

## **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 of 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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## REVISION HISTORY

No.	Date of revision	Contents of revision
1	August, 2019	Maximum rpm (at no load) revised (page 1-3)
		Illustration (IS 9T TYPE) revised (page 1-10)
		Piston pin bore I.D. revised (page 2-4) (page 13-11)
		Flywheel puller illustration revised (page 2-8) (page 2-10)
		Indicator blink number added (page 4-7)
		Reference page added (page 5-3) (page 5-4)
		Grease application added (page 10-5)
		Illustration revised (page 10-5)
		Illustration revised (page 10-8)
		Title revised (page 12-6)
		Illustration revised (page 14-5) (page 14-6)
		Illustration revised (page 14-9)
		Illustration revised (page 14-9)
2	October, 2019	Stopping system revised (page 1-3)
		Dimensional drawings added (page 1-8)
		Tube routing added (page 2-23)
		Air cleaner type added (page 3-6)
		Air cleaner type added (page 6-13)

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## How to use this manual

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# INTRODUCTION

This manual covers the service and repair procedures for the Honda GX700IRH·GX800IRH.

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 judgment.

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.

ALL INFORMATION, ILLUSTRATIONS, DIRECTIONS AND SPECIFICATIONS INCLUDED IN THIS PUBLICATION ARE BASED ON THE LATEST PRODUCT INFORMATION AVAILABLE AT THE TIME OF APPROVAL FOR PRINTING. Honda Motor Co., Ltd. RESERVES THE RIGHT TO MAKE CHANGES AT ANY TIME WITHOUT NOTICE AND WITHOUT INCURRING ANY OBLIGATION WHATSOEVER. NO PART OF THIS PUBLICATION MAY BE REPRODUCED WITHOUT WRITTEN PERMISSION. THIS MANUAL IS WRITTEN FOR PERSONS WHO HAVE ACQUIRED BASIC KNOWLEDGE OF MAINTENANCE ON Honda PRODUCTS.






## 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 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).
	Apply sealant.
(O x O) (O)	Indicates the diameter, length, and quantity of metric bolts used.
page 1-1	Indicates the reference page.

## How to use this manual

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# 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
ECU	Engine Control Unit
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
TE	Temperature of Engine
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

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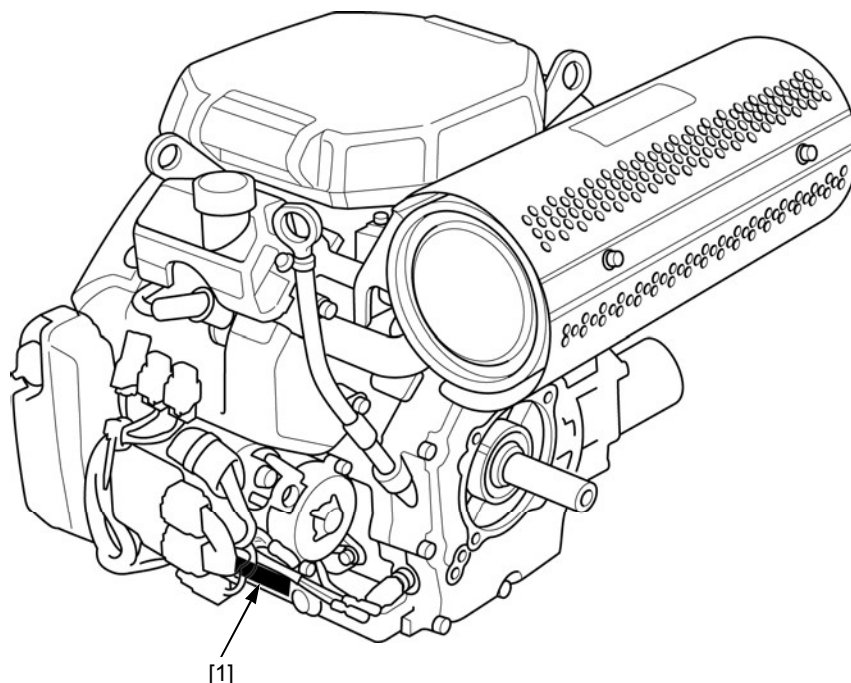
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## SPECIFICATIONS

### SERIAL NUMBER LOCATION

The engine serial number [1] is stamped on the crankcase.

Refer to it when ordering parts or making technical inquiries.



### DIMENSIONS AND WEIGHTS SPECIFICATIONS

Model	GX700IRH	GX800IRH
Overall length	T type: 429 mm (16.9 in) B type: 442 mm (17.4 in) V type: 426 mm (16.8 in) IS 9T type: 365 mm (14.4 in) IS 13T type: 365 mm (14.4 in)	T type: 429 mm (16.9 in) B type: 442 mm (17.4 in) V type: 426 mm (16.8 in)
Overall width	483 mm (19.0 in)	492 mm (19.4 in)
Overall height	438 mm (17.2 in)	
Dry weight	T type: 47.1 kg (103.8 lbs) B type: 47.5 kg (104.7 lbs) V type: 47.1 kg (103.8 lbs) IS 9T type: 46.8 kg (103.2 lbs) IS 13T type: 46.9 kg (103.4 lbs)	T type: 46.9 kg (103.4 lbs) B type: 47.3 kg (104.3 lbs) V type: 46.9 kg (103.4 lbs)
Operating weight	T type: 48.7 kg (107.4 lbs) B type: 49.1 kg (108.2 lbs) V type: 48.7 kg (107.4 lbs) IS 9T type: 48.4 kg (106.7 lbs) IS 13T type: 48.5 kg (106.9 lbs)	T type: 48.5 kg (106.9 lbs) B type: 48.9 kg (107.8 lbs) V type: 48.5 kg (106.9 lbs)
Maximum angle of inclination	Forward and backward: 20° Left and right: 20°	

### EQUIPMENT VARIATION

Model	GX700IRH	GX800IRH
Variation	Without control box type	
Overall length difference	—	
Overall width difference	—	
Overall height difference	—	
Dry weight difference	— 1.0 kg (2.2 lbs)	
Operating weight difference	— 1.0 kg (2.2 lbs)	



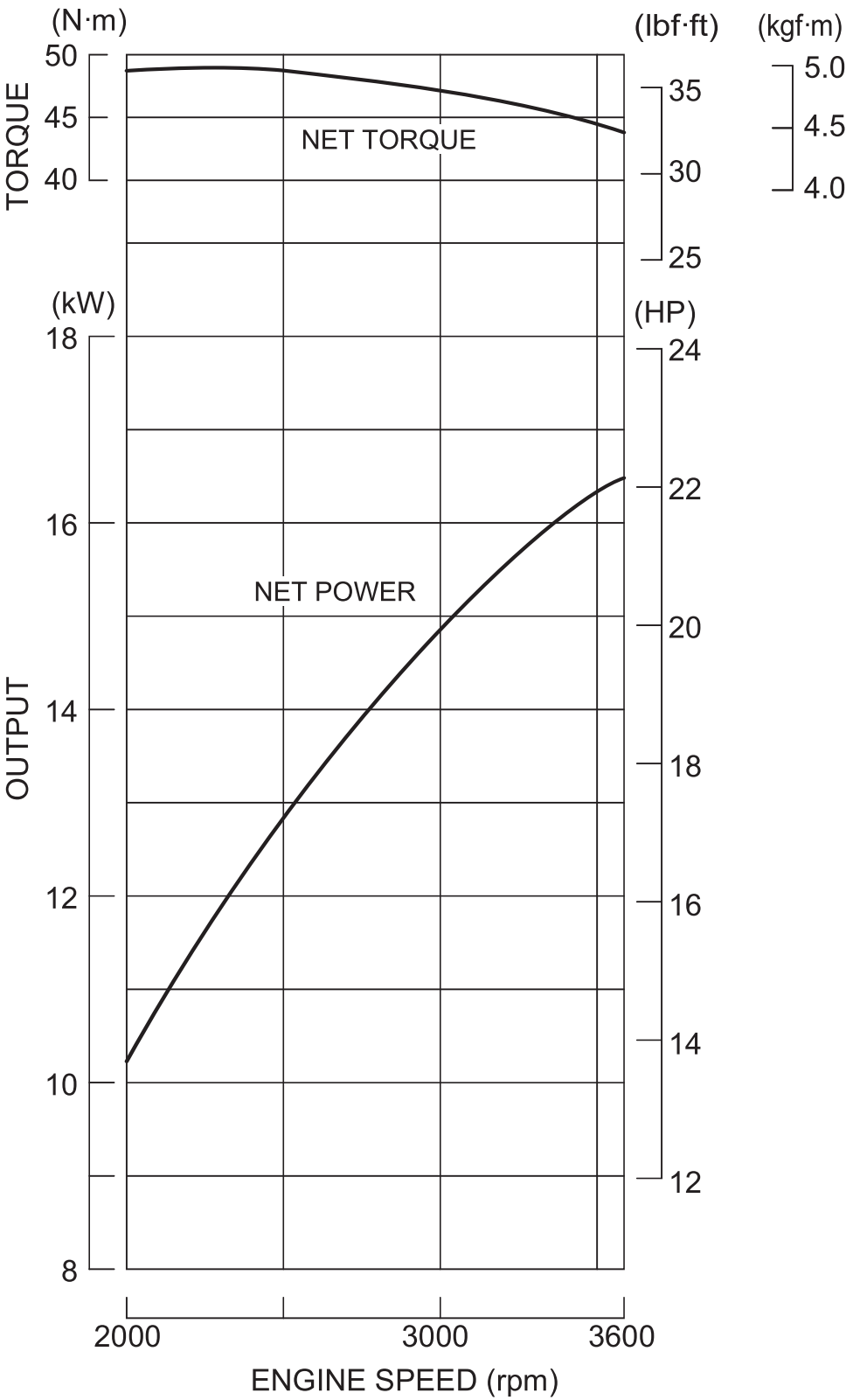
## ENGINE SPECIFICATIONS

Model	GX700IRH	GX800IRH
Description code	GCAUH	GCAVH
Type	4 stroke, overhead valve, 90° V-twin cylinder	
Displacement	688.0 cm <sup>3</sup> (41.97 cu-in)	779.0 cm <sup>3</sup> (47.52 cu-in)
Bore x stroke	78.0 x 72.0 mm (3.07 x 2.83 in)	83.0 x 72.0 mm (3.27 x 2.83 in)
Net power (SAE J1349)*	16.5 kW (22.1 HP)/3,600 rpm	18.6 kW (24.9 HP)/3,600 rpm
Continuous rated power	13.0 kW (17.4 HP)/3,600 rpm	15.0 kW (20.1 HP)/3,600 rpm
Maximum net torque (SAE J1349)*	48.3 N·m (4.93 kgf·m, 35.6 lbf·ft)/ 2,500 rpm	54.5 N·m (5.56 kgf·m, 40.2 lbf·ft)/ 2,500 rpm
Maximum rpm (at no load)	3,600 ± 150 rpm	3,600 ± 150 rpm
Compression ratio	9.3	9.1
Fuel consumption (at continuous rated power)	6.6 Liters (1.74 US gal, 1.45 Imp gal)/h	7.1 Liters (1.88 US gal, 1.56 Imp gal)/h
Ignition system	Full transistorized, battery ignition	
Ignition timing	A.T.D.C. 3°/1,400 rpm	B.T.D.C. 3°/1,400 rpm
Spark advancer type	Electronic type	
Spark advancer performance	#1: A.T.D.C. 3° – B.T.D.C. 17° #2: A.T.D.C. 3° – B.T.D.C. 23°	#1: B.T.D.C. 3° – 19.5° #2: B.T.D.C. 3° – 24°
Spark plug	BPR5ES (NGK)	
Lubrication system	Forced feed	
Oil capacity	Without oil filter replacement: 1.5 Liters (1.59 US qt, 1.32 Imp qt) With oil filter replacement: 1.7 Liters (1.80 US qt, 1.50 Imp qt)	Without oil filter replacement: 1.6 Liters (1.70 US qt, 1.41 Imp qt) With oil filter replacement: 1.8 Liters (1.90 US qt, 1.58 Imp qt)
Recommended oil	SAE 5W-30 or 10W-30 API service classification SJ or later	
Cooling system	Forced air	
Starting system	Starter motor	
Stopping system	Ignition primary circuit ground	
Air cleaner	Dual type	
Governor	Electric system (Self Tuning Regulator)	
Breather system	Reed valve type, PCV (Positive Crankcase Ventilation) type	
Fuel used	Unleaded gasoline E10	

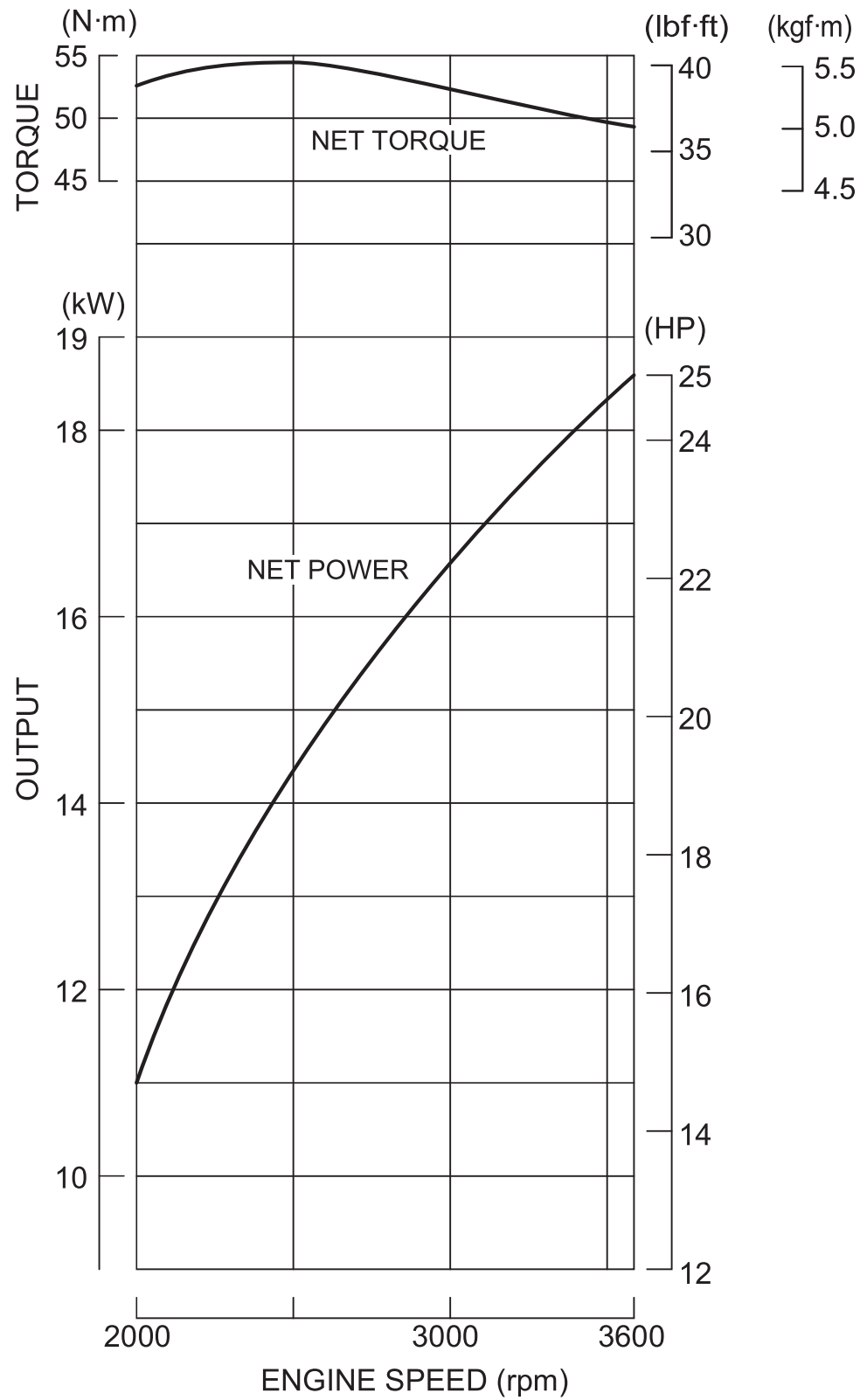
\*: The power rating of the engine indicated in this document is the net power output tested on a production engine for the engine model and measured in accordance with SAE J1349 at 3,600 rpm (net power) and at 2,500 rpm (max net torque). Mass production engines may vary from this value. Actual power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

GX700IRH



GX800IRH

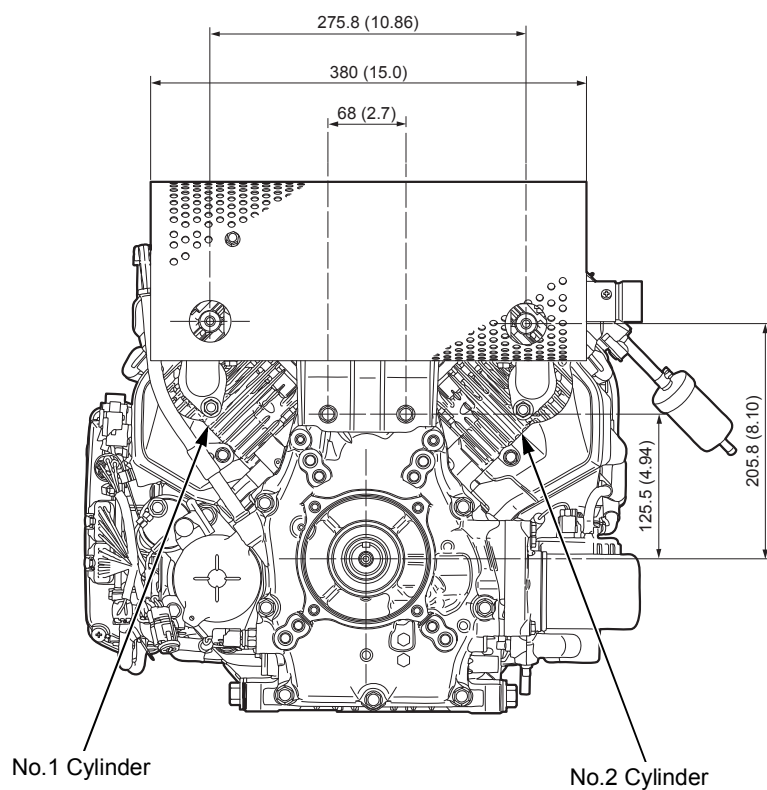
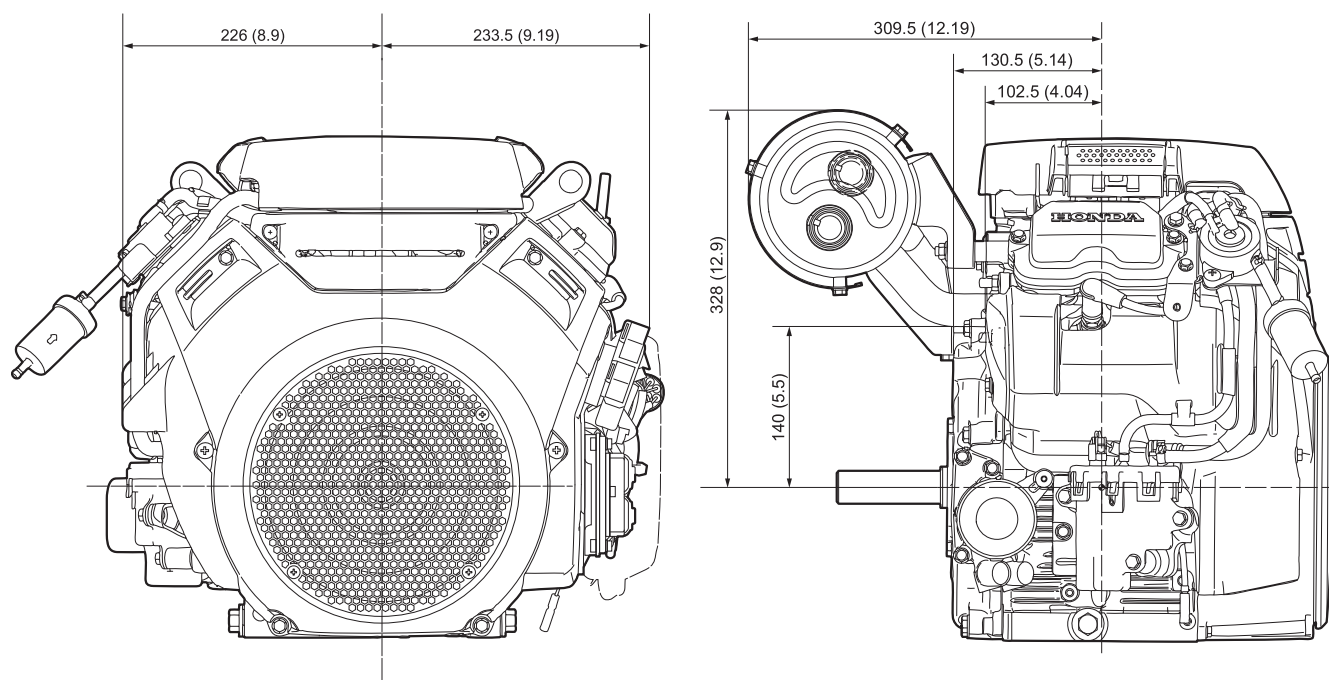


## SPECIFICATIONS

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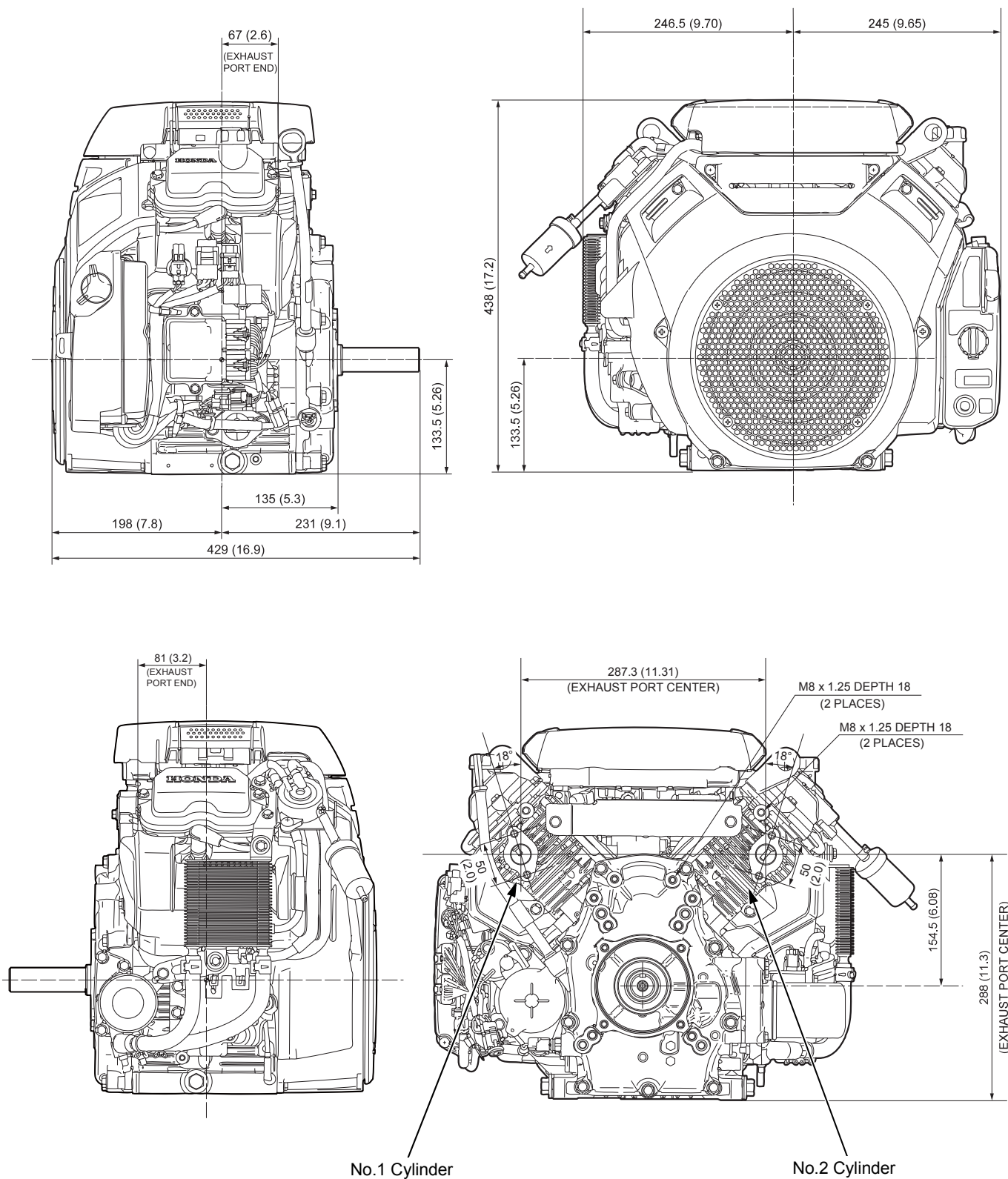
GX700IRH

Unit: mm (in)



## GX800IRH

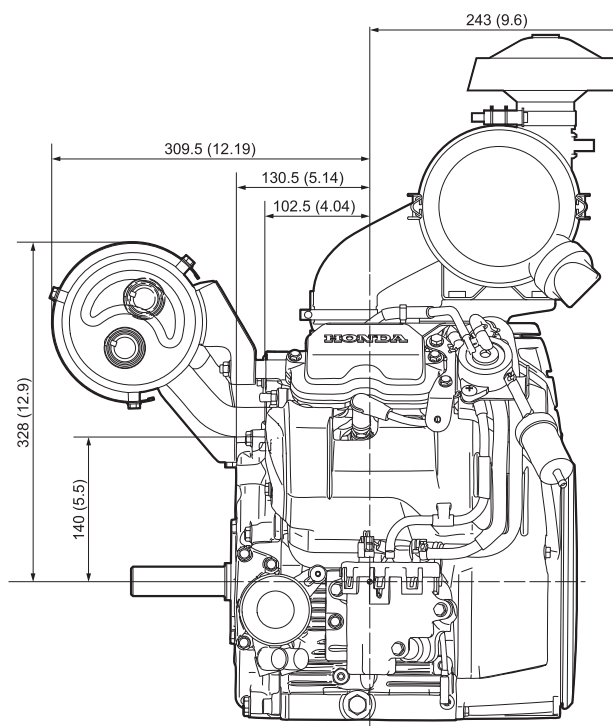
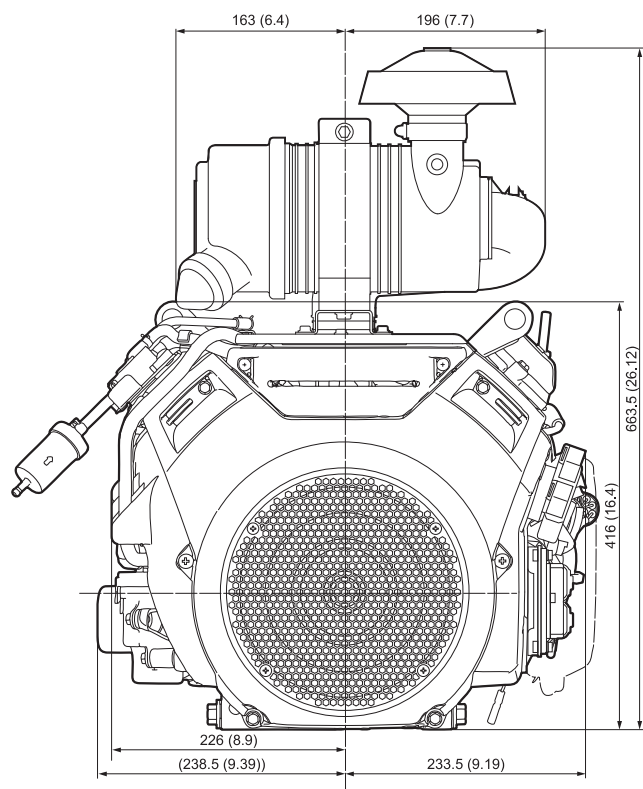
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## SPECIFICATIONS

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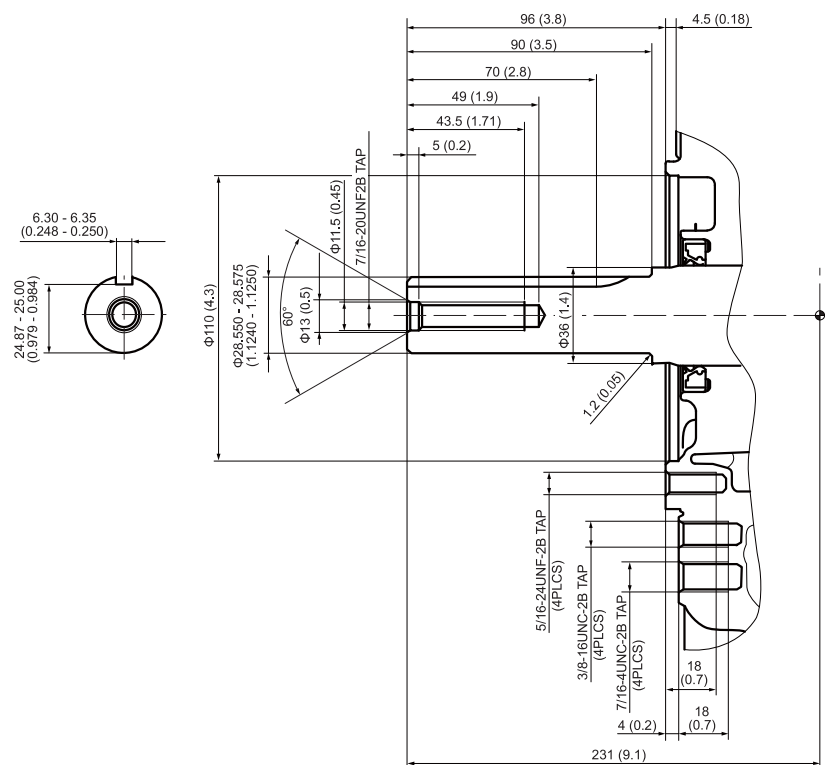
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## P.T.O. DIMENSIONAL DRAWINGS

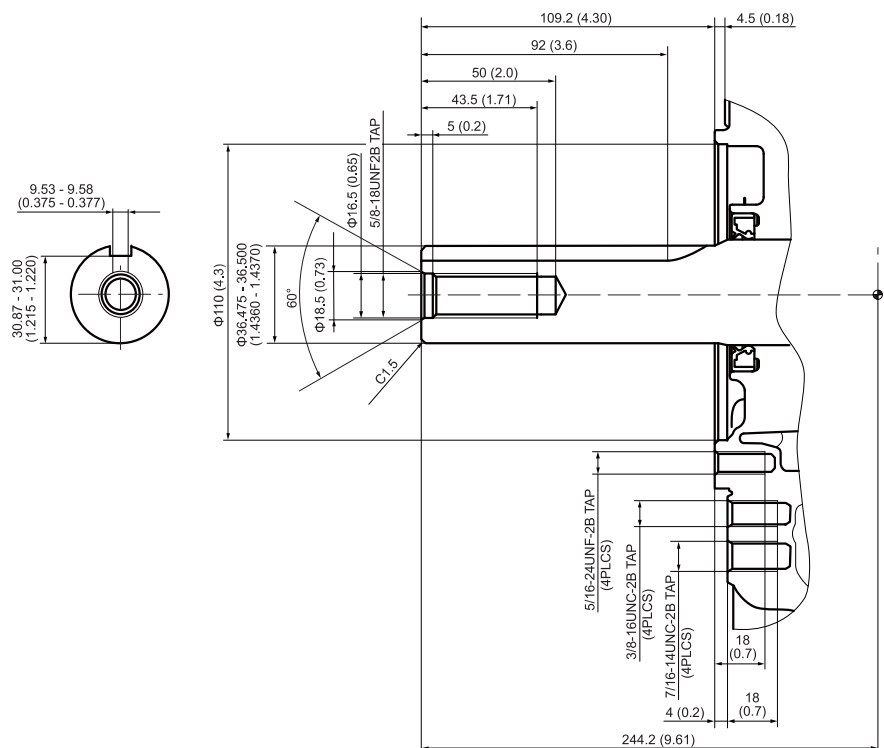
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Unit: mm (in)

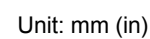


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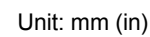
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## V TYPE



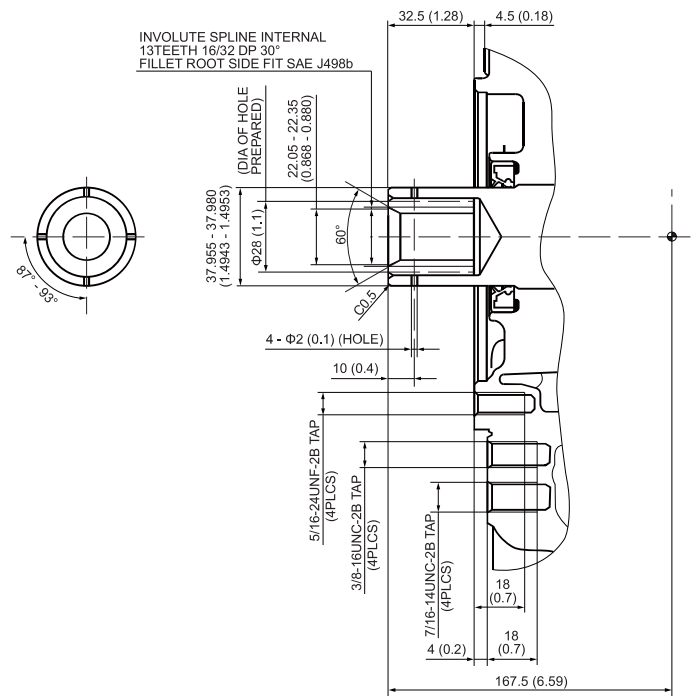
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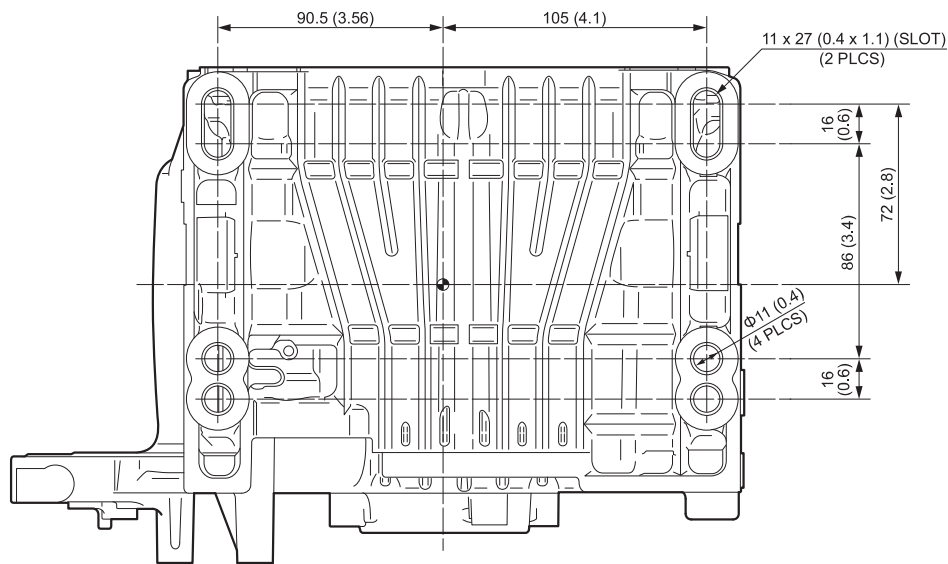
IS 13T TYPE

Unit: mm (in)



ENGINE MOUNT DIMENSIONAL DRAWING

Unit: mm (in)



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## MEMO

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## SERVICE INFORMATION

# MAINTENANCE STANDARDS

## GX700IRH

Unit: mm (in)

Part	Item		Standard	Service limit
Engine	Maximum speed (at no load)		3,600 ± 150 rpm	—
	Idle speed		1,400 ± 150 rpm	—
	Cylinder compression	#1 cylinder	0.6 – 0.8 MPa (6.12 – 8.16 kgf/cm <sup>2</sup> , 87 – 116 psi)/ 500 rpm	—
		#2 cylinder	0.4 – 0.6 MPa (4.08 – 6.12 kgf/cm <sup>2</sup> , 58 – 87 psi)/ 500 rpm	—
Cylinder	Sleeve I.D.		78.000 – 78.015 (3.0709 – 3.0715)	78.150 (3.0768)
Piston	Skirt O.D.		77.975 – 77.985 (3.0699 – 3.0703)	77.875 (3.0659)
	Piston-to-cylinder clearance		0.015 – 0.040 (0.0006 – 0.0016)	0.12 (0.005)
	Piston pin bore I.D.		18.002 – 18.008 (0.7087 – 0.7090)	18.042 (0.7103)
Piston pin	Pin O.D.		17.994 – 18.000 (0.7084 – 0.7087)	17.95 (0.707)
	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	0.050 – 0.080 (0.0020 – 0.0031)	0.15 (0.006)
		Second	0.050 – 0.080 (0.0020 – 0.0031)	0.15 (0.006)
	Ring end gap	Top	0.200 – 0.350 (0.0079 – 0.0138)	0.450 (0.0177)
		Second	0.350 – 0.500 (0.0138 – 0.0197)	0.600 (0.0236)
		Oil (side rail)	0.20 – 0.70 (0.008 – 0.028)	0.90 (0.035)
	Ring width	Top	1.140 – 1.155 (0.0449 – 0.0455)	1.120 (0.0441)
		Second	1.140 – 1.155 (0.0449 – 0.0455)	1.120 (0.0441)
Connecting rod	Small end I.D.		18.006 – 18.018 (0.7089 – 0.7094)	18.07 (0.711)
	Big end I.D.		44.988 – 45.012 (1.7712 – 1.7721)	45.050 (1.7736)
	Big end oil clearance		0.005 – 0.039 (0.0002 – 0.0015)	0.070 (0.0028)
	Big end side clearance		0.2 – 0.4 (0.008 – 0.016)	1.000 (0.0394)
Crankshaft	Crankpin O.D.		44.973 – 44.983 (1.7706 – 1.7710)	44.920 (1.7685)
	Main journal O.D.		39.984 – 40.000 (1.5742 – 1.5748)	39.930 (1.5720)
	Thrust washer thickness		0.95 – 1.05 (0.037 – 0.041)	0.80 (0.031)
Crankcase	Camshaft bearing I.D.		17.016 – 17.027 (0.6699 – 0.6704)	17.06 (0.672)
	Main journal I.D.		40.025 – 40.041 (1.5758 – 1.5764)	40.06 (1.577)
	Crankshaft axial clearance		0.05 – 0.45 (0.002 – 0.018)	1.0 (0.04)
Crankcase cover	Camshaft bearing I.D.		17.016 – 17.027 (0.6699 – 0.6704)	17.06 (0.672)
	Main journal I.D.		40.025 – 40.041 (1.5758 – 1.5764)	40.06 (1.577)
Valves	Valve clearance	IN	0.18 – 0.22 (0.007 – 0.009)	—
		EX	0.18 – 0.22 (0.007 – 0.009)	—
	Valve stem O.D.	IN	5.475 – 5.490 (0.2156 – 0.2161)	5.400 (0.2126)
		EX	5.435 – 5.450 (0.2140 – 0.2146)	5.300 (0.2087)
	Valve guide I.D.	IN/EX	5.500 – 5.512 (0.2165 – 0.2170)	5.560 (0.2189)
	Guide-to-stem clearance	IN	0.010 – 0.037 (0.0004 – 0.0015)	0.110 (0.0043)
		EX	0.050 – 0.077 (0.0020 – 0.0030)	0.130 (0.0051)
	Valve seat width		1.0 – 1.2 (0.04 – 0.05)	2.1 (0.08)
	Valve spring free length		38.3 (1.51)	36.8 (1.45)
	Valve spring perpendicularity		2° max.	—
Camshaft	Cam height	IN	29.506 – 29.706 (1.1617 – 1.1695)	29.36 (1.156)
		EX	29.410 – 29.610 (1.1579 – 1.1657)	29.26 (1.152)
	Camshaft O.D.		16.982 – 17.000 (0.6686 – 0.6693)	17.100 (0.6732)
Valve lifter	Valve lifter I.D.		6.010 – 6.040 (0.2366 – 0.2378)	6.070 (0.2390)
	Valve lifter shaft O.D.		5.970 – 6.000 (0.2350 – 0.2362)	5.940 (0.2339)
Rocker arm	Rocker arm I.D.		6.000 – 6.018 (0.2362 – 0.2369)	6.043 (0.2379)
	Rocker arm shaft O.D.		5.960 – 5.990 (0.2346 – 0.2358)	5.953 (0.2344)
	Rocker arm shaft bearing I.D.		6.000 – 6.018 (0.2362 – 0.2369)	6.043 (0.2379)
Oil pump	Oil pressure		2.8 kgf/cm <sup>2</sup> (39.8 psi)/ 2,000 rpm and more	—
	Tip clearance		0.15 (0.006)	0.30 (0.012)
	Outer rotor-to-housing clearance		0.150 – 0.210 (0.0059 – 0.0083)	0.30 (0.012)
	Outer rotor-to-pump cover clearance		0.04 – 0.09 (0.002 – 0.004)	0.11 (0.004)
Spark plug	Gap		0.7 – 0.8 (0.028 – 0.031)	—

## SERVICE INFORMATION

Part	Item		Standard	Service limit
Starter motor	Brush length		10 (0.4)	6.0 (0.2)
	Mica depth		—	0.2 (0.01)
Charge coil	Resistance	17 A	0.18 – 0.28 $\Omega$	—
		26 A	0.17 – 0.25 $\Omega$	—
Fuel injector	Resistance	24°C (75 °F)	11 – 13 $\Omega$	—
TE sensor	Resistance	40°C (104 °F)	1.1 – 1.4 k $\Omega$	—
		100 °C (212 °F)	0.1 – 0.3 k $\Omega$	—
CKP sensor	Resistance		216 – 264 $\Omega$	—
Ignition coil	Resistance	Primary	1.8 – 2.8 $\Omega$	—
		Secondary	7.4 – 11.2 k $\Omega$	—

## SERVICE INFORMATION

### GX800IRH

Unit: mm (in)

Part	Item		Standard	Service limit
Engine	Maximum speed (at no load)		3,600 ± 150 rpm	—
	Idle speed		1,400 ± 150 rpm	—
	Cylinder compression	#1 cylinder	0.63 – 0.83 MPa (6.42 – 8.46 kgf/cm <sup>2</sup> , 91 – 120 psi)/ 500 rpm	—
		#2 cylinder	0.32 – 0.52 MPa (3.26 – 5.30 kgf/cm <sup>2</sup> , 46 – 75 psi)/ 500 rpm	—
Cylinder	Sleeve I.D.		83.000 – 83.015 (3.2677 – 3.2683)	83.093 (3.2714)
Piston	Skirt O.D.		82.975 – 82.985 (3.2667 – 3.2671)	82.880 (3.2630)
	Piston-to-cylinder clearance		0.015 – 0.040 (0.0006 – 0.0016)	0.12 (0.005)
	Piston pin bore I.D.		18.002 – 18.008 (0.7087 – 0.7090)	18.042 (0.7103)
Piston pin	Pin O.D.		17.994 – 18.000 (0.7084 – 0.7087)	17.95 (0.707)
	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	0.050 – 0.080 (0.0020 – 0.0031)	0.15 (0.006)
		Second	0.050 – 0.080 (0.0020 – 0.0031)	0.15 (0.006)
	Ring end gap	Top	0.200 – 0.300 (0.0079 – 0.0118)	0.400 (0.0157)
		Second	0.300 – 0.400 (0.0118 – 0.0157)	0.500 (0.0197)
		Oil (side rail)	0.20 – 0.50 (0.0080 – 0.0197)	0.70 (0.0276)
	Ring width	Top	1.140 – 1.155 (0.0449 – 0.0455)	1.120 (0.0441)
		Second	1.140 – 1.155 (0.0449 – 0.0455)	1.120 (0.0441)
Connecting rod	Small end I.D.		18.006 – 18.018 (0.7089 – 0.7094)	18.07 (0.711)
	Big end I.D.		44.988 – 45.012 (1.7712 – 1.7721)	45.050 (1.7736)
	Big end oil clearance		0.005 – 0.039 (0.0002 – 0.0015)	0.070 (0.0028)
	Big end side clearance		0.2 – 0.4 (0.008 – 0.016)	1.000 (0.0394)
Crankshaft	Crankpin O.D.		44.973 – 44.983 (1.7706 – 1.7710)	44.920 (1.7685)
	Main journal O.D.		39.984 – 40.000 (1.5742 – 1.5748)	39.930 (1.5720)
	Thrust washer thickness		0.95 – 1.05 (0.037 – 0.041)	0.80 (0.031)
Crankcase	Camshaft bearing I.D.		17.016 – 17.027 (0.6699 – 0.6704)	17.06 (0.672)
	Main journal I.D.		40.025 – 40.041 (1.5758 – 1.5764)	40.06 (1.577)
	Crankshaft axial clearance		0.05 – 0.45 (0.002 – 0.018)	1.0 (0.04)
Oil pan	Camshaft bearing I.D.		17.016 – 17.027 (0.6699 – 0.6704)	17.06 (0.672)
	Main journal I.D.		40.025 – 40.041 (1.5758 – 1.5764)	40.06 (1.577)
Valves	Valve clearance	IN	0.18 – 0.22 (0.007 – 0.009)	—
		EX	0.18 – 0.22 (0.007 – 0.009)	—
	Valve stem O.D.	IN	5.475 – 5.490 (0.2156 – 0.2161)	5.400 (0.2126)
		EX	5.435 – 5.450 (0.2140 – 0.2146)	5.300 (0.2087)
	Valve guide I.D.	IN/EX	5.500 – 5.512 (0.2165 – 0.2170)	5.560 (0.2189)
	Guide-to-stem clearance	IN	0.010 – 0.037 (0.0004 – 0.0015)	0.110 (0.0043)
		EX	0.050 – 0.077 (0.0020 – 0.0030)	0.130 (0.0051)
	Valve seat width		1.0 – 1.2 (0.04 – 0.05)	2.1 (0.08)
	Valve spring free length		38.3 (1.51)	36.8 (1.45)
Camshaft	Valve spring perpendicularity		2° max.	—
	Cam height	IN	29.878 – 30.078 (1.1763 – 1.1842)	29.848 (1.1751)
		EX	29.598 – 29.798 (1.1653 – 1.1731)	29.568 (1.1641)
	Camshaft O.D.		16.982 – 17.000 (0.6686 – 0.6693)	17.100 (0.6732)
Valve lifter	Valve lifter I.D.		6.010 – 6.040 (0.2366 – 0.2378)	6.070 (0.2390)
	Valve lifter shaft O.D.		5.970 – 6.000 (0.2350 – 0.2362)	5.940 (0.2339)
Rocker arm	Rocker arm I.D.		6.000 – 6.018 (0.050 – 0.077)	6.043 (0.2379)
	Rocker arm shaft O.D.		5.960 – 5.990 (0.2346 – 0.2358)	5.953 (0.2344)
	Rocker arm shaft bearing I.D.		6.000 – 6.018 (0.050 – 0.077)	6.043 (0.2379)
Oil pump	Oil pressure		2.8 kgf/cm <sup>2</sup> (39.8 psi)/ 2,000 rpm and more	—
	Tip clearance		0.15 (0.006)	0.30 (0.012)
	Outer rotor-to-housing clearance		0.150 – 0.210 (0.0059 – 0.0083)	0.30 (0.012)
	Outer rotor-to-pump cover clearance		0.04 – 0.09 (0.002 – 0.004)	0.11 (0.004)
Spark plug	Gap		0.7 – 0.8 (0.028 – 0.031)	—
Starter motor	Brush length		10 (0.4)	6.0 (0.2)
	Mica depth		—	0.2 (0.01)

Part	Item		Standard	Service limit
Charge coil	Resistance	17 A	0.18 – 0.28 $\Omega$	–
		26 A	0.17 – 0.25 $\Omega$	–
Fuel injector	Resistance	24°C (75 °F)	11 – 13 $\Omega$	–
TE sensor	Resistance	40°C (104 °F)	1.1 – 1.4 k $\Omega$	–
		100 °C (212 °F)	0.1 – 0.3 k $\Omega$	–
CKP sensor	Resistance		216 – 264 $\Omega$	–
Ignition coil	Resistance	Primary	1.8 – 2.8 $\Omega$	–
		Secondary	7.4 – 11.2 k $\Omega$	–

## TORQUE VALUES

### ENGINE TORQUE VALUES

Item	Thread Dia. (mm)	Torque values		
		N·m	kgf·m	lbf·ft
Spark plug	M14 x 1.25	18	1.8	13.3
Cylinder nut	M10 x 1.25	37	3.8	27
Oil drain plug bolt	M20 x 1.5	45	4.5	33
Oil filter holder	M20 x 1.5	18	1.8	13.3
Oil filter cartridge	M20 x 1.5	12	1.2	9.0
Connecting rod bolt	M7 x 1.0	22	2.2	16
Tappet adjusting nut	M5 x 0.5	7.5	0.8	5.5
Flywheel nut	M20 x 1.5	245	25	181
Fuel pump cover screw	M5 tapping screw	4.2	0.4	3.1
Fan cover protector screw	M4 special screw	1.7	0.2	1.3
Fan cover screw	M6 x 1.0 special screw	4.4	0.5	3.2
Oil pressure switch	PT1/8	9.0	0.9	6.6
Air cleaner wing nut	M6 x 1.0	0.8	0.1	0.6
Starter motor terminal nut	M8 x 1.25	9.0	0.9	6.6
Sealing bolt	PT1/8	9.0	0.9	6.6
Breather valve screw	M3 x 0.5	1.0	0.1	0.7
Control cover screw	M5 tapping screw	3.2	0.3	2.4
Hour meter screw	M3 tapping screw	0.4	0.1	0.3
Switch box screw	M5 tapping screw	3.2	0.3	2.4
Combination switch nut	M22 x 1.0	4.9	0.5	3.6
Control panel screw	M5 x 0.8	5.2	0.5	3.8
Speed volume nut	M10 x 0.75	1.1	0.1	0.8
Fuel pump (low pressure side) screw	M6 x 1.0	5.0	0.5	3.7
Oil hose	PT1/8	9.0	0.9	6.6
Inlet manifold bolt	M8 x 1.25	19	1.9	14
Drain cap	3/8-18 NPTF	–	–	–
Front P.T.O. shaft	M8 x 1.25	34	3.5	25
TE sensor	M10 x 1.25	12	1.2	9.0
Elbow bolt	M6 x 1.0	13.5	1.4	10
Relay bracket screw	M6 x 1.0	5.0	0.5	3.7
Fuel pump (high pressure side) bolt	M6 x 1.0	9.3	1.0	6.9

### STANDARD TORQUE VALUES

Item	Thread Dia. (mm)	Torque values		
		N·m	kgf·m	lbf·ft
Screw	4 mm	2.1	0.2	1.5
	5 mm	4.2	0.4	3.1
	6 mm	9.0	0.9	6.6
Bolt and nut	4 mm	3.4	0.4	2.5
	5 mm	5.2	0.5	3.8
	6 mm	10	1.0	7.0
	8 mm	22	2.2	16
	10 mm	34	3.5	25
	12 mm	54	5.5	40

## SERVICE INFORMATION

Item	Thread Dia. (mm)	Torque values		
		N·m	kgf·m	lbf·ft
Flange bolt and nut	5 mm	5.3	0.5	3.9
	6 mm	12	1.2	9.0
	8 mm	27	2.7	20
	10 mm	39	4.0	29
SH (Small head) flange bolt	6 mm	9.0	0.9	7.0



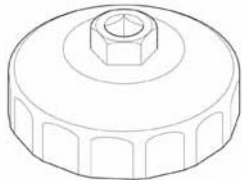
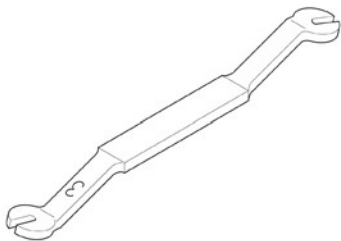
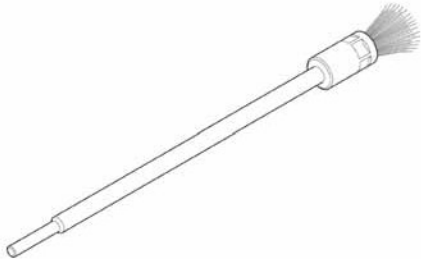
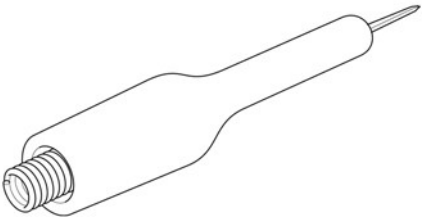
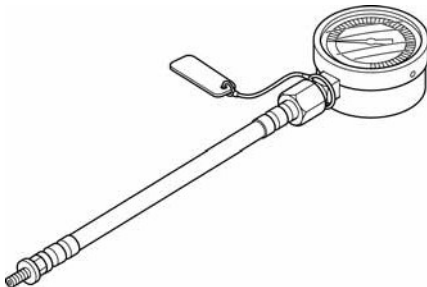
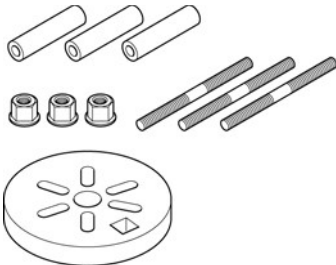



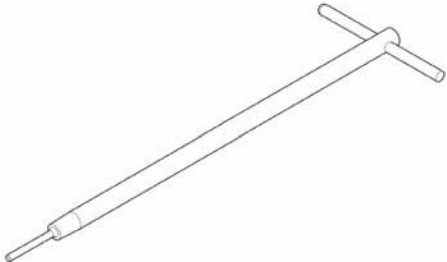


## LUBRICATION & SEAL POINT





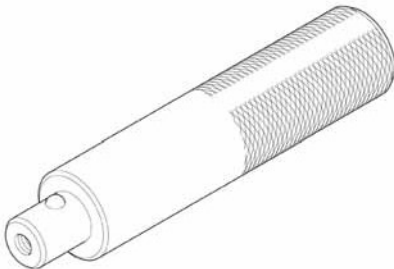

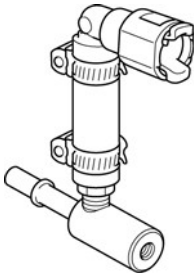
Material	Location	Remarks
Engine oil	Crankshaft gear	
	Piston outer surface and piston pin hole	
	Connecting rod bolt threads and seating surface	
	Camshaft cam profile, bearing, decompressor and gear	
	Valve lifter shaft and slipper	
	Valve stem seal contact area of seal lip	
	Valve stem sliding surface and stem end	
	Valve spring	
	Push rod end	
	Rocker arm bearing and slipper	
	Tappet adjusting screw and nut threads and seating surface	
	Rocker arm shaft	
	Crankshaft thrust washer	
	Flywheel nut threads and seating surface	
	Oil pump gear outer surface and rotor	
	Governor weight holder gear and journal	
	Cylinder nut and bolt threads and seating surface	
	Oil seal outer surface	
	Oil filter cartridge O-ring	
Use molybdenum oil solution (mixture of the engine oil and molybdenum grease in a ratio of 1:1)	Crankshaft pin and journal	
	Crankcase bearing	
	Oil pan bearing	
	Piston pin outer surface	
	Piston ring	
	Cylinder inner surface	
	Connecting rod big and small end bearing	
	Oil pump shaft	
Multi-purpose grease	Oil seal lip	
	O-ring	
Liquid sealant (Threebond®1207B)	Cylinder	
	Oil pan	
	Breather cover	
Liquid sealant (Threebond®1207B, 1141G or 1215)	Oil pressure switch	
	Sealing bolt	
2 cycle oil	Tube end	

## SERVICE INFORMATION

### TOOLS

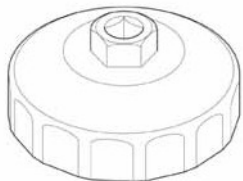
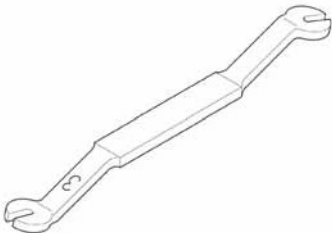
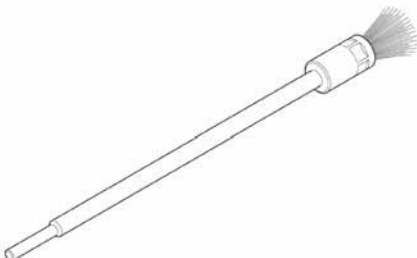
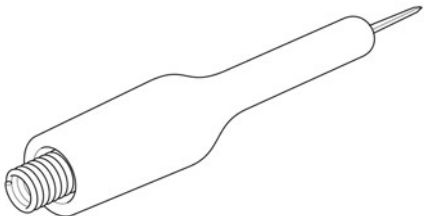
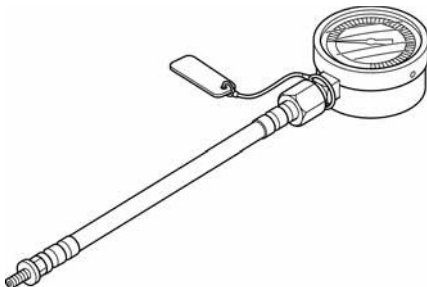
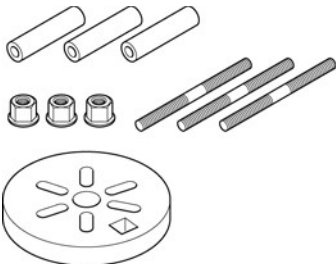



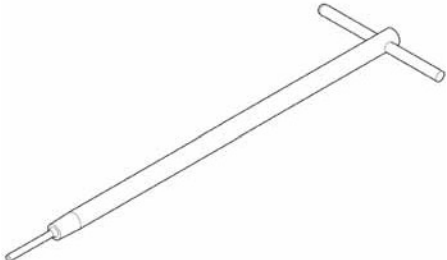


#### GX700IRH:


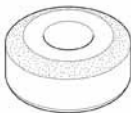


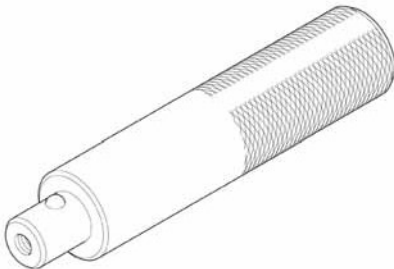

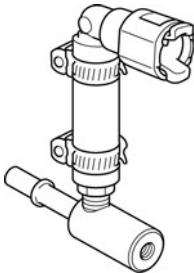
<p>Oil filter wrench 64 mm 07HAA-PJ70101</p> 	<p>Tappet adjusting wrench 3 mm 07908-KE90200</p> 	<p>Cleaning brush 07998-VA20100</p> 
<p>Test probe 07ZAJ-RDJA110</p> 	<p>Fuel pressure gauge 07406-0040004</p> 	<p>Flywheel puller 070PC-ZDW0100</p> 
<p>Oil pressure gauge attachment 07406-0030000</p> 	<p>Oil pressure gauge set 07506-3000000</p> 	<p>Valve guide reamer 5.510 mm 07984-2000001</p> 
<p>Cutter holder 5.5 mm 07981-VA20101</p> 	<p>Seat cutter 33 mm (45° IN) 07780-0010800</p> 	<p>Seat cutter 27.5 mm (45° EX) 07780-0010200</p> 

<p>Flat cutter 30 mm (32° EX) 07780-0012200</p> 	<p>Flat cutter 33 mm (32° IN) 07780-0012900</p> 	<p>Interior cutter 30 mm (60° IN) 07780-0014000</p> 
<p>Interior cutter 26 mm (60° EX) 07780-0014500</p> 	<p>Driver 07749-0010000</p> 	<p>Oil seal driver attachment 60 mm 07GAD-PG40100</p> 
<p>Fuel pressure gauge attachment set 070PJ-0040100</p> 		

## SERVICE INFORMATION

### GX800IRH:

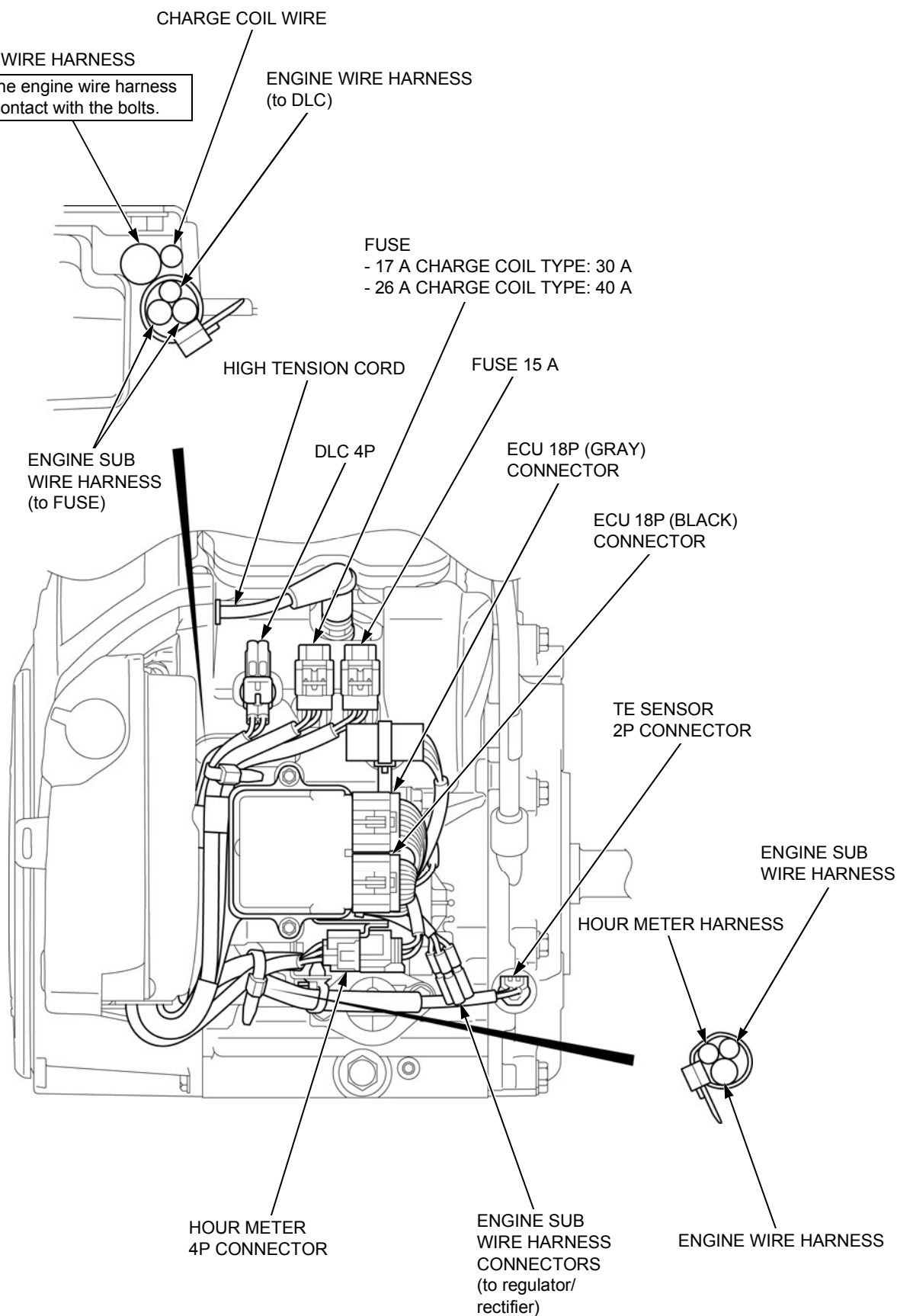
<p>Oil filter wrench 64 mm 07HAA-PJ70101</p> 	<p>Tappet adjusting wrench 3 mm 07908-KE90200</p> 	<p>Cleaning brush 07998-VA20100</p> 
<p>Test probe 07ZAJ-RDJA110</p> 	<p>Fuel pressure gauge 07406-0040004</p> 	<p>Flywheel puller 070PC-ZDW0100</p> 
<p>Oil pressure gauge attachment 07406-0030000</p> 	<p>Oil pressure gauge set 07506-3000000</p> 	<p>Valve guide reamer 5.510 mm 07984-2000001</p> 
<p>Cutter holder 5.5 mm 07981-VA20101</p> 	<p>Seat cutter 33 mm (45° IN) 07780-0010800</p> 	<p>Seat cutter 27.5 mm (45° EX) 07780-0010200</p> 

<p>Flat cutter 30 mm (32° EX) 07780-0012200</p> 	<p>Flat cutter 35 mm (32° IN) 07780-0012300</p> 	<p>Interior cutter 34 mm (60° IN) 07780-0014700</p> 
<p>Interior cutter 26 mm (60° EX) 07780-0014500</p> 	<p>Driver 07749-0010000</p> 	<p>Oil seal driver attachment 60 mm 07GAD-PG40100</p> 
<p>Fuel pressure gauge attachment set 070PJ-0040100</p> 		

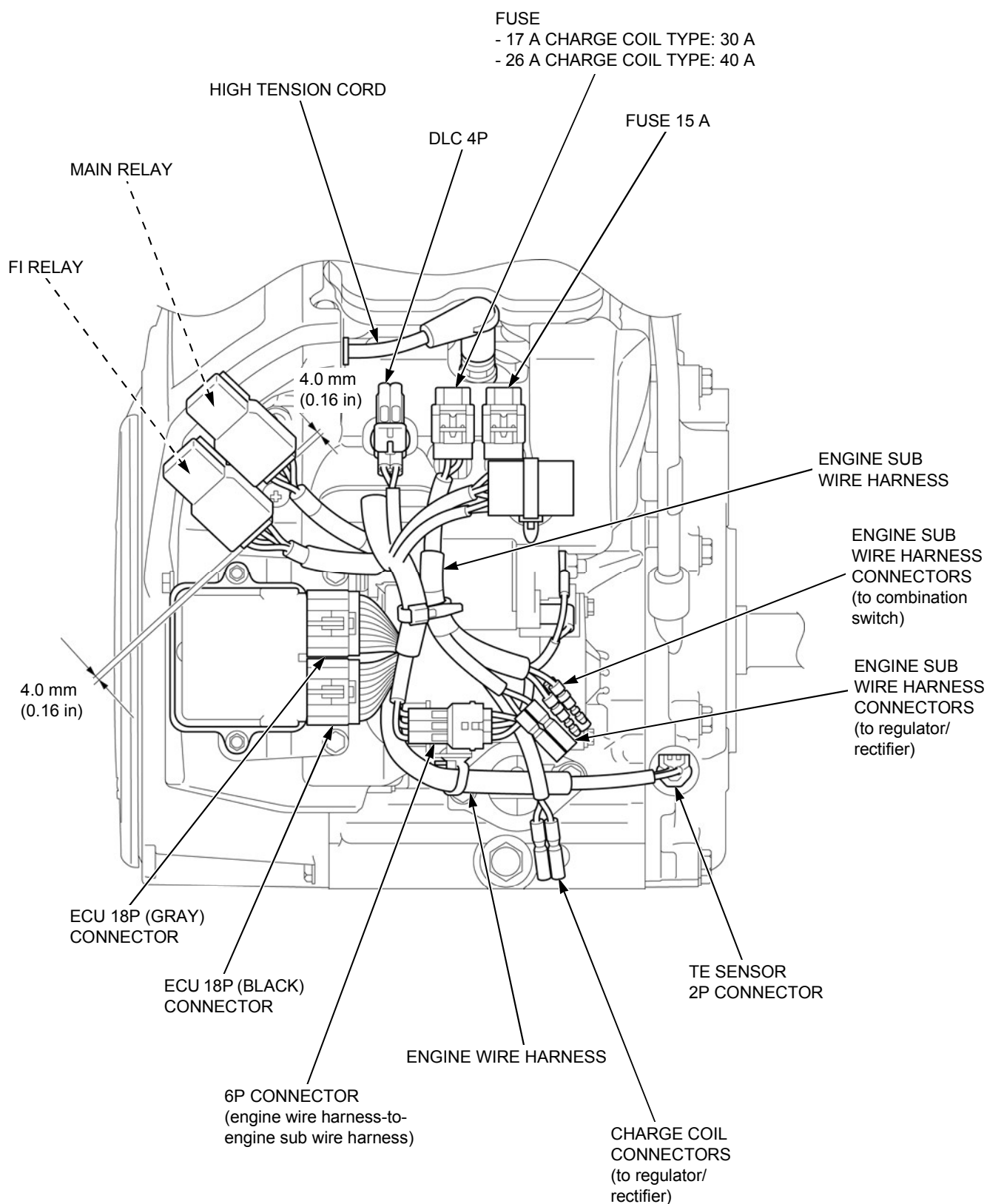
## SERVICE INFORMATION

# HARNESS ROUTING

CONTROL BOX TYPE:

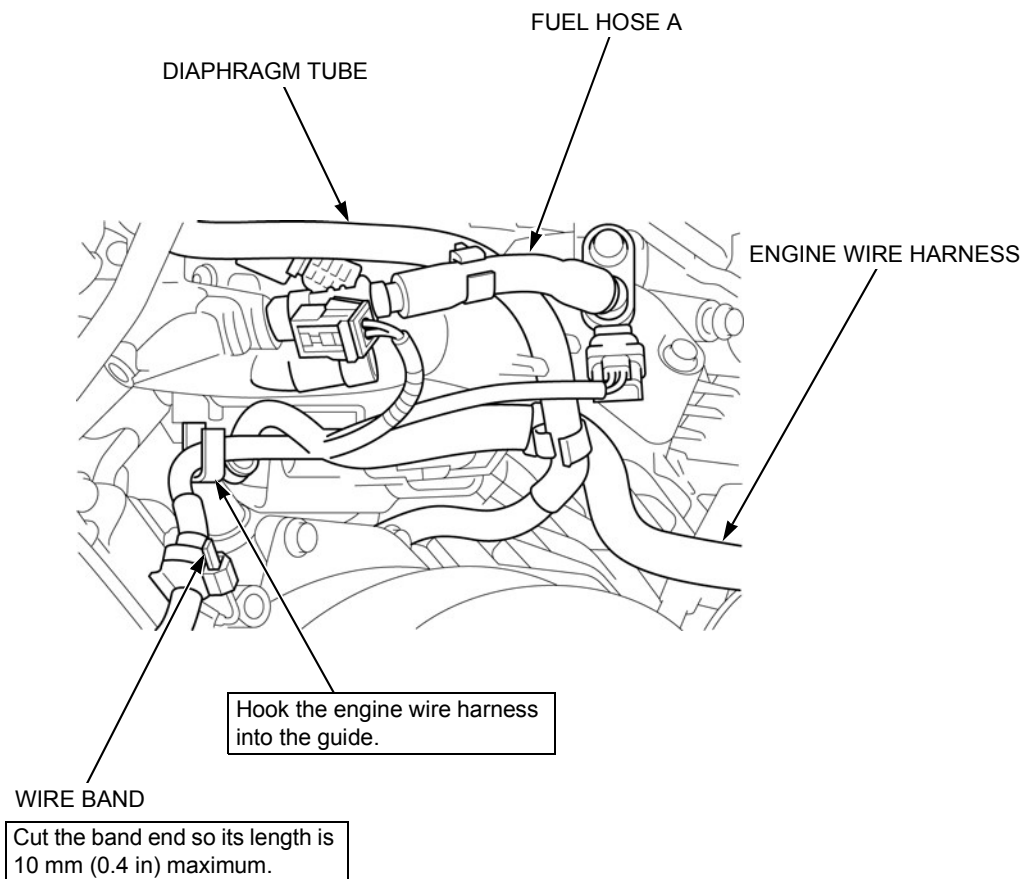
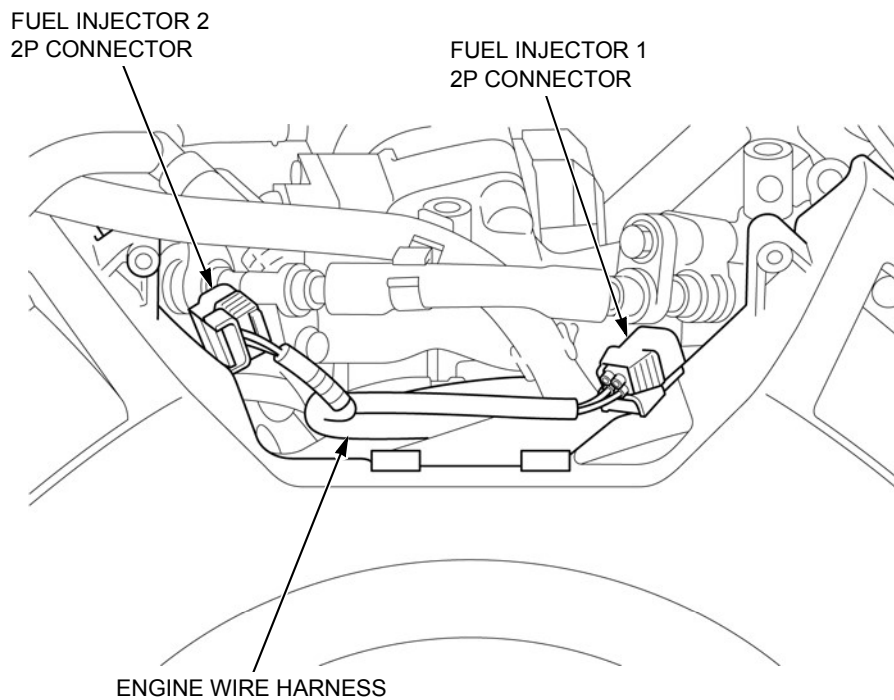


REMOTE TYPE:

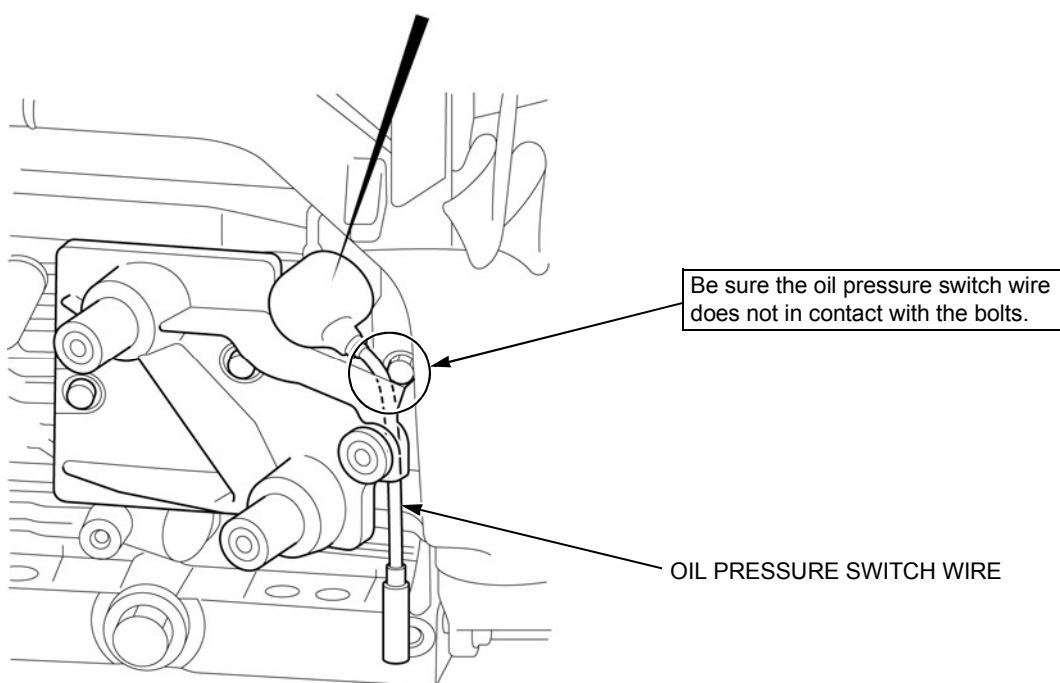
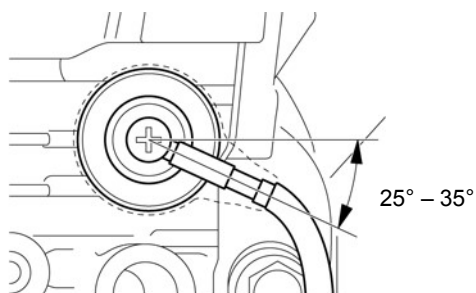
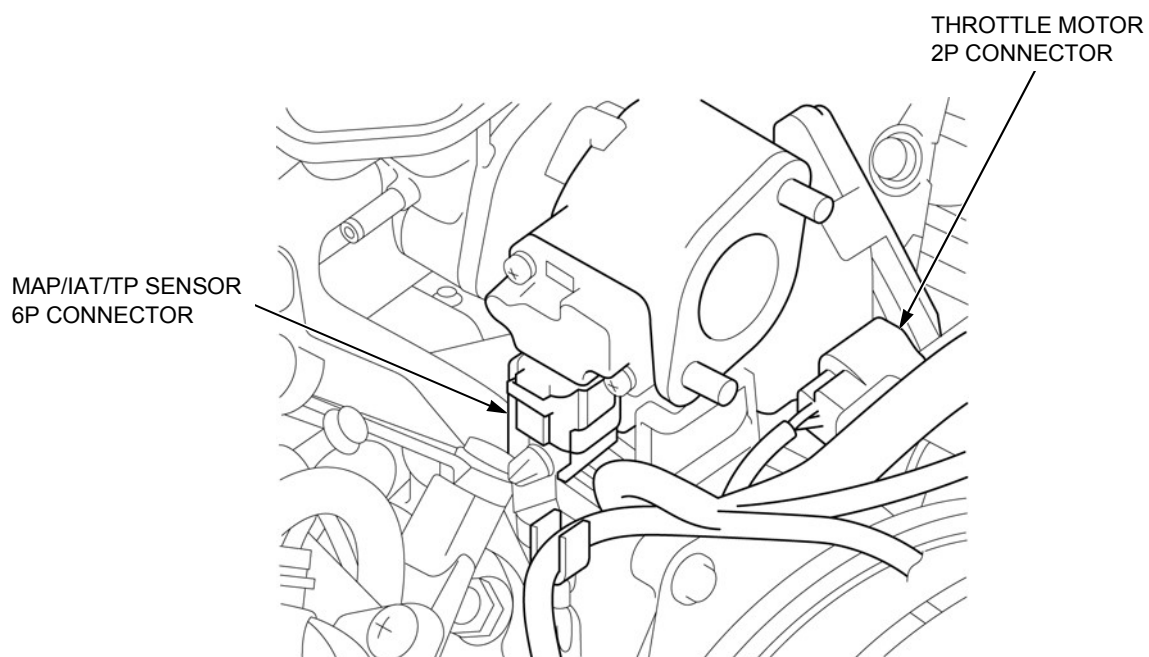


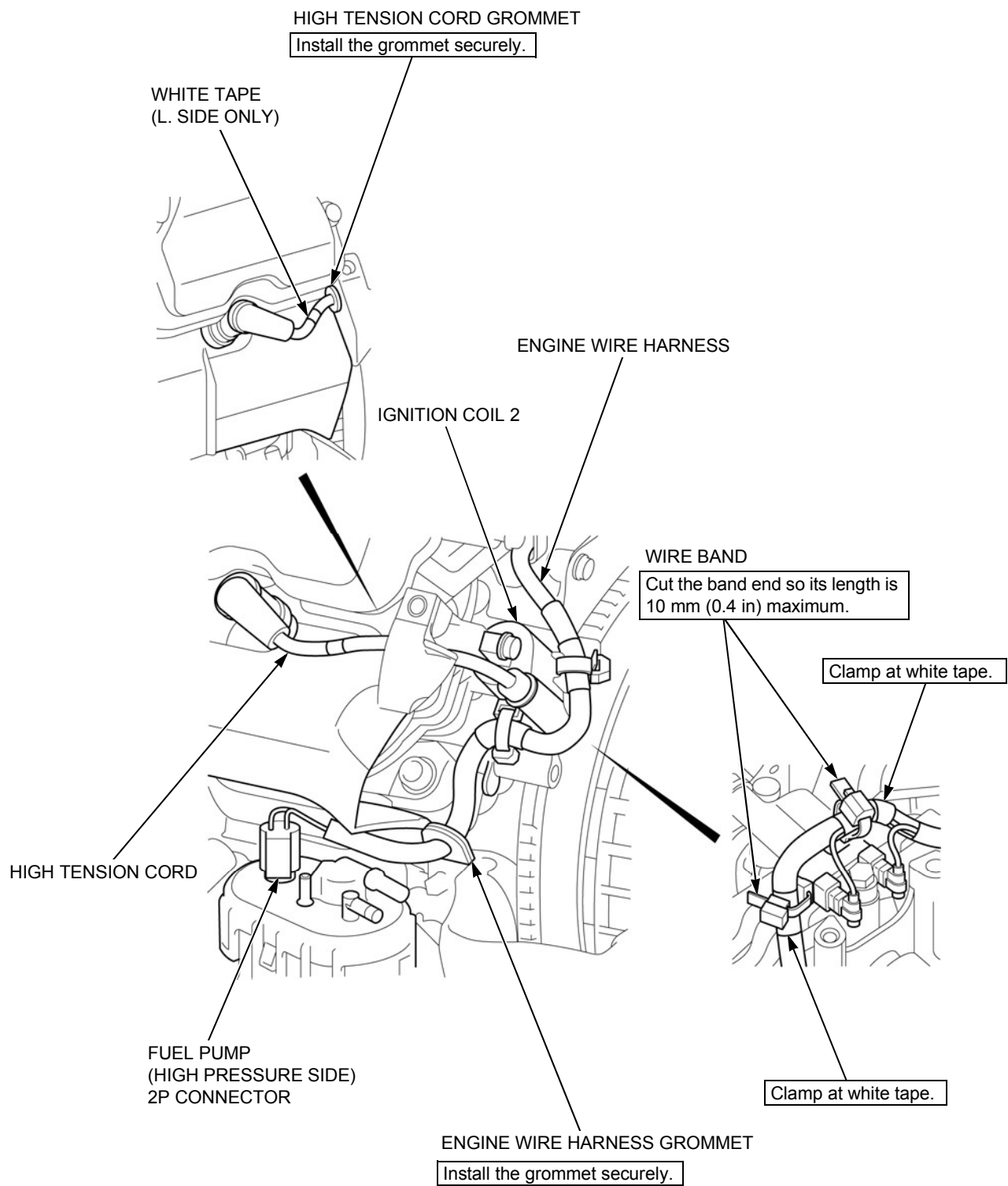
## SERVICE INFORMATION

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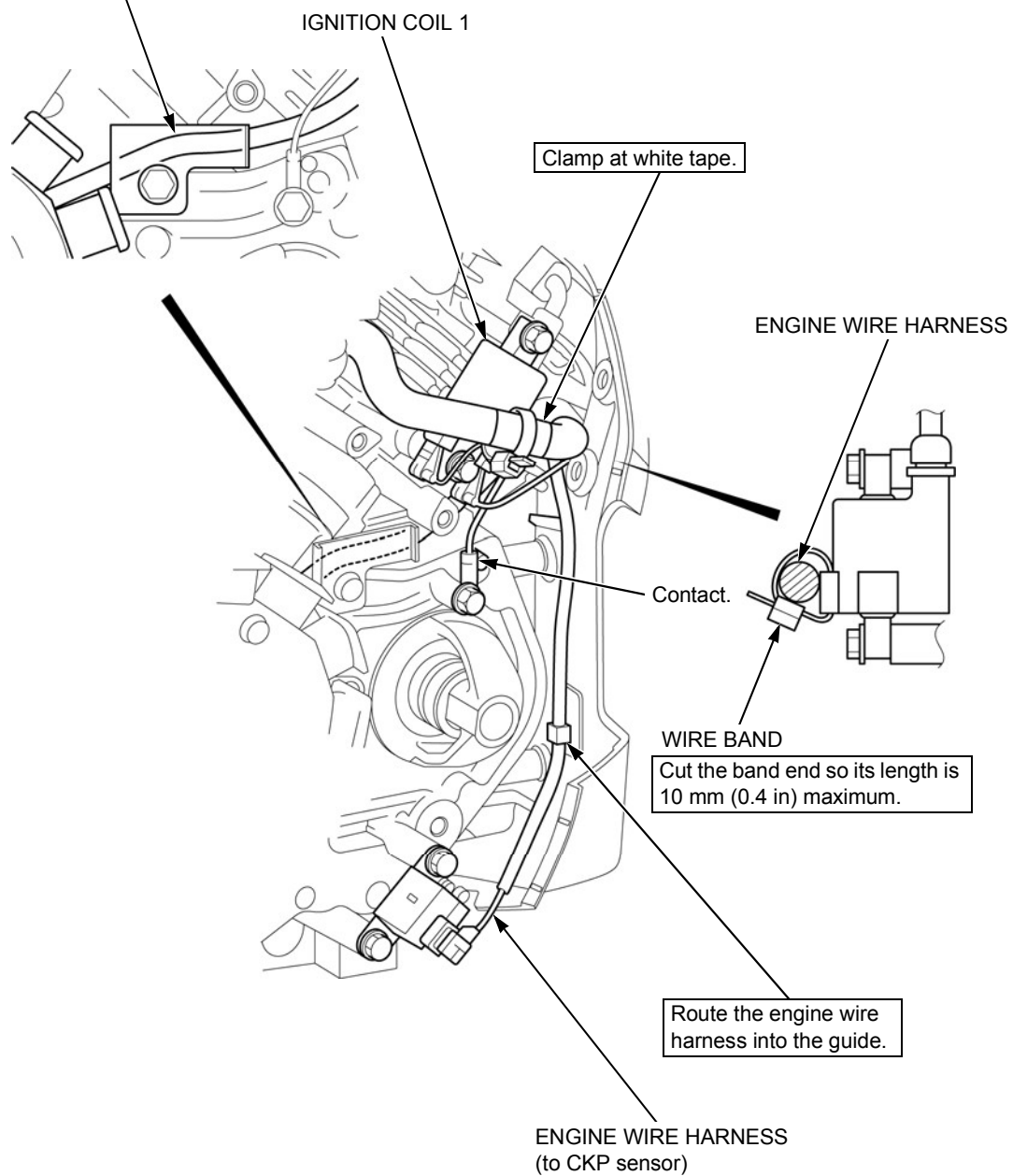






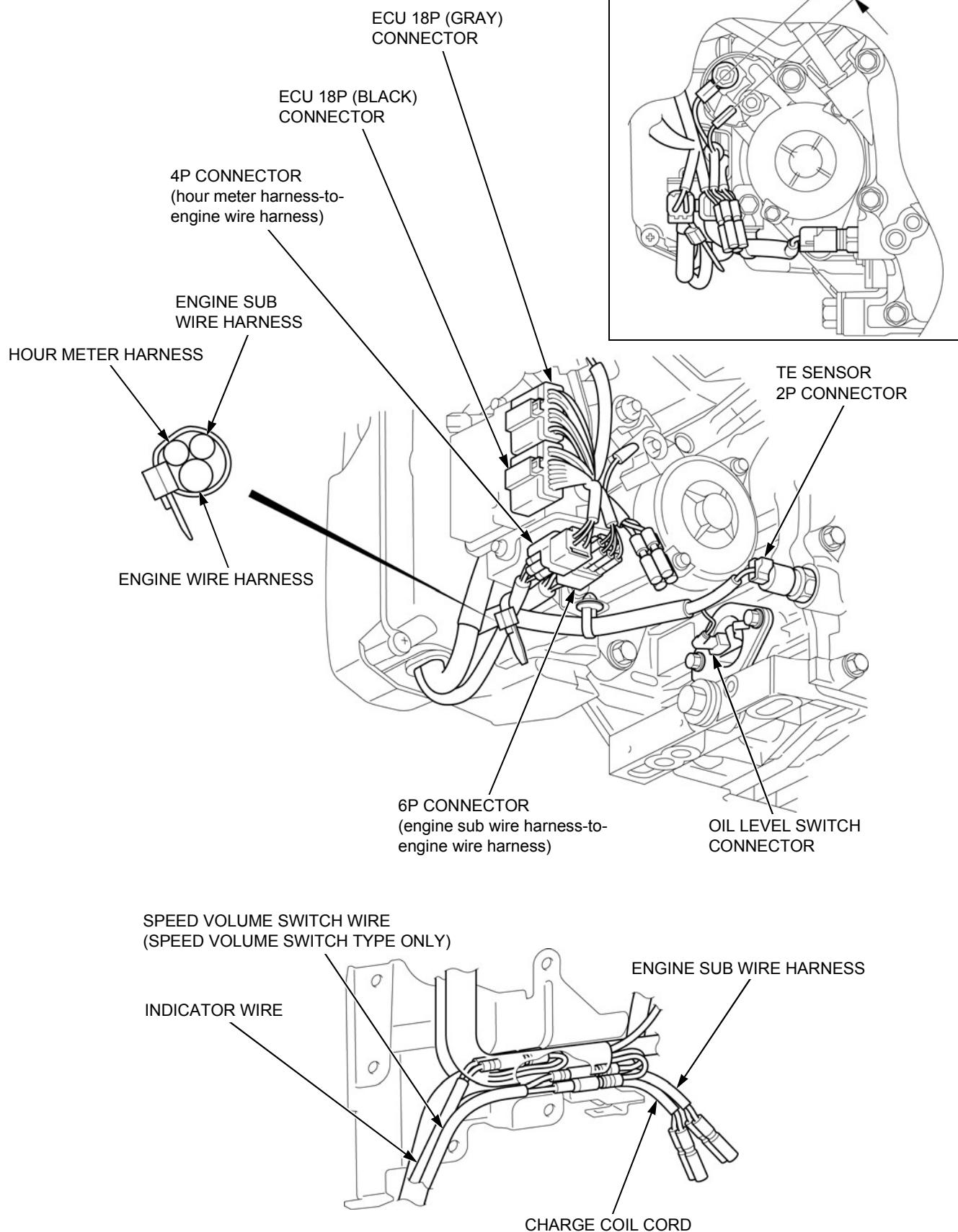
## CHARGE COIL CORD

There should be no slack and do not pinch.



## SERVICE INFORMATION

CONTROL BOX TYPE SHOWN:



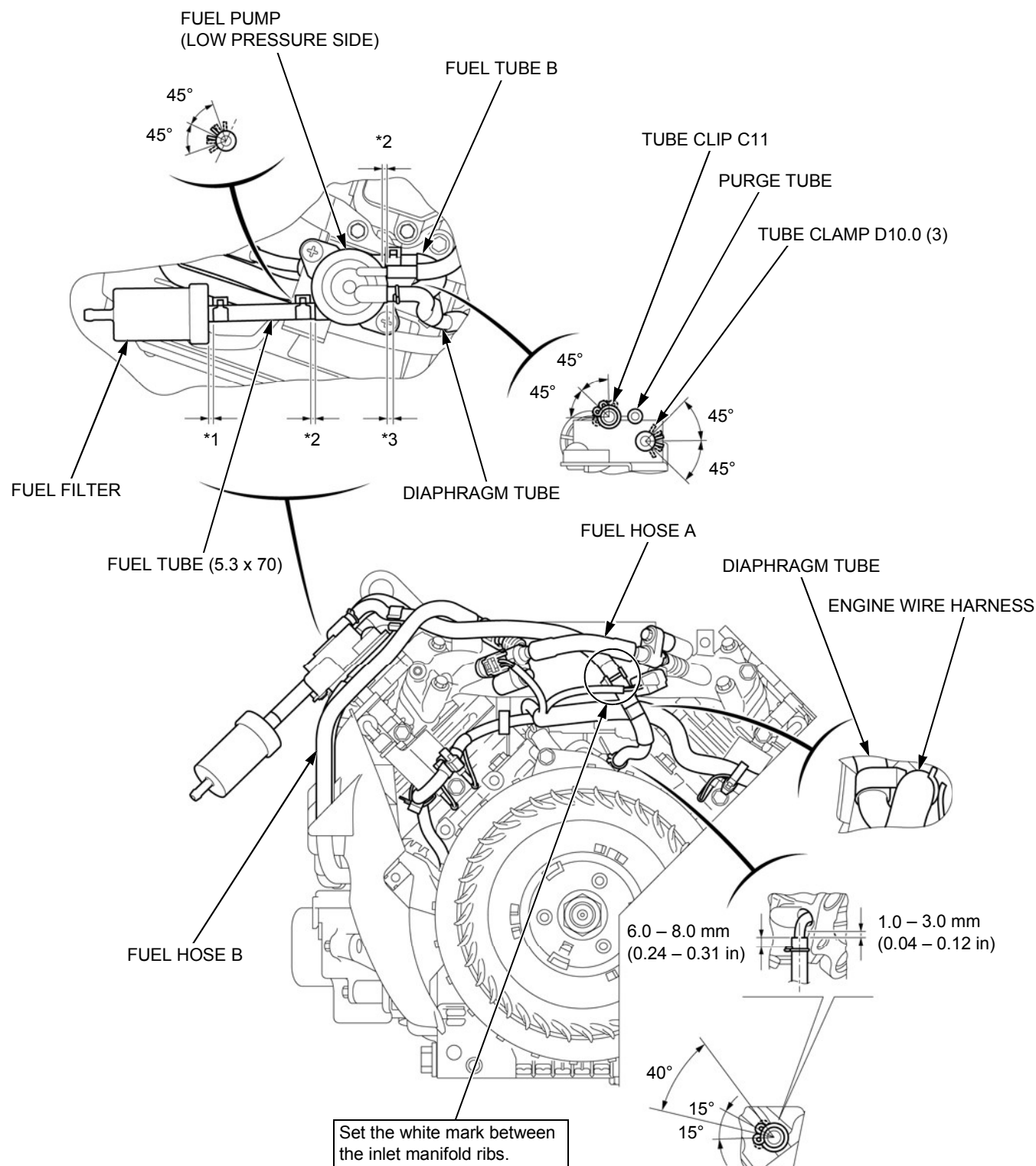
# TUBE ROUTING

Be sure to insert the hose and tube to the end face securely.

\*1: 1.0 – 2.0 mm  
(0.04 – 0.08 in)

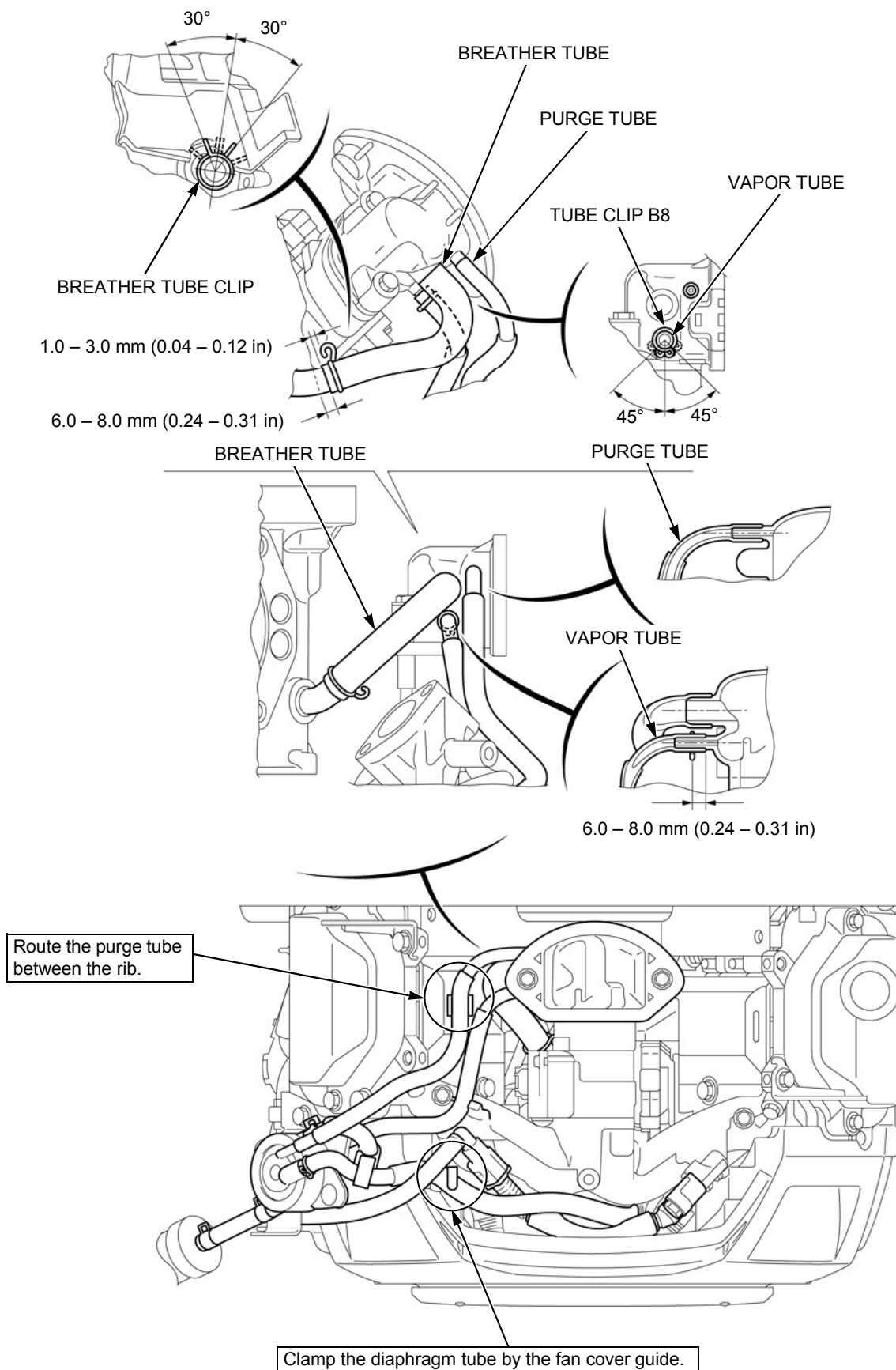
\*2: 2.0 – 3.0 mm  
(0.08 – 0.12 in)

\*3: 3.0 – 5.0 mm  
(0.12 – 0.20 in)



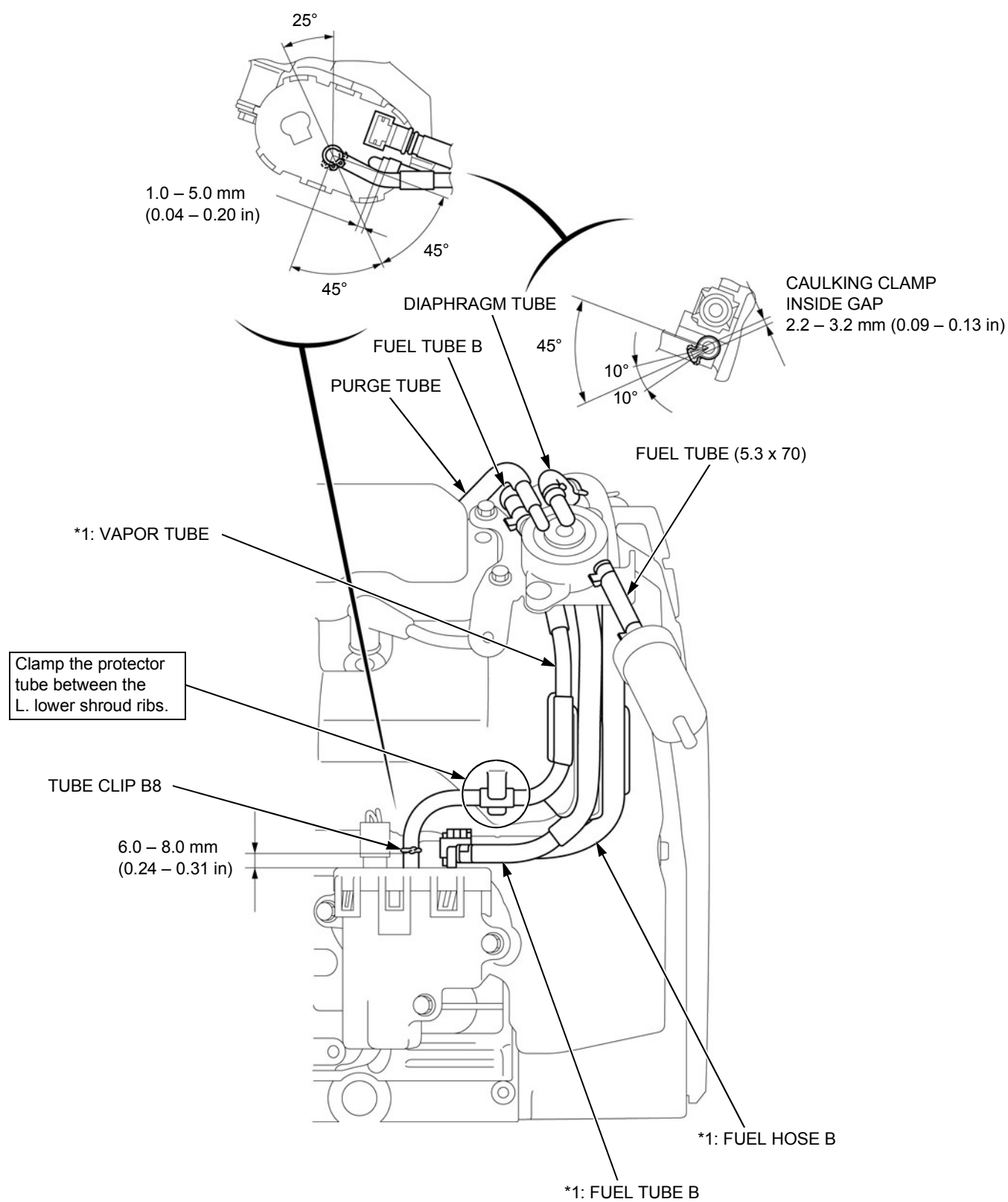
## SERVICE INFORMATION

Be sure to insert the hose and tube to the end face securely.



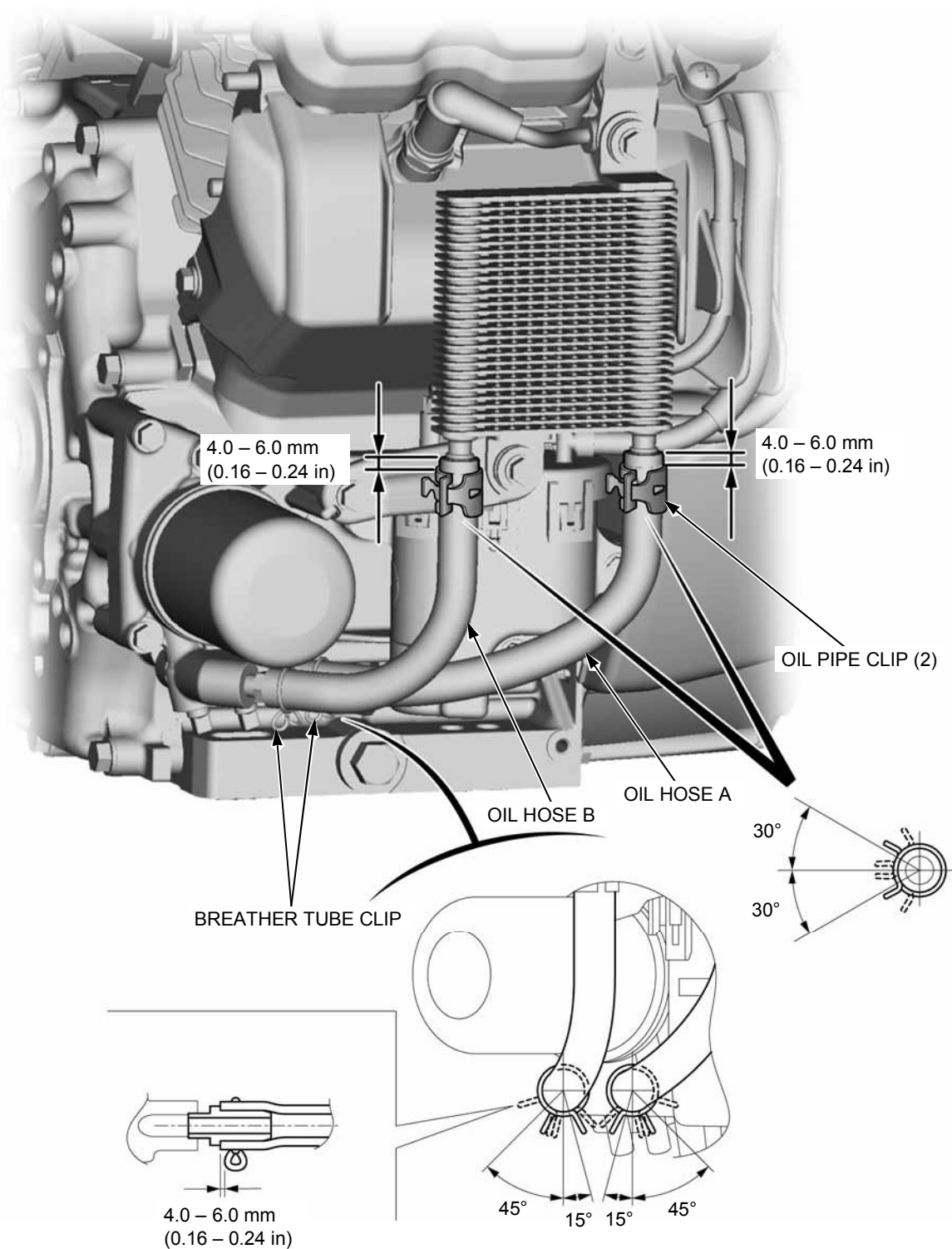
Be sure to insert the hose and tube to the end face securely.

\*1: Route the tubes and hose between L. lower shroud ribs and insert them fully.



## SERVICE INFORMATION

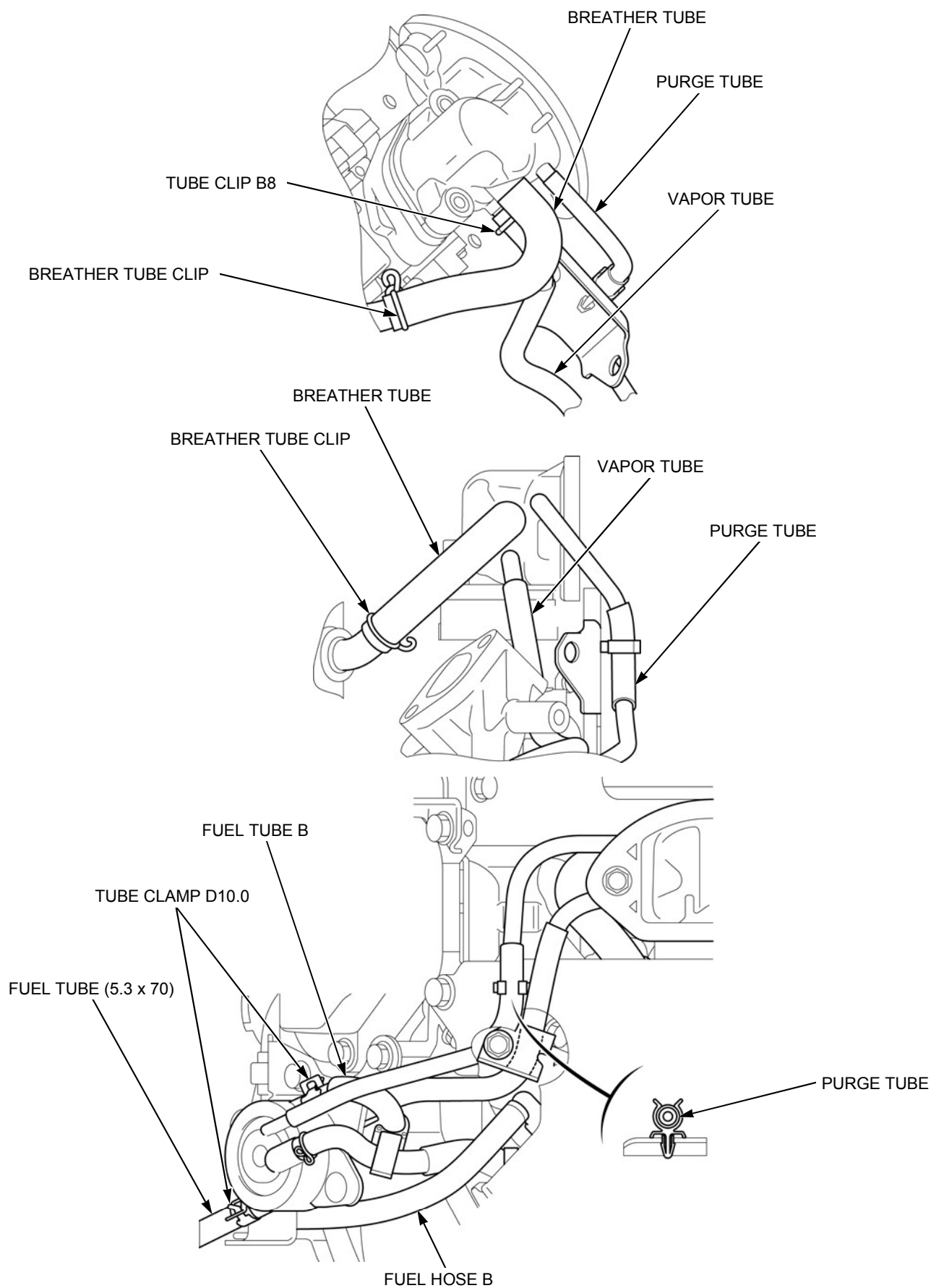
Be sure to insert the hose and tube to the end face securely.





## CANISTER TYPE

Be sure to insert the hose and tube to the end face securely.



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## MEMO

MAINTENANCE SCHEDULE.....	3-2	SPARK PLUG REPLACEMENT .....	3-8
ENGINE OIL LEVEL CHECK .....	3-3	SPARK ARRESTER CLEANING.....	3-9
ENGINE OIL CHANGE.....	3-4	VALVE CLEARANCE CHECK/ ADJUSTMENT .....	3-9
OIL FILTER REPLACEMENT .....	3-4	COMBUSTION CHAMBER CLEANING .....	3-11
AIR CLEANER CHECK/CLEANING .....	3-5	FUEL FILTER REPLACEMENT .....	3-12
AIR CLEANER REPLACEMENT .....	3-7	FUEL TUBE CHECK.....	3-12
SPARK PLUG CHECK/ADJUSTMENT .....	3-7		

## MAINTENANCE

### MAINTENANCE SCHEDULE

REGULAR SERVICE PERIOD (1) ITEM Perform at every indicated month or operating hour interval, whichever comes first.		Each use	First month or 20 hrs.	Every 6 months or 100 hrs.	Every year or 300 hrs.	Every 2 years or 500 hrs.	Refer to page
Engine oil	Check level	○					3-3
	Change		○	○			3-4
Engine oil filter	Replace	Every 200 hours					3-4
Air cleaner	Check	○					3-5
	Clean			○ (2)			3-5
	Replace					○ (*)	3-7
Screen grid (Applicable types)	Check	○ (3)					
Oil cooler (Applicable types)	Check	○ (3)					
Spark plug	Check-adjust			○			3-7
	Replace				○		3-8
Spark arrester (Applicable types)	Clean			○			3-9
Valve clearance	Check-adjust				○		3-9
Combustion chamber	Clean	After every 1,000 hours (3)					3-11
Fuel filter	Replace				○		3-12
Fuel tube	Check	Every 2 years (Replace if necessary)					3-12

(\*) Replace paper element type only.

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

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

(3) If there are deposits of grass, trash, or other debris, clean regularly.

# ENGINE OIL LEVEL CHECK

Place the engine on a level surface.

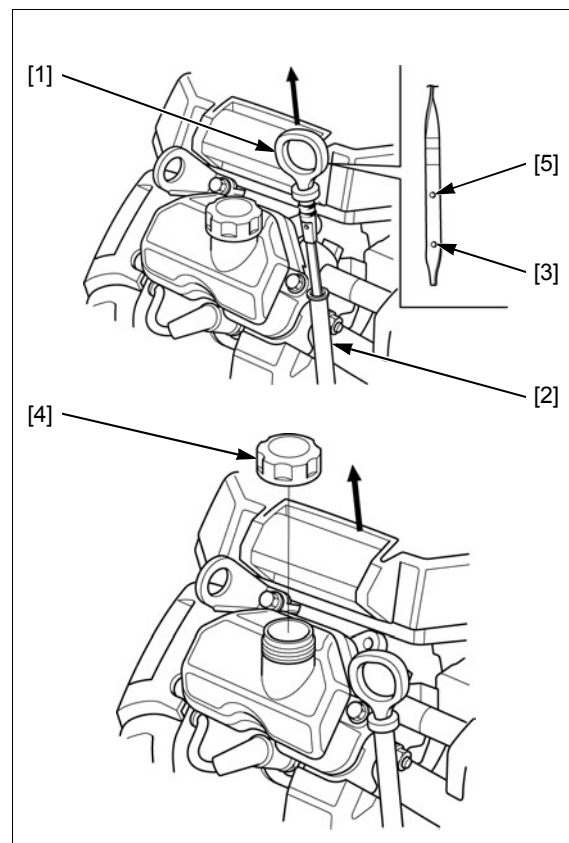
Start the engine and allow it to warm up for 1 to 2 minutes.

Remove the oil level dipstick [1], and wipe it clean.

Insert the oil level dipstick into the oil level pipe [2].

Remove the oil level dipstick and check oil level shown on the tip of the level dipstick.

If the oil level is near or below the lower level mark [3] on the oil level dipstick, remove the oil filler cap [4] from the head cover and fill with recommended oil to the upper level mark [5] of the level dipstick.



Oil is a major factor affecting performance and service life. Use 4 - stroke automotive detergent oil.

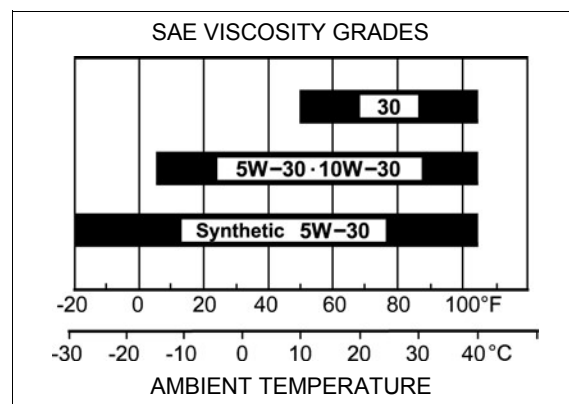
SAE 5W-30 or 10W-30 is recommended for general use. Use a full synthetic 5W-30 for starting/operating temperatures between  $-15^{\circ}\text{C}$  ( $5^{\circ}\text{F}$ ) and  $-30^{\circ}\text{C}$  ( $-22^{\circ}\text{F}$ ). Other viscosities shown in the chart may be used when the average temperature in your area is within the recommended range.

## RECOMMENDED OIL:

**SAE 5W-30 or 10W-30**

**API service classification SJ or later**

Tighten the oil filler cap and install the oil level dipstick securely.



## ENGINE OIL CHANGE

Drain the oil in the engine while the engine is warm. Warm oil drains quickly and completely.

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

Remove the oil filler cap [2] from the head cover [3] and the drain plug bolt to drain the oil into a suitable container.

Please dispose of used motor 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 into the ground, or down a drain.

### ⚠ CAUTION

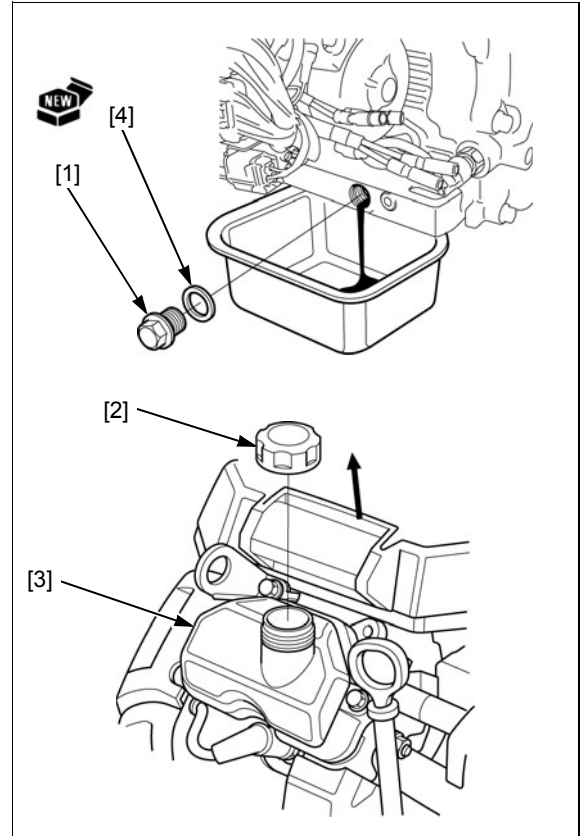
Used engine oil contains substances that have been identified as carcinogenic. If repeatedly left in contact with the skin for prolonged periods, it may cause skin cancer. Wash your hands thoroughly with soap and water as soon as possible after contact with used engine oil.

Install a new drain plug washer [4] and tighten the drain plug bolt to the specified torque.

**TORQUE: 45 N·m (4.5 kgf·m, 33 lbf·ft)**

Fill with recommended oil to the upper level mark of the oil level dipstick (page 3-3).

Tighten the oil filler cap and install the oil level dipstick securely.



## OIL FILTER REPLACEMENT

Drain the engine oil (page 3-4).

Remove the oil filter [1] using the special tool.

### TOOLS:

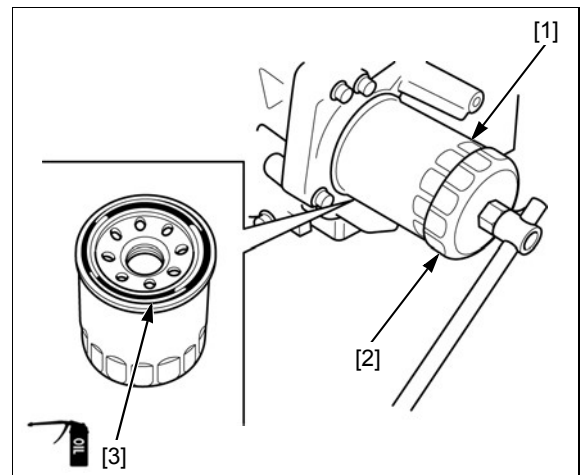
**Oil filter wrench 64 mm [2] 07HAA-PJ70101**

Apply a light coat of engine oil to the O-ring [3] of the new oil filter.

Install the new oil filter and tighten to the specified torque.

**TORQUE: 12 N·m (1.2 kgf·m, 9.0 lbf·ft)**

Fill with recommended oil to the upper level mark of the oil level dipstick (page 3-3).



# AIR CLEANER CHECK/CLEANING

## DUAL TYPE

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

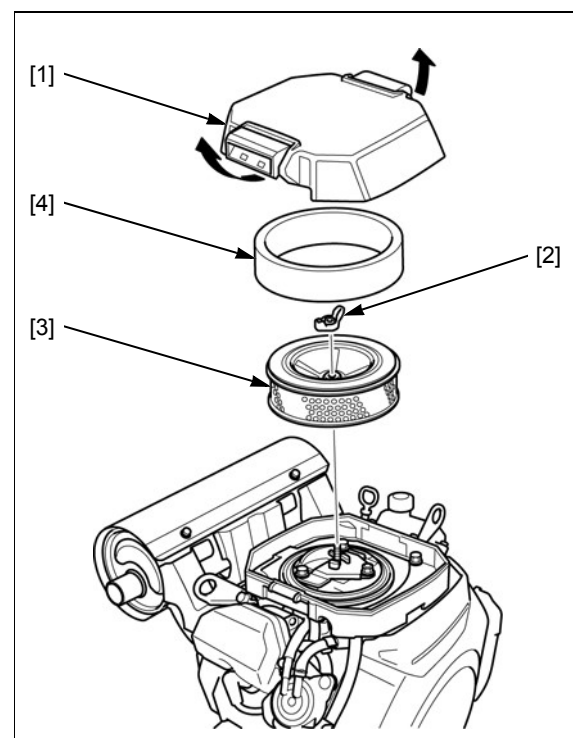
### NOTICE

*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.*

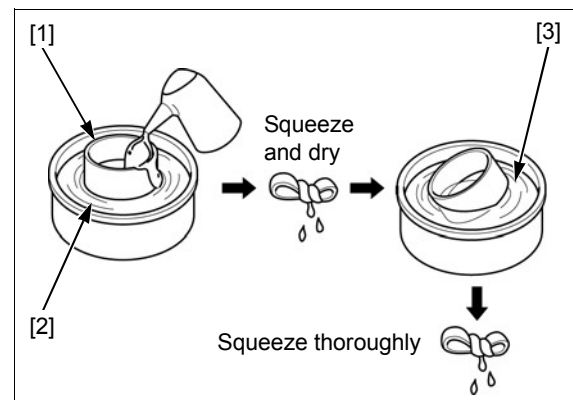
Remove the air cleaner cover [1].

Remove the wing nut [2] and air filter assembly [3]/[4].

Separate the air filters into the inner filter (Paper) [3] and the outer filter (Foam) [4]. Carefully check both filters for holes or tears and replace if damaged.



Clean the outer filter [1] in warm soapy water [2], 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 [3] 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.



Tap the inner filter [1] lightly several times on a hard surface to remove excess dirt or blow compressed air lightly (207 kPa (2.11 kgf/cm<sup>2</sup>, 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.

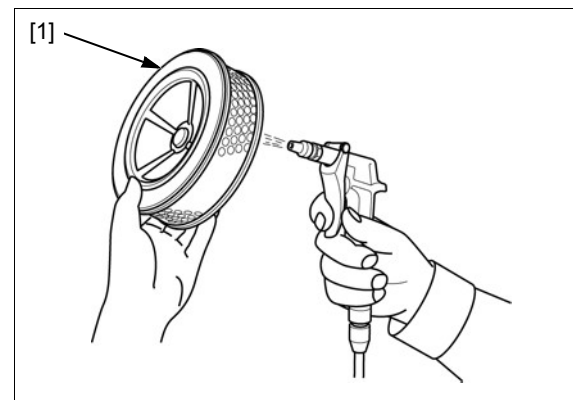
Wipe dirt from the inside of the air cleaner case and the air cleaner cover, using a rag.

Check the air cleaner case packing for deterioration or damage. Make sure the air cleaner packing installed securely.

Attach the outer filter on the inner filter, and then install the air filter assembly and tighten the wing nut securely.

**TORQUE: 0.8 N·m (0.1 kgf·m, 0.6 lbf·ft)**

Install the air cleaner cover.



### CANISTER TYPE

A dirty air filter will restrict air flow to the throttle body, 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.*

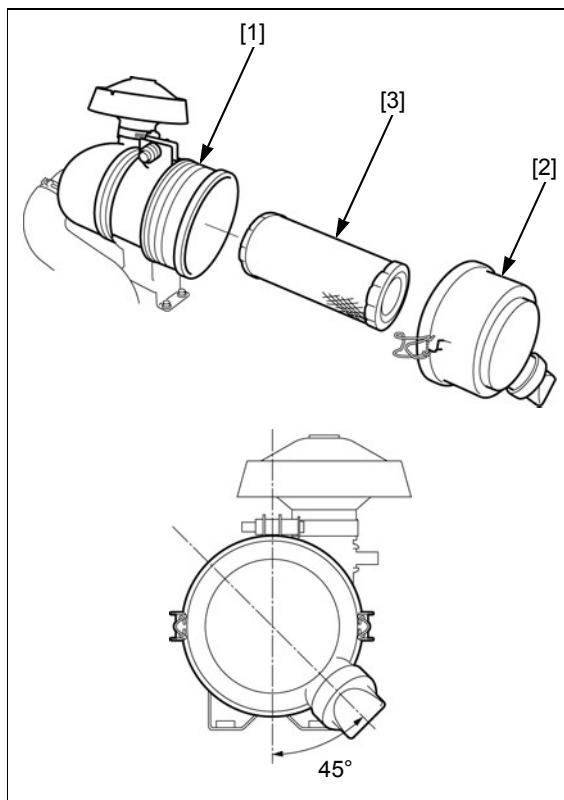
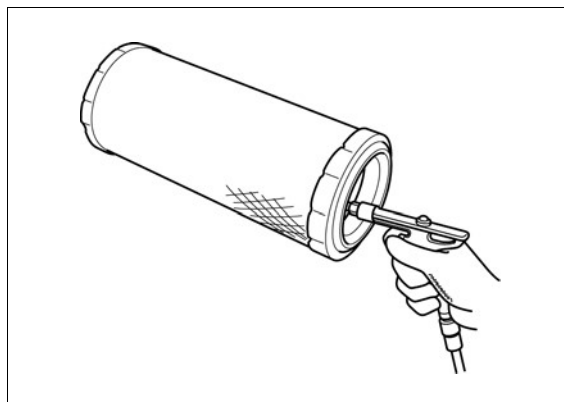
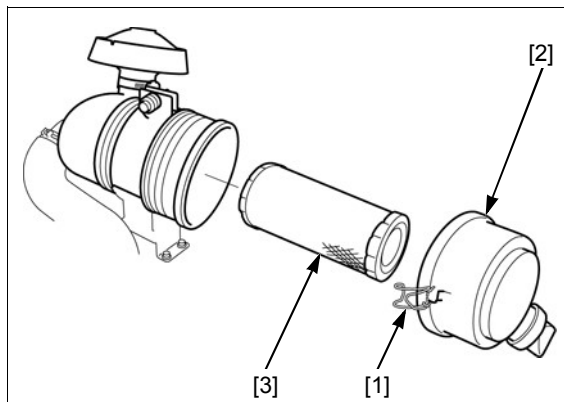
Release the hook [1] and remove the air cleaner cover [2].

Remove the air cleaner element [3].

Tap the element lightly several times on a hard surface to remove excess dirt or blow compressed air (200 kPa (2.04 kgf/cm<sup>2</sup>, 29 psi) or less) through the element from the inside out.

Wipe dirt from the inside of the air cleaner case [1] and air cleaner cover [2] using a rag.

Install the air cleaner element [3] and air cleaner cover.





# AIR CLEANER REPLACEMENT

Remove the air cleaner filters (page 3-5).

Wipe dirt from the inside of the air cleaner case and the air cleaner cover, using a rag.

Check the air cleaner case packing for deterioration or damage. Make sure the air cleaner packing installed securely.

*Dual type:* Install new air cleaner filters and tighten the wing nut securely.

**TORQUE: 0.8 N·m (0.1 kgf·m, 0.6 lbf·ft)**

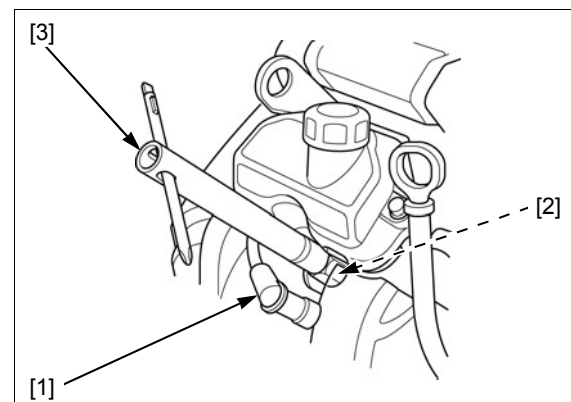
Install the air cleaner cover.

# SPARK PLUG CHECK/ADJUSTMENT

## ⚠ CAUTION

If the engine has been running, the engine will be very hot. Allow it to cool before proceeding.

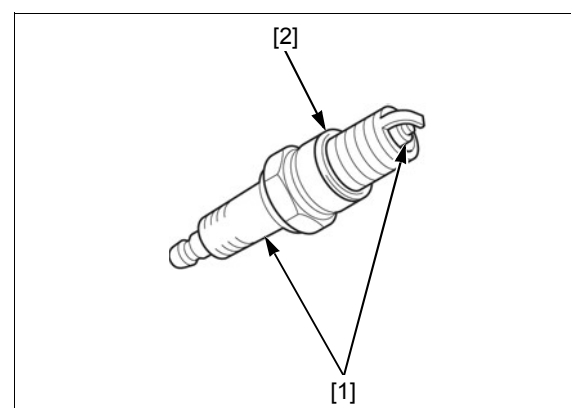
Remove the spark plug cap [1], and then remove the spark plug [2] using a spark plug wrench [3].



Visually check the spark plug. Replace the plug if the insulator [1] is cracked or chipped.

Check the sealing washer [2] for damage.

Replace the spark plug if the sealing washer is damaged (page 3-8).



## MAINTENANCE

Measure the plug gap with a wire-type feeler gauge. If the measurement is out of the specification, adjust by bending the side electrode.

**PLUG GAP:** 0.7 – 0.8 mm (0.028 – 0.031 in)

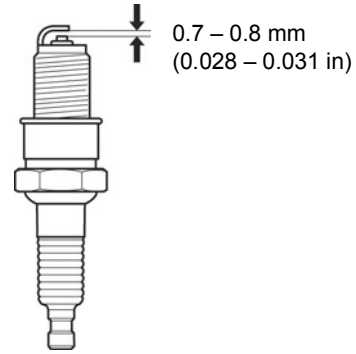
Install the spark plug finger-tight to seat the washer, and then tighten it to the specified torque.

**TORQUE:** 18 N·m (1.8 kgf·m, 13.3 lbf·ft)

### NOTICE

*A loose spark plug can become very hot and can damage the engine. Overtightening can damage the threads in the cylinder block.*

Install the spark plug cap securely.



## SPARK PLUG REPLACEMENT

### CAUTION

If the engine has been running, the engine will be very hot. Allow it to cool before proceeding.

Remove the spark plug (page 3-7).

Verify the new spark plug gap is correct (page 3-7).

Install the spark plug finger-tight to seat the washer, and then tighten it to the specified torque.

**SPARK PLUG:** BPR5ES (NGK)

**TORQUE:** 18 N·m (1.8 kgf·m, 13.3 lbf·ft)

### NOTICE

*A loose spark plug can become very hot and can damage the engine. Overtightening can damage the threads in the cylinder block.*

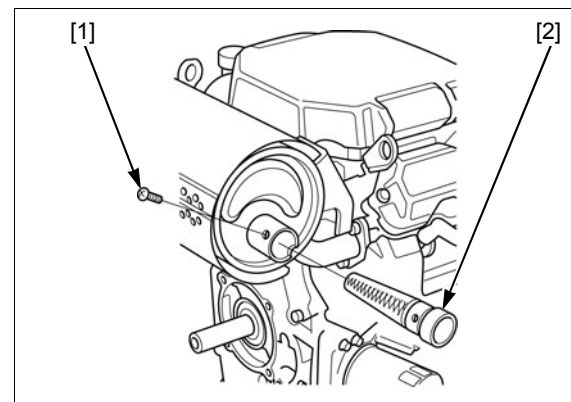
Install the spark plug cap securely.

# SPARK ARRESTER CLEANING

## 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.

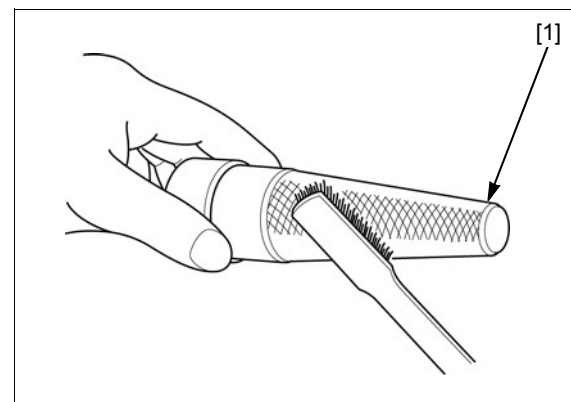
Remove the 5 x 8 mm tapping screw [1] and spark arrester [2].



Clean the carbon deposits from the spark arrester screen [1] with a wire brush.

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

Reinstall the spark arrester to the muffler.

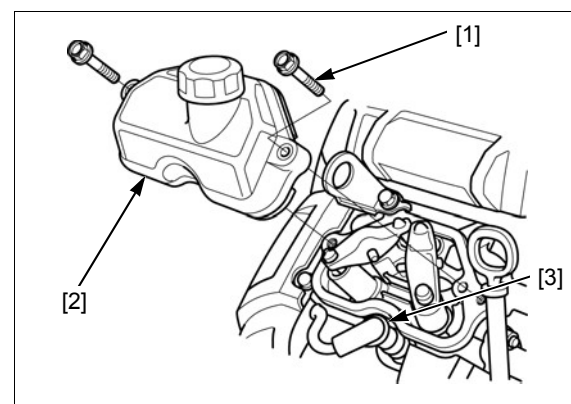


# VALVE CLEARANCE CHECK/ADJUSTMENT

Remove the four flange bolts [1] and each head cover [2].

Remove the fan cover protector or screen grid (page 5-2).

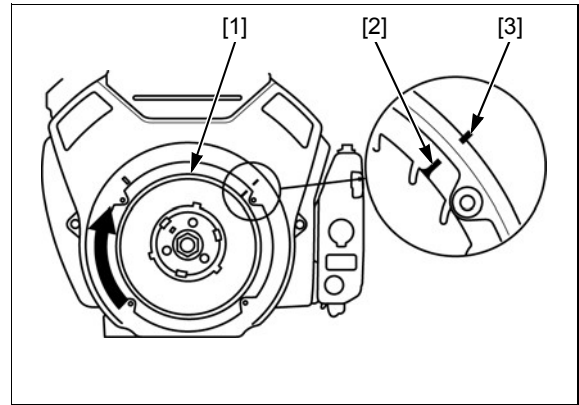
Disconnect the spark plug caps [3] from the spark plugs.



## MAINTENANCE

Set the piston of the No.1 cylinder at the top dead center of the compression stroke (both valves fully closed) by rotating the flywheel [1] clockwise slowly. When the No.1 piston is at the top dead center of the compression stroke, the "T" mark [2] on the cooling fan will align with the right side alignment mark [3] on the fan cover.

If the exhaust valve is opened, rotate the flywheel and align the "T" mark on the cooling fan with the alignment mark on the fan cover again.

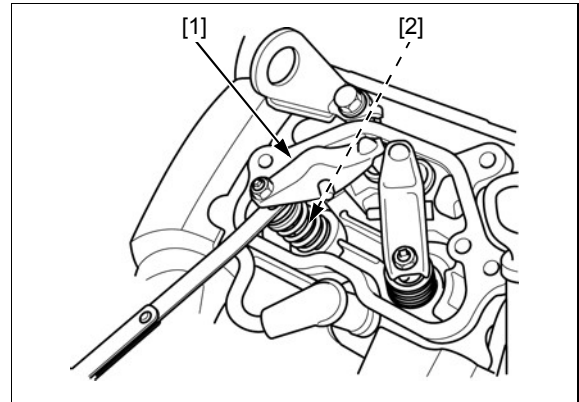


Insert a feeler gauge between the valve rocker arm [1] and valve stem [2] to measure the valve clearance.

### VALVE CLEARANCE:

IN: 0.18 – 0.22 mm (0.007 – 0.009 in)

EX: 0.18 – 0.22 mm (0.007 – 0.009 in)



Set the piston of the No.2 cylinder at the top dead center of the compression stroke (both valves fully closed) by rotating the flywheel [1] 270 degrees clockwise slowly. When the No.2 piston is at the top dead center of the compression stroke, the "T" mark [2] on the cooling fan will align with the left side alignment mark [3] on the fan cover.

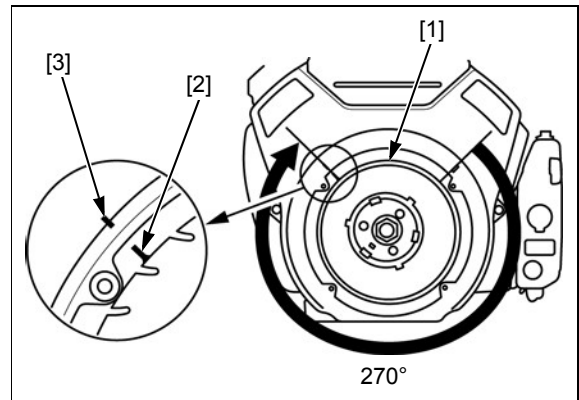
Insert a feeler gauge between the valve rocker arm and valve stem to measure the valve clearance.

### VALVE CLEARANCE:

IN: 0.18 – 0.22 mm (0.007 – 0.009 in)

EX: 0.18 – 0.22 mm (0.007 – 0.009 in)

If adjustment is necessary, proceed as follows.



Hold the tappet adjusting screw [1] and loosen the tappet adjusting nut [2].

**TOOL:**

**Tappet adjusting wrench 3 mm [3] 07908-KE90200**

Turn the tappet adjusting screw to obtain the specified clearance.

**VALVE CLEARANCE:**

**IN: 0.18 – 0.22 mm (0.007 – 0.009 in)**

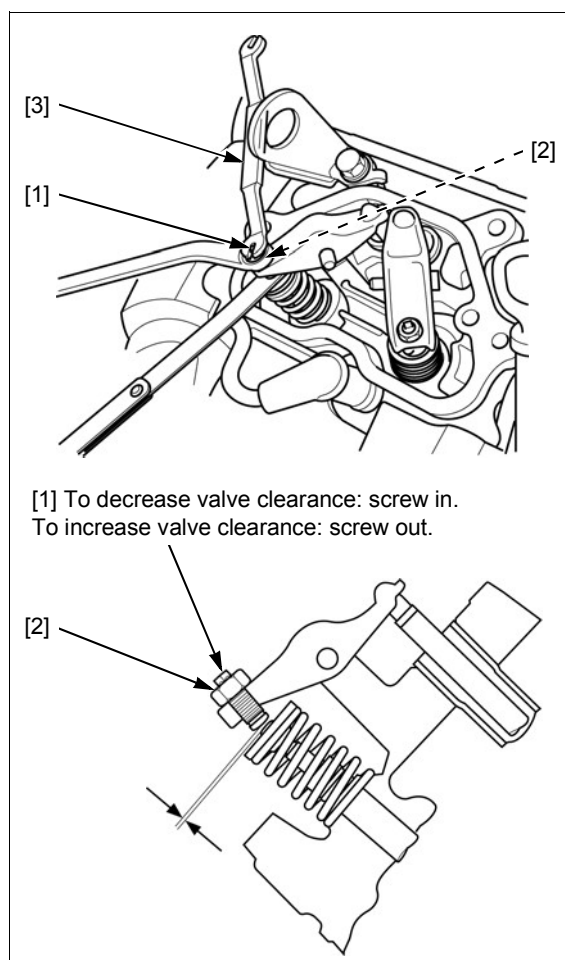
**EX: 0.18 – 0.22 mm (0.007 – 0.009 in)**

Hold the tappet adjusting screw and retighten the tappet adjusting nut to the specified torque.

**TORQUE: 7.5 N·m (0.8 kgf·m, 5.5 lbf·ft)**

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

Check the head cover packing for damage or deterioration and install it on the head cover. Attach the cylinder head cover to the cylinder and tighten the flange bolts securely.



## COMBUSTION CHAMBER CLEANING

Remove the cylinder (page 13-2).

Prepare a cylinder of a thick paper or equivalent material [1], which diameter is as large as to fit against the inner wall of the cylinder, and insert the paper into the cylinder.

Attach the cleaning brush (special tool) [2] to an electric drill and clean any carbon deposits from the combustion chamber.

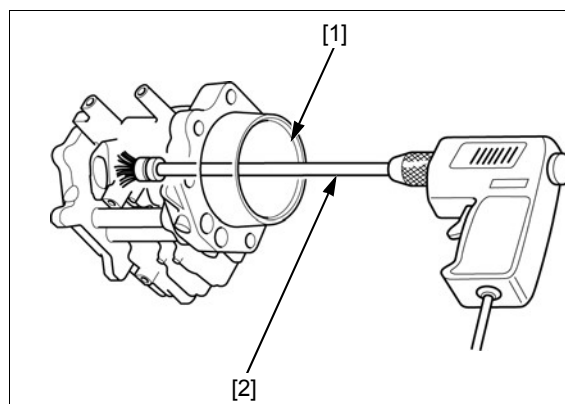
**TOOL:**

**Cleaning brush**

**07998-VA20100**

**NOTICE**

- Do not remove valves from the cylinder while cleaning the combustion chamber.
- Be sure to insert a thick paper into the cylinder to protect the inner wall of the cylinder during clearing of the combustion chamber.
- Do not press the cleaning brush with force against the combustion chamber.



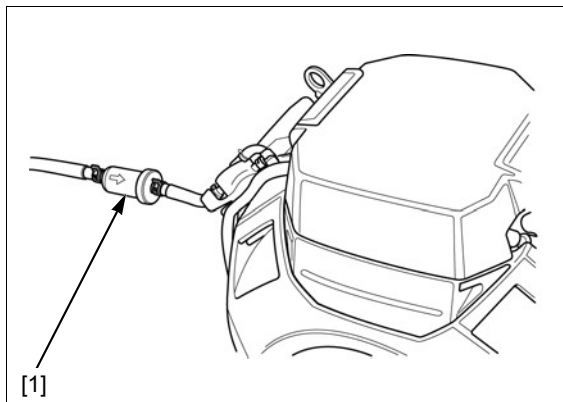
# FUEL FILTER REPLACEMENT

### ⚠ 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 filter [1] for water accumulation or sediment. If necessary replace it.

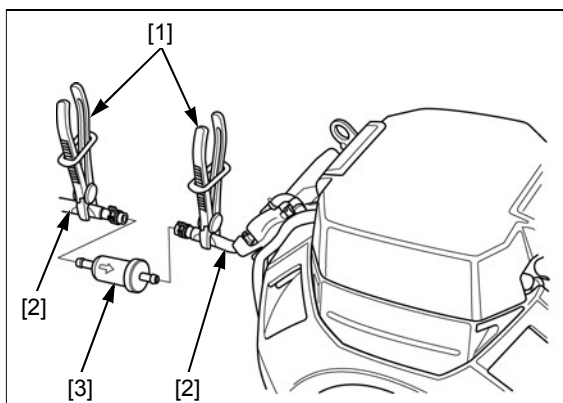


Install the commercially available tube clamps (HCP6) [1] on the fuel tubes [2] on both sides of the fuel filter [3].

Disconnect the fuel tubes from the fuel filter to remove the fuel filter.

Install a new fuel filter with the arrow mark toward the fuel pump (low pressure side) side.

Check the connecting parts for any sign 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.

Remove the air cleaner case (page 6-12).

Check the fuel tube for deterioration, cracks or signs of leakage. If necessary replace it.

Install the air cleaner case (page 6-12).