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.

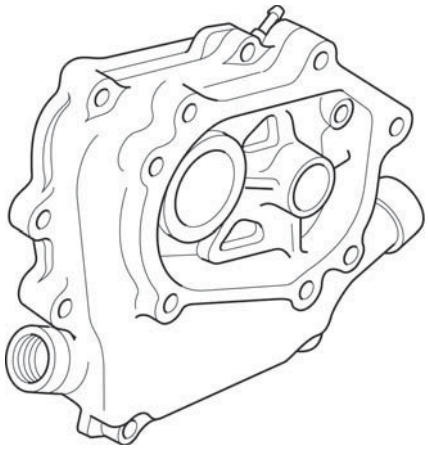
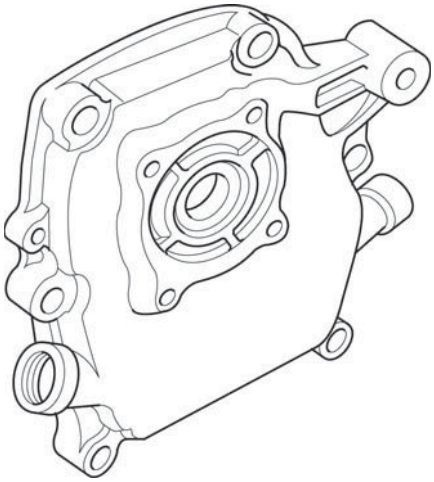
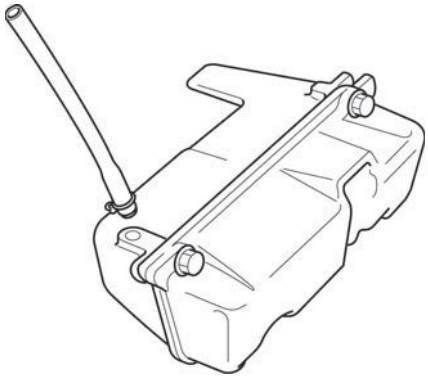
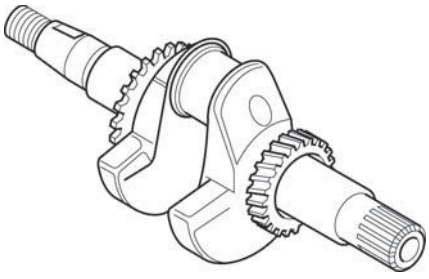
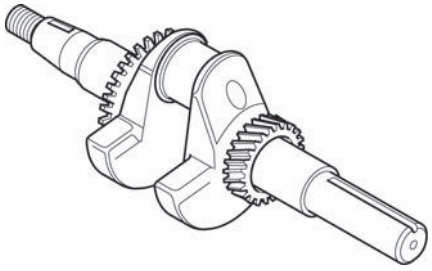
Make sure the engine is off before you begin any servicing procedures, unless the instruction tells you to do otherwise. This will help eliminate several potential hazards:

- 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.

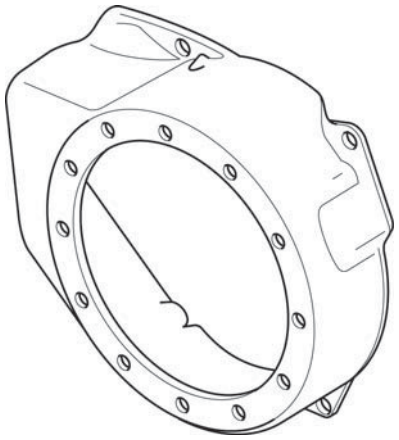
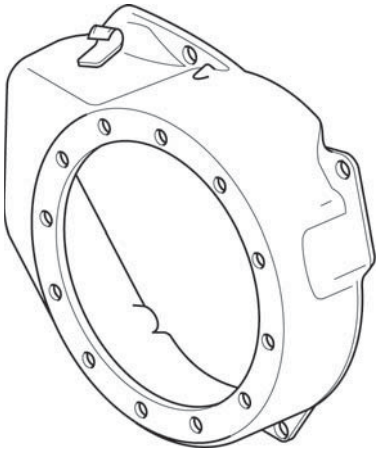
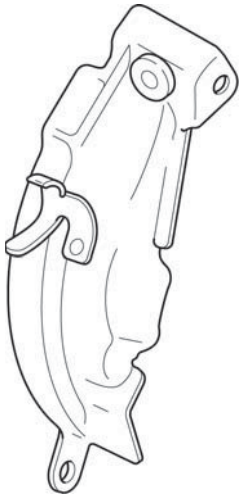
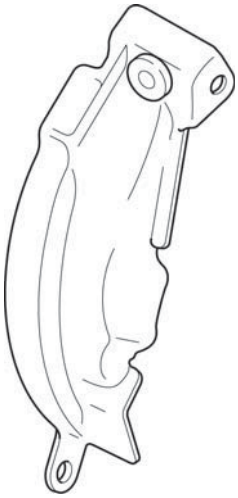
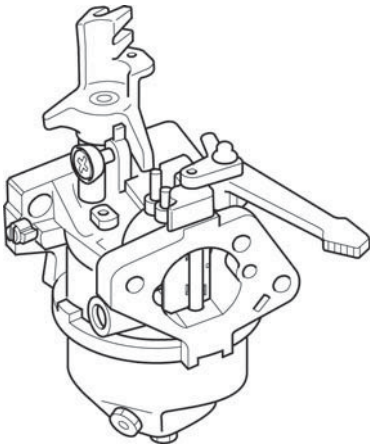
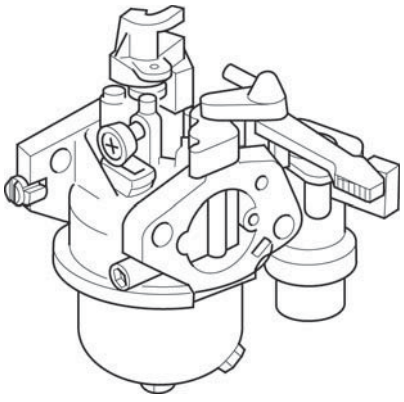
Gasoline vapors and hydrogen gasses from batteries are explosive. To reduce the possibility of a fire or explosion, be careful when working around gasoline or batteries.

- 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.

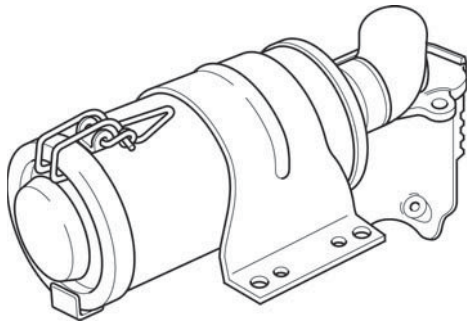
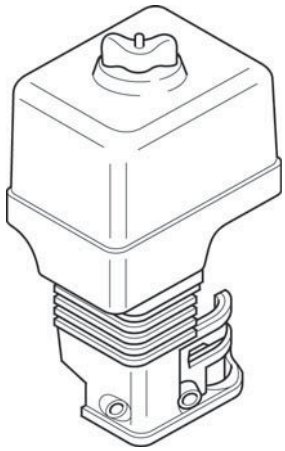
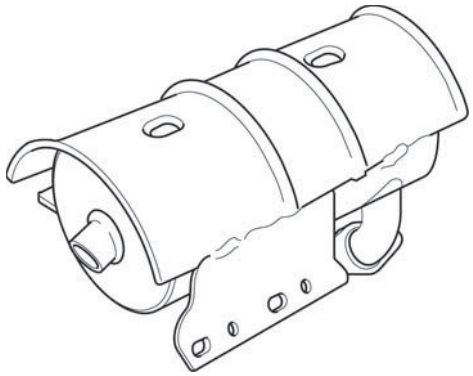
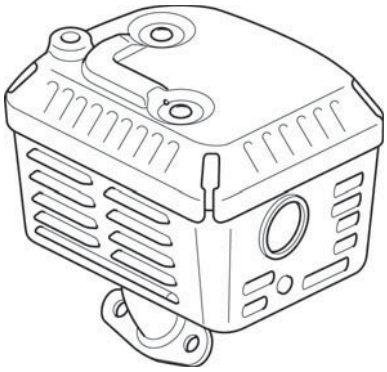
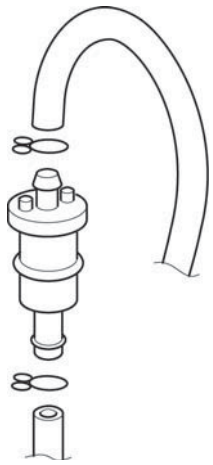
OUTLINE OF CHANGES

ITEM	MODEL	
	NEW GX120RT2	EXISTING GX120UT2
CRANKCASE COVER		
OIL TANK		
CRANKSHAFT		

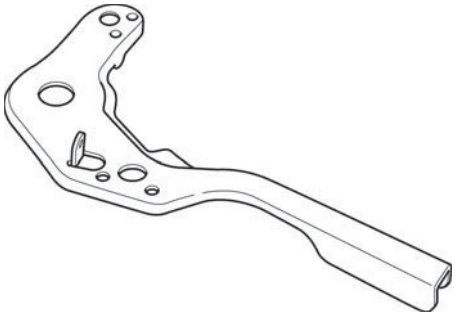
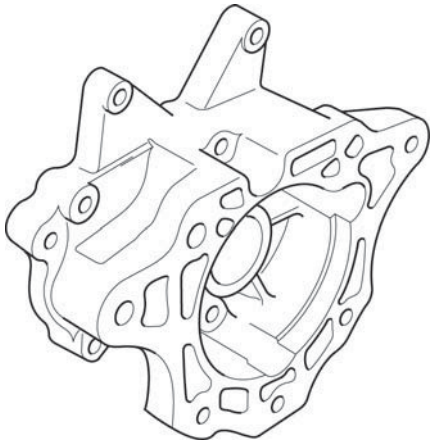
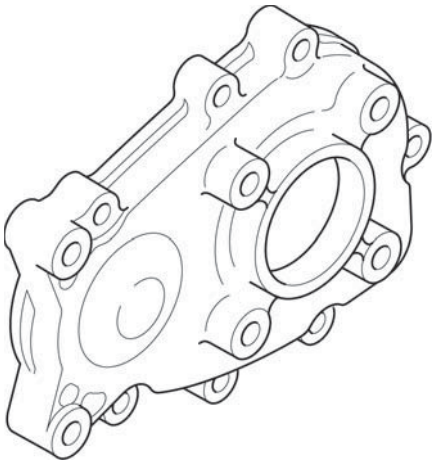
OUTLINE OF CHANGES

ITEM	MODEL	
	NEW GX120RT2	EXISTING GX120UT2
FAN COVER		
SIDE PLATE		
CARBURETOR		

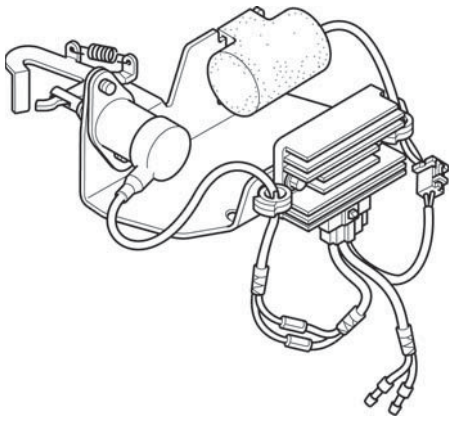
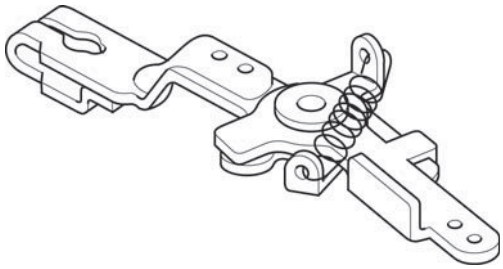
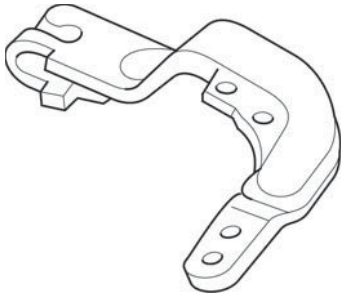
OUTLINE OF CHANGES

ITEM	MODEL	
	NEW GX120RT2	EXISTING GX120UT2
AIR CLEANER		
MUFFLER		
AIR VENT TUBE/ STRAINER		

OUTLINE OF CHANGES

ITEM	MODEL	
	NEW GX120RT2	EXISTING GX120UT2
CONTROL LEVER		
CHAIN CASE COVER		

OUTLINE OF CHANGES

ITEM	MODEL	
	NEW GX120RT2	EXISTING GX120UT2
AUTO THROTTLE		
GOVERNOR ARM		

How to use this manual

INTRODUCTION

This manual covers the service and repair procedures for the Honda GX120UT2/160UT2/200UT2.

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 and safely.

SERVICE PUBLICATION OFFICE

Date of Issue: June 2011

SERVICE RULES

- Use Honda Genuine or Honda-recommended parts and lubricants or their equivalents. Parts that do not meet Honda's design specifications may damage the unit.
- Use the special tools designed for the product.
- Install new gaskets, O-rings, etc. when reassembling.
- When torquing bolts or nuts, begin with larger-diameter or inner bolts first and tighten to the specified torque diagonally, unless a particular sequence is specified.
- Clean parts in cleaning solvent upon disassembly. Lubricate any sliding surfaces before reassembly.
- After reassembly, check all parts for proper installation and operation.
- Many screws used in this machine are self-tapping. Be aware that cross-threading or overtightening these screws will strip the threads and ruin the hole.

Use only metric tools when servicing this unit. Metric bolts, nuts and screws are not interchangeable with non-metric fasteners. The use of incorrect tools and fasteners will damage the unit.

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.

How to use this manual

ABBREVIATIONS

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

Abbreviated term	Full term
ACG	Alternator
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

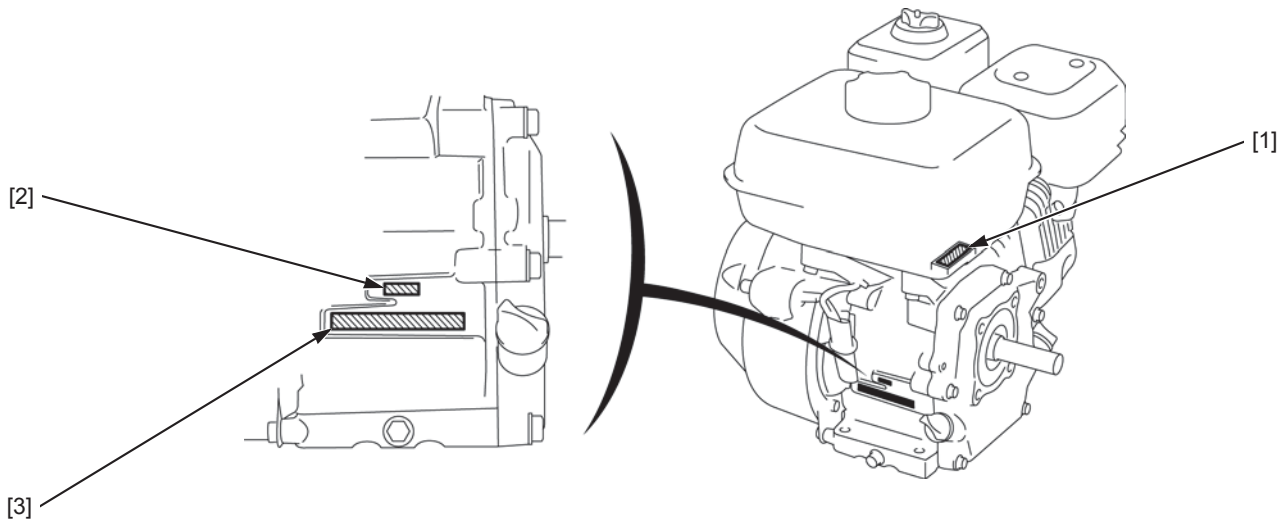
Bl	Black	G	Green	Br	Brown	Lg	Light green
Y	Yellow	R	Red	O	Orange	P	Pink
Bu	Blue	W	White	Lb	Light blue	Gr	Gray

1. SPECIFICATIONS

SERIAL NUMBER LOCATION

The model [1], type [2], and engine serial number [3] are stamped on the crankcase.

Refer to them when ordering parts or making technical inquiries.



P.T.O. TYPE VARIATION

GX120UT2

P.T.O. type			H			L	P	Q								R
Type			HH Q4	HX2	HX4	LX4	PX2	QA2	QH2 6	QH Q4	QX2	QX4	QX9	QX C9	QX S2	RH Q4
Air cleaner	Dual		○	○	○	○	○		○	○	○	○			○	○
	Dual silent												○			
	Cyclone													○		
	Low profile															
	Oil bath							○								
	Semi dry															
Muffler	Standard		○	○	○	○	○	○	○	○	○	○				○
	Silent												○	○		
	Low profile														○	
Spark arrester								○						○		
Fuel gauge																
Control base	Manual	Standard					○									
		Cyclone standard														
	Remote	Internal														
		EXP	○	○	○	○		○	○	○	○	○	○		○	○
		Cyclone												○		
	Fixed throttle operation															
Charge coil	1 A															
	3 A															
	7 A															
Lamp coil	12 V – 15 W															
	12 V – 25 W															
	12 V – 50 W														○	
Starter motor/combination switch																
Oil level switch				○	○	○	○				○	○	○	○	○	
Engine stop switch			○	○	○	○	○	○	○	○	○	○	○	○	○	○
Oil Alert® unit				○	○	○	○				○	○	○	○	○	
Circuit protector																
Reduction	Gear		○	○	○											
	Chain	Without clutch				○										
		With clutch														○

P.T.O. type			S			T	U	V	W
Type			SHQ4	SMA7	SX4	TX2	UXU	VEX9	WMA3
Air cleaner	Dual		○		○	○	○		
	Dual silent			○				○	
	Cyclone								
	Low profile								
	Oil bath								
	Semi dry								○
Muffler	Standard		○		○	○	○		○
	Silent			○				○	
	Low profile								
Spark arrester				○					
Fuel gauge									
Control base	Manual	Standard				○	○		○
		Cyclone standard							
	Remote	Internal		○					
		EXP	○		○				
		Cyclone							
	Fixed throttle operation							○	
Charge coil	1 A								
	3 A								
	7 A								
Lamp coil	12 V – 15 W								
	12 V – 25 W								
	12 V – 50 W								
Starter motor/combination switch									
Oil level switch				○	○	○	○	○	
Engine stop switch			○	○	○	○	○	○	○
Oil Alert® unit				○	○	○	○	○	
Circuit protector									
Reduction	Gear								
	Chain	Without clutch							
		With clutch							

GX160UT2

P.T.O. type			H					L			P	Q				
Type			HH26	HHQ4	HX2	HX4	HXE8	LHQ4	LX2	LX4	PXU	QA2	QAX4	QBC2	QH26	QHQ4
Air cleaner	Dual		○	○	○	○	○	○	○	○	○		○		○	○
	Dual silent													○		
	Cyclone															
	Low profile															
	Oil bath											○				
	Semi dry															
Muffler	Standard		○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Silent															
	Low profile															
Spark arrester												○		○		
Fuel gauge																
Control base	Manual	Standard									○					
		Cyclone standard														
	Remote	Internal												○		
		EXP	○	○	○	○	○	○	○	○		○	○		○	○
		Cyclone														
	Fixed throttle operation															
Charge coil	1 A						○									
	3 A															
	7 A												○			
Lamp coil	12 V – 15 W															
	12 V – 25 W															
	12 V – 50 W															
Starter motor/combination switch							○									
Oil level switch					○	○	○		○	○	○		○			
Engine stop switch			○	○	○	○		○	○	○	○	○	○		○	○
Oil Alert® unit					○	○	○		○	○	○		○			
Circuit protector							○									
Reduction	Gear		○	○	○	○	○									
	Chain	Without clutch						○	○	○						
		With clutch														

P.T.O. type			Q											R		
Type			QM C6	QM C8	QM D6	QX2	QX4	QX9	QX C9	QX E2	QX E8	QX S2	QX U	RH2	RH Q4	RX4
Air cleaner	Dual					○	○			○	○	○	○	○	○	○
	Dual silent			○	○			○								
	Cyclone								○							
	Low profile															
	Oil bath															
	Semi dry		○													
Muffler	Standard		○			○	○		○	○	○		○	○	○	○
	Silent			○	○			○								
	Low profile											○				
Spark arrester				○	○				○							
Fuel gauge																
Control base	Manual	Standard														
		Cyclone standard														
	Remote	Internal		○	○											
		EXP	○			○	○	○		○	○	○	○	○	○	○
		Cyclone							○							
	Fixed throttle operation															
Charge coil	1 A									○	○					
	3 A															
	7 A															
Lamp coil	12 V – 15 W															
	12 V – 25 W															
	12 V – 50 W		○		○							○				
Starter motor/combination switch										○	○					
Oil level switch				○	○	○	○	○	○	○	○	○	○			○
Engine stop switch			○	○	○	○	○	○	○			○	○	○	○	○
Oil Alert® unit				○	○	○	○	○	○	○	○	○	○			○
Circuit protector										○	○					
Reduction	Gear															
	Chain	Without clutch														
		With clutch												○	○	○

SPECIFICATIONS GX120•GX160•GX200UT2

P.T.O. type			R	S							T			U	V	
Type			RXU	SD16	SHQ4	SMC7	SMC9	SX4	SX9	SXU	TX2	TX4	TXC9	UXU	VA2	VSD9
Air cleaner	Dual		○		○			○		○	○	○		○	○	
	Dual silent					○	○		○							○
	Cyclone												○			
	Low profile															
	Oil bath															
	Semi dry			○												
Muffler	Standard		○	○	○			○		○	○	○	○	○	○	
	Silent					○	○		○							○
	Low profile															
Spark arrester						○	○								○	
Fuel gauge																
Control base	Manual	Standard									○	○		○	○	
		Cyclone standard											○			
	Remote	Internal				○	○									
		EXP	○	○	○			○	○	○						
		Cyclone														
	Fixed throttle operation															○
Charge coil	1 A															
	3 A															
	7 A															
Lamp coil	12 V – 15 W															
	12 V – 25 W						○									
	12 V – 50 W															
Starter motor/combination switch																
Oil level switch			○			○	○	○	○	○	○	○	○	○	○	○
Engine stop switch			○	○	○	○	○	○	○	○	○	○	○	○	○	○
Oil Alert® unit			○			○	○	○	○	○	○	○	○	○	○	○
Circuit protector																
Reduction	Gear															
	Chain	Without clutch														
		With clutch	○													

P.T.O. type			V			W		
Type			VX2	VXE 9	VXU 1	WK S	WK T2	WM BO
Air cleaner	Dual		○		○			
	Dual silent			○				
	Cyclone							
	Low profile							
	Oil bath							
	Semi dry					○	○	○
Muffler	Standard		○		○	○	○	○
	Silent			○				
	Low profile							
Spark arrester							○	
Fuel gauge								
Control base	Manual	Standard	○	○		○		○
		Cyclone standard						
	Remote	Internal					○	
		EXP						
		Cyclone						
	Fixed throttle operation				○			
Charge coil	1 A			○				
	3 A							
	7 A							
Lamp coil	12 V – 15 W							
	12 V – 25 W							
	12 V – 50 W							
Starter motor/combination switch				○				
Oil level switch			○	○	○	○	○	
Engine stop switch			○		○	○	○	○
Oil Alert® unit			○	○	○	○	○	
Circuit protector				○				
Reduction	Gear							
	Chain	Without clutch						
		With clutch						

GX200UT2

P.T.O. type			H	L	P	Q									R	
Type			HX2	LX4	PXU	QH26	QHQ4	QX2	QX4	QX9	QXB2	QXC9	QXE2	QXE4	RH2	RHQ4
Air cleaner	Dual															
	Dual silent		○	○	○	○	○	○	○	○	○		○	○	○	○
	Cyclone											○				
	Low profile															
	Oil bath															
	Semi dry															
Muffler	Standard		○	○	○	○	○	○	○		○	○	○	○	○	○
	Silent									○						
	Low profile															
Spark arrester																
Fuel gauge																
Control base	Manual	Standard			○											
		Cyclone standard														
	Remote	Internal									○					
		EXP	○	○		○	○	○	○	○			○	○	○	○
		Cyclone										○				
	Fixed throttle operation															
Charge coil	1 A												○	○		
	3 A															
	7 A															
Lamp coil	12 V – 15 W															
	12 V – 25 W															
	12 V – 50 W															
Starter motor/combination switch													○	○		
Oil level switch			○	○	○			○	○	○		○	○	○		
Engine stop switch			○	○	○	○	○	○	○	○		○			○	○
Oil Alert® unit			○	○	○			○	○	○		○	○	○		
Circuit protector													○	○		
Reduction	Gear		○													
	Chain	Without clutch		○												
		With clutch													○	○

P.T.O. type			R		S				T	V		
Type			RX4	RXU	SHQ4	SX4	SX9	SXU	TX2	VSD9	VXU	VXU1
Air cleaner	Dual											
	Dual silent		○	○	○	○	○	○	○	○	○	○
	Cyclone											
	Low profile											
	Oil bath											
	Semi dry											
Muffler	Standard		○	○	○	○		○	○		○	○
	Silent						○			○		
	Low profile											
Spark arrester												
Fuel gauge												
Control base	Manual	Standard							○			
		Cyclone standard										
	Remote	Internal										
		EXP	○	○	○	○	○	○				
		Cyclone										
	Fixed throttle operation									○	○	○
Charge coil	1 A											
	3 A											
	7 A											
Lamp coil	12 V – 15 W											
	12 V – 25 W											
	12 V – 50 W											
Starter motor/combination switch												
Oil level switch			○	○		○	○	○	○	○	○	○
Engine stop switch			○	○	○	○	○	○	○	○	○	○
Oil Alert® unit			○	○		○	○	○	○	○	○	○
Circuit protector												
Reduction	Gear											
	Chain	Without clutch										
		With clutch	○	○								

P.T.O. TYPE VARIATION

GX120RT2

P.T.O. type			KR								V
Type			AR	DKR	KRF4	KRR4	KRS4	KRS5	KRS6	KRSB	VPR4
Air cleaner	Dual				○						
	Dual silent						○	○			
	Cyclone										
	Low profile										○
	Oil bath										
	Semi dry										
	Rammer		○	○		○					
Muffler	Standard										
	Silent										
	Low profile										○
	Low profile (With protector)										
	Rammer		○	○	○	○	○	○	○	○	
Spark arrester											○
Fuel gauge											
Control base	Manual	Standard									
		Cyclone standard									
	Remote	Internal	○	○	○	○	○	○	○	○	
		EXP									
		Cyclone									
	Fixed throttle operation										○
	Auto throttle										
Charge coil	1 A										
	3 A										
	7 A										
Lamp coil	12 V - 15 W										
	12 V - 25 W										
	12 V - 50 W										
Combination switch											
Starter motor											
Oil level switch											○
Engine stop switch			○	○	○	○	○	○	○		
Oil alert unit											○
Circuit protector											
Reduction	Gear (1/6)										
	Chain (1/2)	Without clutch									
		With clutch									
	Chain (1/1)		○	○	○	○	○	○	○	○	

SPECIFICATIONS

P.T.O. TYPE VARIATION

P.T.O. type			Q	S		V							VE	
Type			QHG4	RHG4	SWG4	VGE4	VGE5	VHH4	VPM5	VS19	VWS	VWWN	EMAN	VSE6
Air cleaner	Dual		○			○		○						
	Dual silent			○	○		○							
	Cyclone													
	Low profile								○	○	○	○	○	○
	Oil bath													
	Semi dry													
Muffler	Standard		○	○				○						
	Silent													
	Low profile									○				
	Low profile (With protector)												○	○
Spark arrester										○			○	○
Fuel gauge														
Remote choke lever					○									
Control base	Manual	Standard												
		Cyclone standard												
	Remote	Internal												
		Internal S			○									
		EXP	○	○										
		Cyclone												
	Fixed throttle operation					○	○	○	○	○	○	○	○	○
Charge coil	1 A													
	3 A													
	7 A													
Lamp coil	12 V - 15 W													
	12 V - 25 W												○	
	12 V - 50 W													
Combination switch														
Starter motor					○									
Oil level switch					○	○	○	○	○	○	○	○	○	○
Engine stop switch			○	○		○		○	○	○		○	○	
Oil Alert® unit					○	○	○	○	○	○	○	○	○	○
Circuit protector														
Reduction	Gear (1/6)													
	Chain (1/2)	Without clutch												
		With clutch		○										
	Chain (1/1)													

GX200RT2

P.T.O. type			S			V				VE
Type			RHG4	RMG2	SWG4	VEE9	VGGN	VPM4	VS19	VENN
Air cleaner	Dual		○	○	○		○			
	Dual silent									
	Cyclone									
	Low profile					○		○	○	○
	Oil bath									
	Semi dry									
	Rammer									
Muffler	Standard									
	Silent									
	Low profile								○	
	Low profile (With protector)									○
	Rammer									
Spark arrester								○	○	○
Fuel gauge										
Control base	Manual	Standard								
		Cyclone standard								
	Remote	Internal								
		EXP								
		Cyclone								
	Fixed throttle operation					○		○	○	
	Auto throttle									○
Charge coil	1 A					○				○
	3 A									
	7 A									
Lamp coil	12 V - 15 W									
	12 V - 25 W									
	12 V - 50 W			○						
Combination switch						○				
Starter motor					○	○				
Oil level switch					○	○	○	○	○	○
Engine stop switch			○	○			○	○	○	○
Oil alert unit					○	○	○	○	○	○
Circuit protector										
Reduction	Gear (1/6)									
	Chain (1/2)	Without clutch								
		With clutch	○	○						
	Chain (1/1)									

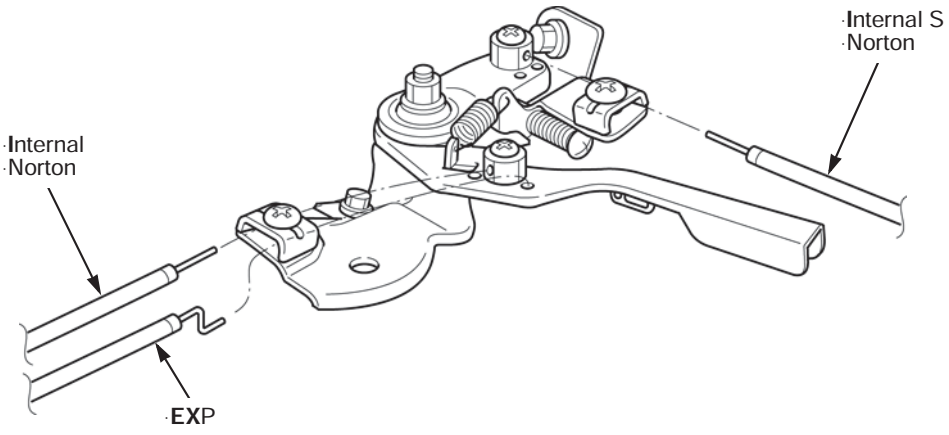
SPECIFICATIONS

P.T.O. TYPE VARIATION

GX120T2

P.T.O. type			KR	L						Q			
Type			ARH	L1C1	LH	LH2	LHL	LJ	LTK1	QD	QH	QHB1	QMP4
Air cleaner	Dual				○	○					○		
	Dual silent												
	Cyclone												
	Low profile												
	Oil bath						○		○			○	○
	Semi dry			○				○		○			
	Rammer		○										
Muffler	Standard			○	○	○	○			○	○	○	○
	Standard (With lower protector)							○	○				
	Silent												
	Low profile												
	Low profile (With protector)												
	Rammer		○										
Spark arrester													
Fuel gauge													
Remote choke lever													
Control base	Manual			○									
	Remote*	Internal	○					○	○				○
		Internal S											
		EXP			○	○	○			○	○		
		Norton											
	Fixed throttle operation												
Charge coil	1 A												
	3 A												
	7 A												
Lamp coil	12 V - 15 W												
	12 V - 25 W												
	12 V - 50 W												
Combination switch													
Starter motor													
Oil level switch													
Engine stop switch			○	○	○	○	○	○	○	○	○		
Oil Alert® unit													
Circuit protector													
Auto throttle													
Reduction	Gear (1/6)												
	Chain (1/2)	Without clutch		○	○	○	○	○	○				
		With clutch											
		Camshaft P.T.O.											
	Chain (1/1)		○										

*: Remote type



SPECIFICATIONS

P.T.O. type			Q		S								
Type			QTN	QX	S1P4	SAJ	SD	SD2	SJ	SK	SM11	SMJ	SYA
Air cleaner	**D**ual			○								○	
	Dual silent										○		
	Cyclone												
	Low profile												
	Oil bath		○										
	Semi dry				○	○	○	○	○	○			○
	Rammer												
Muffler	Standard		○	○	○		○	○		○	○		
	Standard (With lower protector)					○			○			○	
	Silent												
	Low profile												
	Low profile (With protector)												
	Rammer												
Spark arrester													
Fuel gauge												○	
Remote choke lever													
Control base	Manual												
	Remote	**I**nternal			○	○			○			○	○
		Internal S											
		EXP	○	○			○	○		○			
		Norton									○		
	Fixed throttle operation												
Charge coil	1 **A**												
	3 **A**												
	7 **A**												
Lamp coil	12 **V -** 15 W												○
	12 **V -** 25 W												
	12 **V -** 50 W				○								
Combination switch													
Starter motor													
Oil level switch				○								○	
Engine stop switch			○	○	○	○	○	○	○	○	○	○	
Oil **A**lert® unit				○								○	
Circuit protector													
Auto throttle													
Reduction	**G**ear (1/6)												
	Chain (1/2)	Without clutch											
		With clutch											
		Camshaft P.T.O.											
	Chain (1/1)												

SPECIFICATIONS

P.T.O. type			T		V				W		WB
Type			TH	TX	VSP	VSX	VSX1	VT	W1A3	WMK	WBT
Air cleaner	Dual		○	○		○	○				
	Dual silent										
	Cyclone										
	Low profile										
	Oil bath										
	Semi dry				○			○	○	○	○
	Rammer										
Muffler	Standard		○	○		○	○	○	○	○	○
	Standard (With lower protector)										
	Silent										
	Low profile										
	Low profile (With protector)										
	Rammer										
Spark arrester											
Fuel gauge											
Remote choke lever											
Control base	Manual		○	○				○	○	○	
	Remote	Internal									○
		Internal S									
		EXP									
		Norton									
	Fixed throttle operation				○	○	○				
Charge coil	1 A										
	3 A										
	7 A										
Lamp coil	12 V - 15 W										
	12 V - 25 W										
	12 V - 50 W										
Combination switch											
Starter motor											
Oil level switch				○		○	○				
Engine stop switch			○	○	○	○	○	○	○	○	○
Oil Alert® unit				○		○	○				
Circuit protector											
Auto throttle											
Reduction	Gear (1/6)										
	Chain (1/2)	Without clutch									
		With clutch									
		Camshaft P.T.O.									
	Chain (1/1)										

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P.T.O. type			L				N	Q					
Type			LDW	LHB3	LJG	LSK	NJG	QHB1	QHP1	QM	QMPB	QTB	QTD
Air cleaner	Dual			○					○				
	Dual silent												
	Cyclone												
	Low profile												
	Oil bath							○			○	○	○
	Semi dry		○		○	○	○			○			
	Rammer												
Muffler	Standard		○	○				○	○	○	○	○	
	Standard (With lower protector)				○	○	○						
	Silent												
	Low profile												
	Low profile (With protector)												
	Rammer												
Spark arrester													
Fuel gauge					○	○	○						
Remote choke lever													
Control base	Manual												
	Remote	Internal			○	○	○	○			○		○
		Internal S											
		EXP	○	○					○	○		○	
		Norton											
	Fixed throttle operation												
Charge coil	1 A												
	3 A												
	7 A												
Lamp coil	12 V - 15 W												
	12 V - 25 W												
	12 V - 50 W												
Combination switch													
Starter motor													
Oil level switch													
Engine stop switch			○	○	○	○	○		○	○	○	○	○
Oil Alert® unit													
Circuit protector													
Auto throttle													
Reduction	Gear (1/6)												
	Chain (1/2)	Without clutch	○	○	○	○							
		With clutch											
		Camshaft P.T.O.											
	Chain (1/1)												

SPECIFICATIONS

P.T.O. type			Q		R			S					
Type			QTN	QX	R1P0	R1U0	RMD	SJG	SJH	SM11	SMJ	SMJ1	SNX
Air cleaner	Dual			○							○	○	○
	Dual silent									○			
	Cyclone												
	Low profile												
	Oil bath		○										
	Semi dry				○	○	○	○	○				
	Rammer												
Muffler	Standard		○	○			○						
	Standard (With lower protector)				○	○		○	○	○		○	○
	Silent												
	Low profile										○		
	Low profile (With protector)												
	Rammer												
Spark arrester													
Fuel gauge								○			○	○	○
Remote choke lever													
Control base	Manual												
	Remote	Internal			○	○		○	○		○	○	○
		Internal S					○						
		EXP	○	○									
		Norton								○			
	Fixed throttle operation												
Charge coil	1 A					○							
	3 A												
	7 A												
Lamp coil	12 V - 15 W												
	12 V - 25 W												
	12 V - 50 W					○			○				
Combination switch													
Starter motor						○							
Oil level switch				○							○	○	○
Engine stop switch			○	○	○		○	○	○	○	○	○	
Oil Alert® unit				○							○	○	○
Circuit protector													
Auto throttle													
Reduction	Gear (1/6)												
	Chain (1/2)	Without clutch											
		With clutch			○	○	○						
		Camshaft P.T.O.											
	Chain (1/1)												

SPECIFICATIONS

P.T.O. type			S		V							
Type			ST	SYA	VH	VHB	VPM6	VSW3	VSW5	VSX	VSX1	VX
Air cleaner	Dual									○	○	○
	Dual silent											
	Cyclone											
	Low profile						○	○	○			
	Oil bath					○						
	Semi dry		○	○	○							
	Rammer											
Muffler	Standard				○	○						○
	Standard (With lower protector)		○									
	Silent											
	Low profile											
	Low profile (With protector)							○	○			
	Rammer											
Spark arrester							○					
Fuel gauge								○	○			
Remote choke lever												
Control base	Manual				○	○						○
	Remote	Internal	○	○								
		Internal S										
		EXP										
		Norton										
	Fixed throttle operation						○	○	○	○	○	
Charge coil	1 A		○									
	3 A											
	7 A											
Lamp coil	12 V - 15 W			○								
	12 V - 25 W											
	12 V - 50 W											
Combination switch												
Starter motor			○									
Oil level switch							○	○	○	○	○	○
Engine stop switch					○	○	○			○	○	○
Oil Alert® unit							○	○	○	○	○	○
Circuit protector												
Auto throttle												
Reduction	Gear (1/6)											
	Chain (1/2)	Without clutch										
		With clutch										
		Camshaft P.T.O.										
	Chain (1/1)											

SPECIFICATIONS

P.T.O. type			VE		W		WB
Type			VED	VED3	W1B0	WMK	WB1
Air cleaner	**D**ual						
	Dual silent						
	Cyclone						
	Low profile			○			
	Oil bath						
	Semi dry		○		○	○	○
	Rammer						
Muffler	Standard		○		○	○	○
	Standard (With lower protector)						
	Silent						
	Low profile						
	Low profile (With protector)			○			
	Rammer						
Spark arrester				○			
Fuel gauge							
Remote choke lever							
Control base	Manual				○	○	
	Remote	**I**nternal					○
		Internal S					
		EXP					
		Norton					
	Fixed throttle operation		○	○			
Charge coil	1 **A**						
	3 **A**						
	7 **A**						
Lamp coil	12 **V -** 15 W						
	12 **V -** 25 W						
	12 **V -** 50 W						
Combination switch							
Starter motor							
Oil level switch				○			
Engine stop switch			○		○	○	○
Oil **A**lert® unit				○			
Circuit protector							
Auto throttle							
Reduction	**G**ear (1/6)						
	Chain (1/2)	Without clutch					
		With clutch					
		Camshaft P.T.O.					
	Chain (1/1)						

GX200T2

P.T.O. type			L			N		Q					
Type			LHB2	LJG	LSK	NJG	NW	QAPW	QHB1	QHP1	QM	QMP4	QTB
Air cleaner	Dual												
	Dual silent		○					○		○			
	Cyclone												
	Low profile												
	Oil bath						○		○			○	○
	Semi dry			○	○	○					○		
	Rammer												
Muffler	Standard		○	○	○	○	○	○	○	○	○	○	○
	Standard (With lower protector)												
	Silent												
	Low profile												
	Low profile (With protector)												
	Rammer												
Spark arrester					○								
Fuel gauge				○	○	○							
Remote choke lever													
Control base	Manual												
	Remote	Internal		○	○	○	○						
		Internal S							○			○	
		EXP	○					○		○	○		○
		Norton											
	Fixed throttle operation												
Charge coil	1 A												
	3 A												
	7 A												
Lamp coil	12 V - 15 W												
	12 V - 25 W												
	12 V - 50 W												
Combination switch													
Starter motor													
Oil level switch								○					
Engine stop switch			○	○	○	○	○	○		○	○		○
Oil Alert® unit								○					
Circuit protector													
Auto throttle													
Reduction	Gear (1/6)												
	Chain (1/2)	Without clutch	○	○	○								
		With clutch											
		Camshaft P.T.O.											
	Chain (1/1)												

SPECIFICATIONS

P.T.O. type			Q			S				V			
Type			QTD	QTN	QX	SJG	SM11	SMG1	SMG2	VHB	VSP	VSW	VX
Air cleaner	Dual												
	Dual silent				○		○	○			○		○
	Cyclone												
	Low profile											○	
	Oil bath		○	○						○			
	Semi dry					○			○				
	Rammer												
Muffler	Standard			○	○	○	○	○	○	○	○		○
	Standard (With lower protector)												
	Silent												
	Low profile												
	Low profile (With protector)											○	
	Rammer												
Spark arrester													
Fuel gauge						○						○	
Remote choke lever													
Control base	Manual									○			○
	Remote	Internal	○			○		○	○				
		Internal S											
		EXP		○	○								
		Norton					○						
	Fixed throttle operation										○	○	
Charge coil	1 A							○	○				
	3 A												
	7 A												
Lamp coil	12 V - 15 W												
	12 V - 25 W												
	12 V - 50 W												
Combination switch													
Starter motor								○	○				
Oil level switch					○			○			○	○	○
Engine stop switch			○	○	○	○	○			○	○		○
Oil Alert® unit					○						○	○	○
Circuit protector													
Auto throttle													
Reduction	Gear (1/6)												
	Chain (1/2)	Without clutch											
		With clutch											
		Camshaft P.T.O.											
	Chain (1/1)												

P.T.O. type			VE		
Type			VEN	VES	VES1
Air cleaner	Dual				
	Dual silent				○
	Cyclone				
	Low profile		○	○	
	Oil bath				
	Semi dry				
	Rammer				
Muffler	Standard				○
	Standard (With lower protector)				
	Silent				
	Low profile				
	Low profile (With protector)		○	○	
	Rammer				
Spark arrester					
Fuel gauge					
Remote choke lever					
Control base	Manual				○
	Remote	Internal			
		Internal S			
		EXP			
		Norton			
	Fixed throttle operation		○	○	
Charge coil	1 A		○		
	3 A				
	7 A				
Lamp coil	12 V - 15 W				
	12 V - 25 W			○	○
	12 V - 50 W				
Combination switch					
Starter motor					
Oil level switch			○	○	○
Engine stop switch			○	○	○
Oil Alert® unit			○	○	○
Circuit protector					
Auto throttle			○	○	
Reduction	Gear (1/6)				
	Chain (1/2)	Without clutch			
		With clutch			
		Camshaft P.T.O.			
	Chain (1/1)				

DIMENSIONS AND WEIGHTS SPECIFICATIONS

	P.T.O. type	GX120UT2	GX160UT2	GX200UT2
Overall length	H *	370 mm (14.6 in)	377 mm (14.8 in)	386 mm (15.2 in)
	L *	332 mm (13.1 in)	343 mm (13.5 in)	352 mm (13.9 in)
	P, Q, T *	305.5 mm (12.03 in)	312.5 mm (12.30 in)	321.5 mm (12.66 in)
	R *	384 mm (15.1 in)	391 mm (15.4 in)	400 mm (15.7 in)
	S *	297 mm (11.7 in)	304 mm (12.0 in)	313 mm (12.3 in)
	U *	309.8 mm (12.20 in)	316.8 mm (12.47 in)	–
	V *	315.5 mm (12.42 in)	322.5 mm (12.70 in)	331.5 mm (13.05 in)
	W *	317.5 mm (12.50 in)	329.5 mm (12.97 in)	–
Overall width	H *	346 mm (13.6 in)	362 mm (14.3 in)	376 mm (14.8 in)
	L *	346 mm (13.6 in)	362 mm (14.3 in)	376 mm (14.8 in)
	P, Q, T *	346 mm (13.6 in)	362 mm (14.3 in)	376 mm (14.8 in)
	R *	346 mm (13.6 in)	362 mm (14.3 in)	376 mm (14.8 in)
	S *	346 mm (13.6 in)	362 mm (14.3 in)	376 mm (14.8 in)
	U *	346 mm (13.6 in)	362 mm (14.3 in)	–
	V *	346 mm (13.6 in)	362 mm (14.3 in)	376 mm (14.8 in)
	W *	346 mm (13.6 in)	362 mm (14.3 in)	–
Overall height	H *	329 mm (13.0 in)	346 mm (13.6 in)	346 mm (13.6 in)
	L *	329 mm (13.0 in)	346 mm (13.6 in)	346 mm (13.6 in)
	P, Q, T *	329 mm (13.0 in)	346 mm (13.6 in)	346 mm (13.6 in)
	R *	329 mm (13.0 in)	346 mm (13.6 in)	346 mm (13.6 in)
	S *	329 mm (13.0 in)	346 mm (13.6 in)	346 mm (13.6 in)
	U *	329 mm (13.0 in)	346 mm (13.6 in)	–
	V *	329 mm (13.0 in)	346 mm (13.6 in)	346 mm (13.6 in)
	W *	329 mm (13.0 in)	346 mm (13.6 in)	–
Dry weight	H *	15.5 kg (34.2 lbs)	17.6 kg (38.8 lbs)	18.6 kg (41.0 lbs)
	L *	14.0 kg (30.9 lbs)	16.1 kg (35.5 lbs)	17.1 kg (37.7 lbs)
	P, Q, T *	13.0 kg (28.7 lbs)	15.1 kg (33.3 lbs)	16.1 kg (35.5 lbs)
	R *	18.0 kg (39.7 lbs)	20.0 kg (44.1 lbs)	21.0 kg (46.3 lbs)
	S *	13.0 kg (28.7 lbs)	15.1 kg (33.3 lbs)	16.1 kg (35.5 lbs)
	U *	13.0 kg (28.7 lbs)	15.1 kg (33.3 lbs)	–
	V *	13.0 kg (28.7 lbs)	15.1 kg (33.3 lbs)	16.1 kg (35.5 lbs)
	W *	13.0 kg (28.7 lbs)	15.1 kg (33.3 lbs)	–
Operating weight	H *	18.0 kg (39.7 lbs)	21.1 kg (46.5 lbs)	22.1 kg (48.7 lbs)
	L *	16.5 kg (36.4 lbs)	19.6 kg (43.2 lbs)	20.6 kg (45.4 lbs)
	P, Q, T *	15.5 kg (34.2 lbs)	18.6 kg (41.0 lbs)	19.6 kg (43.2 lbs)
	R *	21.0 kg (46.3 lbs)	24.0 kg (52.9 lbs)	25.0 kg (55.1 lbs)
	S *	15.5 kg (34.2 lbs)	18.6 kg (41.0 lbs)	19.6 kg (43.2 lbs)
	U *	15.5 kg (34.2 lbs)	18.6 kg (41.0 lbs)	–
	V *	15.5 kg (34.2 lbs)	18.6 kg (41.0 lbs)	19.6 kg (43.2 lbs)
	W *	15.5 kg (34.2 lbs)	18.6 kg (41.0 lbs)	–

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

DIMENSIONS AND WEIGHTS SPECIFICATIONS

	P.T.O. type	GX120RT2	GX200RT2
Overall length	KR *	313 mm (12.3 in)	–
	S *	–	313 mm (12.3 in)
	V *	315.5 mm (12.42 in)	331 mm (13.0 in)
	VE *	–	287 mm (11.3 in)
Overall width	KR *	331 mm (13.0 in)	–
	S *	–	376 mm (14.8 in)
	V *	346 mm (13.6 in)	376 mm (14.8 in)
	VE *	–	376 mm (14.8 in)
Overall height	KR *	321 mm (12.6 in)	–
	S *	–	346 mm (13.6 in)
	V *	329 mm (13.0 in)	346 mm (13.6 in)
	VE *	–	346 mm (13.6 in)
Dry weight	KR *	16.5 kg (36.4 lbs)	–
	S *	–	16.1 kg (35.5 lbs)
	V *	13.0 kg (28.7 lbs)	16.1 kg (35.5 lbs)
	VE *	–	16.1 kg (35.5 lbs)
Operating weight	KR *	16.9 kg (37.3 lbs)	–
	S *	–	19.6 kg (43.2 lbs)
	V *	15.5 kg (34.2 lbs)	19.6 kg (43.2 lbs)
	VE *	–	19.6 kg (43.2 lbs)

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

DIMENSIONS AND WEIGHTS SPECIFICATIONS

	P.T.O. type	GX160RT2
Overall length	Q *	312.5 mm (12.30 in)
	S *	304 mm (12.0 in)
	V *	322.5 mm (12.70 in)
	VE *	281 mm (11.1 in)
Overall width	Q *	347 mm (13.7 in)
	S *	347 mm (13.7 in)
	V *	347 mm (13.7 in)
	VE *	–
Overall height	Q *	337 mm (13.3 in)
	S *	337 mm (13.3 in)
	V *	337 mm (13.3 in)
	VE *	–

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

SPECIFICATIONS

DIMENSIONS AND WEIGHTS SPECIFICATIONS

	P.T.O. type	GX120T2	GX160T2	GX200T2
Overall length	KR*	313 mm (12.3 in)	–	–
	L*	332 mm (13.1 in)	343 mm (13.5 in)	352 mm (13.9 in)
	N*	–	288.8 mm (11.37 in)	312 mm (12.3 in)
	Q*	305.5 mm (12.03 in)	312.5 mm (12.30 in)	321.5 mm (12.66 in)
	R*	–	391 mm (15.4 in)	–
	S*	297 mm (11.7 in)	304 mm (12.0 in)	313 mm (12.3 in)
	T*	305.5 mm (12.03 in)	–	–
	V*	315.5 mm (12.42 in)	322.5 mm (12.70 in)	331.5 mm (13.05 in)
	VE*	–	–	290.1 mm (11.42 in)
	W*	317.5 mm (12.50 in)	329.5 mm (12.97 in)	–
	W**B***	284.5 mm (11.20 in)	291.5 mm (11.48 in)	–
Overall width	KR*	331 mm (13.0 in)	–	–
	L*	346 mm (13.6 in)	362 mm (14.3 in)	376 mm (14.8 in)
	N*	–	362 mm (14.3 in)	376 mm (14.8 in)
	Q*	346 mm (13.6 in)	362 mm (14.3 in)	376 mm (14.8 in)
	R*	–	362 mm (14.3 in)	–
	S*	346 mm (13.6 in)	362 mm (14.3 in)	376 mm (14.8 in)
	T*	346 mm (13.6 in)	–	–
	V*	346 mm (13.6 in)	362 mm (14.3 in)	376 mm (14.8 in)
	VE*	–	–	376 mm (14.8 in)
	W*	346 mm (13.6 in)	362 mm (14.3 in)	–
	W**B***	346 mm (13.6 in)	362 mm (14.3 in)	–
Overall height	KR*	321 mm (12.6 in)	–	–
	L*	318 mm (12.5 in)	335 mm (13.2 in)	335 mm (13.2 in)
	N*	–	335 mm (13.2 in)	335 mm (13.2 in)
	Q*	318 mm (12.5 in)	335 mm (13.2 in)	335 mm (13.2 in)
	R*	–	335 mm (13.2 in)	–
	S*	318 mm (12.5 in)	335 mm (13.2 in)	335 mm (13.2 in)
	T*	318 mm (12.5 in)	–	–
	V*	318 mm (12.5 in)	335 mm (13.2 in)	335 mm (13.2 in)
	VE*	–	–	335 mm (13.2 in)
	W*	318 mm (12.5 in)	335 mm (13.2 in)	–
	W**B***	318 mm (12.5 in)	335 mm (13.2 in)	–
Dry weight	KR*	16.5 kg (36.4 lbs)	–	–
	L*	14.0 kg (30.9 lbs)	16.1 kg (35.5 lbs)	17.1 kg (37.7 lbs)
	N*	–	15.1 kg (33.3 lbs)	16.1 kg (35.5 lbs)
	Q*	13.0 kg (28.7 lbs)	15.1 kg (33.3 lbs)	16.1 kg (35.5 lbs)
	R*	–	20.0 kg (44.1 lbs)	–
	S*	13.0 kg (28.7 lbs)	15.1 kg (33.3 lbs)	16.1 kg (35.5 lbs)
	T*	13.0 kg (28.7 lbs)	–	–
	V*	13.0 kg (28.7 lbs)	15.1 kg (33.3 lbs)	16.1 kg (35.5 lbs)
	VE*	–	–	16.1 kg (35.5 lbs)
	W*	13.0 kg (28.7 lbs)	15.1 kg (33.3 lbs)	–
	W**B***	13.0 kg (28.7 lbs)	15.1 kg (33.3 lbs)	–
Operating weight	KR*	16.9 kg (37.3 lbs)	–	–
	L*	16.5 kg (36.4 lbs)	19.6 kg (43.2 lbs)	20.6 kg (45.4 lbs)
	N*	–	18.6 kg (41.0 lbs)	19.6 kg (43.2 lbs)
	Q*	15.5 kg (34.2 lbs)	18.6 kg (41.0 lbs)	19.6 kg (43.2 lbs)
	R*	–	24.0 kg (52.9 lbs)	–
	S*	15.5 kg (34.2 lbs)	18.6 kg (41.0 lbs)	19.6 kg (43.2 lbs)
	T*	15.5 kg (34.2 lbs)	–	–
	V*	15.5 kg (34.2 lbs)	18.6 kg (41.0 lbs)	19.6 kg (43.2 lbs)
	VE*	–	–	19.6 kg (43.2 lbs)
	W*	15.5 kg (34.2 lbs)	18.6 kg (41.0 lbs)	–
	W**B***	15.5 kg (34.2 lbs)	18.6 kg (41.0 lbs)	–

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

ENGINE SPECIFICATIONS

Model		GX120UT2	GX160UT2	GX200UT2
Description code		GCBMT	GCBPT	GCBTT
Type		4 stroke, overhead valve, single cylinder, inclined by 25°		
Displacement		118 cm^3 (7.2 cu–in)	163 cm^3 (9.9 cu–in)	196 cm^3 (12.0 cu–in)
Bore x stroke		66.0 x 42.0 mm (2.60 x 1.65 in)	68.0 x 45.0 mm (2.68 x 1.77 in)	68.0 x 54.0 mm (2.68 x 2.13 in)
Net power (SAE J1349) *1		2.6 kW (3.5 HP)/ 3,600 min^{-1} (rpm)	3.6 kW (4.9 HP)/ 3,600 min^{-1} (rpm)	4.1 kW (5.6 HP)/ 3,600 min^{-1} (rpm)
Continuous rated power		2.1 kW (2.9 HP)/ 3,600 min^{-1} (rpm)	2.9 kW (3.9 HP)/ 3,600 min^{-1} (rpm)	3.7 kW (5.0 HP)/ 3,600 min^{-1} (rpm)
Maximum net torque (SAE J1349) *1		7.3 N·m (0.7 kgf·m, 5.4 lbf·ft)/2,500 min^{-1} (rpm)	10.3 N·m (1.1 kgf·m, 7.6 lbf·ft)/2,500 min^{-1} (rpm)	12.4 N·m (1.3 kgf·m, 9 lbf·ft)/2,500 min^{-1} (rpm)
Compression ratio		8.5 : 1	9.0 : 1	8.5 : 1
Fuel consumption (at continuous rated power)		1.0 Liter (0.26 US gal, 0.22 Imp gal)/h	1.4 Liters (0.37 US gal, 0.31 Imp gal)/h	1.7 Liters (0.45 US gal, 0.37 Imp gal)/h
Ignition system		C.D.I. (Capacitor Discharge Ignition) type magneto ignition		
Ignition timing		B.T.D.C. 20°/ 1,400 min^{-1} (rpm)	B.T.D.C. 18°/ 1,400 min^{-1} (rpm)	B.T.D.C. 20°/ 1,400 min^{-1} (rpm)
Recommended spark plug		BPR6ES (NGK)/W20EPR-U (DENSO)		
Lubrication system		Forced splash		
Oil capacity		0.56 Liter (0.59 US qt, 0.49 Imp qt)	0.58 Liter (0.61 US qt, 0.51 Imp qt)	0.60 Liter (0.63 US qt, 0.53 Imp qt)
Recommended oil		SAE 10W-30 API service category SJ or higher		
Cooling system		Forced air		
Starting system		Recoil Starter	Recoil or Recoil and electric starter	Recoil or Recoil and electric starter
Stopping system		Ignition exciter coil circuit open		
Carburetor		Horizontal type, butterfly valve		
Air cleaner		Dual type, Dual silent type, Semi dry type, Oil bath type, Cyclone type		Dual silent type, Cyclone type
Governor		Mechanical centrifugal		
Breather system		Reed valve type		
Fuel used		Unleaded gasoline with a pump octane rating 86 or higher		
Fuel tank capacity		2.0 Liters (0.53 US gal, 0.44 Imp gal)	3.1 Liters (0.82 US gal, 0.68 Imp gal)	
Reduction case oil capacity	Gear type	0.15 Liter (0.16 US qt, 0.13 Imp qt)		
	Chain type (without clutch)	Shared with engine oil		
	Chain type (with clutch)	0.50 Liter (0.53 US qt, 0.44 Imp qt)		
Clutch	Type	Centrifugal		
	Engagement start	1,800 min^{-1} (rpm)		
	Lock	2,200 min^{-1} (rpm)		

*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 rpm (net power) and at 2,500 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.

ENGINE SPECIFICATIONS

Model		GX120RT2	GX200RT2
Description code		GCBMT	GCBTT
Type		4 stroke, overhead valve, single cylinder, inclined by 25°	
Displacement		118 cm^3 (7.2 cu-in)	196 cm^3 (12.0 cu-in)
Bore x stroke		60.0 x 42.0 mm (2.36 x 1.65 in)	68.0 x 54.0 mm (2.68 x 2.13 in)
Net power (SAE J1349) *1		2.6 kW (3.5 HP)/3,600 min^{-1} (rpm)	4.1 kW (5.6 HP)/3,600 min^{-1} (rpm)
Continuous rated power		2.1 kW (2.9 HP)/3,600 min^{-1} (rpm)	3.7 kW (5.0 HP)/3,600 min^{-1} (rpm)
Maximum net torque (SAE J1349) *1		7.3 N·m (0.7 kgf·m, 5.4 lbf·ft)/ 2,500 min^{-1} (rpm)	12.4 N·m (1.3 kgf·m, 9 lbf·ft)/ 2,500 min^{-1} (rpm)
Compression ratio		8.5 : 1	
Fuel consumption (at continuous rated power)		1.0 Liter (0.26 US gal, 0.22 Imp gal)/h	1.7 Liters (0.45 US gal, 0.37 Imp gal)/h
Ignition system		C.D.I. (Capacitor Discharge Ignition) type magneto ignition	
Ignition timing		B.T.D.C. 20°/1,400 min^{-1} (rpm)	
Recommended spark plug		BPR4ES (NGK)/ W14EPR-U (DENSO)	BPR6ES (NGK)/ W20EPR-U (DENSO)
Lubrication system		Forced splash	
Oil capacity		0.40 Liter (0.42 US qt, 0.35 Imp qt) *2	0.60 Liter (0.63 US qt, 0.53 Imp qt)
Recommended oil		SAE 10W-30 API service classification SJ or higher	
Cooling system		Forced air	
Starting system		Recoil Starter	Recoil, Recoil and Starter motor
Stopping system		Ignition exciter coil circuit open	
Carburetor		Horizontal type, float valve	Horizontal type, butterfly valve
Air cleaner		Dual type, Dual silent type, Low profile type, Rammer type	Dual type, Low profile type
Governor		Mechanical centrifugal	
Breather system		Reed 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 case oil capacity	Chain type (without clutch)	Shared with engine oil	–
	Chain type (with clutch)	–	0.50 Liter (0.53 US qt, 0.44 Imp qt)
Reduction unit: Chain type (with clutch)	Type	–	Centrifugal
	Engagement start	–	1,800 min^{-1} (rpm)
	Lock	–	2,200 min^{-1} (rpm)

*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 rpm (net power) and at 2,500 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.

*2: When tilted at 14°

ENGINE SPECIFICATIONS

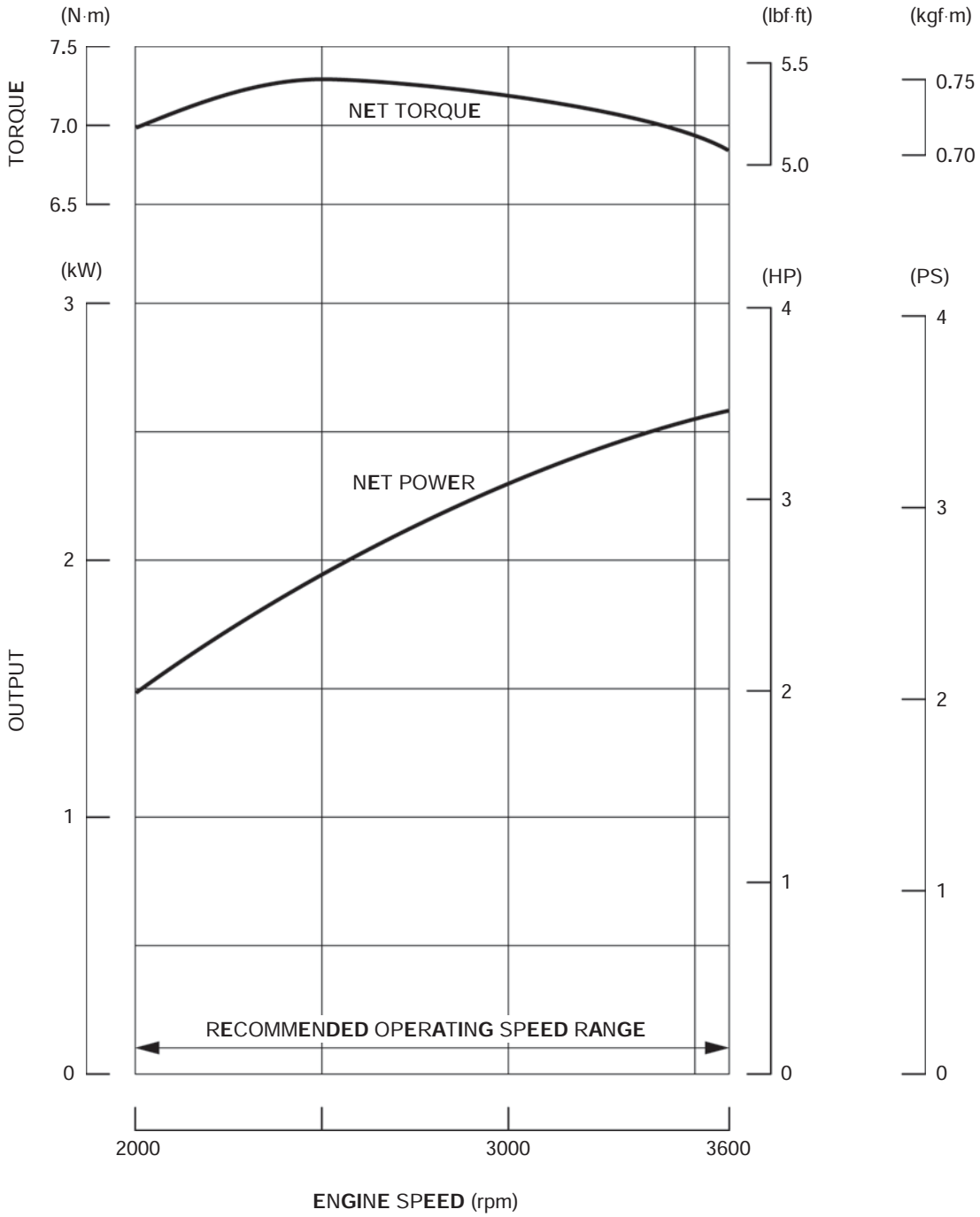
Model		GX120T2	GX160T2	GX200T2
Description code		GCBNT	GCBST	GCBUT
Type		4 stroke, overhead valve, single cylinder, inclined by 25°		
Displacement		118 cm^3 (7.2 cu-in)	163 cm^3 (9.9 cu-in)	196 cm^3 (12.0 cu-in)
Bore x stroke		60.0 x 42.0 mm (2.36 x 1.65 in)	68.0 x 45.0 mm (2.68 x 1.77 in)	68.0 x 54.0 mm (2.68 x 2.13 in)
Net power (SAE J1349) *1		2.6 kW (3.5 HP)/ 3,600 min^{-1} (rpm)	3.6 kW (4.8 HP)/ 3,600 min^{-1} (rpm)	4.1 kW (5.5 HP)/ 3,600 min^{-1} (rpm)
Continuous rated power		2.1 kW (2.8 HP)/ 3,600 min^{-1} (rpm)	2.9 kW (3.9 HP)/ 3,600 min^{-1} (rpm)	3.7 kW (5.0 HP)/ 3,600 min^{-1} (rpm)
Maximum net torque (SAE J1349) *1		7.3 N·m (0.7 kgf·m, 5.4 lbf·ft)/2,500 min^{-1} (rpm)	10.3 N·m (1.1 kgf·m, 7.6 lbf·ft)/2,500 min^{-1} (rpm)	12.4 N·m (1.3 kgf·m, 9 lbf·ft)/2,500 min^{-1} (rpm)
Compression ratio		8.5 : 1	9.0 : 1	8.5 : 1
Fuel consumption (at continuous rated power)		1.0 Liter (0.26 US gal, 0.22 Imp gal)/h	1.4 Liters (0.37 US gal, 0.31 Imp gal)/h	1.7 Liters (0.45 US gal, 0.37 Imp gal)/h
Ignition system		C.D.I. (Capacitor Discharge Ignition) type magneto ignition		
Ignition timing		B.T.D.C. 20°/ 1,400 min^{-1} (rpm)	B.T.D.C. 18°/ 1,400 min^{-1} (rpm)	B.T.D.C. 20°/ 1,400 min^{-1} (rpm)
Recommended spark plug	Except rammer type	BPR6ES (NGK)/W20EPR-U (DENSO)		
	Rammer type	BPR4ES (NGK)/ W14EPR-U (DENSO)	–	–
Lubrication system		Forced splash		
Oil capacity	Except rammer type	0.56 Liter (0.59 US qt, 0.49 Imp qt)	0.58 Liter (0.61 US qt, 0.51 Imp qt)	0.60 Liter (0.63 US qt, 0.53 Imp qt)
	Rammer type	0.40 Liter (0.42 US qt, 0.35 Imp qt) *2	–	–
Recommended oil		SAE 10W-30 API service classification SJ or higher		
Cooling system		Forced air		
Starting system		Recoil Starter	Recoil, Recoil and Starter motor	
Stopping system		Ignition exciter coil circuit open		
Carburetor (Rammer type)		Horizontal type, butterfly valve (float valve)	Horizontal type, butterfly valve	
Air cleaner (Rammer type)		Dual type, Dual silent type, Low profile type, Semi dry type, Oil bath type, (Rammer type)	Dual type, Dual silent type, Low profile type, Semi dry type, Oil bath type	Dual silent type, Low profile type, Semi dry type, Oil bath type
Governor		Mechanical centrifugal		
Breather system		Reed valve type		
Fuel used		Unleaded gasoline with a pump octane rating 86 or higher		
Fuel tank capacity		2.0 Liters (0.53 US gal, 0.44 Imp gal)	3.1 Liters (0.82 US gal, 0.68 Imp gal)	
Reduction case oil capacity	Chain type (Without clutch)	Shared with engine oil		
	Chain type (With clutch)	–	0.50 Liter (0.53 US qt, 0.44 Imp qt)	–
	Camshaft P.T.O.	–	Shared with engine oil	
Clutch	Type	–	Centrifugal	–
	Engagement start	–	1,800 min^{-1} (rpm)	–
	Lock	–	2,200 min^{-1} (rpm)	–

*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 rpm (net power) and at 2,500 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.

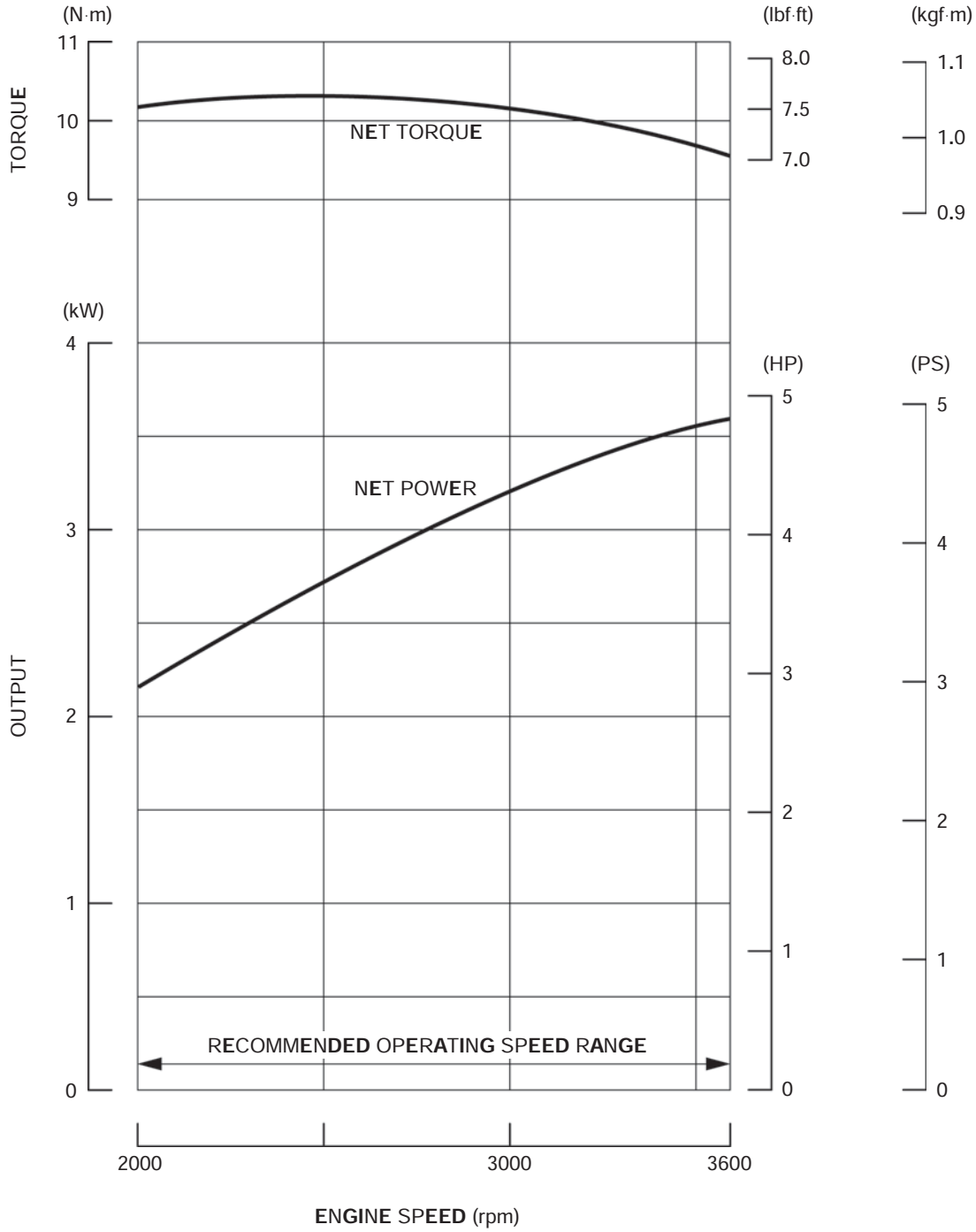
*2: When tilted at 14°

PERFORMANCE CURVES

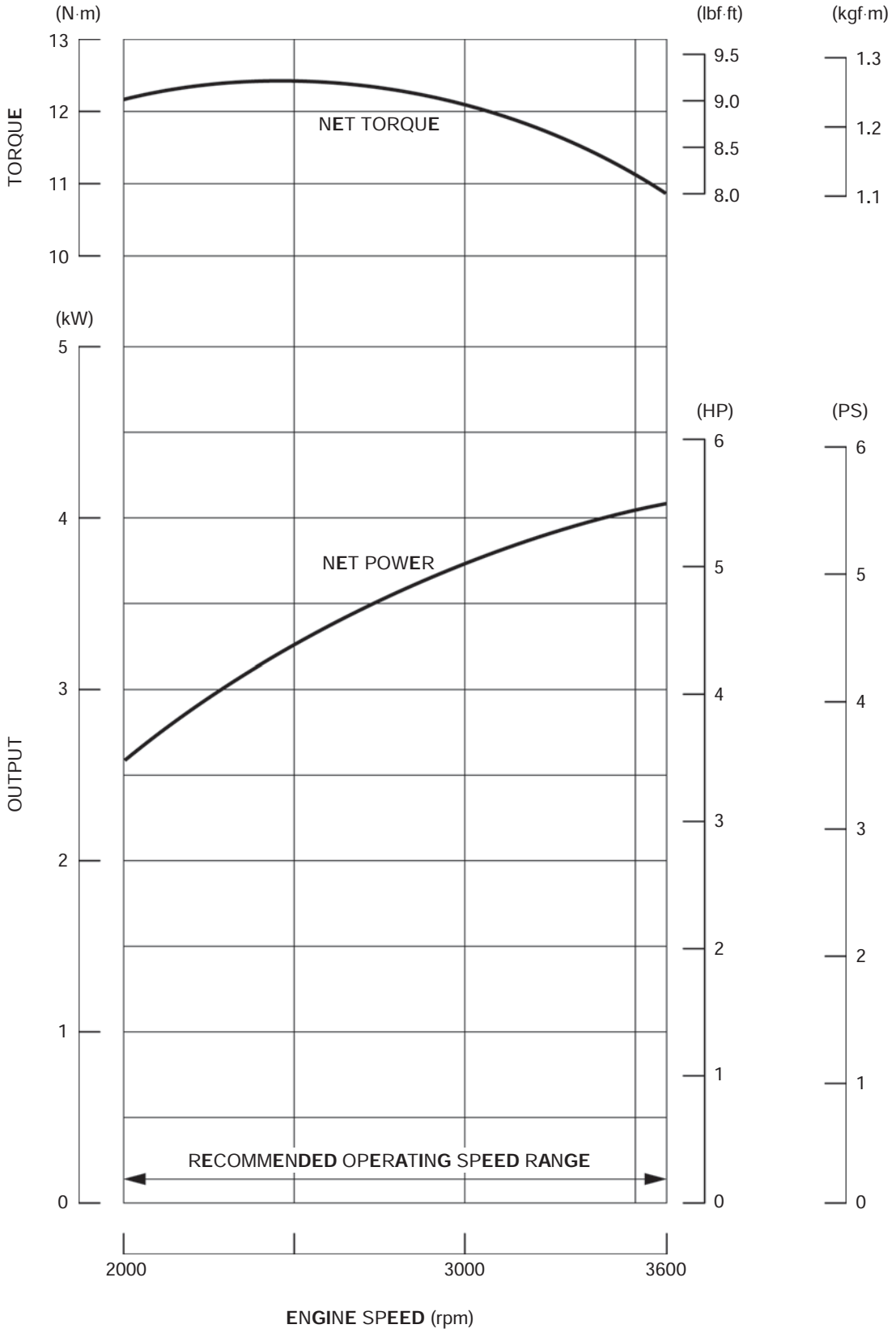
GX120



GX160


(N·m)
(lbf·ft)
(kgf·m)
11
10
9
TORQUE
8.0
7.5
7.0
1.1
1.0
0.9
NET TORQUE
(kW)
(HP)
(PS)
4
3
2
1
0
OUTPUT
5
4
3
2
1
0
NET POWER
RECOMMENDED OPERATING SPEED RANGE
2000
3000
3600
ENGINE SPEED (rpm)

GX200

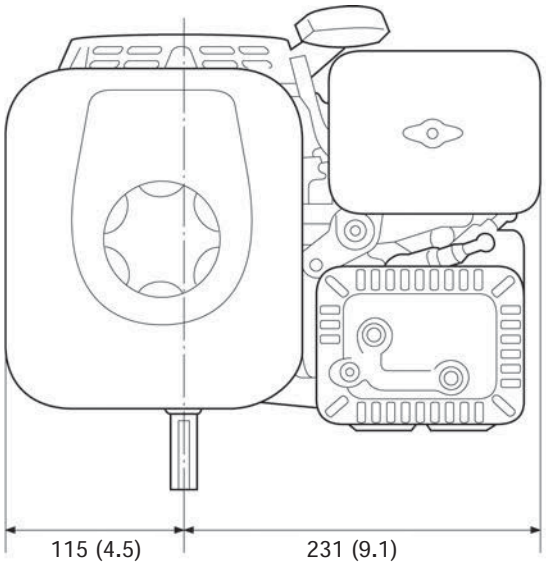

(N·m)
(lbf·ft)
(kgf·m)
TORQUE
13
12
11
10
9.5
9.0
8.5
8.0
1.3
1.2
1.1
NET TORQUE
(kW)
(HP)
(PS)
OUTPUT
5
4
3
2
1
0
6
5
4
3
2
1
0
NET POWER
RECOMMENDED OPERATING SPEED RANGE
2000
3000
3600
ENGINE SPEED (rpm)

DIMENSIONAL DRAWINGS

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

GX120 (WITHOUT REDUCTION)

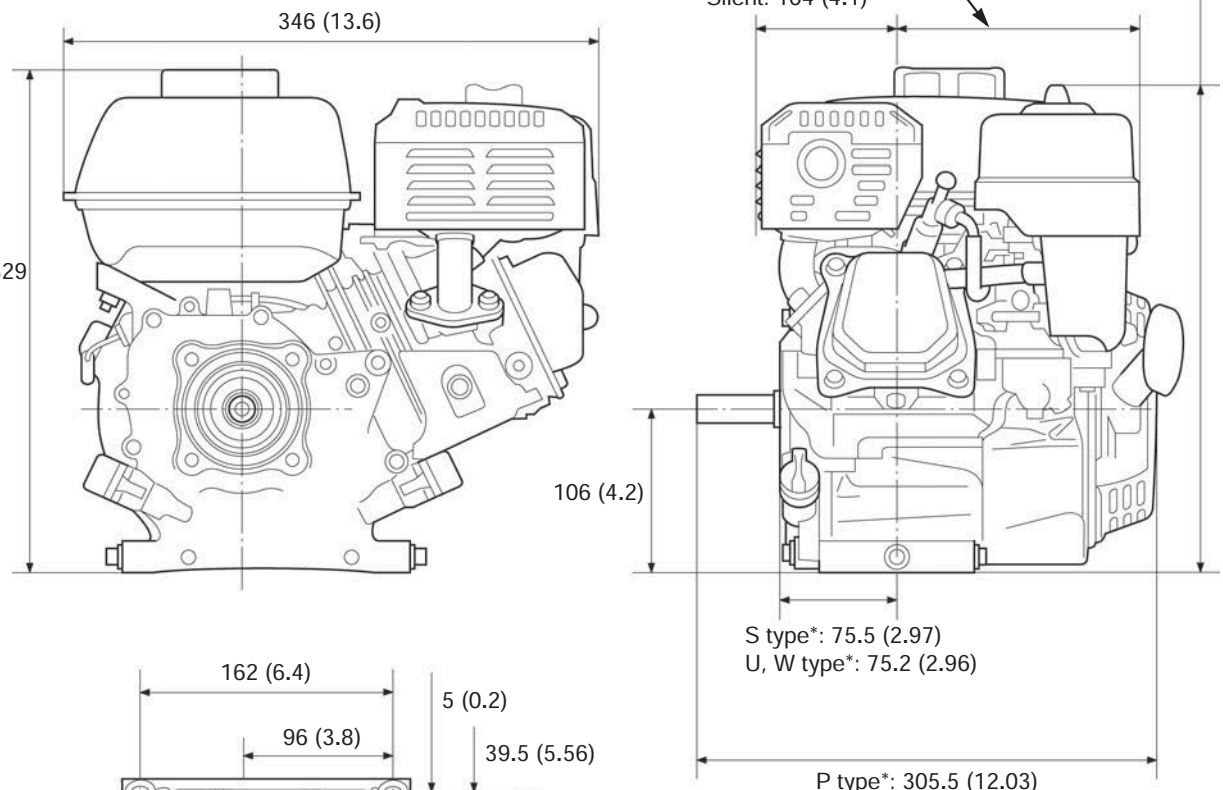
Unit: mm (in)

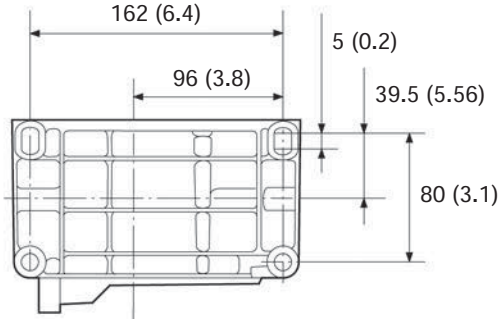


Dual/dual silent: 160 (6.3)
Cyclone: 166 (6.5)
Oil bath: 157 (6.2)
Semi dry: 156 (6.1)

Dual/dual silent: 317 (12.5)
Cyclone/Oil bath: 330 (13.0)
Semi dry: 314 (12.4)

Standard: 91 (3.6)
Silent: 104 (4.1)

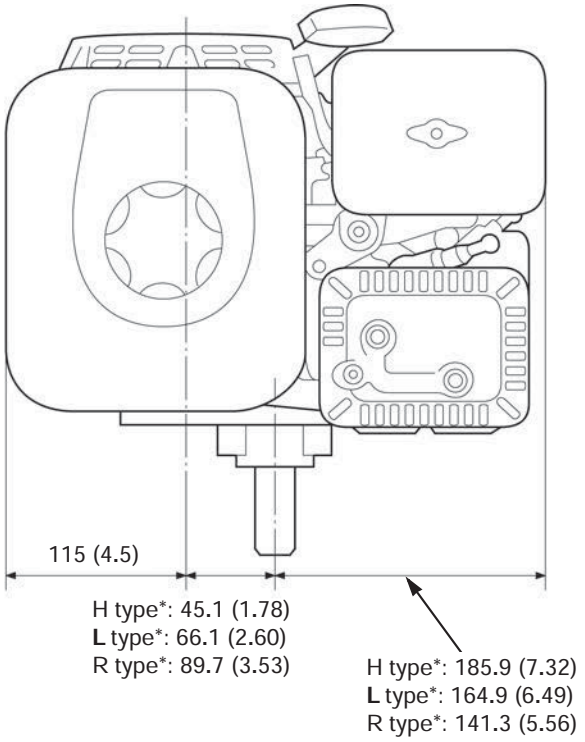


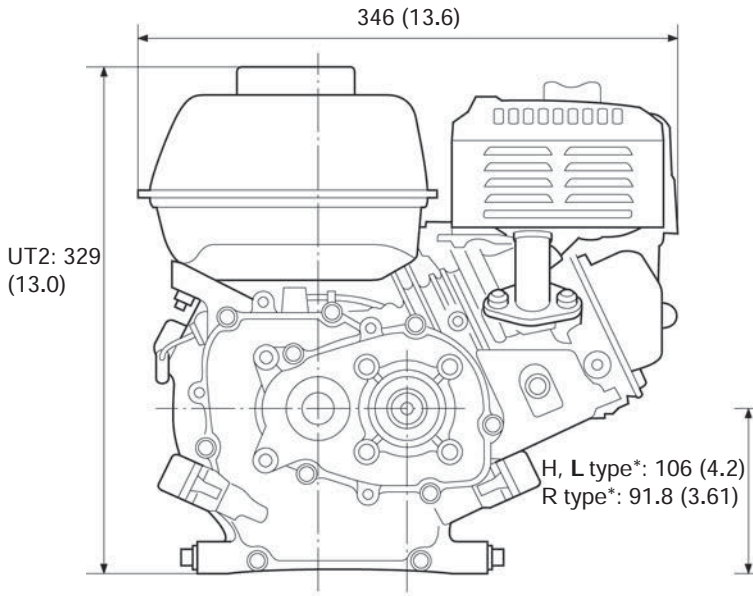


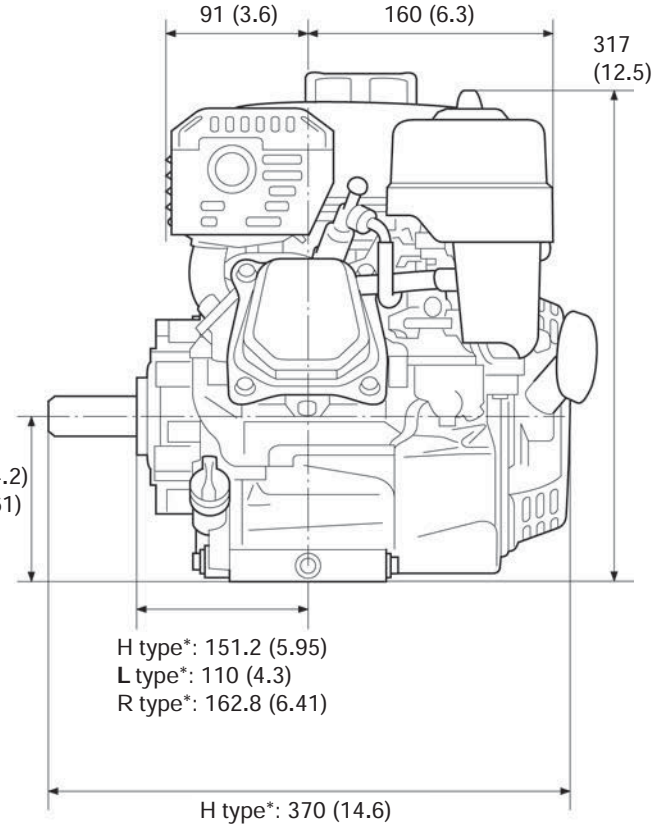
P type*: 305.5 (12.03)
Q type*: 305.5 (12.03)
S type*: 297 (11.7)
T type*: 305.5 (12.03)
U type*: 309.8 (12.20)
V type*: 315.5 (12.42)
W type*: 317.5 (12.50)

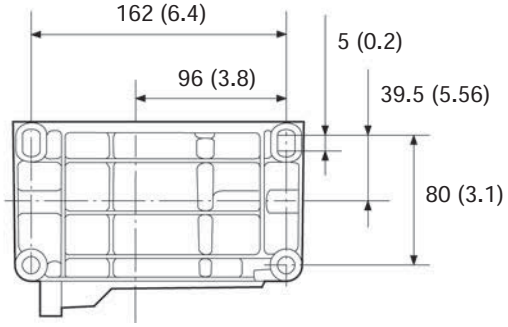
GX120 (WITH REDUCTION)

Unit: mm (in)



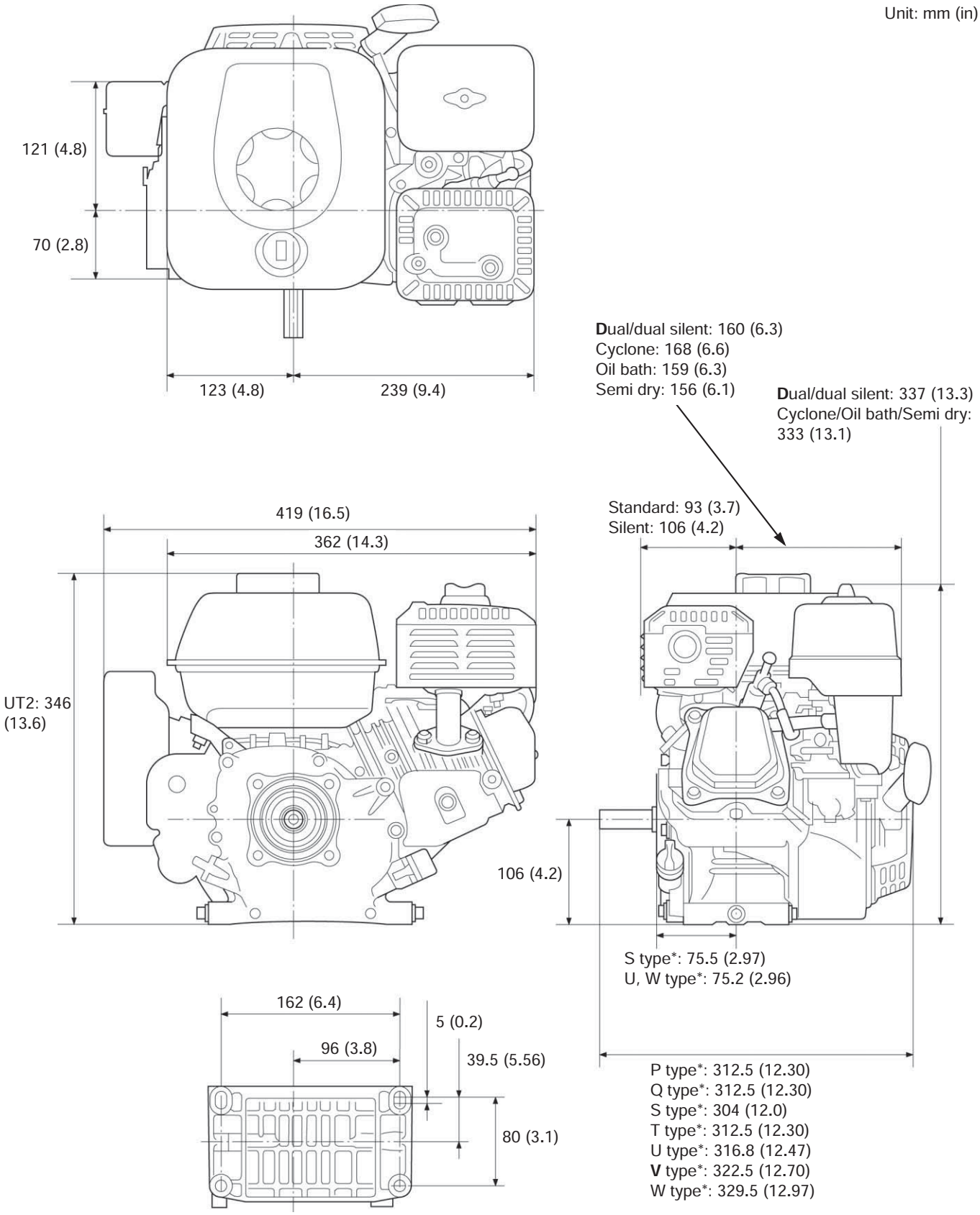






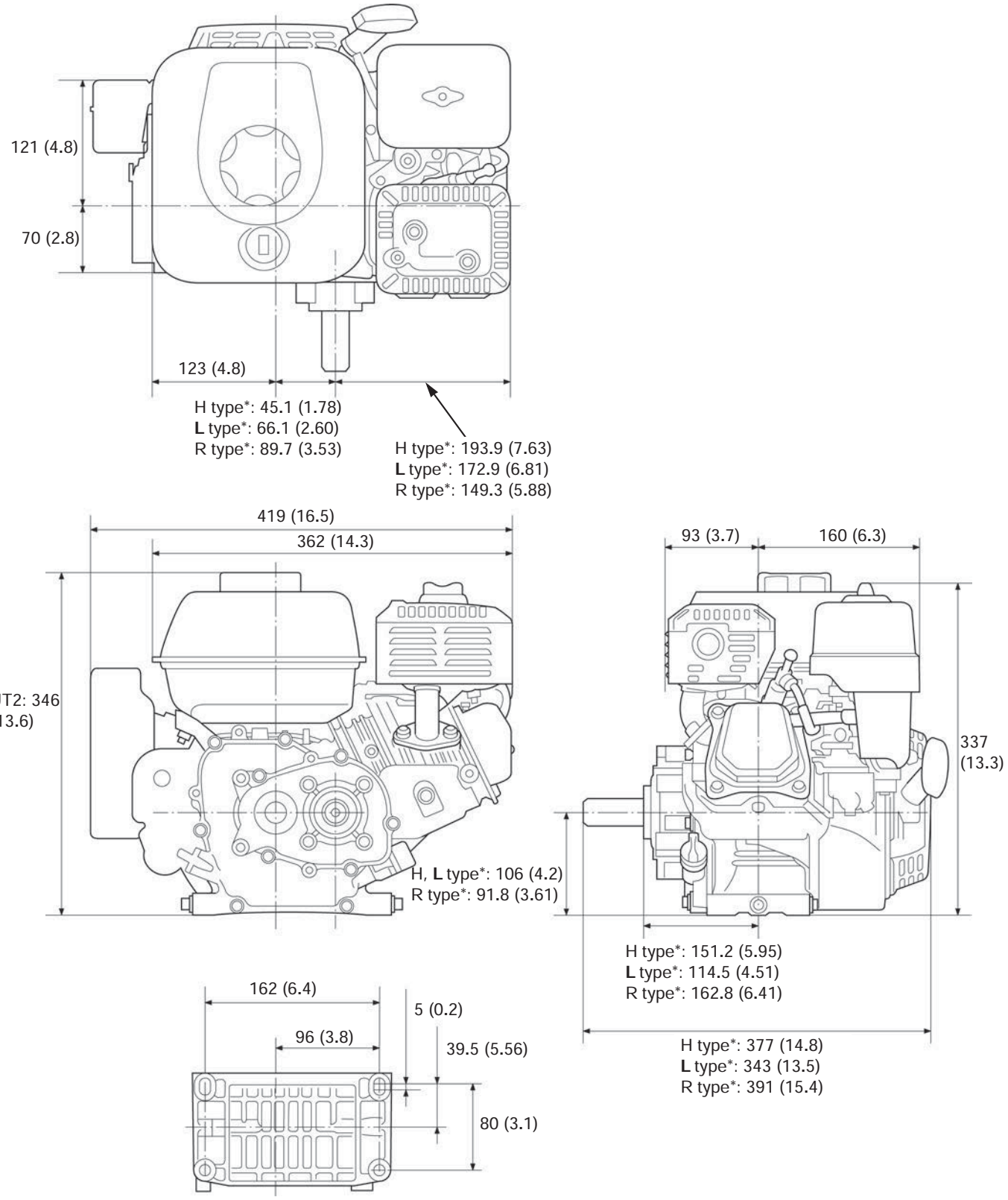
GX160 (WITHOUT REDUCTION)

Unit: mm (in)



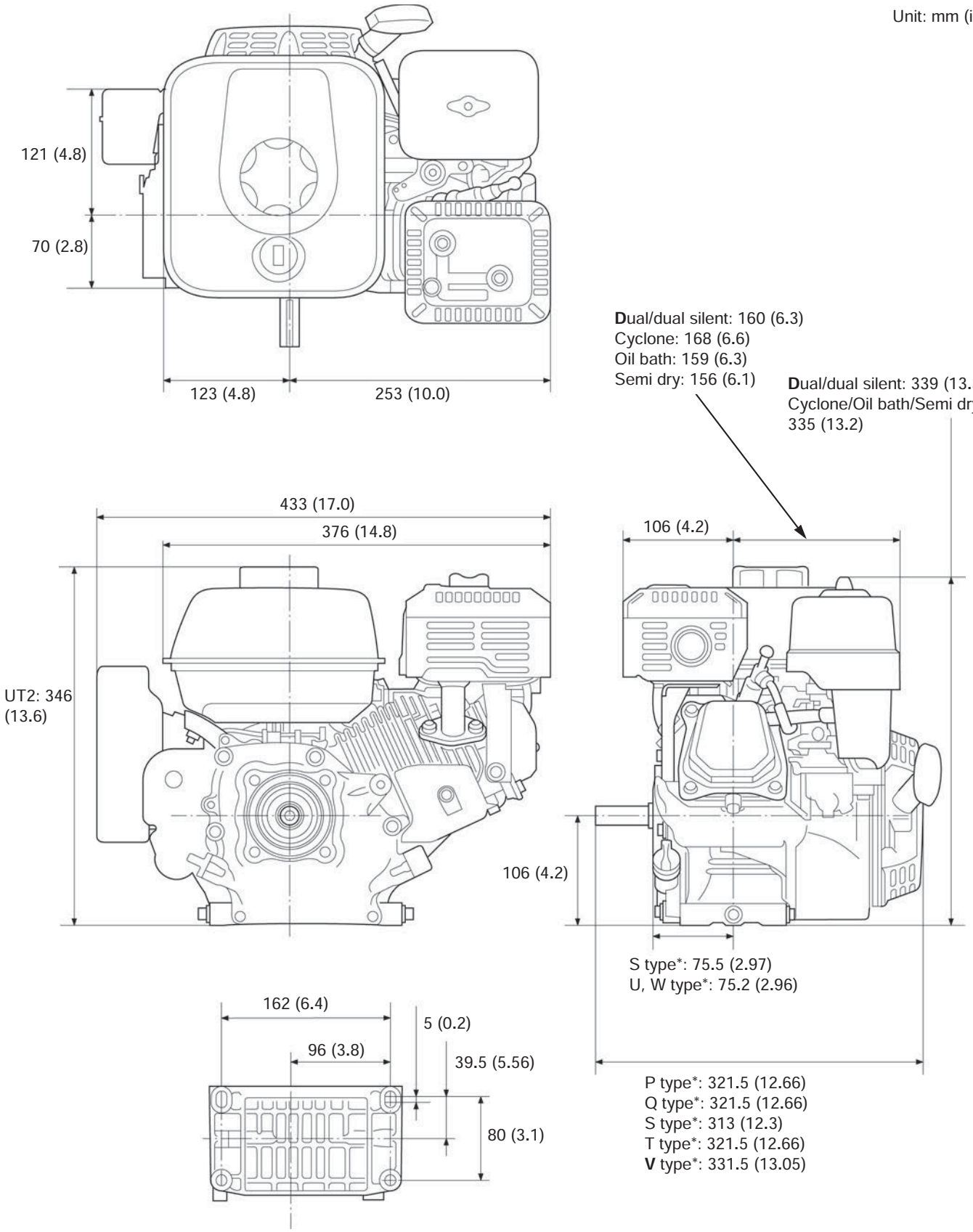
GX160 (WITH REDUCTION)

Unit: mm (in)



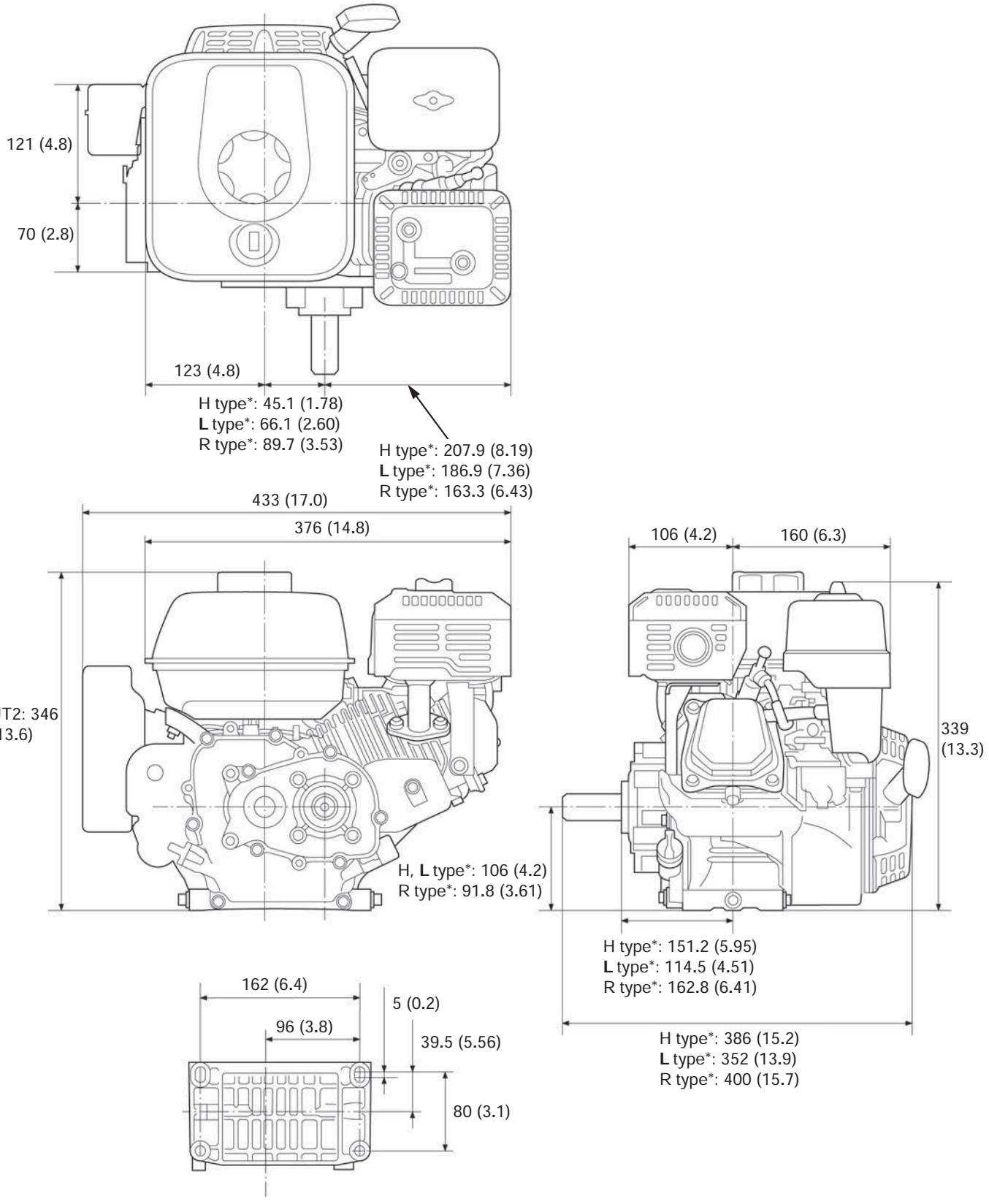
GX200 (WITHOUT REDUCTION)

Unit: mm (in)



GX200 (WITH REDUCTION)

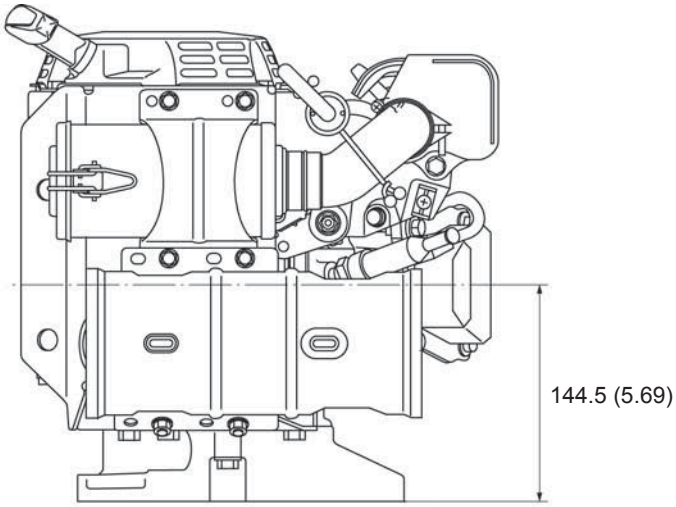
Unit: mm (in)

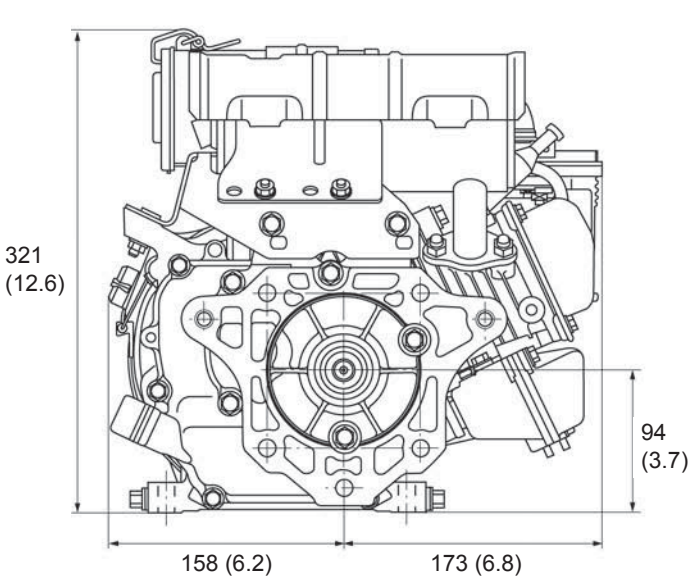


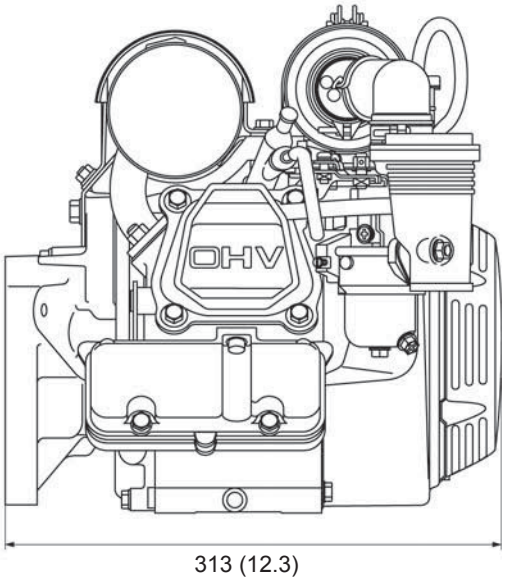
DIMENSIONAL DRAWINGS

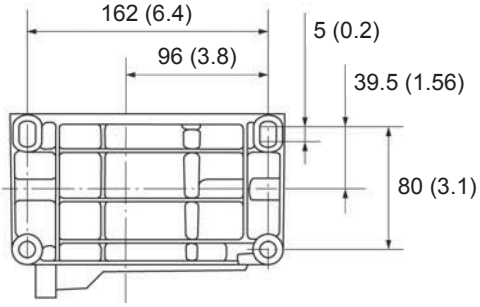
GX120RT2 (RAMMER TYPE)

Unit: mm (in)







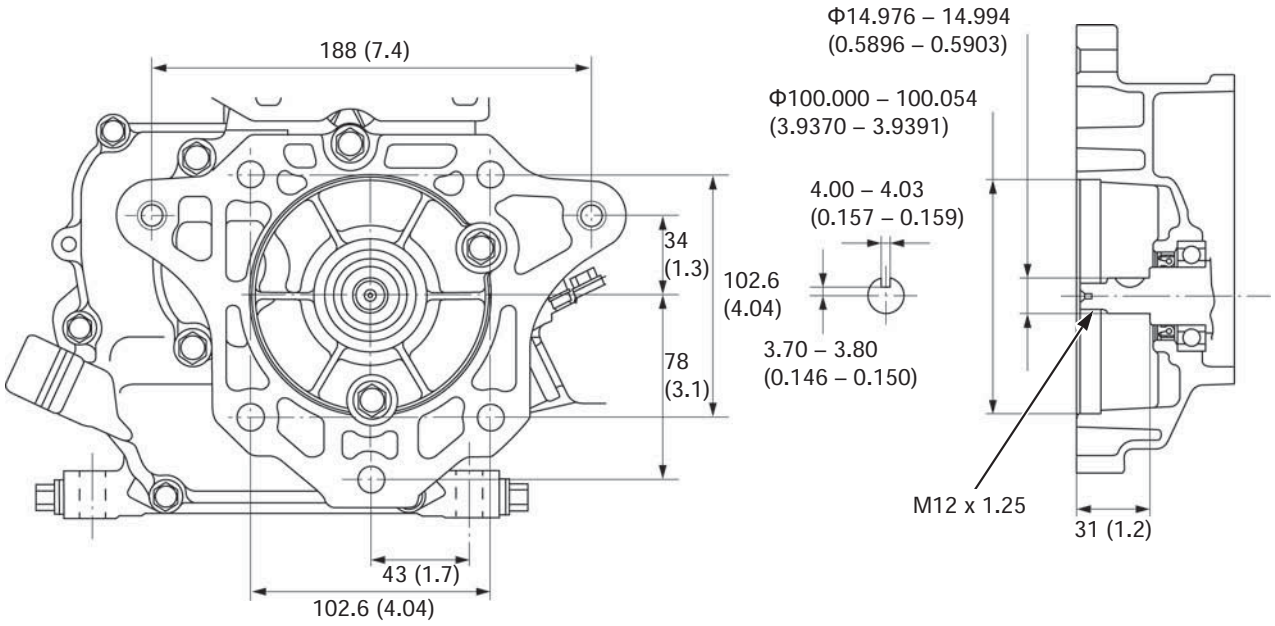


P.T.O. DIMENSIONAL DRAWINGS

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

GX120RT2 (RAMMER TYPE)

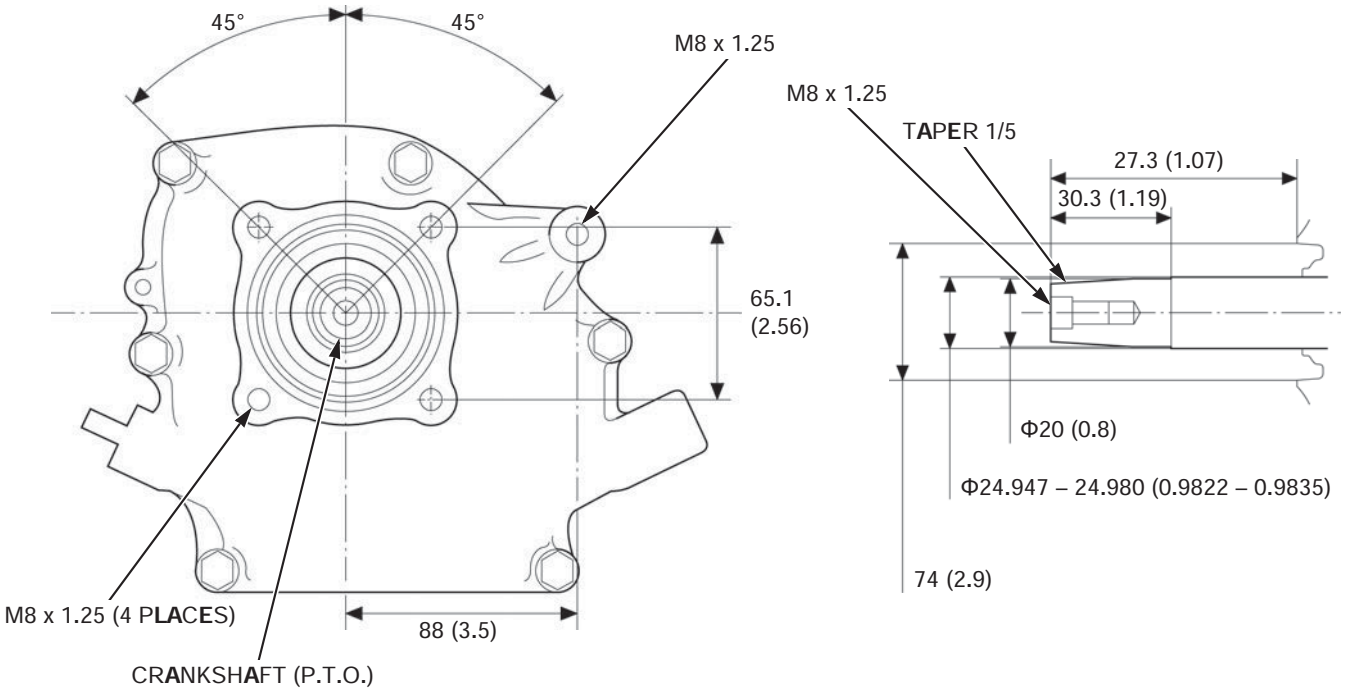
Unit: mm (in)



GX200RT2

VE type*

Unit: mm (in)



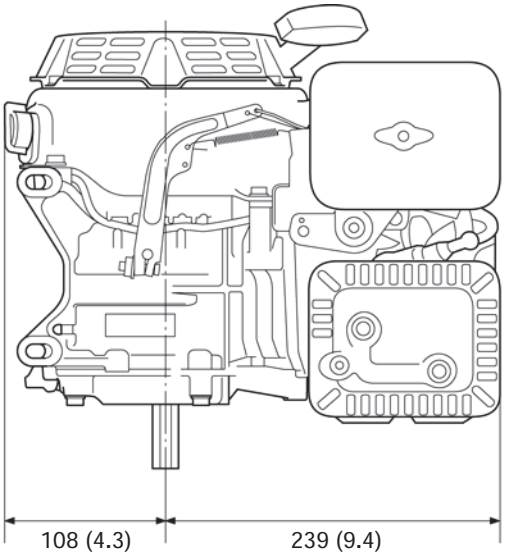
SPECIFICATIONS

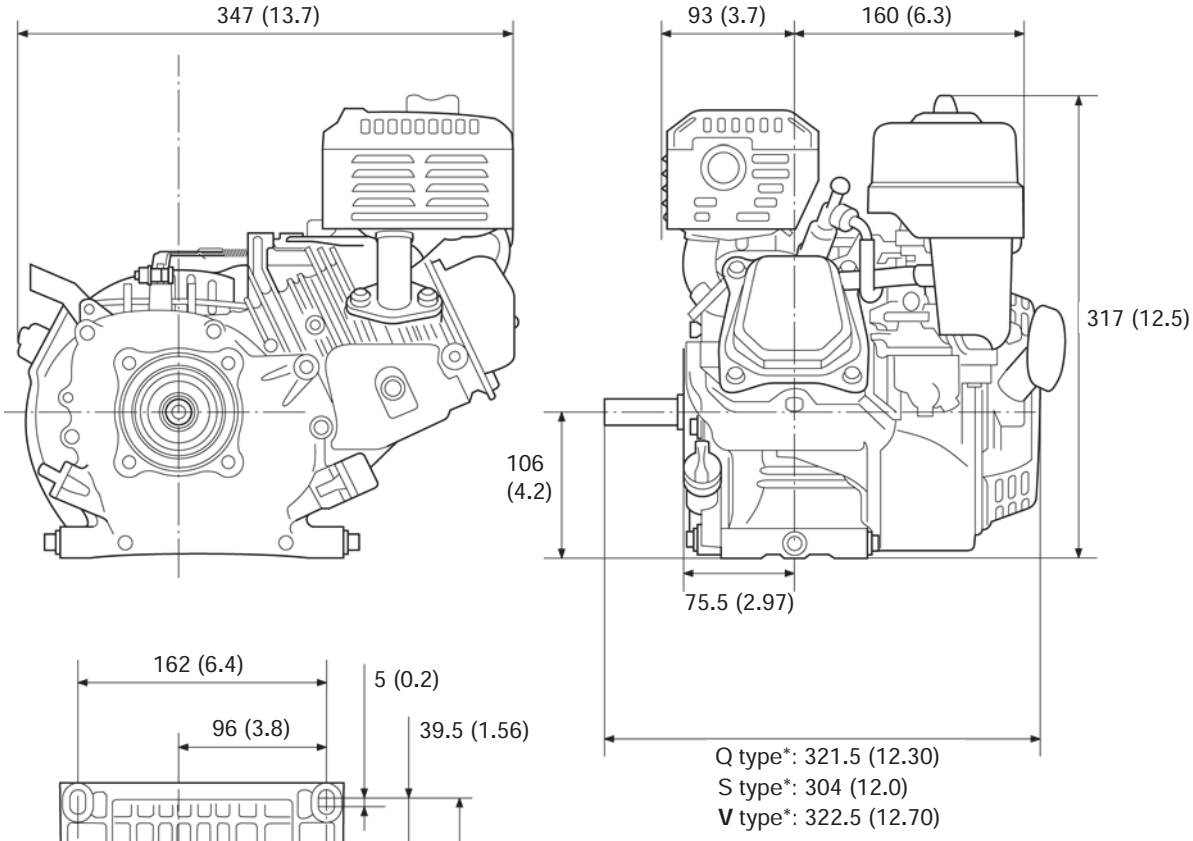
DIMENSIONAL DRAWINGS

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

EXCEPT LOW PROFILE TYPE

Unit: mm (in)



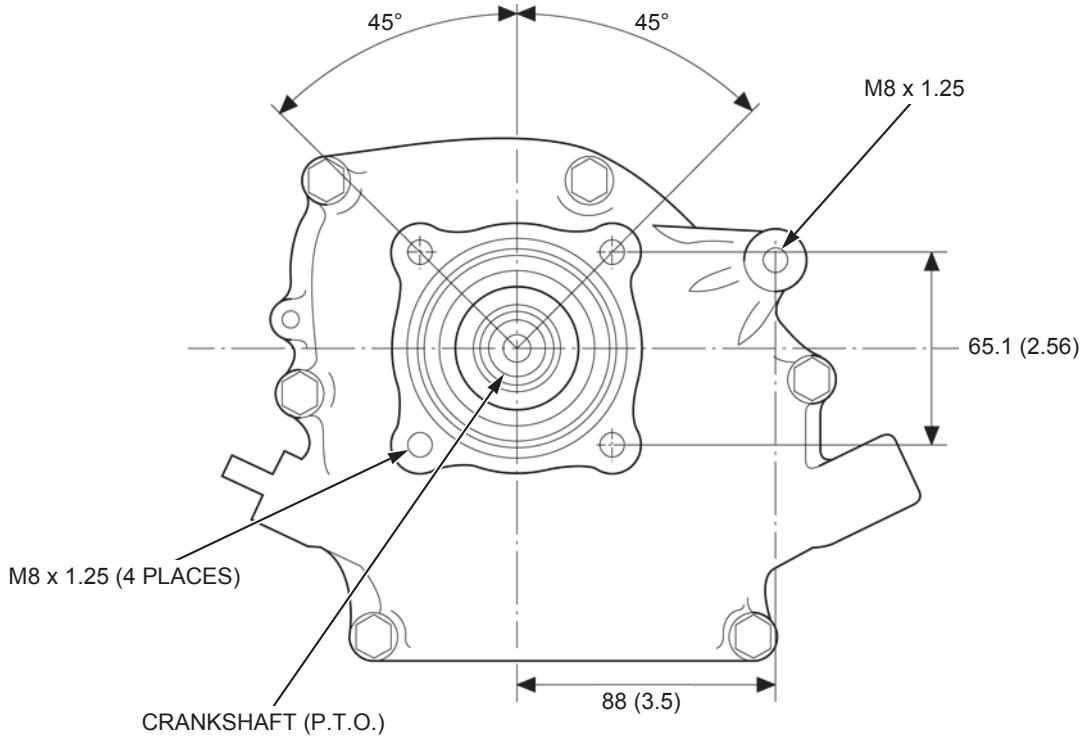


P.T.O. DIMENSIONAL DRAWINGS

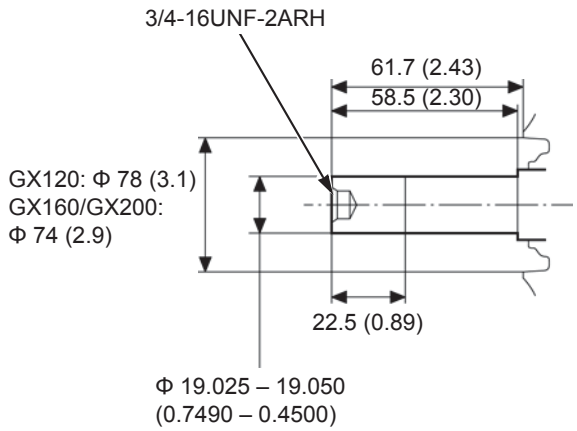
*: P.T.O. type. (page 1-2)

WITHOUT REDUCTION

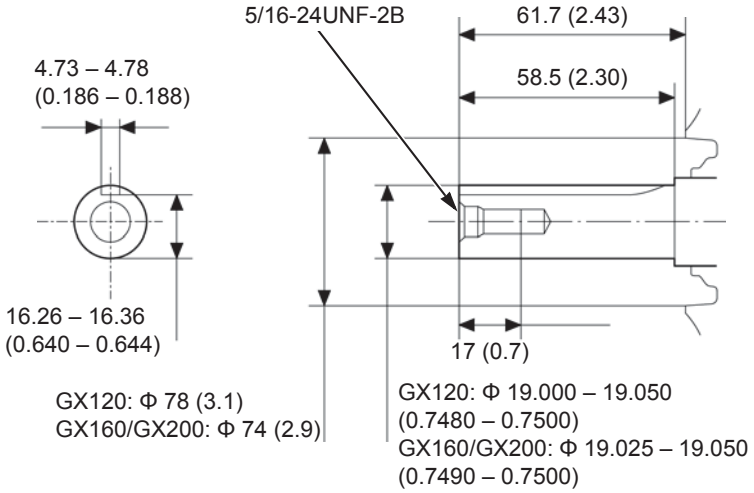
Unit: mm (in)



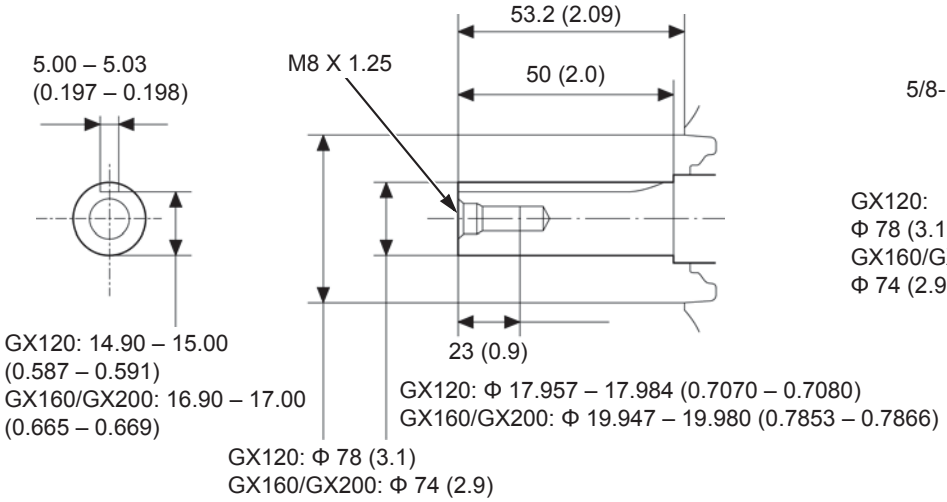
P type* Unit: mm (in)



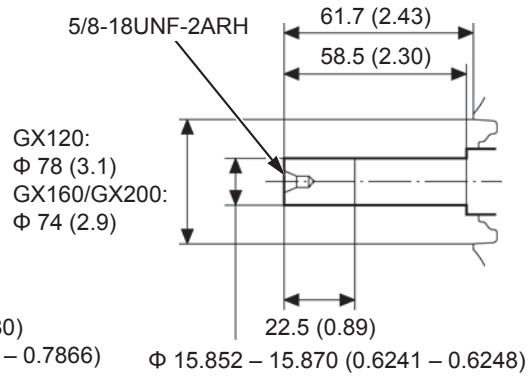
Q type* Unit: mm (in)



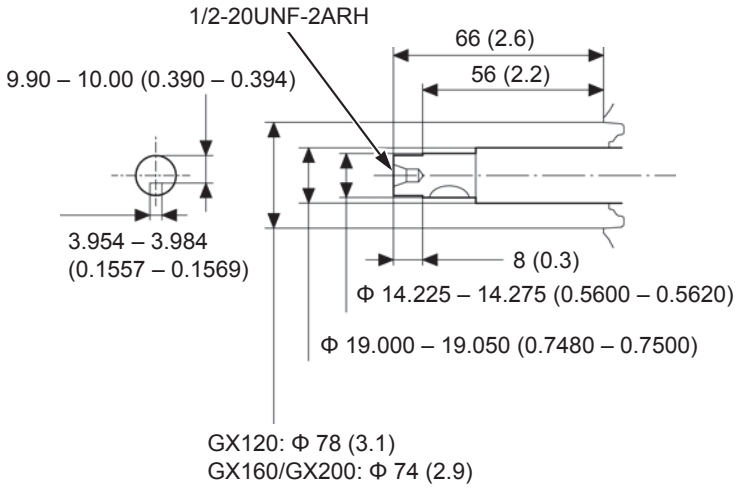
S type* Unit: mm (in)



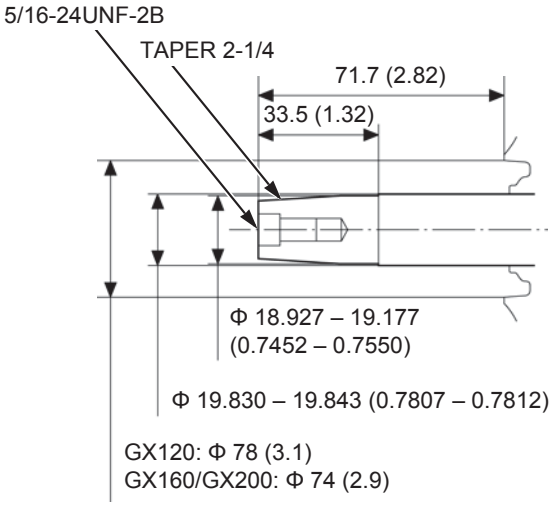
T type* Unit: mm (in)



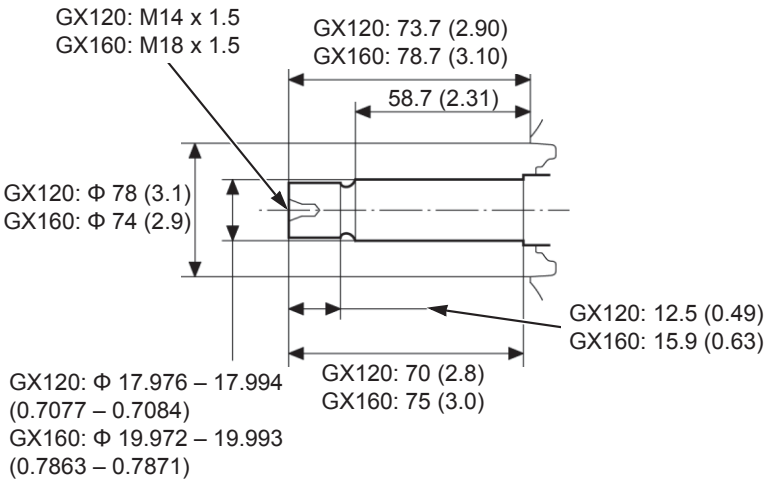
U type* Unit: mm (in)



V type* Unit: mm (in)



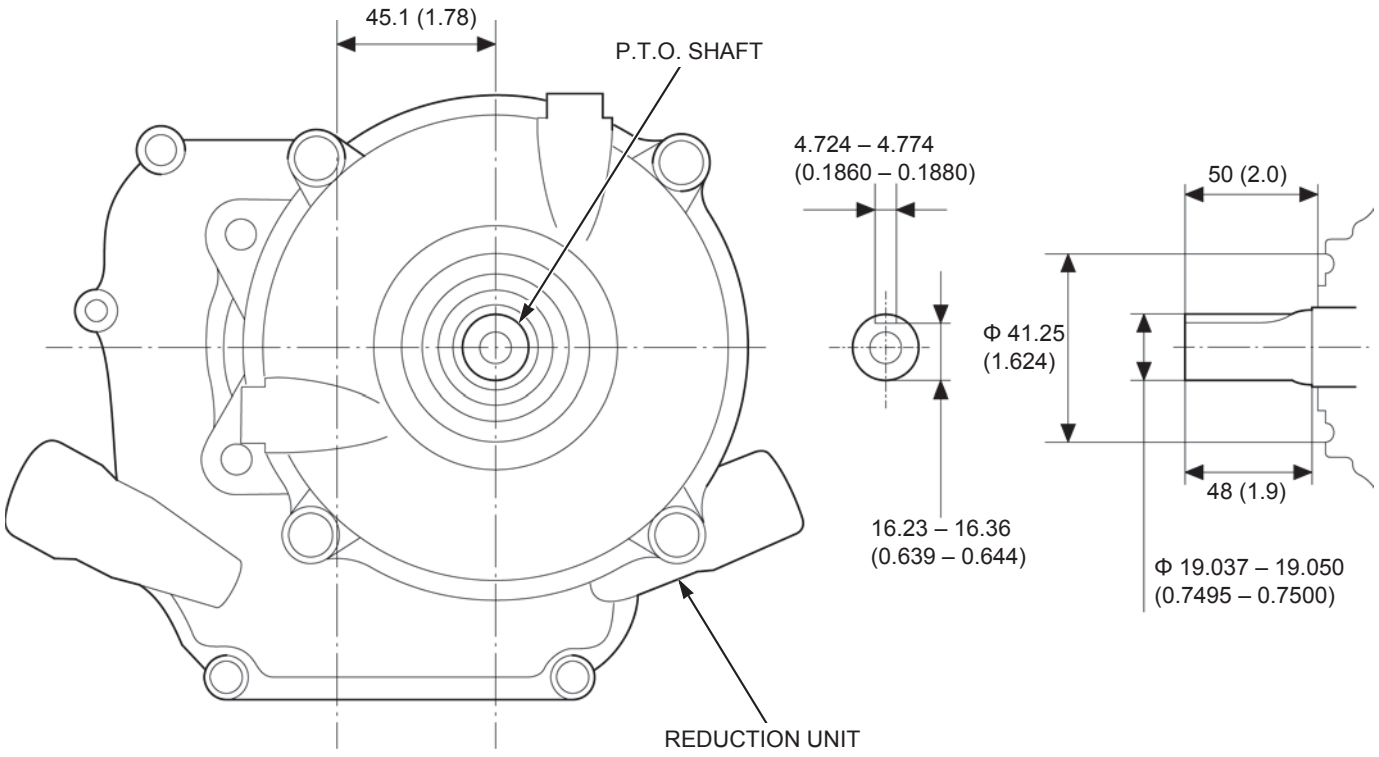
W type* Unit: mm (in)



WITH REDUCTION

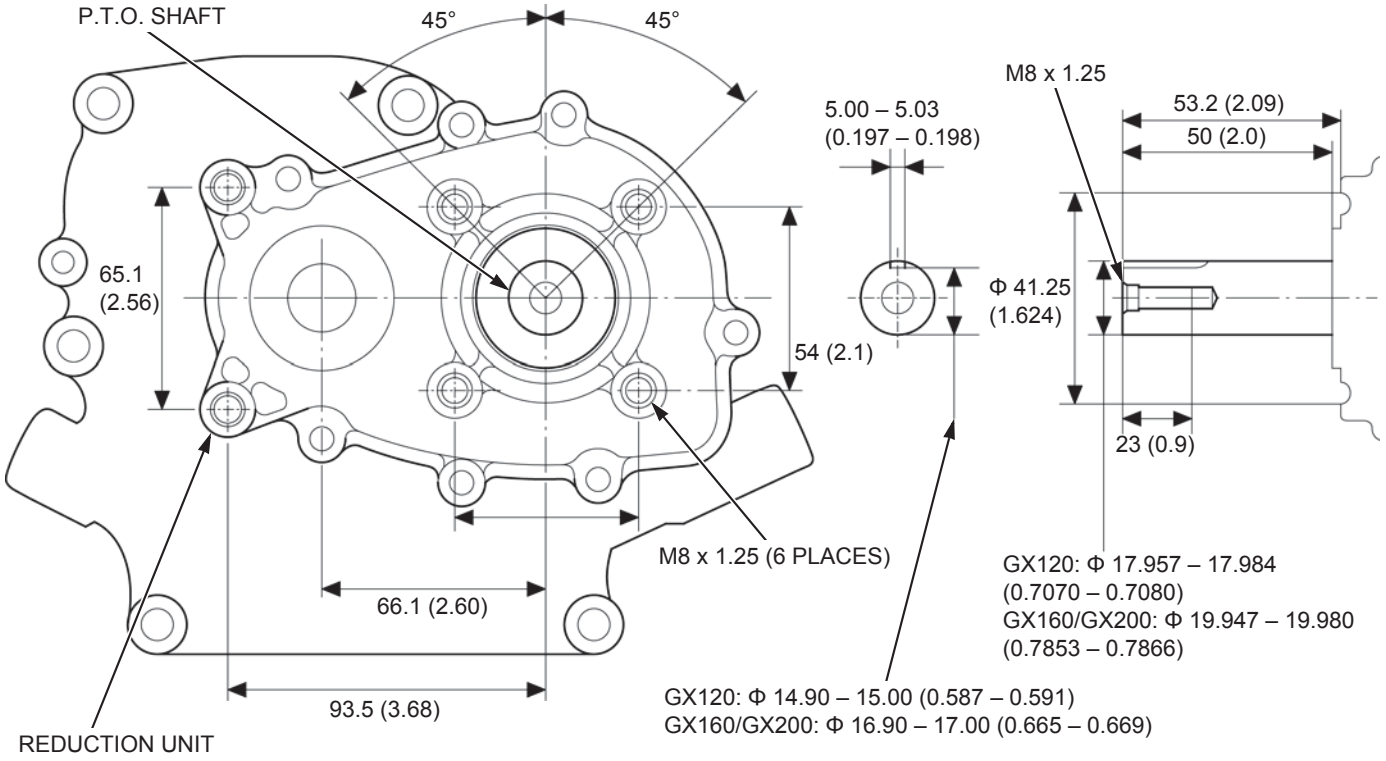
H type*

Unit: mm (in)

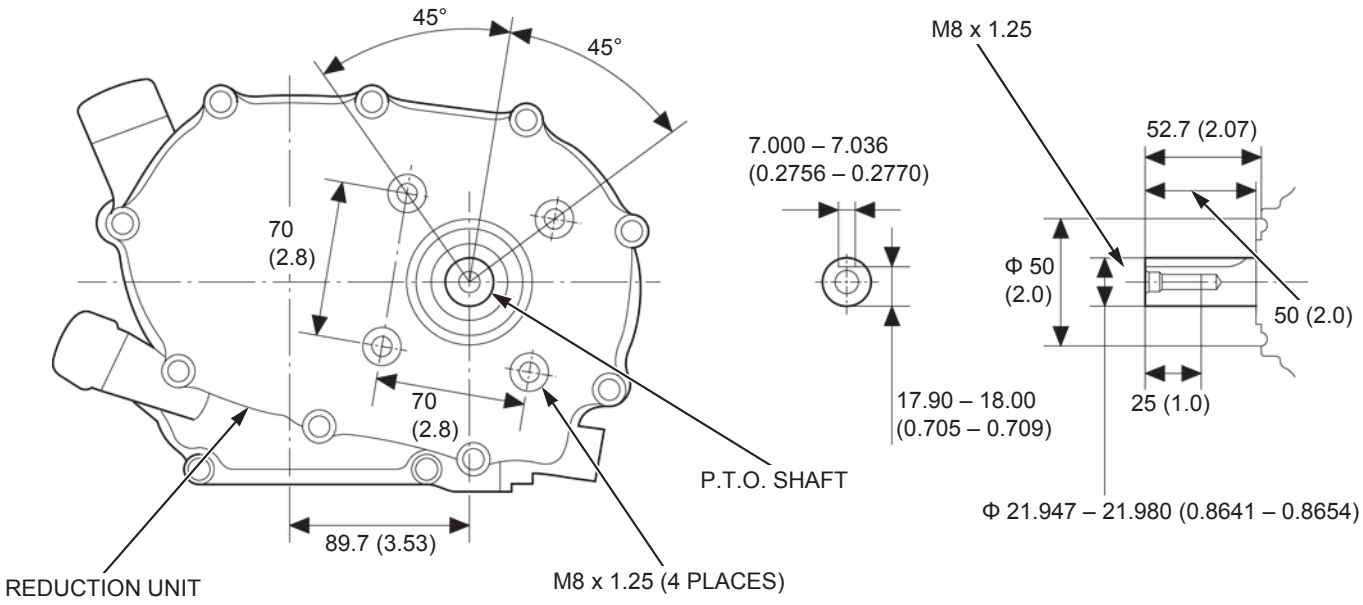


L type*

Unit: mm (in)



R type* Unit: mm (in)



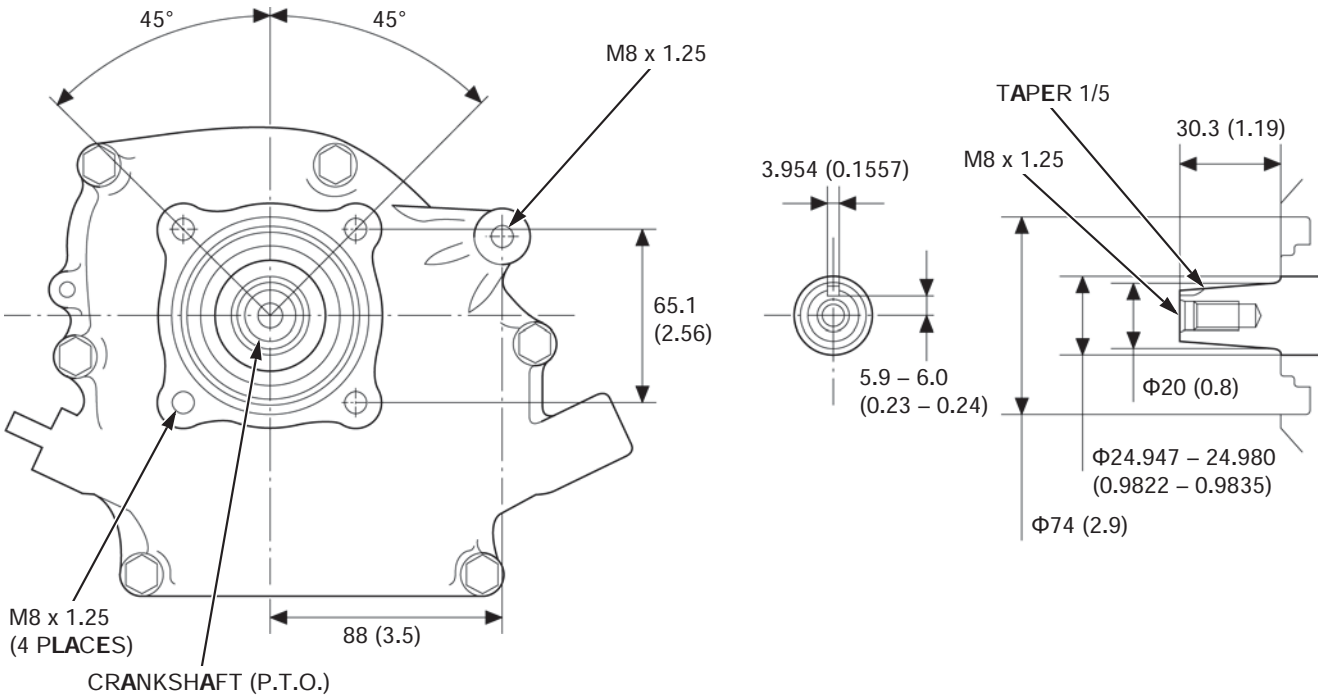
SPECIFICATIONS

P.T.O. DIMENSIONAL DRAWINGS

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

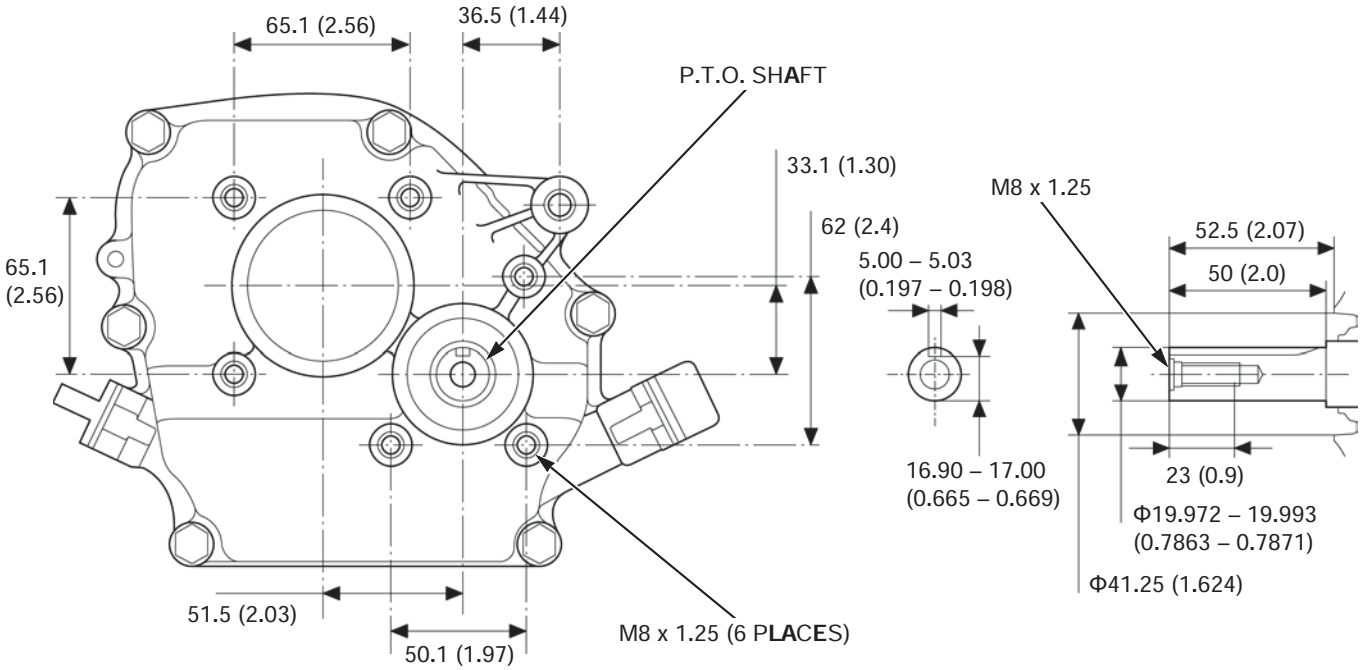
VE type*

Unit: mm (in)



N type*

Unit: mm (in)



2. SERVICE INFORMATION

MAINTENANCE STANDARDS

GX120

Unit: mm (in)

Part	Item		Standard	Service limit
Engine	Maximum speed (at no load)		3,900 ± 100 min^{-1} (rpm)	–
	Idle speed		1,400 $^{+200}_{-150}$ min^{-1} (rpm)	–
	Cylinder compression		0.49 – 0.69 MPa (5.0 – 7.0 kgf/cm^2, 71 – 100 psi)/600 min^{-1} (rpm)	–
Cylinder head	Warpage		–	0.10 (0.004)
Cylinder	Sleeve I.D.		60.000 – 60.015 (2.3622 – 2.3628)	60.165 (2.3687)
Piston	Skirt O.D.		59.965 – 59.985 (2.3608 – 2.3616)	59.845 (2.3561)
	Piston-to-cylinder clearance		0.015 – 0.050 (0.0006 – 0.0020)	0.12 (0.005)
	Piston pin bore I.D.		13.002 – 13.008 (0.5119 – 0.5121)	13.048 (0.5137)
Piston pin	Pin O.D.		12.994 – 13.000 (0.5116 – 0.5118)	12.954 (0.5100)
	Piston pin-to-piston pin bore clearance		0.002 – 0.014 (0.0001 – 0.0006)	0.08 (0.003)
Piston rings	Ring side clearance	Top	0.035 – 0.070 (0.0014 – 0.0028)	0.15 (0.006)
		Second	0.045 – 0.080 (0.0018 – 0.0032)	0.15 (0.006)
	Ring end gap	Top	0.200 – 0.350 (0.0079 – 0.0138)	1.0 (0.04)
		Second	0.350 – 0.500 (0.0138 – 0.0197)	1.0 (0.04)
		Oil (side rail)	0.2 – 0.7 (0.01 – 0.03)	1.0 (0.04)
	Ring width	Top	0.950 – 0.970 (0.0374 – 0.0382)	0.93 (0.037)
		Second	0.940 – 0.960 (0.0370 – 0.0378)	0.92 (0.036)
Connecting rod	Small end I.D.		13.005 – 13.020 (0.5120 – 0.5126)	13.07 (0.515)
	Big end side clearance		0.1 – 0.7 (0.004 – 0.028)	1.1 (0.04)
	Big end I.D.		26.020 – 26.033 (1.0244 – 1.0249)	26.066 (1.026)
	Big end oil clearance		0.040 – 0.063 (0.0016 – 0.0025)	0.12 (0.005)
Crankshaft	Crankpin O.D.		25.970 – 25.980 (1.0224 – 1.0228)	25.92 (1.020)
	Crankshaft runout		–	0.10 (0.004)
Cylinder barrel	Camshaft journal I.D.		14.000 – 14.018 (0.5512 – 0.5519)	14.048 (0.5531)
Crankcase cover	Camshaft journal I.D.		14.000 – 14.018 (0.5512 – 0.5519)	14.048 (0.5531)
Valves	Valve clearance	IN	0.15 ± 0.02 (0.006 ± 0.001)	–
		EX	0.20 ± 0.02 (0.008 ± 0.001)	–
	Valve stem O.D.	IN	5.468 – 5.480 (0.2153 – 0.2157)	5.318 (0.2094)
		EX	5.425 – 5.440 (0.2136 – 0.2142)	5.275 (0.2077)
	Valve guide I.D.	IN/EX	5.500 – 5.512 (0.2165 – 0.2170)	5.572 (0.2194)
	Guide-to-stem clearance	IN	0.020 – 0.044 (0.0008 – 0.0017)	0.10 (0.004)
		EX	0.060 – 0.087 (0.0024 – 0.0034)	0.12 (0.005)
	Valve guide installation height	IN	4.8 – 5.2 (0.19 – 0.20)	–
	Valve seat width	IN/EX	0.70 – 0.90 (0.028 – 0.035)	2.0 (0.08)
	Valve spring free length		30.5 (1.20)	29.0 (1.14)
	Valve spring perpendicularity		–	1.5° max.
Camshaft	Cam height	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)
Carburetor	Main jet	BE60W A	#62	–
		BE99A A	#60	–
		BE61M A	#62	–
		BE99B A	#62	–
	Pilot screw opening	BE60W A	2-1/8 turns out	–
		BE99A A	1-5/8 turns out	–
		BE61M A	2-1/8 turns out	–
		BE99B A	2-1/8 turns out	–
	Float height		13.7 (0.54)	–
Spark plug	Gap		0.70 – 0.80 (0.028 – 0.031)	–
Spark plug cap	Resistance (20°C/68°F)		7.5 – 12.5 kΩ	–
Ignition coil	Air gap		0.2 – 0.6 (0.01 – 0.02)	–
	Primary resistance		0.6 – 0.9 Ω	–
	Secondary resistance		5.6 – 6.9 kΩ	–

Part	Item		Standard	Service limit
Lamp coil	Resistance	12 V – 50 W	0.18 – 0.23 Ω	–
Reduction unit (Chain type: without clutch)	P.T.O. shaft journal O.D.		19.929 – 19.950 (0.7846 – 0.7854)	–
	P.T.O. shaft journal I.D. (Crankcase cover)		20.000 – 20.021 (0.7874 – 0.7882)	–
Reduction unit (Chain type: with clutch)	Clutch friction disc thickness		3.5 (0.14)	3.0 (0.12)
	Clutch plate warpage		–	0.10 (0.004)

GX160

Unit: mm (in)

Part	Item		Standard	Service limit
Engine	Maximum speed (at no load)		3,900 ± 100 min^{-1} (rpm)	–
	Idle speed		1,400 $^{+200}_{-150}$ min^{-1} (rpm)	–
	Cylinder compression		0.49 – 0.69 MPa (5.0 – 7.0 kgf/cm^2, 71 – 100 psi)/600 min^{-1} (rpm)	–
Cylinder head	Warpage		–	0.10 (0.004)
Cylinder	Sleeve I.D.		68.000 – 68.015 (2.6772 – 2.6778)	68.165 (2.6837)
Piston	Skirt O.D.		67.985 – 67.995 (2.6766 – 2.6770)	67.845 (2.6711)
	Piston-to-cylinder clearance		0.005 – 0.030 (0.0002 – 0.0012)	0.12 (0.005)
	Piston pin bore I.D.		18.002 – 18.008 (0.7087 – 0.7090)	18.048 (0.7105)
Piston pin	Pin O.D.		17.994 – 18.000 (0.7084 – 0.7087)	17.954 (0.7068)
	Piston pin-to-piston pin bore clearance		0.002 – 0.014 (0.0001 – 0.0006)	0.08 (0.003)
Piston rings	Ring side clearance	Top	0.060 – 0.095 (0.0024 – 0.0037)	0.15 (0.006)
		Second	0.045 – 0.080 (0.0018 – 0.0032)	0.15 (0.006)
	Ring end gap	Top	0.200 – 0.350 (0.0079 – 0.0138)	1.0 (0.04)
		Second	0.350 – 0.500 (0.0138 – 0.0197)	1.0 (0.04)
		Oil (side rail)	0.10 – 0.35 (0.004 – 0.014)	1.0 (0.04)
	Ring width	Top	0.925 – 0.945 (0.0364 – 0.0372)	0.905 (0.0356)
		Second	0.940 – 0.960 (0.0370 – 0.0378)	0.92 (0.036)
Connecting rod	Small end I.D.		18.005 – 18.020 (0.7089 – 0.7094)	18.07 (0.711)
	Big end side clearance		0.1 – 0.7 (0.004 – 0.028)	1.1 (0.04)
	Big end I.D.		30.020 – 30.033 (1.1819 – 1.1824)	30.066 (1.1837)
	Big end oil clearance		0.040 – 0.063 (0.0016 – 0.0025)	0.12 (0.005)
Crankshaft	Crankpin O.D.		29.970 – 29.980 (1.1799 – 1.1803)	29.92 (1.178)
	Crankshaft runout		–	0.10 (0.004)
Cylinder barrel	Camshaft journal I.D.		14.000 – 14.018 (0.5512 – 0.5519)	14.048 (0.5531)
Crankcase cover	Camshaft journal I.D.		14.000 – 14.018 (0.5512 – 0.5519)	14.048 (0.5531)
Valves	Valve clearance	IN	0.08 ± 0.02 (0.003 ± 0.001)	–
		EX	0.10 ± 0.02 (0.004 ± 0.001)	–
	Valve stem O.D.	IN	5.468 – 5.480 (0.2153 – 0.2157)	5.318 (0.2094)
		EX	5.425 – 5.440 (0.2136 – 0.2142)	5.275 (0.2077)
	Valve guide I.D.	IN/EX	5.500 – 5.512 (0.2165 – 0.2170)	5.572 (0.2194)
	Guide-to-stem clearance	IN	0.020 – 0.044 (0.0008 – 0.0017)	0.10 (0.004)
		EX	0.060 – 0.087 (0.0024 – 0.0034)	0.12 (0.005)
	Valve guide installation height	IN	4.8 – 5.2 (0.19 – 0.20)	–
	Valve seat width	IN	0.70 – 0.90 (0.028 – 0.035)	2.0 (0.08)
		EX	0.90 – 1.10 (0.035 – 0.043)	2.0 (0.08)
	Valve spring free length		30.5 (1.20)	29.0 (1.14)
	Valve spring perpendicularity		–	1.5° max.
Camshaft	Cam height	IN/EX	27.503 – 27.903 (1.0828 – 1.0985)	27.450 (1.0807)
	Camshaft O.D.		13.966 – 13.984 (0.5498 – 0.5506)	13.916 (0.5479)

Part	Item		Standard	Service limit
Carburetor	Main jet	BE54C A	#70	–
		BE54D A	#68	–
		BE66U A	#68	–
		BE54P A	#70	–
		BE54J B	#68	–
	Pilot screw opening	BE54C A	2-1/4 turns out	–
		BE54D A	1-7/8 turns out	–
		BE66U A	1-7/8 turns out	–
		BE54P A	2-1/2 turns out	–
		BE54J B	1-7/8 turns out	–
	Float height		13.7 (0.54)	–
Spark plug	Gap		0.70 – 0.80 (0.028 – 0.031)	–
Spark plug cap	Resistance (20°C/68°F)		7.5 – 12.5 kΩ	–
Ignition coil	Air gap		0.2 – 0.6 (0.01 – 0.02)	–
	Primary resistance		0.6 – 0.9 Ω	–
	Secondary resistance		5.6 – 6.9 kΩ	–
Starter motor	Brush length		11.0 (0.43)	6.0 (0.24)
	Mica depth		1.6 (0.06)	1.1 (0.04)
Charge coil	Resistance	1 A	3.15 – 3.85 Ω	–
		7 A	0.22 - 0.30 Ω	–
Lamp coil	Resistance	12 V – 25 W	0.36 - 0.46 Ω	–
		12 V – 50 W	0.18 - 0.23 Ω	–
Reduction unit (Chain type: without clutch)	P.T.O. shaft journal O.D.		19.929 – 19.950 (0.7846 – 0.7854)	–
	P.T.O. shaft journal I.D. (Crankcase cover)		20.000 – 20.021 (0.7874 – 0.7882)	–
Reduction unit (Chain type: with clutch)	Clutch friction disc thickness		3.5 (0.14)	3.0 (0.12)
	Clutch plate warpage		–	0.10 (0.004)

GX200

Unit: mm (in)

Part	Item		Standard	Service limit
Engine	Maximum speed (at no load)		3,850 ± 150 min^{-1} (rpm)	–
	Idle speed		1,400 $^{+200}_{-150}$ min^{-1} (rpm)	–
	Cylinder compression		0.35 MPa (3.6 kgf/cm^2, 51 psi)/600 min^{-1} (rpm)	–
Cylinder head	Warpage		–	0.10 (0.004)
Cylinder	Sleeve I.D.		68.000 – 68.015 (2.6772 – 2.6778)	68.165 (2.6837)
Piston	Skirt O.D.		67.965 – 67.985 (2.6758 – 2.6766)	67.845 (2.6711)
	Piston-to-cylinder clearance		0.015 – 0.050 (0.0006 – 0.0020)	0.12 (0.005)
	Piston pin bore I.D.		18.002 – 18.008 (0.7087 – 0.7090)	18.048 (0.7105)
Piston pin	Pin O.D.		17.994 – 18.000 (0.7084 – 0.7087)	17.954 (0.7068)
	Piston pin-to-piston pin bore clearance		0.002 – 0.014 (0.0001 – 0.0006)	0.08 (0.003)
Piston rings	Ring side clearance	Top	0.035 – 0.070 (0.0014 – 0.0028)	0.15 (0.006)
		Second	0.045 – 0.080 (0.0018 – 0.0032)	0.15 (0.006)
	Ring end gap	Top	0.200 – 0.350 (0.0079 – 0.0138)	1.0 (0.04)
		Second	0.350 – 0.500 (0.0138 – 0.0197)	1.0 (0.04)
		Oil (side rail)	0.2 – 0.7 (0.01 – 0.03)	1.0 (0.04)
	Ring width	Top	0.950 – 0.970 (0.0374 – 0.0382)	0.93 (0.037)
		Second	0.940 – 0.960 (0.0370 – 0.0378)	0.92 (0.036)
Connecting rod	Small end I.D.		18.005 – 18.020 (0.7089 – 0.7094)	18.07 (0.711)
	Big end side clearance		0.1 – 0.7 (0.004 – 0.028)	1.1 (0.04)
	Big end I.D.		30.020 – 30.033 (1.1819 – 1.1824)	30.066 (1.1837)
	Big end oil clearance		0.040 – 0.063 (0.0016 – 0.0025)	0.12 (0.005)
Crankshaft	Crankpin O.D.		29.970 – 29.980 (1.1799 – 1.1803)	29.92 (1.178)
	Crankshaft runout		–	0.10 (0.004)
Cylinder barrel	Camshaft journal I.D.		14.000 – 14.018 (0.5512 – 0.5519)	14.048 (0.5531)
Crankcase cover	Camshaft journal I.D.		14.000 – 14.018 (0.5512 – 0.5519)	14.048 (0.5531)

Part	Item		Standard	Service limit
Valves	Valve clearance	IN	0.15 ± 0.02 (0.006 ± 0.001)	–
		EX	0.20 ± 0.02 (0.008 ± 0.001)	–
	Valve stem O.D.	IN	5.468 – 5.480 (0.2153 – 0.2157)	5.318 (0.2094)
		EX	5.425 – 5.440 (0.2136 – 0.2142)	5.275 (0.2077)
	Valve guide I.D.	IN/EX	5.500 – 5.512 (0.2165 – 0.2170)	5.572 (0.2194)
	Guide-to-stem clearance	IN	0.020 – 0.044 (0.0008 – 0.0017)	0.10 (0.004)
		EX	0.060 – 0.087 (0.0024 – 0.0034)	0.12 (0.005)
	Valve guide installation height	IN	4.8 – 5.2 (0.19 – 0.20)	–
	Valve seat width	IN/EX	0.70 – 0.90 (0.028 – 0.035)	2.0 (0.08)
	Valve spring free length		30.5 (1.20)	29.0 (1.14)
	Valve spring perpendicularity		–	1.5° max.
Camshaft	Cam height	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)
Carburetor	Main jet	BE59L A	#75	–
		BE59N A	#75	–
		BE59U A	#75	–
		BE74Y A	#78	–
	Pilot screw opening	BE59L A	1-7/8 turns out	–
		BE59N A	1-7/8 turns out	–
		BE59U A	2-1/4 turns out	–
		BE74Y A	2-3/4 turns out	–
	Float height		13.7 (0.54)	–
Spark plug	Gap		0.70 – 0.80 (0.028 – 0.031)	–
Spark plug cap	Resistance (20°C/68°F)		7.5 – 12.5 kΩ	–
Ignition coil	Air gap		0.2 – 0.6 (0.01 – 0.02)	–
	Primary resistance		0.6 – 0.9 Ω	–
	Secondary resistance		5.6 – 6.9 kΩ	–
Starter motor	Brush length		11.0 (0.43)	6.0 (0.24)
	Mica depth		1.6 (0.06)	1.1 (0.04)
Charge coil	Resistance	1 A	3.15 – 3.85 Ω	–
Reduction unit (Chain type: without clutch)	P.T.O. shaft journal O.D.		19.929 – 19.950 (0.7846 – 0.7854)	–
	P.T.O. shaft journal I.D. (Crankcase cover)		20.000 – 20.021 (0.7874 – 0.7882)	–
Reduction unit (Chain type: with clutch)	Clutch friction disc thickness		3.5 (0.14)	3.0 (0.12)
	Clutch plate warpage		–	0.10 (0.004)

MAINTENANCE STANDARDS

GX120RT2

Part	Item		Standard	Service limit
Carburetor	Main jet	BE62J A	#62	–
		BE62K A	#62	–
	Pilot screw opening	BE62J A	1-1/2 turns out	–
		BE62K A	1-5/8 turns out	–
	Float height	BE62J A	18.7 mm (0.74 in)	–
		BE62K A	13.7 mm (0.54 in)	–

GX200RT2

Part	Item		Standard	Service limit
Carburetor	Main jet	BE59L A	#75	–
		BE74V A	#78	–
		BE74Z A	#78	–
		BE59P A	#75	–
	Pilot screw opening	BE59L A	1-7/8 turns out	–
		BE74V A	2-3/4 turns out	–
		BE74Z A	2-3/4 turns out	–
		BE59P A	1-7/8 turns out	–
	Float height		13.7 mm (0.54 in)	–

SERVICE INFORMATION

MAINTENANCE STANDARDS

Part	Item		Standard	Service limit
Carburetor	Main jet	**BE**54C **A**	#70	
		BE54**D A**	#68	–
		BE67W **A**	#75	–
	Pilot screw opening	**BE**54C **A**	2-1/4 turns out	
		BE54**D A**	1-7/8 turns out	–
		BE67W **A**	2-7/8 turns out	–
	Float height		13.7 mm (0.54 in)	–

SERVICE INFORMATION

MAINTENANCE STANDARDS

GX120T2

Part	Item		Standard	Service limit
Carburetor	Main jet	**BE**60N **A**	#62	–
		BE60W **A**	#62	–
		BE60Y **A**	#62	–
		BE60Z **A**	#60	–
		BE61**L A**	#62	–
		BE61M **A**	#62	–
		BE61N **A**	#60	–
		BE62**J A**	#62	–
		BE99**A A**	#60	–
		BE99**D A**	#62	–
	Pilot screw opening	**BE**60N **A**	2-1/8 turns out	–
		BE60W **A**	2-1/8 turns out	–
		BE60Y **A**	2-1/8 turns out	–
		BE60Z **A**	1-5/8 turns out	–
		BE61**L A**	2-1/8 turns out	–
		BE61M **A**	2-1/8 turns out	–
		BE61N **A**	1-5/8 turns out	–
		BE62**J A**	1-1/2 turns out	–
		BE99**A A**	1-5/8 turns out	–
		BE99**D A**	2-1/8 turns out	–
	Float height	**BE**60N **A**	13.7 mm (0.54 in)	–
		BE60W **A**	13.7 mm (0.54 in)	–
		BE60Y **A**	13.7 mm (0.54 in)	–
		BE60Z **A**	13.7 mm (0.54 in)	–
		BE61**L A**	13.7 mm (0.54 in)	–
		BE61M **A**	13.7 mm (0.54 in)	–
		BE61N **A**	13.7 mm (0.54 in)	–
		BE62**J A**	18.7 mm (0.74 in)	–
		BE99**A A**	13.7 mm (0.54 in)	–
		BE99**D A**	13.7 mm (0.54 in)	–

GX160T2

Part	Item		Standard	Service limit
Carburetor	Main jet	**BE**54**D A**	#68	–
		BE54**G A**	#70	–
		BE54H **A**	#68	–
		BE54**J A**	#68	–
		BE54K **A**	#68	–
		BE54M **A**	#70	–
		BE54P **A**	#70	–
		BE54Q **A**	#70	–
		BE66U **A**	#68	–
		BE66**V A**	#68	–
		BE67**V A**	#75	–
	Pilot screw opening	**BE**54**D A**	1-7/8 turns out	–
		BE54**G A**	2 turns out	–
		BE54H **A**	1-7/8 turns out	–
		BE54**J A**	1-7/8 turns out	–
		BE54K **A**	1-7/8 turns out	–
		BE54M **A**	2-1/2 turns out	–
		BE54P **A**	2-1/2 turns out	–
		BE54Q **A**	2-1/2 turns out	–
		BE66U **A**	1-7/8 turns out	–
		BE66**V A**	1-7/8 turns out	–
		BE67**V A**	2-7/8 turns out	–
	Float height		13.7 mm (0.54 in)	–

GX200T2

Part	Item		Standard	Service limit
Carburetor	Main jet	**BE**59**L A**	#75	–
		BE59M **A**	#75	–
		BE59N **A**	#75	–
		BE59Q **A**	#75	–
		BE59S **A**	#75	–
		BE59U **A**	#75	–
		BE59**V A**	#75	–
		BE59W **A**	#75	–
		BE69**D A**	#75	–
		BE74W **A**	#78	–
		BE74Y **A**	#78	–
	Pilot screw opening	**BE**59**L A**	1-7/8 turns out	–
		BE59M **A**	1-7/8 turns out	–
		BE59N **A**	1-7/8 turns out	–
		BE59Q **A**	1-7/8 turns out	–
		BE59S **A**	2-1/4 turns out	–
		BE59U **A**	2-1/4 turns out	–
		BE59**V A**	2-1/4 turns out	–
		BE59W **A**	2-1/4 turns out	–
		BE69**D A**	2-1/4 turns out	–
		BE74W **A**	2-3/4 turns out	–
		BE74Y **A**	2-3/4 turns out	–
	Float height		13.7 mm (0.54 in)	–

TORQUE VALUES

Item	Tread Dia. (mm)	Torque values		
		N·m	kgf·m	lbf·ft
Crankcase cover bolt (GX120)	M6 x 1.0	12	1.2	9
Crankcase cover bolt (GX160/GX200)	M8 x 1.25	24	2.4	18
Cylinder head bolt	M8 x 1.25	24	2.4	18
Engine oil drain bolt	M10 x 1.25	18	1.8	13
Connecting rod bolt (GX120/GX200)	M7 x 1.0	12	1.2	9
Connecting rod bolt (GX160)	M6 x 1.0	10	1.0	7
Rocker arm pivot bolt	M8 x 1.25 (Special bolt)	24	2.4	18
Rocker arm pivot adjusting nut	M6 x 0.5 (Special nut)	10	1.0	7
Spark plug	M14 x 1.25 (Special)	18	1.8	13
Oil level switch joint nut	M10 x 1.25	10	1.0	7
Flywheel nut	M14 x 1.5 (Special nut)	75	7.6	55
Fuel tank nut/bolt	M6 x 1.0	10	1.0	7
Fuel tank joint	M10 x 1.25	2	0.2	1.5
Air cleaner elbow nut	M6 x 1.0	9	0.9	6.6
Muffler nut	M8 x 1.25	24	2.4	18
Drive sprocket bolt (Reduction unit: chain type (without clutch))	M8 x 1.25	24	2.4	18
Reduction case oil level bolt (Reduction unit: gear type)	M12 x 1.5	23	2.3	17
Reduction case oil drain bolt (Reduction unit: chain type (with clutch))	M12 x 1.5	23	2.3	17
Recoil starter center screw	M6 x 1.0 (Special bolt)	5.4	0.6	4.0
Fuel strainer cup	M24 x 1.0	3.9	0.4	2.9

STANDARD TORQUE VALUES

Item	Tread Dia. (mm)	Torque values		
		N·m	kgf·m	lbf·ft
Screw	4 mm	2.1	0.2	1.5
	5 mm	4.3	0.4	3.2
	6 mm	9	0.9	6.6
Bolt and nut	5 mm	5.3	0.5	3.9
	6 mm	10	1.0	7
	8 mm	22	2.2	16
	10 mm	34	3.5	25
	12 mm	54	5.5	40
Flange bolt and nut	5 mm	5.3	0.5	3.9
	6 mm	12	1.2	9
	8 mm	23	2.3	17
	10 mm	40	4.1	30
SH (Small head) flange bolt	6 mm	9	0.9	6.6
CT (Cutting threads) flange bolt (Retightening)	5 mm	5.4	0.6	4.0
	6 mm	12	1.2	9

TORQUE VALUES

(*) Refer to page of base shop manual (**GX**120UT2/160UT2/200UT2).

Other items should be tightened to standard torque values (page 2-6*).

Item	Tread Dia. (mm)	Torque values		
		N·m	kgf·m	lbf·ft
Connecting tube band screw	M4 x 0.7	2	0.2	1.5
Air cleaner elbow nut	M6 x 1.0	9	0.9	6.6
Air cleaner mounting bolt	M6 x 1.0	12	1.2	9
Muffler stay bolt	M8 x 1.25	24	2.4	18
Muffler stay bolt	M6 x 1.0	12	1.2	9
Muffler stay nut	M6 x 1.0	12	1.2	9
Muffler nut	M8 x 1.25	24	2.4	18
Crankcase cover bolt	M6 x 1.0	12	1.2	9
Auto throttle solenoid screw	M5 x 0.8	5	0.5	3.7
Regulator/rectifier bolt	M6 x 1.0	10	1.0	7

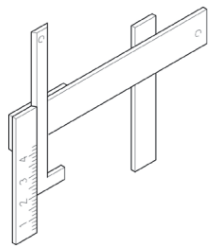
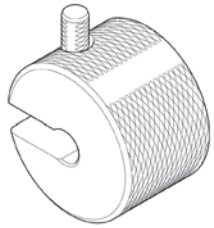
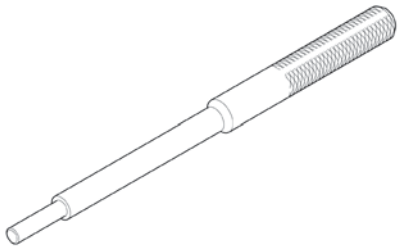
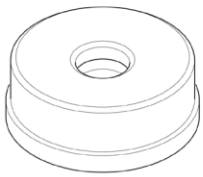
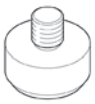
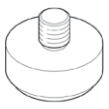
LUBRICATION & SEAL POINTS

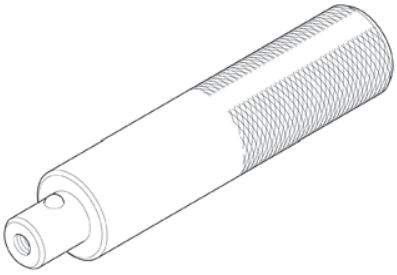
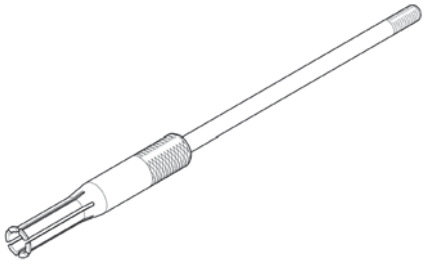
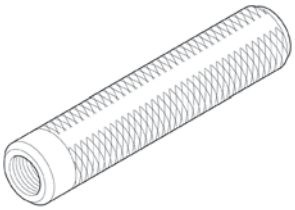
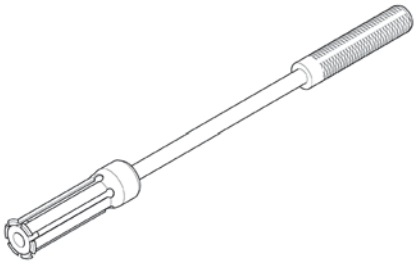
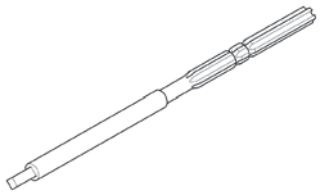
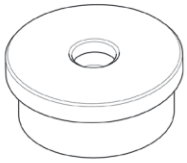
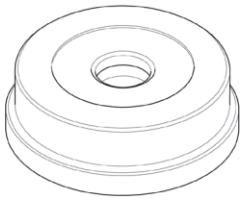
Material	Location	Remarks
Engine oil	Crankshaft pin and gear teeth	
	Piston outer surface, ring groove, and piston pin hole	
	Piston pin outer surface	
	Piston ring entire surface	
	Cylinder inner surface	
	Connecting rod big and small end bearing	
	Connecting rod bolt threads and seating surface	
	Camshaft cam lobes and journal	
	Valve lifter pivot, pivot end, and slipper surface	
	Valve stem sliding surface and stem end	
	Valve rocker arm tappet surface and pivot	
	Rocker arm pivot threads and pivot	
	Flywheel nut threads and seating surface	
	Governor weight holder gear and sliding surface	
	Governor holder shaft journal	
	Governor arm shaft journal	
	Cylinder head bolt threads and seating surface	
	P.T.O. shaft gear teeth and journal	Reduction unit (gear type)
	Drive sprocket, P.T.O. shaft gear teeth, and journal	Reduction unit (chain type: without clutch)
	Drive sprocket, P.T.O. shaft, clutch center gear teeth, and journal	Reduction unit (chain type: with clutch)
	Clutch disc, clutch plate entire surface	
Multi-purpose grease	Oil seal lips	
	Control lever sliding surface	
	Recoil starter case pulley sliding surface	
	Recoil starter ratchet sliding surface	
	Recoil starter spring retainer inside	
Use molybdenum oil solution (mixture of the engine oil and molybdenum grease in a ratio of 1:1)	Camshaft cam profile	When installing a new camshaft
Hondalock 1, Threebond® 2430, or equivalent	Recoil starter center screw threads	
Hondalock 3, LOCTITE® 638, or equivalent	Limiter cap inside	

TOOLS

SPECIAL TOOLS

Special tools used in this manual can be ordered using normal American Honda parts ordering procedures.

Float level gauge 07401-0010000 	Remover weight 07936-371020A 	Valve guide driver, 5.5 mm 07742-0010100 
Attachment, 32 x 35 mm 07746-0010100 	Attachment, 37 x 40 mm 07746-0010200 	Attachment, 40 x 42 mm 07746-0010900 
Attachment, 42 x 47 mm 07746-0010300 	Attachment, 52 x 55 mm 07746-0010400 	Pilot, 20 mm 07746-0040500 
Pilot, 22 mm 07746-0041000 	Pilot, 25 mm 07746-0040600 	Pilot, 30 mm 07746-0040700 

Driver 07749-0010000 	Puller collar set 07APC-ZY1A100	Bearing remover, 20 mm 07936-3710600 
Remover handle 07936-3710100 	Bearing remover, 25 mm 07936-ZV10100 	Valve guide reamer, 5.5 mm 07984-200000D 
Attachment, 45 x 50 mm 07946-6920100 	Attachment, 62 x 64 mm 07947-6340400 	

COMMERCIALLY AVAILABLE TOOLS

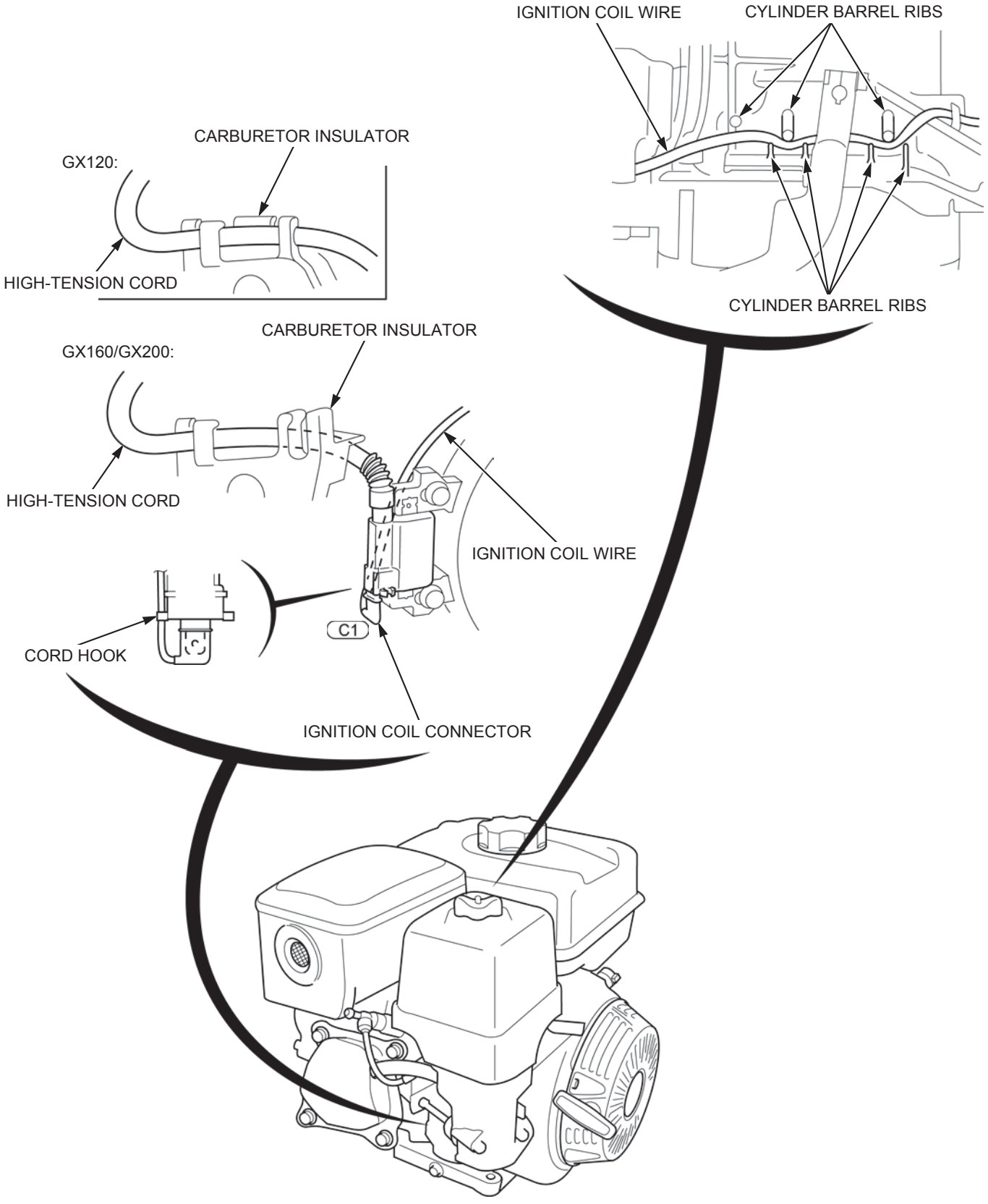
Tool name	Tool number	Application
Steering wheel puller	OTC7403	Flywheel removal Use with 07APC-ZY1A100
Fuel line clip pliers	HCP6A	Carburetor removal
Steering wheel puller	OTC7403	Flywheel removal with starter motor Use with 07APC-ZY1A100
Two-jaw puller	OTC1035	Flywheel removal without starter motor
Valve seat cutter, 31°	NWYCU115	Valve seat reconditioning
Valve seat cutter, 45°	NWYCU122	
Valve seat cutter, 60°	MWYCU111	
Solid pilot (short) 5.5 mm	NWYPM10055SH	
Accessory kit	NWYKACC246	
T-wrench	NWYTW505	
Adapter, 1/2"-3/8"	NWYTW503-1	

There are two convenient ways to order: online or by toll-free phone.

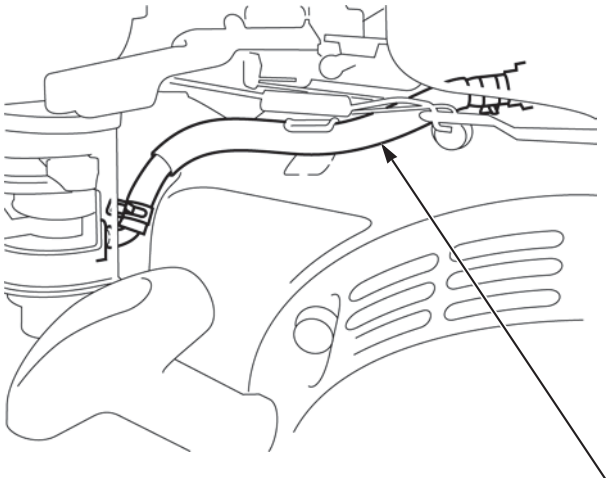
- To order online, go to the iN: SERVICE>Tools>Tool and Equipment Program>Online Catalog, and then search by model number.
- To order by phone, call 1-888-424-6857.
  Customer service representatives are available from 7:30 AM until 7:00 PM CT, Monday through Friday.

HARNESS AND TUBE ROUTING

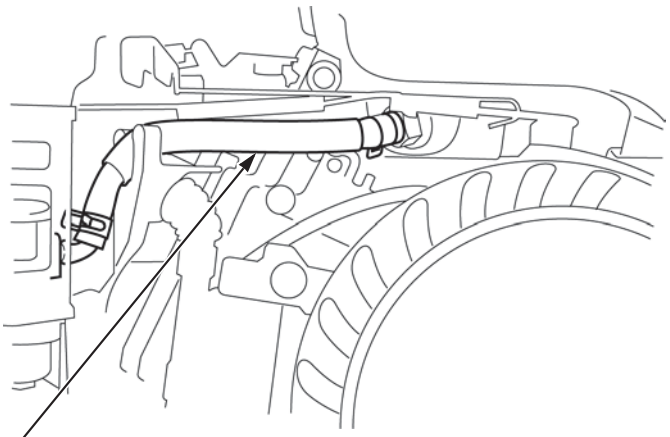
Connection of regulator/rectifier, charge/lamp coil, and sub wire harness depend on the application of the engine; therefore, the routing of these parts is not indicated in this manual.



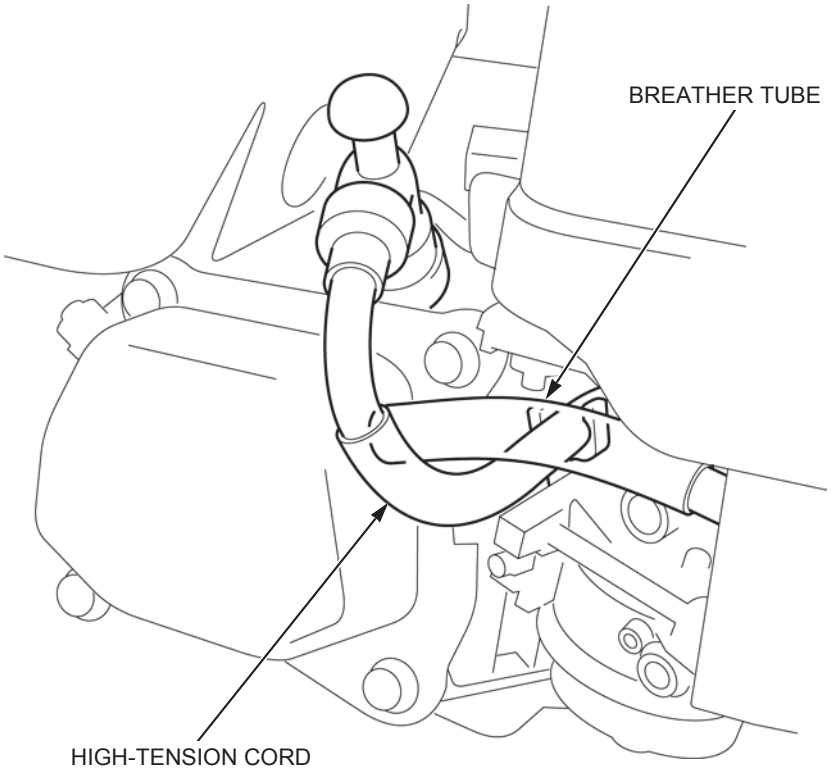
GX120:



GX160/GX200:



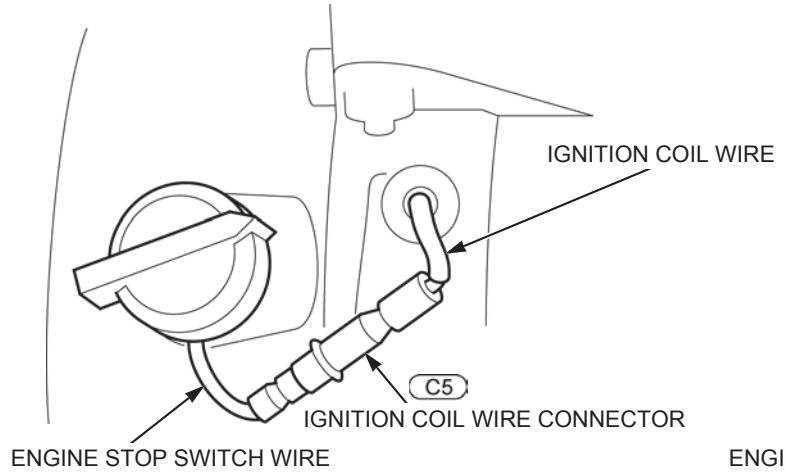
FUEL TUBE



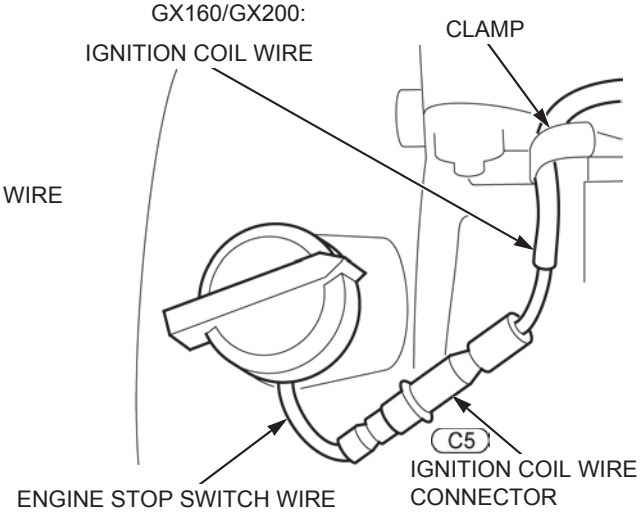
ENGINE STOP SWITCH TYPE

ENGINE STOP SWITCH ONLY:

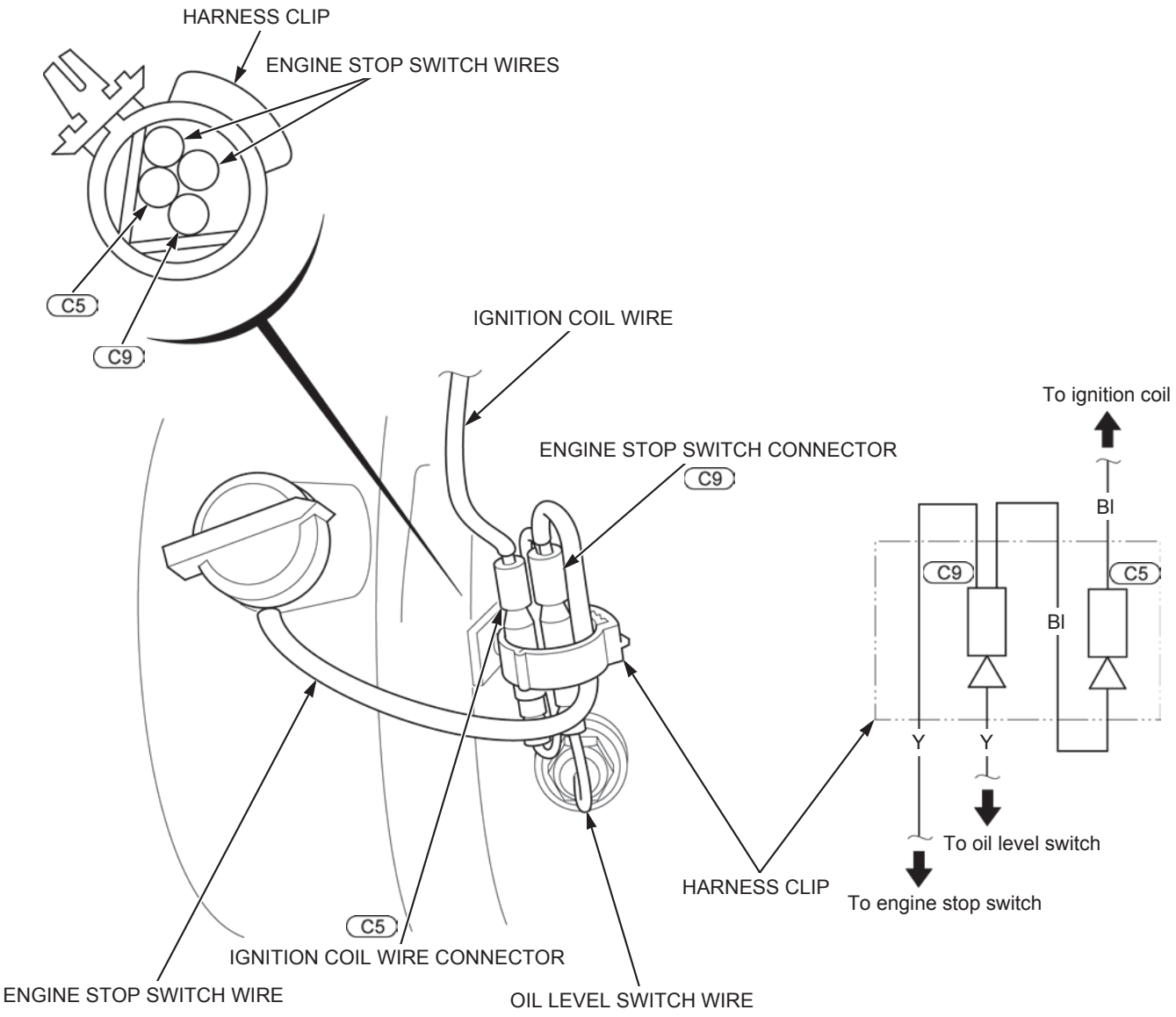
GX120:



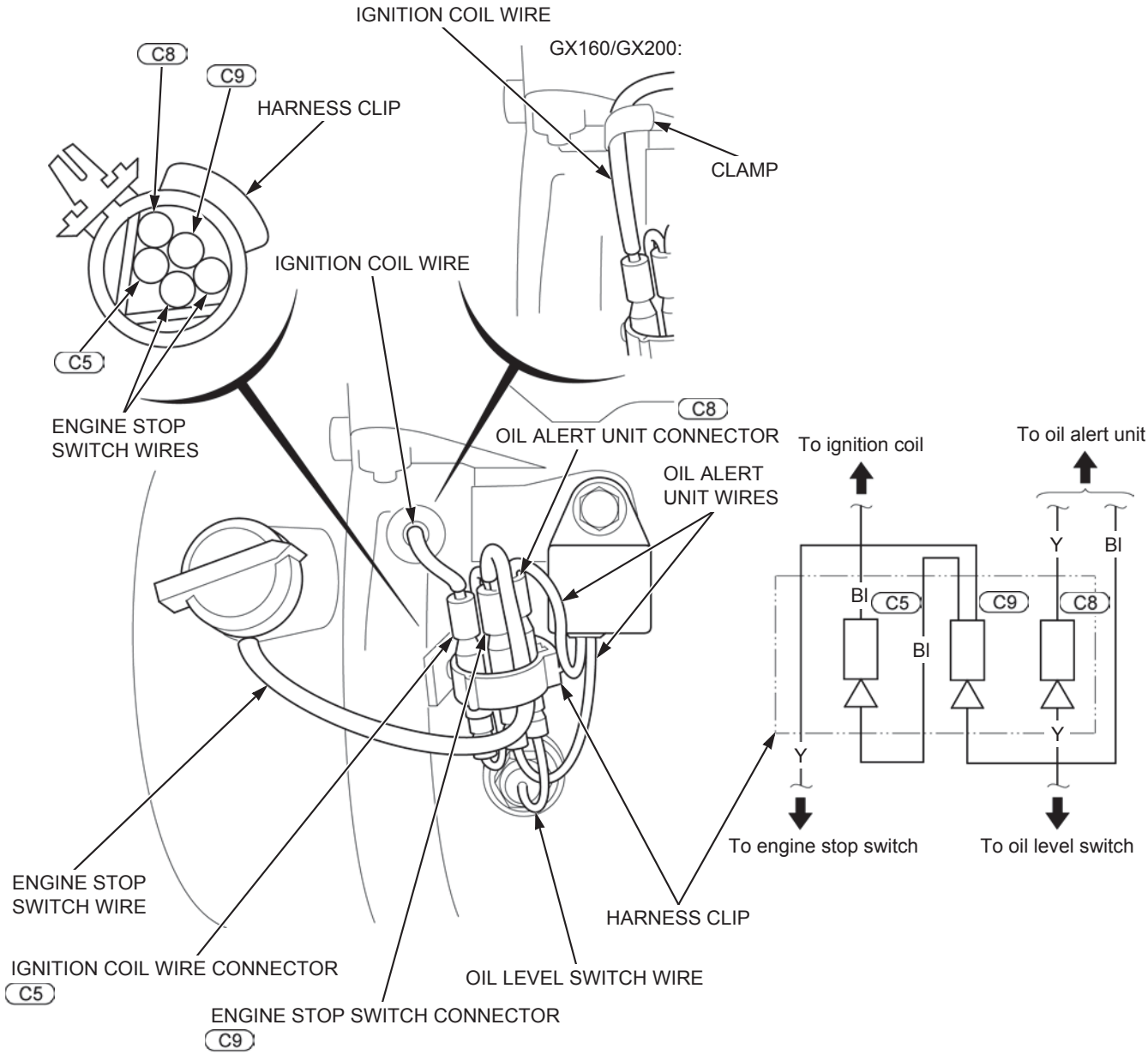
GX160/GX200:



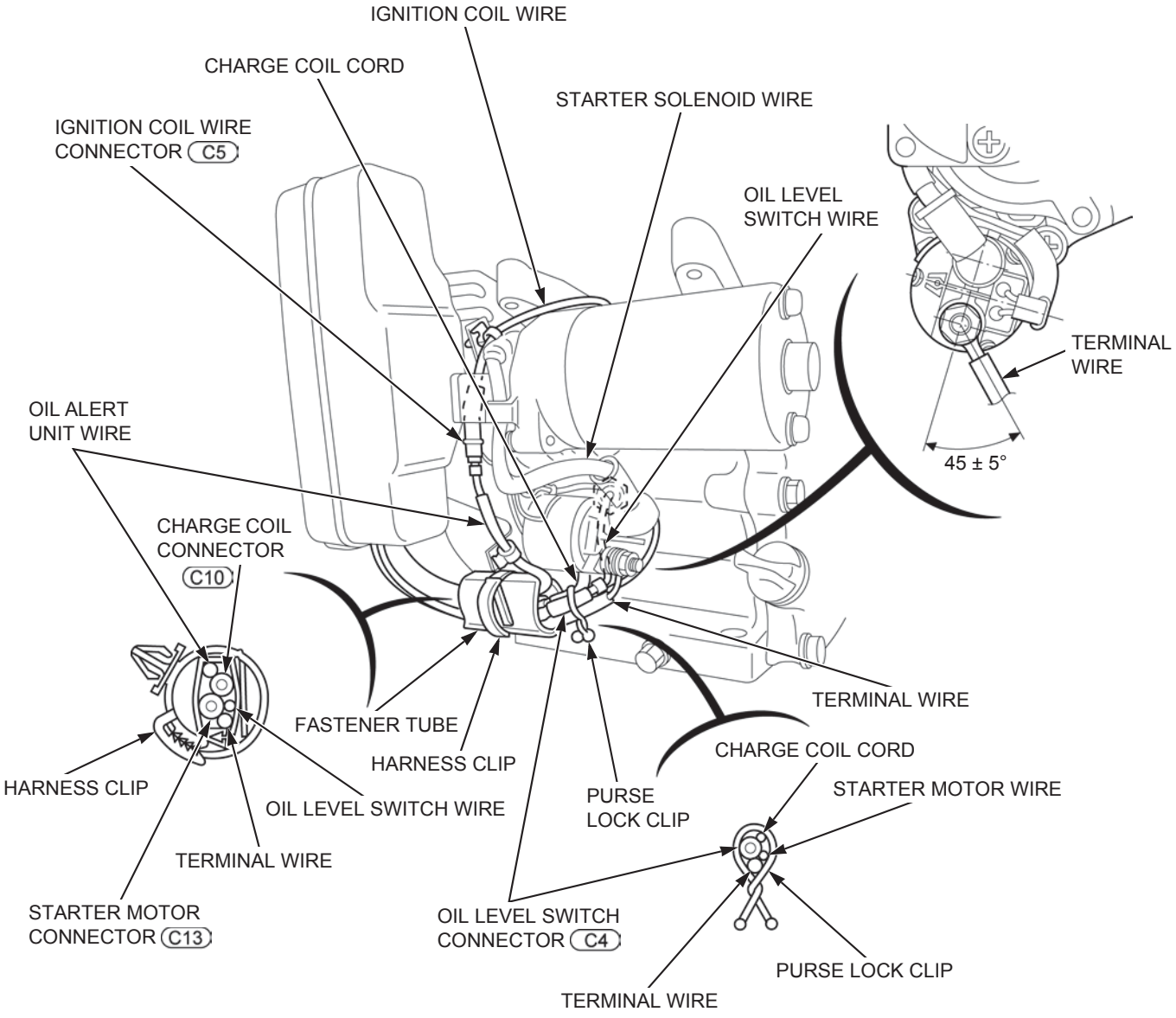
WITH OIL LEVEL SWITCH:

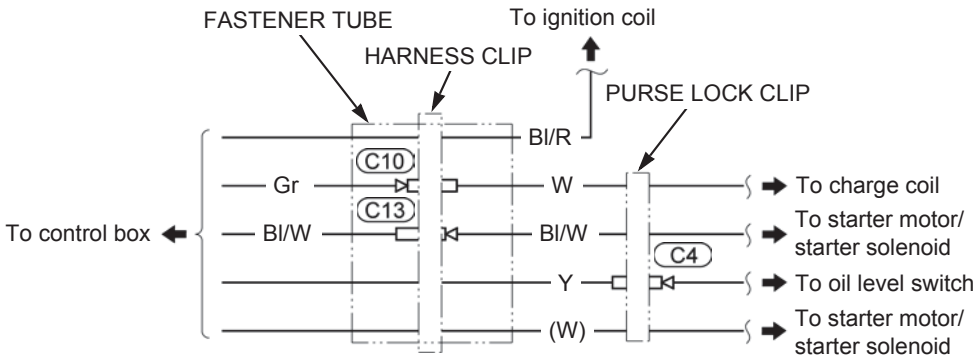


WITH OIL LEVEL SWITCH AND OIL ALERT UNIT:



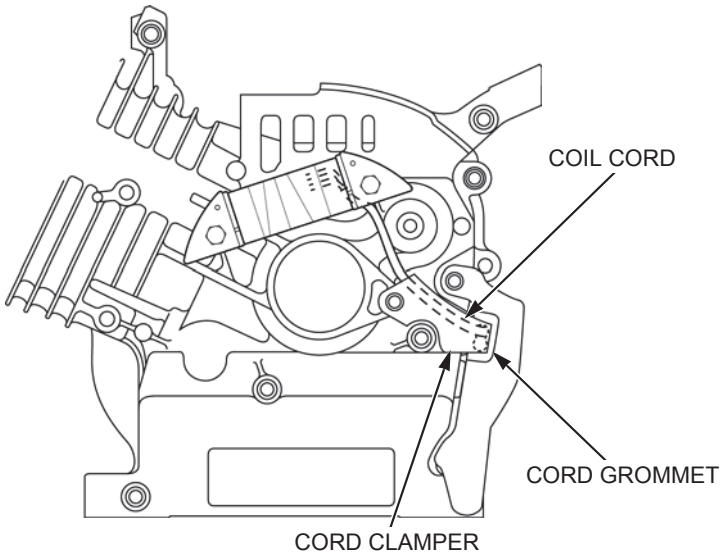
COMBINATION SWITCH (CONTROL BOX) TYPE



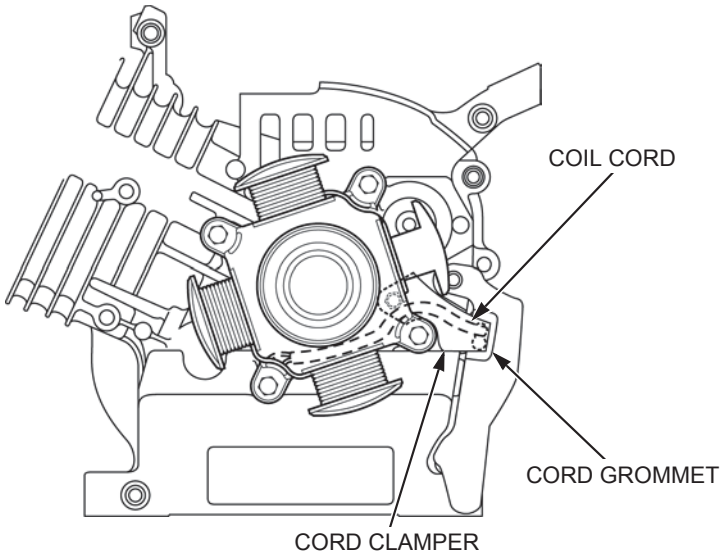


WITH CHARGE COIL/LAMP COIL

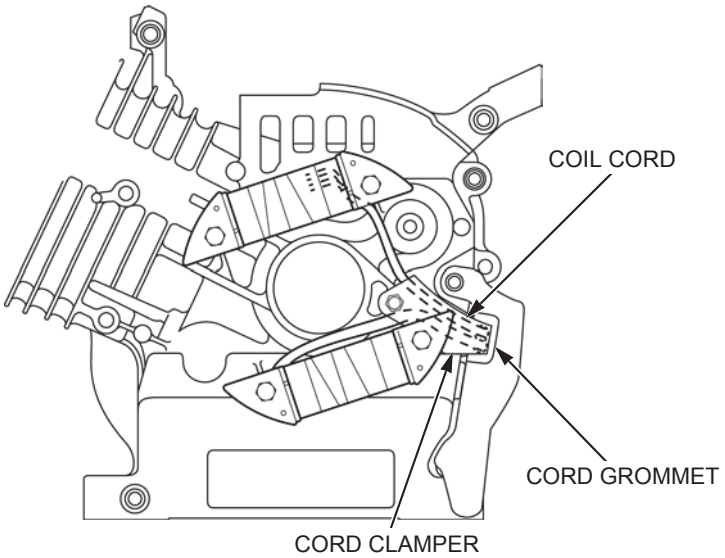
1 A/3 A CHARGE COIL, 12 V – 15 W/12 V – 25 W LAMP COIL TYPE:



7 A CHARGE COIL TYPE:



12 V – 50 W LAMP COIL TYPE:



3. MAINTENANCE

MAINTENANCE SCHEDULE

ITEM	Perform at every indicated month or operating hour interval, whichever comes first.	REGULAR SERVICE PERIOD (2)					Refer to page
		Each use	First month or 20 hrs.	Every 3 months or 50 hrs.	Every 6 months or 100 hrs.	Every year or 300 hrs.	
Engine oil	Check level	○					3-3
	Change		○		○		3-3
Reduction case oil (applicable types)	Check level	○					3-4
	Change		○		○		3-5
Air cleaner	Check	○					3-7
	Clean			○ (1)	○ (*)(1)		3-7
		(Cyclone type) Every 6 months or 150 hours					3-7
	Replace					○(**)	3-7
		(Cyclone type) Every 2 years or 600 hours					3-7
Sediment cup	Clean				○		3-10
Spark plug	Check–adjust				○		3-11
	Replace					○	3-11
Spark arrester (applicable types)	Clean				○		3-12
Idle speed	Check–adjust					○	3-13
Valve clearance	Check–adjust					○	3-13
Combustion chamber	Clean	After every 500 hours					3-15
Fuel tank and filter	Clean				○		3-15
Fuel tube	Check	Every 2 years (Replace if necessary)					3-16

(1) Service more frequently when used in dusty areas.

(2) For commercial use, log hours of operation to determine proper maintenance intervals.

(*) Internal vent carburetor with dual element type only.

(**) Replace paper element type only.

ENGINE OIL LEVEL CHECK/CHANGE

CHECK

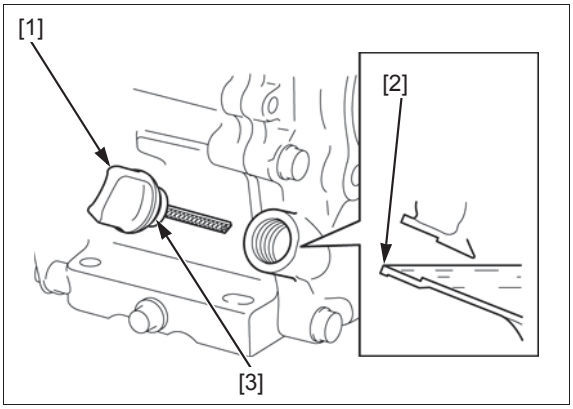
Place the engine on a level surface.

Remove the oil filler cap [1] and check the oil level shown into the oil filler neck [2].

If the oil level is low, fill with recommended oil to the upper level of the oil filler neck (page 3-3).

Check that the oil filler packing [3] is in good condition; replace it if necessary.

Install and tighten the oil filler cap securely.



CHANGE

Place the engine on a level surface and place a suitable container under the drain plug bolt [1].

Remove the oil filler cap [2], drain bolt, and drain bolt washer [3], and drain the oil into a suitable container.

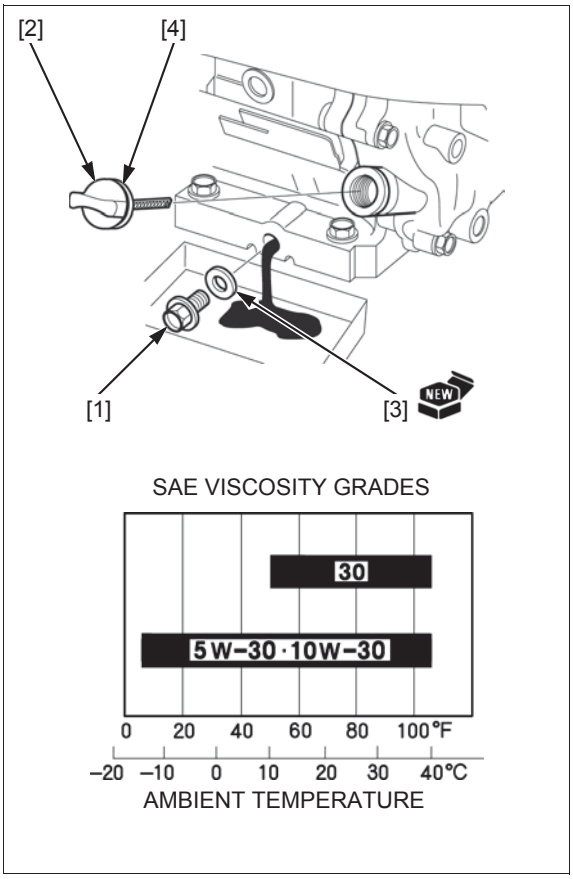
Please dispose of used oil in a manner that is compatible with the environment. We suggest you take used oil in a sealed container to your local recycling center or service station for reclamation. Do not throw it in the trash, pour it on the ground, or pour it down a drain.

⚠ CAUTION

Used engine oil contains substances that have been identified as carcinogenic. If repeatedly left in contact with the skin for prolonged periods, it may cause skin cancer. Wash your hands thoroughly with soap and water as soon as possible after contact with used engine oil.

Install the drain bolt with a new drain bolt washer, and tighten the bolt to the specified torque.

TORQUE: 18 N·m (1.8 kgf·m, 13 lbf·ft)



SAE 10W - 30 is recommended for general use. Other viscosities shown in the chart may be used when the average temperature in your area is within the recommended range.

Add the specified amount of recommended oil into the engine.

RECOMMENDED OIL:
SAE 10W-30
API service category: SJ or higher

OIL CAPACITY:
GX120: 0.56 Liter (0.59 US qt, 0.49 Imp qt)
GX160: 0.58 Liter (0.61 US qt, 0.51 Imp qt)
GX200: 0.60 Liter (0.63 US qt, 0.53 Imp qt)

After adding the oil, check the oil level.

Check that the oil filler packing [4] is in good condition; replace it if necessary.

Install and tighten the oil filler cap securely.

Make sure there are no oil leaks.

REDUCTION CASE OIL LEVEL CHECK/ CHANGE

NOTE:

- For the chain type (without clutch), refer to the ENGINE OIL LEVEL CHECK/CHANGE because it shares the reduction oil with the engine oil (page 3-3).

CHECK

GEAR TYPE

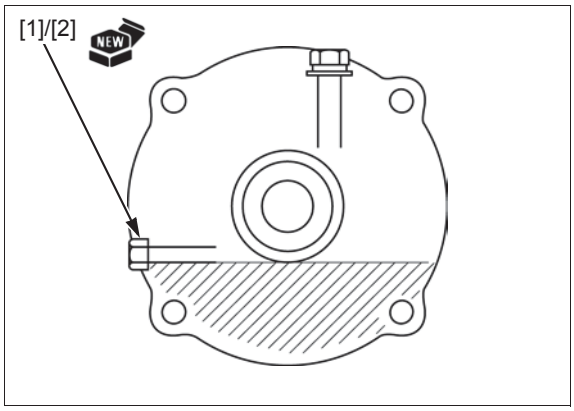
Place the engine on a level surface.

Remove the oil level bolt [1] and oil level bolt washer [2], and check whether oil flows out.

Fill with recommended oil if it does not flow (page 3-5).

Install the oil level bolt with a new oil level bolt washer, and tighten it to the specified torque.

TORQUE: 23 N·m (2.3 kgf·m, 17 lbf·ft)



CHAIN TYPE (with clutch)

Place the engine on a level surface.

Remove the oil filler cap/oil level gauge [1], and wipe the oil level gauge clean.

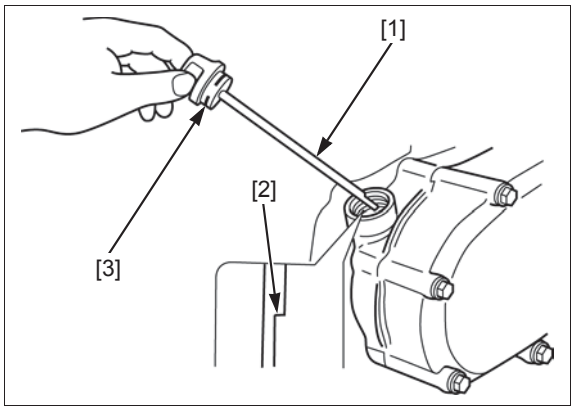
Insert the oil level gauge without screwing it into the oil filler neck.

Remove the oil level gauge and check oil level shown on the oil level gauge.

If the oil level is low, fill with recommended oil to the upper level [2] of the oil level gauge (page 3-6).

Check that the O-ring [3] is in good condition; replace it if necessary.

Install and tighten the oil filler cap/oil level gauge securely.



CHANGE

GEAR TYPE

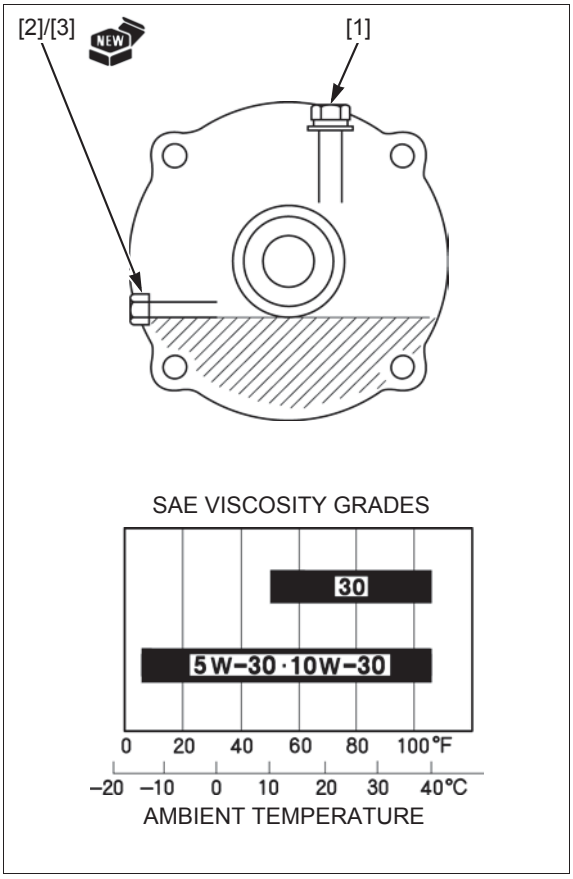
Remove the oil fill/breather bolt [1].

Remove the oil level bolt [2] and oil level bolt washer [3], tilt the engine, and drain the oil into a suitable container.

Please dispose of used oil in a manner that is compatible with the environment. We suggest you take used oil in a sealed container to your local recycling center or service station for reclamation. Do not throw it in the trash, pour it on the ground, or pour it down a drain.

⚠CAUTION

Used engine oil contains substances that have been identified as carcinogenic. If repeatedly left in contact with the skin for prolonged periods, it may cause skin cancer. Wash your hands thoroughly with soap and water as soon as possible after contact with used engine oil.



SAE 10W - 30 is recommended for general use. Other viscosities shown in the chart may be used when the average temperature in your area is within the recommended range.

Fill with the recommended engine oil through the oil fill/breather bolt hole until oil begins to run out of the oil level bolt hole.

RECOMMENDED OIL:
SAE 10W-30
API service category SJ or higher

OIL CAPACITY: 0.15 Liter (0.16 US qt, 0.13 Imp qt)

Install the oil level bolt with a new oil level bolt washer, and tighten the bolt to the specified torque.

TORQUE: 23 N·m (2.3 kgf·m, 17 lbf·ft)

Install and tighten the oil fill/breather bolt securely.

Make sure there are no oil leaks.

CHAIN TYPE (with clutch)

Place the engine on a level surface and place a suitable container under the drain plug bolt [1].

Remove the oil filler cap/oil level gauge [2], drain bolt, and drain bolt washer [3], and drain the oil into a suitable container.

Please dispose of used oil in a manner that is compatible with the environment. We suggest you take used oil in a sealed container to your local recycling center or service station for reclamation. Do not throw it in the trash, pour it on the ground, or pour it down a drain.

⚠CAUTION

Used engine oil contains substances that have been identified as carcinogenic. If repeatedly left in contact with the skin for prolonged periods, it may cause skin cancer. Wash your hands thoroughly with soap and water as soon as possible after contact with used engine oil.

Install the drain bolt with a new drain bolt washer, and tighten the bolt to the specified torque.

TORQUE: 23 N·m (2.3 kgf·m, 17 lbf·ft)

SAE 10W - 30 is recommended for general use. Other viscosities shown in the chart may be used when the average temperature in your area is within the recommended range.

Add the specified amount of recommended oil into the reduction case.

RECOMMENDED OIL:
SAE 10W-30
API service category: SJ or higher

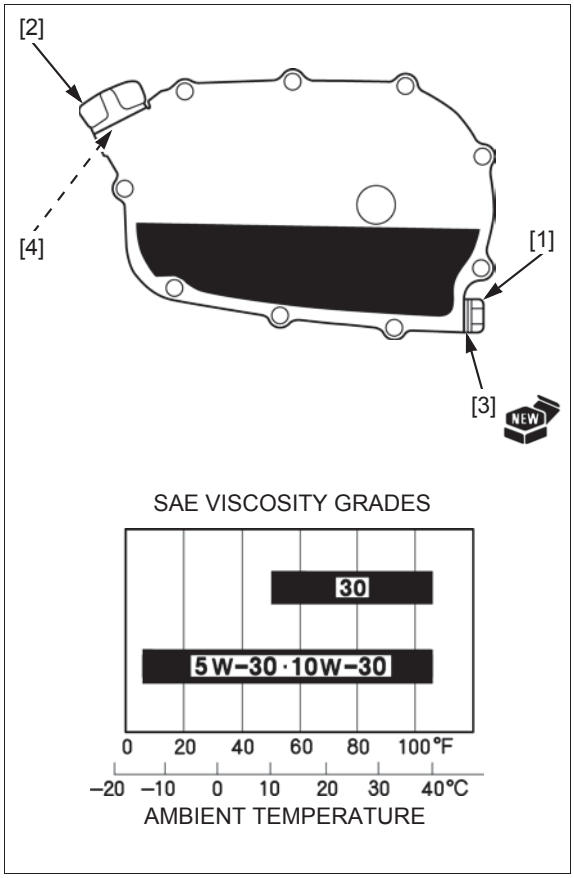
OIL CAPACITY: 0.50 Liter (0.53 US qt, 0.44 Imp qt)

After adding the oil, check the oil level.

Check that the O-ring [4] is in good condition; replace it if necessary.

Install and tighten the oil filler cap/oil level gauge securely.

Make sure there are no oil leaks.



AIR CLEANER CHECK/CLEANING/ REPLACEMENT

A dirty air filter will restrict air flow to the carburetor, reducing engine performance. If the engine is operated in dusty areas, clean the air cleaner more often than specified in the MAINTENANCE SCHEDULE.

NOTICE

- *Operating the engine without the air filters or with the filter installed loosely will allow dirt to enter the engine, causing rapid engine wear. Install the air filters securely.*

DUAL, DUAL SILENT TYPE

Remove the following:

– Nut [1]
– Air cleaner cover [2]
– Wing nut [3]
– Element Assy.
  – Grommet [4]
  – Inner filter (Paper) [5]
  – Outer filter (Foam) [6]

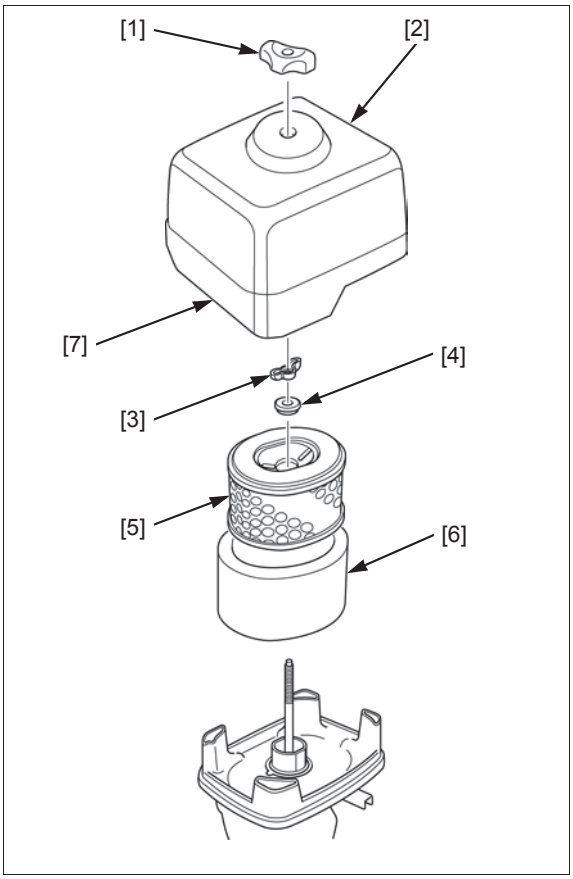
Carefully check both filters for holes or tears and replace if damaged.

Clean the filters if they are to be reused (page 3-9).

Installation is in the reverse order of removal.

NOTE:

- Install the air cleaner cover with its long skirt portion [7] facing forward.



CYCLONE TYPE

Remove the following:

– Bolt (4 x 6 mm) [1] (3)
– Pre air cleaner case [2]
– Air cleaner guide [3]
– Wing nut [4]
– Air cleaner cover Assy. [5]
– Wing nut [6]
– Element Assy.
  – Grommet [7]
  – Inner filter (Paper) [8]
  – Outer filter (Foam) [9]

Carefully check both filters for holes or tears and replace if damaged.

Clean the filters if they are to be reused (page 3-9).

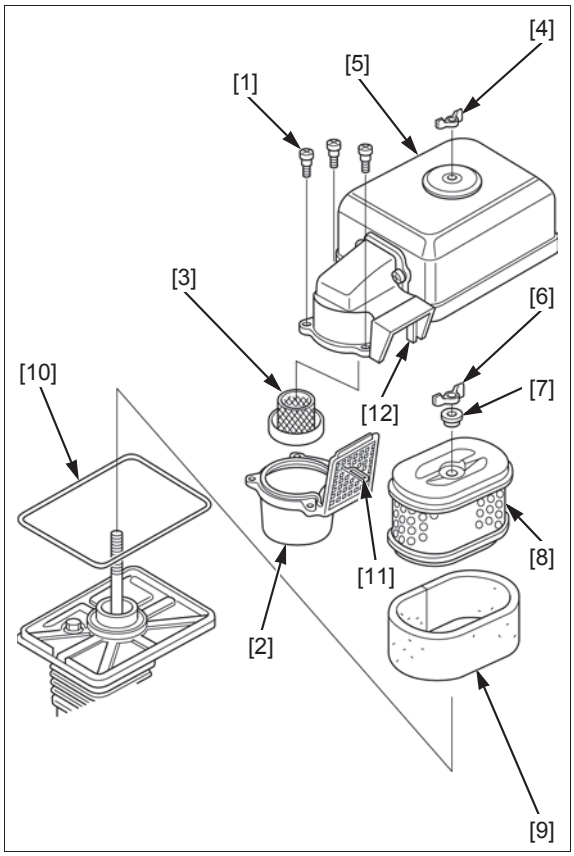
Clean the pre air cleaner case and air cleaner guide.

Check that the air cleaner cover packing [10] is in good condition; replace it if necessary.

Installation is in the reverse order of removal.

NOTE:

• Install the pre air cleaner case by align it the groove [11] and tab [12] of the air cleaner cover Assy.



LOW PROFILE TYPE

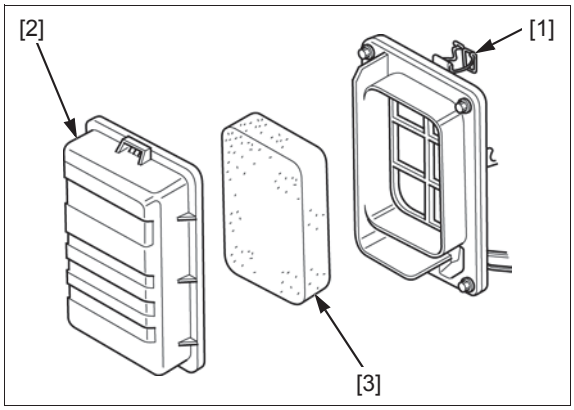
Remove the air cleaner case lid spring [1] and air cleaner cover [2].

Remove the pre air cleaner element [3].

Carefully check the air cleaner element and replace if damaged.

Clean the filter if it is to be reused (page 3-9).

Installation is in the reverse order of removal.



OIL BATH TYPE

Remove the following:

– Wing nut [1]
– Air cleaner cap [2]
– Air cleaner cover [3]
– Air cleaner element [4]

Carefully check the element for holes or tears and replace if damaged.

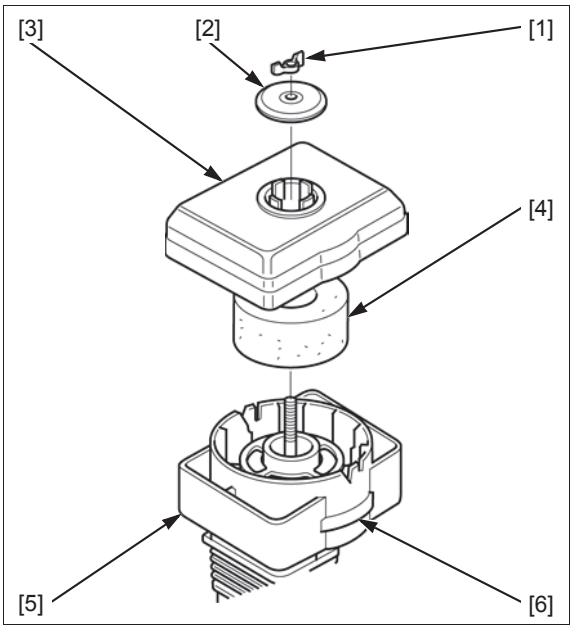
Clean the element if it is to be reused (page 3-9).

Check the oil contamination and oil level of the cleaner oil pan [5].

If the oil level is low, fill with the recommended oil (page 3-3) to the upper level [6] of the cleaner oil pan.
If the oil is dirty, clean the cleaner oil pan and add the recommended oil to the upper level of the cleaner oil pan.

OIL CAPACITY: 60 cc

Installation is in the reverse order of removal.



SEMI DRY TYPE

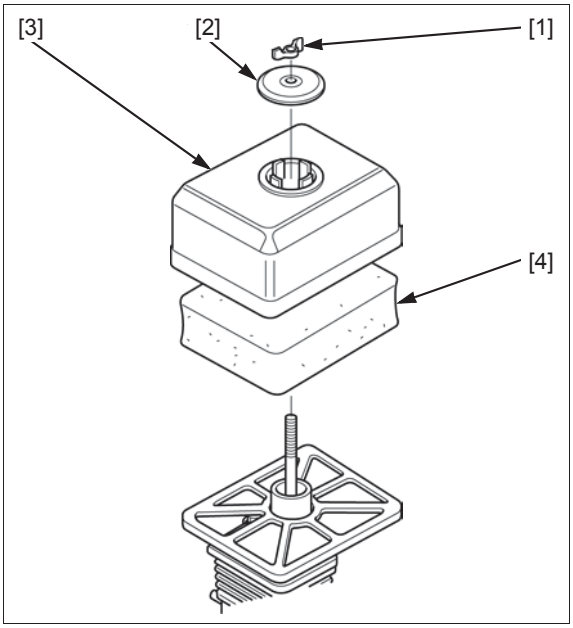
Remove the following:

– Wing nut [1]
– Air cleaner cap [2]
– Air cleaner cover [3]
– Air cleaner element [4]

Carefully check the element for holes or tears and replace if damaged.

Clean the element if it is to be reused (page 3-9).

Installation is in the reverse order of removal.



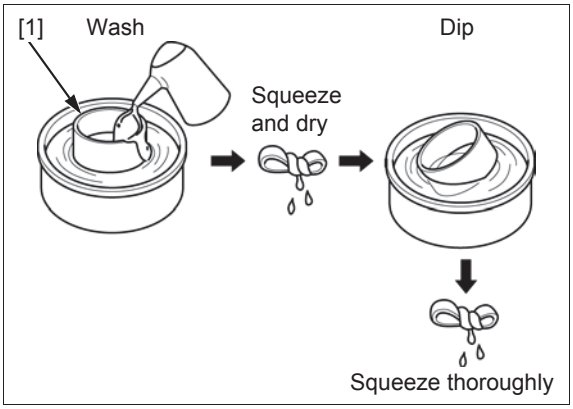
ELEMENT CLEANING

FOAM

Clean the filter [1] in warm soapy water, rinse, and allow to dry thoroughly, or clean with a non-flammable solvent and allow to dry thoroughly.

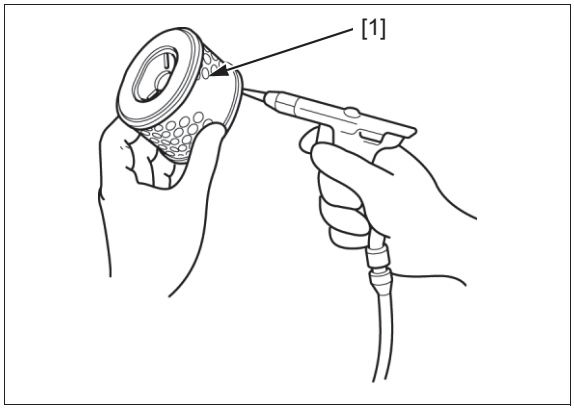
Dip the filter in clean engine oil, and squeeze out all the excess oil.

Excess oil will restrict air flow through the foam element and may cause the engine to smoke at startup.



PAPER

Tap the inner filter [1] lightly several times on a hard surface to remove excess dirt, or blow compressed air lightly (206 kPa [2.11 kgf/cm^2, 30 psi] or less) through the paper filter from the inside out. Never try to brush the dirt off; brushing will force dirt into the fibers.



SEDIMENT CUP CLEANING

ENGINE SERVICE BULLETIN #40 =>

⚠WARNING

Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel.
- Keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

Turn the fuel valve lever [1] to the OFF position.

Remove the following:

– Sediment cup [2]
– O-ring [3]
– Cup filter [4]

Clean the sediment cup and the cup filter with non-flammable solvent and allow them to dry thoroughly.

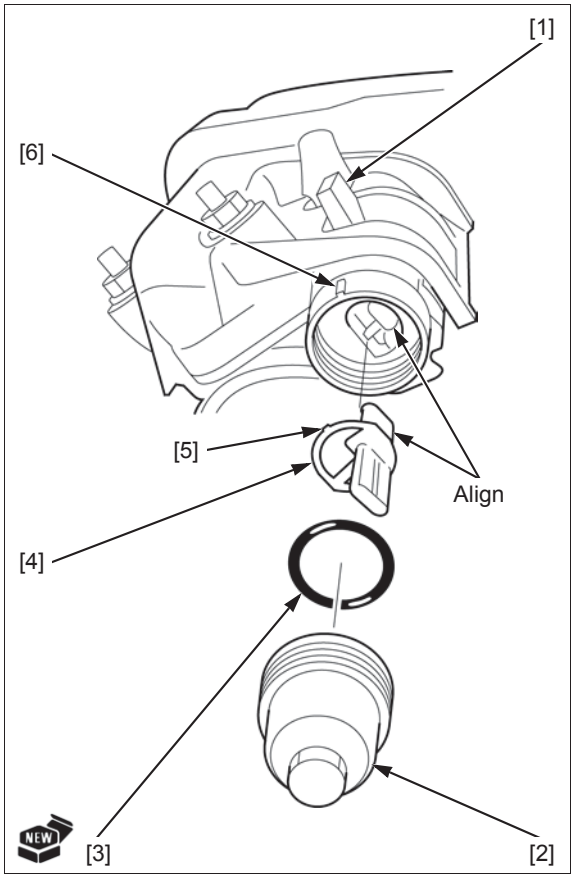
Install the cup filter while aligning the tip with the groove of the carburetor and cup filter tab [5] with the mark [6] of the carburetor.

Install a new O-ring and sediment cup.

Tighten the sediment cup to the specified torque.

TORQUE: 3.9 N·m (0.4 kgf·m, 2.9 lbf·ft)

Check the installation part of the sediment cup for any sign of fuel leakage.



AIR CLEANER CHECK/CLEANING/ REPLACEMENT

GX120RT2 (RAMMER TYPE)

(*) Refer to page of base shop manual (GX120UT2/ 160UT2/200UT2).

NOTE:

- Never use gasoline or low flash point solvents for cleaning the air filter element. A fire or explosion could result.

Unhook the clip [1] and remove the following:

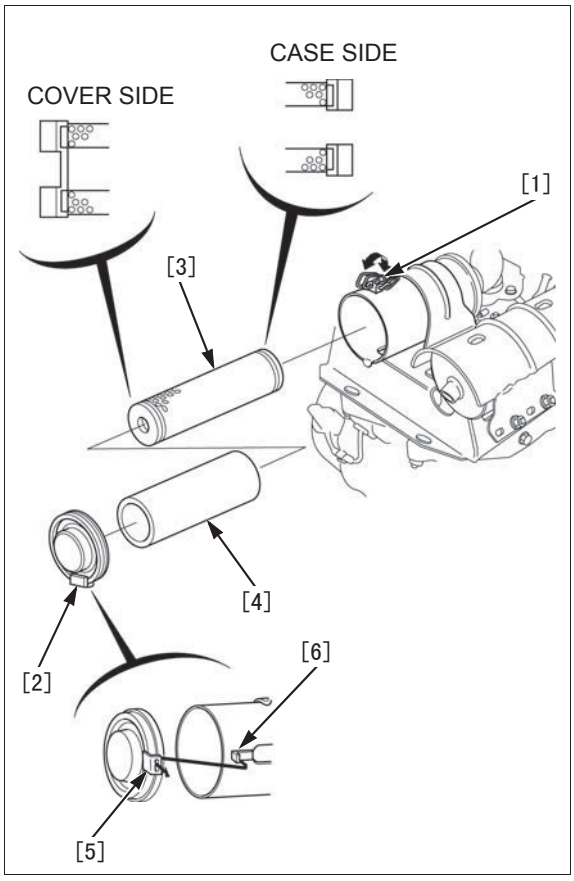
– Air cleaner cover [2]
– Air cleaner element (Paper) [3]
– Outer filter (Foam) [4]

Carefully check the element and filter for holes or tears and replace if damaged.
Clean the filters if they are to be reused (page 3-9*).

Installation is in the reverse order of removal.

NOTE:

- Install the air cleaner element in the direction as shown.
- When installing the air cleaner cover, align the hole [5] with the tab [6] of the air cleaner case.



SPARK PLUG CHECK/ADJUSTMENT

Remove the spark plug (page 3-11).

Visually inspect the spark plug. Replace the plug if it is heavily fouled or the insulator [1] is cracked or chipped.

Check the following and replace if necessary.

– Insulator and sealing washer [2] for damage
– Center electrode [3] and side electrode [4] for wear
– Burning condition, coloration

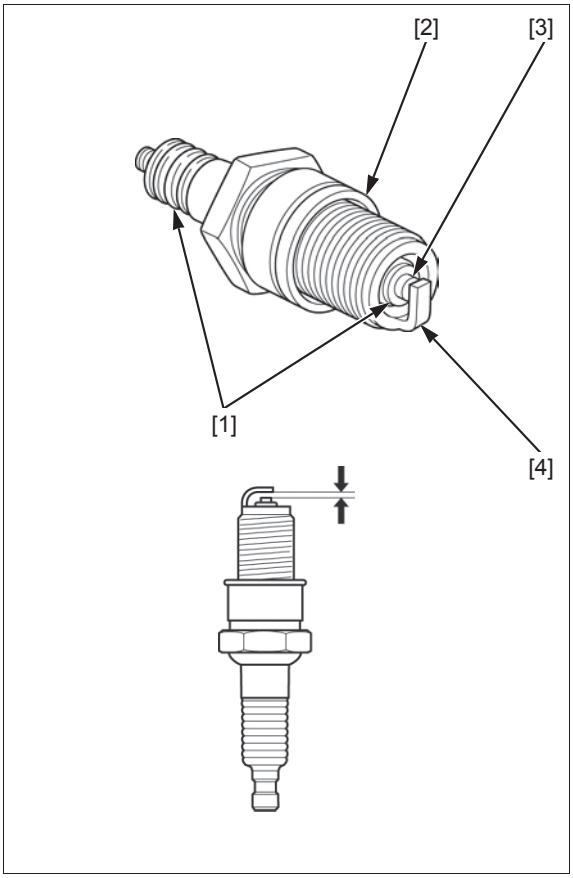
RECOMMENDED SPARK PLUG:
BPR6ES (NGK)
W20EPR-U (DENSO)

Measure the plug gap with a wire-type feeler gauge.

PLUG GAP: 0.70 – 0.80 mm (0.028 – 0.031 in)

If the measurement is out of the specification, adjust by bending the side electrode.

Install the spark plug (page 3-11).



SPARK PLUG REPLACEMENT

REMOVAL

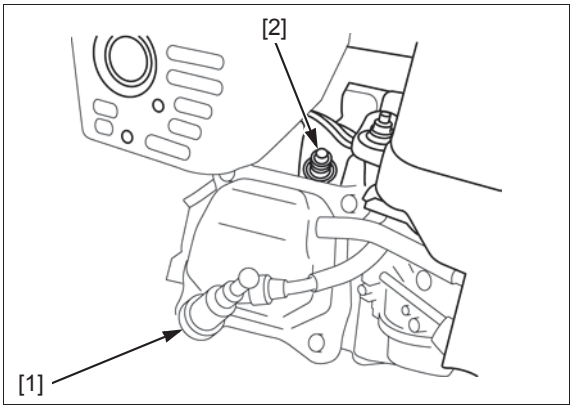
⚠CAUTION

The engine and the muffler becomes very hot during operation and remain hot for a while after stopping the engine. Be careful not to touch the muffler while it is hot. Allow it to cool before proceeding.

Disconnect the spark plug cap [1] and remove the spark plug [2].

NOTE:

- Clean around the spark plug base with compressed air before removing the spark plug, and be sure that no debris is allowed to enter into the combustion chamber.



INSTALLATION

Install the spark plug finger tight to seat the washer.

RECOMMENDED SPARK PLUG:
BPR6ES (NGK)
W20EPR-U (DENSO)

Tighten the spark plug to the specified torque.

TORQUE: 18 N·m (1.8 kgf·m, 13 lbf·ft)

Connect the spark plug cap.

SPARK ARRESTER CLEANING

⚠CAUTION

The engine and the muffler comes very hot during operation and remain hot for a while after stopping the engine. Be careful not to touch the muffler while it is hot. Allow it to cool before proceeding.

STANDARD, SILENT TYPE

Remove the air cleaner (page 6-5).

Disconnect the spark plug cap [1].

Remove the four screws (5 x 8 mm) [2] and muffler protector [3].

Remove the screw (4 x 6 mm) [4] and spark arrester [5].

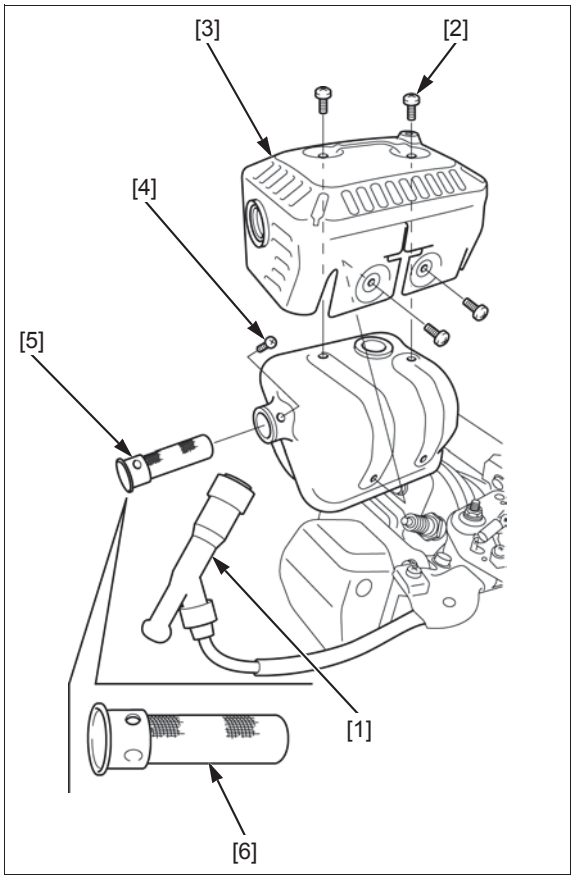
NOTICE

- *Be careful to avoid damaging the screen.*

Clean the carbon deposits from the spark arrester screen [6] with a wire brush.

Check the spark arrester screen for damage. If the screen is damaged, replace the spark arrester.

Install the spark arrester in the reverse order of removal.



LOW PROFILE TYPE

Remove the two bolts (8 x 20 mm) [1], muffler [2] and muffler gasket [3].

Remove the spark arrester [4].

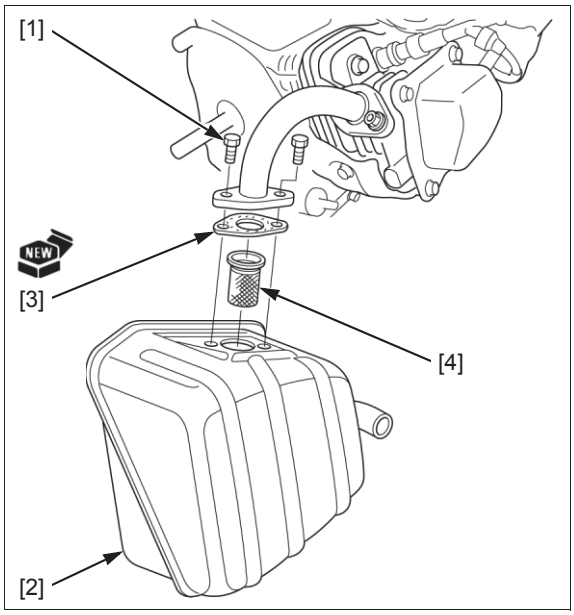
NOTICE

- *Be careful to avoid damaging the screen.*

Clean the carbon deposits from the spark arrester screen with a wire brush.

Check the spark arrester screen for damage. If the screen is damaged, replace the spark arrester.

Replace the muffler gasket with a new one and install the spark arrester in the reverse order of removal.



IDLE SPEED CHECK/ADJUSTMENT

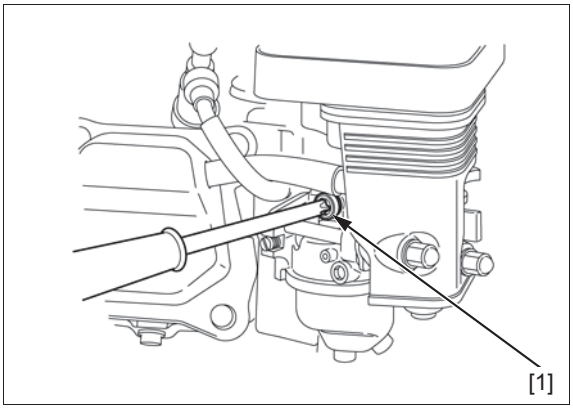
Ensure the governor arm and governor arm shaft are installed correctly (page 7-5).

Use a tachometer with graduations of 50 min^{-1} (rpm) or smaller that will accurately indicate 50 min^{-1} (rpm) change.

Start the engine and allow it to warm up to normal operating temperature.

Turn the throttle stop screw [1] to obtain the specified idle speed.

IDLE SPEED: 1,400 $^{+200}_{-150}$ min^{-1} (rpm)



VALVE CLEARANCE CHECK/ ADJUSTMENT

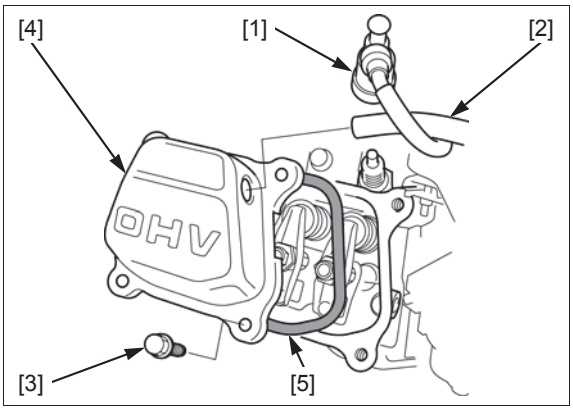
NOTICE

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

CHECK

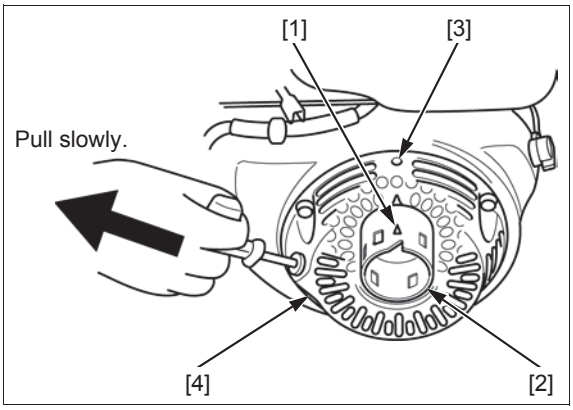
Disconnect the spark plug cap [1] and remove the following:

– 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].

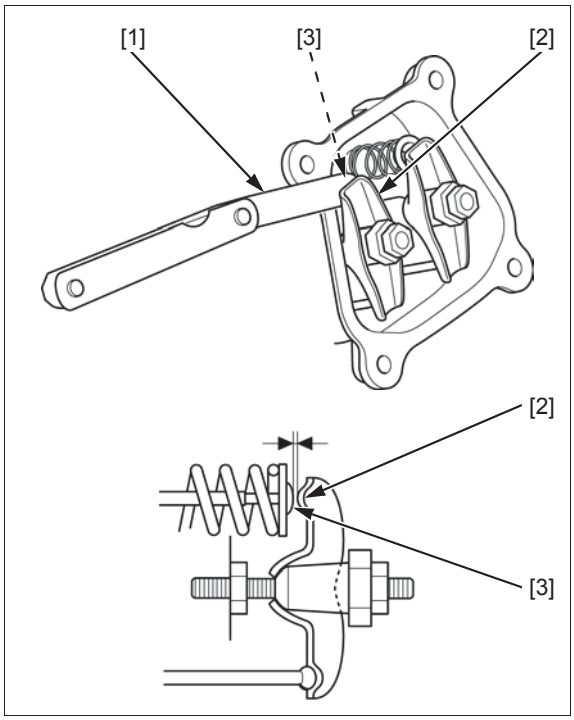
If the exhaust valve is open, use the recoil starter to turn the crankshaft one additional turn and align the triangle mark on the starter pulley with the top hole on the recoil starter case again.



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

VALVE CLEARANCE:
GX120/GX200:
IN: 0.15 ± 0.02 mm (0.006 ± 0.001 in)
EX: 0.20 ± 0.02 mm (0.008 ± 0.001 in)
GX160:
IN: 0.08 ± 0.02 mm (0.003 ± 0.001 in)
EX: 0.10 ± 0.02 mm (0.004 ± 0.001 in)

If adjustment is necessary, proceed as follows.



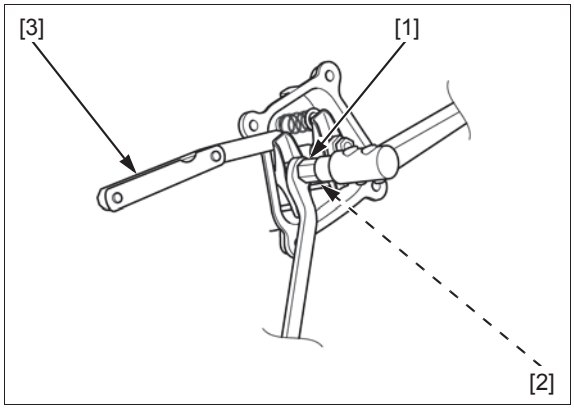
ADJUSTMENT

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

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

Adjust by turning the adjusting screw until there is a slight drag on the feeler gauge.

VALVE CLEARANCE:
GX120/GX200:
IN: 0.15 ± 0.02 mm (0.006 ± 0.001 in)
EX: 0.20 ± 0.02 mm (0.008 ± 0.001 in)
GX160:
IN: 0.08 ± 0.02 mm (0.003 ± 0.001 in)
EX: 0.10 ± 0.02 mm (0.004 ± 0.001 in)



Hold the rocker arm pivot and retighten the pivot adjusting 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.

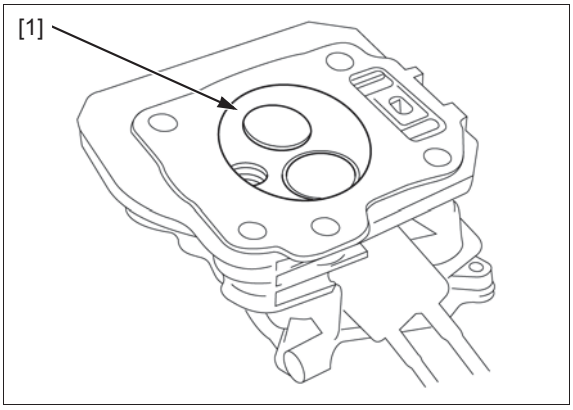
NOTE:
- Route the high-tension cord and breather tube properly (page 2-10).

COMBUSTION CHAMBER CLEANING

Remove the cylinder head (page 13-3).

Clean any carbon deposits from the combustion chamber [1].

Installation is in the reverse order of removal.



FUEL TANK AND FILTER CLEANING

ENGINE SERVICE BULLETIN #40 =>

⚠WARNING

Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel.
- Keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

Remove the fuel tank (page 6-3).

Remove the fuel tank joint [1] and O-ring [2] from the fuel tank [3].

Clean the fuel tank joint and fuel tank with non-flammable solvent, and allow them to dry thoroughly.

Check the screen of the fuel tank joint for clogs or damage.
Replace if necessary.

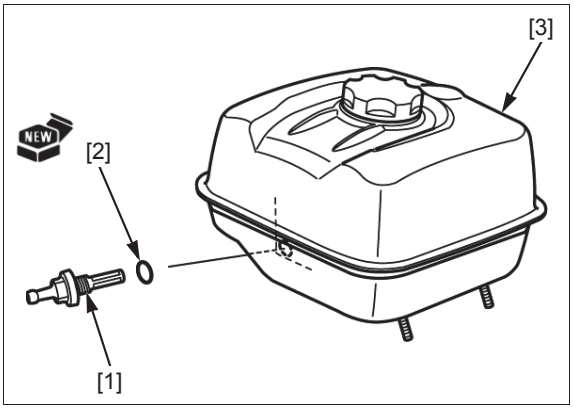
Install a new O-ring on the fuel tank joint and install the fuel tank joint to the fuel tank.

Tighten the fuel tank joint to the specified torque.

TORQUE: 2 N·m (0.2 kgf·m, 1.5 lbf·ft)

Install the fuel tank (page 6-3).

After installation, check for any signs of fuel leakage.

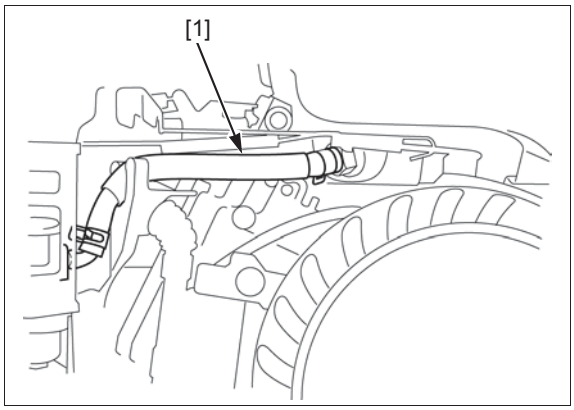


FUEL TUBE CHECK

⚠WARNING

Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel.
- Keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

Check the fuel tube [1] for deterioration, cracks, or signs of leakage.
Replace if necessary.



NOTE:
- When checking, GX160/GX200 remove the fan cover (page 5-2).

4. TROUBLESHOOTING

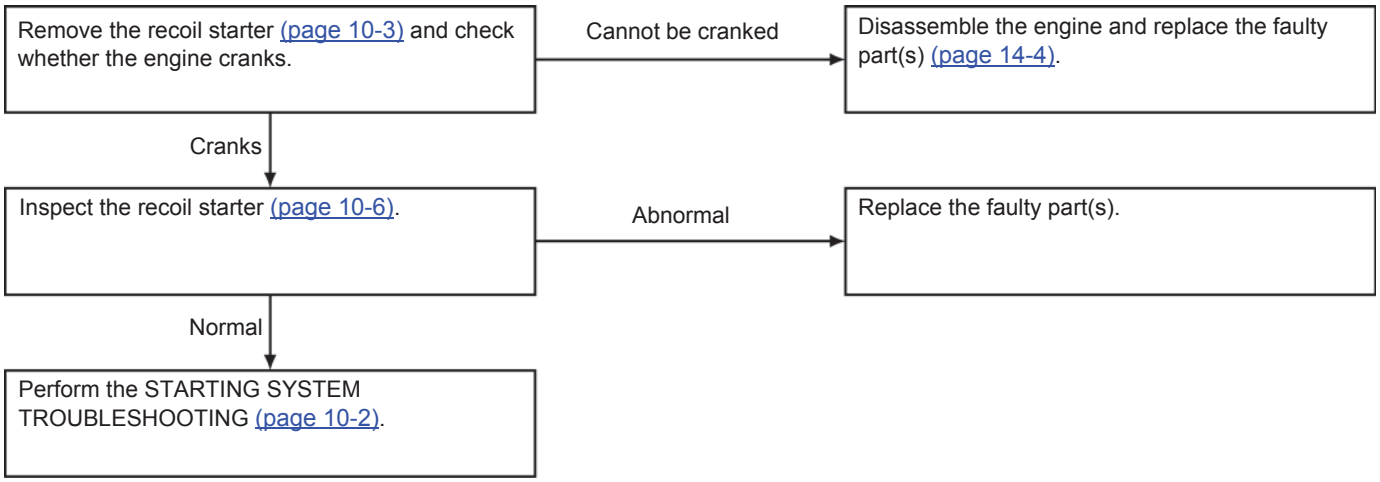
BEFORE TROUBLESHOOTING

- Use a known-good battery for troubleshooting.
- Check that the connectors are connected securely.
- Check for sufficient fresh fuel in the fuel tank.
- Read the circuit tester's operation instructions carefully, and observe the instructions during inspection.

TROUBLESHOOTING

ENGINE SERVICE BULLETIN #40 =>

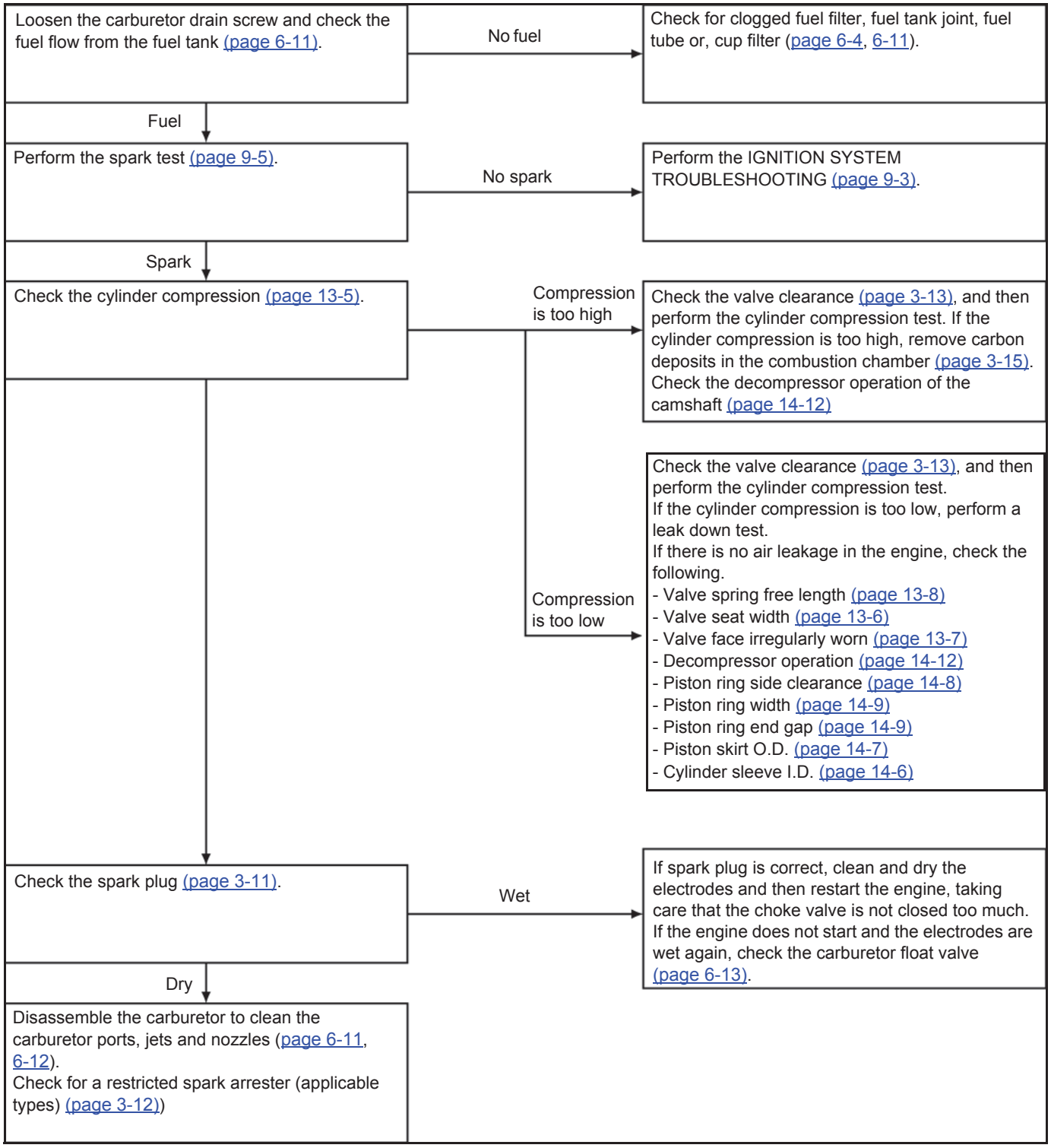
ENGINE DOES NOT CRANK



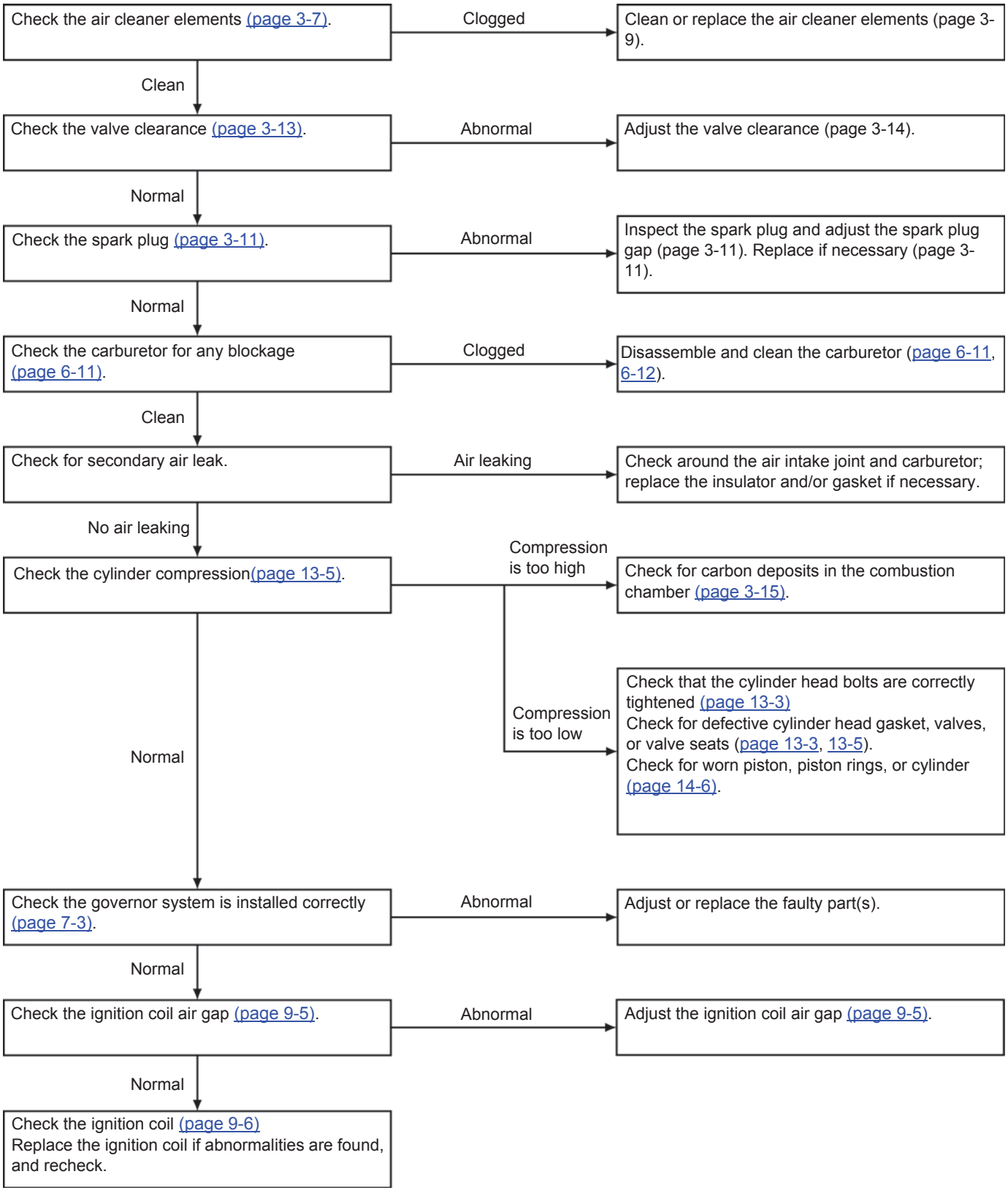
ENGINE CRANKS BUT WON'T START

ENGINE SERVICE BULLETIN #40 =>

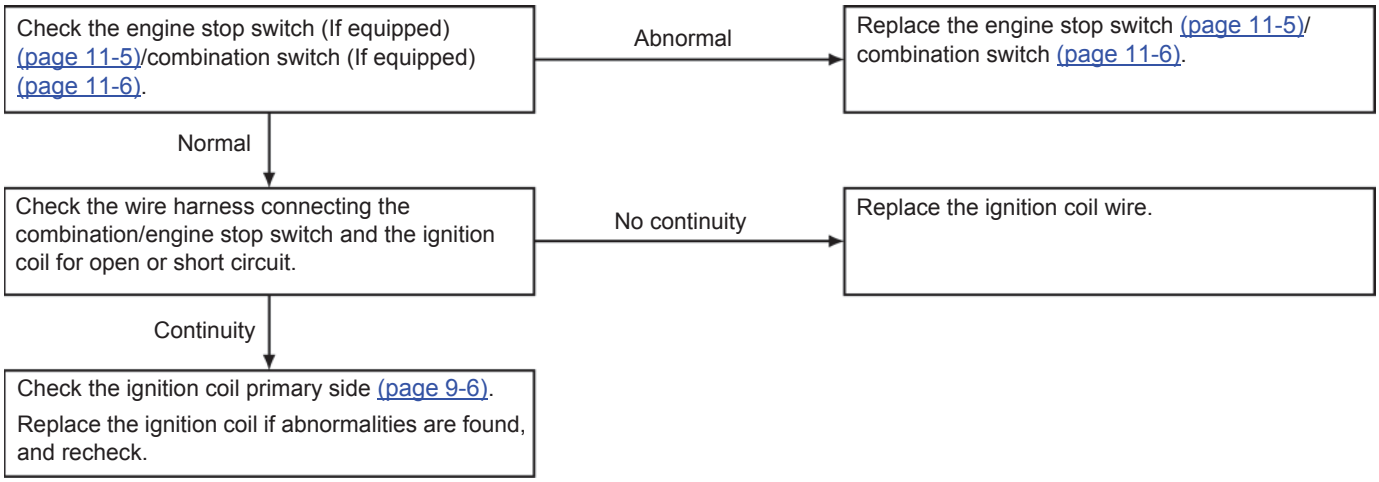
- Check the oil level before troubleshooting (page 3-3).



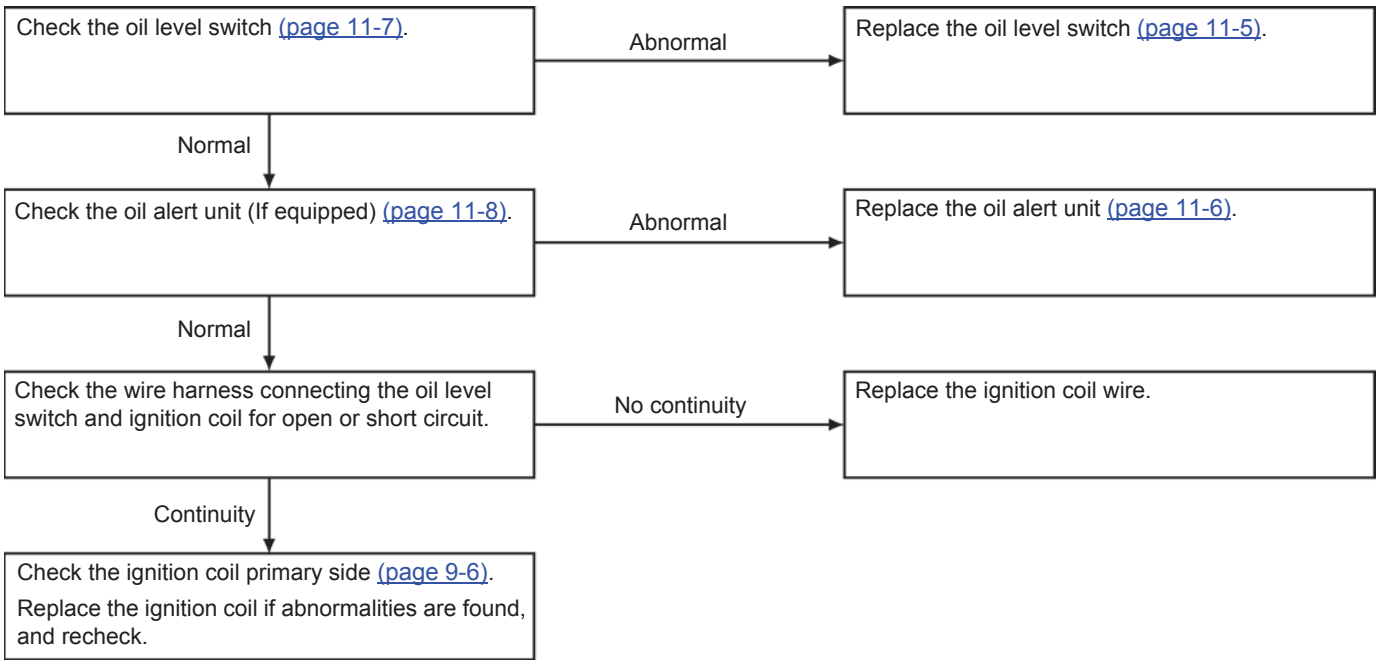
ENGINE SPEED DOES NOT INCREASE OR STABILIZE



ENGINE DOES NOT STOP WHEN COMBINATION/ ENGINE STOP SWITCH IS TURNED OFF



ENGINE DOES NOT STOP WHEN ENGINE OIL LEVEL IS LOW



5. COVER

FAN COVER REMOVAL/INSTALLATION

GX120: Remove the fuel tube from the clamp.

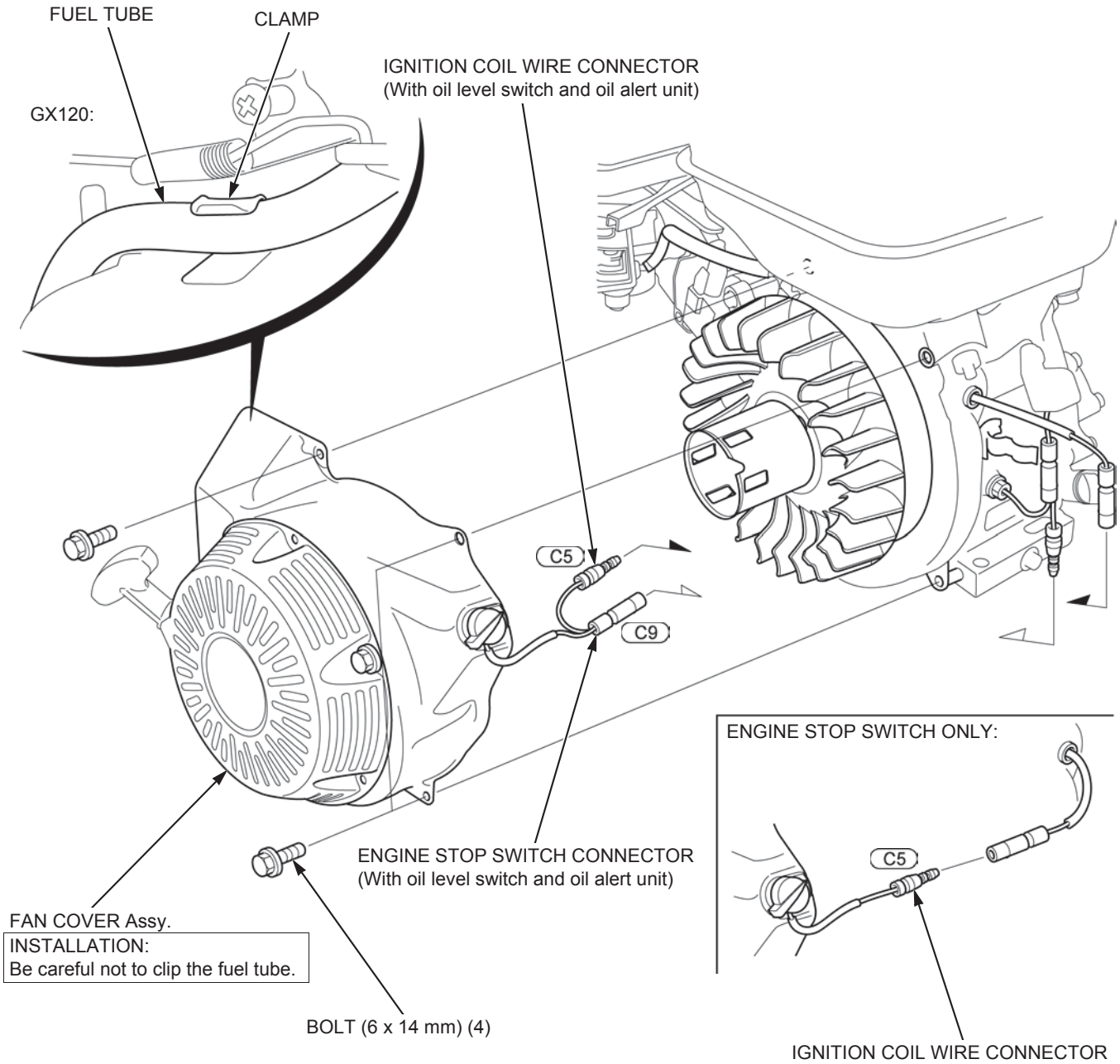
Starter motor type: Remove the control box (page 11-3).

When disassembling the fan cover, remove the following:

– Recoil starter Assy. (page 10-3)
– Engine stop switch (page 11-5)
(with engine stop switch type)
– Grommet
(without engine stop switch type)

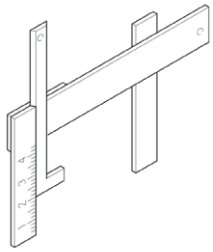
NOTE:

• Route the tube and wires properly (page 2-10).



6. FUEL SYSTEM

TOOLS

Float level gauge 07401-0010000 	Jet cleaner set 07JPZ-001010B  or 07JPZ-001010A

FUEL TANK REMOVAL/INSTALLATION

⚠WARNING

Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel.
- Keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

ENGINE SERVICE BULLETIN #40 =>

GX160/GX200: Remove the fan cover (page 5-2).

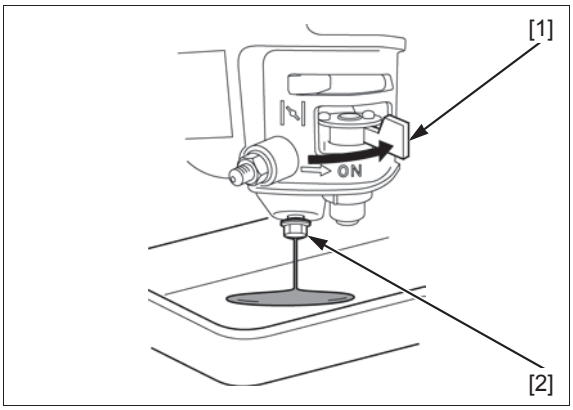
Starter motor type: Remove the starter motor (page 10-7).

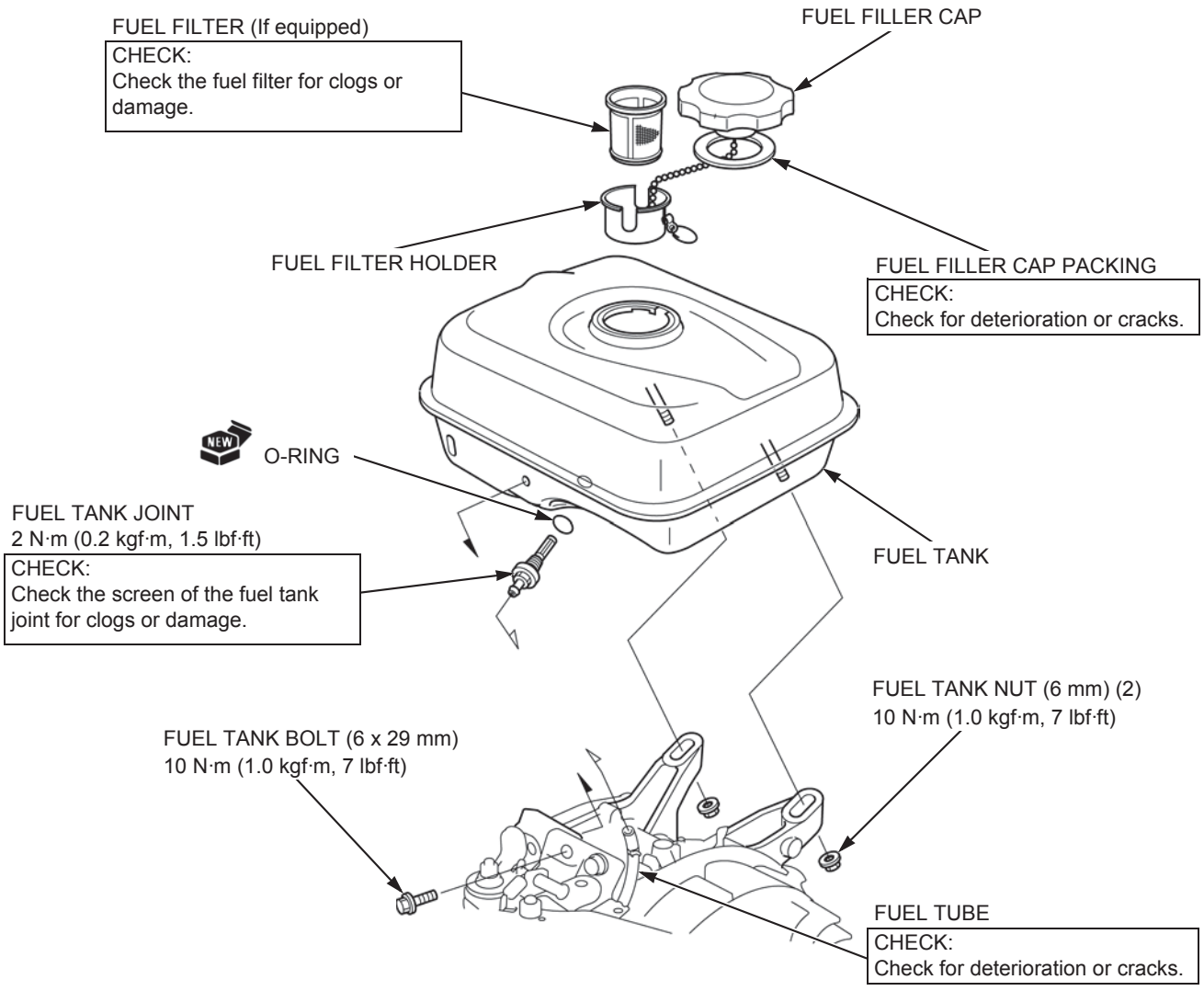
Place a suitable container under the carburetor.

Turn the fuel valve lever [1] to the ON position.

Loosen the drain screw [2] and drain the fuel.

NOTE:
- Route the fuel tube properly (page 2-10).





FUEL SYSTEM

FUEL TANK REMOVAL/INSTALLATION

(*) Refer to page of base shop manual (**GX**120UT2/160UT2/200UT2).

ENGINE SERVICE BULLETIN #40 =>

⚠WARNING

Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel.
- Keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

Remove the fan cover (page 5-2*).

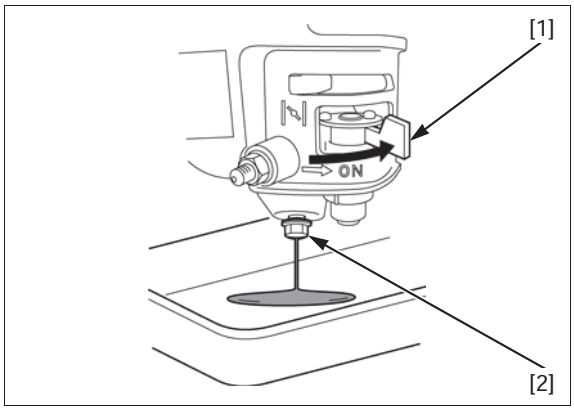
Starter motor type: Remove the starter motor (page 10-7*).

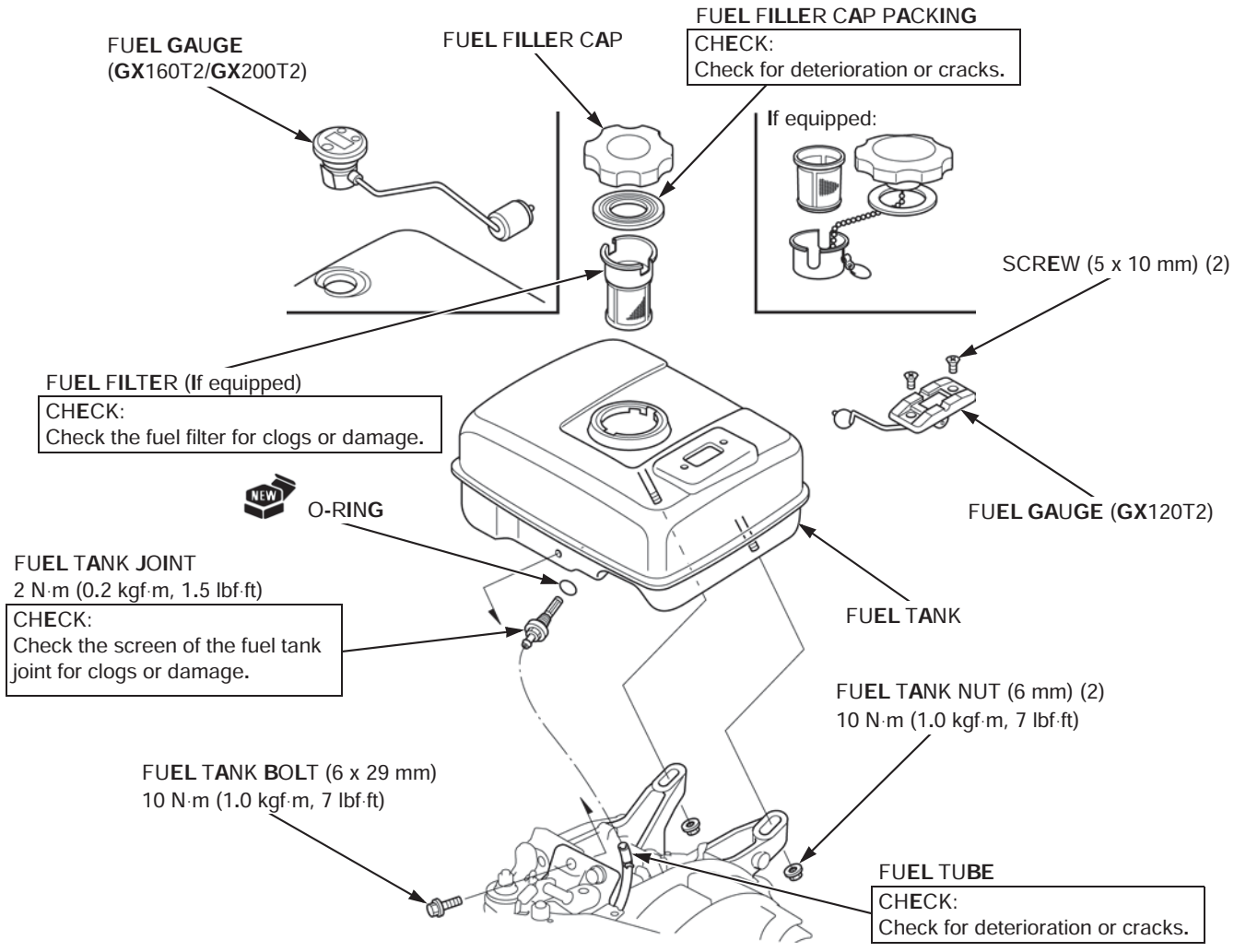
Place a suitable container under the carburetor.

Turn the fuel valve lever [1] to the ON position.

Loosen the drain screw [2] and drain the fuel.

NOTE:
- Route the fuel tube properly (page 2-11*).





FUEL FILLER CAP/FUEL FILTER HOLDER REMOVAL/INSTALLATION

ENGINE SERVICE BULLETIN #40 =>

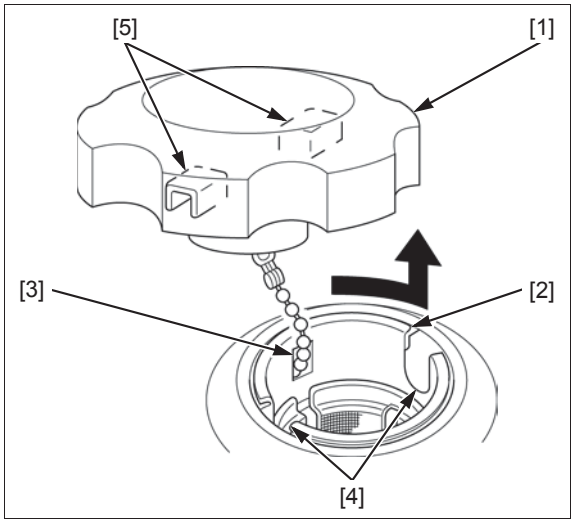
Remove the fuel filler cap [1].

Turn the fuel filter holder [2] to align it the tether hole [3] with the cutout [4] of the fuel filler neck, and then remove the fuel filler cap.

Before installing, check the air vent hole of the fuel filler cap for clogs. If necessary, clean it using low-pressure compressed air.

Install the fuel filter holder into the fuel filler neck and align the cutouts.

Set the fuel filler cap to the fuel filler neck by aligning the projections [5] of the cap with the cutouts of the fuel filler neck and fuel filter holder and then turn the fuel filler cap.

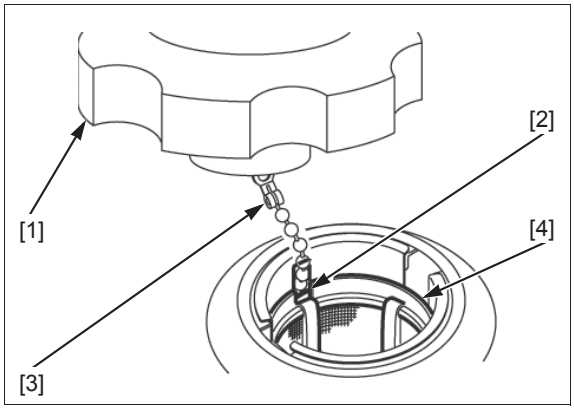


FUEL FILTER REMOVAL/ INSTALLATION

Remove the fuel filler cap [1].

Remove or install the fuel filter by aligning the cutout [2] of the fuel filter with the fuel filler cap tether [3] as shown.

Before installing, check the screen of the fuel filter [4] for clogs or damage.

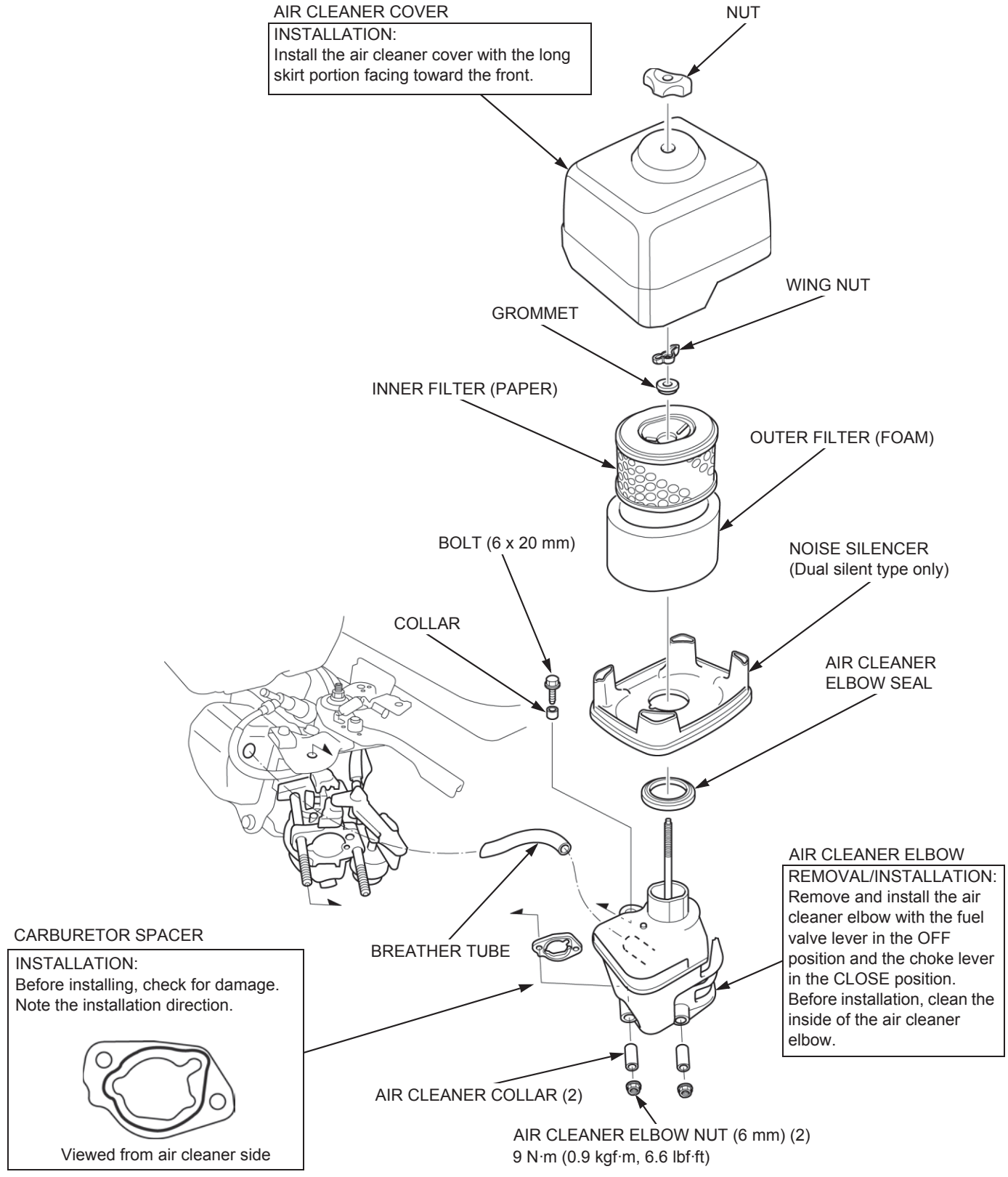


AIR CLEANER REMOVAL/ INSTALLATION

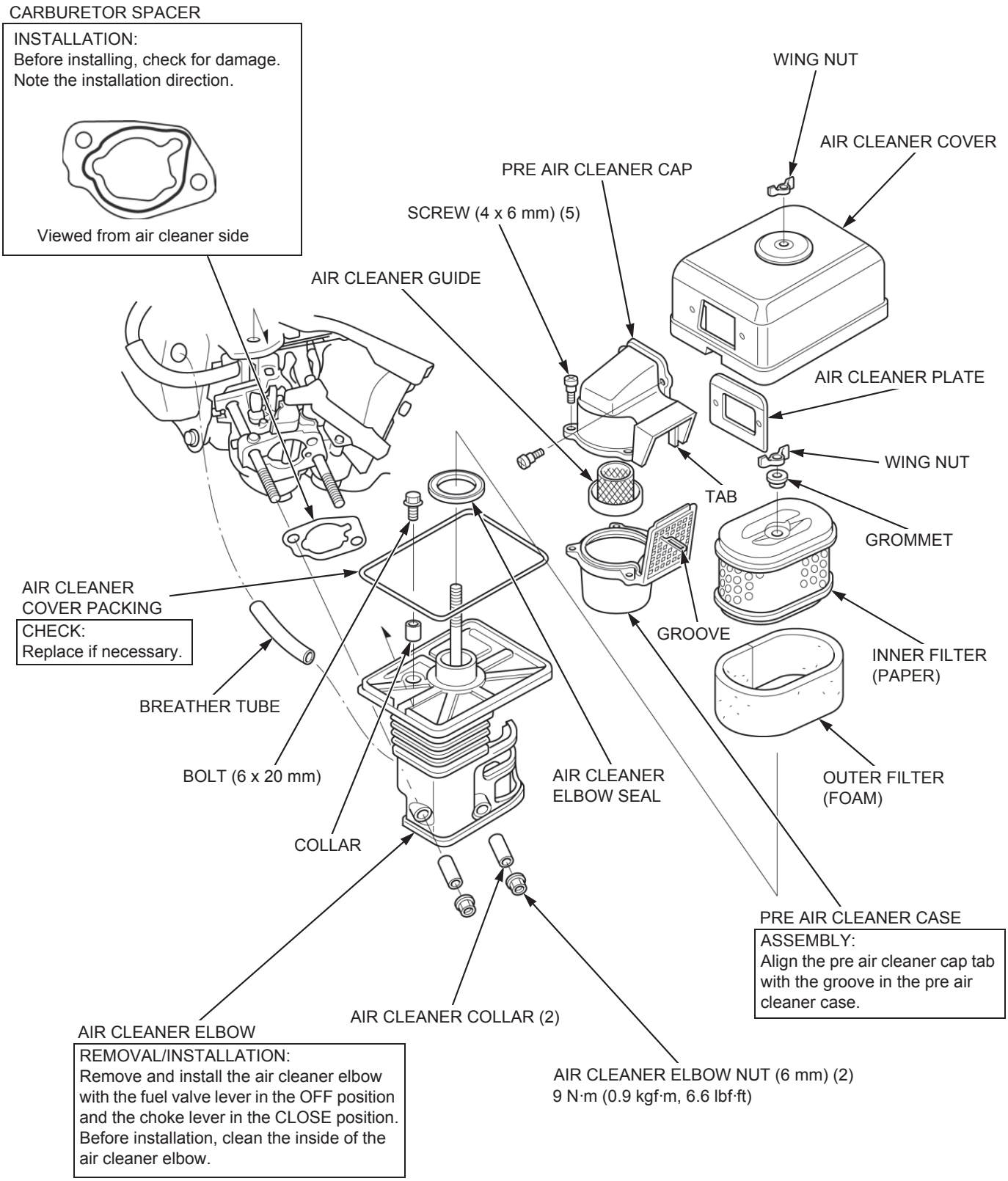
DUAL, DUAL SILENT TYPE

NOTE:

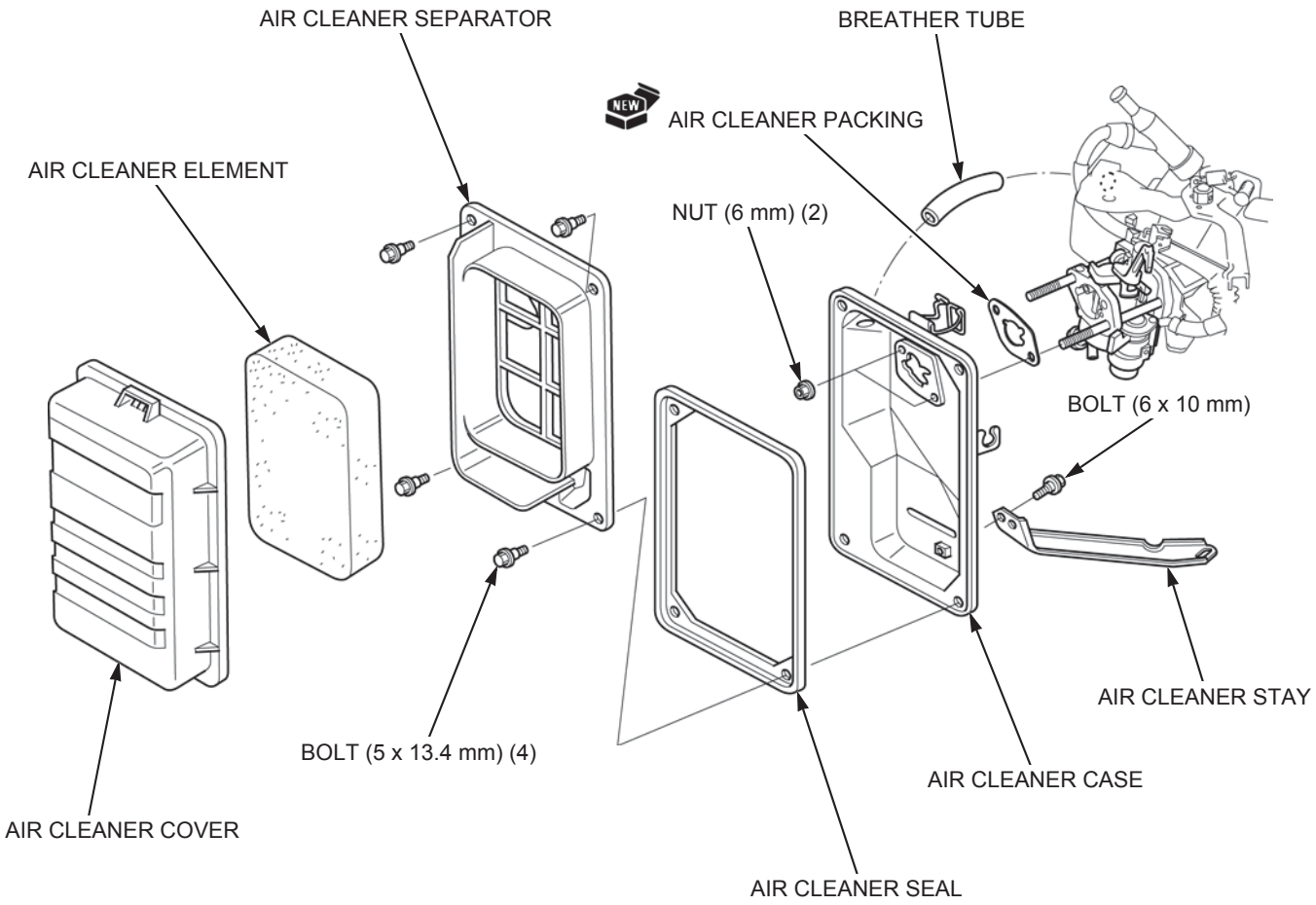
- Route the breather tube properly (page 2-10).



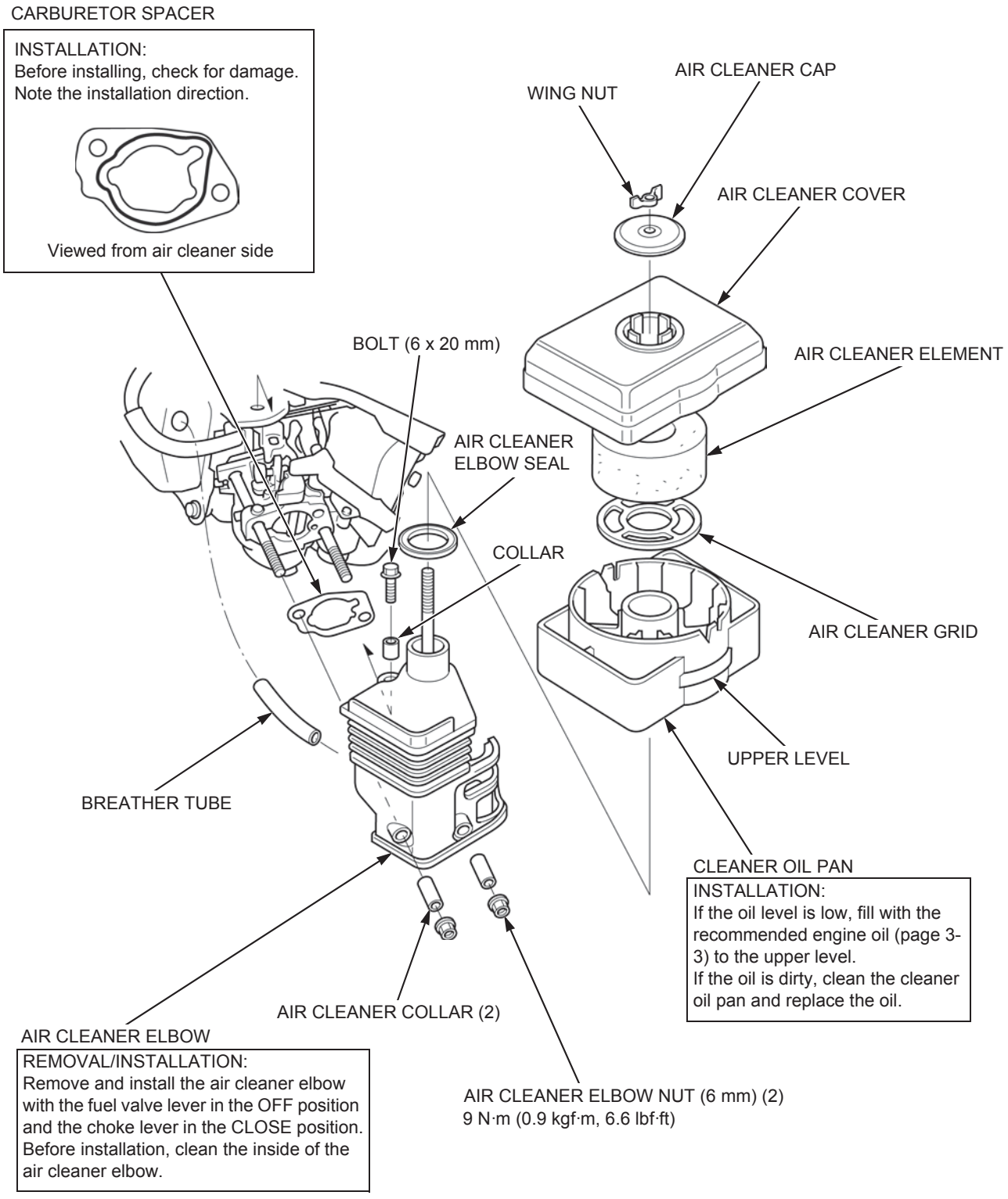
CYCLONE TYPE



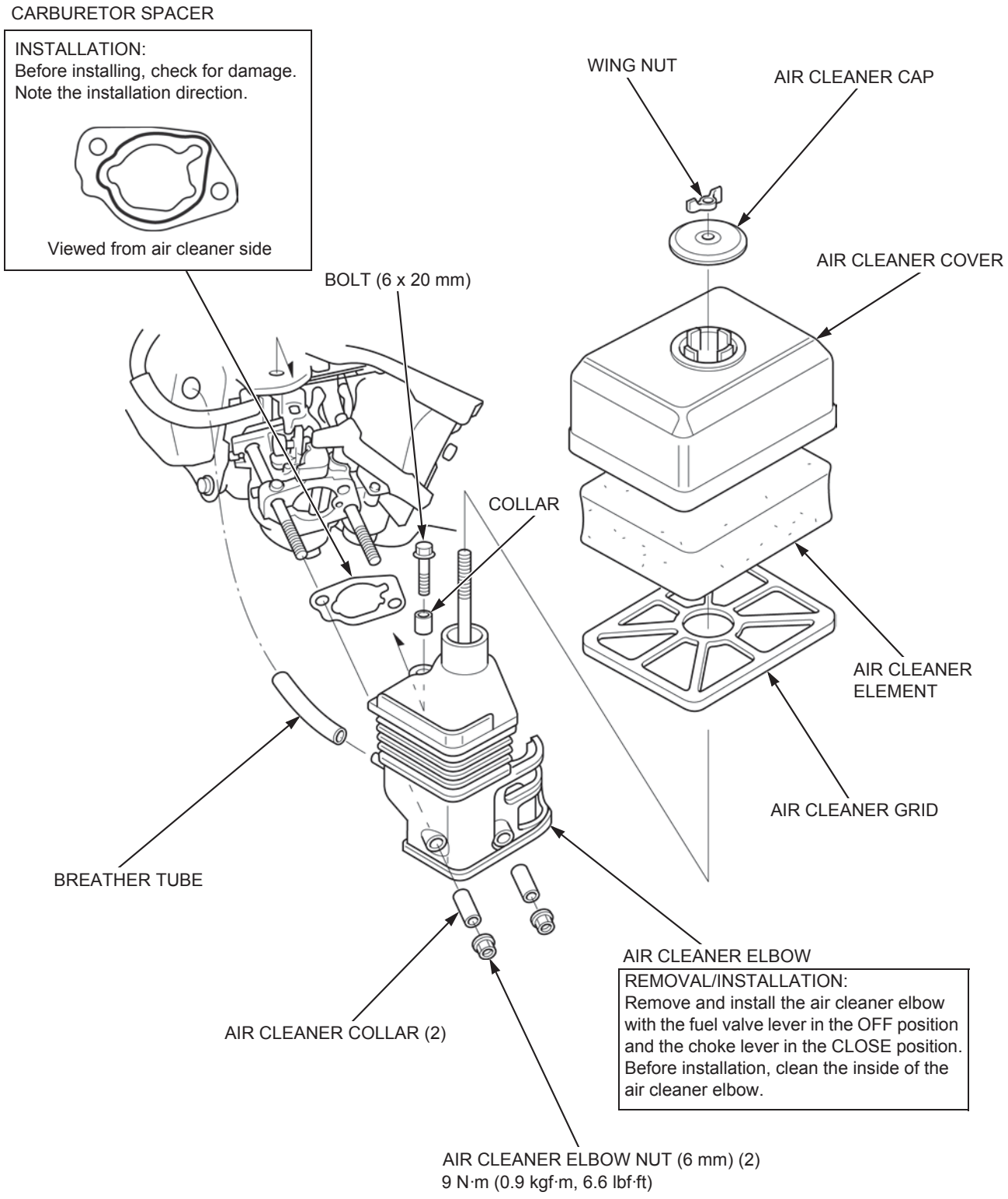
LOW PROFILE TYPE



OIL BATH TYPE



SEMI DRY TYPE



AIR CLEANER REMOVAL/ INSTALLATION

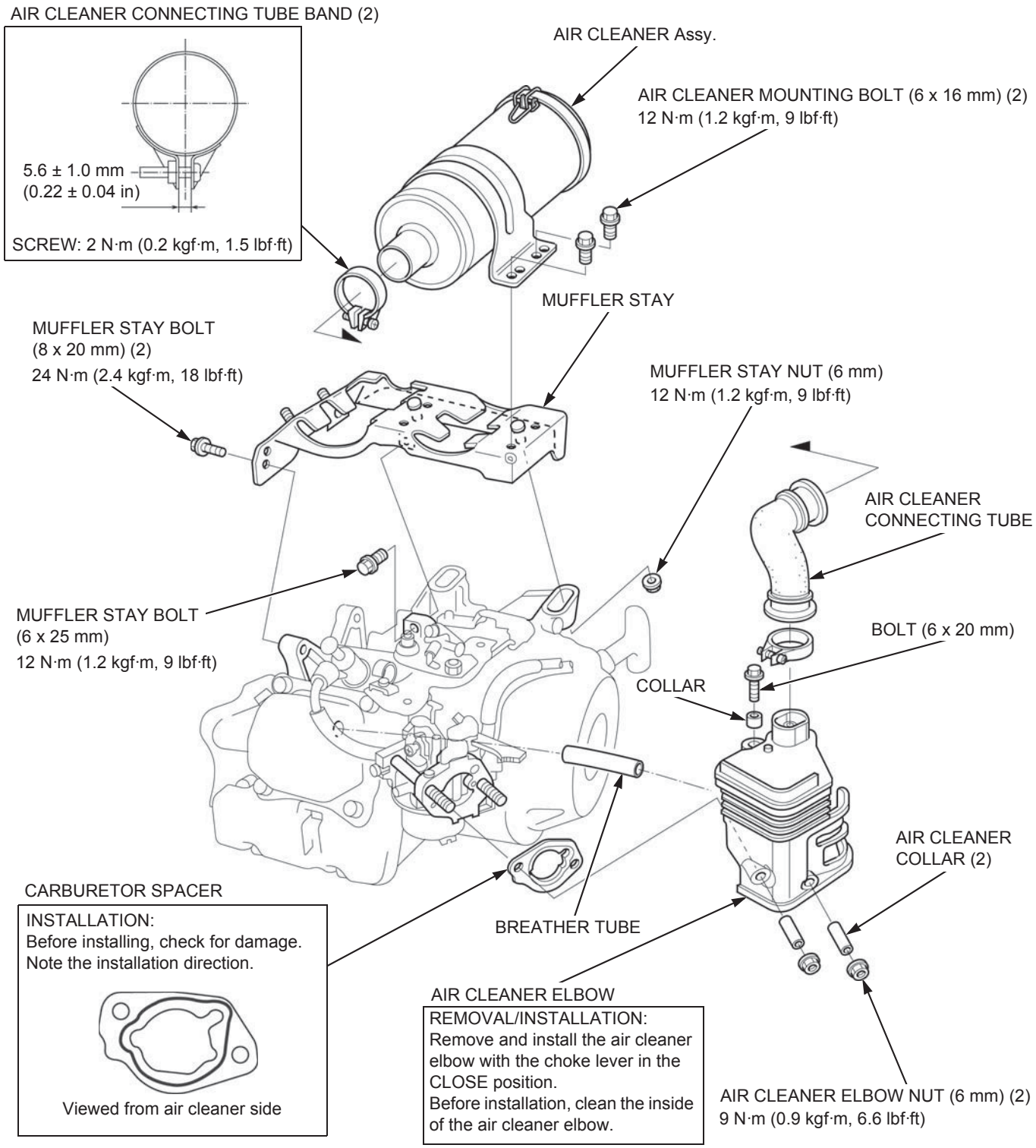
GX120RT2 (RAMMER TYPE)

(*) Refer to page of base shop manual (GX120UT2/ 160UT2/200UT2).

Remove the muffler (page 12-2).

NOTE:

- Route the breather tube properly (page 2-11*).



FUEL SYSTEM

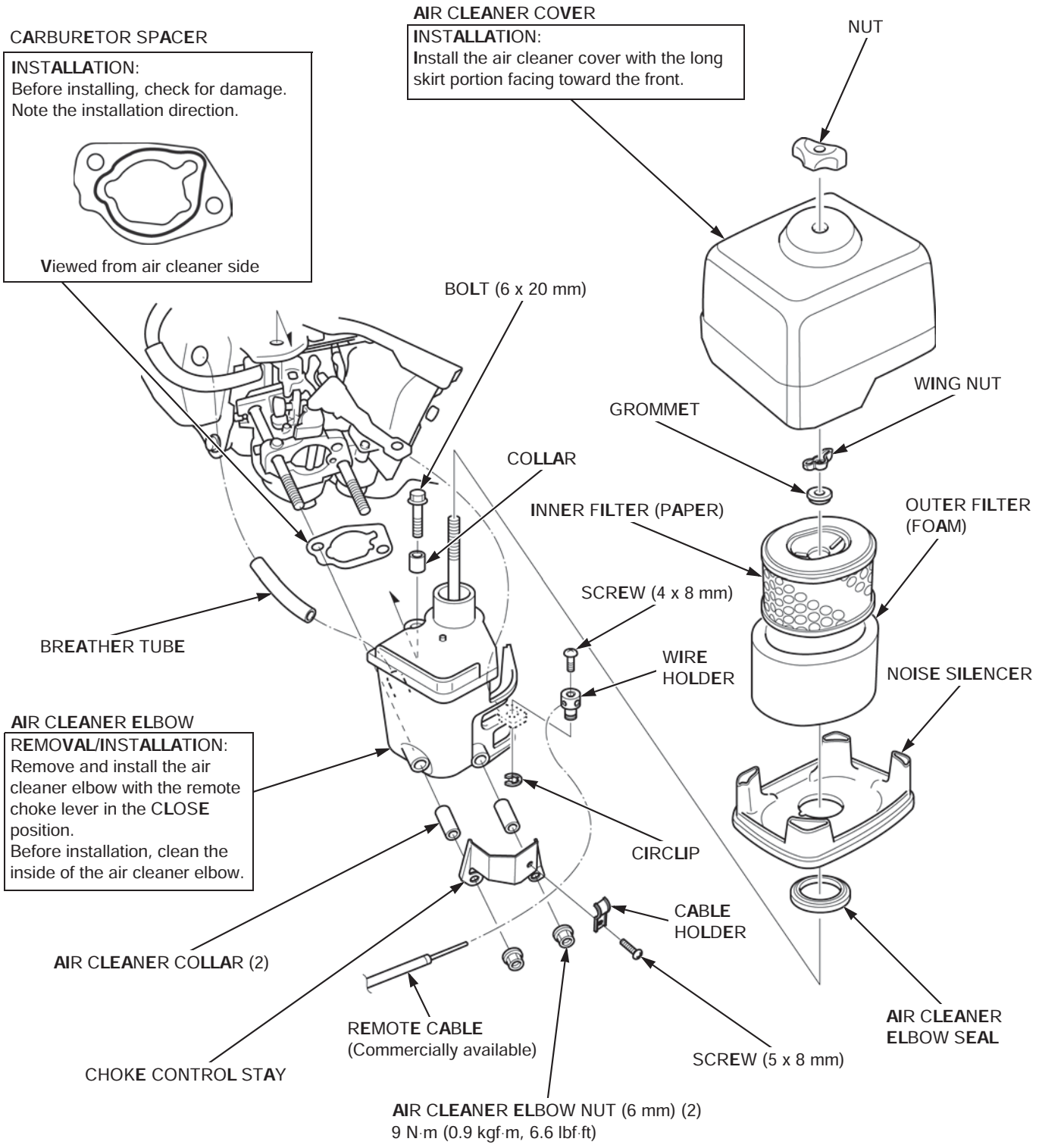
AIR CLEANER REMOVAL/ INSTALLATION

REMOTE CHOKE LEVER TYPE

(*) Refer to page of base shop manual (GX120UT2/ 160UT2/200UT2).

NOTE:

- Route the breather tube properly (page 2-11*).



CARBURETOR REMOVAL/ INSTALLATION

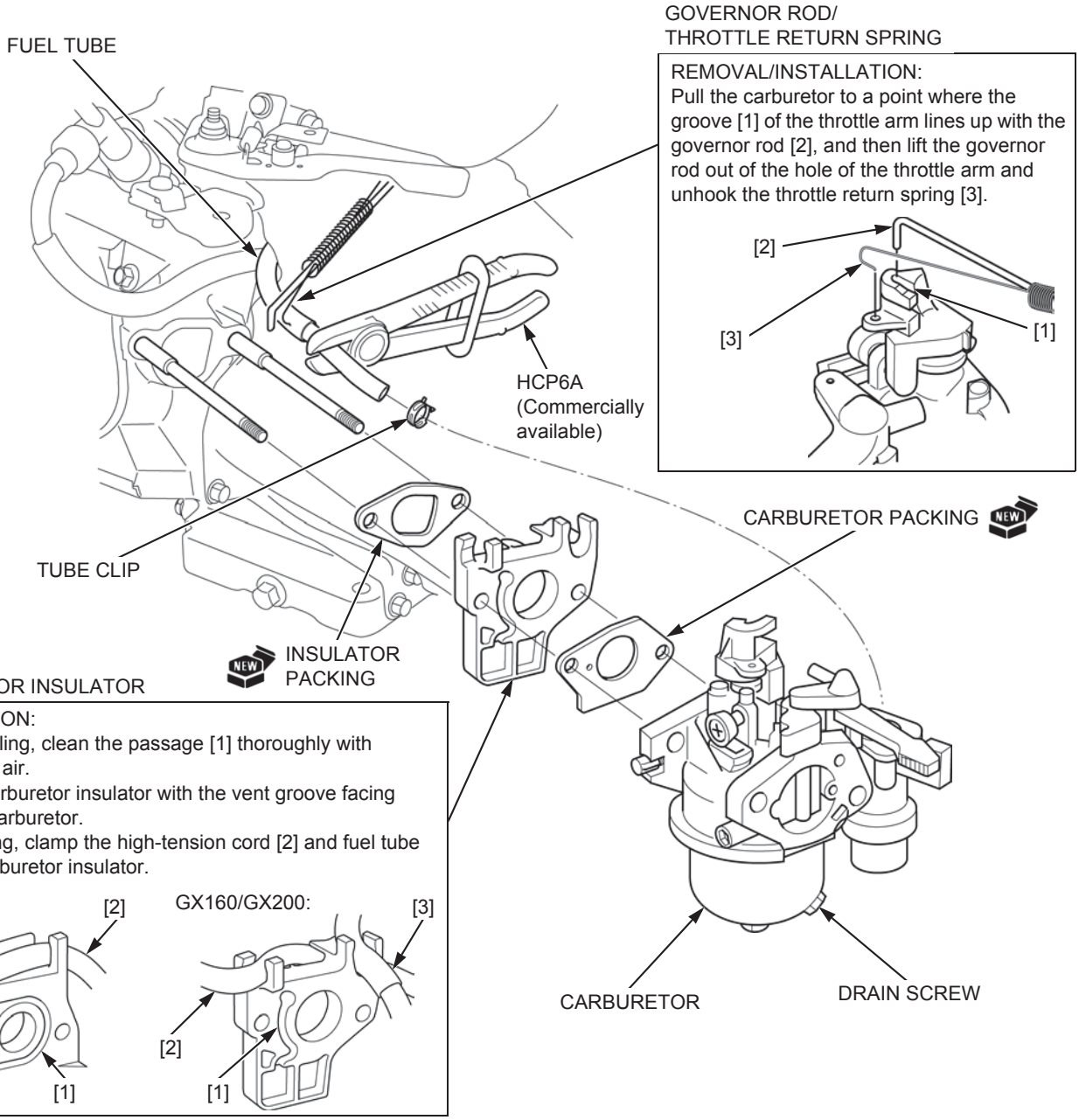
⚠WARNING

Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel.
- Keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

Remove the air cleaner (page 6-5).

Set a commercially available tube clamp HCP6A on the fuel tube.

Loosen the drain screw of the carburetor to drain the fuel completely (page 6-3).



CARBURETOR DISASSEMBLY/ ASSEMBLY

⚠WARNING

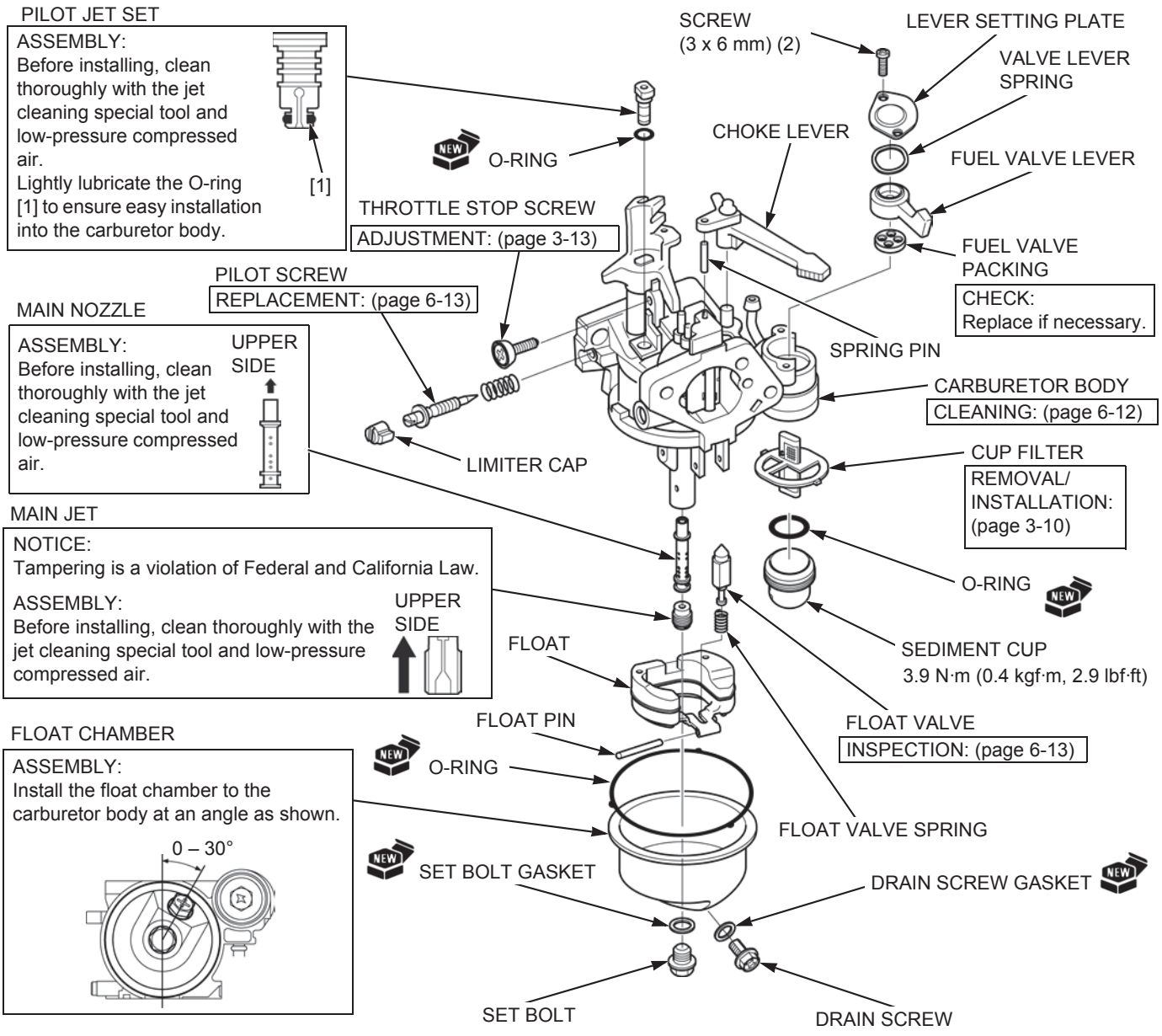
Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel.
- Keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

⚠CAUTION

To prevent serious eye injury, always wear safety goggles or other eye protection when using compressed air.

Remove the carburetor (page 6-10).

Before disassembly, clean the outside of the carburetor.



CARBURETOR DISASSEMBLY/ASSEMBLY

GX120RT2 (RAMMER TYPE)

(*) Refer to page of base shop manual (GX120UT2/160UT2/200UT2).

⚠ WARNING

Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel.
- Keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

⚠ CAUTION

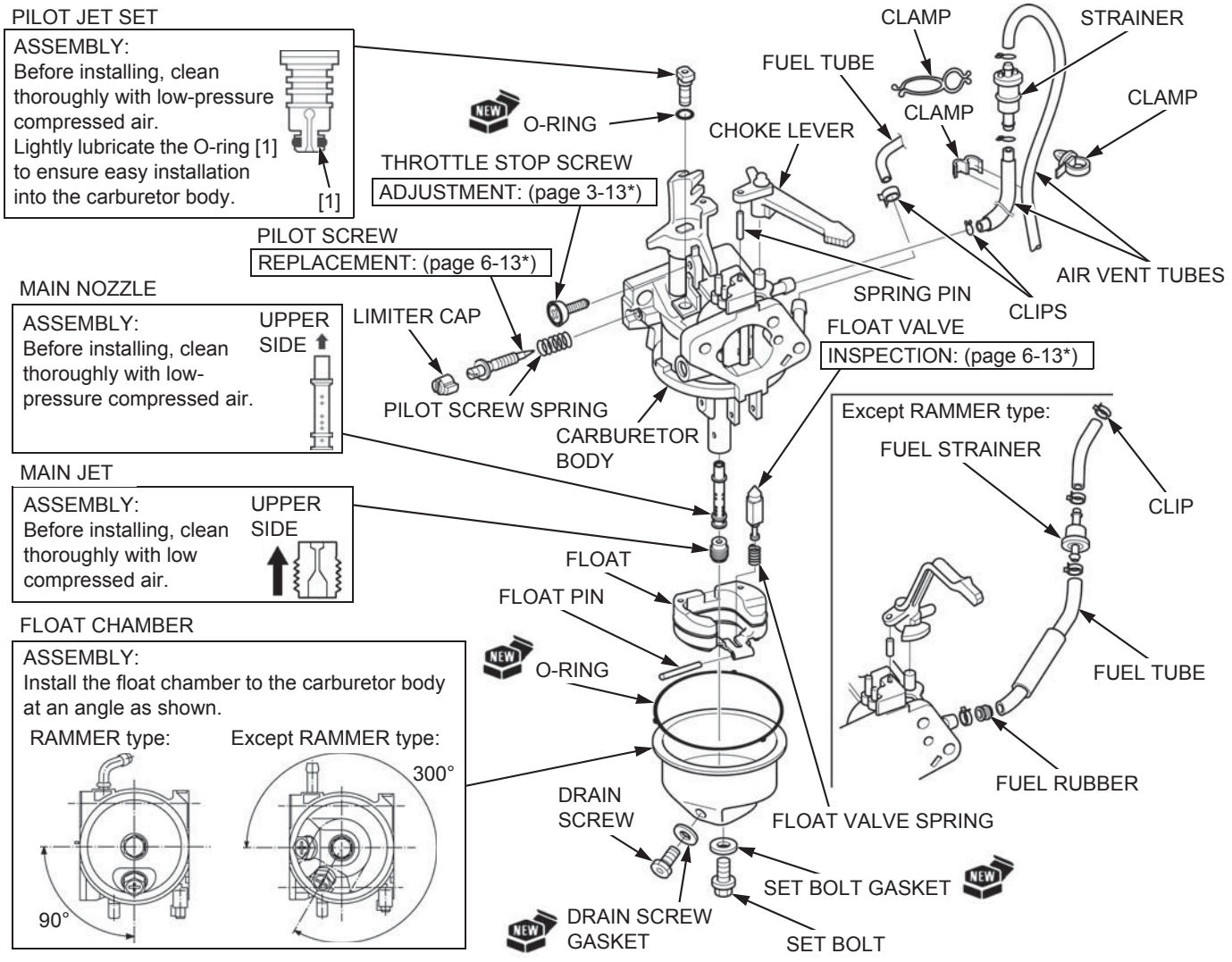
To prevent serious eye injury, always wear safety goggles or other eye protection when using compressed air.

Remove the following:
– Air cleaner (page 6-2)
– Carburetor (page 6-10*)

Before disassembly, clean the outside of the carburetor.

NOTICE

Tampering is a violation of Federal and California law.



CARBURETOR DISASSEMBLY/ ASSEMBLY

REMOTE CHOKE LEVER TYPE

(*) Refer to page of base shop manual (GX120UT2/ 160UT2/200UT2).

⚠WARNING

Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel.
- Keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

⚠CAUTION

To prevent serious eye injury, always wear safety goggles or other eye protection when using compressed air.

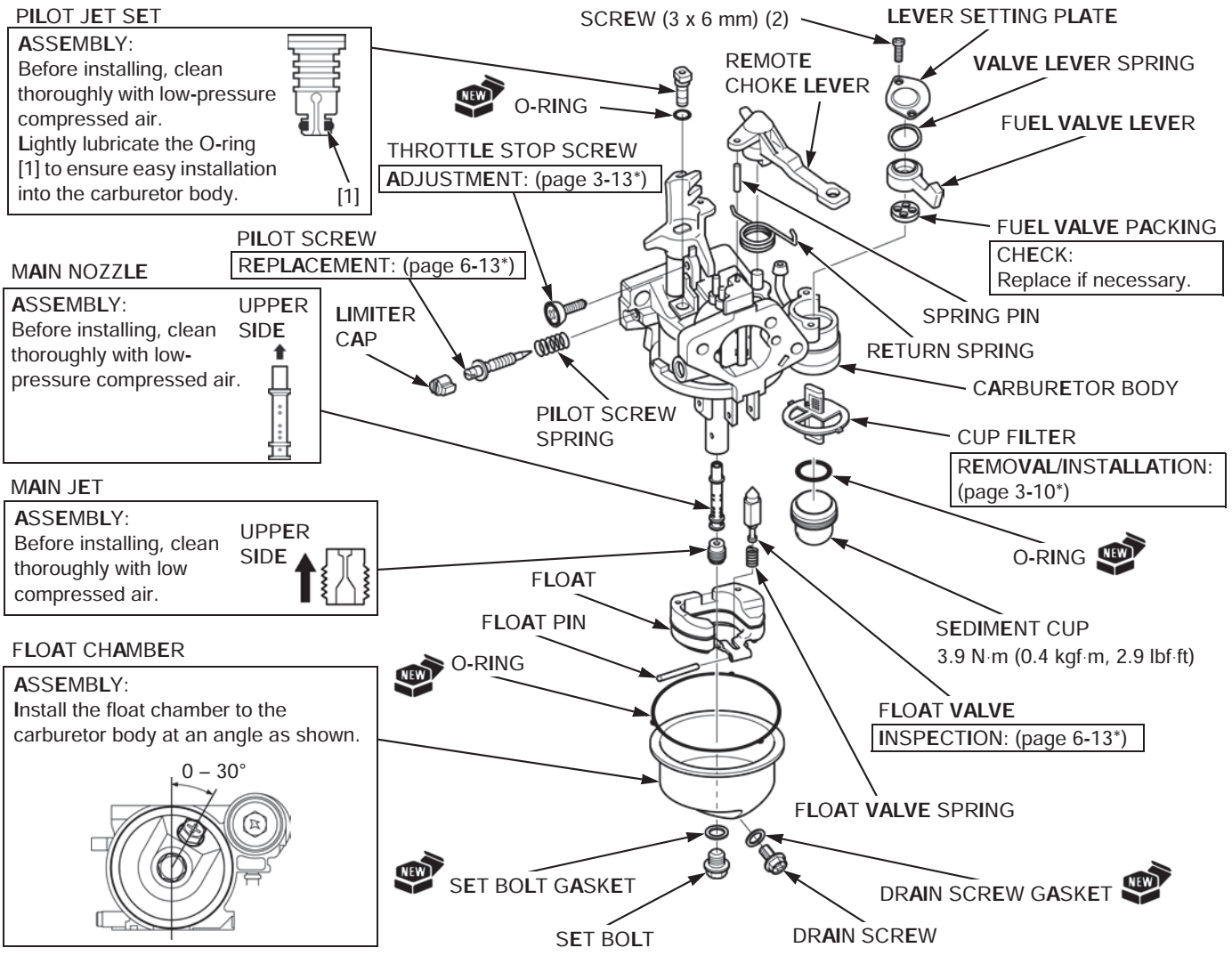
NOTICE

Tampering is a violation of Federal and California law.

Remove the following:

– Air cleaner (page 6-2)
– Carburetor (page 6-10*)

Before disassembly, clean the outside of the carburetor.



FUEL SYSTEM

LOW PROFILE TYPE

(*) Refer to page of base shop manual (GX120UT2/160UT2/200UT2).

⚠WARNING

Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel.
- Keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

⚠CAUTION

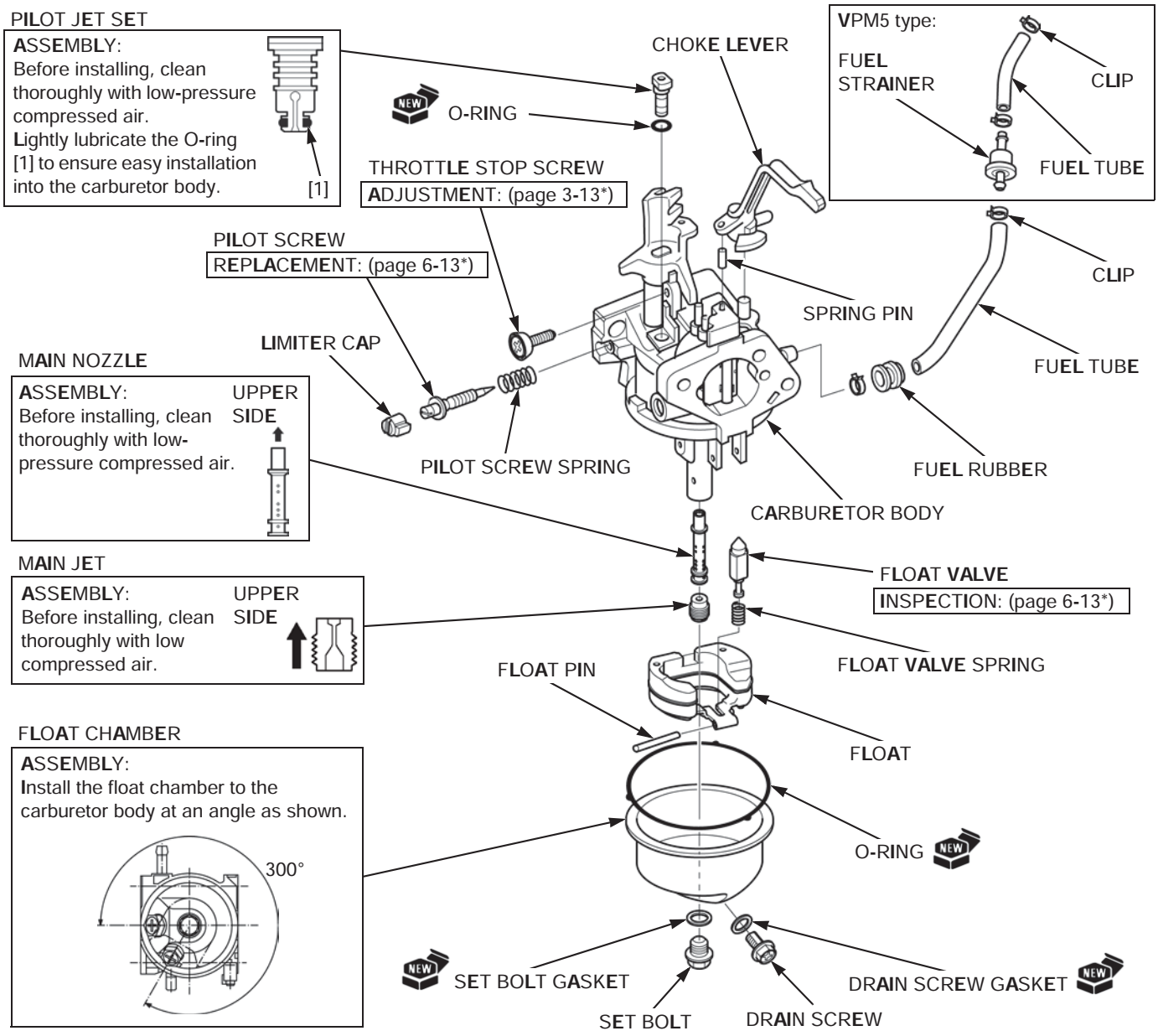
To prevent serious eye injury, always wear safety goggles or other eye protection when using compressed air.

NOTICE

Tampering is a violation of Federal and California law.

Remove the carburetor (page 6-10*).

Before disassembly, clean the outside of the carburetor.



CARBURETOR BODY CLEANING

⚠CAUTION

To prevent serious eye injury, always wear safety goggles or other eye protection when using compressed air.

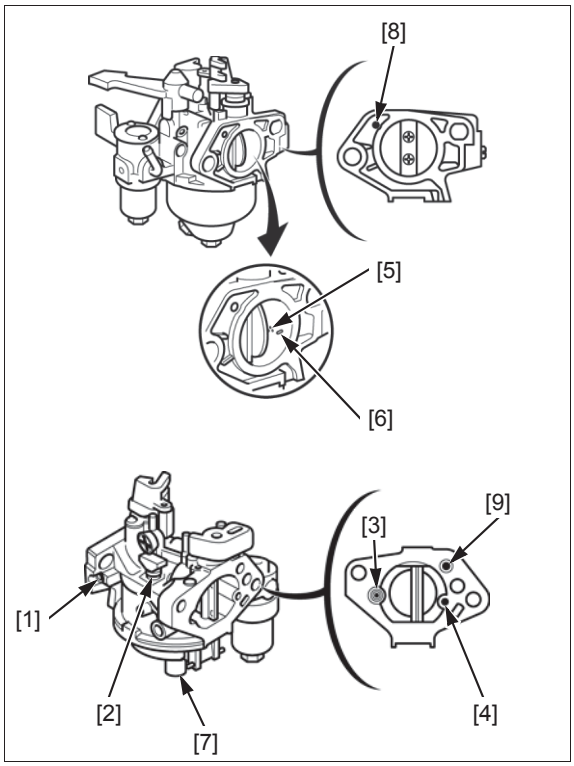
NOTICE

- *Some commercially available chemical cleaners are very caustic. These cleaners may damage plastic parts such as the O-ring, the float, and the float seat of the carburetor. Check the container for instructions. If you are in doubt, do not use these products to clean Honda carburetors.*
- *High air pressure may damage the carburetor body. Use low air pressure (206 kPa [2.11 kgf/cm^2, 30 psi] or less) when cleaning passages and ports.*

Clean the carburetor body with non-flammable solvent.

Clean thoroughly the following passages and ports with the jet cleaning special tool and low-pressure compressed air.

– Pilot screw hole [1]
– Pilot jet hole [2]
– Pilot air jet [3]
– Main air jet [4]
– Transition ports [5]
– Pilot outlet [6]
– Main nozzle holder [7]
– External vent port [8]
– Internal vent port [9]



CARBURETOR INSPECTION

FLOAT LEVEL HEIGHT

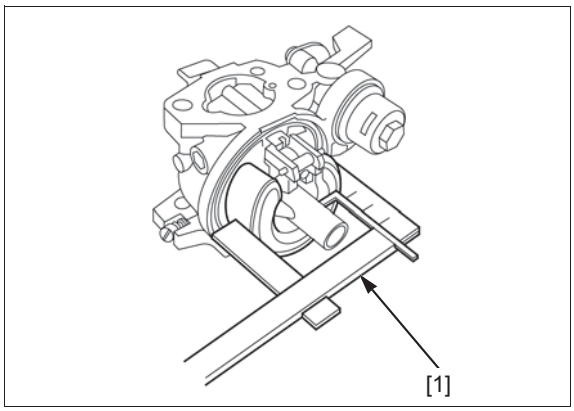
Place the carburetor in the position as shown. Measure the distance between the float top and carburetor body when the float just contacts the seat without compressing the valve spring.

TOOL:
Float level gauge [1] 07401-0010000

FLOAT HEIGHT: 13.7 mm (0.54 in)

If the measured float height is out of specification, check the float valve and float valve spring (page 6-13).

If the float valve and float valve spring are normal, replace the float (page 6-11).



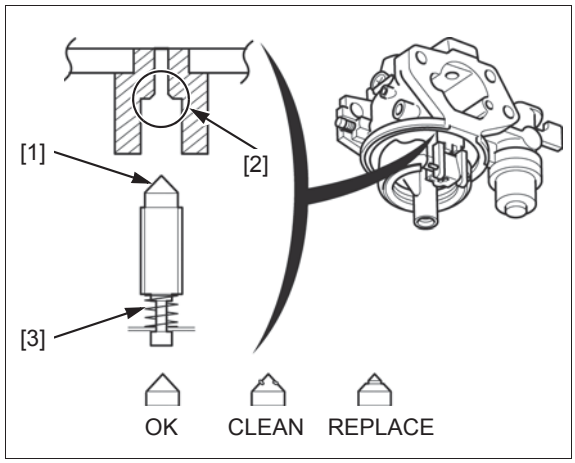
FLOAT VALVE

Check the float valve and its seat [1] for wear or contamination.

Check the valve seat [2] for clogs.

Before installation, check for wear or a weak float valve spring [3].

Check the operation of the float valve.



PILOT SCREW REPLACEMENT

NOTICE

- *Tampering is violation of Federal and California Law.*

Only remove the pilot screw [1] and limiter cap [2] when necessary for repair or to clean stubborn deposits from the pilot circuit passages.

Removal of the limiter cap requires breaking the pilot screw. A new pilot screw and limiter cap must be installed.

When the limiter cap has been broken off, remove the broken pilot screw.

Place the spring on the replacement pilot screw, and install it on the carburetor.

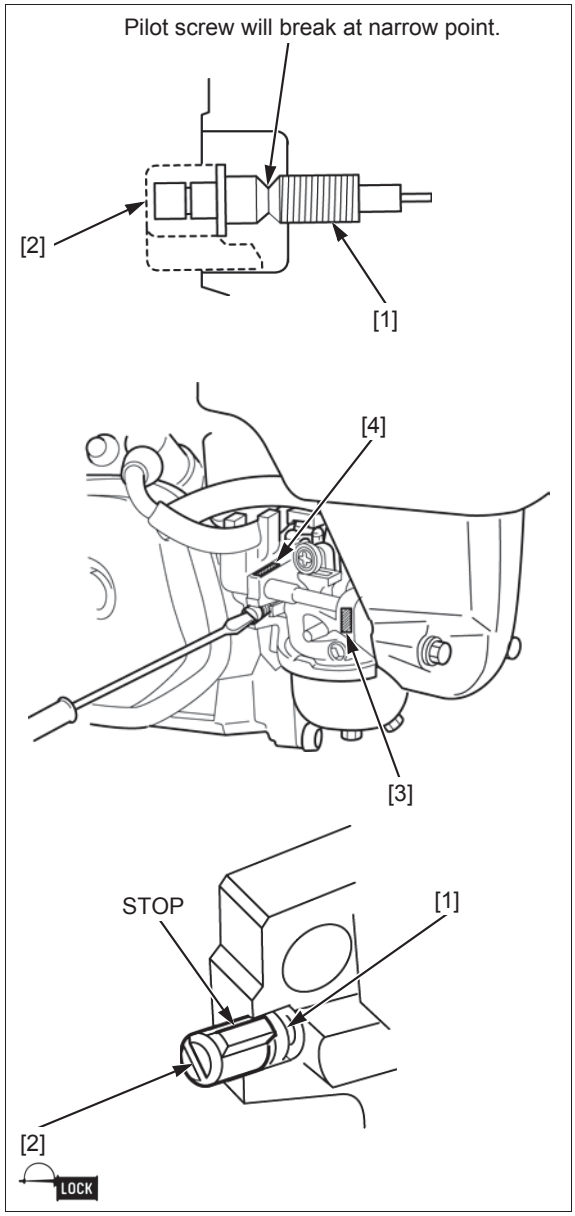
Turn the pilot screw in until it is lightly seated, and then turn the screw out the required number of turns.

Model	Carburetor identification Number [3] + [4]	Pilot screw opening
GX120	BE60W A	2-1/8
	BE99A A	1-5/8
	BE61M A	2-1/8
	BE99B A	2-1/8
GX160	BE54C A	2-1/4
	BE54D A	1-7/8
	BE66U A	1-7/8
	BE54P A	2-1/2
	BE54J B	1-7/8
GX200	BE59L A	1-7/8
	BE59N A	1-7/8
	BE59U A	2-1/4
	BE74Y A	2-3/4

Refer to the table above for carburetor pilot screw initial opening setting.

Apply Hondalock 3, LOCTITE 638, or equivalent to the inside of the limiter cap, and then install the cap so the stop prevents the pilot screw from being turned counterclockwise.

Be careful to avoid turning the pilot screw while installing the limiter cap. The pilot screw must stay at its required setting.



CHOKE REPLACEMENT

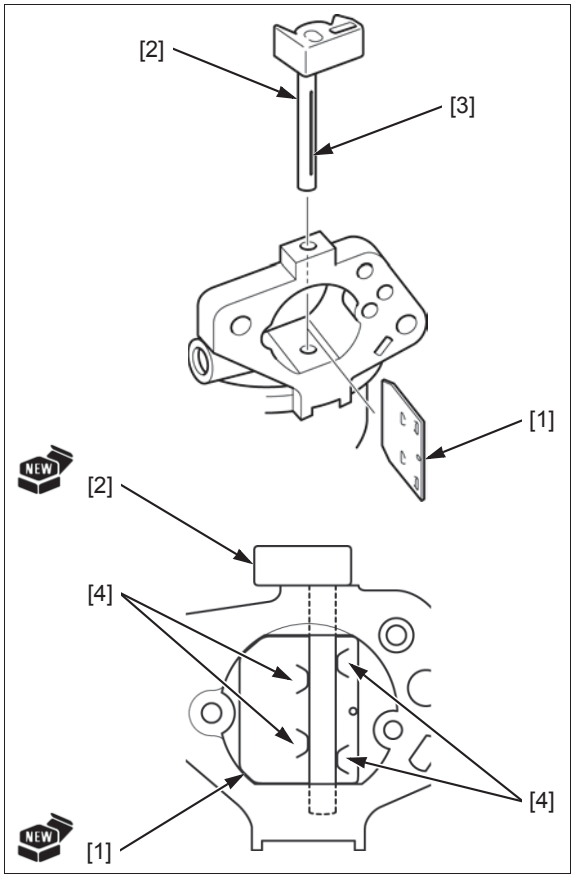
Remove the carburetor (page 6-10).

Pull out the choke valve plate [1].

Remove the choke shaft [2] and install a new choke shaft.

Insert a new choke valve plate into the slit [3] of the choke shaft.

Be sure the choke shaft is in the position between the projections [4] of the choke valve plate.

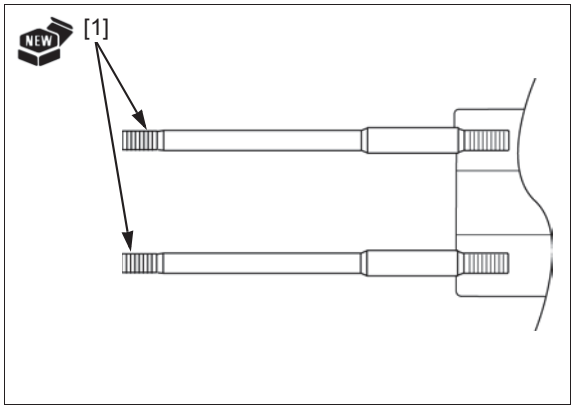


CARBURETOR STUD BOLT REPLACEMENT

Remove the carburetor (page 6-10).

Thread two nuts onto the carburetor stud bolt [1] and tighten them together, then use a wrench to turn the stud bolt out.

Install and tighten new stud bolts until they are fully seated.



7. GOVERNOR SYSTEM

GOVERNOR MECHANISM

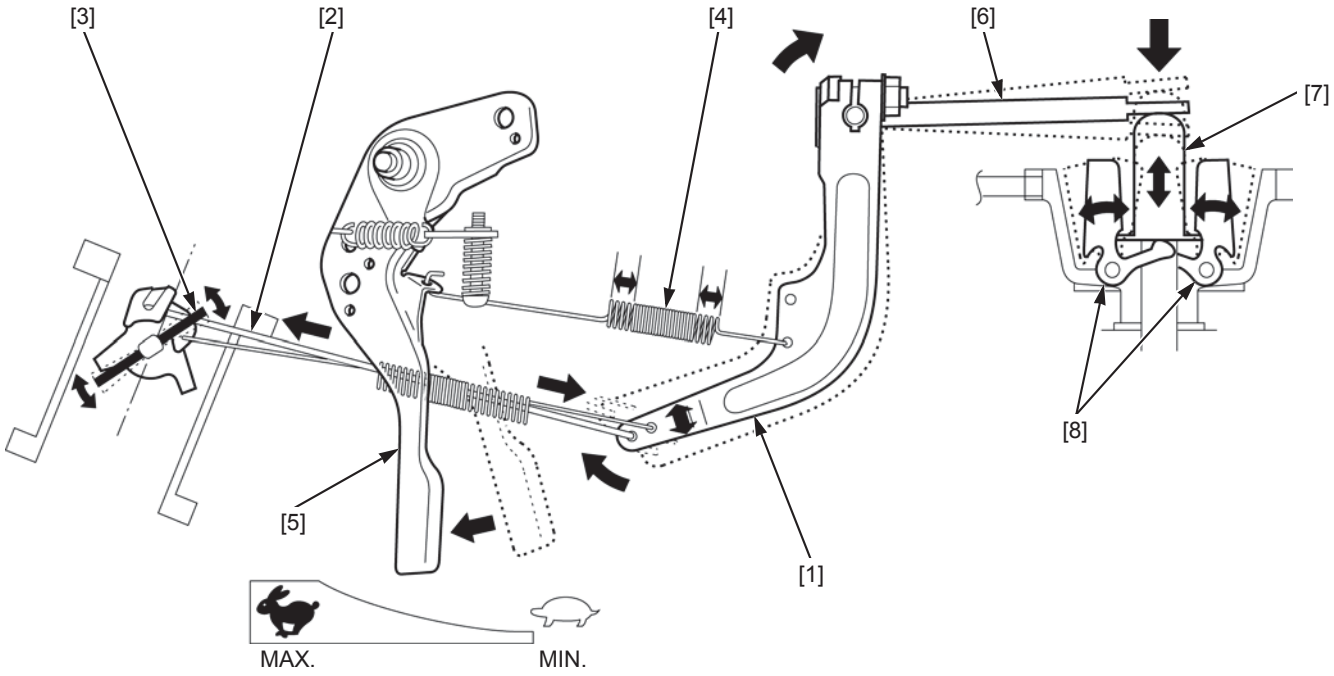
FUNCTION OF THE COMPONENTS

The free end of the governor arm [1] is linked by the governor rod [2] to the carburetor throttle valve [3]. The governor arm moves to open and close the throttle.

The middle of the governor arm is connected by the governor spring [4] to the throttle lever [5]. The pivot end of the governor arm is connected by the governor arm shaft [6] to the governor slider [7]. During operation, the governor arm is pulled left or right by the action of the governor spring and the governor arm shaft.

Centrifugal weights [8] apply outward pressure against the governor slider in proportion to the engine speed. As engine speed increases, the governor slider is forced outward against the governor arm shaft, which rises to move the free end of the governor arm to the right. This force is opposed by the governor spring. When the engine speed matches the speed set by the throttle lever, the force of the governor spring and the force of the governor arm shaft are equal, and the engine speed is stable.

If engine speed increases beyond the speed set by the throttle lever, the force of the governor mechanism will be stronger than the governor spring, and the free end of the governor arm will move right to reduce the throttle valve opening. If the engine speed falls below the speed set by the throttle lever, the force of the spring will be stronger than the governor mechanism, and the free end of the governor arm will move left to increase the throttle valve opening.



GOVERNOR ARM/CONTROL BASE Assy. REMOVAL/INSTALLATION

Remove the following parts.

– Air cleaner (page 6-5)
– Fuel tank (page 6-3)

NOTE:

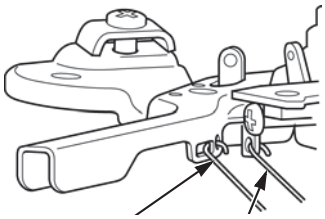
- After installation, adjust the following:
  – Governor (page 7-5)
  – Idle speed (page 3-13)
  – Maximum speed (page 7-7)

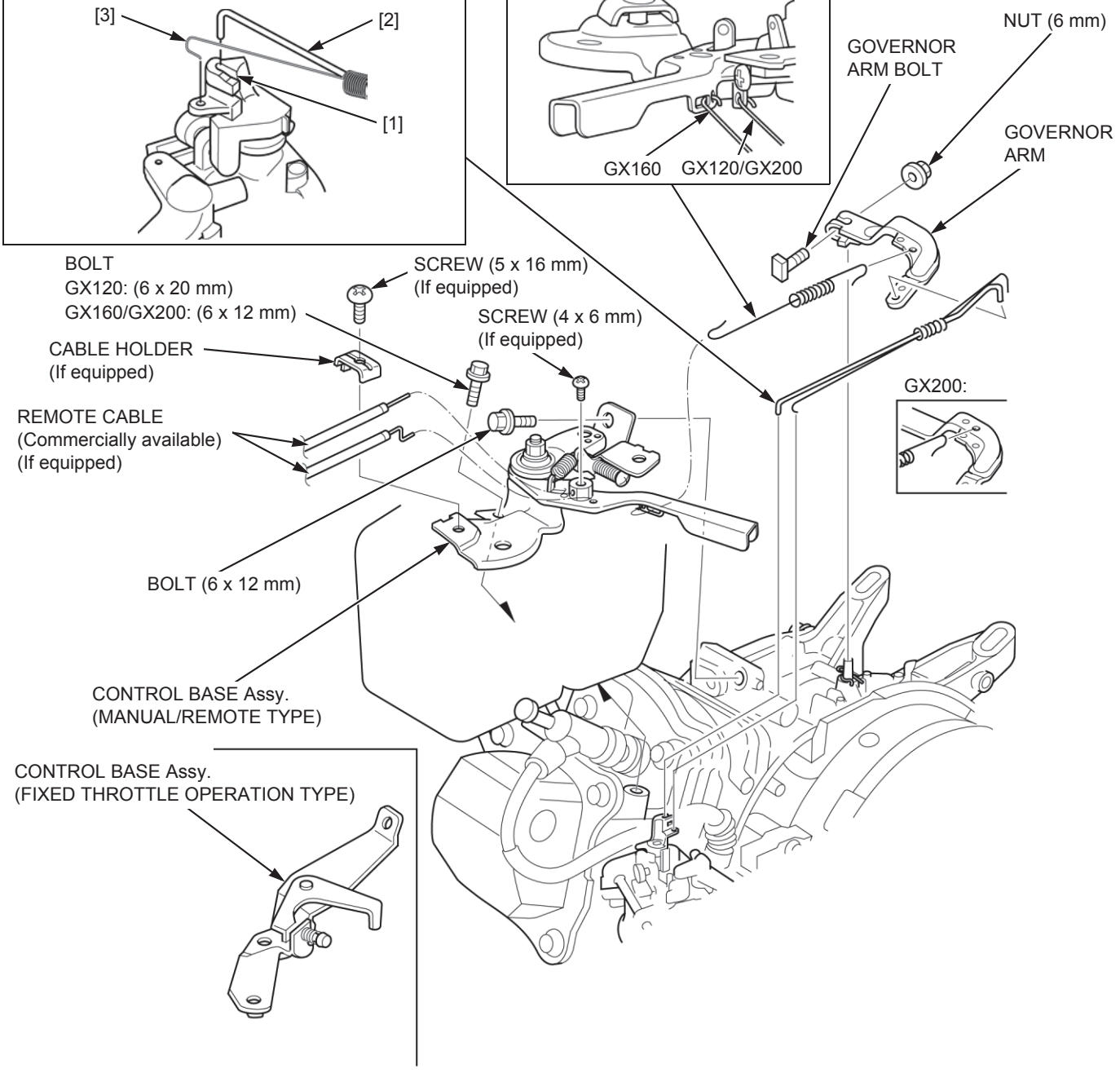
GOVERNOR ROD/THROTTLE RETURN SPRING

REMOVAL/INSTALLATION:
Pull the carburetor to a point where the groove [1] of the throttle arm lines up with the governor rod [2], and then lift the governor rod out of the hole of the throttle arm and unhook the throttle return spring [3].

GOVERNOR SPRING

INSTALLATION:
Hook the governor spring to the appropriate hole on the control lever as shown.





GOVERNOR SYSTEM

GOVERNOR ARM/CONTROL BASE Assy. REMOVAL/INSTALLATION

INTERNAL S TYPE

(*) Refer to page of base shop manual (GX120UT2/ 160UT2/200UT2).

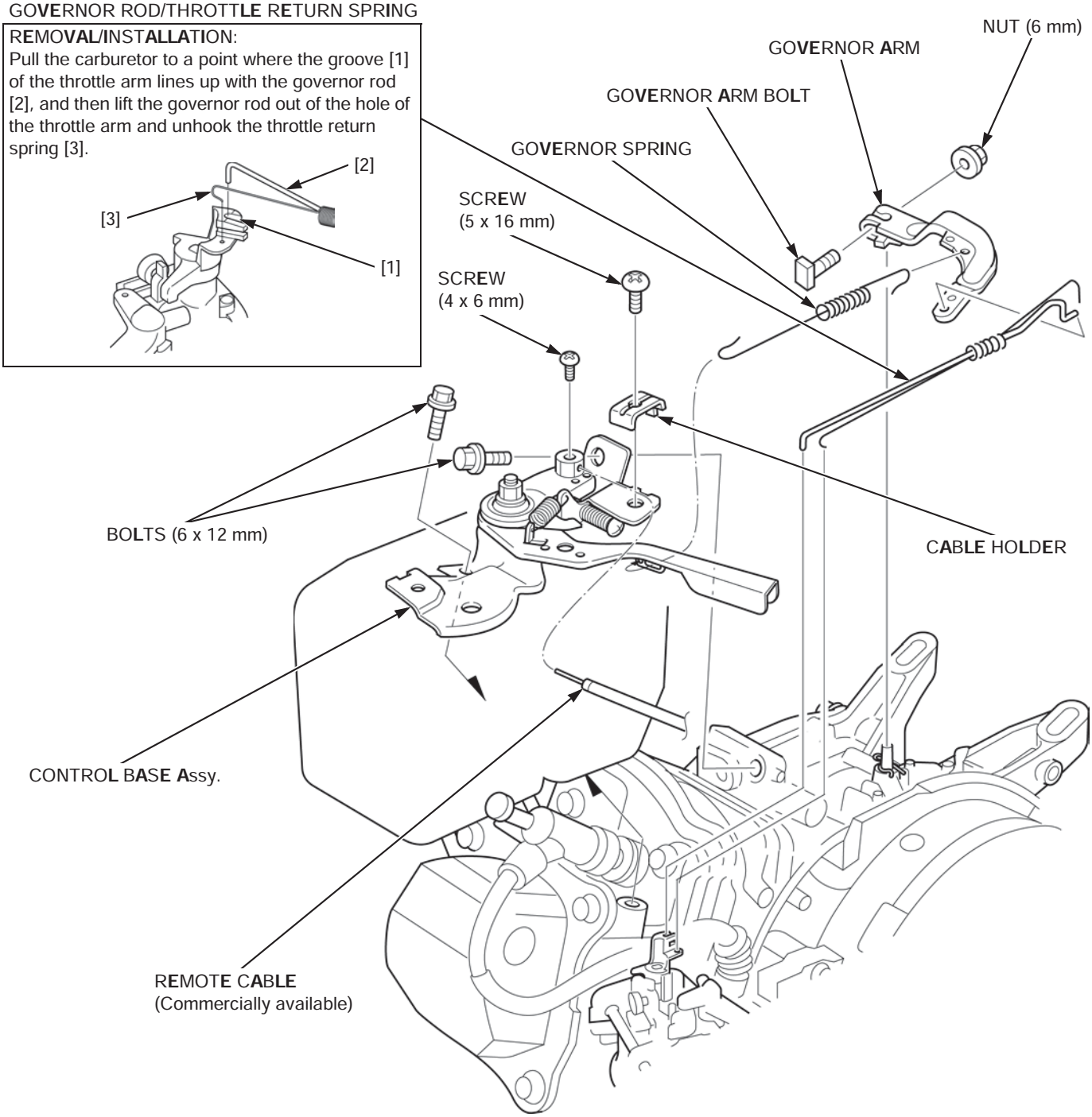
Remove the air cleaner (page 6-2).

NOTE:

- **A**fter installation, adjust the following:
  - Governor (page 7-5*)
  - **I**dle speed (page 3-13*)
  - Maximum speed (page 7-7*)

GO**VE**RNOR ROD/THROTT**LE** R**E**TURN SPR**I**NG

R**E**MO**VAL**/**I**NST**ALLATI**ON:
Pull the carburetor to a point where the groove [1] of the throttle arm lines up with the governor rod [2], and then lift the governor rod out of the hole of the throttle arm and unhook the throttle return spring [3].



GOVERNOR ARM/CONTROL BASE Assy. REMOVAL/INSTALLATION

GX200RT2 (AUTO THROTTLE TYPE)

(*) Refer to page of base shop manual (GX120UT2/ 160UT2/200UT2.

Remove the following parts.

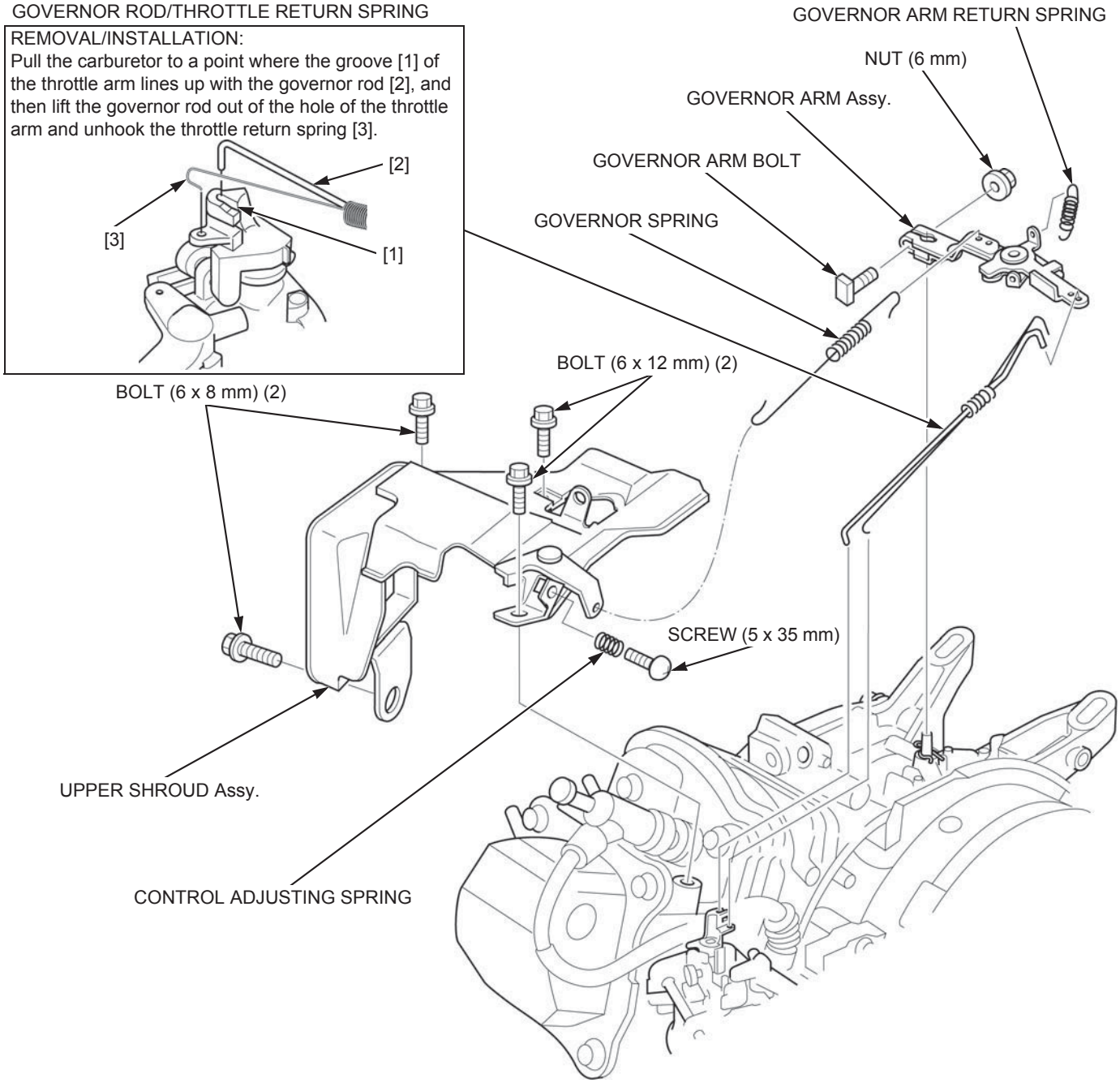
– Air cleaner (page 6-7*)
– Fuel tank (page 6-3*)
– Muffler (page 12-2)
– Auto throttle Assy. (page 7-3)

NOTE:

• After installation, adjust the maximum speed (page 7-4).

GOVERNOR ROD/THROTTLE RETURN SPRING

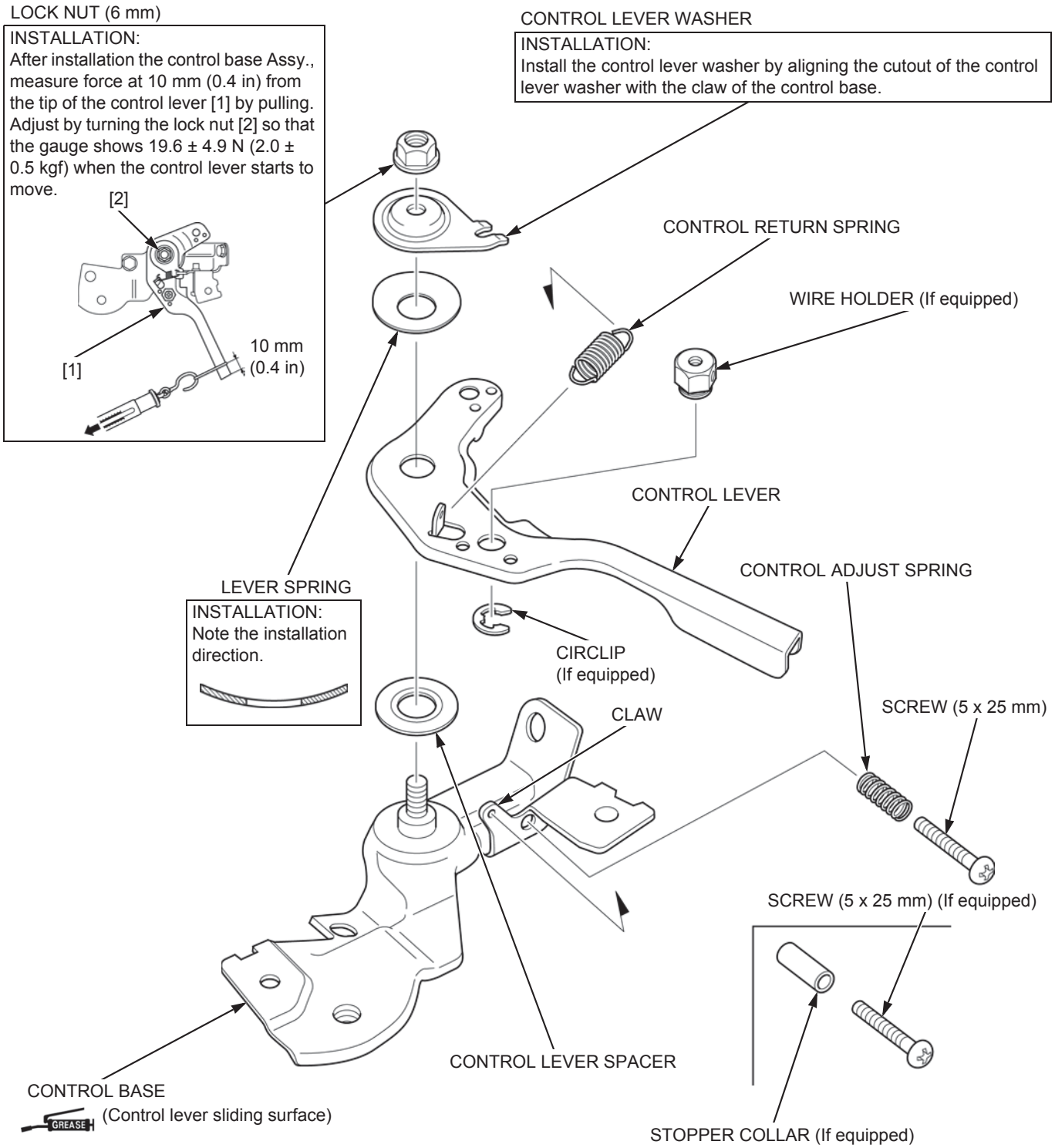
REMOVAL/INSTALLATION:
Pull the carburetor to a point where the groove [1] of the throttle arm lines up with the governor rod [2], and then lift the governor rod out of the hole of the throttle arm and unhook the throttle return spring [3].



CONTROL BASE Assy. DISASSEMBLY/ ASSEMBLY

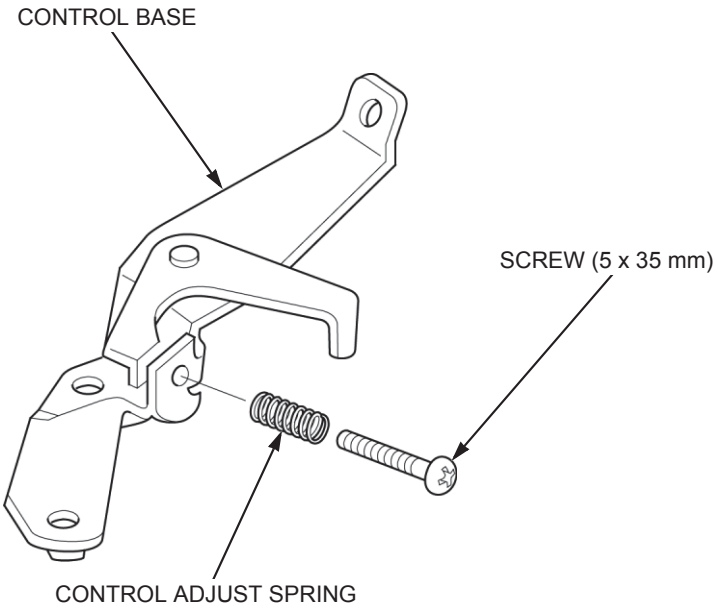
MANUAL/REMOTE TYPE

Remove the control base Assy (page 7-3).



FIXED THROTTLE OPERATION TYPE

Remove the control base Assy. (page 7-3).



GOVERNOR ADJUSTMENT

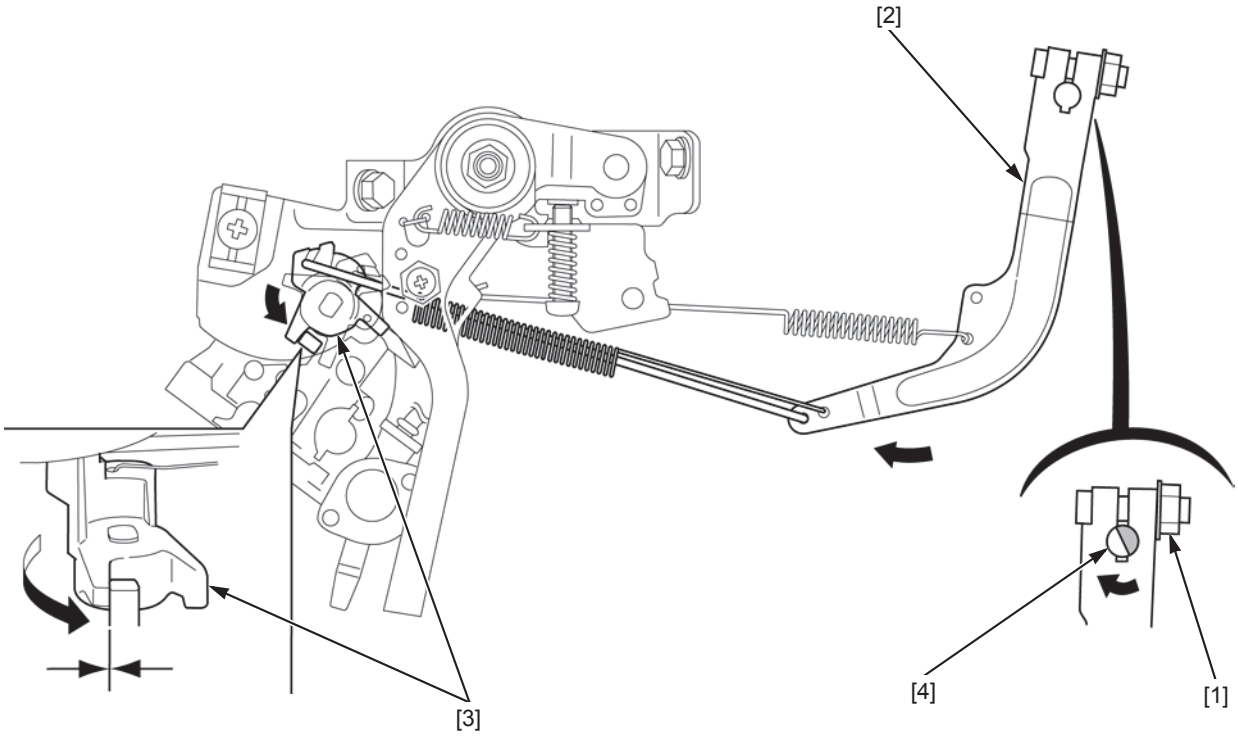
Loosen the nut (6 mm) [1] of the governor arm.

Turn the governor arm [2] clockwise to fully open the carburetor throttle valve [3].

Rotate the governor arm shaft [4] as far as it will go in the same direction the governor arm moved to open the throttle valve.

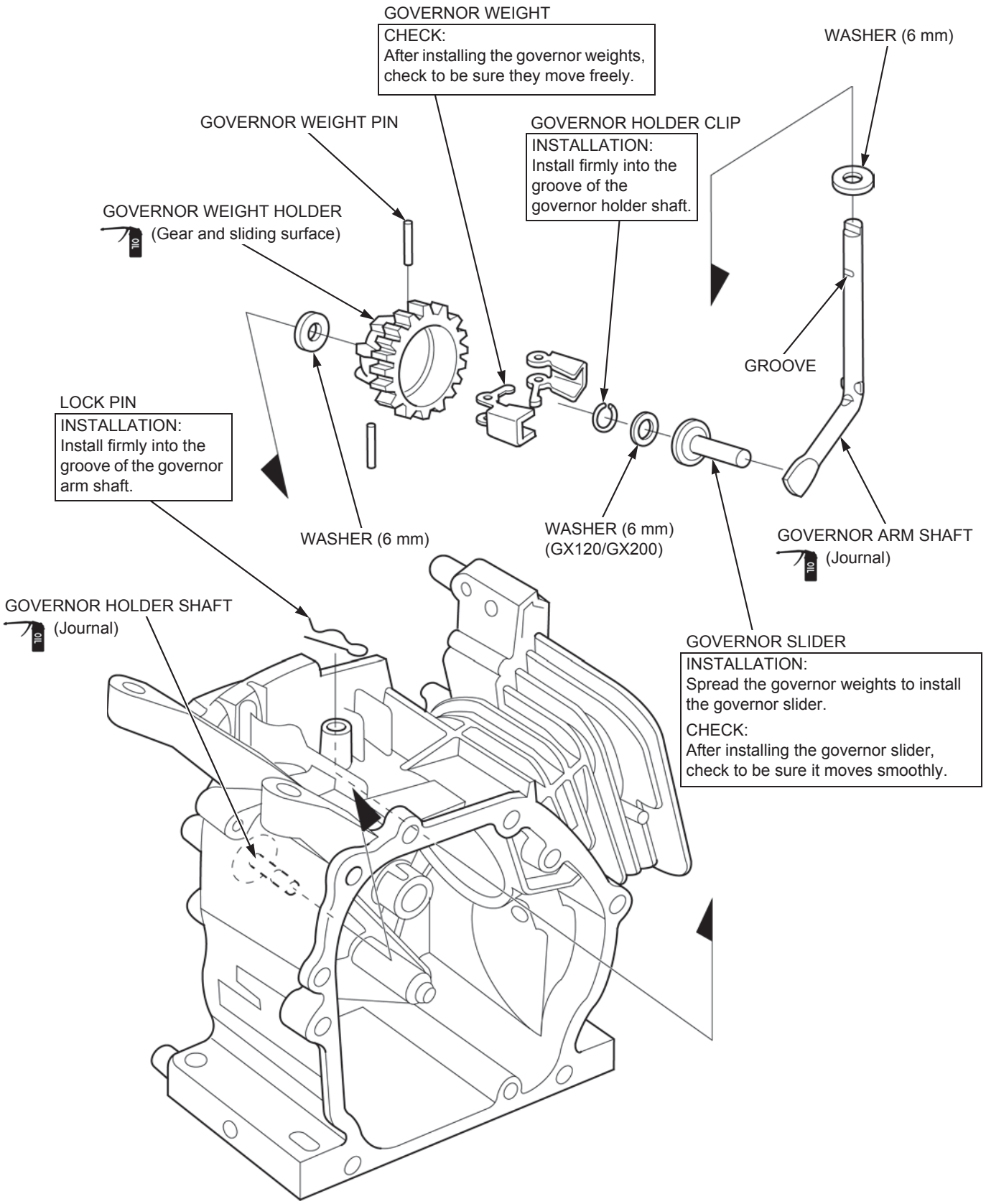
Make sure the carburetor throttle valve is fully open.

Tighten the nut (6 mm) securely.



GOVERNOR DISASSEMBLY/ ASSEMBLY

Remove the crankshaft (page 14-4).



MAXIMUM SPEED ADJUSTMENT

Use a tachometer with graduations of 50 min^{-1} (rpm) or smaller that will accurately indicate 50 min^{-1} (rpm) changes.

Start the engine and allow it to warm up to normal operating temperature.

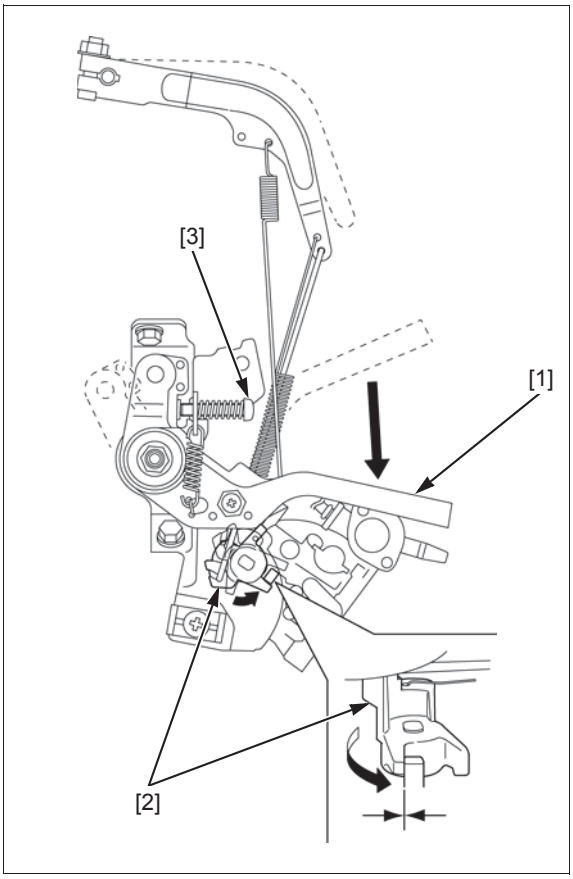
Move the control lever [1] to run the engine at the specified maximum speed, and hold the control lever.

Make sure the carburetor throttle valve [2] is fully open.

Turn the screw [3] of the control base to obtain the specified maximum speed.

MAXIMUM SPEED:

GX120: 3,900 ± 100 min^{-1} (rpm)
GX160: 3,900 ± 100 min^{-1} (rpm)
GX200: 3,850 ± 150 min^{-1} (rpm)



AUTO THROTTLE Assy. REMOVAL/ INSTALLATION

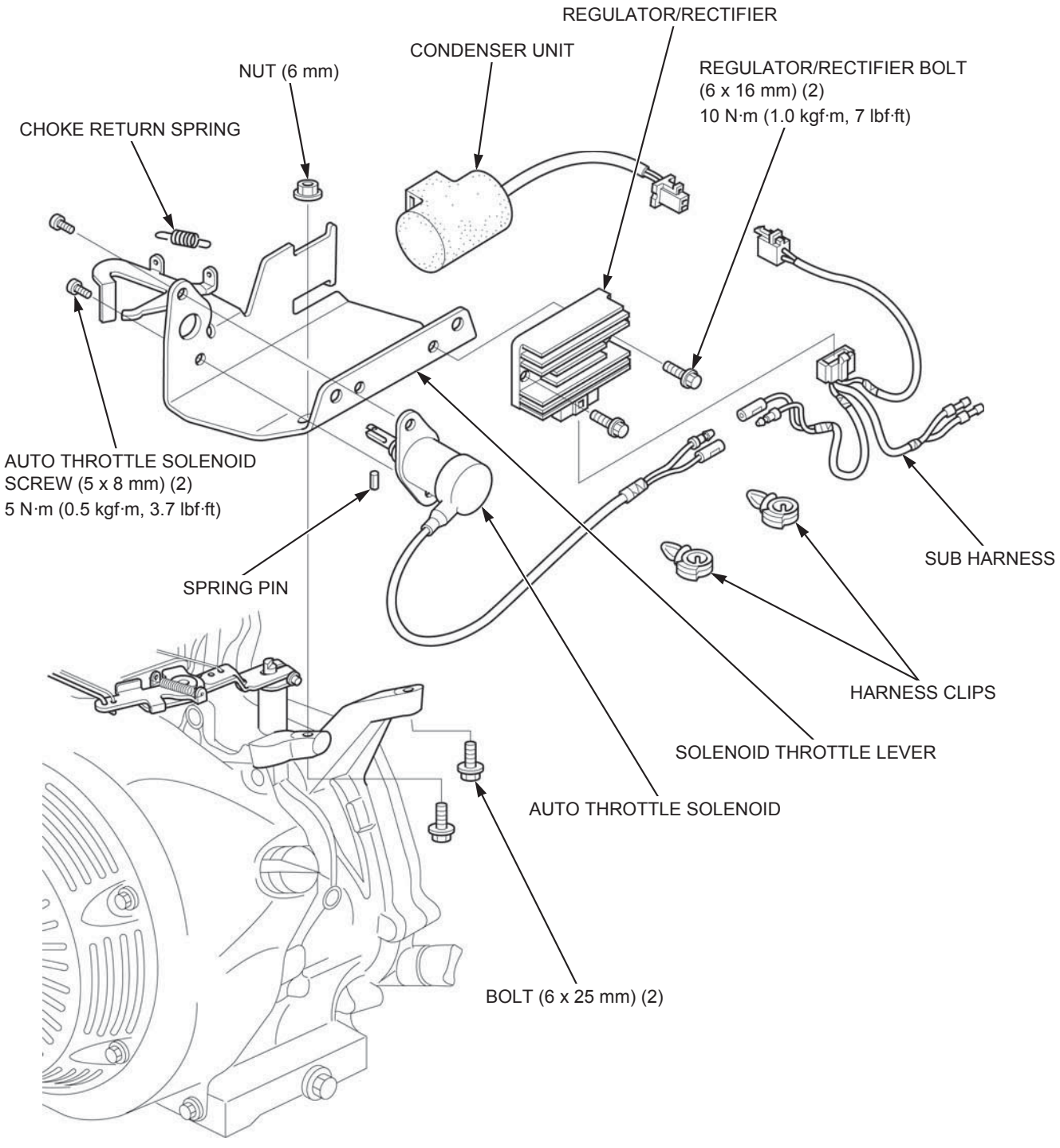
GX200RT2 (AUTO THROTTLE TYPE)

(*) Refer to page of base shop manual (GX120UT2/ 160UT2/200UT2).

Remove the fuel tank (page 6-3*).

NOTE:

- After installation, adjust the maximum speed (page 7-4).



MAXIMUM SPEED ADJUSTMENT

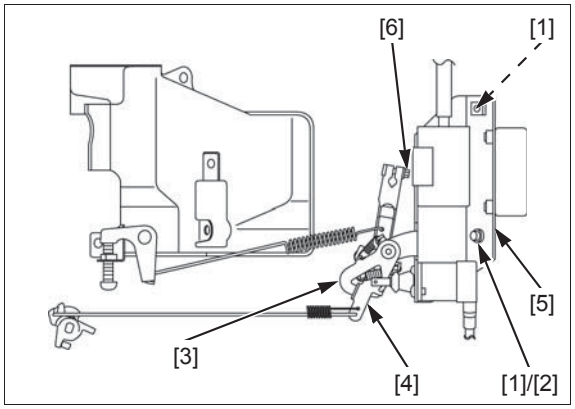
GX200RT2 (AUTO THROTTLE TYPE)

(*) Refer to page of base shop manual (GX120UT2/ 160UT2/200UT2).

Remove the fuel tank (page 6-3*).

Loosen the bolts (6 x 25 mm) [1] and nut (6 mm) [2]. Release the solenoid throttle lever [3] from the governor sub arm [4] by moving the auto throttle assy. [5].

Loosen the nut (6 mm) [6] of the governor arm.

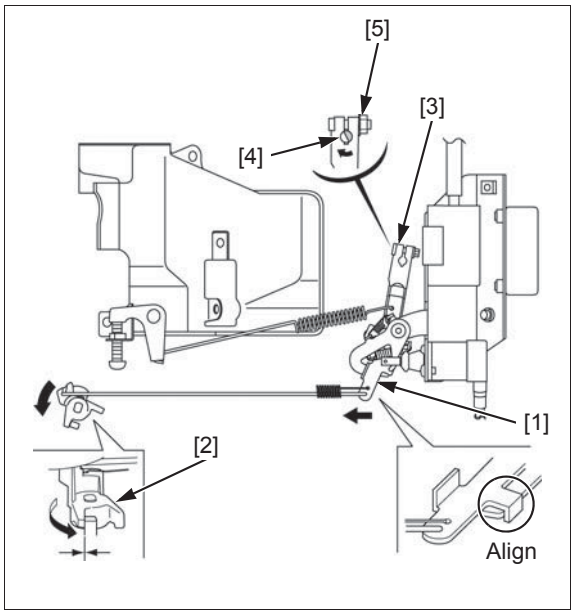


Turn the governor sub arm [1] clockwise to fully open the carburetor throttle valve [2].
Make sure the stoppers of the governor arm [3] with the governor sub arm are aligned.

Rotate the governor arm shaft [4] as far as it will go in the same direction the governor sub arm moved to open the throttle valve.

Make sure the carburetor throttle valve is fully opened.

Tighten the nut (6 mm) [5] securely.



Align the solenoid throttle lever [1] to the governor sub arm [2] by moving the auto throttle assy. [3] and tighten the bolts (6 x 25 mm) [4] and nut (6 mm) [5].

Install the fuel tank (page 6-3*).

Turn the auto throttle switch to "OFF" position.

Use a tachometer with graduations of 50 min^{-1} (rpm) or smaller that will accurately indicate 50 min^{-1} (rpm) changes.

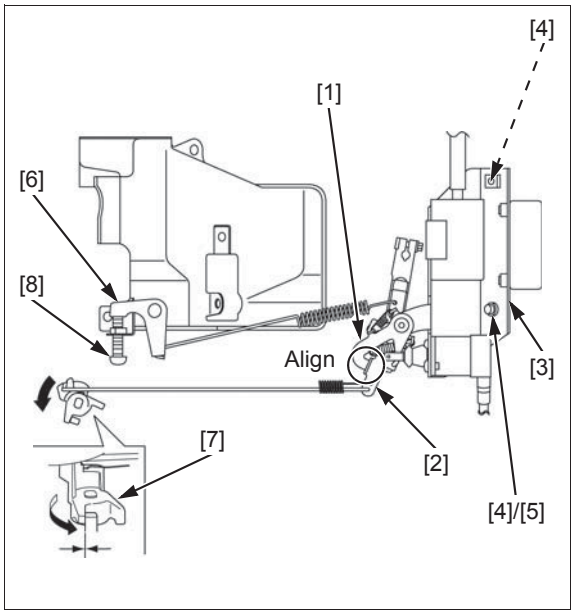
Start the engine and allow it to warm up to normal operating temperature.

Move the control lever [6] to run the engine at the specified maximum speed, and hold the control lever.

MAXIMUM SPEED: 3,900 ± 100 min^{-1} (rpm)

Make sure the carburetor throttle valve [7] is fully opened and turn the screw [8] until its end lightly touches the control lever.

If necessary, adjust the idle speed (page 3-13*).



AUTO THROTTLE SOLENOID INSPECTION

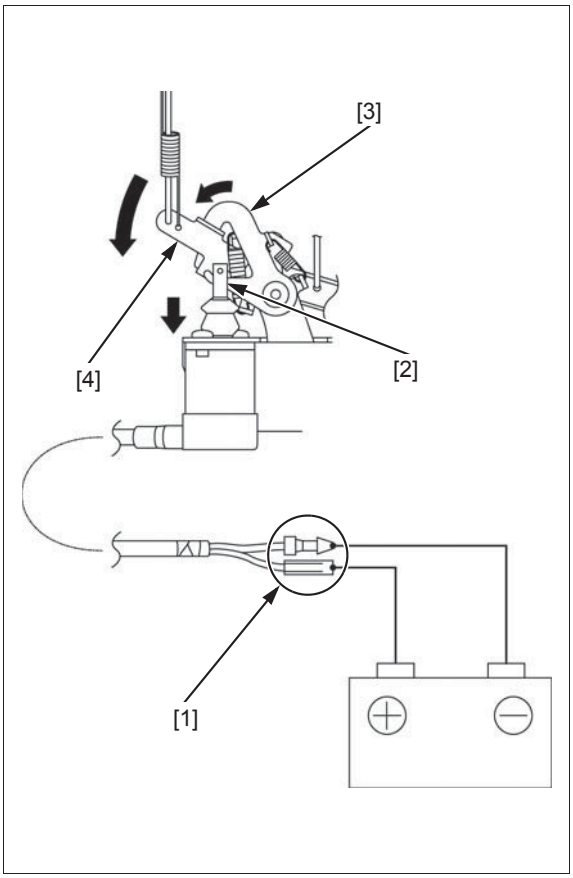
GX200RT2 (AUTO THROTTLE TYPE)

(*) Refer to page of base shop manual (GX120UT2/160UT2/200UT2).

Remove the fuel tank (page 6-3*).

Connect a fully charged 12 V battery to the auto throttle solenoid terminals [1] and check the auto throttle solenoid operation.

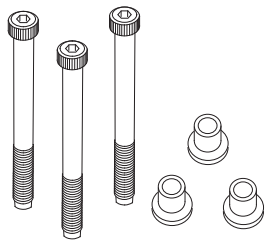
Make sure that the auto throttle solenoid [2], throttle solenoid lever [3], and governor sub arm [4] move as shown when a 12 V battery is connected.
Also make sure that the auto throttle solenoid, throttle solenoid lever, and governor sub arm return to the original position when disconnecting battery.



8. CHARGING SYSTEM

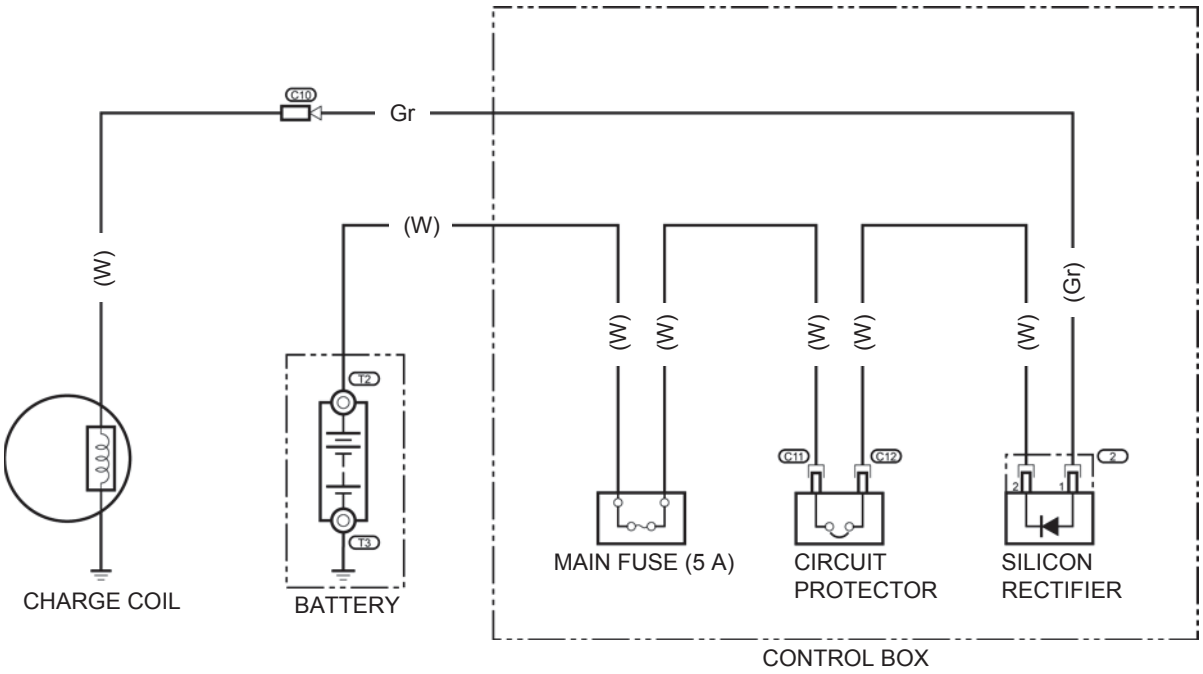
TOOL

Puller collar set
07APC-ZY1A100

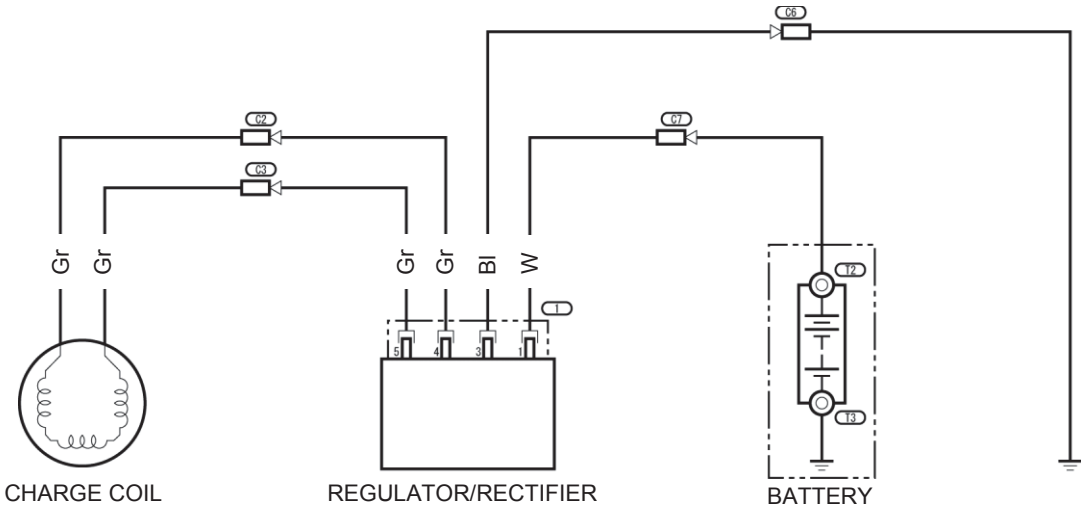


SYSTEM DIAGRAM

1 A/3 A CHARGE COIL TYPE:



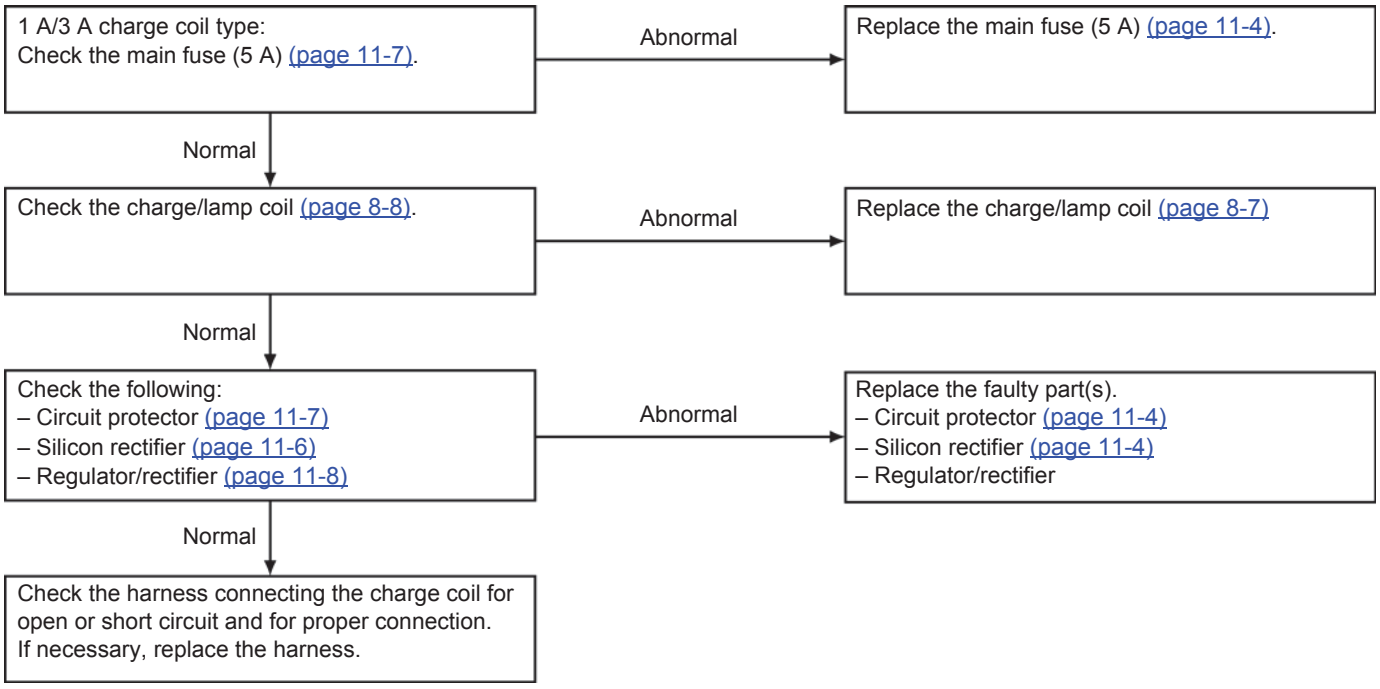
7 A CHARGE COIL TYPE:



CHARGING SYSTEM TROUBLESHOOTING

Check the following before troubleshooting:

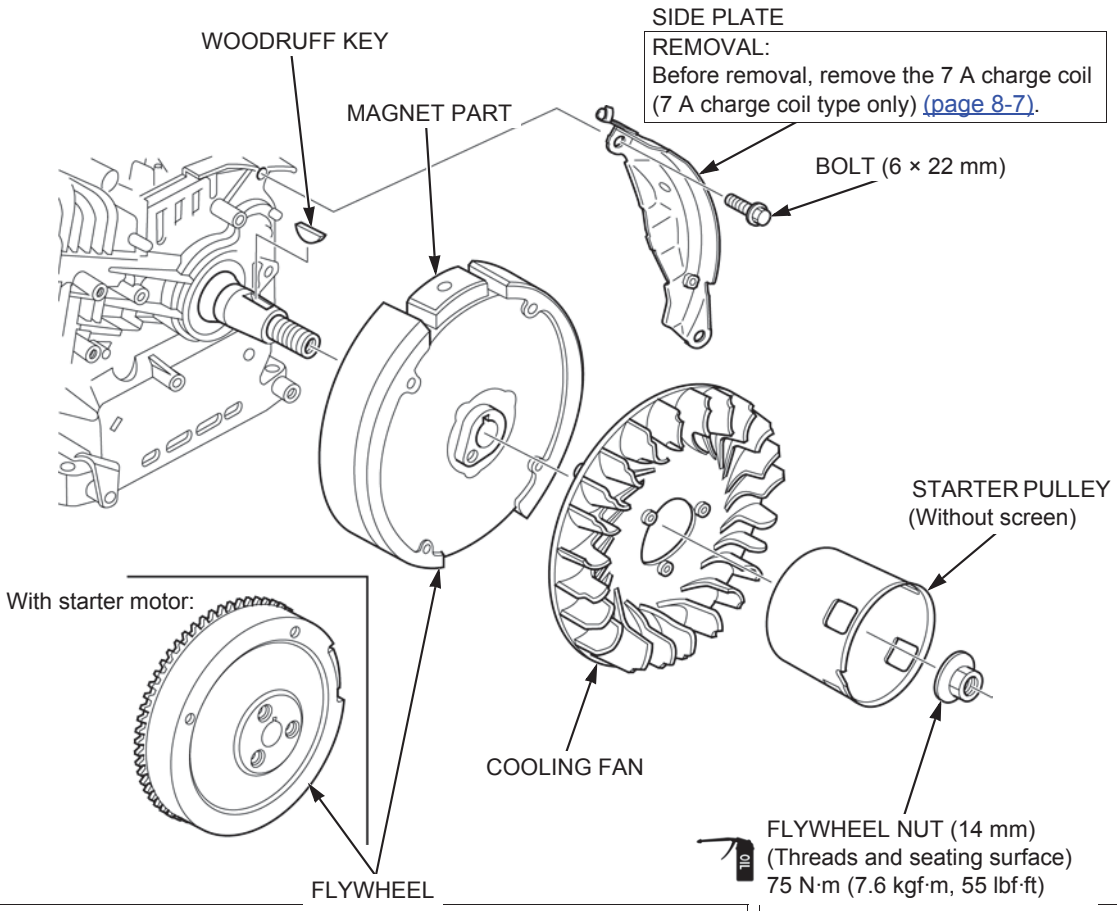
– Faulty battery
– Loose connectors



COOLING FAN/FLYWHEEL REMOVAL/ INSTALLATION

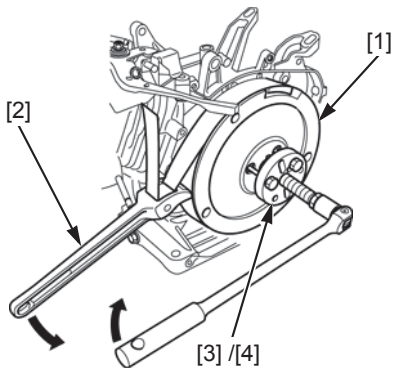
REMOVAL

Remove the ignition coil (page 9-4).



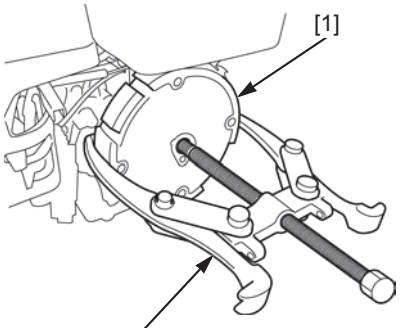
REMOVAL:
Hold the flywheel [1] with a commercially available strap wrench [2], being careful not to damage the magnet part.
Use the special tool [3] and/or commercially available tool [4] to remove the flywheel.

With starter motor:



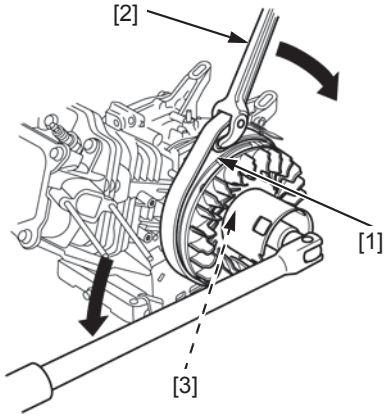
[3] /[4]
PULLER COLLAR SET
07APC-ZY1A100
STEERING WHEEL PULLER
OTC7403

Without starter motor:



[4]
TWO-JAW PULLER
OTC1035

REMOVAL:
Hold the flywheel [1] with a commercially available strap wrench [2], being careful not to damage the magnet part.
Remove the flywheel nut (14 mm) [3].



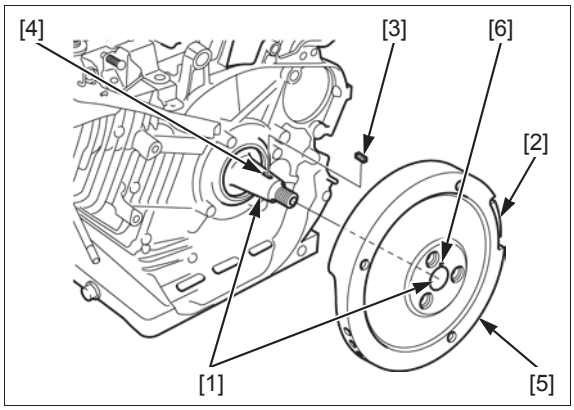
INSTALLATION

NOTICE

- *Clean the tapered parts [1] of dirt, oil, grease, and other foreign material before installation.*
- *Be sure there are no metal parts or other foreign material on the magnet part [2] of the flywheel.*

Set the woodruff key [3] in the key groove [4] of the crankshaft securely.

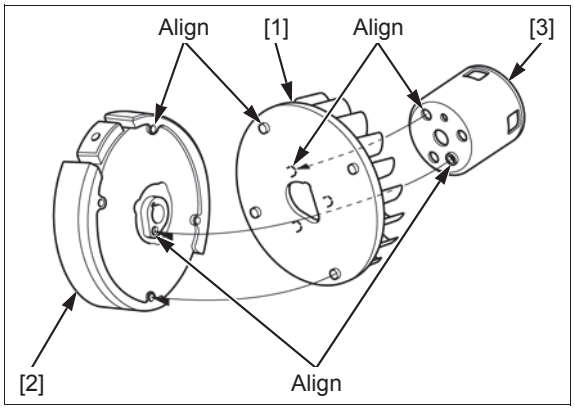
Set the flywheel [5] by aligning the key slot [6] with the the woodruff key on the crankshaft.



Attach the cooling fan [1] to the flywheel [2] by aligning the four projections of the cooling fan with the holes of the flywheel.

Attach the starter pulley [3] by aligning the following:

– Holes of the pulley and tabs of the cooling fan
– Tab of the pulley and hole of the flywheel

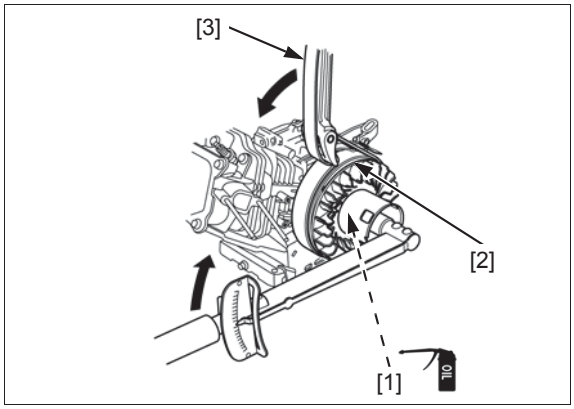


Apply a light coat of oil to the threads and the seating surface of the flywheel nut [1] and loosely tighten the nut.

Hold the flywheel [2] with a commercially available strap wrench [3], being careful not to damage the magnet part.

Tighten the flywheel nut to the specified torque.

TORQUE: 75 N·m (7.6 kgf·m, 55 lbf·ft)



CHARGE/LAMP COIL REMOVAL/ INSTALLATION

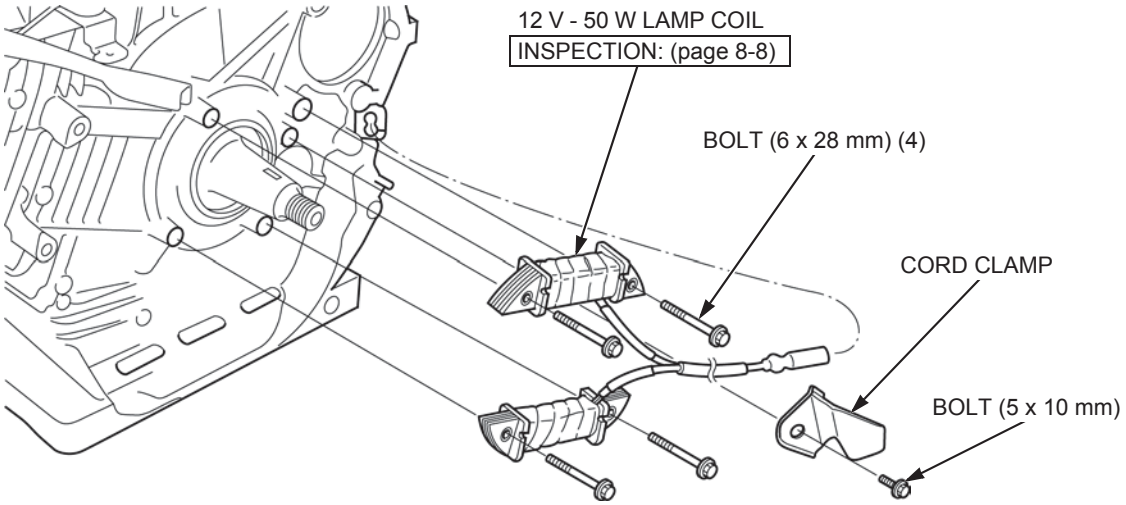
Disconnect the charge/lamp coil connectors.

Remove the flywheel (page 8-5).

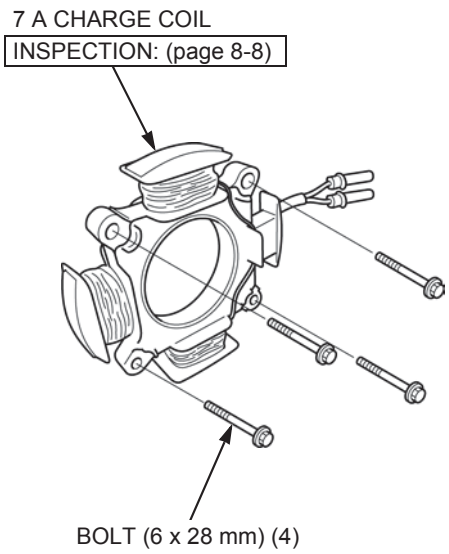
NOTE:

- When installation, route the wire harness properly (page 2-10).

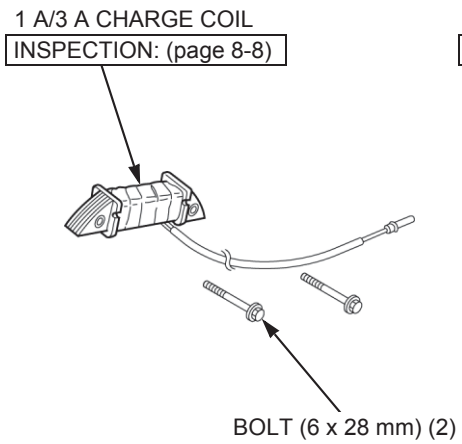
12 V-50 W LAMP COIL TYPE:



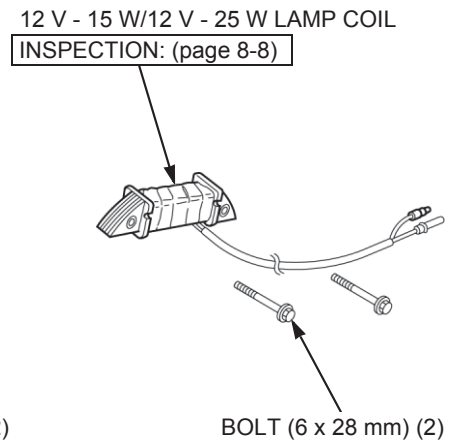
7 A CHARGE COIL TYPE:



1 A/3 A CHARGE COIL TYPE:

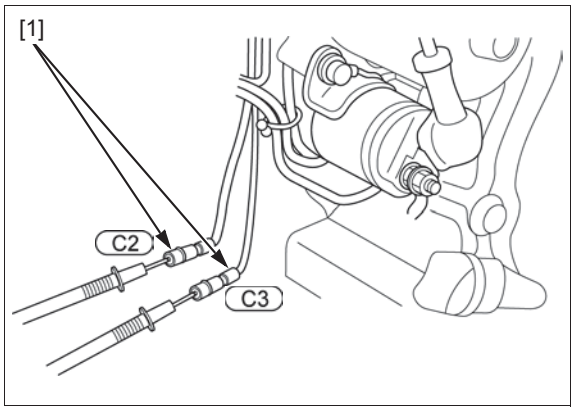


12 V - 15 W/12 V - 25 W LAMP COIL TYPE:



CHARGE/LAMP COIL INSPECTION

7 A CHARGE COIL/12 V - 25 W LAMP COIL TYPE



Disconnect the charge/lamp coil connectors [1].

Measure the resistance between the terminals of the charge/lamp coil connectors.

Resistance:

7 A charge coil:	**0.22 – 0.30 Ω**
12 V - 25 W lamp coil:	**0.36 – 0.46 Ω**

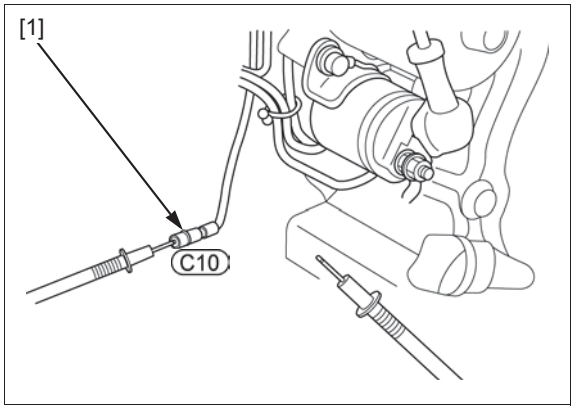
Check for continuity between each terminal and engine ground.

There should be no continuity.

If the measured resistance is not within the specified range or if any wire has continuity to engine ground, replace the charge/lamp coil (page 8-7).

If the resistance is good and the flywheel is ok, replace the charge/lamp coil and retest.

1 A/3 A CHARGE COIL/12 V - 50 W LAMP COIL TYPE



Disconnect the charge/lamp coil connector [1].

Measure the resistance between the terminal and engine ground.

Resistance:

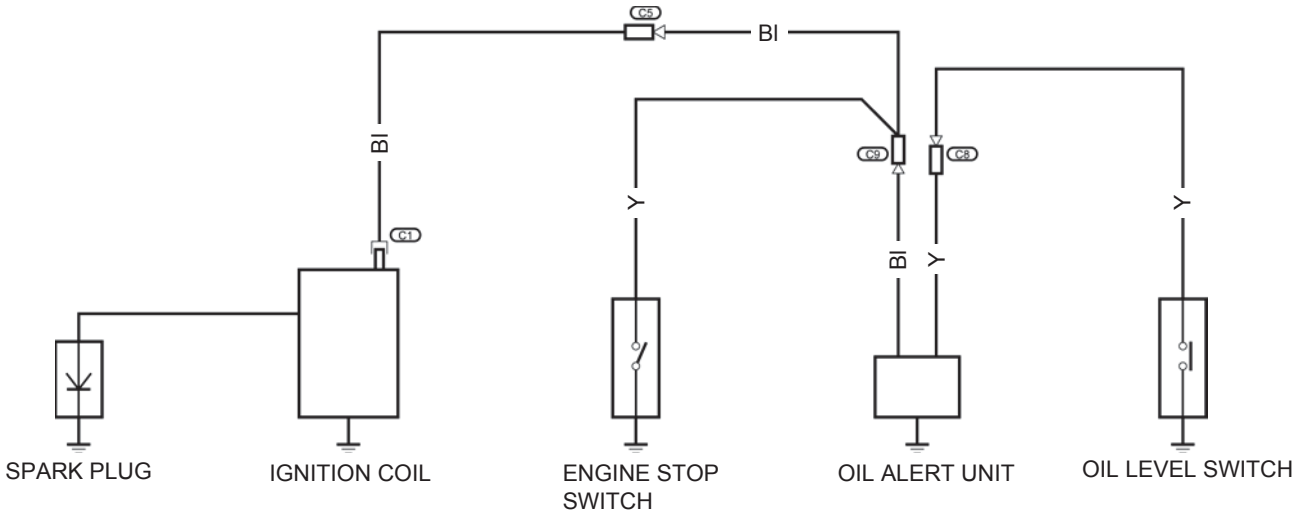
1 A charge coil:	**3.15 – 3.85 Ω**
3 A charge coil:	**0.30 – 0.42 Ω**
12 V - 50 W lamp coil:	**0.18 – 0.23 Ω**

If the measured resistance is not within the specified range, replace the charge/lamp coil (page 8-7).

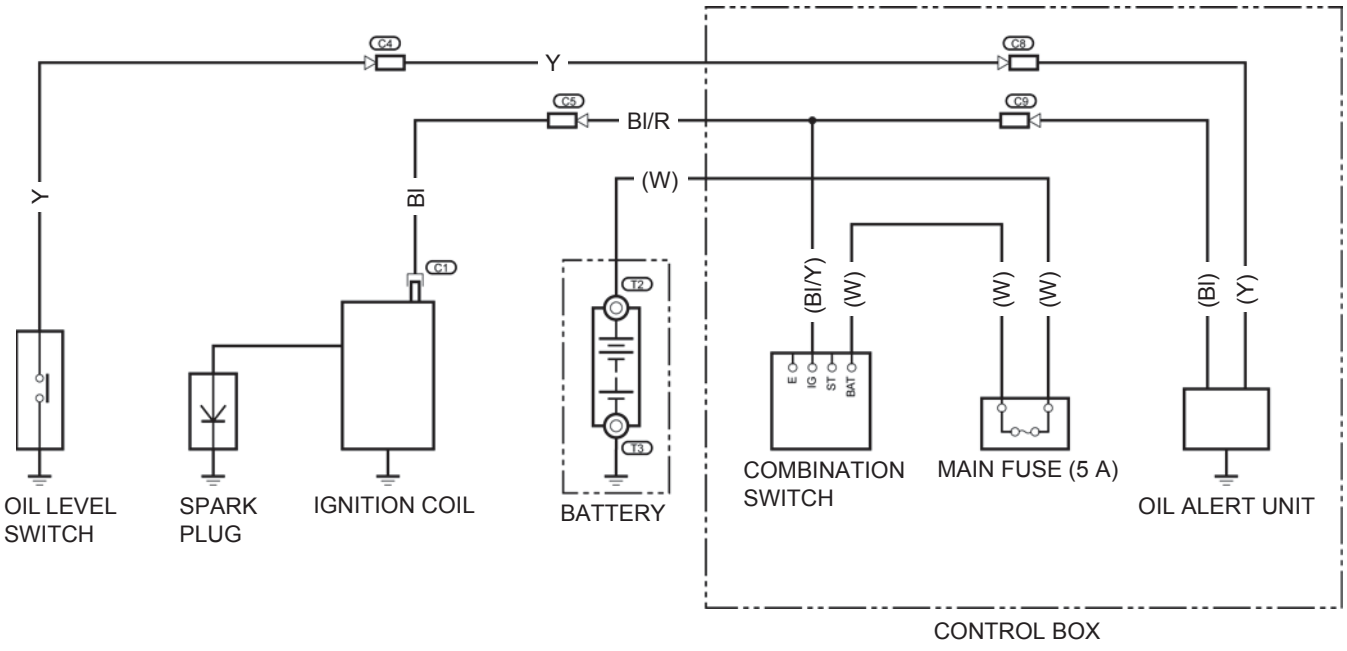
9. IGNITION SYSTEM

SYSTEM DIAGRAM

ENGINE STOP SWITCH TYPE:



CONTROL BOX TYPE:

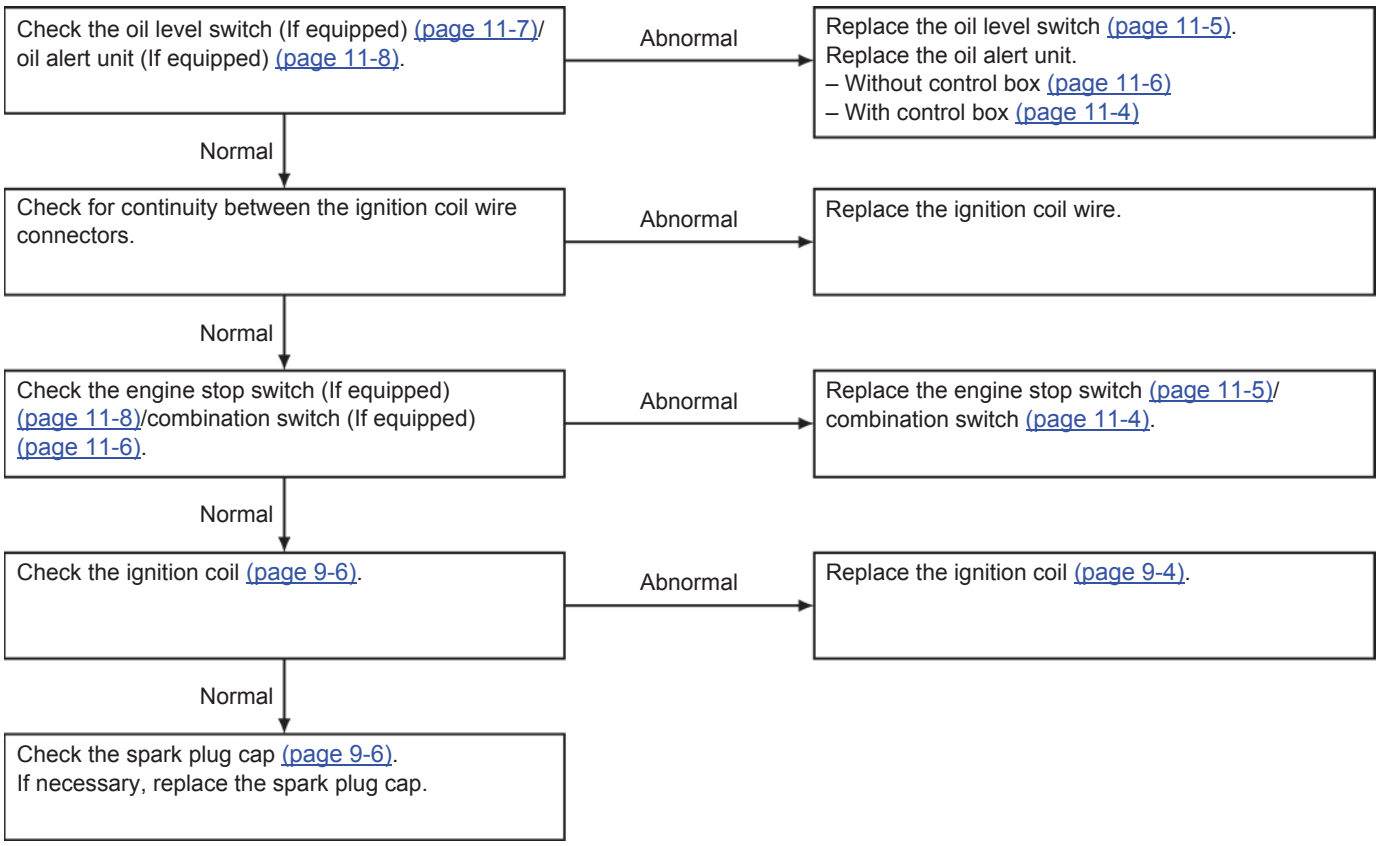


IGNITION SYSTEM TROUBLESHOOTING

NO OR WEAK SPARK AT SPARK PLUG

Check the following before troubleshooting:

– Loose connectors
– Spark plug (page 3-11)
– Engine oil level (page 3-3)



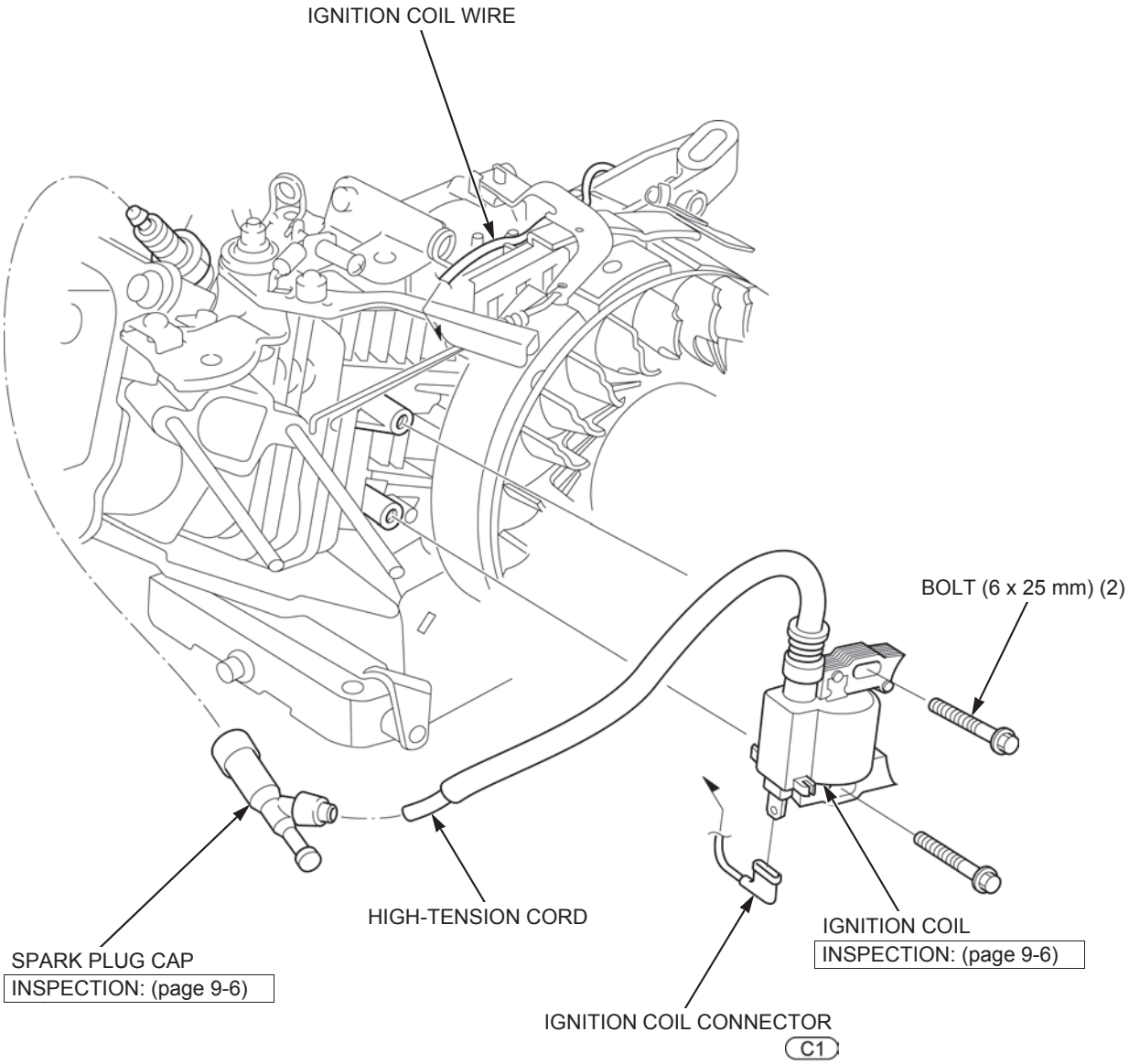
IGNITION COIL REMOVAL/ INSTALLATION

Remove the following:

– Fan cover (page 5-2)
– Fuel tank (page 6-3)
– Carburetor (page 6-10)

NOTE:

- Route the ignition coil wire and high-tension code properly (page 2-10).
- After installation, check the ignition coil air gap (page 9-5).

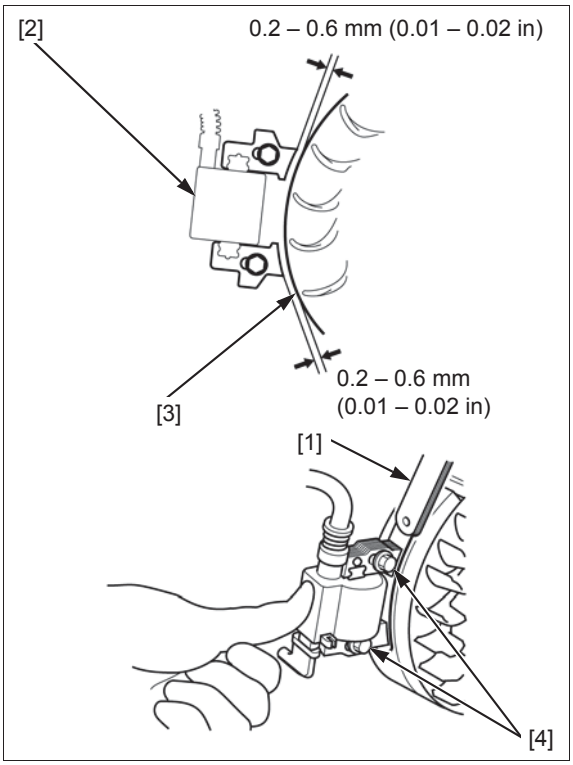


IGNITION COIL AIR GAP CHECK/ ADJUSTMENT

Remove the fan cover (page 5-2).

Insert the thickness gauge [1] of proper thickness between the ignition coil [2] and the flywheel [3].

IGNITION COIL AIR GAP:
0.2 – 0.6 mm (0.01 – 0.02 in)



NOTICE

- *Avoid the magnet part of the flywheel when adjusting.*
- *Adjust the ignition coil air gap equally on both sides.*

If measured clearance is out of specification, adjust the air gap.

Loosen the two bolts (6 x 25 mm) [4].

Insert the thickness gauge of proper thickness between the ignition coil and flywheel.

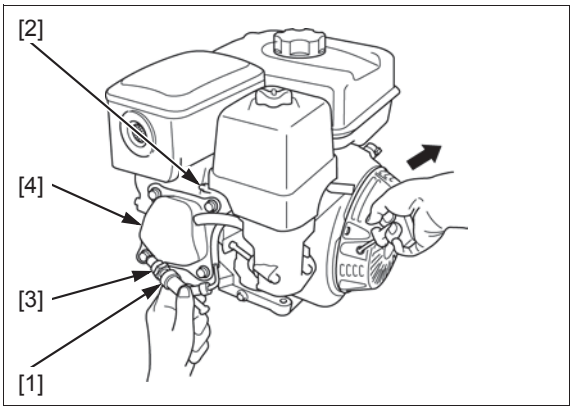
Push the ignition coil firmly against the flywheel and tighten the ignition coil bolts securely.

Remove the thickness gauge.

SPARK TEST

⚠CAUTION

Never hold the high-tension cord with wet hands while performing this test.



Check for the following before conducting the spark test.

– Faulty spark plug
– Loose spark plug cap
– Water in the spark plug cap (leaking the ignition coil secondary voltage)
– Loose ignition coil connector

Disconnect the spark plug cap [1] from the spark plug [2].

Connect a known-good spark plug to the spark plug cap and ground the spark plug to the cylinder head cover bolt.

With engine stop switch/combination switch type:

Turn the engine stop switch/combination switch to "ON" position.

Crank the engine by pulling the recoil starter or crank the engine with the starter motor and check whether sparks jump across the electrodes.

NOTICE

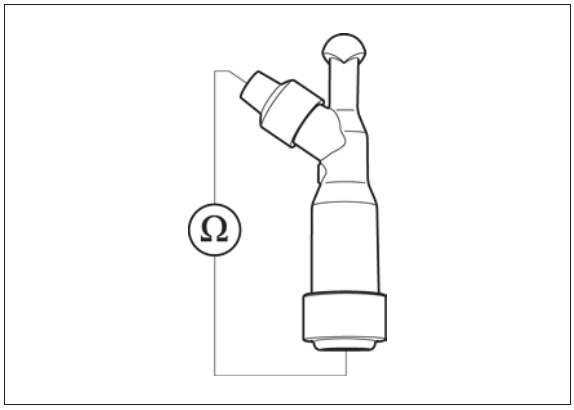
- *To avoid discharging the battery, do not operate the starter motor for more than 5 seconds at a time. Wait for approximately 10 seconds before operating it again.*

SPARK PLUG CAP INSPECTION

Measure the resistance of the spark plug cap [1] by attaching one ohmmeter probe to the terminal in the spark plug cap and the other to the high-tension cord terminal.

RESISTANCE: 7.5 – 12.5 kΩ (20°C/68°F)

If measured resistance is out of specification, replace the spark plug cap.



IGNITION COIL INSPECTION

Remove the fan cover (page 5-2).

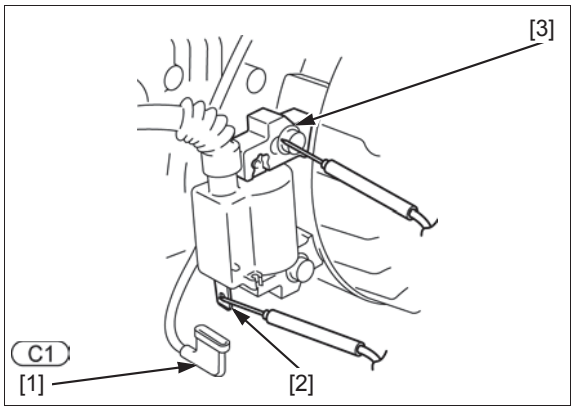
PRIMARY SIDE

Disconnect the ignition coil connector [1].

Measure the resistance of the primary coil by attaching one ohmmeter probe to the ignition coil wire terminal [2] and the other at the iron core [3].

RESISTANCE: 0.6 – 0.9 Ω

If measured resistance is out of specification, replace the ignition coil.



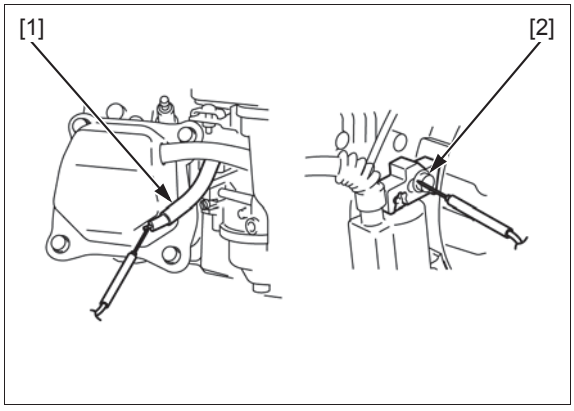
SECONDARY SIDE

Disconnect the spark plug cap from the high-tension cord [1].

Measure the resistance of the secondary coil by attaching one ohmmeter probe to the high-tension cord and the other at the iron core [2].

RESISTANCE: 5.6 – 6.9 kΩ

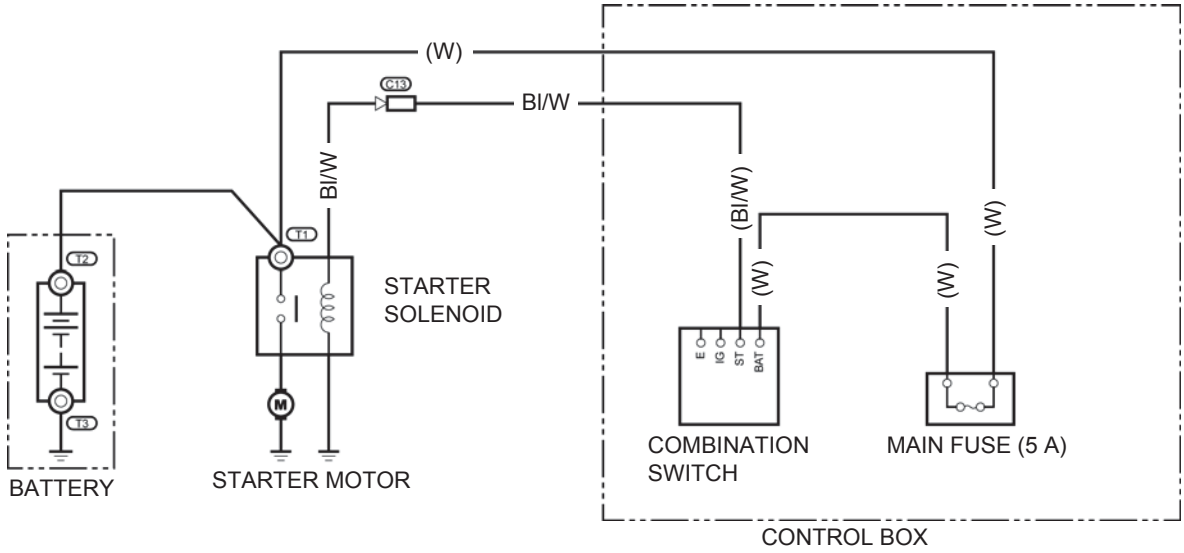
If measured resistance is out of specification, replace the ignition coil.



10. STARTING SYSTEM

SYSTEM DIAGRAM

STARTER MOTOR TYPE:

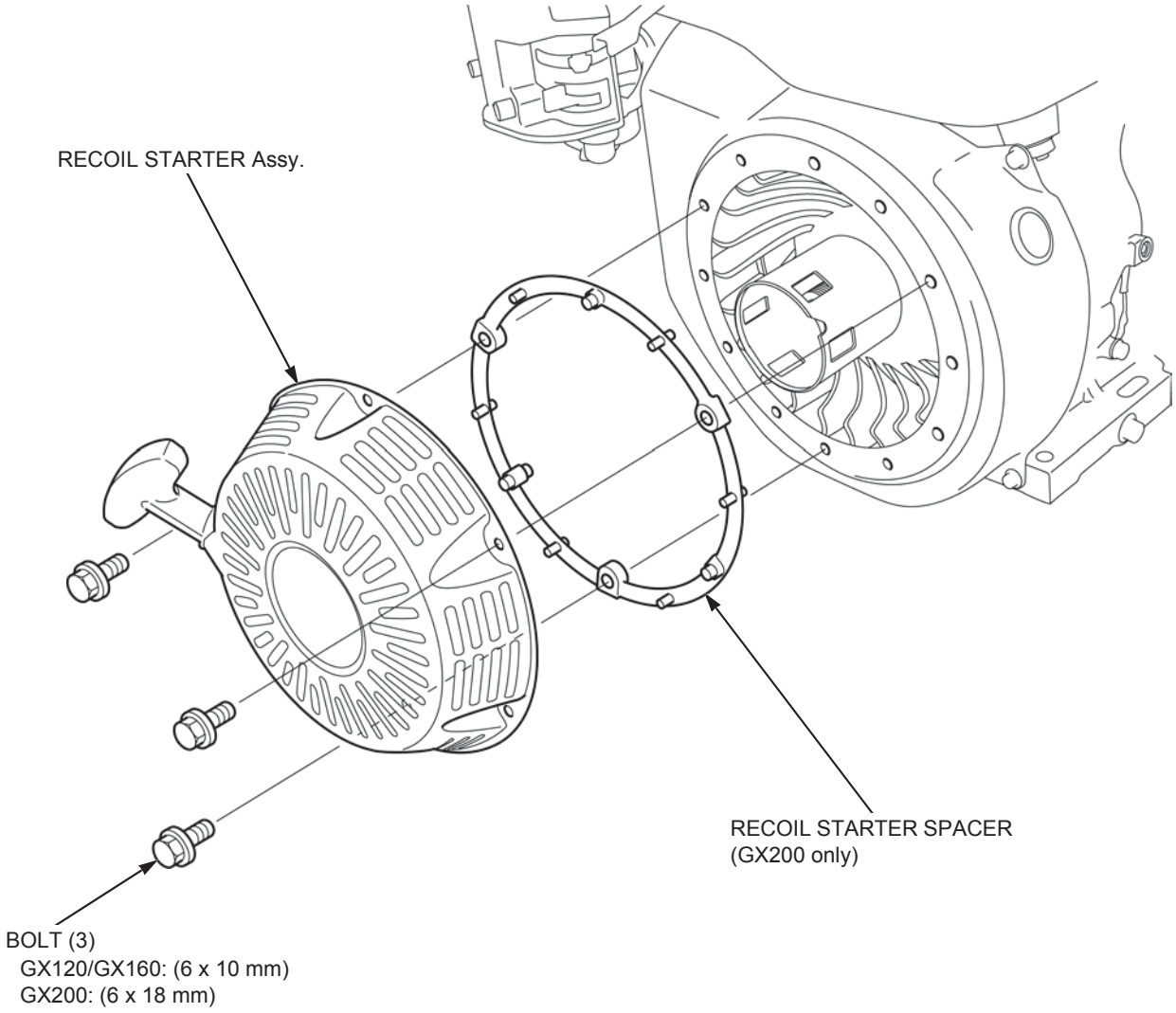


STARTING SYSTEM TROUBLESHOOTING

STARTER MOTOR DOES NOT OPERATE

Check the battery condition.	Abnormal →	Replace with a known-good battery. If the battery runs down again, perform the CHARGING SYSTEM TROUBLESHOOTING (page 8-4).
↓ Normal		
Check the fuse.	Abnormal →	Replace the fuse.
↓ Normal		
Check the combination switch (page 11-6).	Abnormal →	Replace the combination switch (page 11-4).
↓ Normal		
Check the starter solenoid (page 10-9).	Abnormal →	Replace the starter solenoid (page 10-8)
↓ Normal		
Check the wire harness for shorts or open circuits.	Abnormal →	Replace the wire harness.
↓ Normal		
Disassemble the starter motor (page 10-8) and check each part (page 10-9).		

RECOIL STARTER Assy. REMOVAL/ INSTALLATION



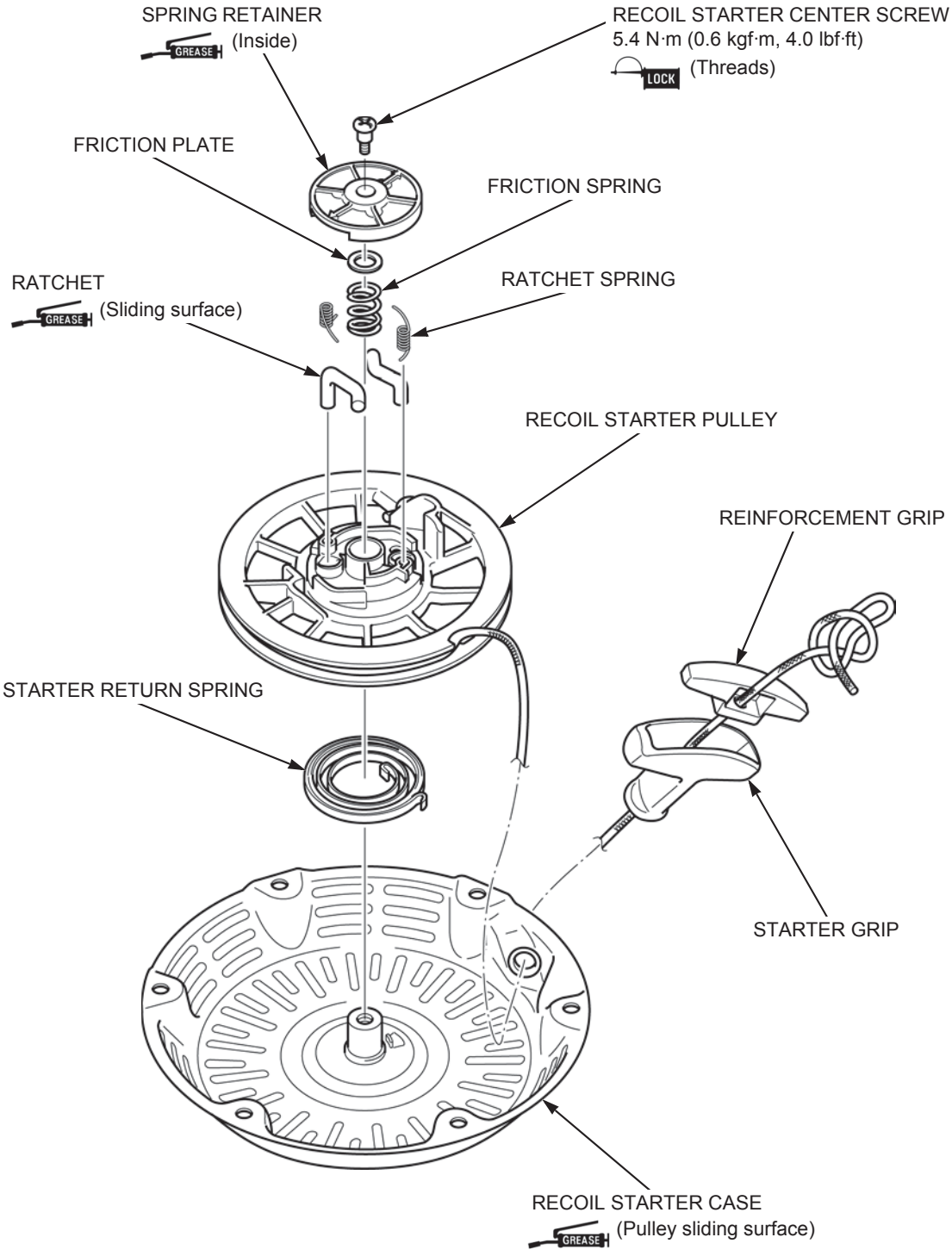
RECOIL STARTER Assy. DISASSEMBLY/ASSEMBLY

⚠CAUTION

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

DISASSEMBLY

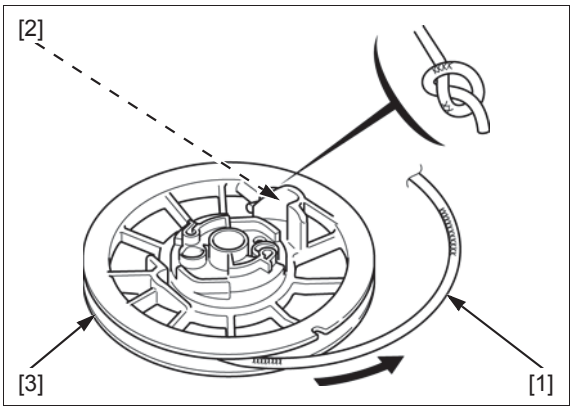
Remove the recoil starter Assy. (page 10-3).



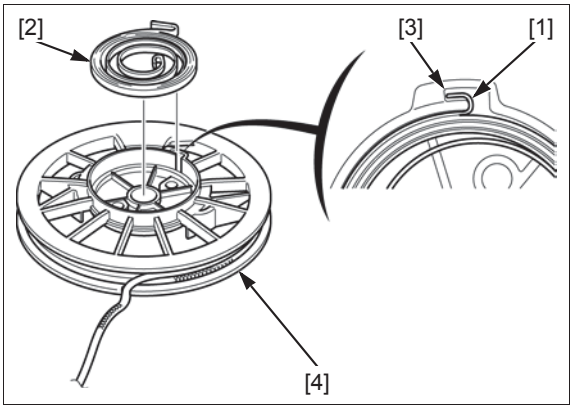
ASSEMBLY

Pass the recoil starter rope [1] through the hole [2] of the recoil starter pulley [3], and then tie the rope as shown.

Wind the recoil starter rope onto the recoil starter pulley counterclockwise as shown.

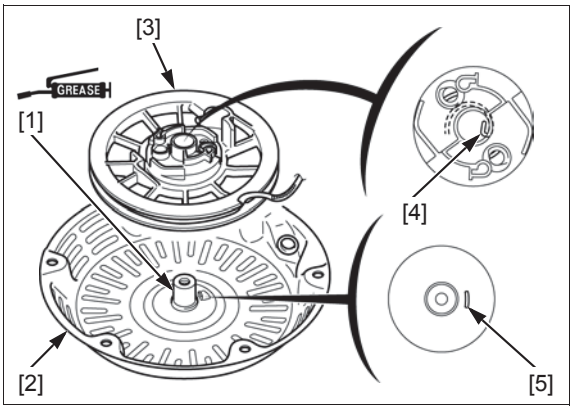


Hook the outer hook [1] of the starter return spring [2] to the groove [3] of the recoil starter pulley [4], and then install the starter return spring by winding it.



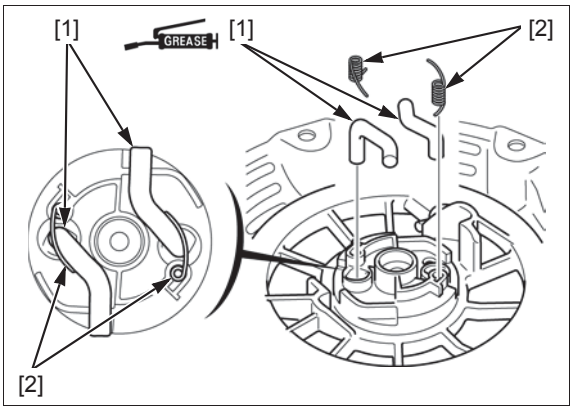
Apply grease to the starter pulley sliding surface [1] of the recoil starter case [2].

Set the recoil starter pulley [3] to the recoil starter case by aligning the inner hook [4] of the starter return spring with the boss [5] of the recoil starter case as shown.



Apply grease to the ratchets [1].

Install the ratchet springs [2] and ratchets to the recoil starter pulley as shown.



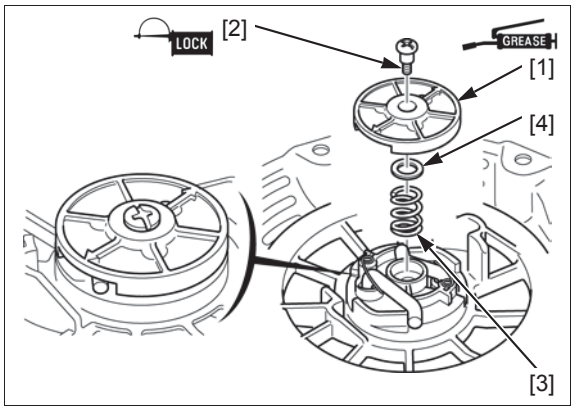
Apply grease to the inside of the spring retainer [1].

Apply locking agent (Hondalock 1, Threebond 2430, or equivalent) to the threads of the center screw [2].

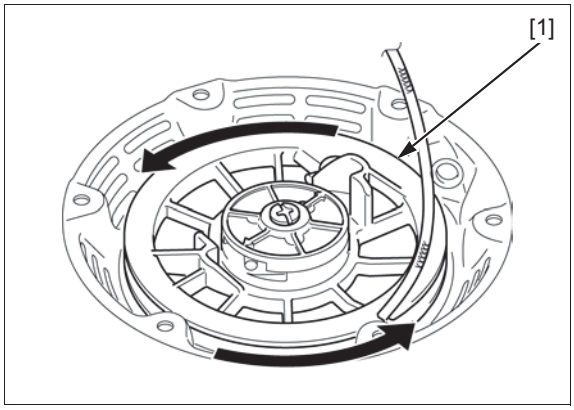
Set the friction spring [3], friction plate [4], and spring retainer to the recoil starter pulley in the direction as shown.

Hold the spring retainer and tighten the center screw to the specified torque.

TORQUE: 5.4 N·m (0.6 kgf·m, 4.0 lbf·ft)

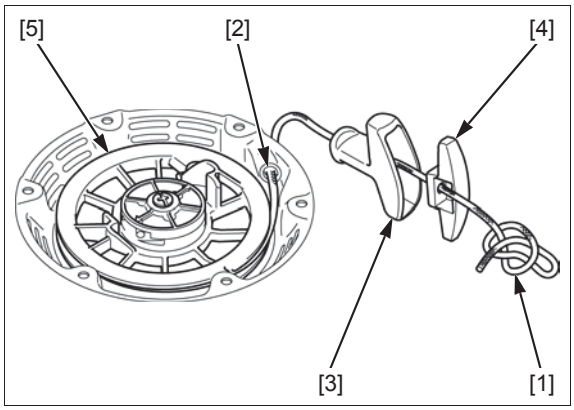


Turn the recoil starter pulley [1] 2 turns counterclockwise to preload the starter return spring. Be sure to hold the recoil starter pulley.



Pass the recoil starter rope [1] through hole [2] of the recoil starter case, starter grip [3], and reinforcement grip [4], and then tie the rope as shown. Be sure to hold the recoil starter pulley [5].

Check the recoil starter operation (page 10-6).

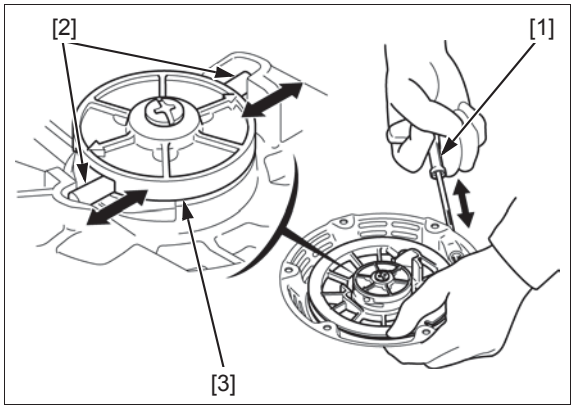


RECOIL STARTER INSPECTION

RECOIL STARTER OPERATION

Remove the recoil starter Assy. (page 10-3).

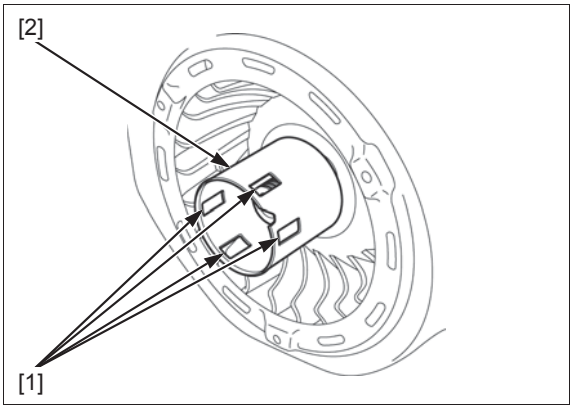
Pull the starter grip [1] several times to inspect that the ratchets [2] are operated properly (the ratchet ends come out from the spring retainer [3]).



STARTER PULLEY

Remove the recoil starter Assy. (page 10-3).

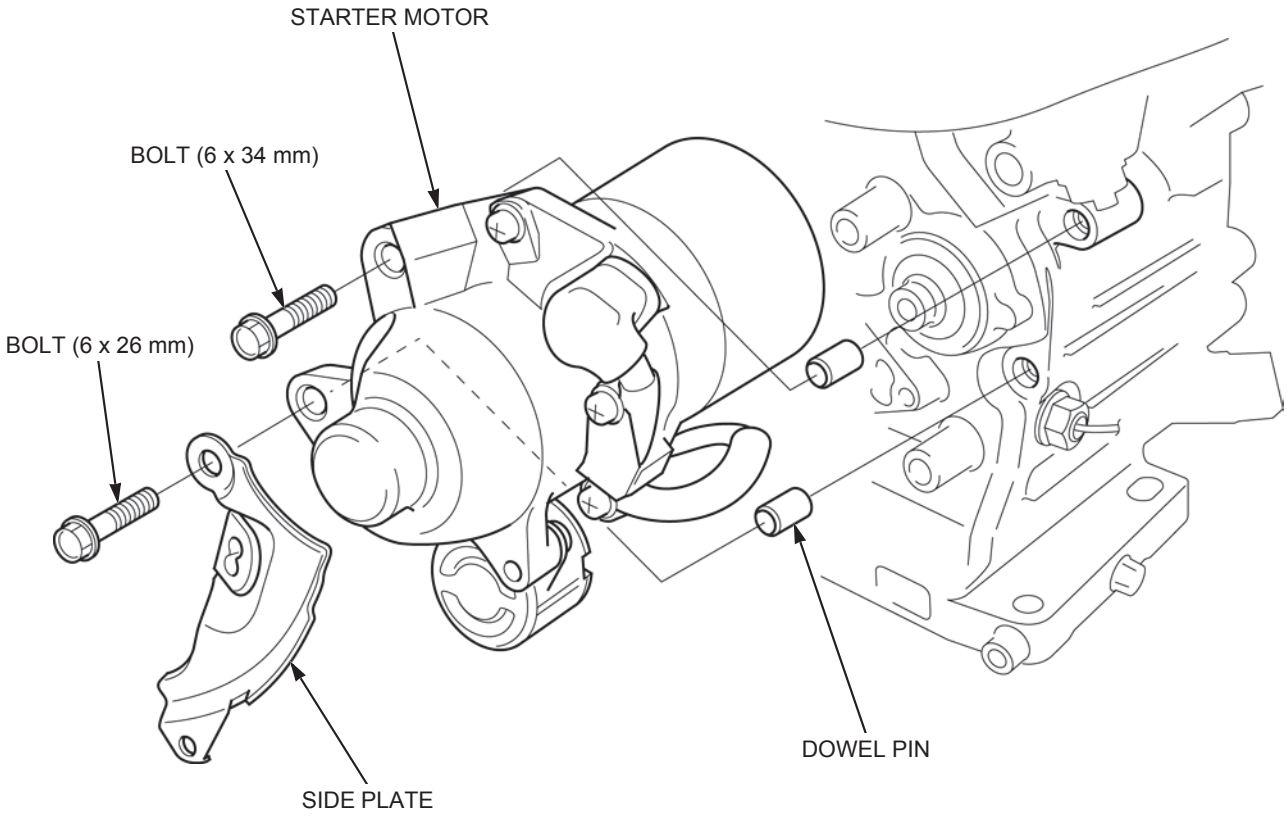
Inspect the square holes [1] of the starter pulley [2] for deformation.



STARTER MOTOR REMOVAL/ INSTALLATION

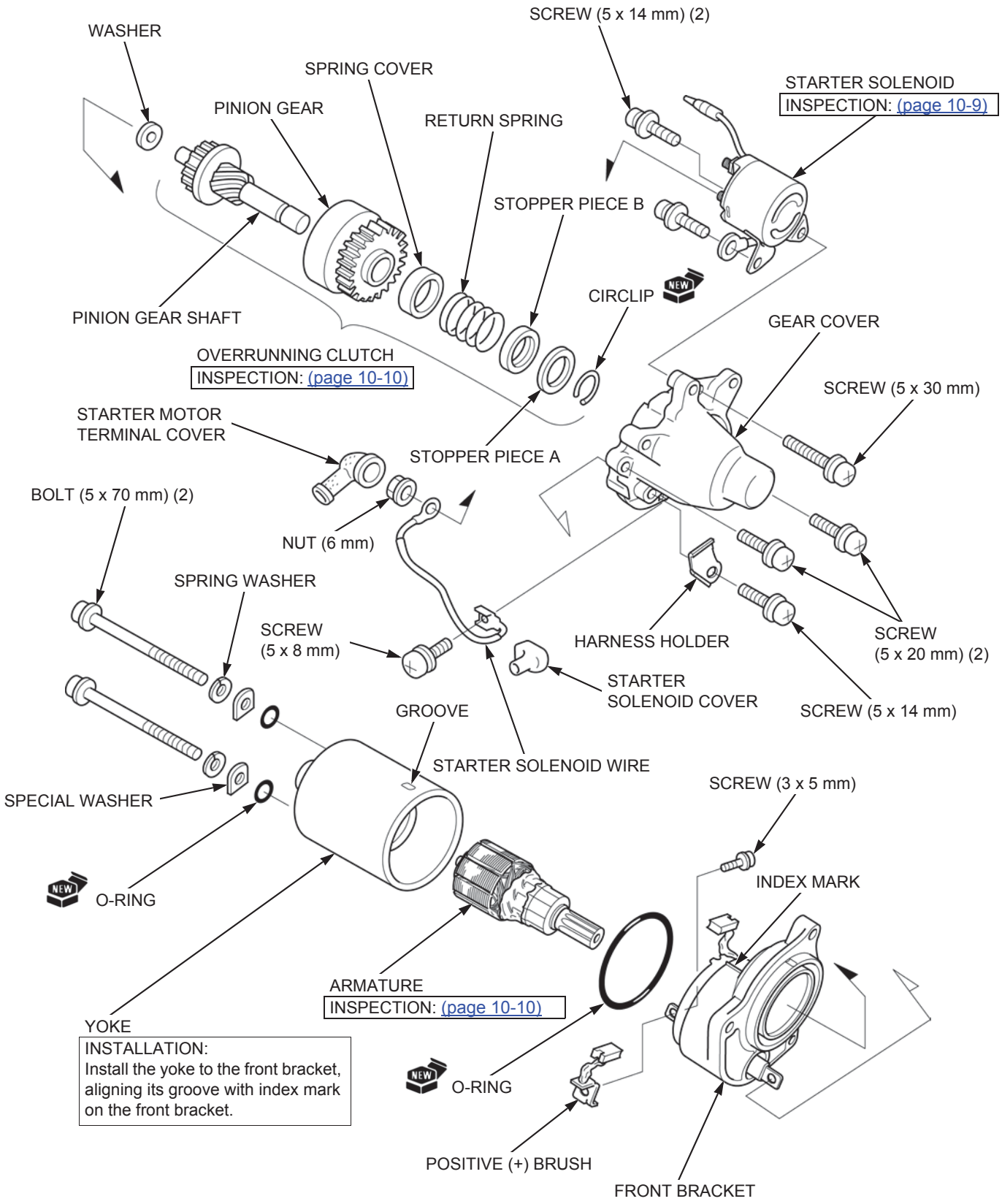
Remove the following:

– Control box (page 11-3)
– Flywheel (page 8-5)



STARTER MOTOR DISASSEMBLY/ ASSEMBLY

Remove the starter motor (page 10-7).



STARTER MOTOR INSPECTION

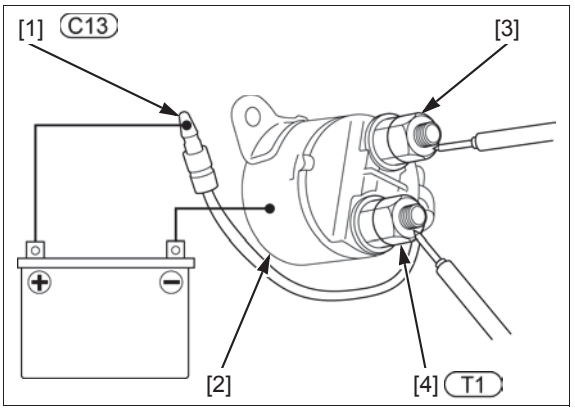
STARTER SOLENOID

Disconnect the starter motor connector [1].

Connect the positive (+) lead of a 12 V battery to the starter motor connector and the negative (–) lead to the solenoid body [2].

Check the continuity between the starter motor terminal [3] and battery terminal [4] as shown.

Continuity should exist when the battery is connected and not exist when the battery is disconnected.



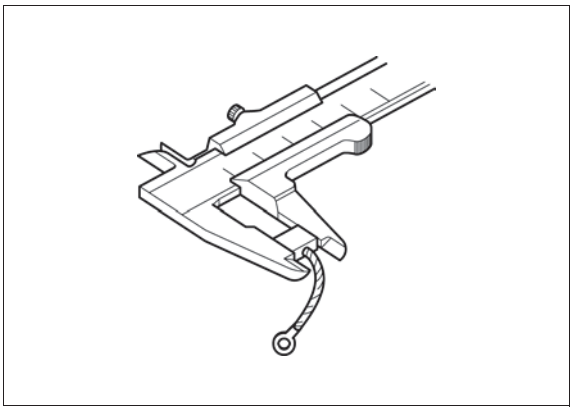
BRUSH

BRUSH LENGTH

Measure the brush length.

STANDARD: 11.0 mm (0.43 in)
SERVICE LIMIT: 6.5 mm (0.26 in)

If the brush length is less than the service limit, replace the front bracket.

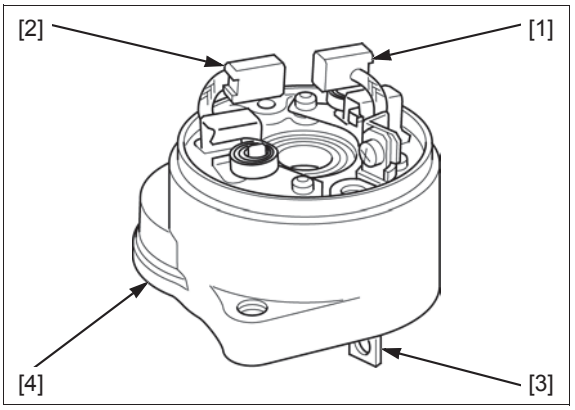


BRUSH CONTINUITY CHECK

Check the continuity as follows:

– There should be no continuity between the positive (+) brush [1] and negative (–) brush [2].
– There should be continuity between the positive (+) brush and terminal [3].
– There should be no continuity between the positive (+) brush and front bracket [4].
– There should be continuity between the negative (–) brush [2] and front bracket.

If the correct continuity is not obtained, replace the front bracket.



ARMATURE

Visually inspect the commutator [1] surface for dust, rust, or other damage.

If necessary, wipe it with a clean lint-free cloth.

If rusted or damaged, dress with a fine emery cloth.

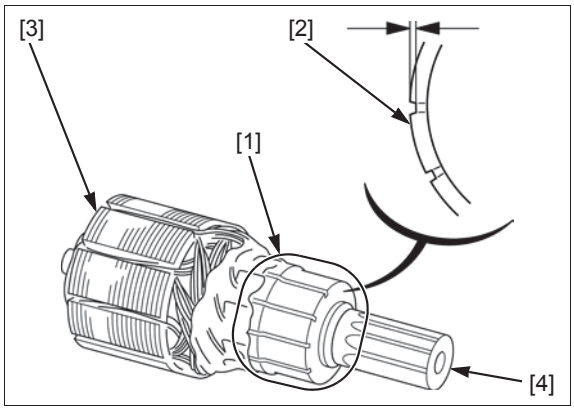
Measure the mica depth.

STANDARD: 1.6 mm (0.06 in)
SERVICE LIMIT: 1.1 mm (0.04 in)

If the mica depth is less than the service limit, replace the armature.

Check the continuity as follows:

– There should be continuity between each segment [2].
– There should be no continuity between each segment and armature core [3].
– There should be no continuity between each segment and armature shaft [4].



OVERRUNNING CLUTCH

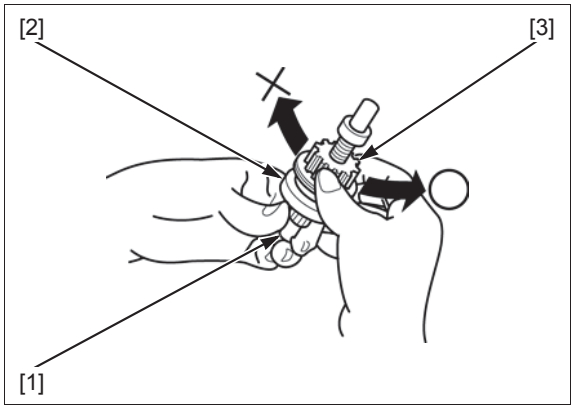
Check the pinion gear shaft [1] for smooth axial movement.

Replace the overrunning clutch [2] if necessary.

Check the pinion gear [3] operation by holding the pinion gear shaft and turning the pinion gear. The pinion gear should turn counterclockwise freely and should not turn clockwise.

Check the pinion gear for wear or damage and replace the overrunning clutch if necessary.

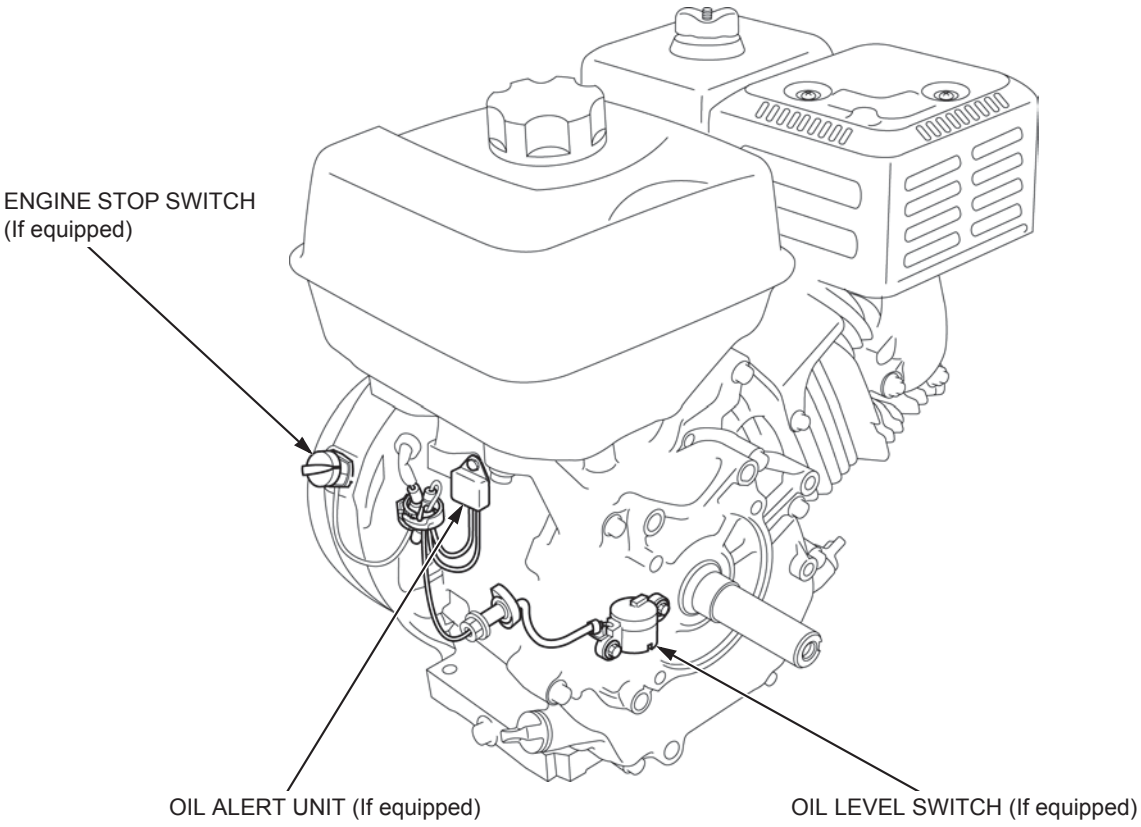
If the pinion gear is worn or damaged, the flywheel ring gear must be inspected.



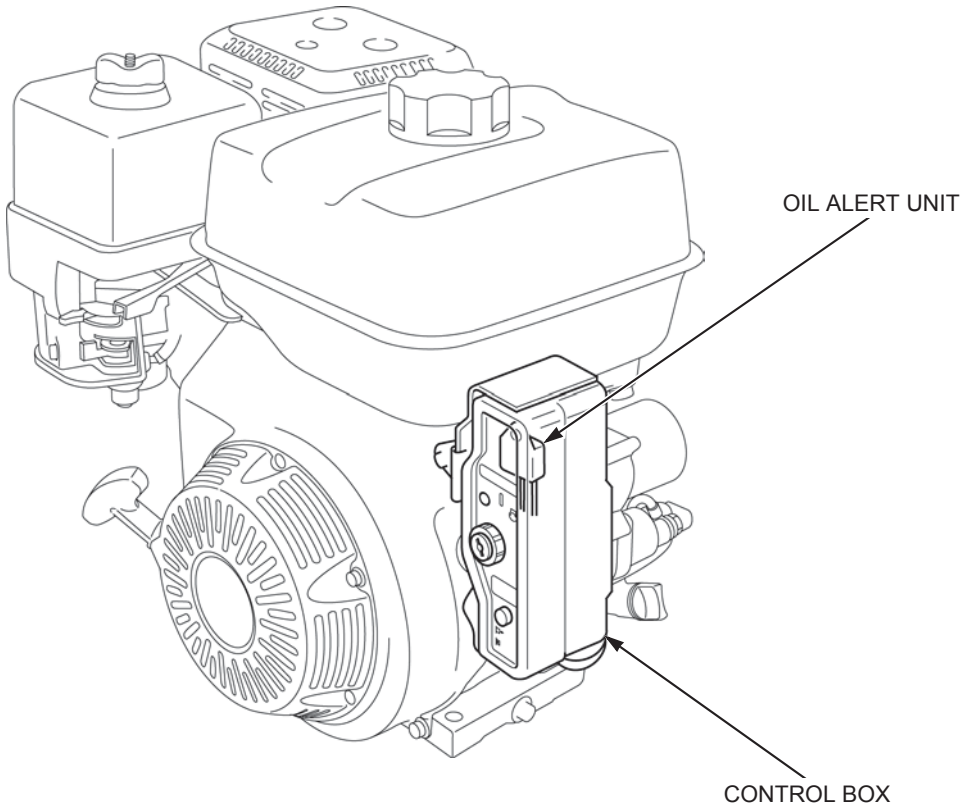
11. OTHER ELECTRICAL

COMPONENT LOCATION

WITHOUT CONTROL BOX:



WITH CONTROL BOX:

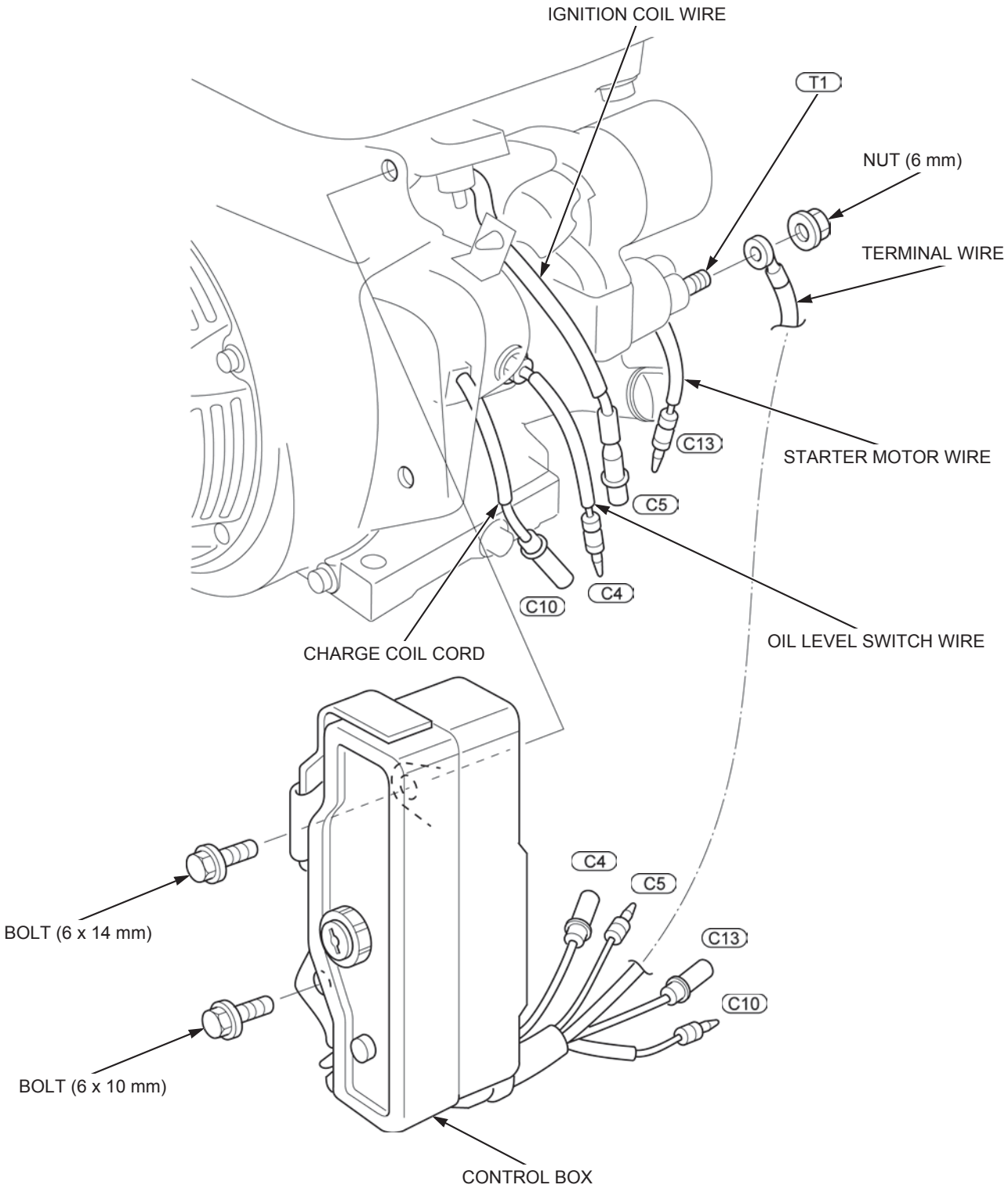


CONTROL BOX REMOVAL/ INSTALLATION

Disconnect the control box wires.

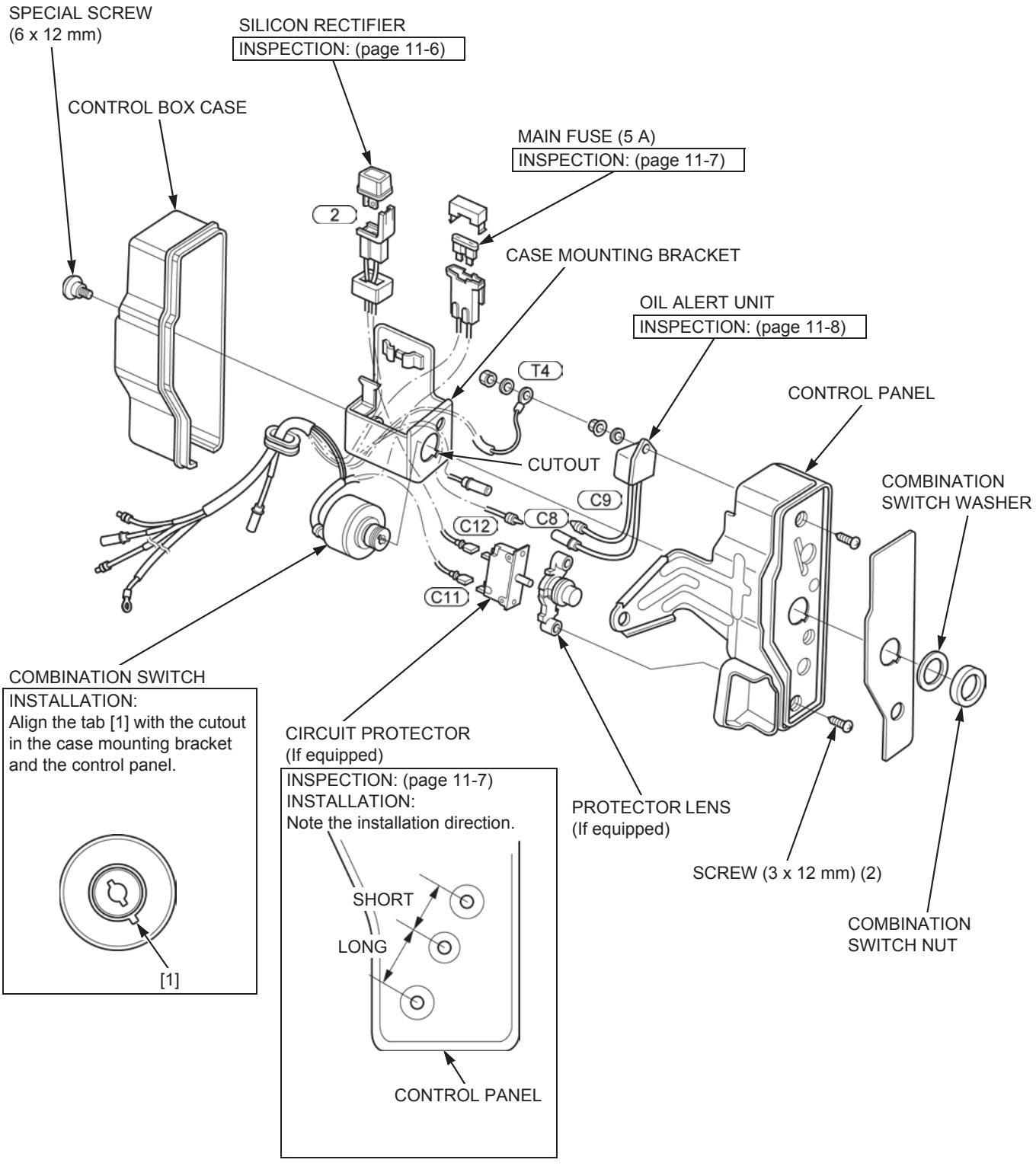
NOTE:

- Route the wire harness properly (page 2-10).



CONTROL BOX DISASSEMBLY/ ASSEMBLY

Remove the control box (page 11-3).



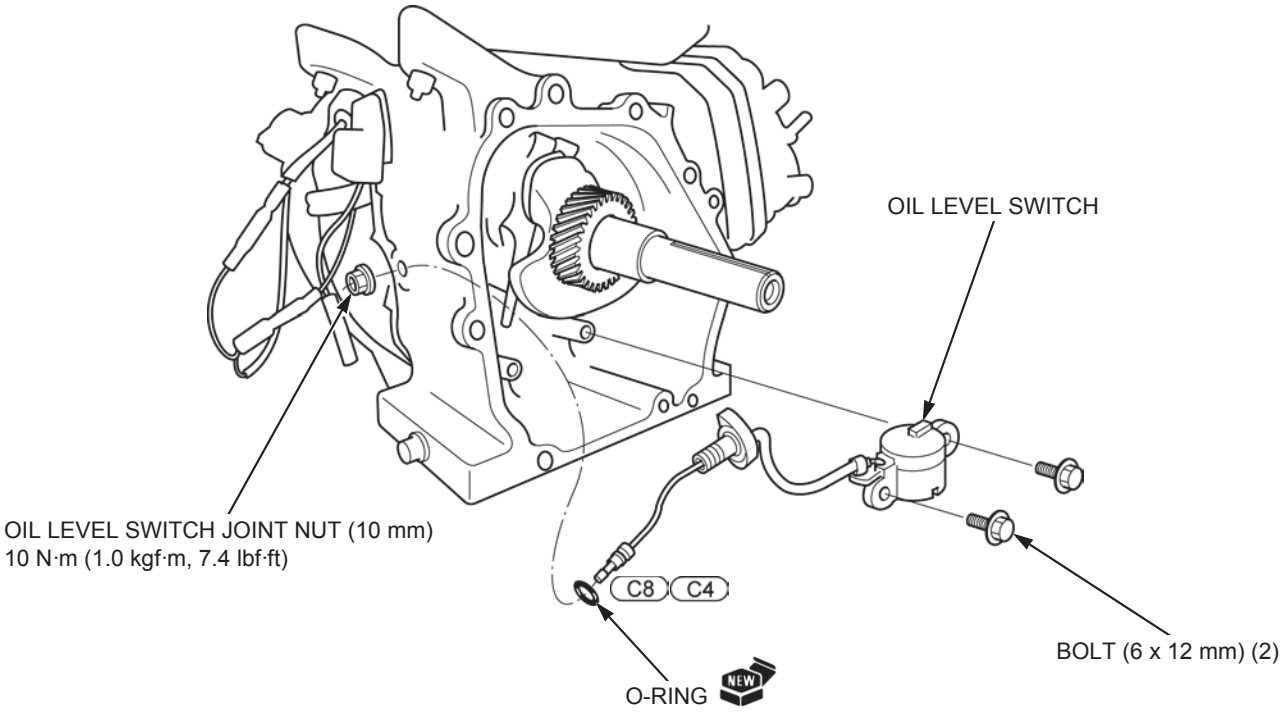
OIL LEVEL SWITCH REMOVAL/ INSTALLATION

Except control box type: Disconnect the Oil Alert® unit connectors.

Control box type: Disconnect the oil level switch connector.

Remove the camshaft (page 14-4).

NOTE:
- Take care not to drop the valve lifter.



ENGINE STOP SWITCH REMOVAL/ INSTALLATION

NOTE:
- Remove the engine stop switch only if necessary for engine stop switch or fan cover replacement.

Remove the fan cover (page 5-2).

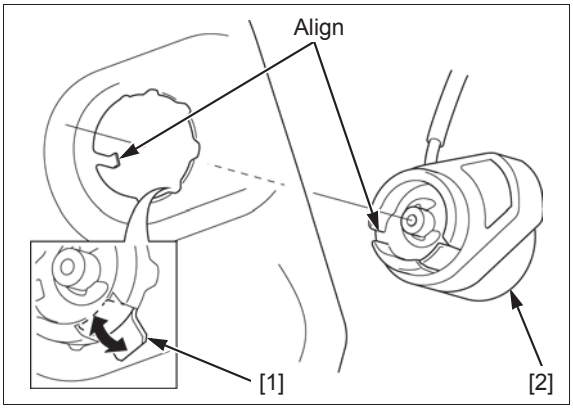
Straighten the tab [1] of the engine stop switch [2] and remove the engine stop switch.

Install the engine stop switch to the fan cover, aligning its groove with the boss of the fan cover.

Bend the tab until it is fully seated on the fan cover so the engine stop switch is held.

NOTE:
- The tab is used for ground terminal.

Install the fan cover (page 5-2).



OIL ALERT UNIT REMOVAL/ INSTALLATION

With control box: Disassemble the control box (page 11-4).

Without control box: Disconnect the Oil Alert unit connectors [1].

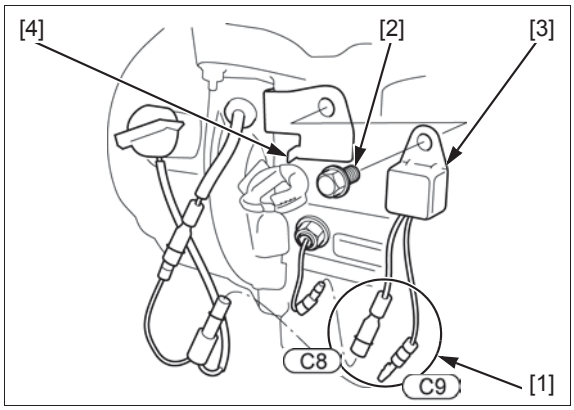
Remove the bolt (6 x 12 mm) [2] and oil alert unit [3].

Install the Oil Alert unit and bolt.

Hold the Oil Alert unit against the boss [4] of the stay, and then tighten the bolt.

NOTE:

- Route the wire harness properly (page 2-10).



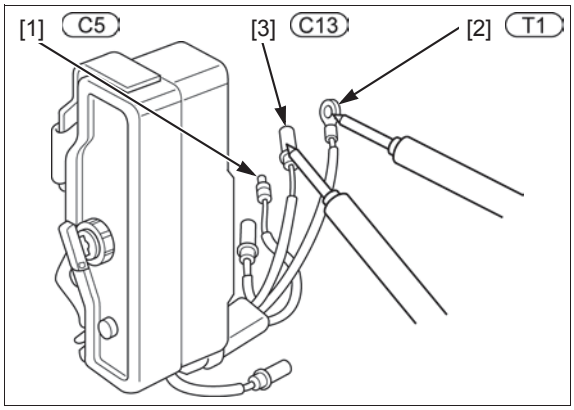
COMBINATION SWITCH INSPECTION

Disconnect the combination switch connectors.

Check the continuity between the terminals at each switch position.

	Bl/R [1]	Ground	W [2]	Bl/W [3]
OFF	○	○		
ON				
START			○	○

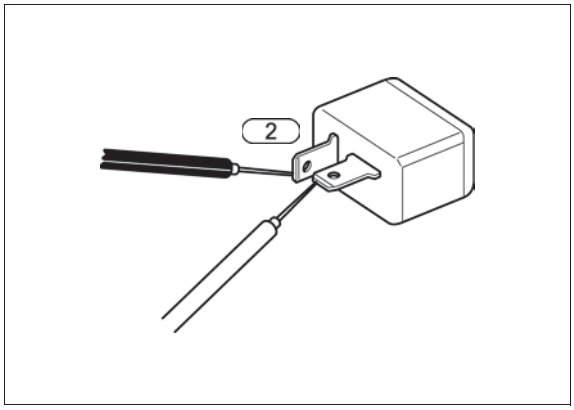
If the correct continuity is not obtained, replace the combination switch (page 11-4).



SILICON RECTIFIER INSPECTION

Remove the silicon rectifier (page 11-4).

Check the continuity between the terminals. There should be continuity in one direction only. Replace the rectifier if there is continuity in both directions or in neither direction.



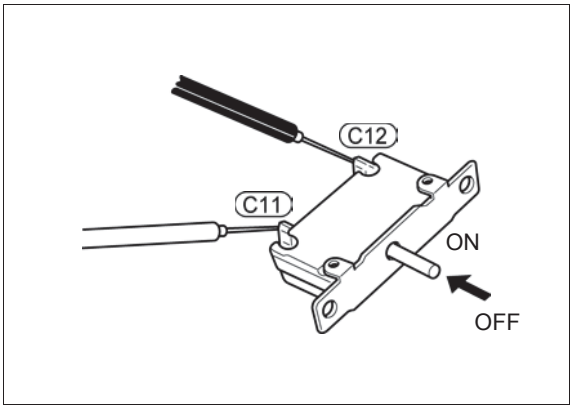
CIRCUIT PROTECTOR INSPECTION

Remove the circuit protector (page 11-4).

Check the continuity between the terminals.

Switch position	Continuity
ON	Yes
OFF	No

If the correct continuity is not obtained, replace the circuit protector.



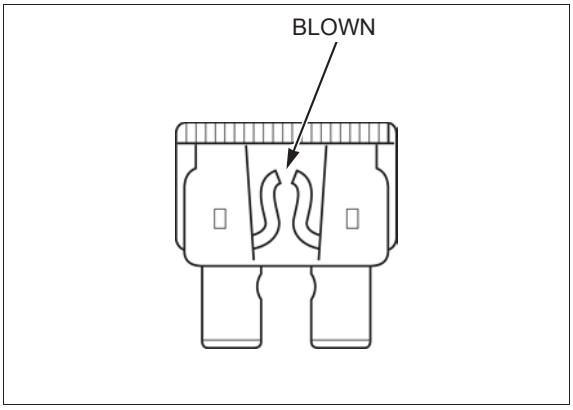
MAIN FUSE INSPECTION

Remove the main fuse (5 A) (page 11-4).

Visually inspect the fuse to see if it is blown.

Check the continuity across the two blades.

Replace the fuse if it is blown or there is no continuity across the blades.



OIL LEVEL SWITCH INSPECTION

Check the oil level (page 3-3).

Without control box: Disconnect the Oil Alert unit connector [1].

With control box: Disconnect the oil level switch connector [1].

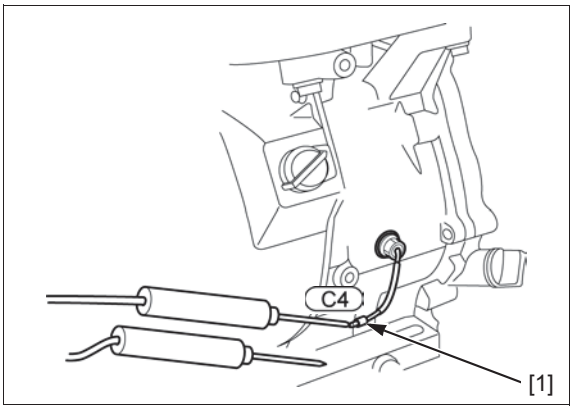
Check the continuity between the switch terminal and engine ground.
There should be no continuity when the engine is full of oil.

Drain the engine oil completely (page 3-3).

Check the continuity between the switch terminal and engine ground.
There should be continuity.

Check the continuity between the switch terminals while filling the engine with oil.
The ohmmeter reading should go from continuity to no continuity as the oil is filled.

If the correct continuity is not obtained, replace the oil level switch (page 11-5).



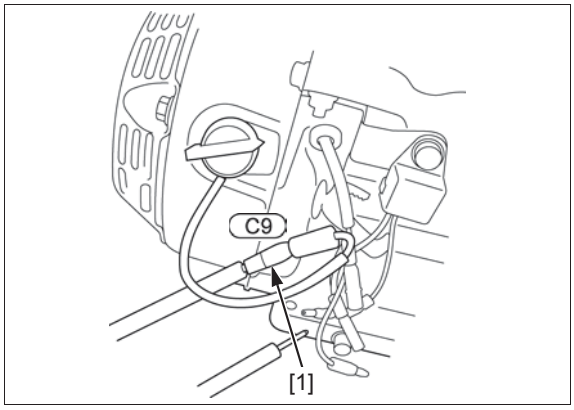
ENGINE STOP SWITCH INSPECTION

Remove the engine stop switch connector [1].

Check the continuity between the terminals at each switch position.

Switch position	Continuity
ON	No
OFF	Yes

If the correct continuity is not obtained, replace the engine stop switch (page 11-5).



OIL ALERT UNIT INSPECTION

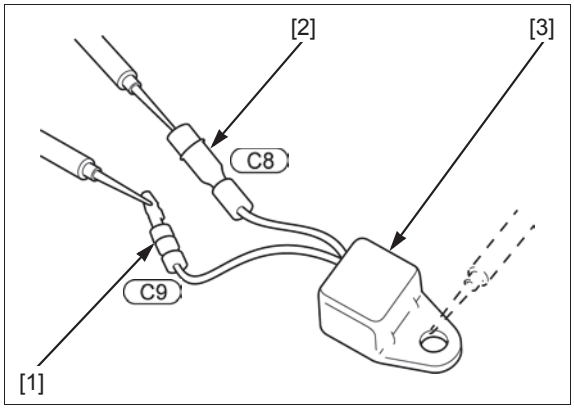
Remove the Oil Alert unit.

– Without control box (page 11-6)
– With control box (page 11-4)

Check the continuity between the terminals, and Oil Alert unit body.

Unit: kΩ

		(+)		
		Bl [1]	Y [2]	Body [3]
(–)	Bl [1]	–	0.5 – 10	∞
	Y [2]	0.5 – 10	–	∞
	Body [3]	∞	∞	–



REGULATOR/RECTIFIER INSPECTION

Disconnect the regulator/rectifier connector.

Measure the resistance between the terminals and be sure that the measurements conform to the ranges shown in the table.

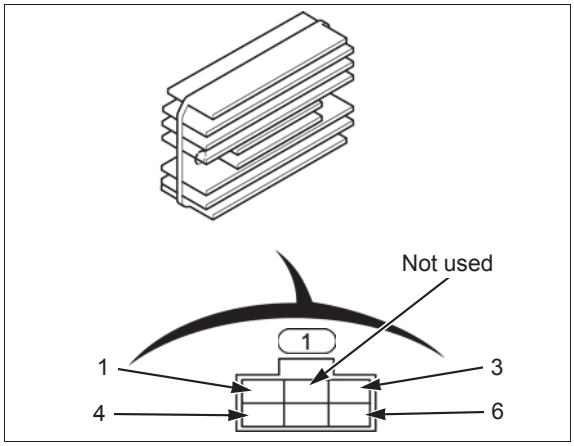
Unit: kΩ

	4	6	1	3
4	–	∞	∞	∞
6	∞	–	∞	∞
1	1 – 200	1 – 200	–	0.5 – 100
3	0.1 – 50	0.1 – 50	∞	–

Use a tester that has an internal resistance equal to or greater than: 20 kΩ/VDC, 9 kΩ/VAC

Be careful not to touch the metallic part of the tester probe with your fingers; otherwise, the correct resistance value cannot be obtained.

Read the tester manufacturer's operation instructions carefully before operating the tester. Follow the instructions of the service manual. Be sure the tester's battery is fully charged, and check the meter before using the tester.



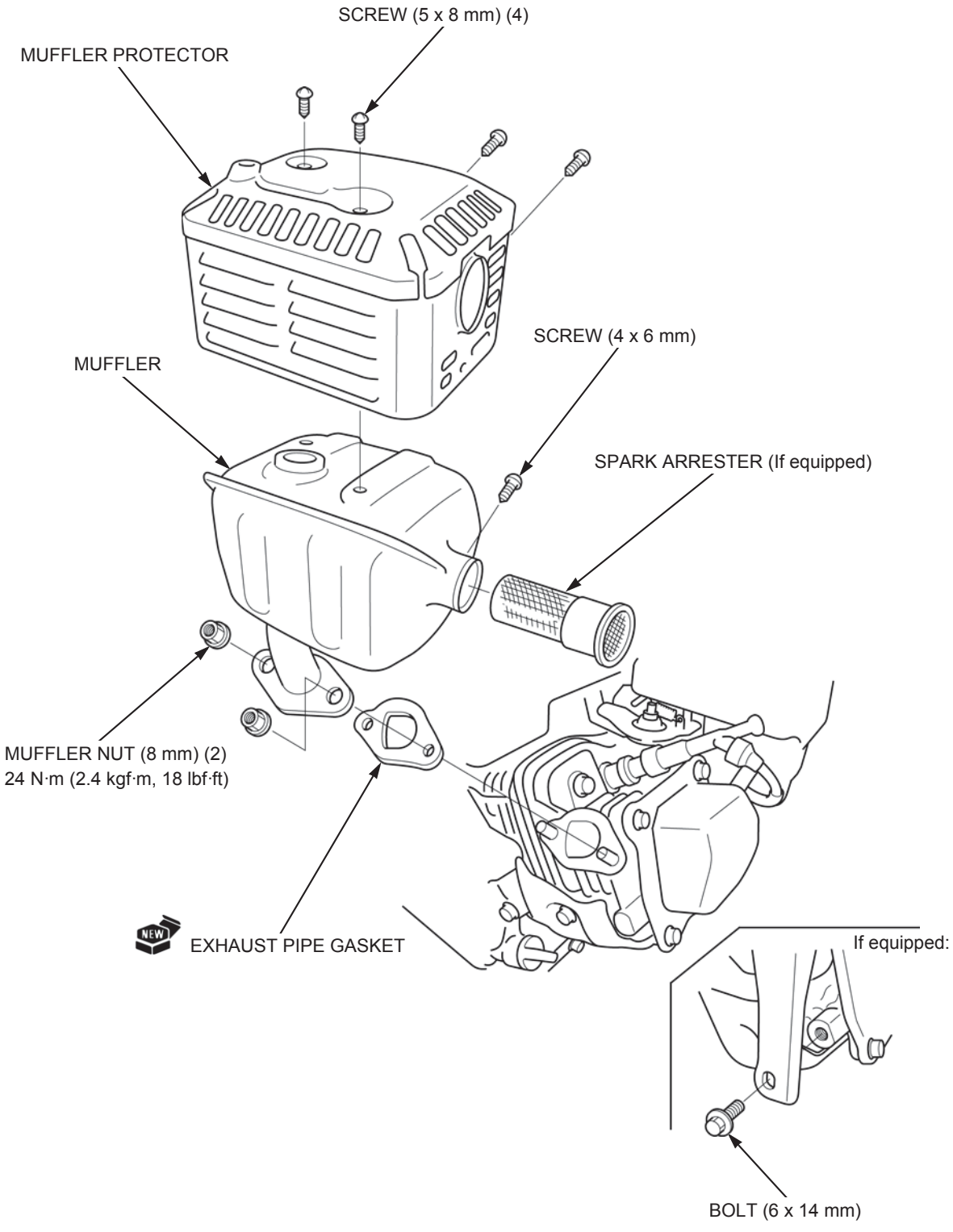
12. MUFFLER

MUFFLER REMOVAL/INSTALLATION

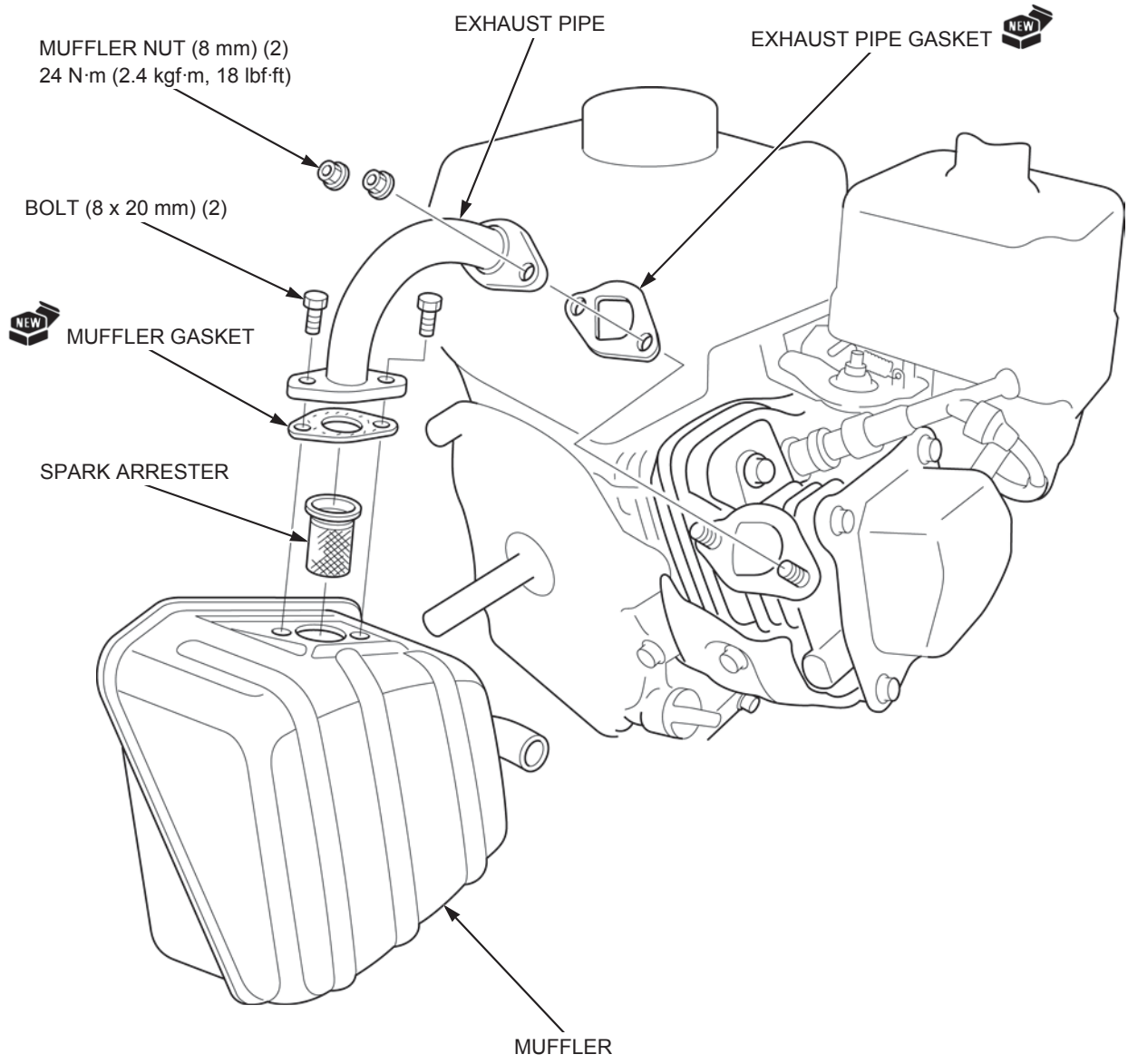
⚠CAUTION

The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Be careful not to touch the muffler while it is hot. Allow it to cool before proceeding.

STANDARD, SILENT TYPE



LOW PROFILE TYPE



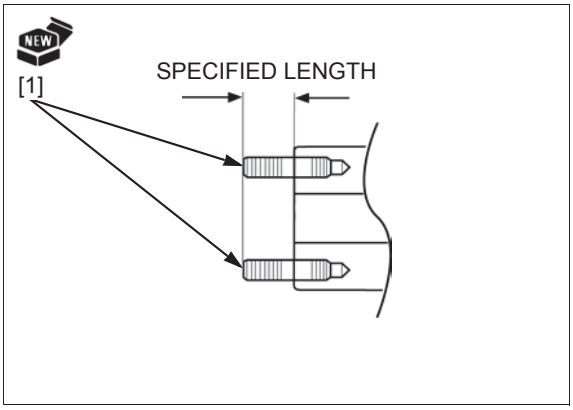
EXHAUST PIPE STUD BOLT REPLACEMENT

Remove the muffler (page 12-2).

Thread two nuts onto the exhaust pipe stud bolt [1] and tighten them together; then use a wrench to turn the stud bolt out.

Install and tighten the new stud bolts until they are the specified length.

SPECIFIED LENGTH: 15 mm (0.6 in)

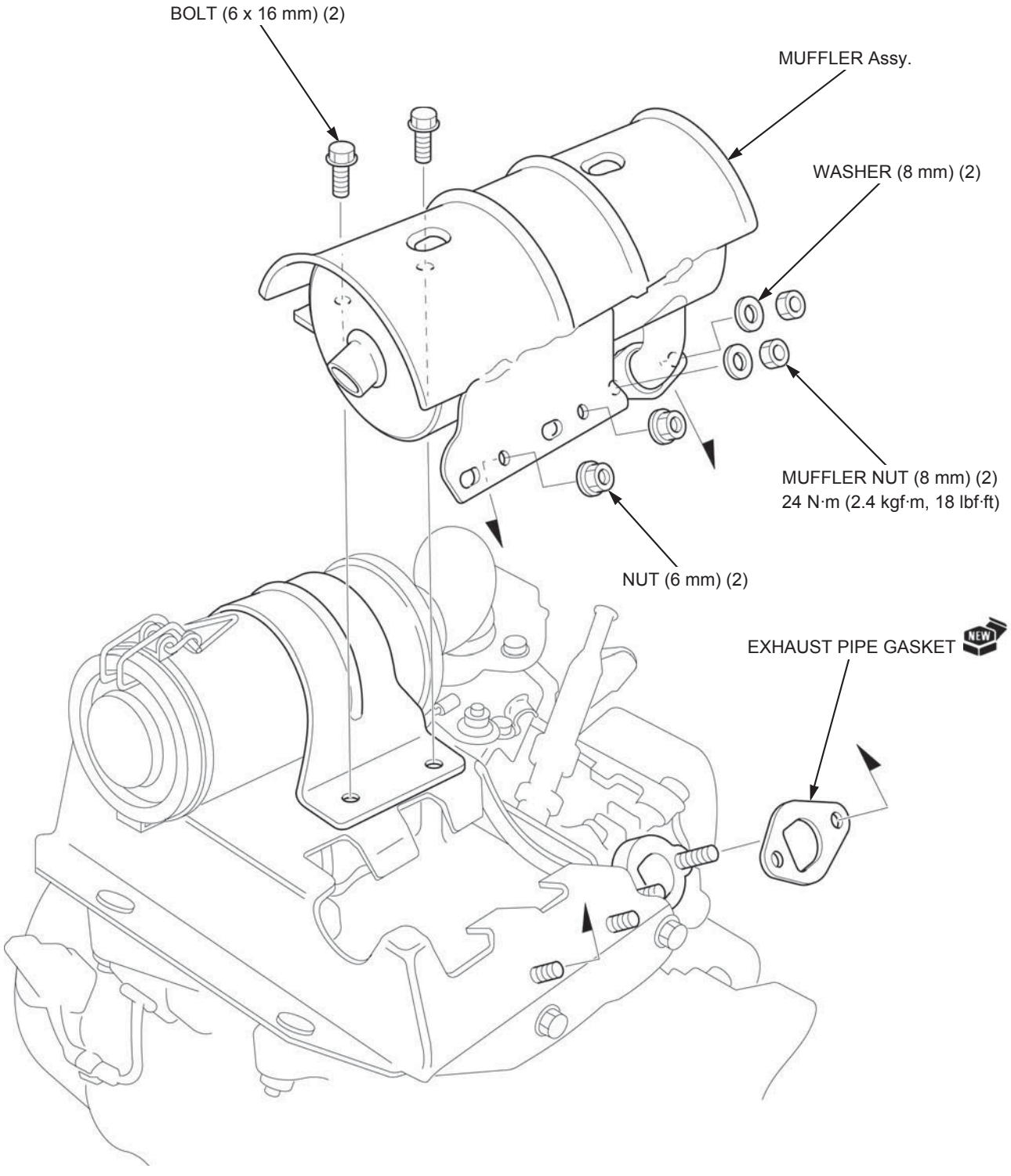


MUFFLER REMOVAL/INSTALLATION

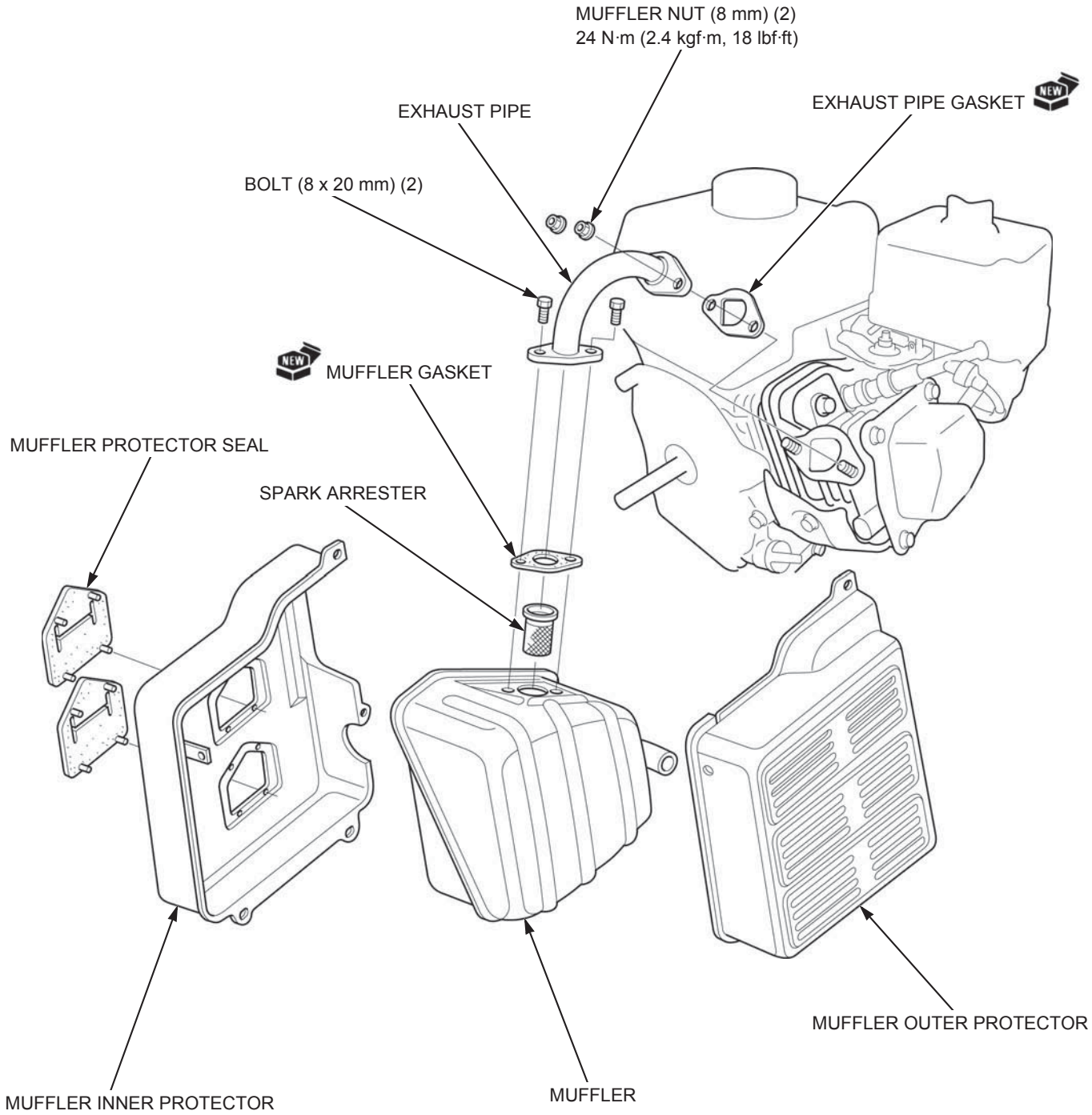
⚠CAUTION

The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Be careful not to touch the muffler while it is hot.
Allow it to cool before proceeding.

GX120RT2 (RAMMER TYPE)



GX200RT2 (LOW PROFILE TYPE)



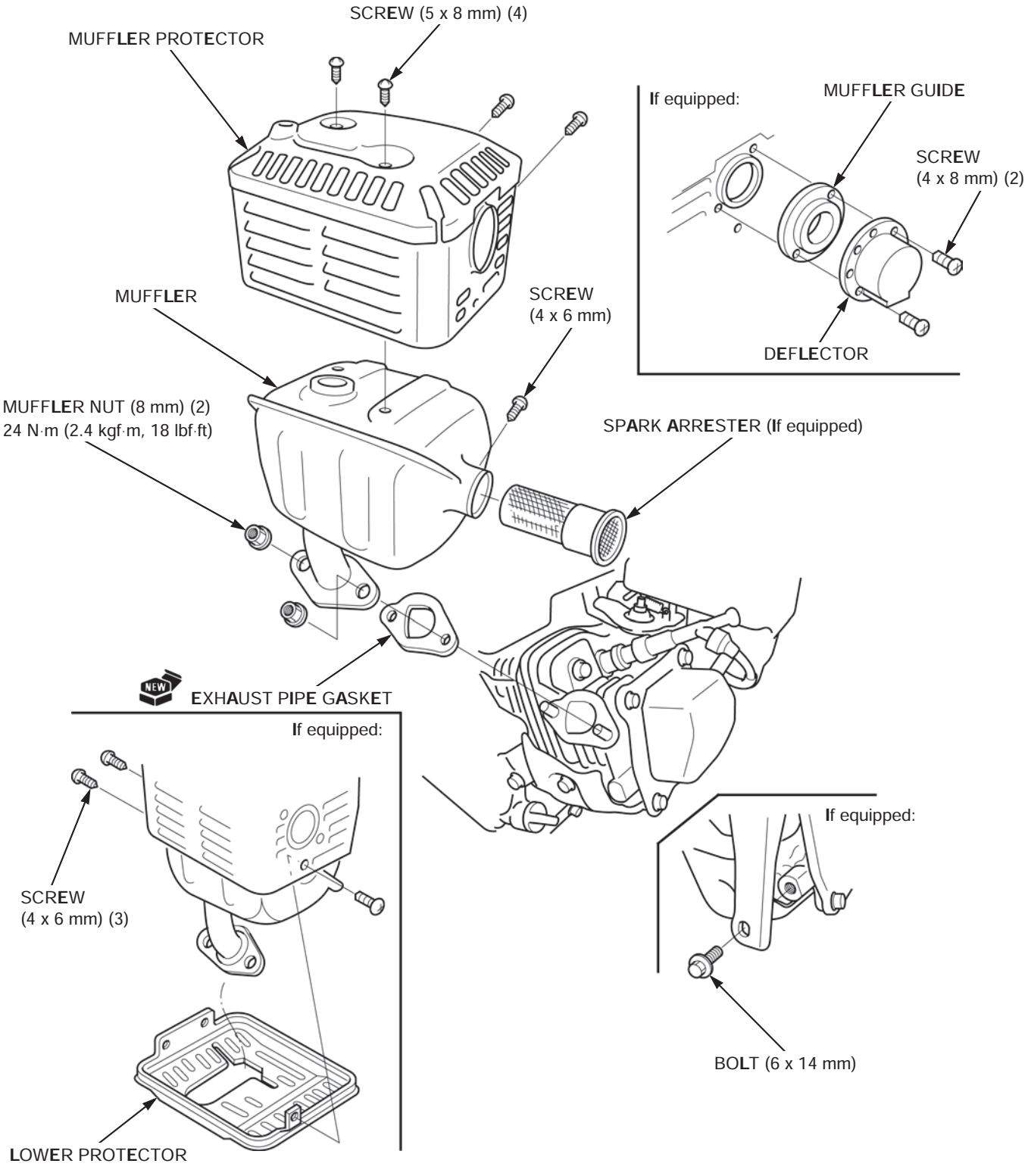
MUFFLER

MUFFLER REMOVAL/INSTALLATION

⚠CAUTION

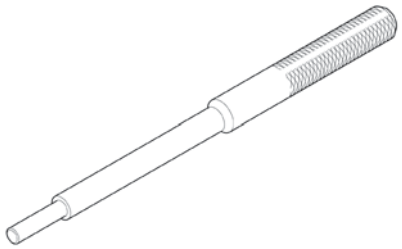
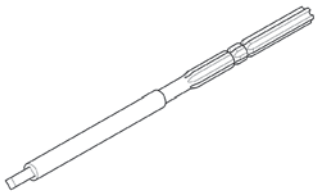
The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Be careful not to touch the muffler while it is hot. **A**llow it to cool before proceeding.

STANDARD, SILENT TYPE



13. CYLINDER HEAD

TOOLS

Valve guide driver, 5.5 mm 07742-0010100 	Valve guide reamer, 5.5 mm 07984-200000D 

CYLINDER HEAD REMOVAL/ INSTALLATION

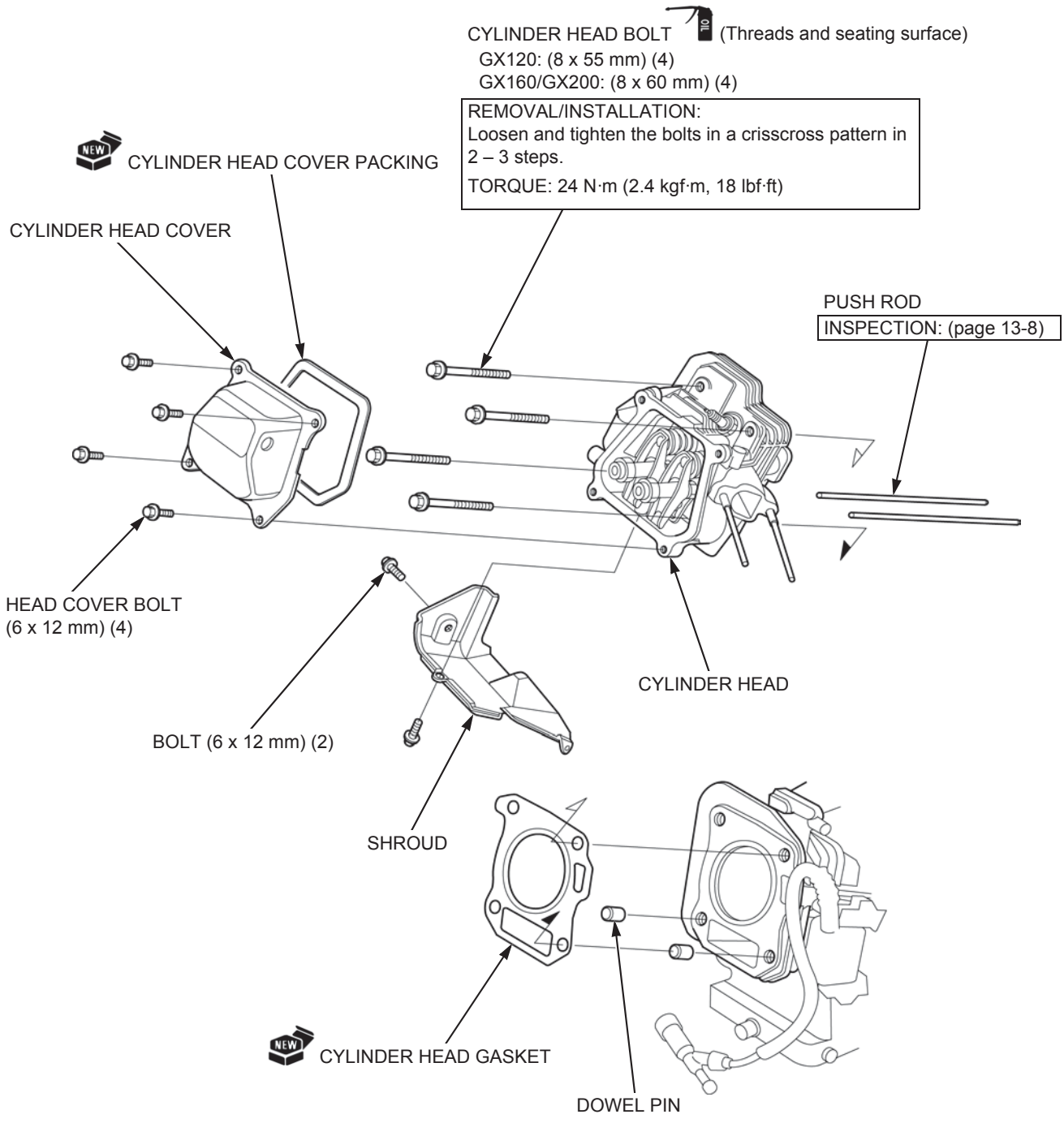
Set the piston at top dead center of the cylinder compression stroke (page 3-13).

Remove the following:

- Fan cover (page 5-2)
- Carburetor (page 6-10)
- Control base Assy (page 7-3)
- Muffler (page 12-2)

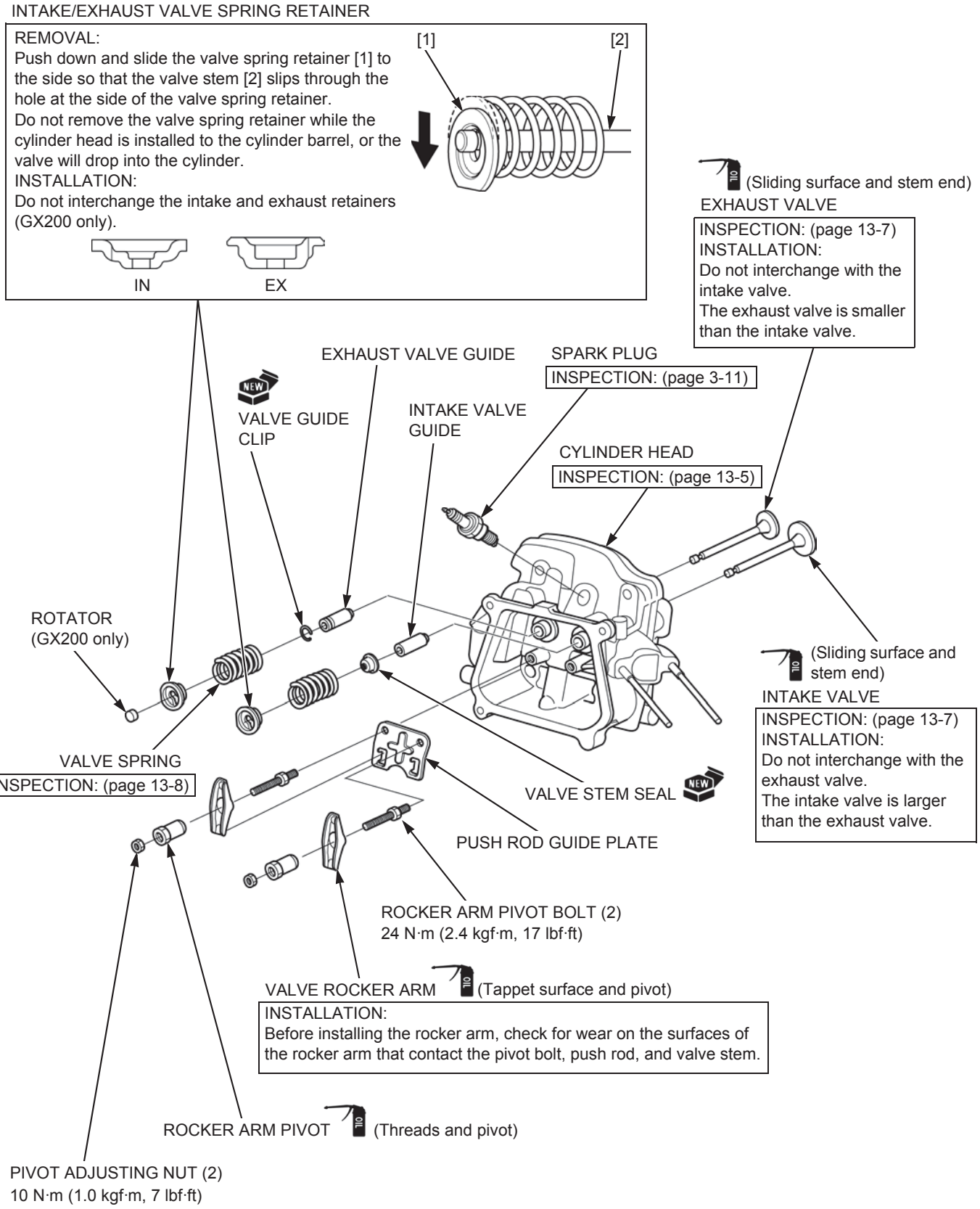
After installation, inspect following:

- Valve clearance (page 3-13)
- Cylinder compression (page 13-5)



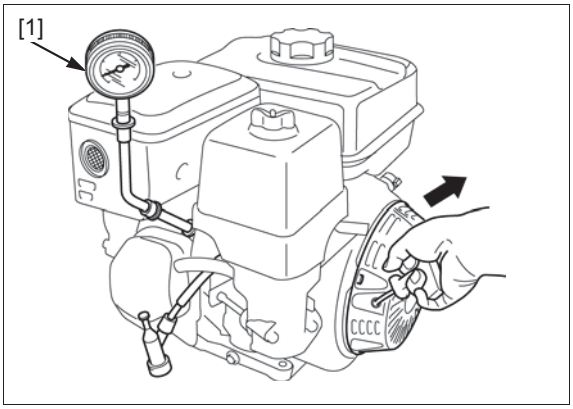
CYLINDER HEAD DISASSEMBLY/ ASSEMBLY

Remove the cylinder head (page 13-3).



CYLINDER HEAD/VALVES INSPECTION

CYLINDER COMPRESSION CHECK



Start the engine and warm up to normal operating temperature.

Turn off the engine stop switch/combination switch to stop the engine.

Turn the fuel valve lever to the OFF position, and then loosen the drain screw of the carburetor to drain the fuel completely (page 6-3).

Remove the spark plug (page 3-11).

Pull the recoil starter several times to expel unburned gas.

Attach a commercially available compression gauge [1] to the spark plug hole.

Pull the recoil starter forcefully to measure stable cylinder compression.

CYLINDER COMPRESSION:

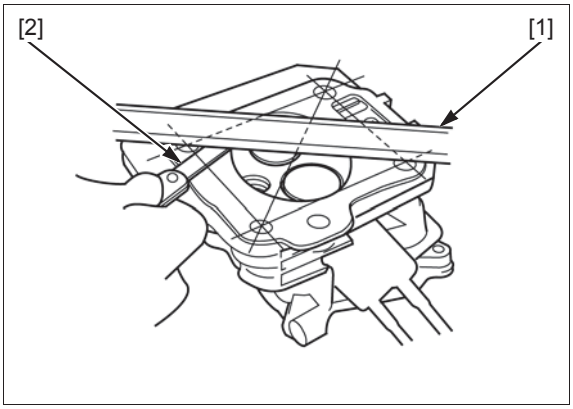
GX120/GX160:

0.49 - 0.69 MPa (5.0 - 7.0 kgf/cm^2, 71 - 100 psi)/ 600 min^{-1} (rpm)

GX200:

0.35 MPa (3.6 kgf/cm^2, 51 psi)/600 min^{-1} (rpm)

CYLINDER HEAD WARPAGE



Check the spark plug hole and valve areas for cracks.

Clean any gasket material from the cylinder head mating surface and check the cylinder head warpage using a straightedge [1] and thickness gauge [2].

NOTE:

- Be careful not the damage the mating surface.

SERVICE LIMIT: 0.10 mm (0.004 in)

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

VALVE SEAT WIDTH

Remove the carbon deposits from the combustion chamber (page 3-15).

Inspect each valve face for irregularities.

If necessary, replace the valve.

Apply a light coat of Prussian Blue or erasable felt-tipped marker ink to each valve seat.

Insert the valve, and snap it closed against its seat several times. Be sure the valve does not rotate on the seat.

The transferred marking compound will show any area of the valve face that is not concentric.

Measure the valve seat width of the cylinder head.

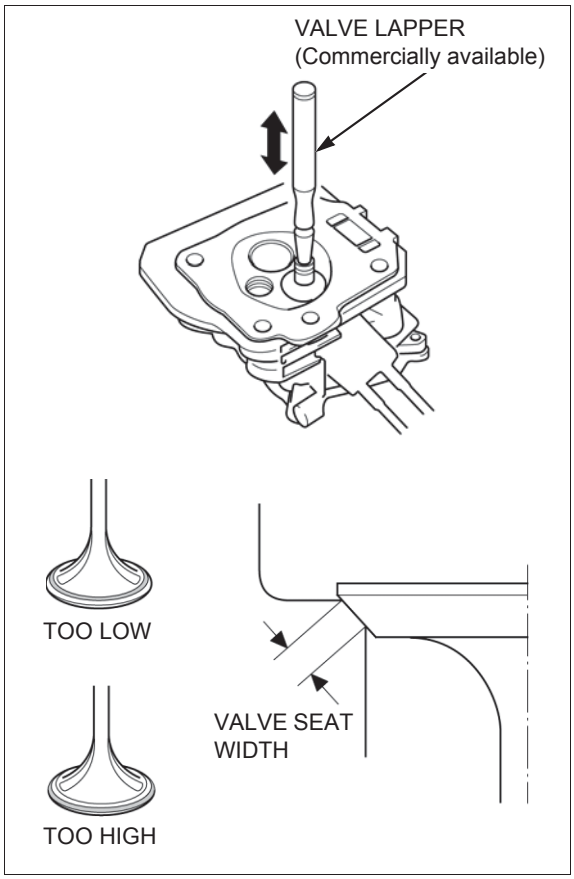
STANDARD:
GX120/GX200:
IN/EX: 0.70 – 0.90 mm (0.028 – 0.035 in)
GX160:
IN: 0.70 – 0.90 mm (0.028 – 0.035 in)
EX: 0.90 – 1.10 mm (0.035 – 0.043 in)

SERVICE LIMIT:
GX120/GX200:
IN/EX: 2.0 mm (0.08 in)
GX160:
IN: 2.0 mm (0.08 in)
EX: 2.0 mm (0.08 in)

If the measurement is more than the service limit, recondition the valve seat (page 13-10).

Check whether the valve seat contact area of the valve is too high.

If the valve seat is too high or too low, recondition the valve seat (page 13-10).



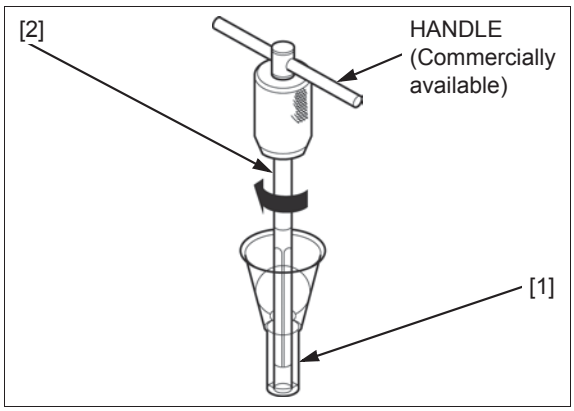
VALVE GUIDE I.D.

Ream the valve guide to remove any carbon deposits before measuring the guide I.D. [1].

TOOL:
Valve guide reamer 5.5 mm [2] 07984-200000D

NOTICE

- *Turn the valve guide reamer (special tool) clockwise, never counterclockwise.*
- *Continue to rotate the special tool while removing it from the valve guide.*

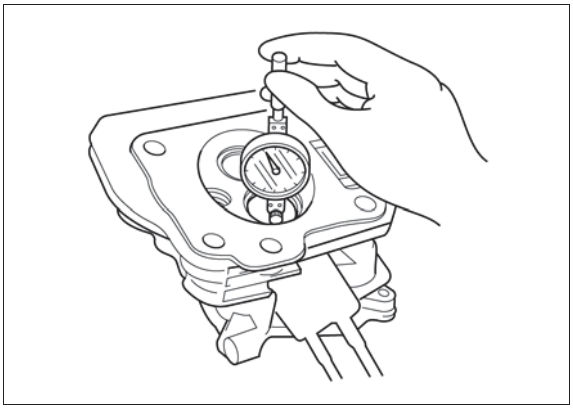


Measure and record each valve guide I.D.

STANDARD: 5.500 – 5.512 mm (0.2165 – 0.2170 in)

SERVICE LIMIT: 5.572 mm (0.2194 in)

If the measured valve guide I.D. is more than the service limit, replace the valve guide (page 13-8).



VALVE FACE/VALVE STEM O.D.

Inspect each valve face [1] for irregularities.

If necessary, replace the valve.

Inspect each valve [2] for bending or abnormal stem wear.

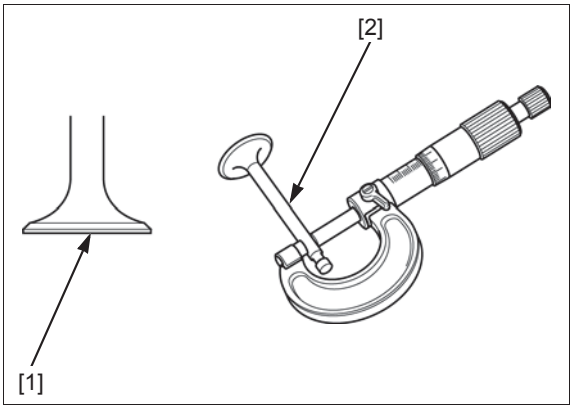
If necessary, replace the valve.

Measure and record each valve stem O.D.

STANDARD:
IN: 5.468 – 5.480 mm (0.2153 – 0.2157 in)
EX: 5.425 – 5.440 mm (0.2136 – 0.2142 in)

SERVICE LIMIT:
IN: 5.318 mm (0.2094 in)
EX: 5.275 mm (0.2077 in)

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



GUIDE-TO-STEM CLEARANCE

Subtract each valve stem O.D. from the corresponding guide I.D. to obtain the guide-to-stem clearance.

STANDARD:
IN: 0.020 – 0.044 mm (0.0008 – 0.0017 in)
EX: 0.060 – 0.087 mm (0.0024 – 0.0034 in)

SERVICE LIMIT:
IN: 0.10 mm (0.004 in)
EX: 0.12 mm (0.005 in)

If the calculated clearance is more than the service limit, replace the valve and valve guide as a set (page 13-8).

VALVE SPRING FREE LENGTH/ PERPENDICULARITY

Measure the valve spring free length.

STANDARD: 30.5 mm (1.20 in)

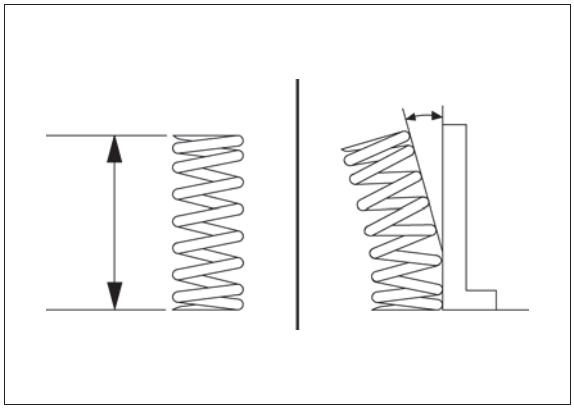
SERVICE LIMIT: 29.0 mm (1.14 in)

If the measured length is less than the service limit, replace the valve spring.

Measure the valve spring perpendicularity.

SERVICE LIMIT: 1.5° max.

If the measured perpendicularity is more than the service limit, replace the valve spring.

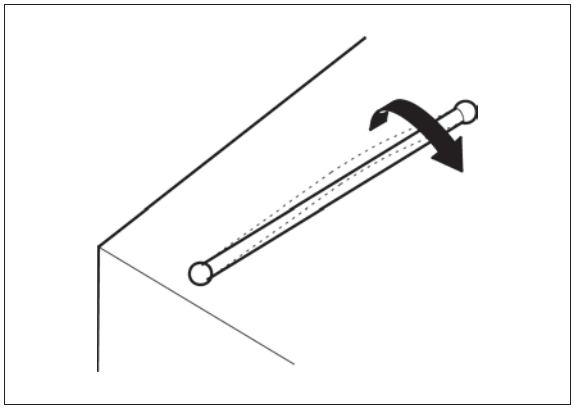


PUSH ROD RUNOUT

Check both ends of the push rod for wear.

Check the push rod for straightness.

If necessary, replace the push rod.



VALVE GUIDE REPLACEMENT

Chill the replacement valve guides in the freezer section of a refrigerator for about an hour.

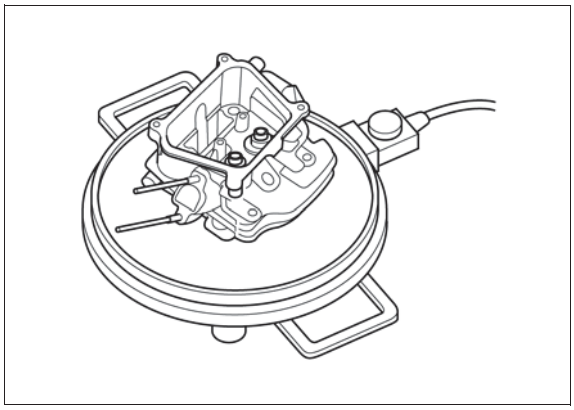
Use a hot plate or oven to heat the cylinder head evenly to 150°C (302°F).

⚠CAUTION

To avoid burns, use heavy gloves when handling the heated cylinder head.

NOTICE

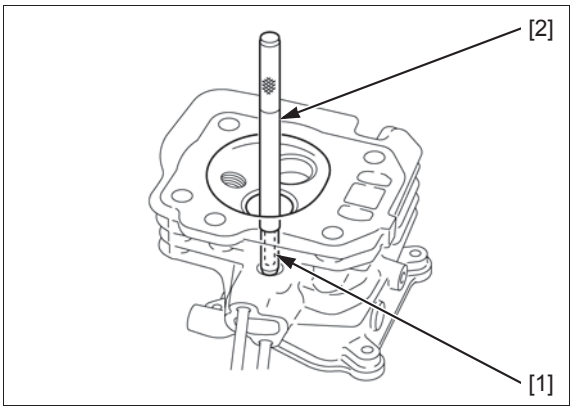
- *Do not use a torch to heat the cylinder head; warpage of the cylinder head may result.*
- *Do not get the cylinder head hotter than 150°C (302°F); excessive heat may loosen the valve seat.*



Remove the heated cylinder head from the hot plate and support it with wooden blocks.

Drive the valve guides [1] out of the cylinder head from the combustion chamber side.

TOOL:
Valve guide driver 5.5 mm [2] 07742-0010100



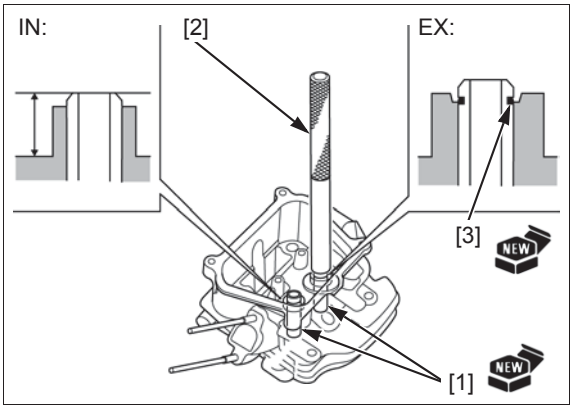
NOTICE

- *When driving the valve guides out, be careful not to damage the cylinder head.*

Remove the new valve guides [1] from the refrigerator one at a time as needed.

Install the valve guides from the valve spring side of the cylinder head.

TOOL:
Valve guide driver 5.5 mm [2] 07742-0010100



EX: Drive the exhaust valve guide until new valve guide clip [3] is fully seated as shown.

IN: Drive the intake valve guide to the specified height (measured from the end of the valve guide to the cylinder head as shown).

IN VALVE INSTALLATION HEIGHT:
4.8 – 5.2 mm (0.19 – 0.20 in)

After installing the valve guide, check the guide for damage.

Replace the valve guide if damaged.

Let the cylinder head cool to room temperature.

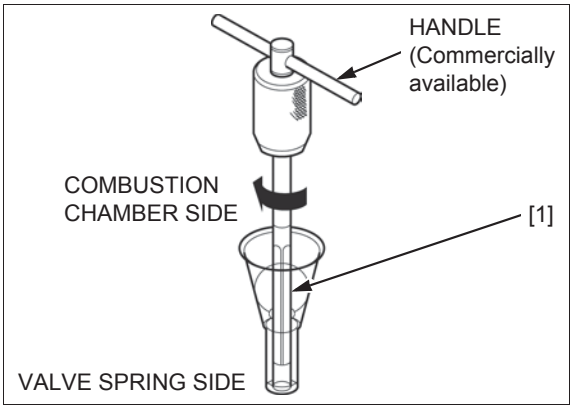
Ream the valve guide (page 13-9).

VALVE GUIDE REAMING

For best results, be sure the cylinder head is at room temperature before reaming valve guides.

Coat the reamer and valve guide with cutting oil.

TOOL:
Valve guide reamer 5.5 mm [1] 07984-200000D



Rotate the reamer clockwise through the valve guide the full length of the reamer.

NOTICE

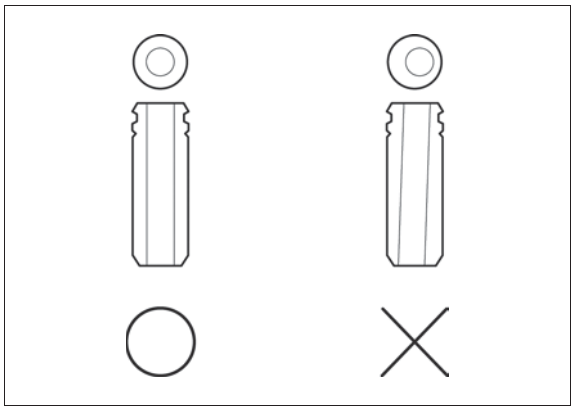
- *Turn the valve guide reamer (special tool) clockwise, never counterclockwise.*
- *Continue to rotate the special tool while removing it from the valve guide.*

Thoroughly clean the cylinder head to remove any cutting residue.

Check the valve guide bore; it should be straight, round and centered in the valve guide. Insert the valve and check operation. If the valve does not operate smoothly, the guide may have been bent during installation.

Replace the valve guide if it is bent or damaged (page 13-8).

Check the valve guide-to-stem clearance (page 13-7).



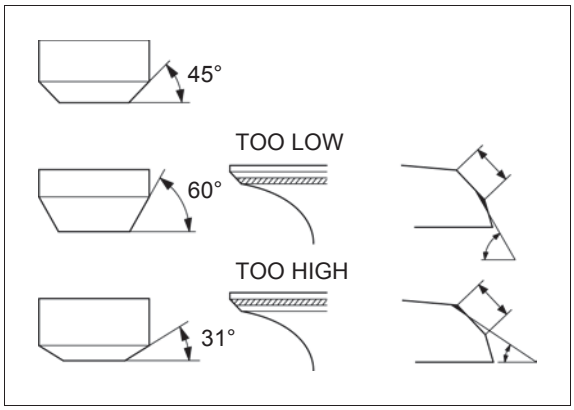
VALVE SEAT RECONDITIONING

Inspect the valve seat contact area (page 13-6).

Using a 45° seat cutter, remove any roughness or irregularities from the seat.

If the contact area is too low on the valve, the seat must be raised using a 60° interior cutter.

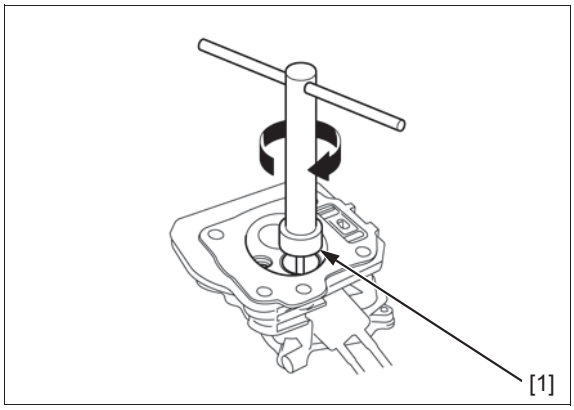
If the contact area is too high on the valve, the seat must be lowered using a 31° flat cutter.



Valve seat cutters [1]/grinder or equivalent valve seat refacing equipment is recommended to correct a worn valve seat.

NOTICE

- *Turn the cutter clockwise, never counterclockwise.*
- *Continue to turn the cutter as you lift it from the valve seat.*

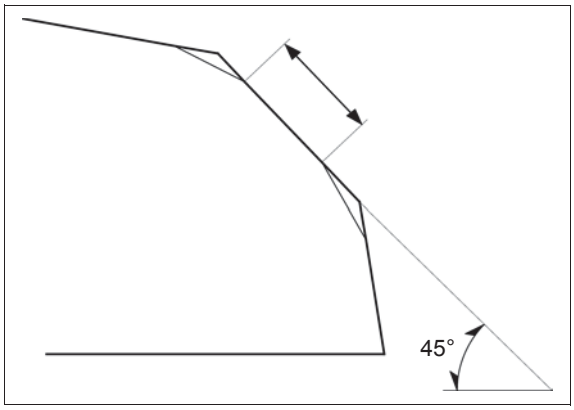


TOOLS (Commercially available):

Valve seat cutter, 31°	**NWYCU115**
Valve seat cutter, 45°	**NWYCU122**
Valve seat cutter, 60°	**MWYCU111**
Solid pilot (short) 5.5 mm	**NWYPM10055SH**
Accessory kit	**NWYKACC246**
T-wrench	**NWYTW505**
Adapter, 1/2"-3/8"	**NWYTW503-1**

Make a light pass with the 45° cutter to remove any possible burrs at the edge of the seat.

Be sure that the width of the finished valve seat is within specification.



STANDARD:

GX120/GX200:

IN/EX: 0.70 – 0.90 mm (0.028 – 0.035 in)

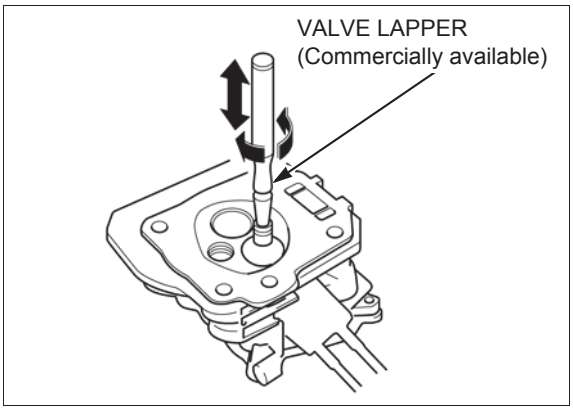
GX160:

IN: 0.70 – 0.90 mm (0.028 – 0.035 in)

EX: 0.90 – 1.10 mm (0.035 – 0.043 in)

Lap the valves into their seats, using a commercially available valve lapper and lapping compound.

After lapping, wash all residual compound off the cylinder head and valve.

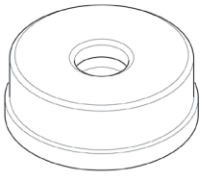
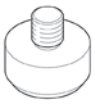
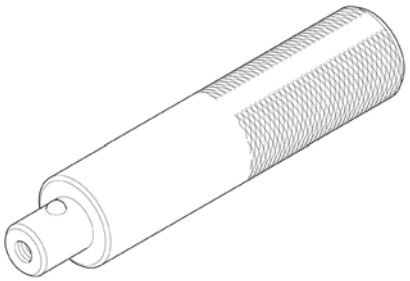


NOTICE

- *Do not push the valve against the seat with force during lapping. Apply a light pass with the valve lapper.*
- *Avoid lapping the valve in the same position as it causes uneven wear. Lap the valve by turning the lapper slowly.*
- *Take care not to allow the lapping compound to enter the gap between the stem and guide.*

14. CRANKCASE

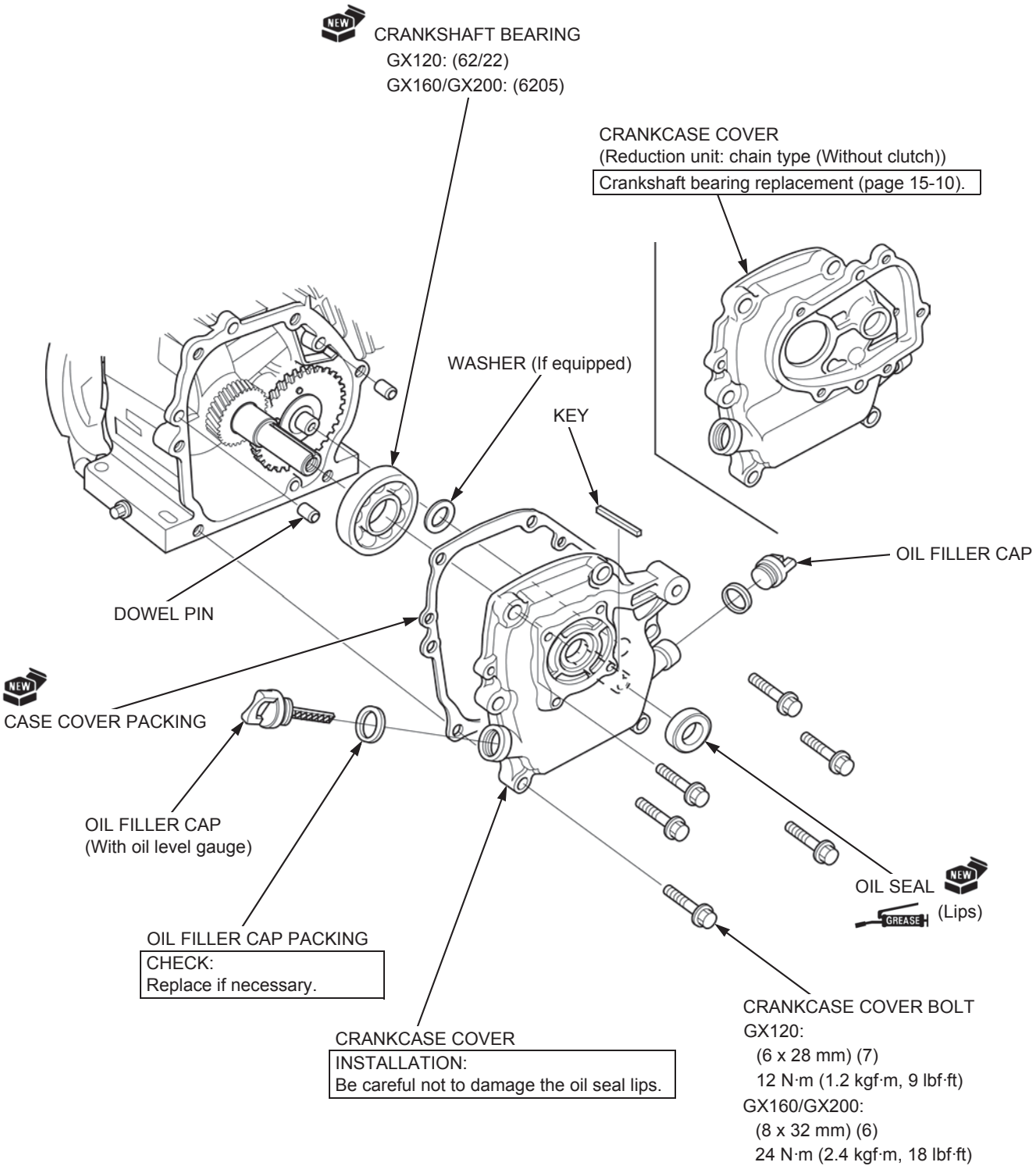
TOOLS

Attachment, 32 x 35 mm 07746-0010100 	Attachment, 37 x 40 mm 07746-0010200 	Attachment, 52 x 55 mm 07746-0010400 
Pilot, 22 mm 07746-0041000 	Pilot, 25 mm 07746-0040600 	Driver 07749-0010000 

CRANKCASE COVER REMOVAL/ INSTALLATION

Drain the engine oil (page 3-3).

Reduction type: Remove the reduction unit (page 15-4).



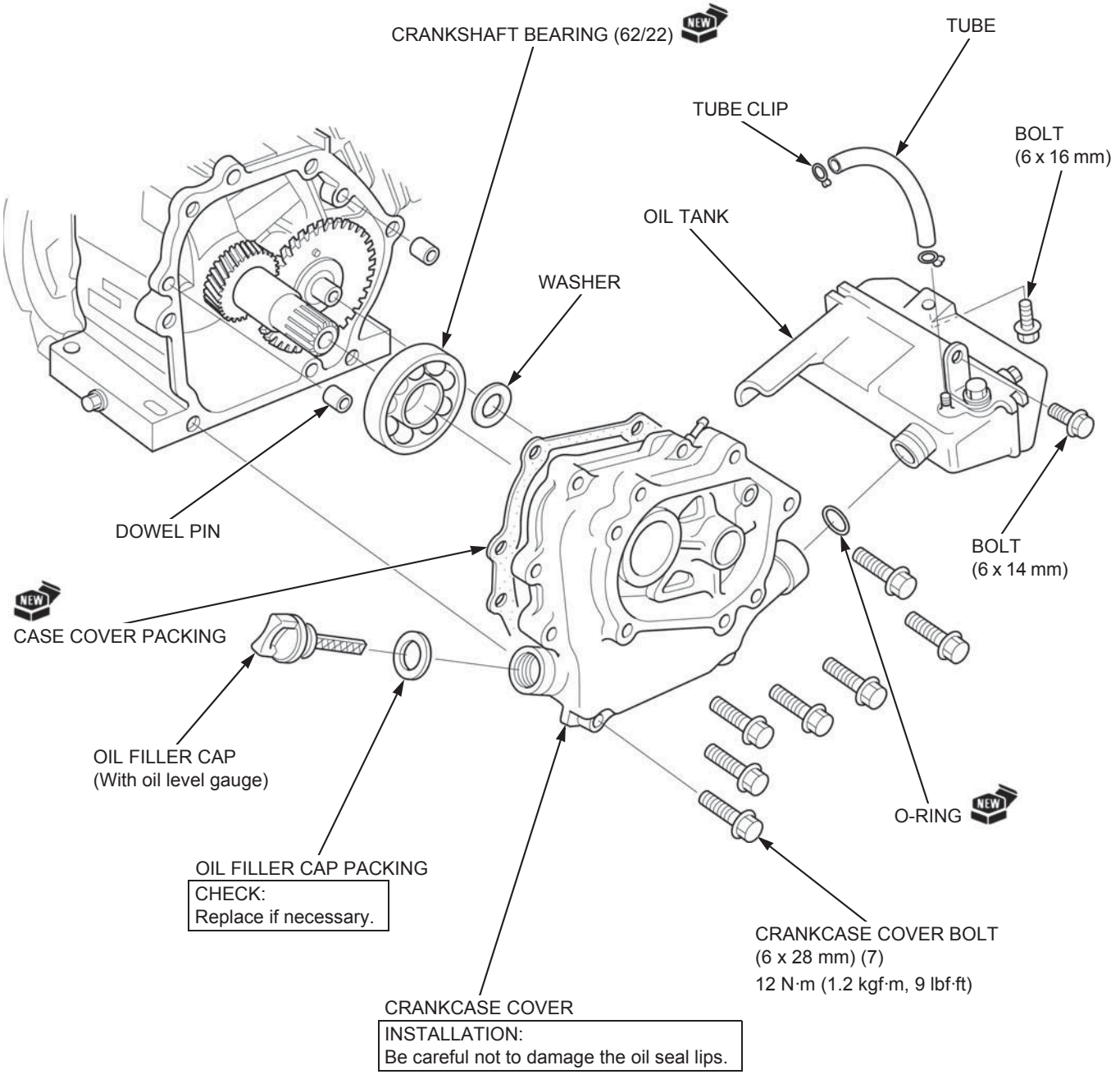
CRANKCASE COVER REMOVAL/ INSTALLATION

GX120RT2 (RAMMER TYPE)

(*) Refer to page of base shop manual (GX120UT2/ 160UT2/200UT2).

Drain the engine oil (page 3-3*).

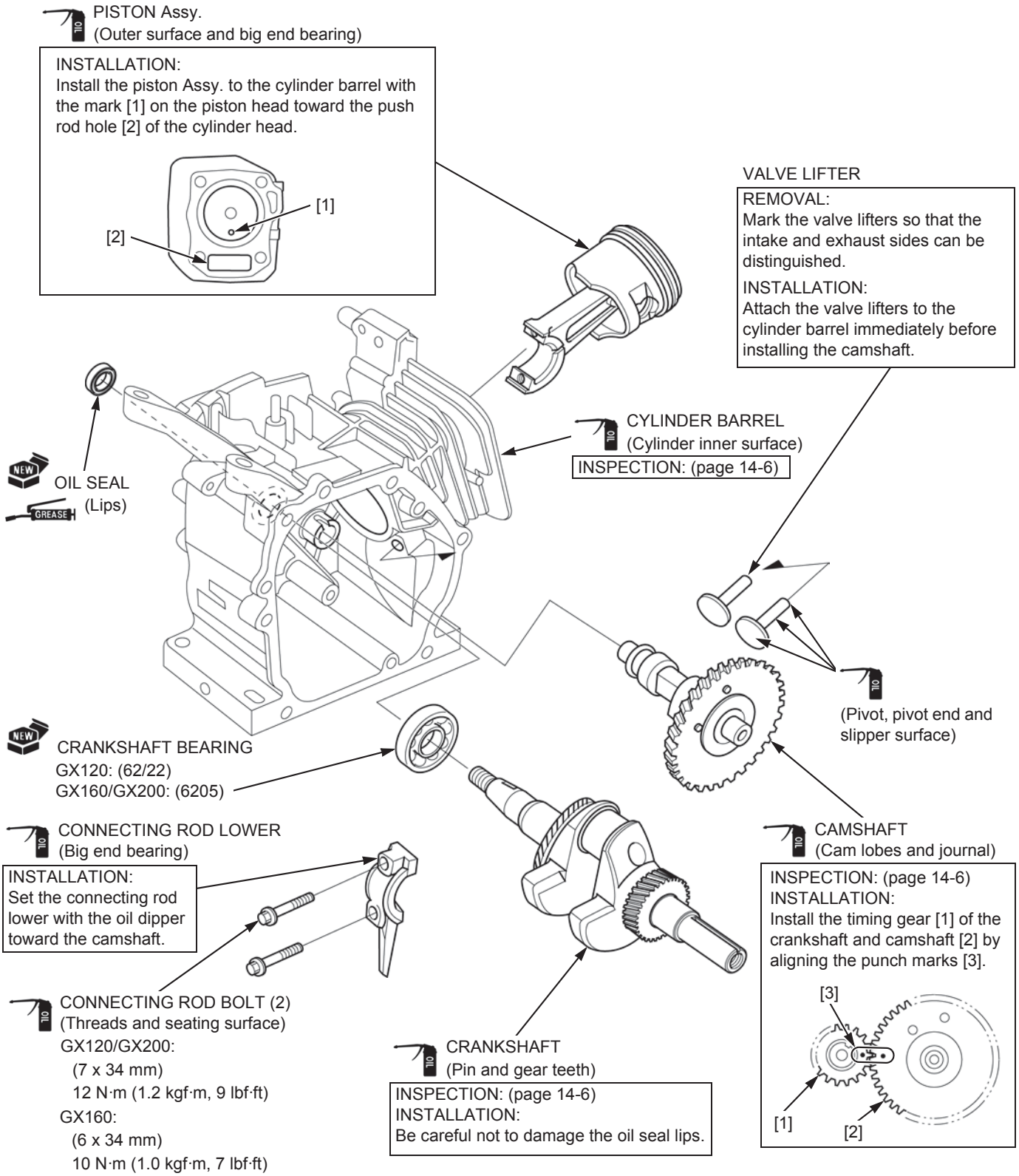
Remove the reduction unit (page 15-2).



CRANKSHAFT/PISTON REMOVAL/ INSTALLATION

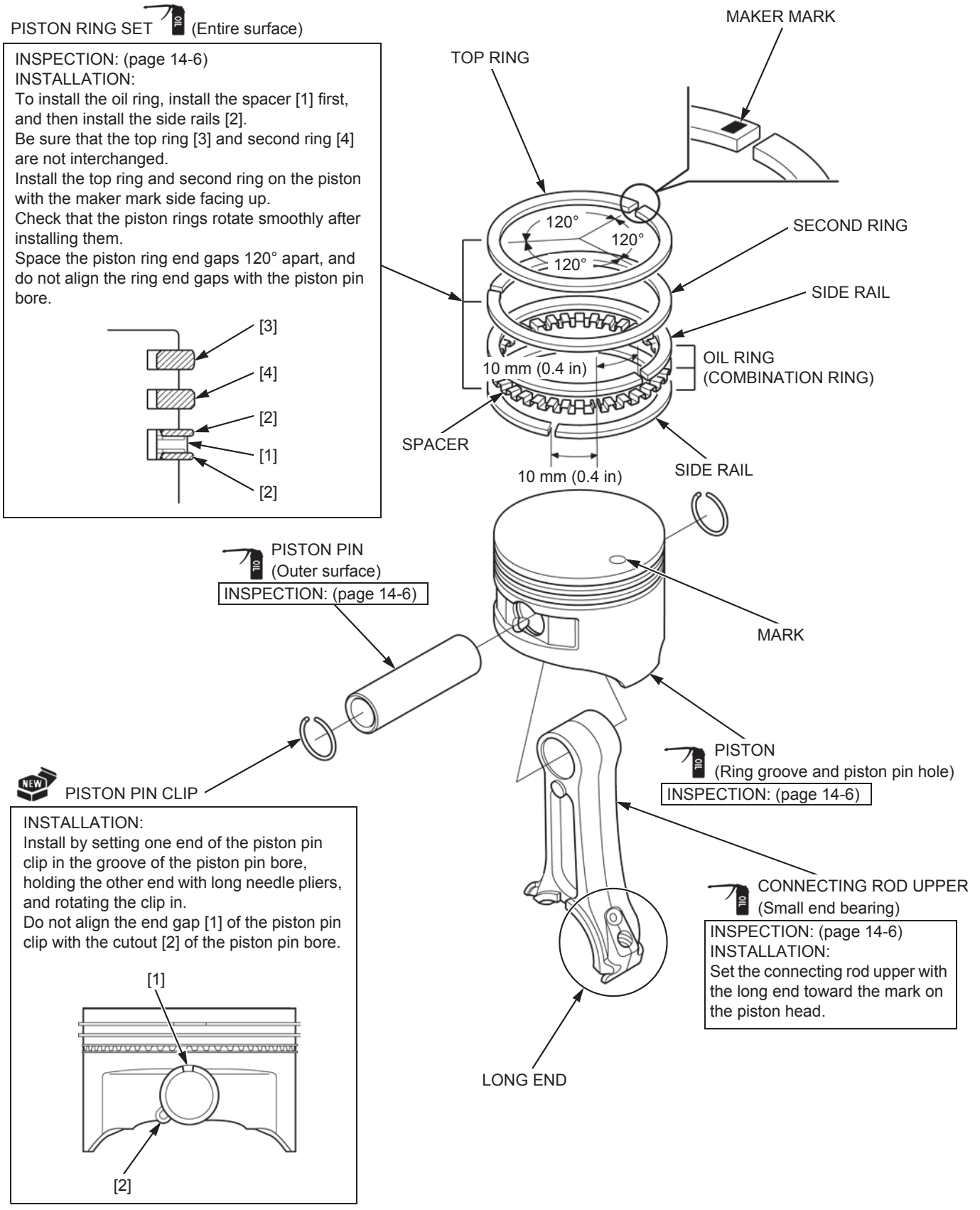
Remove the following:

- Fuel tank (page 6-3)
- Flywheel (page 8-5)
- Cylinder head (page 13-3)
- Crankcase cover (page 14-3)



PISTON Assy. DISASSEMBLY/ ASSEMBLY

Remove the piston Assy. (page 14-4).



CRANKCASE COVER/CYLINDER BARREL/PISTON/CONNECTING ROD/ CRANKSHAFT/CAMSHAFT INSPECTION

CAMSHAFT HOLDER I.D.

CRANKCASE COVER SIDE

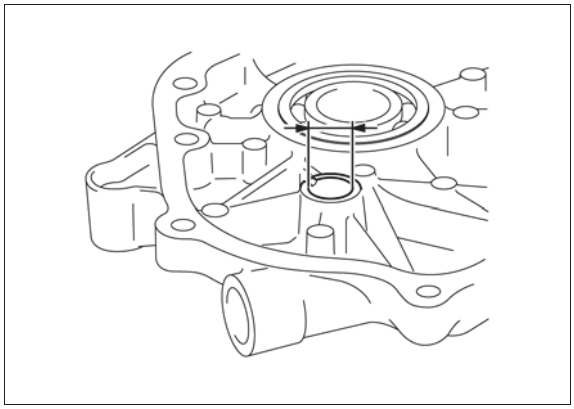
Measure the camshaft holder I.D. of the crankcase cover.

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 crankcase cover.

Inspect the camshaft O.D. (page 14-12).



CYLINDER BARREL SIDE

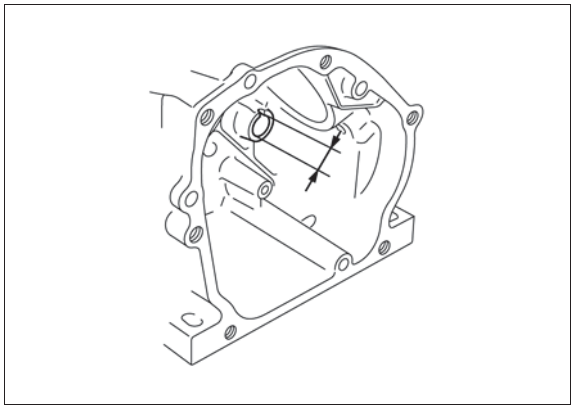
Measure the camshaft holder I.D. of the cylinder barrel assembly.

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 14-12).



CYLINDER SLEEVE I.D.

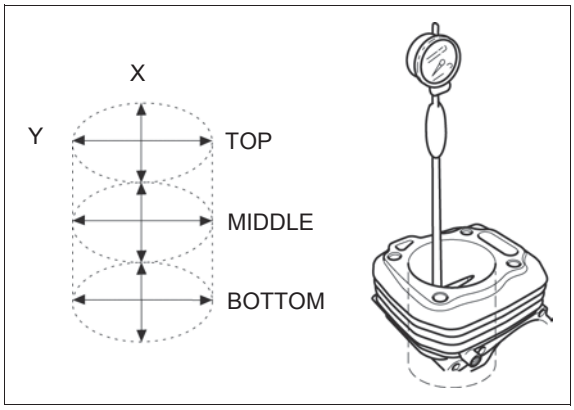
Measure and record the cylinder I.D. at three levels in both the "X" axis (perpendicular to crankshaft) and the "Y" axis (parallel to crankshaft). Take the maximum reading to determine cylinder wear and taper.

GX120:
STANDARD: 60.000 – 60.015 mm (2.3622 – 2.3628 in)
SERVICE LIMIT: 60.165 mm (2.3561 in)

GX160/GX200:
STANDARD: 68.000 – 68.015 mm (2.6772 – 2.6778 in)
SERVICE LIMIT: 68.165 mm (2.6837 in)

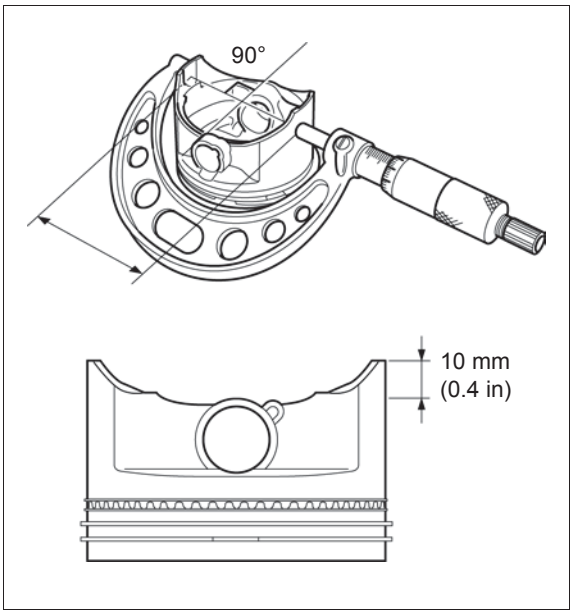
If the measurement is more than the service limit, replace the cylinder barrel.

Inspect the piston skirt O.D. (page 14-7).



PISTON SKIRT O.D.

Measure and record the piston O.D. at a point 10 mm (0.4 in) from the bottom of the skirt and 90° to the piston pin bore.



GX120:
STANDARD: 59.965 – 59.985 mm (2.3608 – 2.3616 in)
SERVICE LIMIT: 59.845 mm (2.3561 in)

GX160:
STANDARD: 67.985 – 67.995 mm (2.6766 – 2.6770 in)
SERVICE LIMIT: 67.845 mm (2.6711 in)

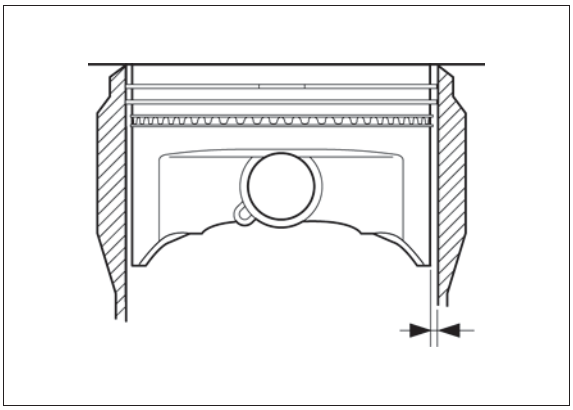
GX200:
STANDARD: 67.965 – 67.985 mm (2.6758 – 2.6766 in)
SERVICE LIMIT: 67.845 mm (2.6711 in)

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

Inspect the cylinder sleeve I.D. (page 14-6).

PISTON-TO-CYLINDER CLEARANCE

Subtract the piston skirt O.D. from the cylinder sleeve I.D. to obtain the piston-to-cylinder clearance.



GX120/GX200:
STANDARD: 0.015 – 0.050 mm (0.0006 – 0.0020 in)
SERVICE LIMIT: 0.12 mm (0.005 in)

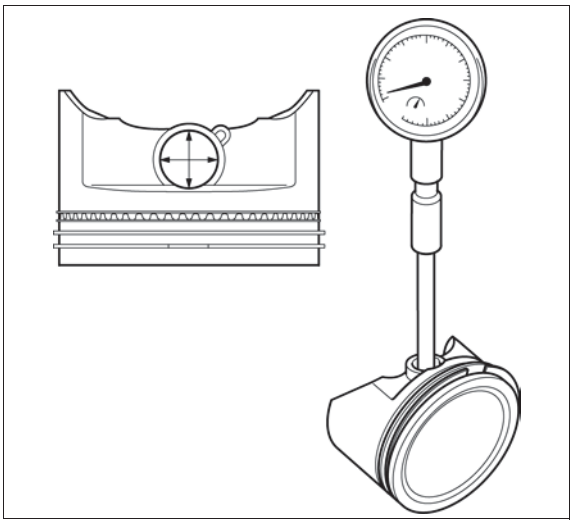
GX160:
STANDARD: 0.005 – 0.030 mm (0.0002 – 0.0012 in)
SERVICE LIMIT: 0.12 mm (0.005 in)

If the calculated clearance is more than the service limit, replace the piston and recheck the clearance.

If the clearance is still more than the service limit with the new piston, replace the cylinder barrel.

PISTON PIN BORE I.D.

Measure and record the piston pin bore I.D. of the piston.



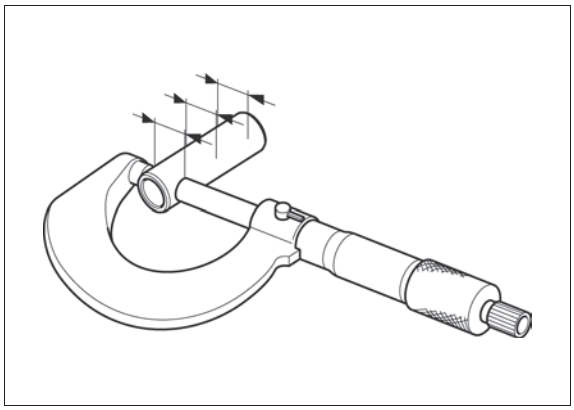
GX120:
STANDARD: 13.002 – 13.008 mm (0.5119 – 0.5121 in)
SERVICE LIMIT: 13.048 mm (0.5137 in)

GX160/GX200:
STANDARD: 18.002 – 18.008 mm (0.7087 – 0.7090 in)
SERVICE LIMIT: 18.048 mm (0.7105 in)

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

Inspect the piston pin O.D. (page 14-8).

PISTON PIN O.D.



Measure and record the piston pin O.D. at three points (both ends and middle). Take the minimum reading to determine piston pin O.D.

GX120:
STANDARD: 12.994 – 13.000 mm (0.5116 – 0.5118 in)
SERVICE LIMIT: 12.954 mm (0.5100 in)

GX160/GX200:
STANDARD: 17.994 – 18.000 mm (0.7084 – 0.7087 in)
SERVICE LIMIT: 17.954 mm (0.7068 in)

If the measurement is less than the service limit, replace the piston pin.

Inspect the piston pin bore I.D. (page 14-7).

Inspect the connecting rod small end I. D. (page 14-10).

PISTON PIN-TO-PISTON PIN BORE CLEARANCE

Subtract the piston pin O.D. from the piston pin bore I.D. to obtain the piston pin-to-piston pin bore clearance.

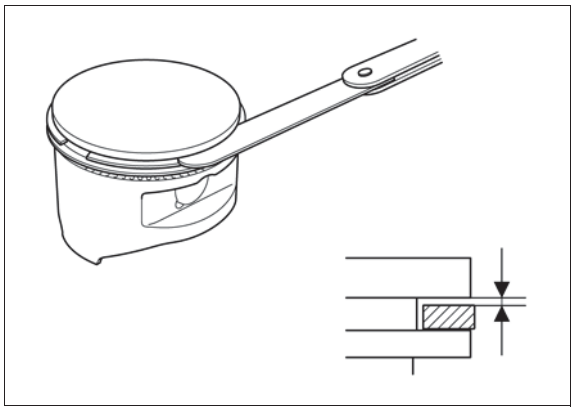
STANDARD: 0.002 – 0.014 mm (0.0001 – 0.0006 in)

SERVICE LIMIT: 0.08 mm (0.003 in)

If the calculated clearance is more than the service limit, replace the piston pin and recheck the clearance.

If the clearance is still more than the service limit with the new piston pin, replace the piston.

PISTON RING SIDE CLEARANCE



Measure the clearance between each piston ring and ring groove of the piston using a feeler gauge.

GX120/GX200:
STANDARD:
Top: 0.035 – 0.070 mm (0.0014 – 0.0028 in)
Second: 0.045 – 0.080 mm (0.0018 – 0.0032 in)
SERVICE LIMIT:
Top: 0.15 mm (0.006 in)
Second: 0.15 mm (0.006 in)

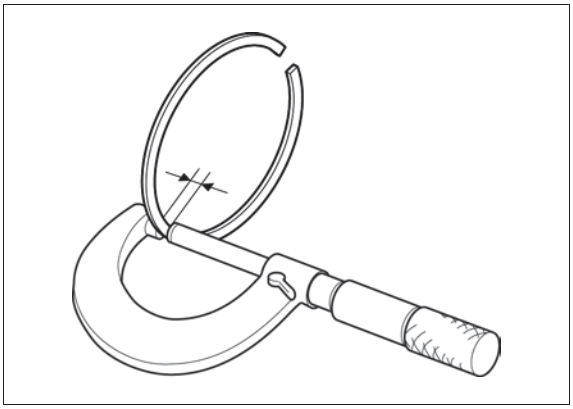
GX160:
STANDARD:
Top: 0.060 – 0.095 mm (0.0024 – 0.0037 in)
Second: 0.045 – 0.080 mm (0.0018 – 0.0032 in)
SERVICE LIMIT:
Top: 0.15 mm (0.006 in)
Second: 0.15 mm (0.006 in)

If any of the measurements is more than the service limit, inspect the piston ring width.

If the piston ring width is normal, replace the piston and reinspect the clearance.
If necessary, replace the piston rings (top, second, oil) as a set and reinspect the clearance.
If any of the measurements is still more than the service limit with the new piston rings, replace the piston.

PISTON RING WIDTH

Measure each piston ring width.



GX120/GX200:
STANDARD:
Top: 0.950 – 0.970 mm (0.0374 – 0.0382 in)
Second: 0.940 – 0.960 mm (0.0370 – 0.0378 in)
SERVICE LIMIT:
Top: 0.93 mm (0.037 in)
Second: 0.92 mm (0.036 in)

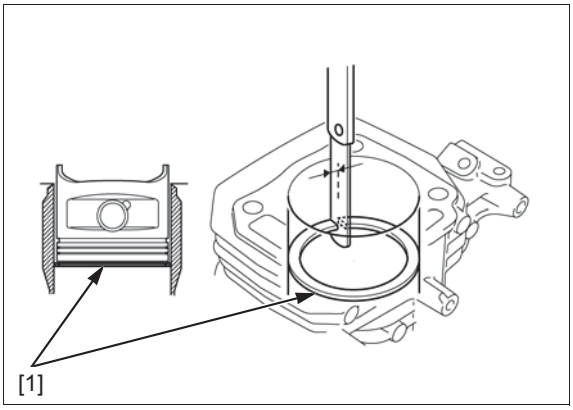
GX160:
STANDARD:
Top: 0.925 – 0.945 mm (0.0364 – 0.0372 in)
Second: 0.940 – 0.960 mm (0.0370 – 0.0378 in)
SERVICE LIMIT:
Top: 0.905 mm (0.0356 in)
Second: 0.92 mm (0.036 in)

If any of the measurements is less than the service limit, replace the piston rings (top, second, oil) as a set.

PISTON RING END GAP

Before inspection, check whether the cylinder sleeve I.D. is within the specification (page 14-6).

Measure each piston ring end gap using a feeler gauge.



GX120/GX200:
STANDARD:
Top: 0.200 – 0.350 mm (0.0079 – 0.0138 in)
Second: 0.350 – 0.500 mm (0.0138 – 0.0197 in)
Oil (side rail): 0.2 – 0.7 mm (0.01 – 0.03 in)
SERVICE LIMIT:
Top: 1.0 mm (0.04 in)
Second: 1.0 mm (0.04 in)
Oil (side rail): 1.0 mm (0.04 in)

GX160:
STANDARD:
Top: 0.200 – 0.350 mm (0.0079 – 0.0138 in)
Second: 0.350 – 0.500 mm (0.0138 – 0.0197 in)
Oil (side rail): 0.10 – 0.35 mm (0.004 – 0.014 in)
SERVICE LIMIT:
Top: 1.0 mm (0.04 in)
Second: 1.0 mm (0.04 in)
Oil (side rail): 1.0 mm (0.04 in)

If any of the measurements is more than the service limit, replace the piston rings (top, second, oil) as a set.

CONNECTING ROD BIG END SIDE CLEARANCE

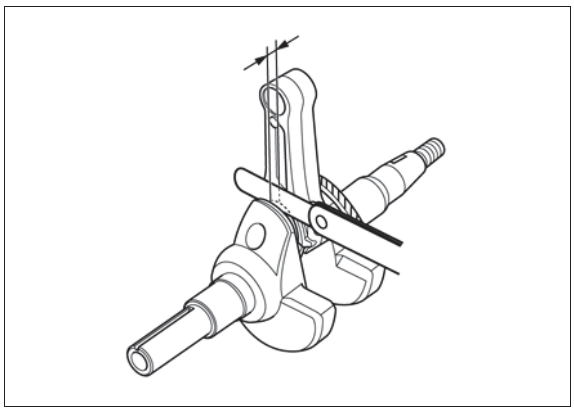
Measure the clearance between the connecting rod big end and crankshaft using a feeler gauge.

STANDARD: 0.1 – 0.7 mm (0.004 – 0.028 in)

SERVICE LIMIT: 1.1 mm (0.04 in)

If the measurement is more than the service limit, replace the connecting rod (page 14-5) and recheck the clearance.

If the clearance is still more than the service limit with the new connecting rod, replace the crankshaft.



CONNECTING ROD SMALL END I.D.

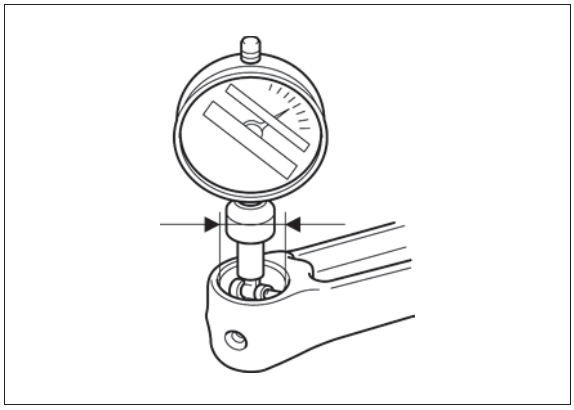
Measure the connecting rod small end I.D.

GX120:
STANDARD: 13.005 – 13.020 mm (0.5120 – 0.5126 in)
SERVICE LIMIT: 13.07 mm (0.515 in)

GX160/GX200:
STANDARD: 18.005 – 18.020 mm (0.7089 – 0.7094 in)
SERVICE LIMIT: 18.07 mm (0.711 in)

If the measurement is more than the service limit, replace the connecting rod.

Inspect the piston pin O.D. (page 14-8).



CONNECTING ROD BIG END I.D.

Set the connecting rod lower to the connecting rod upper and tighten the connecting rod bolts to the specified torque.

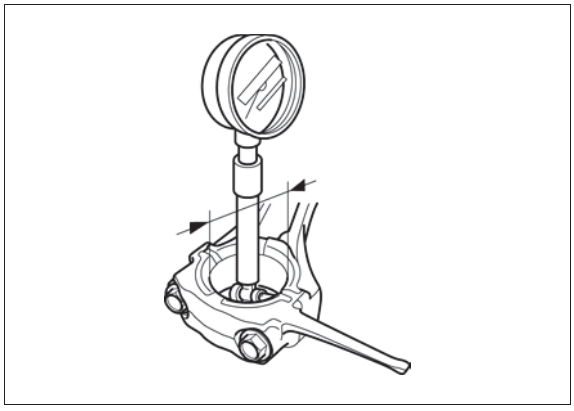
TORQUE:
GX120/GX200: 12 N·m (1.2 kgf·m, 9 lbf·ft)
GX160: 10 N·m (1.0 kgf·m, 7 lbf·ft)

Measure the connecting rod big end I.D.

GX120:
STANDARD: 26.020 – 26.033 mm (1.0244 – 1.0249 in)
SERVICE LIMIT: 26.066 mm (1.026 in)

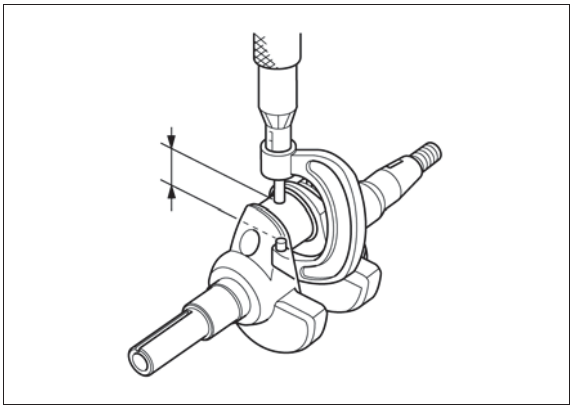
GX160/GX200:
STANDARD: 30.020 – 30.033 mm (1.1819 – 1.1824 in)
SERVICE LIMIT: 30.066 mm (1.1837 in)

If the measurement is more than the service limit, replace the connecting rod (page 14-5).



CRANKPIN O.D.

Measure the crankpin O.D. of the crankshaft.



GX120:
STANDARD: 25.970 – 25.980 mm (1.0224 – 1.0228 in)
SERVICE LIMIT: 25.92 mm (1.020 in)

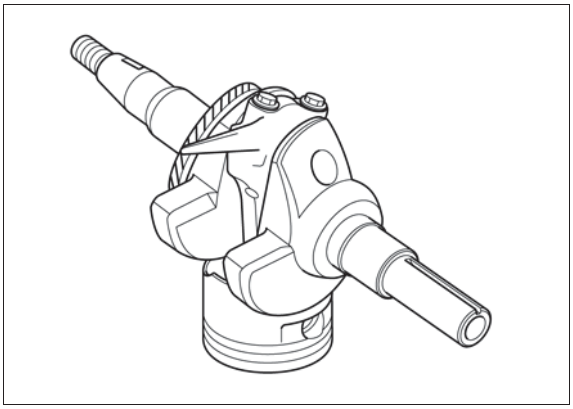
GX160/GX200:
STANDARD: 29.970 – 29.980 mm (1.1799 – 1.1803 in)
SERVICE LIMIT: 29.92 mm (1.178 in)

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

CONNECTING ROD BIG END OIL CLEARANCE

Clean all oil from the crankpin and connecting rod big end surface.

Place a piece of plastigauge on the crankpin, install the connecting rod upper and the connecting rod lower, and tighten the connecting rod bolts to the specified torque.

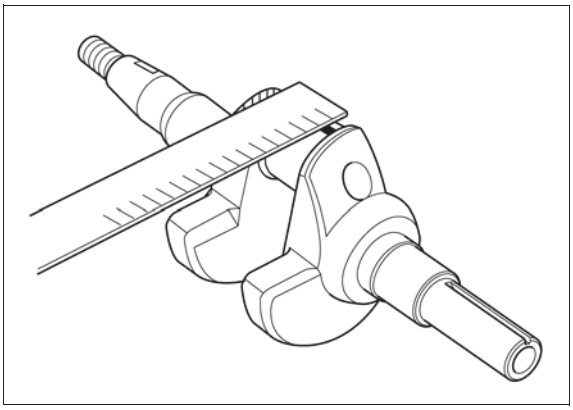


TORQUE:
GX120/GX200: 12 N·m (1.2 kgf·m, 9 lbf·ft)
GX160: 10 N·m (1.0 kgf·m, 7 lbf·ft)

NOTE:

- Do not rotate the crankshaft while the plastigauge is in place.

Remove the connecting rod and measure the plastigauge.



STANDARD: 0.040 – 0.063 mm (0.0016 – 0.0025 in)

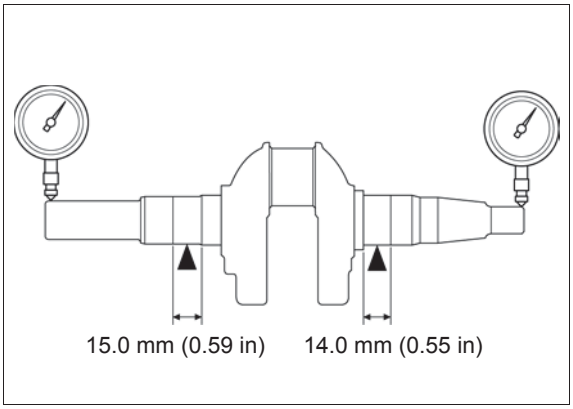
SERVICE LIMIT: 0.12 mm (0.005 in)

If the clearance is more than the service limit, inspect the connecting rod big end I.D. and the crankpin O.D.

If necessary replace the part that is not within the service limit and reinspect the clearance.

CRANKSHAFT RUNOUT

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

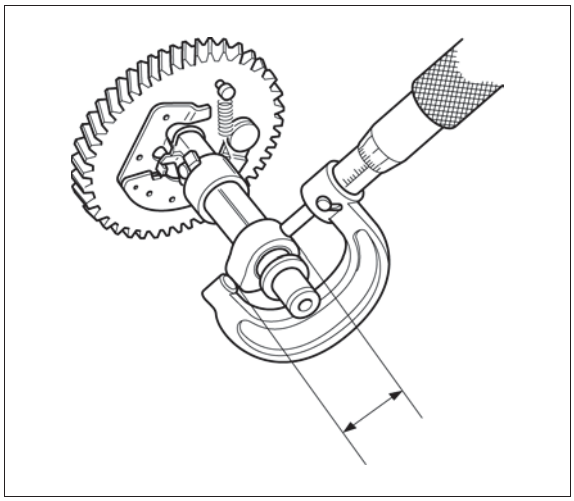


SERVICE LIMIT: 0.10 mm (0.004 in)

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

CAMSHAFT CAM HEIGHT

Measure the cam height of the camshaft.



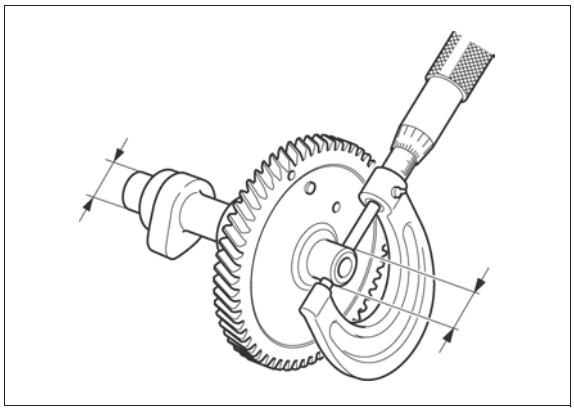
GX120/GX200:
STANDARD:
IN: 27.500 – 27.900 mm (1.0827 – 1.0984 in)
EX: 27.547 – 27.947 mm (1.0845 – 1.1003 in)
SERVICE LIMIT:
IN: 27.450 mm (1.0807 in)
EX: 27.500 mm (1.0827 in)

GX160:
STANDARD:
IN/EX: 27.503 – 27.903 mm (1.0828 – 1.0985 in)
SERVICE LIMIT:
IN/EX: 27.450 mm (1.0807 in)

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

CAMSHAFT O.D.

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.

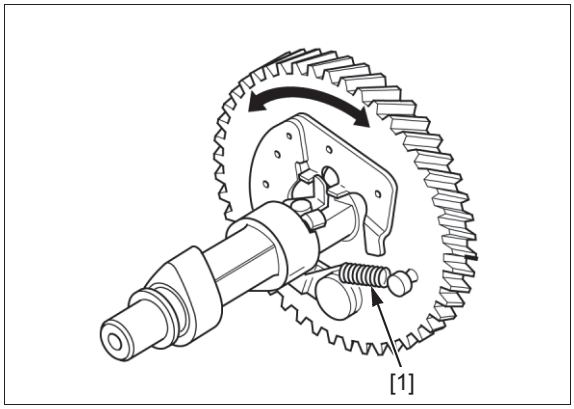
DECOMPRESSOR WEIGHT

Check for worn and weakened spring.

If the return spring [1] is worn or weakened, replace the weight return spring.

Check that the decompressor weight moves smoothly.

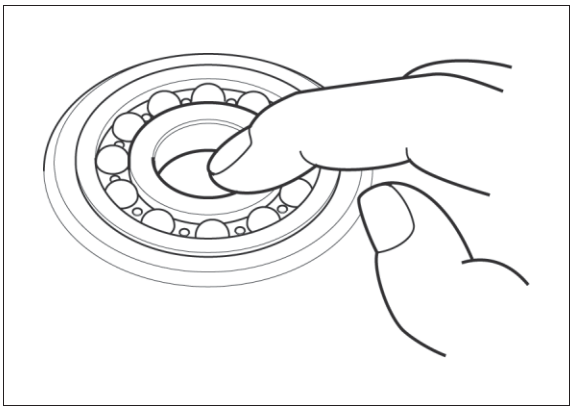
If the decompressor weight does not move correctly, replace the camshaft.



CRANKSHAFT BEARING

Turn the inner race of the bearing with your finger and check for play.

Replace the bearing if it is noisy or has excessive play.



CRANKSHAFT BEARING/OIL SEAL REPLACEMENT

CRANKSHAFT BEARING

CRANKCASE SIDE/CYLINDER BARREL SIDE

Remove the oil seal and drive out the crankshaft bearing.

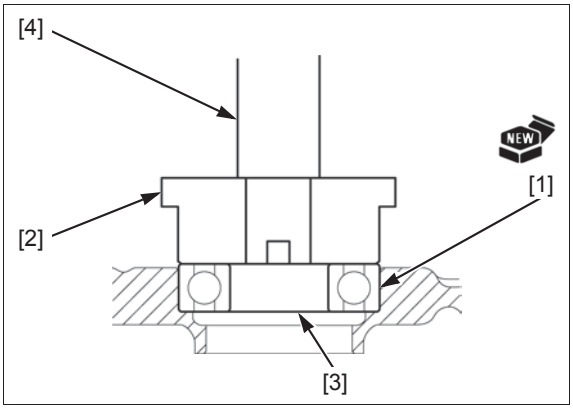
Drive a new crankshaft bearing [1] until it is fully seated on the end using the special tools.

TOOLS: GX120 (62/22):

Attachment, 52 x 55 mm [2]	**07746-0010400**
Pilot, 22 mm [3]	**07746-0041000**
Driver [4]	**07749-0010000**

TOOLS: GX160/GX200 (6205):

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



CRANKSHAFT OIL SEAL

CRANKCASE SIDE

Remove the oil seal.

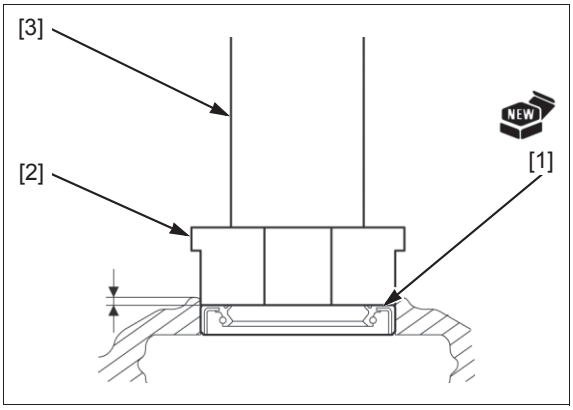
Drive a new oil seal [1] in the position as shown using the special tools.

INSTALLATION HEIGHT:

GX120: 5.0 mm (0.20 in)
GX160/GX200: 5.5 mm (0.22 in)

TOOLS:

Attachment, 37 x 40 mm [2]	**07746-0010200**
Driver [3]	**07749-0010000**



CYLINDER BARREL SIDE

Remove the oil seal.

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

INSTALLATION HEIGHT: 1.5 mm (0.06 in)

TOOLS: GX120:

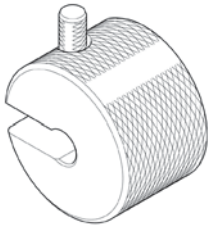
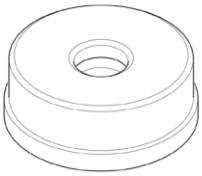
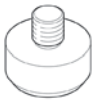
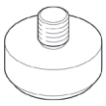
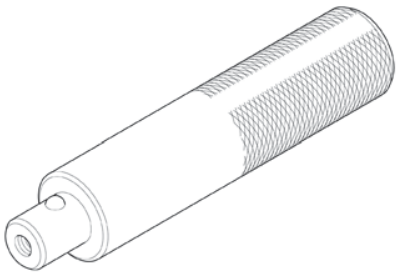
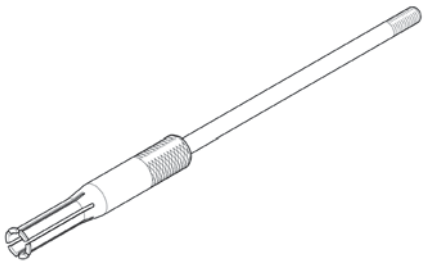
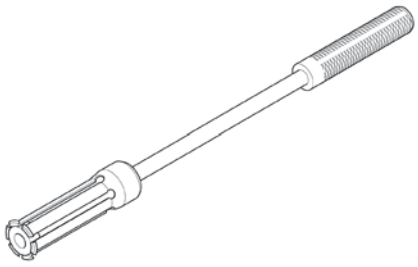
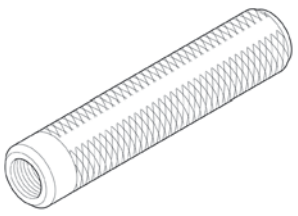
Attachment, 32 x 35 mm [2]	**07746-0010100**
Driver [3]	**07749-0010000**

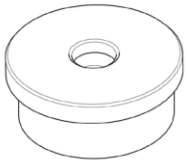
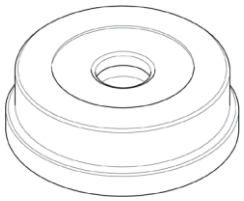
TOOLS: GX160/GX200:

Attachment, 37 x 40 mm [2]	**07746-0010200**
Driver [3]	**07749-0010000**

15. REDUCTION UNIT

TOOLS

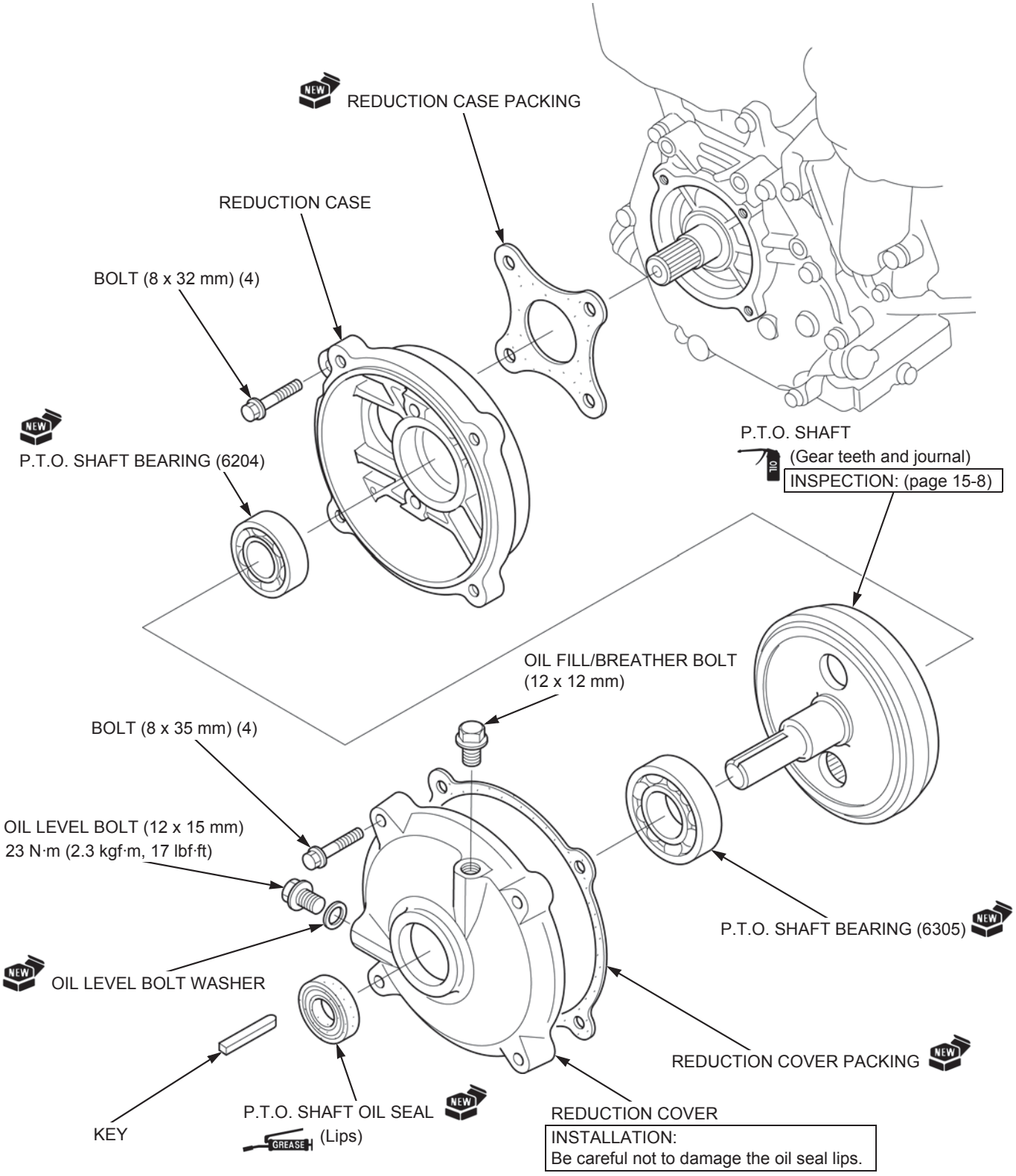
Remover weight 07936-371020A 	Attachment, 40 x 42 mm 07746-0010900 	Attachment, 42 x 47 mm 07746-0010300 
Attachment, 52 x 55 mm 07746-0010400 	Pilot, 20 mm 07746-0040500 	Pilot, 22 mm 07746-0041000 
Pilot, 25 mm 07746-0040600 	Pilot, 30 mm 07746-0040700 	Driver 07749-0010000 
Bearing remover, 20 mm 07936-3710600 	Bearing remover, 25 mm 07936-ZV10100 	Remover handle 07936-3710100 

Attachment, 45 x 50 mm 07946-6920100 	Attachment, 62 x 64 mm 07947-6340400 

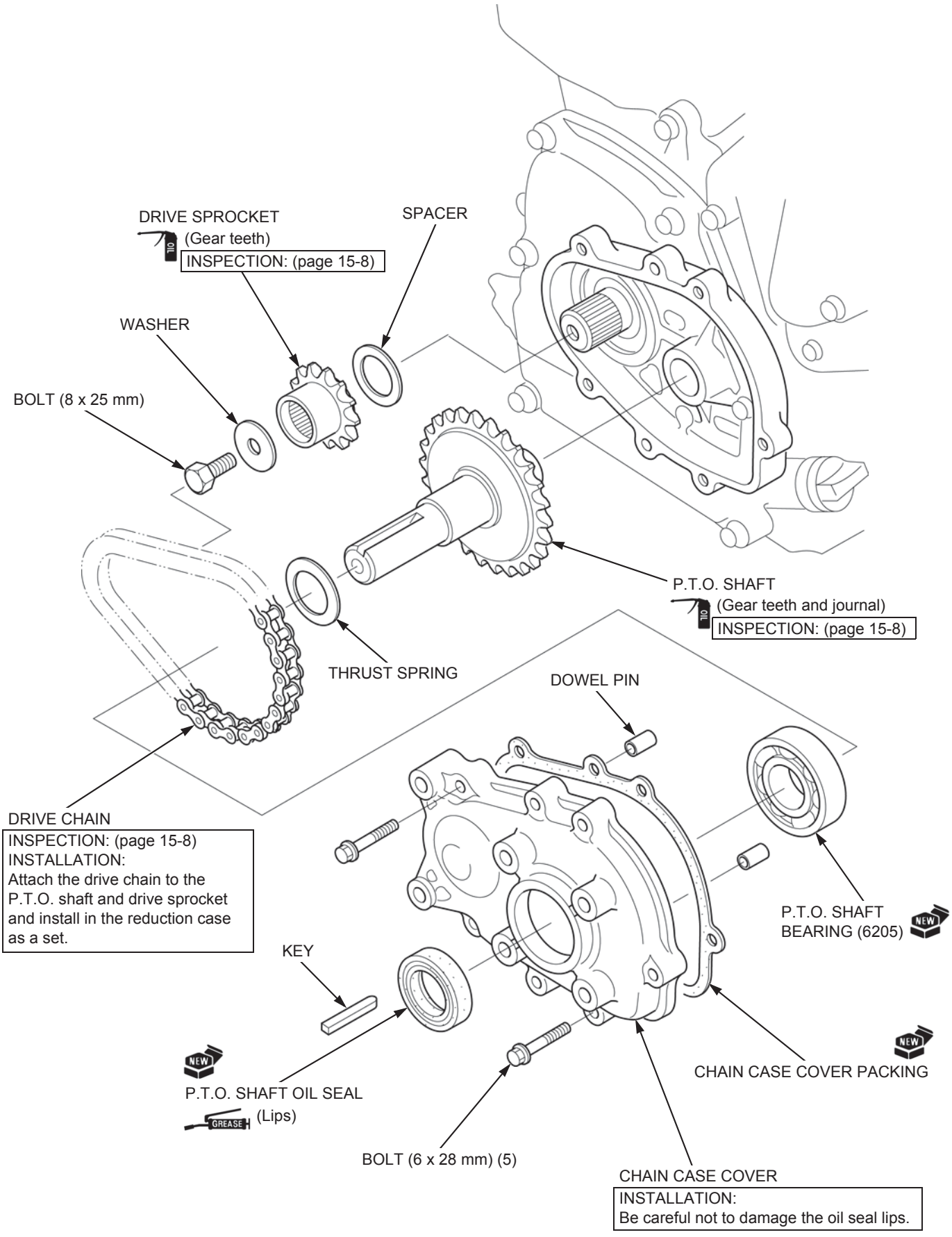
REDUCTION UNIT DISASSEMBLY/ ASSEMBLY

1/6 GEAR TYPE

Drain the reduction case oil (page 3-5).
After assembly, fill the reduction case oil (page 3-5).

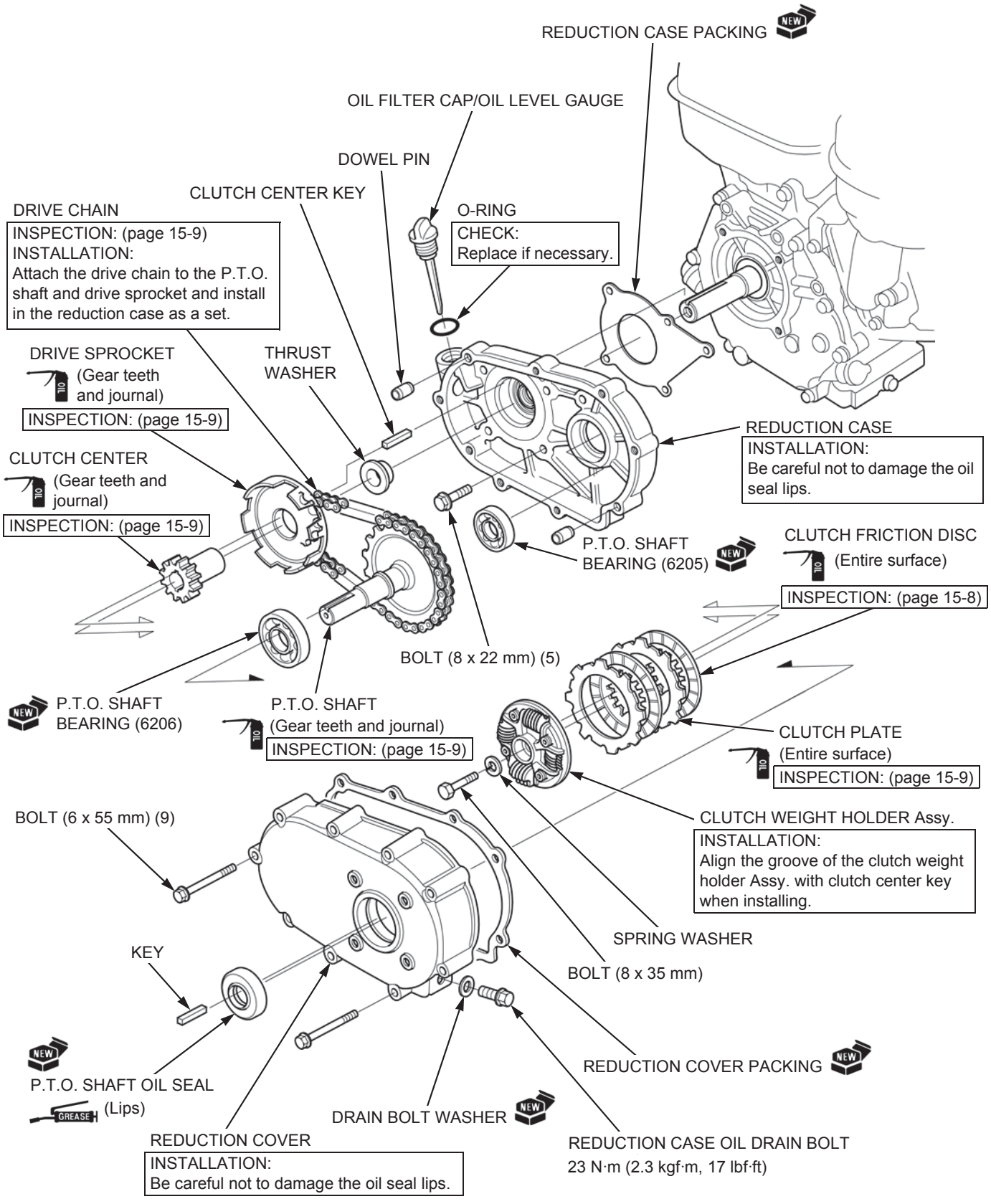


1/2 CHAIN TYPE (without clutch)



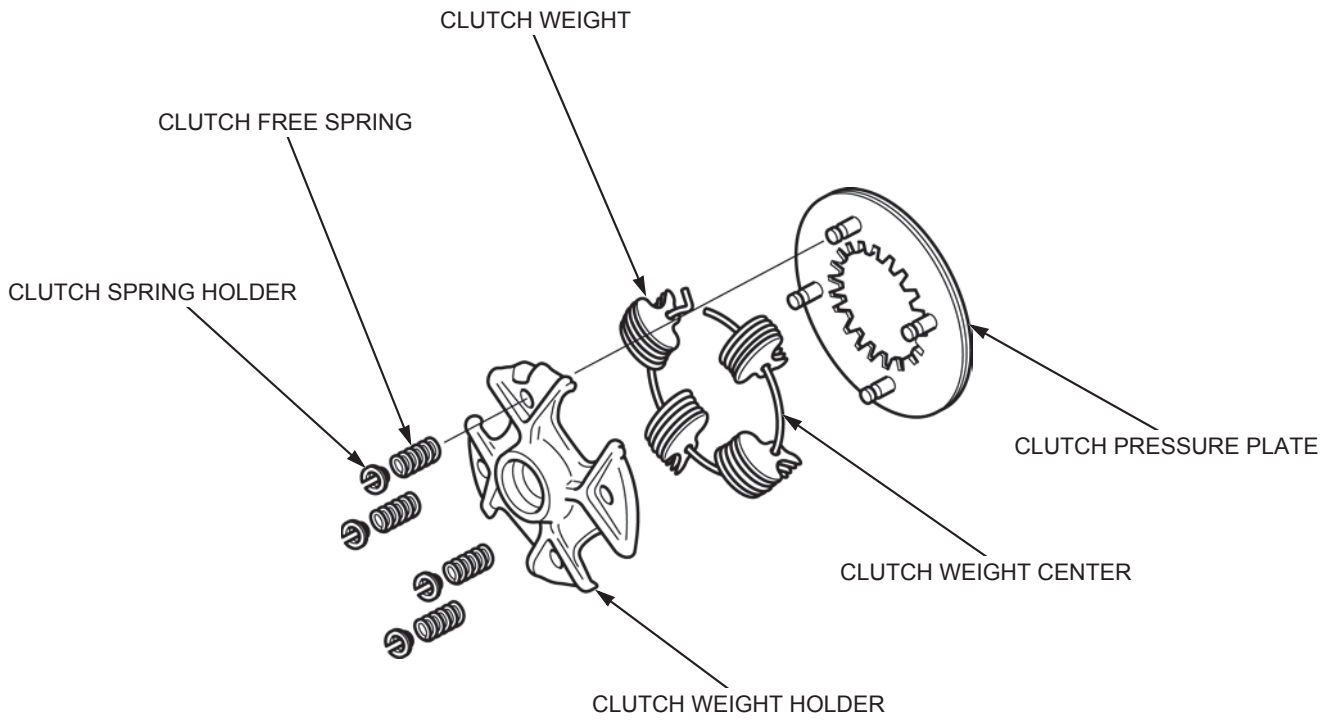
1/2 CHAIN TYPE (with clutch)

Drain the reduction case oil (page 3-6).
After assembly, fill the reduction case with oil (page 3-6).



CLUTCH WEIGHT HOLDER Assy. DISASSEMBLY/ASSEMBLY

Remove the clutch weight holder Assy. (page 15-6).

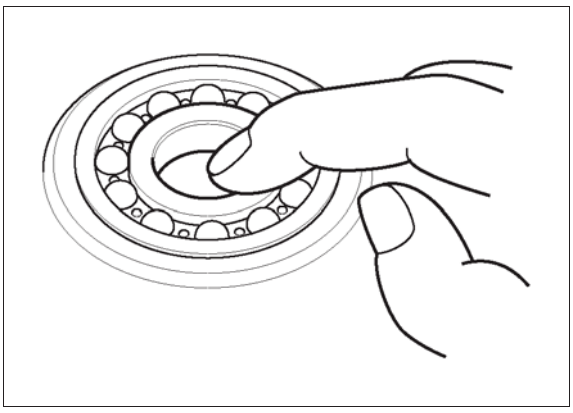


REDUCTION UNIT INSPECTION

P.T.O. SHAFT, CRANKSHAFT BEARING

Turn the inner race of the bearing with your finger and check for play.

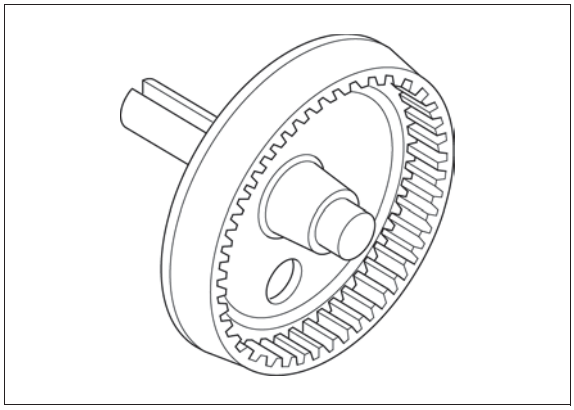
Replace the bearing if it is noisy or has excessive play.



GEAR TYPE

P.T.O. SHAFT

Check the P.T.O. shaft for wear or damage.



CHAIN TYPE (without clutch)

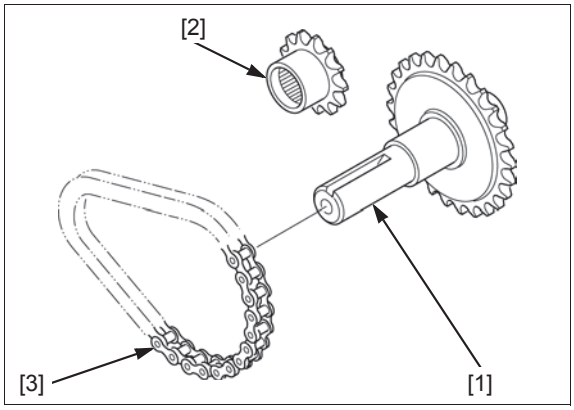
P.T.O. SHAFT, DRIVE SPROCKET, DRIVE CHAIN

Check the following for wear or damage:

– P.T.O. shaft [1]
– Drive sprocket [2]
– Drive chain [3]

NOTE:

• Replace the P.T.O. shaft, drive sprocket, and drive chain as a set.



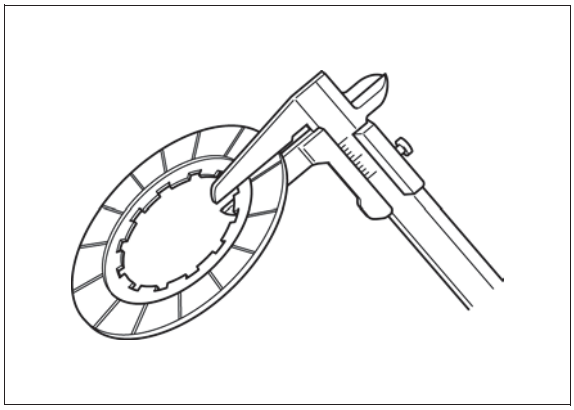
CHAIN TYPE (with clutch)

CLUTCH FRICTION DISC

Measure the clutch friction disc thickness.

STANDARD: 3.5 mm (0.14 in)

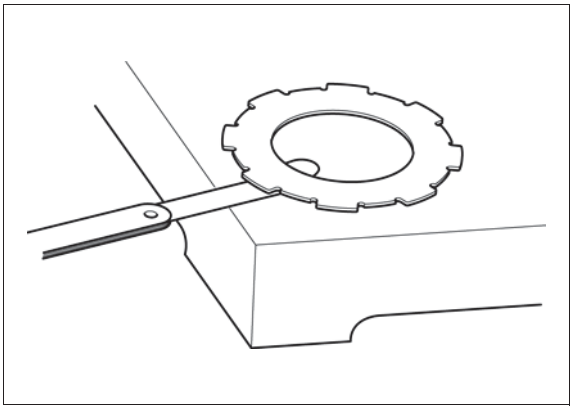
SERVICE LIMIT: 3.0 mm (0.12 in)



CLUTCH PLATE

Check the clutch plate warpage on a flat plate using a feeler gauge.

SERVICE LIMIT: 0.10 mm (0.004 in)



P.T.O. SHAFT, DRIVE SPROCKET, DRIVE CHAIN, CLUTCH CENTER

Check the following for wear or damage:

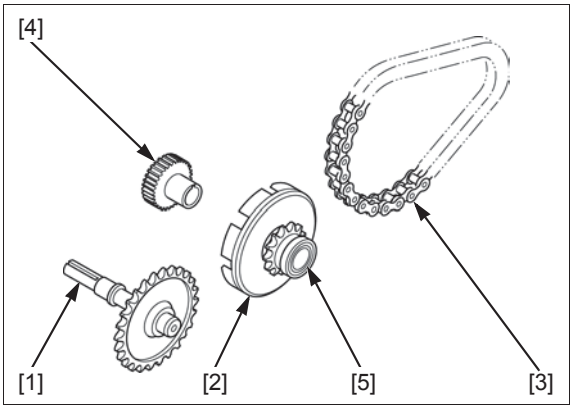
– P.T.O. shaft [1]
– Drive sprocket [2]
– Drive chain [3]
– Clutch center [4]

NOTE:

• Replace the P.T.O. shaft, drive sprocket, and drive chain as a set.

Check the grooves of the drive sprocket for damage or wear caused by the clutch plate; replace it if necessary.

Check the drive sprocket bushing [5] for damage or excessive wear; replace the drive sprocket if necessary.



REDUCTION UNIT BEARING/OIL SEAL REPLACEMENT

GEAR TYPE

REDUCTION CASE SIDE P.T.O. SHAFT BEARING (6204)

Pull out the P.T.O. shaft bearing [1] using the special tools.

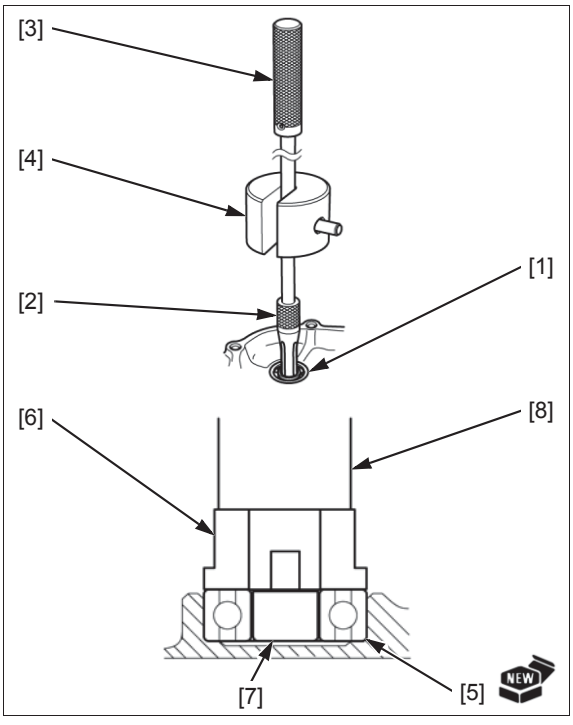
TOOLS:

Bearing remover, 20 mm [2]	**07936-3710600**
Remover handle [3]	**07936-3710100**
Remover weight [4]	**07936-371020A**

Drive a new P.T.O. shaft bearing [5] until it is fully seated on the end using the special tools.

TOOLS:

Attachment, 42 x 47 mm [6]	**07746-0010300**
Pilot, 20 mm [7]	**07746-0040500**
Driver [8]	**07749-0010000**



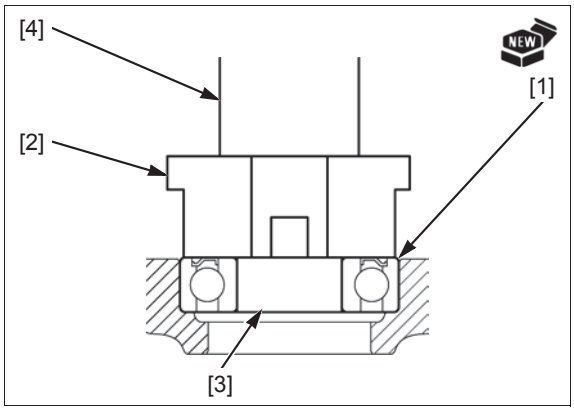
REDUCTION COVER SIDE P.T.O. SHAFT BEARING (6305)

Remove the oil seal and drive out the P.T.O. shaft bearing.

Drive a new P.T.O. shaft bearing [1] until it is fully seated on the end using the special tools.

TOOLS:

Attachment, 62 x 64 mm [2]	**07947-6340400**
Pilot, 25 mm [3]	**07746-0040600**
Driver [4]	**07749-0010000**



P.T.O. SHAFT OIL SEAL

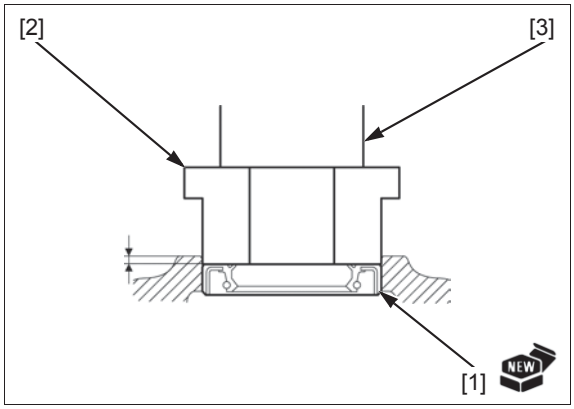
Remove the oil seal from the reduction cover.

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

INSTALLATION HEIGHT: 2.0 mm (0.08 in)

TOOLS:

Attachment, 40 x 42 mm [2]	**07746-0010900**
Driver [3]	**07749-0010000**



CHAIN TYPE (without clutch)

CRANKCASE COVER SIDE CRANKSHAFT BEARING

Remove the crankcase cover (page 14-3).

Drive out the crankshaft bearing [1].

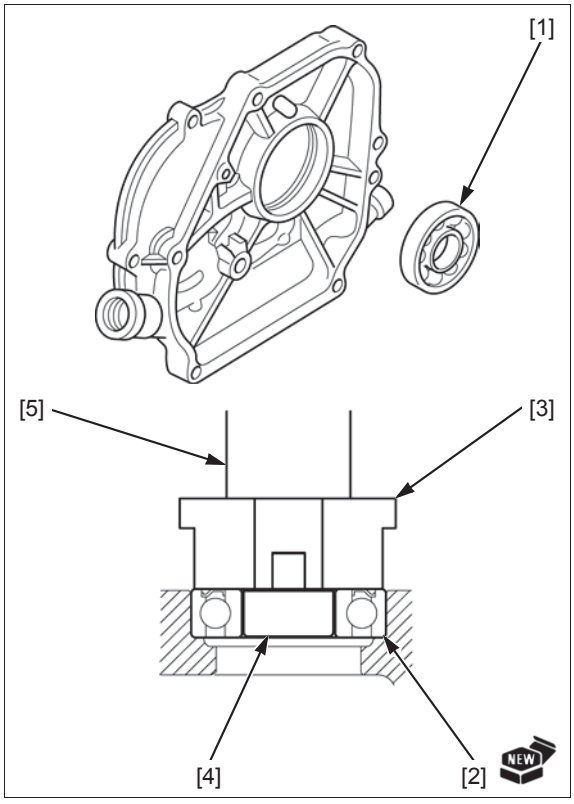
Drive a new crankshaft bearing [2] until it is fully seated on the end using the special tools.

TOOLS: GX120 (62/22):

Attachment, 52 x 55 mm [3]	**07746-0010400**
Pilot, 22 mm [4]	**07746-0041000**
Driver [5]	**07749-0010000**

TOOLS: GX160/GX200 (6205):

Attachment, 52 x 55 mm [3]	**07746-0010400**
Pilot, 25 mm [4]	**07746-0040600**
Driver [5]	**07749-0010000**



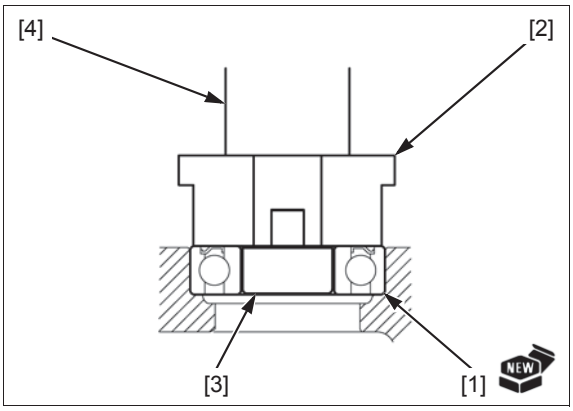
CHAIN CASE COVER SIDE P.T.O. SHAFT BEARING (6205)

Remove the oil seal and drive out the P.T.O. shaft bearing.

Drive a new P.T.O. shaft bearing [1] until it is fully seated on the end using the special tools.

TOOLS:

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



P.T.O. SHAFT OIL SEAL

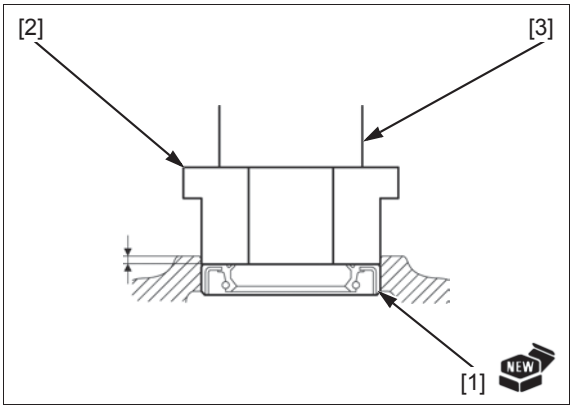
Remove the oil seal from the chain case cover.

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

INSTALLATION HEIGHT: 3.0 mm (0.12 in)

TOOLS:

Attachment, 40 x 42 mm [2]	**07746-0010900**
Driver [3]	**07749-0010000**



CHAIN TYPE (with clutch)

REDUCTION CASE SIDE P.T.O. SHAFT BEARING (6205)

Pull out the P.T.O. shaft bearing [1] using the special tools.

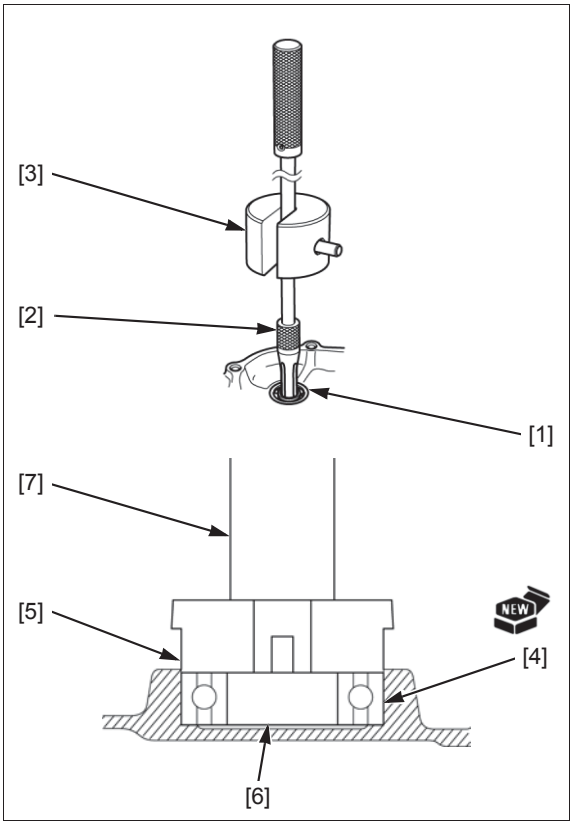
TOOLS:

Bearing remover, 25 mm [2]	**07936-ZV10100**
Remover weight [3]	**07936-371020A**

Drive a new P.T.O. shaft bearing [4] until it is fully seated on the end using the special tools.

TOOLS:

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



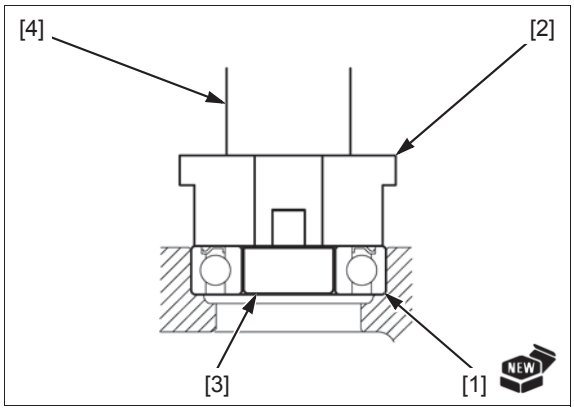
REDUCTION COVER SIDE P.T.O. SHAFT BEARING (6206)

Remove the oil seal and drive out the P.T.O. shaft bearing.

Drive a new P.T.O. shaft bearing [1] until it is fully seated on the end using the special tools.

TOOLS:

Attachment, 62 x 64 mm [2]	**07947-6340400**
Pilot, 30 mm [3]	**07746-0040700**
Driver [4]	**07749-0010000**



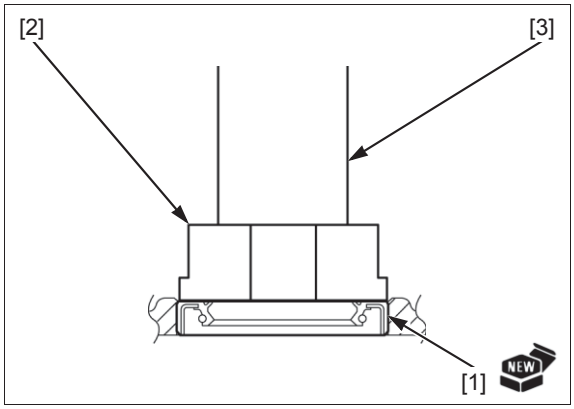
P.T.O. SHAFT OIL SEAL

Remove the oil seal from the reduction cover.

Drive a new oil seal [1] until it is flush using the special tools.

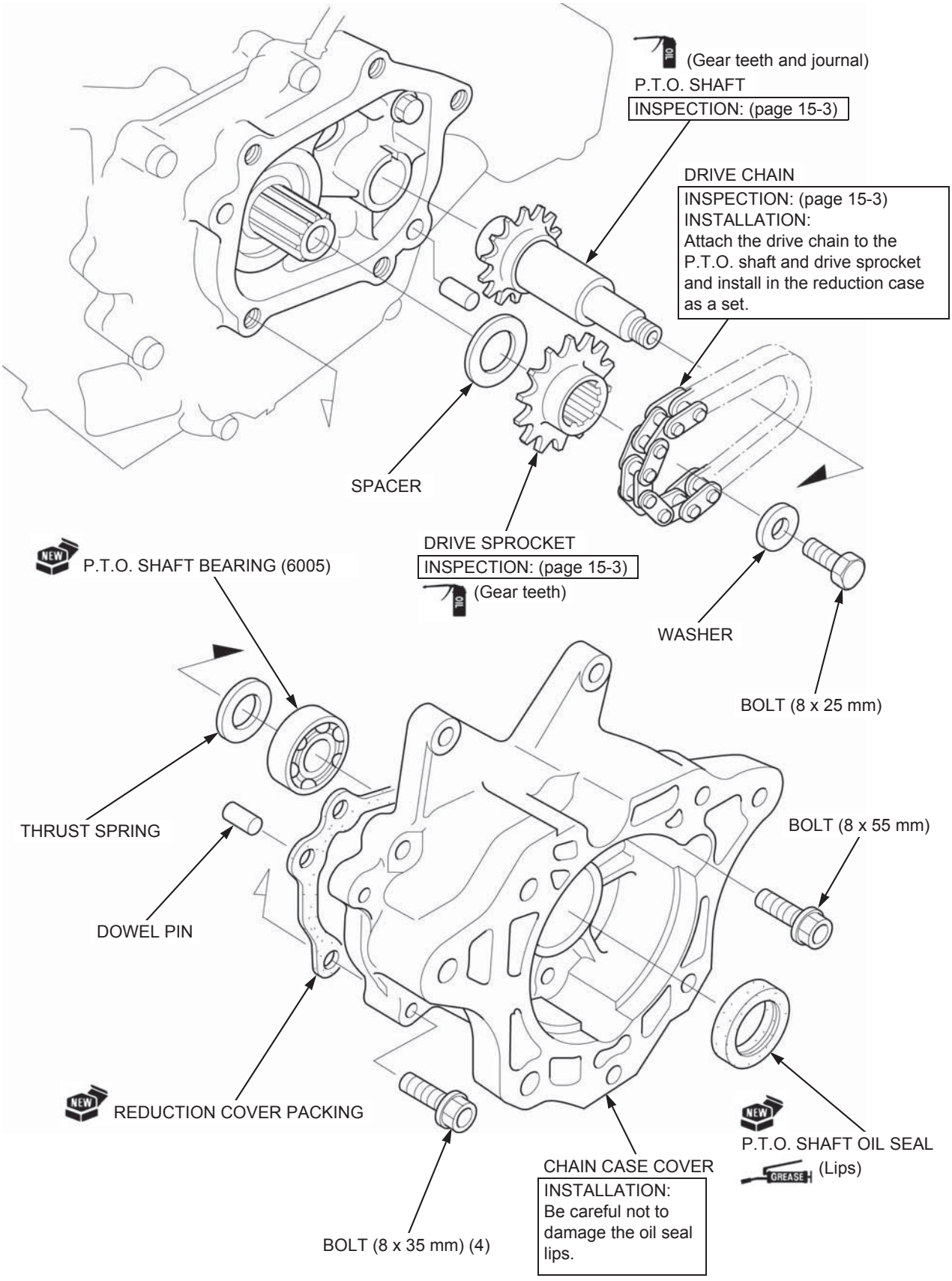
TOOLS:

Attachment, 45 x 50 mm [2]	**07746-6920100**
Driver [3]	**07749-0010000**



REDUCTION UNIT DISASSEMBLY/ ASSEMBLY

GX120RT2 (RAMMER TYPE)



REDUCTION UNIT INSPECTION

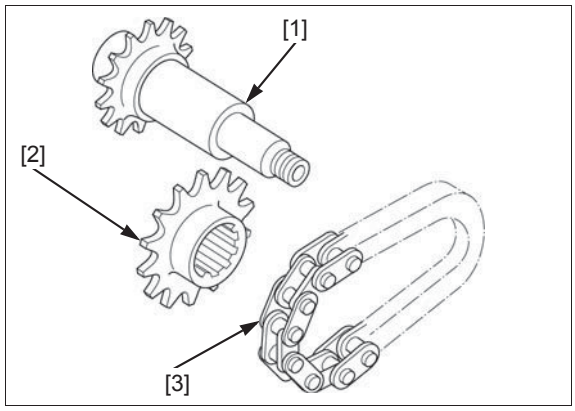
P.T.O. SHAFT, DRIVE SPROCKET, DRIVE CHAIN

Check the following for wear or damage:

– P.T.O. shaft [1]
– Drive sprocket [2]
– Drive chain [3]

NOTE:

• Replace the P.T.O. shaft, drive sprocket, and drive chain as a set.



REDUCTION UNIT BEARING/OIL SEAL REPLACEMENT

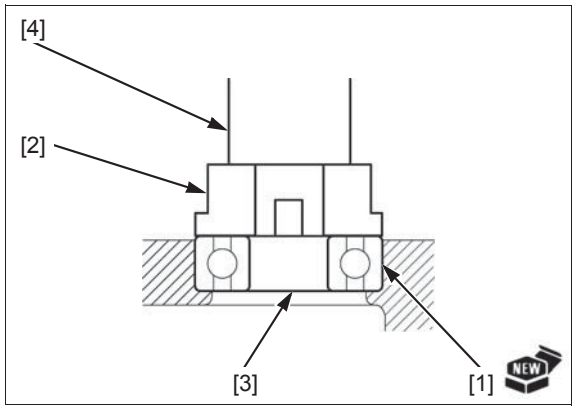
CHAIN CASE COVER SIDE P.T.O. SHAFT BEARING (6005)

Remove the oil seal and drive out the P.T.O. shaft bearing.

Drive a new P.T.O. shaft bearing [1] until it is fully seated on the chain case cover using the special tools.

TOOLS

Bearing driver attachment, 42 x 47 mm [2]	07746-0010300
Pilot, 25 mm [3]	07746-0040600
Driver handle [4]	07749-0010000



P.T.O. SHAFT OIL SEAL

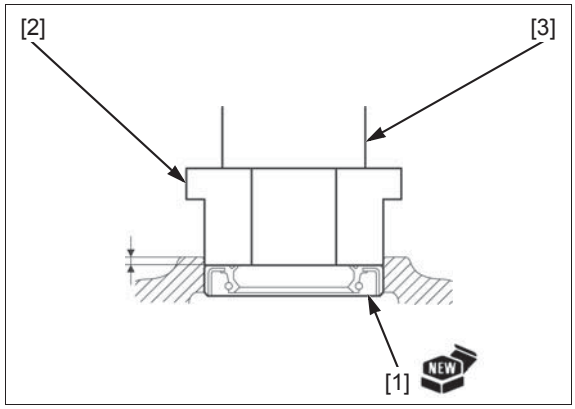
Remove the oil seal from the chain case cover.

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

INSTALLATION HEIGHT: 2.0 mm (0.08 in)

TOOLS

Bearing driver attachment, 37 x 40 mm [2]	07746-0010200
Driver handle [3]	07749-0010000



REDUCTION UNIT DISASSEMBLY/ ASSEMBLY

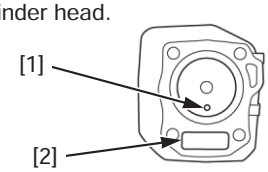
CHAIN (1/2) CAMSHAFT P.T.O. TYPE

(*) Refer to page of base shop manual (GX120UT2/ 160UT2/200UT2).

Drain the engine oil (page 3-3*).

PISTON Assy.
(Outer surface and big end bearing)

INSTALLATION:
Install the piston Assy. to the cylinder barrel with the mark [1] on the piston head toward the push rod hole [2] of the cylinder head.



CONNECTING ROD LOWER
(Big end bearing)

INSTALLATION:
Set the connecting rod lower with the oil dipper toward the camshaft.

CYLINDER BARREL
(Cylinder inner surface)

INSPECTION: (page 14-6*)

CRANKSHAFT
(Pin and gear teeth)

INSPECTION: (page 14-6*)
INSTALLATION:
Be careful not to damage the oil seal lips.

DOWEL PIN

VALVE LIFTER
(Pivot, pivot end and slipper surface)

REMOVAL:
Mark the valve lifters so that the intake and exhaust sides can be distinguished.

INSTALLATION:
Attach the valve lifters to the cylinder barrel immediately before installing the camshaft.

CAMSHAFT (Cam profile and journal)

INSPECTION: (page 14-6*)

OIL SEAL
(Lips)

DRIVE CHAIN

CRANKSHAFT
BEARING (6205)

P.T.O. SHAFT
BEARING (6205)

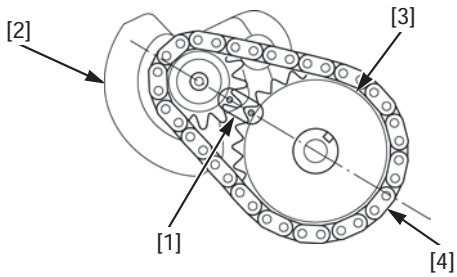
CASE COVER
PACKING

CONNECTING ROD BOLT (2)
(Threads and seating surface)

GX160: (6 x 34 mm)
10 N·m (1.0 kgf·m, 7 lbf·ft)

GX200: (7 x 34 mm)
12 N·m (1.2 kgf·m, 9 lbf·ft)

INSPECTION: (page 15-3)
INSTALLATION:
Align the timing marks [1] on the crankshaft [2] and camshaft [3] sprockets, install the drive chain [4] onto the sprockets, and install them into the cylinder barrel as a set.



CRANKSHAFT
BEARING (6304)

OIL FILLER CAP
(With oil level gauge)

OIL FILLER CAP PACKING

CHECK:
Replace if necessary.

P.T.O. SHAFT
OIL SEAL
(Lips)

BOLT (8 x 32 mm) (6)

CRANKCASE COVER

INSTALLATION:
Be careful not to damage the oil seal lips.

REDUCTION UNIT INSPECTION

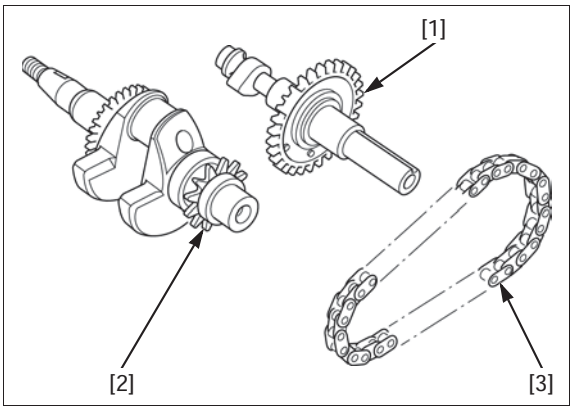
CAMSHAFT, CRANKSHAFT, DRIVE CHAIN

Check the following for wear or damage:

– Camshaft (driven sprocket) [1]
– Crankshaft (drive sprocket) [2]
– Drive chain [3]

NOTE:

• Replace the camshaft, crankshaft and, drive chain as a set.



REDUCTION UNIT BEARING/OIL SEAL REPLACEMENT

CRANKCASE COVER SIDE BEARING

CRANKSHAFT BEARING (6304)

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

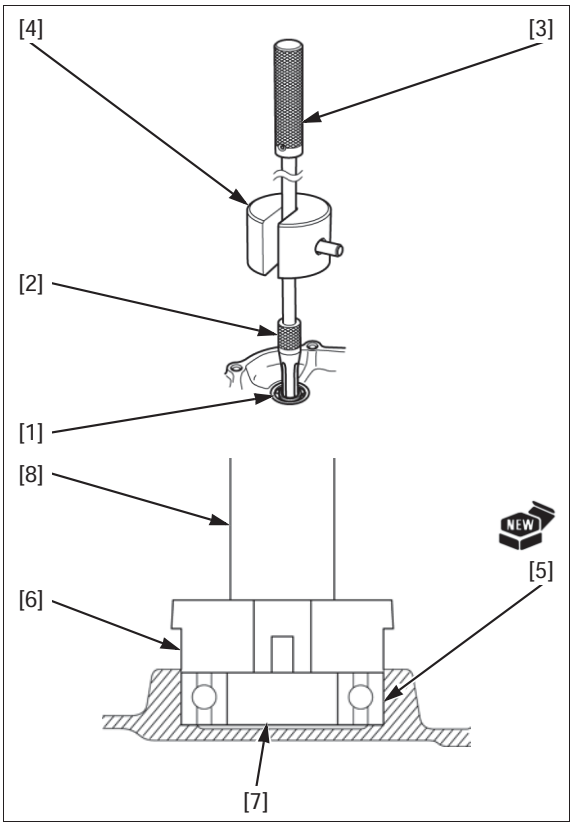
TOOLS:

Bearing remover shaft set, 20 mm	
[2]	**07936-3710600**
Bearing remover shaft handle [3]	**07936-3710100**
Sliding hammer weight [4]	**07741-0010201**

Drive a new crankshaft bearing [5] until it is fully seated on the end using the special tools.

TOOLS:

Bearing driver attachment, 52 x 55 mm [6]	**07746-0010400**
Pilot, 20 mm [7]	**07746-0040500**
Driver handle [8]	**07749-0010000**



REDUCTION UNIT

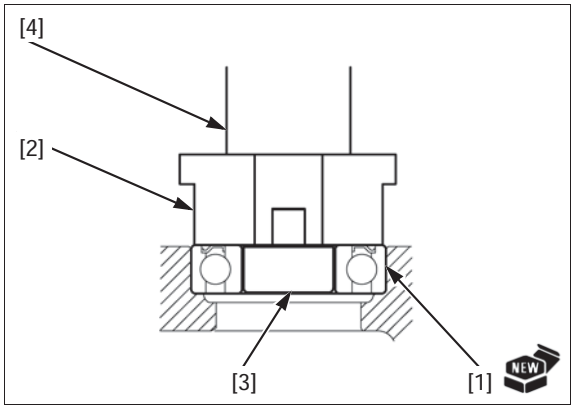
P.T.O. shaft bearing (6205)

Remove the oil seal and drive out the P.T.O. shaft bearing.

Drive a new P.T.O. shaft 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**



P.T.O. SHAFT OIL SEAL

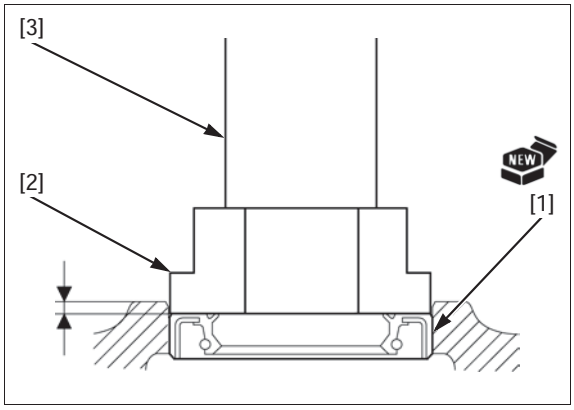
Remove the oil seal from the chain case cover.

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

INSTALLATION HEIGHT: 1.5 mm (0.06 in)

TOOLS:

Bearing driver attachment, 37 x 40 mm [2]	**07746-0010200**
Driver handle [3]	**07749-0010000**



16. WIRING DIAGRAMS

HOW TO READ A WIRING DIAGRAM & RELATED INFORMATION

The wiring diagram, connector general layout drawing, connector drawings, and the symbols used in troubleshooting are explained in this section.

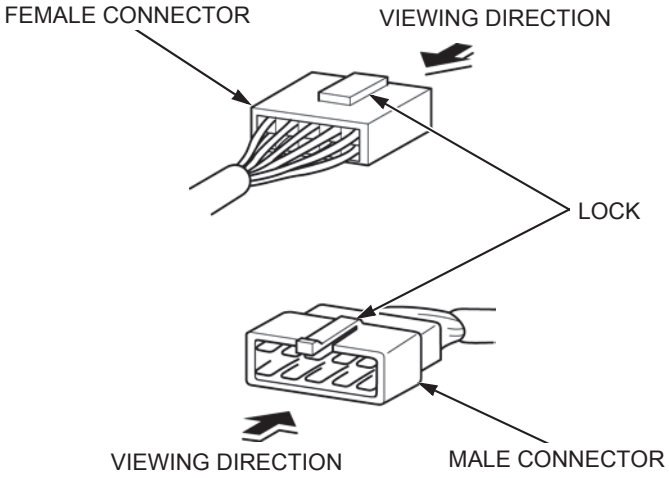
HOW TO READ CONNECTOR DRAWINGS

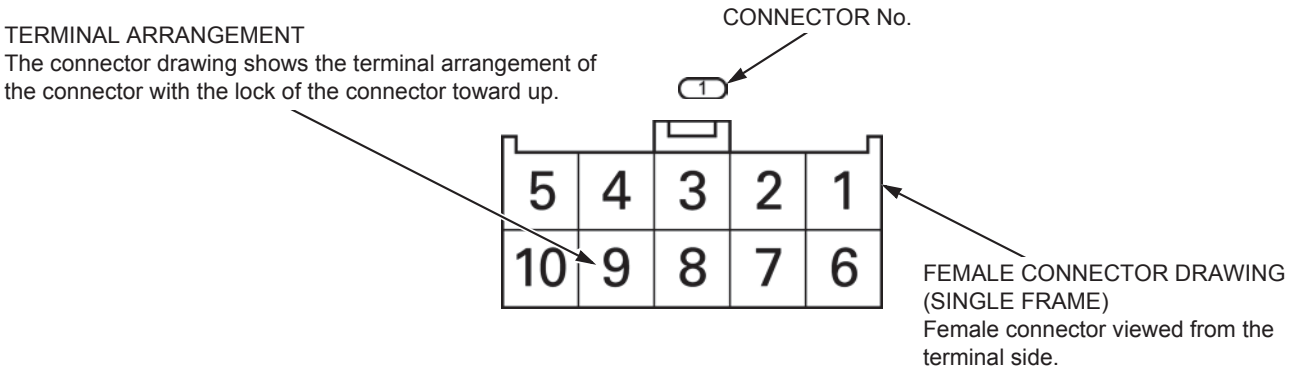
Connector drawings show the terminal arrangement, terminal No., number of pins, and the shape of terminal (male or female).

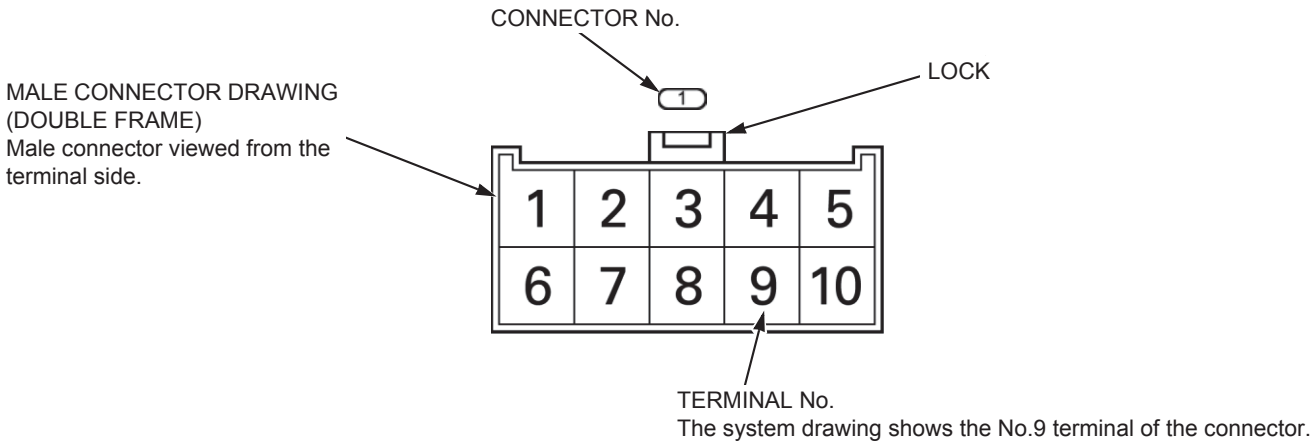
Both the male and female connectors are shown for the common connectors, while only the main wire harness side connectors are shown for the dedicated connectors.

The double frame connectors represent the male connectors and the single frame connectors represent the female connectors.

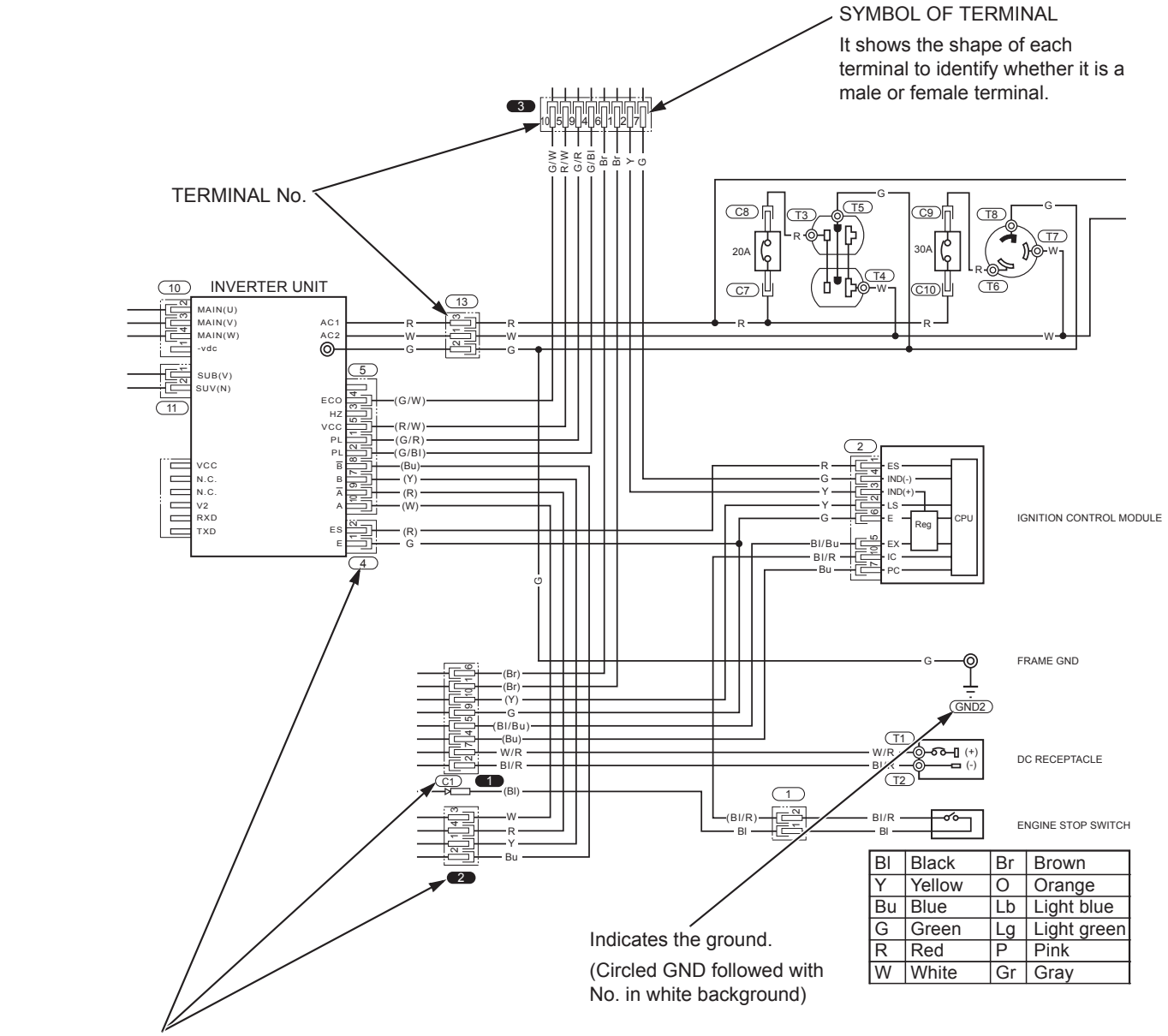
Both the male and female connectors are shown by viewing them from the terminal side.







HOW TO READ WIRING DIAGRAM

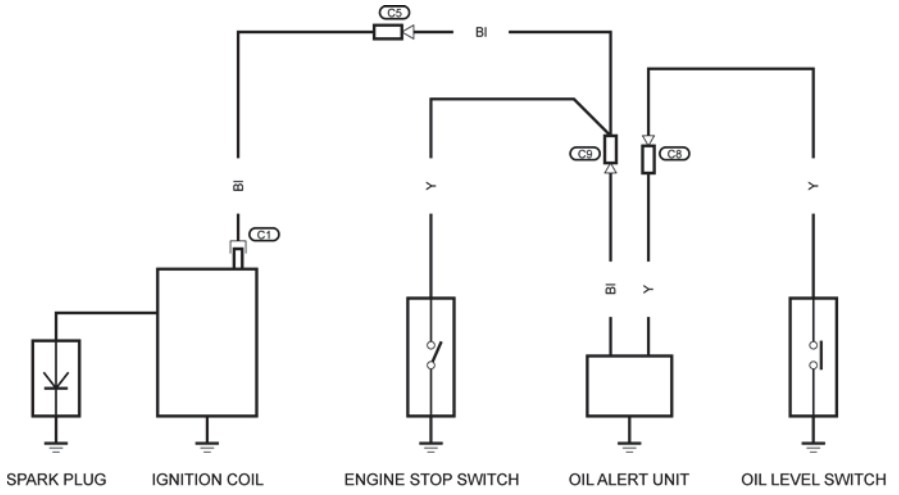


Bl	Black	Br	Brown
Y	Yellow	O	Orange
Bu	Blue	Lb	Light blue
G	Green	Lg	Light green
R	Red	P	Pink
W	White	Gr	Gray

Every connector and terminal has a number to help the users find the location and shape of the connector and the terminal arrangement by referring to the “Connector general layout drawing” and/or the “Connector drawing.” All the connector/terminal numbers shown in this Service Manual are either of those shown in this section.

- 1 : Connector that relays from a harness to a harness (Circled No. in black background)
- (1) : Connector that connects to electrical equipment (Circled No. in white background)
- (C1) : Connector (Circled C followed with No. in white background)
- (T1) : Terminal (Circled T followed with No. in white background)
- (GND1) : Ground (Circled GND followed with No. in white background)

NO CHARGE COIL TYPE

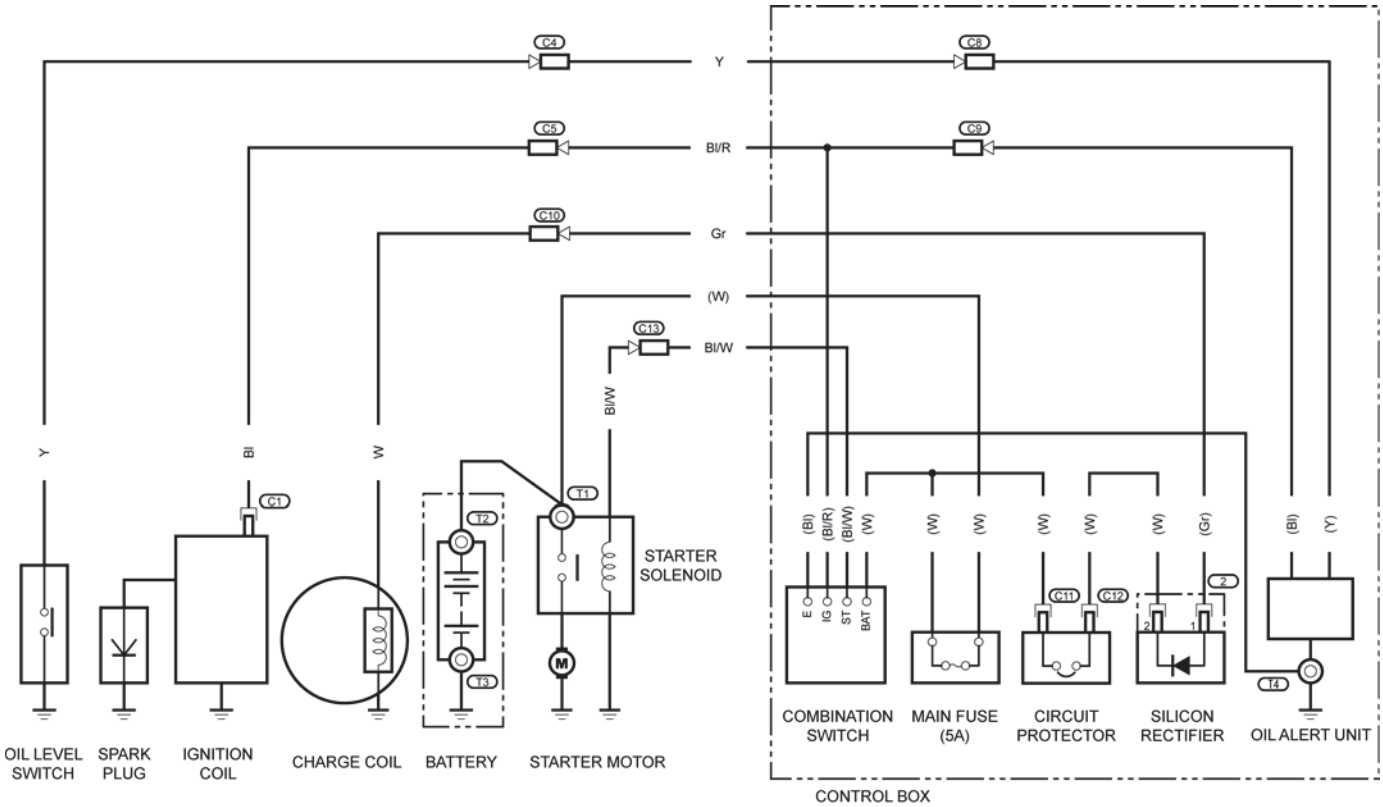


ENGINE STOP SWITCH

	IG	E
OFF	○	○
ON		

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

1 A/3 A CHARGE COIL TYPE

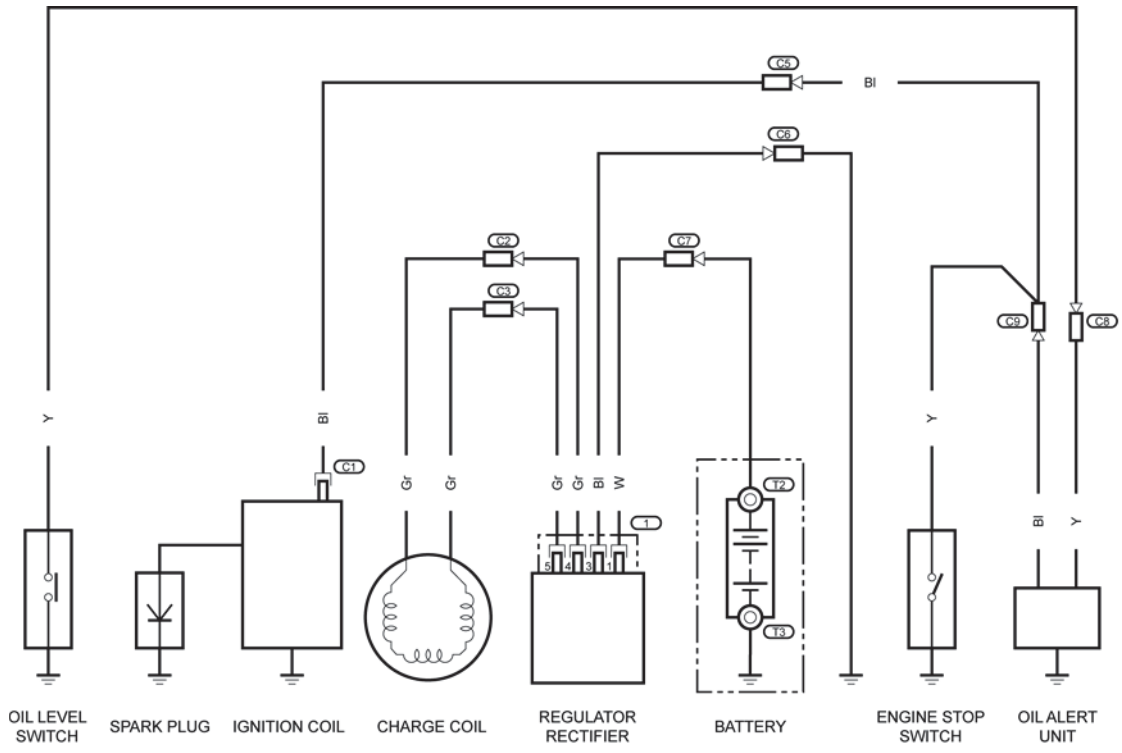


COMBINATION SWITCH

	IG	E	BAT	ST
OFF	○	○		
ON				
ST			○	○

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

7 A CHARGE COIL TYPE



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

INDEX