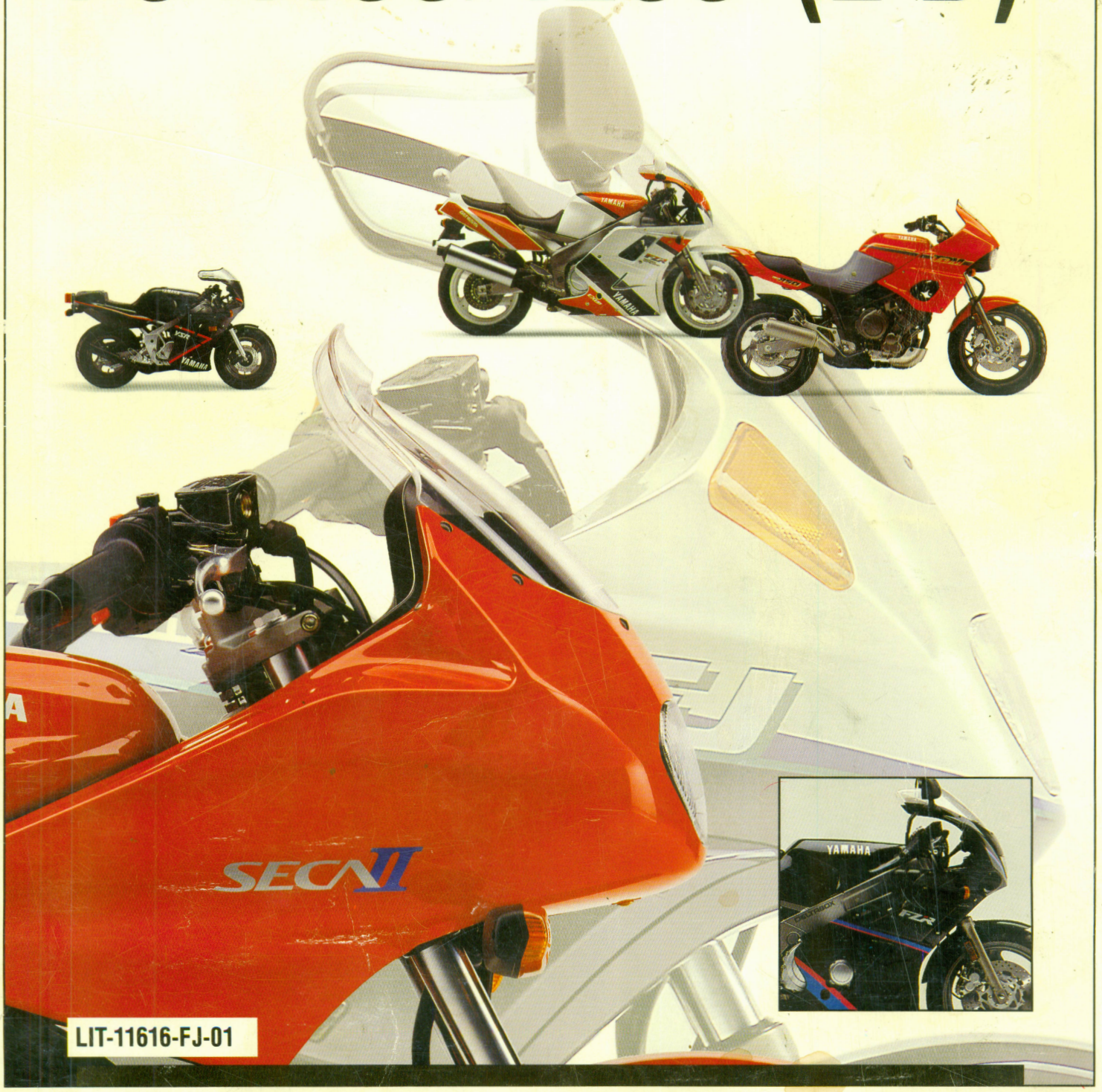
GENUINE YAMAHA

SERVICE MANUAL

FJ 1100/1200 (L-D)



LIT-11616-FJ-01

YAMAHA

FJ1200AD
FJ1200ADC

SUPPLEMENTARY SERVICE MANUAL

LIT-11616-07-98

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service information and new data for the FJ1200A D/DC. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with the following manuals:

FJ1100L/LC Service Manual: LIT-11616-04-08
FJ1200S/SC Supplementary Service Manual: LIT-11616-05-00
FJ1200W/WC Supplementary Service Manual: LIT-11616-06-94
FJ1200B/BC Supplementary Service Manual: LIT-11616-07-80

FJ1200A D/DC
SUPPLEMENTARY
SERVICE MANUAL

1st Edition, September 1991

NOTICE

This manual was written by the Yamaha Motor Company Ltd. primarily for use by Yamaha dealers and qualified mechanics. It is not possible to put an entire mechanic's education int o one manual, so persons using this book to perform maintenance and repairs on Yamaha motorcycles should have a basic understanding of the mechanical concepts and procedures inherent in motorcycle repair technology. Without such knowledge, attempted repairs or service to the motorcycle may render it unfit to use and/or unsafe.

This model has been designed and manufactured to perform within certain specifications in regard to performance and emissions. Proper service with the correct tools is necessary to ensure that the motorcycle will operate as designed. If there is any question about a service procedure, it is imperative that you contact a Yamaha dealer for any service information changes that apply to this model. This policy is intended to provicde the customer with the most satisfaction from his motorcycle and to conform with federal environmental quality objectives.

Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, where applicable, appear in future editions of this manual.

NOTE:

This Service Manual contains information regarding periodic maintenance to the emission control system for the FJ1200A D/DC. Please read this material carefully.

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

⚠ The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠WARNING Failure to follow WARNING instructions could result in severe injury or death to the motorcycle operator, a bystander,or a person inspecting or repairing the motorcycle.

CAUTION: A CAUTION indicates special precautions that must be taken to avoid damage to the motorcycle.

NOTE: A NOTE provides key information to make procedures easier or clearer.

HOW TO USE THIS MANUAL

CONSTRUCTION OF THIS MANUAL

This manual consists of chapters for the main categories of subjects. (See "Illustrated symbols")

1st title ① : This is a chapter with its symbol on the upper right of each page.

2nd title ② : This title appears on the upper of each page on the left of the chapter symbol. (For the chapter "Periodic inspection and adjustment" the 3rd title appears.)

3rd title ③ : This is a final title.

MANUAL FORMAT

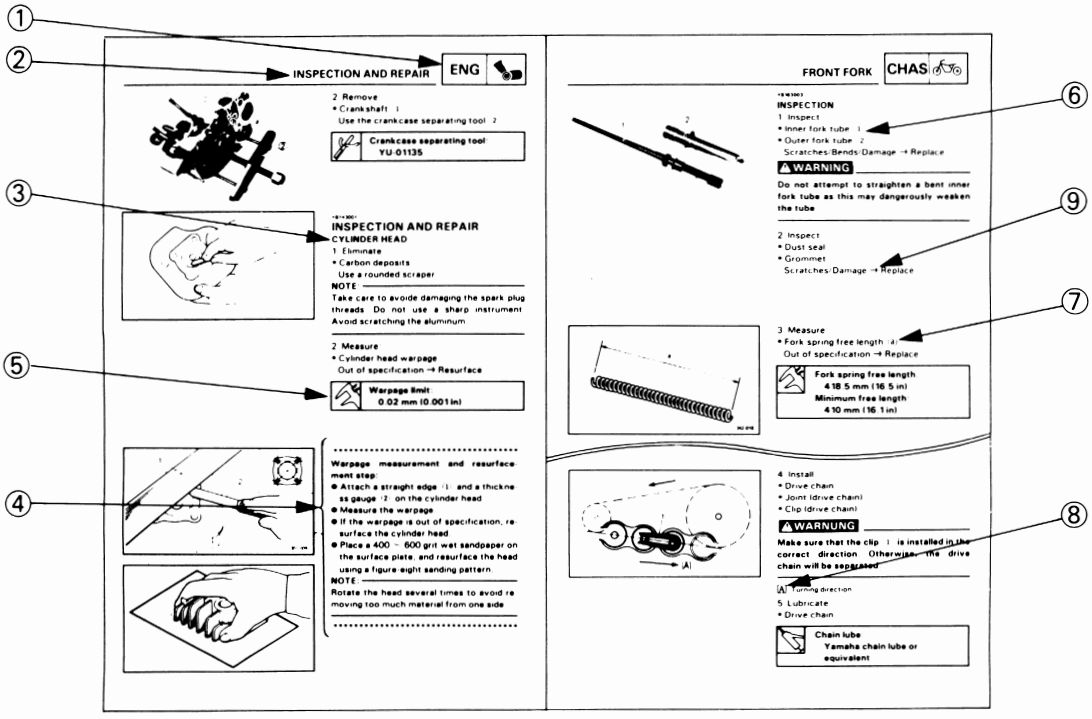
All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspections.
A set of particularly important procedure ④ is placed between a line of asterisks "*" with each procedure preceded by " ● ".

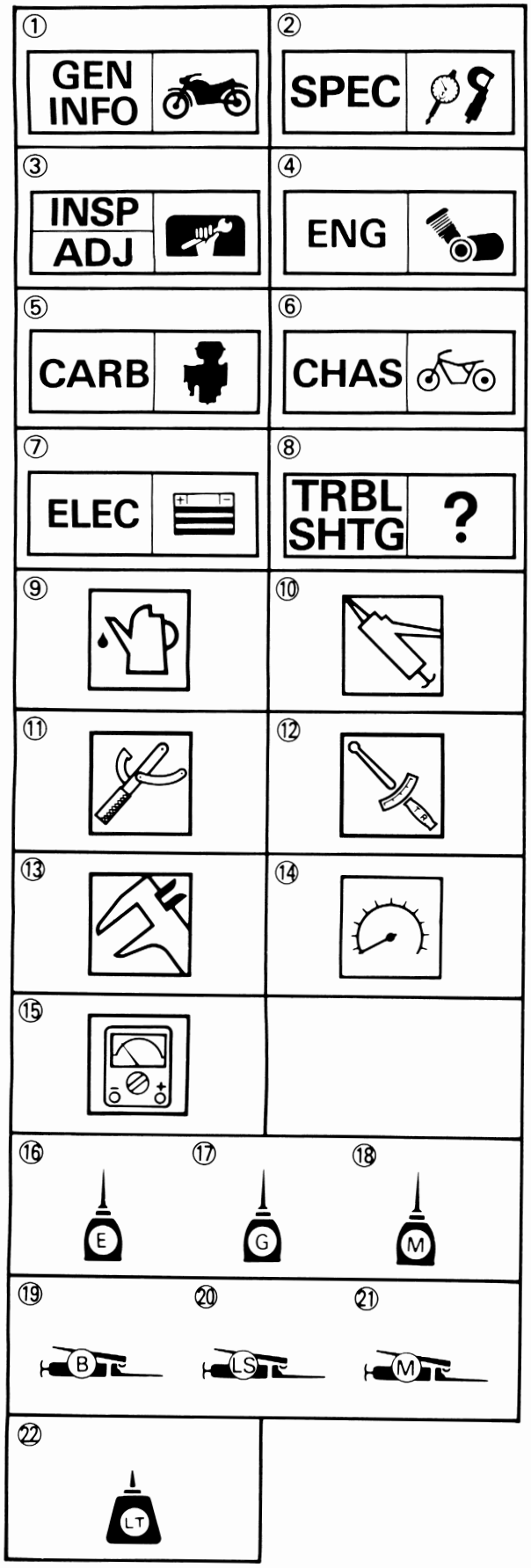
IMPORTANT FEATURES

- Data and a special tool are framed in a box preceded by a relevant symbol ⑤ .
- An encircled numeral ⑥ indicates a part name, and an encircled alphabetical letter data or an alignment mark ⑦ , the others being indicated by an alphabetical letter in a box ⑧ .
- A condition of a faulty component will precede an arrow symbol and the course of action required the symbol ⑨ .

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.





ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① to ⑧ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Specifications
③ Periodic inspection and adjustment
④ Engine
⑤ Carburetion
⑥ Chassis
⑦ Electrical
⑧ Troubleshooting

Illustrated symbols ⑨ to ⑮ are used to identify the specifications appearing in the text.

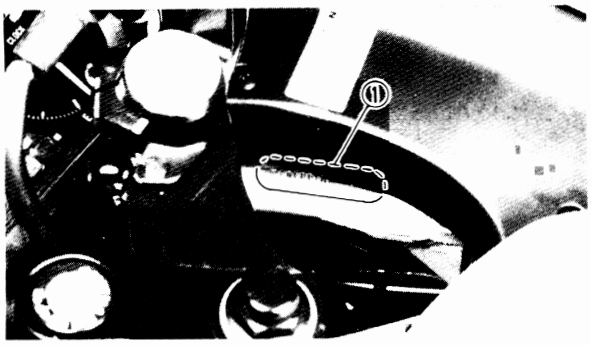
⑨ Filling fluid
⑩ Lubricant
⑪ Special tool
⑫ Tightening
⑬ Wear limit, clearance
⑭ Engine speed
⑮ Ω, V, A

Illustrated symbols ⑯ to ㉒ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑯ Apply engine oil
⑰ Apply gear oil
⑱ Apply molybdenum disulfide oil
⑲ Apply wheel bearing grease
⑳ Apply lightweight lithium-soap base grease
㉑ Apply molybdenum disulfide grease
㉒ Apply locking agent (LOCTITE®)

CONTENTS

GENERAL INFORMATION



MOTORCYCLE IDENTIFICATION

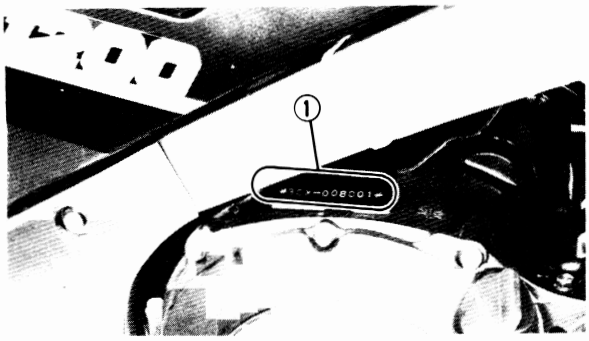
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the right side of the frame.

Starting serial number:
FJ1200A D (Except for California):
JYA4CRE0 ✳ NA000101
FJ1200A DC (For California):
JYA4CRC0 ✳ NA001101

NOTE:

The vehicle identification number is used to identify your motorcycle and may be used to register your motorcycle with the licensing authority in your state.



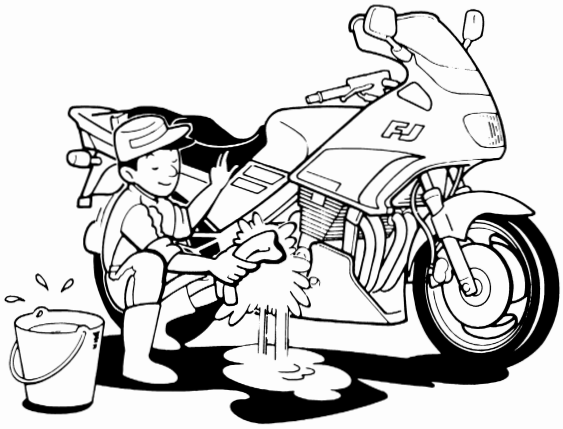
ENGINE SERIAL NUMBER

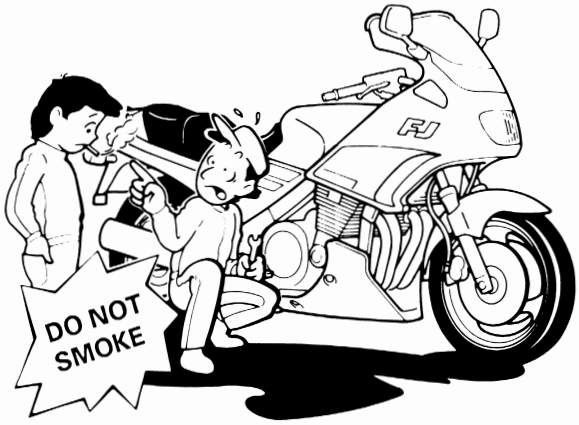
The engine serial number ① is stamped into the right side of the engine.

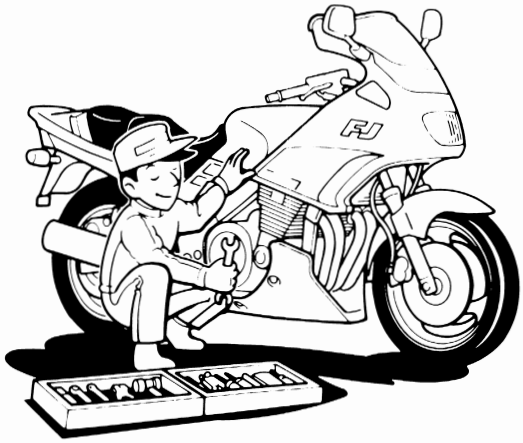
Starting serial number:
FJ1200A D (Except for California):
4CR-000101
FJ1200A DC (For California):
4CR-001101

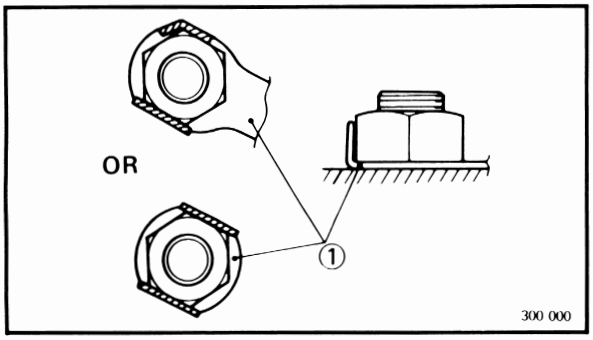
NOTE:

- The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.
- Designs and specifications are subject to change without notice.









IMPORTANT INFORMATION

PREPARATION FOR REMOVAL

1. Remove all dirt, mud, dust and foreign material before removal and disassembly.
2. Use proper tools and cleaning equipment. Refer to the "GENERAL INFORMATION-SPECIAL TOOLS" section in CHAPTER 1.
3. When disassembling the machine, keep mated parts together. This includes gears, cylinder, piston and other parts that have been "mated" through normal wear. Mated parts must be reused as an assembly or replaced.
4. During the machine disassembly, clean all parts and place them in trays in the order of disassembly. This will speed up assembly time and help assure that all parts are correctly reinstalled.
5. Keep away from fire.

ALL REPLACEMENT PARTS

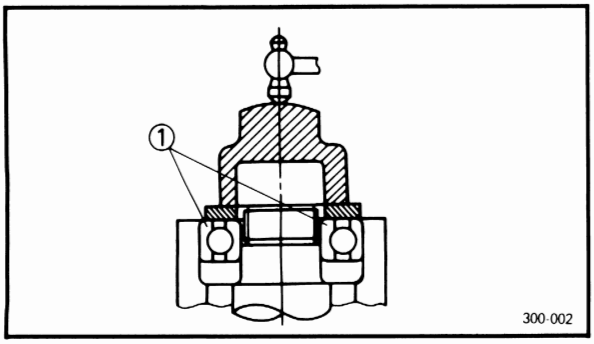
1. We recommend the use of Yamaha genuine parts for all replacements. Use oil and/or grease recommended by Yamaha for assembly and adjustment.

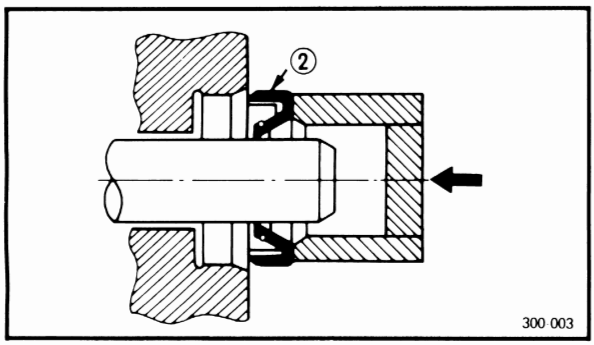
GASKETS, OIL SEALS, AND O-RINGS

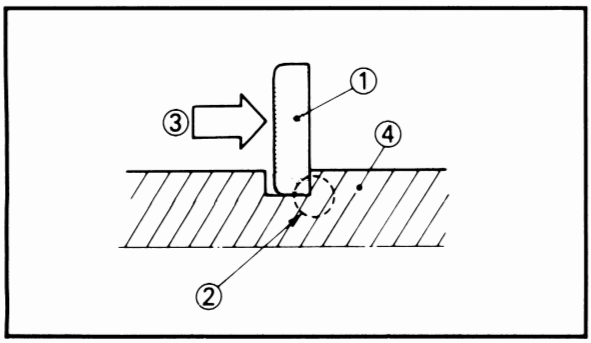
1. All gaskets, seals, and O-rings should be replaced when an engine is overhauled. All gasket surfaces, oil seal lips, and O-rings must be cleaned.
2. Properly oil all mating parts and bearings during reassembly. Apply grease to the oil seal lips.

LOCK WASHERS/PLATES AND COTTER PINS

1. All lock washers/plates ① and cotter pins must be replaced when they are removed. Lock tab(s) should be bent along the bolt or nut flat(s) after the bolt or nut has been properly tightened.







BEARINGS AND OIL SEALS

1. Install the bearing(s) ① and oil seal(s) ② with their manufacturer's marks or numbers facing outward. (In other words, the stamped letters must be on the side exposed to view.) When installing oil seal(s), apply a light coating of light-weight lithium base grease to the seal lip(s). Oil the bearings liberally when installing.

CAUTION:

Do not use compressed air to spin the bearings dry. This causes damage to the surfaces.

CIRCLIPS

1. All circlips should be inspected carefully before reassembly. Always replace piston pin clips after one use. Replace distorted circlips. When installing a circlip ①, make sure that the sharp-edged corner ② is positioned opposite to the thrust ③ it receives. See the sectional view.

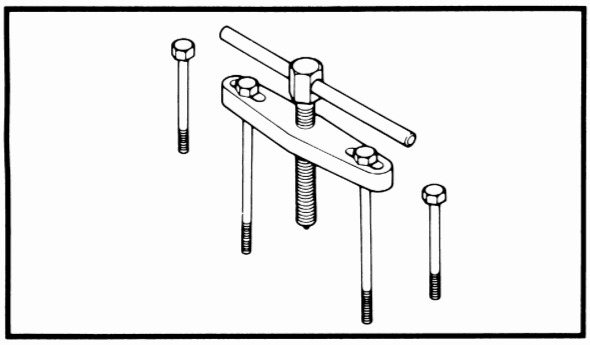
④ Shaft

SPECIAL TOOLS

The proper special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques. The shape and part number used for the special tool differ by country, so two types are provided. Refer to the list provided to avoid errors when placing an order.

P/N. YM- □□□□□, YU- □□□□□
YS- □□□□□, YK- □□□□□ For US, CDN
ACC-□□□□□

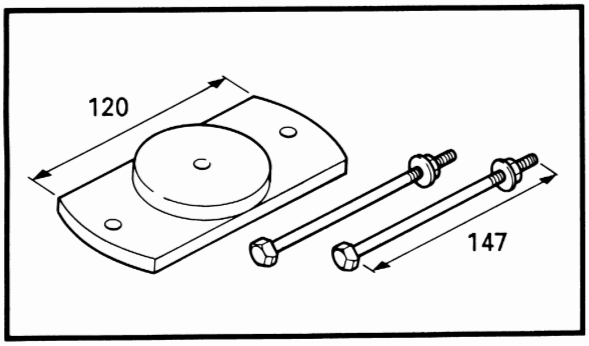
P/N. 90890-□□□□□ Except for US, CDN



FOR CHASSIS SERVICE

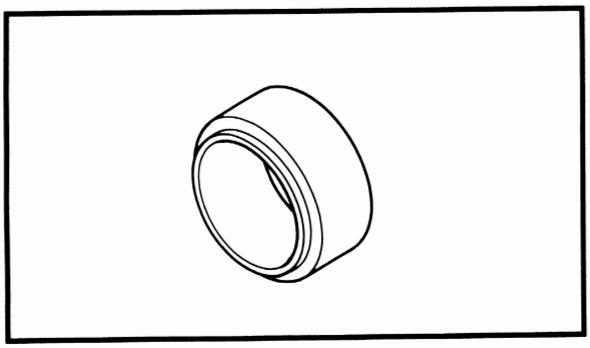
1. Crankcase separating tool
   P/N. YU-01135-A
   P/N. 90890-01135

This tool is necessary to remove the ABS sensor rotor.



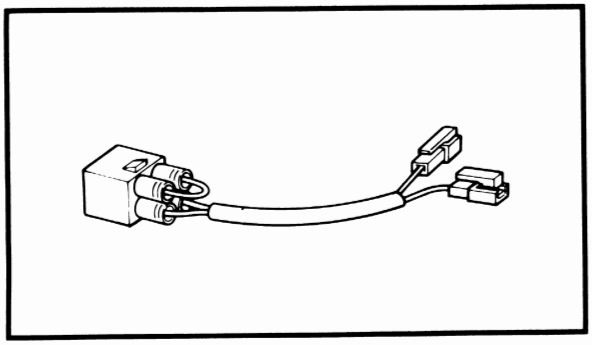
2. Sensor rotor puller guide
   P/N. YM-04126

This tool is necessary to remove the ABS sensor rotor.Use this tool with Crankcase separating tool for removal of sensor rotor.



3. Sensor rotor installation pot
   P/N. YM-04124
   P/N. 90890-04124

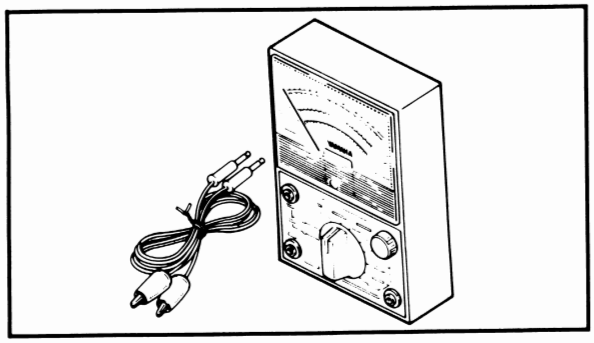
This tool is necessary to install the ABS sensor rotor.



FOR ELECTRICAL COMPONENTS

1. ABS test coupler adapter
   P/N. YM-03149
   P/N. 90890-03149

This instrument is necessary for self diagnosis of the ABS system.



2. Pocket tester
   P/N. YU-03112
   P/N. 90890-03112

This instrument is necessary for checking the electrical system.

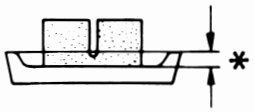
SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	FJ1200A D/DC	
Model Code Number:	4CR1 (Except for California)	4CR2 (For California)
Vehicle Identification Number:	JYA4CRE0*NA000101	JYA4CRC0*NA001101
Engine Starting Number:	4CR-000101	4CR-001101
Basic Weight: With Oil and Full Fuel Tank	274 kg (604 lb)	275 kg (606 lb)
Tire Pressure (Cold Tire): Maximum Load*	177 kg (390 lb): Except for California 176 kg (388 lb): For California	
Cold Tire Pressure:	Front	Rear
Up to 90 kg (198 lb) Load*	225 kpa (2.25 kg/cm², 32 psi)	250 kpa (2.5 kg/cm², 36 psi)
90 kg (198 lb) ~ Maximum Load*	250 kpa (2.5 kg/cm², 36 psi)	290 kpa (2.9 kg/cm², 42 psi)
High Speed Riding	250 kpa (2.5 kg/cm², 36 psi)	290 kpa (2.9 kg/cm², 42 psi)
*Load is the total weight of cargo, rider, passenger, and accessories.		
Bulb wattage x quantity: Headlight Tail/Brake light Front position light/Front flasher light Rear flasher light Meter light Indicator light: "NEUTRAL" "TURN" "OIL LEVEL" "HIGH BEAM" "ABS" warning	 12V 60W/55W x 1 12V 8W/27W x 2 12V 8W/27W x 2 12V 27W x 2 12V 3.4W x 3 12V 3.4W x 1 12V 3.4W x 2 12V 3.4W x 1 12V 3.4W x 1 12V 3.4W x 1	

MAINTENANCE SPECIFICATIONS

CHASSIS

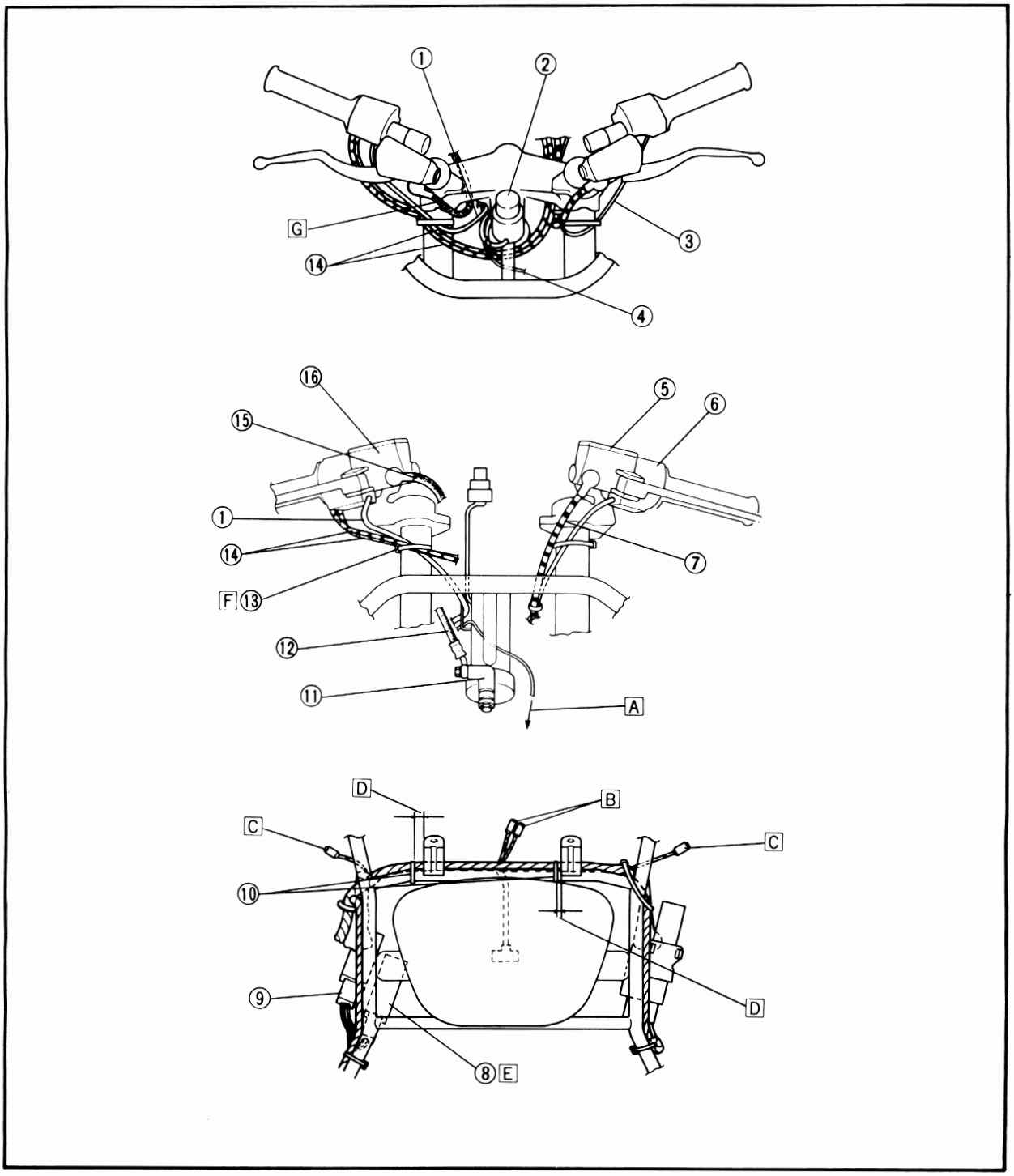
Model	FJ1200A D/DC
Front Disc Brake:	
Type	Dual
Disc Outside Diameter x Thickness	298 x 5.0 mm (11.73 x 0.20 in)
Pad Thickness Inner	5.5 mm (0.22 in)
<Limit>*	<0.5 mm (0.02 in)>
Pad Thickness Outer	5.5 mm (0.22 in)
<Limit>*	<0.5 mm (0.02 in)>
	
Master Cylinder Inside Diameter	15.87 mm (0.63 in)
Caliper Cylinder Inside Diameter	32.1 mm (1.26 in)
Brake Fluid Type	DOT #4or DOT #3
Brake lever and Brake Pedal:	
Brake Lever Free Play	2 ~ 5 mm (0.08 ~ 0.20 in) at brake lever end
Brake Pedal Position	30 mm (1.18 in) below top of footrest
Brake Pedal Free Play	5 ~ 9 mm (0.20 ~ 0.35 in)

ELECTRICAL

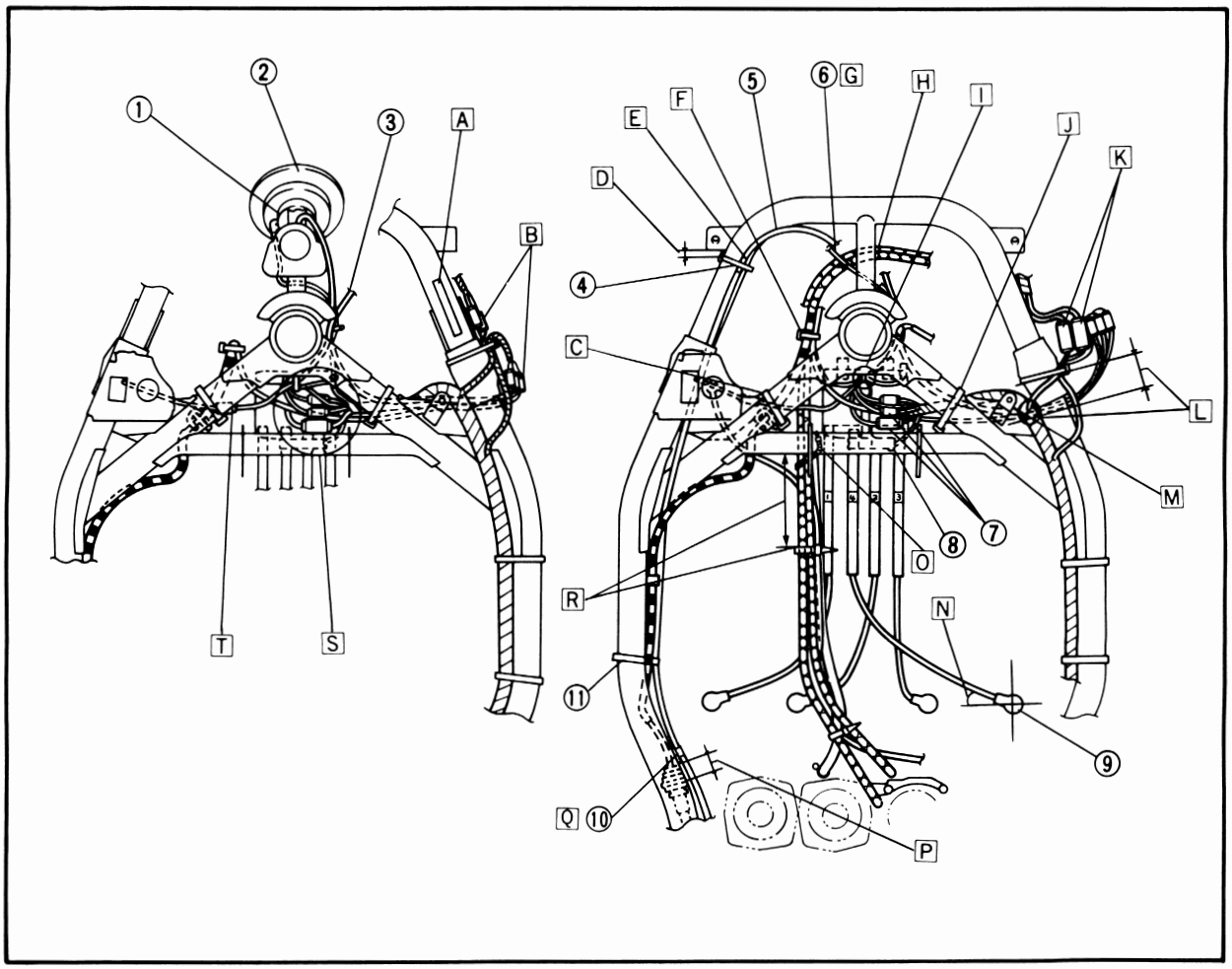
Model	FJ1200A D/DC
Voltage:	12V
Circuit Breaker:	
Type	Fuse
Amperage for Individual Circuit x Quantity	
MAIN	30A x 1
ABS PUMP	30A x 1
ECU	3A x 1
WARNING	3A x 1
HEAD	15A x 1
SIGNAL	15A x 1
IGNITION	15A x 1
RESERVE	30A x 1
	15A x 1
	3A x 1

CABLE ROUTING

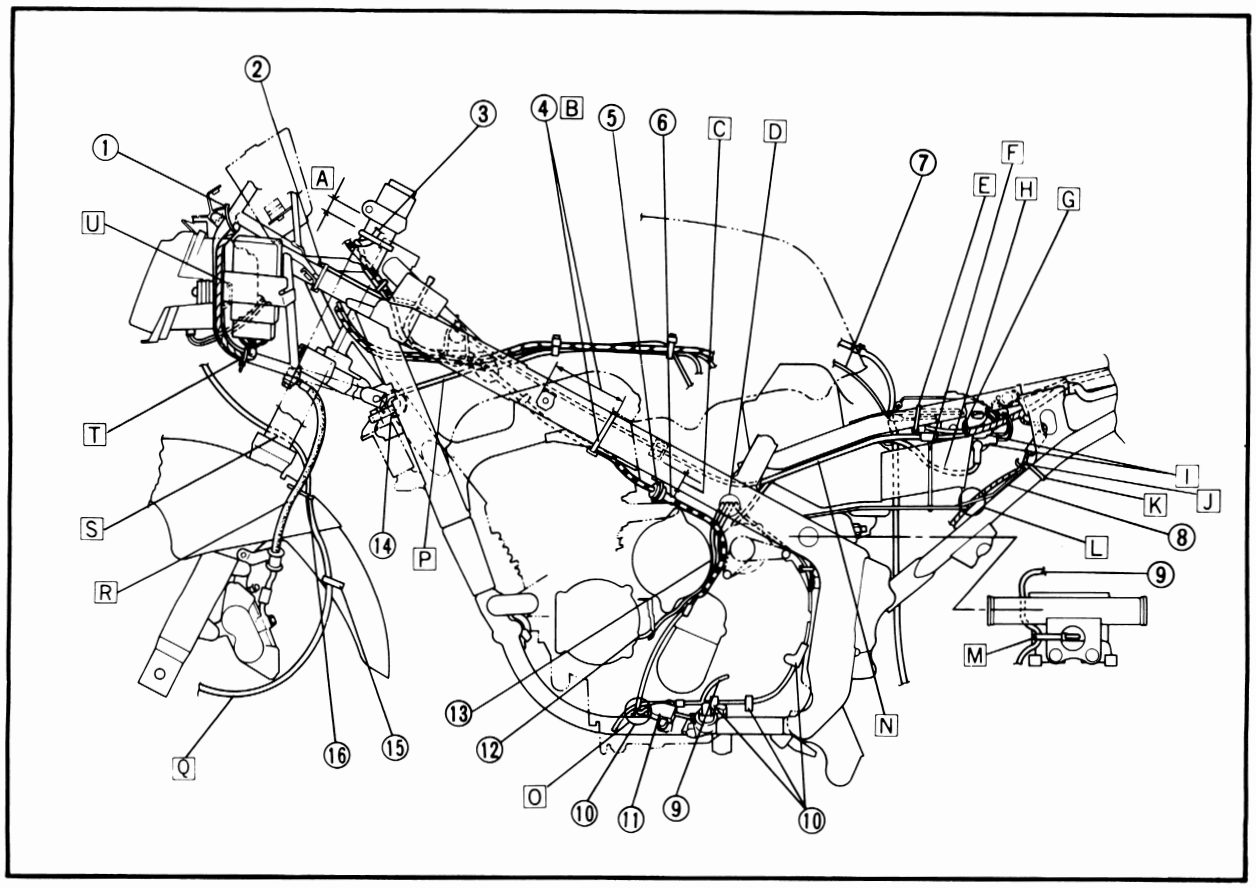
① Handle switch lead (right)
② Main switch
③ Handle switch lead (left)
④ Horn lead
⑤ Master cylinder (clutch)
⑥ Handle switch 4 (left)
⑦ Clutch hose
⑧ Flasher relay
⑨ Safety relay assembly
⑩ Band
⑪ Joint (brake hose)
⑫ Brake hose 5
⑬ Band
⑭ Throttle cable
⑮ Brake hose 1
⑯ Master cylinder (front brake)
[A] To the horn
[B] Connect the meter coupler
[C] Connect the flasher light coupler
[D] Less than 10 mm (0.39 in)
[E] Fit the flasher relay on the inside.
[F] Cut the end of the band which clamps the 2 throttle cables, handlebar switch lead (right), and the 4 front brake switch leads.
[G] The brake hose 1 should not cross the handlebar switch lead (right) and the throttle cable.



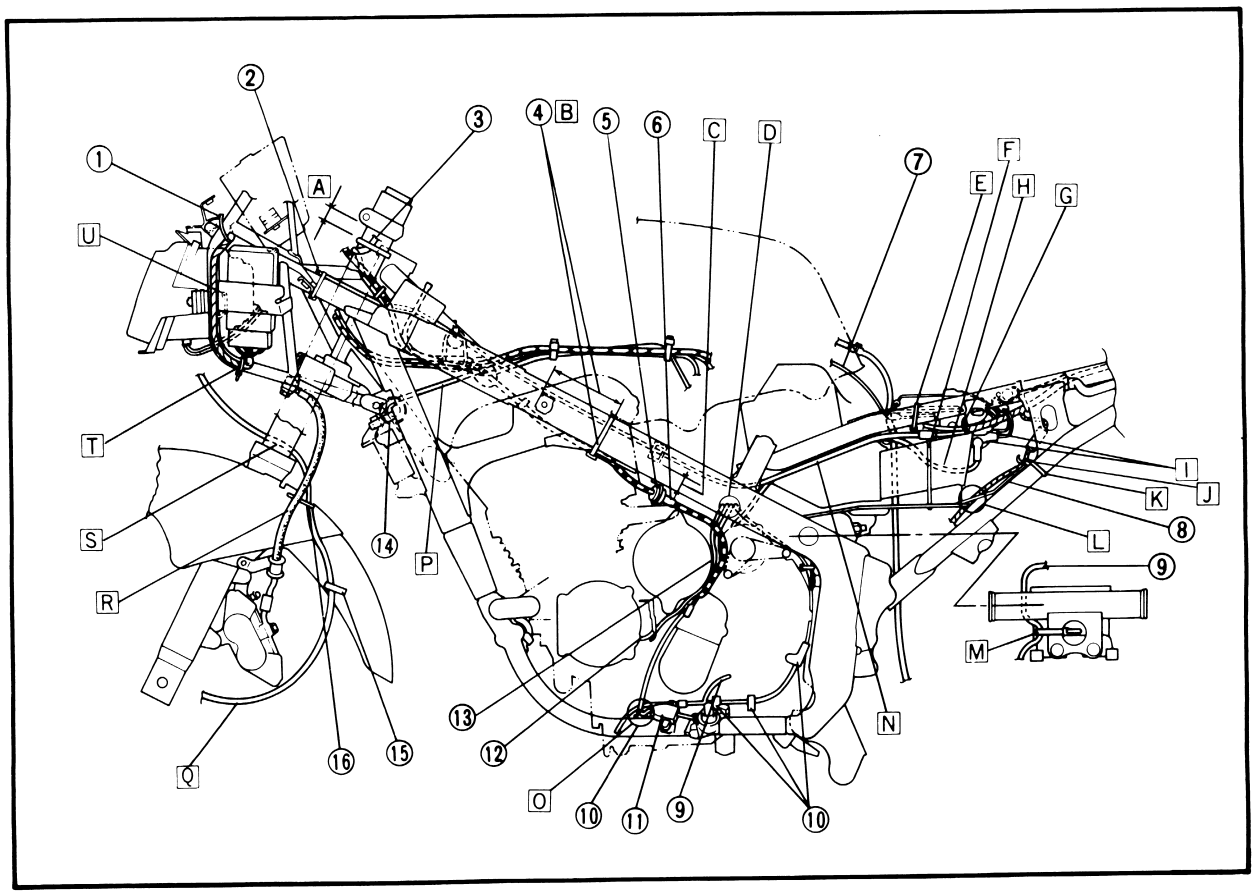
① Main switch
② Horn
③ Handle switch lead (right)
④ Band
⑤ Front wheel sensor lead
⑥ Horn lead
⑦ Ignition coil coupler (two pieces)/Main switch coupler
⑧ Frame earth
⑨ Plug cap
⑩ Clamp
⑪ Band
[A] Make sure the frame No. is not hidden by the harness.
[B] Coupler on the outside of the frame.
[C] Secure the clutch hose and reserve switch lead, so that the front ends face towards the inside of the frame.
[D] Less than 10 mm (0.39 in).
[E] Clamp the positioning white tape.
[F] Clamp the clutch hose and handle switch lead (left).
[G] Route the horn lead in front of the head pipe (within the triangular shape) and above the throttle cable.
[H] Route the throttle cable through the center of the head pipe (Within the triangular shape).
[I] Route the ignition coil leads (two pieces.), main switch lead, and reserve switch lead through the clamp of the frame unit.
[J] Secure the main harness and handle switch lead (right/ left) together, and make sure that the band front end is directed towards the inside of the frame.
[K] After connecting with the coupler of cowl stay, clamp it.
[L] Position the harness so that the branch is aligned with the bracket end (Less than 10 mm (0.39 in)).
[M] Insert the harness beneath the bracket.
[N] Position the spark plug lead about 15° from centerline to prevent contact with air duct.
[O] Clamp the two throttble cables to the cross pipe (for California only).
[P] 10 ~ 20 mm (0.39 ~ 0.79 in) from the clutch hose clamp.
[Q] When clamping on the inside of the tank rail, always be sure to remove oils from the tank rail. The open part of the clamp should be on top.
[R] Secure both throttle cables, the choke cable and the pressure senser hose less than 60 mm (2.36 in) from the cross member. (On Californian Models the cannistor hose has to be clamped with these five items.)
[S] At the time of installing the fuel tank, insert the lead and coupler within the frame so that they are not pinched.
[T] The coupler should be inserted beneath the frame.



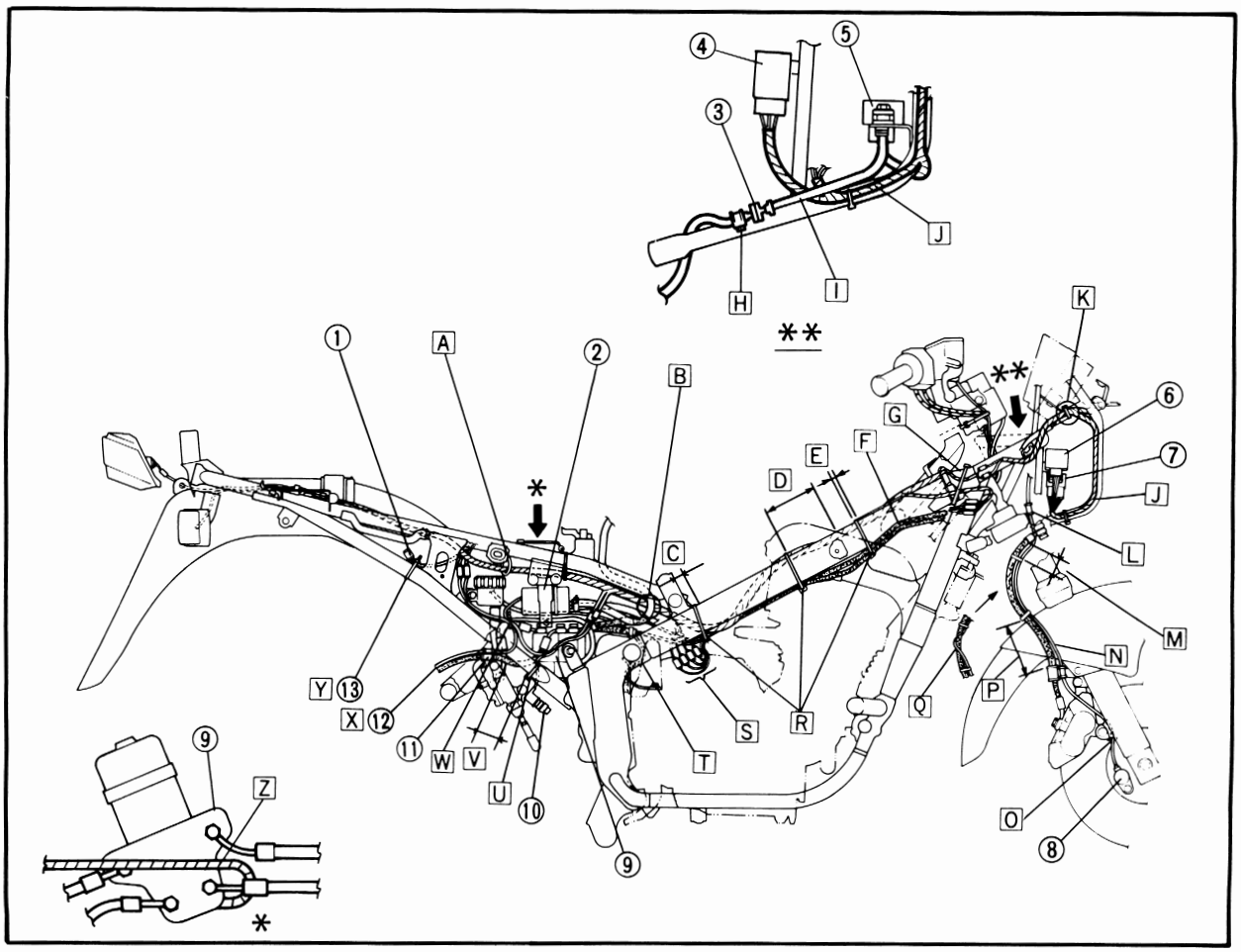
① Band
② Front wheel sensor lead
③ Handle switch lead (left)
④ Band
⑤ Clamp (clutch hose)
⑥ Clutch hose 2
⑦ Fuel sender unit lead
⑧ Rubber seat
⑨ Neutral switch lead
⑩ Clamp
⑪ Side stand switch
⑫ Pickup coil lead
⑬ A.C. generator lead
⑭ Cross pipe
⑮ Cable holder
⑯ Holder
[A] Clamp at a position 20 mm (0.79 in) beneath the handle crown (Common for left and right sides).
[B] Less than 100 mm (3.94 in) approximately. After fitting the band, cut the excess band and position the end on the underside of the frame.
[C] 15 ~ 20 mm (0.59 ~ 0.79 in).
[D] Route the neutral switch lead, side stand switch lead, pickup coil lead and A.C. generator lead between the insulating plate and carburetor to the right side of the vehicle body.
[E] Clamp in such a way that the wires do not get stuck in the damper at the seat bottom.
[F] Secure the starter motor lead, air cleaner duct and rubber seat. The band should be routed through the rubber seat hole, and the end should be inserted at the rear part of the frame.
[G] After mounting the damper on the bracket, clamp the wire harness to the damper.
[H] Insert the starter motor lead between the air cleaner duct and the battery box. Do not position it above the duct.
[I] The harness should be led out to the rear of the vehicle body. (Facing sideways)
[J] Clamp the hydraulic unit (H.U.) lead. The coupler should be fitted on the inside of the frame bracket.
[K] The clamp securing the rubber seat is to be fitted on the mudguard of the rear frame, routed from the top of the bracket and the end is to be inserted on the inside of the frame.
[L] The motor lead of the hydraulic unit (H.U.) should be routed though the rubber seat hole.
[M] The front end of the band should be inserted in the engine bracket.
[N] The starter motor lead and the front wheel sensor lead should be routed above the air cleaner duct, and should not protrude outside the frame.
[O] The side stand switch lead should not sag. (To prevent contact with the joint silencer)
[P] Route the pressure sensor hose to the left of the high-tension cord 1 (for California, through the center between the canister and the high-tension cord 1), and over the cross-pipe. Pass it behind the oil cooler attachment pin and to the right side of the vehicle.



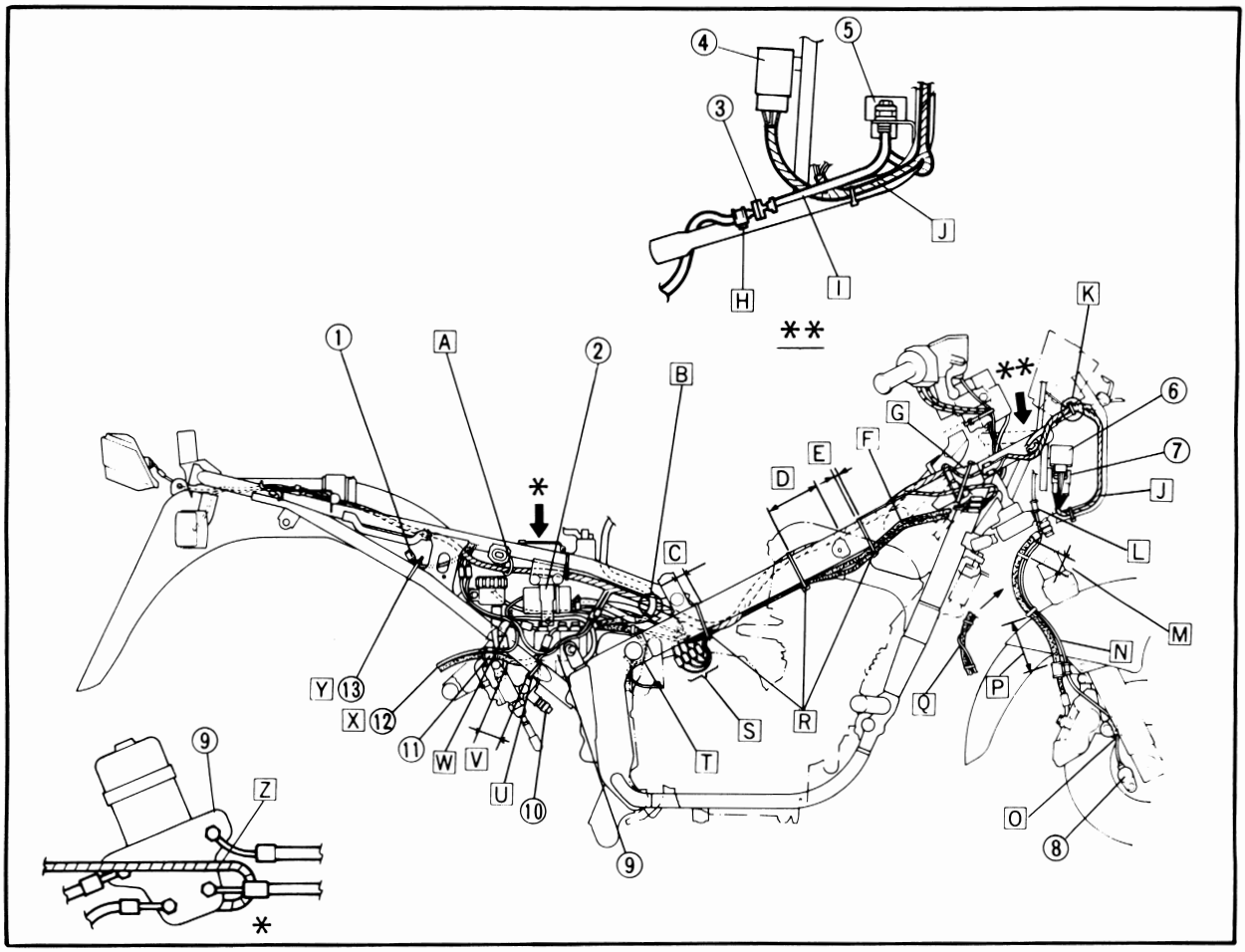
[Q] The speedometer cable should be routed through both holders.
[R] The brake hose should be routed on the outside of the meter cable.
[S] Should be routed through the inner side of the fork.
[T] Wireharness should be routed on the outside of the cowl stay and clamped.Whether the front end of the band is cut or not cut, it should be directed outside the cowl.
[U] The earth lead should be secured along with the igniter unit.
(The earth lead should be sandwiched between the ignitor unit and screw.)



① ABS test coupler
② Fuel pump
③ Nozzle
④ Fuel pump control relay
⑤ Pressure sensor
⑥ Safety relay
⑦ Flasher relay
⑧ Front wheel sensor
⑨ Hydraulic unit (H.U.)
⑩ Rear brake switch
⑪ Clamp
⑫ Rear wheel sensor lead
⑬ Band
[A] Mount the damper on the bracket, and clamp the main harness using a band.
[B] The fuel hose should be more on the outside than the main harness.
[C] Less than 20 mm (0.79 in).
[D] Less than 100 mm (3.94 in).
[E] Less than 15 mm (0.59 in).
[F] Brake pipes 1 and 2 should not be crossed. Make sure brake pipe 1 (joint nut white plating) is above brake pipe 2 (joint nut black plating).
[G] After connecting the band, the end should be directed towards the outside portion of the frame.
[H] Using the cowl stay clamp, secure it on top of the nozzle or the clamp.
[I] Route the band on the outside of the cowl stay and the harness. Do not clamp it together with the relay card.
[J] The harness should be routed on the outside of the cowl stay and should not enter the inside part of the cowl stay.
[K] Align the harness branch with the bracket for fitting meter.
[L] Clamp the horn stay.
[M] Approximately 50 mm (1.97 in).
[N] The wheel sensor lead should be parallel to the brake hose.
[O] The sensor lead should be routed correctly through the guide, and should not touch the disk.
[P] Approximately 100 mm (3.94 in).
[Q] The wheel sensor lead should not be coiled around the brake hose.
[R] After fitting the band, cut the end and position the end on the underside of the frame.
[S] After connecting the pickup coil lead, A.C. generator lead, neutral switch lead and side stand switch lead, these lead wires should be enclosed on the inside portion of the frame. Make sure you do not damage the carburetor breather pipe when positioning these wires.
[T] The negative lead should be routed in front of the engine suspension bracket, and above the rubber plate, to the battery. The securing on the crankcase side is by fastening the wire and the case by means of the securing bolt.
[U] Cut the end of the band.
[V] Less than 70 mm (2.76 in).
[W] Clamp the rear wheel sensor lead, the hydraulic unit (H.U.) lead, fuel pump lead and the

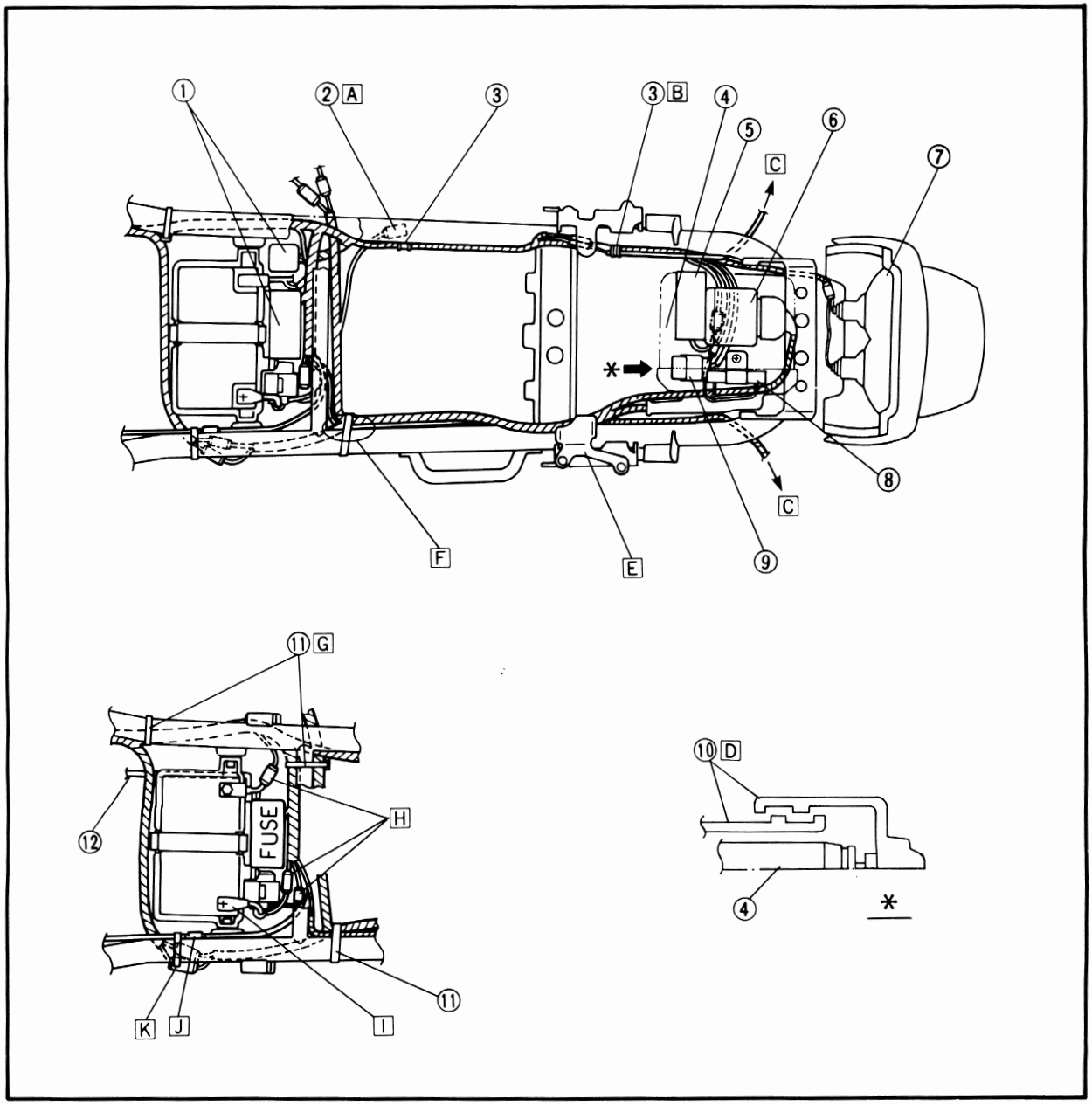


[X] The wheel sensor lead should be parallel to the brake hose.
[Y] The end of the band should be enclosed on the inside of the frame.
[Z] The hydraulic unit (H.U.) lead should be routed between the two brake hoses.



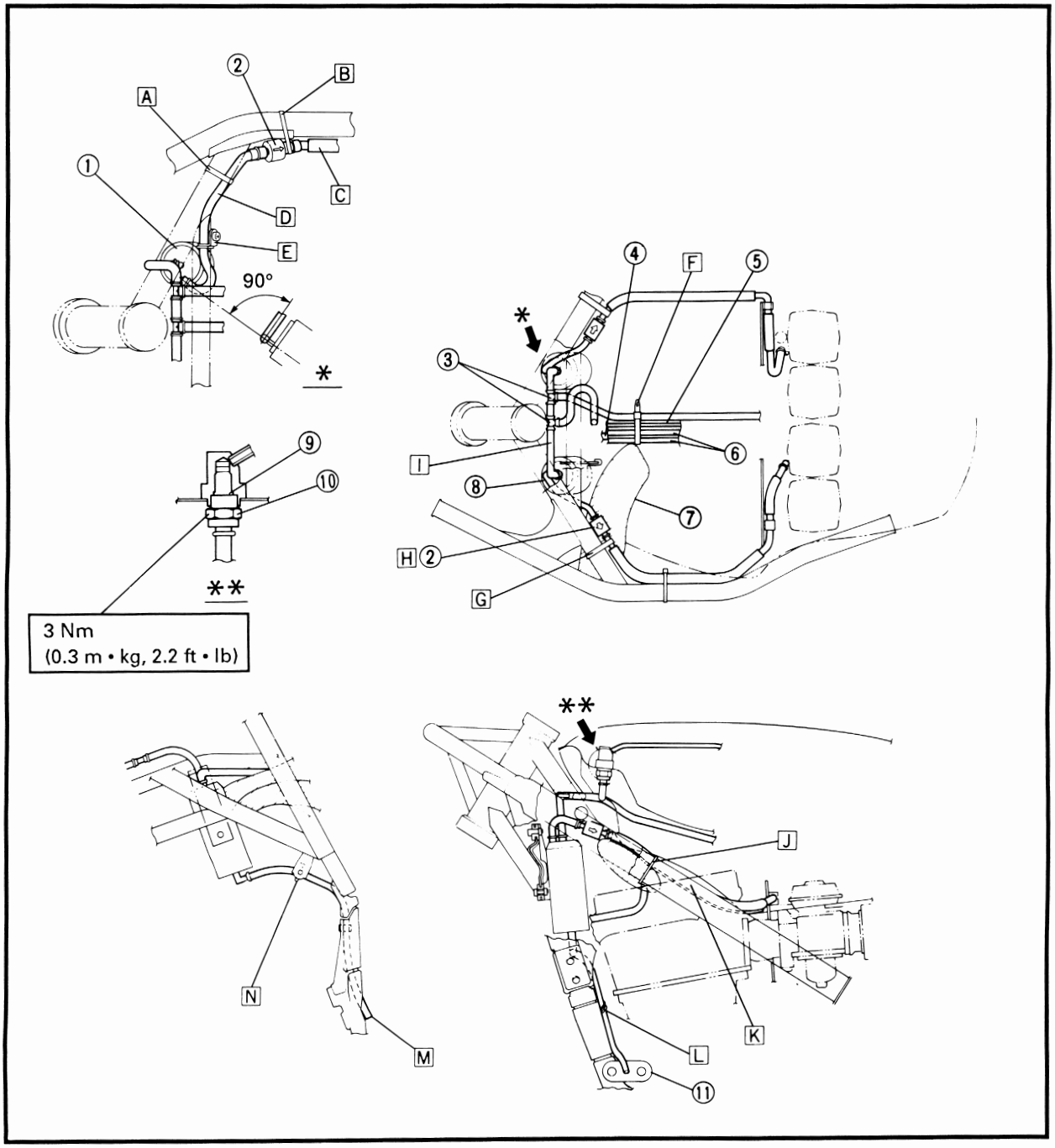
① Fuse
② ABS test coupler
③ Clamp
④ ABS Electronic control unit (ECU)
⑤ Condenser
⑥ Fail-safe relay
⑦ Tail light unit
⑧ Resister
⑨ Relay assembly (brake switch)
⑩ ECU cover
⑪ Band
⑫ Battery negative lead

[A] After checking its condition, fit the protection cap to the ABS test coupler and locate it on the inside porsion of the frame.
[B] Insert the rear flasher lead in the clamp, and make sure it is firmly secured.
[C] To the flasher light.
[D] Make sure the ECU cover seats properly into the grooves of case cover.
[E] The seat spring should hold down the wireharness.
[F] The harness should not protrude above the seat rail.
[G] After securing the band, cut the front end. If it is not cut, the front end should be inserted beneath the frame.
[H] The negative lead, positive lead and starter relay coupler should not protrude above the frame.
[I] Install so that the positive lead comes out in the rear.
[J] The fuel sender lead coupler should be inserted on the inside part of the seat rail and should not protrude above the frame.
[K] Clamp the fuel sender lead, taking care not to trap it by seat bottom damper.



EMISSION HOSE ROUTING (FOR CALIFORNIA-ONLY)

① Canister assembly (right)
② Outer vent valve
③ Joint pipe
④ Pressure sensor hose
⑤ Choke cable
⑥ Throttle cable
⑦ Air duct
⑧ Canister assembly (left)
⑨ O-ring
⑩ Roll over valve
⑪ Engine suspension bracket
[A] Make sure the hose is not collapsed at any point.
[B] Clamp the hose and main harness with the hand. Make sure the hose is not collapsed at any point.
[C] Pass the hose under the main harness.
[D] Pass the hose over the airduct.
[E] Route the hose through the brake hose holder.
[F] Clamp the canister hose, throttle cable, choke cable and pressure sensor hose with the band.
[G] Make sure the hose is not collapsed at any point.
[H] The arrow mark on the outer vent valve should face the carburetor side.
[I] Pass the hose over the ignition coil.
[J] Cut the end of the band.
[K] Pass the hose inside the tank rail.
[L] Secure it with the clamp of the down tube.
[M] Route the hose between the under cowling and the engine suspension bracket.
[N] Pass the hose through the holder of the oil cooler bracket.



PERIODIC INSPECTION AND ADJUSTMENT

INTRODUCTION

This chapter includes all information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable vehicle operation and a longer service life. The need for costly overhaul work will be greatly reduced. This information applies to vehicles already in service as well as new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

MAINTENANCE INTERVALS CHARTS

Proper periodic maintenance is important. Especially important are the maintenance services related to emissions control. These controls not only function to ensure cleaner air but are also vital to proper engine operation and maximum performance. In the following maintenance tables, the services related to emissions control are grouped separately.

PERIODIC MAINTENANCE EMISSION CONTOROL SYSTEM

No.	Item	Remarks	Initial	Odometer readings				
			1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	**3 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
1*	Valve clearance	Check and adjust valve clearance when engine is cold.					O	
2	Spark plugs	Check condition. Adjust gap and clean. Replace at 13,000 km (or 13 months) and thereafter every 12,000 km (or 12 months).		O	Replace	O	Replace	O
3*	Crankcase ventilation system	Check ventilation hose for cracks or damage. Replace if necessary.		O	O	O	O	O
4*	Fuel line	Check fuel hose and vacuum pipe for cracks or damage. Replace if necessary.		O	O	O	O	O
5*	Fuel filter	Replace initial 31,000 km (19,600 mi) and thereafter every 30,000 km (19,000 mi).						Replace
6*	Exhaust system	Check for leakage. Retighten if necessary. Replace gasket (s) if necessary.		O	O	O	O	O
7*	Carburetor Synchronization	Adjust synchronization of carburetors.	O	O	O	O	O	O
8*	Idle speed	Check and adjust engine idle speed. Adjust cable free play.		O	O	O	O	O
9*	Evaporative emission control system**	Check control system for damage. Rplace if necessary.				O		O

* It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

** For California type only

NOTE:

For farther odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi), **2: Every 12,000 km (7600 mi), **3: Every 24,000 km (15,200 mi) intervals.

GENERAL MAINTENANCE/LUBRICATION

No.	Item	Remarks	Type	Initial	Odometer readings				
				1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	**3 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
1	Engine oil	Warm-up engine before draining.	*1) Yamalube 4 (20W40) or SAE 20W40 type "SE" motore oil *2) Yamalube 4 (10W30) or SAE 10W30 type "SE" motor oil	○	○	○	○	○	○
2	Oil filter	Replace	–	○		○		○	
3*	Air filter	Clean with compressed air. Replace if necessary.	–		○	○	○	○	○
4*	Brake system	Adjust free play. Replace pads if necessary.	–	○	○	○	○	○	○
5	Drive chain	Check chain condition. Adjust and lubricate chain thoroughly.	SAE30W-50 motor oil	Every 500 km (300 mi)					
6*	Control and meter cable	Apply chain lube thoroughtly.	Yamaha chain and cable lube or SAE 10W30 motor oil.	○	○	○	○	○	○
7	Rear arm pivot shaft and suspension link pivots.	Apply grease lightly.	Lithium soap base grease.					○	
8	Brake/ Clutch lever pivot shaft	Aplly chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
9	Brake pedal and shift pedal shaft	Lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
10*	Center/Side stand pivots	Check operation and lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
11*	Front fork oil	Check operation and leakage.	–		○	○	○	○	○
12*	Steering bearings	Check bearings assembly for looseness. Moderately repack every 24,000 km (15,200 mi)	Medium weight wheel bearing grease.		○	○	○	Repack	○

No.	Item	Remarks	Type	Initial	Odometer readings				
				1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	**3 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
13*	Wheel bearings	Check bearings for smooth rotation.	–		O	O	O	O	O
14*	A.C. Generator	Replace generator brushes every 100,000 km (62,000 mi)	–	Every 100,000 km (62,000 mi)					
15*	Sidestand switch	Check and clean or replace if necessary.	–	O	O	O	O	O	O

*1) If ambient temperature dose not go below 5°C.
*2) If ambient temperature dose not go above 15°C.
* It is recommended that these items be service by a Yamaha dealer or other qualified mechanic.

NOTE:

For farther odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi), **2: Every 12,000 km (7600 mi), **3: Every 24,000 km (15,200 mi) intervals.

CHASSIS

ANTI-LOCK BRAKE SYSTEM (ABS)

The Yamaha ABS (Anti-lock Brake System) features an electronic control system employing a dual control device for the front and rear independently.
The ABS can be operated in the same manner as the ordinary brake, using the brake lever and brake pedal.

NOTE:

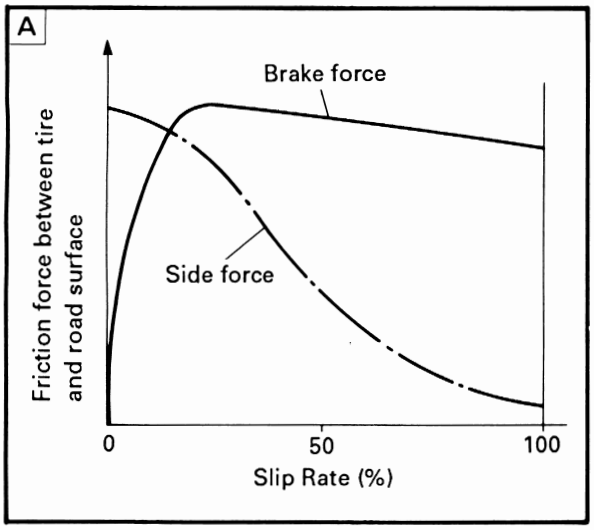
Prior to entering the explanations on ABS, please refer to the explanations on technical terms.

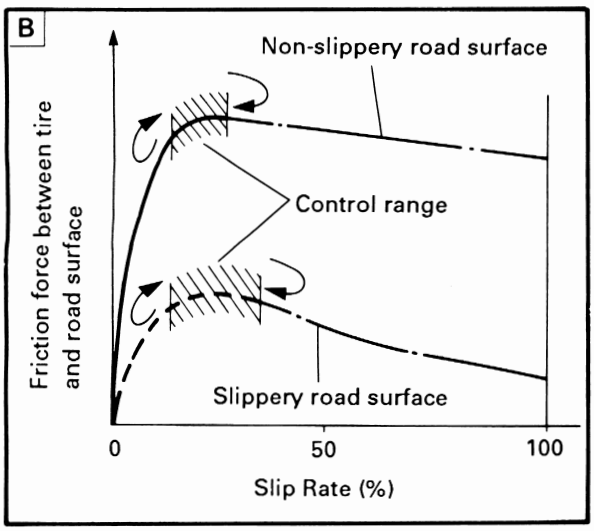
- Wheel Speed
  When the brake is applied, the wheel speed (rpm) reduces. This rotational speed of the wheel is called wheel speed.
- Motorcycle Speed
  The wheel speed is restricted when the brake is applied therefore the motorcycle speed reduces. But even though the wheel rotation is restricted, the motorcycle tries to advance due to the inertial force. This speed of advance is called the motorcycle speed.
- Braking Force
  Force which reduces the speed of the motorcycle
- Wheel Lock
  On slippery road surfaces, in spite of applying a strong braking force, even though the vehicle is running the wheel rotation may stop altogether. This condition is called wheel lock.
- Side Force
  Force which tires to turn the motorcycle towards the side.

- Slip Rate
  The lag which occurs between the wheel speed and motorcycle speed when the brake is applied is called the slip. The value indicating the percentage slip is called the slip rate and is expressed as given below.

$$\text{Slip Rate} = \frac{\text{Motorcycle speed - Wheel speed}}{\text{Motorcycle speed}} \times 100\ (\%)$$

- Slip Rate
  0 % .....No slipping between the wheel and road surface with perfect rotation of wheel
  100% .....Wheel rotating speed is 0. In other words, the wheel is locked.





BRAKING FORCE AND MOTORCYCLE STABILITY

When the braking pressure increases, a corresponding brake is applied on the wheel, slip between the tire and road surface occurs, and results in a braking force. The limit of this braking force is determined by the friction force between the tire and road surface and it has a strong interrelation with the slip condition.

The slip condition is indicated by the slip rate.

The directional stability of the motorcycle is determined by the side force; where as, the side force also has a strong interrelation with the slip condition.

Fig. [A] indicates these interrelations. If the motorcycle is braked while maintaining an appropriate slip rate, the maximum braking force can be obtained without losing the side force.

ABS is a system which utilizes these tire characteristics effectively, on slippery as well as non-slippery road surfaces. (Fig. [B])

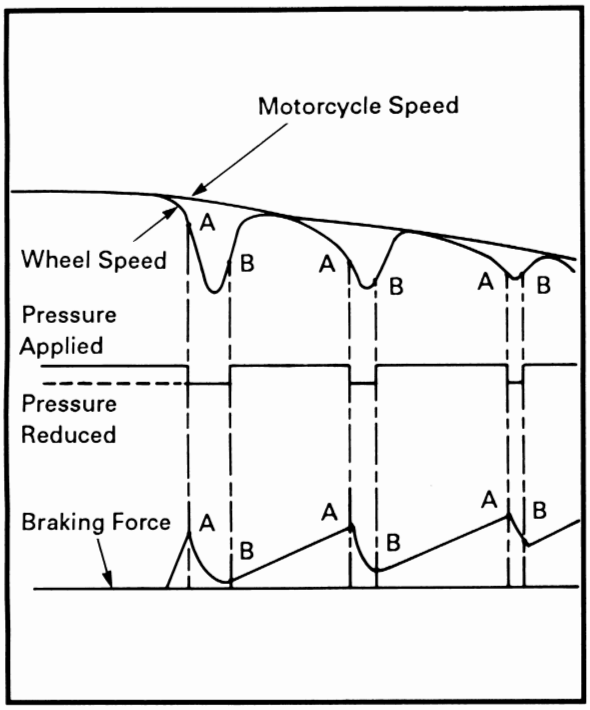
WHEEL SLIP AND HYDRAULIC PRESSURE CONTROL

The ABS computer calculates the different wheel speeds based on the rotation signals received from the front and rear wheel sensors. The computer calculates the motorcycle running speed, and reduction in speed of wheel based on the value of wheel speed. The difference between the calculated running speed and wheel speed of each wheel corresponds to the slip of the wheel.

When the wheel tends to lock, the wheel decelerates suddenly indicating sudden motion.

When the magnitude of slip and the wheel deceleration values exceed the decided quantity, the ABS computer judges that the wheel has a tendency to lock and controls the brake as indicated below.

If the slip is large, and the wheel tends to lock (Point A in figure), it reduces pressure. When the locking tendency (Point B in figure) is eliminated, it increases the pressure.

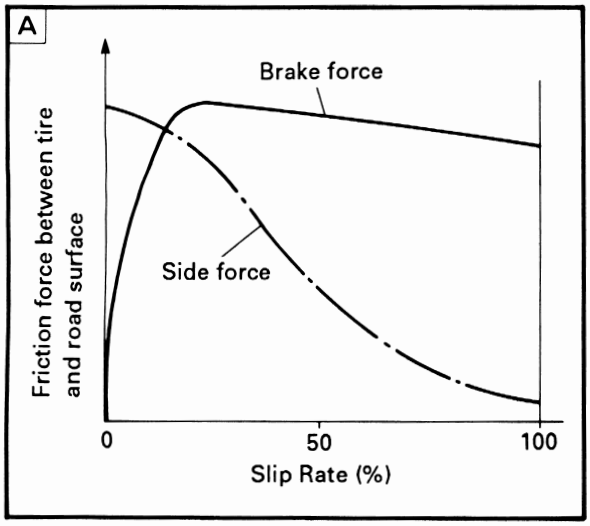


ABS OPERATION AND MOTORCYCLE CONTROL

If the ABS starts operating, it means that there is a tendency of the wheel to lock, and indicates that the motorcycle is approaching the limit of control. To make the rider aware of this condition, the ABS has been designed to generate a reaction force ("pulsing sensation") in the brake lever and brake pedal.

NOTE :

The reaction force ("pulsing sensation") generated in the brake lever and brake pedal when the ABS operates, is not an abnormal condition. It is merely a warning given to the rider.



In motorcycles equipped with ABS, as well as those equipped with conventional brake systems, side force is reduced when braking. Therefore, sudden braking while cornering is not recommended.
Furthermore, prevention of slip in the transverse direction is also not a function of ABS.

⚠WARNING

The braking of the motorcycle, even in the worst case, is principally executed when the motorcycle is advancing straight ahead. Sudden braking during cornering is liable to cause a loss of traction of the tires. Even in motorcycles fitted with ABS, over turning of the motorcycle cannot be prevented if it is braked suddenly while cornering.

ABS functions to prevent the tendency of locking of the wheels by controlling the brake hydraulic pressure.
But, if in case there is a tendency of the wheel to lock on a slippery road surface due to engine braking, even if the ABS operates, it may not be able to prevent the locking tendency.

⚠WARNING

ABS controls only wheel-locking tendency caused by using the brakes. The ABS cannot prevent wheel locking on sippery surfaces, such as ice, when it is caused by engine braking, even if the ABS is working.

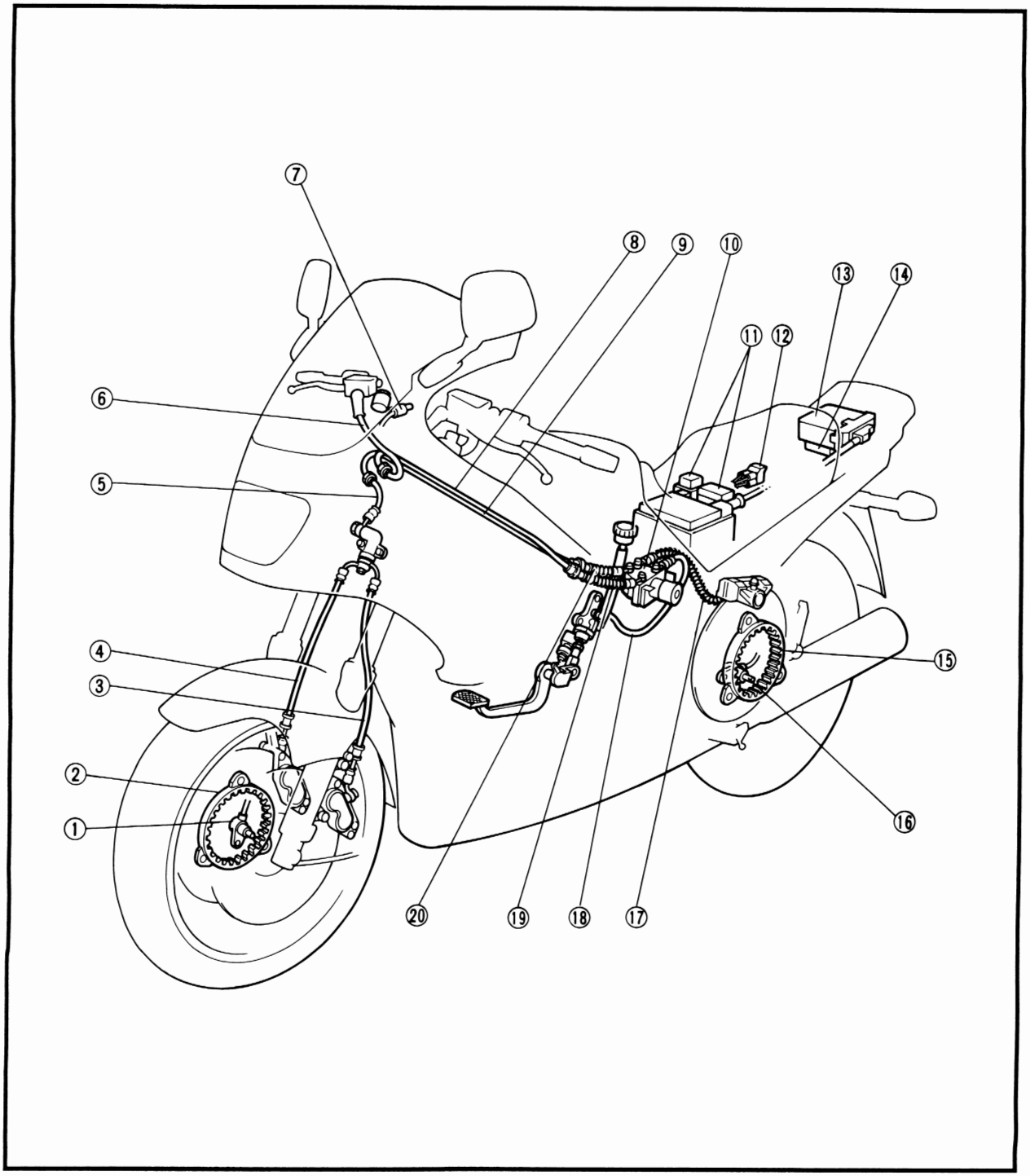
ELECTRONIC ABS

High level self diagnostic functions have been provided in this system. ABS has been designed so that if by chance there is a breakdown or fault, it detects the fault, and reverts to the normal braking system.

In such cases, the "ABS" warning light on the meter panel lights up and warns the rider. The Yamaha ABS has been designed so that the faults are saved in memory as a record so that the fault code numbers can be referred to at the service shop by using the "ABS" warning light or circuit tester during troubleshooting.

ABS COMPONENTS

① Front wheel sensor
② Sensor rotor
③ Brake hose 2 (front left)
④ Brake hose 3 (front right)
⑤ Brake hose 5
⑥ Brake hose 1
⑦ "ABS" warning light
⑧ Brake pipe 1
⑨ Brake pipe 2
⑩ Hydraulic unit (HU)
⑪ Fuse
⑫ ABS test coupler
⑬ Electronic control unit (ECU)
⑭ Fail-safe relay
⑮ Sensor rotor
⑯ Rear wheel sensor
⑰ Brake hose 7
⑱ Brake hose 6
⑲ Brake hose 3
⑳ Brake hose 4



ABS consists of a front and rear independent 2-sensor, 2 channel electronic control system, and the following four main components:

① Wheel sensor and sensor rotor
② Electronic Control Unit (ECU)
③ Hydraulic Unit (H.U.)
④ Fail-safe relay

Fig. [A] indicates the arrangement of the main components in the motorcycle. In addition to these, there are other related components such as ABS test coupler on the ABS harness in the right side cover and "ABS" warning light in the meter panel.

CAUTION:

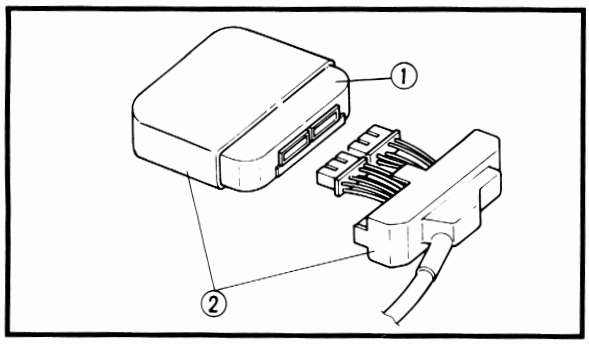
- **The ABS components have been precisely adjusted. Therefore take extreme care and precautions to avoid impact or dirt on these components.**
- **Within the ABS components, ECU, HU, wheel sensor and fail-safe relay cannot be disassembled. Even if you feel that a minor fault has occurred in one of these components, do not try to disassemble the component and repair it. Please replace it with a new part.**

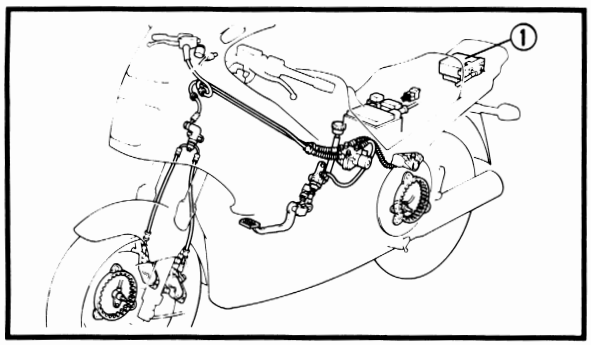
FUNCTIONS OF ABS COMPONENTS

WHEEL SENSOR AND SENSOR ROTOR

The wheel sensor ① transmits wheel rotation signals which the ECU detects speed of wheel rotation from. It consists of components such as permanent magnet and coils. At the front wheel as well as the rear wheel, the wheel sensor is mounted in the sensor housing.

Sensor rotor ② is press fitted inside the wheel hub in the front wheel as well as the rear wheel, and it rotates along with the wheel. 44 teeth have been cut on the inside face of the sensor rotor and these are located in the vicinity of the front end of the wheel sensor. Along with the rotation of the wheel, the distance between the sensor pole and the sensor rotor varies and induction current is generated in the wheel sensor. In this way, the speed of wheel rotation can be detected from the frequency of this alternating voltage.

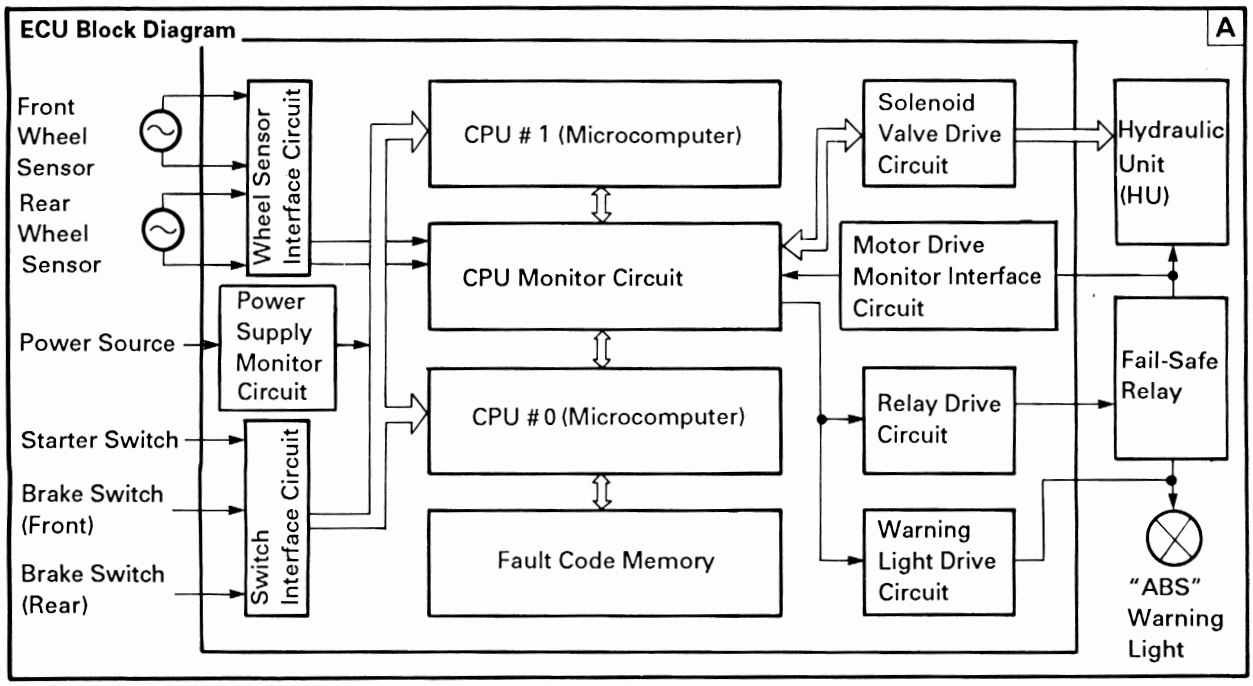




ELECTRONIC CONTROL UNIT (ECU)

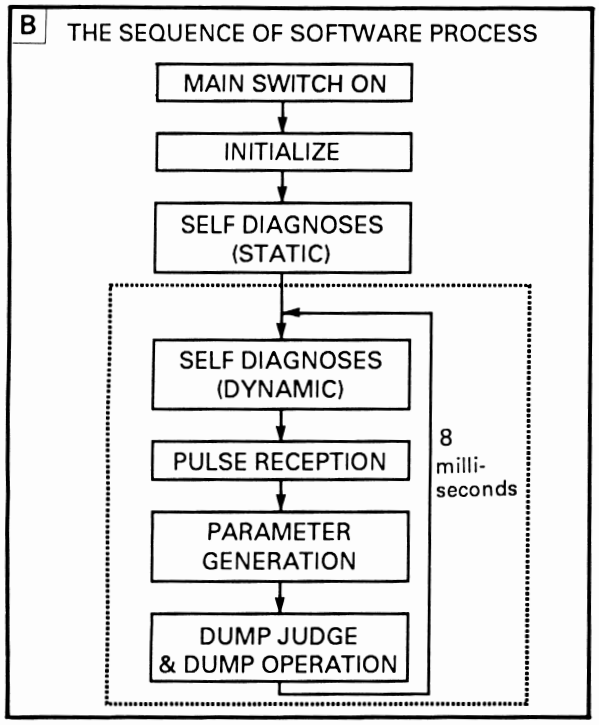
The Electronic Control Unit (ECU) ① controls the ABS and is mounted inside the tail cowl. The ECU ① is covered by a ECU cover ② , for protection against water.

Function of ECU



As indicated in the ECU Block Diagram of Fig. A , the ECU captures signals from the front and rear wheel sensors and also the monitor circuit signals. Two microcomputers are provided in the ECU and each of these operates independently to process the ABS control logic.

The independently processed results of each microcomputer are compared by the CPU monitor circuit. After verifying that the results are the same, the CPU monitor circuit sends control commands to the Hydraulic Unit (H.U.) and the Fail-Safe Relay.



ABS control

The ABS control performed by ECU is basically of the two portions mentioned below :

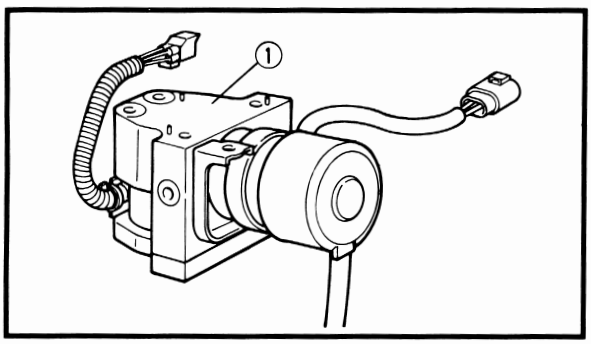
① Hydraulic control
② Self Diagnoses

The control processes, as explained in Fig. B , are made in 8 milliseconds each time, and repeated.

The description of faults are saved in the Fault Code Memory, for fault detection and inspection at a later stage.

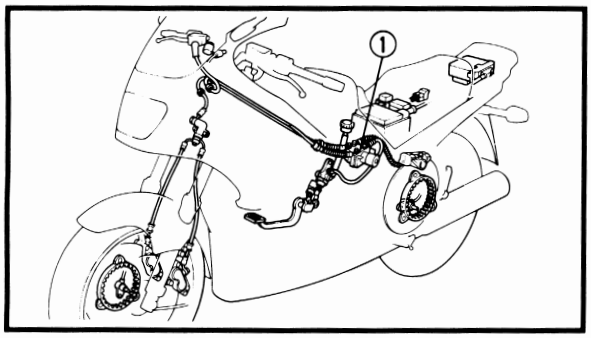
NOTE:

Some kinds of faults are not saved in memory (Example : Drop in power source voltage, etc.)



HYDRAULIC UNIT (HU)

The Hydraulic Unit ① is a component used to modulate the hydraulic pressure of the brake system, based on the instructions of the ECU. It is installed beneath the battery box at the central part of the vehicle.



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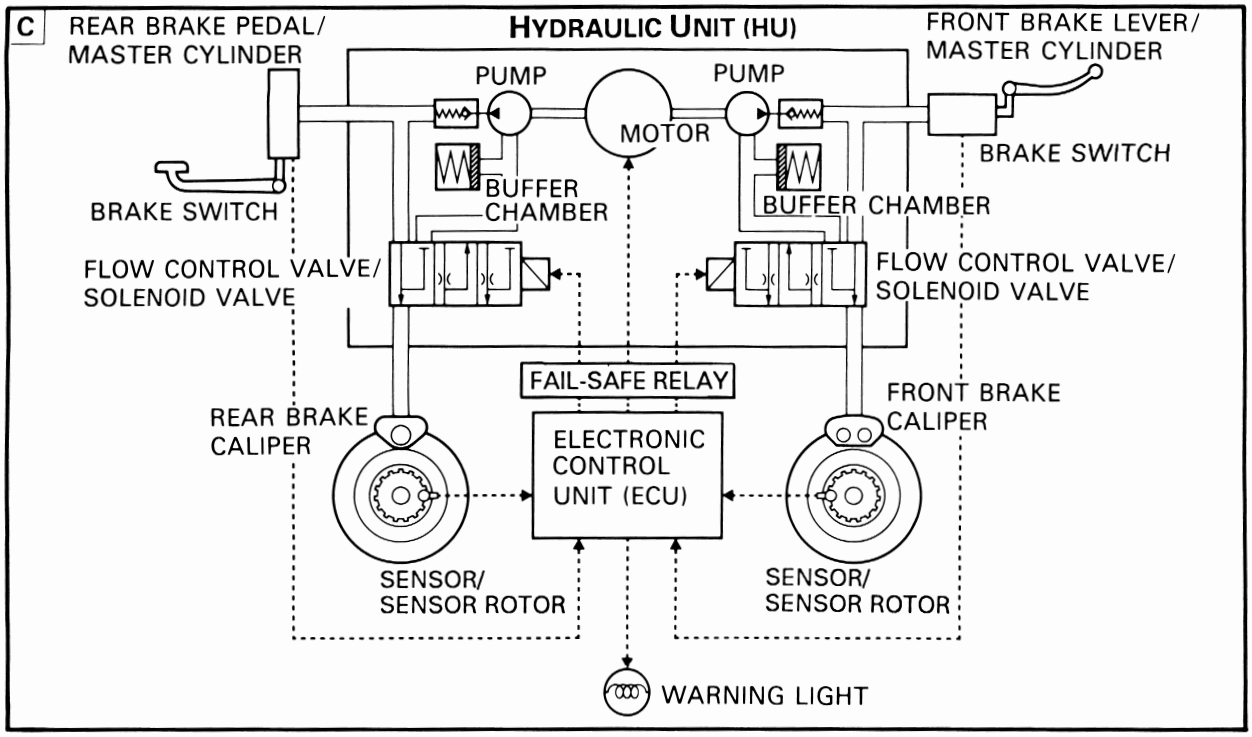
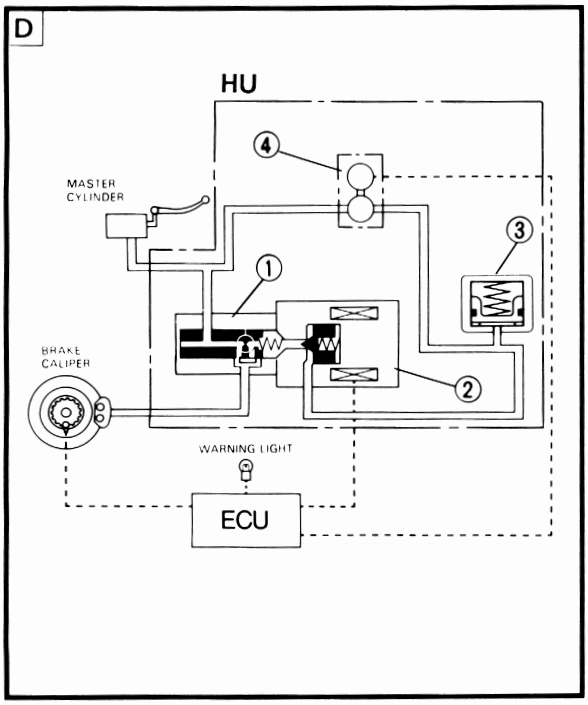


The Hydraulic Unit has the same configuration for the rear wheel as well as the front wheel, and an independent hydraulic circuit is provided for each wheel. The pump motor for both the front and rear systems is common. (Fig. C)

D



Components of HU

The components of the system are as follows :

① Flow control valve
② Solenoid valve
③ Buffer chamber
④ Hydraulic pump
(See Fig. D).

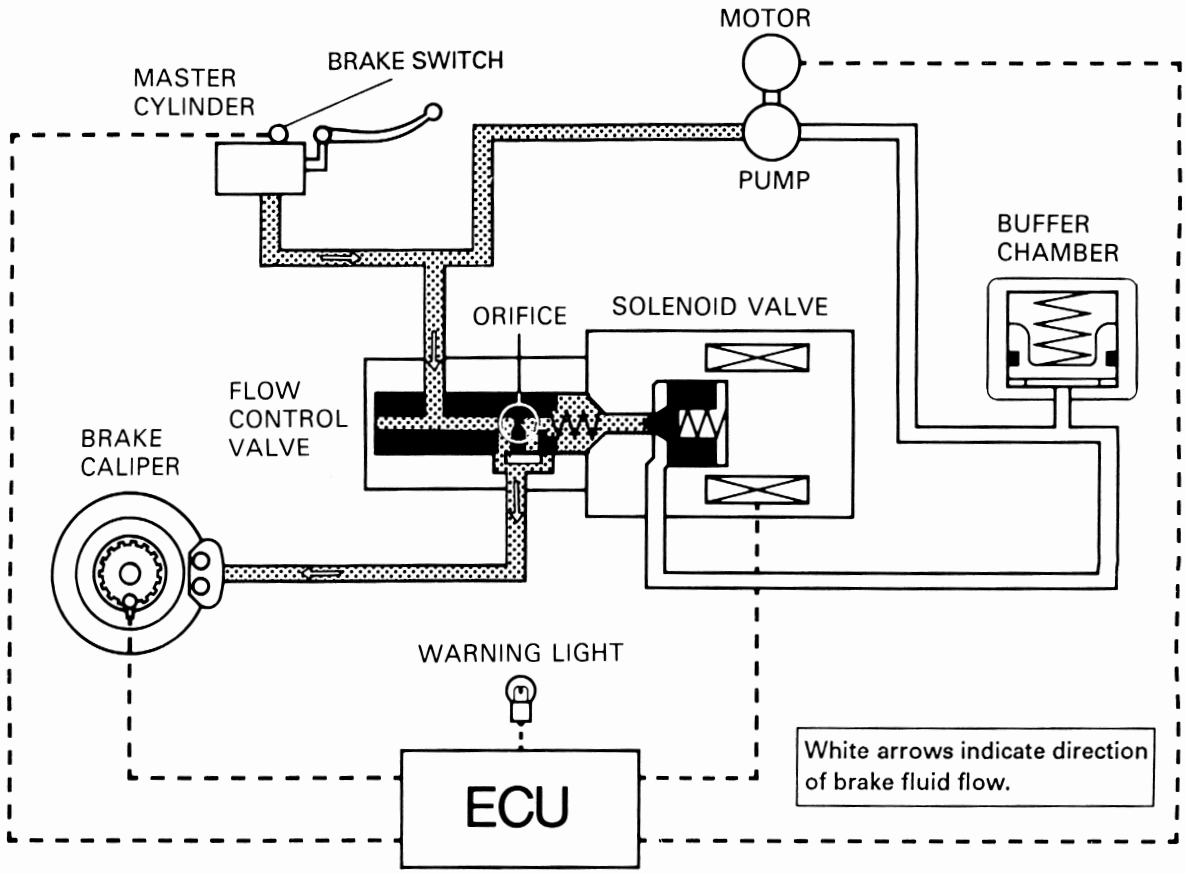
The flow control valve ① is a component which maintains a constant brake fluid flow rate during the ABS operation. It works in combination with the solenoid valve ② in increasing and reducing the brake fluid pressure.

The buffer chamber ③ has the function of temporarily collecting the brake fluid, whose pressure has been reduced during ABS operation.

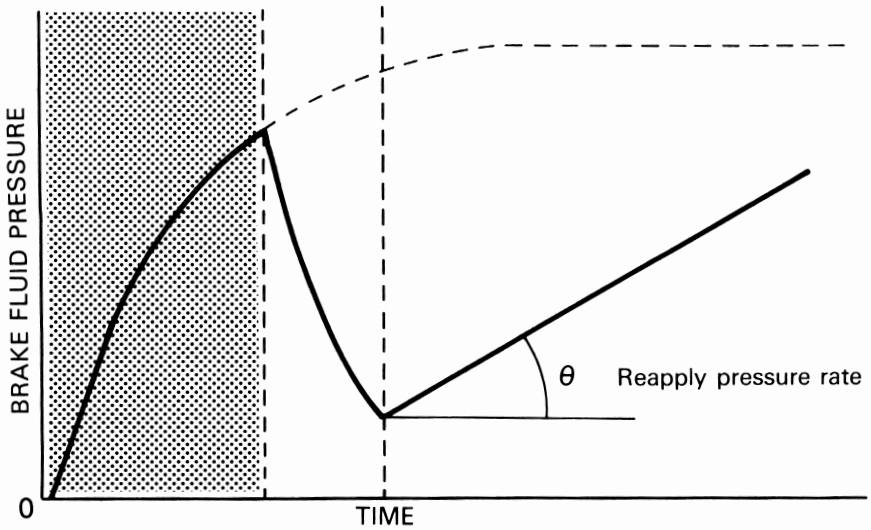
Hydraulic pump ④ is driven by the motor. Its function is to return the brake fluid collected in the buffer chamber ③, to the circuit on the side of the master cylinder.

HU OPERATION

NORMAL BRAKING OPERATION

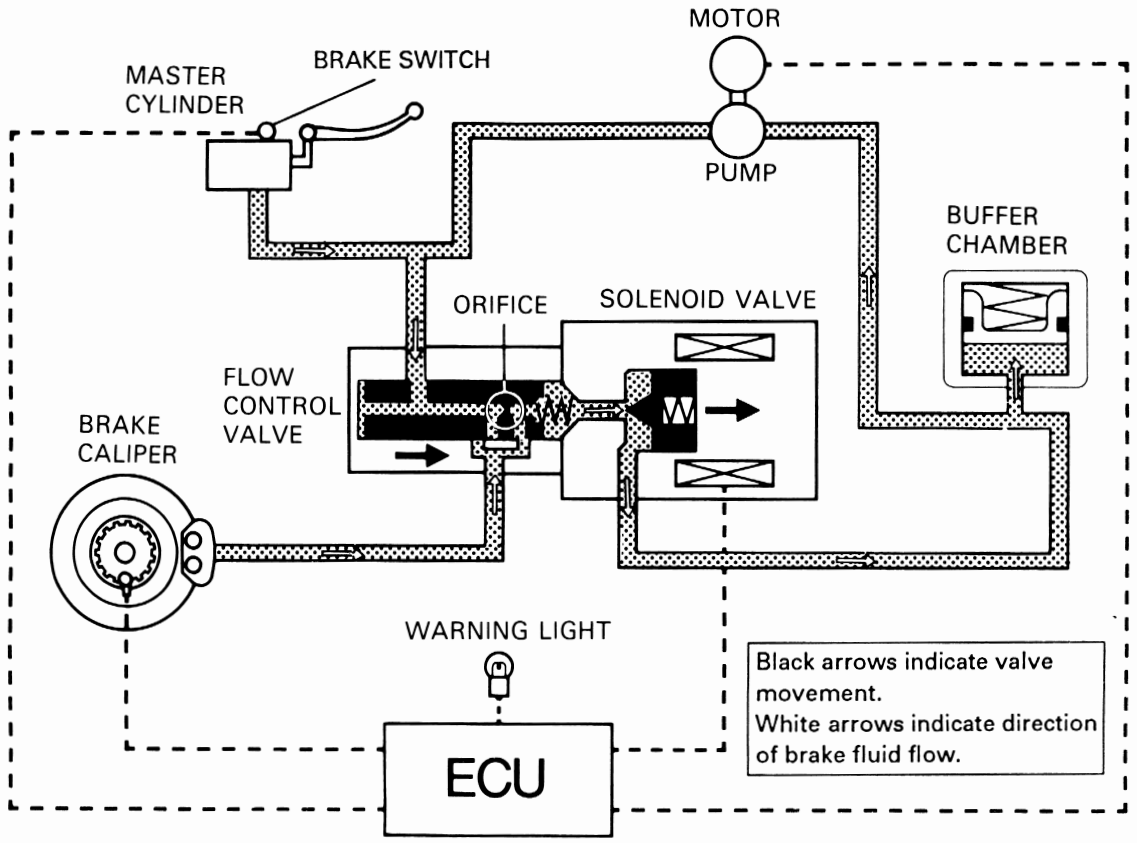


During normal braking operation, the master cylinder pressurizes the brake caliper directly.

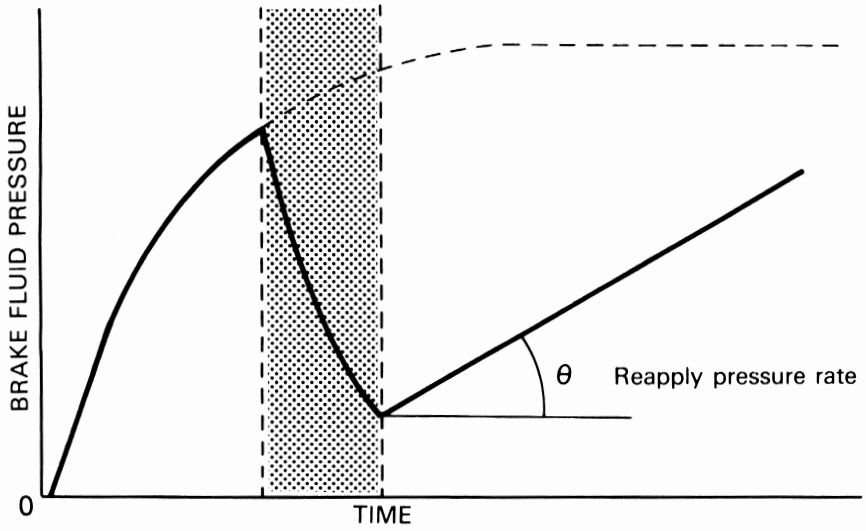


*Front and rear system operation is identical although only one system is shown.

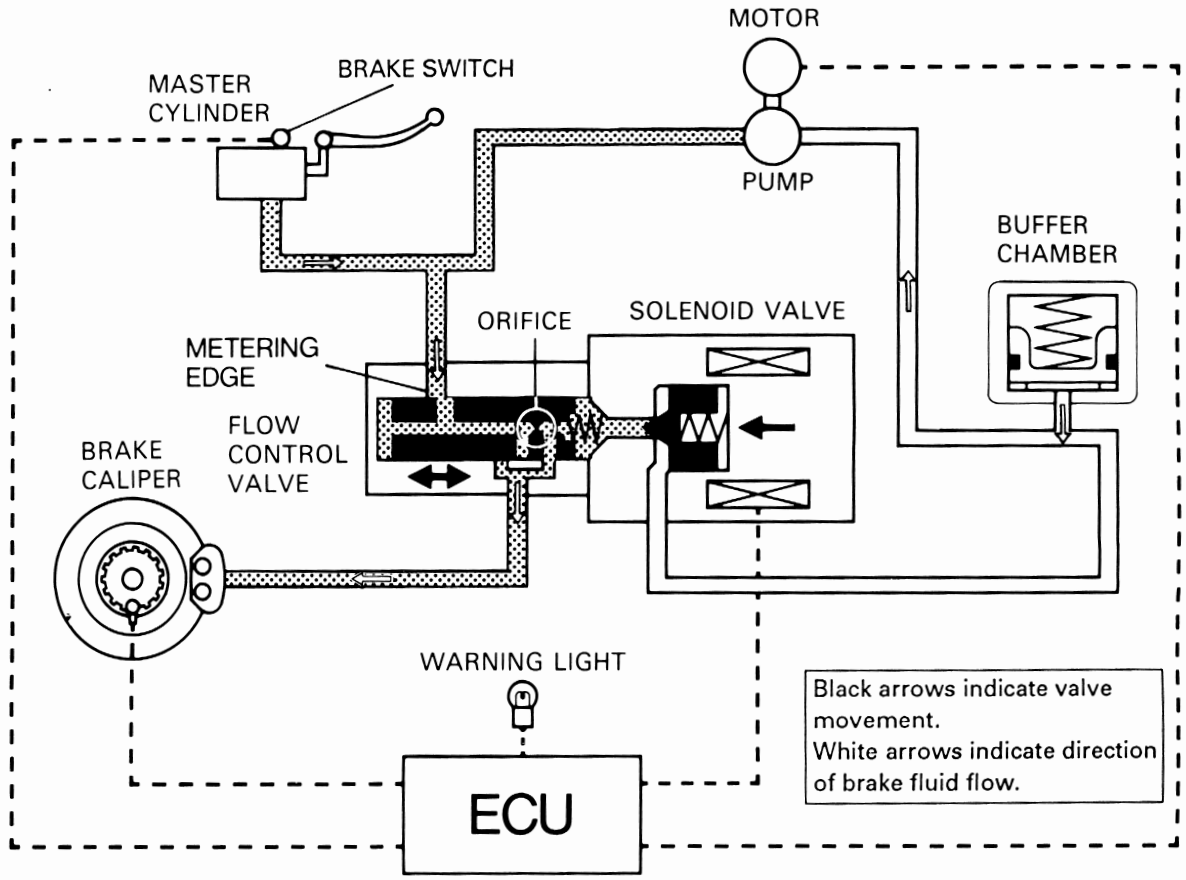
ABS IN OPERATION (PRESSURE IS REDUCED)



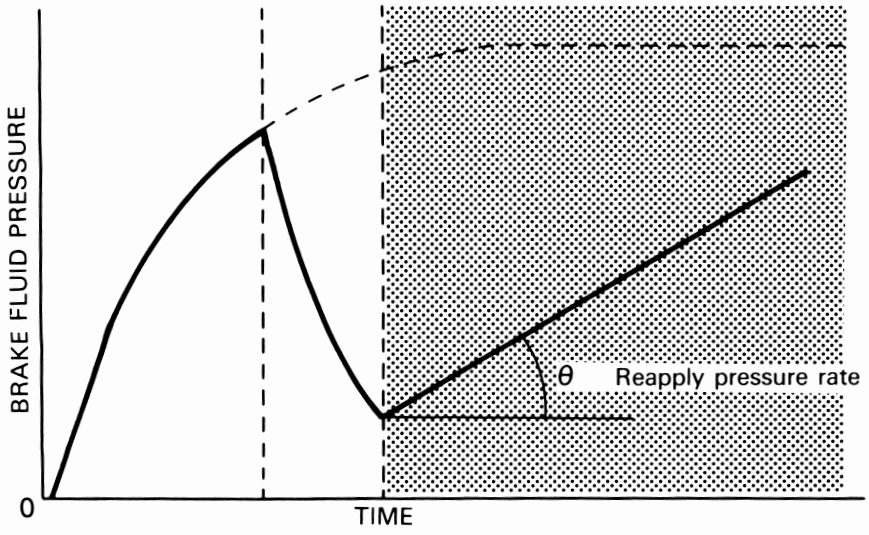
As the ABS is activated, the solenoid valve is opened releasing brake fluid pressure to the buffer chamber. The flow control valve moves due to the pressure difference before and after the orifice. Movement of the flow control valve cuts the passage to the caliper before the orifice. Farther movement opens the passage after the orifice allowing the caliper to depressurize.



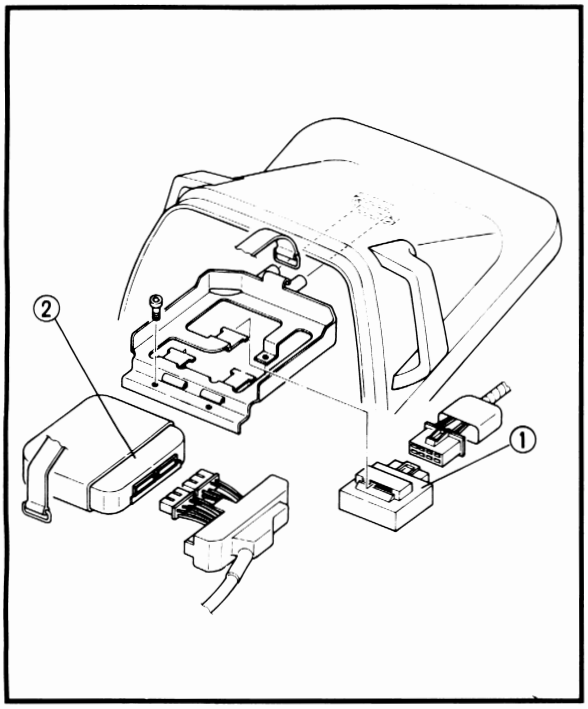
ABS IN OPERATION (PRESSURE IS REAPPLIED)



The solenoid valve closes and the caliper is repressurized. Brake fluid pressure is controlled to a specified amount by the metering edge.

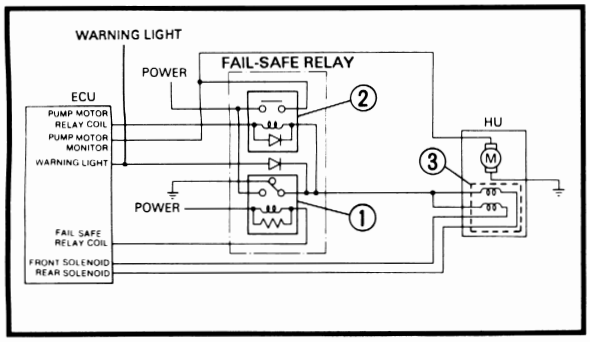


* The flow control valve is restored to the normal brake position due to spring action when brake fluid pressure is not applied.



FAIL-SAFE RELAY

Fail-safe relay ① controls the power supply to the HU and is installed beneath the ECU ② inside the tail cowl.



Components and functions of the fail-safe relay

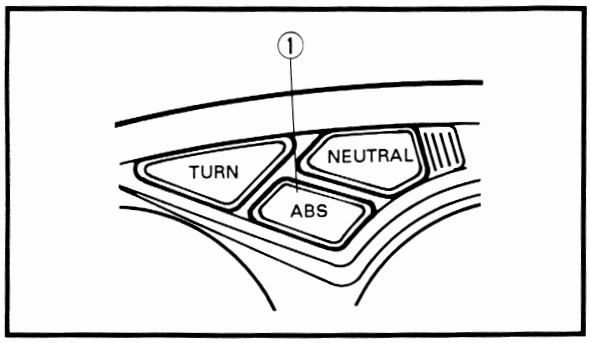
Fail-safe relay consists of a solenoid relay ① and a motor relay ② .

The solenoid relay ① is activated by the ECU command, when the ECU starts activating the ABS system. With this condition, the solenoid valve ③ can operate if the ECU's dump command is given.

At the same time when the ECU's dump command is given, the motor relay is also activated by the ECU. This makes the pump motor start simultaneouly when pressure reduction in ABS starts.

In case of a fault in the ABS system, the ECU cuts off the solenoid relay ① , therefore the solenoid valve ③ cannot operate.

At the same time, this disables the motor relay ② causing the "ABS" warning light to come on. This is called a "System Down". Since reduction of hydraulic pressure is not possible during a System Down, the braking reverts to the conventional system.

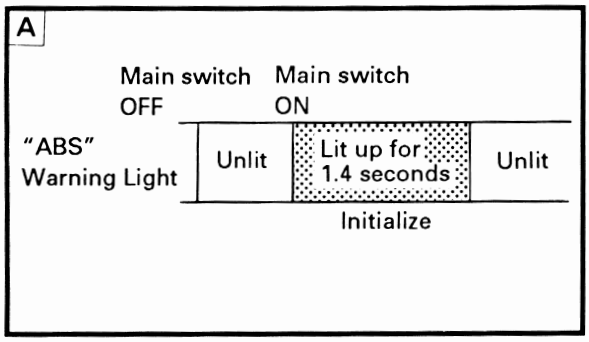


OTHER THAN ABS COMPONENTS

ABS WARNING LIGHT

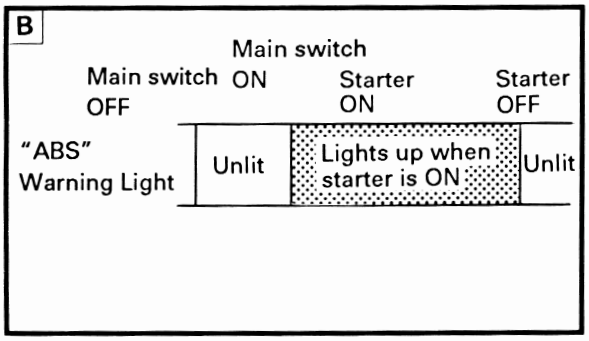
The warning light informs the rider of ABS self diagnosis results and is installed in the meter panel.

① "ABS" Warning Light



Lighting up of "ABS" Warning Light

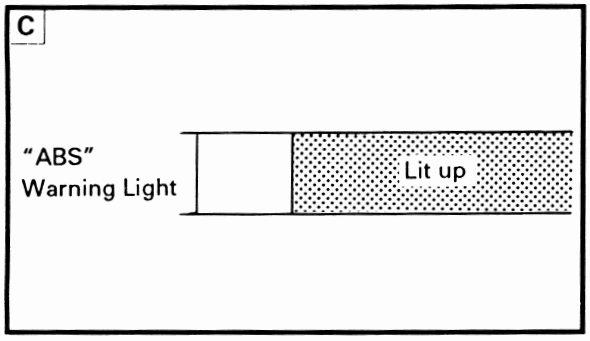
1. Main switch key is switched "ON" (Fig. A).
   When the main switch key is switched "ON", it lights up for about 1.4 seconds. In this interval, the ECU is executing a system check.



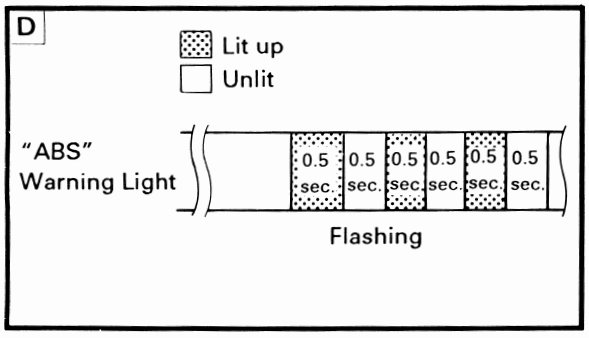
2. Main switch key is switched "ON" and the start button is pressed (Fig. B).
   When the main switch key is switched "ON" and the start button is pressed, the "ABS" warning light continues to be lit up when the start button is pressed. The rider can confirm the operation of the warning light by this.

NOTE :

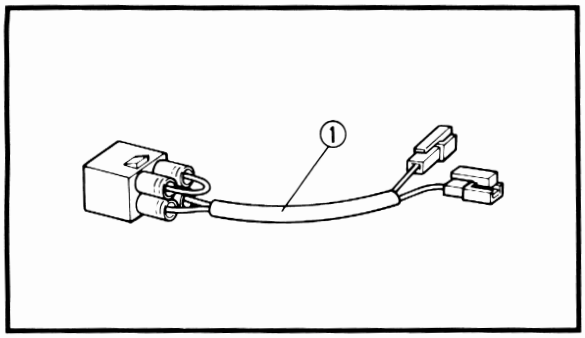
When the start button is pressed, the oil level indicator also lights up steadily.



3. Lights up during normal operation (Fig. C).
   When it lights up during normal operation, a fault is detected in the ABS. In this case, the ABS hydraulic pressure is not controlled, and the motorcycle is reverts to conventional braking.



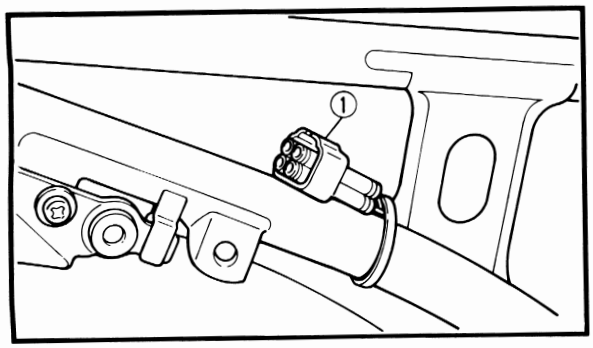
4. Flashes during normal operation (Fig. D).
   When it flashes during normal operation, this is not a fault.
   Refer to section "ABS Troubleshooting".



5. ABS test coupler
When the ABS test coupler adapter ① is inserted into the ABS test coupler, the history of faults recorded in the ECU are displayed by flashes.

ABS Test Coupler Adapter:
P/N. YM-03149
P/N. 90890-03149

NOTE :
The "ABS" warning light lights up when the motorcycle is run without removing the test coupler adapter.



ABS Test Coupler
If you remove the right side cover, you can see the 4-pole coupler ① by the side of the rear frame extending from the ABS harness. This is a test coupler for reading the ABS fault code.
For details of the method of usage of ABS test coupler, refer to section "ABS Troubleshooting".

ABS TROUBLESHOOTING OUTLINE

INTRODUCTION

The following gives a detailed explanation of the troubleshooting procedures of this system. Please read this service manual carefully for a good understanding of the system before correcting any fault.

The electronic control unit (ECU) of this system has a self-diagnosis function. If there is anything faulty found with the system, the warning light in the meter panel warns the operator of any such fault.

These troubleshooting instructions explain in detail how to look into the fault in connection with this warning light and then how to correct it. As for the other troubleshooting, perform it basically in conformity with the normal repairs on a motorcycle.

⚠ WARNING

At the time of maintenance or servicing of ABS related parts, always check the section "[D-6] FINAL INSPECTION BEFORE DELIVERY OF THE SERVICED MOTORCYCLE", before handing over the motorcycle to the customer.

1. Indication of Fault by Means of ABS

The following situations may occur:

- Warning light stays on. → A fault exists. Reverts automatically to ordinary braking.
- Warning light goes on and off when main switch is turned to "ON". → Not faulty
- Warning light comes on when pushing starter switch. → Not faulty
- Warning light flashes.

  Faulty Brake switch → A fault exists
  Rear wheel running idle while front wheel is stopped → Not faulty
  The motorcycle is running on a bumpy road continuously. → Not faulty

2. Troubleshooting Points-Using the self-diagnosed results.

(1) Use the self-diagnosing function to datermine the type of fault.

(2) If a fault is currently being encountered, use a circuit tester (Yamaha pocket tester P/N 90890-03112 or Kent Moore pocket tester P/N YU-03112) to diagnose the cause.

NOTE :
Digital tester cannot be used to read fault codes.

(3) When the ECU is put into the diagnosis mode and is displaying the history of past faults which were recorded, use a circuit tester or the warning light in the meter assembly to diagnose the fault.

Self-Diagnosis by ECU

ECU performs the statistical checking of the entire system when the ignition switch is turned on. Also while the motorcycle is running, the ECU is capable of checking such faults that cannot be detected on the motorcycle unless it is operation. It is because of this that faults sometimes cannot be indicated at a workshop. However, those faults which have once been detected and indicated are all memorized. In this case, the memorized fault codes can be identified by putting the ECU into the diagnosis mode and using a circuit tester or the warning light in the meter.

(4) As there may be more than one kind of fault, take note of all indicated codes.

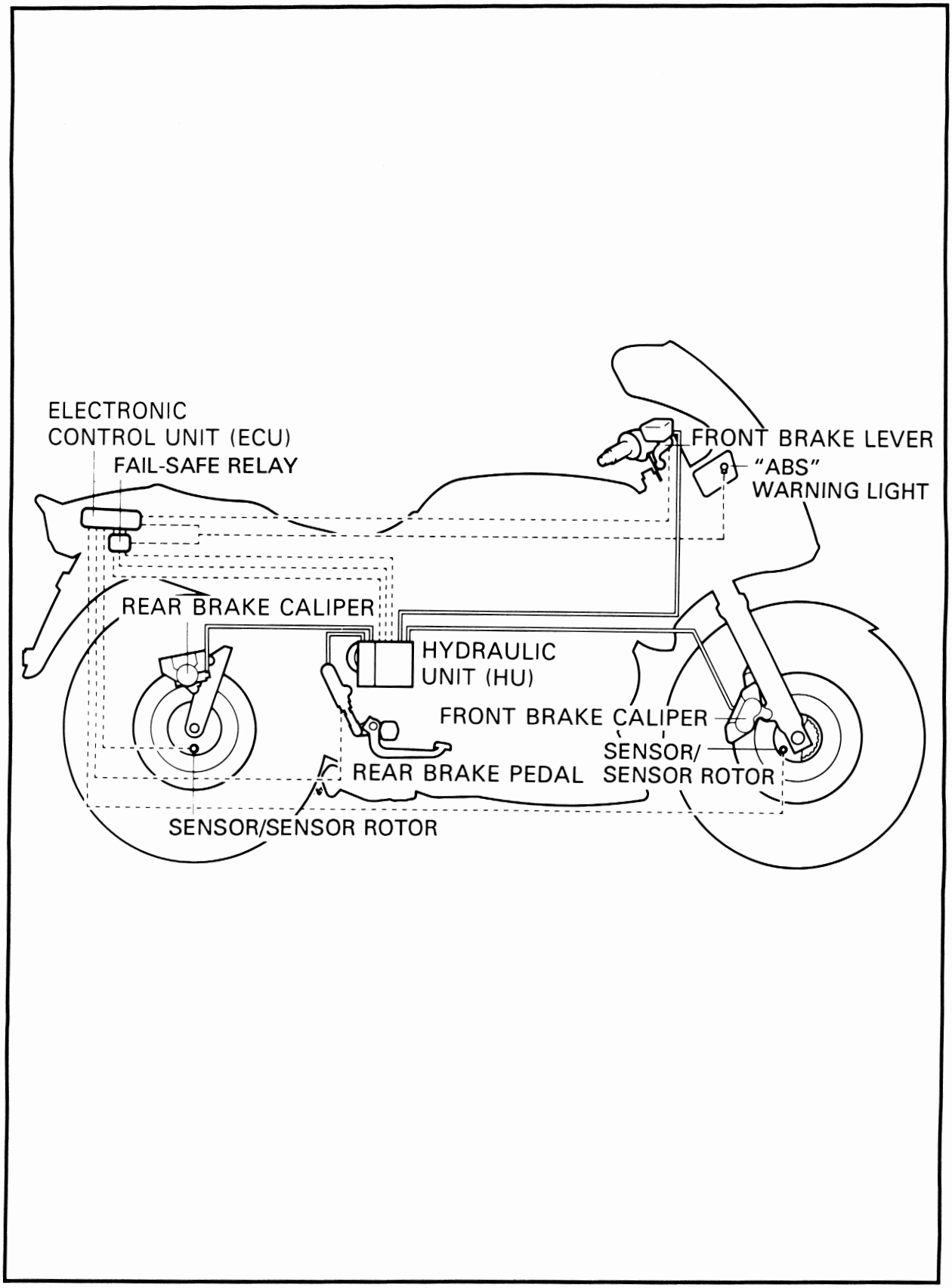
3. Notes for Service-Differences from Ordinary Motorcycle

(1) The component parts of the ABS are precision adjusted and are apt to be damaged by impacts or strains. Use care in handling the ABS.

(2) The ECU, HU, sensor, and relay box of the ABS cannot be disassembled. Even if one of them is found to be faulty, do not try to disassemble and repair it but replace it with a new one.

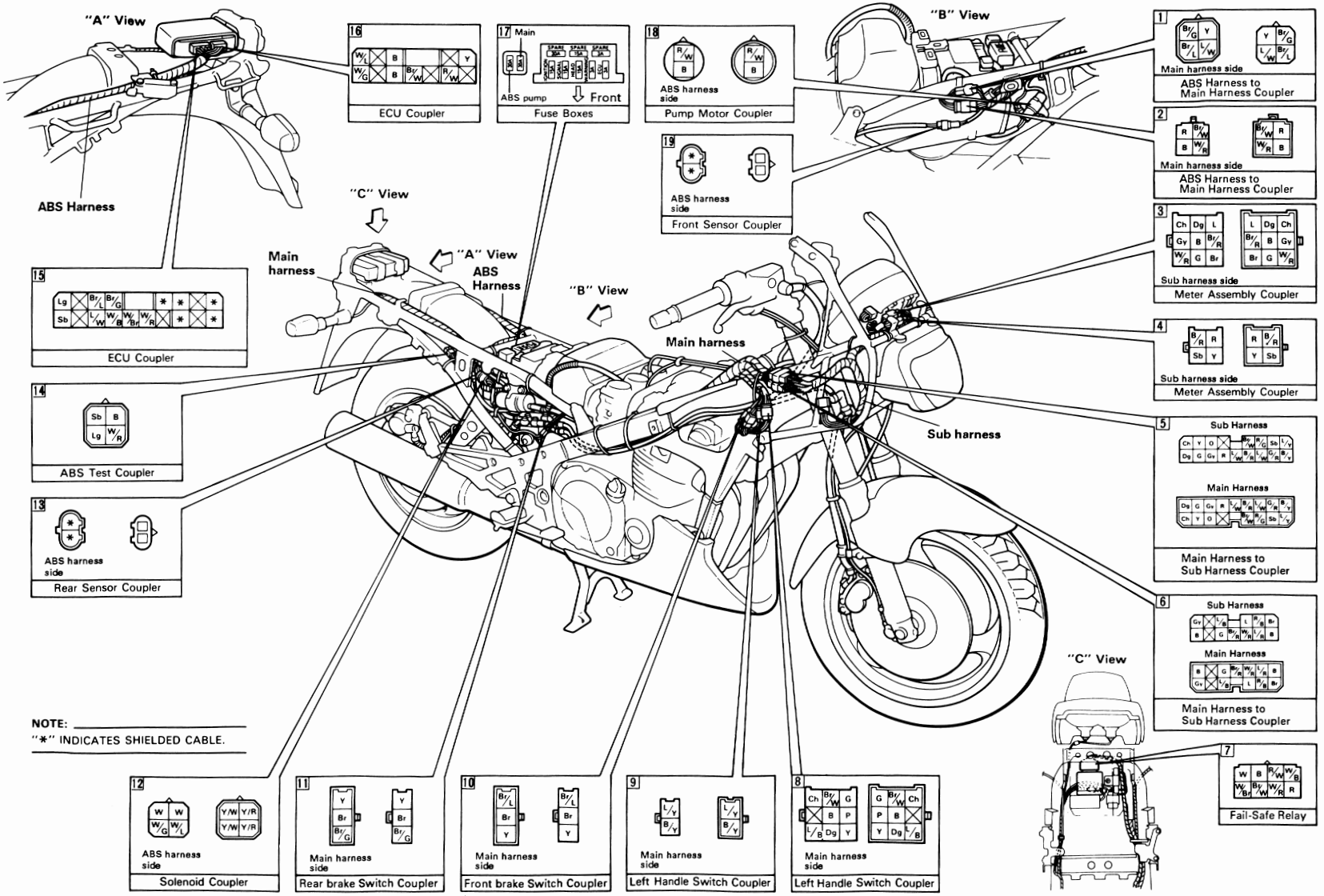
(3) Even after the fault has been corrected, the ABS keeps the history of all past faults.
Be sure to erase all past faults after correct operation has been verified. This will ensure that, should another fault occur sometime in the future, the old codes will not confuse the diagnosis of the problem.
(Refer to D-6-4)

ARRANGEMENT OF ABS PARTS DIAGRAM



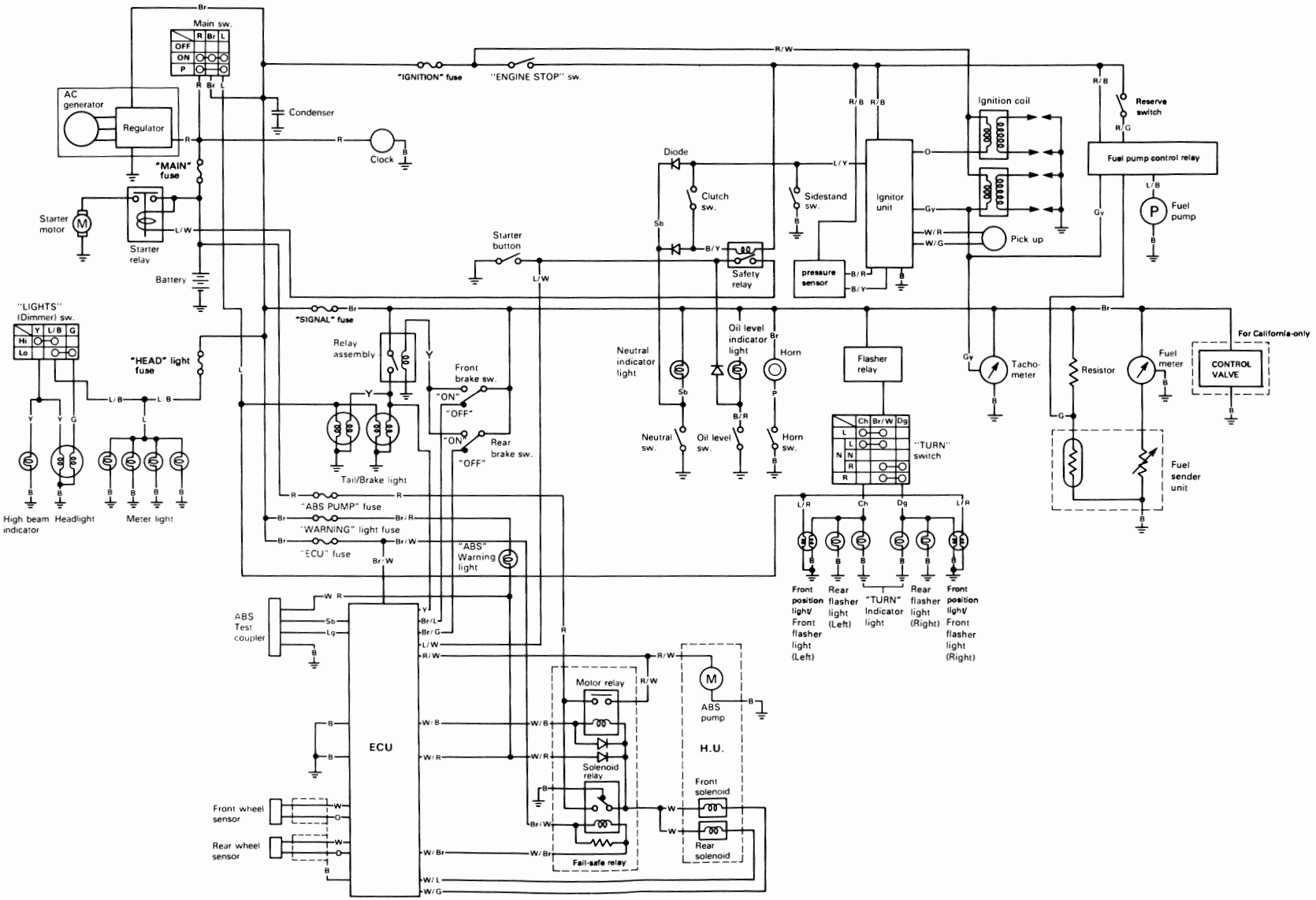
ABS TROUBLESHOOTING OUTLINE CHAS

ABS LAYOUT OF WIRE HARNESS COUPLERS



ABS TROUBLESHOOTING OUTLINE CHAS

CIRCUIT DIAGRAM



BASIC PROCEDURES FOR TROUBLESHOOTING

NOTE:
When troubleshooting, perform the checks [A] to [D] in order for each separate fault.

[A] SERIES: Checking of fault by use of "ABS" warning light

[B] SERIES: Further checking of fault
Self-diagnosed results are checked by the ECU using the warning light or a circuit tester.

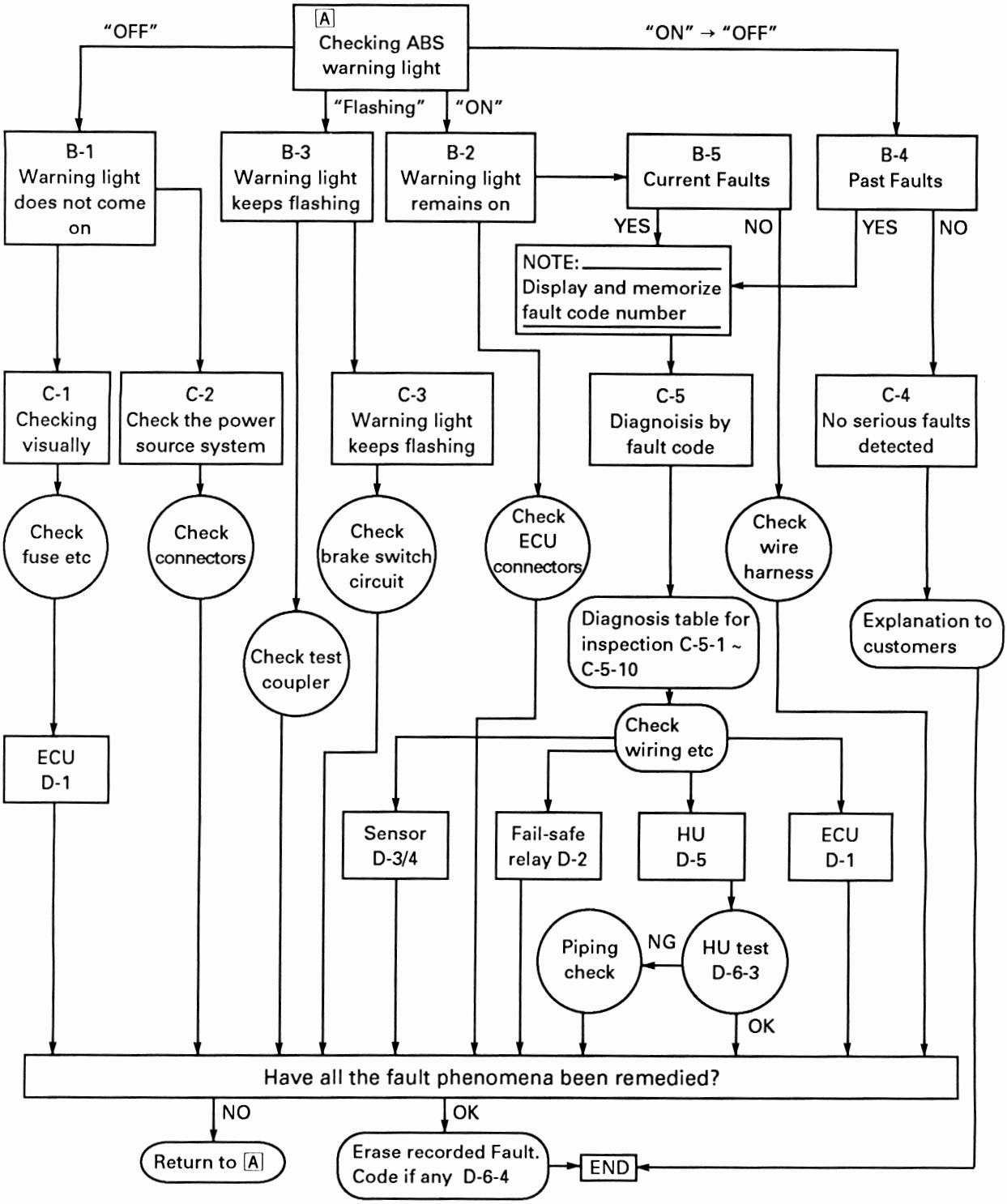
[C] SERIES: Assuming causes and locations
Causes for the fault are looked into with the assumption of the locations involved and the circumstances under which such fault occurred.

[D] SERIES: ABS service
Disassembly, Reassembly and Final Inspection procedure.

⚠ WARNING

Always start the troubleshooting procedure from the beginning or you may make the wrong diagnosis, which could mean continued failure of the ABS system.

BASIC PROCEDURES FOR TROUBLESHOOTING DIAGRAM



NOTE:

Do not erase fault codes until after the correct diagnosis has been made and the problem repaired. Be sure to erase all past faults after correct operation has been verified. This will ensure that, should another fault occur sometime in the future, the old codes will not confuse the diagnosis of the problem.

⚠ WARNING

At the time of maintenance or servicing of ABS related parts, always check the section "[D-6] FINAL INSPECTION BEFORE DELIVERY OF THE SERVICED MOTORCYCLE", before handing over the motorcycle to the customer.

ABS TROUBLESHOOTING

[A] SERIES: CHECKING OF FAULT BY ABS WARNING LIGHT

Turn on the main switch (Engine should not be running).

(1) Warning light does not come on. → B-1

(2) Warning light remains on. → B-2

(3) Warning light keeps flashing → B-3

(4) Warning light remains on for about 1.4 seconds and then goes out. → B-4

[B] SERIES: FURTHER CHECKING OF FAULT

B-1 Warning light does not come on

Are the other indicator lights working all right?

(1) Yes → C-1

(2) No → C-2

B-2 Warning light remains on

Check the ECU inside of the seat cowl. Is the coupler securely connected?

(1) Yes → B-5

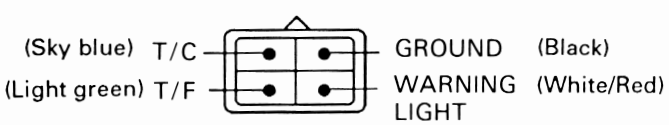
(2) No → Insert the coupler securely until a click is heard.

B-3 Warning light keeps flashing

NOTE:

Make sure the battery is properly charged before proceeding with these steps.
(Refer to the "BATTERY INSPECTION" section in the CHAPTER 3.)

Check the test coupler behind the right-hand side cover. Is the T/C terminal grounded?



(1) Yes → Unground the terminal and replace the protection cap.

NOTE:

When the ABS Test Coupler Adapter is connected, the T/C terminal is grounded.

(2) No → C-3

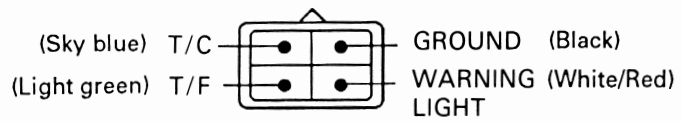
Arrangement and function of test coupler

T/C is a terminal which puts the ECU in a fault diagnosis mode by shorting it to ground.

T/F is a terminal which puts out a fault code (rise and fall of voltage) produced by the ECU which has been put in the fault diagnosis mode.

The Warning Light terminal is a terminal for checking the warning light circuit.

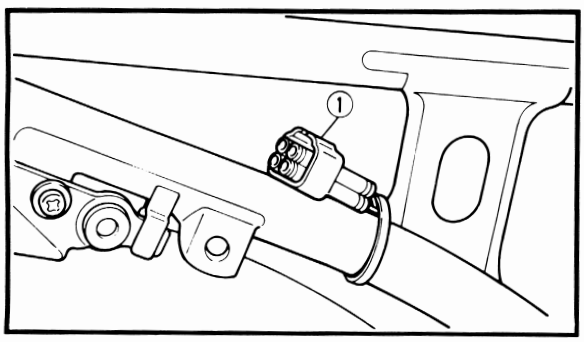
To short the T/C terminal, connect the ABS Test Coupler Adapter (P/N YM-03149, 90890-03149) with the test coupler. Make sure beforehand that the battery is sufficiently charged.

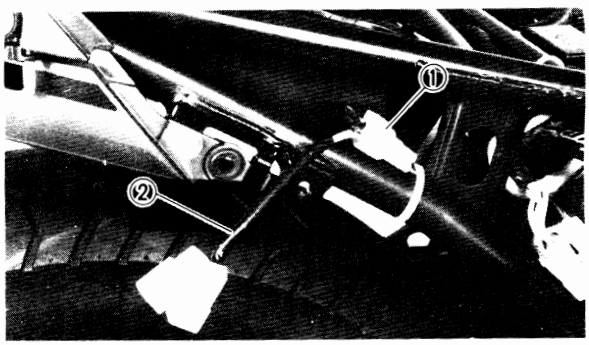


ABS Test Coupler Adapter
(P/N. YM-03149, 90890-03149)

B-4 Checking past faults by means of ABS self-diagnosis (Past faults)

Remove the right hand side cover and locate the test coupler ① . Short the T/C terminal (Sky bule) to ground by connecting the ABS Test Coupler Adapter ② with the test coupler.

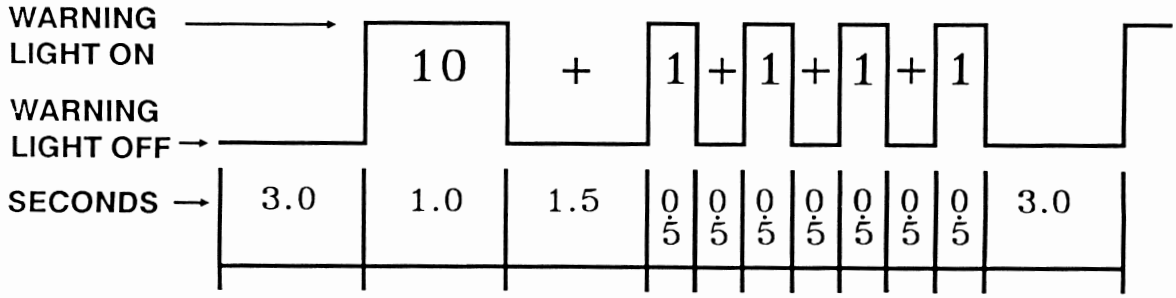




(1) Warning light keeps flashing at a regular interval of 0.5 seconds (for more than six seconds). → C-4

(2) Warning light keeps flashing in a pattern similar to the following. → C-5

This pattern is showing FAULT CODE 14

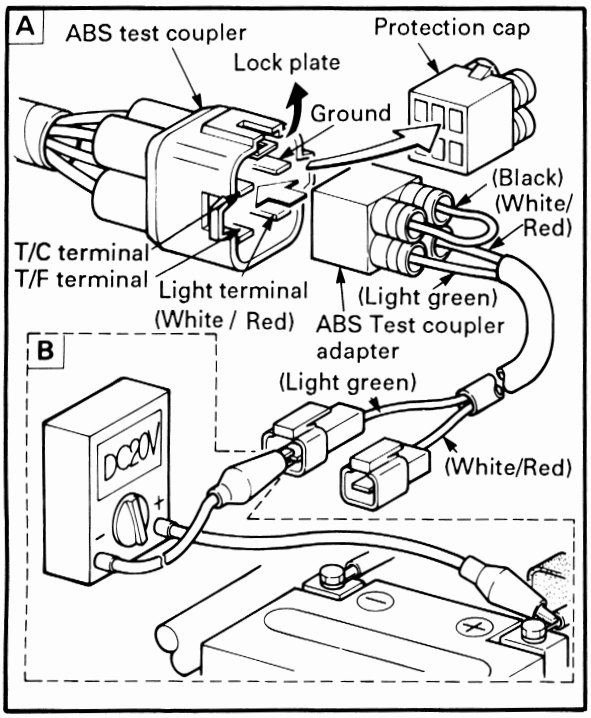


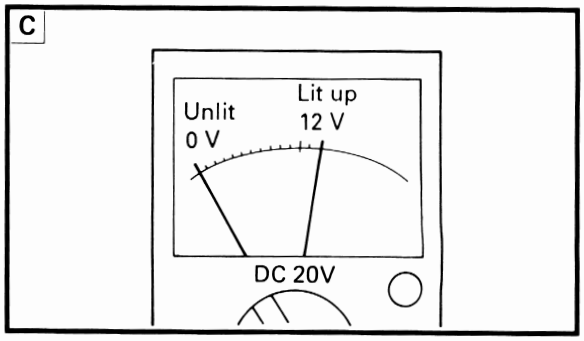
B-5 Checking faults by means of ABS self-diagnosis (Current faults)

NOTE:

Read Section **B-3 Arrangement and Function of Test Coupler** before proceeding with this section.

Remove the right hand side cover and locate the test coupler. Short the T/C terminal (Sky blue) to ground by connecting the ABS Test Coupler Adapter with the test coupler. (Fig. A)



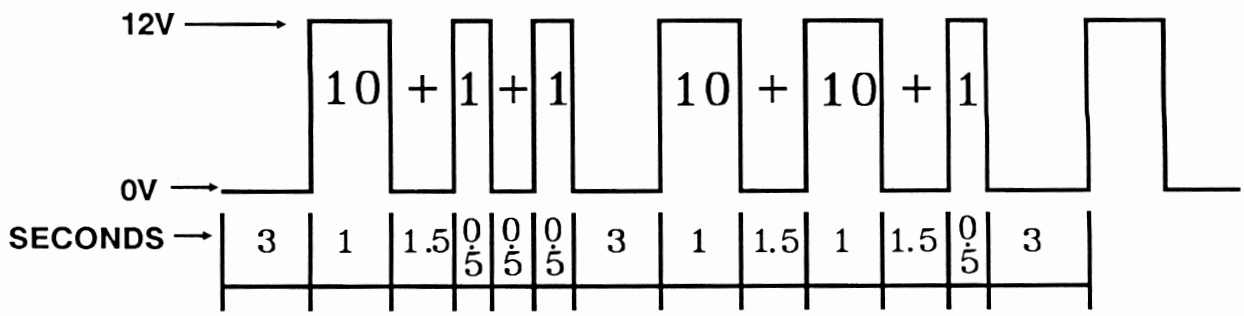


Adjust the range selector to DC 20V on the circuit tester. Then connect the negative pole with the T/F terminal (Light green) and the positive pole with the battery's positive terminal. (Fig. B)
Read the swinging of the needle indication. (Fig. C)

This is an example of a "Pattern of 10's and 1's" as displayed by the circuit tester. → C-5

This pattern is showing FAULT CODE 12

This pattern is showing FAULT CODE 21

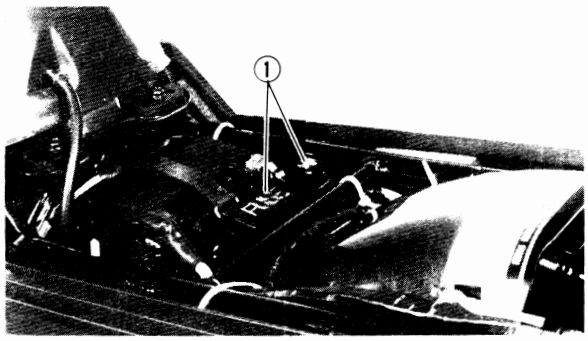


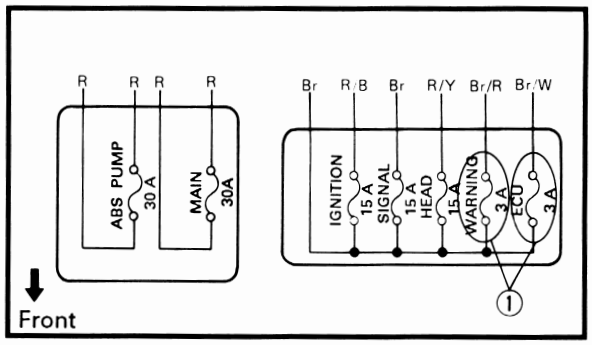
[C] SERIES: ASSUMING CAUSES AND LOCATIONS

C-1 Only the warning light does not come on with the main switch on.

[1] Checking Visually

(1) Check the fuses ① (ECU and Warning Light).





A fuse can be blown, for example, if the harness is pinched. Correct such trouble and replace the blown fuse with a new one.

(2) Check ABS harness and main harness couplers

Check that the couplers for the ABS and main harnesses are securely connected. The harnesses have two couplers each. Check both. (Refer to the "ABS LAYOUT OF WIRE HARNESS COUPLERS/-[1], [2]" section.)

(3) Check ECU and ABS harness connector.

Check that the ABS harness is securely connected with the ECU. (Refer to the "ABS LAYOUT OF WIRE HARNESS COUPLERS- [15], [16]" section.)

[2] Checking by Means of ABS Test Coupler Adapter

(1) Connect the test coupler with the ABS Test Coupler Adapter. (Refer to the "B-5" section.)

(2) Short the warning light terminal (White/Red) of the ABS Test Coupler Adapter to ground (or to the battery's negative terminal).

- If the warning light comes on, there may be internal wire breakage in the ABS harness.
- If the warning light does not come on, there may be wire breakage in or disconnection of the warning light.

(3) Remove the ECU coupler and check the continuity of the (White/Red) lead.
(White/Red lead ECU side and ABS Test Coupler Adapter side)

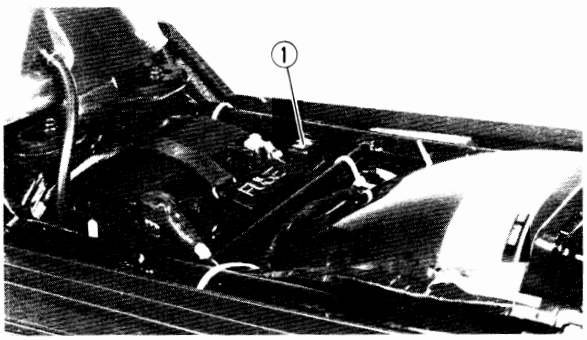
- If there is continuity, the ECU is faulty. → Replace ECU.
- If there is no continuity, there is something faulty with the warning light circuit in the ABS harness (wire breakage, etc.) → Repair. (Refer to the "WIRING DIAGRAM" section).

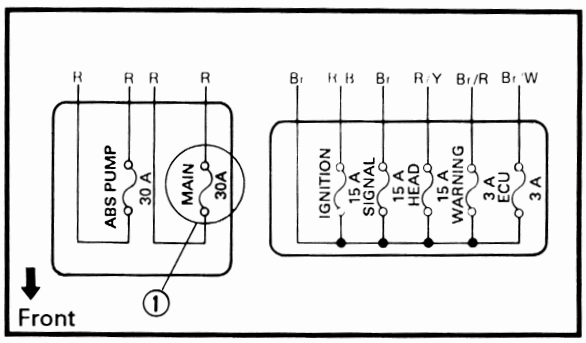
C-2 Neither the warning light nor the other indicators come on

The suspected cause lies in the motorcycle's power source system or in the connections.

[1] Check the power source system

(1) Is the battery connected correctly?
(2) Is the battery voltage correct?
(3) Is the "MAIN" fuse ① blown? If it is, something faulty is suspected in the circuit. Correct the fault and replace the fuse.





[2] Check connectors

(1) Is the "MAIN" fuse coupler connections inserted properly?
(2) Are the main harness and front sub-harness connected properly? (Refer to the "ABS LAYOUT OF WIRE HARNESS COUPLERS-[5],[6]" section.)
(3) Is the main switch coupler connected properly?
(4) Is the meter coupler connected properly?
Refer to the "WIRING DIAGRAM" section.

After completing the above checks, go back to **[A] SERIES** and check the ABS system again.

C-3 Warning light keeps flashing

Check the brake switches (front and rear) while the engine is not running.

Does the brake light come on when the front brake and rear brake are applied?

(1) The brake light only responds either to the front or to the rear brake.

→ A brake switch coupler is probably disconnected. (Refer to the "WIRING DIAGRAM" section.)

→ The brake switch for the non-responding brake is broken. (Refer to the "ELECTRICAL-SIGNAL SYSTEM" section.)

(2) The brake light responds neither to the front nor to the rear brake.

→ Check the brake switch circuit (Brown) on the power source side as it is likely that the wire is broken or the "SIGNAL" fuse is blown. (Refer to the "WIRING DIAGRAM" section.)

(3) The brake light stays on.

→ The couplers for the ABS harness and main harness may be disconnected. (Refer to the "ABS LAYOUT OF WIRE HARNESS COUPLERS-[1],[2]" section).

C-4 The light flashes at a regular interval of 0.5 seconds
If the system works normally, or no fault has been recorded by the ECU, the following causes can be considered.
Please explain to your customer what the causes for the apparent malfunction might have been.

[1] Reasons unrelated to ECU

The following may be cause for "flashing of warning light while running but later appearing normal", or " flashing of the warning light but stopping when the ignition switch is turned off and then on again".

(1) The rear wheel is running idle when the front wheel is stopped. → The system is OK.
(i.e. while on a centerstand)

(2) The rear wheel is spinning. → The system is OK.

(3) The motorcycle is wheelying. → The system is OK.

(4) The motorcycle is running on a bumpy road continuously. → The system is OK.

(5) A brake switch is faulty or is improperly adjusted. → Check and correct it. (Refer to the "ELECTRICAL-SIGNAL SYSTEM" section.)

[2] Drop in voltage

In order for the ABS to work properly, the voltage must be maintained above a certain level. Thus, if the power source voltage drops below 10V, the warning light comes on and the ABS stops functioning. When the voltage comes back to 10V or more, the system starts functioning again. However, the fact that the power source voltage went down to 10V or less is an indication that there may be something faulty with the generator or battery. Correct any such fault according to the normal procedure for correcting the power source system. (Refer to the "ELECTRICAL - CHARGING SYSTEM" section in the CHAPTER 7.)

[3] ECU stops functioning due to external interference

If other causes have been ruled out and the ABS is functioning correctly, the ECU may have judged it should stop functioning due to an unusual external interference of some type. This could include interference such as strong electric waves, static electricity, or radiation.

Explain to the customer that there is no system malfunction, since there are no fault codes. Explain that the system reacted to an unusual external interference as it should, and that the motorcycle can continue to be used.

C-5 Diagnosis Through Fault Codes

The Fault Codes output by the ECU in Section B-4 or B-5 are used to determine what trouble exists. Use the following chart for this determination.

NOTE:

Before you start, record all the displayed fault codes and work out a remedy for each fault.

F. Code	Phenomenon	Check	Reference
11	Front sensor signals are not received properly.	• Front sensor mount • Front sensor lead wire, coupler • ABS harness circuit • Front sensor housing/See the "NOTE:" below this table.	C-5-1 Electrical
12	Rear sensor signals are not received properly.	• Rear sensor mount • Rear sensor lead wire, coupler • Rear sensor housing • ABS harness circuit	C-5-2 Electrical
13/14	Abnormal signals have been detected from front (13) or rear (14) sensor.	• Sensor mounts • Sensor housings • Sensor rotors	C-5-3
15	A discontinuity of the sensor circuits has been detected.	• Sensor (front/rear) • ABS harness circuits • Couplers of sensors • Sensor lead wires See the "NOTE:" following this table.	C-5-4 Electrical
21	A discontinuity or a short-circuit of the solenoid circuits has been detected.	• ABS harness circuits • Coupler of solenoid wire • Solenoid	C-5-5 Electrical
31	The monitor circuit for the solenoid has detected a wire discontinuity among the fail safe relay and the solenoids.	• ABS harness circuits • Fail-safe relay circuit • Coupler of solenoid wire	C-5-6
32	The monitor for the solenoid has detected an abnormal response of the relay.	• Fail-safe relay • ABS harness circuit	C-5-7 Electrical
33	The monitor for the HU motor has detected an abnormal response of the *motor* (the motor remains not moving.)	• ABS harness circuit • Coupler of motor • Fail-safe relay • HU motor circuit	C-5-8 Electrical
34	The monitor for the HU motor detects an abnormal response of the motor (the motor continues rotation.)	• Fail-safe relay • ABS harness circuit • HU motor circuit	C-5-9 Electrical

F. Code	Phenomenon	Check	Reference
41	One of the wheels does not recover from an imminent tendency of wheel locking inspite of a continuous command by the ECU to release the hydraulic pressure.	• Customes' usage of the motorcycle i.e. *extra ordinary engine braking • Forced dragging of a wheel • HU operation test (Refer to the "D-6-3" section) • Brake hydraulic piping	C-5-10
Current Fault (B-5) with continuous indication of 12V by the tester	There may be a fault within the ECU.	• ABS harness circuit (Test coupler circuit) • ECU (Replacement)	D-1 Electrical

NOTE:

Fault Code 15 is very similar to Fault Codes 11 and 12 in that there is a disconnection of a sensor. Fault Code 15 is displayed when the ECU cannot determine which sensor is disconnected in the case of which the machine is not moving.

Fault Code 11 can be displayed if the rear wheel rotates for more than 20 seconds while the front wheel is stopped.
(i.e. while on centerstand)

(C-5-1) Fault Code 11

Try turning "OFF" the main switch and then turning it back "ON" again.

(1) The warning light remains lighted.
→ There is a disconnection in the front sensor circuit.
- Sensor connector is disconnected → (D-3)
- Sensor lead or coil has been cut → (D-3)
- Sensor circuit of ABS wire harness has been cut → (Refer to the "WIRING DIAGRAM" section.)
- ECU connector terminal has been unplugged → (D-1)

(2) Warning light comes on (for 1.4 seconds) and then goes out.
① With the front wheel stopped, the rear wheel has been left to spin for a short period of time (approximately 20 seconds); this is not a breakdown.
② The front sensor is not issuing signals.
- Sensor is disconnected → (D-3)
- Sensor rotor has broken down → (D-3)

③ Short in front sensor circuit
- Short in sensor wire or coil → (D-3)
- Short in sensor circuit of ABS wire harness → (Refer to the "WIRING DIAGRAM" section.)

④ Lowered output of front sensor
- A problem in the bearings for the front wheel, the wheel shaft, the wheel itself, the sensor housing, or another component can cause a drop in the output of the sensor signal. Check for looseness and distortion.

(C-5-2) Fault Code 12
Try turning "OFF" the main switch and then turning it back "ON" again.

(1) The warning light remains lighted.
→ There is a disconnection in the rear sensor circuit.
- Sensor connector is disconnected → (D-4)
- Sensor lead or coil has been cut → (D-4)
- Sensor circuit of ABS wire harness has been cut → (Refer to the "WIRING DIAGRAM" section.)
- ECU connector terminal has been unplugged → (D-1)

(2) Warning light comes on (for 1.4 seconds) and then goes out.
① With the rear wheel stopped, the front wheel has been left to spin for a short period of time; this is not a breakdown.
② The rear sensor is not issuing signals.
- Sensor is disconnected → (D-4)
- Sensor rotor has broken down → (D-4)

③ Short in rear sensor circuit
- Short in sensor wire or coil → (D-4)
- Short in sensor circuit of ABS wire harness → (Refer to the "WIRING DIAGRAM" section.)

④ Lowered output of rear sensor
- A problem in the bearings around the rear wheel, the wheel shaft, the wheel itself, the sensor housing, or another component can cause a drop in the output of the sensor signal. Check for looseness and distortion.

NOTE:
If the motorcycle is being driven continuously on bumpy roads, the warning lamp may begin to blink. If the rider continues to ride on this type of surface, Fault Code 11 or Fault Code 12 may be recorded, depending on the conditions in effect at the time.

(C-5-3) Fault Code 13 (Front) and 14 (Rear)
(1) There may be some problem with the attachment of the sensor or sensor rotor.

① Sensor attachment
- See if the sensor is attached normally to the housing. → (D-3, 4)
- Check for rattling between the housing and the wheel. → (D-3, 4)

② Sensor rotor attachment
- Check to see if the rotor has been correctly press-fitted to the wheel. → (D-3, 4)
- Check for foreign matter in the area where the rotor is attached. → (D-3, 4)

(2) There may be some problem with the sensor rotor teeth.
- Check for scratches on the teeth of the rotor.
  Also check for the presence of foreign matter. → (D-3, 4)

(3) The sensor output may have dropped.
- A problem in the bearings for the front or rear wheel, the wheel shaft, the wheel itself, the sensor housing, or another component can cause a drop in the output of the sensor signal. Check for looseness and distortion.

(C-5-4) Fault Code 15

A cut or disconnection may have been detected in the front or rear sensor circuit.

→
- Disconnected front or rear sensor connector → (D-3, 4)
- Cut in the front or rear sensor lead or coil → (D-3, 4)
- Disconnection or cut in sensor circuit of ABS wire harness → (Refer to the "WIRING DIAGRAM" section).
- Terminals of ABS wire harness ECU connector may be unplugged. → (D-1)

NOTE:
- It is possible that both connectors are unplugged, so be sure and check both of them.
- If Fault Code 15 is displayed and the motorcycle continues to run, the display will specify either the front or rear, and will change to read "11" or "12".

(C-5-5) Fault Code 21

Using the procedure outlined below, check each of the points in sequence.

(1) Solenoid coupler
- See if the solenoid coupler terminal is unplugged. → (Refer to the "ABS LAYOUT OF WIRE HARNESS COUPLERS- 12 " section.)

(2) HU solenoids
- See if the solenoids are conductive (front and rear). → (D-5)
- Check the insulation of all of the solenoid terminals and the negative (–) battery terminal.

(3) ABS wire harness
- Check the conductivity of the solenoid circuits (White/Blue-White and White/Green-White), as well as the insulation of the negative (–) battery terminal and the various solenoid circuits. → (Refer to the "WIRING DIAGRAM" section.)

(C-5-6) Fault Code 31

Using the procedure outlined below, check each of the points in sequence.

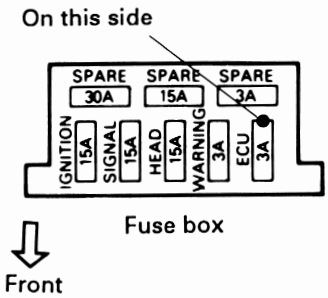
(1) ABS pump fuse
- Check to see if the ABS pump fuse at the side of the battery has blown.

(2) Solenoid coupler
- Check the solenoid coupler inside the right side cover, to see if it is disconnected or not coupled tightly. → (Refer to the "ABS LAYOUT OF WIRE HARNESS COUPLERS- 12 " section.)

(3) ABS wire harness
- Among the circuits between the ECU and the fail-safe relay, check the conductivity of the (White/Brown) wires. → (Refer to the "WIRING DIAGRAM" section.)
- Disconnected ECU coupler terminals (White/Brown) → (D-1)

(4) Fail-safe relay
- Check the function of the fail safe relay. → (D-2)

(5) Main harness
- Among the fail-safe relay couplers, check the conductivity between the (Red) terminal and the positive (+) battery terminal.
- Disconnect the ECU fuse, and then, among the fail safe relay couplers, check the conductivity between the (Brown/White) wires and the ECU fuse, as shown in the diagram below.



(C-5-7) Fault Code 32

(1) Fail-safe relay
- Check the function of the fail-safe relay. → (D-2)

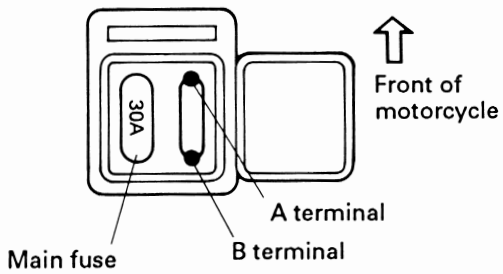
(2) ABS wire harness
- With the fail-safe relay and the ECU disconnected from the ABS wire harness, check the insulation between the (White) terminal and the (Red) terminal of the fail-safe relay couplers. → (Refer to the "WIRING DIAGRAM" section.)

(C-5-8) Fault Code 33

(1) ABS pump fuse
- Check to see if the ABS pump fuse at the side of the battery has blown.

(2) Fail safe relay
- Check the function of the fail safe relay. → (D-2)

(3) Main harness and ABS wire harness
- Disconnect the fail safe relay, and check the conductivity between the (Red) terminal of the ABS harness and the ABS wire harness (the A terminal in the diagram) of the ABS pump fuse terminal in the fuse box (the fuse should be disconnected). → (Refer to the "WIRING DIAGRAM" section.)



- Check the conductivity between the positive (+) terminal of the battery and the battery side of the ABS pump fuse terminal (the B terminal in the diagram).
- Disconnect the ECU and the fail-safe relay from the ABS wire harness, and check the conductivity between the (White/Black) wires and each of the couplers. Also check the conductivity between the terminals of the (Red/White) wires.

(C-5-9) Fault Code 34

(1) HU pump motor
- Check to make sure the pump motor coupler inside the left side cover is not disconnected, and is securely coupled. → (Refer to the "ABS LAYOUT OF WIRE HARNESS COUPLERS- 18 " section.)
- Check the conductivity of the motor → (D-5).

(2) ABS wire harness
- With the coupler of the HU pump motor disconnected, check the conductivity between the (Black) terminal in the pump motor coupler of the ABS wire harness and the negative (–) terminal of the battery.
- With the ECU coupler disconnected, check the conductivity between the (Red/White) terminals of the ECU coupler, and the (Red/White) terminals of the pump motor coupler. → (D-1)
- With the fail-safe relay disconnected, check the insulation between the (Red/White) terminals of the pump motor coupler and the positive (+) terminal of the battery.

(3) Fail-safe relay
- Check the function of the fail-safe relay. → (D-2)

(C-5-10) Fault Code 41

(1) Wheel rotation
- Make sure the front and rear wheels rotate smoothly.
- Check the wheel bearings for looseness and rattling, the wheel shaft for bending or curving, and the brake disks for bending or curving.

(2) Master cylinder and calipers
- Check to make sure input to the lever and pedal is conveyed properly, and when the input is released, make sure the braking force is released.

(3) Brake fluid
- Check the brake piping to make sure there is no noticeable deterioration of the brake fluid (water absorption, solidification, contamination, foreign matter, etc.).
- Make sure no air is getting into the brake piping.

(4) Brake piping
- In the brake piping, check for any additions which might obstruct the passage of brake fluid, and make sure there is no foreign matter in the piping.

⚠WARNING

Use of any brake pipes, hoses, or union bolts other than genuine YAMAHA parts, or parts equivalent in quality and specifications, may cauce blockage of the pipe channels. This could lead to failure of the brake system and an accident.

- Check the various systems for the brake hoses and pipes on the master cylinder side and the caliper side, to make sure connections to the HU have not been accidentally reversed. → (D-5)

NOTE:

If connections are reversed or made incorrectly, the lever or pedal will not return in the proper pulsing motion when the HU test described in D-6 is performed. Instead, the lever or pedal will drop and return slowly to the original position, which is incorrect operation.

(5) Solenoid coupler terminals
- Make sure the front and rear solenoid coupler terminals (on the HU side and the wire harness side) have not been accidentally reversed. → (Refer to the "ABS LAYOUT OF WIRE HARNESS COUPLERS- 12 " section.)

	Terminal Color	
	Solenoid Side	Wire Harness Side
Front system	Yellow-white/ Yellow-white	White/White-green
Rear system	Yellow-red/ Yellow-red	White/White-blue

NOTE:

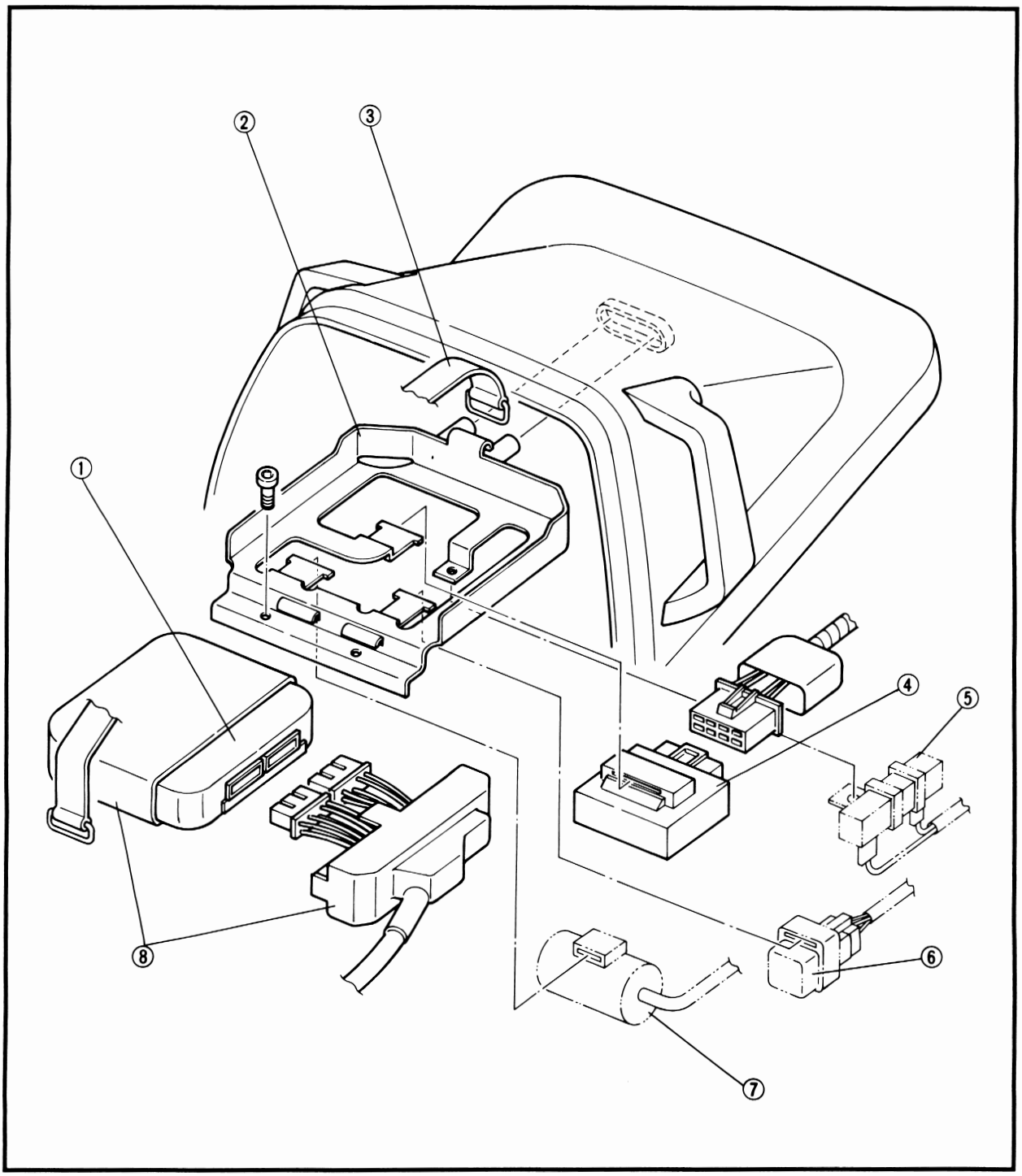
If connections are reversed or made incorrectly, the front brake lever will not pulse first as it should when the HU test described in D-6 is performed. Instead , the rear brake pedal will pulse first, which is incorrect operation.

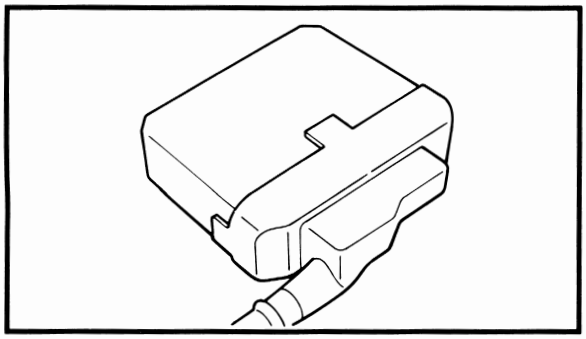
(6) HU

If none of the operations above are applicable in solving the problem, there may be something wrong with the function of the hydraulic unit. Substitute a different hydraulic unit and connect the pipes and wiring correctly. Then run the HU operation test described in D-6 and check the function.

[D-1] SERVICE OF ECU/[D-2] FAIL-SAFE RELAY

① Electronic control unit (ECU)
② ECU bracket
③ Band
④ Fail-safe relay
⑤ Resister
⑥ Relay assembly (brake switch)
⑦ Condenser
⑧ ECU cover





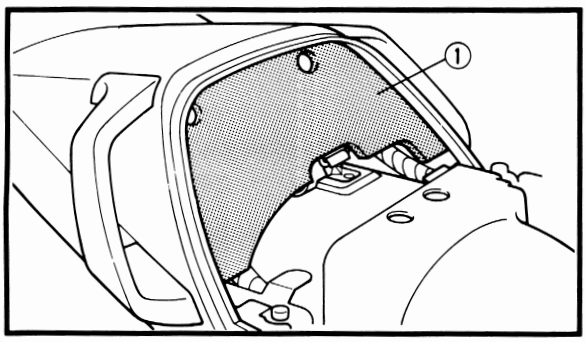
[D-1] SERVICE OF ECU

Removal

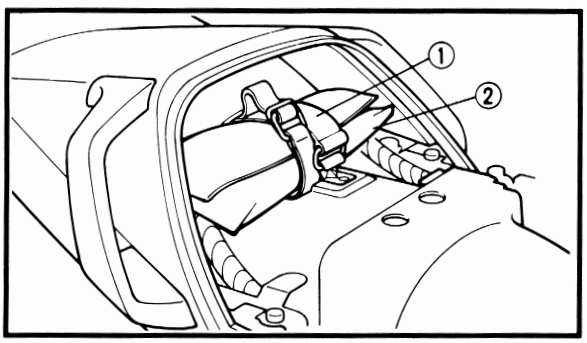
1. Place the motorcycle on a level place and the motorcycle on its centerstand.

2. Remove:
   - Seat

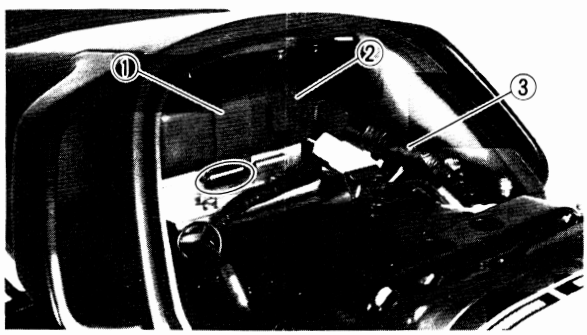
   Refer to the "SEAT, SIDE COVERS AND FUEL TANK" section in the CHAPTER 3.



3. Remove:
   - Cover ①



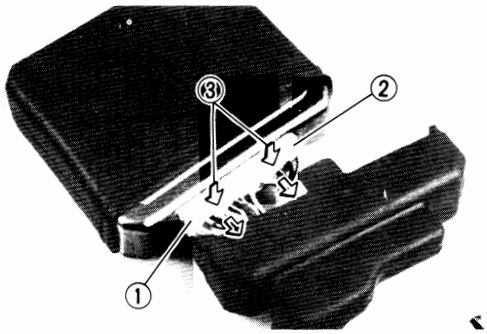
4. Remove:
   - Band ①
   - Owner's tool kit ②



5. Remove:
   - Band ①
   - Electronic control unit (ECU) ②

NOTE:

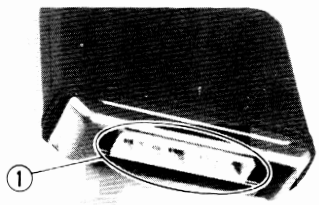
When removing the ECU, carefully pull the ECU herness ③ so as not to cause damage to the ECU coupler.



6. Disconnect:
   - ECU coupler ①
   - ECU coupler ②

NOTE :

Do not pull the ECU leads to remove the ECU coupler. Remove each coupler carefully while pressing the lock tabs ③ .

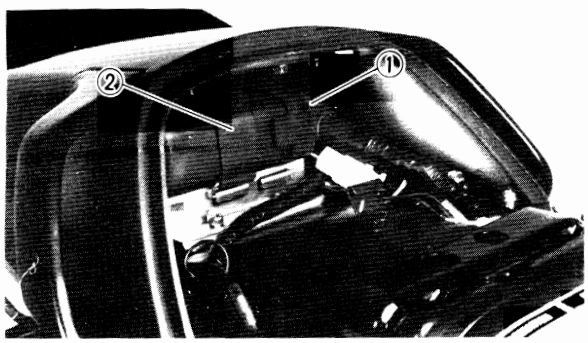


Inspection

1. Inspect:
   - ECU terminals ①
     Cracks/Damage → Replace.
   - ECU coupler ② terminals
     Disconnected / Dirty → Repair.

NOTE:

If the coupler is clogged with mud or dust, blow it off by compressed air.



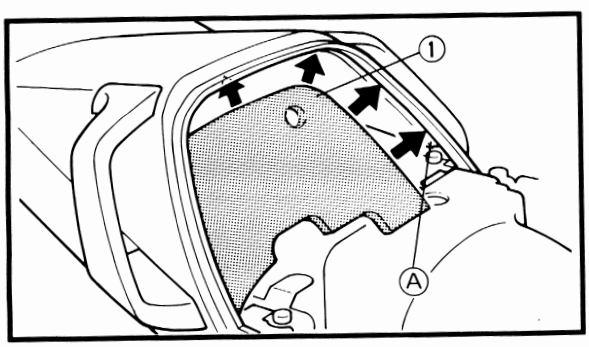
Installation

Reverse the "REMOVAL" procedure. Note the following points.

1. Install:
   - Electronic control unit (ECU) ①
   - Band ②

NOTE:

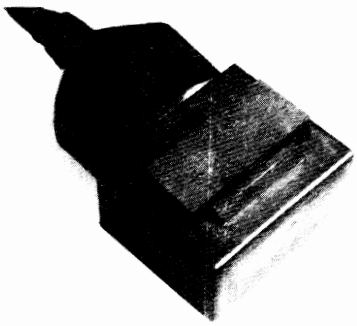
Connect the ECU coupler unit properly, ensuring that you connect it without damaging any terminal, until a "click" sound is heard.



2. Install:
   - Owner's tool kit
   - Band
   - Cover ①

NOTE :

When assembling cover ① , fit it securely in the groove Ⓐ in the tail cover unit.

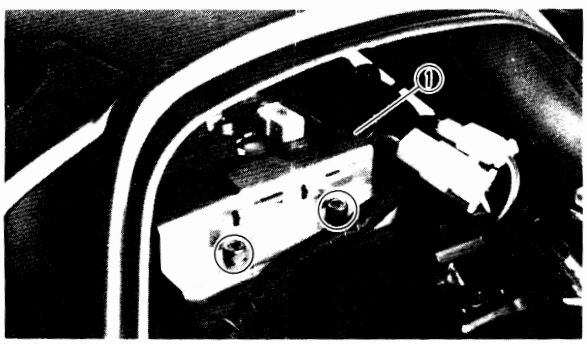


[D-2] SERVICE OF FAIL-SAFE RELAY

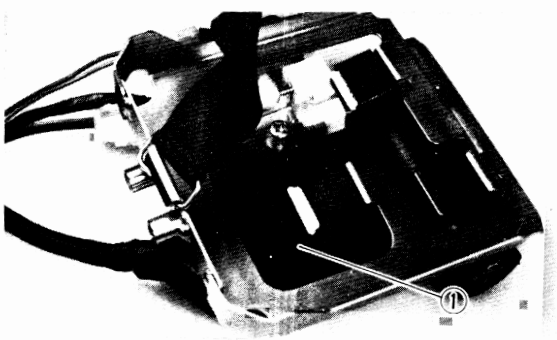
Removal

1. Place the motorcycle on a level place and the motorcycle on its centerstand.

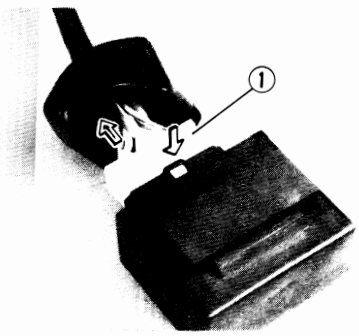
2. Remove:
   - Seat
   - Cover
   - Owner's tool kit
   - Electronic control unit (ECU)
     Refer to the "[D-1] SERVICE OF ECU-Removal" section.



3. Remove:
   - ECU bracket ①



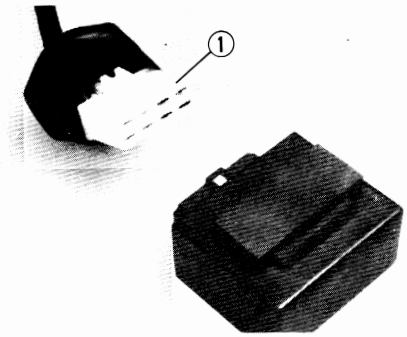
4. Disconnect:
   - ABS Fail-safe relay ①

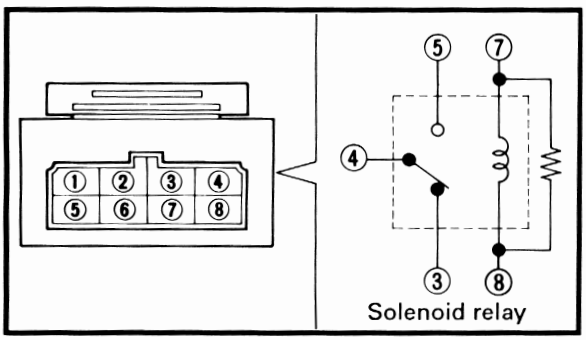


5. Disconnect:
   - ABS Fail-safe relay coupler ①

NOTE :

Do not pull the ABS Fail-safe relay leads to remove the ABS Fail-safe relay coupler.
Remove each terminal carefully while pressing the lock.





Solenoid relay standard value

Terminal name	③	④	⑤	⑦	⑧
Normal Condition	○	○		○	○
When battery power supply is connected between ⑦ and ⑧.		○	○		

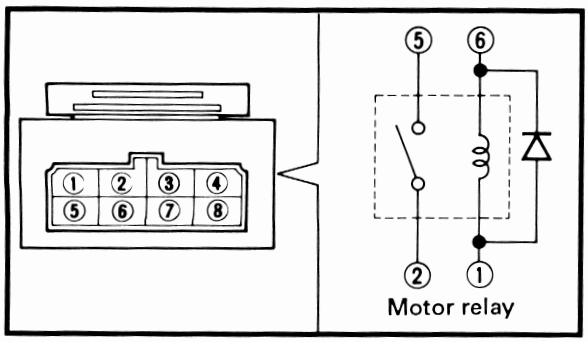
Inspection

Fail-safe relay

1. Check:
   - Continuity of solenoid relay.
   - Connect the pocket tester (Ω x 1) to the following terminals.
   - First, check the solenoid relay for continuity between terminals ③ and ④.
     Tester (+) lead → ③ terminal
     Tester (–) lead → ④ terminal
     If the tester shows "∞" → Replace fail-safe relay.
   - Second, check the solenoid relay for the continuity between terminals ⑦ and ⑧.
     Tester (+) lead → ⑦ terminal
     Tester (–) lead → ⑧ terminal
     If the tester shows "∞" → Replace fail-safe relay.
   - Third, connect the battery positive terminal to terminal ⑦, and the battery negative terminal to terminal ⑧.
     Check the solenoid relay for the continuity between terminals ④ and ⑤.
     Tester (+) lead → ④ terminal
     Tester (–) lead → ⑤ terminal
     If the tester shows "∞" → Replace fail-safe relay.

CAUTION:

Take care to avoid shorting between the positive and negative terminals of the battery when connecting the relay terminal and battery.



Motor relay standard value

Terminal name	①	②	⑤	⑥	
Normal condition	○			○	
When battery power supply connected between ⑥ and ①.		○	○		

2. Check:
   - Continuity of motor relay.
   - Connect the pocket tester (Ω x 1) to the motor relay terminal.
   - First check the motor relay for continuity between terminals ① and ⑥.
     Tester (+) lead → ① terminal
     Tester (–) lead → ⑥ terminal
     If tester shows "∞" → Replace fail-safe relay.

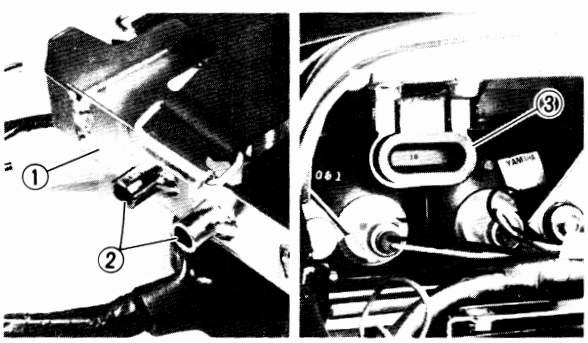
NOTE :

Make sure you do not reverse the connections of test lead because you will not be able to detect the fault.

   - Second, connect the battery positive terminal to terminal ⑥, and connect the battery negative terminal to terminal ①.
     Check the motor relay component for the continuity between terminals ② and ⑤.
     Tester (+) lead → ② terminal
     Tester (–) lead → ⑤ terminal
     If the tester shows "∞" → Replace fail-safe relay.

CAUTION:

- **Take care not to reverse the battery connections because the diode will be damaged.**
- **Take care to avoid shorting the positive and negative terminals at the time of connecting the battery and relay.**



Installation

Reverse the "REMOVAL" procedure.
Note the following points.

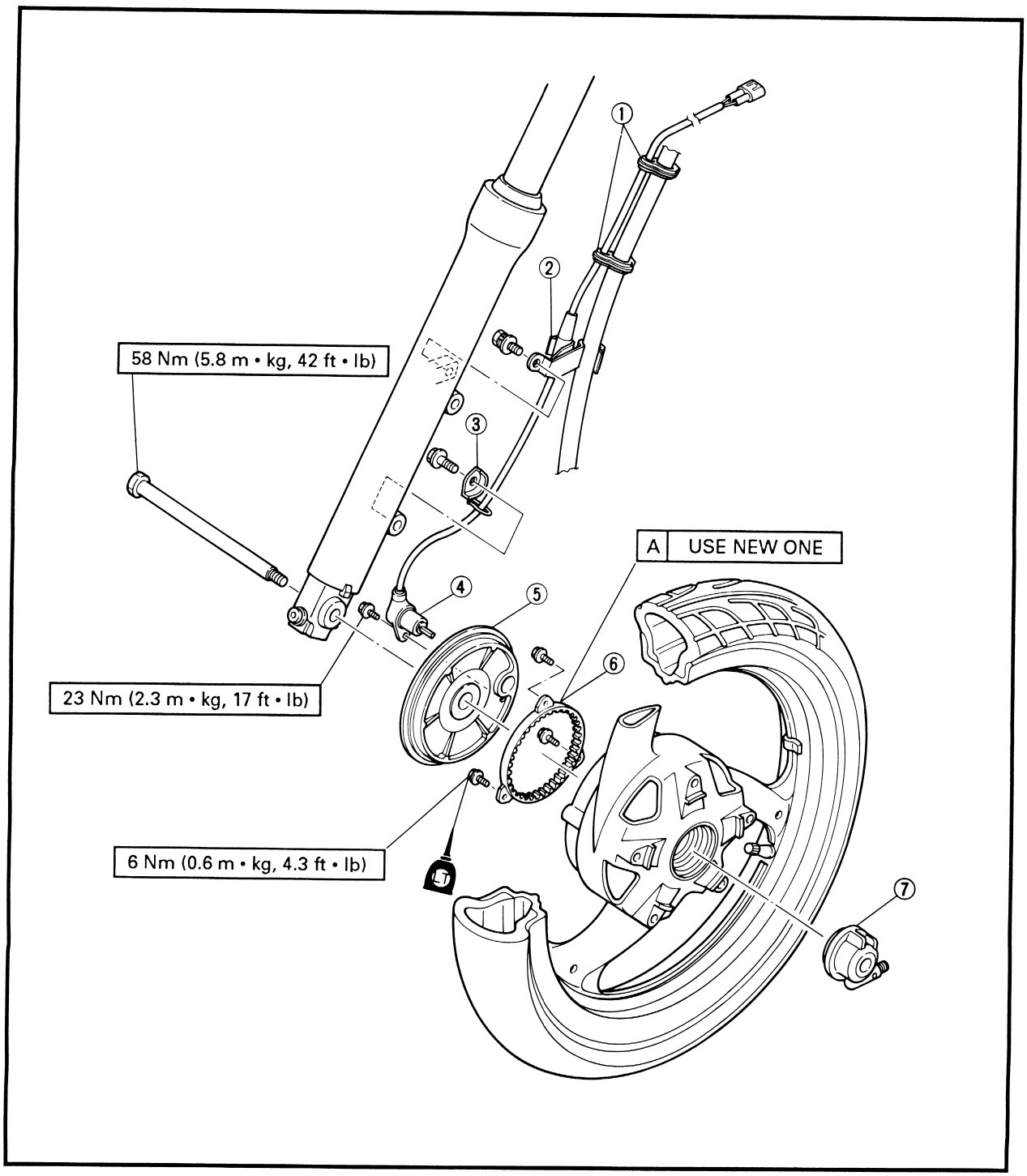
1. Install:
   - ECU bracket ①

NOTE :

Assemble so that the protruding parts ② of ECU bracket sits firmly in the hole of damper ③ inside the tail cowl.

[D-3] SERVICE OF FRONT WHEEL SENSOR AND SENSOR ROTOR

① Clamp
② Holder (brake hose and sensor lead)
③ Holder (sensor lead)
④ Front wheel sensor
⑤ Sensor housing
⑥ Sensor rotor
⑦ Speedometer gear unit



ABS WHEEL SENSOR AND SENSOR ROTOR

CAUTION:

- **Handle ABS components carefully. ABS components are precisely adjusted. Avoid impact or dirt on these components.**
- **The ABS wheel sensor cannot be disassembled. Even if you feel that the fault is minor, do not try to disassemble and repair the component. Replace the part.**

[D-3] SERVICE OF FRONT WHEEL SENSOR AND SENSOR ROTOR

Removal

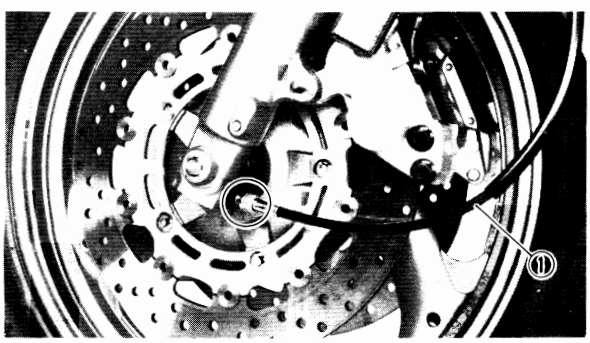
⚠WARNING

Securely support the motorcycle so there is no danger of it falling over.

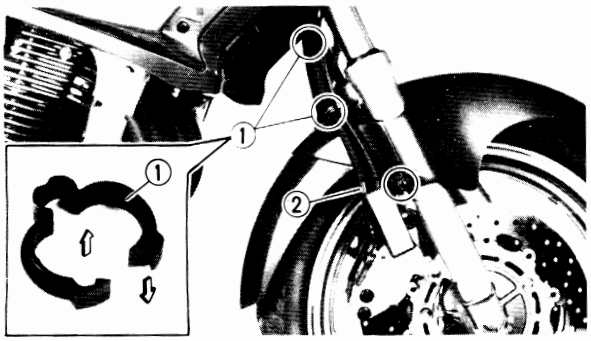
1. Place the motorcycle on a level place and on its centerstand.

2. Remove:
   - Seat
   - Side cover (left)
   - Side cover (right)
   - Fuel tank
   - Upper cowling

   Refer to the "SEAT, SIDE COVERS AND FUEL TANK and UPPER COWLING" section in the CHAPTER 3.



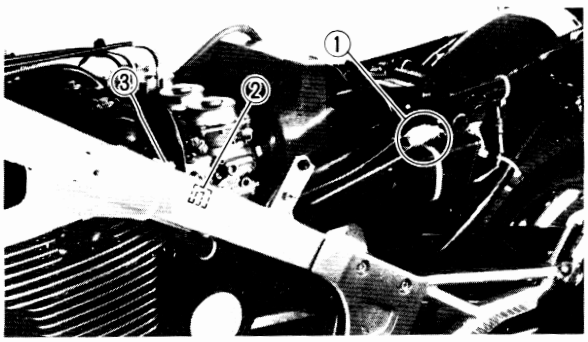
3. Remove:
   - Speedometer cable ①



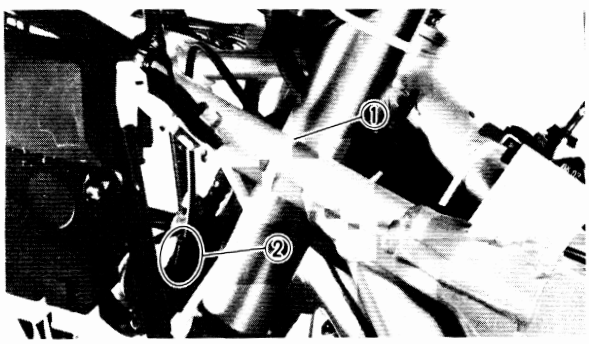
4. Remove:
   - Clamp ①
   - Holder ② (brake hose and wheel sensor lead)

NOTE :

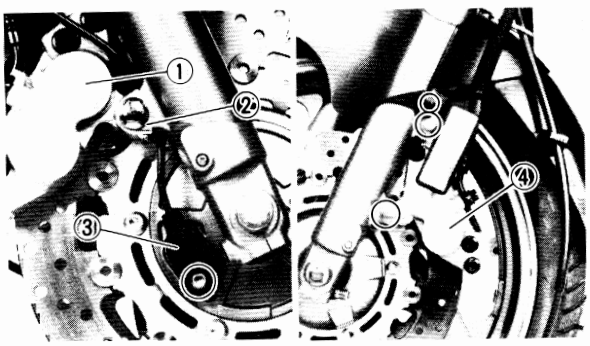
If you move the joining clamp ends of brake hose and wheel sensor lead wire up and down, it becomes easy to remove.



5. Disconnect:
   - Wheel sensor coupler ①
   - Clamp ②
   - Band ③



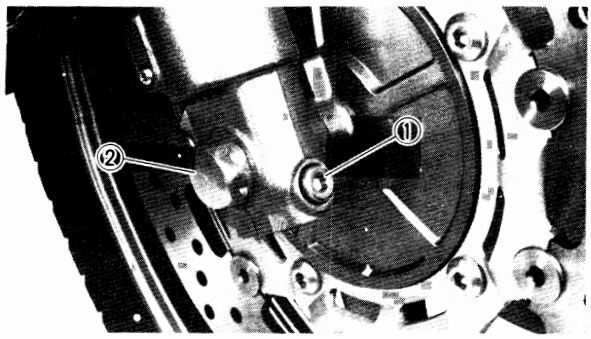
6. Disconnect:
   - Band ①
   - Wheel sensor lead ② (from horn stay)



7. Remove:
   - Brake caliper (right) ①
   - Holder ② (wheel sensor lead)
   - Wheel sensor ③
   - Brake caliper (left) ④

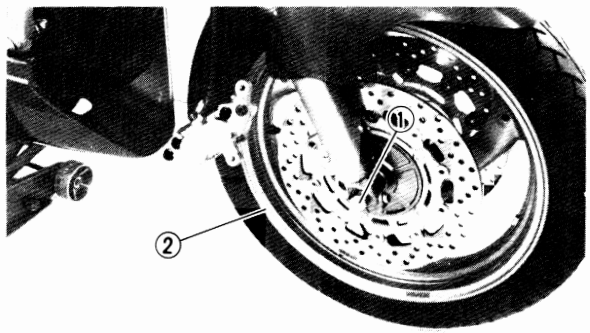
CAUTION:

- **Take care to avoid metal contact with the pole of the wheel sensor when removing from wheel hub.**
- **Do not depress the brake lever when the wheel is off the motorcycle otherwise the brake pads will be forced shut.**

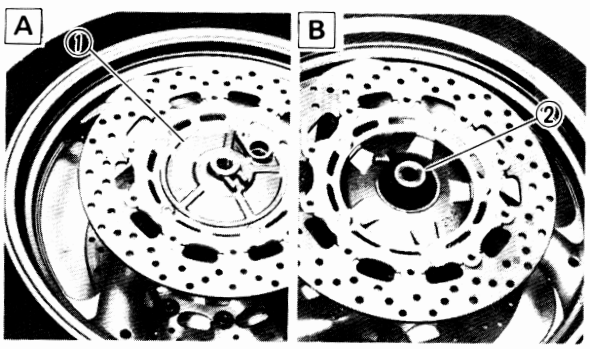


8. Loosen:
   - Bolt ①
   - Wheel shaft (front) ②

9. Elevate the front wheel by placing a suitable stand under the engine.

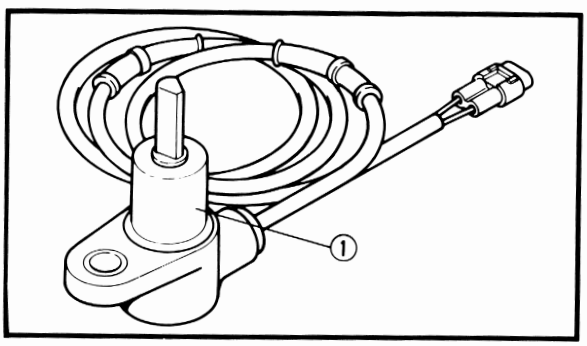


10. Remove:
    - Wheel shaft (front) ①
    - Front wheel assembly ②



11. Remove:
    - Sensor housing ①
    - Speedometer gear unit ②

[A] Right side
[B] Left side



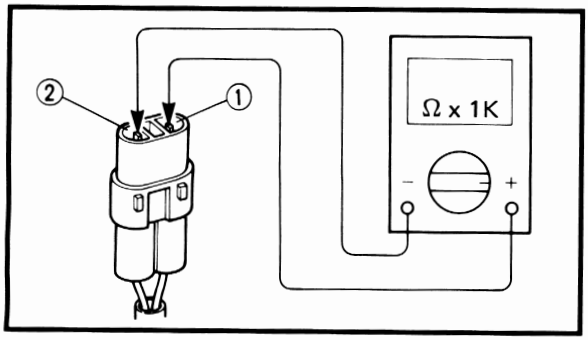
Inspection

1. Inspect:
   - Front wheel sensor ①
     Cracks/Bends/Warpage → Replace.

2. Check:
   - Front wheel sensor specified resistance.
     Connect the pocket tester (Ω x 1k) to the front wheel sensor coupler terminal.

CAUTION:

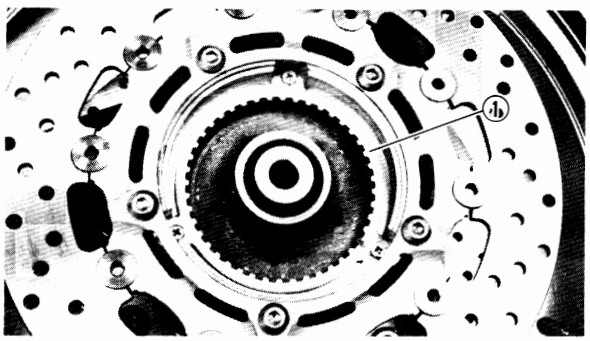
While checking, do not force the pocket tester probes into the coupler terminals. The terminal gap may widen resulting in poor connection.



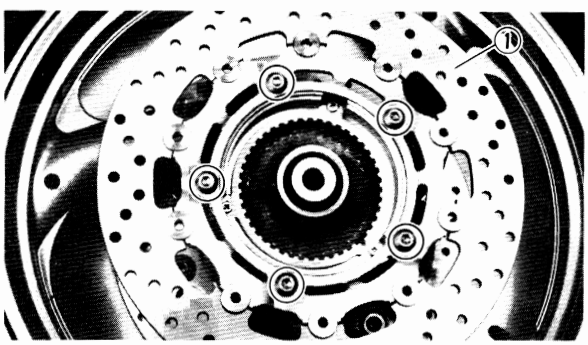
Tester (+) lead → ① terminal
Tester (–) lead → ② terminal

Front wheel sensor resistance:
1.19 ~ 2.21 kΩ at 20°C (68°F)
(① terminal – ② terminal)

Out of specification → Replace.



3. Inspect:
   - Sensor rotor ①
     Cracks/Damage → Replace.



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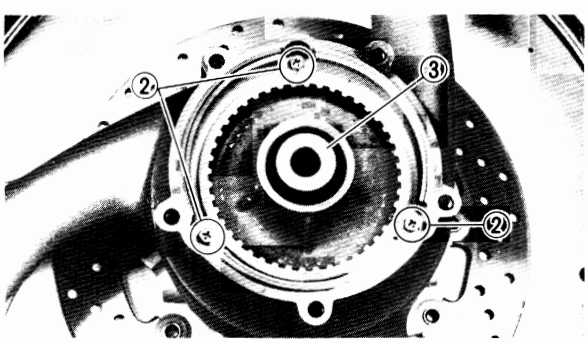
Front wheel sensor rotor replacement steps:

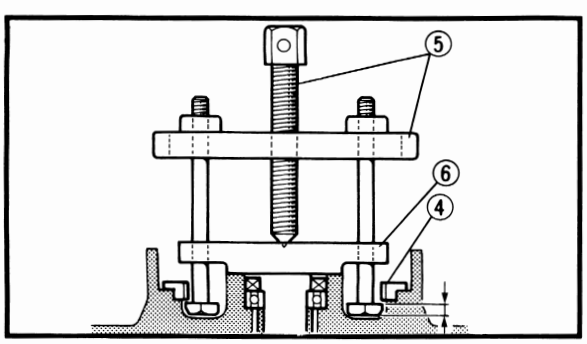
- Remove the brake disc ① (right).
- Remove the bolts ② (front sensor rotor).
- Remove the spacer collar ③ .
- Remove the front wheel sensor rotor ④ by using the crankcase separating tool ⑤ and the Sencer rotor puller guide ⑥ .

NOTE:

Be careful not to apply pressure to the inner race of the bearing.

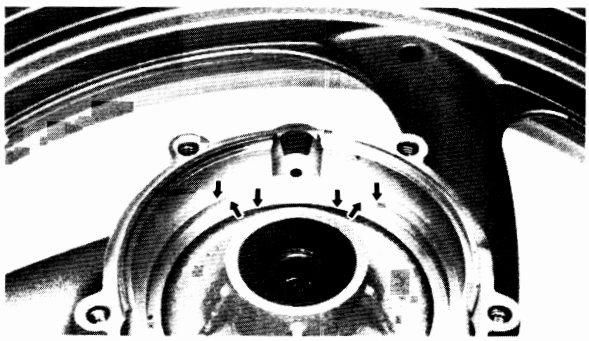


Crankcase separating tool:
P/N. YU-01135-A, 90890-01135
Sensor rotor puller guide:
P/N. YM-04126



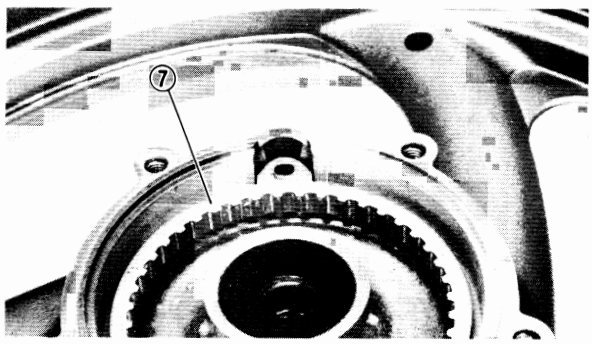
NOTE :

- Install the bolts into the special tool with the heads facing downward.
- Secure the bolt heads between the teeth of the rotor and pull upward by turning the handle of the special tool.



- Remove the brake disc (left).
- Check the surface of the hub where the sensor rotor is fitted.
  If the surface is found to be rough from damage, etc., replace the wheel assembly.

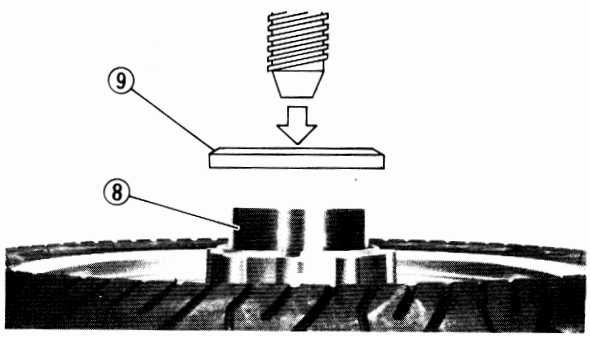
NOTE:
A rough surface will not allow the new sensor rotor to be seated properly.



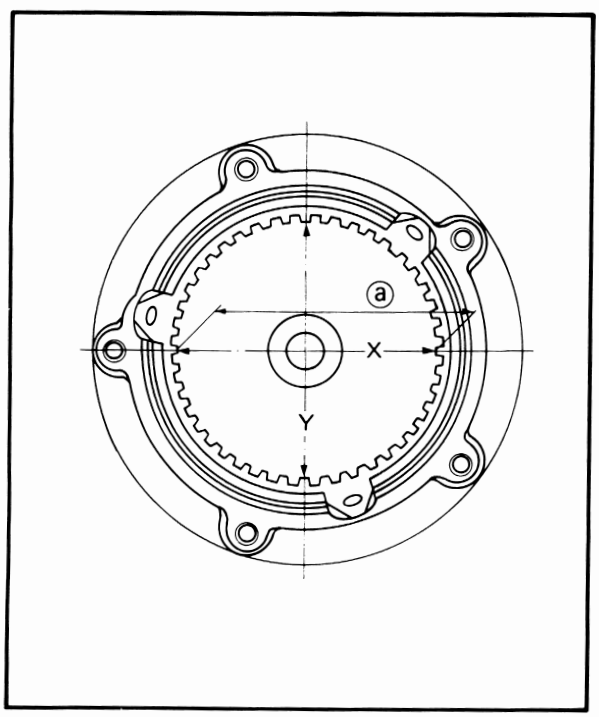
- Put the hub on the hydraulic press so that it is level. Place a new sensor rotor ⑦ in the wheel hub parallel with its mating surface. It must not be cocked at an angle. Be sure the bolt holes are aligned with the holes in the hub.

⚠ WARNING

Never reuse the sensor rotor if it has been removed. Always use a new one. Other wise the ABS may not work correctly, which could cause an accident.



- Place the sensor rotor installation pot ⑧ on the new sensor rotor ⑦ .Carefully place an appropriate support plate ⑨ centered on the pot. Then fully seat the sensor rotor in the hub by applying force on the center of the support plate with the hydraulic press.



Sensor rotor installation pot:
P/N. YM-04124, 90890-04124

CAUTION:

Do not strike the sensor rotor.

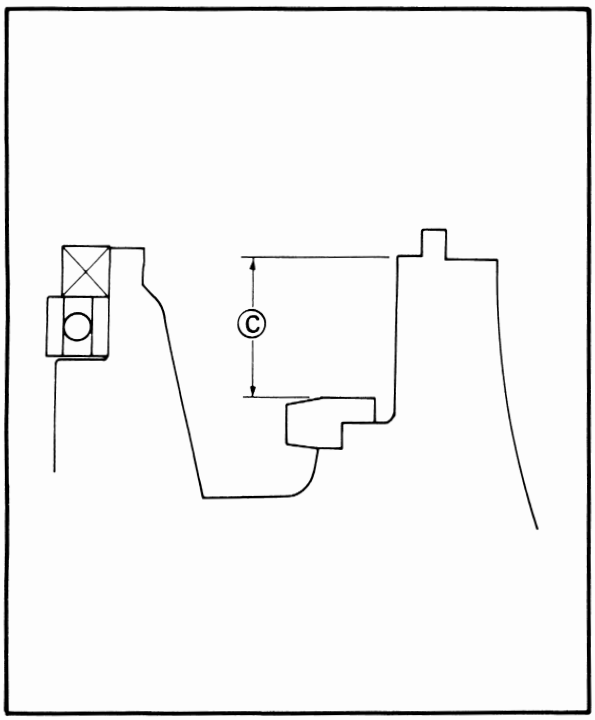
- Measure the inside diameters of the installed sensor rotor with vernier calipers.

NOTE:
Measure the inside diameters of the installed sensor rotor at four equally divided points of its circumference, at right angles to the wheel axle. Then, find the average of the measurements.

Sensor rotor inside diameter ⓐ :
99.90 ~ 100.15 mm (3.933 ~ 3.943 in)
Allowance ⓑ :
Less than 0.1 mm (0.004 in)

$$ⓐ = \frac{X+Y}{2} \qquad ⓑ = X-Y$$

If the measurement is not within the above ⓐ and ⓑ, replace the wheel assembly.



- Measure the distance between the surface of the wheel hub and the outer circumference of the sensor rotor with a vernier calipers.

NOTE:
Measure the distance at six equally divided points of the sensor rotor in parallel to the wheel axle. Then, find the average of the measurements.

Distance ⓒ:
13.65 ~ 14.35 mm (0.537 ~ 0.565 in)

If out of specification, replace the wheel assembly.

- Install the bolts ② (front sensor rotor), the brake disk ①, ⑧ and the spacer collar ③.

Bolts (sensor rotor):
6 Nm (0.6 m • kg, 4.3 ft • lb)
LOCTITE®
Bolts (brake disc):
20 Nm (2.0 m • kg, 14 ft • lb)
LOCTITE®

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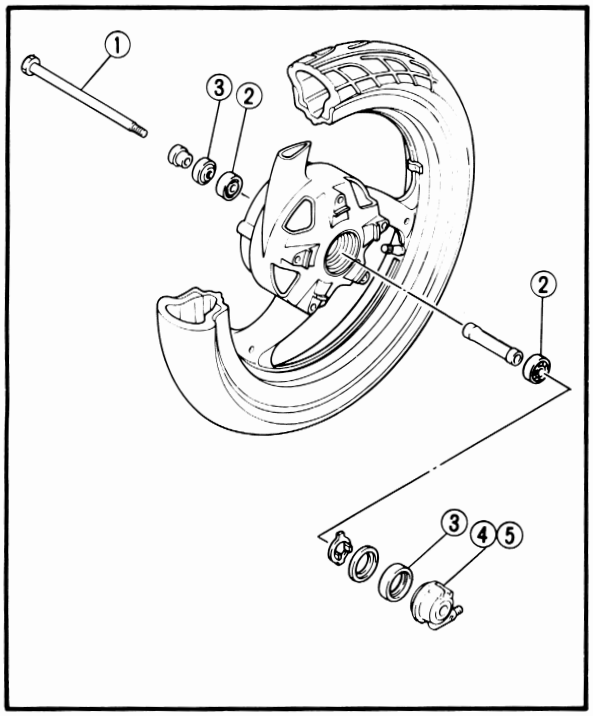


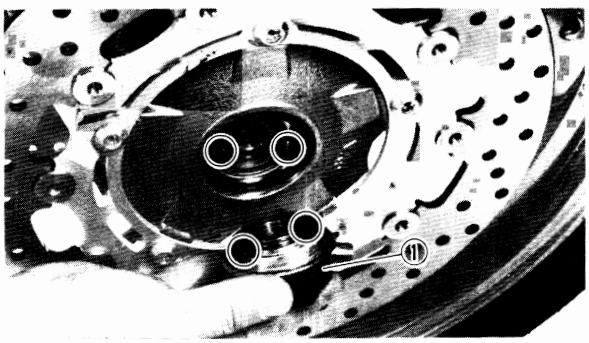
Installation

Reverse the "REMOVAL" procedure.

Note the following points.

1. Lubricate:
   - Wheel axle ①
   - Bearings ②
   - Oil seal (lip) ③
   - Drive ④ /Driven gear ⑤ (speedometer)

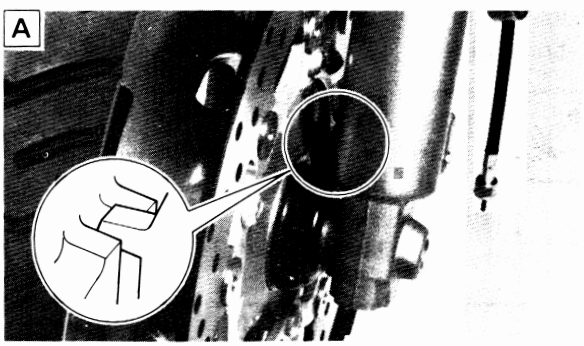
Lithium soap base grease



2. Install:
   - Speedometer gear unit ①

NOTE:

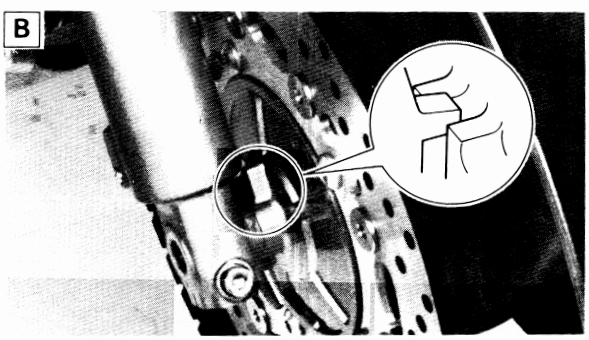
Make sure the projections on the meter clutch are meshed with the flats in the wheel hub.



3. Install:
   - Front wheel assembly

NOTE:

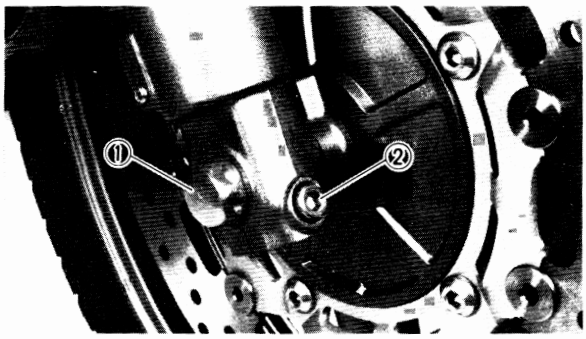
Be sure the boss on the outer fork tube correctly engages with the locating slot on the speedometer gear unit and sensor housing.



CAUTION:

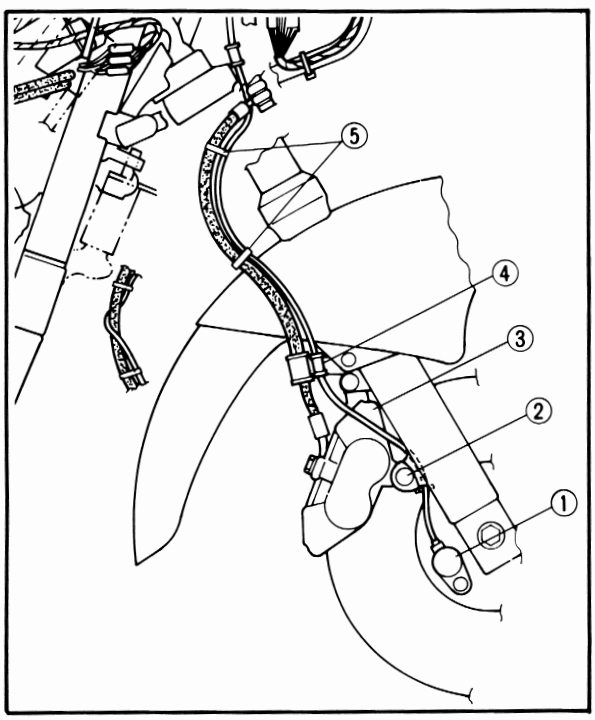
Install after you make sure that no foreign matter has entered the front wheel hub. This may result in damage to the internal sensor rotor and wheel sensor.

A Speedometer gear unit
B Sensor housing



4. Tighten:
- Wheel axle ①
- Bolt (axle holder) ②

Wheel axle:
59 Nm (5.9 m • kg, 43 ft • lb)
Bolt (axle holder):
20 Nm (2.0 m • kg, 14 ft • lb)

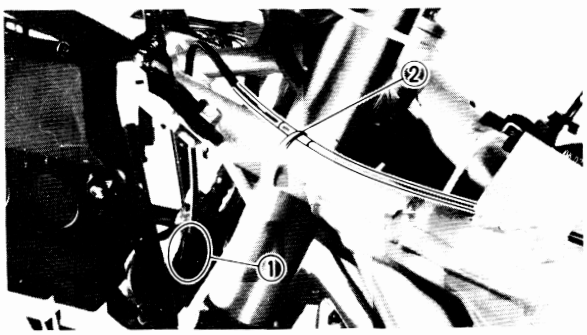


5. Install:
- Front wheel sensor ①
- Holder ② (wheel sensor)
- Brake caliper (right) ③
- Holder ④
- Clamp ⑤
- Brake caliper (left)

NOTE :
When mounting the wheel sensor, make sure that there is no twist in the wheel sensor lead wire or no foreign matter is sticking to the pole.

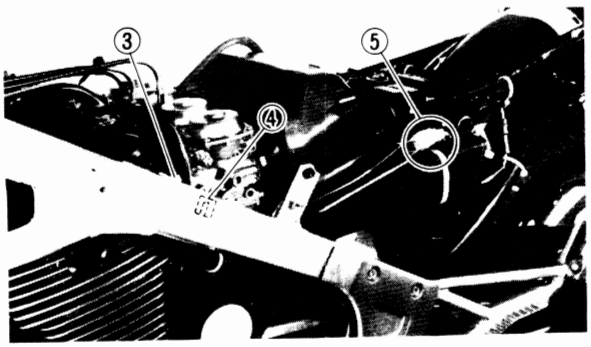
CAUTION:
Make sure that the front wheel sensor lead is routed properly.
Refer to the "CABLE ROUTING" section in the CHAPTER 2.

Bolt (front wheel sensor):
23 Nm (2.3 m • kg, 17 ft • lb)
Bolt (brake caliper):
35 Nm (3.5 m • kg, 25 ft • lb)



6. Connect:
- Wheel sensor lead ① (to horn stay)
- Band ②
- Band ③
- Clamp ④
- Wheel sensor lead coupler ⑤

NOTE :
When strapping the sensor lead to the frame, place the band over the white-taped portion.



CAUTION:

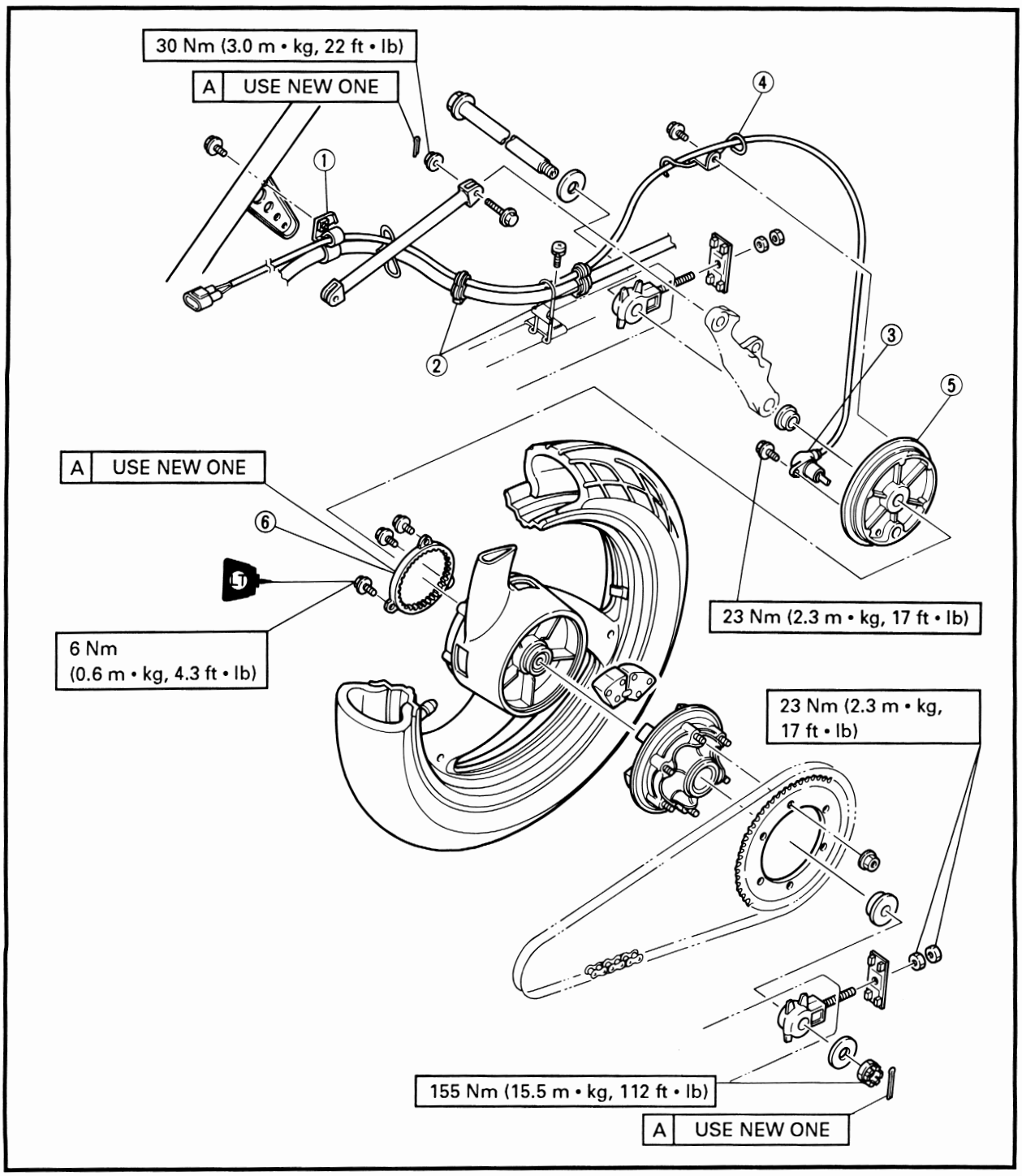
Make sure that the front wheel sensor lead are routed properly.
Refer to the "CABLE ROUTING" section in the CHAPTER 2.

⚠WARNING

Always use a new band.

[D-4] SERVICE OF REAR WHEEL SENSOR AND SENSOR ROTOR

① Holder (brake hose and sensor lead)
② Clamp
③ Rear wheel sensor
④ Holder (sensor lead)
⑤ Sensor housing
⑥ Sensor rotor



[D-4] SERVICE OF REAR WHEEL SENSOR AND SENSOR ROTOR

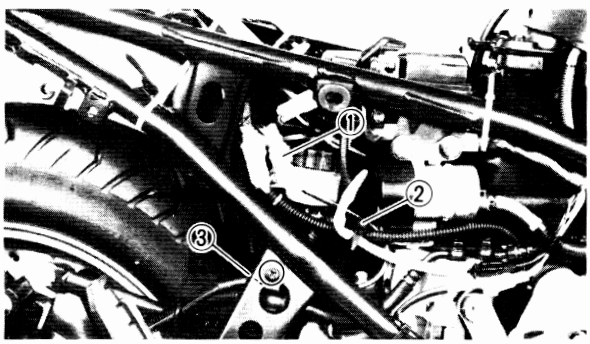
Removal

⚠ WARNING

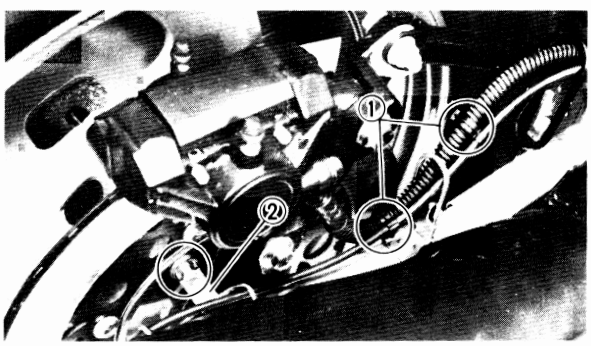
Securely support the motorcycle so there is no danger of it falling over.

1. Place the motorcycle on a level place and on its centerstand.
2. Remove:
   - Seat
   - Side cover (right)

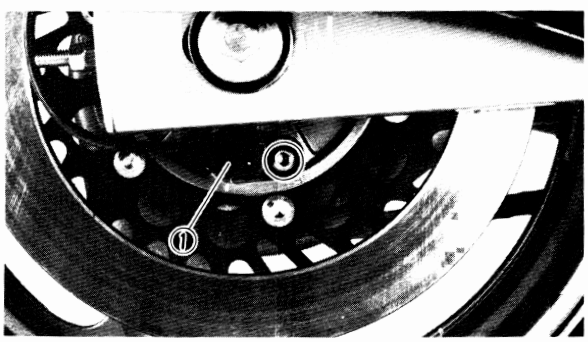
   Refer to the "SEAT, SIDE COVERS AND FUEL TANK" section in the CHAPTER 3.



3. Disconnect:
   - Wheel sensor lead coupler ①
   - Band ②
4. Remove:
   - Holder ③ (brake hose and sensor lead)



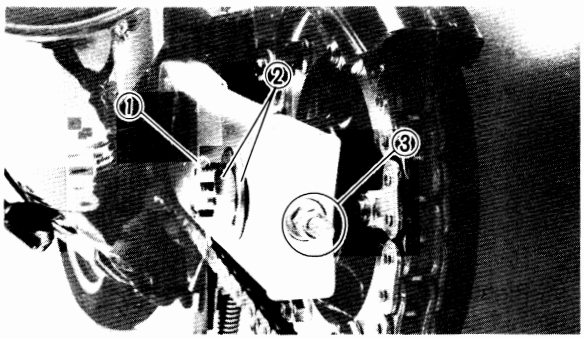
5. Remove:
   - Clamp ①
   - Holder ② (sensor lead)



6. Remove:
   - Wheel sensor ①

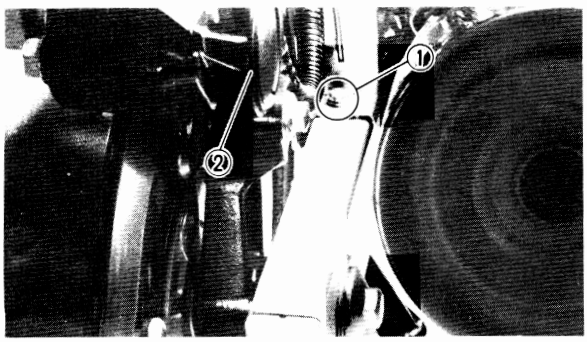
CAUTION:

Take care to avoid metal contact with the pole of the wheel sensor when removing from sensor housing.



7. Remove:
   - Cotter pin ①
   - Wheel shaft nut and washer ②

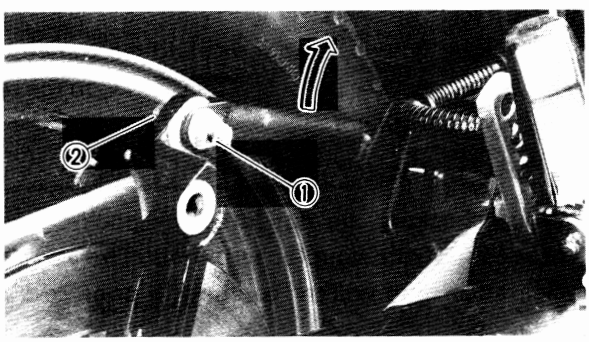
8. Loosen:
   - Chain puller adjusting nuts (left and right) ③



9. Remove:
   - Bolt ① (brake hose holder)
   - Brake caliper ②

NOTE:

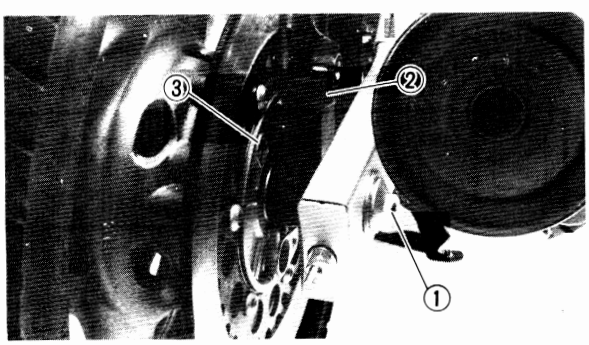
Do not depress the brake pedal when the wheel is off the motorcycle as the brake will be forced shut.



10. Remove:
    - Cotter pin ①
    - Bolt ②

NOTE :

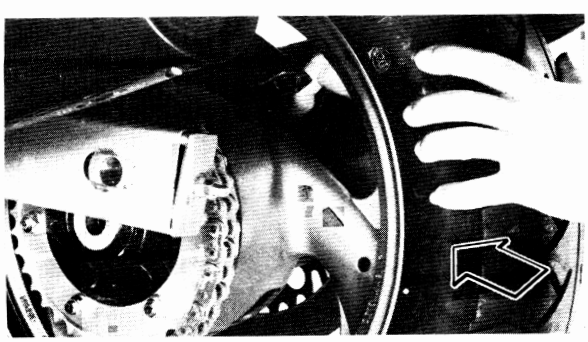
After removing bolt ②, move the compression bar upward and position it so that it does not become a hindrance at the time of removing or mounting the wheel.



11. Remove:
    - Wheel shaft ①
    - Caliper bracket ②

CAUTION:

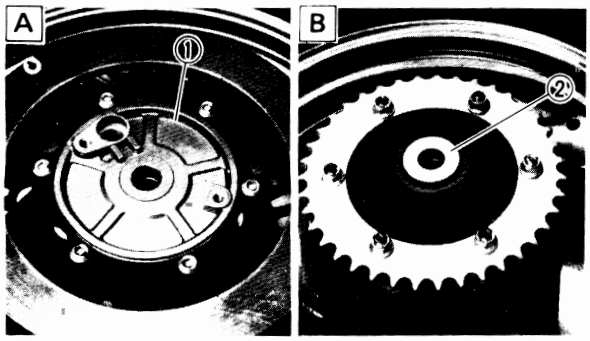
To prevent damage to sensor rotor, the sensor housing ③ should not be removed *before* rear wheel is removed.



12. Remove:
    - Rear wheel

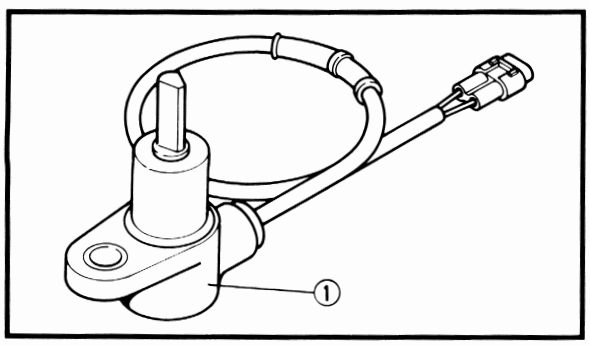
NOTE:

Before removing the rear wheel, push the wheel forward and remove the drive chain.



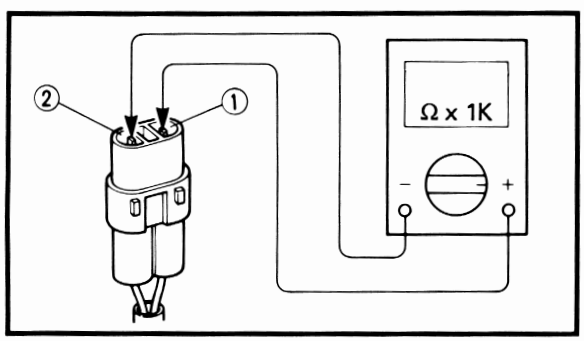
13. Remove:
- Sensor housing ①
- Collar ②

Ⓐ Right side
Ⓑ Left side



Inspection

1. Inspect:
- Rear wheel sensor ①
  Cracks/Bends/Warpage → Replace.



2. Check:
- Rear wheel sensor specified resistance.
  Connect the pocket tester (Ω x 1K) to the rear wheel sensor.

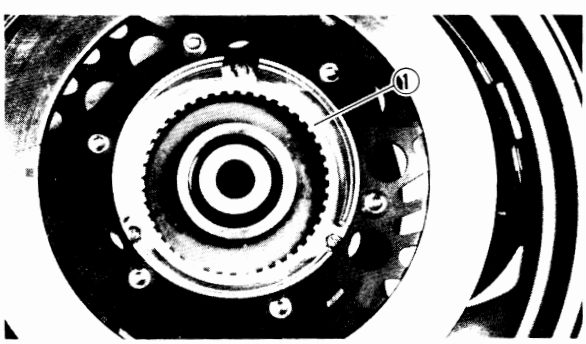
CAUTION:

While checking, do not force the pocket tester probes into the coupler terminals. The terminal clearance may widen resulting in poor connection.

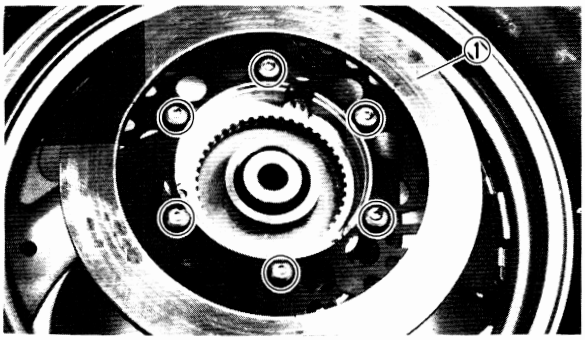
Tester (+) lead → ① terminal
Tester (–) lead → ② terminal

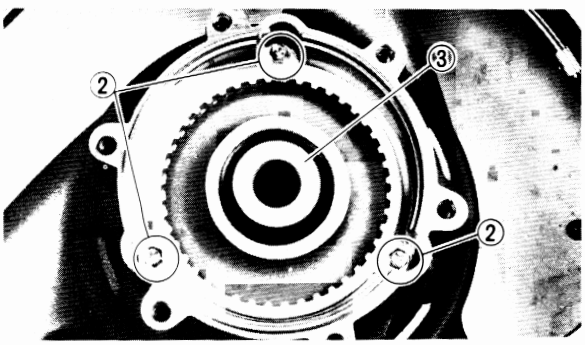
Rear wheel sensor resistance:
1.19 ~ 2.21 kΩ at 20°C (68°F)
(① terminal – ② terminal)

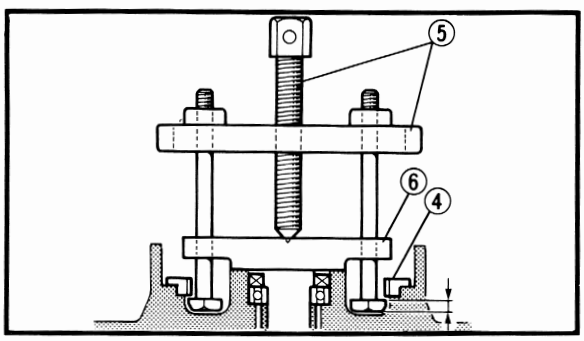
Out of specification → Replace.

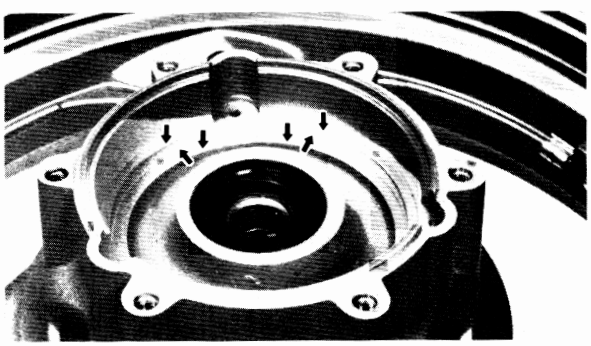


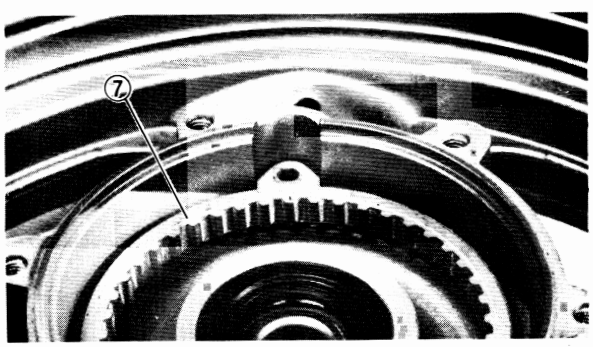
3. Inspect:
- Sensor rotor ①
  Cracks/Damage → Replace.











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Rear wheel sensor rotor replacement steps:

- Remove the brake disc ① .
- Remove the bolts ② (rear sensor rotor):
- Remove the spacer collar ③ and the spacer collar (left).
- Remove the rear wheel sensor rotor④by using the crankcase separating tool⑤and the Sencer rotor puller guide⑥.

NOTE:

Be careful not to apply pressure to the inner race of the bearing.

Crankcase separating tool:
P/N. YU-01135-A, 90890-01135
Sensor rotor puller guide:
P/N. YM-04126

NOTE :

- Install the bolts into the special tool with the heads facing downward.
- Secure the bolt heads between the teeth of the rotor and pull upward by turning the handle of the special tool.

- Check the surface of the hub where the sensor rotor is fitted.
  If the surface is found to be rough from damage, etc., replace the wheel assembly.

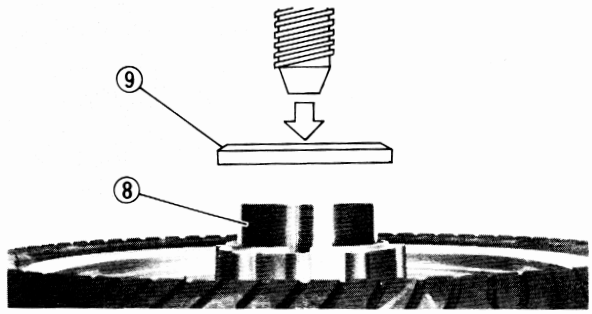
NOTE:

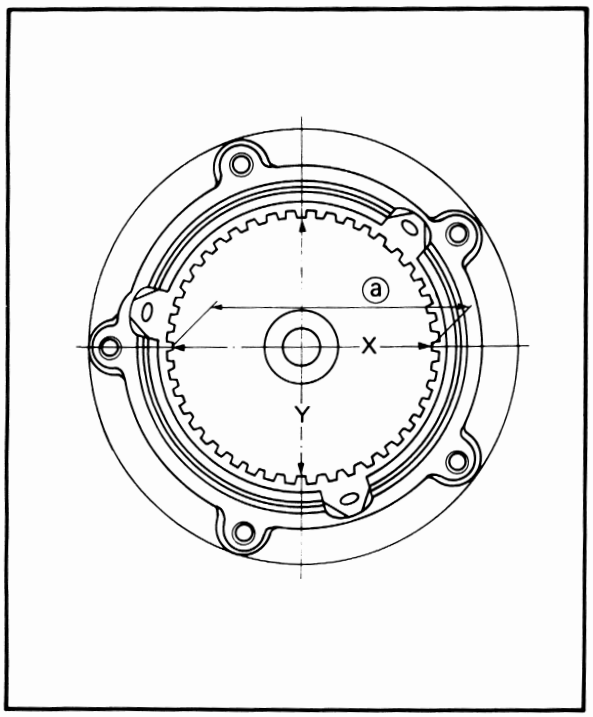
A rough surface will not allow the new sensor rotor to be seated properly.

- Put the hub on the hydraulic press so that it is level. Place a new sensor rotor ⑦ in the wheel hub parallel with its mating surface. It must not be cocked at an angle. Be sure the bolt holes are aligned with the holes in the hub.

⚠WARNING

Never reuse the sensor rotor if it has been removed. Always use a new one. Otherwise the ABS may not work correctly, which could cause an accident.





- Place the sensor rotor installation pot ⑧on the new sensor rotor ⑦ .Carefully place an appropriate support plate ⑨ centered on the pot. Then fully seat the sensor rotor in the hub by applying force on the center of the support plate with the hydraulic press.

Sensor rotor installation pot:
P/N. YM-04124, 90890-04124

CAUTION:

Do not strike the sensor rotor.

- Measure the inside diameters of the installed sensor rotor with vernier calipers.

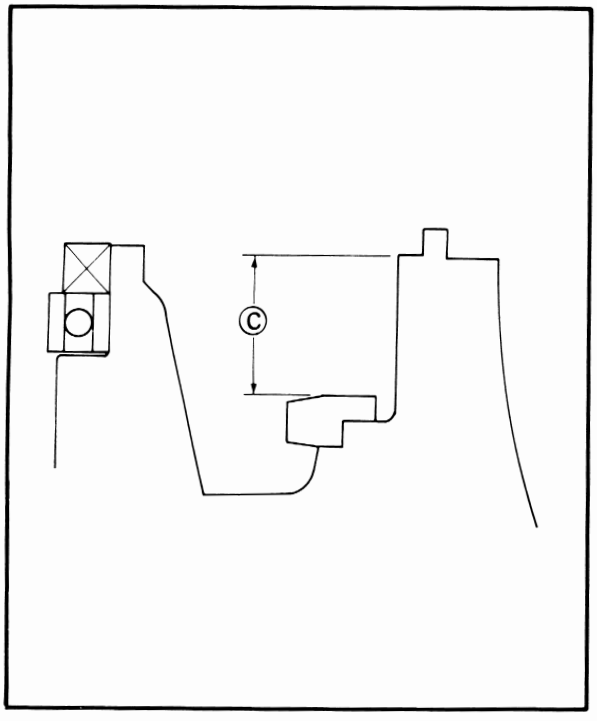
NOTE:

Measure the inside diameters of the installed sensor rotor at four equally divided points of its circumference, at right angles to the wheel axle. Then, find the average of the measurements.

Sensor rotor inside diameter ⓐ :
99.90 ~ 100.15 mm (3.933 ~ 3.943 in)
Allowance ⓑ :
Less than 0.1 mm (0.004 in)

$$ⓐ = \frac{X+Y}{2} \qquad ⓑ = X-Y$$

If the measurement is not within the above ⓐ and ⓑ , replace the wheel assembly.



● Measure the distance between the surface of the wheel hub and the outer circumference of the sensor rotor with a vernier calipers.

NOTE:

Measure the distance at six equally divided points of the sensor rotor in parallel to the wheel axle. Then, find the average of the measurements.

Distance Ⓒ:
18.15 ~ 18.85 mm (0.715 ~ 0.742 in)

If out of specification, replace the wheel assembly.

● Install the bolts ② (rear sensor rotor), the brake disk ① and the spacer collar ③.

Bolts (sensor rotor):
6 Nm (0.6 m • kg, 4.3 ft • lb)
LOCTITE®

Bolts (brake disc):
20 Nm (2.0 m • kg, 14 ft • lb)
LOCTITE®

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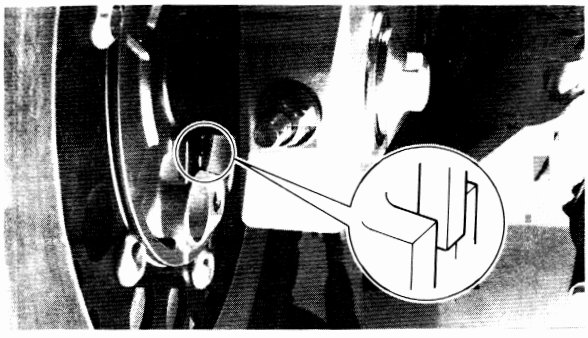
Installation

Reverse the "REMOVAL" procedure.
Note the following points.

1. Lubricate:
   - Wheel axle
   - Bearings
   - Oil seals (lip)

Litium soap base grease



2. Install:
   - Rear wheel assembly

NOTE:

Measure the distance at six equally divided points of the sensor rotor in parallel to the wheel axle. Then, find the average of the measurements.

CAUTION:

Install after you make sure that no foreign matter has entered the rear wheel hub. This may lead to damage of the internal sensor rotor and wheel sensor.

3. Adjust:
   - Drive chain slack

Drive chain slack:
15 ~ 20 mm (0.6 ~ 0.8 in)

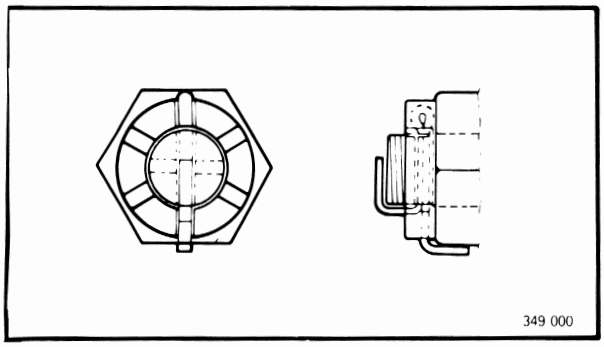
Refer to the "DRIVE CHAIN SLACK ADJUSTMENT" section in the CHAPTER 3.

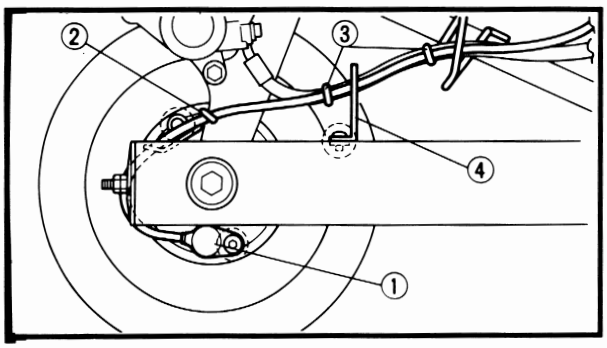
4. Tighten:
   - Axle nut
   - Bolt (chain puller)
   - Nut (compression bar)
   - Bolt (brake caliper)

Axle nut:
155 Nm (15.5 m • kg, 112 ft • lb)
Bolt (chain puller):
23 Nm (2.3 m • kg, 17 ft • lb)
Nut (compression bar):
30 Nm (3.0 m • kg, 22 ft • lb)
Bolt (brake caliper):
35 Nm (3.5 m • kg, 25 ft • lb)

NOTE:

Do not loosen the axle nut after torque tightening. If the axle nut groove is not aligned with the wheel shaft cotter pin hole, align groove to hole by tightening up on the axle nut.





5. Install:
   - Cotter pin

NOTE:

Bend the ends of the cotter pin as shown.

⚠ WARNING

Always use a new cotter pin.

6. Install:
   - Rear wheel sensor ①
   - Holder ② (sensor lead)
   - Clamp ③
   - Holder ④ (brake hose and sensor lead)

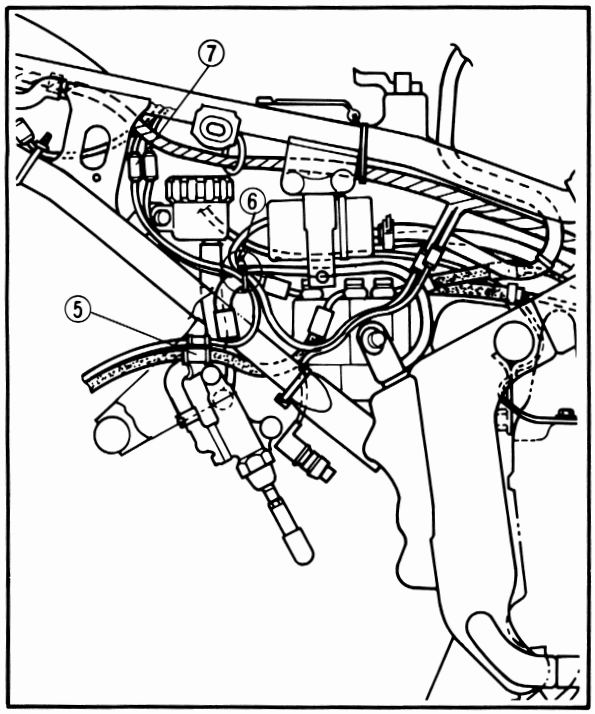
NOTE :

- When mounting the wheel sensor, make sure that there is no twist in the wheel sensor lead wire or no foreign matter is sticking to the pole.
- The small head flange bolt of the sensor lead holder ② and the screw with washer of the brake hose holder ④ are 12 mm (0.47 in) long. Take care not to mistake the bolts.

CAUTION:

Make sure that the rear wheel sensor lead is routed properly. Refer to the "CABLE ROUTING" section in the CHAPTER 2.

Bolt (rear wheel sensor):
23 Nm (2.3 m • kg, 17 ft • lb)



7. Install:
   - Holder ⑤ (brake hose and sensor lead)
8. Connect:
   - Band ⑥
   - Wheel sensor lead coupler ⑦

CAUTION:

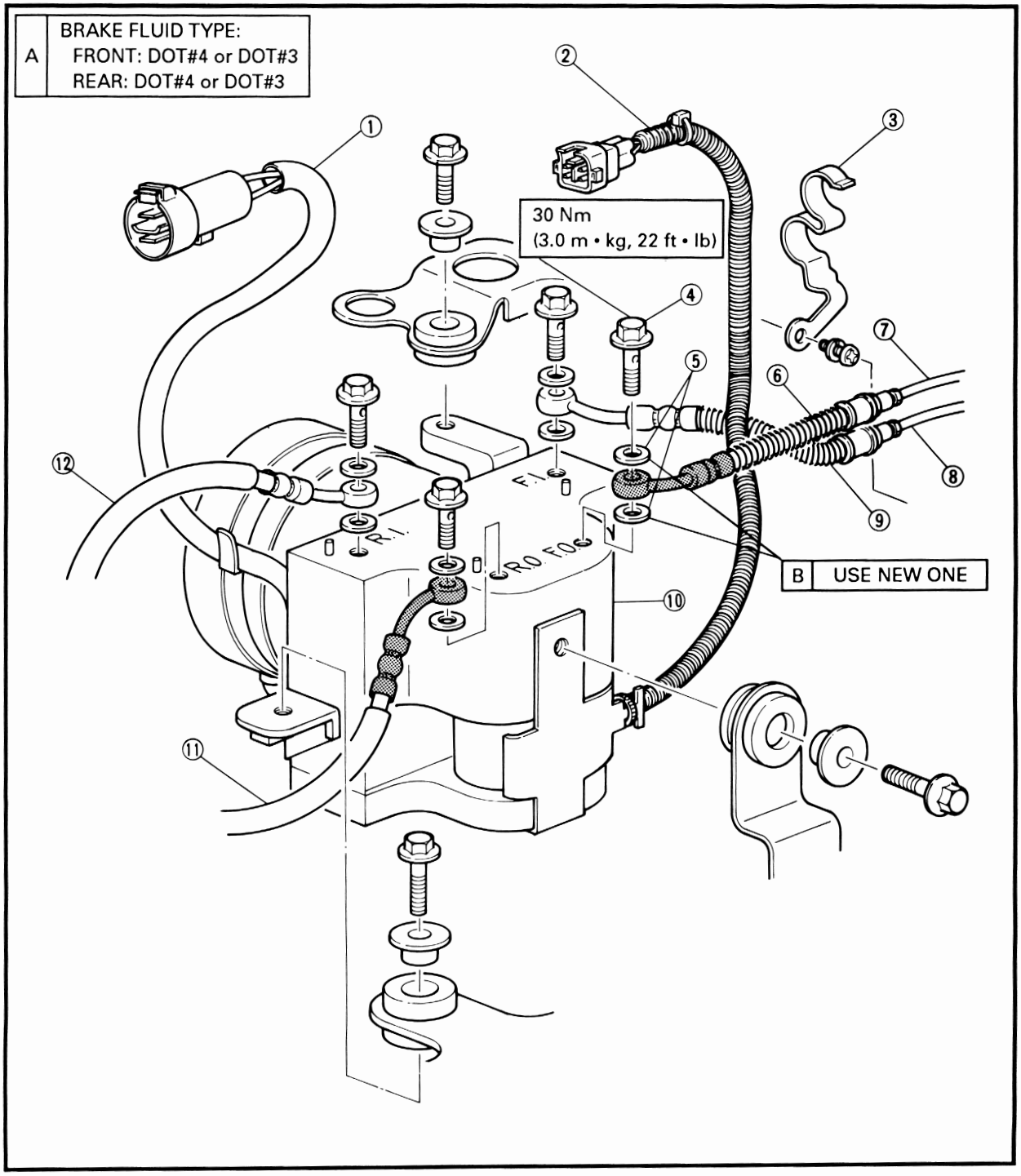
Make sure that the rear wheel sensor lead is routed properly. Refer to the "CABLE ROUTING" section in the CHAPTER 2.

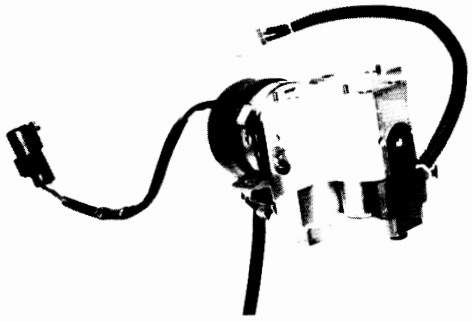
⚠ WARNING

Always use a new band.

[D-5] SERVICE OF HYDRAULIC UNIT (HU)

① Motor lead (HU)
② Solenoid valve lead (HU)
③ Brake hose holder
④ Union bolt
⑤ Copper washer
⑥ Brake hose 4 (to front brake caliper)
⑦ Brake pipe 2
⑧ Brake pipe 1
⑨ Brake hose 3 (from front master cylinder)
⑩ Hydraulic unit (HU)
⑪ Brake hose 7 (to rear brake caliper)
⑫ Brake hose 6 (from rear master cylinder)





[D-5] SERVICE OF HYDRAULIC UNIT (HU)

NOTE:

When checking this unit for the solenoid and motor resistance, do not remove it but refer to the "Inspection" section of this chapter.

CAUTION:

- **Handle ABS components carefully. ABS components are precisely adjusted. Avoid impact or dirt on these components.**
- **The ABS Hydraulic Unit cannot be disassembled. Even if you feel that the fault is minor, do not try to disassemble and repair it. Replace the part.**

  Disk brake components rarely require disassembly. DO NOT:
- **Disassemble components unless absolutely necessary.**
- **Use solvents on internal brake component.**
- **Use contaminated brake fluid for cleaning.**
- **Allow brake fluid to come in contact with the eyes, otherwise eye injury may occur.**
- **Allow brake fluid to contact painted surfaces or plastic parts, otherwise damage may occur.**
- **Disconnect any hydraulic connections, otherwise the entire system must be disassembled, drained, cleaned, and then properly filled and bled after reassembly.**

Removal

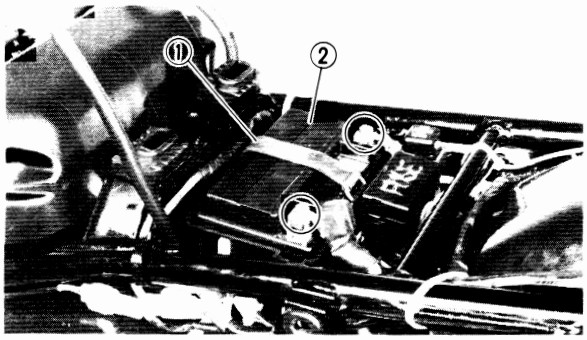
⚠WARNING

Securely support the motorcycle so there is no danger of it falling over.

1. Place the motorcycle on a level place and on its centerstand.

2. Remove:
   - Seat
   - Side cover (left)
   - Side cover (right)
   - Fuel tank
   - Upper cowling

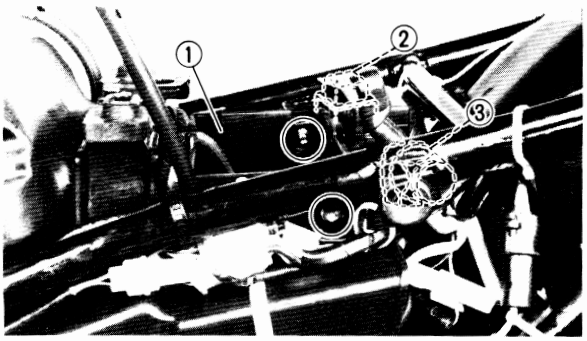
   Refer to the "SEAT, SIDE COVERS AND FUEL TANK and UPPER COWLING" section in the CHAPTER 3.



3. Remove:
   - Battery band ①
   - Battery ②

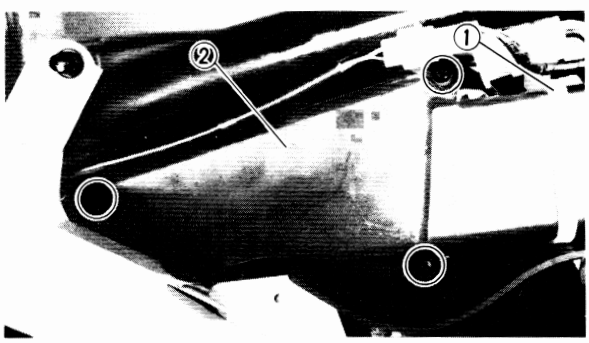
CAUTION:

Disconnect the negative lead first, and then disconnect the positive lead.



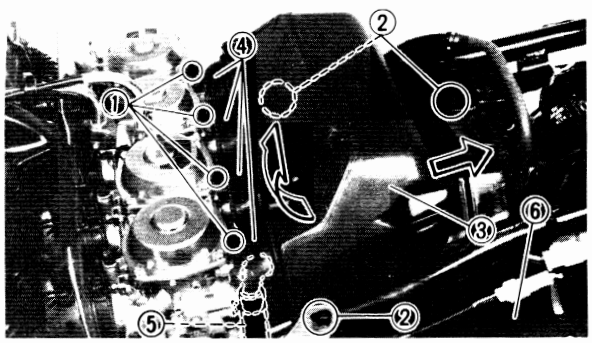
4. Remove:
   - Battery case ①

5. Disconnect:
   - "MAIN" and "ABS PUMP" fuse box ②
   - Starter relay ③



6. Disconnect:
   - Band ①

7. Remove:
   - Air cleaner case cover ②

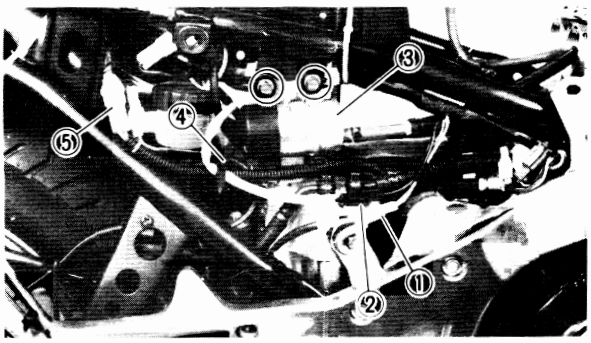


8. Loosen:
   - Air cleaner joint band screw ①
9. Remove:
   - Bolts (air cleaner case) ②
10. Move the air filter case ③ to the rear.

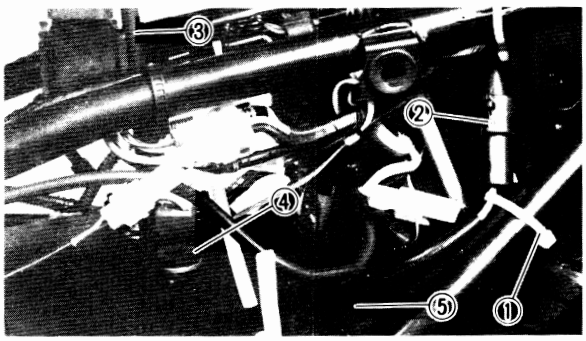
11. Remove:
    - Air cleaner joint bands
    - Air cleaner joint ④
12. Remove:
    - Air air cleaner case ③
    - Breather hose (crankcase) ⑤

NOTE :

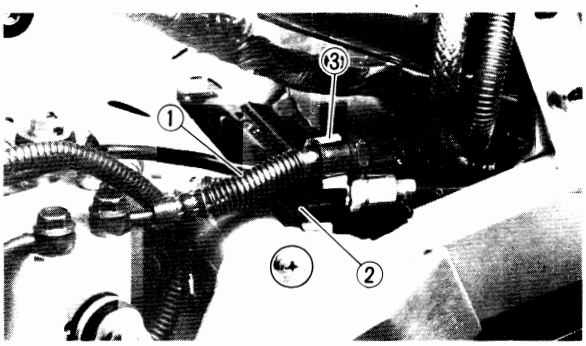
At the time of removal of the air cleaner case, shift the rubber sheet ⑥ from beneath the air cleaner case towards the rear, and remove it. Then remove the breather hose ⑤ (crankcase), hold the air cleaner case on the front side, as indicated by the arrows in the figure, lift it up and remove it.



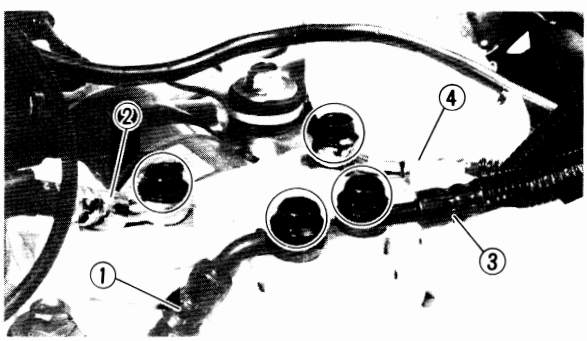
13. Disconnect:
    - Rear brake switch lead coupler ①
    - Fuel pump lead coupler ②
14. Remove:
    - Fuel pump ③
15. Disconnect:
    - Band ④
    - Solenoid valve lead (HU) coupler ⑤



16. Disconnect:
    - Band ①
    - Motor lead (HU) coupler ②
    - Breather hose (fuel tank) ③
    - Battery case damper rubber ④
    - Rubber seat ⑤



17. Disconnect:
    - Brake hose 4 ①
      (from brake hose holder ③)
    - Brake hose 3 ②
      (from brake hose holder ③)
18. Remove:
    - Brake hose holder ③



19. Remove:
    - Brake hose 7 ①
    - Brake hose 6 ②
    - Brake hose 4 ③
    - Brake hose 3 ④

NOTE :

Do not operate the front brake lever and the rear brake pedal. The brake fluid may leak out and air may enter the hose.

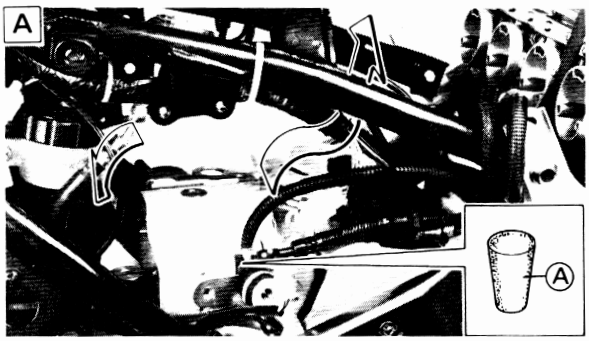
CAUTION:

Spread out a rag around the hydraulic unit before removing the brake hose so that the brake fluid does leak on other parts.

20. Remove:
- Hydraulic unit ①

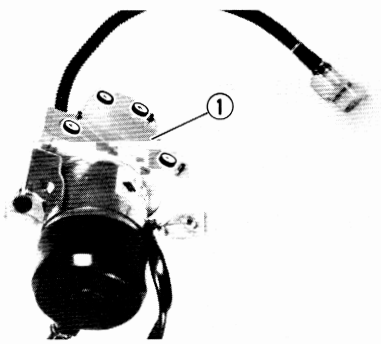
NOTE :

When removing the hydraulic unit, tilt the unit on its side as indicated in fig. [A] , and remove in the direction of the carburetors. Then install an appropriate rubber plug as indicated in Fig. Ⓐ so as to prevent brake fluid leakage and entering of foreign matter.



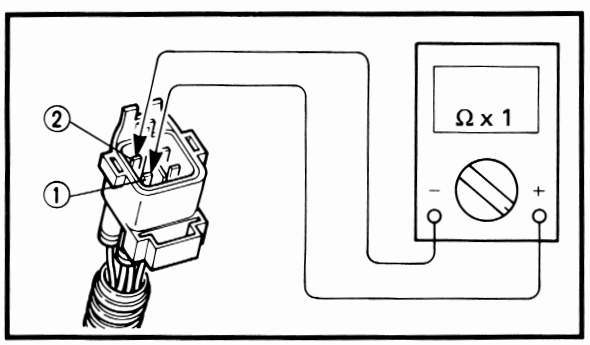
CAUTION:

Spread out a waste cloth around the hydraulic unit before removing the brake hose so that the brake fluid does leak on other parts.



Inspection

1. Inspect:
- Hydraulic unit ①
  Cracks/Damage → Replace.

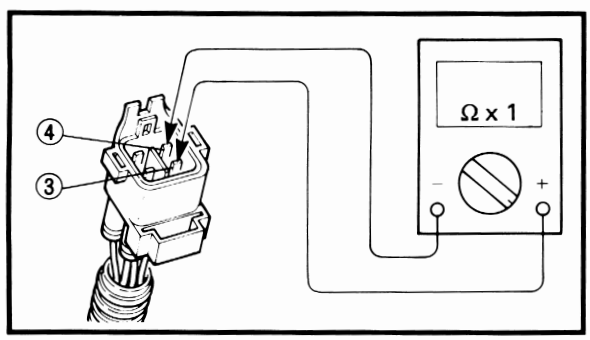


2. Check:
- Solenoid valve (front) specified resistance.
  Connect the pocket tester (Ω x 1) to the solenoid valve (front) terminals.

Tester (+) lead → Yellow/White terminal ①
Tester (–) lead → Yellow/White terminal ②

	Solenoid valve (front) resistance: Less than 10Ω at 20°C (68°F)

Out of specification → Replace Hydraulic unit.

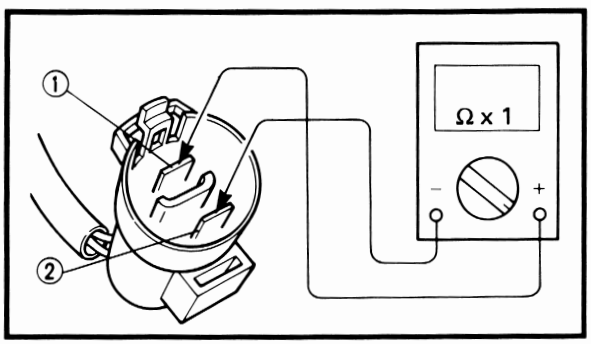


3. Check:
- Solenoid valve (rear) specified resistance.
  Connect the pocket tester (Ω x 1) to the solenoid valve (rear) terminals.

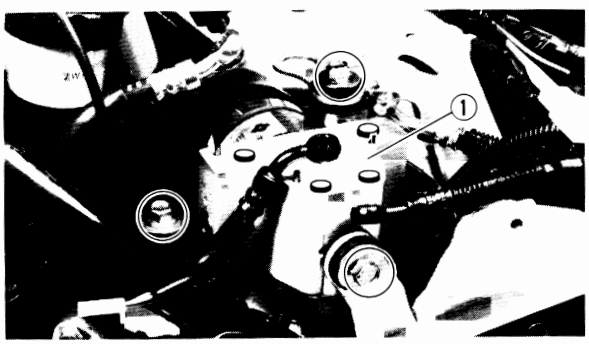
Tester (+) lead → Yellow/Red terminal ③
Tester (–) lead → Yellow/Red terminal ④

Solenoid valve (rear) resistance:
Less than 10Ω at 20°C (68°F)

Out of specification → Replace Hydraulic unit.



4. Check:
   - Continuity of Motor (HU)
     Connect the pocket tester (Ω x 1) to the motor coupler terminals.
     Check the motor for continuity between terminals ① and ② .
     If the tester shows "∞" → Replace Hydraulic unit.



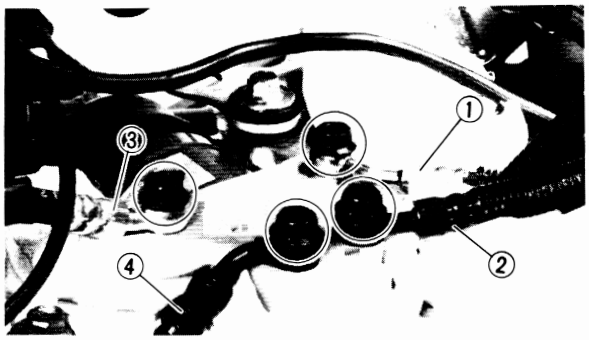
Installation

Reverse the "REMOVAL" procedure.
Note the following points.

1. Install:
   - Hydraulic unit ①

CAUTION:

- **There are chances of dirt around the hydraulic unit entering the brake fluid in the hose at the time of installing it. Therefore clean off the dirt thoroughly before installing the brake hose.**
- **Do not remove the rubber plug inserted in the brake hose hole at the time of installing it, because it prevents leakage of brake fluid and entering of air.**

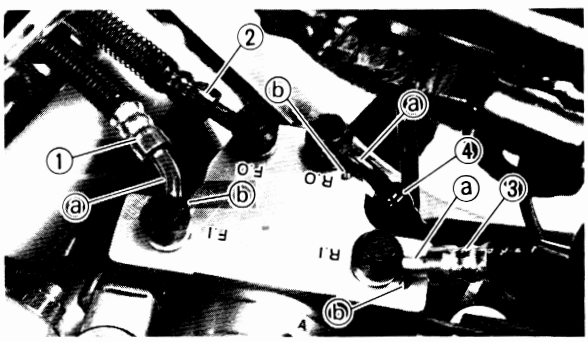


2. Install:
   - Brake hose 3 ① (from front master cylinder)
   - Brake hose 4 ② (to front brake caliper)
   - Brake hose 6 ③ (from rear master cylinder)
   - Brake hose 7 ④ (to rear brake caliper)

	Union bolt: **30 Nm (3.0 m • kg, 22 ft • lb)**

NOTE:

The inlet pipe ends of the front and rear brake hoses are white plated, and the outlet ends of the black plated.



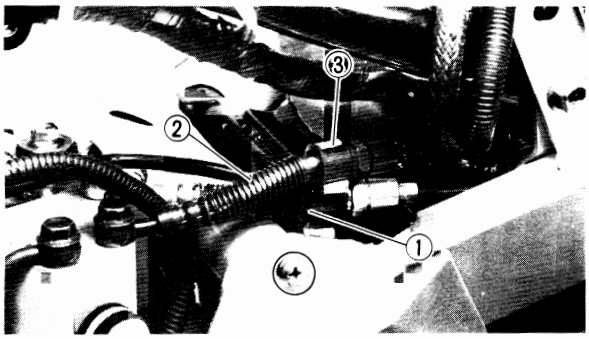
CAUTION:

- **When installing the brake hose, position it so that portion of pipe ⓐ is touching projection ⓑ on the hydraulic unit.**
- **Make sure that the brake hoses are routed properly. Refer to the "CABLE ROUTING" section in the CHAPTER 2.**

⚠ WARNING

- **Always use new copper washers.**
- **On the upper surface of the hydraulic unit, marks (F.I), (F.O), (R.I), (R.O) are provided to indicate the position of installation of each hose. Install the hoses after carefully confirming the correct position of each hose. Incorrect installation of brake hose will result in locking of wheel.**

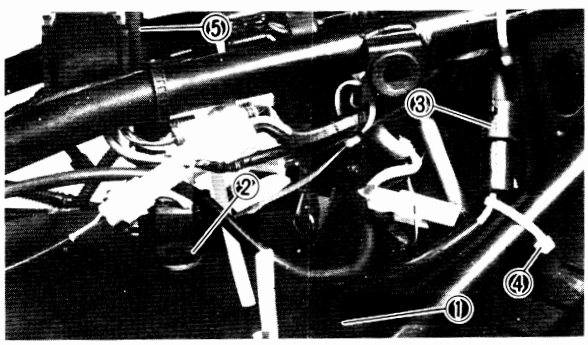
F.I (Front Inlet)– Brake hose 3 ① of from front master cylinder
F.O (Front Outlet)– Brake hose 4 ② of to front brake caliper
R.I (Rear Inlet)– Brake hose 6 ③ of from rear master cylinder
R.O (Rear Out let)– Brake hose 7 ④ of to rear brake caliper



3. Connect:
   - Brake hose 3 ① (to brake hose holder ③)
   - Brake hose 4 ② (to brake hose holder ③)
4. Install:
   - Brake hose holder ③

CAUTION:

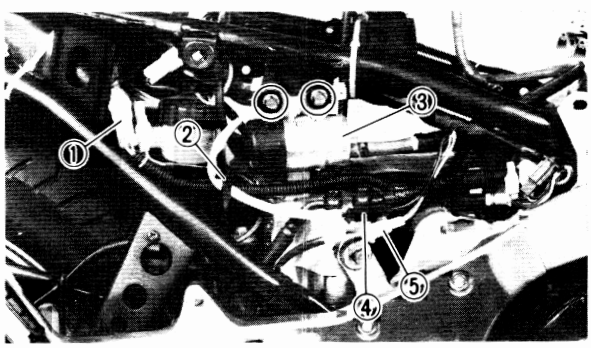
Make sure that the brake hoses are routed properly.Refer to the "CABLE ROUTING" section in the CHAPTER 2.



5. Connect:
   - Rubber seat ①
   - Battery case damper rubber ②
   - Motor lead (HU) coupler ③
   - Band ④
   - Breather hose (fuel tank) ⑤

⚠WARNING

Always use a new band.



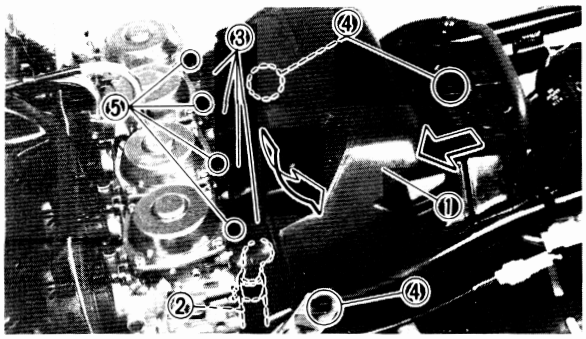
6. Connect:
   - Solenoid valve lead (HU) coupler ①
   - Band ②
7. Install:
   - Fuel pump ③
8. Connect:
   - Fuel pump coupler ④
   - Rear brake switch lead coupler ⑤

CAUTION:

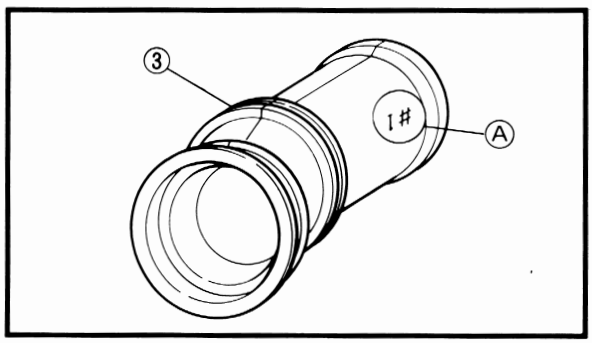
Make sure that the solenoid valve lead and fuel pump lead are routed properly. Refer to the "CABLE ROUTING" section in the CHAPTER 2.

⚠WARNING

Always use a new band.



9. Install:
   - Air cleaner case ①
   - Breather hose (crankcase) ②
   - Air cleaner joint ③
   - Air cleaner joint bands
10. Move air cleaner case to the front.
11. Tighten:
   - Bolts (air cleaner case) ④
   - Air cleaner joint band screw ⑤

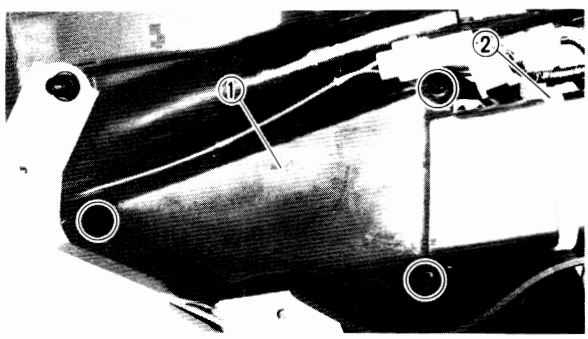


NOTE :

Each air cleaner joint is numbered. Match number Ⓐ of air cleaner joint with number of carburetor when installing.

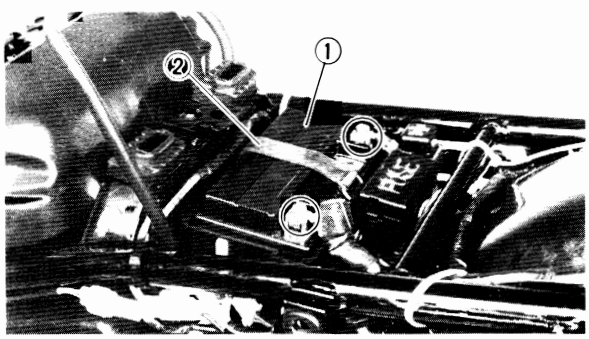
CAUTION:

Tightly secure the breather hose ② (crankcase).



12. Install:
   - Air cleaner case cover ①
13. Connect:
   - Band ②

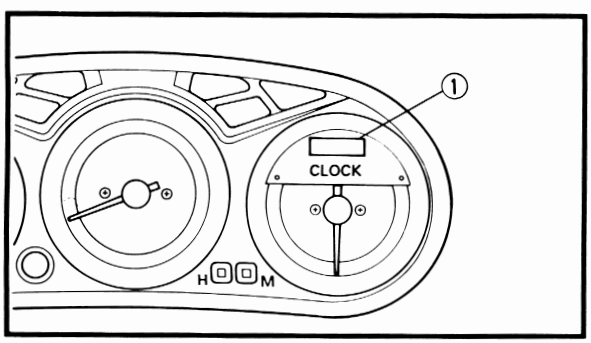
   Refer to the "CABLE ROUTING" section in the CHAPTER 2.



14. Install:
   - Battery ①
   - Battery band ②

CAUTION:

Connect the positive lead first, and then connect the negative lead.



15. Adjust:
   - Clock ①

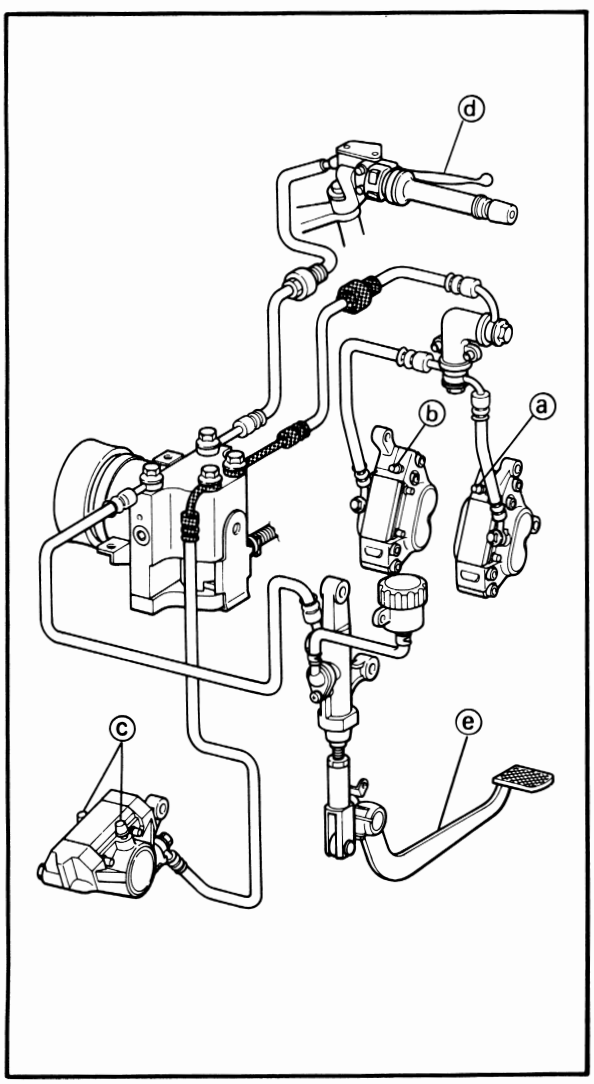
   Refer to the "DIGITAL CLOCK SYSTEM-ADJUSTMENT" section in the CHAPTER 7.

16. Fill:
    - Brake fluid

	Recommended brake fluid: **Front:** **DOT#4 or DOT #3** **Rear:** **DOT#4 or DOT#3**

17. Air bleed:
    - Brake system

    Refer to the "AIR BLEEDING" section.



Air bleeding (ABS BRAKE SYSTEM)

⚠ WARNING

Bleed the brake system if:
- **The system has been disassembled.**
- **A brake hose has been loosened or removed.**
- **The brake fluid is very low.**
- **The brake operation is faulty.**

A loss of braking performance may occur if the brake system is not properly bled.

1. Bleed:
    - Brake fluid

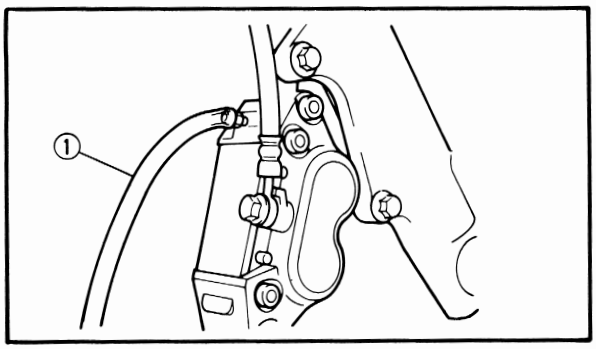
****

Air bleeding steps:

NOTE:

Bleed the brake system in the following order.
ⓐ First step-Front brake caliper (right)
ⓑ Second step-Front brake caliper (left)
ⓒ Third step-Rear brake caliper

ⓓ Brake lever
ⓔ Brake pedal



First step-Front brake caliper (right):

a. Add proper brake fluid to the reservoir.
b. Install the diaphragm. Be careful not to spill any fluid or allow the reservoir to overflow.
c. Connect the clear plastic tube ① tightly to the caliper bleed screw.
d. Place the other end of the tube into a container.
e. Slowly apply the brake lever several times.
f. Pull the lever in. Hold the lever in position.
g. Loosen the bleed screw and allow the lever to travel towards its limit.
h. Tighten the bleed screw when the lever limit has been reached; then release the lever.

	Bleed screw: **6 Nm (0.6 m • kg, 4.3 ft • lb)**

i. Repeat steps (e) to (h) until the air bubbles have been removed from the system.

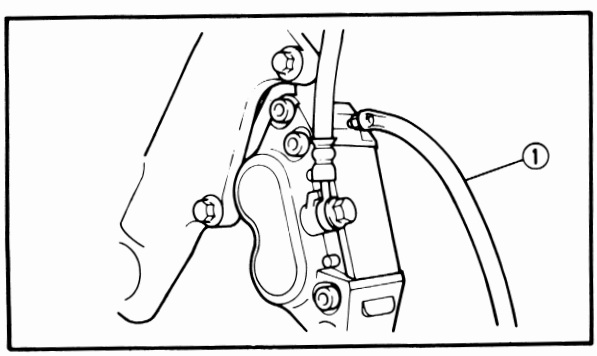
NOTE:

If bleeding is difficult, it may be necessary to let the brake fluid system stabilize for a few hours. Repeat the bleeding procedure when the tiny bubbles in the system have disappeared.

j. Add brake fluid to proper level.

⚠ WARNING

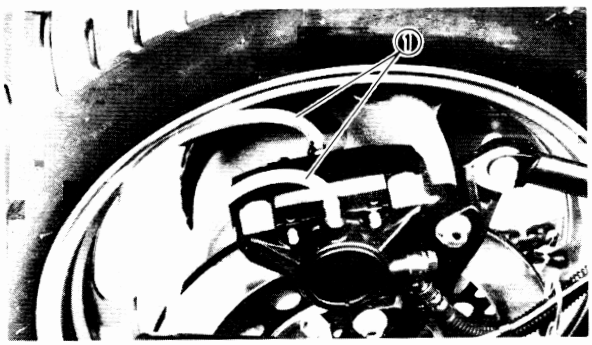
The brake system is not completely bled until all three steps are performed. Do not operate the machine until the other brakes have been bled also.



Second step-Front brake caliper (left):

a. Repeat steps (a) through (j) of right brake caliper.

① Plastic tube



Third step-Rear brake caliper:

a. Add proper brake fluid to the reservoir.
b. Install the diaphragm. Be careful not to spill any fluid or allow the reservoir to overflow.
c. Connect the clear plastic tube ① tightly to the caliper bleed screw.
d. Place the other end of the tube into a container.
e. Slowly apply the brake pedal several times.
f. Push down on the pedal. Hold the pedal in position.
g. Loosen the bleed screw and allow the pedal to travel towards its limit.
h. Tighten the bleed screw when the pedal limit has been reached; then release the pedal.

Bleed screw:
6 Nm (0.6 m • kg, 4.3 ft • lb)

i. Repeat steps (e) to (h) until all of the air bubbles have been removed from the system.

NOTE:

If bleeding is difficult, it may be necessary to let the brake fluid system stabilize for a few hours. Repeat the bleeding procedure when the tiny bubbles in the system have disappered.

j. Add brake fluid to proper level.

⚠ WARNING

Check the operation of the brake after bleeding the brake system.

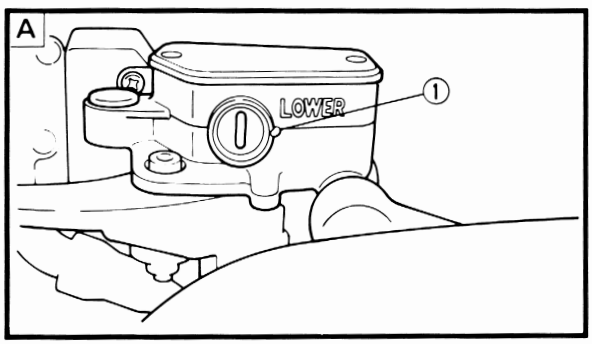
Hydraulic Unit pressure drop Operation check

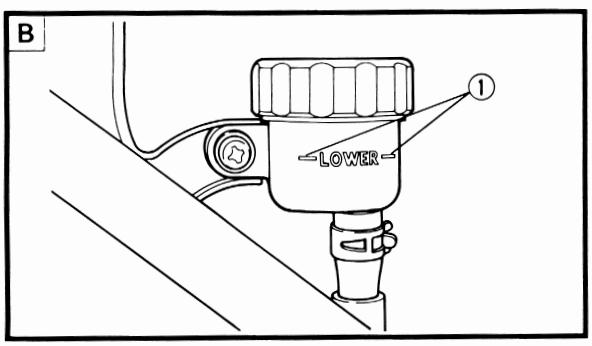
1. Pressure Drop Operation Check
   Refer to the [D-6-3] HU operation check section.

[D-6] FINAL INSPECTION BEFORE DELIVERY OF THE SERVICED MOTORCYCLE

Troubleshooting procedure

1. Brake fluid inspection
2. Re-confirmation of wheel sensor installation
3. HU operation test
4. Erasing the fault-code(s)
5. Test run





[D-6-1] Brake Fluid Inspection

1. Place the motorcycle on a level place.

NOTE:

- Position the motorcycle straight up when inspecting the brake fluid level.
- When inspecting the front brake fluid level, make sure the master cylinder top is horizontal by turning the handlebars.

2. Inspect:
   - Brake fluid level
     Fluid level is under "LOWER" level line ①
     → Fill up.

Recommended brake fluid
Front:
DOT No.4 or DOT No.3
Rear:
DOT No.4 or DOT No.3

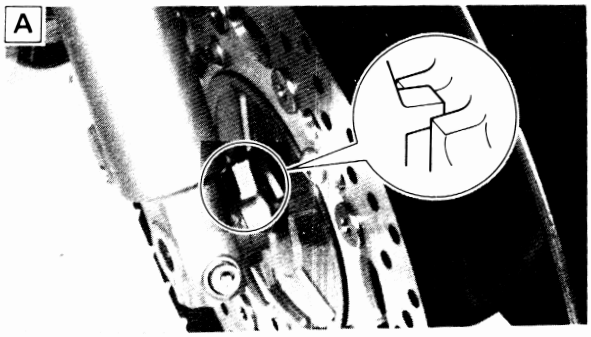
[A] Front
[B] Rear

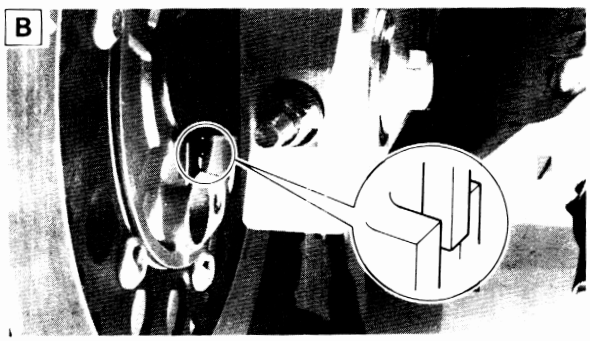
CAUTION:

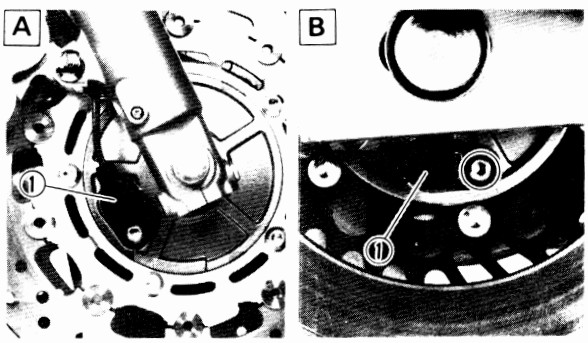
Brake fluid may erode painted surfaces or plastic parts. Always clean up spilled fluid immediately.

⚠WARNING

- **Use only the designated quality brake fluid: otherwise, the rubber seals may deteriorate, causing leakage and poor brake performance.**
- **Refill with the same type of brake fluid; mixing fluids may result in a harmful chemical reaction and lead to poor performance.**
- **Be careful that water does not enter the master cylinder when refilling. Water will significantly lower the boiling point of the fluid and may result in vapor lock.**







[D-6-2] Re-confirmation of wheel sensor installation

1. Check that the wheel sensor housings are installed at the correct positions. Refer to the "[D-3] / [D-4] SERVICE OF WHEEL SENSOR AND SENSOR ROTOR" section.

[A] Front
[B] Rear

2. Inspect:
   - The installation of the wheel sensors ① on to the sensor housing.

	Bolt (wheel sensor): 23 Nm (2.3 m • kg, 17 ft • lb)

   - The wire routing of the wheel sensors Refer to the "CABLE ROUTING" section in the CHAPTER 2.

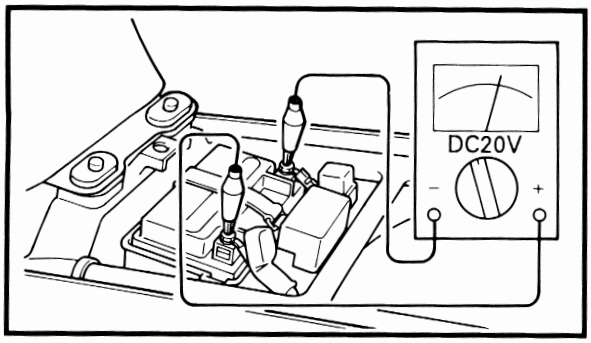
[A] Front
[B] Rear

[D-6-3] HU operation test

⚠ WARNING

Securely support the motorcycle so there is no danger of it falling over.

1. Place the motorcycle on a level place and on its centerstand.



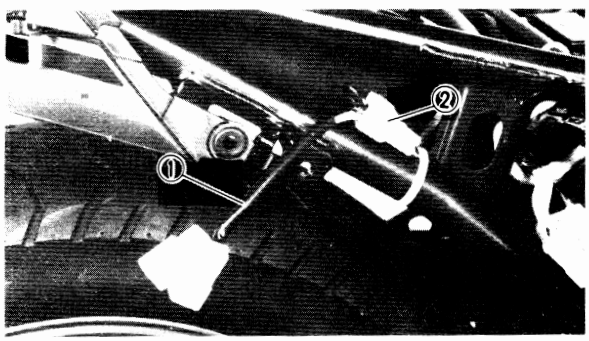
2. Remove:
   - Seat
3. Check:
   - Battery voltage

Battery voltage:
12.8 V or higher at 20°C (68°F)

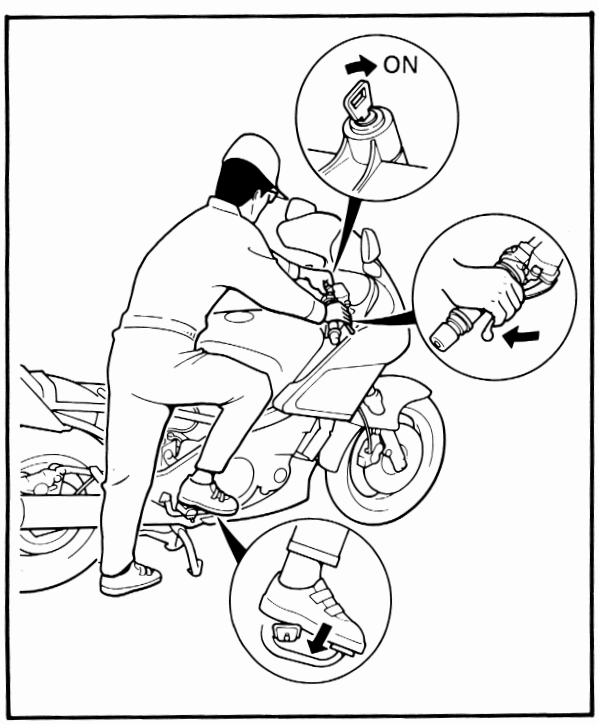
Refer to the "BATTERY INSPECTION" section in the CHAPTER 3.

NOTE:

- If the source voltage is lower than 12.8 V, it is recommended to carry out the test after fully charging the battery.
- If the source voltage is lower than 10V, the "ABS" warning light will come on and the ECU will stop ABS operation.



4. Insert the ABS test coupler adapter ① into the ABS test coupler ② .
   Refer to the "[B-5]" section.

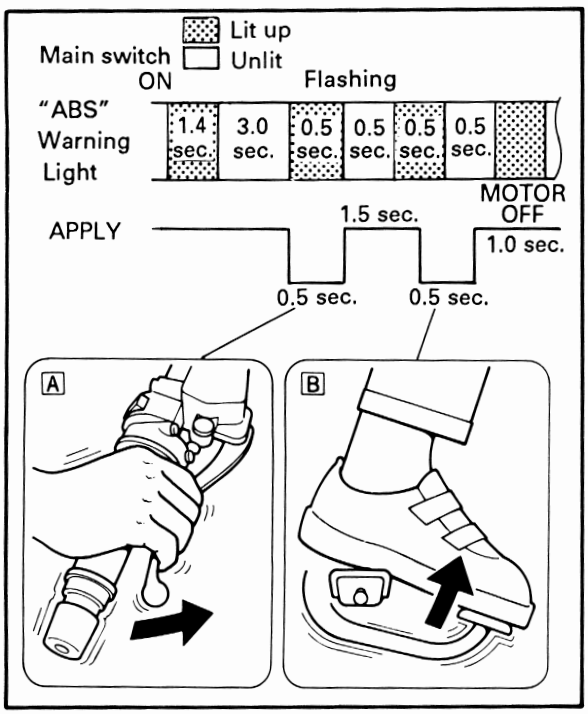


5. Apply both the front brake lever and the rear brake pedal at the same time.
6. Turn the main switch to "ON".

NOTE:

This test will not start unless BOTH brake lever and pedal are applied at the moment when the main switch is turned to "ON"

7. Confirm that HU operates in the way indicated as follows.



HU operation:

- "ABS" warning light comes on for 1.4 seconds after the main switch is turned "ON".
- The HU dumps the front brake pressure for 0.5 seconds. At the same time, the hydraulic pump starts reapplying the front brake pressure. The series of hydraulic operations feels like a "Drop-in" and then a pulsing "Return" of the lever.
- After the movement of the front brake, the HU dumps the rear brake pressure for 0.5 seconds.
  The same hydraulic operation as that of the front brake lever is felt at the rear brake pedal.

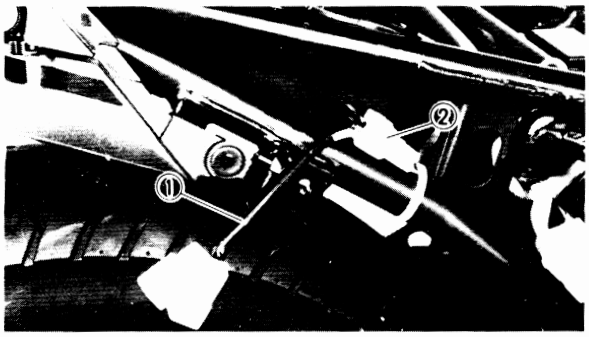
[A] Front brake lever
[B] Rear brake pedal

NOTE:

- The order of the pressure dumping (first at front and then at rear) is very essential. If this order is different, the hydraulic circuit should be checked again.
- If you do not feel a pulsing "return", but rather a smooth return, the HU's inlet and outlet hoses are most likely reversed. Recheck the connections.
- If all HU operations are correct, erase the fault cordes.

⚠ WARNING

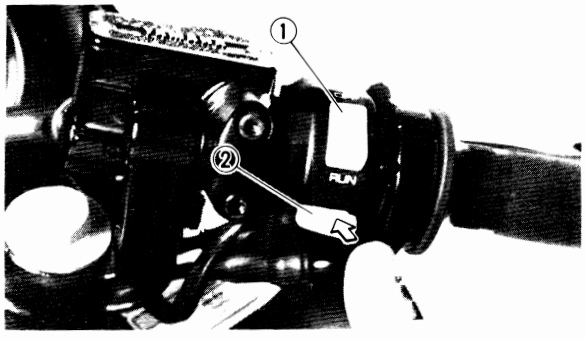
Reversed connections of the brake hoses at the HU will cause the instantaneous lock up of the caliper to the brake disk. This could cause loss of control and an accident.



[D-6-4] Erasing the fault-code(s)

1. Insert the ABS test coupler adapter ① into the ABS test coupler ② .
   Refer to the "[B-5]"section.

2. Turn the main switch to "ON".
   The fault codes previously recorded should be displayed by the "ABS" warning light.

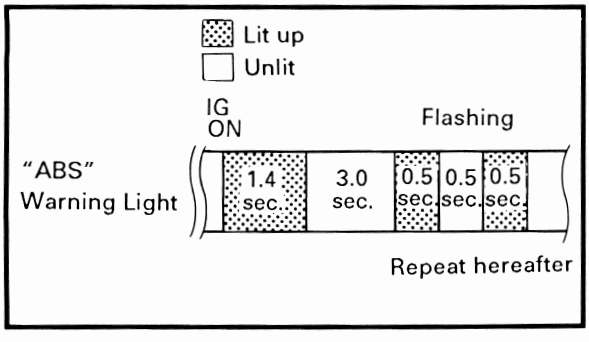


3. Turn the "ENGINE STOP" switch ① to "OFF".
4. Press the starter switch ② at least 10 times within 4 seconds.

NOTE:

The "OIL LEVEL" indicator will light at the same time as you press the starter switch: This is normal.

5. Confirm that the "ABS" warning light stays on. (Make sure that the light is on for more than 2 seconds.)
6. Turn the main switch to "OFF".



7. Turn the main switch to "ON" again. Confirm that the "ABS" warning light starts flashing after it lights up 1.4 seconds and goes off for 3 seconds.

8. Turn the main switch to "OFF".

9. Remove the ABS test coupler adapter from the ABS test coupler, and insert the protection cap into the ABS test coupler. This completes the erasing procedure.

NOTE:

- The ECU stores the fault codes in its memory until they are erased.
- Be sure to erase all past faults after correct operation has been verified.
- This will ensure that, should another fault occur sometime in the future, the old codes will not confuse the diagnosis of the problem.

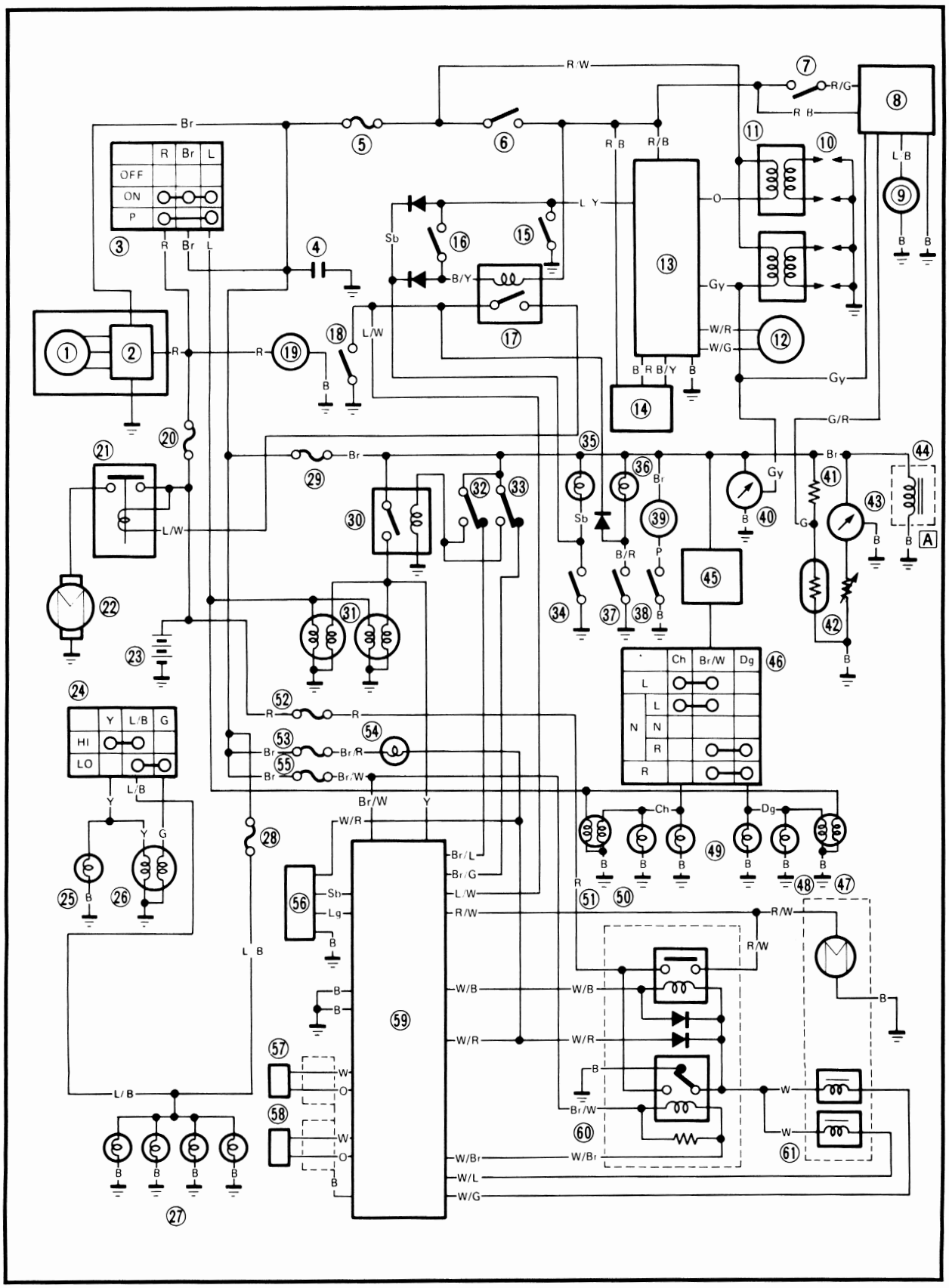
[D-6-5] Test run

If everything is correct after all the checking, test run the motorcycle at a low and safe speed of more than 10 km/h (6.2 m.p.h.).

This completes the "FINAL INSPECTION BEFORE DELIVERY OF THE SERVICE MOTORCYCLE".
The motorcycle may now be returned to its owner.

ELECTRICAL

FJ1200A D/DC CIRCUIT DIAGRAM



① A.C. Generator
② Rectifier/Regulator
③ Main switch
④ Condenser
⑤ Fuse "IGNITION"
⑥ "ENGINE STOP" switch
⑦ "RESERVE" switch
⑧ Fuel pump control relay
⑨ Fuel pump
⑩ Spark plug
⑪ Ignition coil
⑫ Pickup coil
⑬ Digital ignitor unit
⑭ Pressuer sensor
⑮ Sidestand switch
⑯ Clutch switch
⑰ Safety relay
⑱ "START" switch
⑲ Clock
⑳ Fuse "MAIN"
㉑ Starter relay
㉒ Starter motor
㉓ Battery
㉔ "LIGHTS" (Dimmer) switch
㉕ "HIGH BEAM" indicator light
㉖ Headlight
㉗ Meter light
㉘ Fuse "HEAD LIGHT"
㉙ Fuse "SIGNAL"
㉚ Relay assembly (brake switch)
㉛ Tail/brake light
㉜ Front brake switch
㉝ Rear brake switch
㉞ Neutral switch
㉟ "NEUTRAL" indicator light
㊱ "OIL LEVEL" indicator light
㊲ Oil level switch
㊳ "HORN" switch
㊴ Horn
㊵ Tachometer
㊶ Resistor
㊷ Fuel sender unit
㊸ Fuel meter
㊹ Control valve (for California-only)
㊺ Flasher relay
㊻ "TURN" switch
㊼ Front position light (right)
㊽ Flasher light (Right)
㊾ "TURN" indicator light
㊿ Flasher light (Left)
(51) Front position light (left)
(52) Fuse "ABS PUMP"
(53) Fuse "WARNING"
(54) Fuse "ECU"
(55) "ABS" warning light
(56) ABS test coupler
(57) Front wheel sensor
(58) Rear wheel sensor
(59) ABS Electronic control unit (ECU)
(60) Fail-safe relay
(61) Hydraulic unit (HU)
[A] For California-only

COLOR CODE

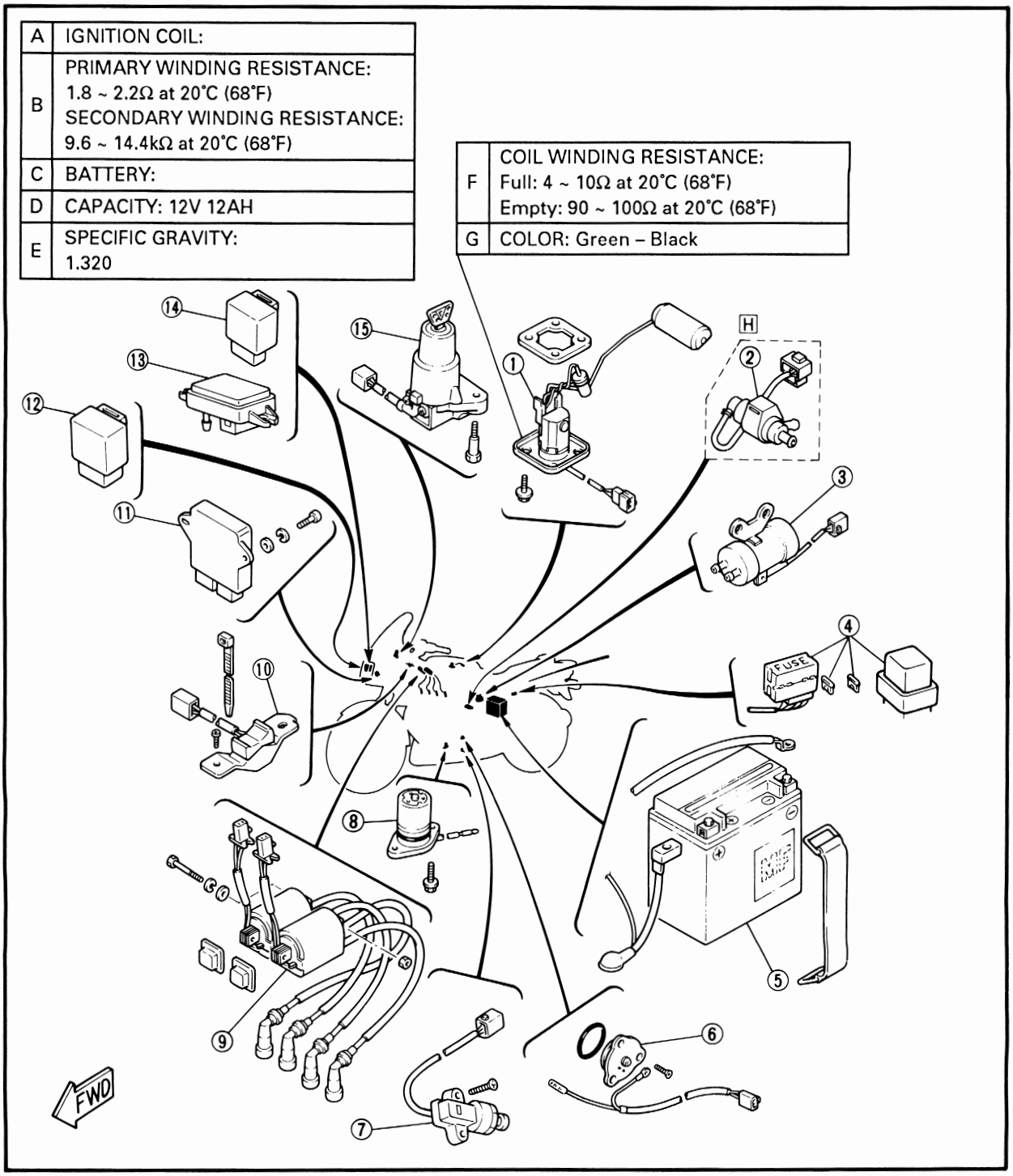
B	Black	Br/R	Brown/Red
Br	Brown	Br/W	Brown/White
Ch	Chocolate	G/R	Green/Red
Dg	Dark green	L/B	Blue/Black
G	Green	L/R	Blue/Red
Gy	Gray	L/W	Blue/White
L	Blue	L/Y	Blue/Yellow
Lg	Light green	R/B	Red/Black
O	Orange	R/G	Red/Green
P	Pink	R/W	Red/White
R	Red	W/B	White/Black
Sb	Sky blue	W/Br	White/Brown
W	White	W/G	White/Green
Y	Yellow	W/L	White/Blue
B/R	Black/Red	W/R	White/Red
B/Y	Black/Yellow		
Br/G	Brown/Green		
Br/L	Brown/Blue		

ELECTRICAL COMPONENTS (1)

① Fuel sender unit
② Control valve (For California-only)
③ Fuel pump
④ Fuse
⑤ Battery
⑥ *Neutral* switch
⑦ Sidestand switch
⑧ Oil level switch
⑨ Ignition coil
⑩ "FUEL" (Reserve) switch
⑪ Digital ignitor unit
⑫ Safety relay
⑬ Pressure sensor
⑭ Fuel pump control relay
⑮ Main switch
[H] For California-only

A	IGNITION COIL:
B	PRIMARY WINDING RESISTANCE: 1.8 ~ 2.2Ω at 20°C (68°F) SECONDARY WINDING RESISTANCE: 9.6 ~ 14.4kΩ at 20°C (68°F)
C	BATTERY:
D	CAPACITY: 12V 12AH
E	SPECIFIC GRAVITY: 1.320

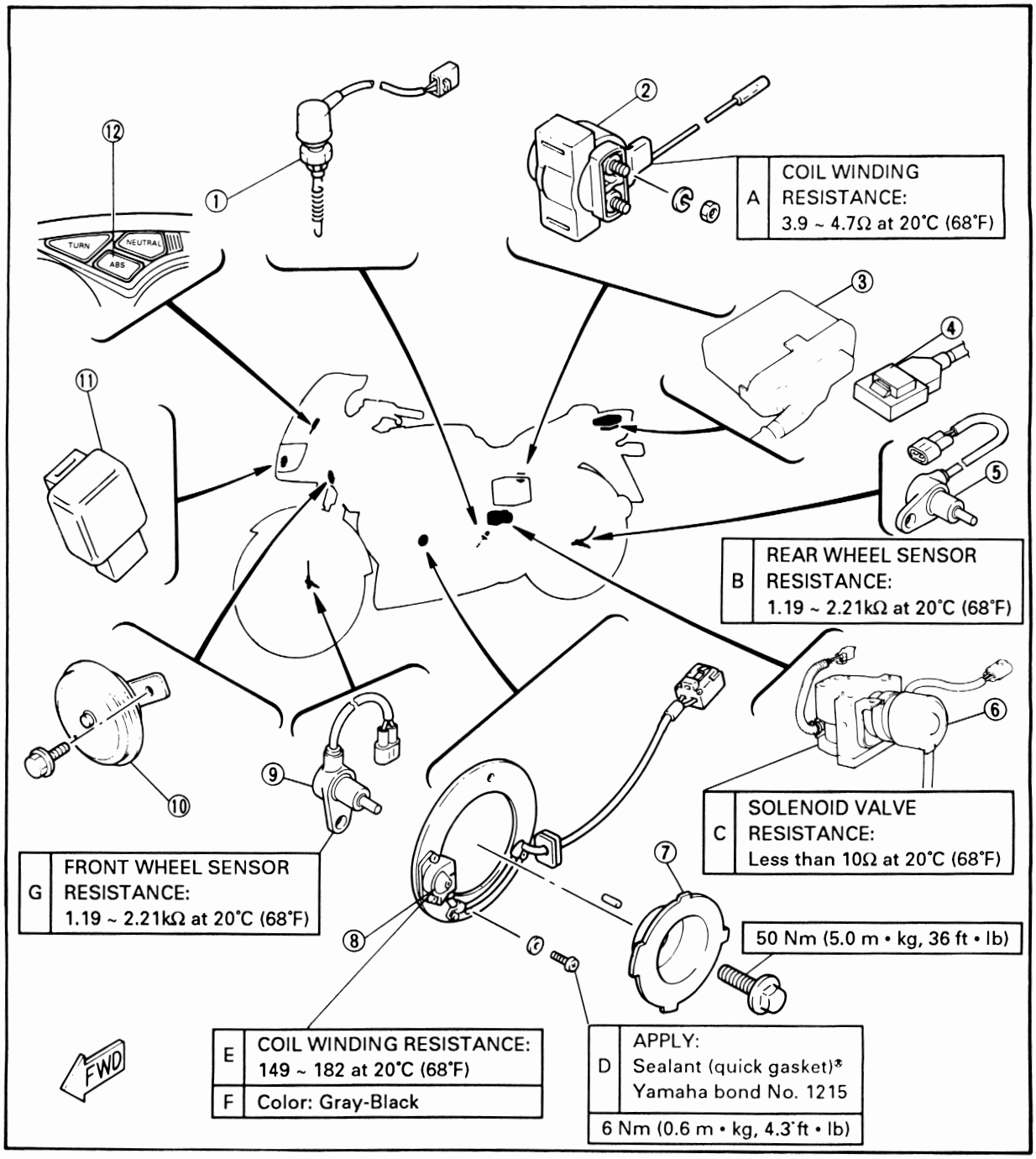
F	COIL WINDING RESISTANCE: Full: 4 ~ 10Ω at 20°C (68°F) Empty: 90 ~ 100Ω at 20°C (68°F)
G	COLOR: Green – Black



ELECTRICAL COMPONENTS (2)

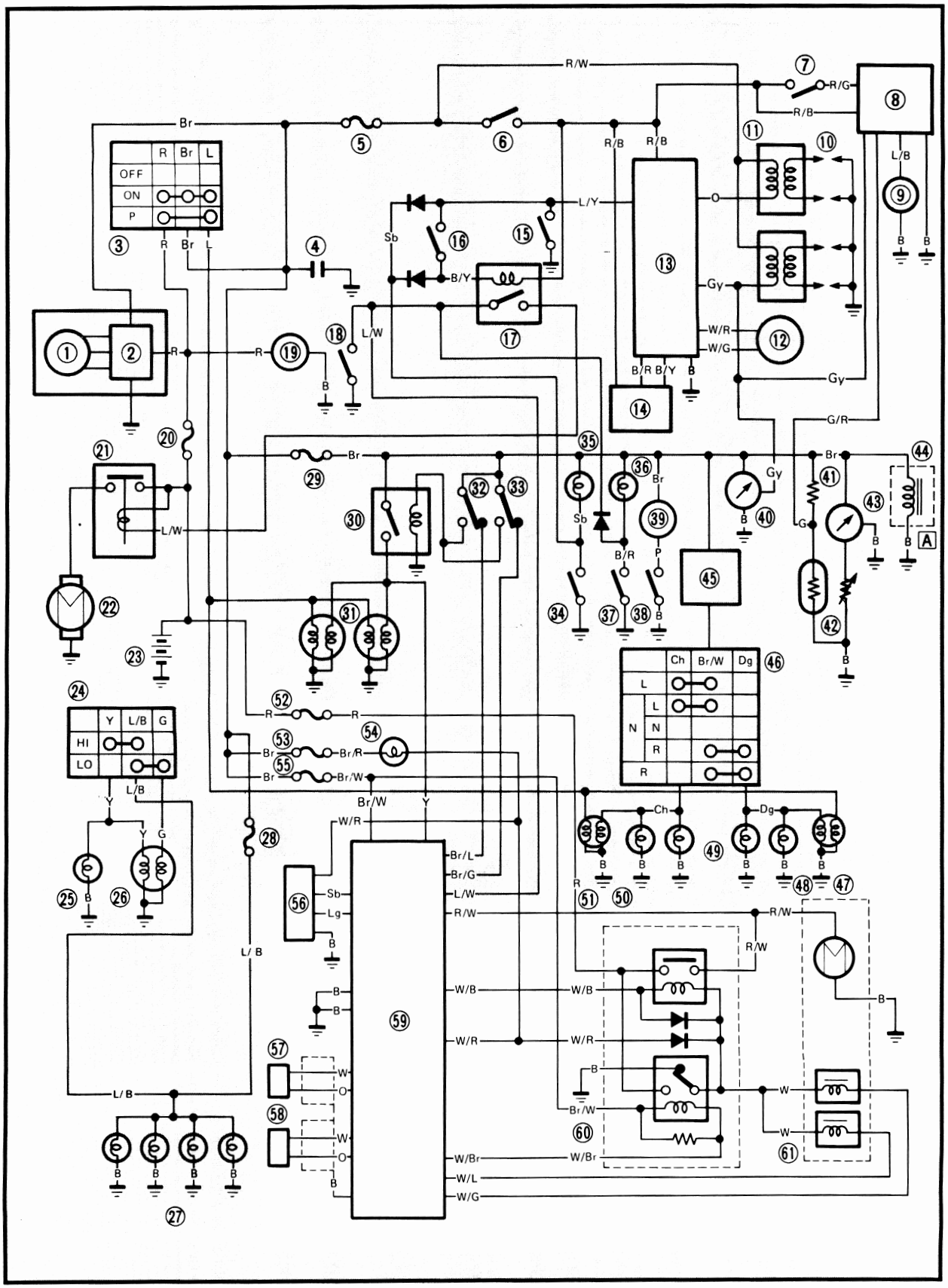
① Rear brake switch
② Starter relay
③ ABS Electronic control unit (ECU)
④ ABS Fail-safe relay
⑤ ABS Rear wheel sensor
⑥ ABS Hydraulic unit (HU)
⑦ Pickup rotor
⑧ Pick up coil
⑨ ABS Front wheel sensor
⑩ Horn
⑪ Flasher relay
⑫ "ABS" warning light

GENERATOR:	STARTER MOTOR:
STATOR COIL RESISTANCE: 0.19 ~ 0.20Ω at 20°C (68°F) (White – White)	BRUSH LENGTH LIMIT: 5.0 mm (0.20 in)
FIELD COIL RESISTANCE: 3.8 ~ 4.2Ω at 20°C (68°F)	COMMUTATOR DIA. LIMIT 27 mm (1.06 in)
BRUSH LENGTH LIMIT: 4.5 mm (0.18 in)	



ANTI-LOCK BRAKE SYSTEM (ABS)

CIRCUIT DIAGRAM

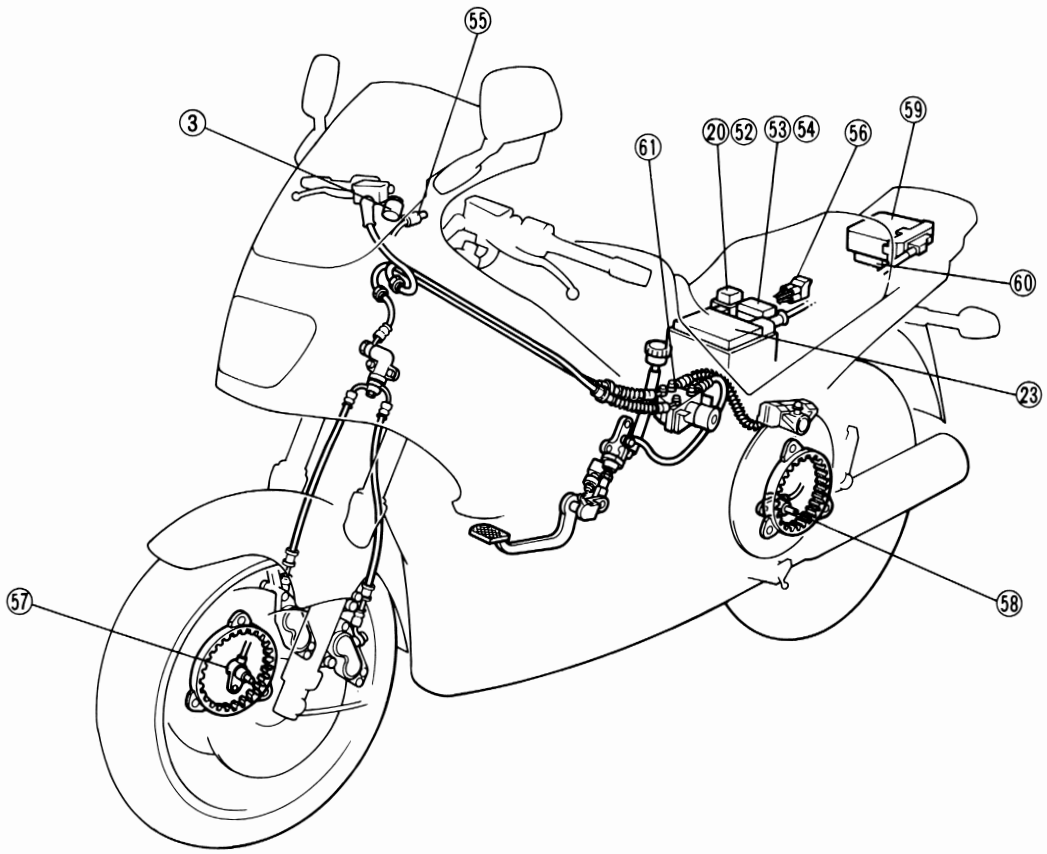


Aforementioned circuit diagram shows anti-lock brake circuit.

NOTE:

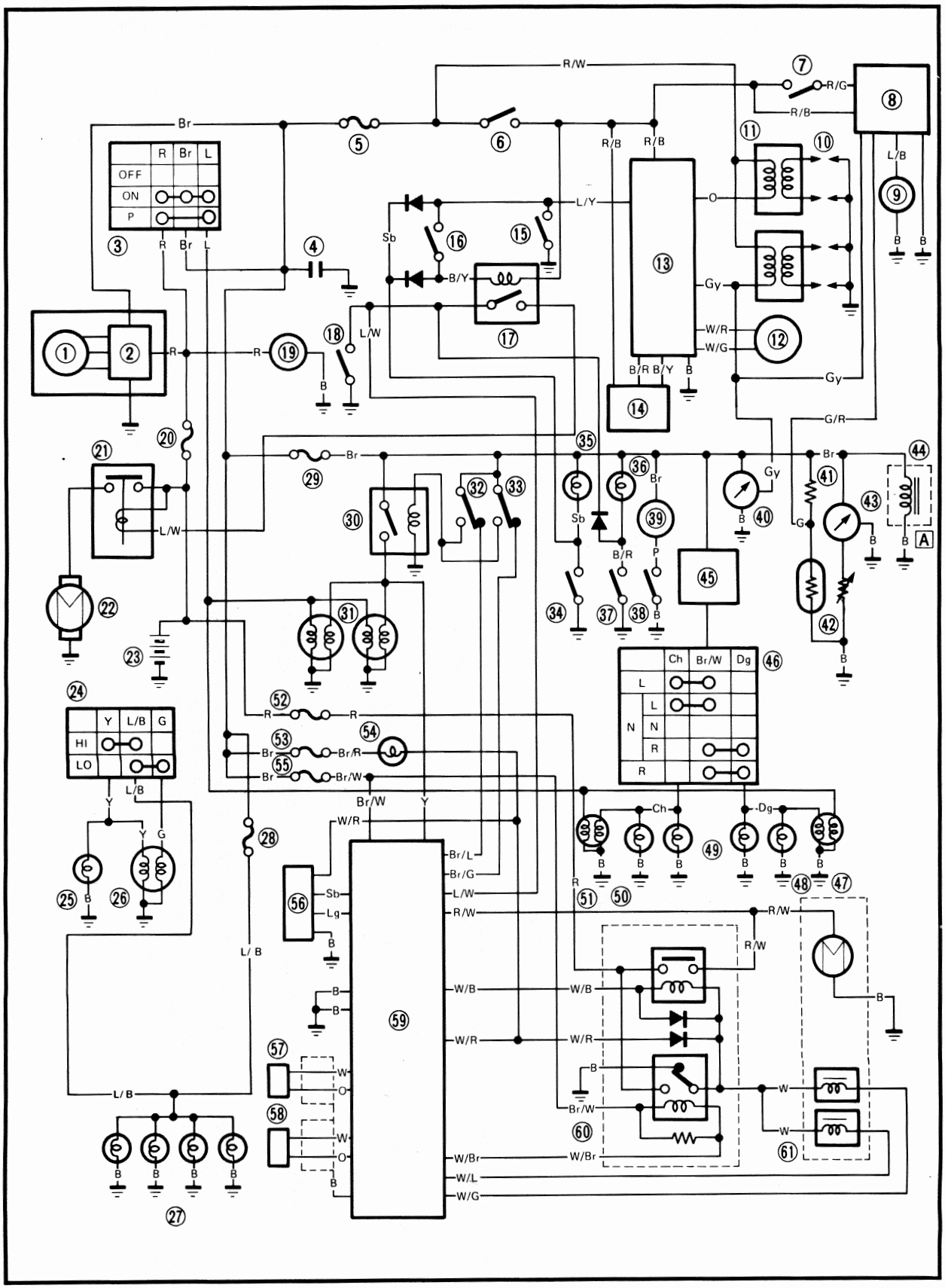
For color codes, see page 99.

③ Main switch
⑳ Fuse "MAIN"
㉓ Battery
㉜ Fuse "ABS PUMP"
㉝ Fuse "WARNING"
㉞ Fuse "ECU"
㉟ "ABS" warning light
㊱ ABS test coupler
㊲ Front wheel sensor
㊳ Rear wheel sensor
㊴ ABS Electronic control unit (ECU)
㊵ Fail-safe relay
㊶ Hydraulic unit (HU)



SIGNAL SYSTEM

CIRCUIT DIAGRAM

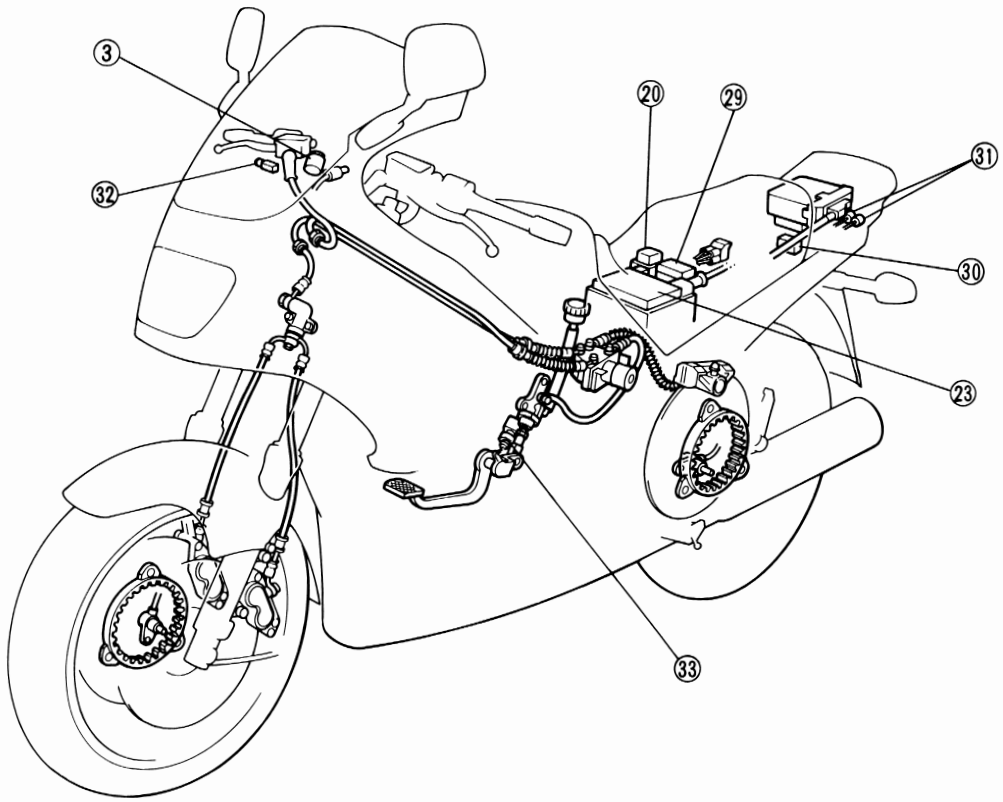


Aforementioned circuit diagram shows signal circuit.

NOTE:

For color codes, see page 99.

③ Main switch
⑳ Fuse "MAIN"
㉓ Battery
㉙ Fuse "SIGNAL"
㉚ Relay assembly (brake switch)
㉛ Tail/brake lights
㉜ Front brake switch
㉝ Rear brake switch



TROUBLESHOOTING

• BRAKE LIGHT DOES NOT COME ON.

Procedure

Check;

1. Fuse
2. Battery
3. Main switch
4. Bulb and bulb socket
5. Brake switch
6. Relay assembly
7. Voltage

NOTE:

- Remove the following parts before troubleshooting.
  1) Seat
  2) Side cover (left and right)
  3) Fuel tank
  4) Upper cowling
  5) ECU bracket

  Refer to the "ABS TROUBLESHOOTING – [D-2]" section.
- Use the following special tool in this troubleshooting.

Pocket tester:
P/N. YU-03112
P/N. 90890-03112

1. Fuse

- Remove the fuse.
- Connect the pocket tester (Ω × 1) to the fuse.
- Check the fuse for continuity.
  Refer to the "FUSE INSPECTION" in the CHAPTER 3.

NO CONTINUITY → Replace fuse.

CONTINUITY ↓

2. Battery

- Check the battery condition.
  Refer to the "BATTERY INSPECTION" section in the CHAPTER 3.

Voltage
12.8 V or higher at 20°C (68°F)

INCORRECT →
- Clean battery terminals.
- Recharge or replace battery.
  Refer to the "BATTERY INSPECTION" section in the CHAPTER 3.

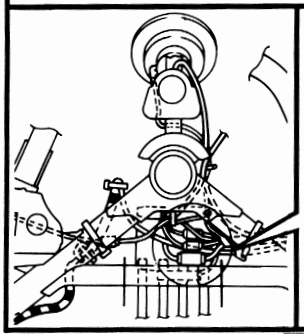
CORRECT ↓

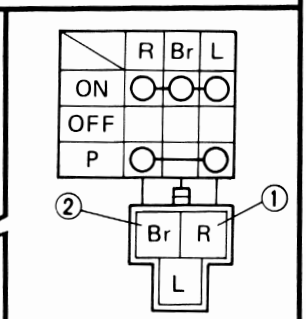
*

*

3. Main switch

- Disconnect the main switch coupler from the wire harness.
- Connect the pocket tester (Ω x 1) to the main switch terminal.
- Check the switch for the continuity between "Red ① and Brown ② ".
  Refer to the "CHECKING OF SWITCHES" section in the CHAPTER 7.





INCORRECT

Main switch is faulty, replace it.

CORRECT

4. Bulb and bulb socket

- Check the bulb and bulb socket for continuity.
  Refer to the "CHECKING OF BULBS" section in the CHAPTER 7.

NO CONTINUITY

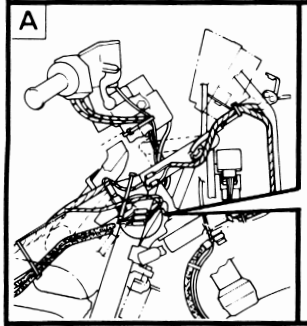
Replace bulb and/or bulb socket.

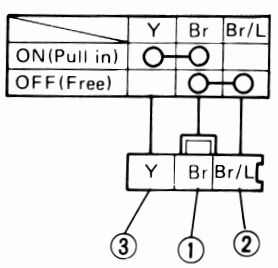
CONTINUITY

5. Brake switch

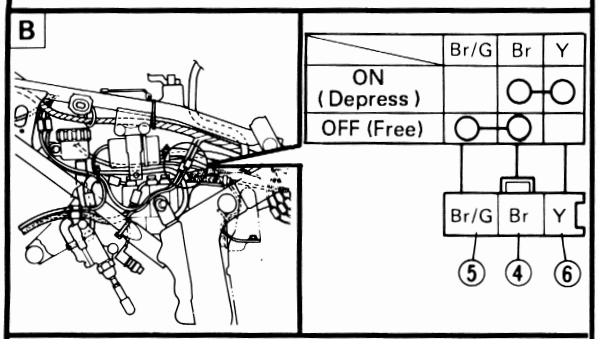
- Disconnect the brake switch and coupler from the wire harness.
- Connect the pocket tester (Ω x 1) to the brake switch terminal.
- Check the switch component for continuity between "Brown ① and Brown/ Blue ② " or Brown ① and Yellow ③ .
  Refer to the "CHECKING OF SWiTCHES" section in the CHAPTER 7.

A





- Check the switch component for continuity between "Brown ④ and Brown/Green ⑤ or Brown ④ and Yellow ⑥ .
  Refer to the "CHECKING OF SWITCHES" section in the CHAPTER 7.



A Front brake switch
B Rear brake switch

INCORRECT

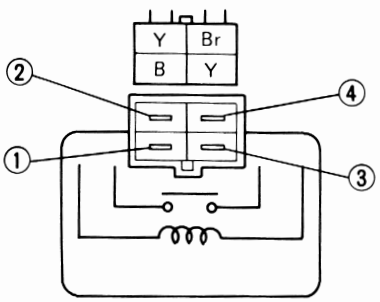
Brake switch is faulty, replace it.

CORRECT

6. Relay assembly

- Connect the pocket tester (Ω x 1) to the relay assembly coupler terminals.

Battery (+) terminal → Yellow teminal ①
Battery (–) terminal → Black terminal ②
Tester (+) lead → Brown terminal ③
Tester (–) lead → Yellow terminal ④



- Check the relay assembly component for the continuity between the "Brown" and "Yellow" leads at the relay assembly coupler terminals.

NO CONTINUITY

Relay assembly.

CORRECT

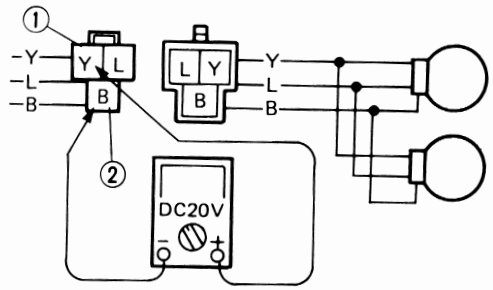
*

*

7. Voltage

- Connect the pocket tester (DC20V) to the bulb socket connector.

Tester (+) lead → Yellow lead ①
Tester (–) lead → Black lead ②



- Turn the main switch to "ON".
- The brake lever is pulled in or brake pedal is stepped on.
- Check for voltage (12V) on the "Yellow" lead at the bulb socket connector.

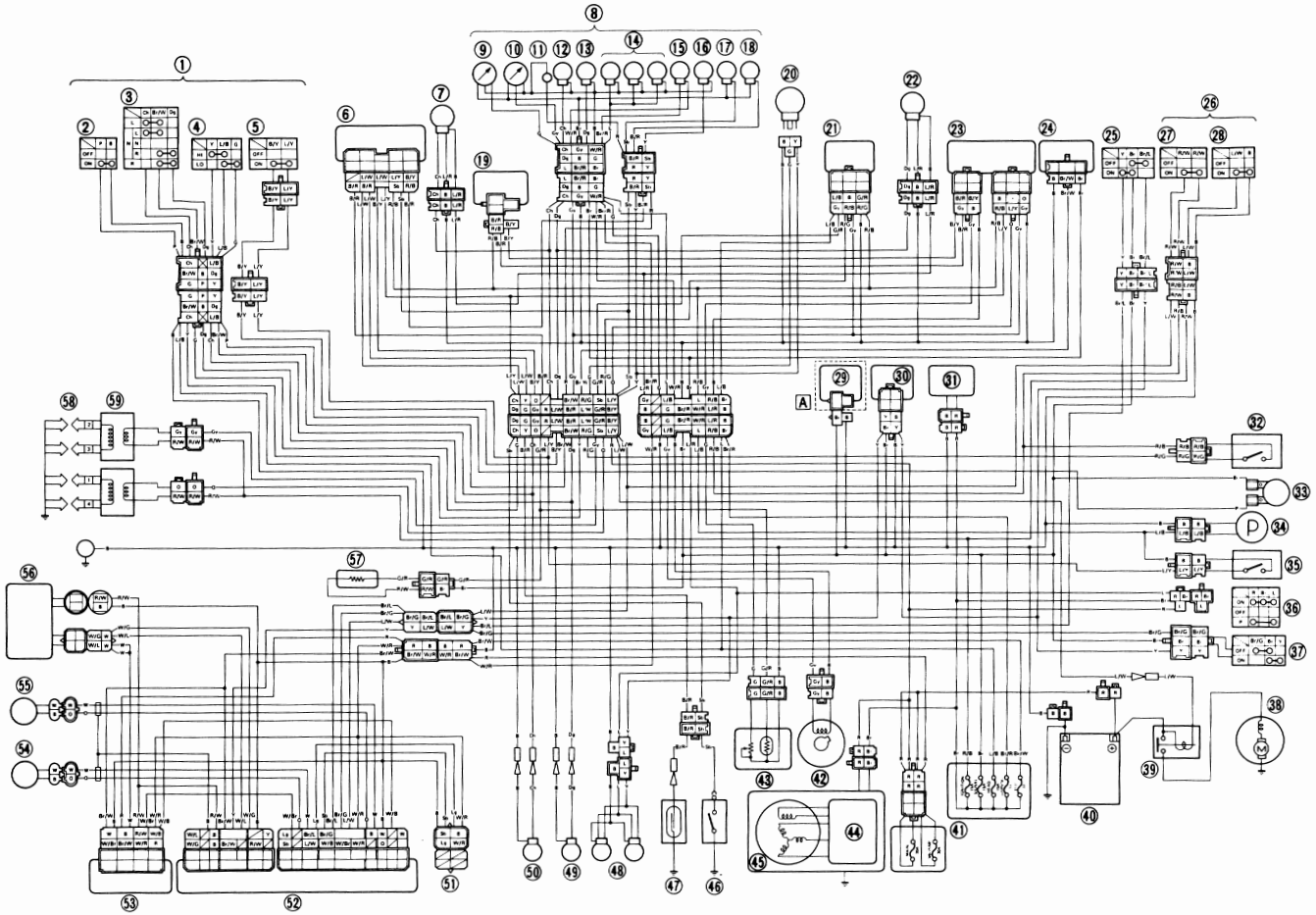
OUT OF SPECIFICATION

Wiring circuit from main switch to bulb socket connector is faulty, repair.

MEETS SPECIFICATION (12V)

This circuit is good.

FJ1200A D/DC WIRING DIAGRAM



COLOR CODE

B ..... Black	Lg ..... Light green	B/R ..... Black/Red	L/B ..... Blue/Black	W/B .... White/Black
Br ..... Brown	O ..... Orange	B/Y ..... Black/Yellow	L/R ..... Blue/Red	W/Br ... White/Brown
Ch ..... Chocolate	P ..... Pink	Br/G .... Brown/Green	L/W ..... Blue/White	W/G .... White/Green
Dg ..... Dark green	R ..... Red	Br/L .... Brown/Blue	L/Y ..... Blue/Yellow	W/L ..... White/Blue
G ..... Green	Sb ..... Sky blue	Br/R .... Brown/Red	R/B ..... Red/Black	W/R .... White/Red
Gy ..... Gray	W ..... White	Br/W ... Brown/White	R/G ..... Red/Green	
L ..... Blue	Y ..... Yellow	G/R ..... Green/Red	R/W .... Red/White	

① Handlebar switch (L)
② "HORN" switch
③ "TURN" switch
④ "LIGHTS" (Dimmer) switch
⑤ Clutch switch
⑥ Safety relay assembly
⑦ Front position light/Front flasher light (L)
⑧ Meter
⑨ Fuel meter
⑩ Tachometer
⑪ Clock
⑫ "TURN" indicator light (L)
⑬ "TURN" indicator light (R)
⑭ Meter light
⑮ "ABS" warning light
⑯ "HIGH BEAM" indicator light
⑰ "NEUTRAL" indicator light
⑱ "OIL LEVEL" indicator light
⑲ Pressure sensor
⑳ Headlight
㉑ Fuel pump control relay
㉒ Front position light/Front flasher light (R)
㉓ Digital ignitor unit
㉔ Flasher relay
㉕ Front brake switch
㉖ Handlebar switch (R)
㉗ "ENGINE STOP" switch
㉘ "START" switch
㉙ Control valve
㉚ Relay (brake switch)
㉛ Condenser
㉜ "RESERVE" switch
㉝ Horn
㉞ Fuel pump
㉟ Sidestand switch
㊱ Main switch
㊲ Rear brake switch
㊳ Starter motor
㊴ Starter relay
㊵ Battery
㊶ Fuse
㊷ Pickup coil
㊸ Fuel sender unit
㊹ Rectifier/regulator
㊺ A.C. generator
㊻ Neutral switch
㊼ Oil level switch
㊽ Tail/brake light
㊾ Rear flasher light (R)
㊿ Rear flasher light (L)
(51) ABS test coupler
(52) ABS Electronic control unit (ECU)
(53) Fail-safe relay
(54) Rear wheel sensor
(55) Front wheel sensor
(56) Hydraulic unit (HU)
(57) Resistor
(58) Spark plug
(59) Ignition coil
[A] For CALIFORNIA-ONLY

YAMAHA MOTOR CO.,LTD.

PRINTED IN U.S.A.

YAMAHA

FJ1200B
FJ1200BC

SUPPLEMENTARY SERVICE MANUAL

LIT-11616-07-80

3SK-28197-11

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the FJ1200B/BC. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manuals:

FJ1100L/LC Service Manual: LIT-11616-04-08
FJ1200S/SC Supplementary Service Manual: LIT-11616-05-00
FJ1200W/WC Supplentary Service Manual: LIT-11616-06-94

FJ1200B/BC
SUPPLEMENTARY
SERVICE MANUAL

1st Edition, September 1990

Printed in U.S.A.
LIT-11616-07-80

NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha motorcycles have a basic understanding of the mechanical concepts and procedures inherent in motorcycle repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

This model has been designed and manufactured to perform within certain specifications in regard to performance and emissions. Proper service with the correct tools is necessary to ensure that the motorcycle will operate as designed. If there is any question about a service procedure, it is imperative that you contact a Yamaha dealer for any service information changes that apply to this model. This policy is intended to provicde the customer with the most satisfaction from his motorcycle and to conform with federal environmental quality objectives.

Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, where applicable, appear in future editions of this manual.

NOTE:

This Service Manual contains information regarding periodic maintenance to the emission control system for the FJ1200B/BC. Please read this material carefully.

TECHNICAL PUBLICATIONS
SERVICE DIVISION
MOTORCYCLE GROUP
YAMAHA MOTOR CO., LTD.

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

⚠ The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠WARNING Failure to follow WARNING instructions could result in severe injury or death to the motorcycle operator, a bystander, or a person inspecting or repairing the motorcycle.

CAUTION: A CAUTION indicates special precautions that must be taken to avoid damage to the motorcycle.

NOTE: A NOTE provides key information to make procedures easier or cleaer.

HOW TO USE THIS MANUAL

CONSTRACTION OF THIS MANUAL

This manual consists of chapters for the main categories of subjects. (See "Illustrated symbols")

1st title ① : This is a chapter with its symbol on the upper right of each page.

2nd title ② : This title appears on the upper of each page on the left of the chapter symbol. (For the chapter "Periodic inspection and adjustment" the 3rd title appears.)

3rd title ③ : This is a final title.

MANUAL FORMAT

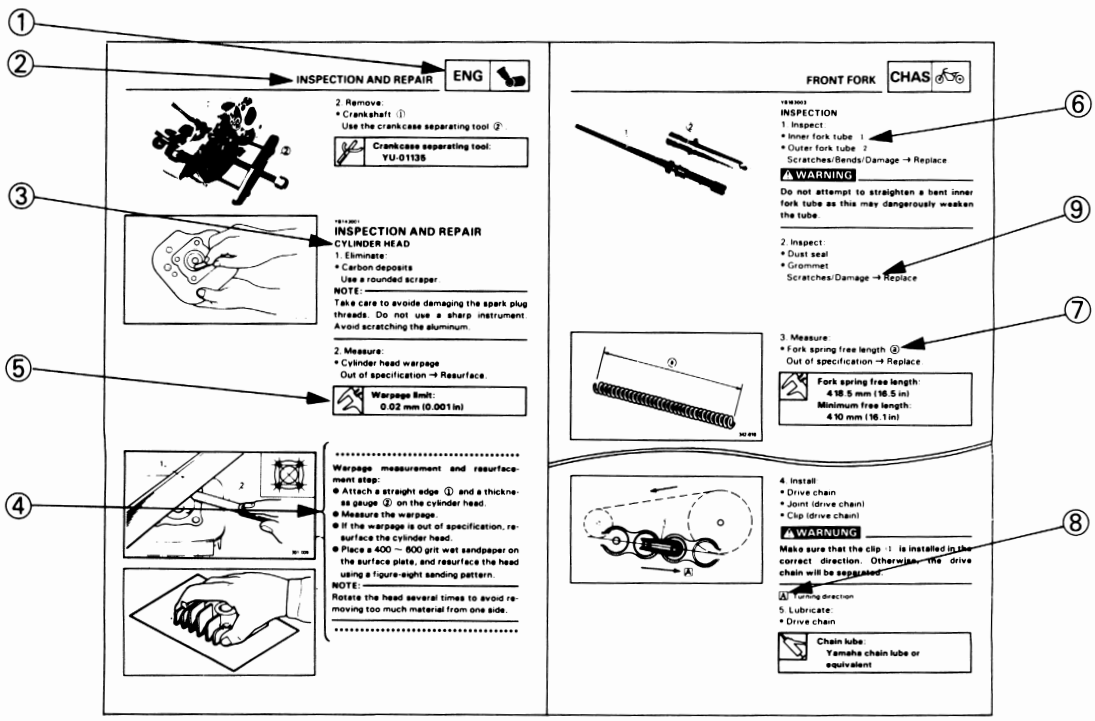
All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspections.
A set of particularly important procedure ④ is placed between a line of asterisks "∗" with each procedure preceded by " ● ".

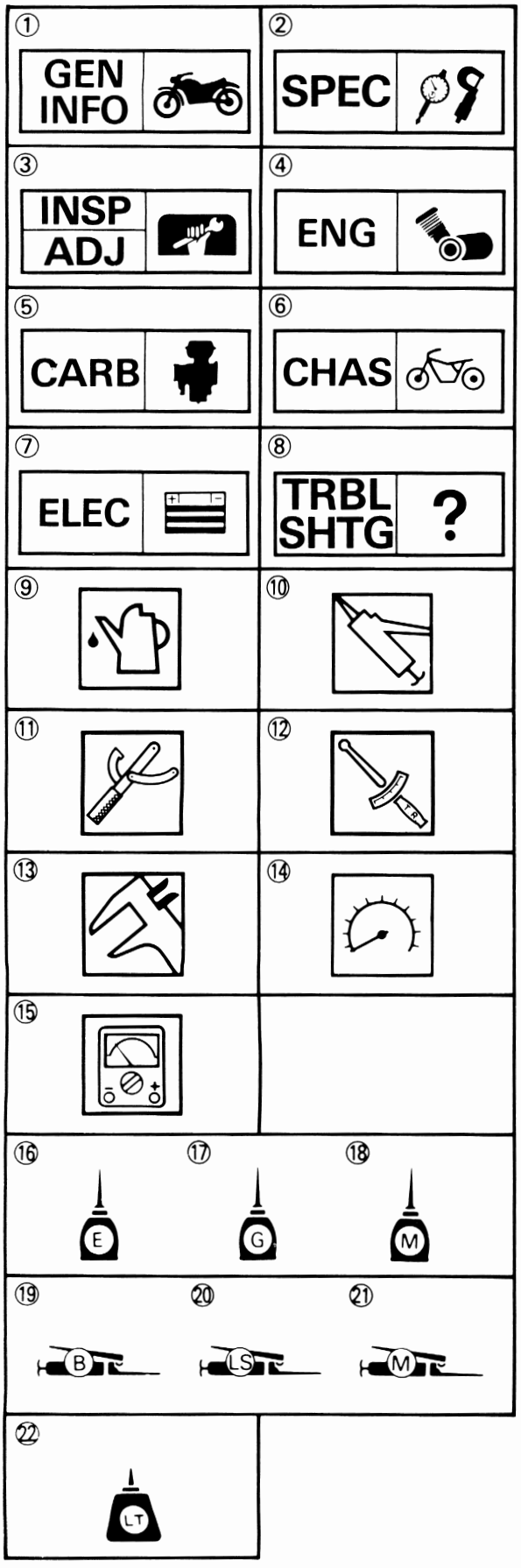
IMPORTANT FEATURES

- Data and a special tool are framed in a box preceded by a relevant symbol ⑤ .
- An encircled numeral ⑥ indicates a part name, and an encircled alphabetical letter data or an alignment mark ⑦ , the others being indicated by an alphabetical letter in a box ⑧ .
- A condition of a faulty component will precede an arrow symbol and the course of action required the symbol ⑨ .

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.





ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① to ⑧ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Specifications
③ Periodic inspection and adjustment
④ Engine
⑤ Carburetion
⑥ Chassis
⑦ Electrical
⑧ Troubleshooting

Illustrated symbols ⑨ to ⑮ are used to identify the specifications appearing in the text.

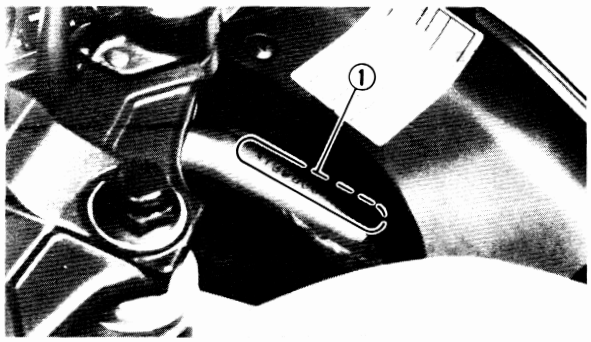
⑨ Filling fluid
⑩ Lubricant
⑪ Special tool
⑫ Tightening
⑬ Wear limit, clearance
⑭ Engine speed
⑮ Ω, V, A

Illustrated symbols ⑯ to ㉒ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑯ Apply engine oil
⑰ Apply gear oil
⑱ Apply molybdenum disulfide oil
⑲ Apply wheel bearing grease
⑳ Apply lightweight lithium-soap base grease
㉑ Apply molybdenum disulfide grease
㉒ Apply locking agent (LOCTITE®)

CONTENTS

GENERAL INFORMATION



MOTORCYCLE IDENTIFICATION

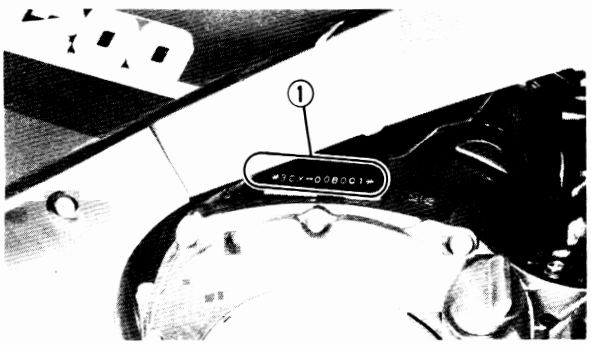
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the right side of the frame.

Starting serial number:
FJ1200B:
JYA4AHE0*MA000101
FJ1200BC (For California):
JYA4AHC0*MA003101

NOTE:

The vehicle identification number is used to identify your motorcycle and may be used to register your motorcycle with the licensing authority in your state.



ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the right side of the engine.

Starting serial number:
FJ1200B:
4AH-000101
FJ1200BC (For California):
4AH-003101

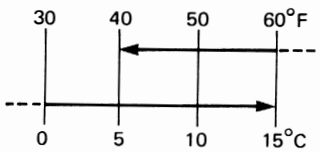
NOTE:

- The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.
- Designs and specifications are subject to change without notice.

SPECIFICATIONS

GENERAL SPECIFICATIONS

FJ1200B: Except for California
FJ1200BC: For California

Model	FJ1200B/BC	
Model Code Number:	4AH1: FJ1200B 4AH2: FJ1200BC	
Vehicle identification number:	JYA4AHE0*MA000101: FJ1200B JYA4AHC0*MA003101: FJ1200BC	
Engine Starting Number:	4AH-000101: FJ1200B 4AH-003101: FJ1200BC	
Dimensions: Overall Length Overall Width Overall Height Seat Height Wheelbase Minimum Ground Clearance	 2,210 mm (87.0 in) 775 mm (30.5 in) 1,245 mm (49.0 in) 790 mm (31.1 in) 1,495 mm (58.9 in) 140 mm (5.5 in)	
Basic Weight: With Oil and Full Fuel Tank	 266 kg (586 lb): FJ1200B 267 kg (589 lb): FJ1200BC	
Minimum Turning Radius:	3,100 mm (122 in)	
Oil Type or Grade: Engine Oil 	 Yamalube 4 (20W40) or SAE 20W40 type SE/SF motor oil (If temperature does not go below 5°C (40°F)) Yamalube 4 (10W30) or SAE 10W30 type SE/SF motor oil (If temperature does not go above 15°C (60°F))	
Fuel: Type Tank Capacity: Total Reserve	 Unleaded fuel recomended 22 L (4.8 Imp gal, 5.8 US gal) 5 L (1.1 Imp gal, 1.3 US gal)	
Tire:	Front	Rear
Type	Tubeless	Tubeless
Size/Manufacturer (Type)	120/70 V17-V250 DUNLOP (K275F)	150/80 V16-V250 DUNLOP (K275)
<Wear Limit>	<0.8 mm (0.03 in)>	<0.8 mm (0.03 in)>

Model	FJ1200B/BC	
Tire Pressure (Cold Tire):		
Basic Weight:		
With Oil and Full Fuel Tank	266 kg (586 lb): FJ1200B 267 kg (589 lb): FJ1200BC	
Maximum Load*	182 kg (401 lb): FJ1200B 181 kg (399 lb): FJ1200BC	
Cold Tire Pressure:	Front	Rear
Up to 90 kg (198lb) Load*	225 kpa (2.25 kg/cm², 32 psi)	250 kpa (2.5 kg/cm², 36 psi)
90 kg (198 lb) ~ Maximum Load*	250 kpa (2.5 kg/cm², 36 psi)	290 kpa (2.9 kg/cm², 42 psi)
High Speed Riding	250 kpa (2.5 kg/cm², 36 psi)	290 kpa (2.9 kg/cm², 42 psi)
*Load is the total weight of cargo, rider, passenger, and accessories.		
Wheel Travel:		
Front Wheel Travel	150 mm (5.9 in)	
Rear Wheel Travel	119 mm (4.7 in)	
Electrical:		
Ignition System	TCI (Digital Ignition)	
Generator System	AC generator	
Battery Type or Model	YTX14-BS	
Battery Capacity	12V 12AH	

MAINTENANCE SPECIFICATIONS

ENGINE

Model		FJ1200B/BC
Carburetor:		
I.D. Mark		4AH-00, 4AH-10: FJ1200BC
Main Jet	(M.J.)	#110
Main Air Jet	(M.A.J.)	#45
Jet Needle	(J.N.)	5FZ72
Needle Jet	(N.J.)	Y-2
Pilot Air Jet	(P.A.J.)	#155
Pilot Jet	(P.J.)	#37.5
Pilot Screw	(P.S.)	Preset
Valve Seat Size	(V.S.)	1.5
Starter Jet	(G.S.)	#30
Fuel Level	(F.L.)	2.0 ~ 4.0 mm (0.079 ~ 0.157 in)
Float Height	(F.H.)	21.3 ~ 23.3 mm (0.839 ~ 0.917 in)
Engine Idling Speed		1,050 ~ 1,150 r/min
Vacuum Pressure at Idling Speed		Above 29.3 kpa (220 mm Hg, 8.7 in Hg)
Vacuum Synchronous Difference		Below 1.33 kpa (10 mm Hg, 0.394 in Hg)
Lubrication System:		
Oil Filter Type:		Paper type
Oil Pump Type:		Trochoid type
Tip clearance		0.12 mm (0.0047 in)
<Limit>		<0.17 mm (0.0067 in)>
Side Clearance		0.03 ~ 0.08 mm (0.0012 ~ 0.0031 in)
<Limit>		<0.10 mm (0.0039 in)>
Bypass Valve Setting Pressure		180 ~ 220 kPa (1.8 ~ 2.2 kg/cm^2, 26 ~ 31 psi)
Relief Valve Operating Pressure (Main gallery)		480 ~ 580 kPa (4.8 ~ 5.8 kg/cm^2, 68 ~ 82 psi)

CHASSIS

Model	FJ1200B/BC
Front Suspension:	
Front Fork Travel	150 mm (5.91 in)
Fork Spring Free Length	529.5 mm (20.8 in)
<Limit>	<524 mm (20.6 in)>
Spring Rate: K1	4.71 N/mm (0.48 kg/mm, 26.9 lb/in)
K2	6.86 N/mm (0.70 kg/mm, 39.2 lb/in)
Stroke: K1	Zero ~ 100 mm (Zero ~ 3.74 in)
K2	100 ~ 150 mm (3.74 ~ 5.91 in)
Optional Spring	No
Oil Caspacity/Oil Level	446 cm^3 (15.70 Imp oz, 15.08 US oz)/ 142 mm (5.59 in)
Oil Grade	Fork oil 10W or equivalent
Rear Suspension:	
Shock Absorber Travel	48 mm (1.89 in)
Spring Free Length	181 mm (7.13 in)
<Limit>	<174 mm (6.85 in)>
Fitting Length	164 mm (6.46 in)
Spring Rate K1	132 N/mm (13.5 kg/mm, 756 lb/in)
Stroke	Zero ~ 48 mm (Zero ~ 1.89 in)
Optional Spring	No
Enclosed Gas Pressure	1,200 kPa (12 kg/cm^2, 171 psi)
Drive Chain:	
Type/Manufacturer	50 ZL • 5/DID
No. of Links	110 Links
Chain Slack	15 ~ 20 mm (0.6 ~ 0.8 in)

Model	FJ1200B/BC				
Tightening torque:					
Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m·kg	ft·lb	
Front fork Handlebar:					
Handle crown and inner tube	M8 × 1.25	23	2.3	17	
Handle crown and steering shaft	M14 × 1.25	110	11.0	80	
Lower bracket and inner tube	M8 × 1.25	23	2.3	17	
Handlebar and inner tube	M8 × 1.25	23	2.3	17	
Handlebar and handle crown	M6 × 1.0	9	0.9	6.5	
Steering shaft and ring nut	M25 × 1.0	3	0.3	2.2	Refer to "NOTE"
Master cylinder cap (front brake)	M4 × 0.7	2	0.2	1.4	
Master cylinder and handle	M6 × 1.0	9	0.9	6.5	
Joint (brake hose) and lower bracket	M6 × 1.0	9	0.9	6.5	
Meter and Meter cable	M12 × 1.0	3	0.3	2.2	
Front fender and front fork	M6 × 1.0	9	0.9	6.5	
Clutch hose and clutch pipe	M10 × 1.0	20	2.0	14	
Engine mount:					
Engine bracket (front) and frame	M12 × 1.25	90	9.0	65	
Engine bracket (front) and engine	M12 × 1.25	90	9.0	65	
Engine bracket (rear upper) and frame	M12 × 1.25	90	9.0	65	
Engine bracket (rear upper) and engine	M10 × 1.25	64	6.4	46	
Down tube (front) and frame	M10 × 1.25	48	4.8	35	
Down tube (rear) and frame	M10 × 1.25	30	3.0	22	
Rear frame and frame	M10 × 1.25	48	4.8	35	
Rear shock absorber/Swingarm:					
Pivot shaft and nut	M14 × 1.5	90	9.0	65	
Swingarm and arm 1	M12 × 1.25	65	6.5	47	
Arm 1 and relay arm	M12 × 1.25	65	6.5	47	
Realy arm and frame	M12 × 1.25	65	6.5	47	
Rear shock abosrber and frame	M10 × 1.25	40	4.0	29	
Rear shock absorber and relay arm	M12 × 1.25	65	6.5	47	
Compression bar	M8 × 1.25	30	3.0	22	
Chain puller	M8 × 1.25	23	2.3	17	
Front wheel/Rear wheel:					
Front wheel axle and front fork	M14 × 1.5	59	5.9	43	
Rear wheel axle and nut	M18 × 1.5	155	15.5	112	
Front axle holder	M8 × 1.25	20	2.0	14	
Brake caliper (front) and front fork	M10 × 1.25	35	3.5	25	
Brake caliper (rear) and bracket	M10 × 1.25	35	3.5	25	
Union bolt (brake)	M8 × 1.25	30	3.0	22	
Brake caliper and bleed screw	M8 × 1.25	6	0.6	4.3	
Brake disk and front wheel	M8 × 1.25	20	2.0	14	◎
Brake disk and rear wheel	M8 × 1.25	20	2.0	14	◎
Speedometer gear unit and meter cable	M12 × 1.0	3	0.3	2.2	

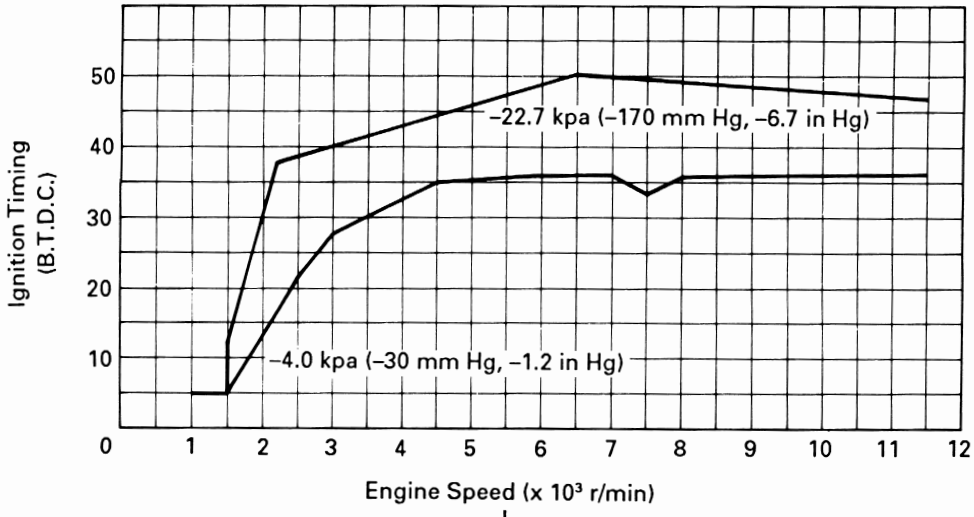
Model	FJ1200B/BC				
Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m·kg	ft·lb	
Footrest/Pedal/Stand:					
Shift pedal shaft bolt and frame	M8 × 1.25	30	3.0	22	
Footrest bracket and frame	M8 × 1.25	30	3.0	22	
Footrest (for rider) and frame	M8 × 1.25	30	3.0	22	
Footrest (for passenger) and footrest bracket	M10 × 1.25	23	2.3	17	
Master cylinder (rear brake) and bracket 3	M8 × 1.25	23	2.3	17	
Reservoir tank (rear brake) and frame	M6 × 1.0	4	0.4	2.9	
Brake pedal and brake shaft	M6 × 1.0	8	0.8	5.8	
Muffler and frame	M10 × 1.25	30	3.0	22	
Tank/Seat/Cover/Fender:					
Fuel tank and fuel cock	M6 × 1.0	7	0.7	5.1	
Fuel sender unit and fuel tank	M5 × 0.8	4	0.4	2.9	
Rear stay and rear frame	M8 × 1.25	23	2.3	17	

NOTE:

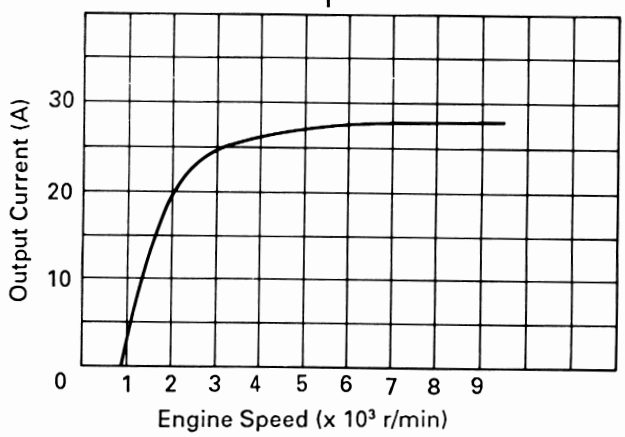
1. First, tighten the ring nut approximately 52 Nm (5.2 m • kg, 38 ft • lb) by using the torque wrench. Turn the handlebars to the left and right making sure there is no binding and then fully loosen the ring nut.
2. Retighten the ring nut to specification.

ELECTRICAL

Model	FJ1200B/BC
Voltage:	12V
Ignition System: Ignition Timing (B.T.D.C.) Advancer Type	 5° at 1,000 r/min Electrical/Vacuum



TCI: Pickup Coil Resistance (Color) TCI Unit-Model/Manufacturer	 149 ~ 182 Ω at 20°C (68°F) (Gray – Black) TID14-90A/HITACHI
Ignition Coil: Model/Manufacturer Minimum Spark Gap Primary Winding Resistance Secondary Winding Resistance	 CM12-35/HITACHI 6 mm (0.24 in) 1.8 ~ 2.2Ω at 20°C (68°F) 9.6 ~ 14.4kΩ at 20°C (68°F)
Charging System/Type:	A.C. generator
A.C. Generator: Model/Manufacturer Nominal Output	 B3G/NIPPONDENSO 14V, 28A at 5,000 r/min

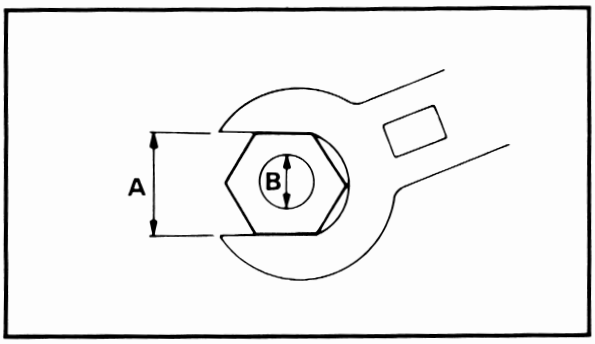


Model	FJ1200B/BC
Generator Assembly:	
Stator Coil Resistance (color)	0.19 ~ 0.20 Ωat 20°C (68°F) (White – White)
Field (Rotor) Coil Resistance	3.8 ~ 4.2Ω at 20°C (68°F)
Brush Overall Length	10.5 mm (0.41 in)
<Limit>	<4.5 mm (0.18 in)>
Spring Pressure	230 ~ 330 g (8.12 ~ 11.65 oz)
Battery:	
Capacity	12V, 12AH
Specific Gravity	1.320
Electrical Starter System:	
Type	Constant mesh type
Starter Motor:	
Model/Manufacturer	SM-13/MITSUBA
Output	0.65 kW
Brush:	
Overall Length	12.5 mm (0.49 in)
<Limit>	<5.0 mm (0.20 in)>
Spring Pressure	570 ~ 920 g (20.12 ~ 32.48 oz)
Commutator:	
Diameter	28 mm (1.1 in)
<Wear Limit>	<27 mm (1.06 in)>
Mica Undercut	0.5 mm (0.02 in)
Flasher Relay:	
Type	Semi-transister type
Model/Manufacturer	3YA/OMRON
Self Cancelling Device	No
Flasher Frequency	75 ~ 95 cycle/min
Wattage	27W x 2 + 3.4W
Relay Assembly (Starting Circuit Cut-off Relay):	
Model/Manufacturer	2UJ/OMRON
Coil Winding Resistance (Color)	203 ~ 248Ω at 20°C (68°F) (Red/Black – Black/Yellow)
Circuit Breaker:	
Type	Fuse
Amperage for Individual Circuit x Quantity	
MAIN	30A x 1
HEAD	15A x 1
SIGNAL	10A x 1
IGNITION	10A x 1
RESERVE	30A x 1
	15A x 1
	10A x 1

GENERAL TORQUE SPECIFICATIONS

This chart specifies torque for standard fasteners with standard I.S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book. To avoid warpage, tighten multi-fastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature.

A (Nut)	B (Bolt)	General torque specifications		
		Nm	m•kg	ft•lb
10 mm	6 mm	6	0.6	4.3
12 mm	8 mm	15	1.5	11
14 mm	10 mm	30	3.0	22
17 mm	12 mm	55	5.5	40
19 mm	14 mm	85	8.5	61
22 mm	16 mm	130	13.0	94



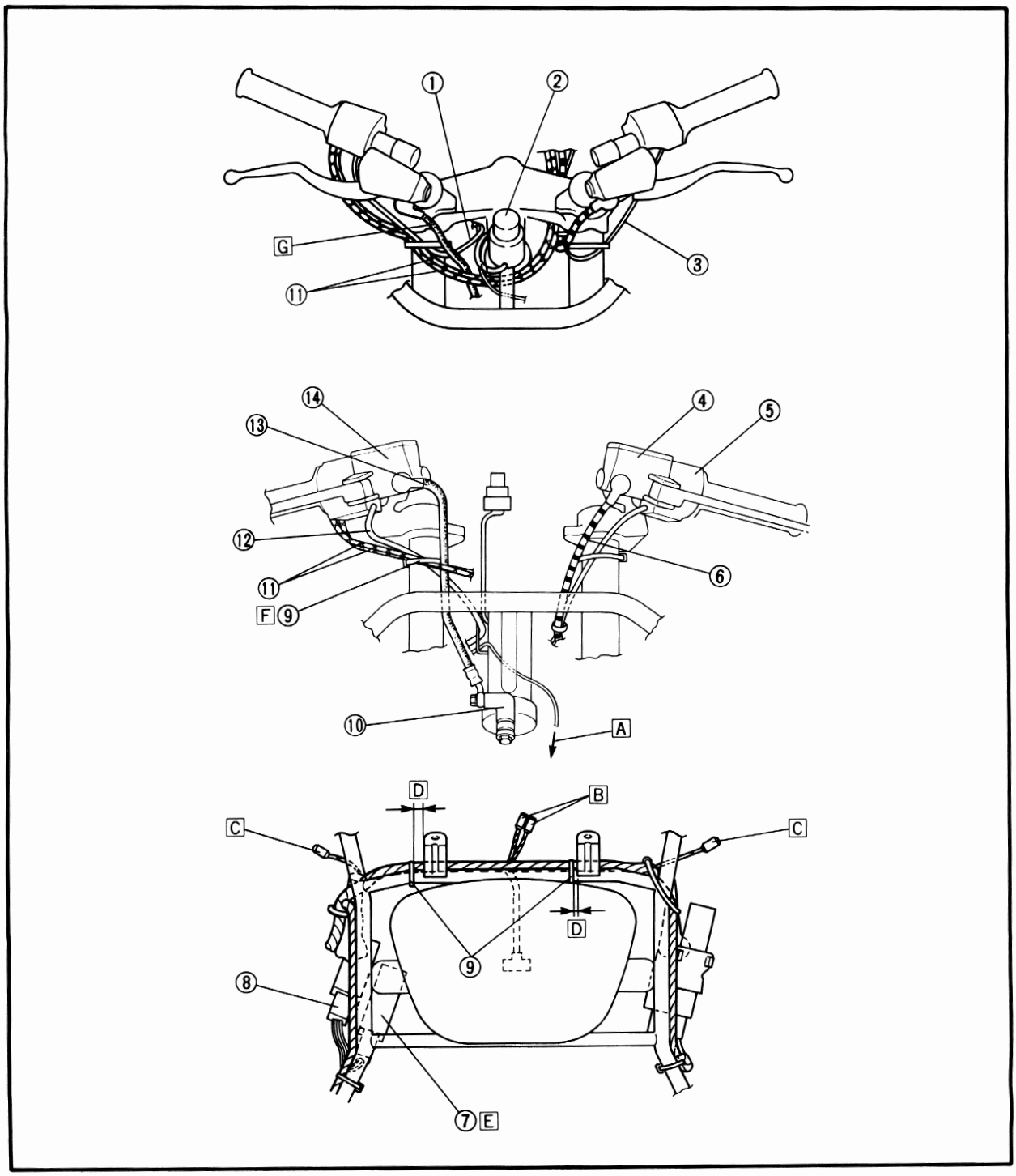
A: Distance across flats
B: Outside thred diameter

DEFINITION OF UNITS

Unit	Read	Definition	Measure
mm cm	millimeter centimeter	10^{-3} meter 10^{-2} meter	Length Length
kg	kilogram	10^{3} gram	Weight
N	Newton	1 kg × m/sec^2	Force
Nm m•kg	Newton meter Meter kilogram	N × m m × kg	Torque Torque
Pa N/mm	Pascal Newton per millimeter	N/m^2 N/mm	Pressure Spring rate
L cm^3	Liter Cubic centimeter	—	Volume or capacity
r/min	Revolution per minute	—	Engine speed

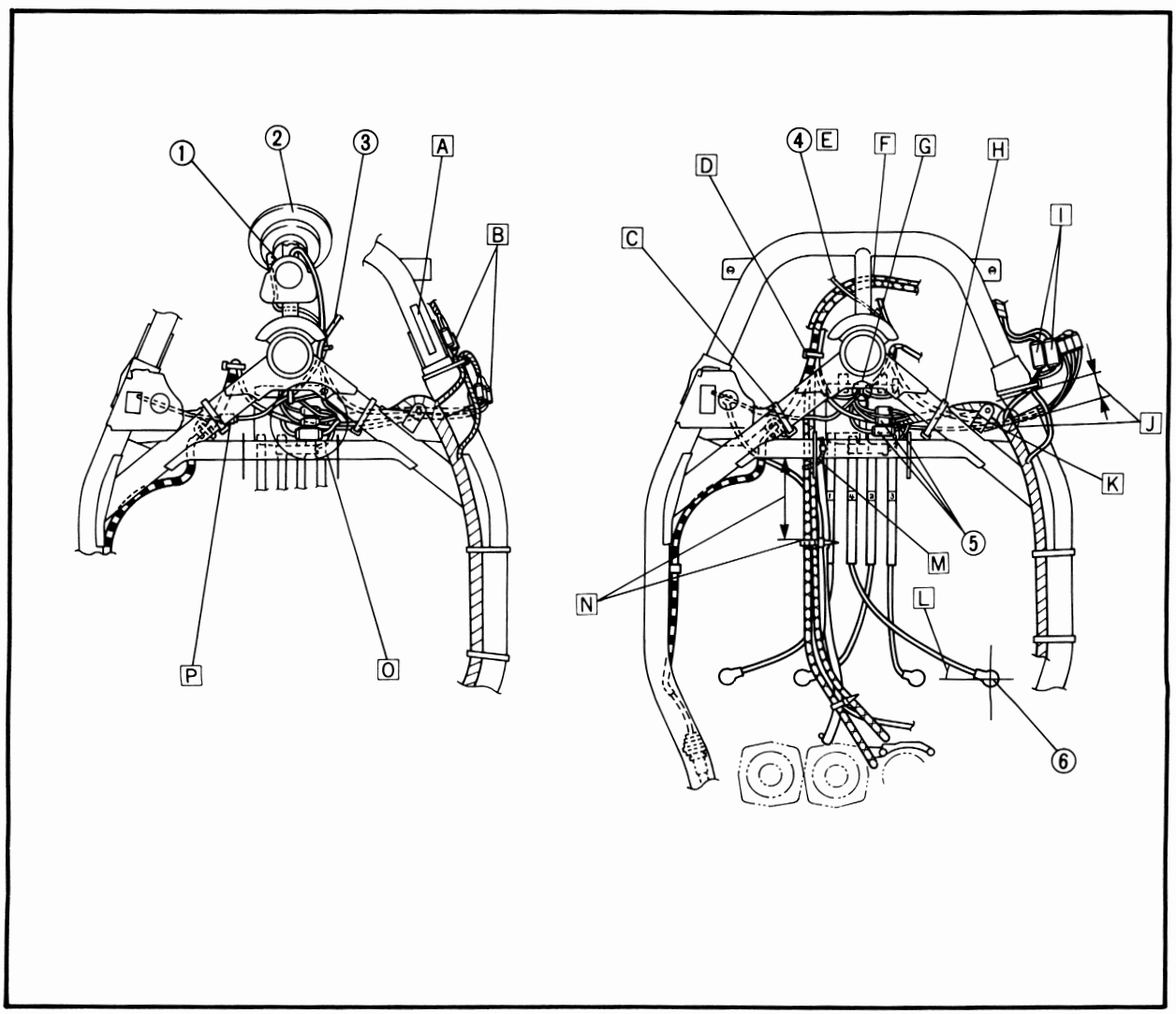
CABLE ROUTING

① Handle switch lead (right)
② Main switch
③ Handle switch lead (left)
④ Master cylinder (clutch)
⑤ Handle switch 4 (left)
⑥ Clutch hose
⑦ Flasher relay
⑧ Relay assembly
⑨ Band
⑩ Joint (brake hose)
⑪ Throttle cable
⑫ Handle switch lead (right)
⑬ Brake hose 1
⑭ Master cylinder (brake)
[A] To the horn
[B] Connect the meter coupler
[C] Connect the flasher light coupler
[D] Less than 10 mm (0.39 in)
[E] Fit the flasher relay on the inside.
[F] Cut the end of the band which clamps the 2 throttle cables and handle switch lead (right).
[G] The brake hose 1 should be routed in front of the handle switch lead (right) and behind the throttle cable.



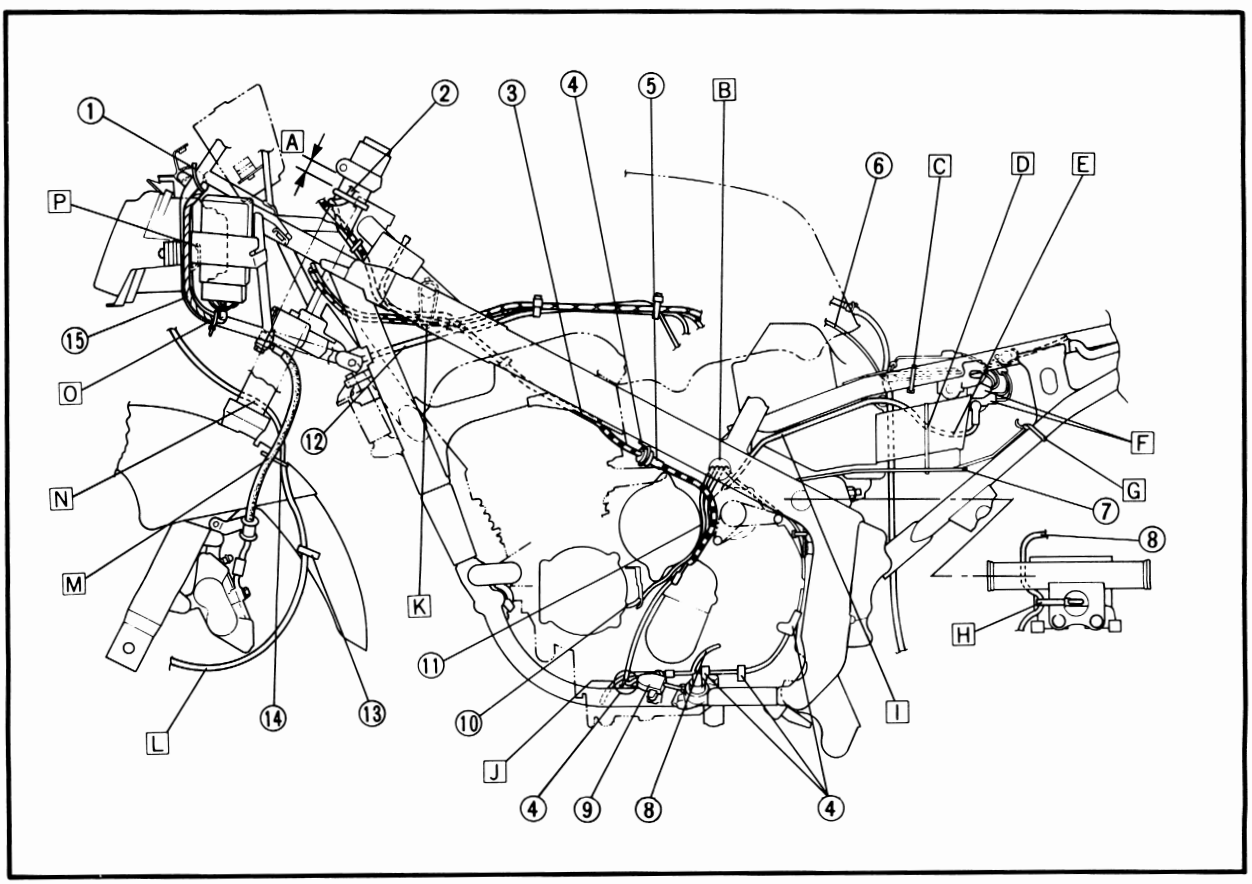
① Main switch
② Horn
③ Handle switch lead (right)
④ Horn lead
⑤ Ignition coil coupler (two pieces)/Handle switch coupler (right)
⑥ Plug cap

[A] Make sure the frame No. is not hidden by the harness.
[B] Coupler on the outside of the frame
[C] Secure the clutch hose and reserve switch lead, so that the front ends face towards the inside of the frame.
[D] Clamp the clutch hose and handle switch lead (left).
[E] Route the horn lead in front of the head pipe (throught the triangular space) and above the throttle cable.
[F] Route the throttle cable through the center of the head pipe (within the triangular shape).
[G] Route the ignition coil leads (2 nos.), handle switch lead (right) and reserve switch lead through the clamp of the frame unit.
[H] Secure the main harness and handle switch lead (right/ left) simultaneously, and make sure that the band front end is directed towards the inside of the frame.
[I] After connecting with the coupler of cowl stay, clamp it.
[J] To position the harness, align the harness branch point with the bracket end (Less than 10 mm (0.39 in)).
[K] Insert the harness beneath the bracket
[L] About 15 degrees (to prevent interference with duct)
[M] Clamp the two throttle cables to the cross-pipe (for California only).
[N] Secure the two throttle cables, the choke cable, and the pressure sensor hose (less than 60 mm (2.36 in)). (In California models, there are five items to be clamped at the same time, including the cannister hose.)
[O] At the time of installing the fuel tank, insert the lead and coupler within the frame so that they are not sandwiched.
[P] The coupler should be inserted beneath the frame.



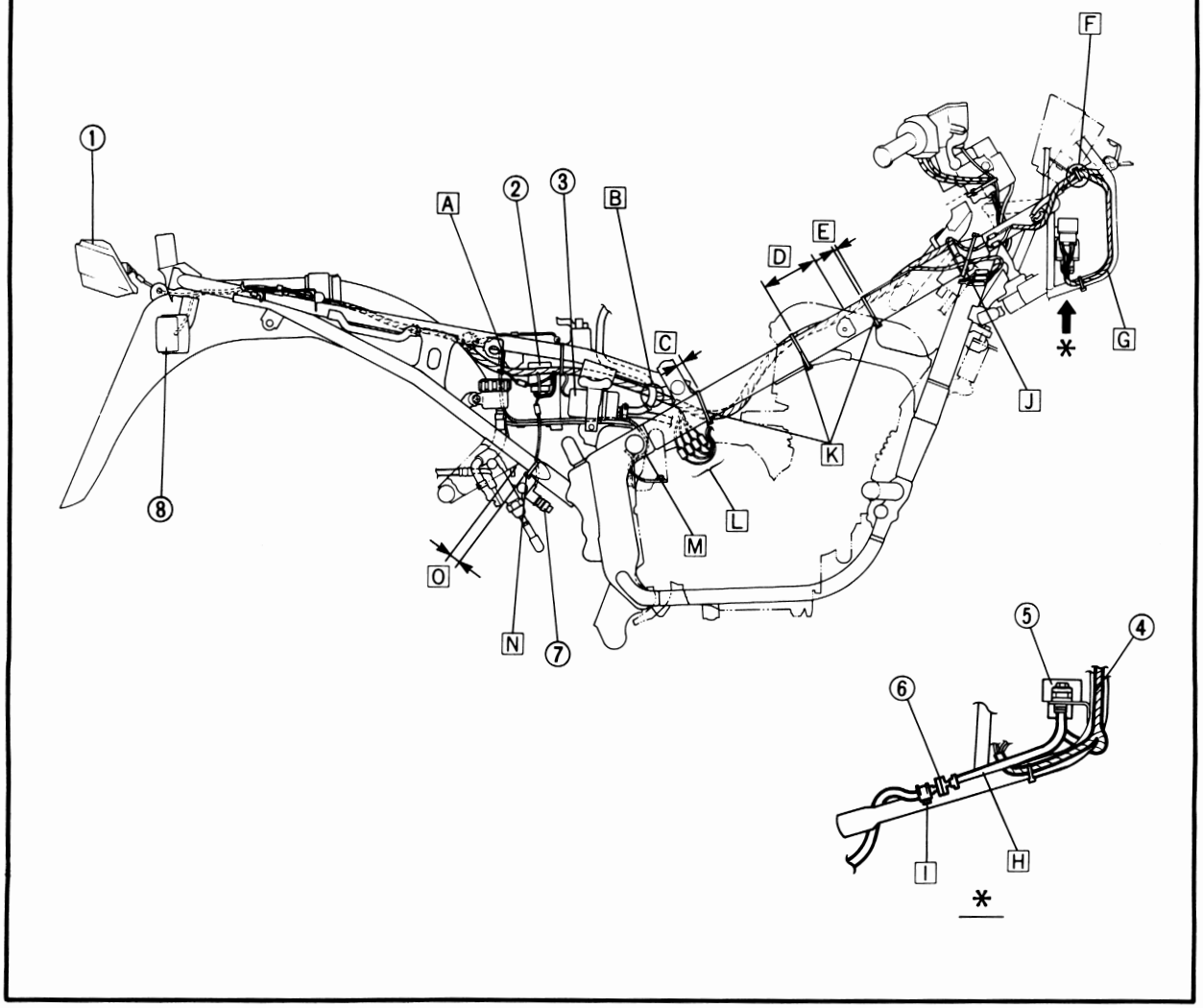
① Band
② Handle switch lead (left)
③ Clutch pipe
④ Clamp
⑤ Clutch hose 2
⑥ Fuel sender unit lead
⑦ Rubber seat
⑧ Neutral switch lead
⑨ Side stand switch
⑩ Pickup coil lead
⑪ A.C. generator lead
⑫ Pressure censor hose
⑬ Cable holder
⑭ Holder
⑮ Cross pipe

[A] Clamp at a position 20 mm (0.79 in) beneath the handle crown (Common for left and right sides)
[B] Route the neutral switch lead, side stand switch lead, pickup coil lead and A.C. generator lead between the insulating plate and carburetor to the right side of the vehicle body.
[C] Clamp in such a way that the wires do not get stuck in the damper at the seat bottom.
[D] Secure the starter motor lead, air cleaner duct and rubber seat. The band should be routed through the rubber seat hole, and the end should be inserted at the rear part of the frame.
[E] Insert the starter motor lead between the air cleaner duct and the battery box. Do not position it above the duct.
[F] The harness should be led out to the rear of the vehicle body. (Facing sideways)
[G] The clamp securing the rubber seat is to be fitted on the mudguard of the rear frame, routed from the top of the bracket and the end is to be inserted on the inside of the frame.
[H] The front end of the band should be inserted in the engine bracket.
[I] The starter motor lead should be routed above the air cleaner duct, and should not protrude outside the frame.
[J] The side stand switch lead should not sag. (To prevent contact with the joint silencer)
[K] Route the pressure sensor hose to the left of the high-tension cord 1 (for California, through the center between the canister and the high-tension cord 1), and over the cross-pipe. Pass it behind the oil cooler attachment pin and to the right side of the vehicle.
[L] The speedometer cable should be routed through holders at two locations.
[M] The brake hose should be routed on the outside.
[N] Should be routed through the inner side of the fork.
[O] Should be routed on the outside of the cowl stay and clamped.Whether the front end of the band is cut or not cut, it should be directed outside the cowl.
[P] The earth lead should be secured along with the ignitor.
(The earth lead should be sandwiched between the ignitor and screw)



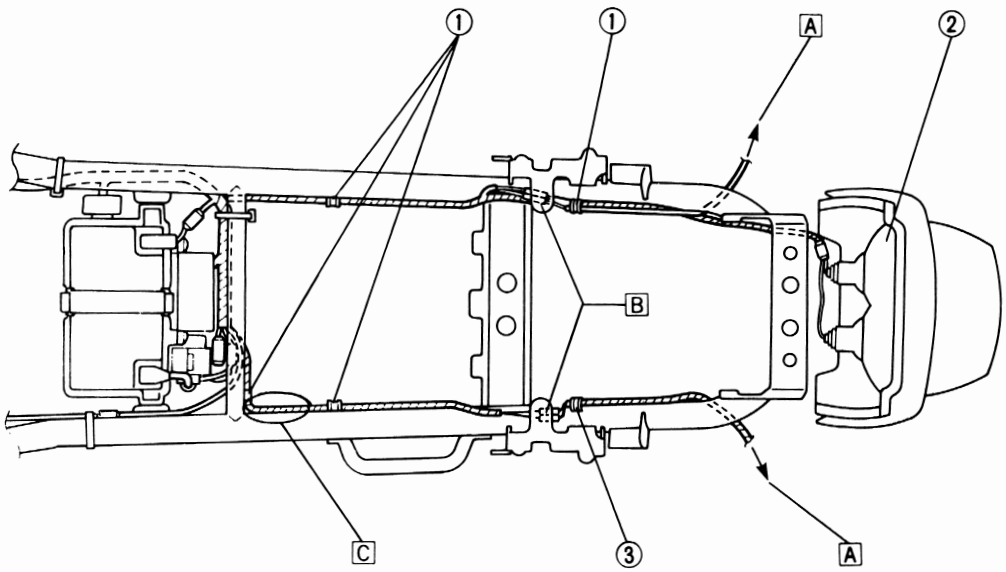
① Tail light unit
② Fuel pump relay
③ Fuel pump
④ Pressure sensor lead
⑤ Pressure sensor
⑥ Nozzle
⑦ Rear brake switch
⑧ Rear flasher light

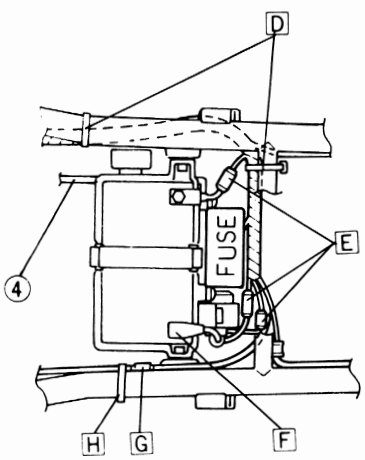
[A] Mount the damper on the bracket, and clamp the main harness, fuel pump lead and damper by means of the band.
[B] The fuel hose should be more on the outside than the main harness.
[C] Less than 20 mm (0.79 in)
[D] Less than 100 mm (3.94 in)
[E] Less than 15 mm (0.59 in)
[F] Align the harness branch with the bracket for fitting meter.
[G] The harness should be routed on the outside of the cowl stay and should not enter the inside part of the cowl stay.
[H] Route the band along the outside of the cowl stay and the harness. Do not clamp it together with the relay cord.
[I] Using the cowl stay clamp, secure it on top of the nozzle or the clamp.
[J] After connecting the band, the end should be directed towards the outside portion of the frame.
[K] After fitting the band, cut the end and position the end on the underside of the frame.
[L] After connecting the pickup coil lead, A.C. generator lead, neutral switch lead and side stand switch lead, these lead wires should be enclosed on the inside portion of the frame.
Make sure you do not damage the carburetor breather pipe during this operation.
[M] The negative lead should be routed in front of the engine suspension bracket, and above the rubber plate, to the battery.
The securing on the crankcase side is by fastening the wire and the case by means of the securing bolt.
[N] Cut the band end part.
[O] Less than 70 mm (2.76 in)



① Clamp
② Tail light unit
③ Clamp
④ Battery negative lead

[A] To the flasher light
[B] Route beneath the bracket.
[C] The harness should not protrude above the seat rail.
[D] After securing the band, cut the front end. If it is not cut, the front end should be inserted beneath the frame.
[E] The negative lead, positive lead and starter relay coupler should not protrude above the frame.
[F] Install so that the positive lead comes out in the rear.
[G] The fuel center lead coupler should be inserted on the inside part of the seat rail and should not protrude above the frame.

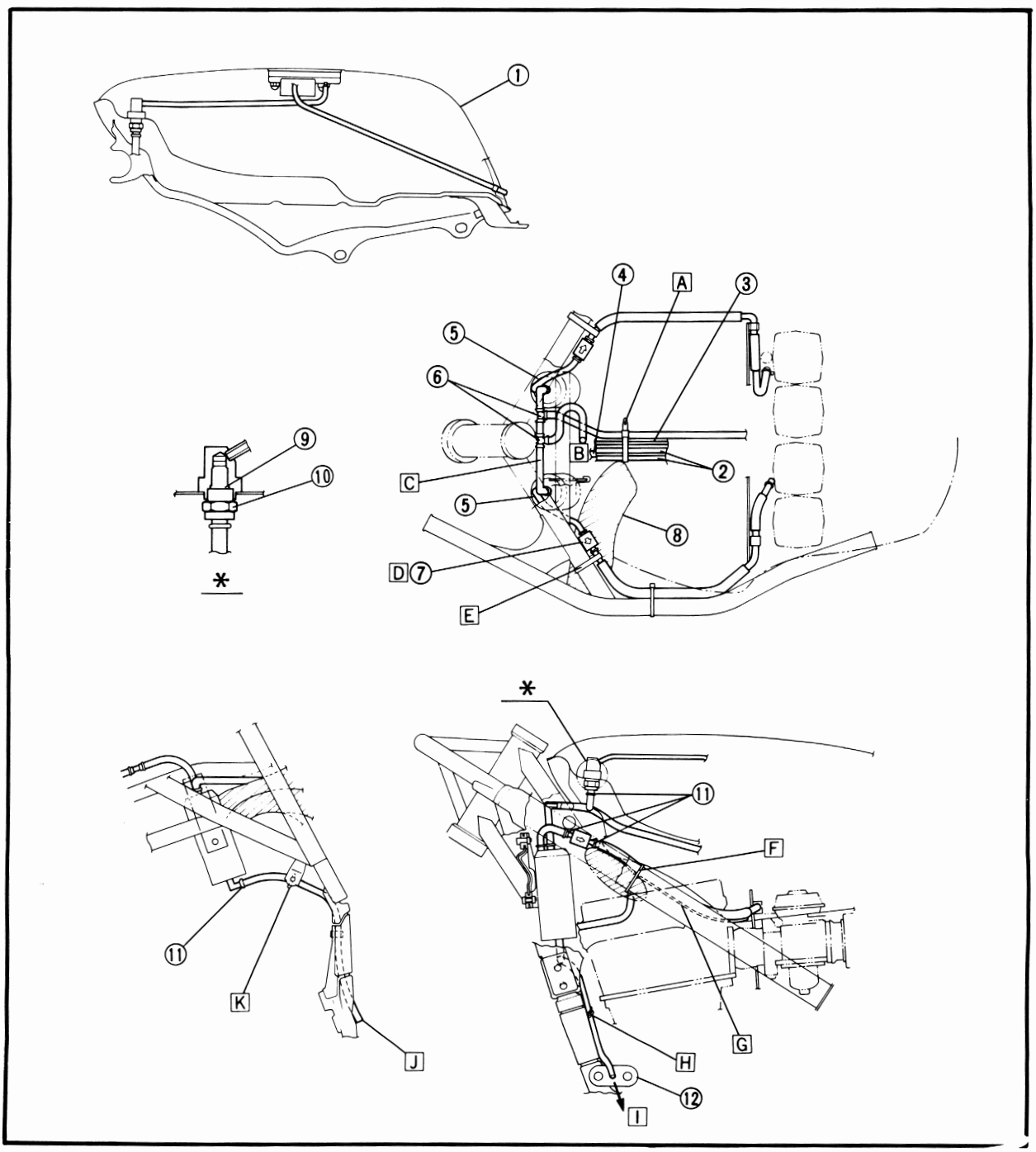




CANISTER HOSE ROUTING (FOR FJ1200BC)

① Fuel tank
② Throttle cable
③ Choke cable
④ Pressure sensor hose
⑤ Canister
⑥ Joint pipe
⑦ Pressure control valve
⑧ Air duct
⑨ O-ring
⑩ Roll over valve
⑪ Clip
⑫ Engine suspension bracket

[A] Clamp the canister hose, throttle cable, choke cable and pressure sensor hose with the band.
[B] From fuel tank
[C] Pass the hose over the ignition coil.
[D] The arrow mark on the pressure control valve should face the carburetor side.
[E] Make sure the hose is not collapsed at any point.
[F] Cut the end of the band.
[G] Pass the hose inside the tank rail.
[H] Secure it with the clamp of the down tube.
[I] To outside
[J] Route the hose between the under cowling and the engine suspension bracket.
[K] Pass the hose through the holder of the oil cooler bracket.



PERIODIC INSPECTION AND ADJUSTMENT

INTRODUCTION

This chapter includes all information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable vehicle operation and a longer service life. The need for costly overhaul work will be greatly reduced. This information applies to vehicles already in service as well as new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

PERIODIC MAINTENANCE EMISSION CONTOROL SYSTEM

No.	Item	Remarks	Initial	Odometer readings				
			1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	**3 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
1*	Valve clearance	Check and adjust valve clearance when engine is cold.					○	
2	Spark plugs	Check condition. Adjust gap and clean. Replace at 13,000 km (or 13 months) and thereafter every 12,000 km (or 12 months).		○	Replace	○	Replace	○
3*	Crankcase ventilation system	Check ventilation hose for cracks or damage. Replace if necessary.		○	○	○	○	○
4*	Fuel line	Check fuel hose and vacuum pipe for cracks or damage. Replace if necessary.		○	○	○	○	○
5*	Exhaust system	Check for leakage. Retighten if necessary. Replace gasket (s) if necessary.		○	○	○	○	○
6*	Carburetor Synchronization	Adjust synchronization of carburetors.	○	○	○	○	○	○
7*	Idle speed	Check and adjust engine idle speed. Adjust cable free play.		○	○	○	○	○

*: It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

NOTE:

For farther odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi), **2: Every 12,000 km (7600 mi), **3: Every 24,000 km (15,200 mi) intervals.

GENERAL MAINTENANCE/LUBRICATION

No.	Item	Remarks	Type	Initial	Odometer readings				
				1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	**3 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
1	Engine oil	Warm-up engine before draining.	*1) Yamalube 4 (20W40) or SAE 20W40 type "SE" motore oil *2) Yamalube 4 (10W30) or SAE 10W30 type "SE" motor oil	○	○	○	○	○	○
2	Oil filter	Replace	–	○		○		○	
3*	Air filter	Clean with compressed air. Replace if necessary.	–		○	○	○	○	○
4*	Brake system	Adjust free play. Replace pads if necessary.	–	○	○	○	○	○	○
5	Drive chain	Check chain condition. Adjust and lubricate chain thoroughly.	SAE30W-50 motor oil	Every 500 km (300 mi)					
6*	Control and meter cable	Apply chain lube thoroughtly.	Yamaha chain and cable lube or SAE 10W30 motor oil.	○	○	○	○	○	○
7	Rear arm pivot shaft and suspension link pivots.	Apply grease lightly.	Lithium soap base grease.					○	
8	Brake/ Clutch lever pivot shaft	Aplly chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
9	Brake pedal and shift pedal shaft	Lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
10*	Center/Side stand pivots	Check operation and lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
11*	Front fork oil	Check operation and leakage.	–		○	○	○	○	○
12*	Steering bearings	Check bearings assembly for looseness. Moderately repack every 24,000 km (15,200 mi)	Medium weight wheel bearing grease.		○	○	○	Repack	○

No.	Item	Remarks	Type	Initial	Odometer readings				
				1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	**3 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
13*	Wheel bearings	Check bearings for smooth rotation.	–		O	O	O	O	O
14*	A.C. Generator	Replace generator brushes every 100,000 km (62,000 mi)	–						
15*	Sidestand switch	Check and clean or replace if necessary.	–	O	O	O	O	O	O

*1) If ambient temperature dose not go below 5°C.
*2) If ambient temperature dose not go above 15°C.
* It is recommended that these items be service by a Yamaha dealer or other qualified mechanic.

NOTE:

For farther odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi), **2: Every 12,000 km (7600 mi), **3: Every 24,000 km (15,200 mi) intervals.

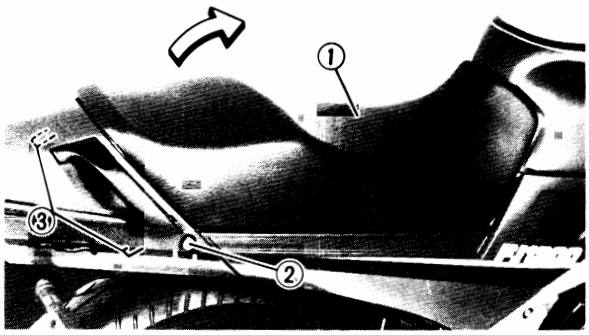
SEAT, SIDE COVERS AND FUEL TANK

REMOVAL

⚠ WARNING

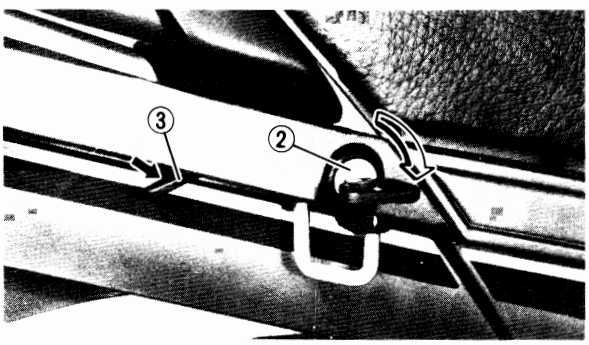
Securely support the motorcyle so there is no danger of it falling over.

1. Place the motorcycle on a level place and the motorcycle on its centerstand.
2. Remove:
   - Seat ①

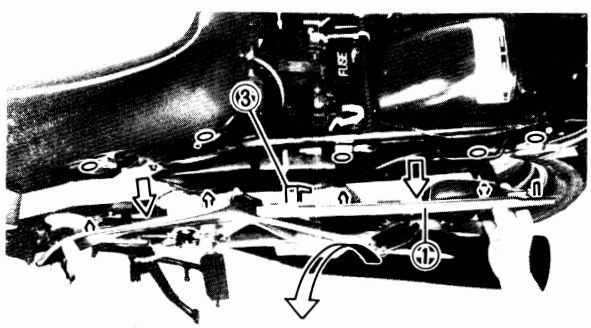


NOTE :

Rotate the seat lock key ② in the clockwise direction, release the seat lock, press the lever ③ on both sides to the front, and lift up the seat holding it at the rear to remove it.

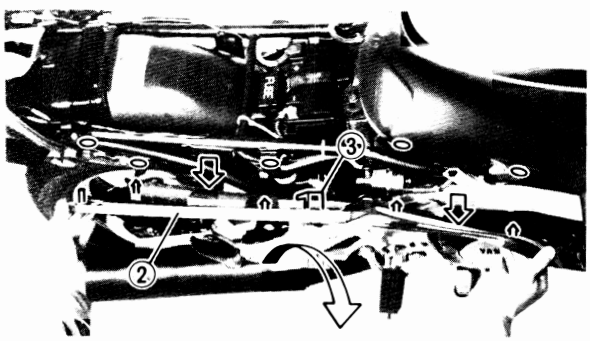


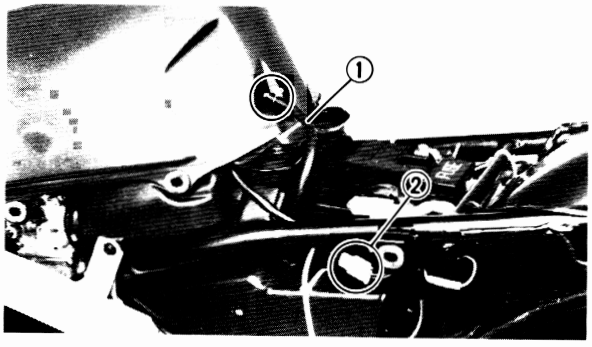
3. Remove:
   - Side cover (left) ①
   - Side cover (right) ②



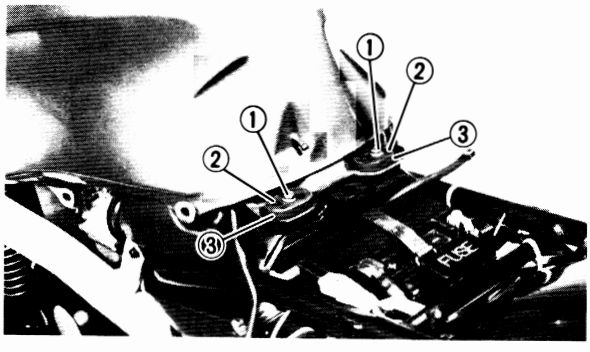
NOTE :

Remove the seat frame knobs at three locations. Remove the fuel tank knobs at two locations, lift up the L type hook ③ on the lower part of the side cover and remove the side cover.

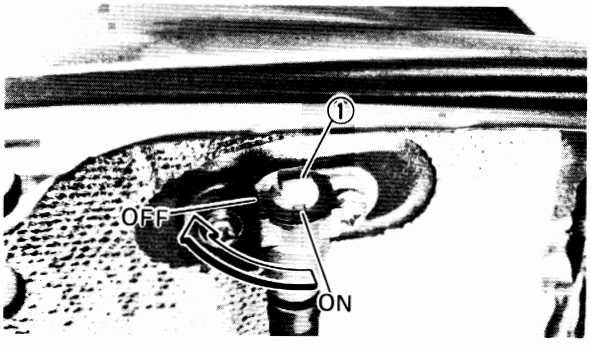




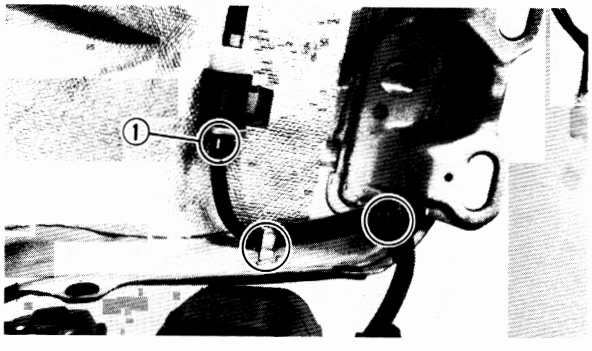
4. Disconnect
   - Breather hose ① (fuel tank)
   - Coupler ② (fuel level sender unit)



5. Remove:
   - Fuel tank securing bolts ①
   - Plates ②
   - Rubber washer ③



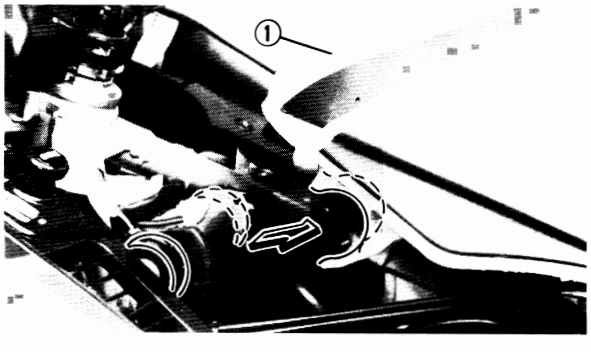
6. Turn the fuel cock ① to "OFF" position.
   Use a 8 mm (0.31 in) open end wrench.



7. Disconnect:
   - Fuel hose ①
   - Breather hose (fuel tank-front) (for FJ1200BC)

⚠ WARNING

Gasoline is highly flammable. Avoid spilling fuel on the hot engine.



8. Remove:
   - Fuel tank ①

INSTALLATION

1. Install:
   - Fuel tank
   - Side covers
   - Seat

   Reverse removal procedure.

NOTE:

Turn the fuel cock to "ON" position.

UPPER COWLING

CAUTION:

- **Avoid impact or damage in the removal and installation of the cowling.**
- **Avoid using any alkaline or strong acid cleaner, gasoline, brake fluid, or any other solvent.**

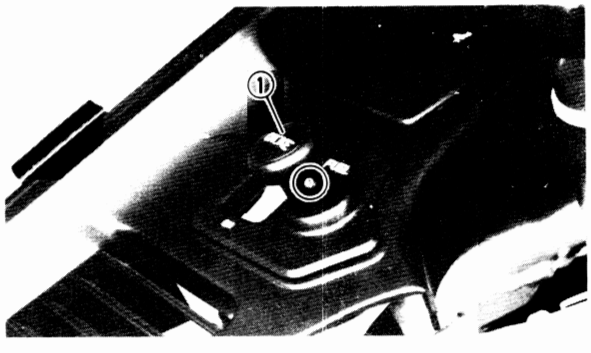
⚠ WARNING

- **Do not use a haircracked windscreen because it blurs visuality.**
- **Do not put a thing between the cowling and frame because it adversely affects steering.**

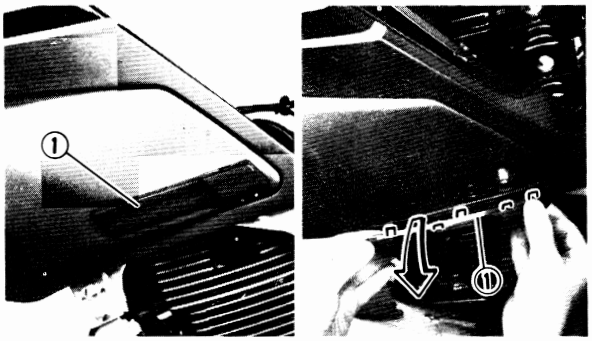
REMOVAL

1. Remove:
   - Seat
   - Side covers
   - Fuel tank

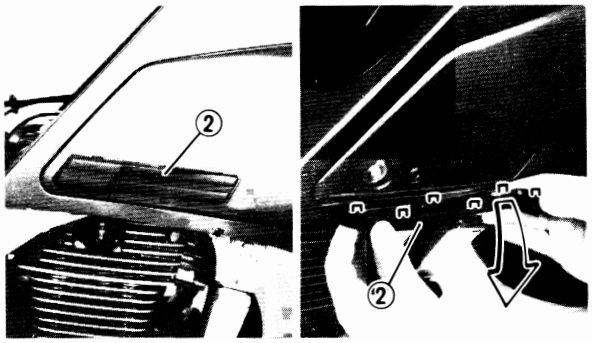
   Refer to the "SEAT, SIDE COVERS AND FUEL TANK" section.
2. Remove:
   - Choke knob ①

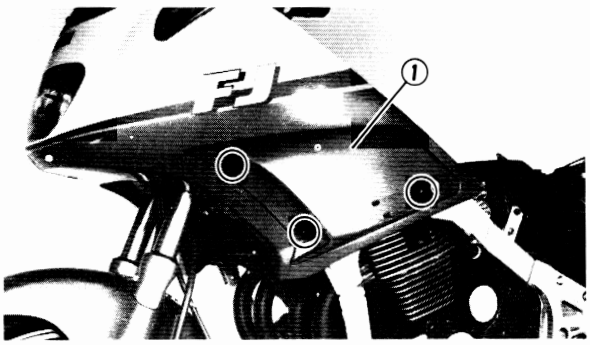


3. Remove:
   - Panel ①



4. Remove:
- Mold (left) ①
- Mold (right) ②

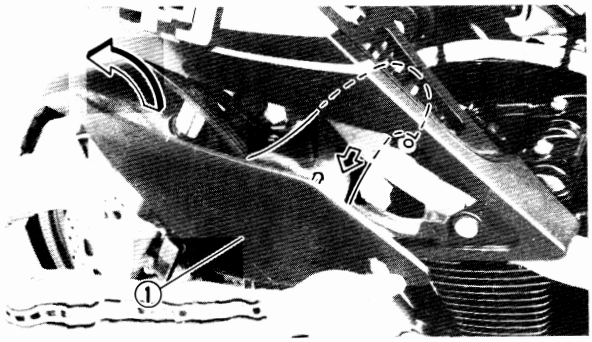


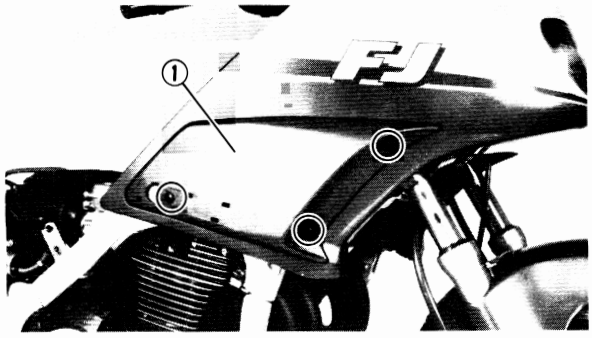


5. Remove:
- Air duct (left) ①

NOTE:

Remove the bolt, then remove the knob at one location, while taking adequate care in not pulling out the plug cord above the cylinder head. Rotate in the counter clockwise direction and remove the air duct.

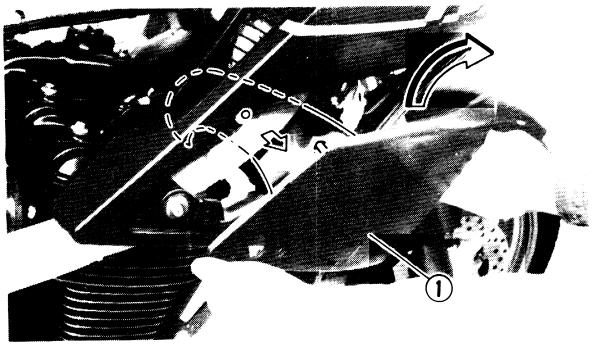


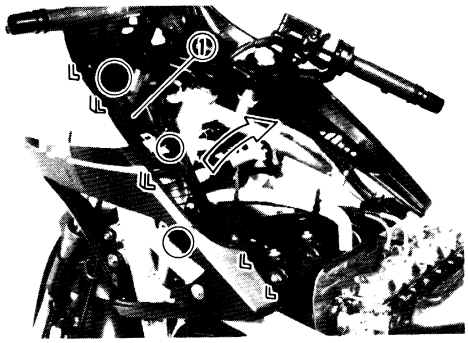


6. Remove:
- Air duct (right) ①

NOTE:

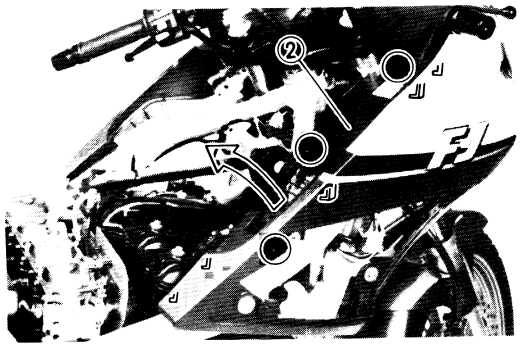
Remove the bolt, then remove the knob at one location, while taking adequate care in not pulling out the plug cord above the cylinder head. Rotate in the clockwise direction and remove the air duct.

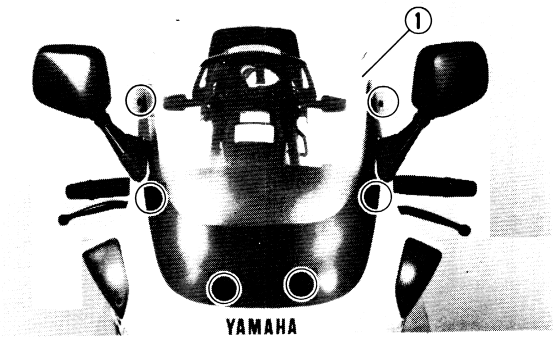




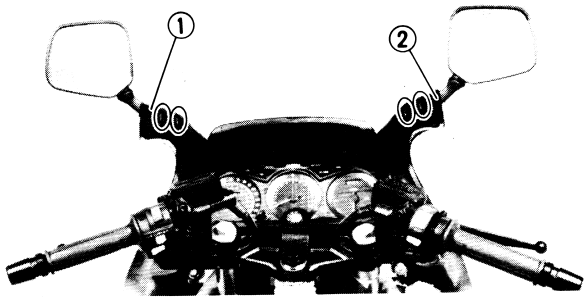
7. Remove:
   - Inner panel 1 (left) ①
   - Inner panel 2 (right) ②

NOTE:
While removing the inner panel, be careful of the L type hooks.

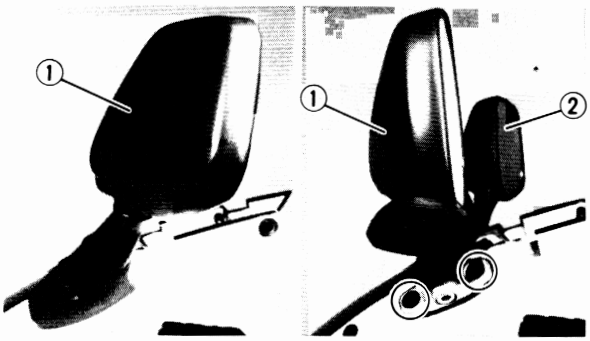




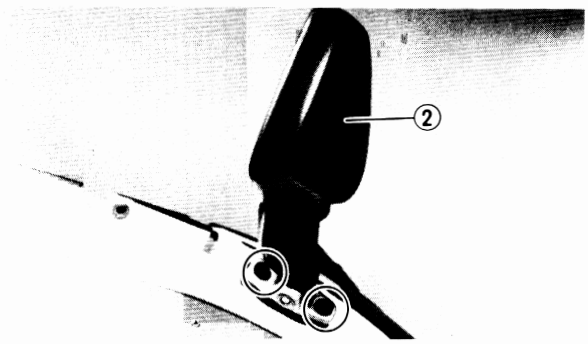
8. Remove:
   - Windscreen ①

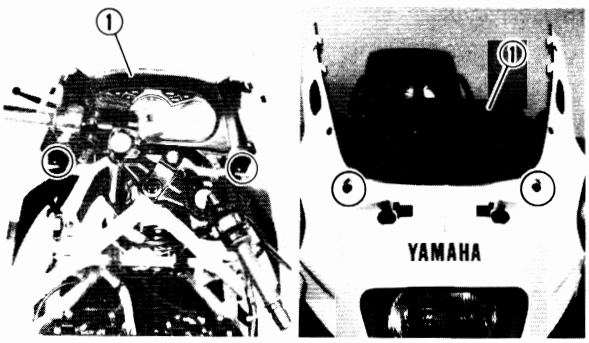


9. Remove:
   - Inner panel 3 (left) ①
   - Inner panel 4 (right) ②



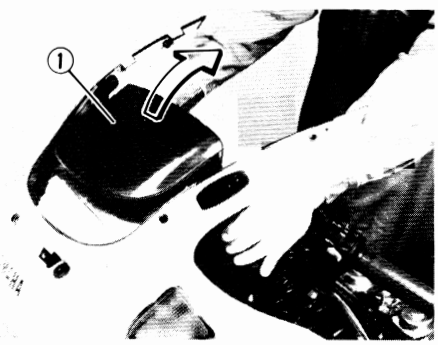
10. Remove:
    - Rear view mirror (left) ①
    - Rear view mirror (right) ②

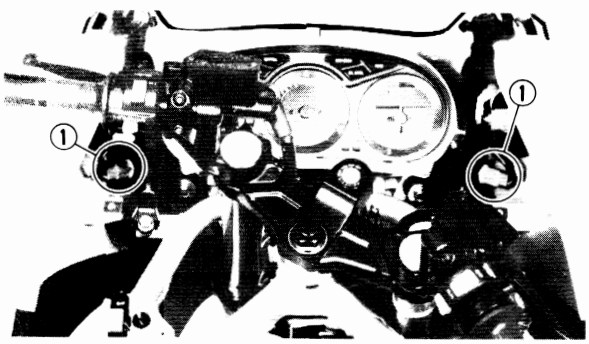




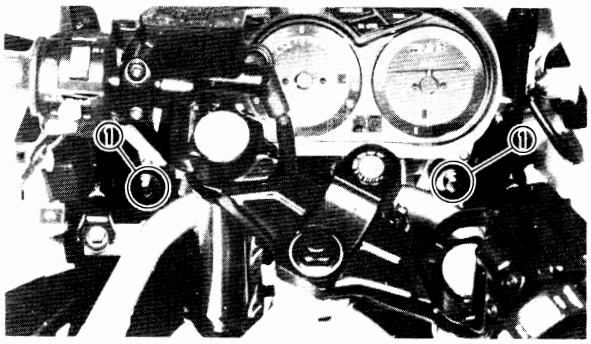
11. Remove:
    - Meter cover ①

NOTE:
For removing the meter cover, hold it so as to lift it up and remove it.

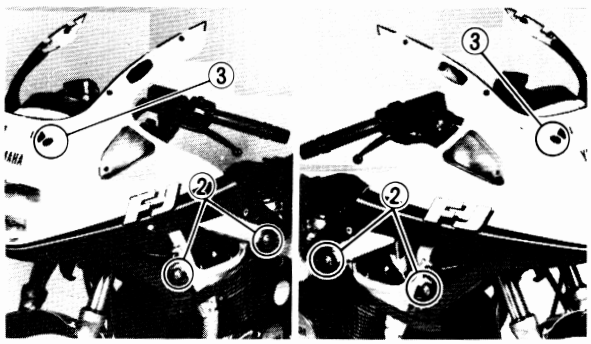




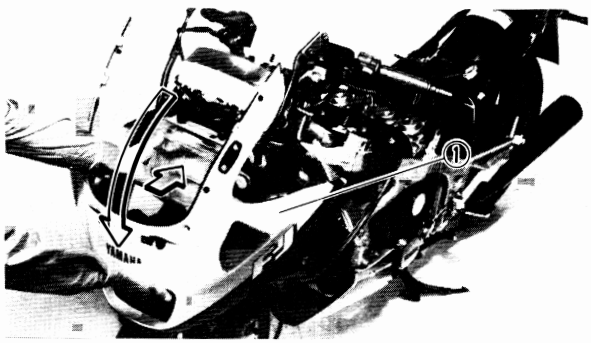
12. Disconnect:
    - Couplers (front flasher light) ①



13. Remove:
    - Bolts (upper cowling and head light) ①



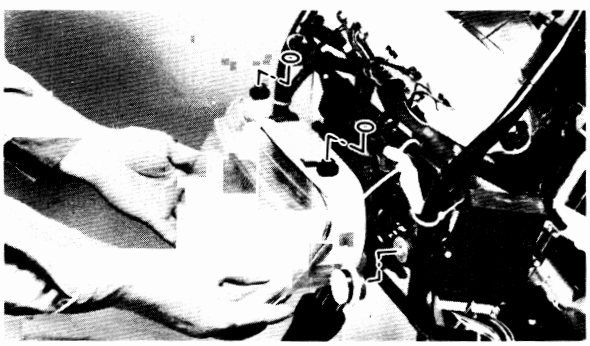
14. Remove:
    - Bolts (upper cowling) ②
    - Bolts (upper cowling) ③



15. Remove:
    - Upper cowling ①

CAUTION:

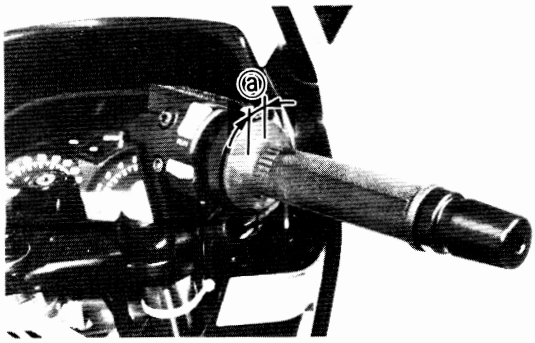
At the time of removing the upper cowling, the headlight will also come out. Take care you do not drop the headlight, hold it firmly and remove the upper cowling.



INSTALLATION

1. Install:
    - Upper cowling
    - Meter cover
    - Rear view mirror
    - Inner panel
    - Wind screen
    - Air duct
    - Choke knob

    Reverse removal procedure.



ENGINE

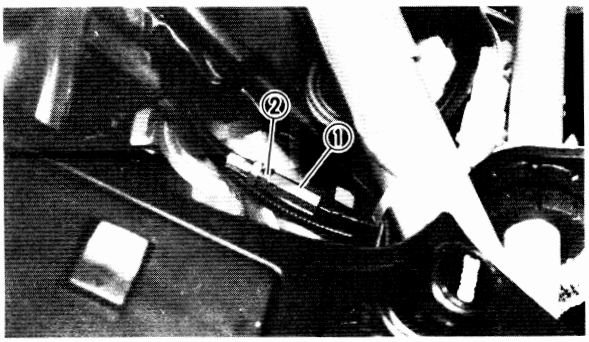
THROTTLE CABLE FREE PLAY ADJUSTMENT

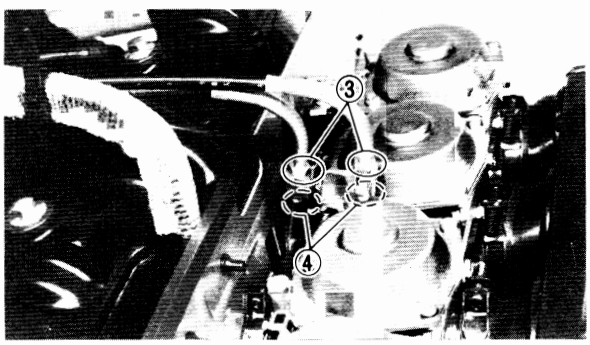
NOTE:

Before adjusting the throttle cable free play, the engine idle speed should be adjusted.

1. Check:
   - Throttle cable free play ⓐ
     Out of specification → Adjust.

Throttle cable free play ⓐ : 3 ~ 7 mm (0.12 ~ 0.28 in)





2. Adjust:
   - Throttle cable free play

****

Adjustment steps:

First step:

- Remove the seat, side covers and the fuel tank.
- Make sure that the adjuster ① and locknut ② located below the choke knob are fully tightened.
- Loosen the locknut ③ on the carburetor side.
- Turn the adjuster nut ④ in or out until the correct free play is obtained.

Turning in	Free play is increased.
Turning out	Free play is decreased.

- Tighten the locknut ③ .

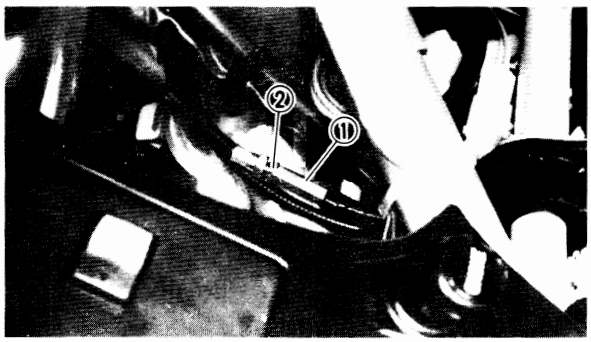
NOTE:

If the free play is incorrect, adjust the throttle cable free play with the adjuster (below the choke knob).

Second step:

- Loosen the locknut ② .
- Turn the adjuster ① in or out until the correct free play is obtained.

Turning in	Free play is increased.
Turning out	Free play is decreased.



● Tighten the locknut ②.

⚠WARNING

After adjusting the free play, turn the handlebar to right and left, and make sure that the engine idling does not run faster.

● Install the fuel tank, side covers and the seat.

****

CHASSIS

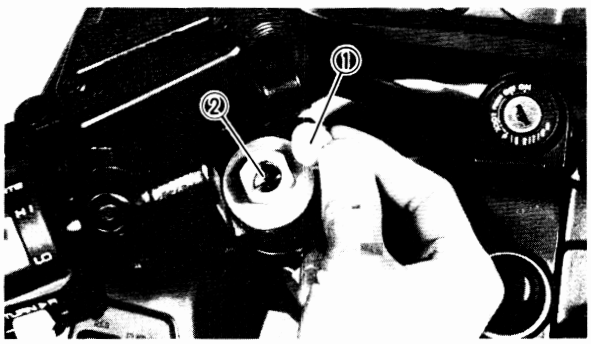
FRONT FORK ADJUSTMENT

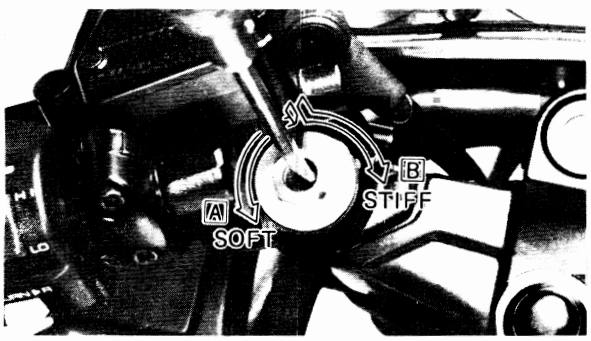
The front fork of this model features a spring preload adjuster. Normal adjustment can be made by turning this spring preload adjuster.

1. Adjust:
   - Spring preload

⚠WARNING

Always adjust each fork preload to the same setting. Uneven adjustment can cause poor handling and loss of stability.





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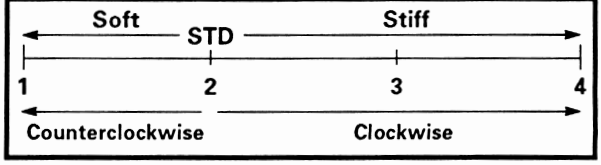
Spring preload adjustment steps:

- Remove the fork caps ①.
- Place a screwdriver into the slot of the spring preload adjuster ②, and turn it while pushing downward until it stops.
- Adjust the spring preload. Turning the adjuster clockwise Stiffest the spring and turning counterclockwise softens the spring preload.

A Softest Position: "1"
Standard Position: "2"
B Stiffest Position: "4"



CAUTION:

Turn the spring preload adjuster from 1 to 4 or 4 to 1 in progressive steps. Never turn the adjuster directly from 1 to 4 or 4 to 1.

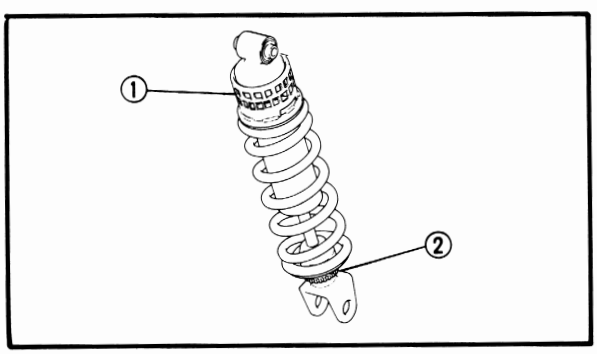
****

REAR SHOCK ABSORBER ADJUSTMENT

⚠WARNING

This shock absorber contains highly pressurized nitrogen gas.
Read and understand the following information before handling the shock absorber. The manufacturer cannot be held responsible for property damage or personal injury that may result from improper handling.

1. **Do not tamper with or attempt to open the cylinder assembly.**
2. **Do not subject shock absorber to an open flame or other high heat source. This may cause the unit to explode due to excessive gas pressure.**
3. **Do not deform or damage the cylinder in any way. Cylinder damage will result in poor damping performance.**

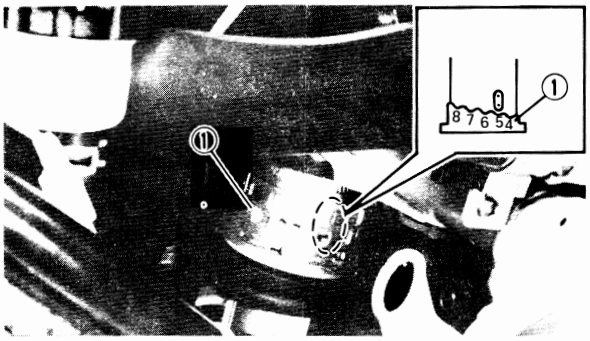


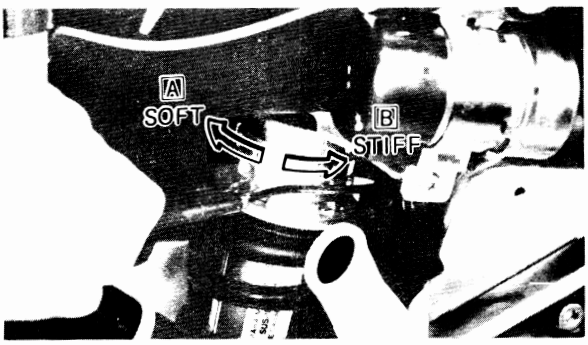
1. Adjust:
   - Spring preload ①
   - Damping ②

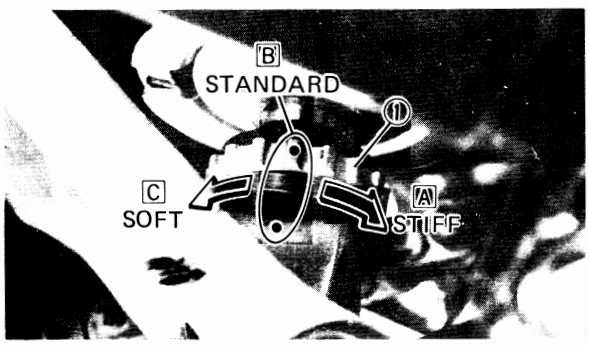
The rear shock absorber of this model features a spring preload adjuster which is a combined spring preload and damping adjuster. Normal adjustment can be made by turning this spring preload adjuster, whereas damping adjustment only can be made by the damping adjuster.

CAUTION:

Turn spring preload adjuster from 1 to 9, or 9 to 1 in progressive steps. Never try to turn adjuster directly from 1 to 9, or 9 to 1. Turn damping adjuster from 3 to 12, or 12 to 3 in progressive steps. Never attempt to turn the adjuster beyond fully turned-in or fully turnd-out position.







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Adjustment steps:

Spring preload adjustment:

- Remove the seat and side covers.
- To decrease the preload, turn the spring adjuster ① clockwise.
  To increase the preload, turn the spring adjuster ① counterclockwise.

A	**Softest position: "1"**
	Standard position: "5"
B	**Stiffest position: "9"**

NOTE:

When adjusting use the special wrench. Included in the tool case.

- Install the side covers and seat.

Damping adjustment:

- To increase the damping force, turn the adjuster ① clockwise.
  To decrease the damping force, turn the adjuster counterclockwise.

A Maximum	3 clicks out from fully turned-in position
B Standard	7 clicks out (from match mark)
C Minimum	12 clicks out

****

Recommended combinations of the front fork and the rear shock absorber settings:

Use this table as a guide for specific riding and motorcycle load conditions.

Front fork	Rear shock absorber		Loading condition			
Spring preload adjuster	Spring preload adjuster	Damping adjuster	Solo rider	With passenger	With accessories equipment	With accessories equipment and passenger
1, 2	1 ~ 4	12 ~ 7	○			
2, 3	5 ~ 8	7 ~ 3		○		
2, 3	5 ~ 8	7 ~ 3			○	
3, 4	6 ~ 9	5 ~ 3				○

ELECTRICAL

BATTERY INSPECTION

NOTE:

Since the MF battery is of a sealed-type construction, it is impossible to measure the specific gravity of the electrolyte in order to check the state of charge in the battery. Therefore, to check the state of charge in the battery, voltage must be measured at the battery terminals.

CAUTION:

CHARGING METHOD

- This battery is sealed type. Never remove sealing caps even when charging. With the sealing cap removed, this balancing will not be maintained, and battery performance will lower gradually.
- Never add water. If distilled water is added, chemical reaction in the battery will not proceed in the normal way, thus making it impossible for the battery to operate regularly.
- The charging time, charging current and charging voltage for the MF battery is different than general type batteries.

  The MF battery should be charged as instructed in the "Charging method". Should the battery be overcharged, the electrolyte level will lower extremely. Therefore, use special care when charging the battery.
- Avoid using any electrolyte other than specified. The specific gravity of the MF battery electrolyte is 1.32 at 20°C (68°F). (The specific gravity of the general type battery electrolyte is 1.28.) If the electrolyte whose specific gravity is less than 1.32, the sulfuric acid will decrease and thus low battery performance will result. Should any electrolyte, whose specific gravity is 1.32 or more, be used, the battery plates will corrode and battery life will shorten.

⚠ WARNING

Battery electrolyte is dangerous; it contains sulfuric acid and therefore is poisonous and highly caustic.

Always follow these preventive measures:

- **Avoid bodily contact with elecrolyte as it can cause severe burns or permanent eye injury.**
- **Wear protective eye gear when handling or working near batteries.**

Antidote (EXTERNAL):

- **SKIN-Flush with water.**
- **EYES-Flush with water for 15 minutes and get immediate medical attention.**

Antidote (INTERNAL):

- **Drink large quantities of water or milk follow with milk of magnesia, beaten egg, or vegetable oil. Get immediate medical attention.**

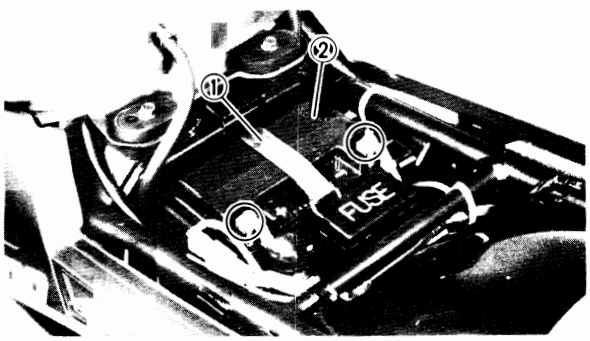
  Batteries also generate explosive hydrogen gas, therefore you should always follow these preventive measures:

- **Charge batteries in a well-ventilated area.**
- **keep batteries away from fire, sparks, or open flames (e.g., welding equipment, lighted cigarettes, etc.)**
- **DO NOT SMOKE When charging or handling batteries.**

KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN.

1. Remove:
   - Seat

   Refer to the "SEAT, SIDE COVERS AND FUEL TANK" section.

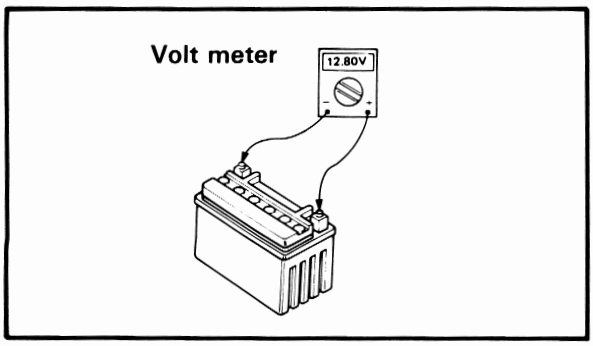


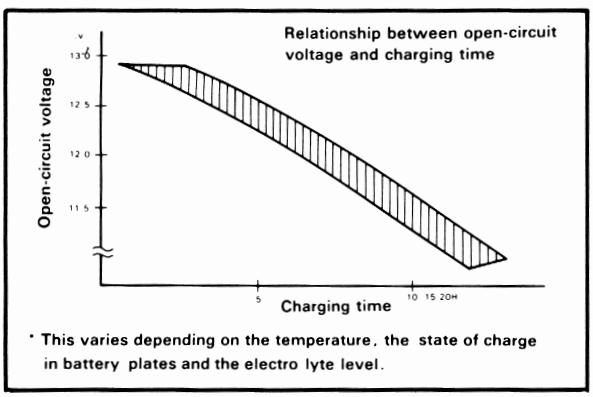
2. Disconnect:
   - Battery leads
   - Battery band ①

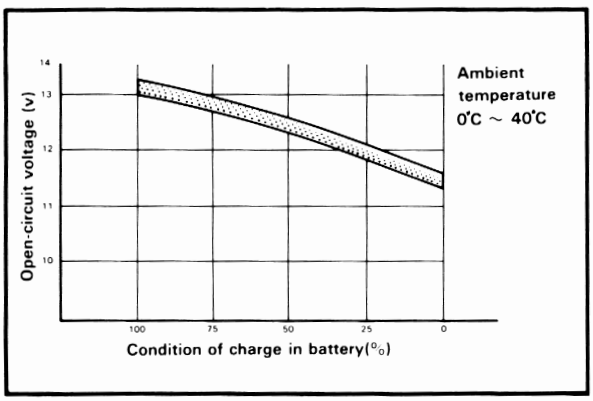
CAUTION:

Disconnect the negative lead first and then disconnect the positive lead.

3. Remove:
   - Battery ②







4. Check:
   - Battery condition

* *

Battery condition checking steps:

- Connect the pocket tester to the battery terminals.

Tester (+) lead → Battery (+) terminal.
Tester (−) lead → Battery (−) terminal.

NOTE:

The state of a discharged MF battery can be checked by measuring open circuit voltage (the voltage measured with the positive terminals being disconnected).

Open-circuit voltage	Charging time
12.8 v or higher	No charging is necessary.
12.7 v - 11.5 v	5 - 10 hours
Less than 11.5 v	15 - 20 hours

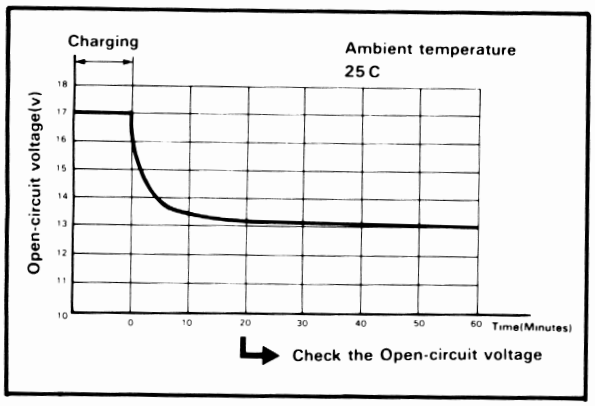
- Battery condition chart as shown.

* *

5. Charging method of MF battery

CAUTION:

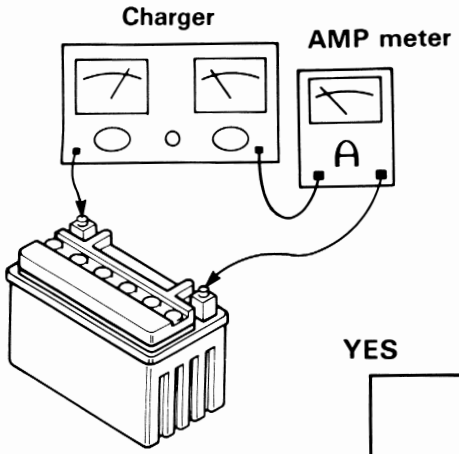
- **If it is impossible to set the standard charging current, be careful not to overcharge.**
- **When charging the battery, be sure to remove it from the machine. (If charging has to be done with the battery mounted on the machine for some reason, be sure to disconnect the wire at the negative terminal.)**
- **Never remove the sealing plug from the MF battery.**



- Use special care so that charging clips are in a full contact with the terminal and that they are not shorted. (A corroded clip of the charger may cause the battery to generate heat at the contact area. A weak clip spring may cause sparks.)
- Before removing the clips from the battery terminals, be sure to turn off the power switch of the charger.
- Change in the open-circuit voltage of the MF battery after being charged is shown below. As shown in the figure, the open-circuit voltage is stabilized 30 minutes after charging has been completed.

  Therefore, to check the condition of the battery, measure the open-circuit voltage 30 minutes after charging has been completed.

Charging method using a variable-current (voltage) type charger



Measure the open-circuit voltage prior to charging.

NOTE:
Voltage should be measured 30 minutes after the machine is stopped.

Connect a charger and AMP meter to the battery and start charging.

NOTE:
Set the changing voltage at 16-17v. (If the setting is lower, charging will be insufficient. If too high, the battery will be over-charged.)

Make sure the current is higher than the standard charging current written on the battery.

YES

Adjust the voltage so that current is at standard charging level.

Set the timer according to the charging time suitable for the open-circuit voltage.

NO

By turning the charging voltage adjust dial, set the charging voltage at 20 - 25 v.

Monitor the amperage for 3-5 minutes to check if the standard charging current is reached.

1A or less

After 5 minutes, adjust the voltage to 16 - 17 v, and continue charging.

1A or more

If the current is more than 1 amp, adjust the voltage to 16 - 17 v and continue charging.

NO

If current does not exceed standard charging current after 5 minutes, replace the battery.

In case that charging requires more than 5 hours, it is advisable to check the charging current after a lapse of 5 hours. If there is any change in the amperage, readjust the voltage to obtain the standard charging current.

Measure the battery open-circuit voltage after having left the battery unused for more than 30 minutes.
12.8 v or more --- Charging is complete.
12.7 v or less --- Recharging is required.
Under 12.0 v --- Replace the battery.

Charging method using a constant-voltage type charger

Measure the open-circuit voltage prior to charging.

NOTE:
Voltage should be measured 30 minutes after the machine is stopped.

Connect a charger and AMP meter to the battery, and start charging.

Make sure the current is higher than the standard charging current written on the battery.

YES

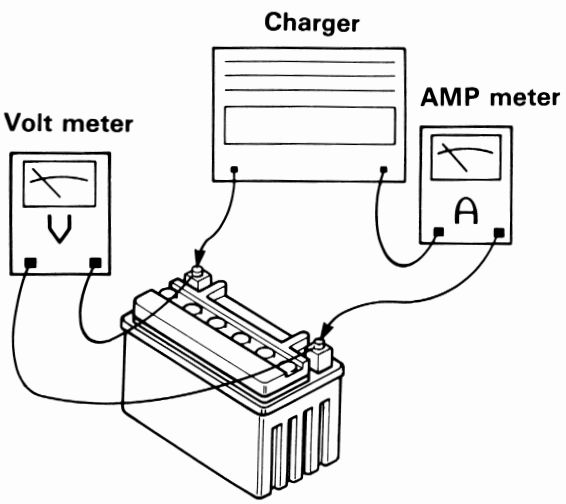
Charge the battery until the battery's charging voltage is 16 volts or more

NOTE:
Set the charging time at 20 hours (maximum).

Check the open-circuit voltage after having left the battery for 30 minutes after charging.
12.8 v or more---Charging is complete.
12.7 v or less---Recharging is necessary.
Under 12 v---Replace the battery.

NO

This type of battery charger cannot charge the MF battery. A variable voltage charger or a constant current charger is recommended.



Charging method using a constant current type charger (Exclusive for MF Battery)

Measure the open-circuit voltage prior to charging.

NOTE:
Voltage should be measured 30 minutes after the machine is stopped.

Connect a charger and AMP meter to the battery, and start charging.

After one hour of charging, make sure the rated charging current of the charger is flowing by checking AMP meter.

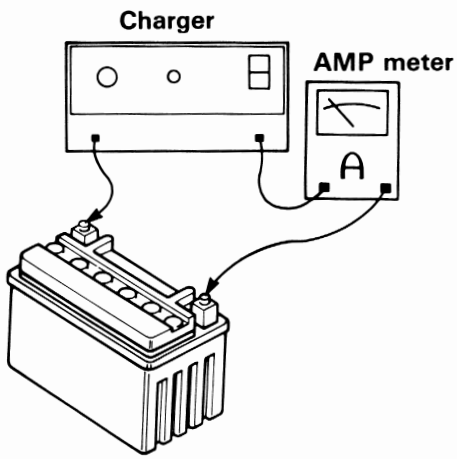
YES

Since the charging current is constant, the charging time varies depending on the battery capacity.
Set the charging time according to the instructions specified for the charger.

Measure the battery open-circuit voltage after having left the
battery unused for more than 30 minutes.
12.8 v or more---Charging is complete.
12.7 v or less---Recharging is required.
Under 12.0 v---Replace the battery.

NO

If rated current is not flowing, replace the battery.



ENGINE OVERHAUL

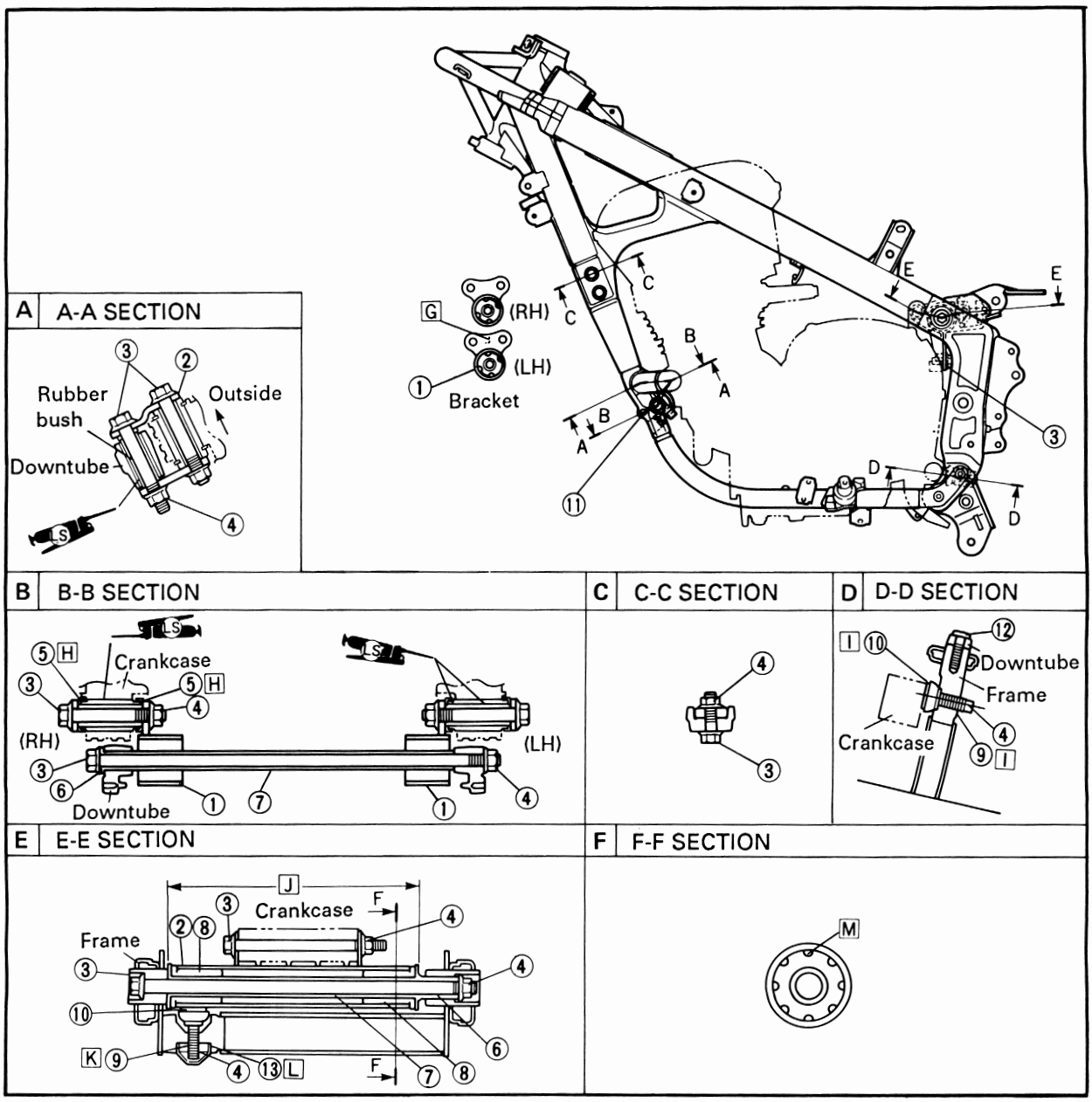
ENGINE ASSEMBLY AND ADJUSTMENT

REMOUNTING ENGINE

1. Refer to engine removal. Reverse those removal steps that apply.

① Engine bracket
② Engine stay
③ Flange bolt
④ Nut
⑤ Dust cover
⑥ Collar
⑦ Spacer
⑧ Damper
⑨ Adjusting bolt
⑩ Stopper damper
⑪ Hexagon socket head bolt
⑫ Screw
⑬ Tight plug

[G] The item on the reverse side, painted "L" in white, should be used on the left side.
[H] To prevent the lip from rotating in the opposite direction, rotate it by half a turn after fitting.
[I] Only the left side
[J] The dimension after assembly of damper and spacer in the engine stay is taken as 213 mm (8.39 in) as a yardstick.
[K] After mounting the engine, turn the adjusting bolt to push it on the stay bracket with the hand.
[L] Press fit till it reaches the base.
[M] Align the pipe joint part with the thickness contact part of damper.



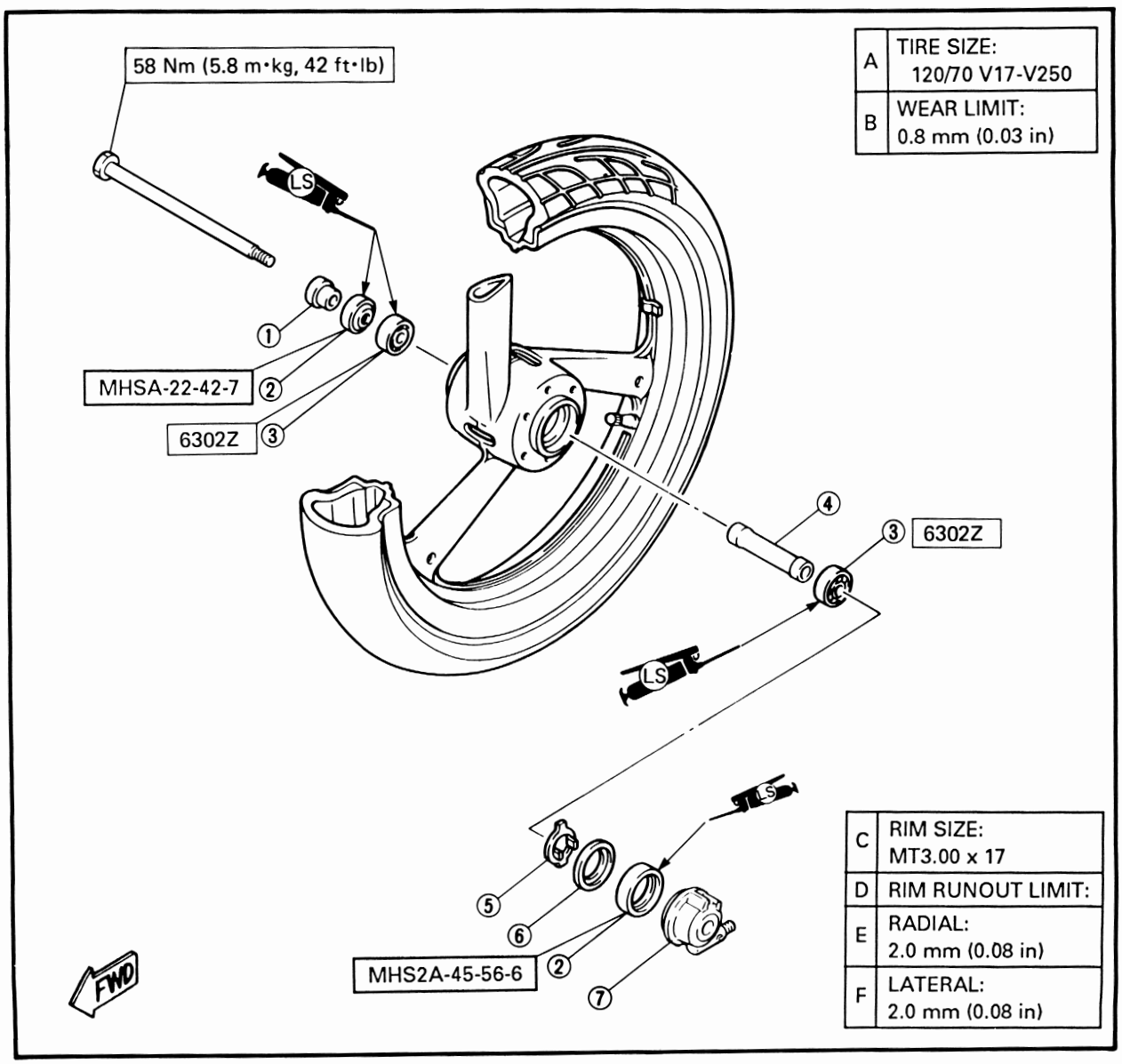
CHASSIS

FRONT WHEEL

① Collar
② Oil seal
③ Bearing
④ Spacer
⑤ Meter clutch
⑥ Clutch retainer
⑦ Speedometer gear unit

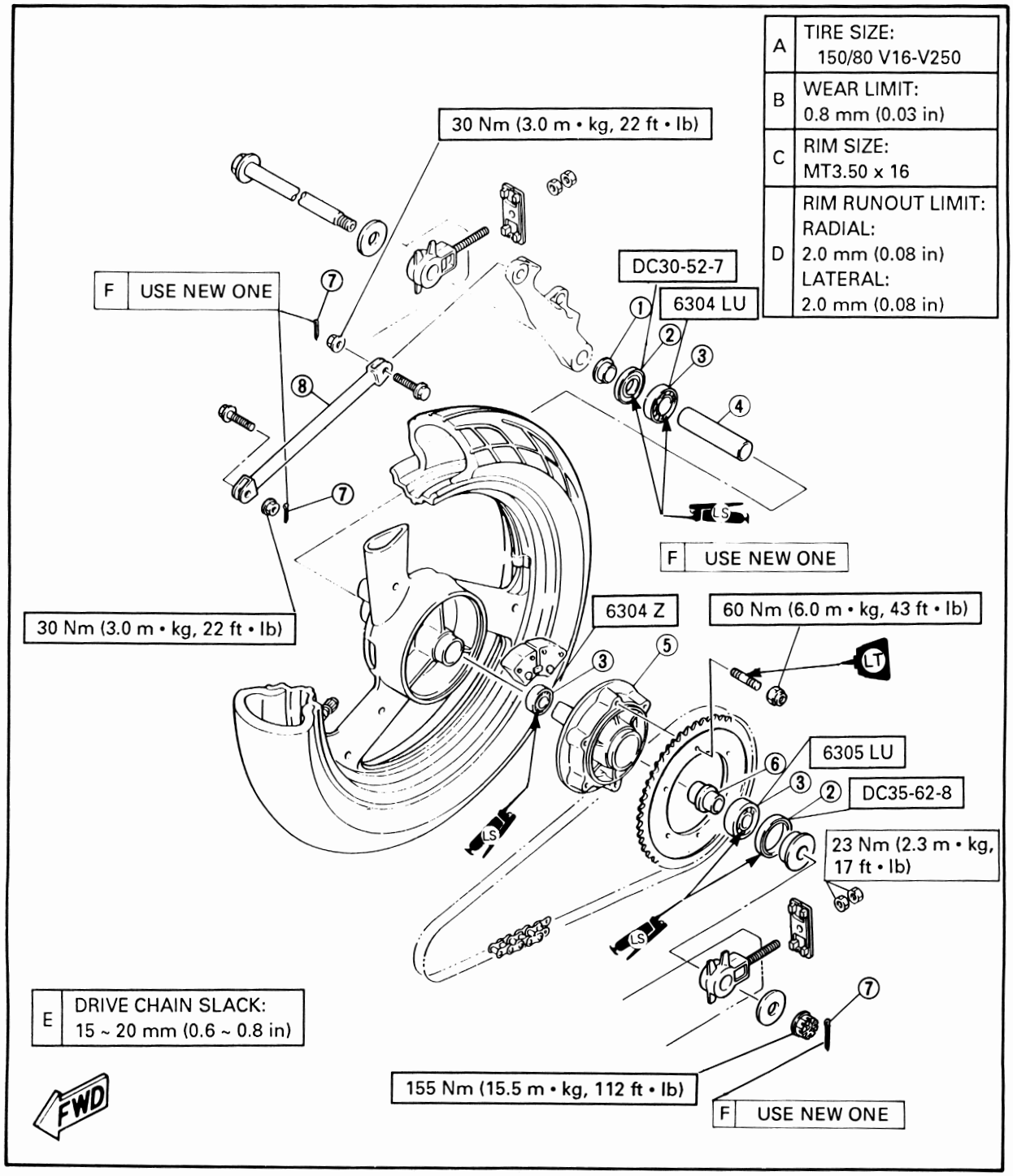
TIRE AIR PRESSURE (COLD):		
Cold tire pressure	Front	Rear
Up to 90 kg (198 lb) load*	225 kPa (2.25 kg/cm², 32 psi)	250 kPa (2.5 kg/cm², 36 psi)
90 kg (198 lb) ~ Maximum load*	250 kPa (2.5 kg/cm², 36 psi)	290 kPa (2.9 kg/cm², 42 psi)
High speed riding	250 kPa (2.5 kg/cm², 36 psi)	290 kPa (2.9 kg/cm², 42 psi)
Maximum load*	182 kg (401 lb): FJ1200B 181 kg (399 lb): FJ1200BC	

* Load is the total weight of cargo, rider passenger, and accessoires.



REAR WHEEL

① Collar
② Oil seal
③ Bearing
④ Spacer
⑤ Clutch hub
⑥ Collar
⑦ Cotter pin
⑧ Compression bar

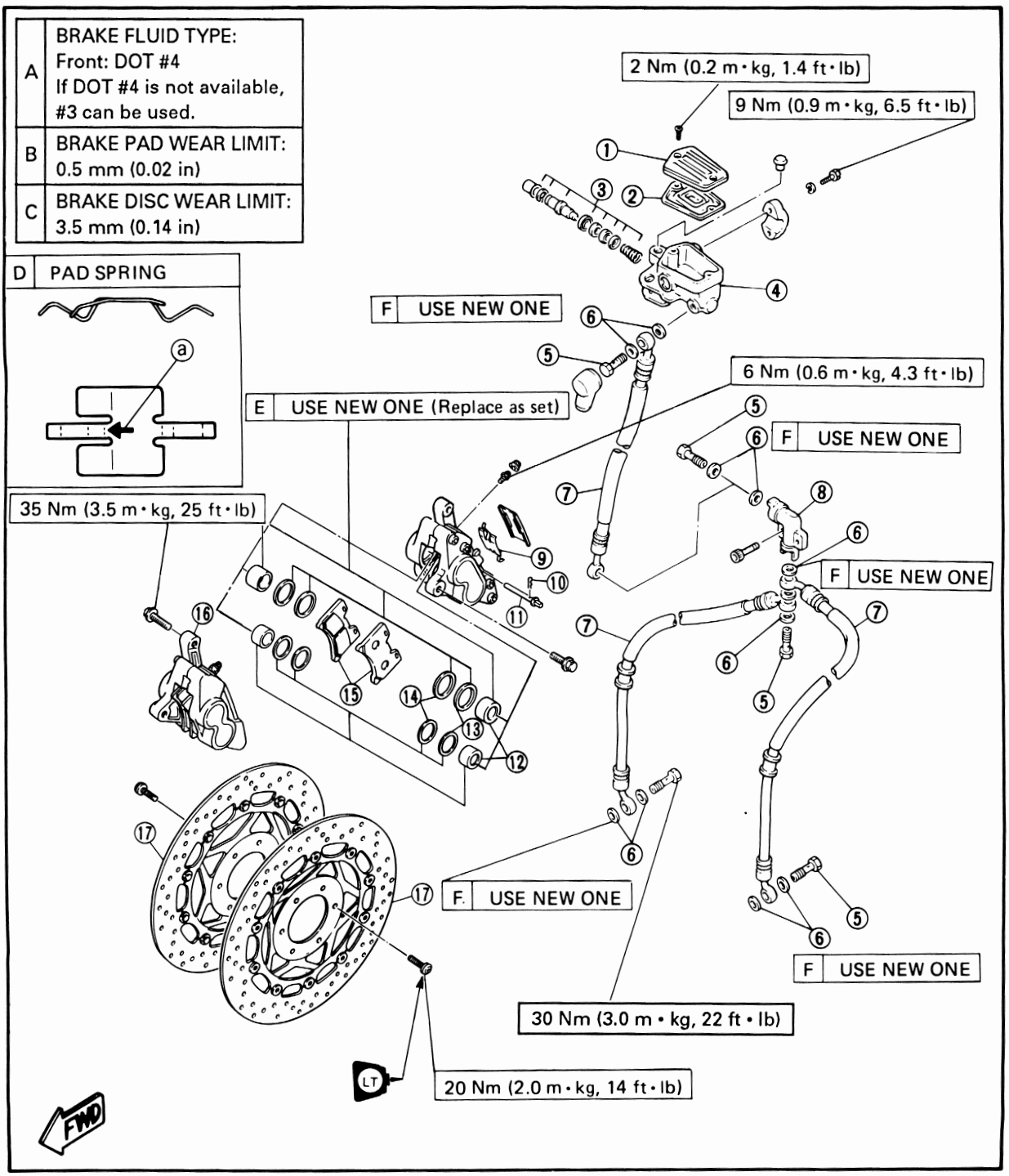


FRONT AND REAR BRAKE

FRONT BRAKE

① Master cylinder cap
② Diaphragm
③ Master cylinder kit
④ Master cylinder
⑤ Union bolt
⑥ Copper washer
⑦ Brake hose
⑧ Joint
⑨ Pad spring
⑩ Retaining clips
⑪ Retaining pins
⑫ Piston
⑬ Piston seal
⑭ Dust seal
⑮ Brake pad assembly
⑯ Brake caliper
⑰ Brake disc

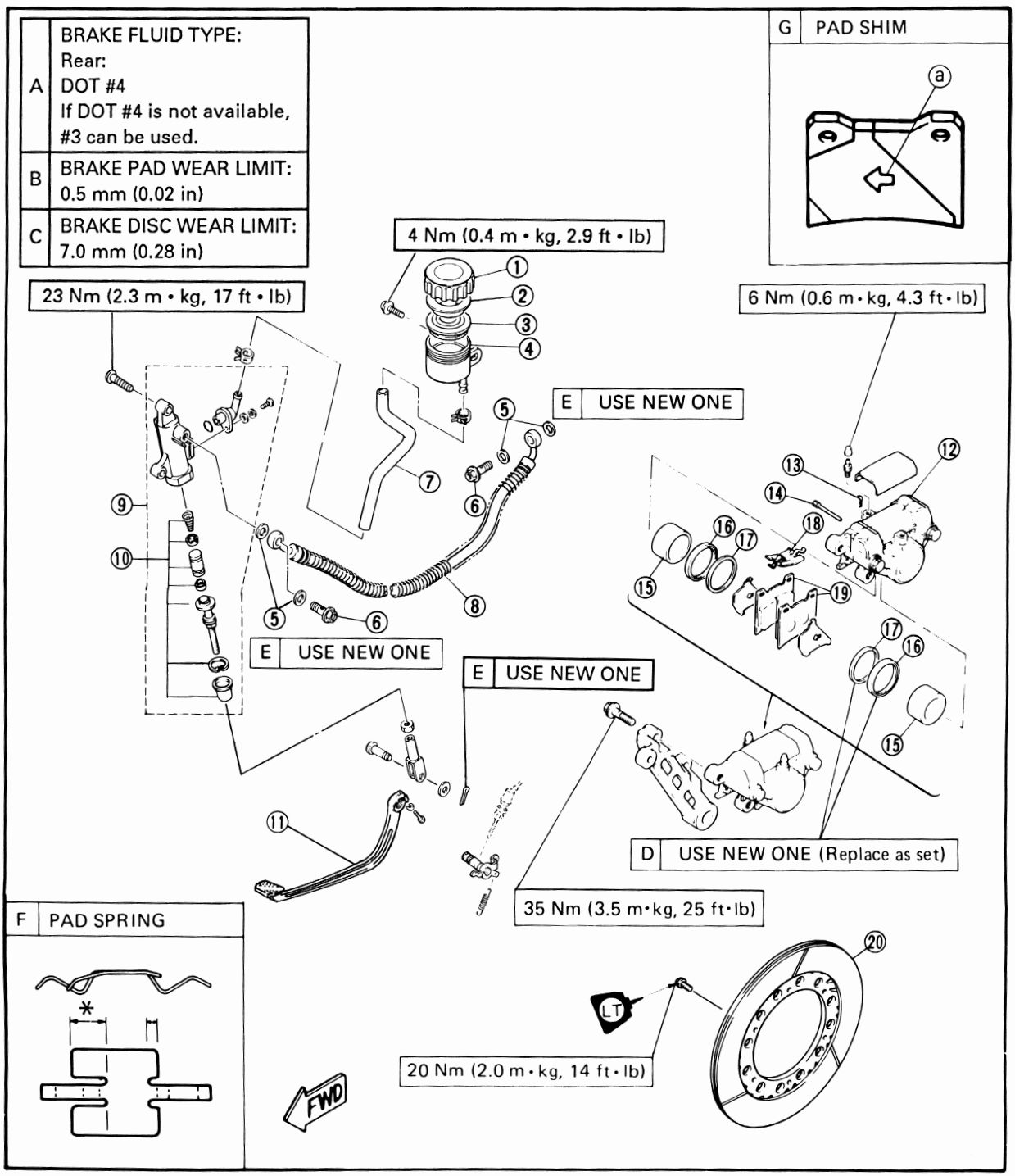
D The arrow mark ⓐ on the pad spring must pointing the disc rotating direction.



REAR BRAKE

① Reservoir tank cap
② Holder (diaphragm)
③ Diaphragm
④ Reservoir tank
⑤ Copper washer
⑥ Union bolt
⑦ Reservoir hose
⑧ Brake hose
⑨ Master cylinder
⑩ Master cylinder kit
⑪ Brake pedal
⑫ Brake caliper
⑬ Retaining clips
⑭ Retaining pins
⑮ Piston
⑯ Piston seal
⑰ Dust seal
⑱ Pad spring
⑲ Brake pad
⑳ Brake disc

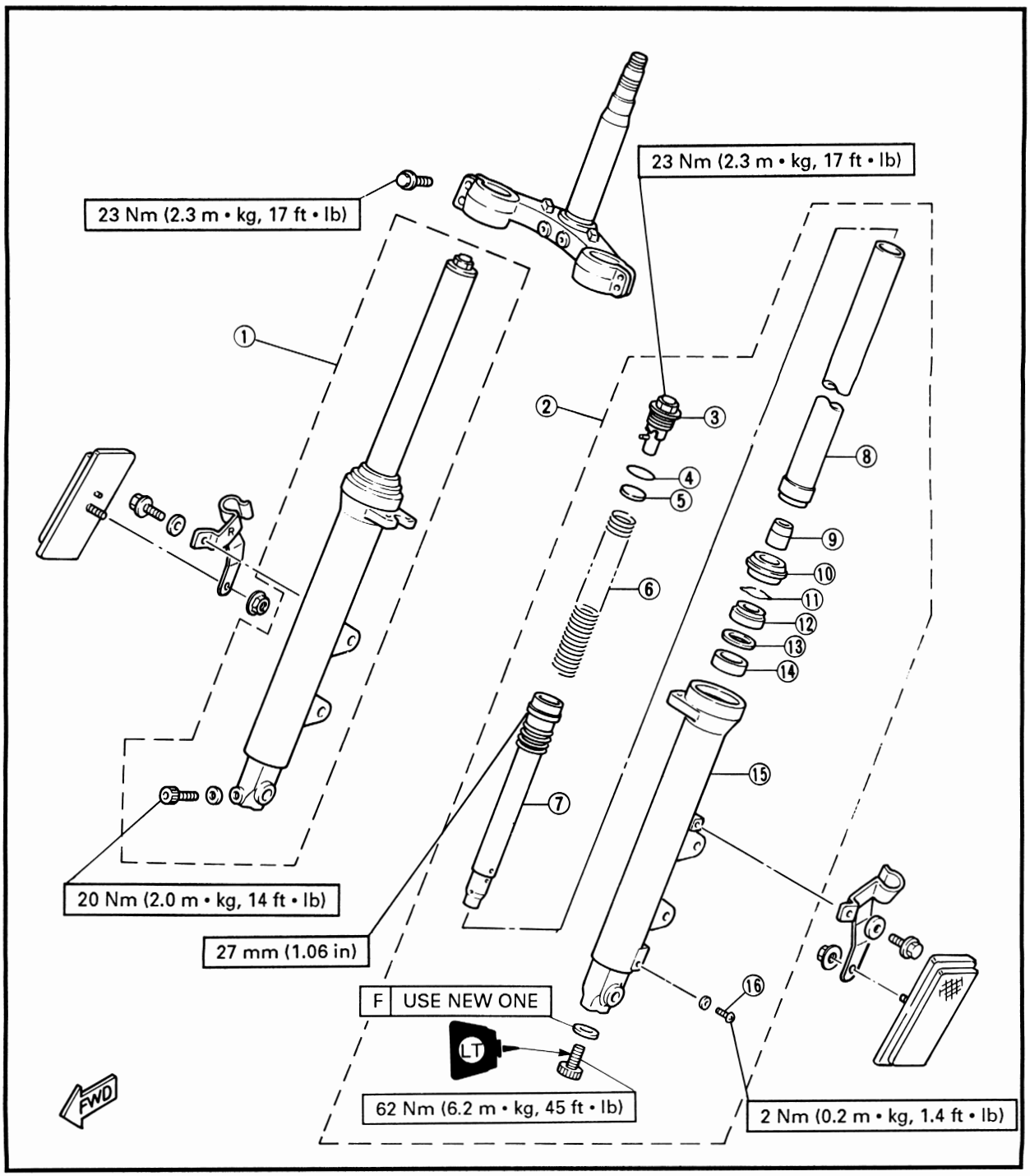
F The longer tangs (*) of the pad spring must point in the disc rotating direction.
G The arrow mark ⓐ on the pad shim must point in the disc rotating direction.



FRONT FORK

① Front fork (Right)
② Front fork (Left)
③ Cap bolt assembly
④ O-ring
⑤ Spring seat
⑥ Fork spring
⑦ Damper rod
⑧ Inner fork tube
⑨ Oil lock piece
⑩ Dust seal
⑪ Retaining clip
⑫ Oil seal
⑬ Plain washer
⑭ Guide bush
⑮ Outer fork tube
⑯ Drain screw

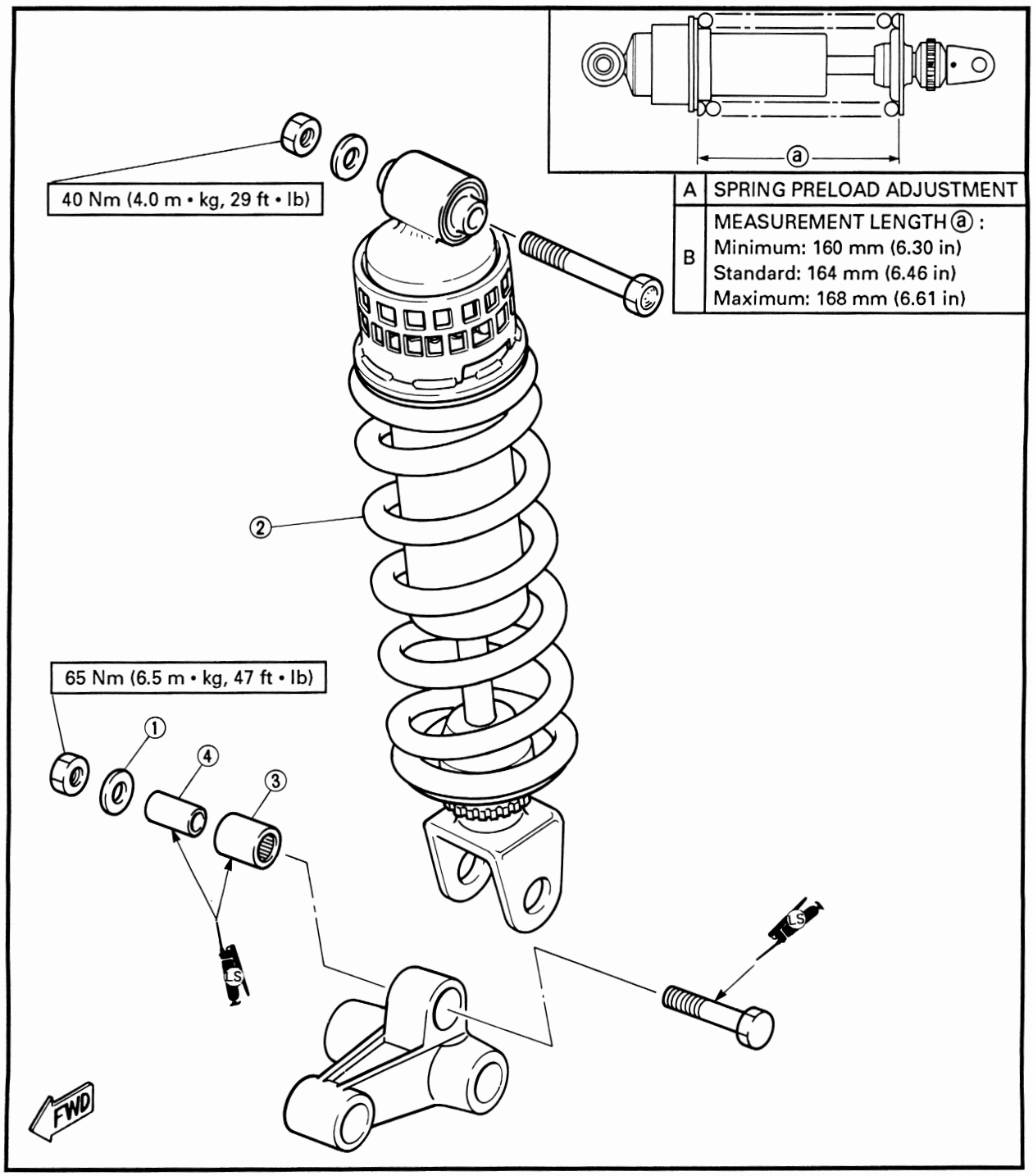
A	FORK OIL (EACH):
B	Capacity: 446 cm³ (15.70 Imp oz, 15.08 Us oz)
C	Grade: Fork oil 10W or equivalent
D	FORK SPRING:
E	Free length: 529.5 mm (20.8 in)



REAR SHOCK ABSORBER AND SWINGARM

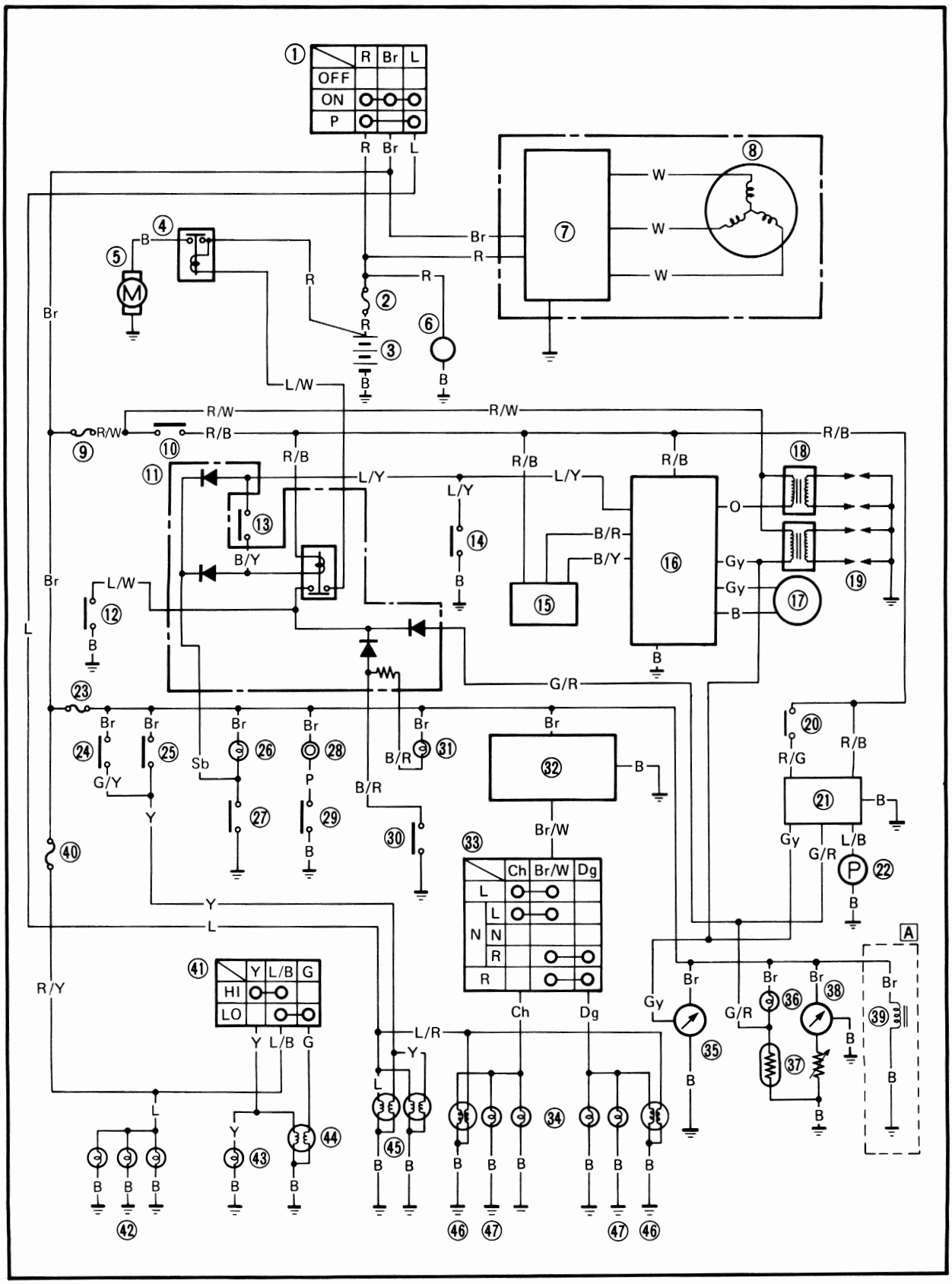
REAR SHOCK ABSORBER

① Washer
② Shock absorber
③ Bearing
④ Collar



ELECTRICAL

FJ1200B/BC CIRCUIT DIAGRAM



① Main switch
② Fuse "MAIN"
③ Battery
④ Starter relay
⑤ Starter motor
⑥ Clock
⑦ Rectifier/Regulator
⑧ A.C. Generator
⑨ Fuse "IGNITION"
⑩ "ENGINE STOP" switch
⑪ Relay assembly
⑫ "START" switch
⑬ Clutch switch
⑭ Sidestand switch
⑮ Pressuer sensor
⑯ Digital ignitor unit
⑰ Pickup coil
⑱ Ignition coil
⑲ Spark plug
⑳ "RESERVE" switch
㉑ Fuel pump relay
㉒ Fuel pump
㉓ Fuse "SIGNAL"
㉔ Front brake switch
㉕ Rear brake switch
㉖ "NEUTRAL" indicator light
㉗ Neutral switch
㉘ Horn
㉙ "HORN" switch
㉚ Oil level switch
㉛ "OIL" indicator light
㉜ Flasher relay
㉝ "TURN" switch
㉞ "TURN" indicator light
㉟ Tachometer
㊱ "FUEL" indicator light
㊲ Fuel sender unit
㊳ Fuel meter
㊴ Outer vent control valve (for FJ1200BC)
㊵ Fuse "HEAD"
㊶ "LIGHTS" (Dimmer) switch
㊷ Meter light
㊸ "HIGH BEAM" indicator light
㊹ Headlight
㊺ Tail/brake light
㊻ Front position light/Front flasher light
㊼ Rear flasher light
Ⓐ (For California)

COLOR CODE

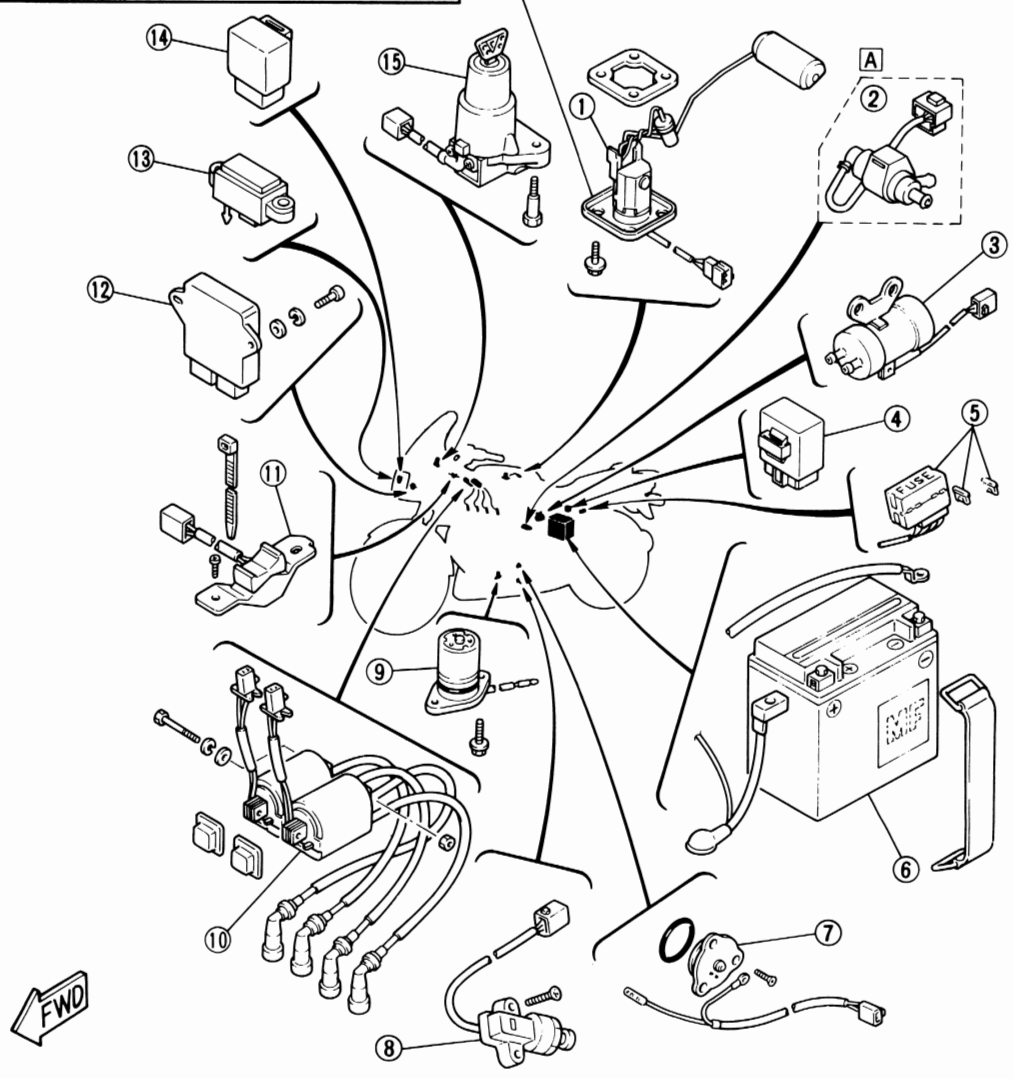
B	Black	B/Y	Black/Yellow
Br	Brown	Br/W	Brown/White
Ch	Chocolate	G/R	Green/Red
Dg	Dark green	G/Y	Green/Yellow
G	Green	L/B	Blue/Black
Gy	Gray	L/R	Blue/Red
L	Blue	L/W	Blue/White
O	Orange	L/Y	Blue/Yellow
P	Pink	R/B	Red/Black
R	Red	R/G	Red/Green
Sb	Sky blue	R/W	Red/White
W	White	R/Y	Red/Yellow
Y	Yellow	W/G	White/Green
B/R	Black/Red	W/R	White/Red
B/W	Black/White	Y/R	Yellow/Red

ELECTRICAL COMPONENTS (1)

① Fuel sender unit
② Outer vent control valve (for FJ1200BC)
③ Fuel pump
④ Fuel pump relay
⑤ Fuse
⑥ Battery
⑦ Neutral switch
⑧ Sidestand switch
⑨ Oil level switch
⑩ Ignition coil
⑪ "FUEL" (Reserve) switch
⑫ Digital ignitor unit
⑬ Pressure sensor
⑭ Relay assembly
⑮ Main switch
[A] For California

A	IGNITION COIL:
B	PRIMARY WINDING RESISTANCE: 1.8 ~ 2.2Ω at 20°C (68°F) SECONDARY WINDING RESISTANCE: 9.6 ~ 14.4kΩ at 20°C (68°F)
C	BATTERY:
D	CAPACITY: 12V 12AH
E	SPECIFIC GRAVITY: 1.320

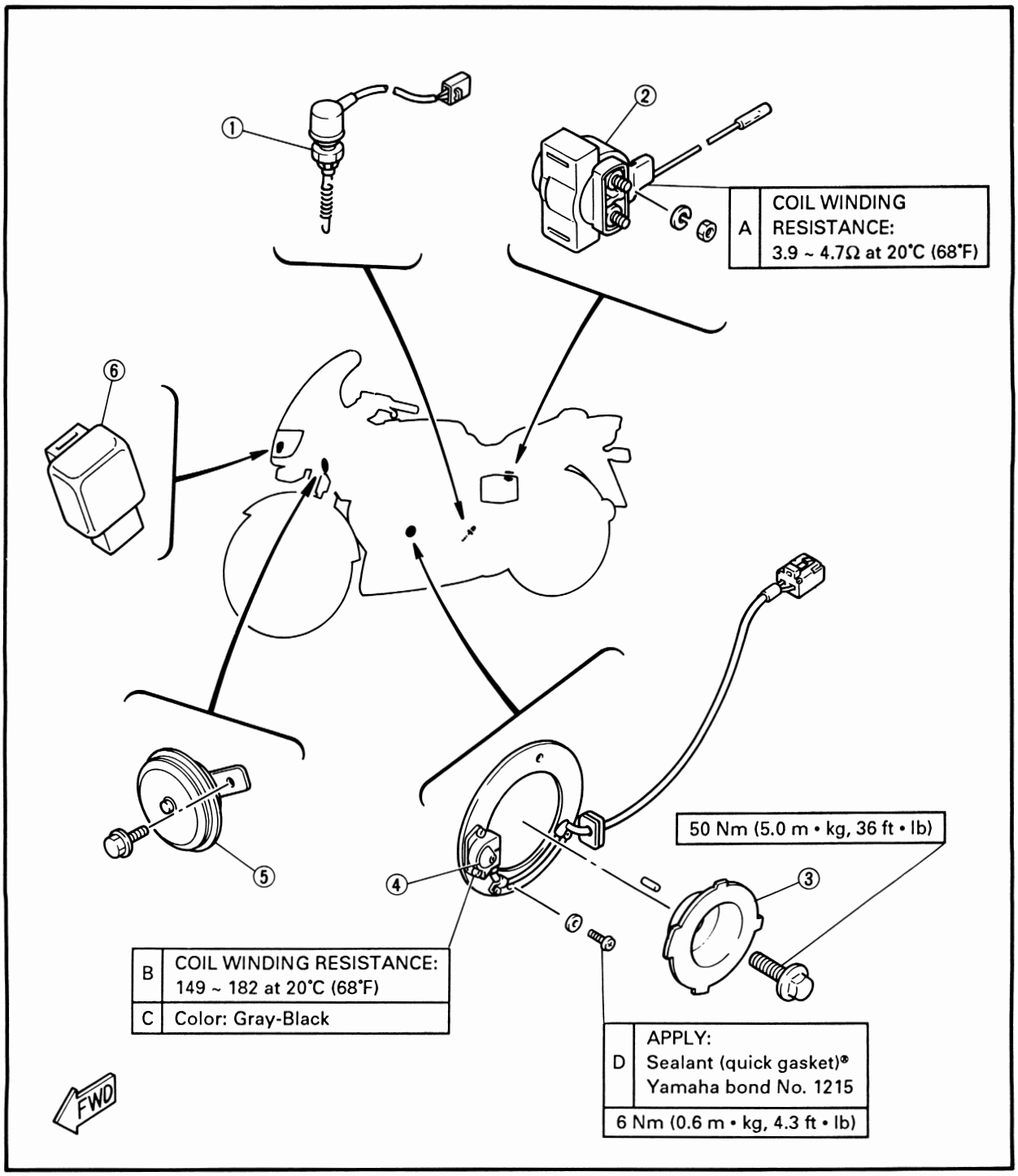
F	COIL WINDING RESISTANCE: Full: 4 ~ 10Ω at 20°C (68°F) Empty: 90 ~ 100Ω at 20°C (68°F)
G	COLOR: Green – Black

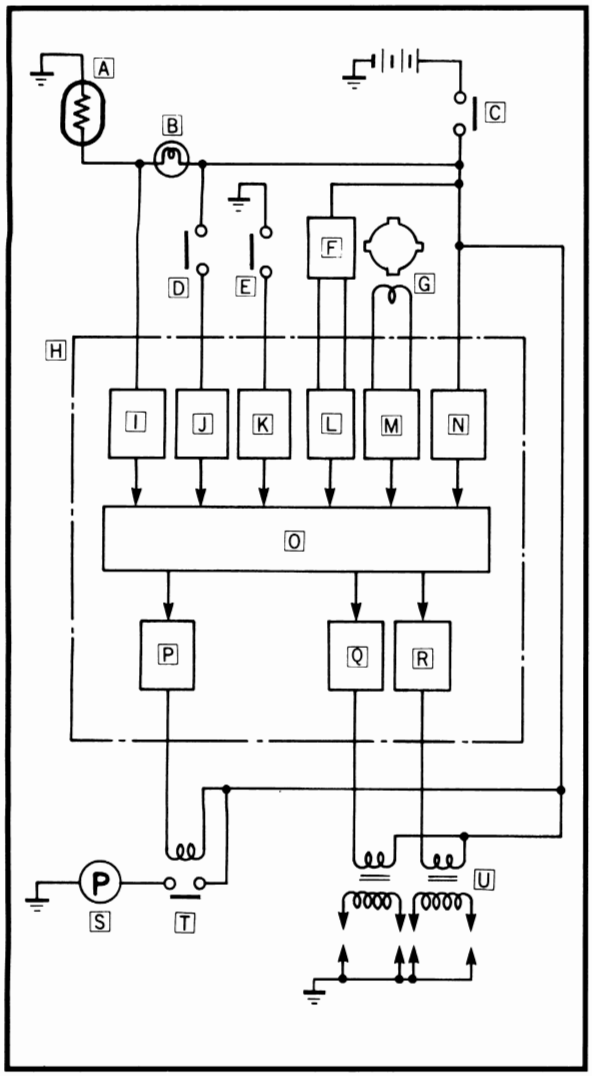


ELECTRICAL COMPONENTS (2)

① Rear brake switch
② Starter relay
③ Pickup rotor
④ Pick up coil
⑤ Horn
⑥ Flasher relay

GENERATOR:	STARTER MOTOR:
STATOR COIL RESISTANCE: 0.19 ~ 0.20Ω at 20°C (68°F) (White – White)	BRUSH LENGTH LIMIT: 5.0 mm (0.20 in)
FIELD COIL RESISTANCE: 3.8 ~ 4.2Ω at 20°C (68°F)	COMMUTATOR DIA. LIMIT 27 mm (1.06 in)
BRUSH LENGTH LIMIT: 4.5 mm (0.18 in)	





IGNITION SYSTEM

DIGITAL IGNITION CONTROL SYSTEM

DESCRIPTION

The electronic ignition that sparks the engine is computer controlled and operated by the digital microprocessor. It has a pre-programed ignition advance curve.

This programed advance curve closely matches the spark timing to the engine's ignition requirements. Only one pickup coil is needed to meet the requirements of the digital ignitor unit.

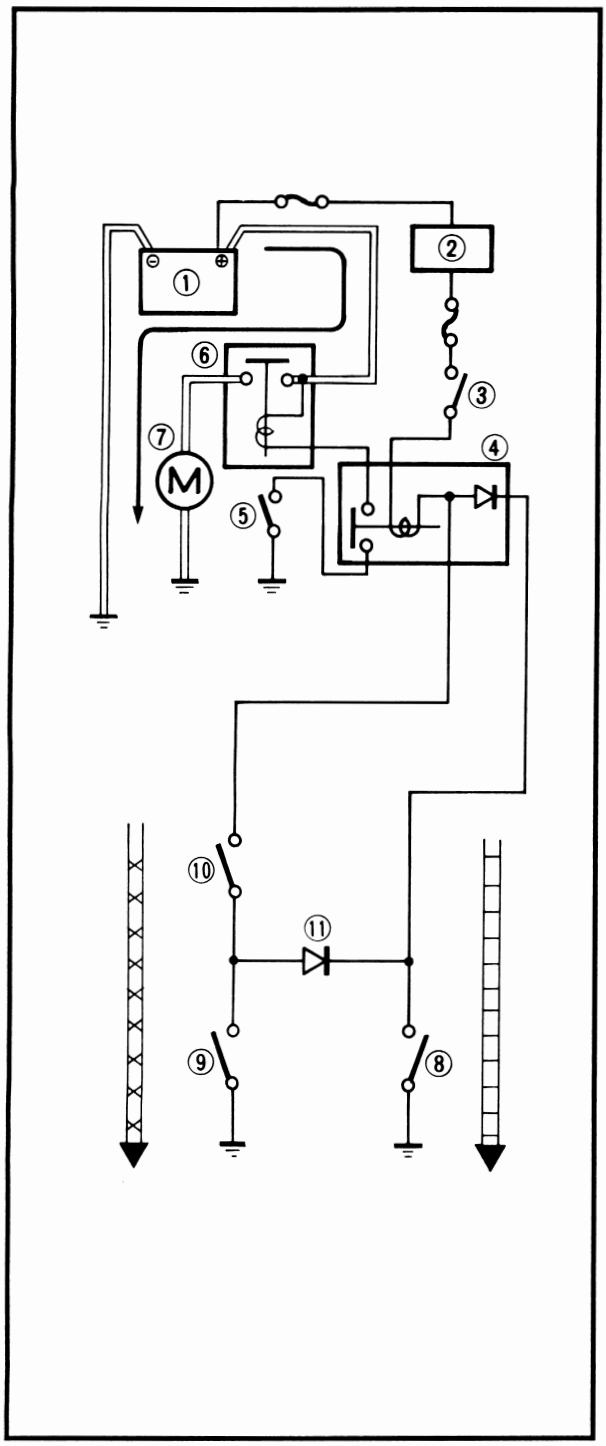
The digital ignitor also includes the control unit for the electric fuel pump.

[A] Fuel censor
[B] "Fuel" warning light
[C] Main switch
[D] Reserve switch
[E] Sidestand switch
[F] Pressure sensor
[G] Pickup coil
[H] Digital ignitor unit
[I] Fuel censor input circuit
[J] Reserve switch input circuit
[K] Stop switch input circuit
[L] Vacuum control circuit
[M] Wave-shape shaping circuit
[N] Rated voltage circuit
[O] CPU (Microprocessor)
[P] Fuel pump driving circuit
[Q] Ignition coil driving circuit
[R] Ignition coil dirivng circuit
[S] Fuel pump
[T] Fuel pump relay
[U] Igntion coil

OPERATION

The following operations are digitally-performed by signal from the pickup coil signal:

1. Determing proper ignition timing.
2. Sensing the engine revolution speed.
3. Determing timing for switching on ignition coil (duty control).
4. Increasing ignition coil primary current for starting the engine.
5. Sensing engine stall.
6. Preventing over-revolution of the engine.



ELECTRICAL STARTING SYSTEM

STARTING CIRCUIT OPERATION

The starting circuit on this model consist of the starter motor, starter relay, and the relay unit (starting circuit cut-off relay). If the "ENGINE STOP" switch and the main switch are both closed, the starter motor can operate only if:

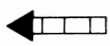
The transmission is in neutral (the neutral switch is closed).

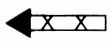
or if

The clutch lever is pulled to the handlebar (the clutch switch is closed) and the sidestand is up (the sidestand switch is closed.)

The starting circuit cut-off relay prevents the starter from operating when neither or these conditions has been met. In this instance, the starting circuit cut-off relay is open so current cannot reach the starter motor.

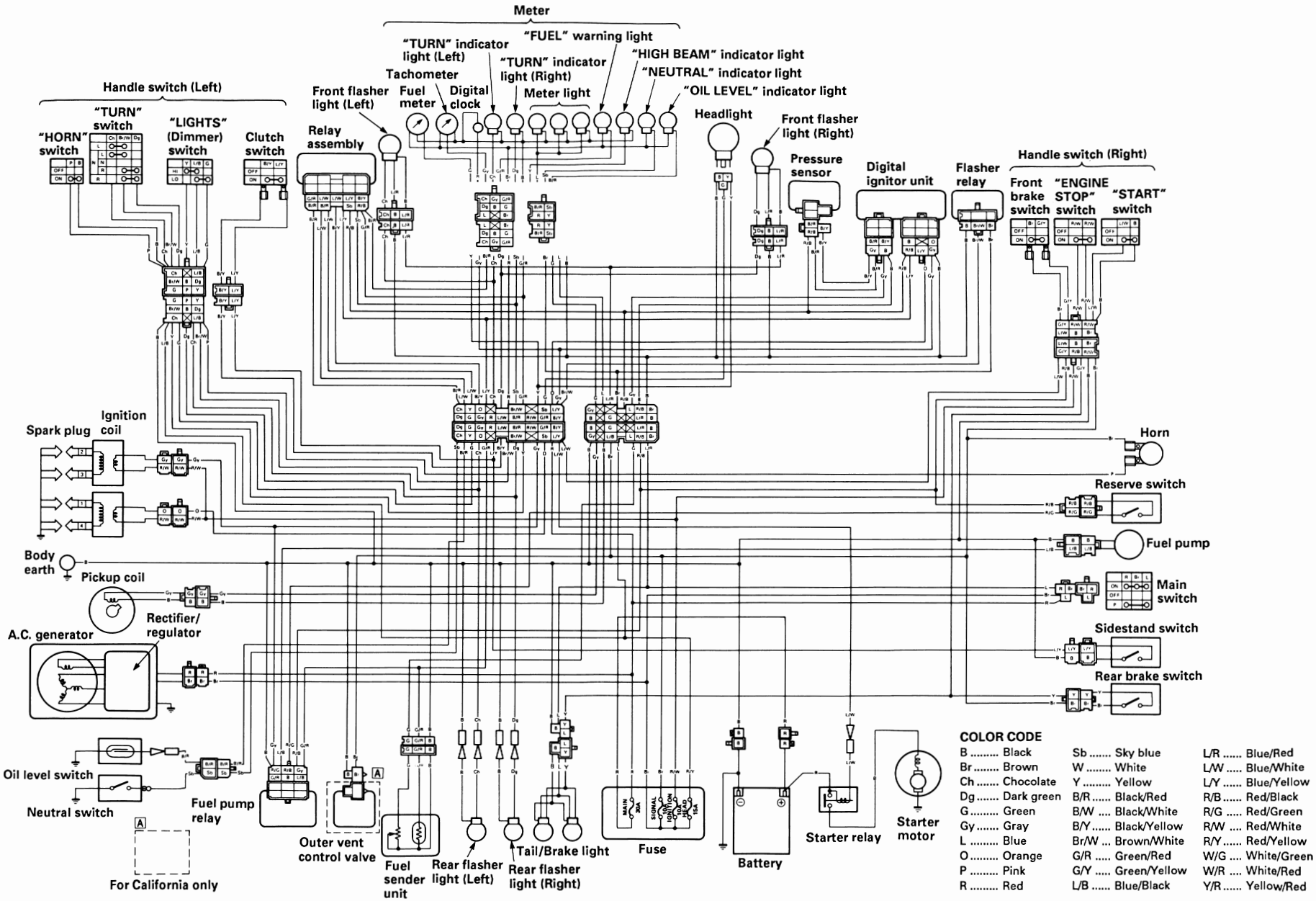
When one of both of the above conditions have been met, however, the starting circuit cut-off relay is closed, and the engine can be started by pressing the starter switch.


WHEN THE TRANSMISSION IN NEUTRAL


WHEN THE SIDESTAND IS UP AND THE CLUTCH LEVER IS PULLED IN

① Battery
② Main switch
③ "ENGINE STOP" switch
④ Relay assembly (Starting circuit cut-off relay)
⑤ "START" switch
⑥ Starter relay
⑦ Starter motor
⑧ Neutral switch
⑨ Side stand switch
⑩ Clutch switch
⑪ Diode

FJ1200B/BC WIRING DIAGRAM



COLOR CODE

B ..... Black	Sb ..... Sky blue	L/R ..... Blue/Red
Br ..... Brown	W ..... White	L/W ..... Blue/White
Ch ..... Chocolate	Y ..... Yellow	L/Y ..... Blue/Yellow
Dg ..... Dark green	B/R ..... Black/Red	R/B ..... Red/Black
G ..... Green	B/W .... Black/White	R/G ..... Red/Green
Gy ..... Gray	B/Y ..... Black/Yellow	R/W .... Red/White
L ..... Blue	Br/W ... Brown/White	R/Y ..... Red/Yellow
O ..... Orange	G/R ..... Green/Red	W/G .... White/Green
P ..... Pink	G/Y ..... Green/Yellow	W/R .... White/Red
R ..... Red	L/B ..... Blue/Black	Y/R ..... Yellow/Red

YAMAHA

FJ1200W
FJ1200WC

Supplementary
Service Manual

LIT-11616-06-94

3SK-28197-10

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the FJ1200W/WC. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manual:

FJ1100L/LC Service Manual: LIT-11616-04-08
FJ1200S/SC Supplementary Service Manual: LIT-11616-05-00

TECHNICAL PUBLICATIONS
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FJ1200W/WC
SUPPLEMENTARY
SERVICE MANUAL

1st Edition, January 1989

Printed in U.S.A.
LIT-11616-06-94

NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha motorcycles have a basic understanding of the mechanical concepts and procedures inherent in motorcycle repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

This model has been designed and manufactured to perform within certain specifications in regard to performance and emissions. Proper service with the correct tools is necessary to ensure that the motorcycle will operate as designed. If there is any question about a service procedure, it is imperative that you contact a Yamaha dealer for any service information changes that apply to this model. This policy is intended to provide the customer with the most satisfaction from his motorcycle and to conform with federal environmental quality objectives.

Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, where applicable, appear in future editions of this manual.

NOTE:

This Service Manual contains information regarding periodic maintenance to the emission control system for the FJ1200W/WC. Please read this material carefully.

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

NOTE: A NOTE provides key information to make procedures easier or clearer.

⚠CAUTION: A CAUTION indicates special procedures that must be followed to avoid damage to the motorcycle.

⚠WARNING: A WARNING indicates special procedures that must be followed to avoid injury to a motorcycle operator or person inspecting or repairing the motorcycle.

MANUAL FORMAT

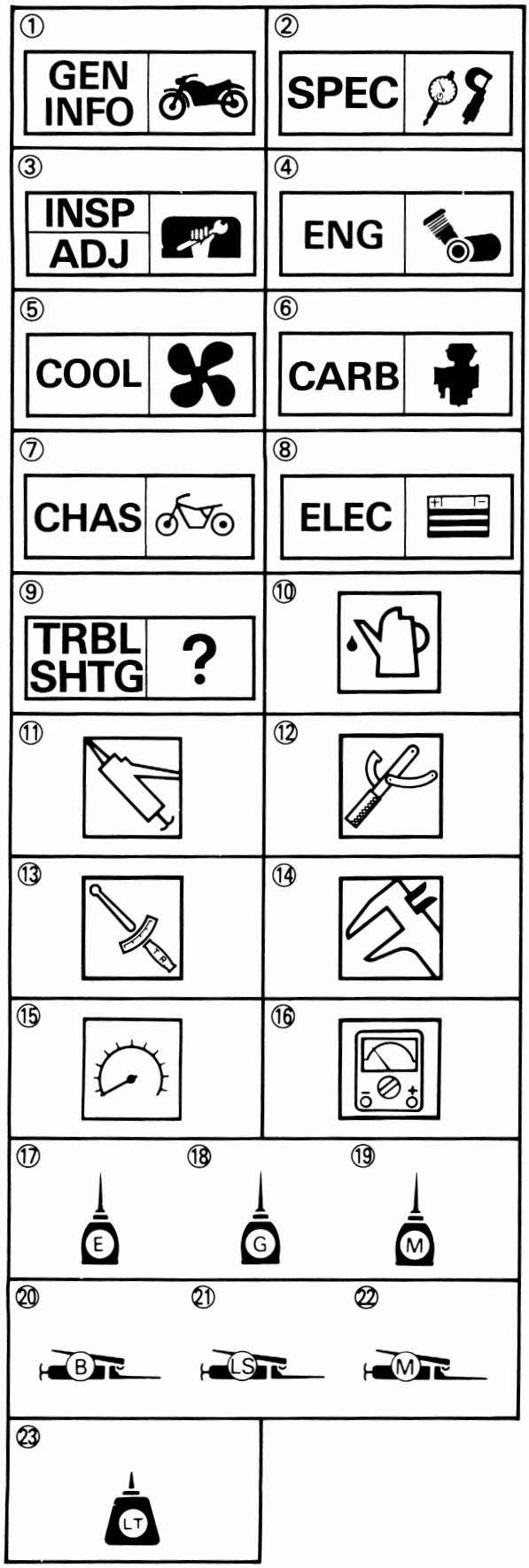
All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.

In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

- Bearings
  Pitting/Damage→Replace.

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.



ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① to ⑨ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Specifications
③ Periodic inspection and adjustment
④ Engine
⑤ Cooling system
⑥ Carburetion
⑦ Chassis
⑧ Electrical
⑨ Troubleshooting

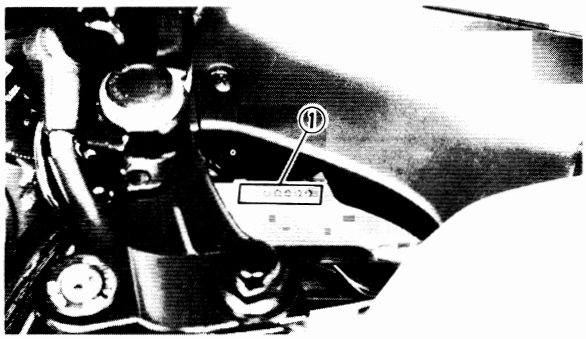
Illustrated symbols ⑩ to ⑯ are used to identify the specifications appearing in the text.

⑩ Filling fluid
⑪ Lubricant
⑫ Special tool
⑬ Tightening
⑭ Wear limit, clearance
⑮ Engine speed
⑯ Ω, V, A

Illustrated symbols ⑰ to ㉓ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑰ Apply engine oil
⑱ Apply gear oil
⑲ Apply molybdenum disulfide oil
⑳ Apply wheel bearing grease
㉑ Apply lightweight lithium-soap base grease
㉒ Apply molybdenum disulfide grease
㉓ Apply locking agent (LOCTITE®)

CONTENTS



GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION

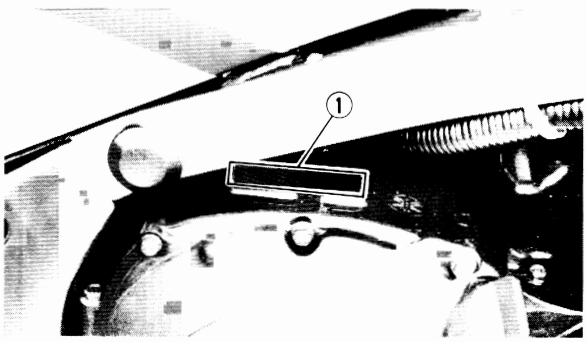
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the right side of the frame.

NOTE:

The vehicle identification number is used to identify your motorcycle and may be used to register your motorcycle with the licensing authority in your state.

Starting serial number:
FJ1200W:
JYA3SKE0✱KA000101
FJ1200WC (For California):
JYA3SKC0✱KA008101



ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the right side of the engine.

NOTE:

The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.

Starting serial number:
FJ1200W:
3SK-000101
FJ1200WC (For California):
3SK-008101

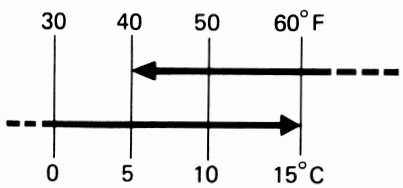
NOTE:

Designs and specifications are subject to change without notice.

SPECIFICATIONS

GENERAL SPECIFICATIONS

Except for California: FJ1200W
For California: FJ1200WC

Model	FJ1200W/WC
Model Code Number: Engine Starting Number: Vehicle Identification Number:	FJ1200W: 3SK1 FJ1200WC: 3SK2 FJ1200W: 3SK-000101 FJ1200WC: 3SK-008101 FJ1200W: JYA3SKE0*KA000101 FJ1200WC: JYA3SKC0*KA008101
Dimensions: Overall Length Overall Width Overall Height Seat Height Wheelbase Minimum Ground Clearance	 2,205 mm (86.8 in) 775 mm (30.5 in) 1,245 mm (49.0 in) 780 mm (30.7 in) 1,490 mm (58.7 in) 140 mm (5.5 in)
Basic Weight: Weight Oil and Full Fuel Tank	 FJ1200W: 261 kg (575 lb) FJ1200WC: 262 kg (577 lb)
Oil Type or Grade: Engine Oil  	 Yamalube 4 (20W40) or SAE 20W40 type SE motor oil (If temperature does not go below 5°C (40°F)) Yamalube 4 (10W30) or SAE 10W30 type SE motor oil (If temperature does not go above 15°C (60°F))
Transmission: Primary Reduction System Primary Reduction Ratio Secondary Reduction System Secondary Reduction Ratio Transmission Type Operation Gear Ratio: 1st 2nd 3rd 4th 5th	 Spur gear 98/56 (1.750) Chain Drive 40/17 (2.353) Constant mesh, 5-speed Left foot operation 40/14 (2.857) 36/18 (2.000) 33/21 (1.571) 31/24 (1.291) 29/26 (1.115)
Tire: Type Manufacturer/Size/Type: Front: Rear: Minimum Tire Tread Depth	 Tubeless DUNLOP/ 120/70 V17-V250/K330A DUNLOP/ 150/80 V16-V250/K330 1.0 mm (0.04 in)

Model	FJ1200W/WC	
Tire Pressure (Cold tire):		
Basic Weight:		
With Oil and Full Fuel Tank	FJ1200W: 261 kg (576 lb) FJ1200WC: 262 kg (578 lb)	
Maximum Load*	FJ1200W: 187 kg (412 lb) FJ1200WC: 186 kg (410 lb)	
Cold Tire Pressure:	Front	Rear
Up to 90 kg (198 lb) Load*	230 kPa (2.3 kg/cm^2, 32 psi)	250 kPa (2.5 kg/cm^2, 36 psi)
90 kg (198 lb) ~ Maximum load*	250 kPa (2.5 kg/cm^2, 36 psi)	290 kPa (2.9 kg/cm^2, 42 psi)
High Speed Riding	250 kPa (2.5 kg/cm^2, 36 psi)	290 kPa (2.9 kg/cm^2, 42 psi)
*Load is the total weight of cargo, rider, passenger and accessories.		
Electrical:		
Ignition System	TCI (Digital ignition)	
Generator System	AC generator	
Battery Type or Model	YB14L	
Battery Capacity	12V 14AH	

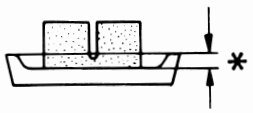
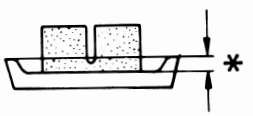
MAINTENANCE SPECIFICATIONS

Engine

Model		FJ1200W/WC
Carburetor:		
ID Mark		3SK00 FJ1200WC: 3SK10
Main Jet	(M.J.)	#110
Main Air Jet	(M.A.J.)	#45
Jet Needle	(J.N.)	5FZ72
Needle Jet	(N.J.)	Y-2
Pilot Air Jet	(P.A.J.)	#155
Pilot Jet	(P.J.)	#37.5
Pilot Screw	(P.S.)	Preset
Valve Seat Size	(V.S.)	1.5
Starter Jet	(G.S.)	#30
Fuel Level	(F.L.)	2.5 ~ 3.5 mm (0.10 ~ 0.14 in)
Float Height	(F.H.)	21.3 ~ 23.3 mm (0.84 ~ 0.92 in)
Engine Idling Speed		1,050 ~ 1,150 r/min
Vacuum Pressure at Idling Speed		Above 29.3 kPa (220 mmHg, 8.7 inHg)
Vacuum Synchronous Difference		Below 1.33 kPa (10 mmHg, 0.394 inHg)

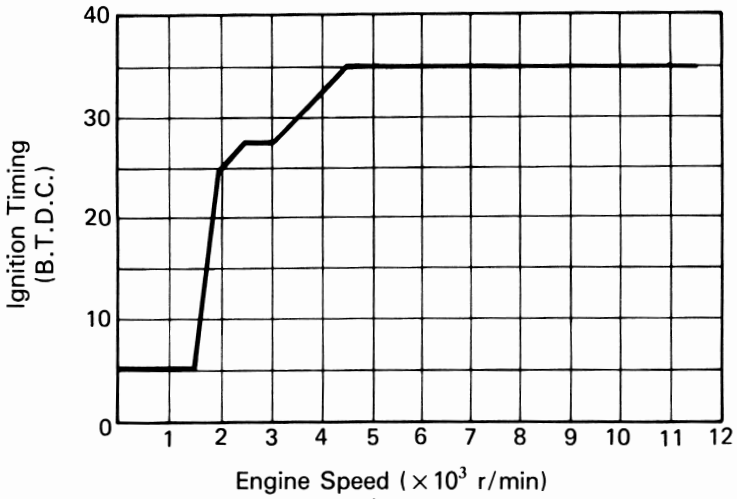
Chassis

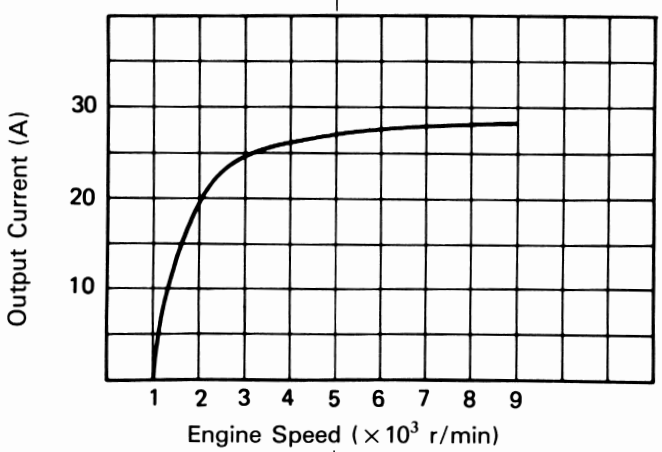
Model	FJ1200W/WC
Front Suspension:	
Front Fork Travel	150 mm (5.91 in)
Fork Spring Free Length	485 (19.1 in)
<Limit>	480 mm (18.9 in)
Spring Rate: K1	4.71 N/mm (0.48 kg/mm, 26.9 lb/in)
K2	6.86 N/mm (0.70 kg/mm, 39.2 lb/in)
Stroke: K1	0 ~ 100 mm (0 ~ 3.74 in)
K2	100 ~ 150 mm (3.74 ~ 5.91 in)
Optional Spring	No
Oil Capacity/Oil Level	395 cm^3 (13.9 Imp oz, 13.4 US oz)/ 169 mm (6.65 in)
Oil Grade	Yamaha fork oil 10wt equivalent
Rear Suspension:	
Shock Absorber Travel	40 mm (1.57 in)
Spring Free Length	163.5 mm (6.44 in)
<Limit>	159 mm (6.26 in)
Fitting Length	151.5 mm (5.96 in)
Spring Rate	196 N/mm (20 kg/mm, 1,120 lb/in)
Stroke	0 ~ 40 mm (0 ~ 1.57 in)
Optional Spring	No.

Model		FJ1200W/WC
Front Wheel:		
Type		Cast wheel
Rim Size		MT3.00×17
Rim *Material*		Aluminum
Rim Runout Limit:	Radial	2 mm (0.08 in)
	Lateral	2 mm (0.08 in)
Front Disc Brake:		
Type		Dual
Disc Outside Dia.×Thickness		298×4 mm (11.7×0.2 in)
Pad Thickness	Inner	5.5 mm (0.22 in)
<Limit>*		0.5 mm (0.02 in)
Pad Thickness	Outer	5.5 mm (0.22 in)
<Limit>*		0.5 mm (0.02 in)
		
Master Cylinder Inside Dia.		15.87 mm (0.63 in)
Caliper Cylinder Inside Dia.		32.1 mm (1.26 in)
Brake Fluid Type		DOT#4 If DOT#4 is not available, #3 can be used.
Rear Disc Brake:		
Type		Single
Disc Outside Dia.×Thickness		282×7.5 mm (11.1×0.3 in)
Pad Thickness	Inner	5.5 mm (0.22 in)
<Limit>*		0.5 mm (0.02 in)
Pad Thickness	Outer	5.5 mm (0.22 in)
<Limit>*		0.5 mm (0.02 in)
		
Master Cylinder Inside Dia.		14.0 mm (0.55 in)
Caliper Cylinder Inside Dia.		42.8 mm (1.69 in)
Brake Fluid Type		DOT #4 If DOT #4 is not available, #3 can be used.

Electrical

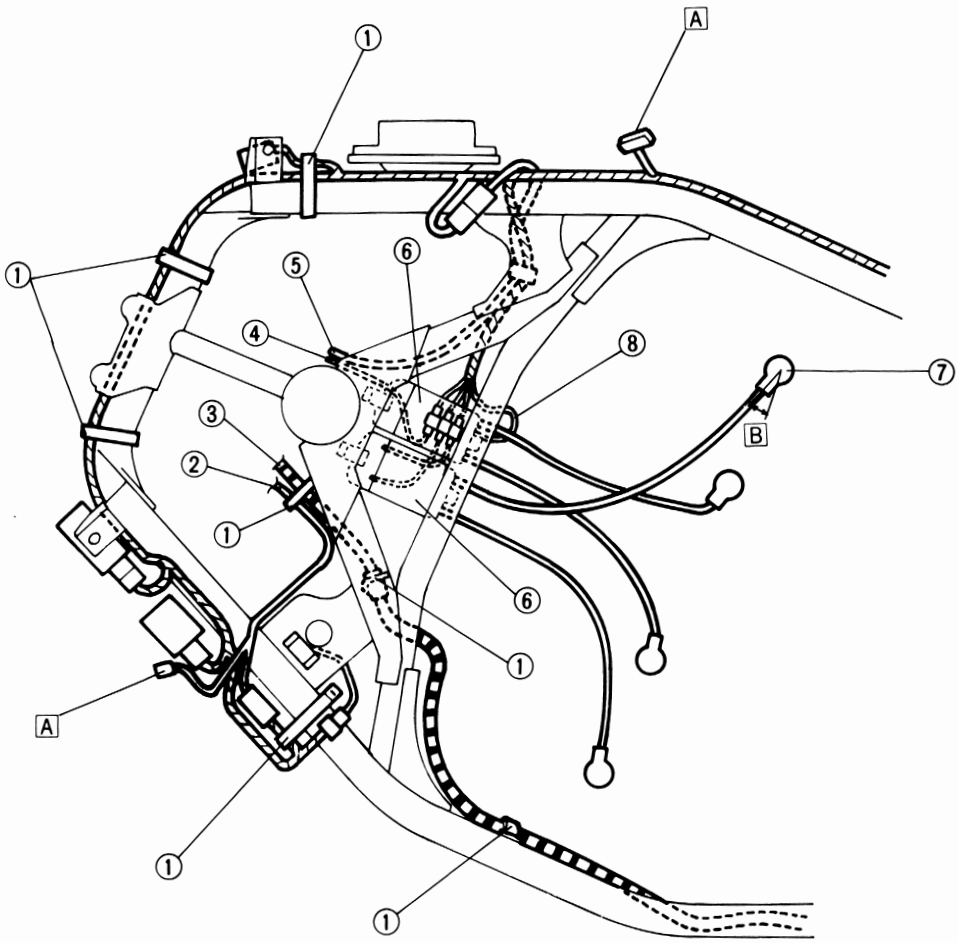
Model	FJ1200W/WC
Ignition System:	
Ignition Timing (B.T.D.C.)	5° at 1,000 r/min
Advancer Type	Electrical/Vacuum
TCI:	
Pickup Coil Resistance (Color)	149 ~ 182Ω at 20°C (68°F) (Orange — Black), (Gray — Black)
TCI Unit-Model/Manufacturer	TID14-90/HITACHI
AC Generator:	
Model/Manufacturer	B3G/NIPPONDENSO
Nominal Output	12V, 28A at 5,000 r/min
Flasher Relay:	
Type	Semi-transistor type
Model/Manufacturer	FB257H/NIPPONDENSO
Self Cancelling Device	Yes.
Flasher Frequency	75 ~ 95 cycle/min
Wattage	27W × 4 + 3.4W

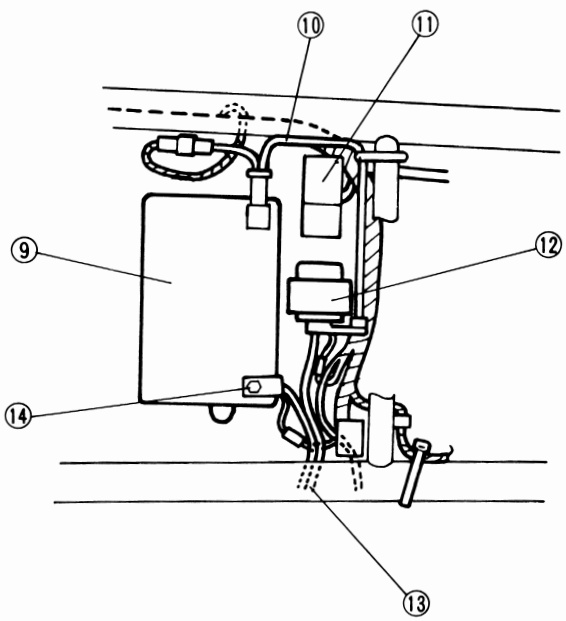




Model	FJ1200W/WC
Self Cancelling Unit: Model/Manufacturer	FB257H/NIPPONDENSO
Fuel Gauge: Model/Manufacturer Sender Unit Resistance (Color): Full Empty	36Y-03/NIPPONSEIKI (Green—Black) 4~10Ω at 20°C (68°F) 90~100Ω at 20°C (68°F)

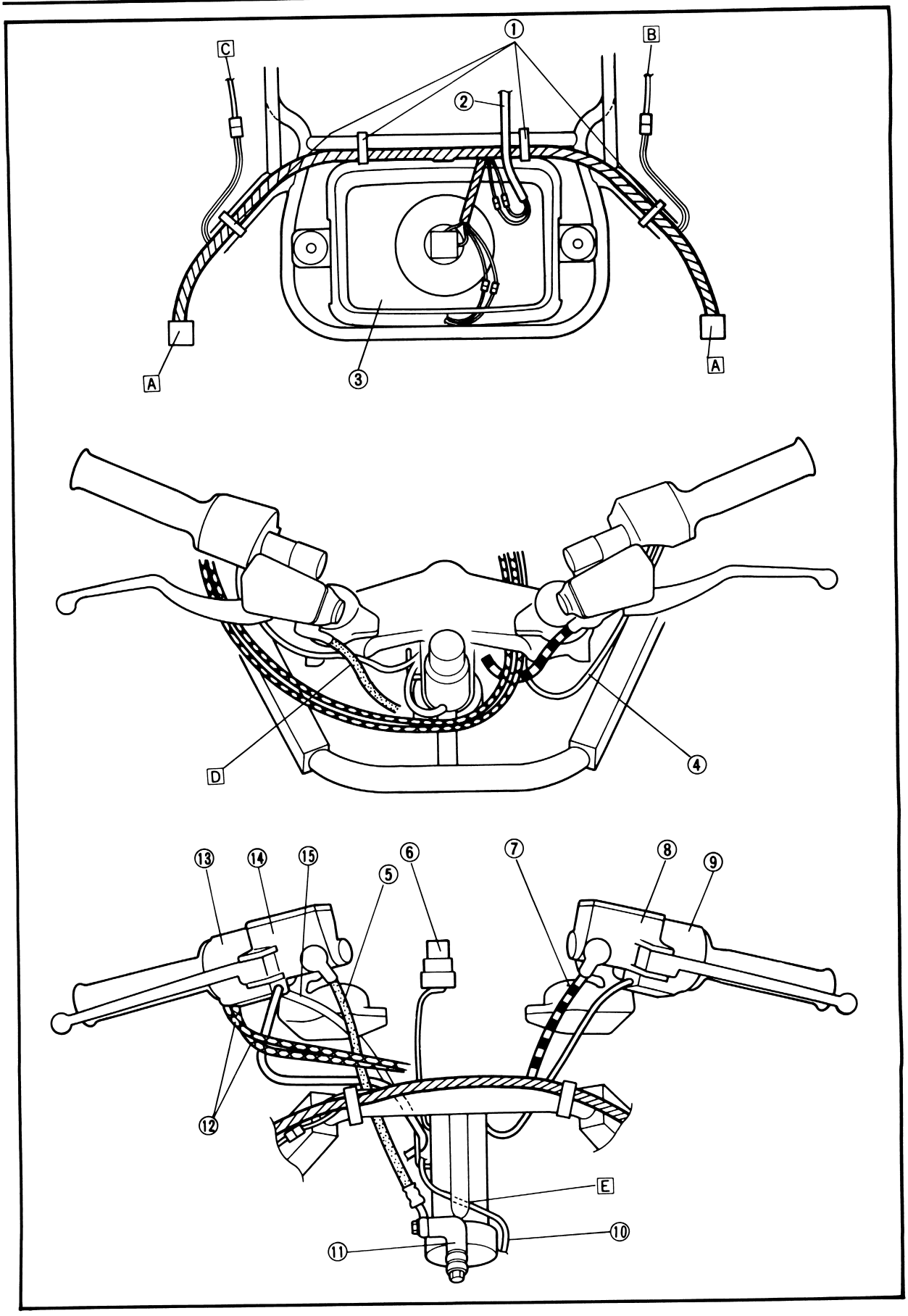
CABLE ROUTING





① Clamp
② Handlebar switch (left) lead
③ Clutch hose
④ Main switch lead
⑤ Handlebar switch (right) lead
⑥ Ignition coil
⑦ Spark plug cap
⑧ Ground
⑨ Battery
⑩ Battery positive lead
⑪ Fuse holder
⑫ Starter relay
⑬ Starter motor lead
⑭ Battery negative lead

Ⓐ Connect the wire harness of the cowling.
Ⓑ Install the spark plug cap at approx. 15°.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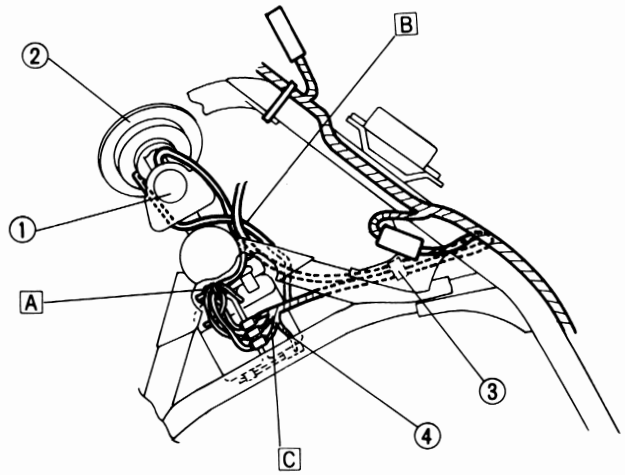
① Clamp
② Meter light lead
③ Headlight
④ Handlebar switch (left) lead
⑤ Brake hose
⑥ Main switch
⑦ Clutch hose
⑧ Master cylinder (clutch)
⑨ Handlebar switch (left)
⑩ Horn lead
⑪ Joint
⑫ Throttle cable
⑬ Handlebar switch (right)
⑭ Master cylinder (brake)
⑮ Handlebar switch (right) lead

[A] Connect the wire harness of the frame.
[B] To front flasher light (right).
[C] To front flasher light (left).
[D] Pass the brake hose in front of the handlebar switch (right) lead.
[E] Pass the horn lead upper side of the pipe.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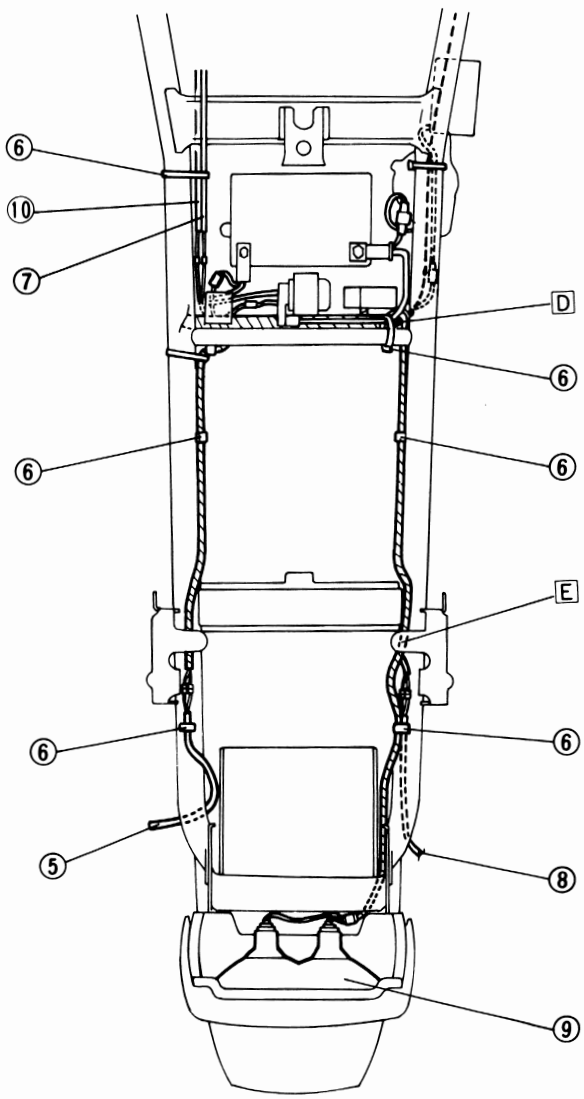
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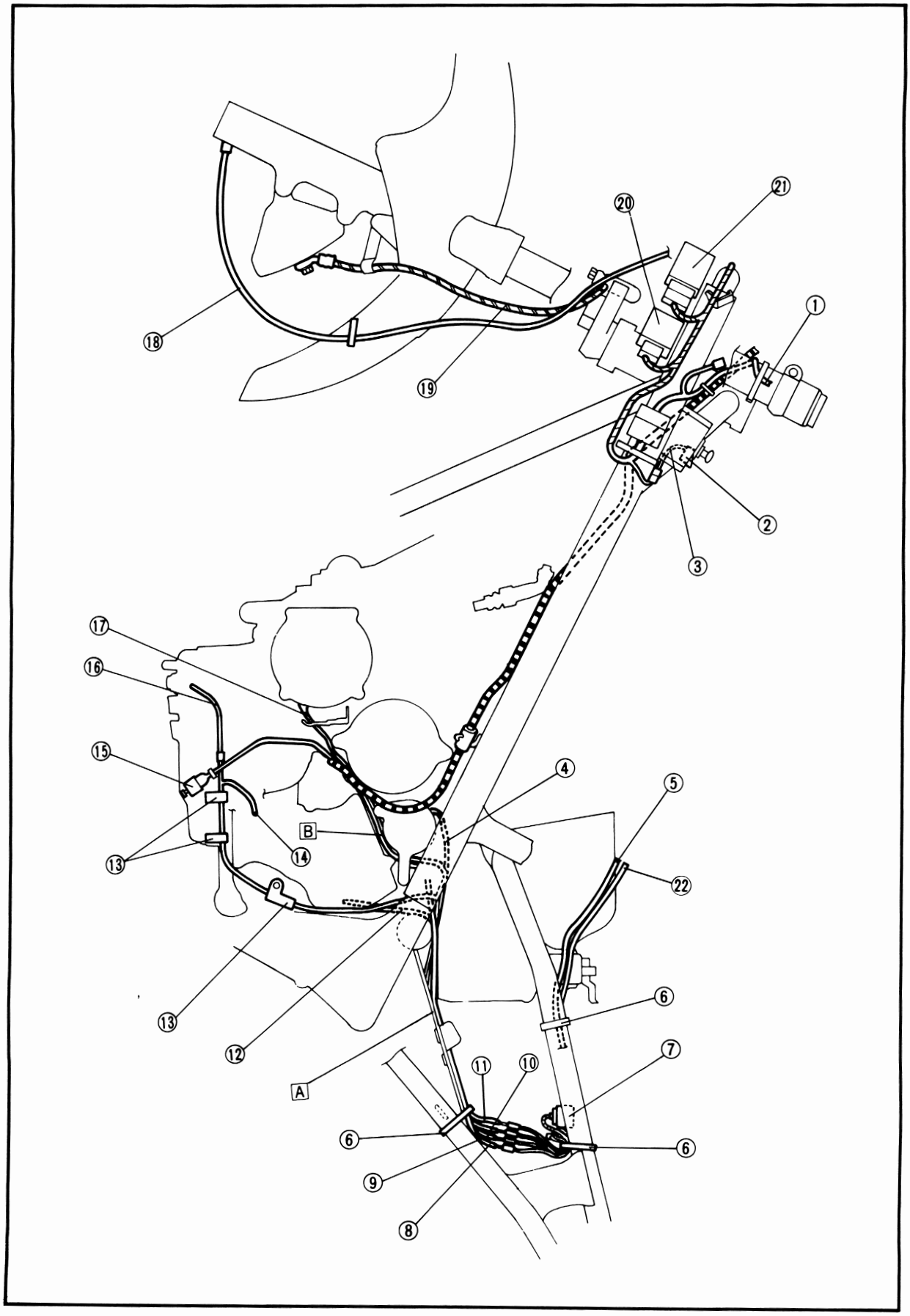
① Main switch
② Horn
③ Clamp
④ Ground
⑤ Rear flasher light (left) lead
⑥ Clamp
⑦ Fuel level sender unit lead
⑧ Rear flasher light (right) lead
⑨ Taillight
⑩ Control valve lead (for FJ1200WC)

[A] Pass the ignition coil and main switch lead into the guide.
[B] Pass the main switch, handlebar switch (right) and horn leads into the cable guide of the headpipe.
[C] Do not pinch all leads.
[D] Clamp the battery positive lead and wire harness.
[E] Pass the rear flasher light (right) lead under the bracket.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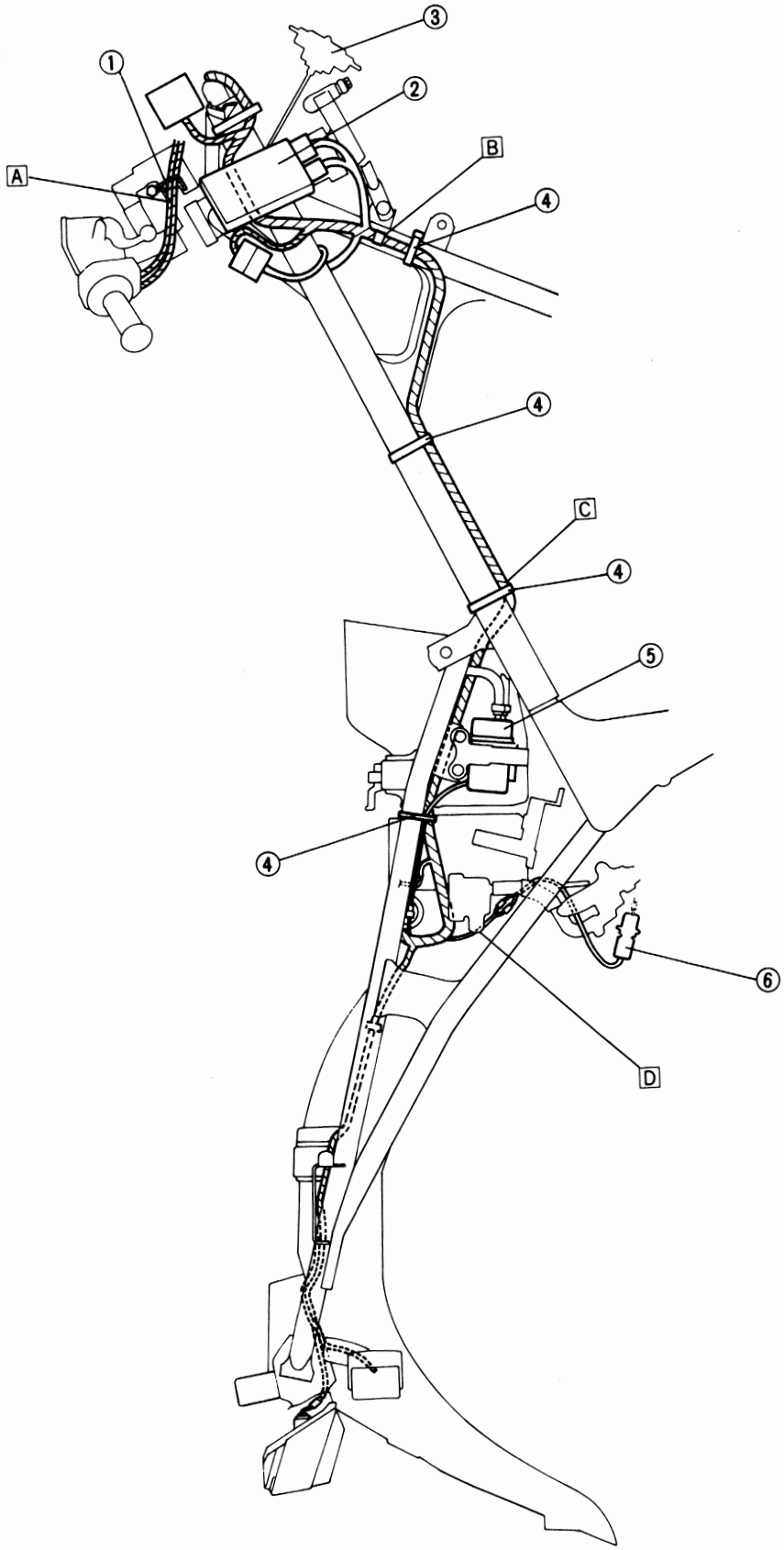
① Handlebar switch lead
② "RESERVE" switch
③ Reserve switch lead
④ Starter motor lead
⑤ Fuel *sender* unit lead
⑥ Band
⑦ Fuel pump relay
⑧ Sidestand switch lead
⑨ Engine sub lead
⑩ A.C. generator lead
⑪ Pickup coil lead
⑫ Earth
⑬ Clamp
⑭ Neutral switch lead
⑮ Sidestand switch
⑯ Oil level switch lead
⑰ Pickup coil lead
⑱ Speedometer cable
⑲ Brake hose
⑳ Relay assembly
㉑ Flasher relay
㉒ Control valve lead (for FJ1200WC)

[A] Pass the six leads upper side of the panel.
[B] Pass the pickup coil lead and sidestand switch lead under the starter motor.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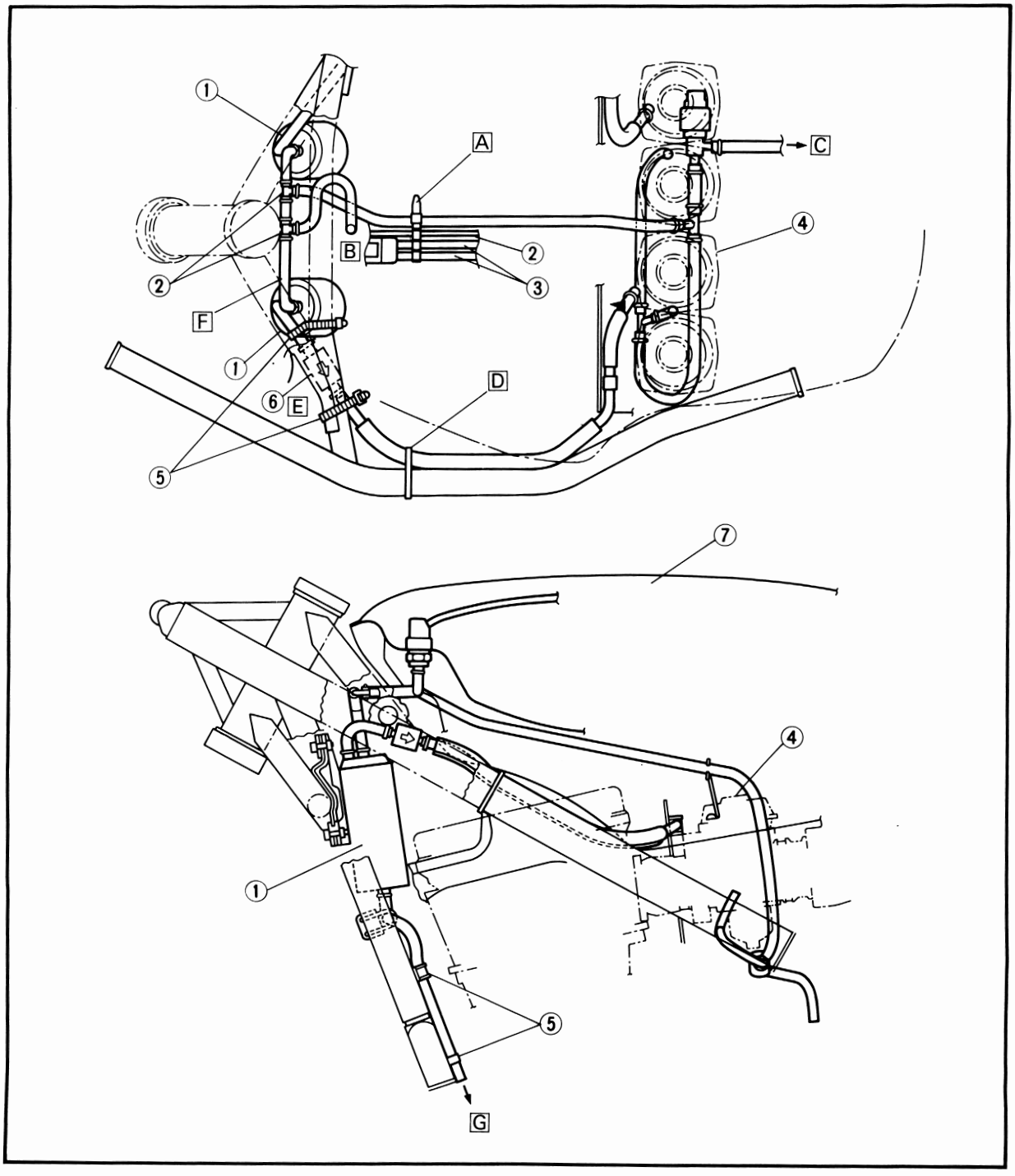
① Cable holder
② Digital ignitor unit
③ Horn
④ Band
⑤ Fuel pump
⑥ Rear brake switch

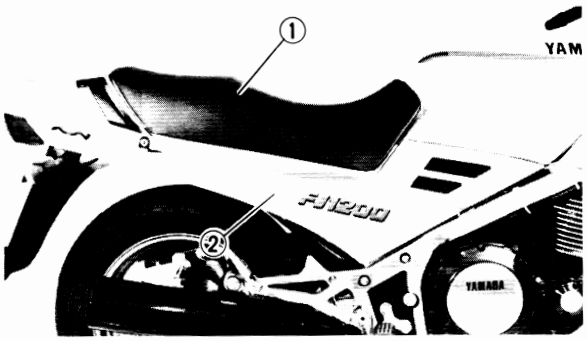
Ⓐ Pass the cable into the cable holder.
Ⓑ Locate the wire harness with its white tape portion at the bracket.
Ⓒ Clamp the wire harness at 20 mm (0.8 in) from the bracket.
Ⓓ Route the rear brake switch lead between the bracket and rear fender.

CANISTER HOSE ROUTING (FOR FJ1200WC)

① Canister
② Choke cable
③ Throttle cable
④ Carburetor
⑤ Clamp
⑥ Pressure control valve
⑦ Fuel tank

[A] Clamp the hose, throttle cables and choke cable.
[B] From fuel tank.
[C] To air.
[D] Pass the hose into the guide.
[E] Arrow mark on the pressure control valve should face toward the carburetor side.
[F] Pass the hose upper side of the ignition coil.
[G] To atmosphere.



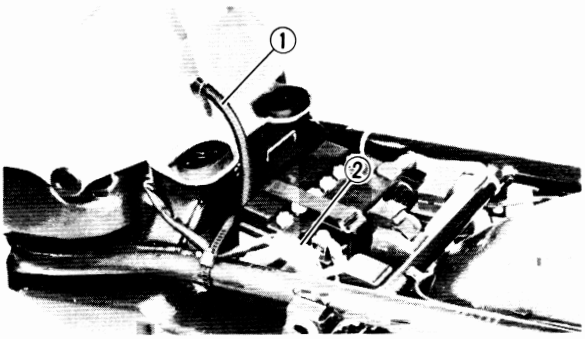


PERIODIC INSPECTION AND ADJUSTMENT

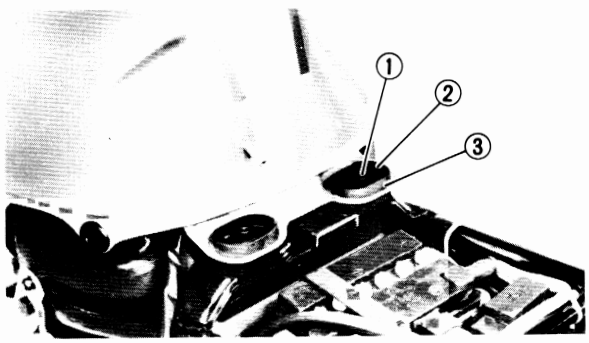
FUEL TANK

Removal

1. Place the motorcycle on a level place.
2. Remove:
   - Seat ①
   - Side covers (left and right) ②

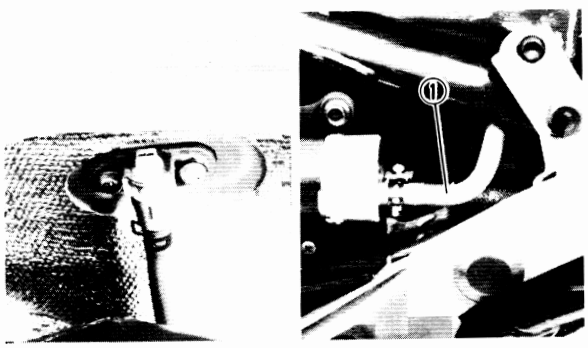


3. Disconnect:
   - Breather hose (fuel tank) ①
   - Coupler (fuel level sender unit) ②
   - Solenoid valve (fuel cock) leads



4. Remove:
   - Bolts (fuel tank) ①
   - Plates ②
   - Rubber washer ③

   Slowly lift up the fuel tank.



5. Turn the fuel cock to "OFF" position.
   Use a 8 mm open end wrench.
6. Disconnect:
   - Vacuum hose
   - Fuel hose ①
   - Breather hose (fuel tank-front) (for FJ1200WC)
7. Remove:
   - Fuel tank

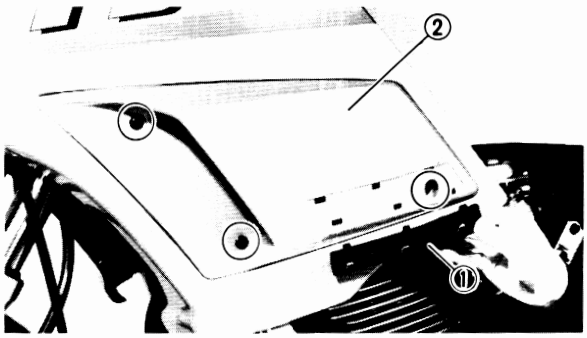
⚠WARNING:

Gasoline is highly flammable.
Avoid spilling fuel on the hot engine.

Installation

1. Install:
   - Fuel tank
   - Side covers
   - Seat

   Reverse removal procedure.
2. Turn the fuel cock to "ON" position.



COWLING

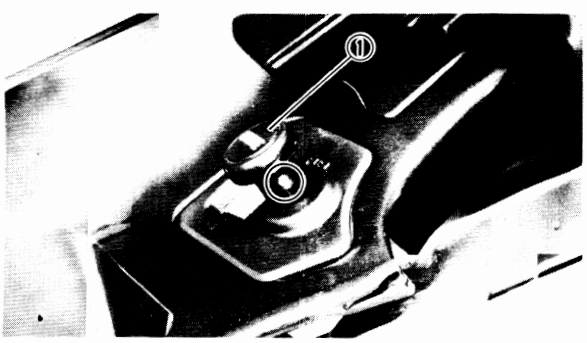
Removal

1. Remove:
   - Fuel tank

   Refer to "FUEL TANK" section.
2. Remove:
   - Molds (left and right) ①
   - Bolts (air duct)
   - Air ducts ②

3. Remove:
   - Rear view mirrors

4. Disconnect:
   - Speedometer cable ①

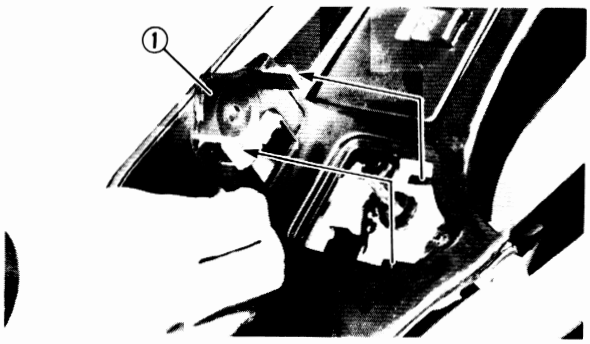


5. Remove:
   - Choke knob ①

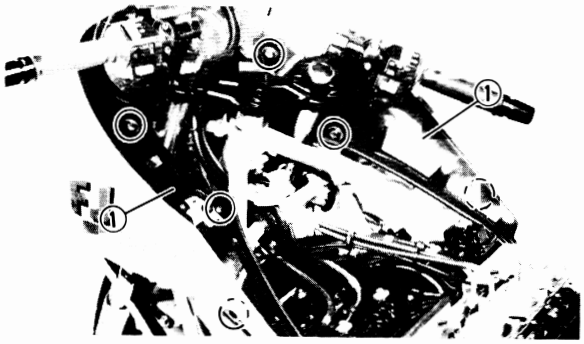
   Use a small screwdriver.

NOTE:

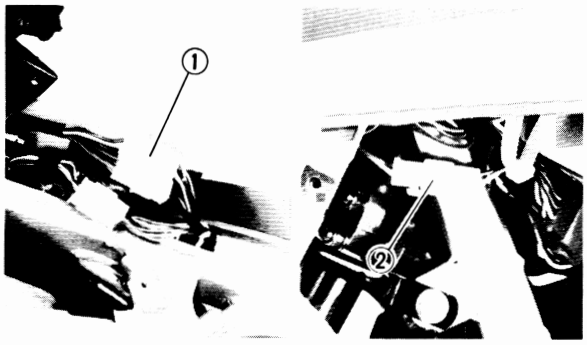
- Before pulling the knob, remove the knob holding screw.
- Do not lose the holding screw.



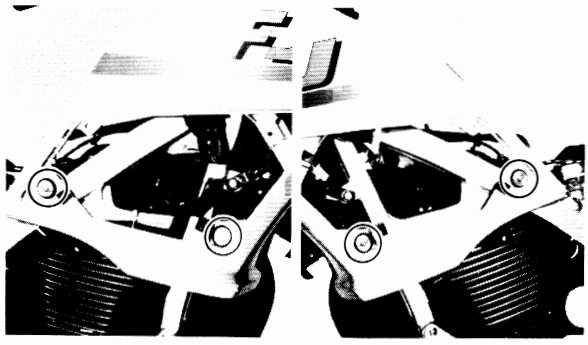
6. Remove:
   • Panel ①



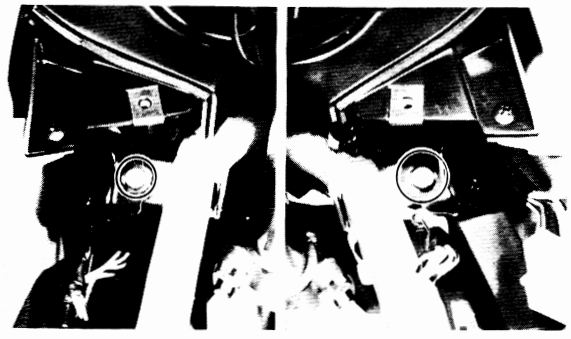
7. Remove:
   • Inner panels ①



8. Disconnect:
   • Coupler (meter assembly) ①
   • Coupler ("LIGHTS" switch) ②



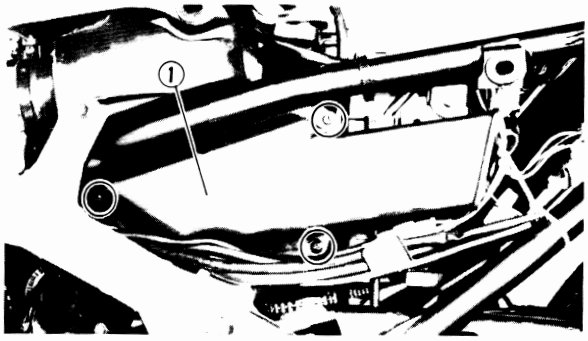
9. Remove:
   • Bolts
   • Cowling



Installation

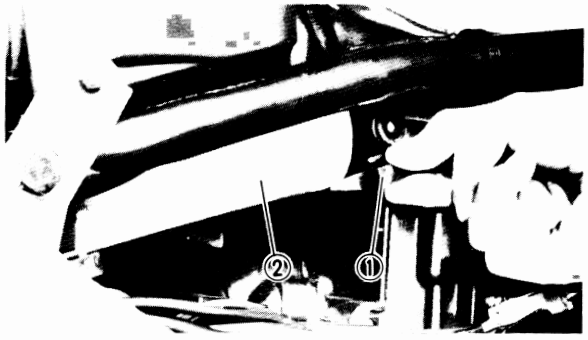
Reverse removal procedure.

1. Install:
   - Cowling
2. Connect:
   - Breather hose (fuel tank – rear)
   - Breather hose (fuel tank – front) (for FJ1200WC)
3. Install:
   - Fuel tank



AIR FILTER CLEANING

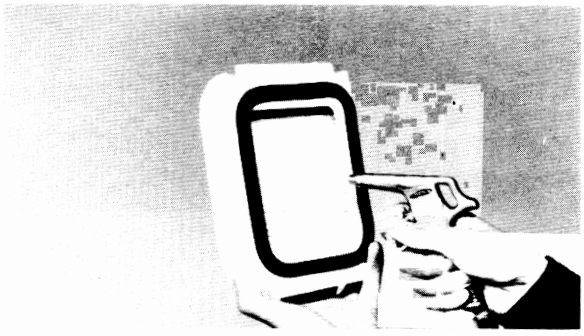
1. Remove:
   - Seat
   - Side cover (left)
2. Remove:
   - Cover (air filter) ①



3. Remove:
   - Retainers ①
   - Element ②
4. Eliminate:
   - Dust

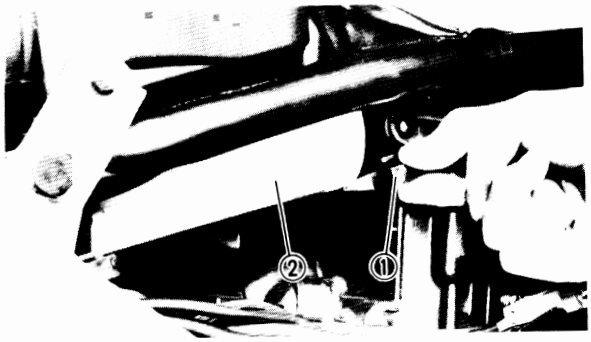
   Use compressed air
5. Inspect:
   - Element:

   Damage→Replace.



⚠CAUTION:

The engine should never be run without the air filter element installed; excessive piston and/or cylinder wear may result.



6. Install:
   • Element ②

⚠CAUTION:

Make sure the element edge fits into the corresponding filter case groove.

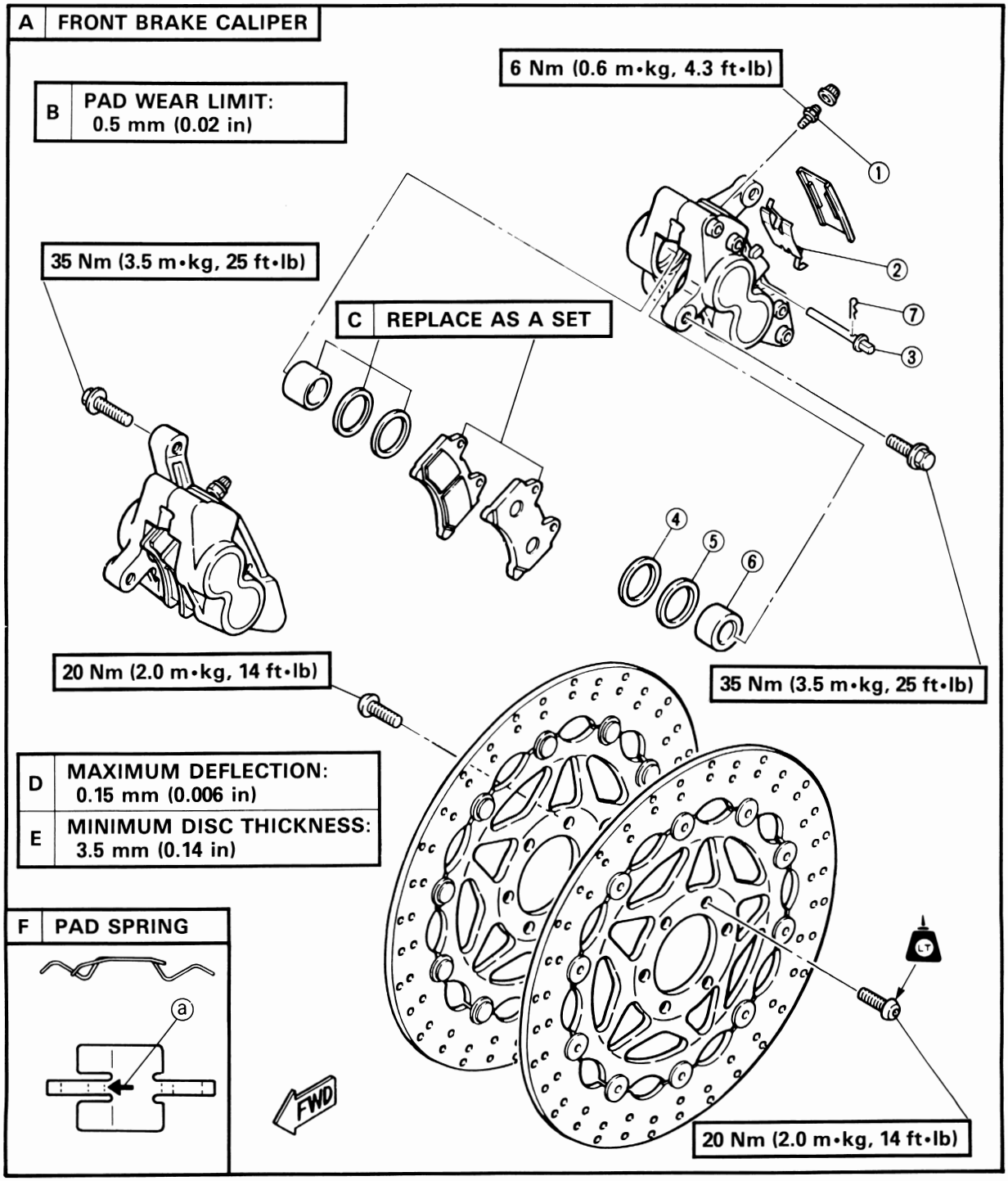
   • Retainers ①
   • Cover

CHASSIS

FRONT BRAKE

① Air bleed screw
② Pad spring
③ Retaining pin
④ Dust seal
⑤ Piston seal
⑥ Piston
⑦ Circlip

F The arrow mark ⓐ on the pad spring must pointing the disc rotating direction.



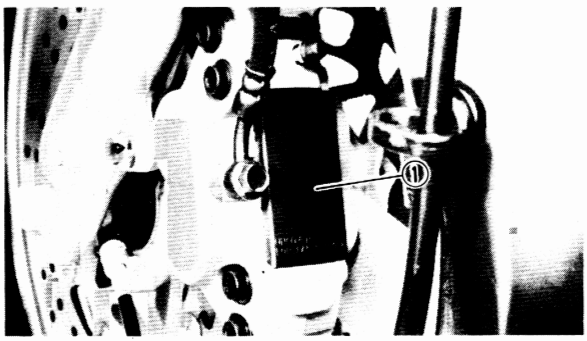
⚠CAUTION:

Disc brake components rarely require disassembly. DO NOT:

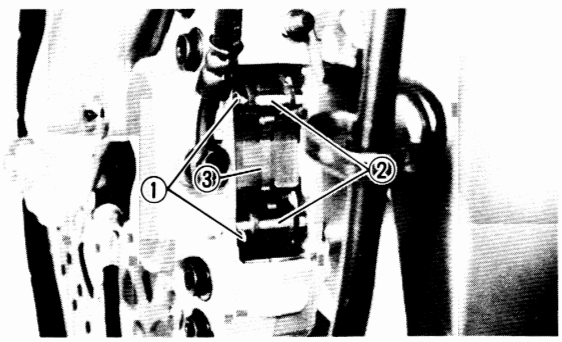
- **Disassembly components unless absolutely necessary.**
- **Use solvents on internal brake component.**
- **Use contaminated brake fluid for cleaning.**
- **Use only clean brake fluid.**
- **Allow brake fluid to come in contact with the eyes otherwise eye injury may occur.**
- **Allow brake fluid to contact painted surfaces or plastic parts otherwise damage may occur.**
- **Disconnect any hydraulic connection otherwise the entire system must be disassembled, drained, cleaned, and then properly filled and bled after reassembly.**

BRAKE PAD REPLACEMENT

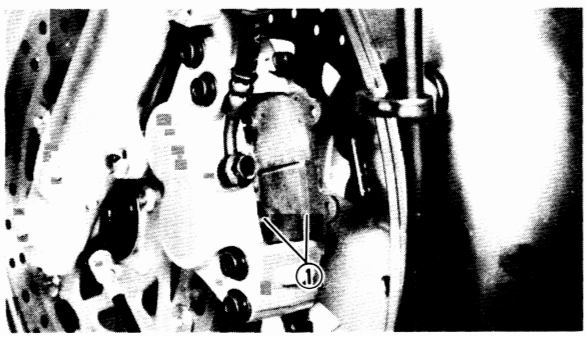
It is not necessary to disassemble the brake caliper and brake hose to replace the brake pads.



1. Remove:
   - Cover ①



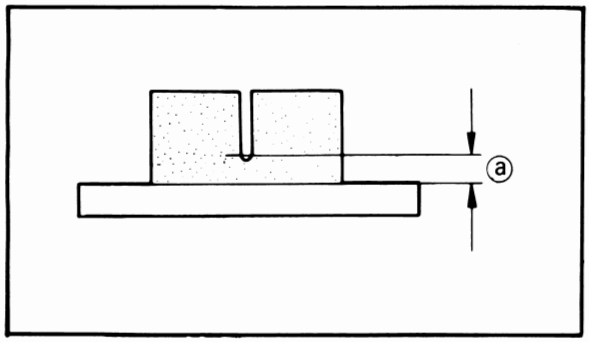
2. Remove:
   - Retaining clips ①
   - Retaining pins ②
   - Pad spring ③



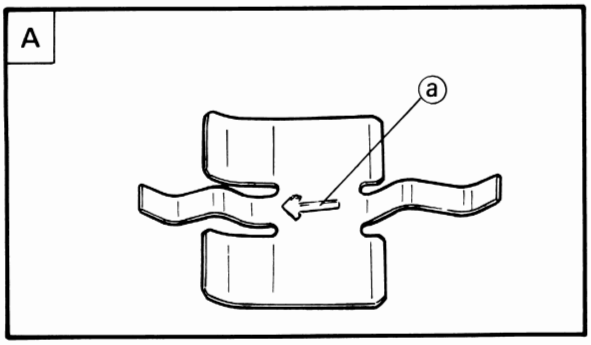
3. Remove:
   - Brake pads ①

NOTE:

- Replace the pad spring if the pad replacement is required.
- Replace the pads as a set if either is found to be worn to the wear limit.
- Replace the pad shim if the pad replacement is required for the rear brake.



Wear limit ⓐ:
0.5 mm (0.02 in)

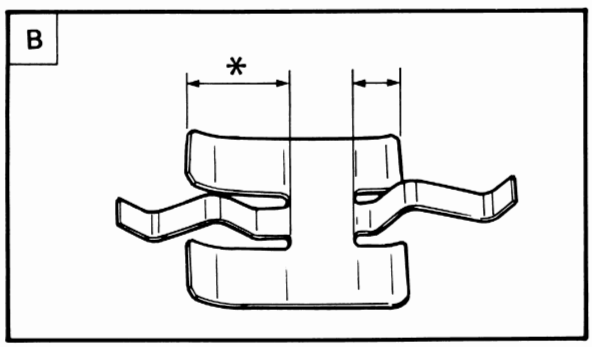


4. Install:
   Reverse removal procedure.

A Pad spring (Front)

NOTE:

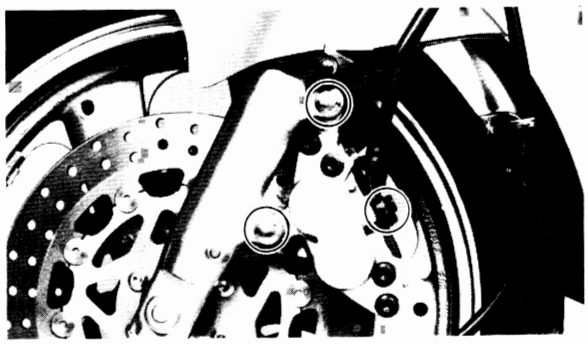
The arrow mark ⓐ on the pad spring must point in the disc rotating direction.



B Pad spring (rear)

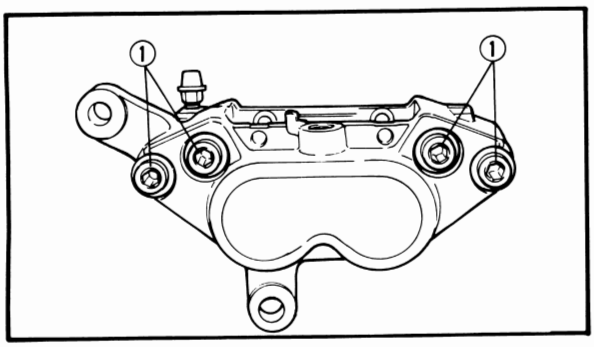
NOTE:

The longer tangs (*) of the pad spring must point in the disc rotating direction.



CALIPER DISASSEMBLY

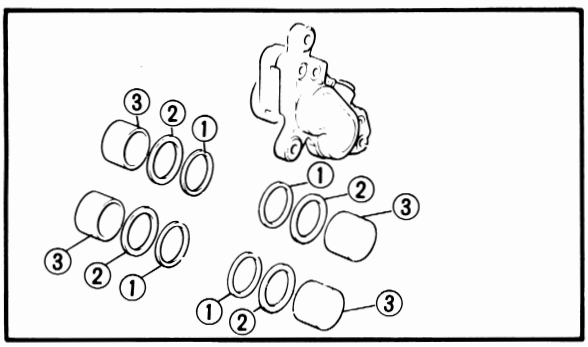
1. Remove:
   - Pads
     Refer to "BRAKE PAD REPLACEMENT".
2. Remove:
   - Brake hose
     Place the open hose end into a container and pump the old fluid out carefully.

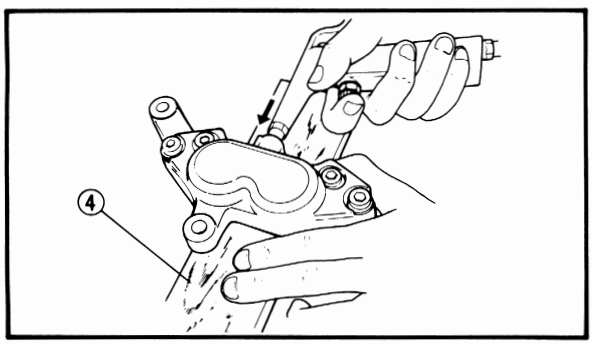


3. Remove:
   - Caliper

⚠CAUTION:

Never loosen the bridge bolts ① on either side of the caliper.





4. Remove:
   - Dust seals ①
   - Piston seals ②
   - Pistons ③

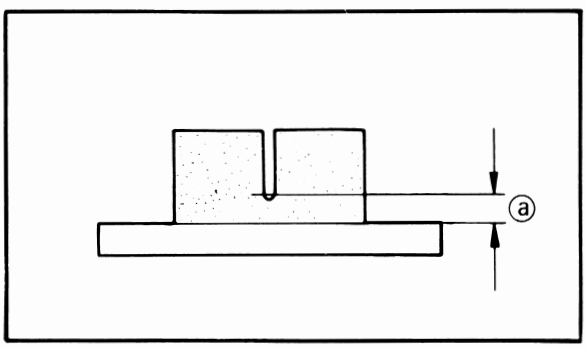
Caliper piston removal steps:
- Insert a place of wooden board ④ into the caliper to lock the right side piston.
- Blow compressed air into the tube joint opening to force out the left side pistons from the caliper body.
- Repeat previous step to force out the right side pistons from the caliper body.

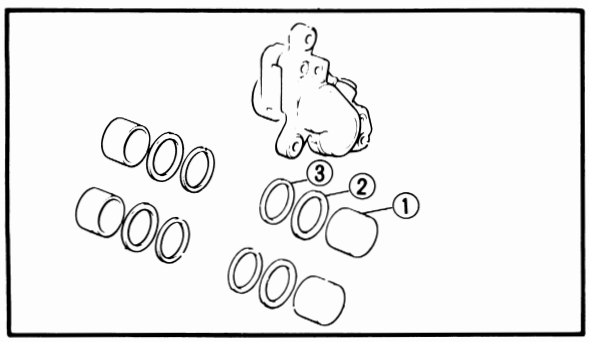
INSPECTION AND REPAIR

Recommended brake component replacement schedule:	
Brake pads	As required
Piston seal, dust seal	Every two years
Brake hoses	Every four years
Brake fluid	Replace only when brakes are disassembled

⚠WARNING:

All internal parts should be cleaned in new brake fluid only. Do not use solvents will cause seals to swell and distort.





1. Inspect:
   - Brake pads
     Over specified limit→Replace as a set.

Wear limit ⓐ:
0.5 mm (0.02 in)

2. Inspect:
   - Caliper piston ①
     Rust/Wear/Damage→Replace.
   - Piston seals ②
     Damage→Replace.
   - Dust seals ③
     Damage→Replace.

⚠WARNING:

Replace the piston and dust seals whenever a caliper is disassembled.

- Master cylinder kit
- Master cylinder body
  Scratches/Wear→Replace.

NOTE:

Clean all passages with new brake fluid.

- Brake hose
  Cracks/Wear/Damage→Replace.
- Brake disc
  Wear/Over specified limit→Replace.

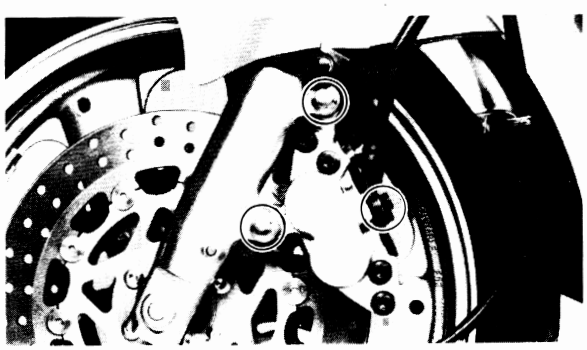
Maximum deflection (front/rear):
0.15 mm (0.006 in)
Minimum disc thickness:
3.5 mm (0.14 in)

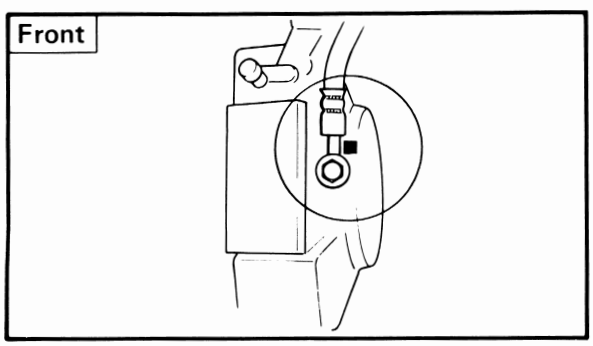
ASSEMBLY

⚠WARNING:

- **All internal parts should be cleaned in new brake fluid only.**
- **Internal parts should be lubricated with brake fluid when installed.**

Brake fluid:
DOT #4
If DOT #4 is not available, DOT #3 can be used.





Brake Caliper

When assembling the caliper, reverse the disassembly procedure. Note the following points.

1. Install:
   - Brake calipers
   - Brake hoses
   - Copper washers (new)

⚠CAUTION:

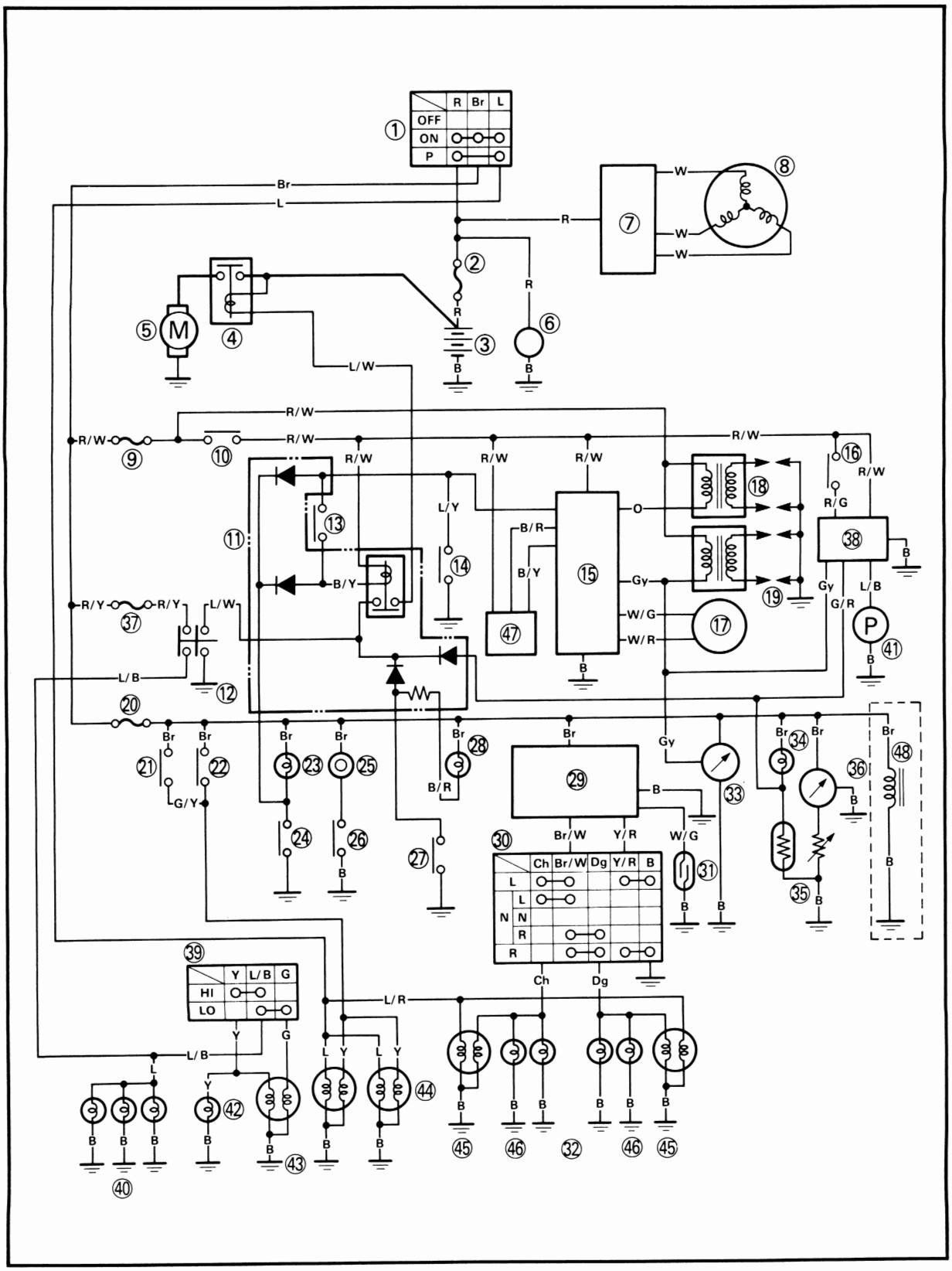
Install the brake hoses lightly touch with the projection on the brake calipers.

Bolts (brake caliper):
35 Nm (3.5 m•kg, 25 ft•lb)
Bolts (brake hose):
26 Nm (2.6 m•kg, 19 ft•lb)

2. Bleed the air completely from the brake system.

ELECTRICAL

FJ1200W/WC CIRCUIT DIAGRAM



① Main switch
② Fuse "MAIN"
③ Battery
④ Starter relay
⑤ Starter motor
⑥ Clock
⑦ Rectifier/Regulator
⑧ A.C. Generator
⑨ Fuse "IGNITION"
⑩ "ENGINE STOP" switch
⑪ Relay assembly
⑫ "START" switch
⑬ Clutch switch
⑭ Sidestand switch
⑮ Digital ignitor unit
⑯ "RESERVE" switch
⑰ Pickup coil
⑱ Ignition coil
⑲ Spark plug
⑳ Fuse "SIGNAL"
㉑ Front brake switch
㉒ Rear brake switch
㉓ "NEUTRAL" indicator light
㉔ Neutral switch
㉕ Horn
㉖ "HORN" switch
㉗ Oil level switch
㉘ "OIL" indicator
㉙ Flasher relay
㉚ "TURN" switch
㉛ Reed switch
㉜ "TURN" indicator light
㉝ Tachometer
㉞ "FUEL" indicator light
㉟ Fuel sender unit
㊱ Fuel meter
㊲ Fuse "HEAD"
㊳ Fuel pump relay
㊴ "LIGHTS" (dimmer) switch
㊵ Meter light
㊶ Fuel pump
㊷ "HIGH BEAM" indicator light
㊸ Headlight
㊹ Tail/brake switch
㊺ Front position light/Front flasher light
㊻ Rear flasher light
㊼ Pressuer sensor
㊽ Control valve (for FJ1200WC)

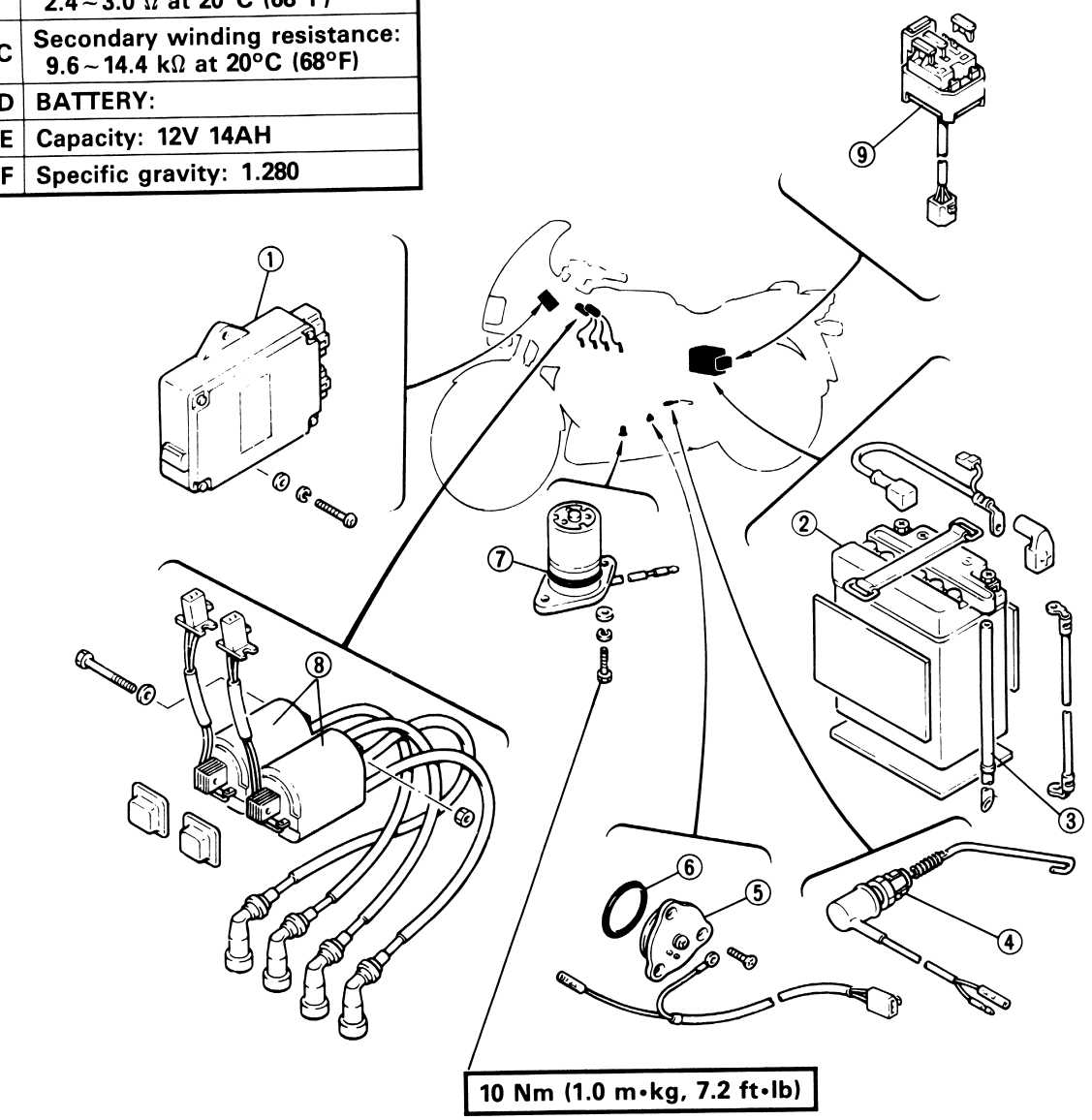
COLOR CODE

O	Orange	Y/R	Yellow/Red
R	Red	Br/W	Brown/White
L	Blue	R/W	Red/White
Br	Brown	R/Y	Red/Yellow
B	Black	B/R	Black/Red
Y	Yellow	B/W	Black/White
W	White	B/Y	Black/Yellow
G	Green	L/W	Blue/White
P	Pink	L/B	Blue/Black
Dg	Dark green	L/Y	Blue/Yellow
Ch	Chocolate	G/Y	Green/Yellow
Gy	Gray	W/R	White/Red
Sb	Sky blue	W/G	White/Green

ELECTRICAL COMPONENTS

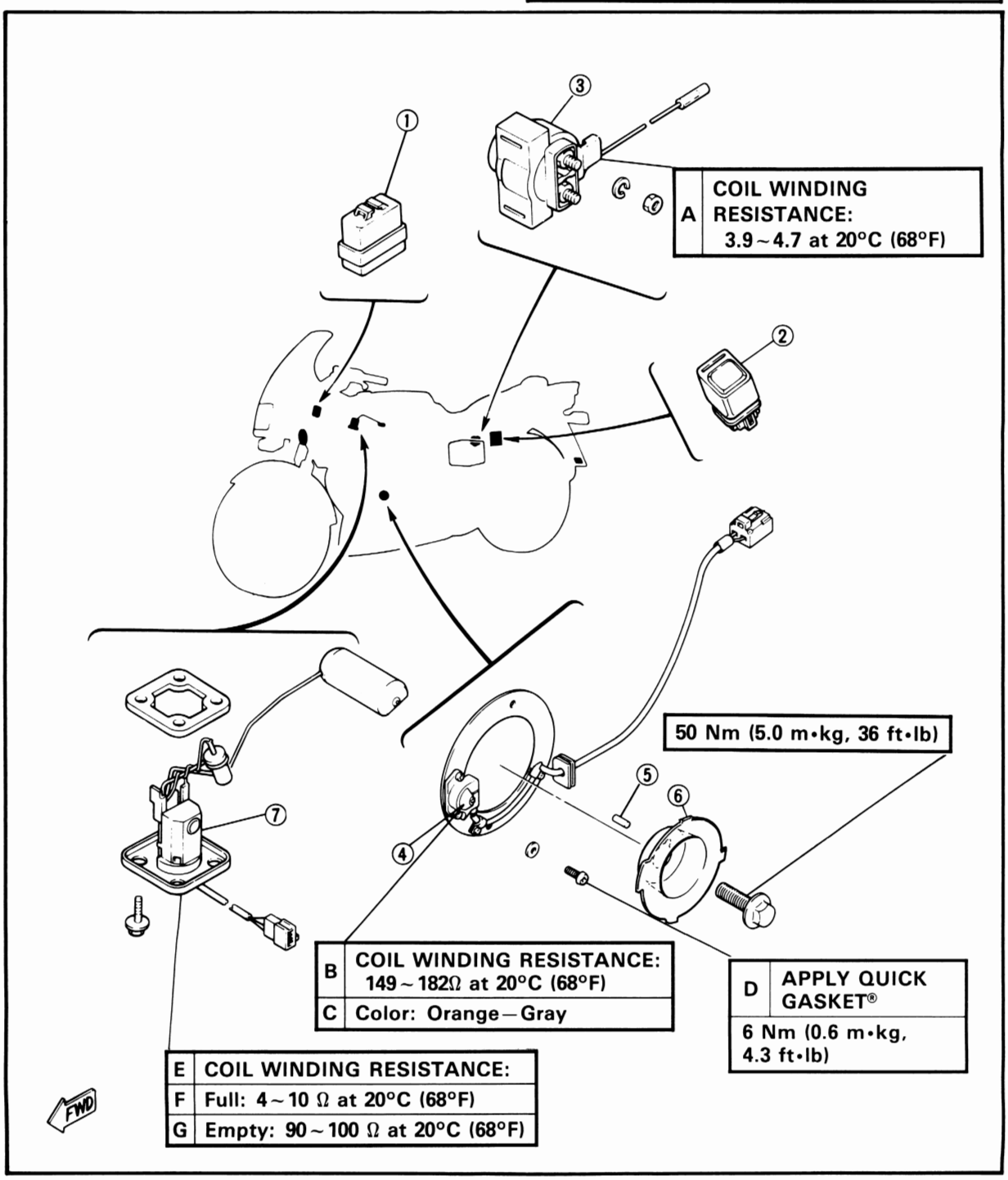
① TCI unit
② Battery
③ Breather hose
④ Rear brake switch
⑤ Neutral switch
⑥ O-ring
⑦ Oil level switch
⑧ Ignition coil
⑨ Fuse box

A	IGNITION COIL:
B	Primary winding resistance: 2.4 ~ 3.0 Ω at 20°C (68°F)
C	Secondary winding resistance: 9.6 ~ 14.4 kΩ at 20°C (68°F)
D	BATTERY:
E	Capacity: 12V 14AH
F	Specific gravity: 1.280



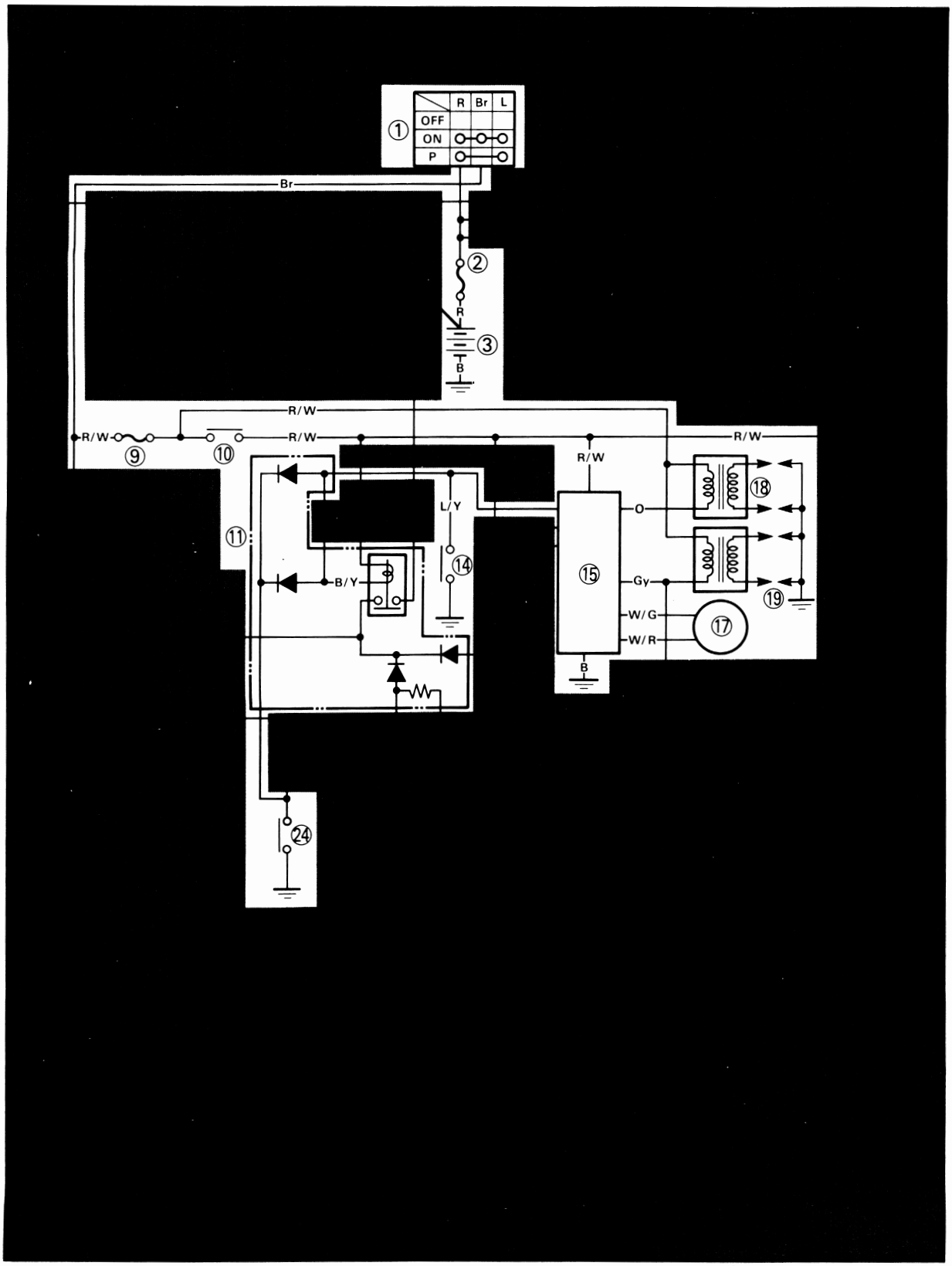
① Relay assembly
② Fuel pump relay
③ Starter relay
④ Pickup coil
⑤ Dowel pin
⑥ Timing plate
⑦ Fuel sender unit

GENERATOR:	STARTER MOTOR:
STARTOR COIL RESISTANCE: 0.15 ~ 0.18 Ω at 20°C (68°F) (White – White)	BRUSH LENGTH LIMIT: 5.5 mm (0.22 in)
FIELD COIL RESISTANCE: 4 Ω at 20°C (68°F)	COMMUTATOR DIA. LIMIT 27 mm (1.06 in)
BRUSH LENGTH LIMIT: 4.7 mm (0.19 in)	



IGNITION SYSTEM

CIRCUIT DIAGRAM

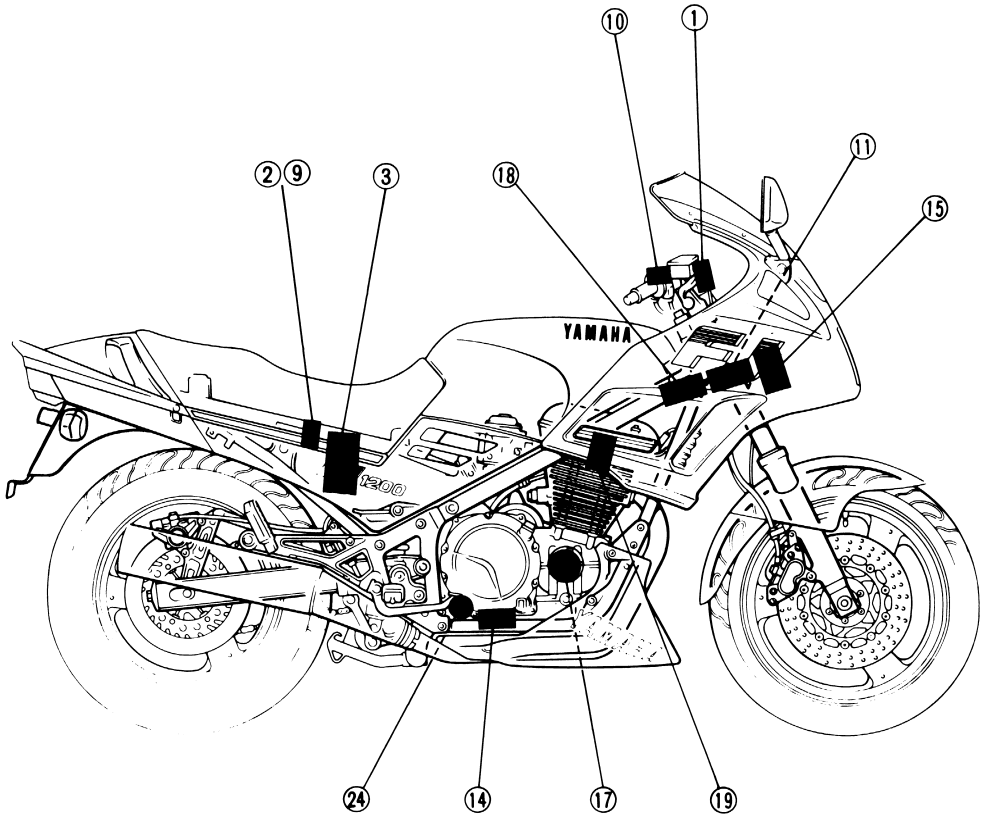


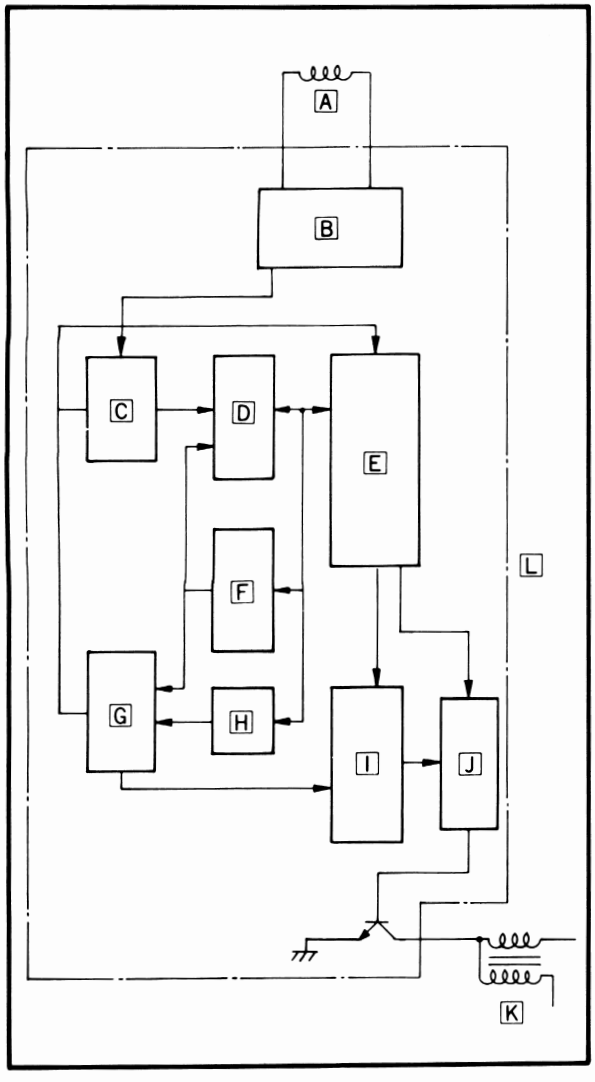
Aforementioned circuit diagram shows the ignition circuit in the wiring diagram.

NOTE:

For the color codes, see page 31.

① Main switch
② Fuse "MAIN"
③ Battery
⑨ Fuse "IGNITION"
⑩ "ENGINE STOP" switch
⑪ Relay assembly
⑭ Sidestand switch
⑮ Digital ignitor unit
⑰ Pickup coil
⑱ Ignition coil
⑲ Spark plug
㉔ Neutral switch





DIGITAL IGNITION CONTROL SYSTEM DESCRIPTION

The electronic ignition that sparks the engine is computer controlled and operated by the digital microprocessor. It has a pre-programed ignition advance curve.

This programed advance curve closely matches the spark timing to the engine's ignition requirements. Only one pickup coil is needed to meet the requirements of the digital ignitor unit.

The digital ignitor also includes the control unit for the electric fuel pump.

A Pickup coil
B Wave-shape shaping circuit
C Edge detection circuit
D Latch circuit
E Microprocessor
F Free-running counter
G Comparison circuit
H Register
I Flip-flop circuit
J Driving circuit
K Ignition coil
L Digital ignitor unit

OPERATION

The following operations are digitally-performed by signal from the pickup coil signal:

1. Determing proper ignition timing.
2. Sensing the engine revolution speed.
3. Determing timing for switching on ignition coil (duty control).
4. Increasing ignition coil primary current for starting the engine.
5. Sensing engine stall.
6. Preventing over-revolution of the engine.

TROUBLESHOOTING

IF IGNITION SYSTEM SHOULD BECOME INOPERATIVE (NO SPARK OR INTERMITTENT SPARK)

Procedure

Check;

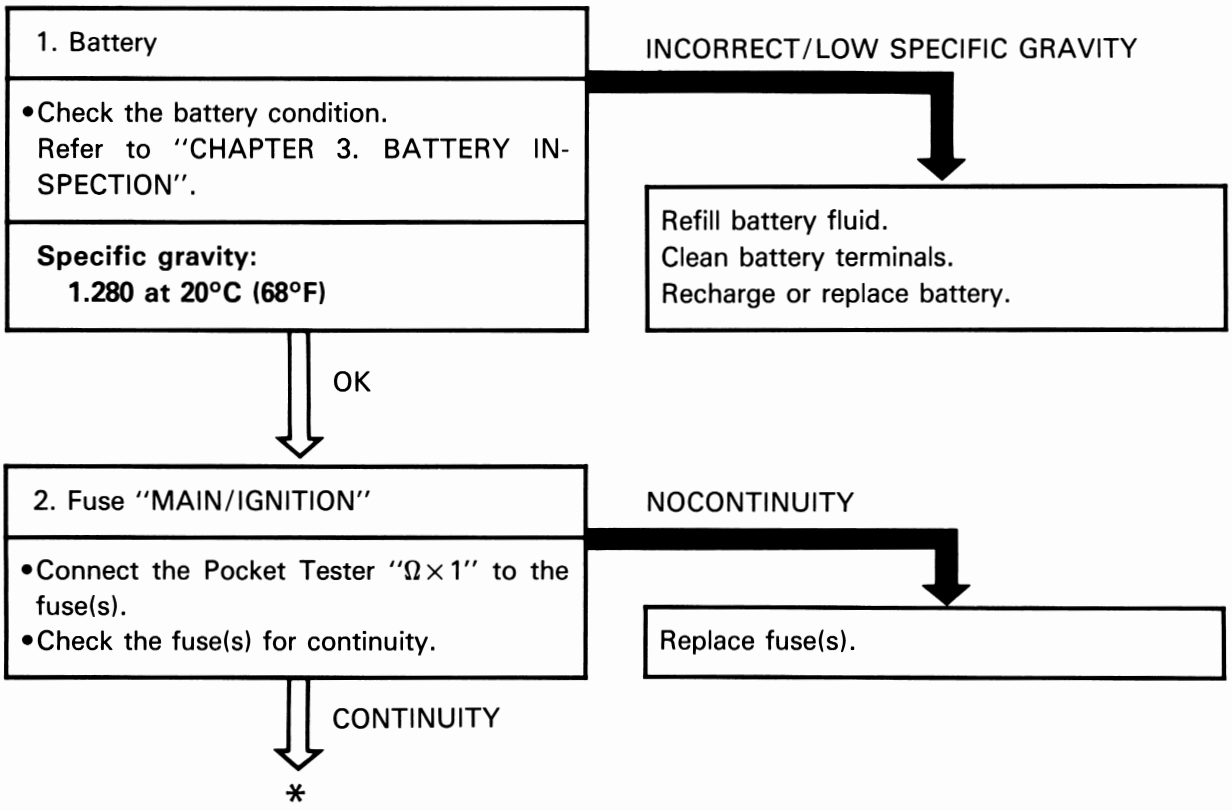
1. Battery
2. Fuse "MAIN/IGNITION"
3. Spark plug
4. Ignition spark gap
5. Spark plug cap resistance
6. Ignition coil resistance
7. Main switch
8. "ENGINE STOP" switch
9. Neutral switch
10. Sidestand switch
11. Pickup coil resistance
12. Wiring connection (Ignition system)

NOTE:

- Remove the following before troubleshooting.
  1) Air ducts
  2) Seat
  3) Side covers
  4) Inner panel (right)
  5) Spark plugs
  6) Fuel tank
- Use the following special tools in this troubleshooting.

Dynamic spark tester:
YM-34487

Pocket tester:
YU-03112



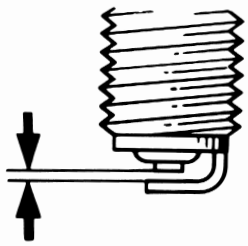
*

3. Spark plug gap

- Check the spark plug type.
- Check the spark plug gap.
  Refer to "APPENDICES—SPECIFICATIONS".

Standard spark plug:
DP8EA-9 (NGK), X24EP-U9 (N.D.)

Spark plug gap:
0.8~0.9 mm (0.031~0.035 in)



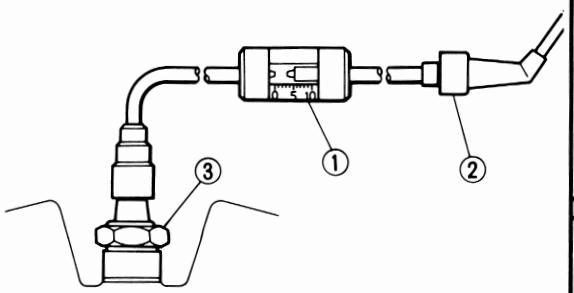
OUT OF SPECIFICATION

Regap or replace spark plugs.

4. Ignition spark gap

- Connect the Dynamic Spark Tester ① as shown.

② Spark plug cap
③ Spark plug



MEETS SPECIFICATION

Ignition system is good.

- Start the engine, and increase the spark gap until misfire occurs.

Minimum spark gap:
6 mm (0.24 in)

OUT OF SPECIFICATION
OR NO SPARK

*

*

5. Spark plug cap resistance

- Disconnect the spark plug caps.
- Connect the Pocket Tester "Ω × 1".

Spark plug cap resistance:
7.5 ~ 12.5 kΩ at 20°C (68°F)

OUT OF SPECIFICATION → Replace spark plug caps.

OK

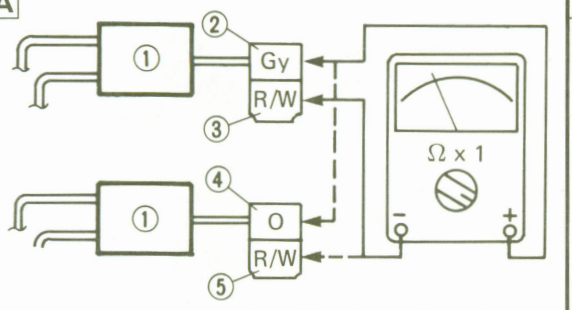
6. Ignition coil resistance

- Disconnect the ignition coil coupler and spark plug leads.
- Connect the Pocket Tester to the ignition coils ① (Gray ②, Red/White ③, Orange ④, Red/White ⑤ and Spark plug leads ⑥).
- Measure the primary coil and secondary coil resistances.

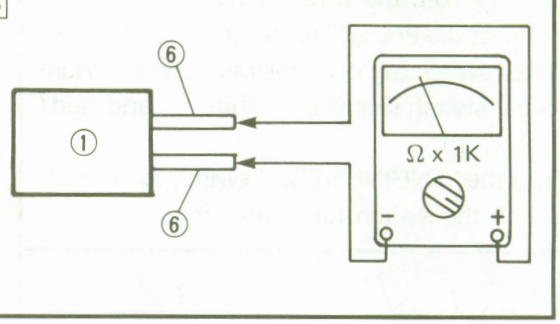
Primary coil resistance A:
2.4 ~ 3.0 Ω at 20°C (68°F)
Secondary coil resistance B:
9.6 ~ 14.4 kΩ at 20°C (68°F)

OUT OF SPECIFICATION → Replace ignition coil(s).

A



B



BOTH RESISTANCES MEET SPECIFICATIONS

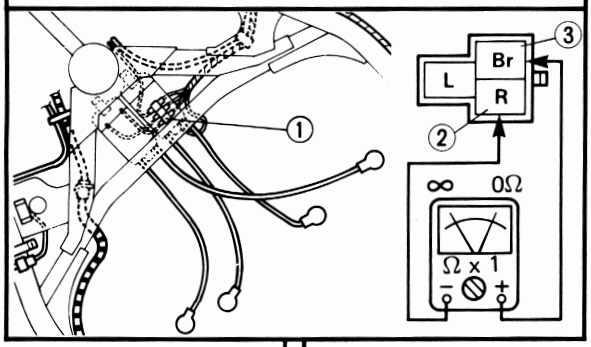
*

*

7. Main switch

- Disconnect the main switch coupler ① from the wire harness.
- Connect the Pocket Tester "Ω×1" to the main switch coupler terminals — Main switch side (Red ② and Brown ③).
- Turn the main switch to "ON".
- Check the switch for continuity.

NOCONTINUITY → Replace main switch.

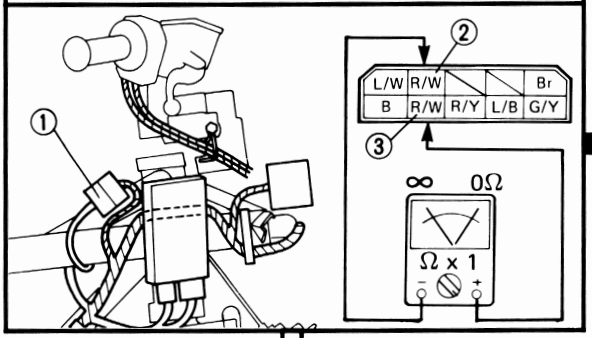


CONTINUITY

8. "ENGINE STOP" switch

- Disconnect the handlebar switch (right) coupler ① from the wire harness.
- Connect the Pocket Tester "Ω×1" to the handlebar switch (right) coupler terminals — Handlebar switch side (Red/White ② and Red/White ③).
- Turn the "ENGINE STOP" switch to "RUN".
- Check the switch for continuity.

NOCONTINUITY → "ENGINE STOP" switch is faulty. Replace handlebar switch (right).



CONTINUITY

*

*

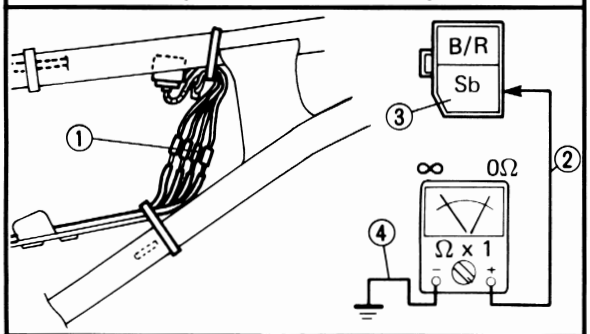
9. Neutral switch

- Disconnect the neutral/oil level switch coupler ① from the wire harness.
- Connect the positive lead ② of the Pocket Tester "Ω×1" to the coupler terminal — Neutral switch side (Sky blue ③).
- Ground the negative lead ④ of the Pocket Tester to the engine.
- Shift the gear, and check the switch for continuity.

BAD CONDITION

Transmission position	Good condition	Bad condition		
In neutral	○	○	×	×
In gear	×	○	×	○

○: Continuity ×: Nocontinuity



Replace neutral switch.

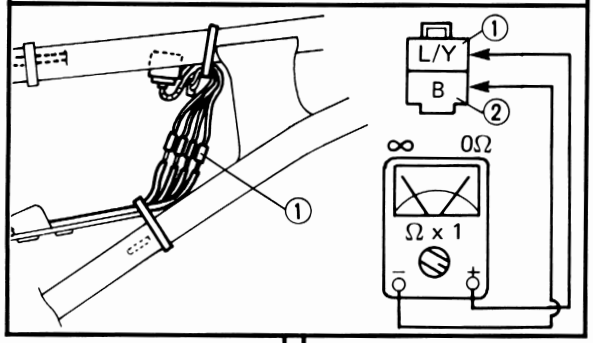
GOOD CONDITION

10. Sidestand switch

- Disconnect the sidestand switch leads from the wire harness.
- Connect the Pocket Tester "Ω×1" to the sidestand switch leads — Sidestand switch side (Blue/Yellow ① and Black ②).
- Move the sidestand upon down.
- Check the sidestand switch for continuity.

Sidestand position	Good condition	Bad condition		
Up	○	○	×	×
Down	×	○	×	○

○: Continuity ×: Nocontinuity



BAD CONDITION → Replace sidestand switch.

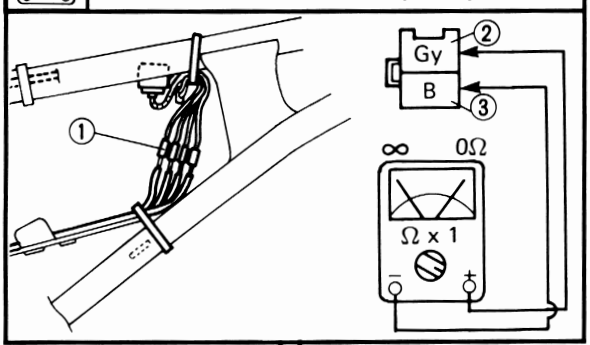
GOOD CONDITION

11. Pickup coil resistance

- Disconnect the pickup coil coupler ① (Gray, Black) from the wire harness.
- Connect the Pocket Tester "Ω×10" to the pickup coil coupler terminals — Pickup coil side (Gray ② and Black ③).

Pickup coil resistance:
149 ~ 182 Ω at 20°C (68°F)

OUT OF SPECIFICATION → Replace pickup coil.



RESISTANCE MEET SPECIFICATION

12. Wiring connection

- Entire ignition system
  Refer to "WIRING DIAGRAM".

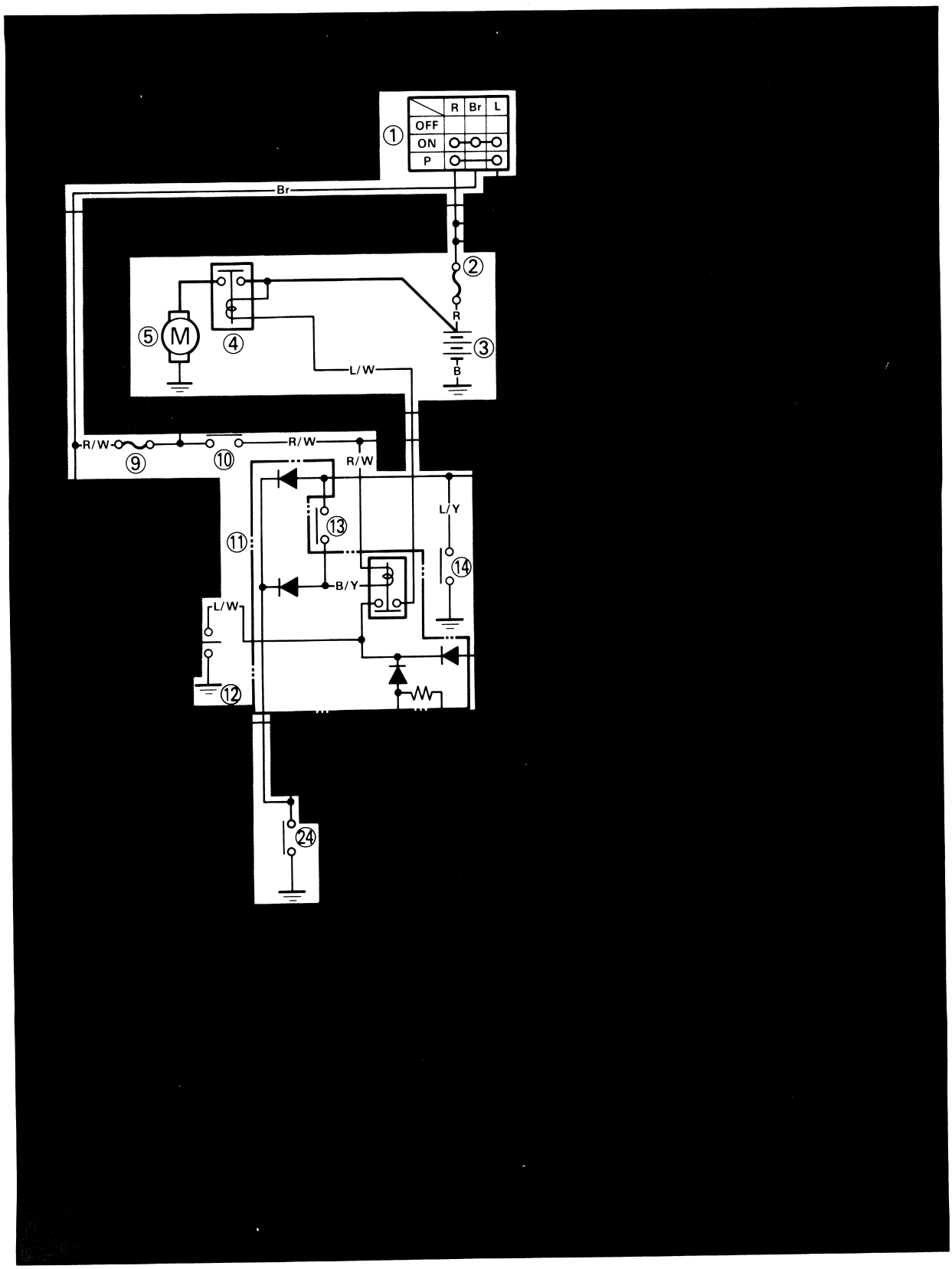
POOR CONNECTION → Correct connection(s).

OK

Digital ignitor unit is faulty.
Replace the digital ignitor unit.

ELECTRIC STARTING SYSTEM

CIRCUIT DIAGRAM

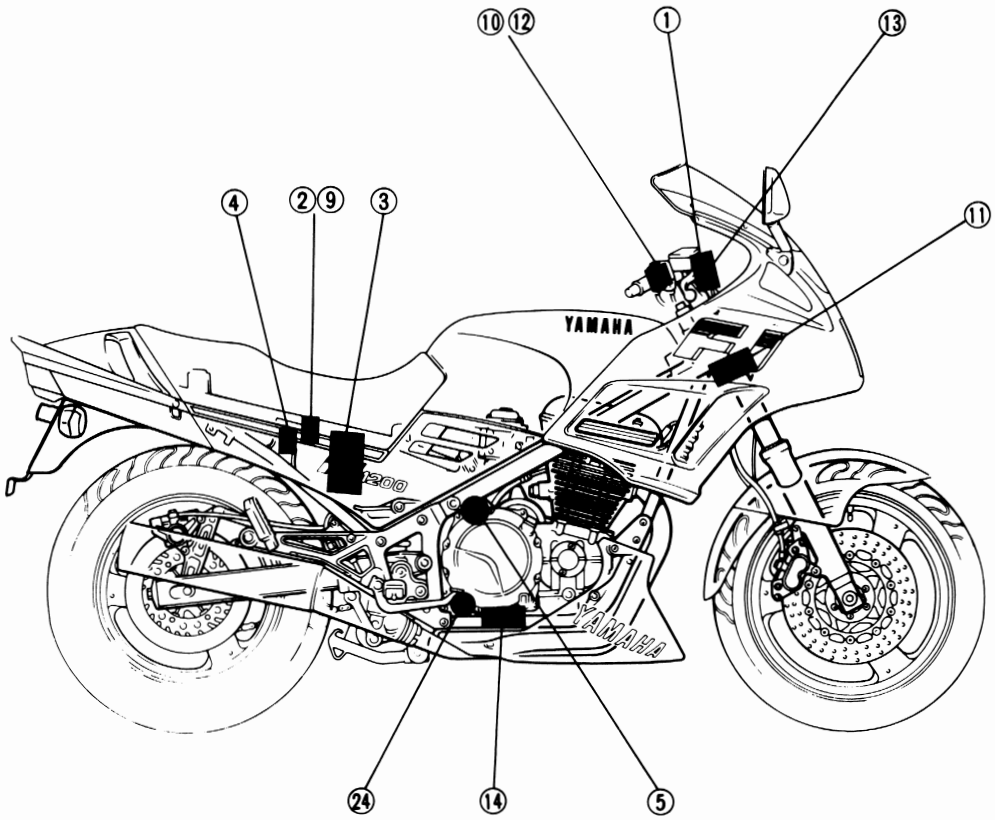


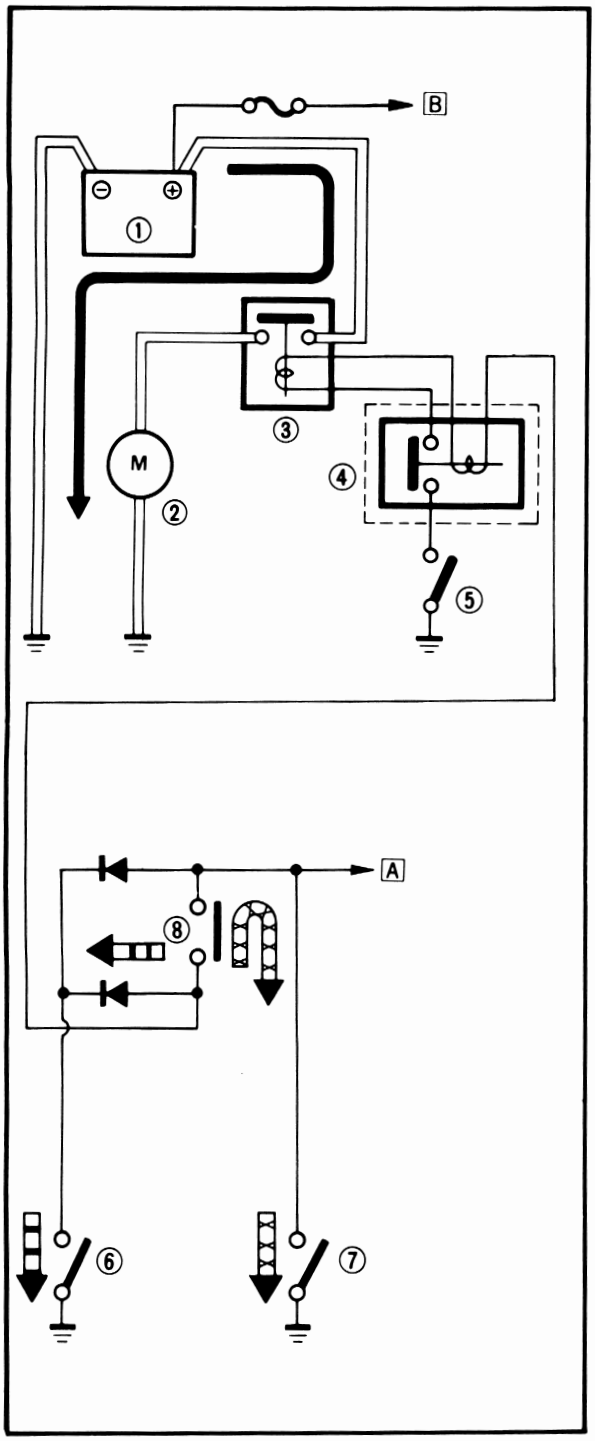
Aforementioned circuit diagram shows the electric starting circuit in the circuit diagram.

NOTE:

For the color codes, see page 31.

① Main switch
② Fuse "MAIN"
③ Battery
④ Starter relay
⑤ Starter motor
⑨ Fuse "IGNITION"
⑩ "ENGINE STOP" switch
⑪ Relay assembly
⑫ "START" switch
⑬ Clutch switch
⑭ Sidestand switch
㉔ Neutral switch





STARTING CIRCUIT OPERATION

The starting circuit on this model consist of the starter motor, starter relay, and the relay assembly (starting circuit cut-off relay). If the engine stop switch and the main switch are both closed, the starter motor can operate only if:

The transmission is in neutral (the neutral switch is closed).

or if

The clutch lever is pulled to the handlebar (the clutch switch is closed) and the sidestand is up (the sidestand switch is closed.)

The starting circuit cut-off relay prevents the starter from operating when neither of these conditions has been met. In this instance, the starting circuit cut-off relay is open so current cannot reach the starter motor.

When one of both of the above conditions have been met, however, the starting circuit cut-off relay is closed, and the engine can be started by pressing the starter switch.

WHEN THE TRANSMISSION IS IN NEUTRAL
WHEN THE SIDESTAND IS UP AND THE CLUTCH LEVER IS PULLED IN

① Battery
② Starter motor
③ Starter relay
④ Starting circuit cut-off relay
⑤ Engine stop switch
⑥ Neutral switch
⑦ Sidestand switch
⑧ Clutch switch

A To sidestand relay
B To main switch

TROUBLESHOOTING

STARTER MOTOR DOES NOT OPERATE.

Procedure

Check;

1. Battery
2. Fuse "MAIN/IGNITION"
3. Starter motor
4. Starting circuit cut-off relay (Relay assembly)
5. Main switch
6. "ENGINE STOP" switch
7. Neutral switch
8. Sidestand switch
9. Clutch switch
10. Wiring connection (Electric starting system)

NOTE:

- Remove the following before troubleshooting.
  1) Seat
  2) Side covers
  3) Fuel tank
  4) Air duct (left)
  5) Inner panel (right)
- Use the following special tool in this troubleshooting.

Pocket tester:
YU-03112

1. Battery

- Check the battery condition. Refer to "CHAPTER 3. BATTERY INSPECTION".

Specific gravity:
1.280 at 20°C (68°F)

INCORRECT/LOW SPECIFIC GRAVITY → Refill battery fluid. Clean battery terminals. Recharge or replace battery.

OK ↓

2. Fuse "MAIN/IGNITION"

- Connect the Pocket Tester "Ω×1" to the fuse(s).
- Check the fuse(s) for continuity.

NOCONTINUITY → Replace fuse(s).

CONTINUITY ↓

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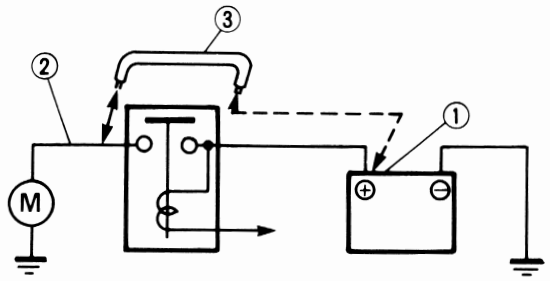
*

3. Starter motor

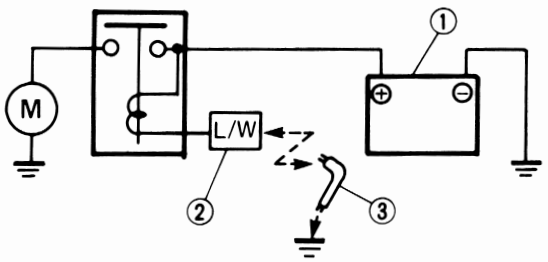
- Connect the battery positive terminal ① and starter motor cable ② using the jumper lead ③*.
- Check the starter motor operation.



- If the starter motor is operated, go to the next steps. If not, repair and/or replace the starter motor.
- Disconnect the starter relay lead (Blue/White).
- Ground the starter relay coupler (Blue/White) ② to the frame using the jumper lead ③.
- Check the starter motor operation.

FAULTY

Repair or replace starter motor.



OK

*

*

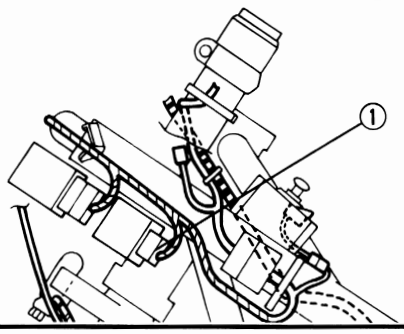
⚠WARNING:

- **A wire for the jumper lead must have the equivalent capacity as that of the battery lead or more, otherwise it may cause the jumper lead to be burned.**
- **This check is likely to produce sparks, so be sure that no flammable gas or fluid is in the vicinity.**

*

4. Relay assembly (starting circuit cut-off relay)

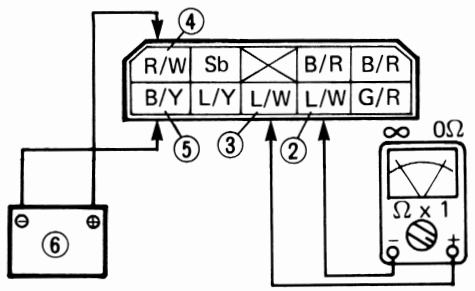
- Disconnect the relay assembly coupler ① from the wire harness.



- Connect the Pocket Tester and battery (12V) ⑥ to the relay coupler terminals — Relay assembly side (Blue/White ②, Blue/White ③, Red/White ④ and Blue/Yellow ⑤).
- Check the relay for continuity.

	Good condition	Bad condition		
Battery connected	○	○	×	×
Battery disconnected	×	○	×	○

○: Continuity ×: Nocontinuity



FAULTY

Replace relay assembly.

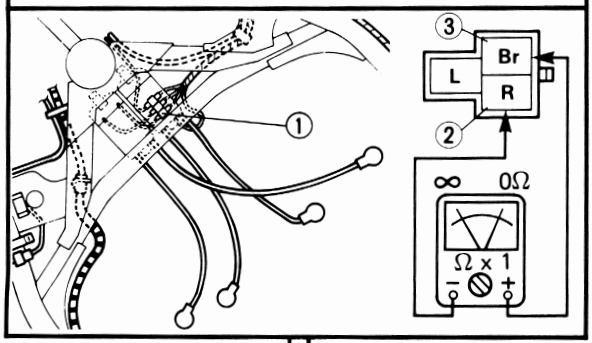
OK

*

*

5. Main switch

- Disconnect the main switch coupler ① from the wire harness.
- Connect the Pocket Tester "Ω × 1" to the main switch leads — Main switch side (Red ② and Brown ③).
- Turn the main switch to "ON" position.
- Check the switch for continuity.

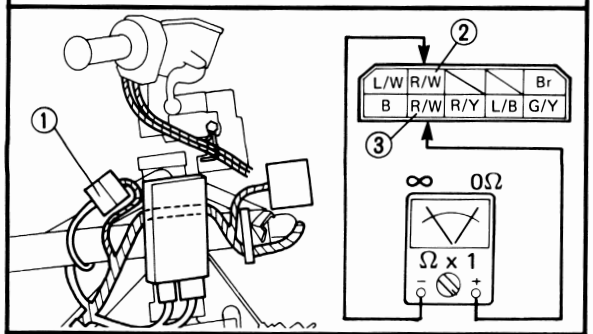


NOCONTINUITY → Replace main switch.

CONTINUITY

6. "ENGINE STOP" switch

- Disconnect the handlebar switch (right) coupler ① from the wire harness.
- Connect the Pocket Tester "Ω × 1" to the handlebar switch leads — Handlebar switch side (Red/White ② Red/White ③).
- Turn the "ENGINE STOP" switch to "RUN" position.
- Check the switch for continuity.



NOCONTINUITY → Replace handlebar switch (right).

CONTINUITY

*

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7. Neutral switch

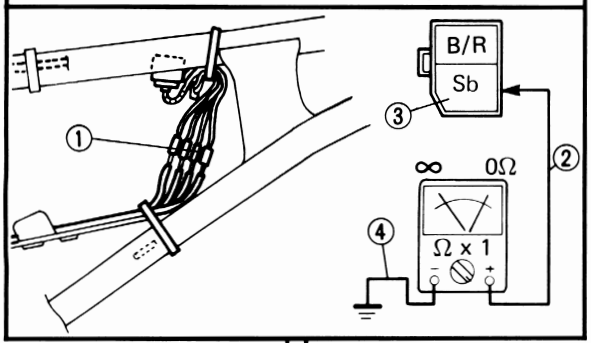
- Disconnect the neutral/oil level switch coupler ① from the wire harness.
- Connect the positive lead ② of the Pocket Tester to the neutral switch coupler terminal — Neutral switch side (Sky blue ③).
- Ground the negative lead ④ of the Pocket Tester to the engine.
- Shift the gear, and check the switch for continuity.

BAD CONDITION

Replace neutral switch.

Transmission position	Good condition	Bad condition		
In neutral	○	○	×	×
In gear	×	○	×	○

○: Continuity ×: Nocontinuity



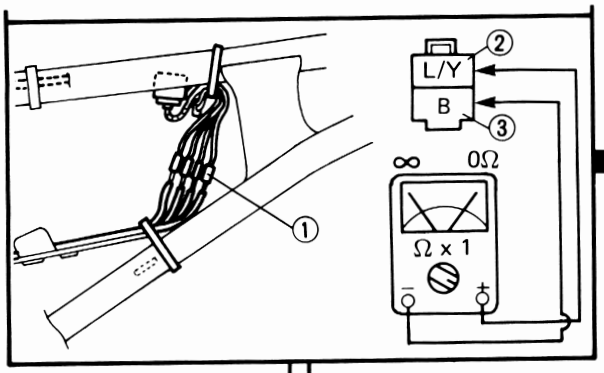
GOOD CONDITION

8. Sidestand switch

- Disconnect the sidestand switch leads ① from the wire harness.
- Connect the Pocket Tester "Ω×1" to the sidestand switch leads — Sidestand switch side (Blue/Yellow ② and Blue ③).
- Move the sidestand up or down.
- Check the sidestand switch for continuity.

Sidestand position	Good condition	Bad condition		
Up	○	○	×	×
Down	×	○	×	○

○: Continuity ×: Nocontinuity



BAD CONDITION

Replace sidestand switch.

GOOD CONDITION

9. Clutch switch

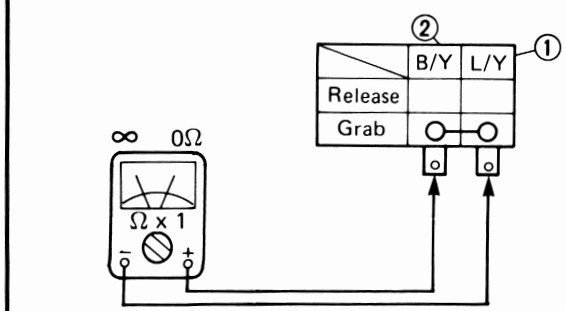
- Disconnect the clutch switch leads from the wire harness.
- Connect the Pocket Tester "Ω×1" to the clutch switch terminals (Blue/Yellow ① and Black/Yellow ②).
- Grab or release the clutch lever.
- Check the clutch switch for continuity.

Clutch lever position	Good condition	Bad condition		
Grab	○	○	×	×
Release	×	○	×	○

○: Continuity ×: Nocontinuity

BAD CONDITION

Replace clutch switch.



GOOD CONDITION

10. Wiring connection

- Entire electric starting system
  Refer to "WIRING DIAGRAM".

POOR CONNECTION

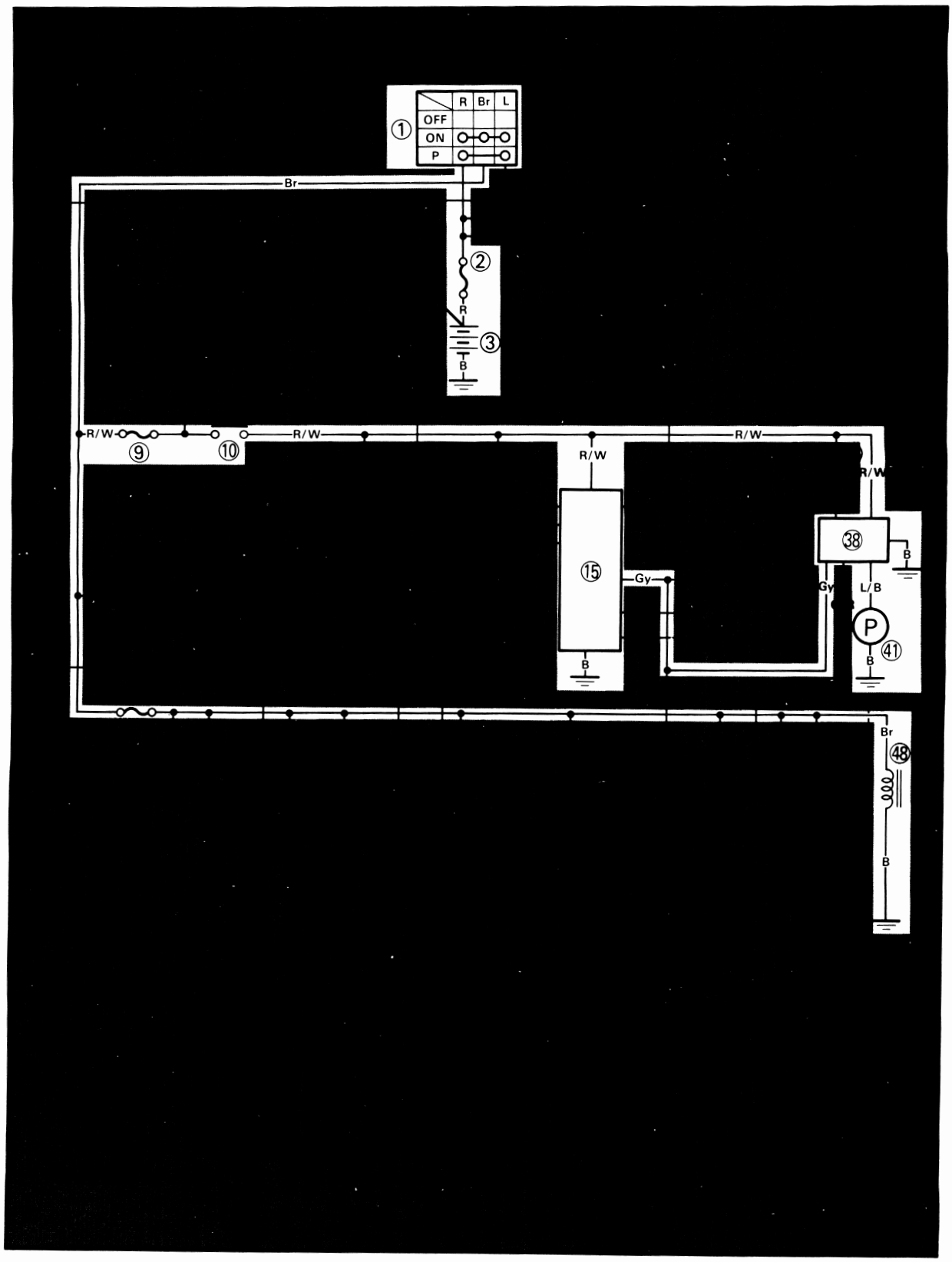
Correct connection(s).

OK

Diode is faulty.
Replace the relay assembly.

FUEL SYSTEM

CIRCUIT DIAGRAM

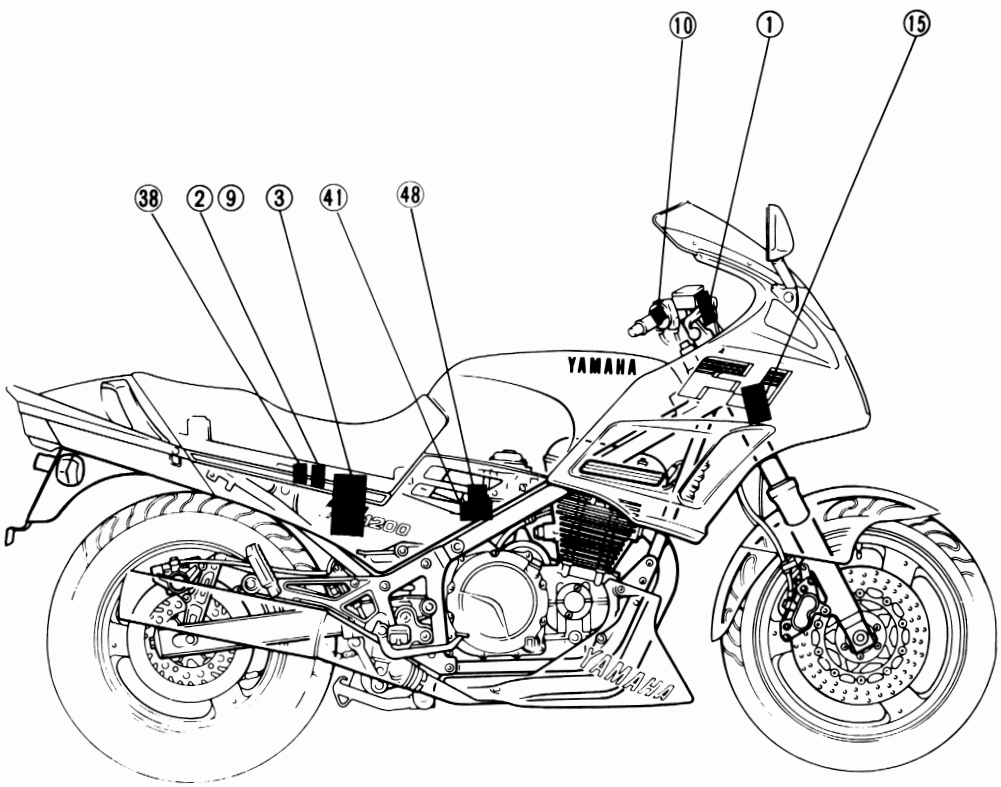


Aforementioned circuit diagram shows the fuel circuit in the circuit diagram.

NOTE:

For the color codes, see page 31.

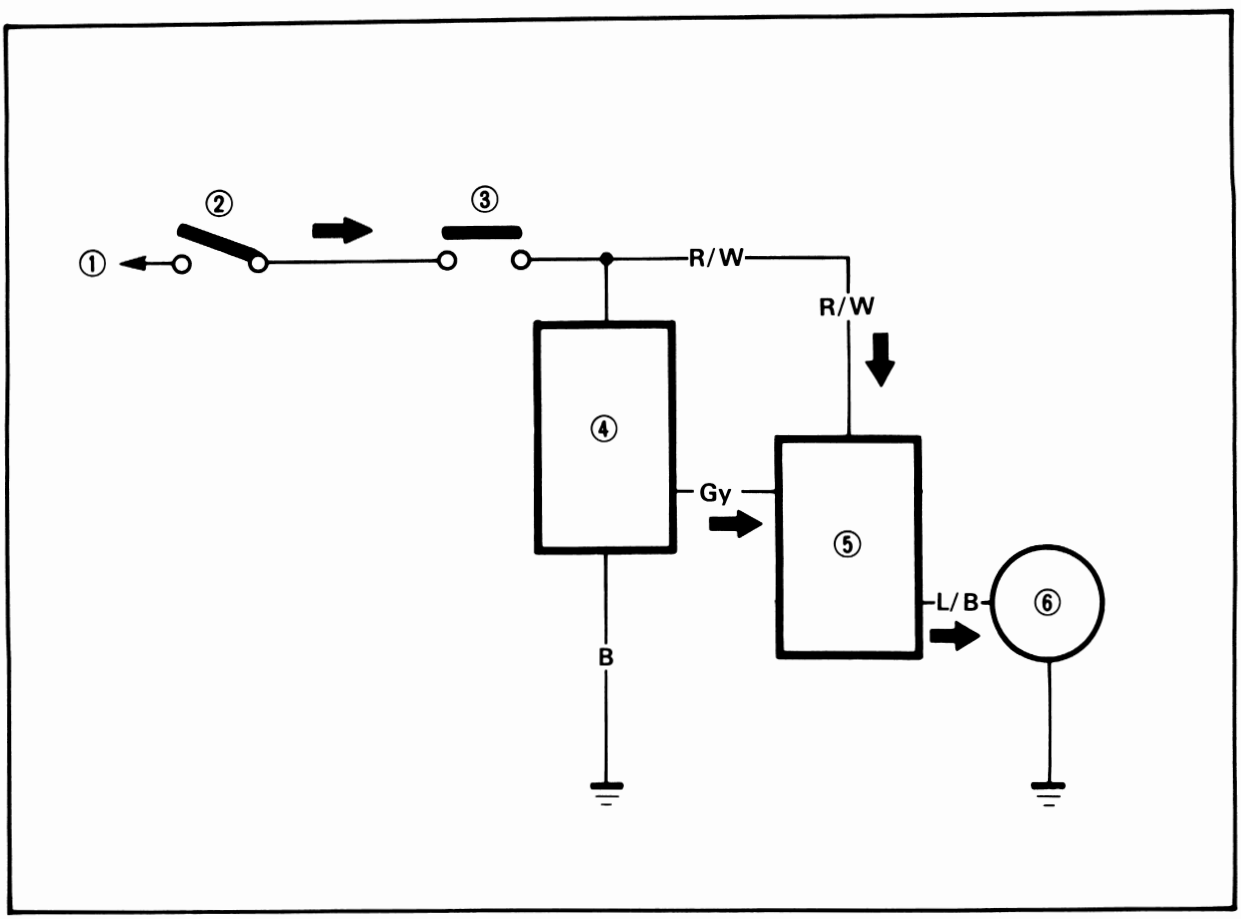
① Main switch
② Fuse "MAIN"
③ Battery
⑨ Fuse "IGNITION"
⑩ "ENGINE STOP" switch
⑮ Digital ignitor unit
⑳ Fuse "SIGNAL"
㊳ Fuel pump relay
㊶ Fuel pump
㊽ Control valve (for FJ1200WC)



FUEL PUMP CIRCUIT OPERATION

The fuel pump circuit consists of the fuel pump relay, fuel pump, "ENGINE STOP" switch and digital ignition unit.
The digital ignition unit includes the control unit for the fuel pump.
The fuel pump starts and stops as indicated in the chart below.

① To main fuse and battery
② Main switch
③ "ENGINE STOP" switch
④ Digital ignitor unit
⑤ Fuel pump relay
⑥ Fuel pump



FUEL PUMP		
START		STOP
•Main/engine stop switch turned to "ON"	•Engine turned on	•Engine turned off
For about 5 seconds when carburetor fuel level is low	After about 0.1 second	After about 5 seconds

TROUBLESHOOTING

FUEL PUMP FAILS TO OPERATE AFTER ENGINE IS STARTED.

Procedure

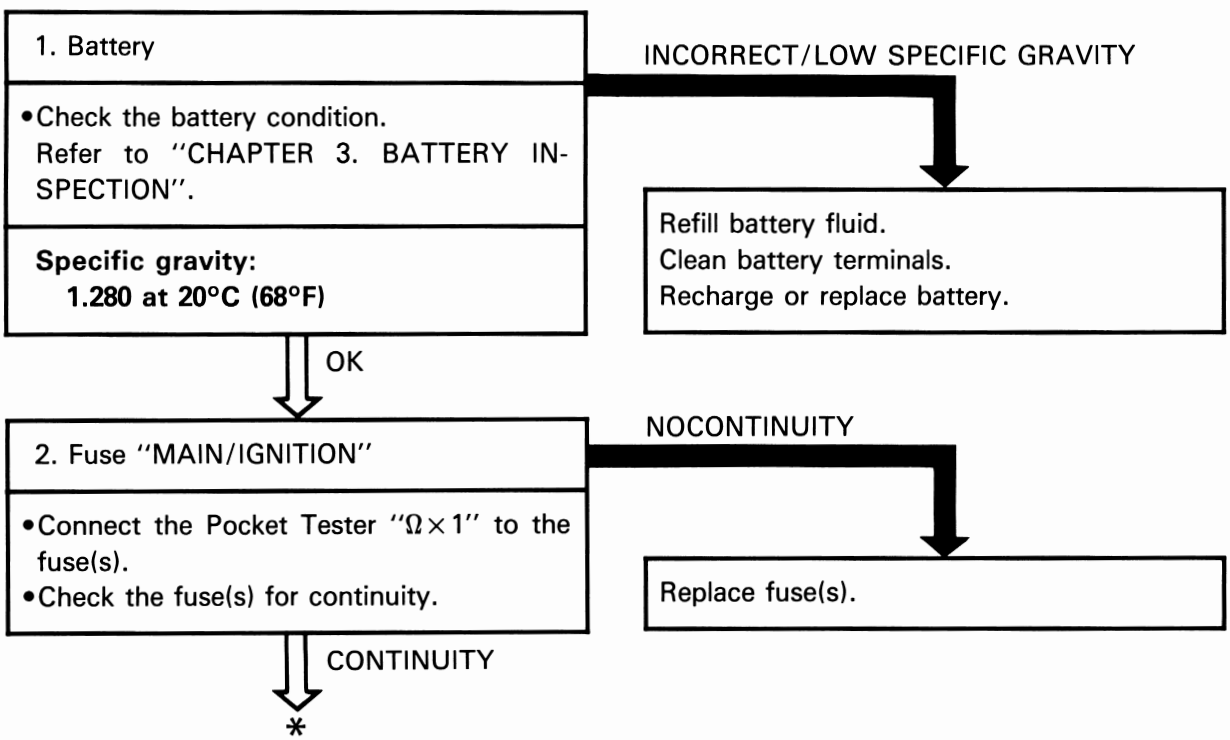
Check;

1. Battery
2. Fuse "MAIN/IGNITION"
3. Main switch
4. "ENGINE STOP" switch
5. Battery voltage
6. Fuel pump relay
7. Wiring connection (Fuel system)

NOTE:

- Remove the following before troubleshooting.
  1) Seat
  2) Side covers
  3) Fuel tank
  4) Air ducts
  5) Inner panel (right)
  6) Use the fuel subtank when the fuel tank is removed.
     Refor to "CHAPTER 2. CARBURETOR SYNCHRONIZATION".
- Use the following special tool in this troubleshooting.

Pocket tester:
YU-03112



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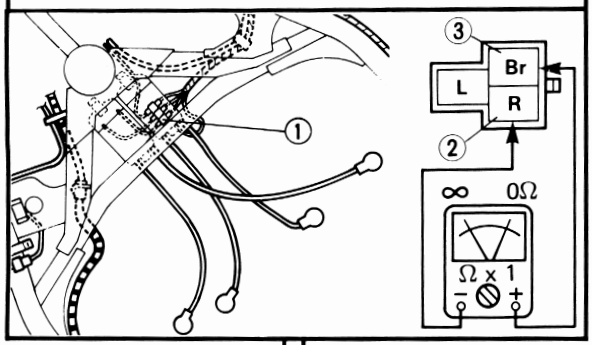
3. Main switch

- Disconnect the main switch coupler ① from the wire harness.
- Connect the Pocket Tester "Ω × 1" to the main switch coupler terminals — Main switch side (Red ② and Brown ③).
- Turn the main switch to "ON" position.
- Check the switch for continuity.

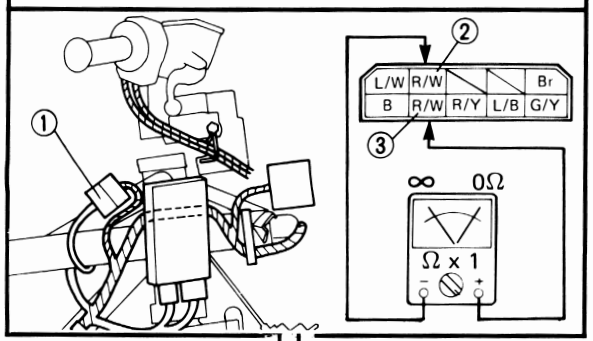


NOCONTINUITY → Replace main switch.

CONTINUITY

4. "ENGINE STOP" switch

- Disconnect the handlebar switch (right) coupler ① from the wire harness.
- Connect the Pocket Tester "Ω × 1" to terminal — Handlebar switch side (Red/White ② and Red/White ③).
- Turn the "ENGINE STOP" switch to "RUN" position.
- Check the switch for continuity.



NOCONTINUITY → "ENGINE STOP" switch is faulty. Replace handlebar switch (right).

CONTINUITY

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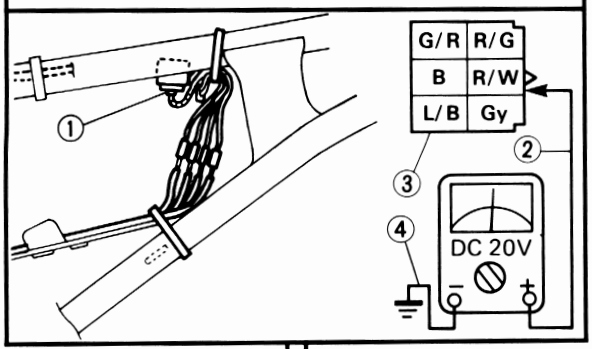
5. Battery voltage

- Disconnect the fuel pump relay coupler ① from the wire harness.
- Connect the positive lead ② of the Pocket Tester "DC20V" to the relay coupler terminal (Red/White ③ — wire harness side).
- Ground the negative lead ④ of the Pocket Tester to the frame.
- Turn the main switch to "ON".
- Turn the "ENGINE STOP" switch to "RUN".
- Measure the battery voltage.

Tester (+) lead→Red/White
Tester (−) lead→Ground



LESS THAN 12V

Check wiring connection(s).

MORE THAN 12V

*

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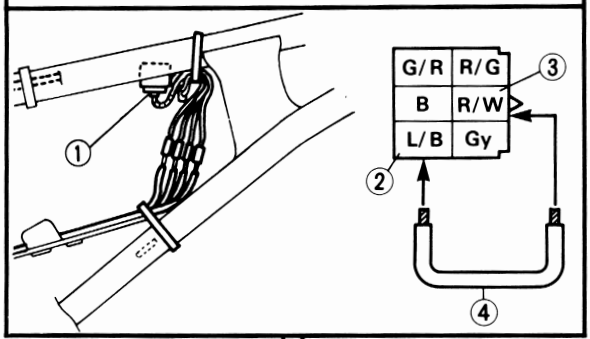
6. Fuel pump relay

- Disconnect the fuel pump relay coupler ①.
- Connect the relay coupler terminals (Blue/Black ② and Red/White ③ — Wire harness side) with the jamper lead ④.
- Turn the main switch to "ON".
- Turn the "ENGINE STOP" switch to "RUN".
- Check the fuel pump for operation.

NO OPERATIVE → Replace fuel pump.



OPERATIVE

7. Wiring connection

- Entire fuel pump system
  Refer to "WIRING DIAGRAM".

POOR CONNECTION → Correct connection(s).

OK

Fuel pump relay is faulty.
Replace the fuel pump relay.

FUEL PUMP FAILS TO OPERATE FOR A 5 SECOND INTERVAL

Procedure

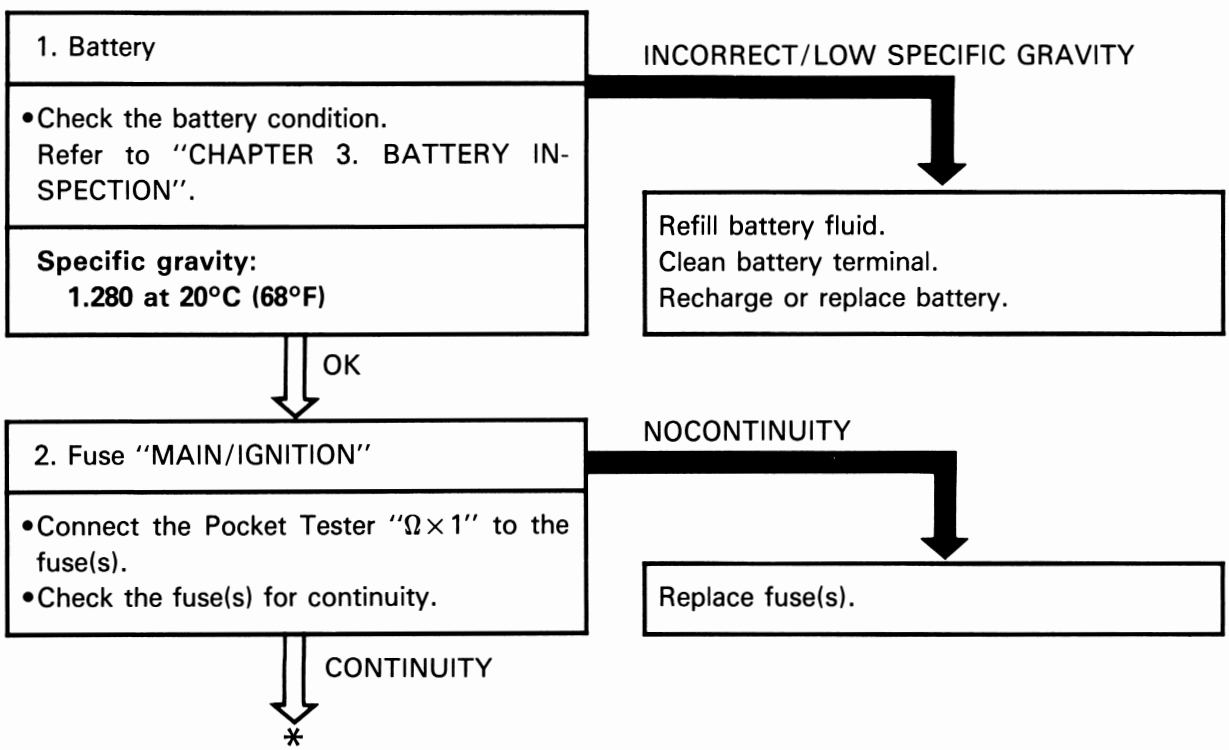
Check;

1. Battery
2. Fuse "MAIN/IGNITION"
3. Main switch
4. "ENGINE STOP" switch
5. Battery voltage
6. Fuel pump input voltage
7. Wiring connection (Fuel system)

NOTE:

- Remove the following before troubleshooting.
  1) Seat
  2) Side covers
  3) Fuel tank
  4) Air ducts
  5) Inner panel (right)
  6) Use the fuel sub tank when the fuel tank is removed. Refer to "CHAPTER 2. CARBURETOR SYNCHRONIZATION".
- Use the following special tool in this troubleshooting.

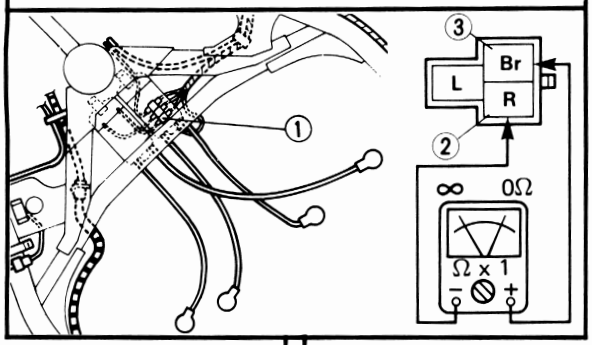
Pocket tester:
YU-03112



*

3. Main switch

- Disconnect the main switch coupler ① from the wire harness.
- Connect the Pocket Tester "Ω×1" to the main switch coupler terminals — Main switch side (Red ② and Brown ③).
- Turn the main switch to "ON" position.
- Check the switch for continuity.

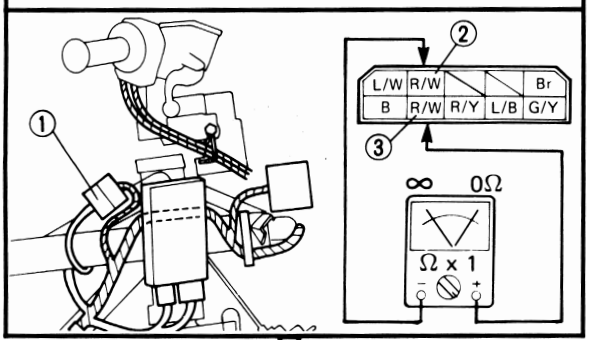


NOCONTINUITY → Replace main switch.

CONTINUITY

4. "ENGINE STOP" switch

- Disconnect the handlebar switch (right) coupler ① from the wire harness.
- Connect the Pocket Tester "Ω×1" to the handlebar switch (right) coupler terminal — Handlebar switch side (Red/White ② and Red/White ③).
- Turn the "ENGINE STOP" switch to "RUN" position.
- Check the switch for continuity.



NOCONTINUITY → "ENGINE STOP" switch is faulty. Replace handlebar switch (right).

CONTINUITY

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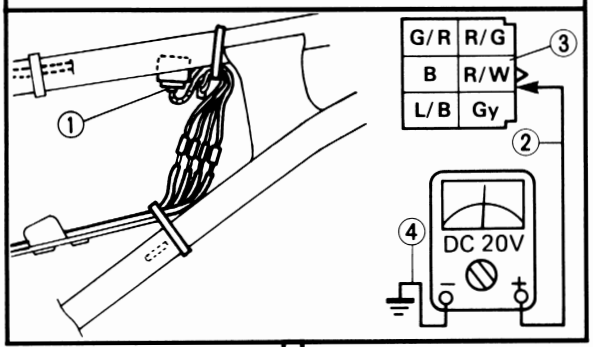
5. Battery voltage

- Disconnect the fuel pump relay coupler ① from the wire harness.
- Connect the positive lead ② of the Pocket Tester "DC20V" to the relay coupler terminal (Red/White ③ — wire harness side).
- Ground the negative lead ④ of the Pocket Tester to the frame.
- Turn the main switch to "ON".
- Turn the "ENGINE STOP" switch to "RUN".
- Measure the battery voltage.

Tester (+) lead→Red/White
Tester (−) lead→Ground



LESS THAN 12V

Check wiring connection(s).

MORE THAN 12V

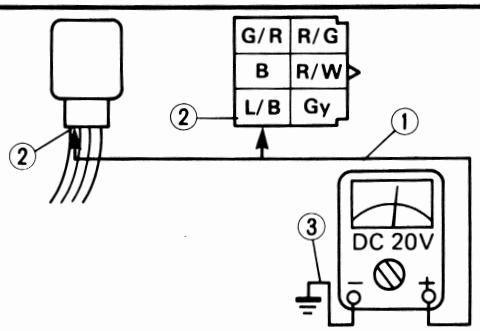
*

*

6. Fuel pump input voltage

- Connect the positive lead ① of the Pocket Tester "DC20V" to the relay coupler terminal (Blue/Black ②).
- Ground the negative lead ③ of the pocket Tester to the frame.
- Turn the main switch to "ON".
- Turn the "ENGINE STOP" switch to "RUN".
- Push the "START" switch.
- Measure the fuel pump input voltage.

Tester (+) lead→Blue/Black
Tester (−) lead→Ground



LESS THAN 11V

Replace fuel pump relay.

MORE THAN 11V

7. Wiring connection

- Entire fuel system
  Refer to "WIRING DIAGRAM".

POOR CONNECTION

Correct connection(s).

OK

Fuel pump is faulty.
Replace the fuel pump.

FUEL PUMP DOES NOT STOP AFTER 30 SECONDS.

Procedure

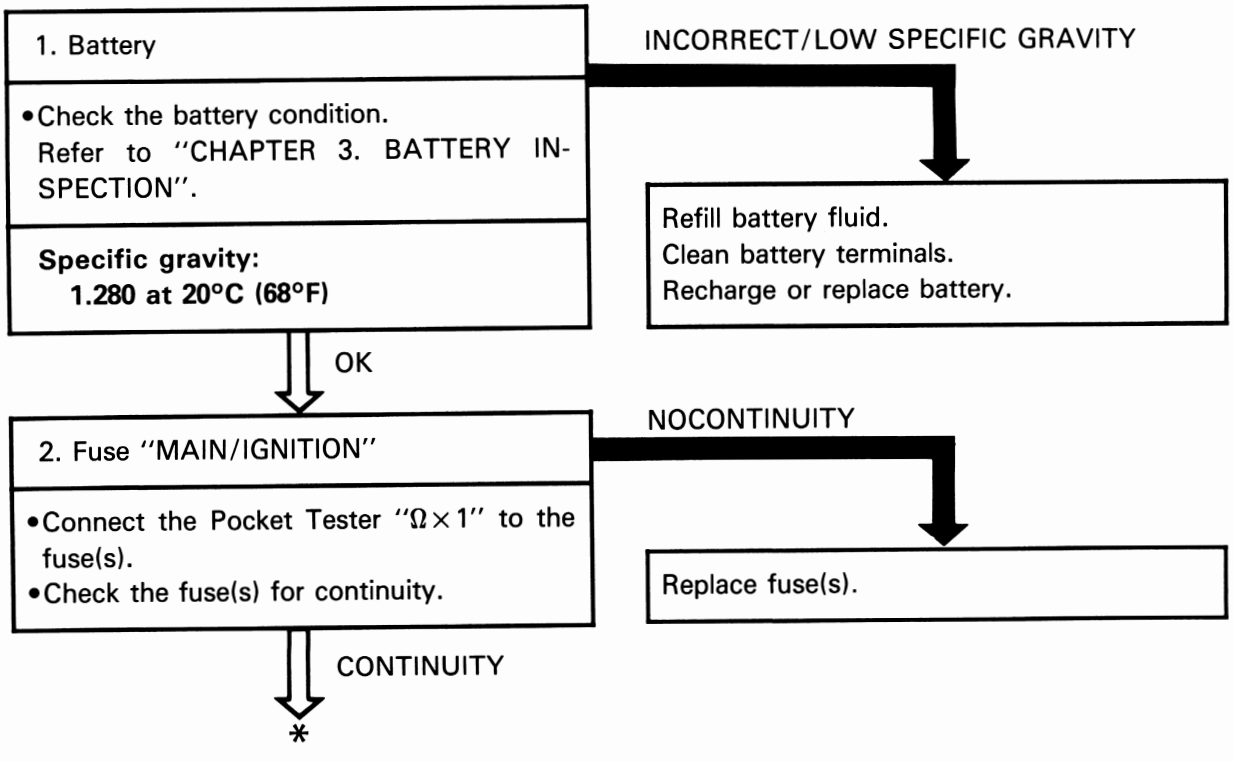
Check;

1. Battery
2. Fuse "MAIN/IGNITION"
3. Main switch
4. "ENGINE STOP" switch
5. Fuel pump input voltage
6. Wiring connection (Entire fuel system)

NOTE:

- Remove the following before troubleshooting.
  1) Seat
  2) Side covers
  3) Fuel tank
  4) Air ducts
  5) Inner panel (right)
  6) Use the fuel sub tank when the fuel tank is removed. Refer to "CHAPTER 2. CARBURETOR SYNCHRONIZATION".
- Use the following special tool in this troubleshooting.

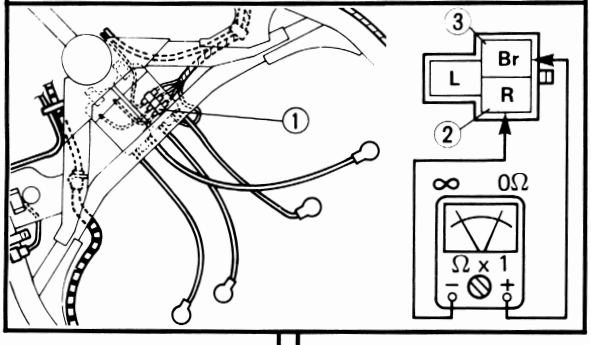
Pocket tester:
YU-03112



*

3. Main switch

- Disconnect the main switch coupler ① from the wire harness.
- Connect the Pocket Tester "Ω × 1" to the main switch coupler terminals — Main switch side (Red ② and Brown ③).
- Turn the main switch to "ON" position.
- Check the switch for continuity.

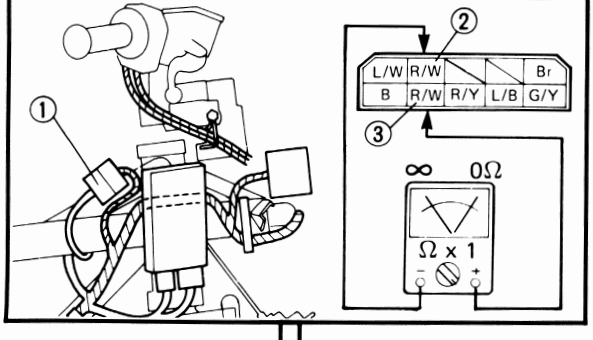


NOCONTINUITY → Replace main switch.

CONTINUITY

4. "ENGINE STOP" switch

- Disconnect the handlebar switch (right) coupler ① from the wire harness.
- Connect the Pocket Tester "Ω × 1" to the handlebar switch (right) coupler terminals — Handlebar switch side (Red/White ② and Red/White ③).
- Turn the "ENGINE STOP" switch to "RUN" position.
- Check the switch for continuity.



NOCONTINUITY → "ENGINE STOP" switch is faulty. Replace handlebar switch (right).

CONTINUITY

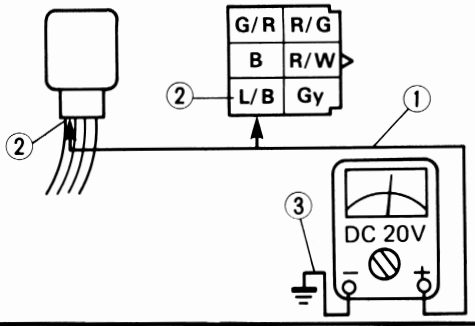
*

*

5. Fuel pump input voltage

- Connect the positive lead ① of the Pocket Tester "DC20V" to the relay coupler terminal (Blue/Black ②).
- Ground the negative lead ③ of the Pocket Tester to the frame.
- Turn the main switch to "ON".
- Turn the "ENGINE STOP" switch to "RUN".
- Push the "START" switch.
- Measure the fuel pump input voltage.

Tester (+) lead→Blue/Black
Tester (−) lead→Ground



LESS THAN 11V → Replace digital ignitor unit.

MORE THAN 11V

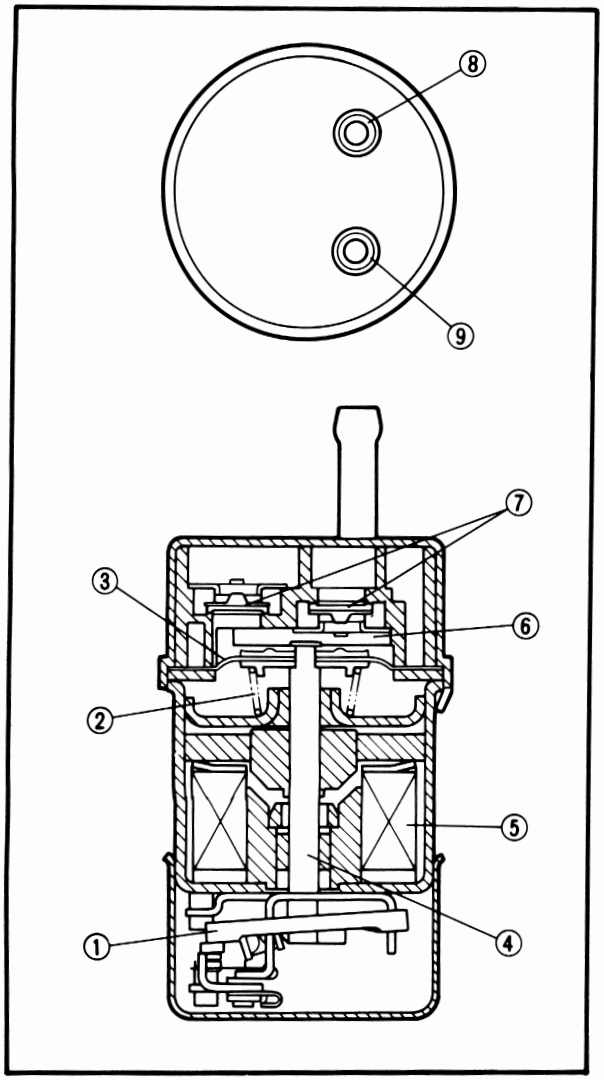
6. Wiring connection

- Entire fuel system
  Refer to "WIRING DIAGRAM".

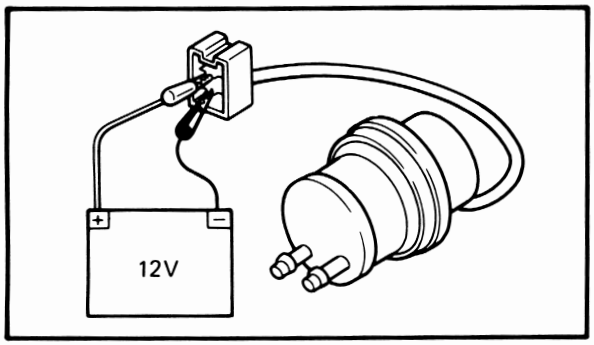
POOR CONNECTION → Correct connection(s).

OK

Fuel pump relay is faulty.
Replace the fuel pump relay.



① Cut-off switch
② Spring
③ Diaphragm
④ Plunger
⑤ Solenoid coil
⑥ Fuel chamber
⑦ Valve
⑧ Outlet
⑨ Inlet



FUEL PUMP TEST

Operation

The diaphragm is pulled in by the plunger allowing fuel to be sucked into the fuel chamber. Fuel is pushed out from the pump until carb float chamber is filled with fuel, and then the cut-off switch cuts off the circuit.

When the spring pushes the diaphragm further to the end, the cut-off switch turns on and the solenoid coil pulls the plunger with the diaphragm forcing fuel into the fuel chamber.

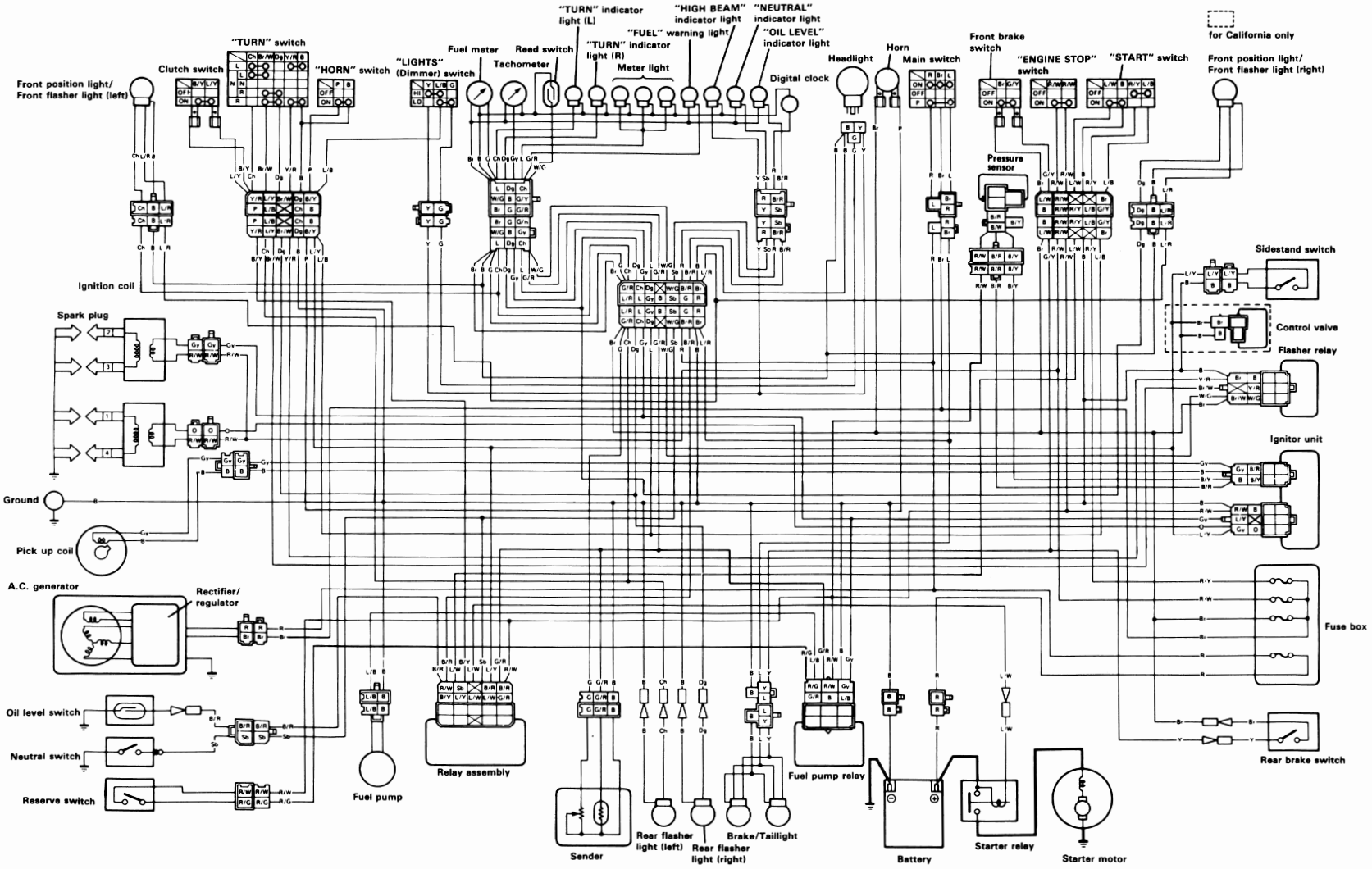
NOTE:

When the main and "ENGINE STOP" switches are ON, the fuel pump relay is activated for five (5) seconds at which time the fuel pump operates.

Inspection

1. Connect:
   - Battery (12V)
2. Inspect:
   - Fuel pump
     Cracks/Damage→Replace.
3. Check:
   - Fuel pump operation
     Faulty operation→Replace.

FJ1200W/FJ1200WC WIRING DIAGRAM



COLOR CODE

B	Black
L	Blue
Y	Yellow
G	Green
R	Red
P	Pink
O	Orange
Gy	Gray
Ch	Chocolate
Br	Brown
Dg	Dark green
Sb	Sky blue
W	White
B/Y	Black/Yellow
B/R	Black/Red
L/B	Blue/Black
L/Y	Blue/Yellow
L/R	Blue/Red
L/W	Blue/White
Y/R	Yellow/Red
G/Y	Green/Yellow
G/R	Green/Red
R/Y	Red/Yellow
R/G	Red/Green
R/W	Red/White
Br/W	Brown/White
W/G	White/Green

YAMAHA

FJ1200S
FJ1200SC

Supplementary Service Manual

LIT-11616-05-00

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the FJ1200S/SC. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manual:

FJ1100L/LC Service Manual: LIT-11616-04-08

TECHNICAL PUBLICATIONS
SERVICE DIVISION
MOTORCYCLE OPERATIONS
YAMAHA MOTOR CO., LTD.

FJ1200S/SC
SUPPLEMENTARY
SERVICE MANUAL

1st Edition, DECEMBER 1985

Printed in U.S.A.
LIT-11616-05-00

NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha motorcycles have a basic understanding of the mechanical concepts and procedures inherent in motorcycle repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

This model has been disgned and manufactured to perform within certain specifications in regard to performance and emissions. Proper service with the correct tools is necessary to ensure that the motorcycle will operate as designed. If there is any question about a service procedure, it is imperative that you contact a Yamaha dealer for any service information changes that apply to this model. This policy is intended to provide the customer with the most satisfaction from his motorcycle and to conform with federal environmental quality objectives.

Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, where applicable, appear in future editions of this manual.

NOTE:

This Service Manual contains information regarding periodic maintenance to the emission control system for the FJ1200S/SC. Please read this material carefully.

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

NOTE: **A NOTE** provides key information to make procedures easier or clearer.

CAUTION: **A CAUTION** indicates special procedures that must be followed to avoid damage to the motorcycle.

WARNING: **A WARNING** indicates special procedures that must be followed to avoid injury to a motorcycle operator or person inspecting or repairing the motorcycle.

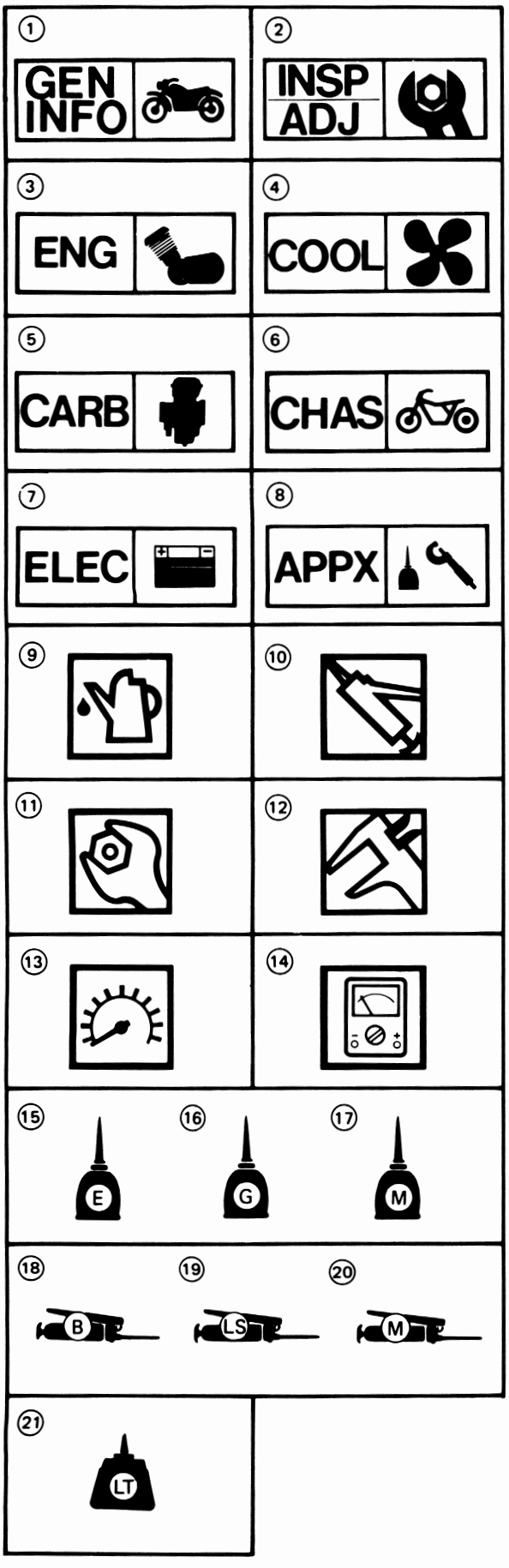
MANUAL FORMAT

All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.
In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

- Bearings
  Pitting/Damage → Replace.

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.



ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① to ⑧ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Periodic inspection and adjustment
③ Engine
④ Cooling system
⑤ Carburetion
⑥ Chassis
⑦ Electrical
⑧ Appendices

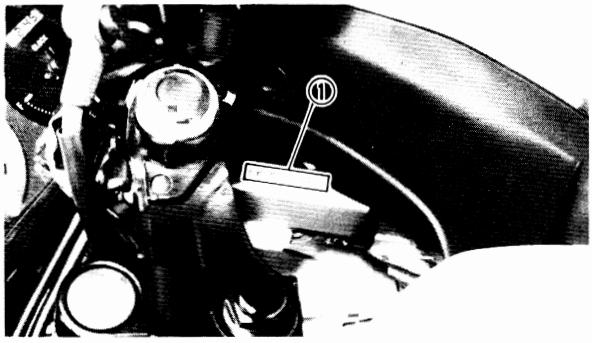
Illustrated symbols ⑨ to ⑭ are used to identify the specifications appearing in the text.

⑨ Filling fluid
⑩ Lubricant
⑪ Tightening
⑫ Wear limit, clearance
⑬ Engine speed
⑭ Ω, V, A

Illustrated symbols ⑮ to ㉑ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑮ Apply engine oil
⑯ Apply gear oil
⑰ Apply molybdenum disulfide oil
⑱ Apply wheel bearing grease
⑲ Apply lightweight lithium-soap base grease
⑳ Apply molybdenum disulfide grease
㉑ Apply locking agent (LOCTITE®)

CONTENTS



GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION

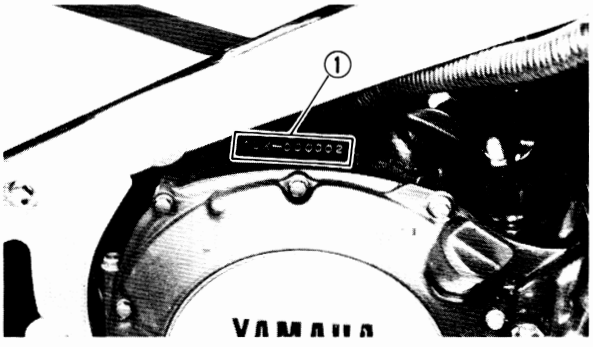
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the right side of the frame.

NOTE:

The vehicle identification number is used to identify your motorcycle and may be used to register your motorcycle with the licensing authority in your state.

Starting Serial Number:
FJ1200S:
JYA1UX00 * GA000101
FJ1200SC (For California):
JYA1WJ00 * GA000101



ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the right side of the engine.

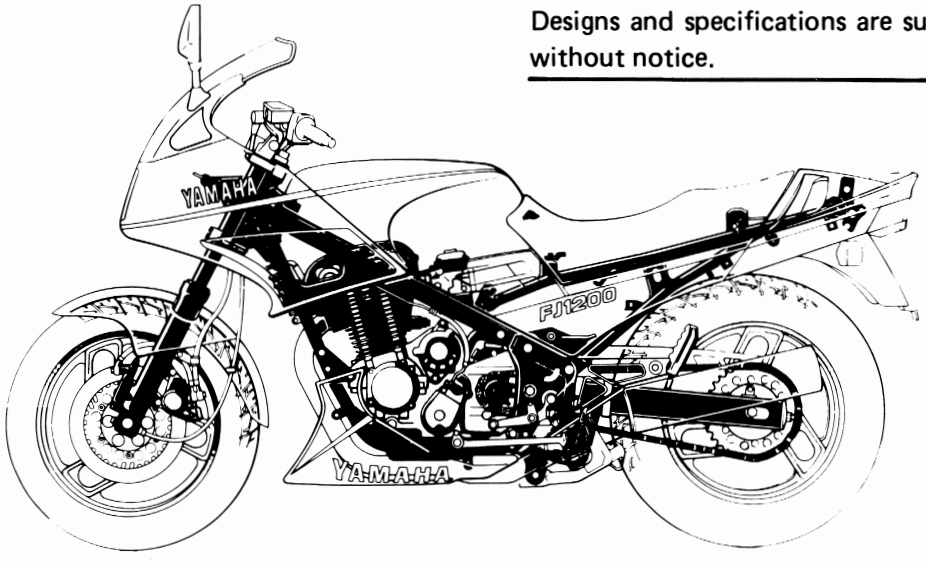
NOTE:

The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.

Starting Serial Number:
FJ1200S:
1UX-000101
FJ1200SC (For California):
1WJ-000101

NOTE:

Designs and specifications are subject to change without notice.



PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION

This chapter includes all information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable vehicle operation and a longer service life. The need for costly overhaul work will be greatly reduced. This information applies to vehicles already in service as well as new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

MAINTENANCE INTERVALS CHARTS

Proper periodic maintenance is important. Especially important are the maintenance services related to emissions control. These controls not only function to ensure cleaner air but are also vital to proper engine operation and maximum performance. In the following maintenance tables, the services related to emissions control are grouped separately.

PERIODIC MAINTENANCE EMISSION CONTROL SYSTEM

No.	Item	Remarks	Inital	Odometer readings				
			1,000 km (600 mi) or 1 month	**1 7,000 km (4,400 mi) or 7 months	**2 13,000 km (8,200 mi) or 13 months	19,000 km (12,000 mi) or 19 months	**3 25,000 km (15,800 mi) or 25 months	31,000 km (19,600 mi) or 31 months
1*	Valve clearance	Check and adjust valve clearance when engine is cold.					○	
2	Spark plug	Check condition. Adjust gap and clean. Replace at 13,000 km (8,200 mi) (or 13 months) and thereafter every 12,000 km (7,600 mi) (or 12 months).		○	Replace	○	Replace	○
3*	Crankcase ventilation system	Check ventilation hose for cracks or damage. Replace if necessary.		○	○	○	○	○
4*	Fuel line	Check fuel hose and vacuum pipe for cracks or damage. Replace if necessary.		○	○	○	○	○
5*	Exhaust system	Check for leakage. Retighten if necessary. Replace gasket(s) if necessary.		○	○	○	○	○
6*	Carburetor synchronization	Adjust synchronization of carburetors.	○	○	○	○	○	○
7*	Idle speed	Check and adjust engine idle speed. Adjust cable free play.		○	○	○	○	○

* It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

NOTE:

For farther odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi), **2: Every 12,000 km (7,600 mi) and **3: Every 30,000 km (19,000 mi) intervals.

GENERAL MAINTENANCE/LUBRICATION

No.	Item	Remarks	Type	Initial	Odometer readings				
				1,000 km (600 mi) or 1 month	**1 7,000 km (4,400 mi) or 7 months	**2 13,000 km (8,200 mi) or 13 months	19,000 km (12,000 mi) or 19 months	**3 25,000 km (15,800 mi) or 25 months	31,000 km (19,600 mi) or 31 months
1	Engine oil	Warm-up engine before draining.	See NOTE.	○	○	○	○	○	○
2	Oil filter	Replace.	–	○		○		○	
3*	Air filter	Colean with compressed air. Replace if necessary.	–		○	○	○	○	○
4*	Brake system	Adjust free play. Replace pads if necessary.	–	○	○	○	○	○	○

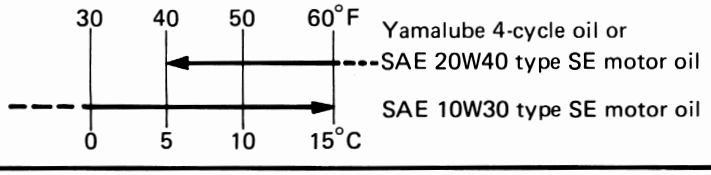
MAINTENANCE INTERVALS CHARTS

No.	Item	Remarks	Type	Initial	Odometer readings				
				1,000 km (600 mi) or 1 month	**1 7,000 km (4,400 mi) or 7 months	**2 13,000 km (8,200 mi) or 13 months	19,000 km (12,000 mi) or 19 months	**3 25,000 km (15,800 mi) or 25 months	31,000 km (19,600 mi) or 31 months
5	Drive chain	Check chain condition. Adjust and lubricate chain thoroughly.	SAE 30W-50W motor oil.	Every 500 km (300 mi)					
6*	Control and meter cable	Apply chain lube thoroughtly.	Yamaha chain cable lube or SAE 10W30 motor oil.	○	○	○	○	○	○
7*	Rear suspension adjusting chain	Check chain condition. Adjust and lubricate if necessary.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
8*	Rear arm pivot shaft and suspension link pivots	Apply grease lightly.	Lithium soap base grease.					○	
9	Brake/Clutch lever pivot shaft	Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
10	Brake pedal and change pedal shaft	Lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
11*	Center/Side stand pivots	Check operation and lubricate. Apply chain.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
12*	Front fork oil	Check operation and leakage.	–		○	○	○	○	○
13*	Steering bearings	Check bearing assembly for looseness. Moderately repack every 24,000 km (15,200 mi)	Medium weight wheel bearing grease.		○	○	○	Repack	○
14*	Wheel bearings	Check bearings for smooth rotation.	–		○	○	○	○	○
15	Battery	Check specific gravity and breather pipe for proper operation.	–		○	○	○	○	○
16*	A.C. Generator	Replace generator brushes every 100,000 km (62,000 mi)	–						
17*	Sidestand switch	Check and clean or replace if necessary.	–	○	○	○	○	○	○

* It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

NOTE:

- For farther odometer reading, repeat the above maintenance at the period established, **1: Every 6,000 km (3,800 mi), **2: Every 12,000 km (7,600 mi) and **3: Every 24,000 km (15,200 mi) intervals.
- Brake/clutch fluid replacement:
  1. When disassembling the master cylinder or caliper cylinder, replace the fluid. Normally check the brake/clutch fluid level and add the fluid as required.
  2. On the inner parts of the master cylinder and caliper cylinder, replace the oil seals every two years.
  3. Replace the brake/clutch hoses every four years, or if cracked or damaged.
- Recommended engine oil:



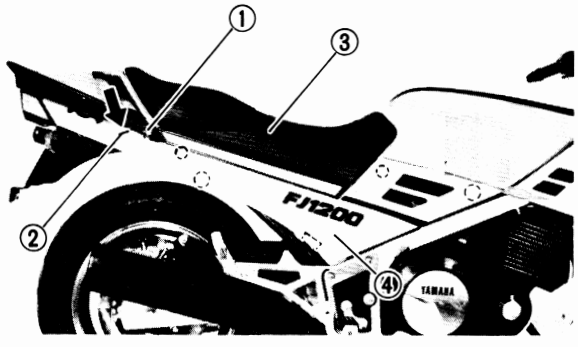
COWLING

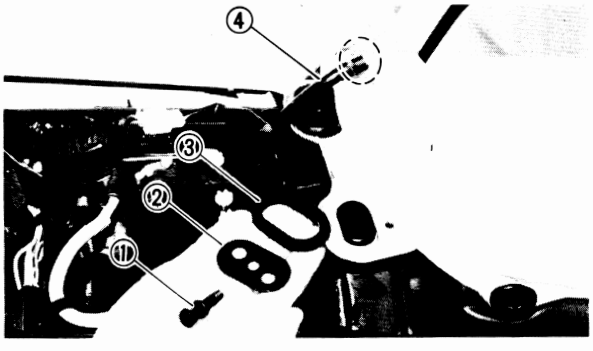
CAUTION:

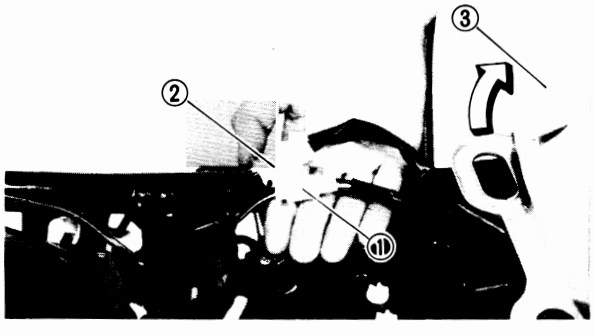
- Avoid impact or damage in the removal and installation of the cowling.
- Avoid using any alkaline or strong acid cleaner, gasoline, brake fluid, or any other solvent.

WARNING:

- Do not use a haircracked windscreen because it blurs visuality.
- Do not put a thing between the cowling and frame because it adversely affects steering.







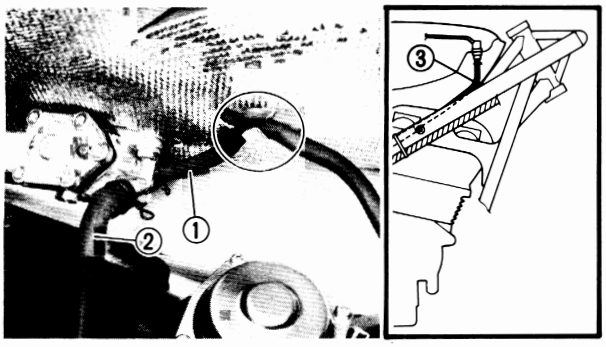
UPPER COWLING

Removal

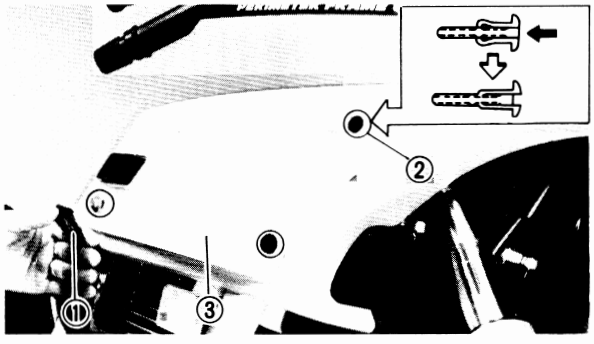
1. Remove:
   - Seat ③
     Open the seal lock ① and push down the levers ② on both sides.
   - Side covers (Left and right) ④
     Pull out the knobs in the upper part of the side cover, and remove the side cover.

2. Remove:
   - Bolts (Fuel tank) ①
   - Washers ②
   - Rubber washers ③
3. Disconnect:
   - Breather hose (Fuel tank-Rear) ④

4. Disconnect:
   - Solenoid valve (Fuel cock) leads ①
   - Fuel level sender leads ②
     Slowly lift up the fuel tank ③.

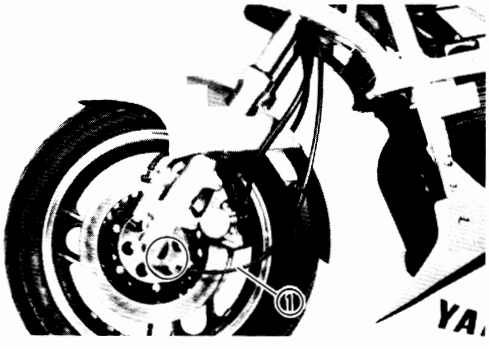


5. Disconnect:
   - Vacuum hose ①
   - Fuel hose ②
   - Breather hose (Fuel tank-Front) ③ (For FJ1200SC)
6. Remove:
   - Fuel tank

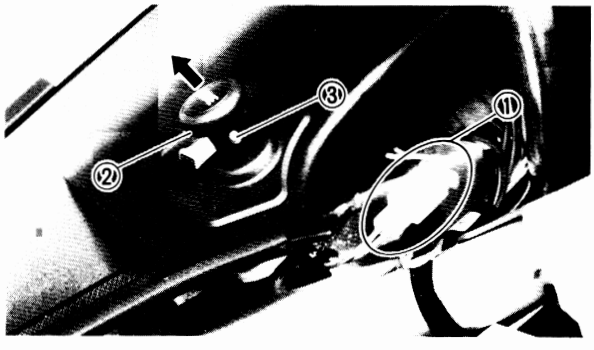


7. Remove:
   - Air ducts (Left and right) ③

Air duct removal steps:
- Remove the cover ① and screws.
- Push in the retainer pin ② about 3 mm (0.12 in) from retainer flange top, using screwdriver so that the retainers are unlocked together with upper cowling.
- Pull air duct ③ out toward front to unhook it together with upper cowling.
- Remove air duct.

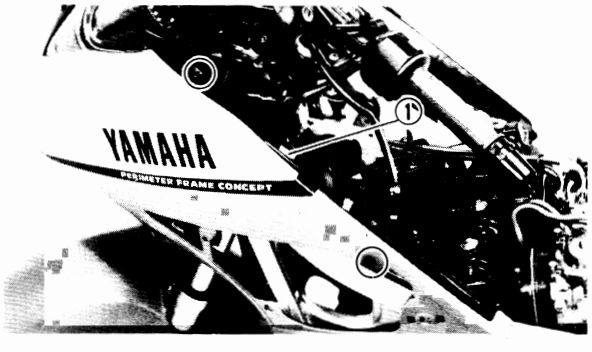


8. Disconnect:
   - Speedometer cable ①

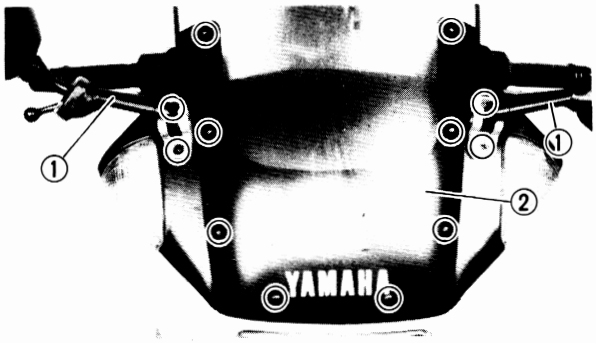


9. Disconnect:
   - "FUEL" (Reserve) switch lead ①
10. Remove:
   - Choke knob ②

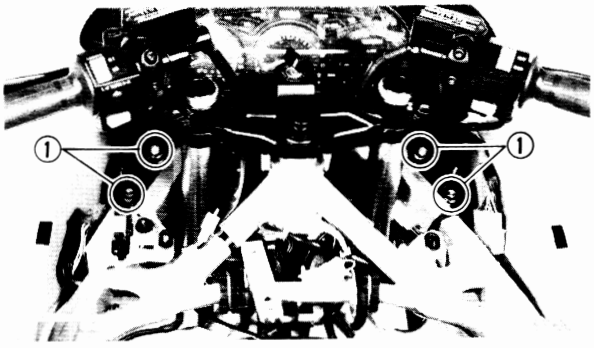
NOTE:
- Before pulling the knob, remove the knob holding screw ③.
- Do not lose the holding screw ③.



11. Remove:
   - Side grills (Left and right) ①

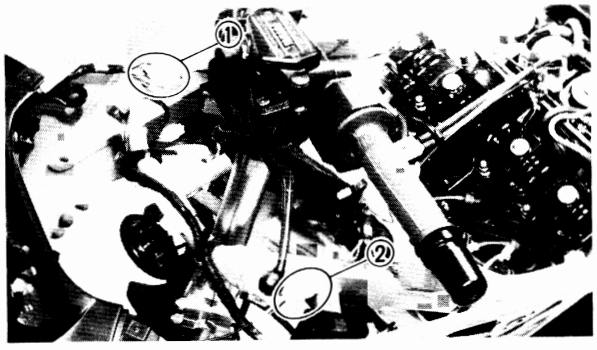


12. Remove:
    - Rear view mirrors (Left and right) ①
    - Windscreen ②

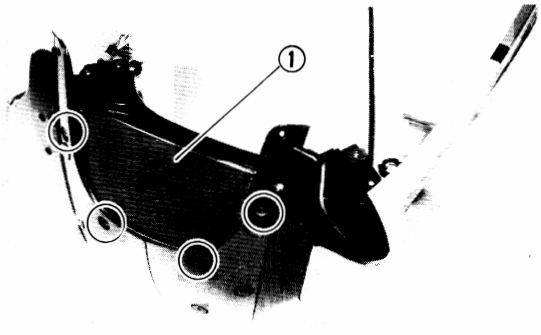


13. Remove:
    - Bolts (Cowling stay) ①

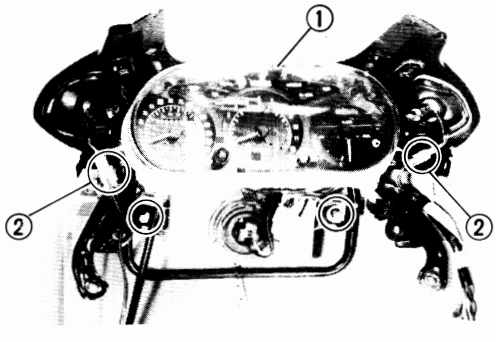
    Slowly pull out the cowling toward front together with the meter assembly.



14. Disconnect:
    - Meter assembly coupler ①
    - "LIGHTS" (Dimmer) switch lead ②
15. Remove:
    - Upper cowling with meter assembly



16. Remove:
    - Meter cover ①



17. Remove:
    - Meter assembly ①
    - Flasher lights (Left and right)
18. Disconnect:
    - Flasher light leads (Left and right) ②

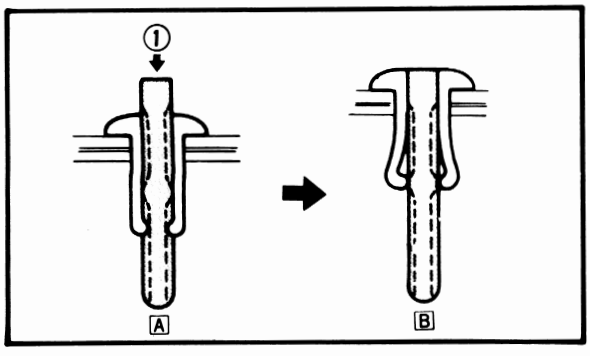
Installation

When installing the seat, reverse the removal procedure. Note the following points.

NOTE:

Make sure that the leads are routed properly.

1. Install:
   - Air ducts (Left and right)

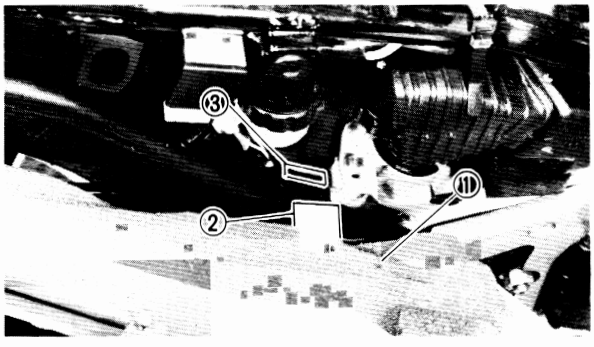


Air duct installation steps:
- Install air ducts; hook the tab of air duct onto cowling.
- Install the retainers into the air duct as shown A.
- Push in the retainer pins ① so that it is flush with retainer flange top B.

2. Connect:
   - Breather hose (Fuel tank – Rear)
   - Breather hose (Fuel tank – Front) (For FJ1200SC)

NOTE:

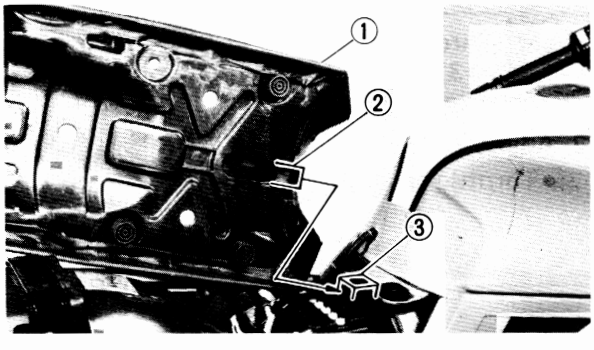
When installing the fuel tank, be sure the breather hose(s) is routed correctly. Refer to "FUEL TANK BREATHER HOSE INSPECTION" section.



3. Install:
   - Side covers (Left and right) ①

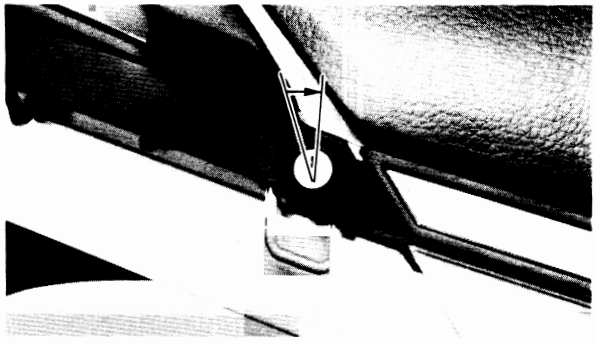
NOTE:

Insert the side cover pawl ② into the hole ③ in the frame and push the knobs in.

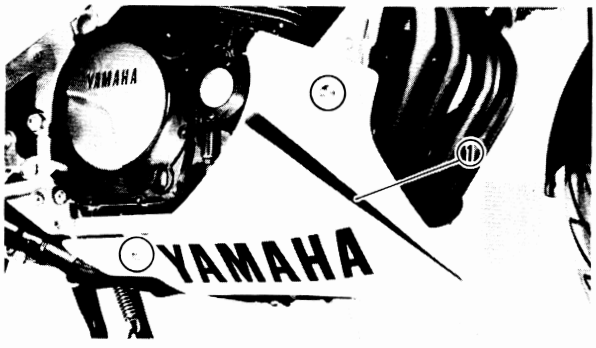


4. Install:
   - Seat ①

NOTE:
- Insert the lobe ② on the seat front into the receptacle ③ on the frame, then push down the seat at the rear.



• After making sure the seat is *securely* fitted, turn the key clockwise to the centerposition.



LOWER COWLING

Removal

1. Remove:
   • Lower cowling ①

Installation

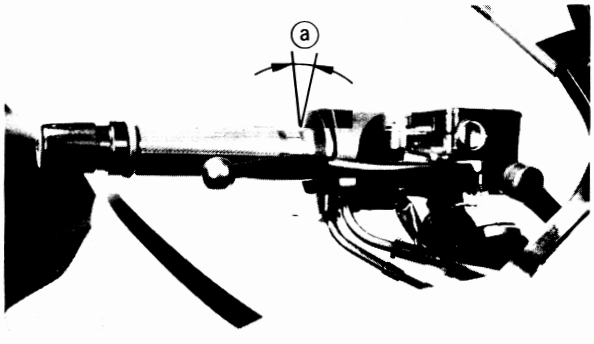
1. Install:
   • Lower cowling
   Tighten screws evenly.

CHASSIS

THROTTLE CABLE ADJUSTMENT

NOTE:

Before adjusting the throttle cable free play, the engine idling speed should be adjusted.

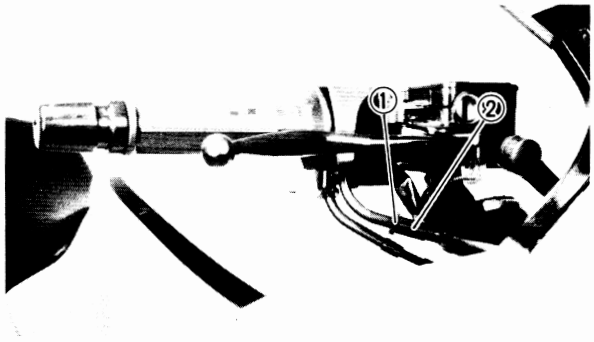


1. Check:
   • Throttle cable free play ⓐ
   Out of specification → Adjust.

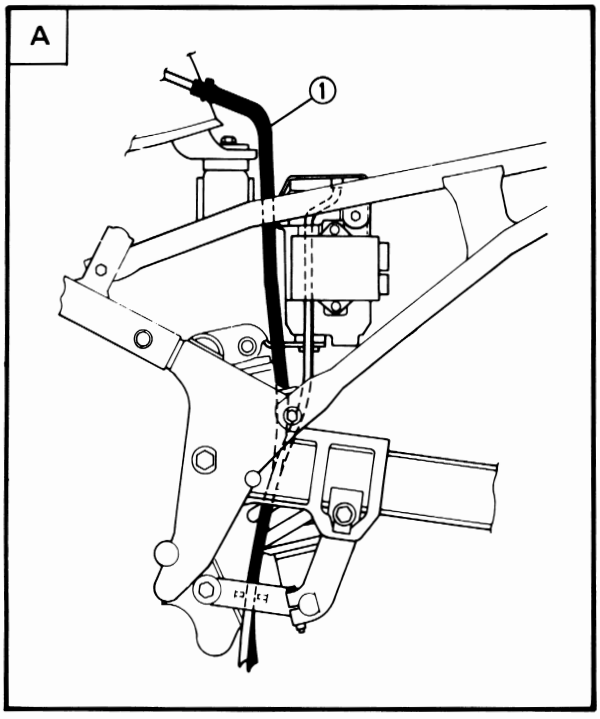
Throttle Cable Free Play ⓐ:
3 ~ 7 mm (0.12 ~ 0.28 in)

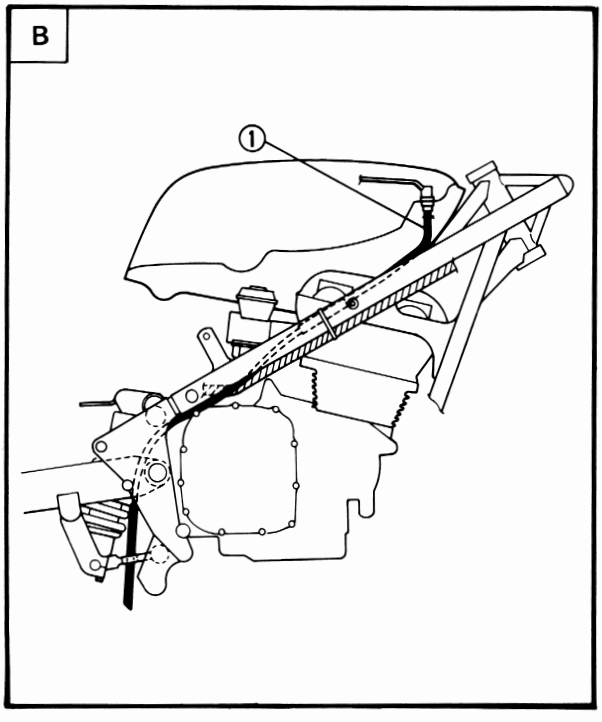
2. Adjust:
   • Throttle cable free play

FUEL TANK BREATHER HOSE INSPECTION



Throttle cable free play adjustment steps:
- Loosen the locknut ①.
- Turn the adjuster ② clockwise or counter-clockwise until proper free play is attained.
- Tighten the locknut.





FUEL TANK BREATHER HOSE INSPECTION

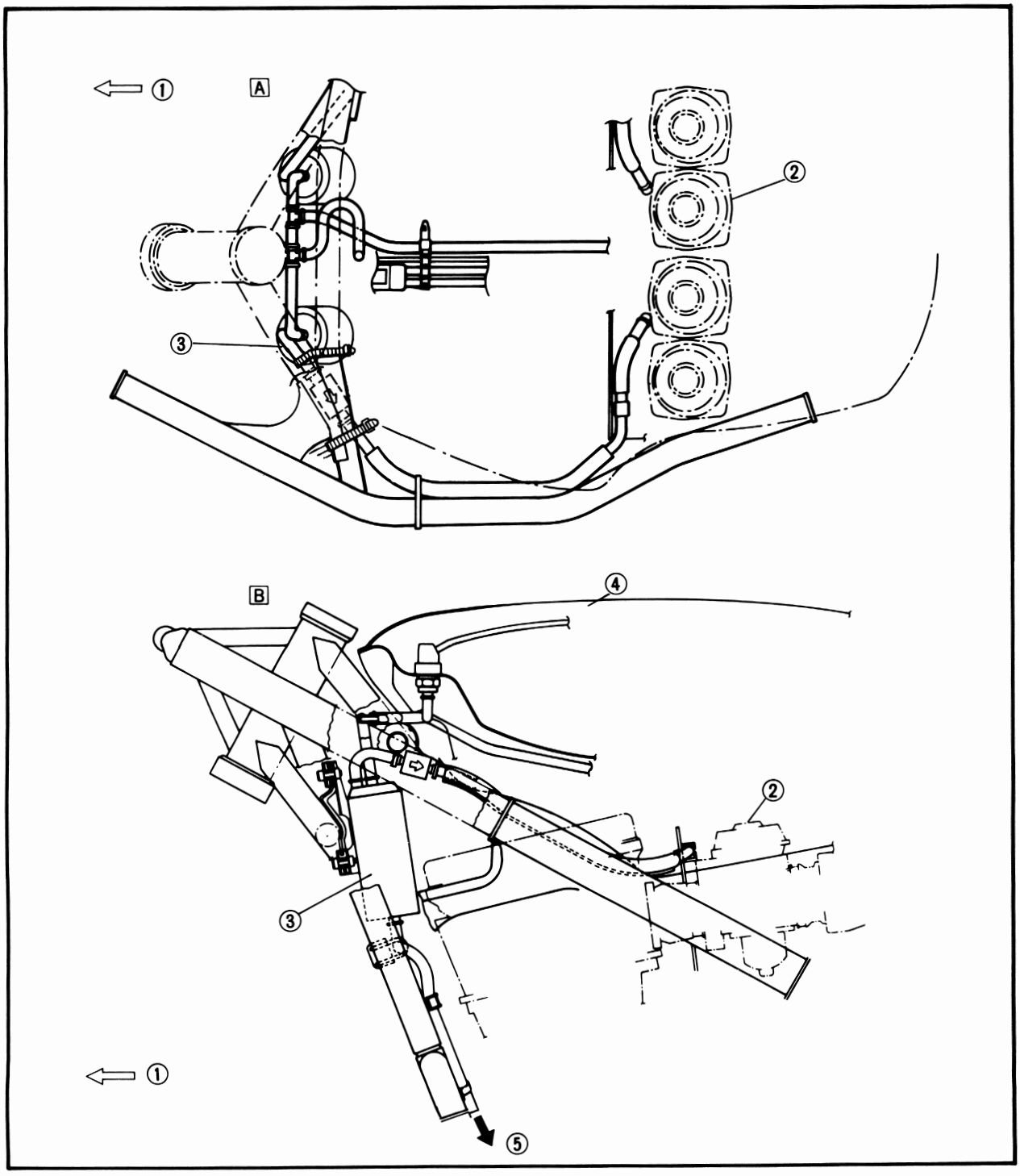
1. Inspect:
   - Hose connection
     Poor condition → Correct.
   - Breather hose(s) ①
     Cracks/Damage → Replace.
     Clogs → Clean.

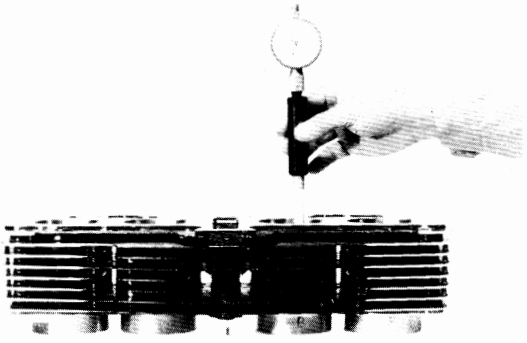
[A] REAR BREATHER HOSE
[B] FRONT BREATHER HOSE
(FOR FJ1200SC ONLY)

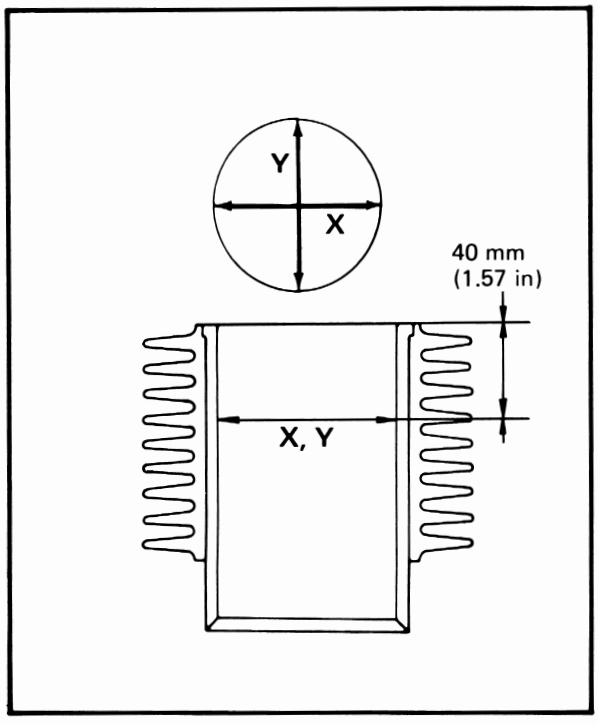
① Forward
② Carburetor
③ Canister
④ Fuel tank
⑤ To atmosphere
[A] TOP VIEW
[B] SIDE VIEW

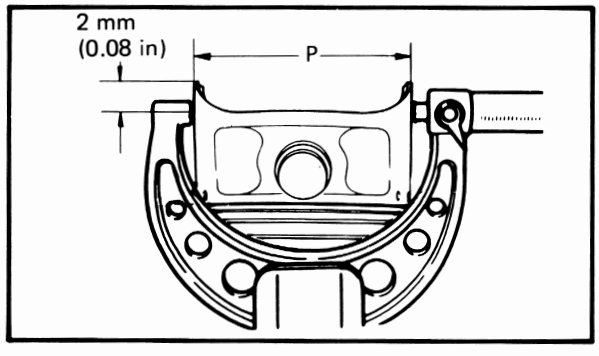
CANISTER INSPECTION (FOR FJ1200SC ONLY)

1. Inspect:
   - Hose connection
     Poor condition → Correct.
   - Hoses
   - Canister
     Cracks/Damage → Replace.
     Clogs → Clean.









ENGINE OVERHAUL

INSPECTION AND REPAIR

CYLINDER

1. Inspect:
   - Cylinder wall
     Wear/Scratches → Rebore or replace.
2. Measure:
   - Cylinder bore "C"
     Use Cylinder Bore Gauge.
     Measure the cylinder bore "C" horizontally and laterally at 40 mm (1.57 in) from cylinder top. Then find the coverage of the measurements.
     Out of specification → Rebore.

	Standard	Wear limit
Cylinder Bore C:	76.96 ~ 77.02 mm (3.030 ~ 3.032 in)	77.1 mm (3.035 in)
$C = \frac{X + Y}{2}$		

PISTON

Piston

1. Inspect:
   - Piston wall
     Wear/Scratches/Damage → Replace.
2. Measure:
   - Piston outside diameter "P"
     Use a micrometer.
     Out of specification → Replace.

NOTE:

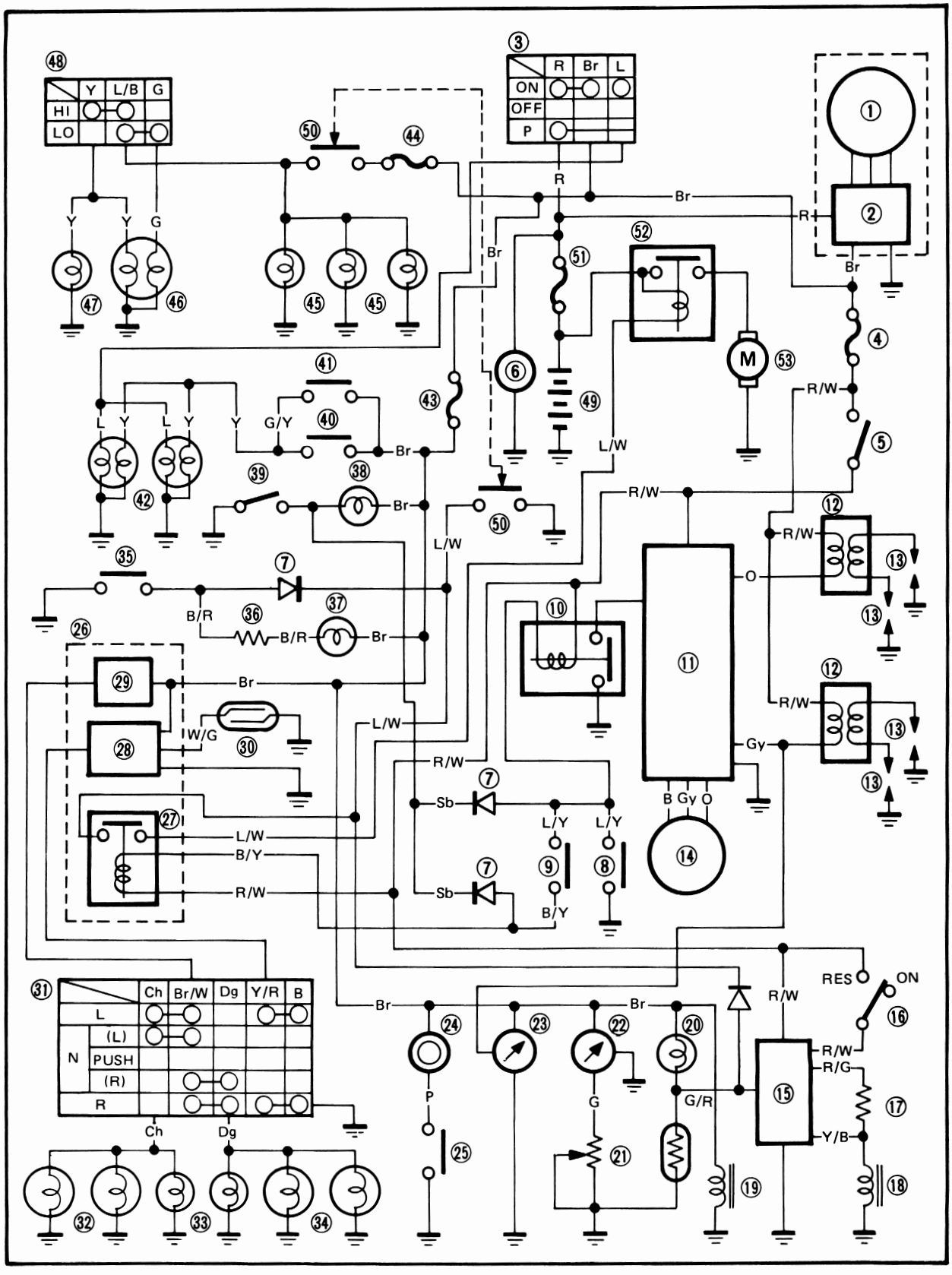
Measurement should be made at a point 2.0 mm (0.08 in) above the bottom edge of the piston.

	Size P
Standard	76.92 ~ 76.98 mm (3.028 ~ 3.031 in)
Oversize 2	77.50 mm (3.051 in)

— MEMO —

ELECTRICAL

FJ1200S/SC CIRCUIT DIAGRAM



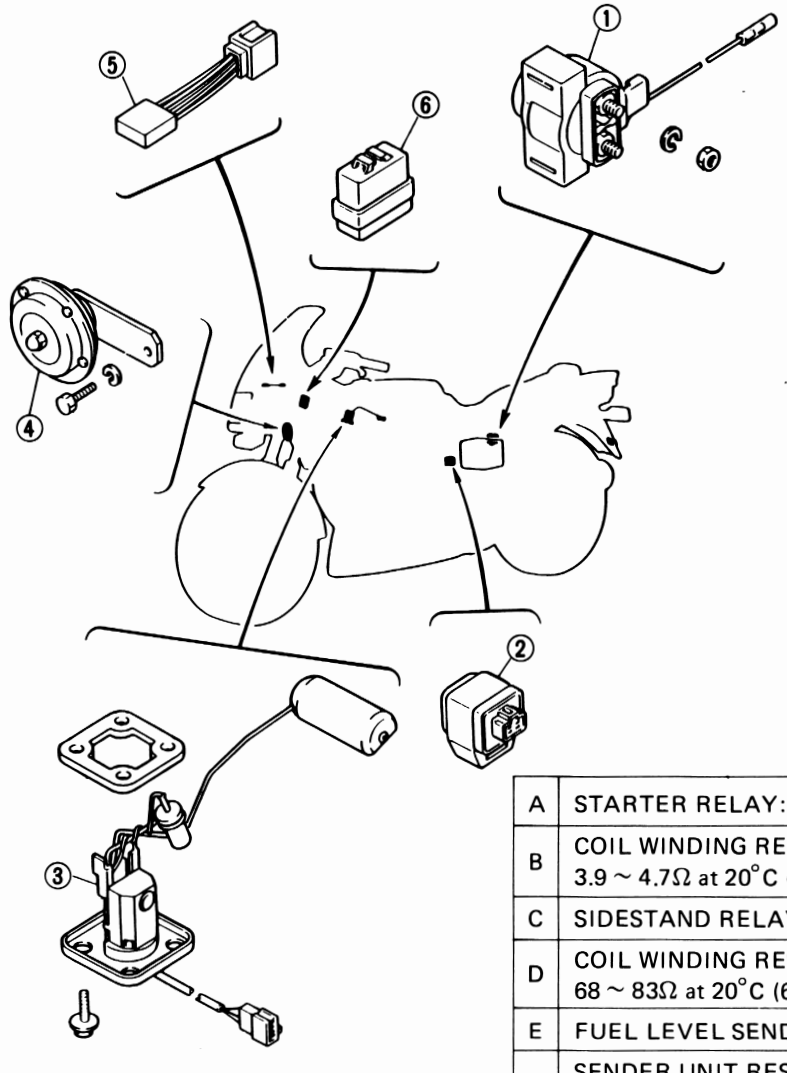
① A.C. generator
② Rectifier/Regulator
③ Main switch
④ Fuse (IGNITION)
⑤ "ENGINE STOP" switch
⑥ Digital clock
⑦ Diode
⑧ Clutch switch
⑨ Sidestand switch
⑩ Sidestand relay
⑪ Ignitor unit
⑫ Ignition coil
⑬ Spark plug
⑭ Pickup coil
⑮ Fuel reserve control unit
⑯ "FUEL" (Reserve) switch
⑰ Resistor
⑱ Solenoid valve (Fuel cock)
⑲ Air vent control valve
(For FJ1200SC only)
⑳ "FUEL" warning indicator light
㉑ Fuel level sender unit
㉒ Fuel meter
㉓ Tachometer
㉔ Horn
㉕ "HORN" switch
㉖ Relay assembly
㉗ Starting circuit cut-off relay
㉘ Cancelling unit
㉙ Flasher relay
㉚ Reed switch
㉛ "TURN" switch
㉜ Flasher lights (Left)
㉝ "TURN" indicator lights
㉞ Flasher lights (Right)
㉟ Oil level switch
㊱ Resistor
㊲ "OIL LEVEL" indicator light
㊳ "NEUTRAL" indicator light
㊴ Neutral switch
㊵ Rear brake switch
㊶ Front brake switch
㊷ Tail/Brake light
㊸ Fuse (SIGNAL)
㊹ Fuse (HEAD)
㊺ Meter lights
㊻ Headlight
㊼ "HIGH BEAM" indicator light
㊽ "LIGHTS" (Dimmer) switch
㊾ Battery
㊿ "START" switch
(51) Fuse (MAIN)
(52) Starter relay
(53) Starter motor

COLOR CODE

Br	Brown
R	Red
W	White
B	Black
L	Blue
G	Green
Dg	Dark Green
Ch	Chocolate
G/R	Green/Red
Br/W	Brown/White
Y/B	Yellow/Black
W/G	White/Green
Y/R	Yellow/Red
R/W	Red/White
Sb	Sky Blue
Y	Yellow
P	Pink
O	Orange
B/Y	Black/Yellow
L/W	Blue/White
L/B	Blue/Black
R/Y	Red/Yellow
G/Y	Green/Yellow
B/R	Black/Red
Gy	Gray
L/R	Blue/Red

ELECTRICAL COMPONENTS (1)

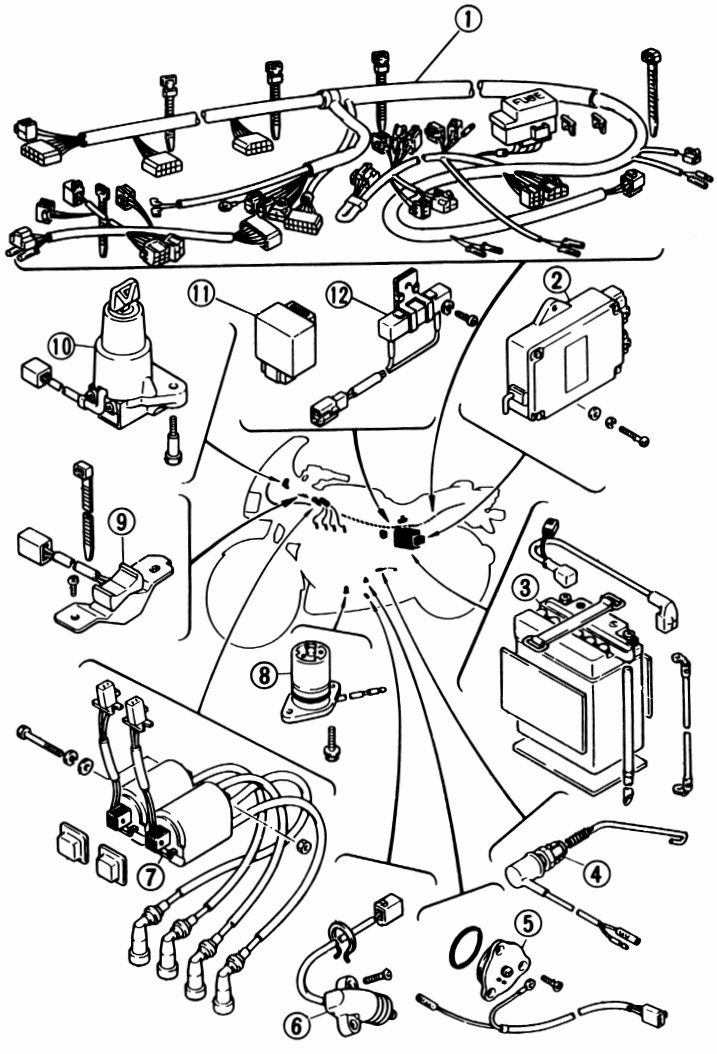
① Starter relay
② Sidestand relay
③ Fuel level sender unit
④ Horn
⑤ Diode
⑥ Relay assembly



A	STARTER RELAY:
B	COIL WINDING RESISTANCE: 3.9 ~ 4.7Ω at 20°C (68°F)
C	SIDESTAND RELAY:
D	COIL WINDING RESISTANCE: 68 ~ 83Ω at 20°C (68°F)
E	FUEL LEVEL SENDER UNIT:
F	SENDER UNIT RESISTANCE: FULL: 4 ~ 7Ω at 20°C (68°F) EMPTY: 90 ~ 100Ω at 20°C (68°F)
G	STARTING CIRCUIT CUT-OFF RELAY:
H	COIL WINDING RESISTANCE: 203 ~ 248Ω at 20°C (68°F)

ELECTRICAL COMPONENTS (2)

① Wire harness
② Ignitor unit
③ Battery
④ Rear brake switch
⑤ Neutral switch
⑥ Sidestand switch
⑦ Ignition coil
⑧ Oil level switch
⑨ "FUEL" (Reserve) switch
⑩ Main switch
⑪ Fuel reserve control unit
⑫ Resistor assembly

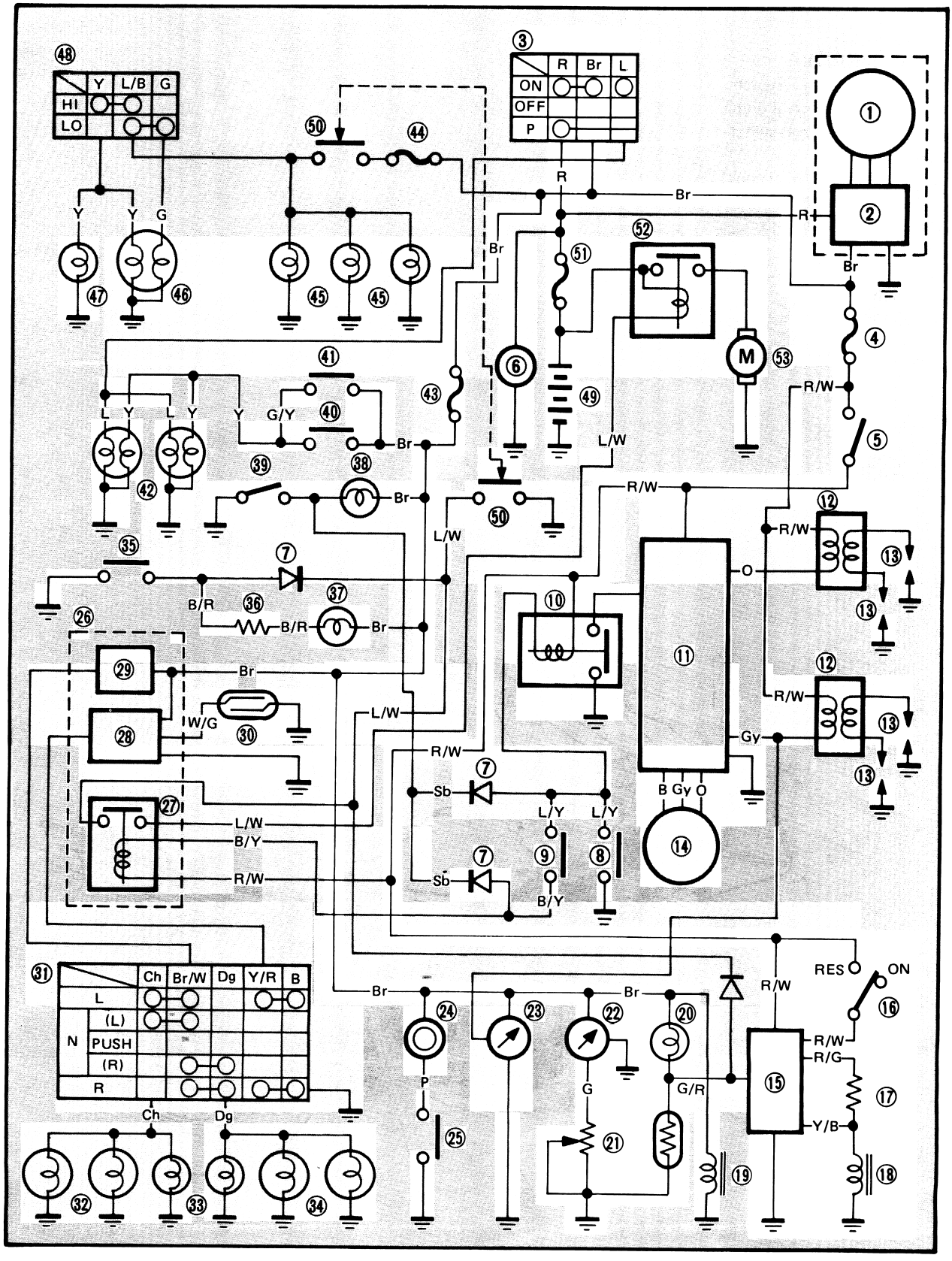


A	IGNITION COIL:
B	PRIMARY WINDING RESISTANCE: 2.4 ~ 3.0Ω at 20°C (68°F) SECONDARY WINDING RESISTANCE: 9.6 ~ 14.4 kΩ at 20°C (68°F)
C	BATTERY:
D	CAPACITY: 12V 14AH
E	SPECIFIC GRAVITY: 1.280

FWD

FUEL RESERVE SYSTEM

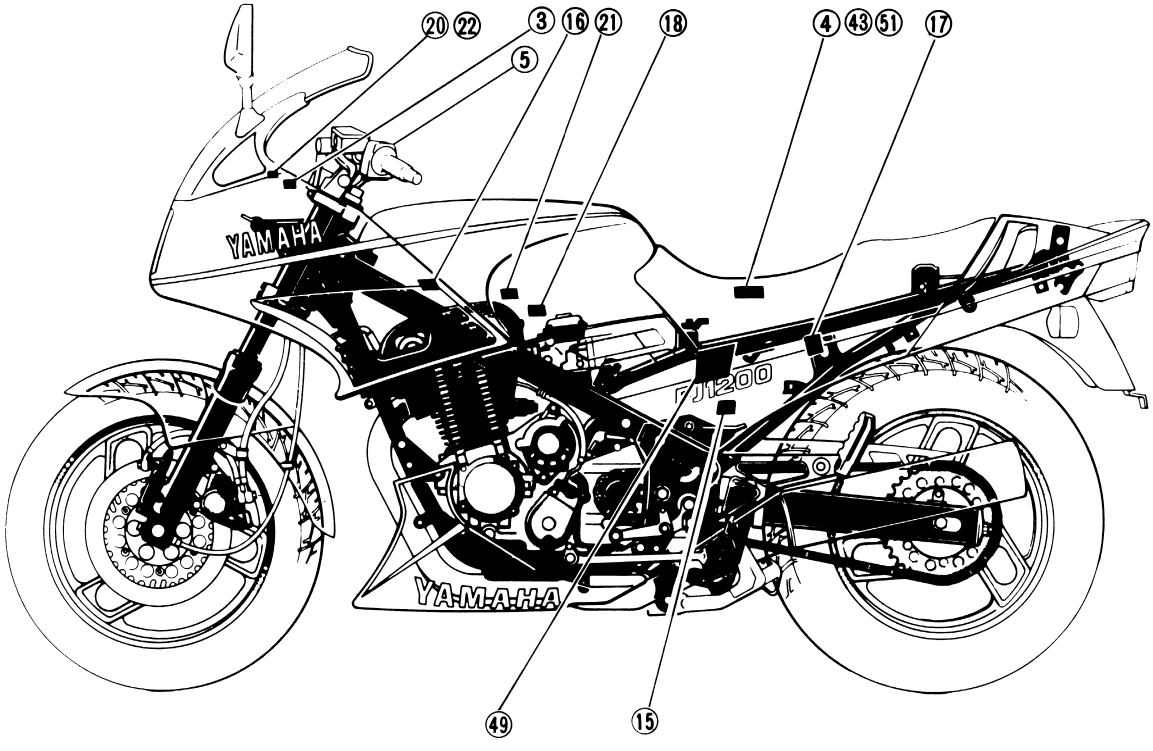
CIRCUIT DIAGRAM



Aforementioned circuit diagram shows fuel reserve circuit in wiring diagram.

NOTE:
For the encircled numbers and color codes, see page 14.

③ Main switch
④ Fuse (IGNITION)
⑤ "ENGINE STOP" switch
⑮ Fuel reserve control unit
⑯ "FUEL" (Reserve) switch
⑰ Resistor
⑱ Solenoid valve (Fuel cock)
⑳ "FUEL" warning indicator light
㉑ Fuel level sender unit
㉒ Fuel meter
㊸ Fuse (SIGNAL)
㊾ Battery
㊶ Fuse (MAIN)



FUEL RESERVE CIRCUIT OPERATION

The fuel reserve circuit on this model consists of fuel reserve control unit, solenoid valve (Fuel cock), "FUEL" (Reserve) switch, and fuel level sender unit.

If the "ENGINE STOP" switch, main switch and "FUEL" (Reserve) switch are all on, the solenoid valve (Fuel cock) can operate if:

- The fuel level is below the reserve level (The needle indicates "E" on the fuel meter).
- The "FUEL" (Reserve) switch is at the "RES" position.

NOTE:

The "FUEL" (Reserve) switch must be set to the "ON" position except when the fuel level is at the reserve level.

- Main switch is "ON".
- "ENGINE STOP" switch is "RUN".
- "FUEL" (Reserve) switch is "ON".

⇩

The fuel level is below the reserve level.

⇩

The solenoid valve is "ON".

⇩

The engine will stopped.

⇩

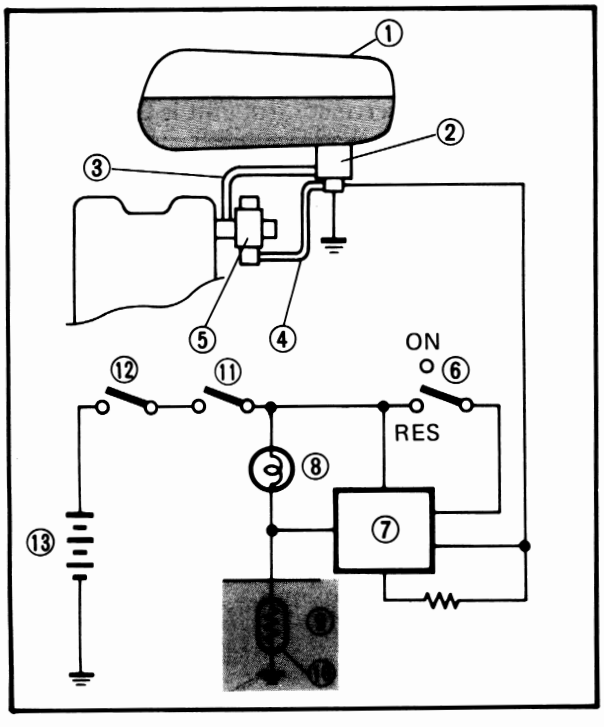
The "FUEL" (Reserve) switch is "RES".

⇩

The solenoid valve is "OFF".

⇩

The engine will be started.



① Fuel tank
② Solenoid valve (Fuel tank)
③ Vacuum hose
④ Fuel hose
⑤ Carburetor
⑥ "FUEL" (Reserve) switch
⑦ Fuel reserve control unit
⑧ "FUEL" warning indicator light
⑨ Fuel
⑩ Fuel level sender
⑪ "ENGINE STOP" switch
⑫ Main switch
⑬ Battery

TROUBLESHOOTING

SOLENOID VALVE DOES NOT OPERATE.

⇩

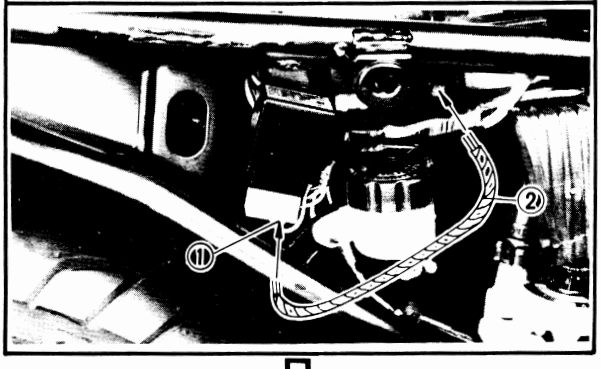
Remove the seat and side cover (Right).

⇩

Turn on the main switch and "FUEL" (Reserve) switch.

⇩

Ground the Green/Red lead ① on the fuel reserve control unit to the frame using the jumper lead ②.



⇩

Check the "FUEL" warning indicator light.

DOES NOT COME ON → • Check bulb.
• Check for an open or poor connection between the main switch and fuel level sender.

⇩ COMES ON

While pushing the "FUEL" (Reserve) switch from "ON" to "RES" and back, check to see if the solenoid valve clicks.

YES ⇨ Fuel reserve control unit is OK.

⇩ NO

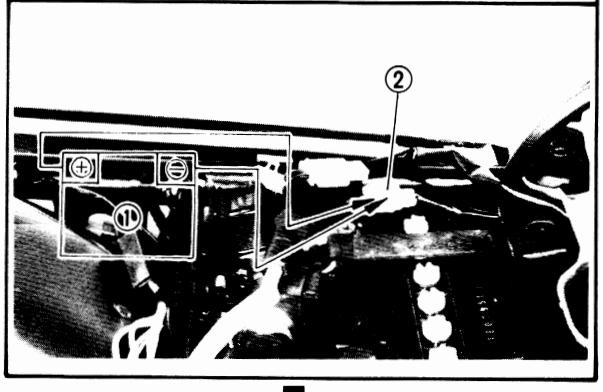
Disconnect the solenoid valve leads.

⇩

*

*

Connect the battery (12V) ① and solenoid valve leads ② as shown, check to see if the solenoid valve clicks.



YES → Solenoid valve is OK. Replace fuel reserve control unit.

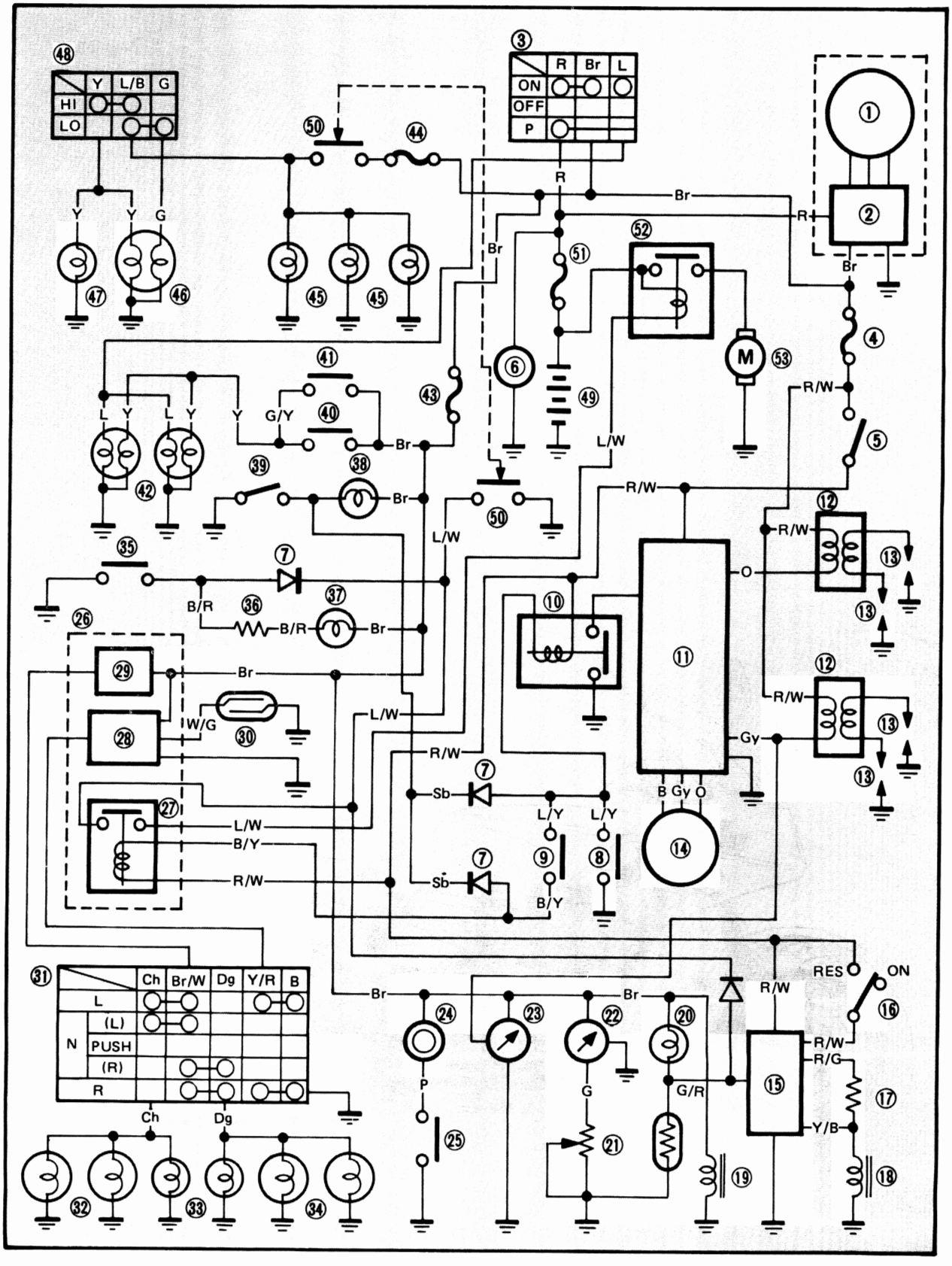
NO ↓

Replace the solenoid valve.

— MEMO —

DIGITAL CLOCK SYSTEM

CIRCUIT DIAGRAM

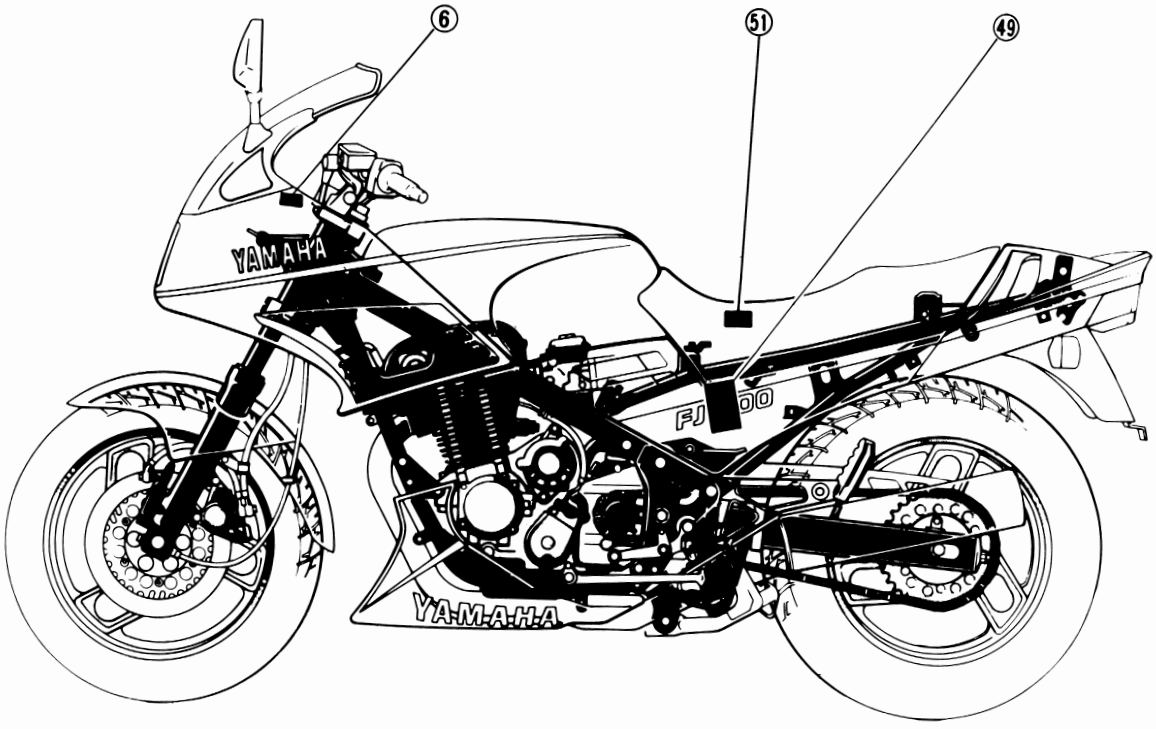


Aforementioned circuit diagram shows digital clock circuit in wiring diagram.

NOTE:

For the encircled numbers and color codes, see page 14.

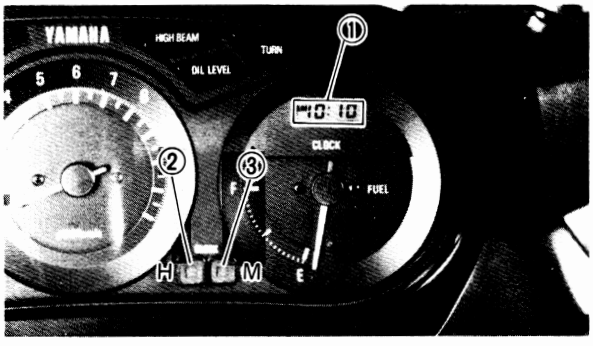
⑥ Digital clock
㊾ Battery
㊿ Fuse (MAIN)



DIGITAL CLOCK ADJUSTMENT

NOTE:
This digital clock always shows the time regardless of the main switch position.

1. Adjust:
   - Digital clock



Digital clock adjustment steps:
- Turn the main switch to "ON".
- The time (Hour) setting can be done by pushing or holding the "H" switch ②.
- The time (Minute) setting can be done by pushing or holding the "M" switch ③.

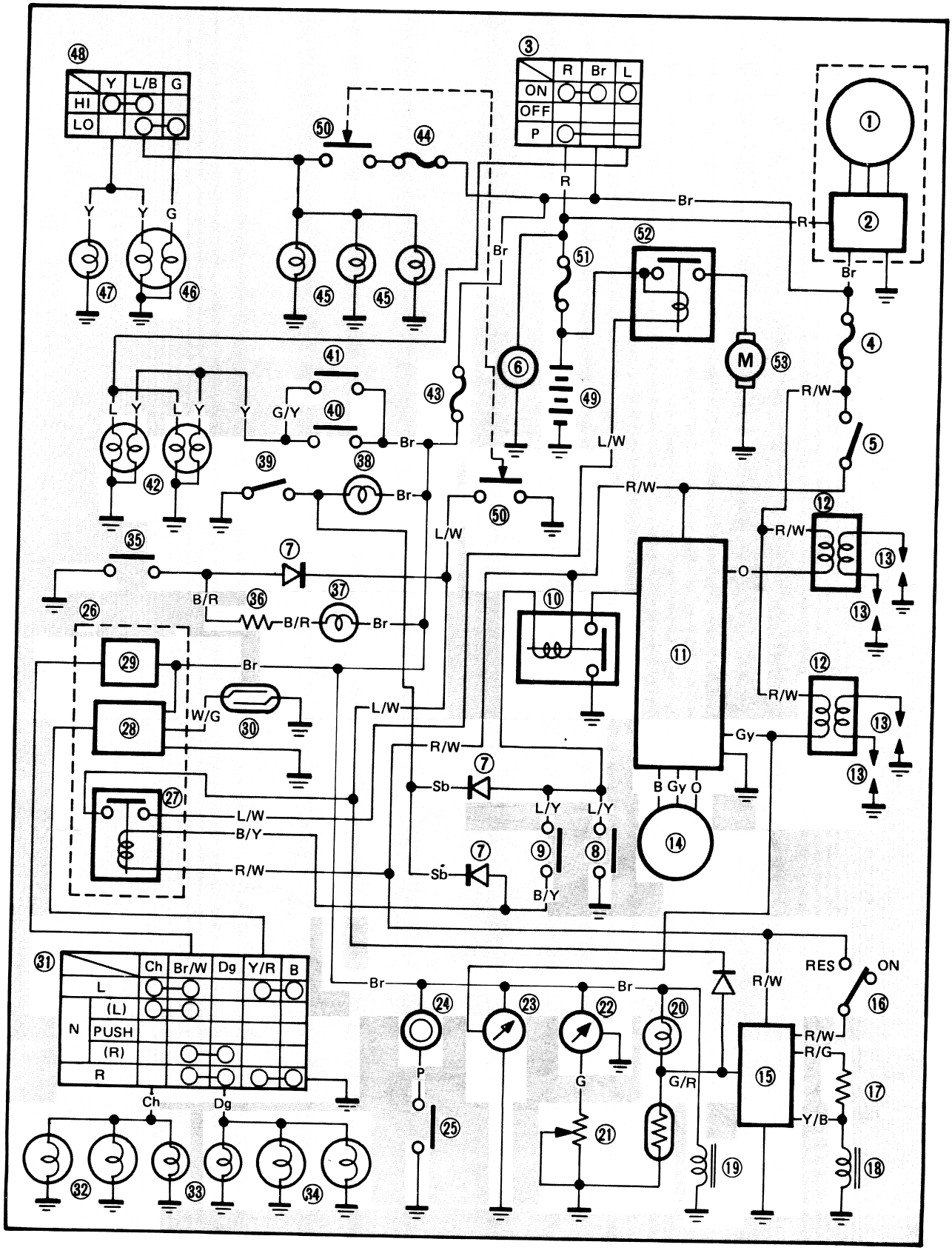
① Digital clock

NOTE:
When setting the clock after its power source is cut by a removed battery, etc., first set the time for 1 : 00 AM, then, go on to set it for the correct time.

— MEMO —

CARBURETOR AIR VENT SYSTEM (FOR FJ1200SC)

CIRCUIT DIAGRAM

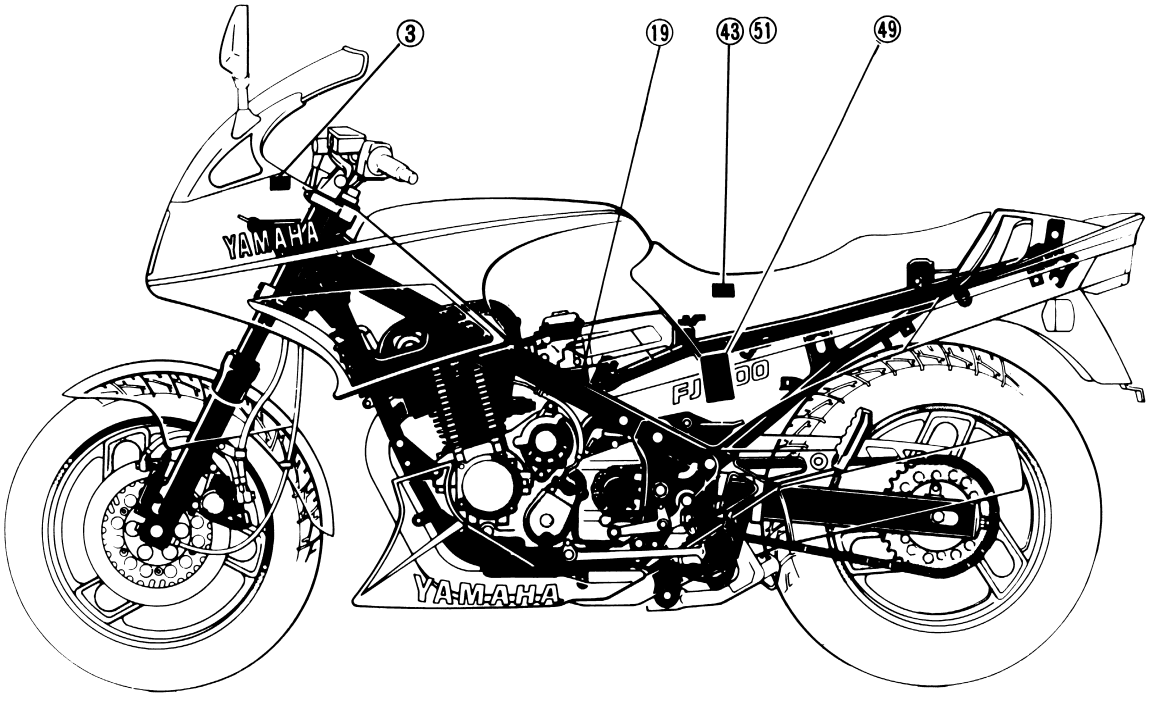


CARBURETOR AIR VENT SYSTEM (FOR FJ1200SC)

Aforementioned circuit diagram shows carburetor air vent circuit in wiring diagram.

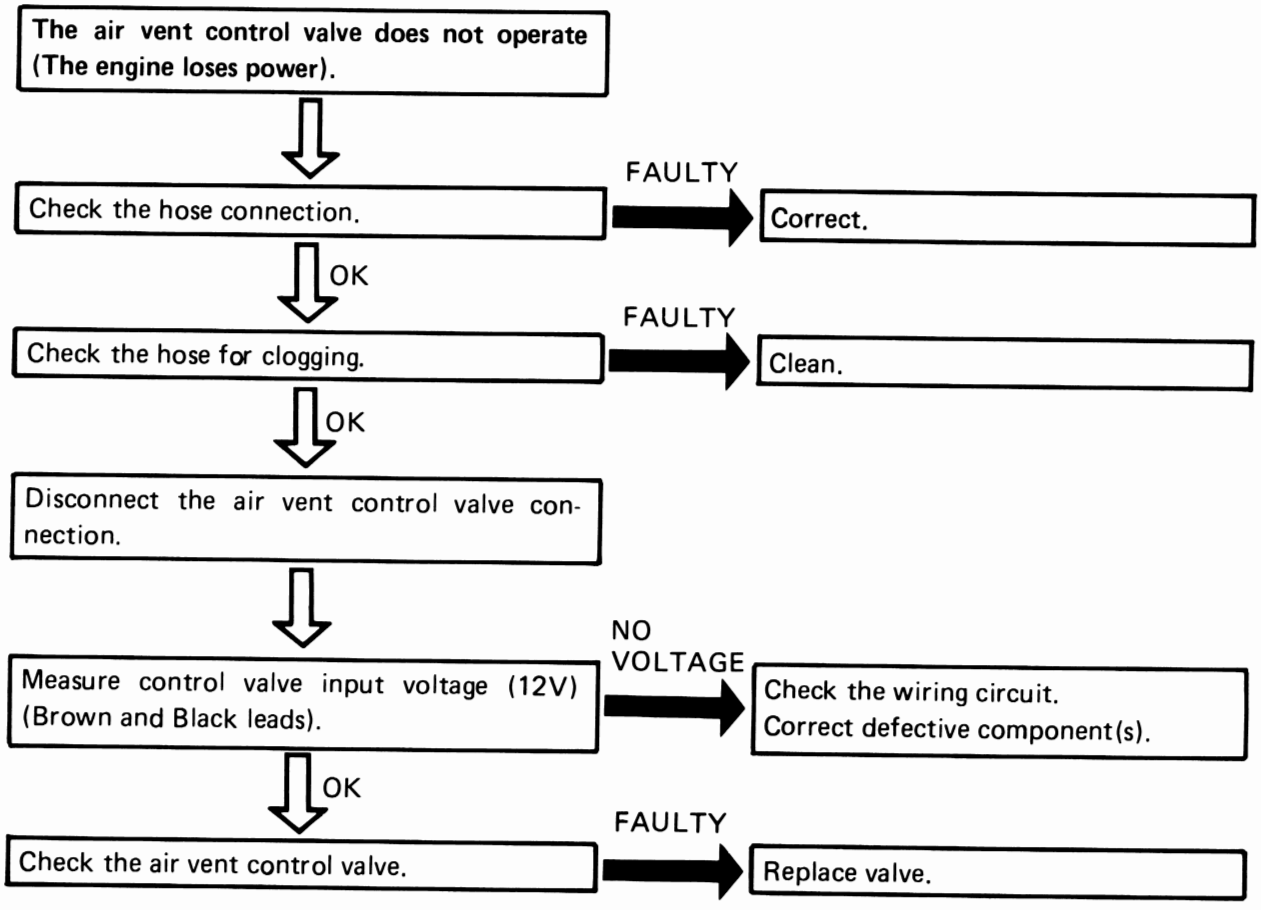
NOTE:
For the encircled numbers and color codes, see page 14.

③ Main switch
⑲ Air vent control valve (For FJ1200SC)
㊸ Fuse (SIGNAL)
㊾ Battery
㊶ Fuse (MAIN



CARBURETOR AIR VENT SYSTEM

TROUBLESHOOTING



CARBURETOR AIR VENT SYSTEM

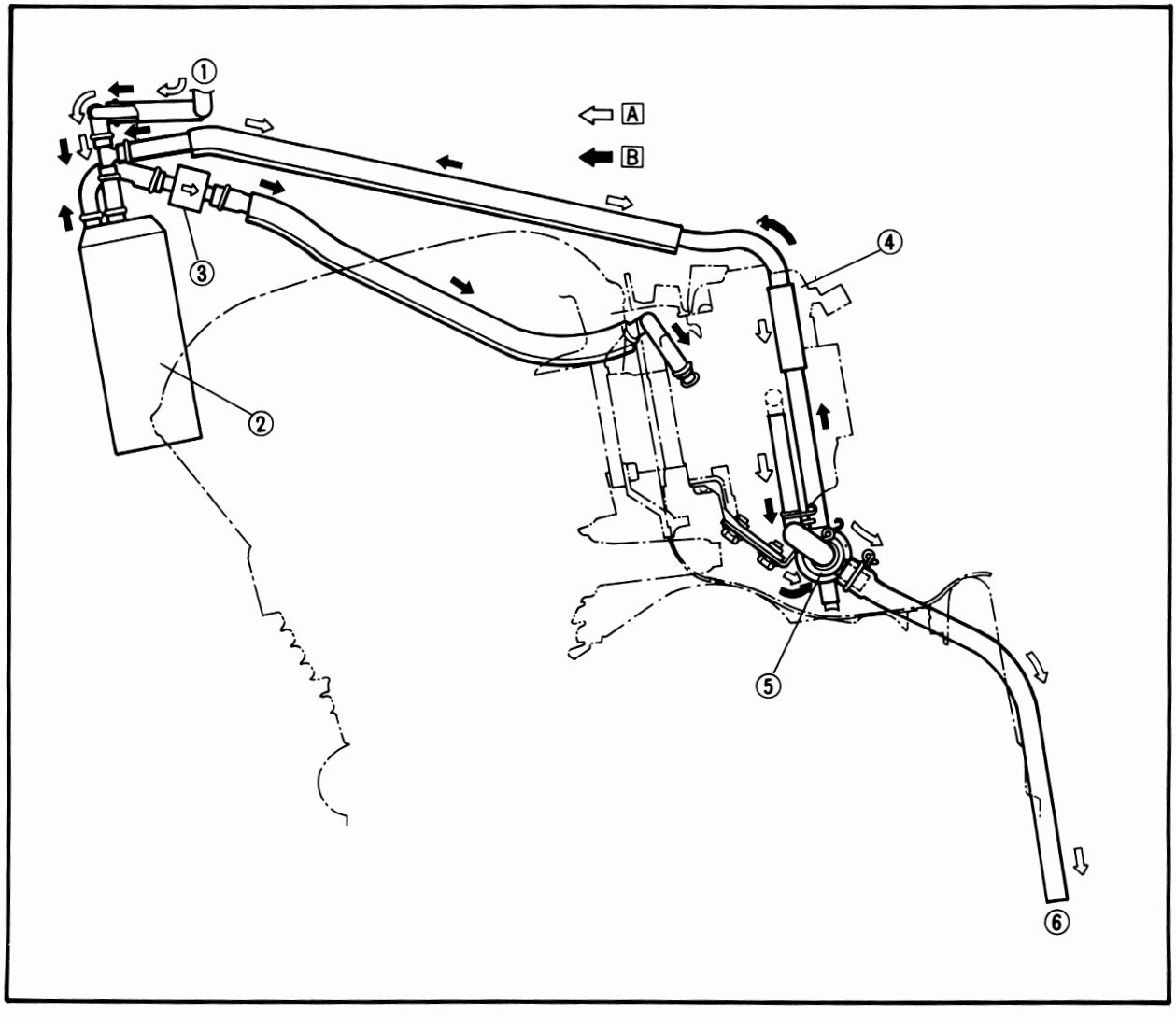
Description

This model is equipped with two canisters to prevent the discharging of fuel vapor and carburetor air vent into the atmosphere.

Operation

The carburetor air vent is controlled by the air vent control valve when the main switch is ON.

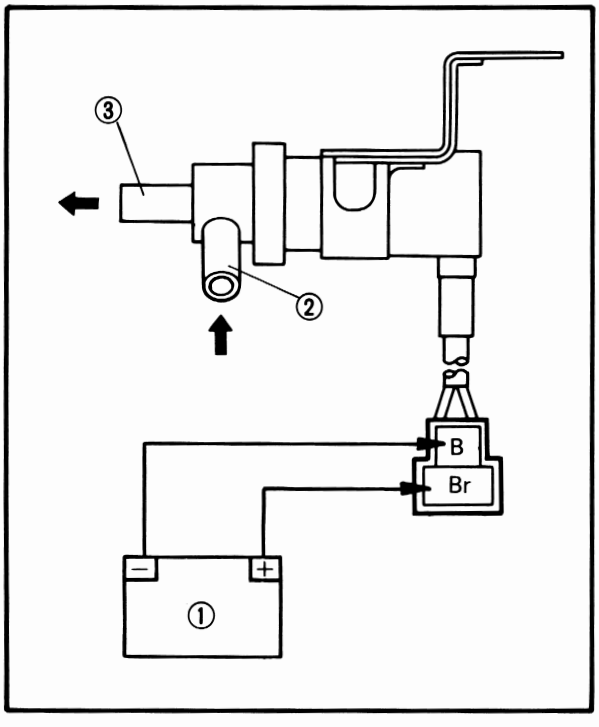
① From fuel tank
② Canister
③ Pressure control valve
④ Carburetor
⑤ Air vent control valve
⑥ To atmosphere
[A] Main switch is OFF
[B] Main switch is ON



CARBURETOR AIR VENT SYSTEM (FOR FJ1200SC)

AIR VENT CONTROL VALVE TEST

1. Remove:
   - Seat
   - Side covers
   - Air vent control valve
2. Inspect:
   - Air vent control valve operation



Air vent control valve inspection steps:

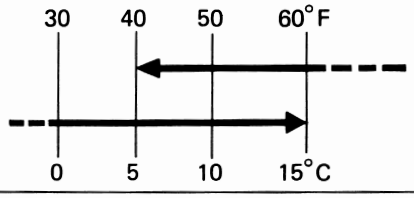
- Connect the battery (12V) ① as shwon.
- Blow air inside at nozzle ② which is open to the air.
- Check for air escape at nozzle ③ on the canister side.
  No air escape → Replace valve.
- Disconnect the battery and blow air inside at nozzle ② which is open to the air.
- Check for air escape at nozzle ③ on the canister side.
  Air escape → Replace valve.
  No air escape → Valve is OK.

APPENDICES

SPECIFICATIONS

GENERAL SPECIFICATIONS

Except for California: FJ1200S
For California: FJ1200SC

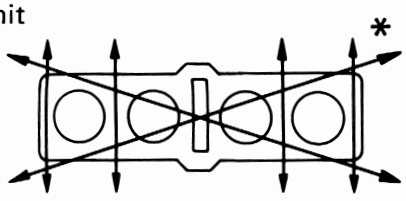
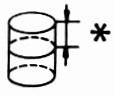
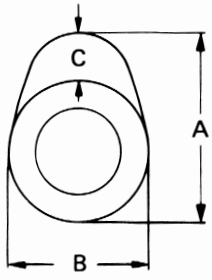
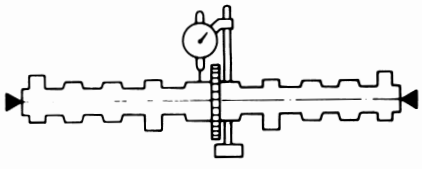
Model	FJ1200S/SC
Model Code Number: Engine Starting Number: Vehicle Identification Number:	FJ1200S: 1UX FJ1200SC: 1WJ FJ1200S: 1UX-000101 FJ1200SC: 1WJ-000101 FJ1200S: JYA1UX00 * GA000101 FJ1200SC: JYA1WJ00 * GA000101
Dimensions: Overall Length Overall Width Overall Height Seat Height Wheelbase Minimum Ground Clearance	 2,230 mm (87.8 in) 775 mm (30.5 in) 1,200 mm (47.2 in) 780 mm (30.7 in) 1,490 mm (58.7 in) 140 mm (5.5 in)
Basic Weight: Weight Oil and Full Fuel Tank	 FJ1200S: 258 kg (569 lb) FJ1200SC: 259 kg (571 lb)
Minimum Turning Radius:	3,000 mm (118 in)
Engine: Engine Type Cylinder Arrangement Displacement Bore x Stroke Compression Ratio Compression Pressure Starting System	 Air cooled 4-stroke gasoline, DOHC Parallel, 4-cylinder, Forward inclined 1,188 cm^3 77.0 x 63.8 mm (3.032 x 2.512 in) 9.7 : 1 1,030 kPa (10.5 kg/cm^2, 149 psi) Electric starter
Lubrication System.	Wet sump
Oil Type or Grade: Engine Oil 	 Yamalube 4-cycle oil or SAE 20W40 type SE motor oil (If temperature does not go below 5°C (40°F)) SAE 10W30 type SE motor oil (If temperature does not go above 15°C (60°F)
Oil Capacity: Engine Oil: Periodic Oil Change With Oil Filter Replacement Total Amount	 3.00 L (2.6 Imp qt, 3.2 US qt) 3.35 L (2.9 Imp qt, 3.5 US qt) 4.20 L (3.7 Imp qt, 4.4 US qt)
Air Filter:	Dry type element
Fuel: Type Tank Capacity: Total Reserve	 Regular gasoline 22 L (4.8 Imp gal, 5.8 US gal) 5 L (1.1 Imp gal, 1.3 US gal)
Carburetor: Type/Manufacturer	 BS36 x 4/MIKUNI
Spark Plug: Type/Manufacturer Gap	 DP8EA-9/NGK, X24EP-U9/NIPPONDENSO 0.8 ~ 0.9 mm (0.031 ~ 0.035 in)

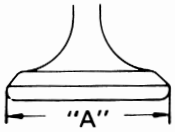
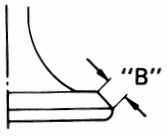
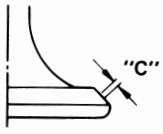
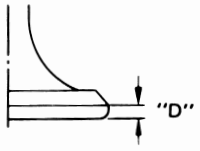
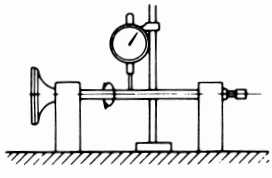
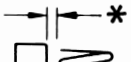
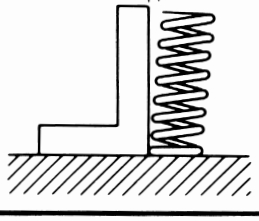
Model	FJ1200S/SC		
Clutch Type:	Wet, multiple-disc		
Transmission:			
Primary Reduction System	Chain		
Primary Reduction Ratio	98/56 (1.750)		
Secondary Reduction System	Chain Drive		
Secondary Reduction Ratio	41/17 (2.411)		
Transmission Type	Constant mesh, 5-speed		
Operation	Left foot operation		
Gear Ratio: 1st	40/14 (2.857)		
2nd	36/18 (2.000)		
3rd	33/21 (1.571)		
4th	31/24 (1.291)		
5th	29/26 (1.115)		
Chassis:			
Frame Type	Double cradle		
Caster Angle	27.5°		
Trail	112 mm (4.41 in)		
Tire:			
Type	Tubeless		
Manufacturer/Size/Type:			
Front:	DUNLOP/ 120/80 V16-V250/K330A BRIDGESTONE/ 120/80 V16-V250/G533		
Rear:	DUNLOP/ 150/80 V16-V250/K330 BRIDGESTONE/ 150/80 V16-V250/G534		
Minimum Tire Tread Depth	1.0 mm (0.04 in)		
Tire Pressure (Cold tire):			
Basic Weight:			
With Oil and Full Fuel Tank	FJ1200S: 258 kg (569 lb) FJ1200SC: 259 kg (571 lb)		
Maximum Load *	FJ1200S: 192 kg (423 lb) FJ1200SC: 191 kg (421 lb)		
Cold Tire Pressure:		Front	Rear
Up to 90 kg (198 lb) Load *		226 kPa (2.3 kg/cm², 32 psi)	245 kPa (2.5 kg/cm², 36 psi)
90 kg (198 lb) ~ Maximum load *		245 kPa (2.5 kg/cm², 36 psi)	284 kPa (2.9 kg/cm², 42 psi)
High Speed Riding		245 kPa (2.5 kg/cm², 36 psi)	284 kPa (2.9 kg/cm², 42 psi)
* Load is the total weight of cargo, rider, passenger and accessories.			
Brake:			
Front Brake Type	Dual disc brake		
Operation	Right hand operation		
Rear Brake Type	Single disc brake		
Operation	Right foot operation		
Suspension:			
Front Suspension	Telescopic fork		
Rear Suspension	Swingarm (New monocross suspension)		
Shock Absorber:			
Front Shock Absorber	Coil spring, Oil damper		
Rear Suspension	Coil spring, Oil/Gas damper		

Model	FJ1200S/SC
Wheel Travel:	
Front Wheel Travel	150 mm (5.9 in)
Rear Wheel Travel	120 mm (4.7 in)
Electrical:	
Ignition System	TCI
Generator System	AC generator
Battery Type or Model	YB14L
Battery Capacity	12V 14AH
Headlight Type:	Bulb type (Quartz bulb)
Bulb Wattage x Quantity:	
Headlight	12V, 60W/55W x 1
Tail/Brake Light	12V, 8W/27W x 2
Flasher Light	12V, 27W x 4
Meter Light	12V, 3.4W x 3
Indicator Light Wattage x Quantity:	
"NEUTRAL"	12V, 3.4W x 1
"HIGH BEAM"	12V, 3.4W x 1
"TURN"	12V, 3.4W x 2
"FUEL"	12V, 3.4W x 1
"OIL LEVEL"	12V, 3.4W x 1

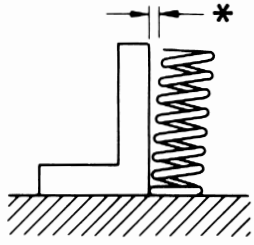
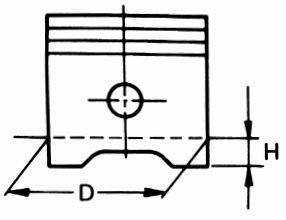
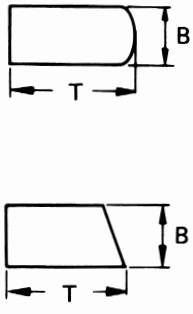
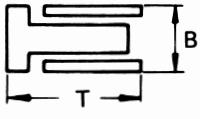
MAINTENANCE SPECIFICATIONS

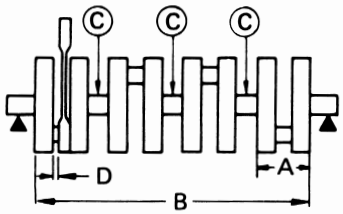
Engine

Model	FJ1200S/SC
Cylinder Head: Warp Limit 	0.03 mm (0.0012 in) *Lines indicate straightedge measurement
Cylinder: Bore Size/Measuring Point *  < Limit > Out of Round Limit	76.96 ~ 77.02 mm (3.030 ~ 3.032 in)/ 40 mm (1.57 in) 77.1 mm (3.035 in) 0.05 mm (0.002 in)
Camshaft: Drive Method Cam Cap Inside Dia. Camshaft Outisde Dia. Shaft-to-Cap Clearance Cam Dimensions Intake "A" < Limit > Intake "B" < Limit > Exhaust "A" < Limit > Exhaust "B" < Limit >  Camshaft Runout Limit 	Chain drive (Center) 25.000 ~ 25.021 mm (0.9843 ~ 0.9851 in) 24.967 ~ 24.980 mm (0.9830 ~ 0.9835 in) 0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in) 35.95 ~ 36.05 mm (1.415 ~ 1.419 in) 35.85 mm (1.411 in) 28.25 ~ 28.35 mm (1.112 ~ 1.116 in) 28.15 mm (1.108 in) 35.95 ~ 36.05 mm (1.415 ~ 1.419 in) 35.85 mm (1.411 in) 28.25 ~ 28.35 mm (1.112 ~ 1.116 in) 28.15 mm (1.108 in) 0.03 mm (0.0012 in)
Cam Chain: Cam Chain Type/No. of Links Cam Chain Adjustment Method	79RH2015 (SILENT CHAIN)/156 Links Automatic
Valve, Valve Seat, Valve Guide: Valve Clearance (Cold): IN. EX.	0.11 ~ 0.15 mm (0.004 ~ 0.006 in) 0.16 ~ 0.20 mm (0.006 ~ 0.008 in)

Model		FJ1200S/SC
Valve Dimensions		
 Head Dia.	 Face Width	 Seat Width	 Margin Thickness
"A" Head Dia.	IN.	28.9 ~ 29.1 mm (1.138 ~ 1.146 in)
	EX.	24.9 ~ 25.1 mm (0.980 ~ 0.988 in)
"B" Face Width	IN.	1.98 ~ 2.55 mm (0.078 ~ 0.100 in)
	EX.	1.98 ~ 2.55 mm (0.078 ~ 0.100 in)
"C" Seat Width	IN.	0.9 ~ 1.1 mm (0.035 ~ 0.043 in)
	EX.	0.9 ~ 1.1 mm (0.035 ~ 0.043 in)
< Limit >	IN.	1.4 mm (0.055 in)
	EX.	1.4 mm (0.055 in)
"D" Margin Thickness	IN.	0.8 ~ 1.2 mm (0.032 ~ 0.047 in)
	EX.	0.8 ~ 1.2 mm (0.032 ~ 0.047 in)
< Limit >	IN.	0.5 mm (0.020 in)
	EX.	0.5 mm (0.020 in)
Stem Outside Dia.	IN.	5.475 ~ 5.490 mm (0.2156 ~ 0.2161 in)
	EX.	5.460 ~ 5.475 mm (0.2150 ~ 0.2155 in)
< Limit >	IN.	5.445 mm (0.2144 in)
	EX.	5.430 mm (0.2138 in)
Guide Inside Dia.	IN.	5.500 ~ 5.512 mm (0.2165 ~ 0.2170 in)
	EX.	5.500 ~ 5.512 mm (0.2165 ~ 0.2170 in)
< Limit >	IN.	5.55 mm (0.219 in)
	EX.	5.55 mm (0.219 in)
Stem-to-Guide Clearance	IN.	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)
	EX.	0.025 ~ 0.052 mm (0.0010 ~ 0.0020 in)
< Limit >	IN.	0.08 mm (0.0031 in)
	EX.	0.10 mm (0.0039 in)
Stem Runout Limit		0.01 mm (0.0004 in)
		
Valve Spring:		
Inner Spring:		
Free Length	IN.	39.65 mm (1.561 in)
	EX.	39.65 mm (1.561 in)
< Limit >	IN.	37.65 mm (1.482 in)
	EX.	37.65 mm (1.482 in)
Set Length (Valve Closed)	IN.	32.8 mm (1.29 in)
	EX.	32.8 mm (1.29 in)
Tilt Limit* 	IN.	2.5°/1.6 mm (0.063 in)
	EX.	2.5°/1.6 mm (0.063 in)
		

MAINTENANCE SPECIFICATIONS

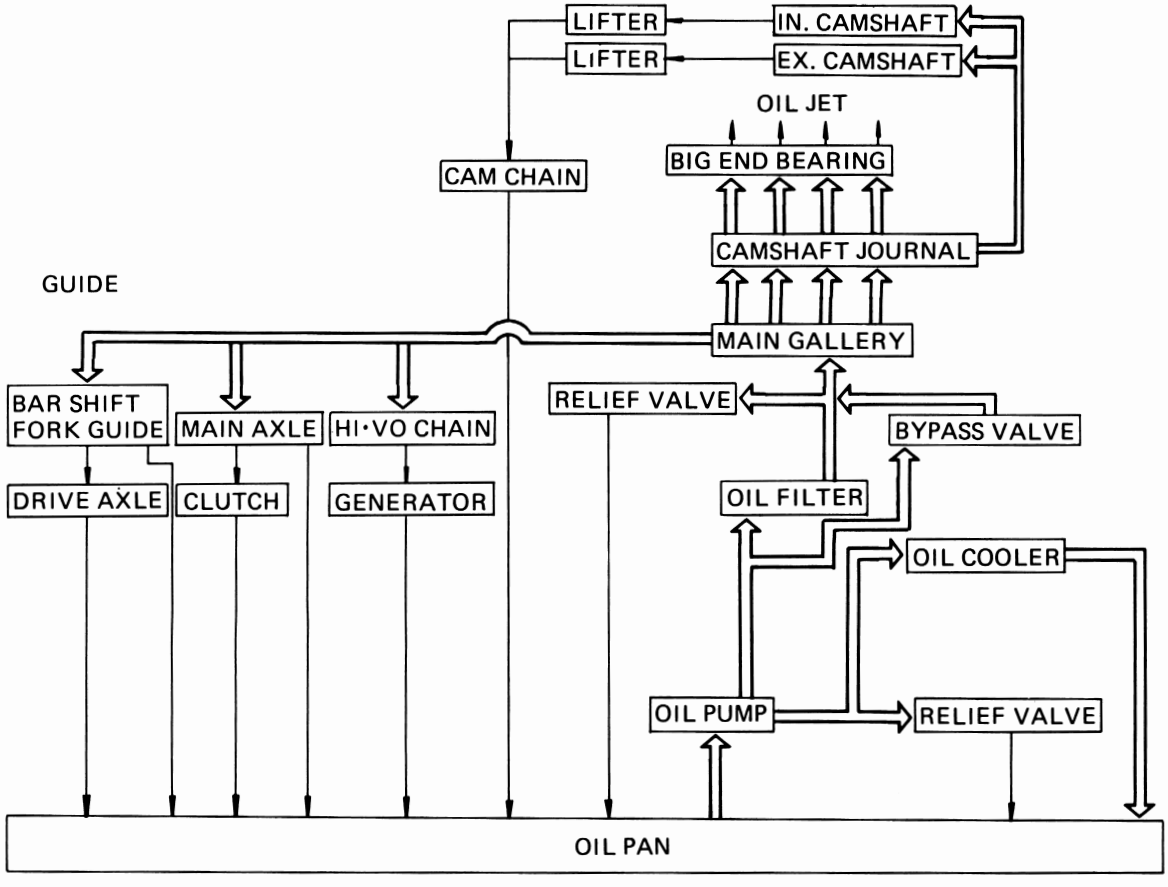
Model		FJ1200S/SC
Direction of Winding	IN.	Left
	EX.	Left
Outer Spring:		
Free Length	IN.	41.1 mm (1.62 in)
	EX.	41.1 mm (1.62 in)
< Limit >	IN.	39.0 mm (1.53 in)
	EX.	39.0 mm (1.53 in)
Set Length (Valve Closed)	IN.	34.8 mm (1.37 in)
	EX.	34.8 mm (1.37 in)
Tilt Limit *		
	IN.	2.5°/1.7 mm (0.067 in)
	EX.	2.5°/1.7 mm (0.067 in)
Direction of Winding	IN.	Right
	EX.	Right
Piston:		
Piston Clearance		0.03 ~ 0.05 mm (0.0012 ~ 0.0020 in)
< Limit >		0.10 mm (0.0039 in)
Piston Size "D"		76.92 ~ 76.98 mm (3.028 ~ 3.031 in)
Measuring Point "H"		2.0 mm (0.08 in)
		
Oversize	2nd	77.50 mm (3.051 in)
Piston Ring:		
Top Ring:		
Type		Plain (Barrel face)
Dimensions (B x T)		1.0 x 3.0 mm (0.039 x 0.118 in)
End Gap (Installed)		0.20 ~ 0.35 mm (0.008 ~ 0.014 in)
< Limit >		0.6 mm (0.024 in)
Side Clearance (Installed)		0.04 ~ 0.08 mm (0.0016 ~ 0.0031 in)
< Limit >		0.10 mm (0.0039 in)
2nd Ring:		
		
Type		Plain (Taper face)
Dimensions (B x T)		1.2 x 3.0 mm (0.047 x 0.118 in)
End Gap (Installed)		0.20 ~ 0.35 mm (0.008 ~ 0.014 in)
< Limit >		0.6 mm (0.024 in)
Side Clearance		0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)
< Limit > (Installed)		0.11 mm (0.0043 in)
Oil Ring:		
		
Dimensions (B x T)		2.5 x 2.8 mm (0.098 x 0.110 in)
End Gap (Installed)		0.20 ~ 0.80 mm (0.008 ~ 0.032 in)
Connecting Rod:		
Oil Clearance		0.017 ~ 0.040 mm (0.0007 ~ 0.0016 in)
Bearing Color Code		0. Pink 1. Blue 2. Black 3. Brown

Model		FJ1200S/SC
Crankshaft: 		
Crank Width	"A"	62.25 ~ 63.85 mm (2.451 ~ 2.514 in)
Assembly Width	"B"	382.0 ~ 383.2 mm (15.04 ~ 15.09 in)
< Runout Limit >	"C"	0.03 mm (0.0012 in)
Big End Side Clearance	"D"	0.160 ~ 0.262 mm (0.0063 ~ 0.0103 in)
Journal Oil Clearance		0.020 ~ 0.044 mm (0.0008 ~ 0.0017 in)
Bearing Color Code		1. Blue 2. Black 3. Brown 4. Green 5. Yellow
Clutch:		
Friction Plate:	Thickness	2.9 ~ 3.1 mm (0.114 ~ 0.122 in)
	Quantity	8 pcs.
	< Wear Limit >	2.8 mm (0.11 in)
Clutch Plate:	Thickness	1.9 ~ 2.1 mm (0.075 ~ 0.083 in)
	Quantity	7 pcs.
	< Warp Limit >	0.1 mm (0.004 in)
Clutch Spring:	Free Height	6.5 mm (0.256 in)
	Quantity	1 pc.
	Minimum Height	6.0 mm (0.236 in)
	< Warp Limit >	0.1 mm (0.004 in)
Push Rod Bending Limit		0.3 mm (0.012 in)
Clutch Release Method		Hydraulic inner push
Transmission:		
Main Axle Deflection Limit		0.08 mm (0.0031 in)
Drive Axle Deflection Limit		0.08 mm (0.0031 in)
Shifter:		
Shifter Type		Guide Bar
Guide Bar Bending Limit		0.1 mm (0.004 in)
Carburetor:		
ID Mark		1UX-00 FJ1200SC: 1WJ-00
Main Jet	(M.J.)	#112.5
Main Air Jet	(M.A.J.)	#45
Jet Needle	(J.N.)	5FZ72
Needle Jet	(N.J.)	Y-2
Pilot Air Jet	(P.A.J.)	#155
Pilot Jet	(P.J.)	#37.5
Pilot Screw	(P.S.)	Preset
Valve Seat Size	(V.S.)	2.3
Starter Jet	(G.S.)	#30
Fuel Level	(F.L.)	2.5 ~ 3.5 mm (0.098 ~ 0.138 in)
Float Height	(F.H.)	21.3 ~ 23.3 mm (0.839 ~ 0.917 in)
Engine Idling Speed		950 ~ 1,050 r/min
Vacuum Pressure at Idling Speed		Above 29.3 kPa (220 mmHg, 8.7 inHg)
Vacuum Synchronous Difference		Below 1.33 kPa (10 mmHg, 0.394 inHg)

MAINTENANCE SPECIFICATIONS

Model		FJ1200S/SC
Lubrication System:		
Oil Filter Type:		Paper type
Oil Pump Type:		Trochoid type
Tip clearance		0.12 mm (0.0047 in)
< Limit >		0.17 mm (0.0067 in)
Side Clearance		0.03 ~ 0.08 mm (0.0012 ~ 0.0031 in)
< Limit >		0.10 mm (0.0039 in)
Bypass Valve Setting Pressure		177 ~ 216 kPa (1.8 ~ 2.2 kg/cm², 26 ~ 31 psi)
Relief Valve Operating Pressure	(Oil Cooler)	343 ~ 441 kPa (3.5 ~ 4.5 kg/cm², 49 ~ 63 psi)
	(Main gallery)	481 ~ 559 kPa (4.9 ~ 5.7 kg/cm², 70 ~ 81 psi)

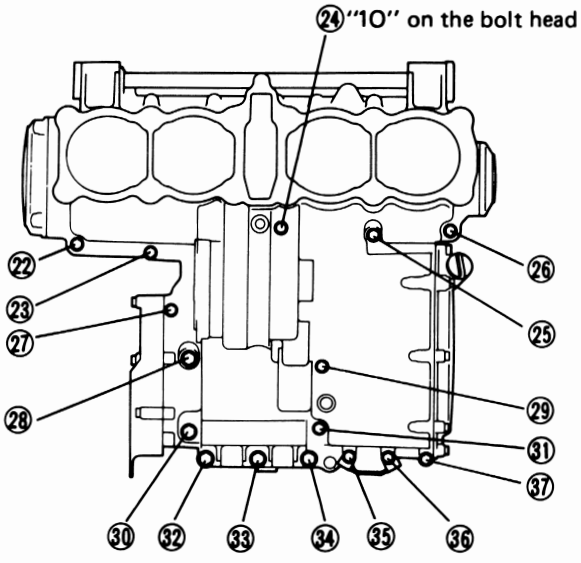
Lubrication Chart:



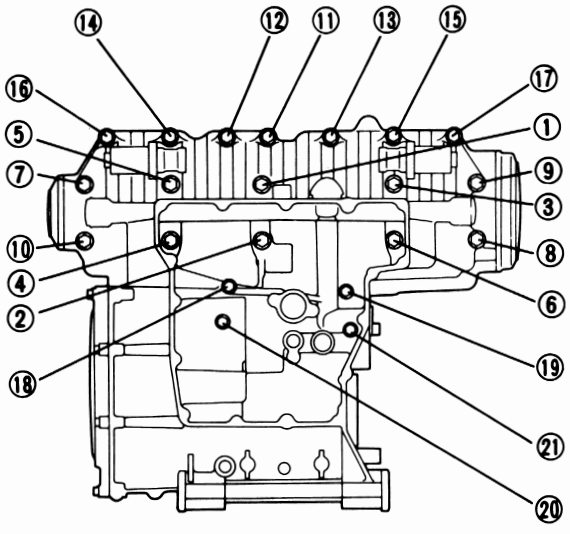
Model	FJ1200S/SC

Crankcase Tightening Sequence:

Upper Case

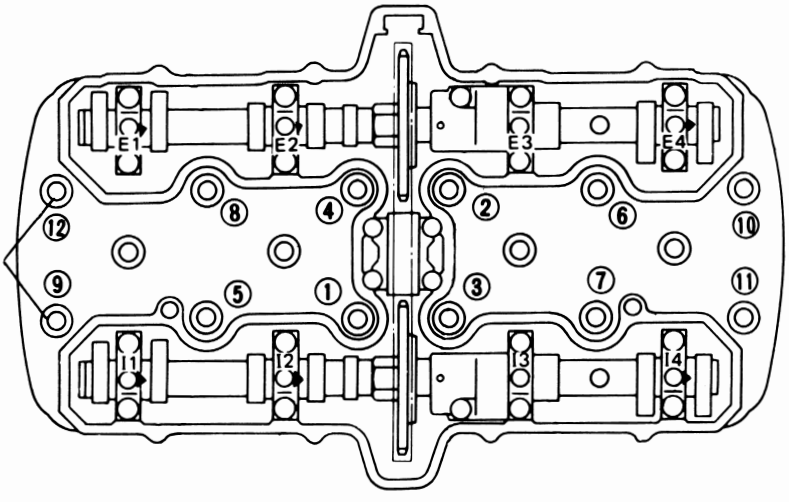


Lower Case



Cylinder Head Tightening Sequence:

EXHAUST



Use Copper Washers

INTAKE

Tightening Torque

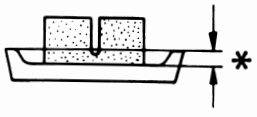
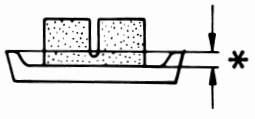
Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Camshaft cap	Bolt	M6 x 1.0	18	12	1.2	8.7	
Cylinder head (Front)	Stud bolt	M6 x 1.0	2	5	0.5	3.6	
Cylinder head (Rear)	Stud bolt	M6 x 1.0	2	5	0.5	3.6	
Cylinder head (Exhaust pipe)	Stud bolt	M8 x 1.25	8	15	1.5	11	
Cylinder head (Oil passage)	Bolt	M6 x 1.0	1	7	0.7	5.1	
Spark plug	–	M12 x 1.25	4	17.5	1.75	12.5	
Cylinder head	Nut	M10 x 1.25	12	35	3.5	25	
Cylinder head cover	Bolt	M6 x 1.0	8	10	1.0	7.2	
Cylinder (Front)	Stud bolt	M8 x 1.25	1	8	0.8	5.8	
Cylinder (Front)	Nut	M8 x 1.25	1	20	2.0	14	
Cylinder head (Rear)	Nut	M6 x 1.0	2	10	1.0	7.2	
Cylinder head (Front)	Nut	M6 x 1.0	2	10	1.0	7.2	
Cylinder (Blind plug)	–	M12 x 1.25	2	22	2.2	16	
Connecting rod cap	Nut	M8 x 0.75	8	36	3.6	25	
Cam chain sprocket	Bolt	M7 x 1.0	4	20	2.0	14	
Cam chain tensioner	Bolt	M6 x 1.0	2	10	1.0	7.2	
Cam chain tensioner end	Bolt	M12 x 1.25	1	6	0.6	4.3	
Chain guide (Rear)	Plug	M10 x 1.25	1	10	1.0	7.2	
Chain guide (Upper)	Bolt	M6 x 1.0	4	10	1.0	7.2	
Oil pump housing	Bolt	M6 x 1.0	2	10	1.0	7.2	
Oil pump mount	Bolt	M6 x 1.0	3	10	1.0	7.2	
Oil strainer housing	Bolt	M6 x 1.0	2	10	1.0	7.2	
Oil filter case	–	M20 x 1.5	1	15	1.5	11	
Oil pan	Bolt	M6 x 1.0	16	10	1.0	7.2	
Drain plug	–	M14 x 1.5	1	43	4.3	31	
Oil passage (Oil pan)	–	M16 x 1.5	1	8	0.8	5.8	
Oil filter drain	Screw	M5 x 0.8	1	7	0.7	5.1	
Oil cooler hose (Oil pan)	Bolt	M6 x 1.0	4	10	1.0	7.2	
Oil cooler hose (Cooler)	Bolt	M6 x 1.0	4	10	1.0	7.2	
Oil cooler mount	Bolt	M6 x 1.0	2	10	1.0	7.2	
Oil hose clamp	Bolt	M6 x 1.0	1	10	1.0	7.2	
Oil level switch	Bolt	M6 x 1.0	2	10	1.0	7.2	
Carburetor joint	Bolt	M6 x 1.0	8	10	1.0	7.2	
Air cleaner case cover	Screw	M5 x 0.8	3	5	0.5	3.6	
Air cleaner case	Bolt	M6 x 1.0	3	7	0.7	5.1	
Exhaust pipe flange	Nut	M8 x 1.25	8	20	2.0	14	
Muffler mount (Bracket)	Bolt	M10 x 1.25	2	25	2.5	18	
Muffler chamber mount	Bolt	M10 x 1.25	1	25	2.5	18	
Exhaust pipe and muffler clamp	Bolt	M8 x 1.25	6	20	2.0	14	
Exhaust pipe blind plug (co test)	Bolt	M6 x 1.0	4	7	0.7	5.1	
Crankcase (Cylinder head)	Stud bolt	M10 x 1.25	12	20	2.0	14	
Main axle bearing retainer	Torx	M6 x 1.0	3	12	1.2	8.7	
Crankshaft end cover (Left)	Screw	M6 x 1.0	4	7	0.7	5.1	
Crankshaft end cover (Right)	Screw	M5 x 0.8	2	4	0.4	2.9	
Drive chain sprocket cover	Bolt	M6 x 1.0	4	10	1.0	7.2	
Crankcase cover (Clutch)	Bolt	M6 x 1.0	15	10	1.0	7.2	
Crankcase	Bolt	M6 x 1.0	15	10	1.0	7.2	
Crankcase	Bolt	M8 x 1.25	22	24	2.4	17	

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Blind plug (Oil passage)	—	M20 x 1.5	3	12	1.2	8.7	
Oil guide plate	Bolt	M5 x 0.8	3	4	0.4	2.9	
Starter idle gear shaft stopper	Bolt	M6 x 1.0	1	10	1.0	7.2	
Starter clutch	Bolt	M8 x 1.25	3	25	2.5	18	Stake
Drive shaft bearing housing	Bolt	M6 x 1.0	3	10	1.0	7.2	
Drive chain guide (Starter)	Bolt	M6 x 1.0	2	10	1.0	7.2	
Noise reduction plate (Chain cover)	Bolt	M6 x 1.0	2	4	0.4	2.9	
Clutch boss	Nut	M20 x 1.0	1	70	7.0	50	Use lock washer
Clutch spring	Bolt	M6 x 1.0	6	8	0.8	5.8	
Clutch release bleed	Screw	M8 x 1.25	1	6	0.6	4.3	
Drive chain sprocket (Drive)	Nut	M22 x 1.5	1	85	8.5	61	Use lock washer
Chain lever stopper	Screw	M8 x 1.25	1	22	2.2	16	
Shift cam retainer	Screw	M6 x 1.0	2	7	0.7	5.1	
Shift cam stopper lever	Bolt	M6 x 1.0	1	10	1.0	7.2	
Shift cam (Neutral)	Screw	M5 x 0.8	1	4	0.4	2.9	
Shift arm	Bolt	M6 x 1.0	1	10	1.0	7.2	
Shift arm rod (Locknut)	Nut	M6 x 1.0	2	8	0.8	5.8	
Lead clamp	Bolt	M6 x 1.0	1	10	1.0	7.2	
A.C. generator	Bolt	M8 x 1.25	2	25	2.5	18	
Pickup base	Screw	M6 x 1.0	2	7	0.7	5.1	
Pickup rotor	Bolt	M10 x 1.25	1	45	4.5	32	

MAINTENANCE SPECIFICATIONS

Chassis

Model		FJ1200S/SC
Steering System:		
Steering Bearing Type		Taper roller bearing
Front Suspension:		
Front Fork Travel		150 mm (5.91 in)
Fork Spring Free Length		383 mm (15.1 in)
< Limit >		378 mm (14.9 in)
Collar Length		100 mm (3.94 in)
Spring Rate:	K1	4.12 N/mm (0.42 kg/mm, 23.5 lb/in)
	K2	5.88 N/mm (0.60 kg/mm, 33.6 lb/in)
Stroke:	K1	0 ~ 100 mm (0 ~ 3.74 in)
	K2	100 ~ 150 mm (3.74 ~ 5.91 in)
Optional Spring		No
Oil Capacity/Oil Level		424 cm^3 (14.9 Imp oz, 14.3 US oz)/ 141 mm (5.55 in)
Oil Grade		Yamaha fork oil 10wt equivalent
Rear Suspension:		
Shock Absorber Travel		40 mm (1.57 in)
Spring Free Length		174.5 mm (6.87 in)
< Limit >		170 mm (6.69 in)
Fitting Length		156.5 mm (6.16 in)
Spring Rate		167 N/mm (17 kg/mm, 952 lb/in)
Stroke		0 ~ 40 mm (0 ~ 1.57 in)
Optional Spring		No.
Enclosed Gas Pressure		1,177 kPa (12 kg/cm^2, 171 psi)
Rear Arm:		
Swingarm Free Play Limit:	End	1 mm (0.04 in)
	Side	1 mm (0.04 in)
Front Wheel:		
Type		Cast wheel
Rim Size		MT2.75 x 16
Rim Material		Aluminum
Rim Runout Limit:	Radial	2 mm (0.08 in)
	Lateral	2 mm (0.08 in)
Rear Wheel:		
Type		Cast wheel
Rim Size		MT3.50 x 16
Rim Material		Aluminum
Rim Runout Limit:	Radial	2 mm (0.08 in)
	Lateral	2 mm (0.08 in)
Drive Chain:		
Type/Manufacturer		50ZL/DID
No. of Links		110 Links
Chain Slack		15 ~ 20 mm (0.6 ~ 0.8 in)

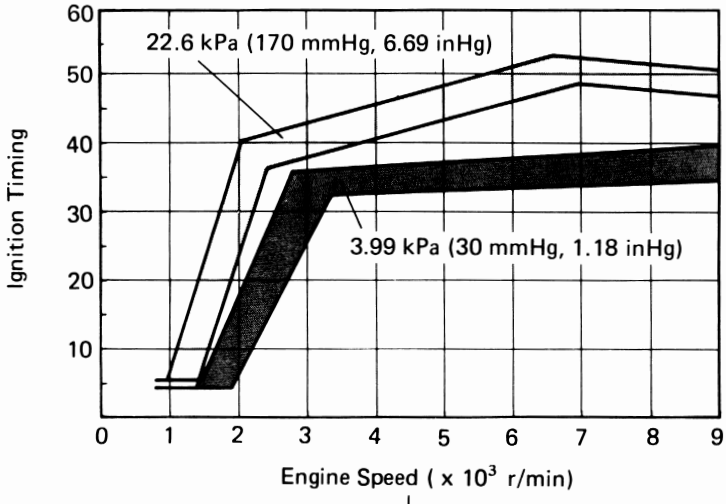
Model	FJ1200S/SC
Front Disc Brake:	
Type	Dual
Disc Outside Dia. x Thickness	282 x 7.5 mm (11.1 x 0.3 in)
Pad Thickness Inner	5.5 mm (0.22 in)
< Limit > *	0.5 mm (0.02 in)
Pad Thickness Outer	5.5 mm (0.22 in)
< Limit > *	0.5 mm (0.02 in)
	
Master Cylinder Inside Dia.	15.87 mm (0.63 in)
Caliper Cylinder Inside Dia.	42.8 mm (1.69 in)
Brake Fluid Type	DOT #3
Rear Disc Brake:	
Type	Single
Disc Outside Dia. x Thickness	282 x 7.5 mm (11.1 x 0.3 in)
Pad Thickness Inner	5.5 mm (0.22 in)
< Limit > *	0.5 mm (0.02 in)
Pad Thickness Outer	5.5 mm (0.22 in)
< Limit > *	0.5 mm (0.02 in)
	
Master Cylinder Inside Dia.	14.0 mm (0.55 in)
Caliper Cylinder Inside Dia.	42.8 mm (1.69 in)
Brake Fluid Type	DOT #3
Brake Lever and Brake Pedal:	
Brake Lever Free Play	5 ~ 8 mm (0.2 ~ 0.3 in)
Brake Pedal Position	30 mm (1.2 in) (Below the top of the footrest)
Clutch Lever:	
Clutch Lever Free Play	2 ~ 3 mm (0.08 ~ 0.12 in)
Clutch Fluid Type	DOT #3

Tightening Torque

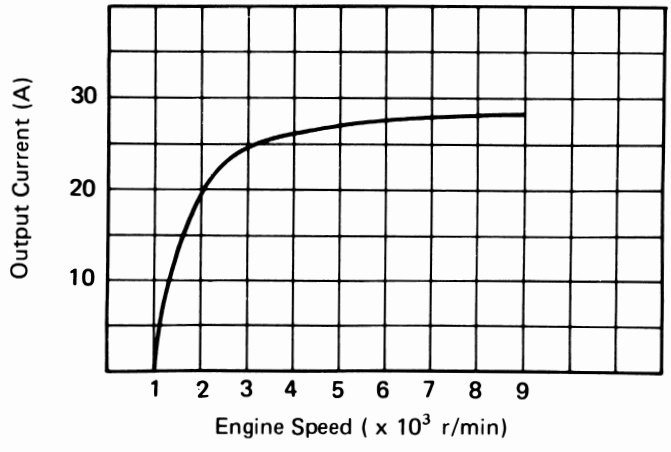
Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Front axle	Bolt/Nut	M14 x 1.5	1	78	7.8	56	
Front axle pinch	Bolt/Nut	M8 x 1.25	2	20	2.0	14	
Rear axle	Bolt/Nut	M18 x 1.5	1	150	15	110	
Steering crown-Fork	Bolt	M8 x 1.25	2	20	2.0	14	
Steering stem	Nut	M25 x 1.0	1	110	11	80	
Underbracket-Fork	Bolt/Nut	M8 x 1.25	4	23	2.3	17	
Caliper (Front & Rear)	Bolt	M10 x 1.25	6	35	3.5	25	
Air bleed (Caliper)	Screw	M8 x 1.25	6	6	0.6	4.3	
Brake hose (All)	Union bolt	M10 x 1.25	8	26	2.6	19	
Master cylinder bracket	Bolt	M6 x 1.0	4	9	0.9	6.5	
Master cylinder cap	Screw	M5 x 0.8	8	2	0.2	1.4	
Air bleed (Anti-dive)	Screw	M8 x 1.25	2	6	0.6	4.3	
Drive chain sprocket (Driven)	Nut	M10 x 1.25	6	55	5.5	40	Use new lock washer
Brake disc	Bolt	M8 x 1.25	6	20	2.0	14	
Front fender-Fork	Bolt	M6 x 1.0	6	9	0.9	6.5	
Handlebar-Fork	Bolt	M8 x 1.25	2	20	2.0	14	
Handlebar-Steering crown	Bolt	M6 x 1.0	2	9	0.9	6.5	
Handlebar end grip	Special	M16 x 1.5	2	26	2.6	19	
Engine mount (Front upper)	Bolt/Nut	M10 x 1.25	1	55	5.5	40	
Engine mount (Fornt lower)	Bolt/Nut	M10 x 1.25	2	55	5.5	40	
Engine mount (Rear upper)	Special	M10 x 1.25	1	55	5.5	40	
Engine mount (Rear lower)	Bolt/Nut	M12 x 1.25	1	90	9.0	65	
Downtube frame	Bolt/Nut	M8 x 1.25	8	28	2.8	20	
Muffler bracket-Frame	Bolt	M8 x 1.25	4	28	2.8	20	
Pivot shaft	Bolt/Nut	M14 x 1.5	1	90	9.0	65	
Front frame-Rear frame	Bolt	M10 x 1.25	4	55	5.5	40	
Relay arm (1)-Frame	Bolt/Nut	M12 x 1.25	1	90	9.0	65	
Relay arm (2)-Swingarm	Bolt/Nut	M12 x 1.25	2	90	9.0	65	
Shock absorber (Lower)	Bolt/Nut	M6 x 1.0	2	9	0.9	6.5	
Shock absorber (Upper)	Bolt/Nut	M10 x 1.25	1	42	4.2	30	
Footrest-Muffler bracket	Bolt	M8 x 1.25	4	28	2.8	20	
Rear footrest-Muffler bracket	Bolt	M10 x 1.25	2	42	4.2	30	
Change pedal pivot	Bolt	M8 x 1.25	1	28	2.8	20	
Rear brake master cylinder	Bolt	M8 x 1.25	2	20	2.0	14	
Brake pedal	Bolt	M6 x 1.0	1	9	0.9	6.5	
Muffler-Muffler bracket	Bolt/Nut	M10 x 1.25	2	25	2.5	18	
Fuel sender-Fuel tank	Bolt	M5 x 0.8	4	4	0.4	2.9	
Tension bar	Bolt/Nut	M8 x 1.25	2	30	3.0	22	
Grab bar-Frame	Bolt	M8 x 1.25	4	23	2.3	17	

Electrical

Model	FJ1200S/SC
Voltage:	12V
Ignition System:	
Ignition Timing (B.T.D.C.)	5° at 1,000 r/min
Advancer Type	Electrical/Vacuum



TCI:	
Pickup Coil Resistance (Color)	149 ~ 182Ω at 20°C (68°F) (Orange – Black), (Gray – Black)
TCI Unit-Model/Manufacturer	TID14-51/HITACHI
Ignition Coil:	
Model/Manufacturer	CM12-24/HITACHI
Primary Winding Resistance	2.4 ~ 3.0Ω at 20°C (68°F)
Secondary Winding Resistance	9.6 ~ 14.4 kΩ at 20°C (68°F)
Spark Plug Cap:	
Type	Resin
Resistance	10 kΩ
Charging System/Type:	AC generator
AC Generator:	
Model/Manufacturer	B3G/NIPPONDENSO
Nominal Output	14V, 26A at 5,000 r/min

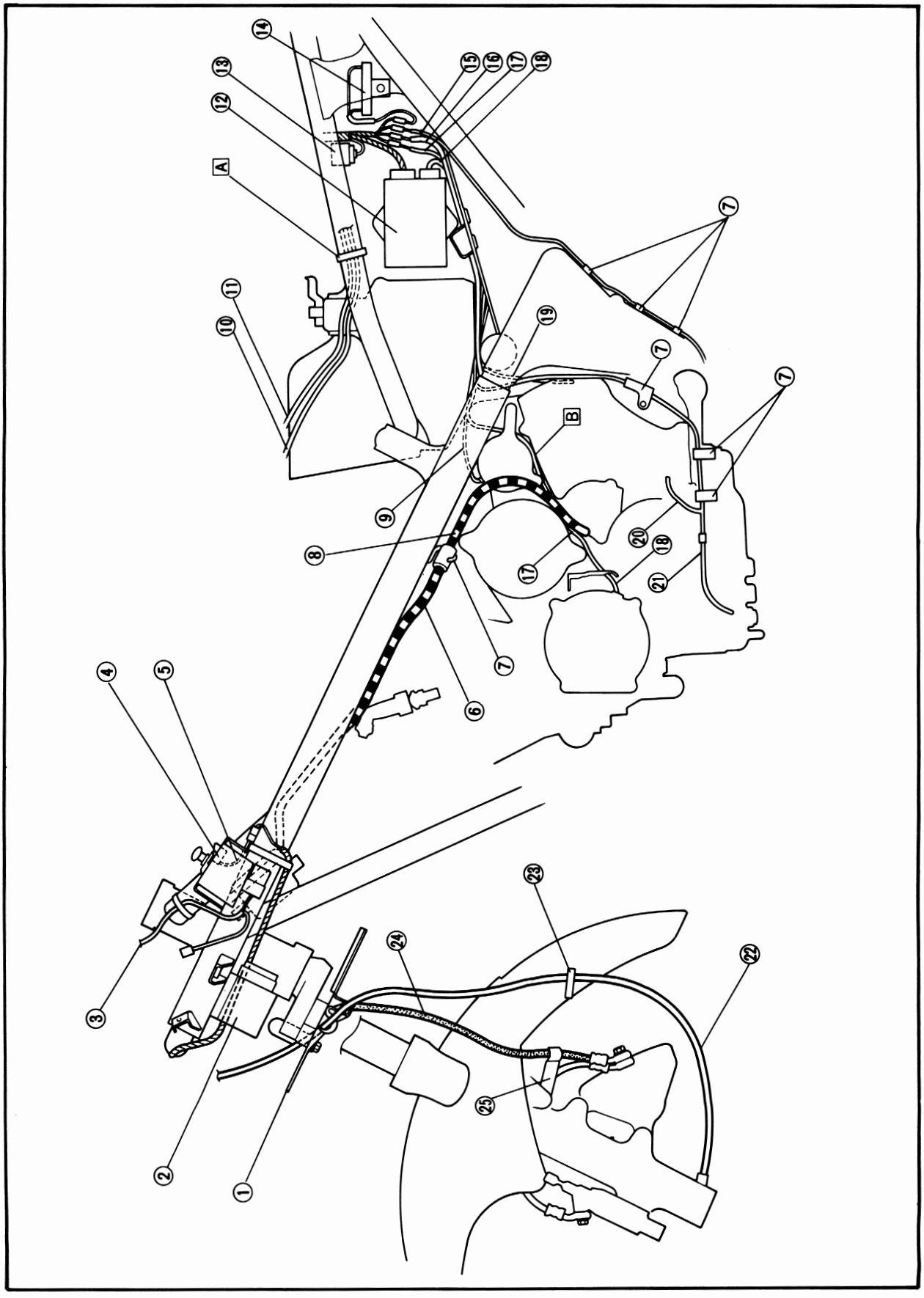


MAINTENANCE SPECIFICATIONS

Model	FJ1200S/SC
Generator Assembly:	
Stator Coil Resistance (Color)	0.19 ~ 0.21Ω at 20°C (68°F) (White – White)
Field (Rotor) Coil Resistance (Color)	3.8 ~ 4.2Ω at 20°C (68°F) (Brown – Ground)
Brush Overall Length	10.5 mm (0.41 in)
< Limit >	4.5 mm (0.18 in)
Spring Pressure	230 ~ 330 g (8.12 ~ 11.65 oz)
Voltage Regulator:	
Type	Field Control Type
Model/Manufacturer	B3G/NIPPONDENSO
No Load Regulated Voltage	14.2 ~ 14.8V
Rectifier:	
Model/Manufacturer	B3G/NIPPON DENSO
Capacity	30A
Withstand Voltage	200V
Battery:	
Capacity	12V, 14AH
Specific Gravity	1.280
Electrical Starter System:	
Type	Constant mesh type
Starter Motor:	
Model/Manufacturer	SM-229D/MITSUBA
Output	0.6 kW
Brush:	
Overall Length	12.5 mm (0.49 in)
< Limit >	5.5 mm (0.22 in)
Spring Pressure	450 ~ 680 g (15.87 ~ 23.98 oz)
Commutator:	
Diameter	28 mm (1.1 in)
< Wear Limit >	27 mm (1.06 in)
Mica Undercut	0.5 mm (0.02 in)
Starter Relay:	
Model/Manufacturer	A104-128/HITACHI
Amperage Rating	100A
Coil Winding Resistance	3.9 ~ 4.7Ω at 20°C (68°F)
Horn:	
Type x Quantity	Plain type x 1
Model/Manufacturer	CFH-12/NIKKO
Maximum Amperage	2.5A
Flasher Relay:	
Type	Semi-transistor type
Model/Manufacturer	FX257N/NIPPONDENSO
Self Cancelling Device	Yes.
Flasher Frequency	75 ~ 95 cycle/min
Wattage	27W x 4 + 3.4W
Self Cancelling Unit:	
Model/Manufacturer	FX257N/NIPPONDENSO
Oil Level Switch:	
Model/Manufacturer	4H7-00/NIPPONDENSO

Model	FJ1200S/SC
Sidestand Relay:	
Model/Manufacturer	G4MW-1121T-010-Y17/TATEISHI
Coil Winding Resistance	68 ~ 83Ω at 20°C (68°F)
Diode	No
Starting Circuit Cut-off Relay:	
Model/Manufacturer	FX257N/NIPPONDENSO
Coil Winding Resistance	203 ~ 248Ω at 20°C (68°F)
Diode	No
Fuel Gauge:	
Model/Manufacturer	36Y-03/NIPPONSEIKI
Sender Unit Resistance (Color):	(Green – Black)
Full	4 ~ 7Ω at 20°C (68°F)
Empty	90 ~ 100Ω at 20°C (68°F)
Circuit Breaker:	
Type	Fuse
Amperage for Individual Circuit x Quantity	
MAIN	30A x 1
HEAD	15A x 1
SIGNAL	15A x 1
IGNITION	15A x 1

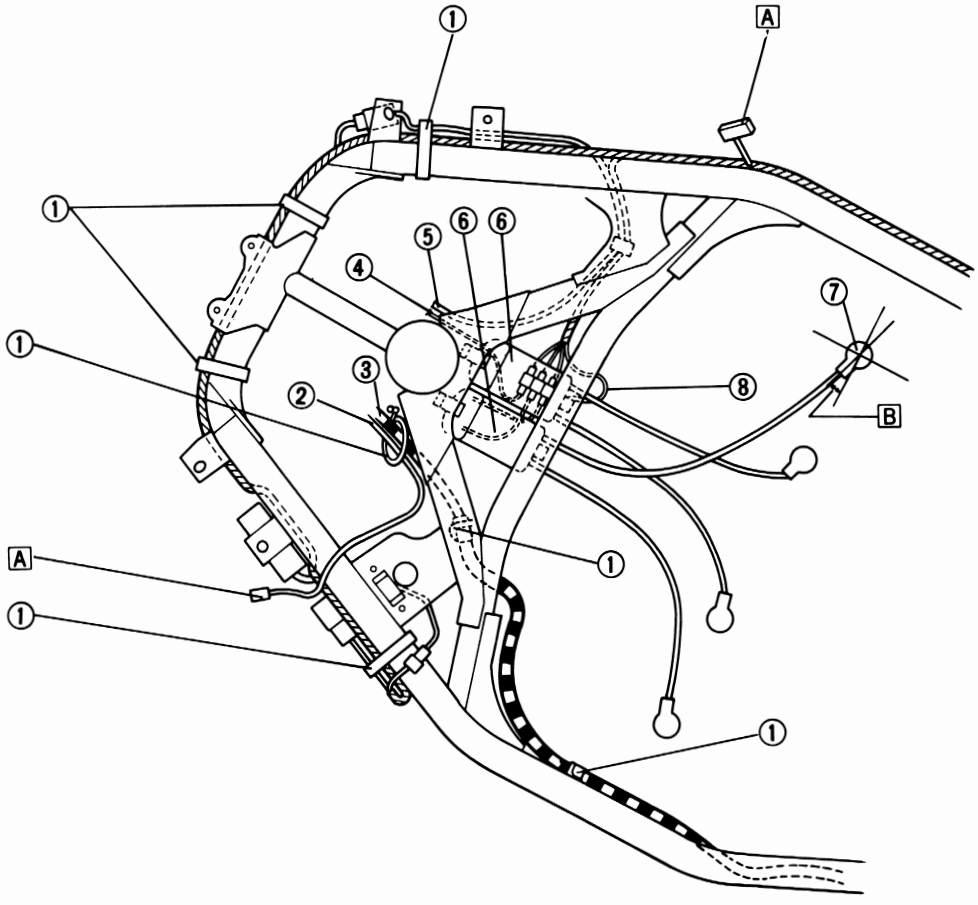
CABLE ROUTING

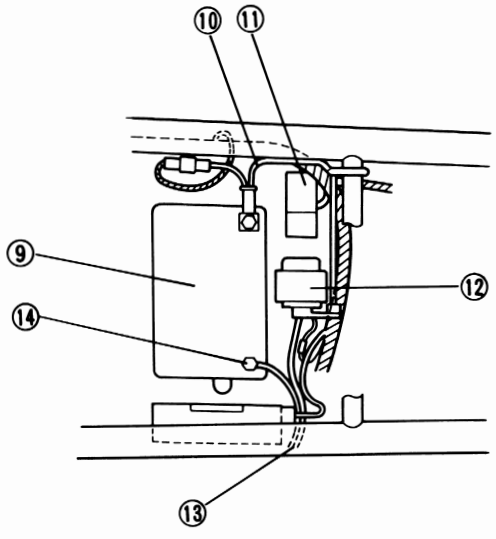


① Inner panel
② Relay assembly
③ Handlebar switch (Right) lead
④ "FUEL" (Reserve) switch
⑤ "FUEL" (Reserve) switch lead
⑥ Clutch pipe
⑦ Clamp
⑧ Clutch hose
⑨ Starter motor lead
⑩ Solenoid valve lead
⑪ Fuel level sender unit lead
⑫ Ignitor unit
⑬ Sidestand relay
⑭ Resistor
⑮ Sidestand switch lead
⑯ Engine sub lead
⑰ A.C. generator lead
⑱ Pickup coil lead
⑲ Ground lead
⑳ Neutral switch lead
㉑ Oil level gauge lead
㉒ Speedometer cable
㉓ Cable holder
㉔ Brake hose
㉕ Brake hose holder

[A] Clamp the solenoid valve lead and fuel level sender unit lead.
Do not pinch the these leads.
[B] Pass the pickup coil lead under the starter motor.

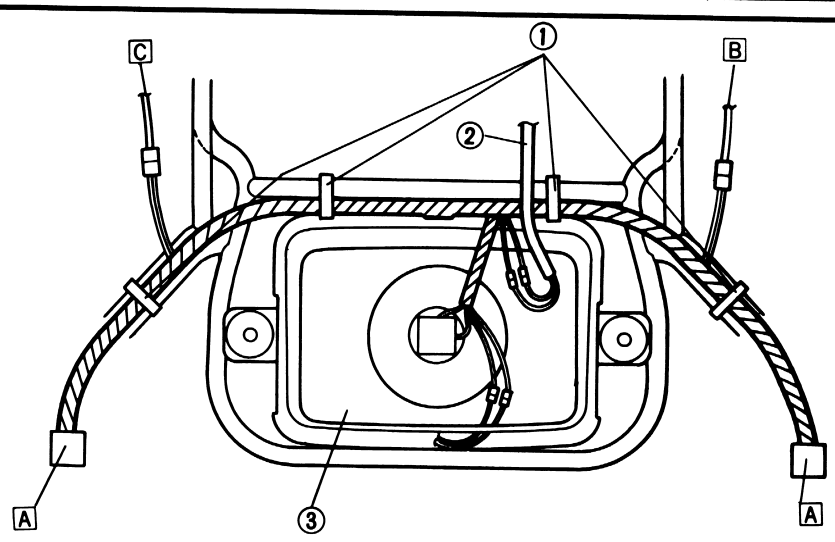
CABLE ROUTING





① Clamp
② Handleabar switch (Left) lead
③ Clutch hose
④ Main switch lead
⑤ Handlebar switch (Right) lead
⑥ Ignition coil
⑦ Spark plug cap
⑧ Earth
⑨ Battery
⑩ Battery positive lead
⑪ Fuse holder
⑫ Starter relay
⑬ Starter motor lead
⑭ Battery negative lead

[A] Connect the wire harness of the cowling.
[B] Install the spark plug cap at approx. 15°.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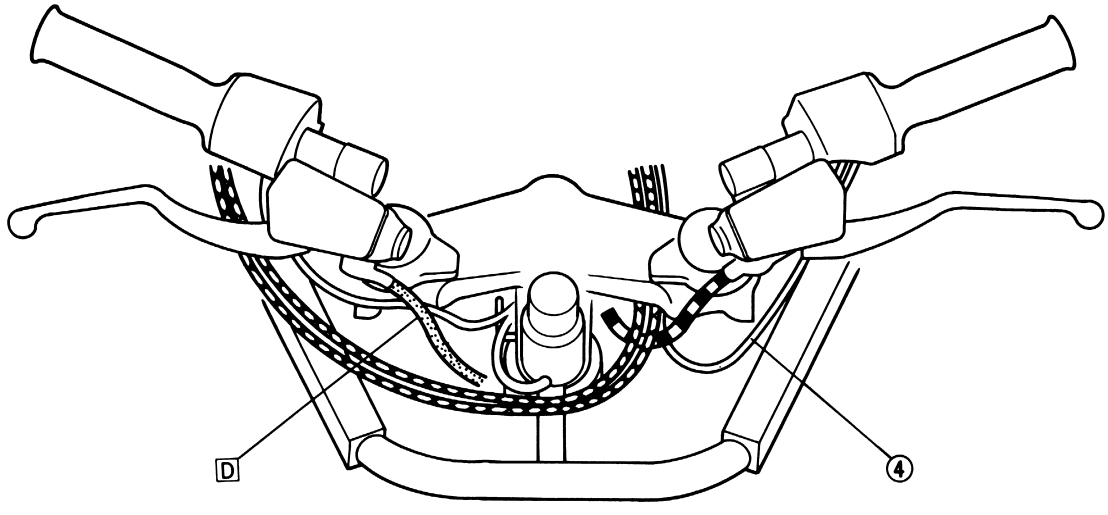
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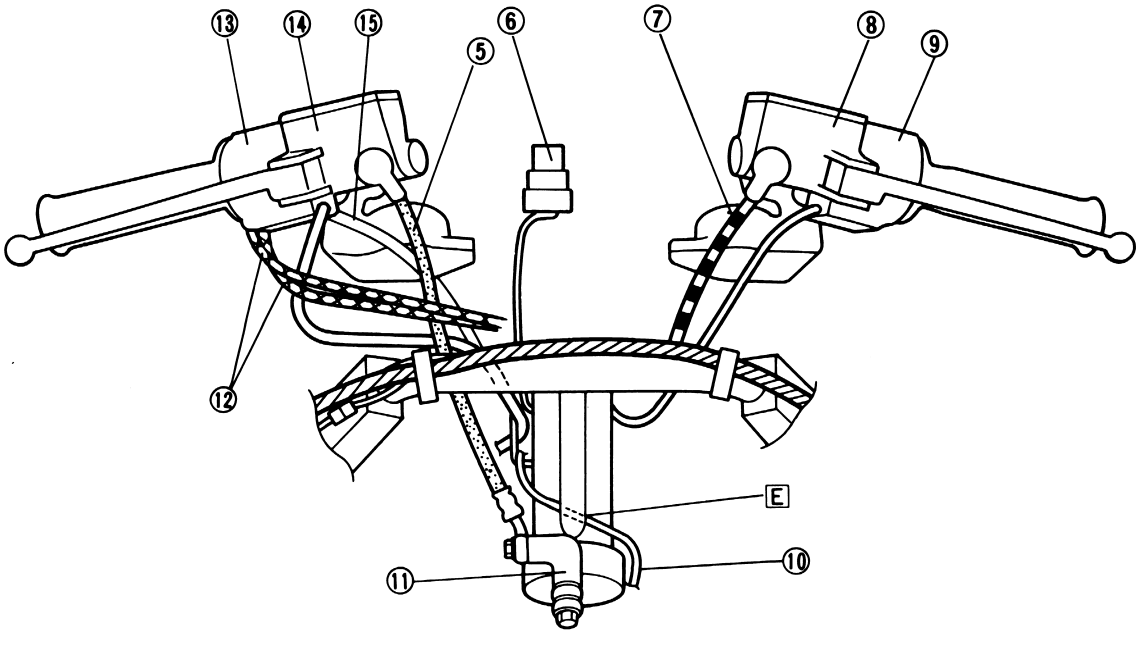
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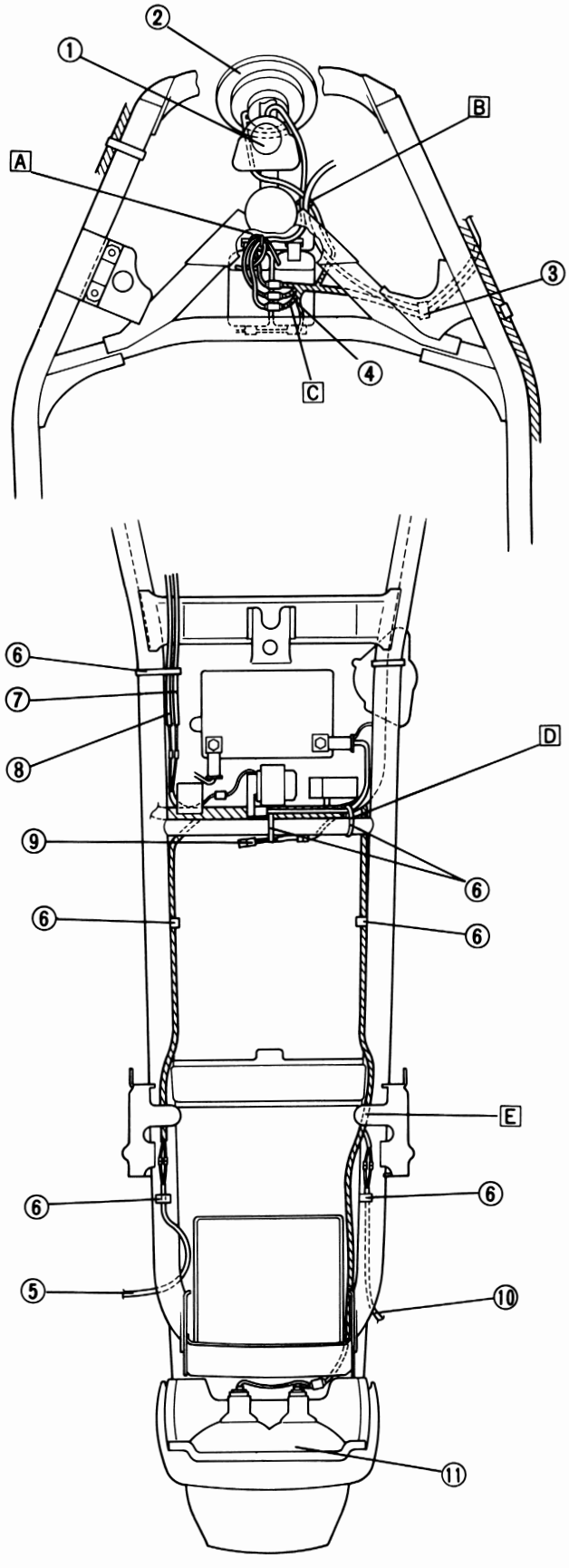
① Clamp
② Meter light lead
③ Headlight
④ Handlebar switch (Left) lead
⑤ Brake hose
⑥ Main switch
⑦ Clutch hose
⑧ Master cylinder (Clutch)
⑨ Handlebar switch (Left)
⑩ Horn lead
⑪ Joint
⑫ Throttle cable
⑬ Handlebar switch (Right)
⑭ Master cylinder (Brake)
⑮ Handlebar switch (Right) lead

[A] Connect the wire harness of the frame.
[B] To front flasher light (Right).
[C] To front flasher light (Left).
[D] Pass the brake hose in front of the handlebar switch (Right) lead.
[E] Pass the horn lead upper side of the pipe.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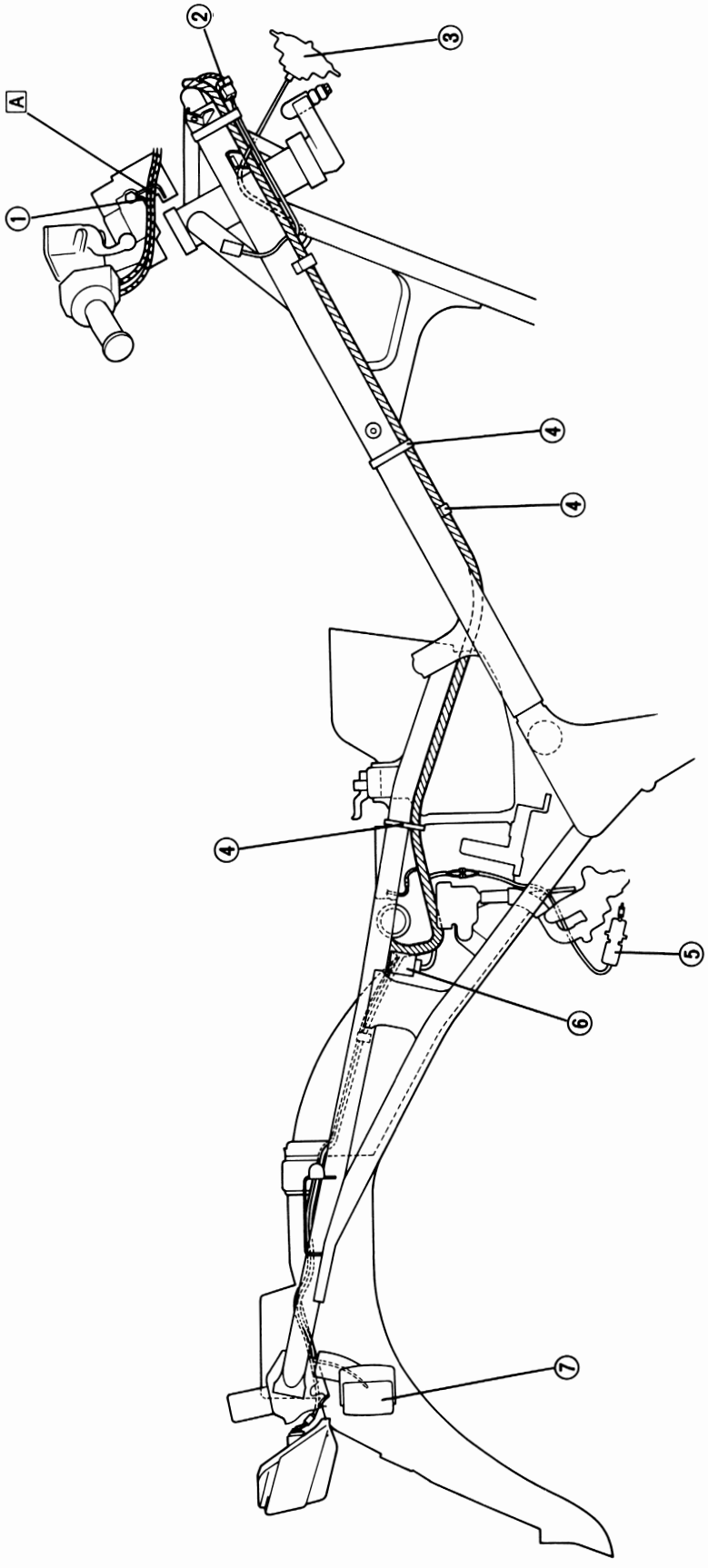
① Main switch
② Horn
③ Clamp
④ Ground
⑤ Rear flasher light (Left) lead
⑥ Clamp
⑦ Fuel level sender unit lead
⑧ Solenoid valve lead
⑨ Diode
⑩ Rear flasher light (Right) lead
⑪ Taillight

[A] Pass the ignition coil and main switch lead into the guide.
[B] Pass the main switch, handlebar switch (Right) and horn leads into the cable guide of the headpipe.
[C] Do not pinch all leads.
[D] Clamp the battery positive lead and wire harness.
[E] Pass the rear flasher light (Right) lead under the bracket.

CABLE ROUTING



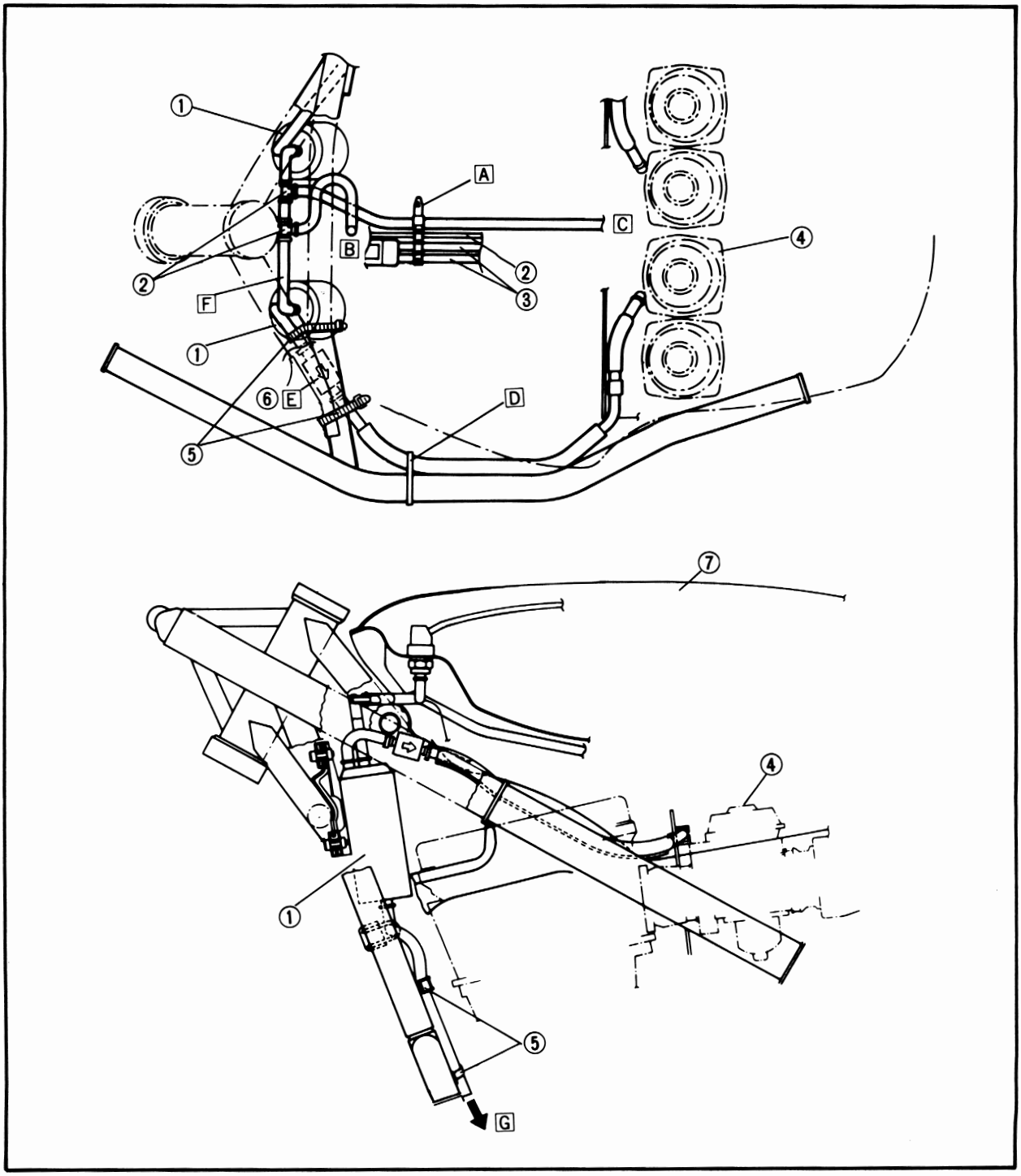
① Cable holder
② Handlebar switch (Right) lead
③ Horn
④ Clamp
⑤ Rear brake switch
⑥ Fuel reserve control unit
⑦ Rear flasher light (Right)

[A] Pass the throttle cable into the cable holder.

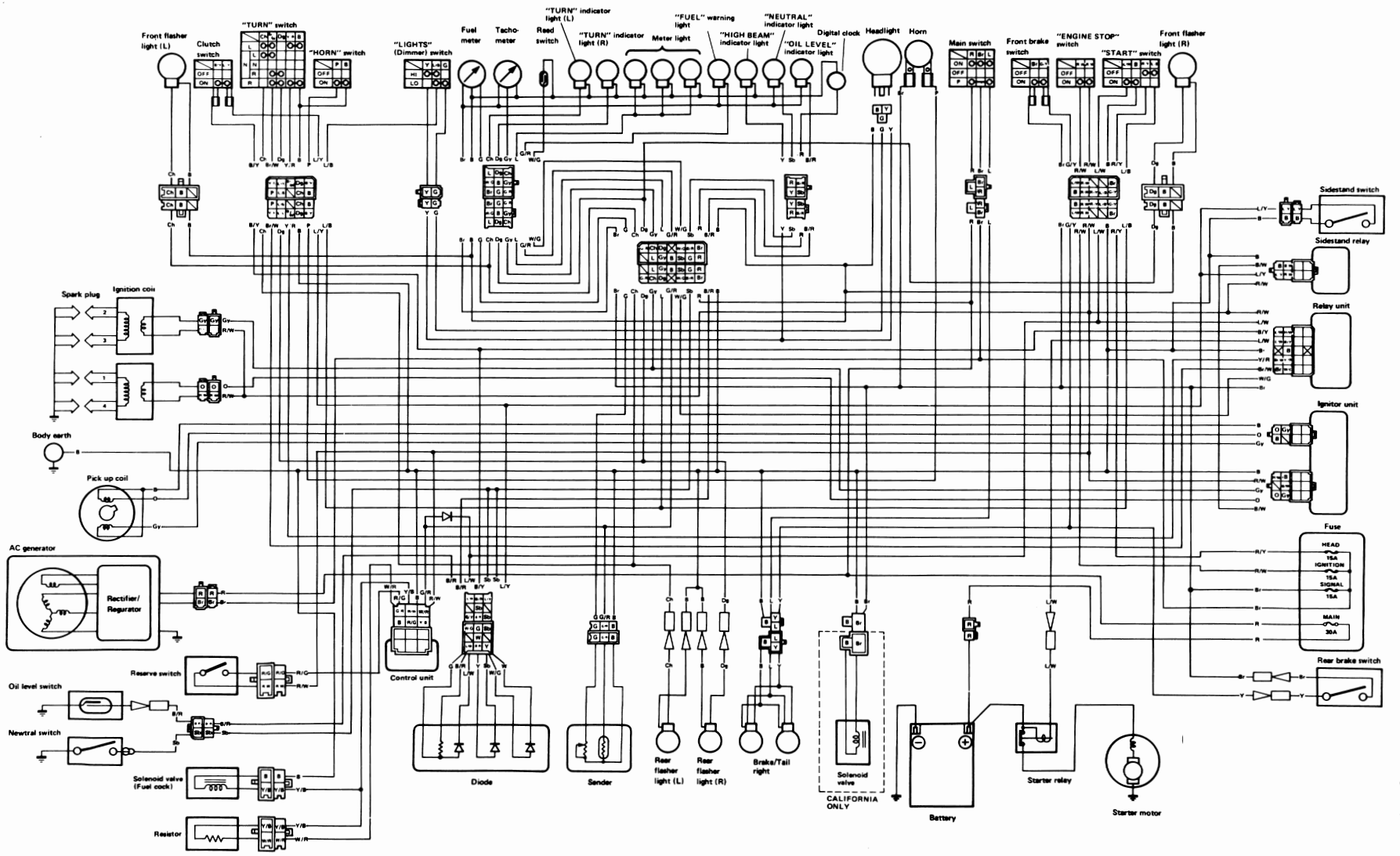
CANISTER HOSE ROUTING (FOR FJ1200SC)

① Canister
② Choke cable
③ Throttle cable
④ Carburetor
⑤ Clamp
⑥ Pressure control valve
⑦ Fuel tank

[A] Clamp the hose, throttle cables and choke cable.
[B] From fuel tank .
[C] To air vent control valve.
[D] Pass the hose into the guide.
[E] Arrow mark on the pressure control valve should face toward the carburetor side.
[F] Pass the hose upper side of the ignition coil.
[G] To atmosphere.



FJ1200S/FJ1200SC WIRING DIAGRAM



COLOR CODE

B . . . . . .Black
Ch . . . . . .Chocolate
P . . . . . .Pink
Y . . . . . .Yellow
G . . . . . .Green
Dg . . . . . .Dark green
Br. . . . . .Brown
Gy . . . . . .Gray
L . . . . . .Blue
Sb . . . . . .Sky blue
R . . . . . .Red
O . . . . . .Orange
W . . . . . .White
B/Y . . . . . .Black/Yellow
L/Y . . . . . .Blue/Yellow
R/W . . . . . .Red/White
Br/W. . . . . .Brown/White
Y/R . . . . . .Yellow/Red
R/Y . . . . . .Red/Yellow
L/B. . . . . .Blue/Black
W/G . . . . . .White/Green
G/R . . . . . .Green/Red
L/R . . . . . .Blue/Red
B/R . . . . . .Black/Red
G/Y . . . . . .Green/Yellow
L/W . . . . . .Blue/White
W/R . . . . . .White/Red
R/G . . . . . .Red/Green
Y/B . . . . . .Yellow/Black

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