

YAMAHA

SERVICE MANUAL



MZ125 MZ175

FOREWORD

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha multi purpose engine have a basic understanding of the mechanical precepts and procedures inherent to multi purpose engine repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit for use and/or unsafe.

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

MZ125/175
SERVICE MANUAL
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HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.



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 person inspecting or repairing the machine.

CAUTION:

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

NOTE:

A **NOTE** provides key information to make procedures easier or cleaner.

MANUAL FORMAT












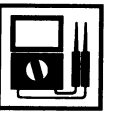




The procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.

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.

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying the correct disassembly and assembly procedures.

① GEN INFO 	② INSP ADJ 
③ ENG 	④ ELEC 
⑤ SPEC 	
⑥ 	⑦ 
⑧ 	⑨ 
⑩ 	⑪ 
⑫ 	⑬ 
⑭ 	⑮ 
⑯ 	⑰ New

ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① thru ⑤ are designed as thumb tabs to indicate the chapter's number and content.

- ① General information
- ② Periodic inspections and adjustments
- ③ Engine
- ④ Electrical
- ⑤ Specifications

Illustrated symbols ⑥ thru ⑫ are used to identify the specific tools and test equipment.

- ⑥ Special tools
- ⑦ Filling fluid
- ⑧ Lubricant
- ⑨ Tightenings
- ⑩ Wear limit, clearance
- ⑪ Engine speed
- ⑫ Ω , V, A

Illustrated symbols ⑬ thru ⑰ in the exploded diagram indicate the grades of lubricant and the locations of the lubrication points.

- ⑬ Apply molybdenum disulfide oil
- ⑭ Apply engine oil
- ⑮ Apply lightweight lithium-soap base grease
- ⑯ Apply a locking agent (LOCTITE®)
- ⑰ Use a new one

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GENERAL INFORMATION



GEN
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1

PERIODIC INSPECTIONS AND ADJUSTMENTS



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MACHINE IDENTIFICATION/ DIMENSION CHART AND ACCESSORY TABLE/ MOUNTING BASE DIMENSION

**GEN
INFO**



GENERAL INFORMATION

MACHINE IDENTIFICATION ENGINE SERIAL NUMBER

the engine serial number ① is stamped into the right side of the body

NOTE:

The first three digits of these numbers are for model identification; the remaining digits are the unit production number.

STARTING SERIAL NUMBER

MZ125 7NM-900101~

MZ175 7NN-900101~

NOTE:

Designs and specifications are subject to change without notice.

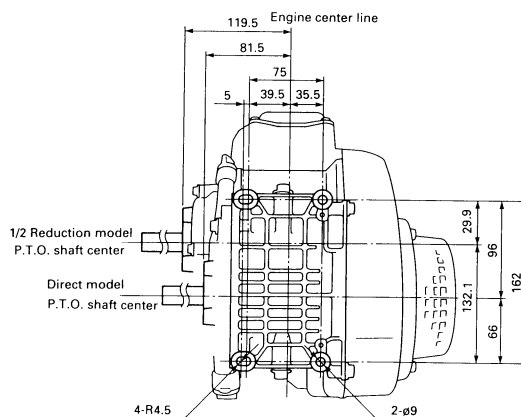
DIMENSION CHART AND ACCESSORY TABLE

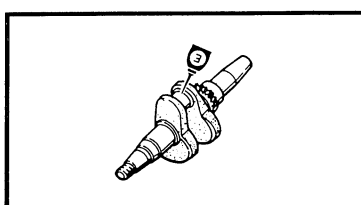
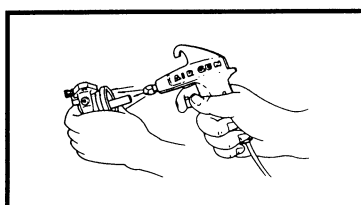
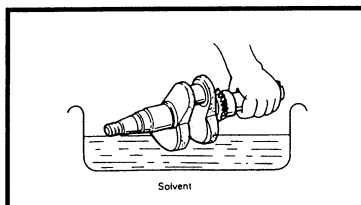
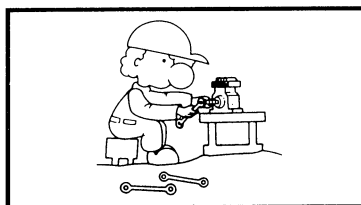
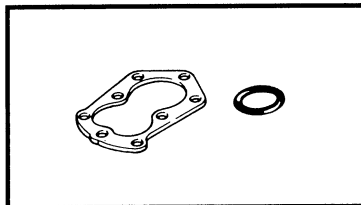
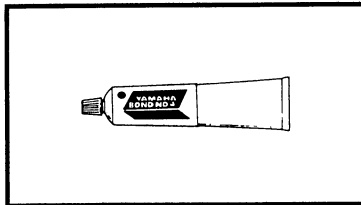
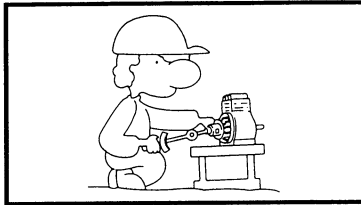
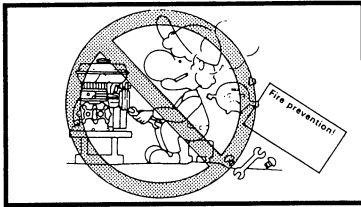
Unit: mm (in)

Model	P.T.O. Shaft dimensions	Mounting face dimensions	Oil warning	Resistored spark plug and plug cap
MZ125B4 MZ175B4			—	—

*: UNF; Unified fine thread (Unit: in)

MOUNTING BASE DIMENSION





IMPORTANT INFORMATION

PREPARATION FOR REMOVAL AND DISASSEMBLY

NOTES ON SERVICE

1. Fire prevention
When servicing the engine, always keep the engine and yourself away from fire.
2. Correct tools
To guard against damage, be sure to use the correct special tool for the specific job.
3. Oil, grease and seals
Be sure to use genuine Yamaha oils, grease and seals, or the equivalents.
4. Expendable parts
When servicing the engine, always replace the gaskets, O-rings, cotter pins and circlips with new parts.
5. Tightening torque
Be sure to follow torque specifications. When tightening bolts, nuts or screws, start with the largest-diameter and work from an inner position to an outer position in a crisscross pattern.
6. Notes on disassembly and assembly
 - a. After disassembly, the parts should be cleaned in solvent and blown dry with compressed air.
 - b. When reassembling moving parts oil their contact surfaces.
 - c. Make sure that the parts move smoothly after each of the machine is assembled.

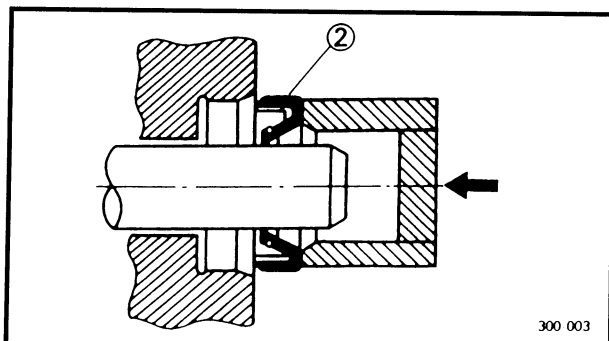
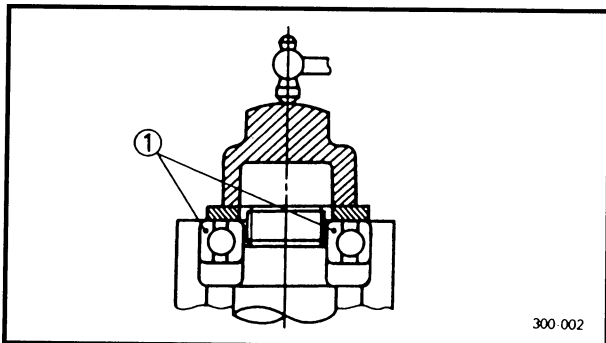


ALL REPLACEMENT PARTS

1. We recommend the use of genuine Yamaha parts for all replacements. Use oil and/or grease, recommended by Yamaha, for assembly and adjustment.

GASKETS, OIL SEALS, AND O-RINGS

1. When an engine is overhauled, all gaskets, seals and O-rings should be replaced. All gasket surfaces, oil seal lips, and O-rings must be cleaned.
2. During reassembly properly oil all mating parts and bearings. Apply grease to the oil seal lips.



BEARINGS AND OIL SEALS

1. Install the bearing(s) ① and oil seal(s) ② with their manufacturer's marks or numbers facing outward. (In other words, the stamped letters must be on the side exposed to view.) When installing oil seal(s), apply a light coating of light-weight lithium base grease to the seal lip(s). When installing the bearings, oil them liberally.

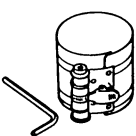
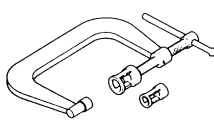
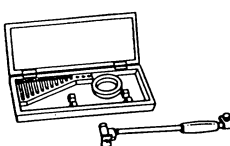
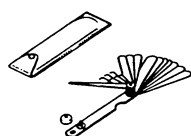
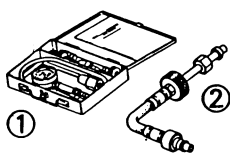
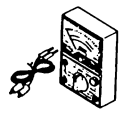
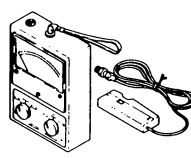
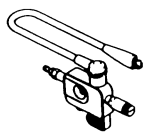
CAUTION:

Do not use compressed air to spin the bearings dry. This causes damage to the bearing surface.

SPECIAL TOOLS

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

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

Tool No.	Tool name / Usage	Illustration
907890-05158	Piston ring compressor This tool is used to compress the piston rings when installing the piston.	
90890-01253	Valve spring compressor This tool is used to remove and install the valve spring.	
980890-03017	Cylinder gauge (50~100 mm) This gauge is used to measure the cylinder inside diameter.	
90890-03079	Service gauge (Thickness gauge) This gauge is used to measure the valve clearance.	
90890-03081 90890-04082	Compression gauge ① Adaptor ② These tools are used to measure the engine compression.	
90890-03112	Pocket tester These instrument is invaluable for checking the electrical system.	
90793-80008	Indicative tachometer These instrument is invaluable for reading the engine rpm.	
90890-06754	Ignition checker This instrument is necessary for checking the ignition system components.	



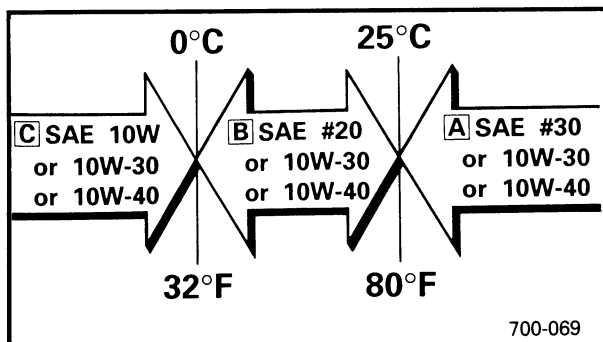
PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION

This chapter includes all information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable machine operation and a longer service life. The need for costly overhaul work will be greatly reduced. This information applies to machines already in service as well as new machines that are being prepared for sale. All service technicians should be familiar with this entire chapter.

PERIODIC MAINTENANCE/LUBRICATION INTERVALS

No.	Item	Remarks	Pre-Operation check (daily)	Initial	Every		
				1 month or 20 hr	3 months or 50 hr	6 months or 100 hr	12 months or 300 hr
1.	Spark plug	Check condition, adjust gap and clean. Replace if necessary.			•		
2.	Valve clearance	Check and adjust when engine is cold.					•
3.	Crankcase breather system	Check breather hose for cracks or damage. Replace if necessary.					•
4.	Idle speed	Check and adjust engine idle speed.					•
5.	Exhaust system	Check for leakage. Retighten or replace gasket if necessary.	•				
		Check spark arrester. Clean/replace if necessary.					•
6.	Engine oil	Check oil level.	•				
		Replace.		•		•	
7.	Air filter	Clean. Replace if necessary.			•		
8.	Fuel filter	Clean fuel petcock and fuel tank filter. Replace if necessary.				•	
9.	Fuel line	Check fuel hose for cracks or damage. Replace if necessary.	•				
10.	Choke lever	Check choke operation.	•				
11.	Cooling system	Check for fan damage					•
12.	Starting system	Check recoil starter operation.	•				
13.	Muffler screen	Clean. Replace if necessary.				•	
14.	Decarbonization	More frequency if necessary.					
15.	Fittings/fasteners	Check all fittings and fasteners. Correct if necessary.				•	



ENGINE ENGINE OIL



Recommended oil:

A SAE #30 or 10W-30
or 10W-40

B SAE #20 or 10W-30
or 10W-40

C SAE #10 or 10W-30
or 10W-40

Above 35°C (95°F) : SAE #40

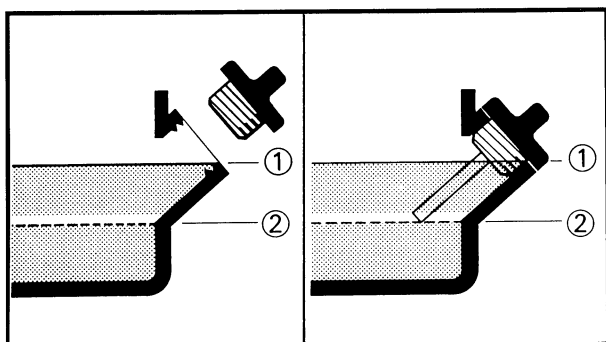
Engine oil quantity:

0.60 L (0.53 Imp qt, 0.65 US qt)

NOTE:

Recommended engine oil classification:
API Service "SE" or "SF", if not available,
"SD".

2



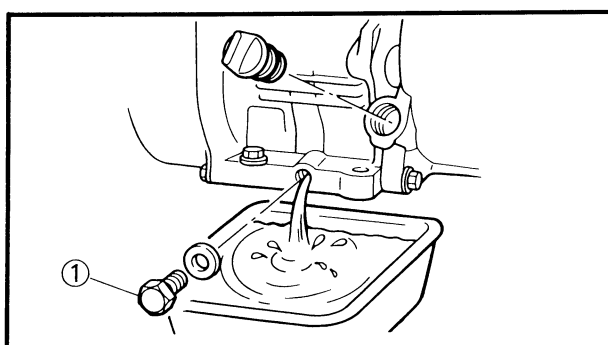
Oil level inspection

1. Check:
 - Oil level

Oil level adjustment steps:

- Place the engine on a flat surface.
- Warm up the engine for a few minutes.
- Stop the engine.
- Make sure that the engine oil is between the upper and lower levels. Add oil as necessary.

- ① Upper level
- ② Lower level

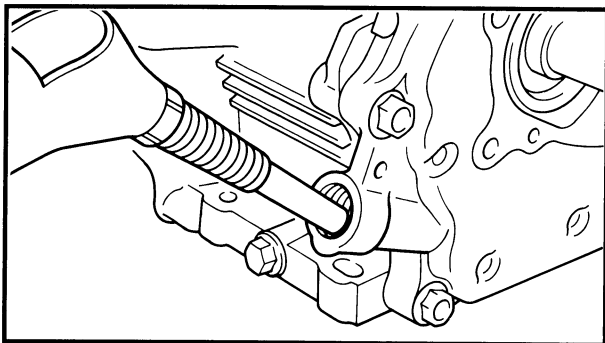


Oil replacement

1. Warm up the engine oil for several minutes.
2. Place a receptacle under the engine.
3. Remove:
 - Oil filler cap
 - Drain plug ①

FUEL LINE INSPECTION/FUEL PETCOCK

INSP
ADJ




4. Fill:
- Engine oil

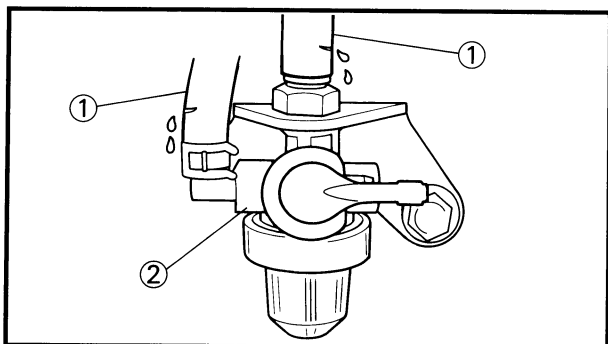


Recommended engine oil:
0.6 L (0,53 Imp qt, 0.63 US qt)

CAUTION:

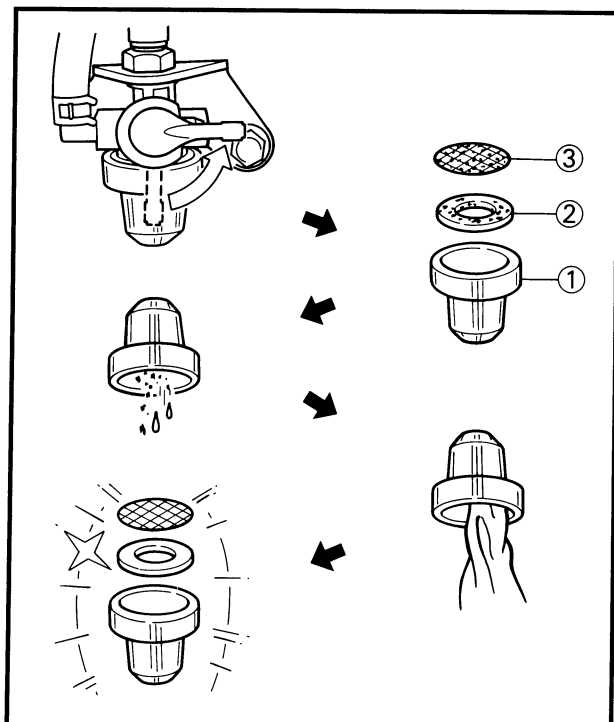
Do not allow foreign material to enter the crankcase.

5. Install:
- Oil filler cap
6. Tighten:
- Drain plug  17 Nm (1.7 m•kg, 12 ft•lb)



FUEL LINE INSPECTION

1. Inspect:
- Fuel hose ①
 - Fuel petcock ②
- Clacks/damage→Replace.
Poor connection→Correct.




FUEL PETCOCK

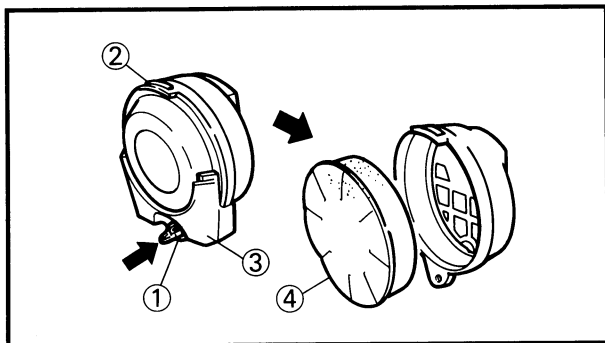
Removal and inspection

1. Turn the fuel petcock lever the "C" position.
2. Inspect:
- Fuel petcock cup ①
Connection→Clean.
 - Gasket ②
Damage→Replace.
 - Strainer ③
Contamination→Clean.

NOTE:

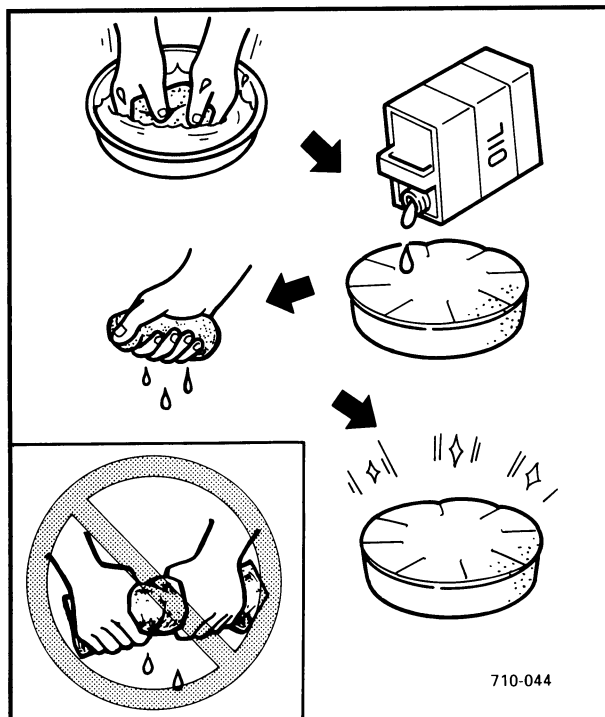
Clean the cup with solvent and dry it off.

3. Install:
- Fuel petcock cup  1.5 Nm (0.15 m•kg, 1.1 ft•lb)



AIR FILTER

- Remove:
 - Bolt ①
 - Air filter case cap 1 ②
 - Air filter case cap 2 ③
 - Air filter element ④
 Refer to "AIR FILTER".



- Inspect:
 - Element
 Clogging→Wash the element in a solvent and dry it.
 Oil the element and squeeze out the excess oil.
 Damage→Rplace.



Recommended oil:
Form-air-filter oil or
SAE #20 motor oil

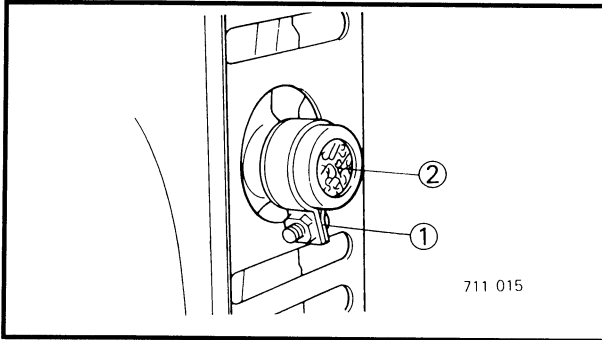
- Inspect:
 - Air filter element
 - Air filter case cap

NOTE: _____
 Do not wiring out the element; this could cause it to tear.

CAUTION: _____
The engine should never be run without the air filter element; excessive piston and/or cylinder wear may result.

MUFFLER/VALVE CLEARANCE ADJUSTMENT

INSP
ADJ



MUFFLER

1. Remove:

- Muffler

Refer to "MUFFLER" .

2. Remove:

- Band ①
- Muffler screen ②

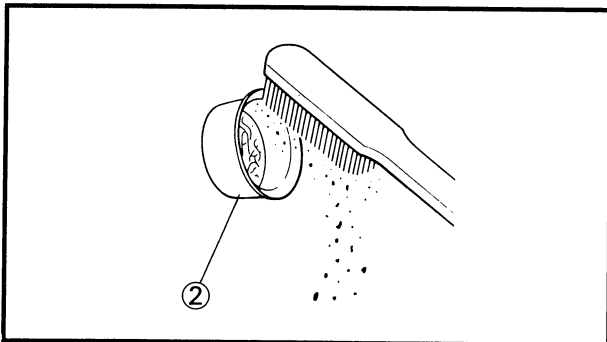
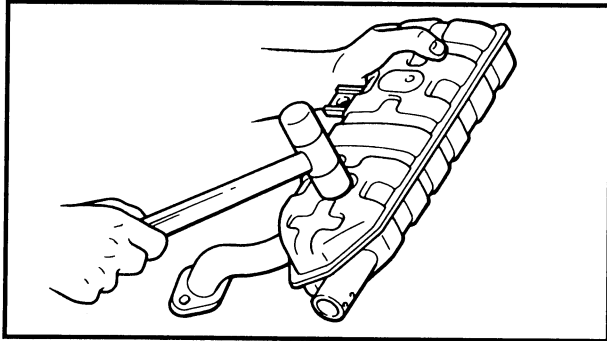
3. Clean:

- Muffler
- Muffler screen ②

To loosen carbon buildup tap on the muffler, in the area shown in the illustration. Then, shake the carbon pieces out of the end of the muffler.

CAUTION:

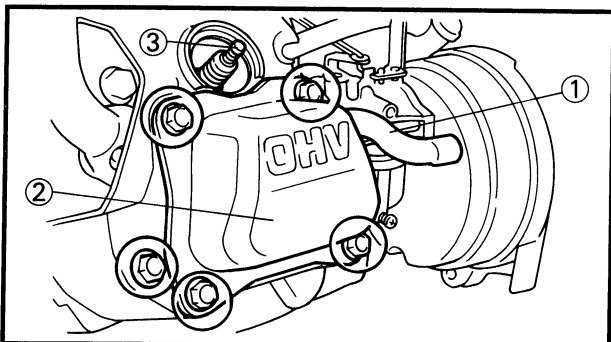
Do not use a wire to the inside of the muffler or the noise damping material may come out, reducing the damping effect.



VALVE CLEARANCE ADJUSTMENT

NOTE:

Valve clearance must be measured when the engine is cool to touch.

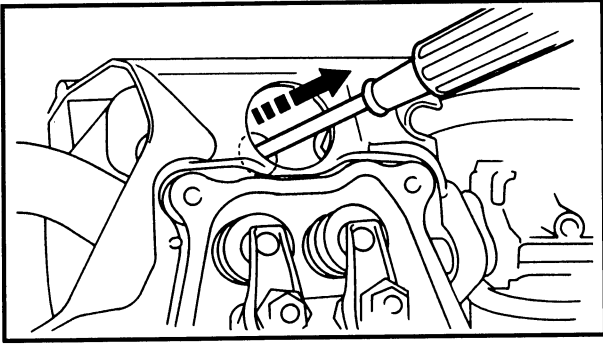


1. Remove:

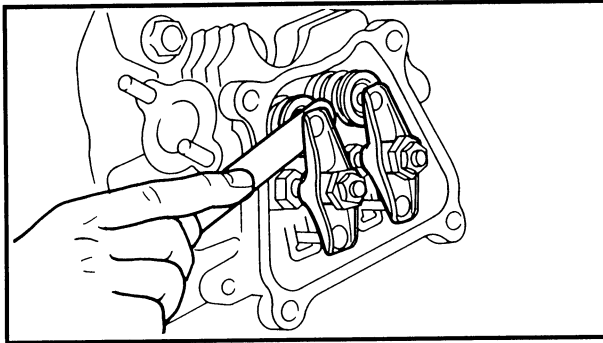
- Fuel tank
- Muffler
- Breather hose ①
- Cylinder head cover ②
- Spark plug ③
- Air shroud

VALVE CLEARANCE ADJUSTMENT

INSP
ADJ



- Pull the starter rope until the piston touches the screwdriver. the piston is then at T.D.C.



- Inspect:
 - Valve clearance
 Out of specification → Adjust.



Standard valve clearance:

Intake valve (cold)

0.05 ~ 0.1 mm (0.002 ~ 0.004 in)

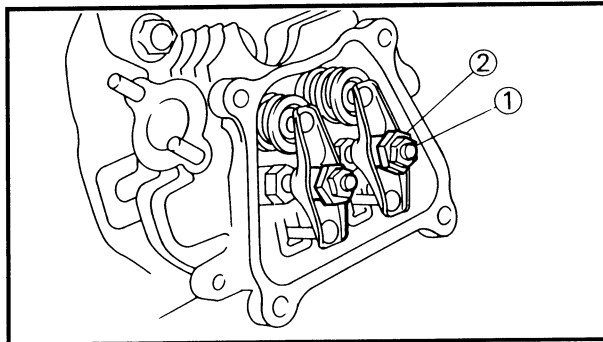
Exhaust valve (cold)

0.05 ~ 0.1 mm (0.002 ~ 0.004 in)



Service gauge (Thickness gauge):

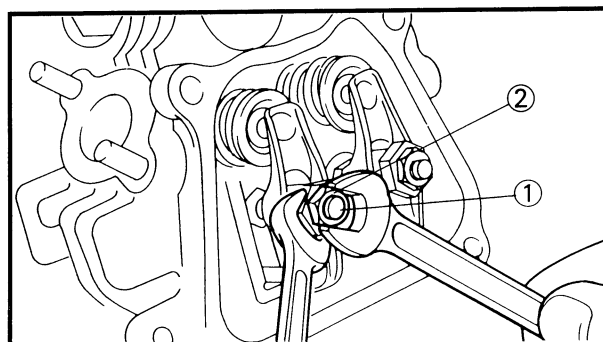
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Valve clearance adjustment

- Turn the crankshaft until the piston reaches top dead center (T.D.C.).
- Loosen the locknut ① and insert the 0.1 mm (0.04 in) thickness gauge between the rocker arm and the valve top.
- Turn the adjuster ② in or out to obtain the proper valve clearance. Move the thickness gauge up and down to check for the proper resistance.

Adjuster	Resistance	Valve clearance
Turn in	Increase	Decrease
Turn out	Decrease	Increase



- Tighten the locknut ①



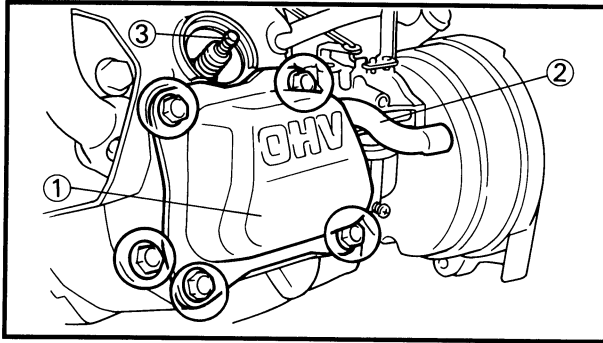
10 Nm (1.0 m•kg, 7.2 ft•lb)

NOTE:

Be sure the hold the adjuster ② when tighten the locknut.

VALVE CLEARANCE ADJUSTMENT/ COMPRESSION PRESSURE MEASUREMENT

INSP
ADJ



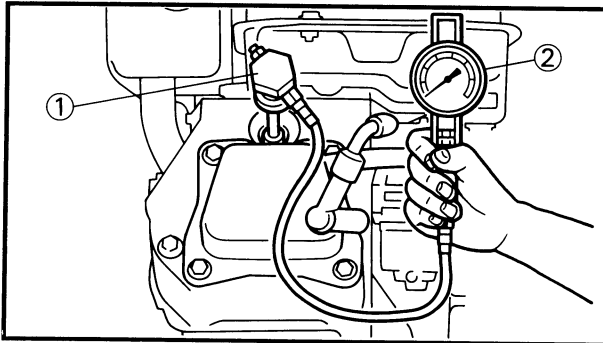
5. Install:
 - Air shroud
 - Cylinder head cover gasket
 - Cylinder head cover ①
 - Breather hose ②
 - Spark plug ③
6. Tighten:
 - Cylinder head cover

 **10 Nm (1.0 m•kg, 7.2 ft•lb)**

COMPRESSION PRESSURE MEASUREMENT

Insufficient compression pressure will result in performance loss and may indicate leaking valves or worn or damaged piston rings.

1. Measure:
 - Valve clearance
2. Warm up the engine for several minutes, then stop the engine.
3. Remove:
 - Spark plug
4. Connect:
 - Adapter ①
 - Compression gauge ②



Compression gauge:
90890-03081
Adapter:
90890-04082

5. Measure:
 - Compression

To measure the compression, pull the recoil starter until the needle stops rising on the compression gauge.



Standard compression pressure:
450~550 kPa
(4.5~5.5 kg/cm², 64~78.2 psi)

⚠ WARNING

To prevent the sparking when cranking the engine, ground the spark plug wire.

CYLINDER HEAD DECARBONIZATION/ GOVERNOR ADJUSTMENT



Compression test steps (below minimum levels):

- Squirt a few drops of oil into the cylinder.
- Measure the compression again

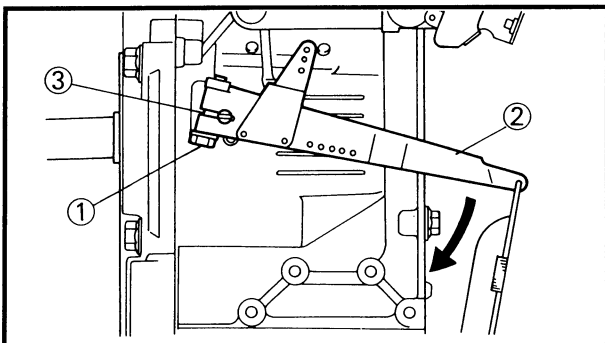
Reading	Diagnosis
If higher than without oil	<ul style="list-style-type: none">• Worn cylinder, piston and piston ring.
If the same as without oil	<ul style="list-style-type: none">• Defective piston, ring(s), valve(s) and cylinder head gasket.• Improper valve timing and valve clearance.

Compression test steps (above maximum levels):

- Check the cylinder head, valve surfaces, and piston crown for carbon deposits.

CYLINDER HEAD DECARBONIZATION

1. Remove:
 - Carbon depositsRefer to "CYLINDER HEAD INSPECTION"



GOVERNOR ADJUSTMENT

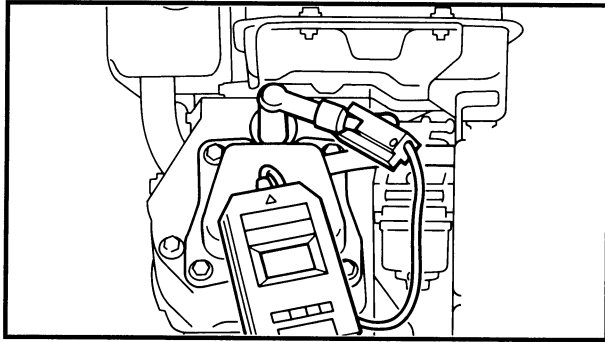
1. Remove:
 - Fuel tank
2. Adjust:
 - Governor

Governor adjustment steps:

1. Loosen the bolt ①.
 2. Turn the governor arm ② counter-clockwise until it stops.
 3. Turn the governor shaft ③ counter-clockwise until it stops.
 4. Tighten the bolt
3. Adjust:
 - Engine speedRefer to "ENGINE SPEED ADJUSTMENT" section.

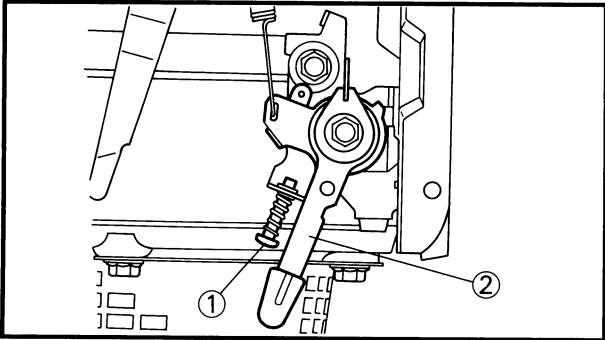
ENGINE SPEED ADJUSTMENT/ BREATHER HOSE INSPECTION

INSP
ADJ





ENGINE SPEED ADJUSTMENT

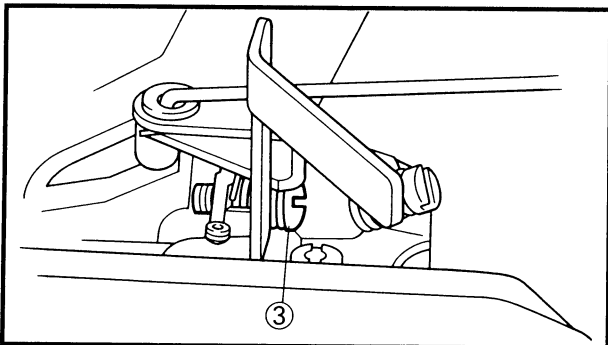
1. Install the Tachometer .
2. Start the engine and let it warmup for a few minutes. (with no load)




3. Loosen the throttle stop screw ①.
4. Adjust the high idle engine speed by turning the throttle lever ② .

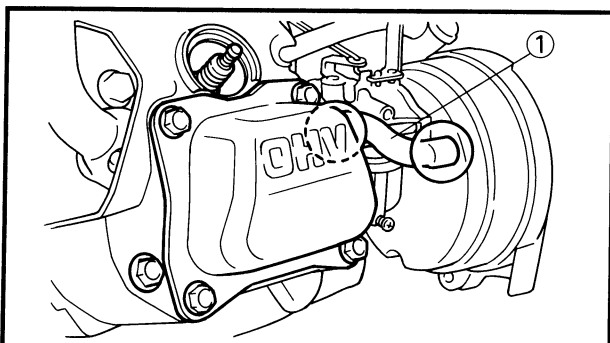
	High idle engine speed: 3,750~3,850 rpm
	Inductive tachometer: 90890-80008

5. Tighten the throttle stop screw ① until it stops.
6. Turn the throttle lever ② to clockwise until it stops.



7. Adjust the low idle engine speed by turning the throttle stop screw ③.

	Low idle engine speed: 1,900~2,100 rpm
---	---

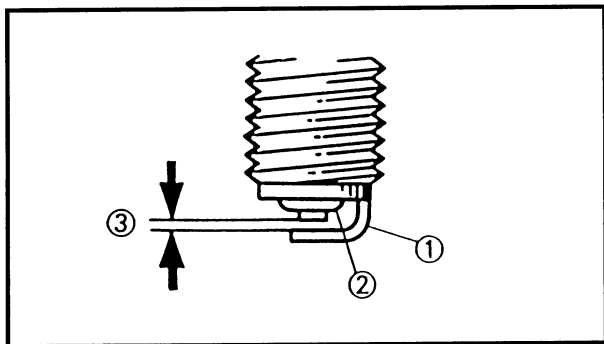


BREATHER HOSE INSPECTION

1. Inspect:
 - Breather hose ①
 - Clacks/damage→Replace.
 - Poor connection→Correct.

SPARK PLUG

INSP
ADJ



SPARK PLUG

1. Remove:
 - Spark plug

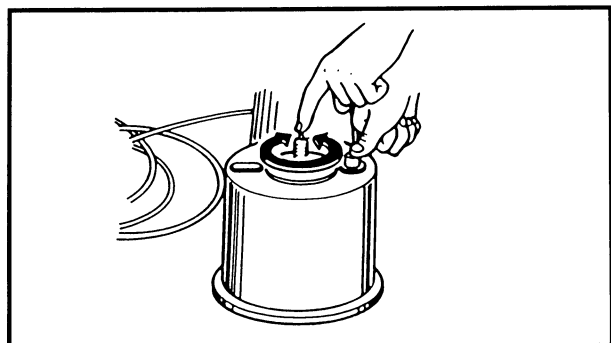
CAUTION:

Before removing the spark plug, use compressed air to clean the cylinder head cover to prevent dirt from falling the engine.

2. Inspect:
 - Electrode ①
Wear/damage→Replace.
 - Insulator color ②
3. Measure:
 - Plug gap ③
Use a Wire gauge or thickness gauge.
Out of specification→Replace.



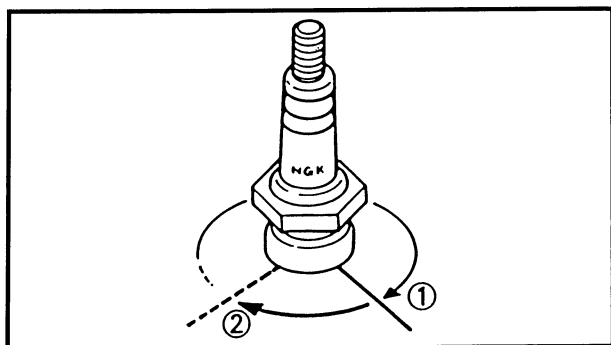
Spark plug gap:
0,7 ~ 0,8 mm (0,028 ~ 0,031 in)



If necessary, clean the spark plug with a spark plug cleaner.

Standard spark plug:
Spark plug (resistored) : BPR4ES

Before installing the spark plug, clean the gasket surface and plug surface.



4. Tighten:
 - Spark plug ①

18 Nm (1.8 m•kg, 13 ft•lb)

NOTE:

Finger tighten ① the spark plug before torquing ②, to prevent thread damage.

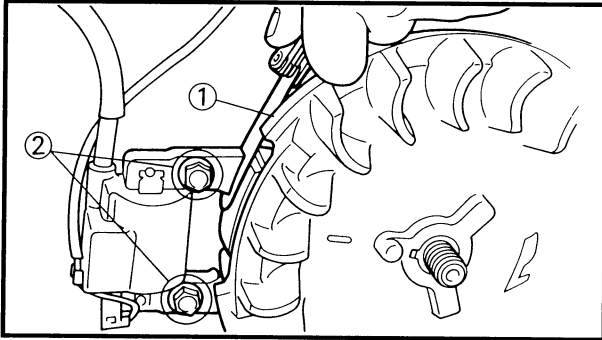
T.C.I. AIR GAP ADJUSTMENT

INSP
ADJ



T.C.I. AIR GAP INSPECTION


1. Remove:
 - Air filter
 - Carburetor
 - Recoil starter



2. Measure:
 - T.C.I. air gapUse Thickness gauge ① .
Incorrect → Adjust.

T.C.I. air gap adjustment steps:

1. loosen the bolts ②.
2. Adjust the T.C.I. air gap between T.C.I. pulsar and flywheel by moving the T.C.I. unit up or down.
3. Tighten the bolts.

 **10 Nm (1.0 m•kg, 7.2 ft•lb)**

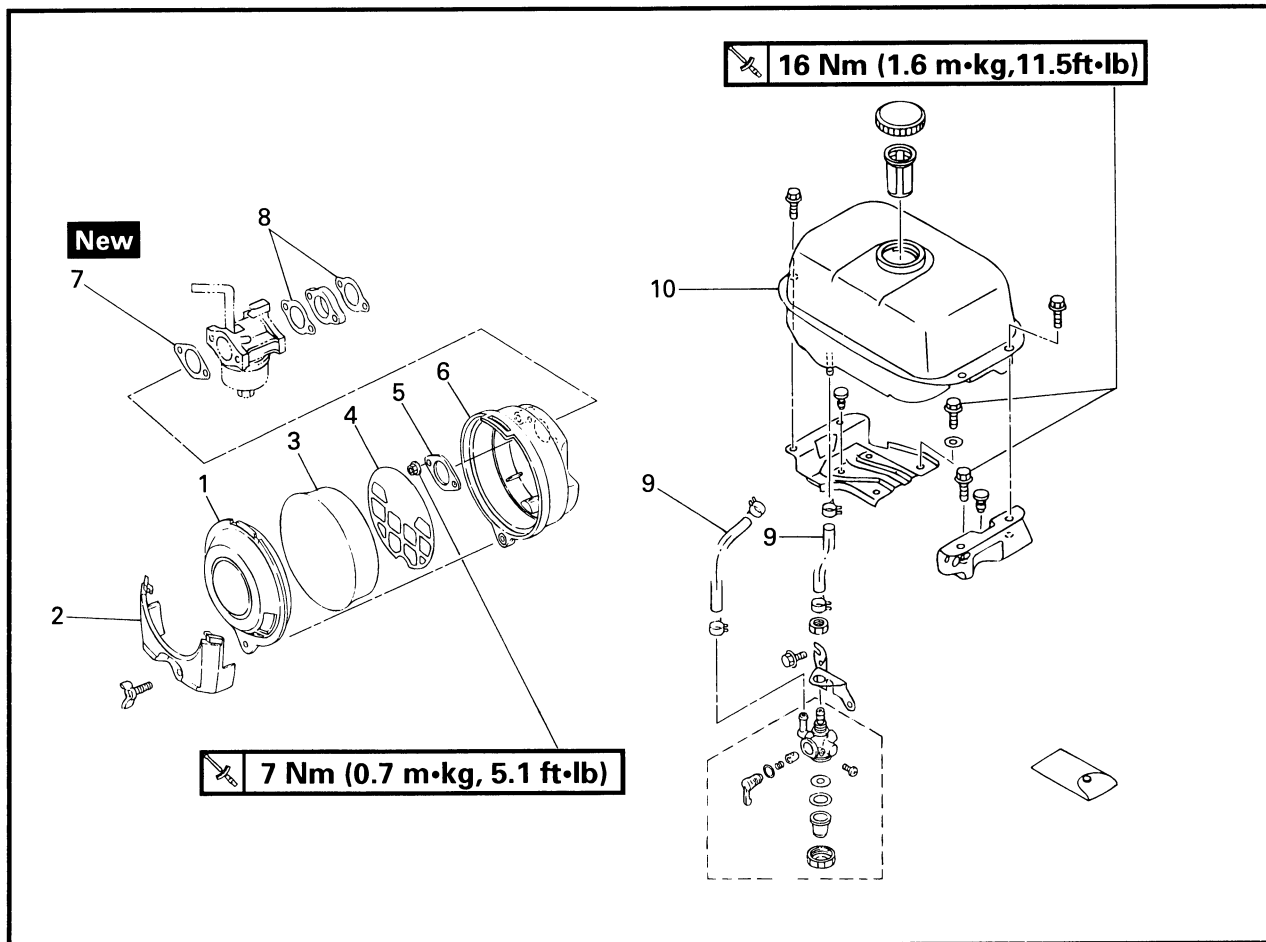


T.C.I. air gap :
0.5 mm (0.0197 in)



ENGINE

AIR FILTER AND FUEL TANK

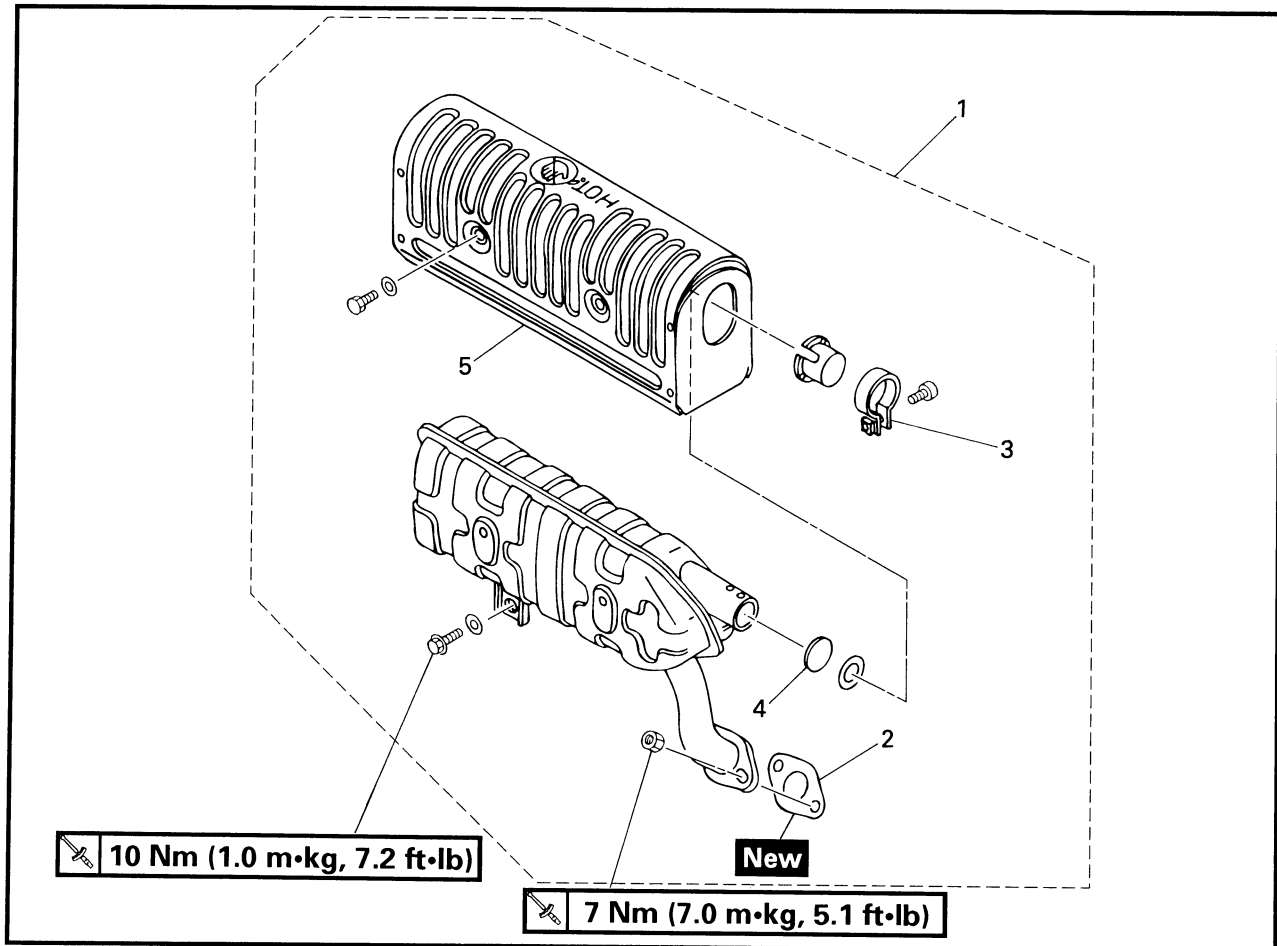


JOB INSTRUCTION CHART

Order	Job name/Parts name	Q'ty	Remarks
	Air filter and fuel tank removal		Remove the parts in the order below.
1	Air filter case cap 1	1	
2	Air filter case cap 2	1	
3	Air filter element	1	
4	Plate	1	
5	Plate	1	
6	Air filter case	1	
7	Gasket (carburetor)	1	
8	Gasket (carburetor)	2	
9	Fuel hose	1/1	NOTE: Disconnect the fuel hose, turn the fuel petcock position to the "C" position.
10	Fuel tank	1	For installation, reverse the removal procedure.



MUFFLER

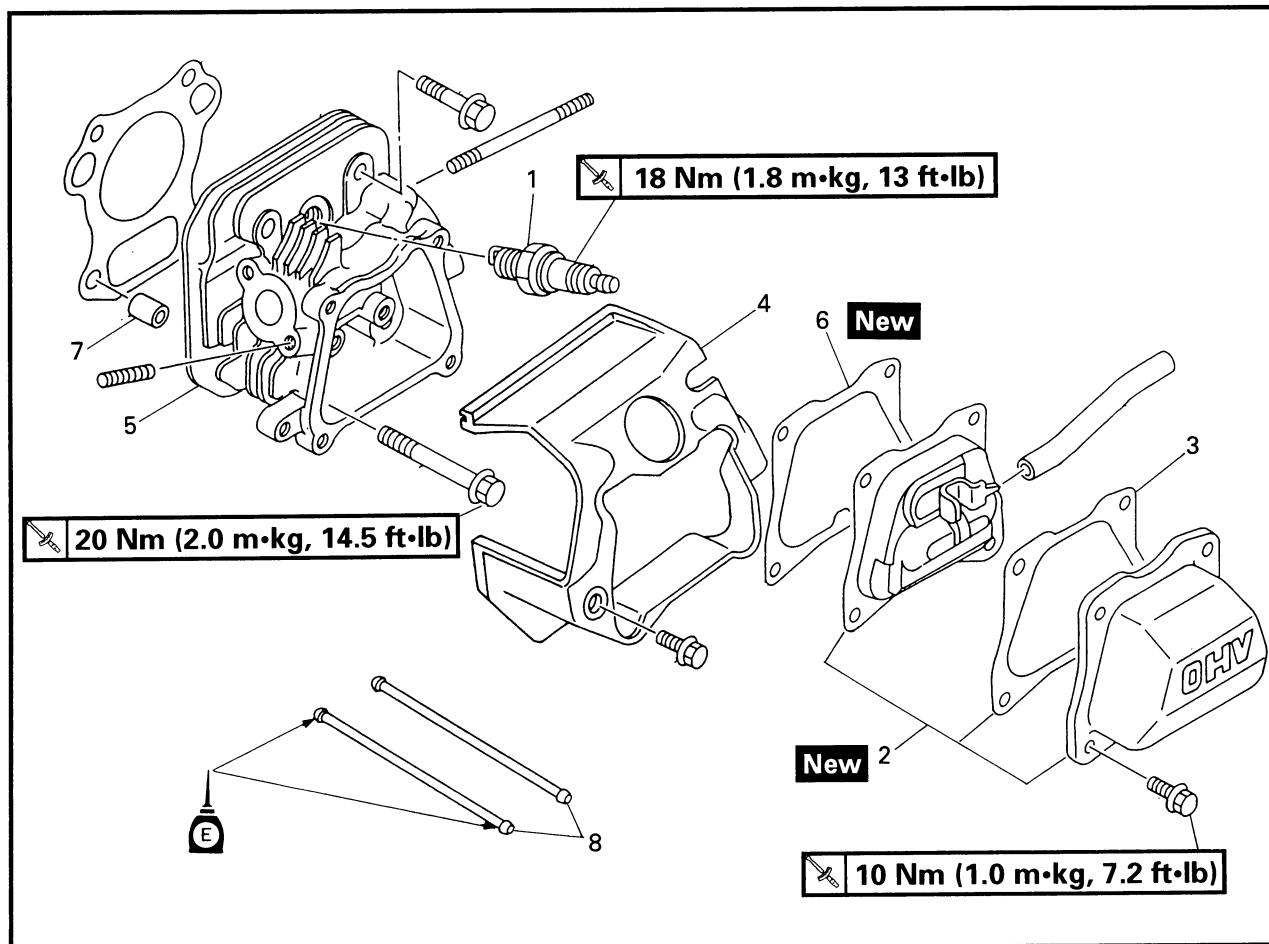


JOB INSTRUCTION CHART

Order	Job name/Parts name	Q'ty	Remarks
	Muffler removal		
	Fuel tank		Remove the parts in the order below.
1	Muffler assembly	1	Refer to "AIR FILTER AND FUEL TANK".
2	Gasket (muffler)	1	
3	Band	1	
4	Muffler screen	1	
5	Muffler protector	1	For installation, reverse the removal procedure.



CYLINDER HEAD COVER AND CYLINDER HEAD

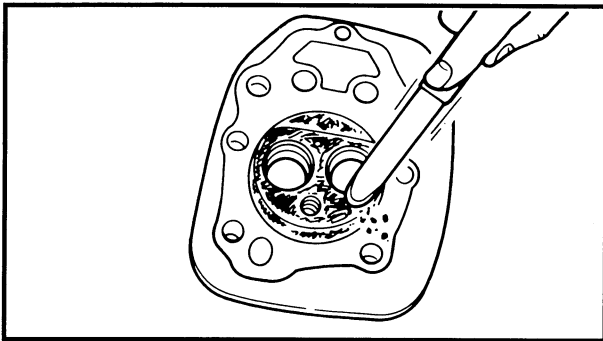


JOB INSTRUCTION CHART

Order	Job name/Parts name	Q'ty	Remarks
	Cylinder head cover and cylinder head removal		Remove the parts in the order below.
	Muffler protector , muffler and fuel tank		Refer to "MUFFLER PROTECTOR, FUEL TANK AND MUFFLER".
	Recoil starter		Refer to "RECOIL STARTER".
	Air filter and carburetor		Refer to "AIR FILTER".
1	Spark plug	1	
2	Cylinder head cover	1	
3	Gasket (cylinder head cover)	1	
4	Air shroud	1	
5	Cylinder head assembly	1	
6	Gasket (cylinder head)	1	Refer to "Cylinder head installation".
7	Dowel pins	1	
8	Push rods	1	For installation, reverse the removal procedure.

CYLINDER HEAD COVER AND CYLINDER HEAD

INSP
ADJ



INSPECTION

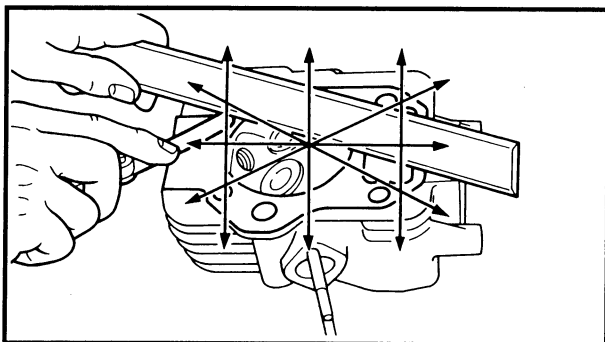
Cylinder head

1. Remove:
 - Carbon depositsUse a rounded scraper.

NOTE:

Be careful to the cylinder head inside when decarbonaizing.

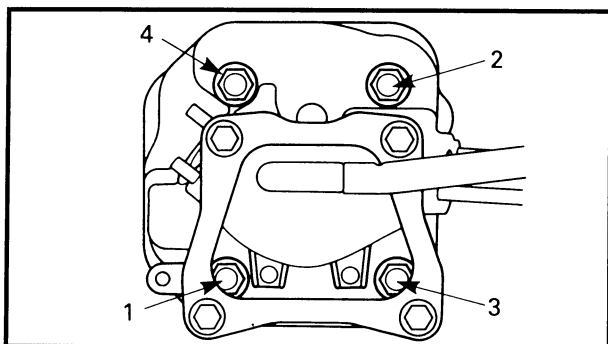
2. Inspect:
 - Cylinder headWare/Damage→Replace.



3. Measure:
 - Cylinder head wrappageExceeds allowable limit→Replace.




Wrappage limit:
0.1 mm (0.004 in)



INSTALLATION

1. Install:
 - Dowel pins
 - Cylinder head gasket **New**
 - Cylinder head assembly

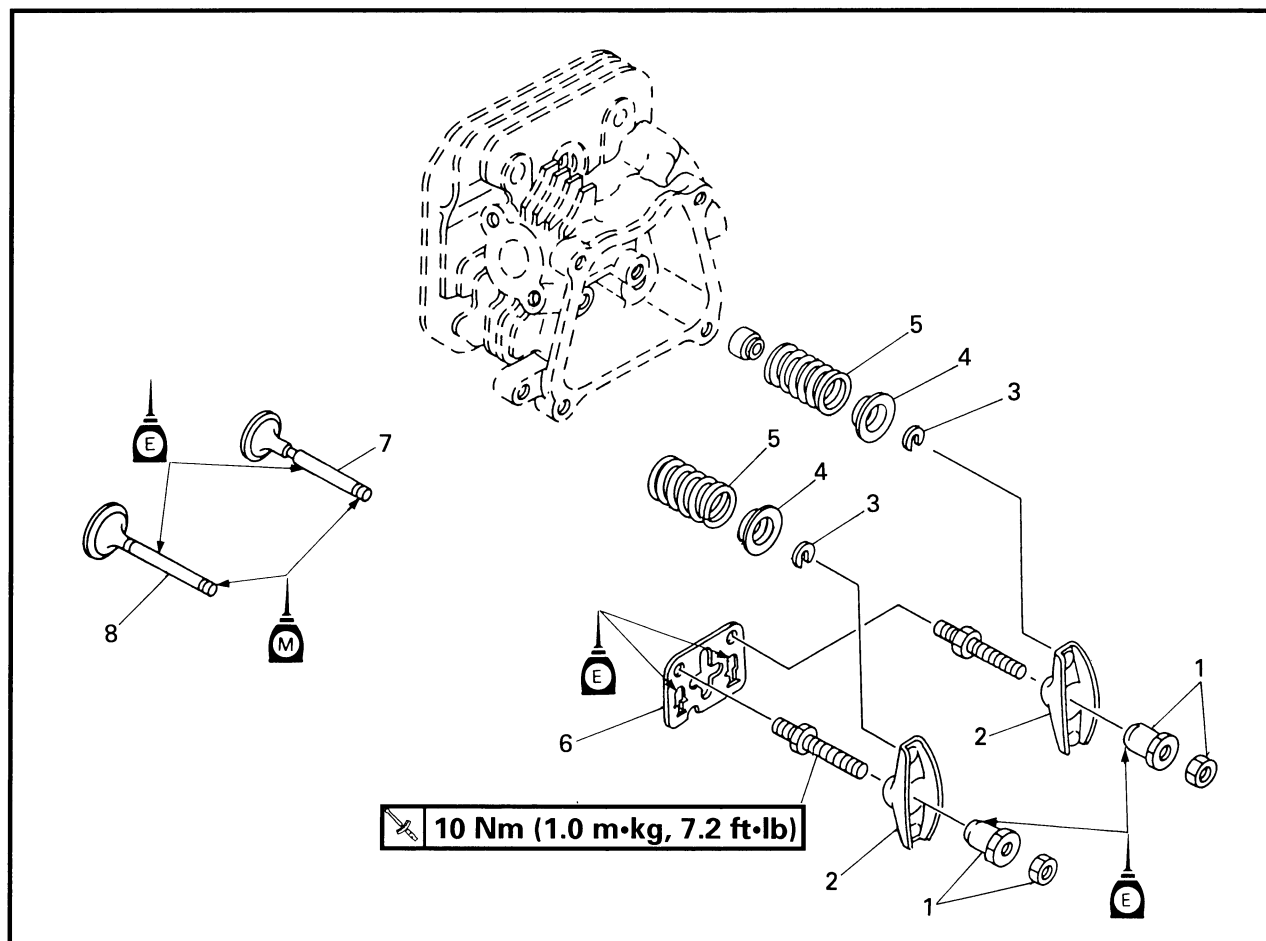
 **20 Nm (2.0 m•kg, 14.5 ft•lb)**

NOTE:

Follow the tightening sequence.

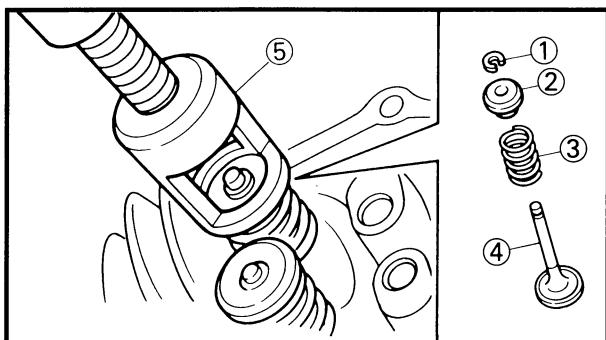


ROCKER ARMS, VALVES AND VALVE SPRINGS



JOB INSTRUCTION CHART

Order	Job name/Parts name	Q'ty	Remarks
	Rocker arms , valves and valve springs removal		
	Cylinder head assembly		Remove the parts in the order below. Refer to "CYLINDER HEAD".
1	Locknuts/Adjusters	2/2	Refer to "Valve and valve spring installation".
2	Rocker arms	2	
3	valve cotter	2	
4	Valve spring seats	2	
5	Valve springs	1	
6	Push rod guide	1	For installation, reverse the removal procedure.
7	Valve (intake)	1	
8	Valve (exhaust)	1	



REMOVAL

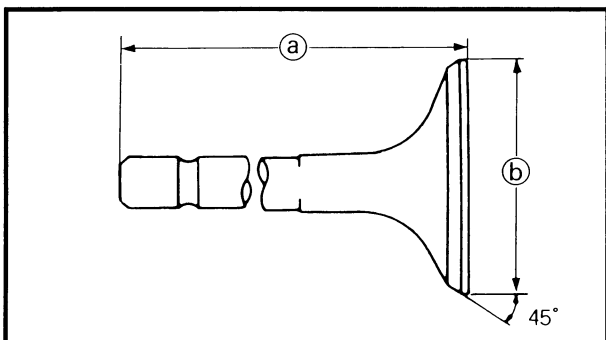
1. Remove:

- Valve cotter ①
- Valve spring retainer ②
- Valve spring ③
- Valve ④

Use a valve spring compressor ⑤.



Valve spring compressor:
90890-01253



INSPECTION

Valve and valve spring

1. Measure:

- Valve length ①
- Valve face diameter ②

Use a dial gauge.

Out of specification → Replace.

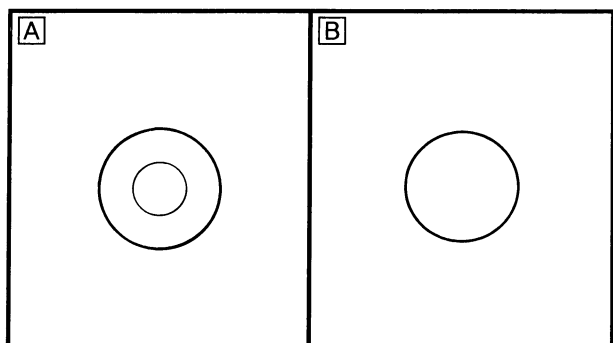


Valve length:

Intake:	MZ125	64.5 mm (2.54 in)
	MZ175	65.9 mm (2.59 in)
Exhaust:	MZ125	64.5 mm (2.54 in)
	MZ175	65.9 mm (2.59 in)

Valve face diameter:

Intake:	MZ125	21.0 mm (0.83 in)
	MZ175	24.0 mm (0.94 in)
Exhaust:	MZ125	19.0 mm (0.75 in)
	MZ175	22.0 mm (0.87 in)



A Intake valve face:

B Exhaust valve face:

2. Measure:

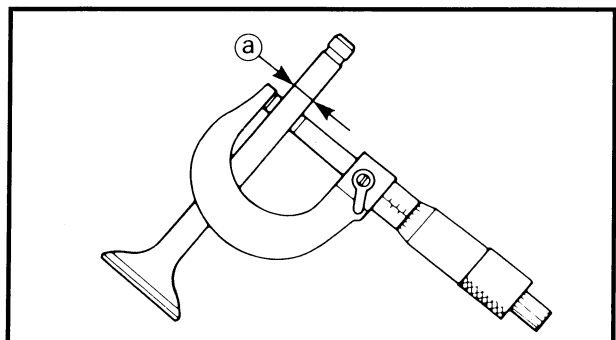
- Valve stem diameter ①

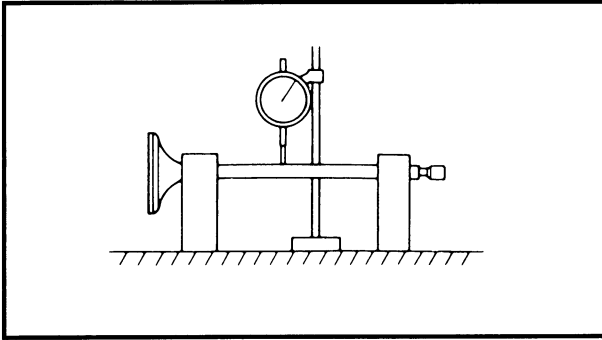
Out of specification → Replace.



Valve stem diameter: (Standard)

Intake:	5.5 mm (0.22 in)
Exhaust:	5.5 mm (0.22 in)





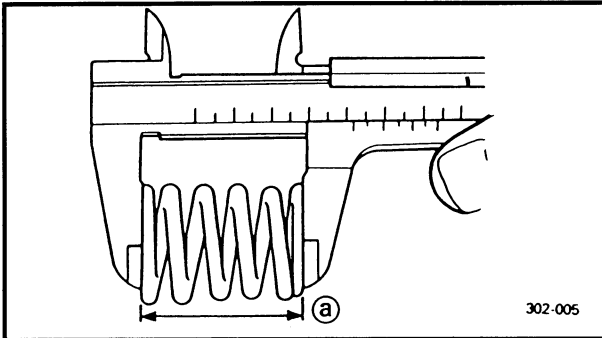
3. Measure:

- Valve stem bend

Out of specification→Replace.



Valve stem bend limit:
0.01 mm (0.0004 in)



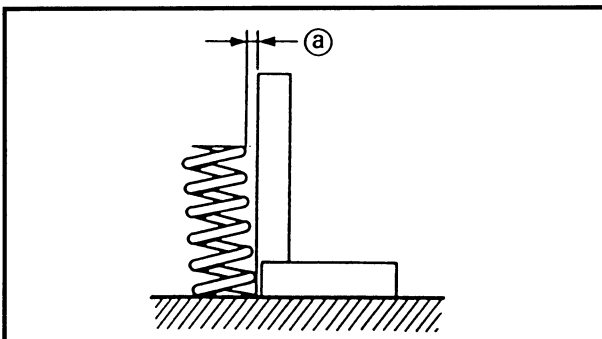
4. Measure:

- Valve spring free length (a)

Out of specification→Replace.



Valve spring free length:
26.5 mm (1.04 in)
limit:
25.0 mm (0.98 in)



5. Measure:

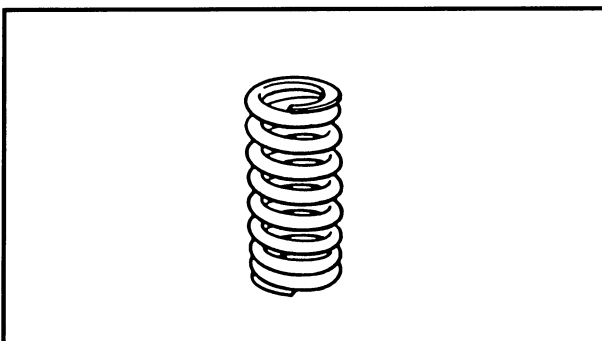
- Valve spring tilt (a)

Use a square

Out of specification→Replace.



Valve spring tilt limit:
1.6 mm (0.06 in)



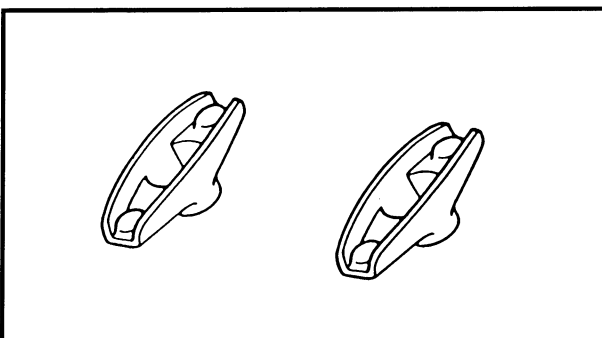
6. Measure:

- Valve spring contact surface

Out of specification→Replace.



Valve spring contact surface limit:
0.5 mm (0.02 in)

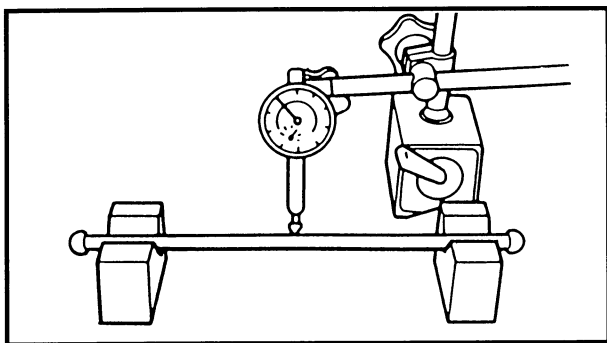


Rocker arm

1. Inspect:

- Rocker arm

Cracks/Ware/Damage→Replace.

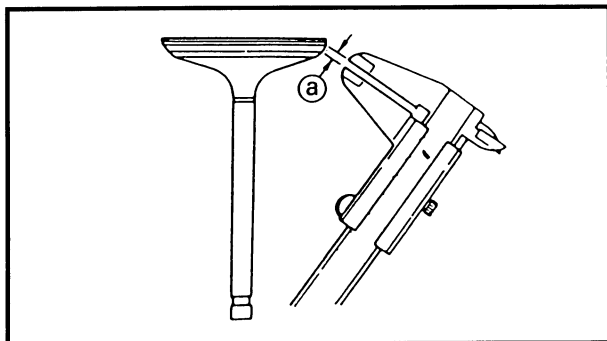


Push rod

1. Measure:
 - Push rod bend
 Roll on V-block
 Exceeds bending limit → Replace.



Push rod bend limit:
0.5 mm (0.02 in)

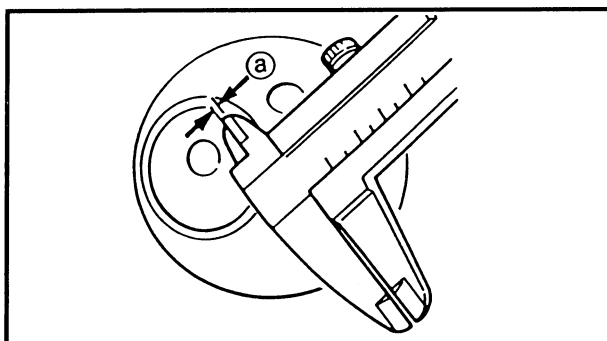


Valve seat

1. Decarburized to the valve face and valve seat.
2. Measure:
 - Valve contact width (a)
 Poor seating → Lap.



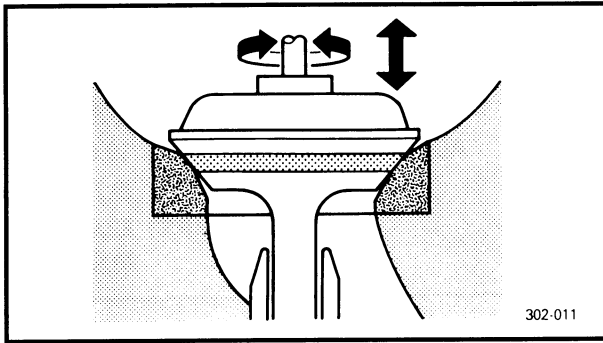
Valve contact with:
0.7 mm (0.03 in)
limit:
1.7 mm (0.067 in)



3. Measure:
 - Valve seat contact width (a)
 Poor seating → Lap.

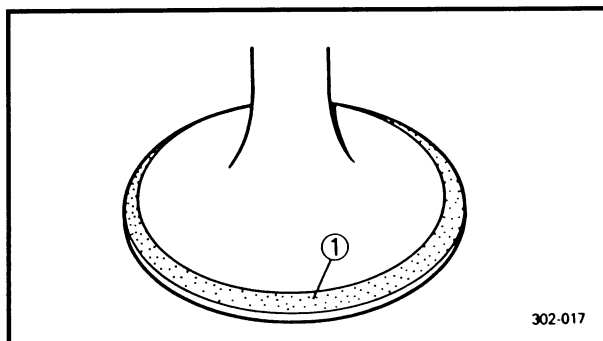


Valve seat contact with:
0.7 mm (0.03 in)
limit:
1.7 mm (0.067 in)



Valve seat assembly lapping

1. Apply:
 - Coarse lapping compound (a small amount to the valve face)
2. Position:
 - Valve
(in the cylinder head)
3. Rotate:
 - Valve
Turn until the valve and seat are evenly polished, then clean off the remaining compound.
4. Repeat the above steps with a fine compound and continue lapping until the valve face has a completely smooth surface.
5. Remove:
 - Compound
(from the valve face)

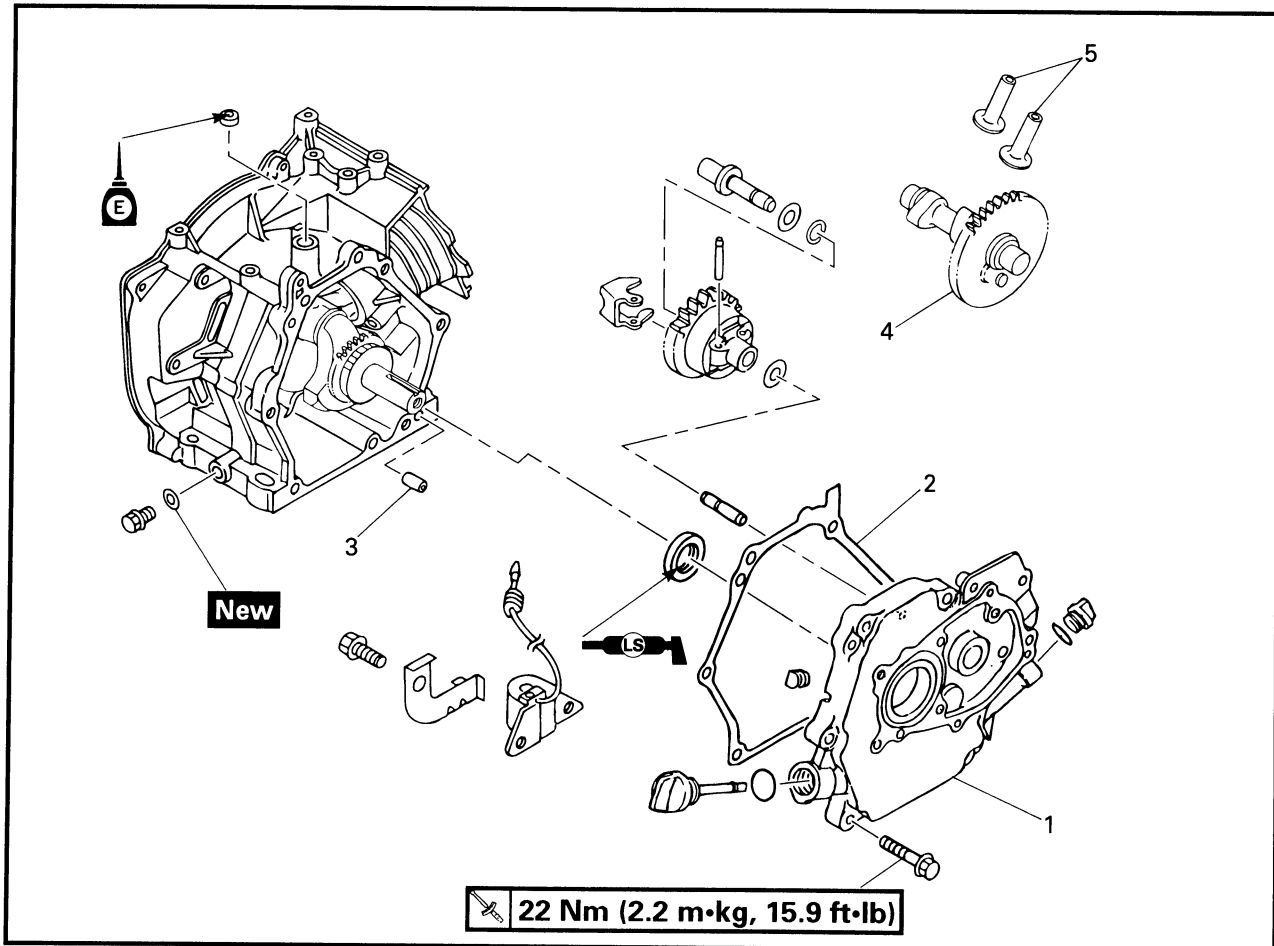


6. Apply:
 - Mechanic's bluing dye (Dykem) ①
(to the valve face and seat)
7. Rotate:
 - Valve
The valve must make full seat contact. This is indicated by a gray surface all around the valve face where the bluing was removed.
8. Apply:
 - Solvent
(into each intake and exhaust port)
Leakage past valve seat→Repeat valve lapping until the seal is complete.

NOTE: _____
 Pour the solvent into the intake and exhaust ports only after completion of all the valve work and assembly of the cylinder head.



CRANKCASE COVER AND CAMSHAFT



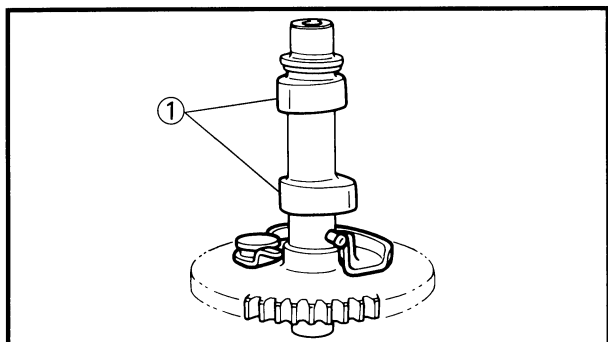
JOB INSTRUCTION CHART

Order	Job name/parts name	Q'ty	Remarks
	Crankcase cover and camshaft removal		Remove the parts in the order below.
	Engine oil		Refer to "ENGINE OIL REPLACEMENT" in chapter 3.
	Muffler and muffler protector		Refer to "MUFFLER PROTECTOR, FUEL TANK AND MUFFLER".
	Fuel tank		Refer to "AIR FILTER AND CARBURETOR".
	Air filter assembly and carburetor assembly		Refer to "CYLINDER HEAD".
	Cylinder head		Refer to "RECOIL STARTER / FLYWHEEL".
	Recoil starter assembly and rotor assembly		
1	Crankcase cover	1	
2	Gasket (crankcase cover)	1	Refer to "Crankcase cover installation".
3	Dowel pins	2	
4	Camshaft	1	
5	Valve lifter	2	Refer to "Camshaft installation".
			For installation, reverse the removal procedure.



REMOVAL

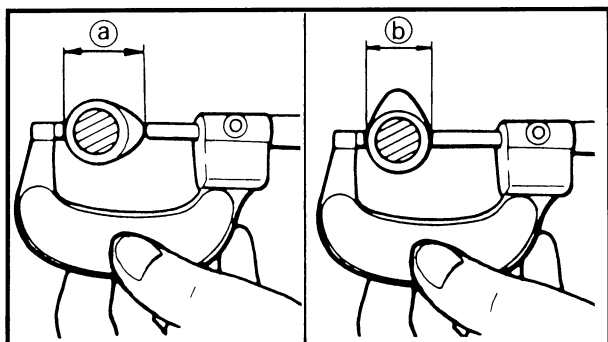
1. Remove:
 - Crankcase cover



INSPECTION

Camshaft

1. Inspect:
 - Camshaft ①
 - Wear/Damge→Replace.



2. Measure:
 - Cam lobes length ① and ②
 - Use a micro meter.
 - Out of specification→Replace.



Cam lobe length ①:

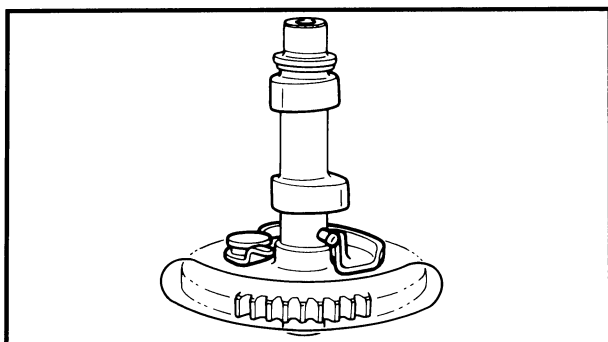
Intake: 26.9 ± 0.05 mm
(1.06 ± 0.002 in)

Exhaust: 26.68 ± 0.05 mm
(1.05 ± 0.002 in)

Cam lobe length ②:

Intake: 22.0 ± 0.05 mm
(0.87 ± 0.002 in)

Exhaust: 22.0 ± 0.05 mm
(0.87 ± 0.002 in)



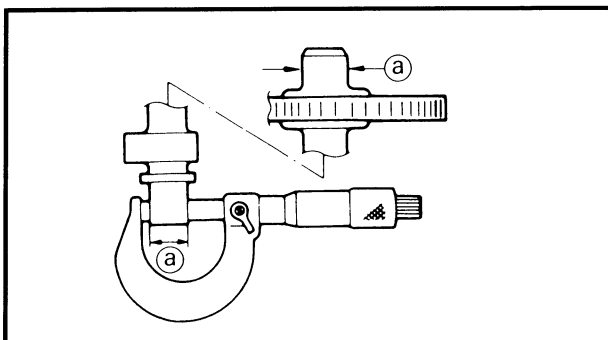
3. Inspect:
 - Camshaft gear teeth
 - Wear/Damge→Replace.

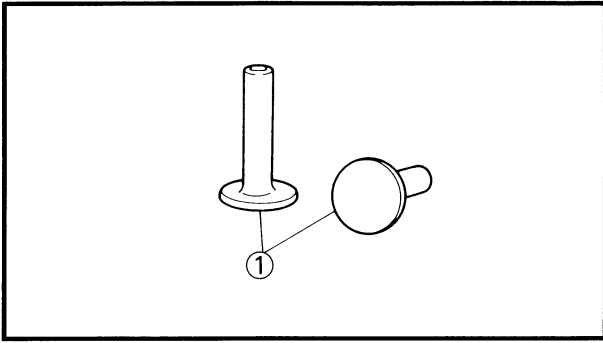
4. Measure:
 - Camshaft diameter ①
 - Out of specification→Replace.



Standard camshaft diameter:

$14.193 \sim 14.989$ mm
($0.5895 \sim 0.5901$ in)

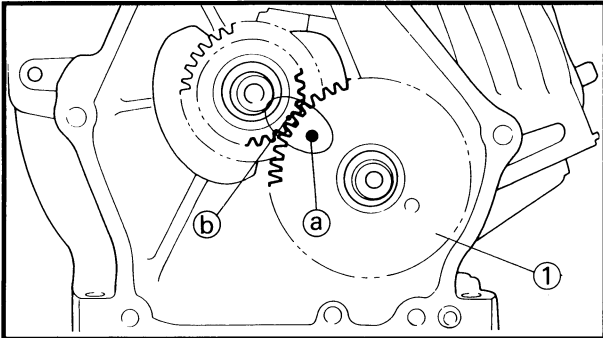




Valve lifter

1. Inspect:

- Valve lifter ①
Wear/Damge→Replace.



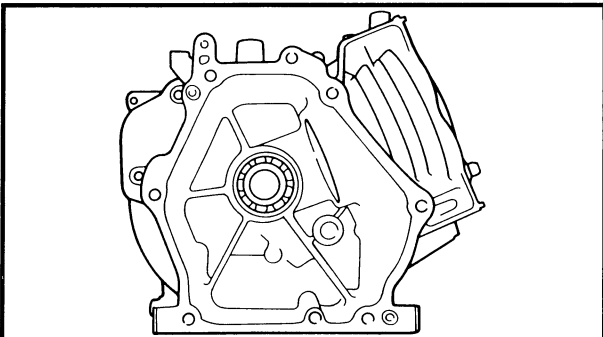
Camshaft installation

1. Install:

- Camshaft ①

NOTE:

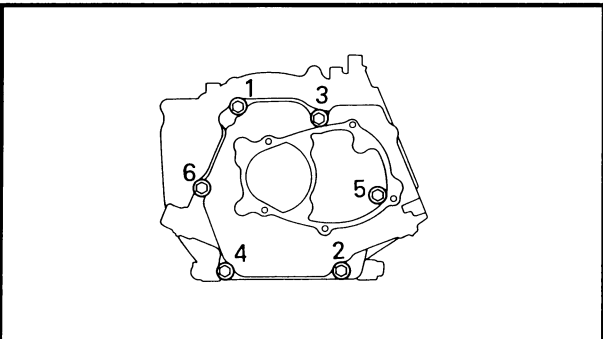
Be sure to align the camshaft gear mark (a) with the crankshaft gear mark (b).



Crankcase cover

1. Inspect:

- Crankcase cover
Wear/Damge→Replace.
- Bearings
Damage/Roughness→Replace.



Crankcase cover installation

1. Install:

- Dowel pins
- Gasket (crankcase cover) **New**
- Crankcase cover

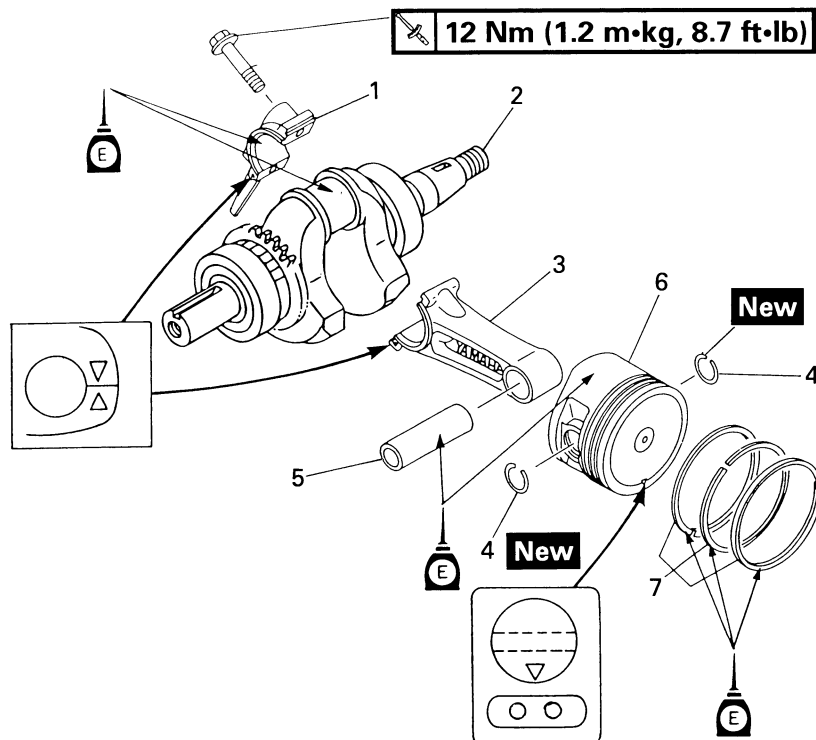
22 Nm (2.2 m•kg, 15.9 ft•lb)

NOTE:

Follow proper tightening sequence.



PISTON, CONNECTING ROD, CRANKSHAFT AND CRANKCASE

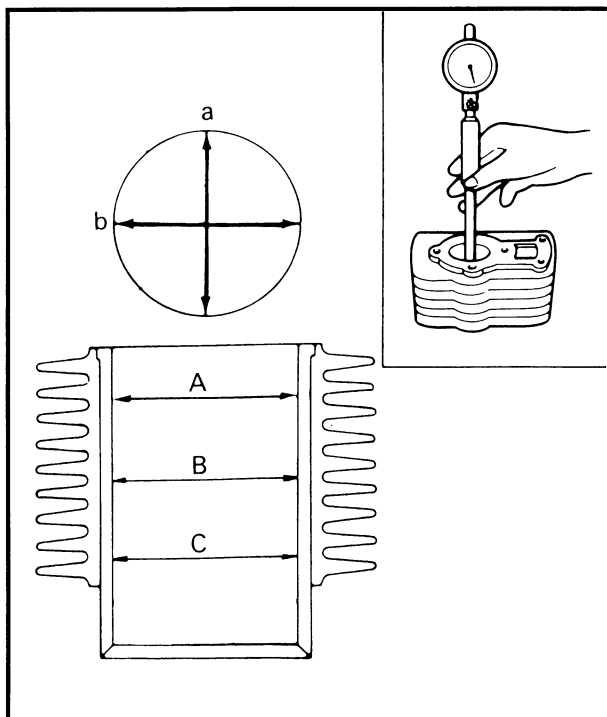


JOB INSTRUCTION CHART

Order	Job name/parts name	Q'ty	Remarks
	Piston, connecting rod and crankshaft removal Rotor assembly Camshaft		Remove the parts in the order below. Refer to "RECOIL STARTER / FLYWHEEL". Refer to "CRANKCASE COVER AND CAMSHAFT".
1	Connecting rod cap	1	Refer to "Connecting rod and crankshaft installation".
2	Crankshaft assembly	1	
3	Connecting rod	1	
4	Piston pin circlip	2	
5	Piston pin	1	
6	Piston	1	For installation, reverse the removal procedure.
7	Piston rings	3	

PISTON, CONNECTING ROD, CRANKSHAFT AND CRANKCASE

ENG



INSPECTION

Crankcase (cylinder)

1. Measure:

- Cylinder inside diameter ①

Use a cylinder gauge.

Out of specification → Rebore the cylinder, and replace the piston and piston rings.

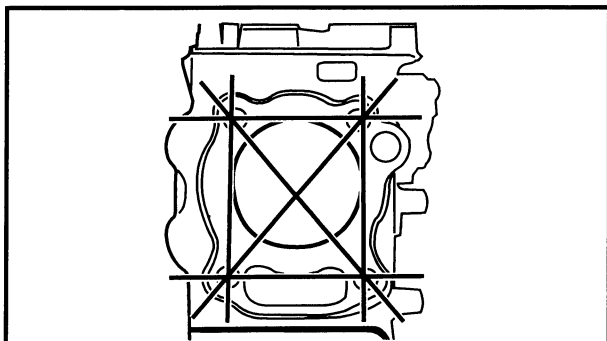
NOTE:

Take side to side and front to back measurements at each of the 3 rotations (total of 6 measurements). Then, find the average of the measurements.

		Standard	Wear limit
	Cylinder inside diameter "D"	MZ125: 56 mm (2.2 in) MZ175: 66 mm (2.6 in)	56.15 mm (2.211 in) 66.15 mm (2.604 in)
	Cylinder taper "T"	MZ125: 0 mm (0 in) MZ175: 0 mm (0 in)	0.05 mm (0.002 in) 0.05 mm (0.002 in)

D = Maximum A, B, C

T = Maximum A-Minimum C

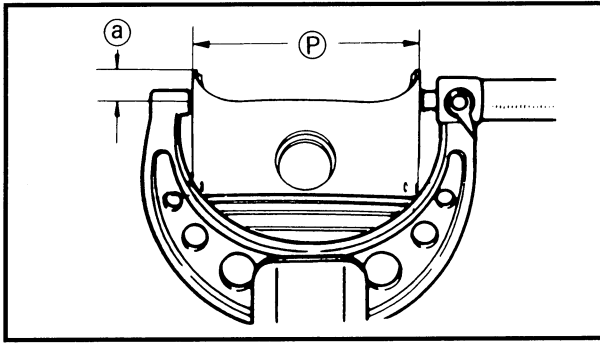


2. Inspect:

- Cylinder wrappage

Out of specification → Replace

	Wrappage limit: 0.05 mm (0.002 in)
--	--



Piston and piston pin

1. Measure:

- Piston diameter \textcircled{P}

\textcircled{a} = 5 mm (0.2 in) from the bottom edge of the piston.



Standard piston size:

MZ125 : 56.0 mm (2.205 in)

MZ175 : 66.0 mm (2.598 in)

Piston wear limit:

MZ125 : 55.9 mm (2.2001 in)

MZ125 : 65.9 mm (2.5945 in)

2. Calculate:

- Piston clearance

Piston clearance =
Cylinder inside diameter "D" —
Piston skirt diameter "P"

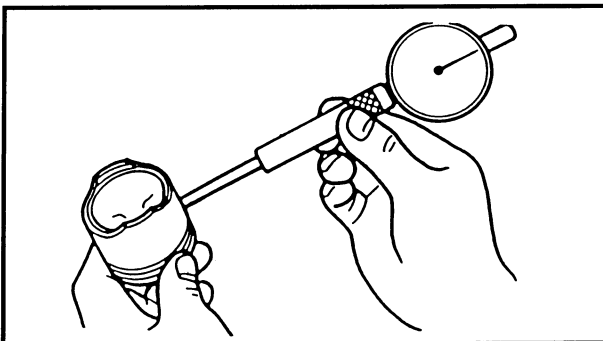
Out of specification → Rebore the cylinder and replace the piston and piston rings.



Piston clearance:

0.015 ~ 0.040 mm

(0.00059 ~ 0.00157 in)



3. Measure:

- Piston pin hole inside diameter

Use a micrometer.

Out of specification → Replace.



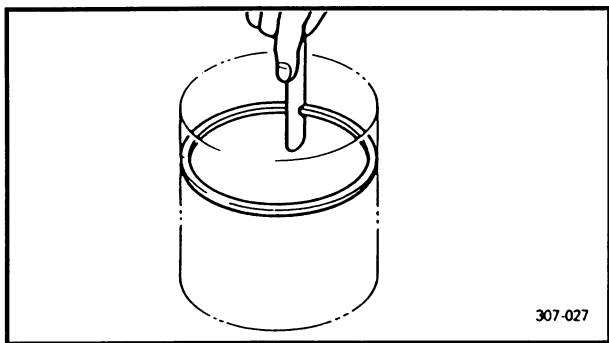
Standard diameter:

15.995 ~ 16.00 mm

(0.6297 ~ 0.6299 in)

Piston pin wear limit:

15.95 mm (0.628 in)



Piston rings

1. Measure:

- Piston ring end gap
Use a thickness gauge.
Out of specification → Replace.

NOTE:

You can not measure end gap on expander spacer of oil control ring. If control ring rails show excessive gap, replace all three rings.



Piston ring end gap:

Top ring:

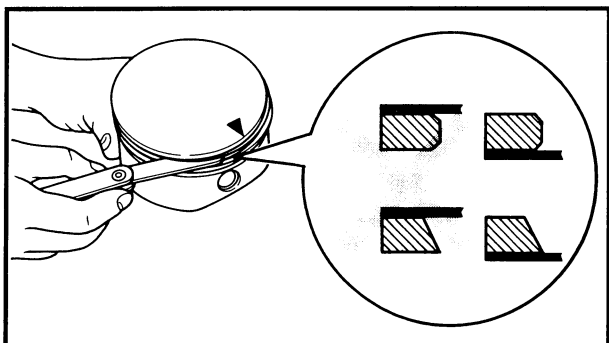
0.2 ~ 0.4 mm
(0.008 ~ 0.016 in)

2nd ring:

0.2 ~ 0.4 mm
(0.008 ~ 0.016 in)

Piston ring end gap limit:

0.9 mm (0.0354 in)



2. Measure:

- Piston ring side clearance
Use a thickness gauge.
Out of specification → Replace.

NOTE:

Clean carbon from piston ring grooves and rings before measuring side clearance.



Piston ring side clearance:

Top ring:

0.04 ~ 0.08 mm
(0.0016 ~ 0.003 in)

2nd ring:

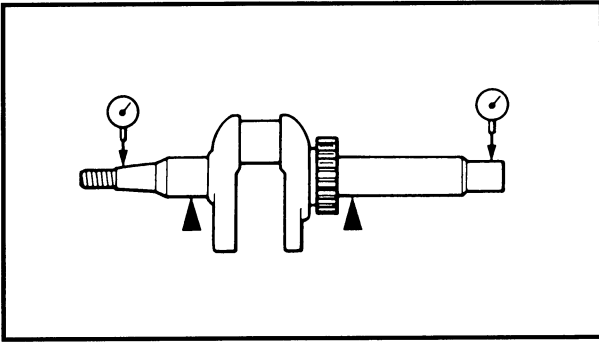
0.02 ~ 0.06 mm
(0.0008 ~ 0.0024 in)

Piston ring end gap limit:

0.1 mm (0.0039 in)

PISTON, CONNECTING ROD, CRANKSHAFT AND CRANKCASE

ENG



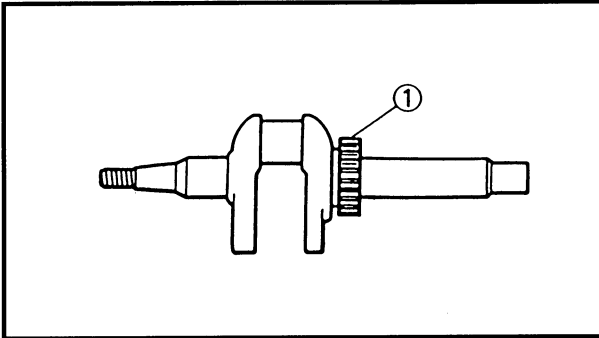
Crankshaft

1. Measure:

- Crankshaft runout
Use a dial gauge.
Out of specification → Replace.

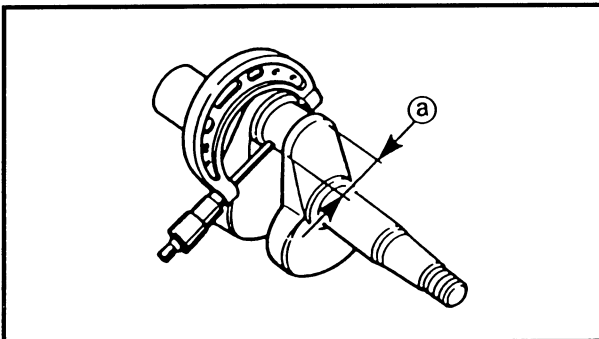


Crankshaft runout limit:
0.04 mm (0.0016 in)



2. Inspect:

- Crankshaft sprocket teeth ①
Wear/Damage → Replace.

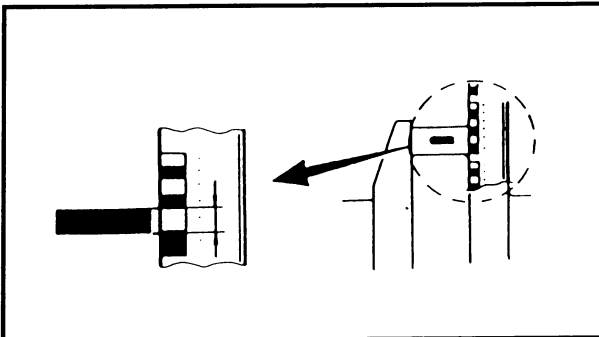


3. Measure:

- Crankpin outside diameter (a)
Use a micrometer.
Out of specification → Replace.



Crankpin outside diameter:
28.0 mm (1.10 in)
Wear limit:
27.9 mm (1.098 in)



4. Measure:

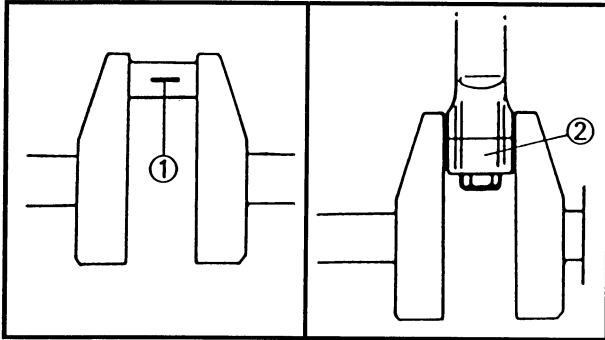
- Oil clearance
Use Plastigauge®.
Out of specification
→ Replace the connecting rod.



Oil clearance:
0.016 ~ 0.045 mm
(0.0006 ~ 0.0018 in)
Oil clearance limit:
0.1 mm (0.004 in)

PISTON, CONNECTING ROD, CRANKSHAFT AND CRANKCASE

ENG



Oil clearance measurement steps:

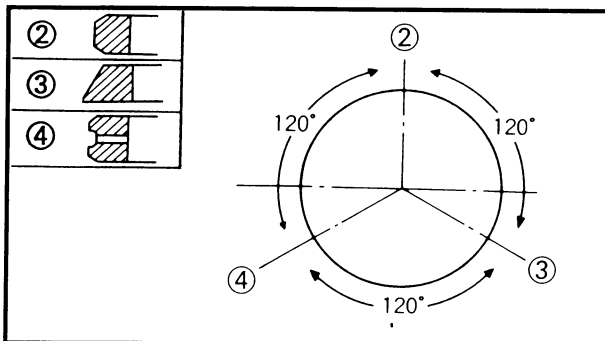
1. Thoroughly clean all of the parts.
2. Place plastigauge® (1) onto the crankpin.
3. Install the connecting rod and cap (2) onto the crankcase.
4. Torque both cap bolts evenly.

12 Nm (1.2 m·kg, 8.7 ft·lb)

5. Remove the connecting rod and measure the plastigauge® with.

NOTE:

Do not move the crankshaft until the oil clearance measurement has been completed.



Piston rings and piston installation

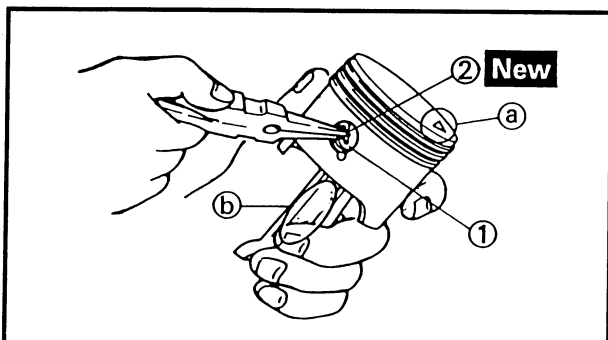
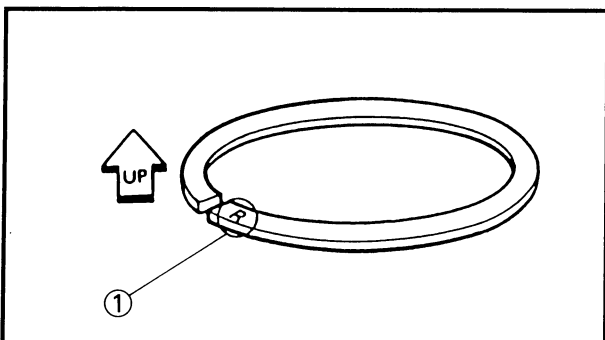
1. Install:

- Top ring (2)
- 2nd ring (3)
- Oil ring (4)

CAUTION:

•Be sure to install the second ring so that the manufacturers mark (1) faces towards the piston head.

•Make sure that the end gap of each piston ring is positioned, as shown in the illustration.



2. Install:

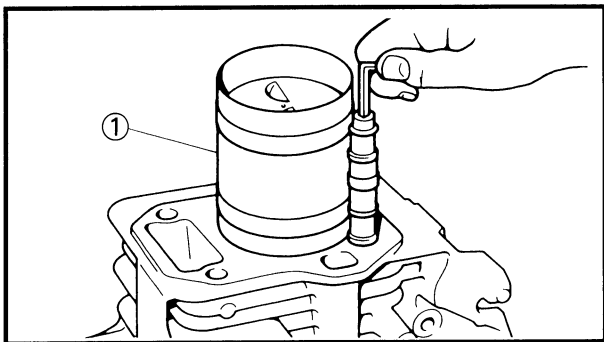
- Piston pin (1)
- Piston pin circlips **New** (2)

CAUTION:

Make sure that the "YAMAHA" (b) mark on the connecting rod faces the left side when the piston head "▽" (a) mark down ward.

PISTON, CONNECTING ROD, CRANKSHAFT AND CRANKCASE

ENG



3. Install:

- Piston

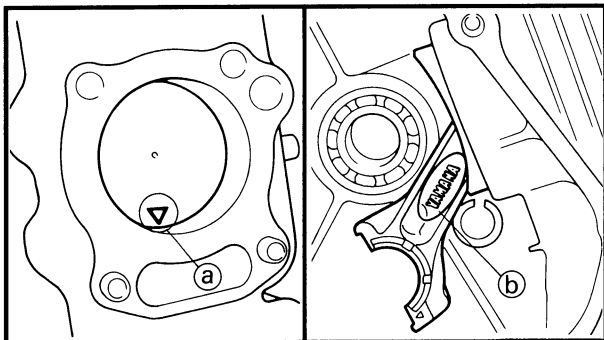
Use a piston pin compressor ①.



Piston ring compressor:
90890-05158

CAUTION:

- Make sure that the "YAMAHA" ⑥ mark on the connecting rod faces with your side, when install the piston.
- Make sure that the piston head "▽" ⑤ mark down ward (push rod side).



4. Install:

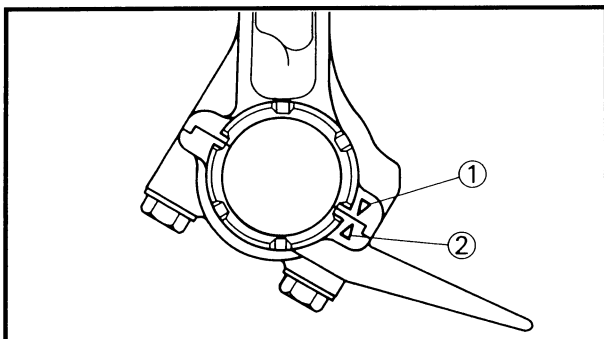
- Connecting rod cap



12 Nm (1.2 m·kg, 8.7 ft·lb)

CAUTION:

Make sure that the "▽" mark ⑤ is aligned with the cap mark ⑥ .



5. Install:

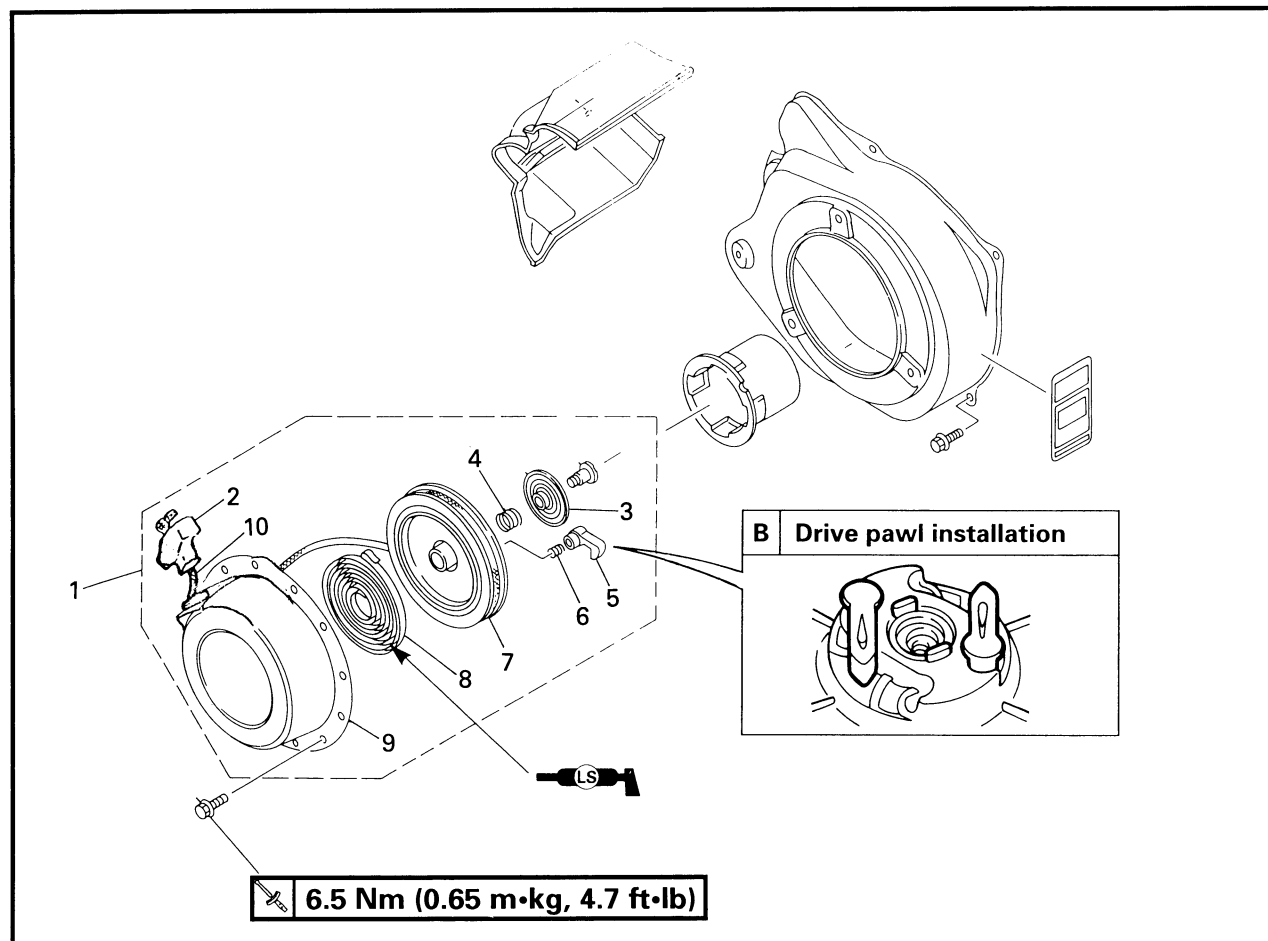
- Camshaft
- Dowel pins
- Gasket (crankcase cover)
- Crankcase cover

Refer to "CRANKCASE COVER AND CAMSHAFT" section.



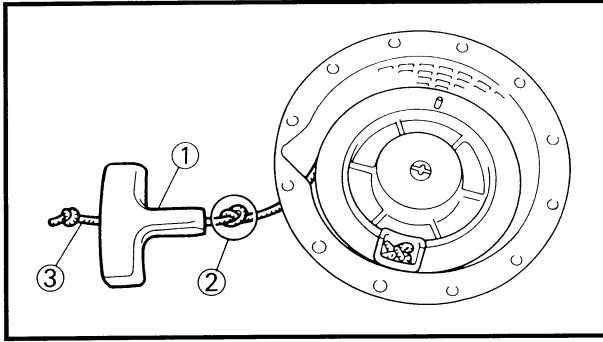
RECOIL STARTER AND FLYWHEEL

RECOIL STARTER



JOB INSTRUCTION CHART

Order	Job name/Parts name	Q'ty	Remarks
	Recoil starter removal		
1	Recoil starter assembly	1	Remove the parts in the order below.
2	Starter handle	1	
3	Drive plate	1	
4	Drive spring	1	
5	Drive pawl	2	
6	Springs (drive pawl)	2	Refer to "Rotor disassembly and assembly".
7	Sheave drum	1	
8	Starter spring	1	
9	Starter case	1	
10	Starter rope	1	For installation, reverse the removal procedure.



REMOVAL

Recoil starter

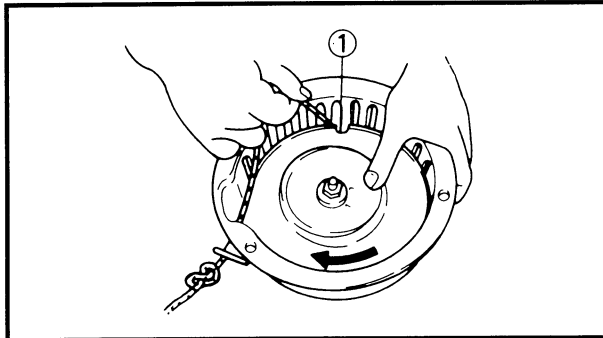
1. Remove:
 - Starter handle ①

NOTE:

Before untying knot ②, make knot ③ on the rope so that the rope is not pulled into the case.

CAUTION:

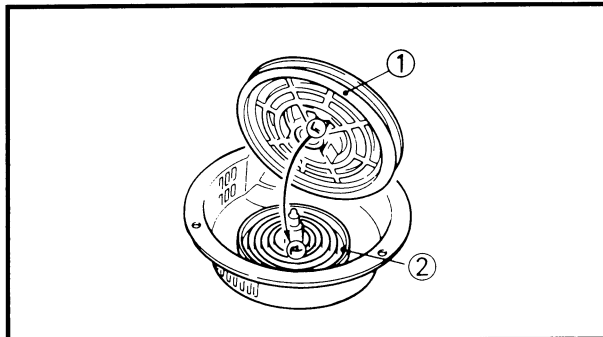
Release the spring pre-load before removing the sheave drum bolt. Hook the rope into the sheave drum slot ① and turn the sheave drum assembly clockwise.



2. Remove:
 - Sheave drum ①
 - Starter spring ②

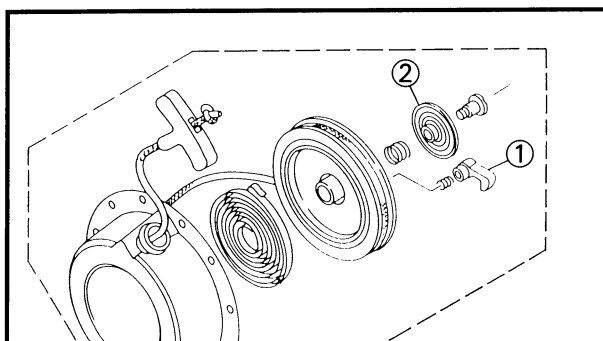
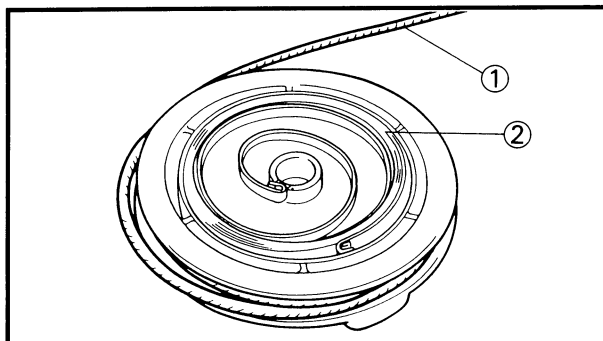
CAUTION:

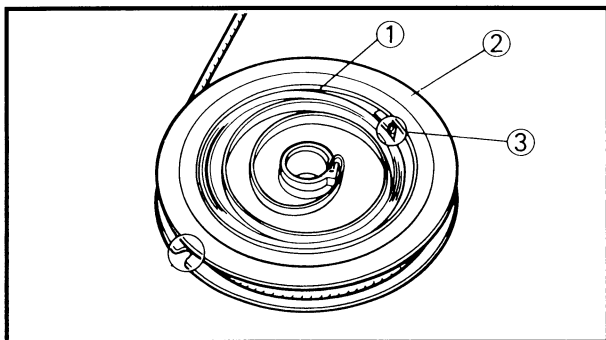
Be sure to hold the starter spring in the sheave drum. The spring will spread out suddenly when it is removed from the sheave drum.



INSPECTION

1. Inspect:
 - Starter rope ①
Wear/Damge→Replace.
2. Inspect:
 - Starter spring ②
Contamination→Clean and apply grease.
Wear/Damge→Replace.
3. Inspect:
 - Drive pawl ①
 - Drive plate ②
Wear/Damge→Replace.



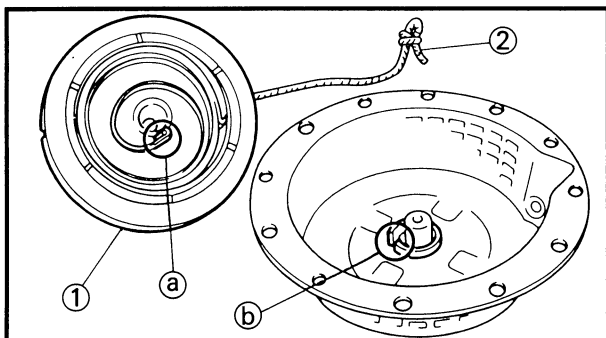


INSTALLATION

1. Install:
 - Starter spring ①
 - to the sheave drum ②

NOTE:

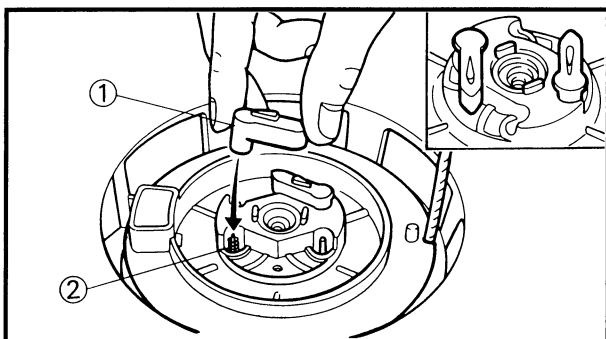
Mesh the spring hook ③ with the drum slit, then wind the spring counter clockwise into the drum from larger to smaller diameter.



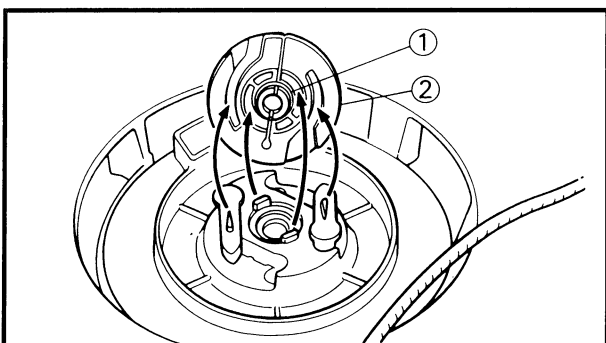
2. Install:
 - Sheave drum ①
 - Starter rope ②

NOTE:

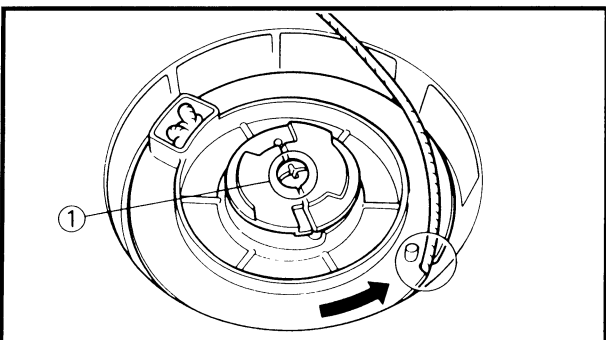
Mesh the spring hook (a) with the starter case hook (b).



3. Install:
 - Drive pawl ①
 - Drive pawl spring ②



4. Install:
 - Drive plate clip ①
 - Drive plate ②



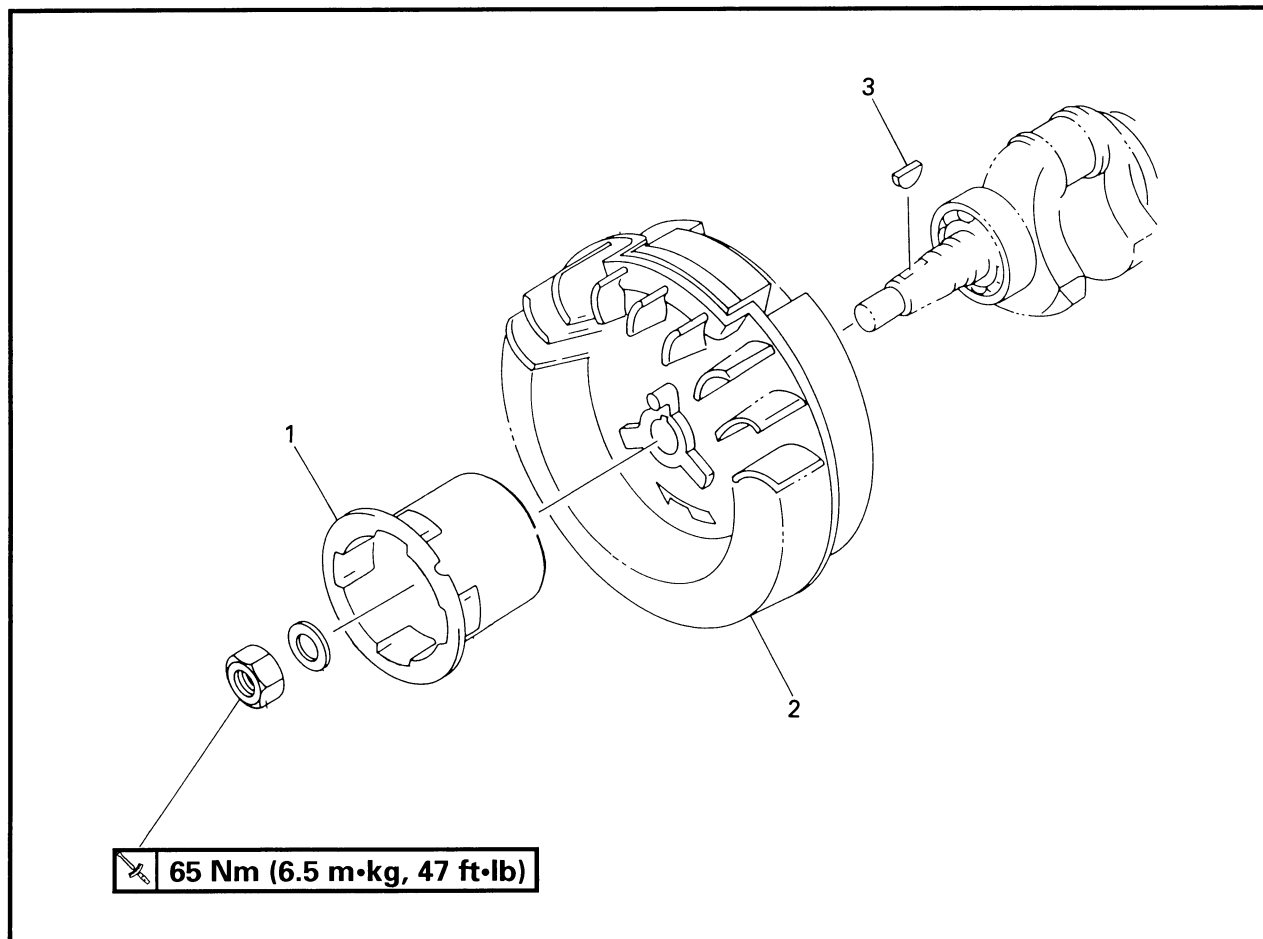
5. Install:
 - Screw ①

CAUTION:

Turn the drum sheave 4 turns counter clockwise to give spring pre-load.

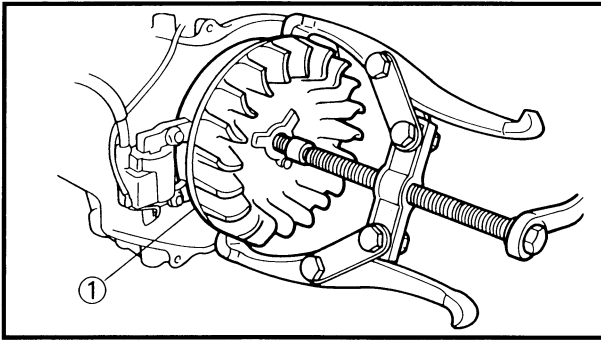


FLYWHEEL



JOB INSTRUCTION CHART

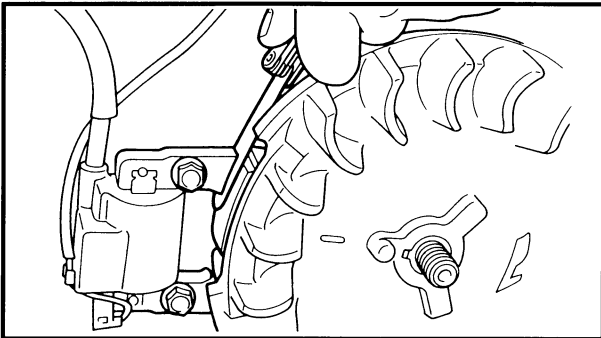
Order	Job name/Parts name	Q'ty	Remarks
	Flywheel removal		
	Air filter		Remove the parts in the order below. Refer to "AIR FILTER" section in the CHAPTER 2.
	Recoil starter assembly		Refer to "RECOIL STARTER" section.
	Carburetor assembly		Refer to "CARBURETOR" section .
1	Starter pulley	1	Refer to "Rotor disassembly and assembly".
2	Flywheel	1	
3	Woodruff key	1	
			For installation, reverse the removal procedure.



REMOVAL


Flywheel

1. Remove:
 - Flywheel ①
 - use a bearing puller (general tool)



INSTALLATION

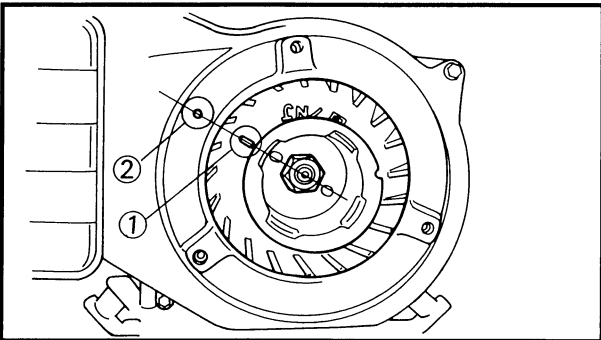
1. Install:
 - Flywheel

 **65 Nm (6.5 m•kg, 47 ft•lb)**



T.C.I. air gap:
0.5 mm (0.0197 in)

Refer to "T.C.I. AIR GAP" section in CHAPTER 3.

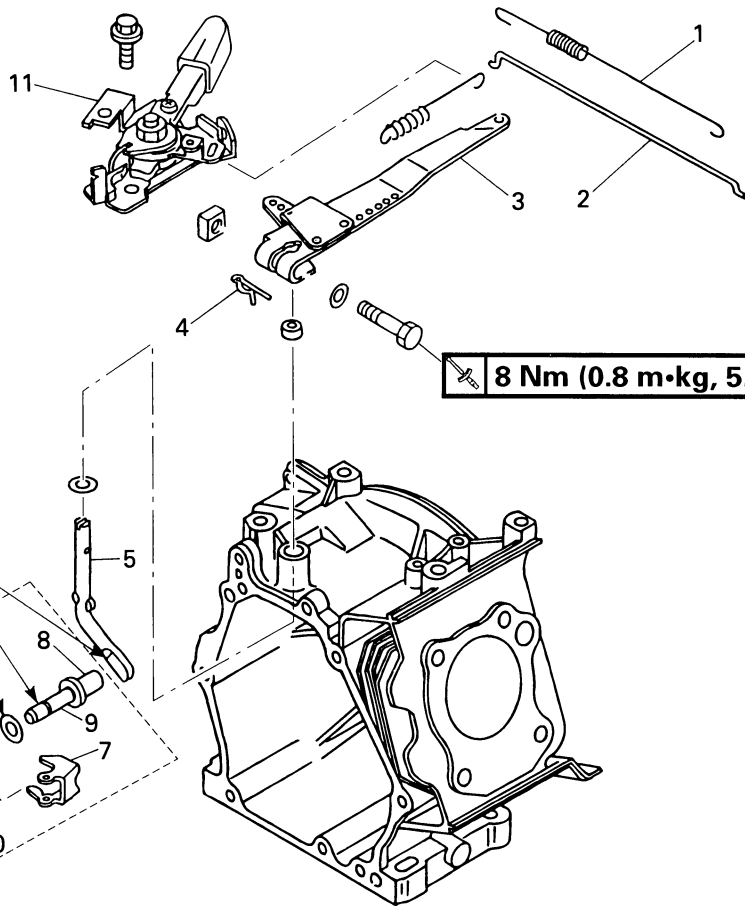


INSPECTION

T.D.C. (Top Dead Center) position

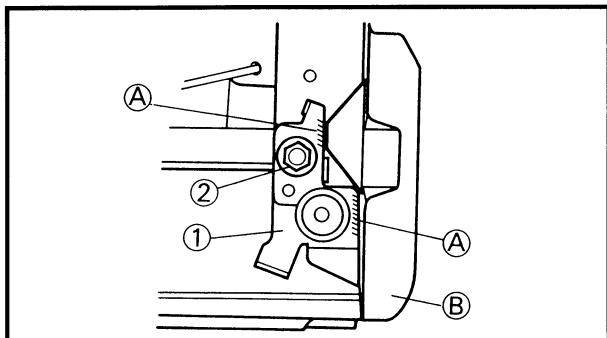
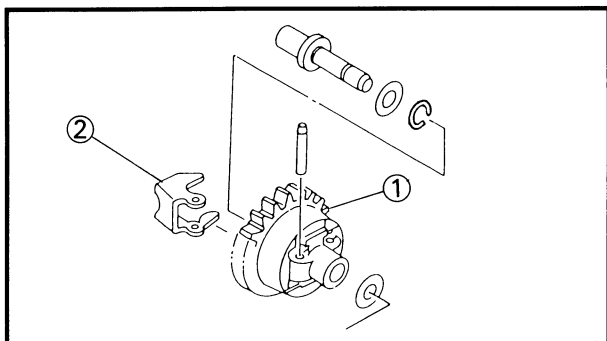
1. Aline the line ① on the flywheel magneto with the mark of fan case ② when the piston is at T.D.C..

A Spring installation:



8 Nm (0.8 m•kg, 5.8 ft•lb)

Order	Job name/parts name	Q'ty	Remarks
	Governor removal		
	Fuel tank		Remove the parts in the order below. Refer to "FUEL TANK AND MUFFLER".
	Crankshaft		Refer to "CRANKCASE COVER AND CAMSHAFT".
1	Spring	1	
2	Link rod	1	
3	Governor arm	1	
4	Clip	1	
5	Governor fork	1	
6	Pin	2	
7	Weight	2	
8	Collar	1	
9	Shaft	1	
10	Weight gear	1	
11	Throttle lever assembly	1	
			For installation, reverse the removal procedure.

**INSPECTION**

1. Inspect:
 - Weight gear ①
Cracks/Wear/Damge→Replace.
2. Inspect:
 - Weight ②
Vend/Damge→Replace.

Throttle lever assembly installation

1. Install:
 - Throttle lever assembly ①

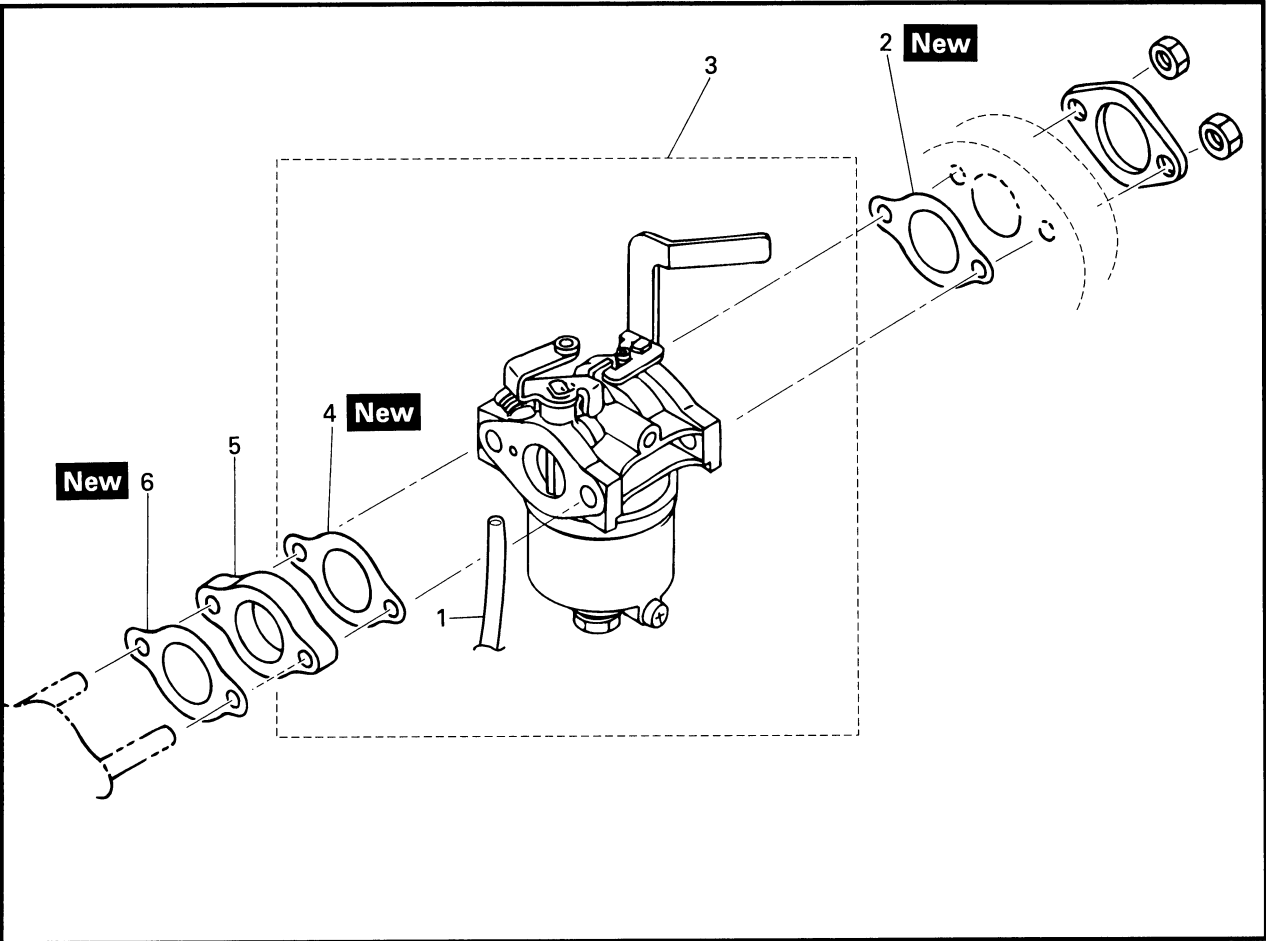
NOTE:

Push the throttle lever assembly ① until this ends ① (〰 side) touches to the fuel tank stay ② when tightening the bolt ②

2. Adjust:
 - Engine speed
Refer to "ENGINE SPEED ADJUST-
MENT" section in CHAPTER 2.



CARBURETOR



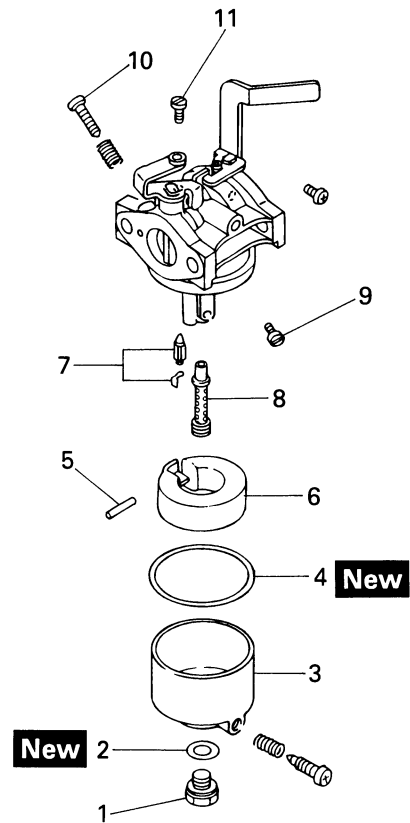
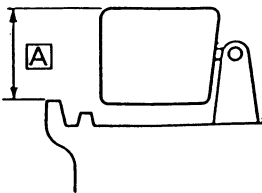
JOB INSTRUCTION CHART

Order	Job name/parts name	Q'ty	Remarks
	Carburetor removal		
	Air filter assembly		Remove the parts in the order below. Refer to "Fuel tank and air filter removal " in chapter 3.
1	Fuel hose		NOTE: Before disconnect the fuel hose, turn the fuel petcock position to the "C" position.
2	Gasket (air filter)	1	
3	Carburetor assembly	1	
4	Gasket (carburetor)	1	
5	Joint (carburetor)	1	
6	Gasket (intake)	1	
			For installation, reverse the removal procedure.



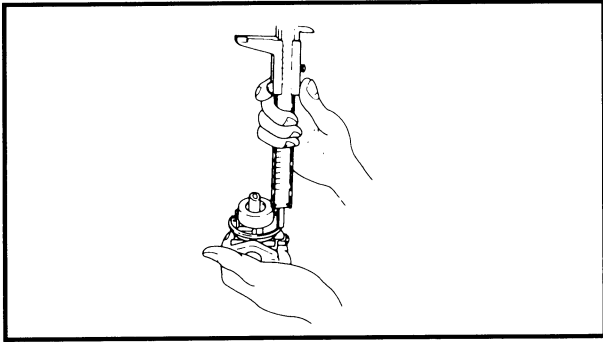
	MZ125	MZ175
Type	BV18	BV20
I.D. Mark	7NM18	7NN20
Float height	16 mm (0.63 in)	←
Main jet	#78.8	#81.3
Main nozzle	32A	4J
Main air jet	ø1.6	ø1.8
Pilot screw	2	2-1/8
Pilot jet	#41.3	←
Pilot air jet	ø1.3	ø1.1
Pilot outlet	ø0.8	ø0.9

A Float height:



JOB INSTRUCTION

Order	Job name/parts name	Qté	Remarks
	Carburetor disassembly		
1	Bolt	1	Disassembly the parts in the order below. For assembly, reverse the disassembly procedure.
2	Gasket	1	
3	Float chamber	1	
4	Gasket (float chamber)	1	
5	Float pin	1	
6	Float	1	
7	Needle/clip	1/1	
8	Main nozzle	1	
9	Main Jet	1	
10	Pilot screw	1	
11	Pilot jet	1	



INSPECTION

1. Measure:
 - Float height

NOTE:

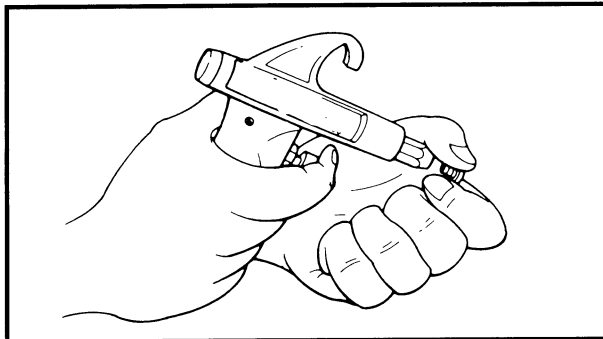
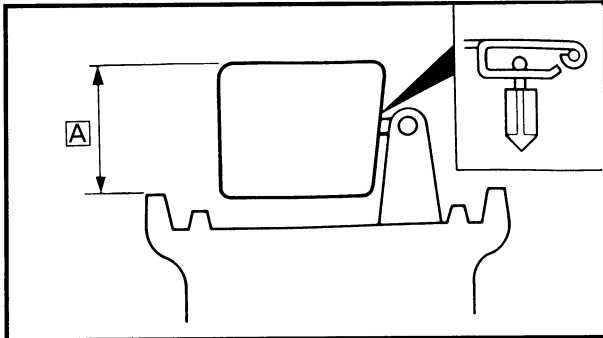
Place the carburetor in an inverted position for measuring.

Lift up the float so that the tip of the float valve lightly contacts the float arm, and measure the float height. (This measurement should be made with the gasket removed.)



Float height **A**:
16 mm (0.63 in)

Out of specification → Replace.



2. Inspect:
 - Carburetor body
 - Fuel passage

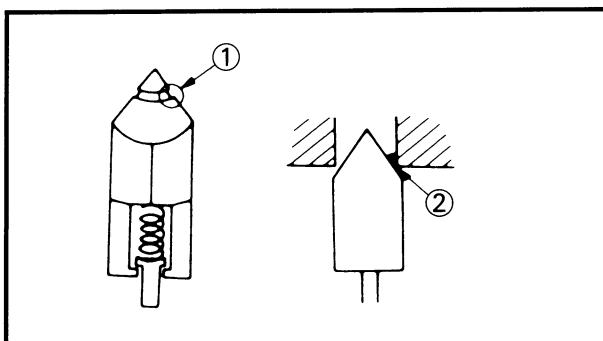
Contamination → Clean as indicated.

Carburetor cleaning steps:

- Wash the carburetor in a petroleum based solvent. (Do not use a caustic carburetor cleaning solution.)
- Blow out all of the passages and jets with compressed air.

CAUTION:

Never use a wire to clean the passage or jets.

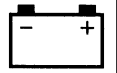


3. Inspect:
 - Valve seat

Wear/Damage → Replace.

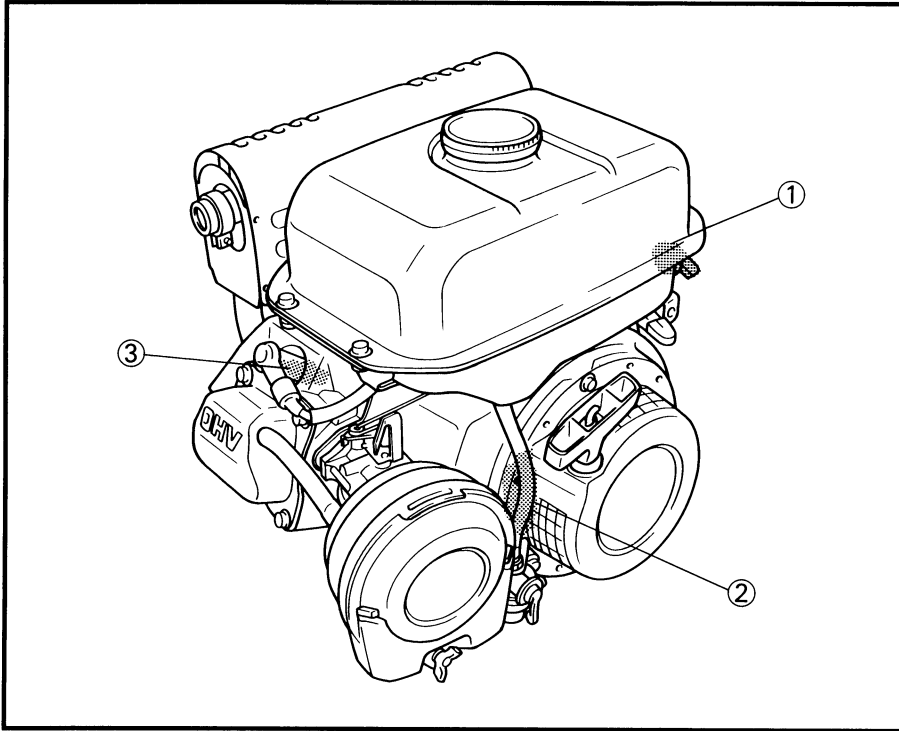
Contamination → Clean .

- ① Grooved wear
- ② Dust



ELECTRICAL

ELECTRICAL COMPONENTS

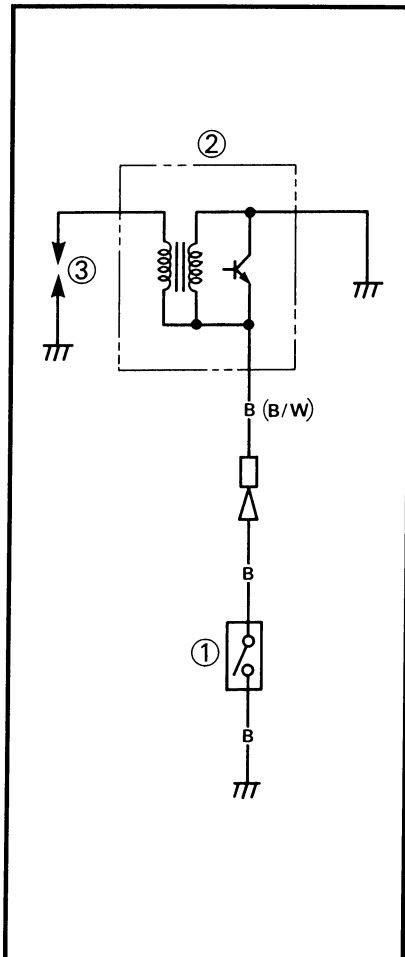


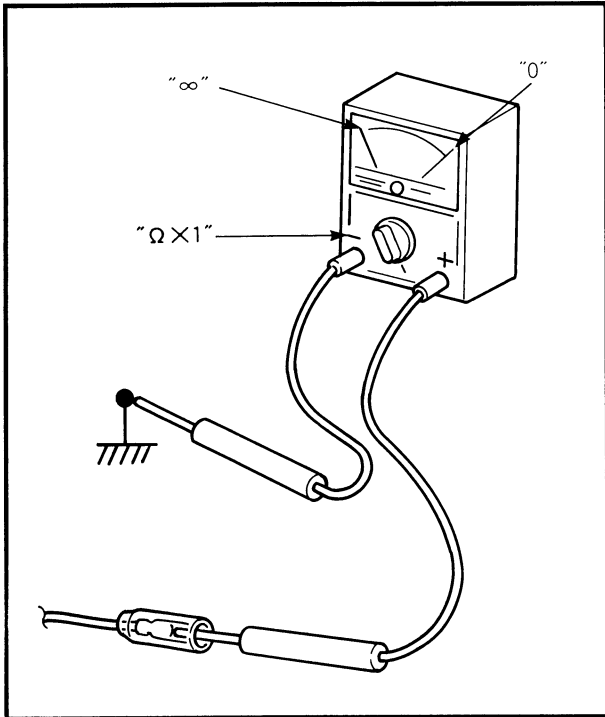
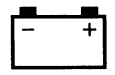
- ① Engine stop switch
- ② T.C.I. unit
- ③ Spark plug

COLOR CODE

B Black
 L Blue
 R Red
 Y Yellow
 B/W Black/White

WIRING DIAGRAM





SWITCH INSPECTION

INSPECTION STEPS

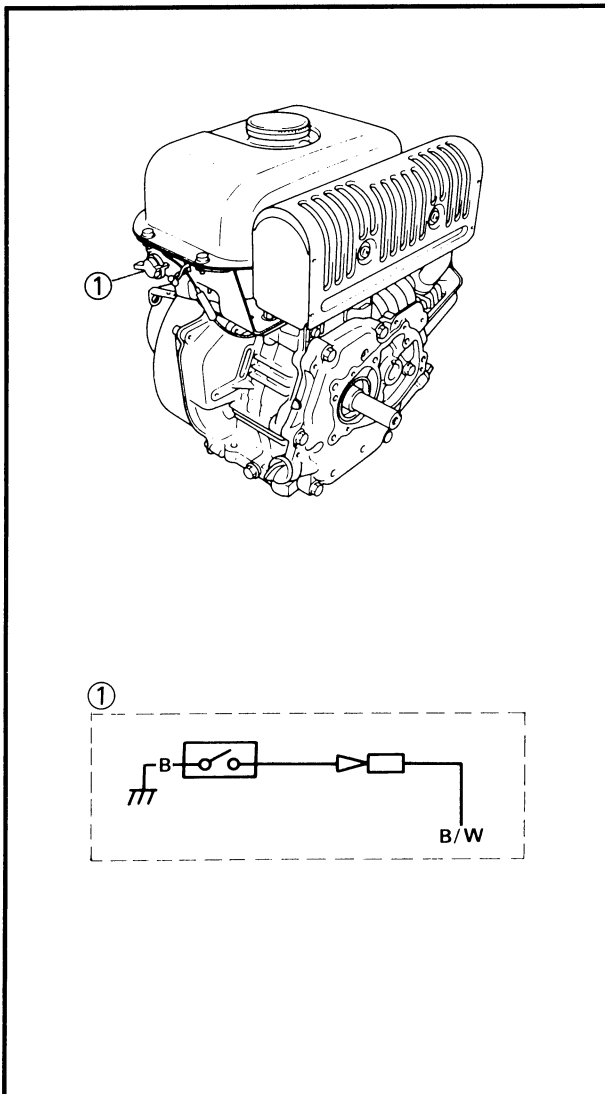
Using pocket tester, check switches for continuity between their terminals to determine whether they are correctly connected. Replace the switch component if any of the combinations does not produce the correct reading.



Pocket tester:
90890-03112

NOTE:

- Turn the switch to the "ON", "OFF" positions several times.
- Adjust the pocket tester to correct "0" position before checking switches.
- Set the pocket tester selector to "×1"Ω.



SWITCH CONTINUITY INSPECTION

Refer to "SWITCH INSPECTION" and check for continuity between lead terminals. Poor connection, no continuity → Correct or replace.

*The coupler locations are circled.

- ① Engine stop switch



TROUBLE SHOOTING

NO SPARK OR NO WEAK SPARK

NOTE:

- Remove the following part(s) before trouble shooting.
 - 1) Spark plug
 - 2) Flywheel magneto
- Use this following special tool(s) for troubleshooting.



Pocket tester:
90890-03112



Ignition spark tester:
90890-06754

1. Spark plug
 - Check the spark plug condition.
- Refer to "SPARK PLUG" in chapter 2.

GOOD

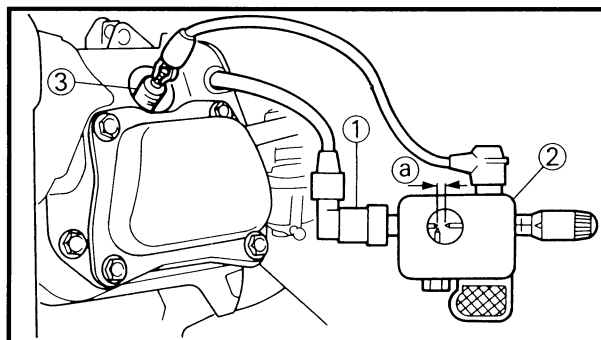


NO GOOD



Repair or replace the spark plug.

2. Ignition spark gap
 - Disconnect the spark plug cap from the spark plug.
 - Connect the ignition checker as shown.
Spark plug cap ① → Ignition checker.
Ignition checker lead → Spark plug ③.
 - Pull the crankshaft and measure the ignition spark plug ②.



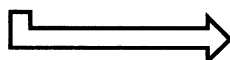
Minimum spark gap:
6 mm (0,24 in) at 20°C (68°F)

NO GOOD

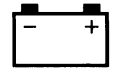


*

GOOD



The ignition system is good.

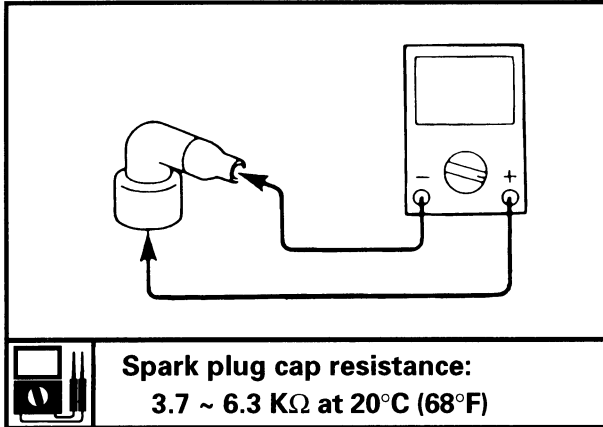


*



3. Spark plug cap

- Remove the spark plug cap.
- Connect the Pocket tester ($\Omega \times 1k$) to the spark plug cap.



GOOD



NO GOOD



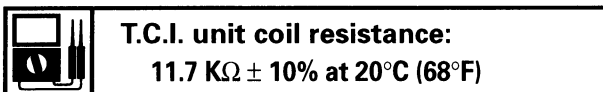
NOTE:

- Do not pull out the plug cap from the hi-tension cord.
- Remove→Turn the plug cap counter clockwise.
- Install→Turn the plug cap clockwise.
- Inspect the hi-tension cord, when install the plug cap.
- Cut the hi-tension cord edge to 5 mm then install the plug cap.

Replace the spark plug.

4. T.C.I. unit coil resistance

- Remove the T.C.I. unit.
 - Connect the Pocket tester ($\Omega \times 1k$) to the T.C.I. unit.
- Tester (+) lead → Orange lead ①.
Tester (-) lead → Ground cord ②.



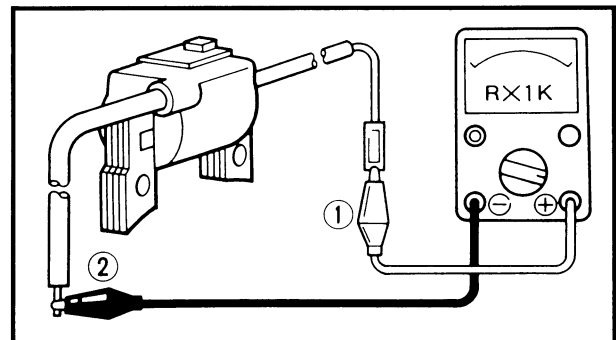
GOOD

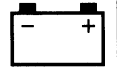


NO GOOD



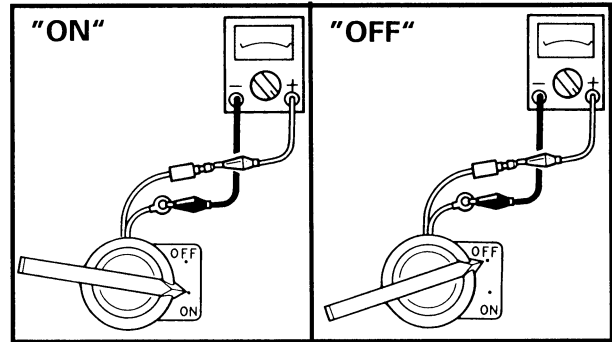
Replace the ignition coil.





5. Engine stop switch

- Remove engine stop switch coupler.
- Connect the Pocket tester ($\Omega \times 1k$) to the engine switch connector and turn the engine switch to "ON".
- Check the engine stop switch for continuity.



NO CONTINUITY CONTINUITY



Turn the engine stop switch to "OFF" and check the engine stop switch for continuity.

CONTINUITY NO CONTINUITY



Replace the engine stop switch.

6. Wiring connection

- Check the connection entire ignition system for connections.

GOOD



Replace the flywheel.

NO GOOD



Repair or replace the connectors.



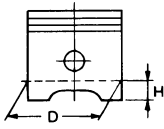
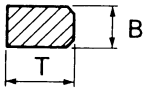
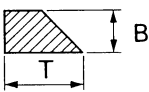
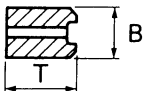
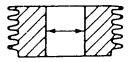
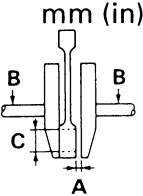
SPECIFICATIONS

GENERAL SPECIFICATIONS

	Unit	MZ125	MZ175
MODEL CODE NUMBER		7NM	7NN
DIMENSIONS:			
Overall length	mm (in)	325 (12.8)	
Overall width		361 (14.2)	
Overall height		370 (14.6)	
Dry weight	kg (l•b)	16.5 (10.5)	17.0 (26.7)
ENGINE:	Type	4-Stroke OHV air cooled	
Cylinder arrangement		1	
Displacement	ml	0.123	0.171
Bore × stroke	mm (in)	56.0 × 50.0 (2.20 × 1.97)	66.0 × 50.0 (2.60 × 1.97)
Compression ratio		8.3 : 1	8.5 : 1
Rated out put kW (PS) /3.600 r/min		2.2 (3.0)	3.3 (4.5)
Fuel		Unleaded regular gasoline	
Fuel tank capacity	L (US gal)	4.5 (1.18)	
Engine oil capacity	L (Imp qt, US qt)	0.6 (0.53, 0.63)	
Engine oil grade		4-stroke engine oil API Service Classification SE or SF if not available, SD	
ELECTRICAL:		T.C.I.	
Ignition system:		B.T.D.C. 23°	
Ignition timing		BPR4ES	
Spark plug type	(NGK)	0.7~0.8 (0.028~0.031)	
Spark plug gap	mm (in)		






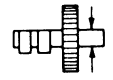
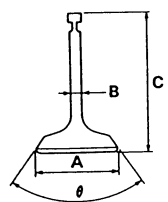

MAINTENANCE SPECIFICATIONS ENGINE

Item		Standard		Limit	
		MZ125	MZ175	MZ125	MZ175
Piston:	mm (in)				
Piston clearance		0.015 ~ 0.040 (0.00059 ~ 0.00157)	←		
Piston size "D"		56.0 (2.205)	66.0 (2.598)	55.9 (2.2001)	65.9 (2.5945)
Measuring point "H"		5.0 (0.2)	←		
Piston pin:	mm (in)				
Piston pin diameter		15.995 ~ 16.000 (0.6297 ~ 0.6299)	←	15.95 (0.628)	←
Piston ring:	mm (in)				
Top ring					
Dimensions		Barrel 1.5 x 2.4 (0.059~0.0094)	← 1.5 x 2.7 (0.059~0.0106)		
End gap		0.2~0.4 (0.008~0.016)	←	0.9 (0.0354)	←
Side clearance		0.04~0.08 (0.0016~0.003)	←	0.1 (0.0039)	←
2nd ring					
Dimensions		Plane 1.5 x 2.4 (0.059~0.0094)	1.5 x 2.7 (0.059~0.0106)		
End gap		0.2~0.4 (0.008~0.016)	←	0.9 (0.0354)	←
Side clearance		0.02~0.06 (0.008~0.0024)	←	0.1 (0.0039)	←
Oil ring					
Dimensions		Solid + expander 1.5 x 2.4 (0.059~0.0094)	1.5 x 2.7 (0.059~0.0106)		
End gap		0.2~0.4 (0.0079~0.0157)	←	0.9 (0.0354)	←
Cylinder head:	mm (in)				
Warp limit				0.1 (0.004)	←
Cylinder:	mm (in)				
Bore size		56.005 ~ 56.015 (2.2049~2.2053)	66.005~66.015 (2.5986~2.5990)	56.15 (2.211)	66.15 (2.604)
Wrappage limit				0.05 (0.002)	←
Crankshaft:	mm (in)				
Big end side clearance "A"		0.2~0.6 (0.008~0.024)	←	0.8 (0.03)	←
Runout limit "B"		0.02 (0.0008)	←	0.04 (0.0016)	←
Crank pin outside diameter "C"		28.0 (1.10)	←	27.9 (1.098)	←

MAINTENANCE SPECIFICATIONS

SPEC

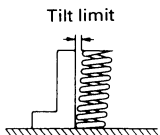
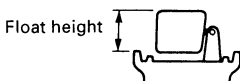


Item		Standard		Limit	
		MZ125	MZ175	MZ125	MZ175
Connecting rod:	mm (in)				
Small end diameter "A"		16.006 ~ 16.020 (0.6301~0.6307)	←		
Oil clearance		0.006 ~ 0.025 (0.00024~0.00078)	←		
Big end diameter "B"		28.00 ~ 28.015 (1.1023~1.1029)	←	0.1 (0.004)	←
Camshaft:	mm (in)				
Camshaft outside diameter		15.995 ~ 16.000 (0.6297 ~ 0.6299)	←	15.95 (0.63)	←
Cam dimension "A"		IN	EX		
		26.9 (1.06)	26.68 (1.05)		
"B"		22.0 (0.87)	22.0 (0.87)		
Camshaft journal		14.193 ~ 14.989 (0.5895~0.5901)	←	14.95 (0.589)	←
Valve:	mm (in)				
Valve dimension					
Head diameter "A"		IN	EX		
		21.0 (0.83)	24.0 (0.94)		
		19.0 (0.75)	22.0 (0.87)		
Stem diameter "B"		IN	EX		
		5.5 (0.22)	←		
		5.5 (0.22)	←		
Valve length "C"		IN	EX		
		64.5 (2.54)	65.9 (2.59)		
		64.5 (2.54)	64.5 (2.54)		
Valve seat width "D"		IN	EX		
		0.7 (0.03)	←	1.7 (0.067)	←
		0.7 (0.03)	←	1.7 (0.067)	←
"θ"		90°	←		
Valve guide					
Guide inside diameter		IN	EX		
		5.5 (0.22)	←		
		5.5 (0.22)	←		
Stem to guide clearance		IN	EX		
		0.04 ~ 0.06 (0.0016~0.002)	←		
		0.06 ~ 0.08 (0.002~0.003)	←		
Valve clearance		IN	EX		
		0.1 (0.004)	←		
		0.05 ~ 0.01 (0.002 ~ 0.004)	←		
Push rod:	mm (in)				
Runout limit				0.5 (0.02)	←

MAINTENANCE SPECIFICATIONS

SPEC



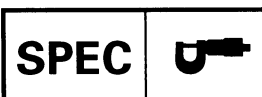
Item		Standard		Limit	
		MZ125	MZ175	MZ125	MZ175
Valve spring:	mm (in)				
Free length	IN	26.5 (1.04)	←	25.0 (0.98)	←
	EX	26.5 (1.04)	←	25.0 (0.98)	←
Set length	IN	21.6 (0.85)	←		
	EX	18.9 (0.74)	←		
Set forth	IN	4.5 kg (9.9 lb)	←		
	EX	7.0 kg (15.4 lb)	←		
Tilt limit				1.6 (0.06)	←
					
Carburetor:					
Type/Manufacturer		BV-18-11/MIKUNI	BV-20-15/MIKUNI		
Bore size		18/11	20/18		
Main jet		#78.8	#81.3		
Pilot jet		#41.3	←		
pilot screw	Turns out	2	2-1/8		
Valve seat size	mm (in)	1.8 (0.07)	←		
Float height	mm (in)	16 (0.63)	←		
Rated engine speed	r/min	3,700~3,800	←		
					

ELECTRICAL

GENERATOR/ELECTRICAL

Item		Standard		Limit	
		MZ125	MZ175	MZ125	MZ175
Electrical:					
Ignition system		T.C.I.	←		
T.C.I. air gap	mm (in)	0.5 (0.0197)	←		
Primary coil	($\Omega \pm 20\%$)	1.2	←		
Secondary coil	($k\Omega \pm 10\%$)	11.7	←		
Plug cap resistance	(k Ω)	3.7 ~6.3	←		

TIGHTENING TORQUE/ GENERAL TORQUE SPECIFICATIONS/ DEFINITION OF UNITS



TIGHTENING TORQUE

Item \ Model	MZ125		MZ175	
	Thread size	Torque Nm (m•kg, ft•lb)	Thread size	Torque Nm (m•kg, ft•lb)
Cylinder head	M 8 × 1.25	20 (2.0, 14.5)	M 8 × 1.25	20 (2.0, 14.5)
Cylinder head cover	M 6 × 1.0	10 (1.0, 7.2)	M 6 × 1.0	10 (1.0, 7.2)
Crankcase cover	M 8 × 1.25	22 (2.2, 15.9)	M 8 × 1.25	22 (2.2, 15.9)
Spark plug	M14 × 1.25	18 (1.8, 13)	M14 × 1.25	18 (1.8, 13)
Fan case	M 6 × 1.0	7 (0.7, 5.0)	M 6 × 1.0	7 (0.7, 5.0)
Connecting rod	M 7 × 1.0	12 (1.2, 8.7)	M 7 × 1.0	12 (1.2, 8.7)
Flywheel magneto	M14 × 1.5	65 (6.5, 47.0)	M14 × 1.5	65 (6.5, 47.0)
Governor arm	M 6 × 1.0	8 (0.8, 5.8)	M 6 × 1.0	8 (0.8, 5.8)
T.C.I. unit	M 6 × 1.0	10 (1.0, 7.2)	M 6 × 1.0	10 (1.0, 7.2)
Oil drain plug	M10 × 1.25	17 (1.7, 12)	M10 × 1.25	17 (1.7, 12)
Valve adjuster locknut	M 6 × 0.5	10 (1.0, 7.2)	M 6 × 0.5	10 (1.0, 7.2)
Engine stop switch	M 6 × 1.0	10 (1.0, 7.2)	M 6 × 1.0	4.5 (0.45, 3.24)

GENERAL TORQUE SPECIFICATIONS

This chart specifies torque for standard fasteners with standard I.S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book. To avoid warpage, tighten multi-fastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature.

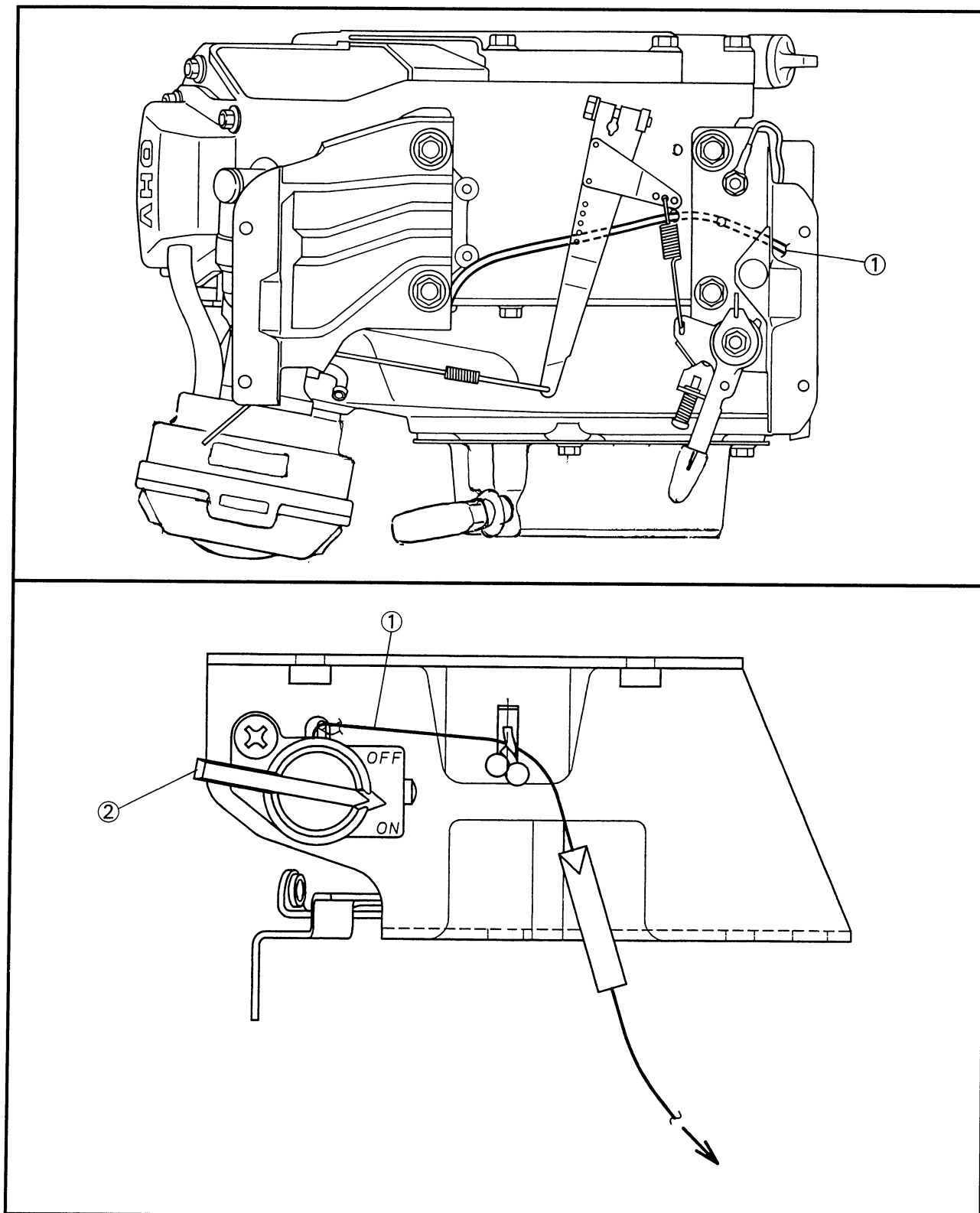
Thread size	Tightening torque		
	Nm	m•kg	ft•lb
M 4	2	0.2	1,4
M 5	3	0.3	2,2
M 6	7	0.7	5,1
M 7	10	1.0	7,2
M 8	15	1.5	10,8
M10	30	3.0	21,7
M12	60	6.0	43,4

DEFINITION OF UNITS

Unit	Read	Definition	Measure
mm cm	Millimeter Centimeter	10^{-3} m 10^{-2} m	Length Length
kg	Kilogram	10^3 gram	Weight
N	Newton	$1 \text{ kg} \times \text{m/sec}^2$	Force
N•m m•kg	Newton meter Meter-kilogram	$\text{N} \times \text{m}$ $\text{m} \times \text{kg}$	Torque Torque
Pa N/mm	Pascal Newton per millimeter	N/m^2 N/mm	Pressure Spring rate
L cm ³	Litter Cubic centimeter	—	Volume or Capacity
tr/mn	Rotation per minute	—	Engine speed

**CABLE, HOSE ROUTING**

- ① Engine stop switch lead
- ② Engine stop switch



YAMAHA
YAMAHA MOTOR CO., LTD.

97.3-1.7X10
(E)