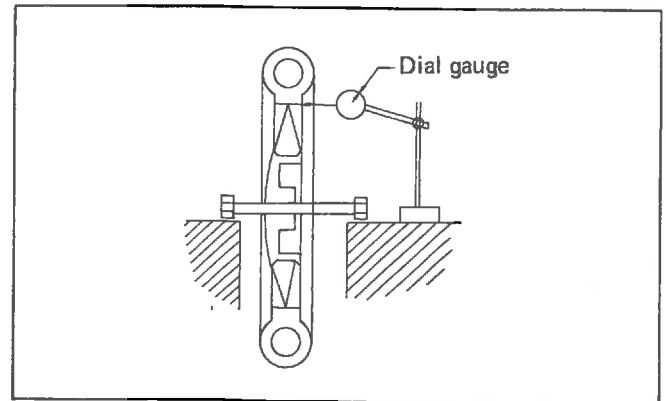
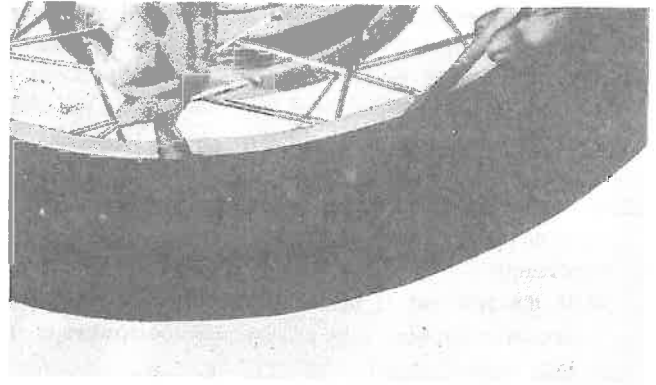


5-5. WHEELS

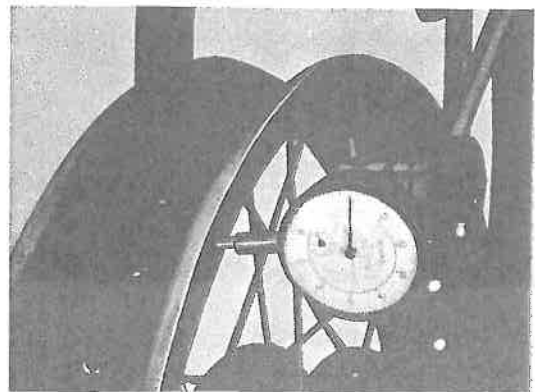
A. Tire and tube removal and installation

1. Whether it is the front tire to be changed, the procedure of tire and tube removal is identical. The explanation that follows is the proper method for both wheels.
2. Remove the valve cap, valve stem, and valve stem lock nut. Use two tire irons (with rounded edges) and begin to work the tire bead over the edge of the rim, starting opposite the tube stem. Take care to avoid pinching the tube. After one bead of the tire has been completely worked off the rim, slip the tube out. Be very careful not to damage the stem as it is pushed back out of the rim hole.
3. If the tire is to be completely removed, then work the tire off the same rim edge.
4. Installing the tire can be accomplished by reversing the disassembly procedure. The only difference in procedure would be to inflate the tube momentarily before both tire edges have been completely slipped onto the rim. This removes any creases that might exist. After the tire has been completely slipped onto the rim, check to make sure that the stem is squarely in the center of the hole in the rim. Then inflate the tube to 40 + psi several times. Check for leaks, and set at prescribed pressure.

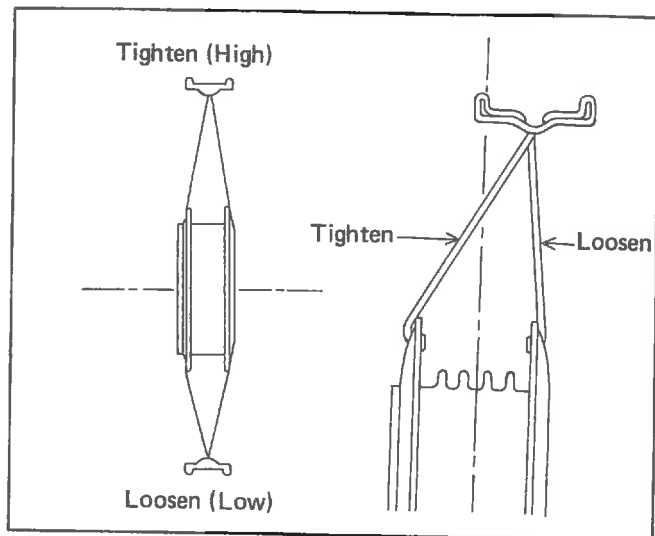


B. Rim and Spokes

1. A rim can develop warpage. It is due to (1) running the wheel into an object and bending the outer rim, or (2) one or more spokes loosening.

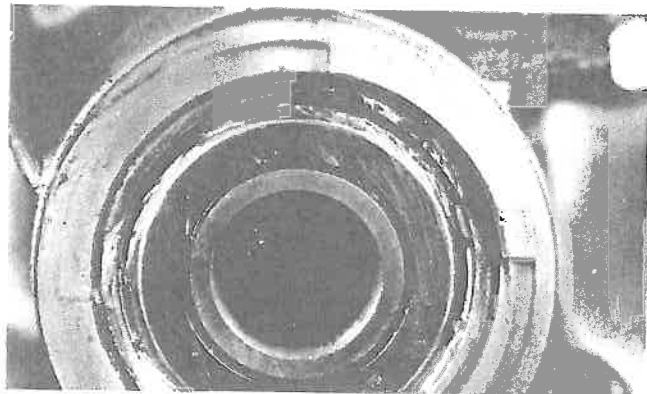


2. Check for warpage by mounting the wheel on a stand (or, if the wheel is attached to a motorcycle, it can be blocked up and held in place). Use some device to measure or detect movement then slowly spin the wheel and note the amount of rim "run-out". It should not exceed 1/16".
3. If all the spokes are tight, and the rim shows no obvious signs of damage, and yet run out is still excessive, do the following:
 - a) If the run out is up and down, loosen the spokes opposite the high spot and tighten the spokes at the high spot.
 - b) If the run out is sideways, loosen the spokes at the high spot, and tighten the spokes opposite the high spot.



C. Seals and Bearings

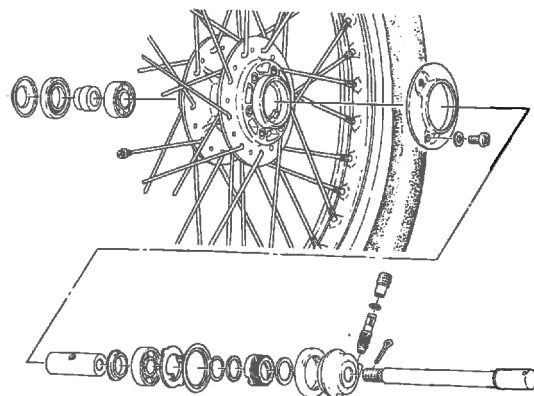
1. Wheel hub seals should be replaced every time they are pried out during repair, or if broken, cracked, or damaged in any way.
2. Check for smooth wheel bearing rotation. Dirt, rust spots, or any irregular surfaces will cause the bearing to hang up (will not spin smoothly). Remove the bearing, clean it, and check again. If the bearing still does not spin freely, replace it.



Note on Bearing Installation:

Be sure to grease the bearing before installation, using a quality bearing grease. In addition, during installation, protect the bearing to prevent dirt or contamination of any sort from entering the bearing.

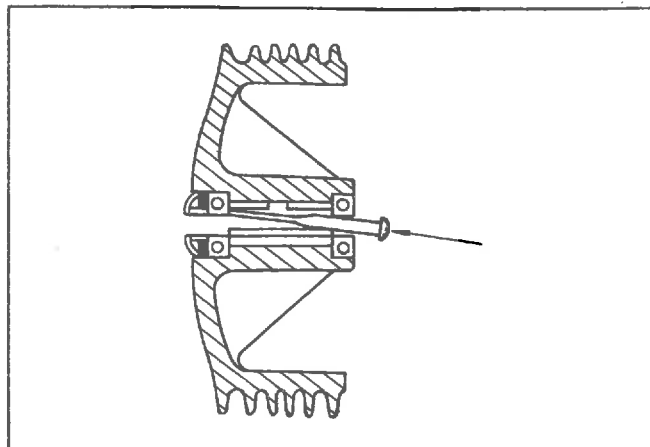
3. The wheel hub houses both bearings, a spacer between the bearings, an outer seal, and a metal cap outside the seal. Removal of the outer bearings requires that the seal be pried out.



5-6. REPLACING WHEEL BEARINGS

If the bearings allow play in the wheel hub or if wheel does not turn smoothly, replace the bearings as follows:

1. First Clean the outside of the wheel hub.
2. Drive the bearing out by pushing the spacer aside (the spacer "floats" between the bearings) and tapping around the perimeter of the bearing inner race with a soft metal drift pin and hammer. Both bearings can be removed in this manner.
3. To install the wheel bearing, reverse the above sequence. Be sure to grease the bearing before installation. Use a socket that matches the outside race of the bearing as a tool to drive in the bearing.



Installation

1. Lightly grease the lips of the front wheel oil seals and gear teeth of the speedometer drive and driven gears.

USE LIGHT-WEIGHT LITHIUM SOAP BASE GREASE.

2. Position the oblong projection on the speedometer housing within the slot provided on the inside of the lower left fork leg.

After replacing wheel and axle, tighten axle nut **FIRST** and install a new cotter pin.

Note:

Align the groove of the spacer and the surface of the holder.

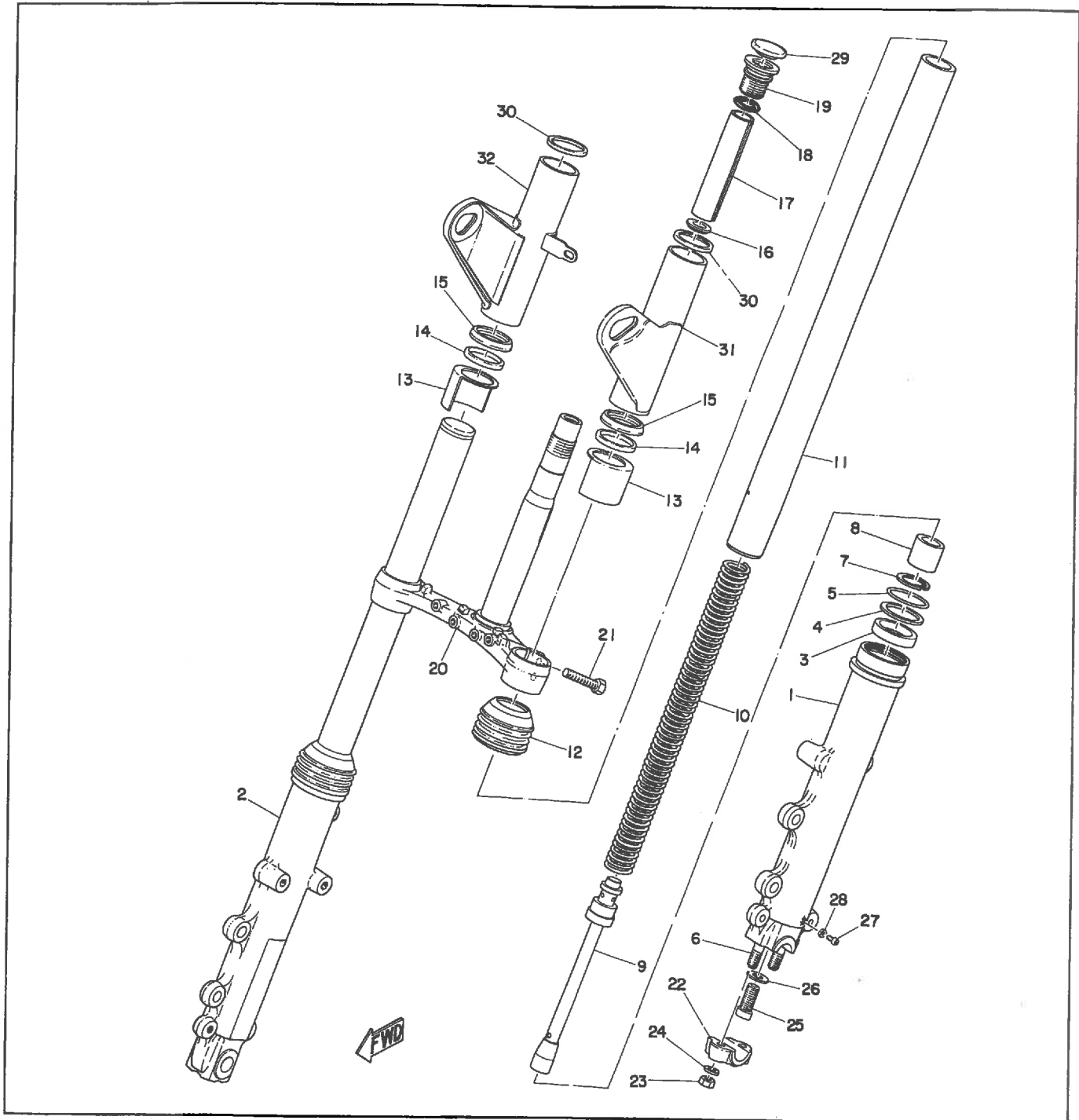
Axle nut torque:	900 – 1,100 in-lbs. (10 – 12 m-kgs.)
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Then tighten the axle holder nuts.

Holder nut torque:	175 in-lbs. (2.0 m-kgs.)
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5-7. FRONT FORKS



- | | |
|-----------------------|-------------------------|
| 1. Outer tube (left) | 17. Spacer |
| 2. Outer tube (right) | 18. O-ring |
| 3. Oil seal | 19. Cap bolt |
| 4. Oil seal washer | 20. Under bracket comp. |
| 5. Oil seal clip | 21. Bolt |
| 6. Bolt | 22. Axle holder |
| 7. Circlip | 23. Nut |
| 8. Piston | 24. Spring washer |
| 9. Cylinder comp. | 25. Bolt |
| 10. Spring | 26. Packing |
| 11. Inner tube | 27. Drain plug |
| 12. Dust seal | 28. Packing |
| 13. Outer cover | 29. Cap |
| 14. Packing | 30. Cover upper guide |
| 15. Cover under guide | 31. Upper cover (left) |
| 16. Spring upper seat | 32. Upper cover (right) |

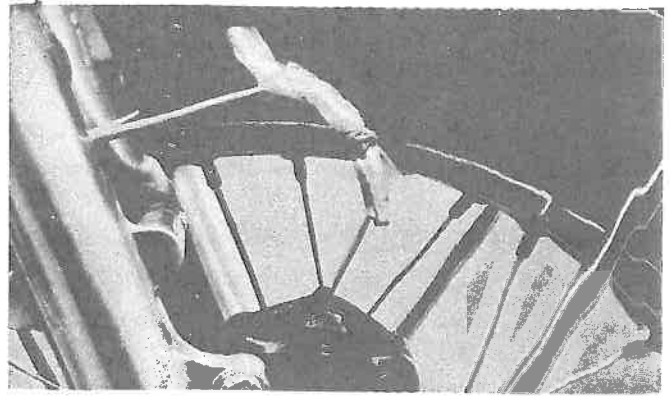
A. Outer Fork Leg Removal

Note:

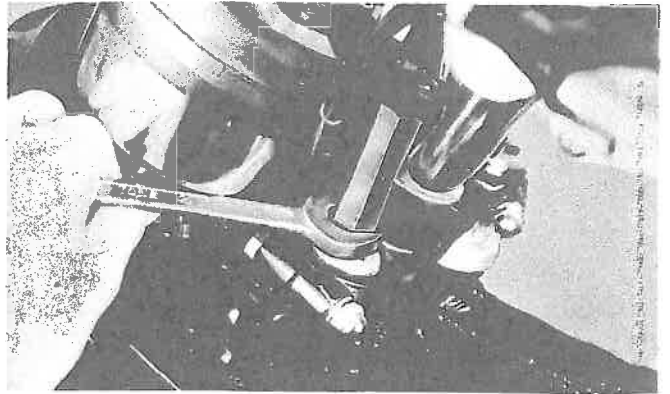
Remove the front wheel and front fender before starting this procedure.

When remove the right outer fork leg, brake hose must be removed at the top of the caliper.

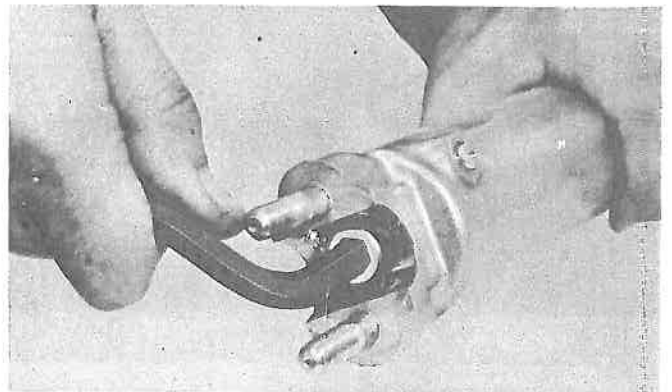
1. Remove the front fork leg from the chassis and drain the oil



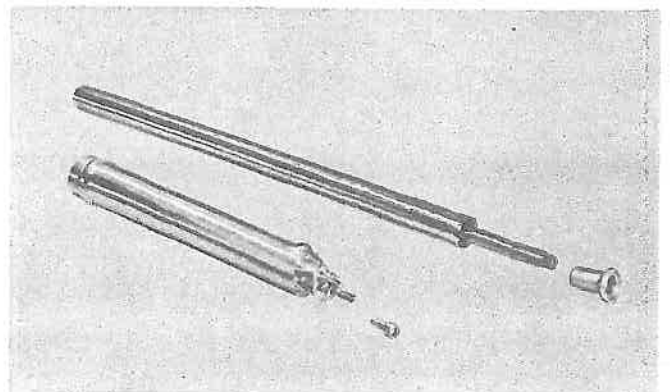
2. Remove the caps and drain the oil from both fork tubes.



3. Remove the special bolt from bottom of outer tubes.



4. Remove inner tube and damper assembly from outer tube.



B. Oil seal replacement

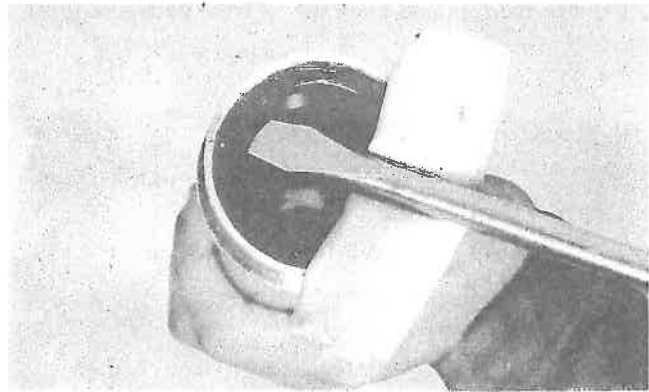
1. Remove the oil seal clip and washer.

Note:

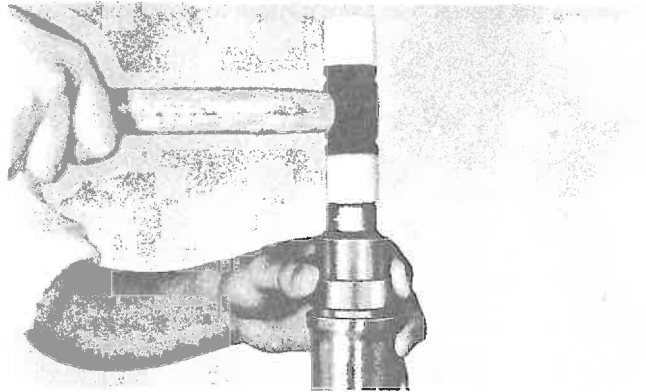
The oil seal that is pressed into the top of the outer tube should be replaced whenever the forks are disassembled



2. Carefully pry out old seal without damaging fork tube.



3. Insert new seal with "open" side down using large socket and soft hammer



C. Inspection

Inspect the inner tube for bends or scratches. If the bend is slight, it can be corrected with a press. It is recommended however, to replace the tube.

D. Assembly

1. When assembling the front fork, reverse the order of disassembly.
2. Installing the front forks.
 - a) Bring up the front fork to the correct position and partially tighten the underbracket mounting bolt.
 - b) Pour specified amount of oil into the inner tube through the upper end opening. Use 10W/30 "SE" motor oil.

Note:

Specialty type fork oils of quality manufacture may be used.

Fork oil capacity:	60 oz. (175 cc.) per side
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- c) Install the inner tube caps.

Inner tube cap torque:	900 in-lbs. (10 m-kgs.)
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- d) Tighten all pinch bolts.

Pinch bolt torque:	70 – 100 in-lbs. (0.8 – 1.2 m-kgs.)
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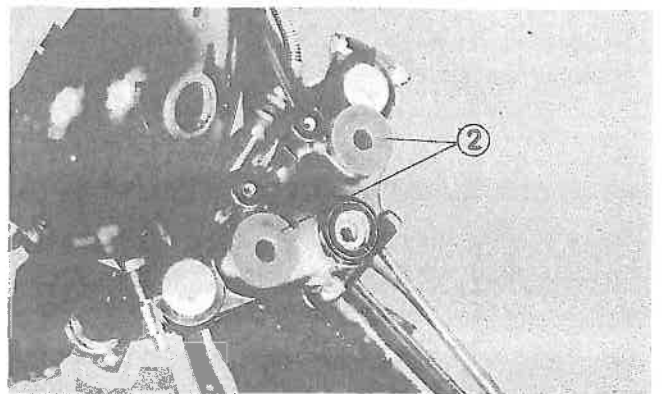
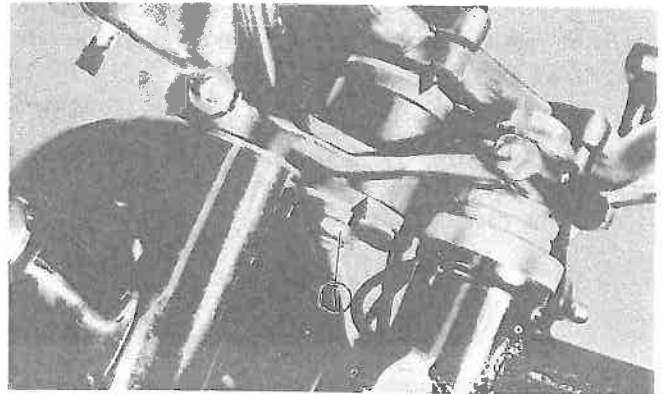
5-8. STEERING HEAD

A. Removal

Note:

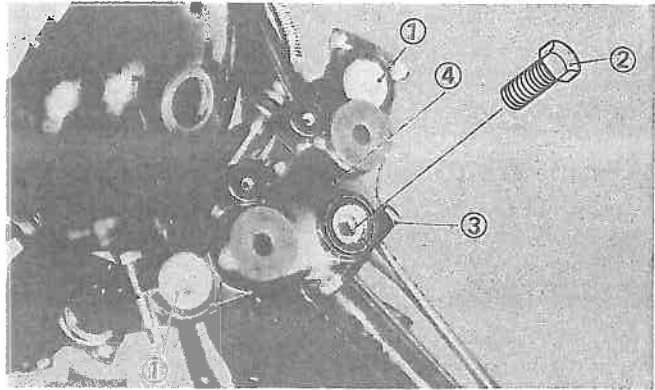
The following procedures can be performed with the entire fork unit still attached.

1. The handlebar holders are rubber mounted in the top handle crown. Remove the handlebar holder retaining nuts (1), then pull out the holders and rubber cushions (2).



Rubber cushion

2. Loosen the handle crown lock bolt and unscrew the steering stem nut. Remove the front fork bolts. The handle crown can now be removed.



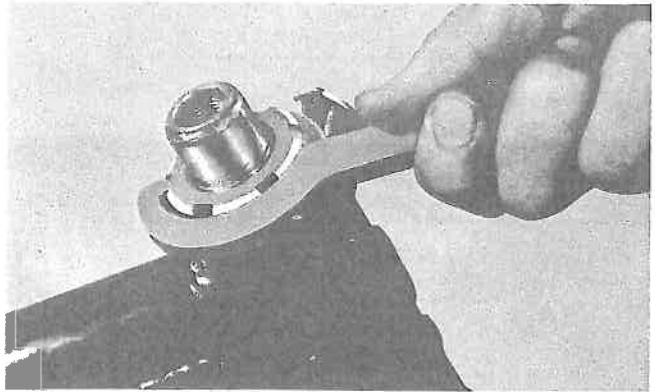
1. Front fork bolt 3. Lock bolt
2. Steering stem nut 4. Handle crown

3. Remove steering ring nut with steering nut wrench.

Caution:

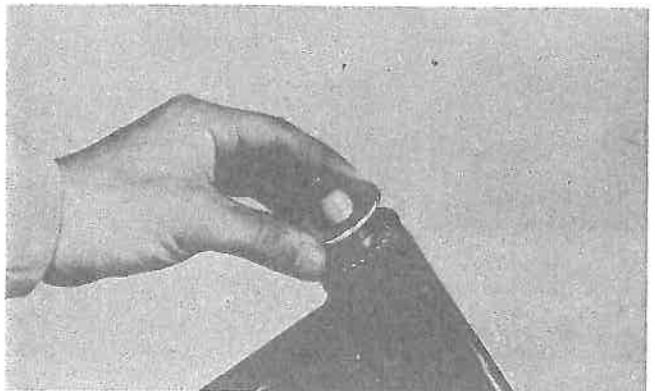
Support "under bracket" with one hand to hold the bracket up into the headstock so that the loose bearings will not fall out.

4. While still supporting the "under bracket", carefully lift off the upper bearing cover.



5. Lift off the top bearing race and remove all of the ball bearings from the upper bearing assembly.

Ball quantity/size: 22 3/16 ins.

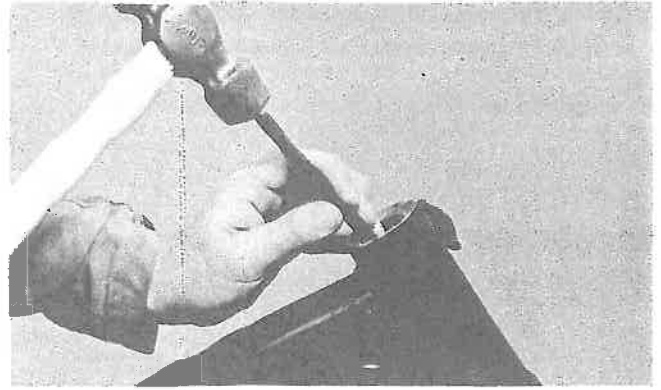


6. Remove bracket while being very careful not to lose any bearings from the lower assembly.

Ball quantity/Size: 19 1/4 ins.



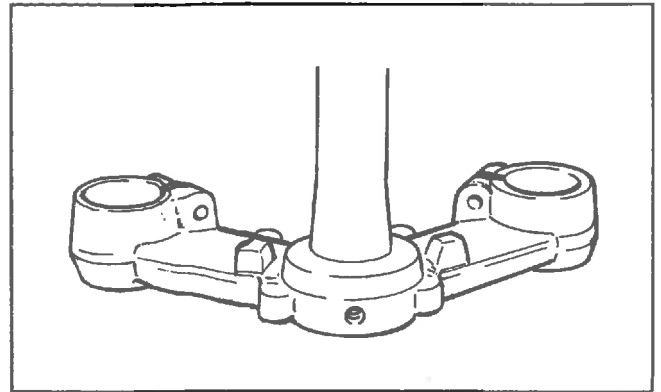
7. Remove races from head pipe using drift punch and hammer as shown. Work the race out gradually by tapping lightly around its complete diameter.



8. Remove the bearing race from the lower bracket by tapping around its diameter with a drift punch and hammer.

Note:

Remove dust seal



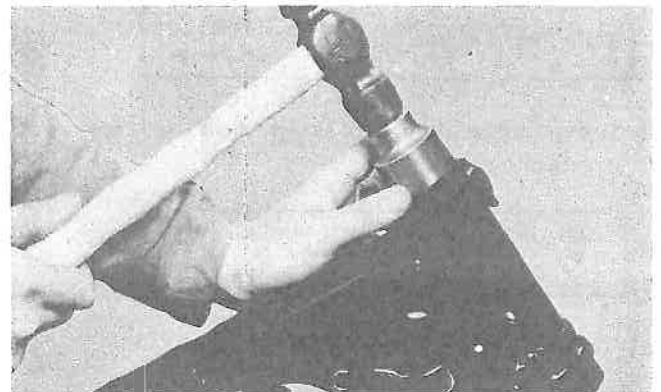
B. Inspection

1. Examine all the balls for pits or partial flatness. If any one is found defective, the entire set (including both races) should be replaced. If either race is pitted, shows rust spots, or is damaged in any way, replace both races and all balls.

Examine dust seal under lowest race and replace if damaged.

C. Installation

1. If pressed in races have been removed, tap in new races.



2. Grease the lower ball race of the bottom assembly and arrange the balls around it. Then apply more grease.

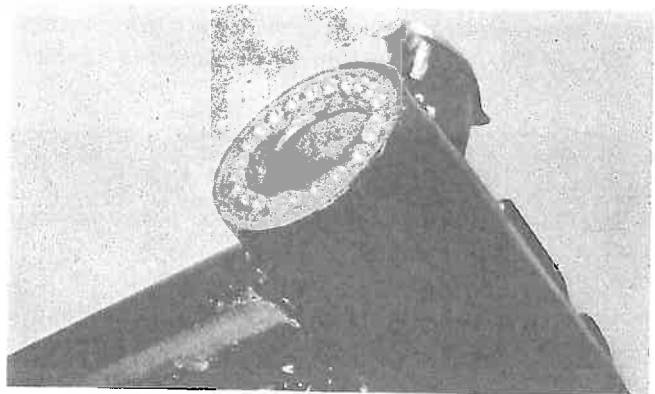


3. Grease the lower ball race of the upper assembly and arrange the balls around it. Then apply more grease and set the top race into place.

Note:

Use medium-weight wheel bearing grease of quality manufacturer-preferably waterproof.

4. Carefully slip the underbracket stem up into the steering head. Hold the top bearing assembly in place so the stem does not knock any balls out of position.
5. Set the upper bearing cover on and install the ring nut. Tighten the ring nut so that all freeplay is taken up, but so the bracket can still pivot freely from lock to lock. Recheck for free play after the entire fork unit has been installed. (Refer to Section 2-4, G for adjustment procedure.)
6. Install the fork tubes into the underbracket to ease headlight body installation.
7. Install the headlight-body and stays onto the fork tubes with all rubber and steel spacing washers properly in place.
8. Install the upper fork bracket. Tighten steering fitting bolt then tighten stem pinch bolt. Torque to specification.



Steering fitting bolt:	
Stem pinch bolt:	140 – 200 lbs. (1.6 – 2.4 m-kgs.)

9. Tighten upper fork tube pinch bolts and torque to specification.

Upper fork tube pinch bolt torque:	
70 – 100 in-lbs. (0.8 – 1.2 m-kgs.)	

Note:

Make certain that tops of fork tubes are adjusted to the same level. If necessary, loosen underbracket pinch bolts and adjust.

10. Install handlebars and torque to specification.

Handlebars mounting bolt torque:

100 – 160 in-lbs. (1.1 – 1.8 m-kgs.)

11. Reconnect all electrical wiring and check operation.
12. Install headlight and check operation.
13. Install front wheel.
14. Reconnect speedometer and tachometer cables.
15. Reconnect clutch, front brake and throttle cables and check operation.

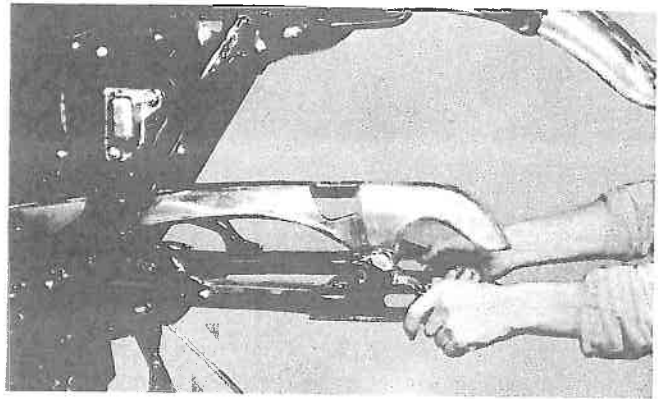
5-9. SWING ARM

A. Swing arm inspection

1. With rear wheel and shock absorbers removed, grasp the ends of the arm and move from right to left to check for freeplay.

Swing arm freeplay: 0.04 in. (1.0 mm.)

2. If freeplay is excessive, remove swing arm and replace swing arm bushing.



B. Swing arm lubrication

1. Apply grease to grease fitting on top of pivot with low pressure hand operated gun. Apply until fresh grease appears at both ends of pivot shaft.

Recommended lubricant: Smooth chassis lube grease

2. Wipe off excess grease.

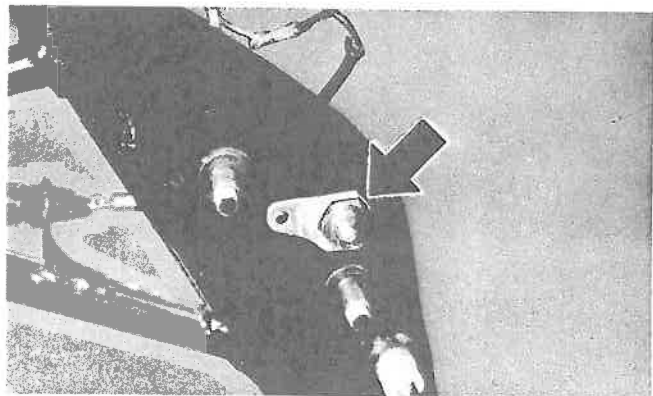
C. Swing arm removal

1. Remove nut on swing arm pivot bolt and tap out bolt with a long aluminum or brass rod.

Note:

Carefully remove the arm while noting the location of spacing washers and shims.

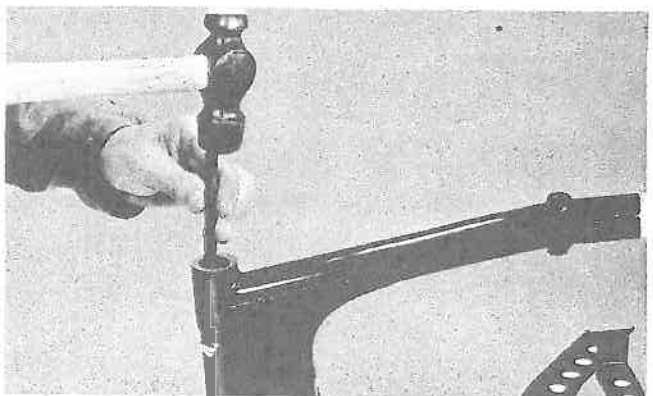
Pivot bolt torque: 862 – 955 in-lbs.
(10 – 11 m-kgs.)



2. Tap out old bushing from each side of pivot using the long rod.
3. Install new bushings using a press.

Note:

If tapping on bushing, bushing may be broken.

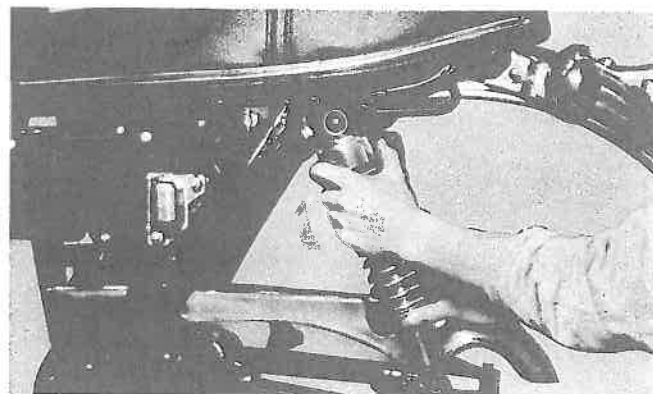


5-10. REAR SUSPENSION

Rear Suspension

1. Removing Both Mounting Bolts.

Remove both mounting bolts and pull the suspension unit out of the frame and swing arm mounts.

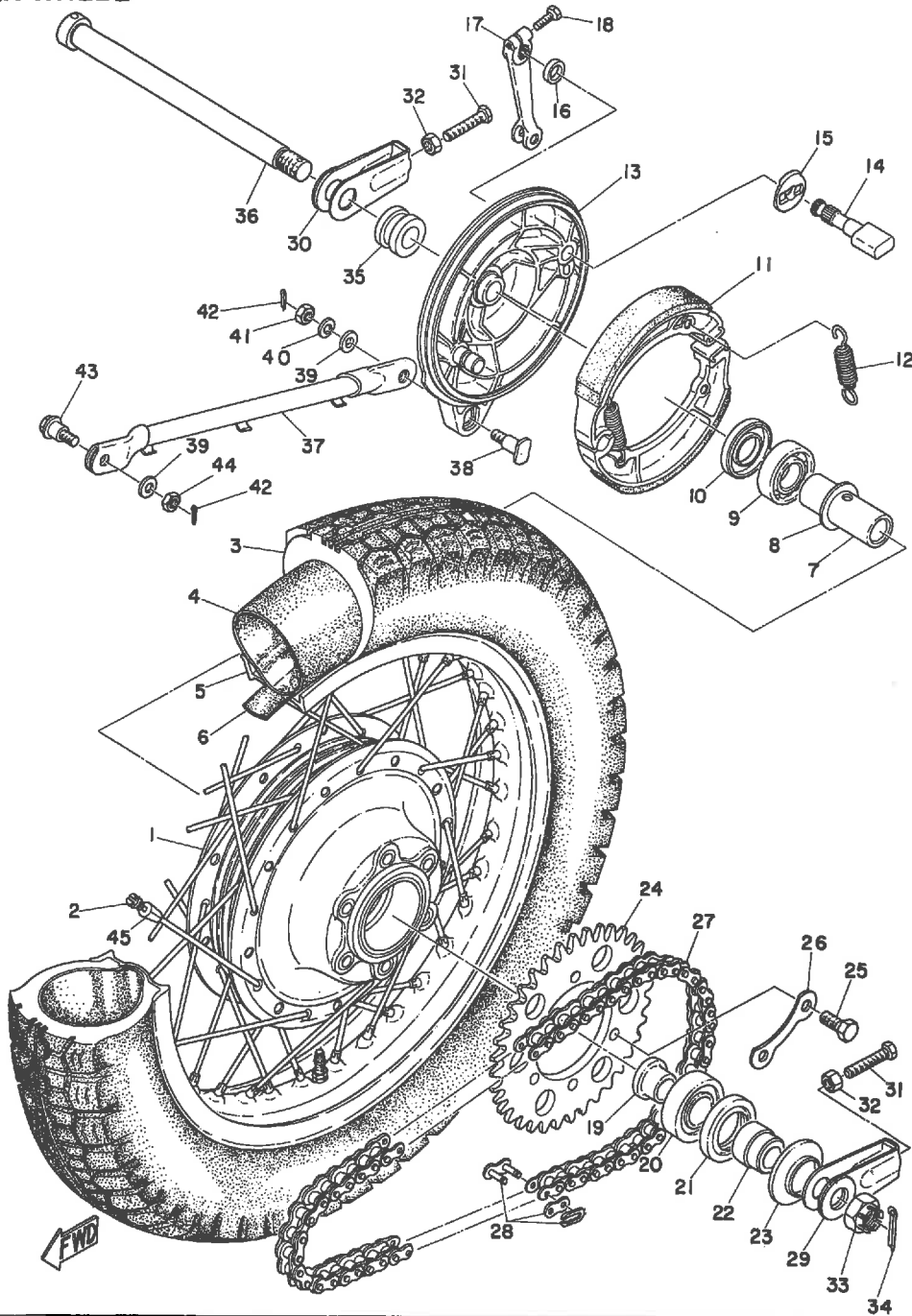


2. Wear

A unit that has lost its suspension qualities will compress quite easily and rebound quickly. To test the effectiveness of the unit, compress it as far as possible and then immediately take all weight off the shock. A suspension unit that is working properly will rebound quickly half-way and then slowly expand the second half. A defective shock will rebound to its fullest length without hesitation.



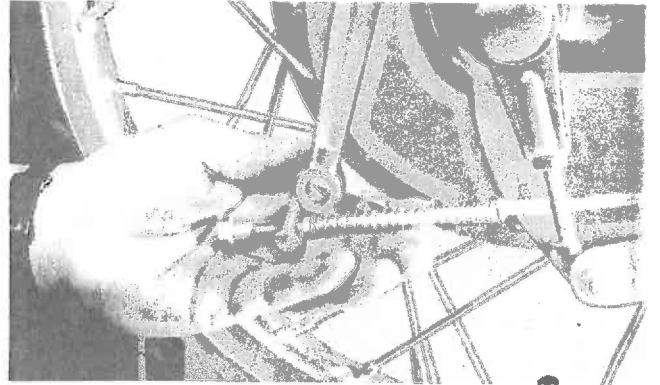
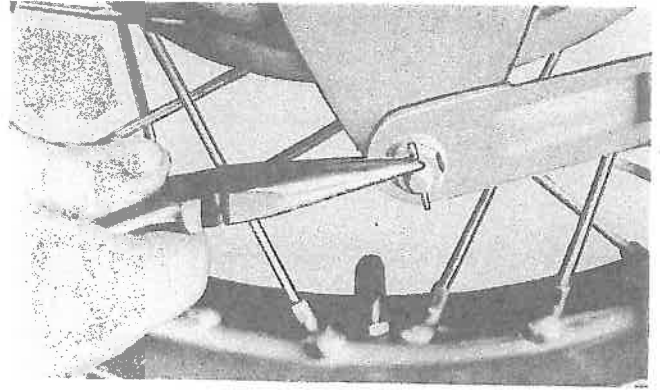
5-11. REAR WHEEL



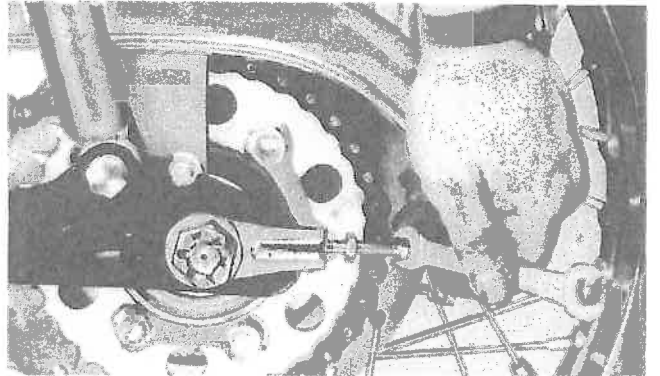
- | | | | |
|----------------------|-------------------------|--------------------------|------------------------|
| 1. Rear hub | 13. Brake shoe plate | 25. Fitting bolt | 37. Tension bar |
| 2. Spoke set | 14. Cam shaft | 26. Lock washer | 38. Tension bar bolt 2 |
| 3. Rear tire | 15. Cam shaft shim | 27. Chain | 39. Plain washer |
| 4. Tube | 16. Cam shaft seal | 28. Chain joint | 40. Spring washer |
| 5. Rim | 17. Cam shaft lever | 29. Chain puller (left) | 41. Nut |
| 6. Rim band | 18. Bolt | 30. Chain puller (right) | 42. Cotter pin |
| 7. Bearing spacer | 19. Collar | 31. Chain puller bolt | 43. Tension bar bolt 1 |
| 8. Spacer flange | 20. Bearing | 32. Nut | 44. Nut |
| 9. Bearing | 21. Oil seal | 33. Shaft nut | 45. Wheel balancer |
| 10. Oil seal | 22. Shaft collar | 34. Cotter pin | |
| 11. Brake shoe comp. | 23. Dust cover | 35. Wheel shaft collar | |
| 12. Return spring | 24. Sprocket wheel gear | 36. Wheel shaft | |

A. Removal

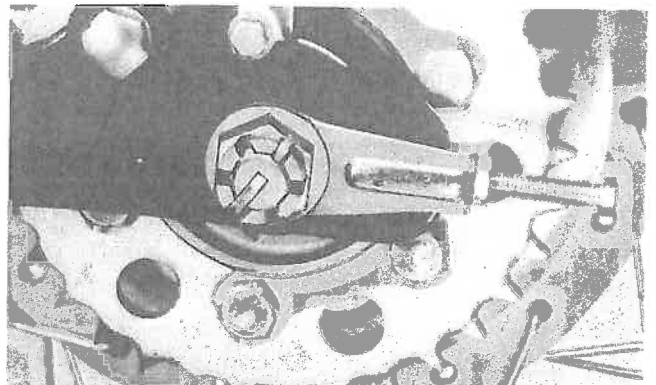
1. Disconnect the tension bar and the brake rod from the rear shoe plate. Pay strict attention to the presence and location of the tension bar lock washer and cotter key. These are safety parts and must be included during assembly.



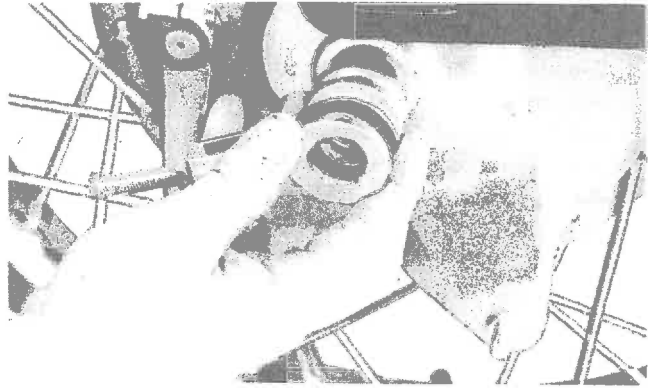
2. Loosen the chain tension adjusting nuts and bolts on both right and left sides.



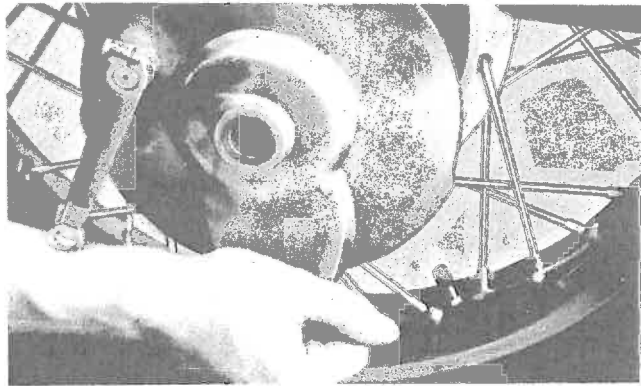
3. Remove the rear axle cotter pin.
4. Remove the rear axle securing nut.



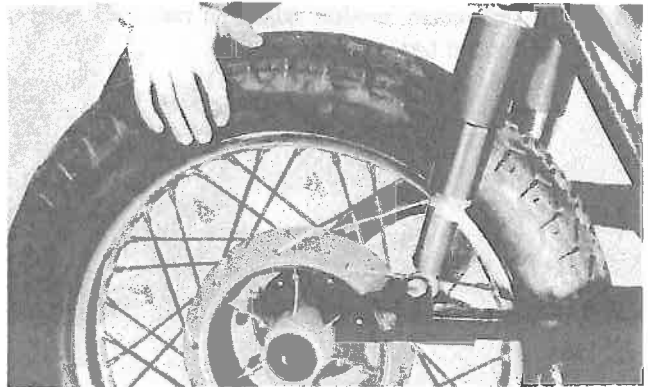
5. Remove the right-hand chain adjuster and distance collar.



6. Remove the rear brake plate.

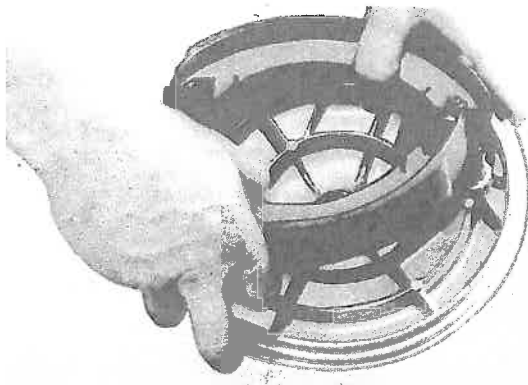


7. Lean the machine to the left and remove the rear wheel assembly.



B. Disassembly and assembly

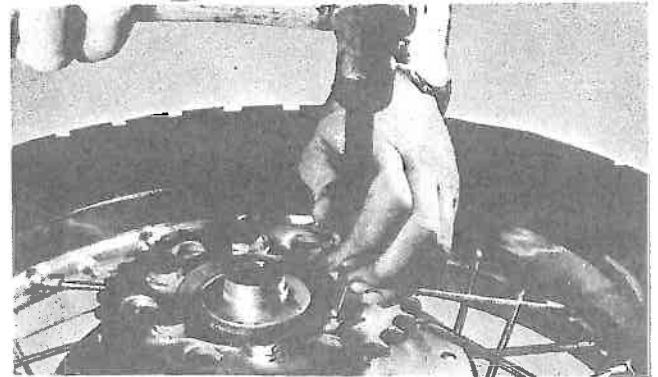
1. Both sides of the single leading shoe unit are mounted on the brake plate. To remove the shoes, pull them out and away from the anchor pin and brake actuating cam.



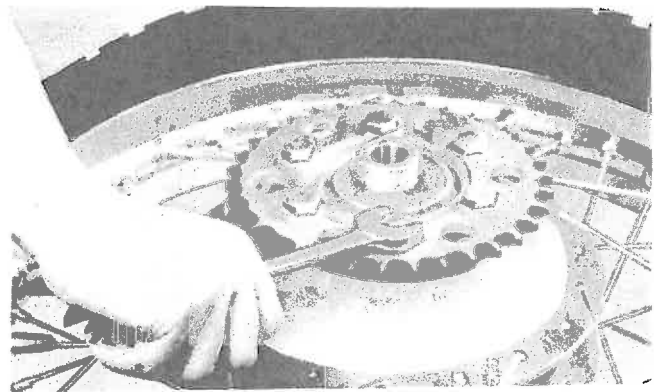
- Both wheel bearings are mounted in the hub. Their removal can be completed by following the removal procedures explained just previously in the "Seals and Bearings" section, except that the rear wheel has two seals, located one outside each bearing.

C. Rear wheel sprocket

- Bend the lock washer ears flat.



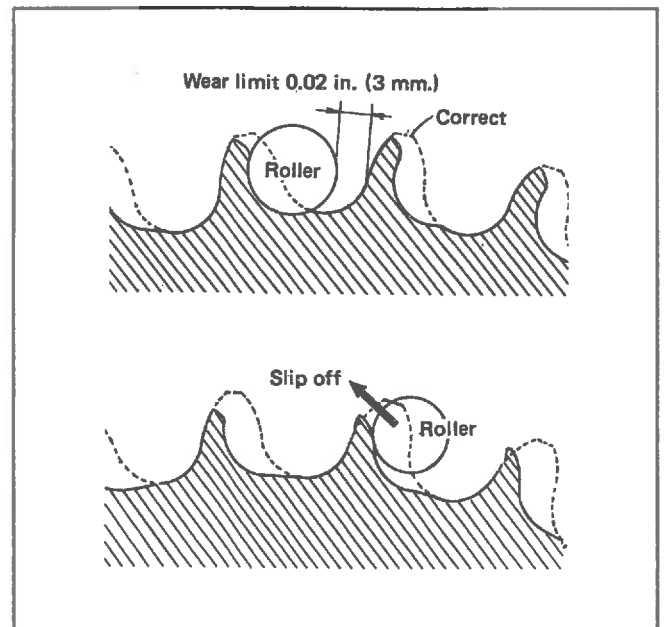
- Remove the sprocket mounting bolts. Check the lock washer and bolt for damage. If the lock washer is not bent over the hexagon bolt head, or is broken, or the bolt is loose, the sprocket can come loose.



Note on installation:

Be sure that all lock tabs are not cracked or broken and that they are all bent up against the bolts.

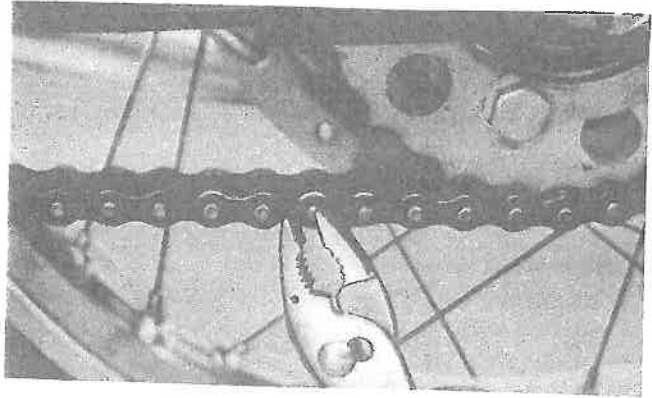
- Constant friction and force from the chain creates wear on the sprocket teeth. If wear has progressed to the extent shown in this illustration, replace the sprocket.



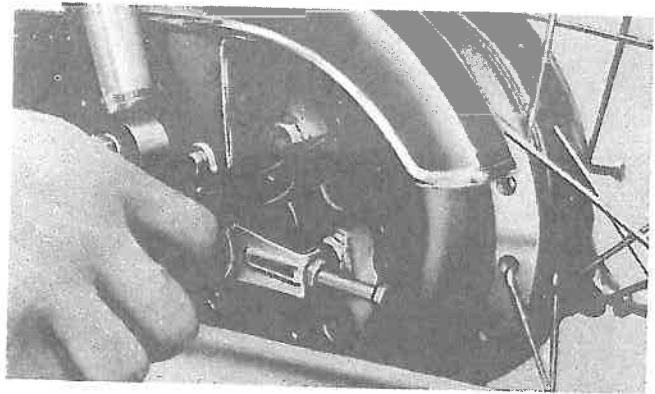
5-12. DRIVE CHAIN

A. Removal and installation

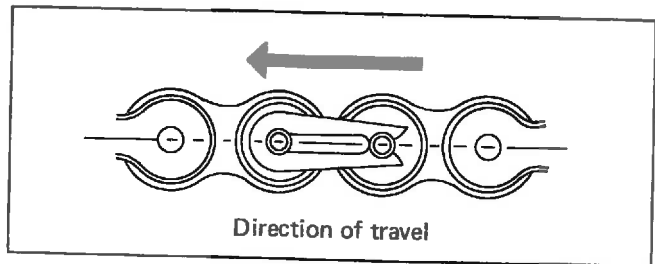
1. Rotate the rear wheel unit the master link is on the sprocket then pry off the master link clip and pull out the master link.



2. To aid in installation lay the chain free ends over the rear wheel sprocket. This holds both chain ends solidly to permit master link insertion. Complete the installation by installing the master link clip.

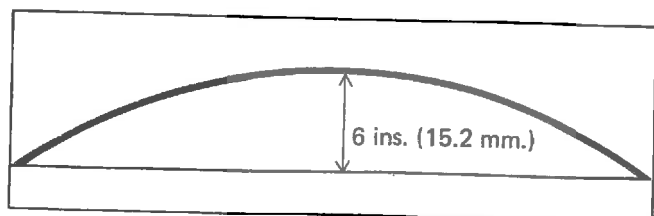
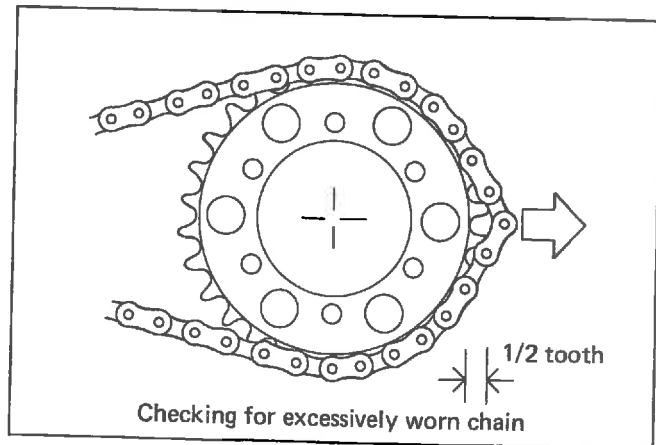


3. Whenever installing the chain, always install the master link retaining clip so that the rounded closed end faces the direction of travel.

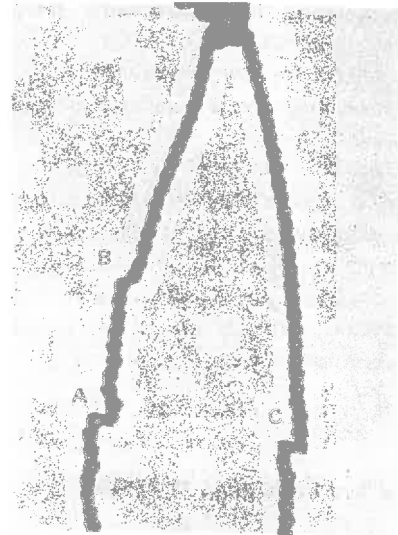


B. Wear

1. With the chain still on the motorcycle, lift the chain away from the rear wheel sprocket. A chain is defective if it can be pulled away from the sprocket more than half the length of a link.



2. Check the chain for binding caused by dirt or rust. Hang the chain straight down and check all links for indications of binding (A, B & C in the picture). If soaking in a strong solvent does not remove the binding situation then replace the chain.

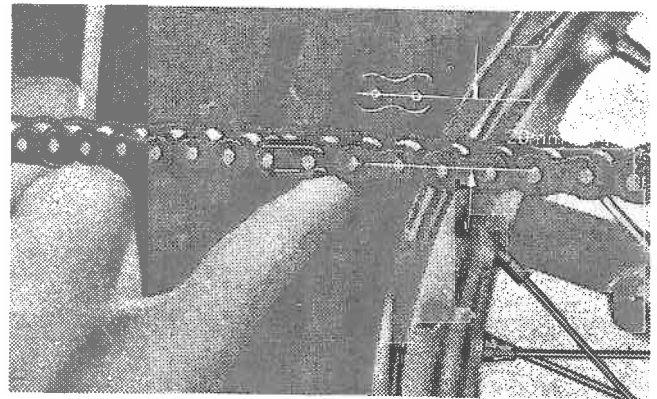


C. Maintenance

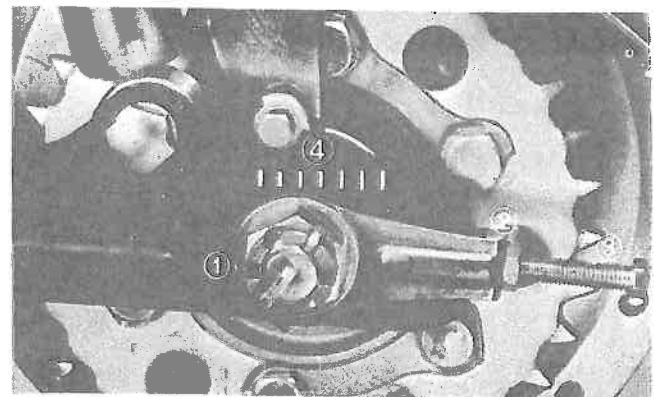
1. Lubrication—there are several pressure can lubricants available. Use a rag to wipe off any accumulation of dirt, then spray a liberal amount of lubricant on the chain at least every 200 miles (300 km.).
2. Cleaning the chain has to be periodically removed from the machine and soaked in cleaning solvent. Drain and dry the chain. Immediately after the chain has dried completely, lubricate to prevent any rust from forming.

D. Adjustment

1. Proper drive chain up and down free play with the rider in position and both wheels on the ground should equal 0.75 in. (20 mm.) when measured at the center of the lower section of chain. Follow these steps to obtain the correct free play:



2. Remove the cotter pin and loosen the rear wheel nut (1).
3. Loosen the chain adjusting bolt lock nut (2) on each side.
4. Rotate both adjusting bolts (3) to obtain the correct free play, and at the same time make sure that both ends of the axle are positioned evenly. This can be done by matching the marks on the sides of the swing arm (4) just above and to the rear of the rear wheel nuts.



1. Lock nut
2. Adjustor lock nut
3. Adjustor
4. Alignment marks

5. After completing the adjustment, retighten all lock nuts.
6. Finally, check for correct brake pedal and stoplight operation as they could have changed due to the chain adjustment.

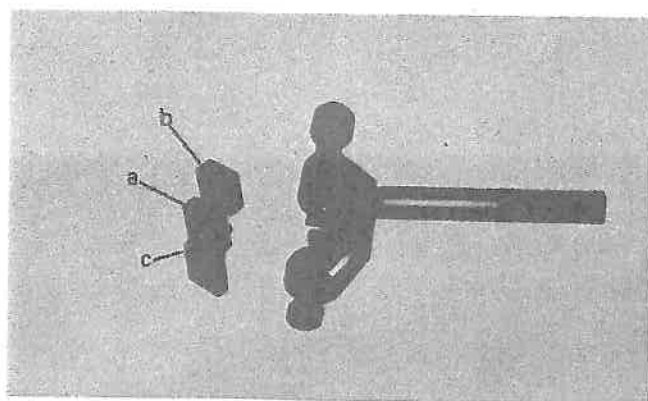
A worn chain causes wear to both sprockets. If either sprocket is excessively worn, it can cause a new chain to wear out prematurely. Strict attention should be paid to the condition of all three components if any one is replaced. Possibly two or all three components might require replacement if wear is excessive.

E. Removal and installation (TX650)

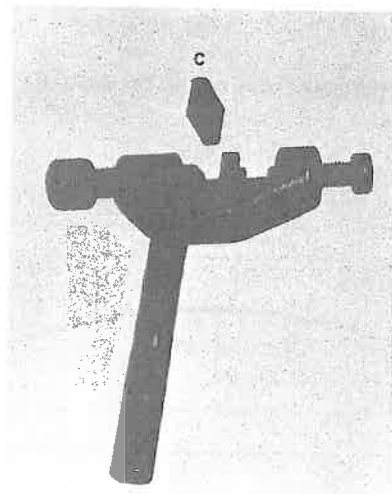
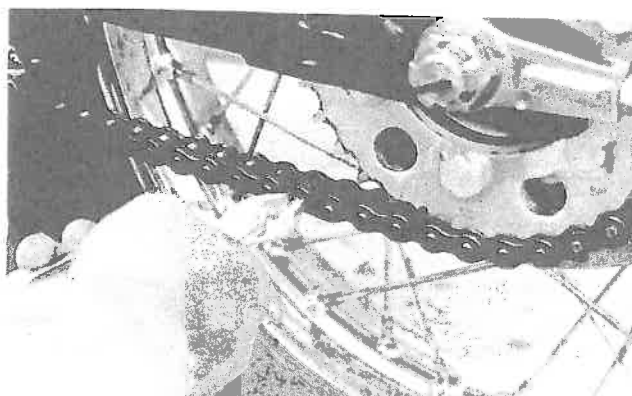
On the SX650B, the drive chain joint plate is press-fitted. To remove or to install, a special tool is required.

1. Removal

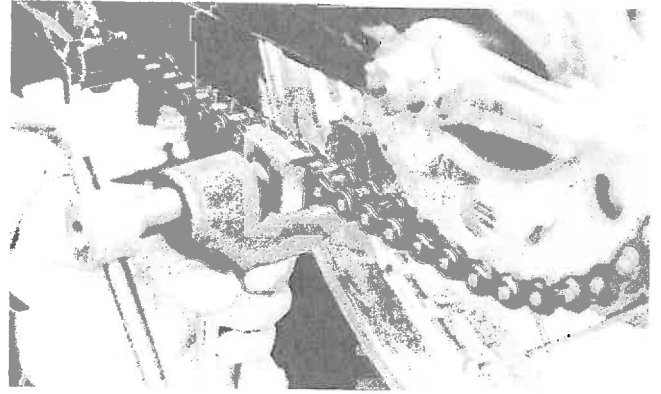
- a) The chain cutter is required.
- b) Bring the master link clip slightly before the sprocket wheel, and remove the clip.



a. Press fitting adaptor (1) c. Press removing adaptor
b. Press fitting adaptor (2)

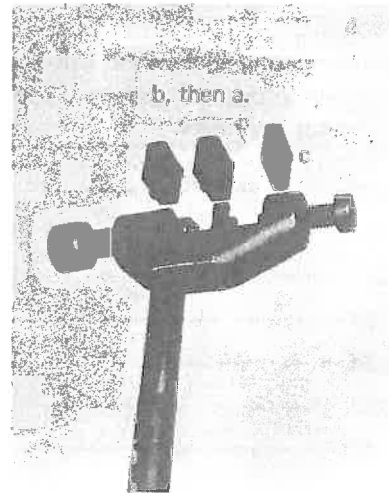


- c) Set the chain cutter on the chain, and remove the chain joint plate. Then, cut the chain.



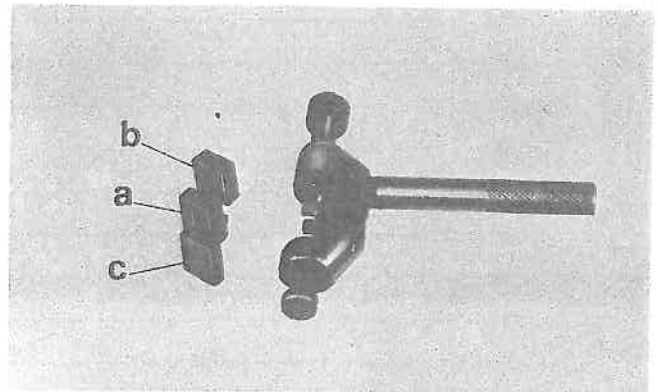
2. Installation

- a) Attach the adaptor (for press-fitting) to the chain cutter.



- b) Connect the chain on the sprocket wheel.

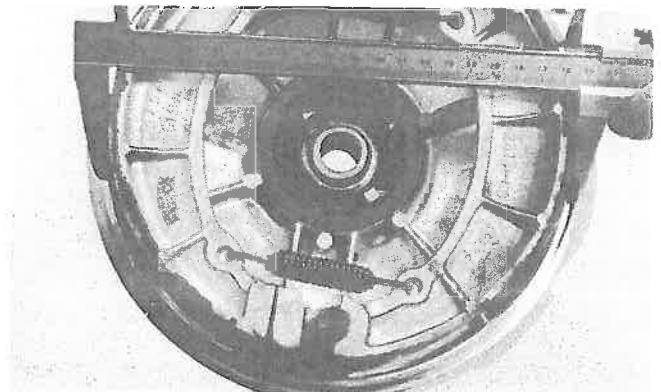
Next, turn the sprocket wheel so the joint is positioned slightly before the sprocket wheel. Attach a new chain joint plate, and press-fit the joint plate in position using the special tool (the chain cutter fitted with the adaptor for press-fitting).



- a. Press fitting adaptor (1)
- b. Press fitting adaptor (2)
- c. Press removing adaptor

5-13. BRAKE SHOES

- 1) Use a vernier caliper to measure the outside diameter of the installed brake shoes and individual shoe linings. If either measurement proves any part of the brake unit to be excessively worn, replace both shoes with a new set.



- 2) Check for brake shoe high spots that cause uneven contact with the brake drum. Remove these high spots with a file or emery cloth.
- 3) Friction heat can glaze the brake shoe surface. This causes less than maximum stopping efficiency. Use a file or rough emery cloth to evenly rough up the surface.

	STD.	Wear Limit
Shoe Outside Diameter	6.772" (172 mm.)	6.612" (168 mm.)
Lining Thickness	.160" (4 mm.)	.080" (2 mm.)

5-14. BRAKE DRUM

- 1) Grease on the brake drum causes improper braking performance. Thoroughly clean the surface with a rag soaked in solvent.
- 2) Any ridges or glazing that might exist on the brake drum surface can impair the operation. Use emery cloth to lightly sand out any ridges.

