

# Suzuki LT/ALT 125/185

## MODEL COVERAGE

LT 125 D/E/F  
LT 185 E/F

ALT 125 D/E/F

ALT 185

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## SERIAL NUMBER LOCATIONS

In order to prevent possible confusion, always supply the chassis and engine serial numbers when ordering parts.

On LT models, the chassis serial number is stamped on the front downtube on the left side of the frame.

On ALT models, the chassis serial number is stamped on the right side of the steering lug.

On all models, the engine serial number is on the front of the crankcase, visible from the left side of the machine.

## MAINTENANCE

*NOTE: Common maintenance procedures are explained in detail in the "General Information" section.*

### LUBRICATION

#### Engine Oil

SAE 10W-40 oil, service rated "SE" or "SF" is recommended.

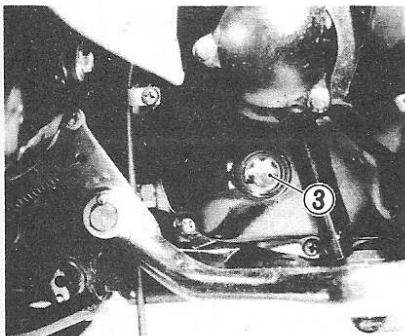
Engine oil (and filter) should be changed every 600 miles after initial break-in, assuming that the machine operates under normal conditions.

Engine oil capacity is about 1150ml (1.2 qts.) when changing oil and filter.

#### Checking Oil Level

1. A sight glass is fitted on the right side of the crankcase allowing an easy check of oil level.

2. Oil should be checked after the engine has been running, then shut off and left to sit for a minute.



**Crankcase oil sight glass (3)**

3. The machine must be parked on a level surface for an accurate reading.

4. Oil level should be at, but not above, the "F" mark on the crankcase.

5. If the level is below the mark, remove the filler cap and add the correct grade and type of oil until level is correct.

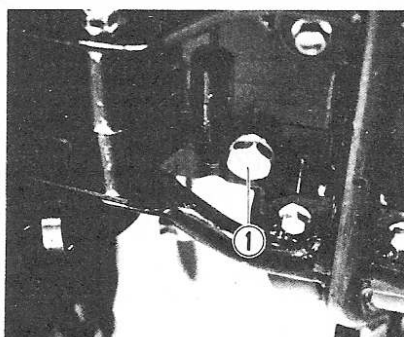
**CAUTION: Do not overfill the crankcase.**

#### Changing Oil and Filter

1. Oil should be changed when the engine is warm. This ensures more complete draining and makes it more likely that the oil will carry off any particulates with it.

2. Place a suitable container (about 2 qt. capacity) beneath the crankcase.

3. Remove the filler cap.



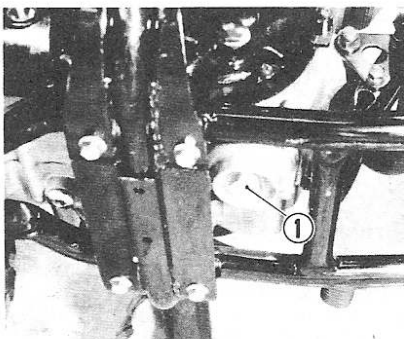
**Oil drain plug (1)(125)**

4. Remove the drain plug beneath the crankcase.

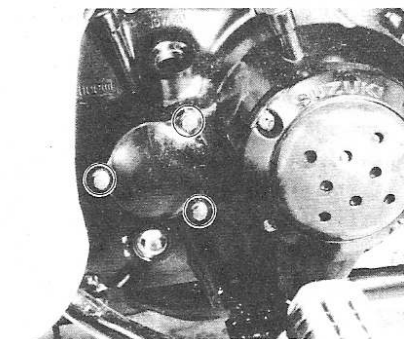
5. Allow the oil to drain for several minutes.

6. Clean the drain plug. Install it and tighten to 15-18 ft. lbs.

7. Place the container beneath the oil filter cap on the right side of the engine.



**Oil drain plug (1)(185)**



**Oil filter cap bolts**

8. Remove the three screws or bolts and carefully pull the cap off. Note the spring on the inside.

9. Pull out the oil filter and discard it.

10. Clean out the oil filter housing with a rag. Clean the filter cap.

11. Inspect cap O-ring condition. Replace it if it is knicked or damaged in any way.

12. Clean the filter cap mating surface.

13. Check that the O-ring in the filter housing is in position.

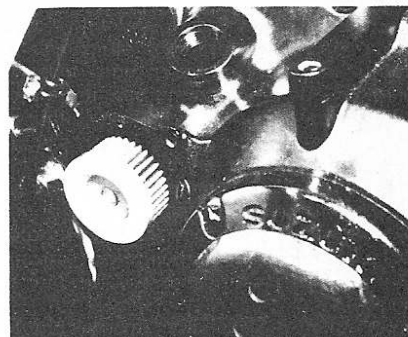
14. Install the new filter, closed end out.

15. Check that the filter cap spring is in place.

16. Carefully fit the cap and tighten the three fasteners gradually and evenly.

17. Add about 1150ml (1.2 qts.) of the recommended type and grade oil to the crankcase.

18. Fit the filler cap.



**Oil filter installation**

19. Let the engine run for a few minutes, then shut it off and check level at the sight glass. Top up if necessary.

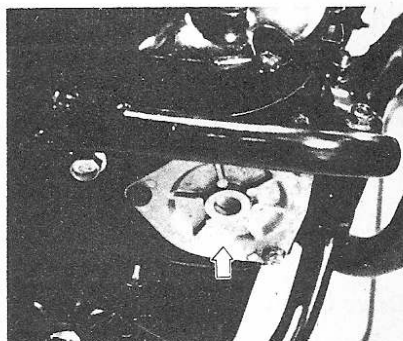
20. Check for leaks at the drain plug and filter cap before operating the machine.

#### Filter Screen

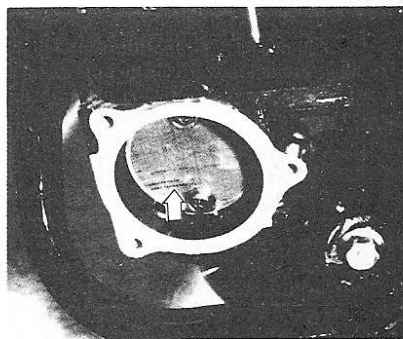
The crankcase has a filter screen in the sump which should be inspected and cleaned at every other oil change (1200 miles).

1. Drain the oil.

2. Remove the three screws at the very bottom of the crankcase which hold the screen cover.



**Filter screen cover (125)**



**Oil filter screen (125)**

3. Remove the two screws which hold the filter screen and take it out.

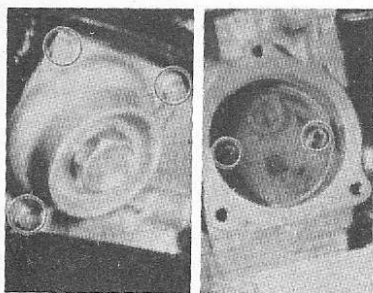
4. Clean the screen thoroughly in a solvent to remove all traces of foreign matter.

5. Check screen condition. If it is punctured, badly clogged or deformed, replace it.

6. Check the matter removed from the screen for metal particulates which would indicate on-going engine wear.

7. Install the screen and tighten the two screws.

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Oil filter screen cover and fasteners (185)

8. Clean the cover mating surface thoroughly.
9. Ensure that the cover O-ring is in good condition. Replace it if knicked or otherwise damaged.
10. Install the cover and refill the crankcase with oil.

## Engine Oil Pressure

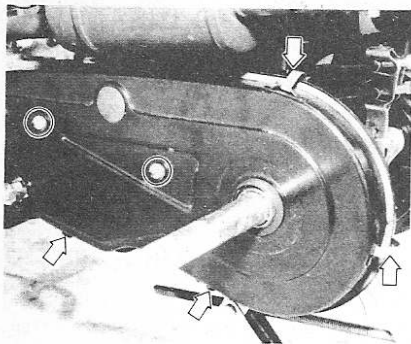
Oil pressure can be checked if the proper gauge and fitting are available and a method is found of measuring engine rpm.

1. Warm engine oil to 140°F.
2. Remove the oil gallery plug on the right side of the engine in front of the clutch housing and install the pressure gauge.
3. Oil pressure should be 4.3-10.0 psi at 3000 rpm.
4. Oil pressure which is too high may be caused by oil which is too heavy for conditions, or merely too heavy. Other causes include a clogged passage or filter, improperly installed filter, or a combination of these factors.
5. Low oil pressure can be caused by leakage from the gallery, a damaged oil seal, worn engine components or a defective oil pump.

## Drive Chain

The chain should be cleaned and lubricated every 600 miles.

The chain is fitted with rubber O-rings between the plates. Use only kerosene to clean it. Do not use gasoline or similar petroleum-based solvents. They may damage the O-rings.



Chain case nuts and clamps

The chain should be lubricated with motor oil only. Do not use commercial chain lubes. They may contain materials which will damage the chain O-rings.

The chain is accessed by removing the seat, rear fender and chain case. The case is secured by two nuts and four clamps.

## Rear Axle Housing

The rear axle housing is fitted with a grease nipple for bearing lubrication. Apply grease every 600 miles.

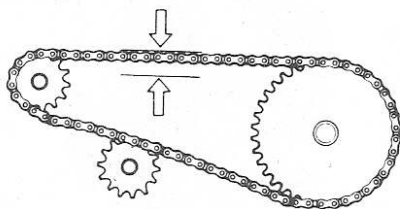
## SERVICE CHECKS AND ADJUSTMENTS

### Throttle Cable

1. The throttle cable adjuster is located near the carburetor and is accessed by removing the seat.
2. The cable should be adjusted so that free play is about 0.5-1.0mm (0.02-0.04 in.). This distance is measured between the sheath of the cable coming from the carb and the end of the adjuster.
3. Remove the seat.
4. Loosen the adjuster locknut and turn the adjuster in or out until the proper free play is obtained. Tighten the locknut.
5. Replace the seat.
6. After making this adjustment, let the engine idle and turn the handlebars slowly from lock to lock. Any variation in idle speed means that the throttle cable has insufficient free play or is binding somewhere along its route.
7. After making any adjustment to the throttle cable, check throttle operation before riding the machine.

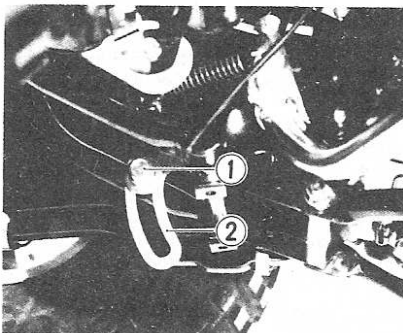
### Drive Chain

1. Drive chain free-play should be checked every 600 miles.
2. If the chain is dirty, it should be cleaned and lubricated before checking.
3. The machine must be parked on a level surface with a rider sitting on the seat.
4. An inspection cap is fitted to the chain case for easy free-play checking. Remove the cap.



Chain free-play

5. The chain free-play should be:  
ALT 185: 10-20mm/0.39-0.79 in.  
Other models: 5-15mm/0.2-0.6 in.  
This is the total up-and-down play. If adjustment is necessary, proceed as follows:

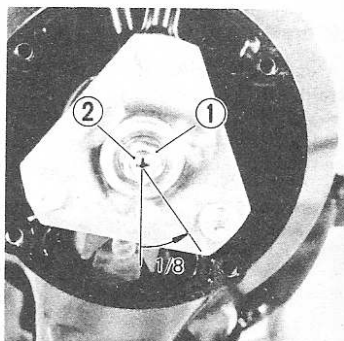


Chain adjuster (2) and lockbolt (1)

6. Remove the skid plate.
7. Loosen the chain adjuster lockbolt.
8. Move the slotted adjuster until chain free-play is correct. Moving the adjuster up reduces free-play.
9. Hold the adjuster in place and tighten the locking bolt. Torque to 51-73 ft. lbs.
10. Recheck chain free-play at the inspection hole.
11. Periodically, the chain should be checked for wear. Proceed as follows:
  - a. Remove the seat and rear fender.
  - b. Remove the skid plate.
  - c. Remove the two nuts and four clamps that secure the chain case and remove it.
  - d. Loosen the chain adjuster locking bolt.
  - e. Push up on the adjuster until all free-play is removed from the chain.
  - f. Measure the distance between 21 pins on the upper chain run. Maximum allowable distances are:  
125 models: 256mm/10.07 in.  
185 models: 324mm/12.8 in.
  - g. If the measured distance exceeds this specification, replace the chain.
  - h. Adjust the chain to the proper free-play as outlined above.

## Clutch

1. The clutch should be adjusted every 1200 miles after break-in is complete.
2. Remove the four screws and take off the clutch cover.

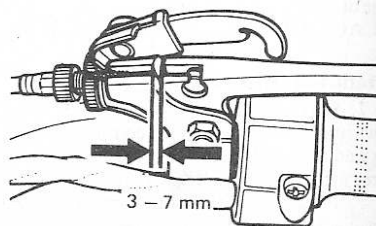


Clutch adjuster screw (2), locknut (1) and adjustment (1/8 turn)

3. Loosen the adjuster screw locknut.
4. Back off the adjuster screw, then turn it clockwise until resistance is felt. Back the adjuster screw off 1/8 turn.
5. Tighten the locknut.

## Brake

1. The rear brakes are controlled jointly by the foot pedal and the hand lever on the left side. Both must be adjusted when servicing the brakes. The foot pedal must be adjusted first.



Brake lever free-play

2. The foot pedal is connected to the lower of the two cables at the brake plate lever.

3. Use the adjusting nut on the end of the cable so that the foot pedal can move 20-30mm (0.8-1.0 in.) before the linings contact the drum.

4. Check brake hand lever free-play. The lever should have 3-7mm (0.1-0.3 in.) of free play before the linings contact the drum. This specification is measured between the lever and the lever holder.

5. If adjustment is necessary, first run the adjuster at the handlebar all the way in.

6. Use the adjusting nut on the end of the brake cable to give the hand lever the required amount of free-play.

7. Make fine adjustments with the adjuster at the handlebar.

8. After the brakes are adjusted, apply foot pedal or hand lever fully and check that the index mark on the brake camshaft is still within the wear limit range embossed on the axle housing. If it is not, the linings must be replaced.

## Tires

1. Tire pressure should be checked before each ride.

2. Always check pressure when tires are cold.

3. Proper tire pressure is 2.2 psi for solo riding.

4. Tire pressures should be checked with an accurate, low-pressure gauge.

5. Never exceed the recommended pressures.

6. When inflating tires, a hand pump is highly recommended. High pressure lines such as found in gas stations should never be used.

**WARNING:** Tire condition and tire pressures constitute critical safety factors. Be certain that manufacturer's guidelines are adhered to in all cases.

7. Tires must be replaced when tread depth is 4.0mm (0.16 in.) or less.

## Steering

### ALT MODELS

1. Front fork bearing play should be checked every 600 miles.

2. Support the front wheel off the ground.

3. Grasp the forks and attempt to move them back and forth in line with the machine. There should be no play. If there is, bearings are either too loose, or are worn. Refer to "Chassis" for service procedures.

4. Move the handlebars slowly from lock-to-lock. Note any binding, roughness or noise. Movement must be smooth. If it isn't, suspect bearing damage. See "Chassis" for service procedures.

## LT MODELS

Toe-in of the front wheels should be checked every 600 miles. This procedure, and subsequent adjustments, are given in the "Chassis" section.

## FUEL SYSTEM

Fuel system maintenance involves cleaning the fuel line filter screens, cleaning the air filter and cleaning the carburetor.

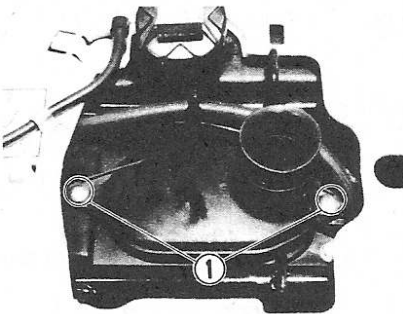
### Air Filter

1. The filter element should be cleaned and reoiled every 600 miles under normal operating conditions.

2. Remove the seat.

3. Remove the air cleaner case cover after removing the securing screws.

4. Pull out the element snap pin and take out the element.



Air cleaner case cover screws (1)

5. Remove the element from the frame.

6. Clean the element in a safe, non-flammable solvent. Be sure to squeeze the element; do not wring it out as this will damage the pores.

7. When the element is clean, squeeze off the excess solvent.

8. Soak the element in motor oil. Squeeze off the excess, leaving the element slightly wet with the oil.

9. Fit the element onto the frame. Install the assembled components in the case.

**NOTE:** If the element is damaged or cannot be cleaned properly, replace it. Check for rips or torn areas, especially along the seam.

## Fuel Filters, Carburetor

Fuel filters are located on the lines inside the gas tank. Service to these items, and carburetor disassembly, is covered in the "Fuel System" section.

## TOP END FASTENERS

1. The factory recommends that cylinder head nuts, cylinder base nuts and exhaust pipe and muffler fasteners be tightened every 600 miles.

**NOTE:** This procedure must be done when the engine is cold.

2. Remove the seat.

3. Remove the front fender (LT models) or frame cover (ALT models).

4. Remove the cylinder head cover.

5. Loosen the four 8mm nuts under the cover and the two 6mm nuts on the left side of the engine.

6. Gradually, and in a cross pattern, tighten the 6mm nuts to 5.0-8.0 ft. lbs. and the 8mm nuts to 11.0-14.5 ft. lbs.

7. Loosen the two 6mm cylinder base nuts on the left side of the engine, then retighten to 5.0-8.0 ft. lbs.

8. Tighten the exhaust pipe nuts at the cylinder head to 6.5- 8.5 ft. lbs. Tighten the muffler bolts to 13.0- 20.0 ft. lbs.

9. When refitting the cylinder head cover, use liquid gasket material on the mating surface.

## MAINTENANCE DATA

### Fuel tank (w/reserve)

LT/ALT 125D.....5.0L/1.3 gal.

LT/ALT 125E-F .....8.0L/2.3 gal.

LT/ALT 185 .....8.0L/2.3 gal.

### Engine oil

Routine change .....1100 ml/1.16 qts.

Oil & filter change .....1150 ml/1.2 qts.

After rebuilding .....1200 ml/1.3 qts.

### Tire pressure (cold)

Front and rear .....2.2 psi

Oil pressure.....4.3-10.0 psi @ 3000 rpm, 140°F

# Suzuki LT/ALT 125/185

## GENERAL SPECIFICATIONS

	LT 125	ALT 125	LT 185	ALT 185
<b>DIMENSIONS</b>				
Overall length (mm/in.)	1680/66.1	1655/65.2	1680/66.1	1655/65.2
Overall width (mm/in.)	950/37.4	950/37.4	950/37.4	950/37.4
Overall height (mm/in.)	980/38.6	965/38.0	980/38.6	965/38.0
Wheelbase (mm/in.)	1045/41.4	1045/41.4	1045/41.4	1045/41.4
Front track (mm/in.)	650/25.6	—	650/25.6	—
Rear track (mm/in.)	700/27.6	700/27.6	700/27.6	700/27.6
Ground clearance (mm/in.)	110/4.3	110/4.3	110/4.3	110/4.3
Dry weight (kg/lbs.)	129/284	118/260	138/304	125/276
<b>ENGINE</b>				
Type	four-stroke, single cylinder, air-cooled OHC			
Bore (mm/in.)	57.0/2.244	57.0/2.244	63.0/2.480	63.0/2.480
Stroke (mm/in.)	48.8/1.921	48.8/1.921	57.0/2.244	57.0/2.244
Displacement (cc/cu.in.)	124/7.5	124.7.5	178/10.9	178/10.9
Compression ratio (:1)	8.5	8.5	9.0	9.0
Carburetor	VM20SS	VM20SS	VM22SS	VM22SS
Lubrication system	wet sump	wet sump	wet sump	wet sump
Starting system	recoil	recoil	recoil	recoil
<b>TRANSMISSION</b>				
Clutch type	wet multi-plate automatic centrifugal			
Transmission type	5-speeds forward constant mesh; 1-speed reverse			
Primary reduction	3.736 (71/19)	3.736 (71/19)	3.736 (71/19)	3.736 (71/19)
Final reduction	3.769 (49/13)	3.769 (49/13)	3.166 (38/12)	3.166 (38/12)
<b>Gear ratios</b>				
Low	3.545 (39/11)	3.545 (39/11)	3.454 (38/11)	3.454 (38/11)
1st	2.333 (35/15)	2.333 (35/15)	2.500 (35/14)	2.500 (35/14)
2nd	1.500 (30/20)	1.500 (30/20)	1.722 (31.18)	1.722 (31/18)
3rd	1.173 (27/23)	1.173 (27/23)	1.227 (27/22)	1.227 (27/22)
Top	0.913 (21/23)	0.913 (21/23)	0.960 (24/25)	0.960 (24/25)
Reverse	3.090 (34/11)	3.090 (34/11)	2.727 (33/11 × 30/33)	2.727 (33/11 × 30/33)
<b>ELECTRICAL SYSTEM</b>				
Ignition	PEI	PEI	PEI	PEI
Timing (full advance)	10° BTDC below 2000 rpm; 30° BTDC above 3500 rpm			
<b>CHASSIS</b>				
Steering angle	42°30'	38°	38°1/24°0	38°
Caster	2°30'	68°30'	3°30'	68°30'
Trail (mm/in.)	10/0.4	57/2.24	14/0.6	57/2.24
Toe-In (mm/in.)	5-11/0.2-0.4	—	12-18/0.5-0.7	—
Camber	1°	—	2°	—
Turning radius (m/ft.)	2.2/7.2	2.2/7.2	2.2/7.2	2.2/7.2
Front tire size	20 × 7.00-8	22 × 11.00-8	20 × 7.00-8	22 × 11.00-8
Rear tire size	22 × 11.00-8	22 × 11.00-8	22 × 11.00-8	22 × 11.00-8
<b>CAPACITIES</b>				
Fuel tank (1/gal)	5.0/1.3 <sup>Ⓢ</sup>	5.0/1.3 <sup>Ⓢ</sup>	8.0/2.1	8.0/2.1

<sup>Ⓢ</sup> E/F models: 8.0/2.1

## RECOMMENDED LUBRICANTS

Engine  
SAE 10W-40 oil, service rated "SE" or "SF"

Drive chain  
Motor oil

Air filter  
Medium-weight motor oil

Control cables, odometer cable  
Light motor oil  
Graphite-based lubricant  
Molybdenum-disulphide-based lubricant

Throttle lever  
Light-duty grease

Rear axle housing  
Waterproof, medium-weight bearing grease

Wheels and steering shaft  
Waterproof, medium-weight bearing grease

General chassis lubrication  
Waterproof, medium-weight chassis grease

## PERIODIC MAINTENANCE INTERVALS<sup>①</sup>

Before each ride  
Check operation of lights  
Check engine oil level  
Check tire pressure and condition  
Check tightness of critical fasteners  
Check throttle and brake operation

Every 600 miles  
Change engine oil  
Change oil filter  
Clean air filter element  
Check battery  
Check brake adjustment and wear  
Check steering operation  
Tighten cylinder, cylinder head and exhaust pipe fasteners  
Tighten all hardware  
General chassis lubrication  
Clean and lubricate drive chain  
Check drive chain free-play  
Lubricate rear axle housing

Every 1200 miles  
Clean oil filter screen  
Adjust clutch  
Lubricate throttle lever, odometer cable, wheel  
and steering bearings

Every 4 years  
Replace fuel lines

<sup>①</sup> Based on normal use of the machine after break-in is complete

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## TUNE-UP

NOTE: Common tune-up procedures are explained in detail in the "General Information" section.

### COMPRESSION TEST

1. A compression check should be made before each tune-up since this will provide a general idea of engine condition.

2. If a screw-in type gauge is used, note that the spark plug hole is 12mm.

3. Before making this test, check that the cylinder head nuts and bolts are properly torqued (see "Maintenance") and that the valves are properly adjusted (see below). Be sure the compression release cable is disengaged if one is fitted.

4. The engine must be at operating temperature.

5. Remove the spark plug.

6. Fit the compression gauge. If a hold-in type gauge is used, oil the rubber tip to give a better seal.

7. Hold the throttle wide open and crank the engine with the recoil starter.

8. The highest attainable reading is the compression. The standard specifications are:  
125 models: 142-199 psi  
185 models: 185-241 psi.

The lowest acceptable readings are 114 psi for the 125 and 156 psi for the 185.

9. If compression is too low, squirt a bit of motor oil into the cylinder and repeat the test. If compression increases, suspect worn piston rings or cylinder walls. If it does not, the cause may be a defective head gasket, burnt, poorly seated or incorrectly adjusted valves.

NOTE: Some models are equipped with a compression release cable. Be sure the cable is properly adjusted before checking the compression.

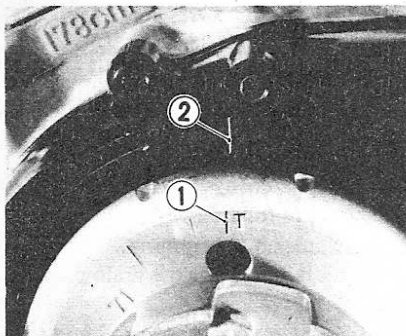
### CAM CHAIN TENSIONER

1. The cam chain tensioner should be adjusted every 600 miles.

2. The tensioner is a spring-loaded unit which will take up excess slack in the chain when the tensioner rod is released from its normally locked position. For accurate settings, the adjustment must be made when the piston is at TDC on the compression stroke.

3. Remove the seat.

4. Remove the front fender (LT models) or front frame cover (ALT models).

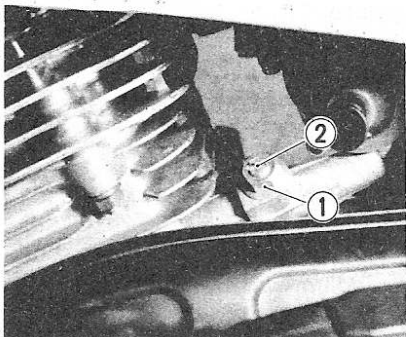


Magneto rotor "T" mark (1) and stationary timing mark (2)

5. Remove the spark plug.
6. Remove the valve adjuster caps.
7. Remove the gearshift lever.
8. Remove the recoil starter assembly.
9. Rotate the engine until the "T" mark on the magneto rotor aligns with the mark on the crankcase cover. The piston is now positioned at TDC.

10. Check for clearance at both valves. If both valves are closed, the piston is at TDC on the compression stroke and the adjustment sequence may proceed. If there is not clearance at both valves, the piston is at TDC on the exhaust stroke. In this case, rotate the rotor 360° until the "T" mark alignment is reestablished. Now check for clearance at both valves.

11. When the piston is properly located, loosen the locknut on the cam chain tensioner behind the cylinder.



Cam chain tensioner locknut (1) and adjuster screw (2)

12. Turn the adjuster screw one full turn counterclockwise. The spring-loaded tensioner rod will be free to take up chain slack.

13. Tighten the adjuster screw to lock the rod in place.

14. Tighten the locknut.

15. After adjustment, check that chain operation is quiet. If the procedure was done correctly, but the chain is still noisy, it is probable that the rod is sticking due to dirt or the like. The assembly should be removed and thoroughly cleaned. Refer to "Engine and Transmission" for procedures.

### VALVE ADJUSTMENT

NOTE: Valve adjustment must be done when the engine is cold.

1. Valve clearance must be checked every 600 miles.

2. Remove the seat.

3. Remove the front fender (LT models) or the front frame cover (ALT models).

4. Remove the spark plug.

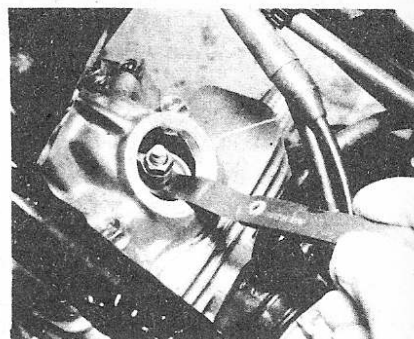
5. Remove the valve adjuster caps.

6. Remove the gearshift lever.

7. Remove the recoil starter assembly.

8. Rotate the magneto rotor until the "T" mark on the magneto rotor aligns with the mark on the crankcase cover. This will position the piston at TDC.

9. Check for clearance at both valves by attempting to move the adjusters. If there is clearance at both valves, the piston is on the compression stroke and the adjustment sequence can continue. If clearance cannot be detected at both valves, the piston is probably at TDC on the exhaust stroke. Rotate the



Adjusting the valves

magneto rotor one full turn until the "T" mark alignment is reestablished. Then check for clearance at the valves once more.

10. With the piston at TDC on the compression stroke, check valve clearance.

11. Proper valve clearance is 0.08-0.13mm (0.003-0.005 in.) for both the intake and the exhaust valve.

12. Select a feeler gauge blade near the middle of these specifications and attempt to slip the blade between the valve stem and the adjuster.

13. If clearance is correct, a blade of the proper thickness will be a light slip fit between stem and adjuster.

14. If adjustment is necessary, loosen the adjuster locknut, insert a blade of the proper thickness, and turn the adjuster until the blade is a slip fit—not too loose.

15. When clearance is correct, hold the adjuster in place and tighten the locknut.

16. Recheck clearance after the locknut is secured.

17. Install adjuster caps, recoil starter, spark plug, etc.

18. On machine equipped with a compression release cable, adjust the cable after the valves have been adjusted.

19. After the procedures are complete, check engine compression.

### Compression Release Cable

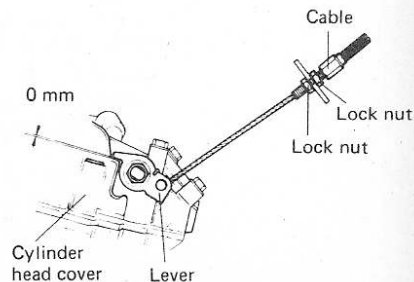
1. Some models are equipped with a compression release cable. The cable should be adjusted after the valves are set.

2. Pull the compression release lever on the handlebar.

3. With the handlebar lever fully pulled in, check clearance between the indicator on the engine lever and the upper surface of the cylinder head cover.

4. Clearance should be nil (zero).

5. Use the cable adjuster at the bracket to make this adjustment. Loosen the two locknuts and move the adjuster on the bracket as required. Tighten the locknuts.



Compression release cable adjustment

## IGNITION TIMING

The machine is equipped with a solid-state ignition system which requires no adjustment or routine maintenance.

## CARBURETOR

Carburetor adjustments to be made during a complete tune-up include checking the float level, adjusting the idle mixture and adjusting the idle speed.

An aftermarket tachometer is required if idle speed is to be set exactly to specification.

**NOTE:** Fuel system adjustments may be ineffective or impossible if the carburetor or air filter are dirty or if there are mechanical faults (such as air leaks) in the system.

### Float Level

1. Float level is a measure of the amount of gasoline which will be present in the float bowl during operation. While it is a critical specification, it will not normally need periodic readjustment once it is properly set. Float level, therefore, need not be checked at every tune-up, but should be attended to from time to time.

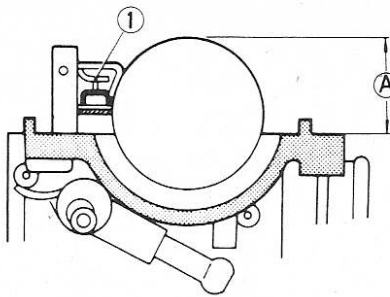
2. Remove the carburetor from the machine. Refer to the "Fuel System" section for procedures.

3. Remove the float bowl.

4. Remove the float bowl gasket.

5. Turn the carburetor upside down and lower the float until the tang just touches the tip of the needle.

6. Float level is the distance from the float bowl mating surface (gasket removed) to the top of the float.



Float level ("A") is adjusted by bending tang (1)

7. Float level is 25.8mm (1.02 in.) with a tolerance of  $\pm 1.0\text{mm}$  (0.04 in.).

8. If the measured float level is not within this range, remove the float by pushing out the pivot pin.

9. Bend the float tang in the required direction to raise or lower the float level. Bending the tang away from the carburetor body raises the float level; bending it towards the carb lower the amount of fuel in the bowl.

### Idle Mixture and Idle Speed

1. These adjustments should be made every 600 miles.

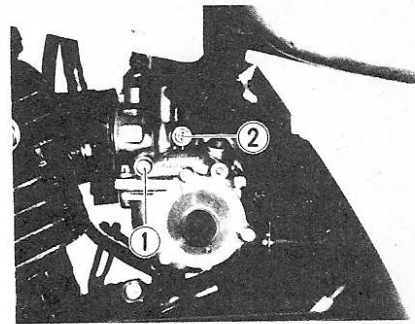
**NOTE:** Idle speed and mixture adjustments must be made when the engine is at operating temperature.

2. Carefully turn the pilot screw in until it bottoms, then back it out the following number of turns:

LT/ALT 125D1 3/4

LT/ALT 125E-F1

LT/ALT 185 1/8



Pilot screw (1) and throttle stop screw (2)

**CAUTION:** Turn the screw in carefully. Do not overtighten it or the calibrated tip will be damaged.

3. Connect a tachometer to the engine.

4. Use the throttle stop screw to adjust idle speed to the proper specification:

LT/ALT 1251500-1600 rpm

LT/ALT 1851350-1450 rpm

5. After idle speed is set, turn the pilot screw 1/2 turn in either direction from the standard setting looking for the highest idle speed. Do not exceed 1/2 turn from the original setting.

6. Readjust idle speed to the standard specification with the throttle stop screw.

7. If these adjustments prove difficult or impossible, suspect dirt or some mechanical defect in the fuel system. Possible causes include air leaks at manifold joints, clogged air or fuel passages in the carburetor, etc. tightly adjusted valves or engine damage of this sort can also make smooth, consistent idling impossible.

## TUNE-UP SPECIFICATIONS

	LT/ALT 125	LT/ALT 185
<b>COMPRESSION</b>		
Cranking pressure (psi)	142-199	185-241
Minimum allowable reading (psi)	114	156
<b>VALVE CLEARANCE</b>		
Intake & Exhaust (mm/in.)	0.08-0.13/0.003-0.005	0.08-0.13/0.003-0.005
<b>SPARK PLUG</b>		
OEM	NGK/ND/Champion	NGK/ND/Champion
Standard	D-7EA/X22ES-U/A8YC	D-7EA/X22ES-U/A8YC
Cold	D#8EA/X24ES-U/A6YC	D-8ES/X24ES-U/A6YC
Standard resistor type	DR-7ES/X22ESR#U/RA8YC	DR-7ES/X22ESR-U/RA8YC
Cold resistor type	DR-8ES-L/X24ESR-U/RA6YC	DR-8ES-L/X24ESR-U/RA6YC
<b>IGNITION TIMING</b>		
	preset	preset
<b>CARBURETION</b>		
Idle speed (rpm)	1500-1600	1350-1450
Pilot screw setting (turns out)	①	2 1/2
Float level (mm/in.)	25.8/1.02 $\pm$ 1.0/0.04	25.8/1.02 $\pm$ 1.0/0.04

① D models: 1

E-F models: 1



# Suzuki LT/ALT 125/185

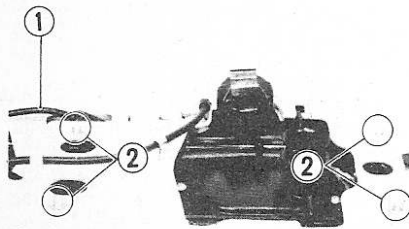
## ENGINE AND TRANSMISSION

**NOTE:** For engine component inspection techniques and procedures, refer to "Engine Rebuilding" in the General Information section.

### ENGINE REMOVAL AND INSTALLATION

**NOTE:** Before removing the engine from the frame, clean both thoroughly.

1. Engine removal procedures are very similar for all models covered in this section. The following instructions note differences between various machines.



Fuel tank vent hose (1) and mounting bolts (2)

2. Drain the engine oil.
3. Remove the seat.
4. Remove the fuel tank cap.
5. Unhook the fuel tank cap band (if fitted) and disconnect the vent hose from the tank.
6. Remove the four bolts and take off the rear fender.
7. Replace the tank cap.
8. On ALT models, remove the front frame cover bolts and screws. Raise the cover, disconnect the odometer cable and remove the frame cover.

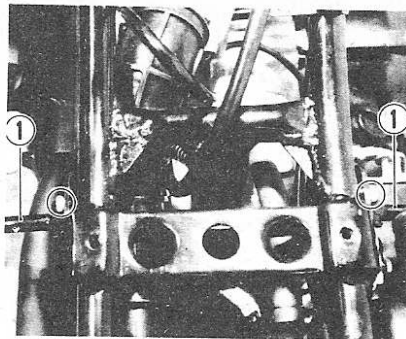


Front frame cover screws (ALT)

9. On LT models, remove the four screws which secure the instrument cluster. Raise the cluster, disconnect the odometer cable and remove the cluster from the machine.

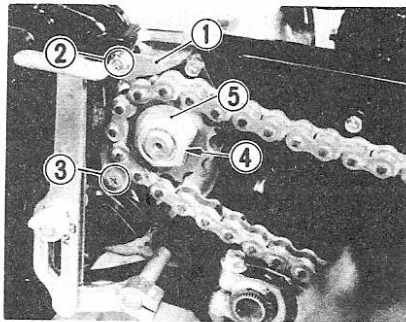
10. On LT models, remove the front fender mounting bolts: there are two at the front and two on each side. Remove the front fender.

**896**



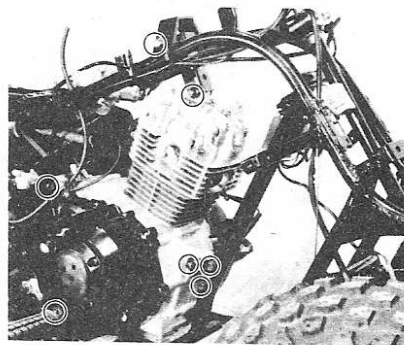
Remove the mounting bracket (1)

11. Remove the fender or cover mounting bracket across the top frame tubes.
12. Remove the exhaust system by removing the two nuts at the cylinder head and the muffler bracket bolt.
13. Remove the skid plate (four bolts).
14. Loosen the drive chain tensioner adjuster bolt.
15. Remove the chain case: there are two nuts and four clamps.



Engine sprocket guide plate (1), fasteners (2,3), locking tab (4) and sprocket nut (5)

16. Remove the engine sprocket guide plate (one bolt, one screw).
17. Remove the engine sprocket nut after bending down the locking tab on the washer.
18. Pull the sprocket off the transmission shaft.



Engine mounting hardware (LT)

19. Be sure the fuel petcock is "OFF." Disconnect the fuel line at the carburetor. Disconnect the vacuum line at the manifold and the overflow line at the float bowl.

20. Loosen the two carburetor clamp screws and pull the carb out of the manifold and air cleaner hoses. Arrange it so that it is not damaged by subsequent removal steps.

21. Disconnect the odometer cable from the engine.

22. Disconnect the breather hose from the back of the crankcase.

23. Locate the wiring connectors near the front of the frame and disconnect wires coming from the engine: lighting, pick-up and power source coils.

24. Disconnect the spark plug cap from the plug.

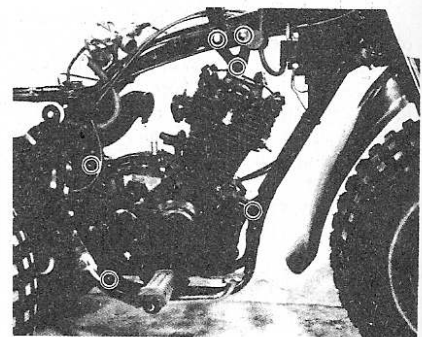
25. Disconnect the compression release cable from the cylinder head lever on models equipped with one.

26. Remove the gearshift lever.

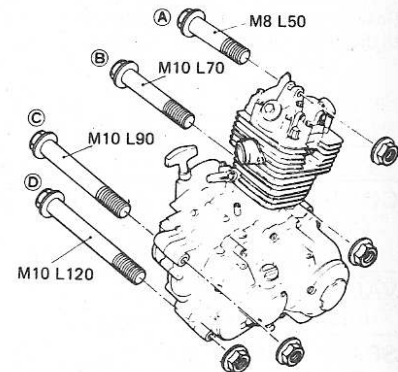
27. Remove the engine mounting bolts and brackets at the cylinder head, front and rear crankcase and beneath the engine.

28. Take the engine out of the right side of the frame.

29. Engine installation is the reverse of removal. Note the following points:



Engine mounting hardware (ALT)



Torque head bolt ("A") to 20-25 ft lbs., others ("B"- "D") to 58-69 ft lbs.

a. Engine mounting bolts use self-locking nuts which cannot be reused. Use new nuts when installing the engine.

b. Tighten the mounting bolt which runs through the cylinder head to 20-25 ft. lbs.

c. Tighten all other mounting bolts to 58-69 ft. lbs.

d. Engine sprocket nut torque is 58-73 ft. lbs. for 125 models, 73-94 ft. lbs. for 185 models.

e. Tighten exhaust pipe cylinder nuts to 7-9 ft. lbs. and the muffler bracket bolt to 13-20 ft. lbs.

f. Be certain that all hoses and lines, electrical connections, control cables, etc., are properly connected and adjusted before starting the engine.

g. Do not forget to add oil before attempting to start the engine.

## TOP END

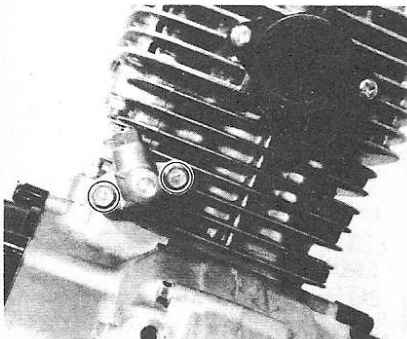
NOTE: Refer to the General Information section of this manual for common engine rebuilding techniques and inspection procedures.

### Cylinder Head

#### REMOVAL

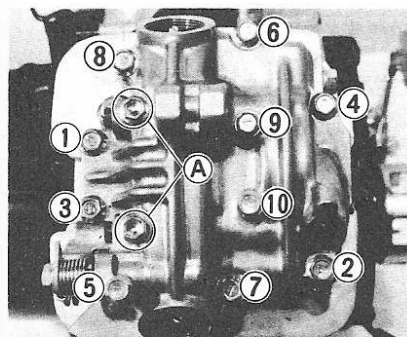
1. It is possible to remove the cylinder head with the engine still in the frame. Remove the seat, front fender (LT) or front frame cover (ALT), rear fender, carburetor and exhaust system. Remove the frame bracket on the head. Refer to "Engine Removal and Installation," above for procedures.

2. Remove the spark plug.



Cam chain tensioner mounting bolts

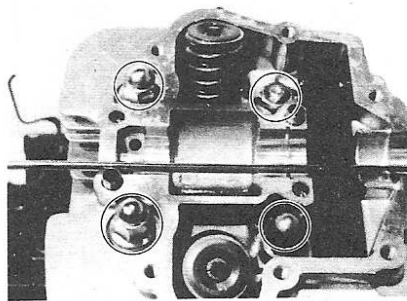
3. Remove the valve adjuster caps.
4. Remove the cam chain tensioner from the left side of the cylinder.
5. Remove the four fasteners that secure the recoil starter assembly (engine left side).
6. Disconnect the compression release cable from the cylinder head cover if equipped with one.
7. Turn the magneto rotor until the "T" mark aligns with the timing mark on the crankcase. Check for clearance at both valves. This indicates that the piston is at TDC on the compression stroke. If one of the valves is tight, rotate the engine 360° and try again. The piston must be at TDC on the compression stroke when removing the head.
8. Refer to the accompanying illustration of the head. Loosen the cylinder head cover bolts gradually and evenly in the order shown.



Cylinder head cover bolt loosening order. Do not remove bolts ("A") which secure the rocker arm shafts

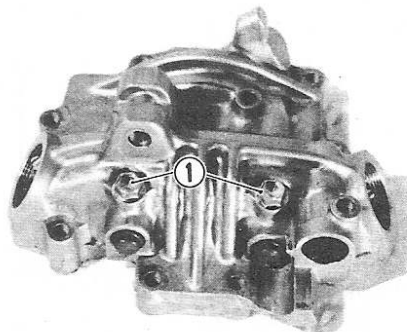
CAUTION: Do not disturb the two bolts (for rocker arm shafts) with conical recesses marked "A" in the illustration.

9. When all cover bolts are loose, remove them.
10. Remove the cylinder head cover.
11. Remove the camshaft end cap.
12. Bend down the locking tabs and remove the cam sprocket bolts.
13. Pull the sprocket off the camshaft. Disengage the sprocket from the chain and remove it.
14. Run a rod through the chain so that it will not drop into the crankcase.
15. Remove the camshaft being careful not to loose the timing pin on the end.
16. The head is secured by four nuts on top and two smaller nuts on the left side of the cylinder. Loosen the fasteners gradually and in a cross pattern. Remove the nuts and washers. Note the locations of the copper washers.



Cylinder head nuts

17. Remove the cylinder head. If it is stuck, rap it with a plastic mallet, but do not strike the cooling fins, as they may break.
18. Remove the head gasket.
19. Pull out the compression release shaft from the cylinder head cover, if one is fitted.
20. Remove the rocker arm shaft set bolts (conically recessed heads) from the head cover.
21. Pull the rocker arm shafts out of the cover with pliers.



Rocker arm shaft set bolts (1)

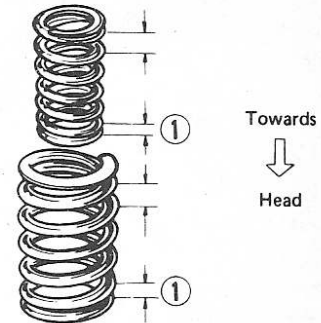
NOTE: Rocker arms and shims will come out at this time. Keep each shaft with its own rocker arm so all parts can be installed in their original locations.

22. If valves fail the leakage test, they can be removed for service by compressing the springs and removing the keepers.
23. Worn valve guides can be driven out of the head with a drift in the usual manner.

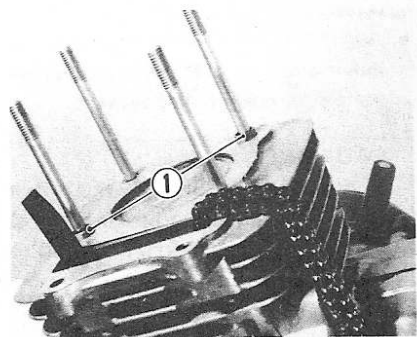
#### INSPECTION

Refer to the Engine Rebuilding section of

"General Information" for component wear checks and measurement points. Compare the measurements against the standard specifications given in the "Engine Specifications" chart, below.



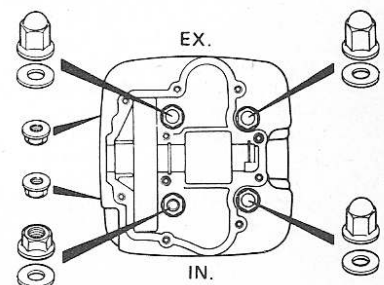
Install valve springs with the close coils (1) towards the head



Cylinder head mating surface dowel pins (1)

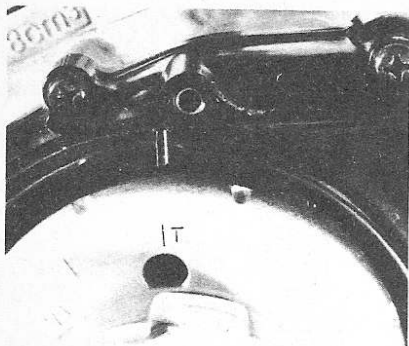
#### INSTALLATION

1. Use new gaskets, O-rings and seals.
2. Install the valve springs with the close coils against the head.
3. Be sure that the two dowel pins are in place on the cylinder mating surface.
4. Install the cylinder head and pull the cam chain through.—
5. Note that the copper washers for the head fasteners are fitted to the same studs that have the dowel pins on the cylinder mating surface.
6. Tighten the nuts gradually and in a cross pattern until the proper torque is reached:  
8mm 11-15 ft. lbs.  
6mm 5-8 ft. lbs.
7. Install and tighten the cylinder nuts on the left side to 5-8 ft. lbs.
8. Turn the magneto rotor until the "T" mark aligns with the timing mark on the crankcase.



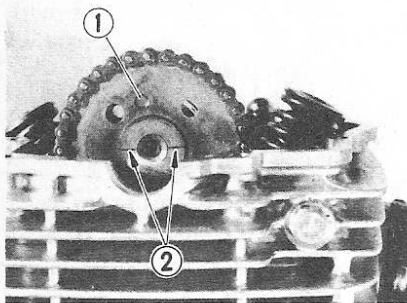
Be sure copper (1) and steel (2) washers are properly located

# Suzuki LT/ALT 125/185



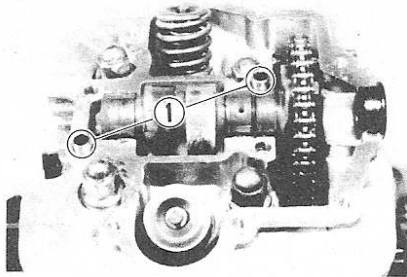
Align rotor "T" mark with crankcase timing mark

9. Pull the cam chain taut when the rotor is turned so that it does not jam.
10. Grease the camshaft timing pin and fit it to the camshaft.
11. Lubricate the camshaft and install it on the head.
12. Engage the cam sprocket and cam chain.

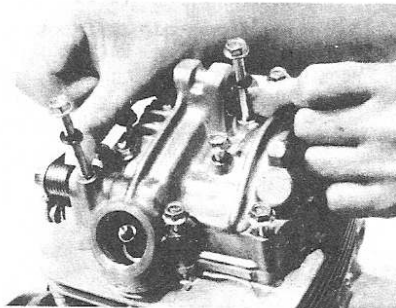


Position timing pin (1) as shown and align slash marks (2) with cover mating surface

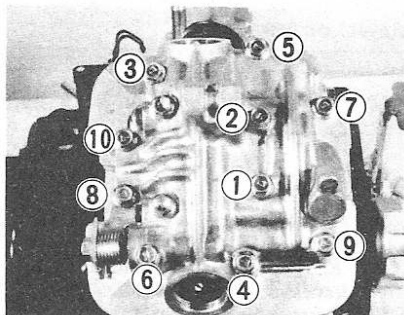
13. Position the camshaft so that the timing pin is at the highest position and that the slash marks on the end of the cam are parallel to the head cover mating surface.
14. With the magneto rotor "T" mark still aligned, and the cam positioned as directed, install the sprocket on the cam without moving either cam or rotor. If this cannot be done, disengage the sprocket from the chain and change its position so that alignment is possible. When assembly is completed, the rotor "T" mark must be aligned with the crankcase timing mark and the camshaft slash marks must be parallel to the cover mating surface. Otherwise valve timing will be incorrect.
15. Use a non-permanent thread locking compound on the sprocket bolts and tighten them to 7.0-9.5 ft. lbs. Bend up the locking tabs.
16. Lubricate the rocker arm shafts.
17. Locate the exhaust and intake rocker arms. Note that they are not interchangeable on models with a compression release. The exhaust rocker arm has a pad for the compression release lever on these machines.
18. Install the rocker arms, shafts and set bolts. New washers should be used on the set bolts.
19. Lubricate and install the compression release, if one is fitted.
20. Be sure the two dowel pins are in place in the cylinder head.
21. Use gasket compound to seal the head cover mating surface and install the head cover.



Be sure dowel pins (1) are in place



Be sure gaskets are installed on cover bolts



Cover bolt tightening sequence

**CAUTION:** Do not apply the compound to the camshaft end cap.

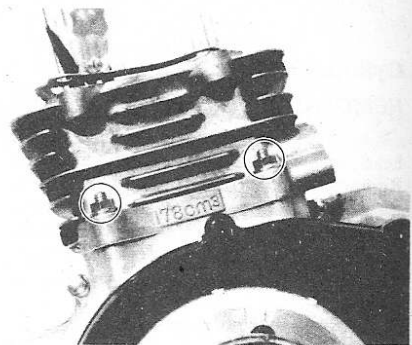
22. Be sure the gaskets are in place on the two cover bolts.
23. Install the cover fasteners. Tighten the fasteners gradually and in the order shown in the illustration until the correct torque (6.5-8.0 ft. lbs.) is attained.
24. To install the cam chain tensioner, loosen the locking nut, loosen the screw one full turn and compress the pushrod. Tighten the screw. Bolt the tensioner on the cylinder. The piston must be positioned at TDC on the compression stroke. Loosen the screw to free the pushrod, then tighten it and tighten the locking nut.
25. Adjust valves. After the engine has a few miles on it, retorque the fasteners and readjust the valves.

## Cylinder And Piston

### REMOVAL

1. Remove the cylinder head as outlined above.
2. Remove the cam chain guide.
3. Remove the cylinder base nuts.
4. Pull off the cylinder.
5. Stuff a clean rag into the crankcase to prevent the entry of foreign matter.
6. Remove the wrist pin circlips.

7. Push out the piston wrist pin and remove the piston. Do not strike or try to drive the wrist pin out. Heat the piston crown gently to make removal easier.
8. Remove the cylinder base gasket.



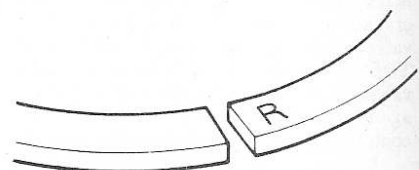
Cylinder nuts

### INSPECTION

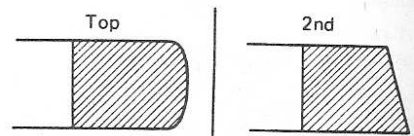
1. Refer to the Engine Rebuilding section of "General Information" for piston and cylinder inspection procedures.
2. Compare specifications obtained from the engine against the standard specs in the chart below.
3. Piston diameter is measured 15mm above the edge of the skirt.
4. Piston rings are available in two over-sizes: 0.5mm and 1.0mm. The compression rings are marked "50" and "100". The 0.5 O.S. oil ring spacer is painted red. The 1.0 O.S. oil ring spacer is yellow.

### INSTALLATION

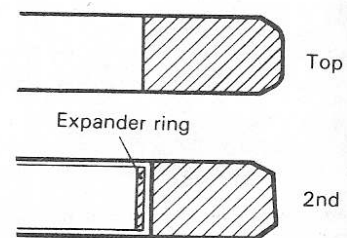
1. The two compression rings are not interchangeable. On 125 models, the top compression ring is chrome-plated, while the second ring is not. On 185 models, the top ring has a rounded profile, while the second ring is wedge-shaped. Be sure the rings are installed in the correct grooves.



Install rings with manufacturer's mark up



Compression ring profiles (185)



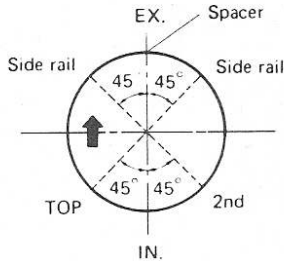
Compression ring profiles (125)

2. Compression rings must be installed with the "R" or "N" mark or oversize mark near the end gap facing up.

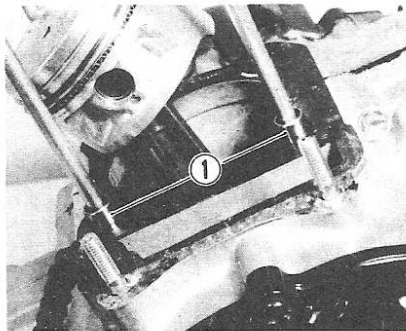
3. Position the ring end gaps around the piston as shown in the illustration.

4. When installing the piston, be sure that the arrow on the crown points towards the exhaust port.

5. Be sure that the dowel pins are in place on the cylinder studs on the left side of the engine.



**Piston ring end-gaps must be positioned as shown**



**Be sure dowel pins (1) are in place on crankcase**

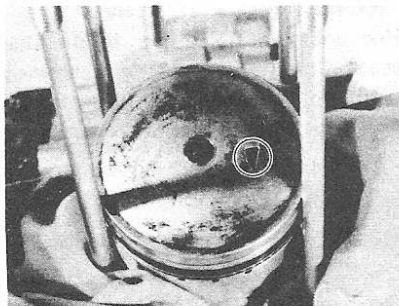
6. Use a new cylinder base gasket.
7. Compress the rings and fit the cylinder while pulling the cam chain through. Keep the chain taut or it may jam on the crank sprocket.
8. Install the cam chain guide. Be sure it is properly seated in its holder in the crankcase.
9. Tighten the cylinder base nuts to 5-8 ft. lbs.

## CRANKCASE COVER COMPONENTS

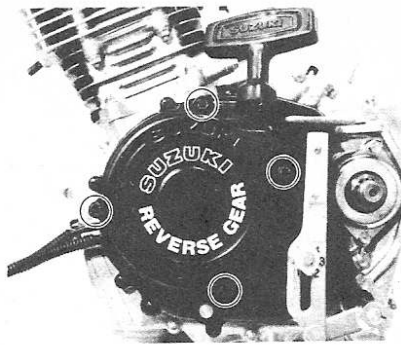
### Left Side

#### REMOVAL

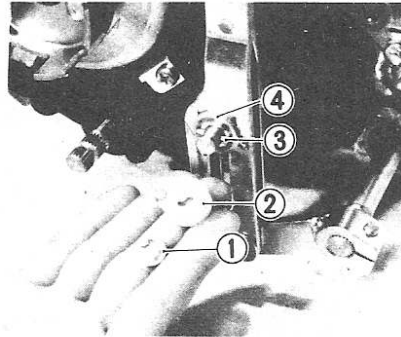
1. Remove the four fasteners that secure the recoil starter assembly and remove the recoil starter.



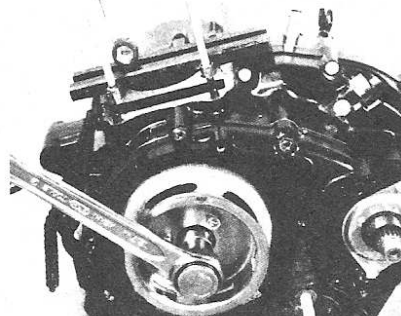
**Install piston so that the arrow points towards the exhaust port**



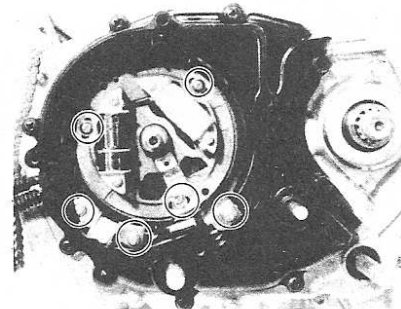
**Recoil starter fasteners**



**Reverse lever E-ring (1), gear position indicator (2), pin (3) and washer (4)**



**Removing the rotor nut**



**Magneto stator screws**

2. Remove the reverse lever E-ring. Remove the gear position indicator, pin and washer.
3. Remove the reverse lever arm pinch bolt. Pull the lever off the shaft. Remove the spring, spacer and washer.
4. Remove the magneto nut.
5. Pull the magneto off the crankshaft.
6. Remove the six magneto stator screws and take off the stator assembly.

7. To proceed past this point, the engine oil must be drained.

8. Remove the crankcase cover screws and take off the left side crankcase cover.

9. Remove the gear position indicator gear by removing the E-ring. Remove the pin.

10. If the top end has been removed, the cam chain can be removed.

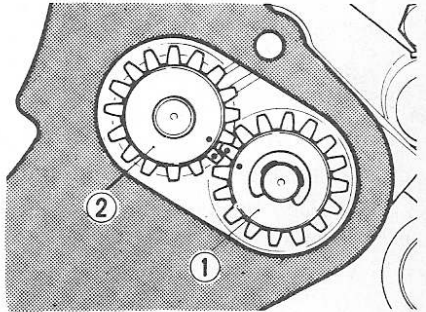
11. Remove the screw which secures the odometer drive box on the top of the crankcase and pull out the assembly.

#### INSPECTION

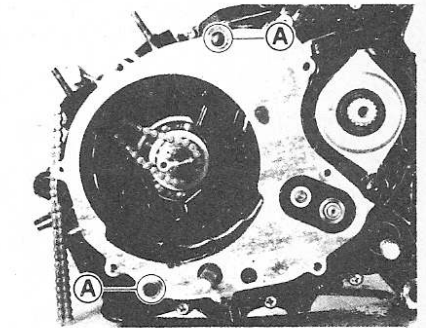
1. Clean all metal parts in a safe solvent.
2. Check gears for damage or wear and replace as required.
3. Use new gaskets and O-rings when assembling.

#### ASSEMBLY

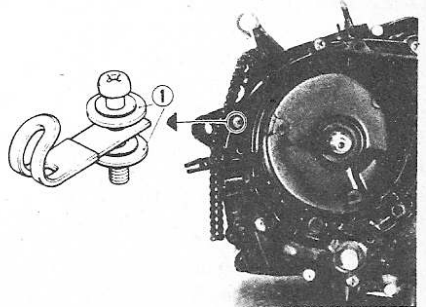
1. When fitting the gear position indicator gears, align the punch marks as shown.
2. Be sure the two dowel pins are installed in the crankcase before installing the crankcase cover.
3. Use a new crankcase cover gasket.



**Align punch marks on teeth of gear position indicator gears (1,2)**



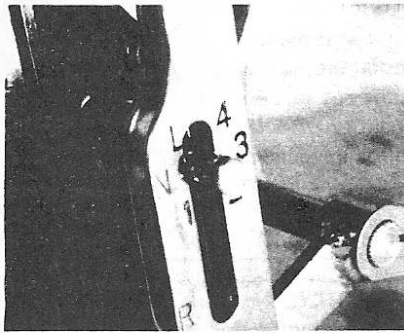
**Be sure crankcase cover dowel pins ("A") are in place**



**Forwardmost screw may have one or more gaskets**

# Suzuki LT/ALT 125/185

4. Install the cover.
5. On some models, the forwardmost cover screw is fitted with one or more gaskets. Be sure they are replaced if originally equipped.
6. Use a non-permanent thread-locking compound on the magneto stator screws.
7. Clean the rotor and the tapered portion of the crankshaft before the rotor is installed.



Align pin hole with reverse lever "N"

8. Use a non-permanent thread-locking compound on the rotor nut and tighten it to 36-44 ft. lbs.
9. Install the reverse lever and align the pin hole with "N."

## Recoil Starter

### DISASSEMBLY

1. Remove the recoil starter assembly from the engine (four bolts or screws).
  2. Remove the E-ring or nut from the shaft and separate the components.
- CAUTION:** Watch the expanding spring when the parts are disassembled.

### INSPECTION

1. Clean all parts thoroughly.
2. Check all parts for damage and replace as required.

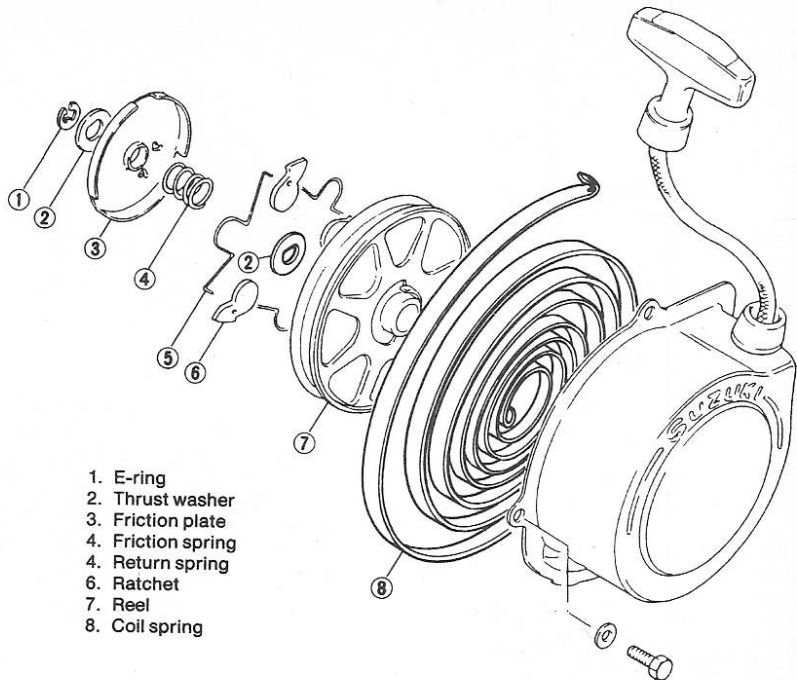
### ASSEMBLY

1. When installing the coil spring, hook the end of the spring onto the rib provided on the case.
2. Grease the spring thoroughly.
3. Wind the starter rope onto the reel. Engage the reel tab with the spring cut-out.
4. Grease the shaft and ratchet before installation.
5. To adjust tension, hook the rope onto the reel and turn it clockwise 3 or 4 times.

## Right Side

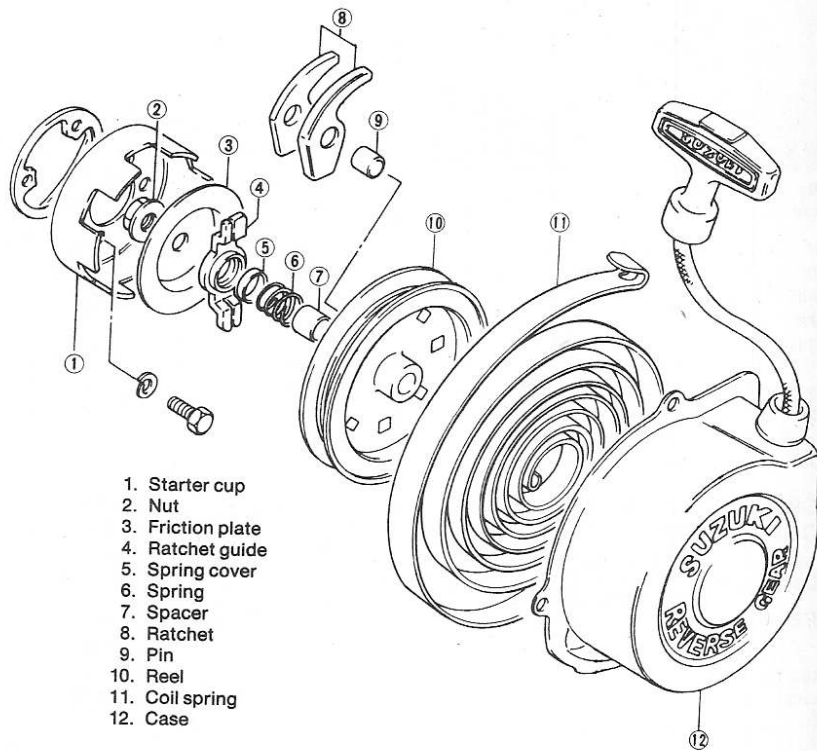
### DISASSEMBLY

1. Drain the oil.
2. Remove the oil filter cap.
3. Remove the oil filter element.
4. Remove the clutch adjuster cap.
5. Remove the three outer ball guide screws. Remove the outer ball guide, release ball assembly, inner ball guide and spring.
6. Remove the clutch push plate.
7. Place a drip pan beneath the engine to catch the oil residue.
8. Remove the clutch cover screws.
9. Remove the clutch cover. If the cover is stuck, free it with a plastic mallet.
10. Remove the clutch release lever bolt.



1. E-ring
2. Thrust washer
3. Friction plate
4. Friction spring
5. Return spring
6. Ratchet
7. Reel
8. Coil spring

Recoil starter assembly (early)

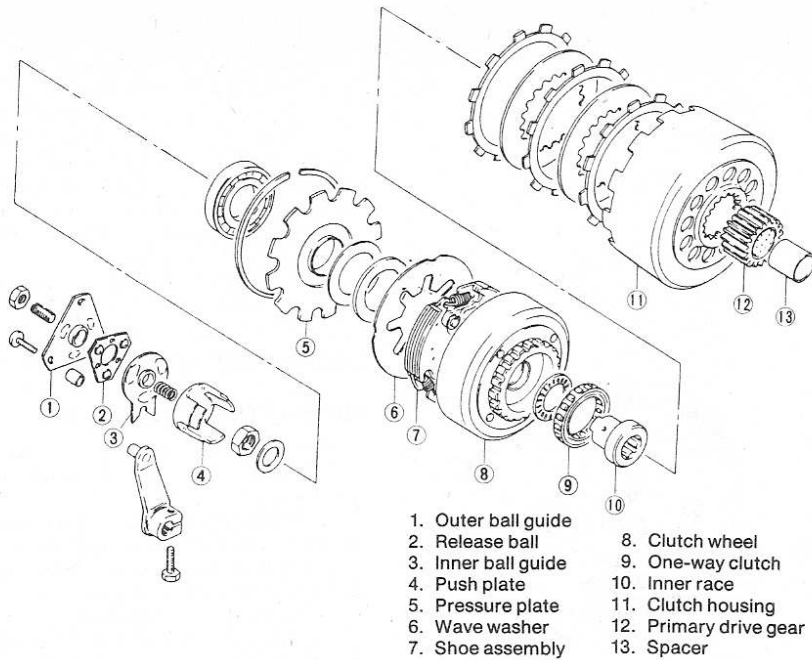


1. Starter cup
2. Nut
3. Friction plate
4. Ratchet guide
5. Spring cover
6. Spring
7. Spacer
8. Ratchet
9. Pin
10. Reel
11. Coil spring
12. Case

Recoil starter assembly (late)

11. Remove the clutch sleeve hub nut.
12. Remove the clutch assembly and primary drive gear.
13. Remove the primary driven gear circlip.
14. Remove the primary driven gear.
15. Slide the oil pump drive gear off its shaft.
16. Remove the oil pump driven gear after removing the circlip.

17. Remove the three oil pump mounting screws and remove the oil pump.
18. Remove the gearshift lever (left side of engine).
19. Pull out the gearshift shaft from the right side.
20. Remove the four screws and take out the cam driven gear. Watch for the pawls, pins and springs which are part of this assembly.



- |                     |                        |
|---------------------|------------------------|
| 1. Outer ball guide | 8. Clutch wheel        |
| 2. Release ball     | 9. One-way clutch      |
| 3. Inner ball guide | 10. Inner race         |
| 4. Push plate       | 11. Clutch housing     |
| 5. Pressure plate   | 12. Primary drive gear |
| 6. Wave washer      | 13. Spacer             |
| 7. Shoe assembly    |                        |

### Clutch assembly

12. Check the condition of the bearing in the clutch cover. Replace it if it is damaged or if rotation is noisy or binding.

13. Check the oil pump for smooth shaft rotation. The pump cannot be disassembled. Replace the oil pump if the shaft rotation is not smooth and noiseless.

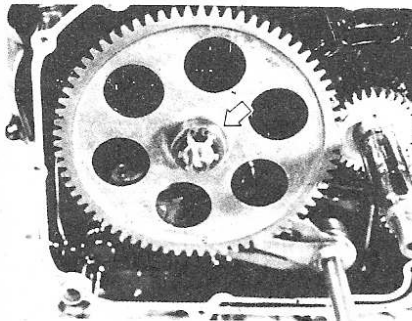
14. Check gearshift shaft components for condition. Check the shaft for a bent condition. Check for chipped gear teeth. Replace defective parts.

15. Replace the gearshift shaft pawl spring if broken or if seems weakened.

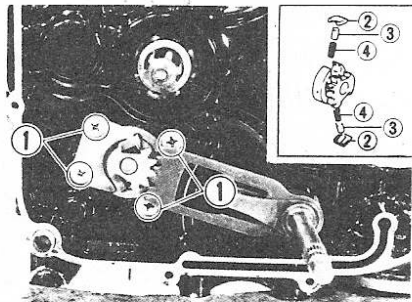
16. Inspect the teeth of the primary drive and primary driven gears. Check for broken, chipped or pitted teeth. Check the fit of the driven gear on its shaft. Check for wear or scoring of the gear bushing and shaft. Replace damaged parts.

### ASSEMBLY

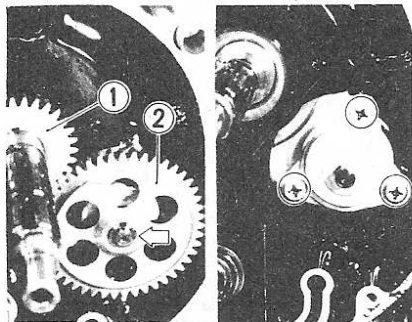
- Use new gaskets and O-rings.
- Be certain all parts are well lubricated during assembly.
- The oil pump should be soaked with clean motor oil before installation.
- Oil pump mounting screws should be secured with a non-permanent thread locking compound and tightened to 5-7 ft. lbs.
- Assemble the clutch by referring to the exploded view. Note the following points:



Primary driven gear circlip



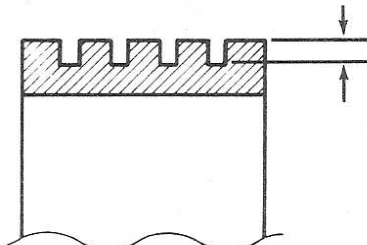
Oil pump drive (1) and driven (2) gears and circlip; oil pump mounting screws



Cam driven gear screws (1); pawls (2), pins (3), springs (4)

### INSPECTION

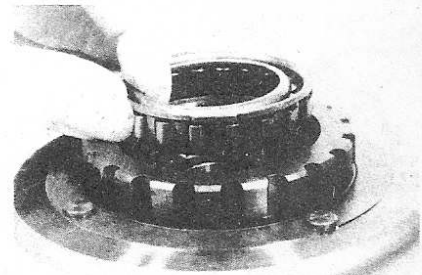
- To disassemble the clutch, compress the pressure plate, remove the retaining ring and separate the components.
- Clean all metal parts in a safe solvent and check for obvious signs of wear.
- Measure the thickness of each clutch drive (friction) plate. Replace the plates as a set if any measures less than 2.6mm (0.10 in.).



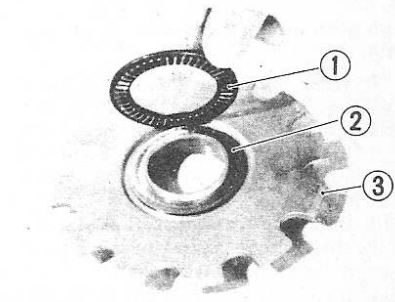
Check clutch shoe grooves

- Measure drive plate tab width. Replace plates if the tabs are worn or if they average less than 11.0mm (0.43 in.).
- Check driven (steel) plate warpage. Maximum allowable warp is 0.1mm (0.004 in.).
- Measure clutch spring free length and replace them as a set if any measures less than 30.2mm (1.19 in.).
- Inspect the clutch shoes for chipping, cracking, uneven wear or a burnt condition. If the grooves are worn away, or if other signs of damage are evident, replace shoes as a set.
- Check the clutch wheel for scoring, cracks, etc., and replace if damaged.
- Check the clutch bearings for damage. Check the clutch release balls for pitting, wear, etc. If any damage is evident, replace the assembly.

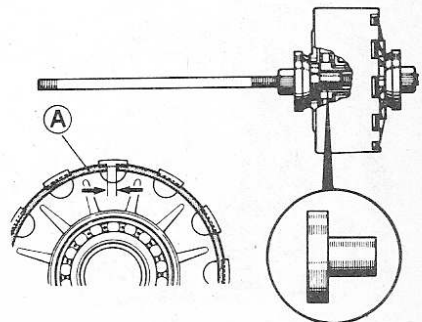
11. Insert the inner race into the one-way clutch and rotate it. Action must be smooth and noiseless. If rotation is rough or binding, replace the clutch bearings.



Lip of the one-way clutch must face away from the clutch wheel



Thrust bearing (1), thrust washer (2), pressure plate (3)



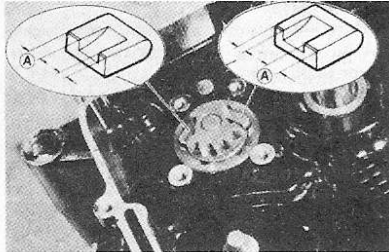
Retaining ring end-gap ("A") must bear against clutch housing finger

# Suzuki LT/ALT 125/185

a. The lip on the one-way clutch must face away from the clutch wheel when the one-way clutch is fitted.

b. When fitting the shoe assembly to the clutch wheel, engage the wheel tabs with the shoe slots.

c. Be sure to install the thrust washer and thrust bearing on the inner side of the pressure plate.

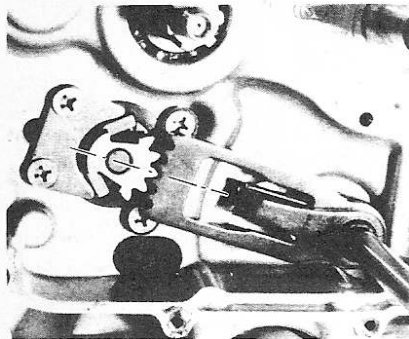


**Shifting pawl wide shoulders ("A") must be on the outside when pawls are fitted**

6. Compress the clutch assembly and install the retaining ring.

**NOTE:** Both ends of the retaining ring should bear against one of the clutch housing fingers.

7. Oil the primary drive gear spacer before installation.



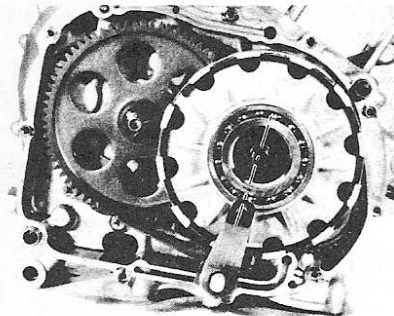
**Align gearshift shaft and cam driven gear teeth**

8. When installing the gear shifting pawls on the cam driven gear, the wide shoulder on the pawls must be on the outside.

9. Install the cam driven gear. Secure the four screws with a non-permanent thread-locking compound.

10. Install the gearshift shaft pawl spring on the shaft with the spring pawls correctly engaged. Insert the gearshift shaft.

11. Match the center teeth of the cam driven gear and the gearshift shaft gear teeth. Check shifting action.



**Align clutch release lever with crankshaft**

12. Install the oil pump gears and the primary driven gear.

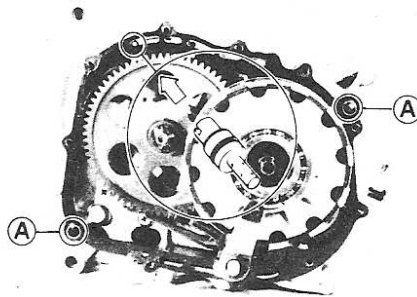
13. Install the clutch assembly on the shaft.

14. On 125 models, tighten the clutch sleeve hub nut to 29-44 ft. lbs.

15. On 185 models, tighten the clutch sleeve hub nut to 44-58 ft. lbs.

16. Install the clutch release lever, aligning the tip of the lever with the crankshaft.

17. Check that the oil jet is in place in the crankcase on the cover mating surface. Check that the two dowel pins are in place on the cover mating surface.



**Be sure dowel pins ("A") and the oil jet are in place on the crankcase mating surface**

18. Use a new cover gasket.

19. Install the clutch cover.

20. Install the clutch push plate.

21. Install the release mechanism.

22. Adjust the clutch by loosening the adjusting screw locknut, backing off the screw until it is free, then turning it clockwise until resistance is felt. Back the screw off 1/8 turn and tighten the locknut.

23. Install the odometer drive assembly if it was removed.

24. The remainder of the procedure is the reverse of disassembly.

## CRANKCASE COMPONENTS

### Splitting The Cases

1. Remove the engine from the frame.  
2. Remove the cylinder head and cylinder.

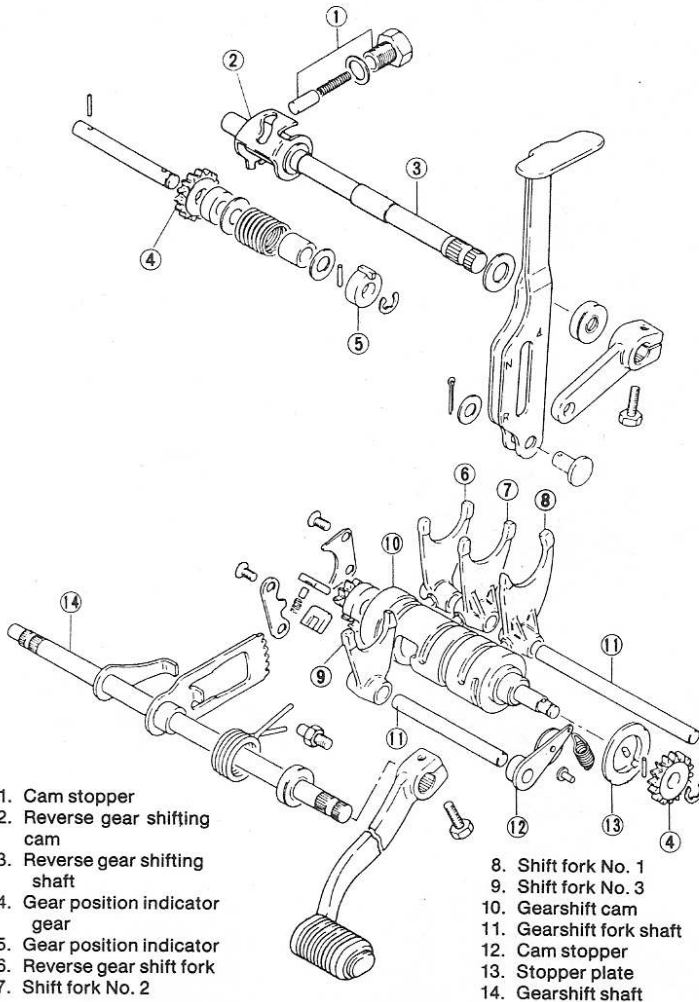
3. Remove the left and right side crankcase cover components as outlined above.

4. Remove the cam stopper bolt, spring and plunger from the crankcase.

5. Remove the crankcase bolts.

6. Separate the case halves. The crank and gear clusters remain in the left crankcase half.

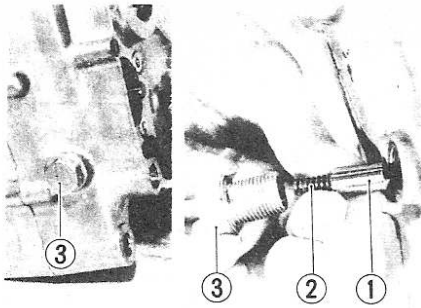
7. Disconnect the shift cam stopper spring.



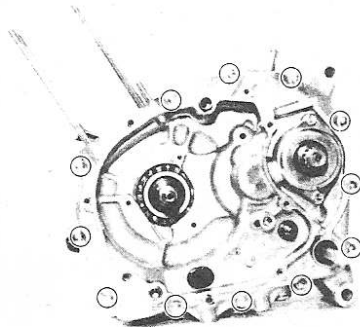
1. Cam stopper
2. Reverse gear shifting cam
3. Reverse gear shifting shaft
4. Gear position indicator gear
5. Gear position indicator
6. Reverse gear shift fork
7. Shift fork No. 2

8. Shift fork No. 1
9. Shift fork No. 3
10. Gearshift cam
11. Gearshift fork shaft
12. Cam stopper
13. Stopper plate
14. Gearshift shaft

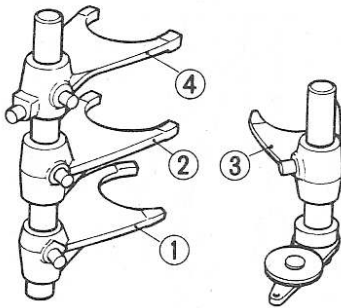
**Gearshifting assembly**



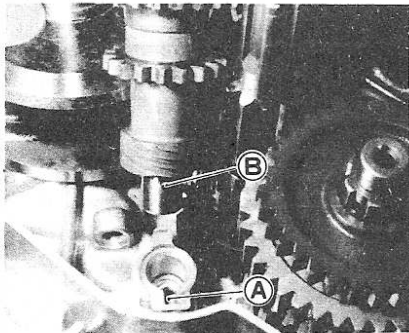
Cam stopper plunger (1), spring (2) and bolt (3)



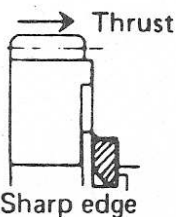
Crankcase screws



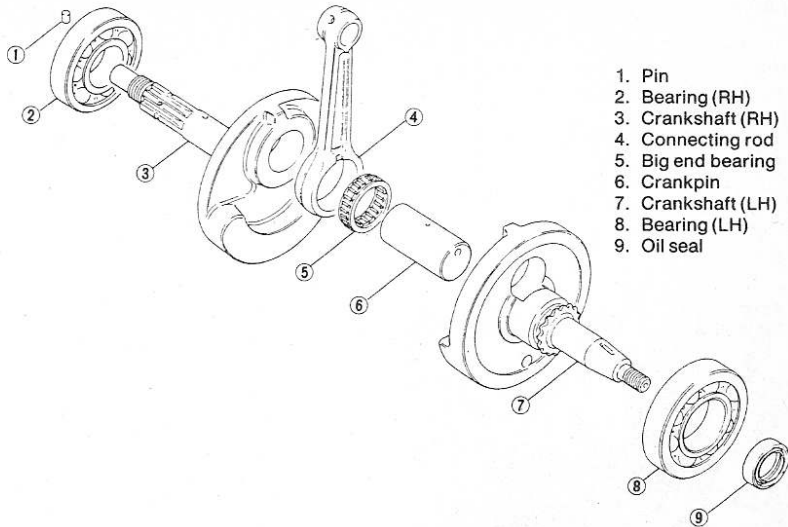
Shift fork installation: 1, top driven gear; 2, 3rd driven gear; 3, 2nd drive gear; 4, reverse driven gear



Reverse shaft pin ("B") fits into groove ("A")

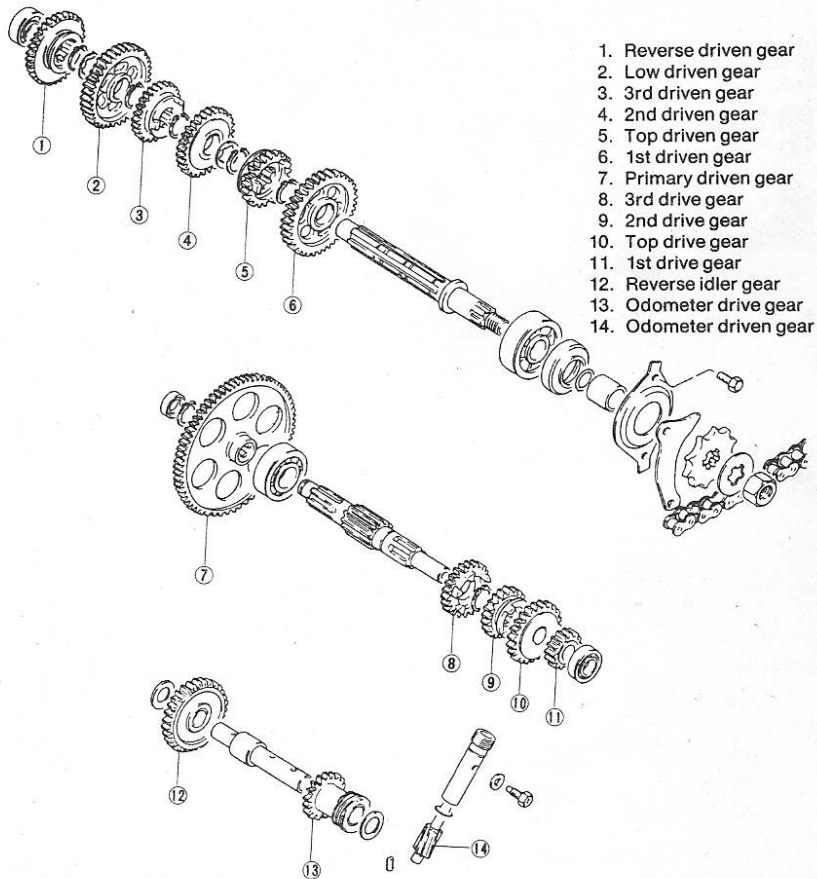


Circlip rounded side must face gear



1. Pin
2. Bearing (RH)
3. Crankshaft (RH)
4. Connecting rod
5. Big end bearing
6. Crankpin
7. Crankshaft (LH)
8. Bearing (LH)
9. Oil seal

Crankshaft components



1. Reverse driven gear
2. Low driven gear
3. 3rd driven gear
4. 2nd driven gear
5. Top driven gear
6. 1st driven gear
7. Primary driven gear
8. 3rd drive gear
9. 2nd drive gear
10. Top drive gear
11. 1st drive gear
12. Reverse idler gear
13. Odometer drive gear
14. Odometer driven gear

Transmission assembly (125D)

8. Remove the gearshift fork shafts.
9. Remove the reverse gear shift shaft.
10. Remove the gears, shift forks and shift cam.
11. Remove the odometer driven gear stopper bolt. Remove the odometer gear.
12. Press the crankshaft out of the case.
13. Remove the oil sump filter cap and filter.

## Inspection

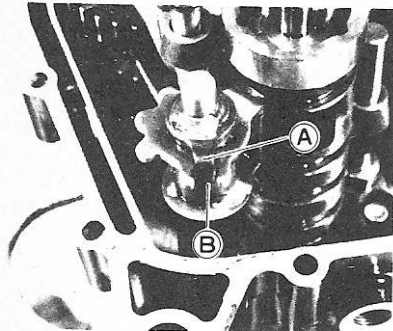
1. Clean all metal parts in a safe solvent.
2. Check all components for obvious signs of wear as directed in Engine Rebuilding section of "General Information." Compare readings taken at the various measurement points against the standard specifications given in the chart below.



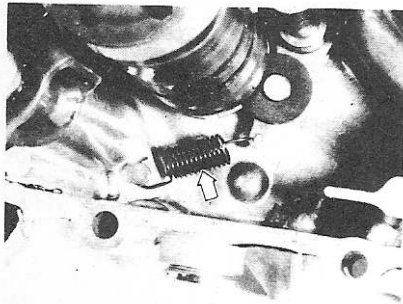
# Suzuki LT/ALT 125/185

## Case Assembly

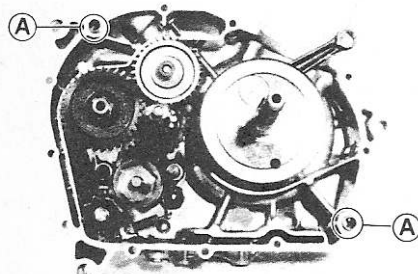
1. Lubricate all components thoroughly during the assembly procedure.
2. Use new oil seals, gaskets, O-rings.
3. Do not strike the ends of the crankshaft when installing it in the case. The shaft must be drawn in from the left side.
4. Refer to the illustrations of the transmission assembly and install all circlips and washers in the proper locations. New circlips



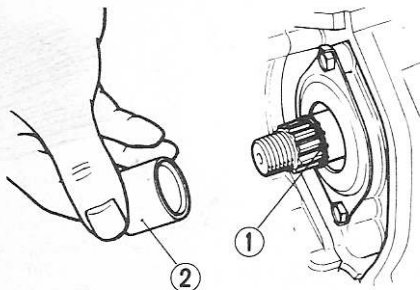
Reverse shifting shaft tab ("A") engages cam cut-out ("B")



Do not forget to hook up the cam stopper spring



Crankcase dowel pin locations ("A")



Transmission drive shaft o-ring (1); install spacer (2) with chamfered side in

should always be used if the shafts have been disassembled.

5. Circlips are installed with the rounded sides facing the gear.

6. The 1st drive gear is a press fit on the shaft and should be secured with thread locking compound. After mounting, ensure that the adjacent gear can spin freely.

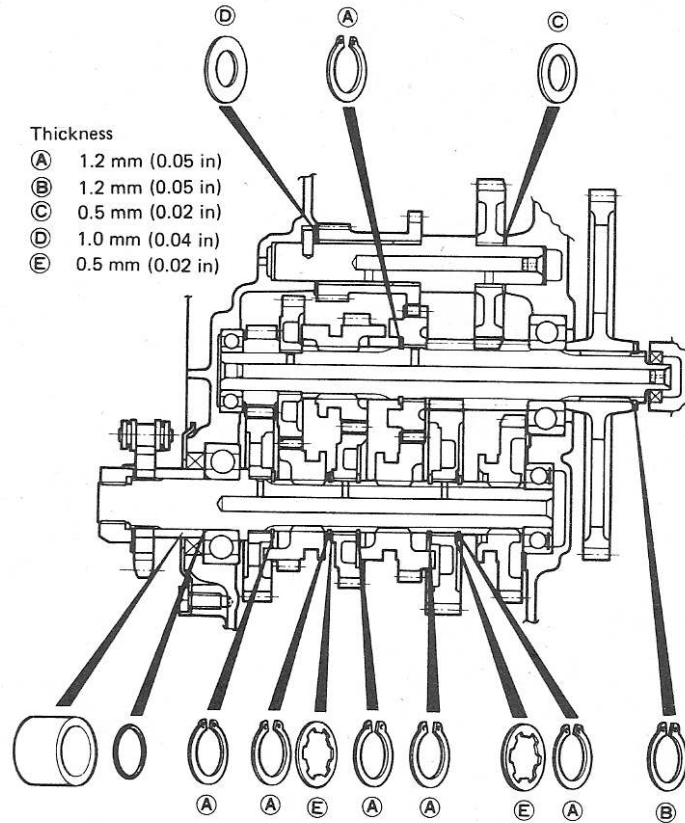
7. After the 1st drive gear is pressed on, countershaft length (from the 1st drive gear to Low) should be 111.5mm (4.39 in.).

8. When fitting the cam stopper plate on the shift cam, align the pin groove and the pin.

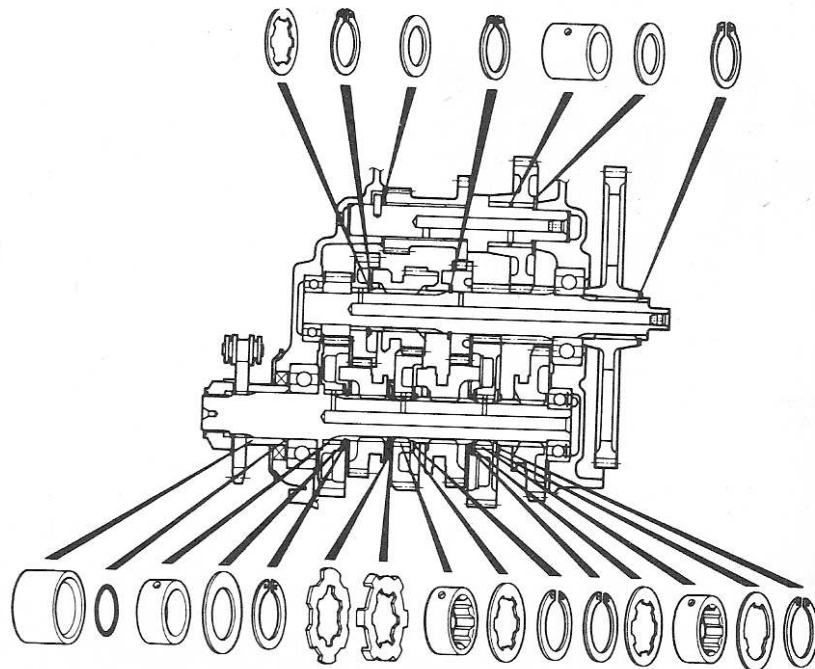
9. Refer to the illustration identifying the four shift forks. Be certain they are properly located.

10. When installing the reverse shaft, fit the pin on the shaft into the groove provided in the crankcase.

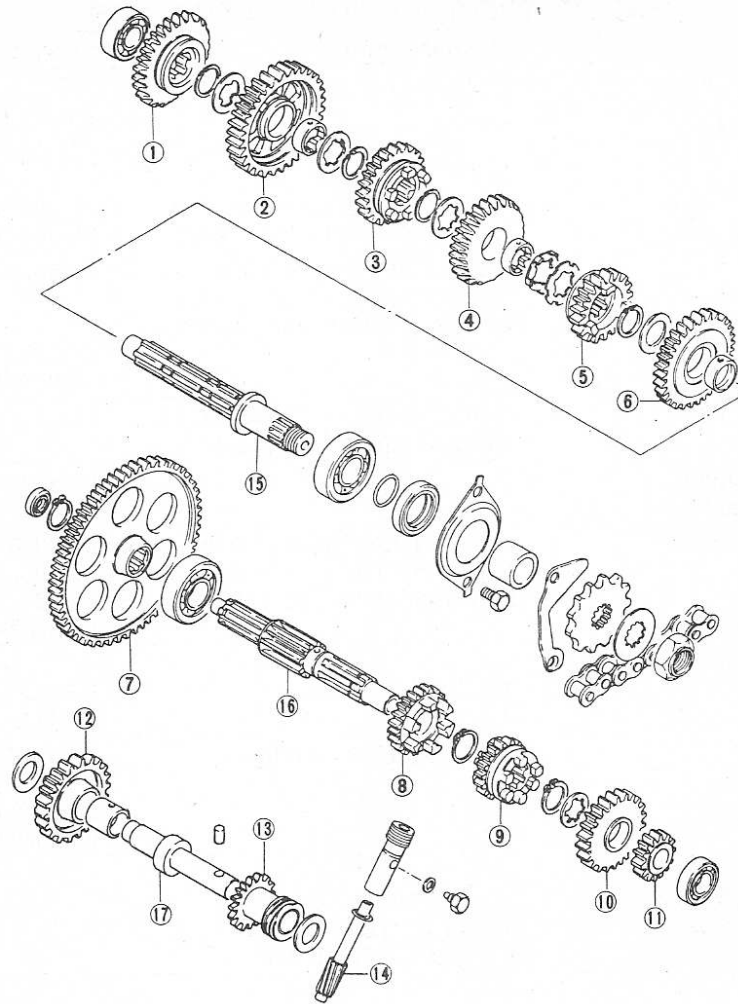
11. When the reverse shifting shaft is fitted, engage the shaft tab with the cam cut-out.



Transmission washers and circlips (125D)



Transmission washers and circlips (125E-F, 185)



- 1. Reverse driven gear
- 2. Low driven gear
- 3. 3rd driven gear
- 4. 2nd driven gear
- 5. Top driven gear
- 6. 1st driven gear
- 7. Primary driven gear
- 8. 3rd drive gear
- 9. 2nd drive gear
- 10. Top drive gear

- 11. 1st drive gear
- 12. Reverse idler gear
- 13. Odometer drive gear
- 14. Odometer driven gear
- 15. Odometer driven gear
- 16. Countershaft
- 17. Reverse shaft

**Transmission assembly (125E-F, 185)**

12. Do not forget to connect the cam stopper spring.

13. Crankcase mating surfaces should be coated with liquid gasket compound.

**NOTE:** *Be certain the dowel pins and O-ring are in place on the left crankcase half before mating.*

14. Tighten the crankcase bolts gradually and evenly. Check that the crank and gear

shafts can rotate freely as the bolts are tightened.

15. A new O-ring should be used on the transmission drive shaft. Install the O-ring. Fit the spacer with the chamfered side facing in.

16. Tighten the cam stopper bolt to 13-20 ft. lbs.

17. Note that the wide shoulder of the gear

shift pawls must face the outside of the engine when the assembly is installed. Use a non-permanent thread locking compound on the screws.

18. When installing the gear shift shaft, be sure the pawl spring is properly engaged. Slip the shaft into place and mesh the center teeth with the center teeth of the shaft cam. Check shifting.

## ENGINE SPECIFICATIONS—LT/ALT 125

Part	Standard (mm/in.)	Service limit (mm/in.)
Valve guide-to-stem clearance		
Intake	0.010-0.037/0.0004-0.0015	0.35/0.014
Exhaust	0.030-0.057/0.0012-0.0022	0.35/0.014
Valve guide ID	5.500-5.512/0.2165-0.2170	—
Valve stem OD		
Intake	5.475-5.490/0.2155-0.2161	—
Exhaust	5.455-5.470/0.2148-0.2153	—
Valve run-out (max)	—	0.05/0.002
Valve head thickness (min)	—	0.5/0.02
Valve stem end length	—	2.8/0.11
Valve seat width	0.9-1.1/0.035-0.043	—
Valve head radial run-out	—	0.03/0.001

# Suzuki LT/ALT 125/185

## ENGINE SPECIFICATIONS—LT/ALT 125

Part	Standard (mm/in.)	Service limit (mm/in.)
Valve spring free length (min)		
Inner	—	35.1/1.38
Outer	—	39.9/1.57
Cam lobe height		
Intake	32.400-32.440/1.2756-1.2772	32.100/1.2638
Exhaust	32.400-32.440/1.2756-1.2772	32.100/1.2638
Cam journal clearance	0.032-0.066/0.0013-0.0026	0.150/0.0059
Cam journal ID	22.012-22.025/0.8666-0.8671	—
Cam journal OD	21.959-21.980/0.8645-0.8654	—
Cam run-out (max)	—	0.10/0.004
Cam chain length (20 pitches)	—	129.0/5.08
Rocker arm ID	12.000-12.018/0.4724-0.4731	—
Rocker arm shaft OD	11.977-11.995/0.4715-0.4722	—
Cylinder head warpage (max)	—	0.05/0.002
Head cover warpage (max)	—	0.05/0.002
Piston to cylinder clearance	0.035-0.045/0.0014-0.0018	0.120/0.0047
Cylinder bore	57.000-57.015/2.2441-2.2447	57.095/2.2478
Piston diameter	56.960-56.975/2.2425-2.2431	56.880/2.2394
Cylinder dia. deviation (max)	—	0.05/0.002
Piston ring end-gap (free)		
Top	7.0/0.28	5.6/0.22
Second	7.5/0.30	6.0/0.24
Piston ring end gap	0.10-0.25/0.004-0.010	0.70/0.028
Piston ring side clearance		
Top	—	0.180/0.0071
Second	—	0.150/0.0059
Piston groove width		
Top	1.21-1.12/0.047-0.048	—
Second	1.21-1.23/0.047-0.048	—
Oil	2.51-2.53/0.099-0.100	—
Ring thickness		
Top	0.97-0.99/0.038-0.039	—
Second	1.17-1.19/0.046-0.047	—
Wrist pin bore ID	14.002-14.008/0.5513-0.5515	14.030/0.5524
Wrist pin OD	13.996-14.000/0.5510-0.5512	13.980/0.5504
Con rod small end ID	14.004-14.012/0.5513-0.5517	14.040/0.5528
Con rod lateral play (max)	—	3.0/0.12
Big end side clearance	0.10-0.45/0.0039-0.0177	1.00/0.039
Big end width	15.95-16.00/0.628-0.630	—
Crank web-to-web width	53.0 ± 0.1/2.086 ± 0.004	—
Crankshaft run-out (max)	—	0.05/0.002
Clutch specifications		
Drive plate thickness	2.9-3.1/0.11-0.12	2.6/0.10
Drive plate claw width	11.8-12.0/0.46-0.47	11.0/0.43
Driven plate warpage (max)	—	0.10/0.004
Spring free length (min)	—	27.4/1.08
Transmission specifications		
Shift fork groove clearance	0.10-0.30/0.004-0.012	0.50/0.020
Shift fork groove width		
1st, 2nd, 3rd	5.50-5.60/0.217-0.220	—
Reverse	4.50-4.60/0.177-0.181	—
Shift fork thickness		
1st, 2nd, 3rd	5.30-5.40/0.209-0.213	—
Reverse	4.30-4.40/0.169-0.173	—

# Suzuki LT/ALT 125/185

## ENGINE SPECIFICATIONS, LT/ALT 185

Part	Standard (mm/in.)	Service limit (mm/in.)
Valve guide-to-stem clearance		
Intake	0.010-0.037/0.0004-0.0015	0.35/0.014
Exhaust	0.030-0.057/0.0012-0.0022	0.35/0.014
Valve guide ID	5.500-5.512/0.2165-0.2170	—
Valve stem OD		
Intake	5.475-5.490/0.2155-0.2161	—
Exhaust	5.455-5.470/0.2148-0.2153	—
Valve run-out (max)	—	0.05/0.002
Valve head thickness (min)	—	0.5/0.02
Valve stem end length	—	2.6/0.10
Valve seat width	0.9-1.1/0.035-0.043	—
Valve head radial run-out	—	0.03/0.001
Valve spring free length (min)		
Inner	—	35.1/1.38
Outer	—	39.9/1.57
Cam lobe height		
Intake	33.780-33.820/1.3299-1.3315	33.480/1.3181
Exhaust	32.990-33.030/1.2988-1.3004	32.690/1.2870
Cam journal clearance	0.032-0.066/0.0013-0.0026	0.150/0.0059
Cam journal ID	22.012-22.025/0.8666-0.8671	—
Cam journal OD	21.959-21.980/0.8645-0.8654	—
Cam run-out (max)	—	0.10/0.004
Cam chain length (20 pitches)	—	129.0/5.08
Rocker arm ID	12.000-12.018/0.4724-0.4731	—
Rocker arm shaft OD	11.977-11.995/0.4715-0.4722	—
Cylinder head warpage (max)	—	0.05/0.002
Head cover warpage (max)	—	0.05/0.002
Piston to cylinder clearance	0.030-0.040/0.0012-0.0016	0.120/0.0047
Cylinder bore	63.000-63.015/2.4803-2.4809	63.100/2.4842
Piston diameter	62.965-62.980/2.4789-2.4795	62.880/2.4756
Cylinder dia. deviation (max)	—	0.05/0.002
Piston ring end-gap (free)		
Top		
N Mark	7.5/0.30	6.0/0.24
R mark	7.3/0.29	5.8/0.23
Second		
N mark	8.5/0.33	6.8/0.27
R mark	8.7/0.34	7.0/0.28
Piston ring end-gap	0.10-.25/0.004-0.010	0.70/0.028
Piston ring side clearance		
Top	—	0.180/0.0071
Second	—	0.150/0.0059
Piston groove width		
Top	1.21-1.23/0.047-0.048	—
Second	1.21-1.23/0.47-0.048	—
Oil	2.51-2.53/0.099-0.100	—
Ring thickness		
Top & second	1.170-1.190/0.0461-0.0469	—
Wrist pin bore ID	14.001-14.008/0.5513-0.5515	14.030/0.5524
Wrist pin OD	13.994-14.002/0.5509-0.5517	13.980/0.5504
Con rod small end ID	14.004-14.012/0.5513-0.5517	14.040/0.5528
Con rod lateral play (max)	—	3.0/0.12
Big end slide clearance	0.10-0.45/0.004-0.018	1.00/0.039
Big end width	15.95-16.00/0.628-0.630	—
Crank web-to-web width	53.0 ± 0.1/2.087 ± 0.004	—
Crankshaft run-out (max)	—	0.05/0.002

# Suzuki LT/ALT 125/185

## ENGINE SPECIFICATIONS—LT/ALT 125

Part	Standard (mm/in.)	Service limit (mm/in.)
<b>Clutch specifications</b>		
Drive plate thickness	2.9-3.1/0.11-0.12	2.6/0.10
Drive plate claw width	11.8-12.0/0.46-0.47	11.0/0.43
Driven plate warpage (max)	—	0.10/0.004
Clutch spring free-length (min)	—	30.2/1.19
<b>Transmission specifications</b>		
Shift fork groove clearance	0.10-0.30/0.004-0.012	0.50/0.020
Shift fork groove width		
1st, 3rd	5.00-5.10/0.197-0.201	—
2nd	5.50-5.60/0.217-0.220	—
Reverse	4.50-4.60/0.177-0.181	—
Shift fork thickness		
1st, 3rd	4.80-4.90/0.189-0.193	—
2nd	5.30-5.40/0.209-0.213	—
Reverse	4.30-4.40/0.169-0.173	—
Countershaft length (low to 1st)	111.5/4.390	—

## ENGINE TORQUE SPECIFICATIONS

Part	Torque (ft lbs.)
<b>LT/ALT 125</b>	
Cylinder head cover bolts	6.5-8.0
Cam sprocket bolts	7.0-9.5
Cylinder head nuts	
8 mm	11-15
6 mm	5-8
Cylinder base nuts	5-8
Magneto rotor nut	36-44
Clutch sleeve hub nut	29-44
Engine oil drain plug	13-15
Engine sprocket nut	58-73
Engine mounting bolt	
8 mm	20-25
10 mm	58-69
Exhaust pipe nuts at cylinder head	6.5-8.5
Muffler bracket bolt	13-20
Gearshift arm stopper bolt	11-17
Gearshift lever pinch bolt	6.0-8.5
<b>LT/ALT 185</b>	
Cylinder head cover bolts	6.5-8.0
Cam sprocket bolts	7.0-9.5
Cylinder head nuts	
8 mm	11-15
6 mm	5-8
Cam chain tensioner adjuster bolt	4.5-6.0
Cylinder base nuts	5-8
Magneto rotor nut	36-44
Clutch sleeve hub nut	44-58
Engine oil drain plug	13-15
Engine sprocket nut	73-94
Engine mounting bolts	
8 mm	20-25
10 mm	58-69
Exhaust pipe nuts at cylinder head	6.5-8.5
Muffler bracket bolt	13-20
Gearshift arm stopper bolt	11-17
Gearshift lever pinch bolt	6.0-8.5

## FUEL SYSTEM

### CARBURETOR

**NOTE:** Refer to the "General Information" section for carburetor theory and trouble-shooting procedures.

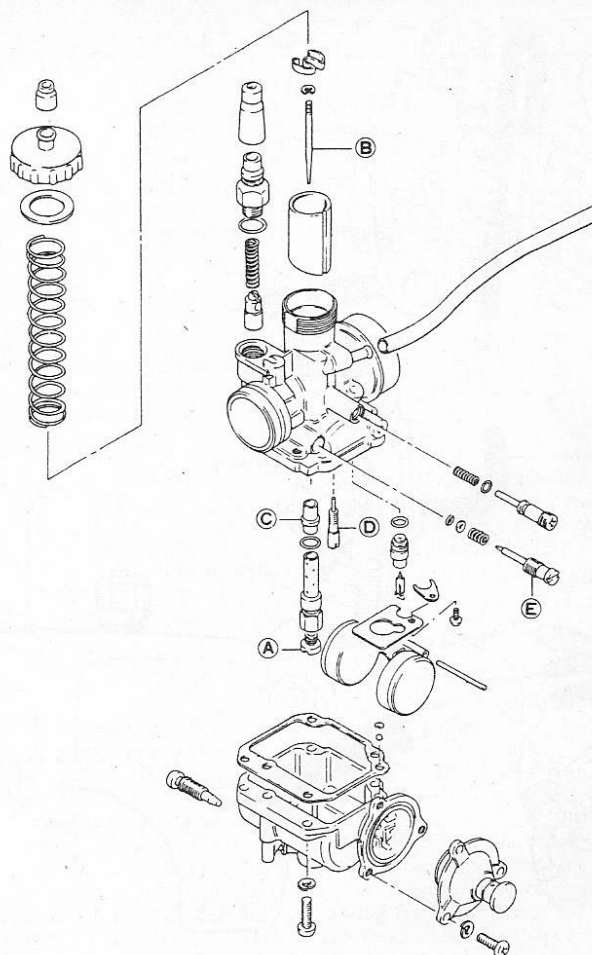
#### Removal

1. Remove the seat.
2. Unhook the fuel tank cap band, if fitted, and disconnect the tank vent hose from the tank.
3. Remove the four rear fender mounting bolts.
4. Remove the gas cap, if required, and remove the rear fender. Replace the gas cap.
5. Unscrew the starter plunger and pull it out of the carburetor.
6. Unscrew the carburetor cap and carefully pull the slide assembly out of the carburetor.
7. If the slide assembly is not going to be serviced, wrap it in a clean rag and place it out of the way to avoid accidental damage.
8. Disconnect the fuel line, breather hose and overflow hose from the carburetor.
9. Loosen the carburetor clamp screws.
10. Pull the carburetor body free of the intake manifold and air cleaner hoses.

**WARNING:** The float bowl contains gasoline. Drain it into a suitable container and dispose of it properly.

#### Disassembly

1. Remove the three screws and take the priming pump from the float bowl.
2. Unscrew the four float bowl screws.
3. Remove the float bowl. If it will not come right off, hold bowl and carburetor body with one hand and rap the bowl with the handle of the screwdriver. When it breaks free, carefully lift the bowl off the carburetor.
4. Remove the float bowl gasket. A new gasket should be used when assembling.
5. Push out the float pivot pin. Carefully lift off the float assembly and the float needle.
6. Unscrew and remove the main jet.
7. Unscrew and remove the main nozzle. An O-ring may come out when the nozzle is taken out.
8. Unscrew and remove the pilot jet.
9. Use a wooden dowel and push the needle jet out from the top of the carburetor. If the O-ring did not come out with the nozzle, it will now.
10. Unscrew and remove the throttle stop (idle speed) screw, O-ring and spring.
11. Unscrew and remove the pilot screw, spring and O-rings.
12. Remove the screw which secures the float needle seat keeper. Remove the keeper, plate, needle seat and O-ring.
13. Remove the drain screw from the float bowl.
14. To disassemble the throttle slide, compress the spring against the carburetor cap, remove the stopper plate inside the slide, and disengage the throttle cable from the slide. Separate all components.
15. The starter plunger assembly may be separated by disconnecting the cable from the plunger.



Carburetor: A, main jet; B, needle; C, needle jet; D, pilot jet; E, pilot screw

#### Inspection

**NOTE:** Refer to "General Information" for carburetor service and inspection procedures.

1. Clean all metal parts in a safe solvent.
2. All gaskets and O-rings should be replaced when assembling the carburetor.

#### Assembly

Carburetor assembly is basically the reverse of the disassembly procedures. Note the following points:

1. If the needle clip was removed, ensure that it is positioned in the correct needle groove from the top:  
LT/ALT 125: 2nd groove from top  
LT/ALT 185: 3rd groove from top
2. Use a little bit of oil to lubricate O-rings when installing. This will reduce the risk of knicking or tearing them.
3. Do not overtighten jets. They are brass and may be damaged.
4. When fitting the priming pump to the float bowl, position it so that the vent hole faces down.

#### Installation

1. Lubricate the lips of the manifold and air cleaner hoses to make it easier to install the carburetor.

2. Make sure that the hoses are not folded over or otherwise deformed when the carb is slipped into place.

3. Tighten the clamps after positioning the carburetor vertically.

4. Install the starter plunger.
5. When inserting the throttle slide, ensure that it slips right into the bore. Do not force it. The needle must enter the needle jet directly. Check throttle operation before attempting to start the engine.

6. Be sure that all carburetor lines are properly connected. Be sure safety clips are in place.

7. After installation, turn on the petcock and use the priming pump to prime the carburetor. Check for leaks.

8. Run the engine for several minutes and check again for leaks. Do not operate the machine until certain that all connections are properly made.

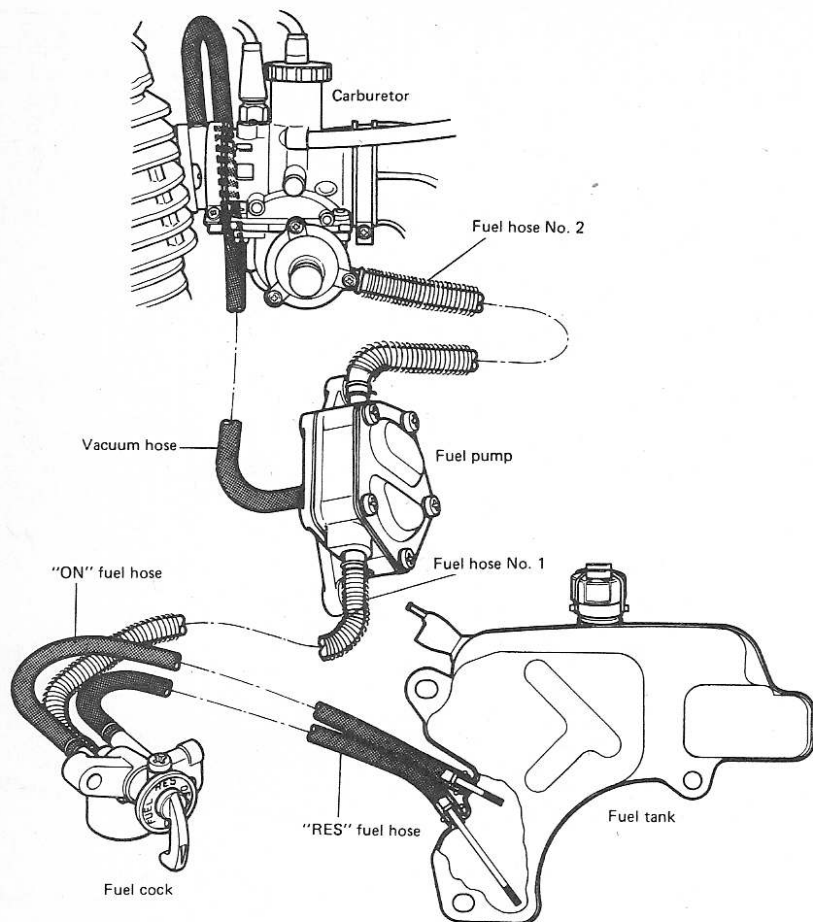
#### PETCOCK

The petcock is located on the front of the fuel tank and is accessible after removing the seat and rear fender.

To remove the petcock, remove the two screws, pull it out, and disconnect the fuel lines.

**WARNING:** Watch for fuel leaks.

# Suzuki LT/ALT 125/185



Fuel system connections

## FUEL STRAINERS

Each line from the petcock to the gas tank is fitted with a fuel strainer at the tank end.

These lines should not be disconnected unless the tank is almost empty, or gasoline will be spilled.

If the tank is empty, remove the petcock, as outlined above, and disconnect the two lines from the tank.

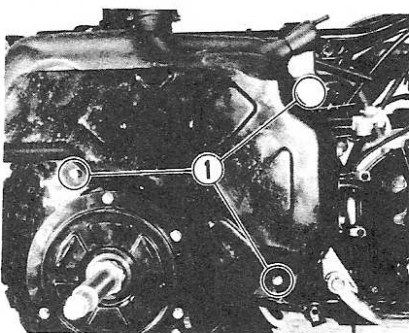
Clean the strainers in clean solvent and blow them dry. If foreign matter cannot be removed, the strainer(s) must be replaced.

Be sure to connect the lines to the proper fitting. The longer strainer ("RES") is connected to the lower fitting.

**WARNING:** Be sure that connections are properly made and tight. Check for leaks before operating the machine.

## FUEL PUMP

1. The fuel pump is mounted on the front of the fuel tank and is accessed by removing the seat and rear fender.



Fuel tank mounting bolts (1)

2. The pump needs no routine maintenance. However, if it fails, or shows signs of leaking, it must be replaced.

3. To remove the pump, remove the two mounting bracket bolts and disconnect the lines.

4. When fitting the pump, note that the line from the petcock goes to the inlet pipe on the pump which is marked "IN."

**CAUTION:** When making pump connections, be sure that they are tight. Check for leaks before riding the machine.

## FUEL LINES

Fuel lines should be replaced every four years or whenever any of them shows signs of cracking, hardening or abrasion damage.

Refer to the illustration of the fuel system lines.

## FUEL TANK

### Removal and Disassembly

1. Remove the seat.
2. Unhook the fuel cap band, if equipped. Disconnect the fuel tank vent hose.
3. Remove the four securing bolts and take off the rear fender.
4. Remove the right side rear wheel. See "Chassis" for procedures.
5. Disconnect the vacuum hose from the fuel pump.
6. Disconnect the fuel line at the carburetor.
7. Remove the three mounting bolts and take out the fuel tank.

**CAUTION:** Handle the tank and its contents carefully.

8. Empty the contents of the tank into a suitable container—one which is safe for the storage of flammable gasoline.

9. Remove the petcock mounting screws.

10. Pull the petcock out and disconnect the lines.

11. Remove the two bracket bolts which secure the fuel pump.

12. Disconnect the lines and remove the fuel pump.

### Assembly and Installation

1. Reverse the removal procedure.

2. Be sure that all connections are properly made. Refer to the fuel line diagram.

3. Be certain that all fuel and vacuum line connections are tight and that all safety clips and clamps are in place.

4. Be sure that tank and component mounting bolts are properly tightened.

5. Fill the tank with fuel and check for leaks before operating the machine.

## CARBURETOR SPECIFICATIONS

	LT/ALT 125D	LT/ALT 125E-F	LT/ALT 185
Type	VM20SS	VM20SS	VM22SS
ID No.	18900	18911/12	24400/01
Fuel level (mm/in.)	4.5 ± 0.5/0.18 ± 0.02	4.5 ± 0.5/0.18 ± 0.02	4.5 ± 0.5/0.18 ± 0.02
Float weight (mm/in.)	25.8 ± 1.0/1.02 ± 0.04	25.8 ± 1.0/1.02 ± 0.04	25.8 ± 1.0/1.02 ± 0.04

## CARBURETOR SPECIFICATIONS

	LT/ALT 125D	LT/ALT 125E-F	LT/ALT 185
Type	VM20SS	VM20SS	VM22SS
ID No.	18900	18911/12	24400/01
Main jet	100	100	115
Main air jet	1.4	1.4	1.4
Needle	4JR39-2	4JU42-2	5L15-3
Needle jet	0-4	0-2	0-2
Throttle slide cutaway	3.0	2.5	2.0
Pilot jet	20	20	20
Starter jet	30	25	30
Pilot screw (turns out)	1 1/2	1	2 1/2
Pilot air jet	1.4	1.4	1.7
Pilot outlet	0.7	0.7	0.7

## ELECTRICAL SYSTEM

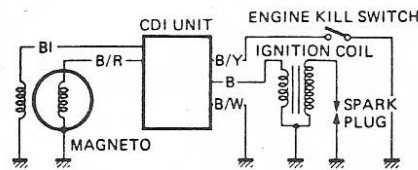
### IGNITION SYSTEM

The major components of the ignition system are the CDI unit, the magneto coil, the ignition coil and the spark plug.

#### Ignition Coil

The ignition coil is mounted on the frame above the cylinder head.

1. Remove the seat.
2. On LT models, remove the front fender. On ALT models, remove the front frame cover.
3. Disconnect the black ignition coil low tension lead.



Ignition schematic

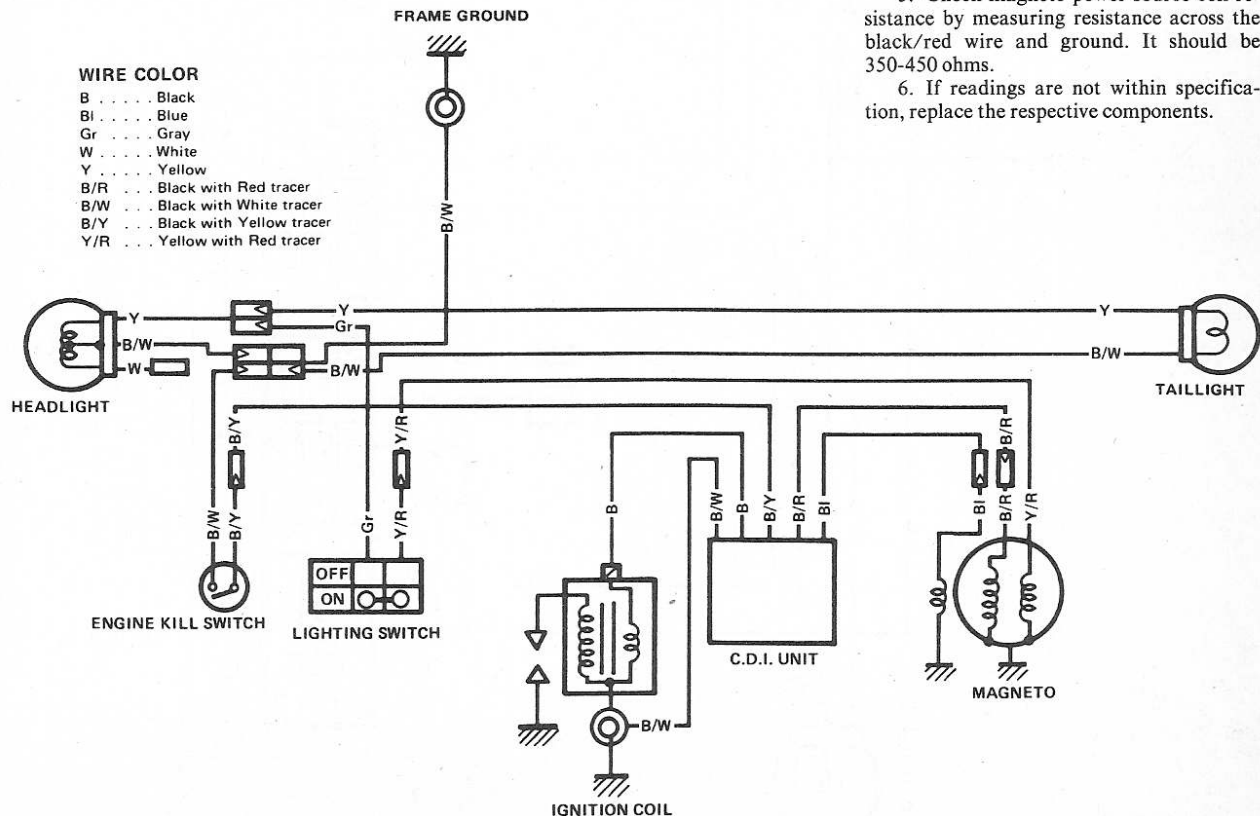
4. Measure the resistance between the black lead and a good ground on the chassis. It should be 0.5-1.5 ohms. This is the primary coil resistance. If the reading indicates an open or short circuit, replace the ignition coil.
5. Disconnect the spark plug high tension lead.
6. Measure the resistance between the spark plug cap and a good ground on the chassis. It should be 15-25,000 ohms. This is

the secondary coil resistance. If the reading obtained is not within this range, remove the spark plug cap and repeat the test. A good reading at this time indicates a defective cap. If the reading is still not correct, replace the ignition coil.

#### Magneto Coils

Magneto windings can be checked after disconnecting the wiring on the harness near the cylinder head.

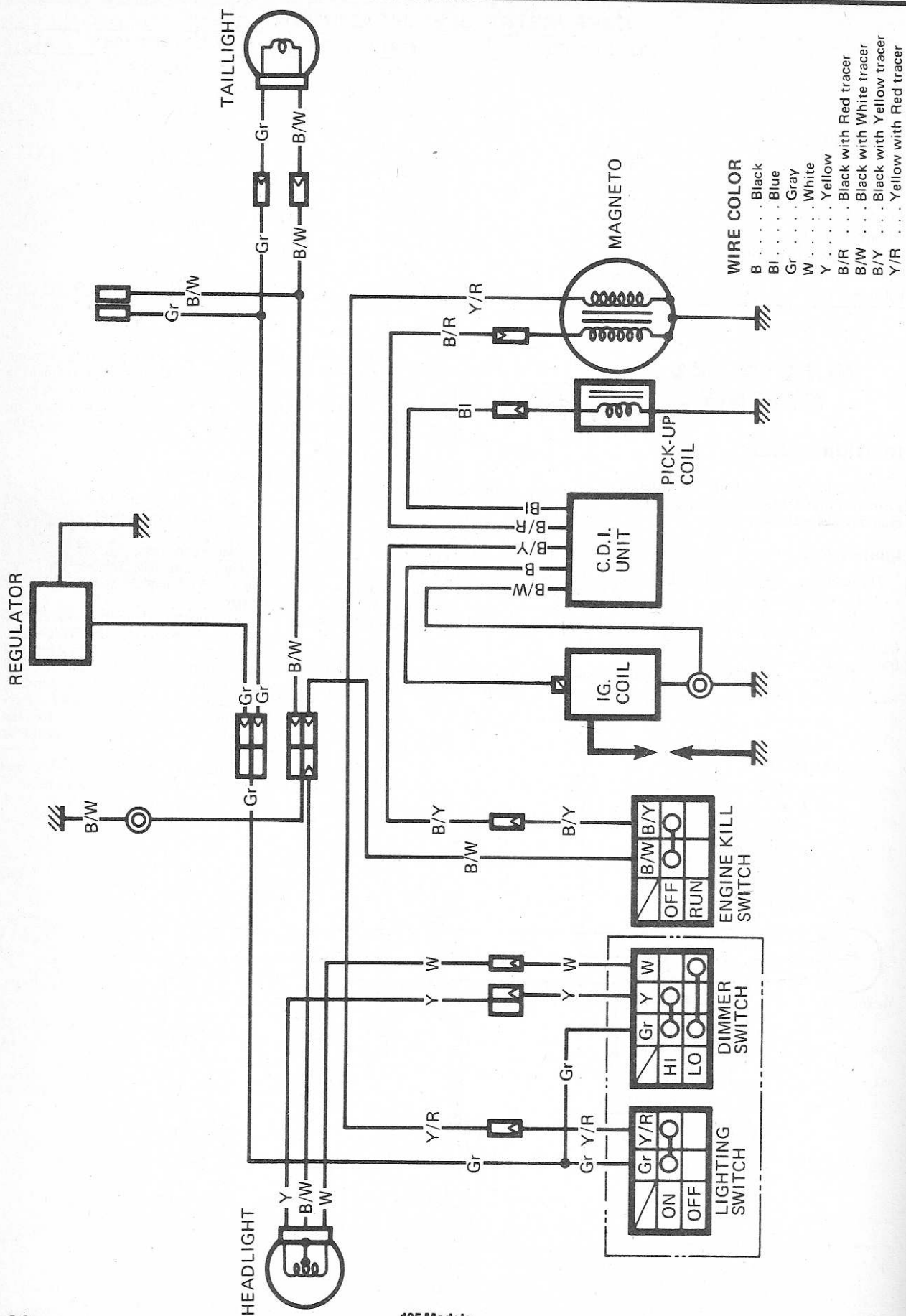
1. Remove the seat.
2. On LT models, remove the front fender. On ALT models, remove the front frame cover.
3. Disconnect the blue and the black/red wires at the connectors near the CDI unit.
4. Check pick-up coil resistance by measuring resistance across the blue wire and ground. It should be about 130-200 ohms.
5. Check magneto power source coil resistance by measuring resistance across the black/red wire and ground. It should be 350-450 ohms.
6. If readings are not within specifications, replace the respective components.



125 Models



# Suzuki LT/ALT 125/185



## CDI Unit

If the ignition coil, pick-up coil and power source coil all check out, but there is still no spark, suspect the CDI unit. The easiest test method is to replace the unit with a new one.

## LIGHTING SYSTEM

The lighting system consists of a coil in the magneto, a regulator (on the 185) and the bulbs themselves.

1. A tachometer and an AC voltmeter are required for this test.
2. Remove the headlight.
3. Set the AC voltmeter to a suitable range for the expected maximum reading. Connect the positive probe to the high or low beam lead (yellow) and the negative probe to a good ground.

4. Start the engine, turn the lighting switch on, and note the readings at the relevant rpm. They are:

LT/ALT 125

Over 5.5 VAC @3000 rpm

Below 8.0 VAC @8000 rpm

LT/ALT 185

Over 9.0 VAC @2000 rpm

Below 14.0 VAC @8000 rpm

5. If the readings are too high on the 185, suspect the voltage regulator.

6. If the readings are too low, check the resistance across the lighting coil lead (yellow/red) and a good ground on the chassis or engine. If the resistance check shows an open or short circuit, the coil is defective.

## ELECTRICAL SWITCHES

Switches can be checked with an ohmmeter or a battery-powered test light.

### Engine Kill Button

1. The switch can be checked after disconnecting the black/yellow and black/white wires inside the headlight housing.

2. When the switch is set to either "OFF" position, there should be continuity between the black/yellow and black/white wires.

3. When the switch is in the "RUN" position, there should be no continuity.

4. If both these conditions are not met, the switch is defective and must be replaced.

### Light Switch

1. The switch can be checked after disconnecting the green and the yellow/red leads inside the headlight housing.

2. When the switch is in the "ON" position, there should be continuity between the green and the yellow/red leads.

3. When the switch is in the "OFF" position, there must be no continuity.

4. Replace the switch if operation is faulty.

### Dimmer Switch

1. The switch can be checked at the plastic connector inside the headlight housing.

2. When the dimmer switch is in the "HI" position, there should be continuity between the green and the yellow leads.

3. When the dimmer switch is in the "LO" position, there should be continuity between the green and the white leads.

4. If both of these conditions are not met, the switch must be replaced.

## BULB SPECIFICATIONS

LT/ALT 125

Headlight: 25/25W, 6V

Taillight: 5W, 6V

LT/ALT 185

Headlight: 35/35W, 12V

Taillight: 5W, 12V

## CHASSIS

### FRONT WHEEL

#### Removal (ALT)

1. Park the machine on a level surface. Block the rear wheels so the machine won't roll.

2. If the front wheel hub is going to be disassembled, loosen the wheel nuts slightly to facilitate disassembly.

3. Remove both axle nut cotter pins.

4. Loosen both axle nuts.

5. Raise the front of the machine using a safe support beneath the engine. The front wheel will drop out of the forks.

#### Removal (LT)

1. Park the machine on a level surface. Block the rear wheels so the machine won't roll.

2. Loosen the front wheel nuts slightly.

3. Support the wheels off the ground using a safe support beneath the frame.

4. Remove the wheel nuts.

5. Remove the wheel.

### Installation (ALT)

1. Reverse the removal procedure.

2. Tighten the wheels nuts to 15-23 ft. lbs.

3. Slip the wheel into the forks.

4. Lower the frame so that the forks are resting on the axle.

5. Tighten both axle nuts equally until the proper torque of 26-38 ft. lbs. is reached.

6. Install new axle nut cotter pins on both nuts.

### Installation (LT)

1. Reverse the removal procedure. Install wheels valve stem out.

2. On 125 models, tighten the wheel nuts to 15-23 ft. lbs.

3. On 185 models, tighten the wheel nuts to 33-47 ft. lbs.

### FRONT WHEEL HUB

#### Removal (ALT)

Loosen the wheel nuts before removing the wheel from the machine.

2. Remove the wheel as outlined above.

3. Remove the axle nuts from the axle.

4. Remove the axle nut spacers.

5. Pull out the axle.

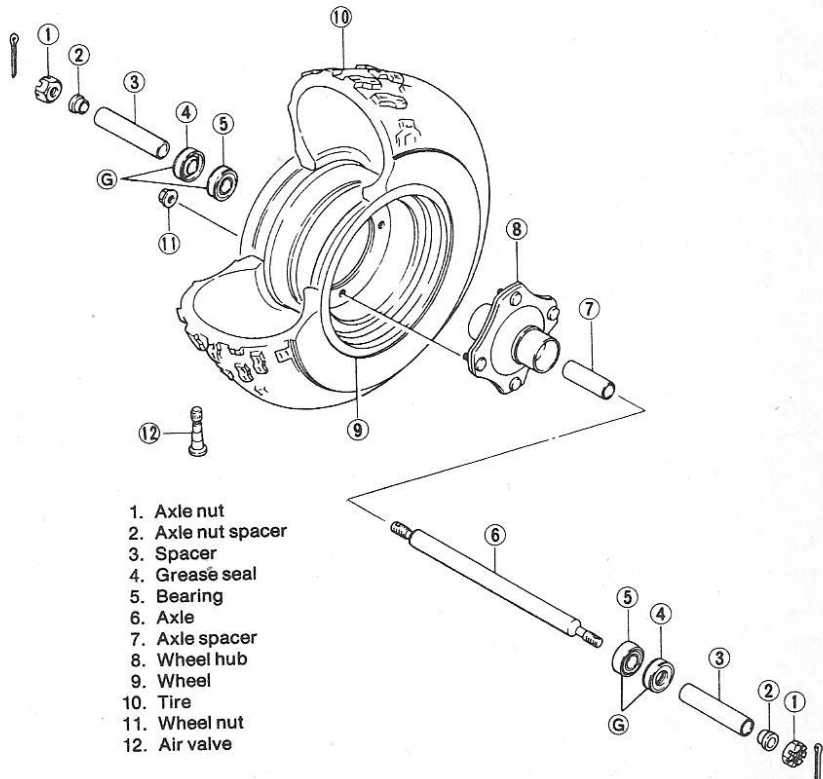
6. Remove the long spacers.

7. Remove the wheel nuts and separate the hub from the wheel.

#### Removal (LT)

1. Remove the wheel as outlined above.

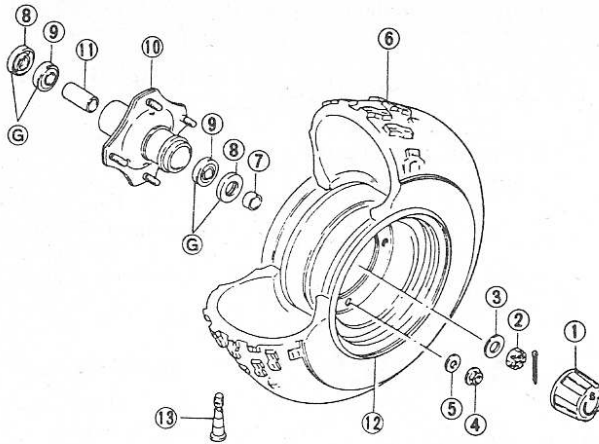
2. Remove the axle cap, if fitted.



Front wheel (ALT)

# Suzuki LT/ALT 125/185

1. Axle cap
2. Axle nut
3. Washer
4. Wheel nut
5. Washer
6. Tire
7. Spacer
8. Grease seal
9. Bearing
10. Wheel hub
11. Spacer
12. Wheel
13. Air valve



Front wheel (LT)

3. Remove the axle nut cotter pin.
4. Remove the axle nut. Remove the washer.
5. Pull the hub off the axle.
6. Remove the spacer from the hub to avoid loosening it.

## Inspection (All Models)

1. The wheel bearings are pressed into the hub. Attempted removal may damage bearings.
2. Remove any spacers on the hub.
3. Pry out the grease seals. New seals should be used when assembling.
4. Reach into the hub with a drift and drive out one bearing.
5. Remove the spacer.
6. Remove the remaining bearing in the same manner as the first.
7. Wash the wheel bearings thoroughly in a safe solvent to remove all of the old grease.
8. Inspect the general condition of the bearings. There should be no rust, pitting or obvious signs of wear or damage on either balls or races.
9. Slowly rotate each bearing. Rotation should be smooth, noiseless and free of binding or unevenness. If any of the above conditions exist, both bearings should be replaced.
10. Place each bearing on a flat surface and hold the inner race firmly in place. Attempt to move the outer race back and forth. If any play is evident, the bearings should be replaced.
11. If equipment is available, a dial gauge can be used to check bearing run-out. Pass an axle-sized rod through the bearing and check axial and diametrical run-out with the gauge. If axial run-out exceeds 0.1mm (0.004 in.) or if diametrical run-out is greater than 0.05mm (0.002 in.), replace the bearings.

To check diametrical run-out, the dial gauge is placed directly on top of the outer race and the race moved up and down.

To check axial run-out, the gauge is positioned to bear against the side of the outer race and the race moved back and forth.

## Installation (ALT)

1. Pack each bearing with a good grade of waterproof, medium-weight bearing grease.

**914**

2. Clean old grease out of the hub and put in a small quantity of fresh grease.
3. Install the right side bearing first. Be sure to press it straight into the hub. Be certain the bearing is properly seated.

*NOTE: Wheel bearings which have a metal seal on one side must be installed with the sealed side out.*

4. Install the spacer.
5. Install the left side bearing.
6. Lubricate the lips of the grease seals and press them into the hub. Using new grease seals is recommended.
7. The remainder of the installation procedure is the reverse of removal. Do not

forget the axle spacers. Tighten the wheel nuts to 15-23 ft. lbs. Tighten the axle nuts to 26-38 ft. lbs.

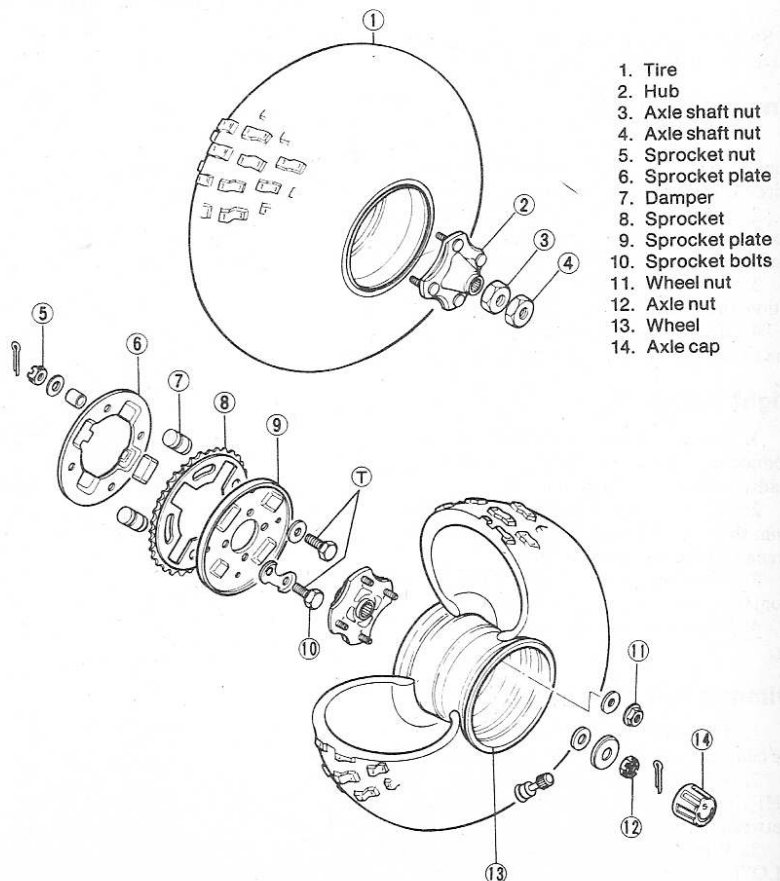
## Installation (LT)

1. Pack each bearing with a good grade of waterproof, medium-weight bearing grease.
2. Clean old grease out of the hub and put in a small quantity of fresh grease.
3. Install the inside hub bearing first.  
*NOTE: Bearings with a metal shield on one side must be installed with the sealed side out.*
4. Press the inside bearing into place ensuring that it is not cocked or tilted as it is installed. Be sure the bearing is properly seated.
5. Install the spacer.
6. Install the outside bearing.
7. Lubricate the lips of the grease seals and press them into the hub. Using new seals is recommended. Be sure they go straight in and are not cocked or tilted.
8. Install the axle spacer.
9. Install the hub on the axle.
10. Install the washer and axle nut.
11. Tighten the axle nut to 36-58 ft. lbs.
12. Use a new axle nut cotter pin.

## REAR WHEELS (ALL MODELS)

### Removal

1. Park the machine on a level surface. Block the front wheel(s) so the machine will not roll.



Rear wheel assembly

1. Tire
2. Hub
3. Axle shaft nut
4. Axle shaft nut
5. Sprocket nut
6. Sprocket plate
7. Damper
8. Sprocket
9. Sprocket plate
10. Sprocket bolts
11. Wheel nut
12. Axle nut
13. Wheel
14. Axle cap

- Loosen the wheel nuts.
- Support the rear wheels an inch or so off the ground by placing a safe, sturdy jack or similar support beneath the frame.
- Remove the wheel nuts and washers (if fitted).
- Remove the wheel.

## Installation

- Install the wheel (valve stem out).
- Install the wheel nut washers, if fitted.
- Tighten the wheel nuts gradually and in a cross pattern until the proper torque is reached:
  - 125 models: 15-23 ft. lbs.
  - 185 models: 33-47 ft. lbs.

## REAR WHEEL HUB (ALL MODELS)

### Removal

- Remove the axle cap, if fitted.
- Remove the axle nut cotter pin.
- Loosen the axle nut.
- Remove the rear wheel as outlined above.
- Remove the axle nut.
- Remove the washers.
- Pull the hub off the axle.

### Inspection

- Check the splines on both the hub and the axle for damage. Replace as required.
- Clean the hub and axle splines and lubricate with a bit of grease before installation.

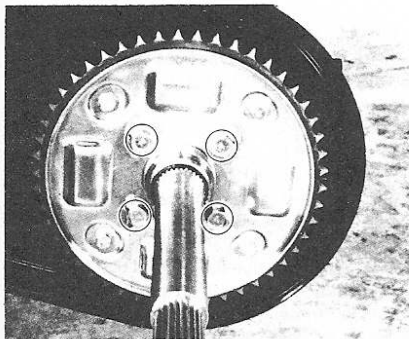
### Installation

- Reverse the removal procedure.
- Tighten the axle nut to 62-83 ft. lbs.
- Use a new axle nut cotter pin.
- Install the axle cap.

## REAR SPROCKET

### Removal

- Remove the seat.
- Remove the rear fender.
- Remove the four bolts that mount the skid plate and remove the plate.
- Remove the axle nut cap, if fitted.
- Remove the axle nut cotter pin.
- Loosen the axle nut.
- Support both rear wheels an inch or so off the ground by placing a safe, sturdy support beneath the frame.



Rear sprocket bolts

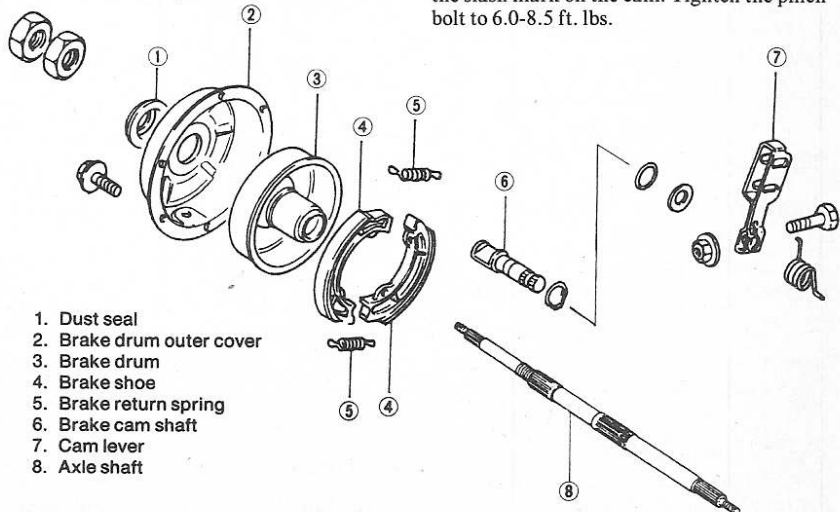
- Remove the rear wheel nuts and take off the rear wheels. If only the sprocket is to be serviced, only the left wheel need be removed.
- Remove the axle nut.
- Remove the rear wheel hubs. See above for procedures.
- Loosen the chain adjuster lock bolt.
- Remove the chain case by removing the two nuts and releasing the four clamps.
- Remove the chain tensioners sprocket pinch nut and bolt from the sprocket lever.
- Remove the sprocket lever snap-ring.
- Carefully pull the lever off the splined shaft.
- Remove the engine sprocket guide plate bolt and screw. Remove the guide plate.
- Flatten the engine sprocket nut locking tab. Remove the sprocket nut. Pull the sprocket off the shaft.
- Bend down the locking tabs on the rear sprocket bolts.
- Remove the four sprocket bolts.
- Remove the sprocket from the axle.

### Inspection

- Check sprocket teeth for wear or damage.
- To disassemble the sprocket, remove the cotter pins and the four nuts and separate the components.
- Check the rubber dampers for damage. Replace as required.

### Installation

- Use a non-permanent thread-locking compound on the four sprocket assembly nuts. Tighten the nuts gradually and in a cross pattern until the proper torque of 6.0-8.5 ft. lbs. is reached. Use new cotter pins on the nuts.
- The remainder of the installation procedure is basically the reverse of removal. Note the following points:
  - New locking tabs and new cotter pin should be used throughout when assembling.
  - Tighten the four sprocket bolts to 29-44 ft. lbs. Bend up the locking tabs.
  - Tighten the engine sprocket nut to 58-73 ft. lbs. on 125 models; 73-94 ft. lbs. on 185 models.
  - When installing the chain tensioner sprocket lever, be sure to align the slot in the lever with the punch mark on the shaft.



- Dust seal
- Brake drum outer cover
- Brake drum
- Brake shoe
- Brake return spring
- Brake cam shaft
- Cam lever
- Axle shaft

Rear brake assembly

- Tighten the pinch bolt to 15-23 ft. lbs.
- Do not forget the lever snap-ring.
- Adjust chain free-play as outlined in "Maintenance".

## REAR BRAKES

### Disassembly

- Remove the rear wheels. If only the brakes are to be serviced, remove the right side wheel only.
- Remove the hub.
- Remove the two axle shaft nuts.
- Remove the six brake drum cover bolts.
- Pull off the brake drum.
- Pull off the two brake shoes and their springs together.
- Back off the brake pedal and hand lever cable adjuster nuts at the brake cam lever.
- Disconnect the cables from the brake cam lever.
- Remove the pinch bolt holding the cam lever to the cam. Carefully pull off the lever.
- Tap out the brake cam from the plate.

### Inspection

- Clean all parts thoroughly and check for unusual wear.
- Minimum allowable brake lining thickness is 1.5mm (0.06 in.). Linings must be replaced as a set if either is thinner than this at any point.
- Check the brake return springs for rusted, weakened or deformed condition.
- Measure the brake drum diameter. Maximum allowable diameter is stamped on the drum (150.7mm/5.93 in.). The drum must be replaced as it exceeds this specification.
- Clean the brake cam. Check the condition of the lever splines. Check that the cam is not cracked or bent.

### Assembly

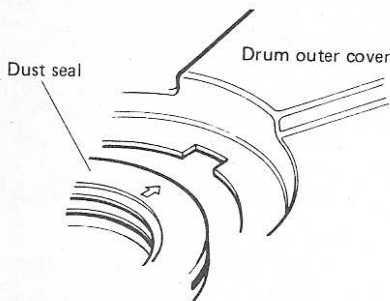
- Use new brake cam O-rings.
- Lightly grease the cam before installation.
- When fitting the brake lever to the cam, align the punch mark on the lever with the slash mark on the cam. Tighten the pinch bolt to 6.0-8.5 ft. lbs.

# Suzuki LT/ALT 125/185

4. Hook the brake lever return spring to the lever.

5. Lightly grease the brake cam and the pivot pin on which the brake shoes ride.

6. Assemble the shoes and their return springs and fold them onto the brake plate.



**Align dust seal arrow with drum cover notch**

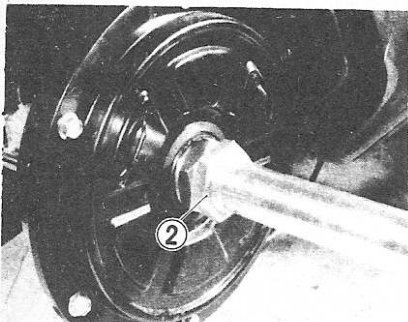
7. If a new brake drum cover dust seal is installed, align the arrow on the seal with the notch in the cover. Hold the seal in place with thread-locking compound.

8. Grease the axle splines and apply some to the brake drum dust seal.

**CAUTION:** Do not allow grease to contact the axle shaft threads.

9. Install the drum cover. Tighten the cover bolts to 3-5 ft. lbs.

10. The axle shaft nuts must be secured with a non-permanent thread-locking compound.



**Axle shaft nuts (2) must be secured with non-permanent thread-locking compound and properly torqued**

11. Install and torque the inner shaft nut to 36-58 ft. lbs.

12. Install and torque the outer shaft nut to 116-145 ft. lbs.

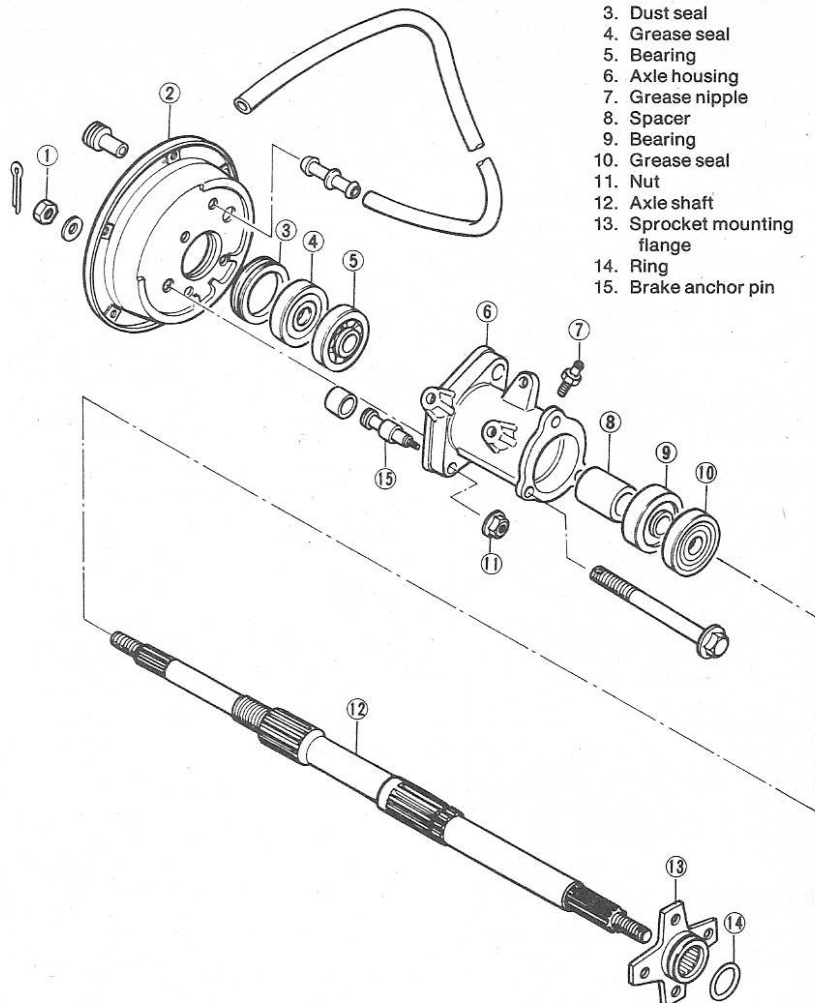
13. Connect the brake cables and adjust the brakes as outlined in "Maintenance."

## REAR AXLE

### Disassembly

1. Remove the seat.
2. Remove the rear fender.
3. Remove the four bolts and take off the skid plate.
4. Remove the rear wheels.
5. Remove the wheel hubs.
6. Remove the rear sprocket. See above for procedures.
7. Remove the brake assembly. See above for procedures.
8. Pull the axle and sprocket mounting flange out to the left.
9. Move the sprocket mounting flange

1. Axle housing nut
2. Brake drum inner cover
3. Dust seal
4. Grease seal
5. Bearing
6. Axle housing
7. Grease nipple
8. Spacer
9. Bearing
10. Grease seal
11. Nut
12. Axle shaft
13. Sprocket mounting flange
14. Ring
15. Brake anchor pin



Rear axle assembly

aside. Remove the ring. Remove the flange from the axle shaft.

10. Remove the brake drum inner cover which is mounted by three nuts with cotter pins.

11. Remove the three bolts mounting the axle housing to the inner chain case. Remove the housing.

### Inspection

1. The axle housing contains two bearings protected by grease seals on either side. The bearings can be removed, inspected, lubricated and installed in the same manner as described for the front wheel hub bearings. Refer to "Front Wheel Hub, Inspection," above.

2. Check run-out of the axle. Measured near the end of the axle, the maximum allowable run-out is 3.0mm (0.12 in.). Replace the axle if run-out exceeds this specification. Do not attempt to straighten a bent axle.

3. Inspect the axle shaft splines and replace the shaft if the splines are torn or otherwise damaged.

### Assembly

1. Assembly is the reverse of disassembly.

2. Torque the axle housing mounting nuts to 13-20 ft. lbs. and secure them with new cotter pins. Bend the cotter pins so that they will not contact the brake shoes.

## FRONT FORKS (ALT)

### Removal

1. Remove the front wheel.
2. Remove the front fender (four screws).
3. Remove the extension from the forks (four bolts).
4. Remove the headlight (two screws).
5. Disconnect the leads and pull the wiring out of the headlight housing.
6. Remove the housing bolts and remove the headlight housing.
7. Run down the brake cable adjuster and disconnect the cable from the hand lever.
8. Remove the throttle lever cover. Disconnect the throttle cable from the lever.
9. Remove the handlebar clamp bolts. Remove the clamps and handlebars.
10. Remove the handlebar holder nuts under the upper triple clamp. Remove the holders.
11. Remove the upper triple clamp by

removing the two bolts above the fork tubes and the crown nut on the steering stem.

12. Hold the forks. Loosen the steering stem nut and lower the forks out of the frame lug.

**CAUTION:** Lower race bearing balls may fall out as the forks are lowered free of the frame lug.

## Inspection

1. Wash the ball bearings in a suitable solvent.

2. Clean all the old grease from the bearing race surfaces, steering stem, and frame lug.

3. Inspect the bearing race surfaces. They must be clean and smooth and free of any cracks, scoring, rust, or indentations. Run your finger around each of the bearing races. Note any roughness or ripples on the race surface. If any imperfections are noted both sets of races and all of the balls must be replaced.

4. Check the balls themselves for rust, pitting, scoring, or flat spots. If the balls are found to be defective in any way, the balls and both sets of races must be replaced.

**NOTE:** Balls and races must always be replaced in a set because worn races will destroy new balls and worn balls will destroy new races.

5. Check the steering stem for cracks or a bent condition; this is especially important if the machine has been involved in a spill.

6. The bearing races in the frame lug are press fit and should not be removed unless replacement is necessary. If required, they can be removed by reaching through the frame lug with a suitable punch and tapping the race evenly around its circumference until it comes out. Be sure that the race does not become cocked while attempting removal.

7. The bottom cone race on the steering stem will usually have to be pried or chiseled off. Inspect it in place.

## Installation

1. New races are installed with a suitably sized bearing driver, i.e., one which will cover the race and drive it squarely into the seat. Be certain the race goes straight in.

2. Install the lower cone race on the steering stem. Use a good grade of bearing grease to coat the lower cone race and the upper race in the frame lug.

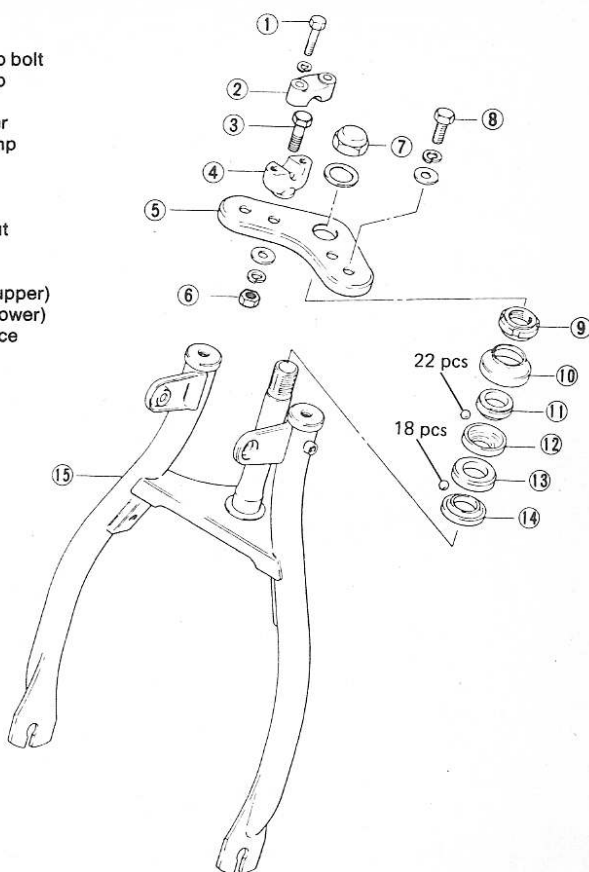
3. Embed 18 bearing balls in the stem lower race and 22 bearing balls in the upper race in the frame lug.

4. When the balls are all in place, slip the steering stem through the frame lug and hold it in place while refitting the upper cone race, dust seal cover and steering stem nut.

5. Tighten the steering stem nut to 29-36 ft. lbs. Work the forks back and forth several times to seat races and balls. Back the stem nut off 1/4-1/2 turn.

6. Check bearing adjustment by noting movement of the fork. It should be smooth and free—but with no play. Turn the steering stem nut as required until fork operation is satisfactory. Grasp the lower ends of the fork tubes after the upper triple clamp is installed and attempt to move them back and forth in line with the machine. If there is play, tighten the steering stem nut. Check that free side-to-side movement of the forks is not inhibited.

1. Handlebar clamp bolt
2. Handlebar clamp
3. Holder bolt
4. Handlebar holder
5. Upper triple clamp
6. Holder nut
7. Crown nut
8. Fork tube bolt
9. Steering stem nut
10. Dust cover
11. Upper race
12. Frame lug race (upper)
13. Frame lug race (lower)
14. Steering stem race
15. Front forks



Front fork assembly (ALT)

7. Install the upper triple clamp. Tighten the crown nut to 26-40 ft. lbs. Tighten the bolts above the fork tubes to 26-40 ft. lbs.

8. When installing the handlebar assembly, tighten the holder nuts to 15-26 ft. lbs. Align the handlebars so that the punch mark on the bar matches the mating surface of the holders. Tighten the clamp bolts to 9-15 ft. lbs. Tighten these bolts evenly so the gap between clamp and holder is the same front and rear.

9. The remainder of the procedure is the reverse of removal.

10. Check fork bearing adjustment after assembly.

## STEERING (LT 125)

### Removal and Disassembly

1. Remove the front wheels.
2. Remove the wheel hubs.
3. Remove the cotter pins and take off the knuckle arm nuts and bolts.
4. Remove the cotter pins and nuts securing the rod-ends to the knuckle arms.
5. Disconnect the rod-ends from the knuckle arms.
6. Remove the knuckle arms from the frame.
7. Remove the seat.
8. Remove the odometer.
9. Remove the front fender.
10. Remove the left and right front grip support tube tightening bolts.
11. Remove the front grip with support tube from the frame (four bolts).

12. Remove the two screws and remove the headlight.

13. Disconnect the wires in the headlight housing and carefully pull them out.

14. Remove the steering shaft wiring clamp.

15. Remove the throttle lever housing screws and remove the cover. Disconnect the throttle cable.

16. Run down the brake adjuster and disconnect the brake cable from the hand lever.

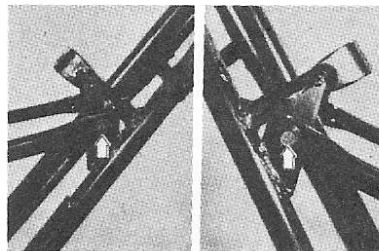
17. Remove the four clamp bolts and take off the handlebars.

18. Remove the steering shaft bottom nut cotter pin, nut and washers.

19. Remove the steering shaft holder nut cotter pins. Remove the nuts and bolts. Remove the holders.

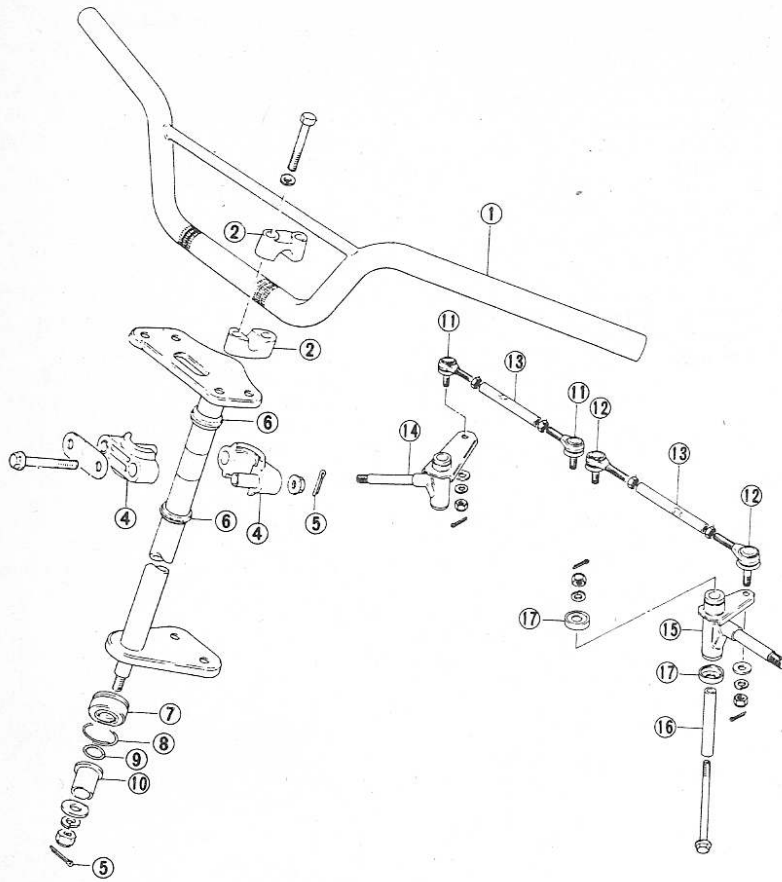
20. Remove the steering shaft from the frame.

21. Remove the tie rods from the steering shaft.



Front grip support tube tightening bolts

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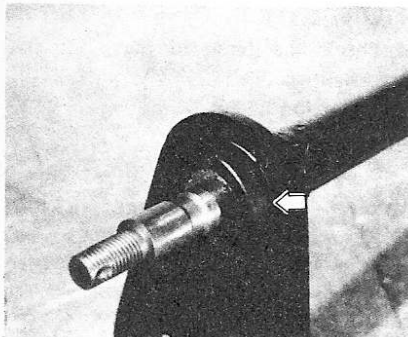


- |                          |                   |                      |
|--------------------------|-------------------|----------------------|
| 1. Handlebars            | 7. Dust seal      | 13. Tie rod          |
| 2. Clamp                 | 8. Circlip        | 14. Knuckle arm (RH) |
| 3. Steering shaft        | 9. O-ring         | 15. Knuckle arm (LH) |
| 4. Steering shaft holder | 10. Lower bushing | 16. Spacer           |
| 5. Cotter pin            | 11. Rod-end (RH)  | 17. Dust seal        |
| 6. Dust seal             | 12. Rod-end (LH)  |                      |

Steering assembly (LT 125)

## Inspection

1. Clean metal parts thoroughly in a safe solvent.
2. Check all metal parts for signs of distortion, for cracks, deformation and other obvious indications of damage.
3. Remove the dust caps from the top and bottom of the knuckle arms and take out the spacer. Check for damage.
4. Check the dust seals for cracks or wear and replace if necessary.



Steering shaft dust seal and circlip

5. Check the steering shaft for a bent condition. If it is bent, replace it. Do not attempt to straighten a bent shaft.
6. Check the condition of the steering shaft bushing in the frame and the portion of the lower shaft which rides on it. There should be no play of the shaft in the bushing. If there is, the bushing can be driven out of the frame with a drift and replaced with a new unit.
7. Inspect the dust seal at the lower end of the steering shaft. The seal is secured by a clip.
8. Check holder condition.
9. Be sure both tie-rods are straight. Replace any bent or damaged units.
10. Check all grease and dust seals for condition. Replace as required.

## Assembly

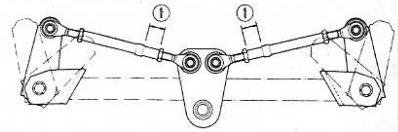
NOTE: All cotter pins in the steering assembly should be replaced with new ones when assembling.

Grease the dust seal at the bottom of the steering shaft before installing it. Fit the dust seal circlip.

2. Install the tie rods on the steering shaft. Tighten the nuts to 29-44 ft. lbs.

NOTE: The tie rods must be installed so that the flats are closer to the steering shaft than to the wheels.

3. Use a good quality bearing grease and lubricate the steering shaft bushing in the frame and the shaft holders.



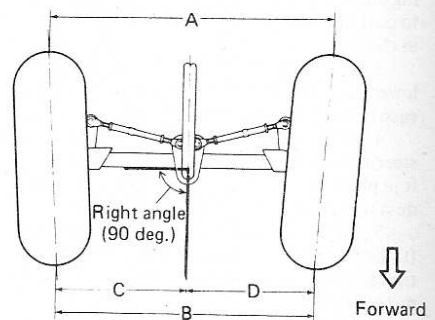
Tie rods are installed with flats (1) closer to steering shaft

4. Install the steering shaft.
5. Install the holders. Dust seals on the holders should be installed so that the gaps face forward.
6. Use a new O-ring on the steering shaft bottom nut.
7. Grease the bottom nut O-ring and install it. Install the washers. Tighten the nut to 16-26 ft. lbs. Use a new cotter pin.
8. Tighten the holder nuts to 13-20 ft. lbs.
9. Grease the knuckle arm spacers and install them. Grease and install the dust caps.
10. Grease the knuckle arm bolts.
11. Install the knuckle arms and tighten the nuts to 29-44 ft. lbs.
12. Connect the tie-rod ends to the steering knuckles. Tighten the nuts to 29-44 ft. lbs.
13. When fitting the handlebars, note that the punch mark should align with the holder mating surface.
14. Tighten the handlebar clamp bolts evenly so that the gap between clamp and holder is equal front and rear. Torque is 7-12 ft. lbs.
15. The remainder of the procedure is the reverse of disassembly. Check the "Chassis Torque Specifications" chart for correct torque settings.
16. Adjust toe-in as described below.

## Toe-In Adjustment

NOTE: Outer locknuts on tie-rods (yellow finish) have left-hand threads.

1. Park the vehicle on a level surface.
2. Be sure the tires are inflated to the proper specification (2.2 psi).
3. Position the handlebars straight ahead.



Subtract "B" from "A" for toe-in dimension; "C" and "D" must be equal

4. Measure the distance from centerline to centerline of the two front tires. Measure this distance at the very front of the tires. Make another measurement 180° from the first.

5. Subtract the first measurement from the second. The final figure is toe-in. It should be 5-11 mm (0.2-0.4 in.).

6. If this is not the value obtained, adjust as follows.

7. Loosen the two locknuts on each tie-rod.

8. Turn each rod with a wrench on the flats provided as necessary to bring toe-in into specification.

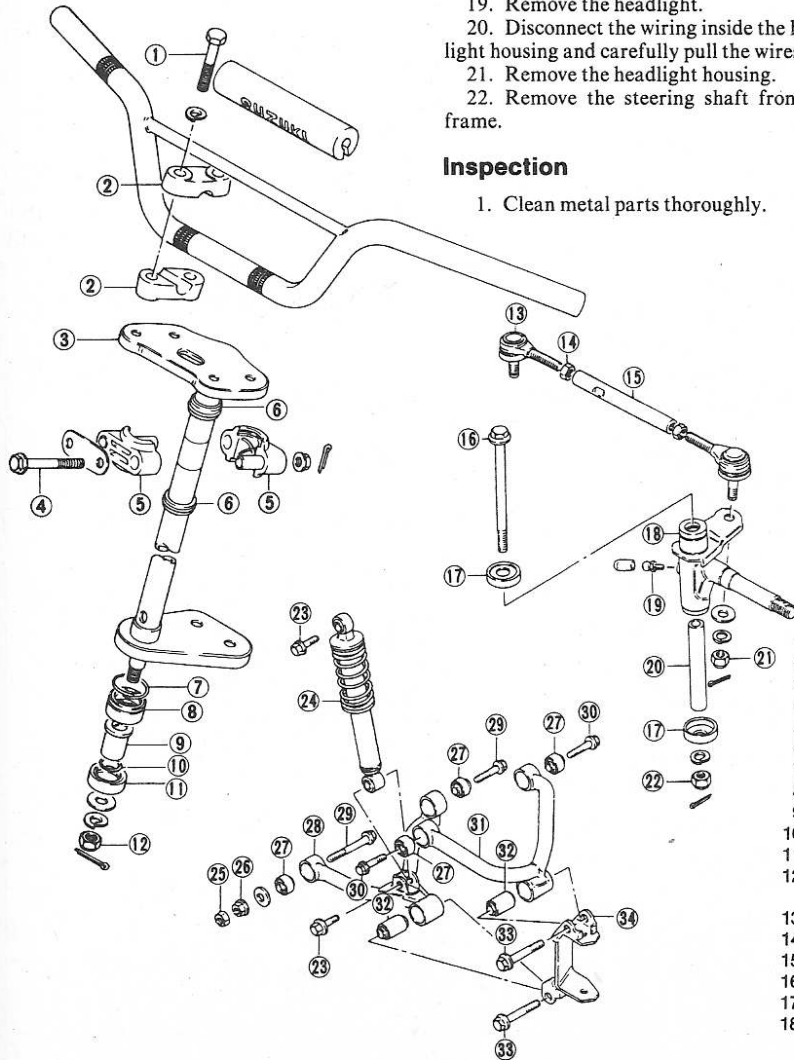
**CAUTION:** It is critical that both rods be turned by equal amounts, assuming that other components have not been disturbed or damaged. The distance from the centerline of the steering shaft to the centerline of each tire must be equal.

9. When toe-in is correct and the distance from the centerline of the steering shaft to the centerline of both tires is equal, tighten the tie-rod locknuts to 16-26 ft. lbs.

## FRONT SUSPENSION (LT 185)

### Removal And Disassembly

1. Remove the front wheels.
2. Remove the hubs.
3. Disconnect the tie-rods from the knuckle arms by removing the cotter pins and nuts.



Front suspension (LT 185)

4. Remove the knuckle arms by removing the knuckle arm nut cotter pins, nuts and bolts.

5. Remove the upper and lower shock absorber mounting bolts and take off the shock absorbers.

6. Remove the knuckle arm holders from the wishbone arms (two bolts).

7. Remove the wishbone arms.

8. Disconnect the tie-rods from the steering shaft by pulling out the cotter pins on the nuts, removing the nuts and taking off the tie-rods.

9. Remove the seat.

10. Remove the odometer.

11. Remove the front fender.

12. Remove the cotter pin on the steering shaft bottom nut. Remove the bottom nut.

13. Run down the brake adjusters and disconnect the brake cable from the hand lever.

14. Remove the two screws and take off the throttle lever housing cover.

15. Disconnect the throttle cable from the lever.

16. Remove the cable clamp from the steering shaft.

17. Remove the steering shaft holder nut cotter pin. Remove the nuts and bolts. Remove the holders and dust seals.

18. Remove the handlebar clamp bolts and take off the handlebars.

19. Remove the headlight.

20. Disconnect the wiring inside the headlight housing and carefully pull the wires out.

21. Remove the headlight housing.

22. Remove the steering shaft from the frame.

### Inspection

1. Clean metal parts thoroughly.

2. Check all metal parts for signs of distortion, for cracks, deformation and other obvious indications of damage.

3. Check the shock absorbers for signs of leakage. Repair is not possible. Replace any leaking units. Shocks should be replaced as a set for uniform performance.

4. Check the shock absorber springs for condition.

5. Check the steering shaft for a bent condition. If it is bent, replace it. Do not attempt to straighten the shaft.

6. Check the steering shaft holders for wear. Replace as necessary.

7. Be sure both tie-rods are straight. Replace any bent or damaged units.

8. Check all dust and grease seals for condition. Replace as required.

9. Inspect wishbone arm bushings for play. There should not be any. If there is, the bushings must be replaced.

10. Check for play of the lower steering shaft bushing. Replace if play is noted.

11. If replacement is required, the steering shaft bushing can be driven out of the frame with a suitable drift.

12. Remove the dust caps from the top and bottom of the knuckle arms and take out the spacer. Check for damage.

13. Inspect the dust seal at the lower end of the steering shaft. The seal is secured by a clip.

### Assembly

**NOTE:** All cotter pins in the front suspension must be replaced with new ones when assembling.

1. Grease the dust seal at the bottom of the steering shaft before installing it. Fit the dust seal circlip.

2. Grease the steering shaft bushing in the frame, the portion of the shaft that rides on it, the holders and the portion of the shaft that contacts the holders. Use a good grade of bearing grease.

3. Install the steering shaft.

4. Install the holders. The dust seals on the holders should be installed so that the gaps face forward. Tighten the holder nuts to 13-20 ft. lbs.

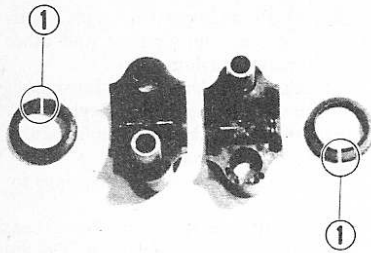
5. Use a new O-ring on the steering shaft bottom nut.

6. Grease the bottom nut O-ring and install it. Install the washers. Tighten the bottom nut to 15-26 ft. lbs. Use a new cotter pin.

- |                               |                                     |
|-------------------------------|-------------------------------------|
| 1. Handlebar clamp bolt       | 19. Grease nipple                   |
| 2. Clamp                      | 20. Spacer                          |
| 3. Steering shaft             | 21. Rod-end nut                     |
| 4. Holder bolt                | 22. Knuckle arm nut                 |
| 5. Steering shaft holder      | 23. Shock absorber bolt             |
| 6. Dust seal                  | 24. Shock absorber                  |
| 7. Circlip                    | 25. Wishbone arm front locknut      |
| 8. Dust seal                  | 26. Wishbone arm front nut          |
| 9. Lower bushing              | 27. Bushing                         |
| 10. O-ring                    | 28. Wishbone lower arm              |
| 11. Dust seal                 | 29. Wishbone arm inner bolt (lower) |
| 12. Steering shaft bottom nut | 30. Wishbone arm inner bolt (upper) |
| 13. Rod-end                   | 31. Upper wishbone arm              |
| 14. Locknut                   | 32. Bushing                         |
| 15. Tie rod                   | 33. Wishbone arm outer bolt         |
| 16. Knuckle arm bolt          | 34. Knuckle arm holder              |
| 17. Dust seal                 |                                     |
| 18. Knuckle arm               |                                     |



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Install dust seals with gaps (1) facing forward

7. Attach tie-rod ends to the steering shaft. Tighten the nuts to 29-44 ft. lbs. Use new cotter pins.

NOTE: Install the tie-rods so that the flats are closer to the steering shaft than to the wheels.

8. When fitting the handlebars, note that the punch mark should be aligned with the holder mating surface.

9. Tighten the handlebar clamp bolts evenly so that the gap between clamp and holder is equal front and rear. Bolt torque is 7-12 ft. lbs.

10. The remainder of the procedure is basically the reverse of disassembly. Be certain that all fasteners are correctly torqued. The upper and lower wishbone arm bolts on the frame are tightened to 36-51 ft. lbs.

11. The knuckle arm holder bolts are tightened to 51-73 ft. lbs.

12. Grease the knuckle arm spacers with a good grade of bearing grease and install them. Grease and install the knuckle arm dust caps.

13. Grease the knuckle arm bolts.

14. Install the knuckle arms and tighten the nuts to 30-44 ft. lbs.

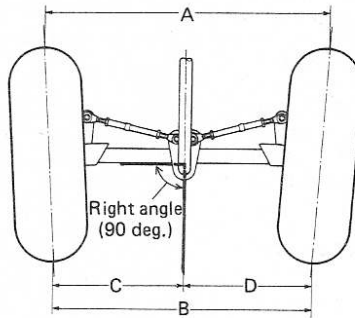
15. Connect the tie-rod ends to the knuckle arms. Tighten the nuts to 29-44 ft. lbs.

16. Adjust toe-in as outlined below.

## Toe-In Adjustment

NOTE: Outer locknuts on tie-rods (yellow finish) have left-hand threads.

1. Park the vehicle on a level surface.
2. Be sure the tires are inflated to the proper specifications.
3. Position the handlebars straight ahead.
4. Measure the distance from centerline to centerline of the two front tires. Measure this distance at the very front of the tires. Make another measurement 180° from the first.
5. Subtract the first measurement from the second. The final figure is the toe-in. It should be 12-18mm (0.5-0.7 in.).
6. If this is not the value obtained, adjust as follows.
7. Loosen the two locknuts on each tie rod.
8. Turn each rod with a wrench on the flats provided as necessary to bring toe-in into specification.



Subtract "B" from "A" for toe-in dimension; "C" and "D" must be equal.

CAUTION: It is critical that both rods be turned by equal amounts, assuming that other components have not been disturbed or damaged. The distance from the centerline of the steering shaft to the centerline of each tire must be equal.

9. When the toe-in is correct and the distance from the centerline of the steering shaft to the centerline of both tires is equal, tighten the tie-rod locknuts to 16-26 ft. lbs.

## GENERAL

### TORQUE SPECIFICATIONS<sup>①</sup>

Bolt thread diameter (mm)	Torque (ft lbs)
Unmarked or marked "4"	
4	0.7-1.5
5	1.5-3.0
6	3-5
8	7-12
10	16-26
12	26-40
14	36-58
16	58-94
18	94-138
Marked "7"	
4	1-2
5	2-5
6	6-9
8	13-20
10	29-44
12	51-73
14	80-116
16	123-181
18	145-203

<sup>①</sup> Unless otherwise noted

## CHASSIS TORQUE SPECIFICATIONS

Part	Torque (ft lbs.)
<b>LT 125</b>	
Handlebar clamp bolts	7-12
Steering shaft holder bolts	13-20
Steering shaft bottom nut	16-26
Knuckle arm bolt	29-44
Tie-rod end nuts	29-44
Tie-rod locknuts	16-26
Front wheel axle nuts	36-58
Front wheel nuts	15-23
Front wheel rim nuts	15-23
Footrest bolts	13-20
Chain tensioner nut	15-23
Chain adjuster bolt	51-73
Rear wheel axle nut	62-83
Rear wheel nuts	15-23
Rear wheel rim nuts	15-23
Rear sprocket mounting bolts	29-44
Rear sprocket nuts	6.0-8.5
Rear axle housing nuts	13-20
Brake cam lever pinch bolt	6.0-8.5
Brake drum outer cover bolts	3-5
Axle shaft nut, inner	36-58*
Axle shaft nut, outer	116-145*

# Suzuki LT/ALT 125/185

## CHASSIS TORQUE SPECIFICATIONS

Part	Torque (ft lbs.)
<b>ALT 125</b>	
Handlebar clamp bolts	9-15
Handlebar holder nuts	15-26
Upper triple clamp bolts and crown nut	26-40
Front axle nuts	36-58
Front wheel nuts	15-23
Front wheel rim nuts	15-23
Footrest bolts	15-23
Chain tensioner nut	15-23
Chain adjuster bolt	51-73
Rear wheel axle nut	62-83
Rear wheel nuts	15-23
Rear wheel rim nuts	15-23
Rear sprocket nuts	6.0-8.5
Rear sprocket mounting bolts	29-44
Rear axle housing nuts	13-20
Brake cam lever pinch bolt	6.0-8.5
Brake drum outer cover bolts	3-5
Axle shaft nut, inner	36-58*
Axle shaft nut, outer	116-145*
<b>LT 185</b>	
Handlebar clamp bolts	7-12
Steering shaft holder nuts	13-20
Steering shaft bottom nut	15-26
Knuckle arm bolt	29-44
Tie-rod end nuts	29-44
Tie-rod locknuts	16-26
Shock absorber mounting bolts	29-44
Front wheel axle nut	36-58
Front wheel nuts	33-47
Footrest bolts	13-20
Chain tensioner nut	15-22
Chain tensioner bolt	51-73
Wishbone arm bolts (frame)	51-73
Knuckle arm holder bolts	29-44
Rear wheel axle nut	62-83
Rear wheel nuts	33-47
Brake cam lever pinch bolt	6.0-8.5
Rear sprocket mounting bolts	29-44
Rear sprocket nuts	6.0-8.5
Rear axle housing nuts	13-20
Wishbone arm front locknut	15-26
Axle shaft nut, inner	36-58*
Axle shaft nut, outer	116-145*
<b>ALT 185</b>	
Handlebar clamp bolts	9-15
Handlebar holder nuts	15-26
Steering stem nut	26-40
Upper triple clamp bolts and crown nut	26-40
Front wheel axle nuts	26-38
Front wheel nuts	15-23
Chain tensioner nut	15-23
Chain adjuster bolt	51-73
Rear wheel axle nut	62-83
Rear wheel nuts	33-47
Rear axle housing nuts	13-20
Rear sprocket mounting bolts	29-44
Rear sprocket nuts	6.0-8.5
Axle shaft nut, inner	36-58*
Axle shaft nut, outer	116-145*

\*Use thread locking compound