YAMAHA 2004

FJR1300(S)
FJR1300A(S)

5JW1-AE5

SUPPLEMENTARY SERVICE MANUAL

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and data for the FJR1300(S)/FJR1300A(S) 2004. For complete service information procedures it is necessary to use this Supplementary Service Manual together with the following manuals.

FJR1300(N) 2001 SERVICE MANUAL: 5JW1-AE1
FJR1300(P) 2002 SUPPLEMENTARY SERVICE MANUAL: 5JW1-AE2
FJR1300(R)/FJR1300A(R) 2003 SUPPLEMENTARY SERVICE MANUAL: 5JW1-AE4

FJR1300(S)/FJR1300A(S) 2004
SUPPLEMENTARY
SERVICE MANUAL

First edition, September 2003

EAS00002

NOTICE

This manual was produced by the Yamaha Motor Company, Ltd. primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to include all the knowledge of a mechanic in one manual. Therefore, anyone who uses this book to perform maintenance and repairs on Yamaha vehicles should have a basic understanding of mechanics and the techniques to repair these types of vehicles. Repair and maintenance work attempted by anyone without this knowledge is likely to render the vehicle unsafe and unfit for use.

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

NOTE:

Designs and specifications are subject to change without notice.

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IMPORTANT MANUAL INFORMATION

Particularly important information is distinguished in this manual by the following.

⚠ 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 checking 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.

EAS00007

HOW TO USE THIS MANUAL

This manual is intended as a handy, easy-to-read reference book for the mechanic. Comprehensive explanations of all installation, removal, disassembly, assembly, repair and check procedures are laid out with the individual steps in sequential order.

① The manual is divided into chapters. An abbreviation and symbol in the upper right corner of each page indicate the current chapter.
Refer to “SYMBOLS”.

② Each chapter is divided into sections. The current section title is shown at the top of each page, except in chapter 3 (“PERIODIC CHECKS AND ADJUSTMENTS”), where the sub-section title(s) appears.

③ Sub-section titles appear in smaller print than the section title.

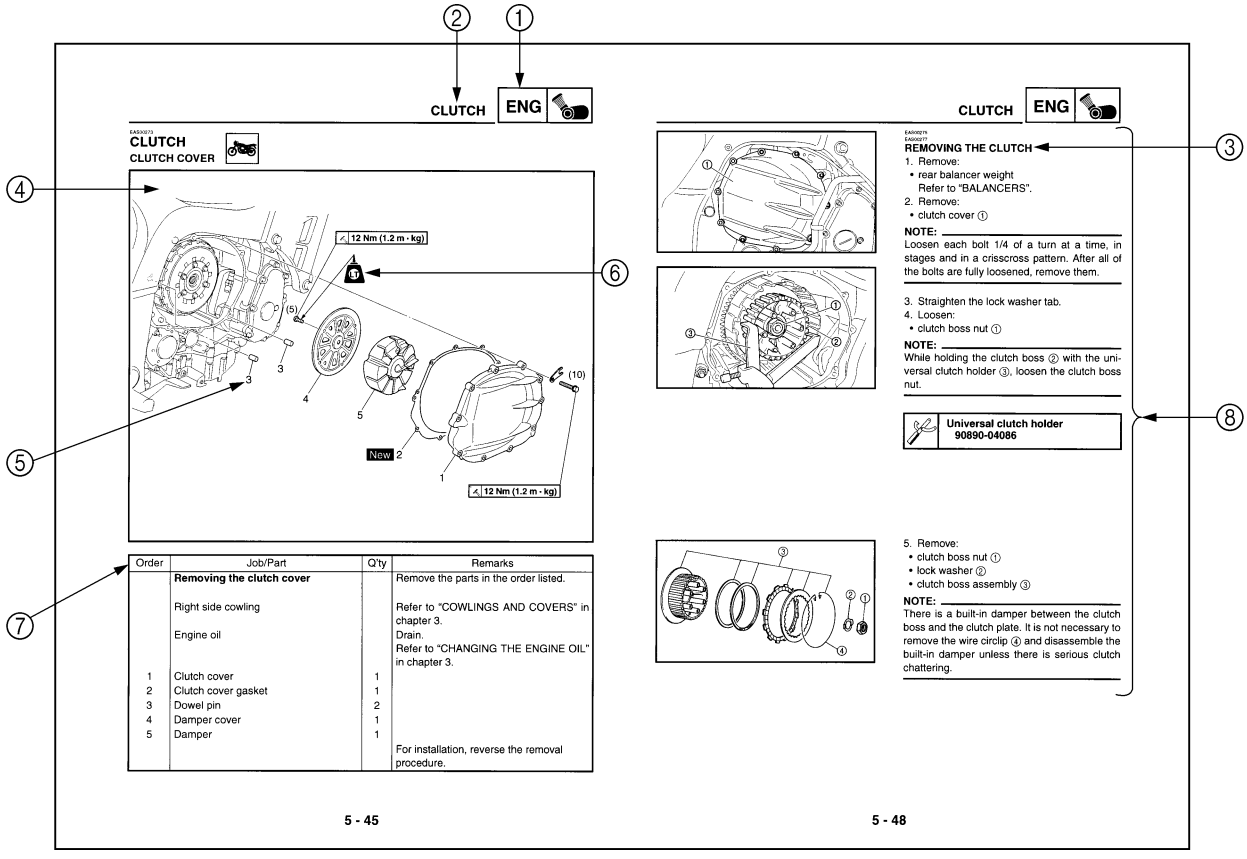
④ To help identify parts and clarify procedure steps, there are exploded diagrams at the start of each removal and disassembly section.

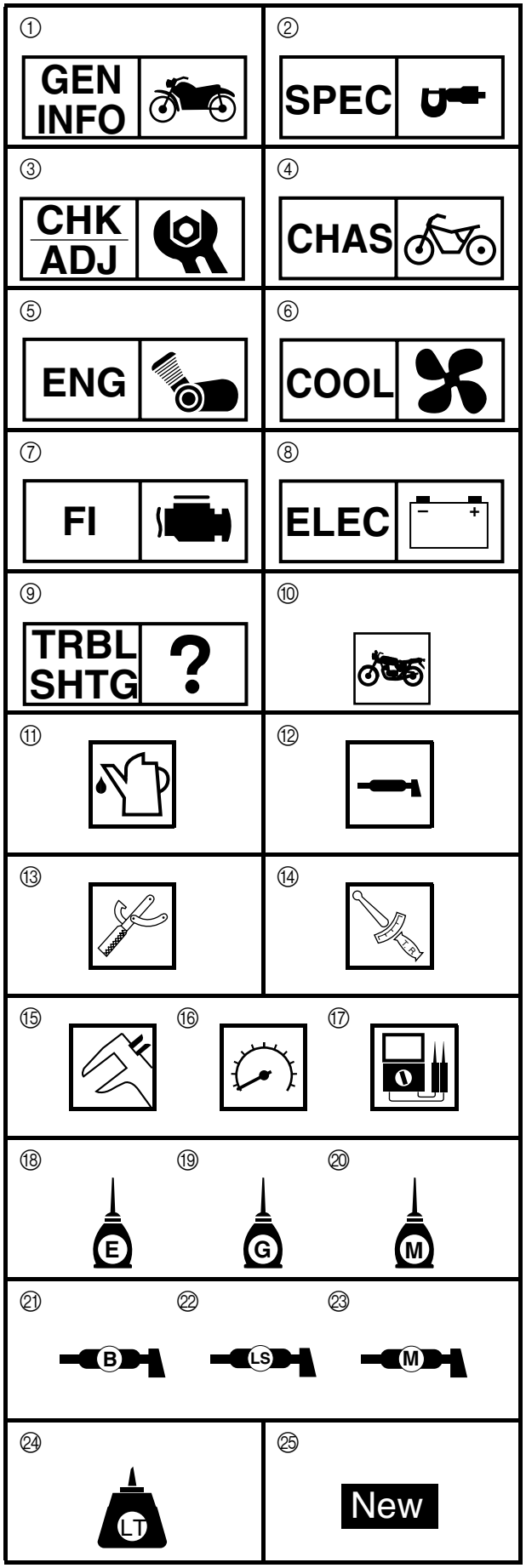
⑤ Numbers are given in the order of the jobs in the exploded diagram. A circled number indicates a disassembly step.

⑥ Symbols indicate parts to be lubricated or replaced.
Refer to “SYMBOLS”.

⑦ A job instruction chart accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc.

⑧ Jobs requiring more information (such as special tools and technical data) are described sequentially.





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SYMBOLS

The following symbols are not relevant to every vehicle.

Symbols ① to ⑨ indicate the subject of each chapter.

① General information
② Specifications
③ Periodic checks and adjustments
④ Chassis
⑤ Engine
⑥ Cooling system
⑦ Fuel injection system
⑧ Electrical system
⑨ Troubleshooting

Symbols ⑩ to ⑰ indicate the following.

⑩ Serviceable with engine mounted
⑪ Filling fluid
⑫ Lubricant
⑬ Special tool
⑭ Tightening torque
⑮ Wear limit, clearance
⑯ Engine speed
⑰ Electrical data

Symbols ⑱ to ㉓ in the exploded diagrams indicate the types of lubricants and lubrication points.

⑱ Engine oil
⑲ Gear oil
⑳ Molybdenum disulfide oil
㉑ Wheel bearing grease
㉒ Lithium soap base grease
㉓ Molybdenum disulfide grease

Symbols ㉔ to ㉕ in the exploded diagrams indicate the following.

㉔ Apply locking agent (LOCTITE®)
㉕ Replace the part

CONTENTS

GENERAL INFORMATION

FEATURES

OUTLINE

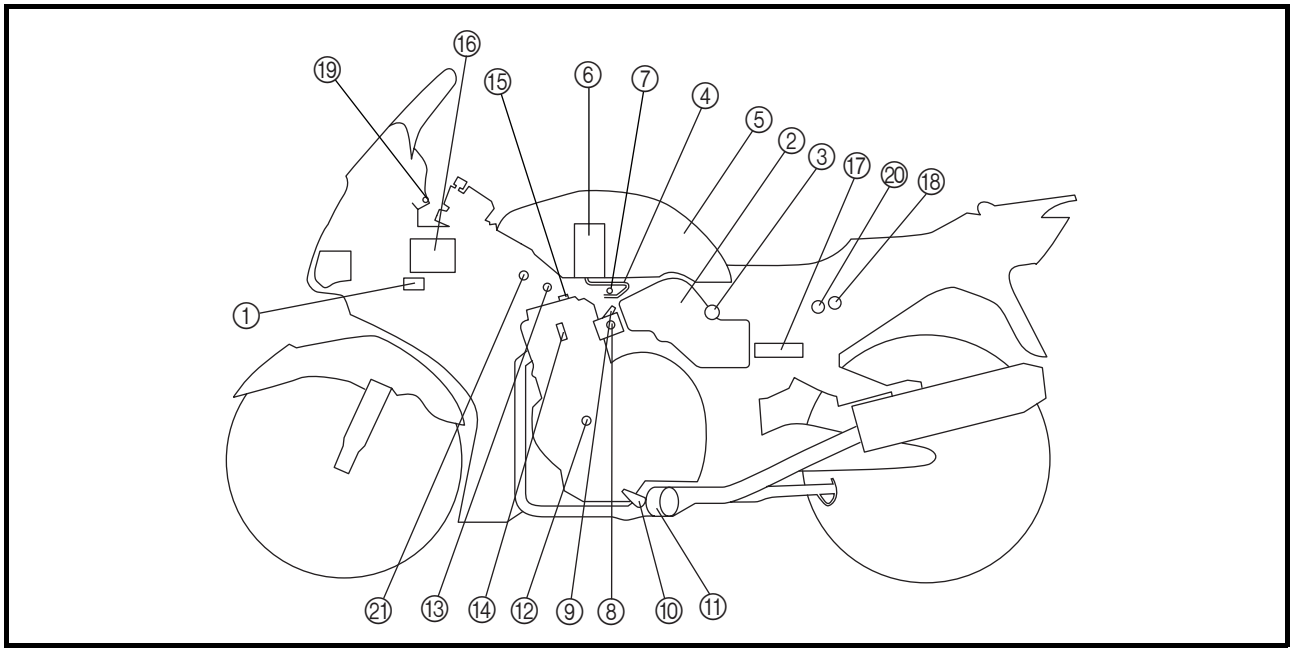
The main function of a fuel supply system is to provide fuel to the combustion chamber at the optimum air-fuel ratio in accordance with the engine operating conditions and the atmospheric temperature.

In the conventional carburetor system, the air-fuel ratio of the mixture that is supplied to the combustion chamber is created by the volume of the intake air and the fuel that is metered by the jet that is used in the respective carburetor.

Despite the same volume of intake air, the fuel volume requirement varies by the engine operating conditions, such as acceleration, deceleration, or operating under a heavy load. Carburetors that meter the fuel through the use of jets have been provided with various auxiliary devices, so that an optimum air-fuel ratio can be achieved to accommodate the constant changes in the operating conditions of the engine.

As the requirements for the engine to deliver more performance and cleaner exhaust gases increase, it becomes necessary to control the air-fuel ratio in a more precise and finely tuned manner. To accommodate this need, this model has adopted an electronically controlled fuel injection (FI) system, in place of the conventional carburetor system. This system can achieve an optimum air-fuel ratio required by the engine at all times by using a microprocessor that regulates the fuel injection volume according to the engine operating conditions detected by various sensors.

The adoption of the FI system has resulted in a highly precise fuel supply, improved engine response, better fuel economy, and reduced exhaust emissions. Furthermore, the air induction system (AI system) has been placed under computer control together with the FI system in order to realize cleaner exhaust gases.



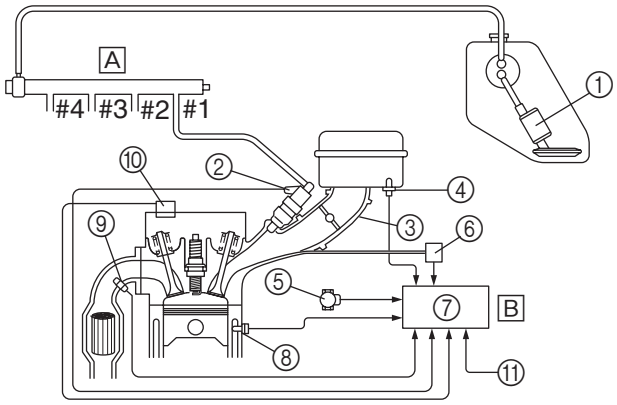
① Ignition coil
② Air filter case
③ Intake air temperature sensor
④ Fuel delivery hose
⑤ Fuel tank
⑥ Fuel pump
⑦ Intake air pressure sensor
⑧ Throttle position sensor
⑨ Fuel injector
⑩ O_2 sensor
⑪ Catalytic converter
⑫ Crankshaft position sensor
⑬ Coolant temperature sensor
⑭ Spark plug
⑮ Cylinder identification sensor
⑯ Battery
⑰ ECU
⑱ Fuel injection system relay
⑲ Engine trouble warning light
⑳ Lean angle cut-off switch
㉑ Air cut-off valve

FI SYSTEM

The fuel pump delivers fuel to the injector via the fuel filter. The fuel pump maintains the fuel pressure that is applied to the injector at only 324 kPa (3.24 kg/cm^2, 46.08 psi). Accordingly, when the energizing signal from the ECU energizes the injector, the fuel passage opens, causing the fuel to be injected into the intake manifold only during the time the passage remains open. Therefore, the longer the length of time the injector is energized (injection duration), the greater the volume of fuel that is supplied. Conversely, the shorter the length of time the injector is energized (injection duration), the lesser the volume of fuel that is supplied.

The injection duration and the injection timing are controlled by the ECU. Signals that are input from the throttle position sensor, crankshaft position sensor, intake air pressure sensor, intake air temperature sensor, coolant temperature sensor, and O_2 sensor enable the ECU to determine the injection duration. The injection timing is determined through the signals from the crankshaft position sensor and the cylinder identification sensor. As a result, the volume of fuel that is required by the engine can be supplied at all times in accordance with the driving conditions.

Illustration is for reference only.



① Fuel pump
② Fuel injector
③ Throttle body
④ Intake air temperature sensor
⑤ Throttle position sensor
⑥ Intake air pressure sensor
⑦ ECU
⑧ Coolant temperature sensor
⑨ O_2 sensor
⑩ Cylinder identification sensor
⑪ Crankshaft position sensor
Ⓐ Fuel system
Ⓑ Control system

SPECIFICATIONS

GENERAL SPECIFICATIONS

Item	Standard	Limit
Model code	FJR1300: 5JWG (for Europe)	----
	5JWH (for F)	----
	5JWJ (for Oceania)	----
	FJR1300A: 5VS7 (for Europe)	----
	5VS8 (for F)	----
	5VS9 (for Oceania)	----

ENGINE SPECIFICATIONS

Item	Standard	Limit
Fuel pump		
Pump type	Electric	----
Model (manufacturer)	5JW 21 (DENSO)	----
Maximum consumption amperage	6.0 A	----
Output pressure	324 kPa (3.24 kg/cm^2, 46.08 psi)	----
Throttle bodies		
Model (manufacturer) × quantity	42EHS (MIKUNI) × 4	----
Intake vacuum pressure	33.3 kPa (250 mmHg, 9.8 inHg)	----
Throttle cable free play (at the flange of the throttle grip)	3 ~ 5 mm (0.12 ~ 0.20 in)	----
ID mark	5JW1 50	----
Fuel injectors		
Model	INP-151	----
Manufacturer	NIPPON INJECTOR	----
Quantity	4	----

ELECTRICAL SPECIFICATIONS

Item	Standard	Limit
Ignition system		
Ignition system type	Transistorized coil ignition (digital)	----
Ignition timing	5° BTDC at 1,050 r/min	----
Advancer type	Electric	----
Pickup coil resistance/color	420.8 ~ 569.3 Ω/Gy–B	----
Transistorized coil ignition unit model	F8T818 (MITSUBISHI)	----
(manufacturer)	F8T819 (MITSUBISHI) (for F)	----
Starting circuit cut-off relay		
Model (manufacturer)	G8R-30Y-R (OMRON)	----
Coil resistance	180 Ω	----
Fuel injection system relay		
Model (manufacturer)	G8R-30Y-R (OMRON)	----

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PERIODIC CHECKS AND ADJUSTMENTS

INTRODUCTION

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

PERIODIC MAINTENANCE AND LUBRICATION CHART

NOTE:

- **The annual checks must be performed every year, except if a kilometer-based maintenance is performed instead.**
- From 50,000 km, repeat the maintenance intervals starting from 10,000 km.
- Items marked with an asterisk should be performed by a Yamaha dealer as they require special tools, data and technical skills.

No.		ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READING (× 1,000 km)					ANNUAL CHECK
				1	10	20	30	40	
1	*	**Fuel line**	• Check fuel hoses for cracks or damage.		√	√	√	√	√
2	*	**Spark plugs**	• Check condition. • Clean and regap.		√		√		
			• Replace.			√		√	
3	*	**Valves**	• Check valve clearance. • Adjust.	**Every 40,000 km**					
4		**Air filter element**	• Clean.		√		√		
			• Replace.			√		√	
5	*	**Clutch**	• Check operation, fluid level and vehicle for fluid leakage.	√	√	√	√	√	
6	*	**Front brake**	• Check operation, fluid level and vehicle for fluid leakage.	√	√	√	√	√	√
			• Replace brake pads.	**Whenever worn to the limit**					
7	*	**Rear brake**	• Check operation, fluid level and vehicle for fluid leakage.	√	√	√	√	√	√
			• Replace brake pads.	**Whenever worn to the limit**					
8	*	**Brake hoses**	• Check for cracks or damage.		√	√	√	√	√
			• Replace.	**Every 4 years**					
9	*	**Wheels**	• Check runout and for damage.		√	√	√	√	
10	*	**Tires**	• Check tread depth and for damage. • Replace if necessary. • Check air pressure. • Correct if necessary.		√	√	√	√	√
11	*	**Wheel bearings**	• Check bearing for looseness or damage.		√	√	√	√	
12	*	**Swingarm**	• Check operation and for excessive play.		√	√	√	√	
			• Lubricate with lithium-soap-based grease.	**Every 50,000 km**					
13	*	**Steering bearings**	• Check bearing play and steering for roughness.	√	√	√	√	√	
			• Lubricate with lithium-soap-based grease.	**Every 20,000 km**					
14	*	**Chassis fasteners**	• Make sure that all nuts, bolts and screws are properly tightened.		√	√	√	√	√

PERIODIC MAINTENANCE AND LUBRICATION CHART

CHK ADJ

No.		ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READING (× 1,000 km)					ANNUAL CHECK
				1	10	20	30	40	
15		**Sidestand, center-stand**	• Check operation. • Lubricate.		√	√	√	√	√
16	*	**Sidestand switch**	• Check operation.	√	√	√	√	√	√
17	*	**Front fork**	• Check operation and for oil leakage.		√	√	√	√	
18	*	**Shock absorber assembly**	• Check operation and shock absorber for oil leakage.		√	√	√	√	
19	*	**Rear suspension relay arm and connecting arm pivoting points**	• Check operation.		√	√	√	√	
			• Lubricate with lithium-soap-based grease.			√		√	
20	*	**Electronic fuel injection**	• Adjust engine idling speed and synchronization.	√	√	√	√	√	√
21		**Engine oil**	• Change. • Check oil level and vehicle for oil leakage.	√	√	√	√	√	√
22		**Engine oil filter cartridge**	• Replace.	√		√		√	
23	*	**Cooling system**	• Check coolant level and vehicle for coolant leakage.		√	√	√	√	√
			• Change.	**Every 3 years**					
24		**Final gear oil**	• Check oil level and vehicle for oil leakage. • Change.	√	√	√	√	√	
25	*	**Front and rear brake switches**	• Check operation.	√	√	√	√	√	√
26		**Moving parts and cables**	• Lubricate.		√	√	√	√	√
27	*	**Throttle grip housing and cable**	• Check operation and free play. • Adjust the throttle cable free play if necessary. • Lubricate the throttle grip housing and cable.		√	√	√	√	√
28	*	**Muffler and exhaust pipe**	• Check the screw clamp for looseness.	√	√	√	√	√	
29	*	**Lights, signals and switches**	• Check operation. • Adjust headlight beam.	√	√	√	√	√	√

NOTE:

- The air filter needs more frequent service if you are riding in unusually wet or dusty areas.
- Hydraulic brake and clutch service
  - Regularly check and, if necessary, correct the brake and clutch fluid levels.
  - Every two years replace the internal components of the brake master cylinders and calipers as well as the clutch master and release cylinders, and change the brake and clutch fluids.
  - Replace the brake and clutch hoses every four years and if cracked or damaged.

SEATS AND FUEL TANK

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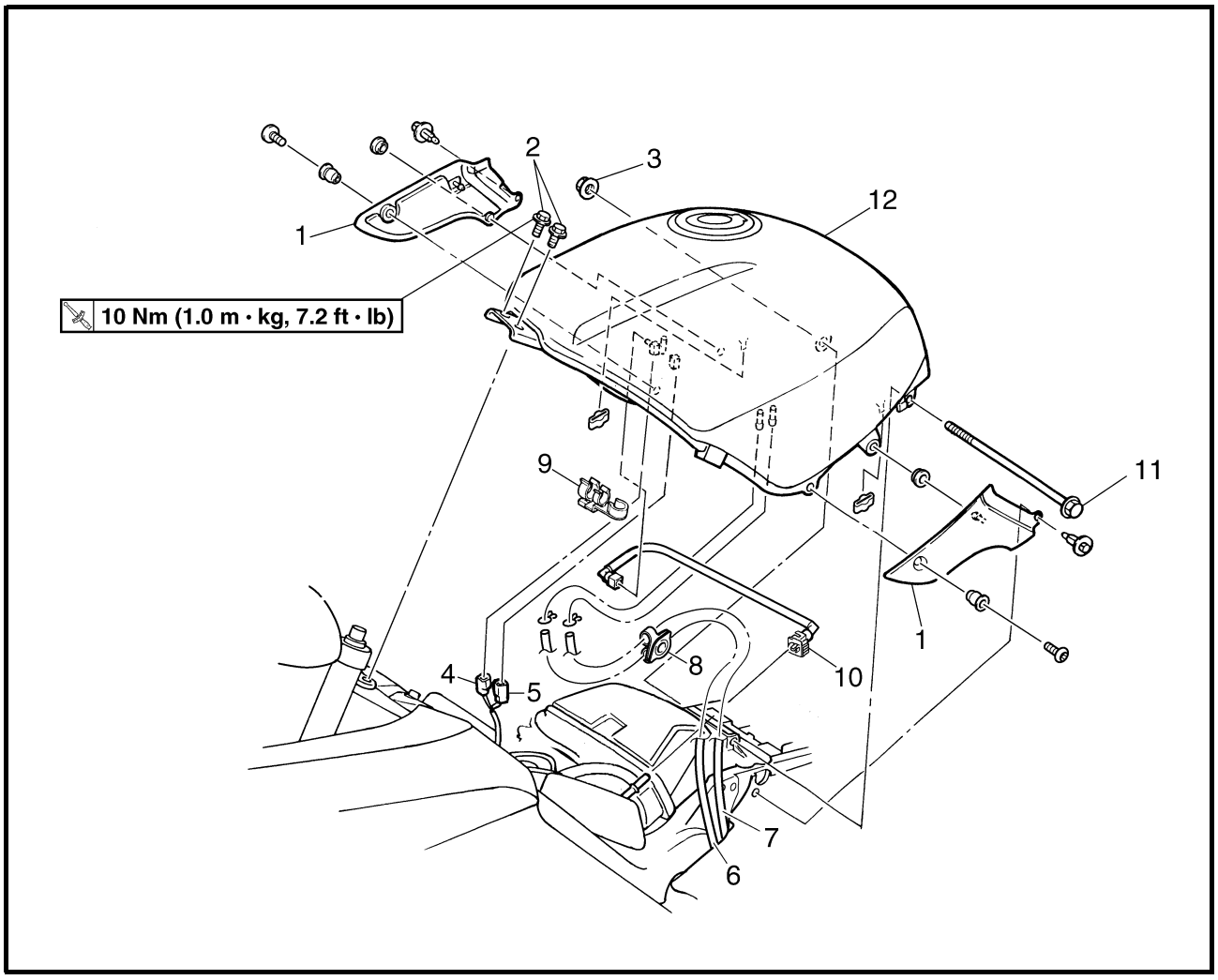
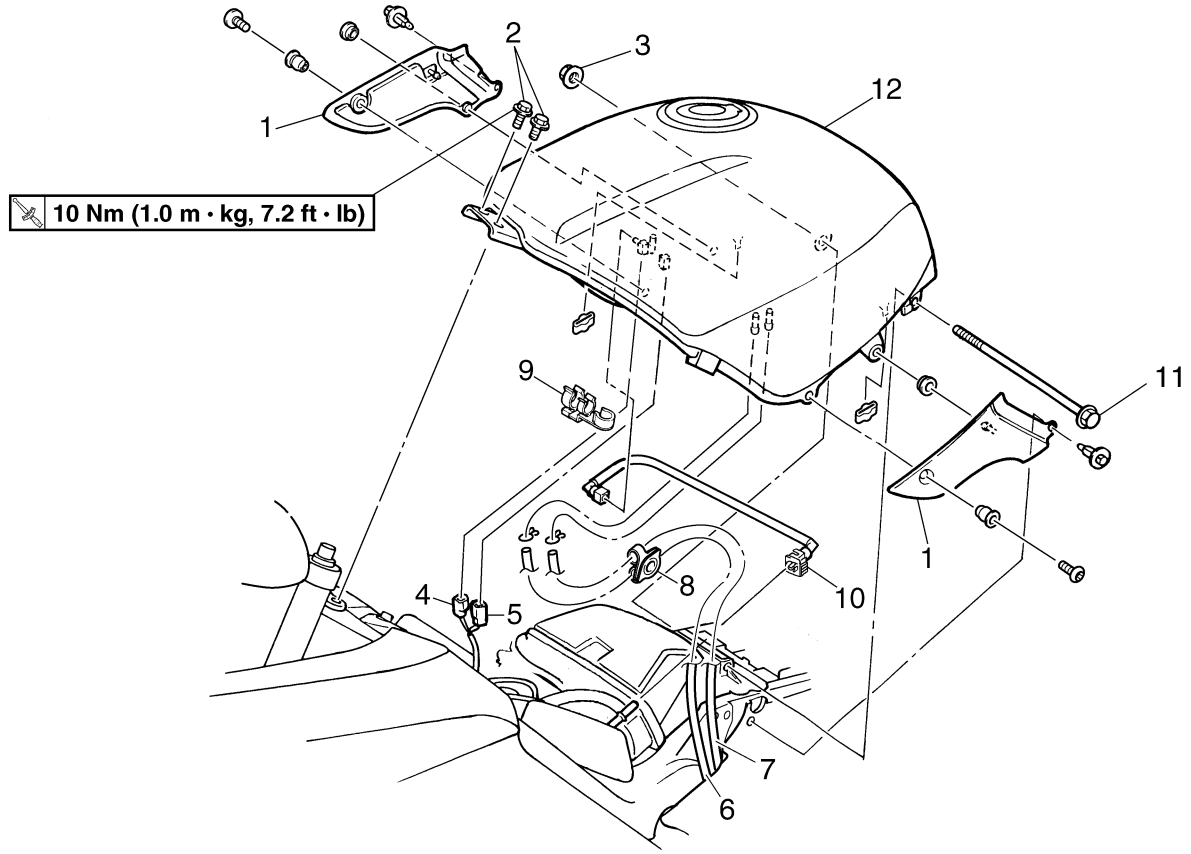
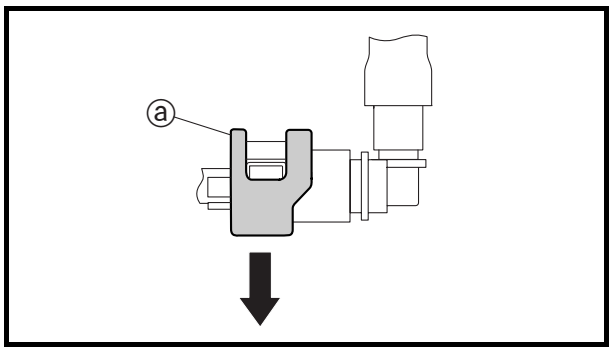
FUEL TANK



Order	Job/Part	Q'ty	Remarks
	Removing the fuel tank		Remove the parts in the order listed.
	Rider seat		Refer to "SEATS AND FUEL TANK" in chapter 3. (Manual No.: 5JW1-AE1)
	Fuel		Drain.
1	Fuel tank side panel (left and right)	1/1	
2	Bolt	2	
3	Nut	1	
4	Fuel sender coupler	1	
5	Fuel pump coupler	1	
6	Fuel tank overflow hose	1	
7	Fuel tank breather hose	1	
8	Hose holder	1	
9	Fuel hose holder	1	



Order	Job/Part	Q'ty	Remarks
10	Fuel hose	1	Refer to "REMOVING THE FUEL TANK". Refer to "INSTALLING THE FUEL HOSE" in chapter 3. (Manual No.: 5JW1-AE1)
11	Bolt	1	
12	Fuel tank	1	Refer to "REMOVING THE FUEL TANK". For installation, reverse the removal procedure.



REMOVING THE FUEL TANK

1. Remove the fuel in the fuel tank through the fuel tank filler hole with a pump.
2. Remove:
   • fuel hose

CAUTION:

Although the fuel has been removed from the fuel tank, be careful when removing the fuel hose since there may be fuel remaining in it.

NOTE:

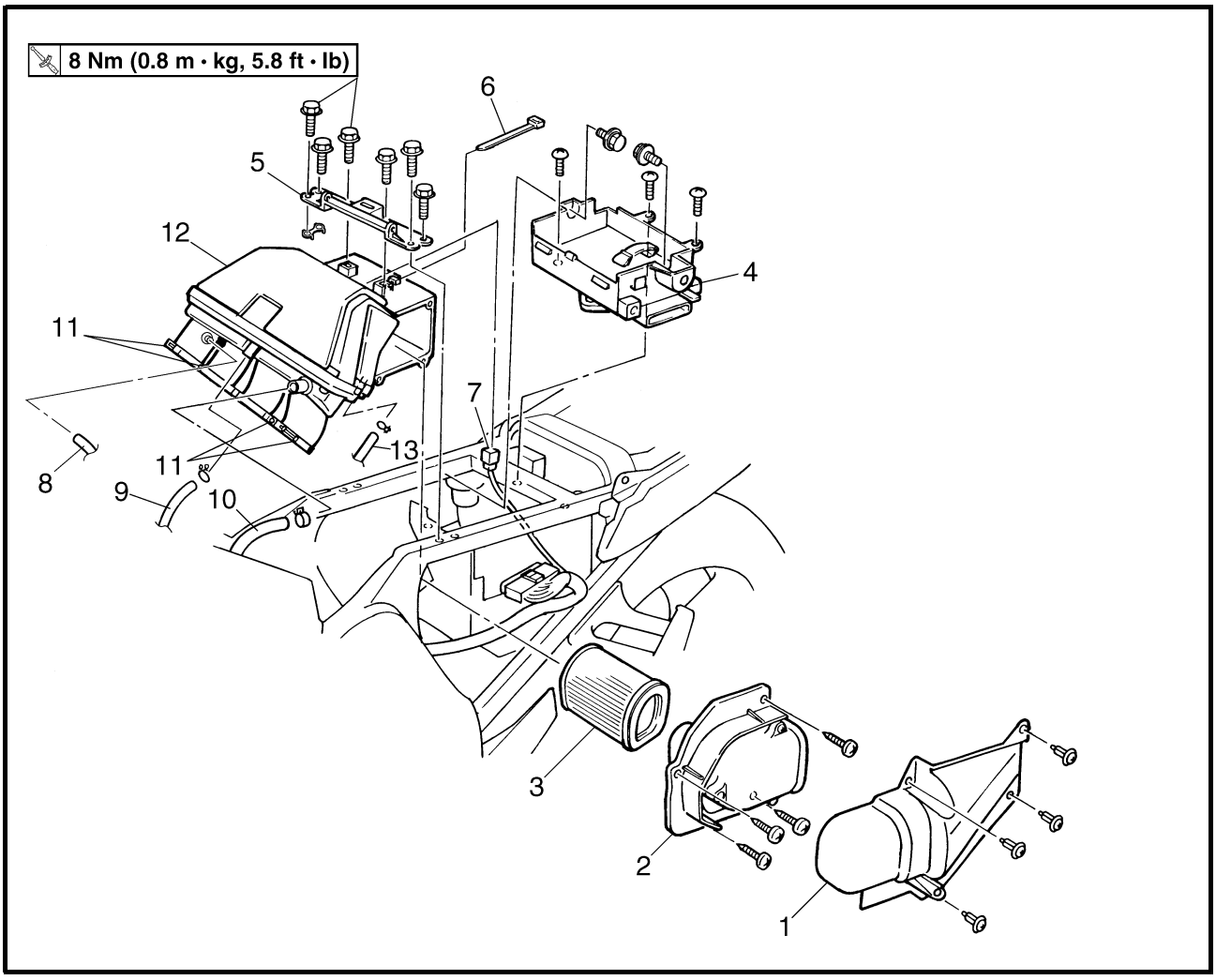
- To remove the fuel hose from the fuel injection pipe, slide the cover ⓐ on the end of the hose in the direction of the arrow shown, and then remove the hose.
- Before removing the hose, place a few rags in the area under the hose.

3. Remove:
   • fuel tank

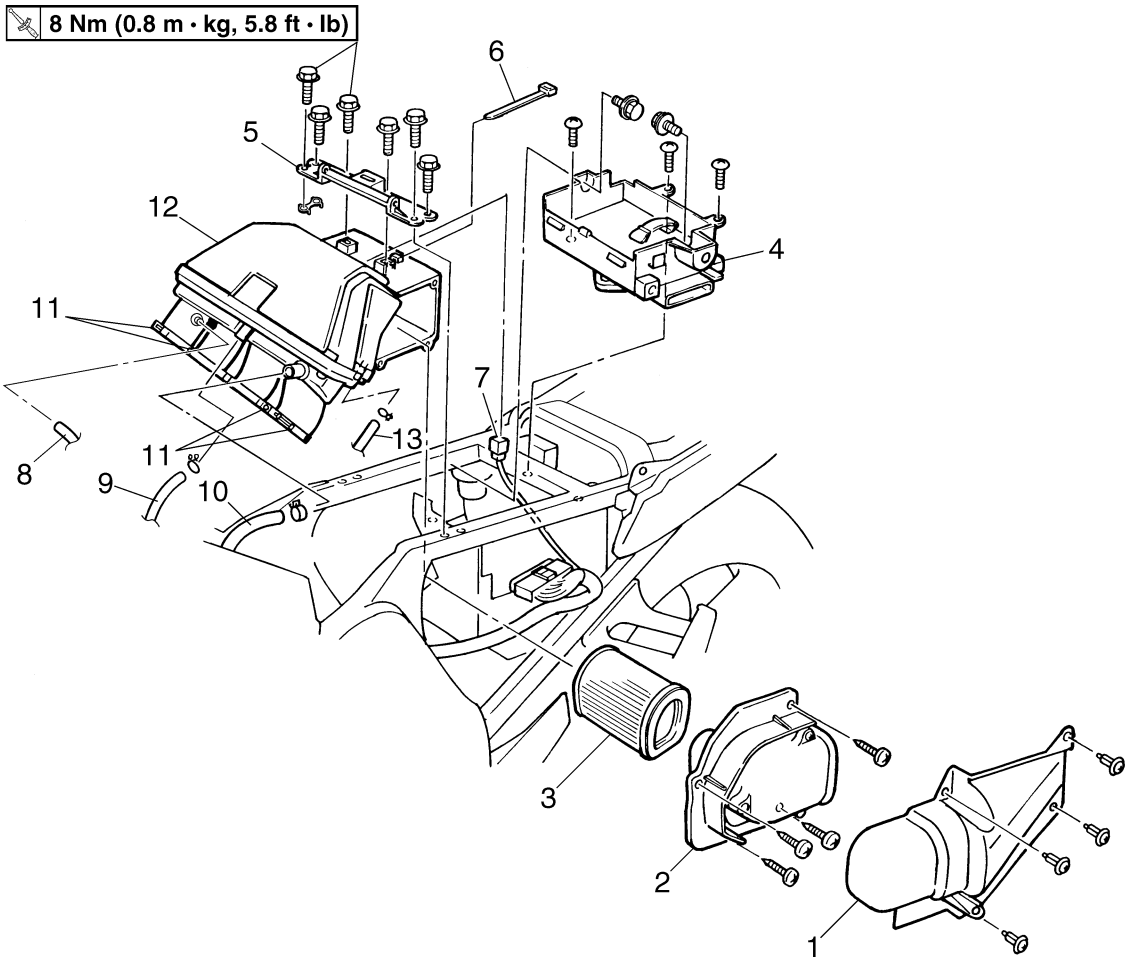
NOTE:

Do not set the fuel tank down on the installation surface of the fuel pump. Be sure to lean the fuel tank up against a wall, etc., in an upright position.

EAS00043
AIR FILTER CASE



Order	Job/Part	Q'ty	Remarks
	Removing the air filter case		Remove the parts in the order listed.
	Seats		Refer to "SEATS AND FUEL TANK" in chapter 3. (Manual No.: 5JW1-AE1)
	Fuel tank		Refer to "SEATS AND FUEL TANK".
	Side covers (left and right)		Refer to "COWLINGS AND COVERS". (Manual No.: 5JW1-AE2)
1	Air shroud	1	
2	Air filter case cover	1	
3	Air filter element	1	
4	Tray	1	
5	Fuel tank bracket	1	
6	Plastic locking tie	1	
7	Intake air temperature sensor coupler	1	
8	Bypass air unit inlet hose	1	Disconnect.
9	Crankcase breather hose	1	Disconnect.

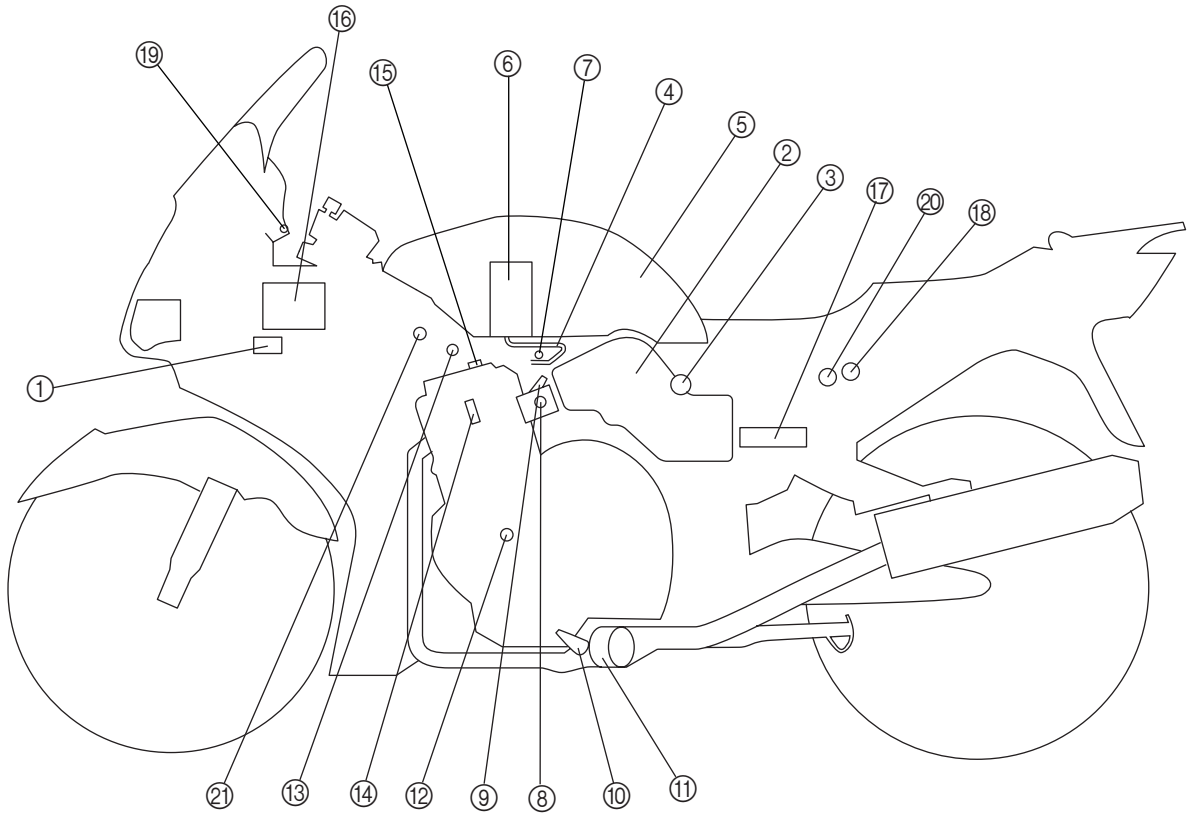


Order	Job/Part	Q'ty	Remarks
10	Air induction system hose 5	1	Disconnect.
11	Clamp screw	4	Loosen.
12	Air filter case	1	
13	Air filter case breather hose	1	
			For installation, reverse the removal procedure.

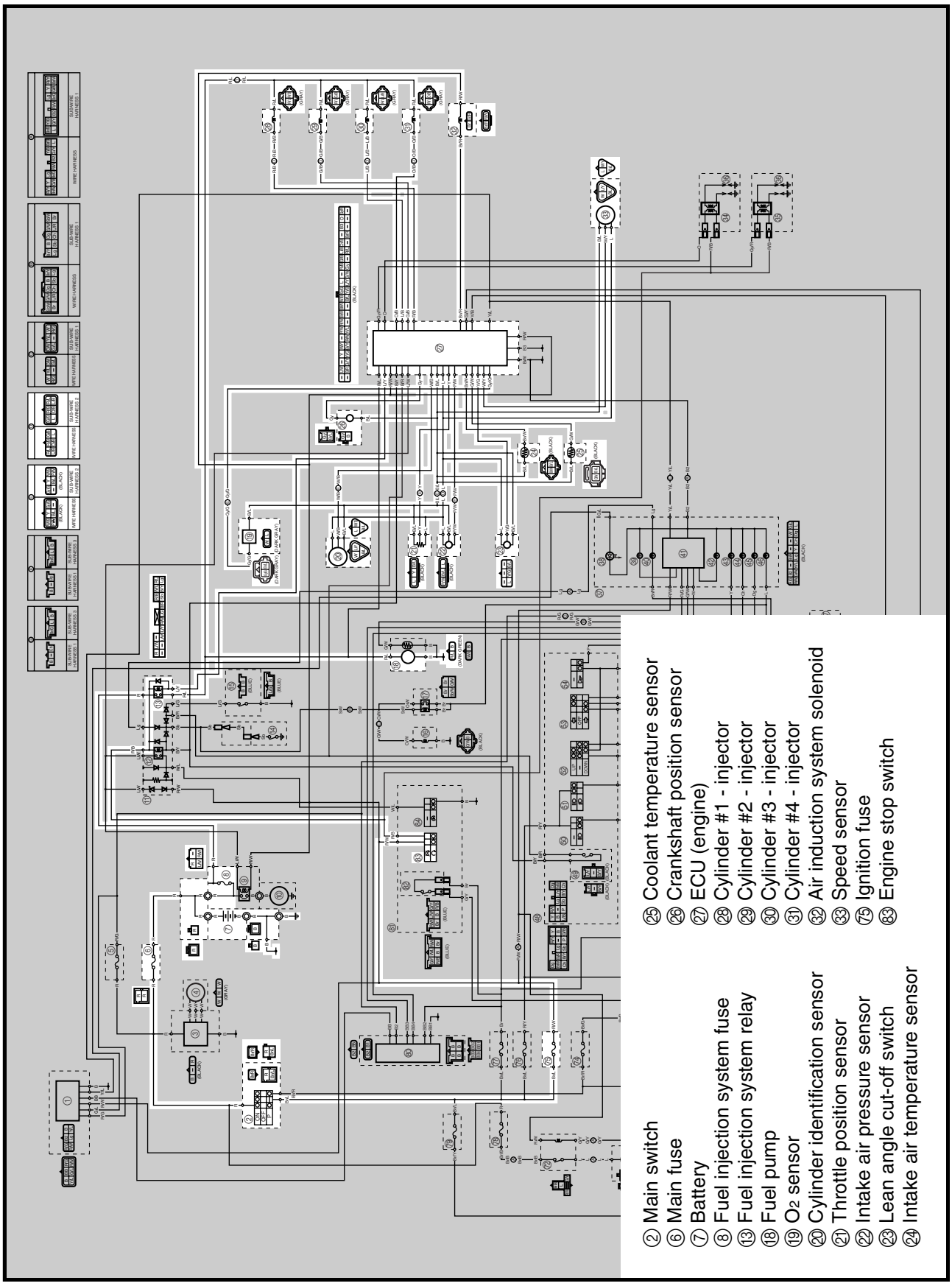
FUEL INJECTION SYSTEM

FUEL INJECTION SYSTEM

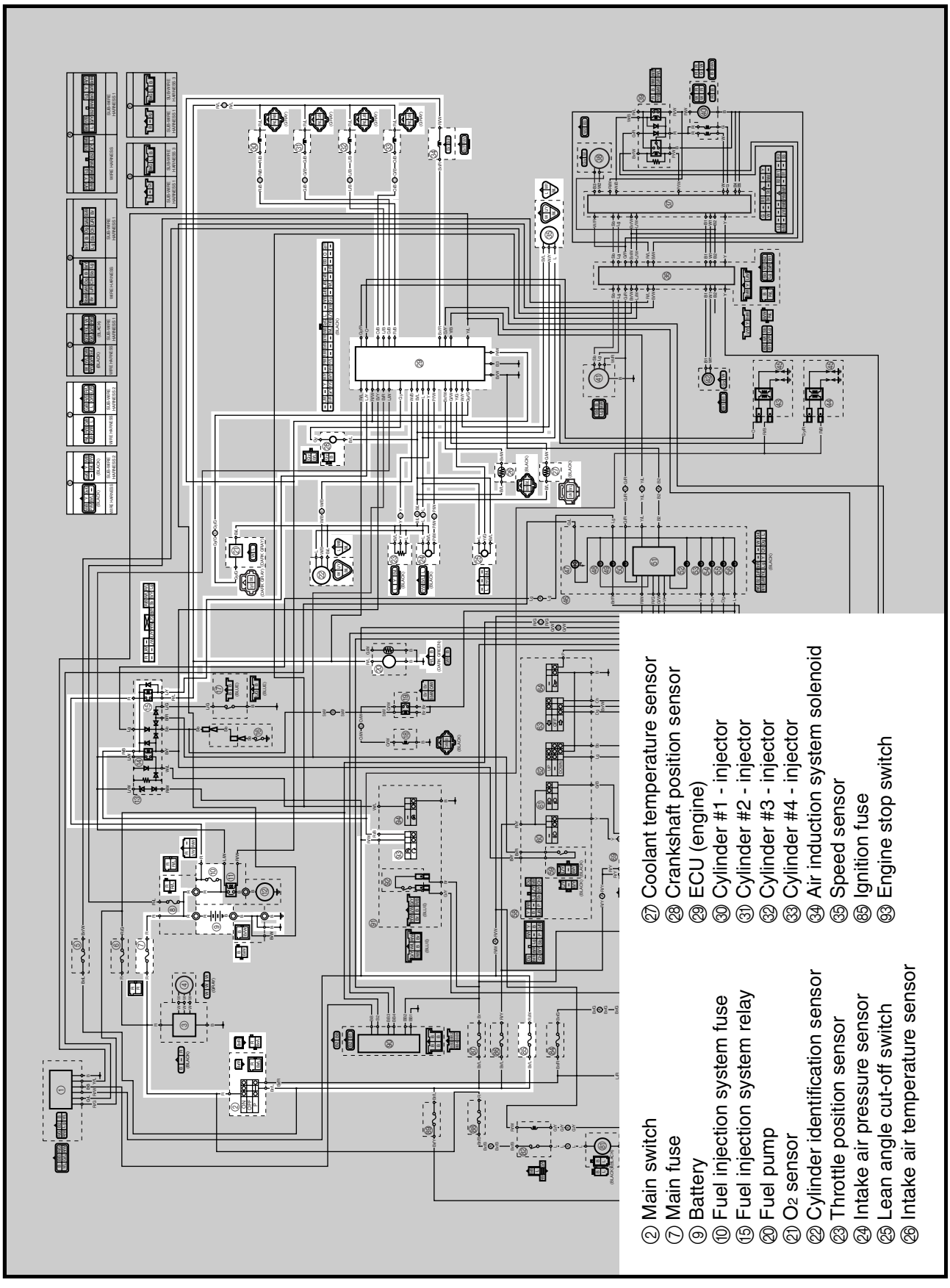
① Ignition coil
② Air filter case
③ Intake air temperature sensor
④ Fuel delivery hose
⑤ Fuel tank
⑥ Fuel pump
⑦ Intake air pressure sensor
⑧ Throttle position sensor
⑨ Fuel injector
⑩ O_2 sensor
⑪ Catalytic converter
⑫ Crankshaft position sensor
⑬ Coolant temperature sensor
⑭ Spark plug
⑮ Cylinder identification sensor
⑯ Battery
⑰ ECU
⑱ Fuel injection system relay
⑲ Engine trouble warning light
⑳ Lean angle cut-off switch
㉑ Air cut-off valve



WIRING DIAGRAM (FJR1300)



WIRING DIAGRAM (FJR1300A)



* Table of self-diagnostic fault code numbers displayed on meter

No.	Symptom	Able/ unable to start	Able/ unable to drive	No.	Symptom	Able/ unable to start	Able/ unable to drive
11	No normal signals are received from the cylinder identification sensor.	Able	Able	30	The motorcycle has overturned.	Unable	Unable
12	No normal signals are received from the crankshaft position sensor.	Unable	Unable	31	The amount of air-fuel ratio feedback compensation is maintained continuously in the vicinity of the upper limit (lean air-fuel ratio).	Able	Able
13	Intake air pressure sensor - open or short circuit detected.	Able	Able	32	The amount of air-fuel ratio feedback compensation is maintained continuously in the vicinity of the lower limit (rich air-fuel ratio).	Able	Able
14	Faulty intake air pressure sensor pipe system; a hose is detached or clogged.	Able	Able	33	Open circuit detected in the primary wire of the ignition coil (#1,4).	Able	Able
15	Throttle position sensor - open or short circuit detected.	Able	Able	34	Open circuit detected in the primary wire of the ignition coil (#2, 3).	Able	Able
16	A stuck throttle position sensor is detected.	Able	Able	41	Lean angle cut-off switch - open or short circuit detected.	Unable	Unable
19	A break or disconnection of the black/red lead of the ECU is detected.	Unable	Unable	42	No normal signals are received from the speed sensor; or, an open or short circuit is detected in the neutral switch.	Able	Able
21	Coolant temperature sensor - open or short circuit detected.	Able	Able	43	The ECU is unable to monitor the battery voltage (an open circuit in the line to the ECU).	Able	Able
22	Intake air temperature sensor - open or short circuit detected.	Able	Able	44	An error is detected while reading or writing on EEPROM (CO adjustment value).	Able	Able
24	No normal signals are received from the O_2 sensor.	Able	Able	50	Faulty ECU memory. When this malfunction is detected, the code number might not appear on the meter.	Unable	Unable

- How to erase the self-diagnostic fault code from memory:
  If the ECU detects a normal signal upon the completion of the repair of the malfunction, the self-diagnostic fault code disappears from the meter and is replaced by the normal clock display. However, the self-diagnostic fault code of the previous malfunction remains in the ECU memory as part of the malfunction history. To erase the self-diagnostic fault code from the malfunction history, the operation for diagnostic code 62 must be performed in the diagnosis mode.

SUBSTITUTE CHARACTERISTICS OPERATION CONTROL (FAIL-SAFE ACTION)

If the ECU detects an abnormal signal from a sensor while the motorcycle is being driven, the ECU illuminates the engine trouble warning light and provides the engine with substitute characteristic operation instructions that are appropriate for the type of the malfunction.

When an abnormal signal is received from a sensor, the ECU processes the specified values that are programmed for every sensor, in order to provide the engine with substitute characteristics operation instructions that enable the engine to continue to operate (or to stop its operation, depending on circumstances).

The ECU takes fail-safe actions in two ways: one in which the sensor output is set to a prescribed value, and the other in which the ECU directly operates an actuator. Details on the fail-safe actions are given in the table below.

Table of substitute characteristic operation control by self-diagnostic fault code

Code No.	Item	Fail-safe action	Able/unable to start	Able/unable to drive
11	Cylinder identification sensor	Continues to operate the engine based on the results of the cylinder identification that existed up to that point.	Able	Able
12	Crankshaft position sensor	• Stops the engine (by stopping the injection and ignition).	Unable	Unable
13 14	Intake air pressure sensor (open or short circuit) (pipe system)	• Fixes the intake air pressure to 760 mmHg.	Able	Able
15 16	Throttle position sensor (open or short circuit) (stuck)	• Fixes the throttle position sensor to fully open.	Able	Able
19	Broken or disconnected black/red lead of the ECU.	-- (No start)	Unable	Unable
21	Coolant temperature sensor	• Fixes the coolant temperature to 60 °C.	Able	Able
22	Intake air temperature sensor	• Fixes the intake temperature to 20 °C.	Able	Able
24 31 32	O_2 sensor (inactive) (compensation stuck to upper limit) (compensation stuck to lower limit)	--	Able	Able
33 34	Faulty ignition	• Fuel is cut off only to the cylinder in which a malfunction is detected.	Able (depending on the number of faulty cylinders)	Able (depending on the number of faulty cylinders)
30 41	Lean angle cut-off switch (latch up detected) (open or short circuit)	• Turns OFF the fuel injection system relay of the fuel system.	Unable	Unable
42	Speed sensor, neutral switch	• Fixes the gear to the top gear.	Able	Able
43	Fuel system voltage (monitor voltage)	• Fixes the battery voltage to 12 V.	Able	Able
44	Error in writing the amount of CO adjustment on EEPROM	--	Able	Able
50	ECU internal malfunction (memory check error)	--	Unable	Unable

Self-diagnostic fault codes, symptoms, and probable causes

Diagnostic code indication

Code No.	Symptom	Probable cause of malfunction	Diagnostic code
11	No normal signals are received from the cylinder identification sensor.	• Open or short circuit in wiring sub lead. • Open or short circuit in wiring harness. • Defective cylinder identification sensor. • Malfunction in ECU. • Improperly installed sensor.	—
12	No normal signals are received from the crankshaft position sensor.	• Open or short circuit in wiring harness. • Defective crankshaft position sensor. • Malfunction in pickup rotor. • Malfunction in ECU. • Improperly installed sensor.	—
13	Intake air pressure sensor - open or short circuit detected.	• Open or short circuit in wiring sub lead. • Open or short circuit in wiring harness. • Defective intake air pressure sensor. • Malfunction in ECU.	03
14	Faulty intake air pressure sensor pipe system; a hose is detached or clogged.	• Intake air pressure sensor hose is detached, clogged, kinked, or pinched. • Malfunction of the intake air pressure sensor in the intermediate electrical potential. • Malfunction in ECU.	03
	Or, intake air pressure sensor - open or short circuit detected.	• Open or short circuit in wiring sub lead. • Open or short circuit in wiring harness. • Defective intake air pressure sensor. • Malfunction in ECU.	03
	Or, a stuck throttle position sensor is detected.	• Open or short circuit in wiring sub lead. • Open or short circuit in wiring harness. • Defective sensor (stuck throttle position sensor).	01
15	Throttle position sensor - open or short circuit detected.	• Open or short circuit in wiring sub lead. • Open or short circuit in wiring harness. • Defective throttle position sensor. • Malfunction in ECU. • Improperly installed throttle position sensor.	01
16	A stuck throttle position sensor is detected. Or, Faulty intake air pressure sensor pipe system; a hose is detached or clogged.	• Open or short circuit in wiring sub lead. • Open or short circuit in wiring harness. • Defective sensor (stuck throttle position sensor). • Intake air pressure sensor hose is detached, clogged, kinked, or pinched. • Malfunction of the intake air pressure sensor in the intermediate electrical potential. • Malfunction in ECU.	01 03
19	A break or disconnection of the black/red of the ECU is detected when the start switch is pressed.	• Open circuit in wiring harness. • Malfunction in ECU. • Defective ECU coupler.	20
21	Coolant temperature sensor - open or short circuit detected.	• Open or short circuit in wiring harness. • Defective coolant temperature sensor. • Malfunction in ECU. • Improperly installed sensor.	06
22	Intake air temperature sensor - open or short circuit detected.	• Open or short circuit in wiring harness. • Defective intake air temperature sensor. • Malfunction in ECU. • Improperly installed sensor.	05

Code No.	Symptom	Probable cause of malfunction	Diagnostic code
24	No normal signals are received from the O_2 sensor.	• Open or short circuit in wiring harness. • Defective O_2 sensor. • Malfunction in ECU. • Improperly installed sensor.	—
30	The motorcycle has overturned.	• Overturned. • Malfunction in ECU.	08
31	The amount of air-fuel ratio feedback compensation is maintained continuously in the vicinity of the upper limit (lean air-fuel ratio).	• Open or short circuit in wiring harness. • Fuel pressure too low. • Clogged injectors. • Defective O_2 sensor (unable to output a rich signal). • Malfunction in ECU. • Malfunction in other areas of the fuel system.	—
32	The amount of air-fuel ratio feedback compensation is maintained continuously in the vicinity of the lower limit (rich air-fuel ratio).	• Open or short circuit in wiring harness. • Fuel pressure too high. • Faulty injectors (excessive injection volume). • Defective O_2 sensor (unable to output a lean signal). • Malfunction in ECU. • Malfunction in other areas of the fuel system.	—
33	Open circuit is detected in the primary wire of the ignition coil (#1, 4).	• Open or short circuit in wiring harness. • Malfunction in ignition coil. • Malfunction in ECU. • Malfunction in a component of ignition cutoff circuit system.	30
34	Open circuit is detected in the primary wire of the ignition coil (#2, 3).	• Open or short circuit in wiring harness. • Malfunction in ignition coil. • Malfunction in ECU. • Malfunction in a component of ignition cutoff circuit system.	31
41	Lean angle cut-off switch - open or short circuit detected.	• Open or short circuit in wiring harness. • Defective lean angle cut-off switch. • Malfunction in ECU.	08
42	No normal signals are received from the speed sensor; or, an open or short circuit is detected in the neutral switch.	• Open or short circuit in wiring harness. • Defective speed sensor. • Malfunction in vehicle speed sensor detected unit. • Defective neutral switch. • Malfunction in the engine side of the neutral switch. • Malfunction in ECU.	07 21
43	The ECU is unable to monitor the battery voltage (an open circuit in the monitor line to the ECU).	• Open circuit in wiring harness. • Malfunction in ECU.	—
44	An error is detected while reading or writing on EEPROM.	• Malfunction in ECU. (The CO adjustment value is not properly written on or read from the internal memory).	60
50	Faulty ECU memory. When this malfunction is detected, the code number might not appear on the meter.	• Malfunction in ECU. (The program and data are not properly written on or read from the internal memory.)	—

Sensor operation data display verification table

NOTE:

- Check the intake air temperature and coolant temperature as close as possible to the area in which the respective sensor is mounted.
- If it is not possible to check the intake temperature, use the ambient temperature as reference (use the compared values for reference).

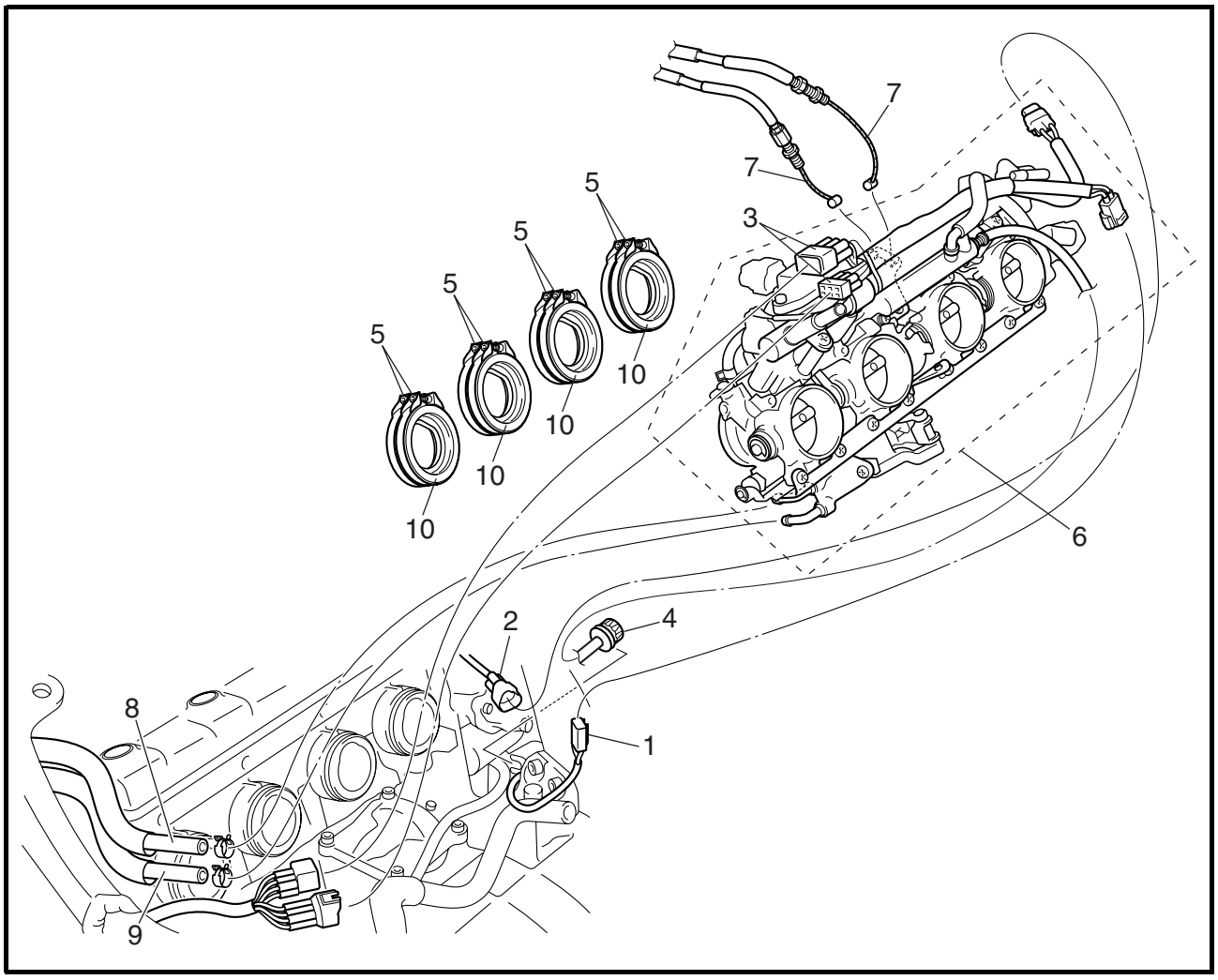
Diag code	Item	Description of action	Data displayed on meter (reference value)
01	Throttle angle	Displays the throttle angle. • Check with throttle fully closed. • Check with throttle fully open.	0 ~ 125 degrees • Fully closed position (15 ~ 17) • Fully open position (97 ~ 100)
03	Pressure difference (atmospheric pressure - intake air pressure)	Displays the pressure difference (atmospheric pressure - intake air pressure). Engine stop switch is on. * Generate the pressure difference by cranking the engine with the starter, without actually starting the engine.	Before cranking: Atmospheric pressure (standard pressure is 760 mmHg) After cranking: Value is lower than the atmospheric pressure
05	Intake air temperature	Displays the intake air temperature. * Check the temperature in the air cleaner case.	Compare it to the value displayed on the meter.
06	Coolant temperature	Displays the coolant temperature. * Check the temperature of the coolant.	Compare it to the value displayed on the meter.
07	Vehicle speed pulse	Displays the accumulation of the vehicle pulses that are generated when the tire is spun.	(0 ~ 999; resets to 0 after 999) OK if the numbers appear on the meter.
08	Lean angle cut-off switch	Displays the lean angle cut-off switch values.	Upright: 0.4 ~ 1.4 V Overturned: 3.8 ~ 4.2 V
09	Fuel system voltage (battery voltage)	Displays the fuel system voltage (battery voltage). Engine stop switch is on.	0 ~ 18.7 V Normally, approximately 12.0 V
20	Sidestand switch	Displays that the switch is ON or OFF. (When the gear is in a position other than neutral.)	Stand retracted: ON Stand extended: OFF
21	Neutral switch	Displays that the switch is ON or OFF.	Neutral: ON In gear: OFF
60	E2PROM fault code display	• Transmits the abnormal portion of the data in the E2PROM that has been detected as a self-diagnostic fault code 44. • If multiple malfunctions have been detected, different codes are displayed at 2-second intervals, and this process is repeated.	(01 ~ 04) Displays the cylinder number. (00) Displays when there is no malfunction.
61	Malfunction history code display	• Displays the codes of the history of the self-diagnosis malfunctions (i.e., a code of a malfunction that occurred once and which has been corrected). • If multiple malfunctions have been detected, different codes are displayed at 2-second intervals, and this process is repeated.	11 ~ 50 (00) Displays when there is no malfunction.
62	Malfunction history code erasure	• Displays the total number of codes that are being detected through self diagnosis and the fault codes in the past history. • Erases only the history codes when the engine stop switch is turned from OFF to ON. If the engine stop switch is ON, turn it OFF once, and then turn it back ON.	00 ~ 21 (00) Displays when there is no malfunction.
70	Control number	• Displays the program control number.	00 ~ 255

Troubleshooting details

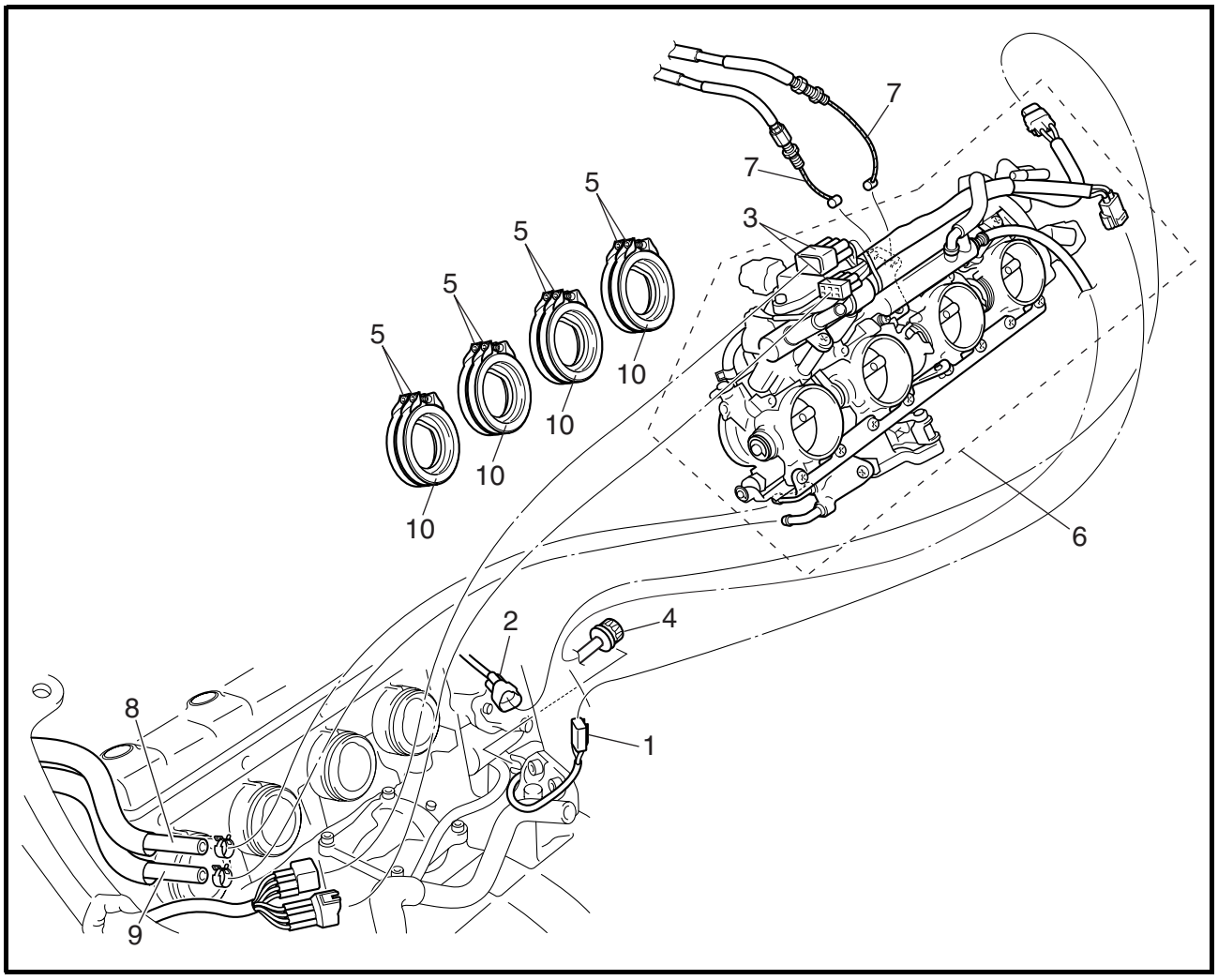
Troubleshooting the self-diagnostic fault code

Code No.	19	Symptom	A break or disconnection of the black/red lead of the ECU is detected.	
Used diagnostic code No. 20 (sidestand switch)				
Inspection operation item and probable cause			Operation item and countermeasure	Reinstatement method
Defective sidestand switch			Replace if defective. Refer to “CHECKING THE SWITCHES” in chapter 8. (Manual No.: 5JW1-AE1)	If the transmission is in gear, it is reinstated by retracting the sidestand. If the transmission is in neutral, it is reinstated by reconnecting the wiring.
Open circuit in wiring harness or sub lead.			Repair or replace if there is an open circuit. (Between ECU and black/red lead)	
Connected state of connector Inspect the coupler for any pins that may have pulled out. Check the locking condition of the coupler.			If there is a malfunction, repair it and connect it securely. Main wiring harness ECU coupler (black/red)	

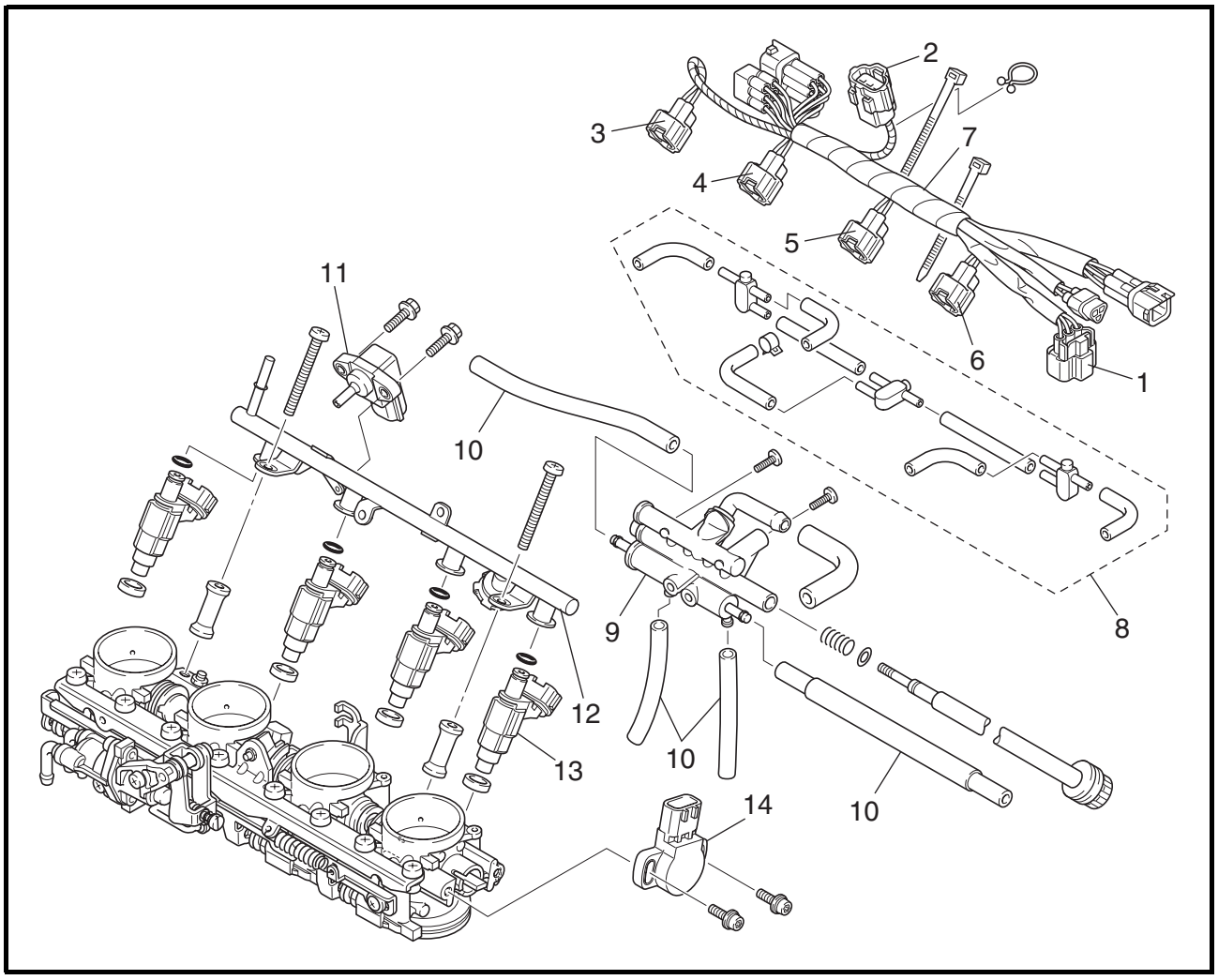
THROTTLE BODIES



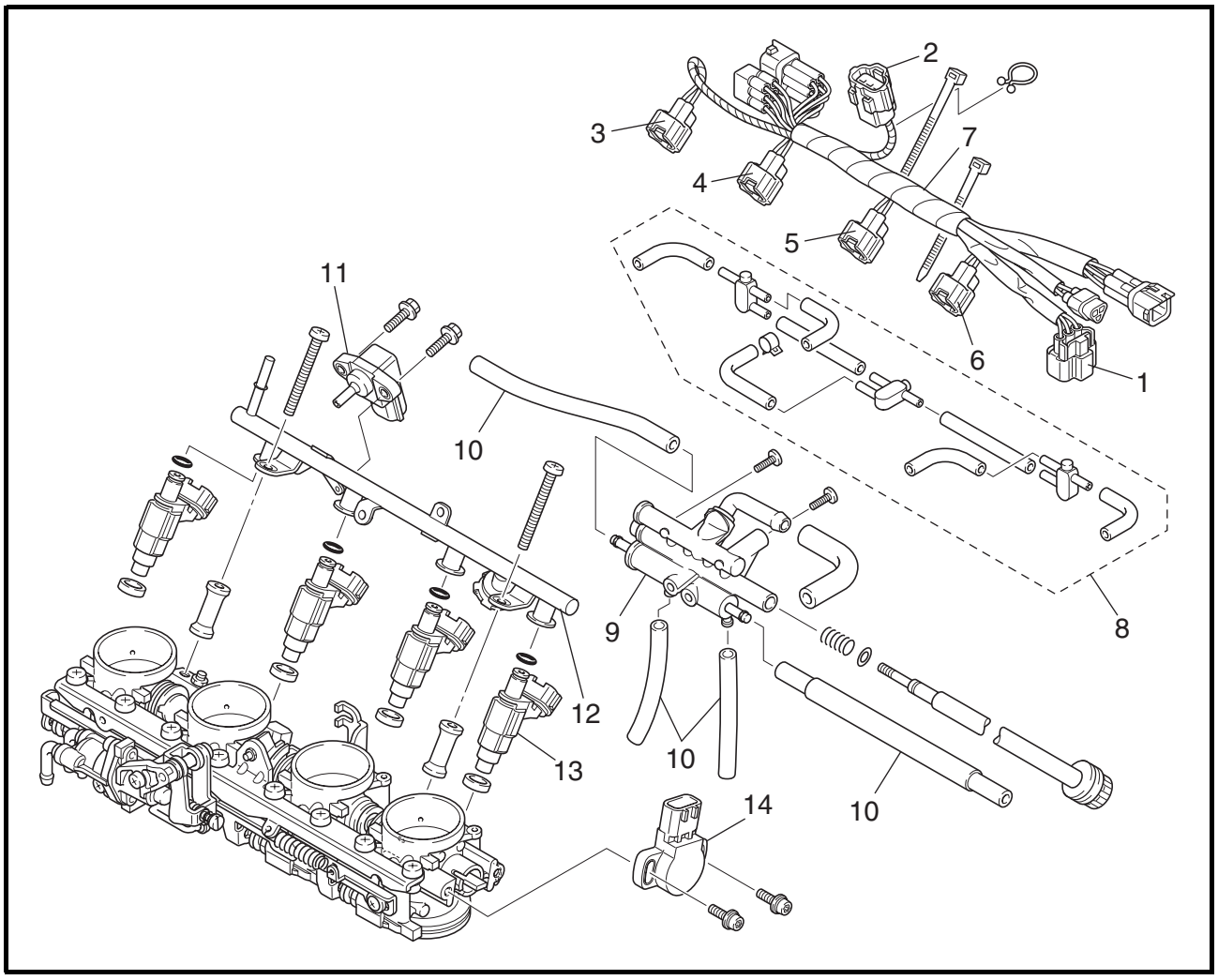
Order	Job/Part	Q'ty	Remarks
	Removing the throttle bodies		Remove the parts in the order listed.
	Seats/T-bar/rubber sheet		Refer to "SEATS AND FUEL TANK" in chapter 3. (Manual No.: 5JW1-AE1)
	Fuel tank		Refer to "SEATS AND FUEL TANK".
	Air filter case		Refer to "AIR FILTER CASE".
	Coolant		Drain. Refer to "CHANGING THE COOLANT" in chapter 3. (Manual No.: 5JW1-AE1)
1	O_2 sensor coupler	1	Disconnect.
2	Cylinder identification sensor coupler	1	Disconnect.
3	Sub-wire harness 2 coupler	2	Disconnect.
4	Throttle stop screw	1	
5	Throttle body joint clamp screw	8	
6	Throttle bodies	1	



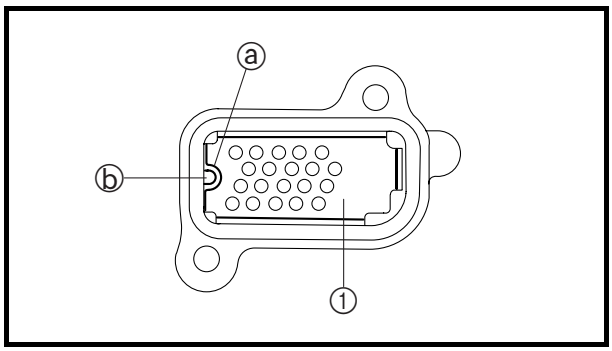
Order	Job/Part	Q'ty	Remarks
7	Throttle cable	2	Disconnect.
8	Plunger control unit hose 1	1	Disconnect.
9	Plunger control unit hose 2	1	Disconnect.
10	Throttle body joint	4	For installation, reverse the removal procedure.



Order	Job/Part	Q'ty	Remarks
	Removing the injectors		Remove the parts in the order listed.
1	Throttle position sensor coupler	1	Disconnect.
2	Intake air pressure sensor coupler	1	Disconnect.
3	Cylinder #1-injector coupler	1	Disconnect.
4	Cylinder #2-injector coupler	1	Disconnect.
5	Cylinder #3-injector coupler	1	Disconnect.
6	Cylinder #4-injector coupler	1	Disconnect.
7	Sub-wire harness 2	1	
8	Negative pressure hose	1	Disconnect.
9	Bypass air unit	1	
10	Bypass air unit outlet hose	4	



Order	Job/Part	Q'ty	Remarks
11	Intake air pressure sensor	1	
12	Fuel injection pipe	1	
13	Injector	4	
14	Throttle position sensor	1	
			For installation, reverse the removal procedure.



AIR INDUCTION SYSTEM

INSTALLING THE REED VALVES

1. Install:
   • plate ①

NOTE:

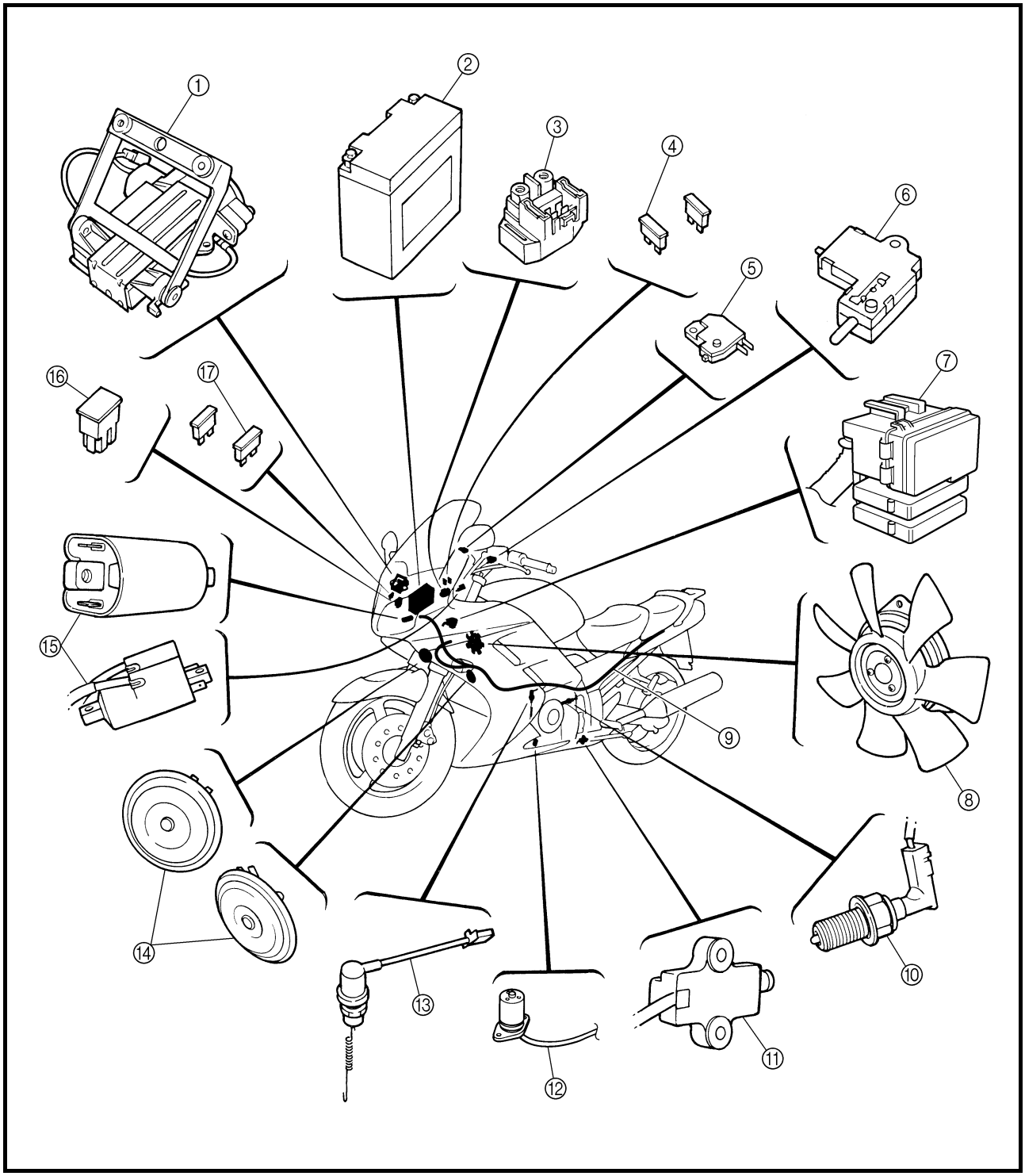
Align the notch ⓐ in each plate with the projection ⓑ of each reed valve seat on the cylinder head cover.

EAS00729

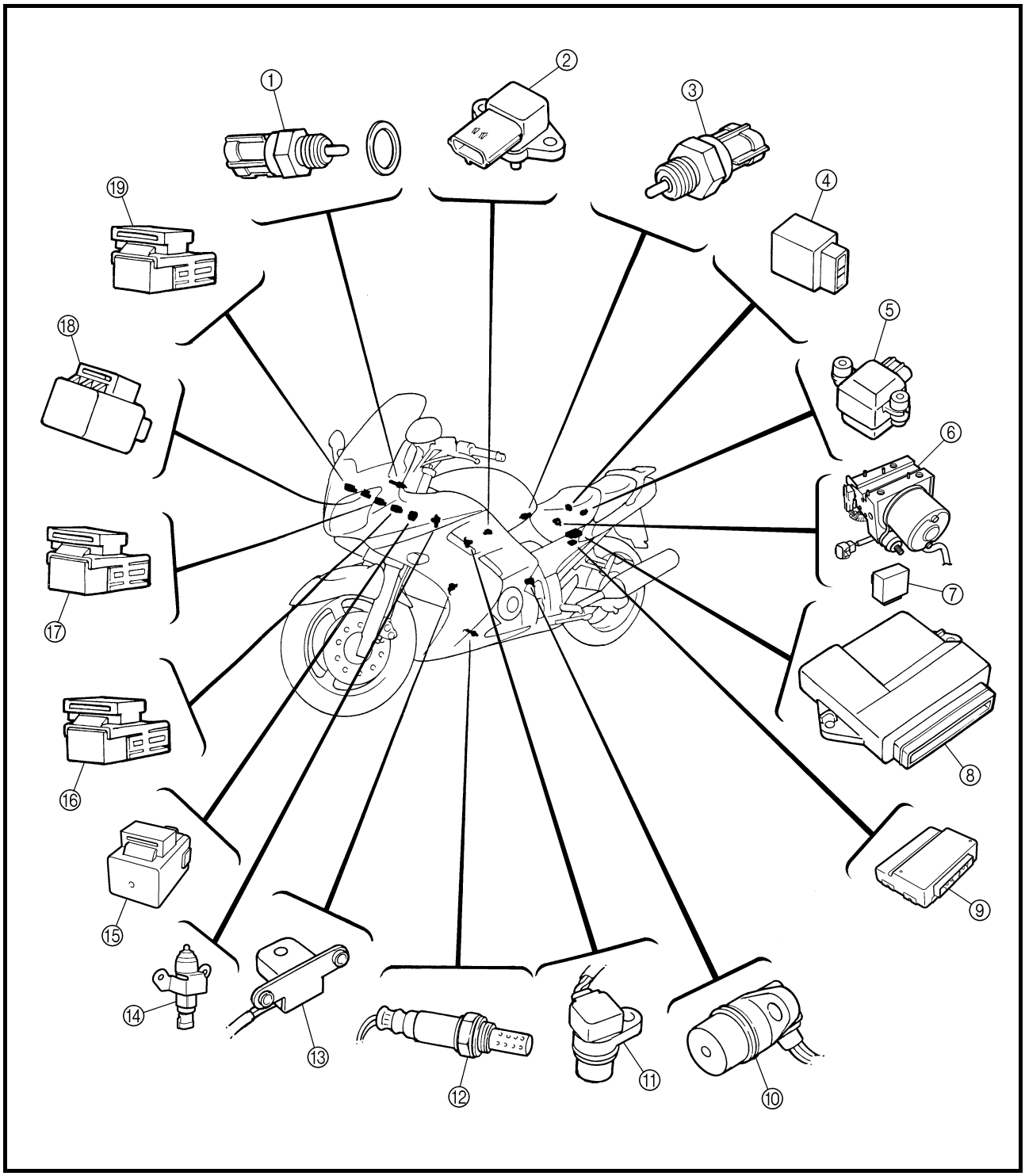
ELECTRICAL

ELECTRICAL COMPONENTS

① Windshield drive unit
② Battery
③ Starter relay
④ Fuel injection system fuse
⑤ Front brake light switch
⑥ Clutch switch
⑦ Fuse box
⑧ Radiator fan motor
⑨ Wire harness
⑩ Neutral switch
⑪ Sidestand switch
⑫ Oil level switch
⑬ Rear brake light switch
⑭ Horn
⑮ Ignition coil
⑯ Main fuse
⑰ ABS motor fuse (FJR1300A)

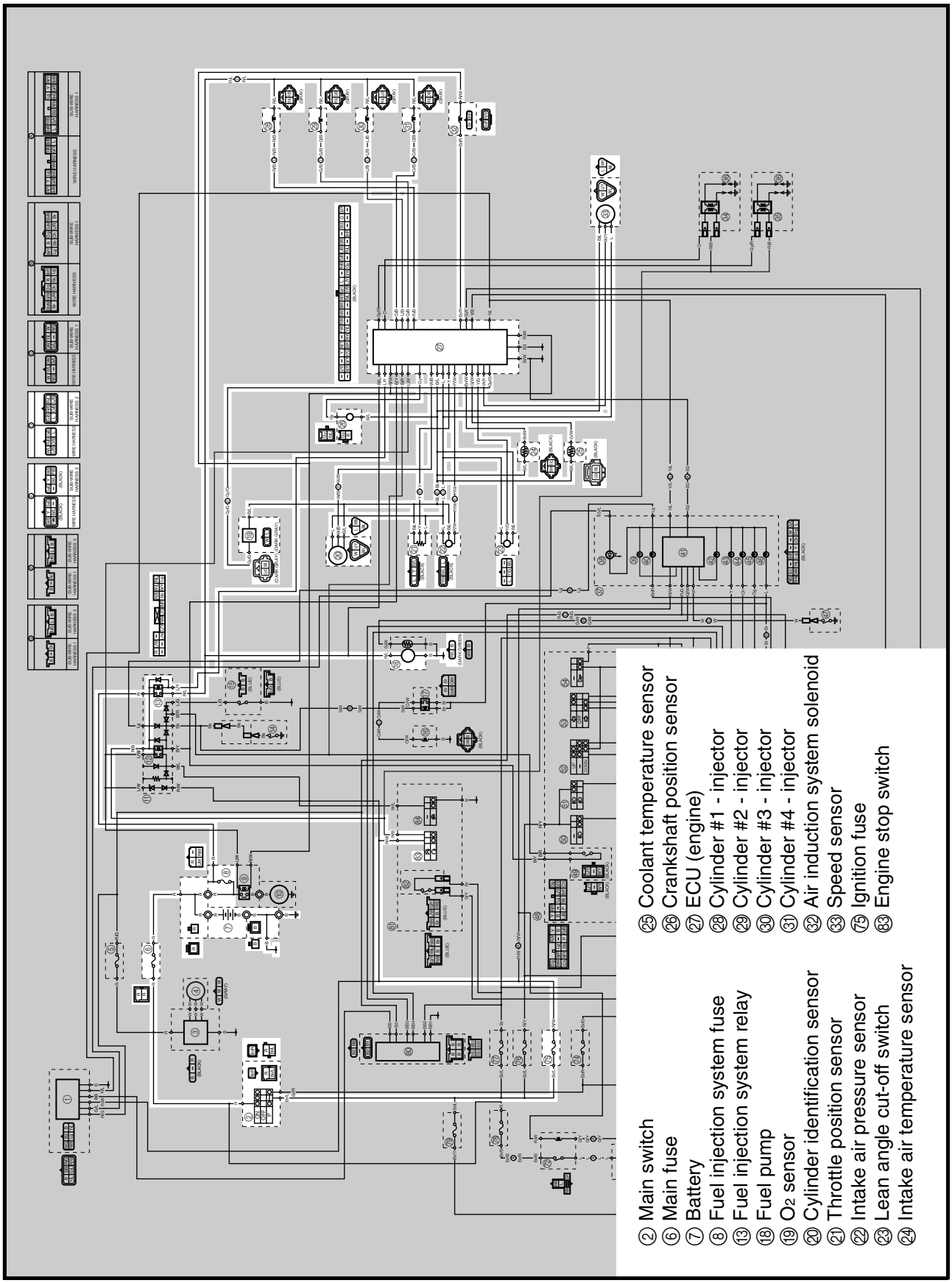


① Coolant temperature sensor
② Intake air pressure sensor
③ Intake air temperature sensor
④ Relay unit
⑤ Lean angle cut-off switch
⑥ Hydraulic unit (FJR1300A)
⑦ Fail-safe relay (FJR1300A)
⑧ ECU (engine)
⑨ ECU (ABS) (FJR1300A)
⑩ Speed sensor
⑪ Cylinder identification sensor
⑫ O_2 sensor
⑬ Crankshaft position sensor
⑭ Accessory box solenoid
⑮ Accessory box relay
⑯ Headlight relay 1
⑰ Radiator fan motor relay
⑱ Turn signal relay
⑲ Headlight relay 2

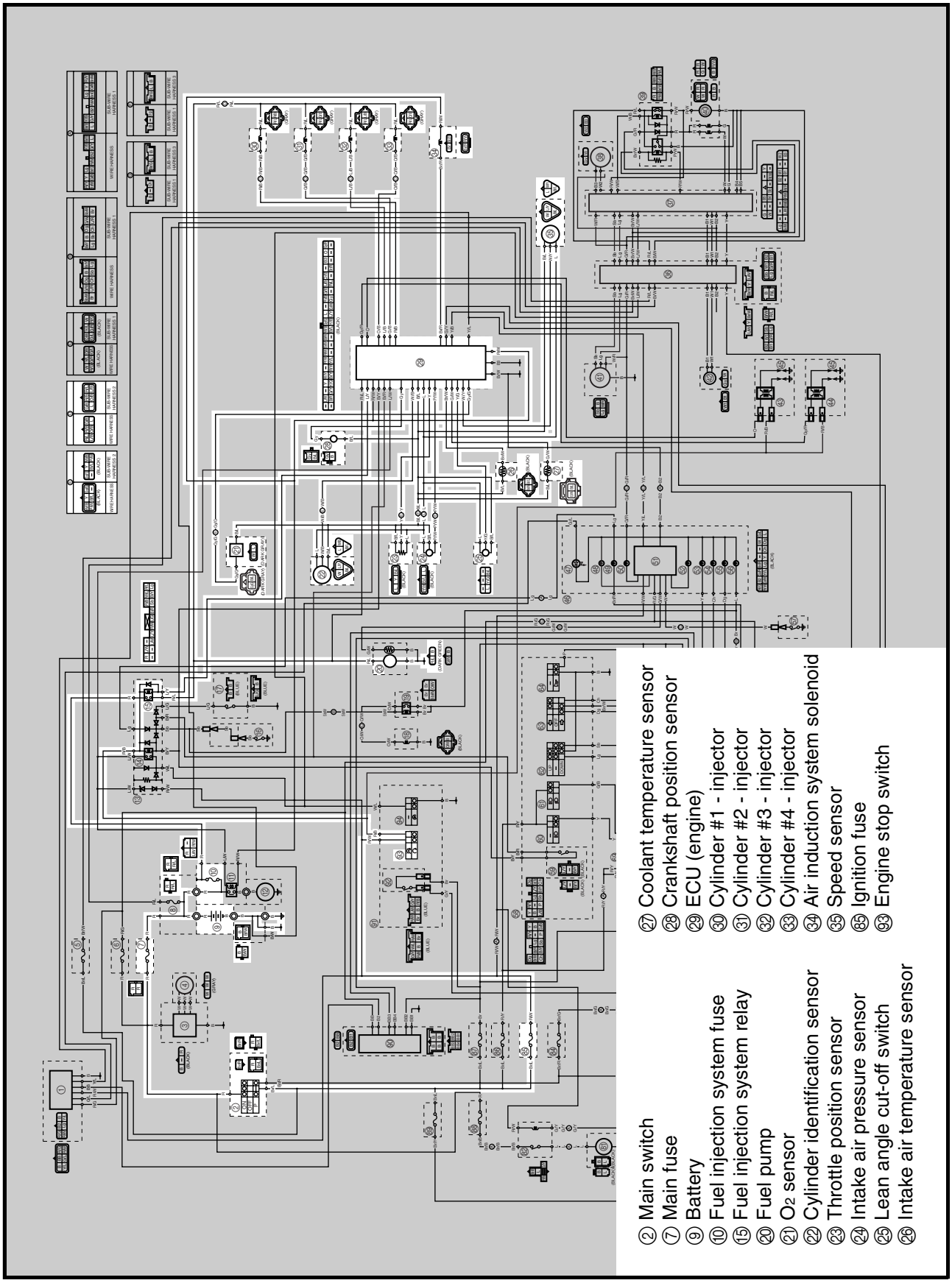


FUEL INJECTION SYSTEM

CIRCUIT DIAGRAM (FJR1300)



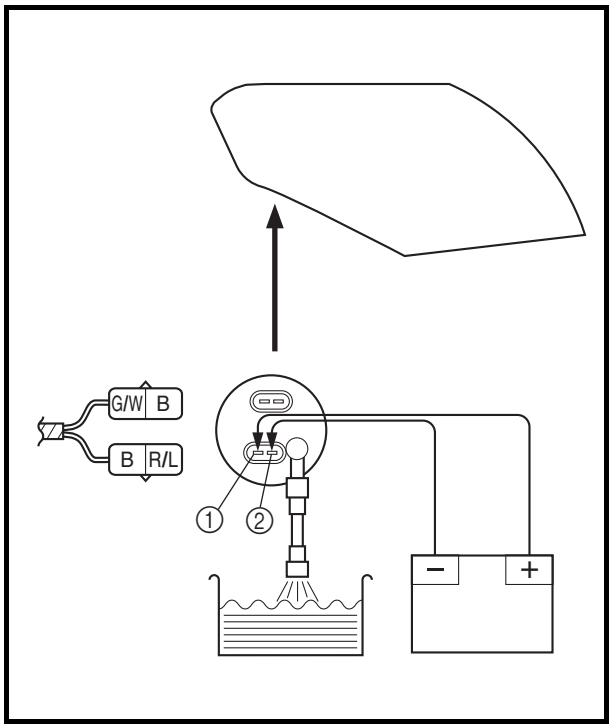
CIRCUIT DIAGRAM (FJR1300A)



EAS00819
CHECKING THE FUEL PUMP

⚠ WARNING

Gasoline is extremely flammable and under certain circumstances there can be a danger of an explosion or fire. Be extremely careful and note the following points:
- **Stop the engine before refueling.**
- **Do not smoke, and keep away from open flames, sparks, or any other source of fire.**
- **If you do accidentally spill gasoline, wipe it up immediately with dry rags.**
- **If gasoline touches the engine when it is hot, a fire may occur. Therefore, make sure the engine is completely cool before performing the following test.**



1. Check:
   - fuel pump operation

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a. Fill the fuel tank.
b. Put the end of the fuel hose into an open container.
c. Connect the battery (12 V) to the fuel pump terminals as shown.

Battery positive lead → red/blue ①
Battery negative lead → black ②

d. If fuel flows out of the fuel hose, the fuel pump is OK. If fuel does not flow, replace the fuel pump.

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FJR1300 WIRING DIAGRAM

① Immobilizer unit
② Main switch
③ Rectifier/regulator
④ Generator
⑤ Backup fuse (odometer, clock and windshield)
⑥ Main fuse
⑦ Battery
⑧ Fuel injection system fuse
⑨ Starter relay
⑩ Starter motor
⑪ Relay unit
⑫ Starting circuit cut-off relay
⑬ Fuel injection system relay
⑭ Neutral switch
⑮ Sidestand switch
⑯ Accessory box solenoid
⑰ Accessory box relay
⑱ Fuel pump
⑲ O_2 sensor
⑳ Cylinder identification sensor
㉑ Throttle position sensor
㉒ Intake air pressure sensor
㉓ Lean angle cut-off switch
㉔ Intake air temperature sensor
㉕ Coolant temperature sensor
㉖ Crankshaft position sensor
㉗ ECU (engine)
㉘ Cylinder #1 - injector
㉙ Cylinder #2 - injector
㉚ Cylinder #3 - injector
㉛ Cylinder #4 - injector
㉜ Air induction system solenoid
㉝ Speed sensor
㉞ Cylinders #1, #4 - ignition coil
㉟ Cylinders #2, #3 - ignition coil
㊱ Spark plug
㊲ Meter assembly
㊳ Immobilizer system indicator light
㊴ Oil level warning light
㊵ Neutral indicator light
㊶ Multifunction meter
㊷ Engine trouble warning light
㊸ High beam indicator light
㊹ Left turn signal indicator light
㊺ Right turn signal indicator light
㊻ Meter light
㊼ Oil level switch
㊽ Left handlebar switch
㊾ Clutch switch
㊿ Pass switch
(51) Dimmer switch
(52) Windshield position switch
(53) Turn signal switch
(54) Horn switch
(55) Horn
(56) Front turn signal light (left)
(57) Front turn signal light (right)
(58) Hazard switch
(59) Headlight relay 1
(60) Headlight relay 2
(61) Headlight assembly
(62) Auxiliary light
(63) Headlight
(64) Taillight assembly
(65) Tail/brake light
(66) Rear turn signal light (left)
(67) Rear turn signal light (right)
(68) Rear brake light switch
(69) Turn signal relay
(70) Windshield drive unit
(71) Radiator fan motor
(72) Radiator fan motor relay
(73) Parking lighting fuse
(74) Hazard lighting fuse
(75) Ignition fuse
(76) Headlight fuse
(77) Signaling system fuse
(78) Radiator fan motor fuse
(79) Windshield motor fuse
(80) CYCLELOCK
(81) Right handlebar switch
(82) Front brake light switch
(83) Engine stop switch
(84) Start switch

COLOR CODE

B ..... Black
Br ..... Brown
Ch ..... Chocolate
Dg ..... Dark green
G ..... Green
Gy ..... Gray
L ..... Blue
Lg ..... Light green
O ..... Orange
P ..... Pink
R ..... Red
Sb ..... Sky blue
W ..... White
Y ..... Yellow
B/L ..... Black/Blue
B/R ..... Black/Red
B/W ..... Black/White
B/Y ..... Black/Yellow
Br/B ..... Brown/Black
Br/G ..... Brown/Green
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Br/R ..... Brown/Red
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Gy/R ..... Gray/Red
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L/G ..... Blue/Green
L/R ..... Blue/Red
L/W ..... Blue/White
L/Y ..... Blue/Yellow
O/B ..... Orange/Black
P/W ..... Pink/White
R/B ..... Red/Black
R/G ..... Red/Green
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⑥ Backup fuse (odometer, clock and windshield)
⑦ Main fuse
⑧ ABS motor fuse
⑨ Battery
⑩ Fuel injection system fuse
⑪ Starter relay
⑫ Starter motor
⑬ Relay unit
⑭ Starting circuit cut-off relay
⑮ Fuel injection system relay
⑯ Neutral switch
⑰ Sidestand switch
⑱ Accessory box solenoid
⑲ Accessory box relay
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㉑ O_2 sensor
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㉛ Cylinder #2 - injector
㉜ Cylinder #3 - injector
㉝ Cylinder #4 - injector
㉞ Air induction system solenoid
㉟ Speed sensor
㊱ Sub-wire harness (ABS)
㊲ ECU (ABS)
㊳ Rear wheel sensor
㊴ Fail-safe relay
㊵ Hydraulic unit
㊶ ABS test coupler
㊷ Front wheel sensor
㊸ Cylinders #1, #4 - ignition coil
㊹ Cylinders #2, #3 - ignition coil
㊺ Spark plug
㊻ Meter assembly
㊼ Immobilizer system indicator light
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(94) Start switch

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G/W ..... Green/White
G/Y ..... Green/Yellow
Gy/G ..... Gray/Green
Gy/R ..... Gray/Red
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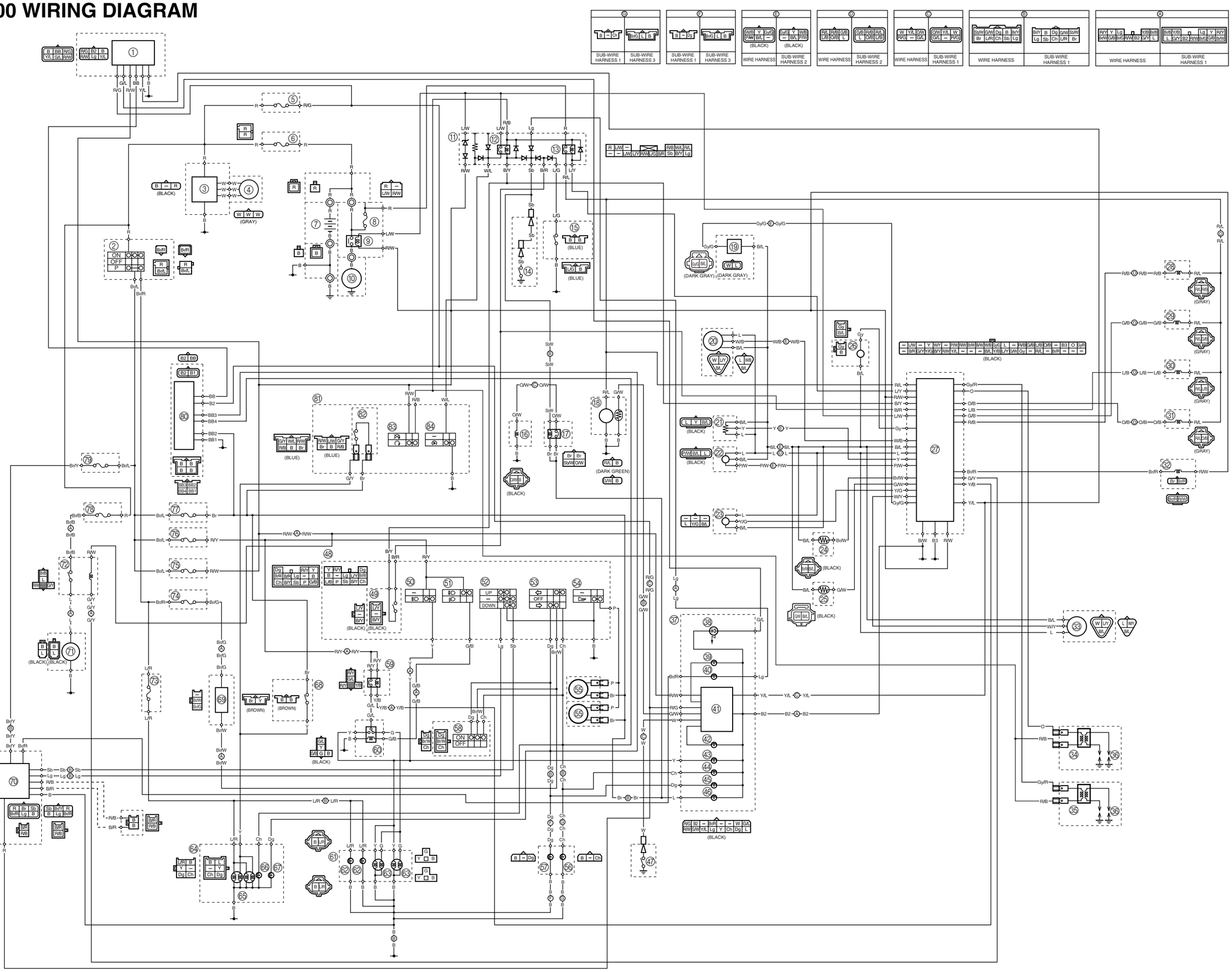
L/G ..... Blue/Green
L/R ..... Blue/Red
L/W ..... Blue/White
L/Y ..... Blue/Yellow
O/B ..... Orange/Black
P/W ..... Pink/White
R/B ..... Red/Black
R/G ..... Red/Green
R/L ..... Red/Blue
R/W ..... Red/White
R/Y ..... Red/Yellow
W/B ..... White/Black
W/Y ..... White/Yellow
Y/B ..... Yellow/Black
Y/G ..... Yellow/Green
Y/L ..... Yellow/Blue

YAMAHA MOTOR CO., LTD.
2500 SHINGAI IWATA SHIZUOKA JAPAN

FJR1300 WIRING DIAGRAM



FJR1300A WIRING DIAGRAM