YAMAHA

WB700A (R-U)

Service Manual

212

LIT-18616-WB-00

YAMAHA

Marine

Water Vehicles

WaveBlaster
WB700AU

SUPPLEMENTARY SERVICE MANUAL

LIT-18616-01-54

PREFACE

This Supplementary Service Manual has been prepared to introduce new service and data for the WB700AU. For complete service information procedures, it is necessary to use this Supplementary Service Manual together with the following manual.

WB700R, WB700S SERVICE MANUAL: GA7-28197-12-11/LIT-18616-00-96

A10001-0*

WB700AU
SUPPLEMENTARY SERVICE MANUAL

1st Edition, April 1996

Printed in U.S.A.
LIT-18616-01-54

GENERAL INFORMATION

SPECIFICATIONS

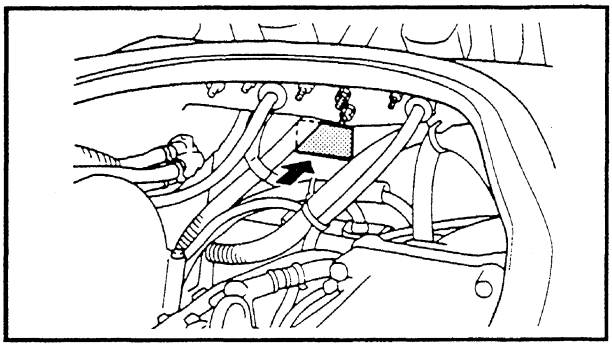
PERIODIC INSPECTION AND ADJUSTMENT

FUEL SYSTEM

POWER UNIT

JET PUMP UNIT

ELECTRICAL SYSTEM

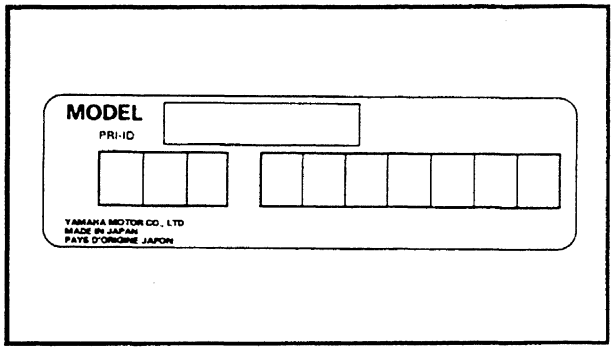


A60700-0*

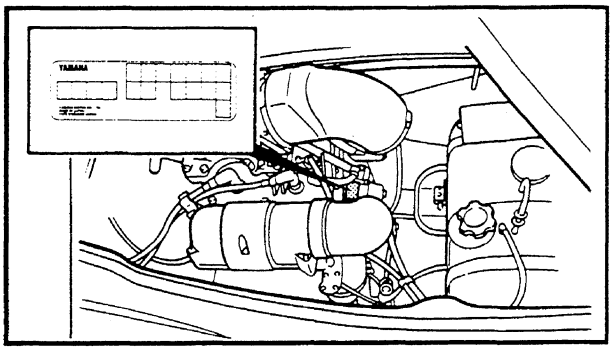
IDENTIFICATION NUMBERS

PRIMARY I.D. NUMBER

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



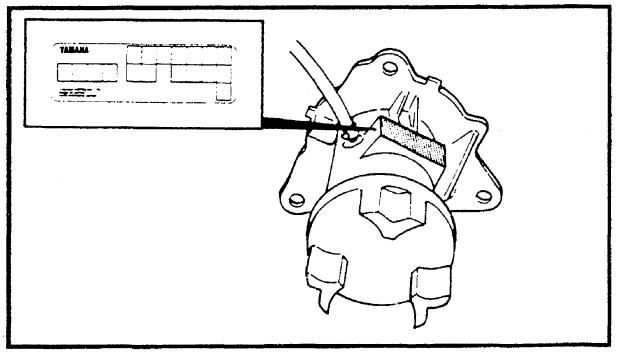
Starting primary I.D. number:
GR7: 900101 ~ (USA, CAN)
910101 ~ (FRA)
930101 ~ (GAM, AUS)



ENGINE SERIAL NUMBER

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

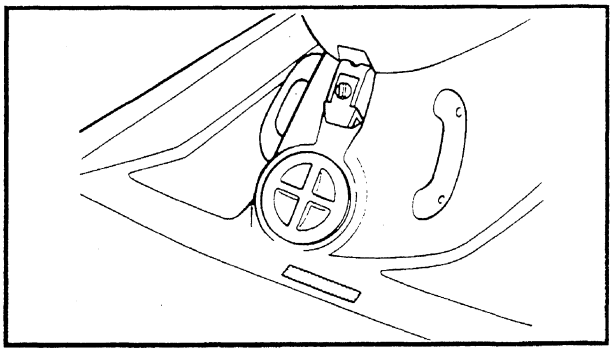
Starting serial number:
64U: 000101 ~



PUMP SERIAL NUMBER

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

Starting serial number:
64U: 500101 ~



HULL IDENTIFICATION NUMBER (H.I.N.)

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

GENERAL SPECIFICATIONS

Item	Unit	Model WB700A
DIMENSIONS:		
Length	mm (in)	2,430 (95.7)
Width	mm (in)	880 (34.6)
Height	mm (in)	910 (35.8)
Dry weight	kg (lb)	145 (320)
PERFORMANCE:		
Maximum speed	km/h (mph)	71 (44.1)
Maximum output	kW (hp) @r/min	53.7 (73) @6,300
Maximum fuel consumption	ℓ/h (US gal/h, Imp gal/h)	29 (7.7, 6.4)
Crusing range (at full throttle)	hr.	0.9
ENGINE:		
Engine type		2-stroke
Number of cylinders		2
Displacement	cm^3 (cu. in)	701 (42.78)
Bore × stroke	mm (in)	81 × 68 (3.19 × 2.68)
Compression ratio		7.2 : 1
Intake system		Reed valve
Carburetor type		Floatless type
Number of carburetor		2
Carburetor starting system		Choke
Scavenging system		Loop charged
Lubrication system		Oil injection
Cooling system		Water-cooled
Starting system		Electric starter
Ignition system		C.D.I.
Ignition timing	Degree	15 BTDC ~ 21 BTDC
Spark plug (NGK)		B8HS/BR8HS
Battery capacity	V/kC (A•h)	12/68.4 (19)
Lighting coil	A @r/min	2 ~ 4 @5,500
DRIVE UNIT:		
Propulsion system		Jet pump
Jet pump type		Axial flow, single stage
Impeller rotation (rear view)		Counter clockwise
Transmission		Direct drive from engine
Nozzle angle	Degree	24.5 ± 1
FUEL AND OIL:		
Fuel		Regular gasoline
Engine oil type		2 stroke outboard motor oil
Engine oil grade		TC-W3
Fuel and oil mixing ratio (wide open throttle)		50 : 1
Fuel tank capacity	ℓ (US gal, Imp gal)	25 (6.6, 5.5)
reserve	ℓ (US gal, Imp gal)	3.4 (0.9, 0.8)

MAINTENANCE SPECIFICATIONS

ENGINE

Item	Unit	Model WB700A
Cylinder head:		
Warpage limit	mm (in)	0.1 (0.004)
Cylinder:		
Bore size	mm (in)	81.00 ~ 81.02 (3.189 ~ 3.190)
Wear limit	mm (in)	81.10 (3.193)
Taper limit	mm (in)	0.08 (0.003)
Out of round limit	mm (in)	0.05 (0.002)
Piston:		
Piston size	mm (in)	80.925 ~ 80.950 (3.186 ~ 3.187)
Measuring point*	mm (in)	10 (0.4)
Piston clearance	mm (in)	0.070 ~ 0.075 (0.0028 ~ 0.0030)
Wear limit	mm (in)	0.125 (0.0049)
Piston ring:		
Type		Keystone
Sectional sketch (B × T)	mm (in)	1.2 × 2.9 (0.047 × 0.114)
Side clearance	mm (in)	0.01 ~ 0.03 (0.0004 ~ 0.0012)
End gap (installed)	mm (in)	0.2 ~ 0.4 (0.008 ~ 0.016)
Piston pin:		
Outside diameter	mm (in)	19.995 ~ 20.000 (0.7872 ~ 0.7874)
Limit	mm (in)	19.98 (0.786)
Crankshaft:		
Crank width "A"	mm (in)	61.95 ~ 62.00 (2.439 ~ 2.441)
Run out limit "B"	mm (in)	0.05 (0.002)
Connection rod big end clearance "C"	mm (in)	0.25 ~ 0.75 (0.010 ~ 0.030)
Small end free play limit "D"	mm (in)	2.0 (0.08)
Carburetor:		
Stamped mark		64U00F/R
Main nozzle	ø mm (in)	2.5 (0.10)
Main jet 2 (M.J.2)		130
Pilot jet (P.J.)		70
Low speed screw	Turns out	7/8 ± 1/4
Throttle valve (Th. V.)		190
Valve seat (V.S.)	ø mm (in)	1.5 (0.06)
High speed screw	Turns out	1-1/8 (F), 1-1/2 (R) ± 1/4
Trolling speed	r/min	1,300 ± 50
Reed valve:		
Thickness	mm (in)	0.2 (0.008)
Valve lift	mm (in)	9.0 ± 0.2 (0.35 ± 0.01)
Bending limit	mm (in)	0.2 (0.008)

JET UNIT

Item	Unit	Model WB700A
Jet pump:		
Impeller clearance	mm (in)	0.3 ~ 0.4 (0.01 ~ 0.02)
Service limit	mm (in)	0.6 (0.024)
Impeller shaft run out	mm (in)	0.3 (0.012)

ELECTRICAL

Item	Unit	Model WB700A
Ignition system:		
Type		CDI magneto
Ignition timing at 1,200 rpm	Degree	15 BTDC
at 5,500 rpm	Degree	21 BTDC
Stator:		
Model/Manufacturer		F-2192HR/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-00
Model/Manufacturer		F-6192X/MITSUBISHI
Over revolution limit	r/min	7,000 ~ 7,400
Overheat revolution control	r/min	3,000 ~ 3,800
Ignition coil:		
Stamped mark		62E-00
Model/Manufacturer		F6T532/MITSUBISHI
Primary winding resistance	Ω	0.078 ~ 0.106 (O – B)
Secondary winding resistance	kΩ	3.5 ~ 4.7 (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
Regulate voltage	V	14.3 ~ 15.3
Thermo sensor:		
ON	°C (°F)	76 ~ 84 (169 ~ 183)
OFF	°C (°F)	63 ~ 77 (145 ~ 171)
Starter motor:		
Model/Manufacturer		SM13237/MITSUBA
Brush length limit	mm (in)	6.5 (0.26)
Commutator undercut limit	mm (in)	0.2 (0.01)
diameter limit	mm (in)	27 (1.06)
Fuse:		
Rating	A	10

TIGHTENING TORQUE

SPECIFIED TORQUE

Part to tightened		Part name	Size	Q'ty	Tightening torque			Remarks
					Nm	m•kg	ft•lb	
ENGINE:								
Electric box		Bolt	M8	2	13	1.3	9.4	
Mounting bolt		Bolt	M8	4	17	1.7	12	
Reed valve		Screw	M4	16	1	0.1	0.7	
Muffler stay	1st	Bolt	M10	5	4	0.4	2.9	
	2nd				40	4.0	29	
Muffler 2-Muffler stay	1st	Bolt	M10	3	28	2.8	20	
	2nd				53	5.3	38	
Muffler 1	1st	Bolt	M10	8	15	1.5	11	
	2nd				30	3.0	22	
Cylinder body	1st	Bolt	M10	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	
Spark plug		Bolt	M14	2	20	2.0	14	
Flywheel bolt		Bolt	M10	1	70	7.0	51	
Crankcase	1st	Bolt	M8	8	15	1.5	11	
	2nd				28	2.8	20	
Mount bracket	1st	Bolt	M10	7	23	2.3	17	
	2nd				47	4.7	34	
Coupling		Nut	M27	1	37	3.7	27	
Frame arrestor cover		Bolt	M6	6	2	0.2	1.4	
Starter motor terminal nut		Nut	M6	1	5	0.5	3.6	
JET UNIT:								
Mounting bolt		Bolt	M10	4	17	1.7	12	
Ride plate		Bolt	M8	4	17	1.7	12	
Impeller (left-hand threads)		Bolt	M20	1	18	1.8	13	
Coupling		Nut	M27	1	36	3.6	26	
Intermediate housing		Bolt	M8	3	17	1.7	12	

PERIODIC SERVICE
FUEL SYSTEM
Trolling speed inspection and adjustment

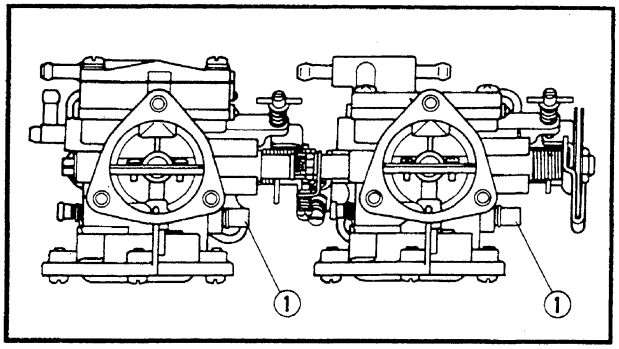
1. Check:
   - Trolling speed
     Out of specification → Adjust.

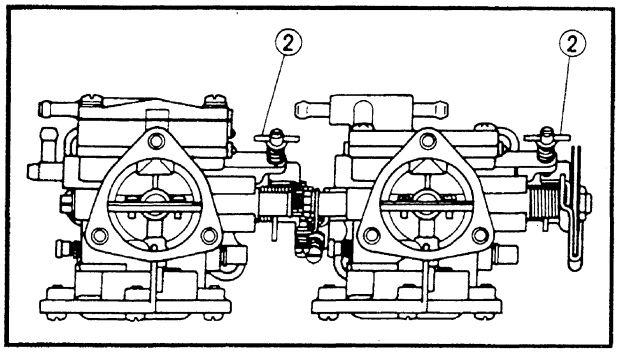
	Trolling speed: **1,300 ± 50 r/min**

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-8036-A/90890-06760**

- Measure the engine trolling speed.





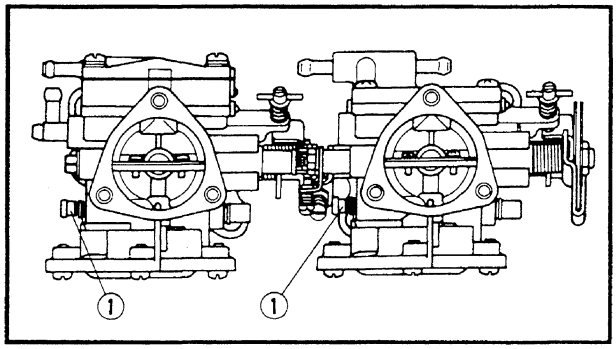
2. Adjust:
   - Trolling speed

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: **7/8 ± 1/4 (turns out)**

- Start the engine and allow it to warm up for a few minutes.
- Turn the throttle stop screws 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:
1-1/8 (F), 1-1/2 (R) ± 1/4 (turns out)

OIL INJECTION SYSTEM

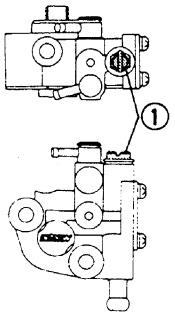
Oil injection pump air bleeding

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:
a. Place rags under the oil pump to catch any oil that spills out.
b. Disconnect the oil hose from the oil pump.
c. Position the oil hose end above the oil tank.
d. Put 2 liters of oil or more in the oil tank and leave it for 2 minutes.
e. Then, lower the oil hose end and make sure the oil flows out of the oil hose.
f. Connect the oil hose to the oil pump.
g. Clamp the oil hose with the hose tie.



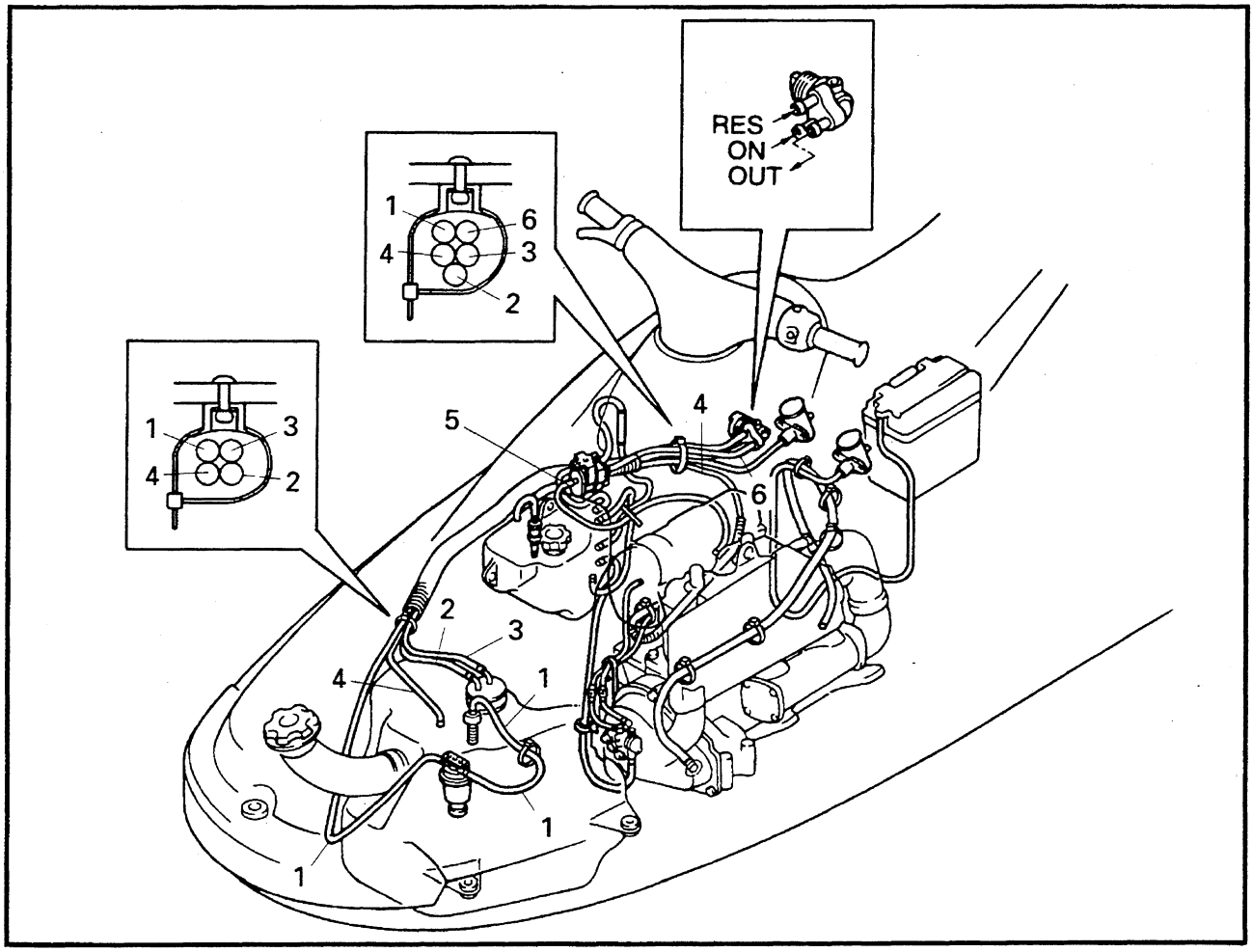
h. Loosen the air bleed screw ① 2 turns, and make sure both oil and air bubbles flow out.
i. If oil does not come out, squeeze the oil hose near the oil pump inlet a maximum 20 times.
j. When no air bubbles remain, tighten the air bleed screw.
k. Wipe out any spilled oil.

Screw:
5 Nm (0.5 m • kg, 3.6 ft • lb)

⚠ WARNING

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

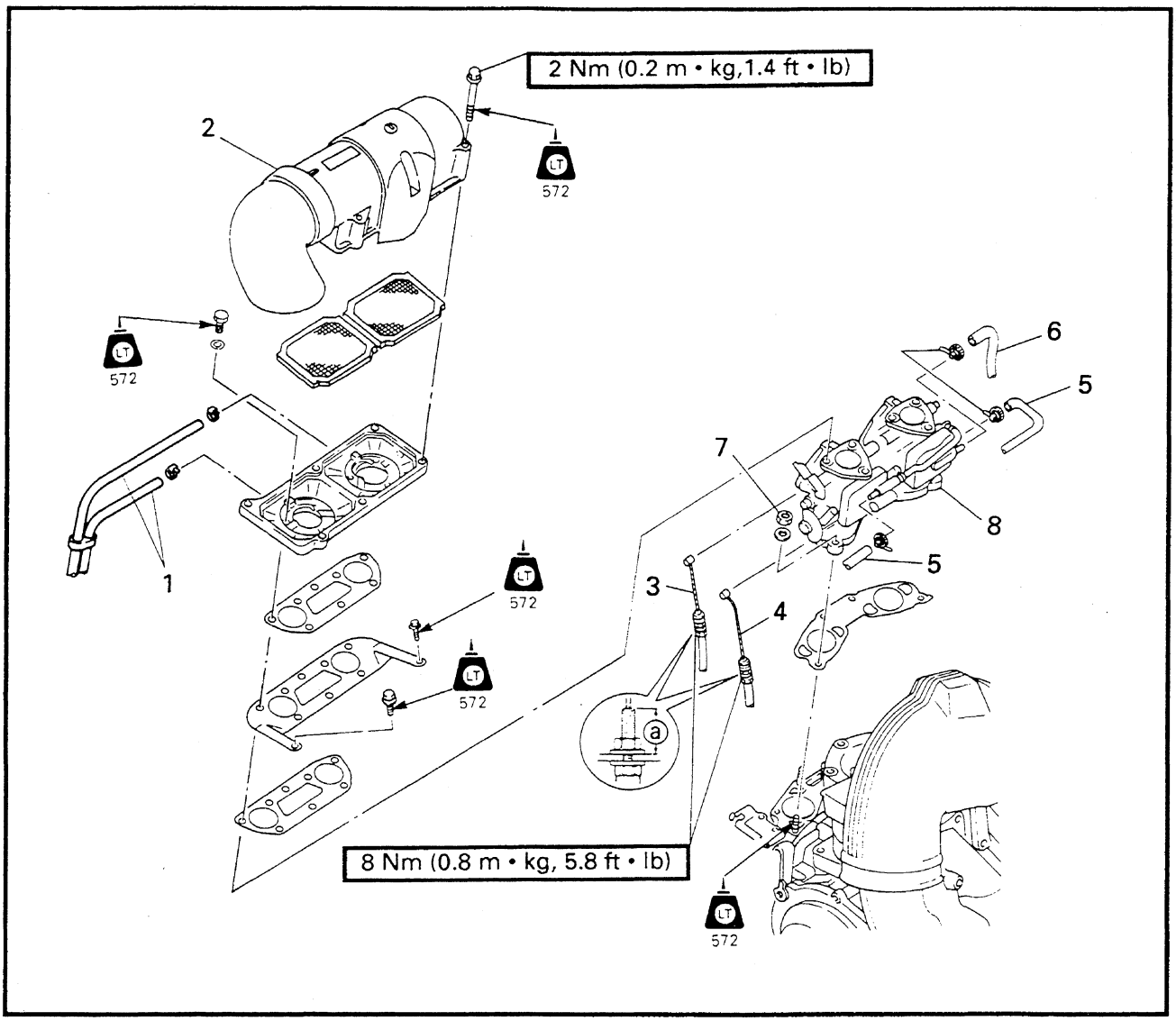
FUEL LINE
EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	FUEL HOSE REMOVAL		Follow the left "Step" for removal.
1	Air ventilation hose	3	
2	Fuel hose (ON)	1	
3	Fuel hose (RES)	1	
4	Fuel hose (carburetor - fuel tank)	1	
5	Fuel hose (filter - carburetor)	1	
6	Fuel hose (OUT)	1	
			Reverse the removal steps for installation.

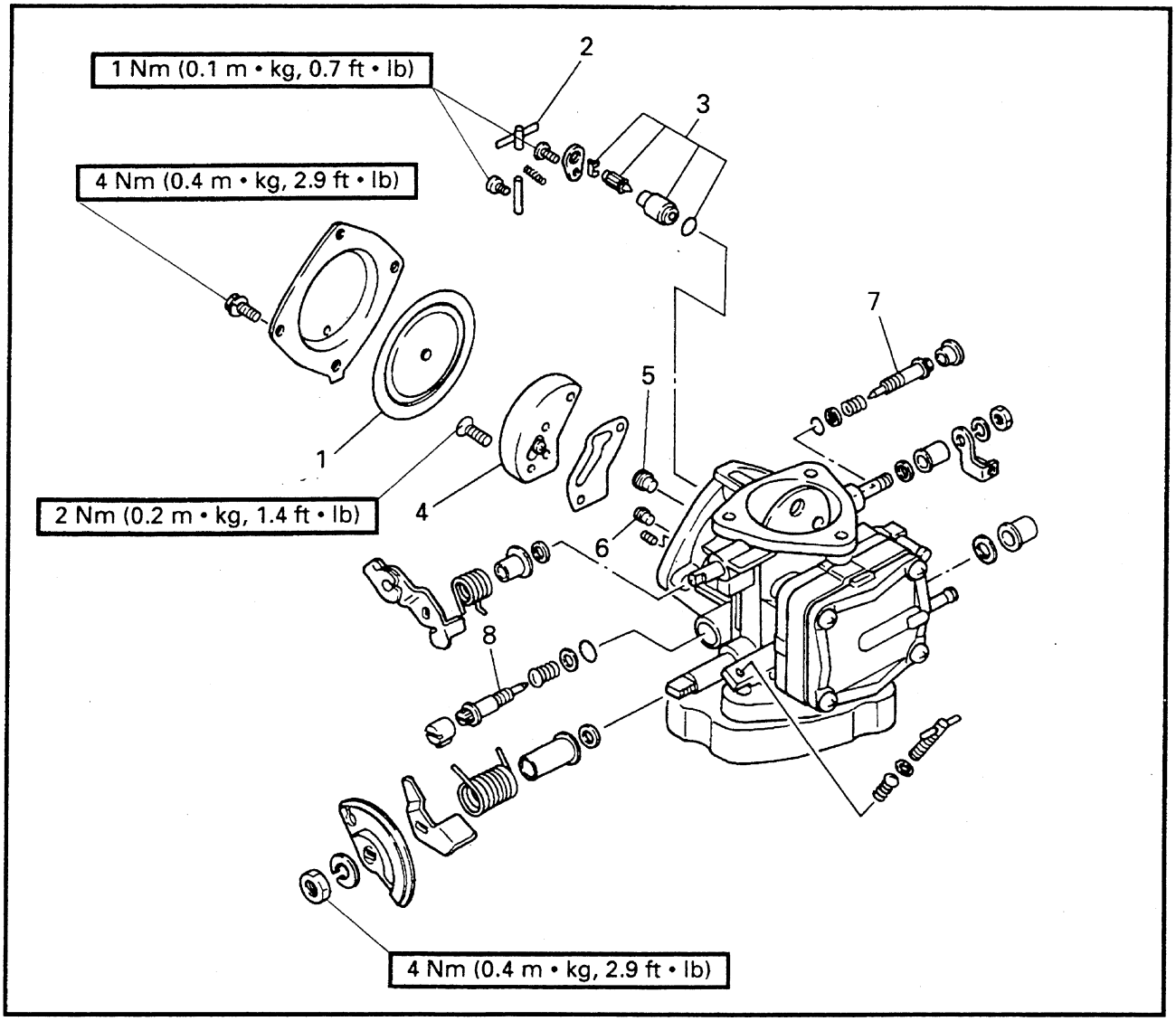
CARBURETOR REMOVAL
EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

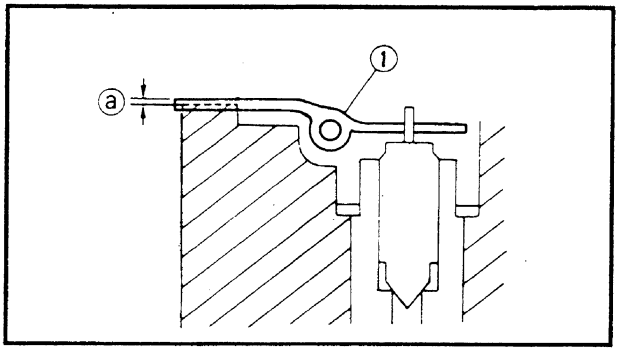
Step	Procedure/Part name	Q'ty	Service points
	CARBURETOR REMOVAL		Follow the left "Step" for removal.
1	Oil delivery hose	2	
2	Carburetor cover	1	
3	Choke cable	1	**Cable guide set position ⓐ: 17 mm (0.67 in) Between cable guide top and plate top.**
4	Throttle cable	1	
5	Fuel hose	2	
6	Pulse hose	2	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

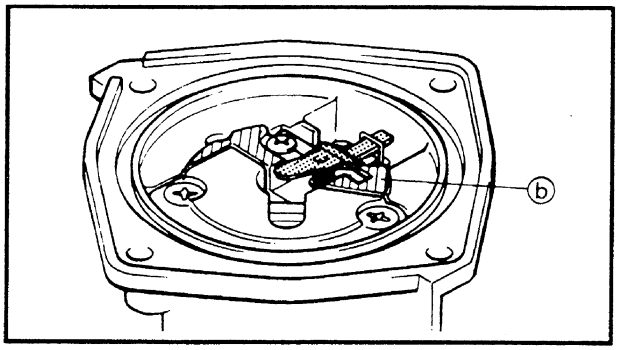
CARBURETOR
EXPLODED DIAGRAM

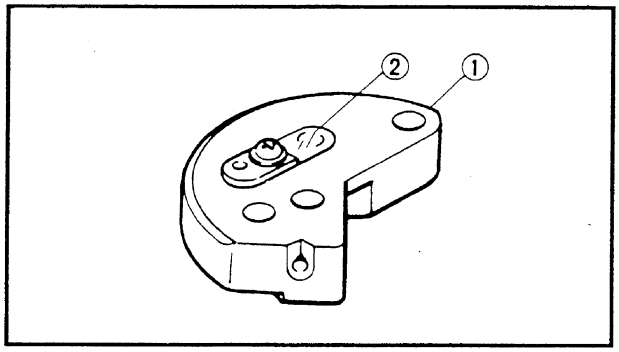


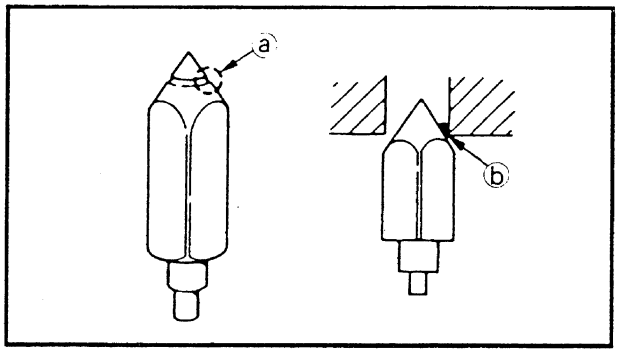
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	CARBURETOR DISASSEMBLY		Follow the left "Step" for removal.
	Carburetor assembly		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 ⓐ

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

NOTE:

- Measure the distance between the surface ⓑ 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 ⓐ → Replace.
     Dust ⓑ → Clean.

NOTE:

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

Jet and carburetor body inspection

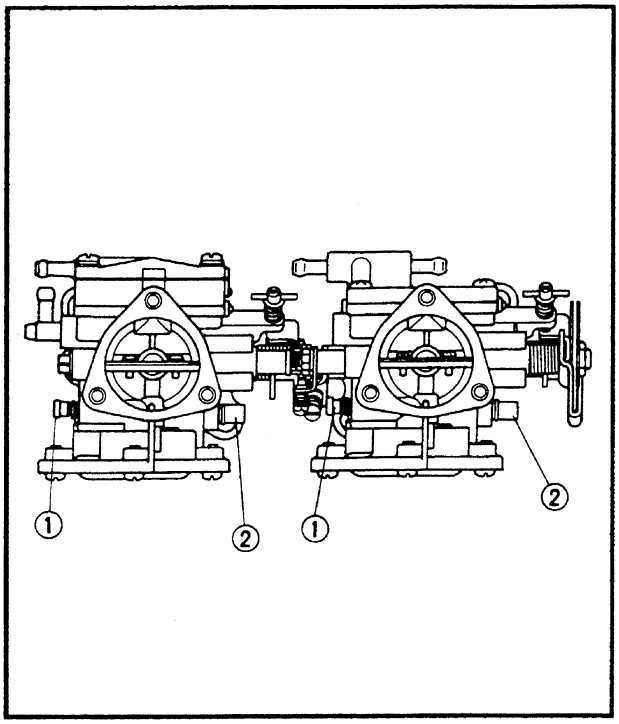
1. Inspect:
   - Main jet
   - Pilot jet
   - Carburetor body

   Contamination → Clean.

High and low speed screws inspection

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

   Bend/Wear → Replace.



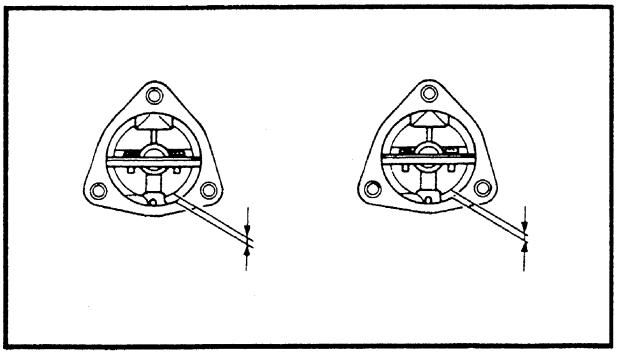
High and low speed screws adjustment

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

Adjustment steps:

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

High speed screw:
1-1/8 (F), 1-1/2 (R) ± 1/4 turns out
Low speed screw:
7/8 ± 1/4 turns out



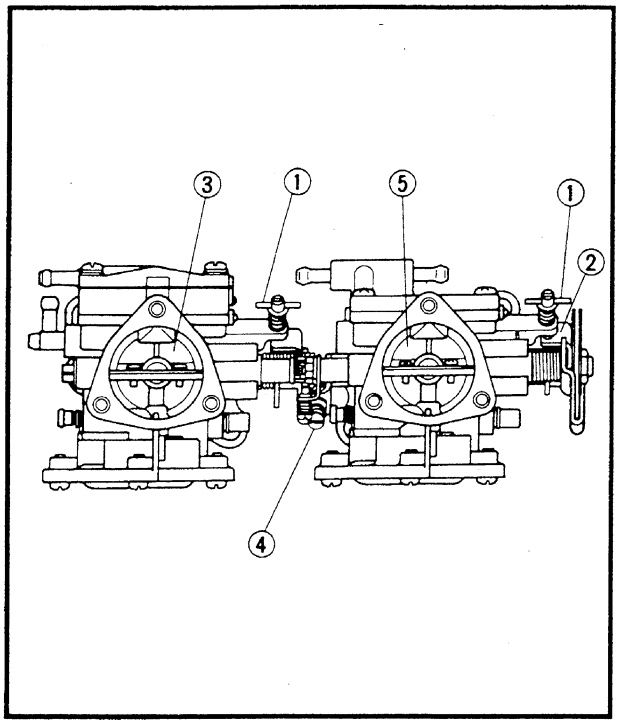
Throttle valve synchronization inspection and adjustment

1. Check:
   - Throttle valve synchronization

   Out of specification → Adjust.

Checking steps:

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

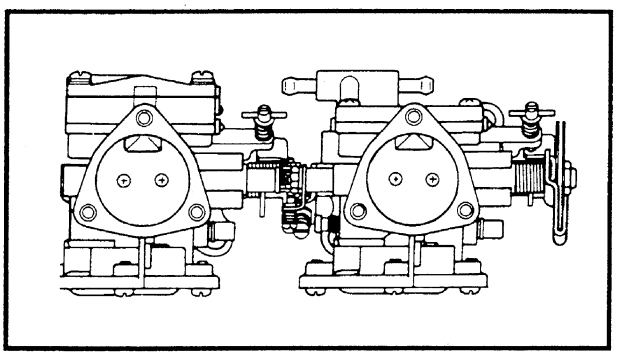


2. Adjust:
   - Throttle valve synchronization

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.

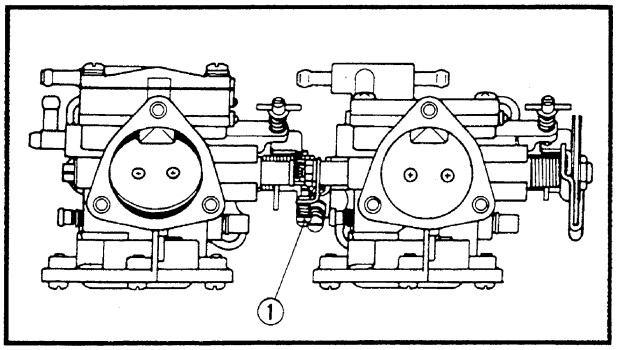
- Check that the R throttle valve ③ is fully closed.
- Turn the synchronization screw ④ in or out until the F throttle valve ⑤ is fully closed.
- Turn in the idle adjust screws to the set position.



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.



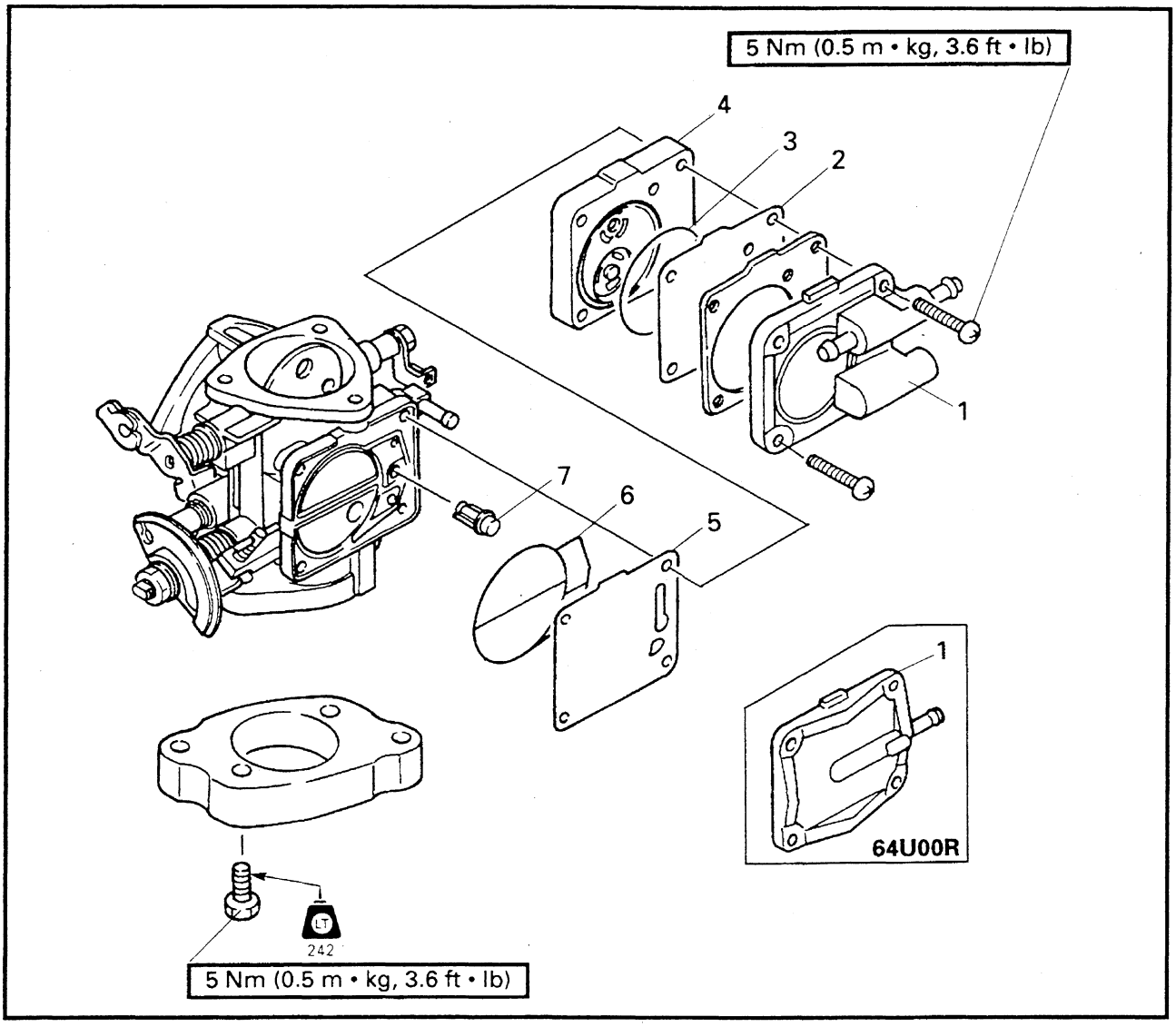
2. Adjust:
   - Choke valve synchronization

Adjustment steps:
- 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 "FUEL SYSTEM".

FUEL PUMP
EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	FUEL PUMP DISASSEMBLY		Follow the left "Step" for removal.
	Carburetor assembly		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

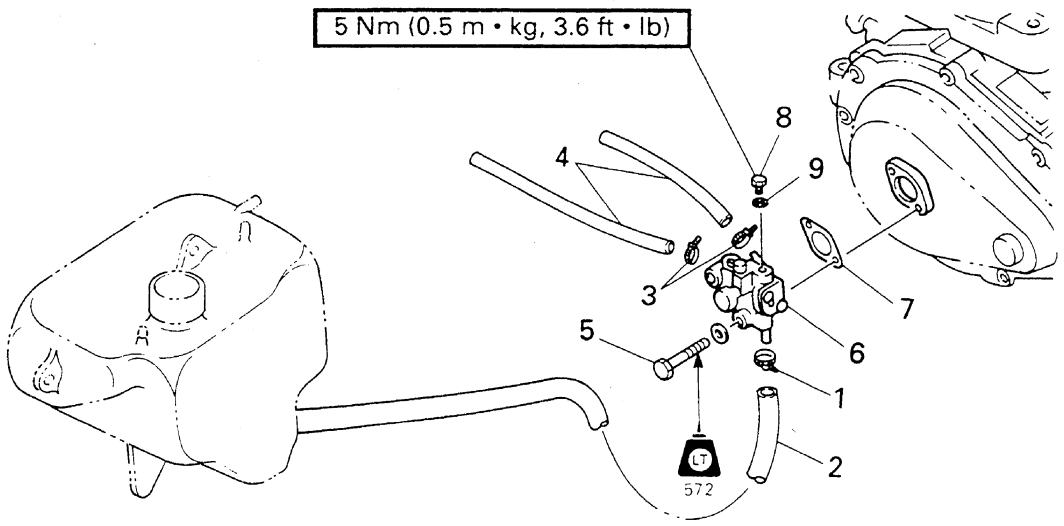
   Damage → Replace.

Filter inspection

1. Inspect:
   - Filter

   Contamination → Clean.
   Damage → Replace.

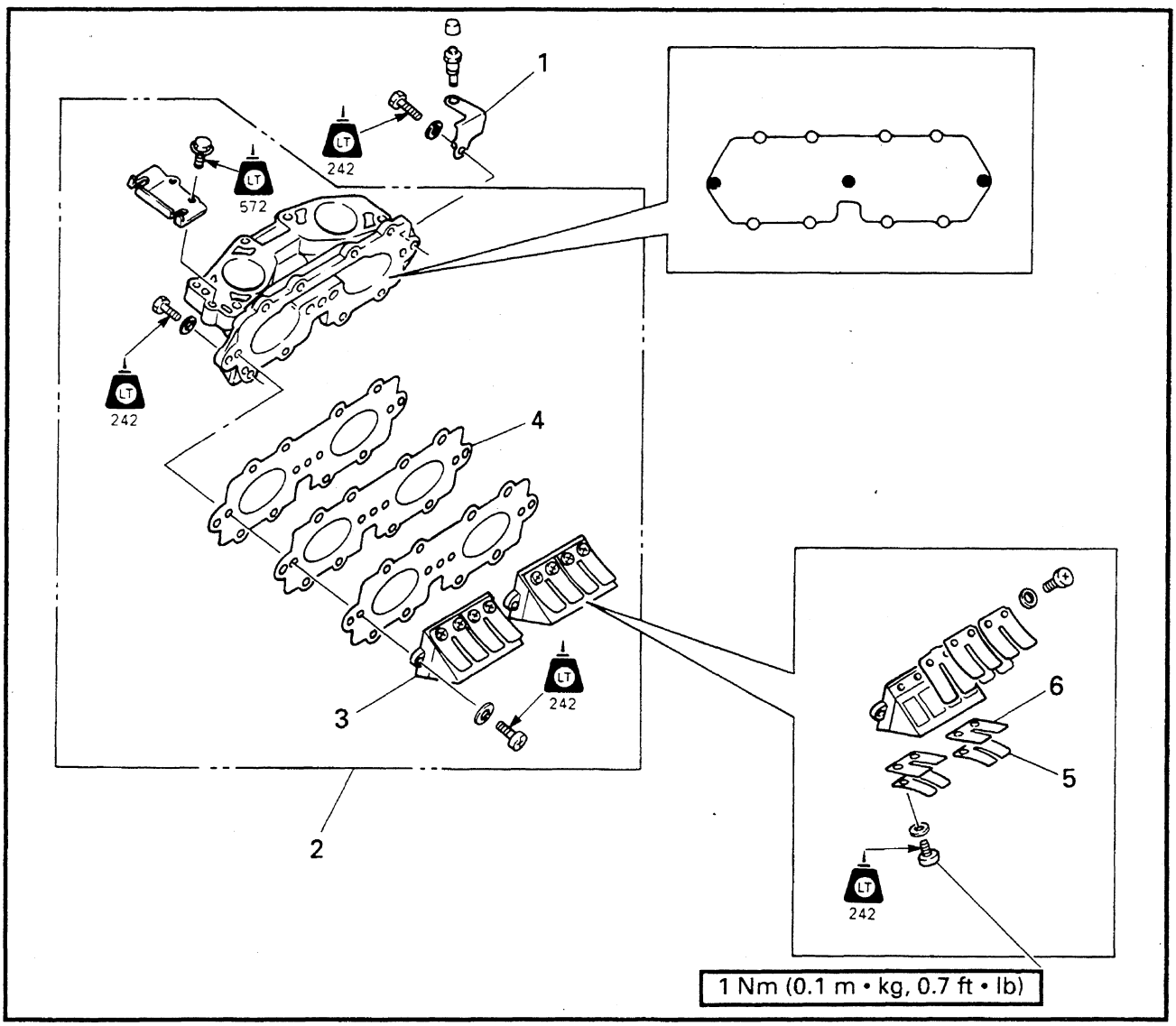
OIL PUMP
EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

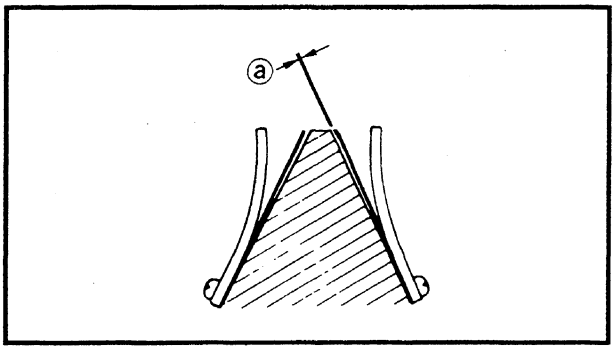
Step	Procedure/Part name	Q'ty	Service points
	OIL PUMP REMOVAL		Follow the left "Step" for removal.
1	Hose tie	1	
2	Oil hose	1	
3	Hose tie	2	
4	Oil delivery hose	2	
5	Bolt (with washer)	2	
6	Oil pump	1	
7	Oil pump gasket	1	
8	Air bleeding screw	1	
9	Gasket	1	
			Reverse the removal steps for installation.

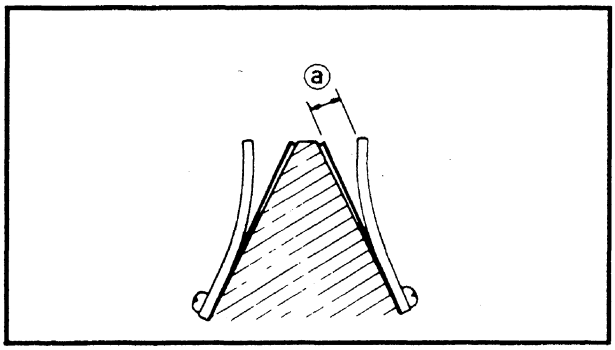
REED VALVE
EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	REED VALVE REMOVAL		Follow the left "Step" for removal.
	Carburetor assembly		Refer to "CARBURETOR REMOVAL".
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.





SERVICE POINTS

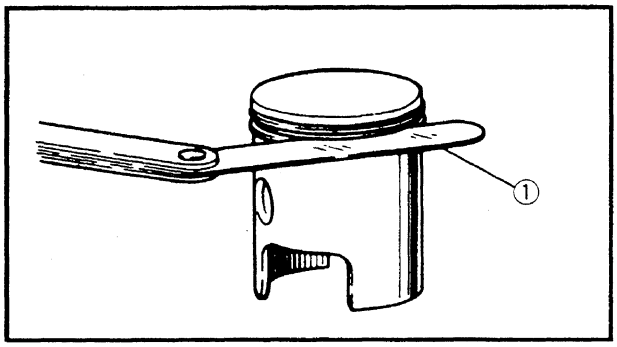
Reed valve inspection

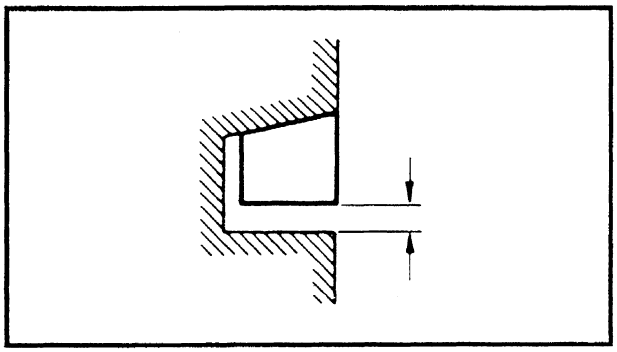
1. Inspect:
   - Reed valve
     Crack/Damage → Replace.
2. Measure:
   - Valve bending ⓐ
     Out of specification → Replace.

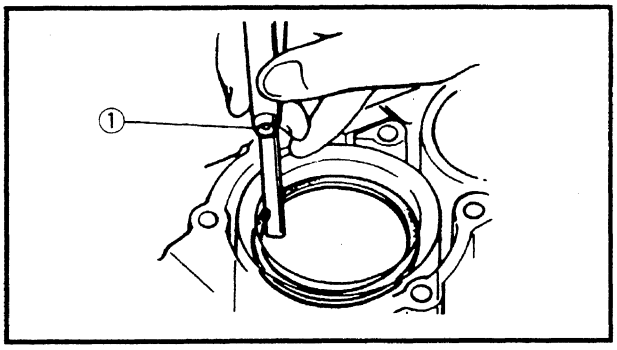
Valve bending limit:
0.2 mm (0.008 in)

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

Valve stopper height:
9.0 ± 0.2 mm (0.35 ± 0.01 in)







PISTON

SERVICE POINTS

Piston ring inspection

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

Side clearance:
Top
2nd
0.01 ~ 0.03 mm
(0.0004 ~ 0.0012 in)

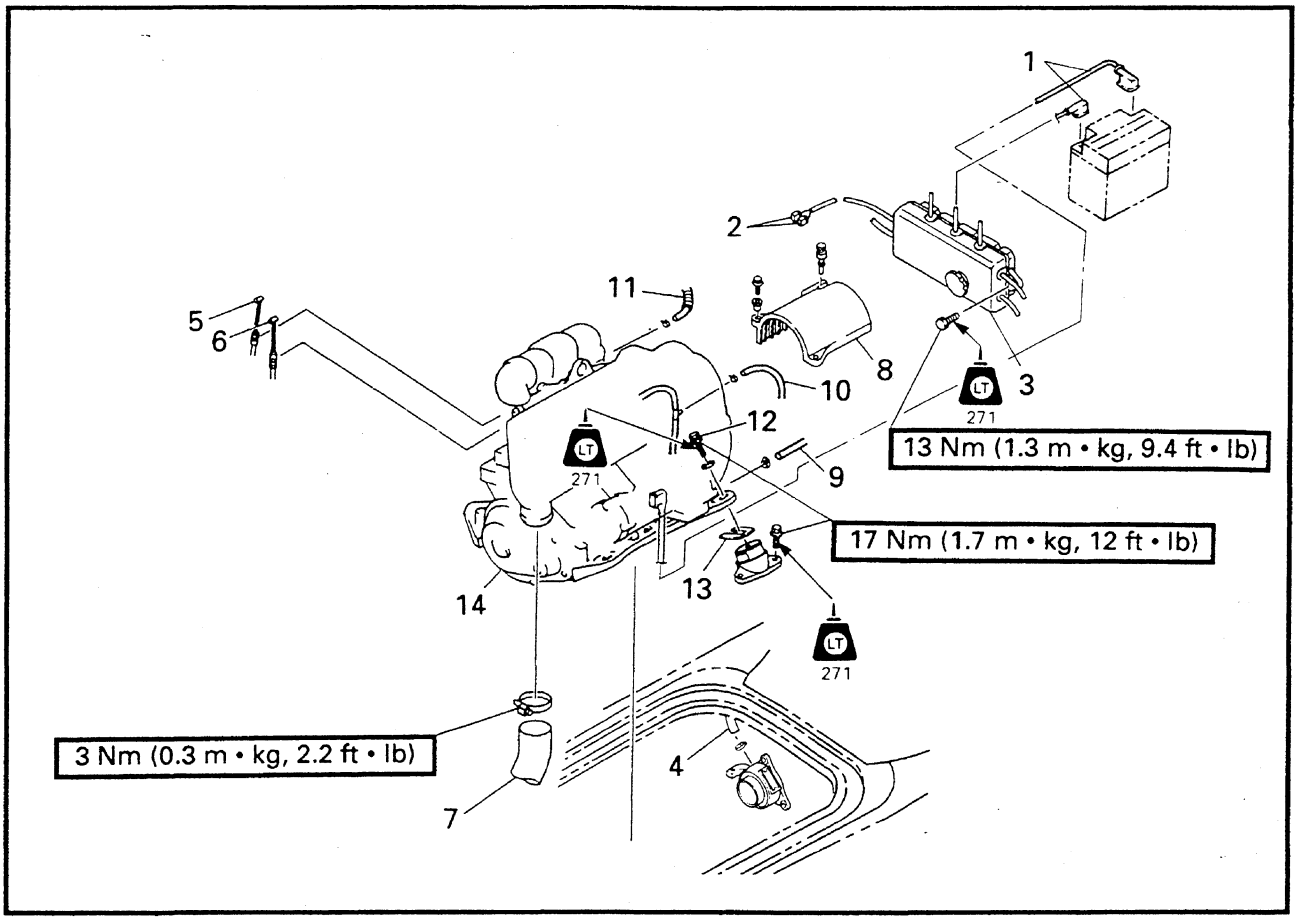
2. Measure:
   - End gap
     Out of specification → Replace rings as a set.
     Use a thickness gauge ①.

End gap:
Top
2nd
0.2 ~ 0.4 mm (0.008 ~ 0.016 in)

NOTE:
- Install the piston ring in the cylinder.
- Push the ring with the piston crown.

ENGINE UNIT REMOVAL

EXPLODED DIAGRAM



REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	ENGINE UNIT REMOVAL		Follow the left "Step" for removal.
1	Battery lead	2	
2	Handle switch lead coupler	2	
3	Electrical box	1	
4	Grease hose	1	
5	Choke cable	1	
6	Throttle cable	1	
7	Exhaust hose	1	
8	Coupling cover	1	
9	Water inlet hose	1	
10	Pilot water hose	1	
11	Fuel hose (fuel filter - carburetor)	1	
12	Engine mounting bolt	4	
13	Shim	*	
14	Engine unit	1	
			Reverse the removal steps for installation.

*: As required

SERVICE POINTS

Shim removal

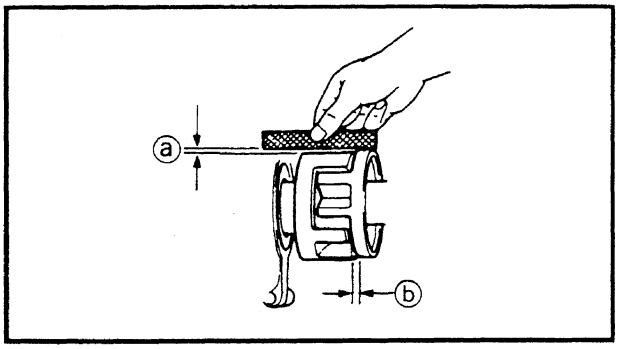
1. Remove:
   - Shim

NOTE:

Mark 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. Check:
   - Clearance ⓐ
   - Clearance ⓑ
     Out of specification → Adjust using shim.

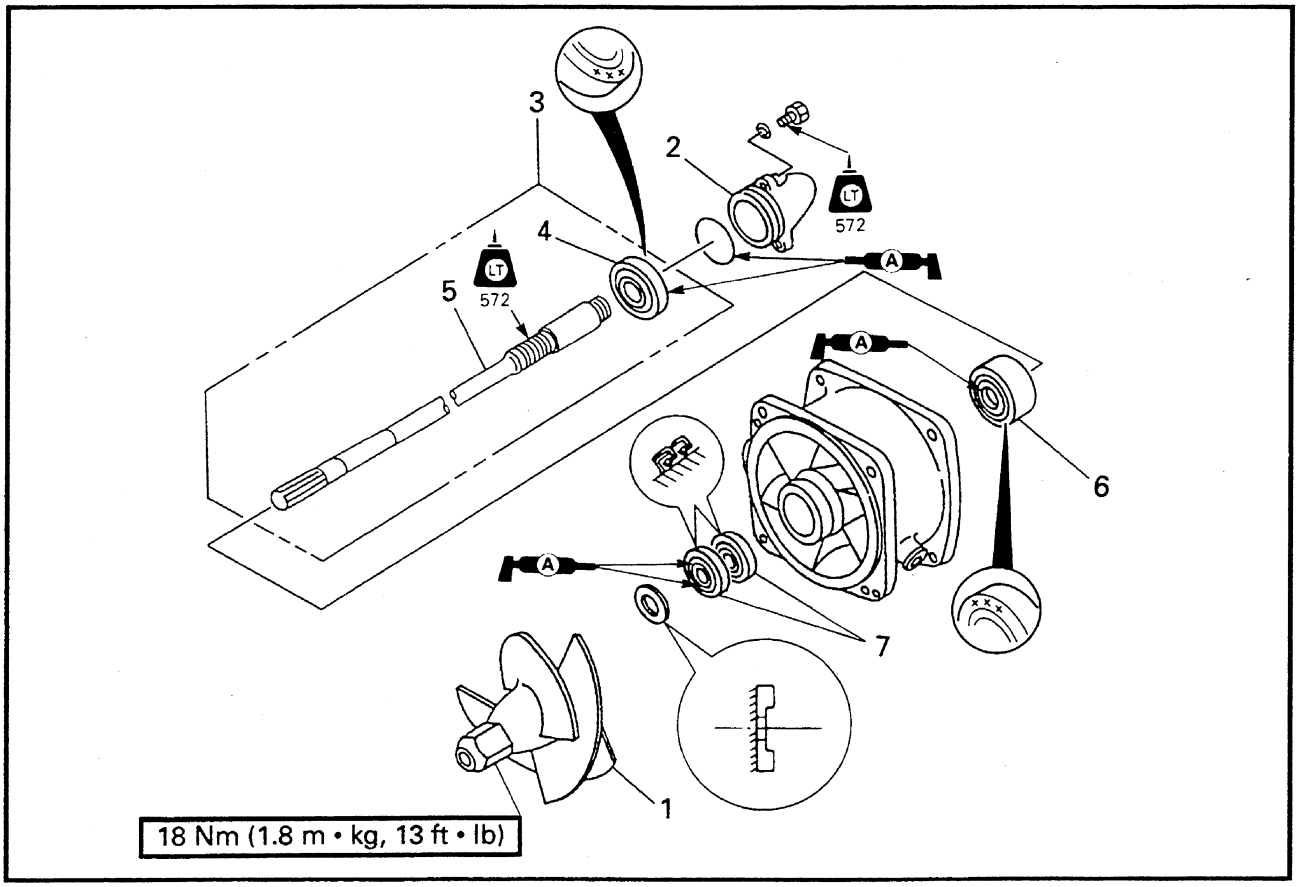
NOTE:

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

Clearance ⓐ:
0 ~ 1.0 mm (0 ~ 0.039 in)
Clearance ⓑ:
2 ~ 4 mm (0.079 ~ 0.157 in)

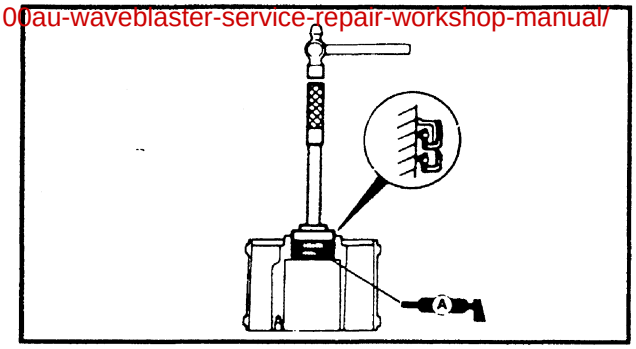
IMPELLER AND DRIVE SHAFT

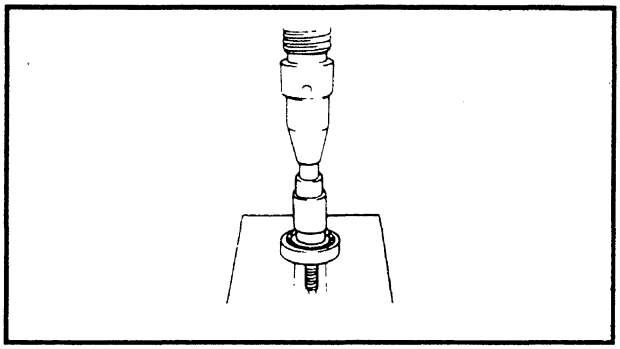
EXPLODED DIAGRAM

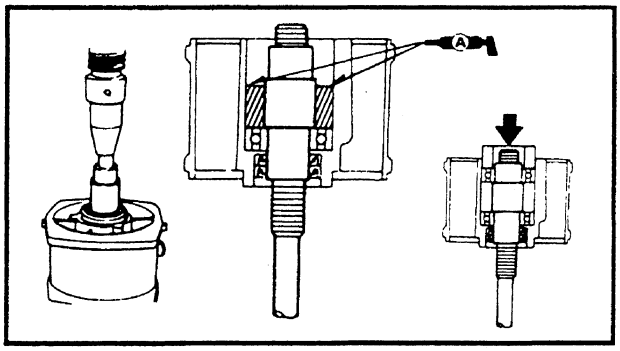


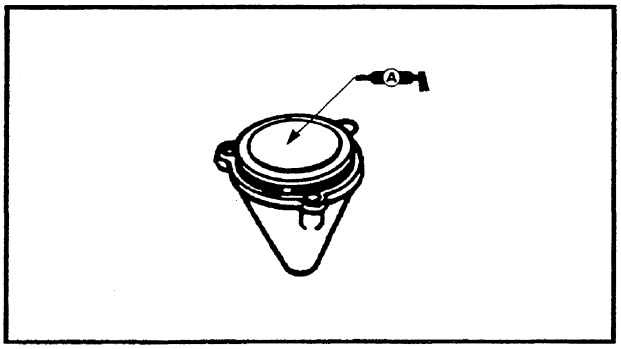
REMOVAL AND INSTALLATION CHART

Step	Procedure/Part name	Q'ty	Service points
	IMPELLER AND DRIVE SHAFT DISASSEMBLY		Follow the left "Step" for removal.
	Impeller duct assembly		
1	Impeller	1	
2	Cap	1	
3	Drive shaft assembly	1	
4	Bearing (rear)	1	
5	Drive shaft	1	
6	Bearing (front)	1	
7	Oil seal	2	
			Reverse the removal steps for installation.









SERVICE POINTS

Oil seal and bearing installation

1. Install:
   - Oil seal

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

2. Install:
   - Bearing (front)
   - Drive shaft and bearing

NOTE:
Use a press.

3. Fill:
   - Between the drive shaft and duct

	Water resistant grease: **24 cm^3 (1.45 cu. in)**

4. Install:
   - Bearing (rear)

	Bearing inner race attachment: **YB-34474/90890-06662**

5. Fill:
   - Into the cap

	Water resistant grease: **21 cm^3 (1.3 cu. in)**