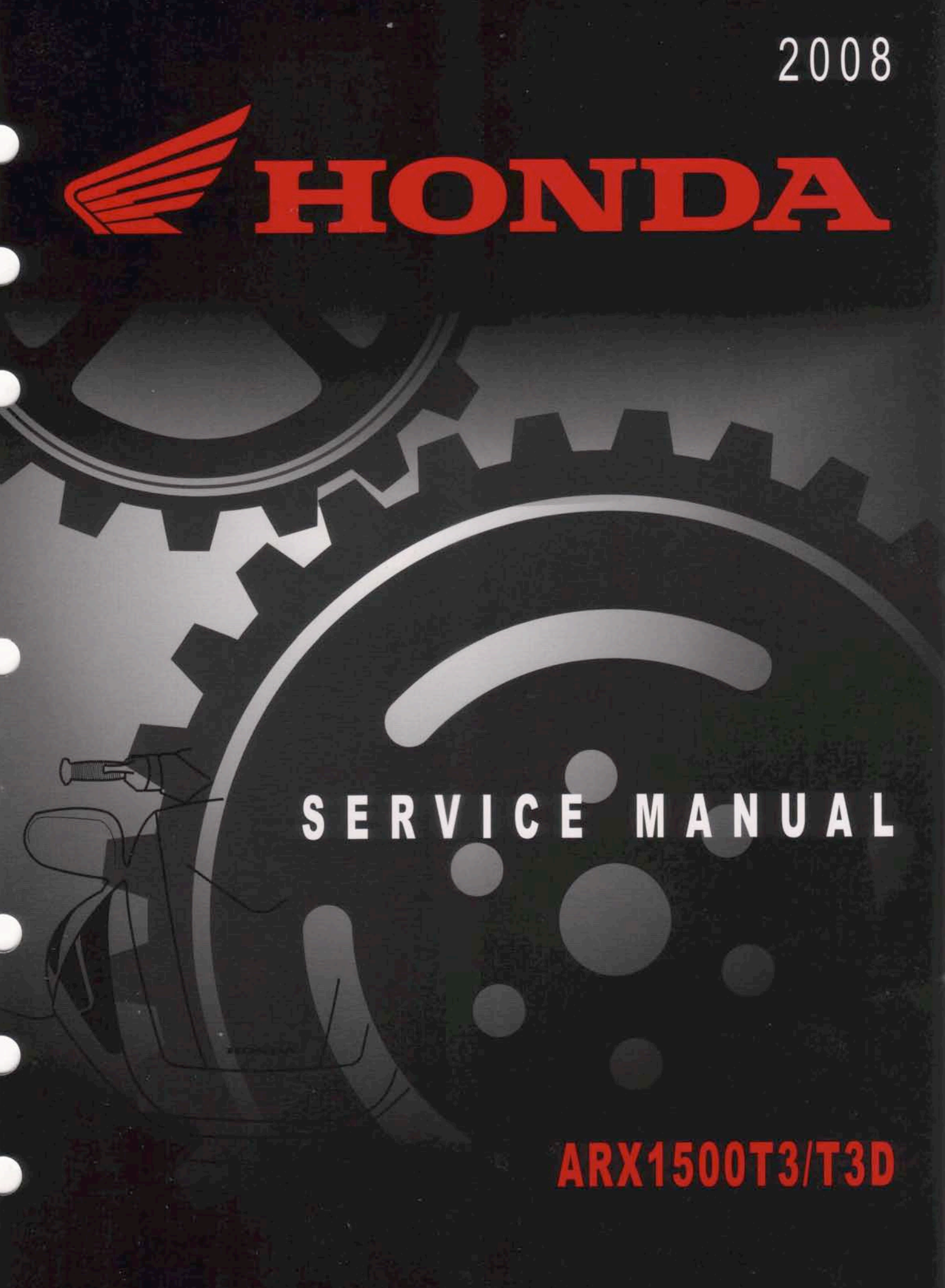


2008



HONDA



SERVICE MANUAL

ARX1500T3/T3D

HOW TO USE THIS MANUAL

This service manual describes the service procedures for the ARX1500T3, ARX1500T3D.

Follow the Maintenance Schedule (Section 4) recommendations to ensure that the personal watercraft is in peak operating condition.

Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period.

Sections 1, 4 and 5 apply to the whole personal watercraft. Section 3 illustrates procedures for removal/installation of components that may be required to perform service described in the following sections. Section 6 through 19 describe parts of the personal watercraft, grouped according to location.

Find the section you want on this page, then turn to the table of contents on the first page of the section.

Most sections start with an assembly or system illustration, service information and troubleshooting for the section. The subsequent pages give detailed procedures.

If you are not familiar with this personal watercraft, read Technical Features in Section 2.


If you do not know the source of vehicle trouble, go to section 21 Troubleshooting.

CONTENTS

Your safety, and the safety of others, is very important. To help you make informed decisions we have provided safety messages and other information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this vehicle.

You must use your own good judgement.

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

- Safety Labels – on the vehicle
- 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 this vehicle correctly and safely.

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 your vehicle, other property, or the environment.














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Honda Motor Co., Ltd.
SERVICE PUBLICATION OFFICE

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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.

	<p>Replace the part(s) with new one(s) before assembly.</p>
	<p>Use the recommended engine oil, unless otherwise specified.</p>
	<p>Use molybdenum oil solution (mixture of engine oil and molybdenum grease in a ratio of 1 : 1).</p>
	<p>Use multi-purpose grease (lithium based multi-purpose grease NLGI #2 or equivalent).</p>
	<p>Use water resistant grease #0 (Urea based multi-purpose grease NLGI #0 or equivalent). Example: EXCELITE EP0 manufactured by KYODO YUSHI, Japan</p>
	<p>Use water resistant grease #2 (Urea based multi-purpose grease NLGI #2 or equivalent). Example: EXCELITE EP2 manufactured by KYODO YUSHI, Japan</p>
	<p>Use water resistant molybdenum disulfide grease (containing more than 3% molybdenum disulfide, NLGI #2 or equivalent). Example: UNILITE M No.2 manufactured by KYODO YUSHI, Japan</p>
	<p>Use molybdenum disulfide grease (containing more than 3% molybdenum disulfide, NLGI #2 or equivalent). Example: Molykote® BR-2 plus manufactured by Dow Corning, U.S.A. Multi-purpose M-2 manufactured by Mitsubishi Oil, Japan</p>
	<p>Use molybdenum disulfide paste (containing more than 40% molybdenum disulfide, NLGI #2 or equivalent). Example: Molykote® G-n Paste manufactured by Dow Corning, U.S.A. Honda Moly 60 (U.S.A. only) Rocol ASP manufactured by Rocol Limited, U.K. Rocol Paste manufactured by Sumico Lubricant, Japan</p>
	<p>Use silicone grease.</p>
	<p>Apply a locking agent. Use a medium strength locking agent unless otherwise specified.</p>
	<p>Apply sealant (engine).</p>
	<p>Apply silicone sealant (SHIN-ETSU KE45T or equivalent).</p>

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GENERAL INFORMATION

SERVICE RULES

1. Use genuine Honda or Honda-recommended parts and lubricants or their equivalents. Parts that do not meet Honda's design specifications may cause damage to the watercraft.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Use only metric tools when servicing the watercraft. Metric bolts, nuts and screws are not interchangeable with English fasteners.
4. Install new gaskets, O-rings, cotter pins, and lock plates when reassembling.
5. When tightening bolts or nuts, begin with the larger diameter or inner bolt first. Then tighten to the specified torque diagonally in incremental steps unless a particular sequence is specified.
6. Clean parts in cleaning solvent upon disassembly. Lubricate any sliding surfaces before reassembly.
7. After reassembly, check all parts for proper installation and operation.
8. Route all electrical wires as shown in the Cable and Harness Routing (page 1-19).

ABBREVIATION

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

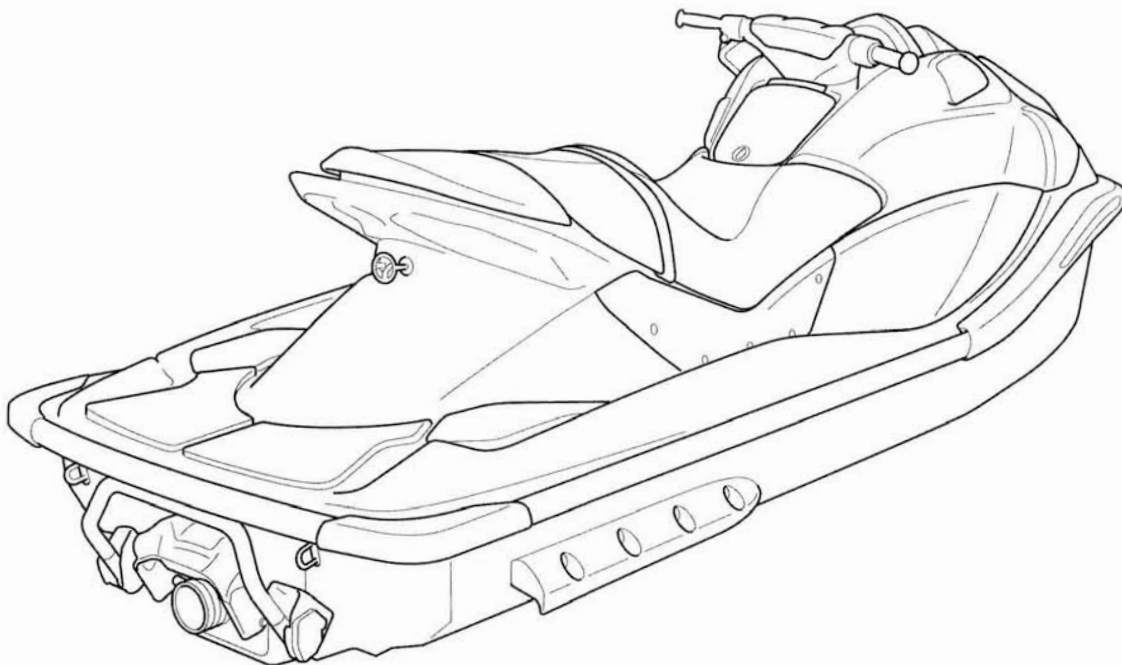
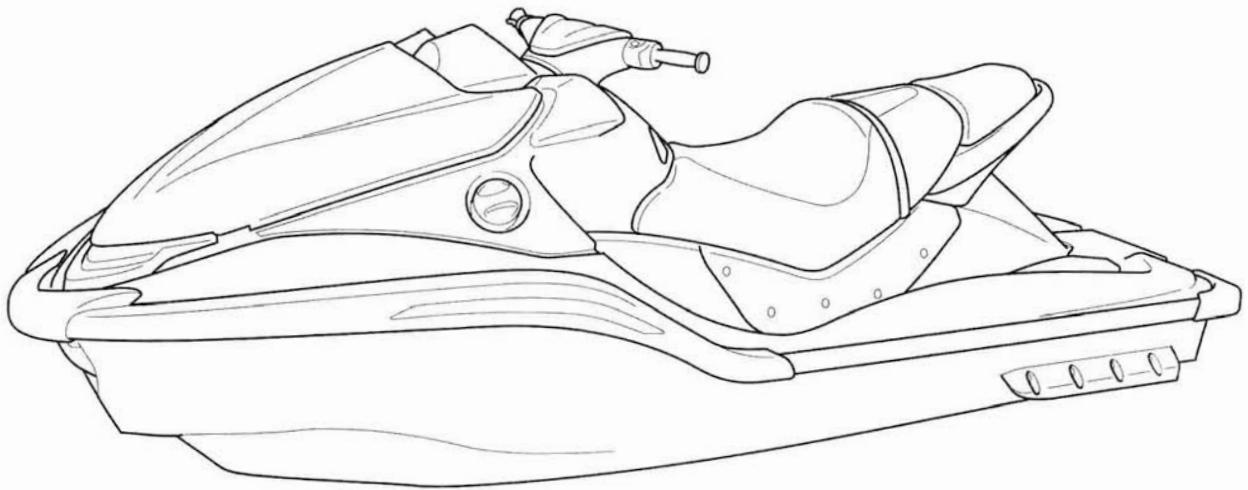
Abbrev. term	Full term
PGM-FI	Programmed Fuel Injection
MAP sensor	Manifold Absolute Pressure sensor
TCP sensor	Turbo Charged Pressure sensor
TP sensor	Throttle Position sensor
ECT sensor	Engine Coolant Temperature sensor
IAT sensor	Intake Air Temperature sensor
EOT sensor	Engine Oil Temperature sensor
CMP sensor	Camshaft Position sensor
CKP sensor	Crankshaft Position sensor
EOP (High) switch	Engine Oil pressure (High) switch
EOP (Low) switch	Engine Oil pressure (Low) switch
IACV	Idle Air Control Valve
MST switch	Manifold Surface Temperature switch
WMT sensor	Water Muffler Temperature sensor
ECM	Engine Control Module
EEPROM	Electrically Erasable Programmable Read Only Memory
DLC	Data Link Connector
SCS connector	Service Check Short connector
HDS	Honda Diagnostic System
DTC	Diagnostic Trouble Code
MIL	Malfunction Indicator Lamp
FP	Fuel Pump
OTS	Off-Throttle Steering

MODEL IDENTIFICATION

This manual covers two types of ARX1500 models:

- T3: Turbocharger model
- T3D: Turbocharger model equipped with GPS receiver and boarding step

Be sure to refer to the procedure that pertains to the appropriate version of the ARX1500.

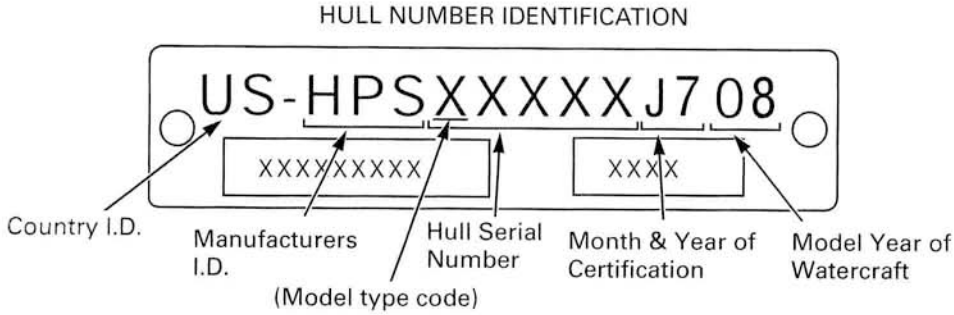


GENERAL INFORMATION

SERIAL NUMBERS

The engine serial number, hull identification number are used to register the watercraft. They are unique numbers that distinguish each watercraft from other similar models.

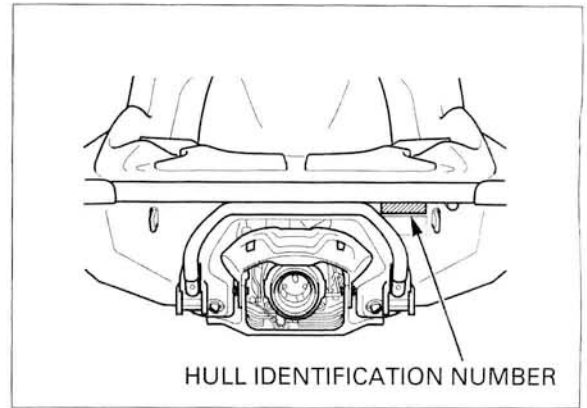
If the watercraft is ever stolen these numbers will help identify it. The owner should keep a record of these numbers in a place other than the watercraft.



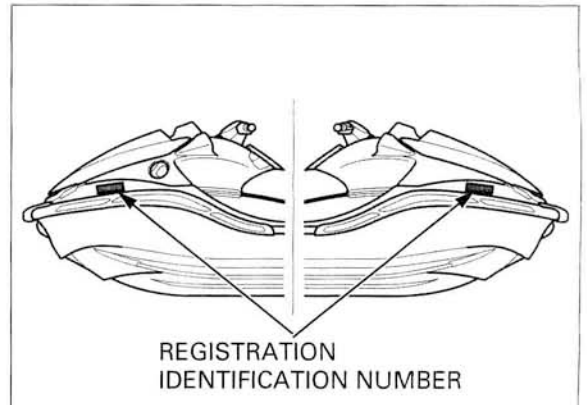
Month code: A = January, B = February.....L = December

Year of certification: 08 = 2008; etc.

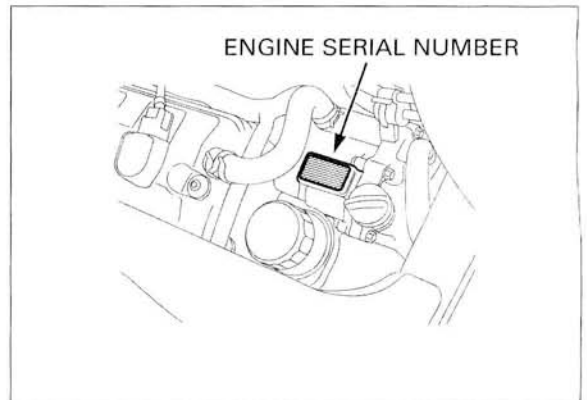
The hull identification number is located on the rear of the hull.



The registration identification number is located on both sides of the watercraft.

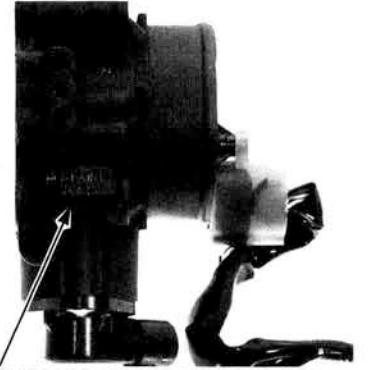


The engine serial number is located on the upper side of the oil tank.



GENERAL INFORMATION

The throttle body identification number is stamped on the lower side of the throttle body.

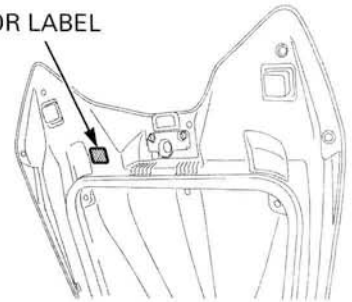


THROTTLE BODY IDENTIFICATION NUMBER

LABELS

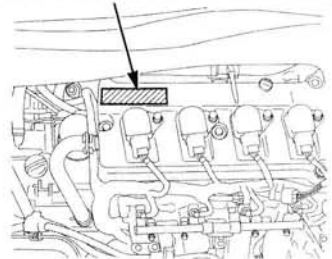
The color label is attached on the inside of the front hood. When ordering color-coded parts, always specify the designated color code.

COLOR LABEL

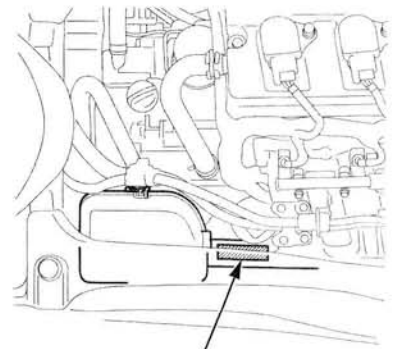


The Emission Control Information Label is located on the cylinder head cover as shown. It gives basic emissions certification information.

EMISSION CONTROL INFORMATION LABEL



Canada model only:



EMISSION CONTROL INFORMATION LABEL

LUBRICATION SYSTEM SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Engine oil capacity	After draining	4.2 liters (4.4 US qt, 3.7 Imp qt)	–
	After draining/filter change	4.3 liters (4.5 US qt, 3.8 Imp qt)	–
	After disassembly	5.3 liters (5.6 US qt, 4.7 Imp qt)	–
Recommended engine oil		Pro Honda GN4 4-stroke oil (U.S.A and Canada) or equivalent motor oil API service classification: SG or Higher JASO T 903 standard: MA Viscosity: SAE 10W-30	–
Oil pressure (At EOP (Low) switch)		294 kPa (3.0 kgf/cm ² , 43 psi) at 3,000 rpm/(80°C/176°F)	–
Oil pump rotor	Tip clearance	0.15 (0.006)	0.20 (0.008)
	Body clearance	0.15 – 0.23 (0.006 – 0.009)	0.35 (0.014)
	Side clearance	0.04 – 0.09 (0.002 – 0.004)	0.12 (0.005)
Oil thermostat	Begin to open	95 – 101 °C (203 – 217 °F)	–
	Fully open	107 °C (225 °F)	–
	Valve lift	4.2 (0.17)	–

FUEL SYSTEM (Programmed Fuel Injection) SPECIFICATIONS

ITEM	SPECIFICATIONS	
Throttle body identification number	AC54 – 954	
Idle speed	1,200 ± 100 rpm	
Throttle lever free play	3 – 5 mm (1/8 – 3/16 in)	
ECT sensor resistance	at 20°C/68°F	2.2 – 2.8 kΩ
	at 100°C/212°F	0.1 – 0.2 kΩ
EOT sensor resistance	at 20°C/68°F	2.5 – 2.8 kΩ
	at 100°C/212°F	0.2 – 0.3 kΩ
WMT sensor resistance	at 20°C/68°F	2.5 – 2.8 kΩ
	at 100°C/212°F	0.2 – 0.3 kΩ
Fuel injector resistance (at 20°C/68°F)	9.9 – 11.1 Ω	
CMP sensor peak voltage (at 20°C/68°F)	0.7 V minimum	
CKP sensor peak voltage (at 20°C/68°F)	0.7 V minimum	
Fuel pressure at idle	294 kPa (3.0 kgf/cm ² , 43 psi)	
Fuel pump flow (at 12V)	310 cm ³ (10.5 US oz, 10.9 Imp oz) minimum/10 seconds	

GENERAL INFORMATION

CYLINDER HEAD/VALVE SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Cylinder compression		1,177 kPa (12.0 kgf/cm ² , 171 psi) at 350 rpm	-
Valve clearance	IN	0.20 ± 0.03 (0.008 ± 0.001)	-
	EX	0.26 ± 0.03 (0.010 ± 0.001)	-
Camshaft	Cam lobe height	IN	37.68 – 37.92 (1.483 – 1.493)
		EX	37.74 – 37.98 (1.487 – 1.495)
	Runout		-
	Oil clearance		0.020 – 0.062 (0.0008 – 0.0024)
Valve lifter	Valve lifter O.D.	25.978 – 25.993 (1.0228 – 1.0233)	25.97 (1.022)
	Valve lifter bore I.D.	26.010 – 26.026 (1.0240 – 1.0246)	26.04 (1.025)
Valve, valve guide	Valve stem O.D.	IN	4.975 – 4.990 (0.1959 – 0.1965)
		EX	4.960 – 4.975 (0.1953 – 0.1959)
	Valve guide I.D.	IN/EX	5.000 – 5.012 (0.1969 – 0.1973)
	Stem-to-guide clearance	IN	0.010 – 0.037 (0.0004 – 0.0015)
		EX	0.025 – 0.052 (0.0010 – 0.0020)
	Valve guide projection above cylinder head	IN/EX	16.3 – 16.5 (0.64 – 0.65)
Valve seat width	IN/EX	0.90 – 1.10 (0.035 – 0.043)	1.5 (0.06)
Valve spring free length	IN/EX	43.52 (1.7133)	41.5 (1.63)
Cylinder head warpage		-	0.10 (0.004)

ALTERNATOR/STARTER CLUTCH SPECIFICATIONS

Unit: mm (in)

ITEM	STANDARD	SERVICE LIMIT
Starter driven gear boss O.D.	51.699 – 51.718 (2.0354 – 2.0361)	51.684 (2.0348)

CRANKSHAFT/BALANCER/PISTON SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT	
Crankshaft	Connecting rod side clearance	0.15 – 0.30 (0.006– 0.012)	0.30 (0.012)	
	Crankpin bearing oil clearance	0.026 – 0.050 (0.0010 – 0.0020)	0.06 (0.002)	
	Main journal oil clearance	0.018 – 0.036 (0.0007 – 0.0014)	0.045 (0.0018)	
	Balancer oil clearance	0 – 0.051 (0 – 0.0020)	0.06 (0.002)	
	Runout	-	0.3 (0.01)	
Piston, piston rings	Piston O.D. at 4 (0.2) from bottom	78.970 – 78.990 (3.1090 – 3.1098)	78.90 (3.106)	
	Piston pin hole I.D.	22.002 – 22.008 (0.8662 – 0.8665)	22.03 (0.867)	
	Piston pin O.D.	21.994 – 22.000 (0.8659 – 0.8661)	21.984 (0.8655)	
	Piston-to-piston pin clearance	0.002 – 0.014 (0.0001 – 0.0006)	-	
	Piston ring end gap	Top	0.175 – 0.325 (0.0069 – 0.0128)	0.48 (0.019)
		Second	0.40 – 0.55 (0.016 – 0.022)	0.7 (0.03)
		Oil (side rail)	0.2 – 0.8 (0.01 – 0.03)	1.0 (0.04)
Piston ring-to-ring groove clearance	Top	0.030 – 0.070 (0.0012 – 0.0028)	0.08 (0.003)	
	Second	0.015 – 0.045 (0.0006 – 0.0018)	0.06 (0.002)	
Cylinder	I.D.	79.000 – 79.015 (3.1102 – 3.1108)	79.10 (3.114)	
	Out-of-round	-	0.10 (0.004)	
	Taper	-	0.10 (0.004)	
	Warpage	-	0.05 (0.002)	
Cylinder-to-piston clearance		0.010 – 0.045 (0.0004 – 0.0018)	-	
Connecting rod small end I.D.		22.030 – 22.051 (0.8673 – 0.8681)	22.061 (0.8685)	
Connecting rod-to-piston pin clearance		0.030 – 0.057 (0.0012 – 0.0022)	-	

PROPULSION SYSTEM SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Impeller	Material	Stainless steel	-
	Number of blades	3	-
	O.D.	154.6 – 154.8 (6.086 – 6.094)	-
Water jet stator I.D. (impeller housing area)		155.30 – 155.55 (6.114 – 6.124)	-
Impeller clearance		0.3 – 0.5 (0.01 – 0.02)	0.9 (0.04)
Drive shaft runout		-	0.2 (0.01)

BATTERY/CHARGING SYSTEM SPECIFICATIONS

ITEM			SPECIFICATIONS
Battery	Capacity		12 V – 18 Ah
	Current leakage		2 mA max.
	Voltage (20°C/68°F)	Fully charged	13.0 – 13.2 V
		Needs charging	Below 12.3 V
	Charging current	Normal	1.8 A/5 – 10 h
Quick		9.0 A/1.0 h	
Alternator	Capacity	0.31 kW/5,000 rpm	
	Charging coil resistance (20°C/68°F)		0.1 – 1.0 Ω

IGNITION SYSTEM SPECIFICATIONS

ITEM	SPECIFICATIONS
Spark plug (Iridium)	IMR9D-9H (NGK)
Spark plug gap	0.80 – 0.90 mm (0.031 – 0.035 in)
Ignition coil signal peak voltage	0.7 V minimum
CKP sensor peak voltage	0.7 V minimum
Ignition timing ("F" mark)	5° BTDC at idle

ELECTRIC STARTER SPECIFICATIONS

Unit: mm (in)

ITEM	STANDARD	SERVICE LIMIT
Starter motor brush length	12.0 (0.47)	6.5 (0.26)

METER/SWITCHES SPECIFICATIONS

ITEM		SPECIFICATIONS
Bulb	Warning indicator	LED
Fuse	Main fuse	30 A
	Sub fuse	15 A X 3, 5 A X 2
Tachometer peak voltage		9 V minimum

GENERAL INFORMATION

TORQUE VALUES

STANDARD TORQUE VALUES

FASTENER TYPE	TORQUE FASTENER TYPE	N·m (kgf·m, lbf·ft)	TORQUE N·m (kgf·m, lbf·ft)
5 mm hex bolt and nut	4.9 (0.5, 3.6)	5 mm screw	3.9 (0.4, 2.9)
6 mm hex bolt and nut	9.8 (1.0, 7)	6 mm screw	8.8 (0.9, 6.5)
8 mm hex bolt and nut	22 (2.2, 16)	6 mm flange bolt	9.8 (1.0, 7)
10 mm hex bolt and nut	34 (3.5, 25)	(8 mm head, small flange)	
12 mm hex bolt and nut	54 (5.5, 40)	6 mm flange bolt	12 (1.2, 9)
		(8 mm head, large flange)	
		6 mm flange bolt	12 (1.2, 9)
		(10 mm head) and nut	
		8 mm flange bolt and nut	26 (2.7, 20)
		10 mm flange bolt and nut	39 (4.0, 29)

- Torque specifications listed below are for main fasteners.
- Other fasteners should be tightened to standard torque values listed above.

HULL/HOOD/BODY PANELS

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Sponson bolt	8	8	22 (2.2, 16)	Apply locking agent to the threads
Pilot water nozzle nut	1	12	1.5 (0.15, 1.1)	See page 3-6
Bow eye nut	2	8	17 (1.7, 13)	
Side panel socket bolt	12	6	7 (0.71, 5.2)	See page 3-7
Passenger grab rail socket bolt	6	6	7 (0.71, 5.2)	Apply locking agent to the threads
Stern eyelet plate nut	4	8	17 (1.7, 13)	
Noise reduction damper nut	3	6	10 (1.0, 7)	
Side cover socket bolt (small)	6	5	4 (0.41, 3.0)	Apply locking agent to the threads
Side cover socket bolt (large)	2	6	7 (0.71, 5.2)	
Reverse lever rail socket bolt	1	6	10 (1.0, 7)	
Post cover bolt	4	6	10 (1.0, 7)	
Hood hinge mounting nut	7	6	10 (1.0, 7)	
Coupler cover bolt	2	6	10 (1.0, 7)	
Boarding step pipe screw (ARX1500T3D only)	2	1/4-20UNC	9 (0.92, 6.6)	Apply locking agent to the threads
Boarding step bracket bolt (ARX1500T3D only)	4	8	26 (2.7, 19)	Apply locking agent to the threads
Hood catch stud nut	1	10	41 (4.2, 30)	Self-lock nut.
Hood catch nut	2	6	10 (1.0, 7)	Self-lock nut.
Hood damper rod ball stud	2	8	22 (2.2, 16)	
Seat catch stud nut (front and rear)	2	10	39 (4.0, 29)	Self-lock nut.
Seat catch bolt (front and rear)	4	6	5.5 (0.56, 4.0)	
Tow hook nut	2	3/8-16UNC	22 (2.2, 16)	Apply locking agent to the threads

GENERAL INFORMATION

MAINTENANCE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Throttle cable lock nut	2	6	5.5 (0.56, 4.0)	Apply engine oil to the threads and seating surface
Spark plug	4	10	16 (1.6, 12)	
Engine oil filter cartridge	1	20	26 (2.7, 19)	
Anode (turbocharger)	1	8	1.0 (0.10, 0.7)	Apply locking agent to the threads
Anode cap (turbocharger)	1	18	49 (5.0, 36)	Apply multi-purpose grease to the threads
Anode cap (oil tank cover)	1	36	18 (1.8, 13)	
Reverse cable joint lock nut	2	5	4.0 (0.41, 3.0)	
Steering cable joint lock nut	2	6	7 (0.71, 5.2)	
Bearing housing grease nipple	1	6	4.2 (0.43, 3.1)	
Bearing housing grease nipple joint	1	10	10 (1.0, 7)	

LUBRICATION SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Oil filter boss (oil tank side)	1	20	See page 6-7	Apply locking agent to the threads
Oil tank/front crankcase cover bolt (8 mm)	1	8	22 (2.2, 16)	
Oil pump/front crankcase cover bolt (8 mm)	1	8	22 (2.2, 16)	
Front crankcase cover bolt (6 x 40 mm)	5	6	18 (1.8, 13)	
Front crankcase cover bolt (6 x 90 mm)	1	6	18 (1.8, 13)	
Front crankcase cover bolt (6 x 100 mm)	1	6	12 (1.2, 9)	
Front crankcase cover bolt (6 x 75 mm)	1	6	12 (1.2, 9)	
Oil cooler bolt	4	6	12 (1.2, 9)	
Oil thermostat cap	1	38	12 (1.2, 9)	
Oil pump driven joint bolt	1	6	17 (1.7, 13)	
18 mm sealing bolt (front crankcase cover)	6	18	30 (3.1, 22)	
Crankcase breather hose clamp bolt (oil tank side)	1	6	6.5 (0.66, 4.8)	

GENERAL INFORMATION

FUEL SYSTEM (Programmed Fuel Injection)

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Fuel pump lock nut	1	–	93 (9.5, 69)	
Airbox mounting bolt	1	6	8 (0.82, 5.9)	
Airbox band screw	1	–	0.69 (0.07, 0.5)	
Airbox connecting hose band screw	1	–	0.69 (0.07, 0.5)	
Pressure regulator mounting bolt	2	6	9.8 (1.00, 7.2)	
Fuel hose joint mounting bolt	2	6	9.8 (1.00, 7.2)	
Fuel feed pipe mounting bolt	4	5	5.4 (0.55, 4.0)	
Throttle body mounting bolt	4	8	19.6 (2.0, 14)	
Intake manifold mounting socket bolt	8	8	22 (2.2, 16)	
EOP (Low) switch	1	PT 1/8	12 (1.2, 9)	Apply sealant to the threads
EOP (High) switch	1	10	22 (2.2, 16)	
MAP sensor mounting bolt	1	5	5.4 (0.55, 4.0)	
ECT sensor	1	10	12 (1.2, 9)	
EOT sensor	1	10	15 (1.5, 11)	
IAT sensor mounting screw	2	5	5.4 (0.55, 4.0)	
Knock sensor	1	12	32 (3.3, 24)	Apply sealant to the threads
ECM mounting bolt	2	6	8 (0.82, 5.9)	
OTS limit switch	1	20	2.2 (0.22, 1.6)	
Throttle cable stay mounting screw (intake manifold side)	2	6	5.4 (0.55, 4.0)	
Maintenance port cap chain mounting screw	1	5	5.4 (0.55, 4.0)	

ENGINE MOUNTING

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Engine mounting bolt	4	12	60 (6.1, 44)	Apply engine oil to the threads and seating surface
Engine mounting bolt (with rubber mount)	8	10	43 (4.4, 32)	Apply engine oil to the threads and seating surface

CYLINDER HEAD/VALVE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cylinder head cover bolt	4	6	10 (1.0, 7)	
Camshaft holder bolt	20	6	12 (1.2, 9)	Apply engine oil to the threads and seating surface
Cylinder head mounting bolt	10	10	69 (7.0, 51)	Apply molybdenum oil solution to the threads and seating surface
Cam chain tensioner pivot bolt	1	10	22 (2.2, 16)	Apply locking agent to the threads
Cam chain tensioner lifter socket bolt	2	6	10 (1.0, 7)	
Cam sprocket bolt	4	7	20 (2.0, 15)	Apply locking agent to the threads
CMP sensor rotor bolt	2	6	12 (1.2, 9)	Apply locking agent to the threads

GENERAL INFORMATION

ALTERNATOR/STARTER CLUTCH

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Alternator stator mounting bolt	4	6	10 (1.0, 7)	Apply locking agent to the threads
Alternator wire clamp bolt	1	6	12 (1.2, 9)	
Starter clutch outer torx bolt	6	6	16 (1.6, 12)	
Flywheel bolt	1	12	137 (14.0, 101)	Apply engine oil to the threads and seating surface; Left-hand threads
Drive coupler	1	24	30 (3.1, 22)	

CRANKSHAFT/BALANCER/PISTON

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Turbocharger oil feed pipe oil filter bolt	1	12	32 (3.3, 24)	Apply engine oil to the threads and seating surface
Turbocharger oil return pipe mounting bolt	2	6	14 (1.4, 10)	
Crankcase bolt (9 mm)	14	9	37 (3.8, 27)	
(8 mm)	14	8	25 (2.5, 18)	Apply engine oil to the threads and seating surface
Oil drain pipe guide bolt	1	6	12 (1.2, 9)	
Drive coupler bolt	1	10	69 (7.0, 51)	
Connecting rod bearing cap nut	8	9	46 (4.7, 34)	Apply engine oil to the threads and seating surface
Balancer reduction gear shaft sealing cap	1	18	30 (3.1, 22)	Apply locking agent to the threads
20 mm sealing bolt	1	20	49 (5.0, 36)	
45 mm sealing cap (upper crankcase)	1	45	18 (1.8, 13)	
				Apply multi-purpose grease to the threads

GENERAL INFORMATION

EXHAUST SYSTEM/TURBOCHARGER

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Oil return pipe oil bolt (rear of turbo-charger)	1	12	28 (2.9, 21)	Apply locking agent to the threads See page 13-11
Oil feed pipe oil orifice bolt (upper of turbocharger)	1	10	20 (2.0, 15)	
Water hose joint bolt (turbocharger)	4	6	12 (1.2, 9)	
Turbocharger stud bolt	4	8	-	

PROPULSION SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Water jet nozzle bolt	4	8	22 (2.2, 16)	Apply locking agent to the threads
Jet pump mounting bolt	4	8	22 (2.2, 16)	Apply locking agent to the threads
Cooling water pipe bolt	4	6	10 (1.0, 7)	Apply locking agent to the threads
Stator cap socket bolt	3	5	4.0 (0.41, 3.0)	Apply locking agent to the threads
Impeller	1	18	140 (14.3, 103)	Apply water resistant molybdenum disulfide grease to the threads
Thrust plate bolt	4	10	39 (4.0, 29)	Apply locking agent to the threads
Bearing housing boot band screw	1	4	1 (0.10, 0.7)	Apply engine oil to the threads and seating surface
Bearing housing mounting nut	3	8	22 (2.2, 16)	
Driven coupler bolt	1	10	49 (5.0, 36)	
Intake grate bolt	4	8	26 (2.7, 19)	Apply locking agent to the threads
Ride plate bolt	6	8	26 (2.7, 19)	Apply locking agent to the threads

STEERING/REVERSE SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Handlebar holder bolt	4	8	22 (22, 16)	
Left handlebar switch housing screw	3	5	1.5 (0.15, 1.1)	
Throttle lever pivot bolt	1	5	4.0 (0.41, 3.0)	Apply locking agent to the threads
Throttle lever holder screw	2	6	2.5 (0.26, 1.8)	
Steering shaft holder nut	4	8	27 (2.8 20)	Self-lock nut
Steering shaft retainer nut	3	6	7 (0.71, 5.2)	Apply locking agent to the threads
Steering cable bracket mounting nut	2	6	10 (1.0, 7)	Self-lock nut
Steering cable bracket holder bolt	2	6	10 (1.0, 7)	Apply locking agent to the threads
Steering cable arm holder nut	2	6	7 (0.71, 5.2)	Self-lock nut, Apply locking agent to the threads
Steering cable joint pivot nut (cable arm and steering nozzle)	2	6	10 (1.0, 7)	
Steering cable joint pivot lock nut (cable arm and steering nozzle)	2	6	10 (1.0, 7)	Self-lock nut
Steering cable setting nut (thrust plate)	1	24	13 (1.3, 10)	
Steering nozzle pivot bolt	2	8	22 (2.2, 16)	Apply locking agent to the threads
Reverse lever holder mounting nut	3	6	10 (1.0, 7)	Apply locking agent to the threads
Reverse lever pivot socket bolt	1	6	10 (1.0, 7)	
Reverse cable setting nut (thrust plate)	1	24	13 (1.3, 10)	
Reverse bucket pivot bolt	2	8	22 (2.2, 16)	Apply locking agent to the threads
Reverse bucket guide nut	1	6	10 (1.0, 7)	Self-lock nut
Reverse bucket arm pivot bolt	1	8	22 (2.2, 16)	Apply locking agent to the threads
Reverse bucket catch bolt (bucket arm)	2	6	10 (1.0, 7)	Apply locking agent to the threads
Reverse lever pivot link bolt	3	6	10 (1.0, 7)	
Reverse cable joint stud (bucket arm)	1	6	10 (1.0, 7)	Apply locking agent to the threads

ELECTRIC STARTER

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Starter motor case mounting bolt	2	5	4.9 (0.50, 3.6)	
Starter motor brush mounting screw	1	5	3.7 (0.38, 2.7)	
Starter relay switch box cover mounting bolt	4	6	8 (0.82, 5.9)	
Starter relay switch box cover connector stay bolt	1	6	8 (0.82, 5.9)	

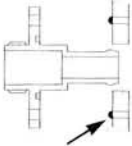
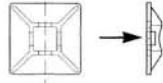

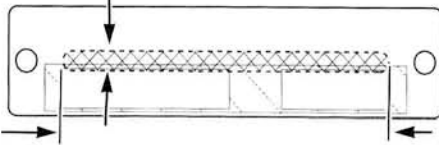
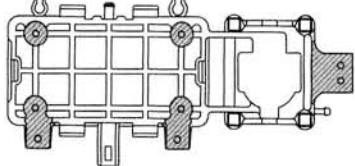
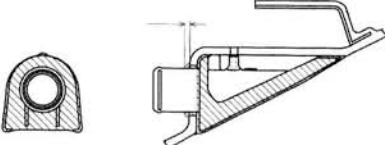
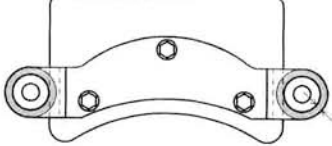
GENERAL INFORMATION

LUBRICATION & SEAL POINTS

ENGINE

MATERIAL	LOCATION	REMARKS
Sealant	Crankcase mating surface Oil pan mating surface EOP (Low) switch threads Knock sensor threads	See page 12-21 See page 8-89
Silicone sealant	Crankcase mating surface (front crankcase cover side) Front crankcase cover wire grommet seating areas Cylinder head semi-circular area edges	See page 6-14 See page 6-14 See page 10-26
Molybdenum disulfide oil (a mixture of engine oil and molybdenum disulfide grease in a ratio of 1:1)	Valve stem sliding surface Valve lifter outer surface Camshaft cam lobes, journals and thrust surfaces Starter reduction gear shaft outer surface Piston pin outer surface Crankshaft main journal bearing sliding surface and thrust surface Balancer journal bearing sliding surface Crankpin bearing sliding surface	
Engine oil	Piston and piston ring sliding surface Starter sprag clutch contacting surfaces Each gear tooth and rotating surface Each bearing rotating area Each O-ring Other rotating and sliding areas	
Multi-purpose grease	Each oil seal lip Oil cooler spacer O-ring	
Locking agent	20 mm sealing bolt (lower crankcase) MST switch setting plate bolt threads Oil pump driven joint bolt threads Anode threads (turbocharger) Anode tightening screw threads Water hose joint bolt threads (turbocharger lower side) Cam sprocket bolt threads Starter clutch outer torx bolt threads	Coat 6.5 mm from tip Coat 6.5 mm from tip Coat 6.5 mm from tip Coat 6.5 mm from tip Coat 6.5 mm from tip Coat 6.5 mm from tip Coat 6.5 mm from tip Coat 6.5 mm from tip
SHIN-ETSU KS613 grease or Dow Corning SC102	MST switch outer surface	1.4 cm ³ (page 8-88)

BODY

MATERIAL	LOCATION	REMARKS
Silicone sealant	<p>Flushing connector seating surface and screw holes</p>  <p>Pilot water nozzle threads and seating surface Exhaust outlet screw holes (hull side) Bow eye stud plate mounting areas Stern eyelet plate mounting areas Drain plug base screw holes Ride plate front end fitting area Thrust plate seating surface</p>	<p>Apply 0.5 g (0.02 oz)</p> <p>See page 3-6 See page 13-16 See page 3-6 See page 3-8 See page 3-4 See page 14-21 See page 14-24</p>
<p>Equal mixture of two component urethane based adhesives (LOAD 7542 or equivalent)</p>	<p>Cable retaining base seating surface</p>   <p>Hull identification number plate</p> <p>5 mm (0.2 in)</p>  <p>92 mm (3.6 in)</p> <p>Starter relay switch box base (bottom side)</p>  <p>Drive shaft guide seating surface</p> <p>5 mm (0.2 in) maximum</p>  <p>Noise reduction damper bracket seating area</p>  <p>5 mm (0.2 in) maximum</p> <p>Intake lip fitting area Thrust plate bolt washer seating surface</p>	<p>Apply 0.5 g (0.02 oz)</p> <p>Apply 0.5 – 1.0 g (0.02 – 0.04 oz)</p> <p>Apply 10 g (0.4 oz)</p> <p>Does not overflow to end surface.</p> <p>Apply 0.5 – 1.0 g (0.02 – 0.04 oz)</p> <p>See page 14-25 See page 14-24</p>



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