

Electrical System

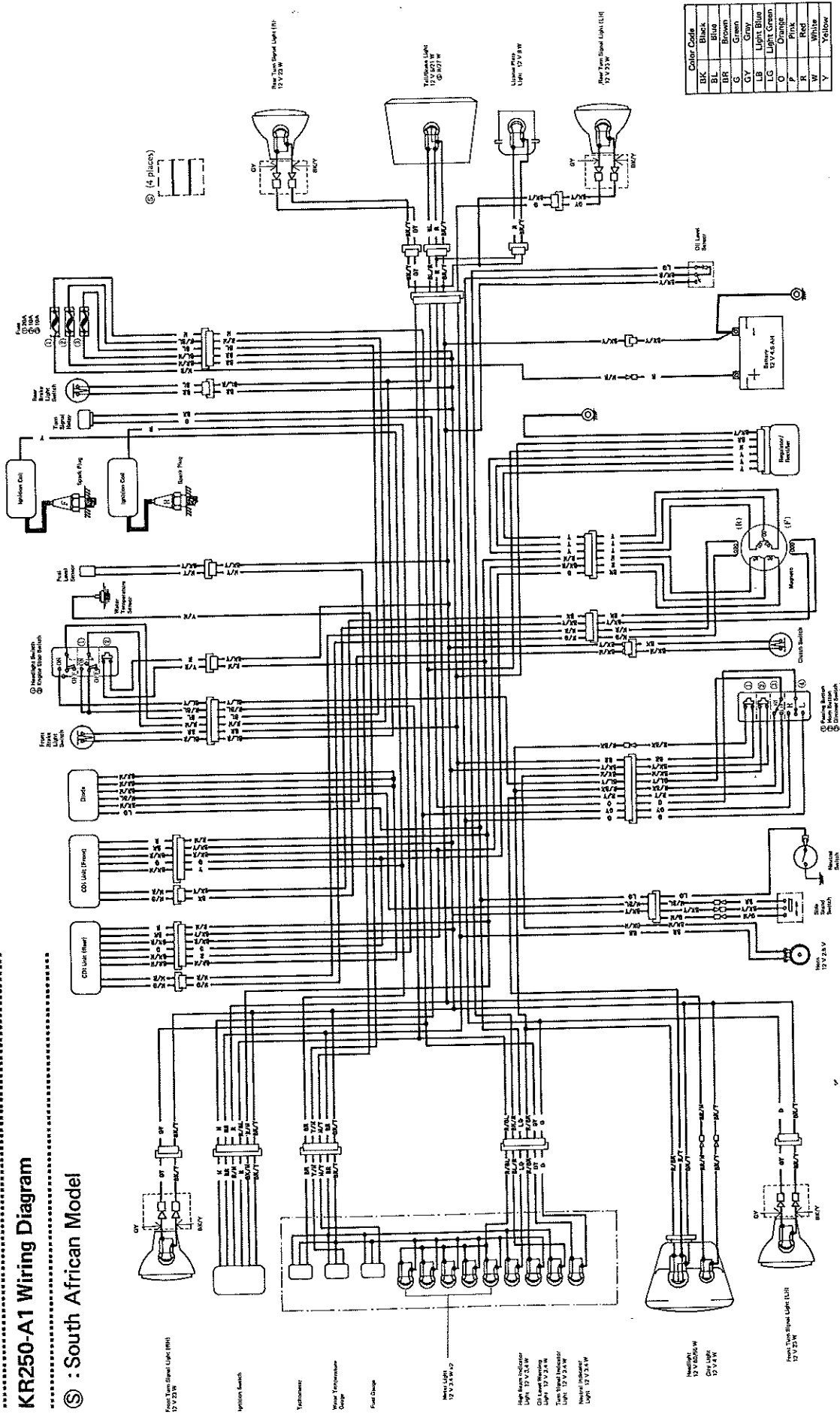
Table of Contents

Wiring Diagram	15-2	<i>Left Engine Cover Removal</i>	15-22
Exploded View	15-3	<i>Left Engine Cover Installation Notes</i>	15-22
Specifications	15-6	<i>Pickup Coil Installation Note</i>	15-23
Special Tools	15-7	<i>Pickup Coil Inspection</i>	15-23
Precautions	15-8	<i>Flywheel Magneto Removal</i>	15-24
Electrical Wiring	15-8	<i>Rotor (pulser) Removal</i>	15-24
<i>Wiring Inspection</i>	15-8	<i>Flywheel Magneto/Rotor</i>	
Battery	15-8	<i>Installation Notes</i>	15-25
<i>Precautions</i>	15-8	Lighting System	15-25
<i>Electrolyte Level Inspection</i>	15-9	<i>Headlight Beam Horizontal</i>	
<i>Battery Condition</i>	15-9	<i>Adjustment</i>	15-25
<i>Battery Initial Charging</i>	15-10	<i>Headlight Beam Vertical Adjustment</i>	15-25
<i>Battery Ordinary Charging</i>	15-10	<i>Headlight Bulb Replacement Notes</i>	15-25
<i>Battery Test Charging</i>	15-11	<i>Tail/Brake Light Bulb</i>	
<i>Battery Vent Hose Routing</i>	15-12	<i>Replacement Notes</i>	15-26
Charging System	15-13	<i>Tail/Brake Light Lens</i>	
<i>Regulator/Rectifier Output</i>		<i>Removal/Installation Note</i>	15-26
<i>Voltage Measurement</i>	15-13	<i>Licence Plate Light Bulb</i>	
<i>Regulator/Rectifier Output</i>		<i>Replacement Notes</i>	15-26
<i>Current Measurement</i>	15-14	<i>Inspection</i>	15-27
<i>Stator Coil Resistance Measurement</i>	15-14	Turn Signal System	15-27
<i>Stator Coil Insulation Test</i>	15-14	<i>Turn Signal Light Bulb Replace Note</i>	15-27
<i>Regulator/Rectifier Inspection</i>	15-15	<i>Turn Signal Inspection</i>	15-27
Ignition System	15-16	Meters and Gauges	15-28
<i>Ignition System Wiring Diagram</i>	15-16	<i>Meter Panel Removal</i>	15-28
<i>Safety Instruction</i>	15-17	<i>Meter Panel Disassembly</i>	15-28
<i>Ignition System Inspection Note</i>	15-17	<i>Bulb Replacement Notes</i>	15-29
<i>Spark Plug Removal</i>	15-17	<i>Meter Panel Assembly Note</i>	15-29
<i>Spark Plug Installation</i>	15-17	<i>Tachometer Inspection</i>	15-29
<i>Spark Plug Cleaning and Inspection</i>	15-17	<i>Fuel Gauge Operation Inspection</i>	15-30
<i>Spark Plug Gap</i>	15-17	<i>Water Temperature Gauge</i>	
<i>Ignition Coil Installation</i>	15-18	<i>Operation Inspection</i>	15-30
<i>Ignition Coil Arcing</i>		<i>Engine Oil Level Warning</i>	
<i>Distance Measurement</i>	15-18	<i>System Troubleshooting</i>	15-31
<i>Ignition Coil Resistance</i>		<i>Oil Level Sensor Check</i>	15-33
<i>Measurement</i>	15-18	Switches and Sensors	15-33
<i>Ignition Timing Inspection</i>		<i>Rear Brake Light Switch Inspection</i>	15-33
<i>(Dynamic)</i>	15-19	<i>Rear Brake Light Switch Adjustment</i>	15-33
<i>CDI Unit Installation</i>	15-20	<i>Switch Inspection</i>	15-34
<i>CDI Unit Inspection</i>	15-20	<i>Fuel Level Sensor Installation</i>	15-35
<i>Diode Inspection</i>	15-21	<i>Fuel Level Sensor Inspection</i>	15-35
<i>Exciter Coil Resistance</i>		<i>Water Temperature Sensor Inspection</i>	15-35
<i>Measurement</i>	15-22		

15-2 ELECTRICAL SYSTEM

KR250-A1 Wiring Diagram

© : South African Model



Color Code	
BK	Black
BL	Blue
BR	Brown
G	Green
GY	Gray
LB	Light Blue
LG	Light Green
O	Orange
R	Red
W	White
Y	Yellow

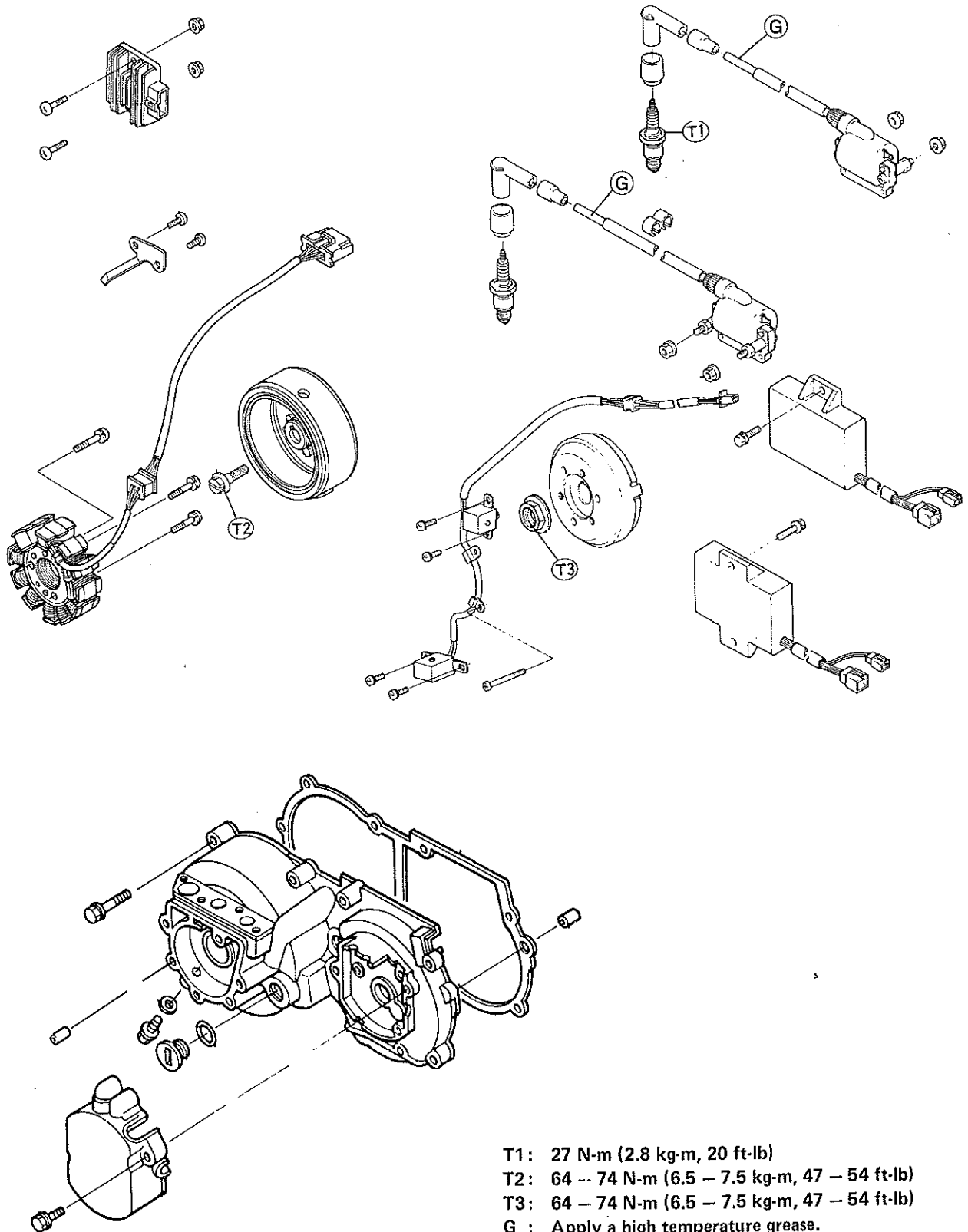
RIGHT HANDLEBAR SWITCH CONNECTIONS	
Engine Stop Switch	Headlights Switch
V/H	R/W
R/CN	O/PF
O/PF	C
	G/N

IGNITION SWITCH CONNECTIONS					
CDI	E/A	BAT	W	T.1	T.1
B/W	B/K/Y	W	BR	R/W	R
LOCK	O/PF				
	O/N				
	P				

LEFT HANDLEBAR SWITCH CONNECTIONS			
Horn Button	Pass/Go Button	Dimmer Switch	Turn Signal Switch
B/W	B/W	R/BK	BL/Y
Path	Path	HI	R
		L/O	L

(1814A, 1815A)

.....
 Exploded View



T1: 27 N-m (2.8 kg-m, 20 ft-lb)

T2: 64 – 74 N-m (6.5 – 7.5 kg-m, 47 – 54 ft-lb)

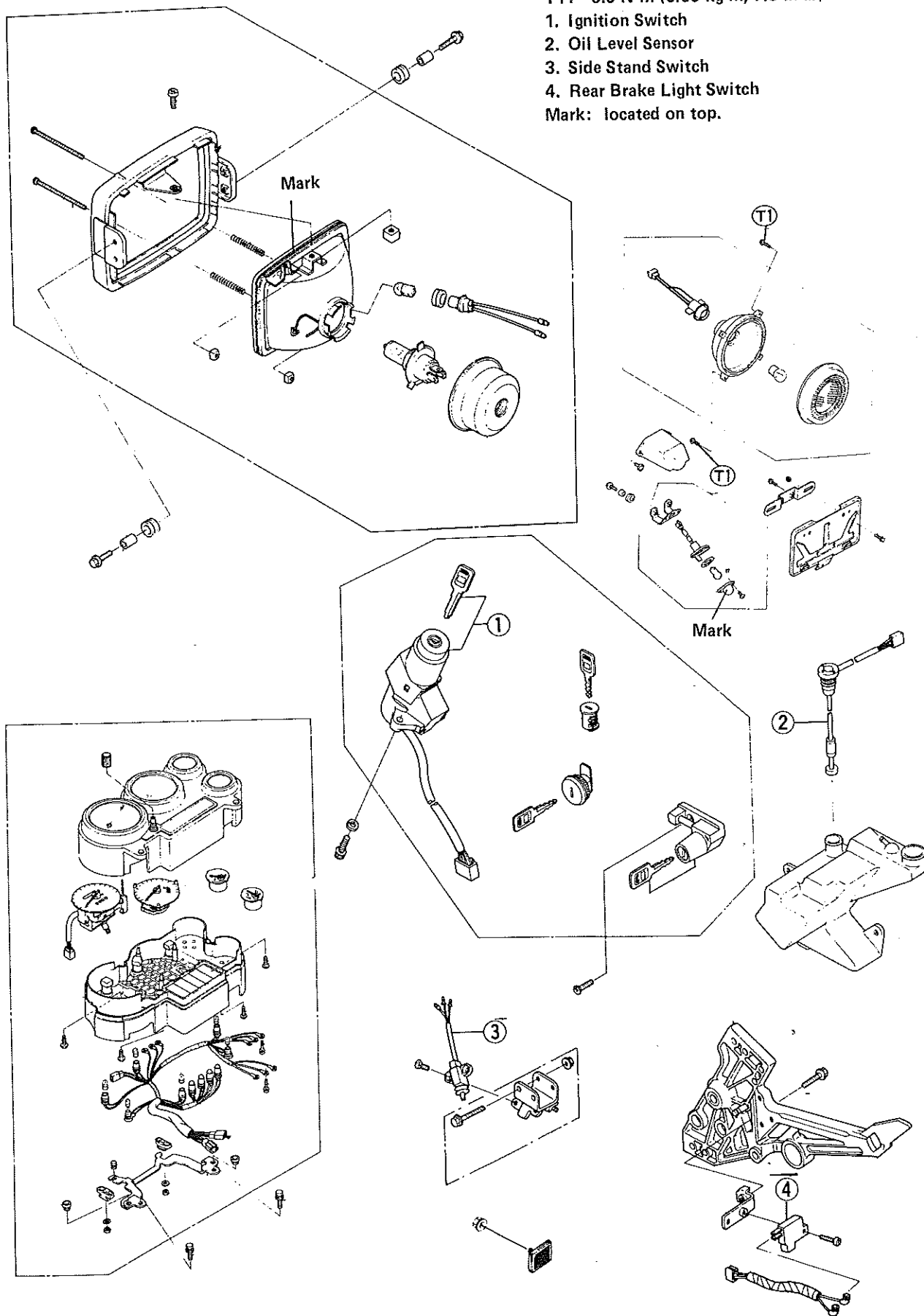
T3: 64 – 74 N-m (6.5 – 7.5 kg-m, 47 – 54 ft-lb)

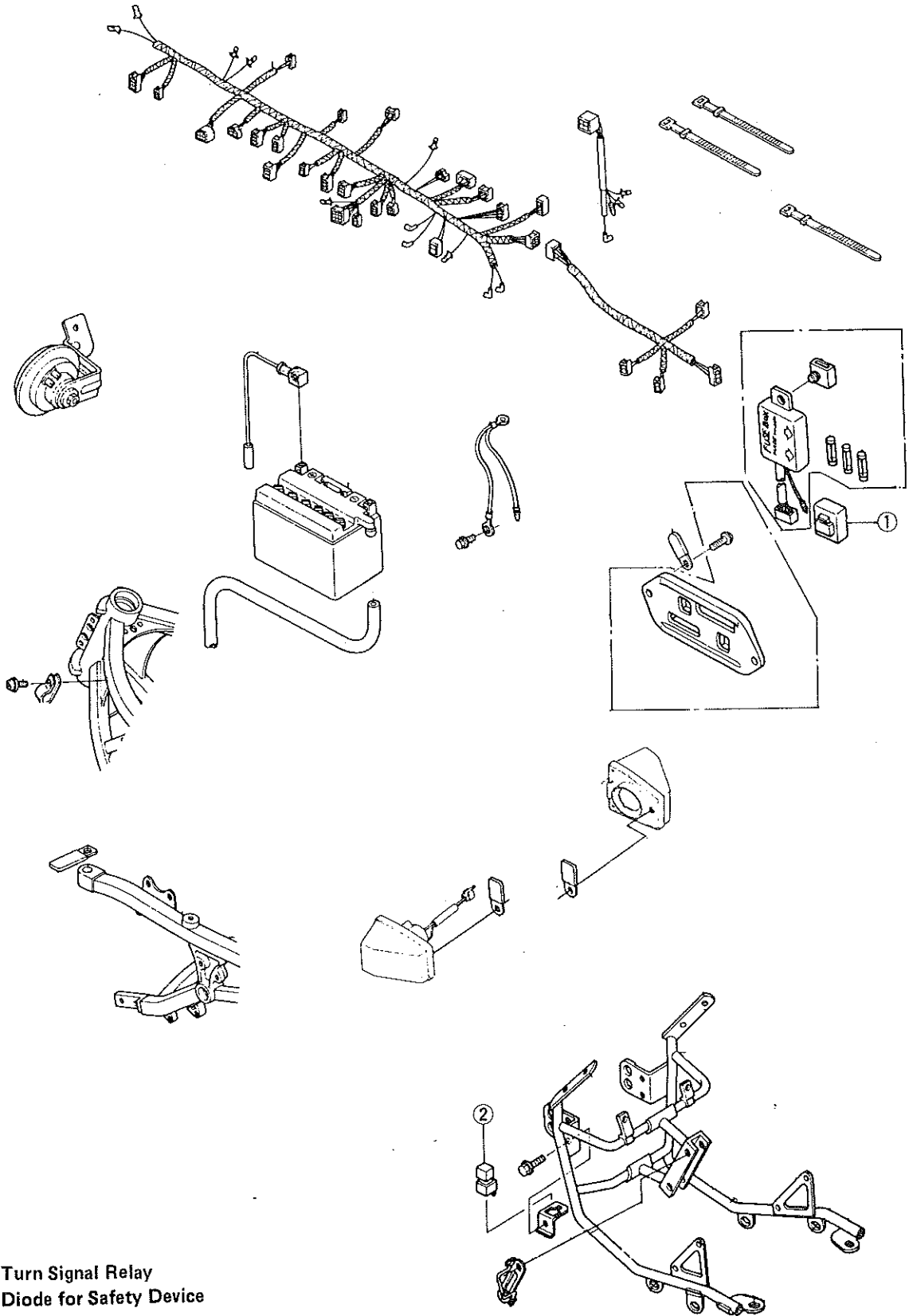
G : Apply a high temperature grease.

15-4 ELECTRICAL SYSTEM

T1: 0.9 N-m (0.09 kg-m, 7.8 in-lb)

- 1. Ignition Switch
 - 2. Oil Level Sensor
 - 3. Side Stand Switch
 - 4. Rear Brake Light Switch
- Mark: located on top.





- 1. Turn Signal Relay
- 2. Diode for Safety Device

15-6 ELECTRICAL SYSTEM

Specifications

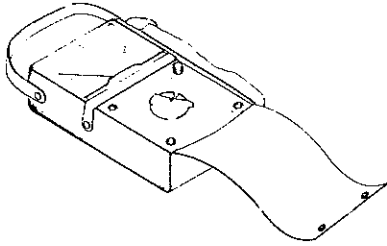
Item	Standard
Battery:	
Electrolyte level	Between upper and lower levels
Electrolyte amount	46 mL per one cell
Specific gravity of electrolyte	1.28 @20° C (68° F)
Charging System:	
Regulator/rectifier output voltage	Battery voltage to 14 V
Regulator/rectifier output amperage	11A
Stator coil (charging) resistance	0.3 – 1.0 Ω (Y – Y)
Ignition System:	
Spark plug gap	0.7 – 0.8 mm
Cap resistance (spark plug)	3.75 – 6.25 k Ω
Ignition coil	
Primary winding resistance	0.17 – 0.25 Ω
Secondary winding resistance	3.2 – 4.8 k Ω
Exciter coil resistance	1 – 3 Ω (W – R) 90 – 170 Ω (BK – R)
Pickup coil resistance	121 – 151 Ω
Pickup coil air gap	0.4 – 0.8 mm
CDI unit resistance	in the text
Fuel Gauge:	
Fuel level sensor resistance	
Full	10 – 16 Ω
Empty	90 – 100 Ω
Meter Unit:	
Tachometer resistance	60 – 90 Ω (R – BK)
Water temperature sensor	100 – 150 Ω @80° C (176° F) 52 – 78 Ω @100° C (212° F)

Rear Brake Light Switch:	On after about 5 – 6 mm pedal travel
--------------------------	--------------------------------------

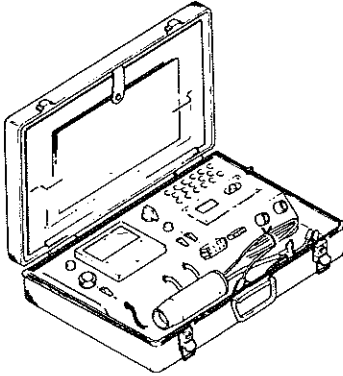
Special Tools

Along with common hand tools, the following more specialized tools are required for complete electrical system servicing.

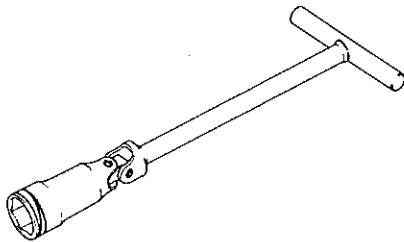
Hand Tester: 57001-983



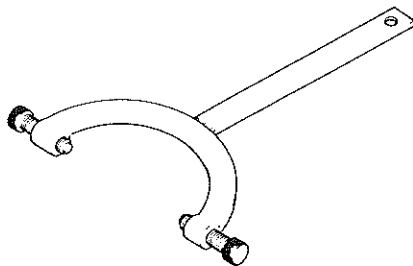
Electro Tester: 57001-980



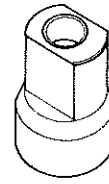
Spark Plug Wrench: 57001-110



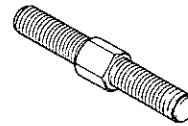
Flywheel Holder: 57001-308



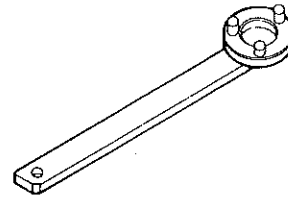
Flywheel Puller: 57001-1191



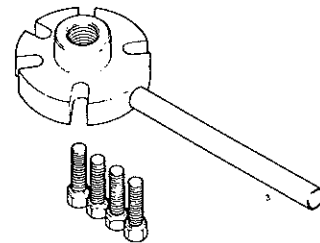
Rotor Puller: 57001-1099



Rotor Holder: 57001-1197



Magneto Puller: 57001-259



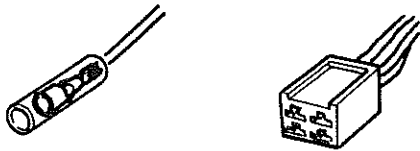
15-8 ELECTRICAL SYSTEM

Precautions

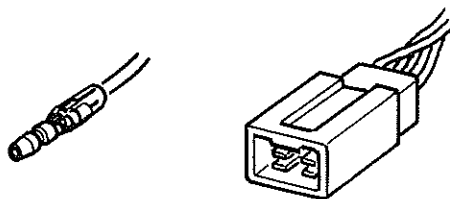
There are a number of important precautions that are musts when servicing electrical systems. Learn and observe all the rules below.

- Do not reverse the battery lead connections. This will burn out the diodes in the electrical parts.
- Always check battery condition before condemning other parts of an electrical system. A fully charged battery is a must for conducting accurate electrical system tests.
- The electrical parts should never be struck sharply, as with a hammer, or allowed to fall on a hard surface. Such a shock to the parts can damage them.
- To prevent damage to electrical parts, do not disconnect the battery leads or any other electrical connections when the ignition switch is on, or the engine is running.
- Do not use a meter illumination bulb rated for other than voltage or wattage specified in the wiring diagram, as the meter or gauge panel could be warped by excessive heat radiated from the bulb.
- Take care not to short the leads that are directly connected to the battery positive (+) terminal to the chassis ground.
- Troubles may involve one or in some cases all items. Never replace a defective part without determining what CAUSED the failure. If the failure was caused by some other item or items, they too must be repaired or replaced, or the new replacement will soon fail again.
- Make sure all connectors in the circuit are clean and tight, and examine wires for signs of burning, fraying, etc. Poor wires and bad connections will affect electrical system operation.
- Measure coil and winding resistance when the part is cold (at room temperature).
- Electrical Connectors

Female Connectors



Male Connectors



Color Codes:

BK	Black
BL	Blue
BR	Brown
CH	Chocolate
DG	Dark green
G	Green
GY	Gray
LB	Light blue
LG	Light green
O	Orange
P	Pink
PU	Purple
R	Red
W	White
Y	Yellow

Electrical Wiring

Wiring Inspection

- Visually inspect the wiring for signs of burning, fraying, etc.
- ★ If any wiring is poor, replace the damaged wiring.
- Pull each connector apart and inspect it for corrosion, dirt, and damage.
- ★ If the connector is corroded or dirty, clean it carefully. If it is damaged, replace it.
- Check the wiring for continuity.
- Use the wiring diagram to find the ends of the lead which is suspected of being a problem.
- Connect an ohmmeter between the ends of the leads.
- Set the meter to the $\times 1 \Omega$ range, and read the meter.
- ★ If the meter does not read 0Ω , the lead is defective. Replace the lead or the wiring harness if necessary.

Battery

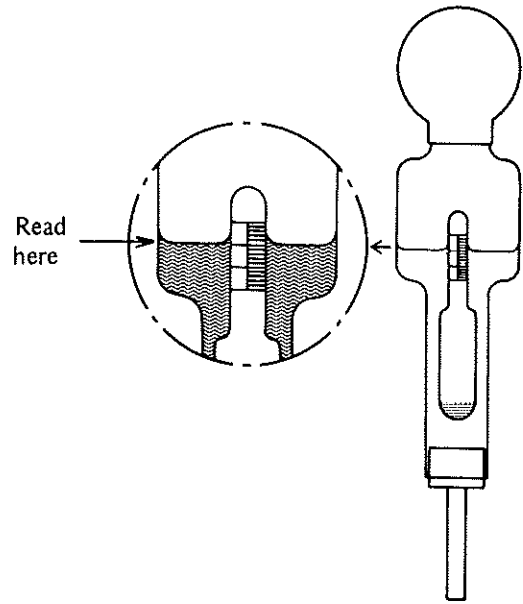
Precautions:

Following a few simple rules will greatly extend the life of the battery.

- When the level of the electrolyte in the battery is low, add only distilled water to each cell, until the level is at the upper level line marked on the outside of the battery. Ordinary tap water is not a substitute for distilled water and will shorten the life of the battery.

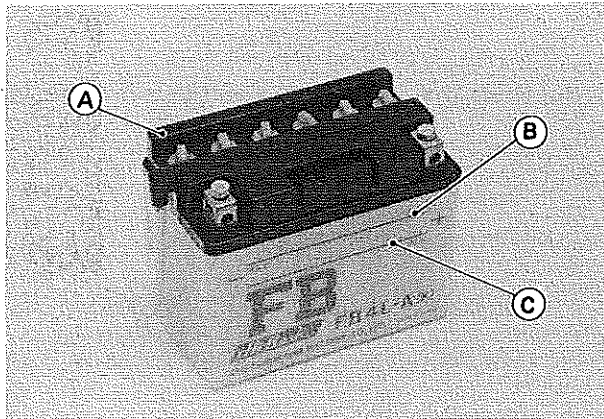
- Never add sulphuric acid solution to the battery. This will make the electrolyte solution too strong and will ruin the battery within a very short time.
- Avoid quick-charging the battery. A quick-charge will damage the battery plates.
- Never let a good battery stand for more than 30 days without giving it a supplemental charge, and never let a discharged battery stand without charging it. If a battery stands for any length of time, it slowly self-discharges. Once it is discharged, the plates sulphate (turn white), and the battery will no longer take a charge.
- Keep the battery well-charged during cold weather so that the electrolyte does not freeze and crack open the battery. The more discharged the battery becomes, the more easily it freezes.
- DON'T INSTALL THE BATTERY BACKWARDS. The negative side is grounded.

Hydrometer



Electrolyte Level Inspection

- Remove the battery.
- Visually check the electrolyte level in the battery.



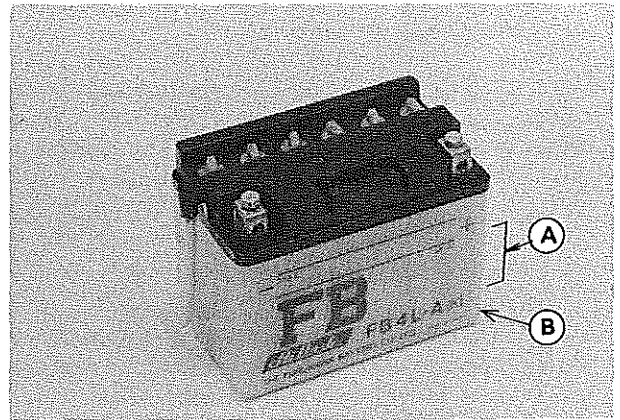
A. Battery
B. Upper Level
C. Lower Level

- ★If the level line of electrolyte in any cell is below the lower level line on the battery case, add distilled water only to that cell.
- Install the battery.

Battery Condition

- Before charging, check battery condition by testing the specific gravity of the electrolyte in each cell.
- Draw a little fluid from the cell with a hydrometer.
- Read the level of the electrolyte on the floating scale. This is the specific gravity of the electrolyte.

- Look for sediment and white sulfation inside the cells on the bottom of the plates.



A. Sulfation here
B. Sediment here

- See the Battery Troubleshooting Guide in Battery Test Charging.
- ★If the specific gravity is below 1.280 the battery needs to be charged.

NOTE

○The specific gravity of the electrolyte varies with changes in temperature, so the specific gravity reading must be corrected for the temperature of the electrolyte.

15-10 ELECTRICAL SYSTEM

○Celsius: Add 0.007 points to reading for each 10°C above 20°C or subtract 0.007 points for each 10°C below 20°C.

○Fahrenheit: Add 0.004 points to reading for each 10°F above 68°F or subtract 0.004 points for each 10°F below 68°.

- ★If the specific gravity of any of the cells is more than 0.050 away from any other reading, the battery will probably not accept a charge. It is generally best to replace a battery in this condition.
- ★If the specific gravity of all the cells is 1.280 or more the battery is fully charged.

Battery Initial Charging

Before being placed in service, a new battery should be given an initial charging.

- Cut off the sealed end of the battery vent hose and remove the filler caps.
- Fill each cell to the upper level line on the battery case with fresh electrolyte at a temperature of 30°C (86°F) or less. Let the battery stand for about 30 minutes before charging.

NOTE

○If the electrolyte level drops, add electrolyte to the upper level line before charging.

- Leaving the caps off the cells, connect the battery to a charger, set the charging rate at 1/10 the battery capacity, and charge it for 10 hours. For example, if the battery is rated at 18 Ah, the charging rate would be 1.8 A.

WARNING

- Keep the battery away from sparks and open flames during charging, since the battery gives off an explosive gas mixture of hydrogen and oxygen. When using a battery charger, connect the battery to the charger before turning on the charger. This procedure prevents sparks at the battery terminals which could ignite any battery gases.

CAUTION

- Do not use a high rate battery charger, as is typically employed at automotive service stations, unless the charger rate can be reduced to the level required. Charging the battery at a rate higher than specified may ruin the battery. Charging at a high rate causes excess heat which can warp the plates and cause internal shorting. Higher-than-normal charging rates also cause the plates to shed active material. Deposits will accumulate, and can cause internal shorting.

- If the temperature of the electrolyte rises above 45°C (115°F) during charging, reduce the charging rate to lower the temperature, and increase charging time proportionately.

- Turn the charger off, then disconnect it from the battery.
- Check battery voltage. Battery voltage should be 12 – 13 V.
- Check the specific gravity of each cell with a hydrometer (see Battery Condition).
- ★If the voltmeter or hydrometer readings are below those specified, additional charging is necessary before the battery can be installed.

Battery Ordinary Charging

- Remove the battery from the motorcycle.

CAUTION

- Always remove the battery from the motorcycle for charging. If the battery is charged while still installed, battery electrolyte may spill and corrode the frame or other parts of the motorcycle.

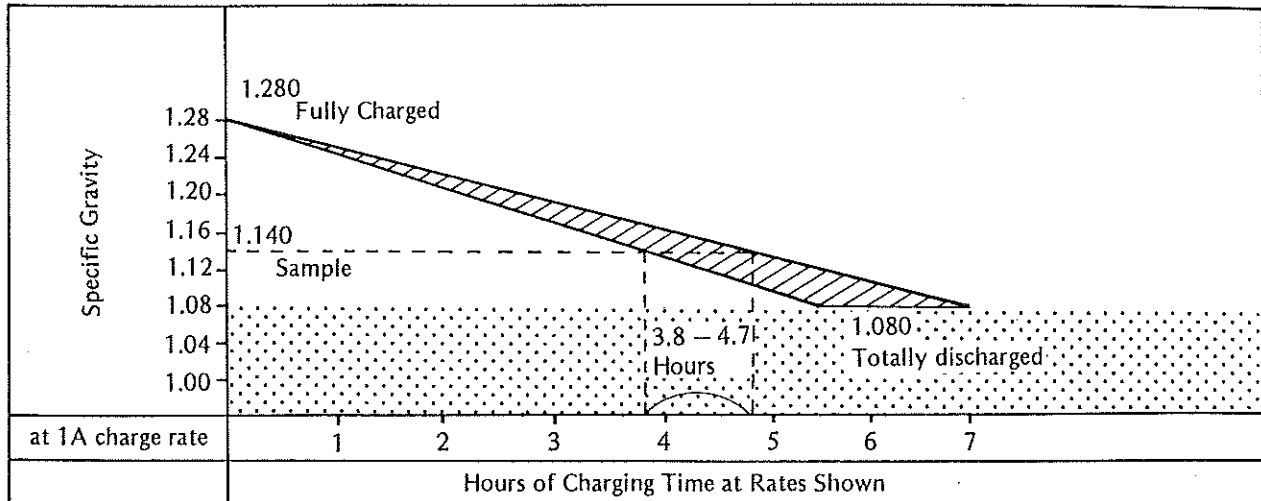
- Clean off the battery using a baking soda-and-water solution.
- Mix one heaping tablespoon of baking soda in one cup of water.
- Be careful not to get any of the cleaning solution in the battery.
- The terminals must be especially clean.
- If any of the cells are low, fill them to the LOWER level line with distilled water only. The electrolyte will expand during charging, and the level will rise.
- Connect a charger to the battery BEFORE plugging it in or turning it on.

WARNING

- Keep the battery away from sparks and open flames during charging, since the battery gives off an explosive gas mixture of hydrogen and oxygen. When using a battery charger, connect the battery to the charger before turning on the charger. This procedure prevents sparks at the battery terminals which could ignite any battery gases.

- Set the charge rate and time according to the battery condition previously determined (see Battery Condition), using the table.

Battery Charging Rate/Time Table (12 V 4.5 Ah)

**CAUTION**

- Do not use a high rate battery charger, as is typically employed at automotive service stations, unless the charger rate can be reduced to the level required. Charging the battery at a rate higher than specified may ruin the battery. Charging at a high rate causes excess heat which can warp the plates and cause internal shorting. Higher-than-normal charging rates also cause the plates to shed active material. Deposits will accumulate, and can cause internal shorting.
- If the temperature of the electrolyte rises above 45°C (115°F) during charging, reduce the charging rate to lower the temperature, and increase charging time proportionately.

- Turn the charger off or unplug it, then disconnect it from the battery.
- Check battery condition (See Battery Condition).
- ★ If the battery condition indicates that it is not fully charged, additional charging time is necessary.

Battery Test Charging

- If the battery is suspected of being defective, sulfated, or unable to take a charge, consult the table.

Battery Troubleshooting Guide

	Good Battery	Suspect Battery	Action
Plates	(+) chocolate color (-) gray	white (sulphated); + plates broken or corroded	Replace
Sediment	none, or small amount	sediment up to plates, causing short	Replace
Voltage	above 12 V	below 12 V	Test charge
Electrolyte Level	above plates	below top of plates	Fill and test charge
Specific Gravity	above 1.200 in all cells; no two cells more than 0.020 different	below 1.100, or difference of more than 0.020 between two cells	Test charge

15-12 ELECTRICAL SYSTEM

- To test charge a battery, perform the ordinary charging procedure and monitor the battery voltage and other signs as mentioned below.
- ★ If the battery voltage suddenly jumps to over 13 V just after the start of charging, the plates are probably sulfated. A good battery will rise to 12 V immediately and then gradually go up to 12.5 or 13 V in about 30 min. to an hour after the start of charging.
- ★ If one cell produces no gas bubbles or has a very low specific gravity, it is probably shorted.
- ★ If there does not appear to be enough sediment in a cell to short the plates, but that cell has a very low specific gravity after the battery is fully charged, the trouble may be that there is not enough acid in that one cell. In this case only, sulfuric acid solution may be added to correct the specific gravity.
- ★ If a fully charged battery not in use loses its charge after 2 to 7 days; or if the specific gravity drops markedly, the battery is defective. The self-discharge rate of a good battery is only about 1% per day.

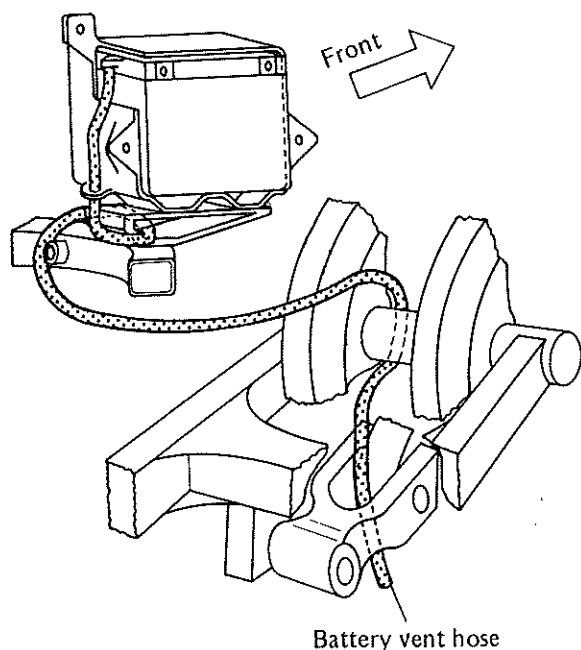
CAUTION

- Make sure the battery vent hose is kept away from the drive chain. Battery electrolyte can corrode and dangerously weaken the chain.
- Always keep the battery vent hose free of obstruction, and make sure it does not get pinched, crimped, or melted shut by contact with the hot muffler. If battery gases cannot escape through this hose, they can explode the battery.

Battery Vent Hose Routing

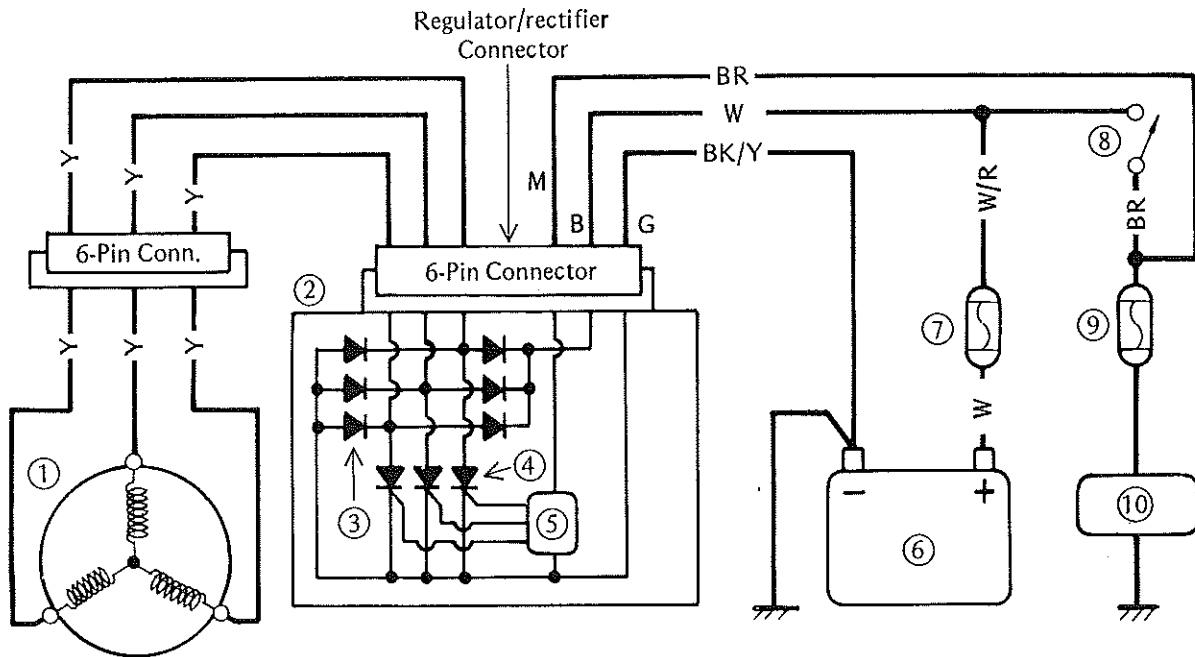
- Route the battery vent hose as shown.

Battery Vent Hose Routing



Charging System

Charging System Wiring Diagram

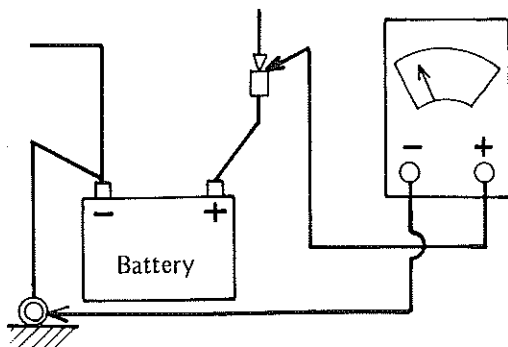


- 1. Magneto
- 2. Regulator/rectifier
- 3. Diodes
- 4. Thyristors
- 5. Control circuit
- 6. 12 V battery
- 7. 20 A fuse
- 8. Ignition switch
- 9. 10 A fuse
- 10. Loads:
Headlight, Meter unit, Horn, Turn signal light, Brake light, Tail light

Regulator/Rectifier Output Voltage Measurement

- Warm up the engine to obtain actual alternator operating conditions.
- Stop the engine and connect a voltmeter to the battery leads as shown.

Regulator/Rectifier Output Voltage



- Start the engine, and note the voltage readings at various engine speeds with the headlight turned on and then turned off.
- ★ The readings should show nearly battery voltage when the engine speed is low, and as the engine speed rises, the readings should also rise. But they must stay within the specified range.
- ★ If the output voltage is much higher than the specification, the regulator/rectifier is defective.
- ★ If the output voltage does not rise as the engine speed increases, then the regulator/rectifier is defective or the alternator output is insufficient for the loads.

Regulator/Rectifier Output Voltage

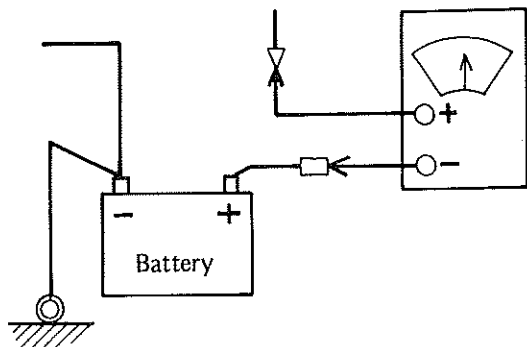
- Meter range: 25 V DC
- Connection: Battery lead (connected)
- Meter (+) — W/R lead
- Meter (-) — BK/Y lead
- Reading: Battery voltage to 14 V

15-14 ELECTRICAL SYSTEM

Regulator/Rectifier Output Current Measurement

- Set the ammeter to the 20 A DC range.
- Disconnect the battery + lead.
- Connect the - meter lead to the battery + lead, and connect the + meter lead to the W/R lead. This puts the meter on series with the regulator/rectifier and battery so that the battery charging amperage can be measured.

Regulator/Rectifier Output Current



- Start the engine, and run it at 4,000 rpm.
- Measure the amperage when the headlight and dimmer switch are ON and High positions.

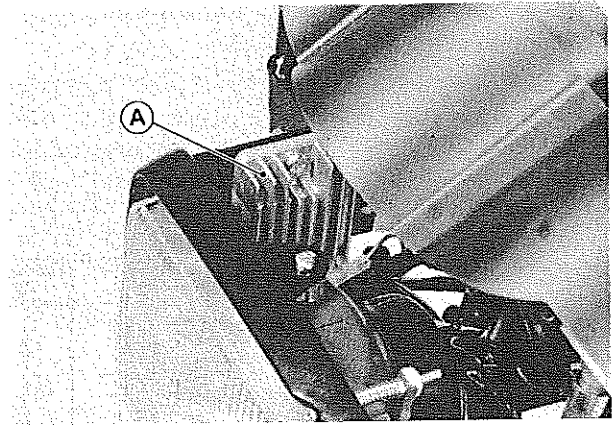
Regulator/Rectifier Output Current

Headlight: ON
Dimmer switch: HI
Meter Reading: 11 A @4,000 rpm

- ★If the output current is much higher than the specification, the regulator/rectifier is defective.
- ★If the above check shows a low reading, inspect the regulator/rectifier or the stator coil.

Stator Coil Resistance Measurement

- Disconnect the regulator/rectifier connector.



A. Regulator/Rectifier

- Zero the ohmmeter, and connect it to the leads from the alternator (magneto) stator.
- ★If the measurement is higher than the specification, the stator has an open lead, or there are poor wires or bad connections between the regulator/rectifier connector and the alternator stator. Replace the damaged parts.
- ★If the measurement is lower than the specification, the stator or the wires between the regulator/rectifier connector and the alternator stator is shorted, and must be replaced.

Stator Coil Resistance

Meter range:	x 1 Ω
Connection:	Female regulator/rectifier connector (disconnected)
One meter lead—	One yellow lead
Other meter lead—	Another yellow lead
Reading:	0.3 – 1.0 Ω

Stator Coil Insulation Test

- Disconnect the regulator/rectifier connector.
- Zero the ohmmeter, and connect it to the leads from the alternator stator.
- ★Any meter reading less than infinity (∞) indicates a short, necessitating stator replacement.

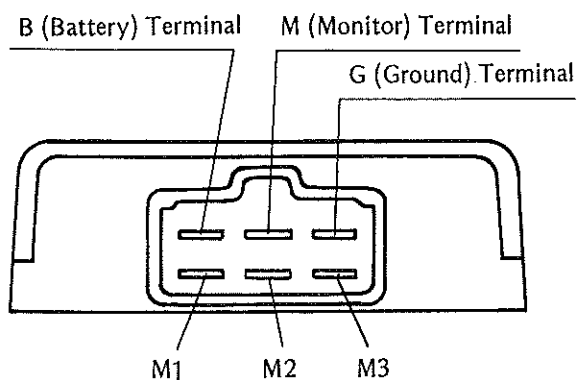
Stator Coil Insulation

Meter range:	x 1 k Ω
Connection:	Female regulator/rectifier connector (disconnected)
One meter lead—	One yellow alternator lead
Other meter lead—	Chassis ground
Reading:	No reading ($\infty \Omega$)

Regulator/Rectifier Inspection

- Remove the regulator/rectifier.
- Pull out the connector.
- Be sure to set the ohmmeter to the **100 Ω range** and zero the meter.
- Check the resistance between the regulator/rectifier terminals following the table.
- ★ If there is more resistance than the specified value, the unit has an open lead and must be replaced. Much less than this resistance means the unit is shorted, and must be replaced.

Regulator/Rectifier Terminal



- B (Battery) Terminal
- M (Monitor) Terminal
- G (Ground) Terminal
- M1 (Magneto) Terminal
- M2 (Magneto) Terminal
- M3 (Magneto) Terminal

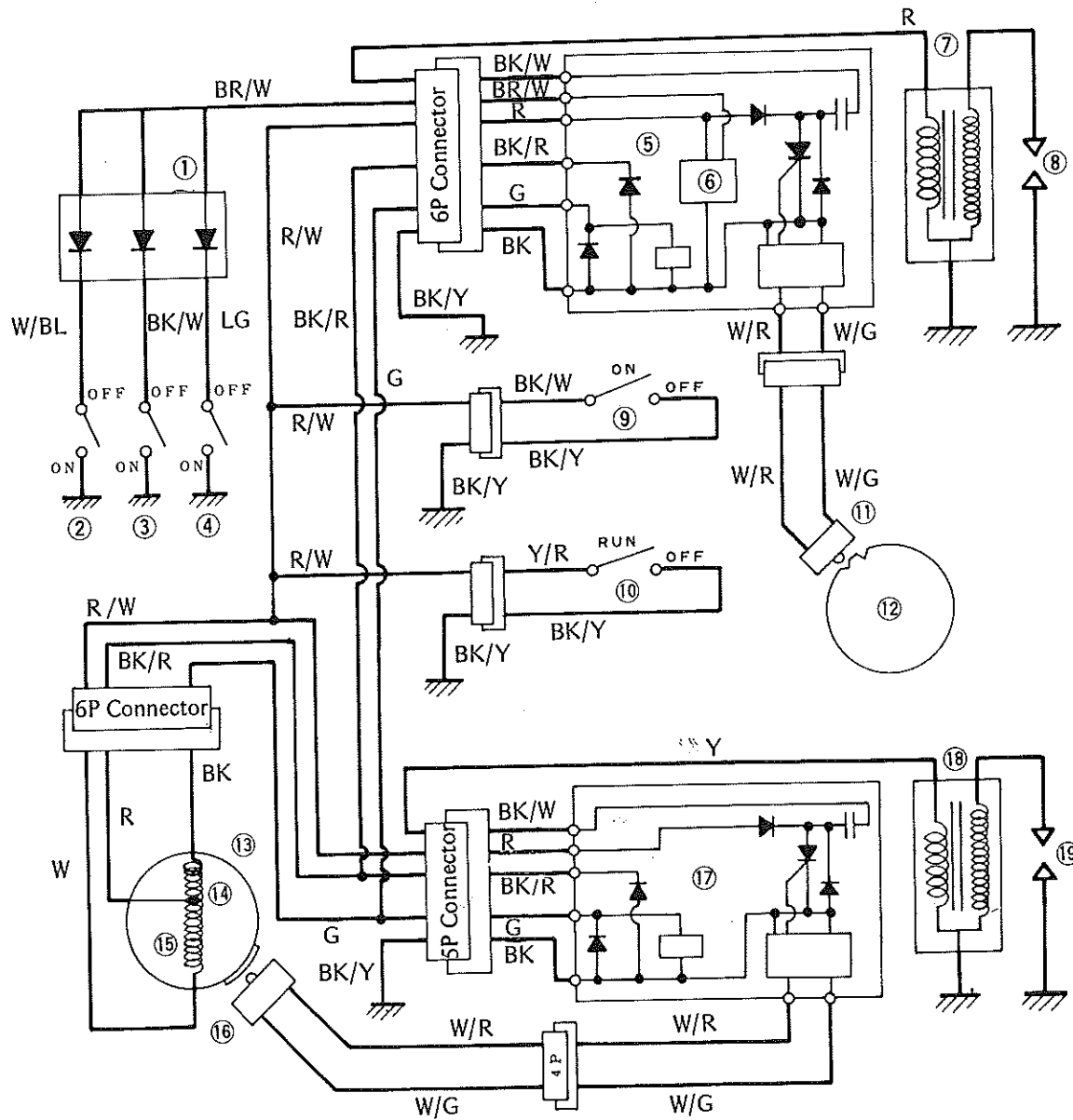
Regulator/Rectifier Resistance

Range x 100 Ω		Meter (+) Lead Connection			
Meter (-) Lead Connection	Terminal	G	M	B	M1, 2, 3
	G	∞	0.2 – 0.8 kΩ	0.4 – 2 kΩ	0.2 – 0.6 kΩ
	M	0.3 – 1 kΩ	∞	1 – 50 kΩ	0.5 – 3 kΩ
	B	∞	∞	∞	∞
	M1, 2, 3	∞	∞	0.2 – 0.6 kΩ	∞

15-16 ELECTRICAL SYSTEM

Ignition System

Ignition System Wiring Diagram



- 1. Diode
- 2. Sidestand switch
- 3. Clutch switch
- 4. Neutral switch
- 5. CDI unit (rear)
- 6. Interlock circuit
- 7. Ignition coil (rear)

- 8. Spark plug (rear)
- 9. Ignition switch
- 10. Engine stop switch
- 11. Pickup coil
- 12. Rotor (pulser)
- 13. Flywheel magneto
- 14. Exciter coil (low speed)

- 15. Exciter coil (high speed)
- 16. Pickup coil
- 17. CDI unit (front)
- 18. Ignition coil (front)
- 19. Spark plug (front)

CDI Unit: The CDI unit has two functions. The first function is to supply current to the primary winding of the ignition coil. The second function is to determine the ignition timing at which the charge stored in the capacitor is released in a single surge flowing through the primary winding of the ignition coil.

Pickup Coil: Every time either end of the timing plate on the flywheel passes under the pick-up coil, a pulse is generated and sent to the CDI unit.

Interlock Circuit (Safety Device): If the side stand is down, the clutch engaged, and the transmission in gear, the ignition system will not work. If any of these conditions is not met, the ignition system works and the engine can be started and run. The motorcycle cannot be ridden with the side stand down.

Safety Instructions

WARNING

- The ignition system produces extremely high voltage. Do not touch the spark plugs, high tension coils, or spark plug leads while the engine is running, or you could receive a severe electrical shock.

Ignition System Inspection Note

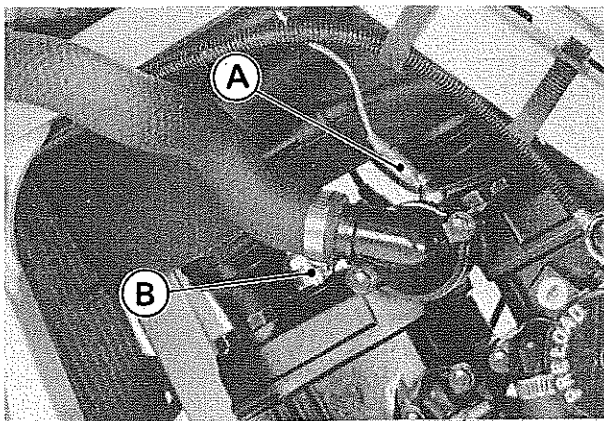
- For any ignition system problems, always check the ignition system wiring first (see Wiring Inspection).

Spark Plug Removal

- Pull out the water temperature sensor lead.
- Carefully pull the spark plug cap from the spark plug and unscrew the spark plug.
- The spark plug wrench (57001-110) may be used after removal of the air cleaner housing.

CAUTION

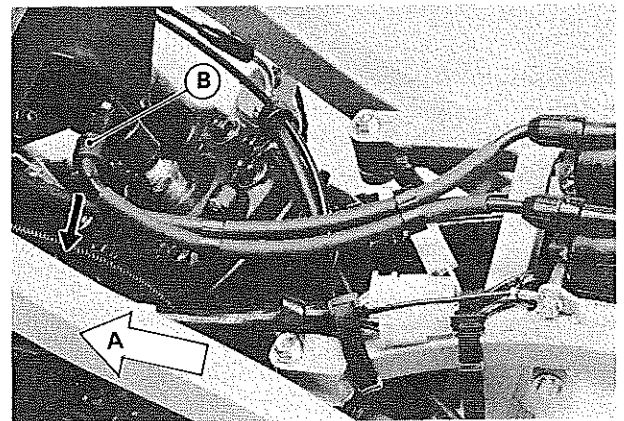
- Be careful not to damage the water temperature sensor with the wrench during the spark plug removal.



A. Water Temperature Sensor Lead
B. Spark Plug

Spark Plug Installation

- Tighten the spark plugs to the specified torque (see Exploded View).
- Install the rear spark plug cap across and run toward left to prevent interference with the fuel tank.



A. Front

B. Rear Spark Plug

Spark Plug Cleaning and Inspection

- Remove the spark plugs.
- Clean the spark plug, preferably in a sandblasting device, and then clean off any abrasive particles. The plug may also be cleaned using a high flash-point solvent and a wire brush or other suitable tool.
- ★If the spark plug electrodes are corroded or damaged, or if the insulator is cracked, replace the plug. Use the standard spark plug or its equivalent.

Spark Plug Gap

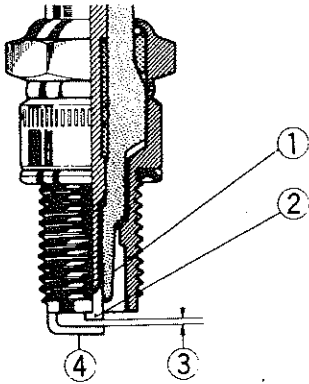
- Measure the gap with a wire-type thickness gauge.
- ★If the gap is incorrect, carefully bend the side electrode with a suitable tool to obtain the correct gap.

15-18 ELECTRICAL SYSTEM

Spark Plug Gap

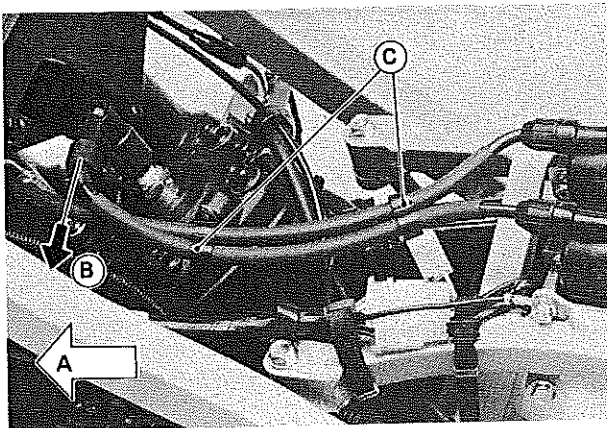
0.7 – 0.8 mm

Spark Plug Gap



Ignition Coil Installation

- Secure the spark plug leads with clamps to prevent interference with the rear muffler and the fuel tank.
- Run the rear spark plug lead on the left side.



A. Front
B. Rear Spark Plug

C. Clamps

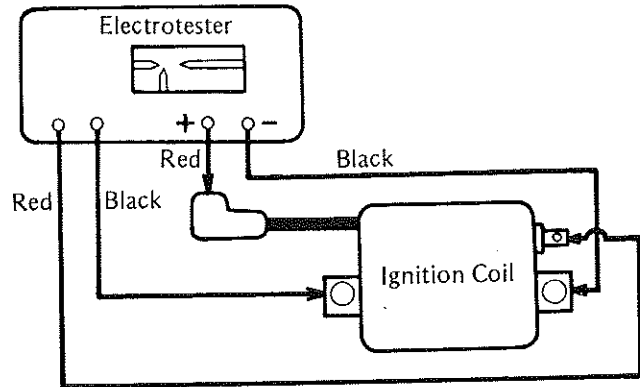
Ignition Coil Arcing Distance Measurement

- Measure the arcing distance with a Kawasaki Electro Tester (special tool) to check the condition of the ignition coil.
- Remove the ignition coil.
- Connect the ignition coil (with the spark plug cap left installed at each of the spark plug lead) to the tester, and measure the arcing distance.

WARNING

○ To avoid extremely high voltage shocks, do not touch the coil or leads.

Ignition Coil Test



★ If the distance reading is less than the specified value, the ignition coil or spark plug cap is defective.

Ignition Coil Arcing Distance

6 mm or more

- To determine which part is defective, measure the arcing distance again with the spark plug cap removed from the ignition coil.
- ★ If the arcing distance is subnormal as before, the trouble is with the ignition coil itself. If the arcing distance is now normal, the trouble is with the spark plug cap.

Ignition Coil Resistance Measurement

If the arcing tester is not available, the coil can be checked for a broken or badly shorted winding with an ohmmeter. However, an ohmmeter cannot detect layer shorts and shorts resulting from insulation breakdown under high voltage.

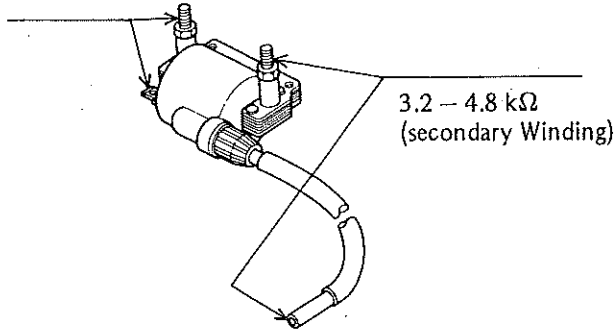
- Disconnect the primary leads from the coil terminals.
- Measure the primary winding resistance.
 - Connect an ohmmeter between the coil terminals.
 - Set the tester to the x 1 Ω range, and read the meter.
- Measure the secondary winding resistance.
 - Pull the spark plug cap off each lead.
 - Connect the hand tester between the spark plug leads.
 - Set the meter to the x 1 k Ω range, and read the meter.
- ★ If the meter does not read as specified, replace the coil.

Ignition Coil Winding Resistance

- Primary windings: 0.17 – 0.25 Ω
- Secondary windings: 3.2 – 4.8 k Ω

Measuring Ignition Coil Resistance

0.17 – 0.25 Ω
(Primary Winding)

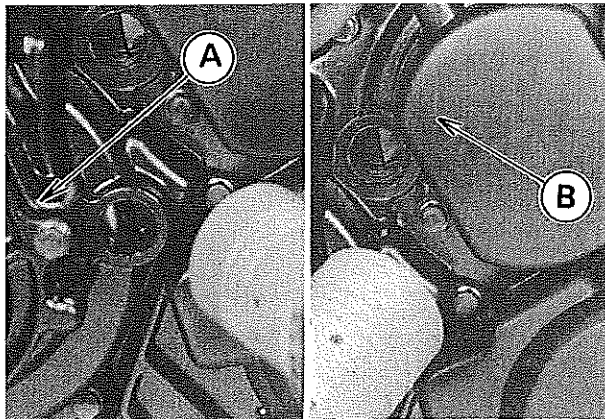


- ★If the meter reads as specified, the ignition coil windings are probably good. However, if the ignition system still does not perform as it should after all other components have been checked, test replace the coil with one known to be good.
- Check the spark plug leads for visible damage.
- ★If any spark plug lead is damaged, replace the coil.

Ignition Timing Inspection (Dynamic)

This model has a Capacitor Discharge Ignition (CDI) system. Since the CDI system has no mechanical parts such as a cam or contact breakers, **no periodic maintenance is required.**

- Remove the two caps on the left engine cover.
- Connect a strobe light in the manner prescribed by the manufacturer in order to check the ignition timing under operating conditions.
- Use the front spark plug lead for the magneto timing inspection and the rear spark plug lead for the rotor (pulser) timing inspection.



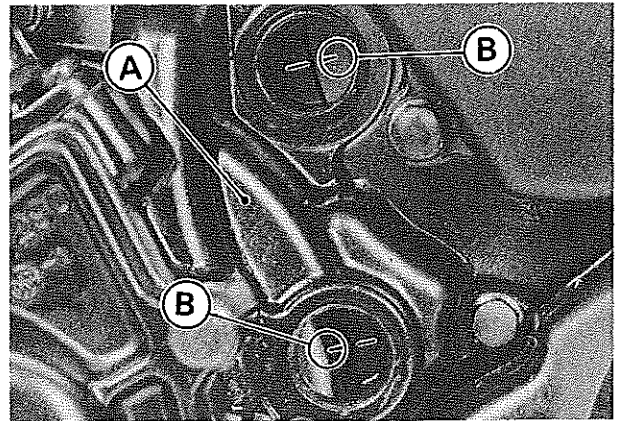
A. Magneto

B. Rotor (pulser)

- Start the engine, run the engine at 1,300 rpm, and direct the light at the timing marks on the flywheel or rotor and left engine cover. The marks should align at 1,300 rpm.

Ignition Timing

13.5° BTDC @1,300 r/min (rpm)



A. Left Engine Cover

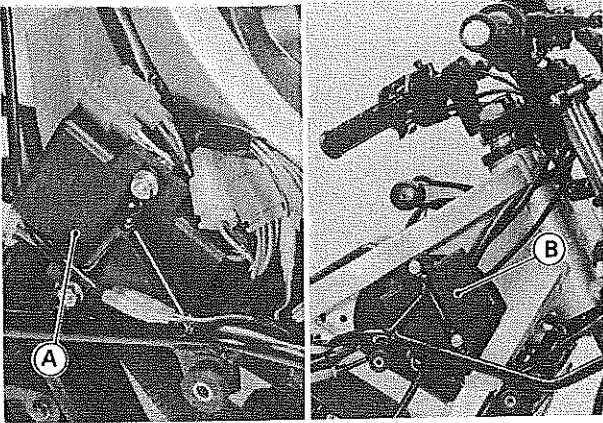
B. F Mark

- ★If the ignition timing is suspect, check the CDI unit and the pickup coil (see CDI Unit Inspection, Pickup Coil Inspection).

15-20 ELECTRICAL SYSTEM

CDI Unit Installation

- Install the CDI unit equipped with the red connectors on the left side and the CDI unit equipped with the white connectors on the right side of the fairing stay, respectively.



A. Left CDI Unit (Red Connector)
B. Right CDI Unit (White Connector)

CDI Unit Inspection

- Pull out the large and small connectors for the right and left CDI units.
- Set the ohmmeter to the $\times 1 \text{ k}\Omega$ range, and connect it to the leads from the CDI unit to check the internal resistance of the CDI unit.
- ★ If the readings do not correspond to the table, replace the CDI unit.

CAUTION

- Use only Hand Tester 57001-983 for this test. A tester other than the Kawasaki Hand Tester may show different readings.
- If a megger or a meter with a large-capacity battery is used, the CDI unit will be damaged.

WARNING

- Do not exchange the left CDI unit for the right CDI unit. This would make the interlock circuit of no effect.

Left CDI Unit Internal Resistance: equipped with red connectors

Unit. $\text{k}\Omega$

Range $\times 1 \text{ k}\Omega$	Meter (+) Lead Connection							
	R	BK/R	G	W/R	W/G	BK/W	BK	BR/W
Meter (-) Lead Connection	R	250 - 1,000	65 - 280	30 - 120	30 - 120	∞	30 - 120	11 - 44
	BK/R	∞	∞	∞	∞	∞	∞	∞
	G	∞	250 - 1,000	8 - 54	8 - 52	∞	7 - 52	∞
	W/R	∞	7 - 30	2 - 10	0.1 - 0.6	∞	0.1 - 0.6	∞
	W/G	∞	6 - 30	2 - 9	0.1 - 0.6	∞	0	∞
	BK/W	∞	∞	∞	∞	∞	∞	∞
	BK	∞	6 - 30	2 - 9	0.1 - 0.6	0	∞	∞
	BR/W	11 - 44	200 - 800	30 - 120	8 - 40	8 - 40	∞	8 - 40

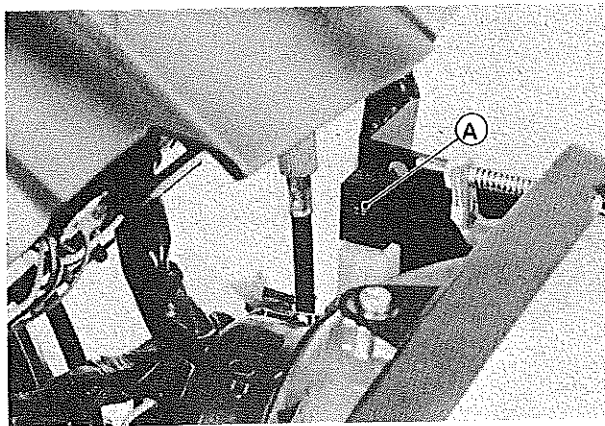
Right CDI Unit Internal Resistance: equipped with white connectors

Unit: kΩ

Range x 1 kΩ		Meter (+) Lead Connection						
		R	BK/R	G	W/R	W/G	BK/W	BK
Meter (-) Lead Connection	R	∞	∞	∞	∞	∞	∞	∞
	BK/R	∞	∞	∞	∞	∞	∞	∞
	G	∞	250 - 1,000	∞	8 - 54	8 - 52	∞	7 - 52
	W/R	∞	7 - 30	2 - 10	∞	0.1 - 0.6	∞	0.1 - 0.6
	W/G	∞	6 - 30	2 - 9	0.1 - 0.6	∞	∞	0
	BK/W	∞	∞	∞	∞	∞	∞	∞
	BK	∞	6 - 30	2 - 9	0.1 - 0.6	0	∞	∞

Diode Inspection

- Disconnect the diode assembly from the left side of the headlight.



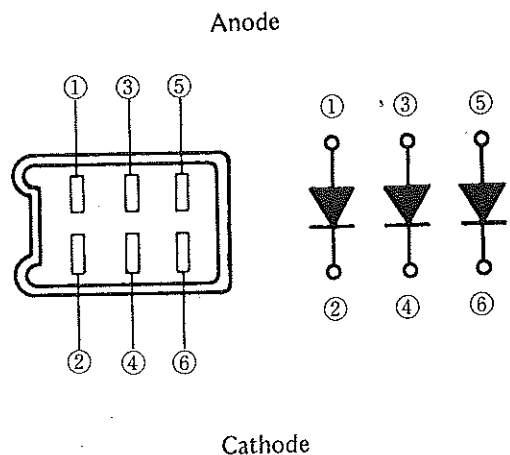
A. Diode

- Zero the ohmmeter, and connect it to each pair of terminals: 1-2, 3-4, 5-6.
- Check the resistance in both directions between the terminals.
- ★ The resistance should be low in one direction and more than ten times as much in the other direction. If any diode shows low or high in both directions, the diode is defective and the diode assembly must be replaced.

NOTE

○ The actual meter reading varies with the meter used and the individual diode, but, generally speaking, the lower reading should be from zero to the first 1/2 of the scale.

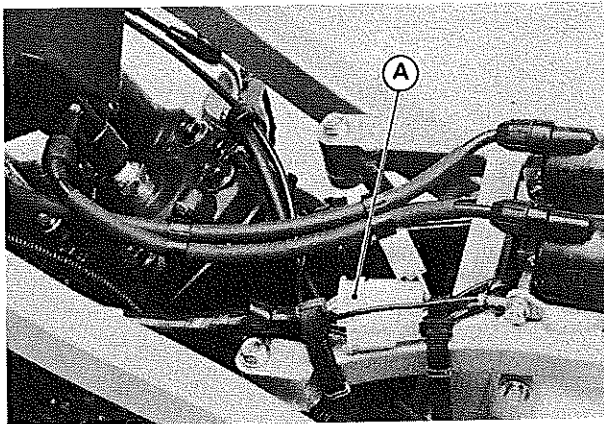
Diode Polarity



15-22 ELECTRICAL SYSTEM

Exciter Coil Resistance Measurement

- Pull out the magneto connector under the fuel tank.



A. Magneto (Alternator) Connector

- Zero the ohmmeter, and connect it to the leads from the exciter coil to check the resistance.
- ★ If the reading is not the specified value, replace the stator.

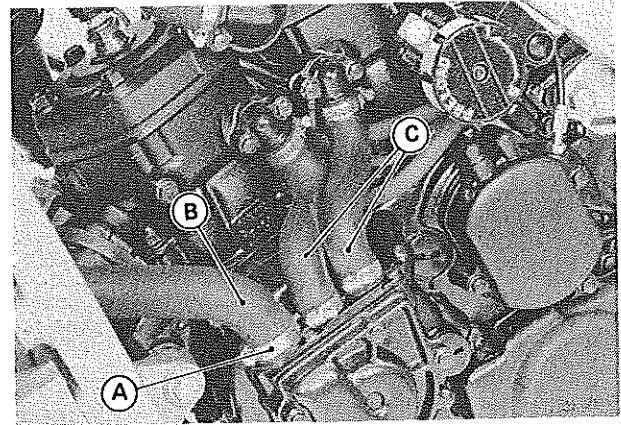
Exciter Coil Resistance

W – Meter – R : 1 – 3 Ω
BK – Meter – R : 90 – 170 Ω

- Using the highest resistance range of the ohmmeter, check the resistance between the exciter coil leads and chassis ground.
- ★ Any meter reading less than infinity indicates a short, necessitating replacement of the stator.

Left Engine Cover Removal

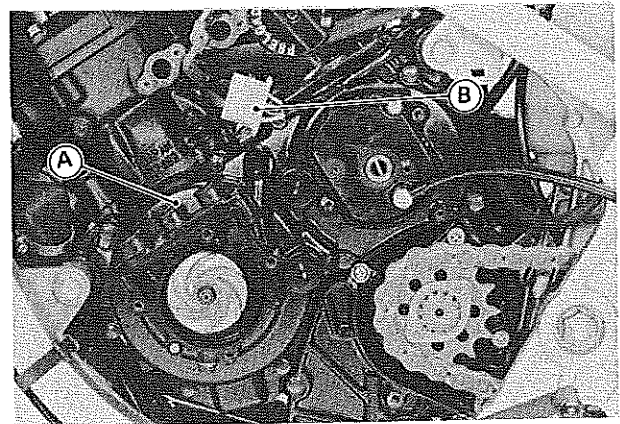
- Drain the coolant by removing the plug at the bottom of the water pump cover (see Cooling System chapter).
- Remove the water pump cover (see Cooling System chapter).
- Remove the fuel tank (see Fuel system chapter).
- Pull out the magneto connector and the pickup coil connectors.
- Remove the oil pump (see Engine Lubrication System chapter).
- Pull out the radiator hose by loosening the clamp.
- Separate the water hoses from the cylinders by removing the fittings.



A. Clamp
B. Radiator Hose

C. Hoses

- Remove the chain cover (see Final Drive chapter).
- Remove the left engine cover by taking off the mounting bolts.

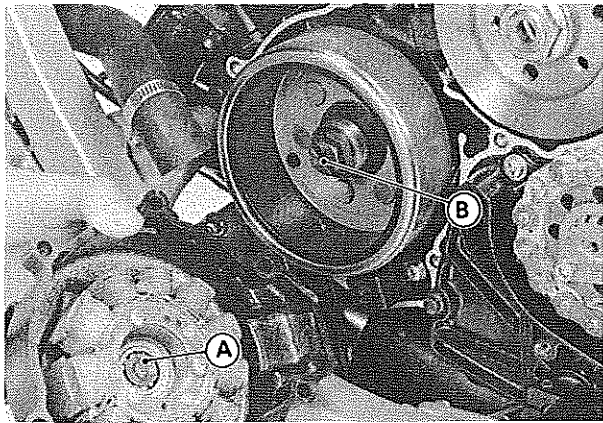


A. Left Engine Cover

B. Magneto Connectors

Left Engine Cover Installation Notes

- When installing the left engine cover, note the position of the magneto bolt slot and turn the water pump shaft so that the projection fits into the slot.



A. Water Pump Shaft Projection
B. Magneto Bolt Slot

- Install the Oil Pump (see Engine Lubrication System).

CAUTION

- Do not attempt to install the left engine cover with oil pump installed, or the pump may be broken.

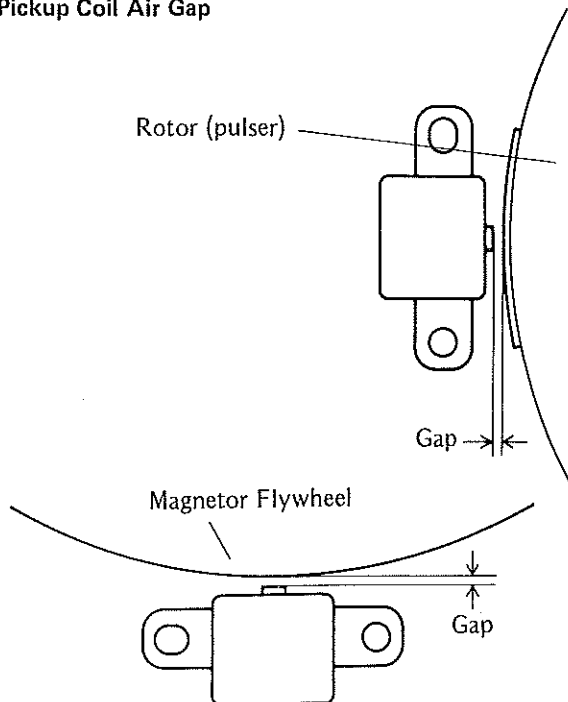
Pickup Coil Installation Note

- Adjust the gap between the pickup coil core and the magneto (or the rotor) at installation.

Pickup Coil Air Gap

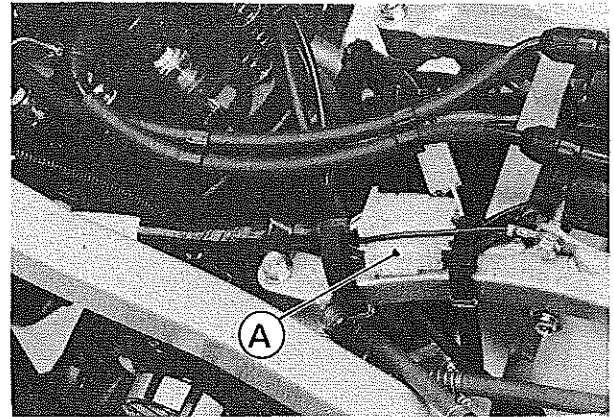
0.4 – 0.8 mm

Pickup Coil Air Gap



Pickup Coil Inspection

- Pull out the pickup coil connector under the fuel tank.



A. Pickup Coil Connector

- Zero the ohmmeter, and connect it to pickup coil leads.

- ★If there is more resistance than the specified value, the coil has an open lead and must be replaced. Much less than this resistance means the coil is shorted, and must be replaced.

Pickup Coil Resistance

Connection: Male Connector
BK/Y – Meter – BK, or
W/R – Meter – WG
Reading: 121 – 151 Ω

- Using the highest resistance range of the ohmmeter, measure the resistance between the pickup coil leads and chassis ground.

- ★Any meter reading less than infinity (∞) indicates a short, necessitating replacement of the pickup coil assembly.

- Remove the left engine cover.

- Check the pickup coil air gaps.

- ★If both air gaps are not equal, reposition the pickup coils.

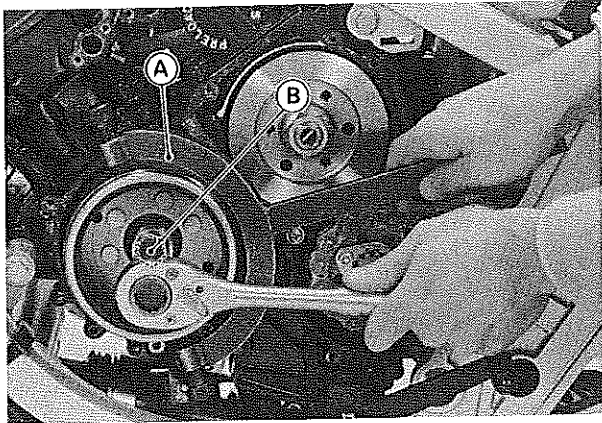
Pickup Coil Air Gap

0.4 – 0.8 mm

15-24 ELECTRICAL SYSTEM

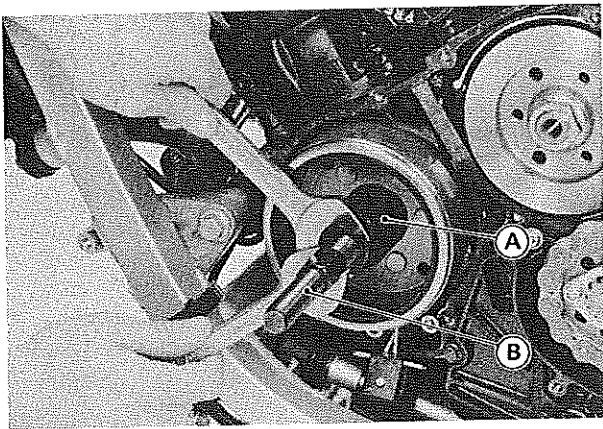
Flywheel Magneto Removal

- Remove the left engine cover.
- When loosening the magneto flywheel bolt, use the flywheel holder (special tool) to keep the flywheel from turning as shown.



A. Flywheel Holder: 57001-308
B. Flywheel Bolt

- Remove the magneto flywheel as shown.
- If the flywheel is difficult to remove and a hammer is used, turn the puller shaft with a wrench on it while tapping the head of the shaft with a hammer.



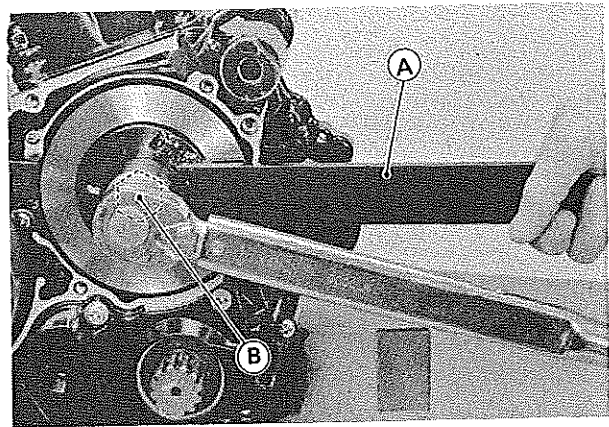
A. Magneto Flywheel Puller: 57001-1191
B. Rotor Puller: 57001-1099

CAUTION

- Be careful not to strike the flywheel itself. Striking the flywheel can cause the magneto to lose their magnetism.

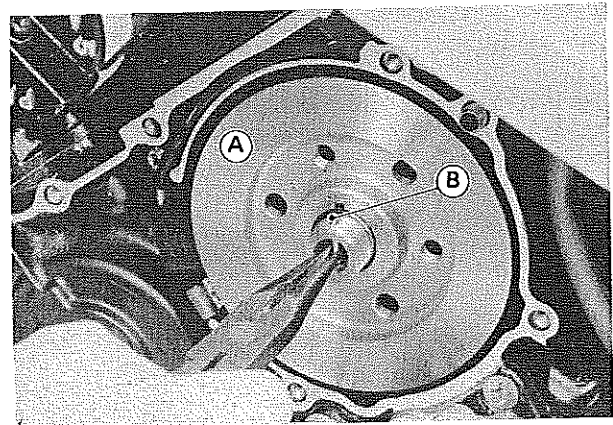
Rotor (pulser) Removal

- When loosening the rotor nut, use the rotor holder (special tool) to keep the rotor from turning as shown.



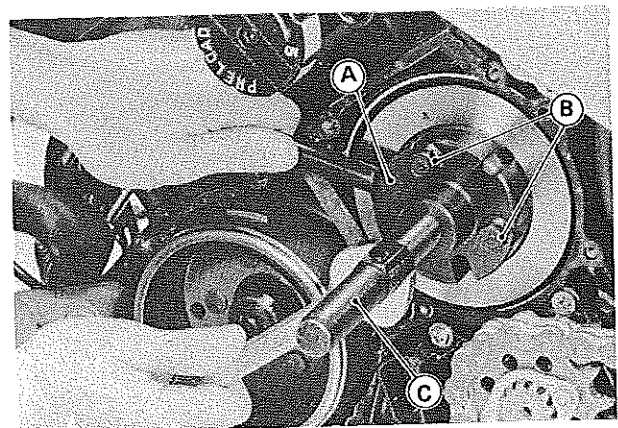
A. Rotor Holder: 57001-1197
B. Rotor Nut

- Take off the pin joint.



A. Rotor (pulser) B. Pin Joint

- Install the magneto puller (special tool) using the suitable bolts ($\phi 8$ mm x L35 mm).
- Remove the rotor with the same rotor puller (special tool) used during the flywheel removal.



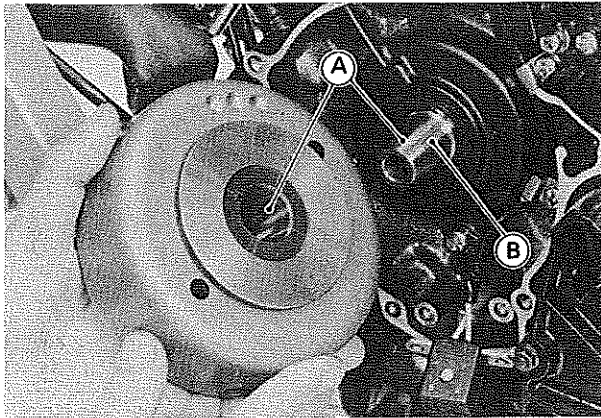
A. Magneto Puller: 57001-259
B. Suitable Bolts
C. Rotor Puller: 57001-1099

Flywheel Magneto/Rotor Installation Notes

- Clean off any oil or dirt that may be on the crankshaft tapers, magneto flywheel hub, or rotor hub.

CAUTION

- Oil, dirt, or incorrect tightening may cause flywheel bolt or rotor nut loosening, and serious damage.
- See that each key is fitted in place on the crankshaft properly, and then fit the flywheel or the rotor in place.



A. Tapered Shaft B. Key

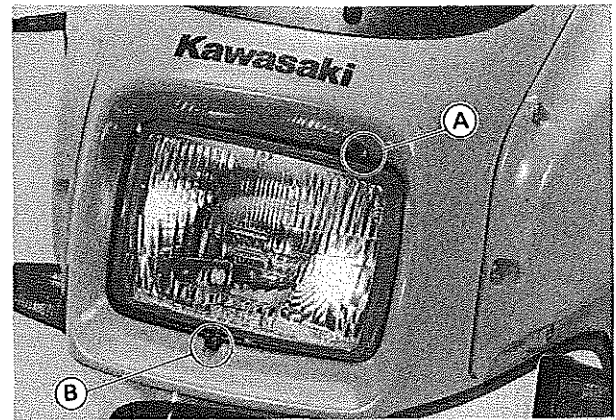
- Tighten the flywheel bolt or the rotor nut to the specified torque with the same holders (special tool) used during removal.

Lighting System

Headlight Beam Horizontal Adjustment:

The headlight beam is adjustable both horizontally and vertically. Headlight aiming must be correctly adjusted for your safe riding as well as oncoming drivers. In most areas it is illegal to ride with improperly adjusted headlights.

- Turn the adjusting screw on the headlight rim in or out until the beam points straight ahead. Turning the adjusting screw clockwise makes the headlight beam point to the right.



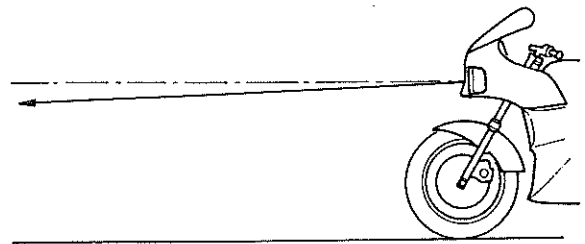
A. Adjusting Screw for horizontal adjustment
B. Adjusting Screw for vertical adjustment

Headlight Beam Vertical Adjustment

- Turn the lower adjusting screw to adjust the light vertically. Turning the screw clockwise makes the light beam point upward.

NOTE

- On high beam, the brightest point should be slightly below horizontal with the motorcycle on its wheels and the rider seated. Adjust the headlight to the proper angle according to local regulations.

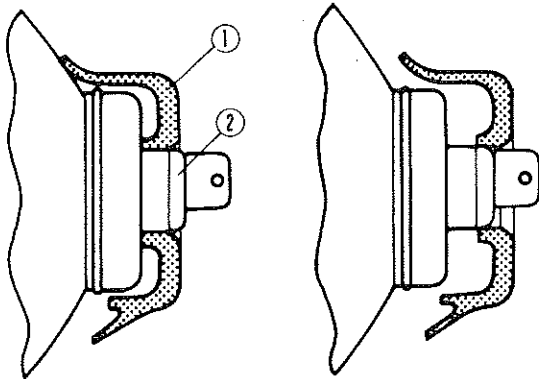
Vertical Adjustment*Headlight Bulb Replacement Notes***CAUTION**

- When handling the quartz-halogen bulbs, never touch the glass portion with bare hands. Always use a clean cloth. Oil contamination from hands or dirty rags can reduce bulb life or cause the bulb to explode.

15-26 ELECTRICAL SYSTEM

- Fit the dust cover onto the bulb firmly as shown in the figure.

Dust Cover Installation

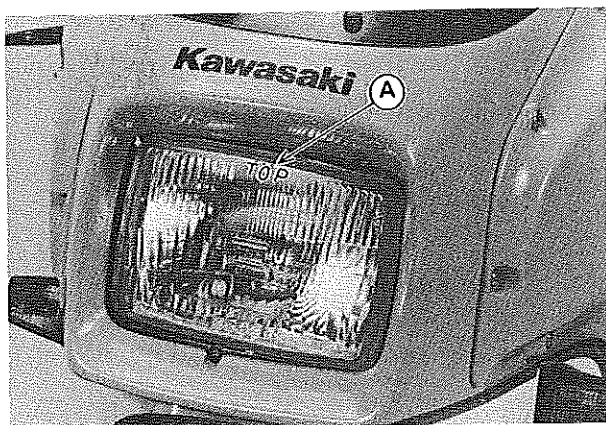


Good

Bad

1. Dust cover
2. Headlight Bulb

- Install the headlight unit so that the "TOP" mark is on top.

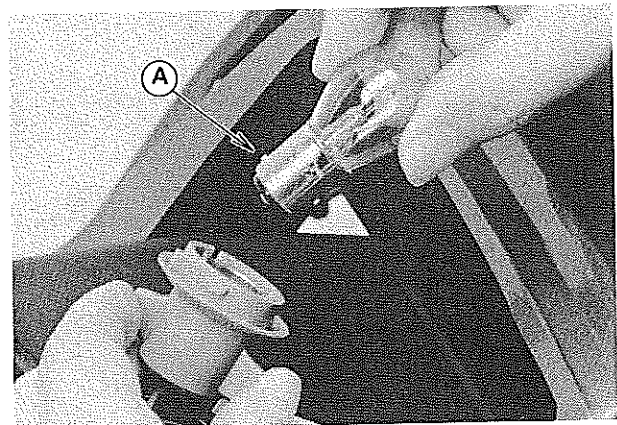


A. Top Mark

- Check the headlight aiming after installation.

Tail/Brake Light bulb Replacement Notes

- Insert the new bulb by aligning the pins with the grooves in the walls of the socket so that the pin closest to the bulb base is to the upper right.



A. Pin Closest to Base.

- Insert the socket by aligning the tangs with the catches in the housing so that the triangular mark points up, and turn it clockwise.



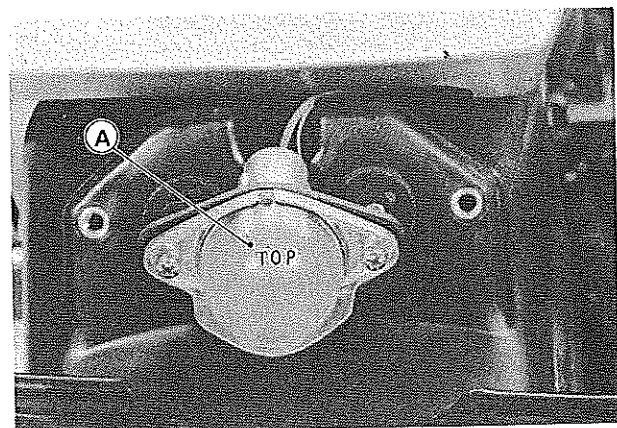
A. Triangular Mark

Tail/Brake Light Lens Removal/Installation Note

- Be careful not to overtighten the lens mounting screws.

License Plate Light Bulb Replacement Notes

- Install the bulb socket and lens so that the "TOP" mark on the lens points up.



A. "TOP" Mark

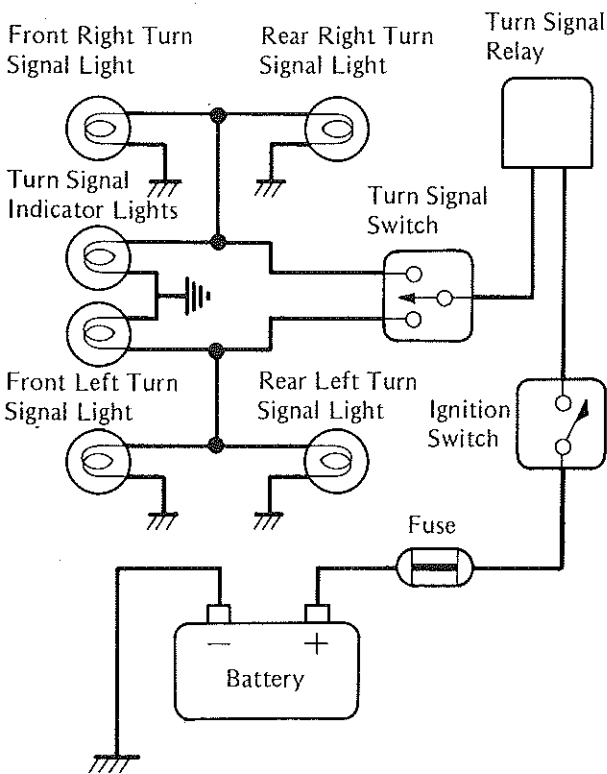
●Be careful not to overtighten the lens and socket mounting screws.

Inspection:

○For any lighting system problems, always check the lighting system wiring and the bulbs first (see *Wiring Inspection*).

.....
Turn Signal System

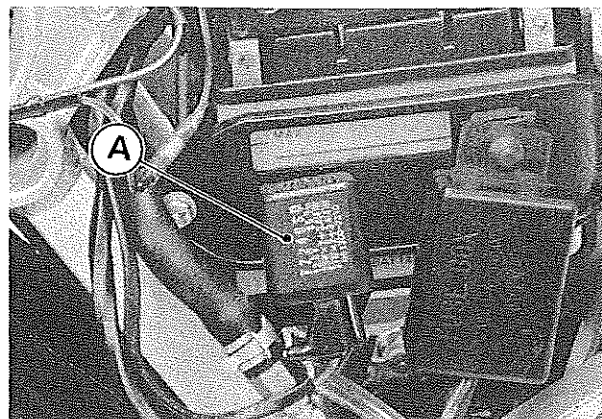
Turn Signal Circuit



Turn Signal Light Bulb Replacement Note

●Be careful not to overtighten the lens mounting screws.

Turn Signal Inspection



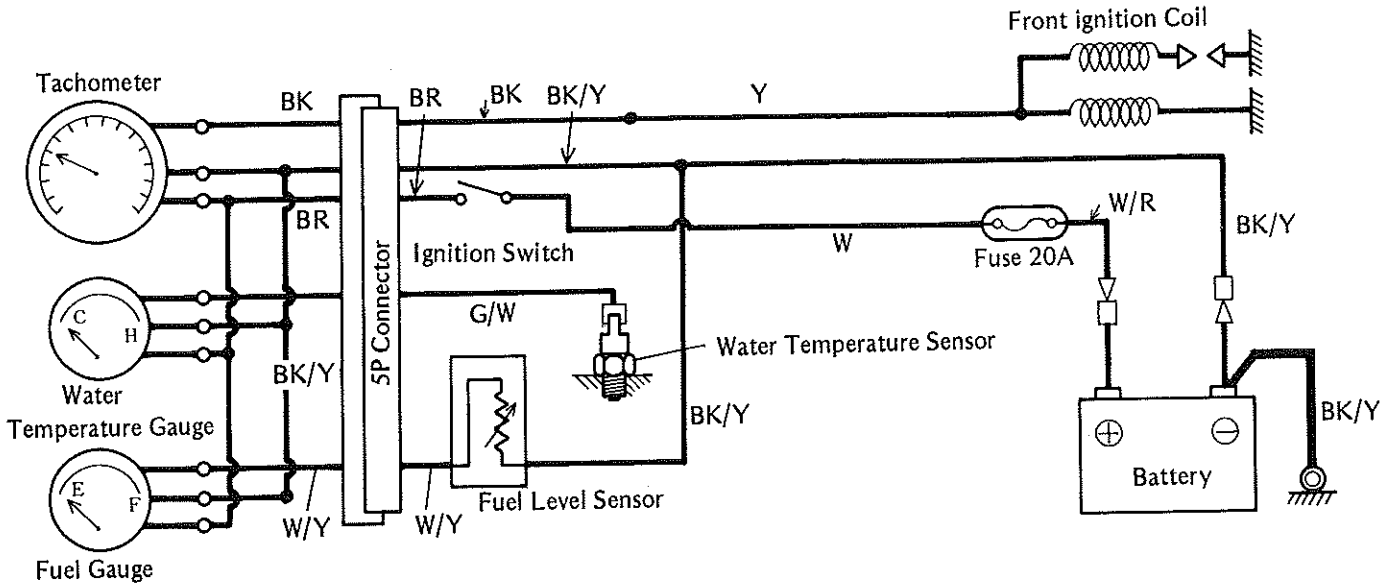
A. Turn Signal Relay

- (1) Neither right nor left turn signals come on at all:
 - Check that battery voltage is normal.
 - Remove the right side cover.
 - Unplug the relay leads and use an ohmmeter to check that there is continuity (close to zero ohms) between the relay terminals.
 - ★If there is no ohmmeter reading, or if there is several ohms resistance, replace the relay with a new one.
 - Turn the meter to the 25 V DC range, connect the (+) meter lead to the brown lead that was disconnected from the relay, and connect the (-) meter lead to the orange lead.
 - With the ignition switch on, first switch the turn signal switch to the R and then to the L position. The meter should register battery voltage at either position.
 - ★If it does not, the fuse, ignition switch, or wiring is at fault.
- (2) Both right or both left turn signals come on and stay on or flash too slowly:
 - Check that battery voltage is normal.
 - Check that all wiring connections are good.
 - Check that the turn signal bulbs and indicator bulbs are of the correct wattage.
 - ★If all of the above check good, replace the relay.
- (3) A single light on one side comes on and stays on:
 - ★Either the light that does not come on is burned out or of the incorrect wattage, or the wiring is broken or improperly connected.
- (4) Neither light on one side comes on:
 - ★Unless both lights for that side are burned out, the trouble is with the turn signal switch.
- (5) Flashing rate is too fast:
 - ★If this occurs on both the right and left sides, check that the battery is not being overcharged.
 - ★If the magneto and the battery voltage are normal, replace the turn signal relay.
 - ★If this occurs on only one side, one or both of the turn signal bulbs are of too high a wattage.

15-28 ELECTRICAL SYSTEM

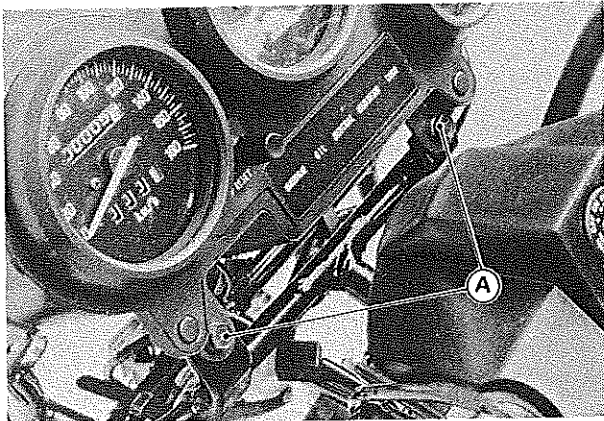
Meters and Gauges

Tachometer, Water Temperature Gauge and Fuel Gauge Circuit Diagram



Meter Panel Removal

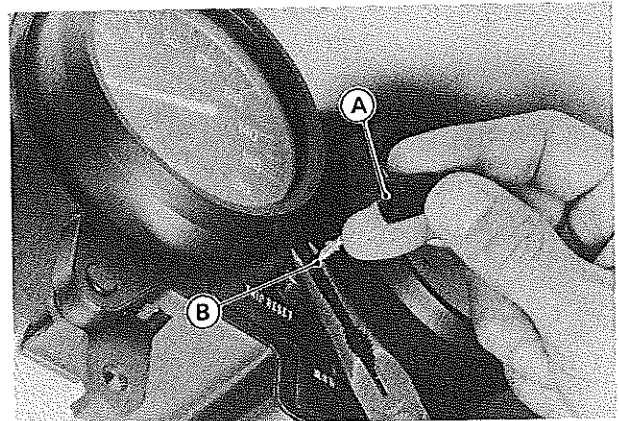
- Remove the upper fairing (see Fairing Removal in Frame).
- Remove the speedometer cable from the meter unit.
- Pull out the meter connectors.
- Remove the meter unit by taking off the mounting bolts.



A. Mounting Bolts

Meter Panel Disassembly

- Remove the mounting bracket.
- Remove the reset knob while holding the shaft with needle nose pliers.



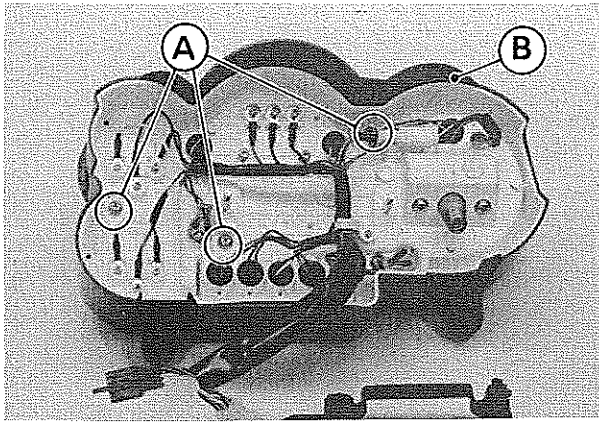
A. Knob

B. Shaft

CAUTION

○ Place the meter or gauge so that the face is up. If a meter or gauge is left upside down or sideways for any length of time it will malfunction.

- Remove the cover by taking off the screws (3).



A. Screws B. Cover

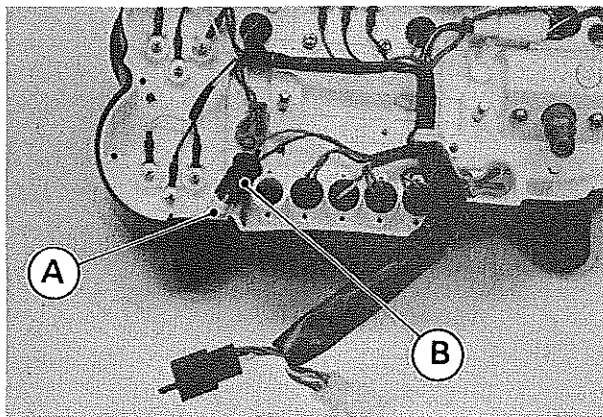
- Separate each meter unit by removing the mounting screws.

Bulb Replacement Notes

- To remove the wedge-base type bulbs (indicator and illumination), pull out the bulb sockets and pull the bulbs off the sockets.
- These bulbs are identical.

CAUTION

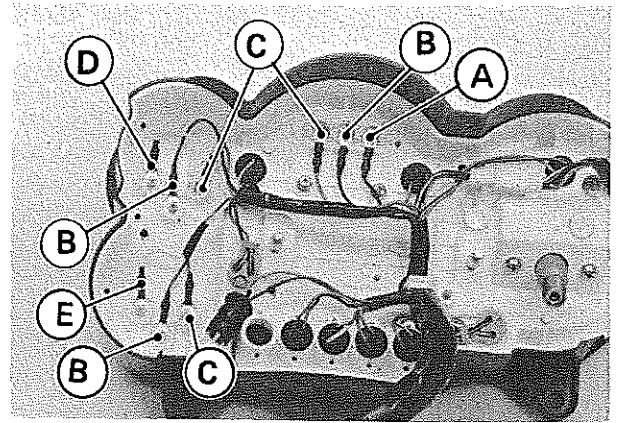
- Do not use bulbs rated for greater wattage than the specified value, as the meter or gauge panel could become warped by excessive heat radiated from the bulbs.



A. Bulb B. Socket

Meter Panel Assembly Note

- Install each lead on the original position as shown.



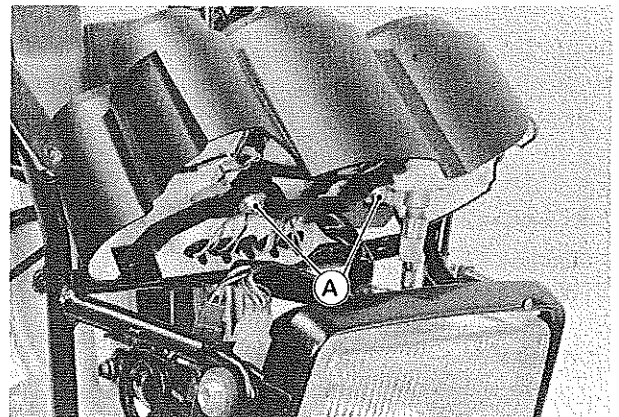
A. BK Lead D. Y Lead
 B. BK/Y Leads E. W/Y Lead
 C. BR Leads

Tachometer Inspection

NOTE

- The tachometer inspection is explained on the assumption that the ignition system operates normally.

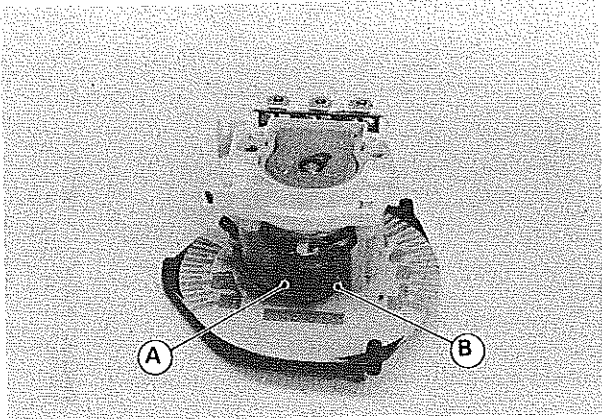
- Check to see that the rubber dampers are installed at the meter mounting bracket.
- ★ Install a new damper where it is absent.
- Check to see that the rubber dampers at the meter mounting bracket are in good condition. They should not be hard or cracked.
- ★ Replace any damaged rubber dampers with new ones.
- Check to see that all meter mounting bolts and nuts are tightened securely.
- ★ Tighten the loose fasteners.



A. Dampers and Nuts

15-30 ELECTRICAL SYSTEM

- Check the tachometer circuit wiring (see Wiring Inspection).
- ★ If all wiring and components other than the tachometer unit check out good, the unit is suspect.
- Take off the tachometer unit.
- Check the resistance between the leads shown in the figure.



A. R lead

B. BK lead

- ★ If the resistance is found to be out of the specified range, replace the tachometer unit.

Tachometer Resistance

BK — Meter — R : 60 — 90 Ω

Fuel Gauge Operation Inspection

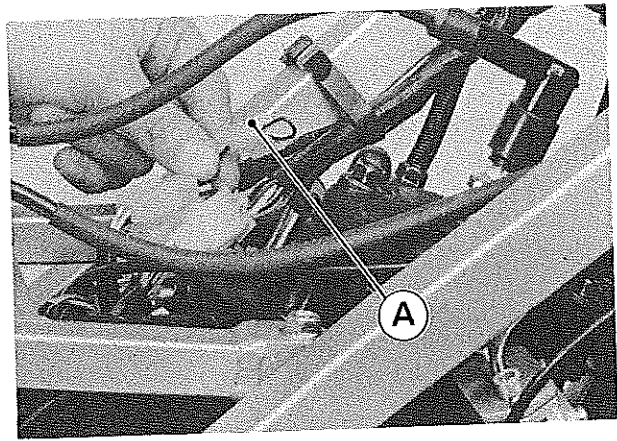
- Prepare an auxiliary wire, and check the operation of the gauge.

Fuel Gauge Operation Check

Ignition Switch Position: ON

Wire Location: Female 2-pin sensor connector (disconnected)

Results: Gauge should read E when connector wires are opened.
Gauge should read F when connector wires are shorted.



A. 2-pin Connector
Open or short-circuit the leads.

CAUTION

- Do not short-circuit the leads longer than necessary. When the needle swings to the "F" position, stop short-circuiting otherwise a good meter could be damaged.

- ★ If the gauge readings are correct, the fuel level sensor is bad. If these readings are not obtained, the trouble is with the gauge and/or wiring.
- Check the fuel gauge circuit wiring (see Wiring Inspection).
- ★ If all wiring and components other than the fuel gauge unit check out good, the unit is defective.

Water Temperature Gauge Operation Inspection

- Prepare an auxiliary wire, and check the operation of the gauge.

Gauge Operation Test

Ignition Switch Position: ON

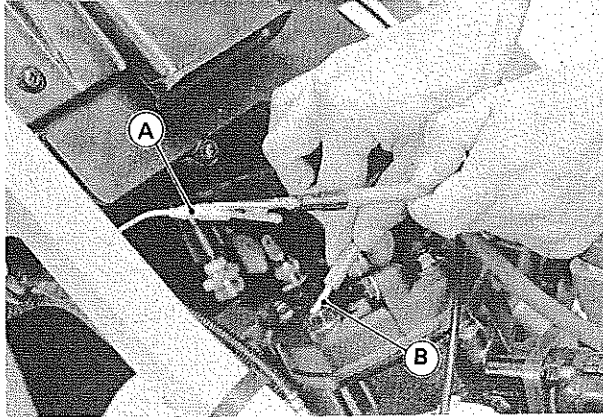
Wire Location: Female, Sensor Connector (disconnected)

Results: Gauge should read C when connector wire is opened.
Gauge should read H when connector wire is grounded to engine.

CAUTION

Do not ground the wiring longer than necessary. After the needle swings to the H position, stop the test. Otherwise the gauge could be damaged.

- ★If the gauge readings are correct, the water temperature sensor is bad. If these readings are not obtained, the trouble is with the gauge and/or wiring.
- Check the water temperature gauge circuit wiring (see Wiring Inspection).
- ★If all wiring and components other than the water temperature gauge unit check out good, the unit is defective.

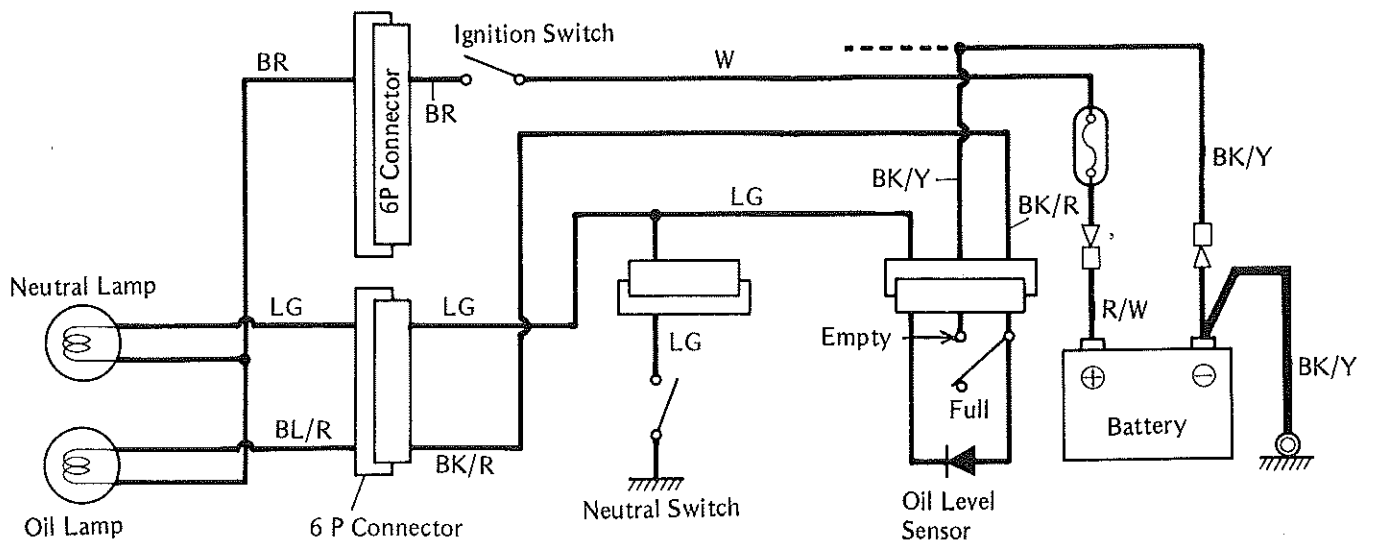


A. Sensor Connector
B. Open or ground the lead to check the circuit.

Engine Oil Level Warning System Troubleshooting

Engine Oil Level Warning Circuit

When the engine oil level is too low, the warning light goes on until oil is added. But if the transmission is in neutral position, the light stays on regardless of oil amount. This is to show whether the warning light bulb has burned out.



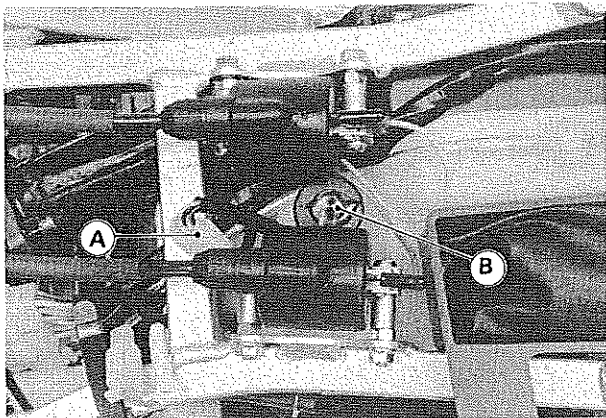
15-32 ELECTRICAL SYSTEM

- (1) The warning light does not come on with the ignition switch ON and the transmission in Neutral position.
- Check the warning light bulb for burning out.
 - Check the battery condition.
 - Check the neutral indicator circuit wiring.
 - ★ If these components check out good, pull out the oil level sensor 3-pin connector to check the wiring.

Warning System Wiring Check

Ignition Switch Position: ON
Connection: 3 pin connector male, short together BK/R and BK/Y leads
Results: Oil warning light should light

★ If the above check shows normal, inspect the oil level sensor.



A. 3-Pin Connector B. Oil Level Sensor

- (2) Oil level is low enough but the warning light does not come on.
- Pull out the oil level sensor 3-pin connector to check the power supply or the wiring as follows.

Power Supply Check

Ignition Switch Position: ON
Meter Range: 25 V DC
Connection: 3-pin connector male,
Meter (+) — BK/R
Meter (—) — Chassis ground
Result: Battery voltage

Wiring Check

Ignition Switch Position: OFF
Meter Range: $\times 1 \Omega$
Connection: 3-pin connector male,
BK/Y — Meter — Chassis ground
Result: 0Ω

★ If the above check shows normal, inspect the oil level sensor.

- (3) Fuel level or oil level is not low but the warning light stays on continuously.
- Check the oil level sensor.

- (4) Warning light goes on and off irregularly.
- Check that oil is well above the low level.
 - Check that the wiring is not shorting out against other parts.
 - Check that the battery charging voltage is normal.
 - If the problem persists, recheck the wiring and check if the sensor lead is shorting intermittently.

- (5) Oil light goes on in accordance with neutral light.
- Check the diode in the oil level sensor.
 - If the meter reads low or light in both directions, the diode is defective and the sensor must be replaced.

Oil Level Sensor Diode Check

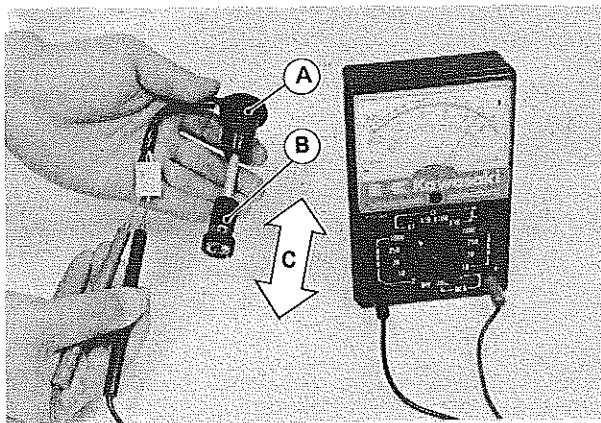
Meter Range: $\times 1 \Omega$
Connection: Oil level sensor
LG — Meter — BK/R
Result: Low in one direction more than ten times as much in the other direction.

NOTE

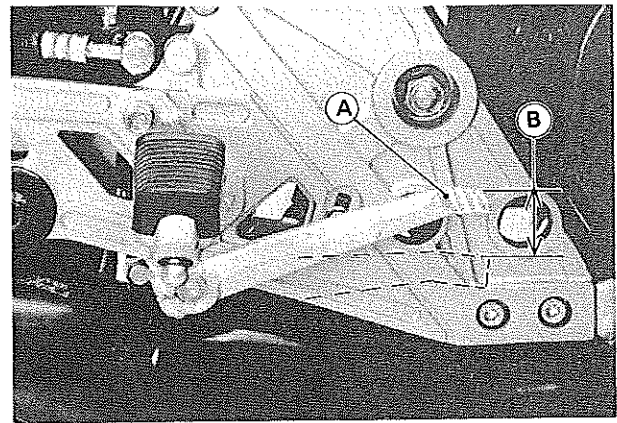
○ The actual meter reading varies with the meter used and the individual rectifier, but, generally speaking, the lower reading should be within 1/3 scale of zero ohms.

Oil Level Sensor Check

- Remove the engine oil level sensor from the oil tank.
- Check that the float moves up and down smoothly without binding. It should go down under its own weight.
- ★ If the float does not move smoothly or if the sensor has visual damage, replace the sensor.
- Set an ohmmeter to the x 1 Ω range, and connect the ohmmeter leads to the BK/R and BK/Y leads to check the switching operation of the float.
- The ohmmeter should show continuity when the float is at the bottom.
- ★ If it does not, replace the sensor.



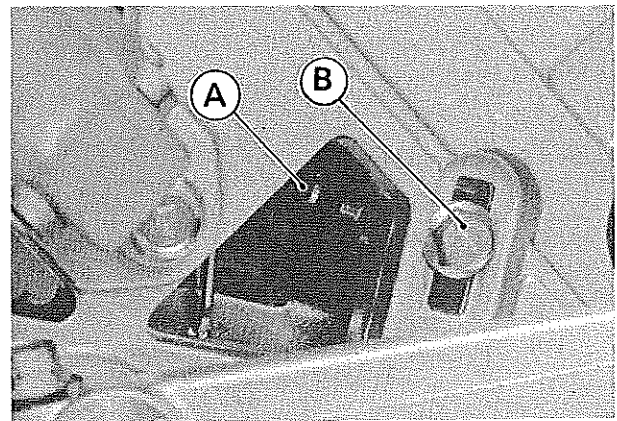
A. Oil Level Sensor C. Up and Down Smoothly
B. Float



A. Rear Brake Pedal B. 5 to 6 mm

Rear Brake Light Switch Adjustment

- Loosen the switch mounting bolt.



A. Rear Brake Light Switch B. Switch Mounting Bolt

- Raise or lower the switch position to adjust the gap between the switch body and the brake pedal lever.
- After tightening the mounting bolt, check to see if the switch has the specified gap.

.....
Switches and Sensors
.....

Rear Brake Light Switch Inspection

NOTE

○ *The rear brake light switch is not required adjustment in periodically. But, whenever the brake pedal position is changed, the rear brake light switch must be checked and adjusted.*

- Turn on the ignition switch.
- Check the operation of the rear brake light switch by depressing the brake pedal. The brake light should go on after about 5 – 6 mm of pedal travel.
- ★ If it does not, adjust the brake light switch.

Brake Light Switch Adjustment

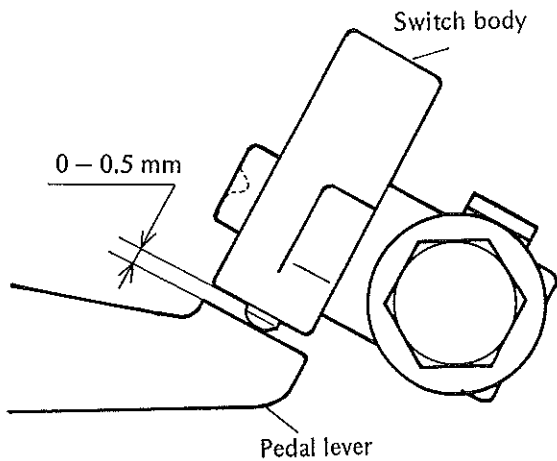
Switch Gap: 0 – 0.5 mm
(for reference, ON after about 5 – 6 mm pedal travel)

CAUTION

- Too low brake switch positioning depresses the brake pedal and could cause the brake dragging.

15-34 ELECTRICAL SYSTEM

Rear Brake Switch Adjustment



Switch Inspection

- Using an ohmmeter, check to see that only the connectings shown in the table have continuity (about zero ohms).
- ★If the switch has an open or short, repair it or replace it with new one.

Ignition Switch Connections

	BK/W	BK/Y	W	BR	R/W	R
LOCK	○ — ○					
OFF	○ — ○					
ON			○ — ○		○ — ○	
PARK	○ — ○		○ — ○			

Dimmer Switch Connections

	R/BK	BL/Y	R/Y
HI	○ — ○		
LO		○ — ○	

Turn Signal Switch Connections

	GY	O	G
R	○ — ○		
N			
L		○ — ○	

Passing Button Connections

	BR	R/BK
Free		
Push on	○ — ○	

Horn Button Connections

	BK/W	BK/Y
Free		
Push on	○ — ○	

Engine Stop Switch Connections

	R	Y/R
OFF	○ — ○	
RUN		

Headlight Switch Connections

	R/W	R/BL	BL	BL/Y
OFF				
■	○ — ○			
ON	○ — ○		○ — ○	

Front Brake Light Switch Connections

	BR	BL/R
When brake lever is pulled in	○ — ○	

Rear Brake Light Switch Connections

	BR	BL
When brake pedal is pushed down	○ — ○	

Side Stand Switch Connections

	BR	BK/Y	G/W
When side stand is up	○ — ○		
When side stand is down		○ — ○	

Neutral Switch Connections

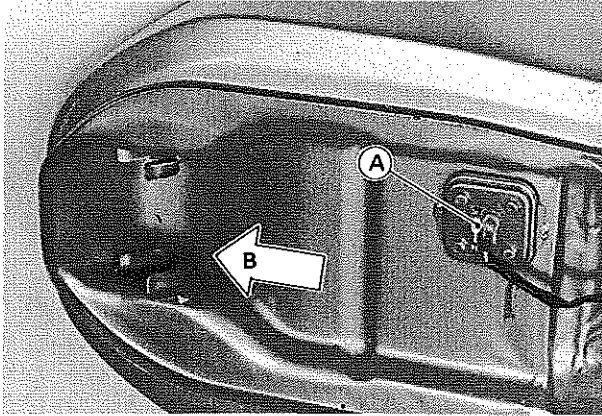
	LG	////
When transmission is in neutral	○ — ○	
When transmission is not in neutral		

Clutch Switch Connections

	BK/W	BK
When clutch lever is pulled in	○ — ○	
When clutch lever is released		

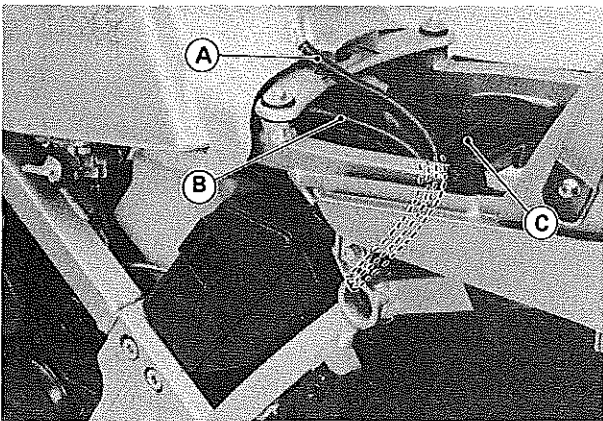
Fuel Level Sensor Installation

- Install the sensor being careful of the installation position of the sensor lead terminal.



A. Terminal B. Front

- Run the level sensor breather tube under the tool case bottom along with the fuel tank breather tube.



A. Breather Tube for fuel tank C. Tool Case
B. Breather Tube for level sensor

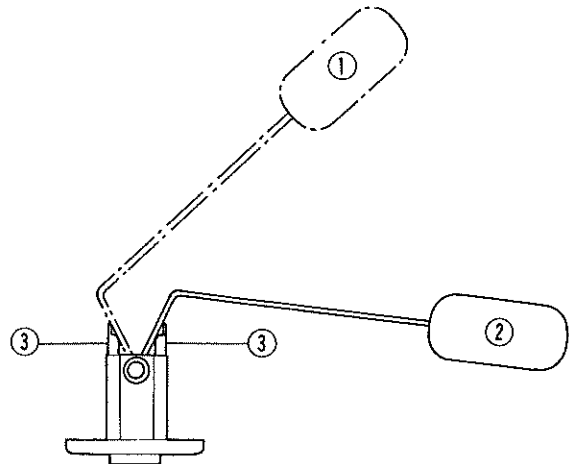
CAUTION

- Keep the tubes free of obstruction, and make sure they do not touch the rear muffler.

Fuel Level Sensor Inspection

- Remove the fuel level sensor.
- Check that the float moves up and down smoothly without binding. It should go down under its own weight.
- ★ If the float does not move smoothly, replace the sensor.

Fuel Level Sensor



1. Float in full position
2. Float in empty position
3. Float arm stop

- Measure the resistance of the fuel level sensor with an ohmmeter.
- ★ If the ohmmeter does not show the specified values, or the readings do not change smoothly as the float moves up and down, replace the sensor.

Fuel Level Sensor Resistance

- Full Position: 10 – 16 Ω
- Empty Position: 90 – 100 Ω

- Inspect the leads and 2-pin connector.
- ★ If they show any signs of damage, replace the sensor.

Water Temperature Sensor Inspection

- Remove the water temperature sensor.
- Suspend the sensor in a container of water so that the temperature sensing projection and threaded portion are submerged. The sensor must not touch the container sides or bottom.

15-36 ELECTRICAL SYSTEM

- Suspend an accurate thermometer in the water. It must not touch the container, either.
- Place the container over a source of heat and gradually raise the temperature of the water while stirring the water gently.
- Using an ohmmeter, measure the internal resistance of the sensor across the terminal and the body at the temperatures shown in the table.
- If the ohmmeter does not show the specified values, replace the sensor.

Internal Resistance of Water Temperature Sensor

80°C (176°F): 100 – 150 Ω

100°C (212°F): 52 – 78 Ω

Water Temperature Sensor Inspection

