



Water Vehicles

WaveRunner
XL760
XL1200

SERVICE
MANUAL



LIT-18616-01-88

460043

PREFACE

This manual has been prepared by the Yamaha Motor Company 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 the Yamaha Motor Company Ltd. 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.

XL760, XL1200

SERVICE MANUAL

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P/N LIT-18616-01-88

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/Damage → Replace.

To assist you to find your way about this manual, the Section Title and Major Heading is given at the head of every page.

An Index to contents is provided on the first page of each Section.

MODEL INDICATION

Multiple models are shown in this manual. These indications are noted as follows.

Model name	WaveRunner XL760	WaveRunner XL1200
	XL760	XL1200
Indication	XL760	XL1200

THE ILLUSTRATIONS

Some illustrations in this manual may differ from the model you have. This is because a procedure described may relate to several models, though only one may be illustrated. (The name of model described will be mentioned in the description).

REFERENCES

These have been kept to a minimum; however, when you are referred to another section of the manual, you are told the page number to go to.

WARNINGS, CAUTIONS AND NOTES

Attention is drawn to the various Warnings, Cautions and Notes which distinguish important information in this manual 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, a bystander, or a person inspecting or repairing the water vehicle.

CAUTION:

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

NOTE:

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

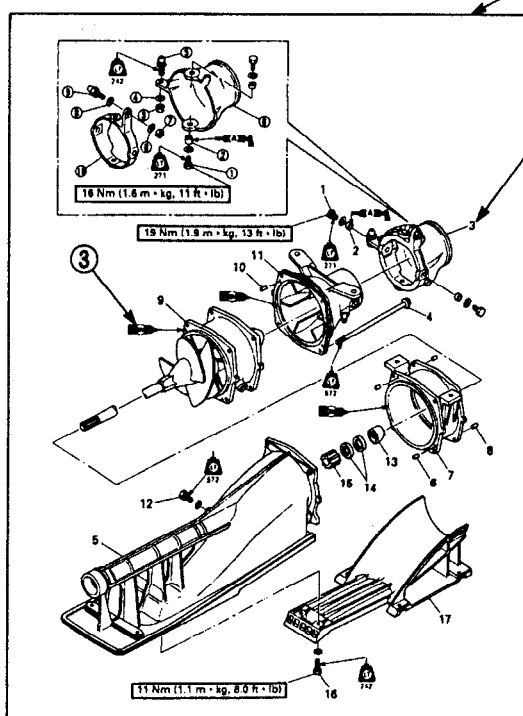
IMPORTANT:

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

HOW TO READ DESCRIPTIONS

1. A disassembly installation job mainly consists of the exploded diagram ①.
2. The numerical figures represented by the number ② indicates the order of the job steps.
3. The symbols represented by the number ③ indicates the contents and notes of the job. For the meanings of the symbols, refer to the next page(s).
4. The REMOVAL AND INSTALLATION CHART ④ is attached to the exploded diagram and explains the job steps, part names, notes for the jobs, etc.
5. The SERVICE POINTS, other than the exploded diagram, explains in detail the items difficult to explain in the exploded diagram or REMOVAL AND INSTALLATION CHART, the Service points requiring the detailed description ⑤, etc.

JET PUMP  **NOZZLE, DUCT AND INTAKE**
NOZZLE, DUCT AND INTAKE
EXPLODED DIAGRAM



JET PUMP  **NOZZLE, DUCT AND INTAKE**
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
NOZZLE, DUCT AND INTAKE DISASSEMBLY			Follow the left "Step" for removal.
	Jet pump unit		Refer to the "JET PUMP UNIT REMOVAL" section.
1	Bolt (with washer)	2	
2	Collar	2	
3	Nozzle deflector assembly	1	
4	Bolt	4	
5	Intake duct	1	
6	Pin	2	
7	Housing	1	
8	Pin	2	
9	Impeller duct assembly	1	
10	Pin	2	
11	Nozzle	1	
12	Bolt (with washer)	1	
13	Spacer	1	
14	Oil seal	2	
15	Bushing	1	
16	Bolt (with washer)	6	
17	Intake screen	1	
NOZZLE DEFLECTOR DISASSEMBLY			
①	Bolt (with washer)	2	6 x 20 mm
②	Collar	2	
③	Nut	1	M6
④	Plate washer	2	
⑤	Ball joint	1	M6
⑥	Nozzle deflector	1	
⑦	Nut	1	M6
⑧	Plate washer	2	
⑨	Ball joint	1	M6
⑩	Trim ring	1	
			Reverse the removal steps for installation.

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 

SYMBOLS

Symbols ① to ⑨ are designed as thumb-tabs 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 tool
- ⑪ Specified liquid
- ⑫ Specified engine speed
- ⑬ Specified torque
- ⑭ Specified measurement
- ⑮ Specified electrical valve
[Resistance (Ω), Voltage (V),
Electric current (A)]

Symbol ⑯ to ⑱ in an exploded diagram indicate grade of lubricant and location of lubrication point:

- ⑯ Apply Yamaha 2-stroke outboard 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 grade of sealing or locking agent, and location of application point:

- ⑲ Apply Gasket maker[®]
- ㉑ Apply Yamahabond #4 (Yamaha bond No.4)
- ㉒ Apply LOCTITE[®] No.271 (Red LOCTITE)
- ㉓ Apply LOCTITE[®] No.242 (Blue LOCTITE)
- ㉔ Apply LOCTITE[®] No.572
- ㉕ Apply Silicon sealant

NOTE: _____

In this manual, the above symbols may not be used in every case.

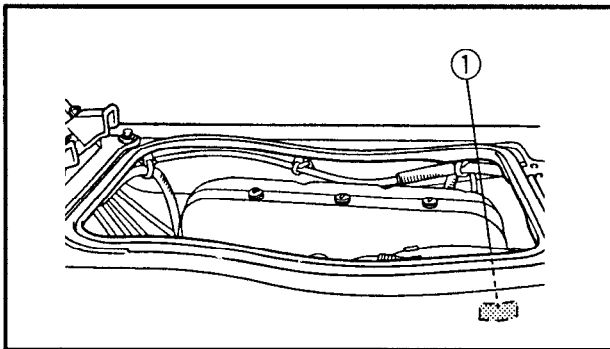
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CHAPTER 1 GENERAL INFORMATION

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IDENTIFICATION NUMBERS

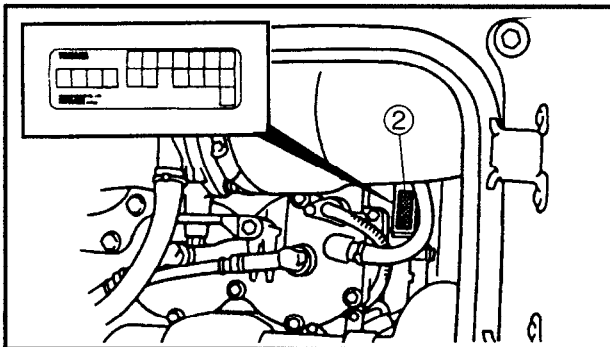
PRIMARY I.D. NUMBER

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

Starting primary I.D. number:

GU2: 800101 ~, 600101 ~ (EUR)

GU3: 800101 ~, 600101 ~ (EUR)



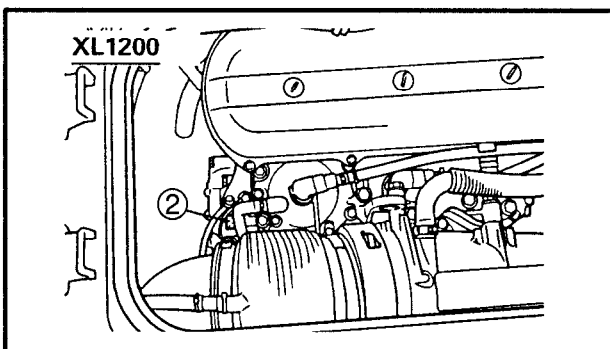
ENGINE SERIAL NUMBER

The engine serial number is stamped on a label ② attached to the crankcase.

Starting serial number:

66D: 000101 ~

66F: 000101 ~

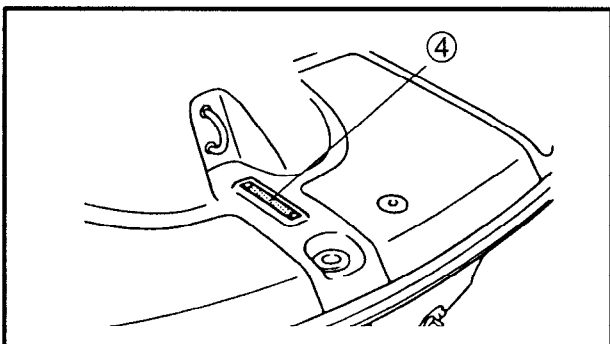
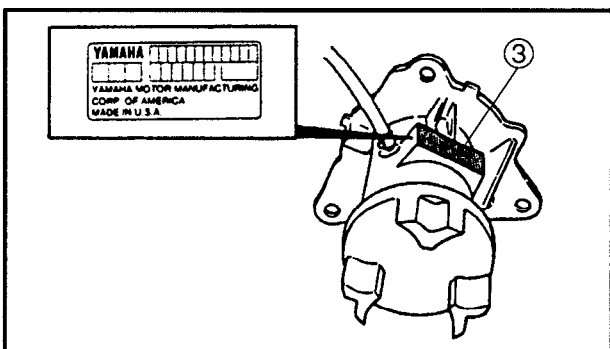


PUMP SERIAL NUMBER

The jet pump unit serial number is stamped on a label ③ attached on the intermediate housing.

Starting serial number:

500101 ~

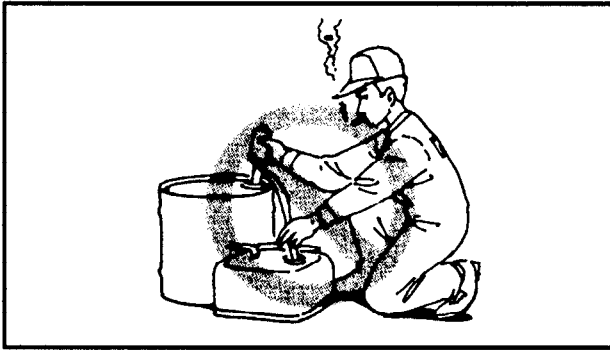


HULL IDENTIFICATION NUMBER (H.I.N.)

The H.I.N. is stamped on a plate ④ attached to the rear end of the footrest floor.

**SAFETY WHILE WORKING**

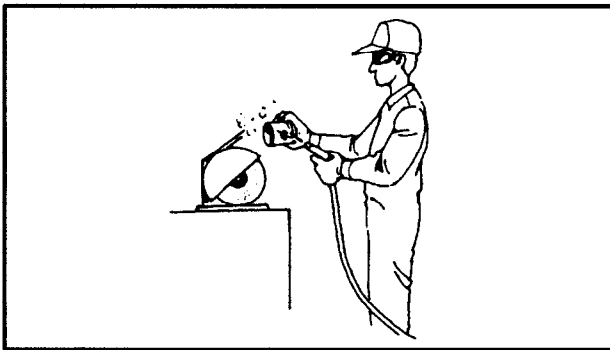
The procedures given in this manual are those recommended by Yamaha to be followed by Yamaha dealers and their mechanics.

**FIRE PREVENTION**

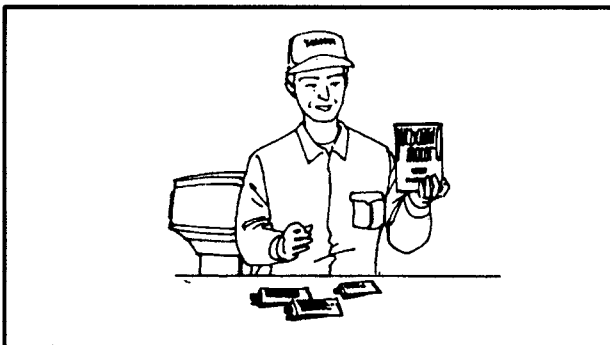
Gasoline (petrol) is highly flammable. Petroleum vapor is explosive if ignited. Do not smoke while handling gasoline (petrol), and keep it away from heat, sparks, and open flames.

VENTILATION

Petroleum vapor is heavier than air and if inhaled in large quantities will not support life. 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 using compressed air, when grinding or when 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.



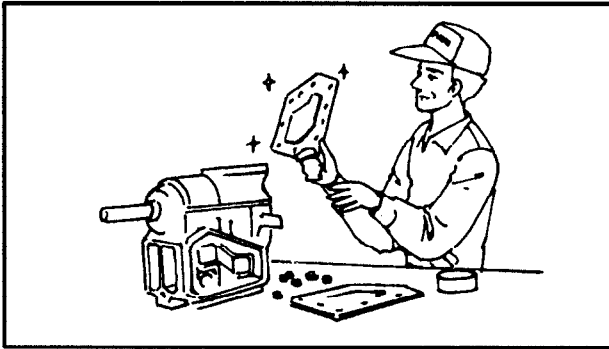
Under normal conditions of use, there should be no hazards from the use of the lubricants mentioned in this manual, but safety is all-important, and by adopting good safety practises, any risk is minimized. A summary of the most important precautions is as follows

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; do not, for example, place a soiled wiping-rag in one's 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.



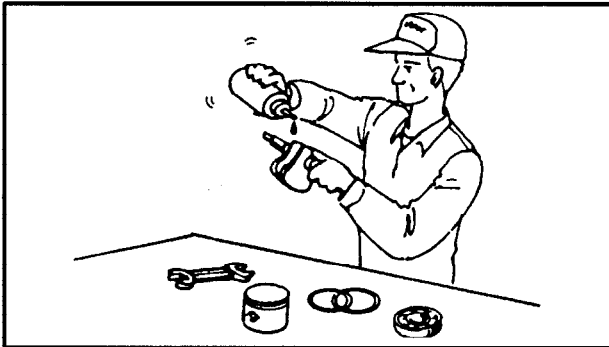
GOOD WORKING PRACTICES

1. The right tools
Use the special tools that are designed to protect parts from damage. Use the right tool in the right manner – don't improvise.
2. Tightening torque
Follow the torque tightening instructions. When tightening bolts, nuts and screws, tighten the larger sizes first, and tighten inner-positioned fixings before outer-positioned ones.



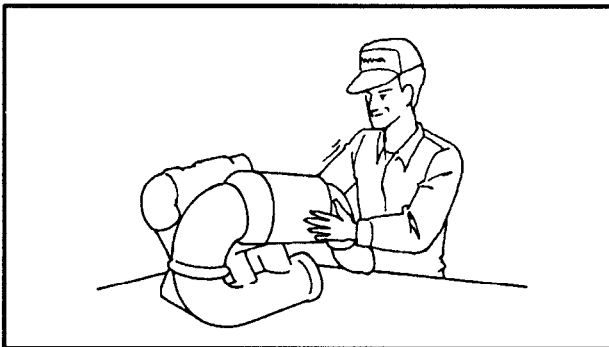
3. Non-reusable items

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



DISASSEMBLY AND ASSEMBLY

1. Clean parts with compressed-air on disassembling them.
2. Oil the contact surfaces of moving parts on 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 use compressed air to spin the bearings dry. This causes damage to the bearing surfaces.

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



SPECIAL TOOLS

Use of the correct special tools recommended by Yamaha will aid the work and enable accurate assembly and tune-up. Improvisations and use of improper tools can cause damage to the equipment.

NOTE:

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

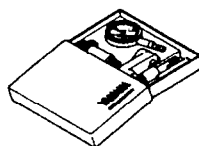
MEASURING

1. Dial gauge and stand
P/N. YU-03097, YU-01256
90890-01252
2. Digital multi meter
P/N. YU-34899-A
90890-06752
3. Pocket tester
P/N. YU-03112
90890-03112
4. Compression gauge
P/N. YU-33223
90890-06751
5. Cylinder gauge set
P/N. YU-03017
90890-06759
6. Engine tachometer
P/N. YU-08036-A
90890-06760
7. Spark gap tester
P/N. YM-34487
90890-06754

① YU-03097
YU-01256



90890-01252



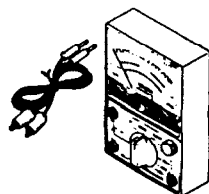
② YU-34899-A



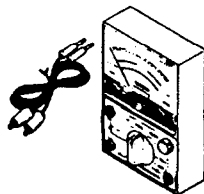
90890-06752



③ YU-03112



90890-03112



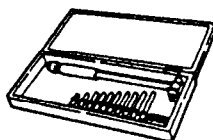
④ YU-33223



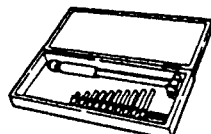
90890-06751



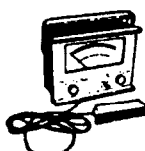
⑤ YU-03017



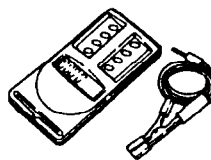
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⑥ YU-08036-A



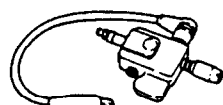
90890-06760



⑦ YM-34487



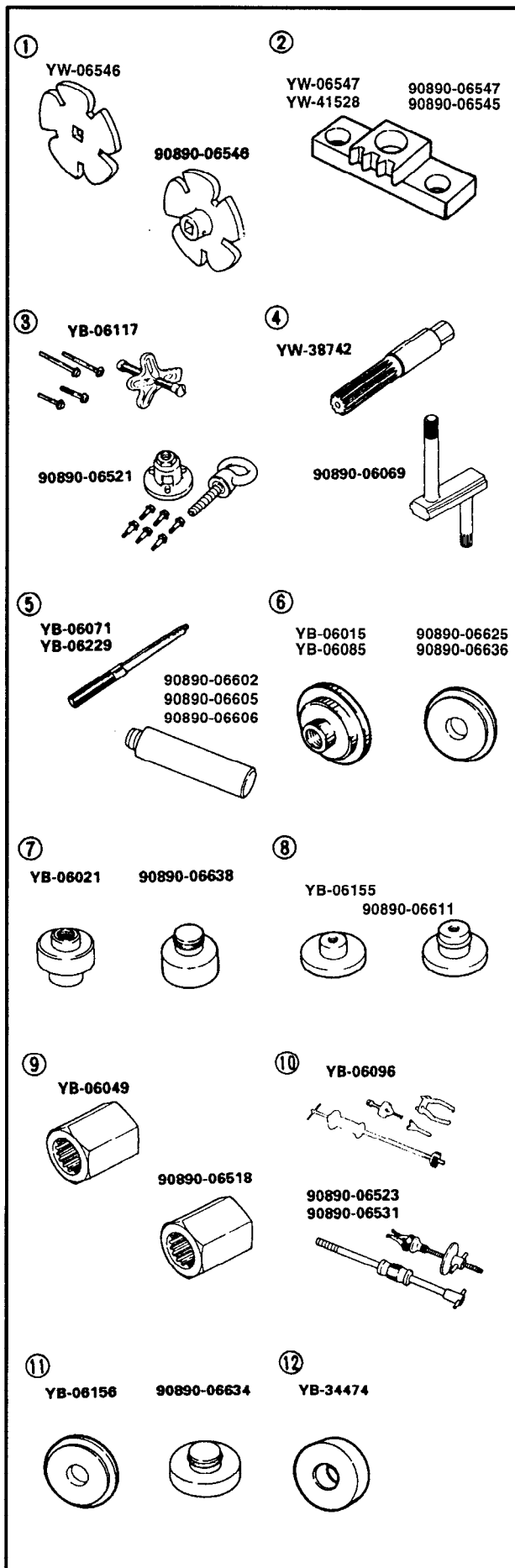
90890-06754





REMOVAL AND INSTALLATION

1. Coupler wrench
P/N. YW-06546
90890-06546
2. Flywheel holder
P/N. YW-06547 (XL760)
YW-41528 (XL1200)
90890-06547 (XL760)
90890-06545 (XL1200)
3. Flywheel puller
P/N. YB-06117
90890-06521
4. Shaft holder (Intermediate shaft)
P/N. YW-38742
90890-06069
5. Driver rod
(Intermediate shaft and jet pump)
P/N. YB-06071, YB-06229
90890-06602
90890-06605
90890-06606
6. Bearing outer race attachment
(Intermediate shaft)
P/N. YB-06015, YB-06085
90890-06636, 90890-06625
7. Bearing attachment
(Jet pump bushing and oil seal)
P/N. YB-06021
90890-06638
8. Needle bearing attachment
(Jet pump oil seal)
P/N. YB-06155
90890-06611
9. Drive shaft holder (Impeller)
P/N. YB-06049
90890-06518
10. Slide hammer set (Jet pump bearing)
P/N. YB-06096
90890-06523
90890-06531
11. Ball bearing attachment
(Jet pump oil seal)
P/N. YB-06156
90890-06634
12. Bearing inner race attachment
(Jet pump bearing)
P/N. YB-34474





CHAPTER 2 SPECIFICATIONS

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GENERAL SPECIFICATIONS

Item	Unit	Model	
		XL760	XL1200
MODEL CODE: Hull Engine		GU2 66D	GU3 66F
DIMENSIONS: Length Width Height Dry weight Vehicle capacity	mm (in) mm (in) mm (in) kg (lb)	3,150 (124.0) 1,250 (49.2) 1,100 (43.3) 250 (551) 3	3,150 (124.0) 1,250 (49.2) 1,100 (43.3) 277 (611) 3
PERFORMANCE: Maximum output Maximum fuel consumption Cruising range	kW (HP)/r/min l/h (US gal/h, Imp (gal/h) hr.	66.2 (90)/6,350 38 (10.04, 8.36) 1.5	99.3 (135)/6,750 53 (14.0, 11.7) 0.9
ENGINE: Engine type Number of cylinders Displacement Bore × stroke Compression ratio Intake system Carburetor type Number of carburetors Enrichment control Scavenging system Lubrication system Cooling system Starting system Ignition system Ignition timing Spark plug (NGK) Battery capacity Lighting coil Propulsion system	cm ³ (cu. in) mm (in) Degree V/kC (A·h) A/rpm	2-stroke 2 754 (46.0) 84.0 × 68.0 (3.31 × 2.68) F: 7.2, R: 6.8 : 1 Reed valve Mikuni BN44 2 Choke valve Loop charge Oil injection Water Electric Digital CDI 15 BTDC ~ 22 BTDC BR8HS 12 – 68.4 (19) 2 ~ 4/5500 Jet pump	2-stroke 3 1,131 (69.0) 84.0 × 68.0 (3.31 × 2.68) 6 : 1 Reed valve Mikuni BN44 3 Choke valve Loop charge Oil injection Water Electric Digital CDI 15 BTDC ~ 20 BTDC BR8HS 12 – 68.4 (19) 6 ~ 8/6500 Jet pump
DRIVE UNIT: Jet pump type Impeller rotation Transmission Nozzle angle (horizontal) Trim angle Trim system Reverse system	 Degree Degree	Axial flow single stage Counter clockwise Direct drive from engine 24 ± 1 5 N/A Reverse gate	Axial flow single stage Counter clockwise Direct drive from engine 24 ± 1 5 N/A Reverse gate



Item	Unit	Model	
		XL760	XL1200
FUEL AND OIL:			
Fuel		Regular unleaded gasoline	Regular unleaded gasoline
Fuel rating	PON*1/RON*2	86/90	86/90
Oil		2-stroke outboard motor oil	2-stroke outboard motor oil
Fuel and oil mixing ratio (wide open throttle)		50 : 1	45 : 1
Fuel tank capacity	l (US gal, imp gal)	50 (13.2, 11.0)	50 (13.2, 11.0)
Reserve capacity	l (US gal, imp gal)	12 (3.17, 2.64)	12 (3.17, 2.64)
Oil tank capacity	l (US gal, imp gal)	3.8 (1.00, 0.84)	3.8 (1.00, 0.84)

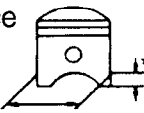
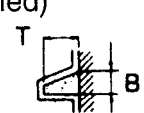
*1: Pump Octane Number

*2: Research Octane Number



MAINTENANCE SPECIFICATIONS

ENGINE

Item	Unit	Model	
		XL760	XL1200
Cylinder head: Warpage limit Compression pressure	mm (in) kPa (kg/cm ²)	0.1 (0.004) —	0.1 (0.004) —
Cylinder: Bore size Taper limit Out of round limit Wear limit	mm (in) mm (in) mm (in) mm (in)	84.00 ~ 84.02 (3.307 ~ 3.308) 0.08 (0.003) 0.05 (0.002) 84.10 (3.31)	84.00 ~ 84.02 (3.307 ~ 3.308) 0.08 (0.003) 0.05 (0.002) 84.10 (3.31)
Piston: Diameter Measuring point* piston clearance  Wear limit Piston pin bore inside diameter	mm (in) mm (in) mm (in) mm (in) mm (in)	83.902 ~ 83.921 (3.3032 ~ 3.3040) 10 (0.39) 0.100 ~ 0.105 (0.0039 ~ 0.0041) 0.155 (0.0061) 20.004 ~ 20.025 (0.7876 ~ 0.7884)	83.902 ~ 83.921 (3.3032 ~ 3.3040) 10 (0.39) 0.100 ~ 0.105 (0.0039 ~ 0.0041) 0.155 (0.0061) 20.004 ~ 20.025 (0.7876 ~ 0.7884)
Piston ring: Top Type Dimensions (B × T) End gap (installed)  Ring groove clearance (installed) 2nd Type Dimensions (B × T) End gap (installed) Ring groove clearance (installed)	mm (in) mm (in) mm (in) mm (in) mm (in) mm (in)	Keystone 1.5 × 3.2 (0.06 × 0.13) 0.20 ~ 0.40 (0.008 ~ 0.016) 0.02 ~ 0.07 (0.001 ~ 0.003)	Keystone 1.5 × 3.0 (0.06 × 0.12) 0.20 ~ 0.40 (0.008 ~ 0.016) 0.02 ~ 0.07 (0.001 ~ 0.003)
Piston pin: Diameter Wear limit	mm (in) mm (in)	19.995 ~ 20.000 (0.7872 ~ 0.7874) —	19.995 ~ 20.000 (0.7872 ~ 0.7874) —



Item	Unit	Model	
		XL760	XL1200
Crankshaft assembly:			
Crank width "A"	mm (in)	61.95 ~ 62.00 (2.439 ~ 2.441)	61.95 ~ 62.00 (2.439 ~ 2.441)
Deflection limit "B"	mm (in)	0.05 (0.002)	0.05 (0.002)
Big end side clearance "C"	mm (in)	0.25 ~ 0.75 (0.010 ~ 0.030)	0.25 ~ 0.75 (0.010 ~ 0.030)
Maximum small end axial play "D"	mm (in)	2.0 (0.08)	2.0 (0.08)
Carburetor:			
Type		Floatless	Floatless
Manufacturer		Mikuni	Mikuni
Number of carburetors		2	3
Identification mark		64X01/02	65U01/02/03
Main nozzle (M.N.)	mm (in)	3.2 (0.13)	3.2 (0.13)
Main jet (M.J.)		135 (01), 137.5 (02)	135
Pilot jet (P.J.)		115	100 (01)/95 (02)/ 97.5 (03)
Low speed screw	turns out	1-3/4 ± 1/4	1 ± 1/4
Throttle valve		160	130
Valve seat	mm (in)	1.5 (0.06)	1.2 (0.05)
High speed screw	turns out	1/2 ± 1/4	3/4 ± 1/4 (01, 03) 1 ± 1/4 (02)
Trolling speed	r/min.	1,300 ± 50	1,300 ± 50
Reed valve:			
Thickness	mm (in)	0.4 (0.02)	0.5 (0.02)
Valve stopper height	mm (in)	9.0 ± 0.2 (0.35 ± 0.01)	12.5 ± 0.2 (0.49 ± 0.01)
Valve warpage limit	mm (in)	0.2 (0.01)	0.2 (0.01)

JET UNIT

Item	Unit	Model	
		XL760	XL1200
Jet pump:			
Impeller material		SUS	SUS
Number of impeller blades		3	3
Impeller pitch	degree	13.4	15.8
Impeller clearance	mm (in)	0.25 ~ 0.35 (0.010 ~ 0.014)	0.25 ~ 0.35 (0.010 ~ 0.014)
Impeller clearance limit	mm (in)	0.6 (0.024)	0.6 (0.024)
Impeller sharp runout limit	mm (in)	0.3 (0.012)	0.3 (0.012)
Nozzle diameter	mm (in)	86.0 (3.39)	86.0 (3.39)



HULL AND HOOD

Item	Unit	Model	
		XL760	XL1200
Free play:			
Throttle lever free play	mm (in)	4 ~ 7 (0.16 ~ 0.28)	4 ~ 7 (0.16 ~ 0.28)
Choke cable free play	mm (in)	1 ~ 6 (0.04 ~ 0.24)	1 ~ 6 (0.04 ~ 0.24)
Trim control wheel free play	mm (in)	—	—

ELECTRICAL

Item	Unit	Model	
		XL760	XL1200
Battery:			
Type		Fluid	Fluid
Capacity	V/kC (A·h)	12/68.4 (19)	12/68.4 (19)
Ignition timing:			
Ignition timing (at 1,200 r/min)	degree	15 BTDC	15 BTDC
Ignition timing (at 5,500 r/min)	degree	F: 20, R: 18 BTDC	21 BTDC
Stator assembly:			
Pulser coil resistance	Ω (color)	445.5 ~ 544.5 (W/R – W/B)	248.0 ~ 372.0 (B-W/R, W/B, W/G)
Charge coil resistance 1	Ω (color)	316.8 ~ 387.2 (Br-L)	172.0 ~ 258.0 (B/R-Br)
Charge coil resistance 2	Ω (color)	—	656.0 ~ 984.0 (L-B/R)
Lighting coil resistance	Ω (color)	1.14 ~ 1.40 (G – G)	0.56 ~ 0.84 (G – G)
Charging current (minimum)	A/r/min.	2 ~ 4/5,500	5.8 ~ 7.8/5,500
Ignition coil:			
Minimum spark gap	mm (in)	—	—
Primary coil resistance	Ω (color)	0.078 ~ 0.106 (Or-B)	0.048 ~ 0.072 (B/W-B)
Secondary coil resistance	kΩ (color)	14.3 ~ 30.5 (High tension cords)	2.7 ~ 4.1 (High tension cord-B)
Rectifier-regulator:			
Regulated voltage	V	14.3 ~ 15.3	14.5 ~ 15.5
Thermo switch:			
On temperature	°C (°F)	90 ~ 96 (194 ~ 205)	90 ~ 96 (194 ~ 205)
Off temperature	°C (°F)	76 ~ 90 (169 ~ 194)	76 ~ 90 (169 ~ 194)
Starter motor:			
Brush length	mm (in)	12.5 (0.49)	12.5 (0.49)
Wear limit	mm (in)	6.5 (0.26)	6.5 (0.26)
Comutator undercut	mm (in)	0.7 (0.028)	0.7 (0.028)
Limit	mm (in)	0.2 (0.008)	0.2 (0.008)
Comutator diameter	mm (in)	28.0 (1.10)	28.0 (1.10)
Limit	mm (in)	27 (1.06)	27 (1.06)
Fuse:			
Rating	V – A	12-10	12 – 10
SPARK PLUG:			
Spark plug gap	mm (in)	0.6 ~ 0.7 (0.024 ~ 0.028)	0.6 ~ 0.7 (0.024 ~ 0.028)



TIGHTENING TORQUE

SPECIFIED TORQUE

Part to tightened		Part name	Size	Q'ty		Tightening torque			Remarks
				760	1200	Nm	kgf-m	ft-lb	
ENGINE:									
Electric box		Bolt	M8	2	3	17	1.7	12	
Mounting bolt		Bolt	M8	4	4	17	1.7	12	
Reed valve		Screw	M4	16	24	1	0.1	0.7	
Exhaust ring		Bolt	M8	4	4	30	3.0	22	
Exhaust ring stay	1st	Bolt	M10	3	–	22	2.2	16	
	2nd					40	4.0	29	
Muffler stay		Bolt	M10	4	4	40	4.0	29	
Muffler stay – Muffler stay 2	1st	Bolt	M10	2	2	2	0.2	1.4	
	2nd					47	4.7	34	
Muffler 2		Bolt	M10	2	2	40	4.0	29	
Muffler 1	1st	Bolt	M10	8	–	22	2.2	16	
	2nd					40	4.0	29	
	1st	Bolt	M8	–	12	15	1.5	11	
	2nd					30	3.0	22	
Cylinder body	1st	Bolt	M10	6	6	23	2.3	17	
	2nd					40	4.0	29	
Cylinder head	1st	Bolt	M8	10	–	15	1.5	11	
	2nd					36	3.6	26	
	1st	Bolt	M8	–	14	15	1.5	11	
	2nd					30	3.0	22	
Cylinder head cover	1st	Bolt	M8	–	15	15	1.5	11	
	2nd					30	3.0	22	
	1st	Bolt	M6	–	2	4	0.4	2.9	
	2nd					8	0.8	5.8	
Spark plug		Bolt	M14	2	3	25	2.5	18	
Flywheel bolt		Nut	M10	1	1	70	7.0	51	
Crankcase	1st	Bolt	M8	8	12	15	1.5	11	
	2nd					28	2.8	20	
Mount bracket	1st	Bolt	M10	7	7	23	2.3	17	
	2nd					53	5.3	38	
Coupling		Nut	M27	1	1	37	3.7	27	
Frame arrestor cover		Bolt	M6	6	–	2	0.2	1.4	
				–	8	5	0.5	3.6	
Starter motor terminal nut		Nut	M6	1	1	5	0.5	3.6	
JET UNIT:									
Mounting bolt		Bolt	M10	4	4	34	3.4	25	
			M6	2	2	12	1.2	8.7	
Ride plate		Bolt	M8	4	4	17	1.7	12	
Impeller (left-hand threads)		Bolt	M20	1	1	18	1.8	13	
Coupling		Nut	M27	1	1	37	3.7	27	
Intermediate housing		Bolt	M8	3	3	17	1.7	12	

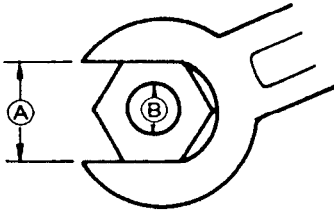


Nut (A)	Bolt (B)	General torque specifications		
		Nm	kgf•m	ft•lb
8 mm	M5	5.0	0.5	3.6
10 mm	M6	8.0	0.8	5.8
12 mm	M8	18	1.8	13
14 mm	M10	36	3.6	25
17 mm	M12	43	4.3	31

TIGHTENING TORQUE

GENERAL TORQUE

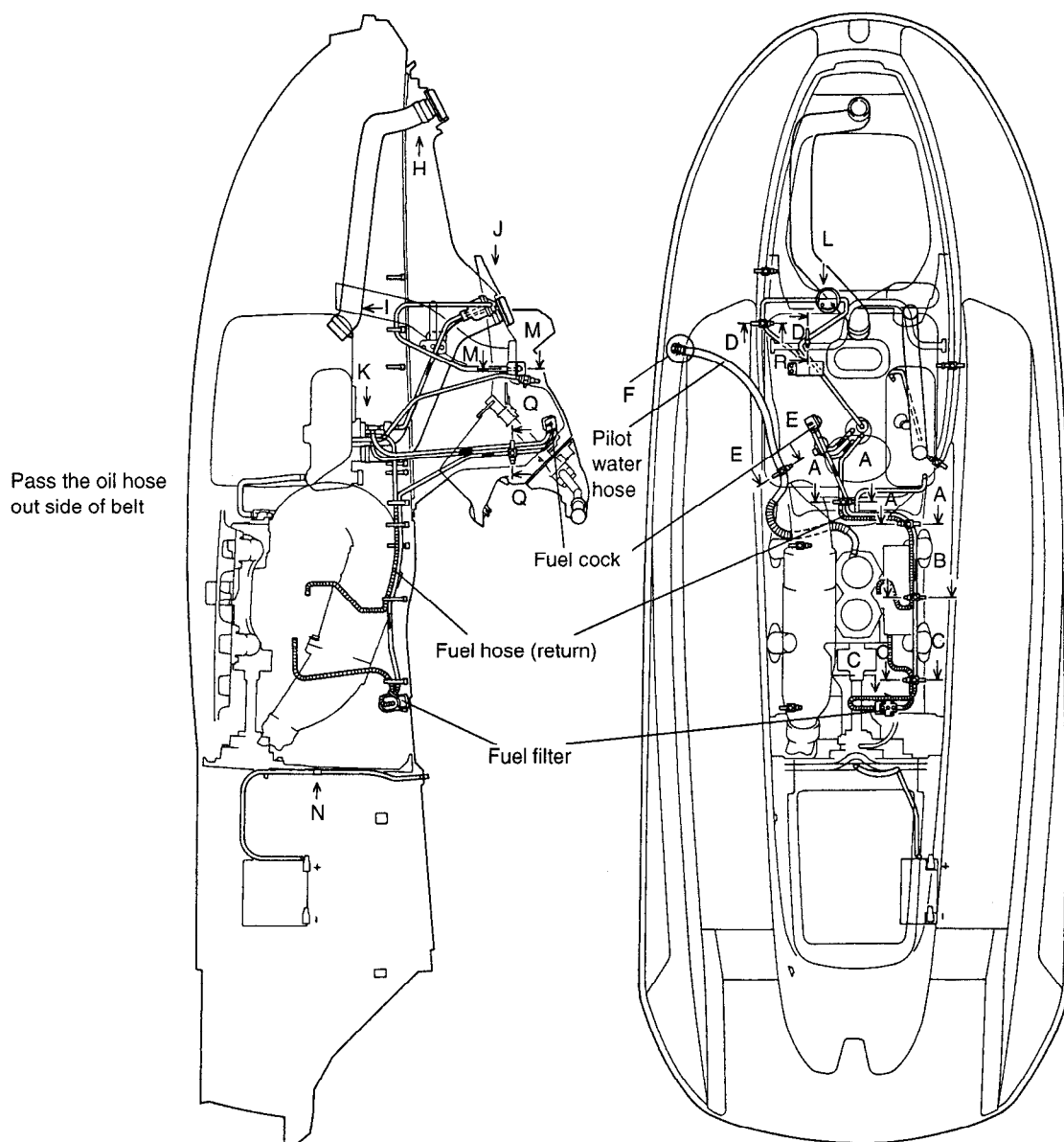
This chart specifies the torque for tightening standard fasteners with standard clean dry ISO threads at room temperature. Torque specifications for special components or assemblies are given in applicable sections of this manual. To avoid causing warpage, tighten multifastener assemblies in a criss-cross fashion, in progressive stages until the specified torque is reached.

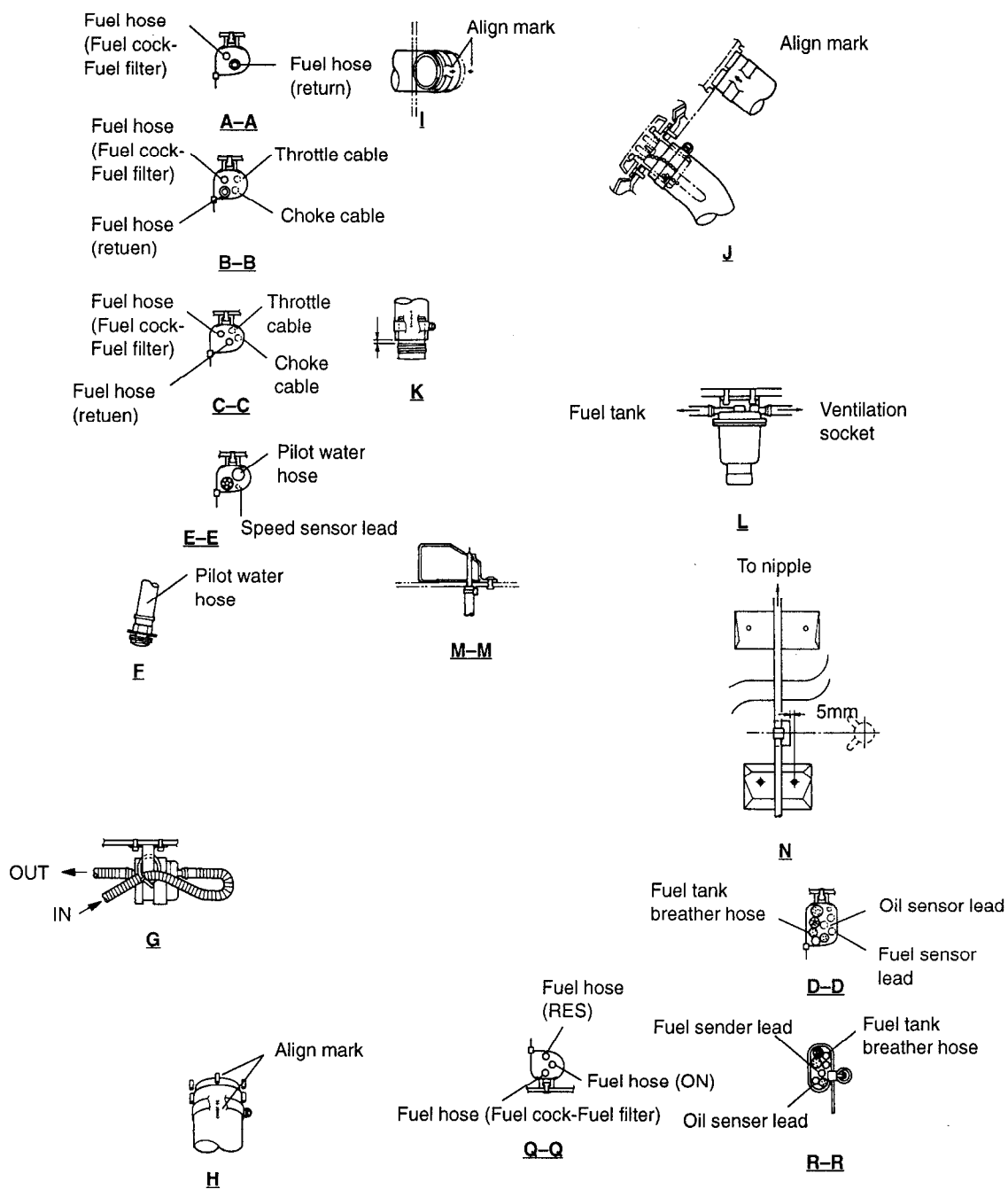




FUEL LINE ROUTING

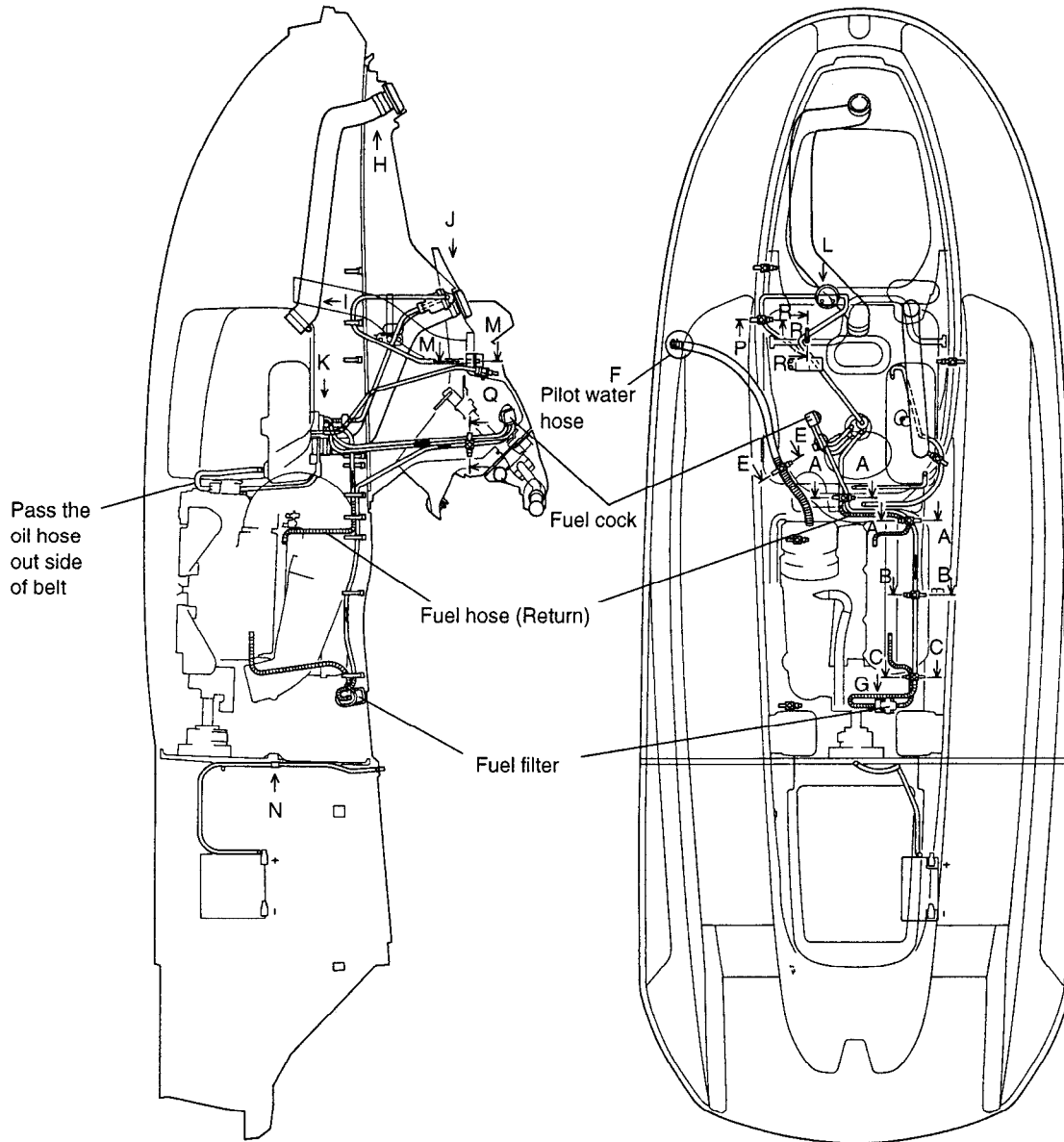
XL760







XL1200





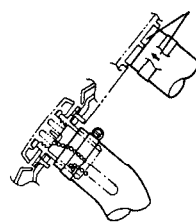
Fuel hose (Fuel cock-Fuel filter)

**A-A**Fuel hose
(Fuel cock-
Fuel filter)**B-B**

Align mark

**I**

Align mark

**J**Fuel hose
(Fuel cock-
Fuel filter)**C-C**Fuel hose
(Fuel filter-
cabretor)**K**

10±3mm

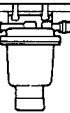
Pilot water hose



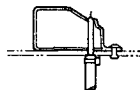
Speed sensor lead

E-E

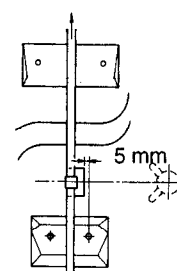
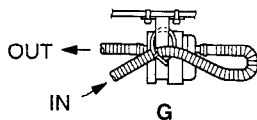
Fuel tank

Ventilation
socket**L**

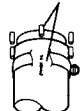
Pilot water hose

**E****M-M**

To nupple

**N**Fuel tank
breather hose**P-P**Oil sensor lead
Fuel sensor lead**G**

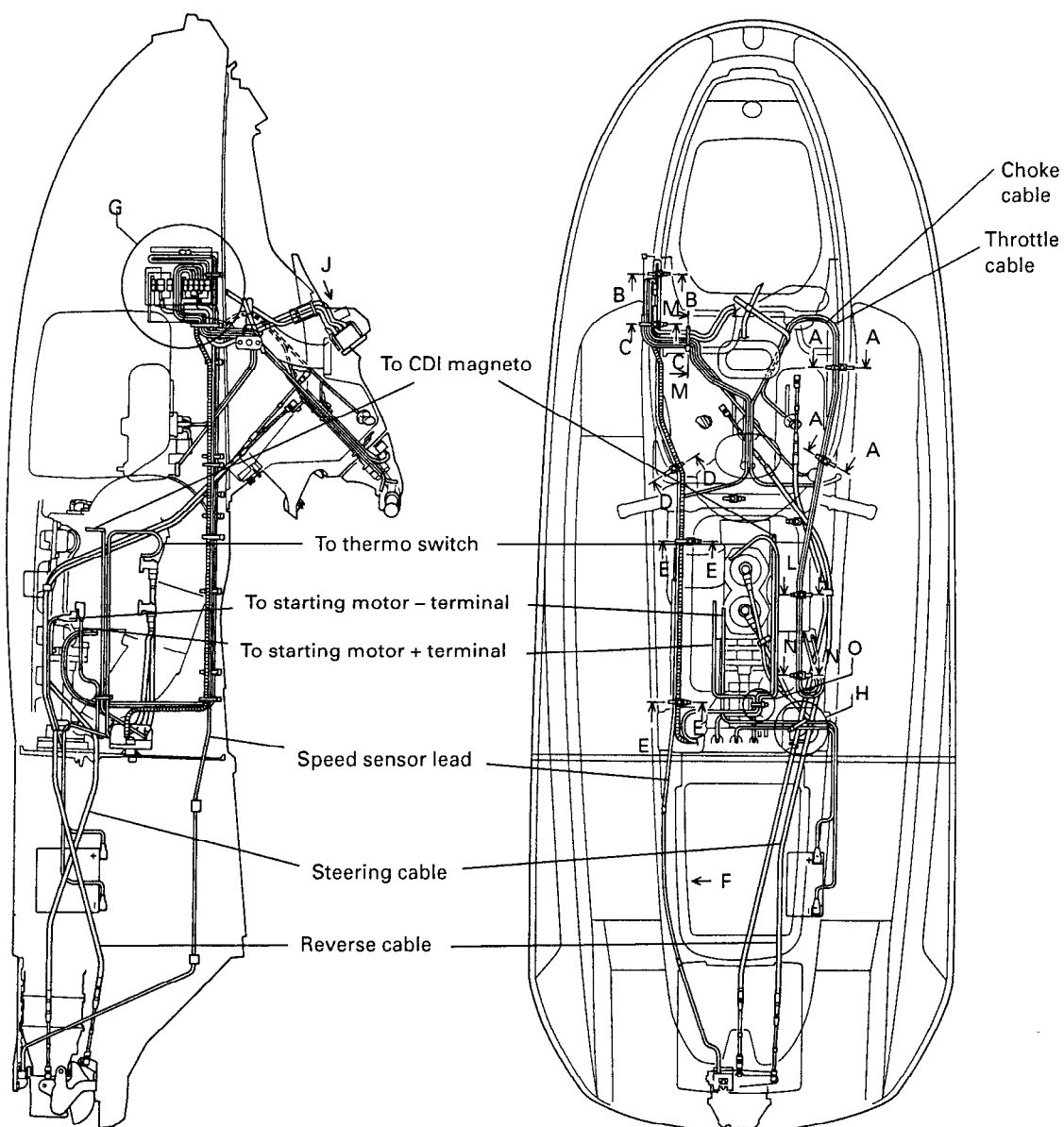
Align mark

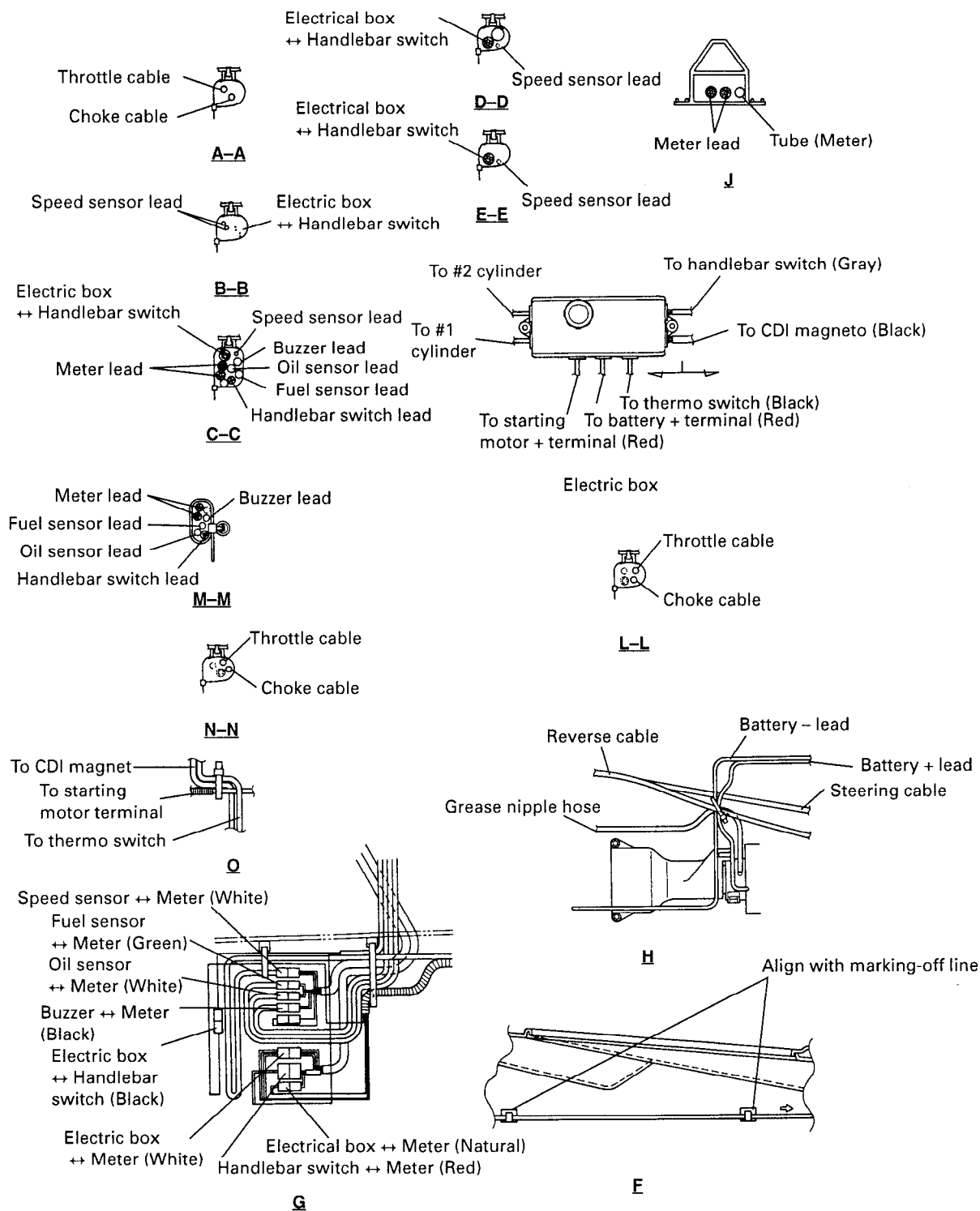
**H**Fuel hose (RES)
Fuel hose (ON)
Fuel hose
(Fuel cock-
Fuel filter)**Q-Q**Fuel
sensor lead
Fuel tank breather hose
Oil sensor lead**R-R**



CABLE LINE ROUTING

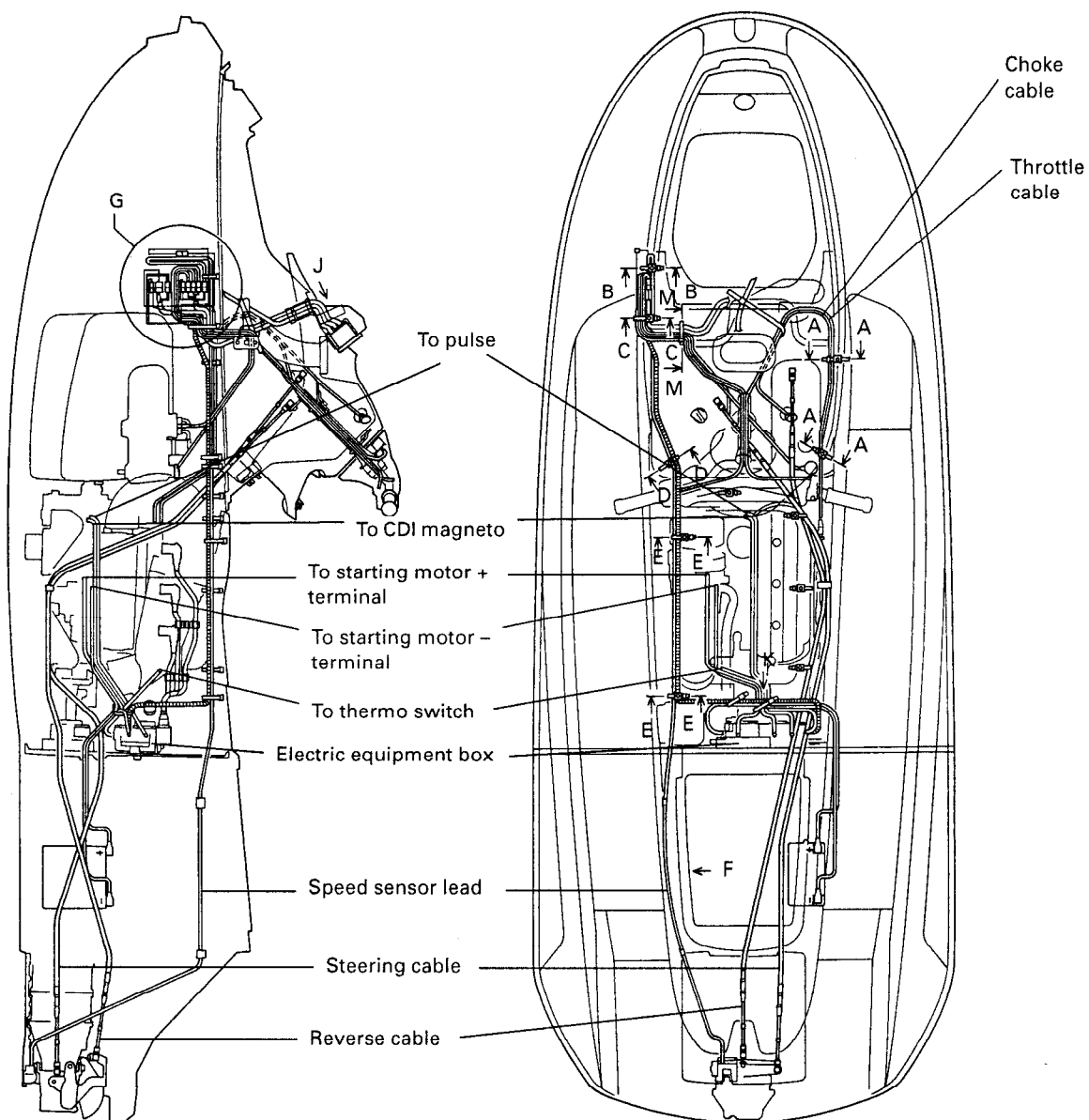
XL760

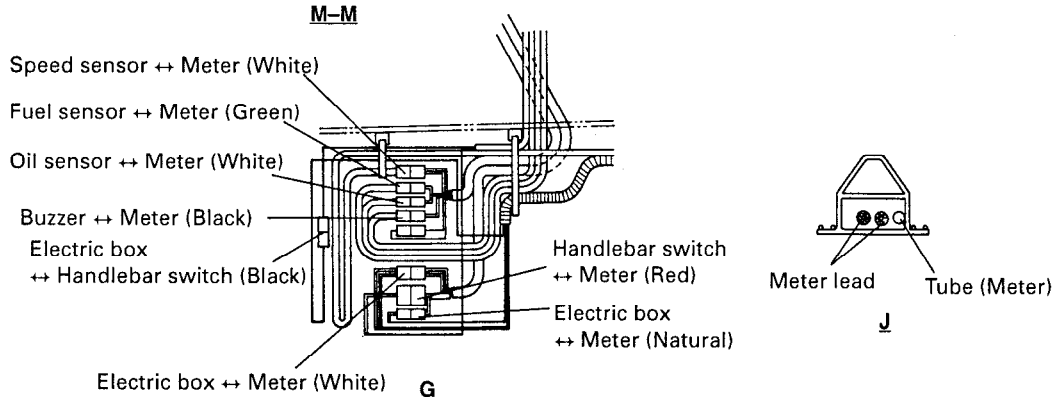
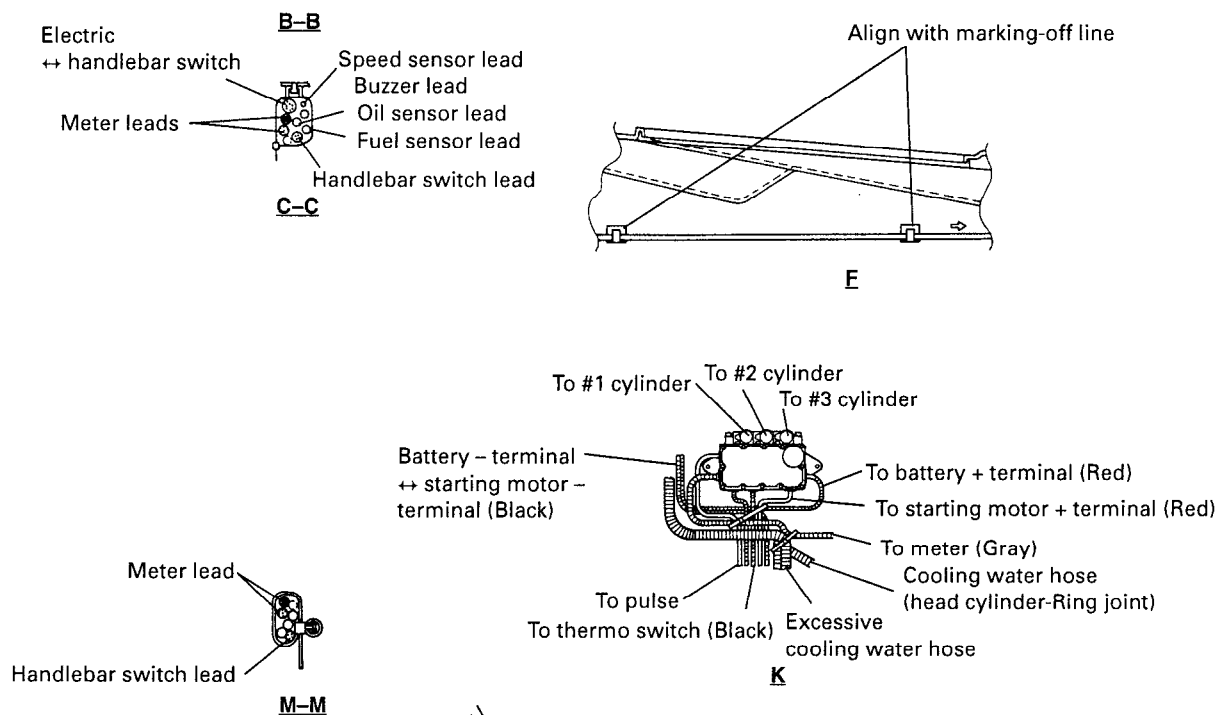
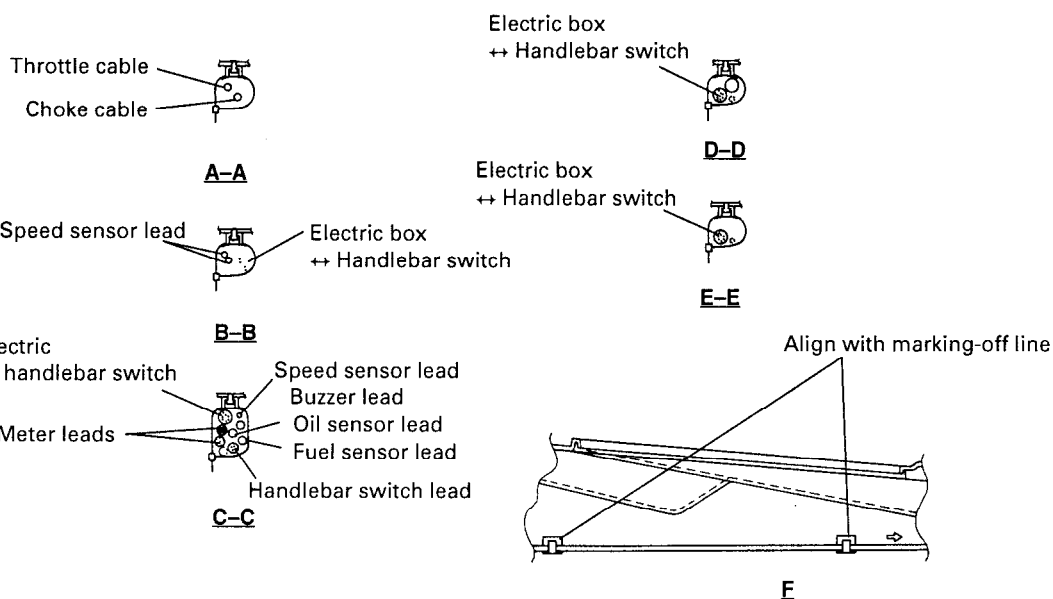






XL1200





CHAPTER 3

PERIODIC INSPECTION AND ADJUSTMENT

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MAINTANCE INTERVAL CAHRT

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.

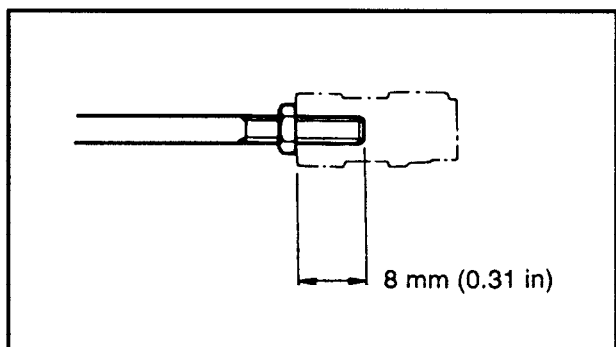
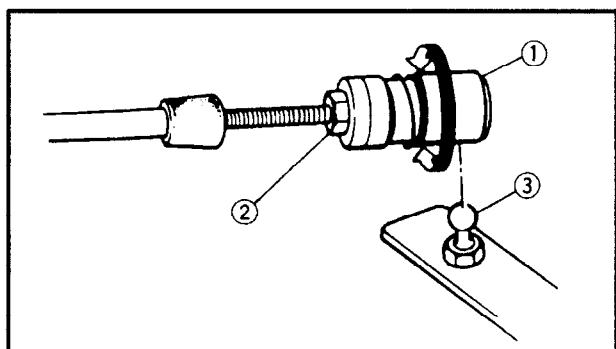
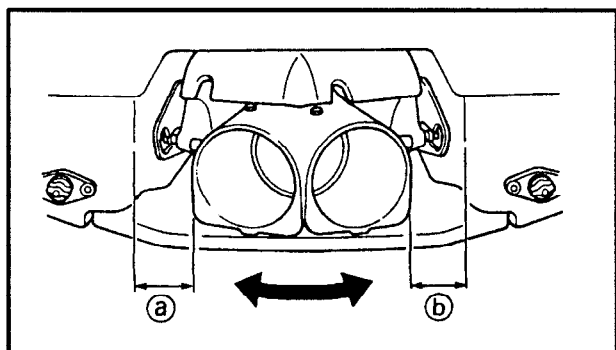
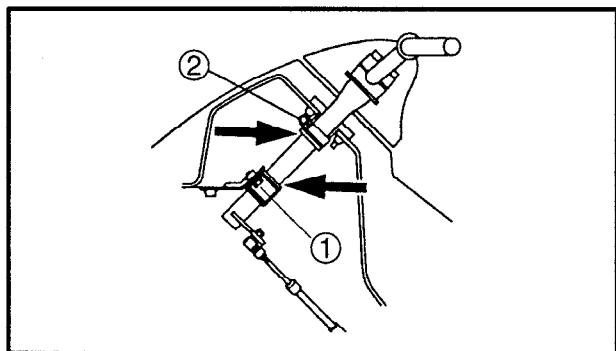
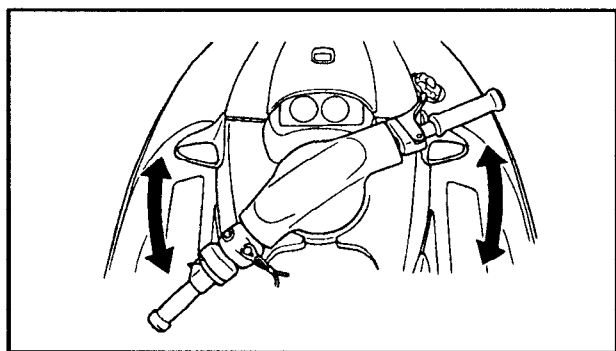
Item	Remarks	Initial		Every		Refer to page
		10 hours (Break-in)	50 hours (3 months)	100 hours (6 months)	200 hours (1 year)	
CONTROL SYSTEM:						
Steering cable	Inspection/Adjustment			○		3-2
Throttle cable	Inspection/Adjustment			○		3-3
Carburetor throttle shaft	Inspection			○		—
Choke cable	Inspection/Adjustment			○		3-4
Shift cable	Inspection/Adjustment			○		3-5
FUEL SYSTEM:						
Fuel tank	Cleaning				○	4-7
Fuel filter	Cleaning/Replacement	○			○	3-6
Fuel line	Inspection			○		4-1
Trolling speed	Inspection/Adjustment			○		3-6
Carburetor setting	Inspection/Adjustment	○		○		3-7
OIL INJECTION SYSTEM:						
Oil injection system	Inspection/Cleaning	○			○	3-8
POWER UNIT:						
Spark plug	Inspection/Cleaning/Adjustment	○	○	○		3-10
Cooling-water passage	Cleaning/Flashing		○			—
Coupling rubber	Inspection				○	—
ELECTRICAL:						
Battery	Inspection	○				3-11
JET PUMP UNIT:						
Impeller	Inspection		○	○		3-13
Bilge strainer	Cleaning		○	○		3-13
GENERAL:						
Bolt and nut	Retightening	○		○		—
Drain plug	Inspection/Replacement				○	3-14
Greasing point	Greasing			○		3-14
Bearing housing	Greasing	○*1		○*2		3-15
Starter motor idle gear	Greasing	○*3		○*4		3-15

*1: Grease capacity 33.0 ~ 35.0 cm³ (1.11 ~ 1.18 oz.)

*2: Grease capacity 6.0 ~ 8.0 cm³ (0.20 ~ 0.27 oz.)

*3: Grease capacity 8.0 cm³ (0.27 oz.)

*4: Grease capacity 2.0 cm³ (0.07 oz.)



PERIODIC SERVICE

CONTROL SYSTEM

Pivot shaft bearing inspection

1. Inspect:

- Pivot shaft bearing
Excessive play → Replace bushing.
Refer to the "STEERING SYSTEM" in chapter 8.

Inspection steps:

- Move the handlebar up and down.
- Move the handlebar back and forth.

NOTE:

Check that the pivot shaft support bolt ① is secured first.

- If the pivot shaft becomes loose, retighten the clamp ② until a satisfactory feed is obtained.

Steering cable inspection and adjustment

1. Inspect:

- Jet nozzle clearance (a), (b)

Inspection steps:

- Turn the handlebar lock to lock.
- Measure the clearances (a) and (b).
- If the (a) and (b) clearances are not even, adjust the clearances.

2. Adjust:

- Cable joint (handle side) ①

Adjustment steps:

- Loosen the lock nut ②.
- Disconnect the cable joint from the ball joint ③.
- Turn the cable joint to adjust.

Turn in	Clearance (a) is increased.
Turn out	Clearance (b) is increased.

⚠ WARNING

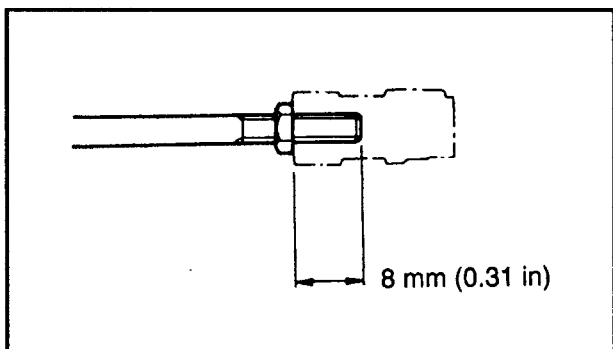
The cable joint must be screwed in more than 8 mm (0.31 in).

- Connect the cable joint and tighten the lock nut.



Lock nut:

7 Nm (0.7 m•kg, 5.1 ft•lb)



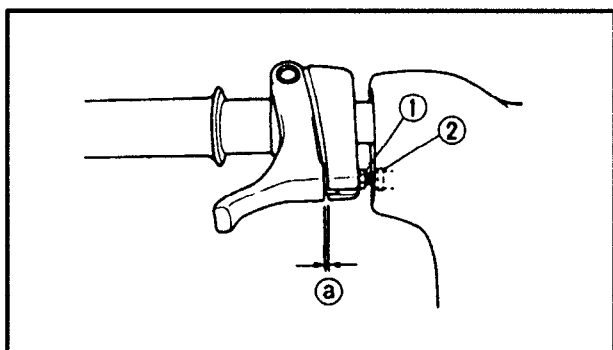
NOTE: _____

If correct adjustment cannot be obtained using the cable joint at the handlebar end, adjust the cable joint at the steering nozzle end.

Throttle cable inspection and adjustment

NOTE: _____

Before adjusting the throttle lever free play, the trolling speed should be adjusted.



1. Measure:
 - Throttle lever free play **a**
 - 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 lock nut ①.
- Turn the adjuster ② in/out until the specified free play is obtained.

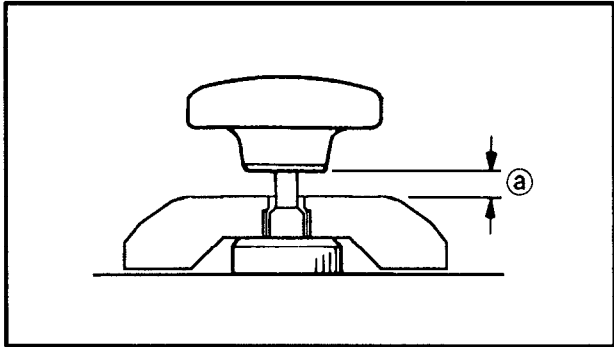
Turn in	Free play is increased.
---------	-------------------------

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

- Tighten the lock nut.

⚠ WARNING _____

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

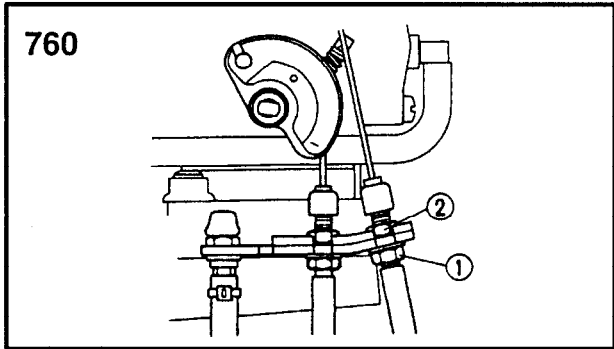


Choke cable inspection and adjustment

- Measure:
 - Choke cable free play ①
 Out of specification → Adjust.



Choke cable free play:
1 ~ 6 mm (0.04 ~ 0.24 in)



- Adjust:
 - Choke cable free play

Adjustment steps:

- Loosen the lock nut ①.
- Turn the adjuster ② in/out until the specified free play is obtained.

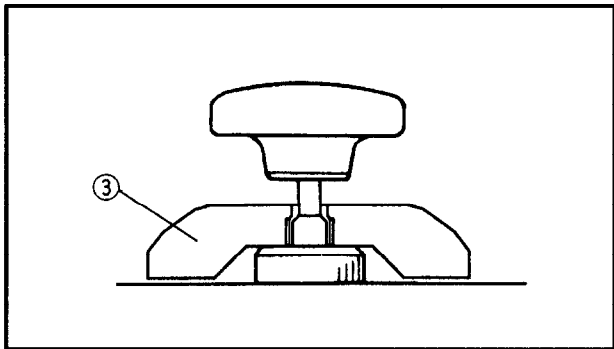
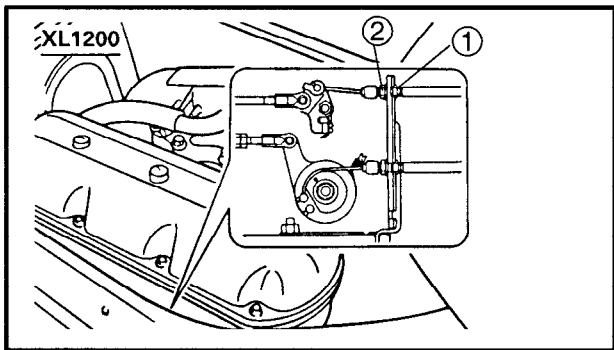
Turn in	Free play is increased.
---------	-------------------------

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

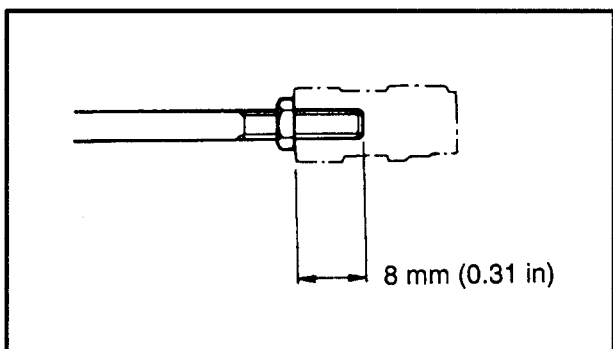
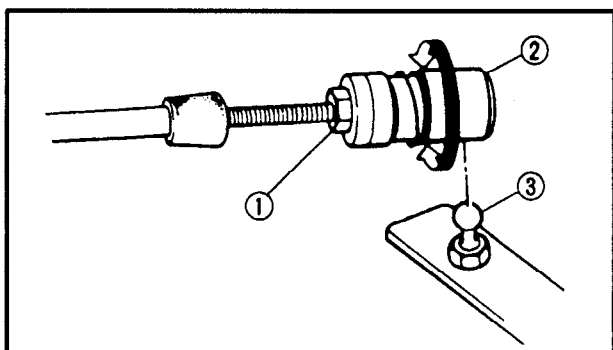
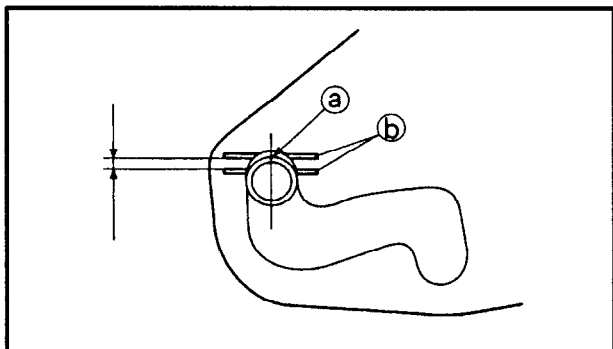
- Tighten the lock nut.



Lock nut:
9 Nm (0.9 m·kg, 6.5 ft·lb)



- Inspect:
 - Pull knob farthest toward
 Knob automatically returns → Adjust.
- Adjust:
 - Adjust nut ③
 Turn in to stop automatic return.

**Shift cable inspection and adjustment****1. Check:**

- Reverse gate collar head (a) position
Out of specification → Adjust.

Checking steps:

- Set the shift lever to the reverse position.
- Turn the steering fully to the right or left.
- Check to make sure that the collar head position should be inside of two marking lines (b) of the shift rod lever.

2. Adjust:

- Shift cable joint (shift lever side)

Adjustment steps:

- Loosen the lock nut (1).
- Disconnect the cable joint (2) from the ball joint (3).
- Turn the cable joint for adjusting.

Turn in	Clearance is increased.
Turn out	Clearance is decreased.

⚠ WARNING

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

- Connect the cable joint and tighten the lock nut.

**Lock nut:**

4 Nm (0.4 m•kg, 2.9 ft•lb)

FUEL SYSTEM

WARNING

- Stop the engine, set the fuel cock to “OFF” and loosen the fuel filler cap before a fuel system service.
- When removing fuel system parts, hold them in a cloth and take care that no fuel spills into the engine compartment.

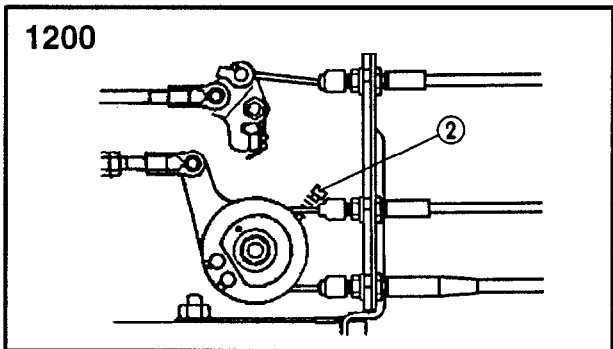
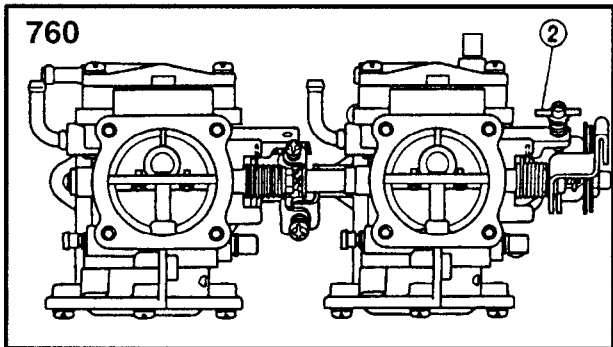
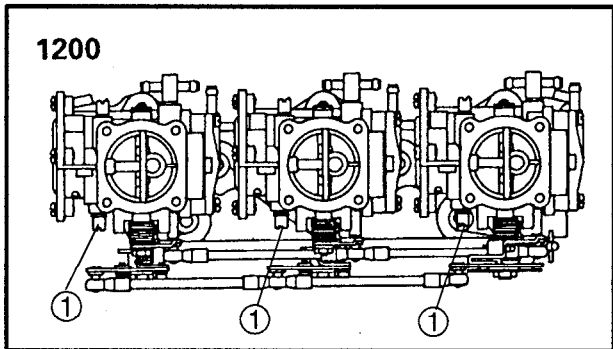
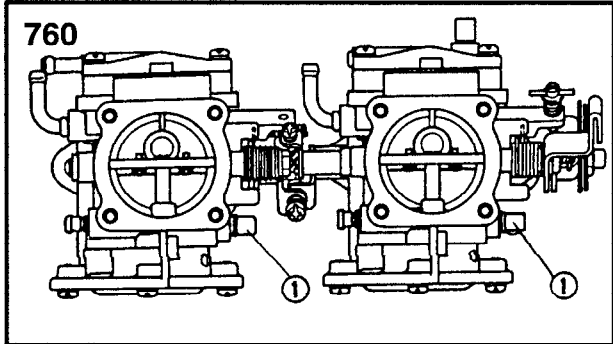
Fuel filter inspection

- Inspect:
 - Filter element
Contamination → Replace.
 - Filter body
Crack/Damage → Replace.
 - Filter assembly
Water contamination → Replace and check the fuel tank.

Trolling speed inspection and adjustment

- Check:
 - Trolling speed
Out of specification → Adjust.

	Trolling speed: 1,300 ± 50 r/min
Checking steps: (vehicle on water) • Start the engine and allow it to warm up for a few minutes. • Attach the engine tachometer to the spark plug lead.	
	Engine tachometer: YU-08036-A/90890-06760
• Measure the engine trolling speed.	



2. Adjust:
- Trolling speed

- Adjustment steps:
- Screw in the low speed screws ① until they are lightly seated.
 - Back the screws out by the specified number of turns.



Low speed screw:

XL760

1-3/4 ± 1/4 turns out

XL1200

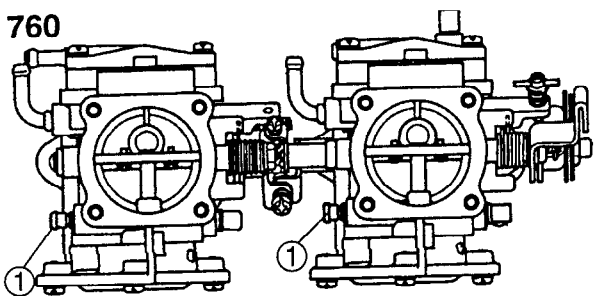
1 ± 1/4 turns out

- Start the engine and allow it to warm up for a few minutes.
- Turn the throttle stop screw ② in or out until the specified speed is obtained.

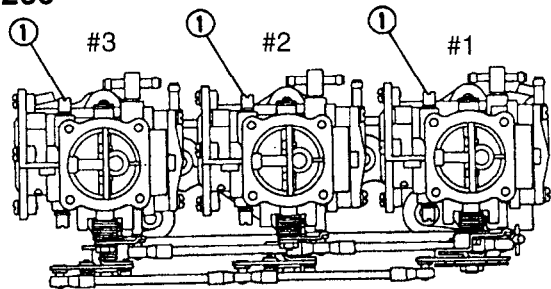
Turning in	Increase trolling speed.
Turning out	Decrease trolling speed.



760



1200



Carburetor adjustment

1. Adjust:

- High speed screw

Adjustment steps:

- Screw in the high speed screws ① until they are lightly seated.
- Back the screws out by the specified number of turns.



High speed screw:

XL760

$1/2 \pm 1/4$ turns out

XL1200

$3/4 \pm 1/4$ (#1, #3)

$1 \pm 1/4$ (#2) turns out

OIL INJECTION SYSTEM

Oil filter inspection

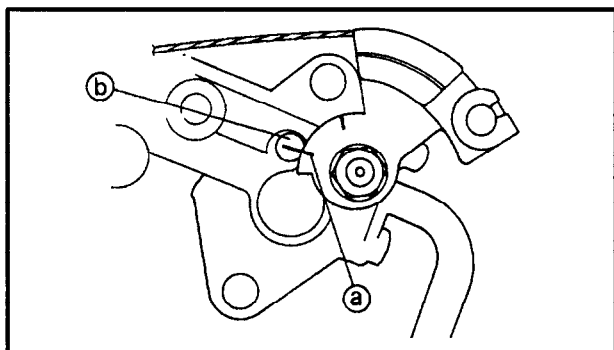
1. Inspect:

- Oil filter
Fray/Tear → Replace.
Muddy/Dirt → Clean.
- Seal rubber
Wear/Crack → Replace.

Oil pump cable inspection and adjustment (XL1200)

1. Inspect:

- Oil pump lever position
Incorrect → Adjust.

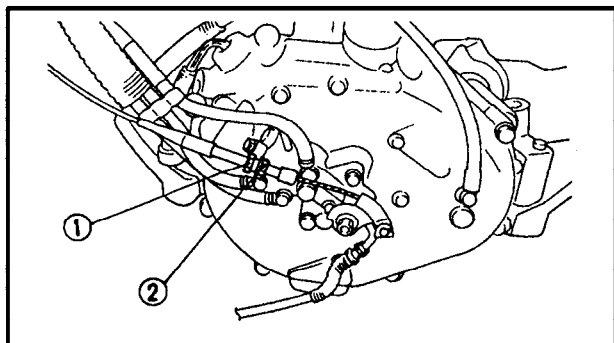


Checking steps:

- Fully close the carburetor throttle valve.
- Check that the mark (a) on the pump lever is aligned the mark (b) on the pump body.

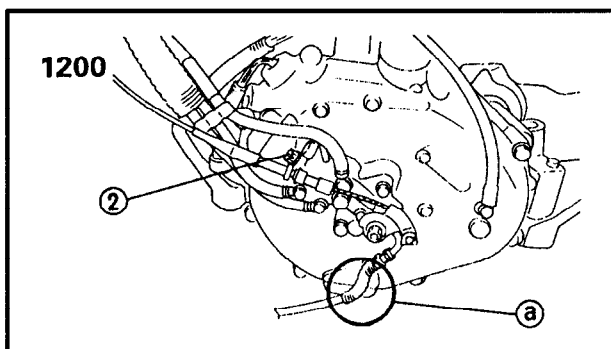
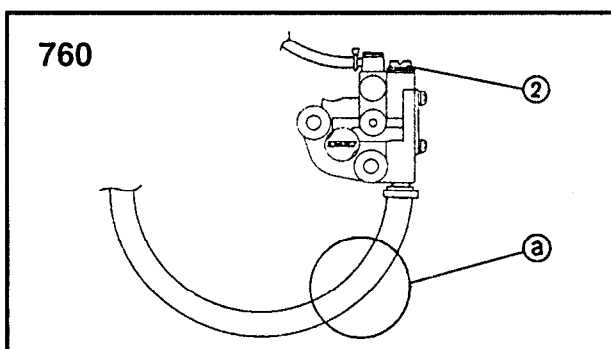
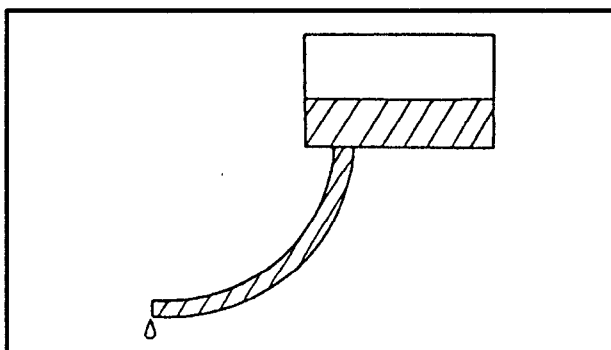
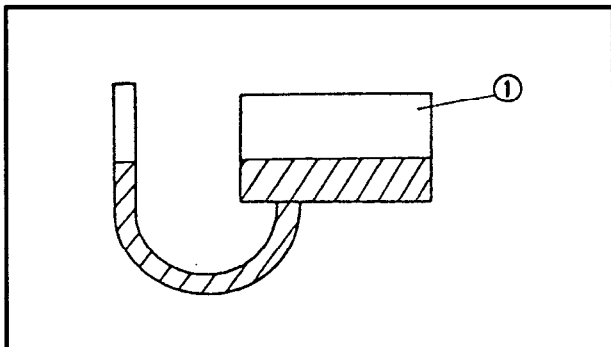
2. Adjust

- Oil pump cable



Adjustment steps:

- Loosen the lock nut ① and adjust nut ②.
- Fully close the carburetor throttle valve.
- Adjust the oil pump cable so that mark (a) on the pump lever aligns the mark (b) on the pump body.
- Tighten the lock nut.



Oil injection pump air bleeding

NOTE:

Bleed the oil injection system if:

- The system has been disassembled.
- The oil has been completely used up during operation.

1. Bleed:

- Air

Air bleeding steps:

- Place rags under the oil pump to catch any oil that spills out.
- Disconnect the oil hose from the oil pump.
- Position the oil hose end above the oil tank ①.
- Put 2 liters of oil or more in the oil tank and leave it for 2 minutes.
- Then, lower the oil hose end and make sure the oil flows out of the oil hose.
- Connect the oil hose to the oil pump.
- Clamp the oil hose with the hose tie.
- Loosen the air bleed screw ② 2 turns, and make sure both oil and air bubbles flow out.
- If oil does not come out, squeeze the oil hose ③ near the oil pump inlet a maximum 20 times.
- When no air bubbles remain, tighten the air bleed screw.
- Wipe out any spilled oil.



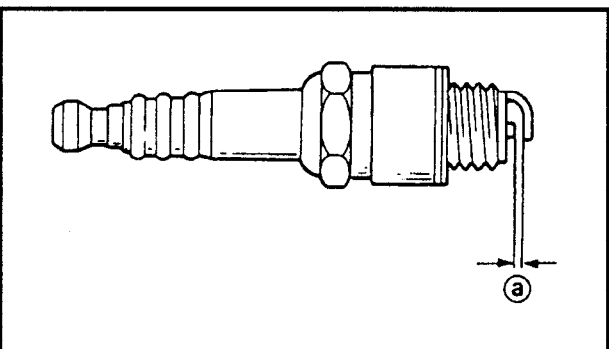
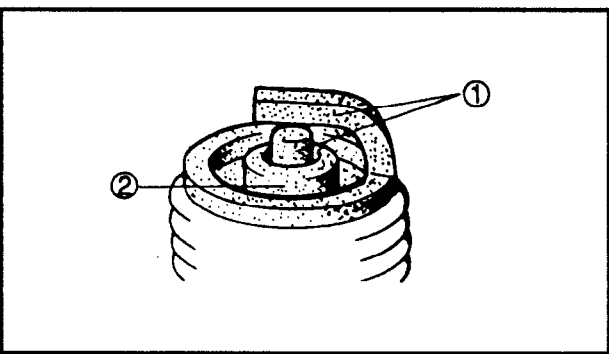
Screw:

5 Nm (0.5 m•kg, 3.6 ft•lb)

**POWER UNIT****Spark plug inspection**

1. Inspect:

- Electrode ①
Wear/Damage → Replace.
- Insulator color ②
Discolor → Check the engine condition.

**Color guide:****Medium to light tan color:****Normal****Whitish color:****Lean fuel mixture****Plugged fuel mixture****Air leak****Incorrect settings****Blackish color:****Overly rich mixture****Electrical malfunction****Excess oil used****Defective spark plug**

2. Clean:

- Spark plug
Clean the spark plug with a spark plug cleaner or wire brush.

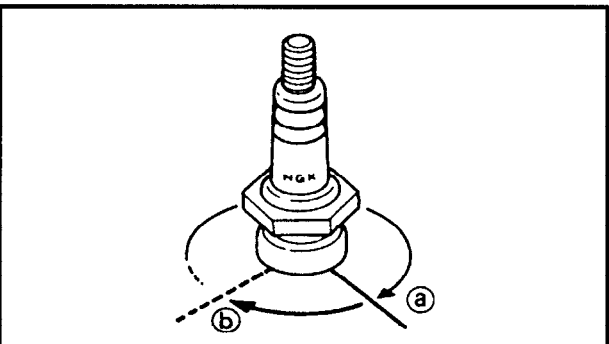
3. Measure:

- Spark plug gap ①
Out of specification → Alter gap.
Use a wire gauge.

**Spark plug gap:****0.6 ~ 0.7 mm (0.024 ~ 0.028 in)**

4. Tighten:

- Spark plug

**Spark plug:****25 Nm (2.5 m•kg, 18 ft•lb)****NOTE:**

- Before installing a spark plug, clean the gasket surface and plug surface. Also it is advisable to apply a thin film of Anti Seize Compound to the spark plug threads to prevent future thread seizure.
- If a torque wrench is not available, a good estimate of the correct torque for the spark plug is a further 1/4 to 1/2 turns ② on from finger tightness ①.

ELECTRICAL

Battery inspection

CAUTION:

Be careful not to place the battery on its side. Before adding the battery fluid or recharging, be sure to remove it from the battery compartment. When checking the battery, make sure the breather hose is connected to the battery and is not pinched shut anywhere in the battery compartment.

⚠ WARNING

- Battery electrolyte is poisonous and dangerous, causing severe burns, etc. Contains sulfuric acid.
- Avoid contact with skin, eyes or clothing.
- Antidote: EXTERNAL-Flush with water.
- INTERNAL-Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg or vegetable oil. Call a physician immediately.
- Eyes: Flush with water for 15 minutes and get prompt medical attention. Batteries produce explosive gases.
- Keep sparks, flame, cigarettes, etc., away. Ventilate when charging or using in an enclosed space. Always shield your eyes when working near batteries.
- KEEP OUT OF REACH OF CHILDREN.

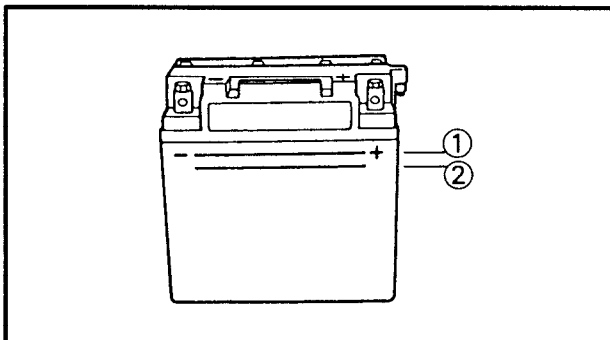
1. Remove:
 - Battery

⚠ WARNING

- When removing the battery, disconnect the negative lead first.
- Remove the battery to prevent acid loss during the impeller service.

2. Inspect:

- Battery fluid level
Battery fluid level low → Top up with distilled water.
Fluid level should be between upper ① and lower ② level marks.



**Filling steps:**

- Remove each filler cap.
- Fill with distilled water using a jug.
- When the acid is up to the UPPER LEVEL, allow the cell to stand for 20 minutes. If the acid level has dropped, add more acid up to the UPPER LEVEL once again.

CAUTION:

Water other than distilled water contains minerals which are harmful to a battery; top up only with distilled water.

3. Inspect:

- Battery fluid specific gravity
Out of specification → Charge.



Specific gravity at 20°C (68°F):

1.28

Charging current:

68.4 kc. (1.9 Amps × 10 hrs)

4. Install:

- Filler cap

CAUTION:

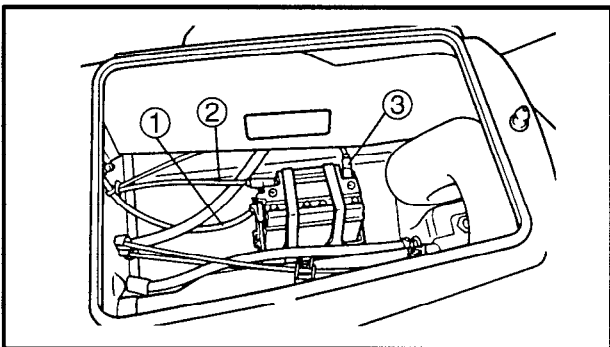
Rinse off any acid from the battery case and wipe the battery dry prior to installation.

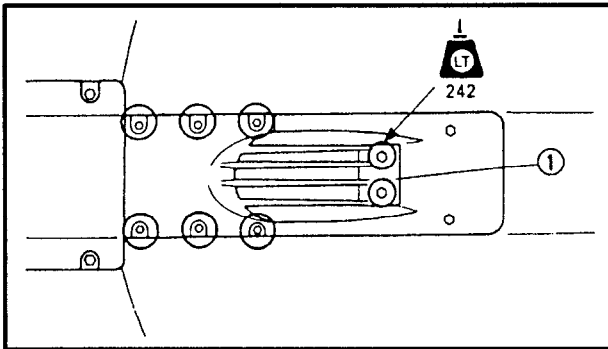
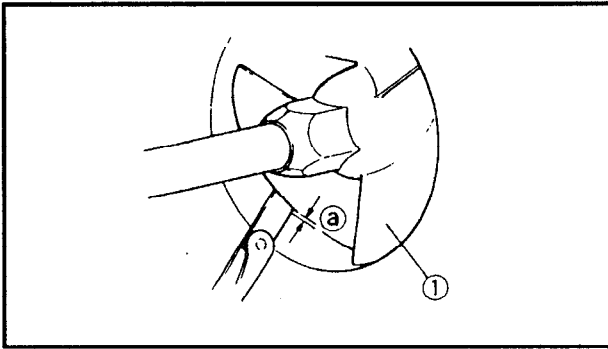
5. Install:

- Breather hose ①
- Battery
- Positive lead ②
- Negative lead ③
- Battery babb

CAUTION:

- Connect the positive red 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 the 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
Wear/Damage → Replace.
Scratch/Nick → File/Grind.
2. Measure:
 - Impeller clearance ②
Out of specification → Replace.



Impeller clearance limit:
0.6 mm (0.024 in)

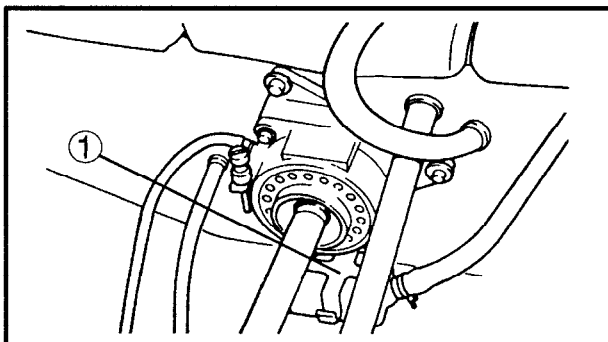
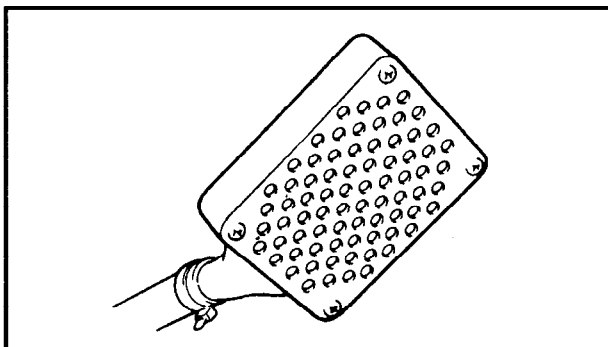
Measurement steps:

- Remove the battery.
- Remove the intake screen ①.
- Measure the clearance at all four points.
- Install the intake screen.



Bolt:
11 Nm (1.1 m•kg, 8.0 ft•lb)

- Install the battery.

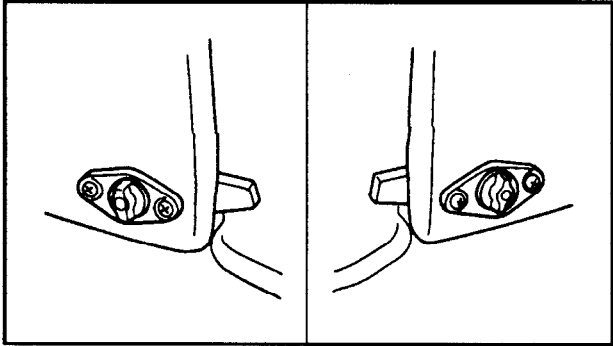


Bilge strainer inspection

1. Inspect:
 - Strainer
Contamination → Clean.
Crack/Damage → Replace.

Inspection steps:

- Remove the coupling cover.
- Disconnect the bilge strainer ① from the strainer holder.
- Inspect the bilge strainer.



GENERAL

Drain plug inspection

- Inspect:
 - Drain plug
Crack/Damage → Replace.
 - O-ring
Crack/Wear → Replace.
 - Screw threads
Dirt/Sandy → Clean.

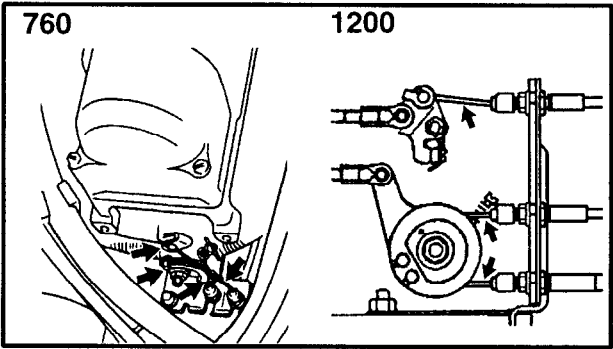
Greasing point

- Apply:
 - Throttle cable inner wire

Recommended fluid:
Rust-inhibitor

NOTE:

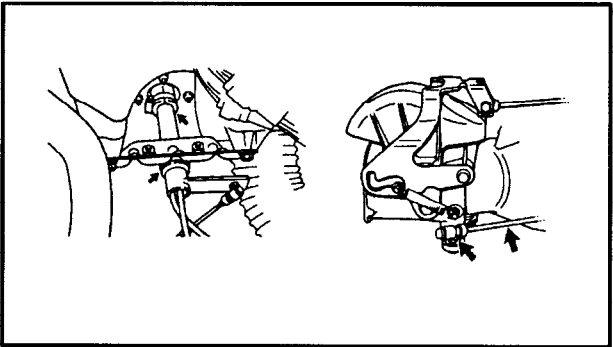
- Squeeze the throttle lever and remove the seal ①.
- Spray a rust-inhibitor into the outer cable.

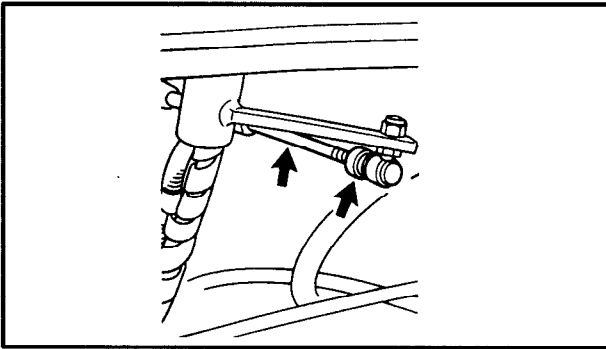


Recommended grease:
Water resistant grease

- Apply:
 - Steering pivot shaft bushing
 - Nozzle pivot shaft collar

Recommended grease:
Water resistant grease





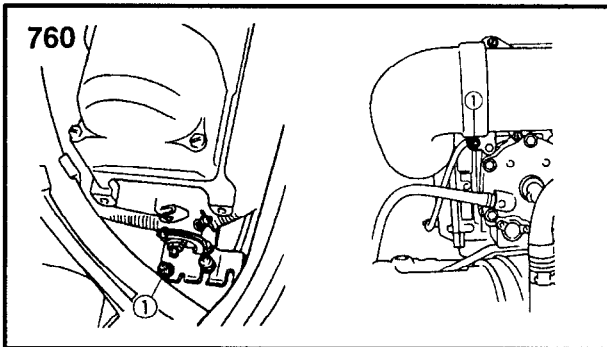
4. Apply:
- Steering cable
 - Cable joint



Recommended grease:
Water resistant grease

NOTE:

Disconnect the cable joint and apply a small amount of grease to the following parts.



5. Fill:

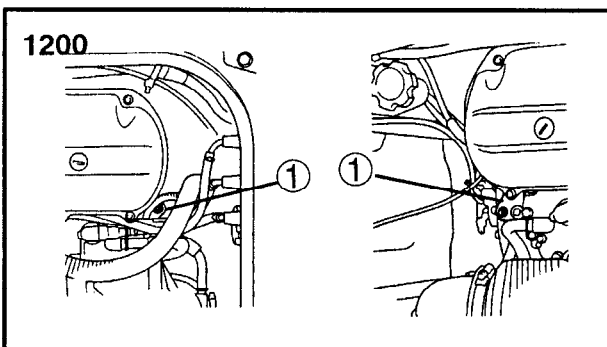
- Bearing housing
- Starter idle gear



Recommended grease:
Water resistant grease

NOTE:

- Fill in the bearing housing and the starter idle gear with water resistant grease through the grease nipples ①.
- Fill the grease slowly and carefully, as it can damage the hose and the joints.
- Refer to the "MAINTENANCE INTERVAL CHART".





CHAPTER 4

FUEL SYSTEM

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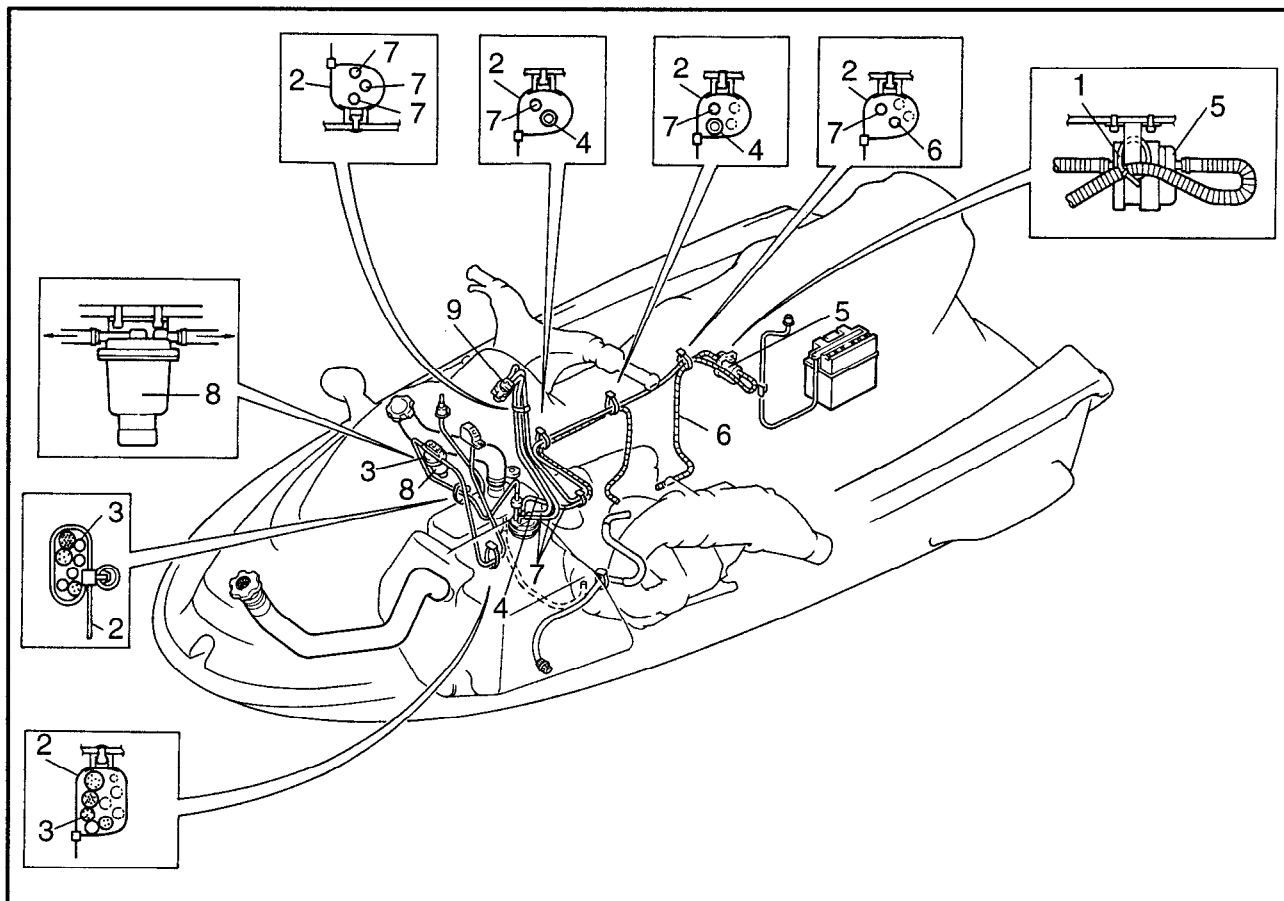


FUEL LINE

⚠ WARNING

Gasoline (Petrol) is highly flammable and explosive. Handle with special care.

EXPLODED DIAGRAM (XL760)

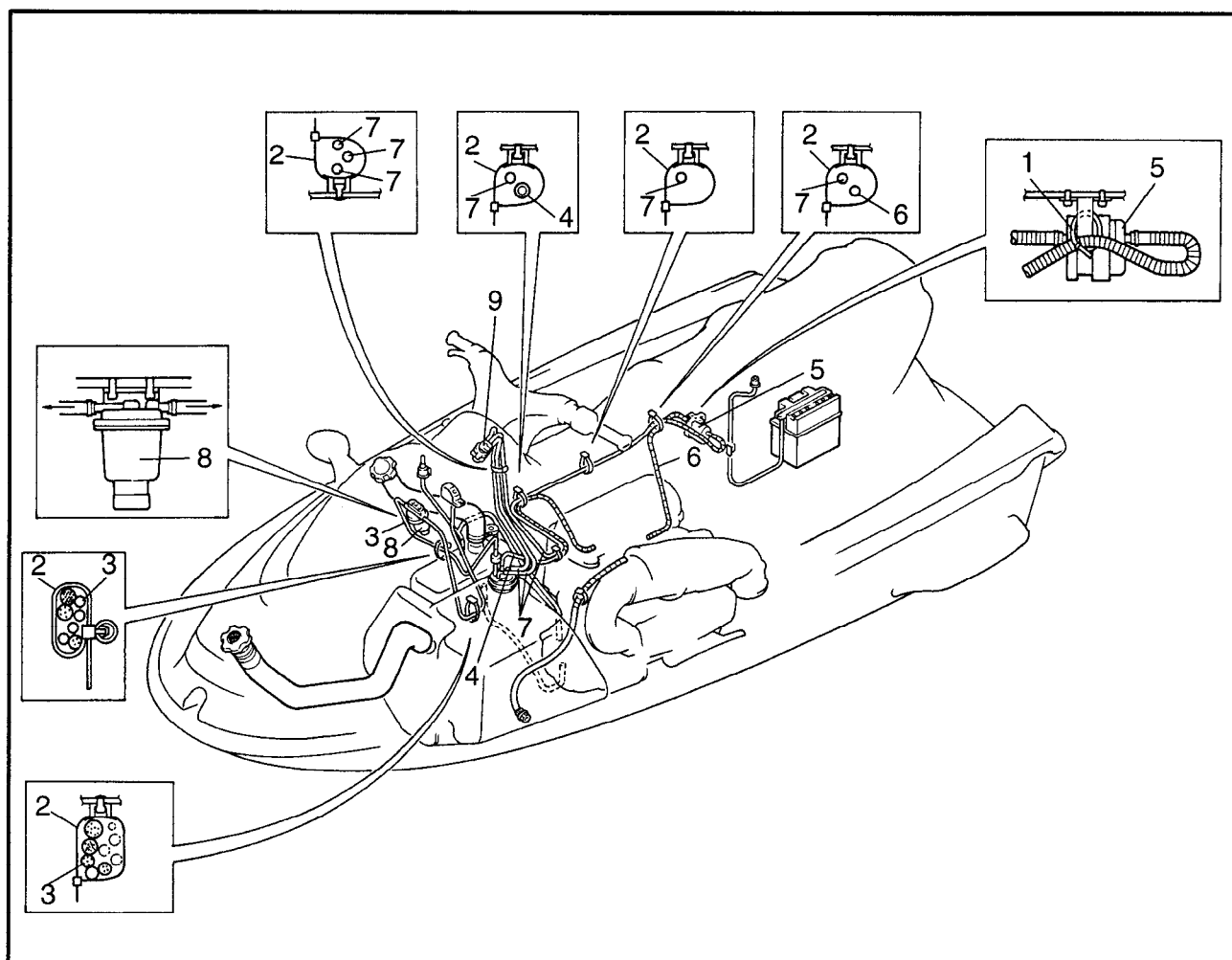


REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	AIR VENTILATION HOSE, FUEL COCK AND FUEL FILTER REMOVAL		Follow the left "Step" for removal.
1	Hose tie	1	
2	Clamp	6	
3	Air ventilation hose	1	
4	Fuel hose (OUT)	1	
5	Fuel filter	1	
6	Fuel hose	1	
7	Fuel hose	3	
8	Check valve	1	
9	Fuel cock body	1	
			Reverse the removal steps for installation.



EXPLODED DIAGRAM (XL1200)



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	AIR VENTILATION HOSE, FUEL COCK AND FUEL FILTER REMOVAL		Follow the left "Step" for removal.
1	Hose tie	1	
2	Clamp	6	
3	Air ventilation hose	1	
4	Fuel hose (OUT)	1	
5	Fuel filter	1	
6	Fuel hose	1	
7	Fuel hose	3	
8	Check valve	1	
9	Fuel cock body	1	
			Reverse the removal steps for installation.

**SERVICE POINTS****Fuel filter inspection**

Refer to the "FUEL SYSTEM" in chapter 3.

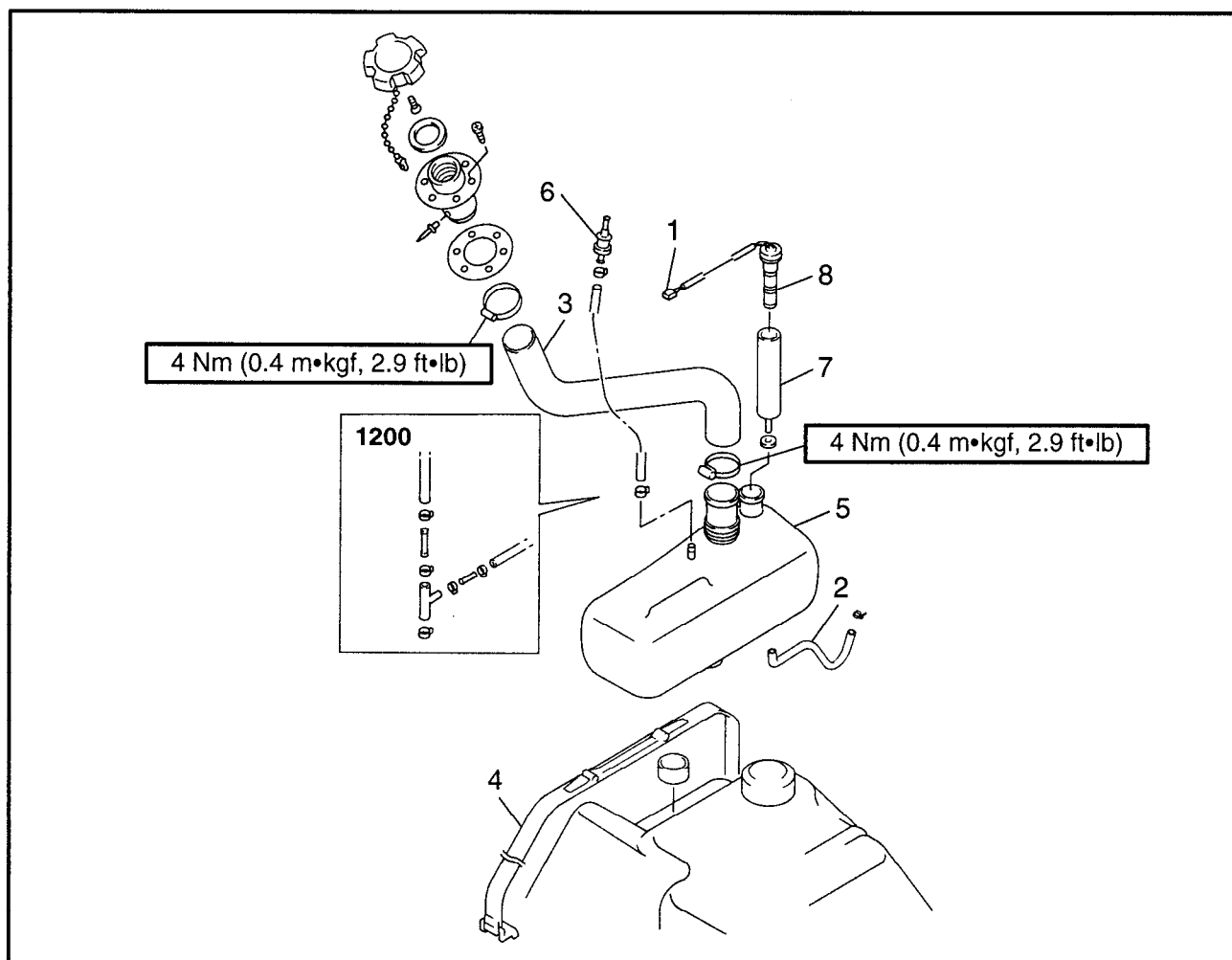
Fuel cock inspection**1. Check:**

- Fuel cock
 - Unsmooth movement → Replace.
 - Clog → Clean.



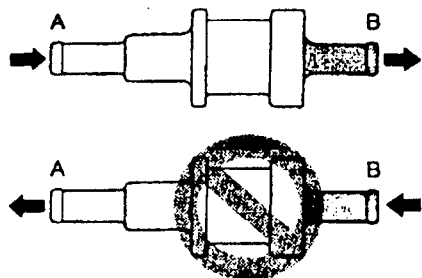
OIL TANK

EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	OIL TANK REMOVAL		
1	Oil level sensor lead coupler	1	Follow the left "Step" for removal.
2	Oil hose	1	
3	Oil filler hose	1	
4	Tank band	1	
5	Oil tank assembly	1	
6	Check valve	1	
7	Oil filter	1	
8	Oil level sensor	1	
			Reverse the removal steps for installation.

**SERVICE POINTS****Check valve inspection**

1. Check:
 - Check valve
Out of specification → Replace.

**Flow from A to B****Oil filter inspection**

Refer to “OIL INJECTION SYSTEM” in chapter 3.

Oil level sensor inspection

Refer to “INDICATION SYSTEM” in chapter 7.

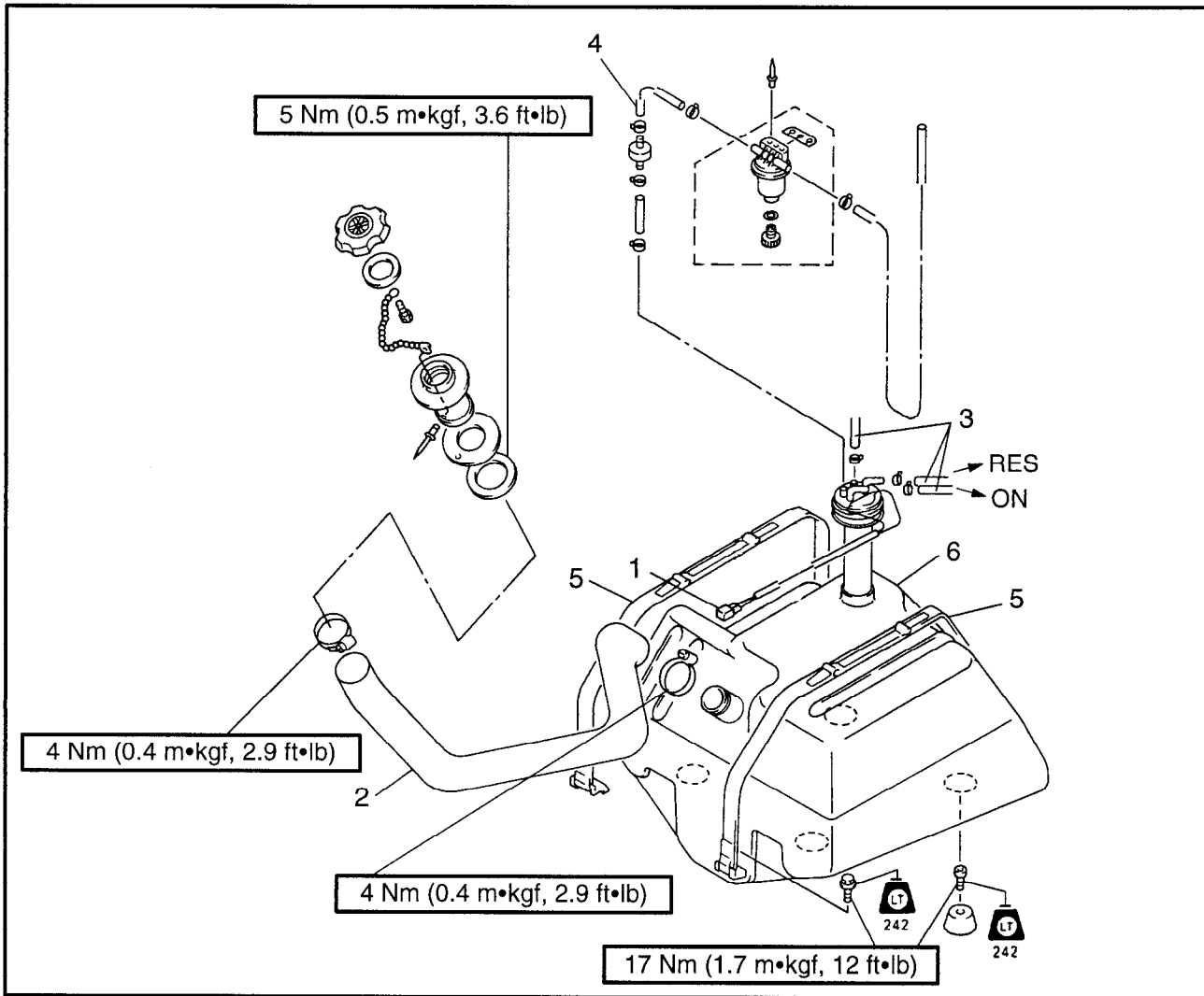
Oil tank inspection

1. Inspect:
 - Oil tank
Crack/damage → Replace.



FUEL TANK REMOVAL

EXPLODED DIAGRAM



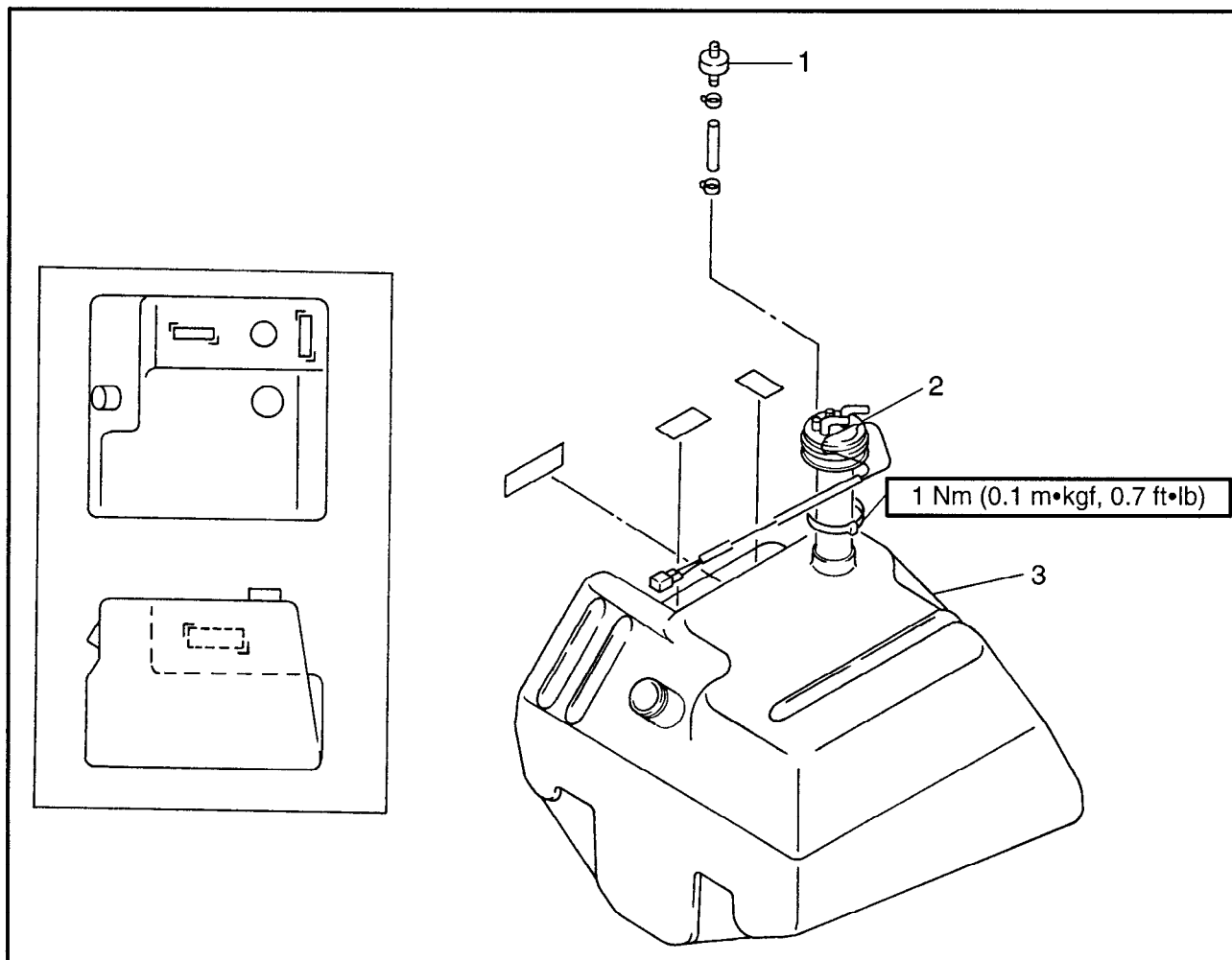
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	FUEL TANK REMOVAL		
	Engine hood	1	Follow the left "Step" for removal. Refer to "ENGINE HOOD REMOVAL" in chapter 8.
	Oil tank assembly	1	Refer to "OIL TANK".
1	Fuel level sensor lead coupler	1	
2	Fuel filler hose	1	NOTE: _____
3	Fuel hose	3	Drain the fuel.
4	Air ventilation hose	1	_____
5	Tank band	2	
6	Fuel tank assembly	1	Reverse the removal steps for installation.



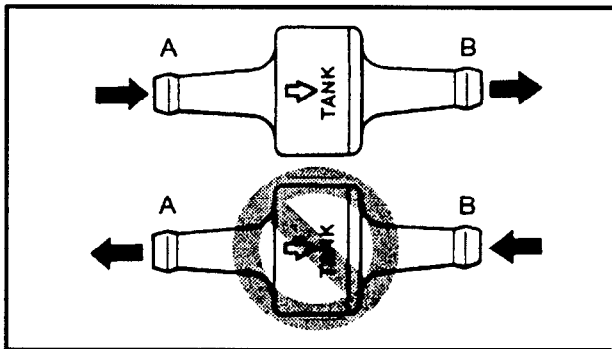
FUEL TANK

EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	FUEL TANK DISASSEMBLY		
	Fuel tank disassembly		Follow the left "Step" for removal. Refer to "FUEL TANK REMOVAL"
1	Check valve	1	
2	Pipe joint assembly	1	
3	Fuel tank	1	
			Reverse the removal steps for installation.



SERVICE POINTS

Check valve inspection

1. Check:
 - Check valve
 - Out of specification → Replace.



Flow from A to B

Fuel level sensor inspection

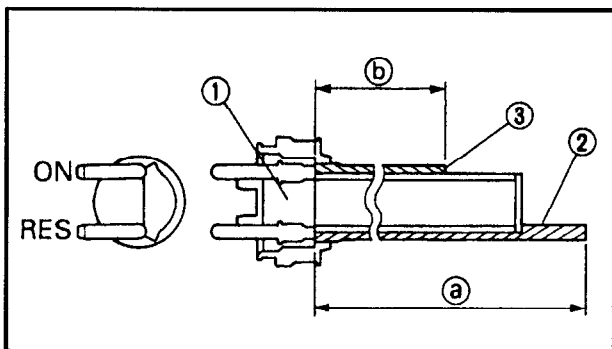
Refer to the "INDICATION SYSTEM" section in chapter 7.

Fuel tank inspection

1. Inspect:
 - Oil tank
 - Fuel tank
 - Crack/Damage → Replace.

Pipe joint inspection

1. Inspect:
 - Pipe
 - Bending/Damage → Replace.
 - Contamination → Clean.
 - Pipe joint
 - Wear/Crack → Replace.



Pipe joint installation

1. Install:
 - Pipe joint ①
 - Pipe ②
 - Pipe ③



Length ①:

$372.5 \pm 2 \text{ mm (14.7} \pm 0.08 \text{ in)}$

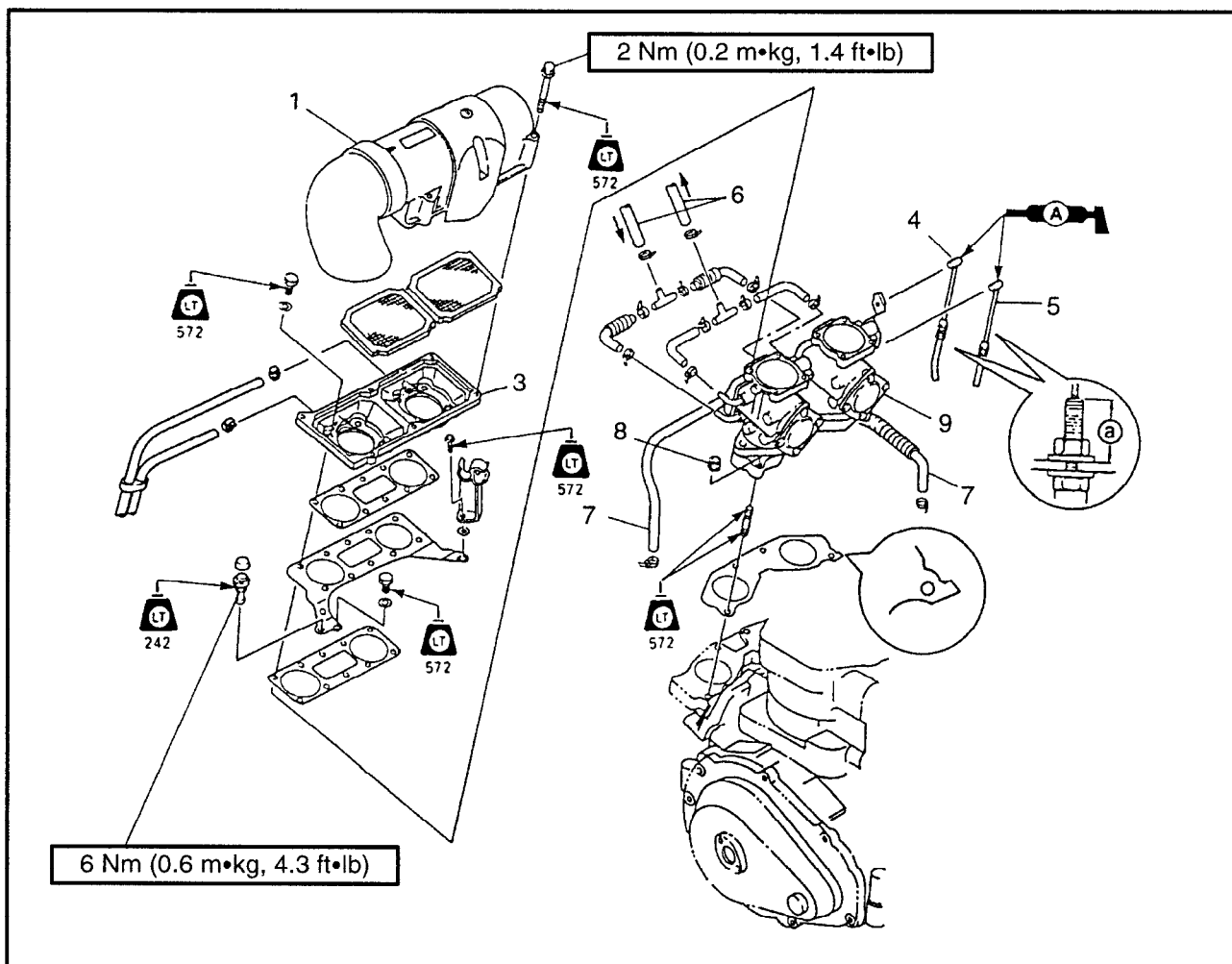
Length ②:

$352.5 \pm 2 \text{ mm (13.8} \pm 0.08 \text{ in)}$



CARBURETOR UNIT REMOVAL

EXPLODED DIAGRAM (XL760)

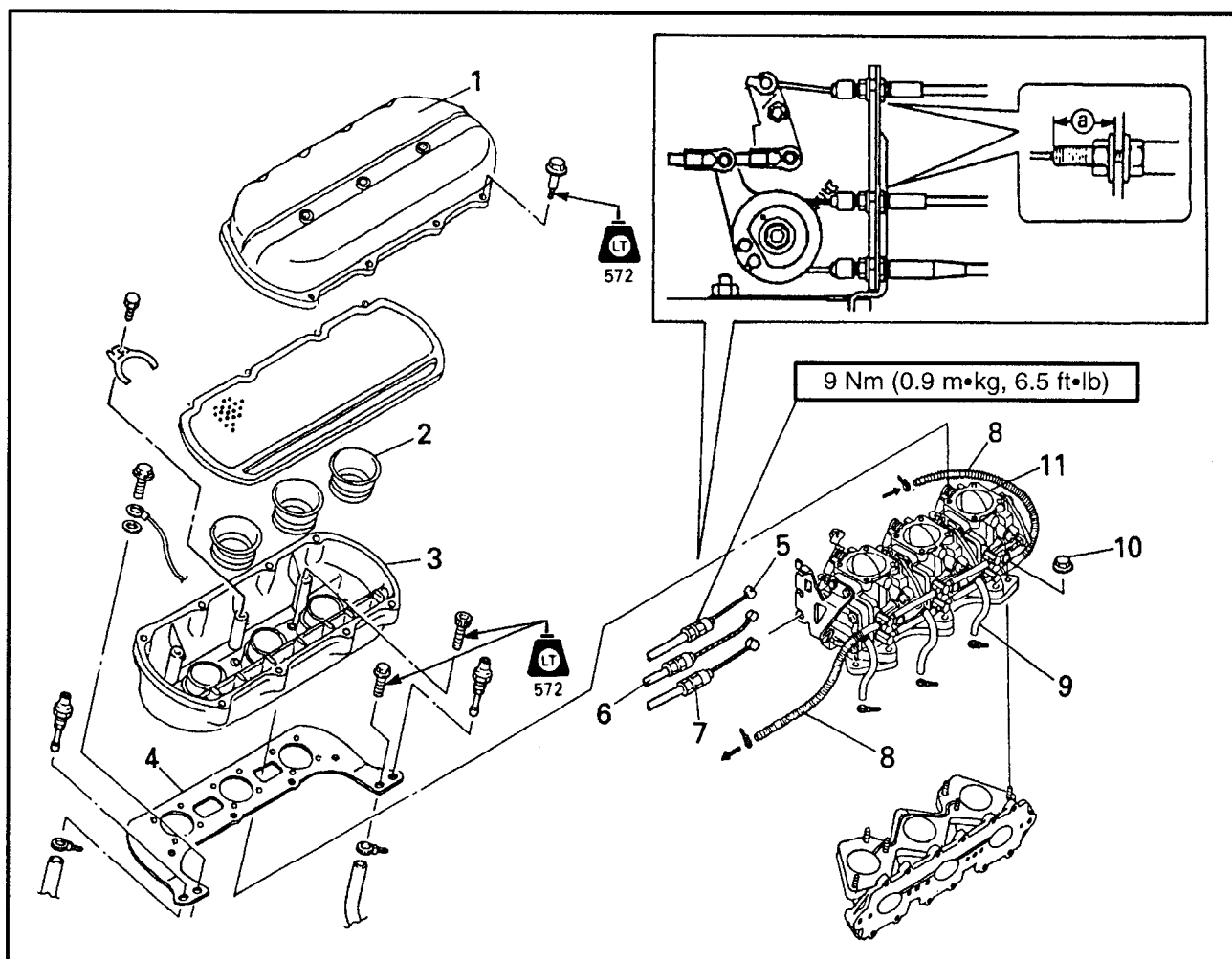


REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	CARBURETOR REMOVAL		Follow the left "Step" for removal.
1	Carburetor cover	1	Cable guide set position (a) : 17 mm (0.67 in)
2	Flame arrester	2	
3	Carburetor cover	1	
4	Choke cable	1	
5	Throttle cable	1	
6	Fuel hose	2	Reverse the removal steps for installation.
7	Pulse hose	2	
8	Nut	4	
9	Carburetor assembly	1	



EXPLODED DIAGRAM (XL1200)



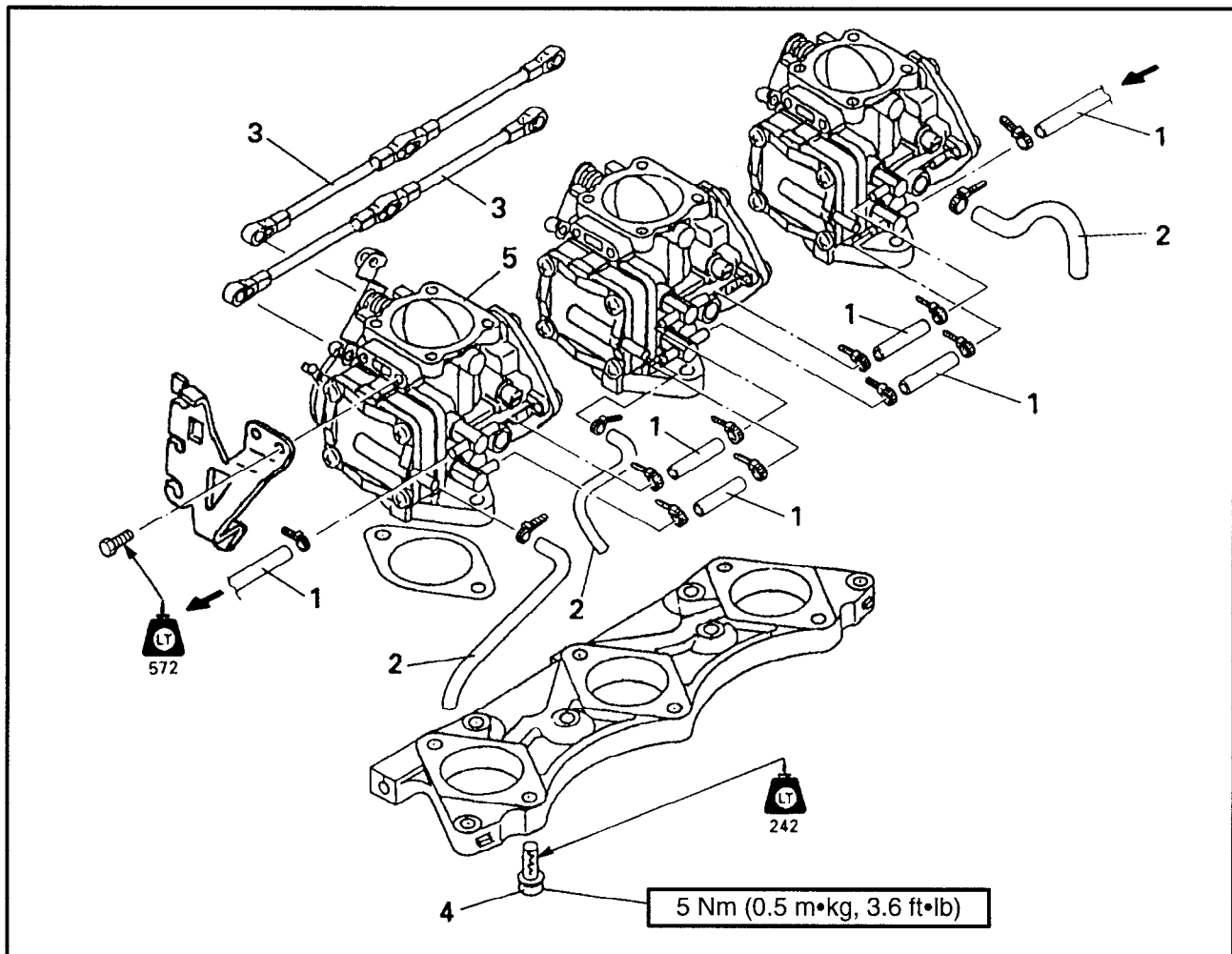
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
CARBURETOR REMOVAL			Follow the left "Step" for removal.
1	Carburetor cover 1	1	 Choke cable guide set position (a): 14 mm (0.55 in) Throttle cable guide set position (a): 17 mm (0.67 in)
2	Funnel	3	
3	Carburetor cover 2	1	
4	Plate	1	
5	Choke cable	1	
6	Throttle cable	1	
7	Oil pump cable	1	
8	Fuel hose	2	
9	Pulse hose	3	
10	Nut	6	
11	Carburetor unit	1	
			Reverse the removal steps for installation.



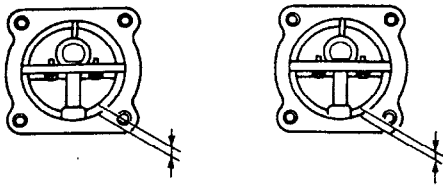
CARBURETOR REMOVAL

EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	CARBURETOR ASSEMBLY	760, 1200	Follow the left "Step" for removal. Refer to "CARBURETOR UNIT REMOVAL".
	Carburetor unit		
1	Fuel hose	4, 6	
2	Pulse hose	2, 3	
3	Link joint	-, 2	
4	Bolt	4, 6	
5	Carburetor assembly	2, 3	Reverse the removal steps for installation.

**SERVICE POINTS****Throttle valve synchronization inspection and adjustment**

1. Check:

- Throttle valve synchronization
Out of specification → Adjust.

Checking steps:

- While turning the throttle lever, check the opening of all throttle valves.

2. Adjust:

- Throttle valve synchronization

Adjustment steps: XL760

- Turn out the throttle stop screw ① until its tip is apart from the throttle lever ②.

NOTE:

Record the set position of the throttle stop screw.

- Check that the #1 throttle valve ③ is fully closed.
- Turn the synchronization screw ④ in or out until the #2 throttle valve ⑤ is fully closed.
- Turn in the throttle stop screw to the set position.

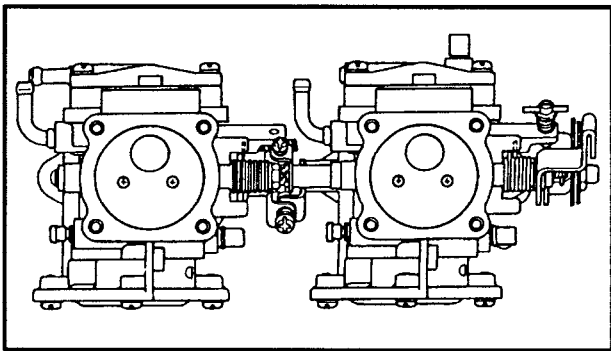
Adjustment steps: XL1200

- Turn out the throttle stop screw ① until its tip is apart from the throttle lever ②.

NOTE:

Record the set position of the throttle stop screw.

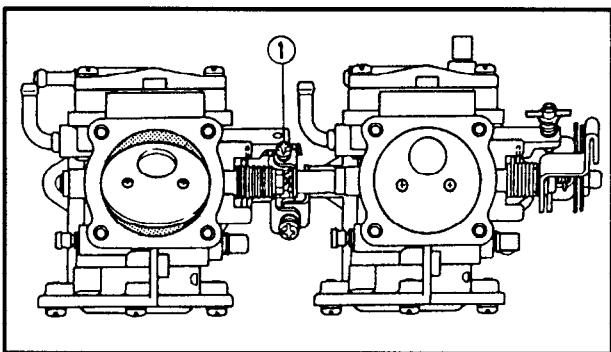
- Loosen the screws ②.
- Tighten the screws ②.
- Turn in the throttle stop screw to the set position.

**Choke valve synchronization inspection and adjustment (XL760)****1. Check:**

- Choke valve synchronization
Out of specification → Adjust.

Checking steps:

- While pulling the choke knob, check the opening of all choke valves.

**2. Adjust:**

- Choke valve synchronization

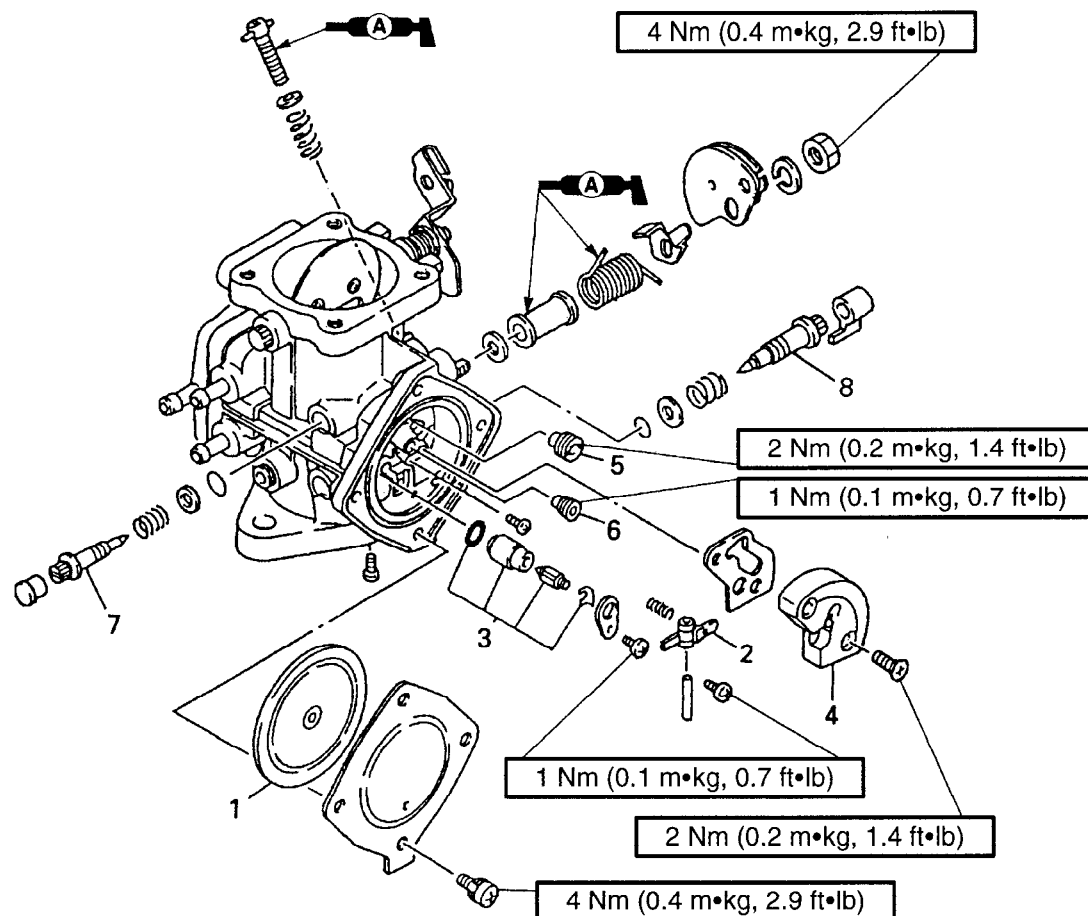
Adjustment steps:

- Turn in or out the synchronization screw ① to bring all the choke valves into a fully closed position when the choke knob is pushed in the closed side.



CARBURETOR

EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	CARBURETOR ASSEMBLY		
	Carburetor assembly		Follow the left "Step" for removal. Refer to "CARBURETOR REMOVAL".
1	Diaphragm assembly	1	
2	Float arm	1	
3	Needle valve assembly	1	
4	Body assembly	1	
5	Main jet	1	
6	Pilot jet	1	
7	High speed screw	1	
8	Low speed screw	1	
			Reverse the removal steps for installation.



SERVICE POINTS

CAUTION:

Do not use steel wire for cleaning the jets as this may enlarge the jet diameters and seriously affect performance.

Diaphragm inspection

1. Inspect:
 - Diaphragm assembly
 Damage → Replace.

Float arm inspection

1. Inspect:
 - Float arm ①
 Bend/damage → Repair or replace.
2. Measure:
 - Float arm height ②



Float arm height:
0 ~ 0.2 mm (0 ~ 0.008 in)

NOTE:

- Measure the distance between the surface ② of the carburetor body and the top surface of the float arm.
- The float arm should be resting on the needle valve, but not compressing the needle valve.

Body assembly inspection

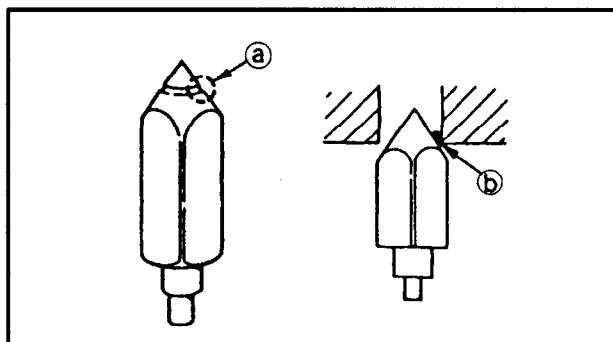
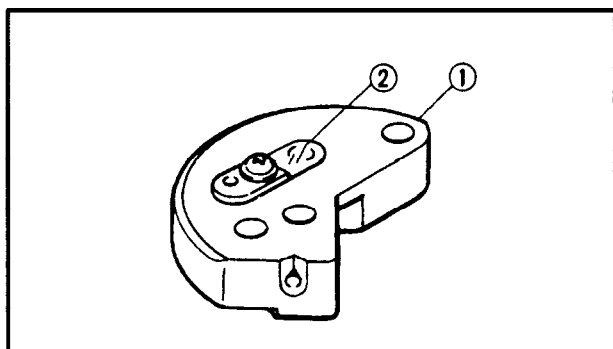
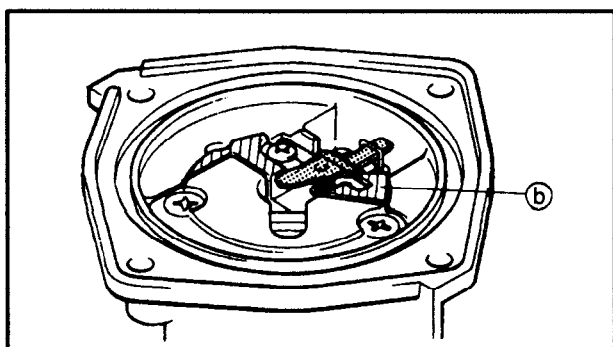
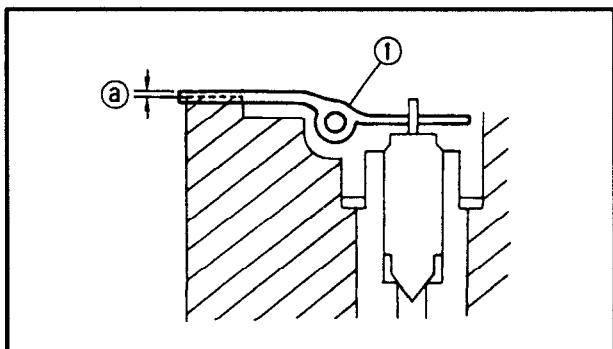
1. Inspect:
 - Body assembly ①
 Contamination → Clean.
- Valve ②
- Damage → Replace.

Needle valve inspection

1. Inspect:
 - Needle valve
 - Valve seat
 Grooved wear ③ → Replace.
Dust ④ → Clean.

NOTE:

Always replace the needle valve and valve seat as a set.





Jet and carburetor body inspection

1. Inspect:
 - Main jet
 - Pilot jet
 - Carburetor body
 Contamination → Clean.

High and low speed screws inspection

1. Inspect:
 - High speed screw
 - Low speed screw
 Bend/Wear → Replace.

High and low speed screws adjustment

1. Adjust:
 - High speed screw
 - Low speed screw

Adjustment steps:

- Screw in the high speed screws ① or low-speed screws ② until they are lightly seated.
- Back out by the specified number of turns.



High speed screw:

XL760

$1/2 \pm 1/4$ turns out

XL1200

$3/4 \pm 1/4$ (#1, #3)

$1 \pm 1/4$ (#2) turns out

Low speed screw:

XL760

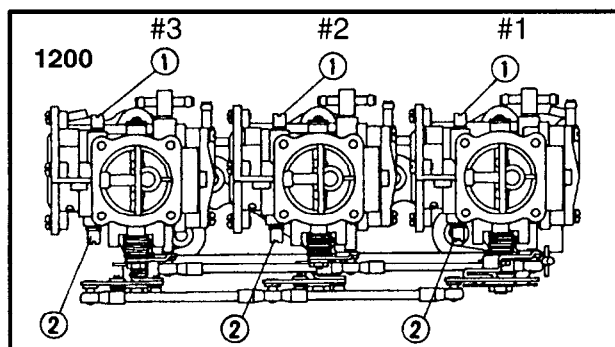
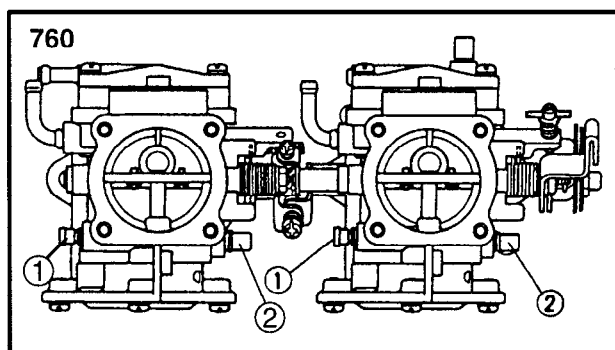
$1-3/4 \pm 1/4$ turns out

XL1200

$1 \pm 1/4$ turns out

Carburetor assembly

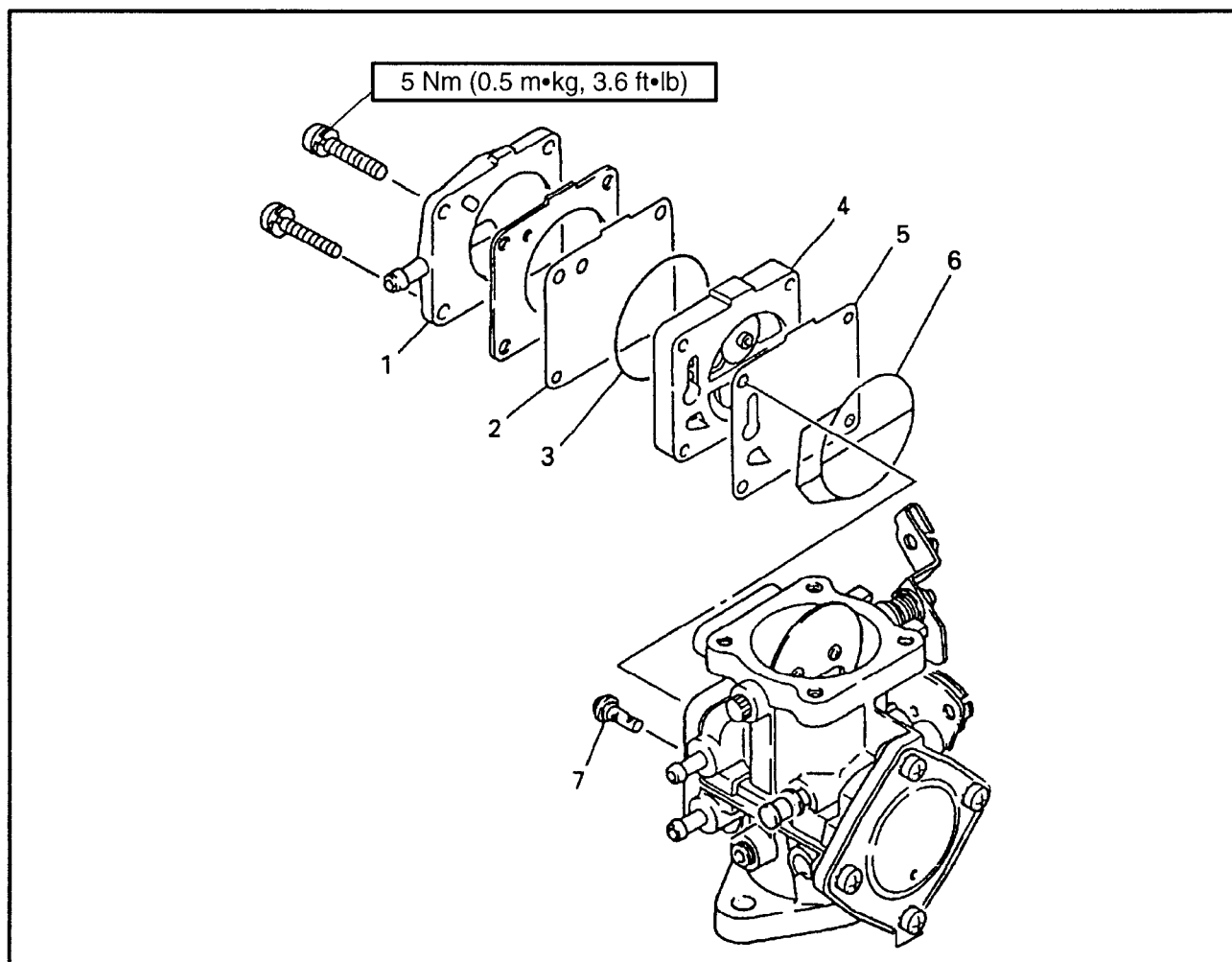
1. Adjust:
 - Trolling speed
 Refer to "FUEL SYSTEM" in chapter 3.





FUEL PUMP

EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	FUEL PUMP DISASSEMBLY		
	Carburetor assembly		Follow the left "Step" for removal. Refer to "CARBURETOR REMOVAL".
1	Pump cover	1	
2	Diaphragm	1	
3	O-ring	1	
4	Diaphragm body assembly	1	
5	Diaphragm	1	
6	O-ring	1	
7	Filter	1	
			Reverse the removal steps for installation.

**SERVICE POINTS****Fuel pump inspection**

1. Inspect:

- Diaphragm
- Diaphragm body assembly

Damage → Replace.

Filter inspection

1. Inspect:

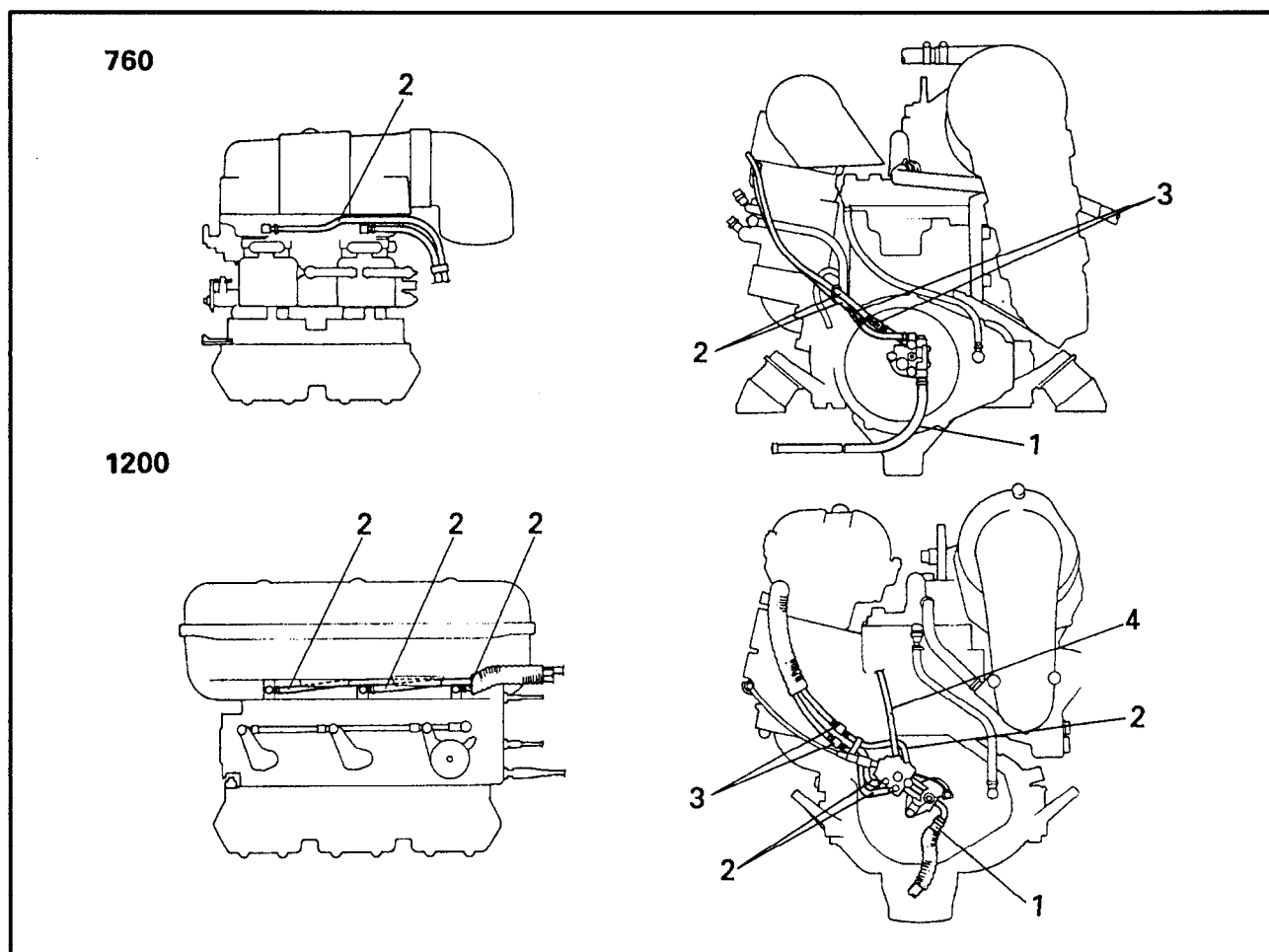
- Filter

Contamination → Clean.

Damage → Replace.

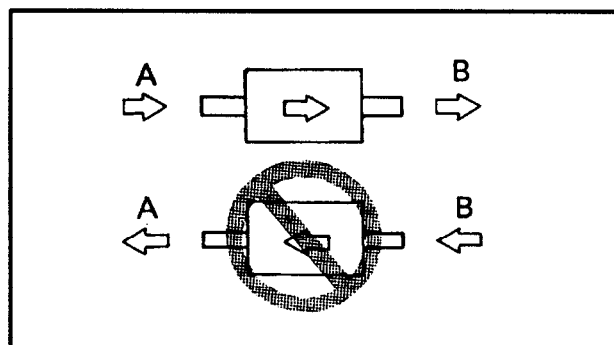


OIL LINE EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	OIL PUMP DISASSEMBLY	760, 1200	Follow the left "Step" for removal. Refer to "CARBURETOR UNIT REMOVAL".
1	Carburetor cover 2	1	
2	Oil hose	4, 6	
3	Derival hose	2, 3	
4	Check valve	- , 1	
	Return hose		Reverse the removal steps for installation.



SERVICE POINTS

Check valve inspection

1. Check:

- Check vavle
Out of specification → Replace.

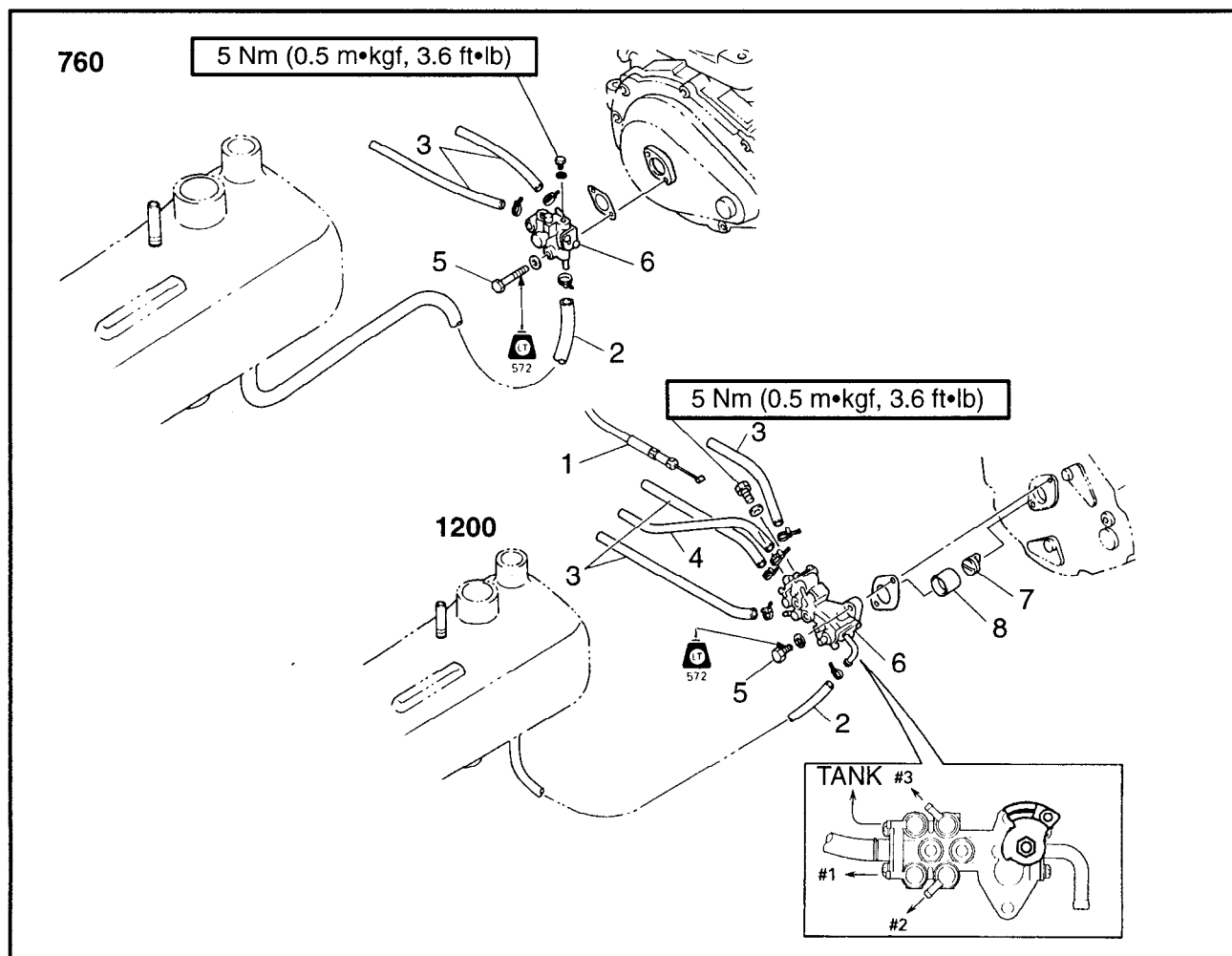


Flow from A to B



OIL PUMP

EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	OIL PUMP REMOVAL	770, 1200	Follow the left "Step" for removal.
1	Oil pump cable	-, 1	
2	Oil hose	1	
3	Oil delivery hose	2, 3	
4	Oil return hose	-, 1	
5	Bolt (with washer)	2	
6	Oil pump	1	
7	Joint	-, 1	
8	Ring rubber	-, 1	
			Reverse the removal steps for installation.

**SERVICE POINTS****Oil pump inspection**

1. Inspect:
 - Oil pump
Clog → Clean.
 - Driving tooth
Wear/Damage → Replace.

Oil hose inspection

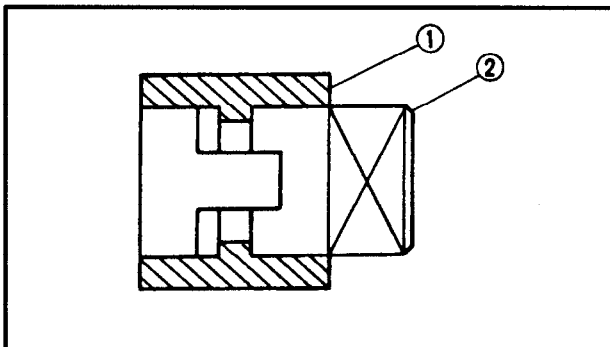
1. Inspect:
 - Oil hose
Wear/Crack → Replace.

CAUTION:

- If the delivery hoses are not full of oil, fill them up with oil.
- After installing the oil injection system, bleed the system of air. Refer to “OIL INJECTION SYSTEM” in chapter 3.

Ring rubber inspection

1. Inspect:
 - Ring rubber
Wear/Damage → Replace.
 - Joint
Wear/Damage → Replace.

**Ring rubber installation**

1. Install:
 - Ring rubber ①
 - Joint ②

NOTE:

Install the joint into the joint rubber until the rubber stopper fits in the joint groove.



CHAPTER 5 POWER UNIT

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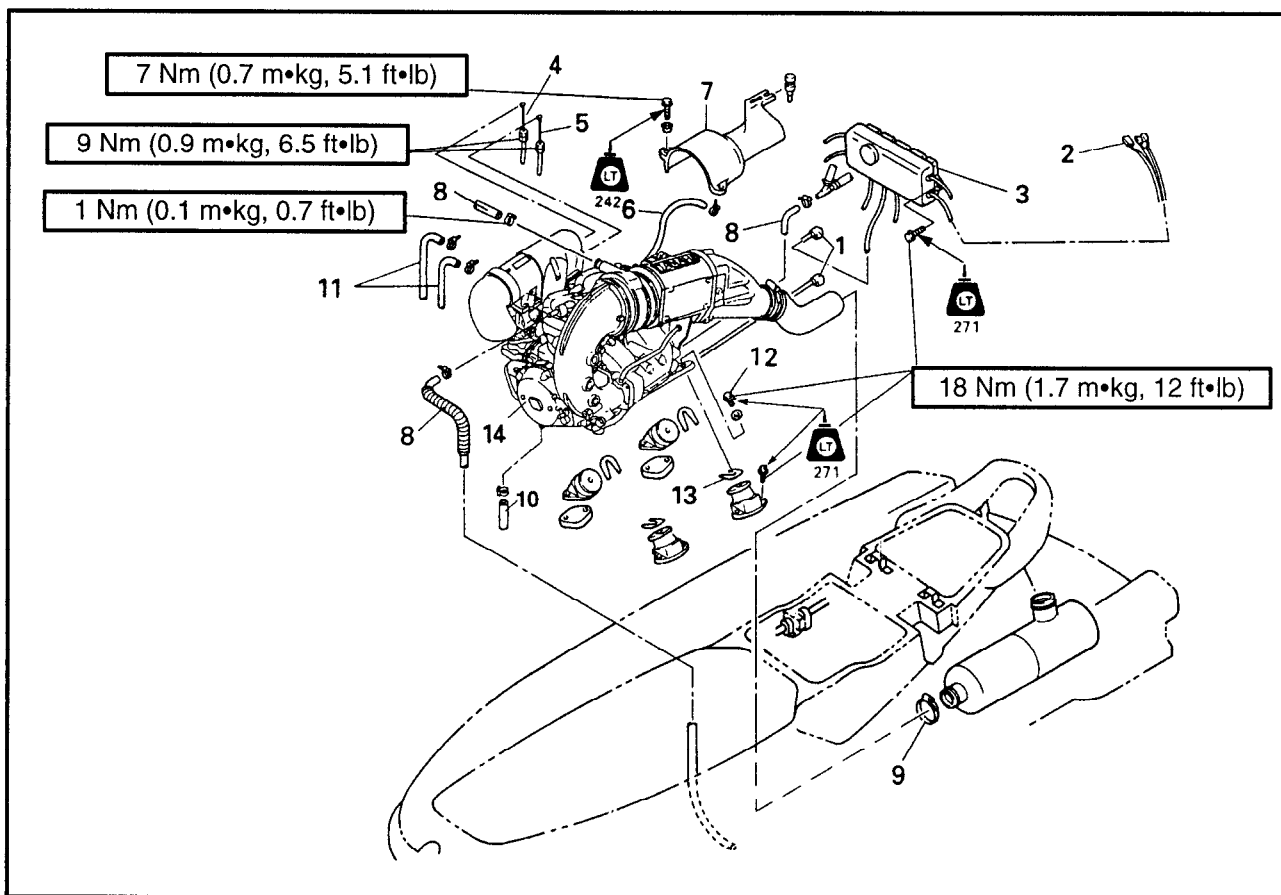


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ENGINE UNIT REMOVAL

EXPLODED DIAGRAM (XL760)



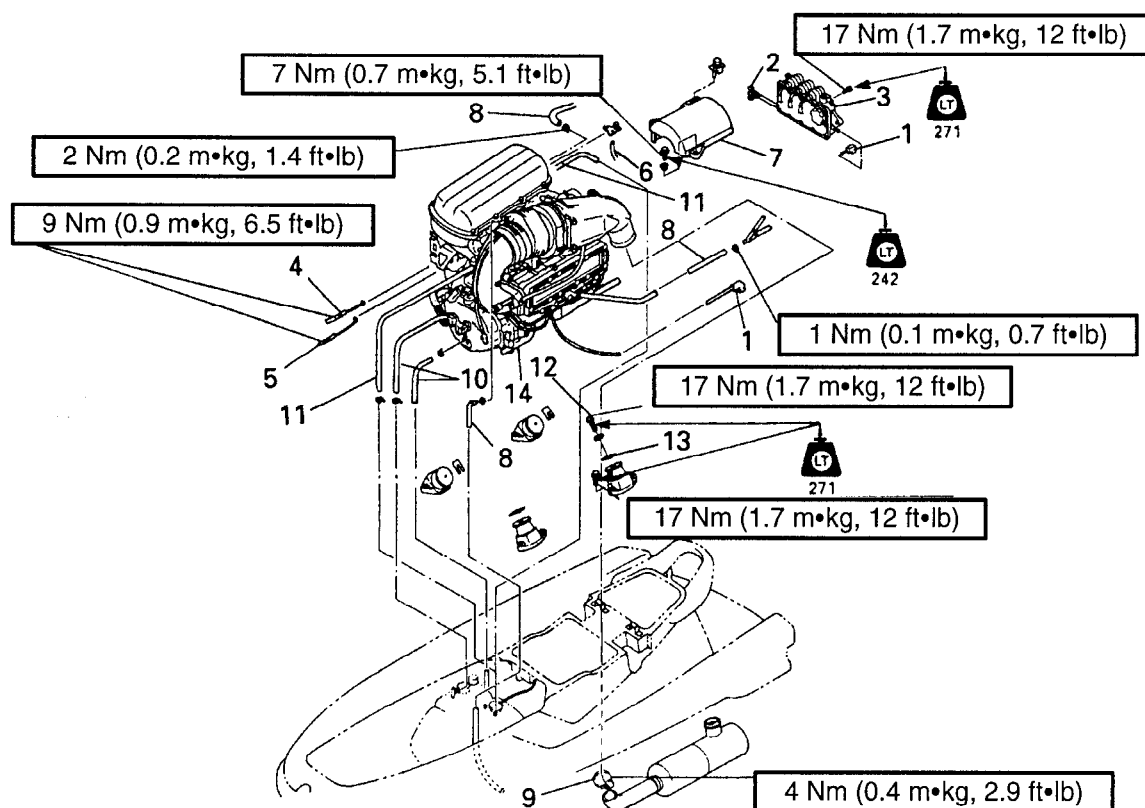
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	ENGINE UNIT REMOVAL		Follow the left "Step" for removal.
	Engine hood	1	Refer to "ENGINE HOOD REMOVAL" in chapter 8.
	Oil tank	1	Refer to "OIL TANK" in chapter 4.
	Fuel tank	1	Refer to "FUEL TANK REMOVAL" in chapter 4.
1	Battery lead	2	
2	Lead coupler	3	
3	Electrical box	1	
4	Choke cable	1	
5	Throttle cable	1	
6	Grease hose	1	
7	Coupling cover	1	
8	Water hose	3	
9	Exhaust hose clamp	1	
10	Oil hose	1	
11	Fuel hose	2	
12	Engine mounting bolt	4	
13	Shim	*	
14	Engine nut	1	
			Reverse the removal steps for installation.

*: As required



EXPLODED DIAGRAM (XL1200)



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	ENGINE UNIT REMOVAL		
	Engine hood	1	Follow the left "Step" for removal.
	Oil tank	1	Refer to "ENGINE HOOD REMOVAL" in chapter 8.
	Fuel tank	1	Refer to "OIL TANK" in chapter 4.
1	Battery lead	2	Refer to "FUEL TANK REMOVAL" in chapter 4.
2	Lead coupler	3	
3	Electrical box	1	
4	Choke cable	1	
5	Throttle cable	1	
6	Grease hose	1	
7	Coupling cover	1	
8	Water hose	3	
9	Exhaust hose clamp	1	
10	Oil hose	2	
11	Fuel hose	2	
12	Engine mounting bolt	4	
13	Shim	*	
14	Engine unit	1	
			Reverse the removal steps for installation.

*: As required

**SERVICE POINTS****Shim removal**

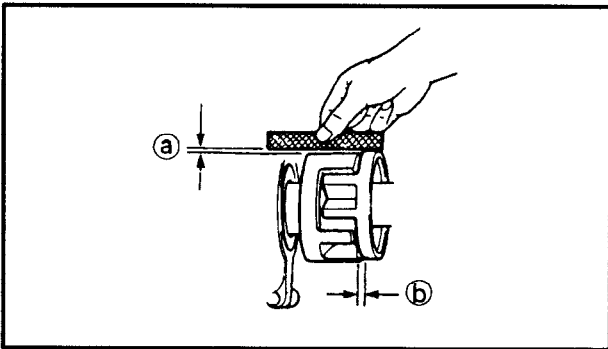
1. Remove:
 - Shim

NOTE:

Make the engine mounting shim packs prior to the mounting bolt removal for ease of reassembly and coupling alignment.

Mount bracket inspection

1. Inspect:
 - Mount bracket
Crack/damage → Replace.

**Coupling clearance inspection**

1. Measure:
 - Clearance (a)
 - Clearance (b)Out of specification → Adjust using shim.

NOTE:

- Before measuring the clearance, remove the coupling rubber.
- Attach a straight edge and a thickness gauge.

**Clearance (a):**

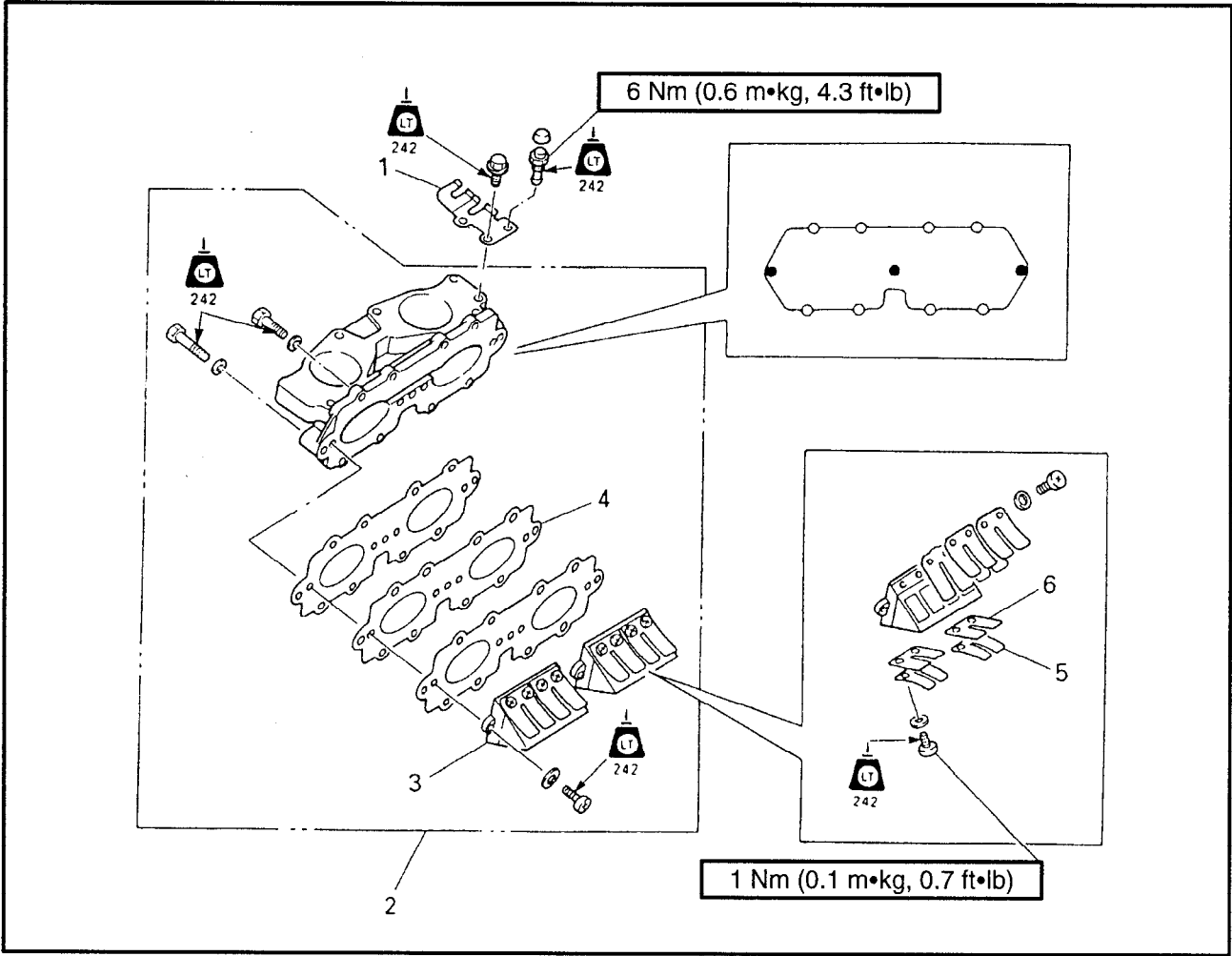
0 ~ 1.0 mm (0 ~ 0.039 in)

Clearance (b):

2 ~ 4 mm (0.079 ~ 0.157 in)

REED VALVE

EXPLODED DIAGRAM (XL760)

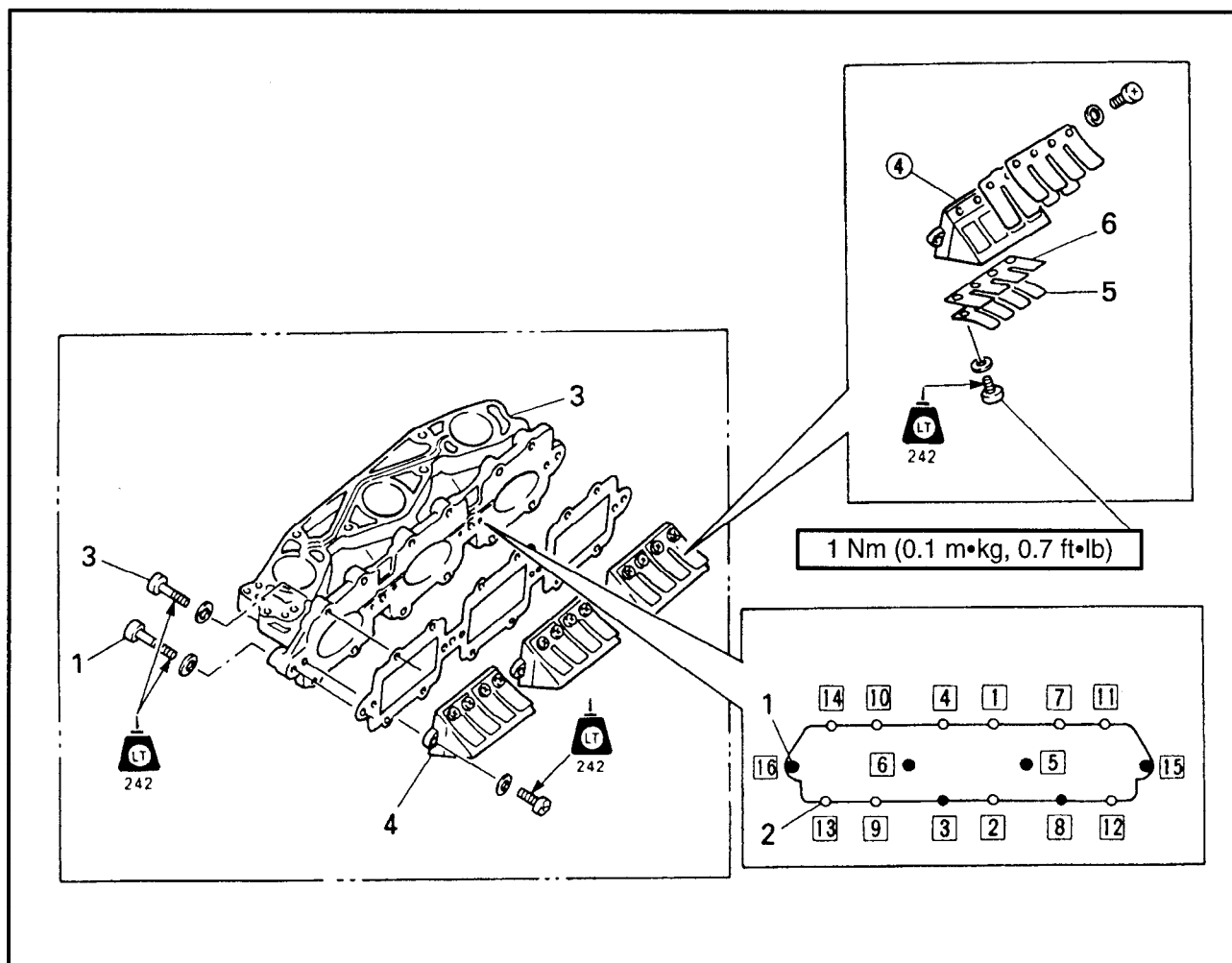


REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	REED VALVE REMOVAL		
	Carburetor assembly		Follow the left "Step" for removal. Refer to "CARBURETOR REMOVAL" in chapter 4.
1	Plate	1	
2	Intake manifold assembly	1	
3	Reed valve assembly	2	
4	Plate	1	
5	Valve stopper	4	
6	Reed valve	4	
			Reverse the removal steps for installation.

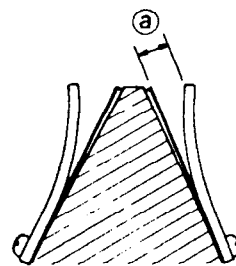
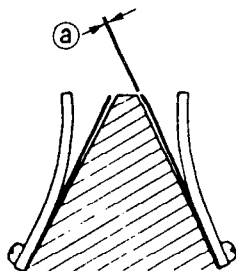


EXPLODED DIAGRAM (XL1200)



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	REED VALVE REMOVAL		
	Carburetor assembly		Follow the left "Step" for removal. Refer to "CARBURETOR REMOVAL" in chapter 4.
1	Bolt (with washer)	6	6 × 35 mm
2	Bolt (with washer)	10	6 × 25 mm
3	Intake manifold assembly		NOTE: _____
4	Reed valve assembly	1	Tighten the bolts in sequence.
5	Valve stopper	3	_____
6	Reed valve	6	
		6	
			Reverse the removal steps for installation.

**SERVICE POINTS****Reed valve inspection**

1. Inspect:
 - Reed valve
Crack/Damage → Replace.
2. Measure:
 - Valve bending (a)
Out of specification → Replace.



Valve bending limit:
0.2 mm (0.01 in)

3. Measure:
 - Valve stopper height (a)
Out of specification → Adjust or replace.



Valve stopper height:

XL760:

9.0 ± 0.2 mm (0.35 ± 0.01 in)

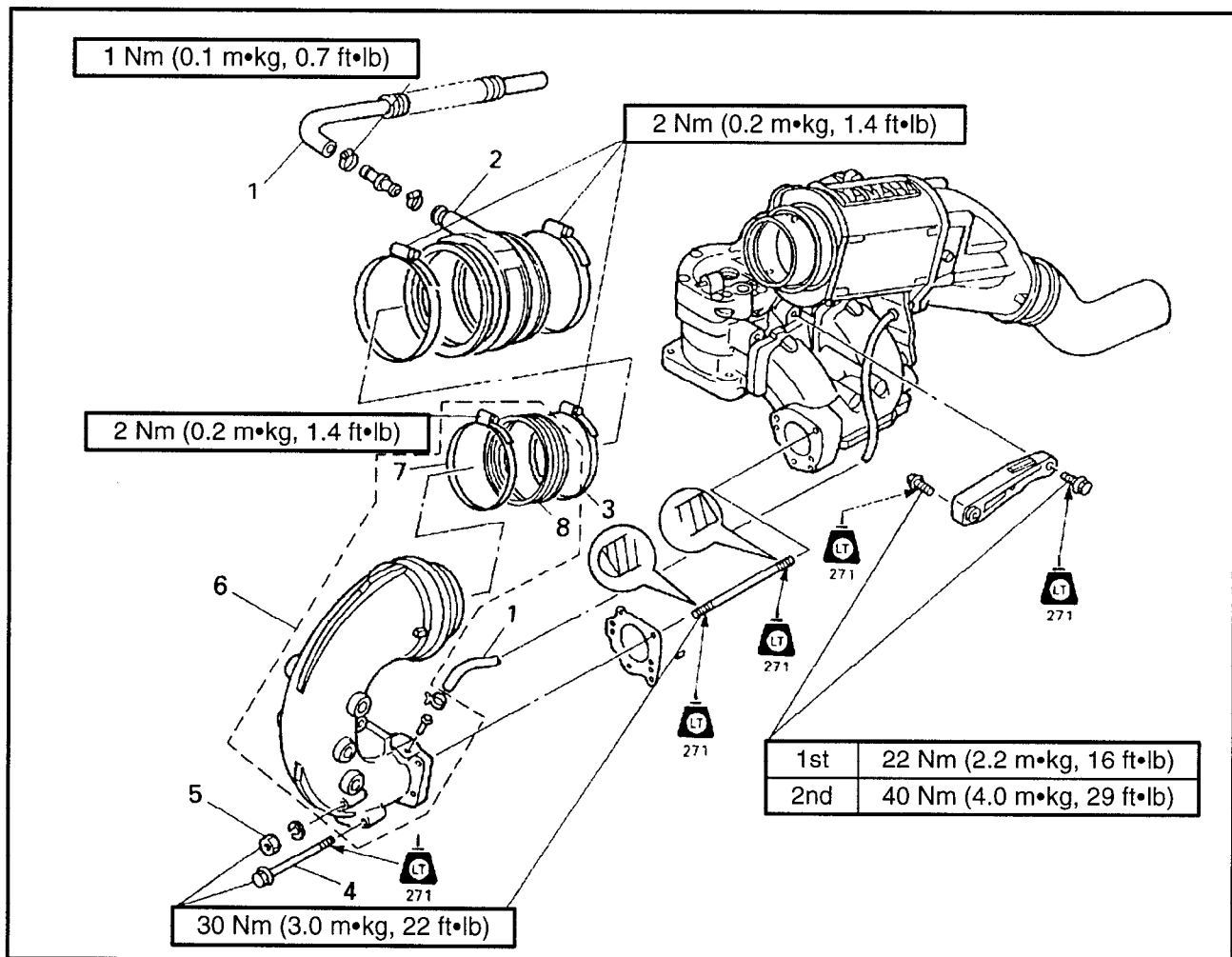
XL1200

12.5 ± 0.2 mm (0.49 ± 0.01 in)



EXHAUST RING

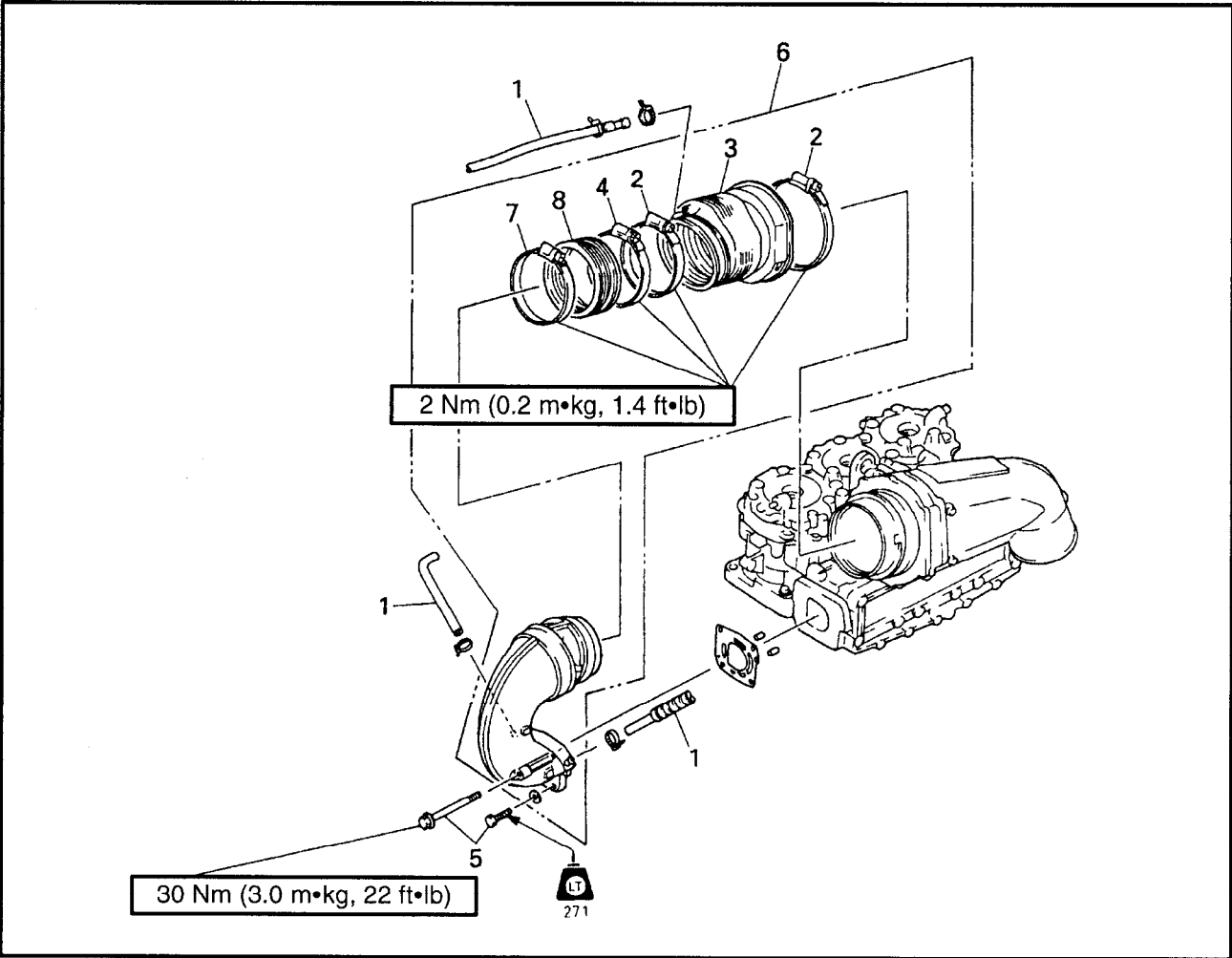
EXPLODED DIAGRAM (XL760)



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	EXHAUST RING REMOVAL		
	Engine unit	2	Follow the left "Step" for removal. Refer to "ENGINE UNIT REMOVAL".
1	Water hose	1	
2	Exhaust joint	1	NOTE: _____
3	Clamp	1	• Loosen the clamp at the muffler side.
4	Bolt (with washer)	2	• Pull and slide the exhaust joint.
5	Nut	2	
6	Ring	1	NOTE: _____
7	Clamp	1	Tighten the clamp, before installing the ring on the muffler.
8	Joint	1	
			Reverse the removal steps for installation.

EXPLODED DIAGRAM (XL1200)



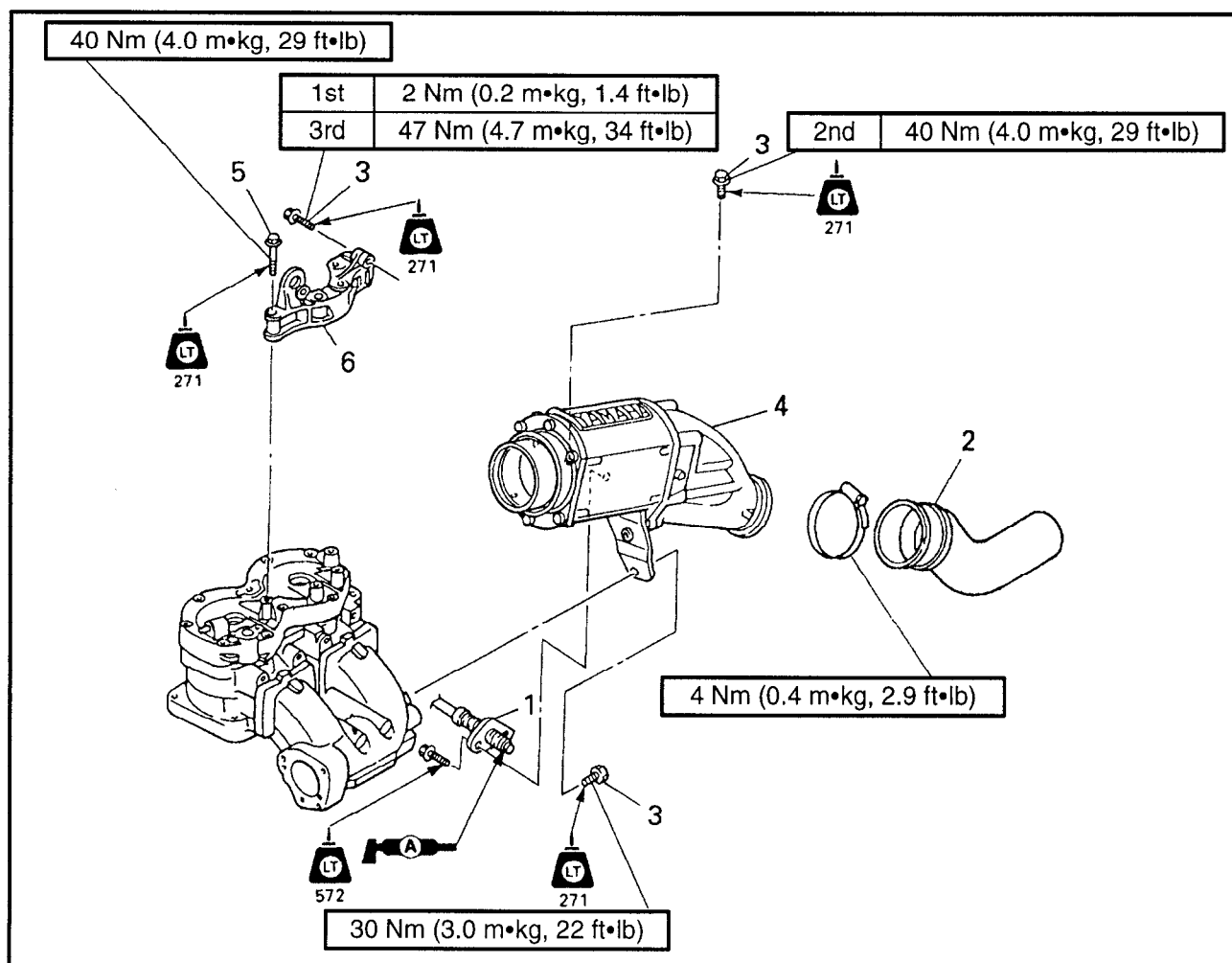
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	EXHAUST RING REMOVAL		
	Engine unit		Follow the left "Step" for removal. Refer to "ENGINE UNIT REMOVAL".
1	Water hose	3	NOTE: _____ • Loosen the clamp at the muffler side. • Pull and slide the exhaust joint. _____ NOTE: _____ Tighten the clamp, before installing the ring on the muffler. _____
2	Exhaust joint	2	
3	Clamp	1	
4	Bolt (with washer)	1	
5	Nut	4	
6	Ring	1	
7	Clamp	1	
8	Joint	1	Reverse the removal steps for installation.



EXHAUST CHAMBER REMOVAL

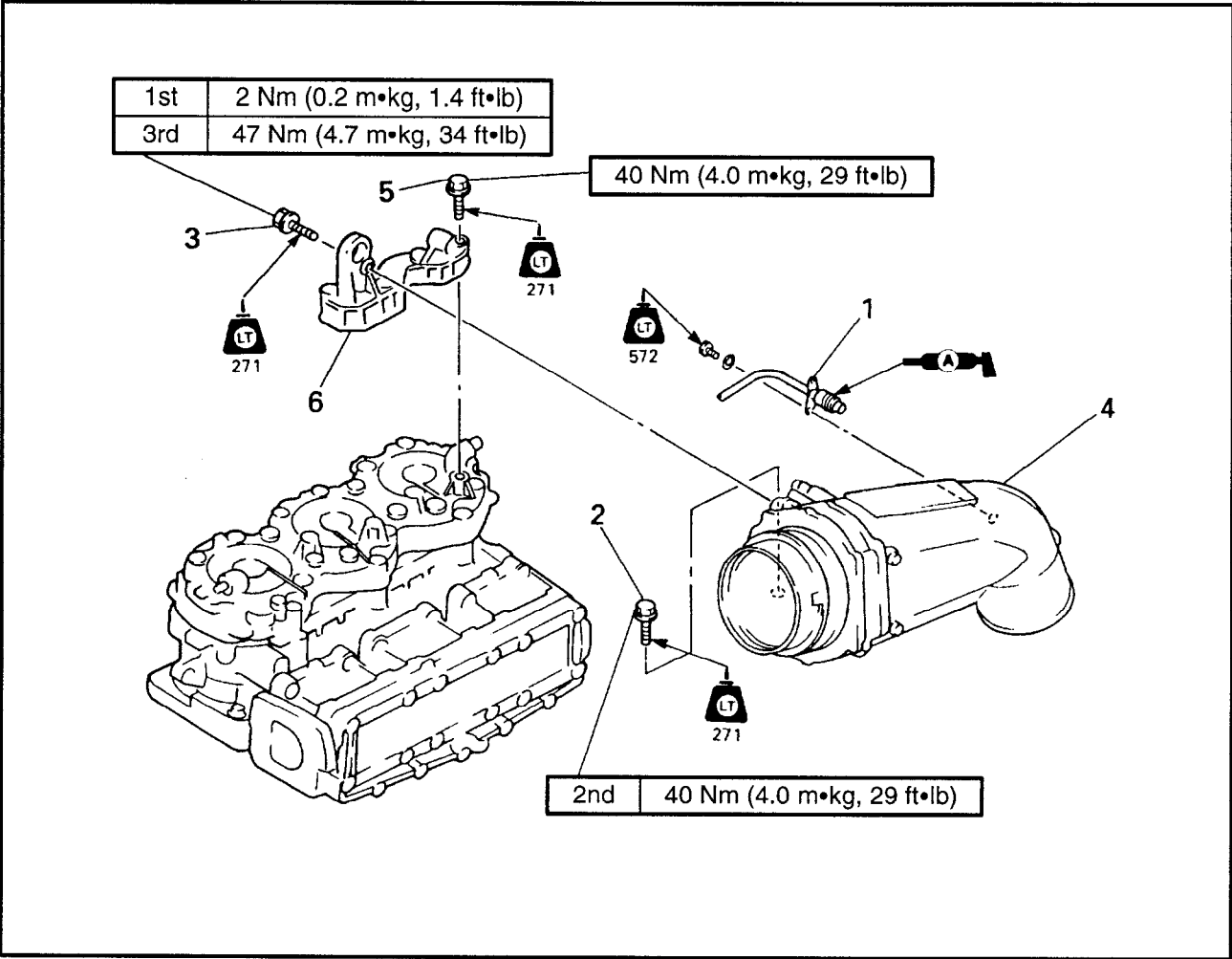
EXPLODED DIAGRAM (XL760)



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	EXHAUST CHAMBER REMOVAL		Follow the left "Step" for removal.
	Ring	1	Refer to "EXHAUST RING".
1	Thermo switch	1	
2	Exhaust hose	5	NOTE: _____
3	Bolt (muffler)	1	Tighten the bolts in sequence.
4	Exhaust chamber assembly	4	_____
5	Bolt (muffler stay)	1	
6	Muffler stay		Reverse the removal steps for installation.

EXPLODED DIAGRAM (XL1200)



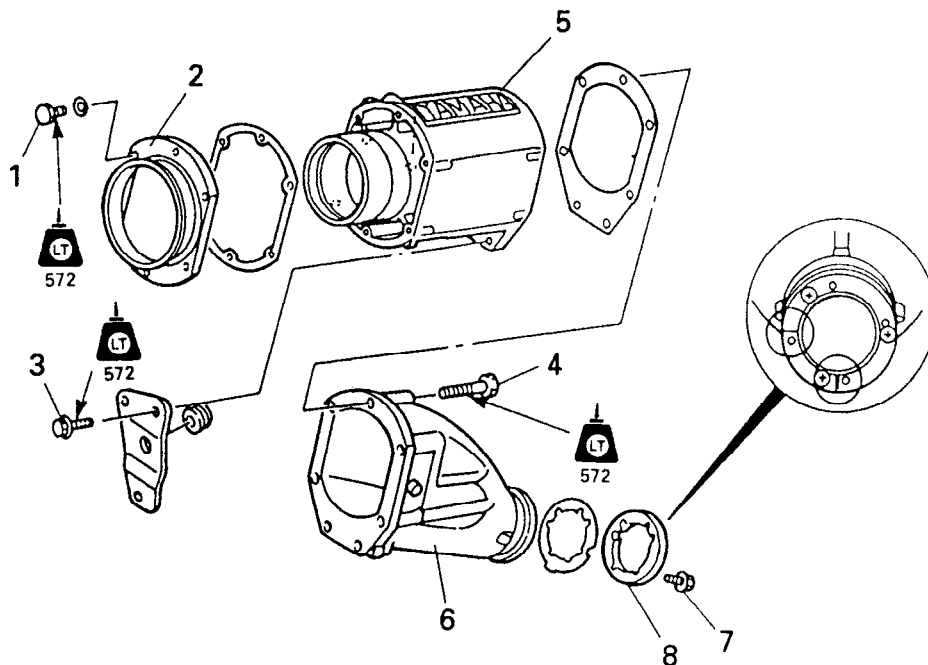
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	EXHAUST CHAMBER REMOVAL		Follow the left "Step" for removal.
	Ring assembly		Refer to "EXHAUST RING".
1	Thermo switch	1	
2	Bolt (with washer)	2	M8 × 35 mm 
3	Bolt (with washer)	2	M8 × 35 mm 
4	Exhaust chamber assembly	1	NOTE: _____ Tighten the bolts sequence.
5	Bolt (muffler stay)	4	M10 × 45 mm
6	Muffler stay	1	
			Reverse the removal steps for installation.



EXHAUST CHAMBER

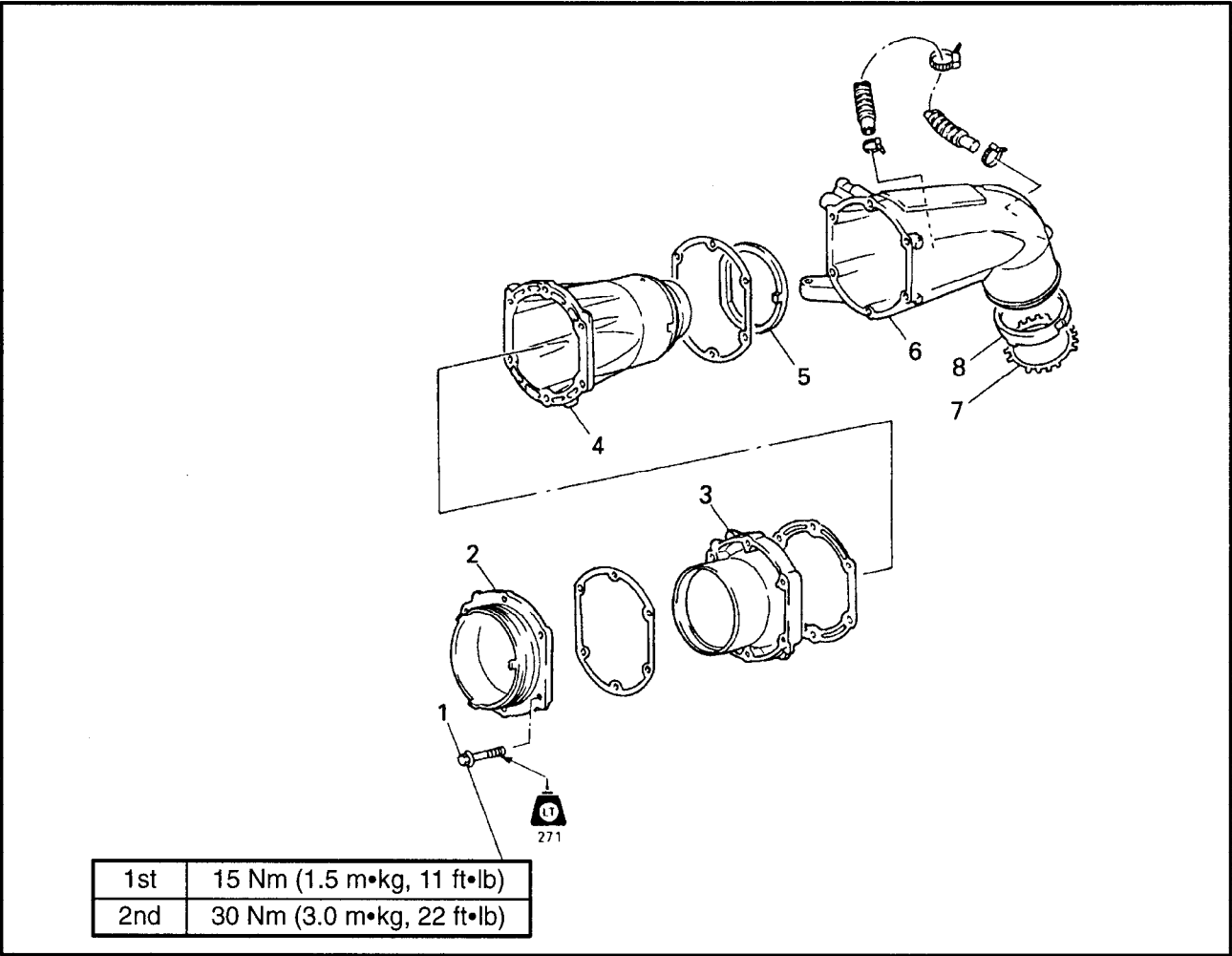
EXPLODED DIAGRAM (XL760)



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	CHAMBER DISASSEMBLY		
	Exhaust chamber assembly		Follow the left "Step" for removal. Refer to "EXHAUST CHAMBER REMOVAL".
1	Bolt (with washer)	6	
2	Exhaust cover 1	1	
3	Bolt (with washer)	2	
4	Bolt (with washer)	7	
5	Exhaust cover 2	1	
6	Muffler	1	
7	Screw	3	
8	Seal	1	
			Reverse the removal steps for installation.

EXPLODED DIAGRAM (XL1200)

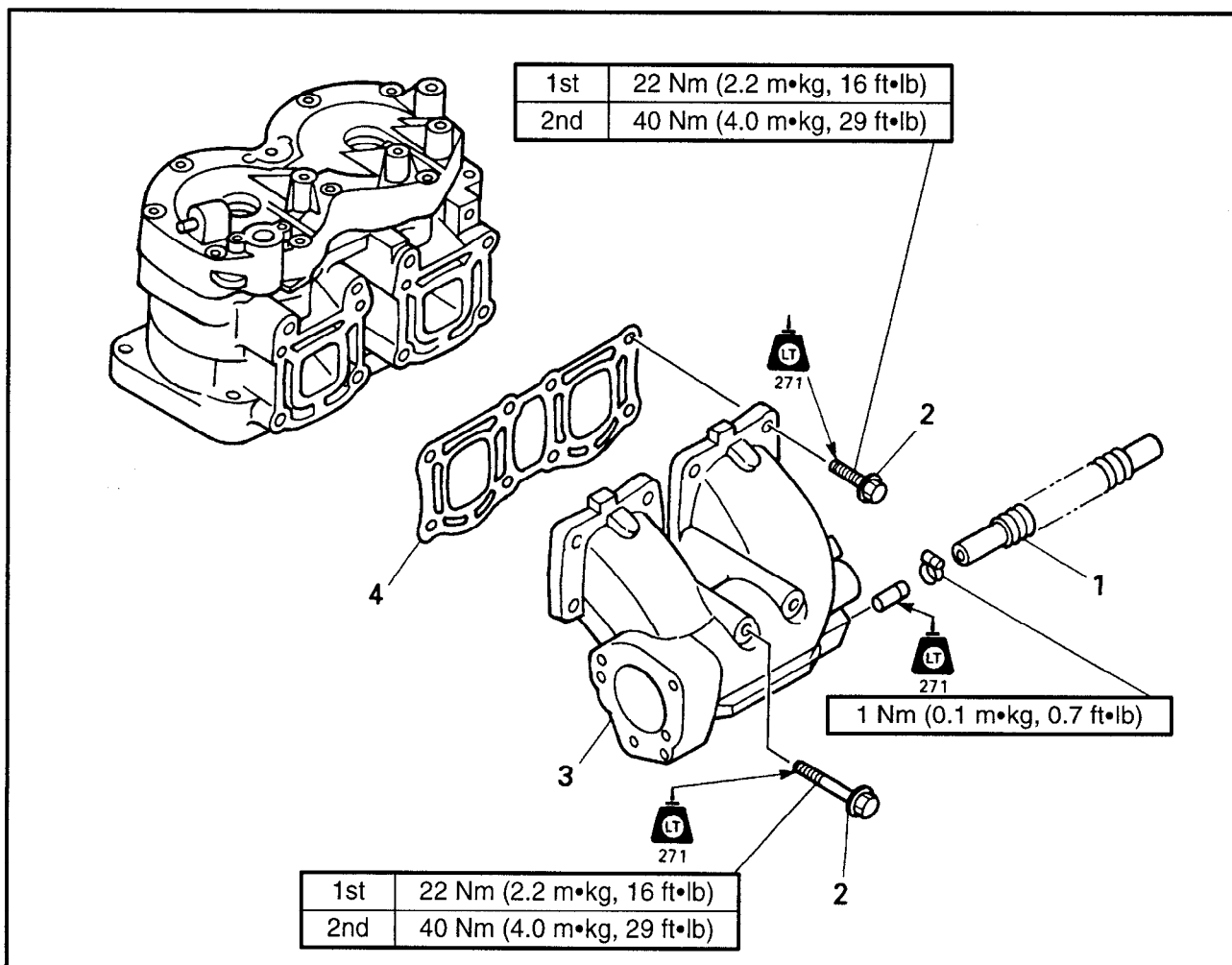


REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	CHAMBER DISASSEMBLY		
	Exhaust chamber assembly		Follow te left “Step” for removal. Refer to “EXHAUST CHAMBER REMOVAL”.
1	Bolt (with washer)	6	M8 × 60 mm
2	Exhaust outer cover 1	1	NOTE: _____
3	Muffler 2	1	Tighten the bolts in sequence.
4	Exhaust inner cover	1	_____
5	Seal	1	
6	Exhaust outer cover 2	1	
7	Stopper	1	
8	Seal	1	
			Reverse the removal steps for installation.

MUFFLER

EXPLODED DIAGRAM (XL760)

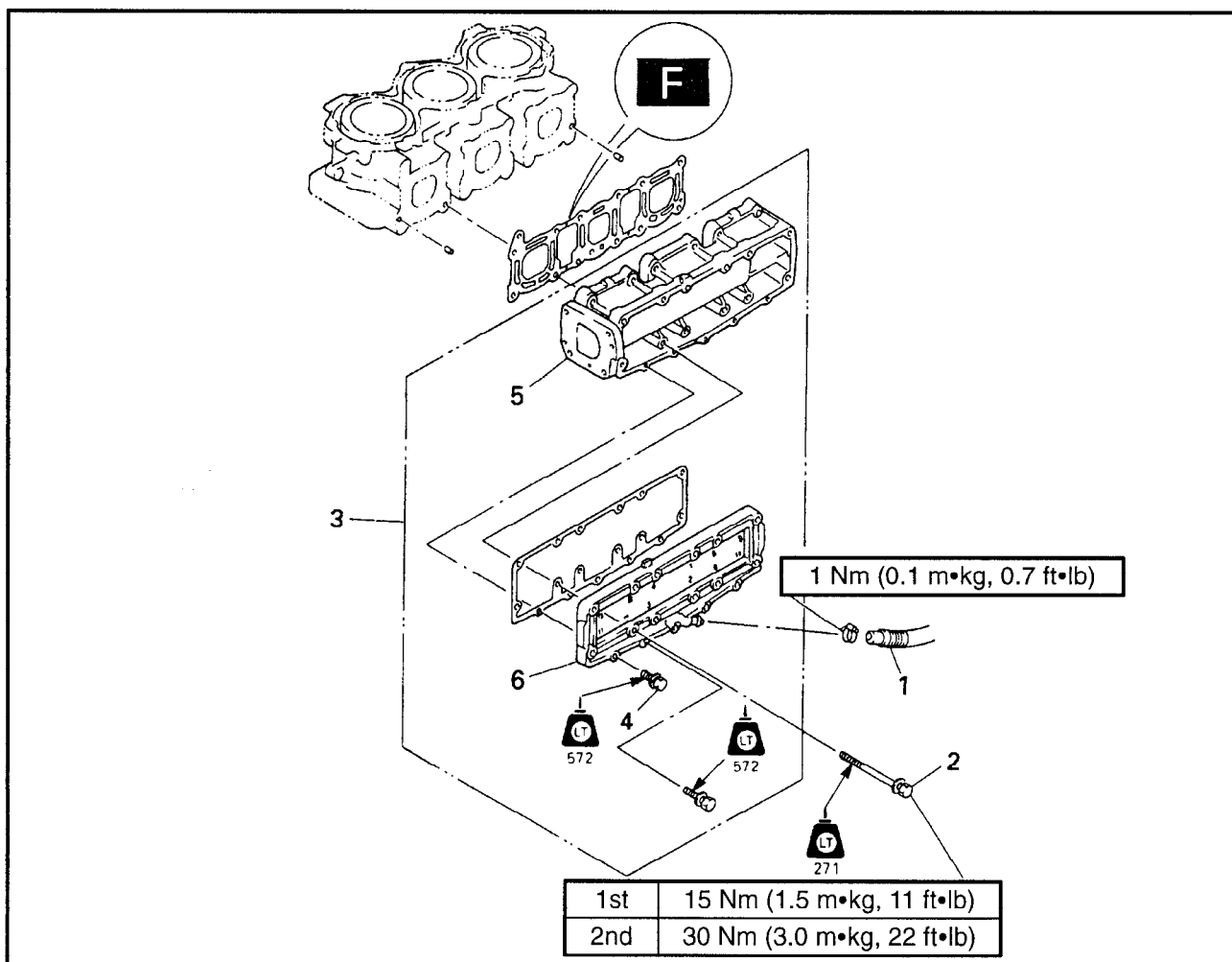


REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	MUFFLER REMOVAL		
	Exhaust chamber assembly		Follow the left "Step" for removal. Refer to "EXHAUST CHAMBER REMOVAL".
1	Water inlet hose	1	
2	Bolt (with washer)	8	
3	Muffler	1	
4	Gasket	1	
			Reverse the removal steps for installation.



EXPLODED DIAGRAM (XL1200)

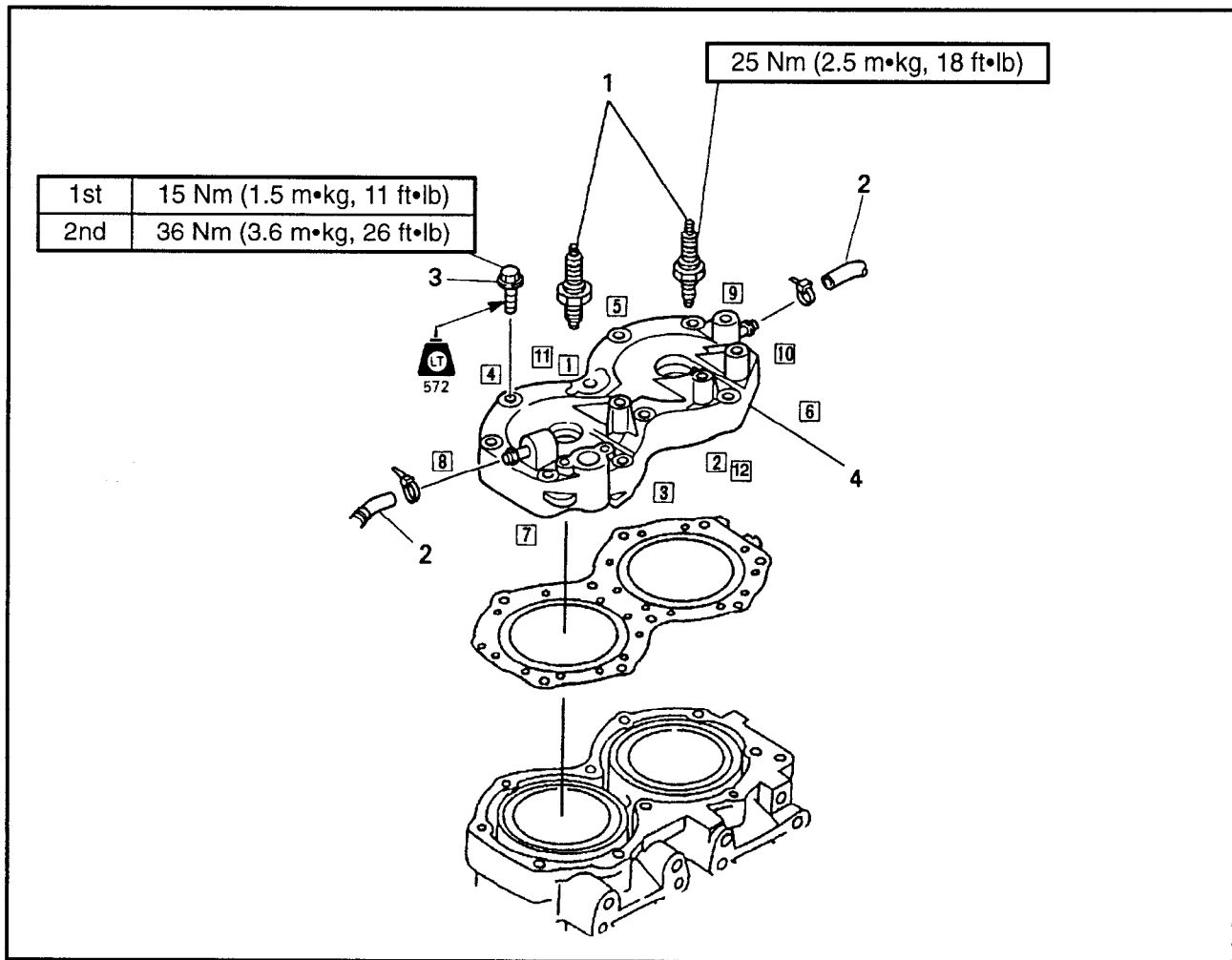


REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	MUFFLER REMOVAL		
	Exhaust chamber assembly		Follow the left "Step" for removal. Refer to "EXHAUST CHAMBER REMOVAL".
1	Water inlet hose	1	
2	Bolt (with washer)	12	M8 × 120 mm
3	Muffler assembly	1	NOTE: _____
4	Bolt (with washer)	5	Tighten the bolts in sequence and two steps of torque.
5	Muffler 1	1	_____
6	Muffler cover	1	_____
			Reverse the removal steps for installation.

CYLINDER HEAD

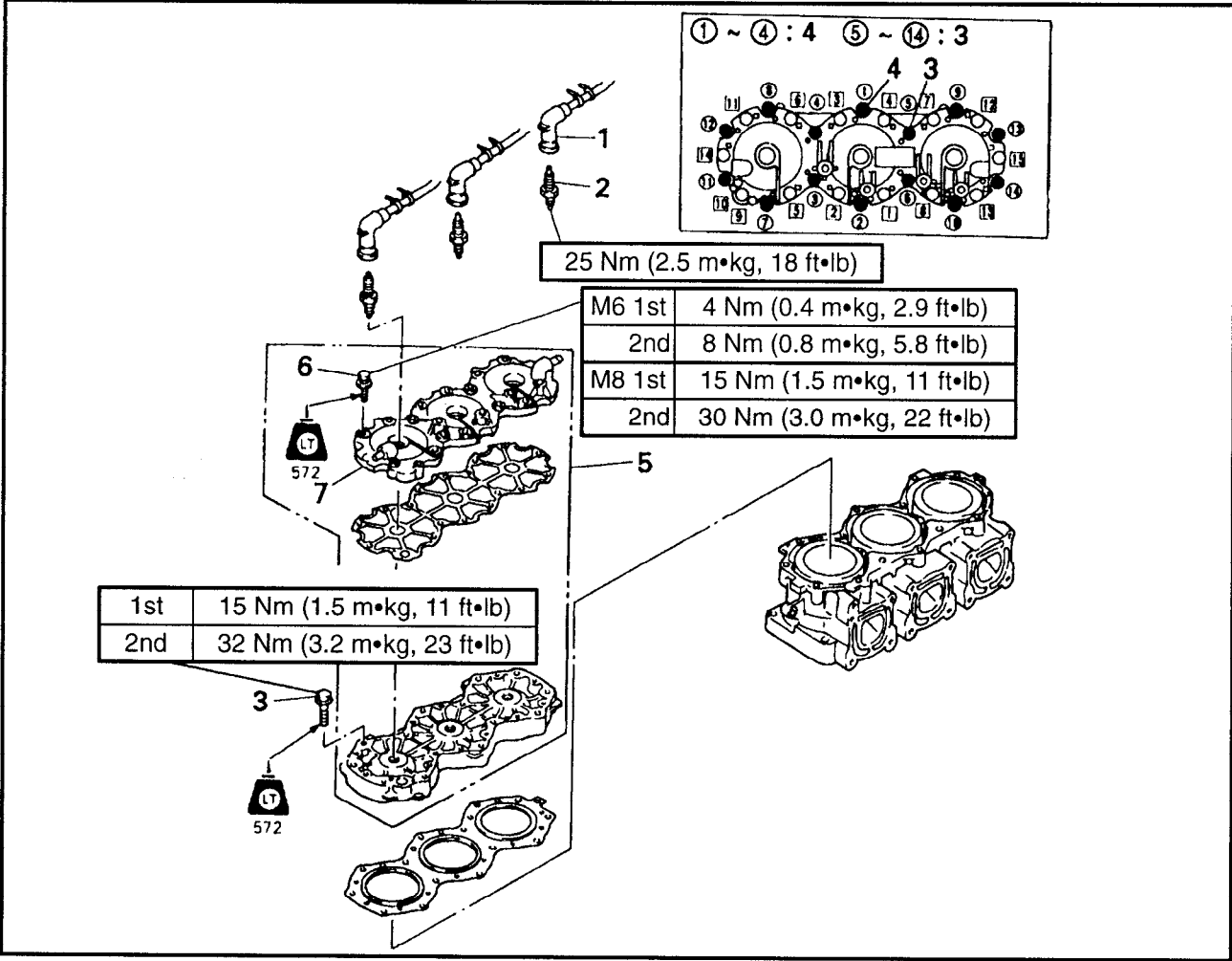
EXPLODED DIAGRAM (XL760)



REMOVAL AND INSTALLATION CHART

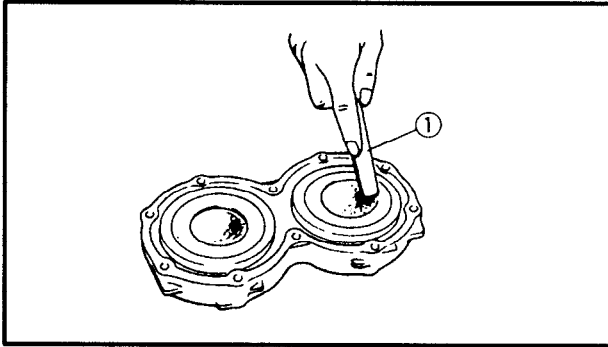
Step	Procedure/Part name	Q'ty	Service points
	CYLINDER HEAD REMOVAL		
1	Muffler		Follow the left "Step" for removal. Refer to "MUFFLER".
2	Spark plug	2	
3	Water hose	2	
	Bolt (with washer)	10	NOTE: _____ Tighten the bolts in sequence and two steps of torque.
4	Cylinder head	1	
			Reverse the removal steps for installation.

EXPLODED DIAGRAM (XL1200)



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	CYLINDER HEAD REMOVAL		Follow the left "Step" for removal. Refer to "EXHAUST CHAMBER".
1	Muffler stay	3	
2	Spark plug cap	3	
3	Spark plug	11	M8 × 50 mm
4	Bolt (with washer)	4	M8 × 65 mm
5	Cylinder head	1	NOTE: _____
6	Bolt (with washer)	15	Tighten the bolts in sequence and two steps of torque.
7	Cylinder head cover	1	Reverse the removal steps for installation.

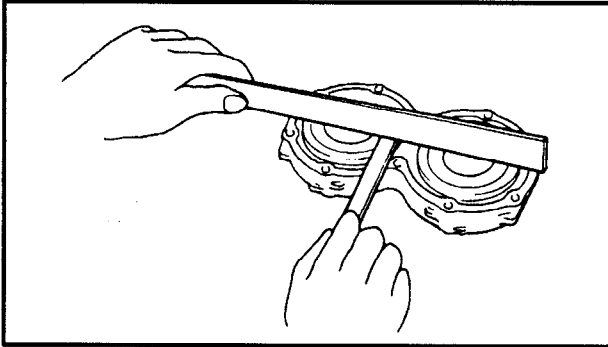
**SERVICE POINTS****Cylinder head inspection**

1. Eliminate:

- Carbon deposits
Use a rounded scraper ①.

NOTE:

Take care to avoid damaging the spark plug threads. Do not use a sharp instrument. Avoid scratching the aluminum.

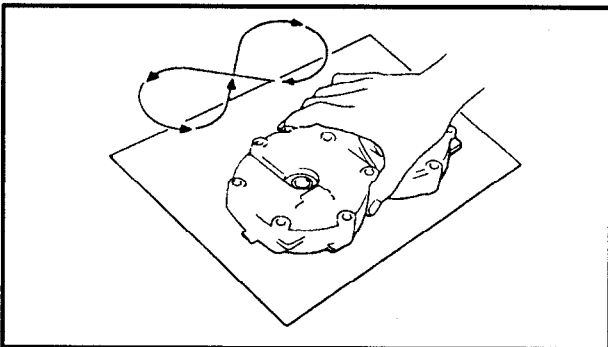


2. Inspect:

- Cylinder head water jacket
Mineral deposits/corrosion → Clean.

3. Measure:

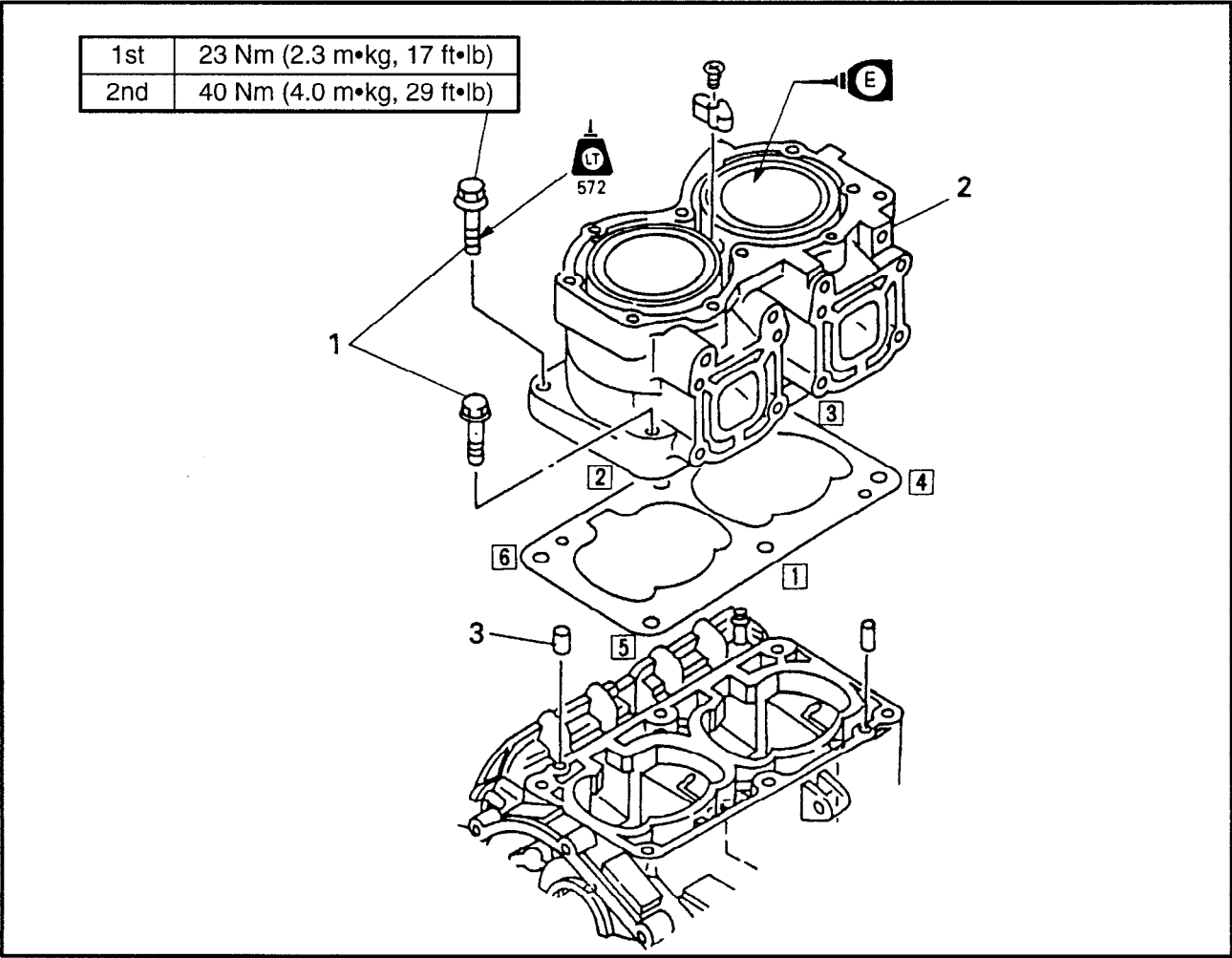
- Cylinder head warpage
Out of specification → Resurface.

**Warpage limit:****0.1 mm (0.004 in)****Warpage measurement and resurfacing steps:**

- Attach a straight edge and a thickness gauge on the cylinder head.
- Measure the warpage.
- If the warpage is out of specification, resurface the cylinder head.
- Place a 400 ~ 600 grit wet sandpaper on the surface plate, and resurface the head using a figure-eight sanding pattern.

CYLINDER

EXPLODED DIAGRAM (XL760)

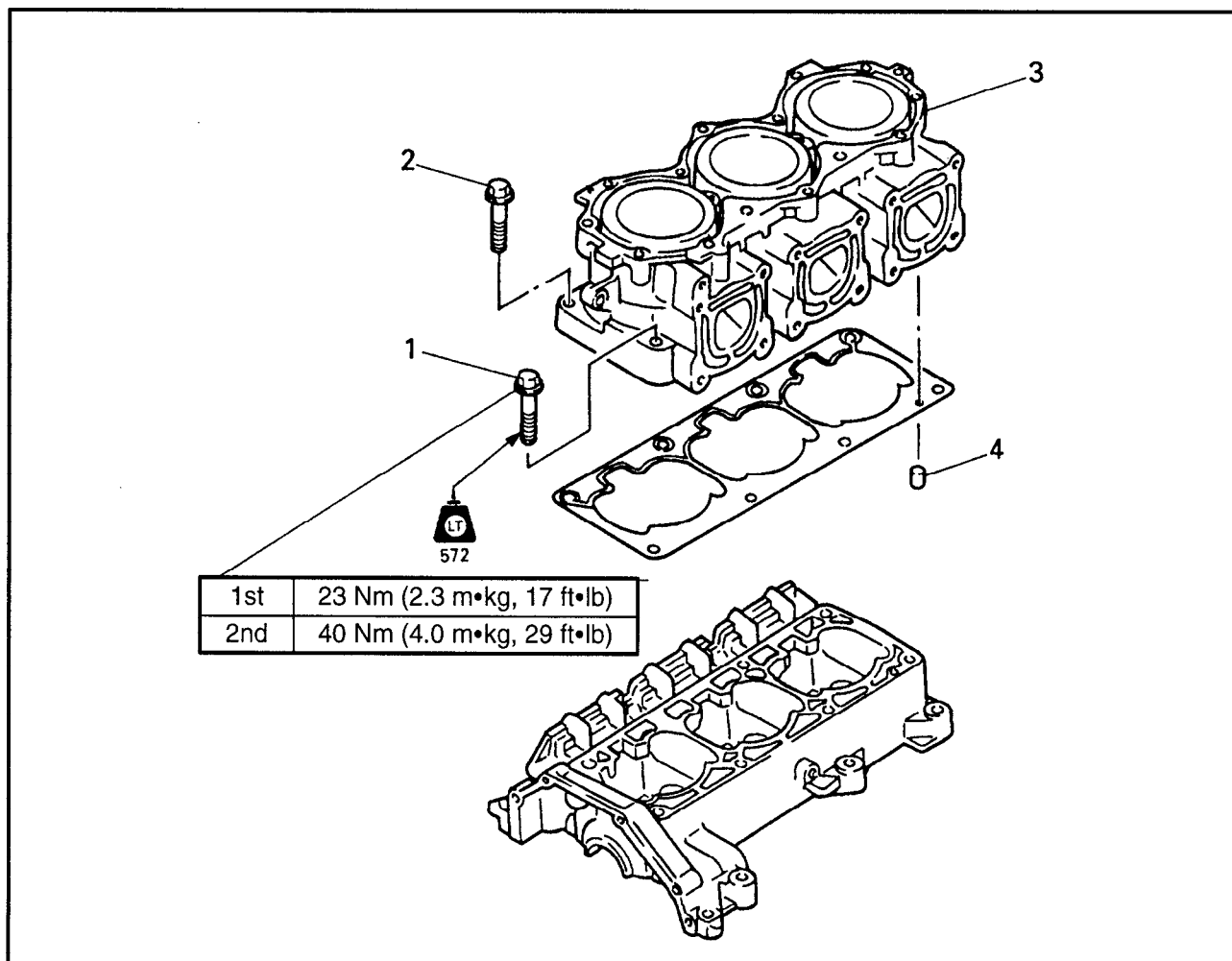


REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
1	CYLINDER REMOVAL Cylinder head Bolt (with washer)	6	Follow the left "Step" for removal. Refer to "CYLINDER HEAD". NOTE: _____ Tighten the bolts in sequence and in two steps of torque.
2	Cylinder	1	NOTE: _____ After installing, check the smooth movement of the piston.
3	Pin	2	Reverse the removal steps for installation.

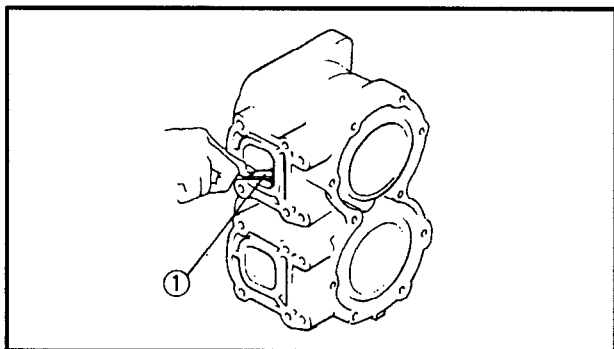


EXPLODED DIAGRAM (XL1200)



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
CYLINDER REMOVAL			
1	Cylinder head		Follow the left "Step" for removal. Refer to "CYLINDER HEAD".
2	Bolt (with washer)	2	M10 × 55 mm
2	Bolt (with washer)	6	M10 × 40 mm
			NOTE: _____ Tighten the bolts in sequence and in two steps of torque.
			NOTE: _____
3	Cylinder	1	After installing, check the smooth movement of the piston.
4	Pin	2	
			Reverse the removal steps for installation.

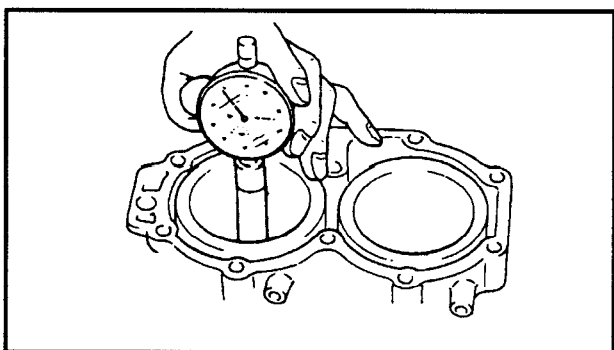
**SERVICE POINTS****Cylinder inspection**

1. Eliminate:

- Carbon deposits
Use a rounded scraper ①.

2. Inspect:

- Cylinder water jacket
Mineral deposits/Corrosion → Clean.
- Cylinder inner surface
Score marks → Repair or replace.
Use #600 ~ 800 grit wet sandpaper.

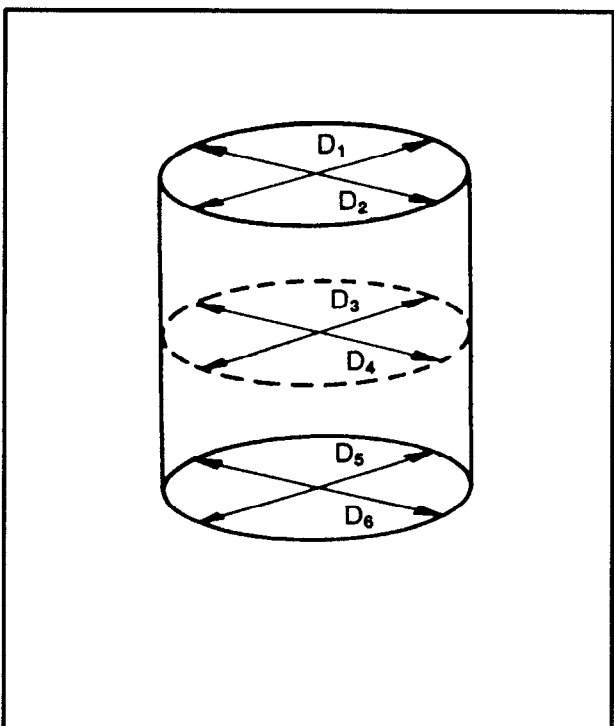


3. Measure:

- Cylinder bore "D"
Use cylinder gauge.
Out of limit → Replace.

NOTE:

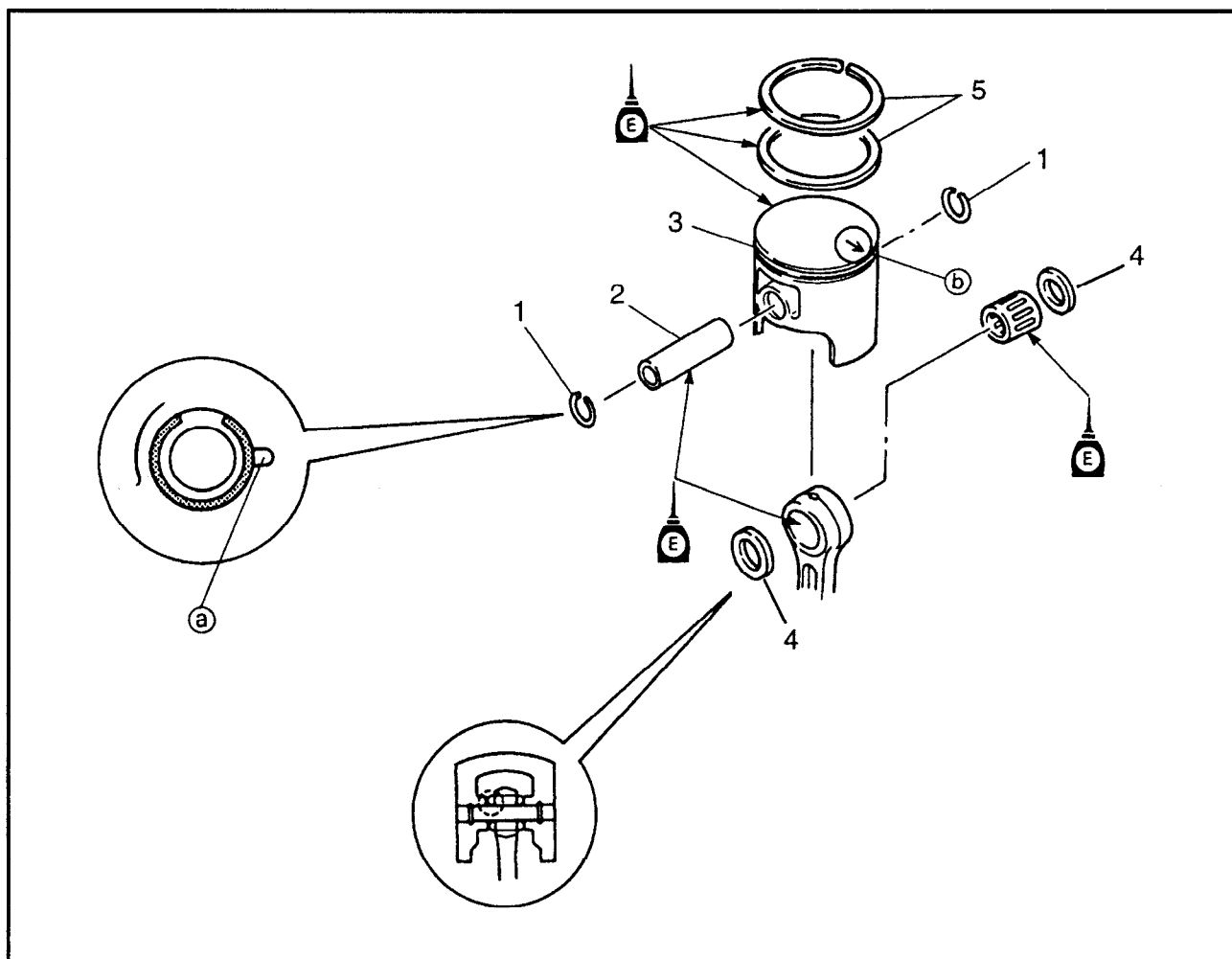
Measure the cylinder bore "D" in parallel. Then, find the average of the measurement.



	Standard	Limit
Cylinder bore "D"	84.00 ~ 84.02 mm (3.307 ~ 3.308 in)	84.1 mm (3.31 in)
Taper "T"	—	0.08 mm (0.003 in)
Out of round "R"	—	0.05 mm (0.002 in)
D = Maximum (D ₁ ~ D ₆) T = (Maximum D ₁ or D ₂) – (Maximum D ₅ or D ₆) R = (Maximum D ₁ , D ₃ or D ₅) – (Minimum D ₂ , D ₄ or D ₆)		



PISTON EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	PISTON REMOVAL		
	Cylinder	760, 1200	Follow the left "Step" for removal. Refer to "CYLINDER".
1	Piston pin clip	4, 6	CAUTION: _____ Do not allow the clip open ends to meet the piston pin slot (a) .
2	Piston pin	2, 3	
3	Piston	2, 3	NOTE: _____ Be sure the arrow (b) side is positioned exhaust pipe.
4	Washer	4, 6	
5	Piston ring	4, 6	CAUTION: _____ Align each end gap with the locating pin.
			Reverse the removal steps for installation.

SERVICE POINTS

Piston pin clip removal and installation

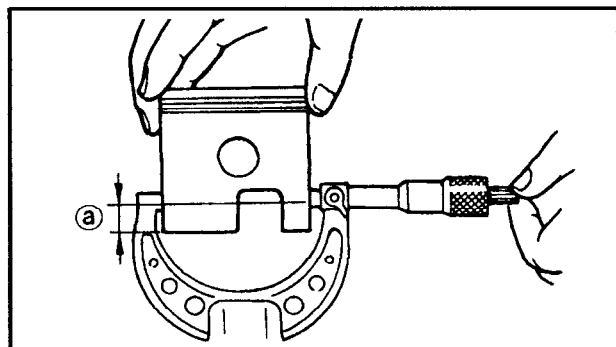
- Remove and install:
 - Piston pin clip

NOTE:

Before removing and installing piston pin clip, cover crankcase with a clean rag to prevent piston pin clip from falling into crankcase cavity.

Piston inspection

- Eliminate:
 - Carbon deposits
From the piston crown and ring groove.



- Inspect:
 - Piston wall
Score marks → Repair or replace.
Use #600 ~ 800 grit wet sandpaper.

NOTE:

Sand in a criss-cross pattern. Do not sand excessively.

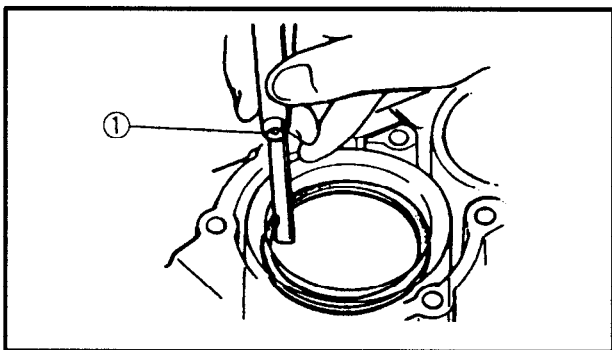
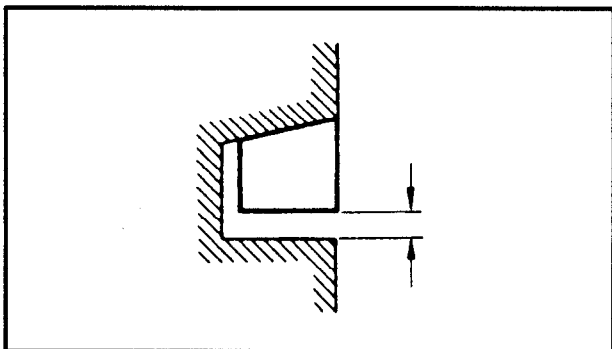
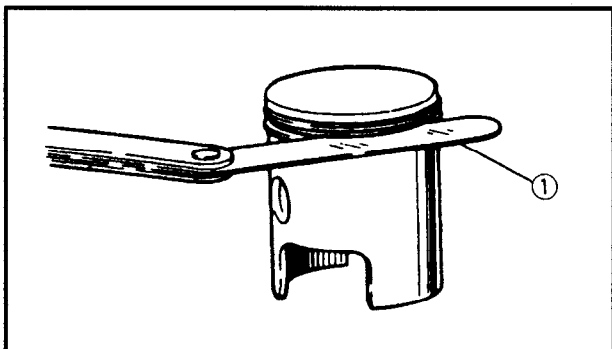
- Measure:
 - Piston skirt diameter
Use micrometer.
Out of specification → Replace.

	Piston diameter	Distance ^a
	83.902 ~ 83.921 mm (3.3032 ~ 3.3040 in)	10 mm (0.39 in)

- Calculate:
 - Piston clearance
Out of limit → Replace piston, piston rings as a set.

PISTON CLEARANCE	=	CYLINDER BORE	-	PISTON DIAMETER
---------------------	---	------------------	---	--------------------

	Piston clearance: 0.100 ~ 0.105 mm (0.0039 ~ 0.0041 in)
---	---



Piston ring inspection

1. Measure:

- Side clearance
Out of specification → Replace piston and/or ring.
Use a thickness gauge ①.



Side clearance:

Top

2nd

0.02 ~ 0.07 mm

(0.001 ~ 0.003 in)

2. Measure:

- End gap
Out of specification → Replace rings as a set.
Use a thickness gauge ①.



End gap:

Top

2nd

0.2 ~ 0.4 mm

(0.008 ~ 0.016 in)

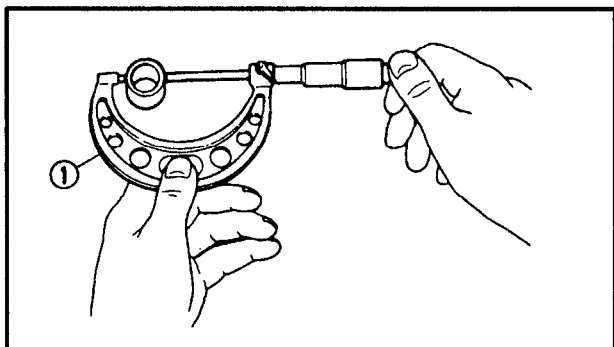
NOTE:

- Install the piston ring into the cylinder.
- Push the ring with the piston crown.

Piston pin and bearing inspection

1. Inspect:

- Piston pin
- Bearing
Signs of heat discoloration → Replace.



2. Measure:

- Piston pin outside diameter

Use micrometer ①.

Out of limit → Replace.

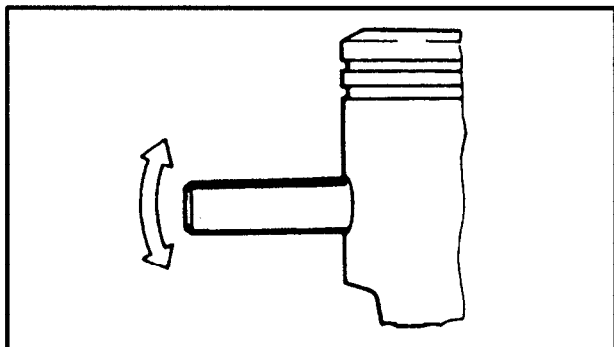
**Piston pin outside diameter:****Standard**

19.995 ~ 20.000 mm

(0.7872 ~ 0.7874 in)

Limit

19.98 mm (0.786 in)

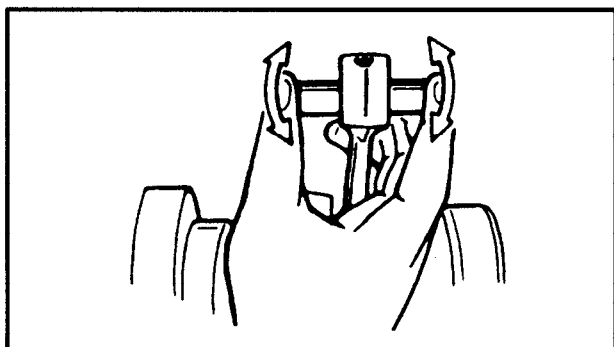


3. Check:

- Free play (when the piston pin is in place in the piston)

There should be no noticeable free play.

Free play exist → Replace piston pin and/or piston.



4. Check:

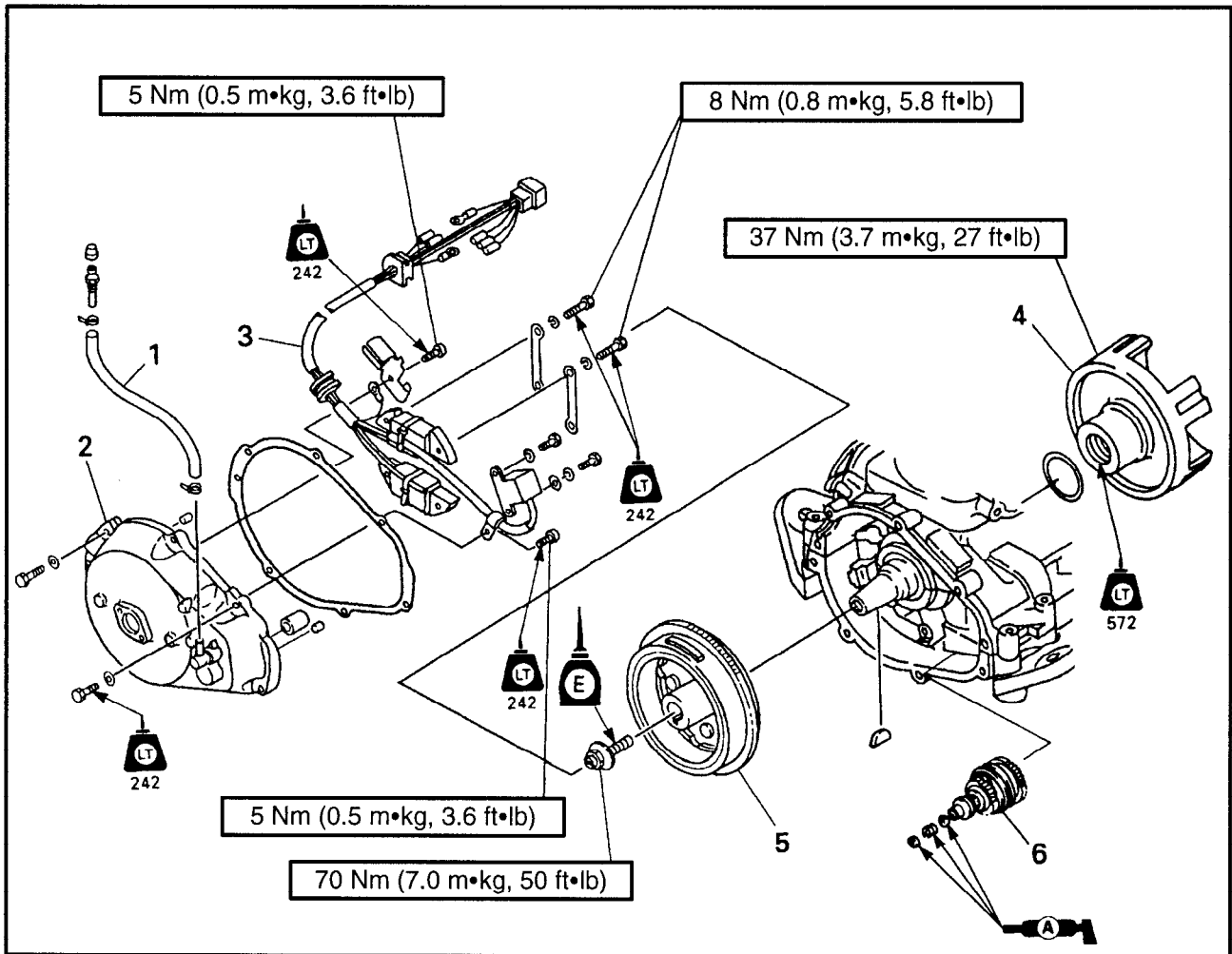
- Free play

There should be no noticeable free play.

Free play exist → Inspect the connecting rod for wear/Replace the pin and/or connecting rod as required.



FLYWHEEL MAGNETO AND BASE EXPLODED DIAGRAM (XL760)

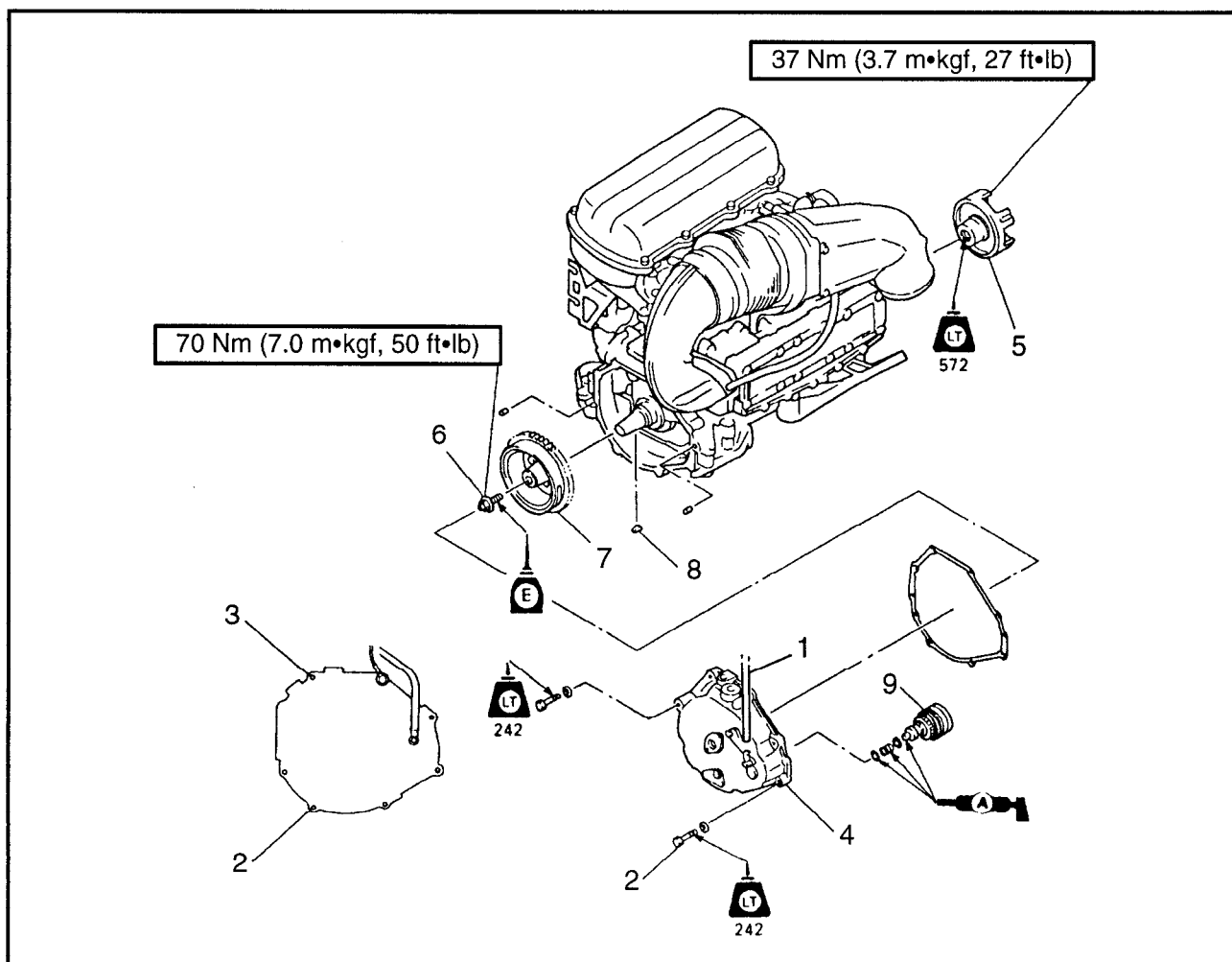


REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	FLYWHEEL MAGNETO AND BASE DISASSEMBLY		Follow the left "Step" for removal.
	Engine unit		Refer to "ENGINE UNIT REMOVAL".
	Oil pump		Refer to "OIL PUMP" in chapter 4.
1	Grease hose	1	NOTE: _____ Fill the water resistant grease into the flywheel cover groove.
2	Flywheel cover	1	
3	Base assembly	1	
4	Coupling flange	1	
5	Flywheel magneto	1	
6	Idle gear assembly	1	Reverse the removal steps for installation.

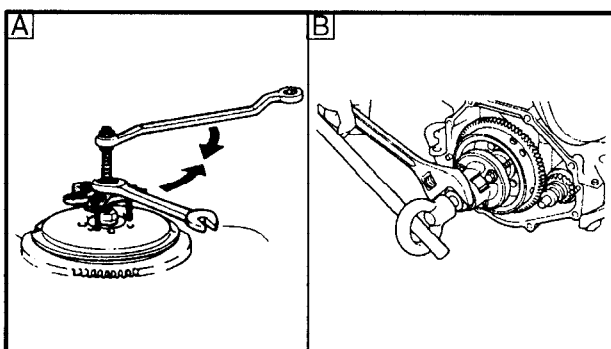
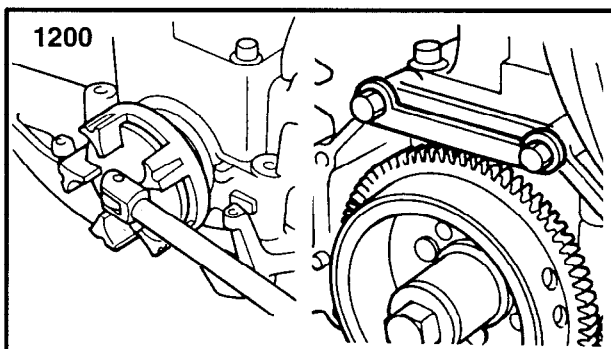
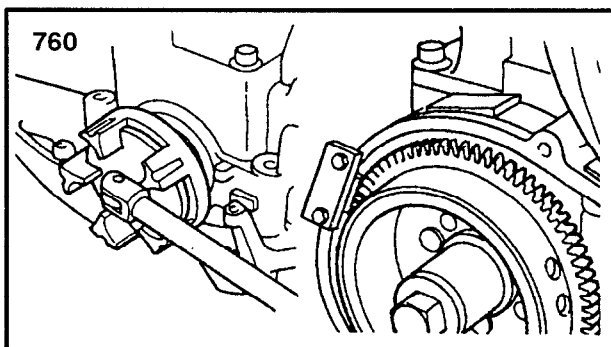


EXPLODED DIAGRAM (XL1200)



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	FLYWHEEL MAGNETO AND BASE DISASSEMBLY		Follow the left "Step" for removal.
	Engine unit		Refer to "ENGINE UNIT REMOVAL".
	Oil pump		Refer to "OIL PUMP" in chapter 4.
1	Grease hose	1	
2	Bolt (with washer)	8	M8 × 30 mm
3	Bolt (with washer)	1	M8 × 55 mm
4	Flywheel cover assembly	1	
5	Coupling flange	1	
6	Flange bolt	1	
7	Flywheel magneto	1	
8	Woodruff key	1	NOTE: _____
9	Idle gear assembly	1	Fill the water resistant grease into the flywheel cover groove.
			Reverse the removal steps for installation.

**SERVICE POINTS****Coupling flange removal and installation**

1. Remove and install:

- Coupling flange

**Coupler wrench:**

YW-06546/90890-06546

Flywheel holder:

XL760

YW-06547/90890-06547

XL1200

YW-41528/90890-06545

Flywheel magneto removal and installation

1. Remove and install:

- Bolt

**Flywheel holder:**

XL760

YW-06547/90890-06547

XL1200

YW-41528/90890-06545

2. Remove:

- Flywheel magneto

**Flywheel puller:**

YB-06117/90890-06521

Bolt:

M8 × 60 mm

[A] For USA and CANADA

[B] Except for USA and CANADA

CAUTION:

To prevent damage to the engine or tools, screw in the flywheel puller set-bolts evenly and completely so that the puller plate is parallel to the flywheel.

Coupling flange inspection

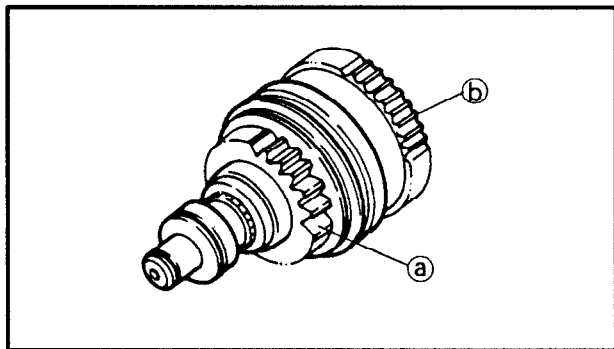
1. Inspect:

- Coupling flange
Wear/damage → Replace.

Flywheel magneto inspection

1. Inspect:

- Flywheel gear
Wear/damage → Replace.

**Idle gear assembly inspection**

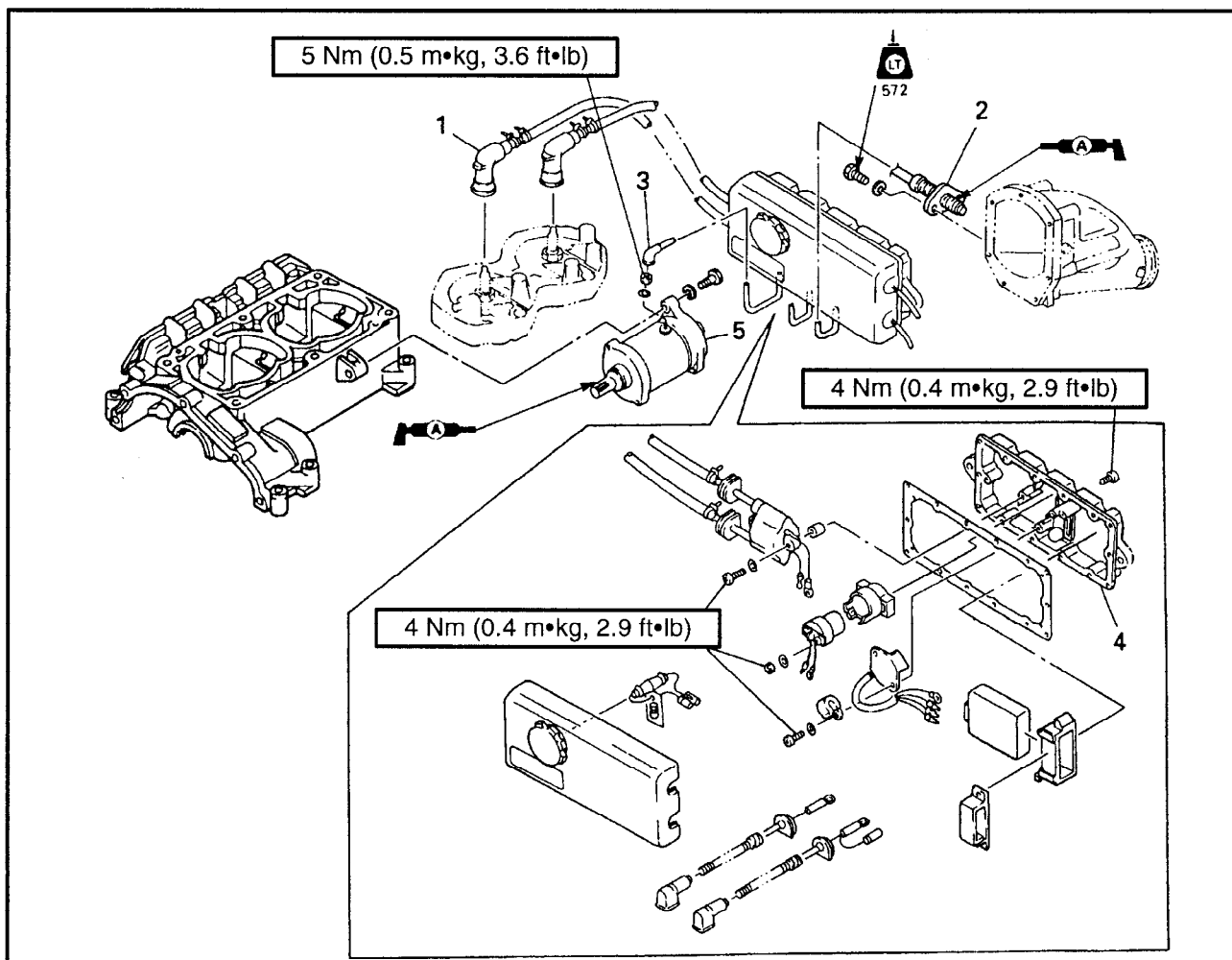
1. Inspect:

- Pinion gear (a)
- Inner gear (b)
Wear/damage → Replace.

2. Check:

- Clutch movement
Unsmooth movement → Replace.

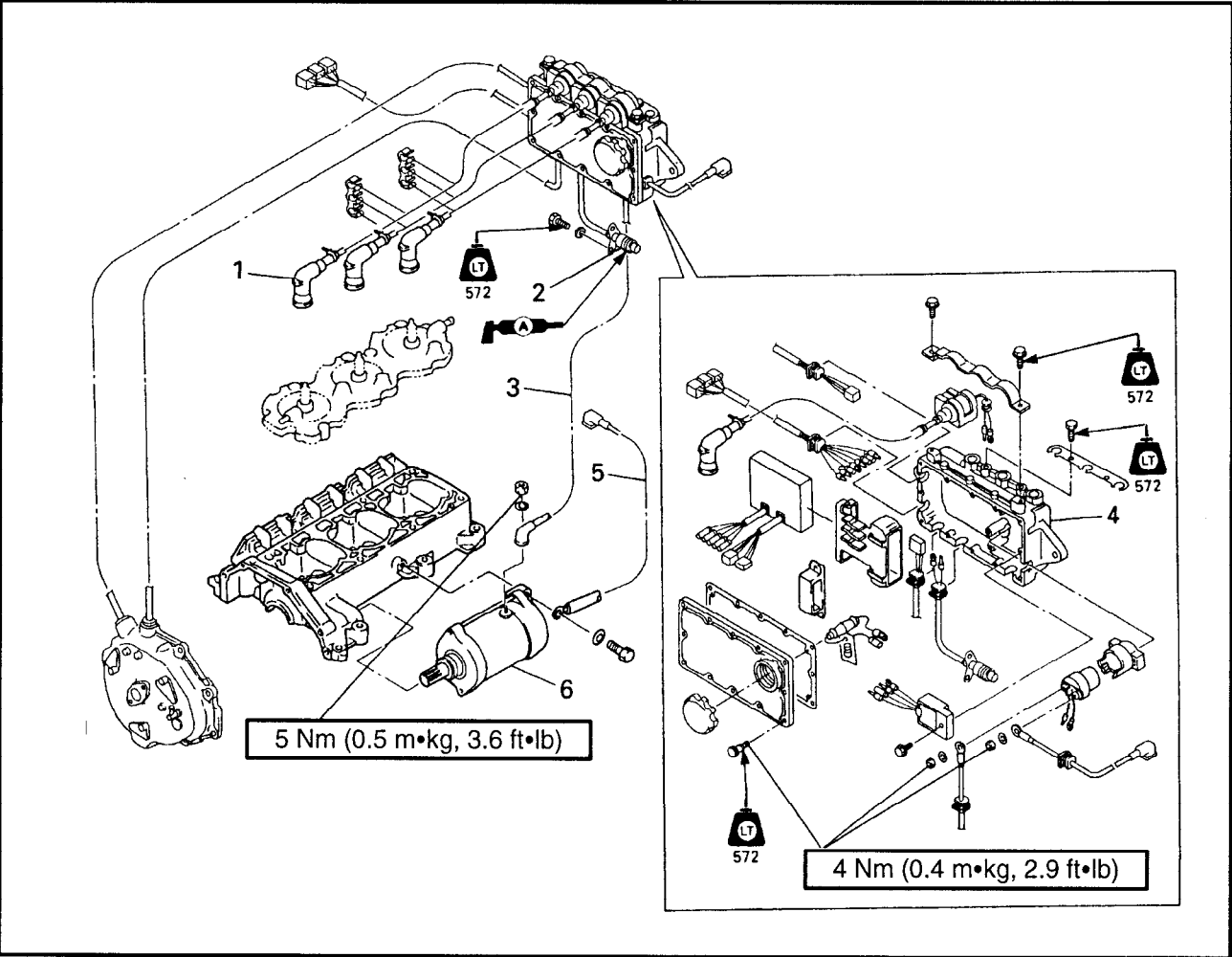
ELECTRICAL UNIT
EXPLODED DIAGRAM (XL760)



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	ELECTRICAL UNIT REMOVAL		
	Electrical box		Follow the left "Step" for removal.
	Base assembly		Refer to "ENGINE UNIT REMOVAL".
1	Spark plug cap	2	Refer to "FLYWHEEL MAGNETO AND BASE".
2	Thermo switch	1	
3	Starter motor negative lead	1	
4	Housing	1	
5	Starter motor	1	
			Reverse the removal steps for installation.

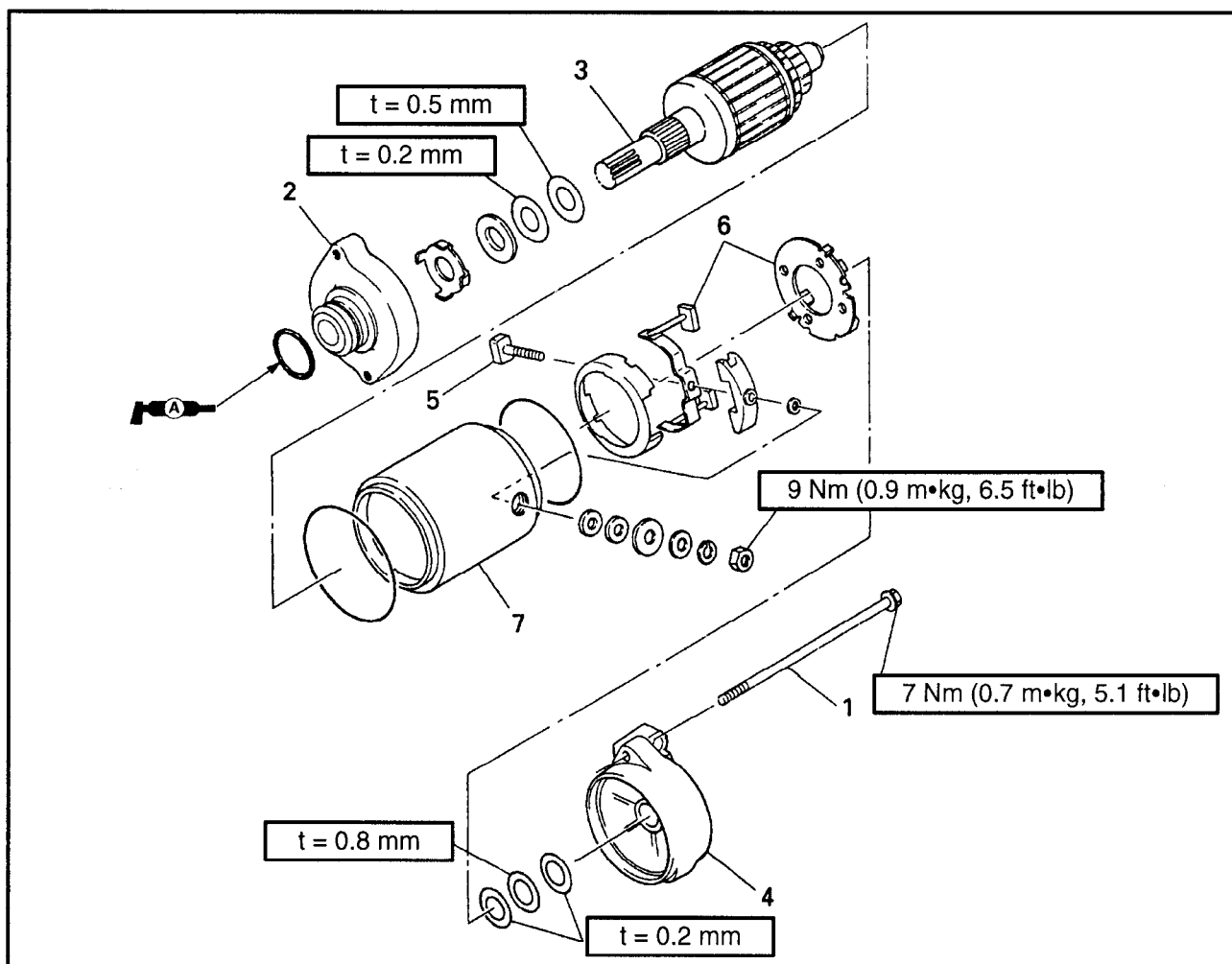
EXPLODED DIAGRAM (XL1200)



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	ELECTRICAL UNIT DISASSEMBLY		Follow the left "Step" for removal.
	Electrical box		Refer to "ENGINE UNIT REMOVAL".
	Base assembly		Refer to "FLYWHEEL MAGNETO AND BASE".
1	Spark plug cap	3	
2	Thermo switch	1	
3	Starter motor positive lead	1	
4	Housing	1	
5	Battery cable (negative)	1	
6	Starter motor	1	
			Reverse the removal steps for installation.

STARTER MOTOR EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

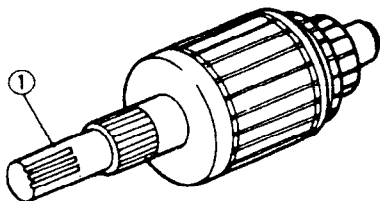
Step	Procedure/Part name	Q'ty	Service points
	STARTER MOTOR DISASSEMBLY		Follow the left "Step" for removal.
	Starter motor assembly		Refer to "ELECTRICAL UNIT".
1	Through bolt	2	
2	Front bracket	1	
3	Armature assembly	1	
4	Rear bracket	1	
5	Bolt	1	
6	Brush holder	1	
7	York assembly	1	
			Reverse the removal steps for installation.



SERVICE POINTS

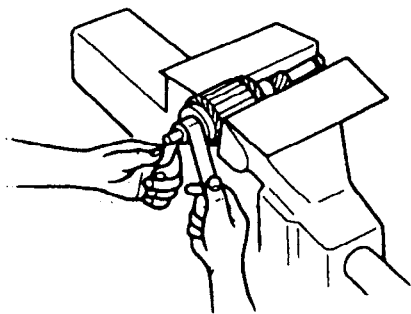
Pinion inspection

1. Inspect:
 - Pinion teeth ①
Wear/Damage → Replace.



Armature inspection

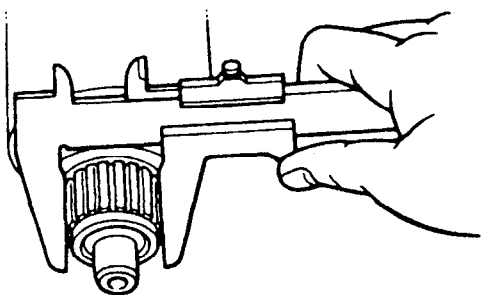
1. Inspect:
 - Commutator
Dirty → Clean with #600 abrasive paper.



2. Measure:
 - Commutator diameter
Out of specification → Replace.



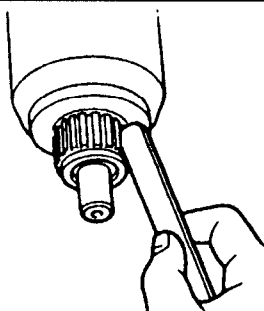
Commutator diameter:
Limit 27 mm (1.06 in)



3. Check:
 - Commutator undercut
Clog/Dirt → Clean.

NOTE:

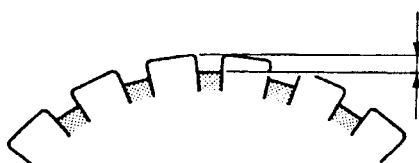
Remove all particles of mica and metal using compressed air.

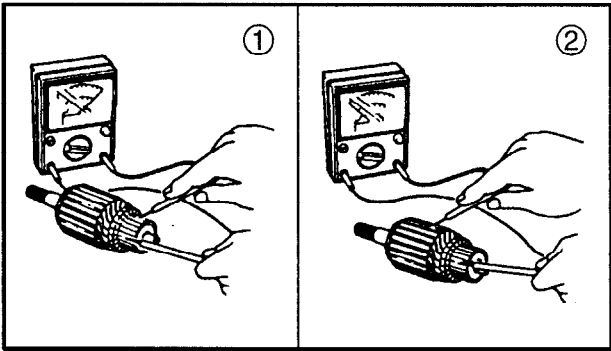


4. Measure:
 - Commutator undercut
Out of specification → Replace.



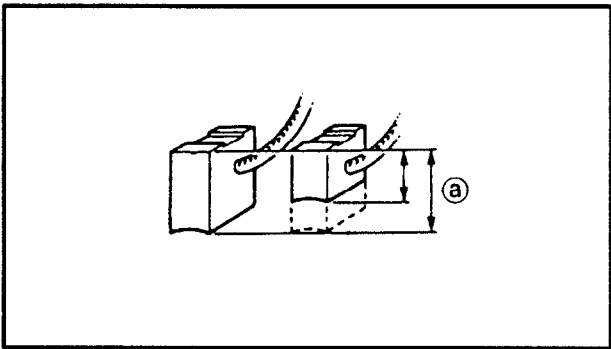
Commutator undercut:
Limit 0.2 mm (0.01 in)





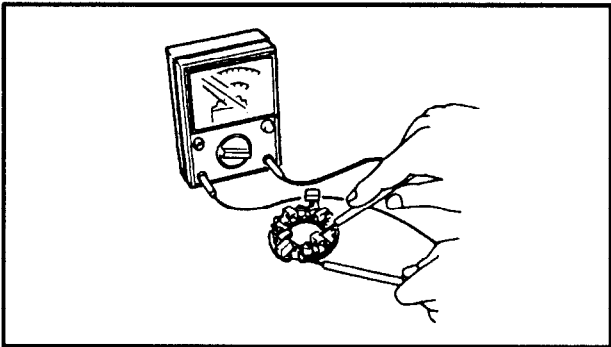
5. Inspect:
- Armature coil continuity
Out of specification → Replace.

 Armature coil continuity:	
Commutator segments ①	Continuity
Segment-Laminations ②	Discontinuity
Segment-Shaft	Discontinuity



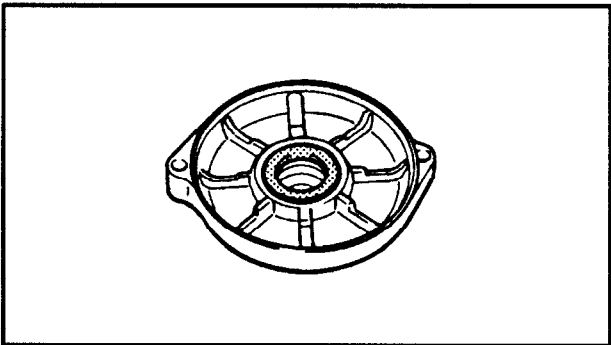
- Brush holder inspection
1. Measure:
- Brush length ①
Out of specification → Replace.

	Brush length: Limit 6.5 mm (0.26 in)
---	--



2. Check:
- Brush holder continuity
Out of specification → Replace.

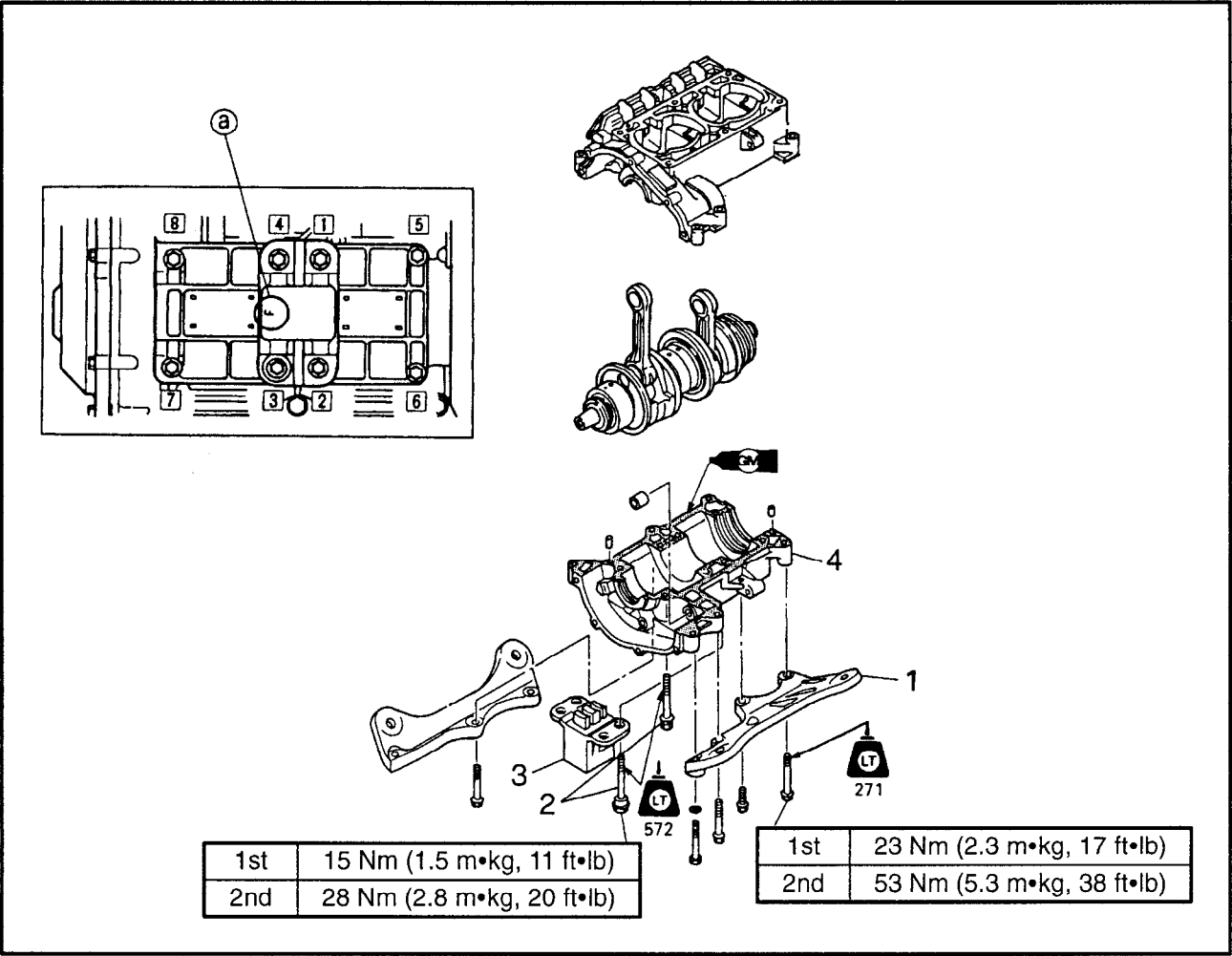
 Brush holder continuity:	
Brush holder-Base	Discontinuity



- Cover inspection
1. Inspect:
- Cover bushing
Wear/damage → Replace the cover.

CRANKCASE

EXPLODED DIAGRAM (XL760)



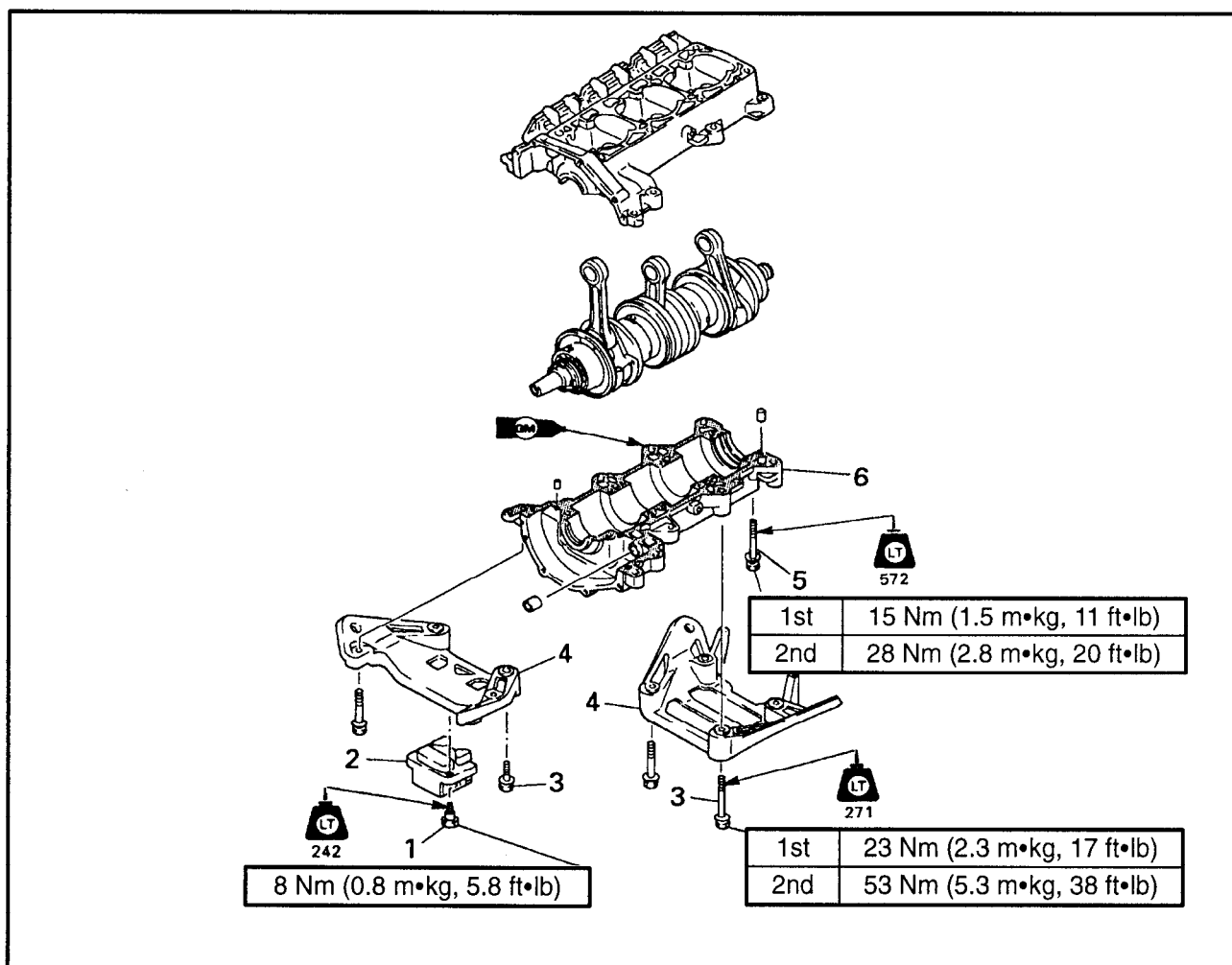
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	CRANKCASE DISASSEMBLY		
	Base assembly		Follow the left "Step" for removal. Refer to "FLYWHEEL MAGNETO AND BASE". Refer to "ELECTRICAL UNIT". Refer to "PISTON".
1	Starter motor	2	
	Piston	8	
1	Engine mount bracket		NOTE: _____
2	Bolt (with washer)		Tighten the bolts in sequence and in two steps of torque.
			NOTE: _____
3	Mount rubber	1	Be sure that the "F" mark ㊦ is on the flywheel side.

4	Crankcase	1	Reverse the removal steps for installation.



EXPLODED DIAGRAM (XL1200)

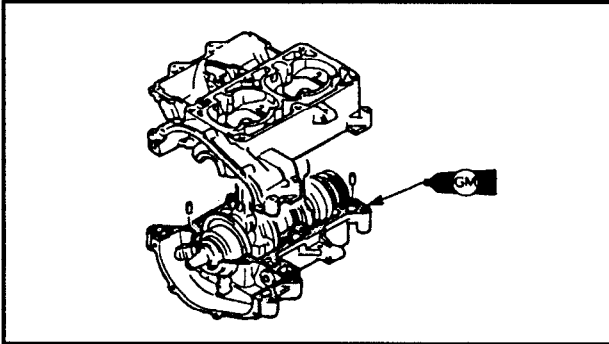


REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	CRANKCASE DISASSEMBLY		
	Base assembly		Follow the left "Step" for removal. Refer to "FLYWHEEL MAGNETO AND BASE".
	Starter motor		Refer to "ELECTRICAL UNIT".
	Piston		Refer to "PISTON".
1	Bolt	2	
2	Mount rubber	1	
3	Bolt (with washer)	9	
4	Engine mount bracket	2	
5	Bolt (with washer)	8	
6	Crankcase	1	NOTE: _____ Tighten the bolts in sequence and in two steps of torque. _____ Reverse the removal steps for installation.

**SERVICE POINTS****Crankcase inspection**

1. Inspect:
 - Contacting surface
Scratch → Replace.
 - Crankcase
Crack/damage → Replace.

**Crankcase installation**

1. Apply:
 - Gasket Maker

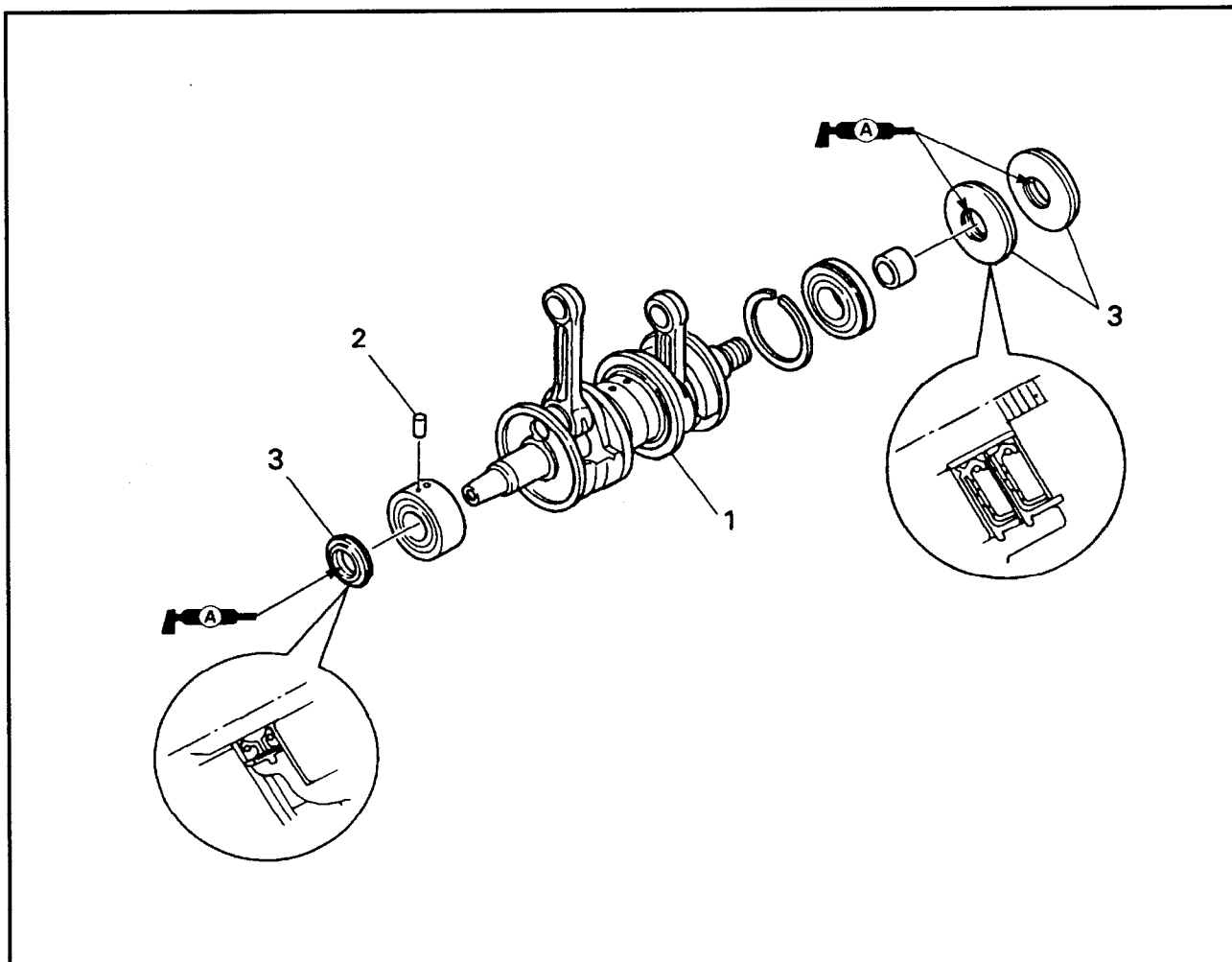
NOTE: _____
Clean the contacting surface of crankcase before applying the Gasket Maker.

2. Check:
 - Crankshaft
Rough action → Repair.

NOTE: _____
After installing, check the smooth movement of the crankshaft.

CRANKSHAFT

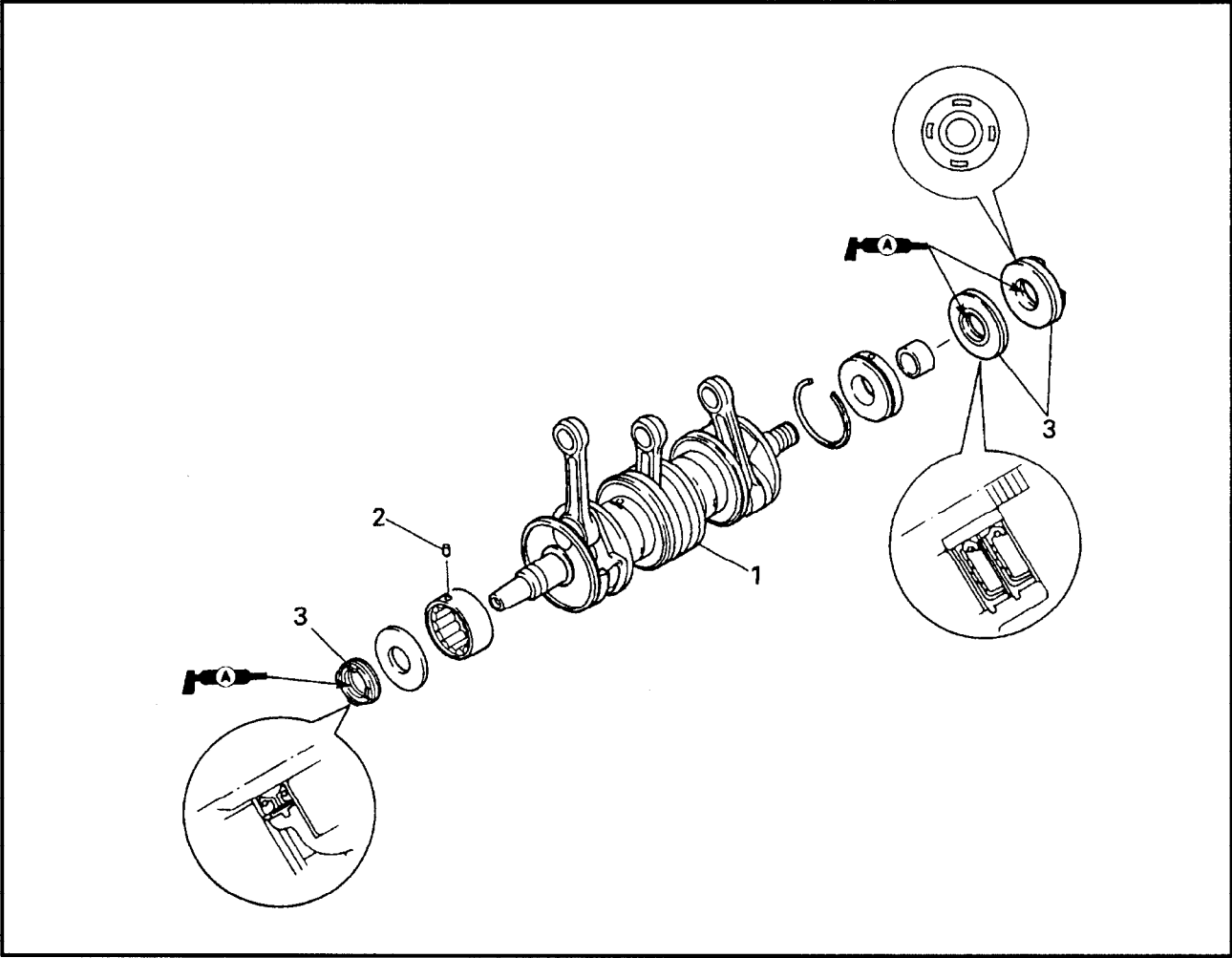
EXPLODED DIAGRAM (XL760)



REMOVAL AND INSTALLATION CHART

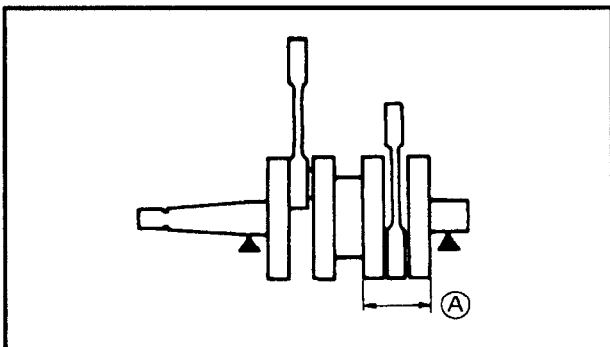
Step	Procedure/Part name	Q'ty	Service points
1	CRANKSHAFT REMOVAL Crankcase Crankshaft assembly	1	Follow the left "Step" for removal. Refer to "CRANKCASE". CAUTION: - Do not allow the bearing clip open ends to meet the crankcase contacting surface. - Place the locating pins on the bearing into the crankcase body groove.
2	Dowel pin	5	
3	Oil seal	3	
			Reverse the removal steps for installation.

EXPLODED DIAGRAM (XL1200)



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
1	CRANKSHAFT REMOVAL Crankcase Crankshaft assembly	1	Follow the left "Step" for removal. Refer to "CRANKCASE". CAUTION: _____ • Do not allow the bearing clip open ends to meet the crankcase contacting surface. • Place the locating pins on the bearing into the crankcase body groove.
2	Dowel pin	8	
3	Oil seal	3	
			Reverse the removal steps for installation.

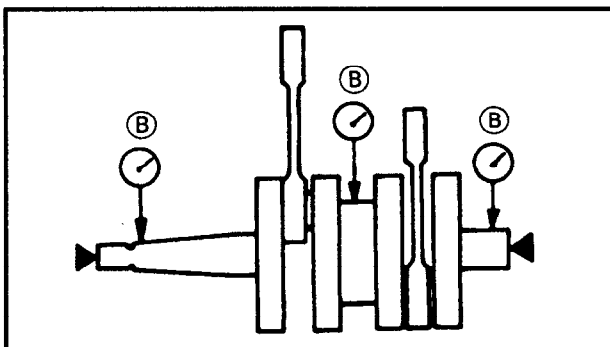
**SERVICE POINTS****Crankshaft inspection**

1. Measure:

- Crank width (A)
Out of specification → Replace.



Crank width:
61.95 ~ 62.00 mm
(2.439 ~ 2.441 in)

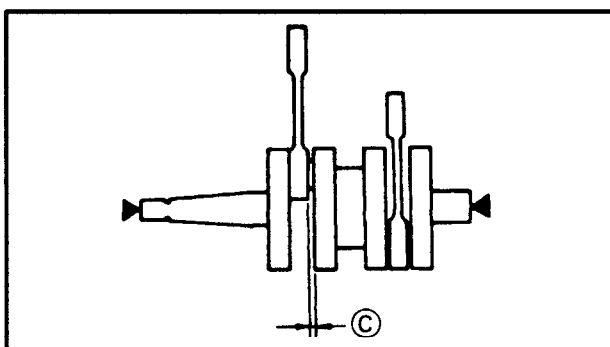


2. Measure:

- Deflection (B)
Use a dial gauge.
Out of specification → Replace.



Maximum deflection:
0.05 mm (0.002 in)

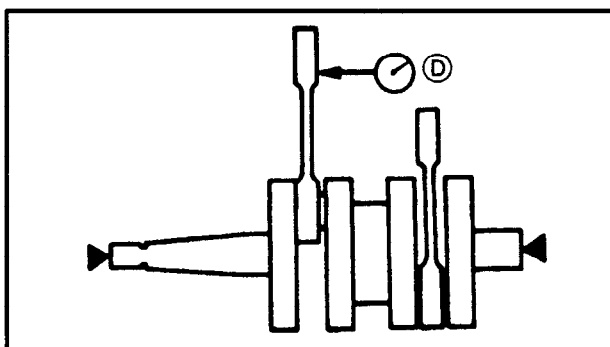


3. Measure:

- Big end side clearance (C)
Use a thickness gauge.
Out of specification → Replace.



Big end side clearance:
0.25 ~ 0.75 mm
(0.010 ~ 0.030 in)

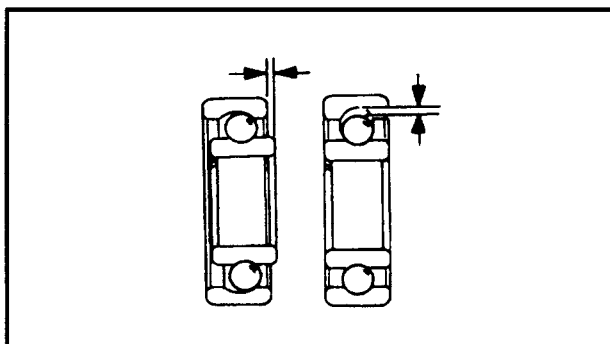


4. Measure:

- Small end free play (D)
Use a dial gauge.
Out of specification → Replace.



Small end free play:
2.0 mm (0.08 in)



5. Inspect:

- Crankshaft bearing
Pitting/damage → Replace.

NOTE:

Lubricate the bearings immediately after examining them to prevent rusting.



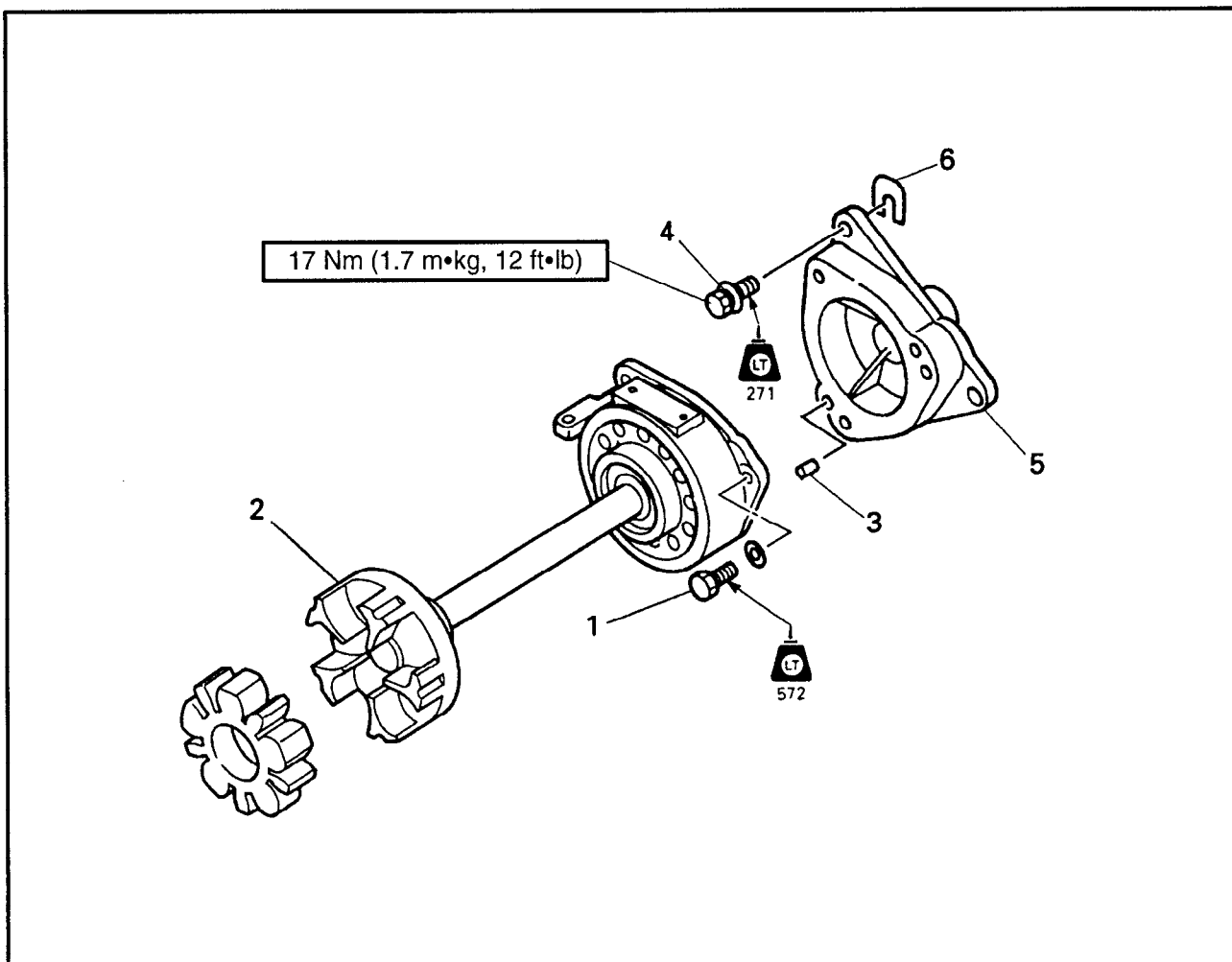
CRANKSHAFT

E

6. Inspect:

- Crankshaft oil seal
Wear/damage → Replace.

INTERMEDIATE HOUSING REMOVAL EXPLODED DIAGRAM



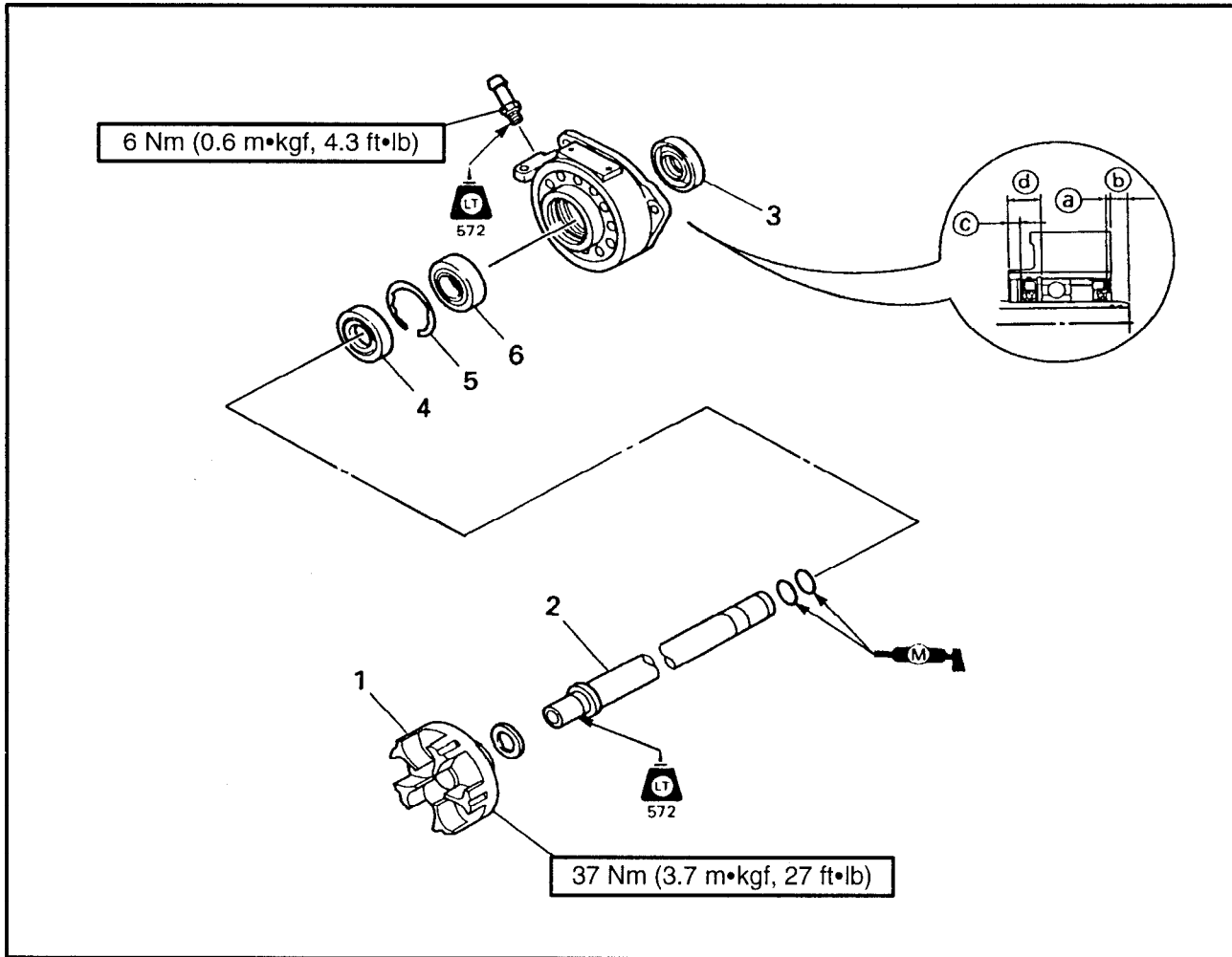
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	INTERMEDIATE HOUSING REMOVAL		Follow the left "Step" for removal.
	Engine unit		Refer to "ENGINE UNIT REMOVAL".
1	Bolt (with washer)	3	
2	Bearing housing assembly	1	
3	Pin	2	
4	Bolt (with washer)	3	
5	Housing	1	
6	Shim	*	NOTE: _____ Install the previously marked shims back into their original location. _____ Reverse the removal steps for installation.

*: As required



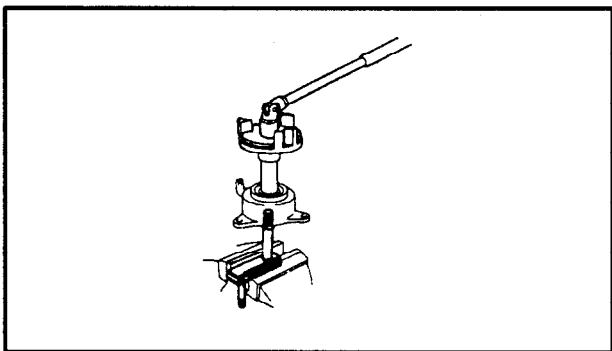
INTERMEDIATE HOUSING EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	INTERMEDIATE HOUSING DISASSEMBLY		Follow the left "Step" for removal.
	Bearing housing assembly		Refer to "INTERMEDIATE HOUSING REMOVAL".
1	Coupling	1	 Distance: (a): 1.6 ~ 2.0 mm (0.06 ~ 0.08 in) (b): 14.5 ~ 15.5 mm* ¹ (0.57 ~ 0.61 in) 9.5 ~ 10.5 mm* ² (0.37 ~ 0.41 in) (c): 6.8 ~ 7.2 mm (0.27 ~ 0.28 in) (d): 17.6 ~ 17.7 mm (0.69 ~ 0.70 in)
2	Shaft	1	
3	Oil seal	1	
4	Oil seal	1	
5	Clip	1	
6	Bearing	1	
			Reverse the removal steps for installation.

*1: XL760 *2: XL1200



SERVICE POINTS

Coupling removal and installation

1. Remove and install:
 - Coupling

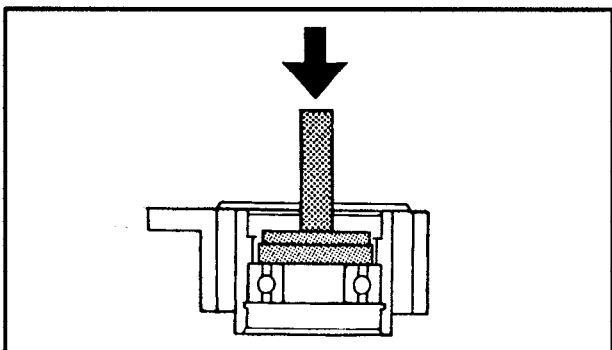


Coupler wrench:

YW-06546/90890-06546

Shaft holder:

YW-38742/90890-06069



Bearing removal

1. Remove
 - Bearing

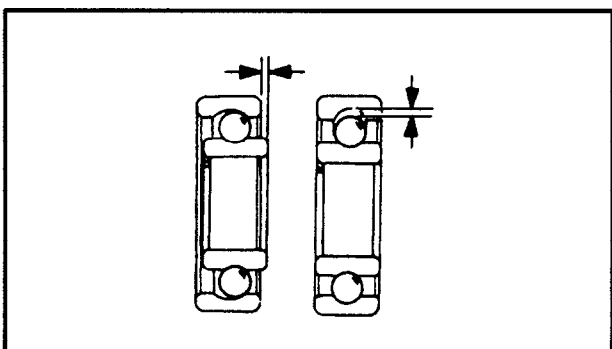


Driver rod:

YB-06071/90890-06606

Bearing outer race attachment:

YB-06015/90890-06636

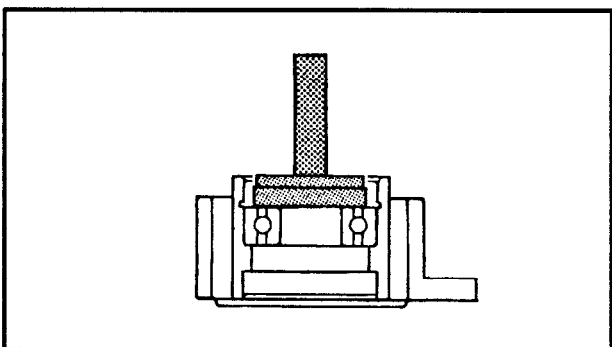


Bearing inspection

1. Inspect:
 - Bearing
 - Rotate inner race by hand.
 - Rough spots/seizure → Replace.
 - Shaft
 - Pitting damage → Replace.
 - Hose
 - Wear/cracks → Replace.

Coupling inspection

1. Inspect:
 - Coupling flange
 - Coupling rubber
 - Wear/damage → Replace.



Bearing installation

1. Install:
 - Bearing

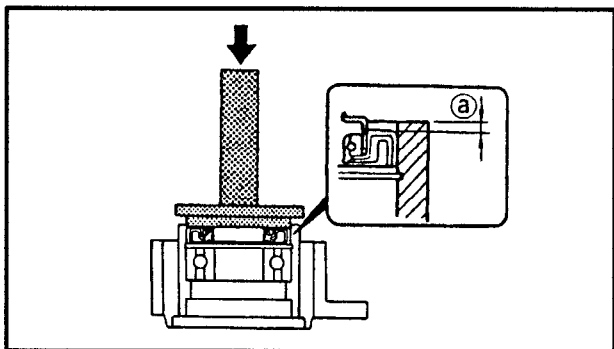


Driver rod:

YB-06071/90890-06606

Bearing outer race attachment:

YB-06085/90890-06625

**Oil seal installation**

1. install:

- Oil seal [T = 8 mm (0.31 in)]

**Distance ①:**

6.8 ~ 7.2 mm (0.27 ~ 0.28 in)

**Driver rod:**

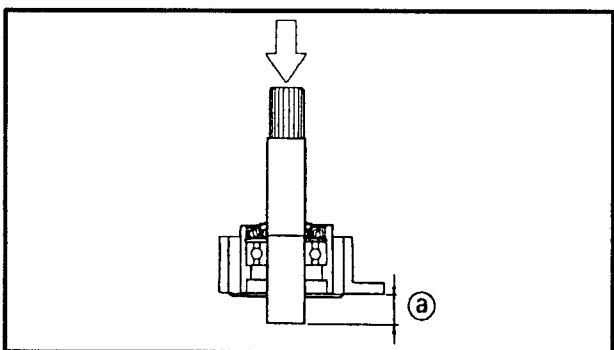
YB-06071/90890-06606

Bearing outer race attachment:

YB-06085/90890-06625

NOTE:

Fill the water resistant grease on the clip inner circumference before installing the oil seal.



2. Install:

- Shaft

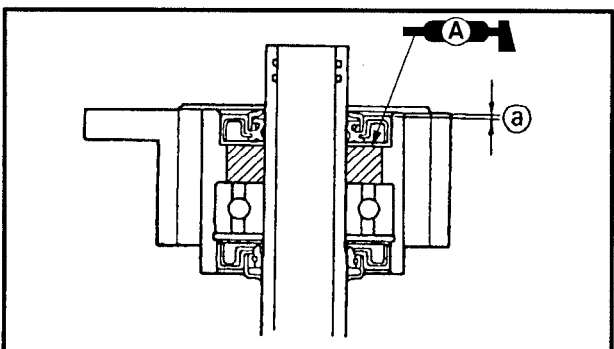
**Distance ①:**

XL760

14.5 ~ 15.5 mm (0.57 ~ 0.61 in)

XL1200

9.5 ~ 10.5 mm (0.37 ~ 0.41 in)



3. Install:

- Oil seal [T = 10 mm (0.38 in)]

**Distance ①:**

1.6 ~ 2.0 mm (0.06 ~ 0.08 in)

NOTE:

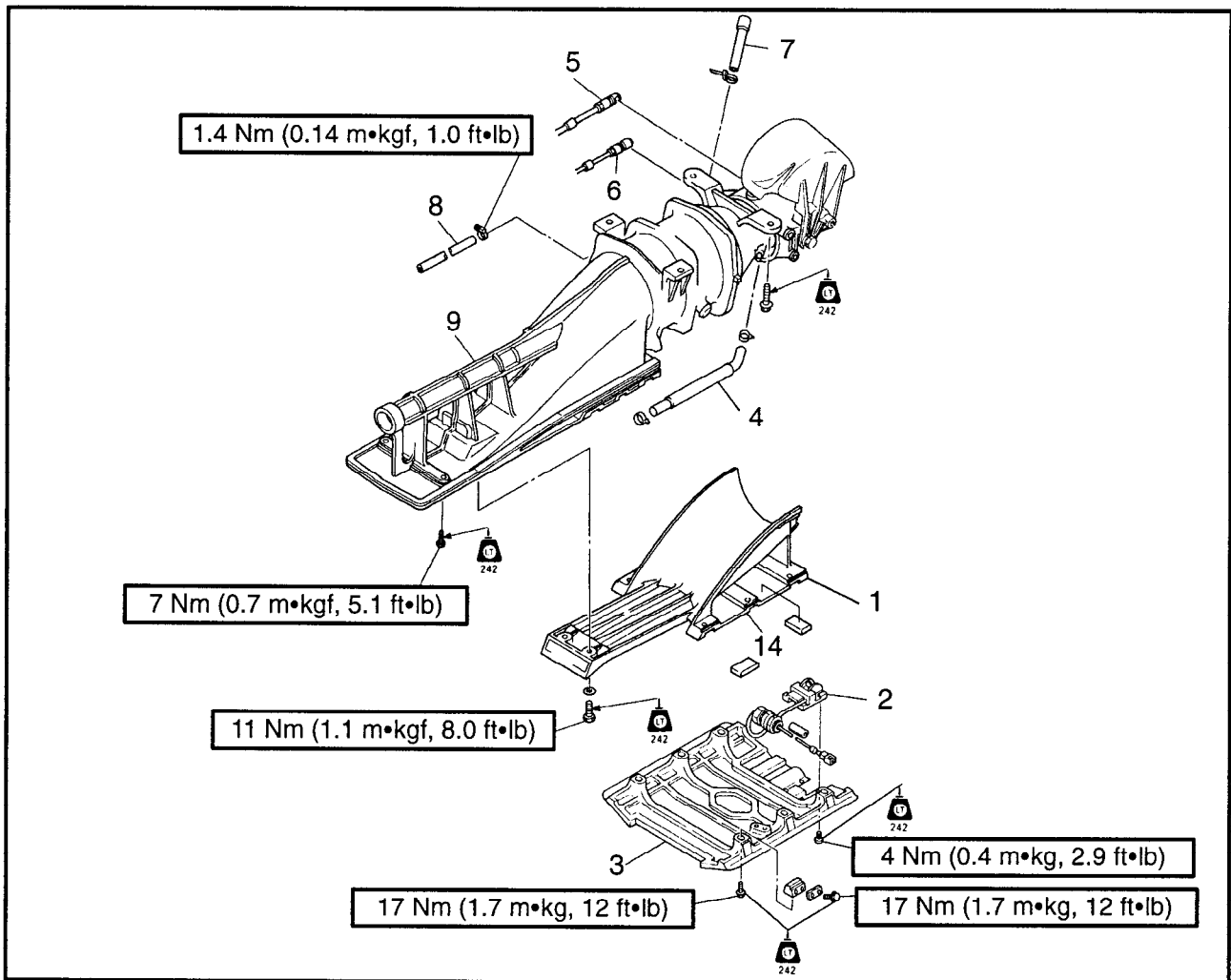
Fill the water resistant grease on the housing inner circumference before installing the oil seal.

CHAPTER 6

JET PUMP UNIT

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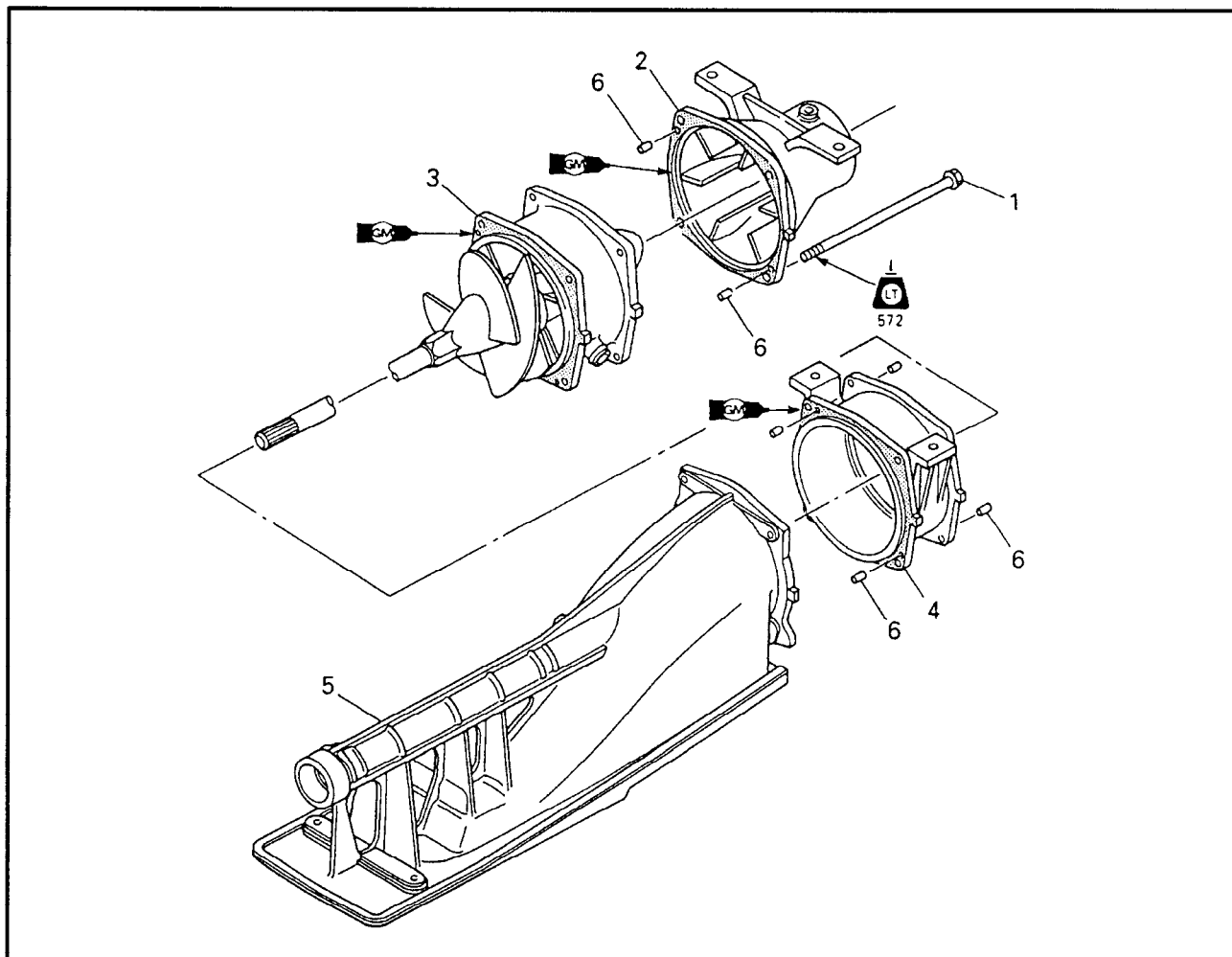
JET PUMP UNIT REMOVAL
EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

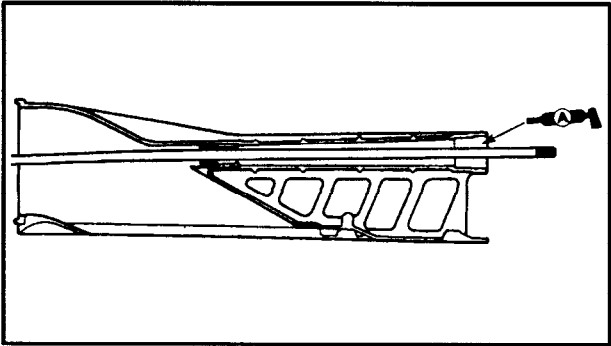
Step	Procedure/Part name	Q'ty	Service points
	JET PUMP UNIT REMOVAL		
1	Intake screen	1	Follow the left "Step" for removal.
2	Speed sensor	1	
3	Ride plate	1	
4	Bilge hose	1	
5	Shift cable joint	1	
6	Steering cable joint	1	
7	Spout hose	1	
8	Engine cooling hose	1	
9	Jet pump unit	1	
			NOTE: • Pull the jet pump unit straight backward. • When installing the jet pump unit, align the drive shaft spline (male) with the intermediate shaft spline (female).
			Reverse the removal steps for installation.

**NOZZLE, DUCT AND INTAKE
EXPLODED DIAGRAM**



REMOVAL AND INSTALLATION CHART

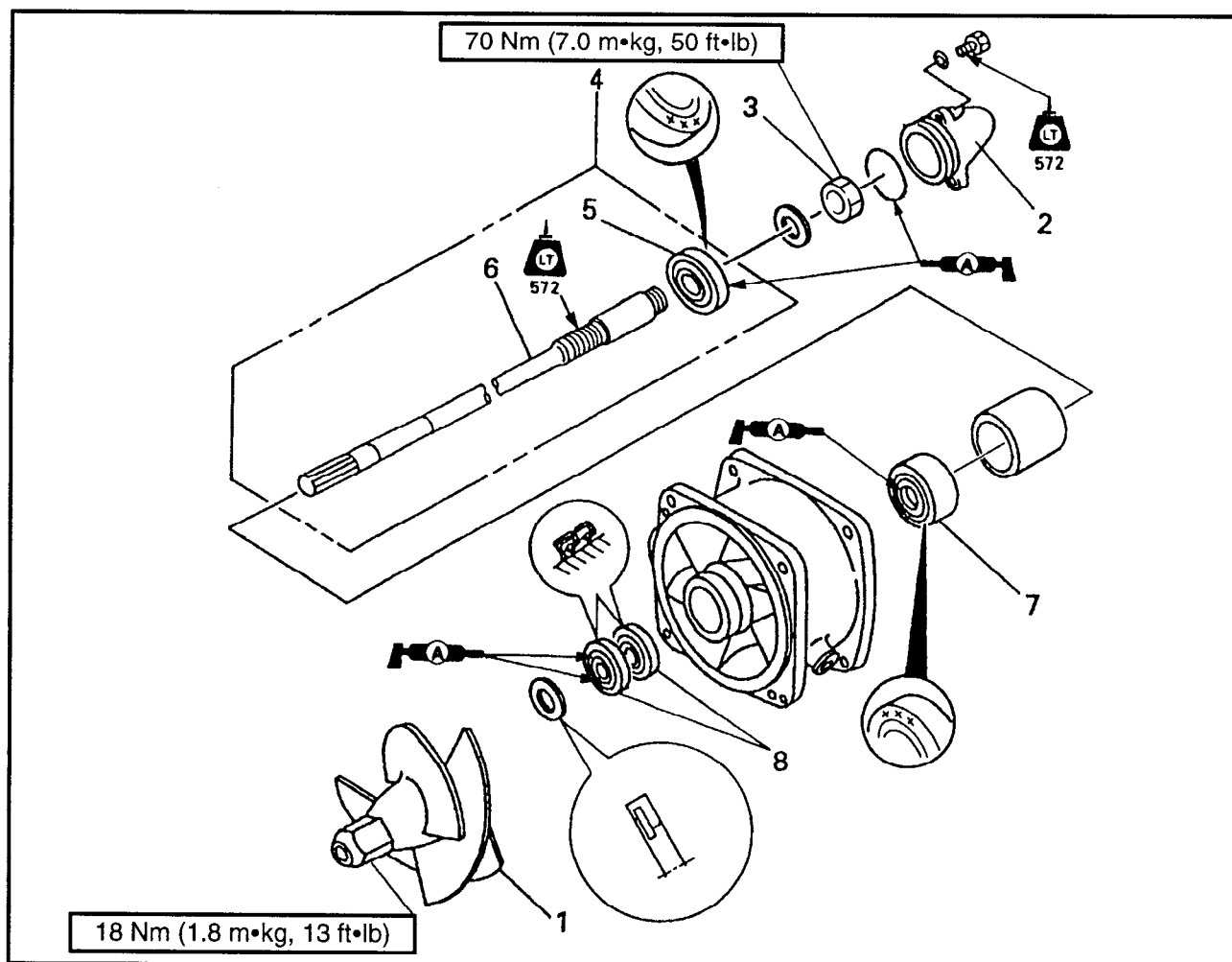
Step	Procedure/Part name	Q'ty	Service points
	NOZZLE, DUCT AND INTAKE REMOVAL		Follow the left "Step" for removal.
	Trim ring		Refer to "DEFLECTOR AND TRIM RING" section.
1	Bolt	4	NOTE: _____ Clean the contacting surfaces before applying the Gasket Marker.
2	Nozzle	1	
3	Impeller duct assembly	1	
4	Housing	1	
5	Intake duct assembly	1	Reverse the removal steps for installation.
6	Pin	6	



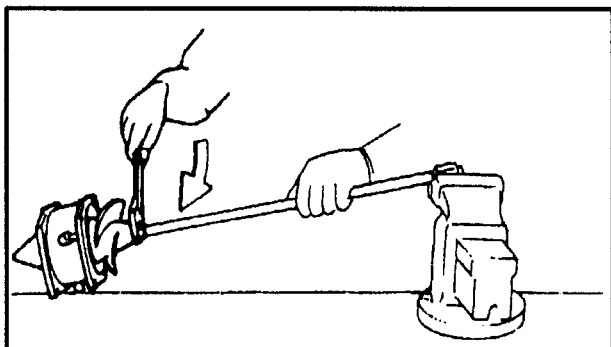
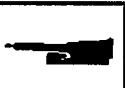
SERVICE POINTS
Housing installation

1. Fill:
- Intake duct housing

	Water resistant grease: 130 ~ 170 cm ³ (7.8 – 10.4 cu. in)
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**IMPELLER AND DRIVE SHAFT
EXPLODED DIAGRAM**

REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	IMPELLER AND DRIVE SHAFT DISASSEMBLY	760, 1200	Follow the left "Step" for removal
	Impeller duct assembly		Refer to "DEFLECTOR, NOZZLE AND DUCT".
1	Impeller	1	
2	Cap	1	
3	Nut	-, 1	
4	Drive shaft assembly	1	
5	Bearing (rear)	1	
6	Spacer	-, 1	
7	Bearing (front)	1	
8	Oil seal	2	Reverse the removal steps for installation.



SERVICE POINTS

Drive shaft removal

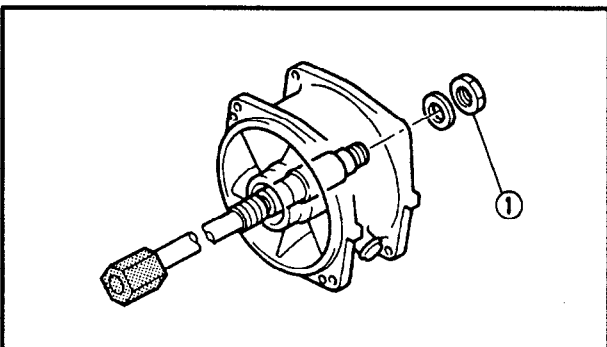
1. Remove:
 - Impeller



Drive shaft holder:
YB-06049/90890-06518

NOTE:

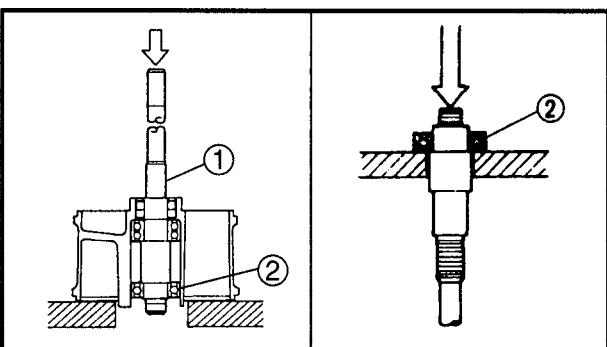
The impeller has a left-hand thread. Turn the impeller clockwise to loosen it.



2. Remove: (XL1200)
 - Nut ①



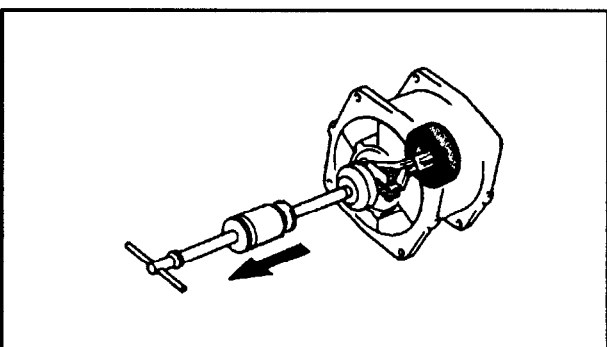
Drive shaft holder:
YB-06049/90890-06518



3. Remove:
 - Drive shaft and bearing (rear) ①
 - Bearing (rear) ②

NOTE:

Use a press.



4. Remove:
 - Bearing (front)



Slide hammer set:
90890-06523
YB-06096/90890-06531

Impeller inspection

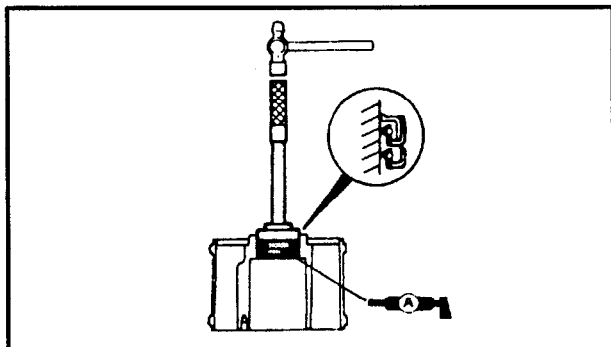
Refer to "JET PUMP UNIT" in chapter 3.

Drive shaft inspection

1. Inspect:
 - Drive shaft
 Damage → Replace.

Bearing inspection

1. Inspect:
 - Bearing (front and rear)
 Rotate inner race by hand.
 Rough spot/seizure → Replace.

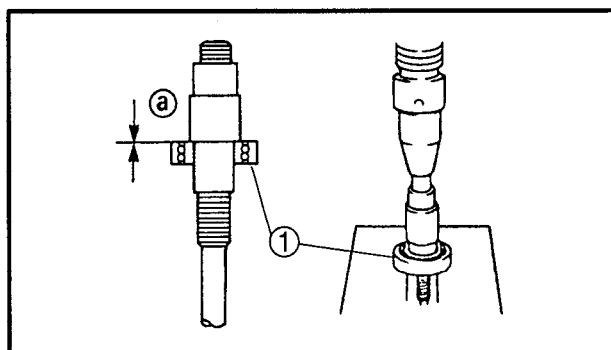


Drive shaft installation

1. Install:
 - Oil seal



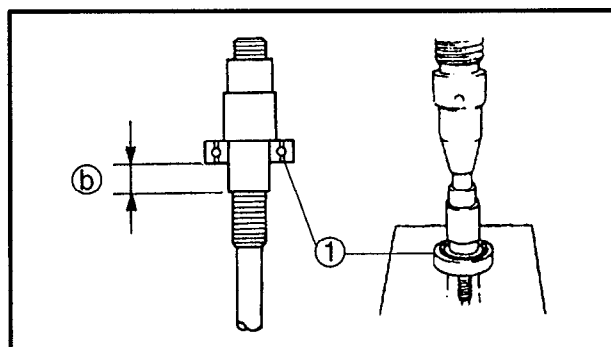
Driver rod:
YB-06071/90890-06606
Ball bearing attachment:
YB-06156/90890-06634



2. Install: (XL760)
 - Bearing (front) ①



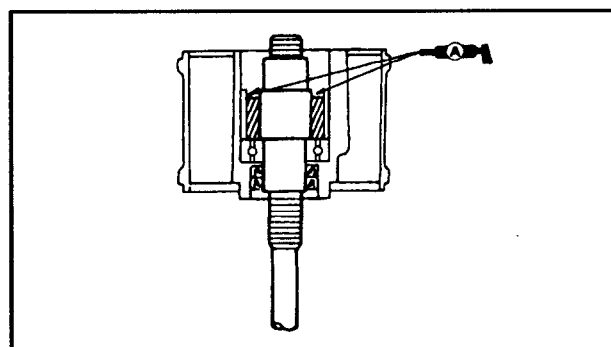
Distance ①a:
0 mm (0 in)



3. Install: (XL1200)
 - Bearing (front) ①
 - Drive shaft and bearing



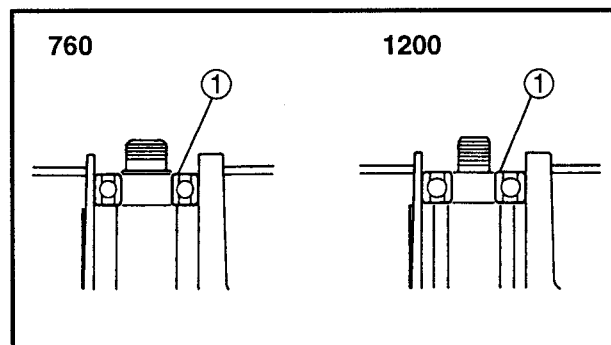
Distance ①b:
 23 ± 0.1 mm (0.91 ± 0.004 in)



4. Fill:
 - Between the drive shaft and spacer



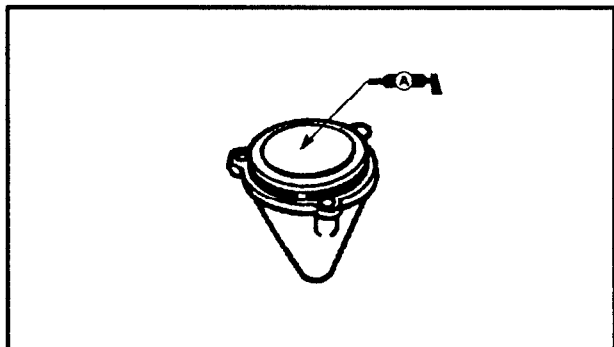
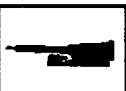
Water resistant grease:
760: 21 cm³ (1.3 cu. in)
1200: 13 cm³ (0.8 cu. in)



5. Install:
 - Bearing (rear) ①

NOTE:

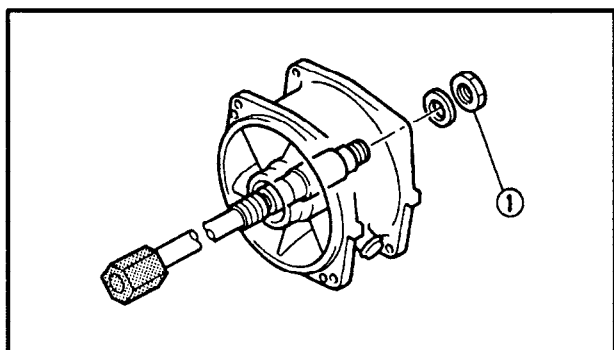
When install the bearing, press bearing inner race and outer race together.



6. Fill:
- Into the cap



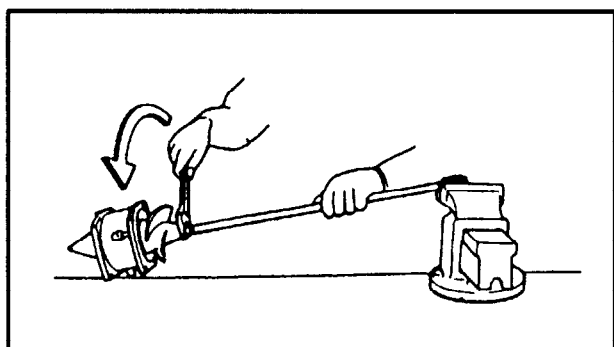
Water resistant grease:
18 cm³ (1.1 cu. in)



7. Install:
- Nut ① (XL1200)
 - Impeller

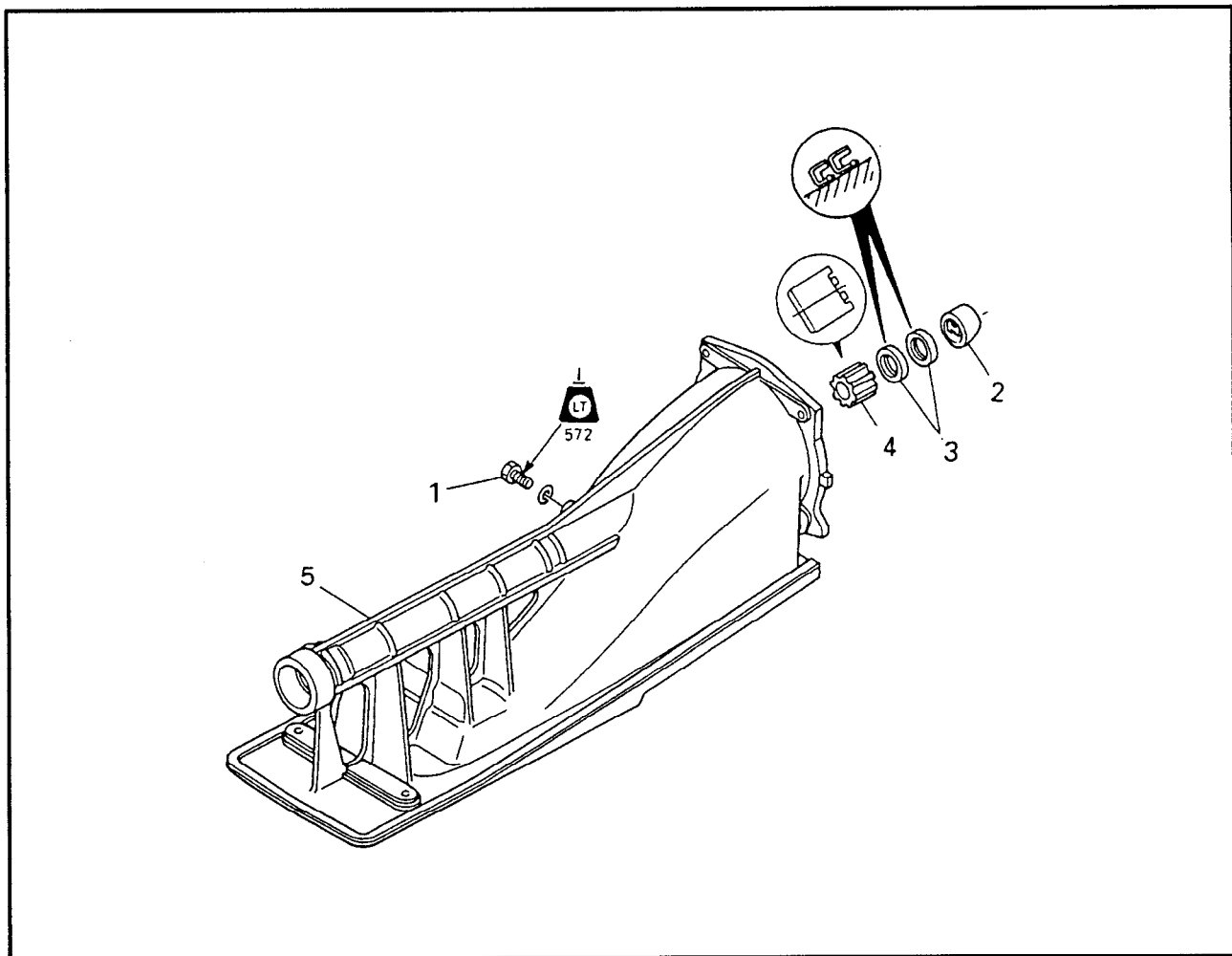


Drive shaft holder:
YB-06049/90890-06518



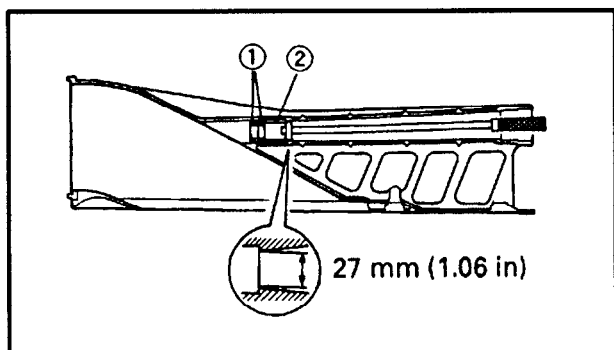
INTAKE DUCT

EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	INTAKE DUCT DISASSEMBLY		
1	Intake duct assembly		Follow the left "Step" for removal. Refer to "NOZZLE, DUCT AND INTAKE".
1	Bolt (with washer)	1	
2	Spacer	1	
3	Oil seal	2	
4	Bushing	1	
5	Intake duct	1	Reverse the removal steps for installation.



SERVICE POINTS

Oil seal and bushing removal

1. Remove:
 - Oil seal ①
 - Bushing ②



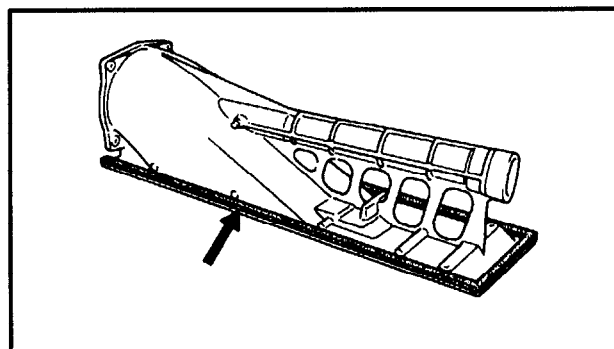
Driver rod:
YB-06229/90890-06605
Ball bearing attachment:
YB-06021/90890-06638

Housing inspection

1. Inspect:
 - Housing inner surface
 Wear/Damage → Replace.

Seal rubber inspection

1. Inspect:
 - Seal rubber
 Crack/Wear → Replace.

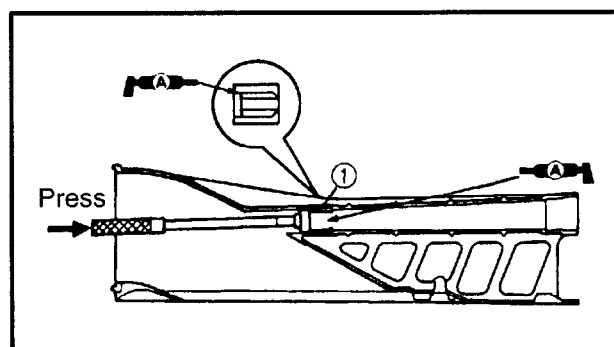


Bushing and oil seal installation

1. Install:
 - Bushing ①



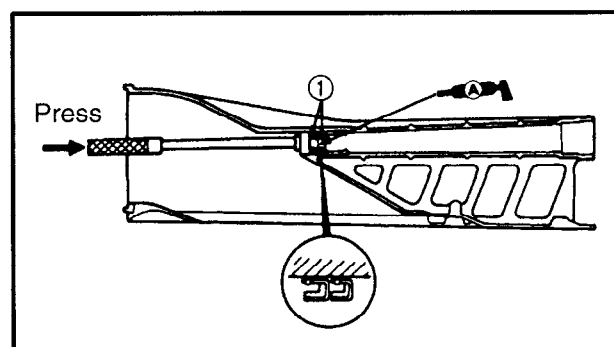
Driver rod:
YB-06071/90890-06602
Needle bearing attachment:
YB-06155/90890-06611



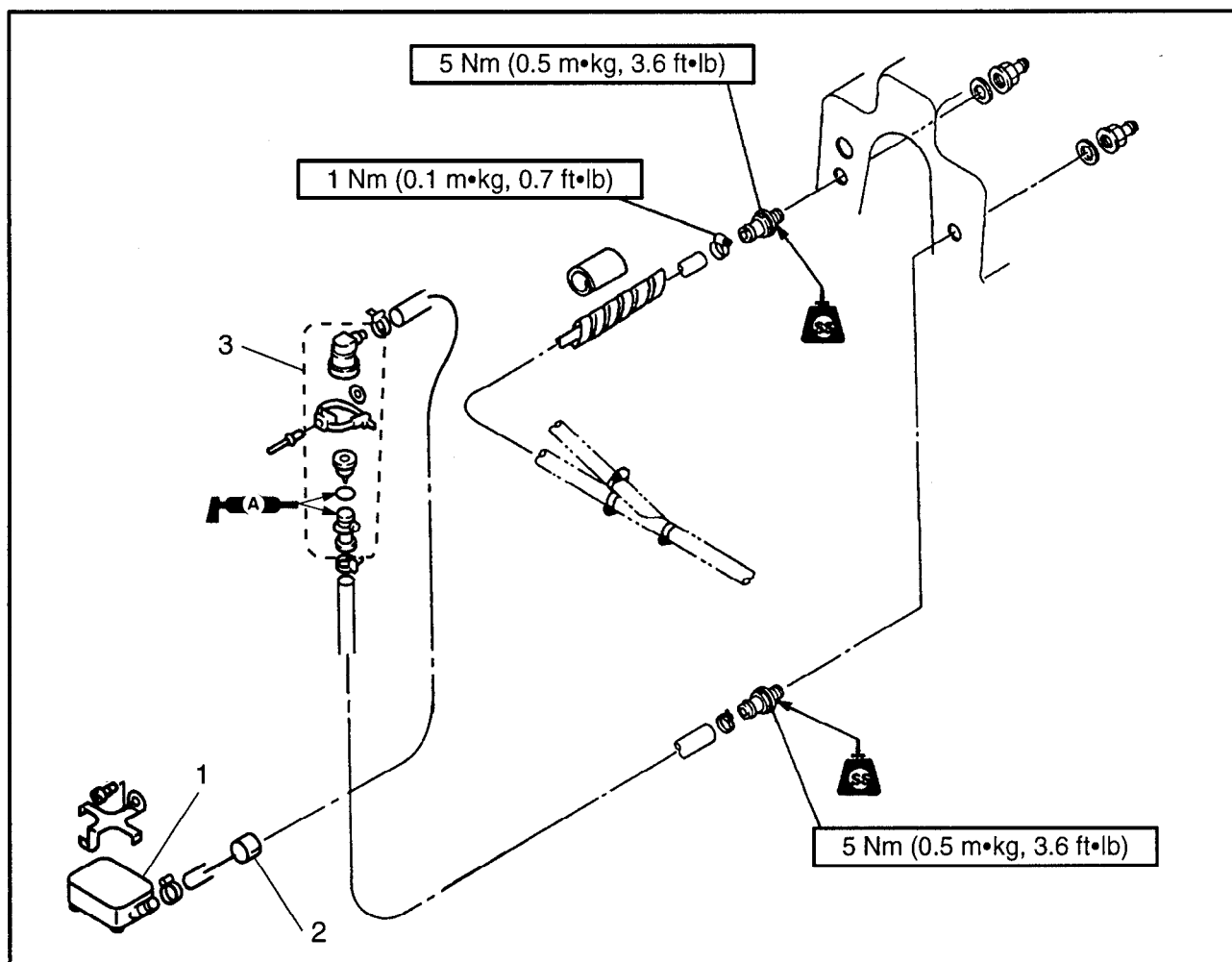
2. Install:
 - Oil seal ①



Driver rod:
YB-06071/90890-06602
Needle bearing attachment:
YB-06155/90890-06611



**COOLING AND BILGE SYSTEM
EXPLODED DIAGRAM**



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	COOLING AND BILGE SYSTEM REMOVAL		Follow the left "Step" for removal.
1	Bilge strainer	1	
2	Bilge hose	1	
3	Hose joint	1	
			Reverse the removal steps for installation.

SERVICE POINTS

Bilge strainer inspection

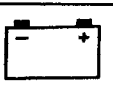
Refer to "JET PUMP UNIT" in chapter 3.

Hose inspection

1. Inspect:

- Hose

Crack/wear/damage → Replace.



CHAPTER 7

ELECTRICAL SYSTEM

ELECTRICAL COMPONENTS	7-1
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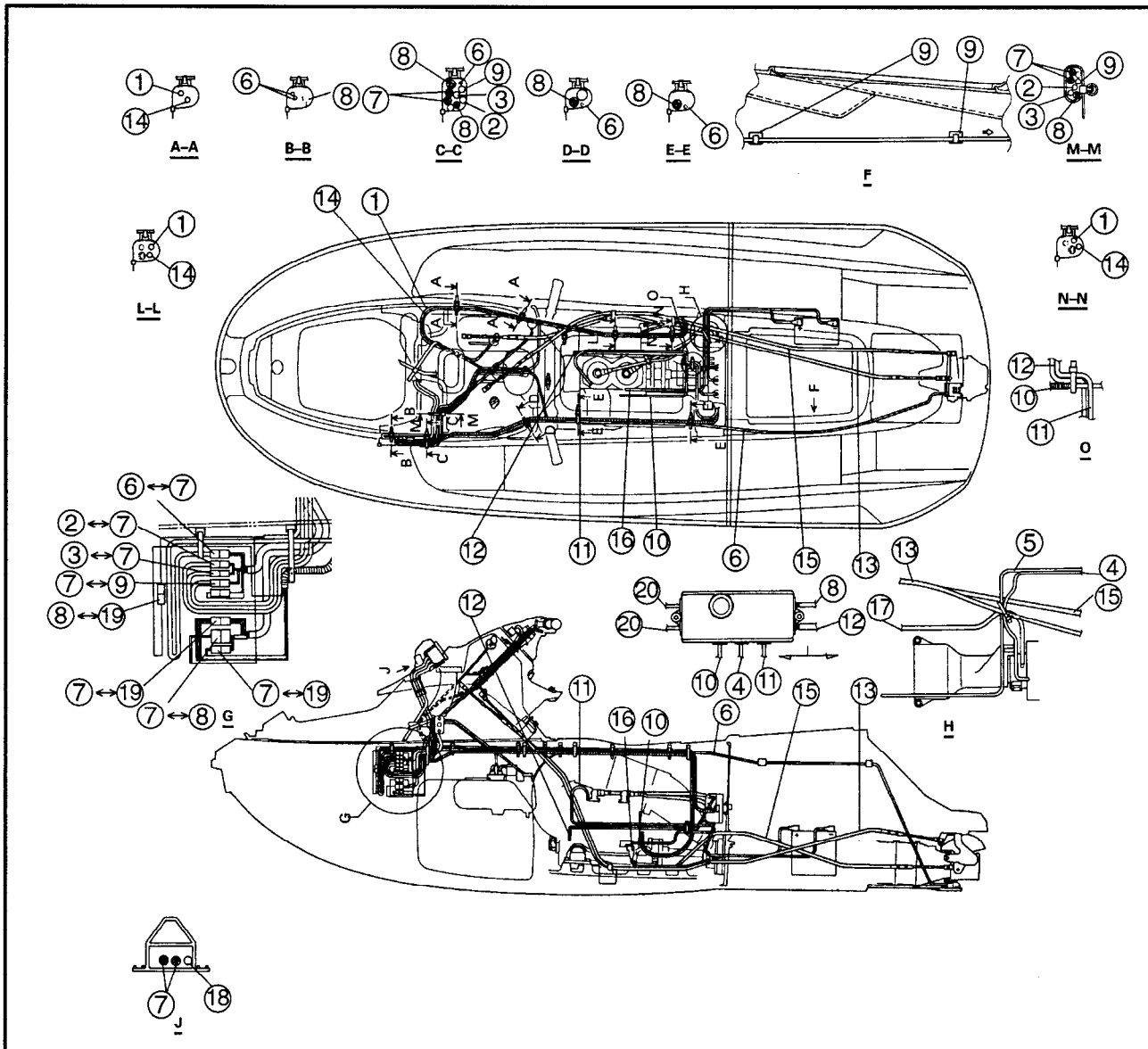


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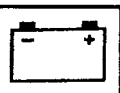


ELECTRICAL COMPONENTS

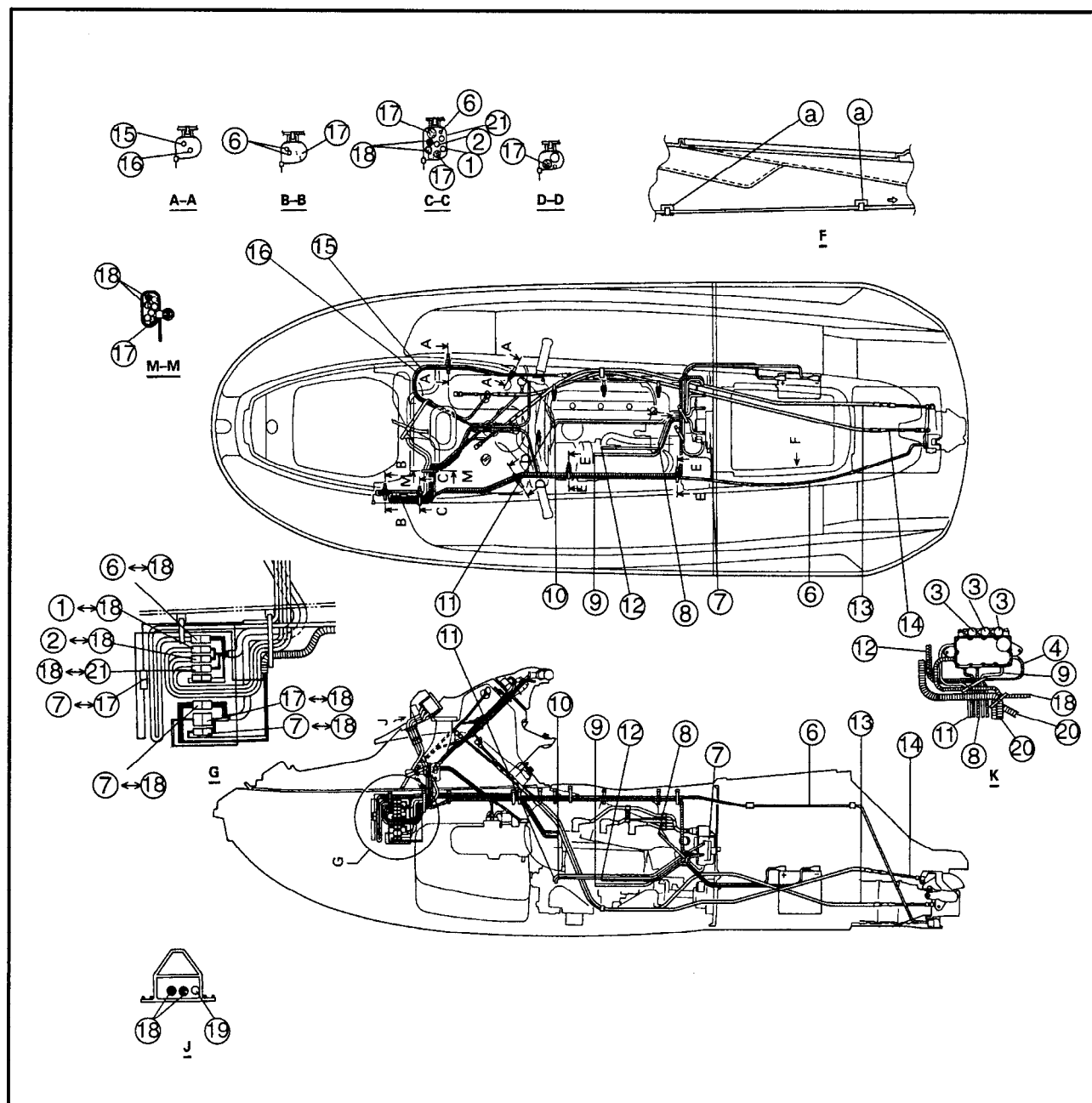
XL760



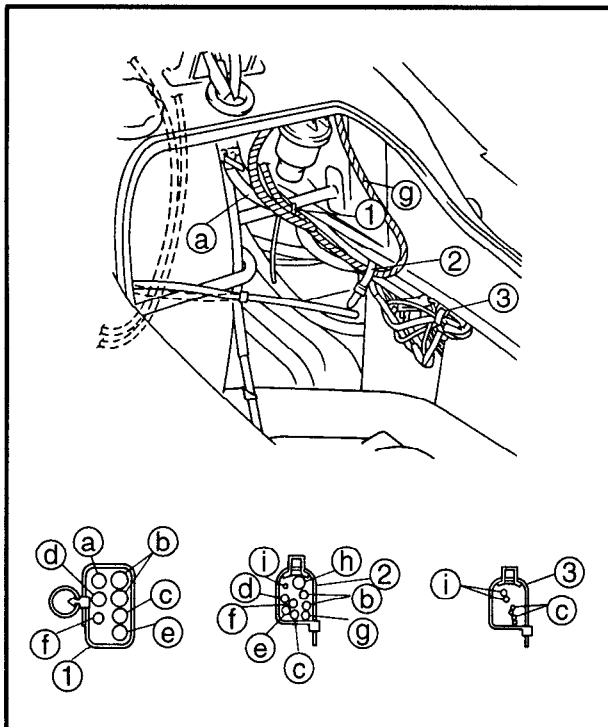
- | | |
|---------------------------------|---------------------------------|
| ① Throttle cable | ⑪ Thermo sensor lead |
| ② Fuel level sensor lead | ⑫ CDI magneto lead |
| ③ Oil level sensor lead | ⑬ Reverse cable |
| ④ Battery (positive) lead | ⑭ Choke cable |
| ⑤ Battery (negative) lead | ⑮ Steering cable |
| ⑥ Speed sensor lead | ⑯ Starter motor (negative) lead |
| ⑦ Meter lead | ⑰ Grease nipple hose |
| ⑧ Handlebar switch lead | ⑱ Tube (meter) |
| ⑨ Buzzer lead | ⑲ Electrical box |
| ⑩ Starter motor (positive) lead | ⑳ High tension cord |
| | Ⓐ Align with marking-off line |



XL1200



- | | |
|---------------------------------|---------------------------------|
| ① Fuel level sensor lead | ⑪ Flywheel magneto base lead |
| ② Oil level sensor lead | ⑫ Starter motor (negative) lead |
| ③ High tension cord | ⑬ Steering cable |
| ④ Battery (negative) lead | ⑭ Reverse cable |
| ⑤ Battery (positive) lead | ⑮ Throttle cable |
| ⑥ Speed sensor lead | ⑯ Choke cable |
| ⑦ Electrical box | ⑰ Handlebar switch lead |
| ⑧ Thermo sensor lead | ⑱ Meter lead |
| ⑨ Starter motor (positive) lead | ⑲ Tube (meter) |
| ⑩ CDI magneto lead | ⑳ Cooling water hose |
| | ㉑ Buzzer lead |
| | Ⓐ Align with marking-off line |

**SERVICE POINTS****Harness installation**

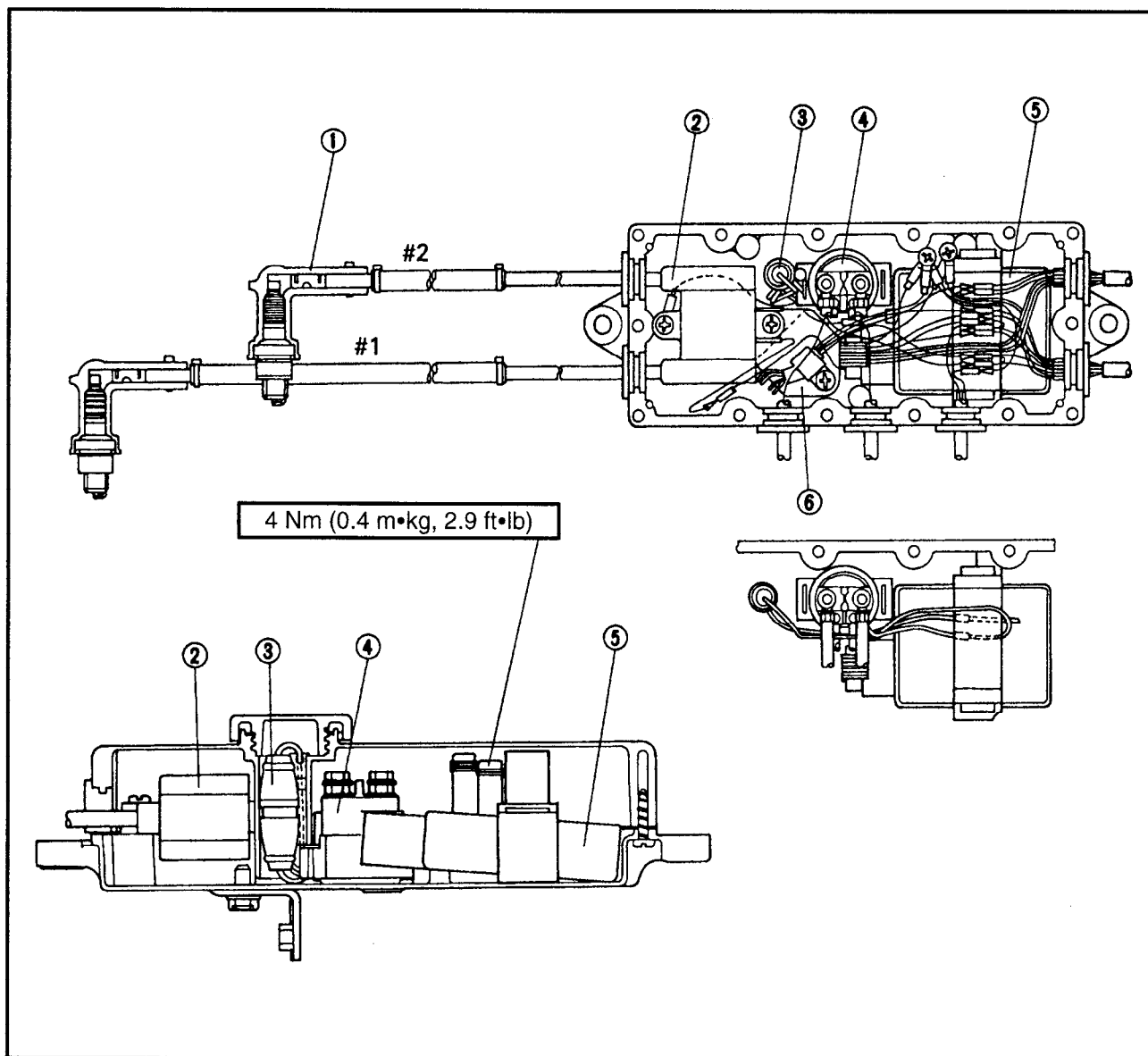
1. Install:

- Clamp ①
- Clamp ②
- Clamp ③
- ① Fuel tank breather hose
- ② Meter lead
- ③ Handlebar switch lead
- ④ Buzzer lead
- ⑤ Fuel level sensor lead
- ⑥ Oil level sensor lead
- ⑦ Fuel tank breather hose
- ⑧ Electrical box lead
- ⑨ Speed sensor lead



ELECTRICAL UNIT

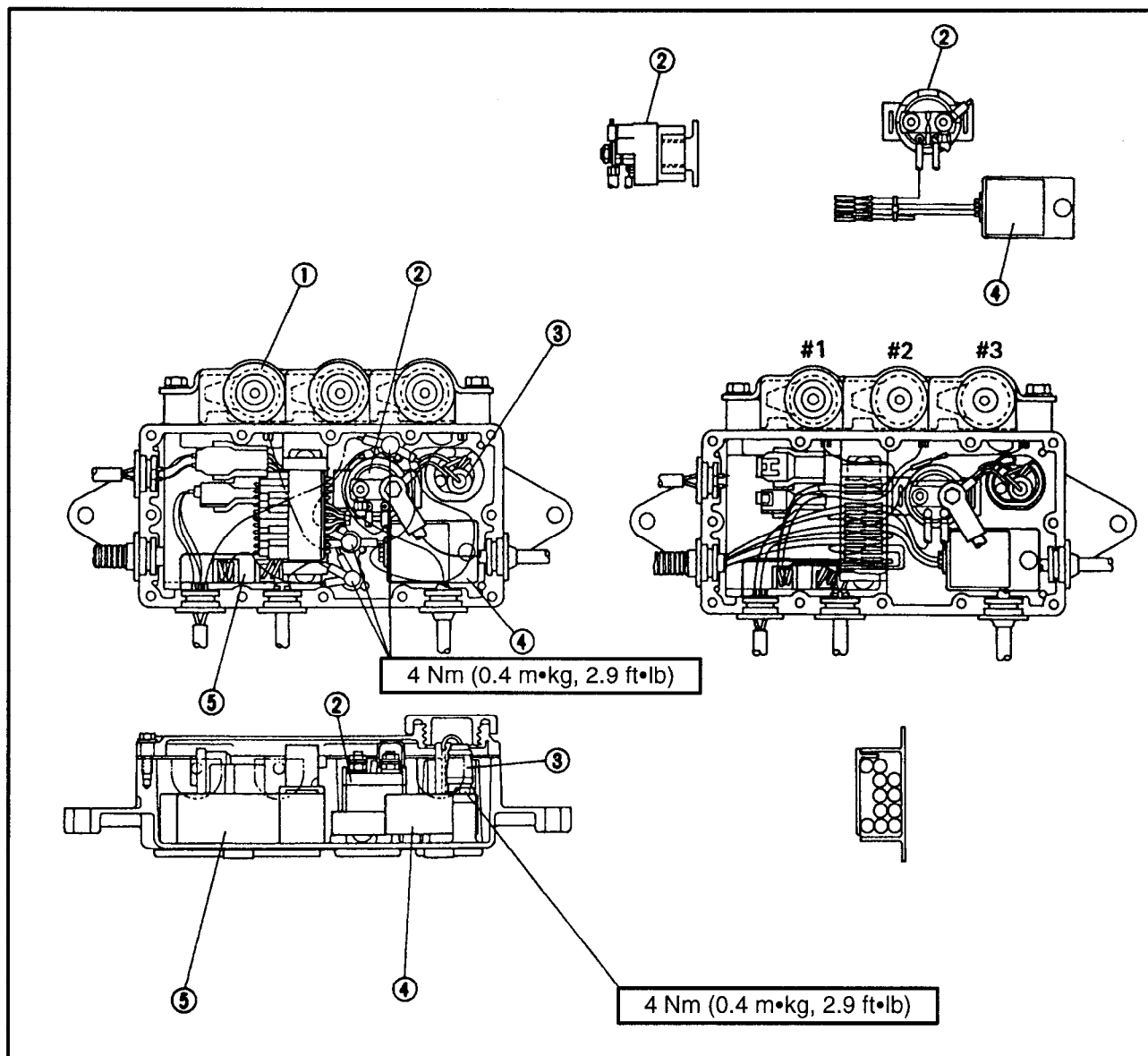
XL760



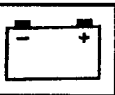
- ① Spark plug cap
- ② Ignition coil
- ③ Fuse
- ④ Starter relay
- ⑤ CDI unit
- ⑥ Rectifier regulator



XL1200



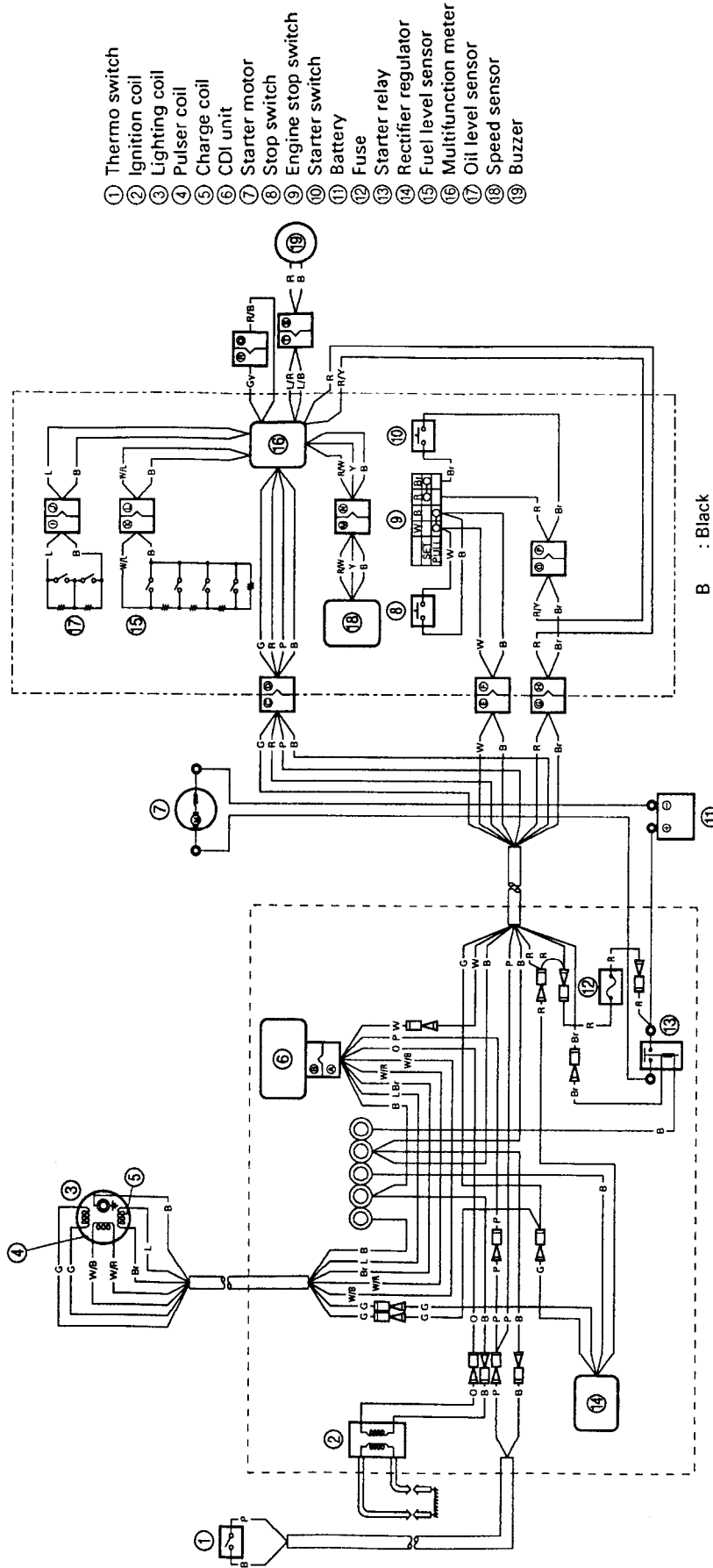
- ① Ignition coil
- ② Starter relay
- ③ Fuse
- ④ Rectifier regulator
- ⑤ CDI unit



ELECTRICAL DIAGRAM

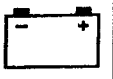
XL760

(A) W/R P W B	(B) W/R P W B	(C) R B P G	(D) R B P G	(E) W B P G	(F) W B P G	(G) R B P G	(H) R B P G	(I) L B P G	(J) L B P G
(K) W/L P W B	(L) W/L P W B	(M) R/W B P Y	(N) R/W B P Y	(O) R B P G	(P) R B P G	(Q) R/B P G	(R) G P Y	(S) L/R P G	(T) L/R P G



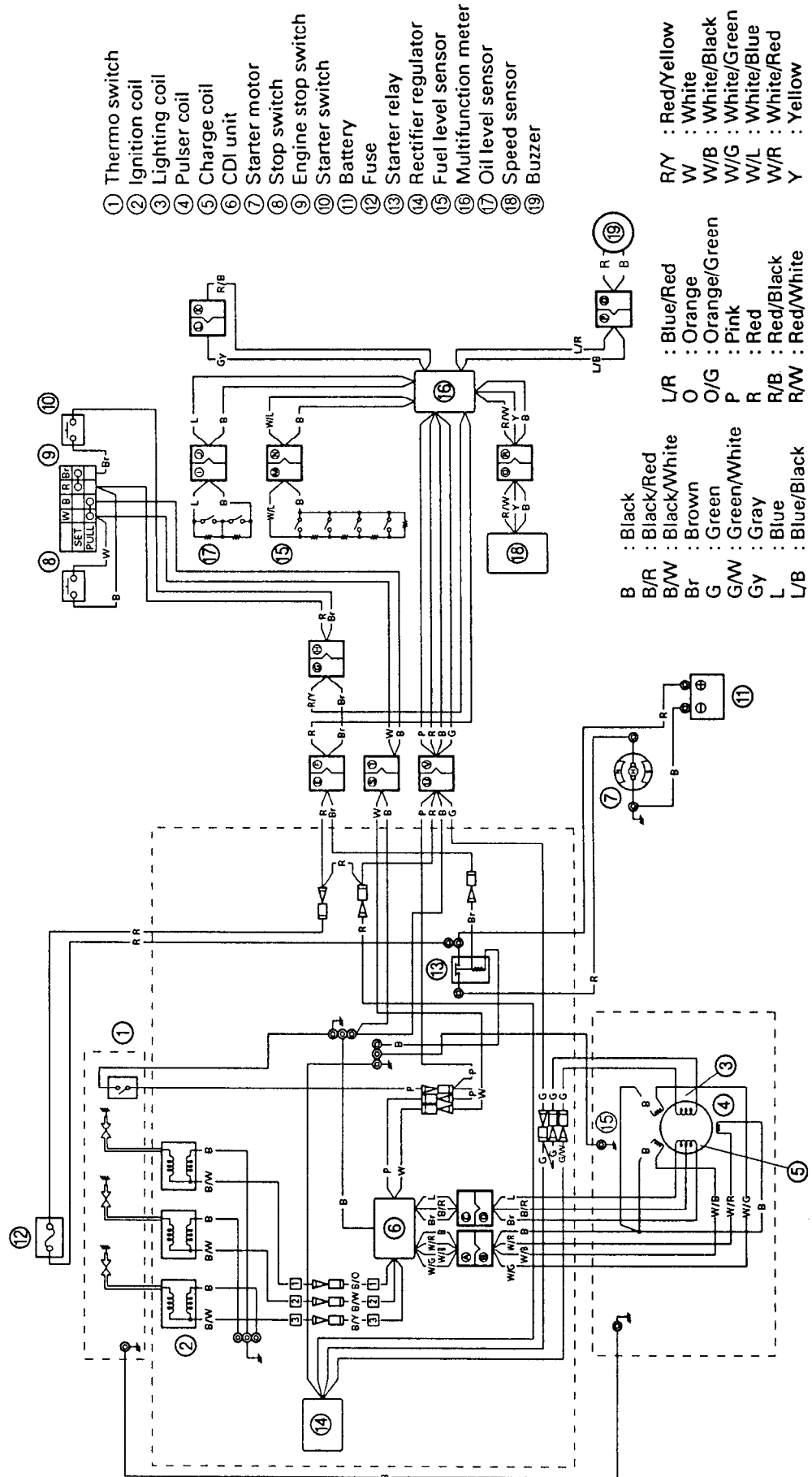
- ① Thermo switch
- ② Ignition coil
- ③ Lighting coil
- ④ Pulser coil
- ⑤ Charge coil
- ⑥ CDI unit
- ⑦ Starter motor
- ⑧ Stop switch
- ⑨ Engine stop switch
- ⑩ Starter switch
- ⑪ Battery
- ⑫ Fuse
- ⑬ Starter relay
- ⑭ Rectifier regulator
- ⑮ Fuel level sensor
- ⑯ Multifunction meter
- ⑰ Oil level sensor
- ⑱ Speed sensor
- ⑲ Buzzer

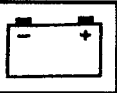
- B : Black
- B/R : Black/Red
- B/W : Black/White
- Br : Brown
- G : Green
- G/W : Green/White
- Gy : Gray
- L : Blue
- L/B : Blue/Black
- L/R : Blue/Red
- O : Orange
- O/G : Orange/Green
- P : Pink
- R : Red
- R/B : Red/Black
- R/W : Red/White
- R/Y : Red/Yellow
- W : White
- W/B : White/Black
- W/G : White/Green
- W/L : White/Blue
- W/R : White/Red
- Y : Yellow



XL1200

(A) W/R W/B	(B) W/G B	(C) W/R B	(D) B/R L	(E) R B	(F) R B	(G) R/Y B	(H) R Br	(I) L B	(J) L B	(K) R/B
(L) Gy	(M) B W/L	(N) B W/L	(O) L/R L/B	(P) L/R L/B	(Q) B Y	(R) R/W Y	(S) W B	(T) W B	(U) B P	(V) R P





ELECTRICAL ANALYSIS INSPECTION

CAUTION:

All measuring instrument should be handled with special care, or correct measurement is impossible.

On an instrument powered by dry batteries, the batteries' voltage should be checked periodically and the batteries replaced, if necessary.

NOTE:

“○—○” indicates the terminals between which there is electrical continuity; i.e., a closed circuit in the given switch position.

Low resistance measurement

When measuring resistance of $10\ \Omega$ or less using the digital tester, the correct measurement cannot be obtained because of the tester's internal resistance.

To obtain the correct value, subtract this internal resistance from the displayed measurement.



Correct value =
Displayed measurement –
Internal resistance

NOTE:

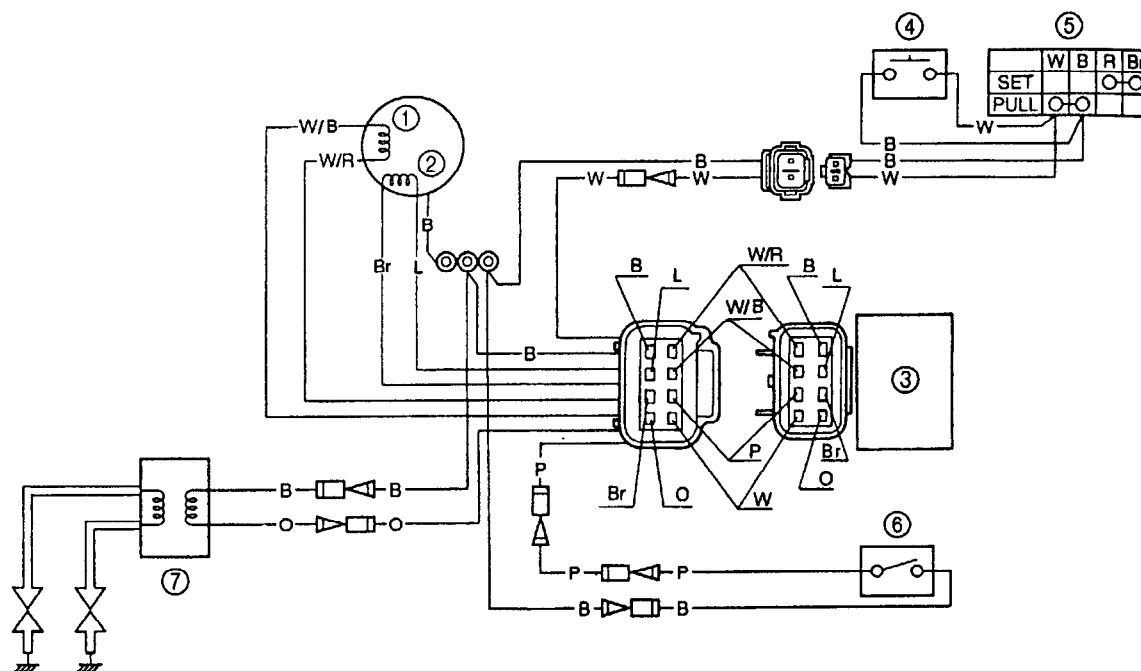
The internal resistance of the tester can be obtained by connecting both of its terminals.



IGNITION SYSTEM

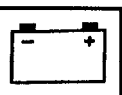
WIRING DIAGRAM

XL760

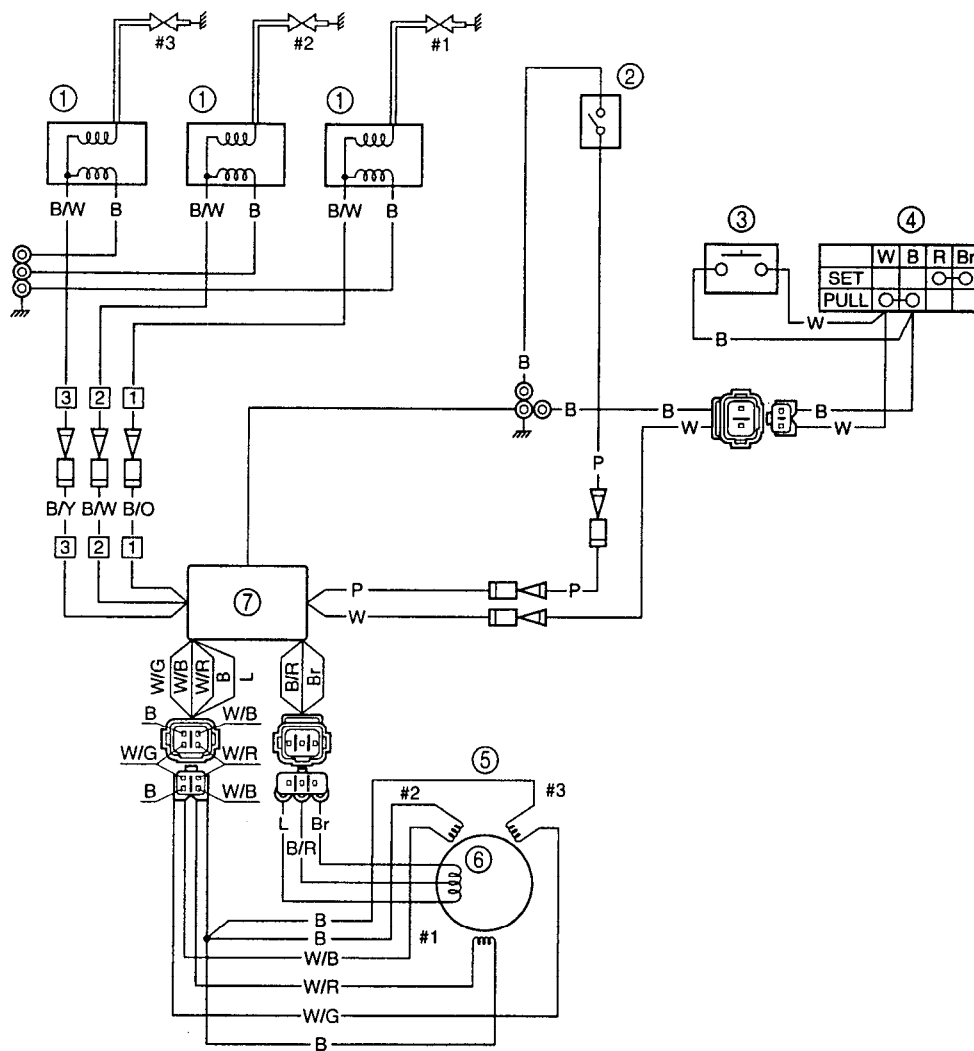


- ① Pulser coil
- ② Charge coil
- ③ CDI unit
- ④ Stop switch
- ⑤ Engine stop switch
- ⑥ Thermo switch
- ⑦ Ignition coil

B : Black
 Br : Brown
 L : Blue
 O : Orange
 P : Pink
 W : White
 W/B : White/Black
 W/R : White/Red

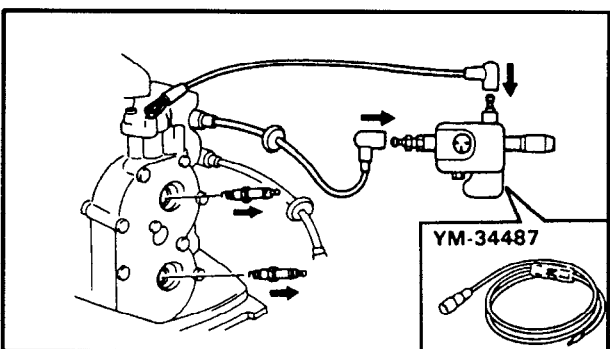
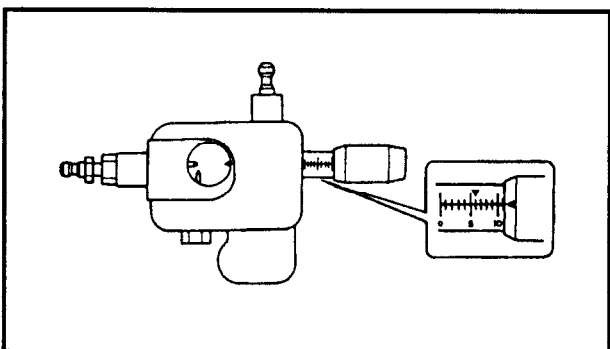
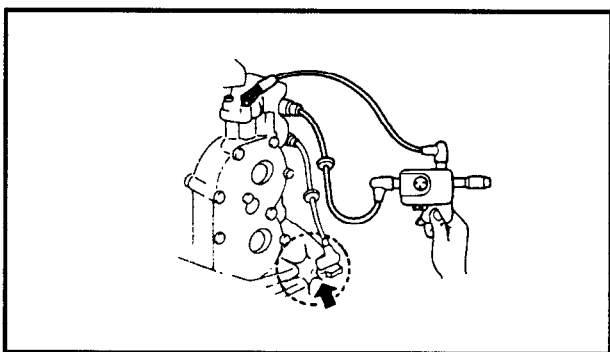
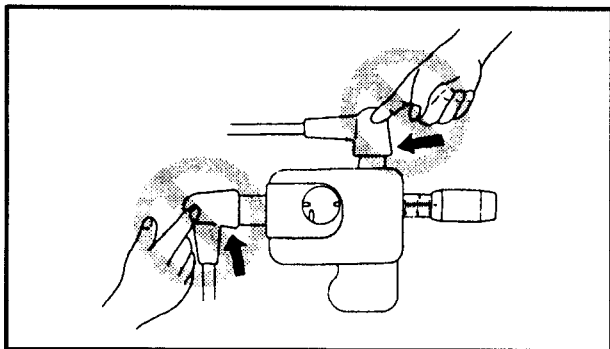
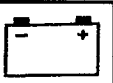


XL1200



- ① Ignition coil
- ② Thermo switch
- ③ Stop switch
- ④ Engine stop switch
- ⑤ Pulser coil
- ⑥ Charge coil
- ⑦ CDI unit

B : Black
 B/O : Black/Orange
 B/R : Black/Red
 B/W : Black/White
 B/Y : Black/Yellow
 Br : Brown
 L : Blue
 P : Pink
 W : White
 W/B : White/Black
 W/G : White/Green
 W/R : White/Red



IGNITION SPARK GAP

⚠ WARNING

- While making a spark check be careful not to touch any of the "Ignition spark gap tester" lead wires.
- When doing the spark test, take special care not to allow leakage from the removed plug cap.
- This check is likely to produce sparks, so be sure that no flammable gas or fluid is in the vicinity.

1. Check:

- Ignition spark gap
Out of specification → Replace.



Spark gap:
9 mm (0.35 in)

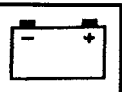
Checking steps:

- Adjust the spark gap to specification by turning the adjusting knob.



Spark gap tester:
YM-34487/90890-06754

- Connect the spark plug cap to the spark gap tester.
- Remove the spark plugs from the engine.
- Crank the engine and check the sparks from the ignition system through the discharge window.

**SPARK PLUG**

Refer to "ELECTRICAL" in chapter 3.

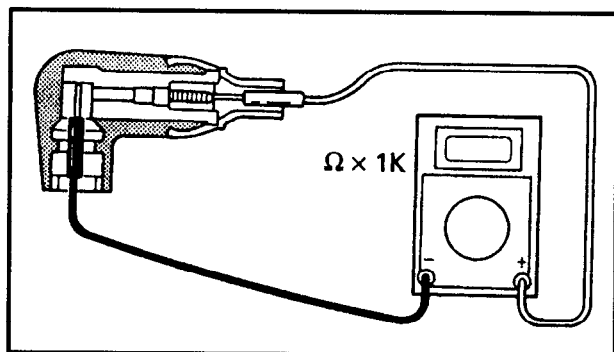
SPARK PLUG CAP

1. Inspect:

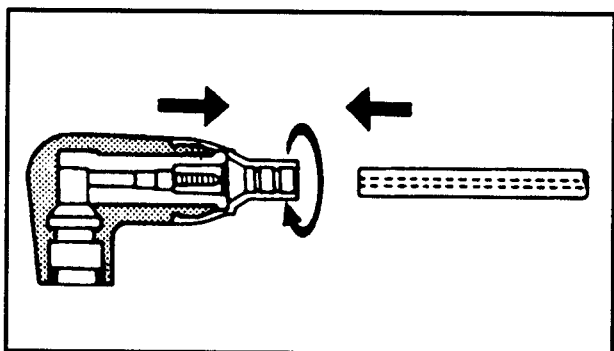
- Spark plug cap
Loosen → Tighten.
Crack/Damage → Replace.

2. Measure:

- Spark plug cap resistance
Out of specification → Replace.



Spark plug cap resistance:
4.0 ~ 6.0 kΩ

**Replacement steps:**

- Remove the spark plug cap by turning the cap counterclockwise.
- Install the spark plug cap by turning the cap clockwise until it stops.

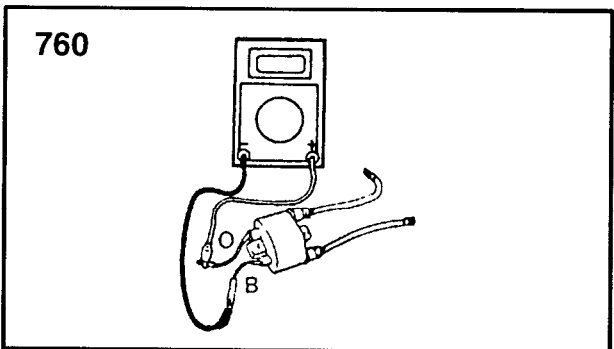
IGNITION COIL

1. Inspect:

- High tension cord
Cracks/Damage → Replace.

2. Measure:

- Primary coil resistance
Out of specification → Replace.

**Primary coil resistance:**

XL760

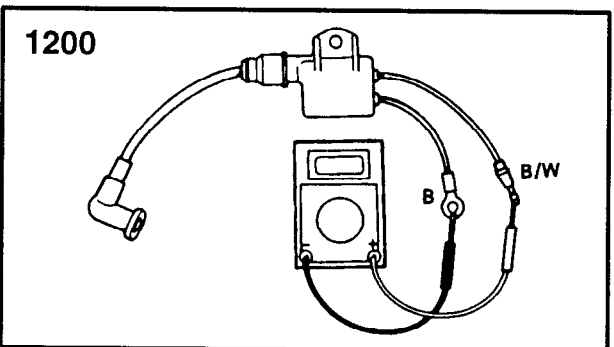
Orange (O) – Black (B)

0.078 ~ 0.106 Ω at 20°C (68°F)

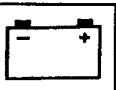
XL1200

Black/White (B/W) – Black (B)

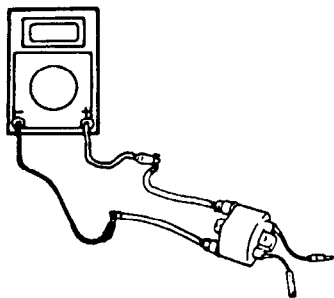
0.048 ~ 0.072 Ω at 20°C (68°F)

**NOTE:**

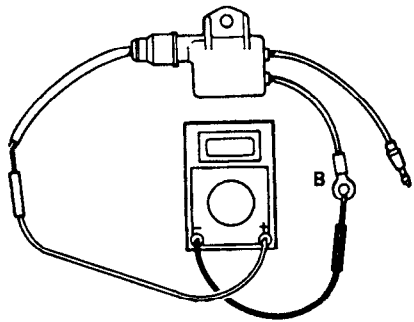
When measuring the resistance of 10 Ω or less using the digital tester, the correct measurement cannot be obtained. Refer to "Lower resistance measurement".



760



1200



3. Measure:

- Secondary coil resistance
Out of specification → Replace.

**Secondary coil resistance:****XL760****High tension cords****14.3 ~ 30.5 k Ω at 20°C (68°F)****XL1200****High tension cord - Black (B)****2.7 ~ 4.1 k Ω at 20°C (68°F)****NOTE:**

Remove the spark plug cap from the high tension cord.

ENGINE STOP SWITCH

1. Check:

- Continuity
Out of specification → Replace.

**Engine stop continuity:
(Black coupler)**

Lock plate	Position	Leads	
		White	Black
Installed	Free		
	Push	○—○	○—○
Removed	Free	○—○	○—○
	Push	○—○	○—○

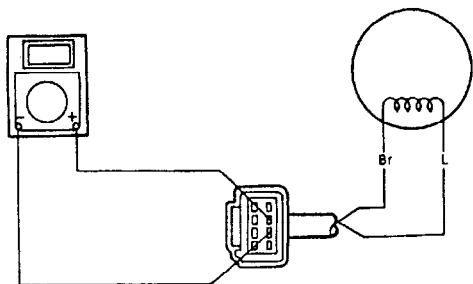
CHARGE COIL

1. Measure:

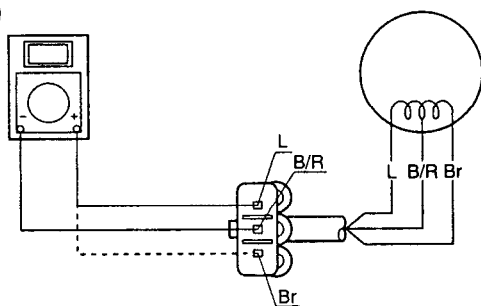
- Charge coil resistance
Out of specification → Replace.

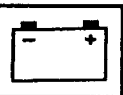
**Charge coil resistance:****XL760****Brown (Br) – Blue (L)****316.8 ~ 387.2 Ω at 20°C (68°F)****XL1200****Black/Red (B/R) – Brown (Br)****172.0 ~ 258.0 Ω at 20°C (68°F)****Black/Red (B/R) – Blue (L)****656.0 ~ 984.0 Ω at 20°C (68°F)**

760

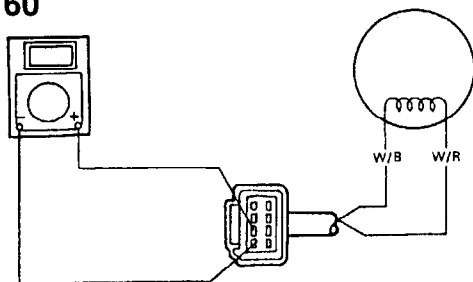


1200

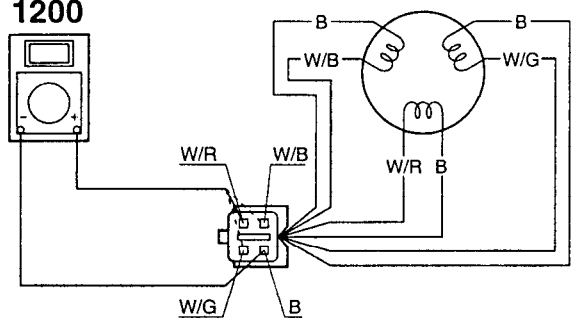




760



1200



PULSER COIL

1. Measure:

- Pulser coil resistance
- Out of specification → Replace.



Pulser coil resistance:

XL760

White/Red (W/R) –
White/Black (W/B)

445.5 ~ 544.5 Ω at 20°C (68°F)

XL1200

White/Red (W/R) – Black (B)
White/Black (W/B) – Black (B)
White/Green (W/G) – Black (B)

248.0 ~ 372.0 Ω at 20°C (68°F)

THERMO SWITCH

1. Measure:

- Thermo switch continuity
- Out of specification → Replace.



Thermo switch continuity temperature:

Pink (P) – Black (B)

Ⓐ 90 ~ 96°C (194 ~ 205°F)

Ⓑ 76 ~ 90°C (169 ~ 194°F)

① Discontinuity

Ⓐ Temperature

② Continuity

Ⓑ Time

Measurement steps:

- Suspend thermostat in a vessel.
- Place known reliable thermometer in water.
- Heat water slowly.
- Observe thermometer, while stirring water continually.



CDI UNIT

1. Measure:

- CDI unit resistance
Out of specification → Replace.



Pocket tester:

YU-03112/90890-03112

B : Black
 B/O : Black/Orange
 B/R : Black/Red
 B/W : Black/White
 B/Y : Black/Yellow
 Br : Brown
 L : Blue
 O : Orange
 P : Pink
 W : White
 W/B : White/Black
 W/G : White/Green
 W/R : White/Red

NOTE:

- The resistance values will vary from meter to meter, especially with electronic digital meters. For some testers, the polarity of the leads is reversed.
- The needle swings once to the “•” mark and then returns to the home position.
- The “∞” mark stands for discontinuity.

XL760

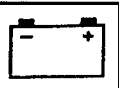
Unit: kΩ

⊕	⊖	B	Br	L	O	P	W	W/B	W/R
B			70 ~ 400	6 ~ 26	2 ~ 8.5	∞	10 ~ 45	0 ~ 0.6	4.4 ~ 19
Br		2.4 ~ 11		16 ~ 70	7.5 ~ 35	∞	26 ~ 150	2.4 ~ 11	9 ~ 40
L		2.4 ~ 11	80 ~ 500		7.5 ~ 35	∞	26 ~ 150	2.4 ~ 11	9 ~ 40
O		∞	∞	∞		∞	∞	∞	∞
P		17 ~ 80	70 ~ 1,000	16 ~ 70	40 ~ 300		7.5 ~ 35	17 ~ 70	22 ~ 100
W		3.8 ~ 16	80 ~ 400	3.4 ~ 14	11 ~ 45	∞		3.8 ~ 16	9.5 ~ 4.0
W/B		0 ~ 0.6	70 ~ 400	6 ~ 26	2 ~ 9	∞	10 ~ 45		4.4 ~ 18
W/R		4 ~ 17	70 ~ 400	13 ~ 60	8 ~ 35	∞	16 ~ 70	4 ~ 17	

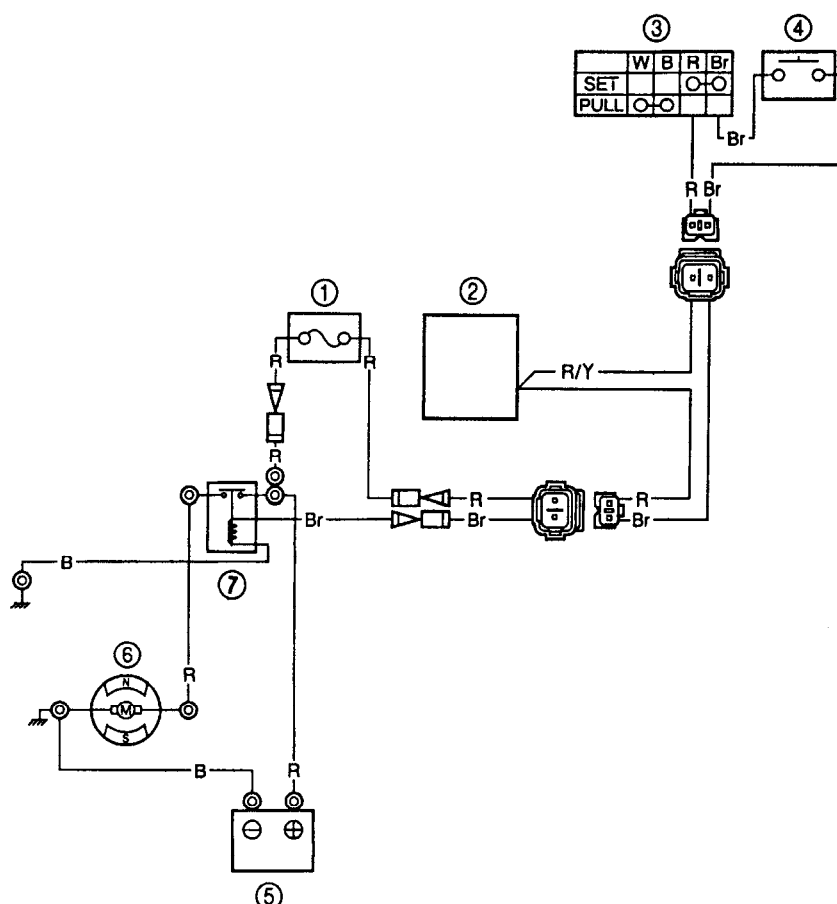
XL1200

Unit: kΩ

⊕	⊖	B	B/O	B/R	B/W	B/Y	Br	L	P	W	W/B	W/G	W/R
B			3.5~5.3	3.3~4.9	3.4~5.1	3.5~5.3	∞	3.2~4.8	7.8~11.8	9.2~13.8	400~600	400~600	400~600
B/O		∞		∞	∞	∞	∞	∞	∞	∞	∞	∞	∞
B/R		∞	∞		∞	∞	∞	∞	∞	∞	∞	∞	∞
B/W		∞	∞	∞		∞	∞	∞	∞	∞	∞	∞	∞
B/Y		∞	∞	∞	∞		∞	∞	∞	∞	∞	∞	∞
Br		76~114	120~180	112~168	120~180	120~190		112~168	120~180	120~180	∞	∞	∞
L		22~34	50~74	56~84	50~74	50~74	∞		38~58	40~60	∞	∞	∞
P				∞	∞	∞	∞	∞		∞	∞	∞	∞
W		∞	∞	∞	∞	∞	∞	∞	∞		∞	∞	∞
W/B		112~168	168~252	160~240	168~252	168~252	∞	160~240	168~252	168~252		∞	∞
W/G		200~300	312~468	280~420	312~468	312~468	∞	280~420	312~468	312~468	∞		∞
W/R		112~168	168~252	160~240	168~252	168~252	∞	160~240	168~252	168~252	∞	∞	



STARTING SYSTEM WIRING DIAGRAM



- ① Fuse
- ② Multifunction meter
- ③ Engine stop switch
- ④ Starter switch
- ⑤ Battery
- ⑥ Starter motor
- ⑦ Starter relay

B : Black
 Br : Brown
 R : Red
 R/Y : Red/Yellow

**BATTERY**

Refer to "ELECTRICAL" in chapter 3.

STARTER MOTOR

Refer to "STARTER MOTOR" in chapter 5.

WIRING CONNECTION

1. Check:
 - Wiring connection
 Poor connection → Correct.

FUSE

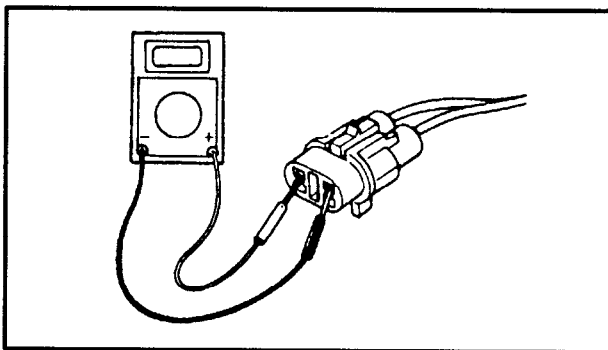
1. Check:
 - Fuse
 Blown → Replace.



Fuse rating:
12 V – 10 A

STARTER SWITCH

1. Check:
 - Continuity
 Out of specification → Replace.

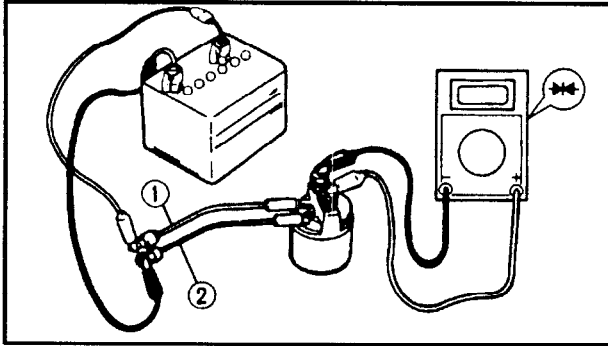


Starter continuity:
(Red coupler)

Lock plate	Position	Leads	
		Red	Brown
Installed	Free		
	Push	○	○
Removed	Free		
	Push		

STARTER RELAY

1. Inspect:
 - Brown lead terminal
 - Black lead terminal
 Loose → Tighten.



2. Check:

- Relay operation
Not working → Replace.

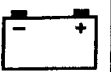
Checking steps:

- Connect the tester between the terminals of the starter relay as shown.
- Connect a 12 V battery.

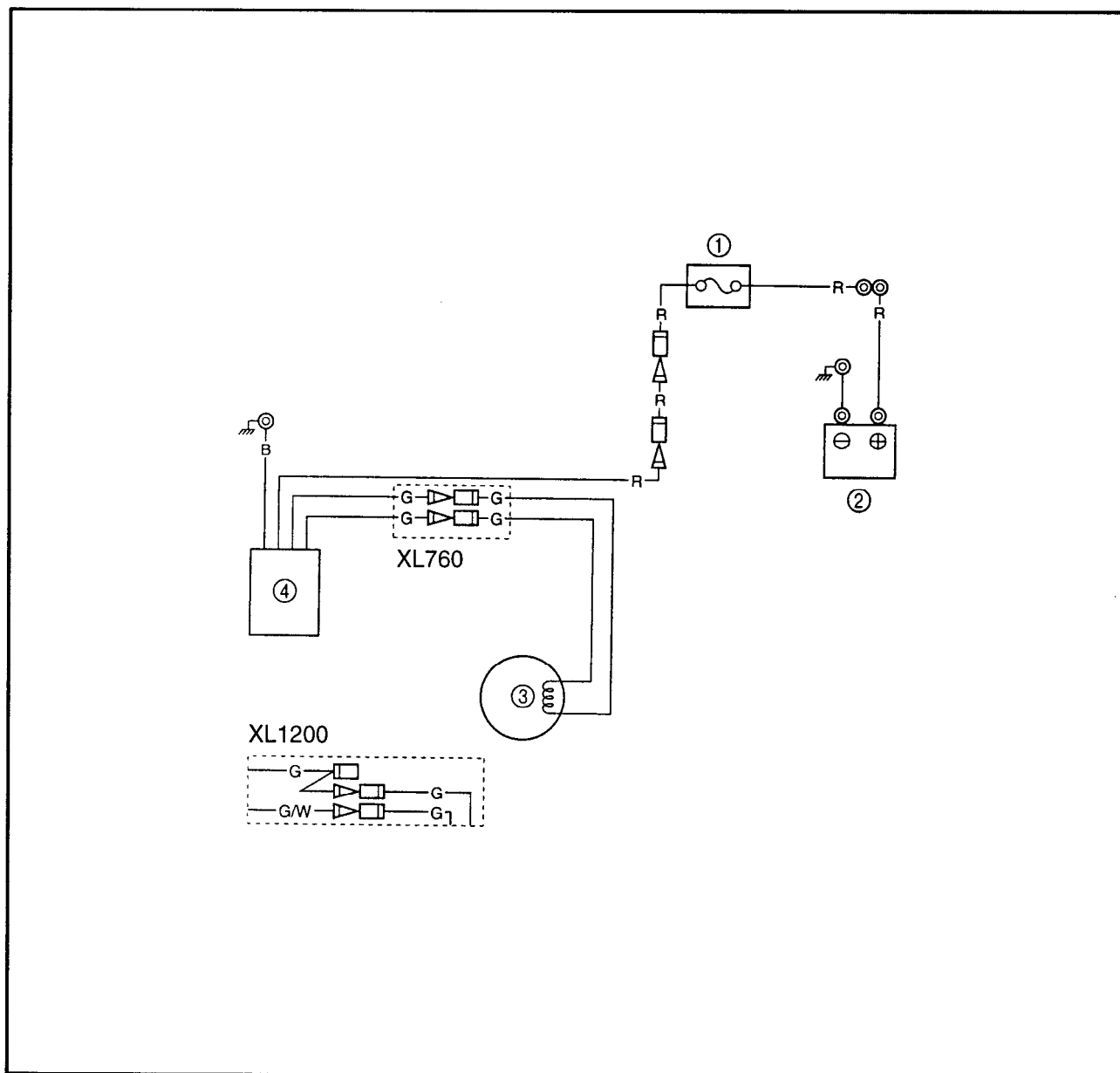
Brown lead ① → Positive terminal

Black lead ② → Negative terminal

- Check that there is continuity between the starter relay terminals.

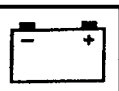


CHARGING SYSTEM WIRING DIAGRAM



- ① Fuse
- ② Battery
- ③ Lighting coil
- ④ Rectifier regulator

B : Black
G : Green
G/W : Green/White
R : Red

**FUSE**

Refer to "STARTING SYSTEM".

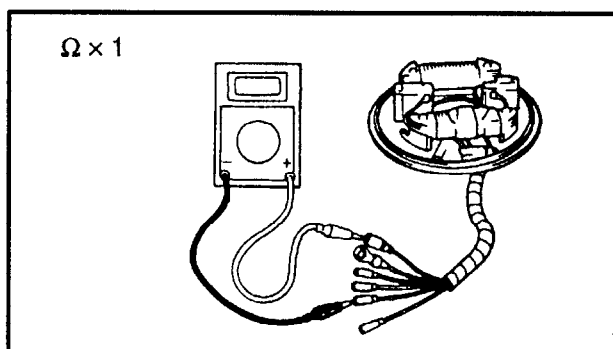
BATTERY

Refer to "ELECTRICAL" in chapter 3.

LIGHTING COIL

1. Measure:

- Lighting coil resistance
Out of specification → Replace.

**Lighting coil resistance:****XL760**

Green (G) – Green (G)

1.14 ~ 1.40 Ω at 20°C (68°F)

XL1200

Green (G) – Green (G)

0.56 ~ 0.84 Ω at 20°C (68°F)

NOTE:

When measuring the resistance of 10 Ω or less using the digital tester, the correct measurement cannot be obtained. Refer to "Lower resistance measurement".

RECTIFIER REGULATOR

1. Check:

- Continuity
Out of specification → Replace.

**Pocket tester:**

YU-03112/90890-03112

○: Continuity

∞: Discontinuity

760

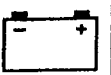
Unit: k Ω

$\oplus \diagdown \ominus$	R	B	G	G
R		∞	∞	∞
B	2~20		1~10	1~10
G	1~10	2~15		3~30
G	1~10	2~15	3~30	

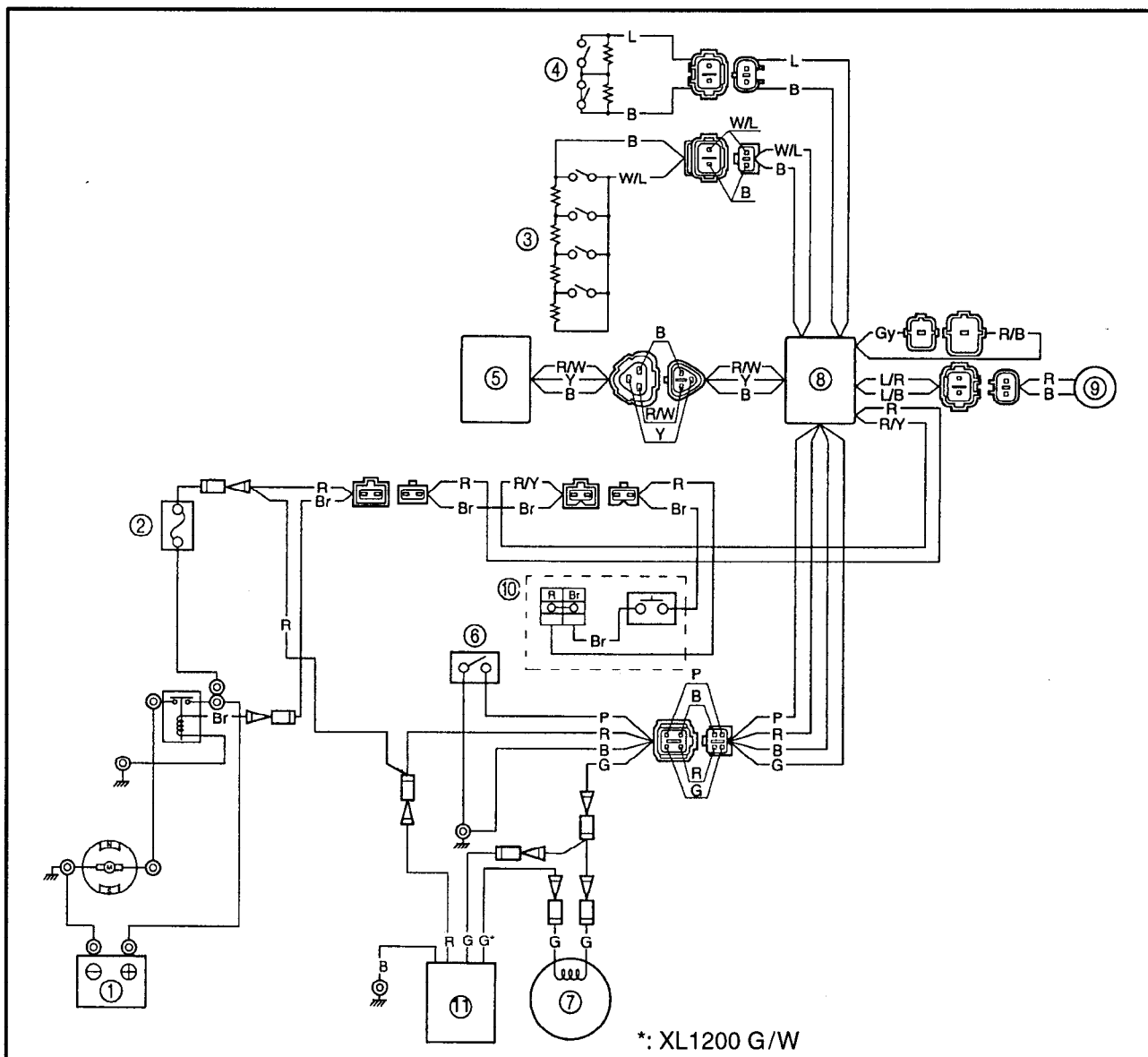
1200

Unit: k Ω

$\oplus \diagdown \ominus$	R	B	G	G/W
R		∞	∞	∞
B	○		○	○
G	○	∞		∞
G/W	○	○	○	

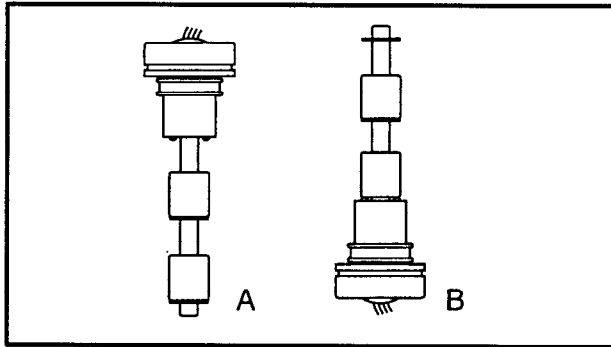
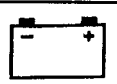


INDICATION SYSTEM WIRING DIAGRAM



- ① Battery
- ① Fuse
- ② Fuel level sensor
- ③ Oil level sensor
- ④ Speed sensor
- ⑤ Thermo switch
- ⑥ Lighting coil
- ⑦ Multi-function meter
- ⑧ Buzzer
- ⑩ Handlebar switch (starting switch)
- ⑪ Rectifier regulator

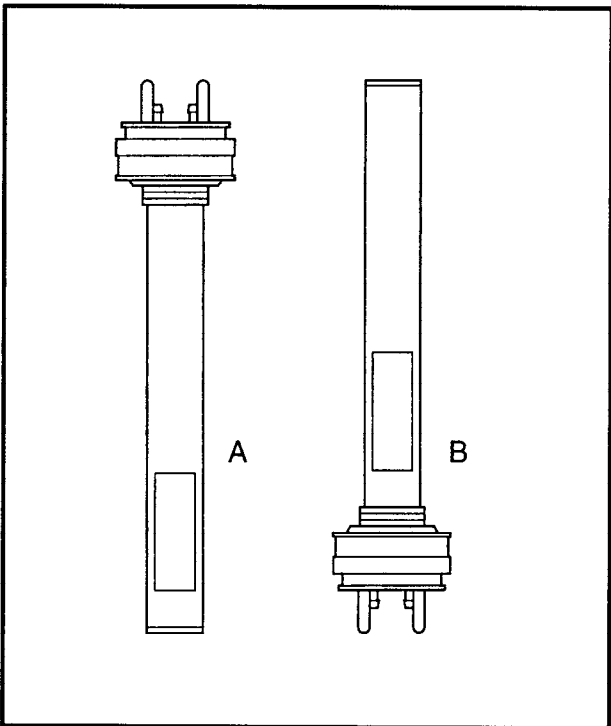
- B : Black
- G : Green
- G/W : Green/White
- L : Blue
- L/B : Blue/Black
- L/R : Blue/Red
- P : Pink
- R : Red
- R/W : Red/White
- W/L : White/Blue
- Y : Yellow

**OIL LEVEL SENSOR**

1. Measure:

- Oil level sensor resistance
- Out of specification → Replace.

Blue – Black		
	Sensor position	Resistance (Ω)
	A	292 ~ 308
	B	0 ~ 3

**FUEL LEVEL SENSOR**

1. Measure:

- Fuel level sensor resistance
- Out of specification → Replace.

White/Blue – Black		
	Sensor position	Resistance (Ω)
	A	757 ~ 803
	B	0 ~ 8

FUSE

Refer to “STARTING SYSTEM”.

BATTERY

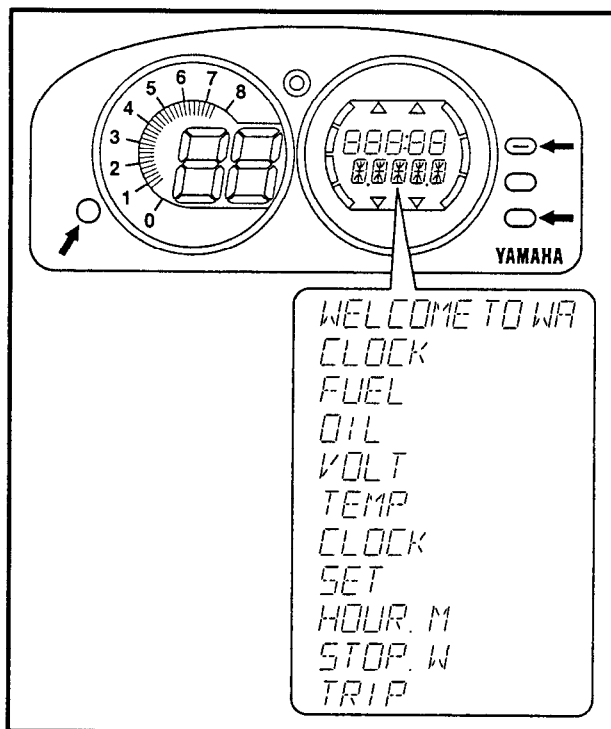
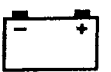
Refer to “ELECTRICAL” in chapter 3.

LIGHTING COIL

Refer to “CHARGING SYSTEM”.

RECTIFIER REGULATOR

Refer to “CHARGING SYSTEM”.

**MULTI-FUNCTION METER****Instrument indicating function**

1. Check:

- Indicating function

An indicating error is found → Replace the multi-function meter.

Sequential output (1 minute/cycle)

1	Display begins operation
2	"WELCOME TO WAIVERUNNERS"
3	All LCD readouts turn on
4	"CLOCK" is displayed
5	"FUEL" is displayed
6	"OIL" is displayed
7	"VOLT" is displayed
8	"TEMP" is displayed
9	"CLOCK" is displayed
10	"SET" is displayed
11	"HOUR. M" is displayed
12	"STOP. W" is displayed
13	"TRIP" is displayed

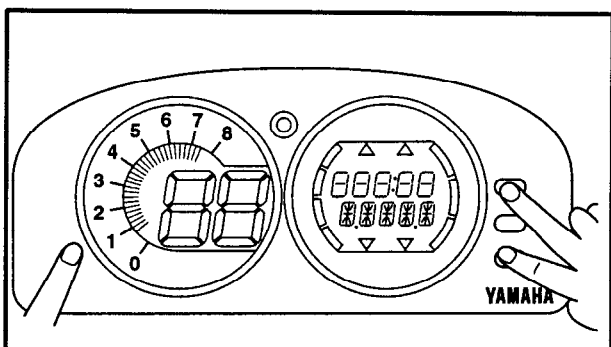
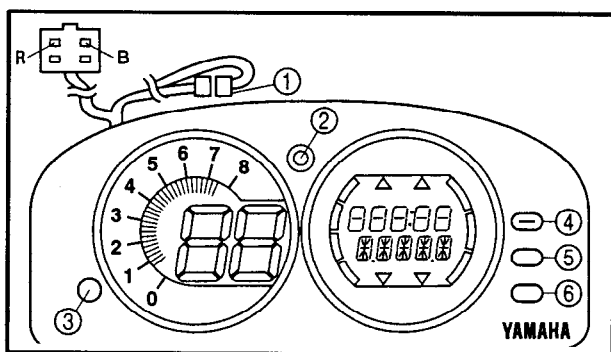
Checking steps:

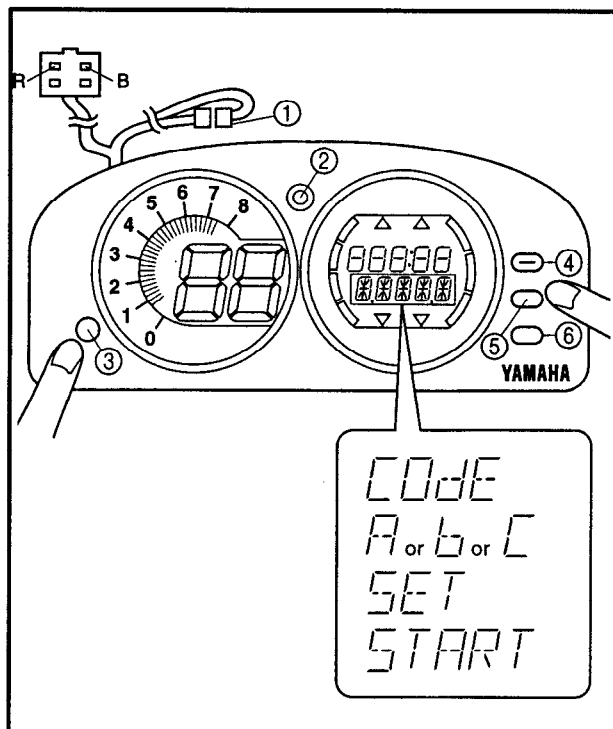
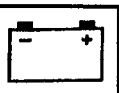
- Connect the battery terminals.

NOTE:

If the multi-function meter has been removed, supply battery power to the four-pin coupler (+: Red, -: Black).

- Remove the blue, one-pin couplers ①.
→ The warning lamp blinks ②.
- Press the "MODE" ③, "A/SET" ④, and "C" ⑥ buttons (all at once) for more than three seconds.
→ The self-indicating function is activated.
- Press either button ③, ④, ⑤, or ⑥.
→ Self-indication stops and the warning lamp ② blinks.
- Connect the blue, one-pin couplers.
→ The warning lamp ② turns off and all indications stop.





Security function

1. Check:

- Sequential output
An error is found → Replace the multi-function meter.

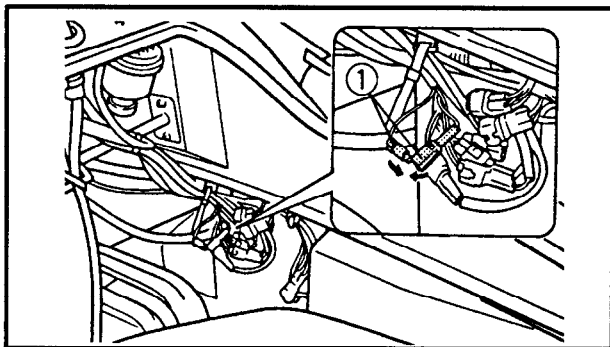
Checking steps:

- Connect the battery terminals.

NOTE:

If the multi-function meter has been removed, supply battery power to the four-pin coupler (+: Red, -: Black).

- Remove the blue, one-pin couplers ①.
→ The warning lamp blinks ②.
- Press the "MODE" ③ button for more than three seconds.
→ The warning lamp ② blinks.
→ "CODE" is displayed and blinks.
- Enter the four-digit code with either button ④, ⑤, or ⑥.
 - 1) The buzzer sounds when the button is pushed.
 - 2) When the warning lamp ② is lit, "A", "b" or "C" is displayed for code entry, then "SET" is displayed and blinks.
 - 3) The buzzer sounds three times and then "START" is displayed.
 - 4) The display then clears and the warning lamp ② blinks.
- Connect the blue, one-pin couplers ①.
→ The warning lamp ② turns off.



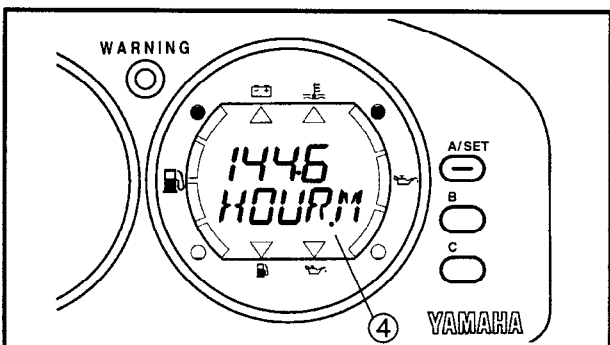
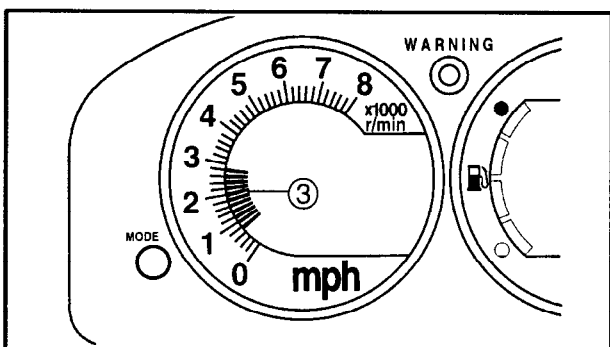
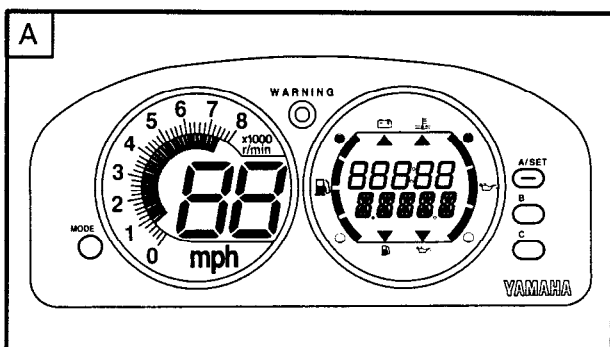
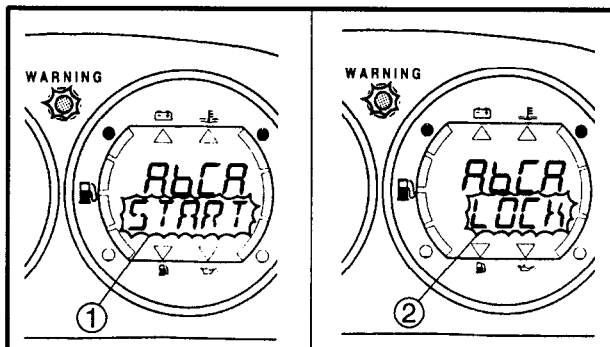
Display function

NOTE:

- Connect all couplers of the multifunction meter.
- If the blue 1-pin coupler ① is disconnected, the correct checking can not be done.

1. Check

- Display function
Not working → Replace.



Checking steps: (vehicle on water)

- Check the battery voltage.



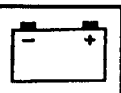
Voltage range:

10 ~ 16 V

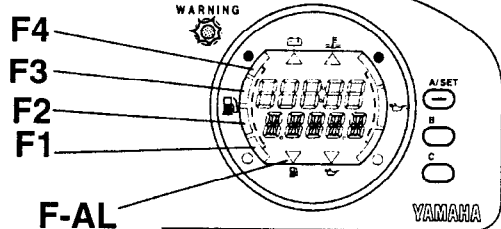
- a) Press the "MODE" button for more than three seconds.
→ The warning lamp blinks.
→ "COdE" is displayed and blinks.
- b) Enter the four-digit code.
→ "START" ① or "LOCK" ② is displayed.

NOTE:

- Repeat a) and b) until "START" is displayed.
- Refer to "Security function".
- Start the engine.
→ The buzzer sounds twice.
→ "WELCOME TO WAVERUNNERS" is displayed.
→ All segments light up A for 2 seconds.
→ The engine speed ③ is displayed.
- Start the engine.
→ The buzzer sounds twice.
→ "WELCOME TO WAVERUNNERS" is displayed.
→ All segments light up A for 2 seconds.
→ The engine speed 3 is displayed.
- Press the "MODE" button.
→ Each time the "MODE" button is pressed, the display changes as follows.
→ CLOCK → HOUR.M ④ → STOP.M → TRIP
- Check that the above display appears.
- Stop the engine.
→ Segments will continue to light up for 30 seconds for active functions.



A



2. Check:

- Fuel level meter **A**
Not working → Replace.

Checking steps: (vehicle on water)

- Disconnect the 2-pin green couplers (White/blue-Black leads).
- Connect the white/blue lead and black lead terminals ①.
- Check the battery voltage.

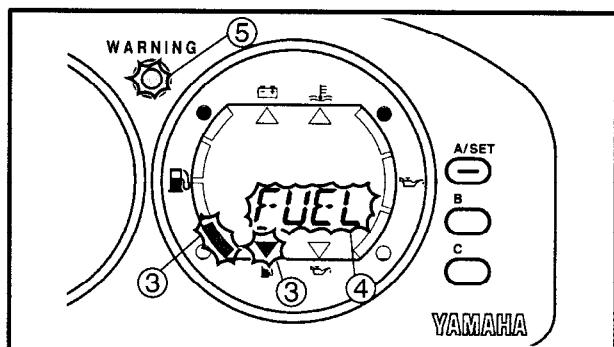
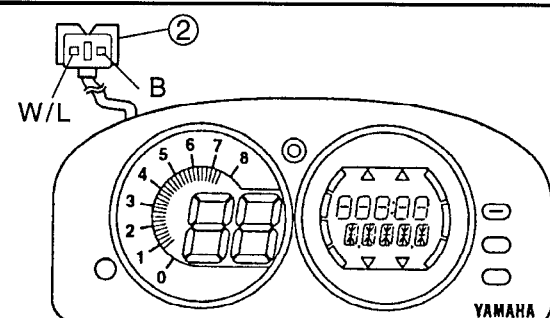
**Voltage range:**

10 ~ 16 V

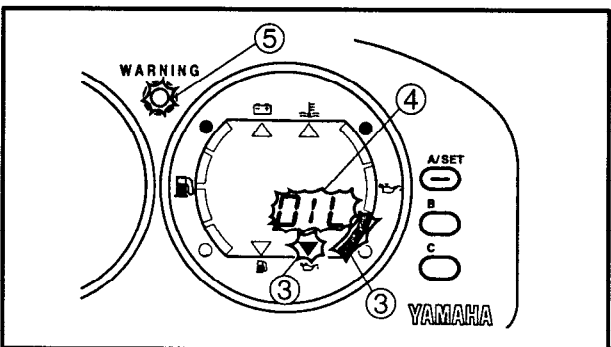
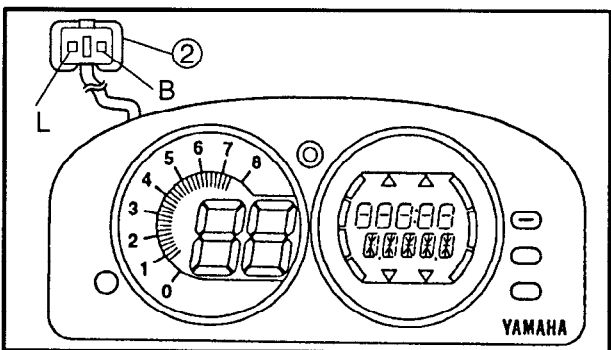
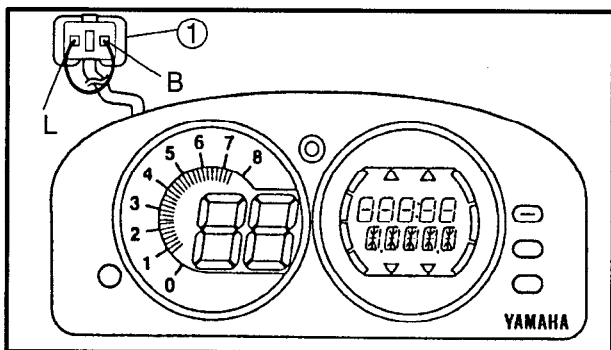
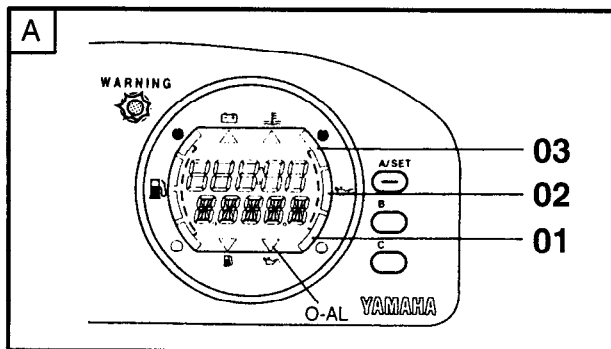
- a) Press the "MODE" button for more than three seconds.
→ The warning lamp blinks.
→ "COdE" is displayed and blinks.
- b) Enter the four-digit code.
→ "START" or "LOCK" is displayed.

NOTE:

- Repeat a) and b) until "START" is displayed.
- Refer to "Security function".
- Start the engine.
→ The buzzer sounds two times.
→ "WELCOME TO WAVERUNNERS" is displayed.
→ All segments light up for 2 seconds.
→ The engine speed is displayed.
→ All fuel level segments are displayed.
- Check that fuel level segments are displayed.
- Disconnect the white/blue lead and black lead terminals ②.
- Check that the fuel segments (F1..., F_AL) ③, "FUEL" ④ and WARNING indicator ⑤ operate properly and that the buzzer beeps intermittently.



Second	Display/Beep
~ 20	F1, F2, F3, F4: ON
20 ~ 40	F1, F2, F3: ON
40 ~ 60	F1, F2: ON
60 ~ 80	F1: ON
80 ~	F1, F-AL, "FUEL", WARNING indicator Blinking Buzzer: Beeping



3. Check:

- Oil level meter **A**
Not working → Replace.

Checking steps: (vehicle on water)

- Disconnect the 2-pin natural couplers (Blue-Black leads).
- Connect the blue lead and black lead terminals ①.
- Check the battery voltage.

**Voltage range:**

10 ~ 16 V

- a) Press the "MODE" button for more than three seconds.
→ The warning lamp blinks.
→ "COdE" is displayed and blinks.
- b) Enter the four-digit code.
→ "START" or "LOCK" is displayed.

NOTE:

- Repeat a) and b) until "START" is displayed.
- Refer to "Security function".
- Start the engine.
→ The buzzer sounds two times.
→ "WELCOME TO WAVERUNNERS" is displayed.
→ All segments light up for 2 seconds.
→ The engine speed is displayed.
→ All oil level segments are displayed.
- Check that oil level segments are displayed.
- Disconnect the blue lead and black lead terminals ②.
- Check that the oil segments (O1..., O_AL) ③, "OIL" ④ and WARNING indicator ⑤ operate properly and that the buzzer beeps intermittently.



Second	Display/Beep
~ 20	O1, O2, O3: ON
20 ~ 40	O1, O2: ON
40 ~	O1, O-AL, "OIL", WARNING indicator : Blinking Buzzer: Beeping

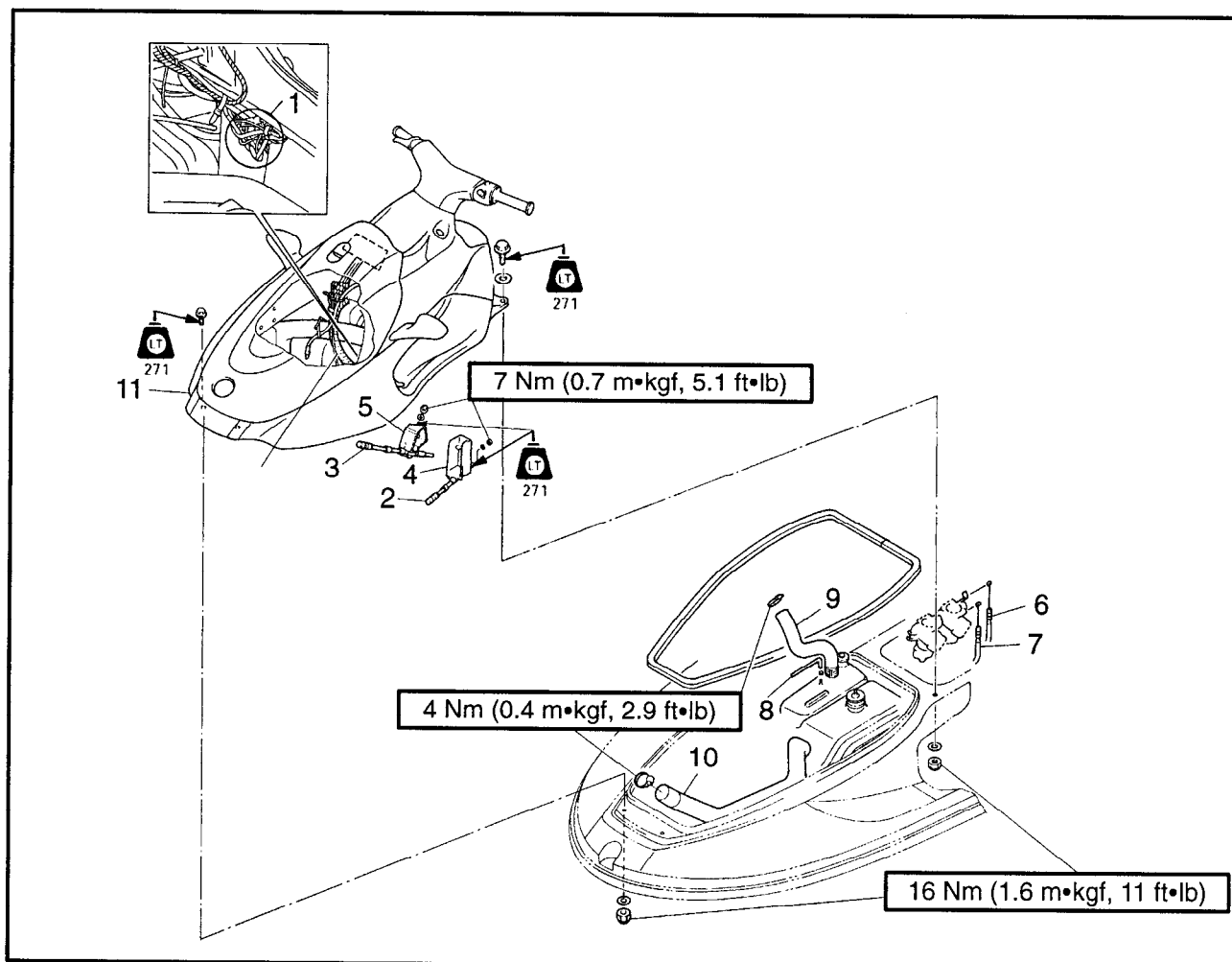
CHAPTER 8

HULL AND HOOD

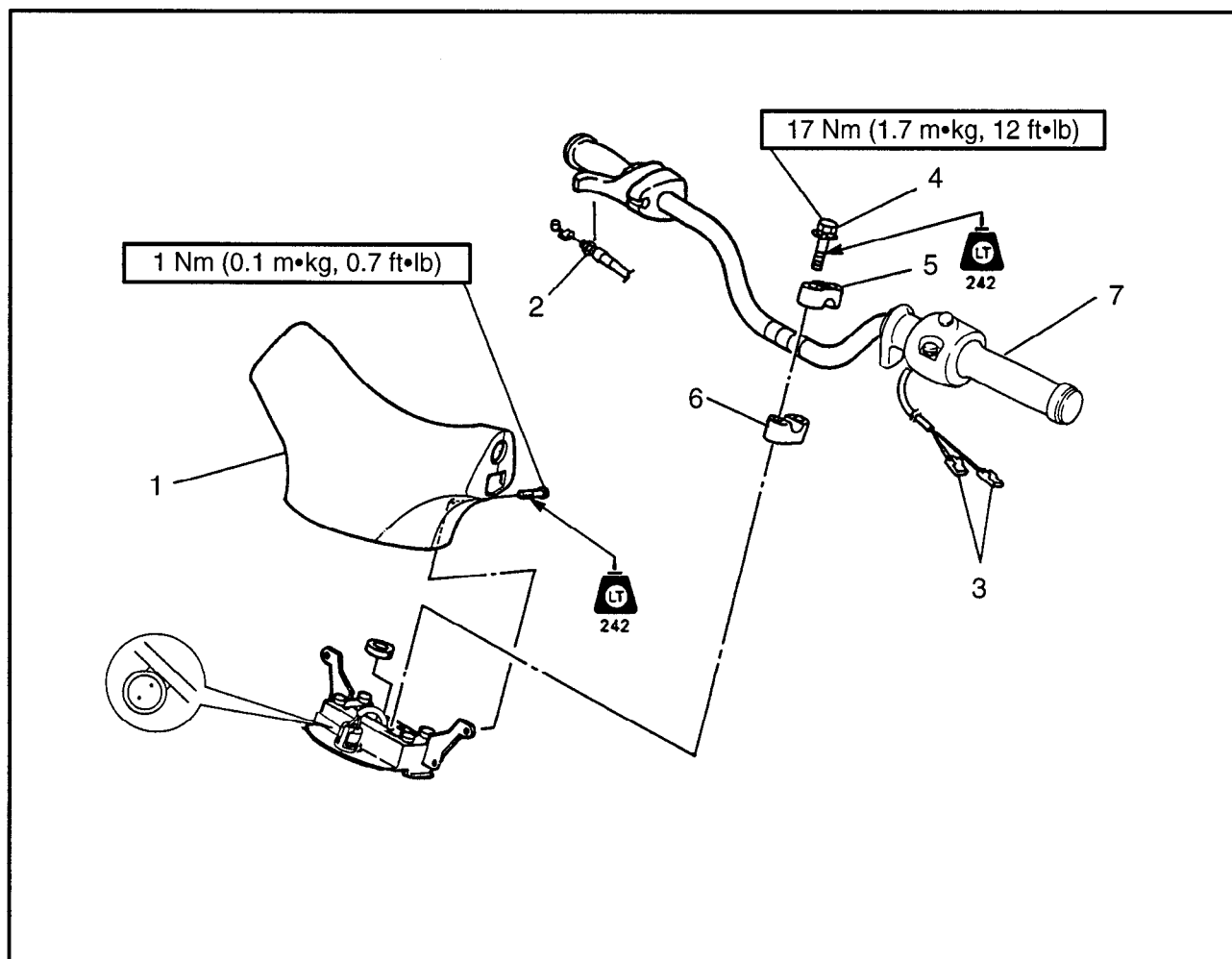
ENGINE HOOD REMOVAL	8-1
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 HANDLEBAR REMOVAL	 8-2
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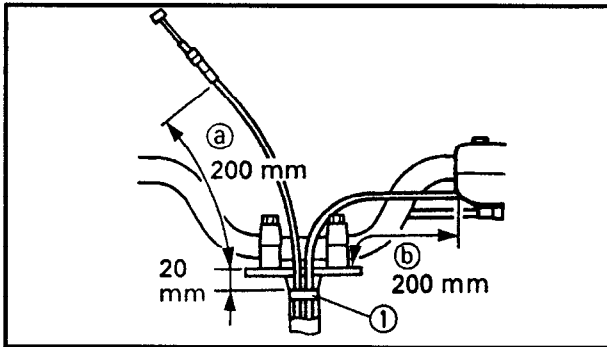
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**ENGINE HOOD REMOVAL
EXPLODED DIAGRAM**

REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	ENGINE HOOD REMOVAL		
	Fuel cock assembly		Follow the left "Step" for removal. Refer to the "FUEL LINE" in chapter 4.
1	Couplers	8	NOTE: _____ Disconnect the throttle and choke cables from the carburetor.
2	Cable joint (steering cable)	1	
3	Cable joint (shift cable)	1	
4	Steering cable brakcet	1	
5	Shift cable brakcet	1	
6	Throttle cable	1	
7	Choke cable	1	
8	Oil breather hose	1	
9	Oil filler hose	1	
10	Fule filler hose	1	
11	Engine hood assembly	1	Reverse the removal steps for installation.

HANDLEBAR REMOVAL
EXPLODED DIAGRAM

REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	HANDLEBAR REMOVAL		
1	Steering pad	1	Follow the left "Step" for removal. 8 × 55 mm
2	Throttle cable	1	
3	Handle bar switch lead coupler	2	
4	Bolt (with washer)	4	
5	Handlebar holder (upper)	2	
6	Handlebar holder (lower)	2	
7	Handlebar assembly	1	
			Reverse the removal steps for installation.

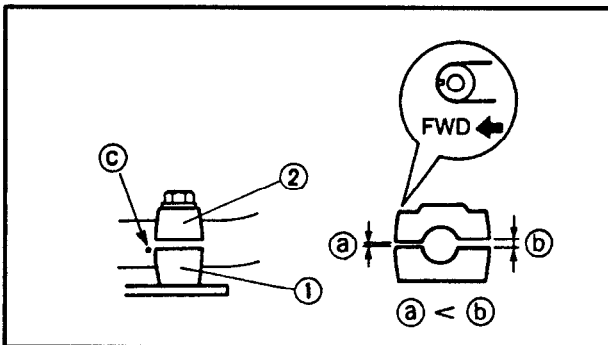
**SERVICE POINTS****Handlebar assembly installation**

1. Install:

- Seal packing ①

NOTE:

- Pass the handlebar switch lead through the steering shaft.
- Adjust the throttle cable length ① and handlebar switch lead length ② to 200 mm (7.9 in).
- Seal the steering shaft with the seal packing at 20 mm (0.79 in) from the end of the steering column.



2. Install:

- Handlebar holder (lower) ①
- Handlebar holder (upper) ②

CAUTION:

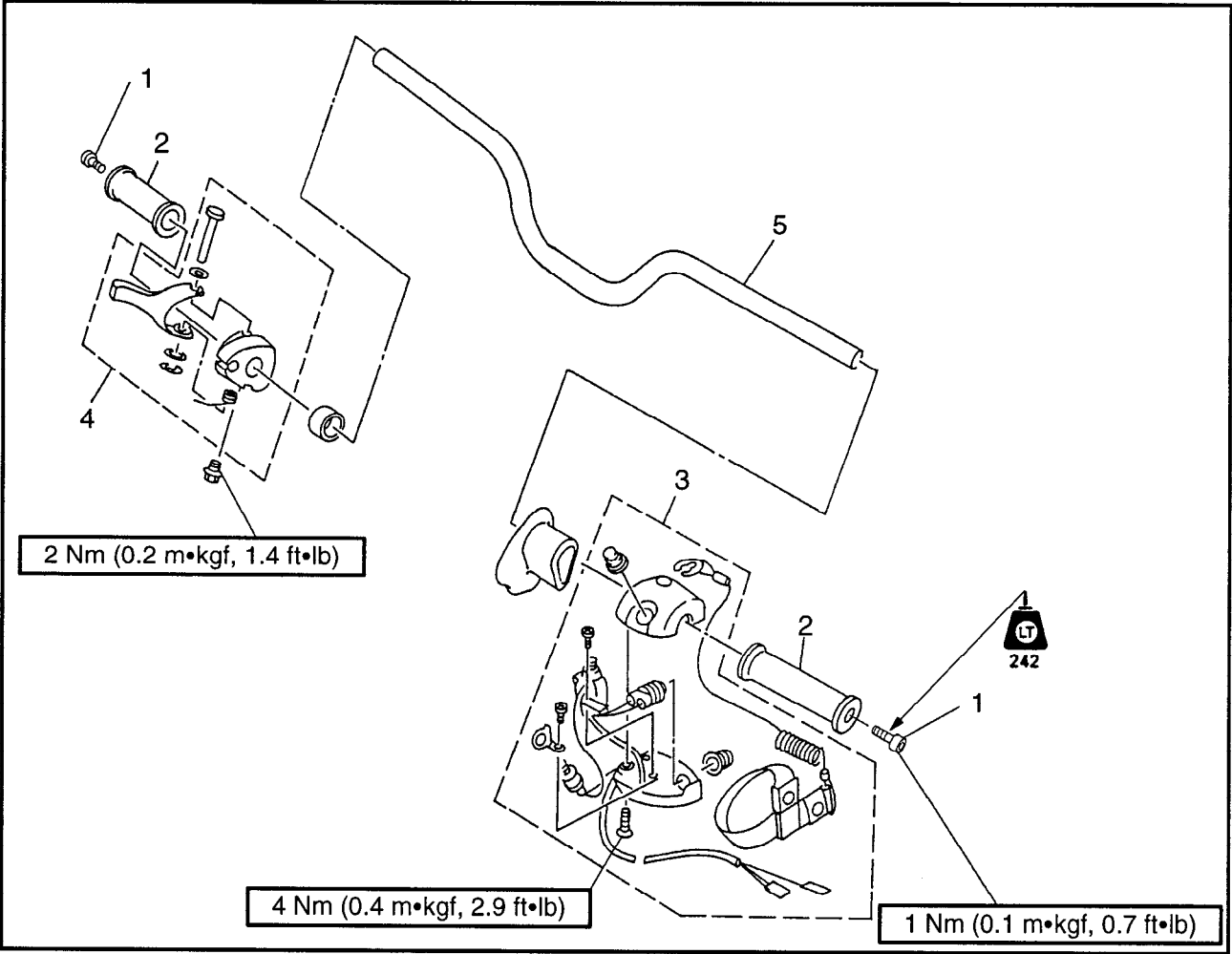
Clearance ① should be narrower than clearance ②.

NOTE:

- Align the punched mark (c) on the handlebar with the top surface of the handlebar holder (lower).
- The handlebar holder (upper) should be installed with the punched mark forward.

HANDLEBAR

EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
HANDLEBAR DISASSEMBLY			Follow the left "Step" for removal. Refer to "HANDLEBAR REMOVAL". NOTE: _____ Apply adhesive to handlebar and inner surface of grip. _____ Reverse the removal steps for installation.
1	Handlebar assembly	1	
2	Screw	1	
2	Grip	2	
3	Handlebar switch assembly	1	
4	Throttle lever assembly	1	
5	Handlebar	1	

SERVICE POINTS

Handlebar inspection

1. Inspect:
 - Handlebar
Bend/crack/damage → Replace.

Handlebar switch inspection

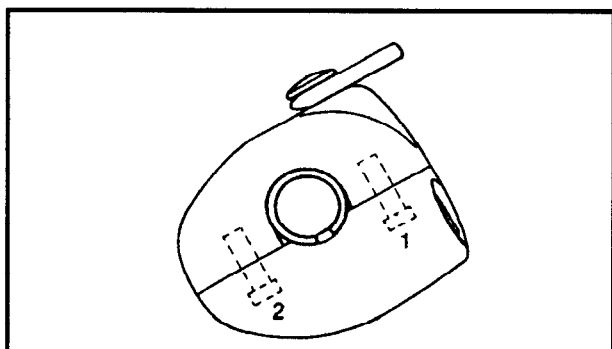
Refer to “STARTING SYSTEM” in chapter 7.

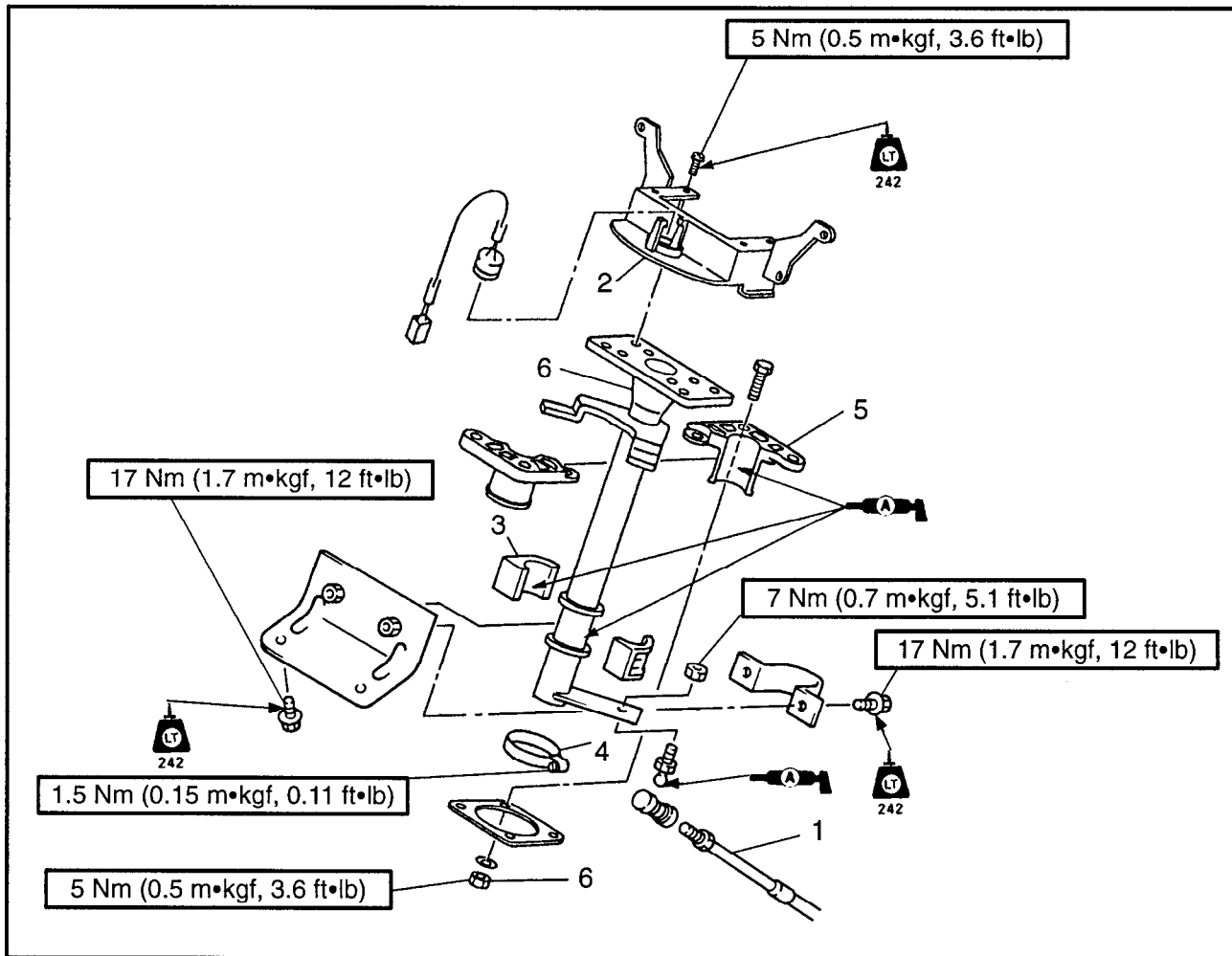
Handlebar switch installation

1. Install:
 - Handlebar switch

NOTE: _____

- Tighten the screw 1 on the stop button side first. Then, tighten the other screw 2.
 - Align the pin on the left handle bar switch with the hole in the handle bar.
-



**STEERING COLUMN
EXPLODED DIAGRAM**

REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	STEERING COLUMN REMOVAL		Follow the left "Step" for removal.
	Handlebar assembly		Refer to "HANDLEBAR REMOVAL".
	Engine hood cover assembly		Refer to "ENGINE HOOD COVER".
1	Steering cable	1	
2	Steering pad fixation	1	
3	Steering bushing	2	
4	Clamp	1	
5	Column bushing	2	
6	Steering column	1	
			Reverse the removal steps for installation.

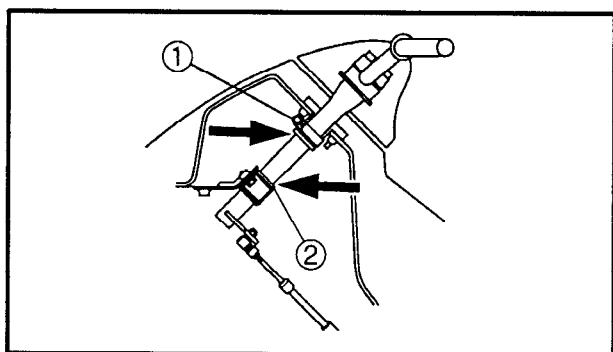
SERVICE POINTS

Bushing inspection

1. Inspect:
 - Bushing
 Wear/damage → Replace.

Steering column inspection

1. Inspect:
 - Handle column
 Bend/crack/damage → Replace.



Bushing joint installation

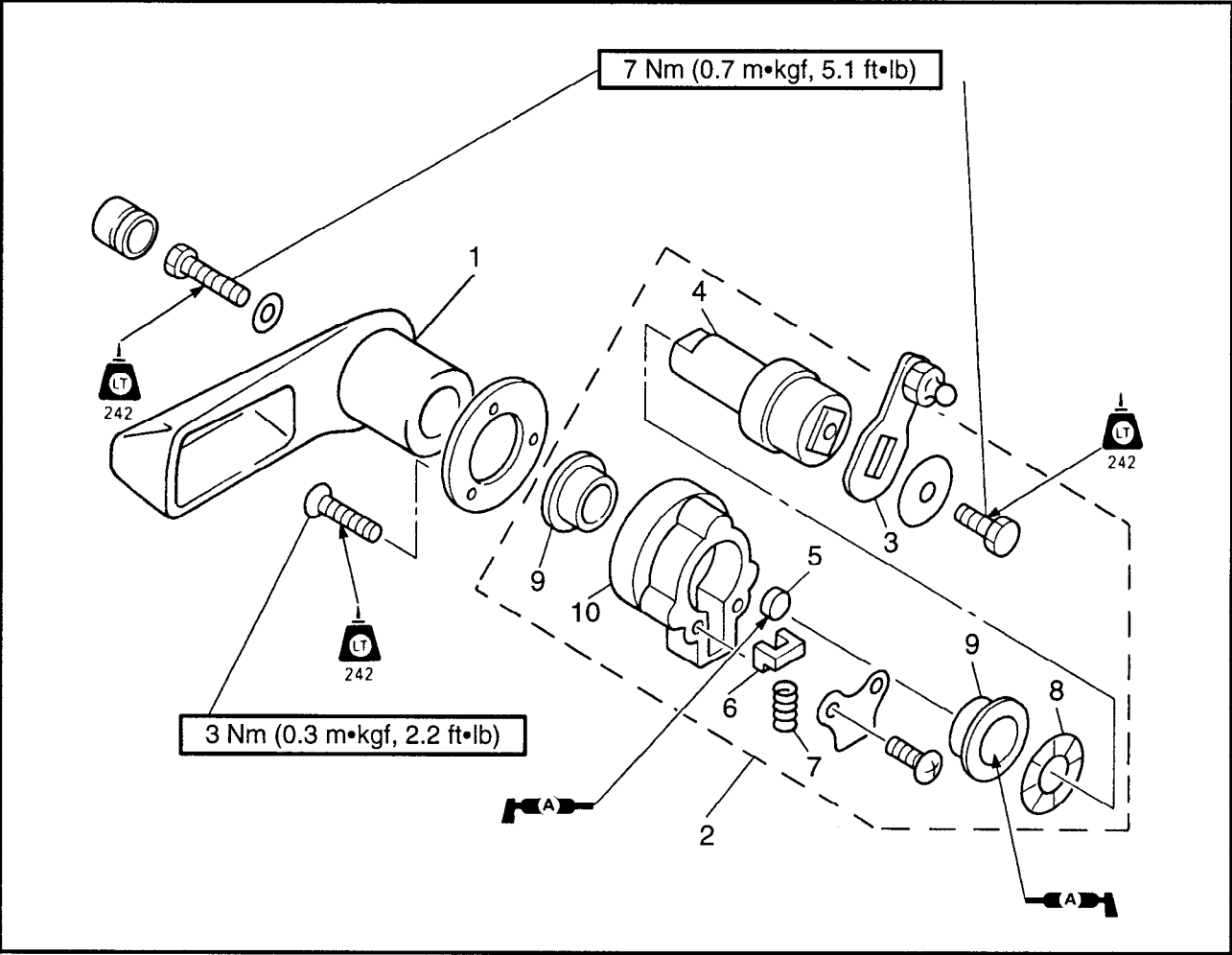
1. Install:
 - Clamp ①
 - Bushing joint ②

NOTE:

Check for smooth action of the steering column when tightening the bolt.

SHIFT LEVER

EXPLODED DIAGRAM

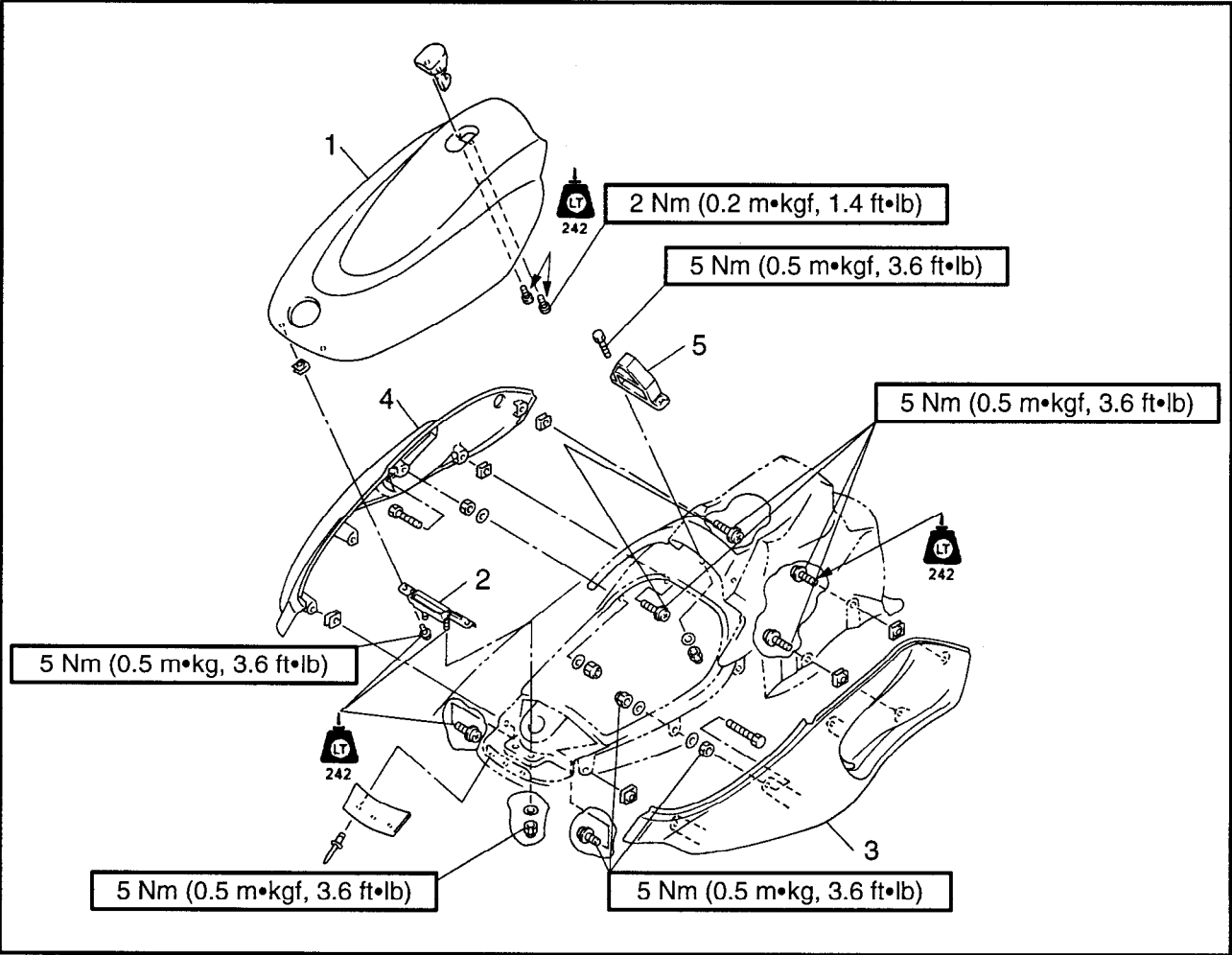


REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	SHIFT LEVER REMOVAL		
	Shift cable		Follow the left "Step" for removal. NOTE: _____ Disconnect the shift cable at the shift lever.
1	Shift lever	1	
2	Base assembly	1	
3	Lever	1	
4	Shaft	1	
5	Roller	1	
6	Actuator	1	
7	Spring	1	
8	Wave washer	1	
9	Bushing	2	
10	Base	1	
			Reverse the removal steps for installation.

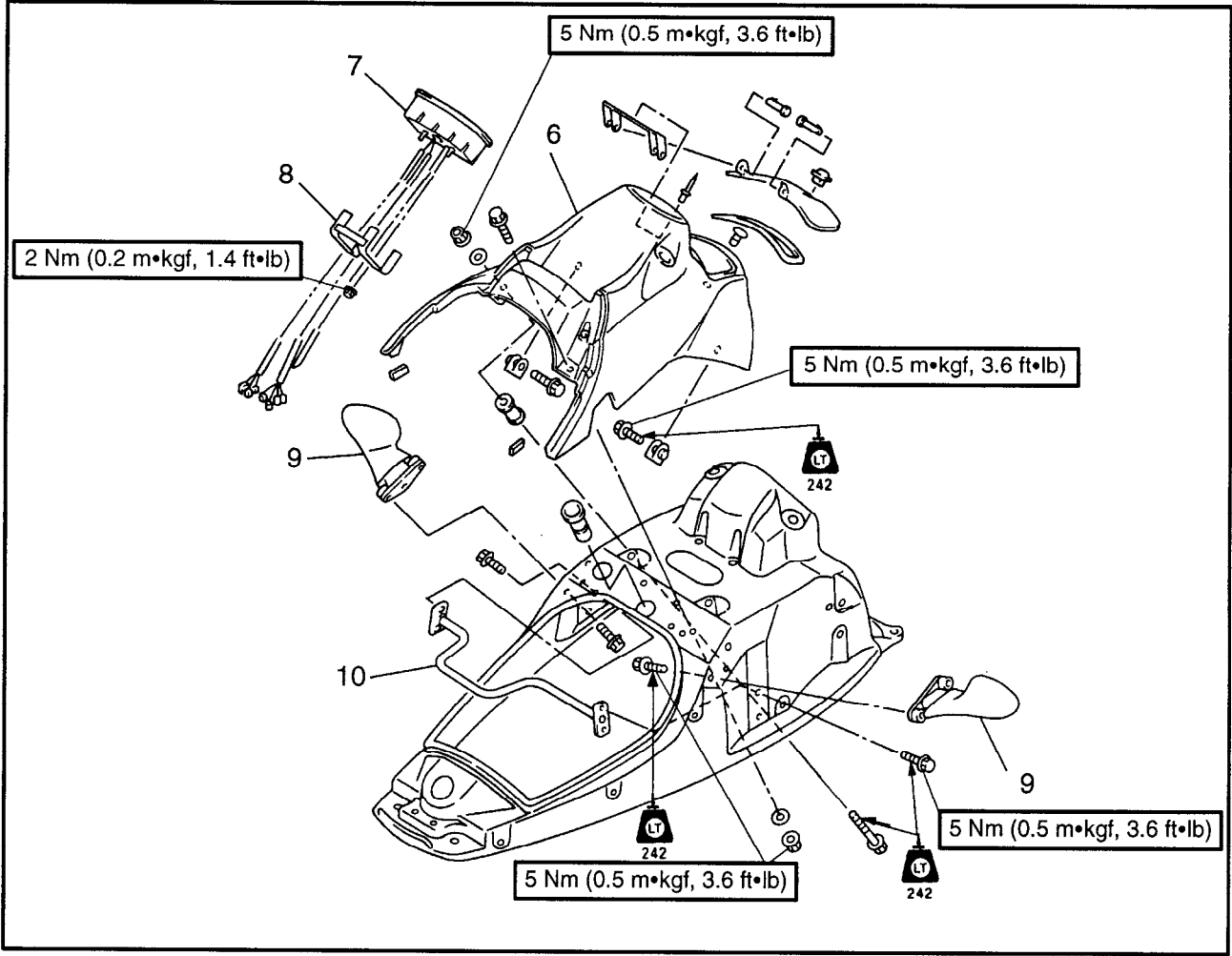
ENGINE HOOD

EXPLODED DIAGRAM



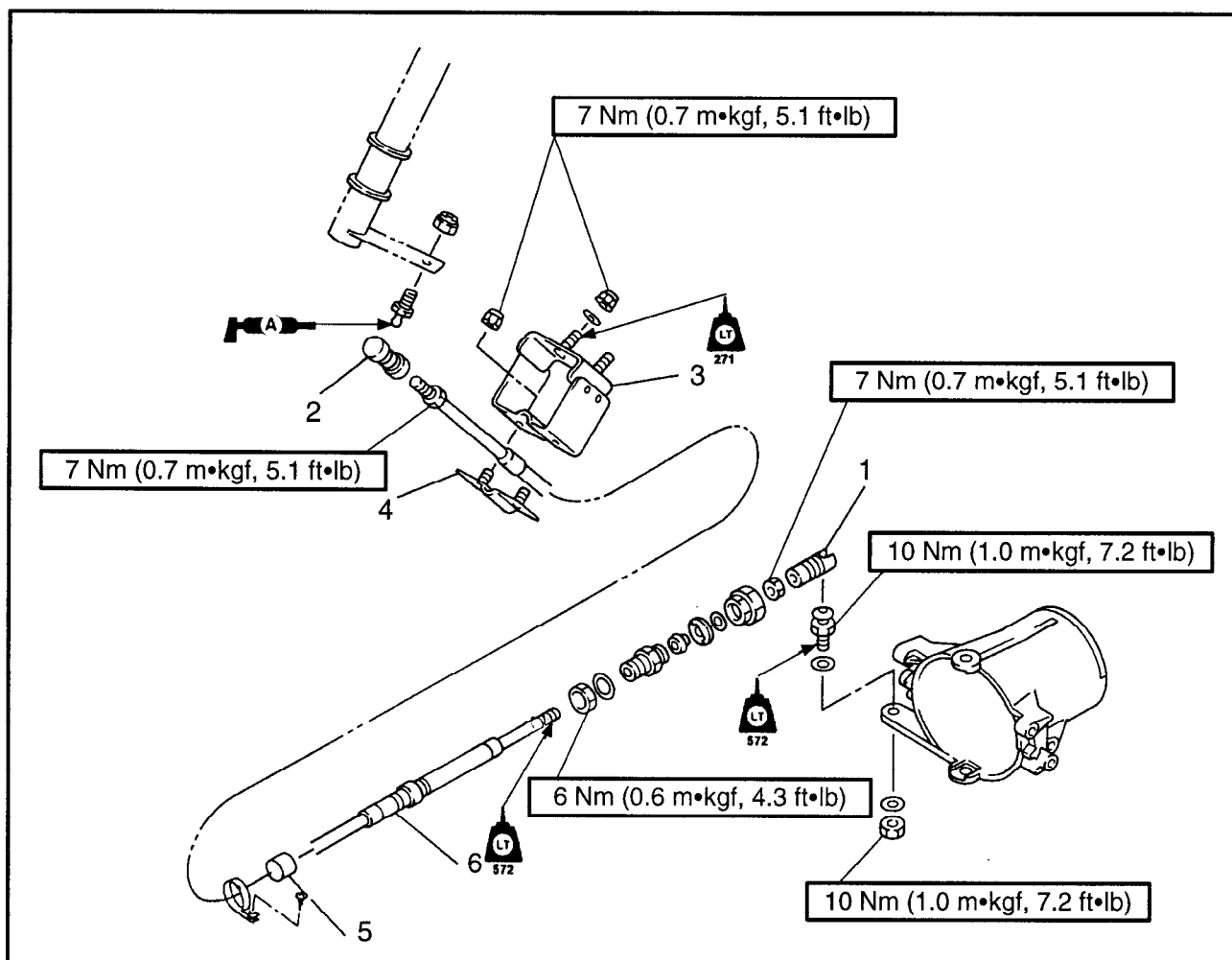
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	ENGINE HOOD DISASSEMBLY		
	Engine hood assembly		Follow the left "Step" for removal. Refer to "ENGINE HOOD REMOVAL".
1	Engine hatch	1	
2	Bracket	1	
3	Left side cover	1	
4	Right side cover	1	
5	Holder	1	



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
6	Engine hood cover	1	Reverse the removal steps for installation.
7	Meter assembly	1	
8	Bracket	1	
9	Adjustable mirror assembly	2	
10	Stay	1	

**STEERING CABLE
EXPLODED DIAGRAM**

REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	STEERING CABLE REMOVAL		
	Ride plate		
1	Cable joint	1	Follow the left "Step" for removal. Refer to the "JET PUMP UNIT REMOVAL" section in chapter 6. Refer to "Jet pump side cable joint installation".
2	Cable joint	1	⚠ WARNING
3	Steering cable bracket	1	The cable joint must be screwed in more than 8 mm (0.31 in).
4	Cable stopper	1	⚠ WARNING
			Be sure to fit the projection on the cable stopper into the groove in the outer cable.
5	Packing	1	NOTE:
6	Steering cable	1	Insert the cable into the clamp.
			Reverse the removal steps for installation.

STEERING CABLE

SERVICE POINTS

Cable inspection

- Inspect:
 - Steering cable
Kink/Fray/Stick → Replace.

Jet pump side cable joint installation

- Install:
 - Cable joint



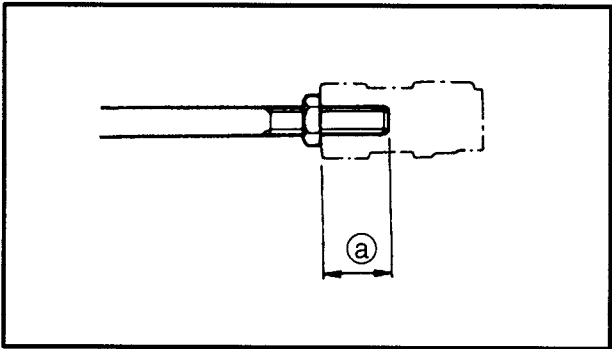
Cable joint set length ①:
13.7 ~ 15.3 mm (0.53 ~ 0.60 in)

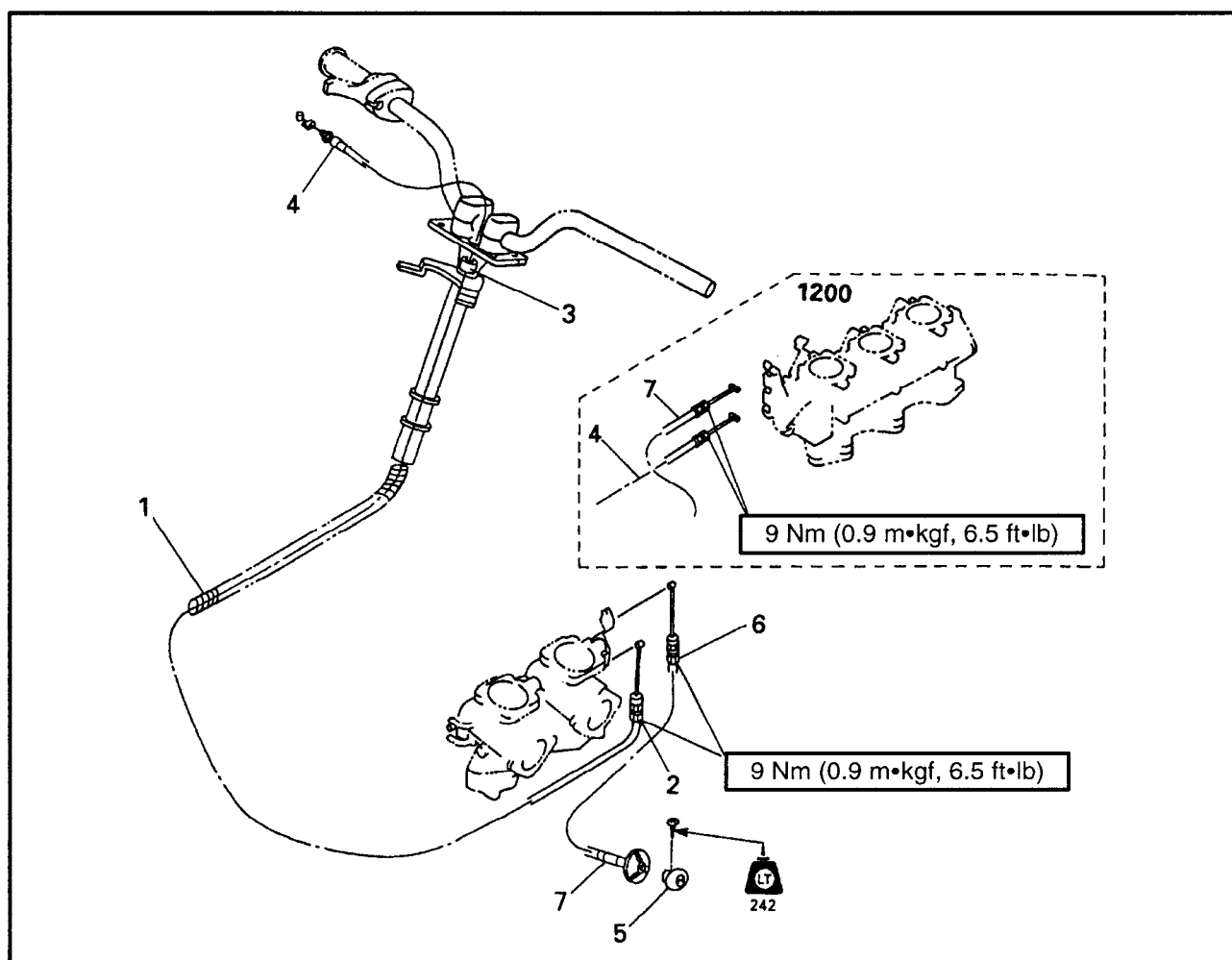
WARNING

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

Steering cable adjustment

Refer to “CONTROL SYSTEM” in chapter 3.



**THROTTLE CABLE AND CHOKE CABLE
EXPLODED DIAGRAM**

REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	THROTTLE CABLE REMOVAL		Follow the left “Step” for removal.
1	Spiral tube	1	
2	Throttle cable lock nut	1	
3	Seal packing	1	
4	Throttle cable	1	
	CHOKE CABLE REMOVAL		Reverse the removal steps for installation.
5	Choke knob	1	
6	Choke cable lock nut	1	
7	Choke cable	1	

SERVICE POINTS

Cable inspection

1. Inspect:
 - Throttle cable
 - Choke cable
 Kink/Fray/Stick → Replace.

Cable installation

1. Install:
 - Cable guide



Cable guide set position ①:

XL760:

17 mm (0.67 in)

XL1200:

Throttle cable: 17 mm (0.67 in)

Choke cable: 14 mm (0.55 in)

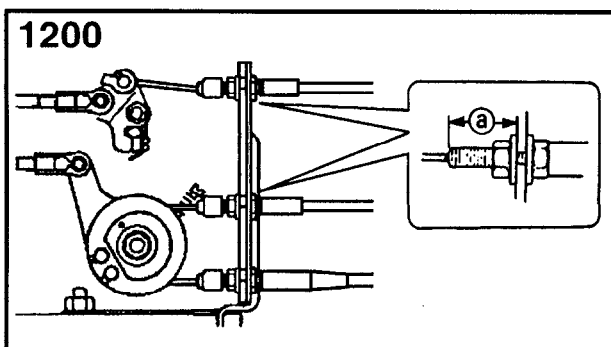
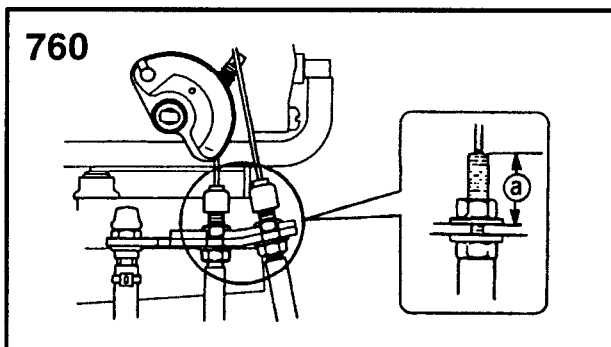
2. Install:
 - Seal packing
 Refer to "HANDLE REMOVAL".

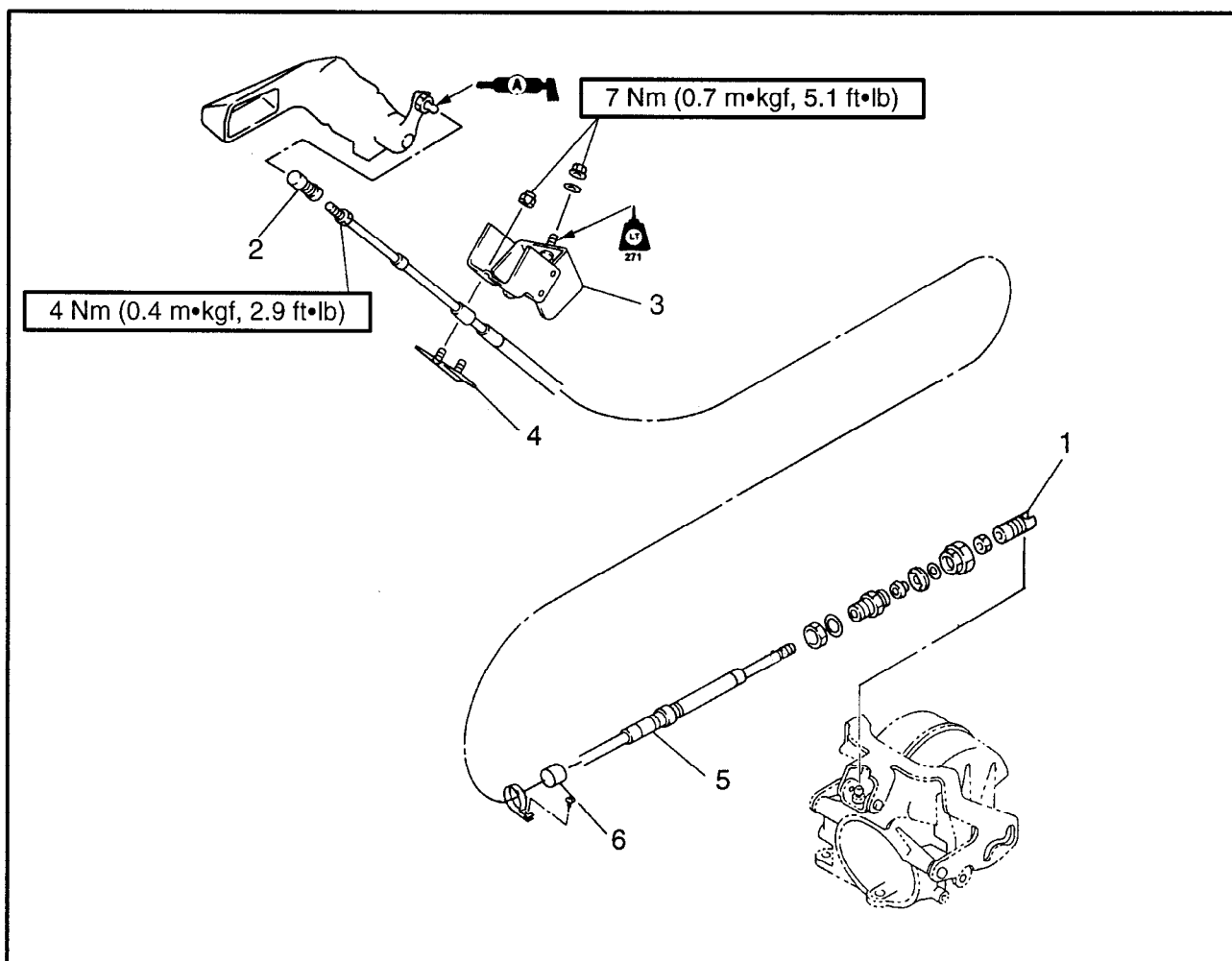
Throttle cable adjustment

Refer to "CONTROL SYSTEM" in chapter 3.

Choke cable adjustment

Refer to "CONTROL SYSTEM" in chapter 3.

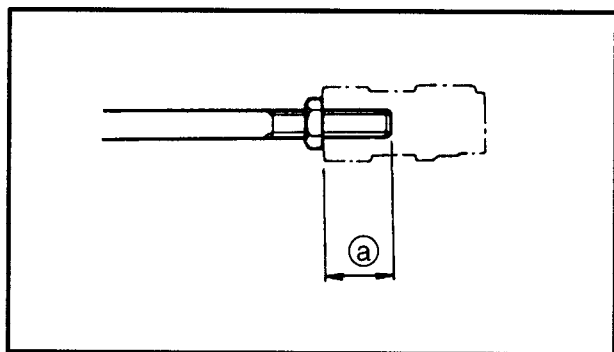


**SHIFT CABLE
EXPLODED DIAGRAM**

REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
1	SHIFT CABLE REMOVAL		
	Ride plate		Follow the left "Step" for removal. Refer to the "JET PUMP UNIT REMOVAL" section in chapter 6.
	Cable joint	1	Refer to "Jet pump side cable joint installation".
			⚠ WARNING
2	Cable joint	1	The cable joint must be screwed in more than 8 mm (0.31 in).
3	Shift cable bracket	1	
4	Cable stopper	1	⚠ WARNING
			Be sure to fit the projection on the cable stopper into the slit in the outer cable.
5	Shift cable	1	NOTE:
6	Packing	1	Insert the cable into the clamp.
			Reverse the removal steps for installation.

SERVICE POINTS**Cable inspection**

1. Inspect:
 - Shift cableKink/Fray/Stick → Replace.

**Jet pump side cable joint installation**

1. Install:
 - Cable joint



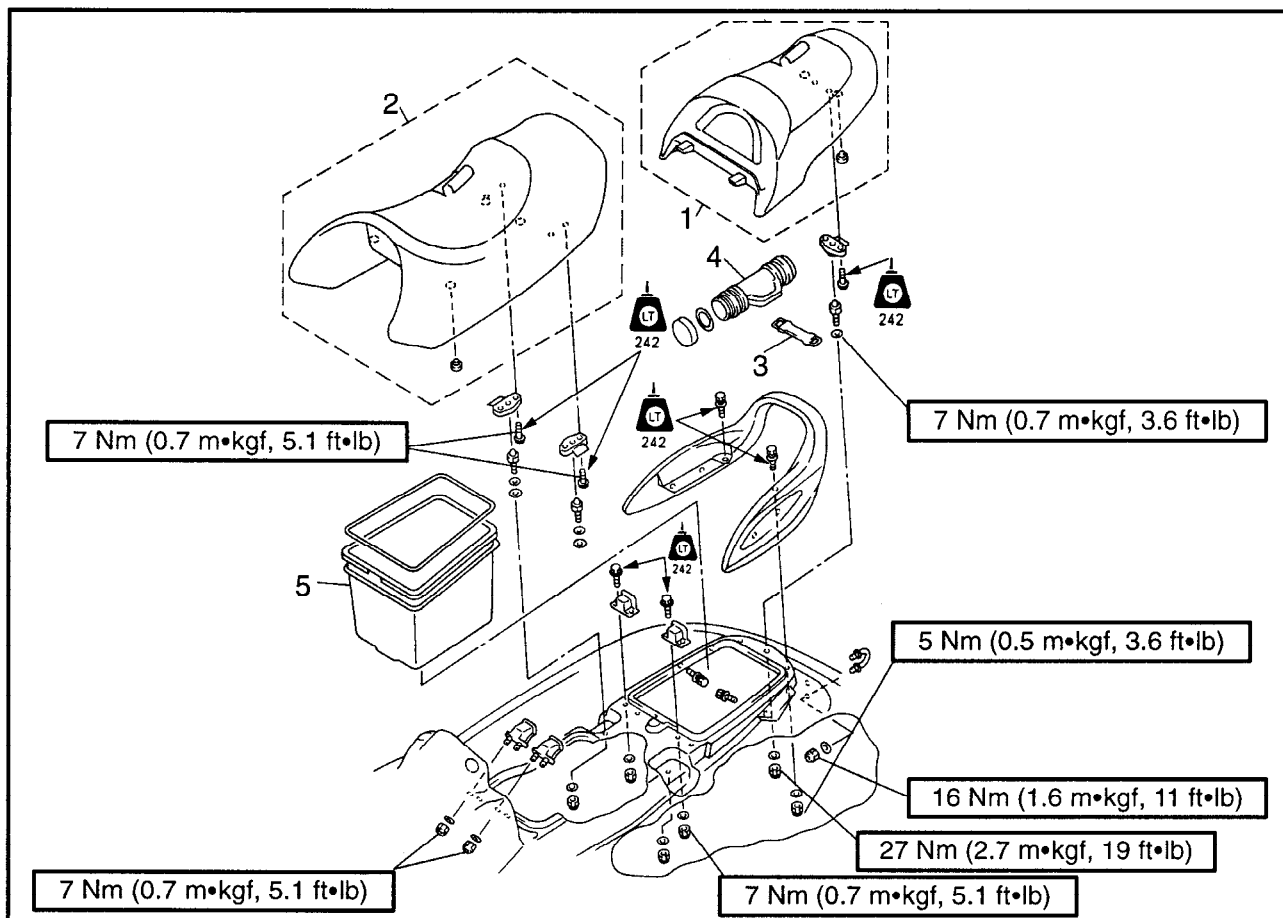
Cable guide set length ①
12.8 ~ 14.4 mm (0.50 ~ 0.57 in)

⚠ WARNING

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

Shift cable adjustment

Refer to “CONTROL SYSTEM” in chapter 3.

**SEAT AND STORAGE BOX
EXPLODED DIAGRAM**

REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
1	SEAT AND STORAGE BOX	1	Follow the left "Step" for removal.
2	Single seat	1	
3	Double seat	1	
4	Band	1	
5	Case	1	
6	Storage box	1	Reverse the removal steps for installation.

SERVICE POINTS
Seat inspection

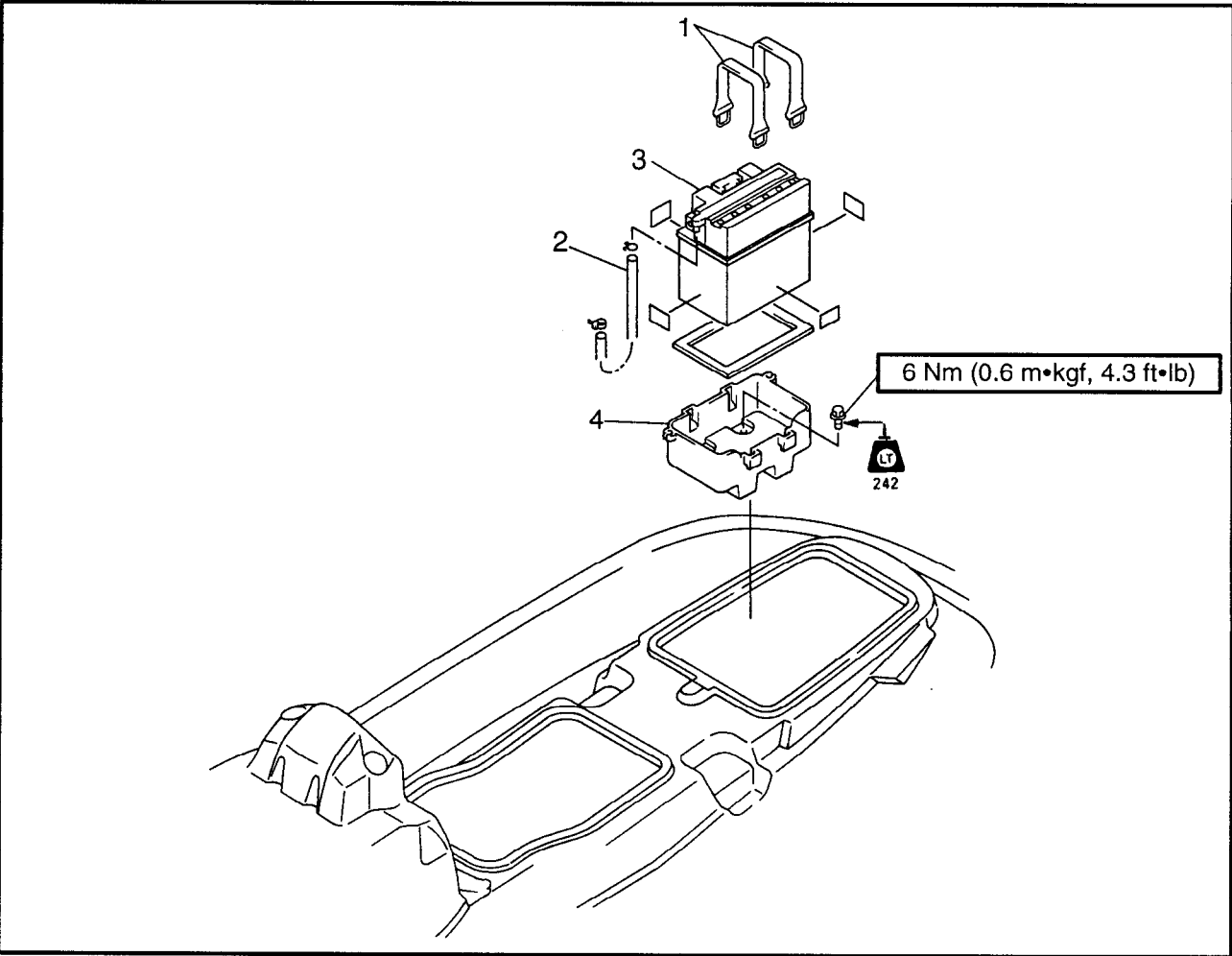
- Inspect:
 - Seat lock
 Wear/damage → Replace.

Storage box inspection

- Inspect:
 - Packing
 Flat/damage → Replace.
 - Storage box
 Crack/damage → Replace.

BATTERY CASE

EXPLODED DIAGRAM



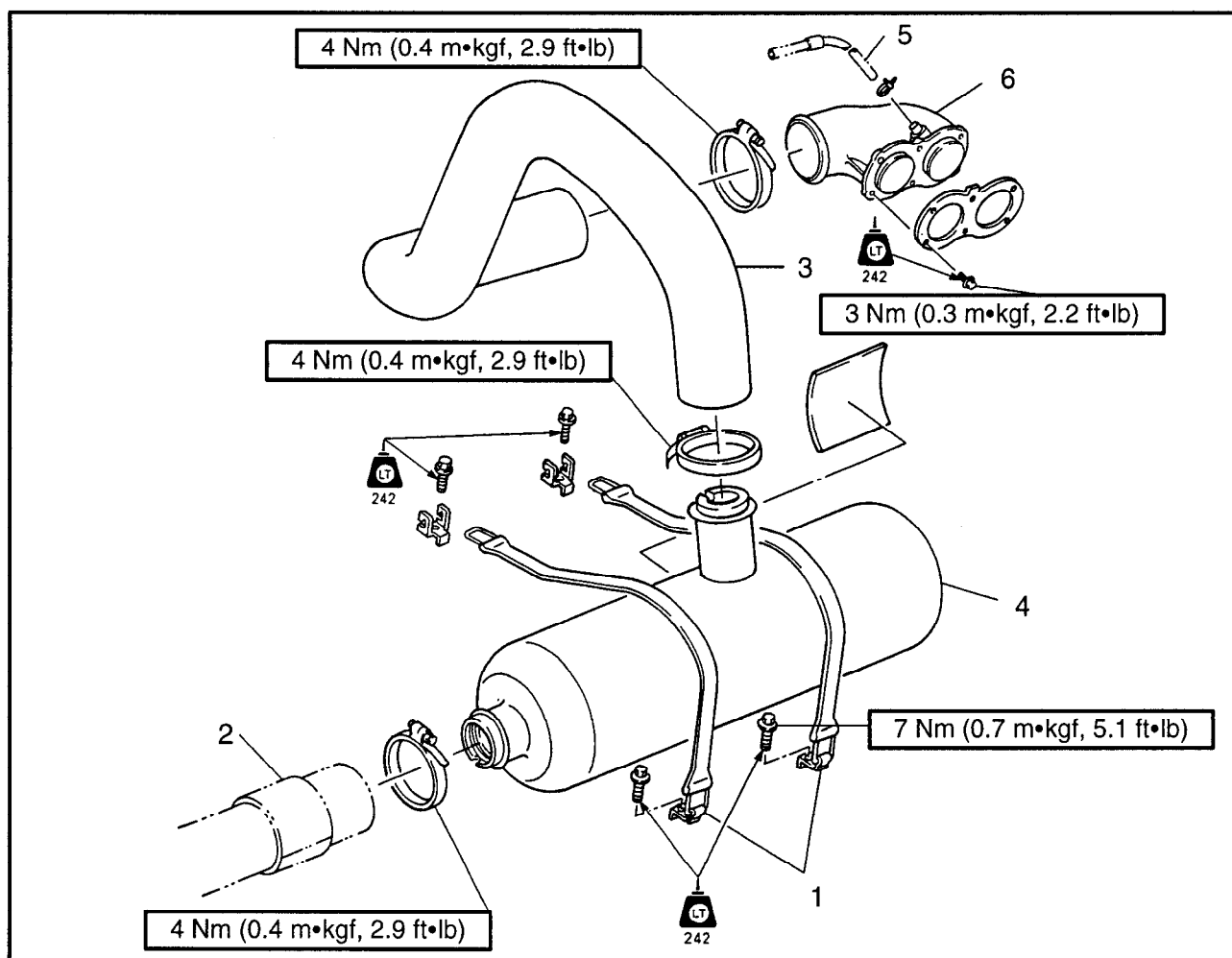
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	BATTERY CASE REMOVAL		
	Seat and storage box		Follow the left "Step" for removal. Refer to "SEAT AND STORAGE BOX".
1	Band	2	
2	Breather hose	1	
3	Battery	1	
4	Battery case	1	
			Reverse the removal steps for installation.

Battery case inspection

1. Inspect:
 - Battery case
Crack/Damage → Replace.
 - Packing
Flat/Damage → Replace.

EXHAUST SYSTEM EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	EXHAUST SYSTEM REMOVAL		Follow the left "Step" for removal.
	Storage box		
1	Band	2	
2	Exhaust hose	1	
3	Exhaust hose	1	
4	Water lock	1	
5	Water outlet hose	1	
6	Exhaust guide		Reverse the removal steps for installation.

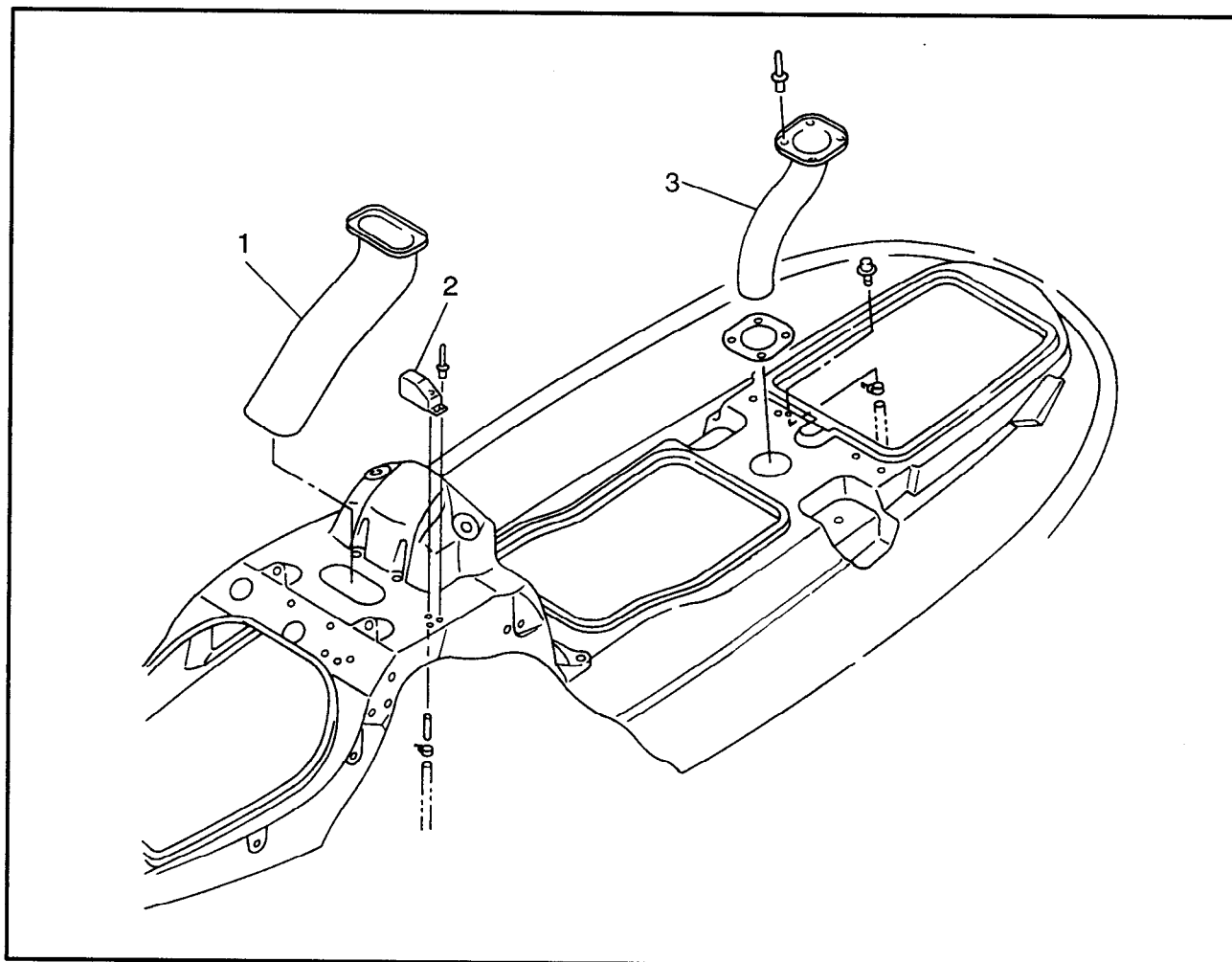


SERVICE POINTS

Exhaust system inspection

1. Inspect:
 - Band
Crack → Replace.
2. Inspect:
 - Exhaust hose
Crack/Wear/Burn → Replace.
3. Inspect:
 - Water lock
Crack/Leak → Replace.
Gathered water → Drain.

DECK EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	DECK DISASSEMBLY		
1	Engine hood cover	1	Follow the left "Step" for removal. Refer to "ENGINE HOOD".
2	Ventilation hose	1	
3	Ventilation socket	1	
	Ventilation hose	1	Reverse the removal steps for installation.

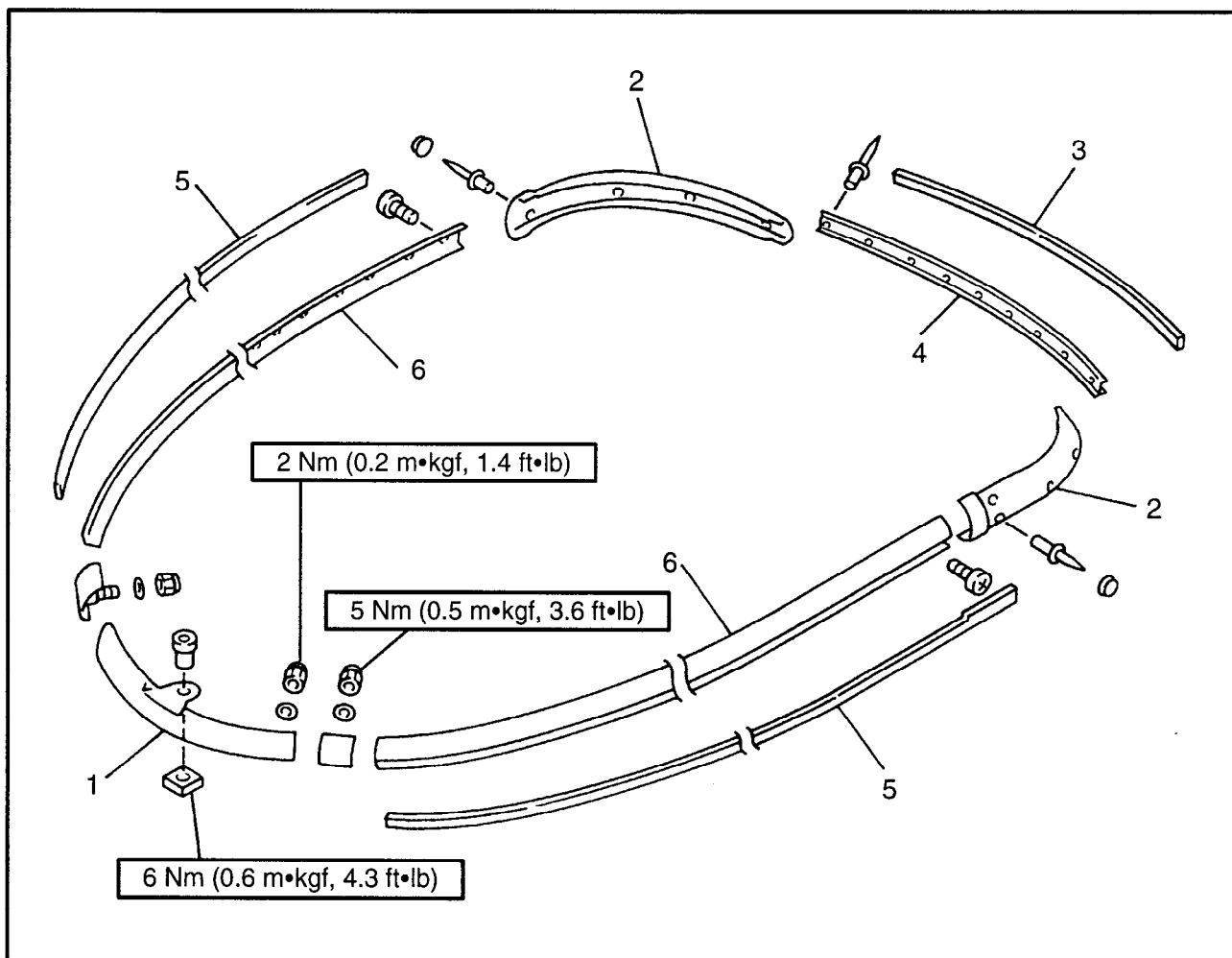


SERVICE POINTS

Ventilation system inspection

1. Inspect:

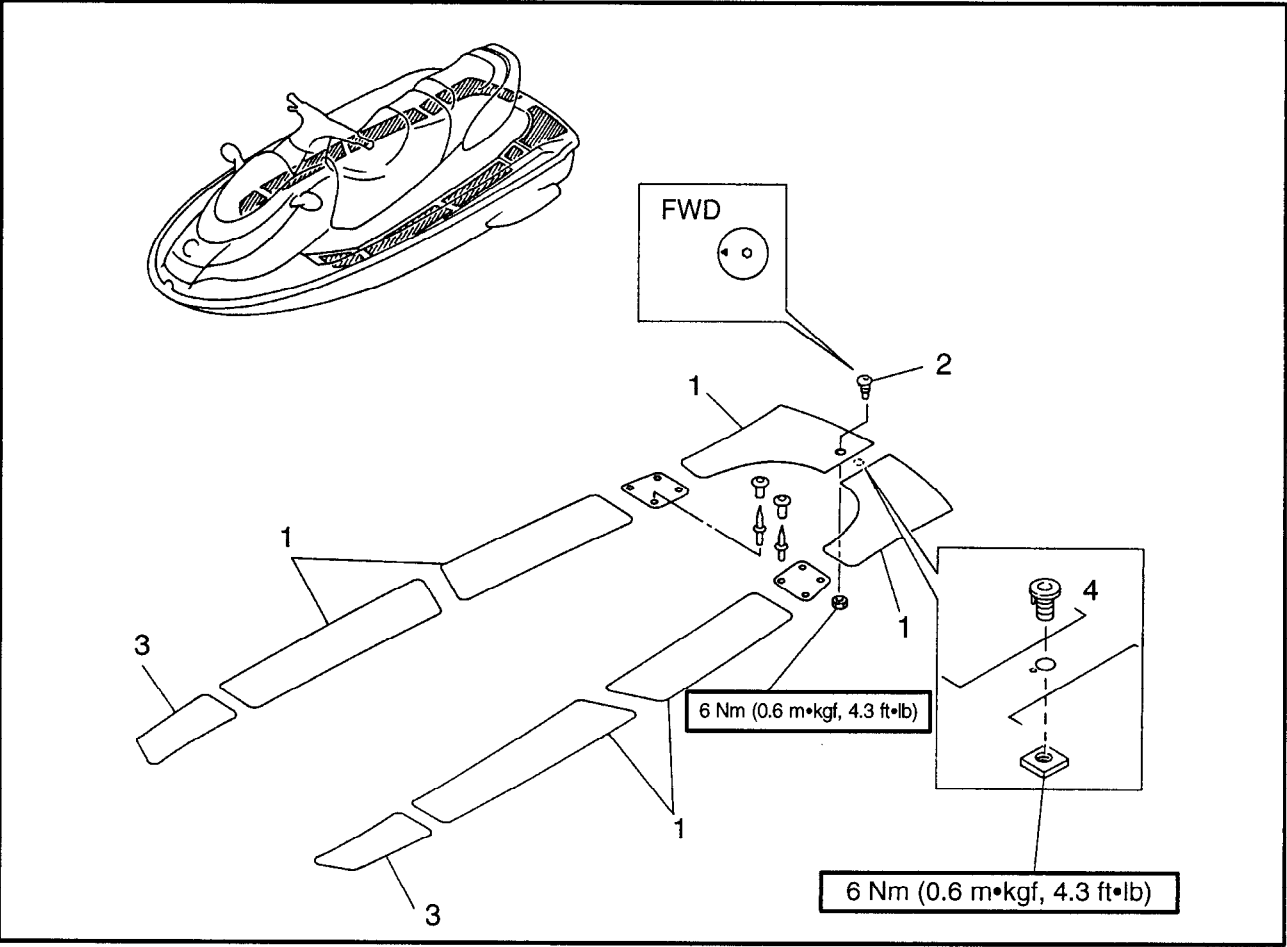
- Ventilation hose
Wear/Crack → Replace.
- Ventilation hose joint
Wear/Damage → Replace.

**GUNWALE
EXPLODED DIAGRAM**

REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	GUNWALE REMOVAL		
1	Bow gunwale	1	Follow the left "Step" for removal.
2	Stern gunwale	2	
3	Inner gunwale	1	
4	Cover gunwale	1	
5	Inner gunwale	2	
6	Side gunwale	2	Reverse the removal steps for installation.

MAT

EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
1	MAT REMOVAL	6	Follow the left "Step" for removal.
2	Step mat	1	
3	Spout	2	NOTE: _____
4	Upper mat		The rope hole bolts should be installed with the projections @facing each other.
	Rope hole bolt		Reverse the removal steps for installation.

SERVICE POINTS

Mat installation

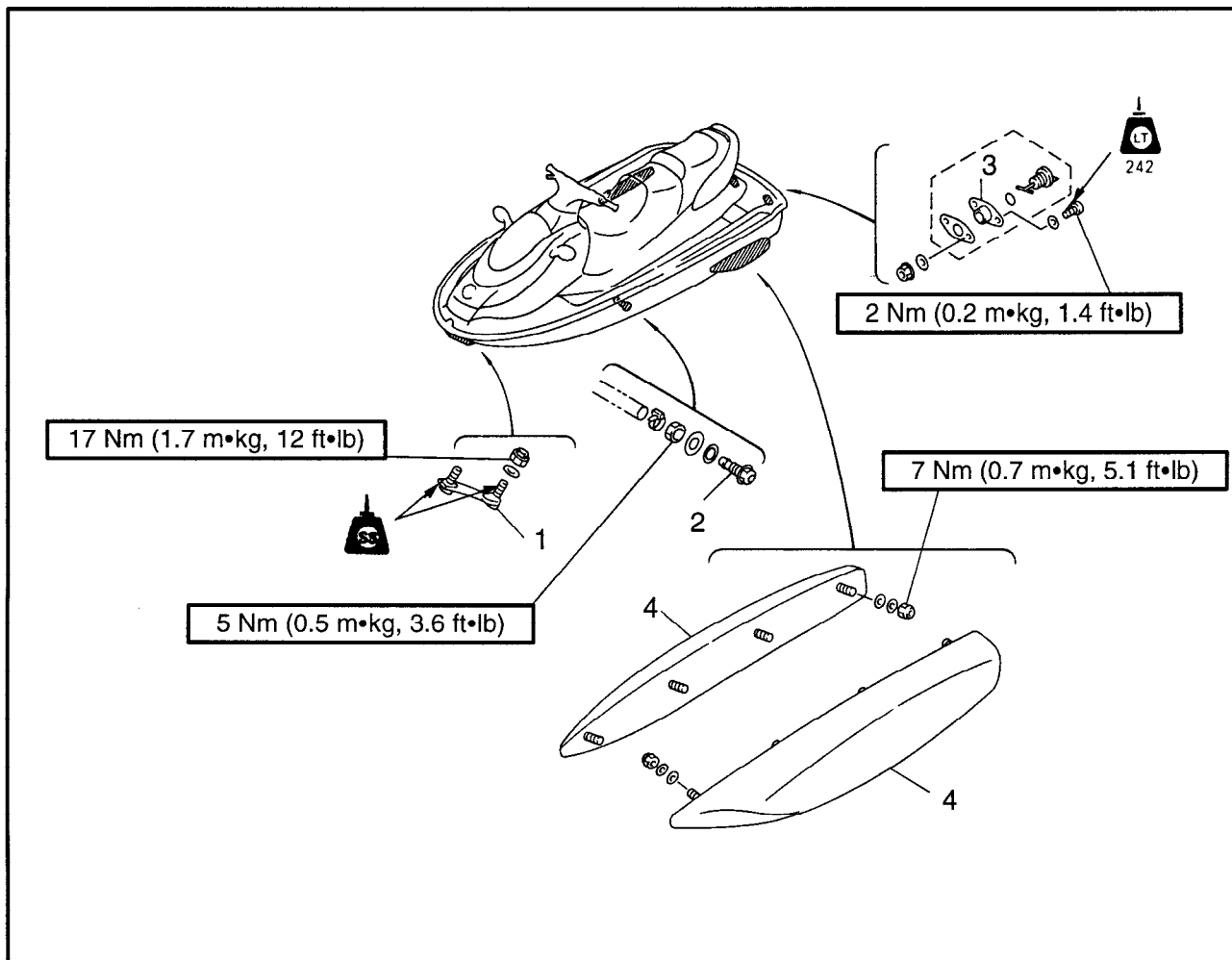
1. Install:
- Mat

NOTE: _____

- Clean the step surface before installing the mat.
- Aplly cyano-acrylate adhesive on the mat.



**HULL
EXPLODED DIAGRAM**



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	HULL DISASSEMBLY		
1	Bow eye	1	Follow the left "Step" for removal.
2	Pilot water outlet	1	
3	Drain plug socket	2	
4	Sponson	2	
			Reverse the removal steps for installation.

HULL REPAIR

Light scratching

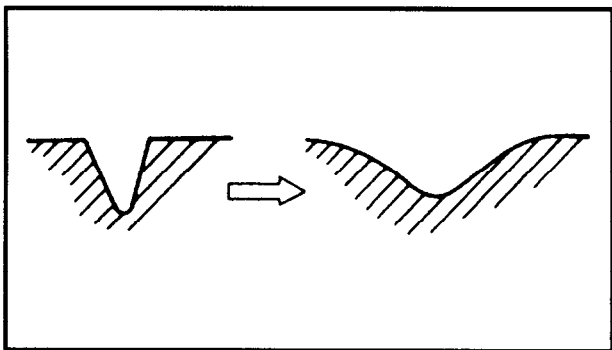
1. Sand the scratched area smooth with #400 grit wet or dry paper, and then with #600 grit wet or dry paper.
2. Polish the area with rubbing compound and buff to a high gloss using a wool pad and automotive wax.

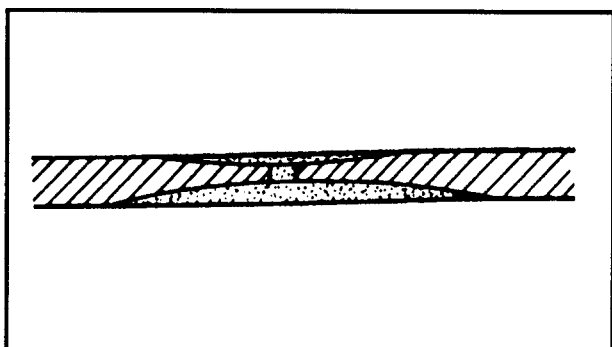
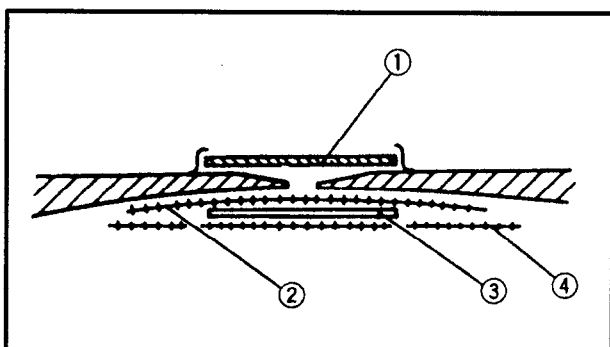
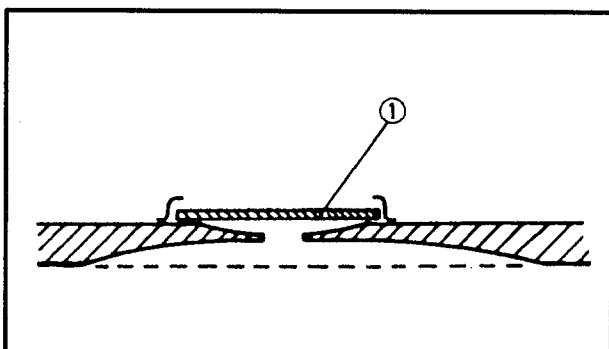
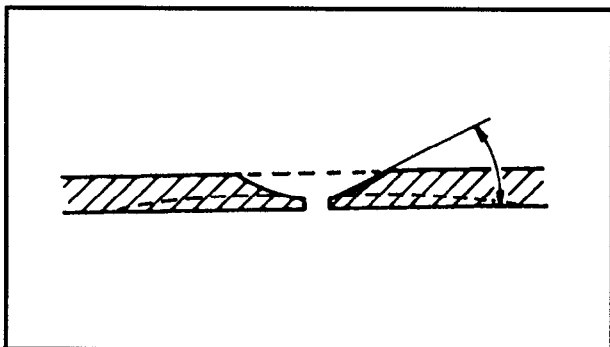
Deep scratching

1. Remove any sharp/rough edges from the surface.
2. Sand the area smooth for about one inch all around the scratch with #80 grit wet or dry paper.
3. Clean the area with acetone and dry it.
4. Mix gel-coat with gel-coat thickener to make gel-coat putty and then add the catalyst to make.
5. Apply and spread the catalyzed putty with a squeegee, then cover the putty with a piece of waxed paper.
6. When the putty has set, sand the area catalyzed putty. Smooth using #80 grit to #400 grit wet or dry paper and a sanding block.
7. Clean the area with a dry cloth and polish it.

⚠ WARNING

Resin, catalyst and solvet are flammable and toxic. Use only in a well-ventilated area and keep away from open flames and sparks. Observe all warnings given by the manufacturer.

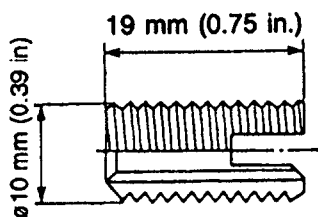
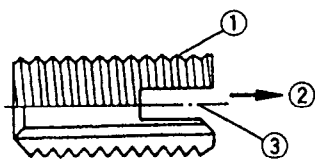


**Hull damage (punctured)**

1. Remove any damaged fiberglass.
2. Cut and open the crack approximately 1/4 inch.
3. Grind the opened edge less than 30° on the outside.
4. Grind the area from inside the hull approximately 4 inches beyond it.
5. Clean the area with acetone, apply BP-1 or an equivalent primer on both sides of the area and cure for 1/2 hour.
6. Tape a piece of cardboard covered with waxed paper ① over the damaged area.
7. Mix polyester resin and catalyst and apply it to the hull.
8. Apply a glass mat ② (2 inches smaller than the ground area).
9. Apply catalyzed resin.
10. Apply a 20 oz fiberglass cloth ③ (1 inch smaller than the glass mat).
11. Apply catalyzed resin.
12. Apply a final glass mat ④ (1 inch smaller than the ground area).
13. When the resin has hardened, remove the piece of cardboard.
14. Finish the outer surface using steps 3-7 in the "Deep scratching" section.

NOTE:

Refer to "WATER VEHICLE FRP REPAIR MANUAL".



Insert nut

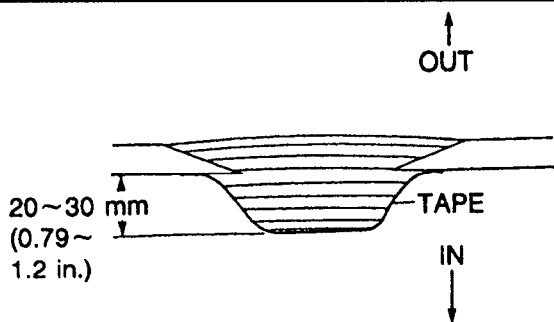
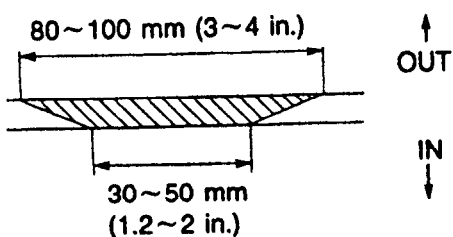
NOTE: When a pop nut clinched to a hull slipped off or when a bolt fastened to an insert nut or pop nut was broken, use this insert nut.

Part No.	Part Name	Remarks
EW2-62733-09	Nut	Stainless steel, M6

- Nut ①
- Direction of thread ②
- Slot be threaded ③

NOTE: Drilling size

Material	Pilot hold diameter
FRP or SMC	9.1 ~ 9.2 mm (0.36 in)
Brass	9.4 mm (0.37 in)



- Example 1:
The nut is used to repair the pop nut designed for plate 2.
(by repairing the FRP portion, the new-type nut can be used for all models)
For details of repairs to the FRP portion, refer to the "Water Vehicle FRP Repair Manual".
1. Remove:
 - Pop nut
 2. Scarf the shaded portion.
 3. Clean the surface to be scarfed and the inside of the hull with acetone.
 4. As shown, first tape up the inner surface of the hull and then laminate fiber-glass mats over the tape using a resin.

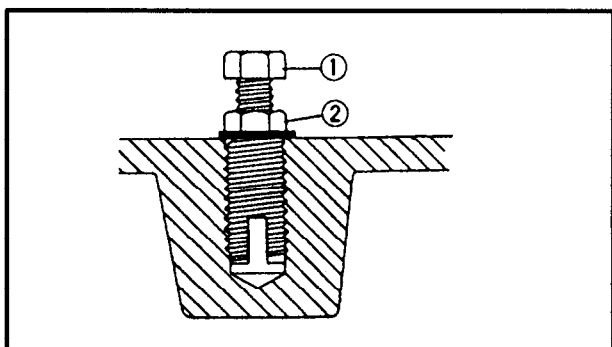
NOTE: When it is possible to work inside the hull, the mats should be laminated from the inside.

5. Smooth out the out surface by sanding it.
6. Install plate 2. Then, using a 9.2 mm (0.36 in) diameter drill, make a hole of depth 20 mm (0.79 in) in the center of the laminated fiberglass layers.
7. Pass the bolt ① through the insert nut, as shown, and lock the bolt with the nut ②. Screw in the insert nut so that the top is flush with the FRP surface. Loosen the lock nut and remove the bolt.

CAUTION:

- The bolt should be made of steel and its strength should be 8T or more.
- If the bolt is inferior in strength, or is made of stainless steel, it may break.

- Bolt ① <Strength is 8T or more>
- Lock nut ②



Example 2:

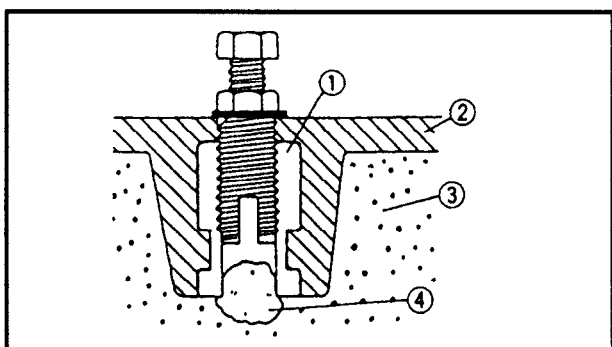
The brass insert nut designed for the Super Jet Plate 2 or the screen intake is used:

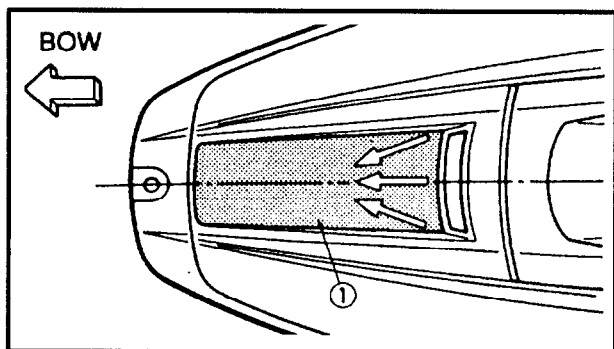
1. If the bolt is broken, remove it using drills.

NOTE:

Use a small-diameter drill first, followed by drills of gradually increasing diameter.

2. Use a 9.4 mm (0.37 in) drill for the final drilling.
3. Apply silicone sealant to the inside of the hole so that no water can enter the urethane foam.
4. As in Example 1 above, screw in the insert nut.
 - Brass insert ①
 - Hull ②
 - Urethane foam ③
 - Silicone sealant ④





Removing a graphic

1. Remove:
 - Graphic ①

NOTE:

Using a hair dryer, start at one corner and blow heat the graphic, holding the heat source at least 1-1/2" above the graphic.

Slowly peel off the heated part and continue working towards the other side.

2. Clean:

Once the graphic is removed, clean the entire bow area with Isopropyl Alcohol to remove any residual adhesive.

Applying a graphic

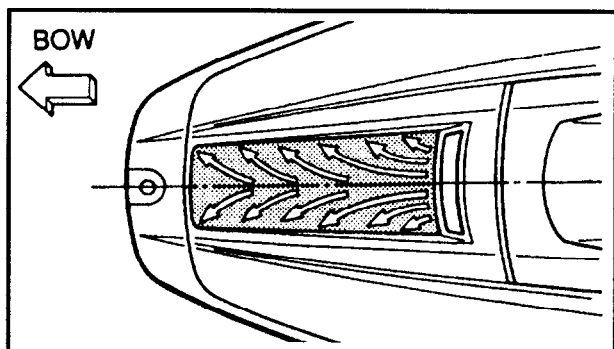
1. Preparation:

Mix 1 tablespoon of liquid washing-up detergent with water in a 1qt spray bottle.

Remove the backing from the new graphic and spray both sides and the area of the full to which it is to be fitted.

NOTE:

Spraying the front of the graphic will protect it from being scratched during application.



2. Apply:

Align the graphic on the fitting area and smooth it into position with a small rubber squeegee, removing all air bubbles in the process. Begin at the top of the graphic and work down and outwards from the center line of the graphic area.

3. Dry:

Let the graphic dry in place prior to waxing or using the vehicle.

CHAPTER 9
TROUBLE ANALYSIS

TROUBLE ANALYSIS	9-1
TROUBLE ANALYSIS CHART	9-1

TROUBLE ANALYSIS

NOTE:

Following items should be obtained before "trouble analysis".

1. Battery is charged and its specified gravity is in specification.
2. There is no incorrect wiring connection.
3. Wiring connections are surely engaged and without any rust.
4. Lanyard is installed to the engine stop switch.
5. Fuel is coming to the carburetor.

TROUBLE ANALYSIS CHART

Trouble mode												Check elements	
ENGINE WILL NOT START	ROUGH IDLING	ENGINE STALLS	ENGINE WILL NOT STOP	POOR PERFORMANCE	OVERHEATING	LOOSE STEERING	BILGE INCREASE	IRREGULAR WARNING INDICATION	POOR BATTERY CHARGING			Relative part	Reference Chapter
												FUEL SYSTEM	
☐	☐	☐	☐	☐								Fuel tank	4
☐	☐	☐	☐	☐								Air vent hose	4
☐		☐	☐	☐								Fuel hose	4
☐	☐	☐	☐	☐								Fuel filter	4
☐		☐	☐	☐								Fuel pump	4
☐	☐	☐	☐	☐								Carburetor	4
	☐	☐	☐	☐								Low speed screw setting	4
		☐	☐	☐								High speed screw setting	4
		☐	☐	☐								Carburetor synchronization	4
		☐	☐	☐								Trolling speed	3
												POWER UNIT	
☐	☐			☐								Compression	5
☐	☐			☐								Reed valve	5
☐	☐											Cylinder head gasket	5
☐				☐								Piston ring	5
☐				☐								Cylinder body	5
☐				☐								Seal	5
☐				☐								Crankcase	5
☐				☐								Piston	5
☐				☐								Bearing	5
☐				☐								Intermediate housing	5
				☐								Coupling	5
				☐								Coupling rubber	5

Trouble mode											Check elements	
ENGINE WILL NOT START	ROUGH IDLING	ENGINE STALLS	ENGINE WILL NOT STOP	POOR PERFORMANCE	OVERHEATING	LOOSE STEERING	BILGE INCREASE	IRREGULAR WARNING INDICATION	POOR BATTERY CHARGING		Relative part	Reference Chapter
					☐		☐				Pilot water hose	5
					☐		☐				Water hose	5
					☐		☐				Water passage	5
JET PUMP UNIT												
				☐	☐		☐				Duct	6
				☐							Impeller	6
				☐							Intake screen	6
				☐							Bearing	6
				☐							Duct intake	6
					☐		☐				Water inlet hose	6
							☐				Bilge hose	6
							☐				Bilge strainer	6
							☐				Bilge hose joint	6
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Water Vehicles

WaveRunner
XL700

SUPPLEMENTARY SERVICE MANUAL



LIT-18616-02-00

F0M-28197-Z8-1X

PREFACE

This Supplementary Service Manual has been prepared to introduce new service and data for the XL700. For complete service information procedures, it is necessary to use this Supplementary Service Manual together with the following manual.

XL760, XL1200 SERVICE MANUAL: GU2-28197-Z7-11

For what is not mentioned in this manual, please refer to the descriptions for XL760 in the above SERVICE MANUAL.

A10001-0*

XL700 SUPPLEMENTARY SERVICE MANUAL

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P / N F0M-28197-Z8-1X

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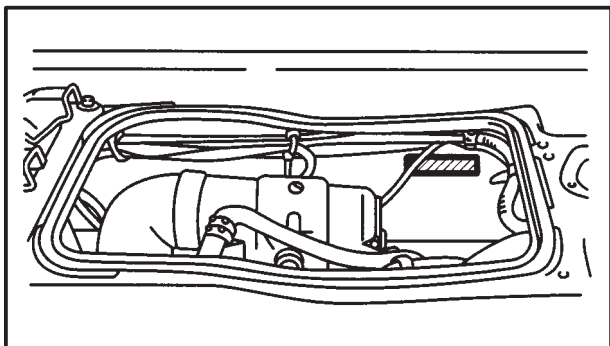


A80700-0*

IDENTIFICATION NUMBERS

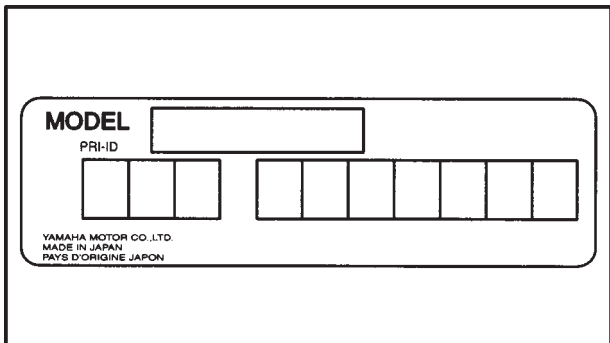
PRIMARY I.D. NUMBER

The primary I.D. number is stamped on a plate attached to the hull on the front of the engine hood.



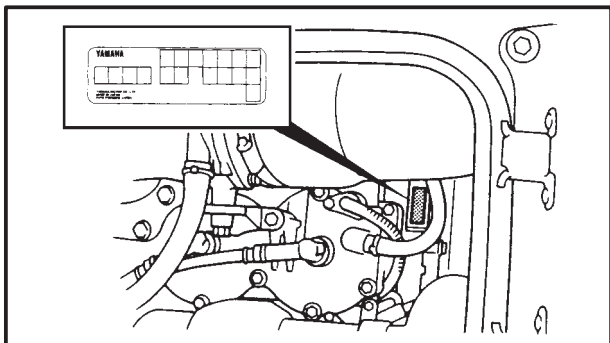
Starting primary I.D. number:

F0M: 800101 -



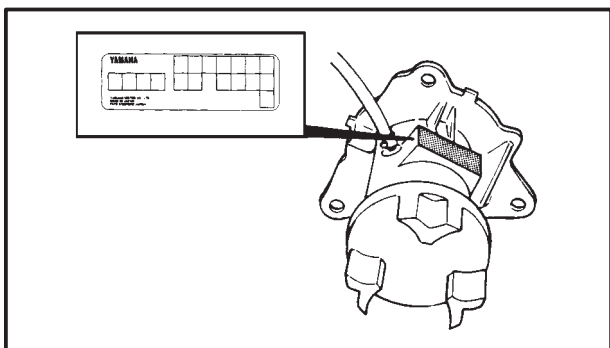
ENGINE SERIAL NUMBER

The engine serial number is stamped on a plate attached to the crankcase.



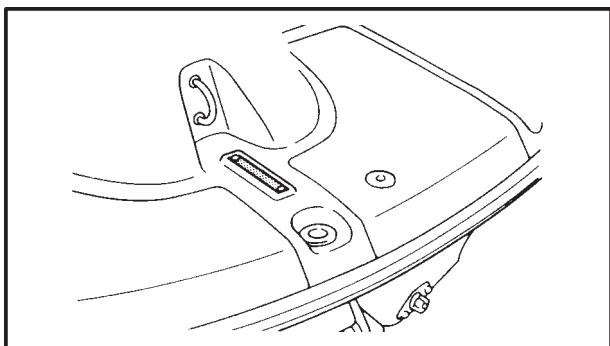
Starting serial number:

67E : 300101 -



PUMP SERIAL NUMBER

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



HULL IDENTIFICATION NUMBER (H.I.N)

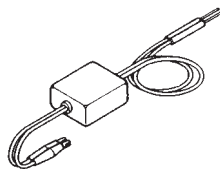
The H.I.N. is stamped on a plate attached to the rear end of the footrest floor.



SPECIAL TOOLS

Use of the correct special tools recommended by Yamaha will aid the work and enable accurate assembly and tune-up. Improvisations and use of improper tools can cause damage to the equipment.

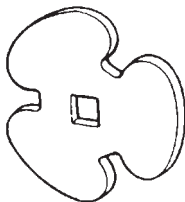
① 90890-03169



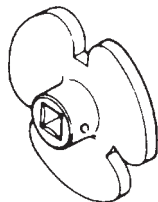
MEASURING

1. Peak voltage adaptor
P/N. 90890-03169

① YW-38741



90890-06425



REMOVAL AND INSTALLATION

1. Coupler wrench
P/N. YW-38741
90890-06425



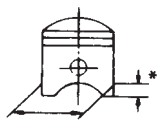
GENERAL SPECIFICATIONS

Item	Unit	XL700
MODEL CODE: Hull Engine		F0M 67E
DIMENSIONS: Length Width Height Dry weight	mm (in) mm (in) mm (in) kg (lb)	3,150 (124.0) 1,250 (49.2) 1,100 (43.3) 245 (54.0)
PERFORMANCE: Maximum speed Maximum output Maximum fuel consumption Cruising range (at full throttle)	km/h (mph) kW (hp)/rpm Vh (US gal/h, Imp gal/h) hr.	74 (46) 58.8 (80)/6250 34 (8.98, 7.48) 1.5
ENGINE: Engine type Number of cylinders Displacement Bore and stroke Compression ratio Intake system Carburetor type Number of carburetor Carburetor starting system Scavenging system Lubrication system Cooling system Starting system Ignition system Ignition timing Spark plug (NGK) Battery capacity Lighting coil	cm ³ (cu.in) mm(in) Degree V/kC (A•h) A/rpm	2-stroke 2 701 (42.78) 81 × 68 (3.19 × 2.68) 7.2 : 1 Reed valve Floatless 2 Choke valve Loop charged Oil Injection Water-cooled Electric starter C.D.I 15 BTDC – 21 BTDC BR8HS 12/68.4 (19) 2 – 4/5,500
DRIVE UNIT: Propulsion system Jet pump type Impeller rotation (rear view) Transmission Nozzle angle	 Degree	Jet pump Axial flow, single stage Counterclockwise Direct drive from engine 24 ± 1
FUEL AND OIL: Fuel Oil Fuel and oil mixing ratio (Wide open throttle) Fuel tank capacity Oil tank capacity	 Reserve l (US gal, Imp gal) l (US gal, Imp gal) l (US gal, Imp gal)	Unleaded regular gasoline 2 stroke outboard motor oil 50 : 1 50 (13.2, 11.0) 12 (3.17, 2.64) 3.8 (1.0, 0.8)



MAINTENANCE SPECIFICATIONS

ENGINE

Item	Unit	XL700
Cylinder head: Warpage limit	mm (in)	0.1 (0.004)
Cylinder: Bore size Wear limit Taper limit Out of round limit	mm (in) mm (in) mm (in) mm (in)	81.00 – 81.02 (3.189 – 3.190) 81.1 (3.193) 0.08 (0.003) 0.05 (0.002)
Piston: Piston size Measuring point* Piston clearance Wear limit Offset  (exhaust side)	mm (in) mm (in) mm (in) mm (in) mm (in)	80.925 – 80.950 (3.186 – 3.187) 10 (0.39) 0.080 – 0.085 (0.0031 – 0.0033) 0.135 (0.0053) 0.5 (0.02)
Piston ring: Type Sectional sketch Side clearance End gap  (installed)	mm (in) mm (in) mm (in)	Keystone 1.2 × 2.9 (0.05 × 0.11) 0.02 – 0.07 (0.001 – 0.003) 0.2 – 0.4 (0.008 – 0.016)
Piston pin: Outside diameter Limit	mm (in) mm (in)	19.995 – 20.000 (0.7872 – 0.7874) 19.98 (0.786)
Crankshaft: Crank width Run out limit Connecting rod big end side clearance Small end free play limit “A” “B” “C” “D”	mm (in) mm (in) mm (in) mm (in)	61.95 – 62.00 (2.439 – 2.441) 0.05 (0.002) 0.25 – 0.75 (0.010 – 0.030) 2.0 (0.08)
Carburetor: Stamped mark Main nozzle Main jet Pilot jet Low speed screw Throttle valve Valve seat High speed screw Trolling speed (M.J.) (P.J.) (Th.V.) (V.S.)	ø mm (in) Turns out Turns out r/min	62T02F/R 2.5 (0.10) 120 (F), 130 (R) 67.5 5/8, ± 1/4 190 1.5 (0.06) 5/8 (F), 1-1/8 (R) ± 1/4 1,250 ± 50
Reed valve: Thickness Valve lift Bending limit	mm (in) mm (in) mm (in)	0.2 (0.01) 9.0 ± 0.2 (0.35 ± 0.01) 0.2 (0.008)



JET UNIT

Item	Unit	XL700
Jet pump:		
Impeller clearance	mm (in)	0.25 – 0.35 (0.010 – 0.014)
Service limit	mm (in)	0.6 (0.024)
Impeller shaft run out	mm (in)	0.3 (0.012)

ELECTRICAL

Item	Unit	XL700
Ignition system:		
Type		CDI magneto
Ignition timing at 1,200 rpm	Degree	15 BTDC
at 5,500 rpm	Degree	21 BTDC
Stator:		
Model/Manufacturer		F4T31671/MITSUBISHI
Pulser coil resistance (color)	Ω	12.6 – 15.4 (W/R – B)
Charging coil resistance (color)	Ω	497.7 – 608.3 (Br/W – B)
CDI unit:		
Stamped mark		62T-01
Model/Manufacturer		F8T13175/MITSUBISHI
Over revolution limit	r/min	7,000 – 7,400
Overheat revolution control	r/min	3,000 – 3,800
Ignition coil:		
Stamped mark		62E-11
Model/Manufacturer		F6T532/MITSUBISHI
Primary winding resistance	Ω	0.078 – 0.106 (Or – B)
Secondary winding resistance	kΩ	14.3 – 30.5 (High tension cords)
Charging system:		
Type		Flywheel magneto
Lighting coil resistance (color)	Ω	1.14 – 1.40 (G – G)
Rectifier regulator:		
Model/Manufacturer		SH589-12/SHINDENGEN
Regulator voltage	V	14.3 – 15.3
Thermo switch:		
ON	°C (°F)	76 – 84 (169 – 183)
OFF	°C (°F)	63 – 77 (145 – 171)
Starter motor:		
Model/Manufacturer		SM13237/MITSUBA
Brush length	mm (in)	12.5 (0.44)
Wear limit	mm (in)	6.5 (0.26)
Commutator under cut	mm (in)	0.7 (0.028)
Limit	mm (in)	0.2 (0.008)
Commutator diameter	mm (in)	28.0 (1.10)
Limit	mm (in)	27.0 (1.06)
Fuse:		
Rating	V – A	12-10



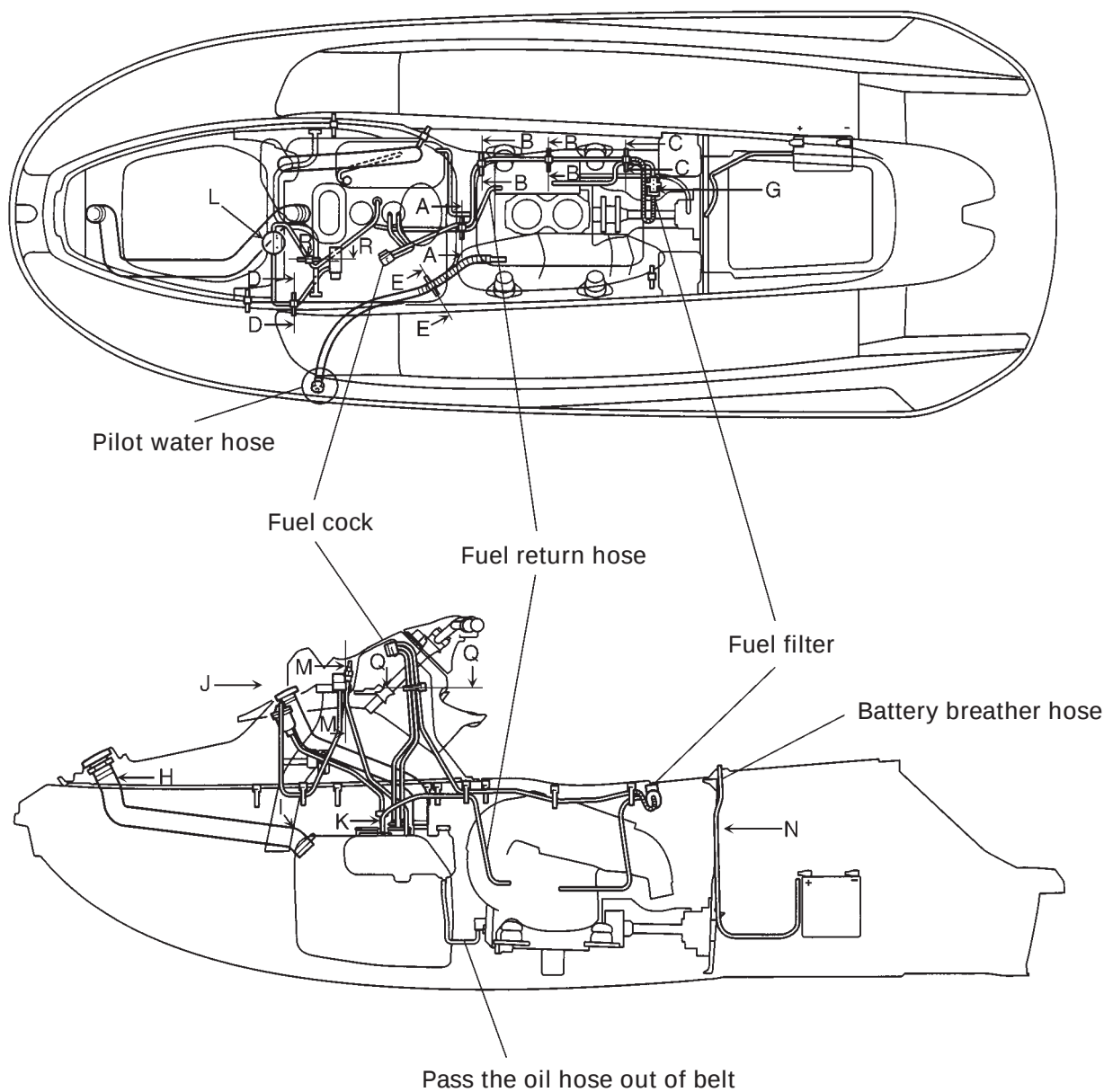
TIGHTENING TORQUE

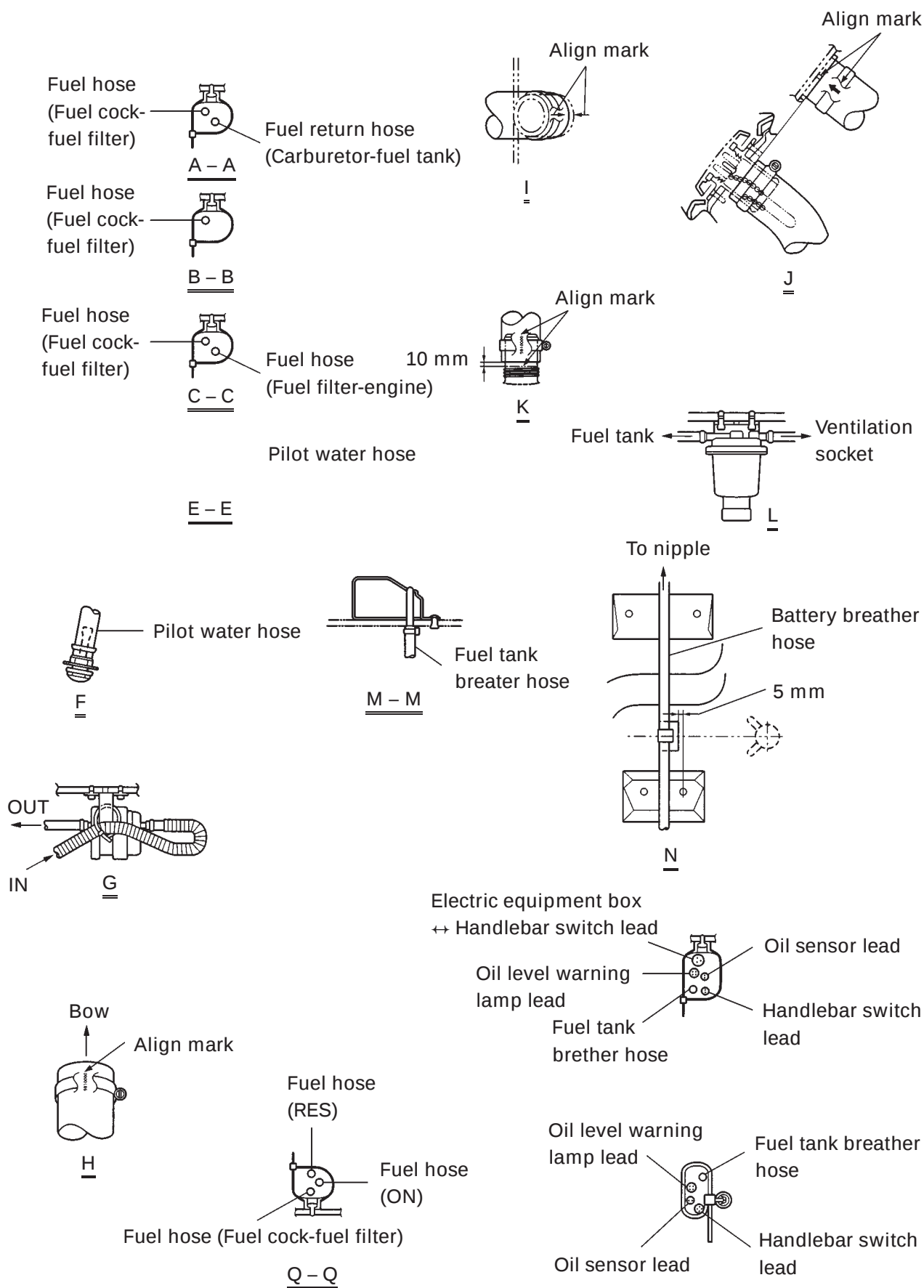
SPECIFIED TORQUE

Part to be tightened		Part name	Size	Q'ty	Tightening torque			Remark
					Nm	m•kg	ft•lb	
ENGINE:								
Electric box		Bolt	M8	2	17	1.7	12	 271
Mounting bolt		Bolt	M8	4	17	1.7	12	 271
Reed valve		Screw	M4	16	1	0.1	0.7	 242
Exhaust ring		Bolt	M8	4	30	3.0	22	 271
Exhaust chamber		Bolt	M10	2	40	4.0	29	 271
Muffler stay		Bolt	M10	4	40	4.0	29	 271
Exhaust chamber-Muffler stay	1st	Bolt	M10	2	2	0.2	1.4	 271
	2nd				47	4.7	34	
Muffler 1	1st	Bolt	M10	8	22	2.2	16	 271
	2nd				40	4.0	29	
Cylinder body	1st	Bolt	M10	6	23	2.3	17	 572
	2nd				40	4.0	29	
Cylinder head	1st	Bolt	M8	10	15	1.5	11	 572
	2nd				36	3.6	25	
Spark plug		Bolt	M14	2	25	2.5	18	
Flywheel bolt		Bolt	M10	1	70	7.0	50	 F
Coupling		Nut	M27	1	37	3.7	27	 572
Crankcase	1st	Bolt	M8	8	15	1.5	11	 572
	2nd				28	2.8	20	
Mount bracket	1st	Bolt	M10	7	23	2.3	17	 271
	2nd				53	5.3	38	
Flame arrester cover		Bolt	M6	6	2	0.2	1.4	 572
Starter motor terminal nut		Nut	M6	1	5	0.5	3.6	
JET UNIT:								
Mounting bolt		Bolt	M10	4	34	3.4	24	 271
		Bolt	M6	2	7	0.7	5.1	 242
Ride plate		Bolt	M8	6	17	1.7	12	 242
Impeller		Bolt	M20	1	18	1.8	13	 572
Coupling		Nut	M27	1	37	3.7	27	 572
Intermediate housing		Bolt	M8	3	17	1.7	12	 271
Housing		Bolt	M10	4	34	3.4	25	



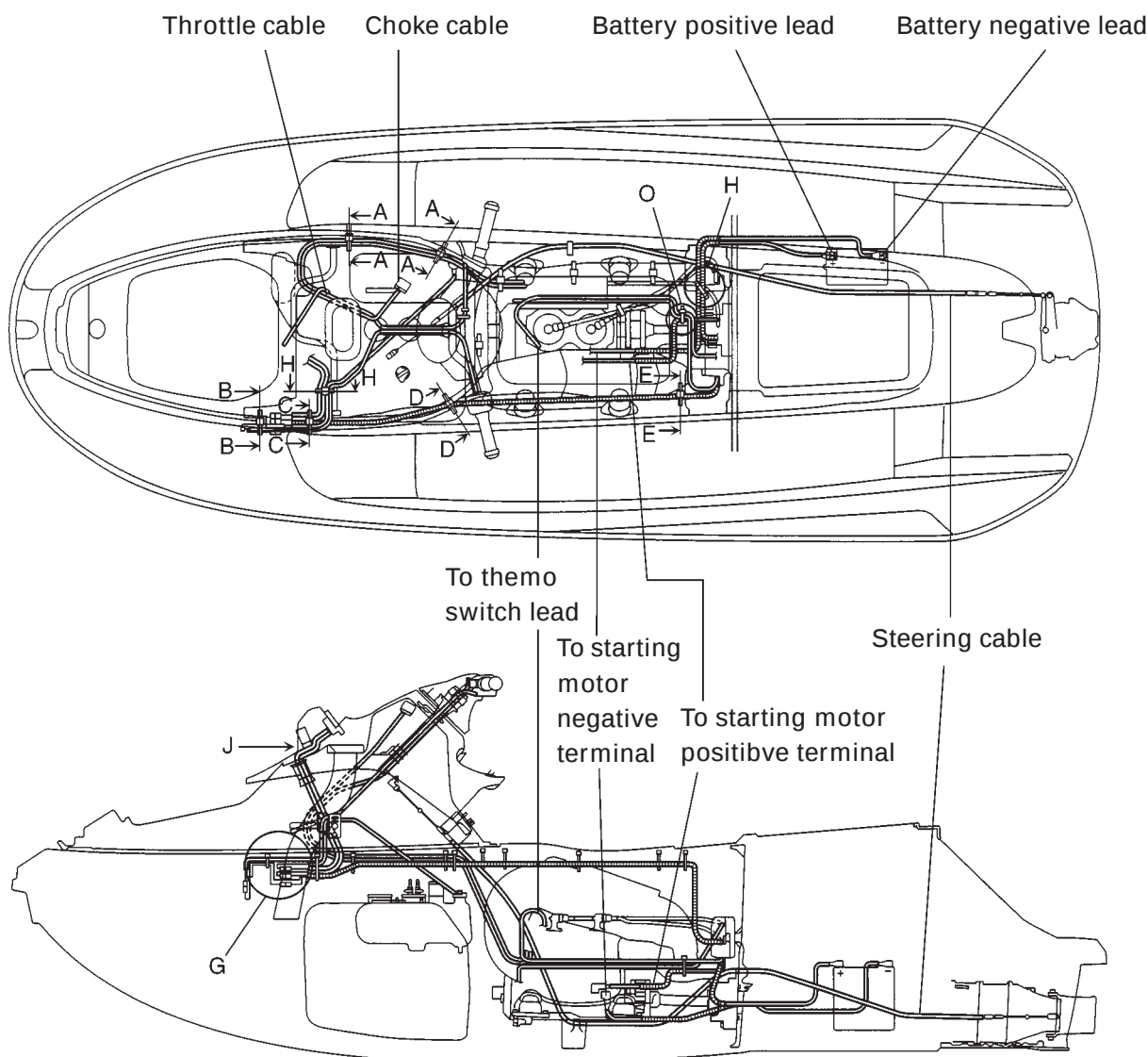
FUEL LINE ROUTING

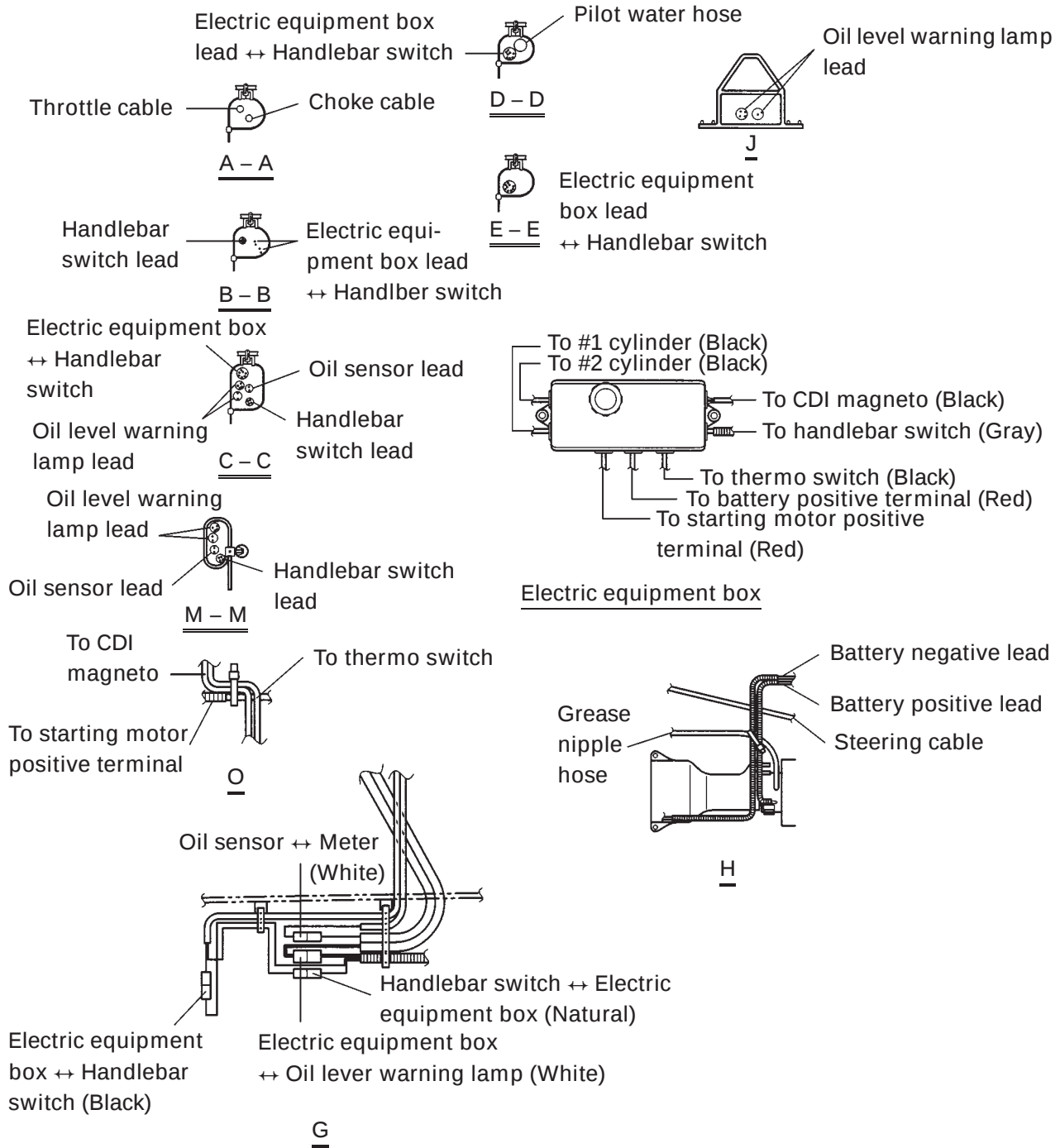






CABLE LINE ROUTING






MAINTANCE 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	Inspection/Adjustment			○		3-2
Throttle cable	Inspection/Adjustment			○		3-3
Carburetor throttle shaft	Inspection			○		—
Choke cable	Inspection/Adjustment			○		3-4
FUEL SYSTEM:						
Fuel tank	Cleaning				○	4-7
Fuel filter	Cleaning/Replacement	○			○	3-6
Fuel line	Inspection			○		13
Trolling speed	Inspection/Adjustment			○		12
Carburetor setting	Inspection/Adfustment	○		○		12
OIL INJECTION SYSTEM:						
Oil injection system	Inspection/Cleaning	○			○	3-8
POWER UNIT:						
Spark plug	Inspection/Cleaning/ Adjustment	○	○	○		3-10
Cooling-water passage	Cleaning/Flashing		○			—
Coupling rubber	Inspection				○	—
ELECTRICAL:						
Battery	Inspection	○				3-11
JET PUMP UNIT:						
Impeller	Inspection		○	○		3-13
Bilge strainer	Cleaning		○	○		3-13
GENERAL:						
Bolt and nut	Retightening	○		○		—
Drain plug	Inspection/Replacement				○	3-14
Greasing point	Greasing			○		3-14
Bearing housing	Greasing	○*1		○*2		3-15

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

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

PERIODIC SERVICE

FUEL SYSTEM

Trolling speed inspection and adjustment

1. Check:

- Trolling speed
Out of specification → Adjust.



Trolling speed:

$1,250 \pm 50$ r / min

Checking steps: (vehicle on water)

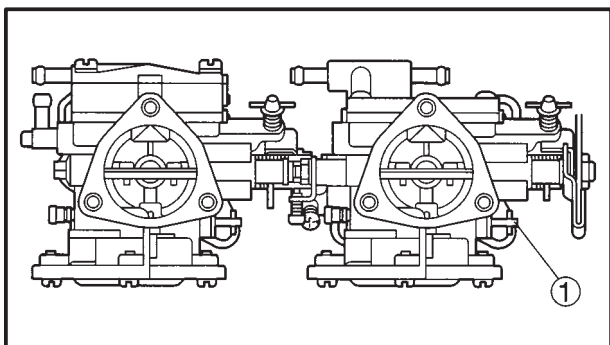
- Start the engine and allow it to warm up for a few minutes.
- Attach the engine tachometer to the spark plug lead.



Engine tachometer:

YU-8036-A / 90890-06760

- Measure the engine trolling speed.



2. Adjust:

- Trolling speed

Adjustment steps:

- Screw in the low speed screws ① until they are lightly seated.
- Back the screws out by the specified number of turns.



Low speed screw:

$5/8 \pm 1/4$ (turns out)

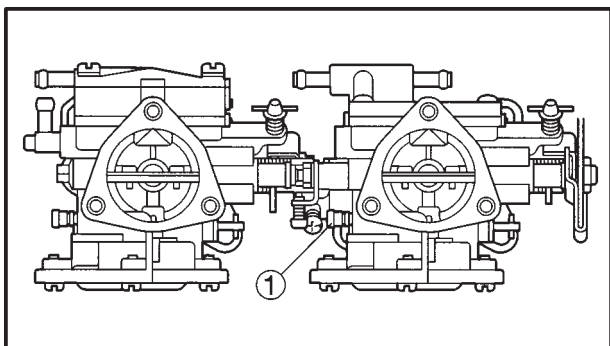
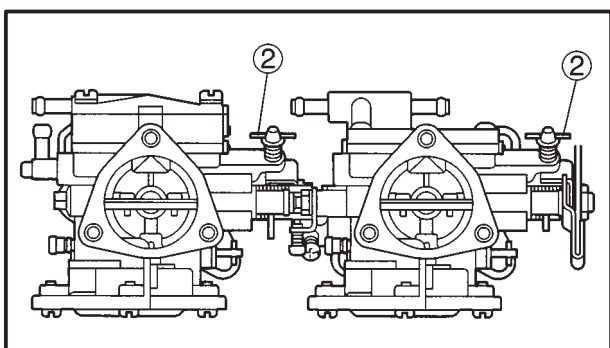
- Start the engine and allow it to warm up for a few minutes.
- Turn the throttle stop screw(s) ② in or out until the specified speed is obtained.

Turning in

Increase trolling speed.

Turning out

Decrease trolling speed.



Carburetor adjustment

1. Adjust:

- High speed screw

Adjustment steps:

- Screw in the high speed screws ① until they are lightly seated.
- Back the screws out by the specified number of turns.



High speed screw:

$5/8$ (F), $1-1/8$ (R) $\pm 1/4$ (turns out)

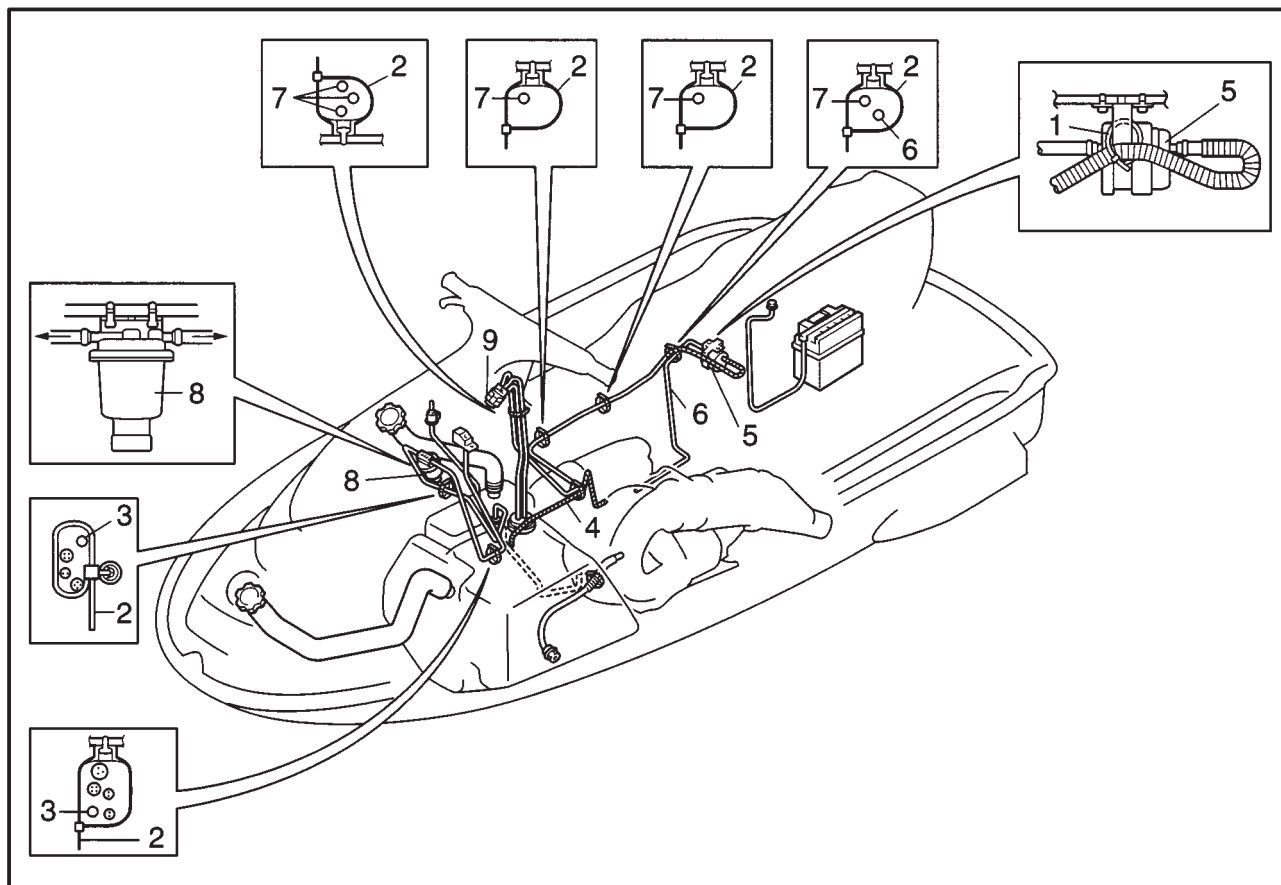


FUEL LINE

⚠ WARNING

Gasoline (Petrol) is highly flammable and explosive. Handle with special care.

EXPLODED DIAGRAM



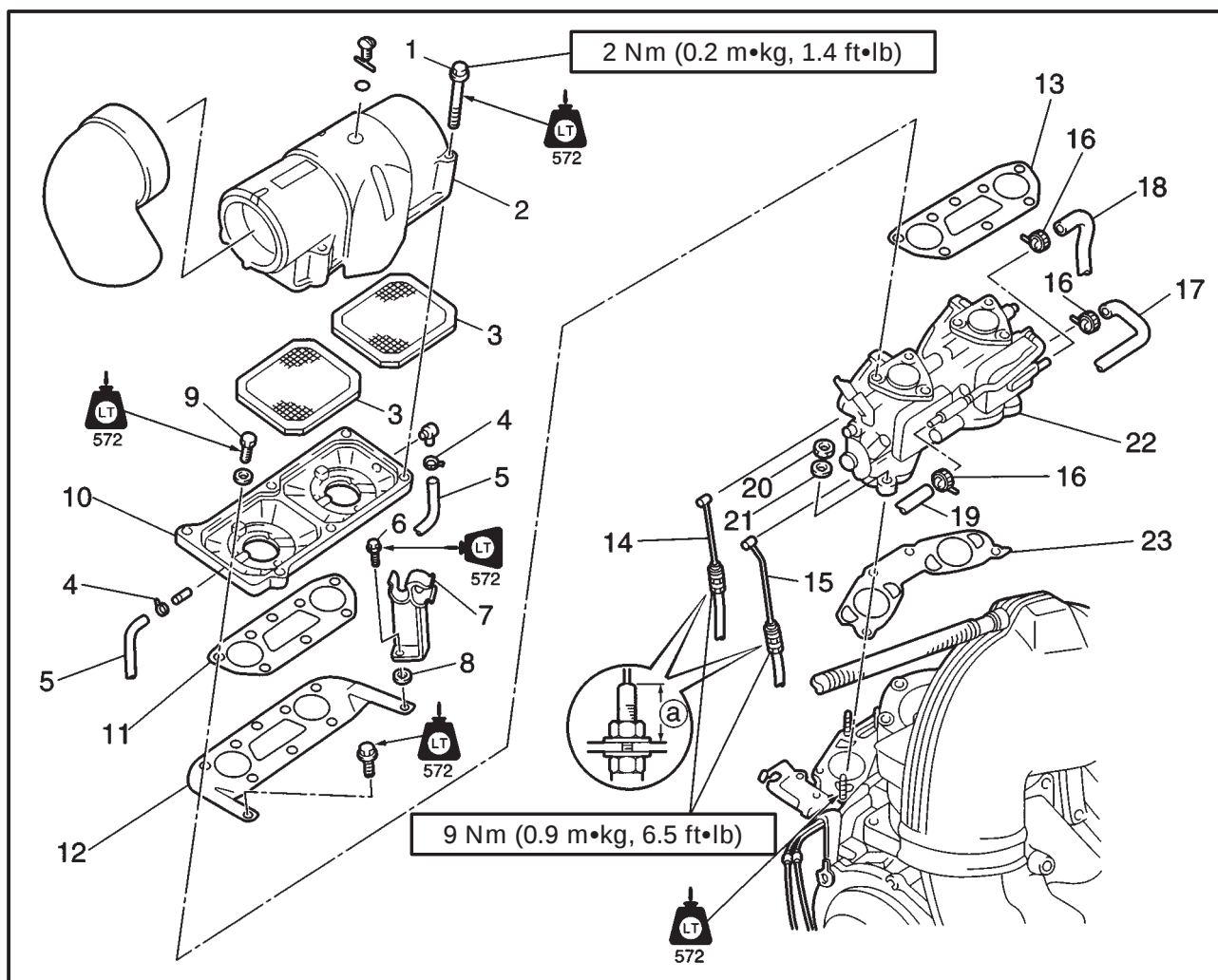
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	AIR VENTILATION HOSE, FUEL COCK AND FUEL FILTER REMOVAL		Follow the left "Step" for removal.
1	Hose tie	1	
2	Clamp	6	
3	Air ventilation hose	1	
4	Fuel hose (RETURN)	1	
5	Fuel filter	1	
6	Fuel hose	1	
7	Fuel hose	3	
8	Check valve	1	
9	Fuel cock body	1	
			Reverse the removal steps for installation.



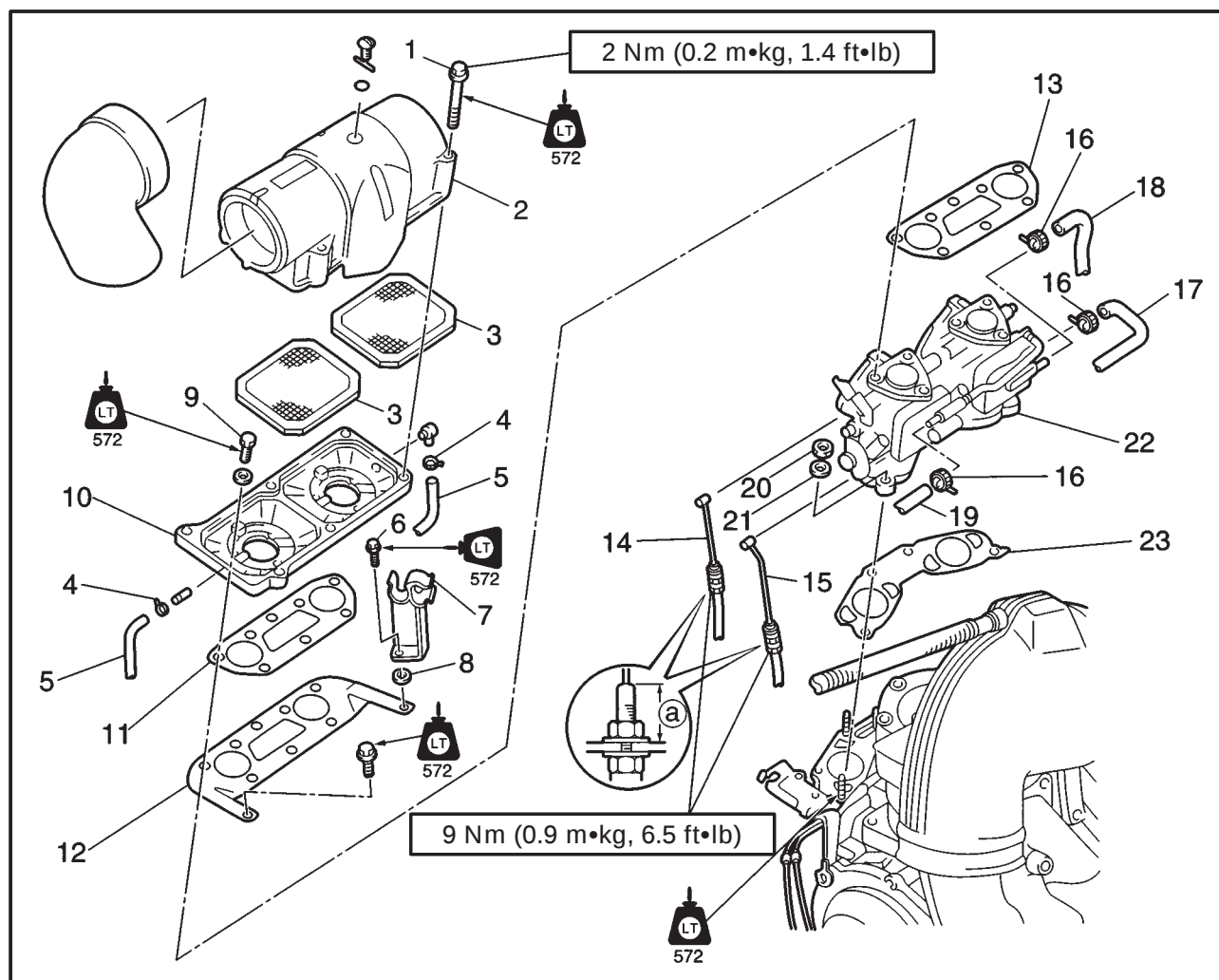
CARBURETOR UNIT REMOVAL

EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

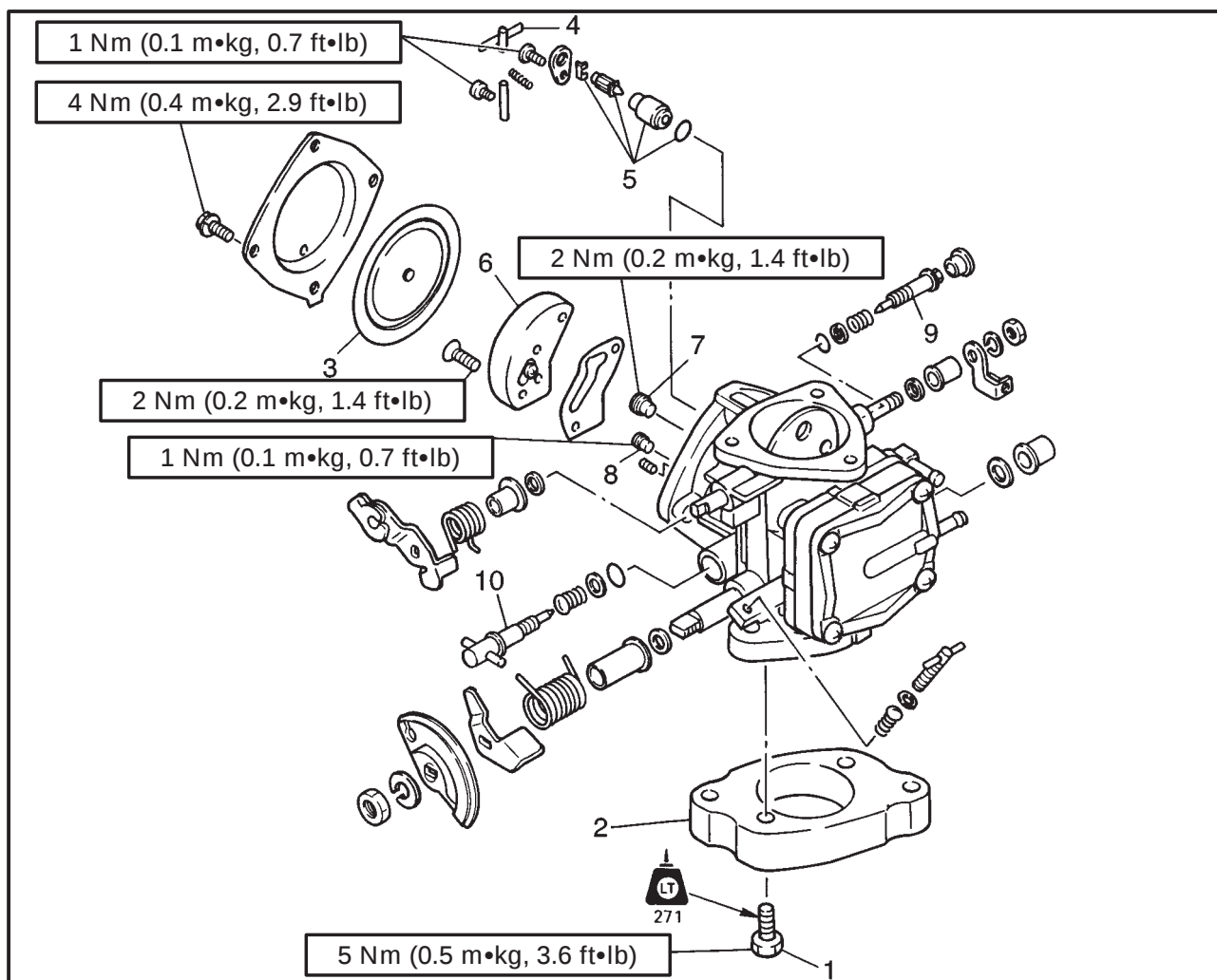
Step	Procedure/Part name	Q'ty	Service points
	CARBURETOR REMOVAL		
	Fuel cock		Follow the left "Step" for removal. NOTE: _____ Turn the fuel cock to "OFF".
	High tension cord		
1	Bolt	6	
2	Cover 1	1	
3	Flame arrester	2	
4	Hose tie	2	
5	Oil delivery hose	2	
6	Bolt (with washer)	2	
7	Cord clamp	1	
8	Plate washer	1	
9	Bolt (with washer)	6	
10	Cover 2	1	
11	Cover gasket	1	
12	Plate	1	



Step	Procedure/Part name	Q'ty	Service points
13	Cover gasket	1	 Cable guide set position ① : 17 mm (0.67 in) Between cable guide top and plate top.
14	Choke cable	1	
15	Throttle cable	1	
16	Hose tie	3	Reverse the removal steps for installation.
17	Fuel hose (fuel filter-fuel pump)	1	
18	Pulse hose (fuel pump-crank case)	1	
19	Fuel hose (carburetor-fuel tank)	1	
20	Nut	4	
21	Plate washer	4	
22	Carburetor assembly	1	
23	Gasket	1	

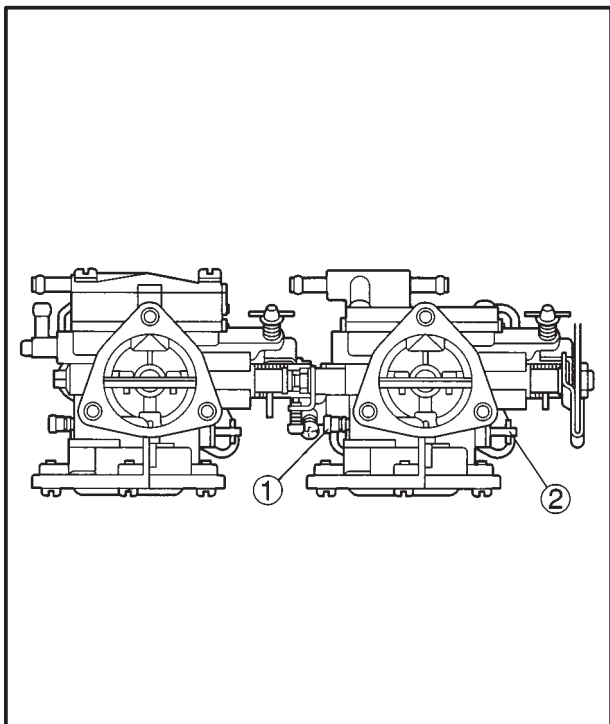


CARBURETOR EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	CARBURETOR DISASSEMBLY		
	Carburetor assembly		Follow the left "Step" for removal. Refer to "CARBURETOR REMOVAL".
1	Bolt	4	
2	Collar	2	
3	Diaphragm assembly	2	
4	Float arm	2	
5	Needle valve assembly	2	
6	Body assembly	2	
7	Main jet	2	
8	Pilot jet	2	
9	High speed screw	2	
10	Low speed screw	2	
			Reverse the removal steps for installation.

**SERVICE POINTS****High and low speed screws adjustment**

1. Adjust:
 - High speed screw
 - Low speed screw

Adjustment steps:

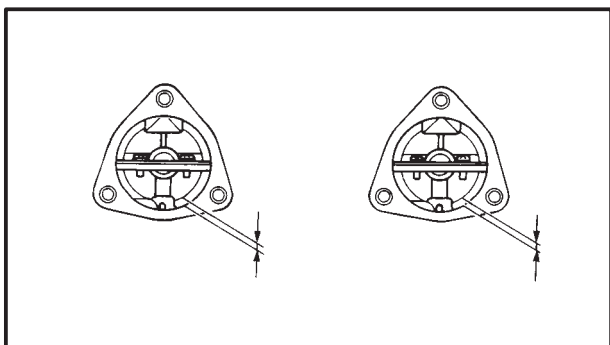
- Screw in the high speed screw ① or lower speed screw ② until it is lightly seated.
- Back out by the specified number of turns.

**High speed screw:**

5/8 (#1), 1-1/8 (#2) ± 1/4 turns out

Low speed screw:

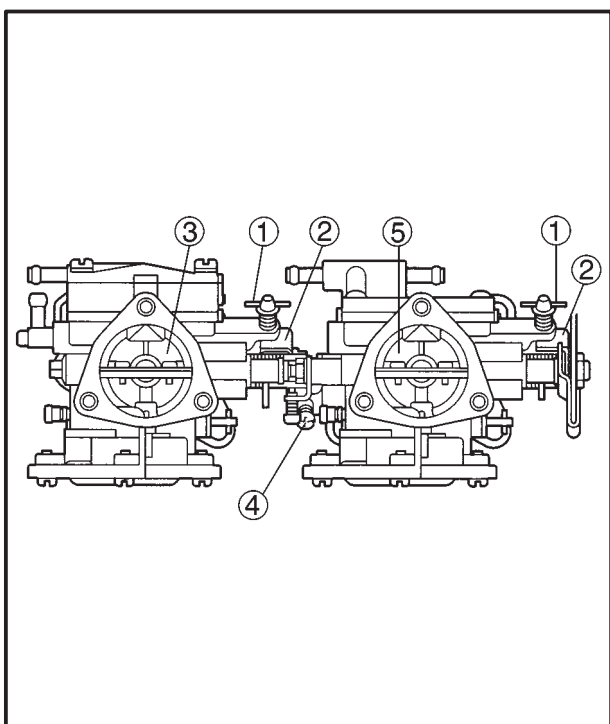
5/8 (#1) ± 1/4 turns out

**Throttle valve synchronization inspection and adjustment**

1. Check:
 - Throttle valve synchronization
 Out of specification → Adjust.

Checking steps:

- While turning the throttle lever, check the opening of all throttle valves.



2. Adjust:
 - Throttle valve synchronization

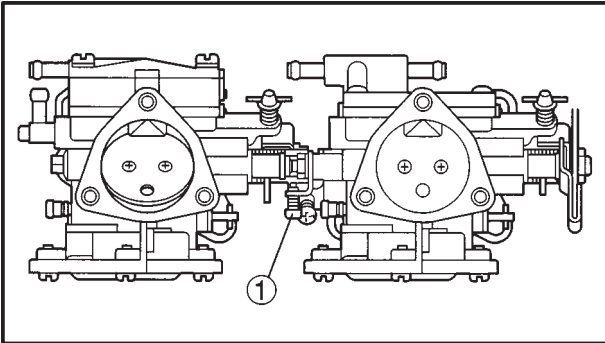
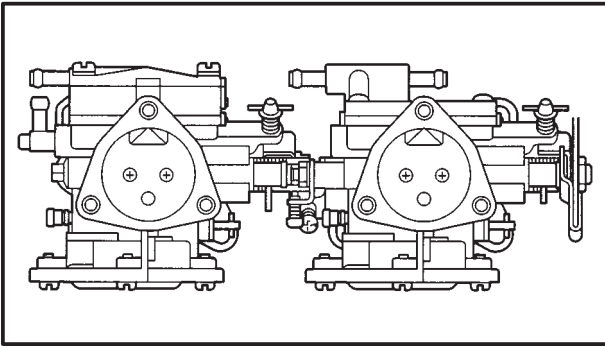
Adjustment steps:

- Turn out the idle adjust screws ① until their tips are apart from the throttle lever ②.

NOTE:

Record the set position of the idle adjust screw.

- Check that the throttle valve "R" ③ is fully closed.
- Turn the synchronization screw ④ in or out until the throttle valve "F" ⑤ is fully closed.
- Turn in the idle adjust screws to the set position.



Choke valve synchronization inspection and adjustment

1. Check:
 - Choke valve synchronization
Out of specification → Adjust.

Checking steps:

- While turning the choke lever, check the opening of all choke valves.

2. Adjust:
 - Choke valve synchronization

Adjustment steps:

- a. Turn in or out the synchronization screw ① to bring all the choke valves into a fully closed position when the choke lever is turned on the closed side.

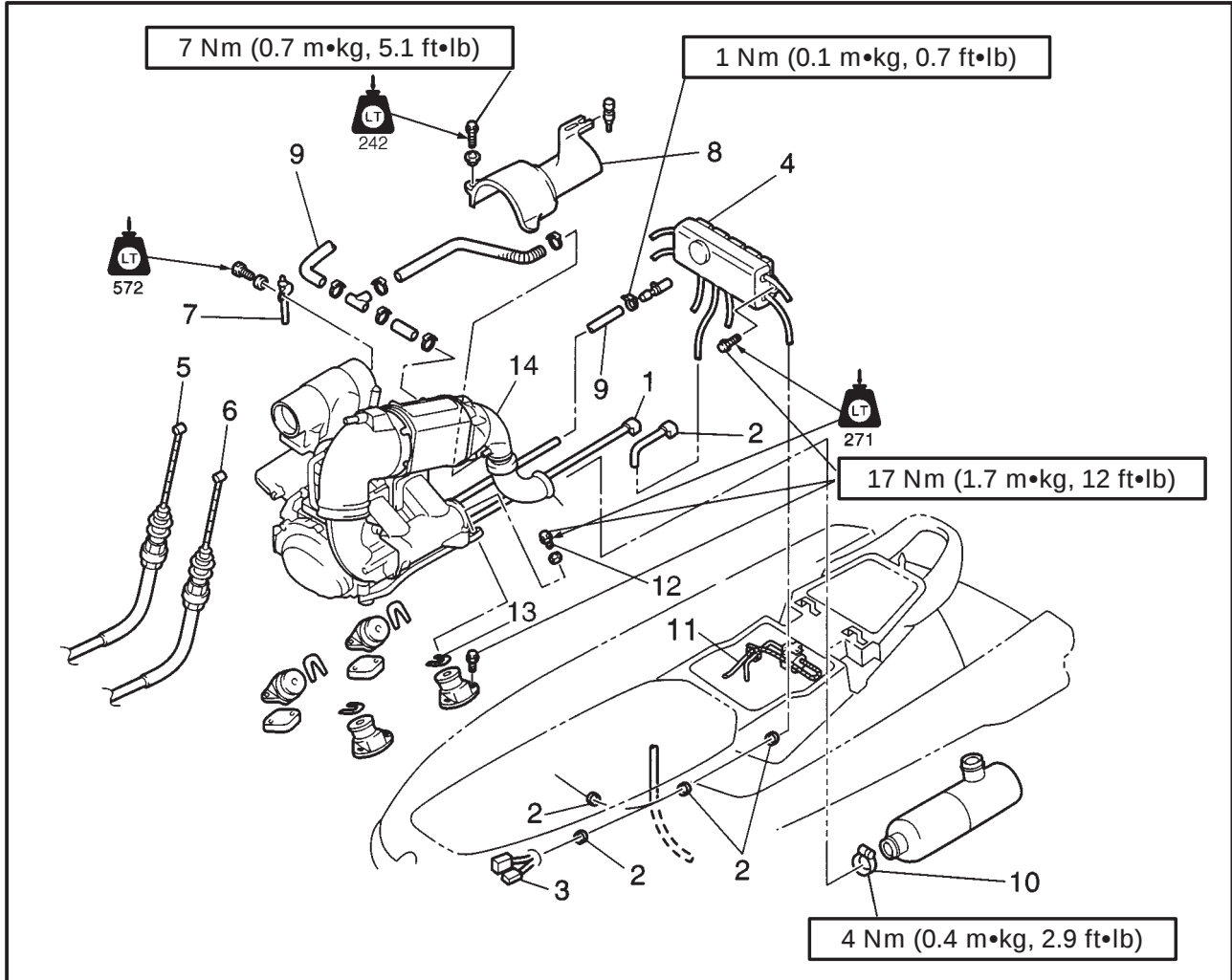
Carburetor assembly

1. Adjust:
 - Trolling speed
Refer to the “FUEL SYSTEM” section in chapter 3.



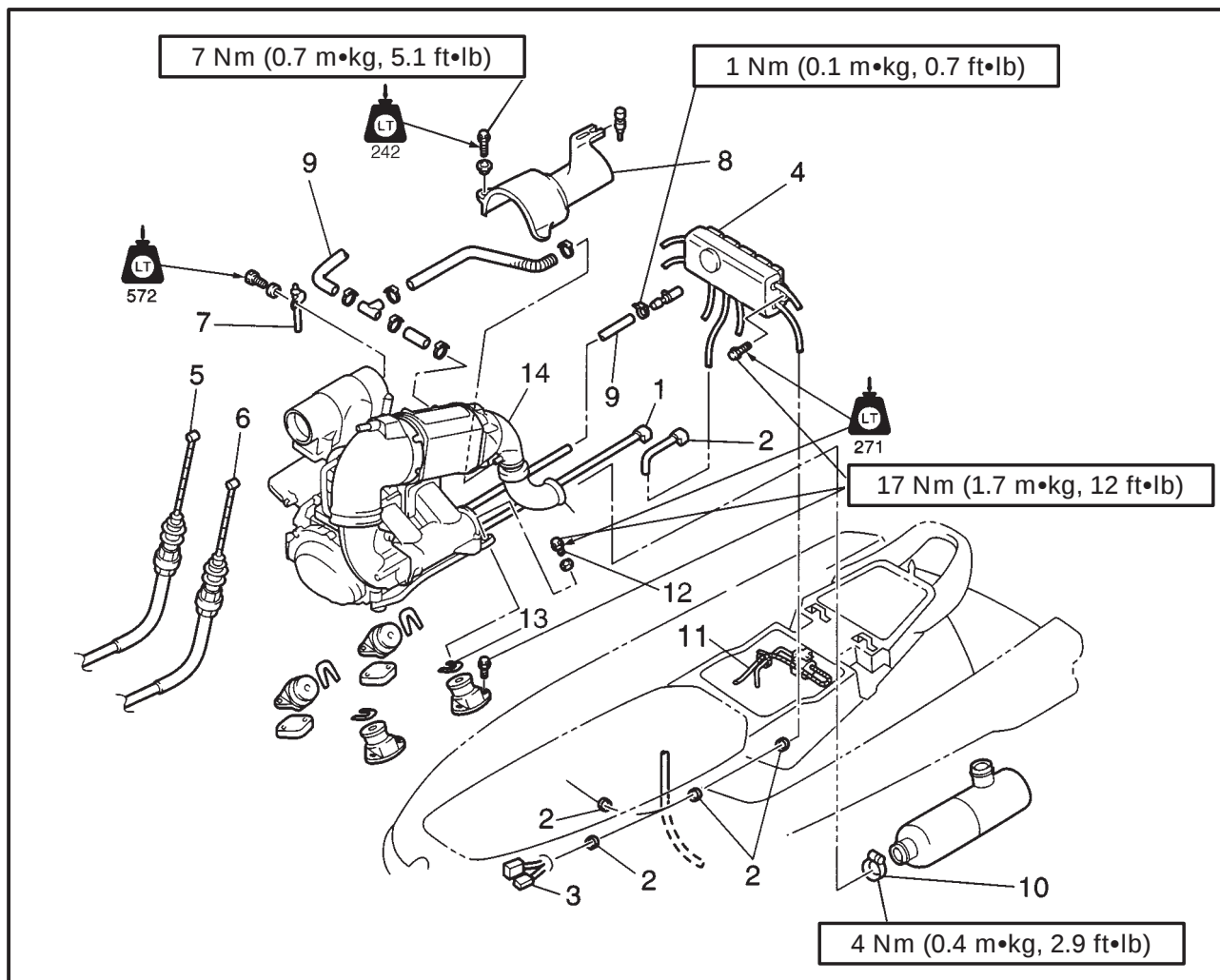
ENGINE UNIT REMOVAL

EXPLODED DIAGRAM



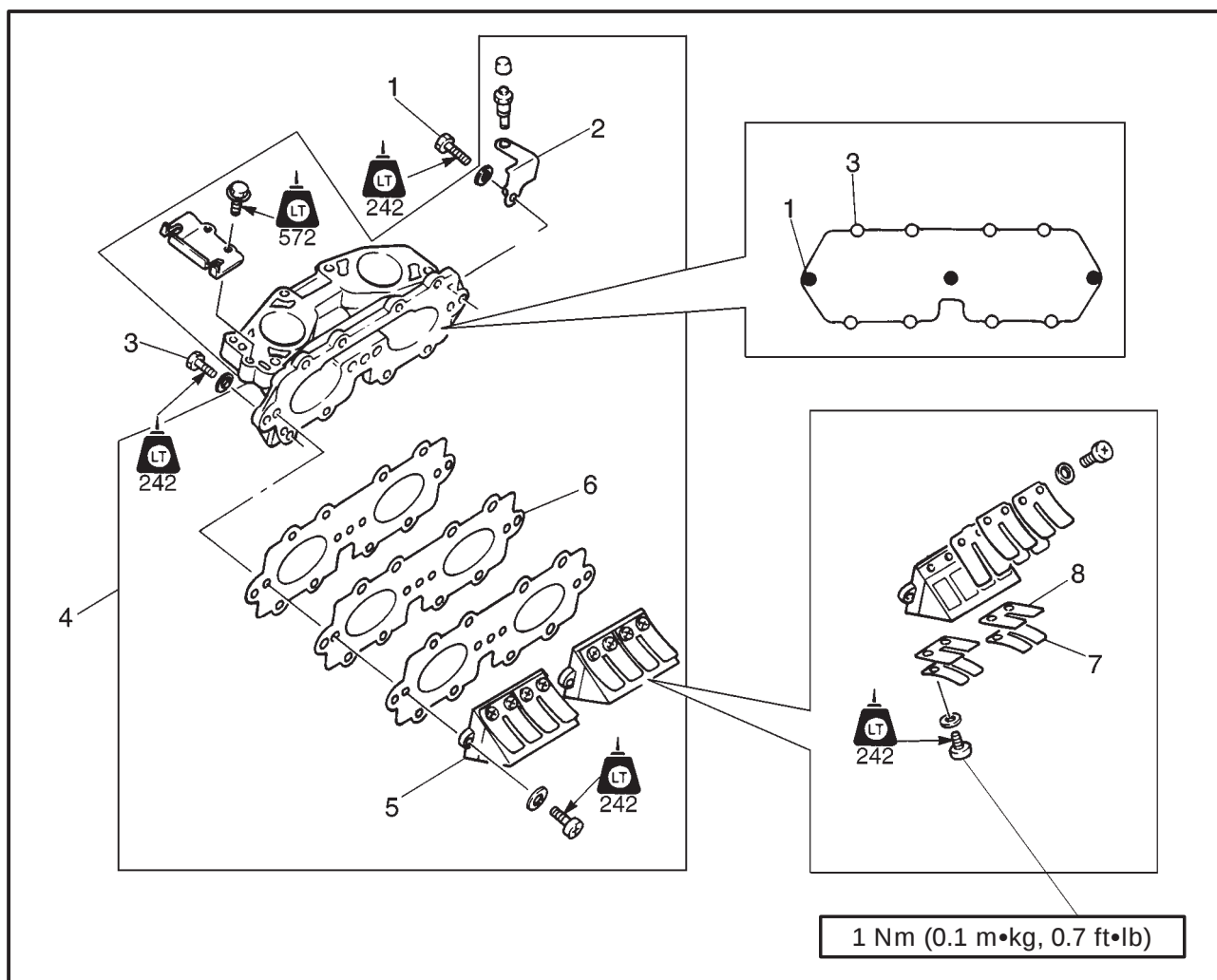
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	ENGINE UNIT REMOVAL		
	Engine hood assembly		Follow the left "Step" for removal. Refer to the "ENGINE HOOD REMOVAL" section in chapter 8.
	Oil tank assembly		Refer to the "OIL TANK AND FUEL TANK REMOVAL" section in chapter 4.
	Fuel tank assembly		
	Ventilation hose		Refer to the "DECK" section in chapter 8.
1	Battery lead	2	
2	Wire clamp	4	
3	Lead coupler	2	
4	Electrical box	1	
5	Choke cable	1	
6	Throttle cable	1	
7	Housing grease nipple plate	1	
8	Coupling cover	1	
9	Water hose	3	



Step	Procedure/Part name	Q'ty	Service points
10	Clamp	1	Reverse the removal steps for installation.
11	Fuel hose	2	
12	Engine mounting bolt	4	
13	Shim	*	
14	Engine unit	1	

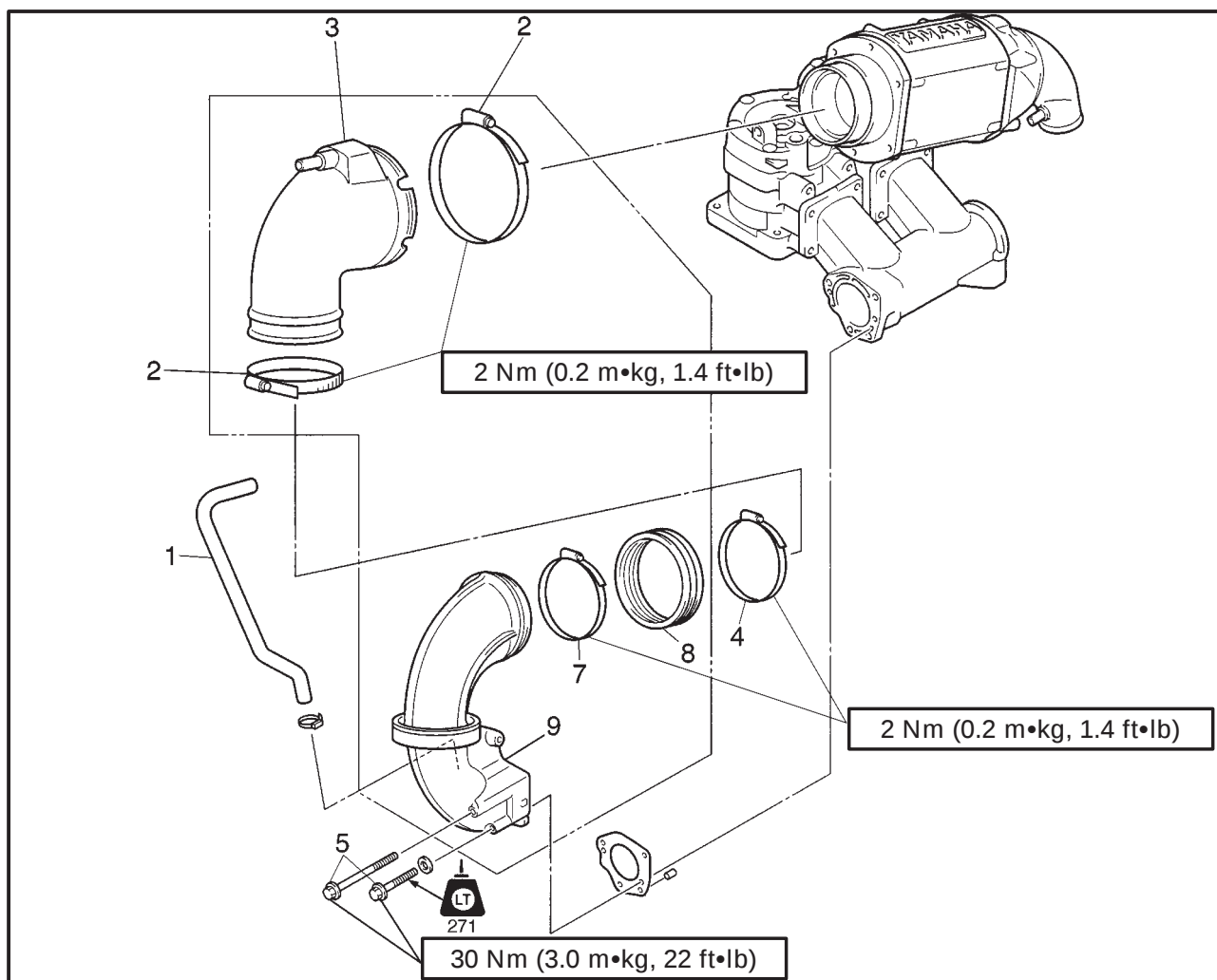
REED VALVE EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	REED VALVE REMOVAL Carburetor assembly		Follow the left “Step” for removal. Refer to the “CARBURETOR REMOVAL” section in chapter 4.
1	Bolt (with washer)	3	6 × 35 mm
2	Plate	1	
3	Bolt (with washer)	8	6 × 25 mm
4	Intake manifold assembly	1	
5	Reed valve assembly	2	
6	Plate	1	
7	Valve stopper	4	
8	Reed valve	4	
			Reverse the removal steps for installation.

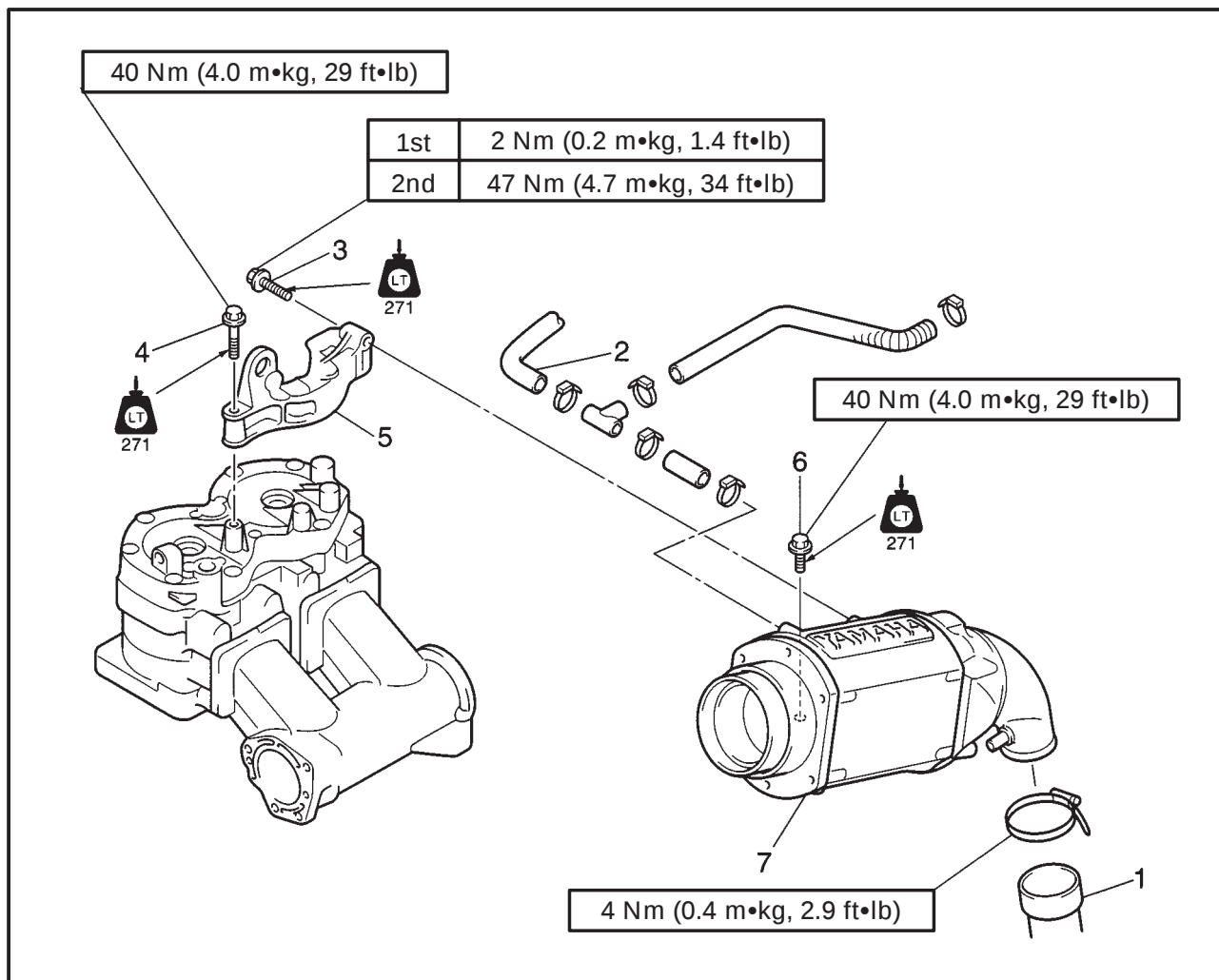
EXHAUST RING EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	EXHAUST RING REMOVAL		
1	Pilot water hose	1	Follow the left "Step" for removal.
2	Clamp	2	
3	Exhaust joint	1	
4	Clamp	1	NOTE: _____ •Pull and side the exhaust joint. •Loosen the clamp on the chamber side.
5	Bolt (with washer)	4	
6	Ring assembly	1	
7	Clamp	1	
			CAUTION: _____ Tighten the clamp before installing the ring on the muffler.
8	Joint	1	
9	Exhaust ring	1	Reverse the removal steps for installation.

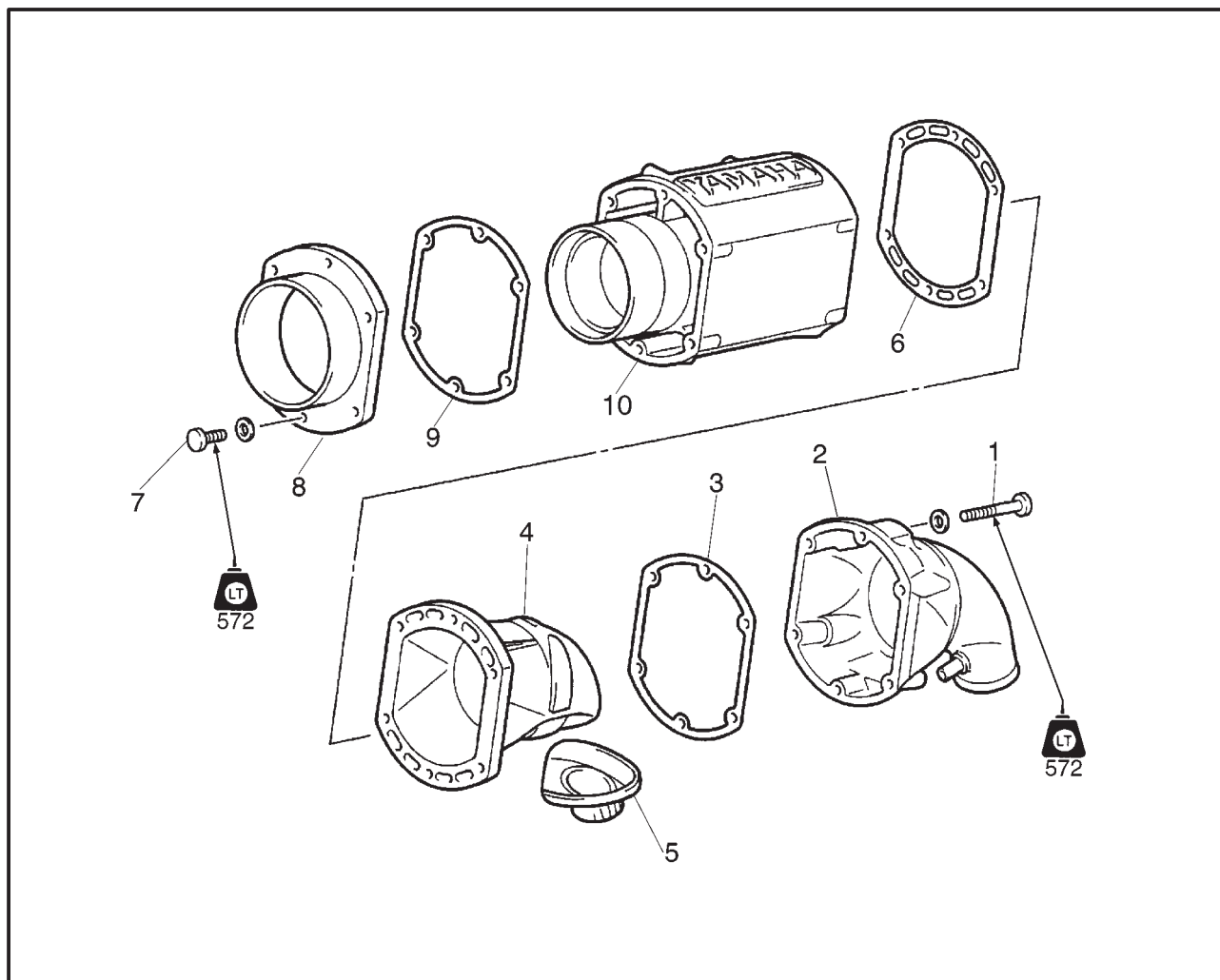
EXHAUST CHAMBER REMOVAL
EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	EXHAUST CHAMBER REMOVAL		
	Ring		Follow the left "Step" for removal. Refer to "EXHAUST RING".
1	Exhaust hose	1	
2	Water outlet hose	1	
3	Bolt (exhaust chamber)	2	NOTE: _____ Tighten the bolts in sequence.
4	Bolt (muffler stay)	4	
5	Muffler stay	1	
6	Bolt	2	
7	Exhaust chamber assembly	1	Reverse the removal steps for installation.

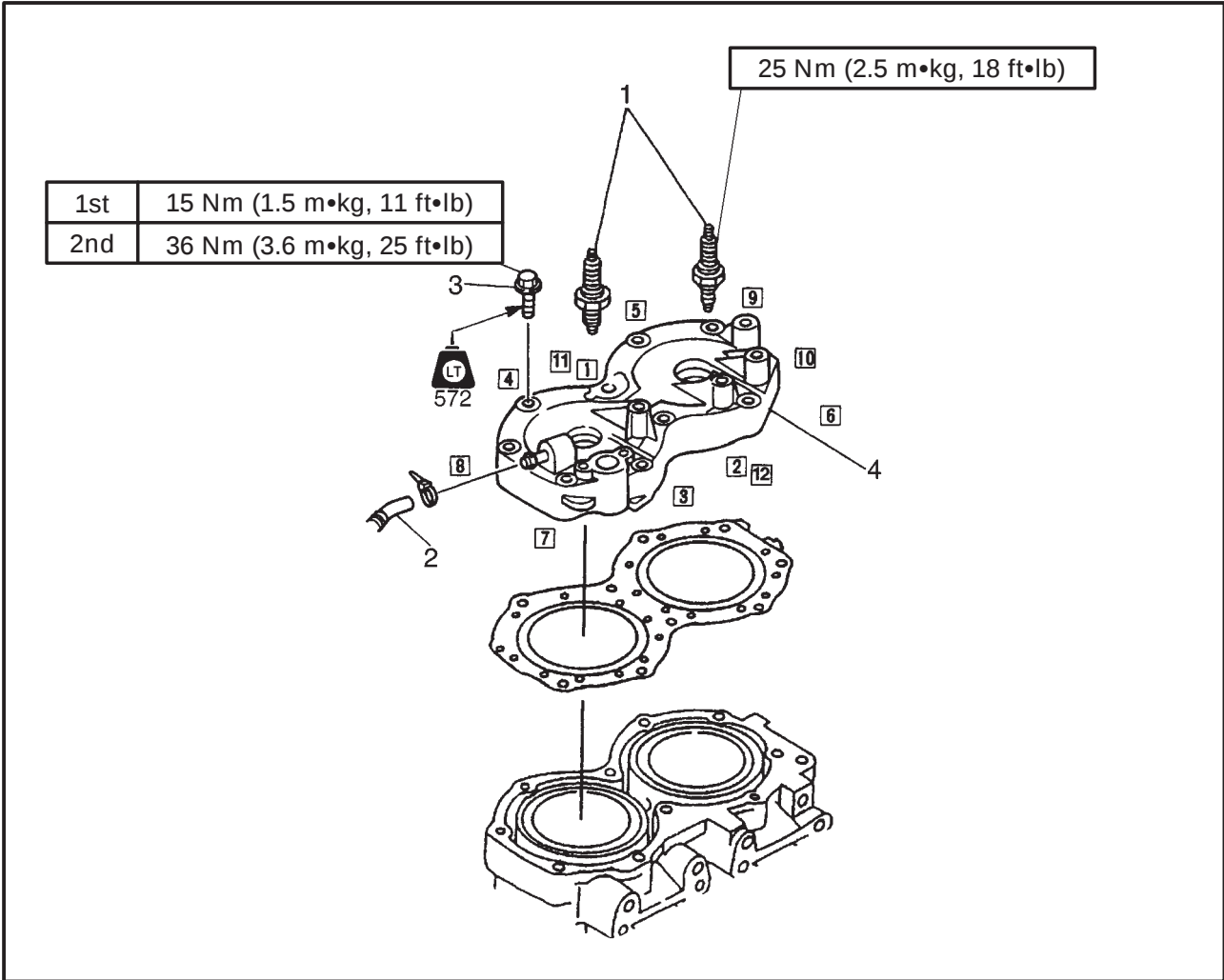
EXHAUST CHAMBER EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	CHAMBER DISASSEMBLY Exhaust chamber assembly		Follow the left "Step" for removal. Refer to "EXHAUST CHAMBER REMOVAL".
1	Bolt (with washer)	6	
2	Exhaust outer cover 1	1	
3	Gasket	1	
4	Exhaust inner cover	1	
5	Seal	1	
6	Gasket	1	
7	Bolt (with washer)	6	
8	Exhaust outer cover 2	1	
9	Gasket	1	
10	Exhaust chamber	1	
			Reverse the removal steps for installation.

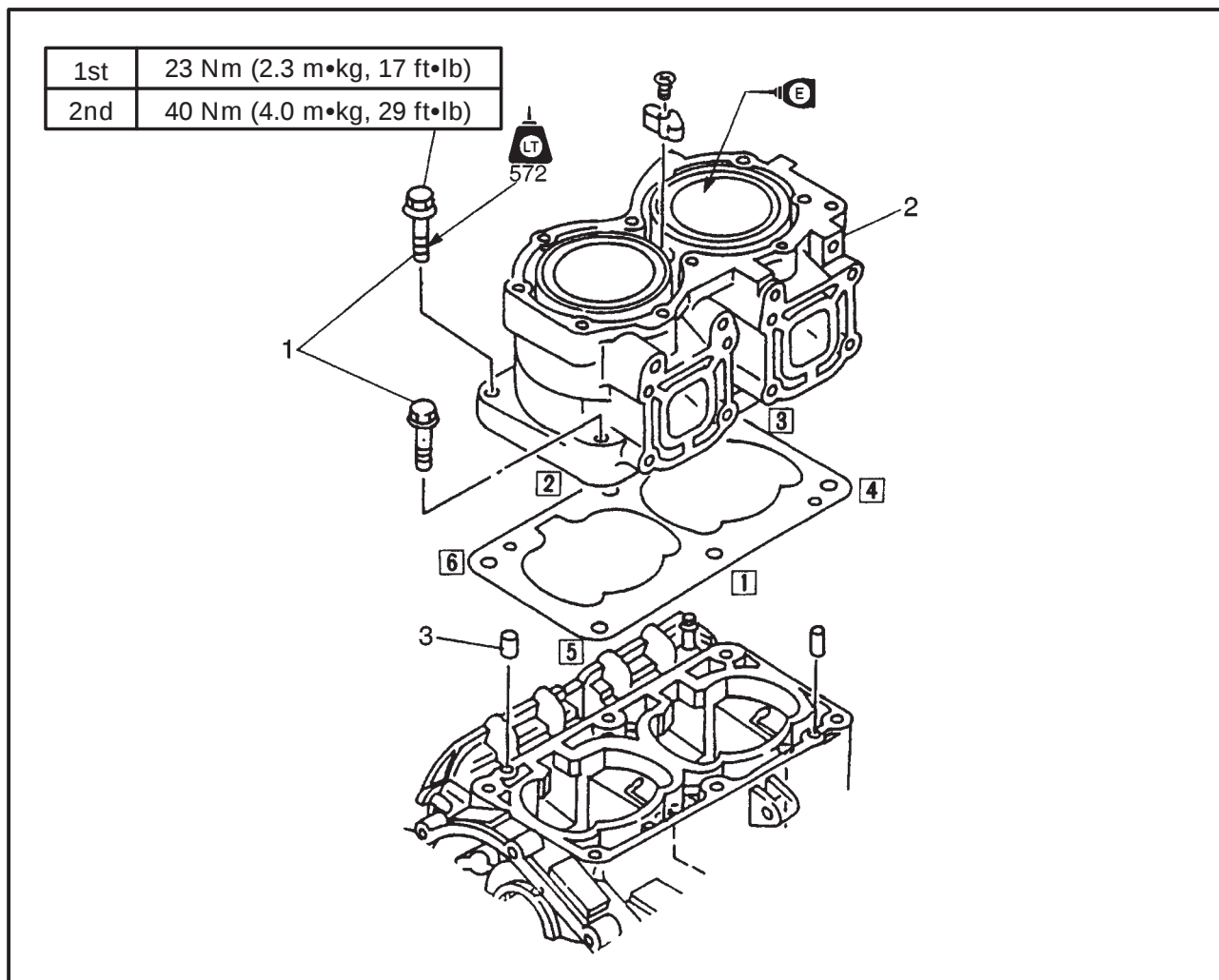
CYLINDER HEAD
EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

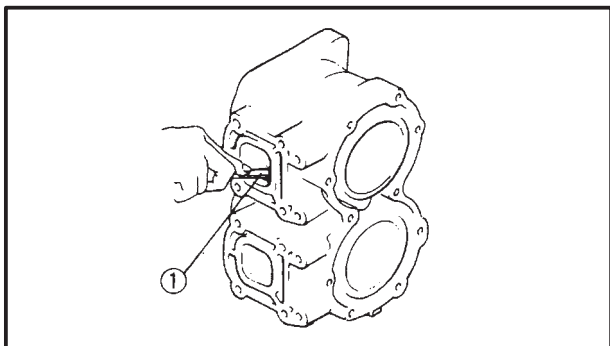
Step	Procedure/Part name	Q'ty	Service points
	CYLINDER HEAD REMOVAL		
1	Muffler	2	Follow the left "Step" for removal. Refer to "MUFFLER".
2	Spark plug	1	
3	Water hose	1	
4	Bolt (with washer)	10	NOTE: _____ Tighten the bolts in sequence and two steps of torque.
5	Cylinder head	1	
			Reverse the removal steps for installation.

CYLINDER EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
1	CYLINDER REMOVAL Cylinder head Bolt (with washer)	6	Follow the left "Step" for removal. Refer to "CYLINDER HEAD" NOTE: _____ Tighten the bolts in sequence and in two steps of torque.
	2	1	NOTE: _____ After installing, check the smooth movement of the piston.
	3	2	Reverse the removal steps for installation.



SERVICE POINTS

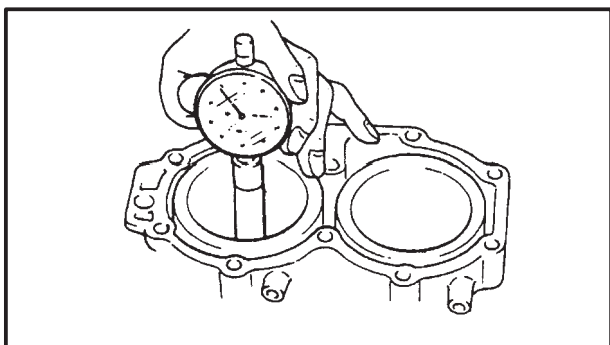
Cylinder inspection

1. Eliminate:

- Carbon deposits
Use a rounded scraper ①.

2. Inspect:

- Cylinder water jacket
Mineral deposits/Corrosion → Clean.
- Cylinder inner surface
Score marks → Repair or replace.
Use #600 ~ 800 grit wet sandpaper.

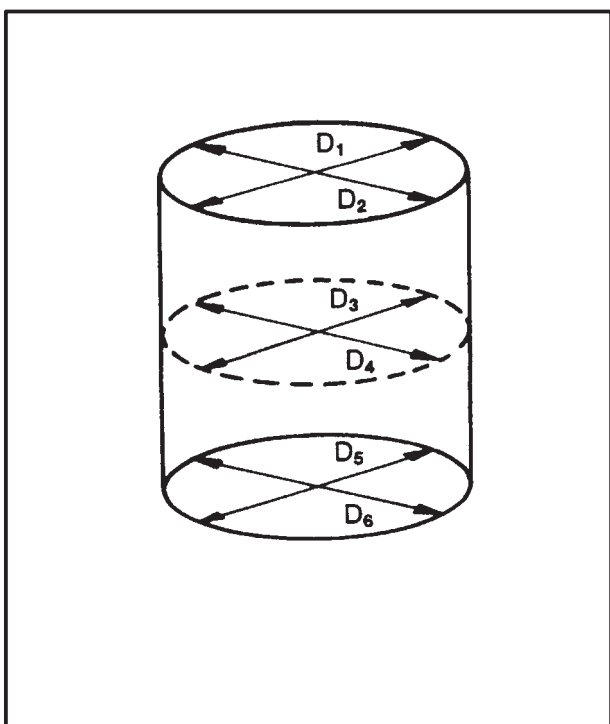


3. Measure:

- Cylinder bore "D"
Use cylinder gauge.
Out of limit → Replace.

NOTE:

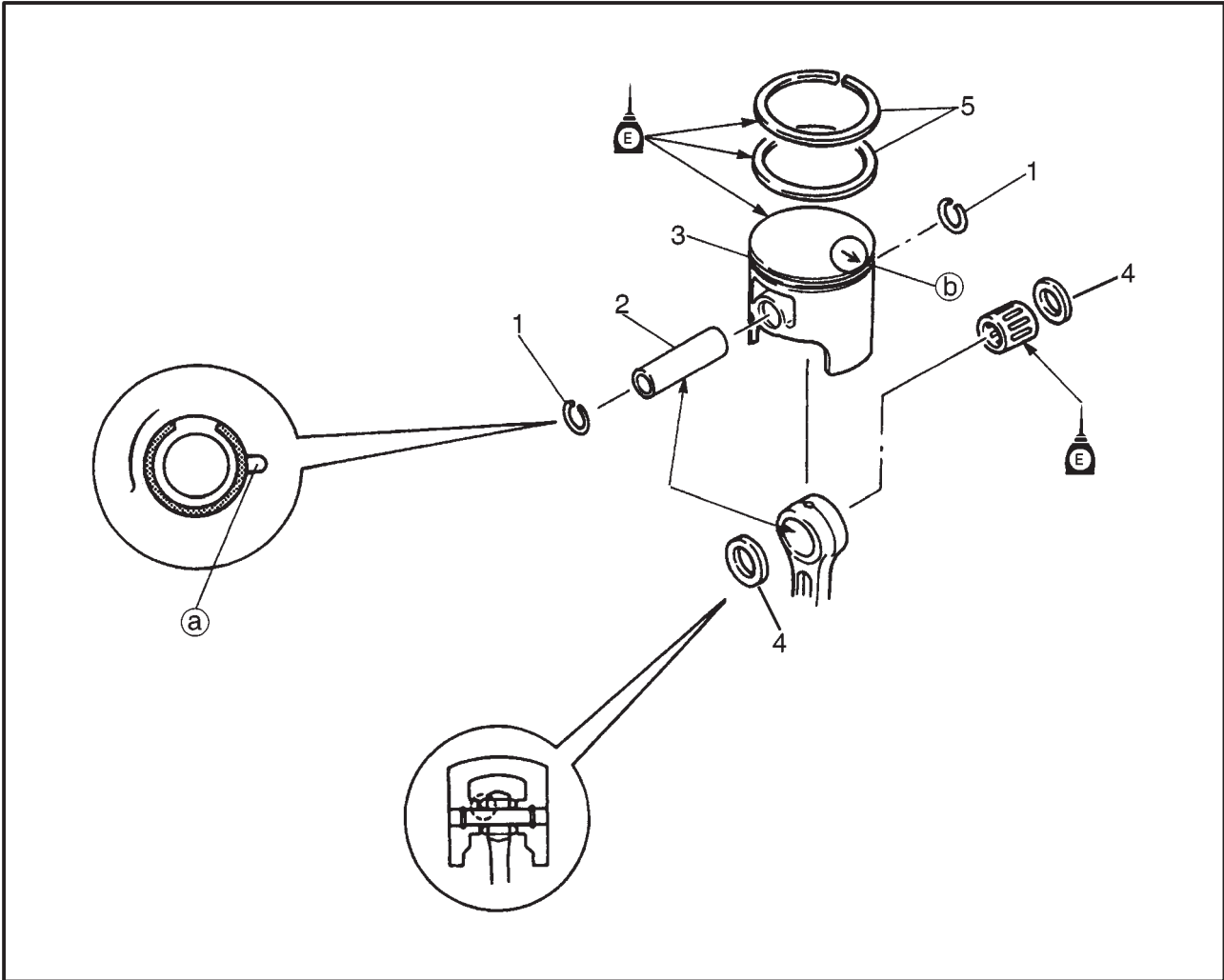
Measure the cylinder bore "D" in parallel.
Then, find the average of the measurement.



	Standard	Limit
Cylinder bore "D"	81.00 ~ 81.02 mm (3.189 ~ 3.190 in)	81.10 mm (3.193 in)
Taper "T"	–	0.08 mm (0.003 in)
Out of round "R"	–	0.05 mm (0.002 in)
D = Maximum (D ₁ ~ D ₆) T = (Maximum D ₁ or D ₂) – (Maximum D ₅ or D ₆) R = (Maximum D ₁ , D ₃ or D ₅) – (Minimum D ₂ , D ₄ or D ₆)		

PISTON

EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	PISTON REMOVAL Cylinder		Follow the left "Step" for removal. Refer to "CYLINDER".
1	Piston pin clip	4	CAUTION: _____
2	Piston pin	2	Do not allow the clip open ends to meet the piston pin slot (a) .
3	Piston	2	NOTE: _____
4	Washer	4	Be sure the arrow (b) side is positioned exhaust pipe.
5	Piston ring	4	CAUTION: _____ Align each end gap with the locating pin.
			Reverse the removal steps for installation.



SERVICE POINT

Piston inspection

1. Eliminate:

- Carbon deposits

From the piston crown and ring groove.



2. Inspect:

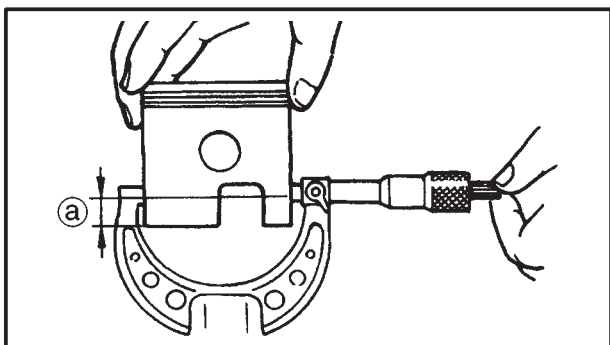
- Piston wall

Score marks → Repair or replace.

Use #600 – 800 grit wet sandpaper.

NOTE:

Sand in a criss-cross pattern. Do not sand excessively.



3. Measure:

- Piston skirt diameter

Use micrometer.

Out of specification → Replace.

 Piston diameter	Distance (a)
80.925 – 80.950 mm (3.186 – 3.187 in)	10 mm (0.39 in)

4. Calculate:

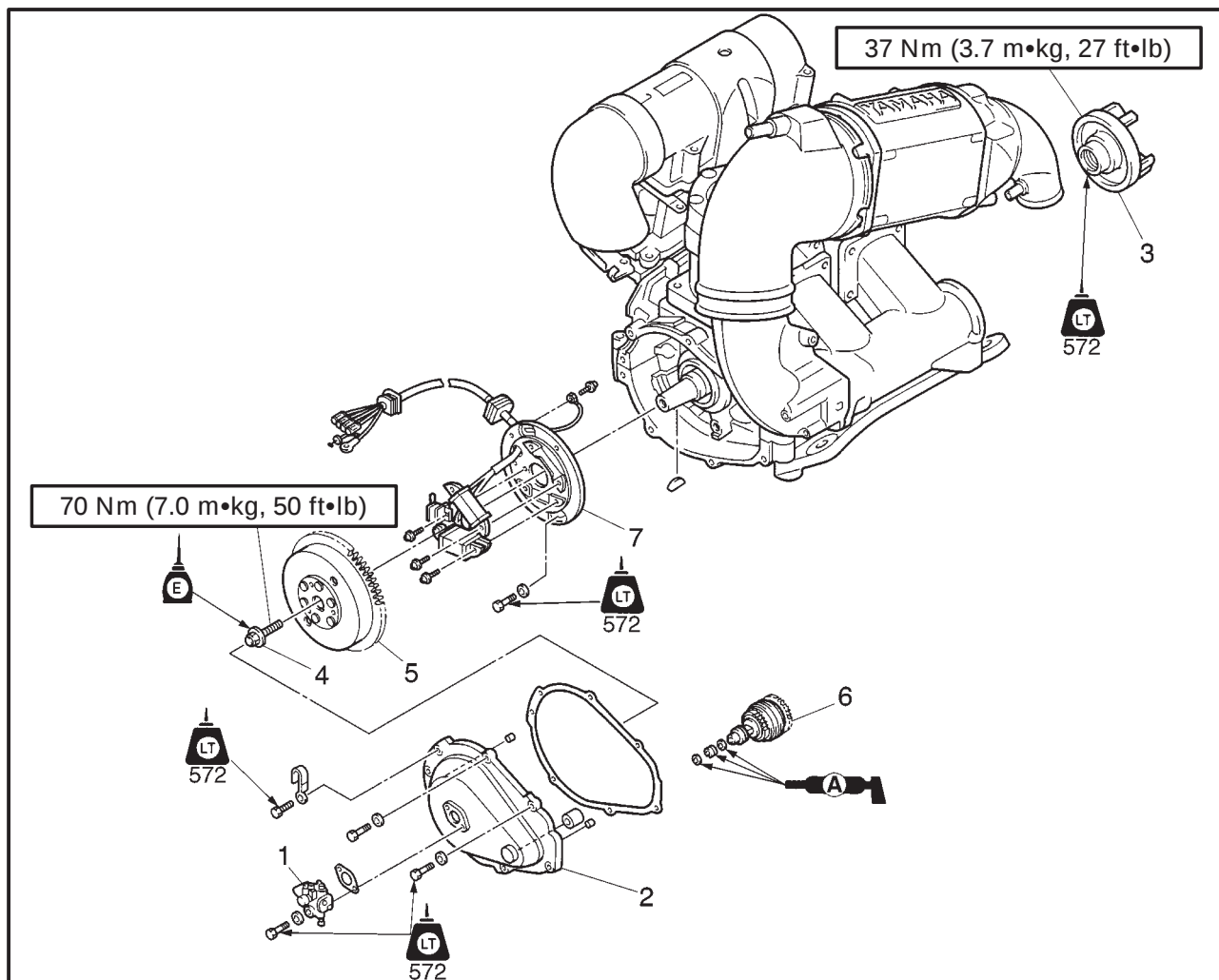
- Piston clearance

Out of limit → Replace piston, piston rings as a set.

$$\boxed{\text{PISTON CLEARANCE}} = \boxed{\text{CYLINDER BORE}} - \boxed{\text{PISTON DIAMETER}}$$

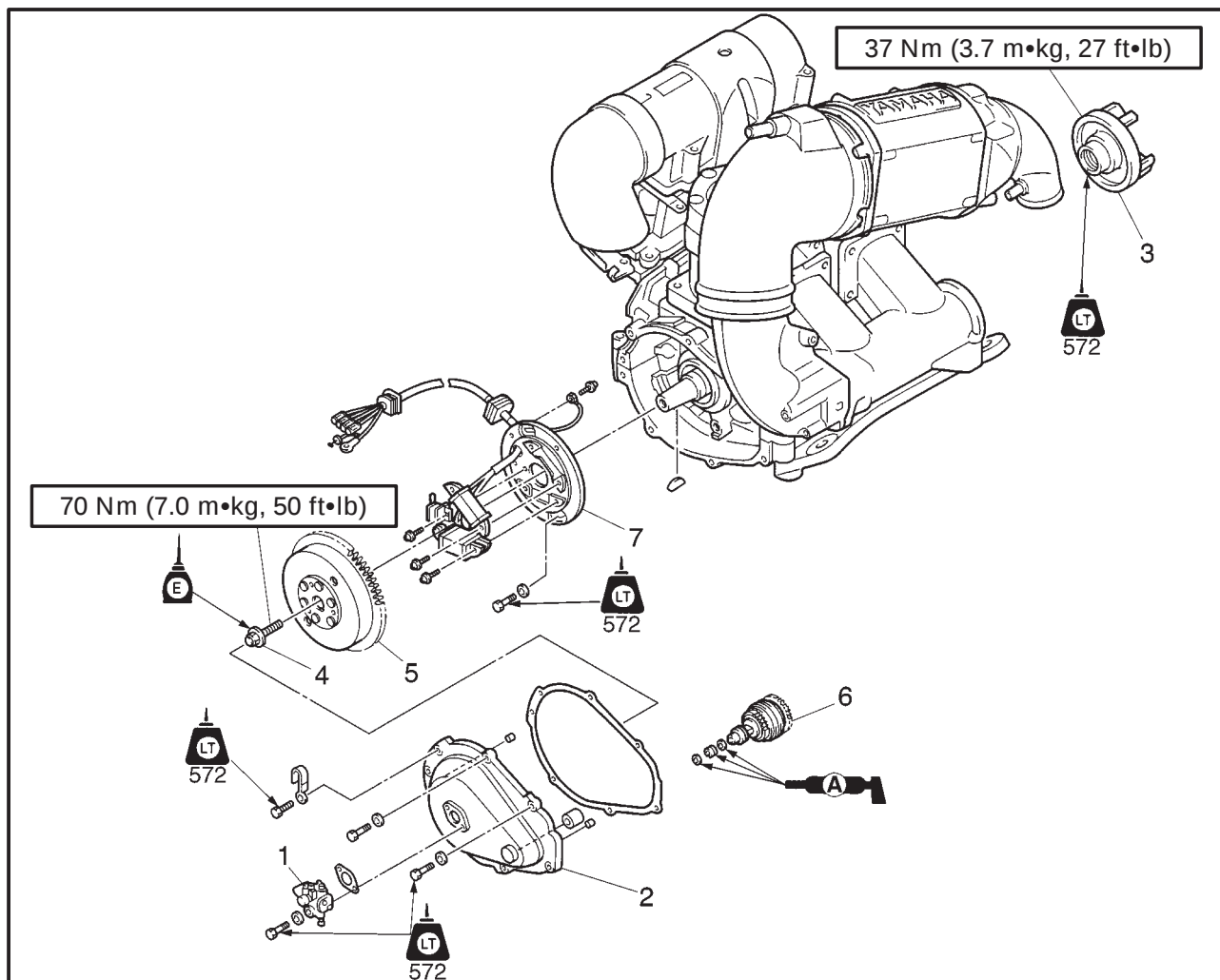
	Piston clearance: 0.080 – 0.085 mm (0.0031 – 0.0033 in)
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**FLYWHEEL MAGNETO AND BASE
EXPLODED DIAGRAM**

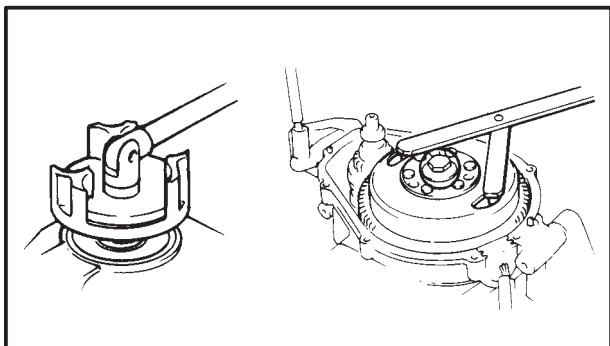


REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	FLYWHEEL MAGNETO AND BASE REMOVAL		
	Engine unit		Follow the left "Step" for removal.
1	Oil pump	1	Refoer to the "ENGINE UNIT REMOVAL" section.
2	Flywheel cover	1	
3	Coupling flange	1	
4	Flange bolt	1	
5	Flywheel magneto	1	NOTE: When installing the flywheel magneto make sure that the woodruff key is properly seated in the keyway of the crankshaft.



Step	Procedure/Part name	Q'ty	Service points
6	Idle gear assembly	1	NOTE: _____ Fill the flywheel cover groove with water resistant grease.
7	Base assembly	1	NOTE: _____ Align the punch mark on the crankcase with the punch mark on the base assembly. _____ Reverse the removal steps for installation.


SERVICE POINTS
Coupling flange removal and installation

1. Remove and install:

- Coupling flange



Coupler wrench:

YW-38741 / 90890-06425

Flywheel holder:

YB-06139 / 90890-06522

Flywheel magneto removal and installation

1. Remove and install:

- Bolt



Flywheel holder:

YB-06139 / 90890-06522

2. Remove:

- Flywheel magneto

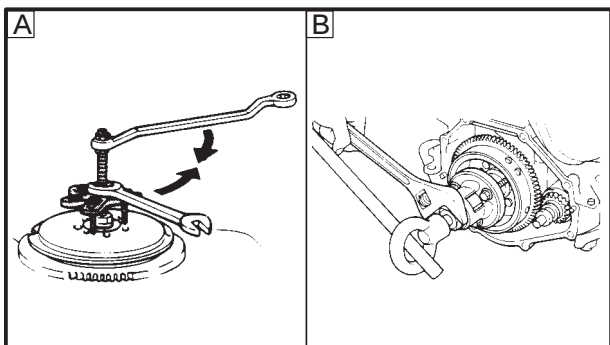


Flywheel puller:

YB-06117 / 90890-06521

Bolt:

M8 × 80 mm



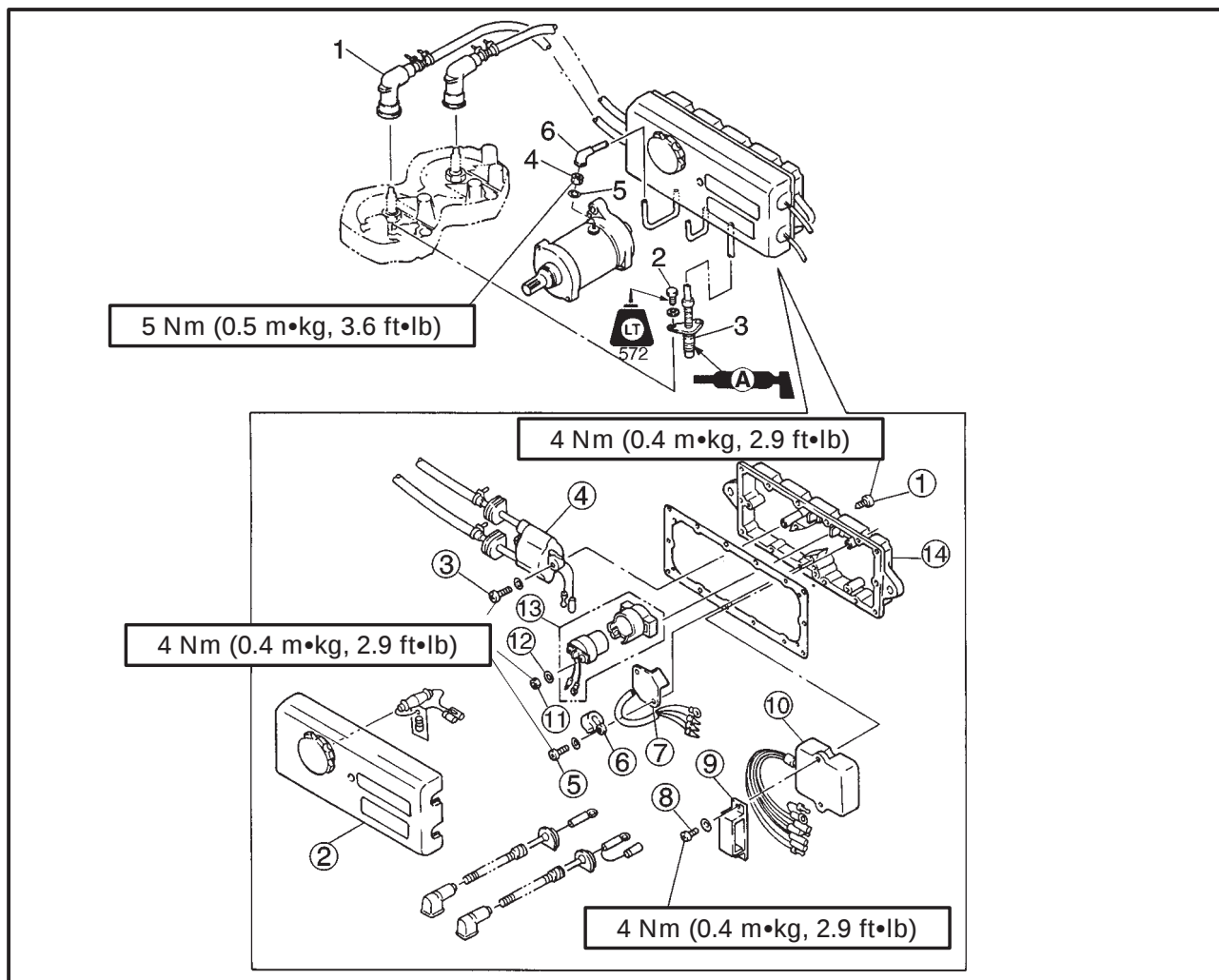
A For USA and CANADA

B Except for USA and CANADA

CAUTION:

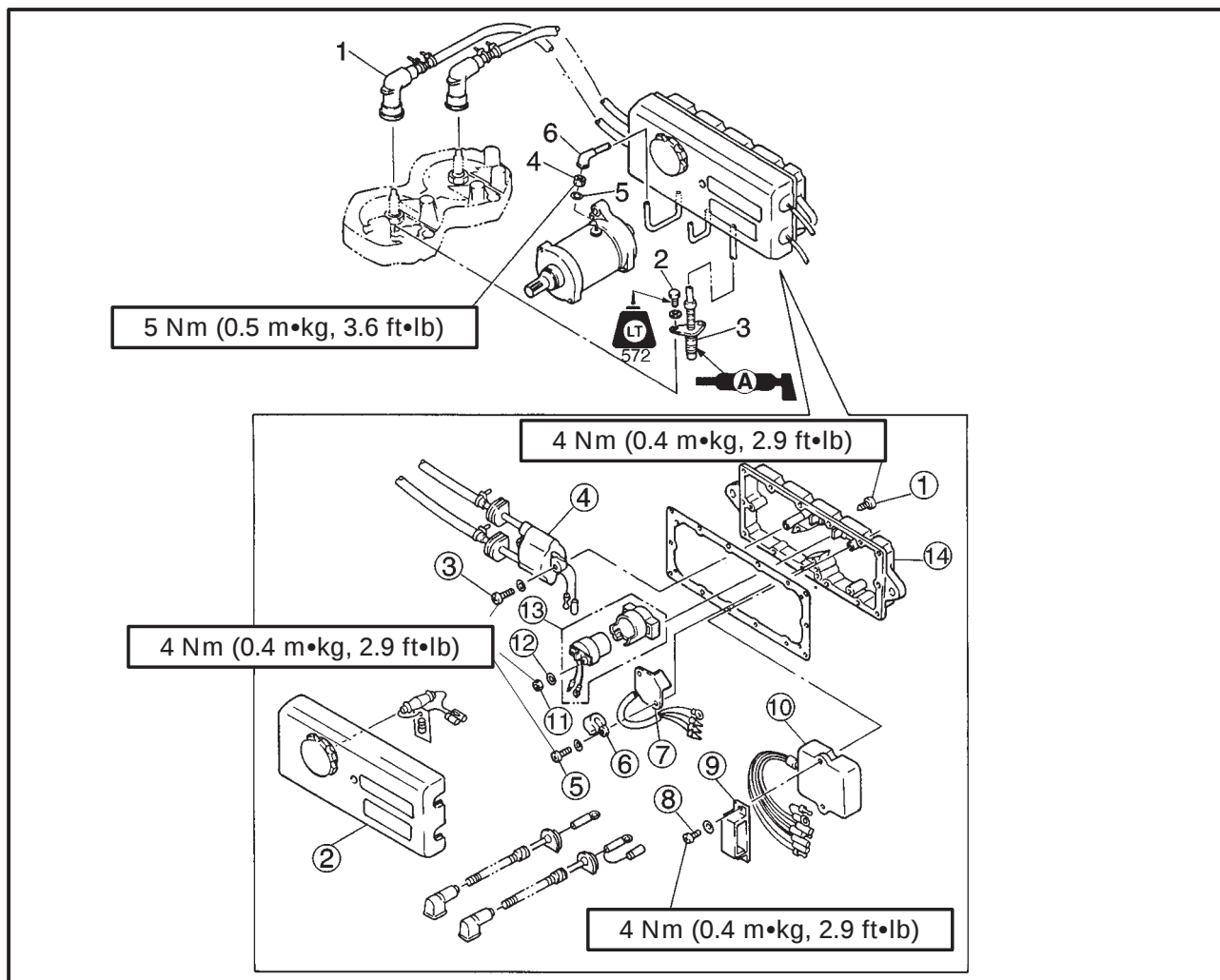
To prevent damage to the engine or tools, screw in the flywheel puller set- bolts evenly and completely so that the puller plate is parallel to the flywheel.

**ELECTRICAL UNIT
EXPLODED DIAGRAM**



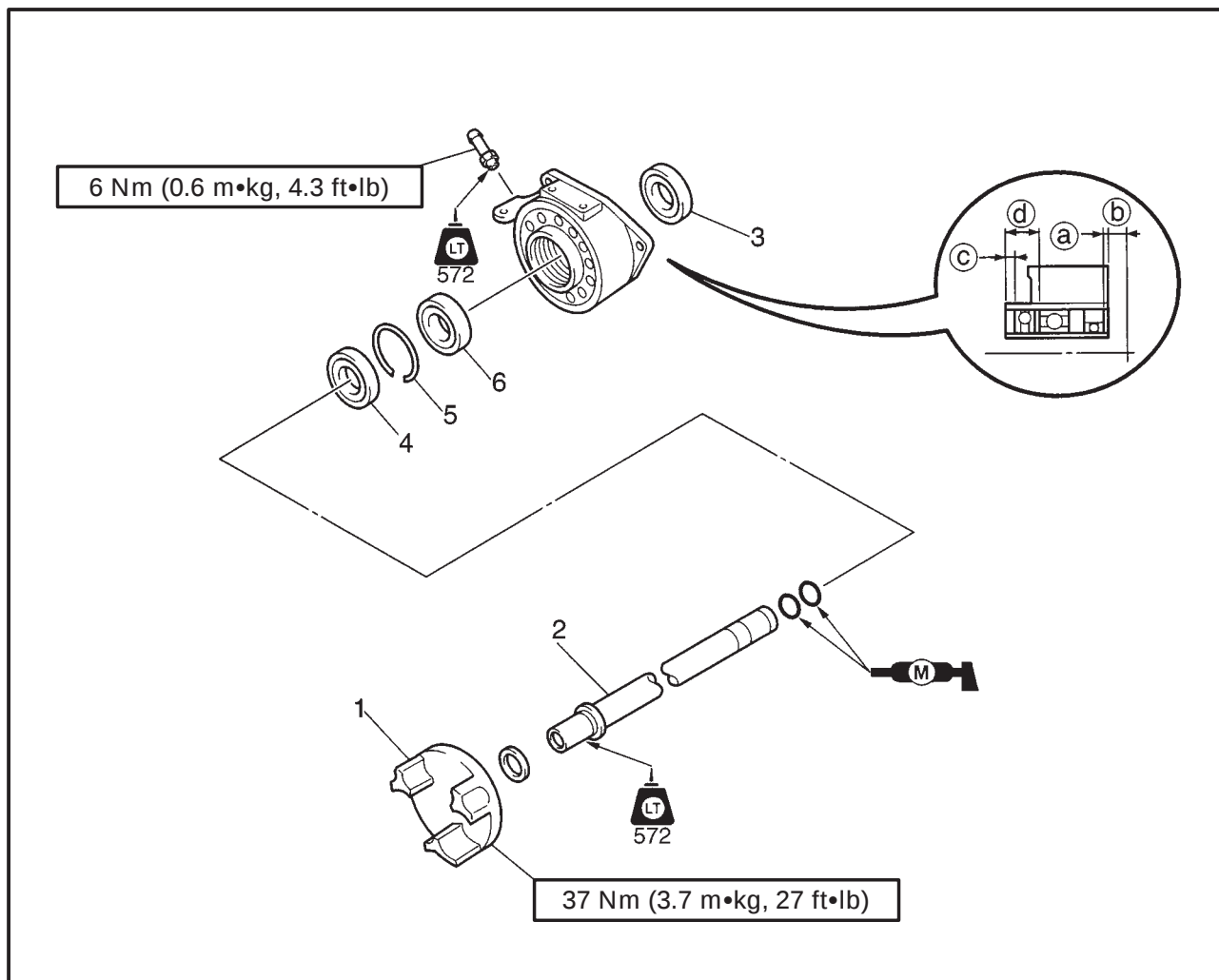
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	ELECTRICAL UNIT REMOVAL		
	Electrical box		Follow the left "Step" for removal. Refer to the "ENGINE UNIT REMOVAL" section.
	Base assembly		Refer to the "FLYWHEEL MAGNETO AND BASE" section.
1	Spark plug cap	2	
2	Bolt (with washer)	2	
3	Thermo switch	1	
4	Nut	1	
5	Spring washer	1	
6	Starter motor negative lead	1	



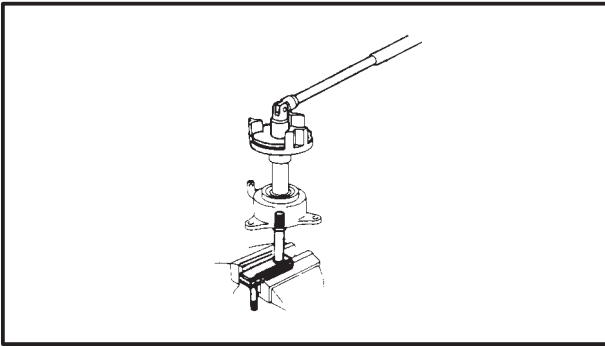
Step	Procedure/Part name	Q'ty	Service points
	ELECTRICAL UNIT DISASSEMBLY		
①	Screw	14	
②	Case cover	1	
③	Screw	2	
④	Ignition coil	1	
⑤	Screw	3	
⑥	Clamp	1	
⑦	Rectier-regulator	1	
⑧	Screw	3	
⑨	Clamp bracket	1	
⑩	CDI unit	1	
⑪	Nut	2	
⑫	Spring washer	2	
⑬	Starter relay	1	
⑭	Housing	1	
			Reverse the removal steps for installation.

**INTERMEDIATE HOUSING
EXPLODED DIAGRAM**



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	INTERMEDIATE HOUSING DISASSEMBLY Bearing housing assembly		Follow the left "Step" for removal. Refer to "INTERMEDIATE HOUSING REMOVAL".
1	Coupling	1	 Distance: (a) : 1.6 ~ 2.0 mm (0.06 ~ 0.08 in) (b) : 14.5 ~ 15.5 mm (0.57 ~ 0.61 in) (c) : 6.8 ~ 7.2 mm (0.27 ~ 0.28 in) (d) : 17.6 ~ 17.7 mm (0.69 ~ 0.70 in)
2	Shaft	1	
3	Oil seal	1	
4	Oil seal	1	
5	Clip	1	
6	Bearing	1	Reverse the removal steps for installation.

**SERVICE POINT****Coupling removal and installation**

1. Remove and install:

- Coupling

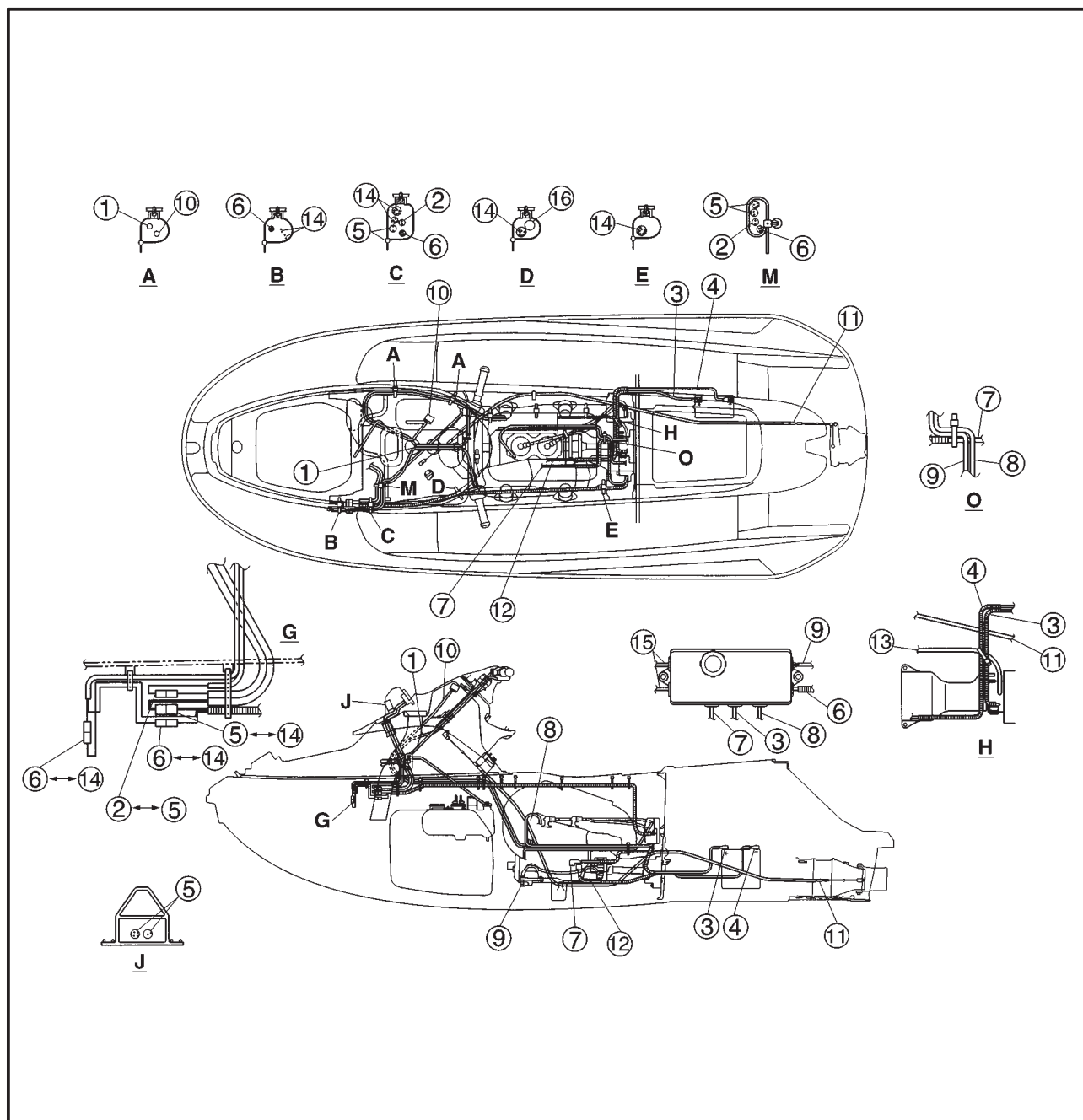


Coupler wrench:

YW-38741 / 90890-06425

Shaft holder:

YW-38742 / 90890-06069


ELECTRICAL COMPONENTS


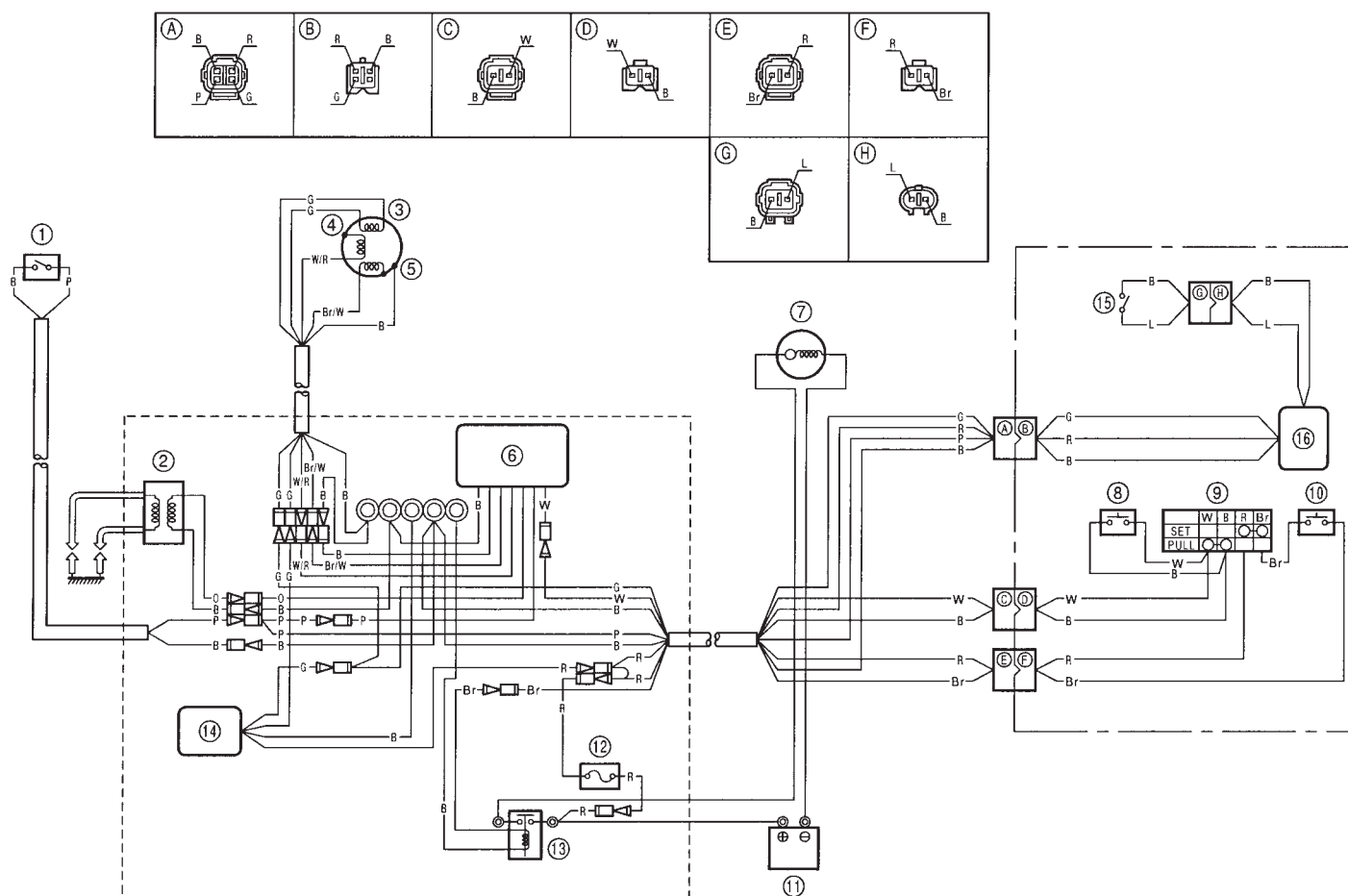
- | | |
|---------------------------------|---------------------------------|
| ① Throttle cable | ⑨ CDI magneto lead |
| ② Oil level sensor lead | ⑩ Choke cable |
| ③ Battery lead (positive) | ⑪ Steering cable |
| ④ Battery lead (negative) | ⑫ Starter motor lead (negative) |
| ⑤ Oil level warning lamp lead | ⑬ Grease nipple hose |
| ⑥ Handlebar switch lead | ⑭ Electrical box |
| ⑦ Starter motor lead (positive) | ⑮ High tension cord |
| ⑧ Thermo sensor lead | ⑯ Pilot water hose |



ELECTRICAL DIAGRAM

- ① Thermo switch
- ② Ignition coil
- ③ Lighting coil
- ④ Pulser coil
- ⑤ Charge coil
- ⑥ CDI unit
- ⑦ Starter motor
- ⑧ Stop switch
- ⑨ Engine stop switch
- ⑩ Starter switch
- ⑪ Battery
- ⑫ Fuse
- ⑬ Starter relay
- ⑭ Rectifier regulator
- ⑮ Oil level sensor
- ⑯ Oil level warning lamp

B : Black
 Br : Brown
 Br/W : Brown/White
 G : Green
 L : Blue
 O : Orange
 P : Pink
 R : Red
 W : White
 W/R : White/Red



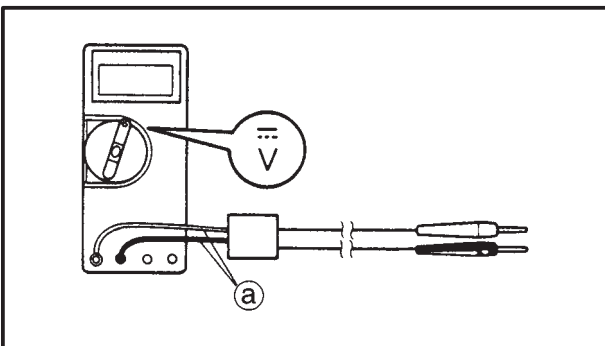
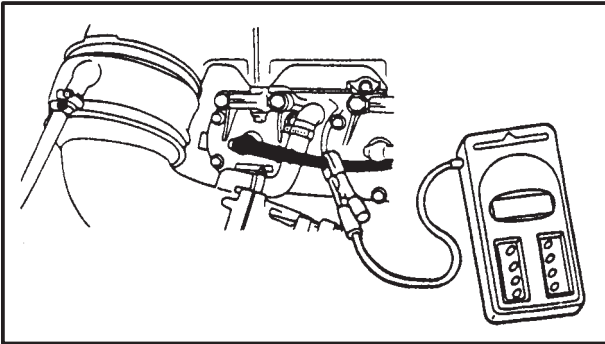


ELECTRICAL ANALYSIS

PEAK VOLTAGE MEASUREMENT

NOTE:

- If the spark produces no sparks, check the wiring for any disconnection, looseness, insufficient contact, etc. Then measure the peak voltage.
- The peak voltages are listed for the loaded and the circuit state. The “loaded value” is used for measuring a normally operating system and the “circuit valve” for measuring a coil disconnected from the system.
- The peak voltage value measured at cranking is the one at which no load is applied to the jet pump.
- To measure the peak voltage of lighting coil and rectifier regulator, take off the output wire of the rectifier regulator.

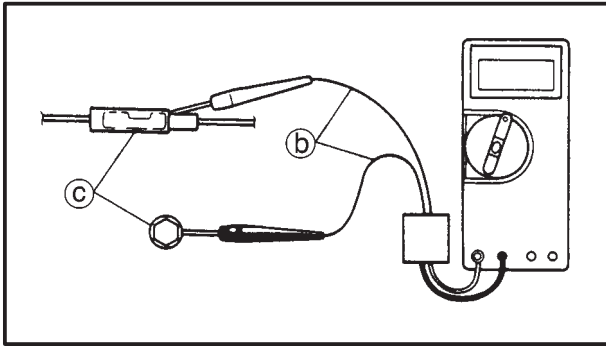


Measuring step:

- Remove the electrical box and disassembly it.
Refer to “ENGINE UNIT REMOVAL”.
- Attach the tachometer to the high tension lead of the cylinder #1, (No need during cranking measurement).
- Set the peak voltage adaptor to the tester.

NOTE:

The peak voltage adaptor plugs ① have polarity. Connect the red plug of the peak voltage adaptor to the volt test plug of the tester.



- Set the digital tester dial at the DCV position.
- Connect the peak voltage adaptor leads (b) to the correct terminals to be measured.

NOTE: _____

- The peak voltage leads have no polarity connection of either lead to either terminal (c) for measurement will result in the same measurement.
- Wire colors for connection purposes will be indicated.

- Connect the water vehicles to a fully charged battery. (In cranking measurement)
- Start or crank the engine and read the indication.

CAUTION: _____

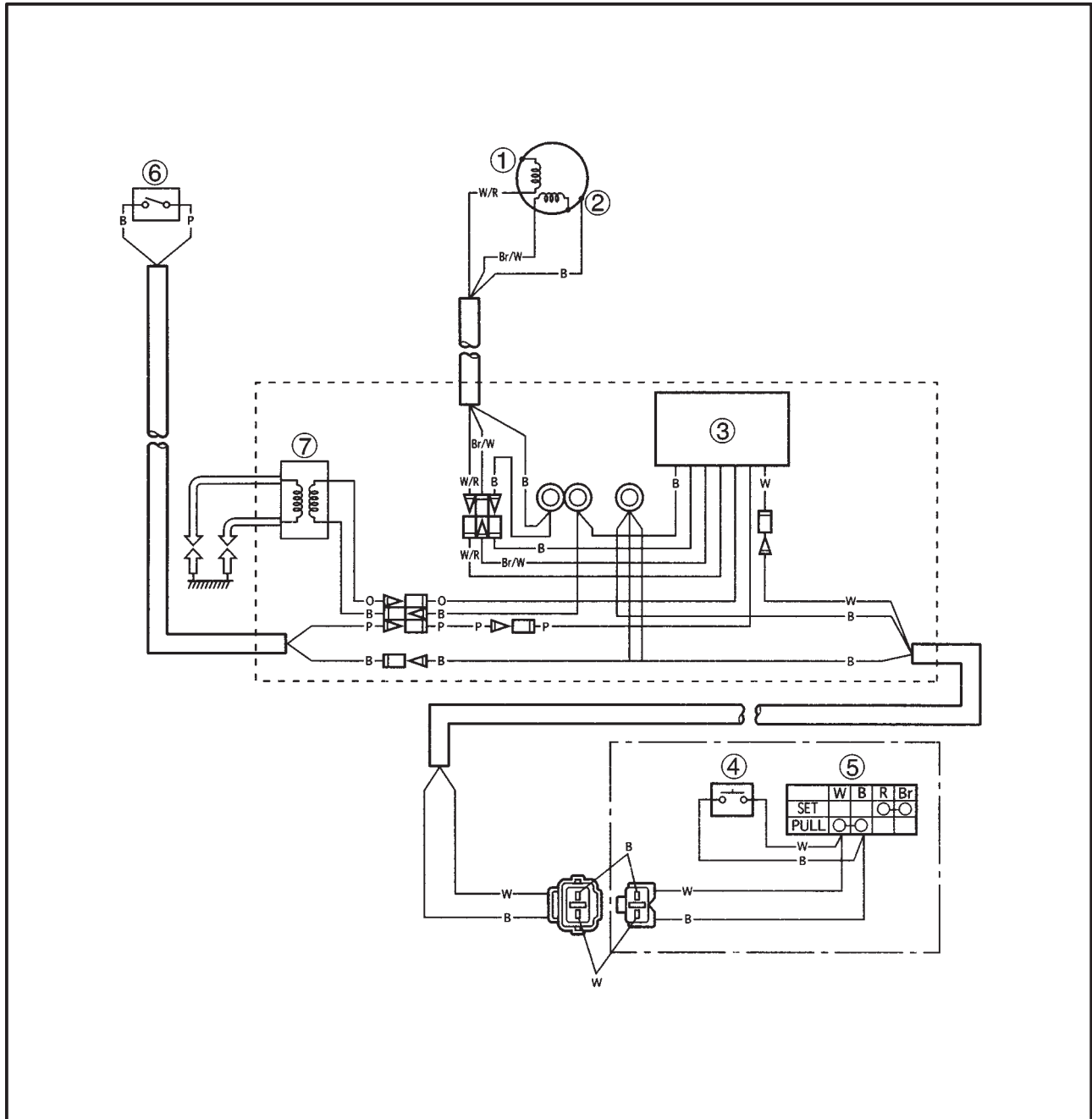
When the peak voltage is measured during engine operation, measure it with cooling water passing through the engine cooling water passage.

NOTE: _____

- Before measuring cranking, remove the spark plug caps from the spark plug.
- Cranking speed changes the output measurement.
- The specified values shown in the manuals will be indicated as the lower limit of the specification. If the meter's reading is higher, then there is no problem with the tested component.
- If the output reading is lower, then the component is probably faulty, as long as the component's input voltages are correct at the time when testing.

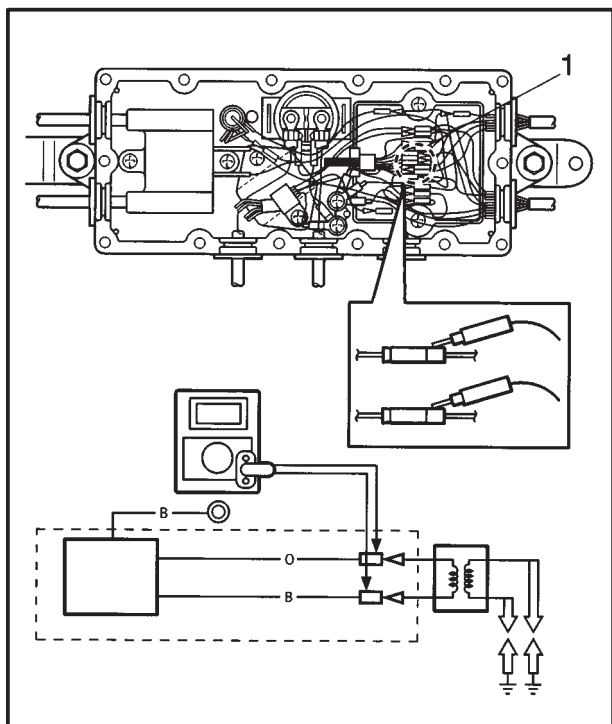


IGNITION SYSTEM WIRING DIAGRAM



- ① Pulser coil
- ② Charge coil
- ③ CDI unit
- ④ Stop switch
- ⑤ Engine stop switch
- ⑥ Thermo switch
- ⑦ Ignition coil

B : Black
 Br/W : Brown/White
 O : Orange
 P : Pink
 W : White
 W/R : White/Red



IGNITION SYSTEM

Peak voltage

⚠ WARNING

When checking the peak voltage do not touch any of the connections of the digital tester lead wires.

NOTE:

- If there is no spark or the spark is weak, continue with the ignition system test.
- If a good spark is obtained, the problem is not with the ignition system, but possibly with the spark plug(s) or another component.

1. Measure:

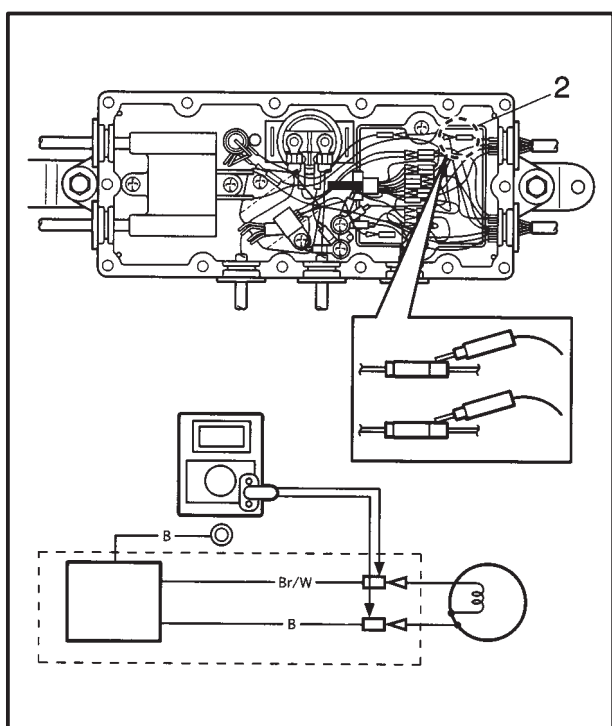
- CDI unit output peak voltage
Above specification → Replace the ignition coil.
Below specification → Measure the charge coil output peak voltage.


CDI unit output peak voltage
Orange (O) – Black (B)

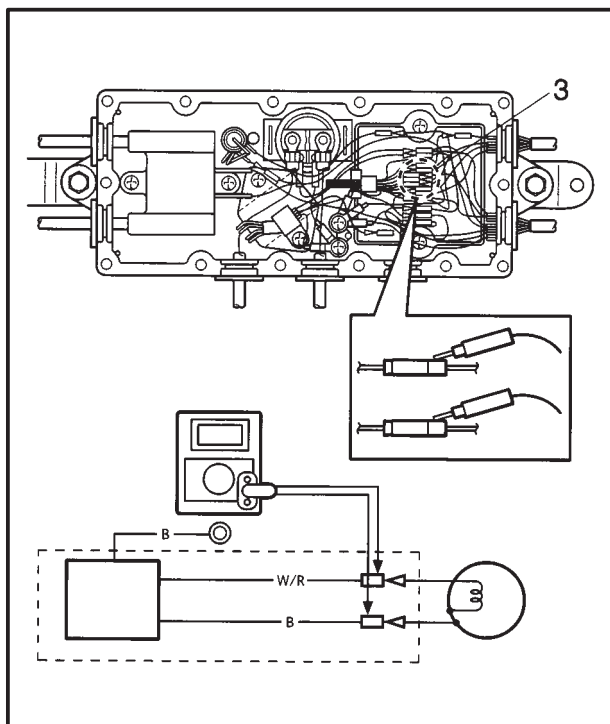
r / min	Circuit	Loaded	
	Cranking	1,500	3,500
V	–	105	175

2. Measure:

- Charge coil output peak voltage
Above specification → Measure the puls-er coil output peak voltage.
Below specification → Replace the charge coil.


Charge coil output peak voltage
Brown / White
(Br / W) – Black (B)

r / min	Circuit	Loaded	
	Cranking	1,500	3,500
V	120	115	205



3. Measure:

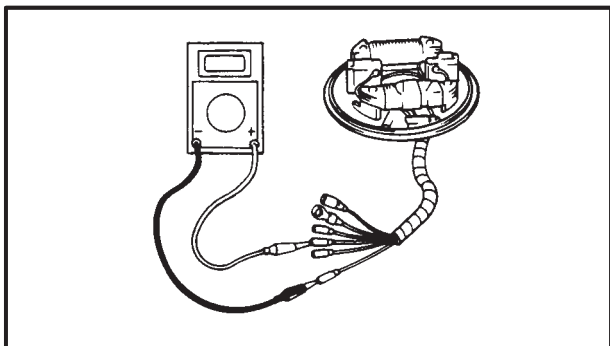
- Pulser coil output peak voltage

Above specification → Replace the CDI unit.

Below specification → Replace the pulser coil.


Pulser coil output peak voltage
White / red (W / R) – Black (B)

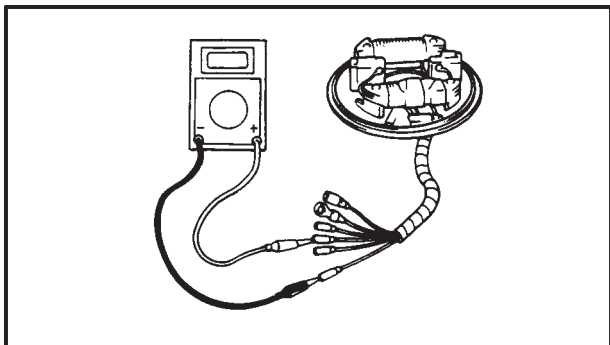
r/min	Circuit	Loaded		
	Cranking		1,500	3,500
V	3.0	3.0	17.0	29.5

**CHARGE COIL**

1. Measure:
 - Charge coil resistance
 Out of specification → Replace.



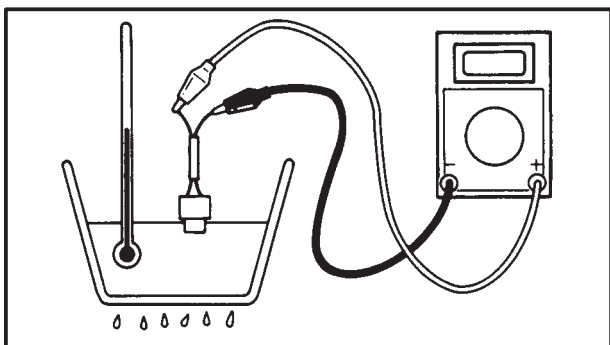
Charge coil resistance:
Brown / White
(Br / W) – Black (B)
497.7 – 608.3 Ω at 20 °C
(68 °F)

**PULSER COIL**

1. Measure:
 - Pulser coil resistance
 Out of specification → Replace.



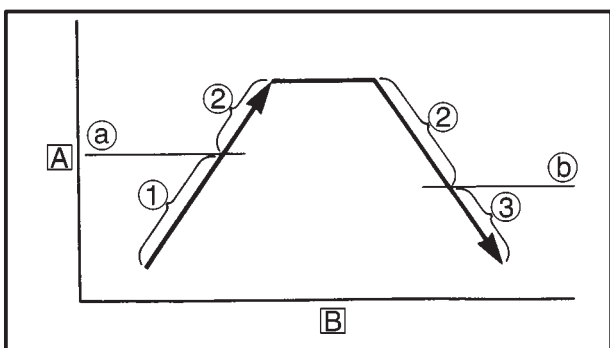
Pulser coil resistance:
White / Red (W / R) – Black (B)
12.6 – 15,4 Ω at 20 °C
(68 °F)

**THERMO SWITCH**

1. Measure
 - Thermo switch continuity
 Out of specification → Replace.



Thermo switch continuity
temperature:
Pink (P) – Black (B)
(a) 66 – 74 °C (100.4 – 125.6 °F)
(b) 57 – 43 °C (93.2 – 78.8 °F)



- | | |
|-----------------|----------------------|
| ① Discontinuity | A Temperature |
| ② Continuity | B Time |
| ③ Discontinuity | |

Measurement steps:

- Suspend thermostat in a vessel.
- Place known reliable thermometer in water.
- Heat water slowly.
- Observe thermometer, while stirring water continually.

**CDI UNIT**

1. Measure:

- CDI unit resistance

Out of specification → Replace.

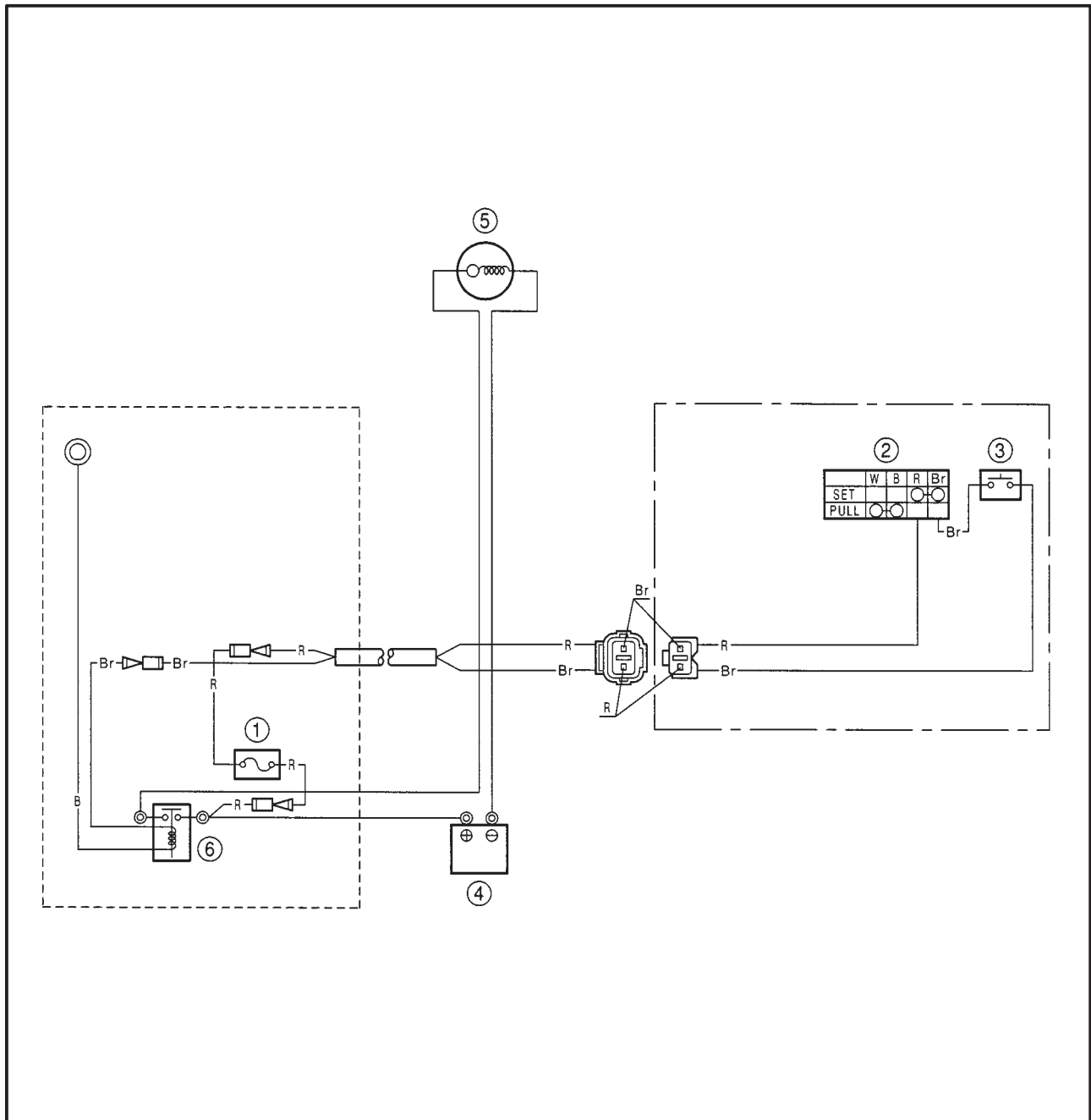
**Pocket tester:****YU-03112 / 90890-03112****NOTE:**

- The resistance values will vary from meter to meter, especially with electronic digital meters. For some testers, the polarity of the leads is reversed.
- The needle swings once to the "•" mark and then returns to the home position.
- The "∞" mark stands for discontinuity.

Unit: kΩ

⊕ ⊖	B	Br/W	O	P	W	W/R
B		2 – 6	•	3 – 11	10 – 40	150 – 600
Br/W	20 – 80		•	50 – 200	15 – 60	250 – 1000
O	•	•		•	•	•
P	∞	∞	∞		∞	∞
W	∞	∞	∞	∞		∞
W/R	9 – 36	17 – 70	•	10 – 40	50 – 200	

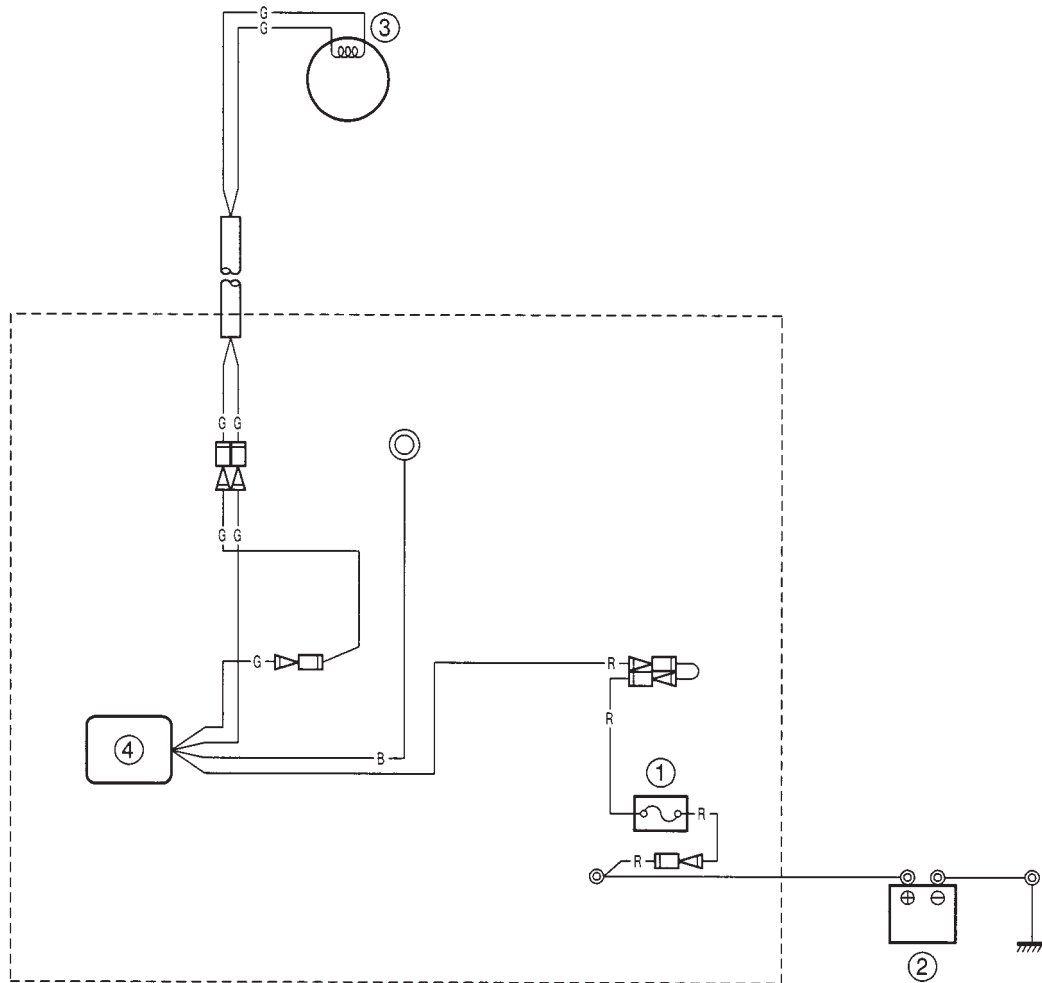
B : Black
 Br/w : Brown/white
 O : Orange
 P : Pink
 W : White
 W/R : White/Red



- ① Fuse
- ② Engine stop switch
- ③ Starter switch
- ④ Battery
- ⑤ Starter motor
- ⑥ Starter relay

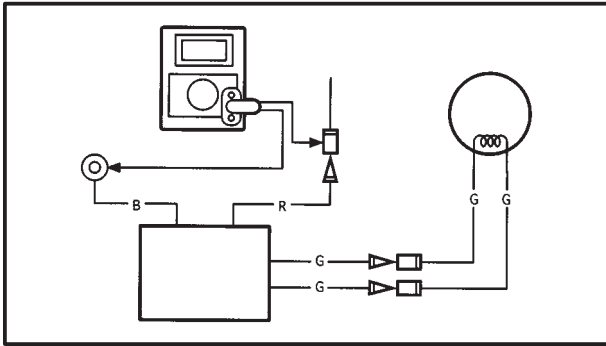
B : Black
Br : Brown
R : Red

CHARGING SYSTEM WIRING DIAGRAM



- ① Fuse
- ② Battery
- ③ Lighting coil
- ④ Rectifier regulator

B : Black
G : Green
R : Red



RECTIFIER /REFULATOR OUTPUT PEAK VOLTAGE

1. Measure:

- Rectifier/regulator output peak voltage
Below specification → Check the lighting coil.



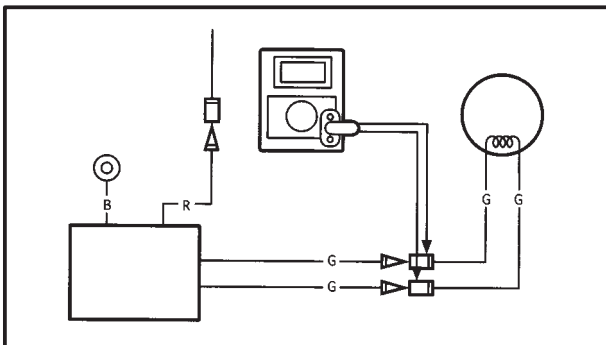
Rectifier / regulator output peak voltage

Red (R) – Black (B)

r / min	Circuit	Loaded		
	Cranking		1,500	3,500
V	–	–	12.6	12.5

NOTE:

Before measuring the rectifier/regulator output peak voltage, disconnect the lighting coil coupler and remove the fuses.



LIGHTING COIL OUTPUT PEAK VOLTAGE

1. Measure:

- Lighting coil output peak voltage
Above specification → Replace the rectifier/regulator.
Below specification → Replace the lighting coil.



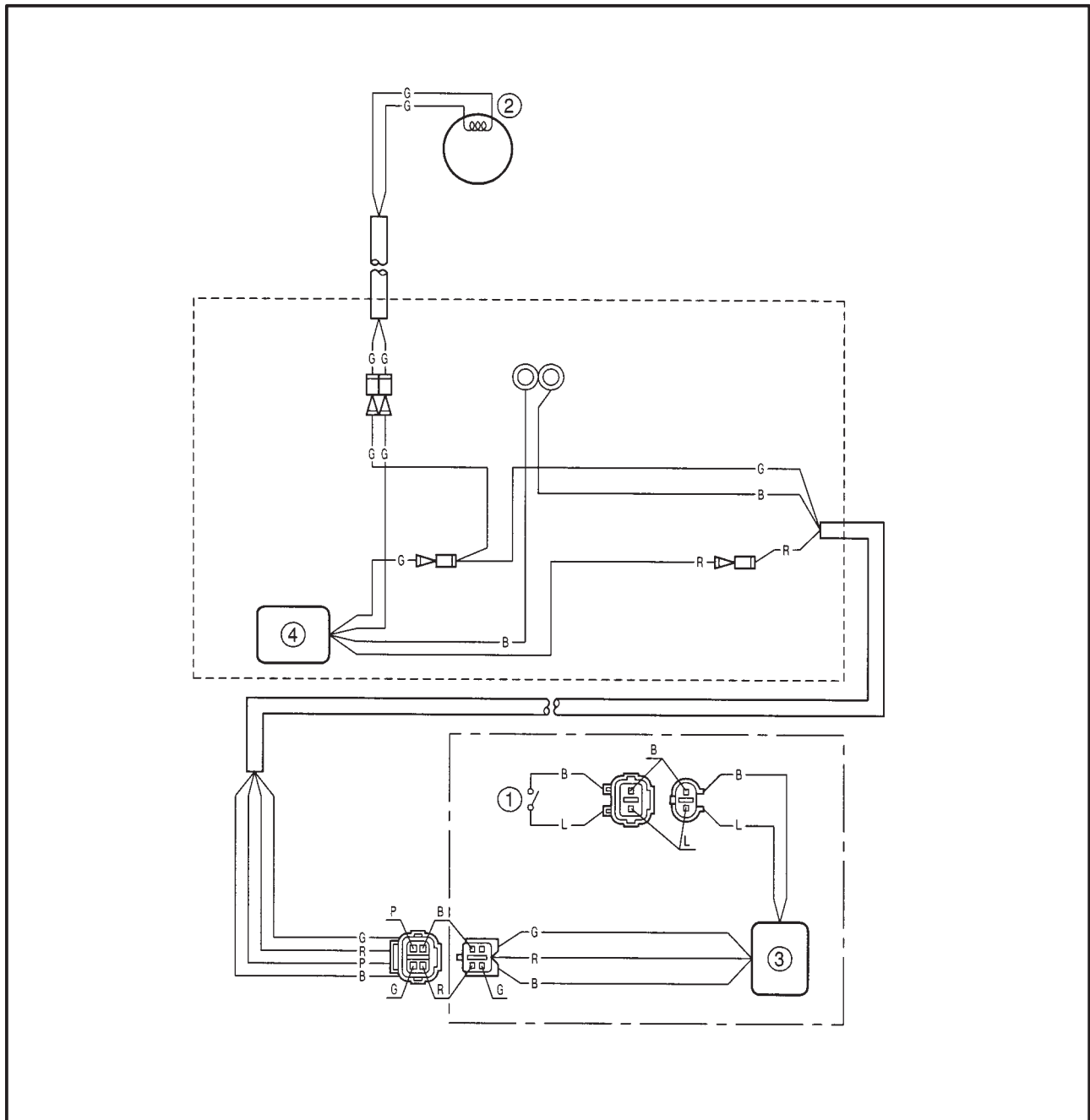
Lighting coil output peak voltage

Green (G) – Green (G)

r / min	Circuit	Loaded		
	Cranking		1,500	3,500
V	7.3	7.3	13.6	12.6

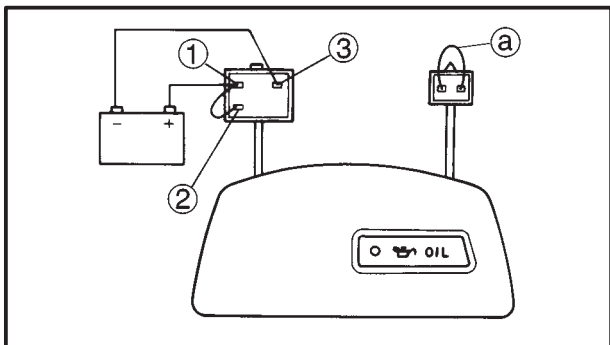
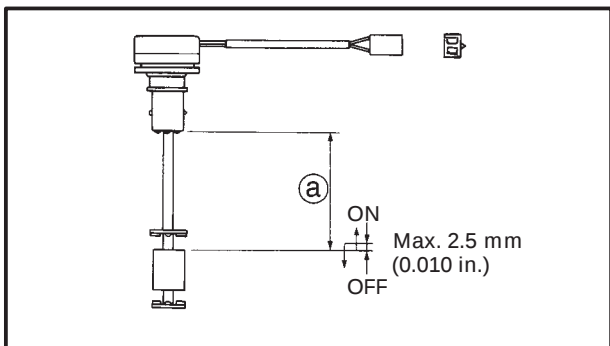


INDICATION SYSTEM WIRING DIAGRAM



- ① Oil level sensor
- ② Lighting coil
- ③ Oil level warning lamp
- ④ Rectifier regulator

B : Black
 G : Green
 L : Blue
 R : Red

**OIL LEVEL SENSOR**

1. Measure:

- Oil level sensor continuity Out of specification → Replace.

	Float position	Checking leads	
		L	B
	OFF		
	ON		
	Float length @: 37,0 – 41,0 mm (1,46 – 1,61 in)		

OIL LEVEL WARNING LAMP

1. Check:

- Display function Not working → Replace.

Checking steps:

- Connect the battery.



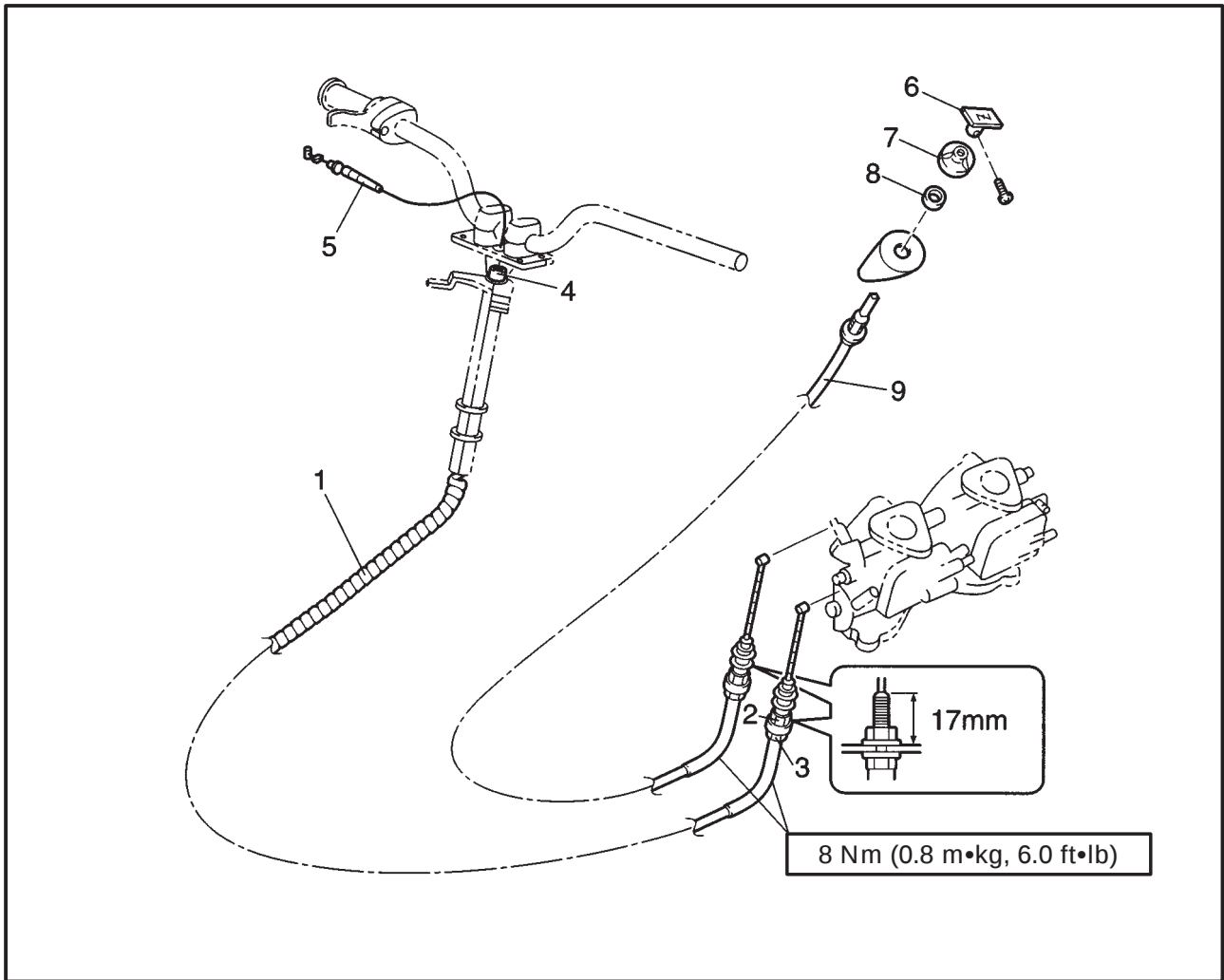
Voltage range:
10 – 16 V

- ① Red lead → Positive terminal.
- ② Green lead → Positive terminal.
- ③ Black lead → Negative terminal.

- After connecting the battery, oil, warning LED starts to light up for 3 seconds and then blinks.
- Connect the jumper lead @ to the blue and black terminals to check the oil warning LED goes off, after blinking for 10 – 30 seconds.

THROTTLE CABLE AND CHOKE CABLE

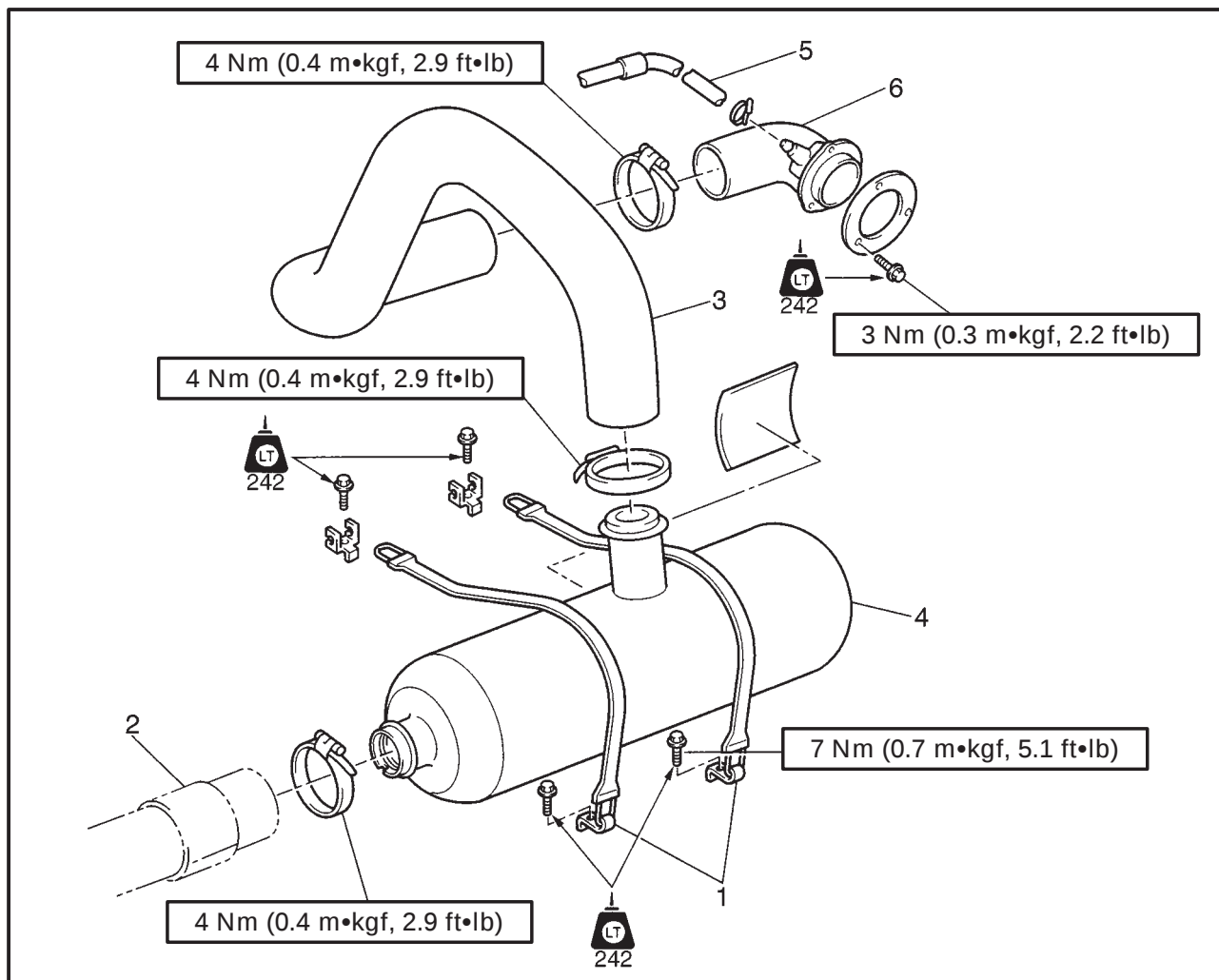
EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	THROTTLE CABLE REMOVAL		Follow the left "Step" fot removal.
1	Spiral tube	1	
2	Throttle cable lock nut	1	
3	Throttle cable adjusting	1	
4	Seal packing	1	
5	Throttle cable	1	
6	Choke knob	1	
7	Choke cable lock nut	1	
8	Choke cable adjusting nut	1	
9	Choke cable	1	
			Reverse the removal steps for installation.

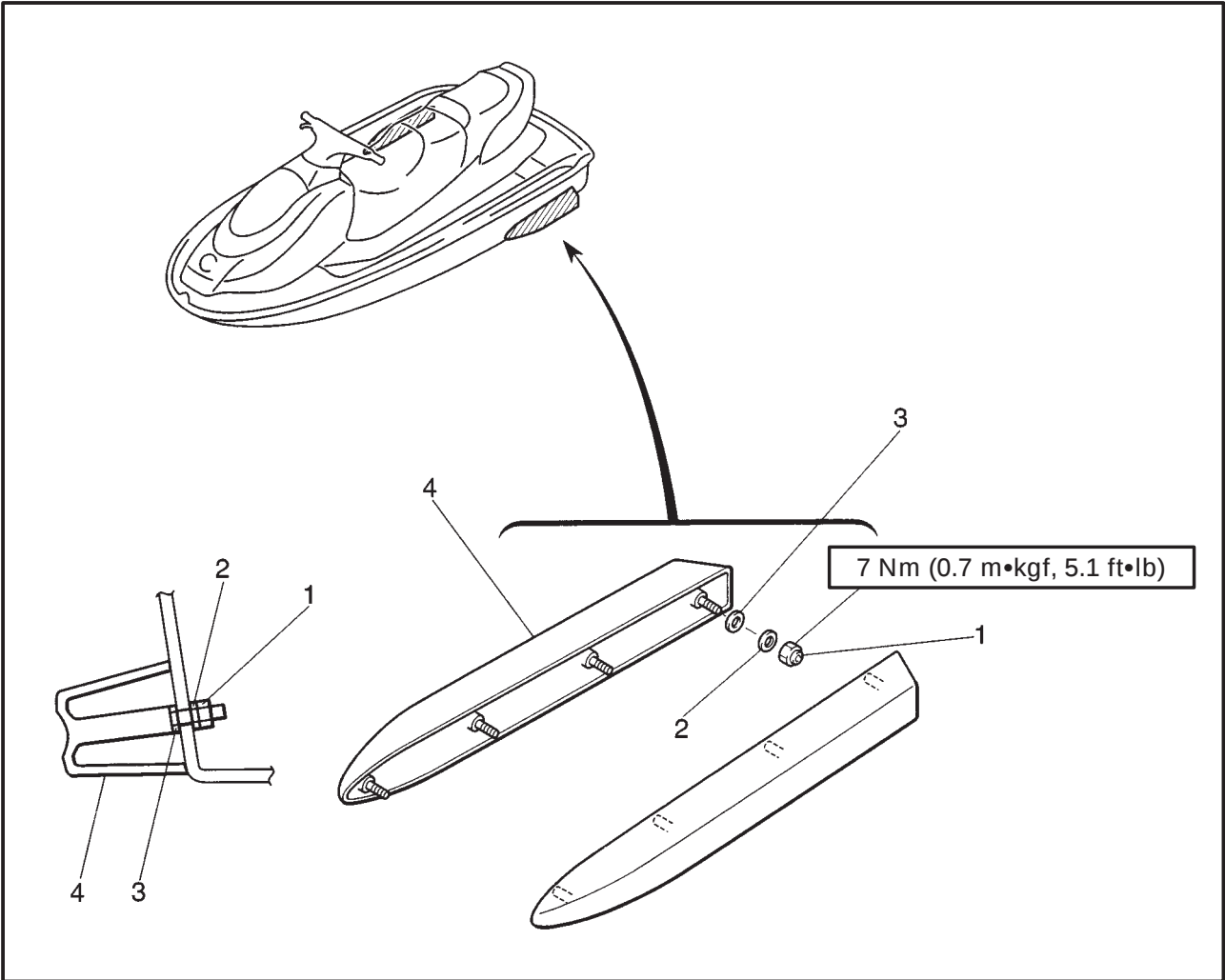
EXHAUST SYSTEM EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	EXHAUST SYSTEM REMOVAL		
	Storage box		Follow the left "Step" for removal.
1	Band	2	
2	Exhaust hose	1	
3	Exhaust hose	1	
4	Water lock	1	
5	Water outlet hose	1	
6	Exhaust guide		Reverse the removal steps for installation.

HULL
EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	HULL DISASSEMBLY		
1	Nut	8	Follow the left "Step" for removal.
2	Plate washer	8	
3	Packing	8	
4	Sponson	2	
			Reverse the removal steps for installation.

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