

9.8 Remove the two bolts to release the master cylinder from the frame

frame, and remove the master cylinder assembly (see illustration).

9 Separate the fluid reservoir hose from the elbow on the master cylinder by releasing the hose clamp.

Overhaul

10 Dislodge the rubber dust boot from the base of the master cylinder to reveal the pushrod retaining circlip (see illustration).

11 Depress the pushrod and, using circlip pliers, remove the circlip. Slide out the piston assembly and spring. Lay the parts out in the proper order to prevent confusion during reassembly. Triumph advise that the circlip and piston seals be renewed when disturbed.

12 Clean all of the parts with clean brake fluid or denatured alcohol.
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).

13 Check the master cylinder bore for corrosion, scratches, nicks and score marks. If damage is evident, the master cylinder must be renewed. If the master cylinder is in poor condition, then the caliper should be checked as well.

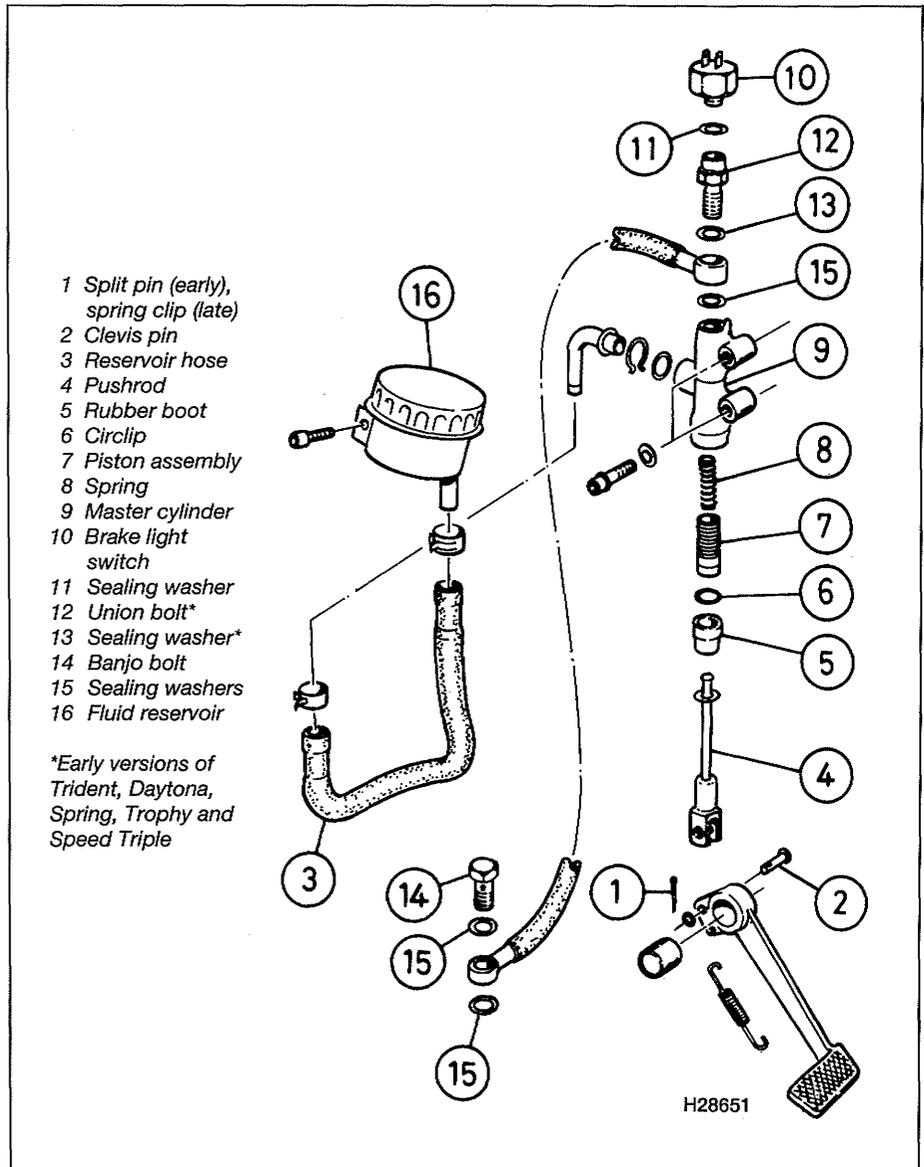
14 If required, the fluid reservoir hose elbow can be detached from the master cylinder once the circlip has been removed. Discard the O-ring as a new one must be fitted on installation. Inspect the reservoir hose for cracks or splits and renew it if necessary.

15 Before reassembling the master cylinder, soak the piston and its new seals in clean brake fluid for 10 or 15 minutes. Lubricate the master cylinder bore with clean brake fluid, then carefully insert the parts in the reverse order of disassembly, ensuring the tapered end of the spring is facing the piston. Make sure the lips on the cup seals do not turn inside out when they are slipped into the bore.

16 Install and depress the pushrod, then install a new circlip, making sure it is properly seated in the groove.

17 Install the rubber dust boot, making sure the lip is seated properly in the groove.

18 If removed, fit a new O-ring to the fluid



9.10 Rear brake master cylinder detail

reservoir hose elbow and retain the elbow to the master cylinder with the circlip. Reconnect the fluid reservoir hose and secure with its clip.

Installation

19 Install the mounting bolts through the cover (not Tiger model) and master cylinder and attach the assembly to the frame, tightening the bolts to the specified torque setting (see illustration 9.8).

20 Secure the fluid reservoir to the frame with its screw. Ensure the hose between the master cylinder and reservoir is correctly routed and secured by clamps at each end. If the clamps have weakened, use new ones.

21 On early models, connect the brake hose banjo bolt to the top of the master cylinder, using a new sealing washer on each side of

the banjo union. Ensure that the hose is positioned at the correct angle and tighten the banjo bolt to the specified torque setting. Using a new sealing washer, screw the brake light switch into the banjo bolt and tighten it to the specified torque setting. Reconnect the brake light switch wires and slip the rubber cover into place.

22 On later models, position the brake hose banjo union on the top of the master cylinder, using a new sealing washer on each side of it. Ensure that the hose is positioned at the correct angle and screw the brake light switch into place, tightening it to the specified torque setting. Reconnect the brake light switch wires and slip the rubber cover into place.

23 On all models, align the brake pedal with the master cylinder pushrod clevis and slide in the clevis pin. Secure the clevis pin with a new

split pin on early models, or with the spring clip on later models (see illustration).

24 If the clevis position on the pushrod was disturbed during overhaul, the brake pedal height should be reset. On Thunderbird, Thunderbird Sport, Adventurer, Legend TT and Tiger models, adjustment is made via the locknut and adjusting nut on the clevis; peel up the gaiter (Thunderbird, Thunderbird Sport, Adventurer and Legend TT only) on the threaded pushrod to access the adjuster nut and tighten the locknut when adjustment is complete (see illustration). On Trident, Sprint, Trophy, Speed Triple and Daytona models, slacken the locknut at the top of the clevis and rotate the pushrod to make adjustment; tighten the locknut when complete.

Warning: The master cylinder pushrod must have at least 10 mm of thread engaged in the clevis



25 Fill the fluid reservoir with the specified fluid (see *Daily (pre-ride) checks*) and bleed the system following the procedure in Section 11.

26 On Tiger models, fit the master cylinder cover.

27 Check the operation of the brake carefully before riding the motorcycle. Ensure that the pedal height is a comfortable distance below the top of the footrest, and if necessary readjust as described in Step 24.

10 Brake hoses and unions – inspection and renewal



Inspection

1 Brake hose condition should be checked regularly and the hoses renewed at the specified interval (see Chapter 1).

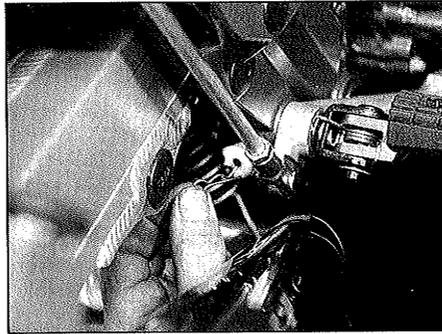
2 Twist and flex the rubber hoses while looking for cracks, bulges and seeping fluid. Check extra carefully around the areas where the hoses connect with the banjo fittings, as these are common areas for hose failure.

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

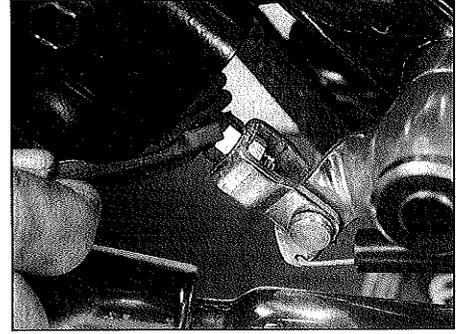
Renewal

4 The brake hoses have banjo union fittings on each end. Cover the surrounding area with plenty of rags and unscrew the banjo bolt on each end of the hose. Detach the hose from any clips that may be present and remove the hose. Discard the sealing washers.

5 Position the new hose, making sure it isn't twisted or otherwise strained, and abut the tab on the hose union with the lug on the component casting. Install the banjo bolts, using new sealing washers on both sides of the unions, and tighten them to the torque setting specified at the beginning of this Chapter. Make sure they are correctly aligned



9.23 Fit a new split pin to secure the clevis pin



9.24 On Thunderbird and Tiger, pedal height adjustment is made at clevis

and routed clear of all moving components.

6 Flush the old brake fluid from the system, refill with new DOT 4 brake fluid (see *Daily (pre-ride) checks*) and bleed the air from the system (see Section 11). Check the operation of the brakes carefully before riding the motorcycle.

11 Brake system – bleeding



1 Bleeding the brakes is simply the process of removing all the air bubbles from the brake fluid reservoirs, the hoses and the brake calipers. Bleeding is necessary whenever a brake system hydraulic connection is loosened, when a component or hose is renewed, 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 DOT 4 brake fluid, a length of clear vinyl or plastic tubing, a small container partially filled with clean brake fluid, some rags and a spanner to fit the brake caliper bleed valves.

3 Cover the fuel tank and other painted components to prevent damage in the event that brake fluid is spilled.

4 If the front brake lever is equipped with a span adjuster, set it to position No. 1.

5 If bleeding the rear brake, remove the right side panel and pull off the air intake duct for access to the fluid reservoir.

6 Remove the reservoir cap/cover and diaphragm and slowly pump the brake lever or pedal a few times, until no air bubbles can be seen floating up from the holes in the bottom of the reservoir. Doing this bleeds the air from the master cylinder end of the line. Loosely refit the reservoir cap/cover.

7 Pull the dust cap off the bleed valve. Attach one end of the clear vinyl or plastic tubing to the bleed valve and submerge the other end in the brake fluid in the container.

8 Remove the reservoir cap/cover and check the fluid level. Do not allow the fluid level to

drop below the lower mark during the bleeding process.

9 Carefully pump the brake lever or pedal three or four times and hold it in (front) or down (rear) while opening the caliper bleed 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 or the pedal will move down.

10 Retighten the bleed valve (note the torque setting in the Specifications of this Chapter), then release the brake lever or pedal gradually. Repeat the process until no air bubbles are visible in the brake fluid leaving the caliper and the lever or pedal is firm when applied. Disconnect the bleeding equipment and install the dust cap on the bleed valve.

11 Install the diaphragm and cap/cover assembly, wipe up any spilled brake fluid and check the entire system for leaks.

12 Where applicable, return the front brake lever span adjuster to its original position.



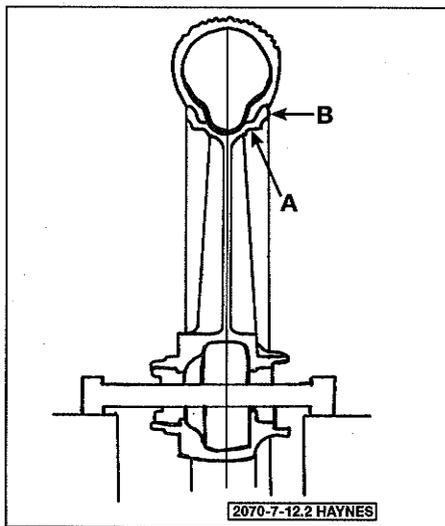
If it's not possible to produce a firm feel to the lever or pedal the fluid may be aerated. Let the brake fluid in the system stabilise for a few hours and then repeat the procedure when the tiny bubbles in the system have settled out.

12 Wheels – inspection and repair



1 In order to carry out a proper inspection of the wheels, it is necessary to support the bike upright so that the wheel being inspected is raised off the ground. Position the motorcycle on its centre stand or an auxiliary stand. 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 tyres as described in Chapter 1.

2 Attach a dial gauge to the fork slider or the swingarm and position its stem against the



12.2 Use a dial gauge to measure wheel runout

A Radial runout B Axial runout

side of the rim (see illustration). Spin the wheel slowly and check the side-to-side (axial) runout of the rim. In order to accurately check radial runout with the dial gauge, the wheel would have to be removed from the machine. With the axle clamped in a vice, 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 slider or the swingarm and position the end a fraction of an inch from the wheel (where the wheel and tyre join). If the wheel is true, the distance from the pointer to the rim will be constant as the wheel is rotated. **Note:** If wheel runout is excessive, check the wheel bearings very carefully before renewing the wheel (cast wheels) or having it retensioned (spoked wheels).

4 The wheels should also be visually inspected for cracks, flat spots on the rim and other damage. On all cast alloy wheels, look very closely for dents in the area where the tyre bead contacts the rim. Dents in this area may prevent complete sealing of the tyre against the rim, which leads to deflation of the tyre over a period of time. If damage is evident, or if runout in either direction is excessive, the wheel will have to be renewed. Never attempt to repair a damaged cast alloy wheel.

5 On spoked wheels, check for loose or

broken spokes as described in Chapter 1. Spoke renewal and tensioning must be carried out by a wheel building specialist.

13 Wheels – alignment check



1 Misalignment of the wheels, which may be due to a cocked rear wheel or a bent frame or fork yokes, can cause strange and possibly serious handling problems. If the frame or yokes are at fault, repair by a frame specialist or renewal 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. A plumb bob or other suitable weight will also be required.

3 In order to make a proper check of the wheels it is necessary to support the bike in an upright position, using an auxiliary stand. Measure the width of both tyres 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 tyres 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 tyre.

5 Run the other end of the string forward and pull it tight so that it is roughly parallel to the floor (see illustration). Slowly bring the string into contact with the front sidewall of the rear tyre, then turn the front wheel until it is parallel with the string. Measure the distance from the front tyre sidewall to the string.

6 Repeat the procedure on the other side of the motorcycle. The distance from the front tyre sidewall to the string should be equal on both sides.

7 As was previously pointed out, a perfectly straight length of wood or metal bar may be substituted for the string (see illustration). The procedure is the same.

8 If the distance between the string and tyre is greater on one side, or if the rear wheel appears to be cocked, refer to Chapter 1, Section 2 and check that the chain adjuster markings coincide on each side of the swingarm.

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 tyre upper sidewall and allow the weight to settle just off the floor. When the string touches both the upper and lower tyre sidewalls and is perfectly straight, the wheel is vertical. If it is not, place thin spacers under one leg of the stand.

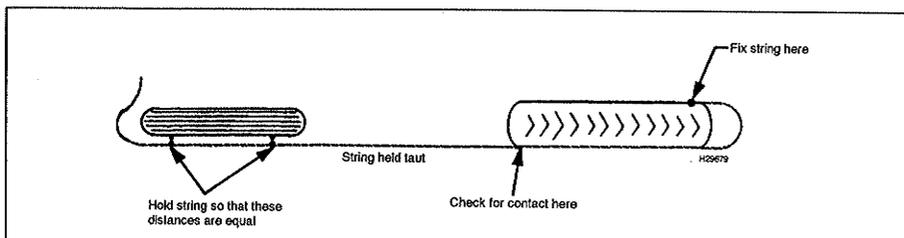
11 Once the rear wheel is vertical, check the front wheel in the same manner. If both wheels are not perfectly vertical, the frame and/or major suspension components are bent.

14 Front wheel – removal and installation

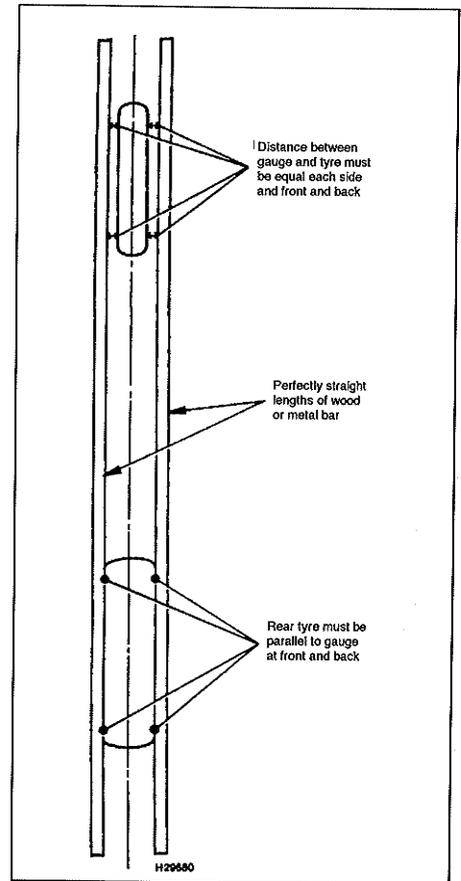


Removal

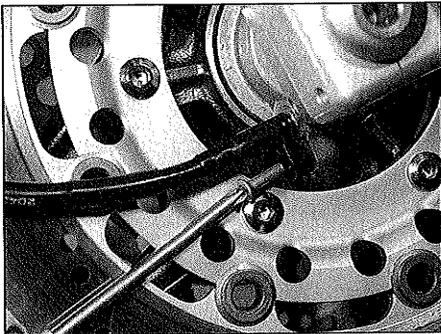
1 Where equipped, position the motorcycle on its centre stand and support it under the crankcase so that the front wheel is off the ground; use an auxiliary stand on models not equipped with a centre stand. Always make sure the motorcycle is properly supported.



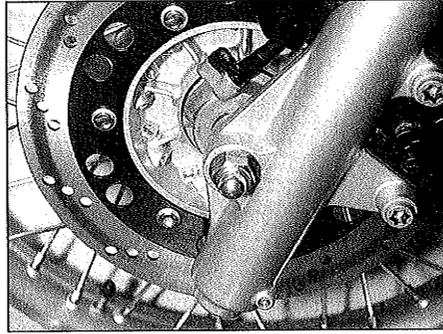
13.5 Checking wheel alignment using string



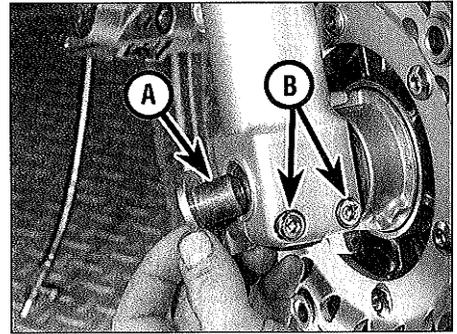
13.7 Checking wheel alignment using a straight-edge



14.3 Remove the speedometer cable retaining screw and withdraw the cable



14.4a On Tiger the axle is secured by a domed nut



14.4b Unscrew the axle bolt (A), and loosen the axle clamp bolts (B)

2 Remove the brake caliper mounting bolts and slide the caliper(s) off the disc(s). Support each caliper with a piece of wire or a bungee cord so that no strain is placed on its hydraulic hose. There is no need to disconnect the brake hose from the caliper(s).

3 Remove the speedometer cable retaining screw on the right side of the wheel hub (left side on Thunderbird, Adventurer, Legend TT and Tiger) and detach the cable from its drive unit (see illustration).

4 On Tiger models, remove the domed nut and washer from the wheel axle (see illustration). On all other models, remove the axle bolt and loosen the four axle clamp bolts (see illustration).

5 Support the wheel, then withdraw the axle and carefully lower the wheel (see illustration).

6 Remove the spacer from the left side of the wheel (right side on Tiger models), and the speedometer drive from the right side (left side on Thunderbird, Adventurer, Legend TT and Tiger).

Caution: Don't lay the wheel down and allow it to rest on one of the discs - the disc could become warped. Set the wheel on wood blocks so the disc doesn't support the weight of the wheel. Do not operate the front brake lever with the wheel removed.

7 Check the axle for straightness by rolling it on a flat surface such as a piece of plate glass (first wipe off all old grease and remove any

corrosion using fine emery cloth). If the axle is bent, renew it.

8 Check the condition of the wheel bearings (see Section 16).

Installation

9 Fit the speedometer drive to the wheel's right side (left on Thunderbird, Adventurer, Legend TT and Tiger), aligning its drive gear slots with the driveplate tabs (see illustration).

10 Apply a smear of grease to the outer surface of the spacer (where it contacts the grease seal) and install the spacer in the left side of the wheel (right side on Thunderbird, Adventurer, Legend TT and Tiger) (see illustration).

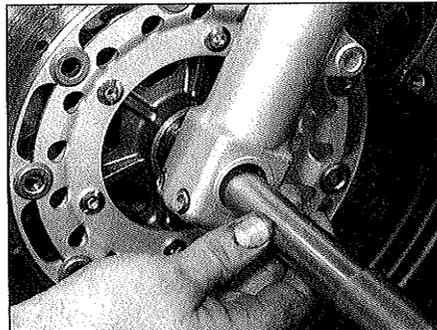
11 Manoeuvre the wheel into position. Apply a thin coat of grease to the axle.

12 Lift the wheel into position making sure the spacer remains in place. Position the speedometer drive lug against the rear of the lug on the fork slider (see illustration).

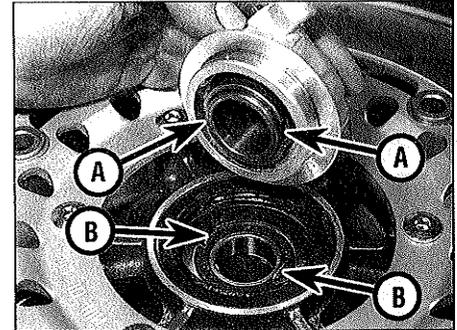
13 Slide the axle into position from the right side on Tiger models. On all other models, slide it in from the left side.

14 On Tiger models, install the washer and domed axle nut. Tighten the nut to the specified torque setting.

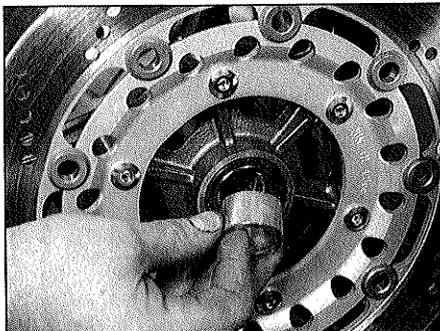
15 On models except the Tiger, install the axle bolt and tighten it to the specified torque setting (see illustration). Make sure the groove in the axle head aligns with the outside of the fork slider. Tighten all four axle clamp



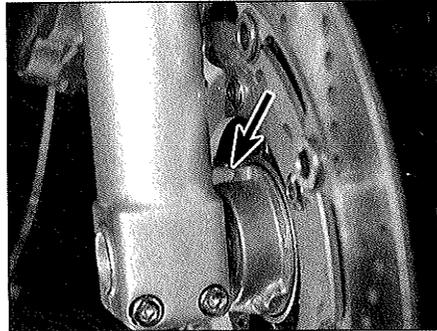
14.5 Support the wheel and withdraw the axle



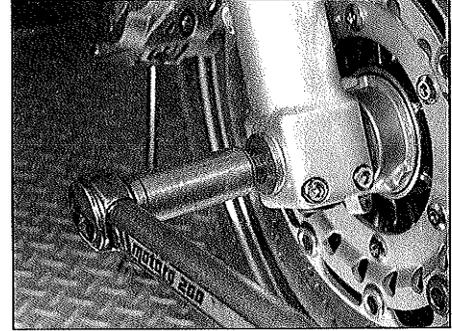
14.9 Align the slots in the speedometer drive gear (A) with the tabs on the driveplate (B)



14.10 Fit the spacer into the wheel



14.12 Lug on speedometer drive must abut rear of lug on fork slider (arrowed)



14.15a Tighten the axle bolt to the specified torque setting