster knob clockwise.

8 To decrease the pre-load, turn the adjuster knob anti-clockwise.

9 Rebound damping adjustment is made by turning the adjuster on the bottom left-hand side of the shock absorber using a flat-bladed screwdriver (**see illustration**). There are three positions. The standard position is with the dot on the adjuster screw aligned with the dot on the adjuster body.

10 To increase the damping force turn the adjuster clockwise. To go from the standard to the second position, turn the adjuster 180°. To go from the standard to the third position, turn the adjuster 270°. To go from the second to the third position, turn the adjuster 90°.

11 To reduce the damping force turn the adjuster anti-clockwise. To go from the third to the second position, turn the adjuster 90°. To go from the third to the standard position, turn the adjuster 270°. To go from the second to the standard position, turn the adjuster 180°.

## 12 Swingarm - removal and installation

### Removal

1 Remove the rear wheel (see Chapter 7).

2 Remove the brake hose clamps from the swingarm and final drive housing (**see illustrations**). Support the caliper so that no strain is placed on the hose.

3 Remove the rear brake caliper from the final drive housing, but do not disconnect the brake hose (see Chapter 7).

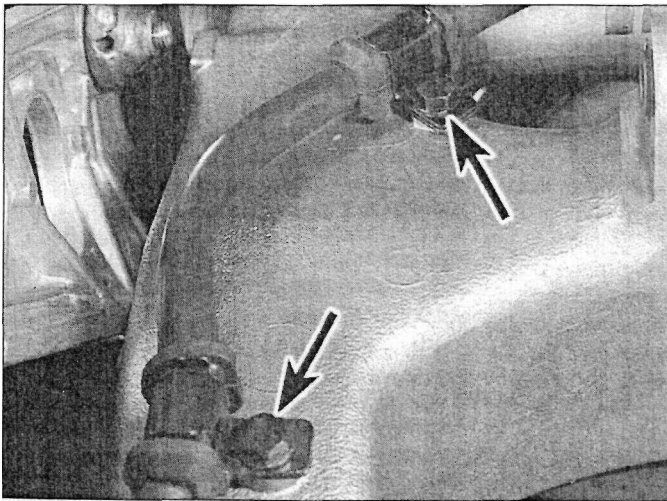
4 Although it is not essential to separate the final drive housing and driveshaft from the swingarm in order to remove the swingarm, it is advisable to do so as the weight of the final drive housing makes it difficult to manoeuvre the swingarm out of and into the frame (see Section 14).

5 Remove the rear shock absorber lower mounting bolt (see Section 10 if necessary).

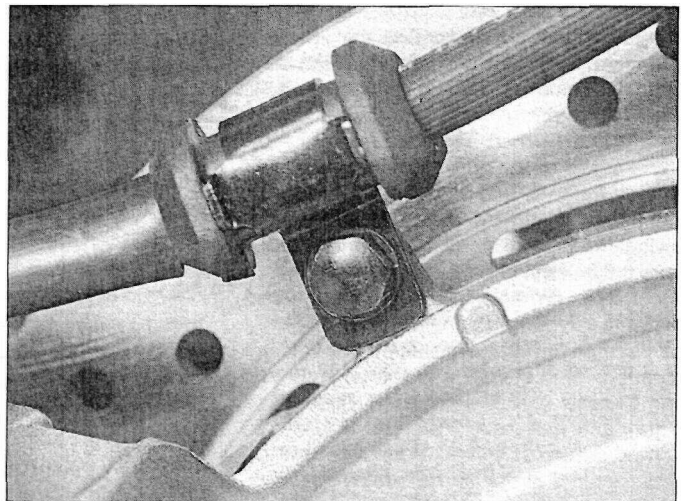
6 Prise off the swingarm pivot caps on both sides of the swingarm (**see illustration**).

7 Counter-hold the pivot bolt on the right-hand side and slacken the locknut (**see illustration**). This requires the use of a Honda service tool (Pt. No. 07908-ME90000), which is a special wrench that fits the locknut (**see illustration**). There is no alternative to the use of this tool; if you do not have access to it, the swingarm pivot locknut must be unscrewed and later tightened by a dealer service department.

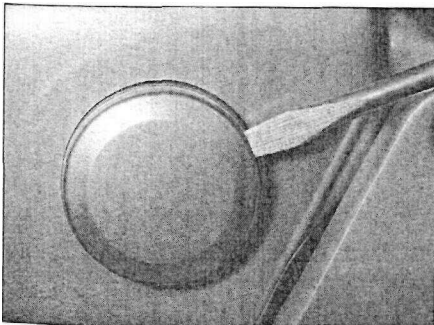
8 With the aid of an assistant to support the swingarm, unscrew the pivot bolts on both



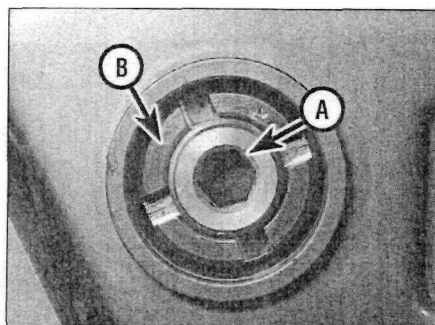
12.2a Unscrew the brake hose clamps (arrows) to release the hose from the swingarm ...



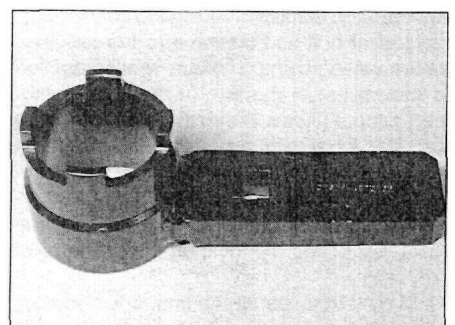
12.2b ... and from the final drive housing



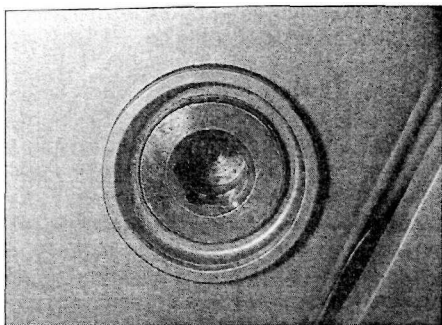
12.6 Prise off the swingarm pivot caps using a flat-bladed screwdriver inserted into the notch



12.7a Swingarm right-hand pivot bolt (A) and locknut (B)



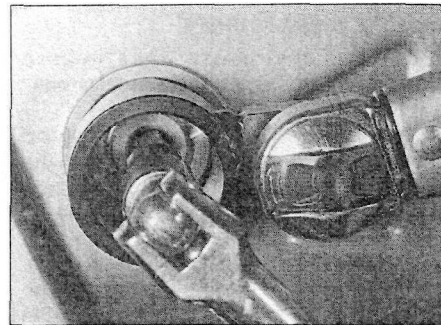
12.7b This Honda service tool is essential for removing and installing the swingarm



12.8 Swingarm left-hand pivot bolt



12.12a Tighten the left-hand pivot bolt to the specified torque setting



12.12b Tighten the locknut to the specified torque setting using the special tool and counter-holding the pivot bolt

sides and then carefully withdraw the swingarm from the frame (**see illustration**). Note the positions of any breather and drain pipes and move them aside if necessary. If the driveshaft has not been removed and the universal joint does not come away with the swingarm, remove it from the output driven shaft.

9 Inspect all components for wear or damage as described in Section 13,

### Installation

10 If removed, install the driveshaft into the swingarm (see Section 14). Fit the rubber gaiter to the output driven shaft with the "UP" mark facing up.

11 If the driveshaft has not been removed, make sure that the universal joint is installed in the swingarm and engaged correctly with the splines on the driveshaft. Manoeuvre the swingarm into position in the frame, making sure the universal joint engages correctly with the splines on the output driven shaft, and install the pivot bolts.

12 Tighten the left-hand side pivot bolt to the torque setting specified at the beginning of the Chapter (**see illustration**). Tighten the right-hand side pivot bolt to the pre-load torque setting specified, then slacken it off and tighten it to the normal setting specified. Move the swingarm up and down several times to settle the bearings, then check that the right-hand side pivot bolt is tightened to the normal torque setting specified and adjust if necessary. Install the locknut onto the right-hand pivot bolt and tighten it to the specified torque setting using a torque wrench applied to the socket in the arm of the special tool (see Step 7) (**see illustration**). **Note:** The specified torque setting takes into account the extra leverage provided by the service tool and cannot be duplicated without it. Counter-hold the pivot bolt to prevent it from turning whilst tightening the locknut. Install the pivot bolt caps.

13 If removed, install the final drive housing onto the swingarm (see Section 14).

14 Install the shock absorber lower mounting bolt and tighten it to the specified torque setting (see Section 10 if necessary).

15 Install the rear brake caliper and secure the brake hose with its clamps (refer to Chapter 7).

16 Install the rear wheel (see Chapter 7).

17 Make sure the rubber gaiter is correctly fitted over the ends of both the swingarm and the output driven shaft housing and that any drain and breather hoses are correctly routed.

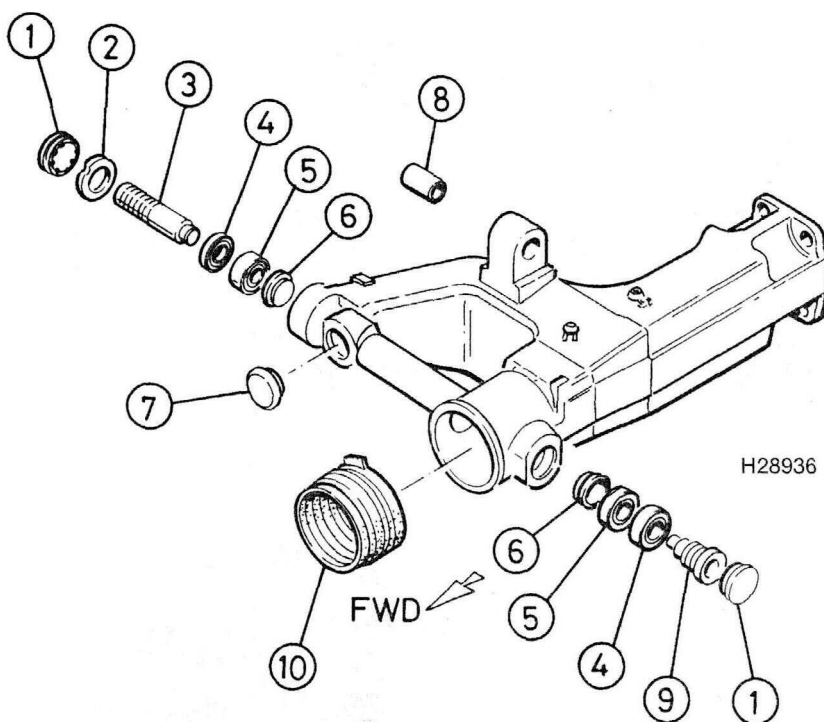
18 Check the operation of the rear suspension before taking the machine on the road.

### 13 Swingarm - inspection and bearing replacement

#### Inspection

1 Thoroughly clean all components, removing all traces of dirt, corrosion and grease (**see illustration**).

2 Inspect all components closely, looking for obvious signs of wear such as heavy scoring, and cracks or distortion due to accident damage. Any damaged or worn component must be replaced.



#### 13.1 Swingarm components

- 1 Pivot caps
- 2 Locknut
- 3 Pivot bolt
- 4 Grease seal

- 5 Bearing
- 6 Grease retainer plate
- 7 Grommet

- 8 Shock absorber bush
- 9 Pivot bolt
- 10 Rubber gaiter

### Bearing replacement

3 Lever out the grease seals with a screwdriver and discard them as new ones must be used.

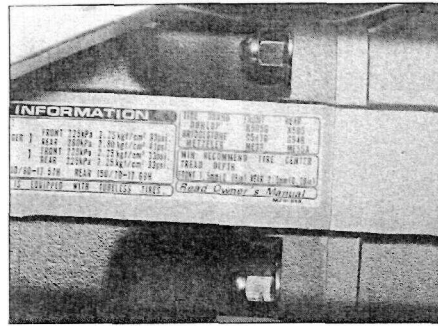
4 Remove the bearings, then clean them and inspect them for wear or damage. If the bearings do not run smoothly and freely or if there is excessive freeplay, they must be replaced. Inspect the bearing races in the swingarm for signs of pitting or other damage.

5 The bearings and races must be replaced as a set. Remove the races from the swingarm using an internal puller attached to a slide-hammer, and install them using a suitable tubular drift which only bears on the outer edge of the bearings, not their working surfaces. The grease retainer plates that sit behind the races should be discarded and new ones used if they are removed. Lubricate the bearings and grease seal lips using a waterproof lithium wheel bearing grease and press in the new seals.

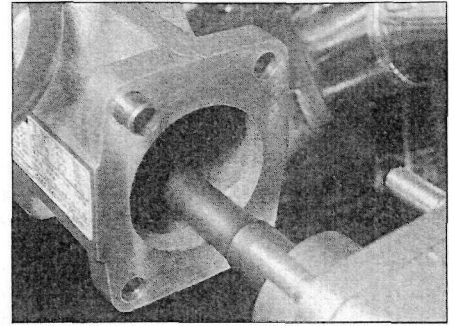
### 14 Driveshaft and final drive - removal, inspection and

#### Removal

1 Drain the final drive gear oil (see Chapter 1).



14.4a Unscrew the nuts securing the final drive housing to the swingarm



14.4b Remove the final drive housing from the swingarm

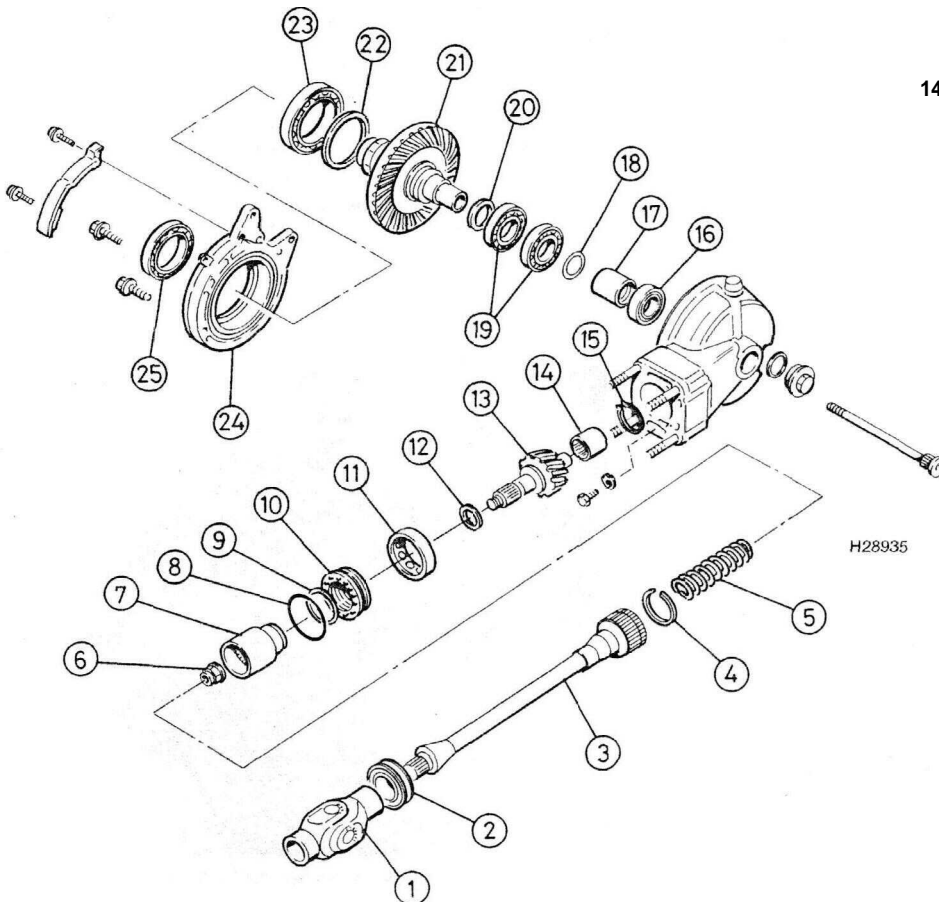
2 Remove the rear wheel (see Chapter 6).

3 If necessary, remove the rear brake disc from the final drive housing (see Chapter 7).

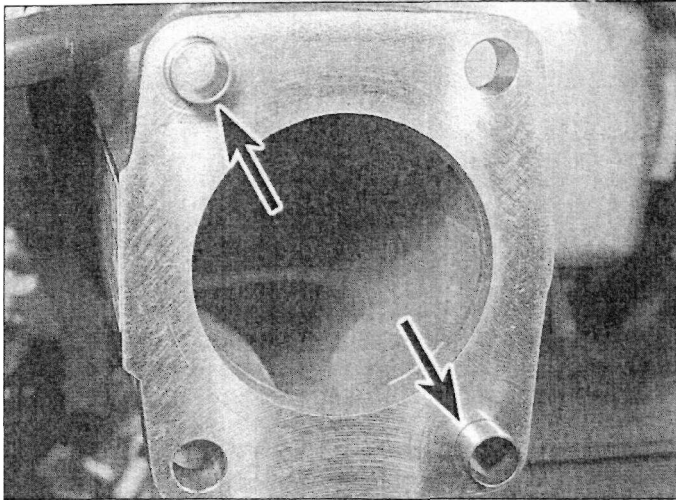
4 Support the final drive housing and unscrew the four nuts securing it to the swingarm (see illustration). Remove the housing from the swingarm (see illustration). The driveshaft is a push fit into both the final drive housing and the universal joint, and therefore will either come away with the final drive housing or detach from it and remain attached to the universal joint - it is more likely to come away with the housing. The universal joint is a sliding fit onto

both the driveshaft and the output driven shaft, and therefore will either detach from the output shaft and come away with the driveshaft, or detach from the driveshaft and remain in the swingarm. Withdraw the driveshaft from either the swingarm or the final drive housing as required, and slide the universal joint off the driveshaft or remove it from the swingarm (using the driveshaft to draw it out) as required. If the driveshaft is withdrawn from the final drive housing, discard the oil seal and spring clip as new ones must be used (see illustration).

14.4c Driveshaft and final drive components



- 10 Bearing housing
- 11 Bearing
- 12 Shim
- 13 Final drive gear
- 14 Needle roller bearing
- 15 Spring clip
- 16 Oil seal
- 17 Collar
- 18 O-ring
- 19 Bearing
- 20 Shim
- 21 Final driven gear
- 22 Shim
- 23 Bearing
- 24 Cover
- 25 Oil seal



14.5 Remove the dowels if they are loose (arrows)



14.7 Checking the universal joint for play in the bearings

5 Note the positions of the two dowels and remove them if they are loose (**see illustration**).

### Inspection

6 Inspect the driveshaft splines for wear or damage. If wear is evident and there is excessive clearance between the driveshaft and either the final drive housing or the universal joint, the shaft must be replaced.

7 Inspect the universal joint for signs of wear or damage (**see illustration**). There should be no noticeable play in the bearings, and the joint should move smoothly and freely with no signs of roughness or notchiness. If any wear or damage is evident, the universal joint must be replaced.

8 Install the driveshaft into the final drive housing and rotate the shaft. Check that the shaft is able to rotate smoothly and freely and that the power is transmitted correctly through the bevel gear assembly to the output boss. If there are any signs of roughness or notchiness, any evidence of wear on the input and output boss splines, or any evidence of oil leakage from the seals, the unit must be disassembled and examined further.

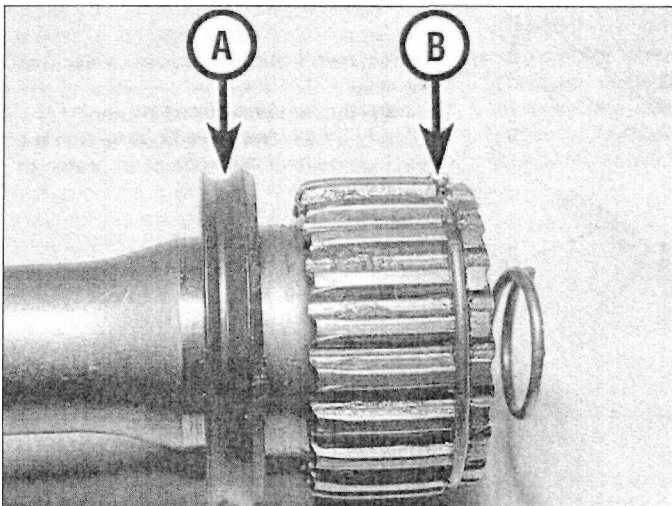
9 If attention to the final drive housing is required, the complete unit should be taken to a Honda dealer who will have the necessary special tools and expertise to carry out the rather complicated inspection and overhaul procedure.

### Installation

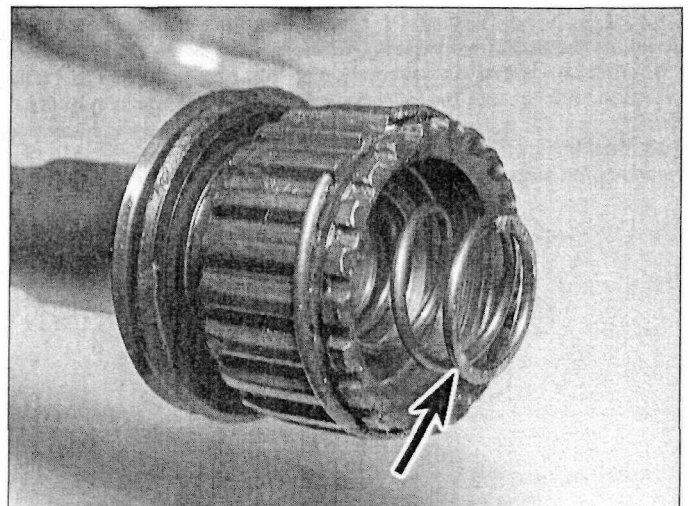
10 If the driveshaft has been separated from the final drive housing, fit a new oil seal and spring clip (**see illustration**). Lubricate the splines on both ends of the driveshaft, on the universal joint and on the final drive housing input boss with molybdenum disulphide grease.

11 Slide the universal joint onto the front end of the driveshaft. Check that the spring is in position in the end of the driveshaft and install the driveshaft into the final drive housing, making sure it is pressed fully home so that the spring clip locates in the groove in the splines in the housing (**see illustrations**).

12 If removed, fit the two dowels into the end of the swingarm (**see illustration 14.5**).

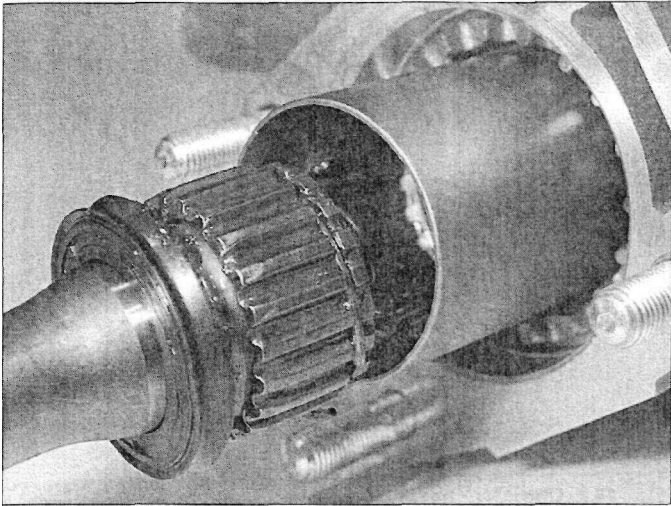


14.10 Fit a new oil seal (A) and spring clip (B)

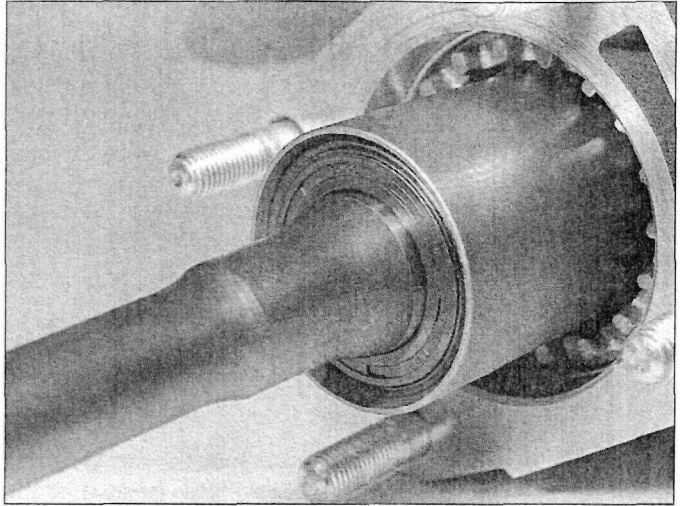


14.11a Make sure the spring (arrow) is in position .

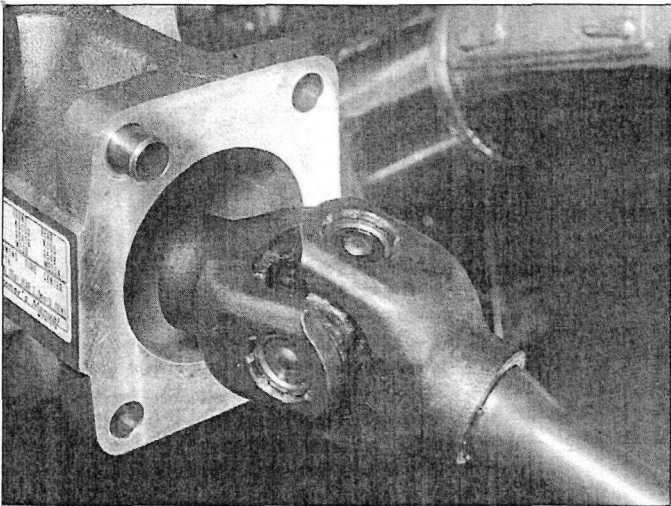




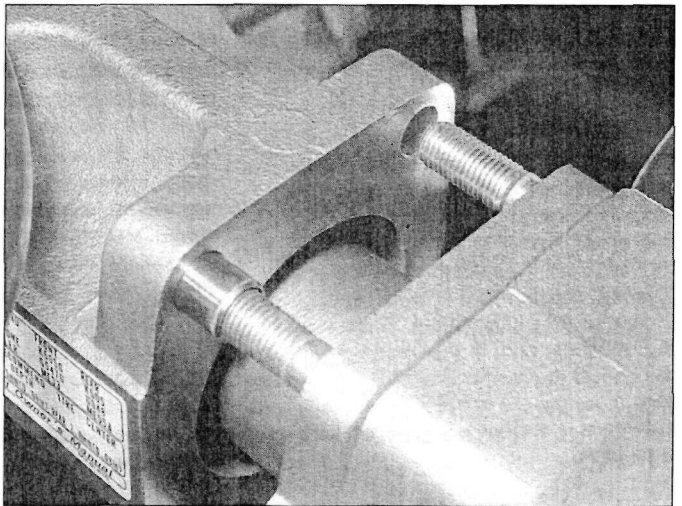
14.11b ... then install the driveshaft into the final drive housing ...



14.11c ... making sure it is pressed fully home



14.13a Install the assembly into the swingarm ...



14.13b ... making sure the final drive housing fits correctly over the dowels

**13** Install the final drive housing, driveshaft and universal joint as an assembly into the swingarm, making sure the universal joint fits correctly over the splines of the output driven shaft (peel back the rubber gaiter to expose the end of the output shaft) (see illustrations).

Tighten the housing nuts evenly and in a criss-cross pattern to the torque setting specified at the beginning of the Chapter. Make sure the rubber gaiter is correctly fitted over the ends of both the swingarm and the output driven shaft housing.

**14** If removed, install the rear brake disc (see Chapter 7).

**15** Install the rear wheel (see Chapter 6).

**16** Finally, fill the final drive housing with the correct grade and quantity of oil (refer to Chapter 1).