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YW50AP

SERVICE MANUAL

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LIT-11616-15-39

5PJ-F8197-10

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**YW50AP
SERVICE MANUAL**
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P/N LIT-11616-15-39

NOTICE

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

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

NOTE:

Designs and specifications are subject to change without notice.

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!



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.

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.

CYLINDER HEAD, CYLINDER AND PISTON ENG

CYLINDER HEAD, CYLINDER AND PISTON

CYLINDER HEAD, CYLINDER AND PISTON

⑥
⑤

Order	Job name/Part name	Q'ty	Remarks
	Cylinder head, Cylinder and piston removal		Remove the parts in the order.
	Engine		Refer to the "ENGINE REMOVAL" section
1	Muffler/Gasket	1/1	
2	Air shroud (cylinder head)	1	
3	Spark plug	1	
4	Cylinder head/Cylinder head gasket	1/1	
5	Cylinder	1	
6	Piston pin clip	2	
7	Piston pin/ Bearing	1/1	
8	Piston	1	
9	Piston ring set	1	
10	Cylinder gasket	1	
			Reverse the removal procedure for installation.

⑦

4-3

CYLINDER HEAD, CYLINDER, PISTON ENG

PISTON PIN AND PISTON REMOVAL

1. Remove:
● Piston pin clip ①

NOTE:
Before removing the piston pin clip, cover the crankcase with a clean rag so you will not accidentally drop the clip into the crankcase.

2. Remove:
● Piston pin ①
● Piston ②
● Piston pin bearing ③

CAUTION:
Do not use a hammer to drive the piston pin out.

CYLINDER HEAD INSPECTION

1. Eliminate:
● Carbon deposits
Use a rounded scraper ①.

2. Inspect:
● Cylinder head warpage
Out of specification→Re-surface.
.....
Warpage measurement and re-surfacing steps:
● Attach a straight edge ① and a thickness gauge ② on the cylinder head.
● Measure the warpage limit.

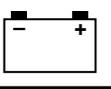
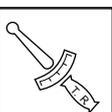
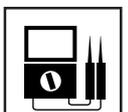
Warpage limit:
0.02 mm

● If the warpage is out of specification, reface the cylinder head.

NOTE:
Rotate the head several times to avoid removing too much material from one side.

⑧

4-4

① GEN INFO 	② SPEC 	
③ INSP ADJ 	④ ENG 	
⑤ CARB 	⑥ CHAS 	
⑦ ELEC 	⑧ TRBL SHTG ?	
⑨ 	⑩ 	
⑪ 	⑫ 	
⑬ 	⑭ 	
⑮ 	⑯ 	
⑰ 	⑱ 	⑲ 
⑳ 	㉑ 	㉒ 
㉓ 	㉔ New	

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SYMBOLS

The following symbols are not relevant to every vehicle.

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

- ① General information
- ② Specifications
- ③ Periodic inspection and adjustment
- ④ Engine
- ⑤ Carburetor(s)
- 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
- ㉑ Wheel bearing grease
- ㉒ Lithium soap base grease
- ㉓ Molybdenum disulfide grease

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

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

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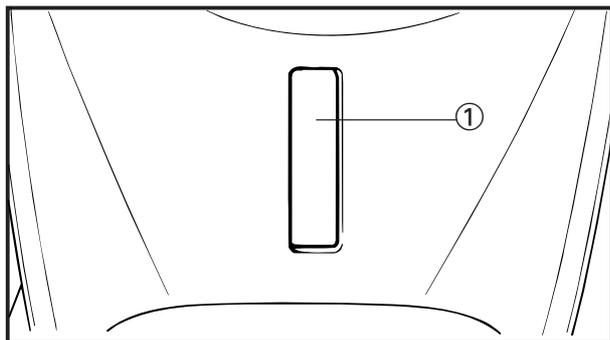
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GENERAL INFORMATION SCOOTER IDENTIFICATION

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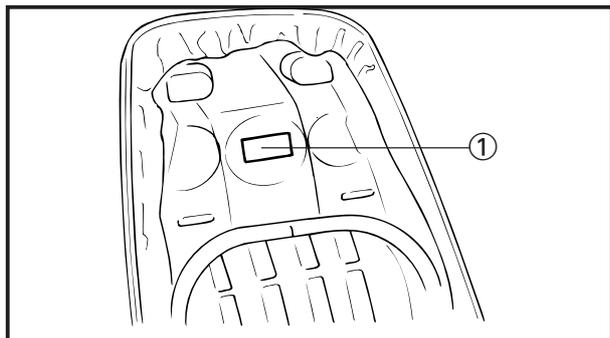
VEHICLE IDENTIFICATION NUMBER

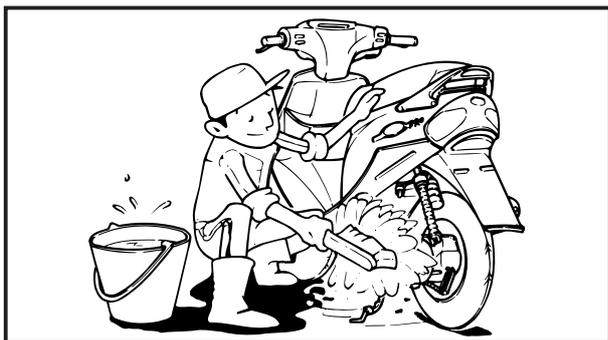
The vehicle identification number ① is stamped into the frame.

EAS00018

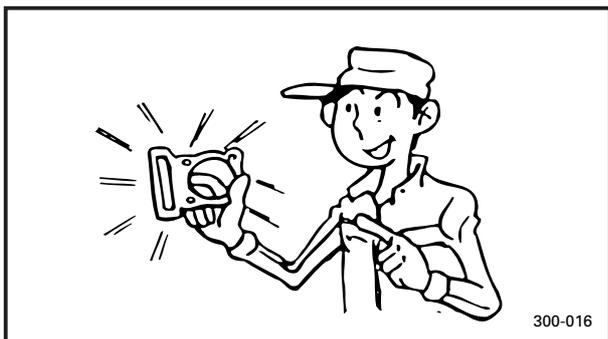
MODEL CODE

The model code label ① is affixed to the location shown in the figure. Record the information on this label in the space provided. This information will be needed to order spare parts.





300-008



300-016

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 "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

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.

EAS00022

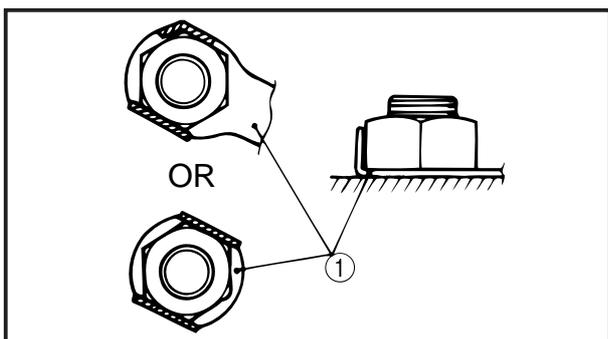
GASKETS, OIL SEALS AND O-RINGS

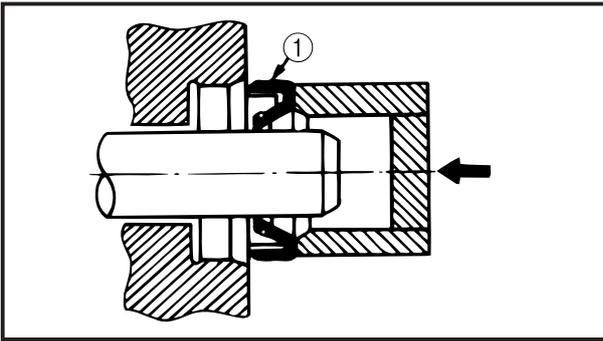
1. When overhauling the engine, replace all gaskets, seals and O-rings. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. During reassembly, properly oil all mating parts and bearings and lubricate the oil seal lips with grease.

EAS00023

LOCK WASHERS/PLATES AND COTTER PINS

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.



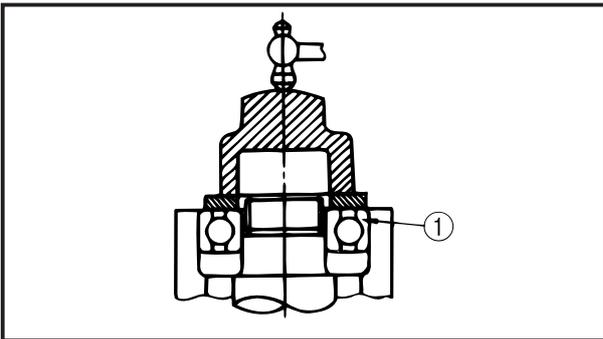


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BEARINGS AND OIL SEALS

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 base grease. Oil bearings liberally when installing, if appropriate.

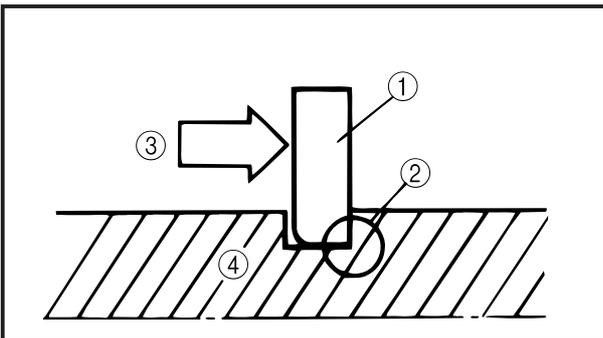
① Oil seal



CAUTION: _____

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

① Bearing



EAS00025

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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CHECKING OF CONNECTIONS

Dealing with stains, rust, moisture, etc. on the connector.

1. Disconnect:
 - Connector
2. Dry each terminal with an air blower.
3. Connect and disconnect the connector two or three.
4. Pull the read to check that it will not come off.
5. If the terminal comes off, bend up the pin ① and reinsert the terminal into the connector.

6. Connect:
 - Connector

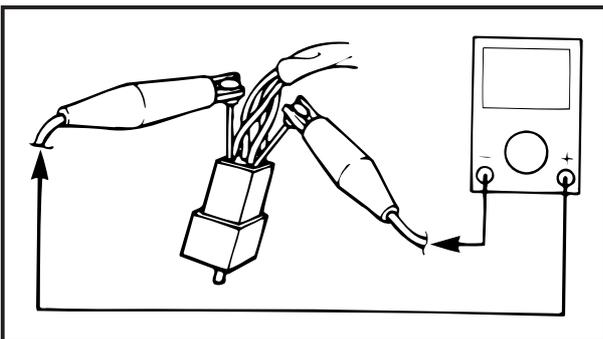
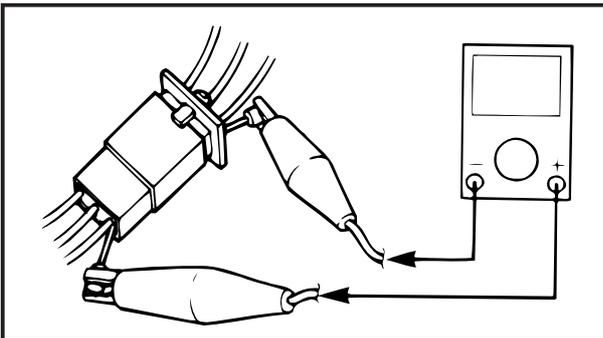
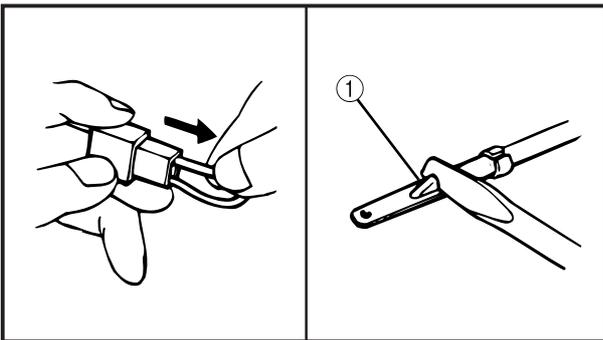
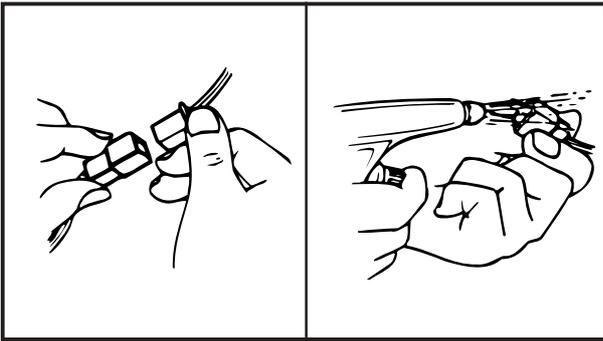
NOTE: _____

The two connectors "click" together.

7. Check for continuity with a tester.

NOTE: _____

- If there is no continuity, clean the terminals.
- Be sure to perform the steps 1 to 7 listed above when checking the wireharness.
- For a field remedy, use a contact revitalizer available on the market.
- Use the tester on the connector as shown.



HOW TO USE THE CONVERSION TABLE



EB201000

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	=	IMP
** mm	×	0.03937	=	** in
2 mm	×	0.03937	=	0.083 in

CONVERSION TABLE

METRIC TO IMP			
	Known	Multiplier	Result
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
Distance	km/h	0.6214	mph
	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)	0.06102	cu.in
	lit(liter)	0.8799	qt(IMP liq.)
	lit(liter)	0.2199	gal(IMP liq.)
Miscellaneous	kg/mm	55.997	lb/in
	kg/cm ²	14.2234	psi(lb/in ²)
	Centigrade	9/5(°C)+32	Fahrenheit (°F)



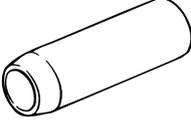
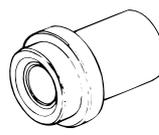
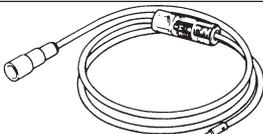
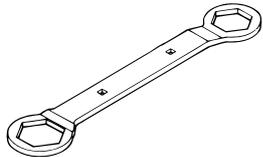
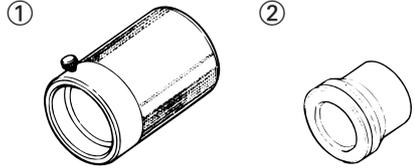
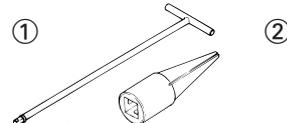
EE102000

SPECIAL TOOLS

The following special tools are necessary for complete and accurate tune-up and assembly. Use only the appropriate special tools; this Will help prevent damage caused by the use of inappropriate tools or improvised techniques.

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

Tool No.	Tool name / Function	Illustration
YU-01235	Rotor holding tool This tool is used to hold the generator rotor when removing or installing the generator rotor bolt.	
YS-28891	Clutch spring holder This tool is used to disassembly and assembly the secondary pulley.	
YU -90050 -90062	Crankshaft Installation set ① Adapter ② These tools are used to install the crankshaft.	
YU-01189	Flywheel puller This tool is used for removing the rotor.	
YU- 01135-A	Crankcase Separating tool This tool is used to remove the crankshaft or separate the crankcase.	
YM-33299	Oil seal guide This tool is used for protecting the oil seal lip when installing the secondary sliding sheave.	
YU-33975	Steering nut wrench This tool is used to loosen or tighten the steering stem ring nut.	
YU-01701	Sheave holder This tool is used to hold the clutch housing when removing or installing the clutch housing nut.	
YU-8036-A	Inductive tachometer This tool is used to check engine speed.	

Tool No.	Tool name / Function	Illustration
YU-03112	<p>Pocket tester</p> <p>This tool is used to check the electrical system.</p>	
YM-1409	<p>Oil seal guide</p> <p>This tool is used to install the left side crankcase oil seal.</p>	
YM-1410	<p>Oil seal driver</p> <p>This tool is used to install the left side crankcase oil seal.</p>	
YM-34487	<p>Dynamic spark tester</p> <p>This instrument is necessary for checking the ignition system components.</p>	
ACC-1100-15-01	<p>Quick Gasket ®</p> <p>This sealant is used to seal to mating surfaces (e.g., crankcase mating surfaces).</p>	
90890-01348	<p>Locknut wrench</p> <p>This tool is used to loosen and tighten the clutch carrier locknut of the secondary sheave.</p>	
<p>YU-33963 ① -1400 ②</p>	<p>Front fork seal driver Weight ① Adapter ②</p> <p>These tools are used when installing the fork seal.</p>	
<p>T-handle ① YM-01326 Holder YM-01300-1 ②</p>	<p>T-handle ① / Damper rod holder ②</p> <p>These tools are needed to loosen and tighten the damper rod holding bolt.</p>	
YM-01312-A	<p>Fuel level gauge</p> <p>This gauge is used to measure the fuel level in the float chamber.</p>	



SPECIFICATION

GENERAL SPECIFICATION

Model	YW50AP
Model code:	5PJ1
Dimensions: Overall length Overall width Overall height Seat height Wheelbase Minimum ground clearance Minimum turning radius	1,890 mm(74.4 in) 705 mm(27.8 in) 1,110 mm(43.7 in) 765 mm(30.1 in) 1,275 mm(50.2 in) 120 mm(4.7 in) 2,000 mm(78.7 in)
Basic weight: With oil and full fuel tank	94 kg(207 lb)
Engine: Engine type Cylinder arrangement Displacement Bore × stroke Compression ratio Starting system Lubrication system:	Air cooled 2 stroke, gasoline torque induction Forward- inclined single cylinder 49cm ³ (2.99 cu.in) 40.0 × 39.2 mm(1.57 × 1.54 in) 7.2:1 Electric and kick starter Separate lubrication
Oil Type or Grade: Engine Oil	For YAMAHA brand: Yamalube 2 or Air cooled 2-stroke engine oil (ISO EG-C, EG-D grade)
Transmission Oil Oil Capacity: Oil Tank (Engine Oil) Transmission Oil: Periodic Oil Change Total Amount	Yamalube 4 SAE 10W/30 SE or GL gear oil 1.4 L (1.23 Imp•qt, 1.48 US qt) 0.11 L(0.096 Imp.qt, 0.12 US qt) 0.13 L(0.11 Imp.qt, 0.13 US qt)
Air Filter:	Wet type element
Fuel: Type Tank Capacity	Regular unleaded gasoline 5.7 L (1.25 Imp.gal, 1.5 US gal)
Carburetor: Type / Manufacturer	Y14P/1/ TEIKEI

GENERAL SPECIFICATION

SPEC



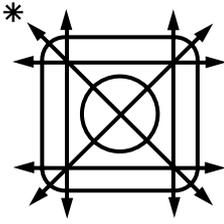
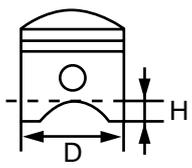
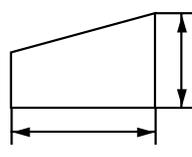
Model	YW50A
Spark Plug: Type/Manufacturer Gap	BPR7HS/NGK 0.6 ~ 0.7 mm(0.02 ~ 0.03 in)
Clutch Type	Dry, Centrifugal automatic
Transmission: Primary Reduction System Primary Reduction Ratio Secondary Reduction System Secondary Reduction Ratio Transmission Type Operation	Helical gear 4.000 Supur gear 3.666 V-belt Automatic
Chassis: Frame type Caster angle Trail	Steel tube underbone 26.5° 93mm(3.7 in)
Tire: Type Size Manufacturer Type	Tubeless 120/90-10 130/90-10 CHENG SHIN CHENG SHIN 56J 59J
Maximum load* Cold tire Pressure: Up to 90 kg Front Rear 90 kg load~Maximum load* Front Rear	143 kg(315 lb) 200kpa(2.0 kg/cm ² , 29 psi) 200kpa(2.0 kg/cm ² , 29 psi) 200kpa(2.0 kg/cm ² , 29 psi) 200kpa(2.0 kg/cm ² , 29 psi)
Brake: Front brake type operation Rear brake type operation	Single disc brake Right hand operation Drum brake Left hand operation
Suspension: Front suspension Rear suspension	Telescopic fork Unit swing
Shock absorber: Front shock absorber Rear shock absorber	Coil spring/oil damper Coil spring/oil damper
Wheel travel: Front wheel travel Rear wheel travel	65 mm(2.56 in) 60 mm(2.36 in)
Electrical: Ignition system Generator system Battery type Battery capacity	C.D.I Flywheel Magneto YTX5L-BS 12V 4AH

GENERAL SPECIFICATION

SPEC

Model	YW50A
Headlight type:	Bulb
Bulb wattage x quantity:	
Headlight	12V 35W/35W×2
Tail/brake light	12 V 5W/21W×1
Flasher light	10W×4
Licence plate light	5W×1
Meter light	3.4W×1/1.7W×1
High beam indicator light	1.7W×1
Oil indicator light	1.7W×1
Turn indicator light	1.7W×1

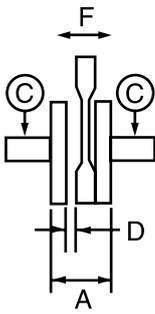
**MAINTENANCE SPECIFICATION
ENGINE**

Item	Standard	Limit
Cylinder head: Warp limit  *Lines indicate straightedge measurement	...	0.03 mm (0.0012 in)
Cylinder: Bore size Taper limit Out of round limit	40.000~40.014mm (1.5748~1.5754 in)	40.10 mm (1.5787 in) 0.05 mm (0.0020 in) 0.03 mm (0.0012 in)
Piston: Piston to cylinder clearance Piston size "D" Measuring point "H" Piston pin bore inside diameter Piston pin outside diameter 	0.035~0.040 mm (0.0014~0.0016 in) 39.958~39.972 mm (1.5731~1.5737 in) 5 mm(0.2 in) 10.004~10.015 mm (0.3939~0.3943 in) 9.996~10.000 mm (0.3935~0.3937 in)	0.10 mm (0.0039 in) 10.045 mm (0.4 in) 9.975 mm (0.39 in)
Piston Ring: Sectional Sketch (B × T)/Type Top Ring 2nd Ring End Gap (Installed): Top Ring 2nd Ring Side Clearance (Installed): Top Ring 2nd Ring 	1.2 × 1.6 mm/ keystone (0.05 × 0.06 in) 1.2 × 1.6 mm/ keystone (0.05 × 0.06 in) 0.15~0.35 mm (0.005~0.01 in) 0.15~0.35 mm (0.005~0.01 in) 0.03~0.05 mm (0.0012~0.0020 in) 0.03~0.05 mm (0.0012~0.0020 in)	0.6 mm(0.02 in) 0.6 mm(0.02 in) 0.1 mm(0.0039 in) 0.1 mm(0.0039 in)

MAINTENANCE SPECIFICATION

SPEC



Item	Standard	Limit
<p>Crankshaft:</p> <div style="text-align: center;">  </div> <p>Crank Width "A" Run Out Limit "C" Connecting Rod Big End Side Clearance "D" Small End Free Play "F"</p>	<p>37.90~37.95 mm(1.49~1.49 in) 0.03 mm(0.0012 in) 0.2~0.5 mm (0.0029~0.020 in) 0.4~0.8 mm (0.016~0.031 in)</p>	<p>... ... 1.0 mm(0.04 in) ...</p>
<p>Automatic centrifugal clutch:</p> <p>Clutch shoe thickness Clutch housing inside diameter</p> <p>Clutch shoe spring free length Clutch - in revolution Clutch - stall revolution</p>	<p>4.0 mm(0.16 in) 105 mm (4.13 in) 94 mm(3.7 in) 3,300~3,700 r/min 5,500~6,500 r/min</p>	<p>2.5 mm(0.1 in) 105.5 mm (4.15 in) 91 mm(3.58 in)</p>
<p>V-belt:</p> <p>V-belt width</p>	<p>16.6 mm(0.65 in)</p>	<p>14.6 mm(0.57 in)</p>
<p>Kick Starter:</p> <p>Type Kick Clip Tension</p>	<p>Ratchet type 1.5~2.5 N (0.15~0.25 kgf) (0.34~0.56 lb)</p>	
<p>Carburetor:</p> <p>I.D. Mark Main Jet (M.J.) Needle jet (NJ) Jet Needle-clip Position (J.N.) Main Air Jet (M.A.J.) Cutaway (C.A.) Pilot Jet (P.J.) Bypass Valve Seat Size (V.S.) Starter Jet (G.S.) Float Height Fuel level height Engine Idling Speed</p>	<p>5DA-01 #80 2.085 3N24-3/5 2.0 3.5 #44 0.8 1.8 #48 15 ~ 17 mm(0.59 ~ 0.67 in) 3.0~4.0 mm(0.12 ~ 0.16 in) 1,750~1,850 r/min</p>	
<p>Reed Valve:</p> <p>Thickness Valve Stopper Height Valve bending limit</p>	<p>0.150~0.154 mm(0.059~0.0060 in) 6.0~6.4 mm(0.24~0.25 in) 0.2 mm (0.0078)</p>	



**TIGHTENING TORQUES
ENGINE**

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m•kg	ft•lb	
Spark plug	—	M 14	1	20	2.0	14	
Cylinder head and cylinder	Nut	M 7	4	14	1.4	10	
Cylinder	Stud bolt	M 7	4	10	1.0	7	
Air shroud 1	Screw	M 6	3	7	0.7	5.1	
Air shroud 1×2	Screw	6.0	1	2	0.2	1.4	
Fan	Screw	M 6	3	7	0.7	5.1	
Autolube pump	Screw	M 5	2	4	0.4	2.8	
Reed valve	Bolt	M 6	4	11	1.1	8.0	
Air filter	Screw	M 6	2	9	0.9	6.5	
Carburetor cap	Screw	M 4	2	2	0.2	1.4	
Exhaust pipe	Screw	M 6	2	9	0.9	6.5	
Muffler	Bolt	M 8	2	26	2.6	18.2	
Exhaust protector	Bolt	M 6	3	11	1.1	8.0	
Protector	Screw	M 6	1	9	0.9	6.5	
Crankcase 1×2	Bolt	M 6	6	12	1.2	8.4	
Transmission case cover	Bolt	M 6	6	12	1.2	8.4	
Crankcase cover 1(left)	Bolt	M 6	12	12	1.2	8.4	
Bolt(case2)	Screw	M 6	1	7	0.7	5.1	
Crankcase cover2(left)	Bolt	M 6	3	7	0.7	5.1	
Drain bolt	Bolt	M 8	1	18	1.8	13	
Oil plug	Plug	M 14	1	3	0.3	22	
Idle gear plate	Screw	M 6	2	8	0.8	5.8	
Kick crank	Bolt	M 6	1	9	0.9	6.5	
Starter motor	Bolt	M 6	2	13	1.3	9.4	
Clutch housing	Nut	M 10	1	40	4.0	29	
Clutch weight	Nut	M 10	1	30	3.0	22	
Magnet base	Screw	M 6	2	8	0.8	5.8	
C.D.I. rotor	Nut	M 10	1	38	3.8	27	



CHASSIS

Item	Standard	Limit
Steering system: Steering bearing type No /size of steel balls: Upper Lower	Ball and race bearing 22 pcs 19 pcs	.........
Front suspension: Front fork travel Fork spring free length Fork length (Installed) Spring rate (K1) (K2) Inner tube vend limit	70 mm(2.8 in) 236.6 mm(9.31 in) 212.1 mm(8.35 in) 15.68 Nm/mm(1.6 kg/mm,90lb/in) 23.5 Nm/mm(2.43 kg/mm,136lb/in) ...	... 233.6 mm 0.2 mm (0.008 in)
Rear suspension: Shock absorber stroke Shock absorber free length (Installed) Spring free length (Installed) Spring rate (K1)	55 mm(2.2 in) 281.8 mm(11.1 in) 159.8 mm(6.29 in) 71.15 N/mm(7.26 kg/mm,407lb/in)	... ... ... ...
Front wheel: Type Rim size Rim material Rim runout limit radial lateral	Cast wheel MT3.50×10 Aluminum ... ...	... ... ... 1 mm(0.04 in) 1 mm(0.04 in)
Rear wheel: Type Rim size Rim material Rim runout limit radial lateral	Cast wheel MT3.50×10 Aluminum ... ...	... ... ... 1 mm(0.04 in) 1 mm(0.04 in)
Front disc brake: Type Disc outside diameter × thickness Pad thickness Master cylinder inside diameter Caliper cylinder outside diameter Brake fluid type	Single 180×4.0mm (7.1×0.16 in) 6 mm(0.24 in) 11 mm(0.4 in) 34.93 mm(1.38 in) DOT #4(or DOT #3)	... 180×3.5 mm (7.1×0.14in) 0.8 mm(0.03 in)
Rear drum brake: Type Drum inside diameter Shoe thickness	Leading, trailing 130 mm(5.12 in) 4 mm(0.16 in)	... 131 mm(5.16 in) 2 mm(0.08 in)
Brake lever: Brake lever free play (front at lever side) Brake lever free play (rear) Throttle cable free play	2~5 mm(0.08~0.20 in) 10~20 mm(0.39~0.79 in) 3~5 mm(0.12~0.20 in)	... ... ...



**TIGHTENING TORQUES
CHASSIS**

Part to be tightened	Thread size	Tightening torque			Remarks	
		Nm	m•kg	ft•lb		
Frame and engine bracket	M 12	84	8.4	61	See "page3-18"	
Engine bracket, compression rod and engine	M 10	45	4.5	31		
Rear carrier	M 6	13	1.3	9.4		
Rear shock absorber and frame	M 10	30	3.0	22		
Rear shock absorber and engine	M 8	16	1.6	12		
Steering ring nut	M 25	22	2.2	16		
Handle holder and steering shaft	M 10	43	4.3	37		
Brake hose and master cylinder	M 8	20	2.0	14		
Fuel tank	M 6	10	1.0	7		
Fuel cock	M 6	7	0.7	5.1		
Fuel sender	M 5	4	0.4	2.9		
Box	M 6	7	0.7	5.1		
Seat lock assembly	M 6	7	0.7	5.1		
Plastic parts & cover	M 5	2	0.2	1.4		
Footrest board	M 6	7	0.7	5.1		
Front wheel axle and nut	M 10	70	7.0	51		
Rear wheel axle and nut	M 14	120	12.0	87		
Rear brake cam lever	M 6	10	1.0	7.2		
Front brake caliper and front fork	M 8	23	2.3	16.6		
Brake disc and hub	M10	20	2.0	14.5		
Brake hose and caliper	M 8	23	2.3	16.6		
Brake caliper and bleed screw	M 5	6	0.6	4.3		



ELECTRICAL

Item	Standard	limit
Ignition timing: Ignition timing (B.T.D.C.) Advanced type	14° at 5,000 r/min Fixed	......
C.D.I.: Pickup coil resistance/color Source coil resistance/color C.D.I. unit model/manufacture	248 ~ 372Ω at 20°C (68°F) (W/R-W/L) 640 ~ 960 Ω at 20°C (68°F) (B/ R-G/W) 5PJ/TIIC	............
Ignition coil: Model/manufacture Minimum spark gap Primary winding resistance Secondary winding resistance	4WX/TIIC 6 mm (0.24 in) 0.32~0.48 Ω at 20°C (68°F) 5.68~8.52kΩ at 20°C (68°F)	... ... ... ...
Spark plug cap: Type Resistance	Resin 5 kΩ	......
Charging System/Type:	Flywheel magneto	...
C.D.I. Magneto: Model/Manufacturer Nominal output Charging current Charging voltage Charging Coil Resistance (Color) Lighting Coil Resistance (Color) Lighting Voltage Rectifier: Model/Manufacturer Capacity Withstand voltage	5PJ/TIIC 12V 85W/5,000 rpm 0.6A at 3,000r/min 1.2A at 8,000r/min 13~14V at 4,000 rpm 0.48~0.72 Ω (White-Black) 0.4~0.6 Ω (Yellow/Red- Black) 12~15V (3,000~8,000 rpm) 3GF/Taichung 8A 18V	.................................
Battery: Specific gravity	1.320	...
Electric starter system: Type Starter motor: Model/manufacture/ID number Output Armature coil resistance Brush overall length Spring force Commutator diameter Mica undercut (depth)	Constant mesh type 4WX/shulin 0.14 kw 0.0648 ~ 0.0792 Ω at 20°C (68°F) 6.5 mm (0.26 in) 5.49 ~ 8.24 N (360~540 g) (12.69~19.04 oz) 16.1 mm (0.63 in) 1.05 mm (0.04 in)	... ... ... ... 3 mm (0.12 in) 400g 15.1 mm (0.59 in) ...
Starter relay: Model/manufacture Amperage rating Coil resistance	4WX/Shulin 20A 54~66 Ω	.........