



YAMAHA

2009









MOTORCYCLE

SERVICE MANUAL

Model : YW125Y_

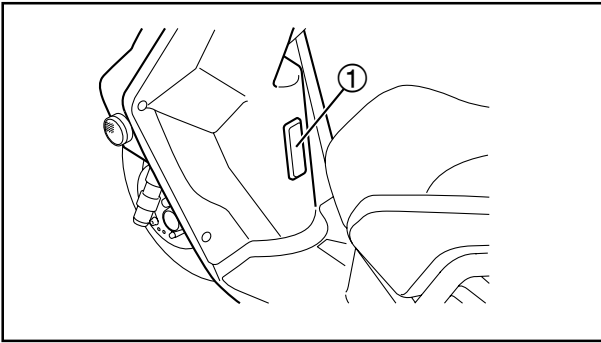
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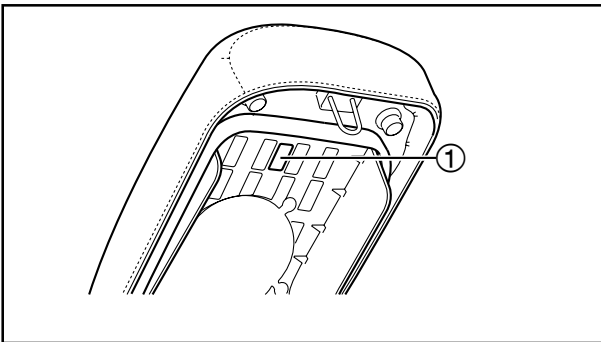
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GENERAL INFORMATION SCOOTER IDENTIFICATION

EAS00017

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the frame.



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MODEL LABEL

The model label ① is affixed to the frame under the seat. This information will be needed to order spare parts.

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FEATURES

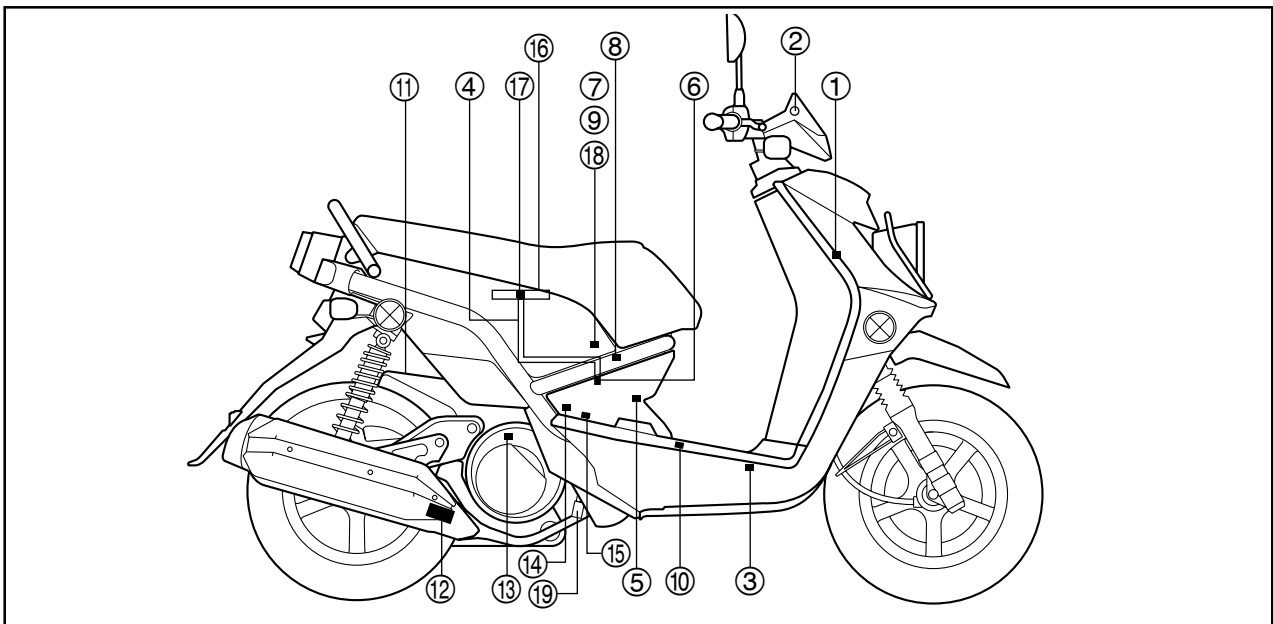
OUTLINE OF THE FI SYSTEM

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 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 operation 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.



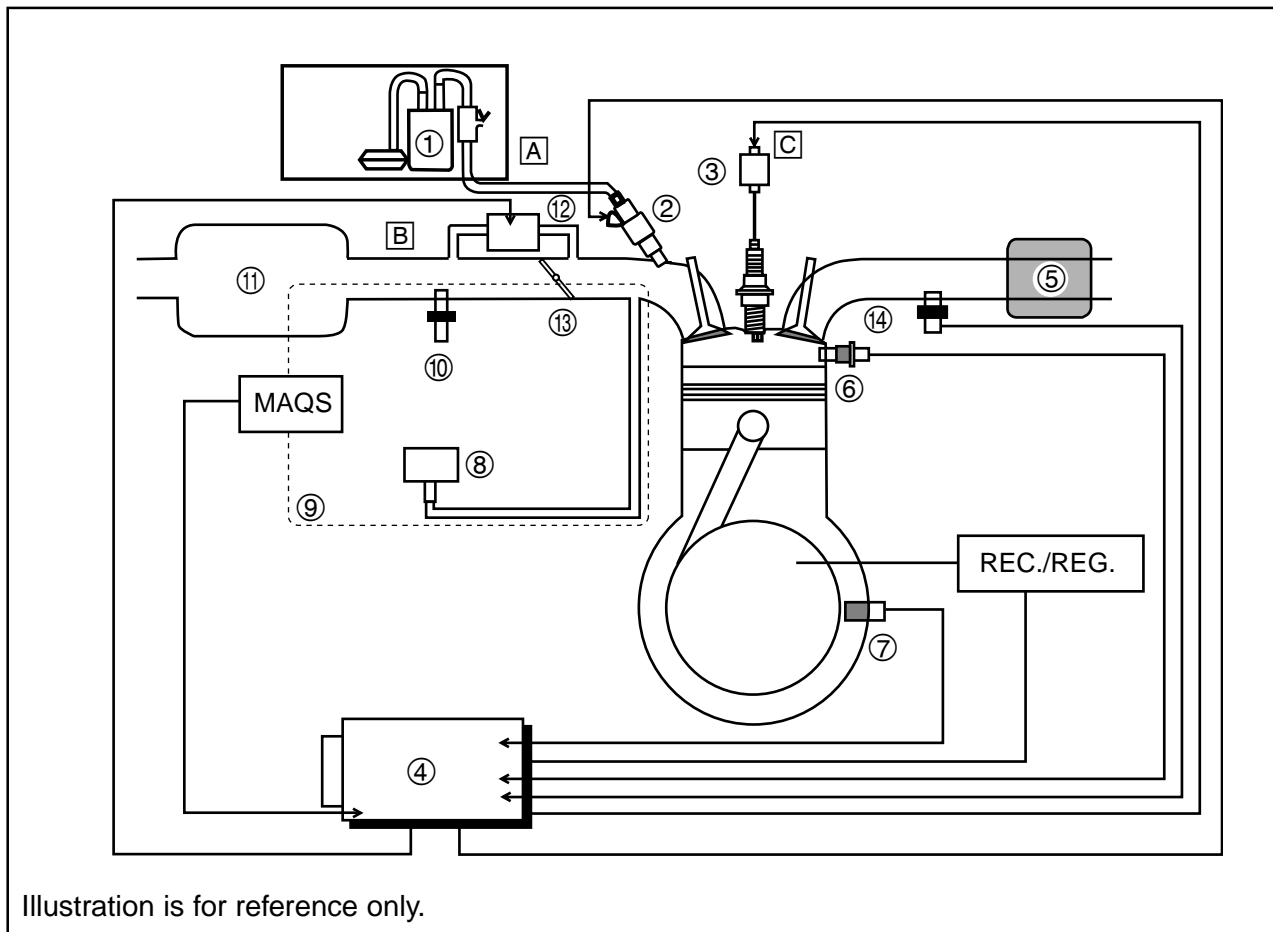
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|---------------------------------|------------------------------|
| ① ECU | ⑩ Battery |
| ② Engine trouble warning light | ⑪ Air filter case |
| ③ Lean angle cut-off switch | ⑫ Catalytic converter |
| ④ Fuel hose | ⑬ Crankshaft position sensor |
| ⑤ Ignition coil | ⑭ Engine temperature sensor |
| ⑥ Fuel injector | ⑮ Spark plug |
| ⑦ Intake air pressure sensor | ⑯ Fuel tank |
| ⑧ ISC(idle speed control) valve | ⑰ Fuel pump |
| ⑨ Intake air temperature sensor | ⑱ Throttle position sensor |
| | ⑲ O ₂ sensor |

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FI SYSTEM

The fuel pump delivers fuel to the fuel injector via the fuel filter. The pressure regulator maintains the fuel pressure that is applied to the fuel injector at only 250 kPa (2.5 kgf/cm², 35.6 psi). Accordingly, when the energizing signal from the ECU energizes the fuel 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 fuel injector is energized (injection duration), the greater the volume of fuel that is supplied. Conversely, the shorter the length of time the fuel injector is energized (injection duration), the lesser the volume of fuel that is supplied.

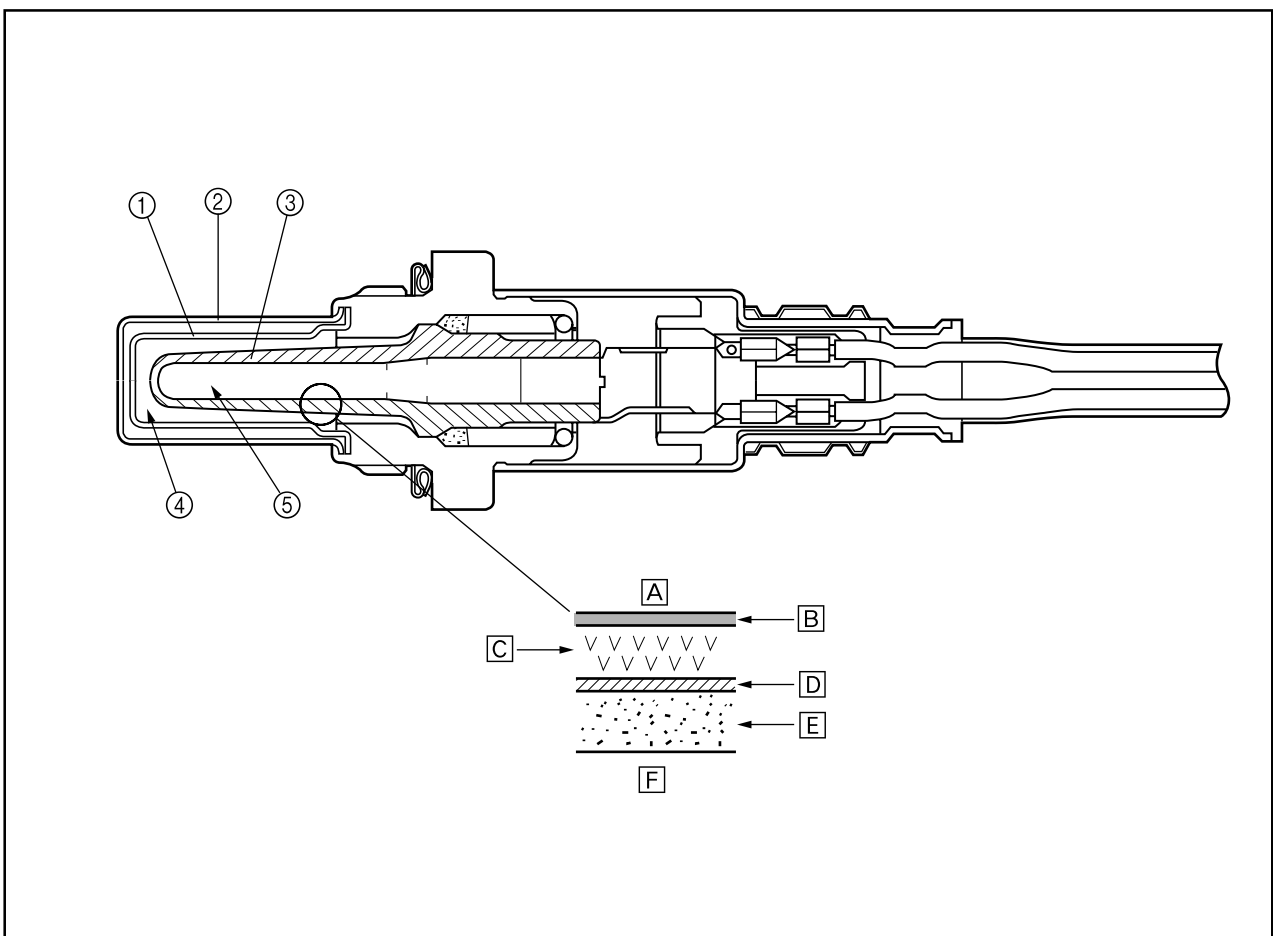
The injection duration and the injection timing are controlled by the ECU. Signals that are input from the crankshaft position sensor, intake air pressure sensor, intake temperature sensor and engine temperature sensor enable the ECU to determine the injection duration. The injection timing is determined through the signals from the crankshaft position 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.



- | | |
|---------------------------------|----------------------------------|
| ① Fuel pump | ⑪ Air filter case |
| ② Fuel injector | ⑫ ISC (idle speed control) valve |
| ③ Ignition coil | ⑬ Throttle position sensor |
| ④ ECU | ⑭ O ₂ sensor |
| ⑤ Catalytic converter | A Fuel system |
| ⑥ Engine temperature sensor | B Air system |
| ⑦ Crankshaft position sensor | C Control system |
| ⑧ Intake air pressure sensor | |
| ⑨ Throttle body assembly | |
| ⑩ Intake air temperature sensor | |

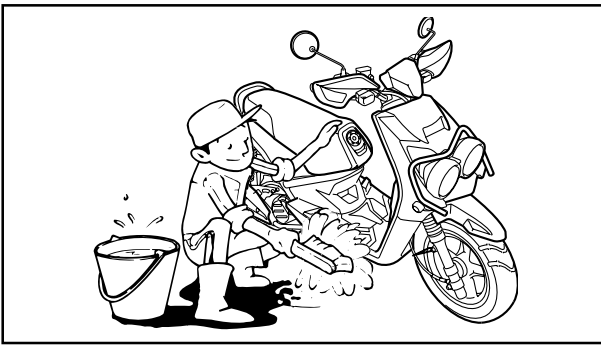
O₂ sensor

The O₂ sensor has been adopted to enable the catalyst to function at a high degree of efficiency by maintaining the air-fuel mixture near the stoichiometric ratio (14.7:1). This sensor, which is a zirconia type, utilizes the oxygen ion conductivity of the solid electrolyte for detecting the oxygen concentration levels. In actual operation, a zirconia tube made of solid electrolyte is exposed in the exhaust gas, so that the exterior of the zirconia tube is in contact with the exhaust gas and the interior is in contact with the atmosphere whose oxygen concentration level is known. When a difference in the oxygen concentration level is created between the outside and the inside of the zirconia tube, the oxygen ion passes through the zirconia element and generates an electromotive force. The electromotive force increases when the oxygen concentration level is low (rich air-fuel ratio) and the electromotive force decreases when the oxygen concentration level is high (lean air-fuel ratio). As electromotive force is generated in accordance with the concentration of the exhaust gas, the resultant voltage is input into the ECU in order to correct the duration of the injection of fuel.



- ① Inner cover
- ② Outer cover
- ③ Zirconia tube
- ④ Exhaust gas
- ⑤ Atmosphere

- A Atmosphere
- B Inner electrode
- C Zirconia element
- D Outer electrode
- E Porous ceramic layer
- F Exhaust gas



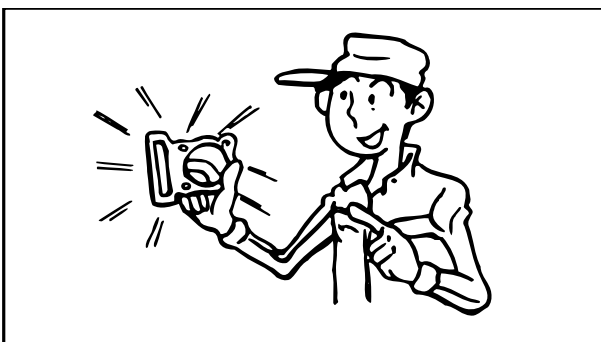
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IMPORTANT INFORMATION

PREPARATION FOR REMOVAL AND DISASSEMBLY

1. Before removal and disassembly, remove all dirt, mud, dust and foreign material.

2. Use only the proper tools and cleaning equipment.
Refer to the "SPECIAL TOOLS".
3. When disassembling, always keep mated parts together. This includes gears, cylinders, pistons and other parts that have been "mated" through normal wear. Mated parts must always be reused or replaced as an assembly.
4. During disassembly, clean all of the parts and place them in trays in the order of disassembly. This will speed up assembly and allow for the correct installation of all parts.
5. Keep all parts away from any source of fire.



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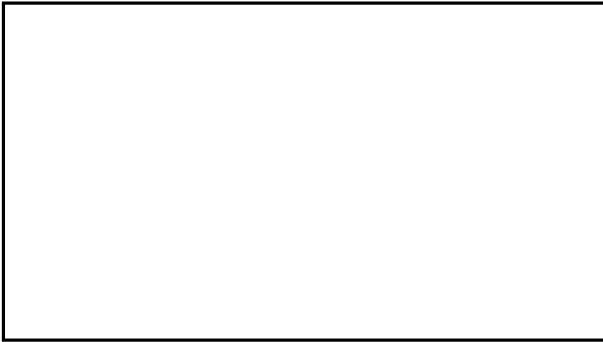
REPLACEMENT PARTS

Use only genuine Yamaha parts for all replacements. Use oil and grease recommended by Yamaha for all lubrication jobs. Other brands may be similar in function and appearance, but inferior in quality.

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GASKETS, OIL SEALS AND O-RINGS

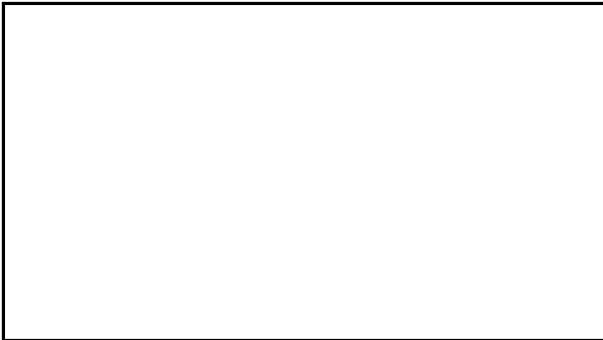
1. When overhauling the engine, replace all gaskets, seals and O-rings. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. During reassembly, properly oil all mating parts and bearings and lubricate the oil seal lips with grease.



EAS00023

LOCK WASHERS/PLATES AND COTTER PINS

After removal, replace all lock washers/plates ① and cotter pins. After the bolt or nut has been tightened to specification, bend the lock tabs along a flat of the bolt or nut.



EAS00024

BEARINGS AND OIL SEALS

Install bearings and oil seals so that the manufacturer's marks or numbers are visible. When installing oil seals, lubricate the oil seal lips with a light coat of lithium-soap-based grease. Oil bearings liberally when installing, if appropriate.

① Oil seal

NOTICE

Do not spin the bearing with compressed air because this will damage the bearing surfaces.



① Bearing

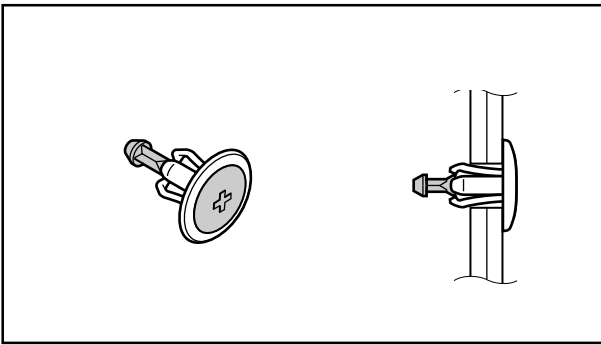


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CIRCLIPS

Before reassembly, check all circlips carefully and replace damaged or distorted circlips. Always replace piston pin clips after one use. When installing a circlip ①, make sure the sharp-edged corner ② is positioned opposite the thrust ③ that the circlip receives.

④ Shaft

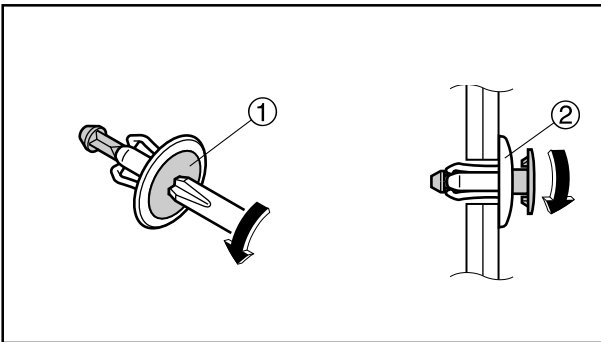


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EQUIPMENT PREPARATION

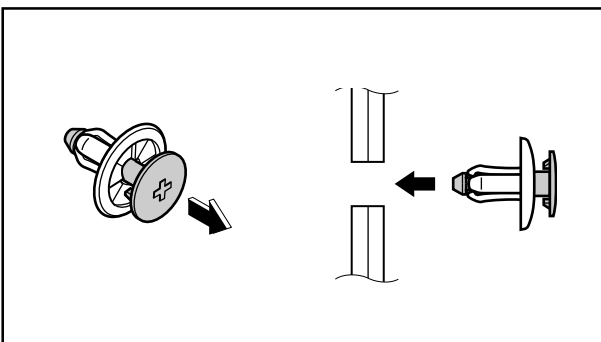
Turn Rivet (Turn type)

Assembly status of the turn rivet(turn type).



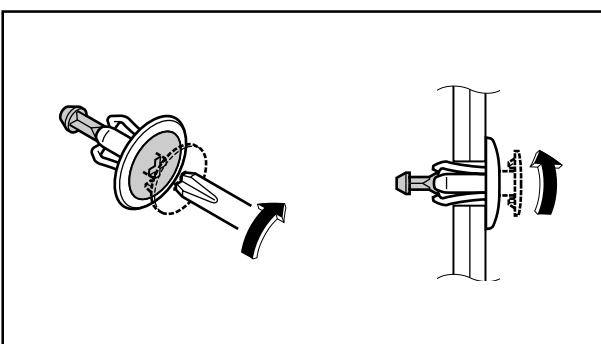
Disassembling

1. Press center pin① inward to release the lock.
2. Remove the push rivet main body②.



Assembling

1. Restore the center pin, replace the turn rivet main body.



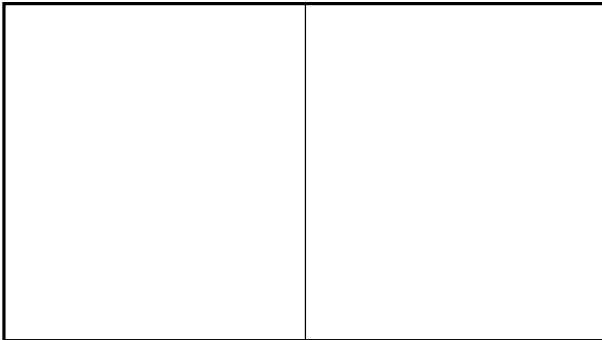
2. Turn in the center pin until leveling off with the surface position of the turn rivet main body.

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CHECKING THE CONNECTIONS

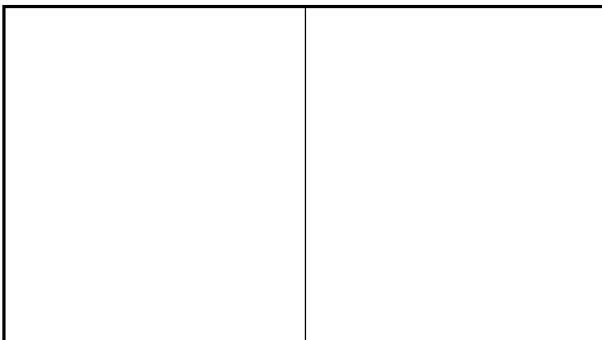
Check the leads, couplers, and connectors for stains, rust, moisture, etc.

1. Disconnect:
 - lead
 - coupler
 - connector



2. Check:
 - lead
 - coupler
 - connector

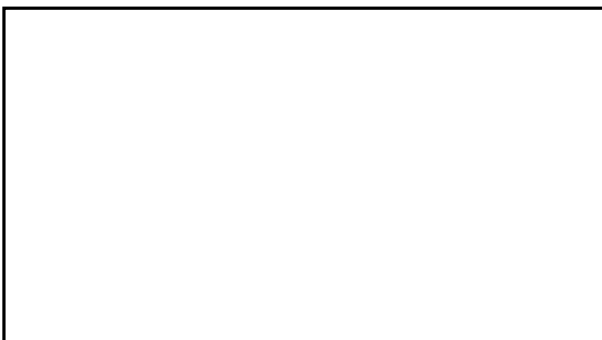
Moisture → Dry with an air blower.
Rust/stains → Connect and disconnect several times.



3. Check:
 - all connections

Loose connection → Connect properly.

TIP _____
If the pin ① on the terminal is flattened, bend it up.



4. Connect:
 - lead
 - coupler
 - connector

TIP _____
Make sure all connections are tight.

5. Check:
 - continuity
(with the pocket tester)



Pocket tester
90890-03112 (YU-03112-C)

TIP _____

- If there is no continuity, clean the terminals.
- When checking the wire harness, perform steps (1) to (3).
- As a quick remedy, use a contact revitalizer available at most part stores.



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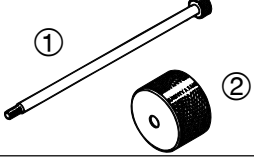

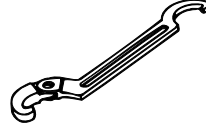
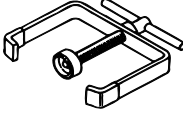
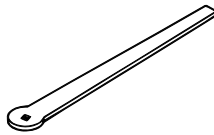
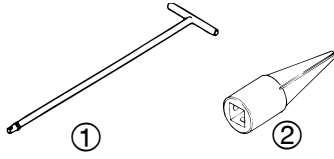
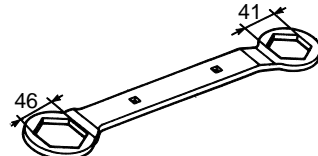
SPECIAL TOOLS

The following special tools are necessary for complete and accurate tune-up and assembly. Use only the appropriate special tools as this will help prevent damage caused by the use of inappropriate tools or improvised techniques. Special tools, part numbers or both may differ depending on the country.

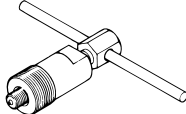
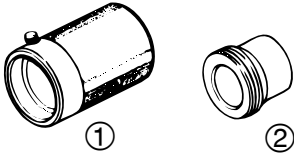

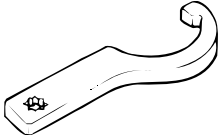
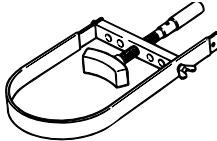
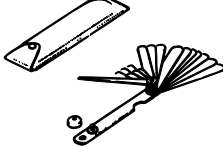
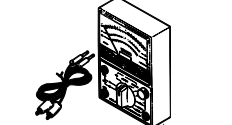
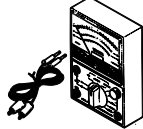
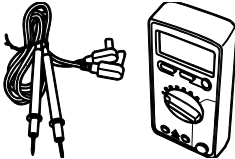

When placing an order, refer to the list provided below to avoid any mistakes.

TIP

- For U.S.A. and Canada, use part number starting with "YM-", "YU-", or "ACC-".
- For others, use part number starting with "90890-".

Tool NO.	Tool name / Function	Illustration
90890-01085 (M8) YU-01083-2 90890-01084 YU-01083-3	Slide hammer bolt (8mm) ① Weight ② These tools are needed to remove the camshaft.	
90890-01235 YU-01235	Rotor holding tool This tool is used to hold the primary fixed sheave and secondary sheave assembly.	
90890-01268 YU-01268	Ring nut wrench This tool is used to loosen and tighten the exhaust and steering ring nut.	
90890-01304 YU-01304	Piston pin puller set This tool is used to remove the piston pin.	
90890-01337 YM-33285	Clutch spring holder These tool are used for removing the nut with holding the compression spring.	
90890-01311 YM-08035-A	Valve adjusting tool This tool is necessary for adjusting valve clearance.	
90890-01326 YM-01326 90890-01294 YM-01300-1	T-handle ① Damper rod holder ② These tools are used to hold the damper rod when removing or installing the damper rod.	
90890-01348 YM-01348	Lock nut wrench This tool is used when removing or installing the secondary sheave nut.	

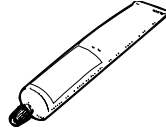


Tool NO.	Tool name / Function	Illustration
90890-01189 YM-01189	Flywheel puller This tool is used for removing the AC mag- neto rotor.	
90890-01367 YM-A9409-7 90890-01368 YM-A9409-4	Fork seal driver weight ① Fork seal driver attachment (Ø33mm) ② These tools are used when installing the fork seal.	
90890-01384 YM-33299	Oil seal guide This tool is used for protecting the oil seal lip when installing the secondary sliding sheave.	
90890-01403 YU-A9472	Steering nut wrench This tool is used to loosen and tighten the steering ring nut.	
90890-01701 YS-01880-A	Sheave holder This tool is used for holding the secondary sheave.	
90890-03079 YM-34483	Thickness gauge This tool is used to measure the valve clearance.	
90890-03081 YU-33223	Compression gauge This tool is used to measure the engine com- pression.	
90890-03112 YU-03112-C	Pocket tester This instrument is invaluable for checking the electrical system.	
90890-03174	Digital circuit tester This instrument is invaluable for checking the electrical system.	
90890-06760	Digital tachometer This tool is needed for detecting engine rpm.	



Tool NO.	Tool name / Function	Illustration
90890-03141 YU-03141	Timing light This tool is used to check the ignition timing.	
90890-04101	Valve lapper This tool is needed to remove and install the valve lifters.	
90890-04019 YM-04019 90890-04108 YM-04108	Valve spring compressor Compressor adapter (Ø19mm) These tools are used when removing or installing the valve and the valve spring.	
90890-04116 YM-04116	Valve guide remover (4.5mm) This tool is used to remove or install the valve guides.	
90890-04117 YM-04117	Valve guide installer (4.5mm) This tool is used to install the valve guides.	
90890-04118 YM-04118	Valve guide reamer (4.5mm) This tool is used to rebore the new valve guides.	
90890-06754 YM-34487	Ignition checker This tool is used to check the ignition system components.	
90890-03182 YU-03182	FI diagnostic tool Execute CO adjustment, confirm fault code, self diagnosis tool.	
90890-03153 YU-03153	Pressure gauge This tool is used to measure fuel pressure.	
90890-03186	Fuel pressure adapter This tool is used to measure fuel pressure.	

SPECIAL TOOLS**GEN
INFO**

Tool NO.	Tool name / Function	Illustration
90890-85505 ACC-11001-05-01	Yamaha bond NO.1215 Sealant (Quick Gasket®) This sealant (bond) is used to apply on crankcase mating surfaces.	 A line drawing of a tube of sealant, shown at an angle. The tube has a nozzle at one end and a cap at the other.

**CHAPTER 2
SPECIFICATIONS**

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SPECIFICATIONS

GENERAL SPECIFICATIONS

Item	Standard	Limit
Model		
Code	32S1 (USA) 32S2 (CAN)
Dimensions		
Overall length	1910mm (75.2in)	...
Overall width	765mm (30.1in)	...
Overall height	1110mm (43.7in)	...
Seat height	780mm (30.7in)	...
Wheelbase	1290mm (50.8in)	...
Minimum ground clearance	125mm (4.9in)	...
Minimum turning radius	1900mm (74.8in)	...
Weight		
Wet (with oil and a full fuel tank)	122kg (269lb)	...
Dry (without oil and fuel)	116kg (256lb)	...
Maximum load (total of cargo, rider, passenger, and accessories)	155kg (342lb)	...



ENGINE SPECIFICATIONS

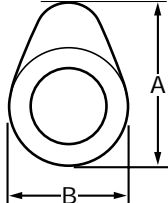
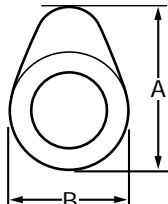
Item	Standard	Limit
Engine		
Engine type	Air-cooled, 4-stroke, SOHC	...
Displacement	0.125L (125cm ³ , 7.63cu-in)	...
Cylinder arrangement	Forward inclined single cylinder	...
Bore × stroke	52.4 × 57.9mm (2.06 × 2.28in)	...
Compression ratio	10:1	...
Engine idle speed	1700 ~ 1900r/min	...
Vacuum pressure at engine idle speed	37 ~ 47kPa (281 ~ 357mmHg, 11.06 ~ 14.05inHg) at 1800r/min	...
Standard compression pressure (at sea level)	1350kPa (13.5kgf/cm ² , 192psi) at 1800r/min	...
Fuel		
Recommended fuel	Regular unleaded gasoline only	...
Fuel tank capacity Total	6.0L (1.59 US gal, 1.32 Imp. gal)	...
Engine oil		
Lubrication system	Wet sump	...
Recommended oil	SAE20W-40 or SAE10W-30 API service SG type or higher JASO standard MA	...
Quantity Periodic oil change	0.80 ~ 0.90L (0.87 ~ 0.98 US qt, 0.74 ~ 0.83 Imp. qt)	...
Total amount	0.85 ~ 0.95L (0.9 ~ 1.0 US qt, 0.75 ~ 0.84 Imp. qt)	...
Final gear oil		
Recommended oil	SAE10W-30 type SE motor oil	...
Periodic oil change	0.12 ~ 0.14L (0.13 ~ 0.15 US qt, 0.11 ~ 0.12 Imp. qt)	...
Total amount	0.14 ~ 0.16L (0.15 ~ 0.17 US qt, 0.12 ~ 0.14 Imp. qt)	...

ENGINE SPECIFICATIONS

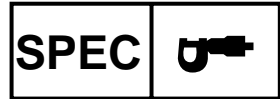


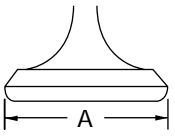
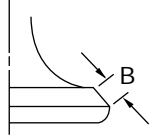
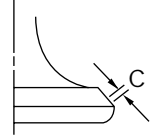
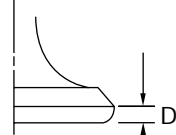
Item	Standard	Limit
Oil filter Oil filter type	Wire mesh	...
Oil pump Oil pump type Inner rotor to outer rotor tip clearance Outer rotor to pump housing clearance	Trochoid 0.15mm (0.006in) or less 0.07 ~ 0.12mm (0.003 ~ 0.005in)	... 0.23mm (0.009in) 0.19mm (0.008in)
Starting system type	Electric starter	...
Spark plug Model (manufacturer) × quantity Spark plug gap	U22ESR-N (DENSO) × 1 0.7 ~ 0.8mm (0.028 ~ 0.031in)
Cylinder head Volume Maximum warpage	11.4 ~ 12.0cm ³ (0.70 ~ 0.73cu-in) 0.05mm (0.002in)



Item	Standard	Limit
Camshaft		
Drive system	Chain drive (left)	...
Intake camshaft lobe dimensions		
		
Measurement A	25.267 ~ 25.367mm (0.995 ~ 0.999in)	25.167mm (0.991in)
Measurement B	21.069 ~ 21.169mm (0.829 ~ 0.833in)	20.969mm (0.826in)
Exhaust camshaft lobe dimensions		
		
Measurement A	25.275 ~ 25.375mm (0.995 ~ 0.999in)	25.175mm (0.991in)
Measurement B	21.069 ~ 21.169mm (0.829 ~ 0.833in)	20.969mm (0.826in)
Maximum camshaft runout	...	0.03mm (0.0012in)

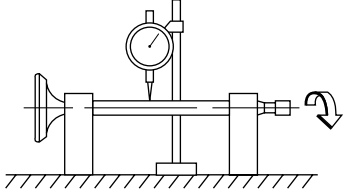
ENGINE SPECIFICATIONS



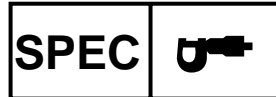
Item	Standard	Limit
Timing chain		
Model/number of links	Morse 92RH2005/94	...
Tensioning system	Automatic	...
Valve, valve seats, valve guides		
Valve clearance (cold)		
Intake	0.10 ~ 0.14mm (0.004 ~ 0.006in)	...
Exhaust	0.16 ~ 0.20mm (0.006 ~ 0.008in)	...
Valve dimensions		
 Head Diameter	 Face Width	 Seat Width
		 Margin Thickness
Valve head diameter A		
Intake	18.9 ~ 19.1mm (0.744 ~ 0.752in)	...
Exhaust	16.9 ~ 17.1mm (0.665 ~ 0.673in)	...
Valve face width B		
Intake	1.48 ~ 2.18mm (0.058 ~ 0.086in)	...
Exhaust	1.91 ~ 2.61mm (0.075 ~ 0.103in)	...
Valve seat width C		
Intake	0.9 ~ 1.1mm (0.035 ~ 0.043in)	...
Exhaust	0.9 ~ 1.1mm (0.035 ~ 0.043in)	...
Valve margin thickness D		
Intake	0.7mm (0.028in)	...
Exhaust	1.0mm (0.039in)	...
Valve stem diameter		
Intake	4.970 ~ 4.985mm (0.1956 ~ 0.1963in)	4.940mm (0.1945in)
Exhaust	4.955 ~ 4.970mm (0.1951 ~ 0.1957in)	4.925mm (0.1939in)
Valve guide inside diameter		
Intake	5.000 ~ 5.012mm (0.1969 ~ 0.1973in)	5.050mm (0.1988in)
Exhaust	5.000 ~ 5.012mm (0.1969 ~ 0.1973in)	5.050mm (0.1988in)

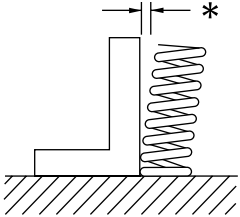
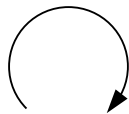
ENGINE SPECIFICATIONS



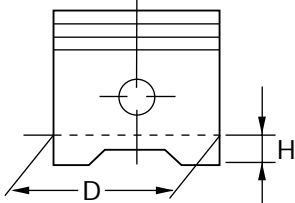
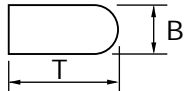
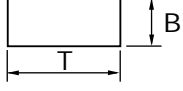
Item	Standard	Limit
Valve stem to valve guide clearance Intake Exhaust	0.015 ~ 0.042mm (0.0006 ~ 0.0017in) 0.030 ~ 0.057mm (0.0012 ~ 0.0022in)	0.08mm (0.0031in) 0.1mm (0.0039in)
Valve stem runout 	...	0.01mm (0.0004 in)
Valve seat width Intake Exhaust	0.9 ~ 1.1mm (0.035 ~ 0.043in) 0.9 ~ 1.1mm (0.035 ~ 0.043in)	1.6mm (0.063in) 1.6mm (0.063in)

ENGINE SPECIFICATIONS



Item	Standard	Limit
Valve springs		
Free length		
Intake	41.88mm (1.649in)	39.786mm (1.566in)
Exhaust	41.88mm (1.649in)	39.786mm (1.566in)
Installed length (valve closed)		
Intake	30mm (1.18in)	...
Exhaust	30mm (1.18in)	...
Compressed spring force (installed)		
Intake	137 ~ 157N/mm (13.97 ~ 16.01kgf/mm, 30.83 ~ 35.33lbf/in)	...
Exhaust	137 ~ 157N/mm (13.97 ~ 16.01kgf/mm, 30.83 ~ 35.33lbf/in)	...
Spring tilt		
		
Intake	...	2.5°/1.8mm (2.5°/0.07in)
Exhaust	...	2.5°/1.8mm (2.5°/0.07in)
Winding direction (top view)		
Intake	Clockwise	...
Exhaust	Clockwise	...
		
Valve seat reformed	Yes	...
Cylinder		
Cylinder arrangement	Forward inclined single cylinder	...
Bore × stroke	52.4 × 57.9mm (2.06 × 2.28in)	...
Compression ratio	10:1	...
Bore	52.40 ~ 52.41mm (2.0630 ~ 2.0634in)	...
Maximum taper	...	0.05mm (0.002in)
Maximum out-of-round	...	0.05mm (0.002in)

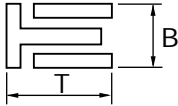


Item	Standard	Limit
Piston		
Piston-to-cylinder clearance	0.010 ~ 0.035mm	0.15mm
(0.0004 ~ 0.0014in)	(0.0004 ~ 0.0014in)	(0.0059in)
Diameter D	52.375 ~ 52.390mm	...
(2.0620 ~ 2.0626in)	(2.0620 ~ 2.0626in)	...
		
Height H	7.0mm (0.28in)	...
Piston pin bore (in the piston)		
Diameter	15.002 ~ 15.013mm	15.043mm
(0.5906 ~ 0.5911in)	(0.5906 ~ 0.5911in)	(0.5922in)
Offset	0.35 ~ 0.65mm	...
(0.0138 ~ 0.0256in)	(0.0138 ~ 0.0256in)	...
Offset direction	Intake side	...
Piston pin		
Outside diameter	14.995 ~ 15.000mm	14.975mm
(0.5904 ~ 0.5906in)	(0.5904 ~ 0.5906in)	(0.5896in)
Piston rings		
Top ring		
		
Ring type	Barrel	...
Dimensions (B × T)	1.0 × 2.1mm	...
(0.0394 × 0.0827in)	(0.0394 × 0.0827in)	...
End gap (installed)	0.10 ~ 0.25mm	0.50mm
(0.0039 ~ 0.0098in)	(0.0039 ~ 0.0098in)	(0.0197in)
Ring side clearance	0.02 ~ 0.08mm	0.13mm
(0.0008 ~ 0.0031in)	(0.0008 ~ 0.0031in)	(0.0051in)
2nd ring		
		
Ring type	Taper	...
Dimensions (B × T)	1.0 × 2.1mm	...
(0.0394 × 0.0827in)	(0.0394 × 0.0827in)	...
End gap (installed)	0.25 ~ 0.40mm	0.75mm
(0.0098 ~ 0.0157in)	(0.0098 ~ 0.0157in)	(0.0295in)
Ring side clearance	0.02 ~ 0.06mm	0.12mm
(0.0008 ~ 0.0024in)	(0.0008 ~ 0.0024in)	(0.0047in)

ENGINE SPECIFICATIONS

SPEC



Item	Standard	Limit
Oil ring 		
Dimensions (B × T)	2.0 × 2.5mm (0.0787 × 0.0984in)	...
End gap (installed)	0.2 ~ 0.7mm (0.0079 ~ 0.0276in)	...
Ring side clearance	0.04 ~ 0.12mm (0.0016 ~ 0.0047in)	...

ENGINE SPECIFICATIONS

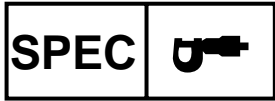


Item	Standard	Limit
Rocker arm/rocker arm shaft		
Rocker arm inside diameter	10.000 ~ 10.015mm (0.3937 ~ 0.3943in)	...
Rocker arm shaft outside diameter	9.981 ~ 9.991mm (0.3930 ~ 0.3933in)	...
Arm-to-shaft clearance	0.009 ~ 0.034mm (0.0004 ~ 0.0013in)	...
Connecting rod		
Connecting rod length	93.45 ~ 93.55mm (36.791 ~ 36.831in)	...
Small end inside diameter	15.015 ~ 15.028mm (0.591 ~ 0.592in)	...
Crankshaft		
Width A	45.45 ~ 45.50mm (1.789 ~ 1.791in)	...
Maximum runout C	...	0.03mm (0.0012in)
Big end side clearance D	0.15 ~ 0.45mm (0.006 ~ 0.018in)	...
Big end radial clearance E	0 ~ 0.01mm (0 ~ 0.0014in)	...
Clutch		
Clutch type	Automatic centrifugal	...
Clutch shoe thickness	3.2mm ~ 3.5mm (0.13~0.14in)	2.0mm (0.079in)
Clutch shoe spring free length	28.5mm (1.12in)	...
Clutch housing inside diameter	120mm (4.72in)	120.5mm (4.74in)
Compression spring free length	108mm (4.25in)	...
Weight outside diameter	20mm (0.79in)	19.5mm (0.77in)
Clutch-in revolution	2700 ~ 3300r/min	...
Clutch-stall revolution	5150 ~ 6150r/min	...
V-belt		
V-belt width	22mm (0.87in)	19.8mm (0.78in)

ENGINE SPECIFICATIONS



Item	Standard	Limit
Transmission		
Transmission type	V-belt automatic	...
Primary reduction system	Helical gear	...
Primary reduction ratio	40/15 (2.667)	...
Secondary reduction system	Spur gear	...
Secondary reduction ratio	44/11 (4.0)	...
Single speed automatic	2.398 ~ 0.823:1	...
Maximum main axle runout	...	0.04mm (0.002in)
Maximum drive axle runout	...	0.04mm (0.002in)
Air filter		
Type	Wet element	...
Fuel pump		
Pump type	Electrical	...
Model (manufacturer)	5S9 (AISAN)	...
Maximum consumption amperage	1.9A	...
Output pressure	250kPa (2.5kgf/cm ² , 35.6psi)	...
Throttle body		
Model (manufacturer) × quantity	AC24-7 (AISAN) × 1	...
Throttle cable free play (at the flange of the throttle grip)	3 ~ 5mm (0.12 ~ 0.20in)	...
ID mark	5S91 00	...
Engine idling speed	1700 ~ 1900r/min	...
Carbon monoxide density (exhaust pipe)	1.0% or less	...
Carbon monoxide density (tail pipe)	1.0% or less	...
Oil temperature	70 ~ 110°C (158 ~ 230°F)	...



CHASSIS SPECIFICATIONS

Item	Standard	Limit
Frame		
Frame type	Steel tube underbone	...
Caster angle	27°	...
Trail	90mm (3.54in)	...
Front wheel		
Wheel type	Cast wheel	...
Rim		
Size	J12 × MT2.75	...
Material	Aluminum	...
Wheel travel	78mm (3.07in)	...
Wheel runout		
Maximum radial wheel runout	...	1.0mm (0.04in)
Maximum lateral wheel runout	...	1.0mm (0.04in)
Wheel axle bending limit	...	0.25mm (0.01in)
Rear wheel		
Wheel type	Cast wheel	...
Rim		
Size	J12 × MT3.00	...
Material	Aluminum	...
Wheel travel	71mm (2.80in)	...
Wheel runout		
Maximum radial wheel runout	...	1.0mm (0.04in)
Maximum lateral wheel runout	...	1.0mm (0.04in)
Front tire		
Tire type	Tubeless	...
Size	120/70-12 51L	...
Model (manufacturer)	K761 (KENDA)	...
Tire pressure (cold)		
0 ~ 90kg (0 ~ 198lb)	175kPa (1.75kgf/cm ² , 25psi)	...
90kg (198lb) ~ maximum load	200kPa (2.0kgf/cm ² , 29psi)	...
Minimum tire tread depth	...	0.8mm (0.03in)

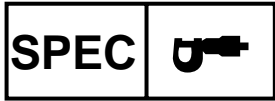
CHASSIS SPECIFICATIONS

SPEC



Item	Standard	Limit
Rear tire		
Tire type	Tubeless	...
Size	130/70-12 56L	...
Model (manufacturer)	K761 (KENDA)	...
Tire pressure (cold)		
0 ~ 90kg (0 ~ 198lb)	200kPa (2.0kgf/cm ² , 29psi)	...
90kg (198lb)~ maximum load	225kPa (2.25kgf/cm ² , 33psi)	...
Minimum tire tread depth	...	0.8mm (0.03in)
Front brake		
Brake type	Single-disc brake	...
Operation	Right-hand operation	...
Recommended fluid	DOT 4	...
Brake disc		
Diameter × thickness	220 × 4.0mm (8.66 × 0.16in)	220 × 3.5mm (8.66 × 0.14in)
Minimum thickness	...	3.5mm (0.14in)
Maximum deflection	...	0.15mm (0.006in)
Brake pad lining thickness-inner	5.8mm (0.23in)	0.8mm (0.03in)
Brake pad lining thickness-outer	5.8mm (0.23in)	0.8mm (0.03in)
Master cylinder inside diameter	11mm (0.43in)	...
Caliper cylinder inside diameter	35mm (1.38in)	...
Rear brake		
Brake type	Drum brake	...
Operation	Left-hand operation	...
Brake lever free play (at lever end)	10 ~ 20mm (0.39 ~ 0.79in)	...
Brake drum inside diameter	150mm (5.91in)	151mm (5.94in)
Lining thickness	4.0mm (0.16in)	1.0mm (0.04in)
Steering system		
Steering bearing type	Angular bearing	...
Lock to lock angle (left)	48°	...
Lock to lock angle (right)	48°	...

CHASSIS SPECIFICATIONS



Item	Standard	Limit
Front suspension		
Suspension type	Telescopic	...
Front fork type	Coil spring/oil damper	...
Front fork travel	90mm (3.54in)	...
Spring		
Free length	252.1mm (9.93in)	247mm (9.72in)
Installed length	230.9mm (9.09in)	...
Spring rate (K1)	7.1N/mm (0.72kgf/mm, 1.60lbf/in)	...
Spring rate (K2)	15.4N/mm (1.57kgf/mm, 3.47lbf/in)	...
Spring stroke (K1)	0 ~ 66.7mm (0 ~ 2.63in)	...
Spring stroke (K2)	66.7 ~ 90mm (2.63 ~ 3.54in)	...
Optional spring available	No	...
Fork oil		
Recommended oil	Fork oil 10W or equivalent	...
Quantity (each front fork leg)	0.104L (0.11 US qt, 0.09 Imp. qt)	...
Inner tube outer diameter	33mm (1.30in)	...
Inner tube bending limit	...	0.2mm (0.008in)
Rear suspension		
Suspension type	Unit swing	...
Rear shock absorber assembly type	Coil spring/oil damper	...
Rear shock absorber assembly travel	70mm (2.76in)	...
Spring		
Free length	235mm (9.25in)	...
Installed length	224mm (8.82in)	...
Spring rate (K1)	9.3N/mm (0.95kgf/mm, 2.09lbf/in)	...
Spring rate (K2)	13.15N/mm (1.34kgf/mm, 2.96lbf/in)	...
Spring rate (K3)	19.23N/mm (1.96kgf/mm, 4.33lbf/in)	...
Spring stroke (K1)	0 ~ 24mm (0 ~ 0.94in)	...
Spring stroke (K2)	24 ~ 54mm (0.94 ~ 2.13in)	...
Spring stroke (K3)	54 ~ 70mm (2.13 ~ 2.76in)	...
Optional spring available	No	...



ELECTRICAL SPECIFICATIONS

Item	Standard	Limit
System voltage	12V	...
Ignition system		
Ignition system type	Transistorized coil ignition	...
Ignition timing	5° BTDC at 1800r/min	...
Advancer type	Digital	...
Pickup coil resistance/color	248 ~ 372Ω at 20°C (68°F) /white/red - white/blue	...
Ignition coil		
Model (manufacturer)	2JN (T-MORIC)	...
Minimum ignition spark gap	6mm (0.24in)	...
Primary coil resistance	2.16 ~ 2.64Ω at 20°C (68°F)	...
Secondary coil resistance	8.64~12.96Ω at 20°C (68°F)	...
Spark plug cap		
Material	Resin	...
Resistance	8 ~ 12kΩ at 20°C (68°F)	...
Charging system		
System type	AC magneto	...
Model (manufacturer)	5S9 (T-MORIC)	...
Nominal output	14V 170W/5000r/min	...
Stator coil resistance/color	0.56 ~ 0.84Ω at 20°C (68°F) /white - white	...
Rectifier/regulator		
Model (manufacturer)	SH640E-11 (TAIGENE)	...
No load regulated voltage	14.1 ~ 14.9V	...
Rectifier capacity	25A	...
Battery		
Battery type (manufacturer)	YT7B-BS (YUASA)	...
Battery voltage capacity	12V 6.5AH	...
Specific gravity	1.340	...
Ten hour rate amperage	6.5AH	...
Headlight type	Halogen bulb	...
Indicator light (voltage/wattage × quantity)		
Turn signal indicator light	12V 1.7W × 1	...
High beam indicator light	12V 1.7W × 1	...
Engine trouble warning light	12V 1.7W × 1	...
Bulbs (voltage/wattage × quantity)		
Headlight	12V 60W/55W × 2	...
Tail/brake light	12V 5W/21W × 1	...
Front turn signal light	12V 10W × 2	...
Rear turn signal light	12V 10W × 2	...
Speedometer light	12V 1.7W × 2	...

ELECTRICAL SPECIFICATIONS



Item	Standard	Limit
Electric starting system		
System type	Constant mesh	...
Starter motor		
Model (manufacturer)	5S9 00 (T-MORIC)	...
Suction voltage	12V	...
Power output	0.35kW	...
Brushes		
Overall length	10.0mm (0.39in)	3.5mm (0.14in)
Quantity	2	...
Spring force	5.52 ~ 8.28N/mm (0.56 ~ 0.84kgf/mm, 1.24 ~ 1.86lbf/in)	...
Commutator diameter	22mm (0.87in)	21mm (0.83in)
Commutator resistance	0.0252 ~ 0.0308Ω at 20°C (68°F)	...
Mica undercut (depth)	1.5mm (0.06in)	...
Starter relay		
Model (manufacturer)	5S9 00 (SHIHLIN)	...
Amperage	100A	...
Coil resistance	3.6 ~ 4.4Ω	...
Suction voltage	DC8V	...
Horn		
Horn type	Plane	...
Model (manufacturer)	YF-12 (NIKKO)	...
Maximum amperage	3A	...
Performance	105 ~ 120dB/2m	...
Coil resistance	1.15 ~ 1.25Ω	...
Turn signal relay		
Relay type	Condenser	...
Model (manufacturer)	5XN4 (OMRON)	...
Self-cancelling device built-in	NO	...
Turn signal blinking frequency	70 ~ 100cycles/min	...
Wattage	10W × 2 + 3.4W	...
Fuse (amperage × quantity)		
Main fuse	20A × 1	...
Ignition fuse	10A × 1	...
Signaling system fuse	15A × 1	...
Fuel injection system fuse	10A × 1	...
Headlight fuse	10A × 1	...
Spare fuse	20A, 15A, 10A × 1	...

ELECTRICAL SPECIFICATIONS

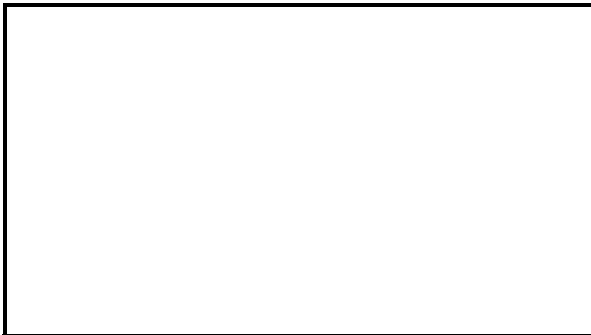


Item	Standard	Limit
Fuel sender Model (manufacturer) Sender unit resistance-full Sender unit resistance-empty	5S9 (AISAN) 4 ~ 10Ω 90 ~ 100Ω
Fuel level gauge Gauge type (manufacture)	Analog (CHAOLONG)	...
Starting circuit cut-off relay Model (manufacturer) Coil resistance Diode	4HC1 (MATSU SHITA) 72 ~ 88Ω YES
Headlight relay Model (manufacturer) Coil resistance Diode	4HM-20 (OMRON) 90 ~ 110Ω YES
Engine temperature sensor Model (manufacturer) Coil resistance at 100°C (212°F)	4P91 (PANASONIC) 0.210 ~ 0.221kΩ
Intake air pressure sensor Output voltage	0.789 ~ 4.0V	...
Intake air temperature sensor Coil resistance/color	6kΩ at 0°C (32°F)/ brown-white/black-blue	...
Throttle position sensor Voltage/color Output voltage (closed position)/color	5V/blue-black/blue 0.63 ~ 0.73V/yellow-black/blue
ISC (idle speed control) valve Resistance/color	20Ω at 20°C (68°F)/ pink-green/yellow or gray-sky blue	...
Lean angle cut-off switch Voltage Less than 45° More than 45°	0.4V 1.4V
O₂ sensor Model (manufacturer) Coil resistance	1B91(DENSO) 11.7 ~ 15.5Ω at 20°C (68°F)

EAS00030

GENERAL TIGHTENING TORQUE SPECIFICATIONS

This chart specifies tightening torques for standard fasteners with a standard ISO thread pitch. Tightening torque specifications for special components or assemblies are provided for each chapter of this manual. To avoid warpage, tighten multi-fastener assemblies in a crisscross pattern and progressive stages until the specified tightening torque is reached. Unless otherwise specified, tightening torque specifications require clean, dry threads. Components should be at room temperature.





A: Width across flats

B: Thread diameter


A (nut)	B (bolt)	General tightening torques		
		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

**TIGHTENING TORQUES
ENGINE**

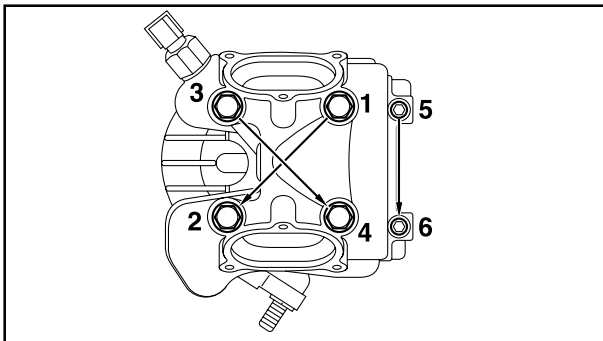
Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m•kgf	ft•lbf	
Cylinder head and cylinder	Nut	M8	4	22	2.2	15.9	
Spark plug	-	M10	1	13	1.3	9.4	
Cylinder head (timing chain side)	Bolt	M6	2	12	1.2	8.7	
Exhaust pipe stud bolt	-	M8	2	13	1.3	9.4	
Breather	Bolt	M6	2	7	0.7	5.1	
Valve cover	Bolt	M6	6	7	0.7	5.1	
Stopper plate (camshaft)	Bolt	M6	1	12	1.2	8.7	
Guide stopper 2	Bolt	M6	1	7	0.7	5.1	
Valve clearance adjusting screw lock nut	-	M5	4	7	0.7	5.1	
Camshaft sprocket	Bolt	M8	1	30	3.0	21.7	
Timing chain tensioner (body)	Bolt	M6	2	9	0.9	6.5	
Timing chain tensioner (plug)	Plug	M8	1	8	0.8	5.8	
Air shroud cylinder 1 and 2	Screw	6.0	5	2	0.2	1.4	
Air shroud cylinder 2 and 3	Screw	6.0	1	2	0.2	1.4	
Air shroud cylinder 3	Screw	M6	3	7	0.7	5.1	
Fan	Bolt	M6	4	9	0.9	6.5	
Guide	Screw	6.0	3	2	0.2	1.4	
Oil pump	Screw	M5	2	4	0.4	2.9	
Engine oil drain plug	-	M30	1	20	2.0	14.5	
Intake manifold	Bolt	M6	2	10	1.0	7.2	
Air filter	Screw	M6	2	7	0.7	5.1	
Fuel injector	Bolt	M6	1	12	1.2	8.7	
Intake manifold side band	Band	M4	1	3	0.3	2.2	Touching collar stop.
Air filter side band	Band	M4	1	3	0.3	2.2	
Protector	Bolt	M6	4	10	1.0	7.2	
Exhaust pipe	Nut	M8	2	13	1.3	9.4	
Muffler	Bolt	M10	1	53	5.3	38.3	
Muffler	Bolt	M8	2	31	3.1	22.4	
Crankcase (left and right)	Bolt	M6	8	13	1.3	9.4	
Crankcase (left and right)	Bolt	M6	1	13	1.3	9.4	
V-belt case	Bolt	M6	8	11	1.1	8.0	
Crankcase cover (right)	Bolt	M6	6	10	1.0	7.2	
Cover 1 (magneto base)	Bolt	M6	2	13	1.3	9.4	Crankcase (left and right) together tightening.
Cover 1 (magneto base)	Bolt	M6	1	13	1.3	9.4	
V-belt case cover	Screw	M6	3	7	0.7	5.1	
V-belt case cover	Bolt	M6	2	7	0.7	5.1	
Cylinder stud bolt	-	M8	4	13	1.3	9.4	
Drain bolt (transmission oil)	-	M8	1	23	2.3	16.6	
Drain bolt (engine oil)	-	M12	1	20	2.0	14.5	
Guide element	Screw	M6	1	7	0.7	5.1	

TIGHTENING TORQUES

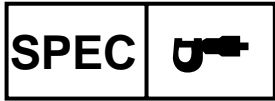


Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m•kgf	ft•lbf	
Plate (V-belt guide)	Bolt	M6	4	10	1.0	7.2	 Do not use the air impact wrench to tight.
Idle gear plate	Bolt	M6	2	10	1.0	7.2	
Plate	Bolt	M6	1	10	1.0	7.2	
Clutch housing	Nut	M14	1	60	6.0	43.4	
Primary fixed sheave	Nut	M12	1	45	4.5	32.5	
Starter motor	Bolt	M6	2	7	0.7	5.1	
AC magneto rotor	Nut	M12	1	70	7.0	50.6	
Stator coil	Screw	M6	3	7	0.7	5.1	
Crankshaft position sensor	Screw	M6	2	7	0.7	5.1	
Ignition coil	Screw	M6	2	7	0.7	5.1	
O ₂ sensor	-	M18	1	44	4.4	31.8	
Engine temperature sensor	-	M10	1	18	1.8	13.0	
Clamp holder	Bolt	M6	2	10	1.0	7.2	

Cylinder head tightening sequence



TIGHTENING TORQUES



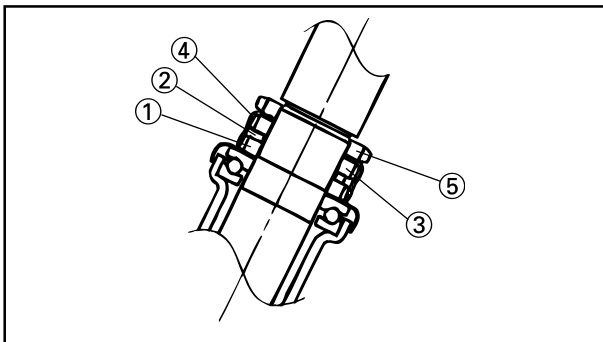
CHASSIS

Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m·kgf	ft·lbf	
Frame and engine bracket 2	M10	32	3.2	23.1	See "TIP"
Engine bracket 2, compression rod and engine	M10	32	3.2	23.1	
Compression rod and frame	M10	32	3.2	23.1	
Sidestand (bolt and stand)	M10	9	0.9	6.5	
Sidestand (bolt and nut)	M10	40	4.0	28.9	
Centerstand	M8	23	2.3	16.6	
Swingarm	M8	31	3.1	22.4	
Rear shock absorber and frame	M10	30	3.0	21.7	
Rear shock absorber and engine	M8	18	1.8	13.0	
Steering ring shaft	M25				
Handlebar and steering shaft	M10	60	6.0	43.4	
Brake hose and master cylinder	M10	26	2.6	18.8	
Speedometer and speedometer cable	M12	4	0.4	2.9	
Speedometer gear and speedometer cable	M12	4	0.4	2.9	
Handlebar bracket and handlebar holder	M10	48	4.8	34.7	
Upper handlebar holder	M8	28	2.8	20.3	
Handlebar bracket	M10	60	6.0	43.4	
Master cylinder holder	M6	9	0.9	6.5	
Fuel tank	M6	10	1.0	7.2	
Trunk	M6	7	0.7	5.1	
Seat hinge	M6	7	0.7	5.1	
Seat lock assembly	M6	7	0.7	5.1	
Fuel pump bracket	M5	4	0.4	2.9	
Resin part and resin cover	About M5	1.5	0.15	1.1	
Front fender	M6	5	0.5	3.6	
Leg shield assembly	M6	7	0.7	5.1	
Footrest board	M6	7	0.7	5.1	
Front wheel shaft	M12	70	7.0	50.6	
Rear wheel shaft	M14	105	10.5	75.9	
Rear brake camshaft lever	M6	10	1.0	7.2	
Rear brake pin pivot	M10	32	3.2	23.1	
Front brake caliper	M10	49	4.9	35.4	
Front brake disc rotor	M8	23	2.3	16.6	
Brake hose and front brake caliper	M10	26	2.6	18.8	
Front brake caliper and bleed screw	M7	6	0.6	4.3	



**TIP**

1. First, tighten the ring nut (lower) approximately 38Nm (3.8m • kgf, 27.5ft • lbf) by using the torque wrench, then loosen the ring nut 1/4 turn.
2. Second, tighten the ring nut (lower) approximately 14Nm (1.4m • kgf, 10.1ft • lbf) by using the torque wrench.
3. Installing the rubber washer.
4. Then finger tighten the center ring nut and touch rubber washer. Align the slots both ring nut and install the lock washer.
5. Final, hold the ring nuts (lower and center) and tighten the ring nut (upper) 75Nm (7.5m • kgf, 54.2ft • lbf) by using the torque wrench.
6. Confirm, adjust the direction handlebar to the right direction, front wheel suspend. Push direction handlebar lightly with the finger approximately 0.15Nm (0.015m • kgf, 0.11ft • lbf) ,direction handlebar should turn slowly without interference or hindrance.



- ① Lower ring nut
- ② Rubber washer
- ③ Center ring nut
- ④ Lock washer
- ⑤ Upper ring nut

LUBRICATION POINTS AND LUBRICANT TYPES






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LUBRICATION POINTS AND LUBRICANT TYPES ENGINE

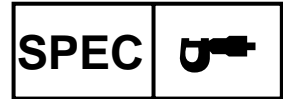
Lubrication Point	Lubricant
Oil seal lips	
Bearings	
O-rings (except V-belt drive unit)	
O-rings (fuel injector)	
Cylinder head tightening nut mounting surface	
Cylinder head stud bolt thread	
Cylinder head nut	
Cylinder head gasket dowel pin	
Crankshaft pin outside surface	
Crankshaft journals	
Connecting rod big end thrust surface	
Piston and piston rings	
Piston pin and connecting rod small end surface and bolt thread	
Piston (balancer) outside surface	
Piston pin (balancer) outside surface	
Rocker arm shaft outside surface (intake and exhaust)	
Rocker arm shaft and rockor arm	
Camshaft lobes	
Camshaft journals	
Valve stems (intake and exhaust)	
Valve stem seals (intake and exhaust)	
Valve stem ends (intake and exhaust)	
Oil pump inside surface	
Oil pump shaft	
V-belt case dowel pin	
Starter clutch pin and weight	
Idle gear 1 thrust surface	
Idle gear 2	

LUBRICATION POINTS AND LUBRICANT TYPES



Lubrication Point	Lubricant
Main and drive axle serration (sprocket)	
Drive axle taper roller bearing	
Transmission bearing	
Secondary fixed sheave inner surface	BEL-RAY assembly lube®
Secondary sliding sheave torque cam ditch	BEL-RAY assembly lube®
Crankcase mating surfaces	Yamaha bond NO.1215

LUBRICATION POINTS AND LUBRICANT TYPES



EAS00032

CHASSIS

Lubrication Point	Lubricant
Engine mounting bolt	
Steering bearing and bearing races (upper and lower)	
Throttle grip inner surface and throttle cables	
Rear brake lever pivoting point and metal-to-metal moving parts	
Rear brake cable and brake lock lever (cable connection area)	
Front wheel oil seal	
Front wheel axle	
Speedometer gear unit	
Rear wheel axle	
Sidestand pivoting point and sliding surface metal-to-metal moving parts and bolt outer surface	
Centerstand shaft pivoting point and metal-to-metal moving parts	
Centerstand stopper pivoting point	
Centerstand and sidestand spring hook metal-to-metal moving parts	
Caliper piston seal	
Rubber parts inside the master cylinder	
Caliper piston dust seal	
Front brake lever retaining bolt	
Sliding area between brake lever and master cylinder	
Caliper bracket slide pins and/or retaining bolt	

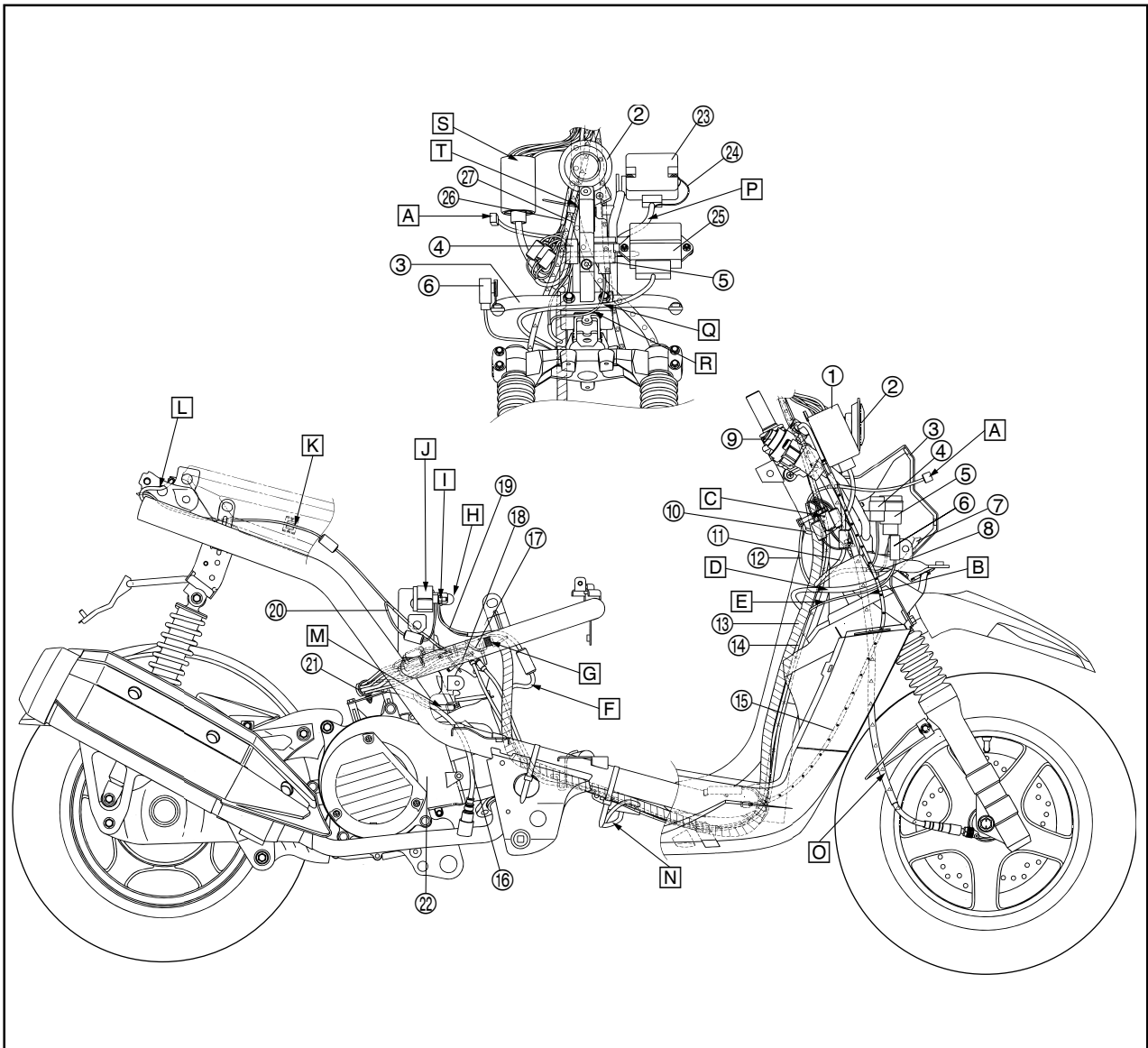


EAS00035

CABLE ROUTING

- ① Connector cover
- ② Horn
- ③ Front bracket
- ④ Starting circuit cut-off relay
- ⑤ Turn signal relay
- ⑥ Headlight relay
- ⑦ ECU lead
- ⑧ Turn signal relay lead
- ⑨ Main switch
- ⑩ Horn lead
- ⑪ Main switch lead
- ⑫ Rectifier/regulator lead
- ⑬ Wire harness
- ⑭ Throttle cable assembly
- ⑮ Seat lock cable
- ⑯ O₂ sensor lead
- ⑰ Fuel injector lead

- ⑱ Engine temperature sensor lead
- ⑲ Positive wire lead
- ⑳ Starter relay lead
- ㉑ Clamp (90464-25803)
- ㉒ Air shroud cylinder 2
- ㉓ Rectifier/regulator
- ㉔ Body earth lead
- ㉕ ECU
- ㉖ Speedometer lead
- ㉗ Left lever holder lead
- A After connect the headlight coupler, lead do not touch horn.
- B Speedometer cable passes through the right hole of inner fender.
- C Five couplers of speedometer lead and lever holder.
- D ECU lead passes by the right side of the inner fender rib.

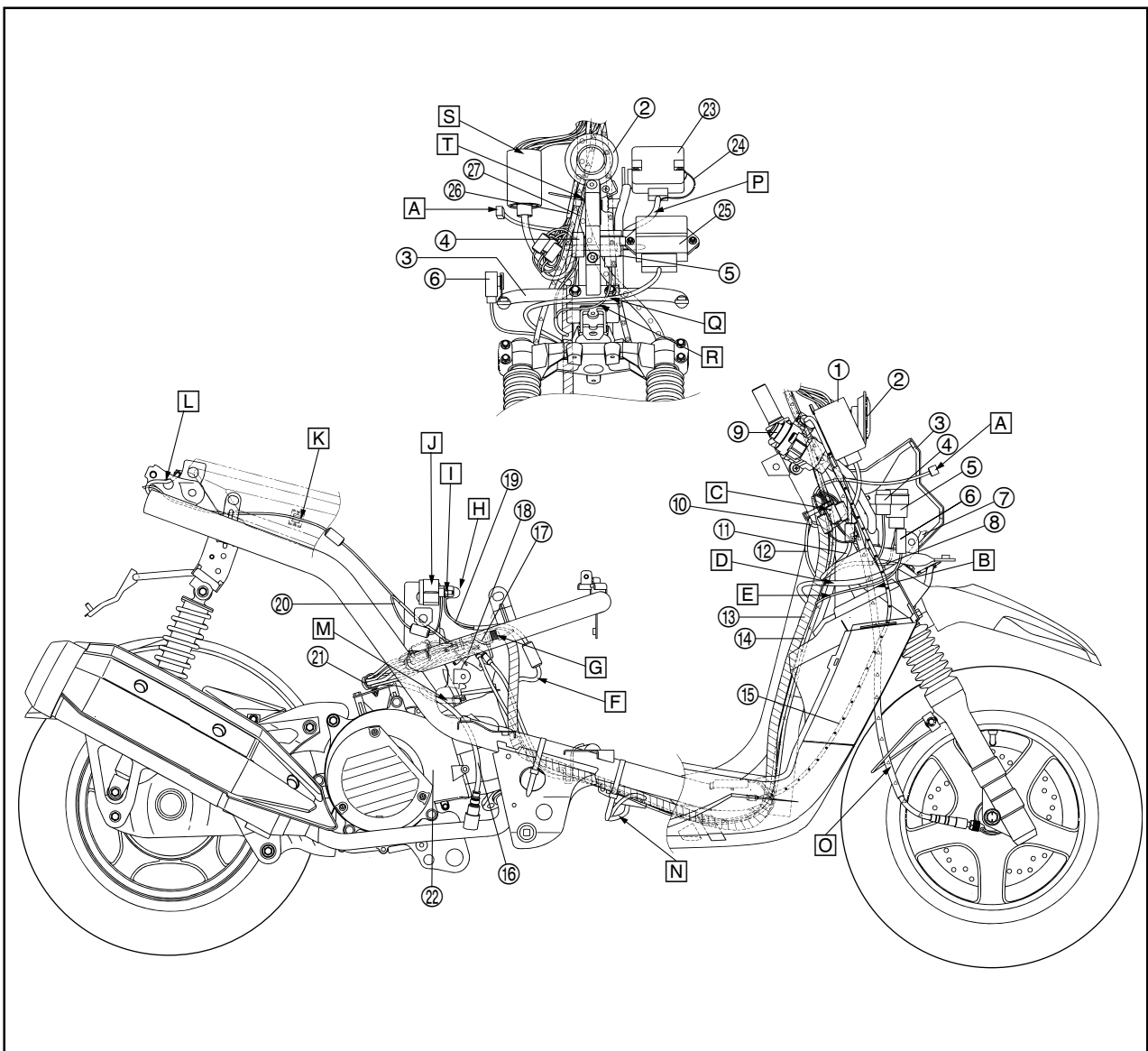


CABLE ROUTING

SPEC



- E** Headlight relay lead passes by the right side of inner fender rib.
- F** Start relay sub lead to forward.
- G** Orientation: white tape.
- H** Totally cover the terminal after locking.
- I** Torque: 4Nm (0.4m • kgf, 2.9ft • lbf).
- J** Starter relay inserts into holder certainly.
- K** After connecting, press lead of tail/brake light into the holder on side cover.
- L** Seat lock cable passes through the hole of seat bracket 1.
- M** Pipe 11 passes by the open hole of air shroud cylinder 2.
- N** Fuse box passes under the wire harness.
- O** Speedometer cable passes through the wire holder.
- P** Rectifier/regulator lead passes by the back of the head pipe.
- Q** ECU lead passes under of the front bracket.
- R** Turn signal relay lead passes under of the front bracket.
- S** After connecting, put the front signal light coupler (left and right), brake light switch coupler (front and rear) and right handlebar switch lead coupler in the connector cover. Connector cover hold to leg shield 2 rib.
- T** Band the speedometer cable stopper in the top and white tape range of left lever holder lead.

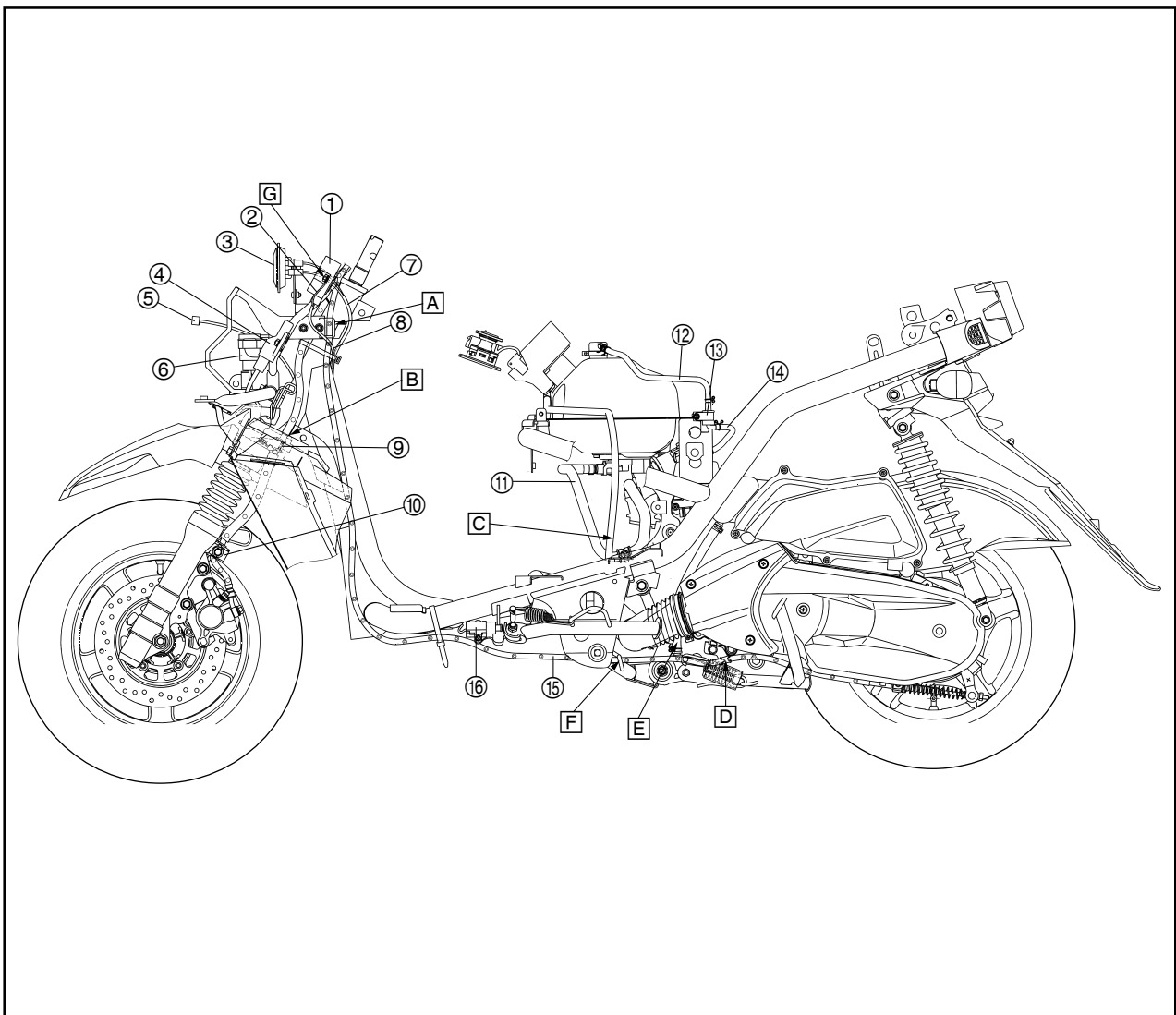


CABLE ROUTING

SPEC



- ① Rectifier/regulator
- ② Body earth lead
- ③ Horn
- ④ ECU
- ⑤ Headlight lead
- ⑥ Turn signal relay
- ⑦ Horn lead
- ⑧ Rectifier/regulator lead
- ⑨ Brake hose holder 3
- ⑩ Brake hose holder 1
- ⑪ Fuel hose
- ⑫ Pipe 3
- ⑬ Roll over valve
- ⑭ Pipe 4
- ⑮ Rear brake cable
- ⑯ Sidestand switch
- Ⓐ Rear brake cable passes through the wire guide of front bracket.
- Ⓑ Brake hose passes through the left hole of inner fender.
- Ⓒ Locate the end of gasoline overflow pipe at between frame and air duct.
- Ⓓ Rear brake holder 2 holds the rear brake cable and covers the ultrasonic weld mark at the PVC protector.
- Ⓔ Locate at between compression rod and air duct.
- Ⓕ Rear brake cable passes through the wire guide.
- Ⓖ Tightening the body earth terminal and rectifier/regulator.

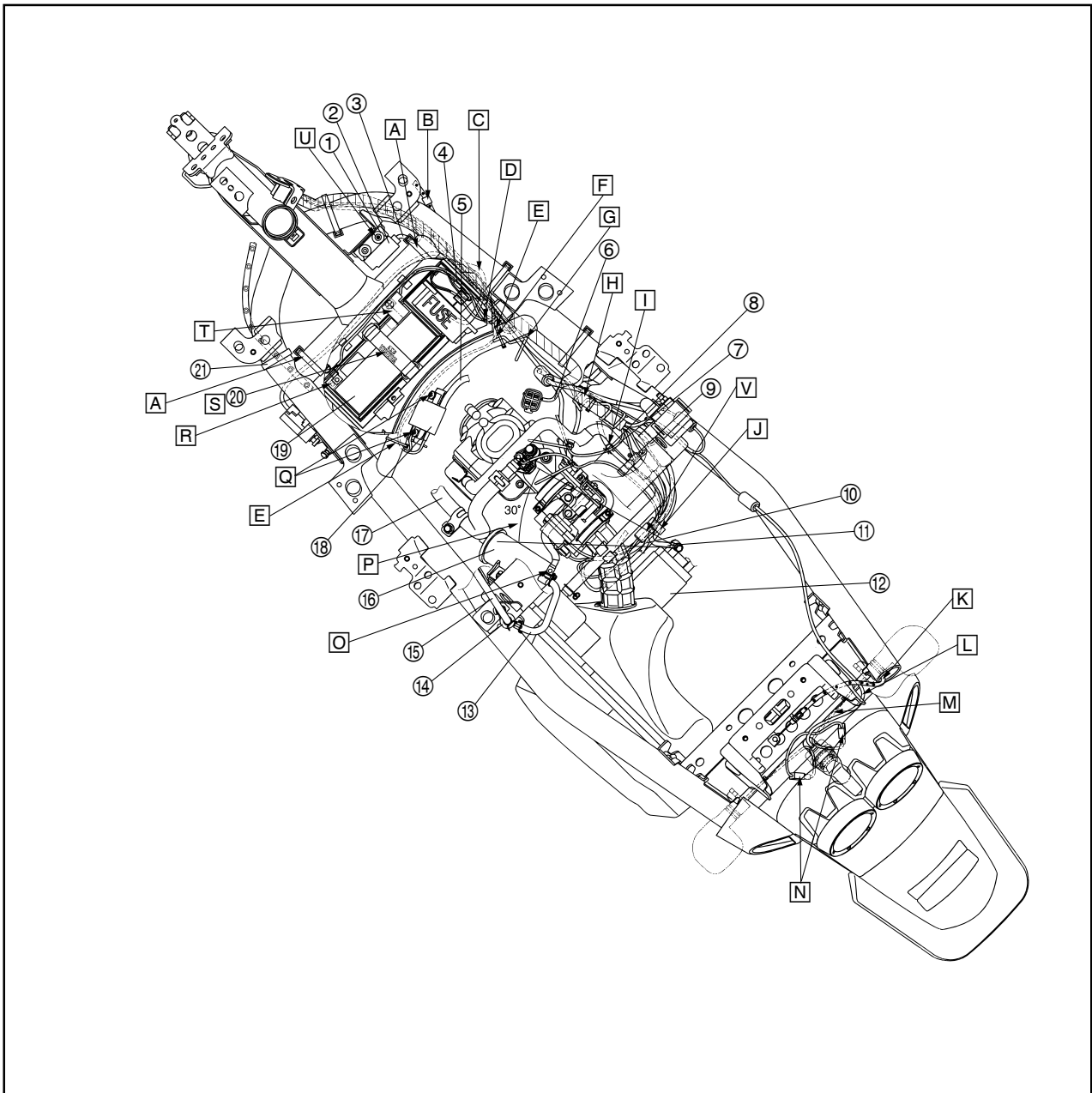


CABLE ROUTING

SPEC



- ① Plain washer
- ② Lean angle cut-off switch
- ③ Lean angle cut-off switch lead
- ④ FI diagnostic tool
- ⑤ High tension cord
- ⑥ Fuel pump lead
- ⑦ Engine temperature sensor lead
- ⑧ Fuel injector lead
- ⑨ Clamp (90464-13800)
- ⑩ Starter motor positive lead
- ⑪ Starter motor negative lead
- ⑫ Starter motor
- ⑬ Pipe 4
- ⑭ Roll over valve
- ⑮ Pipe 3
- ⑯ Canister
- ⑰ Fuel hose
- ⑱ Ignition coil
- ⑲ Battery
- ⑳ Battery band
- ㉑ Clamp (90464-12812)
- A Fasten the sidestand switch lead to the frame with a plastic locking tie, point the band tip to down of car body.
- B Seat lock cable inserts into the right hole of frame, and the protector must be at the hole.
- C Fuse box lead passes under the wire harness.
- D Pass the positive and negative battery leads through the slot in the footrest board, leads and wire harness do not twine.
- E Do not cut off, point the band tip to down.

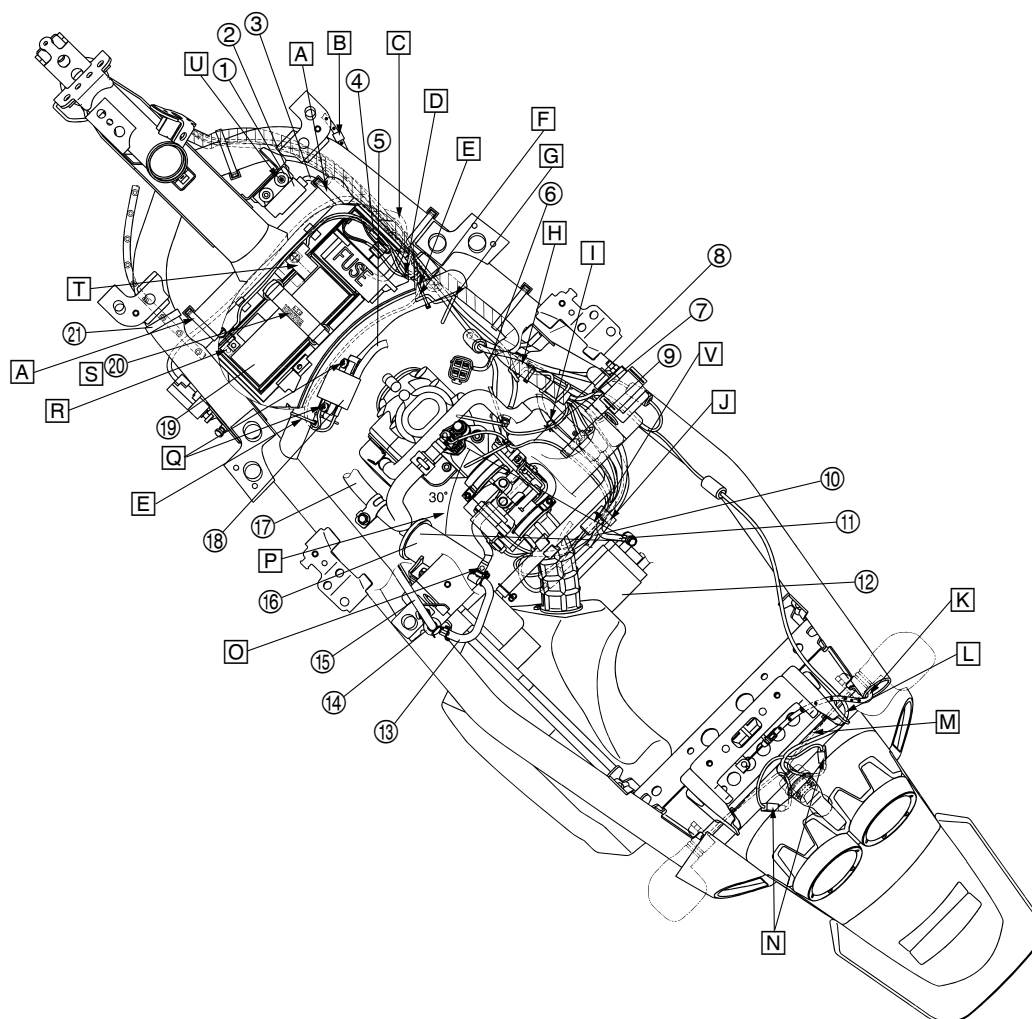


CABLE ROUTING

SPEC



- F** Ignition coil lead passes under the cross tube.
- G** Pass the throttle cable assembly through wire guide.
- H** Locate the white tape of wire harness in the holder.
- I** Clamp (90464-10800) the O₂ sensor lead.
- J** Clamp (90464-25803) the starter motor lead, AC magneto lead, ISC (idle speed control) valve lead, sensor module (MAQS) lead, fuel injector lead and O₂ sensor lead.
- K** Seat lock cable passes through the hole of seat bracket.
- L** Tail/brake light lead pass under the seat lock cable.
- M** Turn signal light lead pass through the hole at license bracket and combine with tail/brake light lead.
- N** After combining the couplers, insert them into the sockets at tail/brake light.
- O** Yellow mark to up of pipe 11.
- P** Assembly range of starter motor negative lead terminal.
- Q** Torque: 7Nm (0.7m • kgf, 5.1ft • lbf).
- R** The terminal of battery negative pole (black lead) shall touch the left surface of battery box at least.
- S** Battery band buckles the rear side and then front.
- T** The terminal of battery positive pole (red lead) shall be aimed at the center of mark "⊕" at footrest board.
- U** Torque: 5Nm (0.5m • kgf, 3.6ft • lbf).
- V** After combining the fuel injector coupler, align the coupler (forward side) with the clamp (inside).



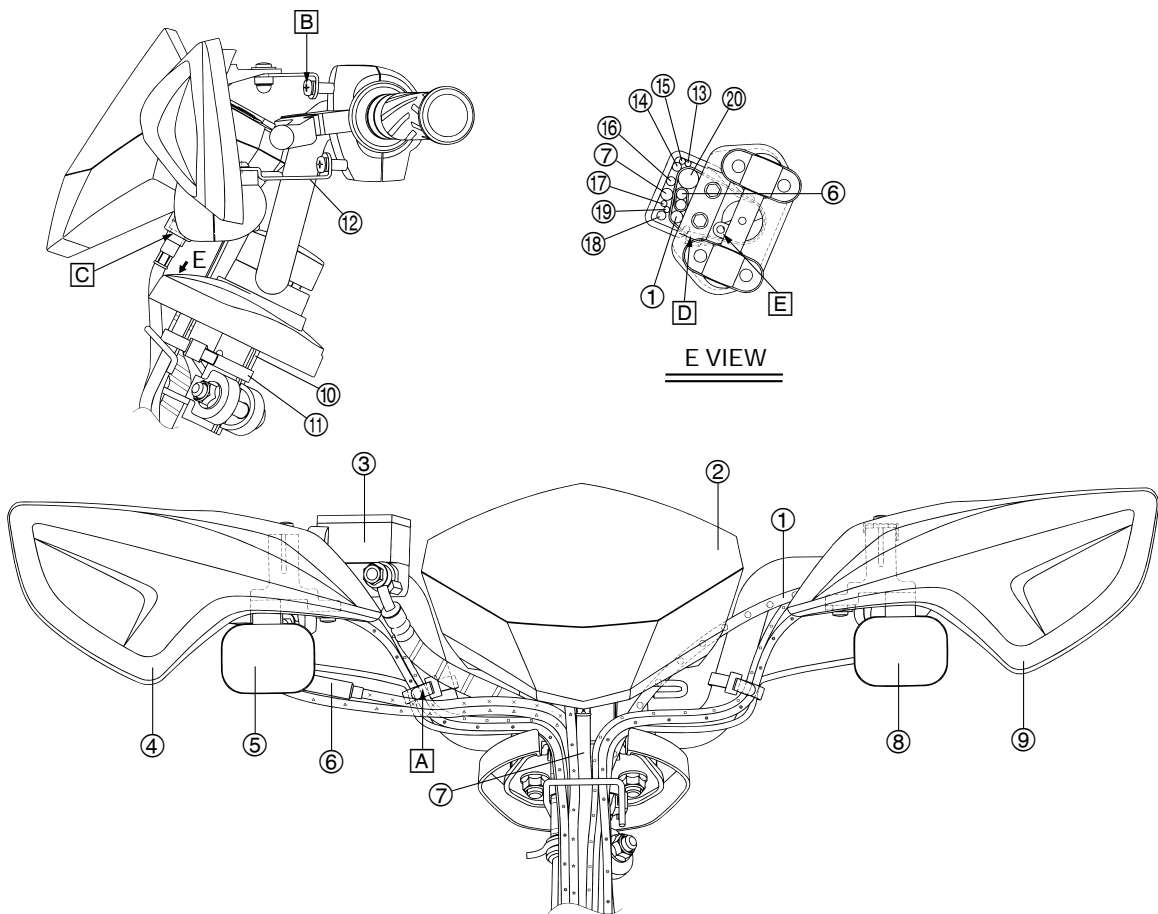
CABLE ROUTING

SPEC



- ① Rear brake cable
- ② Speedometer
- ③ Front master cylinder
- ④ Brush guard (right)
- ⑤ Turn signal light (right)
- ⑥ Throttle cable assembly
- ⑦ Speedometer cable
- ⑧ Turn signal light (left)
- ⑨ Brush guard (left)
- ⑩ Handlebar bracket
- ⑪ Clamp (90464-12812)
- ⑫ Bracket
- ⑬ Turn signal light lead (right)
- ⑭ Right handlebar switch lead
- ⑮ Front brake light switch lead
- ⑯ Speedometer lead

- ⑰ Rear brake light switch lead
- ⑱ Left lever holder lead
- ⑲ Turn signal light lead (left)
- ⑳ Brake hose
- A** Fasten the right handlebar switch lead, front brake light switch lead and right turn signal light lead to the handlebar.
- B** Upper screw tighten first.
- C** Torque: 4Nm (0.4m • kgf, 2.9ft • lbf).
- D** Band holds the wires and hoses with finger clearance, and cut off the surplus until 5mm left. Band is above the pin of handlebar bracket.
- E** When assemble the lower handlebar holder, the position point is in the front.



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EAS00036

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 ADJUSTMENT

EAU17570

Periodic maintenance chart for the emission control system

NO.	ITEM	ROUTINE	INITIAL	ODOMETER READING					
			1000 km (600 mi) or 1 month	4000 km (2000 mi) or 6 months	7000 km (4000 mi) or 12 months	10000 km (6000 mi) or 18 months	13000 km (8000 mi) or 24 months	16000 km (10000 mi) or 30 months	
1	* Fuel line	<ul style="list-style-type: none"> • Check fuel hoses for cracks or damage. • Replace if necessary. 		√	√	√	√	√	√
2	Spark plug	<ul style="list-style-type: none"> • Check condition. • Adjust gap and clean. • Replace at 7000 km (4000 mi) or 12 months and thereafter every 6000 km (4000 mi) or 12 months. 		√	Replace.	√	Replace.		√
3	* Valve clearance	<ul style="list-style-type: none"> • Check and adjust valve clearance when engine is cold. 	√	√	√	√	√	√	√
4	* Crankcase breather system	<ul style="list-style-type: none"> • Check breather hose for cracks or damage. • Replace if necessary. 		√	√	√	√	√	√
5	* Fuel injection	<ul style="list-style-type: none"> • Check engine idle speed. 	√	√	√	√	√	√	√
6	* Exhaust system	<ul style="list-style-type: none"> • Check for leakage. • Tighten if necessary. • Replace gasket(s) if necessary. 	√	√	√	√	√	√	√

* Since these items require special tools, data and technical skills, have a Yamaha dealer perform the service.

PERIODIC MAINTENANCE AND ADJUSTMENT



EAU32115

Genela maintenance and lubrication chart

NO.	ITEM	ROUTINE	INITIAL	ODOMETER READING					
			1000 km (600 mi) or 1 month	4000 km (2000 mi) or 6 months	7000 km (4000 mi) or 12 months	10000 km (6000 mi) or 18 months	13000 km (8000 mi) or 24 months	16,000 km (10,000 mi) or 30 months	
1	Air filter element	• Replace.		√		√		√	
2	V-belt case air filter element	• Clean		√	√	√	√	√	
3	* Front brake	• Check operation, fluid level, and for fluid leakage. • Replace brake pads if necessary.	√	√	√	√	√	√	
4	* Rear brake	• Check operation. • Adjust cable and replace brake shoes if necessary.	√	√	√	√	√	√	
5	* Brake hose	• Check for cracks or damage. • Replace.		√	√	√	√	√	
6	* Wheels	• Check runout and for damage. • Replace if necessary.		√	√	√	√	√	
7	* Tires	• Check tread depth and for damage. • Replace if necessary. • Check air pressure. • Correct if necessary.		√	√	√	√	√	
8	* Wheel bearings	• Check bearings for smooth operation. • Replace if necessary.		√	√	√	√	√	
9	* Steering bearings	• Check bearing assemblies for looseness. • Moderately repack with lithium-soap-based grease every 13000 km (8000 mi) or 24 months.	√	√	√	√	Repack.	√	
10	* Chassis fasteners	• Check all chassis fitting and fasteners. • Correct if necessary.		√	√	√	√	√	
11	Front brake lever pivot shaft	• Apply silicone grease lightly.		√	√	√	√	√	
12	Rear brake lever pivot shaft	• Apply lithium-soap-based grease lightly.		√	√	√	√	√	
13	* Centerstand and sidestand pivots	• Check operation. • Apply lithium-soap-based grease lightly.		√	√	√	√	√	
14	* Sidestand switch	• Check operation and replace if necessary.	√	√	√	√	√	√	
15	* Front fork	• Check operation and for oil leakage. • Replace if necessary.		√	√	√	√	√	
16	* Shock absorber assemblies	• Check operation and for oil leakage. • Replace if necessary.		√	√	√	√	√	
17	Engine oil	• Change (warm engine before draining). • Check oil level and vehicle for oil leakage.	√	√	√	√	√	√	
18	* Engine oil strainer	• Clean.	√		√		√		
19	Final transmission oil	• Check vehicle for oil leakage. • Change.	√		√		√		
20	* V-belt	• Replace.		Every 18000 km (12000 mi)					
21	* Front and rear brake switches	• Check operation.	√	√	√	√	√	√	
22	* Control and meter cables	• Apply Yamaha chain and cable lube or engine oil thoroughly.	√	√	√	√	√	√	
23	* 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.		√	√	√	√	√	
24	* Lights, signals and switches	• Check operation. • Adjust headlight beam.	√	√	√	√	√	√	

PERIODIC MAINTENANCE AND ADJUSTMENT



- * Since these items require special tools, data and technical skills, have a Yamaha dealer perform the service.

TIP

From 19000 km (12000 mi) or 36 months, repeat the maintenance intervals starting from 7000 km (4000 mi) or 12 months.

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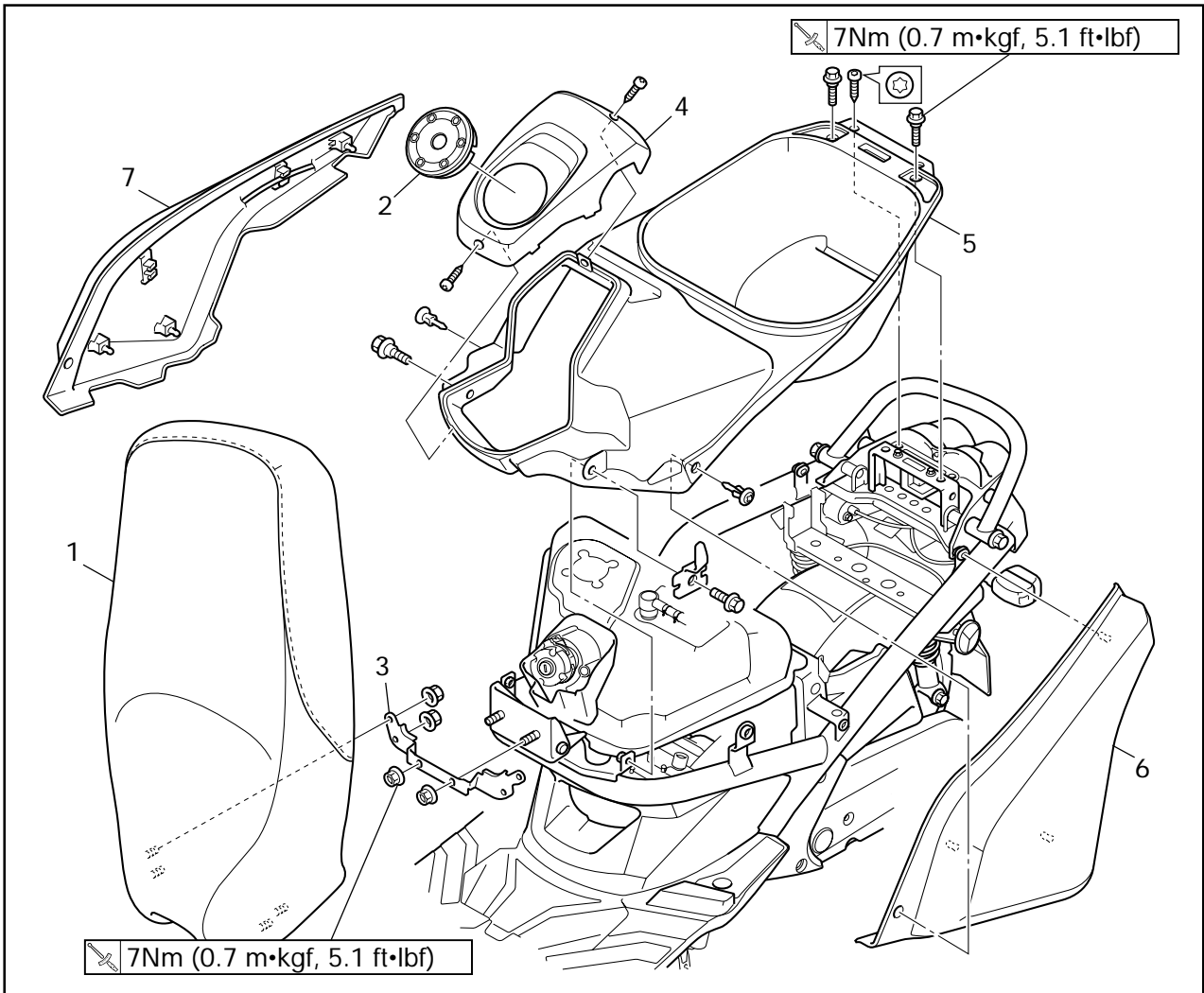
TIP

- Air filter and V-belt filter
 - This model's air filter is equipped with a disposable oil-coated paper element, which must not be cleaned with compressed air to avoid damaging it.
 - The air filter element needs to be replaced and V-belt filter needs to be serviced more frequently when riding in unusually wet or dusty areas.
- Hydraulic brake service
 - After disassembling the brake master cylinder and caliper, always change the fluid. Regularly check the brake fluid level and fill the reservoir as required.
 - Every two years replace the internal components of the brake master cylinder and caliper, and change the brake fluid.
Replace the brake hose every four years and if cracked or damaged.



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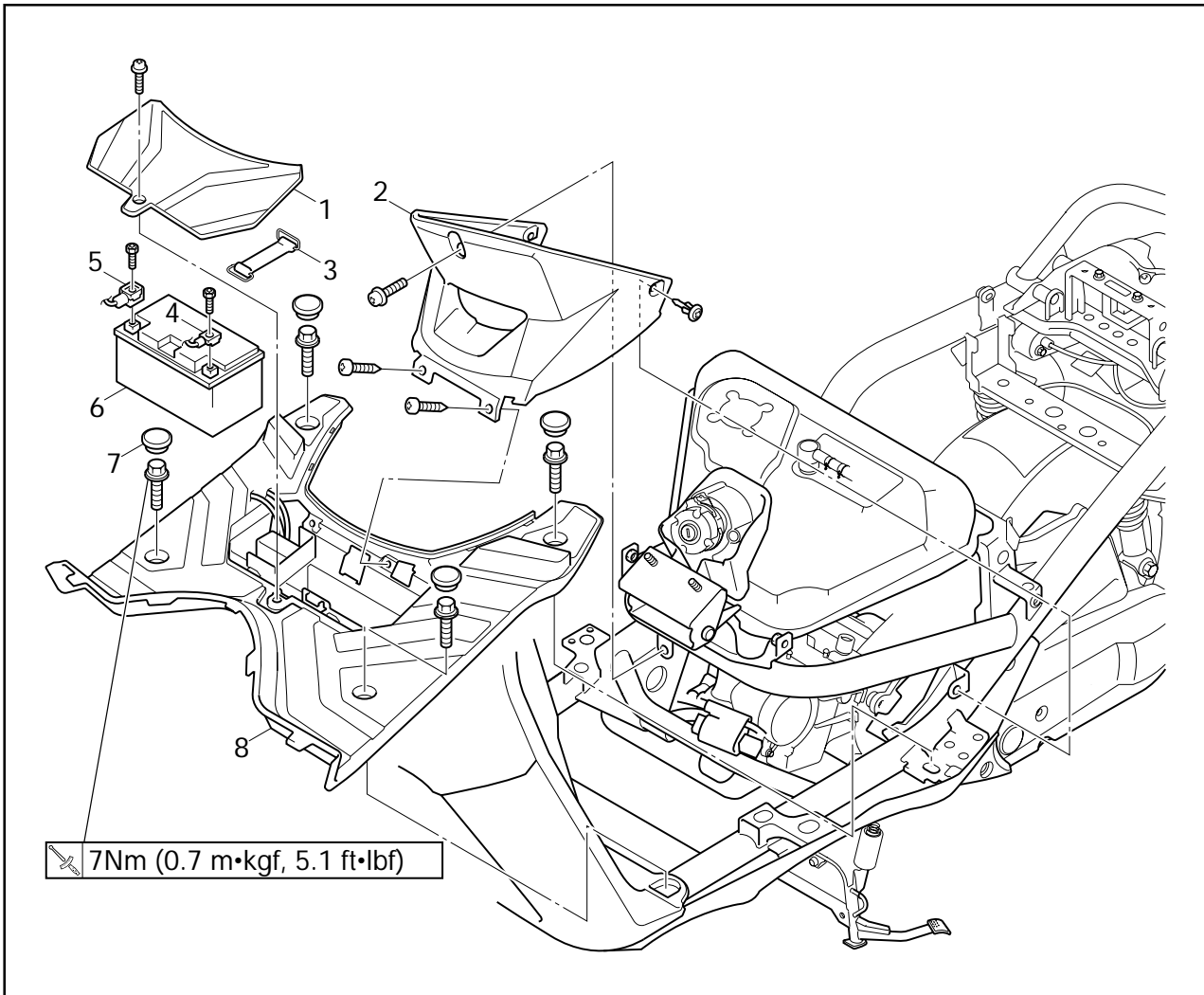
**COVER AND PANEL
SEAT AND TRUNK**



Order	Job/Part	Q'ty	Remarks
	Removing the seat and trunk		Remove the parts in the order listed.
1	Seat	1	
2	Fuel tank cap cover	1	
3	Seat hinge	1	
4	Upper cover	1	
5	Trunk	1	
6	Side cover (left)	1	
7	Side cover (right)	1	
			For installation, reverse the removal procedure.

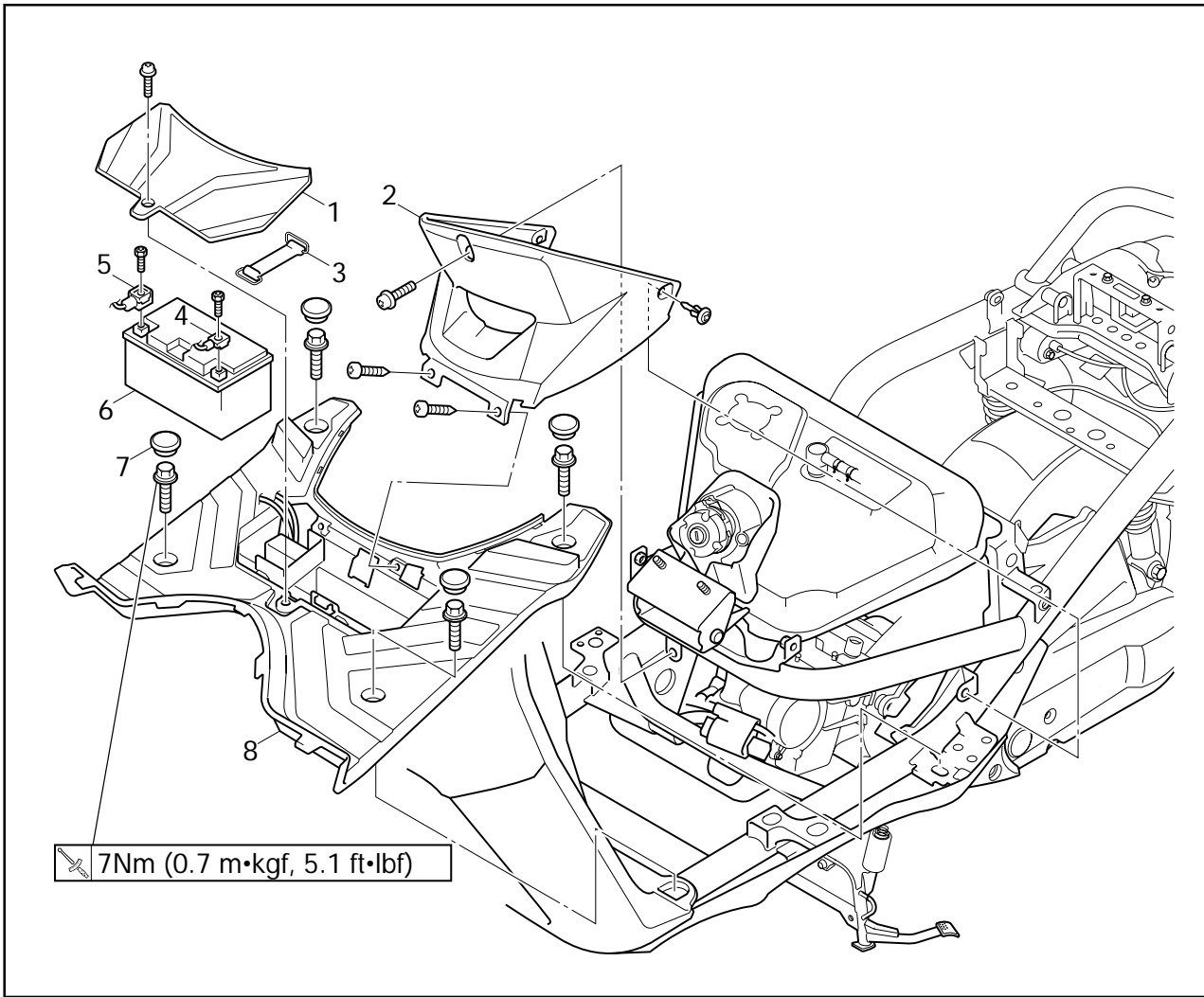


FOOTREST BOARD



7Nm (0.7 m•kgf, 5.1 ft•lbf)

Order	Job/Part	Q'ty	Remarks
	Removing the footrest board		Remove the parts in the order listed.
1	Battery box cover	1	<p>NOTICE</p> <p>First, disconnect the negative battery lead, and then the positive battery lead.</p> <p>After installing the battery be sure to turn the main switch from "ON" to "OFF" three times in 3 seconds intervals to initialize the idle speed control system.</p>
2	Front cover	1	
3	Band	1	
4	Battery negative lead	1	
5	Battery positive lead	1	
6	Battery	1	
7	Cap	4	



7Nm (0.7 m•kgf, 5.1 ft•lbf)

Order	Job/Part	Q'ty	Remarks
8	Footrest board	1	<p>TIP While installing, the fuse box should be installed to the correct position.</p> <hr/> <p>For installation, reverse the removal procedure.</p>



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