YAMAHA MBK

EW50 '00

5JH1-AE1

SERVICE MANUAL

EAS00000

EW50
SERVICE MANUAL

EAS00002

NOTICE

This manual was produced by MBK INDUSTRIE primarily for use by Yamaha and MBK 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 and MBK 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.

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

NOTE:

Designs and specifications are subject to change without notice.

TECHNICAL DOCUMENTATION
MBK INDUSTRIE

EAS00005

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 scooter operator, a bystander or a person checking or repairing the scooter.

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

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.

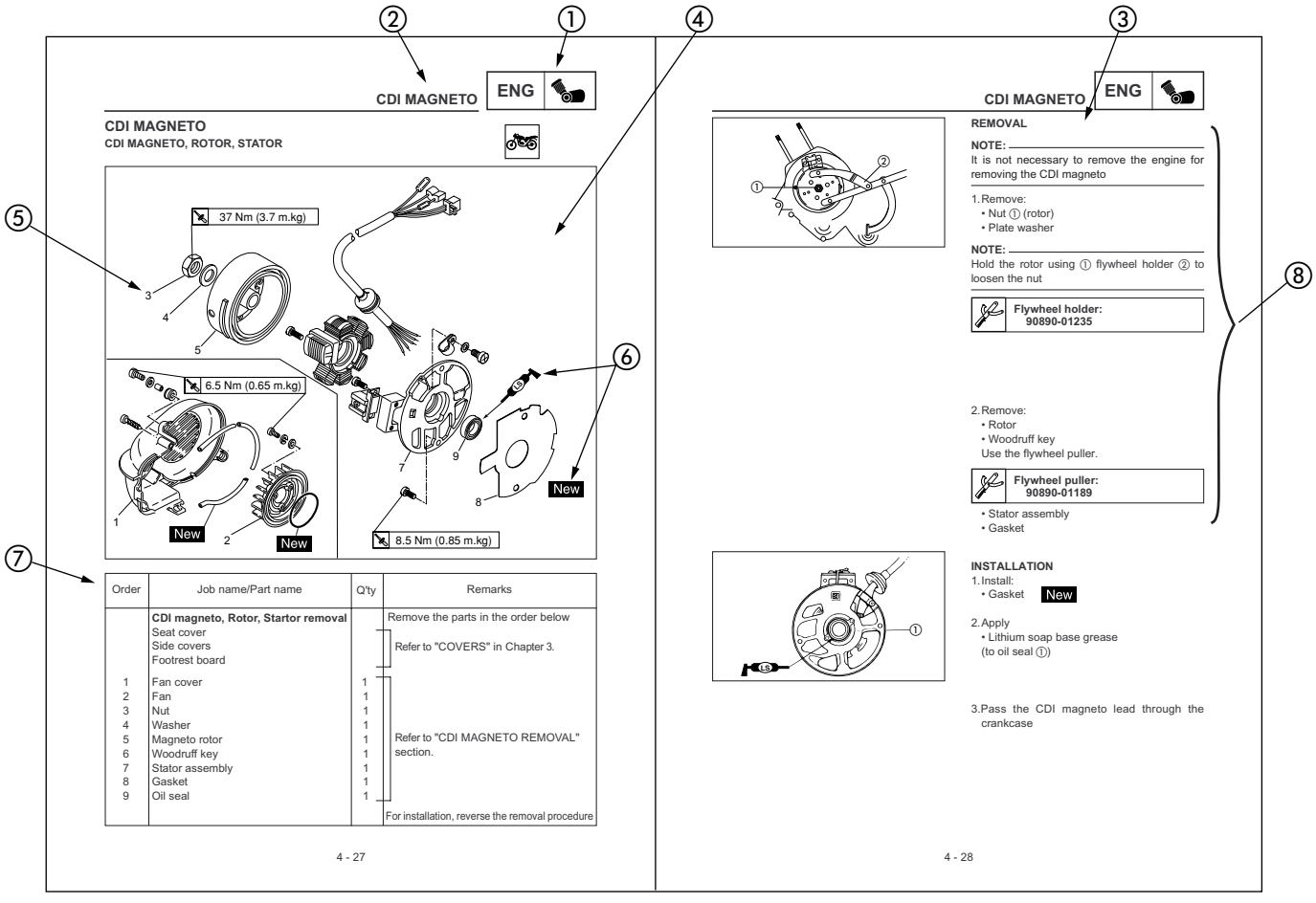
④ To help identify parts and clarify procedure steps, there are exploded diagrams at the start of each removal and disassembly section.

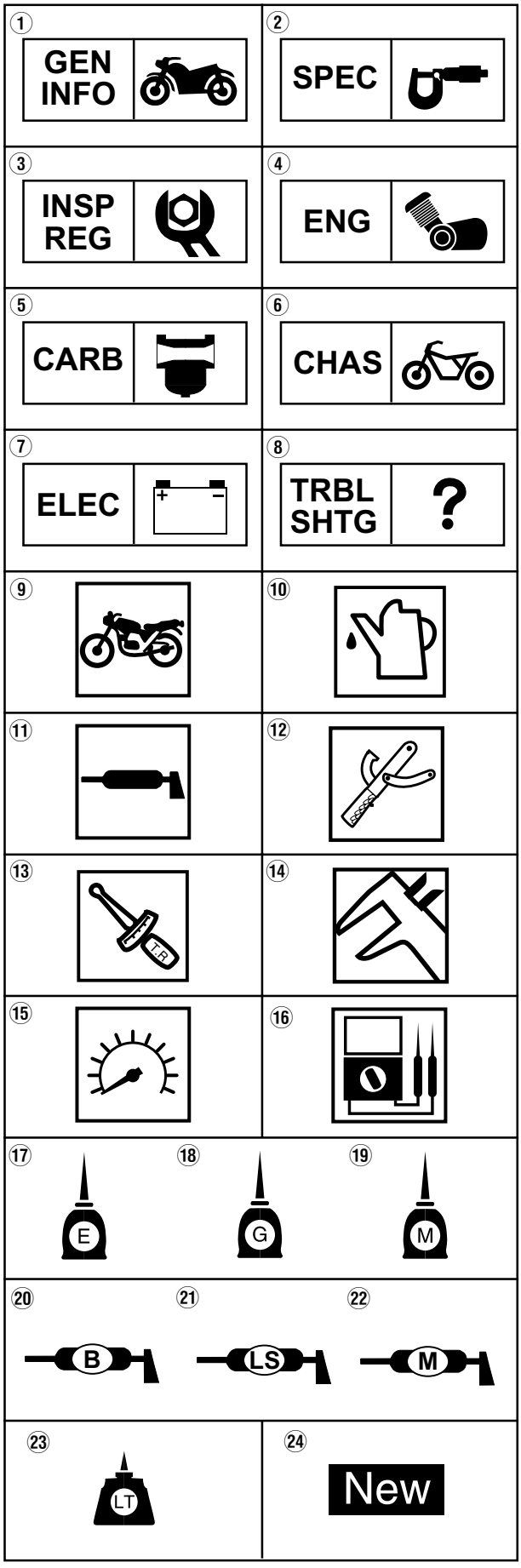
⑤ Numbers are given in the order of the jobs in the exploded diagram. A circled number indicates a disassembly step.

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 ⑧ indicate the subject of each chapter.

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

Symbols ⑨ to ⑯ indicate the following.

⑨ Serviceable with engine mounted
⑩ Filling fluid
⑪ Lubricant
⑫ Special tool
⑬ Tightening torque
⑭ Wear limit, clearance
⑮ Engine speed
⑯ Electrical data

Symbols ⑰ to ㉒ in the exploded diagrams indicate the types of lubricants and lubrication points.

⑰ Engine oil
⑱ Gear oil
⑲ Molybdenum disulfide oil
⑳ Wheel bearing grease
㉑ Lithium soap base grease
㉒ Molybdenum disulfide grease

Symbols ㉓ to ㉔ in the exploded diagrams indicate the following.

㉓ Apply locking agent (LOCTITE®)
㉔ Replace the part

EAS00011

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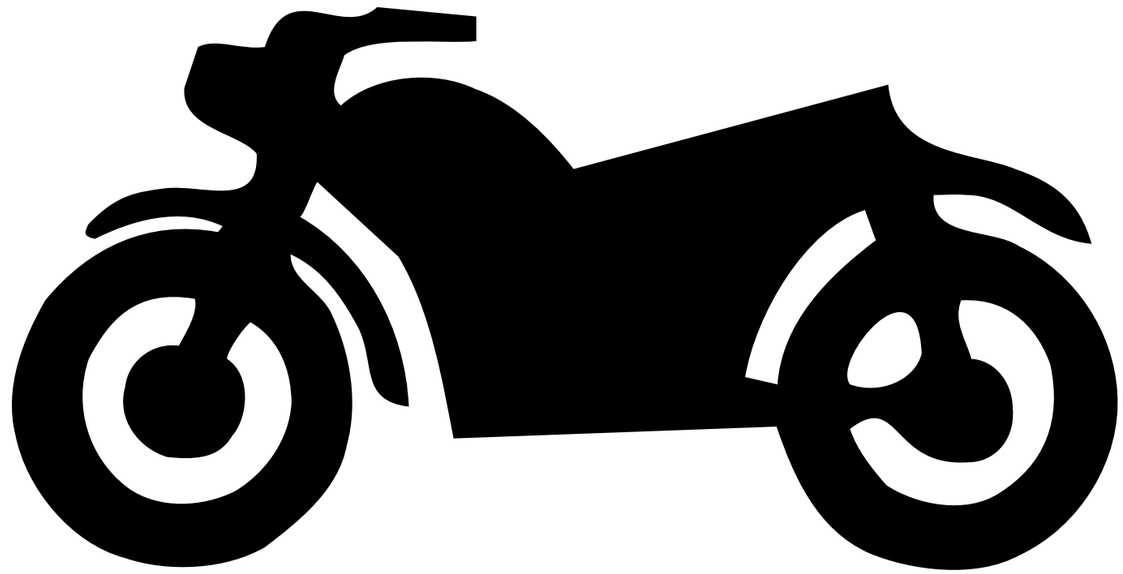
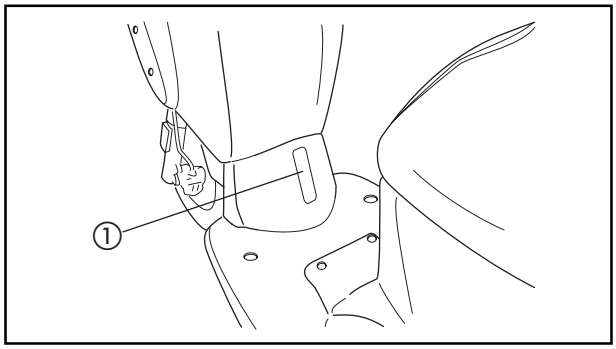


GEN INFO

1

CHAPTER 1.
GENERAL INFORMATION



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GENERAL INFORMATION

SCOOTER IDENTIFICATION

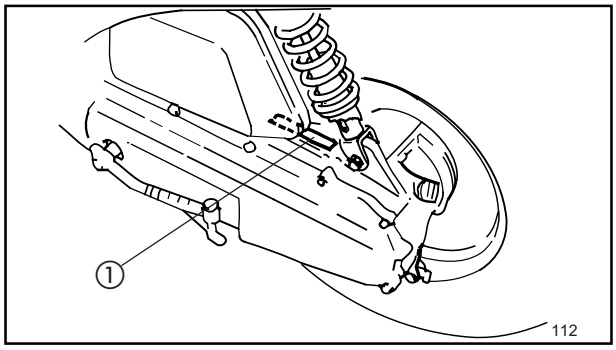
EAS00017

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped on the bottom of the frame as shown.

NOTE:

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



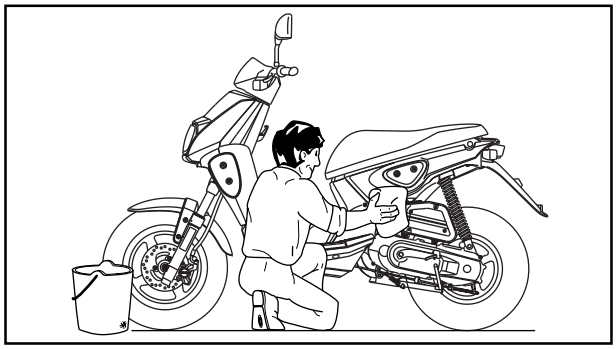
EAS00018

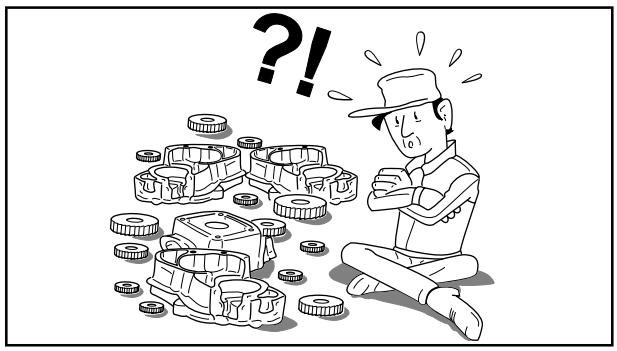
MODEL CODE

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

NOTE:

Designs and specifications are subject to change without notice.



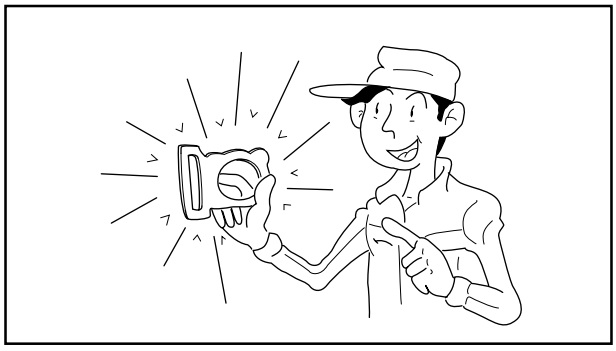


EAS00020

IMPORTANT INFORMATION

PREPARATION FOR REMOVAL AND DISASSEMBLY

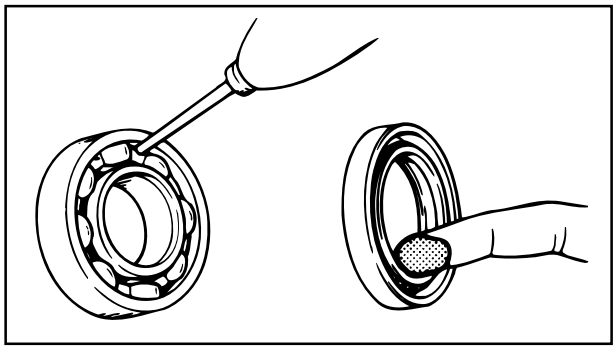
1. Before removal and disassembly, remove all dirt, mud, dust and foreign material.
2. Use only the proper tools and cleaning equipment.
   Refer to the "SPECIAL TOOLS“.
3. When disassembling, always keep mated parts together. This includes gears, cylinders, pistons and other parts that have been „mated“ 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.



EAS00021

REPLACEMENT PARTS

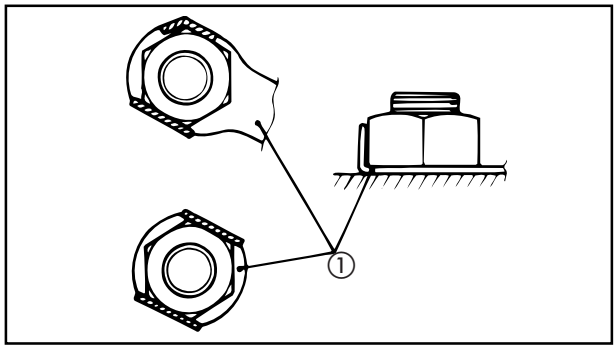
1. Use only genuine Yamaha/MBK parts for all replacements. Use oil and grease recommended by Yamaha/MBK for all lubrication jobs. Other brands may be similar in function and appearance, but inferior in quality.



EAS00022

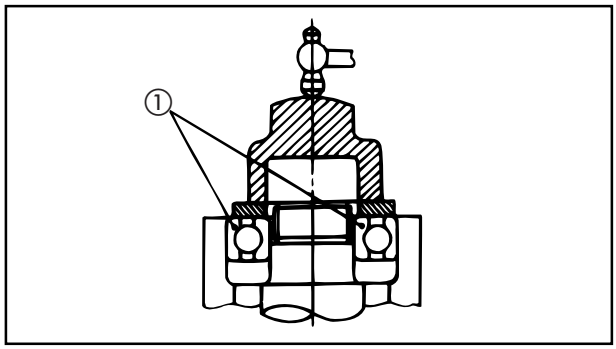
GASKETS, OIL SEALS AND O-RINGS

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

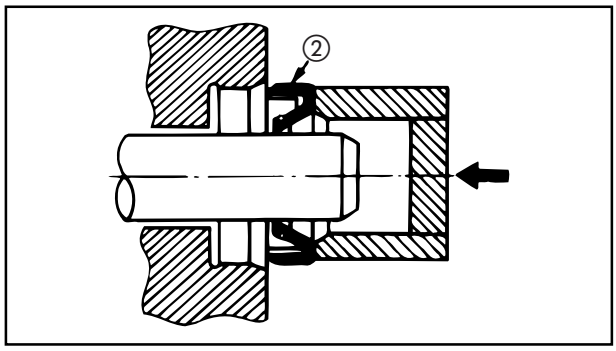
1. After removal, replace all lock washers / plates ① and cotter pins. After the bolt or nut has been tightened to specification, bend the lock tabs along a flat of the bolt or nut.



EAS00024
BEARINGS AND OIL SEALS

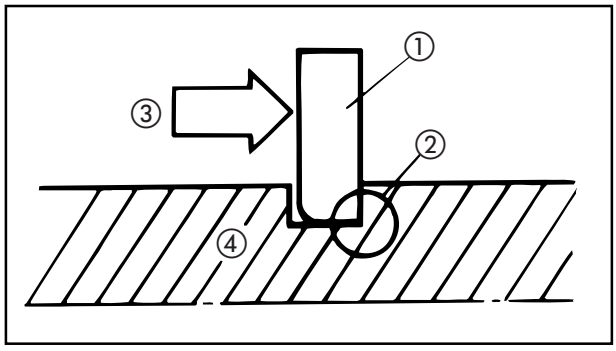
1. Install bearings and oil seals so that the manufacturer's marks or numbers are visible. When installing oil seals, lubricate the oil seal lips with a light coat of lithium soap base grease. Oil bearings liberally when installing, if appropriate.

① Bearing



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

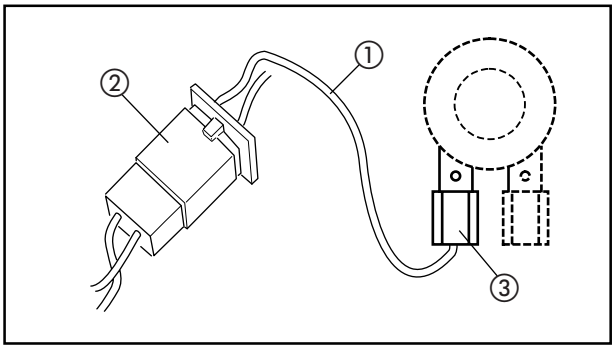
② Oil seal

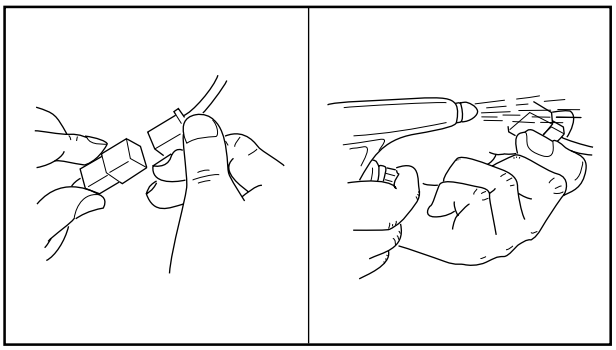


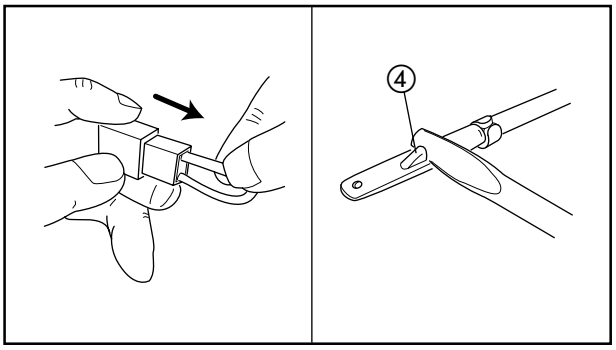
EAS00025
CIRCLIPS

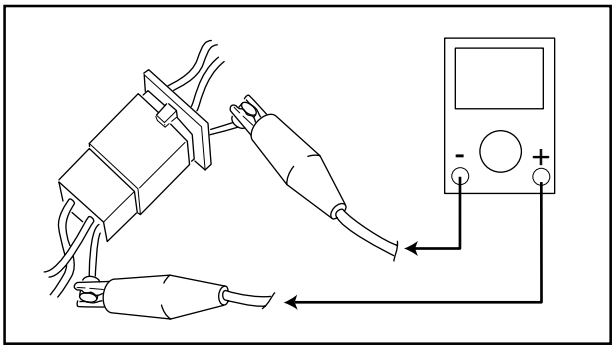
1. Before reassembly, check all circlips carefully and replace damaged or distorted circlips. Always replace piston pin clips after one use. When installing a circlip ①, make sure the sharp-edged corner ② is positioned opposite the thrust ③ that the circlip receives.

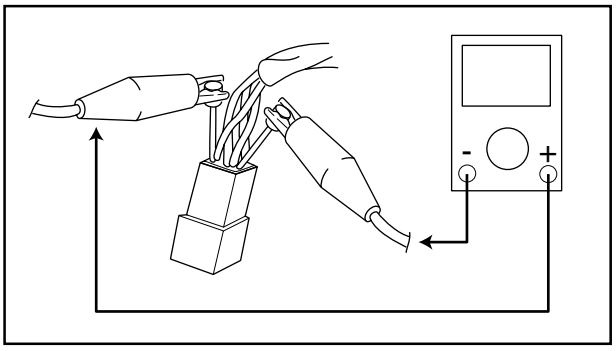
④ Shaft











EAS00026

CHECKING THE CONNECTIONS

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

1. Disconnect:
   - lead ①
   - coupler ②
   - connector ③

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.

NOTE:

If the pin ④ on the terminal is flattened, bend it up.

4. Connect:
   - lead
   - coupler
   - connector

NOTE:

Make sure all connections are tight.

5. Check:
   - continuity

   (with the pocket tester)

	Pocket tester **90890-03112**

NOTE:

If there is no continuity, clean the terminals.

NOTE:

When checking the wire harness, perform steps 1 to 3.

NOTE:

As a quick remedy, use a contact revitalizer available at most part stores.

HOW TO USE THE CONVERSION TABLE

All specification data in this manual are listed in SI and METRIC UNITS.
Use this table to convert METRIC unit data to IMPERIAL unit data.
Ex:

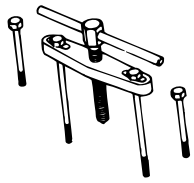
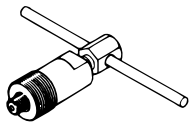
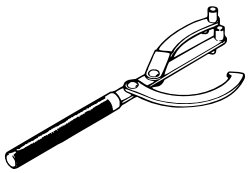
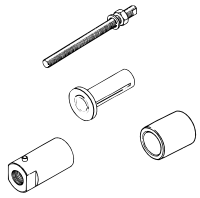
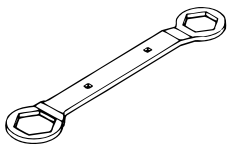
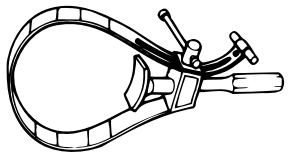
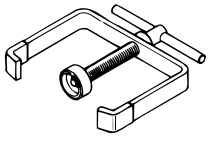
METRIC		MULTIPLIER		IMPERERIAL
** mm	x	0.03937	=	** in
2 mm	x	0.03937	=	0.08 in

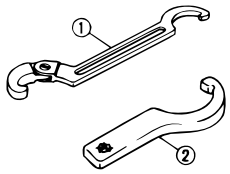
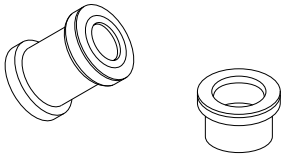
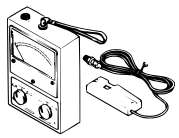
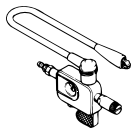
CONVERSION TABLE

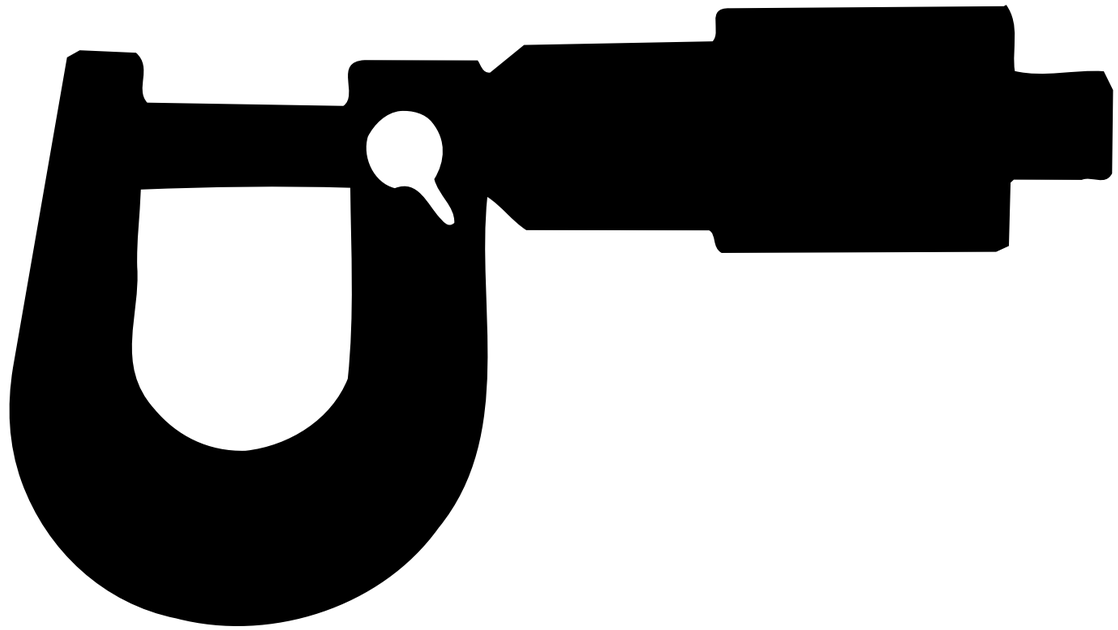
METRIC TO IMPERIAL			
	Metric unit	Multiplier	Imperial unit
Torque	m·kg	7.233	ft.lb
	m·kg	86.794	in.lb
	cm·kg	0.0723	ft.lb
	cm·kg	0.8679	in.lb
Weight	kg	2.205	lb
	g	0.03527	oz
Speed	km/h	0.6214	mph
Distance	km	0.6214	mi
	m	3.281	ft
	m	1.094	yd
	cm	0.3937	in
	mm	0.03937	in
Volume/ Capacity	cc (cm^3)	0.03527	oz(IMP liq.)
	cc (cm^3)	0.061102	cu.in
	lit (litre)	0.8799	qt(IMP liq.)
	lit (litre)	0.2199	gal(IMP liq.)
Miscella-neous	kg/mm	55.997	lb/in
	kg/cm^2	14.2234	psi(lb/in^2)
	Centrigrade	9/5(°C)+32	Fahrenheit(°F)

EAS00027
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.

Tool N°	Tool name/usage	Illustration
90890-01135	Crankcase separating tool This tool is used to separate the crankcase and remove the crankshaft.	
90890-01189	Flywheel puller This tool is used to remove the flywheel magneto.	
90890-01235	Rotor holding tool This tool is used to remove the flywheel magneto.	
90890-01274 90890-01275 90890-01277 90890-01411	Crankshaft installer set. These tools are used to install the crankshaft.	
90890-01348	Locknut wrench This tool is used when removing or installing the secondary sheave nut.	
90890-01701	Sheave holder This tool is used to hold the secondary sheave when removing or installing the nut.	
90890-01337	Clutch spring holder. This tool is used for compressing the spring of the secondary sheave when removing the nut.	

Tool N°	Tool name/usage	Illustration
90890-01268 90890-01403	Ring nut wrench ① Steering nut wrench ② These tools are used to loosen and tighten the steering ring nuts.	
90890-01184 90890-01368	Fork seal driver weight. Fork seal driver attachment (ø33) These tools are used when installing the fork seals.	
90890-03112	Pocket Tester This instrument is invaluable for checking the electrical system.	
90890-03113	Engine tachometer. This tool is needed for detecting the engine rpm.	
90890-06754	Ignition checker. This instrument is necessary for checking the ignition system components.	



SPEC 2

CHAPTER 2.
SPECIFICATIONS

SPECIFICATIONS

GENERAL SPECIFICATIONS

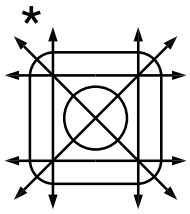
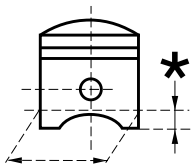
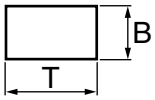
Model	EW50
Dimensions:	
Overall length	1,785 mm
Overall width	668 mm
Overall height	1,077 mm
Seat height	787 mm
Wheelbase	1,202 mm
Minimum ground clearance	185 mm
Minimum turning radius	1,800 mm
Basic weight:	
With oil and full fuel tank	81 kg
Engine:	
Type	Air-cooled-2 stroke, gasoline torque induction.
Cylinder arrangement	Single cylinder, vertical
Displacement	49.2 cm^3
Bore x stroke	40.0 x 39.2 mm
Compression ratio	7.2 : 1
Starting system	Electrical and Kick starter
Lubrication system:	Separate lubrification (Yamaha autolube)
Oil type or grade:	
Engine oil:	Yamalube 2 or 2 stroke engine oil (JASO FC grade or ISO EG-C, ISO EG-D grade).
Transmission oil	SAE 10W30 type SE motor oil
Oil capacity:	
Engine oil:	1.4 L
Transmission oil:	
Periodic oil change	0.11 L
Total amount	0.13 L
Air filter:	Wet type element
Fuel:	
Type	Regular unleaded gasoline with a research octane number of 91 or higher.
Tank capacity:	6.5 L
Carburetor:	
Type/quantity	PHBN 12 / 1 (B)(E)(F)(GB)(P) 5FX / 1 (*) (B)(E)(F)(GB)(P) 5LH / 1 (*) (I)(D)
Manufacturer	DELL'ORTO TEIKEI (*)

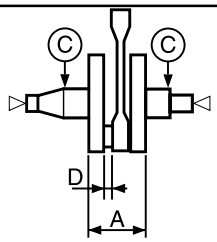
Model		EW50
Spark plug:		
Type		BR8HS (I)(D) BR9HS (F)(B)(P)(E)(GB)
Manufacturer		NGK
Gap		0.5 ~ 0.7 mm
Clutch type:		Dry, centrifugal automatic
Transmission:		
Primary reduction system		Helical gear
Primary reduction ratio		52 / 13 (4.000)
Secondary reduction system		Spur gear
Secondary reduction ratio		42 / 13 (3.230)
Transmission		V-belt
Operation		Automatic
Chassis:		
Frame type		Steel tube underbone
Caster angle		27°
Trail		90 mm
Tires:		
Type		Tubeless
Size	Front	120 / 80 -12
	Rear	130 / 90 -10
Manufacturer(Type)		MICHELIN(BOPPER) / CHENG SHIN (MAXXIS)
Wear limit(Front/Rear)		0.8 mm
Tires pressure (Cold tire):		
Front (single riding)		150 kPa (1.50 Kg/cm^2, 1.50 bar)
Rear (single riding)		150 kPa (1.50 Kg/cm^2, 1.50 bar)
Front (dual riding)		150 kPa (1.50 Kg/cm^2, 1.50 bar)
Rear (dual riding)		160 kPa (1.60 Kg/cm^2, 1.60 bar)
Brakes:		
Front brake type		Disk brake
Operation		Right hand operation
Rear brake type		Drum brake
Operation		Left hand operation
Suspension:		
Front		Telescopic fork
Rear		Unit swing
Shock absorber:		
Front		Coil spring/ Oil damper
Rear		Coil spring/ Oil damper

Model		EW50
Wheel travel:		
Front		104 mm
Rear		100 mm
Electrical:		
Ignition system		CDI
Charging system		Flywheel magneto
Battery type/model		GM4-3B, YB4L-B, FB4L-B
Battery capacity		12V 4AH
Headlight type:		Bulb
Bulb wattage x quantity:		
Headlight		12V 35W/35W x 1
Position light		12V 5W x 1
Taillight / brake light		12V 5W /21W x 1
Flasher light	Front	12V 10W x 2
	Rear	12V 10W x 2
Meter light		12V 1.2W x 2
Warning lights wattage/quantity:		
"OIL"		12V 2W x 1
"TURN"		12V 2W x 1
"HIGH BEAM"		12V 2W x 1

MAINTENANCE SPECIFICATIONS

ENGINE

Model	Standard	Limit
Cylinder head: Warp limit 	*** * Lines indicate straight edge measurements.	0.02 mm
Cylinder: Bore size Taper Out-of-round	 39.993 ~ 40.012 mm *** ***	 *** 0.05 mm 0.01 mm
Piston: Piston size Measuring point*  Piston clearance Oversize: 1st 2nd	 39.952 ~ 39.972 mm 5 mm 0.034 ~ 0.047 mm 40.25 mm 40.50 mm	 *** *** 0.1 mm *** ***
Piston rings: Sectional sketch (BxT)/Type: Top ring  2nd ring End gap (Installed): Top ring 2nd ring Side clearance (Installed): Top ring 2nd ring	 1.2 x 1.8 mm 1.2 x 1.8 mm 0.15 ~ 0.35 mm 0.15 ~ 0.35 mm 0.03 ~ 0.05 mm 0.03 ~ 0.05 mm	 *** *** *** *** *** ***
Piston pin: Outside diameter Piston pin to piston clearance	 9.996 ~ 10.000 mm 10.004 ~ 10.019 mm	 *** ***

Model	Standard			Limit
Crankshaft: 				
Crank width “A”	37.90 ~ 37.95 mm			***
Runout limit “C”	***			0.03 mm
Connecting rod big end side clearance “D”	0.2 ~ 0.5mm			***
Connecting rod length	79.9 ~80.1 mm			***
Automatic centrifugal clutch:				
Clutch shoe thickness	2 mm			1 mm
Clutch shoe spring free length	29.9 mm			***
Clutch housing inside diameter	107 mm			107.4 mm
Clutch-in revolution	3850 ~ 4350 r/min			***
Clutch-stall revolution	6600 ~ 7400 r/min			***
V-belt:				
Width	16.5 mm			14.9 mm
Transmission:				
Main axle runout limit	***			0.08 mm
Drive axle runout limit	***			0.08 mm
Kick starter:				
Type	Ratchet type			***
Kick clip tension force	0.15 ~ 0.25 kg			***
Carburetor:	TEIKEI	TEIKEI	DELL'ORTO	
I.D. mark	5FX	5LH	PHBN12	***
Main jet (M.J.)	# 88	# 80	# 90	***
Main air jet (M.A.J.)	2.0	2.0	1.5	***
Jet needle (J.N.)	3S12-3/5	3S14-2/5	A21 3/5	***
Needle jet (N.J.)	3.0	2.08	4.0	***
Cutaway (C.A.)	3.0	2.5	4.0	***
Pilot jet (P.J.)	# 50	# 42	# 36	***
Bypass 1 (B.P.1)	0.8	0.8	0.8	
Air screw (A.S.)	1 - 1/2 ± 1/4	1 3/8~1 1/2	1 3/8 ± 1/8	***
Valve seat size (V.S.)	1.5	1.5	1.2	***
Starter jet (G.S.1)	# 46	# 46	# 40	***
Engine idle speed	1800 ± 200 r/min			***

Model	Standard	Limit
Reed valve:		
Thickness	0.142 ~ 0.162 mm	***
Valve stopper height	4.0 ~ 4.4 mm	***
Valve bending limit	0.2 mm	***
Lubrication system:	Autolube pump	***
Stroke	0.5 mm	***
Plunger diam.	2.62 mm	***

TIGHTENING TORQUES

ENGINE

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque		Remarks
				Nm	m.kg	
Spark plug	-	M14	1	20	2.0	
Head cylinder	Nut	M6	4	10	1.0	
Cylinder stud bolt	-	M6	4	Fixed till end		
Air shroud (fan cover)	Screw	M6	2	6.5	0.65	
Fan	Screw	M6	3	6.5	0.65	
Air shroud (cylinder cover)	Screw	M6	3	6.5	0.65	
Oil pump assembly	Screw	M5	2	3	0.3	
Reed valve	Bolt	M6	4	8.5	0.85	
Air filter	Screw	M6	2	8.5	0.85	
Exaust pipe/engine	Screw	M8	2	29	2.9	
Exhaust pipe / Cylinder	Bolt	M6	2	8.5	0.85	
Muffler protector	Screw	M6	2	4.5	0.45	
Crankcase	Screw	M6	6	13	1.3	
Holder	Bolt	M6	1	8	0.8	
Crankcase cover (right cover)	Bolt	M6	6	10	1.0	
Crankcase cover (left cover)	Bolt	M6	11	10	1.0	
Drain bolt	Bolt	M8	1	17.5	1.75	
Plug oil	Plug oil	M14	1	-	-	
Plate idle gear	Screw	M6	2	8	0.8	
Self starting motor	Bolt	M6	2	8	0.8	
Cluth housing	Nut	M10	2	40	4.0	
Cluth one-way	Nut	M10	1	30	3.0	
Pin pivot	Nut	M10	1	12	1.2	
Base magneto	Screw	M6	2	8.5	0.85	
C.D.I. rotor	Nut	M10	2	35	3.5	

CHASSIS

Model		Standard	Limit
Steering system:			
Steering bearing type		Ball bearing	***
Size of steel balls x qty:			
Upper		ø4.76 mm x 22	***
Lower		16	***
Front suspension:			
Front fork travel		120 mm	***
Optional spring		No	
Oil quantity / tube		70 cc	***
Oil grade		ISO 6743/4 LHV 46 or SAE 10	***
Spring rate	(K1)	50 Nmm	***
	(K2)	79 Nmm	***
Stroke	(K1)	0 ~ 70.5 mm	***
	(K2)	70.5 ~ 104.0 mm	***
Rear suspension:			
Shock absorber travel		100 mm	***
Spring free length		265.5 mm	***
Spring fitting length		***	***
Spring rate	(K1)	21 N/mm	***
	(K2)	26 N/mm	***
Stroke	(K1)	0 ~ 75 mm	***
	(K2)	75 ~ 122 mm	***
Optional spring		No	
Wheels:			
Front wheel type		Cast wheel	
Rear wheel type		Cast wheel	
Front wheel size/Material		MT 2.75 x12 / Aluminium	
Rear wheel size/Material		MT 3.00 x 10 / Aluminium	
Rim runout limit:			
Front	Radial	***	1 mm
	Lateral	***	1 mm
Rear	Radial	***	1 mm
	Lateral	***	1 mm

Model	Standard	Limit
Front disk brake:		
Type	Single disc	***
Diameter and thickness	190.0 x 3.5 mm	***
Pad thickness	3.75 mm	0.5 mm
Master cylinder inside diameter	11 mm	***
Caliper cylinder inside diameter	30 mm	***
Brake fluid type	DOT #3 or DOT#4	***
Rear drum brake:		
Type	Leading, trailing	***
Drum inside diameter	110 mm	110.5 mm
Lining thickness	4 mm	2 mm
Spring free length	54 mm	***
Brake lever freeplay:		
Front brake lever free play	10 ~ 20 mm	***
Rear brake lever free play	10 ~ 20 mm	***

TIGHTENING TORQUES

CHASSIS

Part to be tightened	Thread size	Tightening torque		Remarks
		Nm	m.kg	
Frame with engine bracket	M10	42	4.2	
Engine bracket with engine	M10	50	5.0	
Rear schock absorber with frame (top)	M10	31.5	3.15	
Rear schock absorber with engine (bottom)	M8	17.5	1.75	
Handle with steering shaft	M10	60	6.0	
Steering nut (securing nut) Upper		75	7.5	
Center		-	-	
Lower		38	3.8	1st tightening
		22	2.2	2nd tightening
Cover handle under/handle				
Master cylinder/Handle	M6	8.5	0.85	
Seat lock	M6	10	0.1	
Cover filler	M6	7	0.7	
Fuel tank / Fuel cock	-	2.5	0.25	
Body front under cover	M6	4.5	0.45	
Fuel tank	M6	6.5	0.65	
Front wheel axle	M10	35	3.5	
Rear wheel axle	M14	103.5	10.35	
Front disc brake	M10	23	2.3	
Front caliper	M8	23	2.3	
Rear brake camshaft lever	M6	13.5	1.35	
Rear brake pin pivot	M10	12	1.2	Punch the nut.
Front brake lever	-	6	0.6	
Bolt union/Master cylinder	M10	23	2.3	
Bolt union/Caliper	M10	23	2.3	
Drain bolt caliper	-	8.5	0.85	
Front brake hose	M10	23	2.3	

Part to be tightened	Thread size	Tightening torque		Remarks
		Nm	m.kg	
Screws tapping in plastic	Ø5	3.25	0.33	
Screws tapping in clip	Ø5	2.25	0.23	
Footrest board / Frame	M6	4	0.4	
Inner pannel / Frame	M6	4.	0.45	
Oil tank	M6	5	0.5	
Mud guard flap / Frame	M8	8	0.8	
Leg shield under / Frame	M6	4.5	0.45	
Fender / Front fork	M6	4	0.4	
Parts of resin / cover of resin	M5	1.5	0.15	
Rear shock absorber / engine	M8	17.5	1.75	
Rear shock absorber / Frame	M10	31.5	3.15	

ELECTRICAL

Model	Standard	Limit
Voltage:	12 V	***
Ignition system:		
Ignition timing(B.T.D.C.)	14° at 5000 r/min	***
Ignition timing type	Constant	***
CDI:		
Model/Manufacturer	F2JA / MORYAMA	
Pickup coil resistance (color)	400 ~ 600 Ω at 20°C (68°F) (White/Red-Black)	***
Source coil resistance (color)	640 ~ 960 Ω at 20°C (68°F) (Black/Red-Black)	***
Ignition coil:		
Model/Manufacturer	2JN / MORYAMA	***
Minimum spark length	***	6 mm
Primary coil resistance	0.32 ~ 0.48 Ω at 20°C (68°F)	***
Secondary coil resistance	5.68 ~ 8.52 kΩ at 20°C (68°F)	***
Spark plug cap:		
Type	Resin	
Resistance	5 kΩ at 20°C (68°F)	***
Charging system / Type	Flywheel magneto	
CDI Magneto:		
Model/Manufacturer	F2JA / MORYAMA	***
Charging coil resistance (color)	0,48 ~ 0,72 Ω at 20°C (68°F) (White-Black)	***
Lighting coil resistance (color)	0,39 ~ 0,5 Ω at 20°C (68°F) (Yellow/Red-Black)	***
Voltage Regulator/Rectifier:		
Type	Semi-conductor, Short-circuit type	
Model/Manufacturer	DUCATI	
No load regulated voltage	13 ~ 14 V	***
Capacity	8A	***

MAINTENANCE SPECIFICATIONS

Model	Standard	Limit
Battery :		
Specific gravity	1.280	***
Starter motor:		
Model / Type	441.01.00.10 / DUCATI	
Output	0.14 kW	***
Armature coil resistance	0.06 ~ 0.08 Ω at 20°C (68°F)	***
Brush length	3.9 mm	0.9 mm
Brush spring pressure	563 ~ 844 g	***
Commutator diameter	15.8 mm	14.8 mm
Mica undercut (depth)	1.15 mm	***
Starter relay:		
Model/Manufacturer	G8MS / OMRON	
Amperage rating	20 A	***
Coil resistance	54 ~ 66 Ω at 20°C (68°F)	***
Horn:		
Type/Quantity	Plain type/1pc.	
Model/Manufacturer	GF-12 / NIKKO	
Maximum amperage	1.5 A	***
Flasher relay:		
Type	Condenser type	
Self cancelling device	No	
Flasher frequency	65 ~ 95 cycles/min	***
Wattage	10W x 2 + 3W	***
Circuit breaker:		
Type	Fuse	
Amperage for individual circuit x Quantity	7 A x 1	***
Fuel sender unit:		
Model/Manufacturer	MONT. EL.	
Resistance (Full)	9.2 ~ 10.8 Ω at 20°C (68°F)	***
(Empty)	89.2 ~ 90.8 Ω at 20°C (68°F)	***