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 practice, 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 engine-power equipment up 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 battery 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.

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INTRODUCTION

This manual covers the service and repair procedures for 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.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form, by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission of the publisher. This includes text, figures, and tables.

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.

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SERVICE RULES

- Use genuine Honda 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 would be explained specifically in the text without the use of the symbols.

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

ABBREVIATIONS

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

Abbrev. 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
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

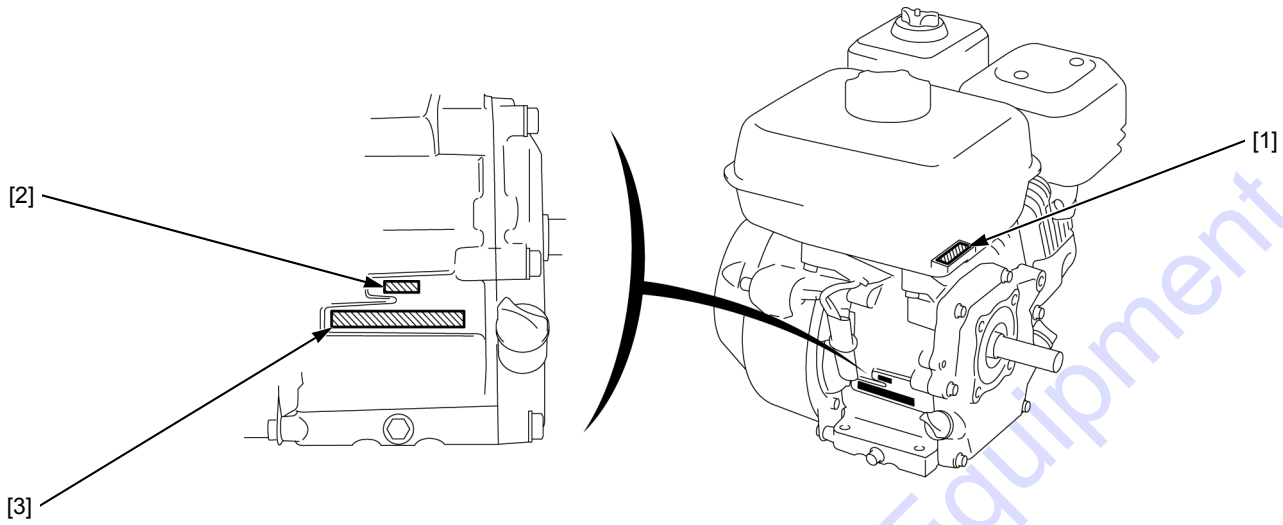
Bl	Black	G	Green	Br	Brown	Lg	Light green
Y	Yellow	R	Red	O	Orange	P	Pink
Bu	Blue	W	White	Lb	Light blue	Gr	Gray

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			HHQ4	HX2	HX4	LX4	PX2	QA2	QH26	QHQ4	QX2	QX4	QX9	QXC9	QXS2	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			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							

SPECIFICATIONS

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

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	VXE9	VXU1	WKS	WKT2	WMBO
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

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	○	○								

DIMENSIONS AND WEIGHTS SPECIFICATIONS

	P.T.O. type	GX120UT2/T2	GX160UT2/T2	GX200UT2/T2
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)/ 318 mm (12.5 in)	346 mm (13.6 in)/ 335 mm (13.2 in)	346 mm (13.6 in)/ 335 mm (13.2 in)
	L *	329 mm (13.0 in)/ 318 mm (12.5 in)	346 mm (13.6 in)/ 335 mm (13.2 in)	346 mm (13.6 in)/ 335 mm (13.2 in)
	P, Q, T *	329 mm (13.0 in)/ 318 mm (12.5 in)	346 mm (13.6 in)/ 335 mm (13.2 in)	346 mm (13.6 in)/ 335 mm (13.2 in)
	R *	329 mm (13.0 in)/ 318 mm (12.5 in)	346 mm (13.6 in)/ 335 mm (13.2 in)	346 mm (13.6 in)/ 335 mm (13.2 in)
	S *	329 mm (13.0 in)/ 318 mm (12.5 in)	346 mm (13.6 in)/ 335 mm (13.2 in)	346 mm (13.6 in)/ 335 mm (13.2 in)
	U *	329 mm (13.0 in)/ 318 mm (12.5 in)	346 mm (13.6 in)/ 335 mm (13.2 in)	–
	V *	329 mm (13.0 in)/ 318 mm (12.5 in)	346 mm (13.6 in)/ 335 mm (13.2 in)	346 mm (13.6 in)/ 335 mm (13.2 in)
	W *	329 mm (13.0 in)/ 318 mm (12.5 in)	346 mm (13.6 in)/ 335 mm (13.2 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)

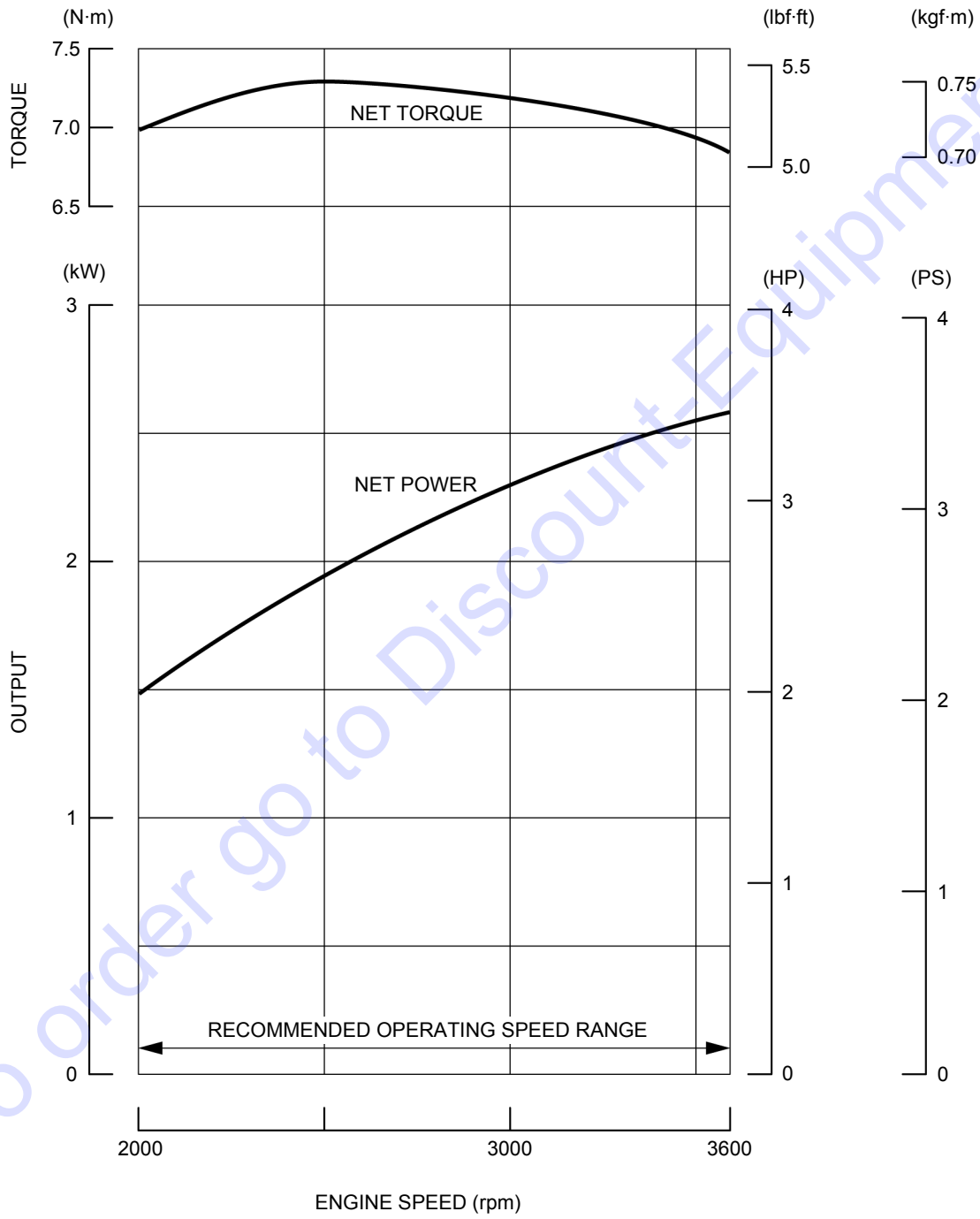
ENGINE SPECIFICATIONS

Model		GX120UT2/T2	GX160UT2/T2	GX200UT2/T2
Description code		GCBMT/GCBNT	GCBPT/GCBRT	GCBTT/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		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 classification SJ or higher		
Cooling system		Forced air		
Starting system		Recoil Starter	Recoil, Recoil and Starter motor	Recoil, Recoil and Starter motor
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)		

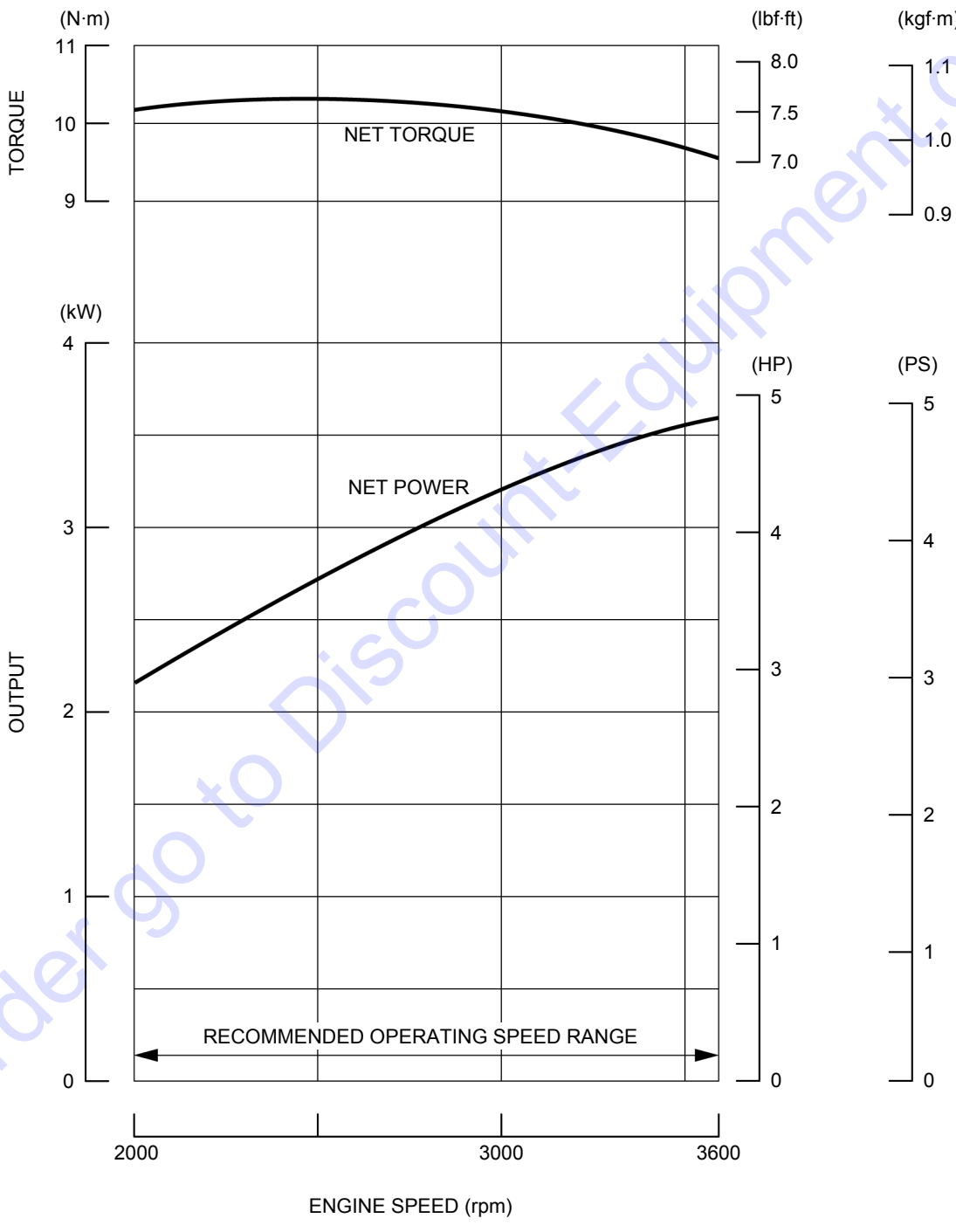
*1: The power rating of the engine indicated in this document is the net power output tested on a production engine for the engine model and measured in accordance with SAE J1349 at 3,600 rpm (net power) and at 2,500 rpm (max net torque). Mass production engines may vary from this value. Actual power 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.

PERFORMANCE CURVES

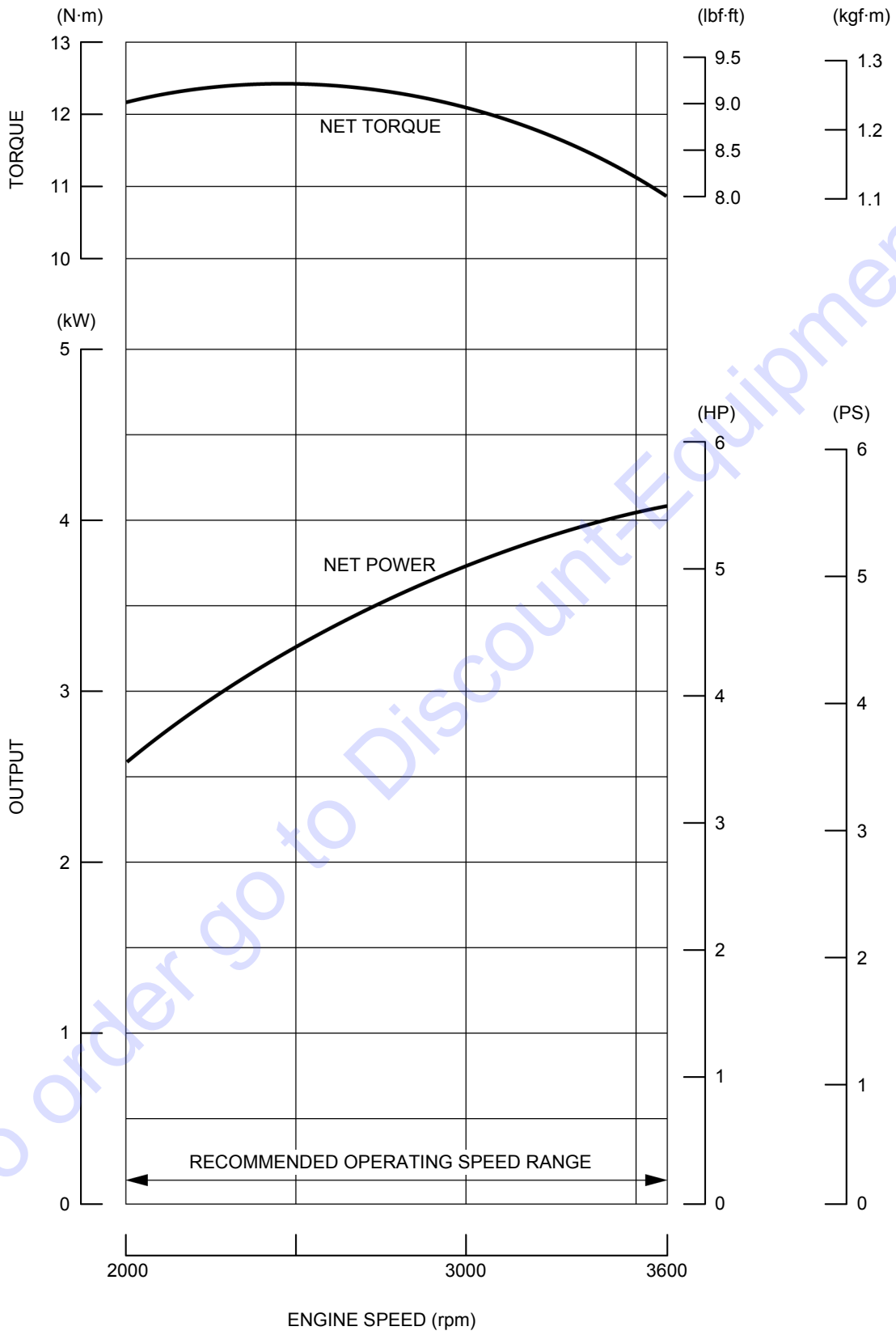
GX120



GX160



GX200

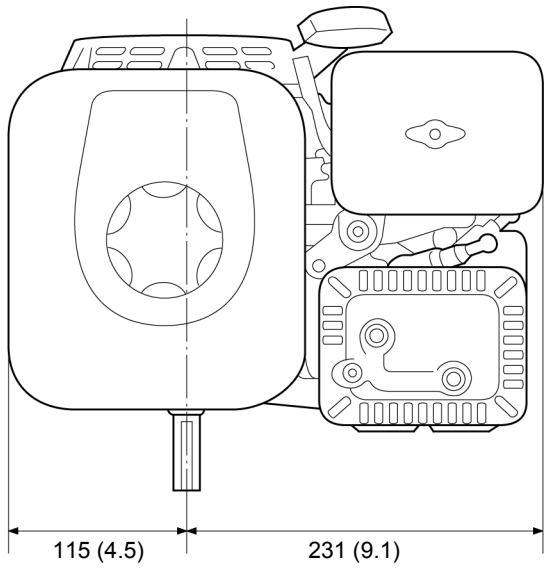


DIMENSIONAL DRAWINGS

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

GX120 (WITHOUT REDUCTION)

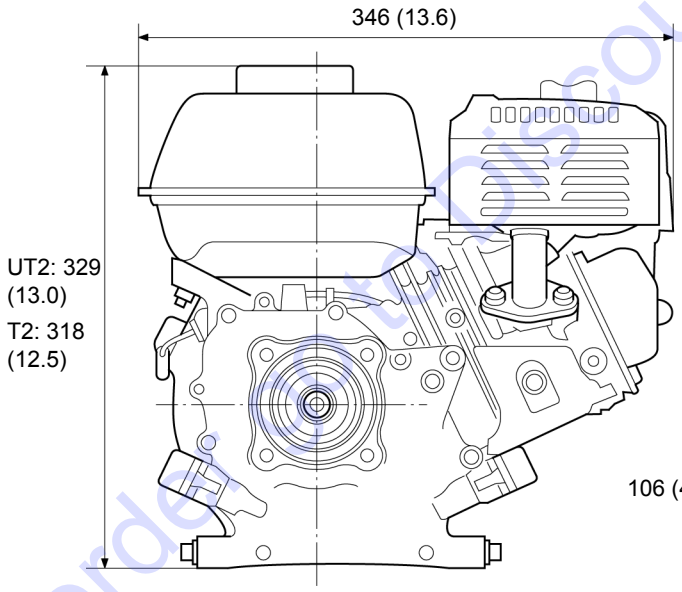
Unit: mm (in)

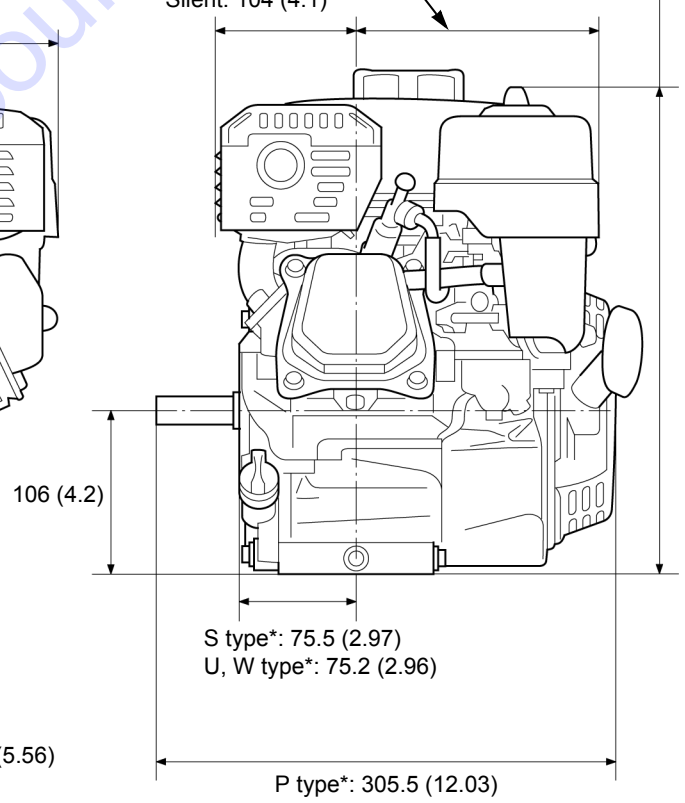


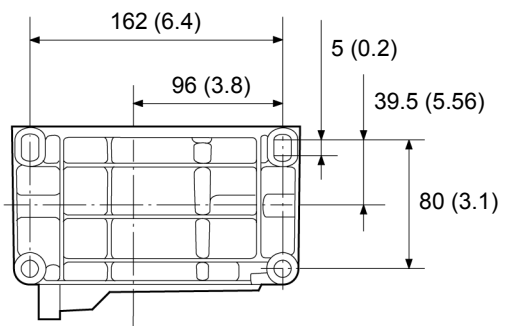
Dual/dual silent: 160 (6.3)
Cyclone: 166 (6.5)
Oil bath: 157 (6.2)
Semi dry: 156 (6.1)

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)





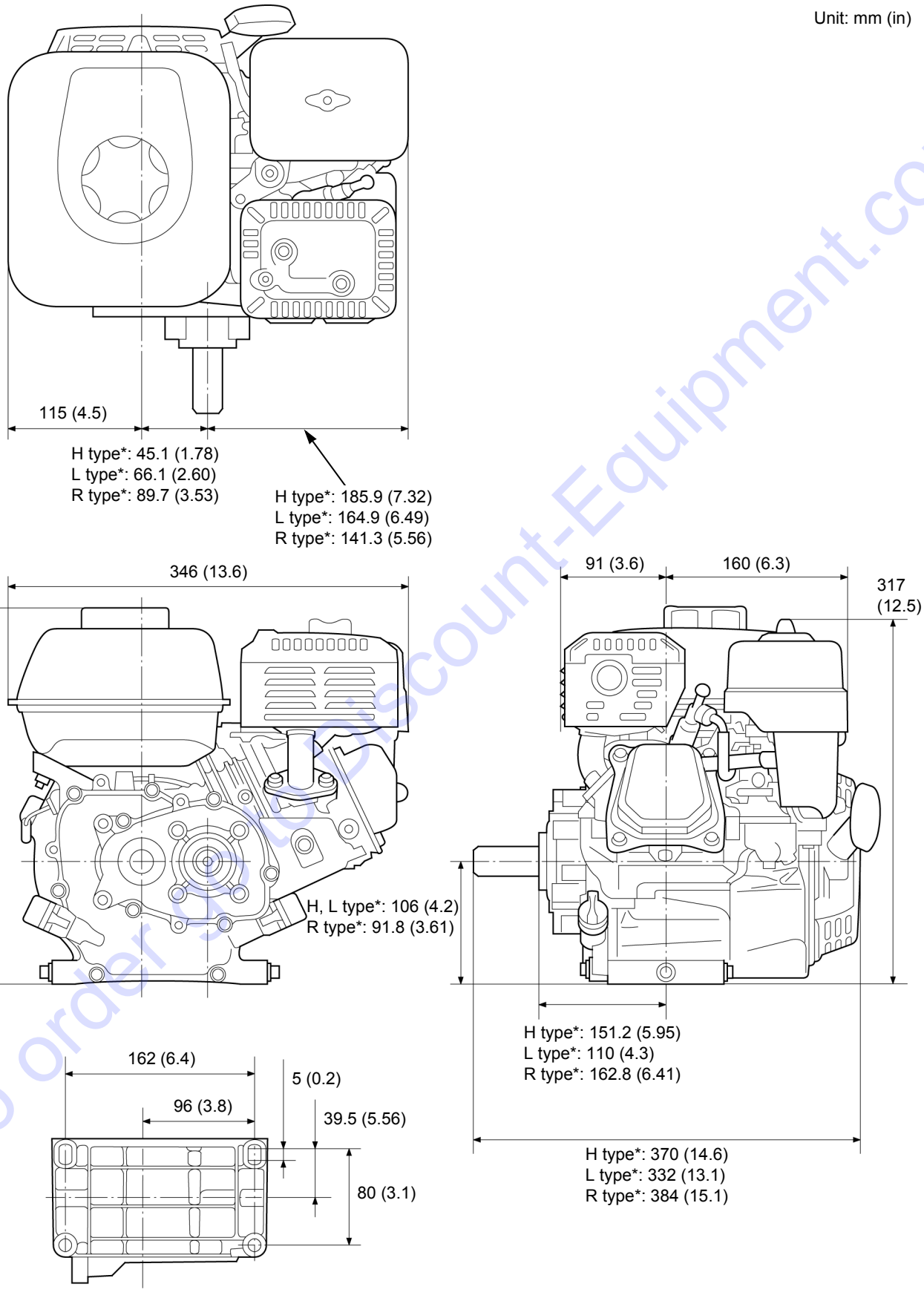


P type*: 305.5 (12.03)
Q type*: 305.5 (12.03)
S type*: 297 (11.7)
T type*: 305.5 (12.03)
U type*: 309.8 (12.20)
V type*: 315.5 (12.42)
W type*: 317.5 (12.50)

SPECIFICATIONS

GX120 (WITH REDUCTION)

Unit: mm (in)



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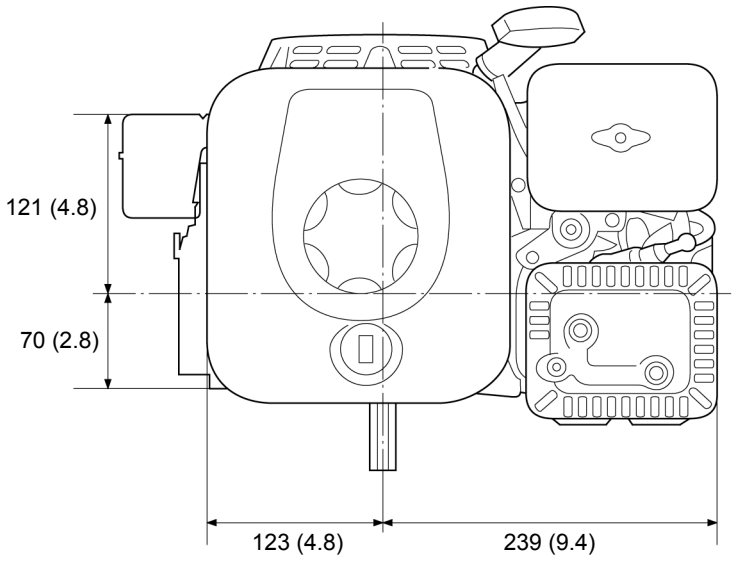

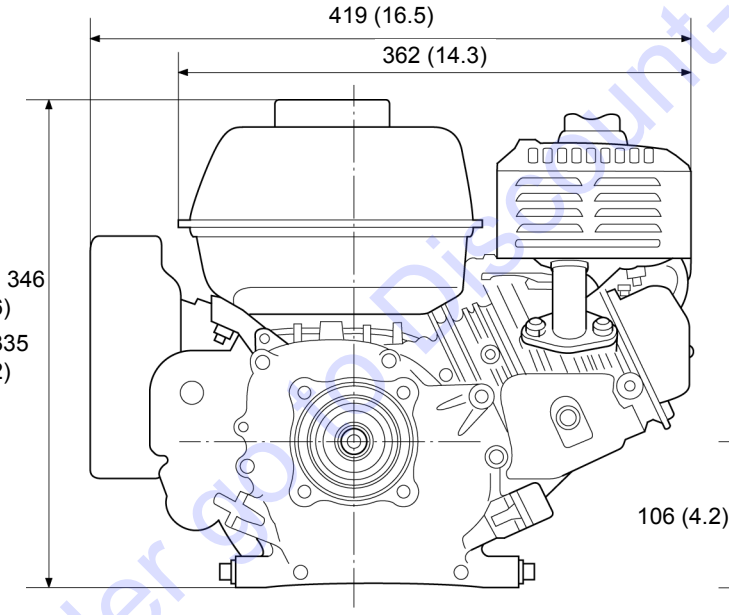

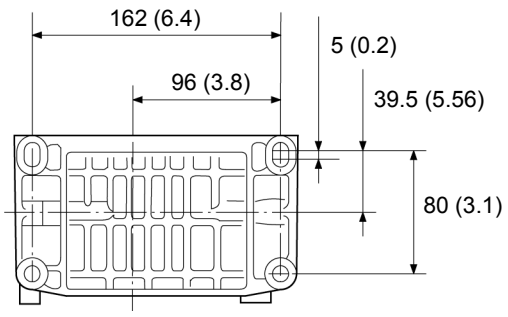

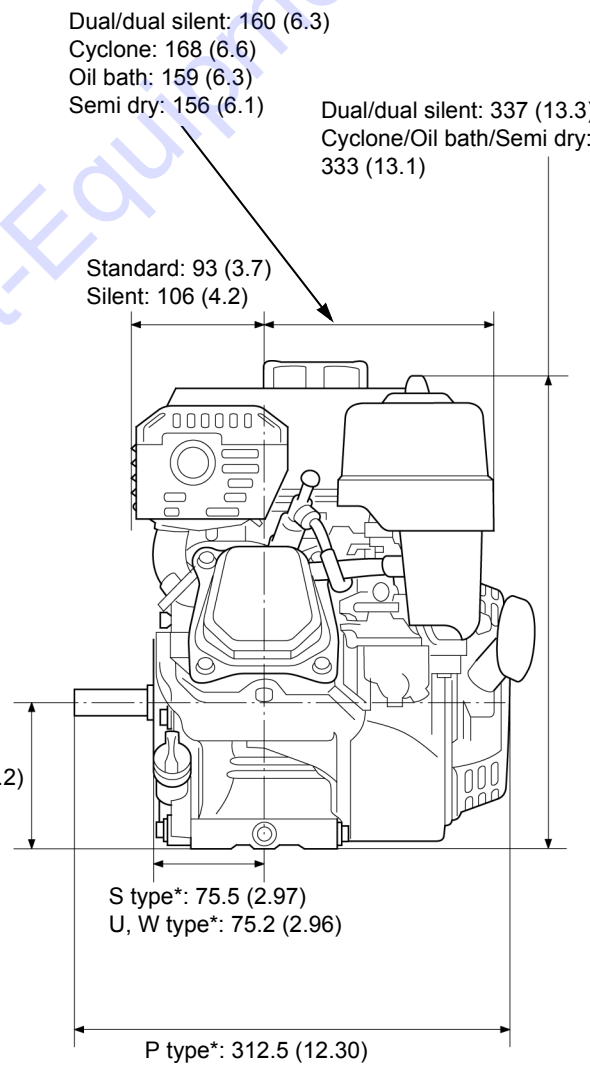

SPECIFICATIONS

GX160 (WITH REDUCTION)

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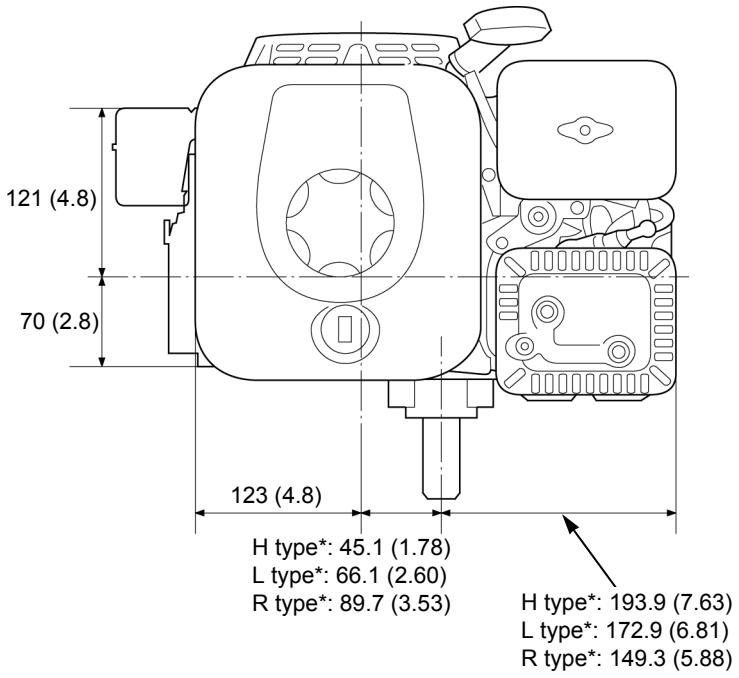

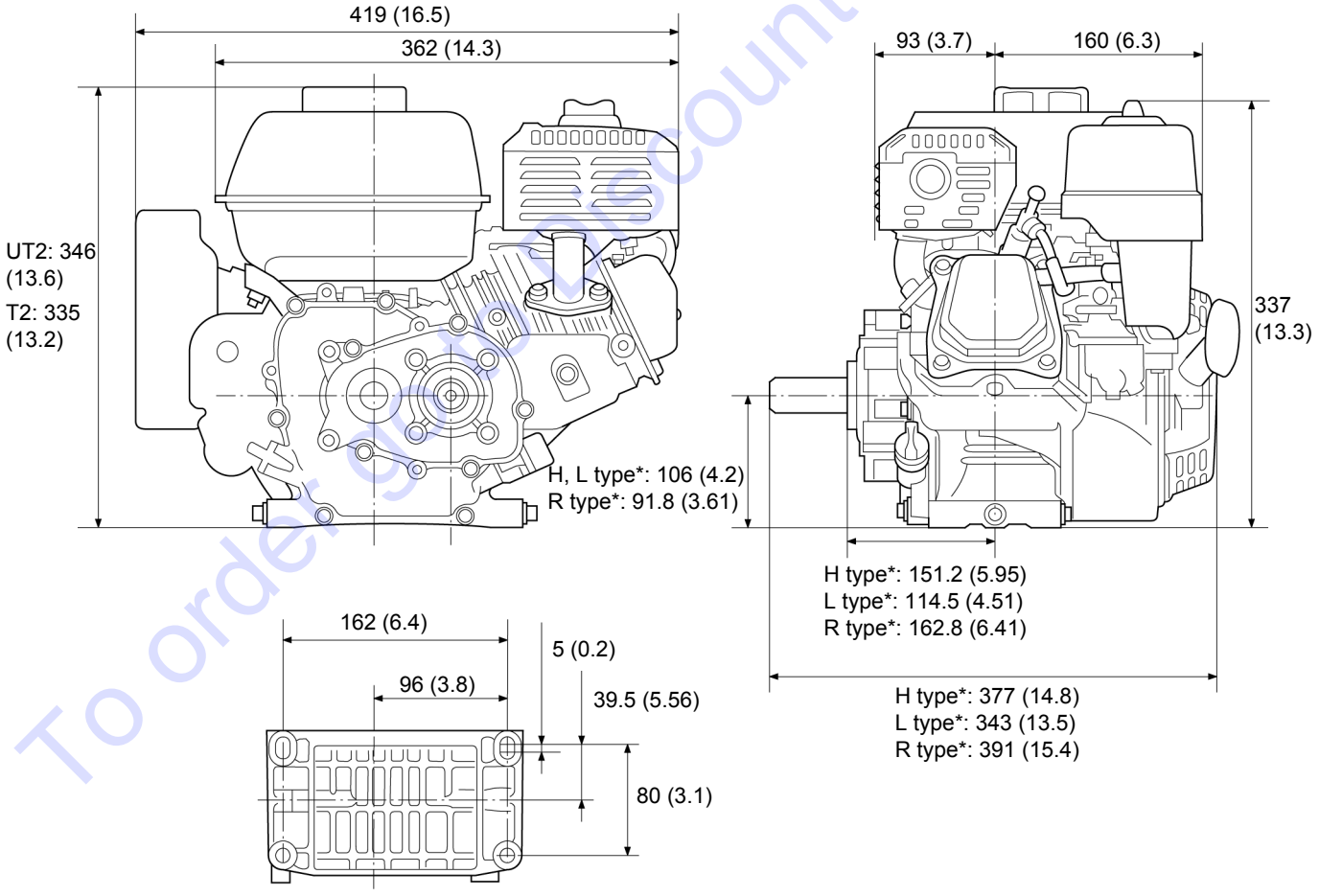

GX200 (WITHOUT REDUCTION)

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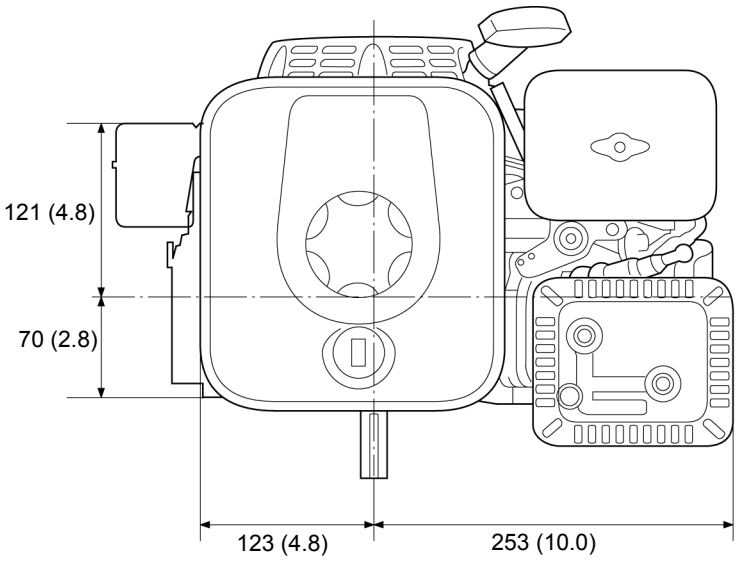
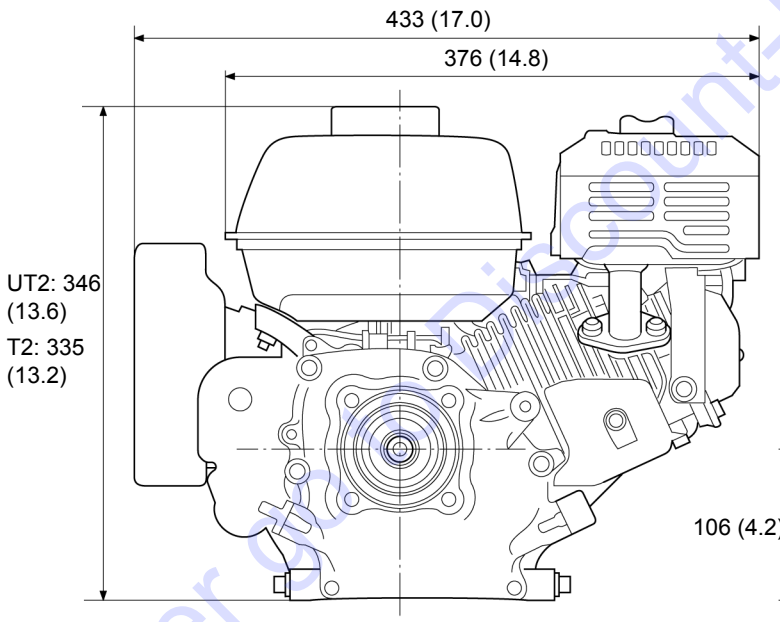
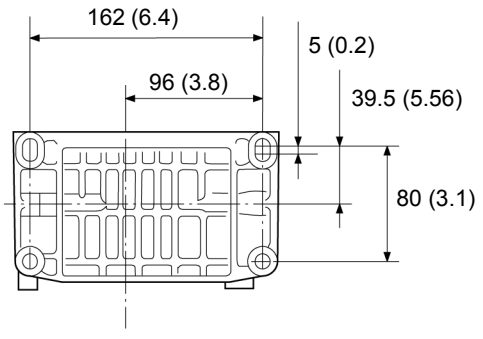
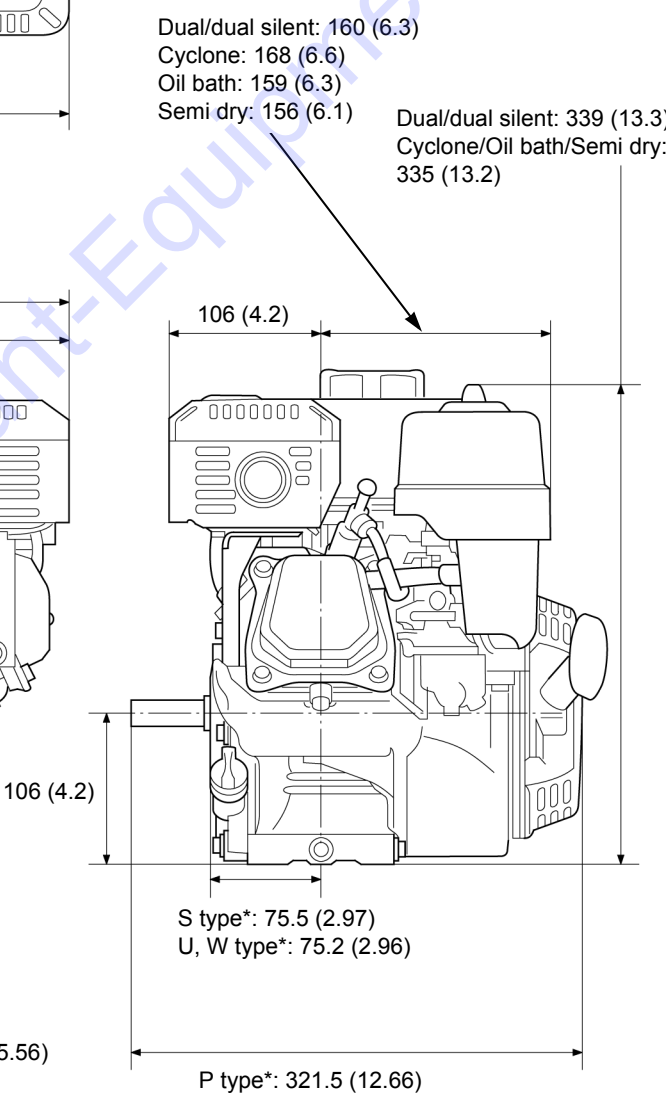




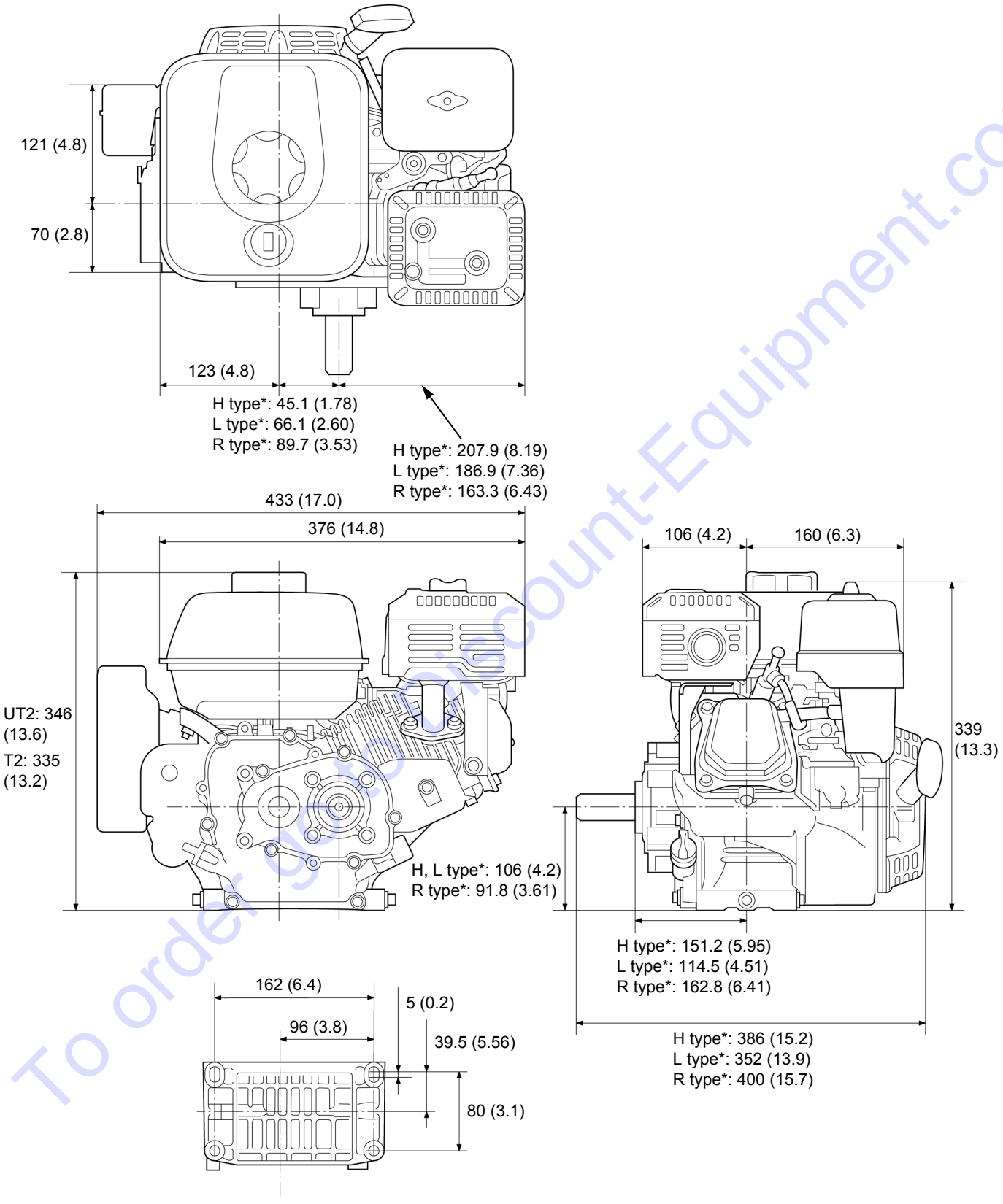




SPECIFICATIONS

GX200 (WITH REDUCTION)

Unit: mm (in)

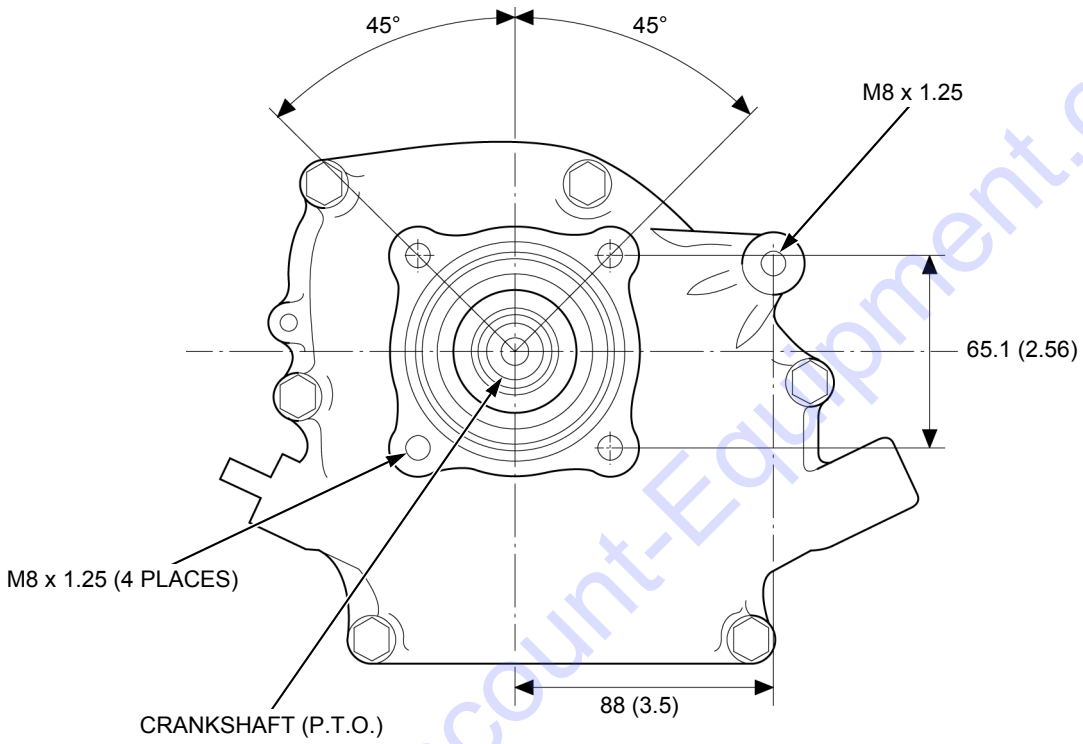


P.T.O. DIMENSIONAL DRAWINGS

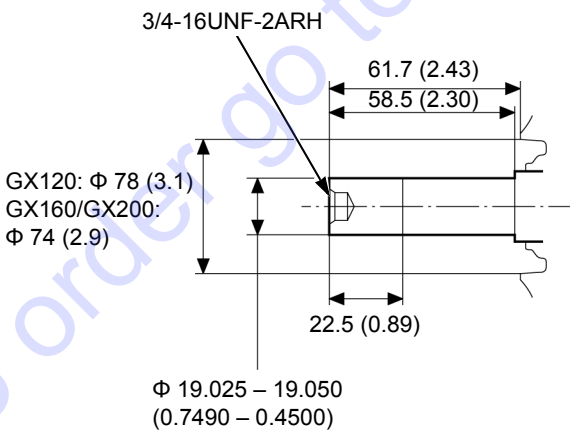
*: P.T.O. type. (page 1-2)

WITHOUT REDUCTION

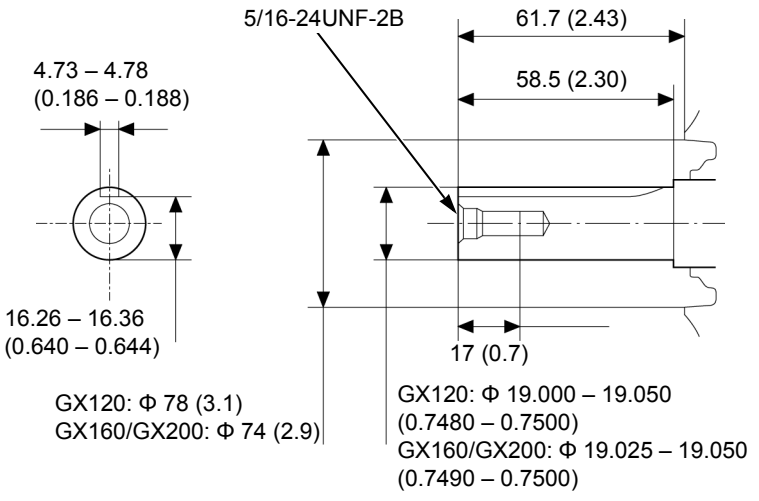
Unit: mm (in)



P type* Unit: mm (in)

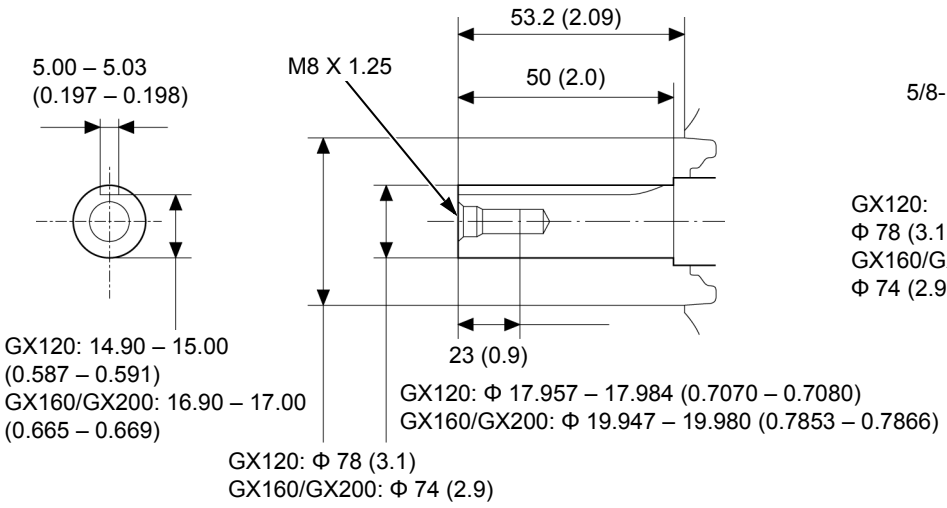


Q type* Unit: mm (in)

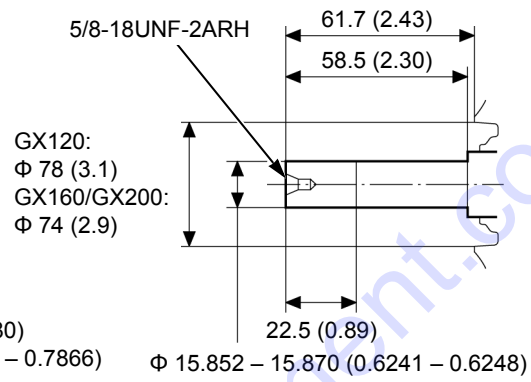


SPECIFICATIONS

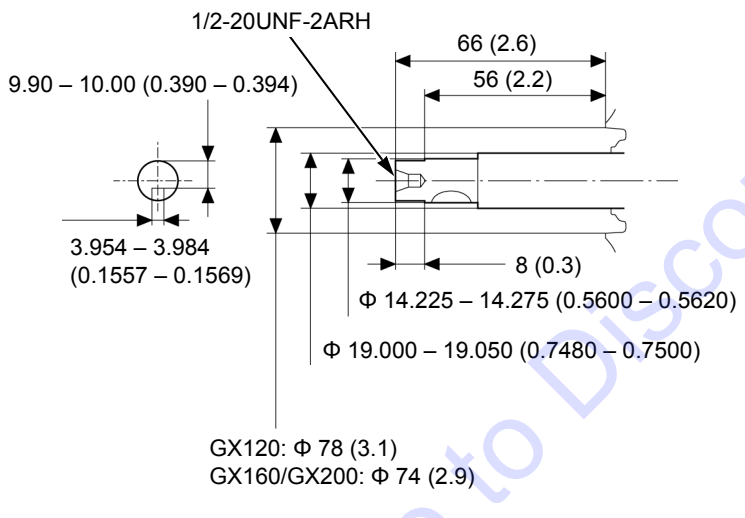
S type* Unit: mm (in)



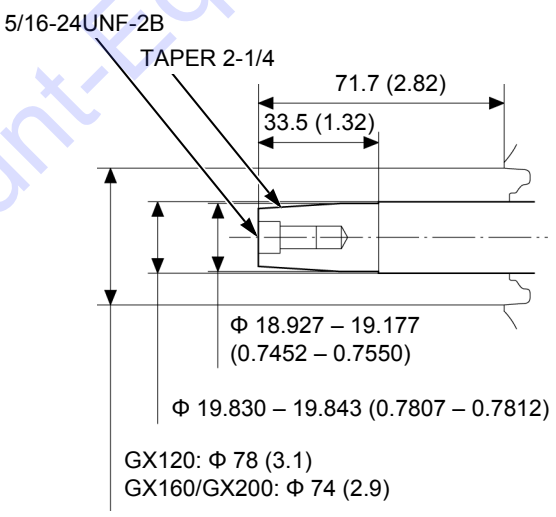
T type* Unit: mm (in)



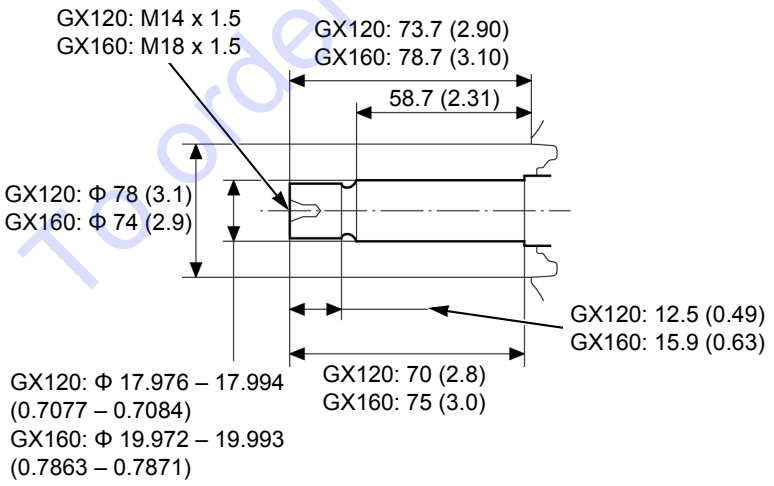
U type* Unit: mm (in)



V type* Unit: mm (in)



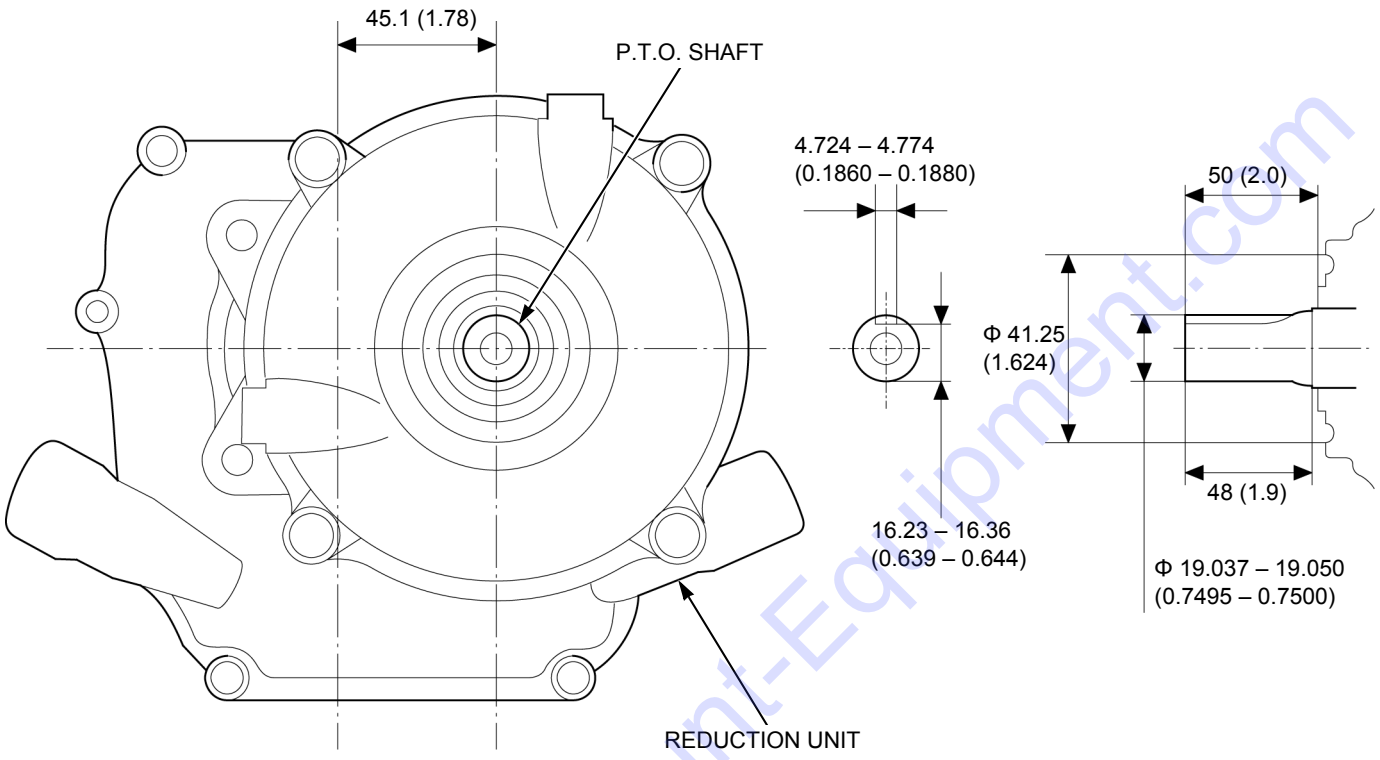
W type* Unit: mm (in)



WITH REDUCTION

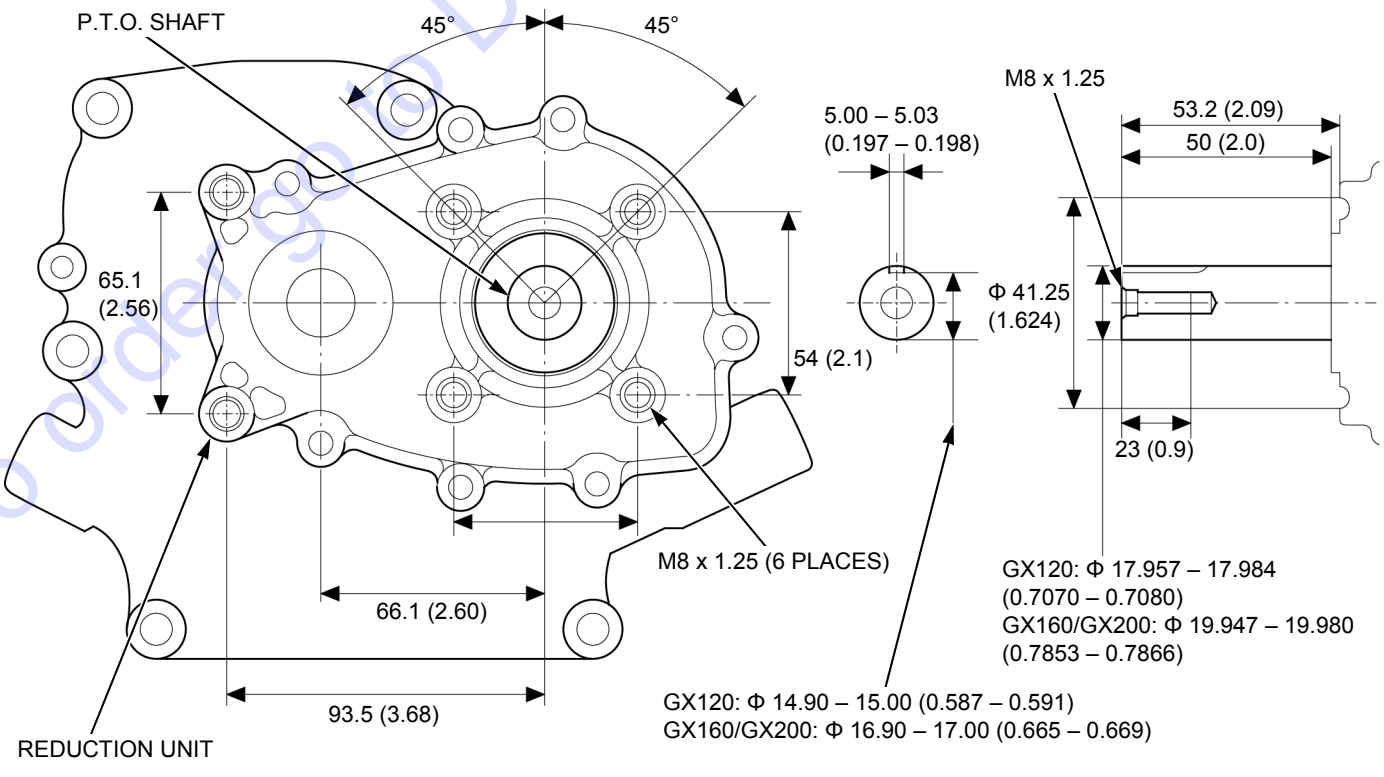
H type*

Unit: mm (in)



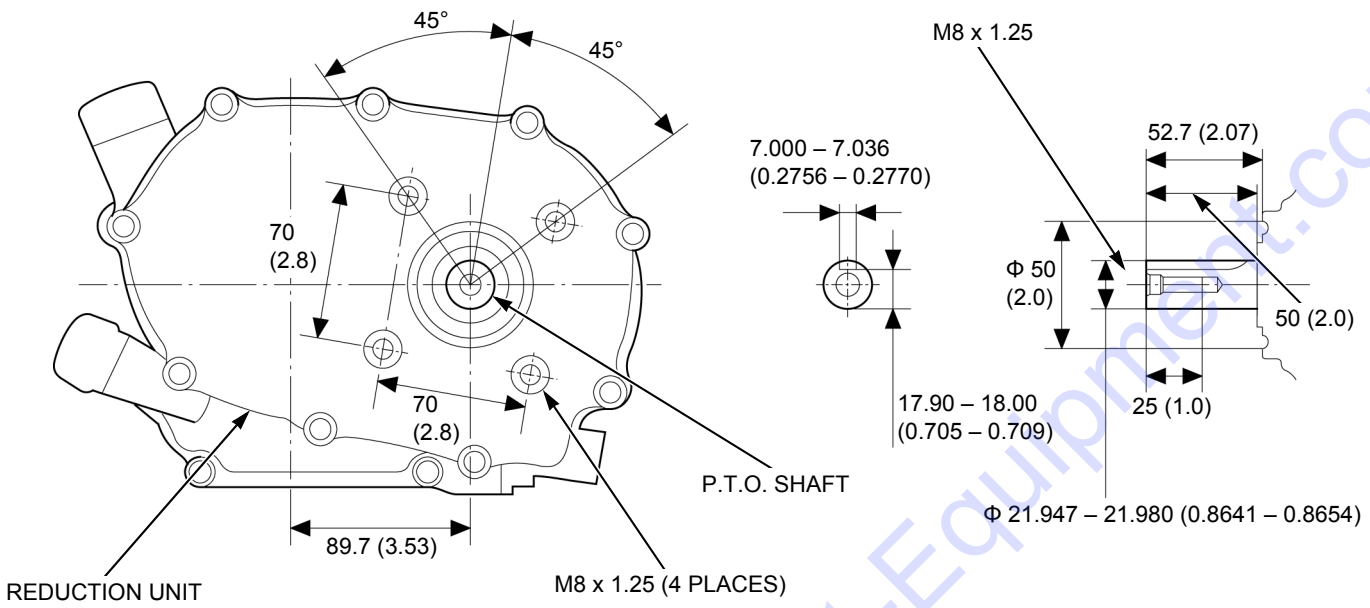
L type*

Unit: mm (in)



SPECIFICATIONS

R type* Unit: mm (in)



2. SERVICE INFORMATION

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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)

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 plug 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 drain plug bolt (Reduction unit: gear type, 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

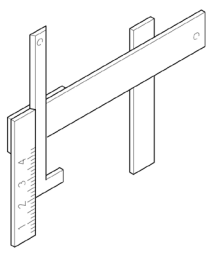
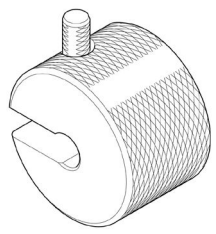
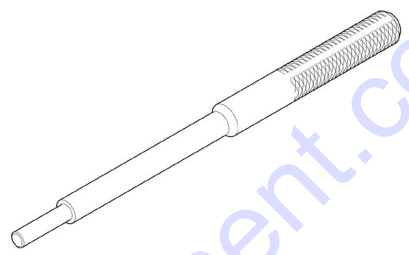
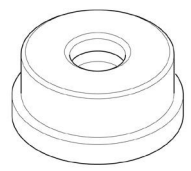
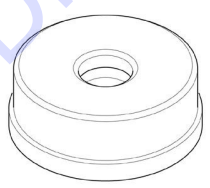
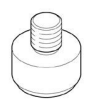
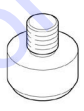
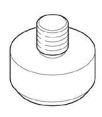
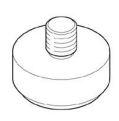
LUBRICATION & SEAL POINTS

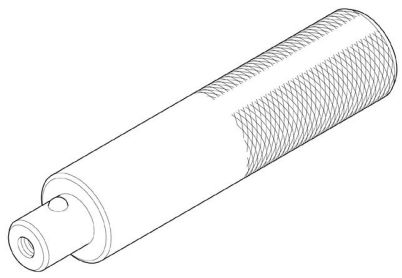
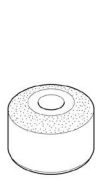
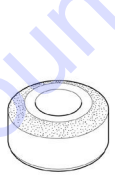
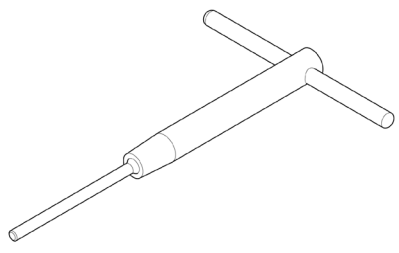
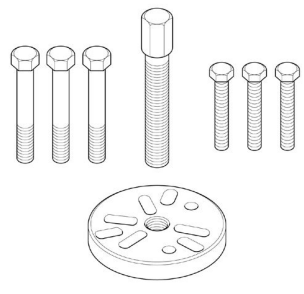
Material	Location	Remarks
Engine oil	Crankshaft pin and gear teeth	
	Piston outer surface, ring groove and piston pin hole	
	Piston pin outer surface	
	Piston ring entire surface	
	Cylinder inner surface	
	Connecting rod big and small end bearing	
	Connecting rod bolt threads and seating surface	
	Camshaft cam profile 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
Threebond® 2430 or equivalent	Recoil starter center screw threads	
LOCTITE® 638 or equivalent	Limiter cap inside	

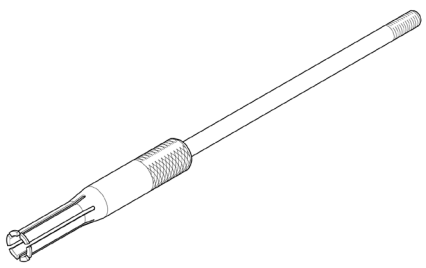
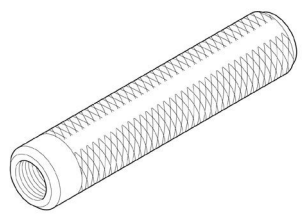
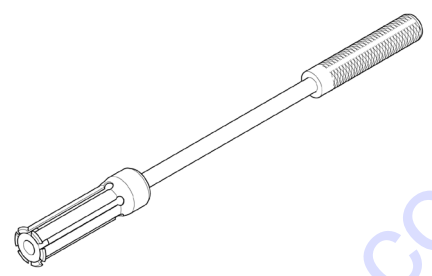
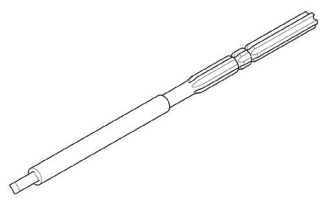
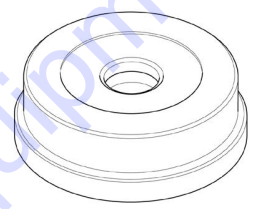
TOOLS

SPECIAL TOOLS

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

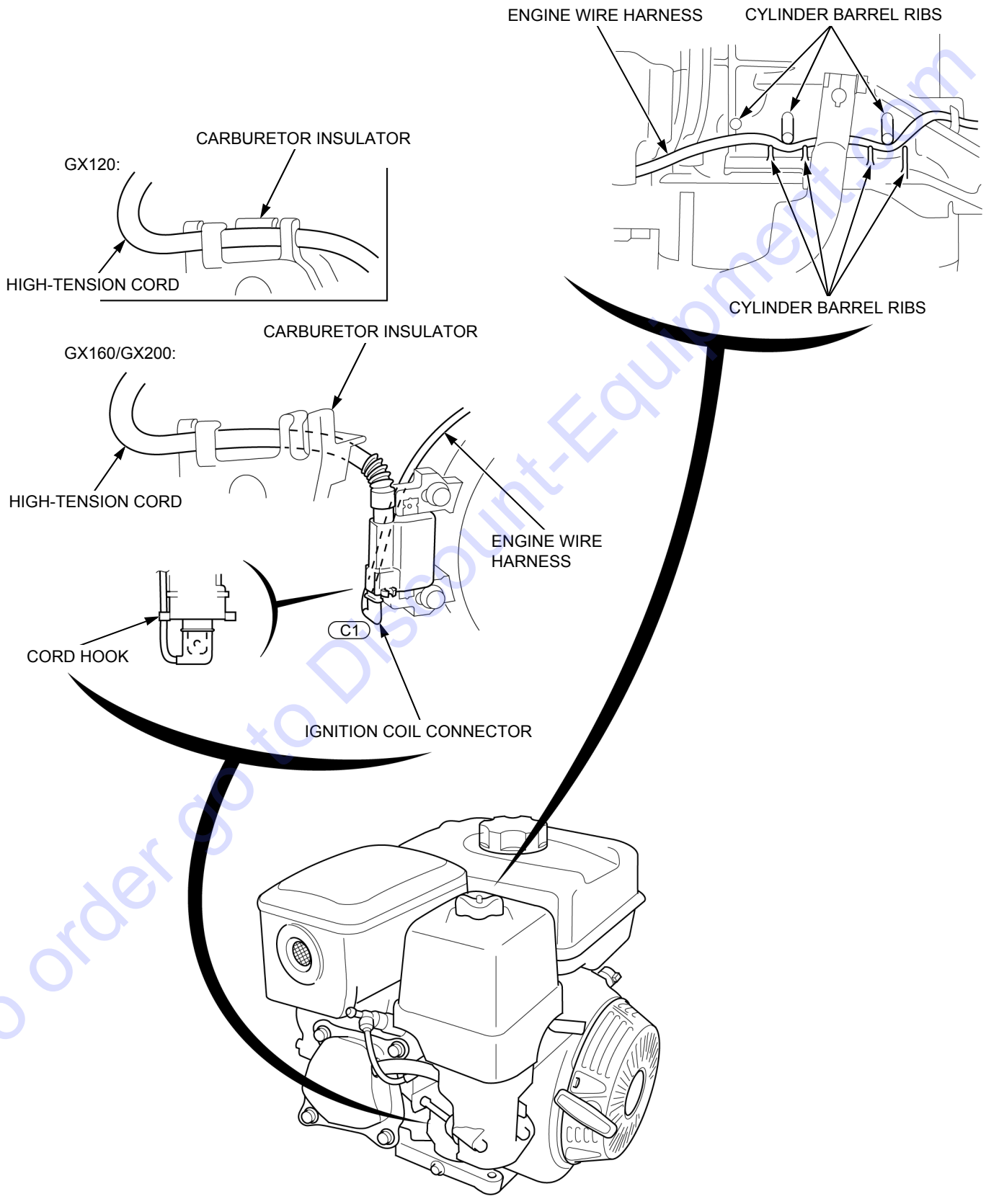
Float level gauge 07401-0010000 	Sliding hammer weight 07741-0010201 	Valve guide driver, 5.5 mm 07742-0010100 
Bearing driver attachment, 32 x 35 mm 07746-0010100 	Bearing driver attachment, 37 x 40 mm 07746-0010200 	Bearing driver attachment, 40 x 42 mm 07746-0010900 
Bearing driver attachment, 42 x 47 mm 07746-0010300 	Bearing driver 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 handle 07749-0010000 	Seat cutter, 27.5 mm (45° IN) 07780-0010200 	Seat cutter, 24.5 mm (45° EX) 07780-0010100 
Seat cutter, 22 mm (45° IN/EX) 07780-0010701 	Flat cutter, 21.5 mm (32° EX) 07780-0012800 	Flat cutter, 22 mm (32° IN) 07780-0012601 
Flat cutter, 24 mm (32° EX) 07780-0012500 	Flat cutter, 28 mm (32° IN/EX) 07780-0012100 	Flat cutter, 30 mm (32° IN) 07780-0012200 
Interior cutter, 20.5 mm (60° EX) 07780-0014300 	Interior cutter, 22 mm (60° IN/EX) 07780-0014202 	Interior cutter, 26 mm (60° IN/EX) 07780-0014500 
Interior cutter, 30 mm (60° IN) 07780-0014000 	Cutter holder, 5.5 mm 07781-0010101 	Flywheel puller set 07935-8050004 

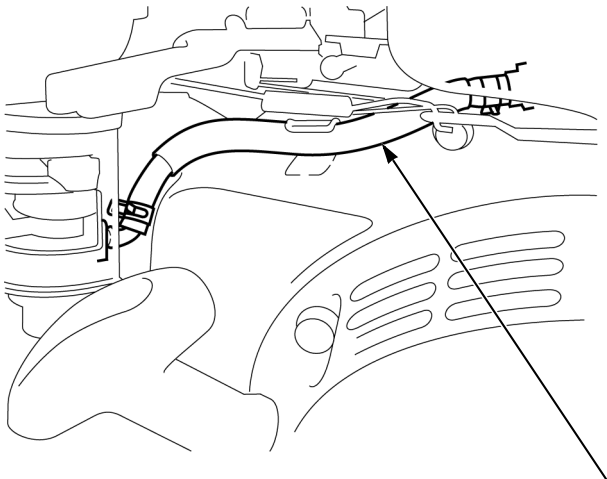
Bearing remover shaft set, 20 mm 07936-3710600 	Bearing remover shaft handle 07936-3710100 	Bearing remover shaft set, 25 mm 07936-ZV10100 
Valve guide reamer, 5.510 mm 07984-2000001 	Bearing driver attachment, 45 x 50 mm 07946-6920100 	Bearing driver attachment, 62 x 64 mm 07947-6340400 

HARNESS AND TUBE ROUTING

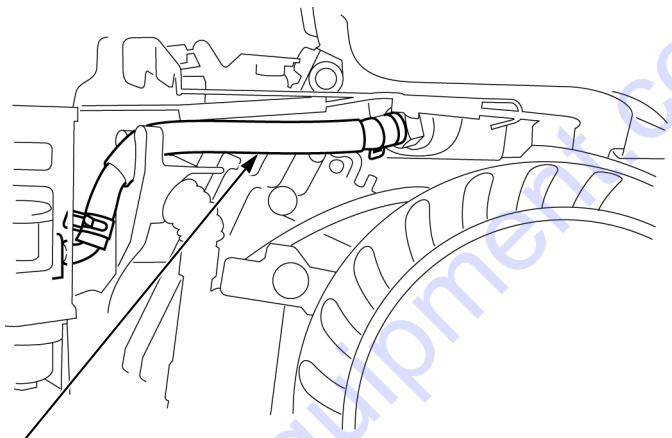
Connection of regulator/rectifier, charge/lamp coil and sub wire harness are depending on the application of the engine, therefore, the routing of these parts is not indicated in this manual.



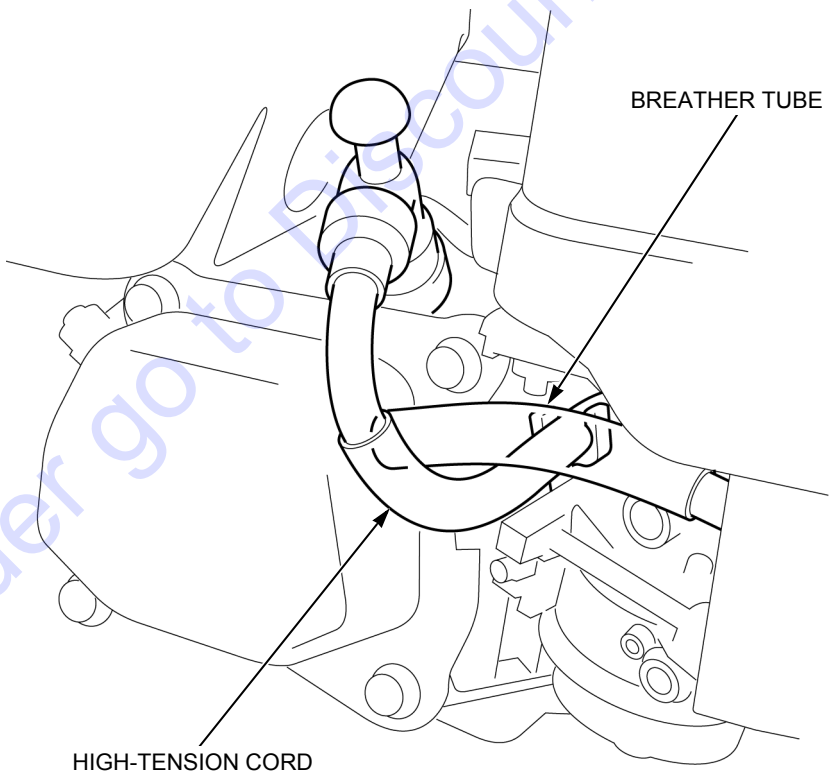
GX120:



GX160/GX200:



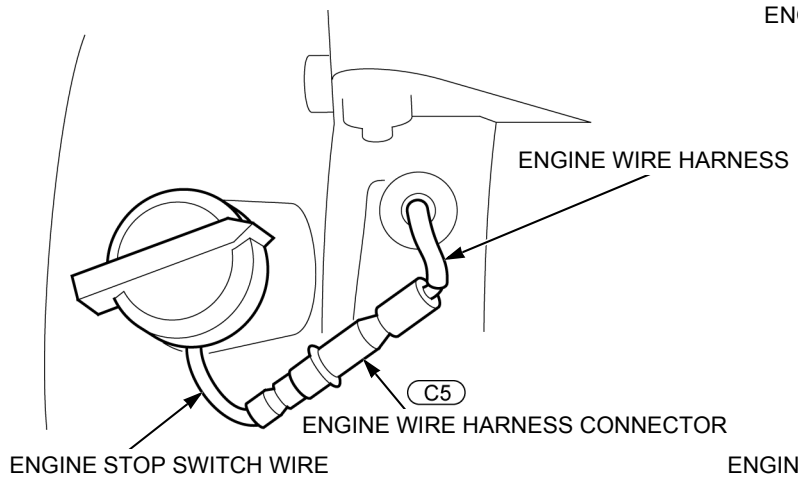
FUEL TUBE



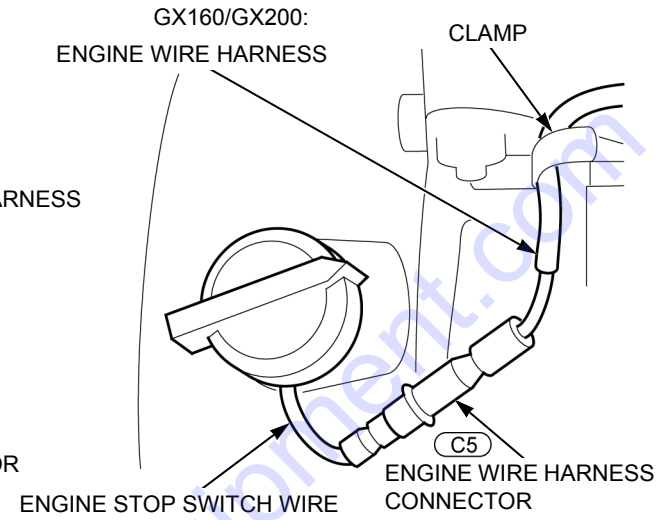
ENGINE STOP SWITCH TYPE

ENGINE STOP SWITCH ONLY:

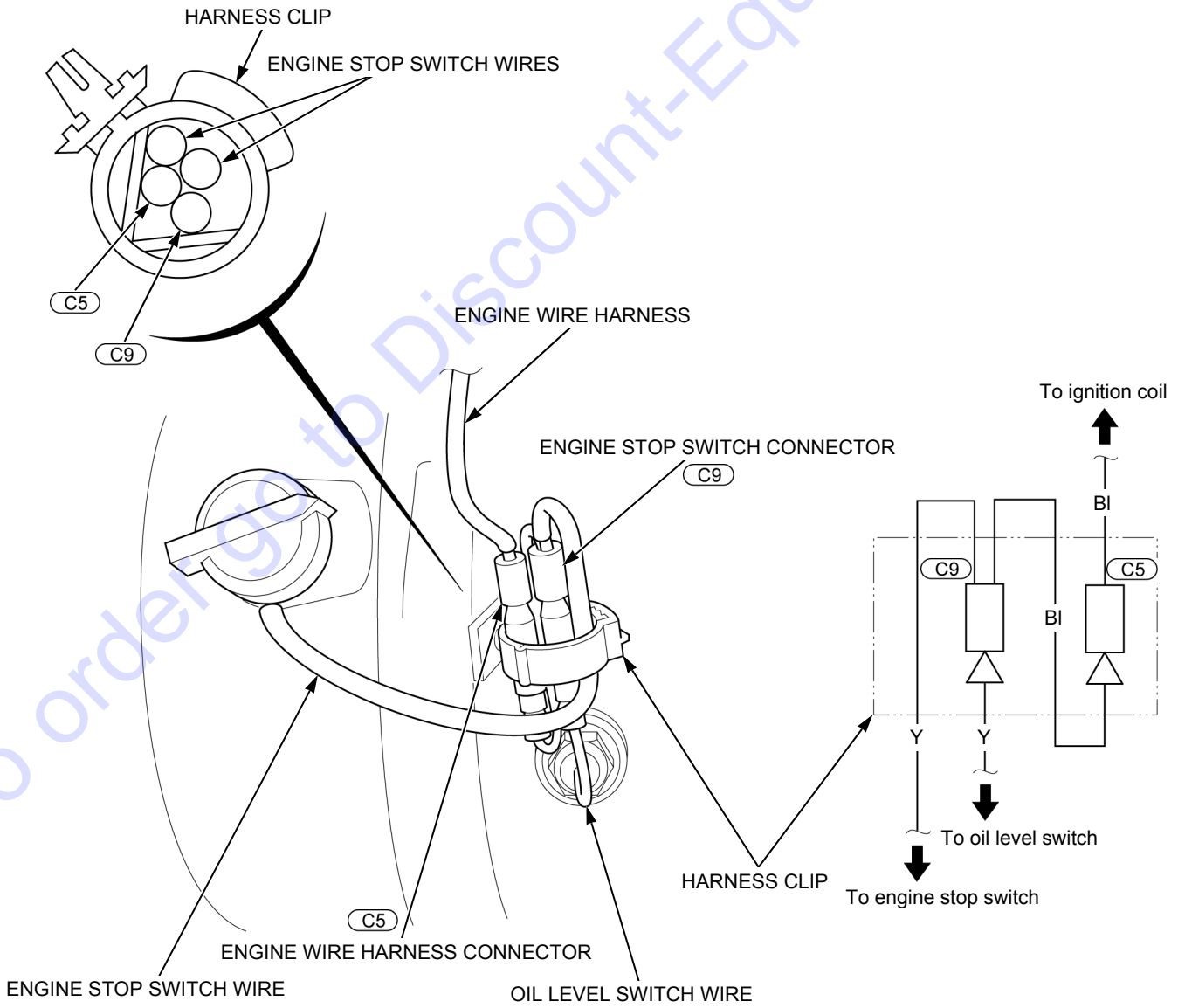
GX120:



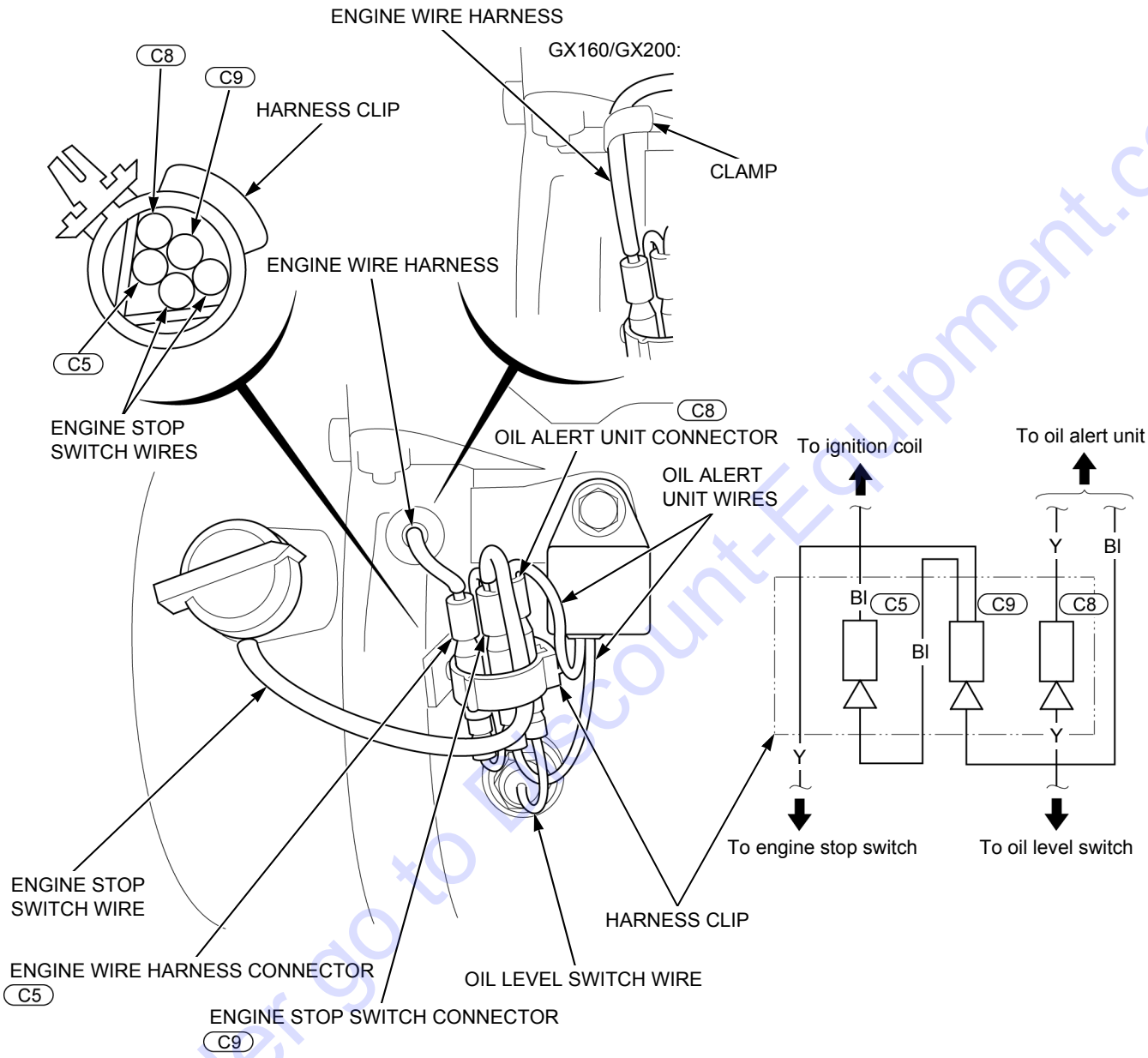
GX160/GX200:



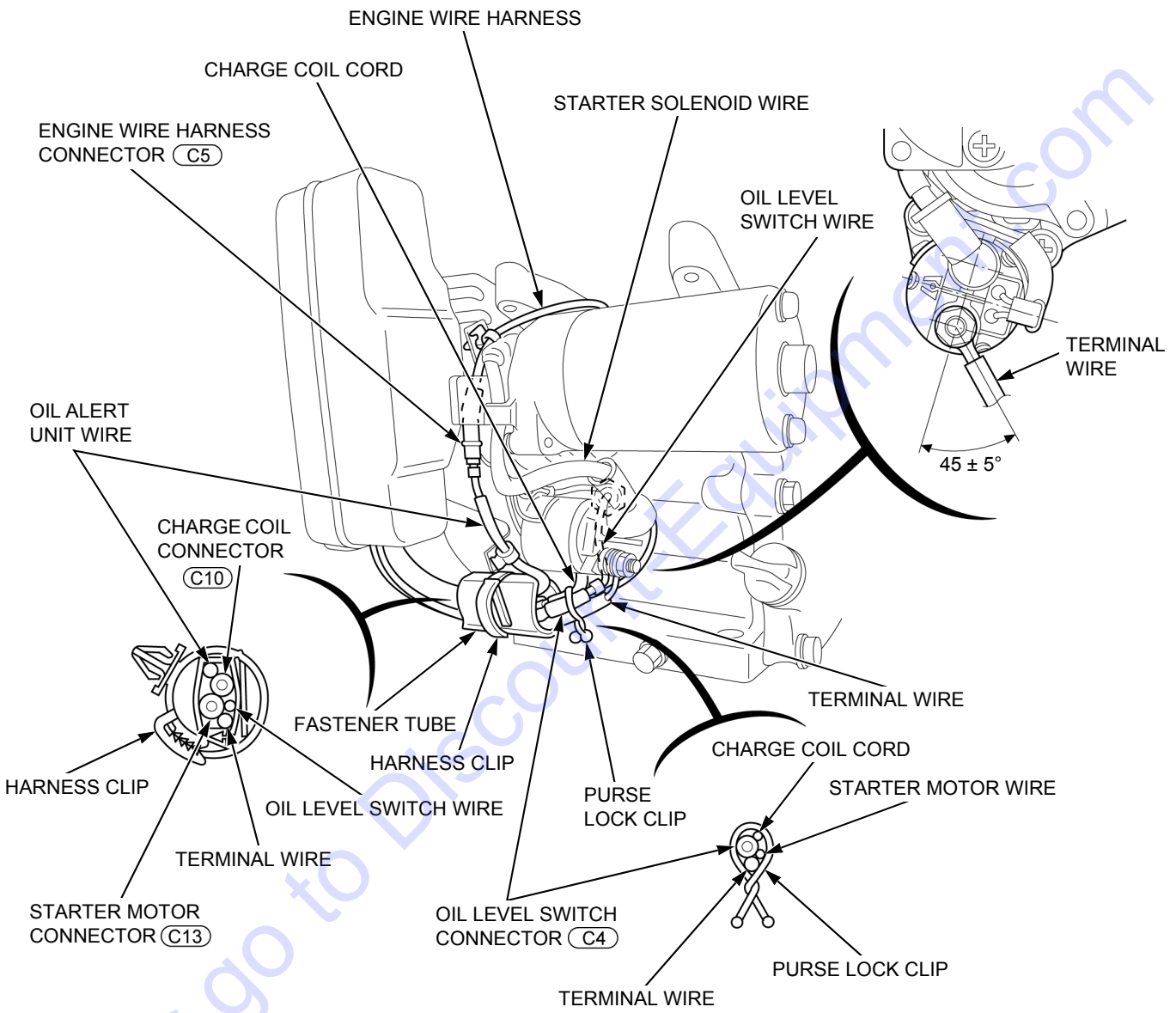
WITH OIL LEVEL SWITCH:

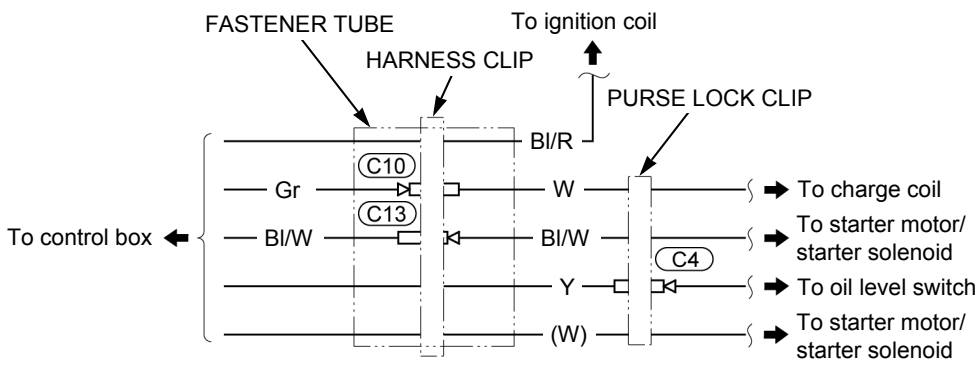


WITH OIL LEVEL SWITCH AND OIL ALERT UNIT:



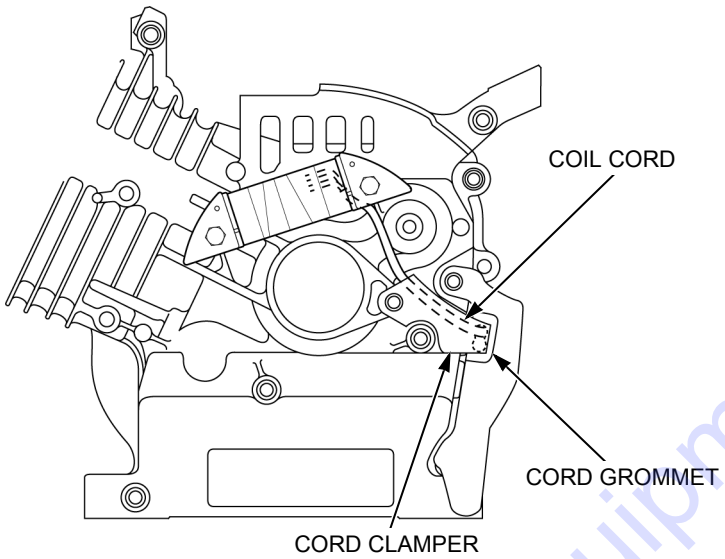
COMBINATION SWITCH (CONTROL BOX) TYPE



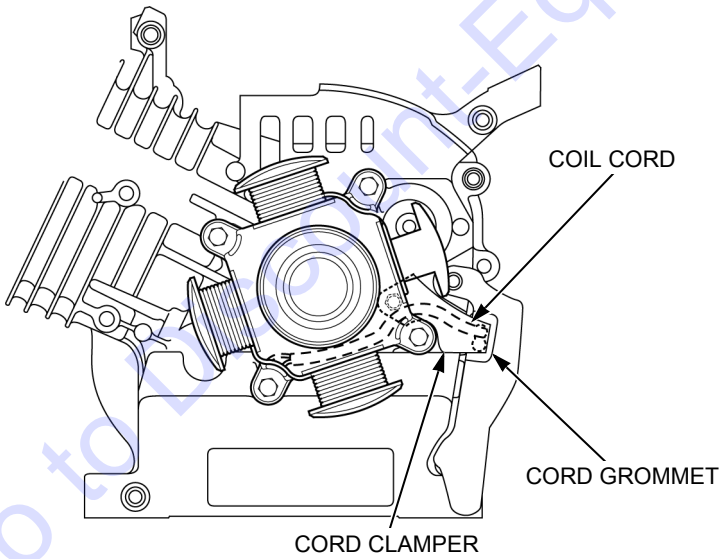


WITH CHARGE COIL / LAMP COIL

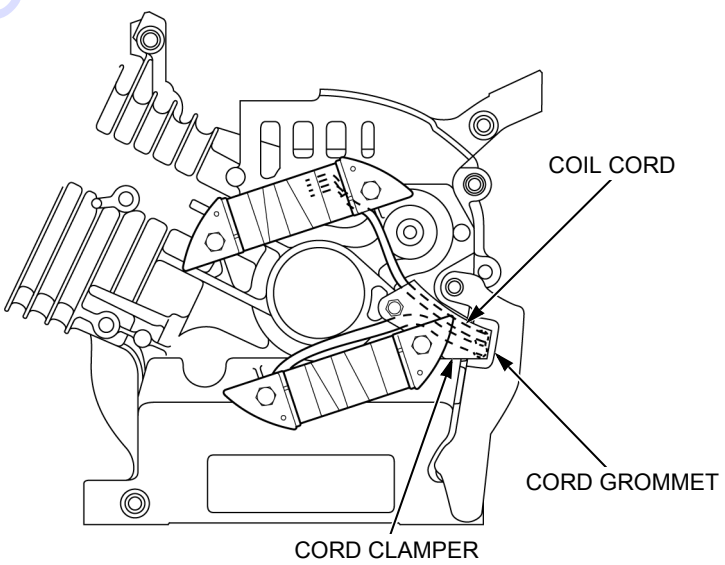
1 A/3 A CHARGE COIL, 12 V − 15 W/12 V − 25 W LAMP COIL TYPE:



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

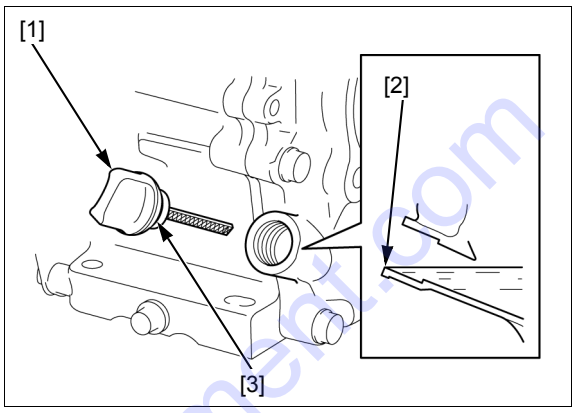
Place the engine on a level surface.

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 plug bolt, and drain plug 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 plug bolt with a new drain plug washer and tighten it 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.

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)

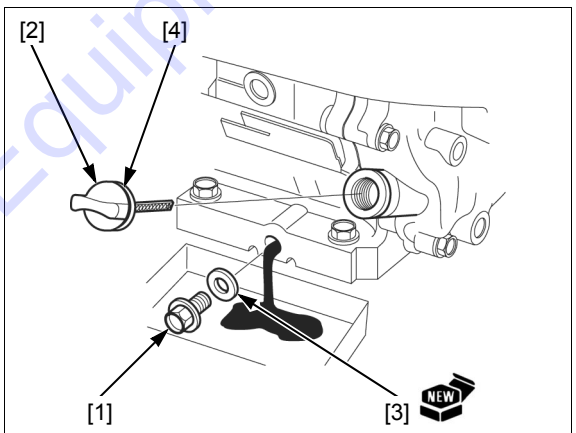
RECOMMENDED OIL:
SAE 10W-30
API service classification: SJ or higher

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

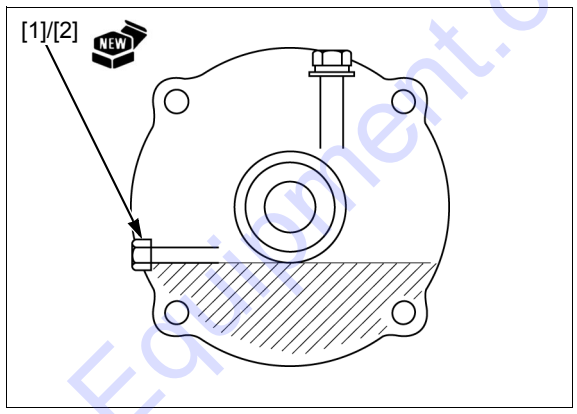
Place the engine on a level surface.

Remove the drain plug bolt [1] and drain plug washer [2] and check the whether oil flows out.

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

Install the drain plug bolt with a new drain plug 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.

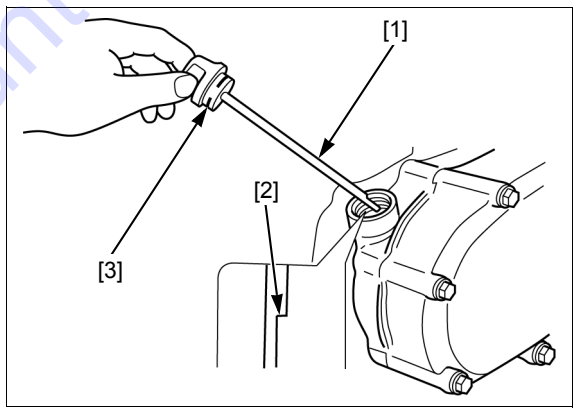
Insert the oil level gauge without screwing it into the oil filler neck.

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 3-5).

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 breathing bolt [1].

Remove the drain plug bolt [2] and drain plug 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 the specified amount of recommended engine oil into the reduction case.

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

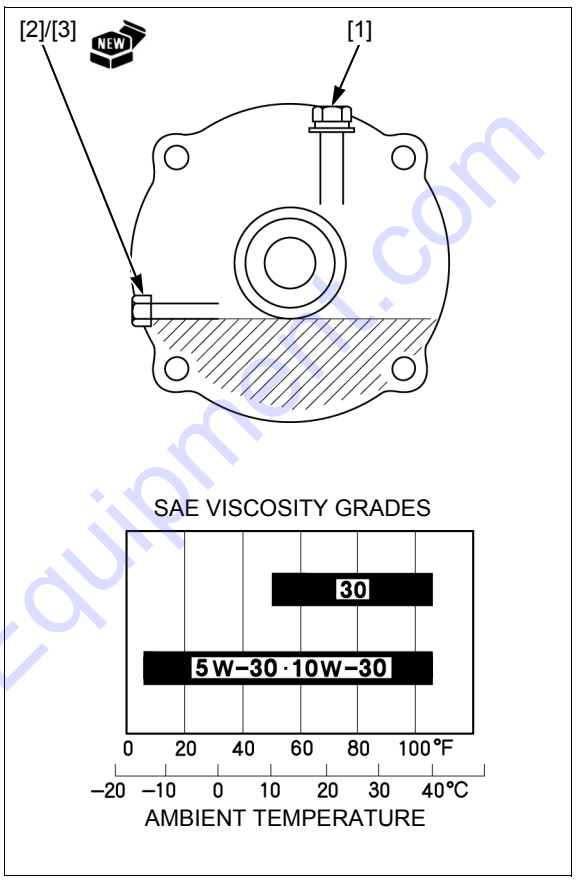
RECOMMENDED OIL:
SAE 10W-30
API service classification SJ or higher

Install the drain plug bolt with new drain plug washer and tighten it to the specified torque.

TORQUE: 23 N·m (2.3 kgf·m, 17 lbf·ft)

Install and tighten the breathing 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 plug bolt and drain plug 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 plug bolt with a new drain plug washer and tighten it to the specified torque.

TORQUE: 23 N·m (2.3 kgf·m, 17 lbf·ft)

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

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

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

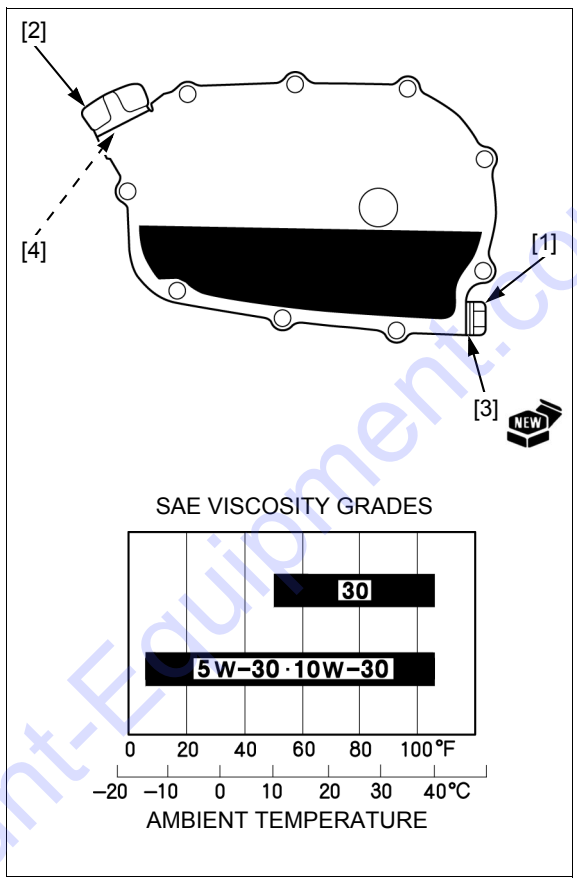
SAE 10W - 30 is recommended for general use. Other viscosities shown in the chart may be used when the average temperature in your area is within the recommended range.

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]

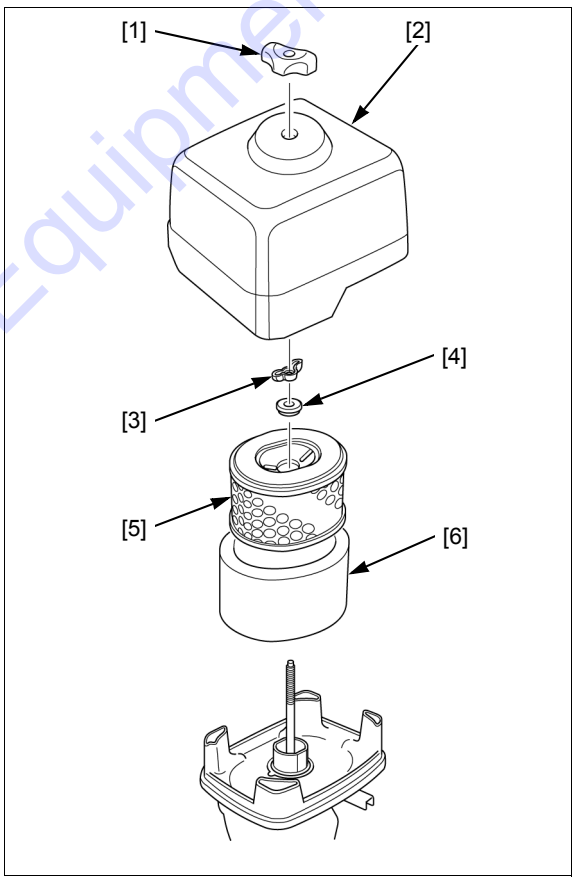
Carefully check both filters for holes or tears and replace if damaged.

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 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).

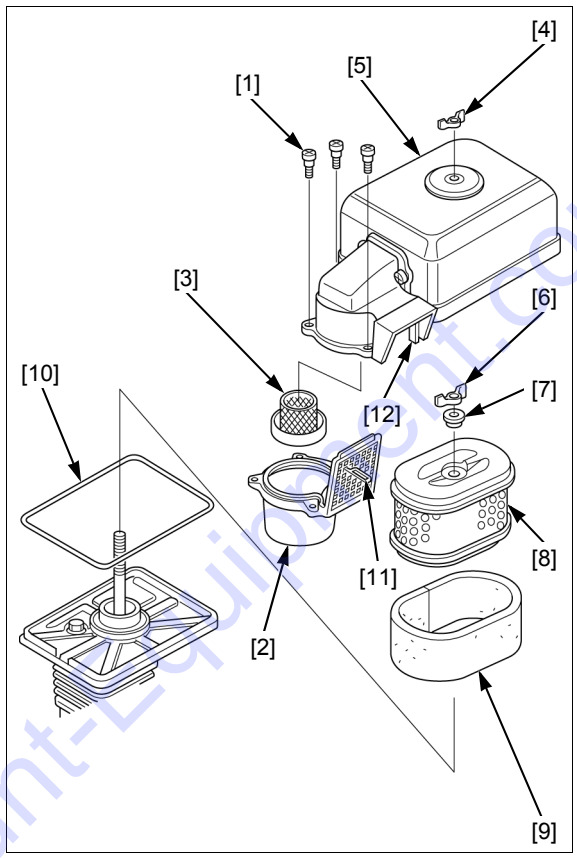
Clean the pre air cleaner case and air cleaner guide.

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

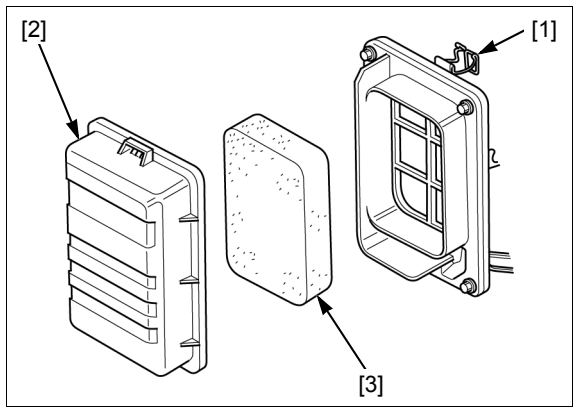
Remove the air cleaner case lid spring [1] and air cleaner cover [2].

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.

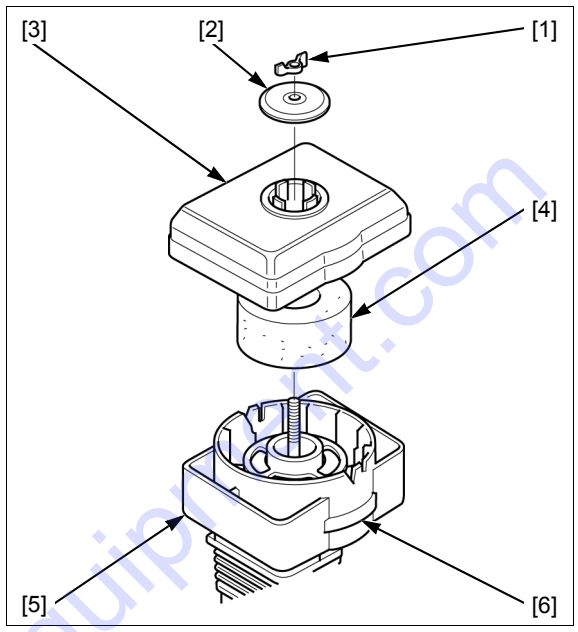
Clean the element if it is to be reused (page 3-9).

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

If the oil level is low, fill with the recommended oil 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

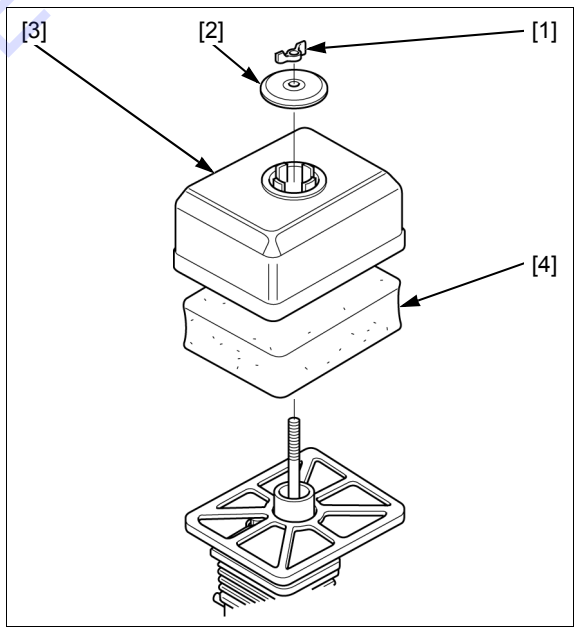
Remove the following:

– 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.



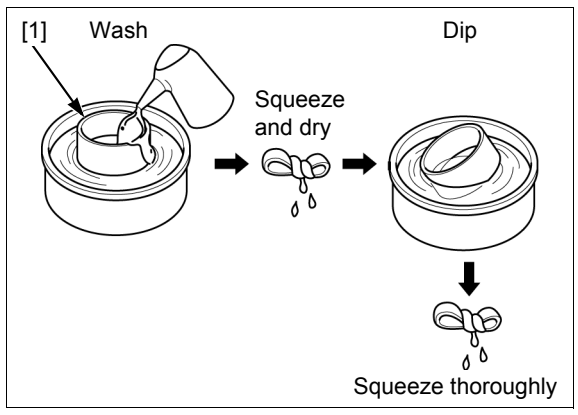
ELEMENT CLEANING

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.

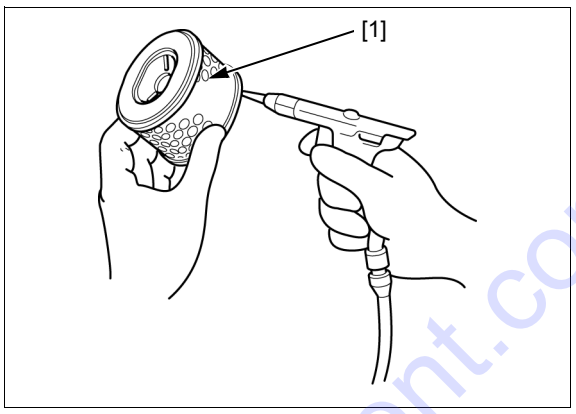
Dip the filter in clean engine oil, and squeeze out all the excess oil.

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

⚠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.

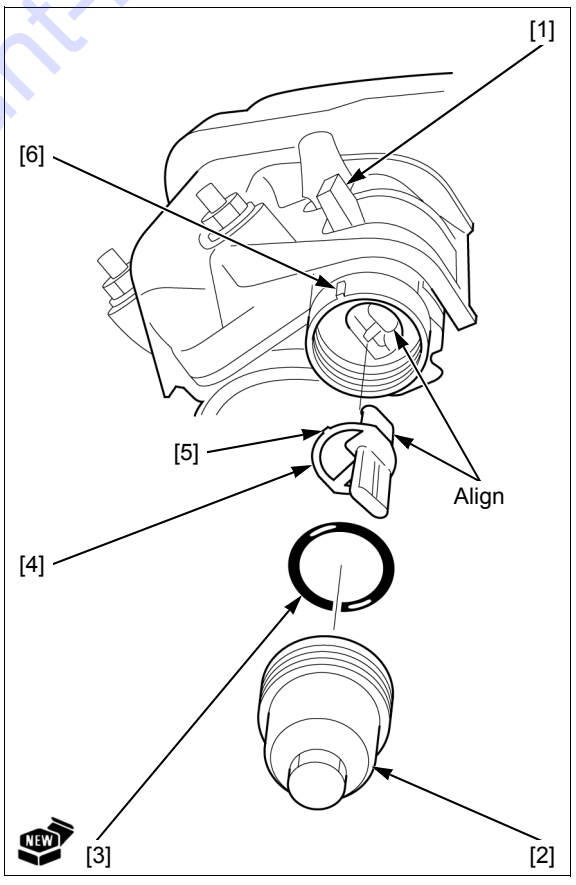
Install the cup filter while aligning it with the tip with the groove of the carburetor and cup filter tab [5] with the mark [6] of the carburetor.

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.



SPARK PLUG CHECK/ADJUSTMENT

Remove the spark plug (page 3-11).

Clean the spark plug [1] electrodes with a wire brush [2] or special plug cleaner.

Check the following and replace if necessary.

– Insulator [3] and sealing washer [4] for damage
– Center electrode [5] and side electrode [6] for wear
– Burning condition, coloration

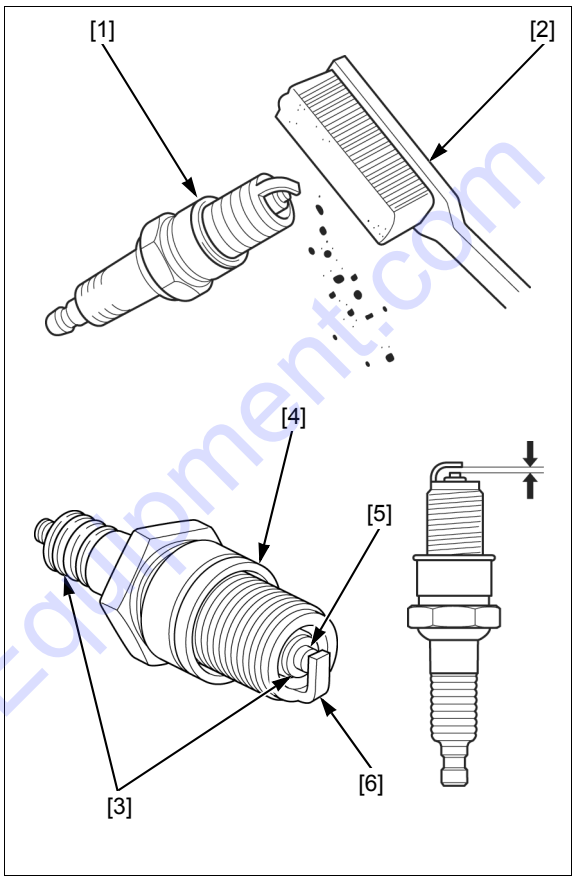
RECOMMENDED SPARK PLUG:
BPR6ES (NGK)
W20EPR-U (DENSO)

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

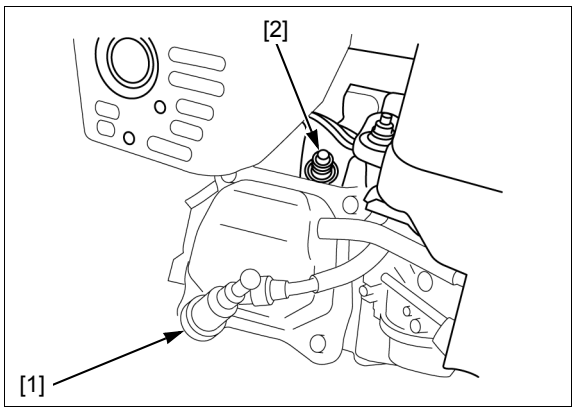
⚠ CAUTION

The engine and the muffler becomes very hot during operation and 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.

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 and hand tighten the spark plug to the cylinder head.

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 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

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].

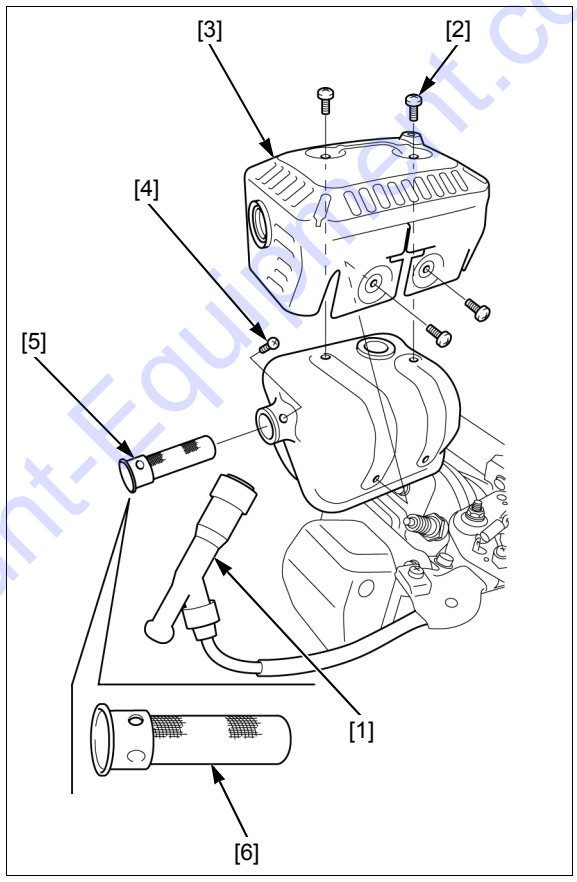
NOTICE

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].

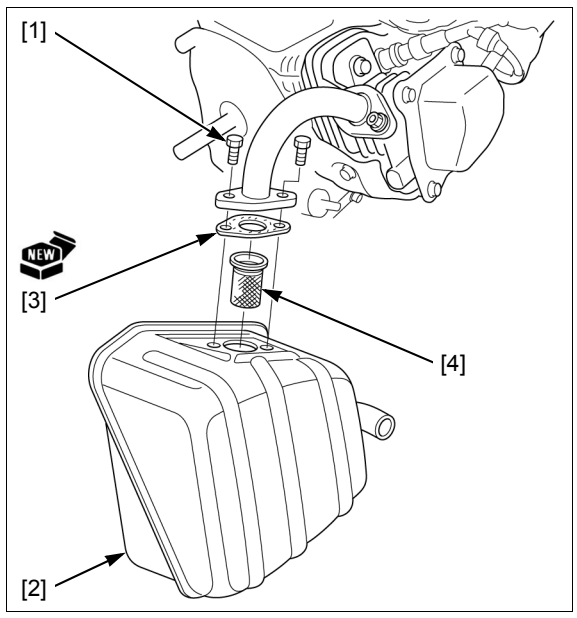
NOTICE

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

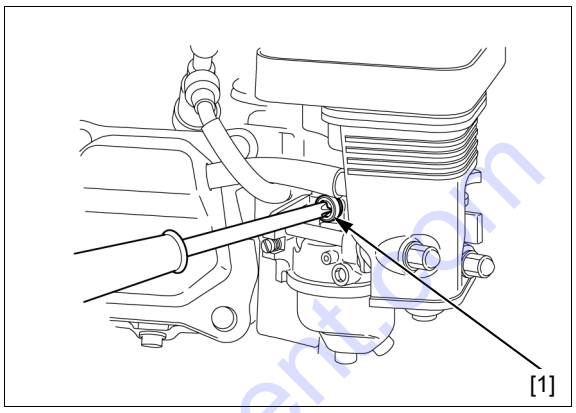
Ensure the governor arm and governor arm shaft are installed correctly (page 7-5).

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

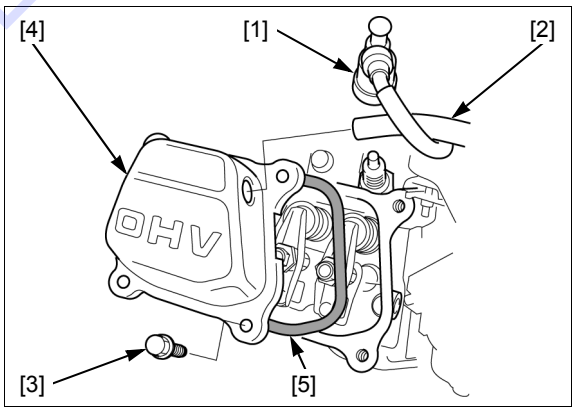
NOTICE

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

CHECK

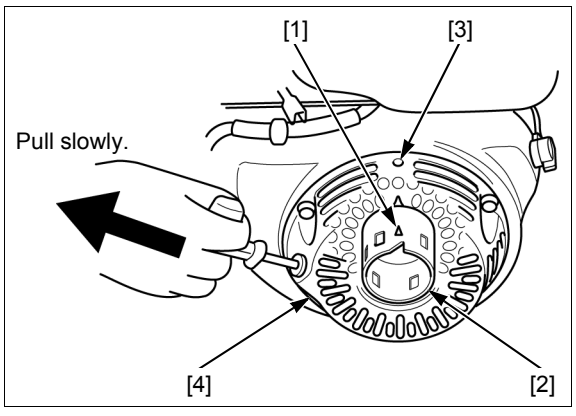
Disconnect the spark plug cap [1] and remove the following:

– 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].

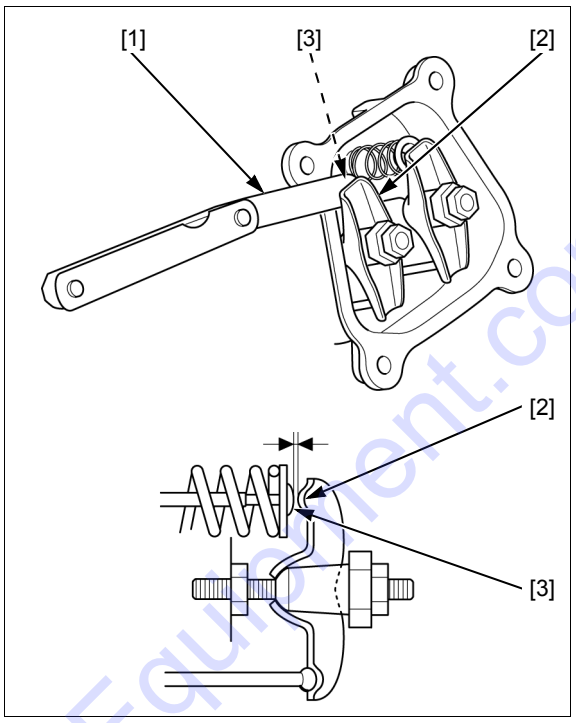
If the exhaust valve is open, use the recoil starter to turn the crankshaft one additional turn and align the triangle mark on the starter pulley with the top hole on the recoil starter case again.



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.



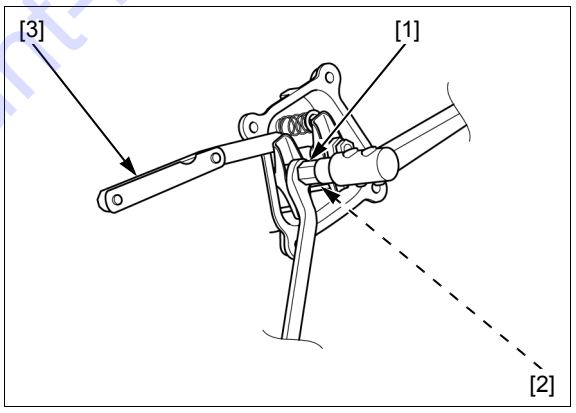
ADJUSTMENT

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.

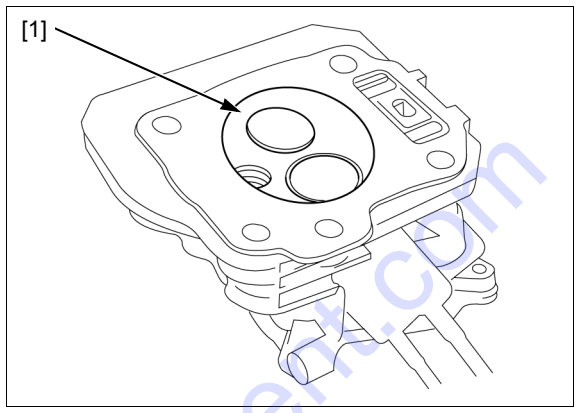
NOTE:
- Route the high-tension cord and breather tube properly (page 2-11).

COMBUSTION CHAMBER CLEANING

Remove the cylinder head (page 13-4).

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

Installation is in the reverse order of removal.



FUEL TANK AND FILTER CLEANING

⚠ 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.

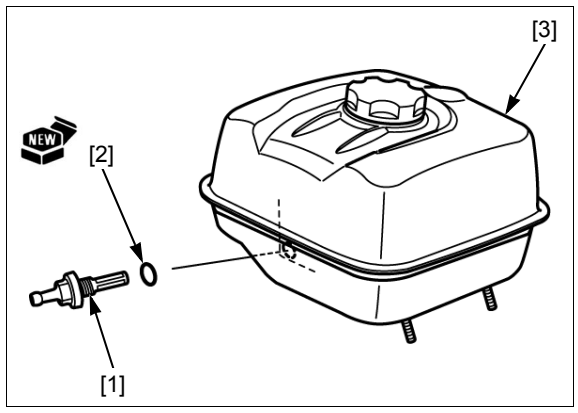
Install a new O-rings to the fuel tank joint and install them to the fuel tank.

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

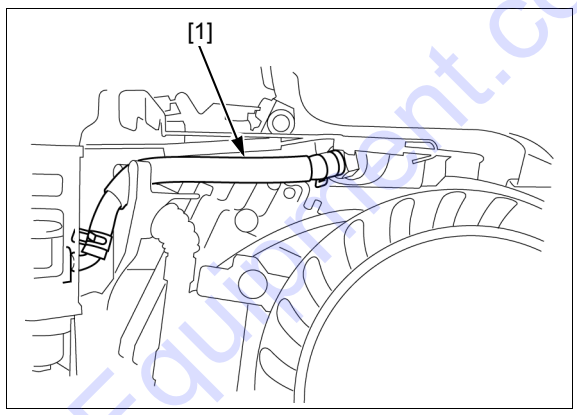
⚠WARNING

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).



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