A Few Words About Safety

SERVICE INFORMATION

The service and repair information contained in this manual is intended for use by qualified, professional technicians. Attempting service or repairs without the proper training, tools, and equipment could cause injury to you and/or others. It could also damage this Honda product or create an unsafe condition.

This manual describes the proper methods and procedures for performing service, maintenance, and repairs. Some procedures require the use special tools. Any person who intends to use a replacement part, service procedure, or a tool that is not recommended by Honda must determine the risks to their personal safety and the safe operation of this product.

If you need to replace a part, use Honda Genuine parts with the correct part number or an equivalent part. We strongly recommend that you do not use replacement parts of inferior quality.

For Your Customer's Safety

Proper service and maintenance are essential to the customer's safety and the reliability of this product. Any error or oversight while servicing this product can result in faulty operation, damage to the product, or injury to others.

⚠WARNING

Improper service or repairs can create an unsafe condition that can cause your customer or others to be seriously hurt or killed.

Follow the procedures and precautions in this manual and other service materials carefully.

For Your Safety

Because this manual is intended for the professional service technician, we do not provide warnings about many basic shop safety practices (e.g., Hot parts-wear gloves). If you have not received shop safety training or do not feel confident about your knowledge of safe servicing practices, we recommend that you do not attempt to perform the procedures described in this manual.

Some of the most important general service safety precautions are given below. However, we cannot warn you of every conceivable hazard that can arise in performing service and repair procedures. Only you can decide whether or not you should perform a given task.

⚠WARNING

Failure to properly follow instructions and precautions can cause you to be seriously hurt or killed.

Follow the procedures and precautions in this manual carefully.

Important Safety Precautions

Make sure you have a clear understanding of all basic shop safety practices and that you are wearing appropriate clothing and using safety equipment. When performing any service task, be especially careful of the following:

- Read all of the instructions before you begin, and make sure you have the tools, the replacement or repair parts, and the skills required to perform the tasks safely and completely.
- Protect your eyes by using proper safety glasses, goggles, or face shields anytime you hammer, drill, grind, or work around pressurized air, pressurized liquids, springs, or other stored-energy components. If there is any doubt, put on eye protection.
- Use other protective wear when necessary, for example gloves or safety shoes. Handling hot or sharp parts can cause severe burns or cuts. Before you grab something that looks like it can hurt you, stop and put on gloves.
- Protect yourself and others whenever you have equipment hoisted in the air. Anytime you lift this product with a hoist, make sure that the hoist hook is securely attached to the product.

Make sure the engine is off before you begin any servicing procedures, unless the instruction tells you to do otherwise. This will help eliminate several potential hazards:

- Carbon monoxide poisoning from engine exhaust. Be sure there is adequate ventilation whenever you run the engine.
- Burns from hot parts. Let the engine and exhaust system cool before working in those areas.
- Injury from moving parts. If the instruction tells you to run the engine, be sure your hands, fingers and clothing are out of the way.

Gasoline vapors and hydrogen gasses from batteries are explosive. To reduce the possibility of a fire or explosion, be careful when working around gasoline or batteries.

- Use only a nonflammable solvent, not gasoline, to clean parts.
- Never store gasoline in an open container.
- Keep all cigarettes, sparks, and flames away from the battery and all fuel-related parts.

INTRODUCTION

This supplement covers the construction, function, and servicing procedures of the Honda GX160T2 CHB3 type, GX200T2 CACK/CHK/CAC1/CHBR/CHB2/CW2/CW/DHBR/DHB2/DHB3 types engine.
For service information that is not covered in this supplement, please refer to the GX160T2/GX200T2 base shop manual (part number 82Z4H00).

All information contained in this manual is based on the latest product information available at the time of printing. We reserve the right to make changes at anytime without notice.

As you read this manual, you will find information that is preceded by a NOTICE symbol. The purpose of this message is to help prevent damage to this Honda product, other property, or the environment.

SAFETY MESSAGES

Your safety and the safety of others are very important. To help you make informed decisions, we have provided safety messages and other safety information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing these products. You must use your own good judgement.

You will find important safety information in a variety of forms, including:

- Safety Labels – on the product.
- Safety Messages – preceded by a safety alert symbol ⚠ and one of three signal words, DANGER, WARNING, or CAUTION.
  These signal words mean:

⚠DANGER You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.

⚠WARNING You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.

⚠CAUTION You CAN be HURT if you don't follow instructions.

- Instructions – how to service these products correctly

SERVICE PUBLICATION OFFICE

Date of Issue: July 2015

OUTLINE OF CHANGES

The marked sections contain no changes. They are not covered in this supplement.

SYMBOLS

The symbols used throughout this manual show specific service procedures. If supplementary information is required pertaining to these symbols, it will be explained specifically in the text without the use of the symbols.

	Replace the part(s) with new one(s) before assembly.
	Use the recommend engine oil, unless otherwise specified.
	Use molybdenum oil solution (mixture of the engine oil and molybdenum grease in a ratio of 1:1).
	Use multi-purpose grease (lithium based multi-purpose grease NLGI #2 or equivalent).
	Use marine grease (water resistant urea based grease).
	Apply a locking agent. Use a medium strength locking agent unless otherwise specified.
	Apply sealant.
	Use automatic transmission fluid.
(○ x ○) (○)	Indicates the diameter, length, and quantity of metric bolts used.
page 1-1	Indicates the reference page.

ABBREVIATIONS

Throughout this manual, the following abbreviations are used to identify the respective parts or systems.

Abbreviated term	Full term
ACG	Alternator
A/F	Air Fuel Ratio
API	American Petroleum Institute
Approx.	Approximately
Assy.	Assembly
ATDC	After Top Dead Center
ATF	Automatic Transmission Fluid
ATT	Attachment
BAT	Battery
BDC	Bottom Dead Center
BTDC	Before Top Dead Center
BARO	Barometric Pressure
CKP	Crankshaft Position
Comp.	Complete
CMP	Camshaft Position
CYL	Cylinder
DLC	Data Link Connector
EBT	Engine Block Temperature
ECT	Engine Coolant Temperature
ECM	Engine Control Module
EMT	Exhaust Manifold Temperature
EOP	Engine Oil Pressure
EX	Exhaust
F	Front or Forward
GND	Ground
HO2S	Heated Oxygen Sensor
IAB	Intake Air Bypass
IAC	Idle Air Control
IAT	Intake Air Temperature
I.D.	Inside Diameter
IG or IGN	Ignition
IN	Intake
INJ	Injection
L.	Left
MAP	Manifold Absolute Pressure
MIL	Malfunction Indicator Lamp
O.D.	Outside Diameter
OP	Optional Part
PGM-FI	Programmed-Fuel Injection
P/N	Part Number
Qty	Quantity
R.	Right
SAE	Society of Automotive Engineers
SCS	Service Check Signal
STD	Standard
SW	Switch
TDC	Top Dead Center
TP	Throttle Position
VTEC	Variable Valve Timing & Valve Lift Electronic Control

Bl	Black	G	Green	Br	Brown	Lg	Light green
Y	Yellow	R	Red	O	Orange	P	Pink
Bu	Blue	W	White	Lb	Light blue	Gr	Gray

OUTLINE OF CHANGES

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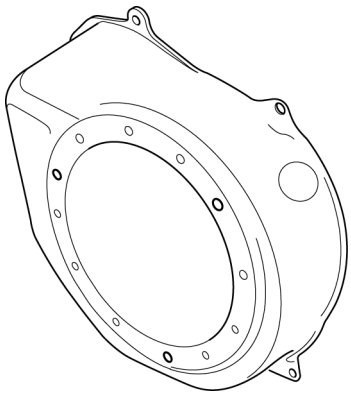
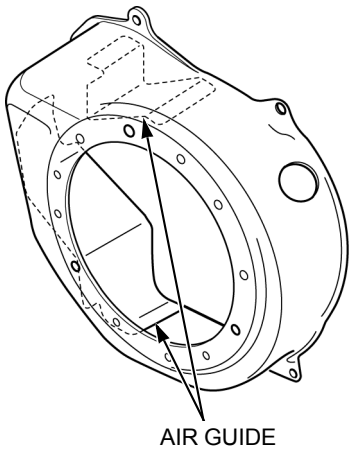
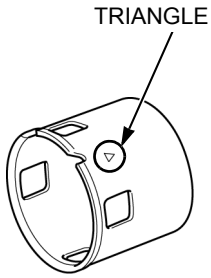
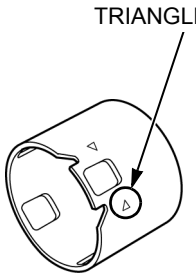
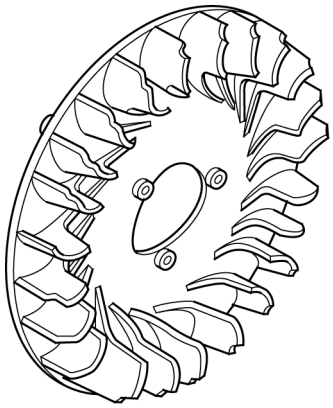
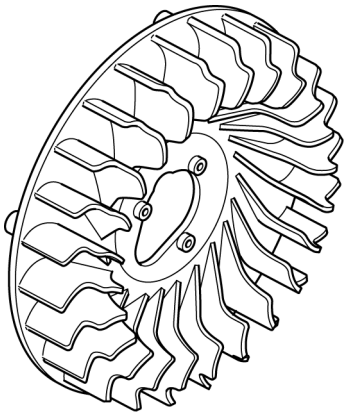
FAN COVER		
STARTER PULLEY		
COOLING FAN		

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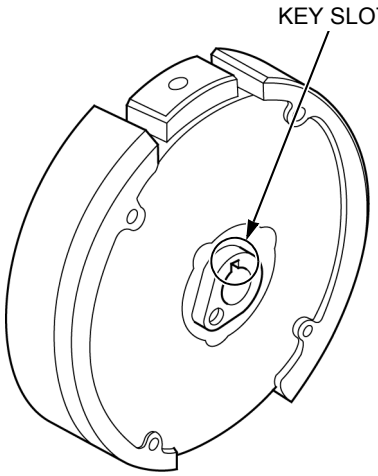
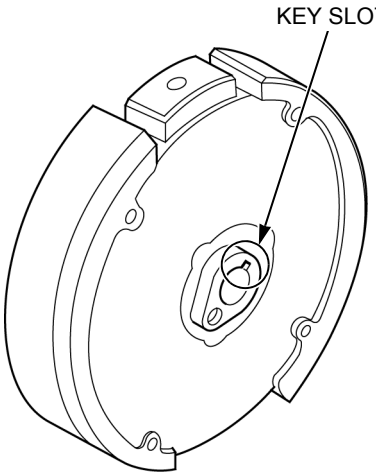
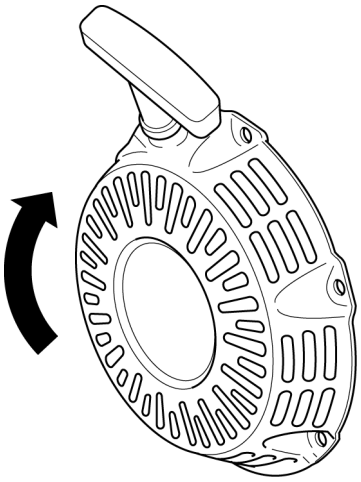
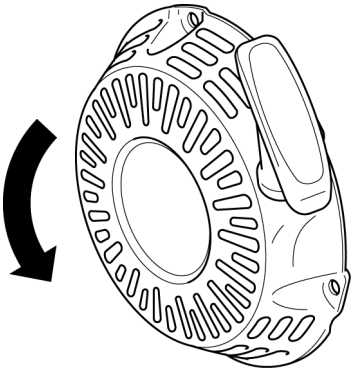
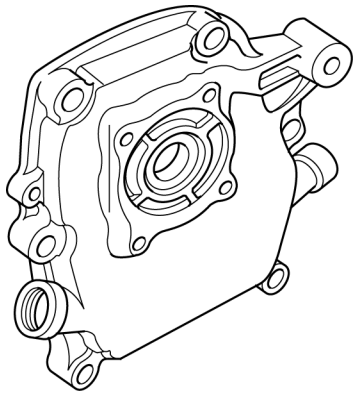
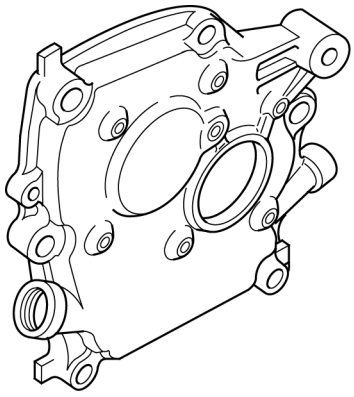
FLYWHEEL		
RECOIL STARTER		
CRANKCASE COVER		

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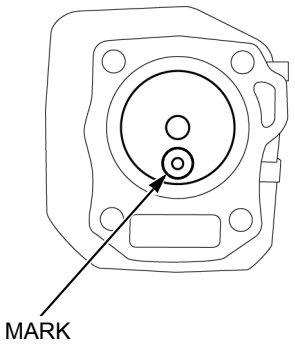
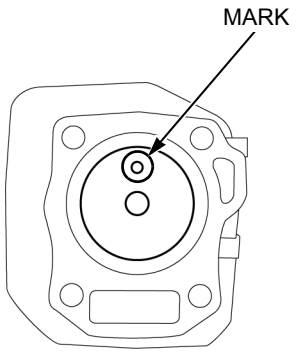
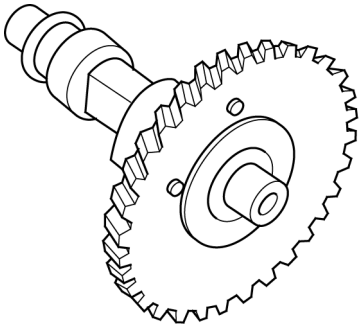
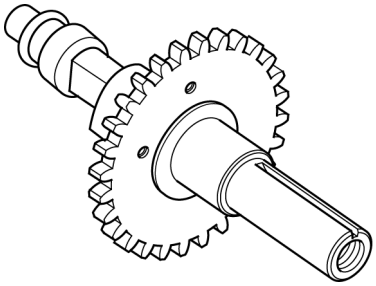
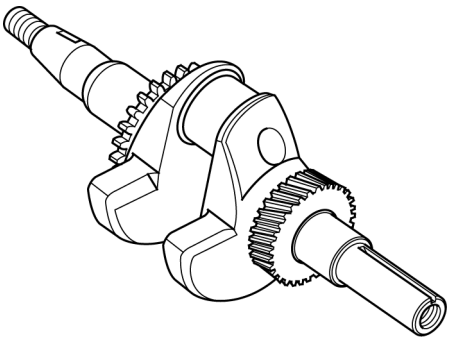
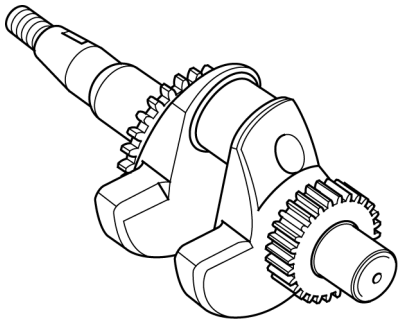
PISTON		
CAMSHAFT		
CRANKSHAFT		

1. SPECIFICATIONS

DIMENSIONS AND WEIGHTS SPECIFICATIONS

GX160T2

CHB3 type

	P.T.O. type	DIMENSIONS AND WEIGHTS
Overall length	C	311 mm (12.2 in)
Overall width		370 mm (14.6 in)
Overall height		335 mm (13.2 in)
Dry weight		16.0 kg (35.3 lbs)
Operating weight		18.9 kg (41.7 lbs)

GX200T2

CACK/CHK/CAC1/CHBR/CHB2/CW2/CW types

		P.T.O. type	DIMENSIONS AND WEIGHTS
Overall length		C	311 mm (12.2 in)
Overall width	CHK/CHBR/ CHB2		376 mm (14.8 in)
	CACK/CAC1/ CW2/CW		430 mm (16.9 in)
Overall height			335 mm (13.2 in)
Dry weight			16.1 kg (35.5 lbs)
Operating weight			19.0 kg (41.9 lbs)

DHBR/DHB2/DHB3 types

		P.T.O. type	DIMENSIONS AND WEIGHTS
Overall length		D	319.5 mm (12.58 in)
Overall width	DHBR/DHB2		376 mm (14.8 in)
	DHB3		361 mm (14.2 in)
Overall height			335 mm (13.2 in)
Dry weight	DHBR/DHB2		16.1 kg (35.5 lbs)
	DHB3		15.1 kg (33.3 lbs)
Operating weight	DHBR/DHB2		19.0 kg (41.9 lbs)
	DHB3		18.0 kg (39.7 lbs)

ENGINE SPECIFICATIONS

GX160T2

CHB3 type

Model		GX160T2
Description code		GCBRT
Type		4 stroke, overhead valve, single cylinder, inclined by 25°
Displacement		163 cm^3 (9.9 cu-in)
Bore x stroke		68.0 x 45.0 mm (2.68 x 1.77 in)
Net power (SAE J1349) *1		3.6 kW (4.8 HP)/3,600 min^{-1} (rpm)
Continuous rated power		2.9 kW (3.9 HP)/3,600 min^{-1} (rpm)
Maximum net torque (SAE J1349) *1		10.3 N·m (1.05 kgf·m, 7.6 lbf·ft)/2,500 min^{-1} (rpm)
Compression ratio		9.0 : 1
Fuel consumption (at continuous rated power) *1		1.4 Liters (0.37 US gal, 0.31 Imp gal)/h
Ignition system		Transistorized magneto
Ignition timing		B.T.D.C. 18° /1,400 min^{-1} (rpm)
Recommended spark plug		BPR6ES (NGK)/W20EPR-U (DENSO)
Lubrication system		Forced splash
Oil capacity		0.58 Liter (0.61 US qt, 0.51 Imp qt)
Recommended oil		SAE 10W-30 API service classification SE or higher
Cooling system		Forced air
Starting system		Recoil starter
Stopping system		Ignition primary circuit ground
Carburetor		Horizontal type, butterfly valve
Air cleaner		Dual type
Governor		Centrifugal weight system
Breather system		Flat valve type
Fuel used		Unleaded gasoline with a pump octane rating 86 or higher
Fuel tank capacity		3.1 Liters (0.82 US gal, 0.68 Imp gal)
Reduction system	Reduction method	Direct-coupled (gear drive)
	Reduction ratio	1/2
	Lubricant capacity	Included

*1: The power rating of the engine indicated in this document is the net power output tested on a production engine for the engine model and measured in accordance with SAE J1349 at 3,600 min^{-1} (rpm) (net power) and at 2,500 min^{-1} (rpm) (max net torque). Mass production engines may vary from this value. Actual power output for the engine installed in the final machine will vary depending on numerous factors, including the operating speed of the engine in application, environmental conditions, maintenance, and other variables.

GX200T2

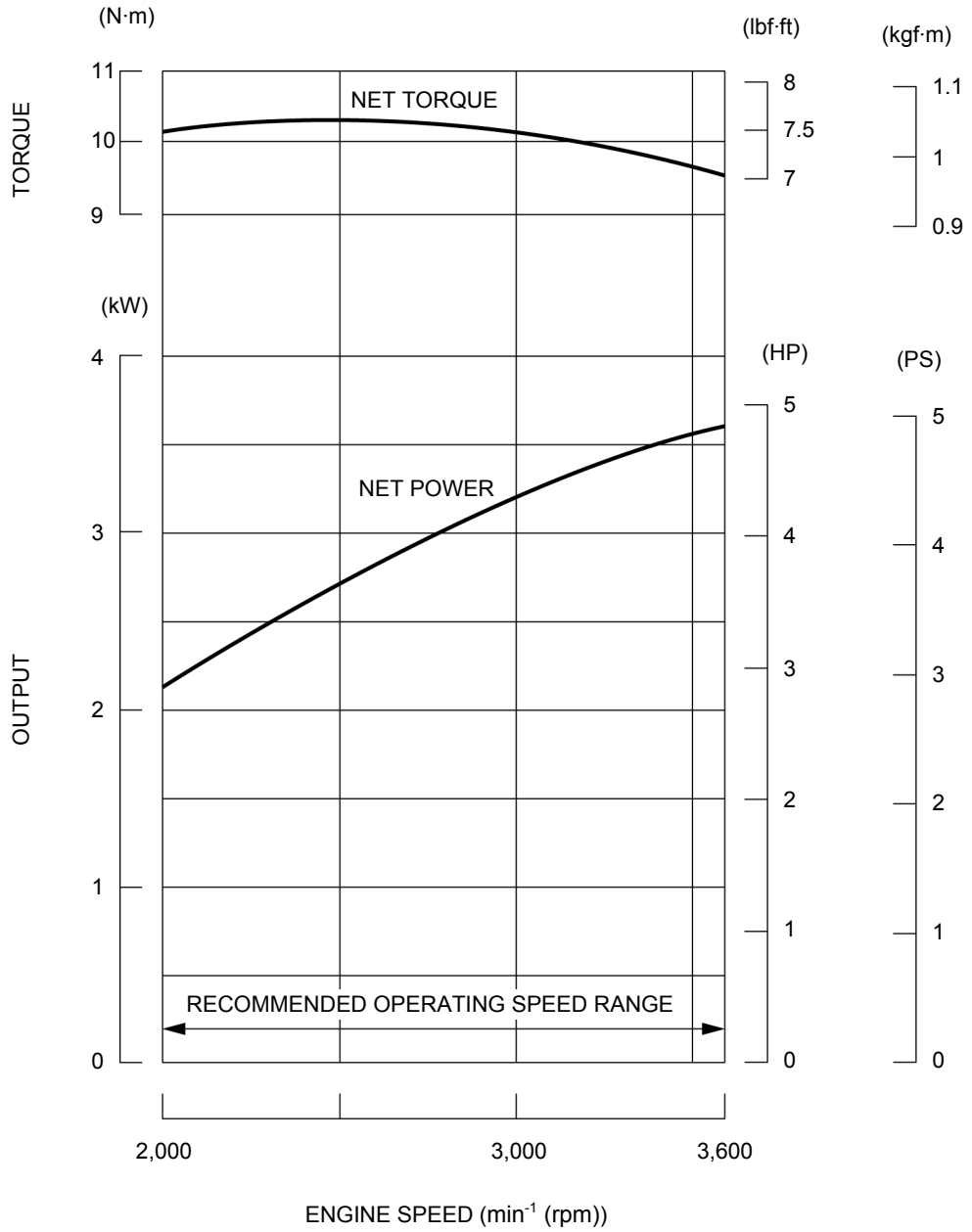
CACK/CHK/CAC1/CHBR/CHB2/CW2/CW/DHBR/DHB2/DHB3 types

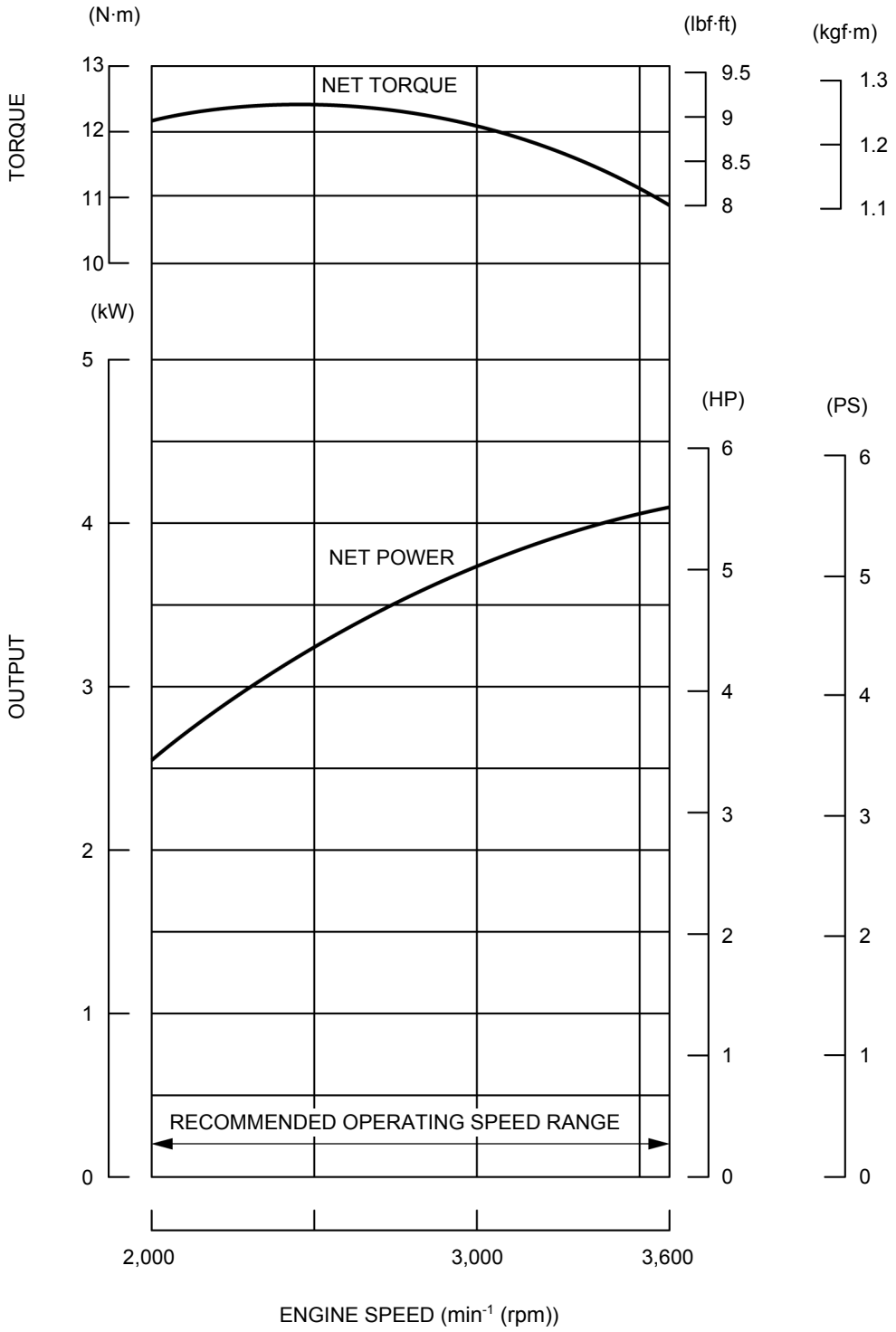
Model		GX200T2
Description code		GCBUT
Type		4 stroke, overhead valve, single cylinder, inclined by 25°
Displacement		196 cm^3 (12.0 cu-in)
Bore x stroke		68.0 x 54.0 mm (2.68 x 2.13 in)
Net power (SAE J1349) *1		4.1 kW (5.5 HP)/3,600 min^{-1} (rpm)
Continuous rated power		3.7 kW (5.0 HP)/3,600 min^{-1} (rpm)
Maximum net torque (SAE J1349) *1		12.4 N·m (1.26 kgf·m, 9.1 lbf·ft)/2,500 min^{-1} (rpm)
Compression ratio		8.5 : 1
Fuel consumption (at continuous rated power) *1		1.7 Liters (0.45 US gal, 0.37 Imp gal)/h
Ignition system		Transistorized magneto
Ignition timing		B.T.D.C. 20° /1,400 min^{-1} (rpm)
Recommended spark plug		BPR6ES (NGK)/W20EPR-U (DENSO)
Lubrication system		Forced splash
Oil capacity		0.60 Liter (0.63 US qt, 0.53 Imp qt)
Recommended oil		SAE 10W-30 API service classification SE or higher
Cooling system		Forced air
Starting system		Recoil starter
Stopping system		Ignition primary circuit ground
Carburetor		Horizontal type, butterfly valve
Air cleaner		Dual silent, Cyclone, Semi dry types
Governor		Centrifugal weight system
Breather system		Flat valve type
Fuel used		Unleaded gasoline with a pump octane rating 86 or higher
Fuel tank capacity		3.1 Liters (0.82 US gal, 0.68 Imp gal)
Reduction system	Reduction method	Direct-coupled (gear drive)
	Reduction ratio	1/2
	Lubricant capacity	Included

*1: The power rating of the engine indicated in this document is the net power output tested on a production engine for the engine model and measured in accordance with SAE J1349 at 3,600 min^{-1} (rpm) (net power) and at 2,500 min^{-1} (rpm) (max net torque). Mass production engines may vary from this value. Actual power output for the engine installed in the final machine will vary depending on numerous factors, including the operating speed of the engine in application, environmental conditions, maintenance, and other variables.

PERFORMANCE CURVES

GX160T2

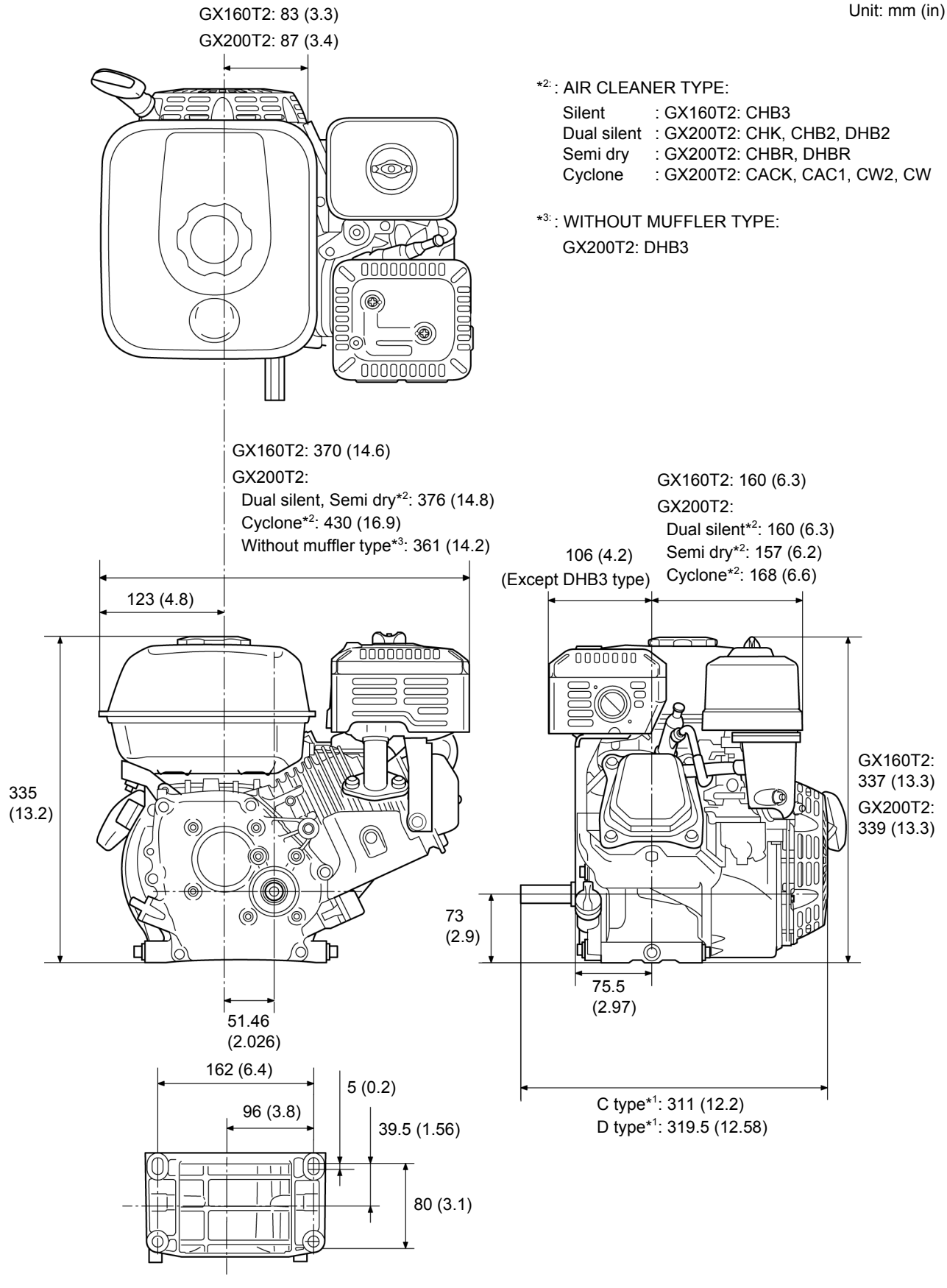



(N·m)
(lbf·ft)
(kgf·m)
TORQUE
13
12
11
10
NET TORQUE
9.5
9
8.5
8
1.3
1.2
1.1
(kW)
(HP)
(PS)
OUTPUT
5
4
3
2
1
0
NET POWER
6
5
4
3
2
1
0
RECOMMENDED OPERATING SPEED RANGE
2,000
3,000
3,600
ENGINE SPEED (min-1 (rpm))

DIMENSIONAL DRAWINGS

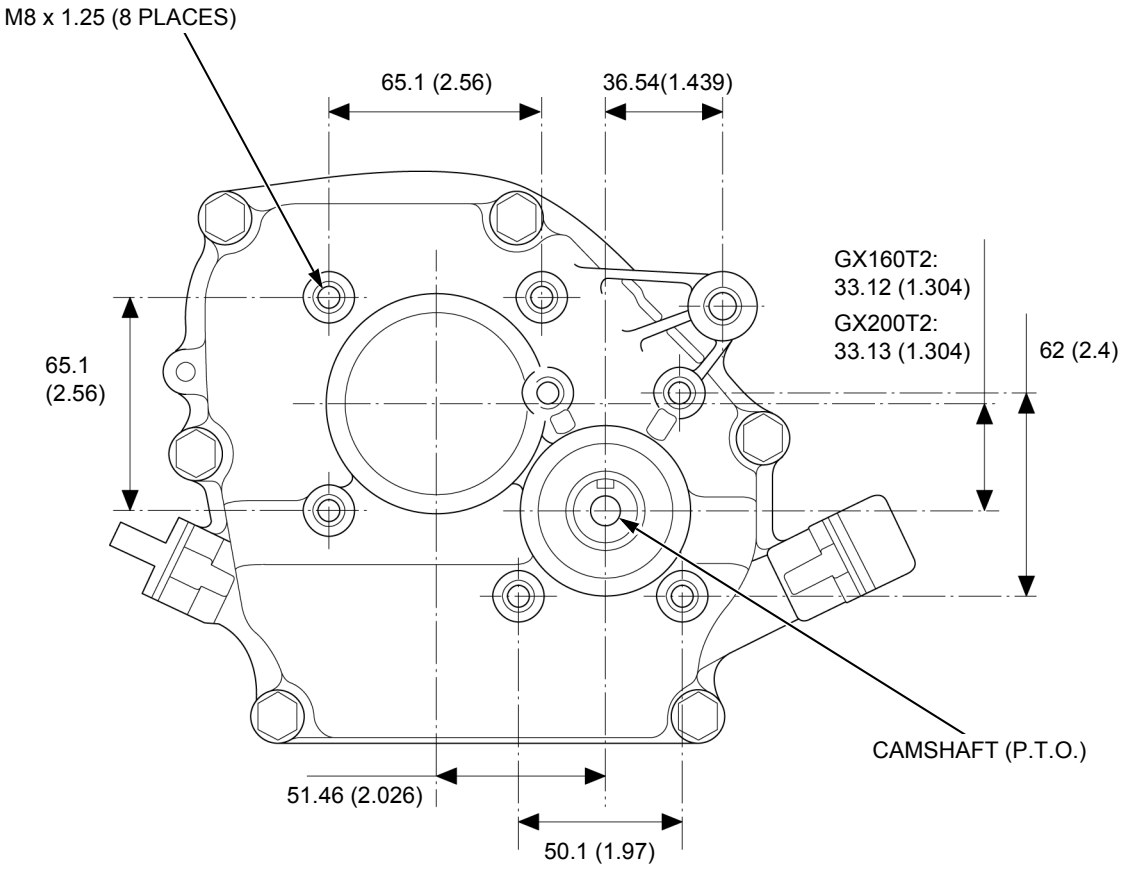
*1: P.T.O. type (page 1-2).

Unit: mm (in)



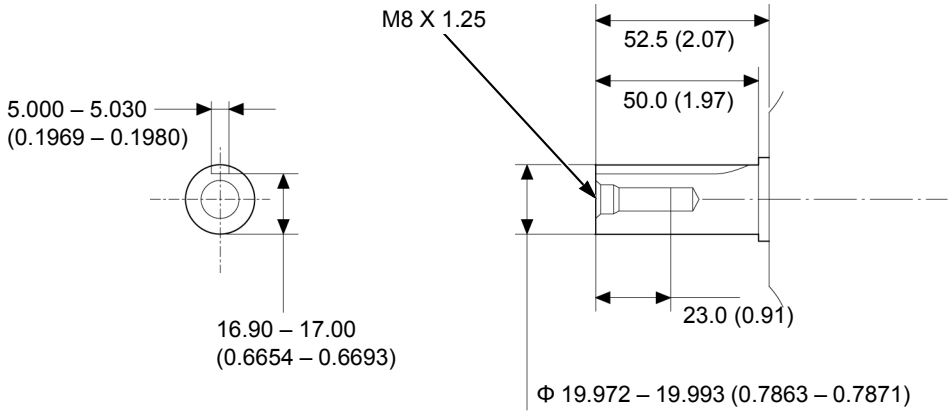
P.T.O. DIMENSIONAL DRAWINGS

Unit: mm (in)



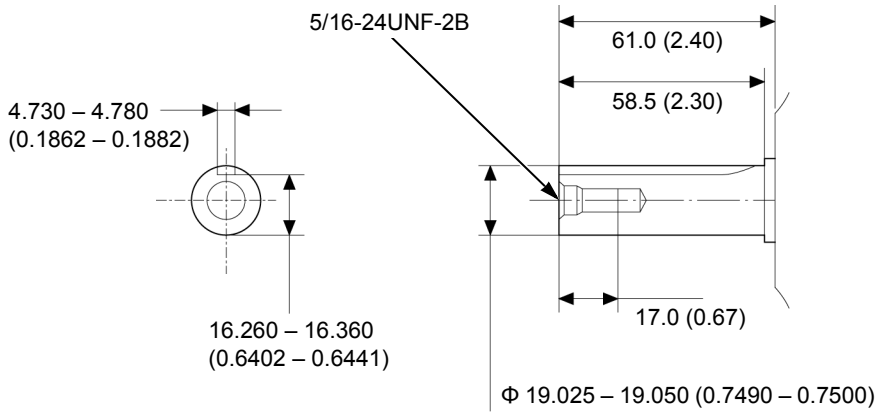
C type

Unit: mm (in)



D type

Unit: mm (in)



MEMO

2. SERVICE INFORMATION

MAINTENANCE STANDARDS

Unit: mm (in)

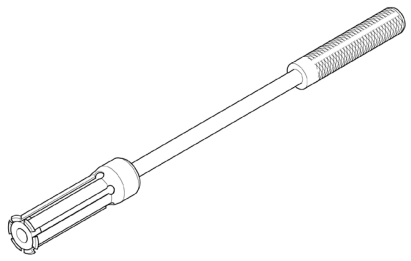
Part	Item			Standard	Service limit
Engine	Maximum speed (at no load)	GX160T2		3,900 ± 100 min^{-1} (rpm)	–
		GX200T2		3,850 ± 150 min^{-1} (rpm)	–
	Idle speed			1,400 $^{+200}_{-150}$ min^{-1} (rpm)	–
	Cylinder compression	GX160T2		0.49 – 0.69 MPa (5.0 – 7.0 kgf/cm^2, 71 – 100 psi)/600 min^{-1} (rpm)	–
		GX200T2		0.35 MPa (3.6 kgf/cm^2,51 psi)/ 600 min^{-1} (rpm)	–
Cylinder barrel	Camshaft journal I.D.			14.000 – 14.018 (0.5512 – 0.5519)	14.048 (0.5531)
Camshaft	Cam height	GX160T2	IN	27.500 – 27.900 (1.0827 – 1.0984)	27.450 (1.0807)
			EX	27.546 – 27.946 (1.0845 – 1.1002)	27.500 (1.0827)
		GX200T2	IN	27.500 – 27.900 (1.0827 – 1.0984)	27.450 (1.0807)
			EX	27.547 – 27.947 (1.0845 – 1.1003)	27.500 (1.0827)
	Camshaft O.D.			13.966 – 13.984 (0.5498 – 0.5506)	13.916 (0.5479)
Crankshaft	Crankpin O.D.			29.970 – 29.980 (1.1799 – 1.1803)	29.92 (1.178)
	Runout			–	0.10 (0.004)
Valves	Valve clearance	GX160T2	IN	0.08 ± 0.02 (0.003 ± 0.001)	–
			EX	0.10 ± 0.02 (0.004 ± 0.001)	–
		GX200T2	IN	0.15 ± 0.02 (0.006 ± 0.001)	–
			EX	0.20 ± 0.02 (0.008 ± 0.001)	–
Carburetor	Main jet	GX160T2		#68	–
		GX200T2		#75	–
	Pilot screw opening	GX160T2	CHB3	2-1/2 turns out	–
		GX200T2	CACK	2-1/4 turns out	–
			CAC1		
			CHBR		
			CW2		
			CW		
			DHBR		
			DHB3		
			CHK	1-7/8 turns out	–
			CHB2		
			DHB2		
	Float height			13.7 (0.54)	–

TORQUE VALUES

Item		Tread Dia. (mm)	Torque values		
			N·m	kgf·m	lbf·ft
Crankcase cover bolt		M8 x 1.25	24	2.4	18
Connecting rod bolt	GX160T2	M6 x 1.0	9.8	1.0	7
	GX200T2	M7 x 1.0	12	1.2	9
Rocker arm pivot lock nut		M6 x 0.5 (Special nut)	10	1.0	7
Air cleaner elbow nut		M6 x 1.0	9	0.9	6.6
Recoil starter center screw		M6 x 1.0 (Special bolt)	5.4	0.6	4.0

TOOL

Bearing remover shaft set, 25 mm
07936-ZV10100



MEMO

VALVE CLEARANCE CHECK/ ADJUSTMENT

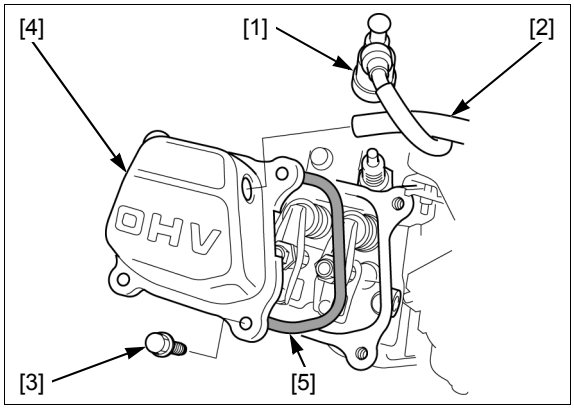
NOTICE

Inspect and adjust the valve clearance while the engine is cold.

CHECK

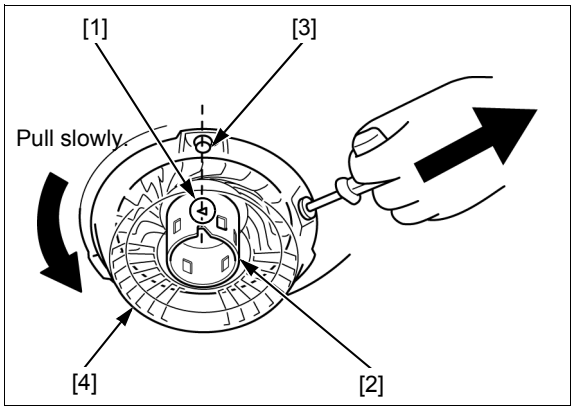
Disconnect the spark plug cap [1] and remove the following:

– Breather tube [2]
– Head cover bolt (6 x 12 mm) [3] (4)
– Head cover [4]
– Head cover packing [5]



Set the piston near top dead center of the cylinder compression stroke (both valves fully closed) by pulling the recoil starter slowly. When the piston is near top dead center of the compression stroke, the triangle mark [1] on the starter pulley [2] will align with the top hole [3] on the recoil starter case [4].

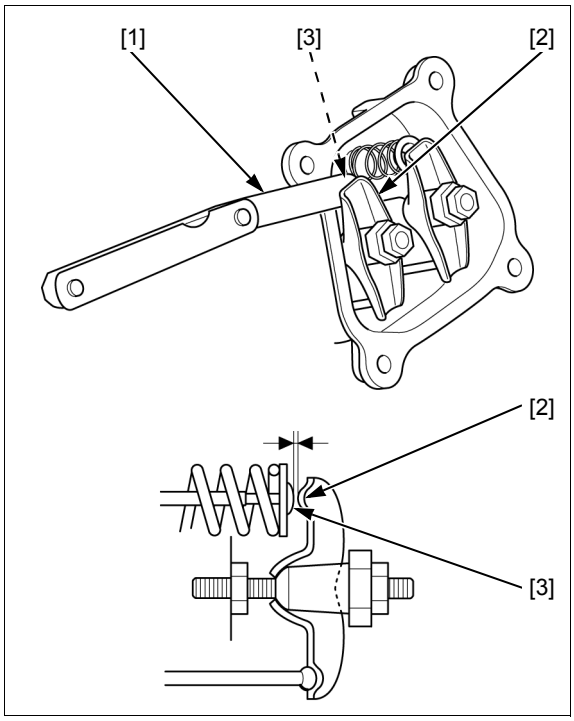
If the exhaust valve is open, use the recoil starter to turn the crankshaft one additional turn and align the triangle mark with the top hole again.



Insert a feeler gauge [1] between the valve rocker arm [2] and valve stem [3] to measure the valve clearance.

VALVE CLEARANCE:
GX160T2:
IN: 0.08 ± 0.02 mm (0.003 ± 0.001 in)
EX: 0.10 ± 0.02 mm (0.004 ± 0.001 in)
GX200T2:
IN: 0.15 ± 0.02 mm (0.006 ± 0.001 in)
EX: 0.20 ± 0.02 mm (0.008 ± 0.001 in)

If adjustment is necessary, proceed as follows.



ADJUSTMENT

Hold the rocker arm pivot [1] and loosen the pivot lock nut [2].

Insert a feeler gauge [3] between the valve rocker arm and the valve stem.

Adjust by turning the rocker arm pivot until there is a slight drag on the feeler gauge.

VALVE CLEARANCE:

GX160T2:

IN: 0.08 ± 0.02 mm (0.003 ± 0.001 in)

EX: 0.10 ± 0.02 mm (0.004 ± 0.001 in)

GX200T2:

IN: 0.15 ± 0.02 mm (0.006 ± 0.001 in)

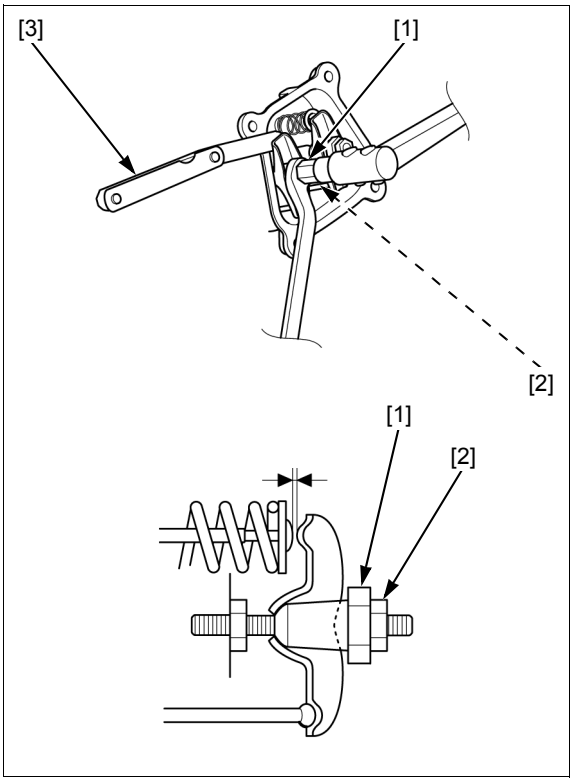
EX: 0.20 ± 0.02 mm (0.008 ± 0.001 in)

Hold the rocker arm pivot and retighten the pivot lock nut to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

Recheck the valve clearance, and if necessary, readjust the clearance.

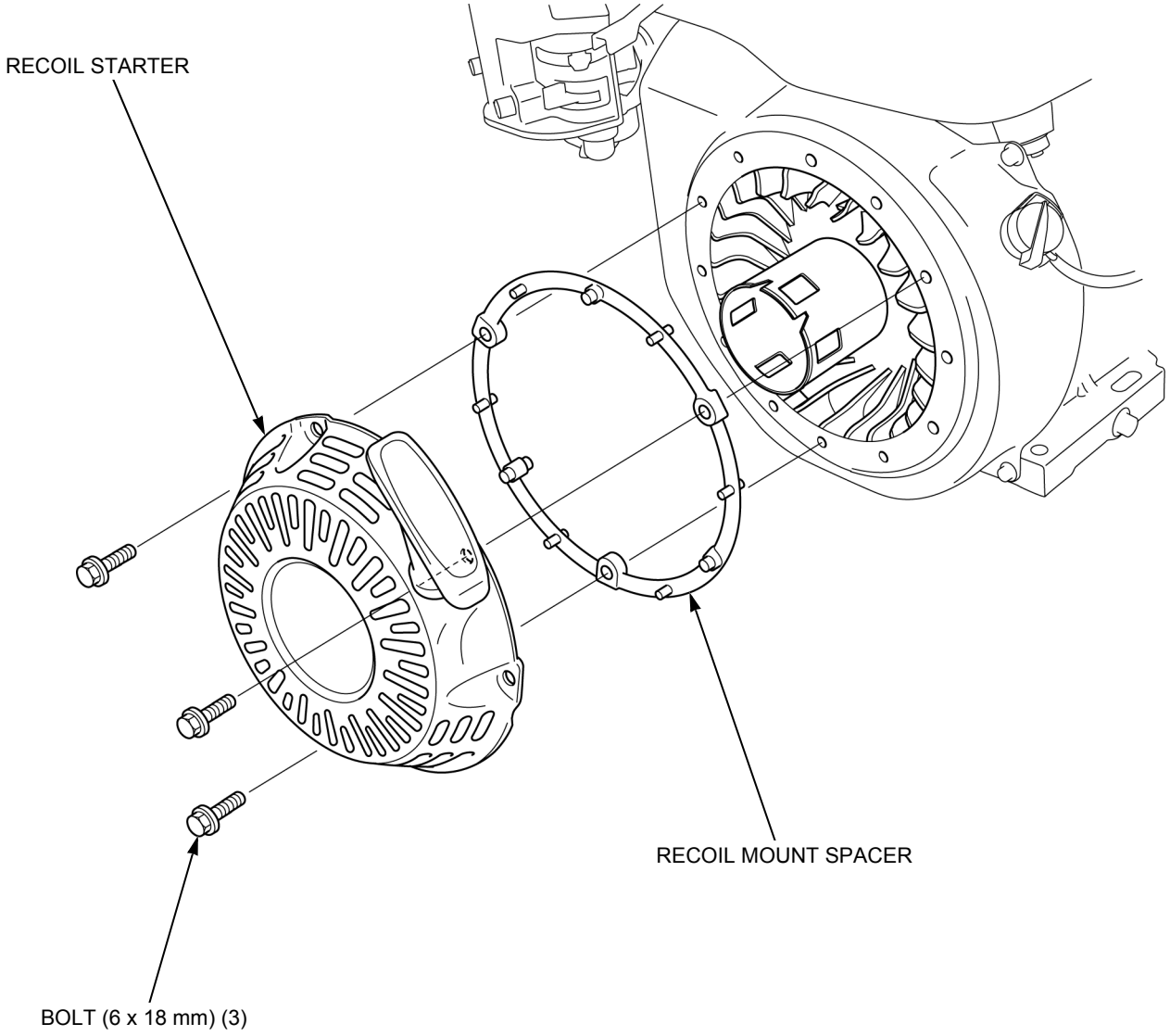
Replace the head cover packing with a new one and install the removed parts in the reverse order of removal.



MEMO

10. STARTING SYSTEM

RECOIL STARTER
REMOVAL/INSTALLATION



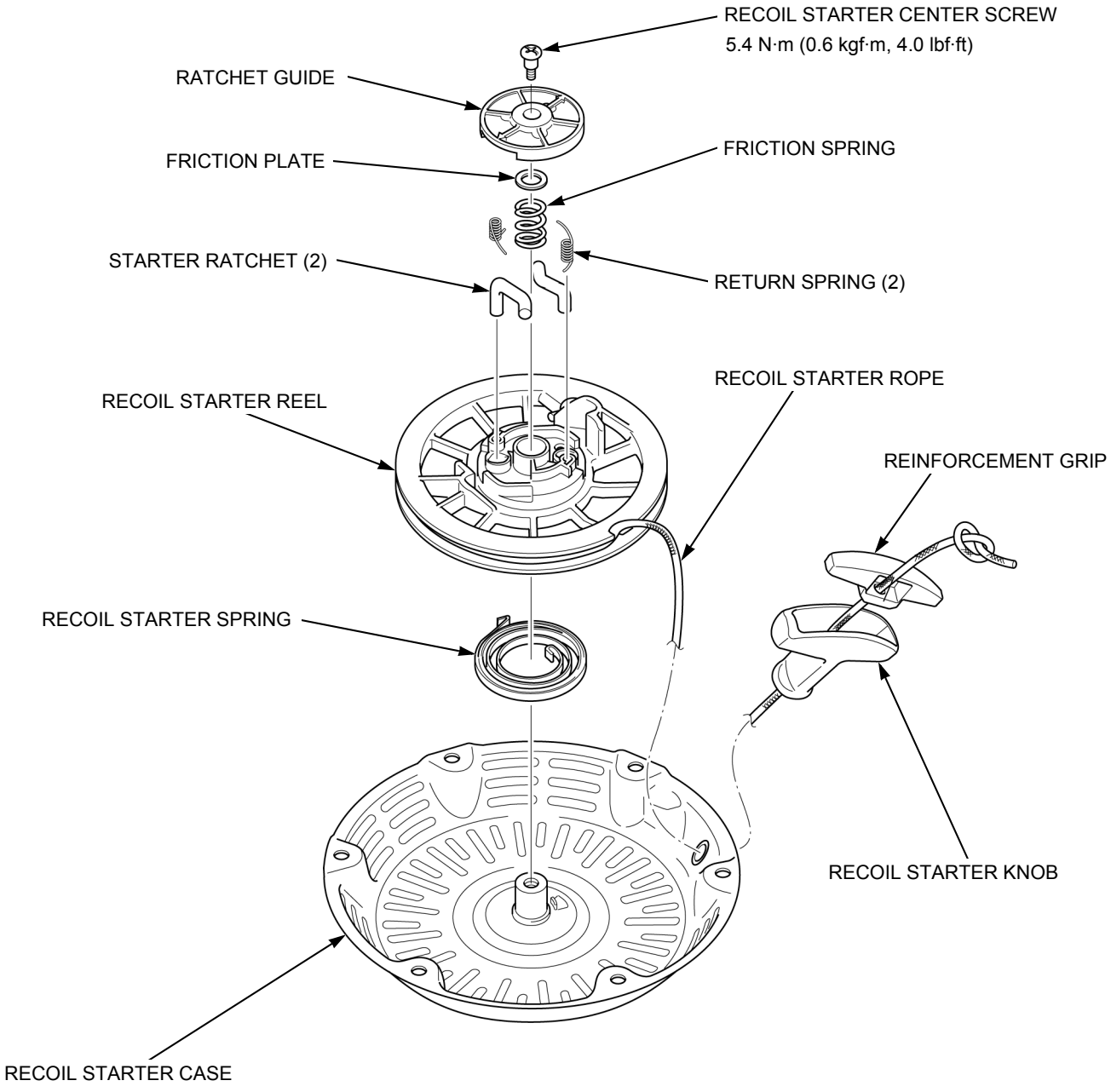
RECOIL STARTER DISASSEMBLY/ASSEMBLY

⚠ CAUTION

- Wear gloves and eye protection.
- During disassembly/assembly, take care not to allow the spring to come out.

DISASSEMBLY

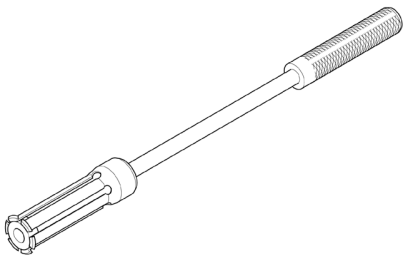
Remove the recoil starter (page 10-2).



MEMO

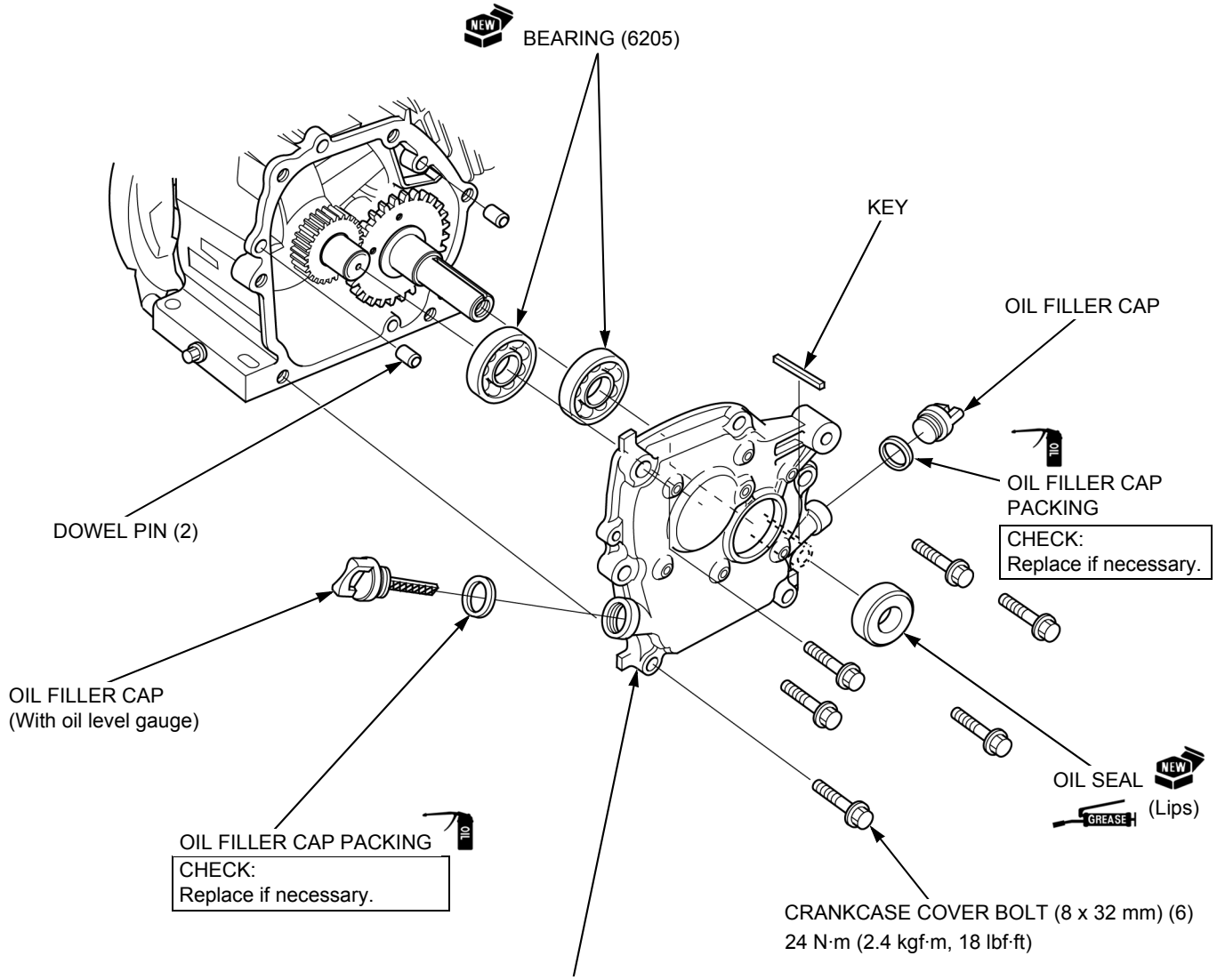
TOOL

Bearing remover shaft set, 25 mm
07936-ZV10100



CRANKCASE COVER REMOVAL/INSTALLATION

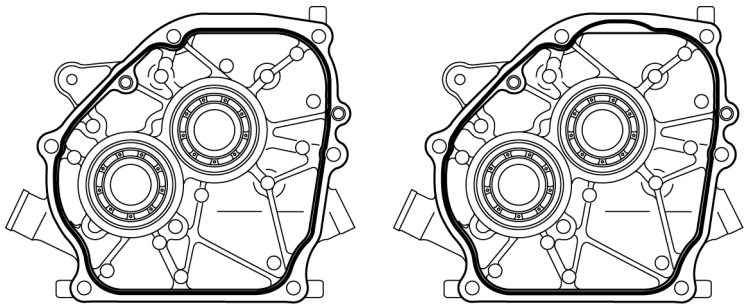
Drain the engine oil (base shop manual : page 3-4).



INSTALLATION:

Be careful not to damage the oil seal lips.

Clean the mating surface and apply a bead (2.0 – 2.5 mm (0.08 – 0.10 in)) of liquid sealant (Threebond® 1207B or equivalent) as shown.
Install the cover within 3 minutes after application. Pouring the engine oil is performed after 30 minutes have elapsed from assembling.

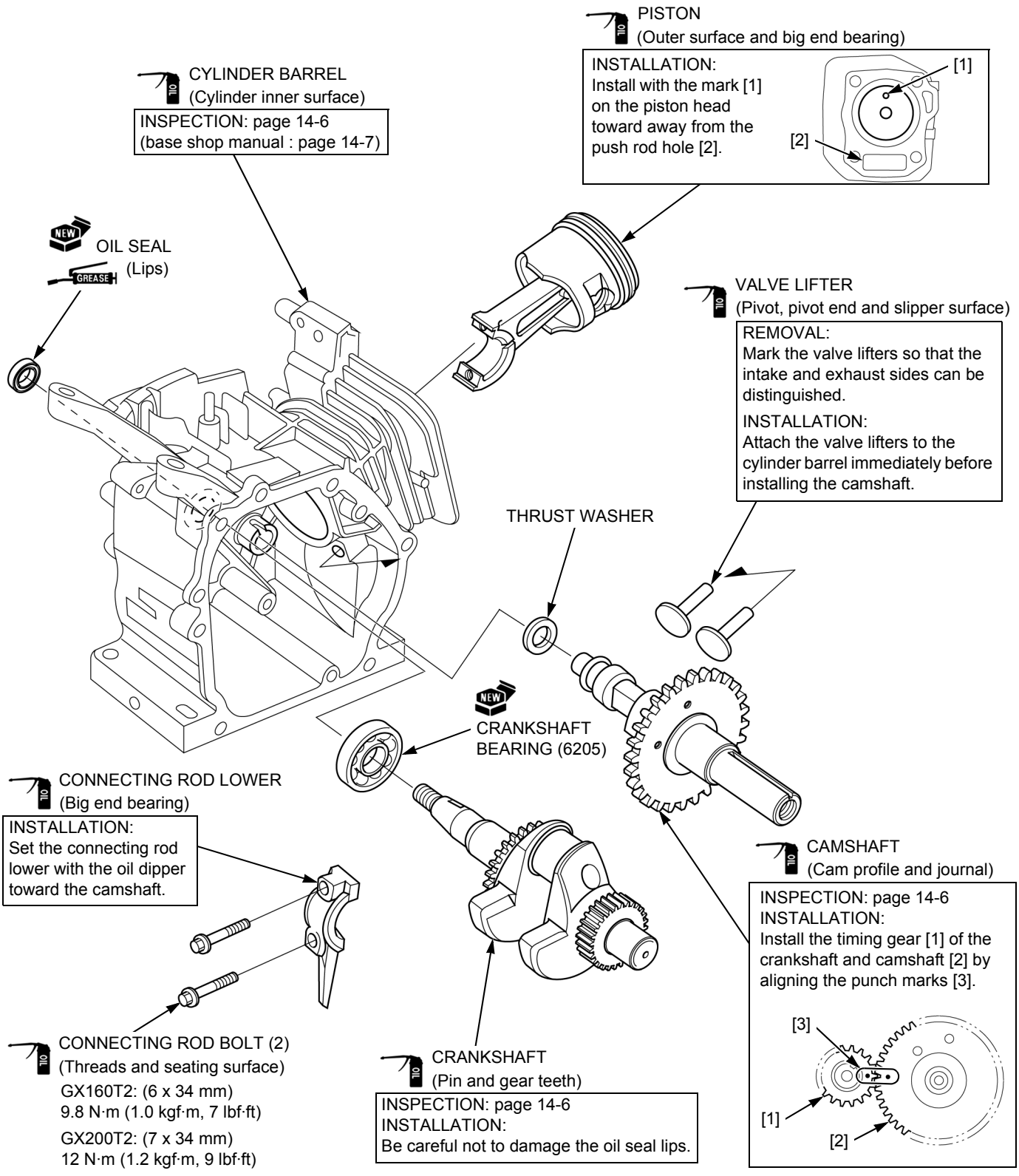


GX160T2 GX200T2

CRANKSHAFT/CAMSHAFT/PISTON REMOVAL/INSTALLATION

Remove the following:

- Fuel tank (base shop manual : page 6-3).
- Flywheel (base shop manual : page 8-2).
- Cylinder head (base shop manual : page 13-3).
- Crankcase cover (page 14-3).

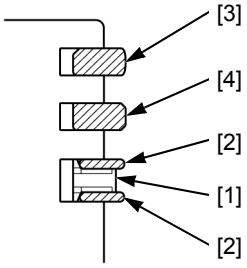


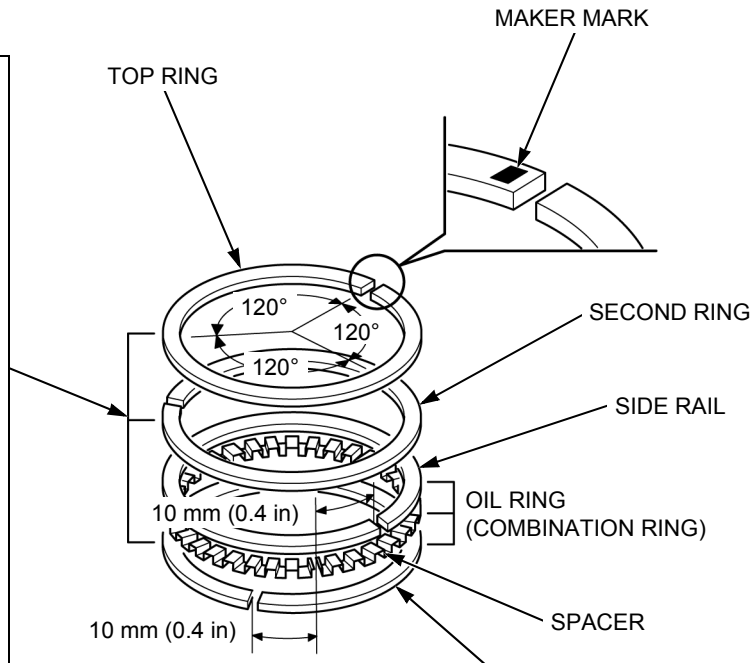
PISTON DISASSEMBLY/ASSEMBLY

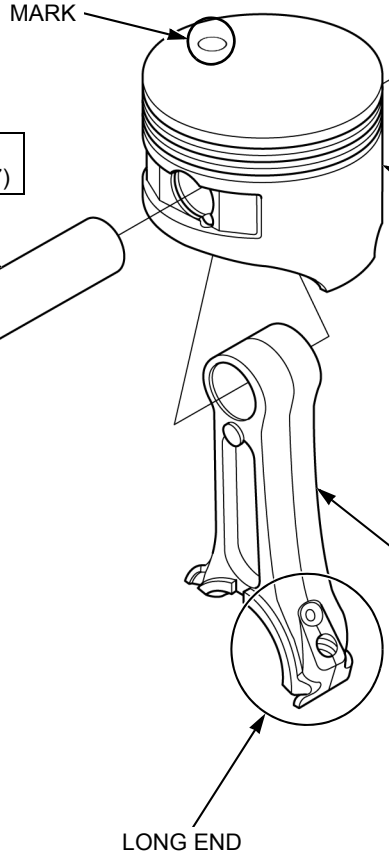
Remove the piston (page 14-4).

PISTON RING SET (OIL) (Entire surface)

INSPECTION: (base shop manual : page 14-7)
INSTALLATION:
To install the oil ring, install the spacer [1] first, and then install the side rails [2].
Be sure that the top ring [3] and second ring [4] are not interchanged.
Install the top ring and second ring on the piston with the maker mark side facing up.
Check that the piston rings rotate smoothly after installing them.
Space the piston ring end gaps 120° apart, and do not align the ring end gaps with the piston pin bore.







PISTON PIN (OIL) (Outer surface)

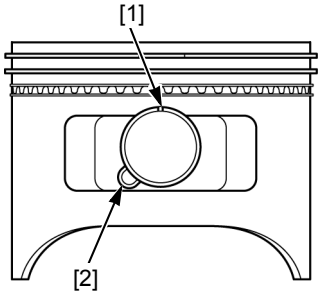
INSPECTION:
(base shop manual : page 14-7)

PISTON (OIL) (Ring groove and piston pin hole)

INSPECTION:
(base shop manual : page 14-7)

PISTON PIN CLIP (2) (NEW)

INSTALLATION:
Install by setting one end of the piston pin clip in the groove of the piston pin bore, holding the other end with long needle pliers, and rotating the clip in.
Do not align the end gap [1] of the piston pin clip with the cutout [2] of the piston pin bore.



CONNECTING ROD UPPER (OIL) (Small end bearing)

INSPECTION:
(base shop manual : page 14-7)
INSTALLATION:
Set the connecting rod upper with the long end toward away from the mark on the piston head.

CYLINDER BARREL/CRANKSHAFT/ CAMSHAFT INSPECTION

CYLINDER BARREL

CAMSHAFT JOURNAL I.D.

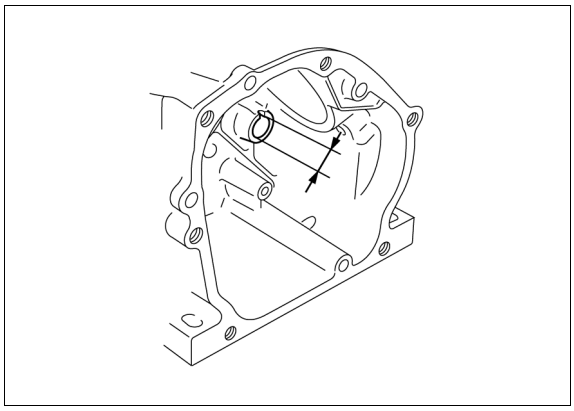
Measure the camshaft journal I.D. of the cylinder barrel assembly.

STANDARD: 14.000 – 14.018 mm (0.5512 – 0.5519 in)

SERVICE LIMIT: 14.048 mm (0.5531 in)

If the measurement is more than the service limit, replace the cylinder barrel.

Inspect the camshaft O.D. (page 14-6).



CAMSHAFT

CAMSHAFT O.D. [1]

Measure the O.D. of the camshaft.

STANDARD: 13.966 – 13.984 mm (0.5498 – 0.5506 in)

SERVICE LIMIT: 13.916 mm (0.5479 in)

If the measurement is less than the service limit, replace the camshaft.

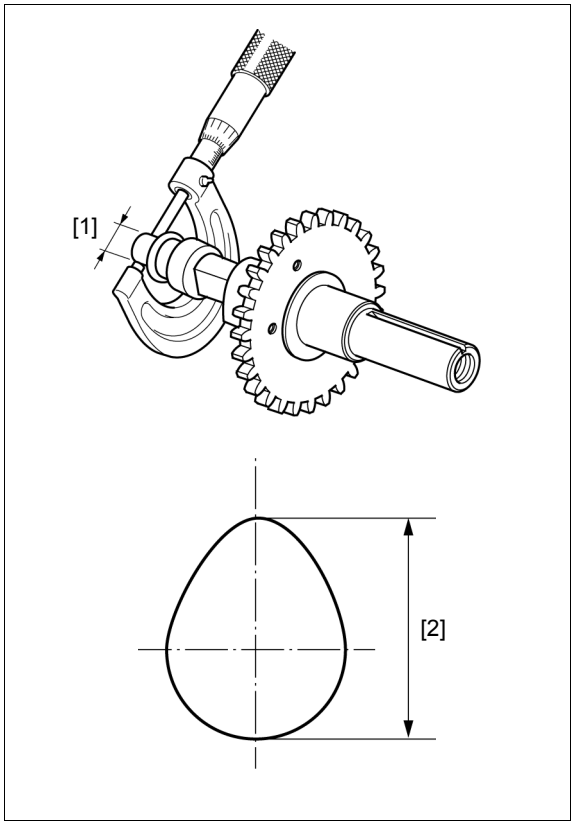
CAM HEIGHT [2]

Measure the cam height of the camshaft.

GX160T2:
- **STANDARD:**
  - **IN: 27.500 – 27.900 mm (1.0827 – 1.0984 in)**
  - **EX: 27.546 – 27.946 mm (1.0845 – 1.1002 in)**
- **SERVICE LIMIT:**
  - **IN: 27.450 mm (1.0807 in)**
  - **EX: 27.500 mm (1.0827 in)**

GX200T2:
- **STANDARD:**
  - **IN: 27.500 – 27.900 mm (1.0827 – 1.0984 in)**
  - **EX: 27.547 – 27.947 mm (1.0845 – 1.1003 in)**
- **SERVICE LIMIT:**
  - **IN: 27.450 mm (1.0807 in)**
  - **EX: 27.500 mm (1.0827 in)**

If the measurement is less than the service limit, replace the camshaft.



CRANKSHAFT

RUNOUT [1]

Set the crankshaft on V-blocks and measure the runout using a dial indicator.

SERVICE LIMIT: 0.10 mm (0.004 in)

If the measured runout is more than the service limit, replace the crankshaft.

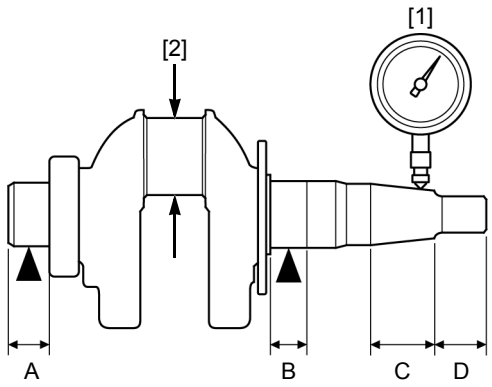
CRANKPIN O.D. [2]

Measure the crankpin O.D. of the crankshaft.

STANDARD: 29.970 – 29.980 mm (1.1799 – 1.1803 in)

SERVICE LIMIT: 29.92 mm (1.178 in)

If the measurement is less than the service limit, replace the crankshaft.



A: 14.8 mm (0.58 in)
B: 14.0 mm (0.55 in)
C: 25.0 mm (0.98 in)
D: 20.0 mm (0.79 in)

CAMSHAFT BEARING/OIL SEAL REPLACEMENT

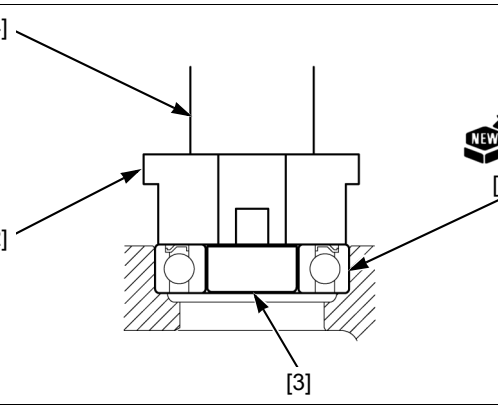
CAMSHAFT BEARING (6205)

Remove the oil seal and drive out the camshaft bearing.

Drive a new camshaft bearing [1] until it is fully seated on the end using the special tools.

TOOLS:

Bearing driver attachment, 52 x 55 mm [2]	**07746-0010400**
Pilot, 25 mm [3]	**07746-0040600**
Driver handle [4]	**07749-0010000**



CAMSHAFT OIL SEAL

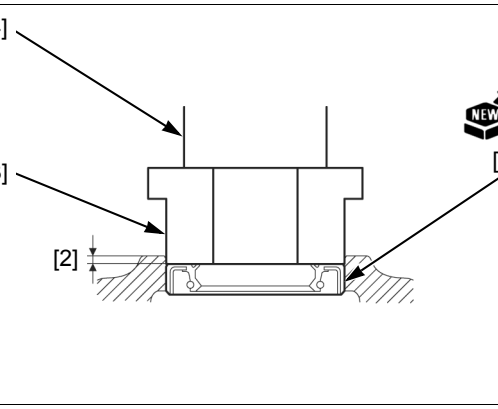
Remove the oil seal.

Drive a new oil seal [1] in the position as shown using the special tools.

INSTALLATION HEIGHT [2]: 1.3– 1.8 mm (0.05 – 0.07 in)

TOOLS:

Bearing driver attachment, 40 x 42 mm [3]	**07746-0010900**
Driver handle [4]	**07749-0010000**



CRANKSHAFT BEARING REPLACEMENT

CRANKSHAFT BEARING (6205)

Pull out the crankshaft bearing [1] using special tools.

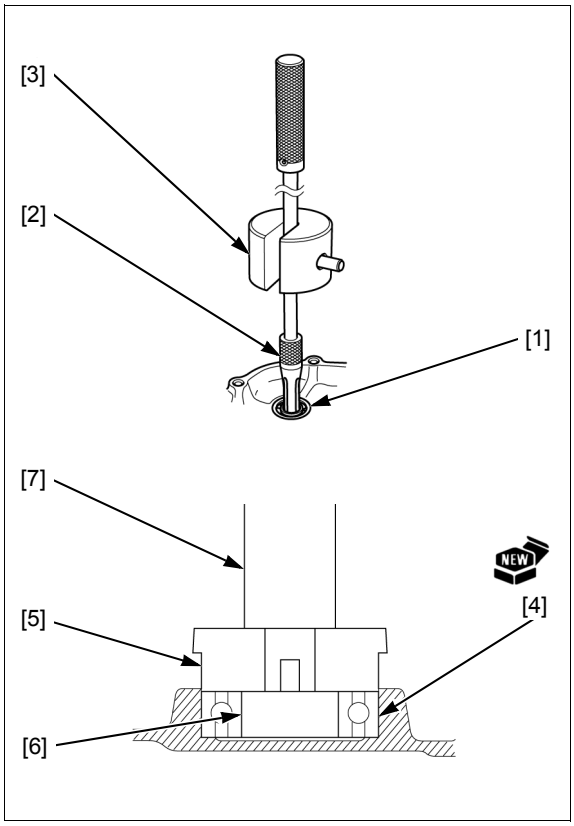
TOOLS:

Bearing remover shaft set, 25 mm [2]	**07936-ZV10100**
Sliding hammer weight [3]	**07741-0010201**

Drive a new crankshaft bearing [4] until it is fully seated on the end using the special tools.

TOOLS:

Bearing driver attachment, 52 x 55 mm [5]	**07746-0010400**
Pilot, 25 mm [6]	**07746-0040600**
Driver handle [7]	**07749-0010000**



INDEX