Wheels/Tires

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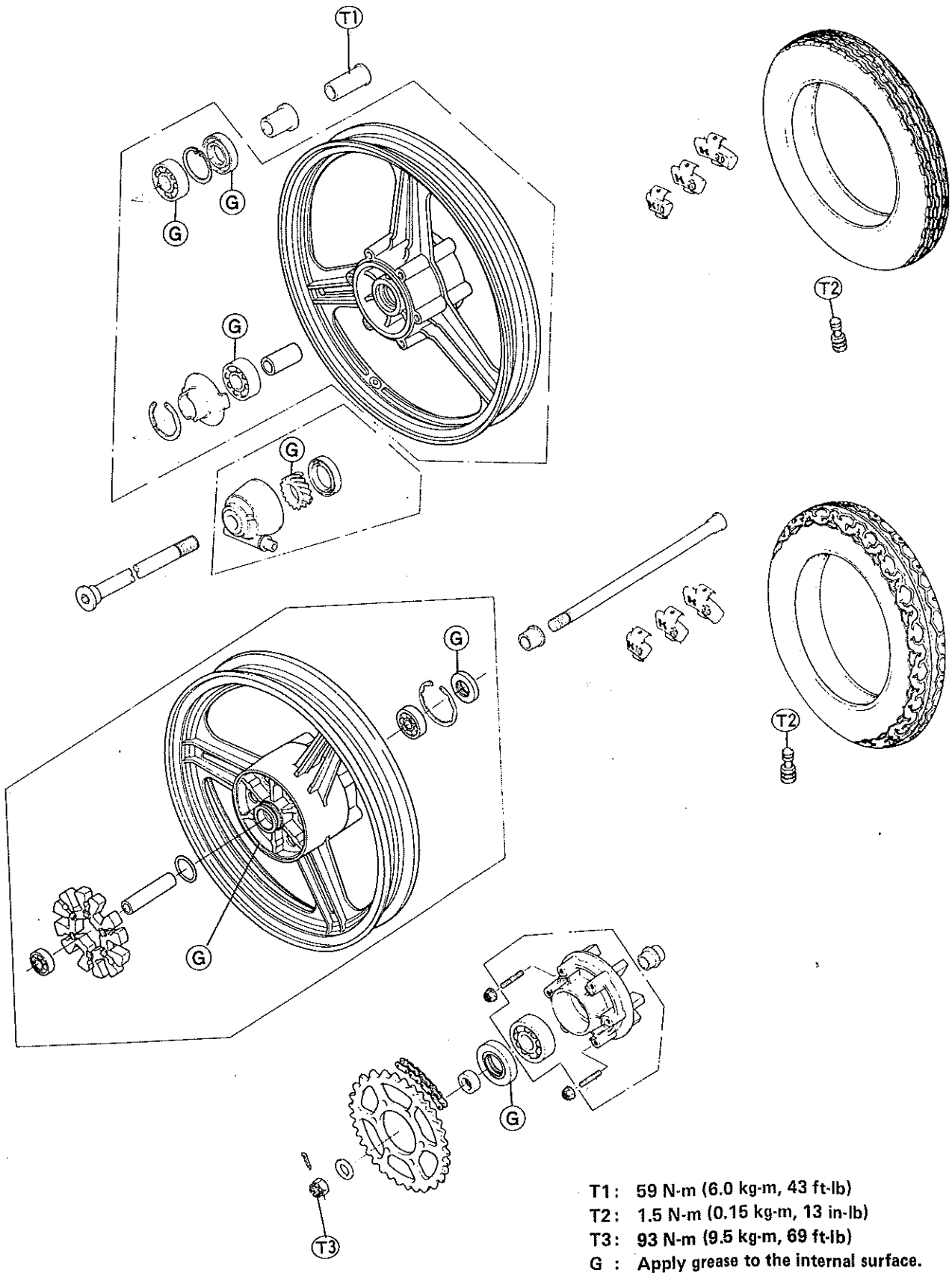
Exploded View



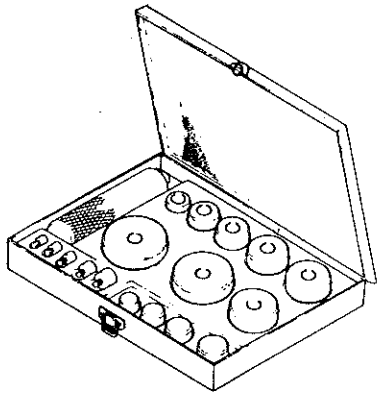
T1: 59 N-m (6.0 kg-m, 43 ft-lb)
T2: 1.5 N-m (0.15 kg-m, 13 in-lb)
T3: 93 N-m (9.5 kg-m, 69 ft-lb)
G : Apply grease to the internal surface.

Specifications

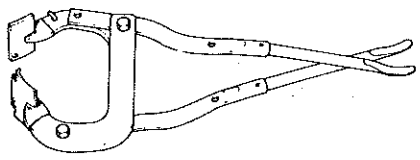
Item		Standard		
Wheels:				
Wheel balance		Imbalance of less than 0.1 N (10 g)		
Front tire	Make & type	Bridgestone G519 Tubeless		
	Tire size	100/90-16 54H		
	Air pressure	200 kPa (2.0 kg/cm², 28 psi)		
	Tread depth	4.3 mm (service limit : 1 mm)		
Rear tire	Make & type	Bridgestone G518 Tubeless		
	Tire size	110/80-18 58H		
	Air pressure	over	up to	
		– – –	956 N (97.5 kg, 215 lb)	221 kPa (2.25 kg/cm², 32 psi)
		956 N (97.5 kg, 215 lb)	1,471 N (150 kg, 331 lb)	245 kPa (2.50 kg/cm², 36 psi)
		1,471 N (150 kg, 331 lb)	1,735 N (177 kg, 391 lb)	275 kPa (2.80 kg/cm², 40 psi)
	Tread depth	7 mm (Service limit: 2mm, over 110 km/h: 3mm)		
Rim runout	Axial	– – – (service limit : 0.5 mm)		
	Radial	– – – (service limit : 0.8 mm)		

Special Tools

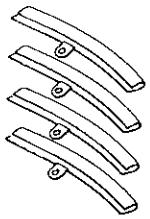
Bearing Driver Set: 57001-1129



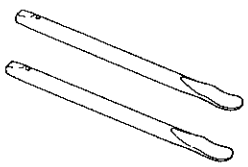
Bead Breaker Assembly: 57001-1072



Rim Protector: 57001-1063



Tire Iron: 57001-1073



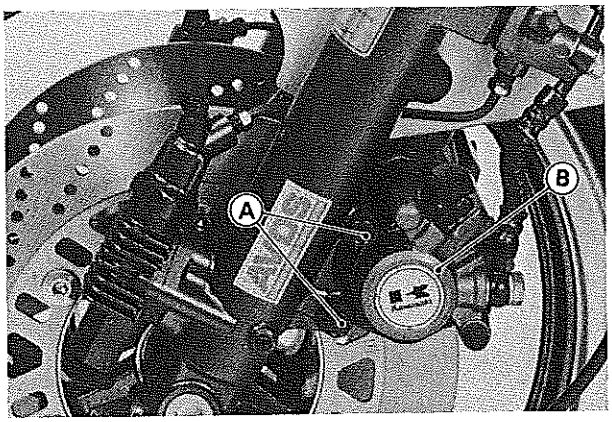
NOTE

○*The tire irons (P/N 57001-1073) are included in the bead breaker assembly (P/N 57001-1072).*

Wheels (Rims)

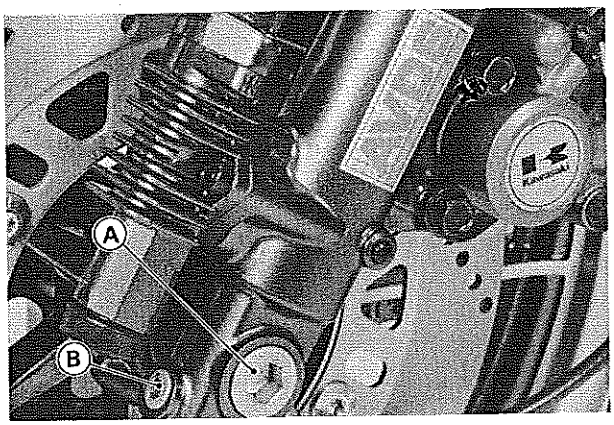
Front Wheel Removal

●Remove the following parts before front wheel removal.
○Speedometer cable lower end
○Either of brake calipers



A. Caliper Mounting Bolts B. Caliper

○Left side axle clamp bolts loosened



A. Axle B. Axle Clamp Bolt

○Axle loosend (axle head is on left side)
●Lift the front wheel off the ground (see Front Fork Air Pressure Adjustment in Suspension chapter).
●Pull out the axle to the left and drop the front wheel out of the fork.
●Remove the front wheel.

CAUTION

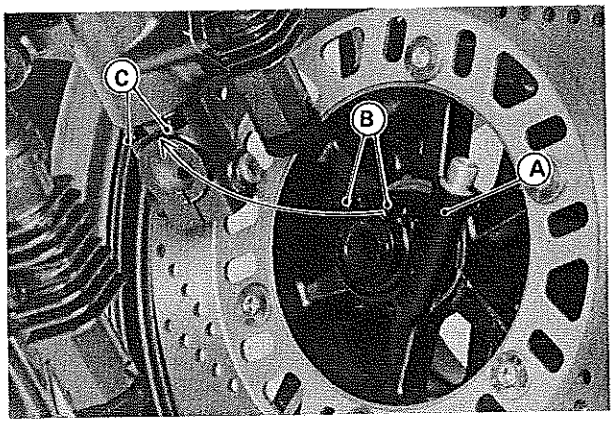
○Do not lay the wheel down on one of the discs. This can damage or warp the disc. Place blocks under the wheel so that the discs do not touch the ground.

Front Wheel Installation

●When installing the front wheel, be careful of the following items.
○Installation is the reverse of removal.

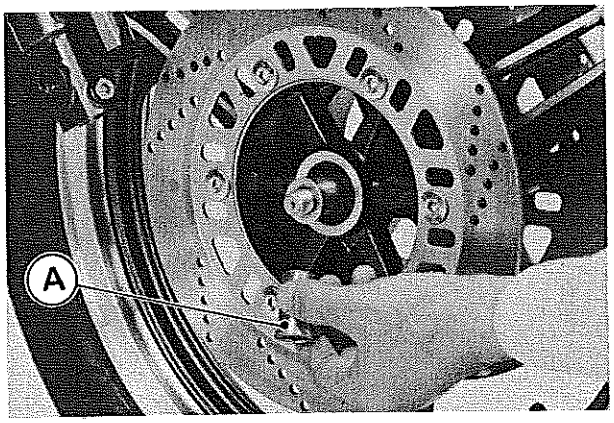
NOTE

○Install the speedometer gear housing so that it fits in the speedometer gear drive notches.
○Fit the speedometer gear housing stop in the fork leg stop.



A. Speedometer Gear Housing
B. Housing Stop
C. Fork Leg Stop

●Be sure to insert the collar on the right side of the hub.



A. Collar

○Tighten the axle nut to the specified torque.
○Tighten the axle clamp bolts to the specified torque.
○Tighten the caliper mounting bolts to the specified torque.
○Check the front brake.

WARNING

○Do not attempt to drive the motorcycle until a full brake lever is obtained by pumping the brake lever until the pads are against the disc. The brakes will not function on the first application of the lever if this is not done.

Rear Wheel Removal

- Remove or loosen the following parts before rear wheel removal.
  - Front muffler
  - Caliper fixing bolt and collar fixing bolt (loosen)
  - Drive chain (fully loosen)
  - Axle nut and alxe (remove)
  - Caliper (remove)
- Pull off the drive chain toward the left, and remove the rear wheel.

CAUTION

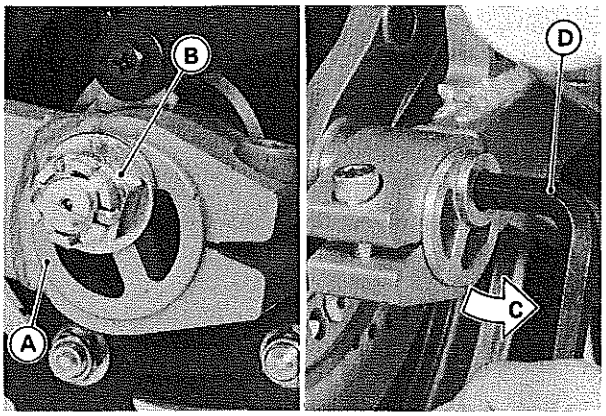
- **Do not lay the wheel on the ground with the disc facing down. This can damage or warp the disc. Place blocks under the wheel so the disc does not touch the ground.**

Rear Wheel Installation

- When installing the rear wheel, be careful of the following items.
  - Installation is the reverse of removal.
  - Adjust the drive chain after installation (see Drive Chain Adjustment in Final Drive chapter).

NOTE

- *When adjusting the drive chain, turn the chain adjuster toward the direction as shown.*



A. Chain Adjuster
B. Axle Nut
C. Rotation
D. Allen Wrench

- Tighten the axle nut and chain adjuster clamp bolts to specified torque.

Wheel Inspection

If there is any doubt as to the condition of the wheel, or if the wheel has received a heavy impact, check the rim runout as follows:

Remove the tire and support the wheel by the axle. Set a dial gauge against the side of the rim, and rotate the wheel to measure the axial runout. The difference between the highest and lowest dial readings is the amount of runout.

Set the dial gauge against the outer circumference of the rim, and rotate the wheel to measure radial runout. The difference between the highest and lowest dial readings is the amount of runout.

If rim runout exceeds the service limit, check the wheel bearings first. Replace them if they are damaged. If the problem is not due to the bearings, the wheel must be replaced. Do not attempt to repair a damaged wheel.

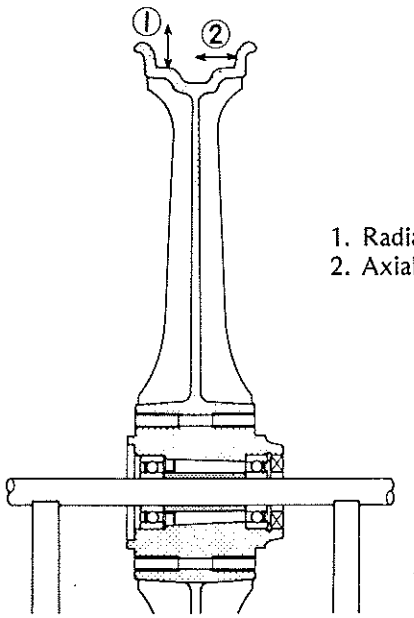
Radial Runout

Service Limit: **0.8 mm**

Axial Runout

Service Limit: **0.5 mm**

Rim Runout



1. Radial Runout
2. Axial Runout

Carefully inspect the wheel for small cracks, dents, bending, or warp. If there is any damage to the wheel, it must be replaced.

WARNING

- **Never attempt to repair a damaged wheel. If there is any damage besides wheel bearings, the wheel must be replaced to insure safe operational condition.**

If the rim has scratch deeper than **0.5 mm** and/or across the rim sealing surface, replace the wheel.

Axle Inspection

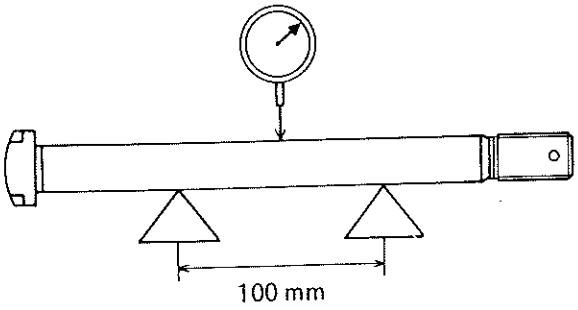
To measure axle runout, remove the axle, place it in V blocks that are 100 mm apart, and set a dial gauge on the axle at a point halfway between the block. Turn the axle to measure the runout. The amount of runout is the amount of dial variation.

If runout exceeds the service limit, straighten the axle or replace it. If the axle cannot be straightened to within tolerance, or if runout exceeds the repair limit, replace the axle.

Axle Runout/100 mm

Service Limit:	**0.2 mm**
Repair Limit:	**0.7 mm**

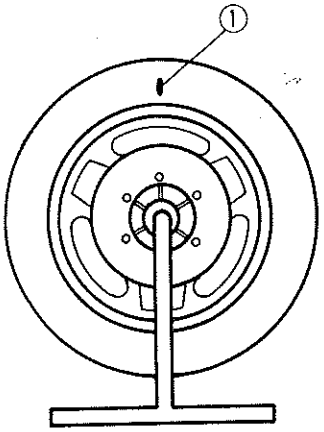
Axle Runout



Wheel Balance Check

- Support the wheel so that it can be spun freely.
- Spin the wheel lightly, and mark the wheel at the top when the wheel stops.

Wheel Balance Check



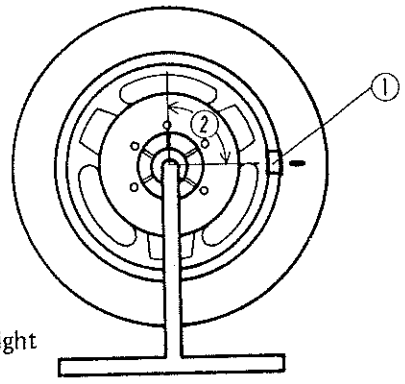
1. Mark

- Repeat this procedure several times. If the wheel stops of its own accord in various positions, it is well balanced.

Wheel Balance Adjustment

- If the wheel always stops in one position, provisionally attach a balance weight on the rim at the marking using an adhesive tape.
- Rotate the wheel ¼ turn, and see whether or not the wheel stops in this position. If it does, the correct balance weight is being used.
- If the wheel rotates and the weight goes up, replace the weight with the next heavier size. If the wheel rotates and the weight goes down, replace the weight with the next lighter size. Repeat these steps until the wheel remains at rest after being rotated ¼ turn.
- Rotate the wheel another ¼ turn, and then another ¼ turn to see if the wheel is correctly balanced.
- Repeat the entire procedure as many times as necessary to achieve correct wheel balance.

Wheel Balance Adjust



A. Balance Weight
B. ¼ Turn

Balancer Weight Installation:

- It is not necessary to reduce the tire pressure for balancer weight installation.
- Check if the weight portion has any play on the blade-and-clip plate.
- ★If it does, discard it.
- Lubricate the balance weight blade, tire bead, and rim flange with a soap and water solution or rubber lubricant. This helps the balance weight slip on the rim flange.

CAUTION

- **Do not lubricate the tire bead with engine oil or gasoline because they will deteriorate the tire.**

- Install the balance weight on the rim.
- Slip the weight on the rim flange by pushing or lightly hammering the weight in the direction shown in the figure.
- Check that the blade and weight seat fully on the rim flange, and that the clip is hooked over the rim ridge and reaches rim flat portion.

WARNING

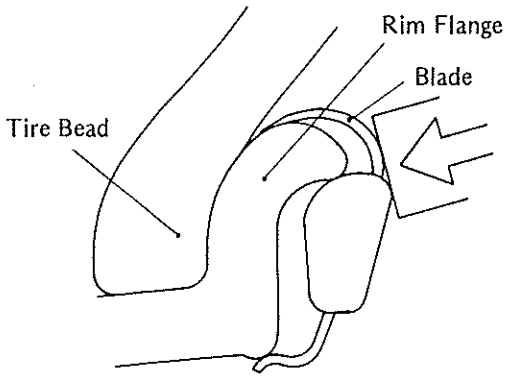
- **If the balance weight has any play on the rim flange, the blade and/or clip of weight are widened. Replace the loose balance weight.**
- **Do not reuse balance weights.**

Balance Weight

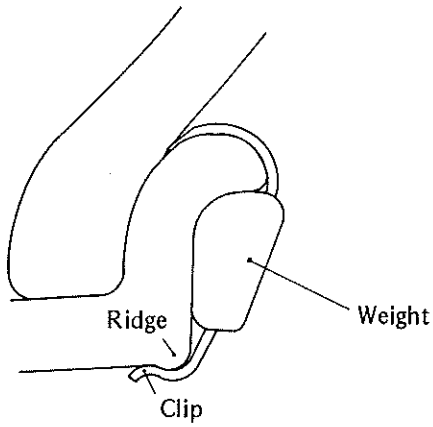
Part Number	Weight (grams)
41075-1014	10
41075-1015	20
41075-1016	30

Installing Balance Weight

(a) Press or lightly hammer the weight in.



(b) Installation completed.

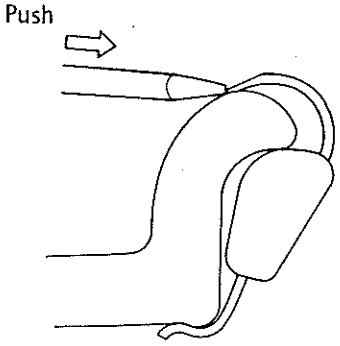


Remove of Balance Weight:

(a) When the tire is not on the rim.

- Push the blade portion toward the outside with a regular tip screw driver, and slip the weight of the rim flange.
- Discard the used balance weight.

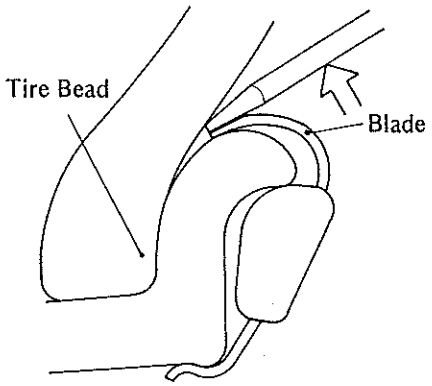
Removing Balance Weight (without tire on the rim)



(b) When the tire is on the rim.

- Pry the Balance weight off the rim flange using a regular tip screw driver as shown in the figure.
  - Insert a tip of the screw driver between the tire bead and weight blade until the end of the tip reaches the end of the weight blade.
  - Push the driver grip toward the tire so that the balance weight slips off the rim flange.
- Discard the used balance weight.

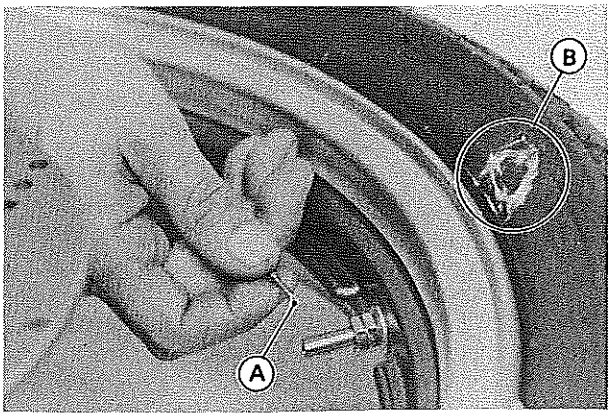
Removing Balance Weight (with tire on the rim)



Tires

Tire Removal

- Remove the wheel from the motorcycle, and remove the disc(s) from the hub.
- To maintain wheel balance, mark the valve stem position on the tire with chalk so that the tire will be reinstalled in the same position.
- Take out the valve core to let out the air.



A. Valve Core B. Chalk Mark

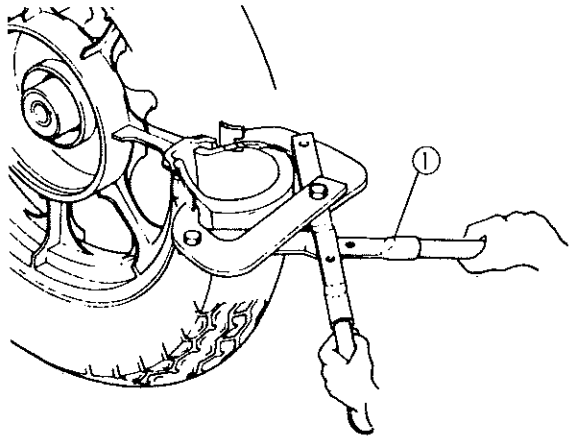
●Lubricate the tire beads and rim flanges on both sides with a soap and water solution or rubber lubricant. This helps the tire beads slip off the rim flanges.

CAUTION

○**Never lubricate with mineral oil (engine oil) or gasoline because they will cause deterioration of the tire.**

●Break the beads away from both sides of the rim with the bead breaker (special tool).

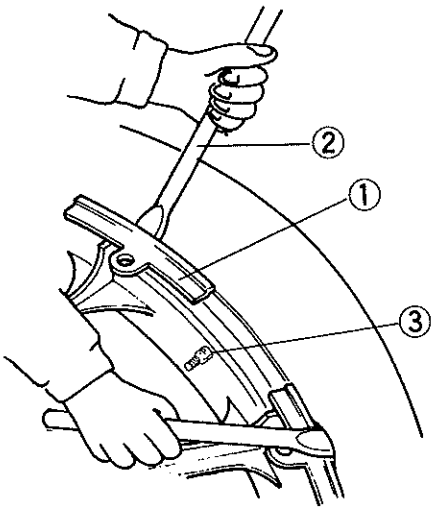
Tire Beads Breaker



A. Bead Breaker: 57001-1072

●Install the rim protectors (special tools) around the valve stem. Lubricate the tire irons and rim protectors with a soap and water solution, or rubber lubricant.
●Step on the side of the tire opposite the valve stem, and start prying the tire off the rim near the valve stem with tire irons (special tools).

Tire Removal



1. Rim Protectors: 57001-1063
2. Tire Irons: 57001-1073
3. Valve Stem

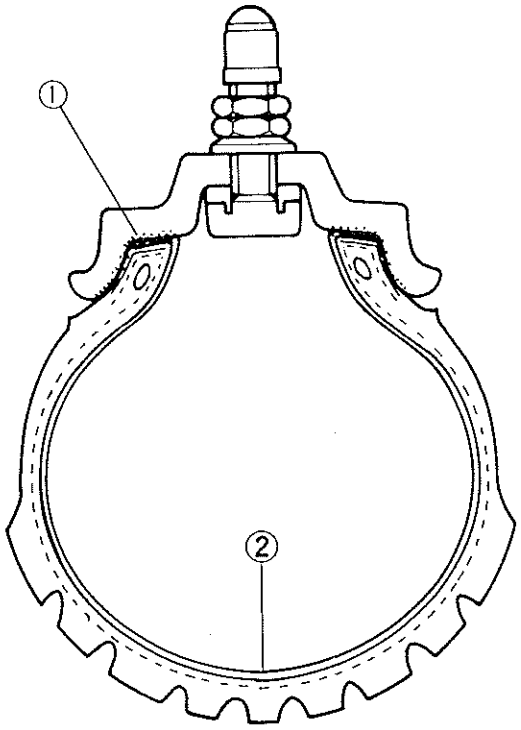
NOTE

○*For easier removal, always position the tire bead opposite the valve stem in the rim well, and pry the tire bead a little at a time.*

CAUTION

○**Be careful not to scratch the inner liner and air sealing surfaces of the rim and tire with the tire irons. A scratched inner liner or sealing surface may allow air to leak.**

Air Sealing Surfaces



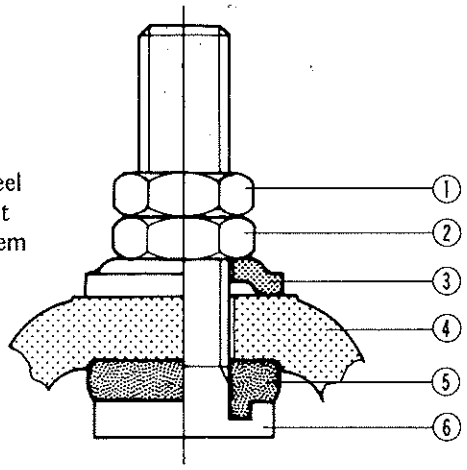
1. Air Sealing Surfaces
2. Inner Liner

●After removing the bead on one side, turn the wheel over and remove the other side.
●Remove the rim from the tire.
●Remove the rim protectors from the rim.

Tire Installation

●Inspect the rim and tire, and replace them if necessary.
●Clean the sealing surfaces of the rim and tire, and smooth the sealing surfaces of the rim with a fine emery cloth if necessary.
●Replace the valve with a new one. Tighten the mounting nut and locknut to the specified torque.

Air Valve

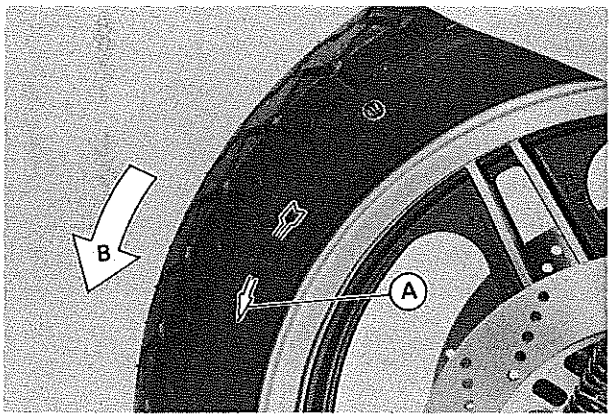


1. Locknut
2. Nut
3. Washer
4. Cast Wheel
5. Grommet
6. Valve Stem

- Apply a soap and water solution, or rubber lubricant to the rim flanges, rim protectors, tire beads, and tire irons.
- Check the tire rotation mark on the front and rear tires, and install them on the rim accordingly.

NOTE

○The direction of the tire rotation is shown by an arrow on the tire sidewall.



A. Rotaion Mark (Arrow)
B. Rotation Direction

- Position the tire on the rim so that the valve is at the tire balance mark (the chalk mark made during removal, or the yellow paint mark on a new tire).
- Fit the rim protectors on the rim flange near the valve stem.
- By hand, slide as much as possible of the lower side of the tire bead over the rim flange, starting at the side opposite the valve.
- Use tire irons to install the remaining part of the tire bead which cannot be installed by hand. For easy tire installation, position the part of the bead which is already over the rim flange in the rim well.

NOTE

○To prevent rim damage, be sure to place the rim protectors at any place the tire irons are applied.

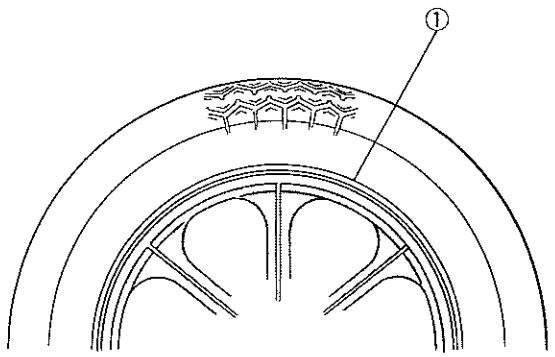
- Install the other side of the tire bead onto the rim in the same manner.
- Lubricate the tire beads and rim flanges with a soap and water solution or rubber lubricant to help seat the tire beads in the sealing surfaces of the rim while inflating the tire.
- Center the rim in the tire beads, and inflate the tire with compressed air until the tire beads seat in the sealing surfaces.

WARNING

○Be sure to install the valve core whenever inflating the tire, and do not inflate the tire to more than 390 kPa (4.0 kg/cm^2, 57 psi). Overinflation can explode the tire with possibility of injury and loss of life.

- Check to see that the rim lines on both sides of the tire sidewalls are parallel with the rim flanges.

Rim Line



1. Rim line

- If the rim flanges and tire sidewall rim lines are not parallel, remove the valve core. Lubricate the rim flanges and tire beads. Install the valve core and inflate the tire again.
- After the tire beads seat in the rim flanges, check for air leaks. Inflate the tire slightly above standard inflation. Use a soap and water solution or submerge it, and check for bubbles that would indicate leakage.
- Adjust the air pressure to the specified pressure (see Tire Inspection).
- Adjust the wheel balance (see Wheel Balance).

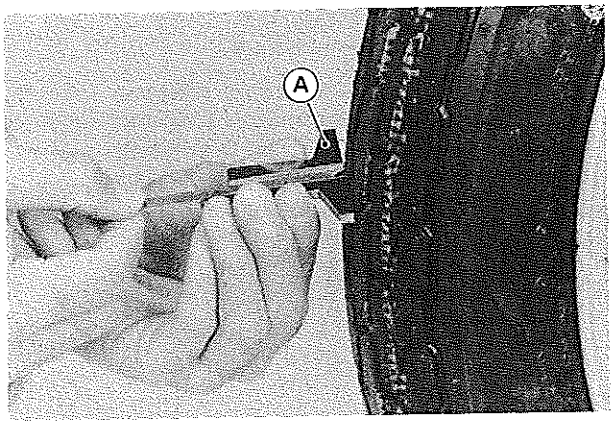
Tire Inspection

As the tire tread wears down, the tire becomes more susceptible to puncture and failure. An Accepted estimate is that 90% of all tire failures occur during the last 10% of tread life (90% worn). So it is false economy and unsafe to use the tires until they are bald.

- Remove any imbedded stones or other foreign particles from the tread.

- Visually inspect the tire for cracks and cuts, replacing the tire in case of bad damage. Swelling or high spots indicate internal damage, requiring tire replacement.
- Measure the tread depth at the center of the tread with a depth gauge. Since the tire may wear unevenly, take measurements at several places.

★If any measurement is less than the service limit, replace the tire.



A. Depth Gauge

Tire Tread Depth

Front	
Standard	**4.3 mm**
Service Limit	**1 mm**
Rear	
Standard	**7.0 mm**
Service Limit	**2 mm (Up to 110 km/h)**
	3 mm (Over 110 km/h)

WARNING

○To ensure safe handling and stability, use only the recommended standard tires for replacement, inflated to the standard pressure.

NOTE

○Check and balance the wheel when a tire is replaced with a new one.

Standard Tire

Front	
Size	100/90-16 54H
Make, Type	TUBELESS
	BRIDGESTONE G519
Rear	
Size	110/80-18 58H
Make, Type	TUBELESS
	BRIDGESTONE G518

Tire Repair

Currently two types of repair for tubeless tires have come into wide use. One type is called temporary (external) repairs which can be carried out without removing the tire from the rim, and another type is called permanent (internal) repairs which require tire removal. It is generally understood that higher running durability is obtained by permanent (internal) repairs than by temporary (external) ones. Also, permanent (internal) repairs also have the advantage of permitting a thorough examination for secondary damage not visible from external inspection of the tire. For these reasons, Kawasaki does not recommend temporary (external) repair. Only appropriate permanent (internal) repairs are recommended. Repair methods may vary slightly from make to make. Follow the repair methods indicated by the manufacturer of the repair tools and materials so that safe results can be obtained.

Hub Bearings

Front Hub Bearing Removal

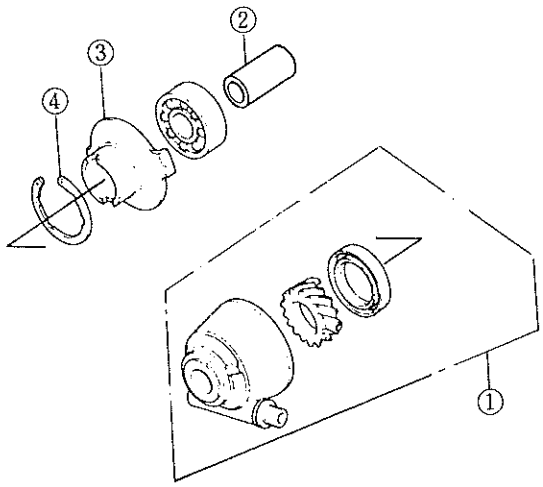
CAUTION

○Do not lay the wheel on the ground with the disc facing down. This can damage or warp the disc. Place blocks under the wheel so that disc does not touch the ground.

Tire Air Pressure (when cold)

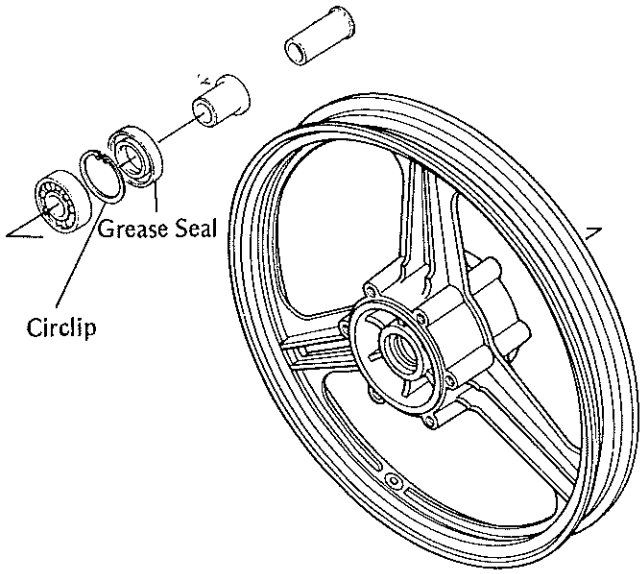
	Load	Air Pressure
Front	———	200 kPa (2.0 kg/cm², 28 psi)
Rear	Up to 956 N (97.5 kg, 215 lb)	221 kPa (2.25 kg/cm², 32 psi)
	Over 956 – up to 1,471 N (97.5 – 150 kg, 215 – 331 lb)	245 kPa (2.5 kg/cm², 36 psi)
	Over 1,471 N – up to 1,735 N (150 – 177 kg, 331 – 391 lb)	275 kPa (2.8 kg/cm², 40 psi)

●Remove the front wheel.
●Remove the speedometer gear housing, and collar from the wheel.
●Remove the disc mounting Allen bolts and take off the discs.
●Remove the circlip and speedometer receiver.



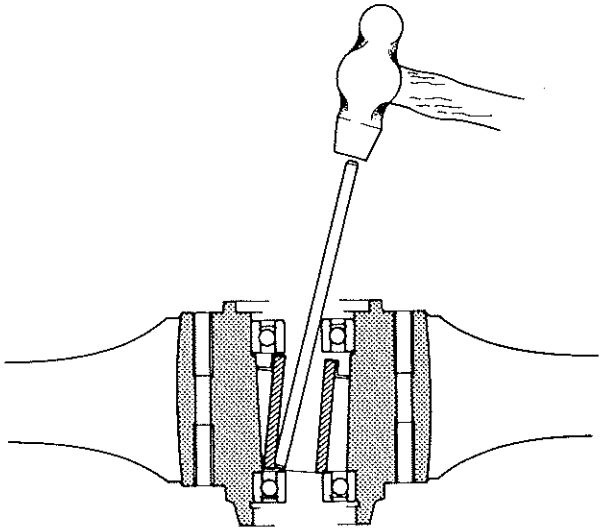
1. Speedometer Gear Housing
2. Collar
3. Speedometer Receiver
4. Circlip

●Remove the grease seal using a hook, and remove the circlip.



●Insert a metal rod into the hub from the left side, and remove the right side bearing by tapping evenly around the bearing inner race.
●Remove the remaining bearing by tapping evenly around the bearing inner race. The distance collar comes out with the bearing.

Bearing Removal

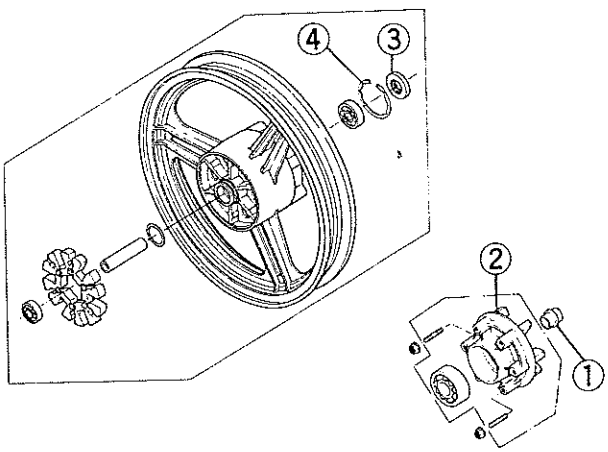


Rear Hub Bearing Removal

CAUTION

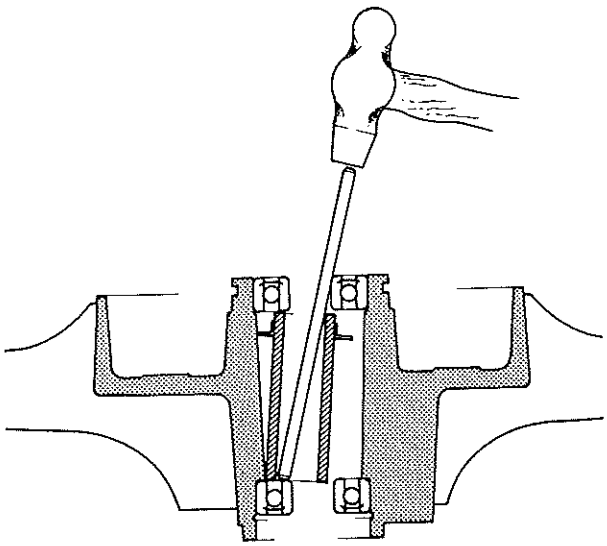
○**Do not lay the wheel on the ground with the disc facing down. This can damage or warp the disc. Place blocks under the wheel so that disc does not touch the ground.**

●Remove the rear wheel.
●Remove the coupling sleeve, rear wheel coupling, and coupling collar from the wheel.
●Remove the disc mounting Allen bolts and take off the disc.
●Remove the grease seal using a hook, and remove the circlip.



1. Coupling Sleeve
2. Coupling
3. Grease Seal
4. Circlip

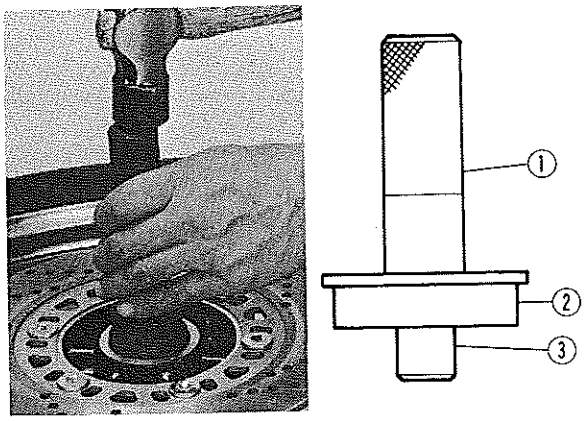
Bearing Removal



- Insert a metal rod into the hub from the left side, and remove the right side bearing by tapping evenly around the bearing inner race.
- Remove the remaining bearing by tapping evenly around the bearing inner race. The distance collar comes out with the bearing.

Front or Rear Hub Bearing Installation

- Before installing the wheel bearings, blow any dirt or foreign particles out of the hub with compressed air.
- Pack each front bearing with wheel bearing grease.
- Press either front bearing into the hub so that the shield sides face outwards. Press either rear hub bearing into the hub so that the marked sides face outwards.
- Use the bearing driver (special tool) which does not contact the bearing inner race.
- Press the wheel bearing (right side) into the hub until it sotps at the bottom of the hole.

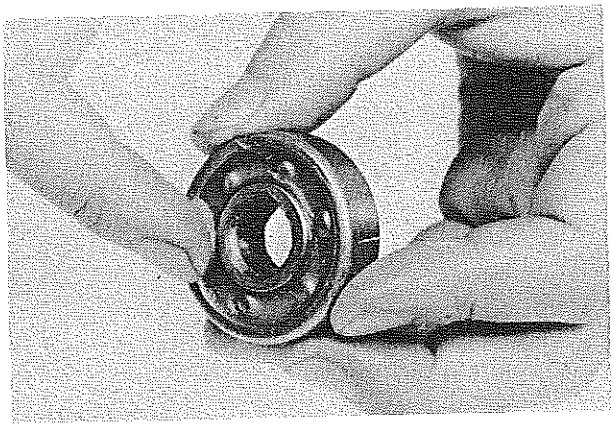


1. Bearing Driver holder: 57001-1132
2. Bearing Driver
3. Bearing Driver

○Tighten the disc mounting Allen bolts to the specified torque. The disc must be installed with the chamfered hole side facing toward the wheel or the marked side facing outwards. After installing the disc, check the disc runout. Completely clean off any grease that has gotten on either side of the disc with a high flash-point solvent. Do not use on which will leave any oily residue.

Front Hub Bearing and Rear Wheel Coupling Bearing Lubrication, Inspection

- Remove the wheel bearings on the front wheel hub and rear wheel coupling.
- Wipe the oil grease out of the hub before bearing installation.
- Wash the bearings with a high flash-point solvent, and dry them (do not spin it while it is dry).
- Inspect the bearings for damage, replace any damaged bearing.
- Pack the bearings with good quality bearing grease. Turn the bearing around by hand a few times to make sure the grease is distributed uniformly inside the bearing.



- Examine the bearing seal for tears or leakage.

★If the seal is torn or is leaking, replace the bearing.

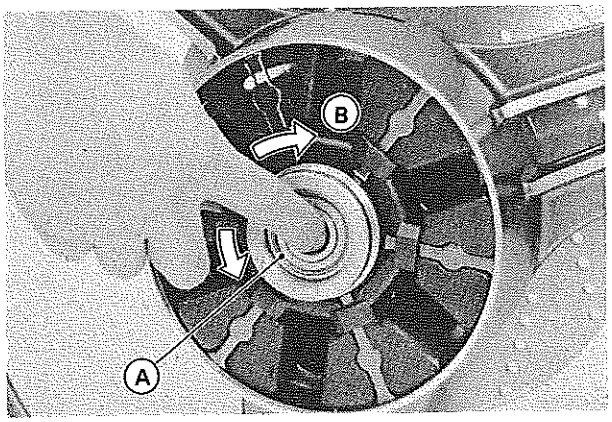
Rear Hub Bearing Inspection

NOTE

○*Since the bearings on the rear wheel hub are packed with grease and shielded, they are not required to be removed for lubrication.*

- Turn each bearing back and forth while checking for roughness or binding. If roughness or binding is found, replace the beairng.

●Examine the bearing shield for damage or leakage.
★If the shield is damaged or is leaking, replace the bearing.

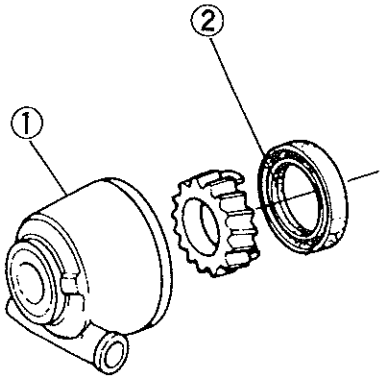


A. Bearing Shield B. Turn Inner Race

Speedometer Gear Housing

Speedometer Gear Housing Disassembly

●Pull the speedometer gear housing off the front wheel.
●Pull out the grease seal using a hook.



1. Speedometer Gear Housing 2. Grease Seal

●Pull out the speedometer gear.
●If the speedometer cable bushing or speedometer pinion needs to be removed, first drill the housing through the pin using a 1.0 to 1.5 mm drill bit. Drill the housing from the under side using a 3.0 to 3.5 mm drill bit. Using a suitable 3 mm rod, tap out the pin, and then pull out the speedometer cable bushing, pinion, and washers.

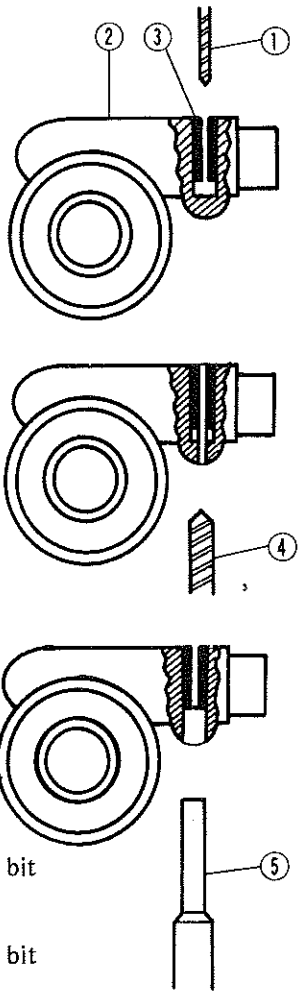
NOTE

○*It is recommended that the assembly be replaced rather than attempting to repair the components.*

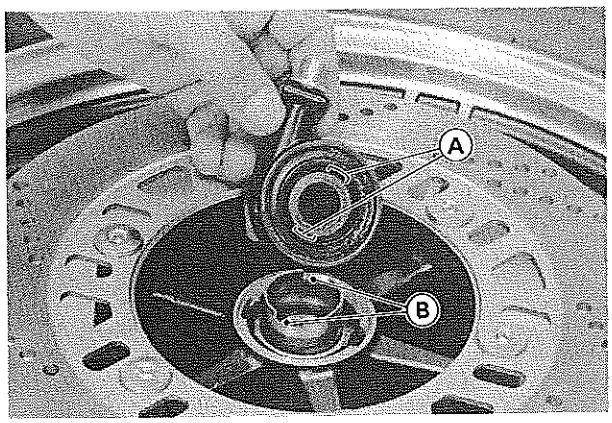
Speedometer Gear Housing Assembly

●When assembling the speedometer gear housing, be careful of the following items.
○After inserting a new pin, stake the housing hole to secure the pin in place.
○Replace the grease seal with a new one. Apply a little grease to the seal. Install it using a press or a suitable driver so that the face of the seal is level with the surface of the housing.
○Regrease the speedometer gear.
○Install the speedometer gear housing so that it fits in the speedometer gear drive notches.

Speedometer Gear Housing Pin Removal



1. 1 ~ 1.5 mm bit
2. Housing
3. Pin
4. 3 ~ 3.5 mm bit
5. 3 mm Rod

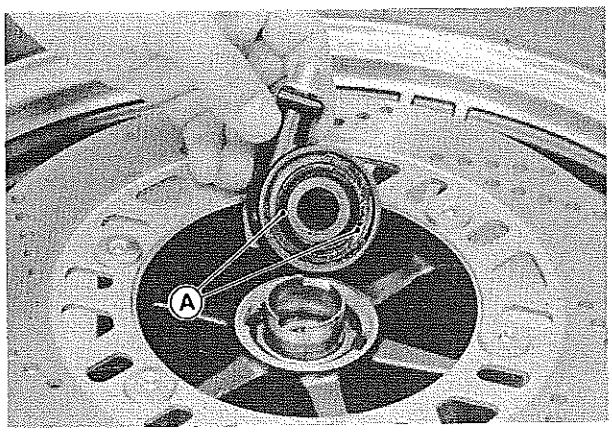


A. Speedometer Gear Housing
B. Fit in the gear drive notches.

Speedometer Gear Assembly Lubrication

Clean and grease the speedometer gear assembly in accordance with the Periodic Maintenance Chart.

- Remove the speedometer gear housing and disassemble the speedometer gear.
- Clean the gear and exposed portion of the pinion with a high flash-point solvent, dry them, and apply a grease to the gear teeth and inside of the gear sleeve.



A. Grease

- Assemble the speedometer gear and install the speedometer gear housing.