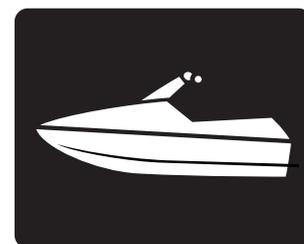


Product: 2003 Yamaha GP1300R WaveRunner Service Repair Workshop Manual
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YAMAHA



WaveRunner GP1300R

SERVICE MANUAL



LIT-18616-02-44
Sample of manual. Download all 279 pages at:
<https://www.arepairmanual.com/downloads/2003-yamaha-gp1300r-waverunner-service-repair-workshop-manual/>

F1G-28197-1F-11

NOTICE

This manual has been prepared by Yamaha primarily for use by Yamaha dealers and their trained mechanics when performing maintenance procedures and repairs to Yamaha equipment. It has been written to suit the needs of persons who have a basic understanding of the mechanical and electrical concepts and procedures inherent in the work, for without such knowledge attempted repairs or service to the equipment could render it unsafe or unfit for use.

Because Yamaha has a policy of continuously improving its products, models may differ in detail from the descriptions and illustrations given in this publication. Use only the latest edition of this manual. Authorized Yamaha dealers are notified periodically of modifications and significant changes in specifications and procedures, and these are incorporated in successive editions of this manual.

A10001-0*

**WaveRunner GP1300R
SERVICE MANUAL
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LIT-18616-02-44**

HOW TO USE THIS MANUAL

MANUAL FORMAT

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

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

- Bearings
Pitting/scratches → Replace.

To assist you in finding your way through this manual, the section title and major heading is given at the top of every page.

ILLUSTRATIONS

The illustrations within this service manual represent all of the designated models.

CROSS REFERENCES

The cross references have been kept to a minimum. Cross references will direct you to the appropriate section or chapter.

IMPORTANT INFORMATION

In this Service Manual particularly important information is distinguished in the following ways.

 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 machine operator, passenger(s), a bystander, or a person inspecting or repairing the watercraft.

CAUTION:

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

NOTE:

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

IMPORTANT:

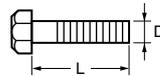
This part has been subjected to change of specification during production.

HOW TO USE THIS MANUAL

- ① To help identify parts and clarify procedure steps, there are exploded diagrams at the start of each removal and disassembly section.
- ② Numbers are given in the order of the jobs in the exploded diagram.
- ③ Symbols indicate parts to be lubricated or replaced (see "SYMBOLS").
- ④ A job instruction chart accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc.
- ⑤ Dimension figures and the number of parts, are provided for fasteners that require a tightening torque.

Example:

Bolt or screw size 10 × 25 mm : M10 (D) × 25 mm (L)



- ⑥ Jobs requiring more information (such as special service tools and technical data) are described sequentially.

JET PUMP NOZZLE DEFLECTOR AND NOZZLE RING

NOZZLE DEFLECTOR AND NOZZLE RING
EXPLODED DIAGRAM

①

②

③

④

⑤

⑥

Step	Procedure/Part name	Qty	Service points
NOZZLE DEFLECTOR AND NOZZLE RING REMOVAL			
1	Jet pump unit	2	Refer to "JET PUMP UNIT".
2	Bolt	2	
3	Nozzle deflector	1	
4	Bolt	2	
5	Collar	2	
6	Nozzle ring	1	
Reverse the removal steps for installation.			

6-4

JET PUMP IMPELLER DUCT AND DRIVE SHAFT

SERVICE POINTS

Drive shaft removal

1. Remove:
 - Impeller

Drive shaft holder:
YB-06151/90890-06519

NOTE:
The impeller has left-hand threads. Turn the impeller clockwise to loosen it.

2. Remove:
 - Nut ①

Drive shaft holder:
YB-06151/90890-06519

3. Remove:
 - Drive shaft ①

NOTE:
Remove the drive shaft with a press.

4. Remove:
 - Rear bearing

Slide hammer set:
VB-06096
Stopper guide plate:
90890-06501
Bearing puller:
90890-06535
Bearing puller claw 1:
90890-06536
Stopper guide stand:
90890-06538

Ⓐ For USA and Canada
Ⓑ For worldwide

6-9

① GEN INFO 	② SPEC 
③ INSP ADJ 	④ FUEL 
⑤ POWR 	⑥ JET PUMP 
⑦ ELEC 	⑧ HULL HOOD 
⑨ TRBL ANLS 	⑩ 
⑪ 	⑫ 
⑬ 	⑭ 
⑮ 	⑯ 
⑰ 	⑱ 
⑲ 	⑳ 
㉑ 	㉒ 
㉓ 	㉔ 

A50001-1-4

SYMBOLS

Symbols ① to ⑨ are designed to indicate the content of a chapter.

- ① General Information
- ② Specifications
- ③ Periodic Inspection and Adjustment
- ④ Fuel System
- ⑤ Power Unit
- ⑥ Jet Pump Unit
- ⑦ Electrical System
- ⑧ Hull and Hood
- ⑨ Trouble Analysis

Symbols ⑩ to ⑮ indicate specific data.

- ⑩ Special service tool
- ⑪ Specified oil or fluid
- ⑫ Specified engine speed
- ⑬ Specified tightening torque
- ⑭ Specified measurement
- ⑮ Specified electrical value
(resistance, voltage, electric current)

Symbols ⑯ to ⑱ in an exploded diagram indicate the grade of lubricant and the lubrication point.

- ⑯ Apply Yamaha 2-stroke motor oil
- ⑰ Apply water resistant grease
(Yamaha grease A, Yamaha marine grease)
- ⑱ Apply molybdenum disulfide grease

Symbols ⑲ to ㉔ in an exploded diagram indicate the type of sealant or locking agent and the application point.

- ⑲ Apply Gasket Maker
- ⑳ Apply Yamabond No. 4
- ㉑ Apply LOCTITE 271 (red)
- ㉒ Apply LOCTITE 242 (blue)
- ㉓ Apply LOCTITE 572
- ㉔ Apply silicone sealant

NOTE: _____
Additional symbols may be used in this manual.

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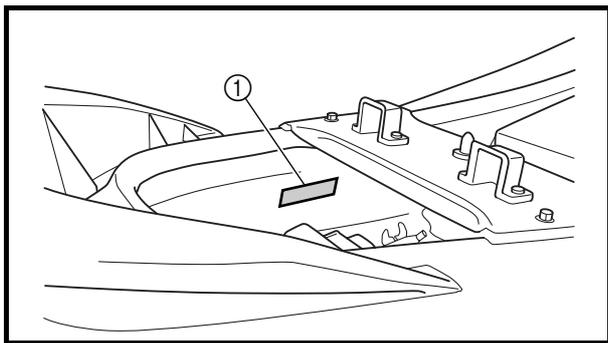
GENERAL INFORMATION	 GEN INFO	1
SPECIFICATIONS	 SPEC	2
PERIODIC INSPECTION AND ADJUSTMENT	 INSP ADJ	3
FUEL SYSTEM	 FUEL	4
POWER UNIT	 POWR	5
JET PUMP UNIT	 JET PUMP	6
ELECTRICAL SYSTEM	 ELEC	7
HULL AND HOOD	 HULL HOOD	8
TROUBLE ANALYSIS	 TRBL ANLS	9

CHAPTER 1 GENERAL INFORMATION



IDENTIFICATION NUMBERS	1-1
PRIMARY I.D. NUMBER	1-1
ENGINE SERIAL NUMBER	1-1
JET PUMP UNIT SERIAL NUMBER	1-1
HULL IDENTIFICATION NUMBER (H.I.N.)	1-1
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FIRE PREVENTION	1-2
VENTILATION	1-2
SELF-PROTECTION	1-2
PARTS, LUBRICANTS, AND SEALANTS	1-2
GOOD WORKING PRACTICES	1-3
DISASSEMBLY AND ASSEMBLY	1-4
SPECIAL SERVICE TOOLS	1-5
MEASURING AND DIAGNOSIS	1-5
REMOVAL AND INSTALLATION	1-7

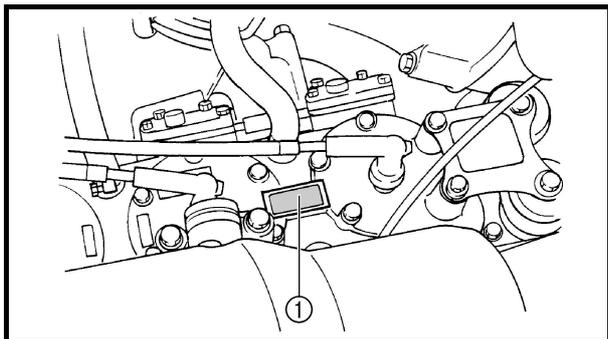
A60700-0*



**IDENTIFICATION NUMBERS
PRIMARY I.D. NUMBER**

The primary I.D. number is stamped on a label ① attached inside the engine compartment.

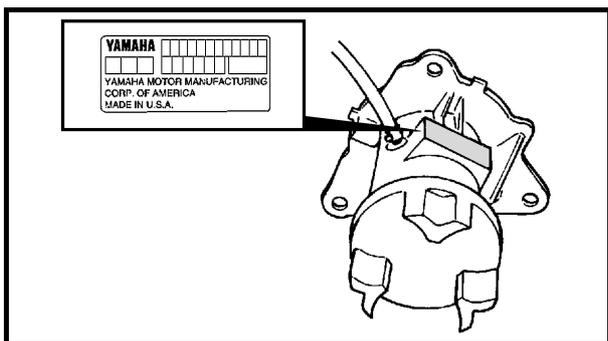
**Starting primary I.D. number:
F1G: 800301**



ENGINE SERIAL NUMBER

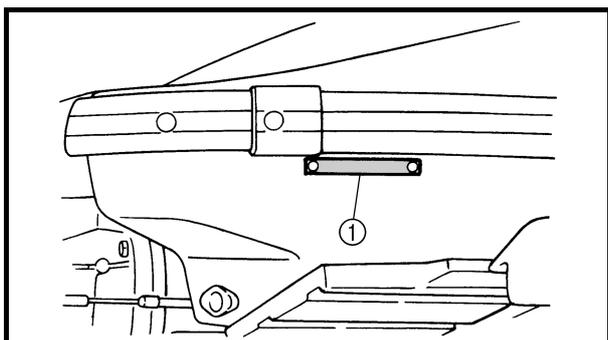
The engine serial number is stamped on a label ① attached to the engine unit.

**Starting serial number:
60T: 1000001**



JET PUMP UNIT SERIAL NUMBER

The jet pump unit serial number is stamped on a label attached to the intermediate housing.

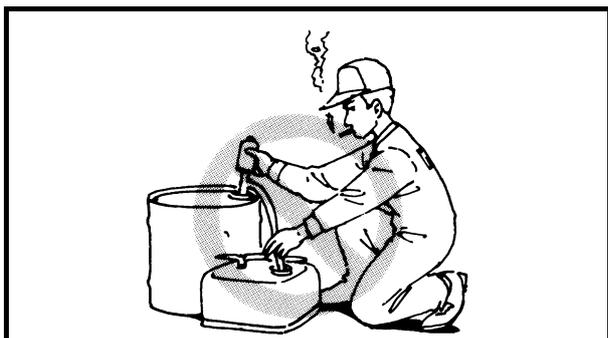


**HULL IDENTIFICATION NUMBER
(H.I.N.)**

The H.I.N. is stamped on a plate ① attached to the hull on the aft, starboard (right) side.

⚠ SAFETY WHILE WORKING

To prevent an accident or injury and to ensure quality service, follow the safety procedures provided below.

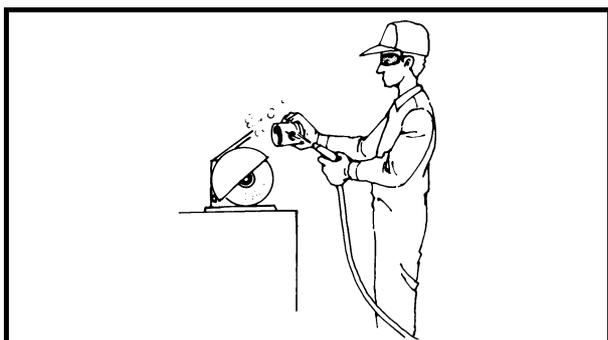


FIRE PREVENTION

Gasoline is highly flammable. Keep gasoline and all flammable products away from heat, sparks, and open flames.

VENTILATION

Gasoline vapor and exhaust gas are heavier than air and extremely poisonous. If inhaled in large quantities they may cause loss of consciousness and death within a short time. When test running an engine indoors (e.g., in a water tank), be sure to do so where adequate ventilation can be maintained.



SELF-PROTECTION

Protect your eyes by wearing safety glasses or safety goggles during all operation involving drilling and grinding, or when using an air compressor. Protect your hands and feet by wearing protective gloves or safety shoes when necessary.



PARTS, LUBRICANTS, AND SEALANTS

Use only genuine Yamaha parts, lubricants, and sealants or those recommended by Yamaha, when servicing or repairing the watercraft.

Under normal conditions, the lubricants mentioned in this manual should not harm or be hazardous to your skin. However, you should follow these precautions to minimize any risk when working with lubricants.

1. Maintain good standards of personal and industrial hygiene.
2. Change and wash clothing as soon as possible if soiled with lubricants.
3. Avoid contact with skin. Do not, for example, place a soiled rag in your pocket.
4. Wash hands and any other part of the body thoroughly with soap and hot water after contact with a lubricant or lubricant soiled clothing has been made.
5. To protect your skin, apply a protective cream to your hands before working on the watercraft.
6. Keep a supply of clean, lint-free cloths for wiping up spills, etc.



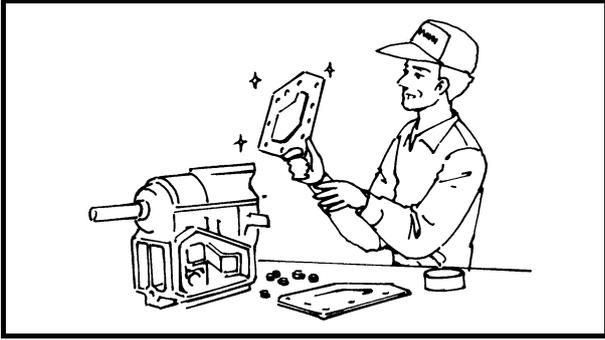
GOOD WORKING PRACTICES

1. The right tools

Use the recommended special service tools to protect parts from damage. Use the right tool in the right manner—do not improvise.

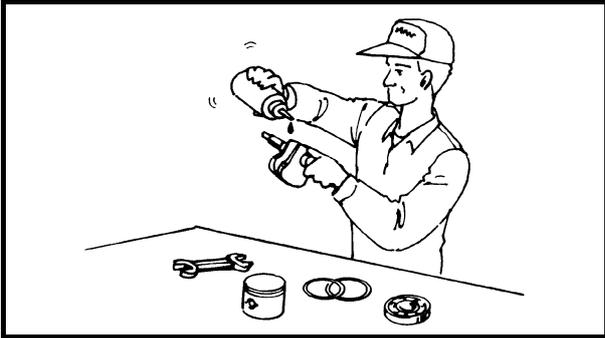
2. Tightening torques

Follow the tightening torque specifications provided throughout the manual. When tightening nuts, bolts, and screws, tighten the large sizes first, and tighten fasteners starting in the center and moving outward.



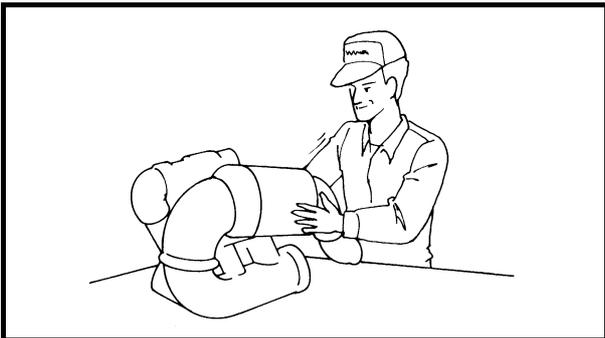
3. Non-reusable parts

Always use new gaskets, seals, O-rings, oil seals, cotter pins, circlips, etc., when installing or assembling parts.



DISASSEMBLY AND ASSEMBLY

1. Use compressed air to remove dust and dirt during disassembly.
2. Apply engine oil to the contact surfaces of moving parts during assembly.



3. Install bearings with the manufacture identification mark in the direction indication in the installation procedure. In addition, be sure to lubricate the bearings liberally.
4. Apply a thin coat of water-resistant grease to the lip and periphery of an oil seal before installation.
5. Check that moving parts operate normally after assembly.

SPECIAL SERVICE TOOLS

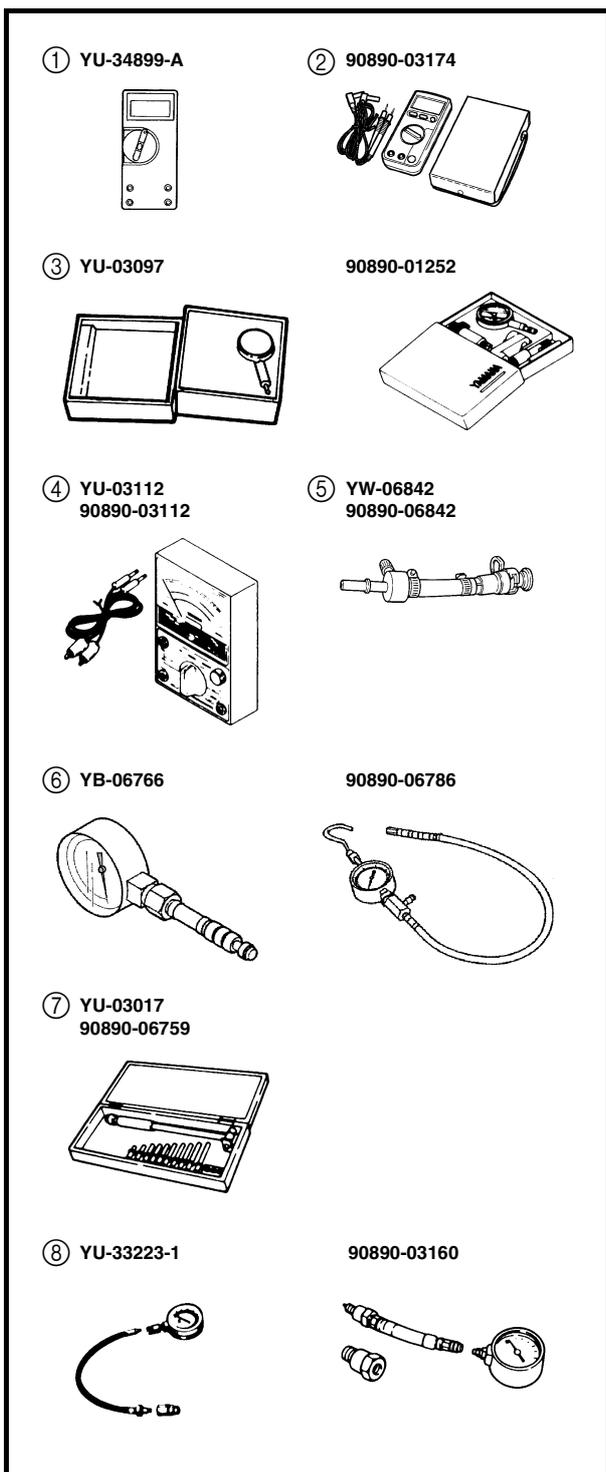
Using the special service tools recommended by Yamaha will aid service and enable accurate assembly and tune-up. Improvisations and using improper tools can damage the equipment.

NOTE:

- For USA and Canada, use the special service tools starting with part numbers “J-,” “YB-,” “YM-,” “YS-,” “YU-,” or “YW-.”
- For all other countries, use the special service tools starting with part number “90890-.”

MEASURING AND DIAGNOSIS

- ① Digital multimeter
YU-34899-A
- ② Digital circuit tester
90890-03174
- ③ Dial gauge
YU-03097
90890-01252
- ④ Pocket tester
YU-03112
90890-03112
- ⑤ Fuel pressure gauge adapter
YW-06842
90890-06842
- ⑥ Fuel pressure gauge
YB-06766
90890-06786
- ⑦ Cylinder gauge set
YU-03017
90890-06759
- ⑧ Compression gauge
YU-33223-1
90890-03160

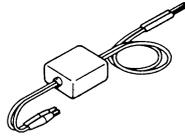




⑨ YU-39991



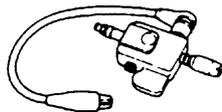
⑩ 90890-03172



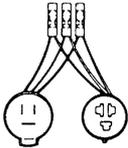
⑪ YM-34487



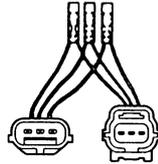
⑫ 90890-06754



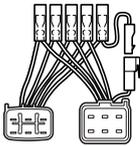
⑬ YB-06870
90890-06870



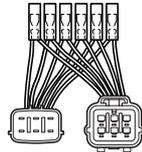
⑭ YB-06869
90890-06869



⑮ YB-06848
90890-06848



⑯ YB-06849
90890-06849



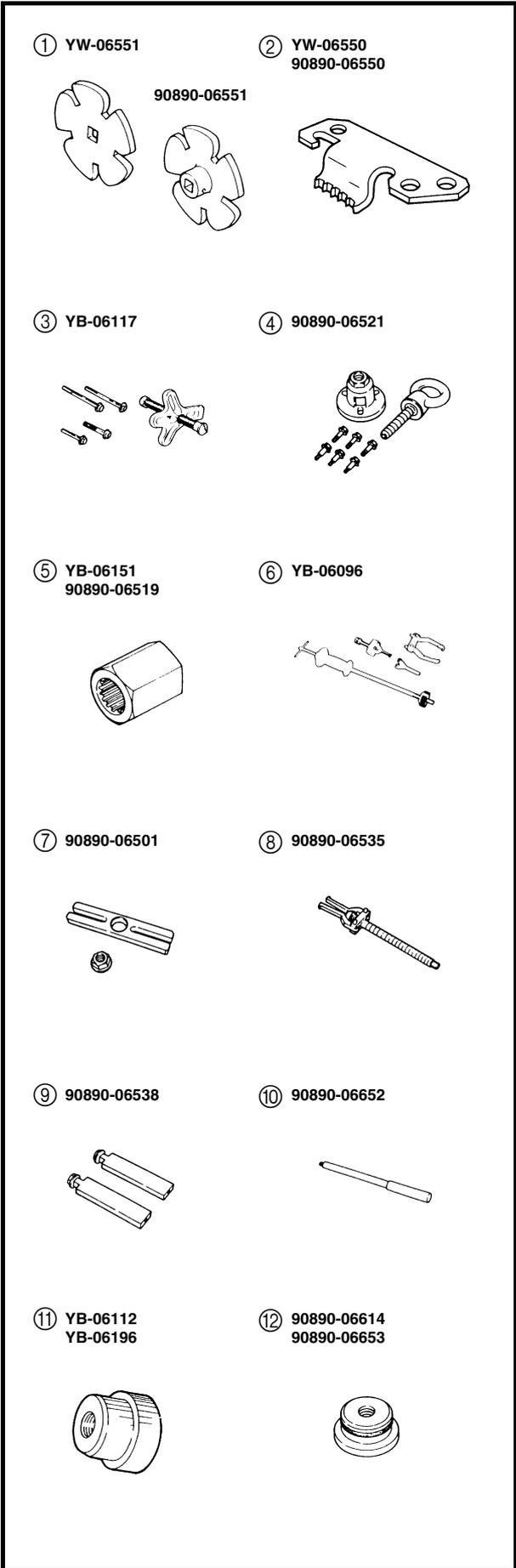
⑰ YB-35956-A
90890-06756



⑱ 60V-WS853-01

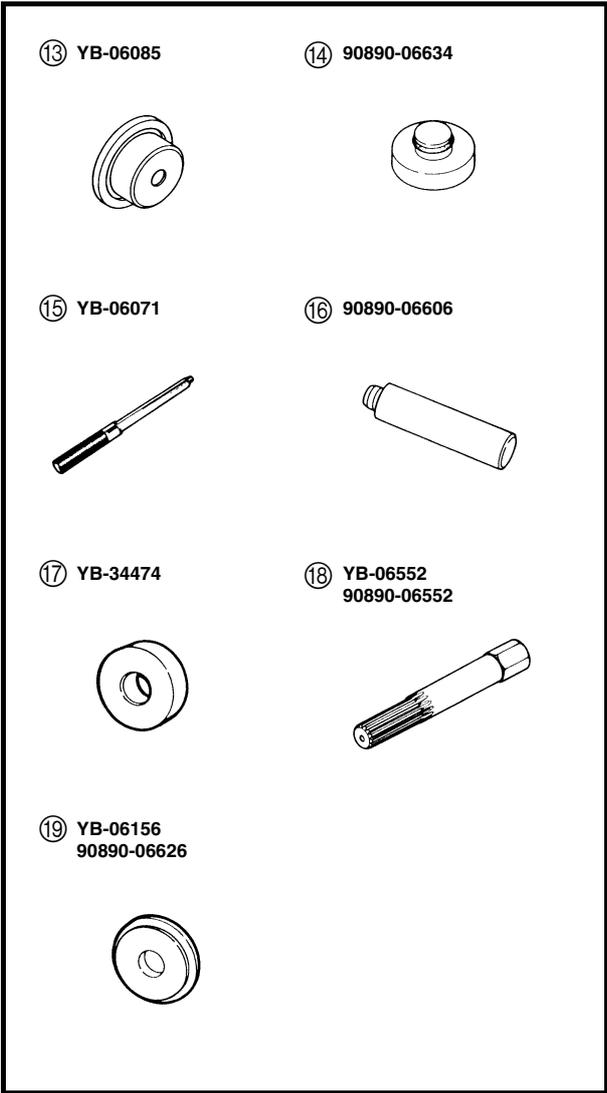


- ⑨ Peak volt meter adapter
YU-39991
- ⑩ Peak voltage adapter B
90890-03172
- ⑪ Spark gap tester
YM-34487
- ⑫ Ignition tester
90890-06754
- ⑬ Lighting coil tester (3 pins)
YB-06870
Test harness SMT250-3 (3 pins)
90890-06870
- ⑭ Air pressure sensor tester (3 pins)
YB-06869
Test harness EJ-II-3 (3 pins)
90890-06869
- ⑮ Test harness (6 pins)
YB-06848
Test harness FSW-6A (6 pins)
90890-06848
- ⑯ Test harness (6 pins)
YB-06849
Test harness SM6195021-6 (6 pins)
90890-06849
- ⑰ Lower unit pressure/vacuum tester
YB-35956-A
Vacuum/pressure pump gauge set
90890-06756
- ⑱ Yamaha diagnostic system
(CD-ROM only)
60V-WS853-01



REMOVAL AND INSTALLATION

- ① Coupler wrench
YW-06551
90890-06551
- ② Flywheel holder
YW-06550
90890-06550
- ③ Universal puller
YB-06117
- ④ Flywheel puller
90890-06521
- ⑤ Drive shaft holder (impeller)
YB-06151
Drive shaft holder 5 (impeller)
90890-06519
- ⑥ Slide hammer and adapters
(jet pump bearing)
YB-06096
- ⑦ Stopper guide plate (jet pump bearing)
90890-06501
- ⑧ Bearing puller assembly
(jet pump bearing)
90890-06535
- ⑨ Stopper guide stand (jet pump bearing)
90890-06538
- ⑩ Driver rod L3 (jet pump bearing)
90890-06652
- ⑪ Bearing housing needle bearing remover
(jet pump bearing)
YB-06112
Drive shaft needle bearing installer and
remover (jet pump oil seal)
YB-06196
- ⑫ Needle bearing attachment
(jet pump bearing and oil seal)
90890-06614, 90890-06653



- ⑬ Outer race installer—forward gear (jet pump oil seal)
YB-06085
- ⑭ Ball bearing attachment (jet pump oil seal)
90890-06634
- ⑮ Driver handle—large (intermediate shaft and jet pump)
YB-06071
- ⑯ Driver rod LS (intermediate shaft and jet pump)
90890-06606
- ⑰ Drive shaft needle bearing depth stop (jet pump bearing)
YB-34474
- ⑱ Shaft holder (intermediate shaft)
YB-06552
Crankshaft holder 20 (intermediate shaft)
90890-06552
- ⑲ Drive shaft taper roller bearing cup installer (intermediate shaft)
YB-06156
Bearing outer race attachment (intermediate shaft)
90890-06626

CHAPTER 2 SPECIFICATIONS

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JET PUMP UNIT2-4

HULL AND HOOD2-5

ELECTRICAL2-5

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SPECIFIED TORQUES.....2-8

GENERAL TORQUE2-14

CABLE AND HOSE ROUTING2-15



GENERAL SPECIFICATIONS

Item	Unit	Model
		GP1300R
Model code		
Hull		F1G
Engine/jet		60T
Dimensions		
Length	mm (in)	2,930 (115.4)
Width	mm (in)	1,150 (45.3)
Height	mm (in)	1,020 (40.2)
Dry weight	kg (lb)	297 (653)
Maximum capacity	Person/kg (lb)	2/160 (353)
Performance		
Maximum output	kW (PS) at r/min	121.4 (165) at 7,000
Maximum fuel consumption	l/h (US gal/h, Imp gal/h)	63.0 (16.6, 13.9)
Cruising range	h	0.95
Engine		
Engine type		2-stroke
Number of cylinders		3
Displacement	cm ³ (cu. in)	1,297 (79.1)
Bore × stroke	mm (in)	84 × 78 (3.31 × 3.07)
Compression ratio		
#1, #2		5.9:1
#3		5.7:1
Intake system		Reed valve
Scavenging system		Loop charge
Exhaust system		Wet exhaust/YPVS
Lubrication system		Variable oil injection
Cooling system		Water cooled
Starting system		Electric starter
Ignition system		Digital CDI
Spark plug model (manufacturer)		BR8ES-11 (NGK)
Spark plug gap	mm (in)	1.0–1.1 (0.039–0.043)
Battery		
Voltage, capacity	V, Ah	12, 19
Generator output	A at r/min	15 at 6,000



Item	Unit	Model
		GP1300R
Drive unit		
Propulsion system		Jet pump
Jet pump type		Axial flow, single stage
Impeller rotation		Counterclockwise (viewed from rear)
Transmission		Direct drive from engine
Jet thrust nozzle horizontal angle	Degree	23 + 23
Jet thrust nozzle trim angle	Degree	-5, 0, 5, 10, 15
Trim system		Manual 5 positions
Reverse system		NA
Fuel and oil		
Fuel		Regular unleaded gasoline
Minimum fuel rating	PON ^{*1}	86
	RON ^{*2}	90
Oil		YAMALUBE 2-W ^{*3}
Fuel-oil ratio (wide open throttle)		30:1
Fuel tank capacity	L (US gal, Imp gal)	60 (15.9, 13.2)
Oil tank quantity	L (US qt, Imp qt)	5.5 (1.5, 1.2)

*1 Pump Octane Number = (Motor Octane Number + Research Octane Number)/2

*2 Research Octane Number

*3 YAMALUBE 2-W has been developed for this watercraft and it is available at a Yamaha dealer.

CAUTION:

Use only YAMALUBE 2-W oil. Using another oil can seriously damage the catalytic converter and other engine components.



**MAINTENANCE SPECIFICATIONS
ENGINE**

Item	Unit	Model
		GP1300R
Cylinder head Warpage limit	mm (in)	0.05 (0.002)
Minimum compression pressure* ¹	kPa (kgf/cm ² , psi)	640 (6.4, 91)
Cylinders		
Bore size	mm (in)	84.000–84.018 (3.3071–3.3078)
Taper limit	mm (in)	0.080 (0.0031)
Out-of-round limit	mm (in)	0.050 (0.0020)
Wear limit	mm (in)	84.100 (3.3110)
Pistons		
Piston diameter	mm (in)	Red: 83.899–83.902 (3.3031–3.3032) Orange: 83.903–83.906 (3.3033–3.3034) Green: 83.907–83.910 (3.3034–3.3035) Purple: 83.911–83.914 (3.3036–3.3037)
Measuring point*	mm (in)	11 (0.43)
Piston-to-cylinder clearance	mm (in)	0.100–0.105 (0.0039–0.0041)
Wear limit	mm (in)	0.155 (0.0061)
Piston pin boss inside diameter	mm (in)	22.008–22.020 (0.8665–0.8669)
Piston rings		
Top		
Type		Keystone
Dimension (B)	mm (in)	1.47–1.49 (0.058–0.059)
Dimension (T)	mm (in)	3.0–3.2 (0.118–0.126)
End gap	mm (in)	0.45–0.60 (0.018–0.024)
Ring groove clearance	mm (in)	0.020–0.070 (0.0008–0.0028)
2nd		
Type		Keystone
Dimension (B)	mm (in)	1.47–1.49 (0.058–0.059)
Dimension (T)	mm (in)	3.0–3.2 (0.118–0.126)
End gap	mm (in)	0.45–0.60 (0.018–0.024)
Ring groove clearance	mm (in)	0.020–0.070 (0.0008–0.0028)
Piston pins		
Outside diameter	mm (in)	21.995–22.000 (0.8659–0.8661)
Wear limit	mm (in)	21.990 (0.8657)
Connecting rod		
Small end inside diameter	mm (in)	26.995–27.008 (1.0628–1.0633)

*¹Measuring conditions:

Engine temperature 48 °C (118 °F), wide open throttle, with spark plugs removed from all cylinders.

The figures are for reference only.



Item	Unit	Model
		GP1300R
Crankshaft assembly Crank width (A) Deflection limit (B) Deflection limit (C) Big end side clearance (D) Maximum small end axial play (E)	mm (in) mm (in) mm (in) mm (in) mm (in)	72.95–73.00 (2.872–2.874) 0.05 (0.002) 0.15 (0.006) 0.250–0.750 (0.0098–0.0295) 2.000 (0.0787)
Throttle body Model/quantity Manufacturer ID mark Trolling speed	r/min	60TA/3 SANSHIN 60T00 1,250–1,450
Reed valves Thickness Reed valve stopper height Reed valve warpage limit	mm (in) mm (in) mm (in)	0.6 (0.024) 10.5–10.9 (0.413–0.429) 1.5 (0.059)
Fuel pump Pump type Output pressure	kPa (kgf/cm ² , psi)	Electrical 320.8–327.2 (3.21–3.27, 45.62–46.53)
Coupling clearance Vertical Horizontal	mm (in) mm (in)	0–0.5 (0–0.020) 2–4 (0.079–0.157)

JET PUMP UNIT

Item	Unit	Model
		GP1300R
Jet pump Impeller material Number of impeller blades Impeller pitch angle Impeller clearance Impeller clearance limit Drive shaft runout limit Nozzle diameter	Degree mm (in) mm (in) mm (in) mm (in)	Stainless steel 4 16.3 0.7–0.9 (0.028–0.035) 0.9 (0.035) 0.30 (0.0118) 85.0–85.6 (3.35–3.37)



HULL AND HOOD

Item	Unit	Model
		GP1300R
Free play		
YPVS cable slack	mm (in)	0.5–1.5 (0.02–0.06)
Throttle lever free play	mm (in)	4–7 (0.16–0.28)

ELECTRICAL

Item	Unit	Model
		GP1300R
Battery		
Type		Fluid
Voltage, capacity	V, Ah	12, 19
Specific gravity		1.28
ECM unit		
(B/R – Ground for cylinder #1)		
(B/W – Ground for cylinder #2)		
(B/Y – Ground for cylinder #3)		
Output peak voltage lower limit		
at cranking	V	0.8
at 2,000 r/min	V	174
at 3,500 r/min	V	156
Stator		
Pickup coil		
(W/R, W/B, W/Y – B)		
Output peak voltage		
at cranking 1	V	6.0
at cranking 2	V	6.0
at 2,000 r/min	V	24
at 3,500 r/min	V	40
Pickup coil resistance 1	Ω	459–561
(W/R – B)		
Pickup coil resistance 2	Ω	459–561
(W/B – B)		
Pickup coil resistance 3	Ω	459–561
(W/Y – B)		
Lighting coil		
(G – G)		
Output peak voltage		
at cranking 1	V	9.0
at cranking 2	V	7.5
at 2,000 r/min	V	12.5
at 3,500 r/min	V	12.5
Lighting coil resistance	Ω	0.54–0.66
(G – G)		

Cranking 1: unloaded

Cranking 2: loaded



Item	Unit	Model
		GP1300R
Ignition coil		
Minimum spark gap	mm (in)	10–11 (0.39–0.43)
Primary coil resistance (B/W – body)	Ω	0.26–0.36
Secondary coil resistance (B/W – spark plug lead terminal)	kΩ	3.5–4.7
Spark plug lead resistance		
#1	kΩ	6.1–14.3
#2	kΩ	4.5–10.9
#3	kΩ	3.3–8.2
Rectifier/regulator (R – B)		
Output peak voltage (unloaded) at 3,500 r/min	V	14.5
Starter motor		
Type		Bendix
Output	kW	0.8
Rating	Seconds	30
Brush length	mm (in)	12.5 (0.49)
Wear limit	mm (in)	6.5 (0.26)
Commutator undercut	mm (in)	0.7 (0.03)
Limit	mm (in)	0.2 (0.01)
Commutator diameter	mm (in)	28.0 (1.10)
Limit	mm (in)	27.0 (1.06)
Starter relay		
Rating	Seconds	30
Engine temperature sensor		
Engine temperature sensor resistance (B/Y – B/Y)		
at 20 °C (68 °F)	kΩ	54.2–69.0
at 100 °C (212 °F)	kΩ	3.12–3.48
Intake air temperature sensor		
Intake air temperature sensor resistance		
at 0 °C (32 °F)	kΩ	5.4–6.6
at 80 °C (176 °F)	kΩ	0.29–0.39
Atmospheric pressure sensor		
output voltage (P/G – B/O)	V at kPa (kgf/cm ² , psi)	4.00 at 101.3 (1.01, 14.4)
	V at kPa (kgf/cm ² , psi)	1.97 at 50 (0.5, 7.1)
	V at kPa (kgf/cm ² , psi)	0.79 at 20 (0.2, 2.8)



Item	Unit	Model
		GP1300R
Exhaust temperature sensor resistance		
at 300 °C (572 °F)	kΩ	73–241
at 600 °C (1,112 °F)	kΩ	0.86–1.58
at 900 °C (1,652 °F)	Ω	64–90
Cooling water temperature sensor resistance		
at 0 °C (32 °F)	kΩ	24.0–37.1
at 100 °C (212 °F)	kΩ	0.87–1.18
at 200 °C (392 °F)	Ω	104–153
Speed sensor		
Output voltage (on pulse)	V	11.6
Output pulse/one full turn		2
Throttle position sensor		
Output voltage (P – B/O) at trolling speed	V	0.793–0.807
Fuel sender		
Fuel sender resistance		
Position A	Ω	133.5–136.5
Position B	Ω	5–7
Fuel injector		
Fuel injector resistance *1	Ω	13.8
Oil level sensor		
Oil level sensor resistance		
Position A	Ω	292–308
Position B	Ω	97–103
Position C	Ω	0–3
Fuse		
Rating		
Main	V/A	12/20
Multifunction meter	V/A	12/3
Electrical bilge pump	V/A	12/3

*1 The figures are for reference only.



TIGHTENING TORQUES SPECIFIED TORQUES

Part to be tightened	Part name	Thread size	Q'ty	Tightening torques			Remarks
				N•m	kgf•m	ft•lb	
Fuel system							
Strap/fuel tank/oil tank – hull	Bolt	M8	4	16	1.6	11	
Oil filler hose screw clamp	—	—	1	0.6	0.06	0.4	
Retainer/fuel pump module – fuel tank	Nut	—	9	3.2	0.32	2.3	
				6.4	0.64	4.6	
Fuel filler hose screw clamp	—	—	2	3.7	0.37	2.7	
Cap screw clamp (fuel tank)	—	—	1	1.3	0.13	0.9	
Intake silencer screw clamp	—	—	1	2.5	0.25	1.8	
Intake silencer pipe screw clamp	—	—	2	2.5	0.25	1.8	
Intake duct – exhaust chamber bracket	Bolt	M8	1	9.0	0.9	6.5	
				18	1.8	13	
Intake duct – generator cover	Bolt	M8	2	9.0	0.9	6.5	
				18	1.8	13	
Throttle bodies assembly – throttle bodies bracket 1, 2	Bolt	M8	2	9.0	0.9	6.5	
				18	1.8	13	
Throttle cable locknut and adjuster (throttle bodies end)	—	—	1	11	1.1	8.0	
Intake air temperature sensor – intake silencer case cover	—	—	1	7.5	0.75	5.4	
Intake silencer case cover – intake silencer case	Tapping screw	ø6	13	1.8	0.18	1.3	
Flame arrester – intake silencer case	Screw	M5	6	0.8	0.08	0.6	
Fuel rail – throttle bodies	Bolt	M6	3	8.8	0.88	6.4	
Oil pump cable – oil pump lever	Bolt	M5	1	2.2	0.22	1.6	
				4.4	0.44	3.2	
Oil pump cable locknut and adjuster	—	—	1	11	1.1	8.0	
Bleed hose stay – exhaust chamber bracket	Bolt	M6	1	7.6	0.76	5.5	
Oil pump – generator cover	Bolt	M6	2	3.8	0.38	2.7	
				7.6	0.76	5.5	
Air bleed screw	—	—	1	3.4	0.34	2.5	
Engine							
Spark plug	—	—	3	25	2.5	18	
Muffler cover – muffler	Bolt	M6	3	12	1.2	8.7	
Outer exhaust joint screw clamp	—	—	2	2.5	0.25	1.8	
Inner exhaust joint screw clamp	—	—	2	1.5	0.15	1.1	
Exhaust joint screw clamp	—	—	2	2.5	0.25	1.8	
Eye – muffler	Nut	M10	2	39	3.9	28	
Eye – cylinder head	Bolt	M10	4	39	3.9	28	
Muffler stay – cylinder	Bolt	M10	2	39	3.9	28	



Part to be tightened	Part name	Thread size	Q'ty	Tightening torques			Remarks	
				N•m	kgf•m	ft•lb		
Muffler stay 2 – crankcase	Bolt	M10	2	39	3.9	28		
Muffler – muffler stay 2	Bolt	M10	1	39	3.9	28		
Exhaust temperature sensor	—	—	1	39	3.9	28		
Cooling water temperature sensor	—	—	1	20	2.0	14		
Muffler stay – catalytic converter housing	1st	Bolt	M10	2	15	1.5	11	
	2nd				39	3.9	28	
Cover/catalytic converter housing/catalytic converter – muffler	1st	Bolt	M8	6	15	1.5	11	
	2nd				33	3.3	24	
Mixing joint – muffler	1st	Bolt	M8	6	11	1.1	8.0	
	2nd				22	2.2	16	
Exhaust chamber assembly – exhaust manifold	Bolt	M10	4	39	3.9	28		
Exhaust chamber stay/ exhaust chamber assembly – exhaust chamber bracket	Bolt	M10	2	39	3.9	28		
Exhaust chamber joint – exhaust chamber	Bolt	M10	6	39	3.9	28		
Coupling cover – intermediate housing assembly	Bolt	M6	1	7.9	0.79	5.7		
Engine unit – engine mount	Bolt	M8	4	17	1.7	12		
Exhaust manifold – cylinder	1st	Bolt	M10	10	22	2.2	16	
	2nd				39	3.9	28	
	1st	Nut	M10	2	22	2.2	16	
	2nd				39	3.9	28	
Cooling water joint – exhaust manifold	Bolt	M6	6	12	1.2	8.7		
Throttle bodies bracket 1, 2/ throttle bodies joint/balance plate/plate/reed valve assembly – crankcase	1st	Bolt	M6	4	3.8	0.38	2.7	
	2nd				7.6	0.76	5.5	
Throttle bodies joint/ balance plate/plate/reed valve assembly – crankcase	1st	Bolt	M6	14	3.8	0.38	2.7	
	2nd				7.6	0.76	5.5	
Balance plate/plate/reed valve assembly – crankcase	1st	Bolt	M6	4	3.8	0.38	2.7	
	2nd				7.6	0.76	5.5	
Valve stopper/reed valve – reed valve base	Screw	M3	24	1.0	0.1	0.7		
YPVS cable holder/YPVS valve cover – cylinder	Bolt	M6	2	9.8	0.98	7.1		
YPVS valve cover – cylinder	Bolt	M6	10	9.8	0.98	7.1		
YPVS valve arm – shaft 1, 2, 3	Bolt	M4	3	2.8	0.28	2.0		
YPVS valve stopper bolt	—	M5	3	3.8	0.38	2.7		



Part to be tightened		Part name	Thread size	Q'ty	Tightening torques			Remarks
					N•m	kgf•m	ft•lb	
Ground lead – cylinder head	1st	Bolt	M6	1	3.8	0.38	2.7	
	2nd				7.6	0.76	5.5	
Exhaust chamber stay/ cylinder head – cylinder	1st	Bolt	M8	2	15	1.5	11	
	2nd				35	3.5	25	
Cylinder head – cylinder	1st	Bolt	M8	16	22	2.2	16	
	2nd				22	2.2	16	
	3rd				35	3.5	25	
Anode – cylinder head		Screw	M5	2	4.4	0.44	3.2	
Engine temperature sensor – cylinder		—	—	1	15	1.5	11	
Cylinder – crankcase	1st	Bolt	M10	12	22	2.2	16	
	2nd				39	3.9	28	
Generator cover – crankcase	1st	Bolt	M10	7	15	1.5	11	
	2nd				50	5.0	36	
Generator cover/ground lead – crankcase	1st	Bolt	M10	1	15	1.5	11	
	2nd				50	5.0	36	
Exhaust chamber bracket – crankcase		Bolt	M10	4	39	3.9	28	
Cable holder – generator cover		Bolt	M6	2	14	1.4	10	
Pickup coil – generator cover		Bolt	M5	6	4.9	0.49	3.5	
Lighting coil – generator cover		Bolt	M6	3	14	1.4	10	
Drive coupling – crankshaft assembly		Drive coupling	—	1	36	3.6	25	
Flywheel magneto – crankshaft assembly		Bolt	M10	1	74	7.4	53	
Starter motor/negative battery lead – crankcase	1st	Bolt	M8	1	9.0	0.9	6.5	
	2nd				18	1.8	13	
Starter motor – crankcase	1st	Bolt	M8	1	9.0	0.9	6.5	
	2nd				18	1.8	13	
Mount bracket – lower crankcase	1st	Bolt	M8	6	15	1.5	11	
	2nd				27	2.7	19	
Upper crankcase – lower crankcase	1st	Bolt	M8	17	15	1.5	11	
			M6		10	11	1.1	
Jet pump unit								
Steering cable joint – jet thrust nozzle		Nut	—	1	6.8	0.68	4.9	
Ride plate – hull		Bolt	M8	4	17	1.7	12	
Intake duct – hull		Bolt	M8	4	17	1.7	12	
Intake grate – hull		Bolt	M6	4	7.4	0.74	5.4	
Speed sensor – ride plate		Screw	M5	4	3.7	0.37	2.7	
Jet pump unit assembly/impeller housing 2 – transom		Bolt	M10	4	40	4.0	29	
			M6	1	7.8	0.78	5.6	
Nozzle ring – nozzle		Bolt	M8	2	15	1.5	11	



Part to be tightened	Part name	Thread size	Q'ty	Tightening torques			Remarks
				N•m	kgf•m	ft•lb	
Jet thrust nozzle – nozzle ring	Bolt	M8	2	15	1.5	11	 271
Spout hose screw clamp	—	—	1	1.2	0.12	0.9	
Nozzle/impeller duct assembly – impeller housing 1	Bolt	M10	4	40	4.0	29	 572
Water inlet cover/water inlet strainer – impeller duct	Bolt	M6	4	6.6	0.66	4.8	 572
Drive shaft nut – drive shaft	Nut	—	1	74	7.4	53	
Impeller (left-hand threads) – drive shaft	Impeller	M22	1	75	7.5	54	 572
Transom plate – hull	Nut	—	4	26	2.6	19	
Intermediate housing – bulkhead	Bolt	M8	3	17	1.7	12	 572
Driven coupling – shaft	Driven coupling	M24	1	36	3.6	25	 572
Grease nipple – intermediate housing	Nipple	—	1	5.4	0.54	3.9	 572
Hull and hood							
Handlebar cover – handlebar cover stay	Screw	M6	4	1.1	0.11	0.8	
Handlebar cover stay – steering column	Screw	M6	4	2.9	0.29	2.1	
Upper handlebar holder/lower handlebar holder – steering column	Bolt	M8	4	16	1.6	11	
QSTS converter – hull	Nut	M6	2	5.4	0.54	3.9	
QSTS cable 1, 2 locknut	—	—	2	16	1.6	11	
Throttle lever assembly – handlebar	Screw	M5	2	3.4	0.34	2.5	
Handlebar switch assembly – handlebar	Screw	M5	2	3.4	0.34	2.5	
QSTS grip assembly – handlebar	Screw	M6	1	3.4	0.34	2.5	
Grip end – handlebar	Bolt	M5	2	1.2	0.12	0.9	
QSTS cable housing – cover	Screw	M4	1	1.0	0.1	0.7	
Plate/steering column assembly – deck	Nut	M8	2	16	1.6	11	
Steering column assembly – deck	Nut	M8	2	16	1.6	11	
Steering arm – steering column	Nut	M8	1	16	1.6	11	
Magnet – steering arm	Screw	M5	1	2.0	0.2	1.4	 242
Steering cable ball joint – steering arm	Nut	M6	1	5.0	0.5	3.6	
Handlebar stopper – steering column housing	Nut	M10	1	26	2.6	19	
QSTS cable locknut (nozzle ring side)	—	—	1	3.8	0.38	2.7	
QSTS cable – hull	Nut	—	1	5.9	0.59	4.3	
QSTS cable end – pin – QSTS converter	Nut	M6	1	3.8	0.38	2.7	



Part to be tightened	Part name	Thread size	Q'ty	Tightening torques			Remarks
				N•m	kgf•m	ft•lb	
Steering cable locknut (jet thrust nozzle end)	—	—	1	6.5	0.65	4.7	
Steering cable – hull	Nut	—	1	5.9	0.59	4.3	
Steering cable holder – bracket	Bolt	M6	1	6.4	0.64	4.6	
Speed sensor lead – hull	Nut	—	1	5.9	0.59	4.3	
Hinge assembly – hood	Bolt	M6	2	12	1.2	8.7	
Visor – hood	Screw	M5	8	1.0	0.1	0.7	
Hood lock – hood	Bolt	M6	2	5.4	0.54	3.9	
Hinge assembly – deck	Nut	M8	2	16	1.6	11	
Steering console cover assembly – deck	Nut	M6	2	5.4	0.54	3.9	
	Bolt	M6	4	2.9	0.29	2.1	
	Screw	M5	2	2.0	0.2	1.4	
	Nut	M8	2	16	1.6	11	
Multifunction meter – holder	Nut	M5	2	1.8	0.18	1.3	
Steering console cover – side cover	Screw	M6	4	2.9	0.29	2.1	
Steering console cover – glove compartment	Screw	M5	4	1.3	0.13	0.9	
Steering cable bracket – deck	Bolt	M6	1	6.4	0.64	4.6	
Buzzer bracket/deck – steering cable bracket	Bolt	M6	2	6.4	0.64	4.6	
Hood lock assembly – deck	Nut	M6	2	6.4	0.64	4.6	
Seat lock assembly – seat	Bolt	M6	2	6.4	0.64	4.6	
Bracket/deck – projection	Nut	M10	1	26	2.6	19	
Bracket/deck – handgrip	Bolt	M8	2	5.2	0.52	3.8	
Handgrip – deck	Nut	M8	2	5.2	0.52	3.8	
Seat bracket – deck	Nut	M8	2	15	1.5	11	
Battery box/stay – holder	Nut	M6	2	8.9	0.89	6.4	
Battery box – deck/bracket	Nut	M8	2	13	1.3	9.4	
Battery box – electrical box	Bolt	M8	1	13	1.3	9.4	
Battery box/stay – electrical box	Nut	M8	2	13	1.3	9.4	
Extension bolt – negative battery terminal	—	M6	1	6.4	0.64	4.6	
Exhaust outlet – hull	Bolt	M6	3	6.4	0.64	4.6	
Hose screw clamp	—	—	3	3.7	0.37	2.7	
Sponson – hull	Bolt	M8	6	18	1.8	13	
Spout – hull	Nut	M24	1	5.4	0.54	3.9	
Rope hole – hull	Nut	M24	2	5.4	0.54	3.9	
Bow eye – hull	Bolt	M6	2	13	1.3	9.4	
Flap – hull	Bolt	M6	8	7.4	0.74	5.4	
Drain plug/packing – hull	Nut	—	4	2.0	0.2	1.4	
Engine mount – hull	Bolt	M8	8	17	1.7	12	
Engine damper – hull	Bolt	M6	4	6.4	0.64	4.6	

Part to be tightened	Part name	Thread size	Q'ty	Tightening torques			Remarks
				N•m	kgf•m	ft•lb	
Electrical							
Cover – electrical box	Tapping screw	ø6	11	4.9	0.49	3.5	
Lead retainer – electrical box	Tapping screw	ø6	2	4.9	0.49	3.5	
Positive battery lead – starter relay	Bolt	M6	1	3.4	0.34	2.5	
Starter motor lead – starter relay	Bolt	M6	1	3.4	0.34	2.5	
Rectifier/regulator – electrical box	Tapping screw	ø6	2	3.9	0.39	2.8	
Coupler bracket – electrical box	Tapping screw	ø6	2	3.4	0.34	2.5	
Wire harness retainer – electrical box	Tapping screw	ø6	2	4.9	0.49	3.5	
Ignition coil #1, # 2, #3 – electrical box	Tapping screw	ø6	6	3.9	0.39	2.8	
Fuse holder stay – electrical box	Tapping screw	ø6	1	3.4	0.34	2.5	
Main and fuel pump relay – electrical box	Tapping screw	ø6	1	3.9	0.39	2.8	
Ground leads – electrical box	Bolt	M6	2	7.6	0.76	5.5	
ECM – hull	Nut	—	2	5.4	0.54	3.9	
Slant detection switch – hull	Nut	—	2	5.4	0.54	3.9	
Nut/spring washer/washer (starter motor lead terminal) – starter motor	Nut	—	1	8.8	0.88	6.4	
Starter motor rear cover/starter motor yoke – starter motor front cover	Bolt	M5	2	6.4	0.64	4.6	
YPVS servomotor bracket – deck	Nut	—	3	15	1.5	11	
YPVS servomotor/throttle cable plastic tie bracket – YPVS servomotor bracket	Nut	—	2	5.4	0.54	3.9	