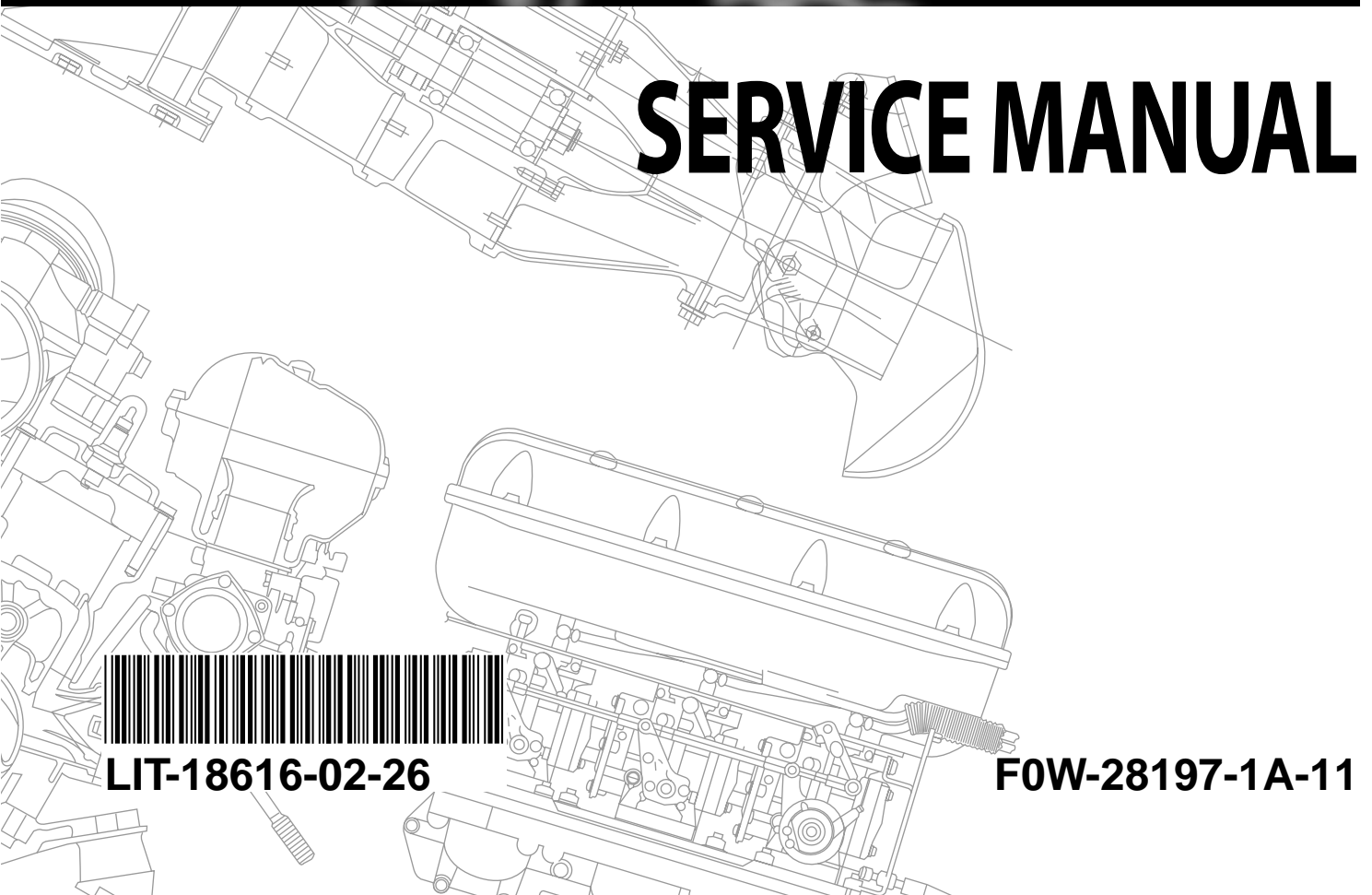




WaveRunner GP800R












SERVICE MANUAL



LIT-18616-02-26

F0W-28197-1A-11

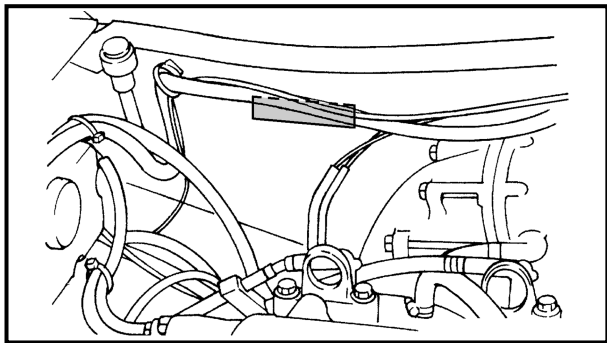
INDEX

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
⚠ SAFETY WHILE WORKING	1-2
FIRE PREVENTION.....	1-2
VENTILATION.....	1-2
SELF-PROTECTION.....	1-2
OILS, GREASES AND SEALING FLUIDS.....	1-2
GOOD WORKING PRACTICES.....	1-3
DISASSEMBLY AND ASSEMBLY.....	1-4
SPECIAL TOOLS	1-5
MEASURING.....	1-5
REMOVAL AND INSTALLATION.....	1-6

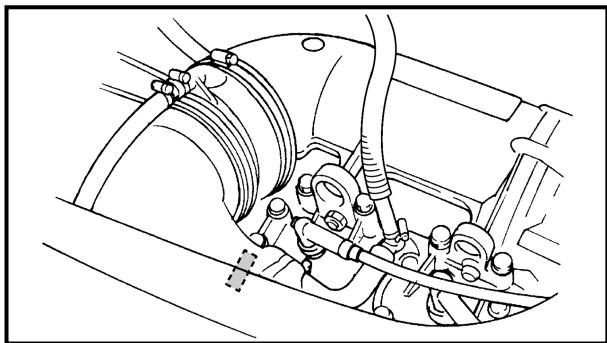


A60700-0*

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

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

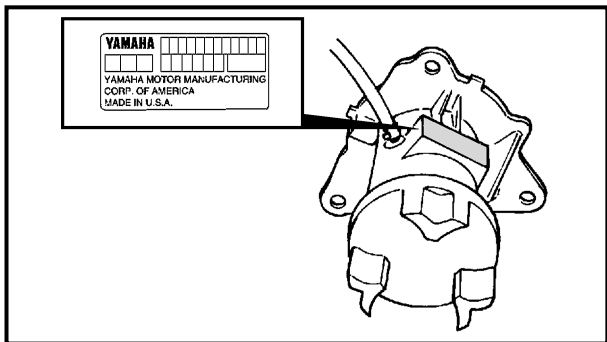
**Starting primary I.D. number:
F0W: 800101-**



ENGINE SERIAL NUMBER

The engine serial number is stamped on a label attached to the cylinder head.

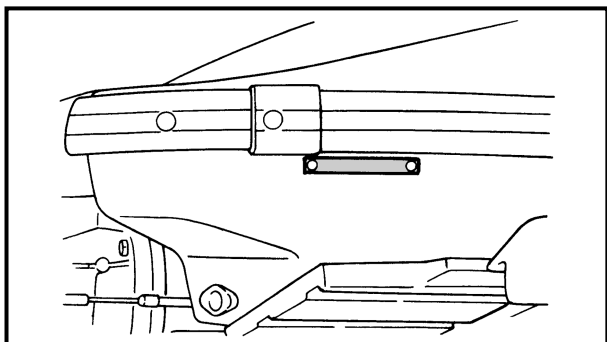
**Starting serial number:
68A: 000101-**



JET PUMP UNIT SERIAL NUMBER

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

**Starting serial number:
68A: 800101-**



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

The H.I.N. is stamped on a plate attached to the aft deck.

⚠ SAFETY WHILE WORKING

The procedures given in this manual are those recommended by Yamaha to be followed by Yamaha dealers and their mechanics.

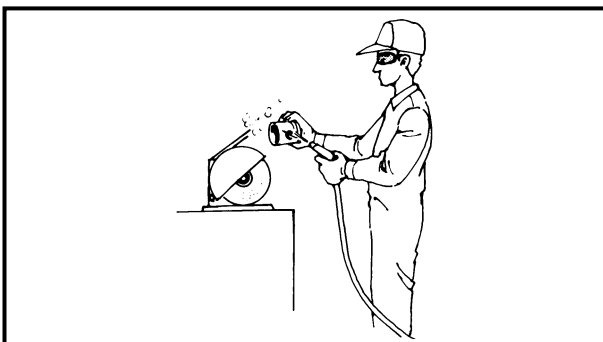


FIRE PREVENTION

Gasoline (petrol) is highly flammable. Gasoline vapor is explosive if ignited. Do not smoke while handling gasoline (petrol) and keep it away from heat, sparks, and open flames.

VENTILATION

Gasoline vapor is heavier than air and is deadly if inhaled in large quantities. Engine exhaust gases are harmful to breathe. When test-running an engine indoors, maintain good ventilation.



SELF-PROTECTION

Protect your eyes with suitable safety spectacles or safety goggles when grinding or doing any operation which may cause particles to fly off. Protect hands and feet by wearing safety gloves or protective shoes if appropriate to the work you are doing.



OILS, GREASES AND SEALING FLUIDS

Use only genuine Yamaha oils, greases, and sealing fluids or those recommended by Yamaha.

Under normal conditions of use there should be no hazards from the use of the lubricants mentioned in this manual, but safety is all-important, and by adopting good safety practises any risk is minimized. A summary of the most important precautions is as follows:

1. While working, maintain good standards of personal and industrial hygiene.
2. Clothing which has become contaminated with lubricants should be changed as soon as practicable and laundered before further use.
3. Avoid skin contact with lubricants (e.g., do not place a soiled rag in your pocket).
4. Hands and any other part of the body which have been in contact with lubricants or lubricant-contaminated clothing should be thoroughly washed with hot water and soap as soon as practicable.
5. To protect the skin, the application of a suitable barrier cream to the hands before working is recommended.
6. A supply of clean lint-free cloths should be available for wiping purposes.



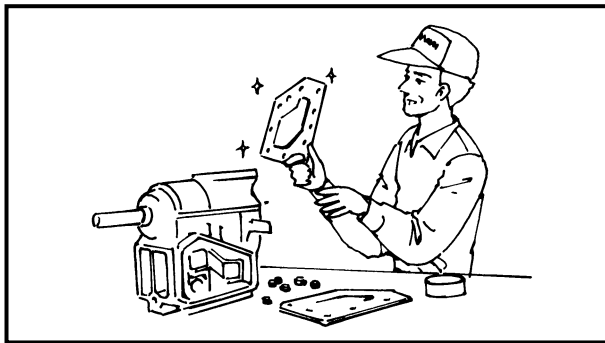
GOOD WORKING PRACTICES

1. The right tools

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

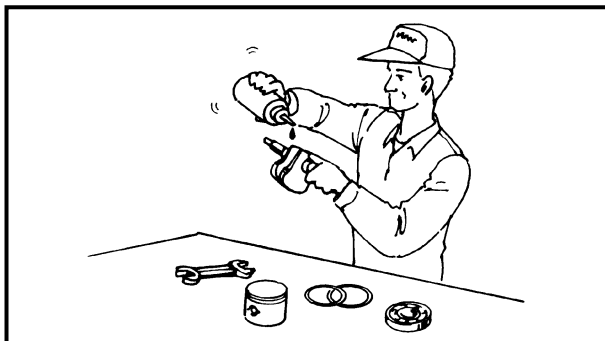
2. Tightening torque

Follow the tightening torque instructions. When tightening bolts, nuts and screws, tighten the larger sizes first and tighten inner-positioned fixings before outer-positioned ones.



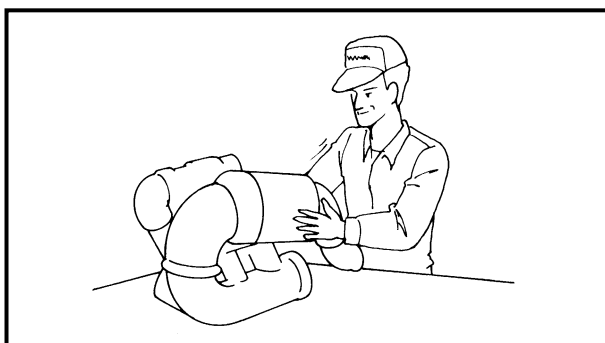
3. Non-reusable items

Always use new gaskets, packings, O-rings, oil seals, split-pins, circlips, etc., on reassembly.



DISASSEMBLY AND ASSEMBLY

1. Clean parts with compressed air when disassembling.
2. Oil the contact surfaces of moving parts during assembly.



3. After assembly, check that moving parts operate normally.

4. Install bearings with the manufacturer's markings on the side exposed to view and liberally oil the bearings.

CAUTION: _____

Do not spin bearings with compressed air because this will damage their surfaces.

5. When installing oil seals, apply a light coat of water-resistant grease to the outside diameter.

SPECIAL TOOLS

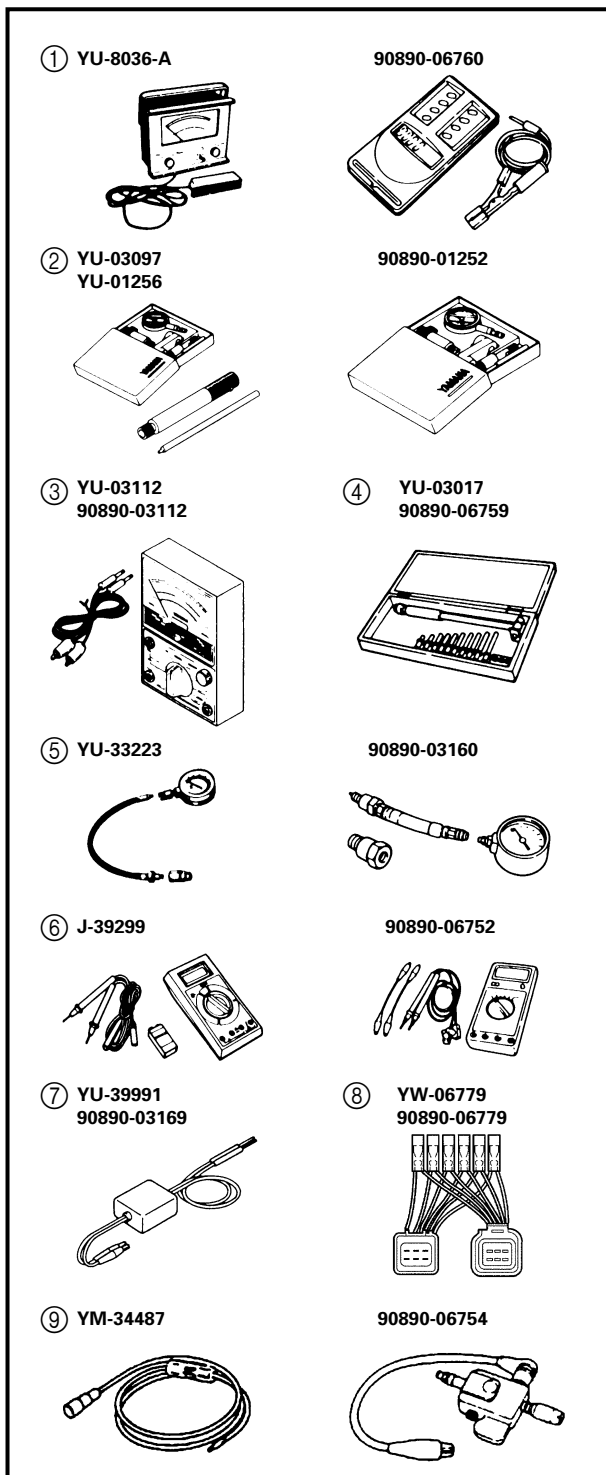
Using the correct special tools recommended by Yamaha, will aid the work and enable accurate assembly and tune-up. Improvisations and using improper tools can damage the equipment.

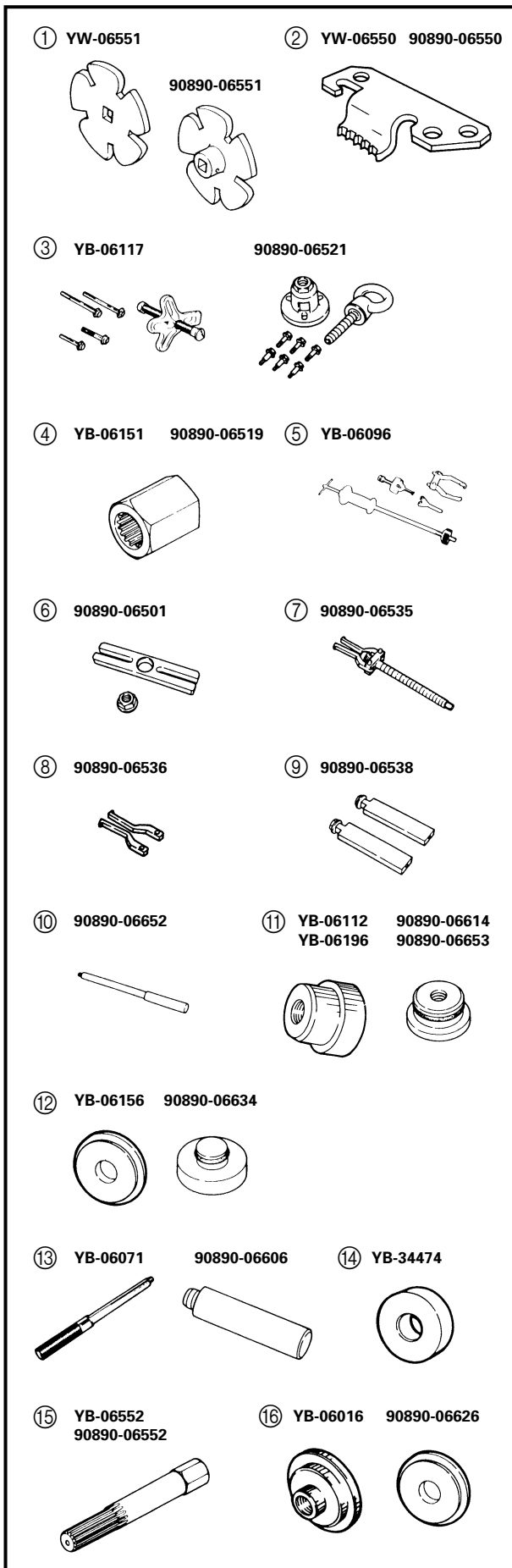
NOTE:

- For U.S.A. and Canada, use part numbers starting with "J-", "YB-", "YM-", "YU-" or "YW-".
- For other countries, use part numbers starting with "90890-".

MEASURING

- ① Engine tachometer
P/N. YU-8036-A
90890-06760
- ② Dial gauge and stand
P/N. YU-03097, YU-01256
90890-01252
- ③ Pocket tester
P/N. YU-03112
90890-03112
- ④ Cylinder gauge set
P/N. YU-03017
90890-06759
- ⑤ Compression gauge
P/N. YU-33223
90890-03160
- ⑥ Digital tester
P/N. J-39299
90890-06752
- ⑦ Peak voltage adapter
P/N. YU-39991
90890-03169
- ⑧ Peak voltage test harness
P/N. YW-06779
90890-06779
- ⑨ Spark gap tester
P/N. YM-34487
90890-06754





REMOVAL AND INSTALLATION

- ① Coupler wrench
P/N. YW-06551
90890-06551
- ② Flywheel holder
P/N. YW-06550
90890-06550
- ③ Flywheel puller
P/N. YB-06117
90890-06521
- ④ Drive shaft holder (impeller)
P/N. YB-06151
90890-06519
- ⑤ Slide hammer set (jet pump bearing)
P/N. YB-06096
- ⑥ Stopper guide plate (jet pump bearing)
P/N. 90890-06501
- ⑦ Bearing puller (jet pump bearing)
P/N. 90890-06535
- ⑧ Bearing puller claw 1 (jet pump bearing)
P/N. 90890-06536
- ⑨ Stopper guide stand (jet pump bearing)
P/N. 90890-06538
- ⑩ Drive rod L3 (jet pump bearing)
P/N. 90890-06652
- ⑪ Needle bearing attachment
(jet pump bearing and oil seal)
P/N. YB-06112, YB-06196
90890-06614, 90890-06653
- ⑫ Ball bearing attachment
(jet pump oil seal)
P/N. YB-06156
90890-06634
- ⑬ Driver rod
(intermediate shaft and jet pump)
P/N. YB-06071
90890-06606
- ⑭ Bearing inner/outer race attachment
(jet pump bearing)
P/N. YB-34474
- ⑮ Shaft holder (intermediate shaft)
P/N. YB-06552
90890-06552
- ⑯ Bearing outer race attachment
(intermediate shaft)
P/N. YB-06016
90890-06626

CHAPTER 2 SPECIFICATIONS

GENERAL SPECIFICATIONS..... 2-1

MAINTENANCE SPECIFICATIONS..... 2-3

ENGINE..... 2-3

JET PUMP UNIT..... 2-4

HULL AND HOOD..... 2-4

ELECTRICAL..... 2-5

TIGHTENING TORQUES..... 2-7

SPECIFIED TORQUES..... 2-7

GENERAL TORQUE..... 2-10

CABLE AND HOSE ROUTING..... 2-11

GENERAL SPECIFICATIONS

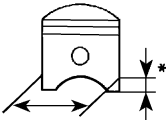
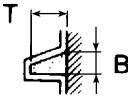
Item	Unit	Model
		GP800R
MODEL CODE		
Hull		F0W
Engine		68A
DIMENSIONS		
Length	mm (in)	2,930 (115.4)
Width	mm (in)	1,150 (45.3)
Height	mm (in)	1,020 (40.2)
Dry weight	kg (lb)	268 (591)
Watercraft capacity		2
PERFORMANCE		
Maximum output	kW (PS) @ r/min	88.2 (120) @ 7,000
Maximum fuel consumption	ℓ /h (US gal/h, Imp gal/h)	49 (12.9, 10.8)
Cruising range	h	1.2
ENGINE		
Engine type		2-stroke
Number of cylinders		2
Displacement	cm ³ (cu. in)	784 (47.8)
Bore × stroke	mm (in)	80.0 × 78.0 (3.15 × 3.07)
Compression ratio		6.6:1
Intake system		Reed valve
Carburetor model (manufacturer) × quantity		BN44 (Mikuni) × 2
Enrichment control		Choke valve
Scavenging system		Loop charge
Lubrication system		Oil injection
Cooling system		Water
Starting system		Electric
Ignition system		Digital CDI
Ignition timing	Degree	15 BTDC–20 BTDC
Spark plug model (manufacturer)		BR8ES (NGK)
Battery capacity	V/Ah (kC)	12/19 (68.4)
Lighting coil	max. A @ r/min	8 @ 6,000
Propulsion system		Jet pump
DRIVE UNIT		
Jet pump type		Axial flow, single stage
Impeller rotation (from rear)		Counterclockwise
Transmission		Direct drive from engine
Nozzle angle (horizontal)	Degree	23 + 23
Nozzle angle (vertical)	Degree	–5, 0, 5, 10, 15
Trim system		Manual 5 positions

Item	Unit	Model
		GP800R
FUEL AND OIL		
Fuel		Regular unleaded gasoline
Fuel rating	PON*	86
	RON*	90
Oil		YAMALUBE 2-W or an equivalent TC-W3 certified outboard oil
Fuel/oil mixing ratio (wide open throttle)		30:1
Fuel tank capacity	ℓ (US gal, Imp gal)	60 (15.9, 13.2)
Fuel tank reserve capacity	ℓ (US gal, Imp gal)	10 (2.6, 2.2)
Oil tank capacity	ℓ (US gal, Imp gal)	5.5 (1.45, 1.21)

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

RON*: Research Octane Number

**MAINTENANCE SPECIFICATIONS
ENGINE**

Item	Unit	Model
		GP800R
CYLINDER HEAD		
Warpage limit	mm (in)	0.1 (0.004)
Compression pressure* ¹	kPa (kg/cm ²)	560 (5.6)
CYLINDERS		
Bore size	mm (in)	80.000–80.018 (3.1496–3.1503)
Taper limit	mm (in)	0.08 (0.003)
Out-of-round limit	mm (in)	0.05 (0.002)
Wear limit	mm (in)	Original cylinder bore + 0.04 (0.0016)
PISTONS		
Diameter	mm (in)	Red: 79.899–79.902 (3.1456–3.1457) Orange: 79.903–79.906 (3.1458–3.1459) Green: 79.907–79.910 (3.1459–3.1461) Purple: 79.911–79.914 (3.1461–3.1462)
 Measuring point*	mm (in)	22 (0.87)
Piston-to-cylinder clearance	mm (in)	0.100–0.105 (0.0039–0.0041)
Wear limit	mm (in)	Cylinder bore – 0.105 (0.0041)
Piston pin bore inside diameter	mm (in)	22.004–22.025 (0.8663–0.8671)
PISTON RINGS		
 Top		
Type		Keystone
Dimensions (B)	mm (in)	1.2 (0.05)
Dimensions (T)	mm (in)	2.85 (0.112)
End gap	mm (in)	0.30–0.45 (0.012–0.018)
Ring groove clearance	mm (in)	0.03–0.05 (0.001–0.002)
2nd* ²		
Type		Keystone
Dimensions (B)	mm (in)	1.2 (0.05)
Dimensions (T)	mm (in)	2.85 (0.112)
End gap	mm (in)	0.30–0.45 (0.012–0.018)
Ring groove clearance	mm (in)	0.03–0.05 (0.001–0.002)
PISTON PINS		
Diameter	mm (in)	21.995–22.000 (0.8659–0.8661)
Wear limit	mm (in)	21.990 (0.8657)

*1: At 760 mmHg and 20 °C (68 °F)

*2: The top ring and 2nd ring are of the same type.



Item	Unit	Model
		GP800R
CRANKSHAFT ASSEMBLY Crank width (A) Deflection limit (B) Big end side clearance (C) Maximum small end axial play (D)	mm (in) mm (in) mm (in) mm (in)	72.95–73.00 (2.872–2.874) 0.05 (0.002) 0.25–0.75 (0.010–0.030) 2.0 (0.08)
CARBURETORS Type Identification mark Main nozzle Main jet Pilot jet Throttle valve Valve seat size Trolling speed	mm (in) mm (in) r/min	Floatless #1: 68A-01, #2: 68A-02 3.0 (0.12) 150 90 120 1.2 (0.05) 1,300 ± 50
REED VALVES Thickness Reed valve stopper height Reed valve warpage limit	mm (in) mm (in) mm (in)	0.52 (0.020) 10.8–11.4 (0.43–0.45) 0.2 (0.01)

JET PUMP UNIT

Item	Unit	Model
		GP800R
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 3 13.2 0.35–0.45 (0.014–0.018) 0.6 (0.024) 0.3 (0.012) 86.8 (3.42)

HULL AND HOOD

Item	Unit	Model
		GP800R
FREE PLAY YPVS cable slack Throttle lever free play	mm (in) mm (in)	0.5–1.5 (0.02–0.06) 4–7 (0.16–0.28)

ELECTRICAL

Item	Unit	Model
		GP800R
BATTERY		
Type		Fluid
Capacity	V/Ah (kC)	12/19 (68.4)
CDI UNIT (O – B)		
Output peak voltage lower limit		
@cranking 1	V	85
@cranking 2	V	110
@2,000 r/min	V	205
@3,500 r/min	V	200
STATOR		
Charge coil (Br – L)		
Output peak voltage lower limit		
@cranking 1	V	90
@cranking 2	V	120
@2,000 r/min	V	220
@3,500 r/min	V	210
Pickup coil (W/R – W/B)		
Output peak voltage lower limit		
@cranking 1	V	5
@cranking 2	V	3
@2,000 r/min	V	7
@3,500 r/min	V	11
Lighting coil (G – G)		
Output peak voltage lower limit		
@cranking 1	V	8.5
@cranking 2	V	8.5
@2,000 r/min	V	13
@3,500 r/min	V	13
Charge coil resistance	Ω (color)	299–365 (Br – L)
Pickup coil resistance	Ω (color)	446–545 (W/R – W/B)
Lighting coil resistance	Ω (color)	0.86–1.06 (G – G)
Minimum charging current	A @ r/min	9 @ 6,000
IGNITION COIL		
Minimum spark gap	mm (in)	10 (0.39)
Primary coil resistance	Ω (color)	0.078–0.106 (O – B)
Secondary coil resistance	kΩ	14.3–30.5
		(#1 Spark plug cap – #2 Spark plug cap)















Cranking 1: unloaded

Cranking 2: loaded



Item	Unit	Model
		GP800R
RECTIFIER/REGULATOR (R – B) Output peak voltage lower limit (unloaded)		
@cranking	V	7.5
@2,000 r/min	V	12.5
@3,500 r/min	V	12.5
THERMO SWITCH		
On temperature	°C (°F)	80 (177)
Off temperature	°C (°F)	70 (159)
STARTER MOTOR		
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)
FUSE		
Rating	V/A	12/10


**TIGHTENING TORQUES
SPECIFIED TORQUES**

Part to tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks	
				N•m	kgf•m	ft•lb		
ENGINE UNIT								
Engine unit – engine mount	Bolt	M8	4	17	1.7	12	 572	
Exhaust chamber assembly – muffler stay 1 – muffler stay 3	1st	Bolt	M10	2	2	0.2	1.4	 271
	4th				51	5.1	37	
	2nd	Bolt	M10	4	2	0.2	1.4	
	6th				39	3.9	28	
	3rd	Nut	M10	2	2	0.2	1.4	
	5th				51	5.1	37	
	7th	Bolt	M10	1	2	0.2	1.4	
	9th				49	4.9	35	
	8th	Bolt	M10	1	2	0.2	1.4	
10th	49				4.9	35		
Exhaust chamber – muffler	1st	Nut	M8	2	15	1.5	11	 271
	2nd				39	3.9	28	
	1st	Bolt	M8	3	15	1.5	11	
	2nd				33	3.3	24	
	1st	Nut	M10	1	15	1.5	11	
	2nd				51	5.1	37	
Exhaust chamber joint – exhaust manifold	1st	Bolt	M8	5	17	1.7	12	 271
	2nd				34	3.4	24	
Exhaust chamber joint – muffler stay	1st	Bolt	M10	1	2	0.2	1.4	 271
	3rd				49	4.9	35	
	2nd	Bolt	M8	2	2	0.2	1.4	
	4th				37	3.7	27	
Exhaust manifold – cylinder	1st	Bolt	M10	8	23	2.3	17	 271
	2nd				51	5.1	37	
Reed valve – reed valve seat	Screw	M3	16	0.8	0.08	0.58	 242	
YPVS cable bracket – YPVS cover – cylinder	Bolt	M6	2	10	1.0	7.2	 572	
YPVS cover – cylinder	Bolt	M6	6	10	1.0	7.2	 572	
YPVS valve assembly – cylinder	Bolt	M5	2	4	0.4	2.9	 271	
YPVS valve lever – shaft	Bolt	M4	2	3	0.3	2.2	 242	
Spark plug – cylinder head	Spark plug	M14	2	25	2.5	18		
Cylinder head – cylinder	1st	Bolt	M8	10	15	1.5	11	 572
	2nd				37	3.7	27	
Cylinder – crankcase	1st	Bolt	M10	8	22	2.2	16	 572
	2nd				39	3.9	28	
Starter motor lead – starter motor	Nut	M6	1	5	0.5	3.6		
Flywheel magneto – crankshaft assembly	Bolt	M10	1	74	7.4	53	 572	




Part to tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				N•m	kgf•m	ft•lb	
Drive coupling – crankshaft assembly	Drive coupling	M27	1	36	3.6	25	
Generator cover – crankcase	1st	Bolt	8	15	1.5	11	
	2nd			27	2.7	19	
Pickup coil – generator cover	Bolt	M5	2	5	0.5	3.6	
Cable holder – generator cover	Bolt	M6	2	14	1.4	10	
Stator coil – generator cover	Bolt	M6	3	14	1.4	10	
Lower crankcase – upper crankcase	1st	Bolt	13	15	1.5	11	
	2nd			27	2.7	19	
Mount bracket – crankcase	1st	Bolt	6	15	1.5	11	
	2nd			27	2.7	19	
JET PUMP UNIT							
Steering cable joint – nozzle deflector	Nut	M6	1	7	0.7	5.1	
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	0.7	5.1	
Speed sensor – ride plate	Screw	M5	4	4	0.4	2.9	
Nozzle ring – nozzle	Bolt	M8	2	15	1.5	11	
Nozzle deflector – nozzle ring	Bolt	M8	2	15	1.5	11	
Water inlet cover – water inlet strainer – impeller duct	Bolt	M6	4	7	0.7	5.1	
Drive shaft nut – drive shaft	Nut	M16	1	74	7.4	53	
Impeller (left-hand threads) – drive shaft	Impeller	M22	1	18	1.8	13	
Transom plate – hull	Nut	M10	4	26	2.6	19	
Bilge strainer holder – bulkhead	Screw	M5	1	4	0.4	2.9	
Intermediate housing – bulkhead	Bolt	M8	3	17	1.7	12	
Driven coupling – shaft	Driven coupling	M27	1	36	3.6	25	
Grease nipple – intermediate housing	Nipple	—	1	5	0.5	3.6	
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 handle holder – steering column	Bolt	M8	4	16	1.6	11	
QSTS converter – hull	Nut	M6	2	5	0.5	3.6	
QSTS cable 1, 2 locknut	Nut	M8	2	16	1.6	11	
Throttle lever assembly – handlebar	Screw	M5	2	3	0.3	2.2	

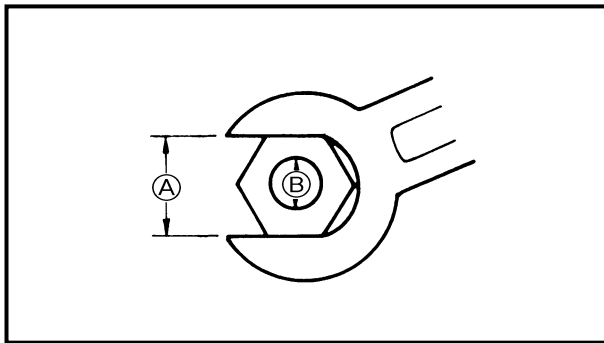


Part to tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				N•m	kgf•m	ft•lb	
Handlebar switch assembly – handlebar	Screw	M5	2	3	0.3	2.2	
QSTS grip assembly – handlebar	Screw	M6	1	3	0.3	2.2	
Grip end – handlebar	Bolt	M5	2	1	0.1	0.7	
Choke lever assembly – handlebar	Screw	M5	2	3	0.3	2.2	
QSTS cable housing – cover	Screw	M4	1	1	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	
Steering cable ball joint – steering arm	Nut	M6	1	5	0.5	3.6	
Handlebar stopper – steering column housing	Nut	M10	1	26	2.6	19	
QSTS cable locknut (nozzle ring side)	Nut	M5	1	3	0.3	2.2	
QSTS cable – hull	Nut	—	1	6	0.6	4.3	
QSTS cable end – pin – QSTS converter	Nut	M6	1	4	0.4	2.9	
Steering cable locknut (nozzle deflector side)	Nut	M6	1	6	0.6	4.3	
Steering cable – hull	Nut	—	1	6	0.6	4.3	
Steering cable holder – bracket	Bolt	M6	1	6	0.6	4.3	
Speed sensor lead – hull	Nut	—	1	6	0.6	4.3	
Hinge assembly – front hood	Bolt	M6	2	12	1.2	8.7	
Wind shield – front hood	Screw	M5	8	1	0.1	0.7	
Hood lock – front hood	Bolt	M6	2	5	0.5	3.6	
Hinge assembly – deck	Nut	M8	2	16	1.6	11	
Steering console cover assembly – deck	Nut	M6	2	5	0.5	3.6	
	Bolt	M6	4	3	0.3	2.2	
	Screw	M5	2	2	0.2	1.4	
	Nut	M8	2	16	1.6	11	
Multifunction meter – holder	Nut	M5	2	2	0.2	1.4	
Steering console cover – side cover	Screw	M6	4	3	0.3	2.2	
Steering console cover – glove compartment	Screw	M5	4	1	0.1	0.7	
Steering cable bracket – deck	Bolt	M6	1	6	0.6	4.3	
Buzzer bracket – deck – steering cable bracket	Bolt	M6	2	6	0.6	4.3	
Hood lock assembly – deck	Nut	M6	2	6	0.6	4.3	
Seat lock assembly – seat	Bolt	M6	2	6	0.6	4.3	
Bracket/deck – notch	Nut	M10	1	26	2.6	19	
Bracket/deck – hand grip	Bolt	M8	2	5	0.5	3.6	



Part to tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				N•m	kgf•m	ft•lb	
Hand grip – deck	Nut	M8	2	5	0.5	3.6	
Seat bracket – deck	Nut	M8	2	15	1.5	11	
Battery box/stay – holder	Nut	M6	2	9	0.9	6.5	
Battery box – bracket/deck	Nut	M8	2	13	1.3	9.4	
Battery box – electrical box	Bolt	M8	3	15	1.5	11	
Extension bolt – battery negative terminal	Bolt	M6	1	6	0.6	4.3	
Exhaust outlet – hull	Bolt	M6	3	6	0.6	4.3	
Sponson – hull	Bolt	M8	6	18	1.8	13	
Spout – hull	Nut	M24	1	5	0.5	3.6	
Rope hole – hull	Nut	M24	2	5	0.5	3.6	
Bow eye – hull	Bolt	M6	2	13	1.3	9.4	
Flap – hull	Bolt	M6	8	6	0.6	4.3	
Drain plug/packing – hull	Nut	M5	4	2	0.2	1.4	
Engine mount – hull	Bolt	M8	8	17	1.7	12	
Engine damper – hull	Bolt	M6	2	6	0.6	4.3	

Nut (A)	Bolt (B)	General torque specifications		
		N•m	kgf•m	ft•lb
8 mm	M5	5.0	0.5	3.6
10 mm	M6	8.0	0.8	5.8
12 mm	M8	18	1.8	13
14 mm	M10	36	3.6	25
17 mm	M12	43	4.3	31

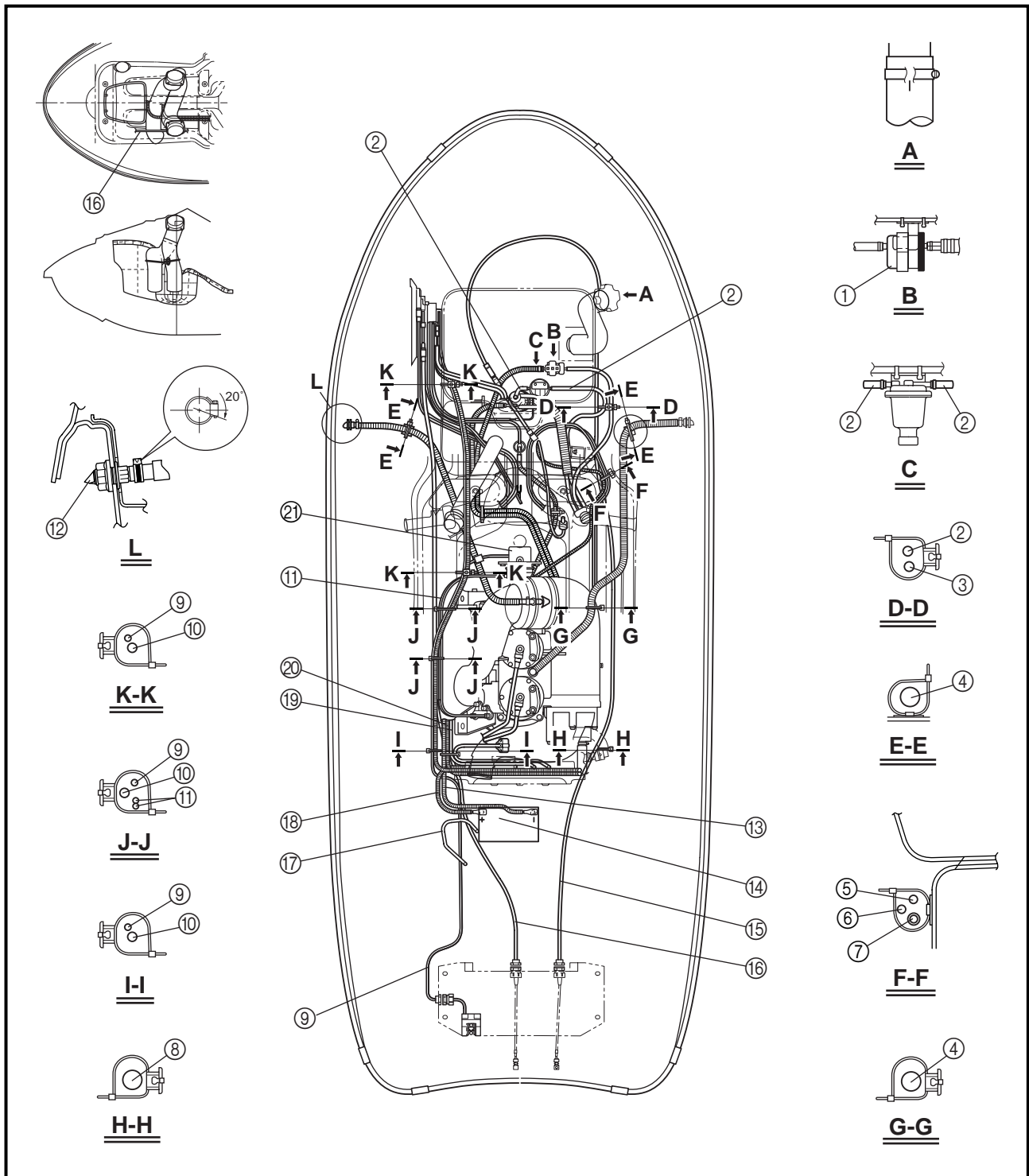


GENERAL TORQUE

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



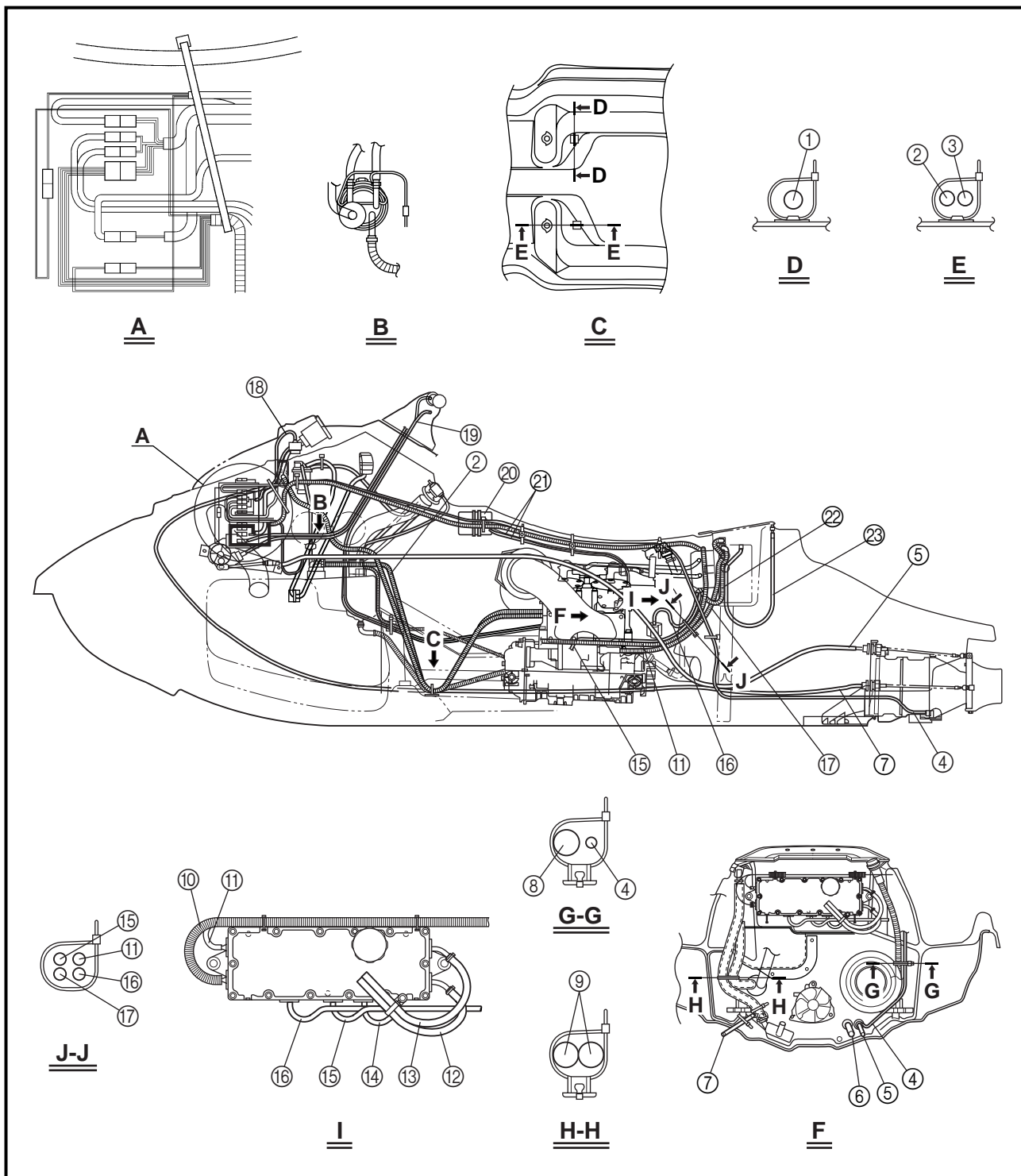
CABLE AND HOSE ROUTING



- ① Fuel filter
- ② Fuel tank breather hose
- ③ Fuel hose
- ④ Cooling water hose
- ⑤ Choke cable
- ⑥ Throttle cable
- ⑦ Oil return hose
- ⑧ Bilge hose

- ⑨ Speed sensor lead
- ⑩ Electrical box lead
- ⑪ YPVS cables
- ⑫ Cooling water pilot outlet
- ⑬ Battery negative lead
- ⑭ Battery
- ⑮ Steering cable
- ⑯ QSTS cable

- ⑰ Battery breather hose
- ⑱ Battery positive lead
- ⑲ Starter motor lead
- ⑳ Generator lead
- ㉑ YPVS servomotor



- ① Oil delivery hose
- ② Fuel return hose
- ③ Fuel suction hose
- ④ Speed sensor lead
- ⑤ QSTS cable
- ⑥ Cooling water hose
- ⑦ Steering cable
- ⑧ Flushing hose

- ⑨ Bilge hoses
- ⑩ To multifunction meter
- ⑪ To stator assembly
- ⑫ To cylinder #1
- ⑬ To cylinder #2
- ⑭ To battery positive terminal
- ⑮ To starter motor positive terminal

- ⑯ To thermostat
- ⑰ Battery negative lead
- ⑱ Buzzer lead
- ⑲ Choke cable
- ⑳ YPVS servomotor
- ㉑ YPVS cables
- ㉒ Battery positive lead
- ㉓ Battery breather hose

CHAPTER 3

PERIODIC INSPECTION AND ADJUSTMENT

MAINTENANCE INTERVAL CHART	3-1
PERIODIC SERVICE	3-2
CONTROL SYSTEM	3-2
Steering column inspection	3-2
Steering cable inspection and adjustment	3-2
Throttle cable inspection and adjustment	3-3
Choke cable inspection and adjustment	3-4
QSTS cable inspection and adjustment	3-5
YPVS cable adjustment	3-6
FUEL SYSTEM.....	3-7
Fuel line inspection	3-7
Trolling speed check and adjustment	3-8
OIL INJECTION SYSTEM.....	3-9
Oil line inspection	3-9
POWER UNIT.....	3-9
Spark plug inspection	3-9
ELECTRICAL	3-10
Battery inspection	3-10
JET PUMP UNIT.....	3-13
Impeller inspection	3-13
Water inlet strainer inspection.....	3-14
Bilge strainer inspection.....	3-14
GENERAL.....	3-14
Drain plug inspection.....	3-14
Lubrication points	3-15

MAINTENANCE INTERVAL CHART

The following chart should be considered strictly as a guide to general maintenance intervals. Depending on operating conditions, the intervals of maintenance should be changed.

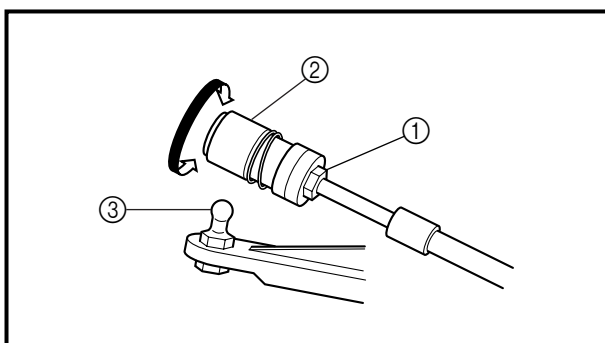
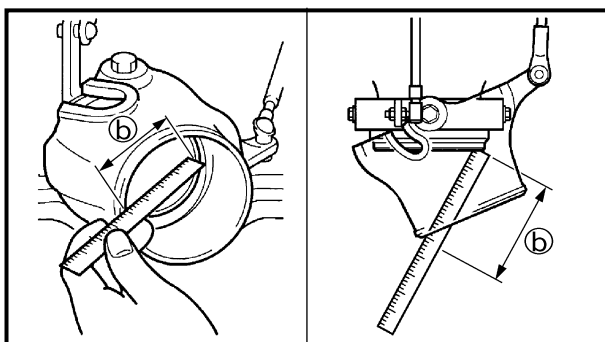
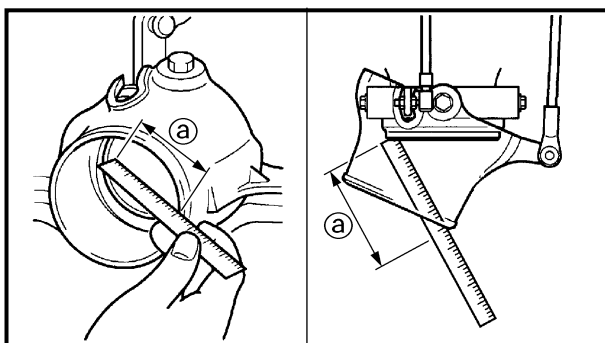
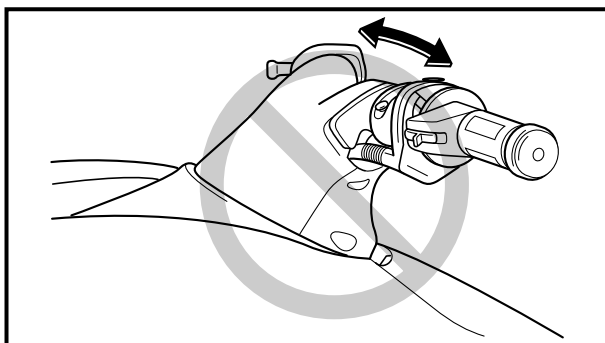
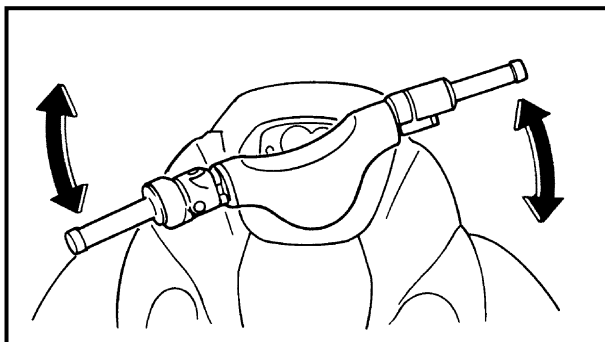
Item	Remarks	Initial		Every		Refer to page
		10 hours (Break-in)	50 hours (3 months)	100 hours (6 months)	200 hours (1 year)	
CONTROL SYSTEM						
Steering cable	Inspect/adjust			○		3-2
Steering column	Inspect	○		○		3-2
Throttle cable	Inspect/adjust			○		3-3
Carburetor throttle shaft	Inspect/adjust			○		—
Choke cable	Inspect/adjust			○		3-4
QSTS cable	Inspect/adjust			○		3-5
YPVS cable	Inspect/adjust				○	3-6
FUEL SYSTEM						
Fuel tank	Clean				○	4-9
Fuel filter	Clean/replace	○			○	3-7
Fuel line	Inspect			○		3-7
Trolling speed	Check/adjust			○		3-8
Carburetor setting	Inspect/adjust			○		4-18
OIL INJECTION SYSTEM						
Oil injection system	Check/clean				○	3-9
Oil pump cable	Inspect/adjust			○		4-30
POWER UNIT						
Spark plugs	Inspect/clean/adjust	○	○	○		3-9
Cooling water passage	Inspect/clean	○ ^{*1}				—
Rubber coupling	Inspect				○	—
ELECTRICAL						
Battery	Inspect	○ ^{*2}				3-10
JET PUMP UNIT						
Impeller	Inspect		○	○		3-13
Water inlet strainer	Clean		○	○		3-14
Bilge strainer	Clean		○	○		3-14
GENERAL						
Bolts and nuts	Retighten	○		○		—
Drain plugs	Inspect/replace				○	3-14
Lubrication points	Grease			○		3-15
Intermediate housing	Grease	○ ^{*3}		○ ^{*4}		3-17

*1: After every ride

*2: Inspect fluid level before every ride

*3: Grease capacity 33.0–35.0 cm³ (1.11–1.18 oz)

*4: Grease capacity 6.0–8.0 cm³ (0.20–0.27 oz)



**PERIODIC SERVICE
CONTROL SYSTEM**

Steering column inspection

1. Inspect:
- Steering column
Excessive play → Replace the steering column.
Refer to "STEERING COLUMN" in chapter 8.

Inspection steps:

- Move the handlebar up and down and back and forth.
- Check the excessive play of the handlebar.

Steering cable inspection and adjustment

1. Inspect:
- Distance ①, ② (between the nozzle and nozzle deflector)
Out of specification → Adjust.

Inspection steps:

- Set the control grip in the neutral position.
- Turn the handlebar from lock to lock.
- Measure distances ① and ②.
- If the difference is not within specification, adjust the cable joint.

**Difference of distances ① and ②:
Maximum 5 mm (0.2 in)**

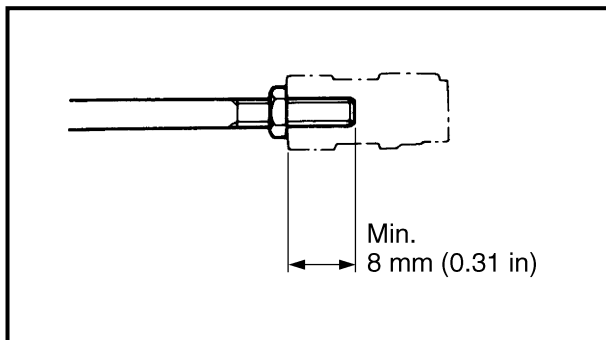
2. Adjust:

- Steering cable joint
(steering column side)

Adjustment steps:

- Loosen the locknut ①.
- Disconnect the steering cable joint ② from the ball joint ③.
- Turn the cable joint in or out for adjusting the distances ① and ②.

Turn in	Distance ① is increased.
Turn out	Distance ② is increased.



⚠ WARNING

The cable joint must be screwed in more than 8 mm (0.31 in).

- Connect the cable joint and tighten the locknut.



Locknut:
6 N · m (0.6 kgf · m, 4.3 ft · lb)

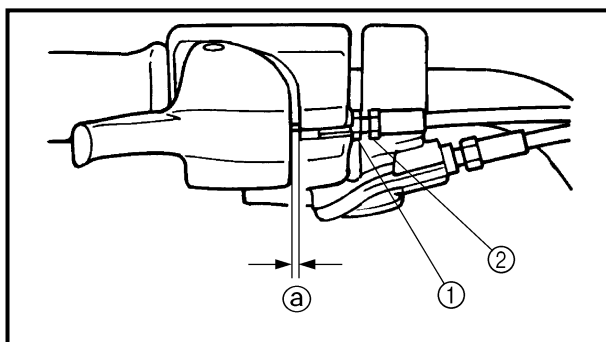
NOTE:

If the steering cable cannot be properly adjusted at the steering column side, make sure the steering cable at the jet pump side is set to the specified length. Refer to "REMOTE CONTROL CABLES AND SPEED SENSOR LEAD" in chapter 8.

Throttle cable inspection and adjustment

NOTE:

Before adjusting the throttle lever free play, adjust the trolling speed.



1. Measure:

- Throttle lever free play **Ⓐ**
Out of specification → Adjust.



Throttle lever free play:
4–7 mm (0.16–0.28 in)

2. Adjust:

- Throttle lever free play

Adjustment steps:

- Loosen the locknut **①**.
- Turn the adjuster **②** in or out until the specified free play is obtained.

Turn in	Free play is increased.
----------------	--------------------------------

Turn out	Free play is decreased.
-----------------	--------------------------------

- Tighten the locknut.

⚠ WARNING

After adjusting the free play, turn the handlebar to the right and left and make sure that the trolling speed does not increase.

Choke cable inspection and adjustment

1. Check:
 - Choke lever operation
 Incorrect operation → Adjust.

Checking steps:

- Check that the choke lever moves back slightly when it is fully opened.
- Check that the inner cable has some slack when the choke lever is completely closed.

2. Adjust:

- Choke lever operation

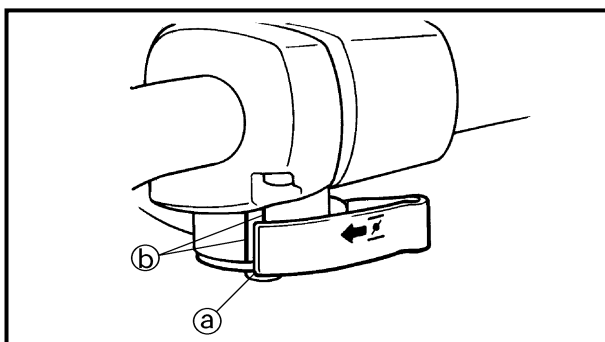
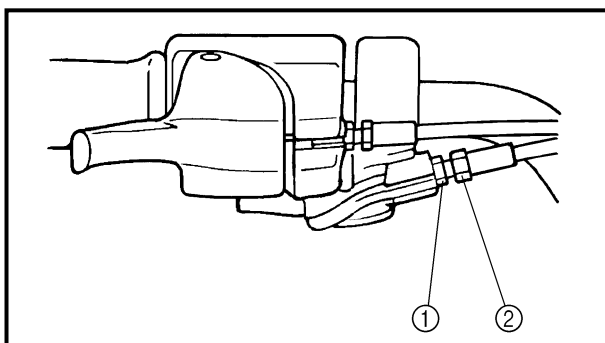
Adjustment steps:

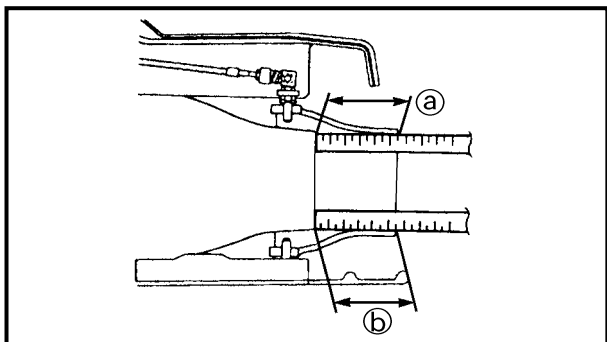
- Loosen the locknut ①.
- Screw the adjuster ② fully into the bracket.
- Align the choke lever end ③ within the line marks ④.
- Turn out the adjuster ② until the inner cable is taut.

NOTE:

If the inner cable is difficult to make taut using the adjuster ②, adjust the choke lever so that the cable is taut. The cable must be taut when the choke lever end ③ is positioned within the line marks ④. Reset the adjuster if necessary.

- Tighten the locknut ①.





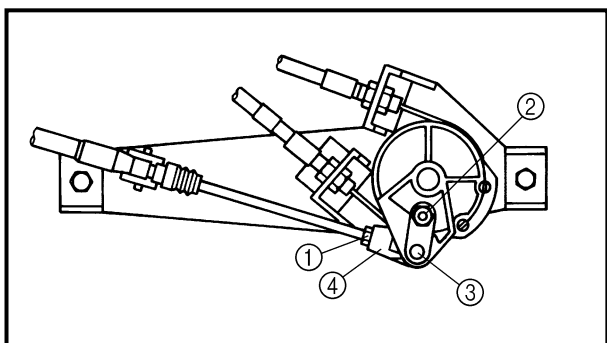
QSTS cable inspection and adjustment

1. Measure:

- Nozzle deflector set length ①, ②
Difference → Adjust.

Measurement steps:

- Set the control grip in the neutral position.
- Measure the nozzle deflector set length ① and ②.
- If ① and ② length are not even, adjust the cable joint.

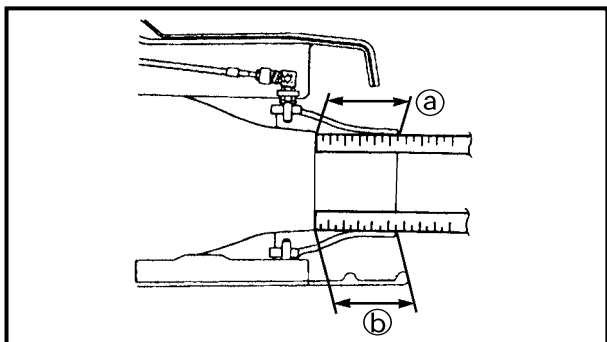


2. Adjust:

- QSTS cable

Adjustment steps:

- Set the control grip in the neutral position.
- Loosen the locknut ①.
- Remove the nut ② and pivot pin ③.
- Set the nozzle deflector in the center position.
- Turn the cable joint ④ for adjusting.



Turn in	Length ② is increased.
---------	------------------------

Turn out	Length ① is increased.
----------	------------------------

⚠ WARNING
The cable joint must be screwed in more than 8 mm (0.31 in).

- Connect the cable joint ④ and pivot pin ③ and tighten the nut ②.



Nut:
4 N • m (0.4 kgf • m, 2.9 ft • lb)

- Tighten the locknut ①.



Locknut:
4 N • m (0.4 kgf • m, 2.9 ft • lb)

NOTE: _____

If the QSTS cable cannot be properly adjusted at the QSTS converter side, make sure the QSTS cable at the jet pump side is set to the specified length.

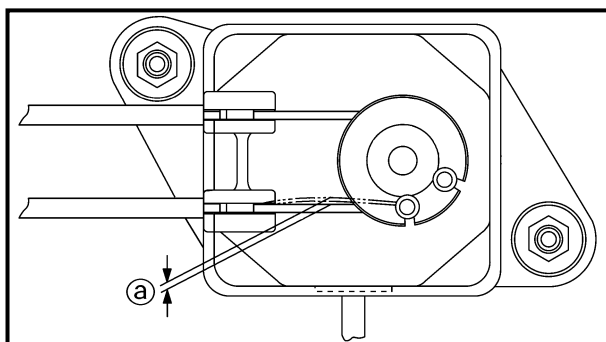
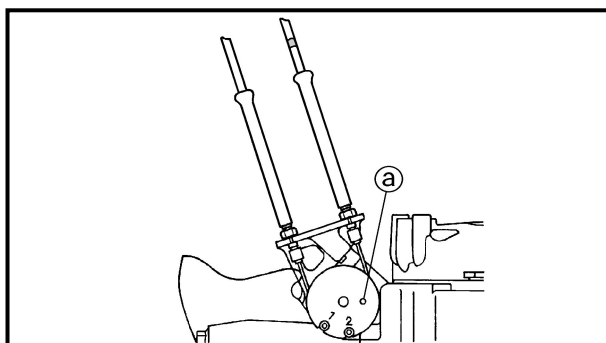
Refer to "REMOTE CONTROL CABLES AND SPEED SENSOR LEAD" in chapter 8.

YPVS cable adjustment

1. Check:

- YPVS valve position

Incorrect position → Adjust the YPVS cable.



Checking steps:

- Start the engine and then stop it.

NOTE: _____

When the engine has been stopped for 3 seconds, the YPVS valve assembly will retract and extend one time.

- Check that the hole ① in the pulley is aligned with the hole in the cylinder when the YPVS valve is fully closed.

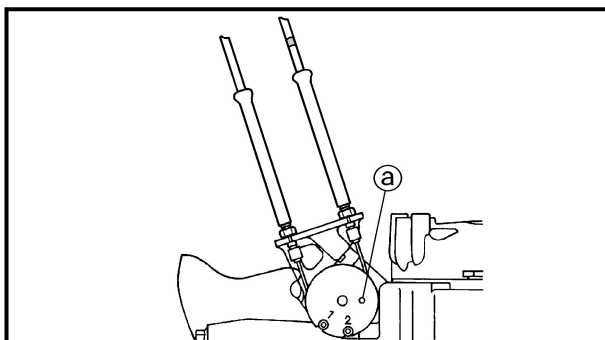
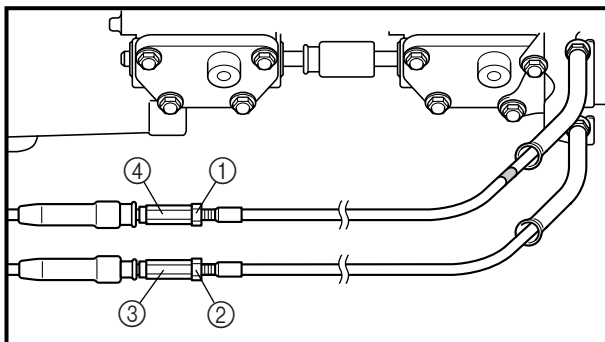
2. Measure:

- YPVS cable slack ①

Out of specification → Adjust.



YPVS cable slack:
0.5–1.5 mm (0.02–0.06 in)



3. Adjust:

- YPVS cables 1 and 2

Adjustment steps:

- Loosen locknuts ① and ②.
- Turn in adjusters ③ and ④ until there is slack in the cables.
- Align the hole ① in the pulley with the hole in the cylinder.
- Insert a 4-mm-diameter pin through the holes in the pulley and cylinder.
- Turn adjusters ③ and ④ in or out until the specified slack is obtained.

Turn in	Slack is increased.
----------------	----------------------------

Turn out	Slack is decreased.
-----------------	----------------------------

- Finger tighten locknuts ① and ②.
- Remove the pin.
- Start and stop the engine.
- Recheck the hole alignment.
- If the hole alignment is correctly, tighten the locknuts.
- If the hole alignment is incorrect, repeat the above steps.

FUEL SYSTEM

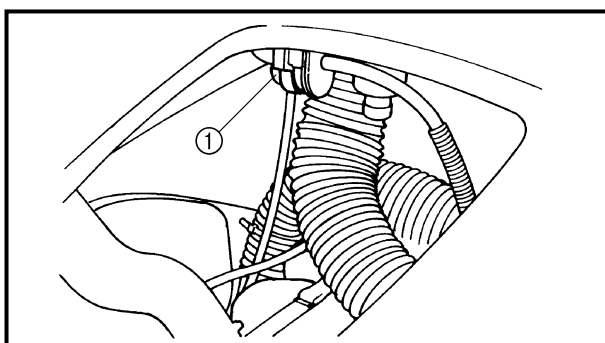
⚠ WARNING

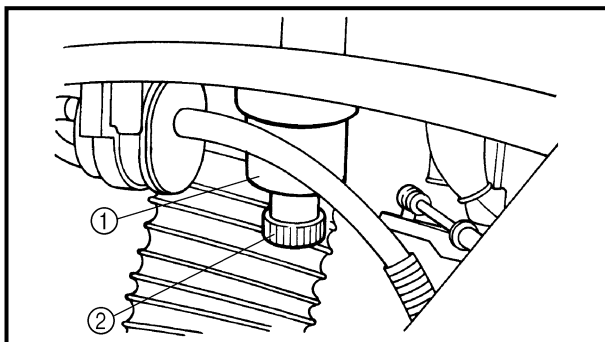
- Stop the engine, set the fuel cock to "OFF" before servicing the fuel system.
- When removing fuel system parts, wrap them in a cloth and take care that no fuel spills into the engine compartment.

Fuel line inspection

1. Inspect:

- Fuel filter ①
Contaminants → Replace.
Cracks/damage → Replace.
Water contamination → Replace and check the fuel tank.
- Fuel hoses
- Fuel tank
- Fuel hoses through part
- Fuel filler cap
Cracks/damage → Replace.





2. Inspect:

- Water separator ①
Water accumulation → Drain.

NOTE:

If need the water draining, remove the drain plug ②.

Trolling speed check and adjustment

1. Check:

- Trolling speed
Out of specification → Adjust.

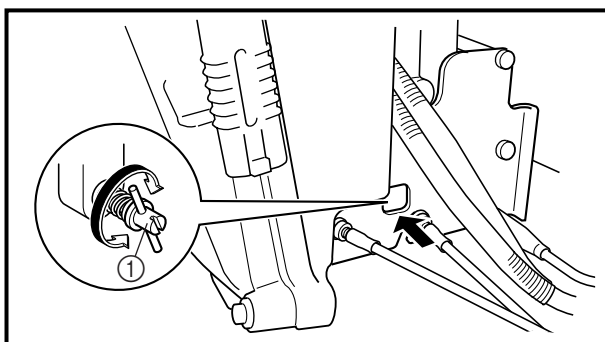
	Trolling speed: 1,300 ± 50 r/min
--	---

Checking steps (with the watercraft in the water):

- Start the engine and allow it to warm up for several minutes.
- Attach the engine tachometer to the spark plug lead.

	Engine tachometer: YU-8036-A/90890-06760
--	---

- Measure the engine trolling speed.



2. Adjust:

- Trolling speed

Adjustment steps:

- Start the engine and allow it to warm up for several minutes.
- Attach the engine tachometer to the spark plug lead.

	Engine tachometer: YU-8036-A/90890-06760
--	---

- Turn the throttle stop screw ① in or out until the specified trolling speed is obtain.

OIL INJECTION SYSTEM

Oil line inspection

1. Inspect:
 - Oil filter
Contaminants → Clean.
Frays/tears → Replace.
 - Rubber seal
Cracks/wear → Replace.
 - Oil hoses
 - Oil tank
 - Oil filler cap
Cracks/damage → Replace.
 - Check valve
Malfunction → Replace.

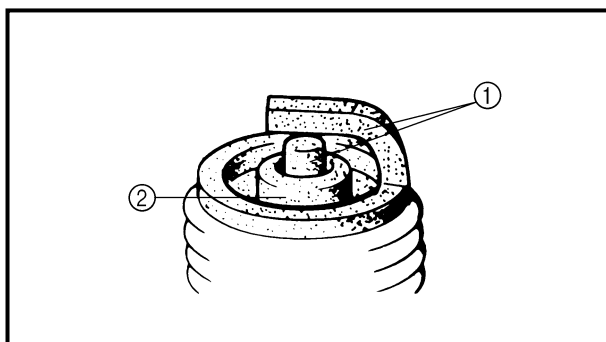
CAUTION:

Do not allow the oil tank to become completely empty. If the oil tank becomes empty the oil injection pump must be bled to ensure proper oil flow, otherwise engine damage may occur. Refer to "OIL PUMP" in chapter 4.

POWER UNIT

Spark plug inspection

1. Inspect:
 - Electrodes ①
Damage/wear → Replace.
 - Insulator color ②
Distinctly different color → Check the engine condition.



Color guide:

Medium to light tan color:

Normal

Whitish color:

Lean fuel mixture

Air leak

Incorrect settings

Blackish color:

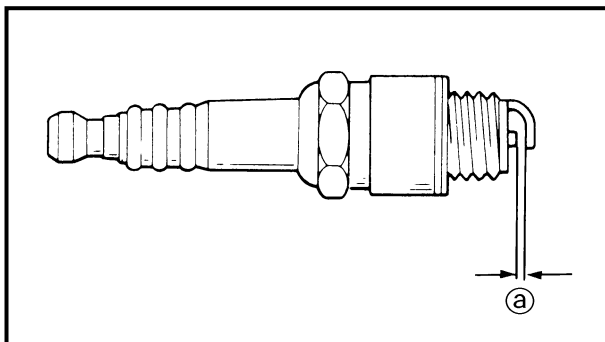
Overly rich mixture

Electrical malfunction

Excessive oil use

Defective spark plug

2. Clean:
 - Spark plug
(with a spark plug cleaner or wire brush)



3. Measure:

- Spark plug gap ①
- Out of specification → Regap.



Spark plug gap:
0.7–0.8 mm (0.028–0.031 in)

4. Tighten:

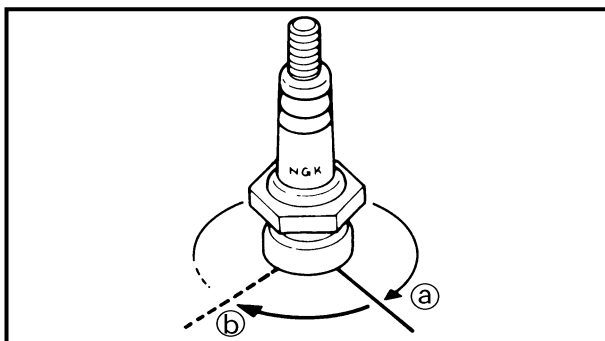
- Spark plug



Spark plug:
25 N · m (2.5 kgf · m, 18 ft · lb)

NOTE:

- Before installing the spark plug, clean the gasket surface and spark plug surface. Also, it is suggested to apply a thin film of anti-seize compound to the spark plug threads to prevent thread seizure.
- If a torque wrench is not available, a good estimate of the correct tightening torque for a new spark plug is to finger tighten ① the spark plug and then tighten it another 1/4 to 1/2 of a turn ②.



ELECTRICAL

Battery inspection

⚠ WARNING

Battery electrolyte is dangerous; it contains sulfuric acid which is poisonous and highly caustic.

Always follow these preventive measures:

- **Avoid bodily contact with electrolyte as it can cause severe burns or permanent eye injury.**
- **Wear protective eye gear when handling or working near batteries.**

Antidote (EXTERNAL):

- **SKIN - Wash with water.**
- **EYES - Flush with water for 15 minutes and get immediate medical attention.**



Antidote (INTERNAL):

- Drink large quantities of water or milk followed with milk of magnesia, beaten egg or vegetable oil. Get immediate medical attention.

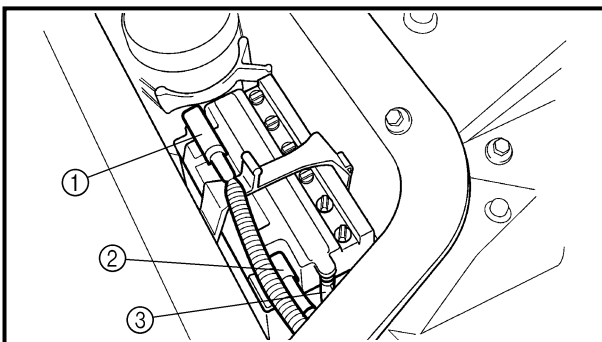
Batteries generate explosive, hydrogen gas. Always follow these preventive measures:

- Charge batteries in a well-ventilated area.
- Keep batteries away from fire, sparks or open flames (e.g., welding equipment, lighted cigarettes).
- **DO NOT SMOKE** when charging or handling batteries.

KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN.

CAUTION:

- Do not place the battery on its side.
- Before adding electrolyte or recharging, be sure to remove the battery from the battery box.
- Make sure that the battery breather hose is properly connected and is not pinched or damaged.

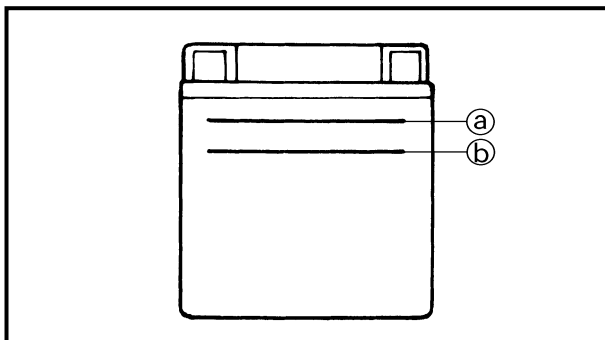


1. Remove:

- Band
- Battery negative lead ①
- Battery positive lead ②
- Battery
- Battery breather hose ③

⚠ WARNING

- When removing the battery, disconnect the negative lead first.
- Remove the battery to prevent acid loss during turning the machine on its side for the impeller service.



2. Inspect:

- Electrolyte level
Low → Add distilled water.
The electrolyte level should be between the upper ① and lower ② level marks.

Filling steps:

- Remove each filler cap.
- Add distilled water.
- When the electrolyte level reaches the upper level mark, allow the cell to stand for 20 minutes. If the electrolyte level drops, add more distilled water so the level reaches the upper level mark.

CAUTION: _____

Use only distilled water. Other types of water contain minerals which are harmful to batteries.

3. Inspect:

- Specific gravity
Out of specification → Charge.



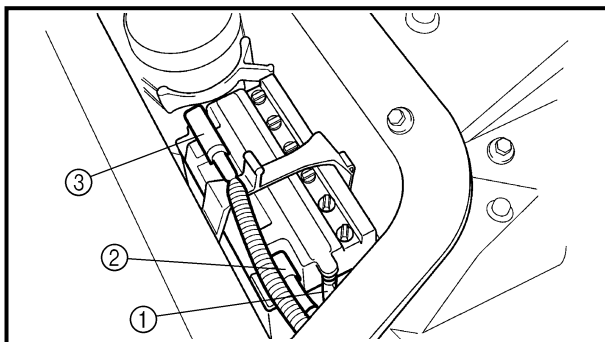
Specific gravity at 20 °C (68 °F):
1.28
Charging current:
1.9 amps × 10 hrs (68.4 kC)

4. Install:

- Filler caps

CAUTION: _____

Before installation, rinse off any fluid from the battery box and battery and make sure that the battery is dry before installing it.

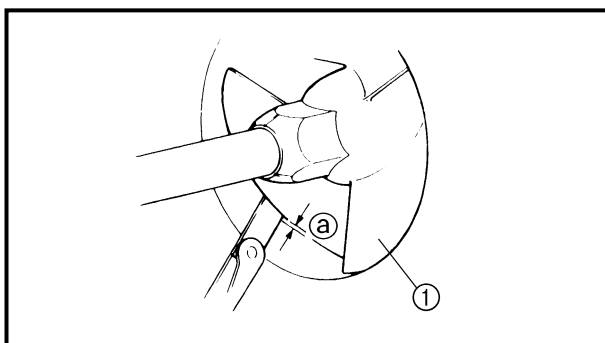


5. Install:

- Battery breather hose ①
- Battery
- Battery positive lead ②
- Battery negative lead ③ (with terminal extension at battery negative terminal)
- Band

CAUTION:

- Connect the positive lead to the battery terminal first.
- Make sure the battery leads are connected properly. Reversing the leads can seriously damage the electrical system.
- Make sure that the battery breather hose is properly connected and is not obstructed.
- Coat the terminals with a water resistant grease to minimize terminal corrosion.



JET PUMP UNIT

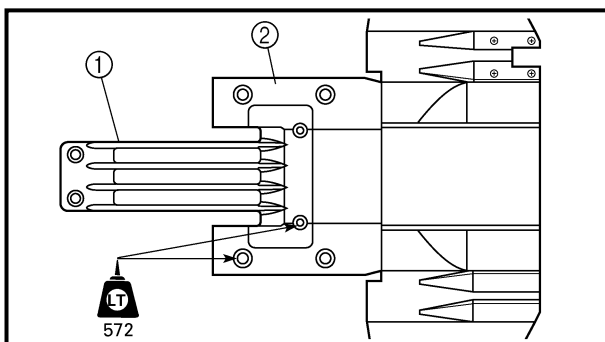
Impeller inspection

1. Check:

- Impeller ①
- Damage/wear → Replace.
- Nicks/scratches → File or grind.

2. Measure:

- Impeller-to-housing clearance ②
- Out of specification → Replace.



Max. impeller-to-housing clearance:
0.6 mm (0.02 in)

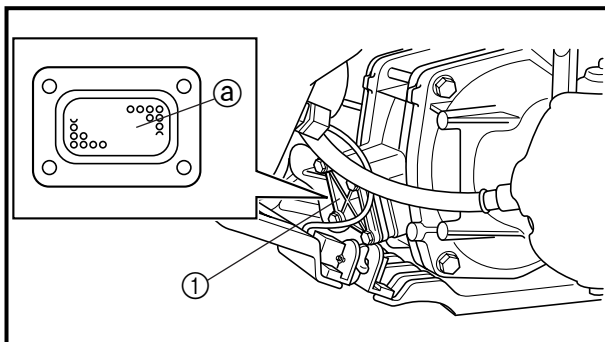
Measurement steps:

- Remove the battery leads.
- Remove the intake grate ① and intake duct ②.
- Measure the clearance at each impeller blade as shown (a total of three measurements).
- Install the intake grate and intake duct.



Bolt:
M6: 7 N • m
(0.7 kgf • m, 5.1 ft • lb)
M8: 17 N • m
(1.7 kgf • m, 12 ft • lb)

- Install the battery leads.

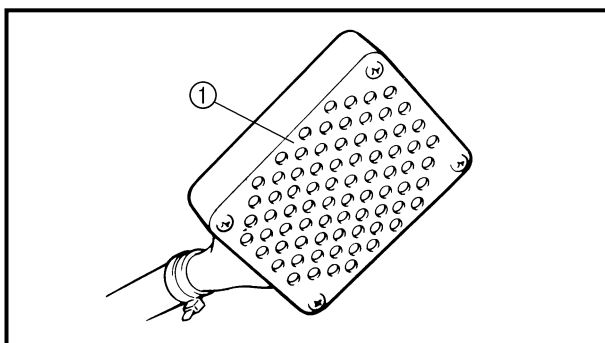


Water inlet strainer inspection

1. Inspect:
- Water inlet strainer
Contaminants → Clean.
Cracks/damage → Replace.

Inspection steps:

- Remove the water inlet cover ①.
- Inspect the water inlet strainer mesh ②.
- Install the water inlet cover.

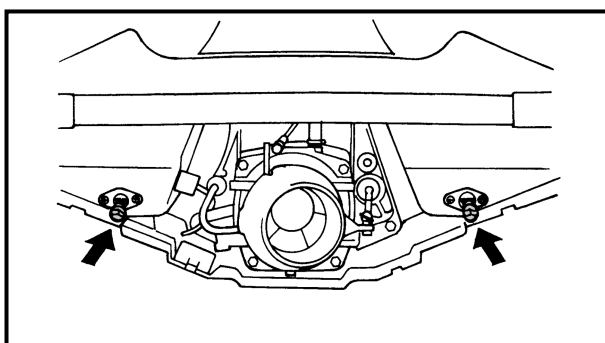
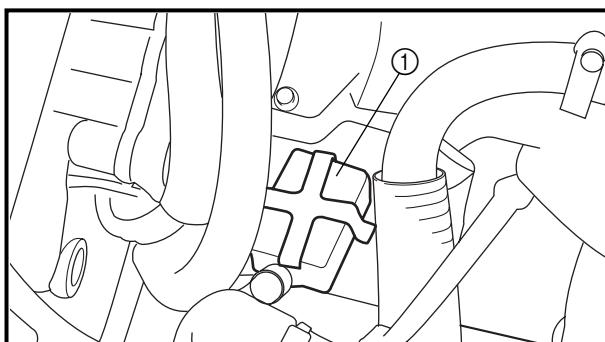


Bilge strainer inspection

1. Inspect:
- Bilge strainer
Contaminants → Clean.
Cracks/damage → Replace.

Inspection steps:

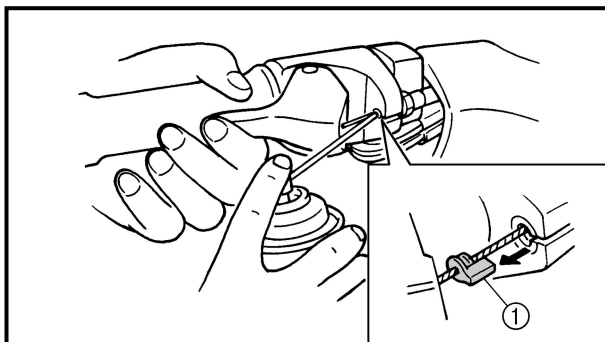
- Disconnect the bilge strainer ① from the bilge strainer holder.
- Inspect the bilge strainer.



GENERAL

Drain plug inspection

1. Inspect:
- Drain plugs
Cracks/damage → Replace.
 - O-rings
Cracks/wear → Replace.
 - Screw threads
Contaminants → Clean.



Lubrication points

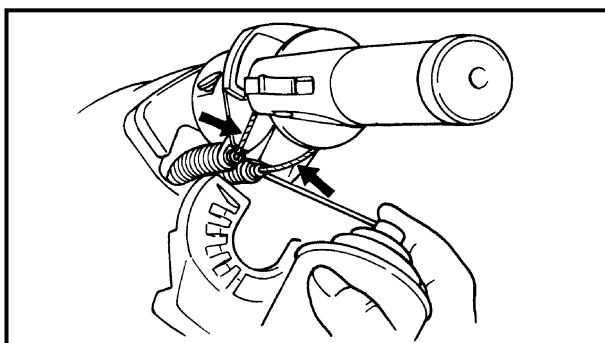
1. Lubricate:
 - Throttle cable (handlebar side)



Recommended lubricant:
Rust inhibitor

NOTE:

Before lubricating the throttle cable, squeeze the throttle lever and remove the rubber seal ①.



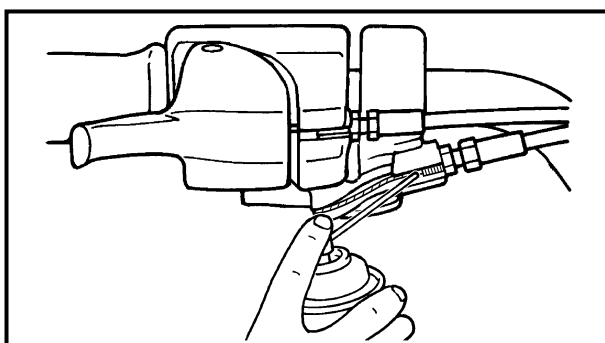
2. Lubricate:
 - QSTS control cables (handlebar side)



Recommended lubricant:
Yamaha marine grease,
Yamaha grease A
(Water resistant grease)

NOTE:

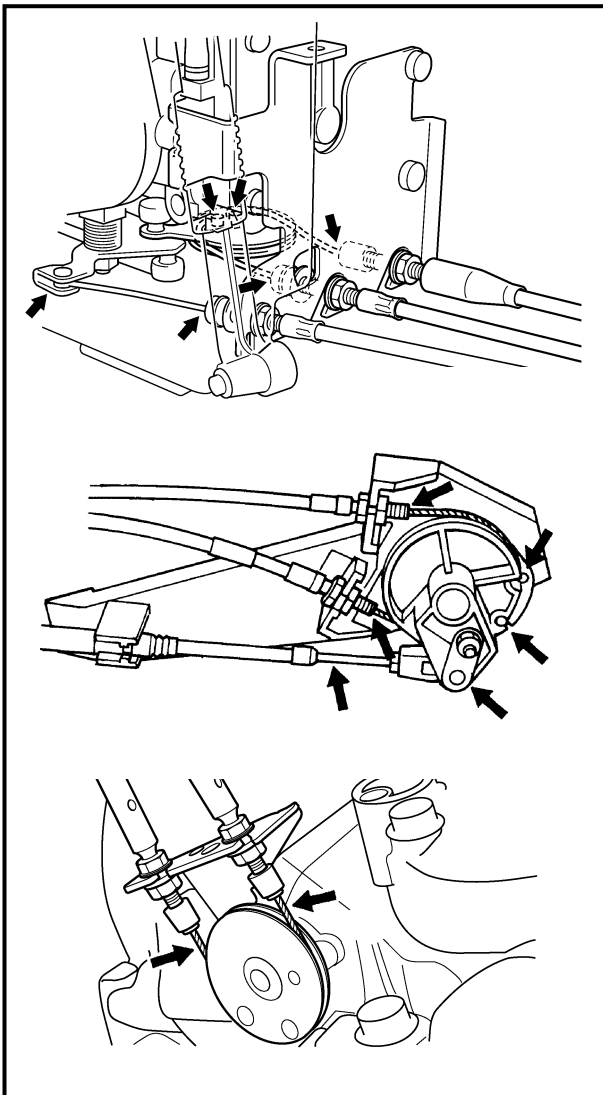
Before lubricating the QSTS control cables, remove the QSTS cable housing cover. Spray the rust inhibitor into the outer cables, and apply grease to the inner cables.



3. Lubricate:
 - Choke cable (handlebar side)



Recommended lubricant:
Rust inhibitor

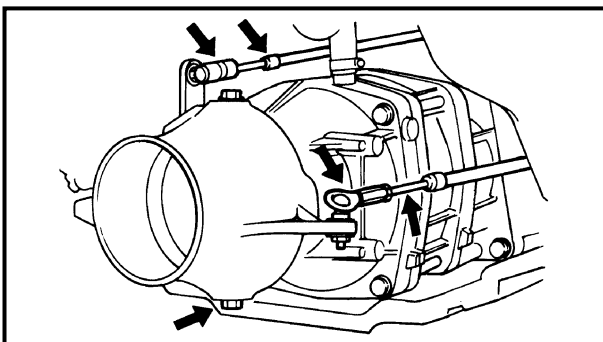


4. Lubricate:

- Throttle cable (carburetor side)
- Oil pump cable
- QSTS cables (pulley side)
- YPVS cables



Recommended grease:
Yamaha marine grease,
Yamaha grease A
(Water resistant grease)

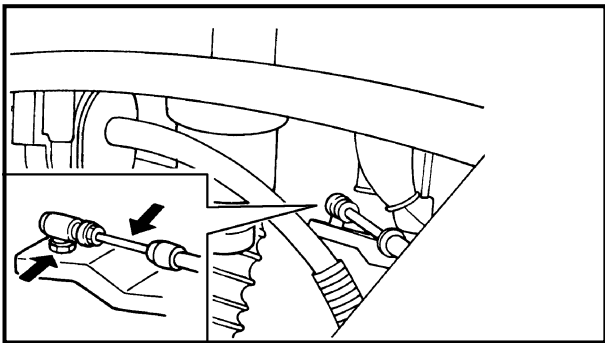


5. Lubricate:

- Nozzle pivot shaft
- Steering cable (nozzle side)
- QSTS cable (nozzle side)



Recommended grease:
Yamaha marine grease,
Yamaha grease A
(Water resistant grease)



6. Lubricate:

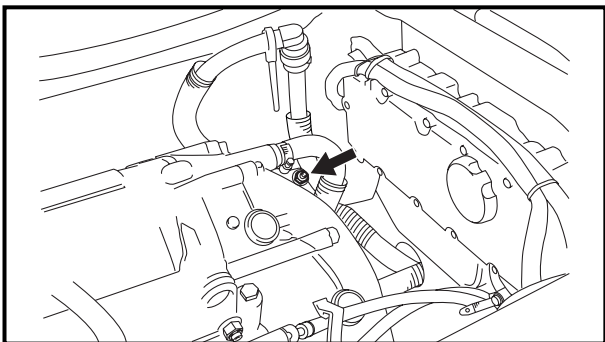
- Steering cable
- Steering cable joint

NOTE:

Disconnect the joints and apply a small amount of grease.



Recommended grease:
Yamaha marine grease,
Yamaha grease A
(Water resistant grease)



7. Fill:

- Intermediate housing



Recommended grease:
Yamaha marine grease,
Yamaha grease A
(Water resistant grease)

NOTE:

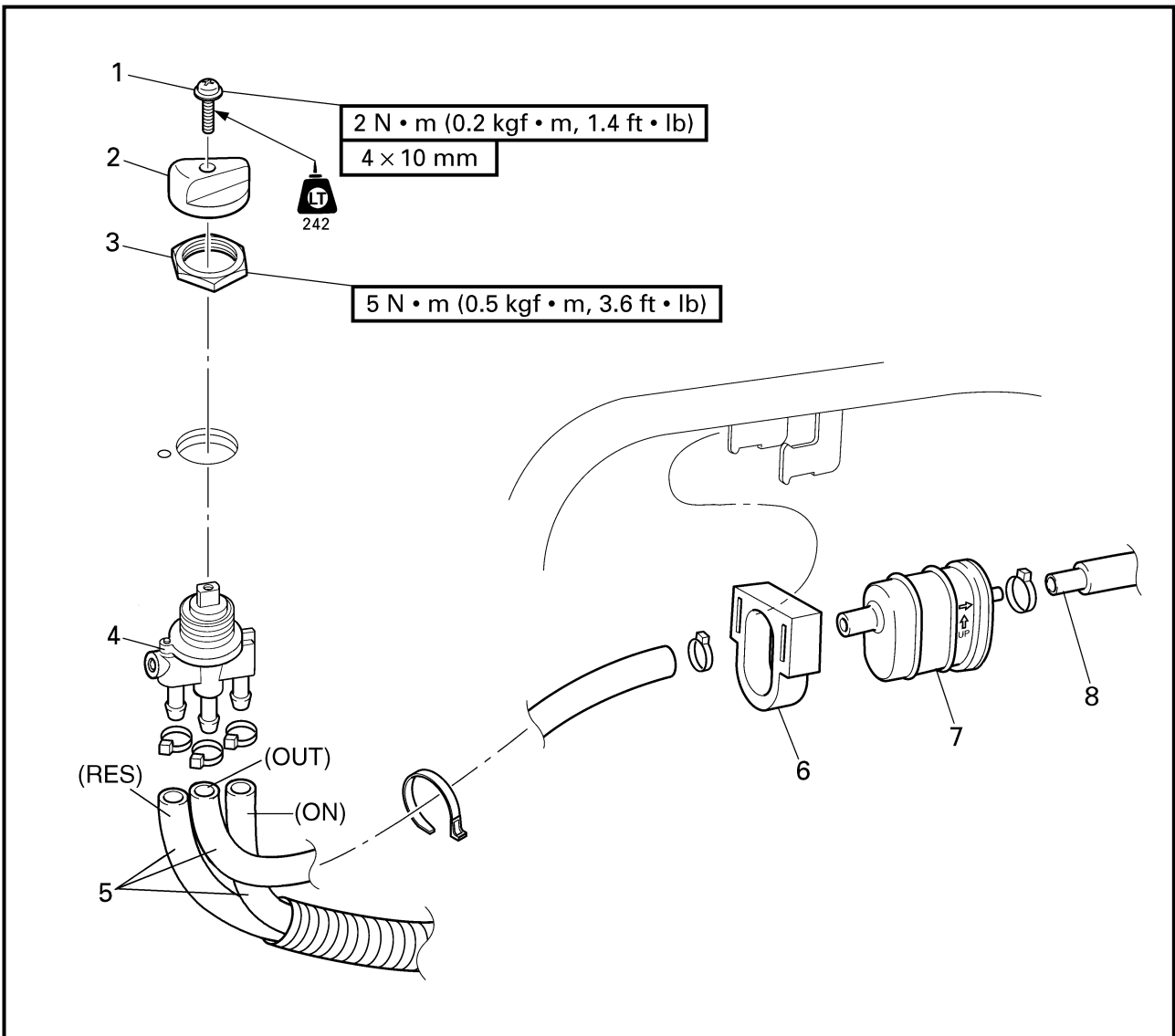
Fill the intermediate housing with the recommended grease through the grease nipples.

CHAPTER 4 FUEL SYSTEM

FUEL COCK AND FUEL FILTER	4-1
EXPLODED DIAGRAM	4-1
REMOVAL AND INSTALLATION CHART	4-1
SERVICE POINTS	4-2
Fuel filter inspection	4-2
Fuel cock inspection.....	4-2
 OIL TANK	 4-3
EXPLODED DIAGRAM	4-3
REMOVAL AND INSTALLATION CHART	4-3
SERVICE POINTS	4-5
Oil line inspection	4-5
Oil level sensor inspection	4-5
Oil tank inspection	4-5
 FUEL TANK	 4-6
EXPLODED DIAGRAM	4-6
REMOVAL AND INSTALLATION CHART	4-6
SERVICE POINTS	4-9
Check valve inspection	4-9
Fuel level sensor inspection.....	4-9
Fuel tank inspection	4-9
Pipe joint inspection	4-9
 INTAKE SILENCER	 4-10
EXPLODED DIAGRAM	4-10
REMOVAL AND INSTALLATION CHART	4-10
 CARBURETOR UNIT	 4-11
EXPLODED DIAGRAM	4-11
REMOVAL AND INSTALLATION CHART	4-11
SERVICE POINTS	4-18
Throttle valve synchronization inspection and adjustment	4-18
Choke cable and throttle cable installation.....	4-19
Oil pump cable installation	4-19
Carburetor assembly	4-19

CARBURETOR	4-20
EXPLODED DIAGRAM	4-20
REMOVAL AND INSTALLATION CHART	4-20
SERVICE POINTS	4-23
Diaphragm inspection	4-23
Accelerator pump body inspection	4-23
Arm inspection	4-23
Regulator body inspection	4-24
Needle valve inspection	4-24
Jet and carburetor body inspection	4-24
Carburetor assembly	4-24
FUEL PUMP	4-25
EXPLODED DIAGRAM	4-25
REMOVAL AND INSTALLATION CHART	4-25
SERVICE POINTS	4-27
Fuel pump inspection	4-27
Fuel filter inspection	4-27
OIL PUMP	4-28
EXPLODED DIAGRAM	4-28
REMOVAL AND INSTALLATION CHART	4-28
SERVICE POINTS	4-30
Oil pump inspection	4-30
Oil hose inspection	4-30
Check valve inspection	4-30
Oil pump cable adjustment	4-30
Oil injection pump air bleeding	4-31

**FUEL COCK AND FUEL FILTER
EXPLODED DIAGRAM**



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	FUEL COCK AND FUEL FILTER REMOVAL		Follow the left "Step" for removal.
1	Screw	1	
2	Knob	1	
3	Nut	1	
4	Fuel cock assembly	1	
5	Fuel hose	3	
6	Holder	1	
7	Fuel filter	1	
8	Fuel hose	1	
			Reverse the removal steps for installation.



SERVICE POINTS

Fuel filter inspection

Refer to "FUEL SYSTEM" in chapter 3.

Fuel cock inspection

1. Check:

- Fuel cock
 - Contaminants → Clean.
 - Rough movement → Replace.



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