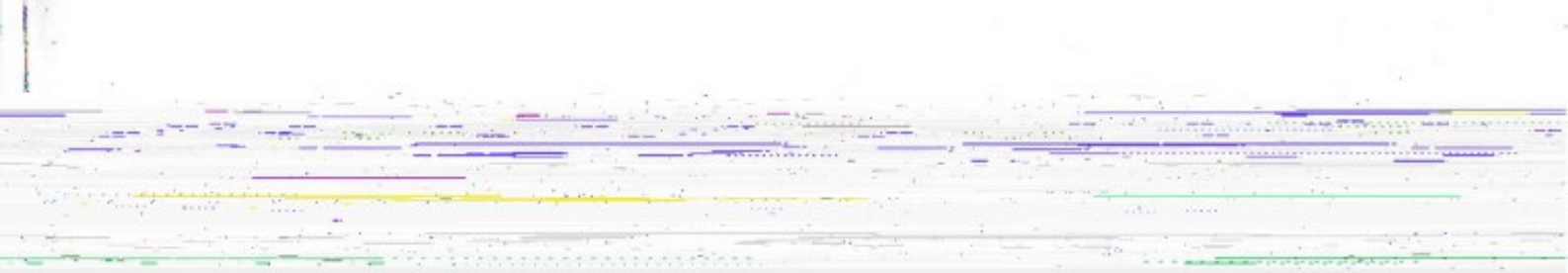
CONTENTS

CHAPTER TWO



is the weakest link of the three basics. More

ENGINE

ELECTRICAL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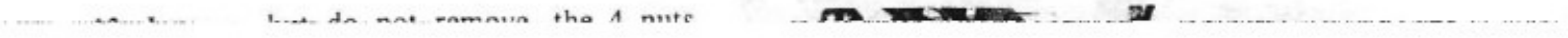


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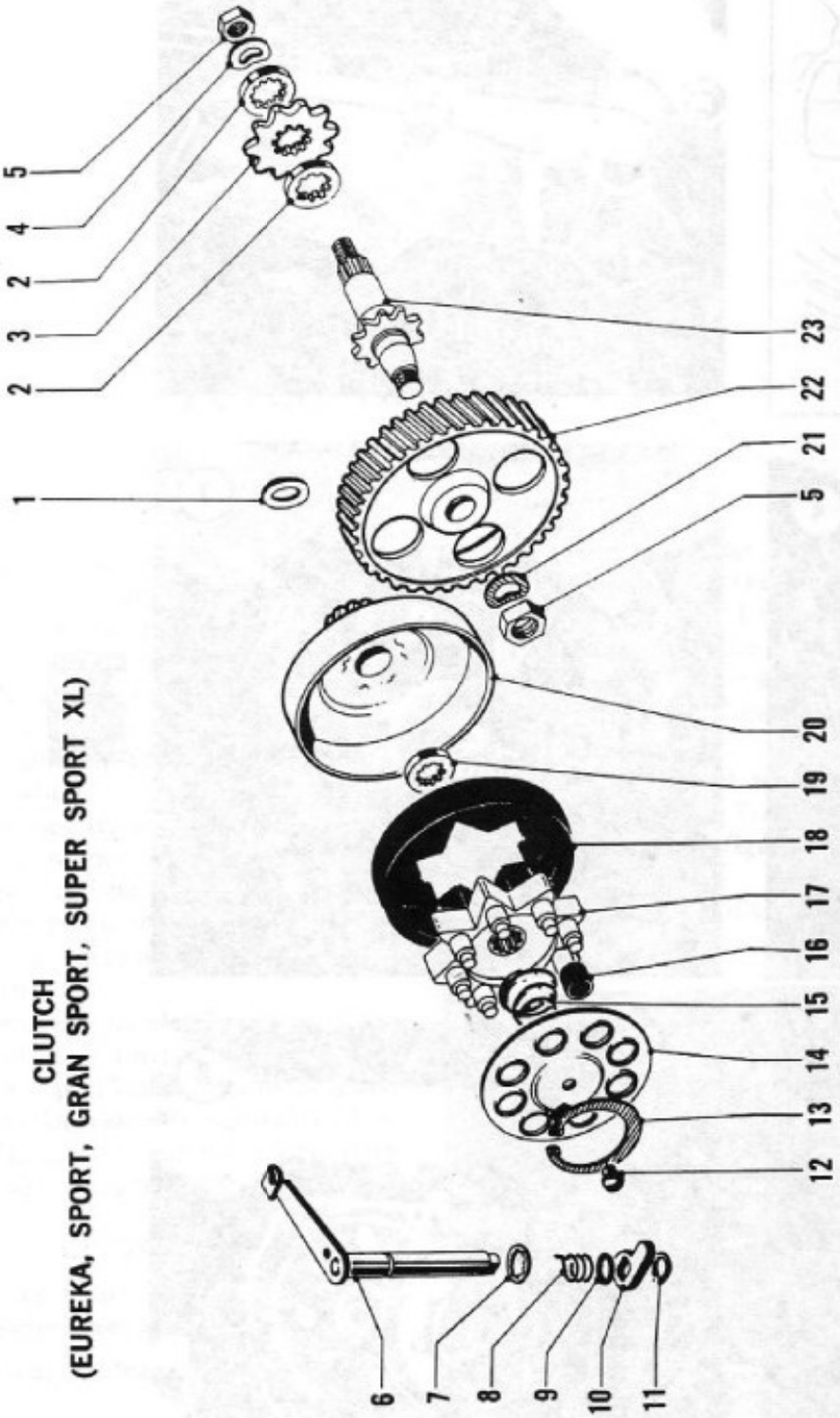
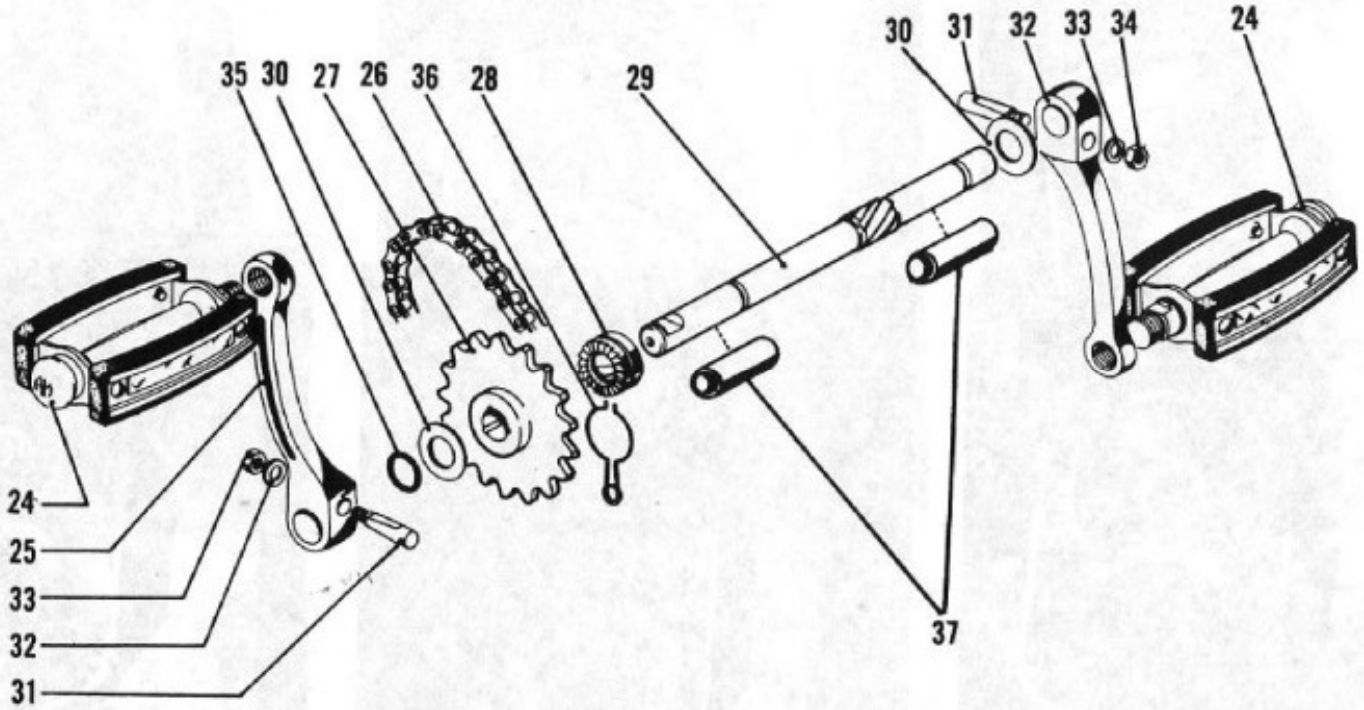
engine/clutch cover ***(Figure 77)****. Fig-*

NOTE: *Slowly tighten the screws using*



CLUTCH
(EUREKA, SPORT, GRAN SPORT, SUPER SPORT XL)



1. Washer
2. Spline washer (2)
3. Sprocket
4. Washer
5. Nut (2)
6. Clutch start arm
7. Washer
8. Spring
9. Ring seal
10. Start lever
11. Circlip
12. Pivot pin
13. Circlip
14. Starter disc
15. Spring
16. Rubber bushing (6)
17. Clutch hub
18. Clutch rubber
19. Spline washer
20. Clutch housing/driven gear
21. Spring washer
22. Driving gear
23. Main shaft
24. Pedals (pair)
25. Crank arm — left-hand
26. Chain
27. Starting sprocket
28. Clutch coupling
29. Pedal shaft
30. Washer (2)
31. Cotter pin (2)
32. Crank arm — right-hand
33. Washer (2)
34. Nut (2)
35. Ring seal
36. Return spring
37. Protective sleeve (2)

(2)

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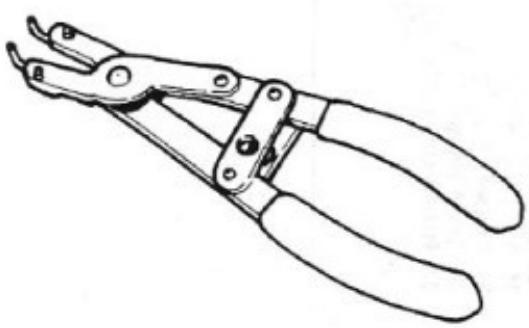

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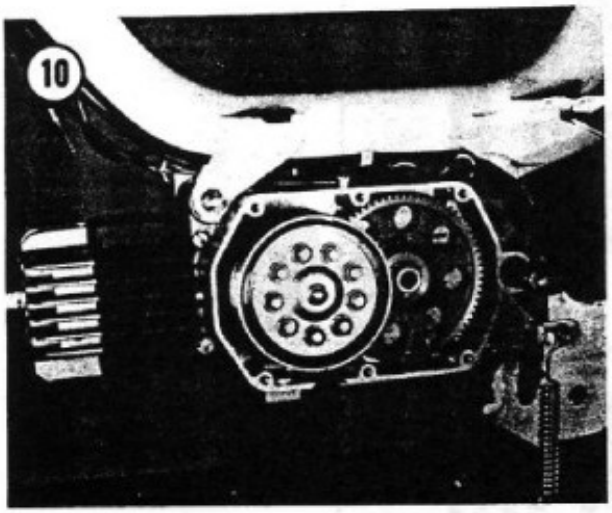

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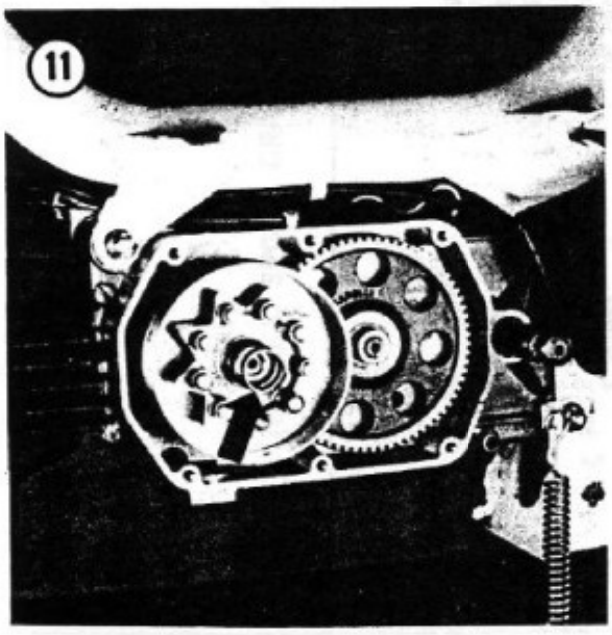

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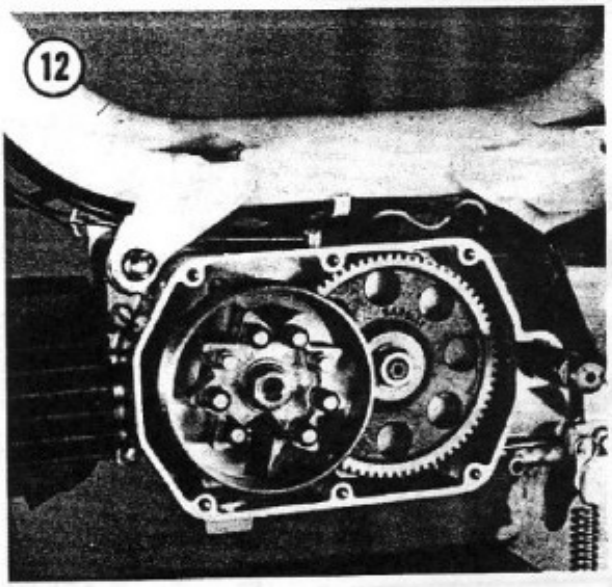

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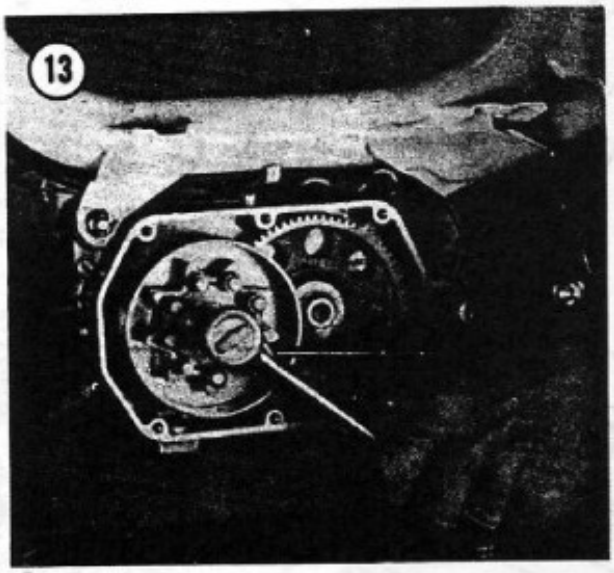

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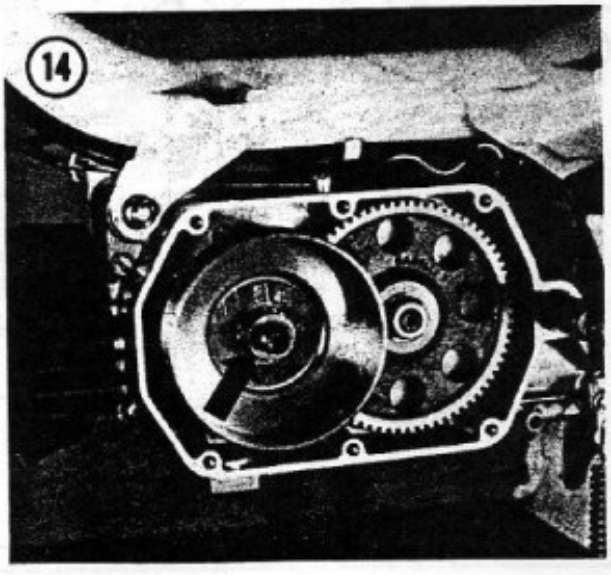
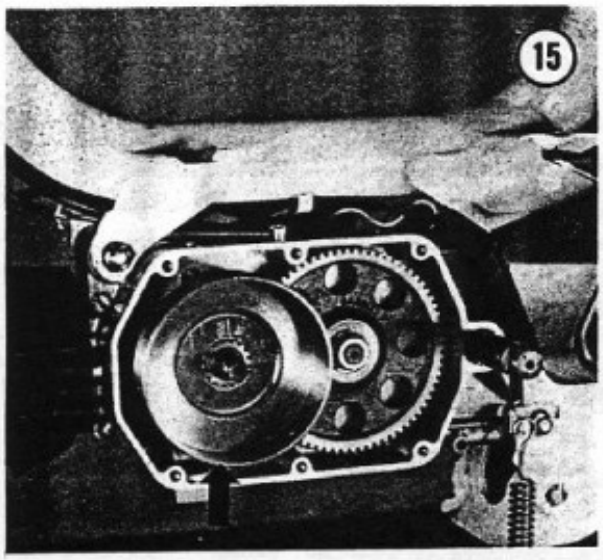
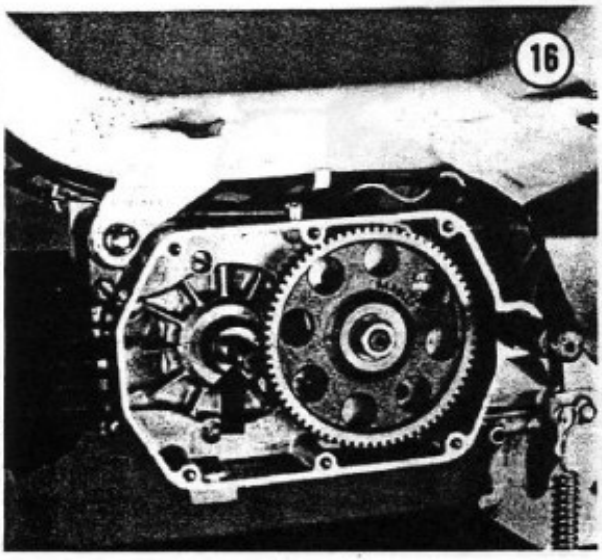
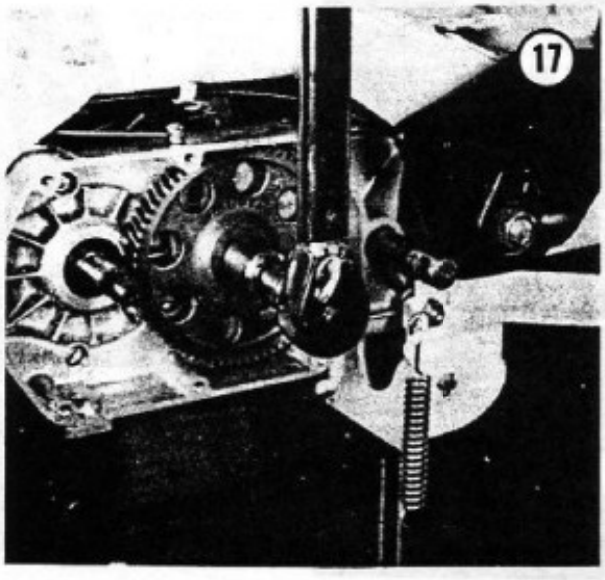
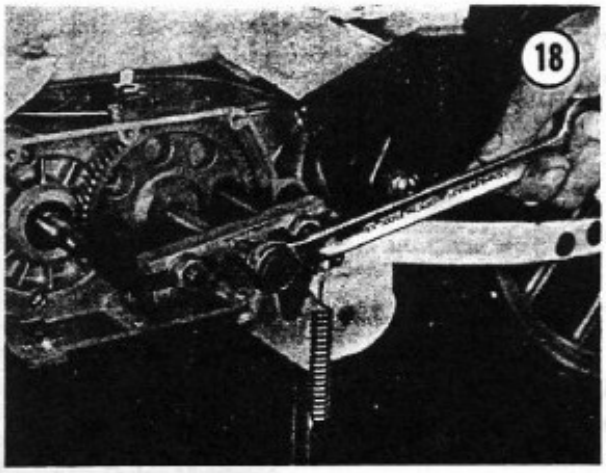










8. Remove the spring (**Figure 11**).
9. Remove the nut (**Figure 12**) with a 17mm socket and remove the clutch hub.

NOTE: *To prevent the clutch hub from rotating, place the blade of a large screwdriver between the pins on the clutch hub and place the handle under the crank arm (Figure 13).*

10. Remove the spline washer (**Figure 14**), the clutch housing/driven gear (**Figure 15**), and washer (**Figure 16**).
11. Remove the nut (**Figure 17**) on the driving gear with a 17mm socket or impact driver.

NOTE: *To prevent the gear from rotating while removing the nut, have an assistant hold the rear brake on to prevent the rear wheel, chain, and driving gear from turning.*

12. Attach a gear puller (**Figure 18**) to the driving gear and remove the gear. Gear pullers can be rented from most tool rental dealers or motorcycle parts stores.

NOTE: *This gear is on a tapered shaft and it may be difficult to free it from this shaft. If necessary, tap the gear with a drift punch and hammer several times in several places toward the center of the gear (Figure 19).*

CAUTION

***Do not** use the engine crankcase for leverage while trying to remove any parts. The crankcase will fracture or chip if stressed in any way other than what it is designed for.*

Installation (Eureka, Sport, Gran Sport, Super Sport XL)

1. Install the driving gear and nut. Torque the nut to 35 ft.-lb. (47 N•m).

NOTE: *To prevent the gear from rotating while tightening the nut, have an assistant hold the rear brake on to prevent the rear wheel, chain, and driving gear from turning.*

2. Install the washer (**Figure 16**), the clutch housing/driven gear (**Figure 15**), and the spline washer (**Figure 14**).

NOTE: *Install the washer (Figure 16) with the ground or smooth side in toward the engine.*

3. Install the clutch hub and nut (**Figure 12**). Torque the nut to 23 ft.-lb. (31.2 N•m).

NOTE: *To prevent the clutch hub from rotating while tightening the nut, place the blade of a large screwdriver between the pins on the clutch hub and rest the handle on the crank arm (Figure 20).*

NOTE: *After the nut has been tightened, check to see that the clutch hub turns independently from the clutch housing/driven gear. If it will not, remove the nut and the clutch housing/driven gear and turn the washer (Figure 16) around. Repeat Step 3.*

4. Insert the spring (**Figure 11**) and install the starter disc and clutch rubber (**Figure 10**).

5. Push in on the starter disc and install the circlip. The locating tab can fit between *any* of the pins on the clutch hub.

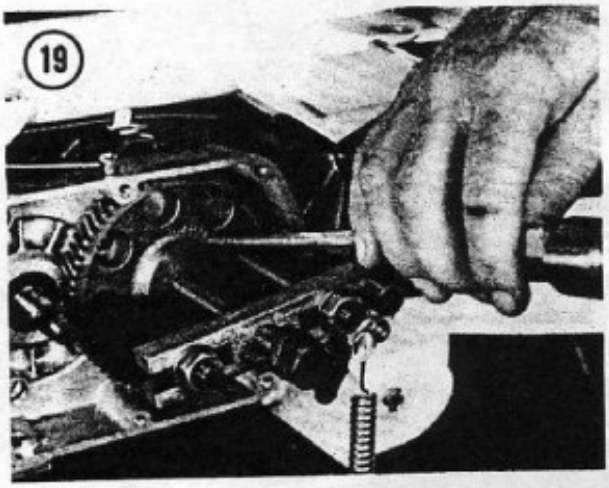
CAUTION

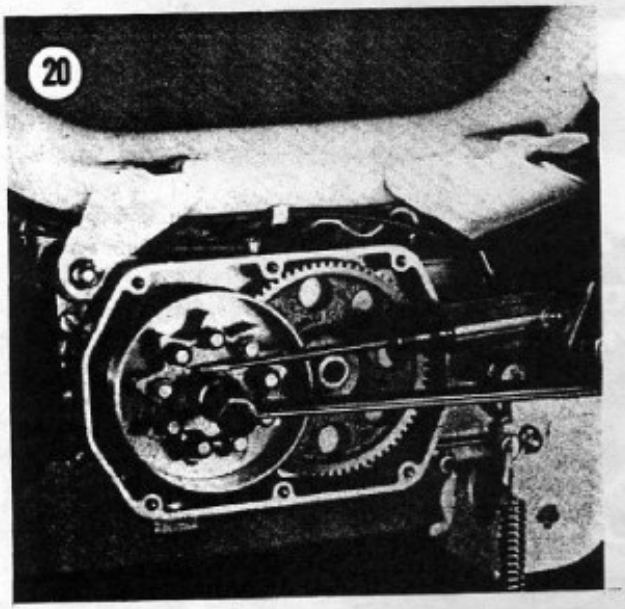
Make sure that the circlip is properly seated in ALL the grooves in the pins of the clutch hub.

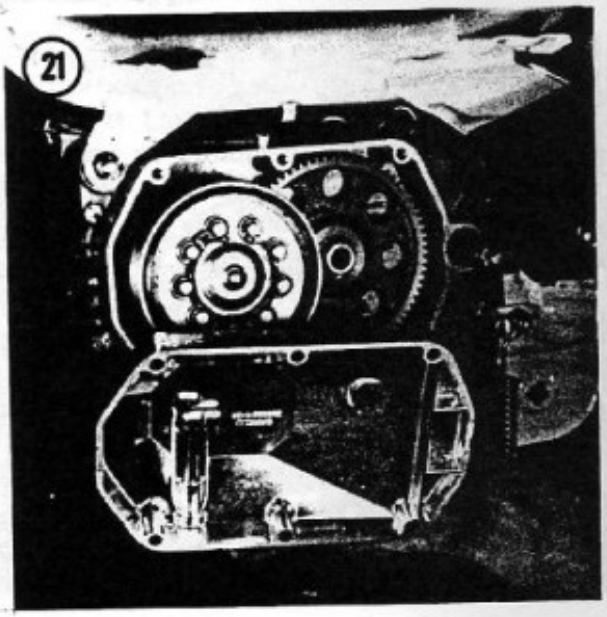
6. Make sure that the gasket surfaces of both the crankcase and the engine/clutch cover (**Figure 21**) are clean. Apply gasket cement to one side of the new gasket and place this side on the engine/clutch cover.

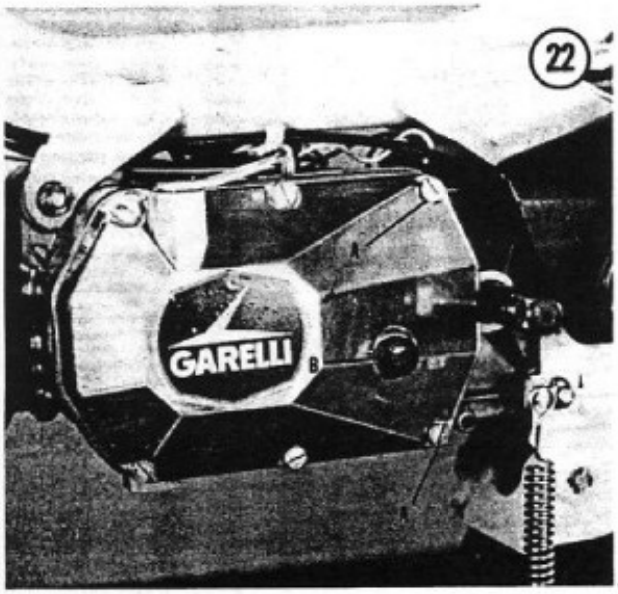
7. Install the engine/clutch cover.

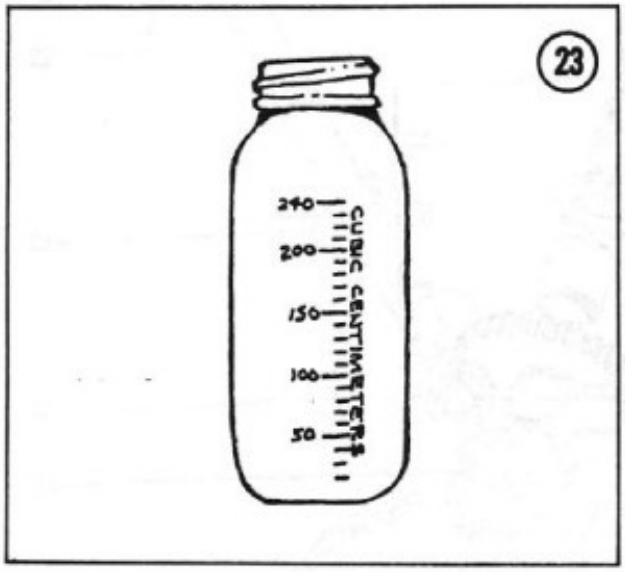
NOTE: *The 2 short bolts (A) are used at the rear (Figure 22).*











8. Remove the fill cap (B, **Figure 22**) on the engine/clutch cover, and fill with 13.5 oz. (400cc) SAE 30 *non-detergent oil.*

CAUTION

***Do not** use detergent oil.*

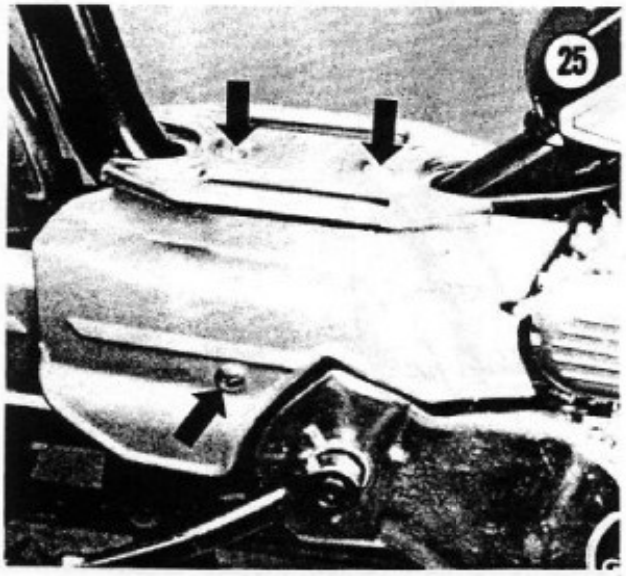
NOTE: *In order to measure the correct amount of oil, use a plastic baby bottle. These have measured increments in fluid ounces (oz.) and cubic centimeters (cc). See **Figure 23**.*

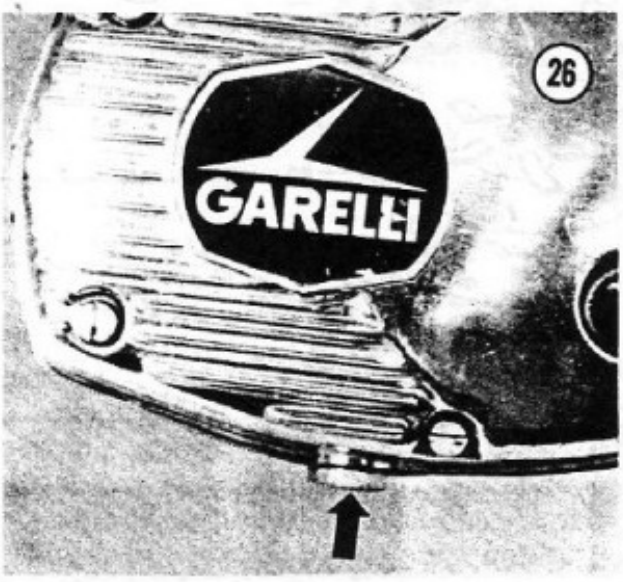
9. Install the fill cap (B, **Figure 22**), start the engine and check for leaks.

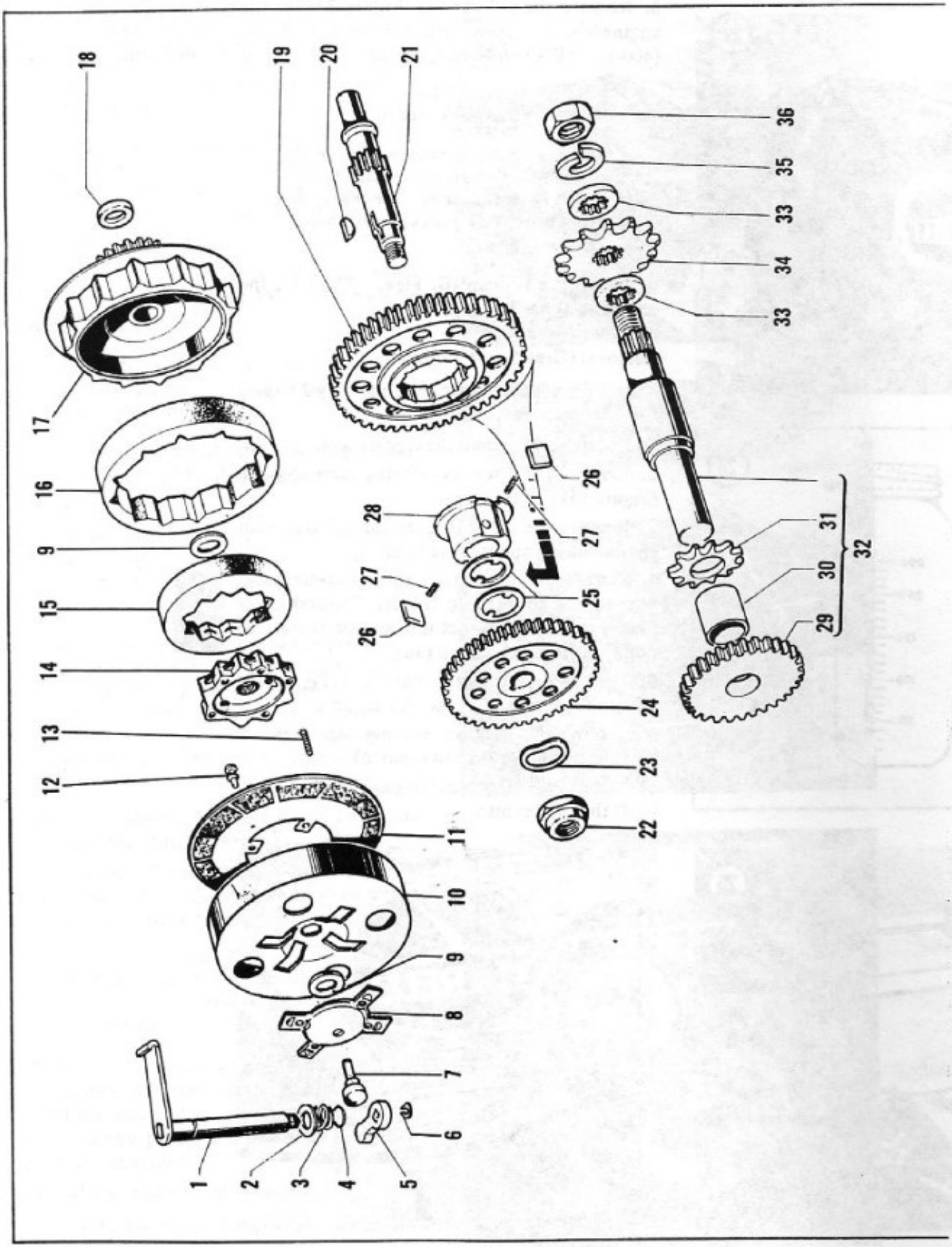
Removal (Gran Sport Twin)

Refer to **Figure 24** (on the following 2 pages) for this procedure.

1. Place the moped on the centerstand.
2. Remove the 2 screws securing the step plate (**Figure 25**) and remove it.
3. Remove the screw (**Figure 25**) securing each engine fairing and remove them.
4. Place a drip pan under the clutch housing, remove the drain plug (**Figure 26**) and completely drain the oil. Let it drain for at least 10 minutes. Install the drain plug.
5. Push in on the clutch start arm (**Figure 27**) and unhook the end of the clutch cable.
6. Remove the 6 screws securing engine/clutch side cover (**Figure 28**) and remove it.
7. Remove the start plate (**Figure 29**) by pulling it off the rubber nibs.



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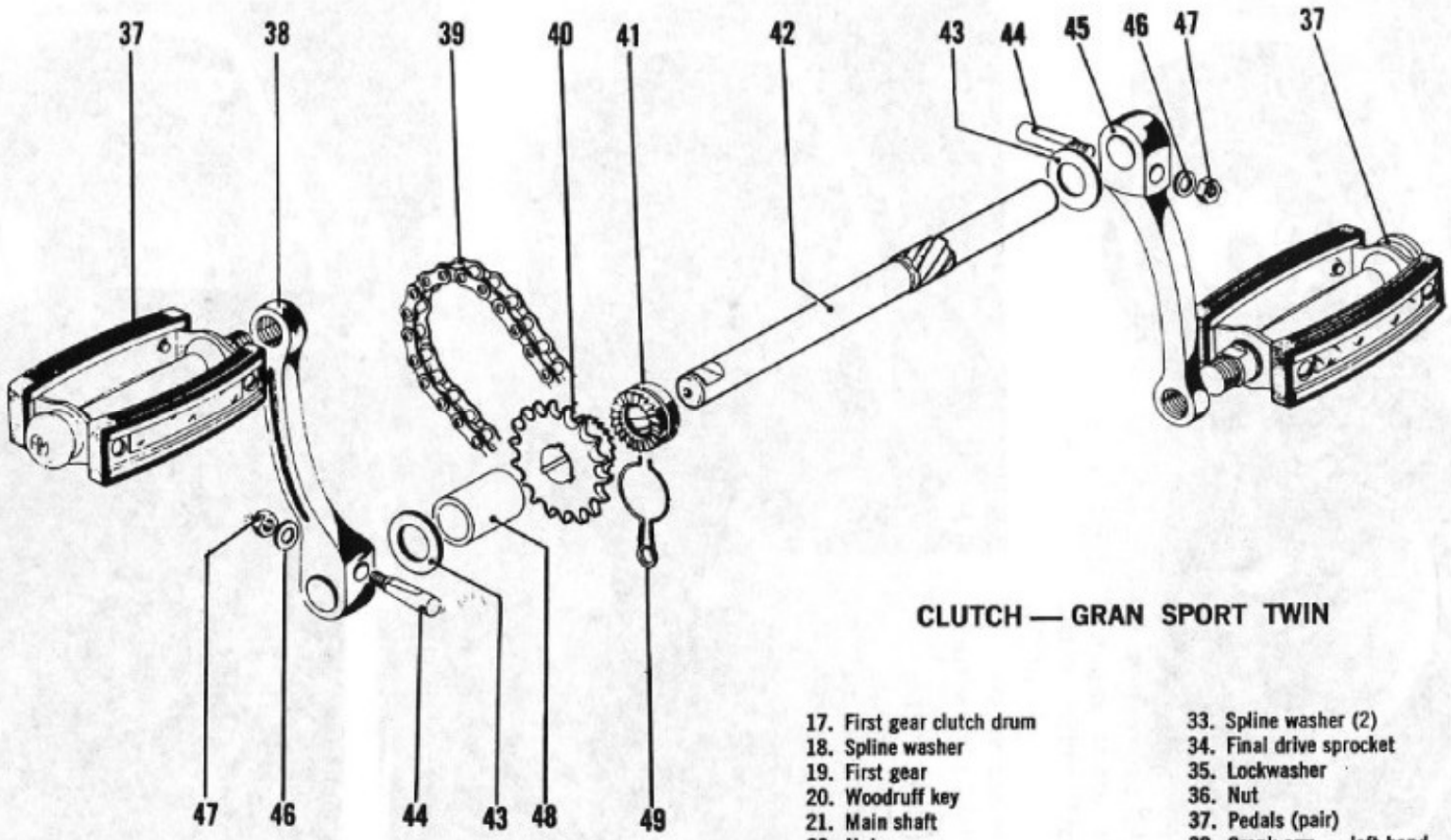
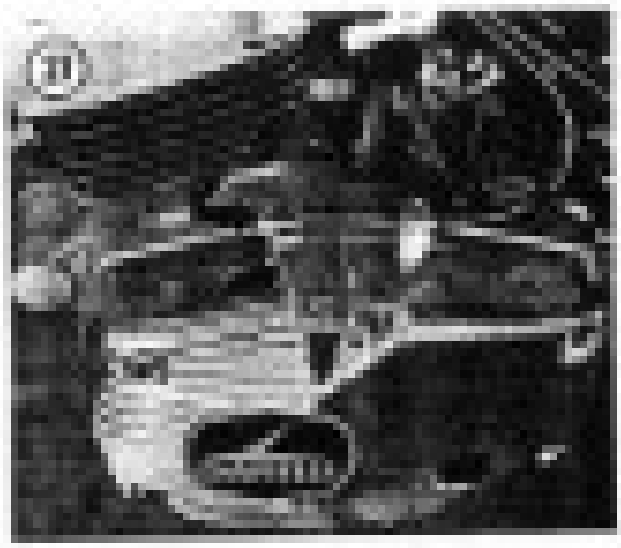
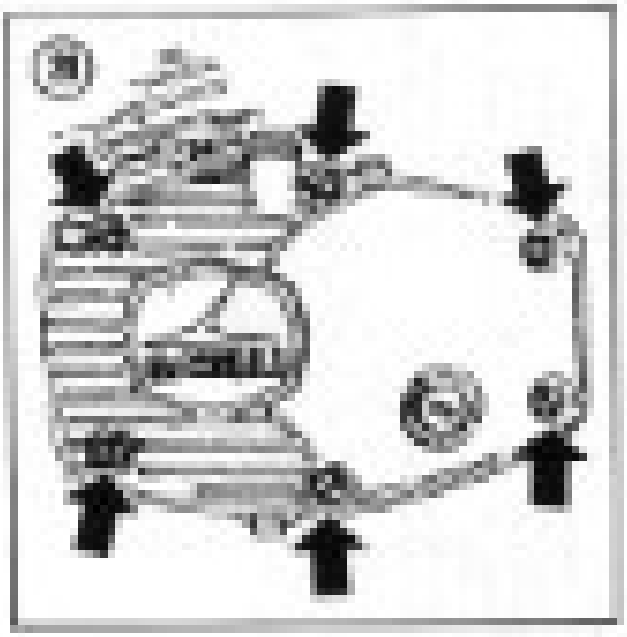


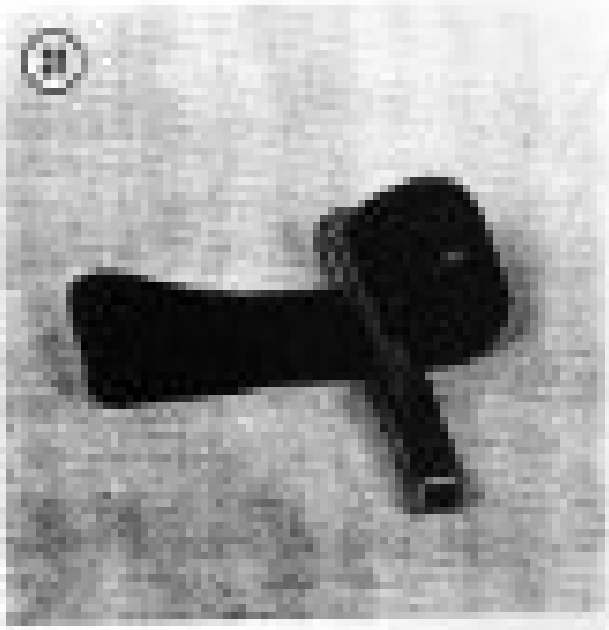
CLUTCH — GRAN SPORT TWIN

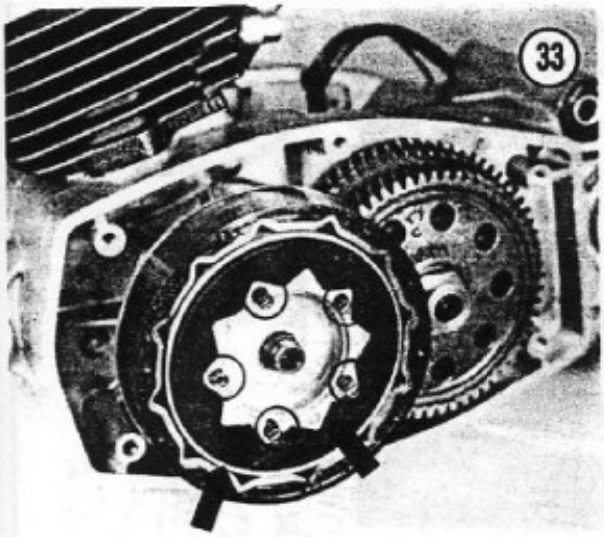
1. Clutch start arm
2. Washer
3. Spring
4. Ring seal
5. Start lever
6. Circlip
7. Pivot pin
8. Start plate
9. Washer
10. Second gear clutch drum
11. Lined clutch plate
12. Rubber nibs (4)
13. Coil springs (5)
14. Clutch center
15. First gear clutch rubber
16. Second gear clutch rubber
17. First gear clutch drum
18. Spline washer
19. First gear
20. Woodruff key
21. Main shaft
22. Nut
23. Washer
24. Second gear
25. Washer
26. Ratchet (2)
27. Coil spring (2)
28. Free wheel body
29. Second gear pinion
30. Spacer
31. Starting sprocket
32. Secondary shaft assembly
33. Spline washer (2)
34. Final drive sprocket
35. Lockwasher
36. Nut
37. Pedals (pair)
38. Crank arm — left-hand
39. Chain
40. Starting sprocket
41. Clutch coupling
42. Pedal shaft
43. Washer (2)
44. Cotter pin (2)
45. Crank arm — right-hand
46. Washer (2)
47. Nut (2)
48. Spacer
49. Return spring

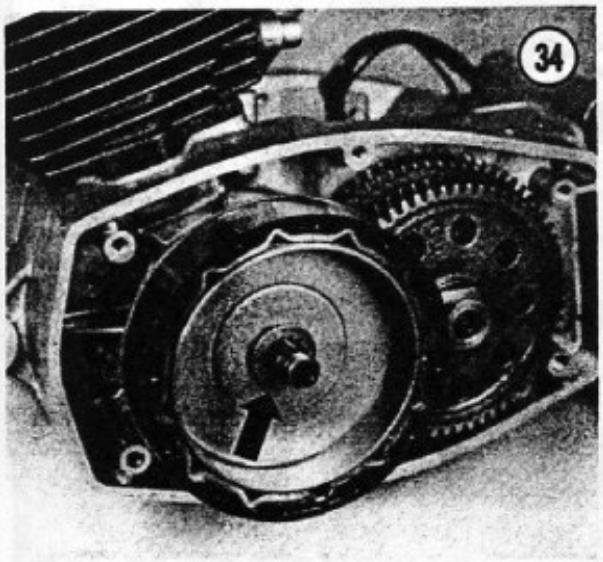
(24)

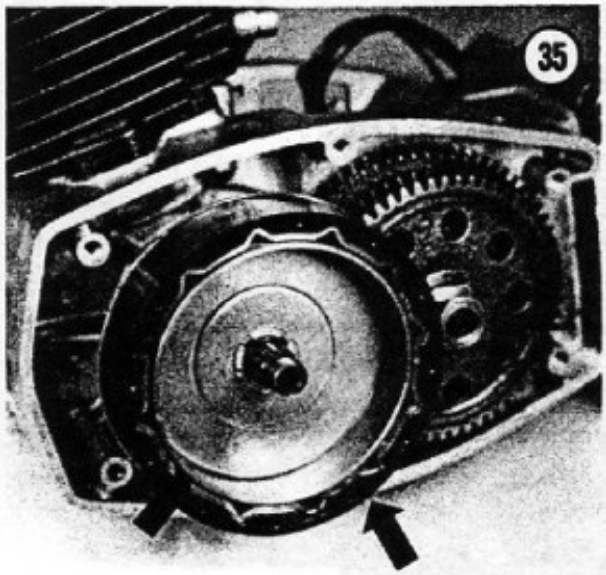












8. Remove the nut and washer (**Figure 30**) from the crankshaft with an impact driver.

NOTE: *To prevent the crankshaft from rotating while removing the nut, have an assistant hold the magneto rotor by hand or with a strap wrench (Figure 31).*

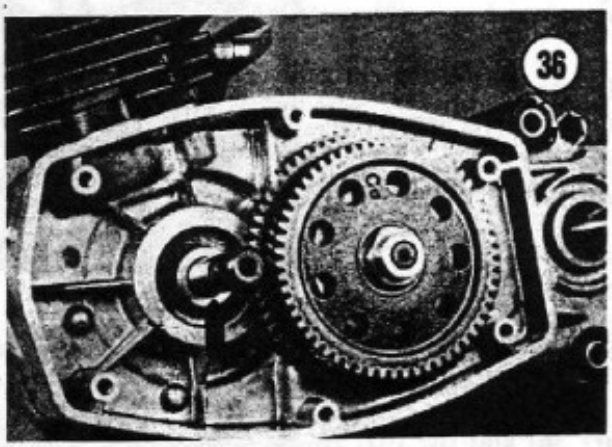
9. Remove the second gear clutch drum and the lined clutch plate (**Figure 32**).

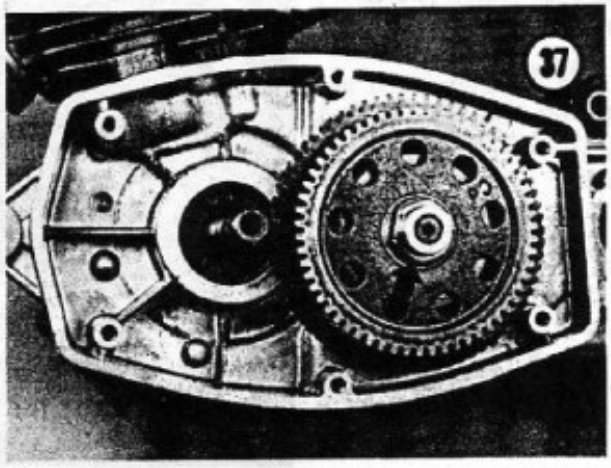
10. Remove the clutch center and the first gear rubber (**Figure 33**). *Do not lose* any of the 5 coil springs in the clutch center.

11. Remove the spline washer (**Figure 34**), the first gear clutch drum and the second gear clutch rubber (**Figure 35**), and the washer (**Figure 36**).

12. Remove the nut and washer (**Figure 37**) from the main shaft.

NOTE: *To prevent the main shaft from rotating while removing the nut, have an assistant hold the magneto rotor by hand or with a strap wrench (**Figure 31**).*





13. Remove the second gear (**Figure 38**), the first gear complete with the free wheel, ratchets, and washers (**Figure 39**).

CAUTION

Do not use the engine crankcase for leverage while trying to renove any parts. The crankcase will fracture or chip if stressed in any way other than what it is designed for.

14. Remove the Woodruff key and the flat washer (**Figure 40**) from the main shaft.

Installation (Gran Sport Twin)

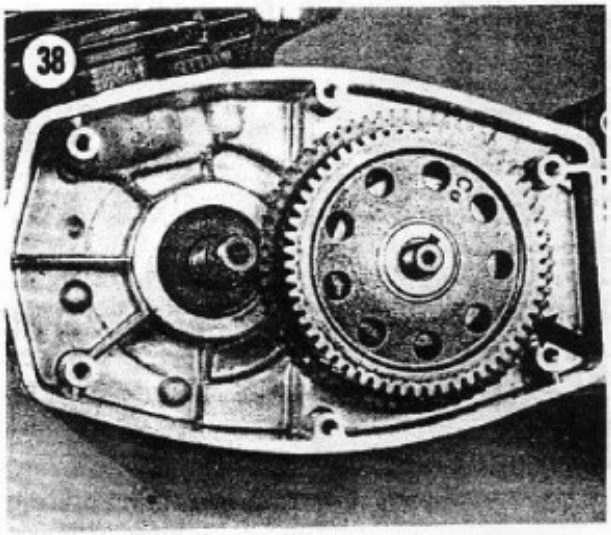
1. Install the flat washer and the Woodruff key (**Figure 40**) onto the main shaft.
2. Install the washer, free wheel body, coil springs, and the ratchets into the center of the first gear (**Figure 41**).
3. Install the first gear with all of the components assembled in Step 2 onto the main shaft. Install the gear with the concave side of the gear toward the crankcase (**Figure 39**). Hold the washer against the backside of the gear when installing.
4. Install the second gear (**Figure 38**) with the concave side of the gear toward the first gear.
5. Install the washer and the nut (**Figure 37**). Torque the nut to 60 ft.-lb. (81 N•m).

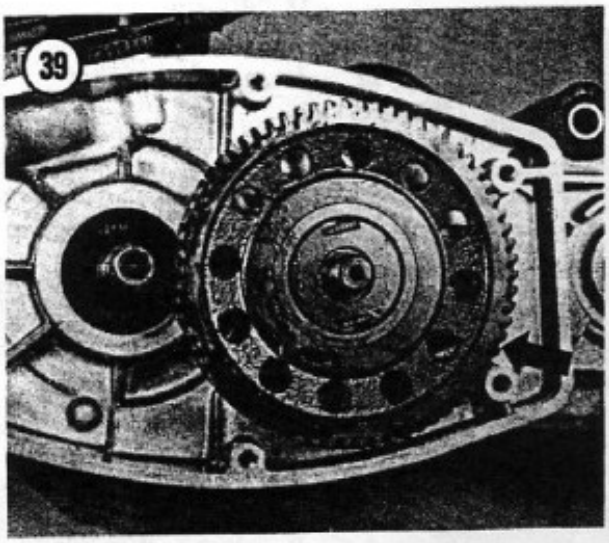
NOTE: *To prevent the gear from rotating while tightening the nut, have an assistant hold the magneto rotor by hand or with a strap wrench (Figure 31).*

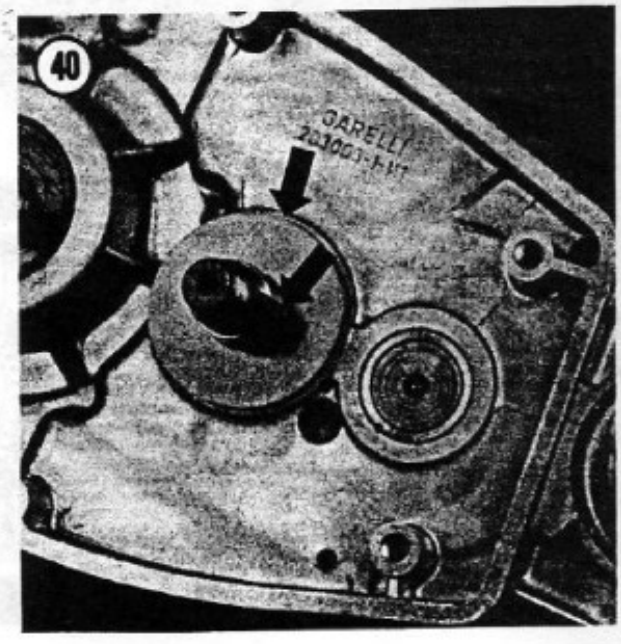
6. Install the washer (**Figure 36**) and the first gear clutch drum and second gear clutch rubber (**Figure 35**) onto the crankshaft.
7. Install the spline washer (**Figure 34**).
8. Install the clutch center and the first gear clutch rubber (**Figure 33**). Install the clutch center with the spring side out.

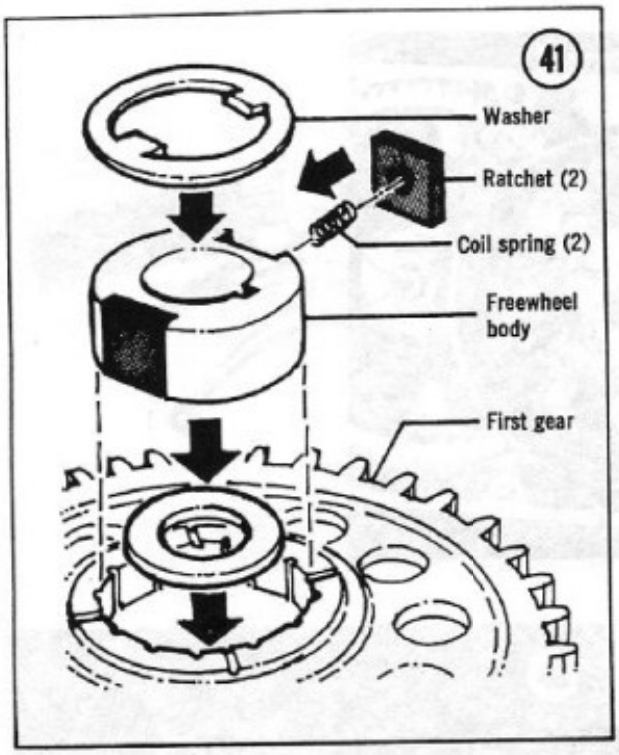
NOTE: *Make sure all 5 springs are in place within the holes in the clutch center.*

9. Install the lined clutch plate, with the rubber nibs toward the outside, into the second gear clutch drum and install them onto the crankshaft (**Figure 42**).









10. Install the spring washer and the nut **(Figure 30)**. Torque the nut to 28 ft.-lb. (38 N•m).

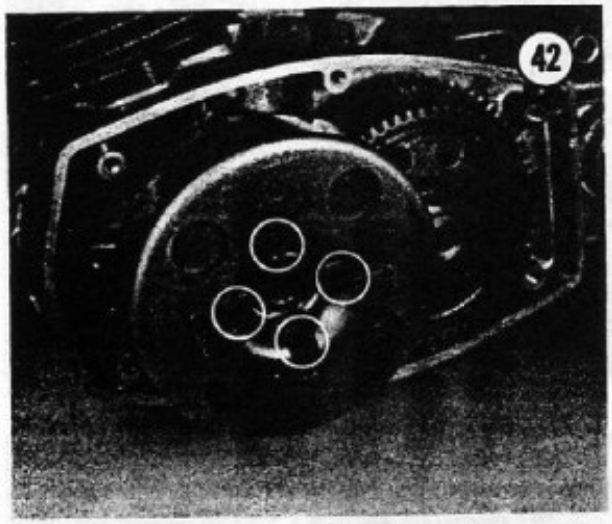
NOTE: *To prevent the crankshaft from rotating while tightening the nut, have an assistant hold the magneto rotor by hand or with a strap wrench (**Figure 31**).*

11. Install the start plate **(Figure 29)** by pressing it onto the rubber nibs on the lined clutch plate.

12. Make sure that the gasket surfaces of both the crankcase and the engine/clutch cover are clean. Apply gasket cement to one side of the new gasket and place this side onto the engine/clutch cover.

13. Install the engine/clutch cover.

NOTE: *The front 2 screws have fiber washers behind them. This is for sealing purposes — **Do not** forget to install them.*

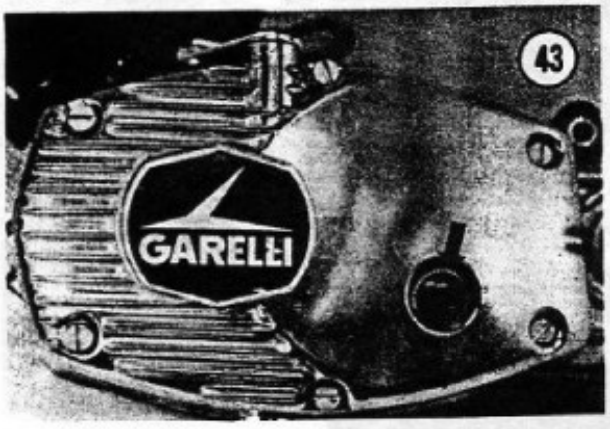


14. Remove the fill cap **(Figure 43)** on the engine/clutch cover, and fill with 13.5 oz. (400cc) SAE 30 *non-detergent oil.*

CAUTION
***Do not** use detergent oil.*

NOTE: *In order to measure the correct amount of oil, use a plastic baby bottle. These have measured increments in oz. and cc (**Figure 23**).*

15. Install the fill cap **(Figure 43)**, start the engine, and check for leaks.



Inspection (Eureka, Sport, Gran Sport, Super Sport XL)

Refer to **Figure 2** for this procedure.

1. Check the clutch rubber for signs of fatigue, cracking, or wear. It can be separated from the starter disc by pulling the 2 parts apart. Replace if necessary.

NOTE: *If the clutch rubber and the starter disc have been separated for inspection, they must be put back together so that the holes in the starter disc align with the V-notches in the clutch rubber. This is necessary so that the assembled unit will match up with the clutch hub.*

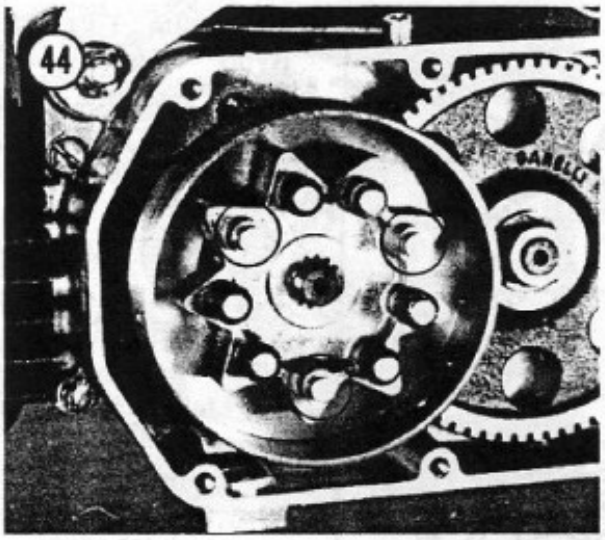
2. Inspect the rubber bushings on the clutch hub. If they are cracked or show signs of wear, replace all of them. There are only 6, as every third pin does not use one (**Figure 44**).

3. Check the pivot pin on the starter disc for signs of wear; replace if necessary.

4. Check the inside surface of the clutch housing/driven gear for scratches and distortion. Replace if necessary.

5. Inspect the teeth on the gear of the clutch housing/driven gear and the driving gear. If any of the teeth are damaged or missing, both parts should be replaced.

6. Check the spring for signs of fatigue. Check the overall length of the spring in a relaxed position against a new one. If the old one is shorter by ¼ in. (6mm), it should be replaced.



Inspection (Gran Sport Twin)

Refer to **Figure 24** for this procedure.

1. Check the clutch rubbers for signs of fatigue, cracking, or wear.

2. Check the inside surfaces of the first gear drum and the second gear clutch drum for scratches and distortion. Replace if necessary.

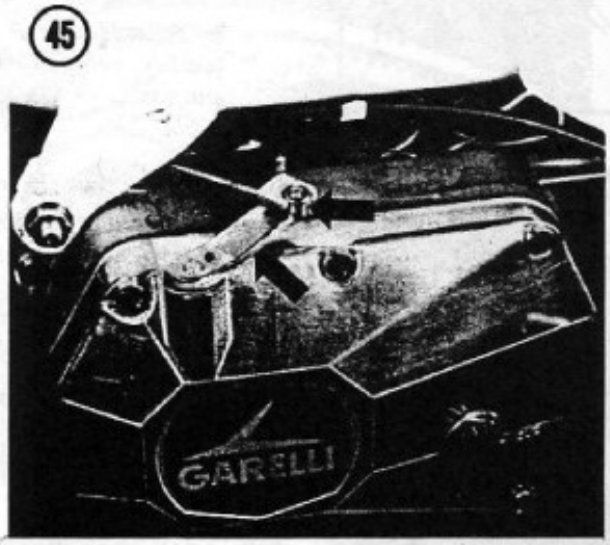
3. Check the pivot pin on the start plate for signs of wear; replace if necessary.

4. Check the 5 coil springs of the clutch center for signs of wear or distortion. Replace all of them if any are bad.

5. Inspect the teeth of the first and second gear. If any of the teeth are damaged or missing, *they must be replaced.*

6. Check the 4 rubber nibs on the lined clutch plate; if they are worn or missing, all 4 must be replaced.

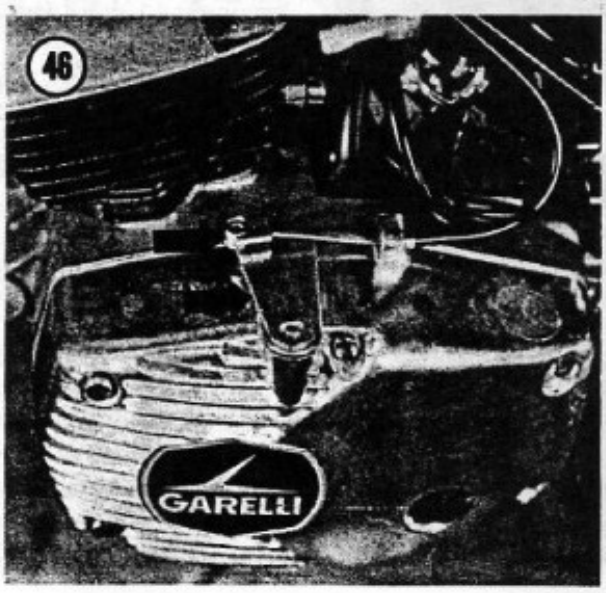
7. Inspect the 2 springs on the ratchets (of the free wheel body); make sure they are not bent; replace if necessary.

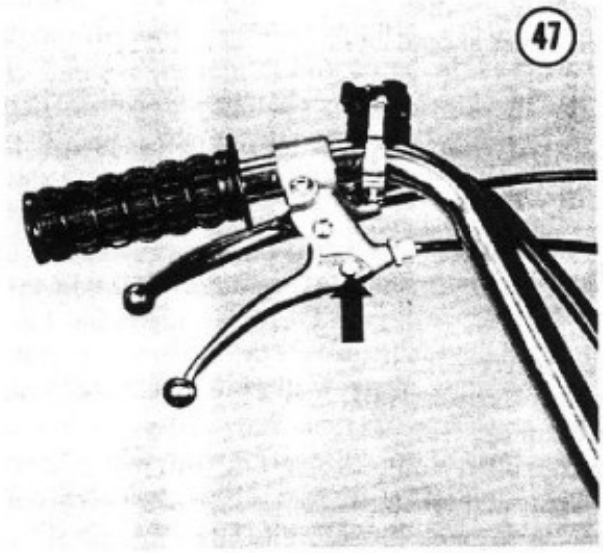


Clutch Start Cable
Removal/Installation

In time, the cable will stretch to the point where it is no longer useful and will have to be replaced.

1. Push in on the clutch start arm (**Figure 45**) or (**Figure 46**) and unhook the end of the clutch cable.





NOTE: *Prior to removal of the cable, make a drawing of the routing of the cable through the frame. It is very easy to forget how it was once it has been removed. Replace it exactly as it was, avoiding any sharp turns.*

2. Pull the hand lever all the way back to the grip, remove the cable nipple holder (**Figure 47**) and remove the cable from the lever.

3. Remove the cable from the frame and replace with the new one.

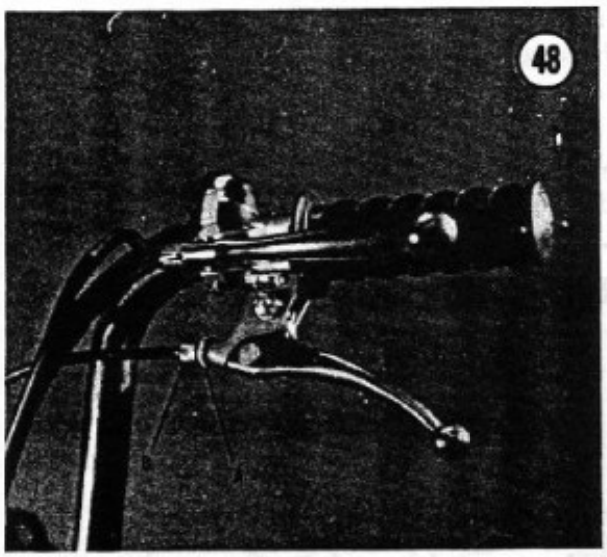
4. Adjust the cable free play as described under *Clutch Start Cable Adjustment* in this chapter.

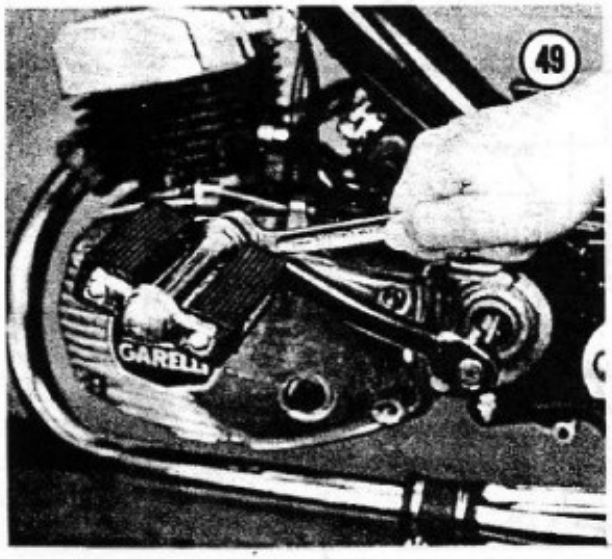
Clutch Start Cable Adjustment

The start cable should be checked periodically to maintain free play. Free play is the distance the start lever travels between the release position and the point when the lever, on the engine cover, engages the clutch mechanism. This should be kept to a minimum.

Adjust free play by loosening the locknut (A) and turn the adjusting barrel (B) clockwise to reduce slack in the cable (**Figure 48**).

If proper adjustment cannot be achieved, the cable will have to be replace. See *Clutch Start Cable Removal/Installation* in this chapter.





PEDALS

A bent or broken pedal is very dangerous. Replace it immediately. To remove the right pedal, use a wrench on the spindle (**Figure 49**) and loosen it *counterclockwise*. On a left pedal, loosen *clockwise*; the left pedal has special left-hand threads.

Take the defective pedal to your dealer. Carefully match the threads with the new pedal to guarantee an exact replacement. The threaded portion must be the same diameter and have the same number of threads-per-inch.

Install the pedal(s) by tightening the right pedal *clockwise* and the left pedal *counterclockwise*.

CRANK ARM

1. Make a cut-out in a hardwood block (**Figure 50**). Set it on a block of wood that is setting on the floor and hold the crankarm in a horizontal position.

2. Remove the nut and washer on cotter pin.

3. Rest the crank on the hardwood block so that the end of the cotter pin is over the cut-out (**Figure 50**). Have someone hold the opposite pedal securely.

4. Rap on the threaded end of the cotter pin with a brass or aluminum rod and a hammer.

NOTE: *It may be necessary to use penetrating oil, like Liquid Wrench or WD-40, on the cotter pin to aid in removal.*

CAUTION

Do not attempt this unless the crank is firmly supported on the hardwood block. If you pound on the cotter pin without support, the bottom bracket bearings will be damaged. In addition, do not hit the cotter pin directly with a metal hammer or steel drift as the threaded end will be damaged.

5. When the cotter pin is loose, remove it.

6. Pull off the crank.

7. Check each crank for straightness by sighting down its length. If bent, replace it with an exact duplicate.

8. Slide the crank(s) onto the axle with the cotter pin hole aligned with the axle slot.

9. Install the cotter pin with a washer and nut. Tighten the nut finger-tight.

10. Support the crank on the hardwood block as in Step 3, except with the threaded end of the cotter pin over the cut-out.

11. Drive the cotter pin in by pounding with a plastic mallet or a hammer and brass or aluminum rod. Two or three blows should be sufficient.

12. Tighten the cotter pin nuts.

13. After about 100 miles, repeat Steps 10 through 12.

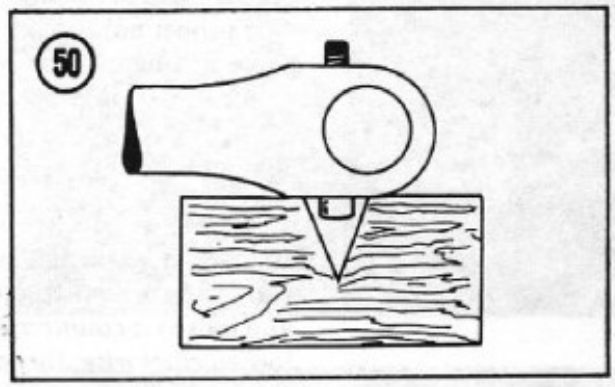
CHAIN

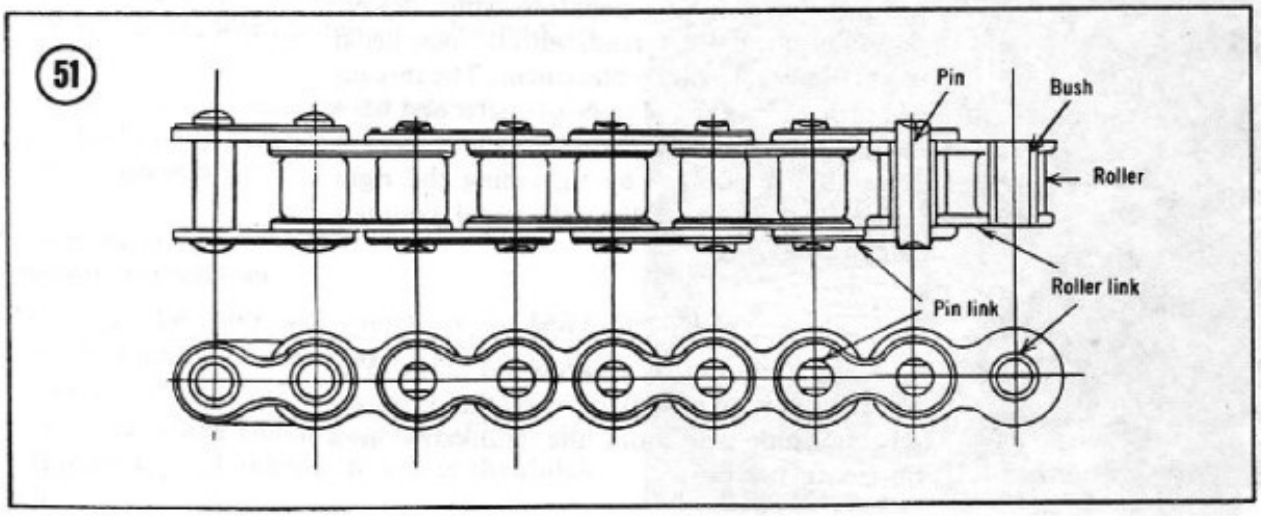
Inspection

The chain is one of the most severely stressed parts of the moped. Inspect the chain carefully whenever it is removed for cleaning. Pay particular attention to cracks in the rollers and pin and link plates (**Figure 51**). Wear on these parts will cause the chain to stretch. As a quick check of chain wear, refer to **Figure 52**. Replace the chain if it can be pulled away from the rear sprocket by more than ½ the length of a link.

Cleaning and Lubrication

Chain removal is accomplished by removing the master link (**Figure 53**). There are master





links on both chains. Removal and installation procedures are the same for both.

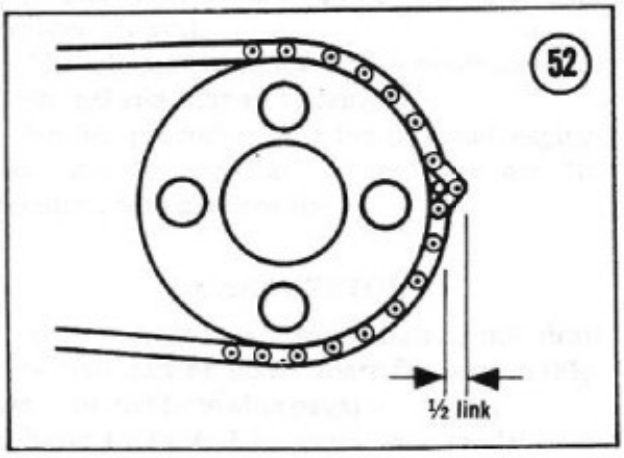
1. Remove the master link outer clip by prying it off with a thin bladed screwdriver.
2. Remove the outside plate and push the inside plate, complete with pins, out through the back of the chain.
3. Remove chain and soak it in cleaning solvent for about 30 minutes, to remove dirt, grease, and old chain oil. Move it around and flex it during this period so that dirt between the pins and rollers may work its way out.
4. Scrub rollers and side plates with a stiff brush, then rinse in clean solvent to carry away loosened dirt.
5. Hang chain and allow to dry thoroughly.
6. Lubricate chain with a good grade of commercial chain lubricant. Follow the lubricant manufacturer's application instructions.
7. Install by reversing the removal steps. Use a new master link clip and install it with the opening facing the opposite direction of chain travel (**Figure 53**). Incorrect installation will result in the loss of the clip and may result in chain breakage.
8. After installation of old or new drive chain, it is necessary to adjust the chain tension as described under *Drive Chain Adjustment* in this chapter. It is also necessary to adjust the rear brakes as described under *Brake Adjustment* in Chapter Nine. There is no adjustment necessary for the bicycle chain.

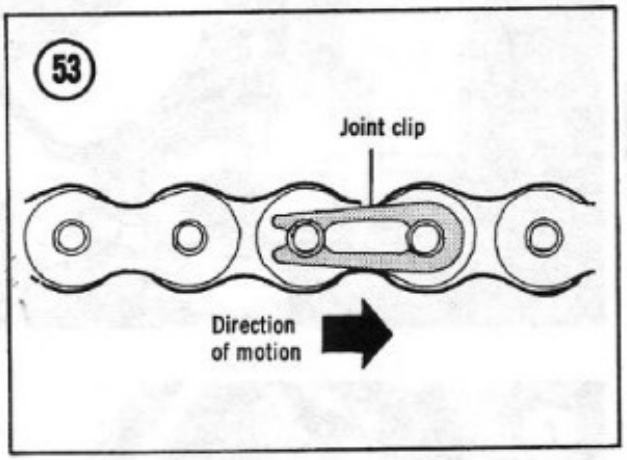
Drive Chain Adjustment

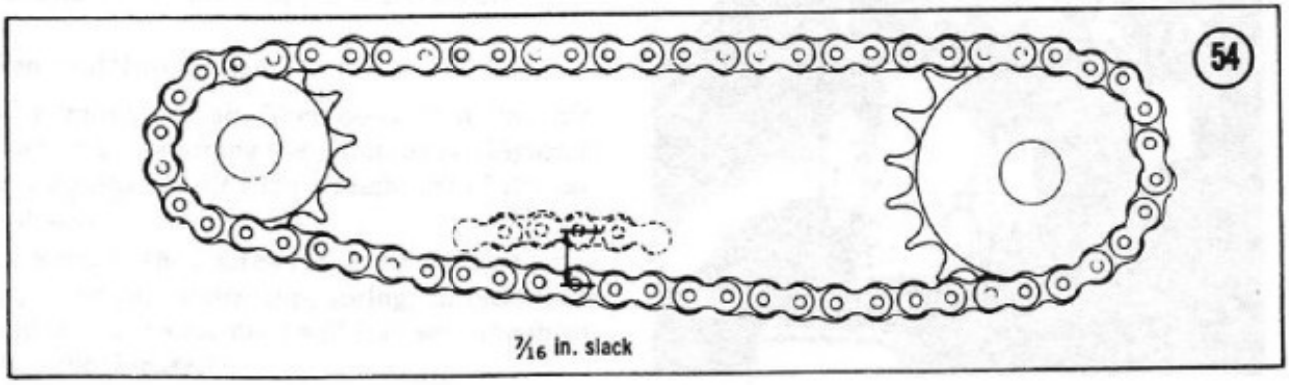
Proper chain tension is important. If the tension is too loose, the chain may skip while traveling at high speed. If tension is too tight, pedaling, engine effort, and chain wear increase.

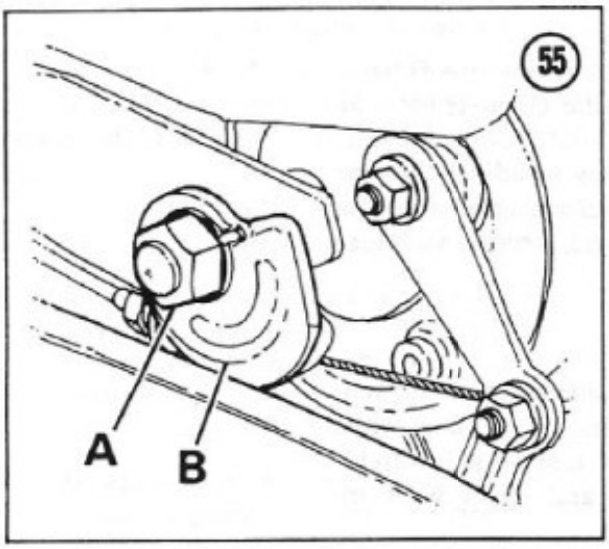
The correct chain tension is measured by pressing up on the bottom of the chain at midpoint. The slack should be 7/16 in. (11mm). See **Figure 54**. If the tension is incorrect use the following adjustment procedure.

1. Loosen the rear axle locknuts (A, **Figure 55**).
2. Turn the adjusting cams (B, **Figure 55**). Turning cams *clockwise* will increase tension and *counterclockwise* will decrease tension.









3. Check to see that the wheel is aligned within the center of the chain stays.
4. Rotate the wheel to make sure the tension in the chain is constant.
5. Tighten the rear axle locknuts securely.
6. Check the rear brake operation as it may have to be adjusted. Refer to *Rear Brake Adjustment* in Chapter Nine.

Crank Axle

In order to gain access for removal of the crank axle it is necessary to remove the engine and split the crankcase.

Refer to *Crankcase Disassembly/Assembly* in Chapter Five.

CHAPTER SEVEN

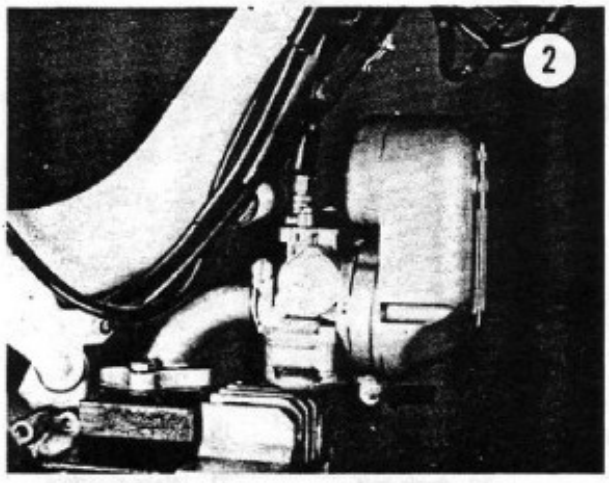
FUEL AND EXHAUST SYSTEMS

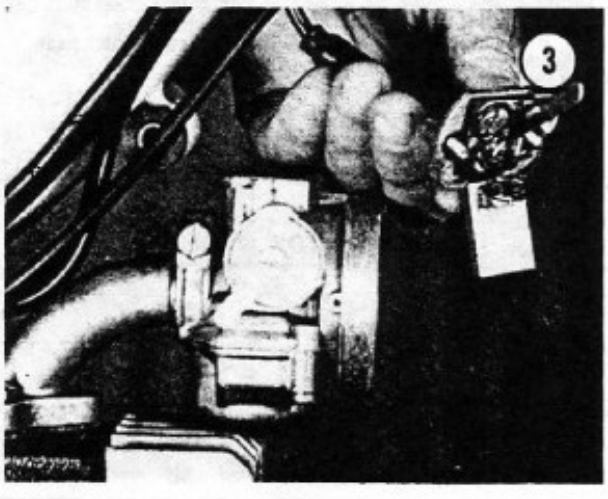
The fuel system consists of the fuel tank, fuel shutoff valve, fuel filter, Dell'Orto carburetor and an air filter.

The exhaust system consists of an exhaust pipe and muffler that can be taken apart for carbon removal.

This chapter includes service procedures for both fuel and exhaust systems.

Service procedures for the different engines are virtually identical. Where there are differences, they are identified.





7

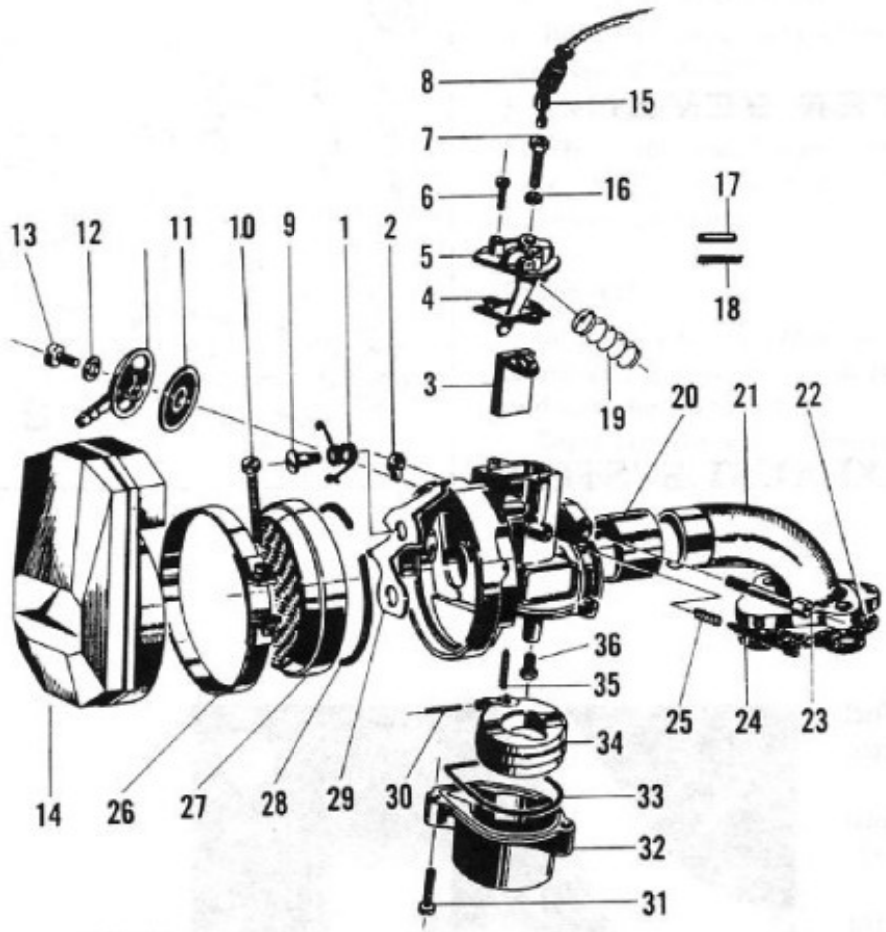
CARBURETOR

The carburetor is a single barrel, side draft type that can be taken apart for service (**Figure 1**, on the following page).

Refer to **Table 1** for carburetor model number and jet size for your particular model.

Removal/Installation

1. Remove the air filter body from the carburetor by loosening the clamp screw (**Figure 2**) and pulling the air filter straight off of the carburetor.
2. Remove the 2 screws securing the carburetor top. The carburetor top, spring, throttle valve and choke release pawl will stay with the throttle cable (**Figure 3**).

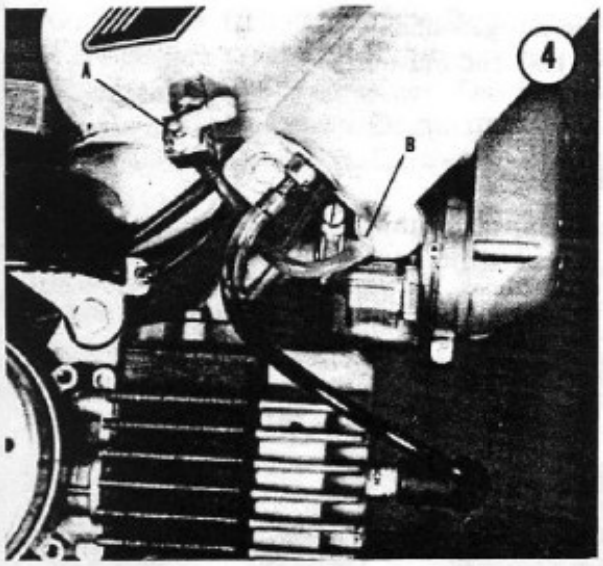


CARBURETOR

1. Choke return spring
2. Nut
3. Throttle slide
4. Gasket
5. Carburetor top
6. Screw (2)
7. Screw — throttle cable
8. Rubber boot
9. Screw
10. Screw
11. Fuel filter
12. Banjo bolt
13. Banjo
14. Air filter body
15. Throttle cable
16. Nut
17. Pivot pin
18. Spring
19. Spring
20. Reducer sleeve
21. Intake manifold
22. Gasket
23. Screw
24. Idle adjust screw
25. Spring
26. Air filter clamp
27. Air filter element
28. Gasket
29. Choke plate
30. Float pivot pin
31. Screw (2)
32. Float chamber
33. Gasket
34. Float
35. Float needle
36. Jet

Table 1 CARBURETOR MODEL NUMBERS

MODEL	Engine Version 17-20 mph	25 mph	30 mph
Carburetor Model Number	Dell'Orto SHA 14/12	Dell'Orto SHA 14/12	Dell'Orto SHA 14/12
Jet Size	48	50	50 or 52



3. Turn the fuel shutoff valve (A, **Figure 4**) to the OFF position and remove the fuel line (B) from the carburetor banjo fitting.

4. Loosen the clamp screw (A, **Figure 3**) securing the carburetor to the intake manifold. Pull carburetor straight forward and off of the manifold.

5. Install by reversing the removal steps.

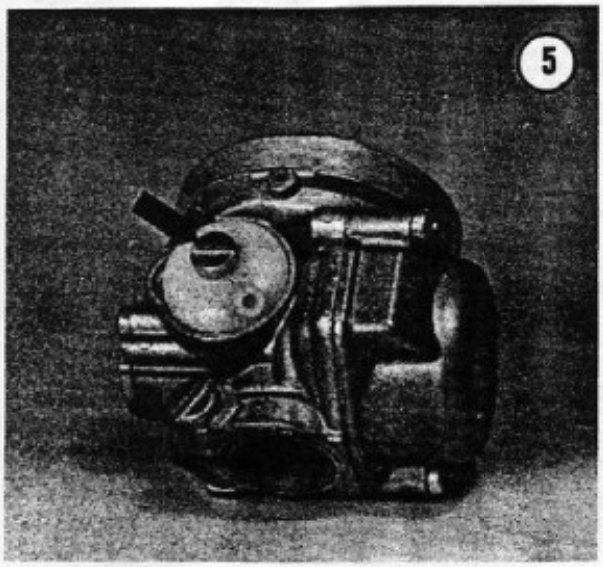
Disassembly/Assembly

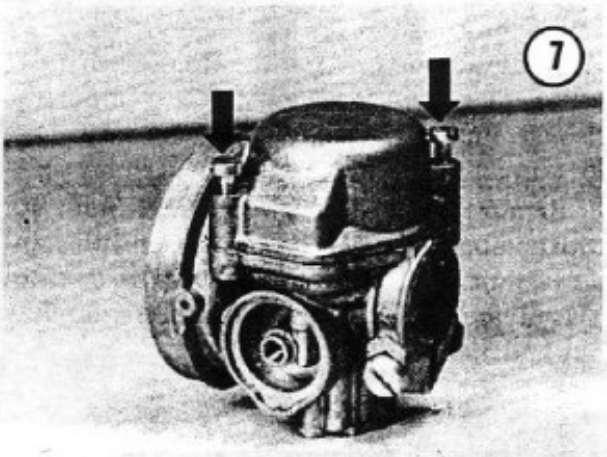
1. Unhook the slide from the throttle cable. Remove the slide, spring, carburetor top and choke release pawl from the throttle cable.

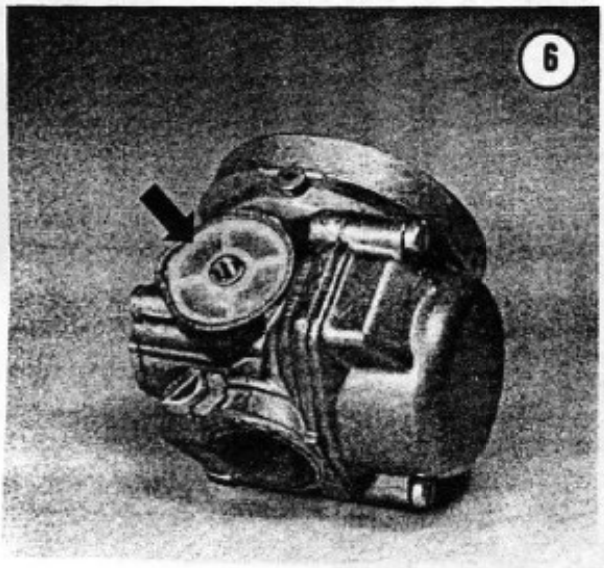
2. Remove the banjo bolt and washer (**Figure 5**) securing the banjo and fuel filter (**Figure 6**) and remove them.

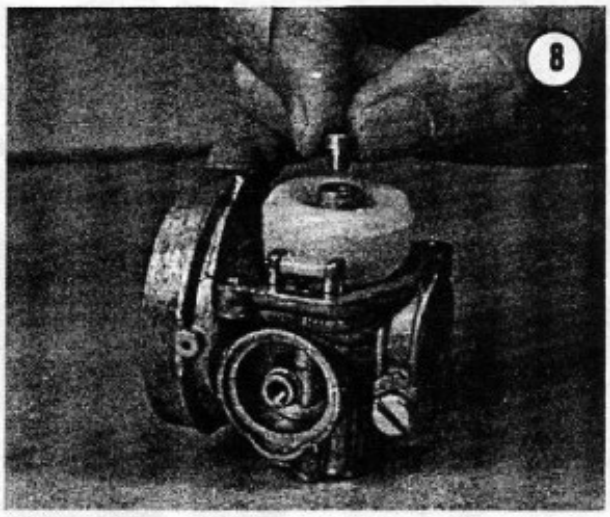
3. Remove the 2 screws (**Figure 7**) securing the float chamber and remove it.

4. Unscrew and remove the jet (**Figure 8**).









5. Slide out the float pivot pin (**Figure 9**) and remove the float and float needle (**Figure 10**).

6. Assemble by reversing the disassembly steps. Use new gaskets.

7. When assembling the banjo fitting, do not tighten it completely until the carburetor has been installed on the engine. Position the banjo so it aligns with the fuel line. The fuel line should have no sharp bends that would allow it to "kink" and shut off fuel flow. Now securely tighten the banjo fitting.

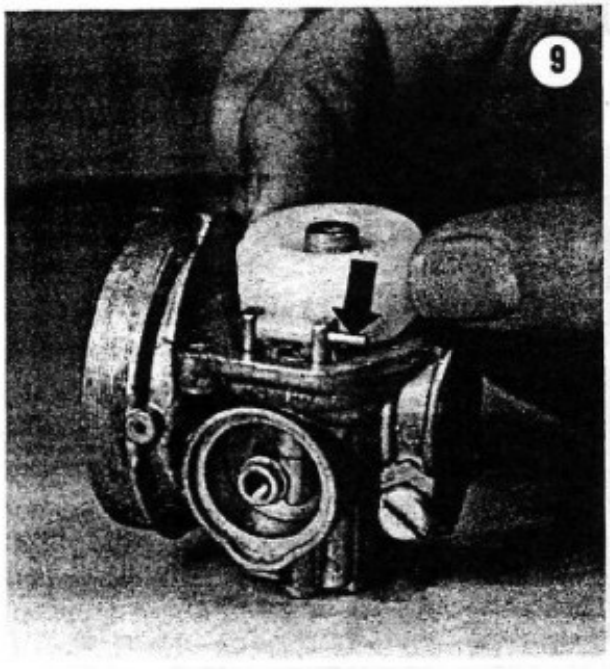
Overhaul

It is difficult to determine exactly how often a carburetor should be overhauled. As a rule of thumb it is a good idea to overhaul the carburetor every time the engine is decarbonized. If your moped is used in dusty conditions the overhaul should be performed more often.

Cleaning

1. Clean all parts except the float, fuel filter, banjo and gaskets in a good grade of carburetor cleaner. Follow the manufacturer's instructions for correct soak time (usually about ½ hour).

2. Remove parts from cleaner and blow dry with compressed air. Blow out the jet with compressed air. Do not use a piece of wire to clean it as minor gouges in the jet can alter the flow rate and upset the fuel/air ratio.



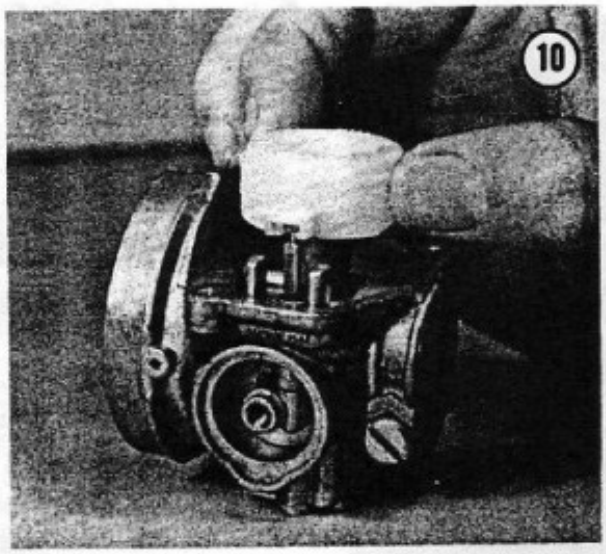
3. Shake the float to see if there is gasoline inside. If there is, the float has a leak and must be replaced.

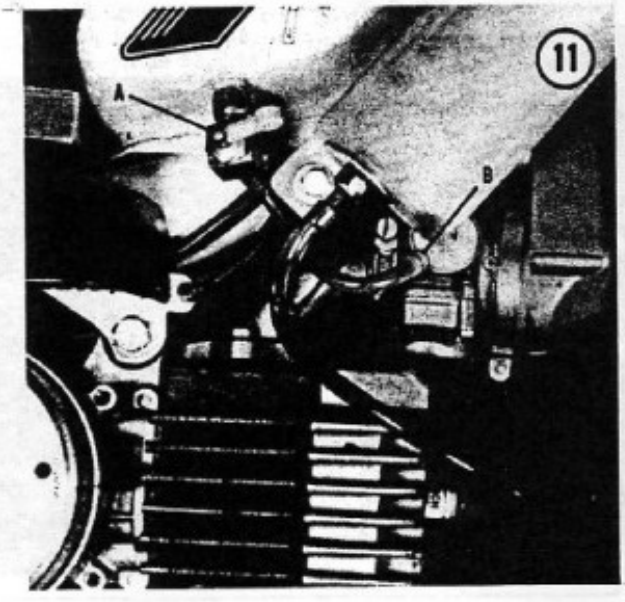
FUEL FILTER

The fuel filter can be removed without removing the carburetor. Unscrew the banjo and remove the banjo and filter. Clean out the filter with a medium soft toothbrush and blow out with compressed air. If filter is cracked or broken it should be replaced.

FUEL SHUTOFF VALVE

1. Turn the shutoff valve to the OFF position (**Figure 11**).

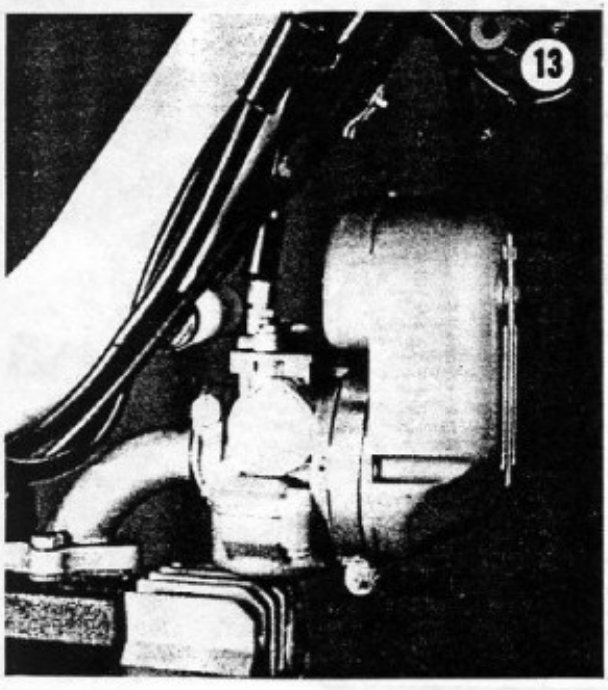




2. Remove the flexible fuel line from the carburetor **(Figure 11)** and place the loose end into a clean, sealable metal container. This fuel can be reused if it is kept clean. Do not drain it into your gasoline can as this fuel already has engine oil added to it.

3. Open the fuel valve to the RESERVE position and remove the fuel fill cap. This will allow air to enter the tank and speed up the flow of fuel. Drain the tank completely.

4. Remove the fuel shutoff valve by unscrewing the fitting from the tank **(Figure 12)**.



5. After removing the valve, insert a corner of a clean shop rag into the opening in the tank to stop the dribbling of fuel onto the frame.

6. Clean out the filter with a medium soft toothbrush and blow out with compressed air. Replace if any part is defective.

7. Install by reversing the removal steps, do not forget the gasket.

AIR FILTER

CAUTION

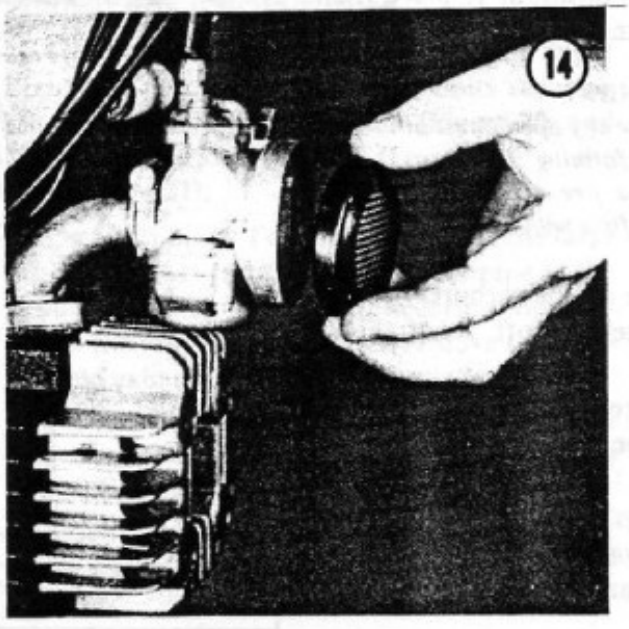
Do not ride the moped without the air filter installed. Damage may occur to the carburetor and/or the engine if any small objects are drawn into the carburetor throat.

1. Remove the air filter from the carburetor by loosening the clamp screw **(Figure 13)** and pulling the air filter straight off of the carburetor.

2. Pull the air filter element from the throat of the carburetor **(Figure 14)**.

3. Wash out the element in cleaning solvent and dry thoroughly with compressed air or tap vigorously into a dry clean cloth until all of the cleaning solvent is out. After it is thoroughly dry, apply some light weight oil to it. Do not saturate it as it will restrict the air flow and pull the excess oil into the carburetor.

4. Wash the inside and outside of the air filter body in cleaning solvent and thoroughly dry with a clean lint-free cloth.



5. Install by reversing the removal steps. Install the air filter element with the angled side out **(Figure 15)**.

FUEL TANK

Prior to removal of the fuel tank it is necessary to drain it completely.

NOTE: *There are two different tank configurations used on the Garrelli. The Eureka, Sport and Gran Sport shown in the following procedure, have their tanks mounted at an angle as they are used with the step-through type frame. On the Super Sport XL, the tank is mounted similar to a motorcycle in a horizontal format. There are only slight differences in removal and installation as noted in the following procedure.*

1. Turn the fuel shutoff valve **(Figure 16)** to the OFF position and remove the fuel line from the carburetor.
2. Place the loose end of the fuel line into a metal can that can be sealed.

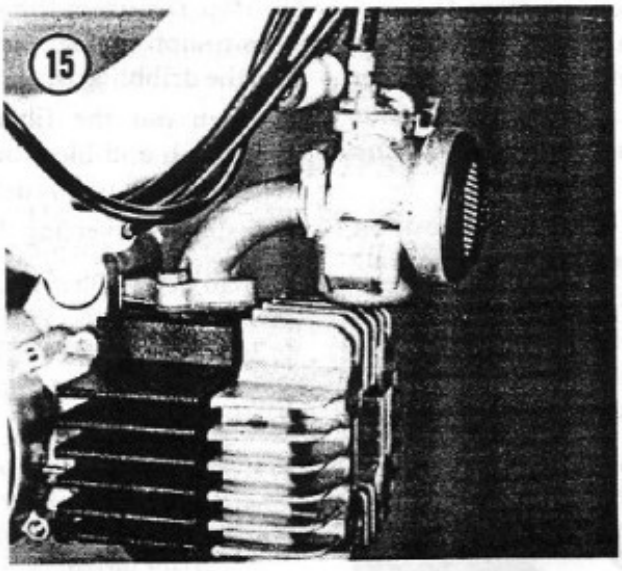
NOTE: *Do not put it into your gasoline can as this fuel already has oil added.*

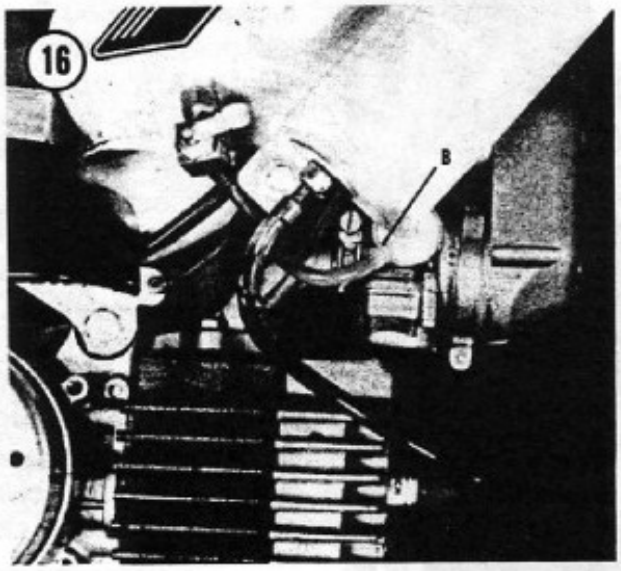
3. Remove the fuel tank fill cap, turn the shutoff valve to the RESERVE position and drain the fuel.
4. After draining is completed, turn the fuel shutoff valve to the OFF position. Replace the fuel fill cap and seal the metal container.

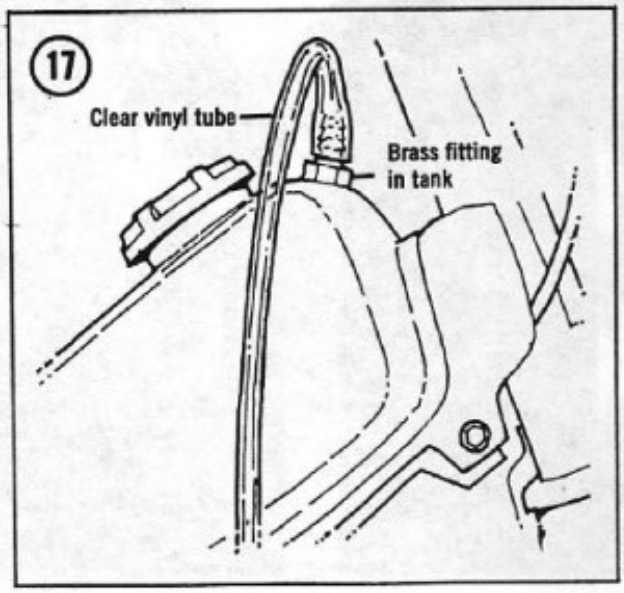
WARNING

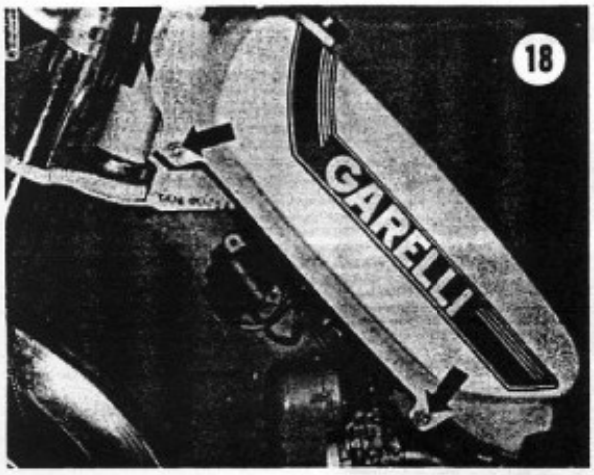
Do not smoke or have any open flame in the area while performing this procedure. Also have a fire extinguisher suitable for gasoline fires within reach.

5. Reinstall the fuel line on the carburetor and remove it from the fuel shutoff valve **(Figure 16)**.
6. Remove the oil injector line from the fitting **(Figure 17)** on top of the tank. Do not remove the fitting.
7. On Eureka, Gran Sport and Sport models remove the 2 bolts, washers and nuts **(Figure 18)** securing the tank to the frame and remove the tank.









8. On Gran Sport Twin models remove the upper bolt, washer and nut (**Figure 19**). Slide the tank forward and upward to clear the tab holding the lower part of the tank to the frame.

9. On Super Sport XL models it is necessary to remove the seat first. Remove the 2 bolts, washers, lockwashers and nuts at the rear of the seat. Pull the seat to the rear and remove.

10. Remove the bolt, washer, spacer, bushing, lockwasher and nut at the rear of the tank. Pull the tank to the rear and remove.

11. After removal, pour a small quantity of clean gasoline into the empty tank and slosh it around. Remove the fill cap, then pour it out. If any sediment comes out, continue this procedure with fresh gasoline until it drains out clean.

12. If there is a leak in the tank, take it to your dealer and have the problem corrected. Do not attempt this yourself.

EXHAUST SYSTEM

The muffler is a very important part of the 2-cycle engine in regard to operating performance. It must be cleaned periodically to remove the normal carbon buildup. This is described under *Muffler Decarbonizing* in Chapter Three.

7

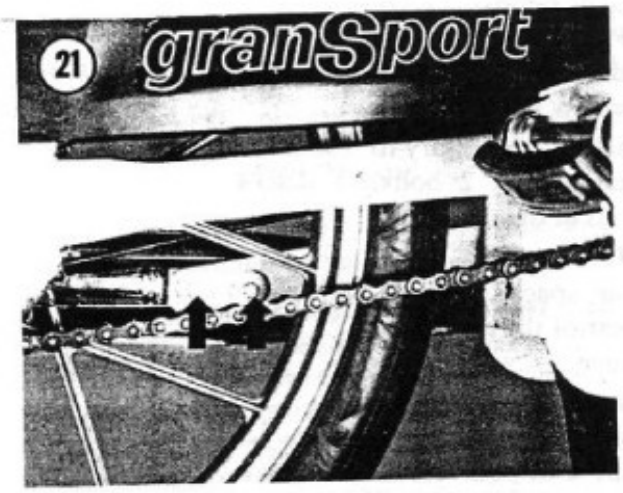
Muffler/Removal/Installation

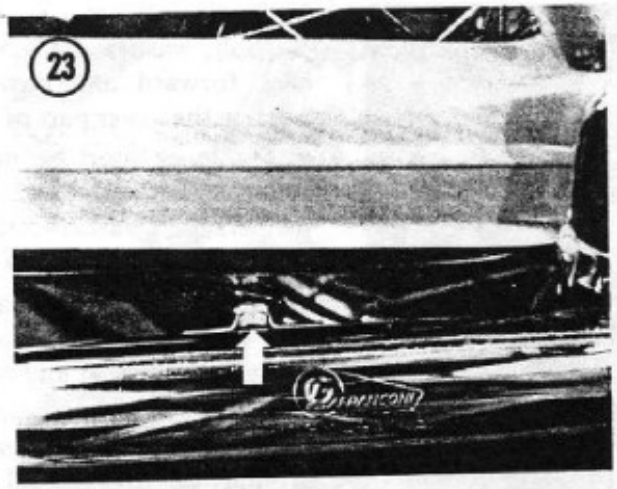
1. On Eureka, Gran Sport, Sport and Super Sport XL models remove the 2 bolts securing the exhaust pipe to the cylinder (**Figure 20**) and remove the 2 bolts securing the muffler at the rear (**Figure 21**).

2. On Gran Sport Twin model remove the large nut (**Figure 22**) securing the exhaust pipe to the cylinder. Remove the 2 bolts securing the muffler at the rear (**Figure 23**) and remove the muffler and exhaust pipe.

3. Separate the exhaust pipe and the muffler by loosening the screws on the clamp (**Figure 24**) and pulling exhaust pipe out from muffler.

4. Install by reversing the removal steps, using a new gasket between the exhaust pipe and the cylinder.


21
granSport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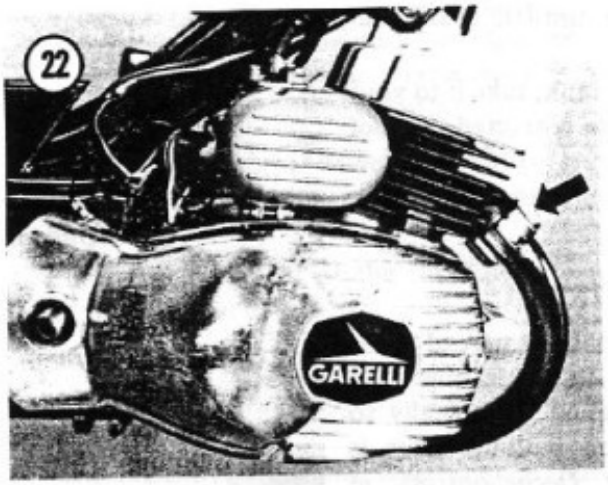
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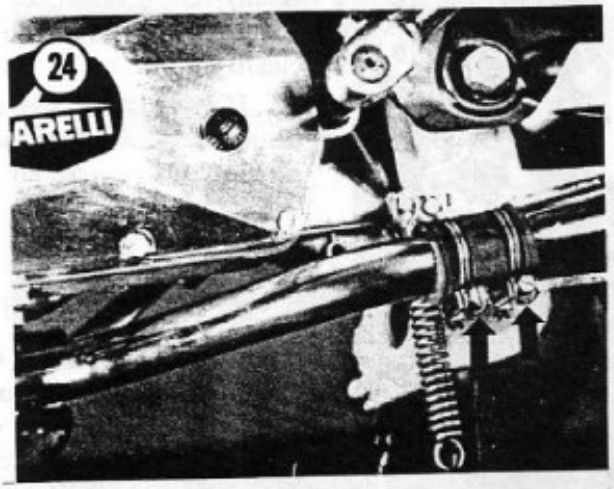
GARELLI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ARELLI

CHAPTER EIGHT

ELECTRICAL SYSTEM

This chapter discusses the operating principles and maintenance of the ignition and lighting systems.

Service procedures for these systems for the different engines are virtually the same. Where there are differences, they are identified.

MAGNETO

The engine-mounted magneto generates electricity for the lights and spark plug. It works similar to a generator or alternator on an automobile, but is more compact and is attached directly to the engine (**Figure 1**).

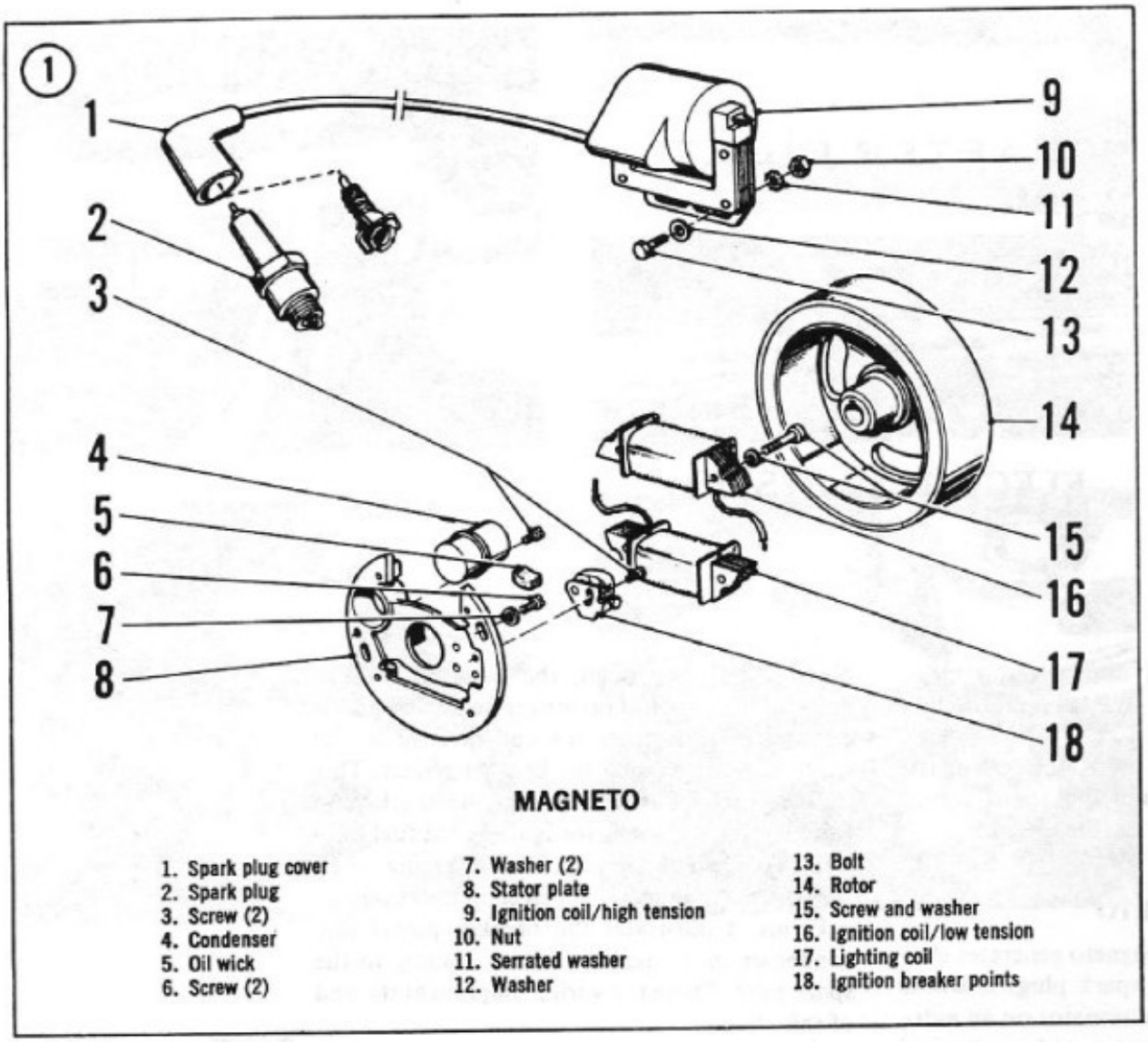
The stator is stationary and consists of two coils of specially wound wire attached to the engine crankcase. The rotor has built-in permanent magnets which rotate with the engine crankshaft. As the magnets move past the stationary coils they induce a voltage within these coils which powers the lights, horn and spark plug.

The ignition breaker points, in the magneto, are used to regulate current flow from the ignition coil to the spark plug, at just the right time, when the piston reaches firing position. (This is magneto ignition timing. Timing procedures are covered in Chapter Three, under *Tune-up*.) When the breaker points are closed the current is grounded, thus no current flows to the spark plug. When they open, the current that has built up in the coil is no longer grounded and is allowed to flow from the coil directly to the spark plug, bypassing the breaker points. This sudden burst of current jumps the spark plug gap creating the spark for igniting the fuel mixture. To prevent the points from arcing when they open, a condenser is placed in the circuit.

Figure 2 illustrates the breaker points and condenser in the ignition circuit leading to the spark plug. There is a wiring diagram at the end of this chapter.

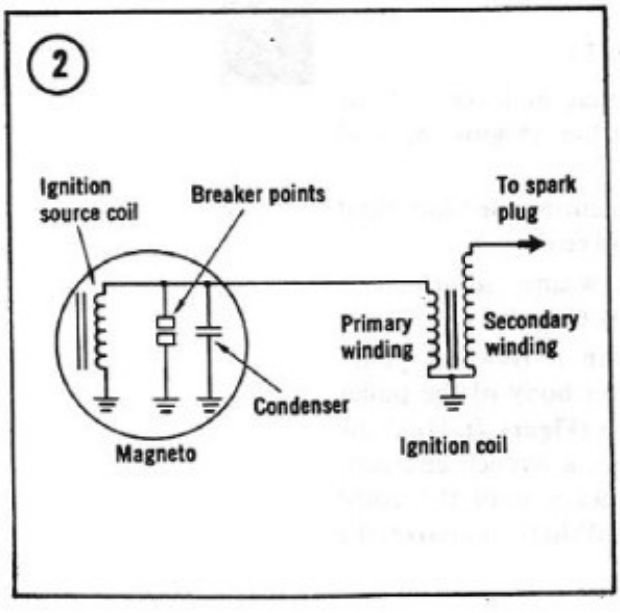
Removal (Eureka, Sport, Gran Sport, Super Sport XL)

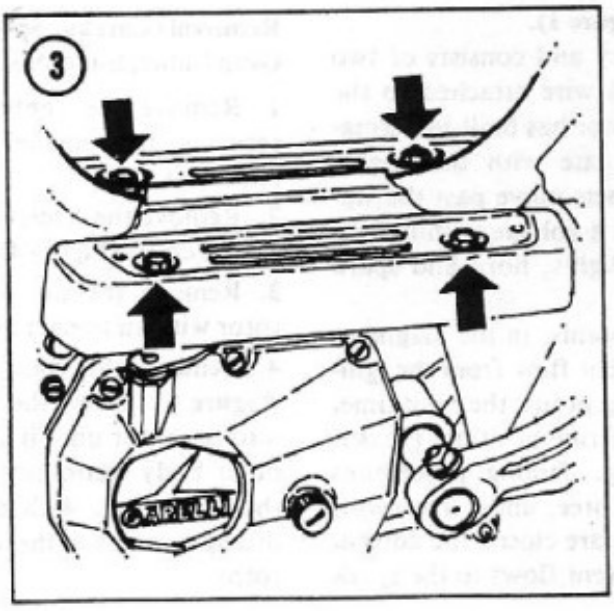
1. Remove the rubber mat and the 4 bolts securing the engine fairing (**Figure 3**) and remove it.
2. Remove the 4 screws securing the right-hand engine cover (**Figure 4**) and remove it.
3. Remove the nut and washer securing the rotor with an impact driver (**Figure 5**).
4. Remove the rotor with a flywheel puller (**Figure 6**). Screw the outer body of the puller into the rotor until it stops (**Figure 7**). Hold the outer body stationary with a wrench and turn the inner bolt with a socket until the rotor disengages from the crankshaft. Remove the rotor.

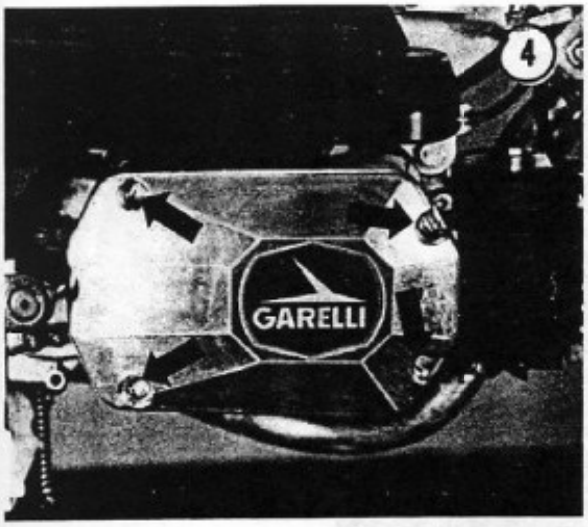


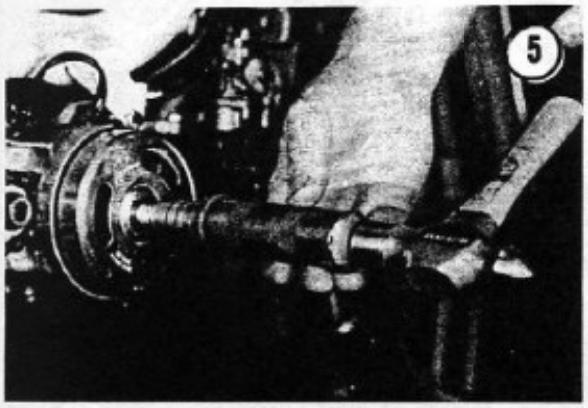
MAGNETO

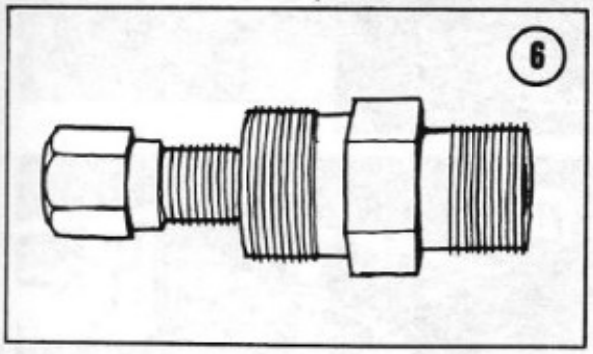
1. Spark plug cover
2. Spark plug
3. Screw (2)
4. Condenser
5. Oil wick
6. Screw (2)
7. Washer (2)
8. Stator plate
9. Ignition coil/high tension
10. Nut
11. Serrated washer
12. Washer
13. Bolt
14. Rotor
15. Screw and washer
16. Ignition coil/low tension
17. Lighting coil
18. Ignition breaker points







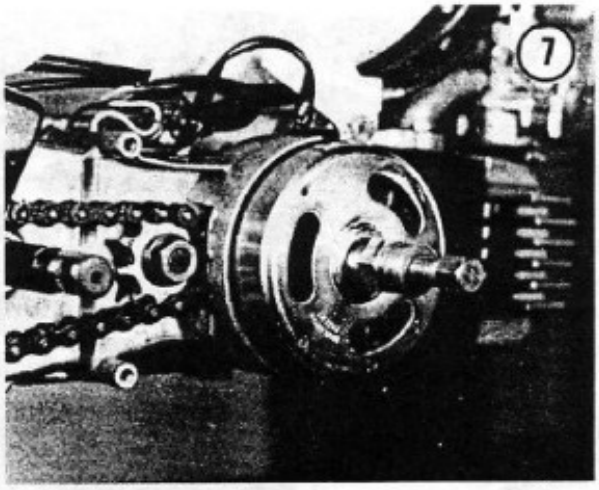


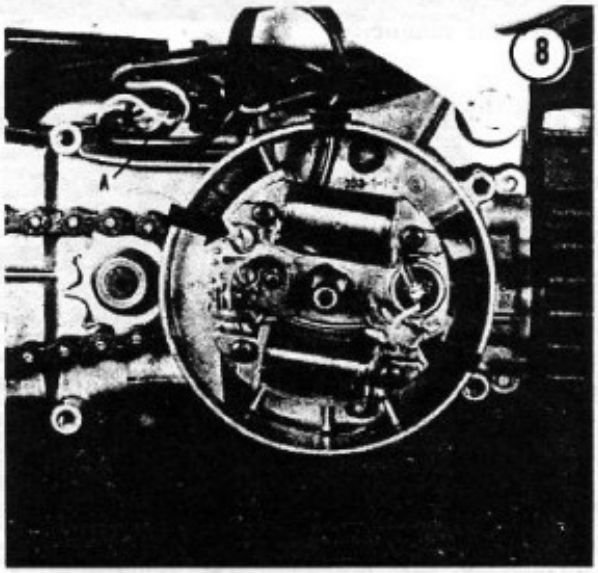


5. Remove the 2 machine screws and lockwashers securing the stator to the crankcase (**Figure 8**).

6. Remove all 3 magneto electrical wires from the terminal connector (A) located above the magneto (**Figure 8**).

7. Slide the rubber grommet that surrounds the electrical wires where they enter the magneto out from magneto housing, along with the wires, and remove the stator.





8. Install by reversing the removal steps. Be sure that grommet is securely in place and that none of the wires are pinched between the stator and the magneto housing. Use an impact driver for the final tightening of the rotor nut. If a torque wrench is used, torque nut to 12 ft.-lbs. (16.3 N•m).

9. Be sure to reconnect the electrical wires in the same location in the terminal connector. Refer to the electrical diagram at the end of this chapter if you have any questions.

Removal (Gran Sport Twin)

1. Remove the 2 screws (**Figure 9**) securing the step plate and remove it.

2. Remove the screw (**Figure 9**) securing the right-hand engine fairing and remove it.

3. Remove the right-hand crank arm as described under *Crank Arm Removal/Installation* in Chapter Six.

4. Remove the 3 screws (**Figure 10**) securing the engine/magneto cover and remove it.

5. Remove the nut and washer (**Figure 11**) securing the rotor with an impact driver.

6. Remove the rotor with a flywheel puller (**Figure 6**). Screw the outer body of the puller into the rotor until it stops (**Figure 12**). Hold the outer body stationary with a wrench and turn the inner bolt with a socket until the rotor disengages from the crankshaft. Remove the rotor.

7. Remove all 3 magneto electrical wires from the terminal block located above the magneto (**Figure 13**).

8. Remove the 3 screws securing the stator to the crankcase (**Figure 14**).

9. Slide the rubber grommet that surrounds the electrical wires where they enter the magneto out from the magneto housing, along with the wires, and remove the stator.

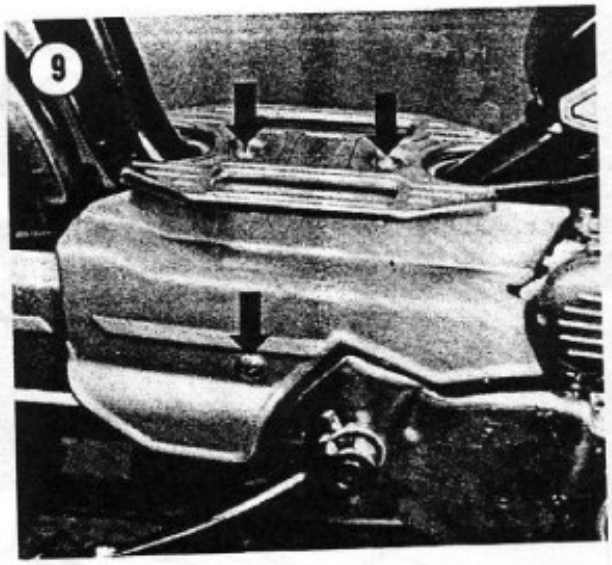
10. Remove the adaptor ring (**Figure 15**).

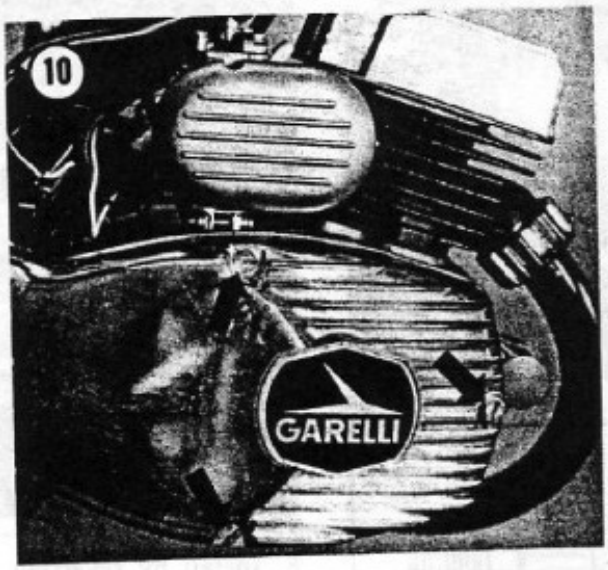
11. Install by reversing the removal steps. Be sure to install the adaptor ring as shown in **Figure 15**. Be sure that the grommet is securely in place and that none of the wires are pinched between the stator and the magneto housing.

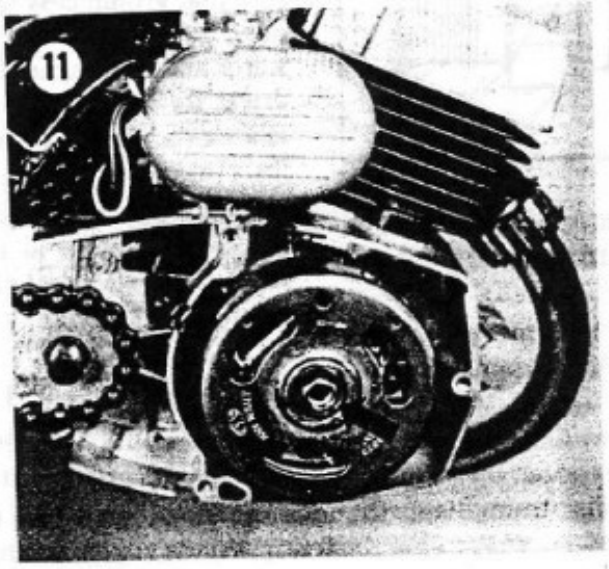
12. Install the nut, securing the rotor, with an impact driver or a torque wrench. Torque the nut to 12 ft.-lb (16.3 N•m).

NOTE: *To prevent the rotor from rotating while tightening the nut, use a strap wrench (Figure 16).*

13. Be sure to reconnect the electrical wires in the same location in the terminal block. Refer to the electrical diagram, at the end of this chapter, if you have any questions.



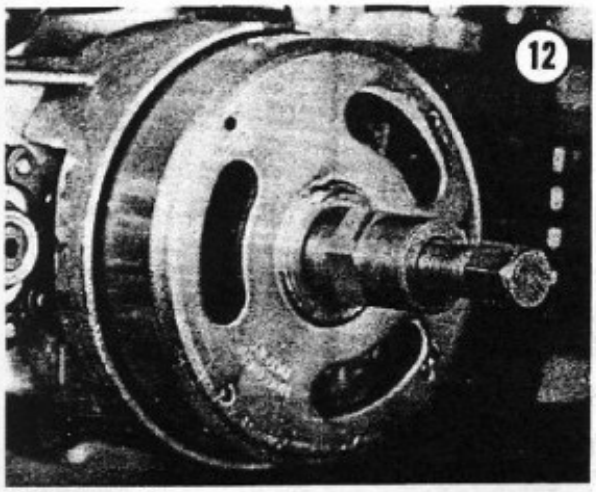




Breaker Points

1. Remove the magneto rotor as described under *Magneto Removal/Installation* in this chapter.

2. Remove nut (A) attaching electrical terminal and screw (B) securing point assembly to stator (**Figure 17**).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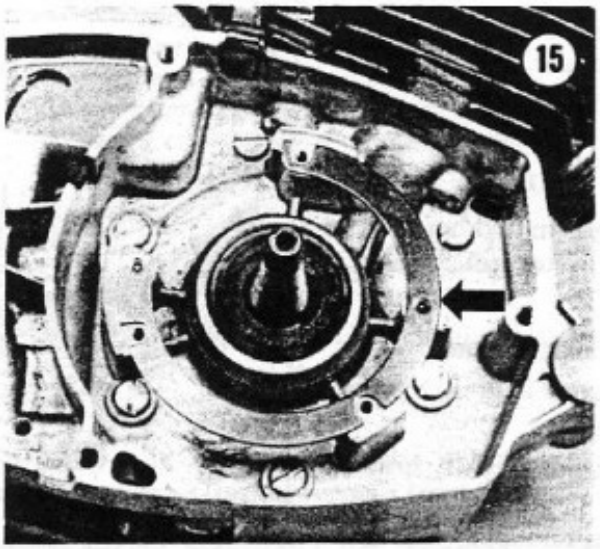
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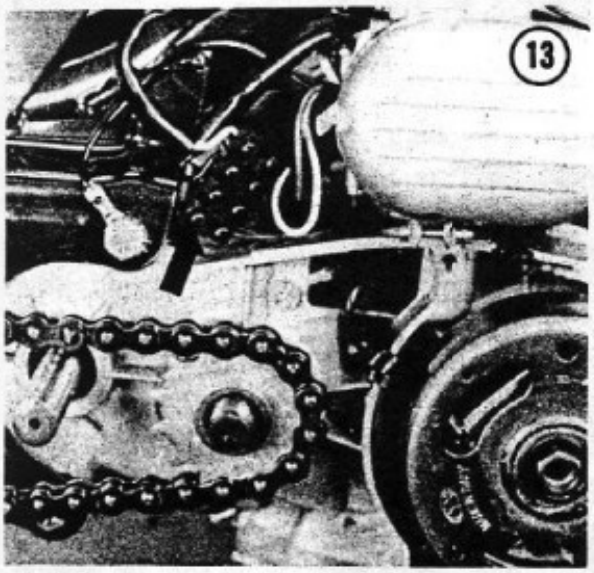
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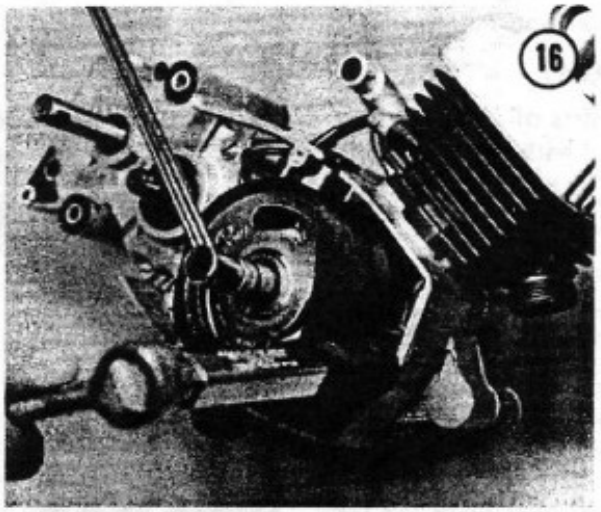
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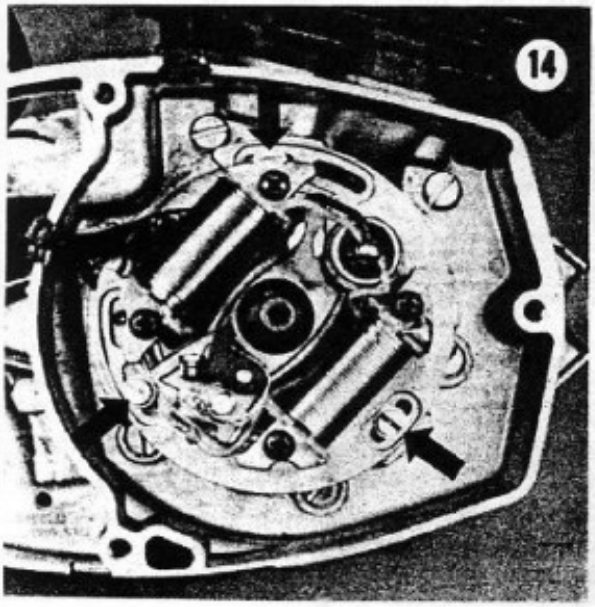
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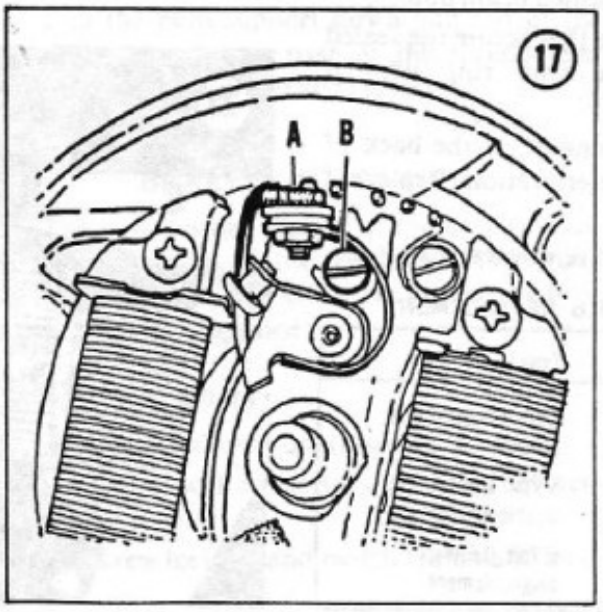

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3. Install by reversing the removal steps and adjust timing as described under *Magneto Ignition Timing* in Chapter Three.

ELECTRICAL SYSTEM

Power for the lighting system is provided by the magneto. The electrical system consists of:

a. Headlight
b. Taillight/brakelight combination
c. Speedometer illumination light
d. Horn
e. Switches for the ignition, lights, brakes and horn.

Table 1 lists the bulb specifications for replacement.

HEADLIGHT

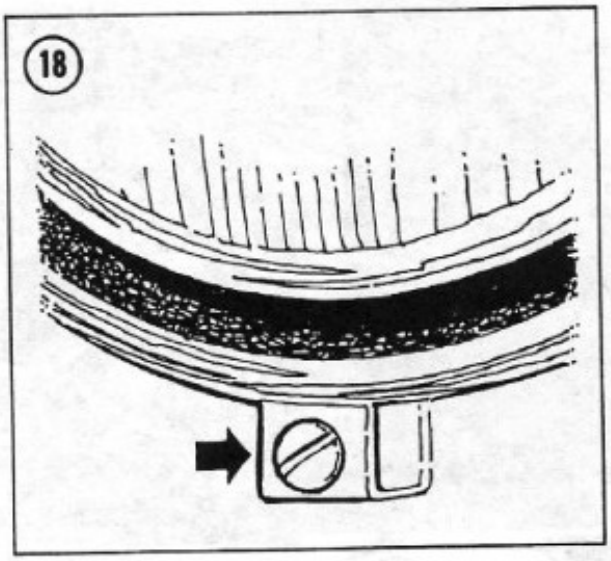
The headlight unit consists of a lamp housing, chrome trim bezel, lens with reflector, bulb holder and 20 watt bulb. The headlight switch is located on the left side of the handlebar.

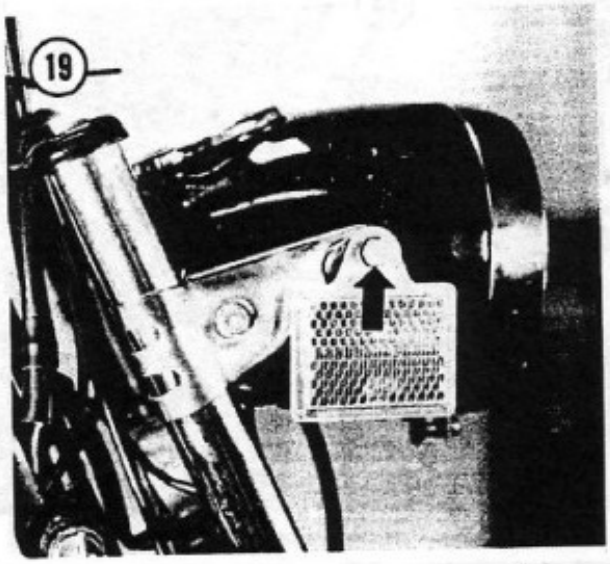
Replacement

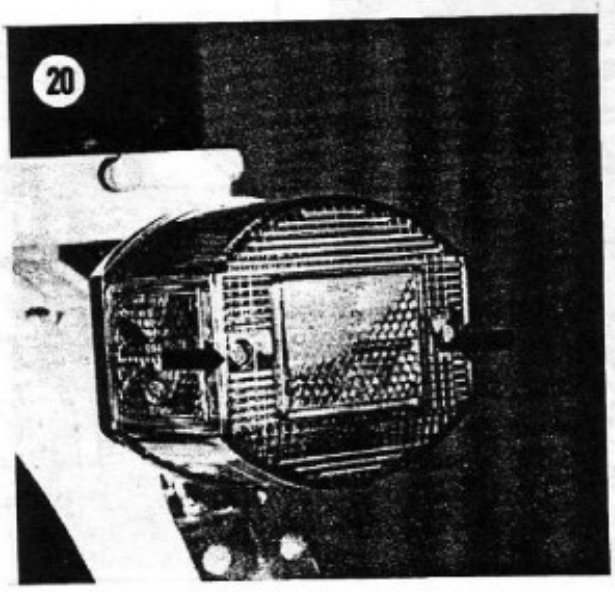
1. Remove screw at bottom of chrome trim bezel (**Figure 18**).
2. Pull out on the bottom of the lens and chrome trim bezel and pull up and away from the base.
3. Disconnect the electrical wire from the terminal on the back of the sealed beam bulb.
4. Remove retaining clips that secure the sealed beam into the chrome trim ring with a screwdriver.
5. Check the rubber grommet, at the back of the base, for cracks or deterioration. Replace if necessary.
6. Install by reversing the removal steps.

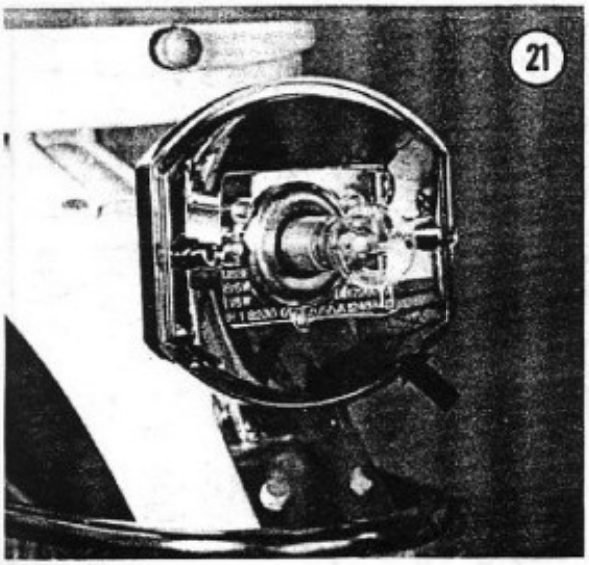
Table 1 LIGHT BULB REPLACEMENT

Light	Type
Headlight	Sealed beam 6 Volt, 20 Watt
Taillight/brakelight	6 Volt, 5 and 8 Watt double element
Speedometer	6 Volt, 0.6 Watt single element









Adjustment

This procedure is best accomplished at night or at dusk.

1. On a garage door or flat wall, stick a 12 inch piece of masking tape, horizontally, 19¼ inches up from the ground.
2. Place the moped so the front of the headlight is 33 feet back from this surface and pointed directly at it.
3. *Sit on the moped with the centerstand raised.*
4. Turn the headlight on. It should hit directly on this line. If not, loosen the adjusting bolts (**Figure 19**), one on each side of the headlight, and rotate the light assembly with your hands until it is correct.
5. Tighten the adjusting bolts securely.

TAILLIGHT/BRAKELIGHT

1. Remove the 2 lens attachment screws (**Figure 20**), and remove the lens.
2. Push the bulb in slightly and twist it counterclockwise and remove.
3. If necessary clean the 2 contact points, at the base of the bulb socket, with a small piece of 180 grit sandpaper wrapped over the end of a pencil.
4. Wash out the inside and outside of the lens with a mild detergent and wipe dry.
5. Wipe off reflective base surrounding the bulb with a soft cloth (**Figure 21**).

CAUTION

This part is chrome-plated plastic — do not use an abrasive to clean it, as it will scratch and dull the surface, thus reducing the effectiveness of the taillight and brakelight.

6. Check the sealing gasket and rubber grommet for cracks or deterioration. Replace if necessary.
7. Install by reversing the removal steps; be sure to install the gasket.

SPEEDOMETER ILLUMINATION LIGHT

The bulb illuminates the speedometer for night use. It is turned on with headlight. The speedometer is built into the headlight housing on models except the Super Sport XL.

Replacement (Eureka, Sport, Gran Sport, Gran Sport Twin)

1. Remove screw at bottom of headlight trim bezel (**Figure 18**).
2. Pull out on the bottom of the lens and chrome trim bezel and pull up and away from the base.
3. Pull the speedometer bulb support down and out of the bulb housing. Remove the bulb and replace.

Replacement (Super Sport XL)

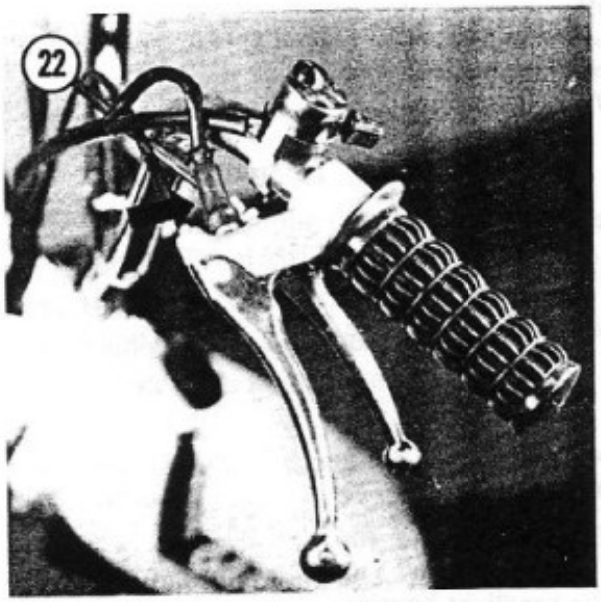
Pull the bulb support down and out of the bulb housing in the base of the speedometer housing. Remove bulb and replace.

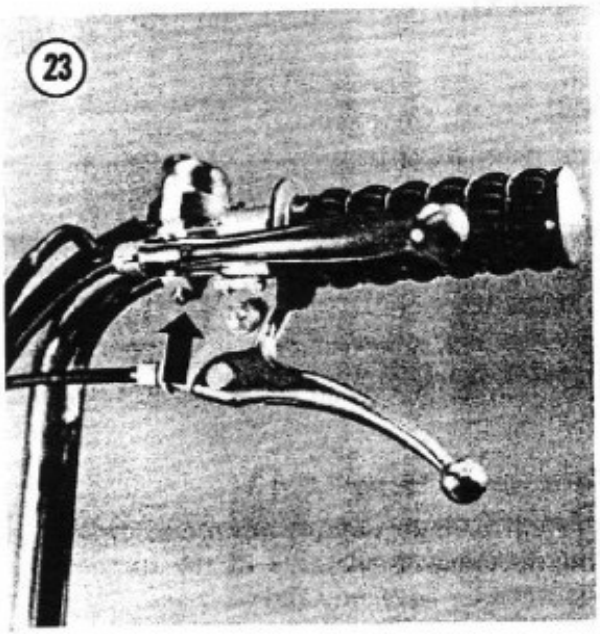
BRAKELIGHT SWITCH

The switches are located at the base of each brake hand grip on the handlebar. The brake light will go on when either the front or rear or both brakes are applied.

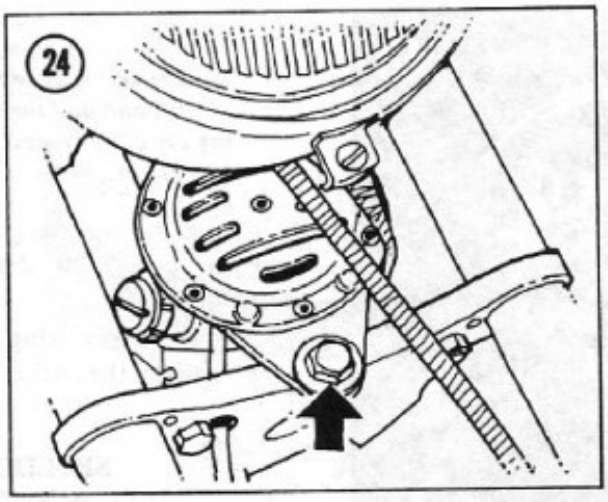
Removal/Installation

1. Pull back rubber boot (**Figure 22**).
2. Pull electrical connectors off of switch terminals.
3. Unscrew locknut and switch from hand lever base.





4. Install by reversing the removal steps. Make sure the switch is screwed in all the way before tightening the locknut. If rubber boot is deteriorated it should be replaced at this time.



HEADLIGHT, HORN AND CUTOFF SWITCHES

Remove the screw on the underside of the clamp securing the clamp to the handlebar **(Figure 23)**. Remove switch and electrical wires. Prior to removal make a drawing of the routing of the wires through the frame. It is very easy to forget how it was once they have been removed. Replace them exactly as they were. Do not allow any electrical wires to come in contact with the engine as the heat will melt the insulation and eventually short out the wire.

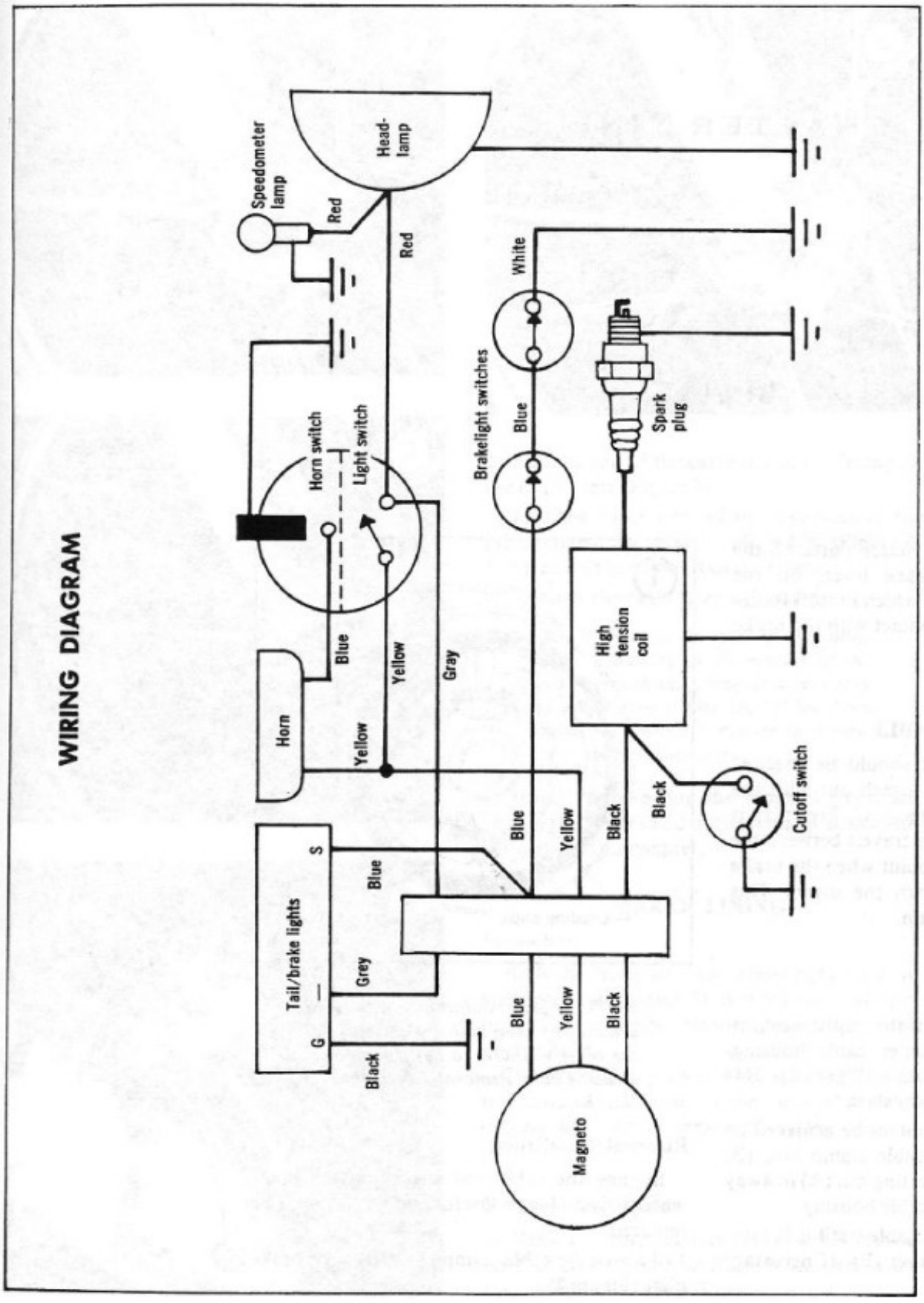
HORN

The horn operates on electricity supplied by the magneto and operated by the horn button located by the left hand grip.

Removal/Installation

Remove the 2 electrical connections from the terminals on the horn. Remove bolt and nut securing horn bracket to the frame **(Figure 24)** and remove. Install by reversing the removal steps and make sure the electrical connections do not touch any metal parts.

WIRING DIAGRAM



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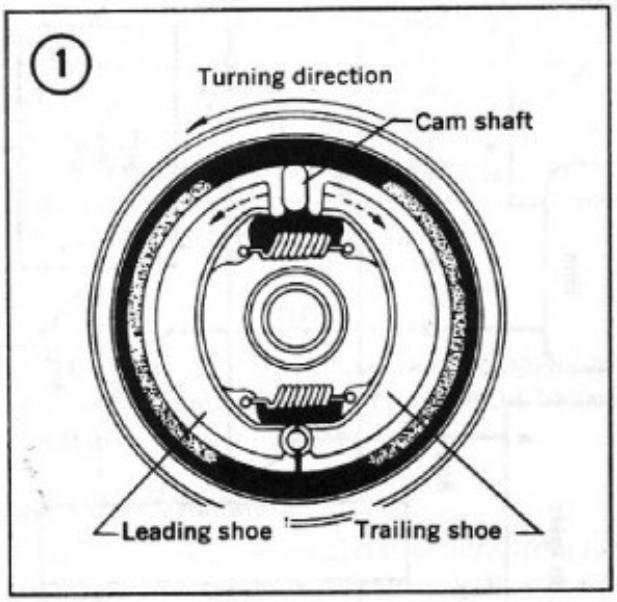
CHAPTER NINE

BRAKES

Figure 1 illustrates the major parts of the brakes. Squeezing the brake lever, on the handlebar, rotates the cam which in turn forces the brake shoes out into contact with the brake drum.



BRAKE CABLE

Brake cable adjustment should be checked periodically as the cables stretch out with use and increase brake lever free play. Free play is the distance the brake lever travels between the released position and the point when the brake shoes come in contact with the drum. This should be kept to a minimum.

Adjustment

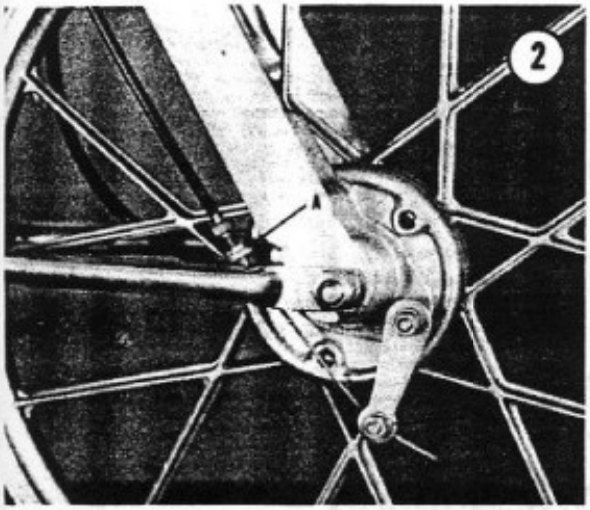
1. At the brake plate, turn the adjustment nut (A) at the end of the outer cable housing, toward the end of the housing (**Figure 2**). This should take out the necessary slack.
2. If proper adjustment cannot be achieved by this method, loosen the cable clamp bolt (B, **Figure 2**) and turn the adjusting nut (A) *in* away from the end of the outer cable housing.
3. Pull on the end of the cable until it is taut. Tighten the cable clamp bolt (B). If necessary repeat Step 1.

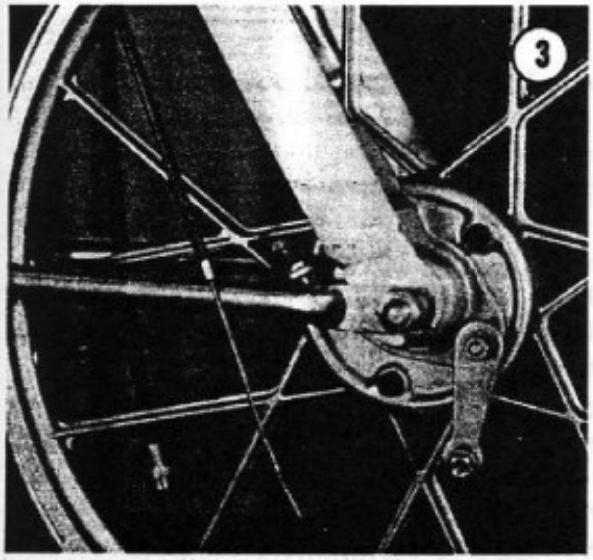
NOTE: *If proper adjustment cannot be achieved by using **both** of these methods the cable will have to be replaced. See **Brake Cable Removal/Installation** in this chapter.*

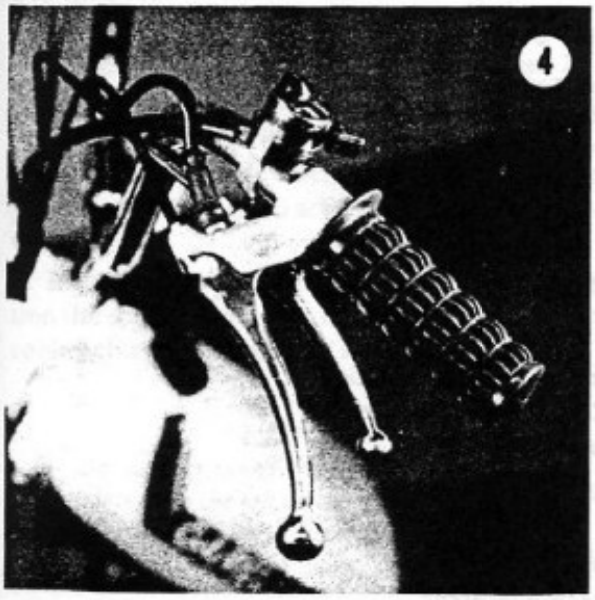
Removal/Installation

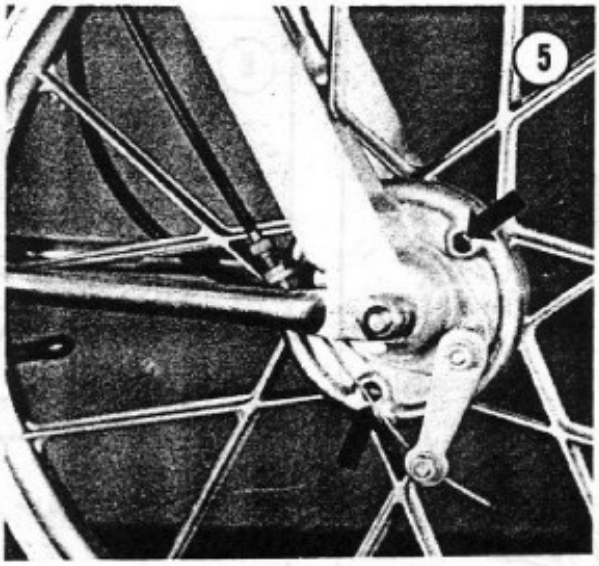
In time the cable will stretch to the point where it is no longer useful and will have to be replaced.

1. Loosen the cable clamp bolt (B) at the brake plate (**Figure 2**).









2. Slip the end of the cable out of the fitting on the brakeplate (**Figure 3**).

3. Pull the hand lever all the way back to the grip; remove the cable nipple holder (**Figure 4**) and remove the cable from the lever.

4. Remove the cable from the frame.

> NOTE: *Prior to removal of the cable, make a drawing of the routing of the cable through the frame. It is very easy to forget how it was once it has been removed. Replace it exactly as it was, avoiding any sharp turns.*

5. Install by reversing the removal steps, adjusting the brakes as described under *Brake Adjustment* in this chapter.

BRAKE LINING

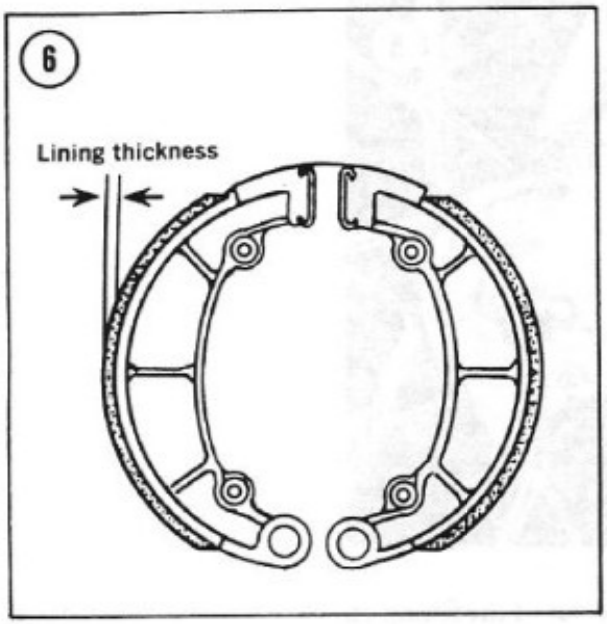
Inspection

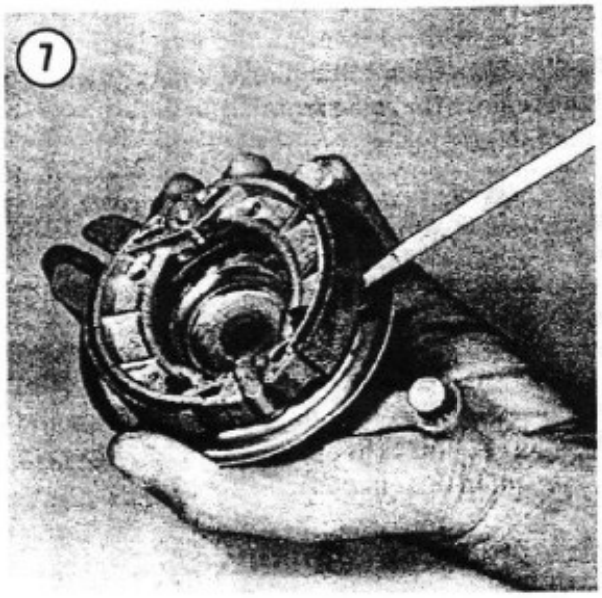
Both the front and rear wheel hubs have inspection holes (**Figure 5**) to check the brake lining thickness without removing and disassembling the hubs.

The brake lining should be replaced if worn within 5/64 in. (2mm) of the metal shoe table (**Figure 6**). This is measured at the thinnest part.

Removal/Installation

1. Remove front and/or rear wheel as described under *Front or Rear Wheel Removal/Installation* in Chapter Ten.



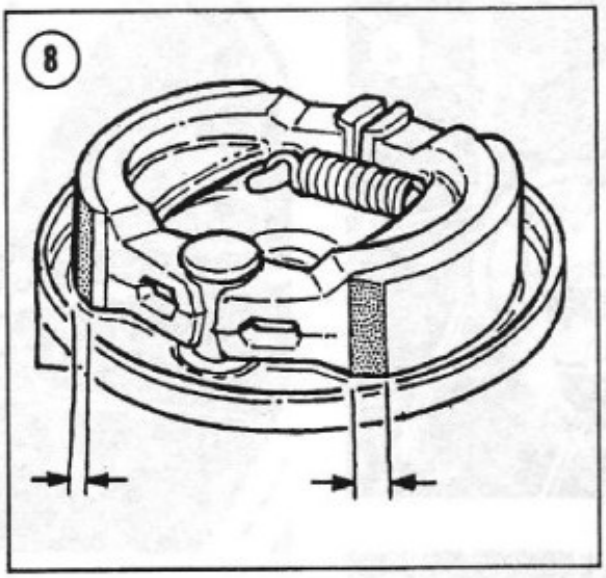


2. Remove the thin nut and spacer and remove brake assembly from hub.

3. Remove the brake shoe assembly, including the return springs from the brake plate. Pry each shoe from the brake plate (**Figure 7**) using a screwdriver or similar tool.

4. Inspect the linings for any traces of oil or grease. If they are contaminated they should be replaced. Dirt embedded in the lining may be removed with a wire brush.

5. The linings should be replaced if worn within ¼₄ in. (2.0mm) of the metal shoe table (**Figure 6**). Measure it as the thinnest part.



6. Check the cam and pivot pin for wear and corrosion. Clean off any corrosion with fine emery cloth. Check that the cam rotates freely. If cam or pivot pin is worn the brake plate should be replaced.

7. Inspect the brake return springs for wear. If they are stretched they will not fully retract the brake shoes and they will drag and wear out prematurely. Replace if necessary.

8. Install by reversing removal steps. Apply a light coat of grease to the cam and pivot pin. Avoid getting any grease on the brake plate where the linings may come in contact with it. Hold the shoes in a V-formation with the springs attached and snap them in place on the brake plate.

NOTE: *If new linings are being installed, file off the leading edge of each shoe a little (**Figure 8**) so that the brakes will not grab when applied.*

BRAKE DRUM

Removal/Installation and Inspection

1. Remove front and/or rear wheel as described under *Front or Rear Wheel Removal/Installation* in Chapter Ten.

2. Pull the brake assembly out of hub.

3. Inspect the drum for deep grooves, roughness or scoring. Replace if necessary.

4. Install by reversing the removal steps.

CHAPTER TEN

SUSPENSION AND FRAME

This chapter contains service and repair of wheels, tires, steering and suspension.

Service procedures for the different models are virtually identical. Where there are differences, they are identified.

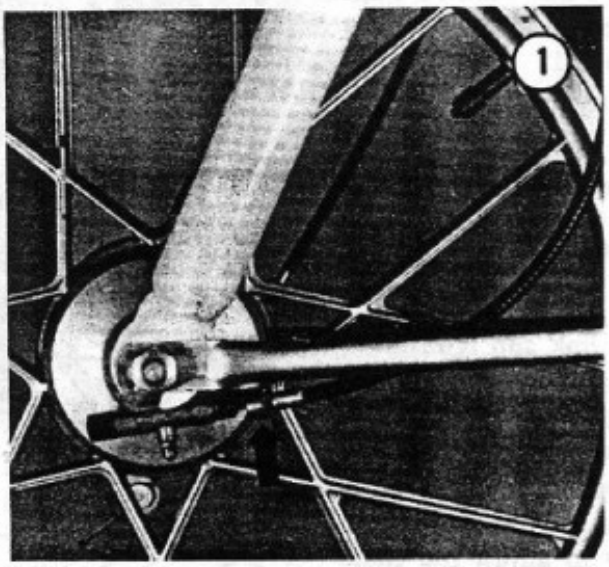
FRONT WHEEL

Removal/Installation

1. Unscrew the knurled nut holding the speedometer cable onto the drive unit (**Figure 1**) and remove.
2. Disconnect the brake cable by loosening the cable clamp bolt at the brake plate (**Figure 2**). Slip the end of the cable out of the fitting (A) on the brake plate (**Figure 3**).
3. Remove the axle locknuts (B, **Figure 3**), remove the fender brackets and remove the wheel.
4. Install by reversing the removal steps. Position the speedometer drive unit to align with the cable before tightening the axle locknuts.

CAUTION

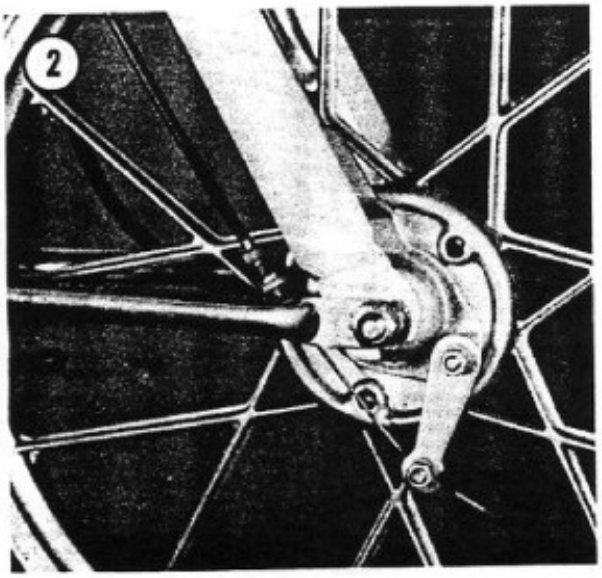
*Be sure to insert the slot in the brake plate onto the tab on the right-hand fork (**Figure 4**). This is necessary for proper brake operation.*

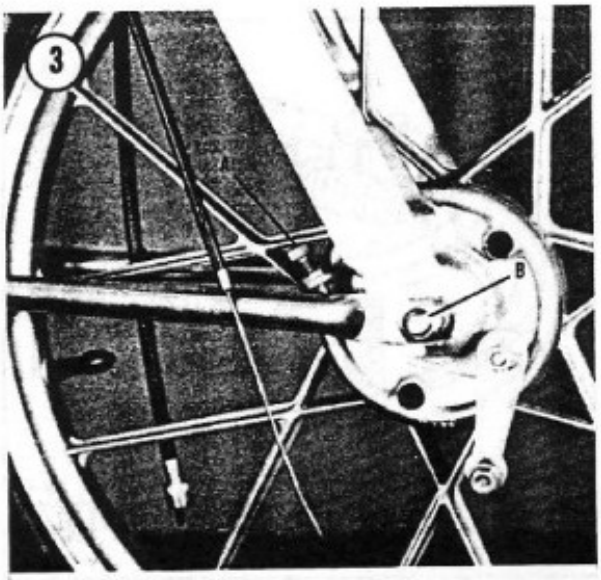


REAR WHEEL

Removal/Installation

1. Disconnect the rear brake cable by loosening the cable clamp bolt (A) at the brake plate (**Figure 5**). Slip the end of the cable out of the fitting on the brake plate.
2. Remove the axle locknuts (B, **Figure 5**).
3. Remove the drive chain by removing the master link (**Figure 6**) as follows: Pry the outer clip off with a thin bladed screwdriver. Remove the outside plate and push the inside plate,





complete with pins, out through the back of the chain and remove the chain.

4. Pull the wheel rearward and remove. Support moped by placing the rear swing arm on a wooden box or blocks of wood.

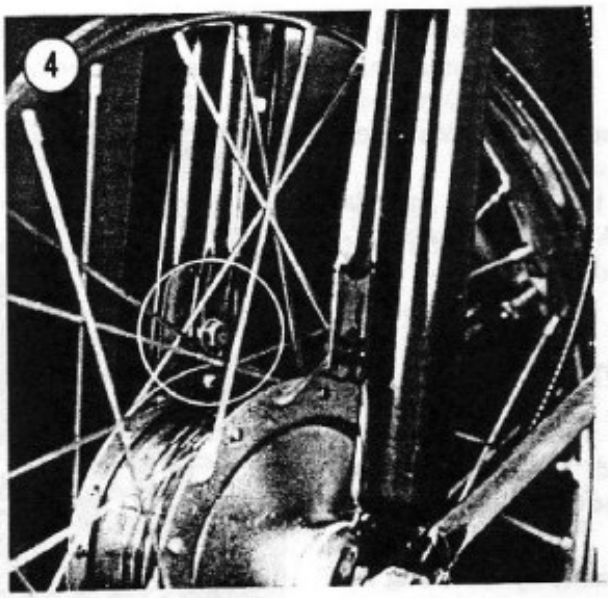
5. Install by reversing the removal steps.

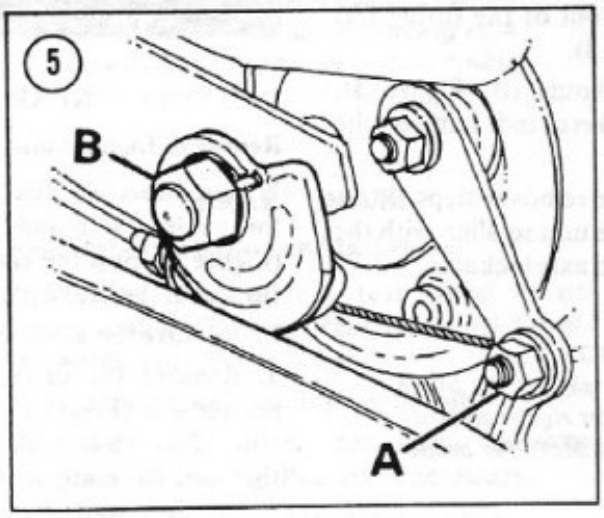
CAUTION

Be sure to insert slot in brake plate onto the stud on the rear swing arm (Figure 7). This is necessary for proper brake operation.

6. Make sure the master link clip is installed with the opening facing in the opposite direction of chain travel (**Figure 8**). Incorrect installation will result in the loss of the clip and may result in chain breakage.

7. After the wheel and chain have been reinstalled it is necessary to adjust the chain tension as described under *Drive Chain Adjustment* in Chapter Six. It is also necessary to adjust the rear brakes as described under *Brake Adjustment* in Chapter Nine.

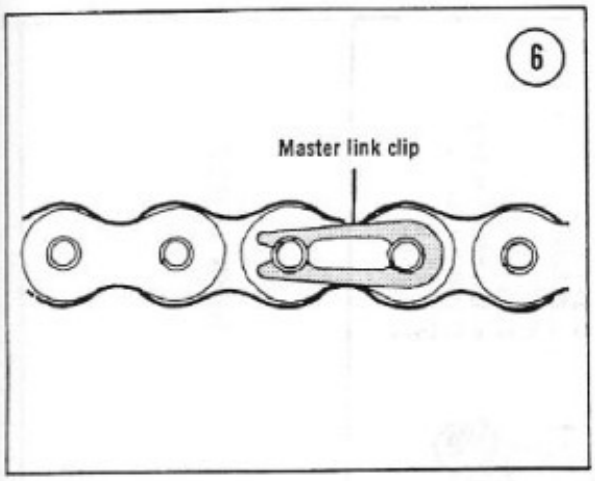


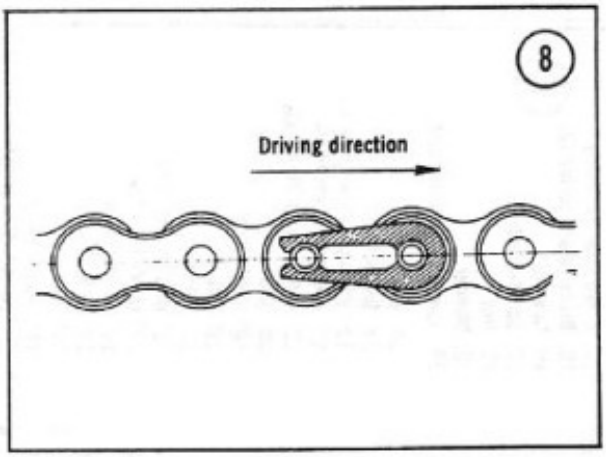


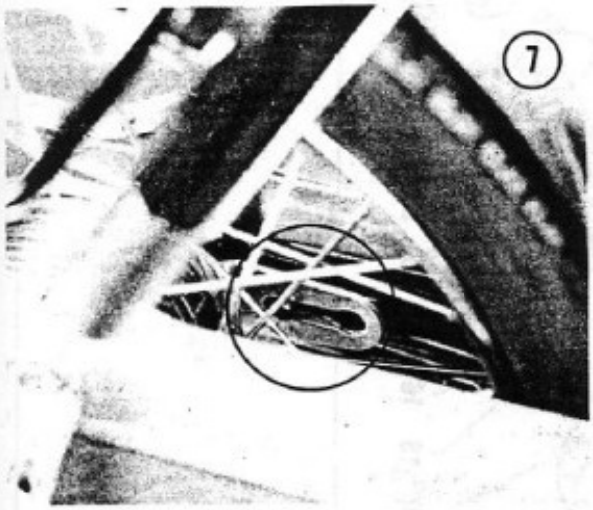
FRONT AND REAR WHEEL HUBS

Refer to **Figure 9** for front wheel hub and **Figure 10** and rear wheel hub.

The front and rear hubs are basically the same except for the brakes and the addition of the sprocket on the rear. The disassembly and assembly are the same.







Removal/Installation

1. Remove the wheel as described under *Front* or *Rear Wheel Removal/Installation* in this chapter.

2. Remove the thin nut and spacer and remove the brake plate assembly. Remove the nut securing the speedometer drive on the front wheel and the nut securing the sprocket on the rear wheel.

3. Place the wheel horizontally in a vise with the brake drum facing up. Securely grip the lockwasher and cone in the vise jaws.

4. Hold the adjusting cone, with a cone wrench, and loosen the locknut and remove both locknut and adjusting cone.

5. Remove the vise and slide the axle out of the hub assembly.

6. Leave the remaining cone and locknut on the axle unless one of these parts is damaged. If it is necessary to remove either of these, measure the distance from the end of the axle to the top of cone (**Figure 11**) so that the cone can be reinstalled in the same position.

7. To remove balls, pry out the dust cover with a wide bladed screwdriver. Remove balls and count them, 10 on each side, so that the same number are installed. Turn the hub over and repeat the steps on the other side.

Inspection

1. Clean all parts thoroughly in solvent.

2. Check cone and hub cups for pitting and excessive wear. If the cups are damaged they should be removed as follows: Insert a hardwood stick in from the opposite side and with a hammer carefully tap the cup out from the inside. Tap all the way around the cup so that neither the cup nor the hub will be damaged. Install the cup by placing it into the hub and tap it gently and squarely in with a block of hard wood and a hammer. Make sure it seats completely.

3. Check the balls for pitting or wear. Replace the complete set of balls if any are defective.

4. Check the retaining washers for distortion or cracks; replace if necessary.

5. Check the axle for damaged threads of bending; replace if necessary.

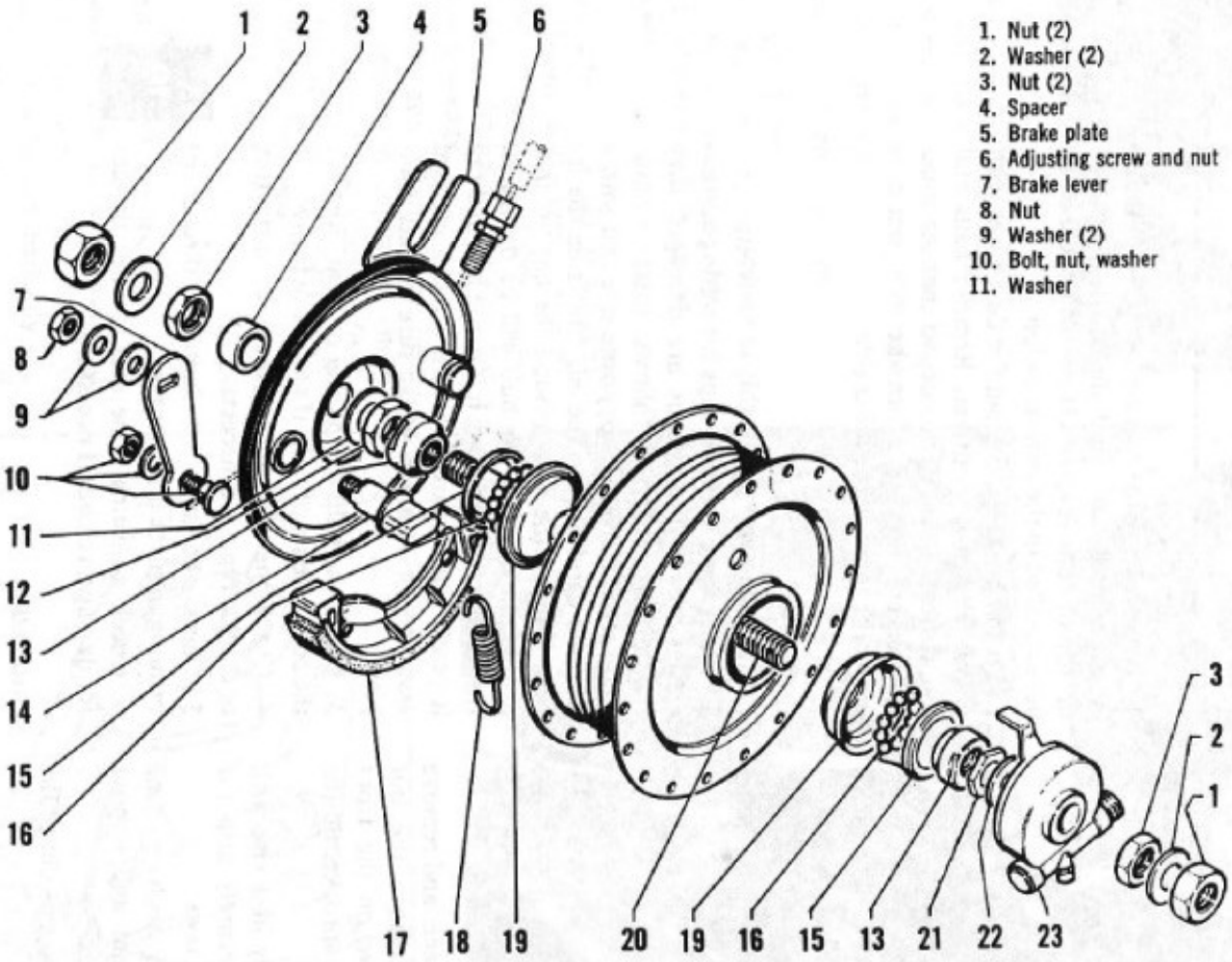
6. Check adjusting cone and locknut threads for damage; replace if necessary.

Installation

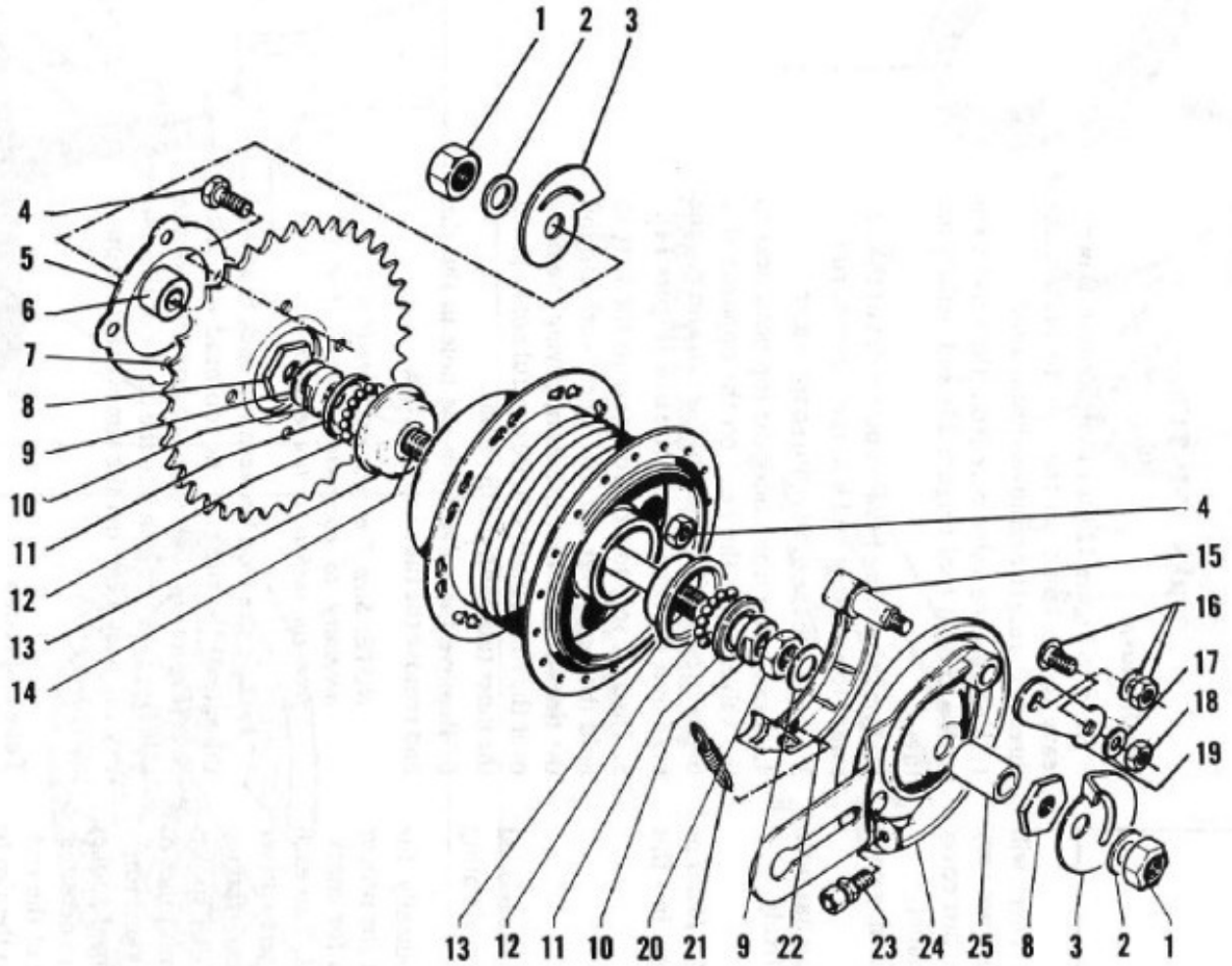
1. Pack the ball cups with wheel bearing grease and replace the correct number of balls. There

FRONT WHEEL HUB

(9)



1. Nut (2)
2. Washer (2)
3. Nut (2)
4. Spacer
5. Brake plate
6. Adjusting screw and nut
7. Brake lever
8. Nut
9. Washer (2)
10. Bolt, nut, washer
11. Washer
12. Nut
13. Adjusting cone (2)
14. Brake cam
15. Dust cover (2)
16. Balls (20)
17. Brake shoe assembly
18. Brake return spring (2)
19. Cage (2)
20. Spindle/axle
21. Nut
22. Washer
23. Speedometer drive unit

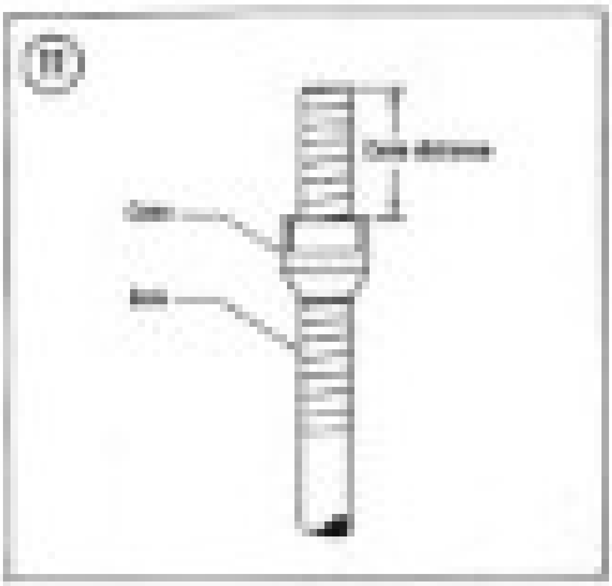


REAR WHEEL HUB

1. Nut (2)
2. Washer (2)
3. Adjusting cam (2)
4. Bolt and nut (4 each)
5. Locking plate
6. Spacer
7. Sprocket
8. Thin nut (2)
9. Washer (2)
10. Adjusting cone (2)
11. Dust cover (2)
12. Balls (20)
13. Cage (2)
14. Spindle/axle
15. Brake shoe cam
16. Bolt, washer, nut
17. Washer
18. Nut
19. Brake lever
20. Nut
21. Brake return spring (2)
22. Brake shoe assembly
23. Adjusting screw and nut
24. Brake plate
25. Spacer

(10)

10



are 10 on each side of both wheels. There will be a little space left over as the balls are not very snug against each other. Replace the dust cover by tapping into place with a plastic mallet.

2. Insert the axle and install the remaining cone and locknut.

3. Tighten cone until all axle end play has been removed but the axle will still rotate freely.

4. Tighten the locknut and recheck.

5. Install the wheel as described under *Front or Rear Wheel Removal/Installation* in this chapter.

SPOKES

The spokes support the weight of the moped and the rider; they also transmit accelerating and braking forces.

Spokes should be checked periodically for looseness or bending. Check spokes for proper tension. The "tuning fork" method for checking tension is simple and works well. Tap each spoke with a spoke wrench or screwdriver shank. A taut spoke will emit a clear, ringing tone; a loose spoke will sound flat. All spokes in a correctly tightened wheel will emit tones of similar pitch, but not necessarily the same tone.

Bent, stripped or otherwise damaged spokes should be replaced as soon as they are detected. Unscrew the nipple from the spoke at the rim, then push the nipple far enough into the rim to free the end of the spoke, taking care not to push the spoke all the way in. Remove the defective spoke from the hub, then use it to match a new one of the same length. Install by reversing the removal steps. Check new spoke periodically, as it will stretch and must be re-tightened several times until it takes its final set.

Spokes tend to loosen as the moped is used. Retighten each spoke one turn, beginning with those on one side of the hub, then those on the other side. Tighten the spokes on a new moped after the first 50 miles of operation, then at 50 mile intervals until they no longer loosen.

TIRES AND TUBES

Tire Removal

Refer to **Figure 12** for this procedure. Always leave the locknuts on the axle to protect the threads during tire removal/installation.

1. Unscrew the valve core from the valve stem with a special tool (**Figure 13**) and deflate the tire.

2. Press the entire bead on both sides of the tire away from the rim and into the center of the rim.

3. Lubricate the beads with soapy water.

4. Insert a tire iron under the top bead next to the valve. Force the bead on the opposite side of the tire into the center of the rim and pry the bead over the rim with the tire iron (**Figure 14**).

5. Insert a second tire iron next to the first to hold the bead over the rim. Then work around the tire with the first tire iron, prying the bead over the rim (**Figure 15**). Be careful not to pinch the inner tube with the tire irons.

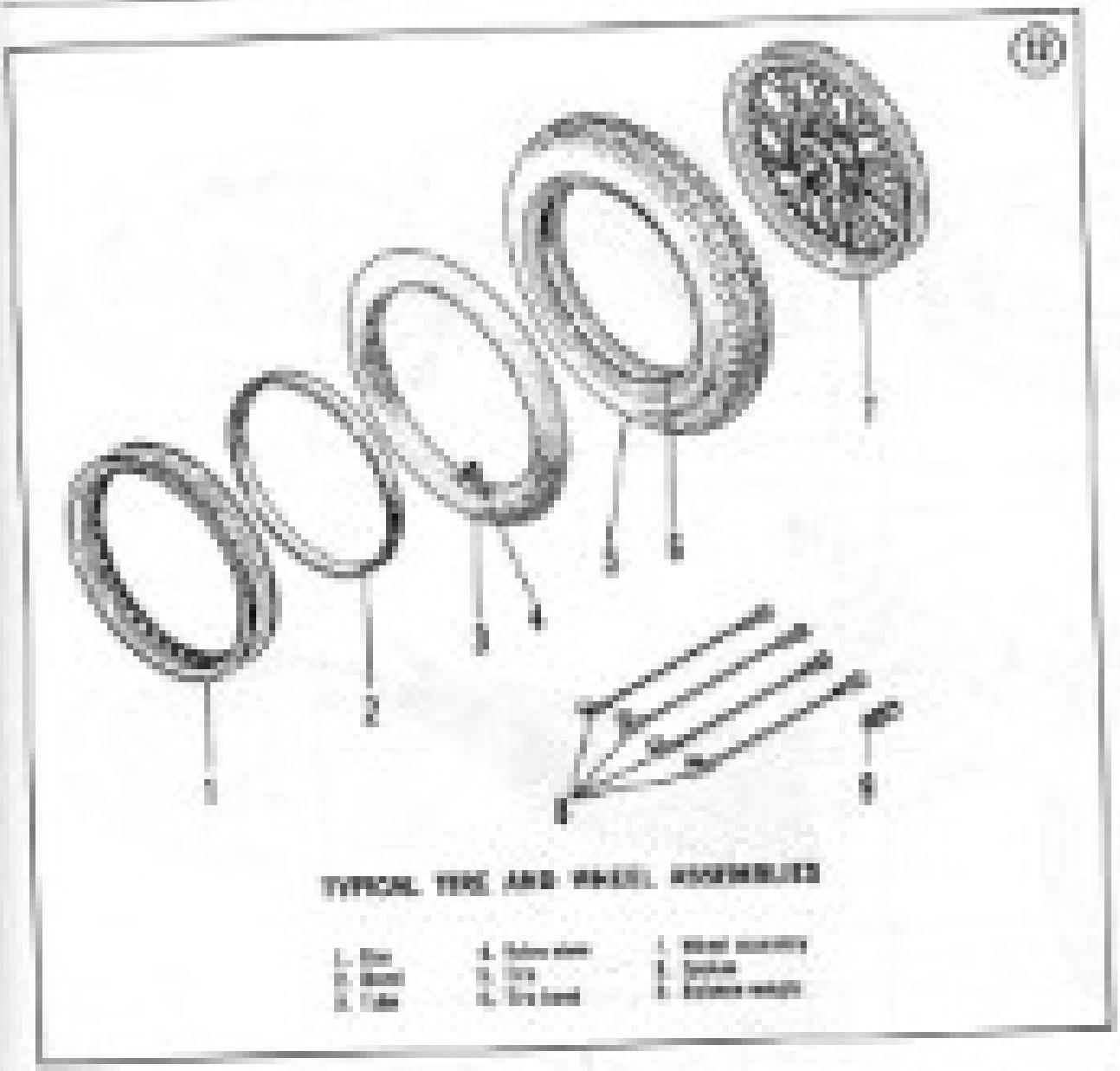
6. Remove the valve from the hole in the rim and remove the tube from the tire.

> *NOTE: Step 7 is required only if it is necessary to completely remove the tire from the rim, as for tire replacement.*

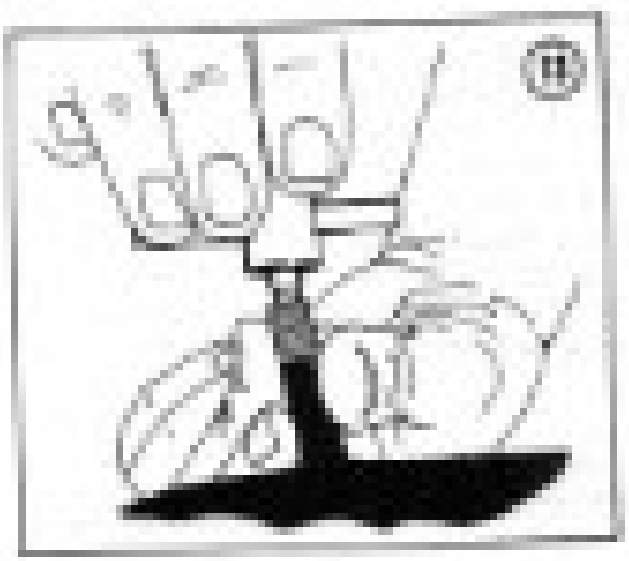
7. Insert a tire iron between the back bead and the side of the rim that the top bead was pried over (**Figure 16**). Force the bead on the opposite side from the tire iron into the center of the rim. Pry the back bead off the rim working around as with the first.

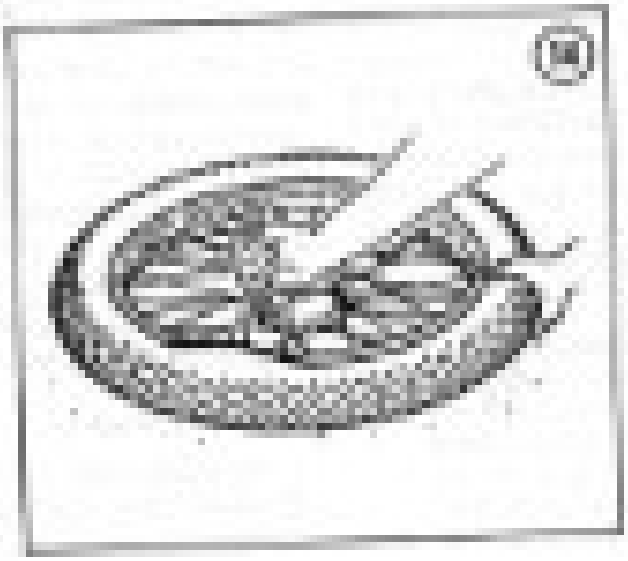
Tube Inspection

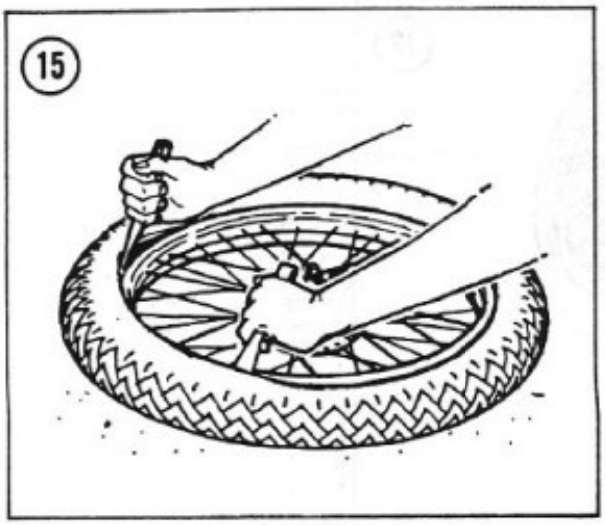
1. Install the valve core into the valve stem and inflate the tube slightly. Do not overinflate.

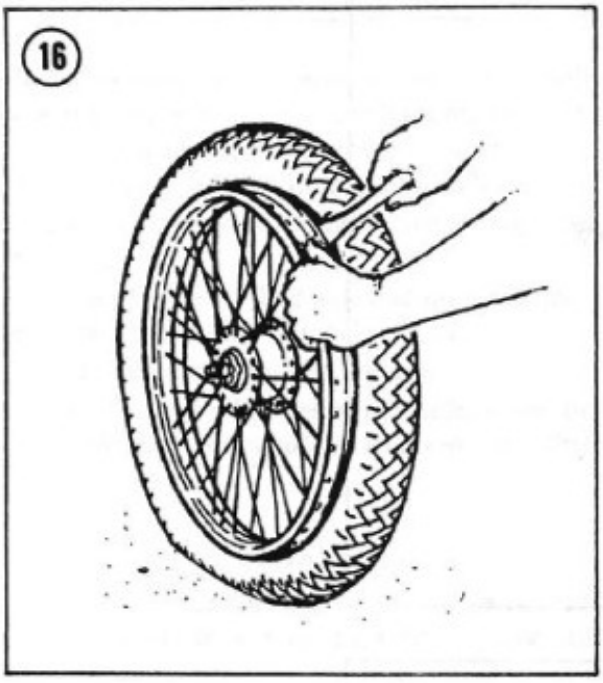


TYPICAL TIRE AND WHEEL ASSEMBLIES



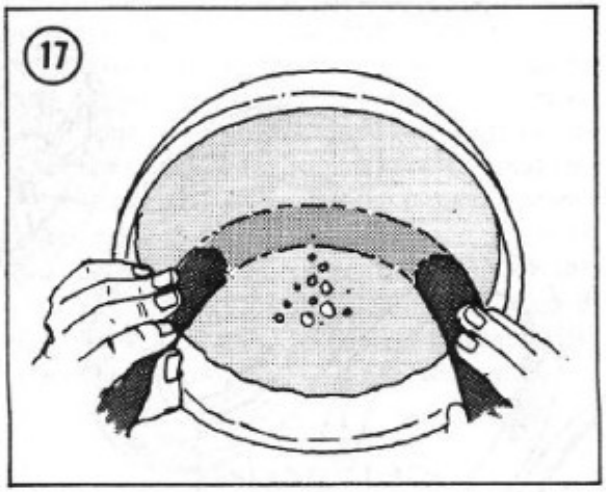


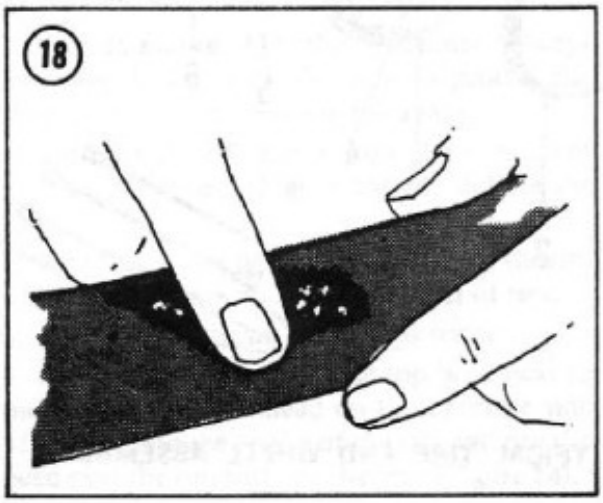




2. Immerse the tube in water a section at a time. See **Figure 17**. Look carefully for bubbles indicating a hole. Mark each hole and continue checking until you are certain that all holes are discovered and marked. Also make sure that the valve core is not leaking; tighten it if necessary.

NOTE: *If you do not have enough water to immerse sections of the tube, try running your hand over the tube slowly and very close to the surface. If your hand is damp, it works even better. If you suspect a hole anywhere, apply some saliva to the area to verify it* ***(Figure 18).***





3. Apply a patch using either the hot or cold patch techniques described under *Tire Repairs* in this chapter.

4. Dust the patch area with talcum powder to prevent it from sticking to the tire.

5. Carefully check inside the tire casing for glass particles, nails or other objects which may have damaged the tube. If inside of tire is split, apply a patch to the area to prevent it from pinching and damaging the tube again.

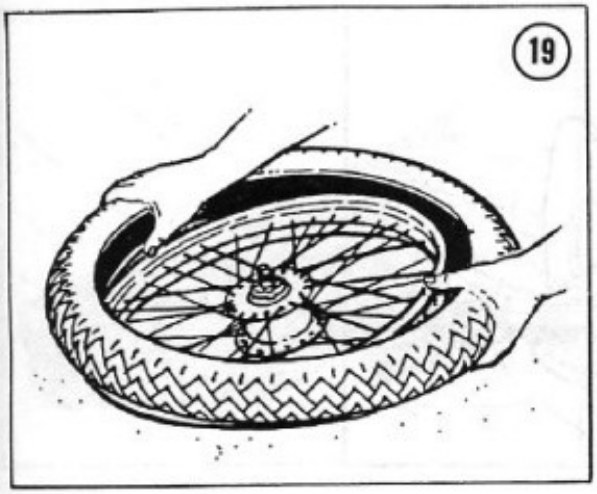
6. Check the inside of the rim. Make sure the rim band is in place, with no spoke ends protruding, which could puncture the tube.

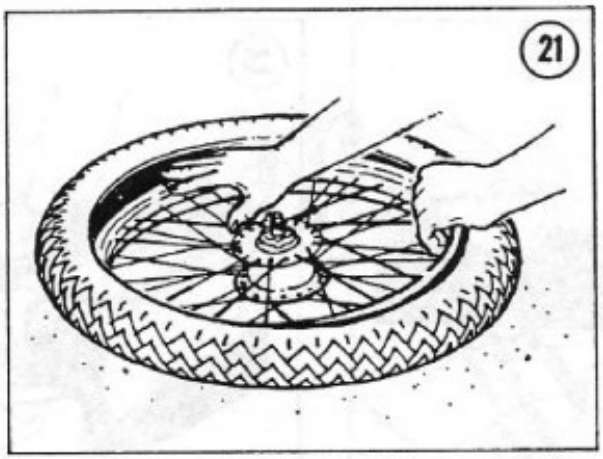
7. Deflate tube prior to installation in the tire.

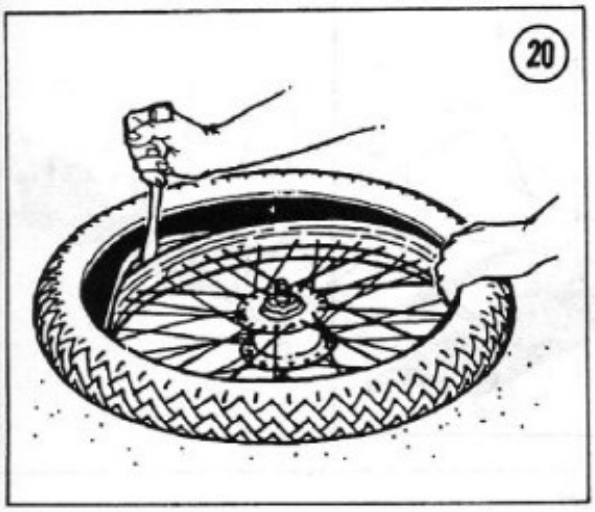
Tire Installation

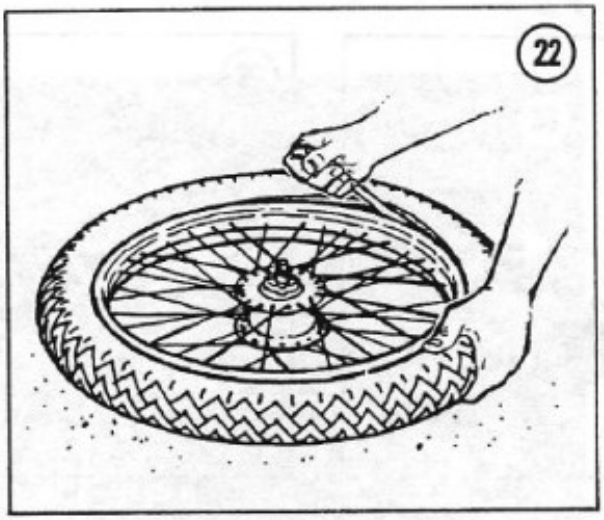
1. Inflate the tube just enough to round it out. Too much air will make installation difficult.

2. Place the tube inside the tire.









3. Place back side of the tire into center of rim and insert the valve stem through the rim hole (**Figure 19**). The lower bead should go into the center of the rim with the upper bead outside it.

4. Starting opposite the valve stem, press the lower bead into the rim center, working around the tire in both directions. Use a tire iron for the last few inches of bead (**Figure 20**).

5. Press the upper bead into the rim opposite the valve (**Figure 21**) and work around the tire in both directions with your hands. Use a tire iron for the last few inches of bead (**Figure 22**).

6. Wiggle the valve to be sure the tube is not under the bead. Set the valve squarely in its hole before screwing in the valve nut to hold it against the rim.

7. Check the bead on both sides of the tire for even fit around the rim. Inflate the tire slowly to seat the beads in the rim. It may be necessary to bounce the tire to complete the seating. Inflate to correct pressure: front tire, 28 lb.; rear tire, 34 lb. *Persons weighing over 175 lb. should add 2 lb. to each tire.*

TIRE REPAIRS

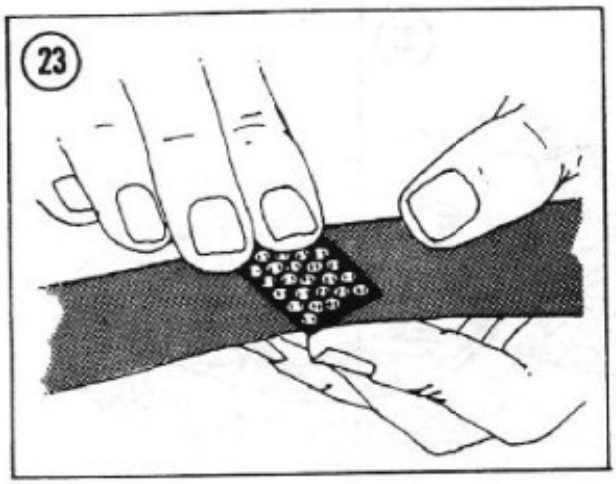
Tire/tube damage will eventually strike even the most careful rider. Repair is fairly simple on all tires.

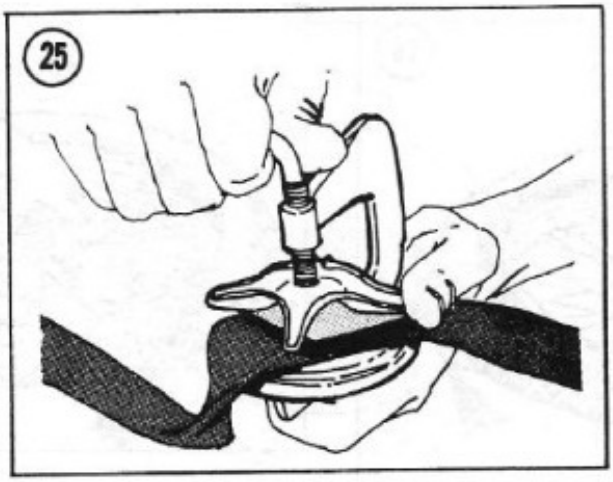
Tire Repair Kits

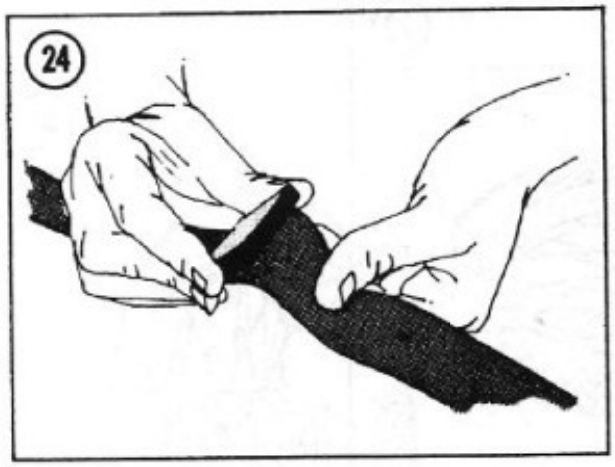
Tire repair kits can be purchased from moped or motorcycle dealers and some auto supply stores. When buying, specify that the kit you want is for moped tires.

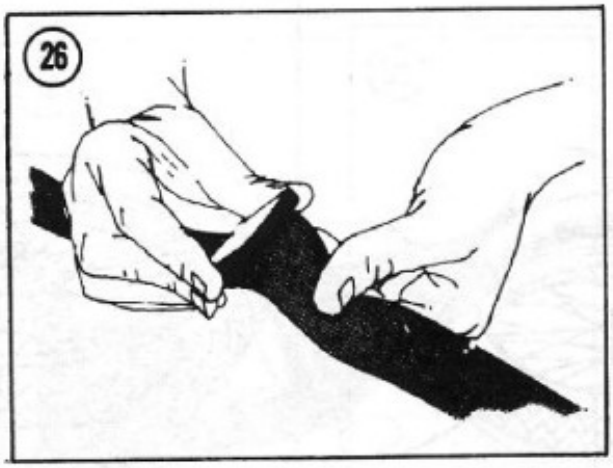
There are two types of tire repair kits for mopeds:

a. Hot patch
b. Cold patch









Hot patches are strongest because they actually vulcanize to the tube, becoming part of it. The repair kit for hot patching is bulkier and heavier than cold patch kits, therefore, hot patch kits are more suited for home repairs.

Cold patches are not vulcanized to the tube; they are simply glued to it. Though not as strong as hot patches, cold patches are still very durable. Cold patch kits are less bulky than hot and more easily applied under adverse conditions. Cold patch kits are best for emergency repairs on the road.

Hot Patch Repair

1. Remove the tube from tire as described under *Tire Removal* in this chapter.
2. Roughen area around hole slightly larger than the patch **(Figure 23)**. Use a pocket knife or similar tool to scrape the tube; be careful that you don't cause further damage.
3. Remove the backing from patch.

CAUTION

Do not touch newly exposed rubber with your fingers. This will prevent a good seal.

4. Center the patch over hole **(Figure 24)**.
5. Install clamp around tube so that it holds the fuel container over the patch **(Figure 25)**.
6. Pry up a corner of the fuel and light it. Let all of the fuel burn away.

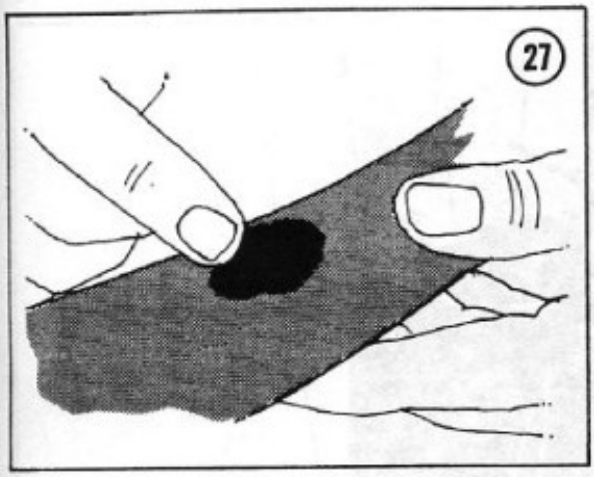
CAUTION

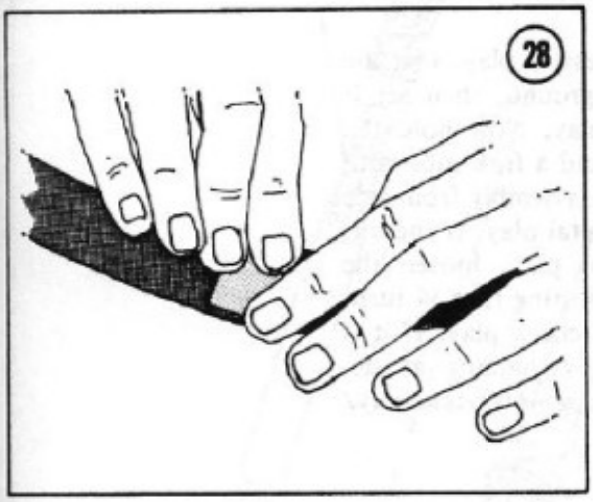
The clamp gets hot, so don't touch it until it cools.

7. Remove the clamp and peel the tube off the fuel container **(Figure 26)**.

Cold Patch Repair

1. Remove the tube from tire as described under *Tire Removal* in this chapter.





2. Roughen area around hole slightly larger than the patch, use a cap from tire repair kit or pocket knife. Do not scrape too vigorously or you may cause additional damage.

3. Apply a small quantity of special cement to the puncture and spread it evenly with a finger (**Figure 27**).

4. Allow the cement to dry until tacky — usually 30 seconds or so is sufficient.

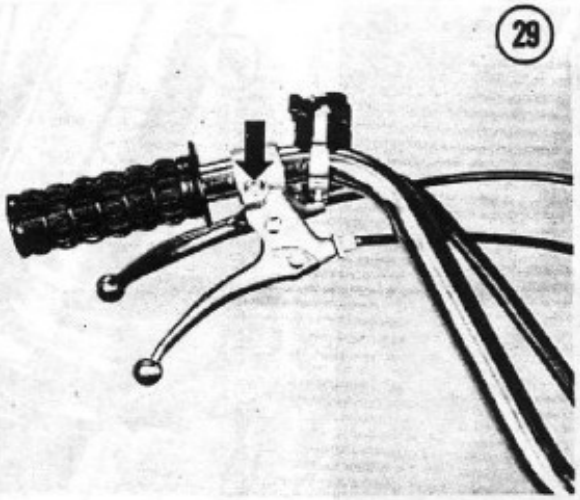
5. Remove the backing from the patch.

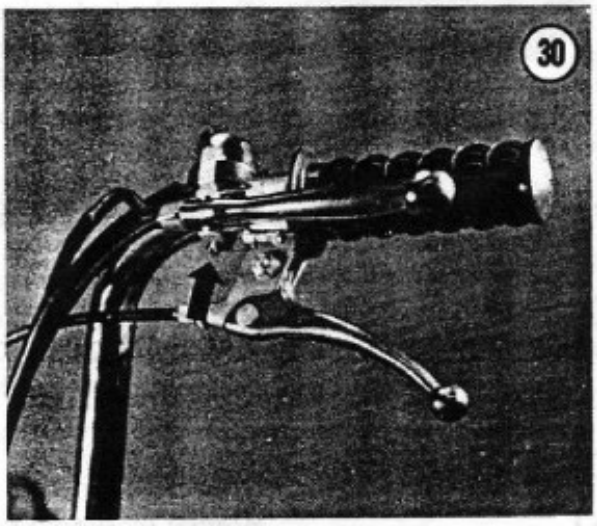
CAUTION

Do not touch the newly exposed rubber with your fingers or the patch will not stick firmly.

6. Center patch over hole. Hold patch firmly in place for about 30 seconds to allow the cement to set (**Figure 28**).

7. Dust the patched area with talcum powder to prevent sticking.





HANDLEBAR

Removal/Installation

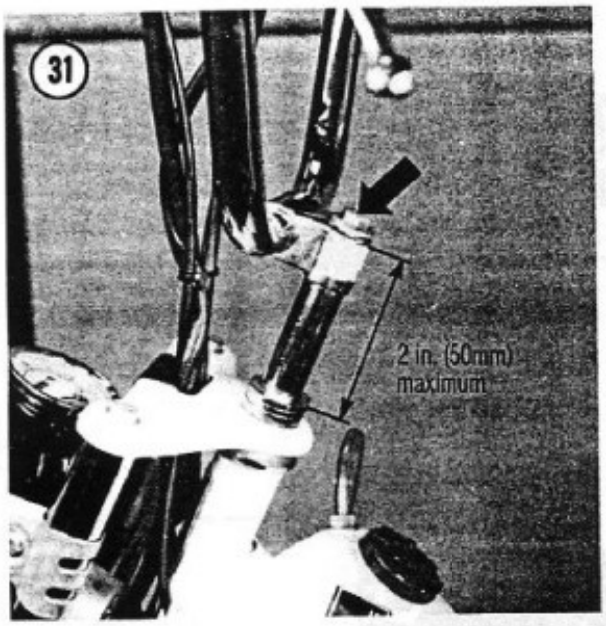
1. Loosen, but do not remove, the screw securing the hand grips to the handlebar (**Figure 29**).

2. Slide off both hand grip assemblies, it is not necessary to remove the cables from the grips. Lay the grip assemblies over the fuel tank, hooking them on the fill cap. Be careful not to kink the cables.

3. Remove the switches by removing the screw on the underside of the clamp (**Figure 30**). Slide switches off of the end of the handlebar.

4. Loosen the nut on top of the steering neck (**Figure 31**).

5. After the bolt is loose, strike it with a hammer to loosen the tapered expander inside the headset.



6. Pull the handlebar straight up and out of the headset.
7. Install by reversing the removal steps.

CAUTION

The handlebar stem must not stick out above the headset locking nut, more than 2 in. (50mm). See ***Figure 31.***

Adjust the handlebar and hand grip assemblies to your comfort.

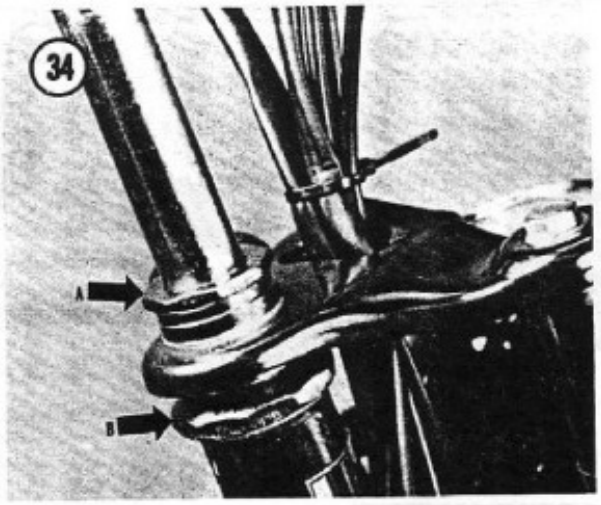
HEADSET

The headset consists of parts inside the head tube which secure the fork to the frame and permit it to turn. Refer to **Figures 32 and 33** for all related parts.

Adjustment

If the fork turns stiffly or feels overly loose, it probably requires adjustment.

1. Loosen the locknut (A, **Figure 34**).
2. Loosen the adjusting race (B, **Figure 34**), tighten it hand tight, then back it off (*counterclockwise*) ¼ turn. Tighten the locknut.
3. Turn the wheel back and forth. If it feels stiff, loosen the locknut and loosen the adjusting race another ¼ turn. Tighten the locknut. If it still feels stiff, it requires overhauling as described under *Headset Disassembly/Assembly/Inspection* in this chapter.



4. Check the fork for excessive play. Lift the front wheel clear of the ground, then set it down; look for vertical play. Now hold the handlebar with one hand and a fork tube with the other. Try to wiggle the assembly from side to side, looking for horizontal play. If there is any vertical or horizontal play, loosen the locknut and tighten the adjusting race ¼ turn. Tighten the locknut and recheck play. If it is still present, it requires overhauling as described under *Headset Disassembly/Assembly/Inspection* in this chapter.

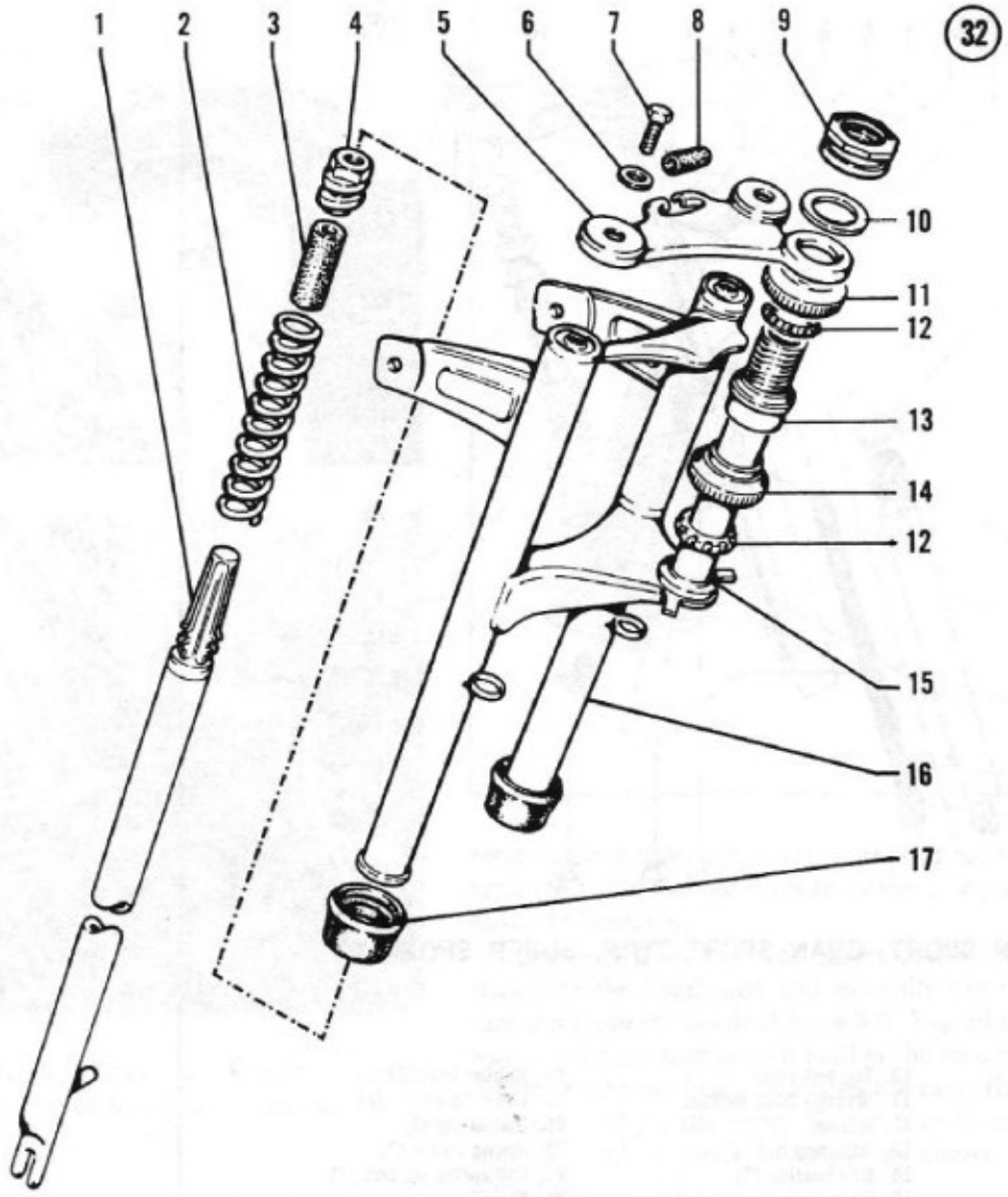
Disassembly

Headset disassembly requires the removal of the front wheel and front forks. The headset assembly is the same on all models and is used with both fork configurations. This procedure may be done with the moped on the centerstand, with the rear end tied down, or it may be laid down on its side on a blanket or thick pad.

1. Remove the front wheel as described under *Front Wheel Removal/Installation* in this chapter.
2. Remove the handlebar as described under *Handlebar Removal/Installation* in this chapter.

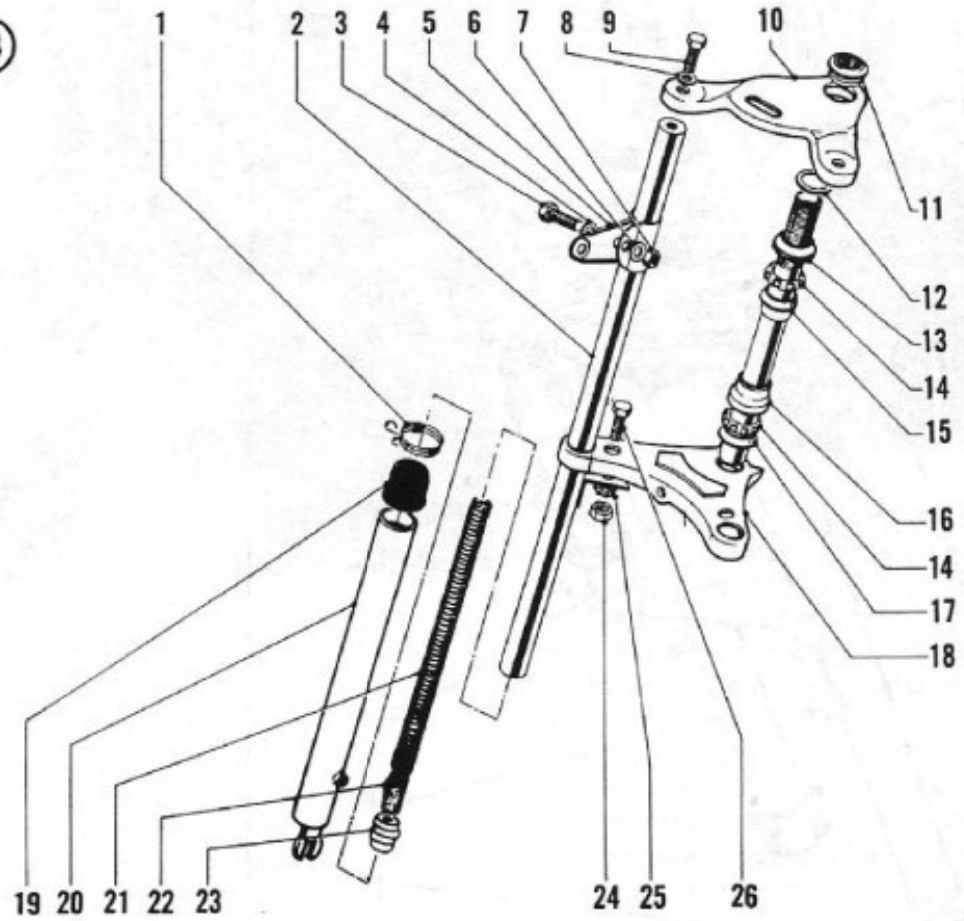
NOTE: *It is not necessary to remove the handgrip assemblies or switches. Cover the fuel tank with a cloth prior to placing the handlebar on it.*

Turn the handlebar upside down and lay back over onto the fuel tank. Be careful not to kink any of the cables.



HEADSET — EUREKA STANDARD, EUREKA DELUXE, AND SPORT

1. Lower fork tube (2)
2. Coil spring (2)
3. Spring cap (2)
4. Spring cover (2)
5. Top fork plate
6. Washer (2)
7. Bolt (2)
8. Protective sleeve
9. Steering head locknut
10. Washer
11. Adjusting nut
12. Ball bearing (2)
13. Upper headset bearing race
14. Lower headset bearing race
15. Lower headset cone
16. Upper fork assembly
17. Rubber boot (2)



HEADSET — GRAN SPORT, GRAN SPORT TWIN, SUPER SPORT XL

1. Retaining clamp (2)
2. Upper fork tube (2)
3. Bolt (2)
4. Washer (2)
5. Headlight bracket (2)
6. Lockwasher (2)
7. Nut (2)
8. Washer (2)
9. Nut (2)
10. Top fork plate
11. Steering head locknut
12. Washer
13. Adjusting nut
14. Ball bearing (2)
15. Upper headset bearing race
16. Lower headset bearing race
17. Lower headset bearing cup
18. Lower fork plate
19. Rubber boot (2)
20. Lower fork tube (2)
21. Coil spring (2)
22. Spring clamp (2)
23. Coil spring support (2)
24. Nut (2)
25. Lockwasher
26. Bolt (2)

6. Unscrew and remove the adjusting nut. Remove the upper ballbearing.

7. Slowly pull the fork assembly and steering stem out from the head tube.

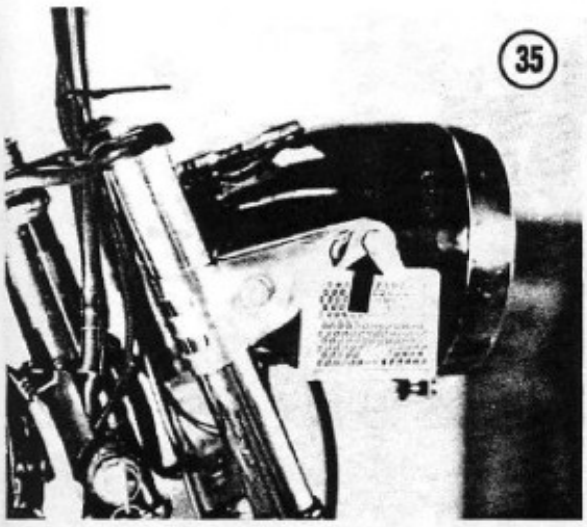
8. Assemble by reversing the removal steps.

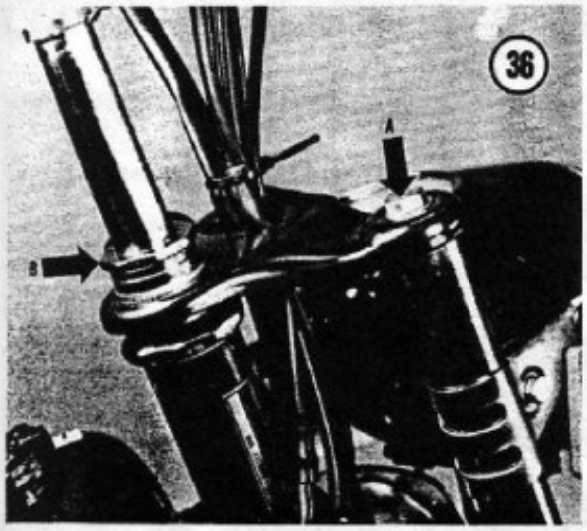
9. After assembly steps are completed, it is necessary to readjust the head set as described under *Headset Adjustment* in this chapter. Also

3. Remove the 2 bolts securing the headlight housing and side reflectors (**Figure 35**). Lay the headlight housing on top of the fuel tank.

4. Remove the 2 cap nuts (A) and washers securing the top fork plate (**Figure 36**).

5. Remove the steering head locknut (**B, Figure 36**) and washer. Remove them and the top fork plate.





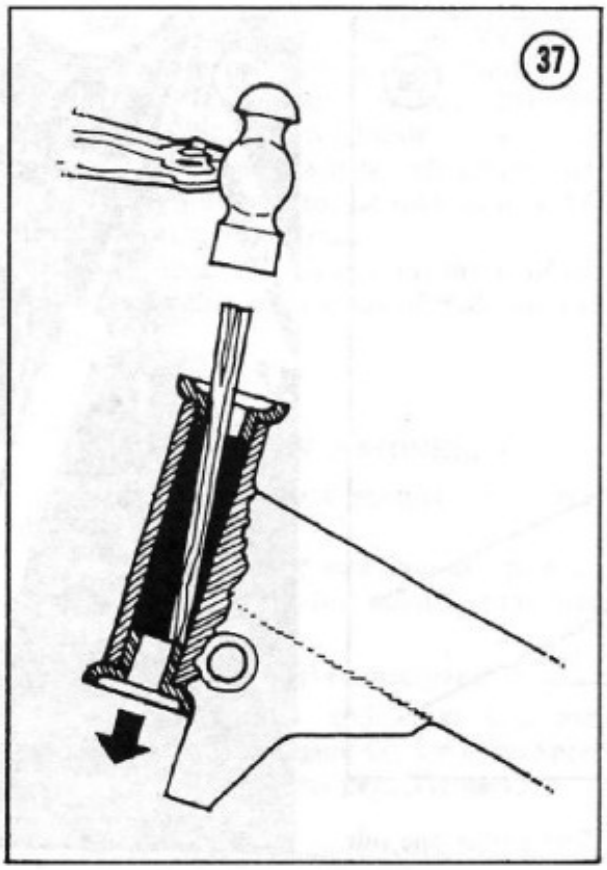
readjust the headlight as described under *Headlight Adjustment* in Chapter Eight.

Inspection

1. Clean all parts in cleaning solvent.
2. Check bearings for pitting, scratches or discoloration which indicates wear. Replace them if necessary; take old bearings to dealer to ensure exact replacement.
3. Check upper and lower headset bearing races and top adjusting race for pitting, scratches and discoloration which indicate wear. Replace if necessary.

Bearing Race Replacement

The headset bearing races are pressed into place. Because they are easily bent, do not remove them unless they are worn and require replacement. Take old races to dealer to ensure exact replacement.



To remove a headset race, insert a hardwood stick into the head tube and carefully tap the race out from the inside (**Figure 37**). Tap all the way around the race so that neither the race nor the head tube are bent. To install the race, fit it into the end of the tube. Tap it slowly and squarely with a block of wood as shown in **Figure 38**.

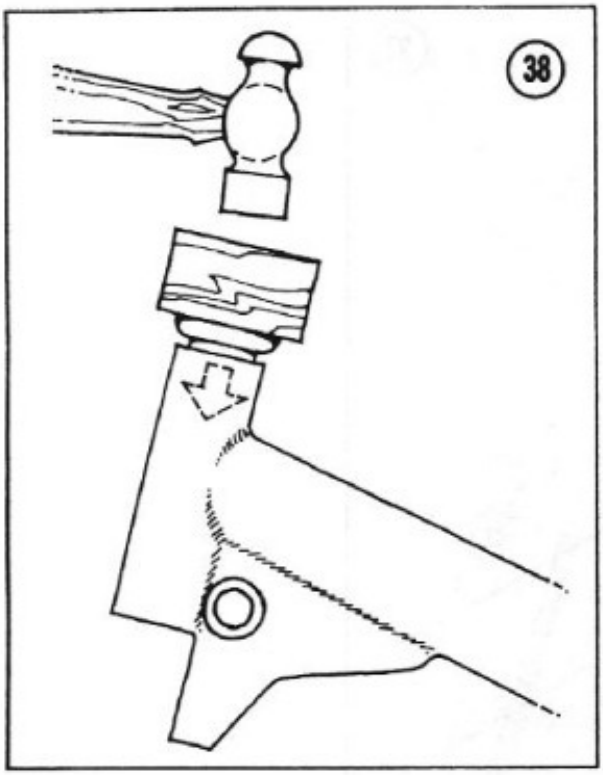
NOTE: *The upper and lower races are different. Refer to* ***Figures 32 and 33*** *to be sure that you install them at the proper end of the head tube.*

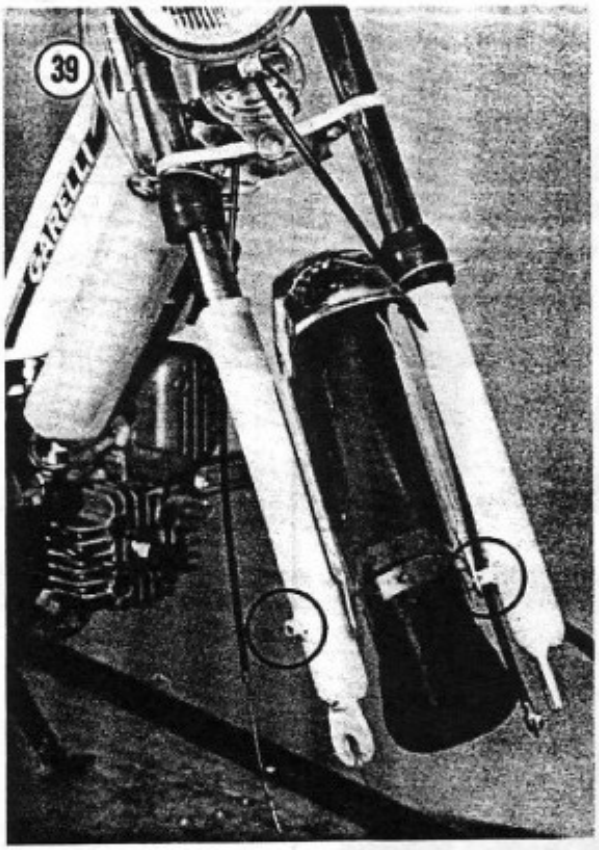
FRONT FORK

Refer to **Figure 32** for Eureka Standard, Eureka Deluxe and Sport models.

Refer to **Figure 33** for Gran Sport, Gran Sport Twin and Super Sport XL models.

This procedure may be done with the moped on the centerstand and the rear end tied down, or laid on its side on a blanket or thick pad.





It is suggested that you disassemble one side at a time.

Removal/Installation

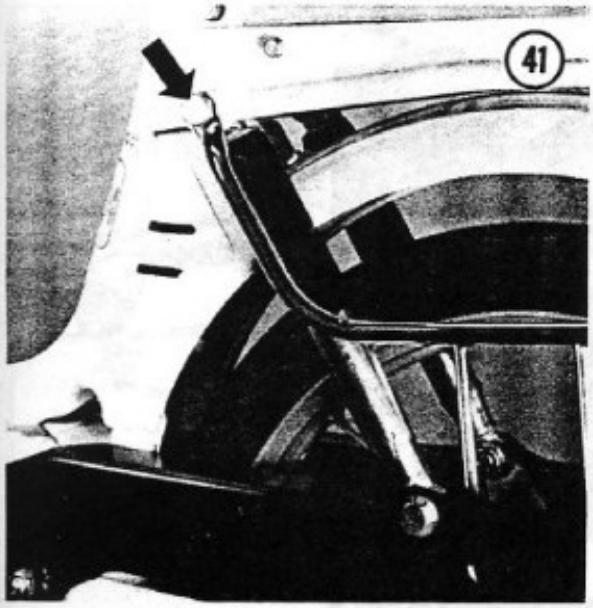
1. Remove the front wheel as described under *Front Wheel Removal/Installation* in this chapter.
2. Remove the fender bracket bolt (**Figure 39**).

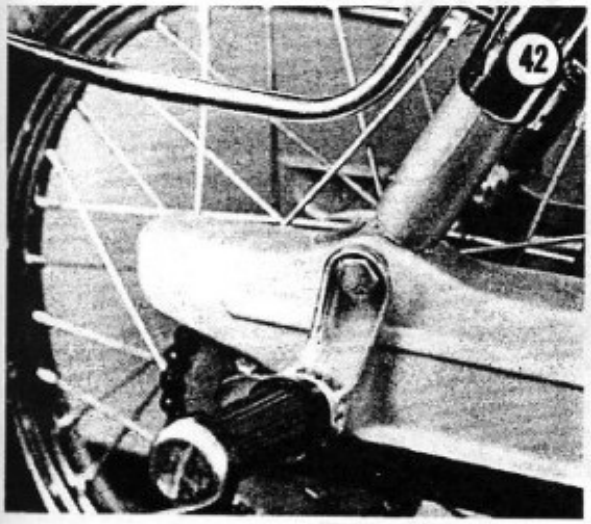
NOTE: *When the bolt is removed the lower fork tube will rotate slightly due to the "wrap up" of the spring.*

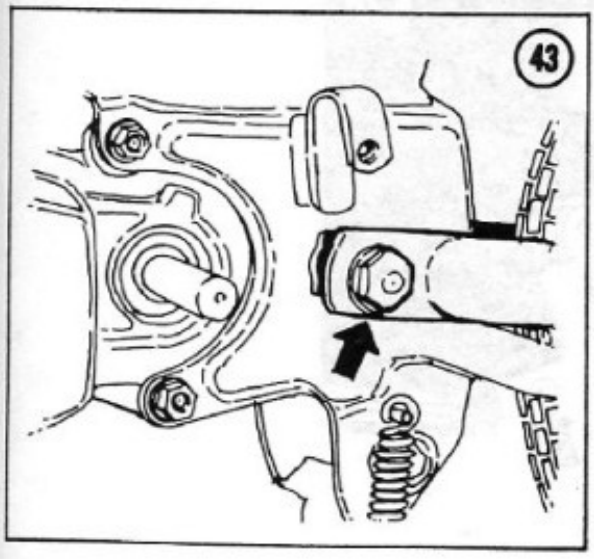
3. Squeeze the rubber boot retaining clamps and push the boot up on the upper fork tube. Let the boot remain with the upper fork tubes (**Figure 40**).
4. Remove the cap nut (A) and lockwasher (**Figure 34**) while holding the lower fork tube.
5. Slide off the lower fork tube complete with the internal spring.
6. Install by reversing the removal steps.

Inspection

Remove the coil spring and inspect it. If the grease looks as though it is not contaminated, do not remove it. Add a good grade of multi-purpose grease to it if necessary.







If the grease packed around the spring has been contaminated with dirt or water, the spring should be thoroughly cleaned with cleaning solvent. Wipe out the inside of the upper fork tube with rags on a long rod; avoid pouring cleaning solvent into the tube as it is difficult to thoroughly dry out.

Repack the spring and coat the inside of the upper tube with a good grade of multipurpose grease.

REAR SHOCK ABSORBERS

Sport models are not equipped with rear shock absorbers.

Always replace shock absorbers as a pair; do not replace only one as this will affect the road handling of the moped.

1. Place the moped on the centerstand.
2. Remove the upper and lower bolt and washer on each side (**Figure 41**). On Gran Sport Twin also remove the foot pegs (**Figure 42**).

NOTE: *Hold inside nut at top through a slot in the luggage rack.*

3. Remove the old shocks.
4. Install by reversing the removal steps. When installing the bolts be careful not to damage the rubber bushings of the new shocks.

REAR SWING ARM

Sport models are not equipped with a swing arm.

Removal/Installation

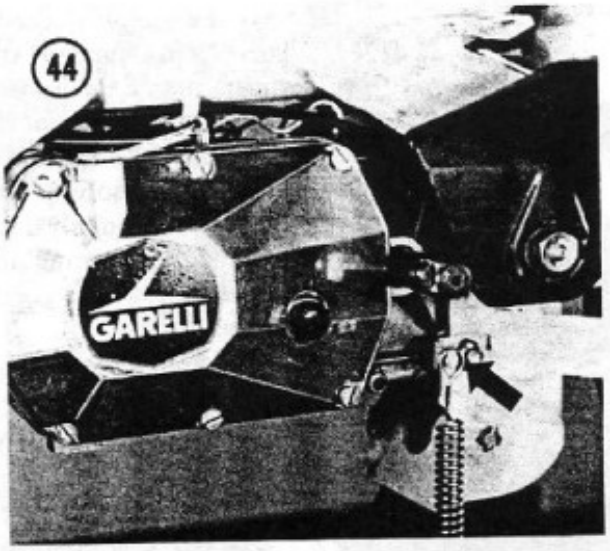
1. Place the moped on the centerstand.
2. Remove the rear wheel as described under *Rear Wheel Removal/Installation* in this chapter.
3. Remove the right-hand chain guard.
4. Remove the left-hand trim panel (**Figure 41**).
5. Remove the nut from the pivot bolt (**Figure 43**). Tap out the pivot bolt with a drift punch and hammer.
6. Remove the swing arm from the frame.
7. Install by reversing the removal steps.

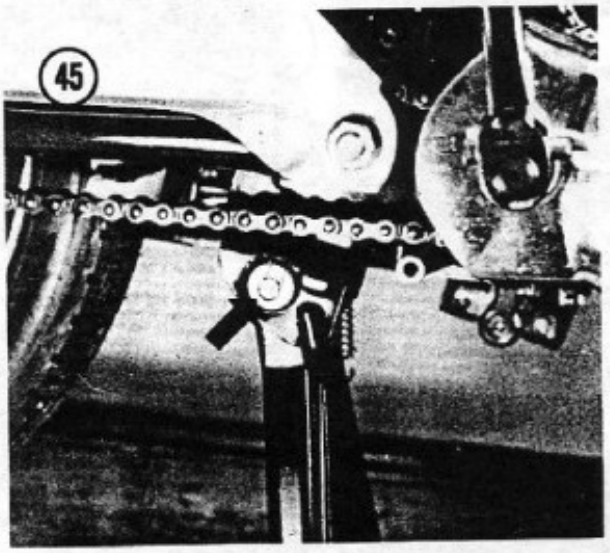
CENTERSTAND

1. Place old blanket or pad on floor and lay moped down on its side.
2. Place the centerstand in the raised position and remove return spring using a pair of pliers to pull the hook off of the attachment loop (**Figure 44**).
3. Remove the circlip (**Figure 45**) and tap out the pivot pin with a drift punch and hammer.

NOTE: *Figure 44 is shown with the muffler removed for clarity. It is not necessary to remove it for this procedure.*

4. Install by reversing removal steps. Apply a small amount of multipurpose grease to the points where the centerstand rotates on the rear swing arm.





SEAT

Removal/Installation (Eureka Standard, Eureka Deluxe, Sport, Gran Sport)

Loosen, but do not remove, the bolt securing seat and stem into the seat support unit of the frame (**Figure 46**). Pull the seat and stem up and out to remove.

Install by reversing the removal steps, adjust the seat to the proper height.

Removal/Installation (Super Sport XL)

Remove the 2 bolts, washers, lockwashers and nuts securing the rear of the seat to the luggage carrier. Pull seat to the rear and remove.

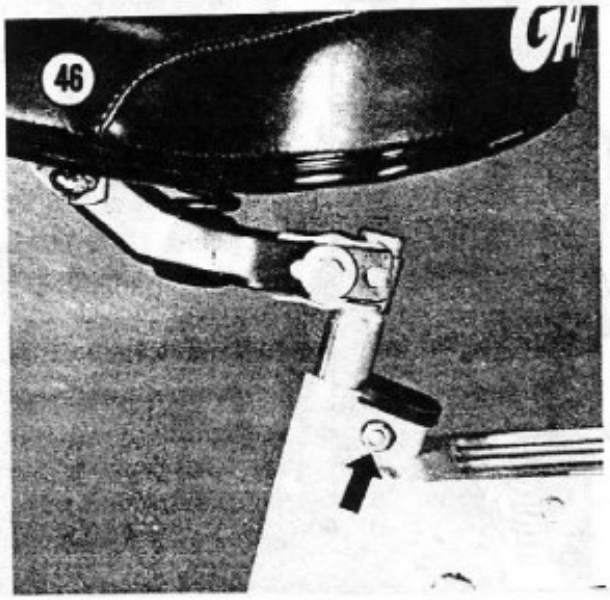
Install by reversing the removal steps.

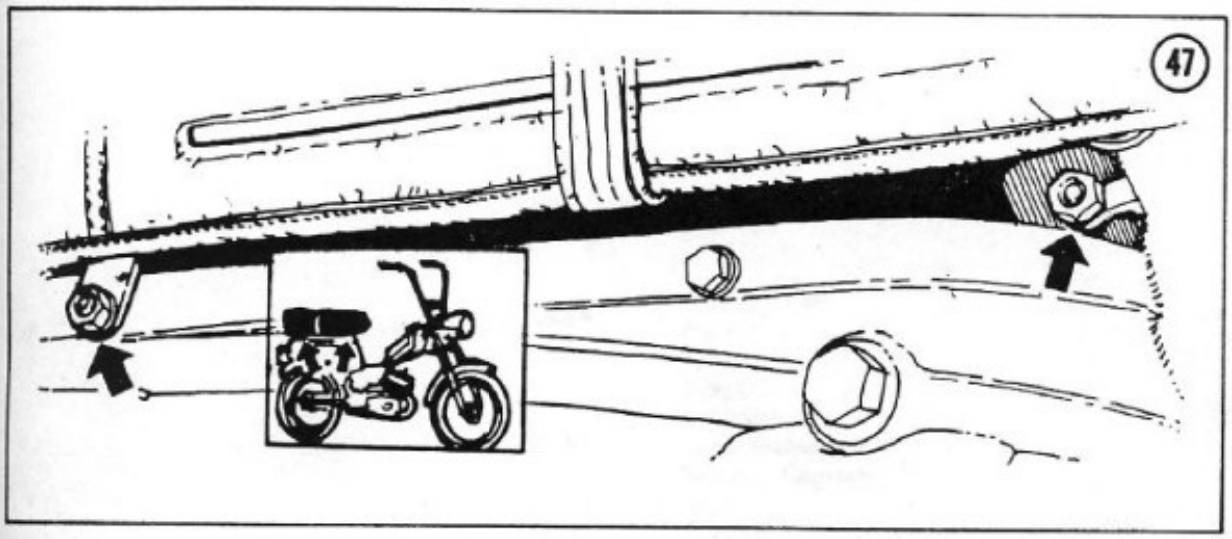
Removal/Installation (Gran Sport Twin)

Remove the 2 bolts, washers, lockwashers and nuts (**Figure 47**) securing the rear of the seat to the luggage carrier.

Pivot the seat upward from the rear and loosen, but do not remove, the bolt securing the seat and stem into the seat support unit of the frame (**Figure 47**). Pull the seat and stem up and out to remove.

Install by reversing the removal steps.

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1976-1978

Eureka Standard	Gran Sport
Eureka Deluxe	Gran Sport Twin
Sport	Super Sport XL

This manual is part of the first professionally-written do-it-yourself repair series for moped enthusiasts. Fully detailed procedures on tune-up, troubleshooting, lubrication, and major maintenance enable owners to perform virtually any repair required.

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