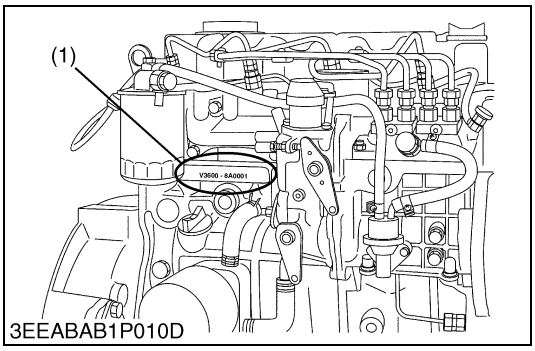
1. ENGINE IDENTIFICATION

[1] MODEL NAME AND ENGINE SERIAL NUMBER



When contacting the manufacture, always specify your engine model name and serial number.

The engine model and its serial number need to be identified before the engine can be serviced or parts replaced.

■ **Engine Serial Number**

The engine serial number is an identified number for the engine. It is marked after the engine model number.

It indicates month and year of manufacture as follows.

- **Year of manufacture**

Alphabet or Number	Year	Alphabet or Number	Year
1	2001	F	2015
2	2002	G	2016
3	2003	H	2017
4	2004	J	2018
5	2005	K	2019
6	2006	L	2020
7	2007	M	2021
8	2008	N	2022
9	2009	P	2023
A	2010	R	2024
B	2011	S	2025
C	2012	T	2026
D	2013	V	2027
E	2014		

(1) Engine Model Name and Serial Number

W1010477

■ **NOTE**

Engine Oil :

- **Refer to the following table for the suitable American Petroleum Institute (API) classification of engine oil according to the engine type (with internal EGR, external EGR or non-EGR) and the Fuel Type Used : (Low Sulfur, Ultra Low Sulfur or High Sulfur Fuels).**

Fuel Type	Engine oil classification (API classification)	
	Engines with non-EGR Engines with internal EGR	Engines with external EGR
High Sulfur Fuel [0.05 % (500 ppm) ≤ Sulfur Content < 0.50 % (5000 ppm)]	**CF** (If the "CF-4, CG-4, CH-4, or CI-4" engine oil is used with a high-sulfur fuel, change the engine oil at shorter intervals. (approximately half))	–
Low Sulfur Fuel [Sulfur Content < 0.05 % (500 ppm)] or Ultra Low Sulfur Fuel [Sulfur Content < 0.0015 % (15 ppm)]	**CF, CF-4, CG-4, CH-4** or **CI-4**	**CF** or **CI-4** (Class CF-4, CG-4 and CH-4 engine oils cannot be used on EGR type engines.)

EGR : Exhaust Gas Re-circulation

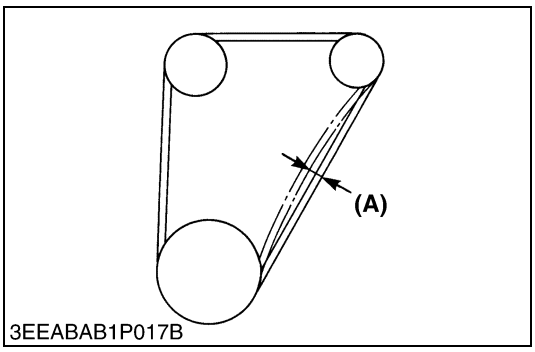
W1024941

- **CJ4 classification oil is intended for use in engines equipped with DPF (Diesel Particulate Filter) and is Not Recommended for use in Kubota E3 specification engines.**
- **Oil used in the engine should have API classification and Proper SAE Engine Oil Viscosity according to the ambient temperatures where the engine is operated.**
- **With strict emission control regulations now in effect, the CF-4 and CG-4 engine oils have been developed for use with low sulfur fuels, for On-Highway vehicle engines. When a Non-Road engine runs on high sulfur fuel, it is advisable to use a "CF or better" classification engine oil with a high Total Base Number (a minimum TBN of 10 is recommended).**

Fuel :

- **Cetane Rating : The minimum recommended Fuel Cetane Rating is 45. A cetane rating greater than 50 is preferred, especially for ambient temperatures below −20 °C (−4 °F) or elevations above 1500 m (5000 ft).**
- **Diesel Fuel Specification Type and Sulfur Content % (ppm) used, must be compliant with all applicable emission regulations for the area in which the engine is operated.**
- **Use of diesel fuel with sulfur content less than 0.10 % (1000 ppm) is strongly recommended.**
- **If high-sulfur fuel (sulfur content 0.50 % (5000 ppm) to 1.0 % (10000 ppm)) is used as a diesel fuel, change the engine oil and oil filter at shorter intervals. (approximately half)**
- **DO NOT USE Fuels that have sulfur content greater than 1.0 % (10000 ppm).**
- **Diesel fuels specified to EN 590 or ASTM D975 are recommended.**
- **No.2-D is a distillate fuel of lower volatility for engines in industrial and heavy mobile service. (SAE J313 JUN87)**
- **Since KUBOTA diesel engines of less than 56 kW (75 hp) utilize EPA Tier 4 and Interim Tier 4 standards, the use of low sulfur fuel or ultra low sulfur fuel is mandatory for these engines, when operated in US EPA regulated areas. Therefore, please use No.2-D S500 or S15 diesel fuel as an alternative to No.2-D, and use No.1-D S500 or S15 diesel fuel as an alternative to No.1-D for ambient temperatures below −10 °C (14 °F).**

1) SAE : Society of Automotive Engineers
2) EN : European Norm
3) ASTM : American Society of Testing and Materials
4) US EPA : United States Environmental Protection Agency
5) No.1-D or No.2-D, S500 : Low Sulfur Diesel (LSD) less than 500 ppm or 0.05 wt.%
   No.1-D or No.2-D, S15 : Ultra Low Sulfur Diesel (ULSD) 15 ppm or 0.0015 wt.%



Fan Belt Tension

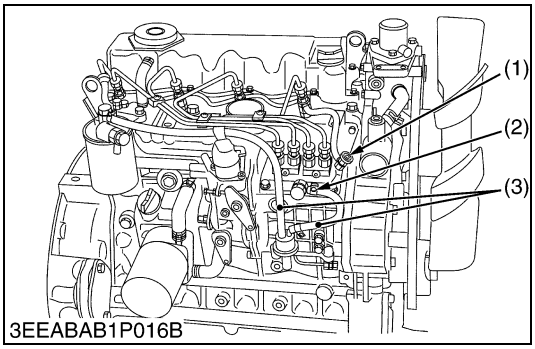
1. Measure the deflection **(A)**, depressing the belt halfway between the fan drive pulley and alternator pulley at specified force 98 N (10 kgf, 22 lbf).
2. If the measurement is not within the factory specifications, loosen the alternator mounting screws and relocate the alternator to adjust.

Deflection **(A)**	Factory spec.	10 to 12 mm 0.40 to 0.47 in.

(A) Deflection

W1208957

[3] CHECK POINT OF EVERY 50 HOURS



Checking Fuel Hose and Clamp Bands

1. If the clamp (2) is loose, apply oil to the threads and securely retighten it.
2. The fuel hose (3) is made of rubber and ages regardless of the period service.
   Change the fuel pipe together with the clamp every two years.
3. However, if the fuel hose and clamps are found to be damaged or deteriorate earlier than two years, then change or remedy.
4. After the fuel hose and the clamps have been changed, bleed the fuel system.

CAUTION

- **Stop the engine when attempting the check and change prescribed above.**

(When bleeding fuel system)

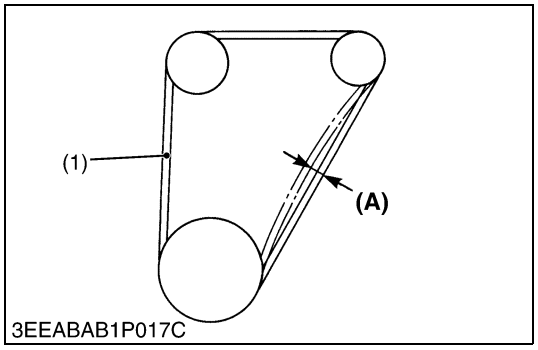
1. Fill the tank with fuel and open the cock.
2. Loosen the air vent coupling bolt of fuel filter a few turns.
3. When there is no more air bubbles in the fuel coming out of this coupling bolt, tighten the coupling bolt.
4. Open the air vent cock (1) on the top of fuel injection pump.
5. If equipped electrical fuel feed pump, turn the key on **AC** position and pump the fuel up for 10 to 15 seconds.
   If equipped mechanical fuel feed pump, set the stop lever on stop position and crank the engine for 10 to 15 seconds.
6. Close securely the air vent cock (1) after air bleeding.

■ IMPORTANT

- **Except when venting the air, be sure to keep closed the air vent coupling bolt of the fuel injection pump. Otherwise, the engine may stall.**

(1) Air Vent Cock
(2) Clamp
(3) Fuel Hose

W1035921



3EEABAB1P017C

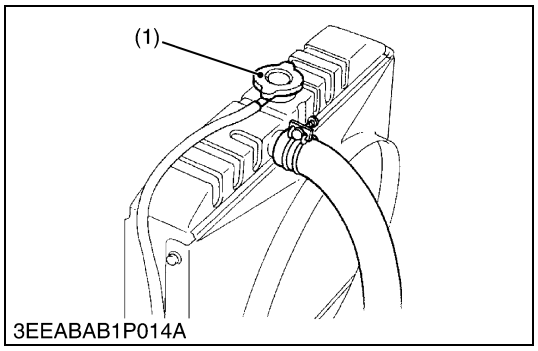
Replacing Fan Belt

1. Remove the alternator.
2. Remove the fan belt (1).
3. Replace new fan belt.
4. Install the alternator.
5. Check the fan belt tension.

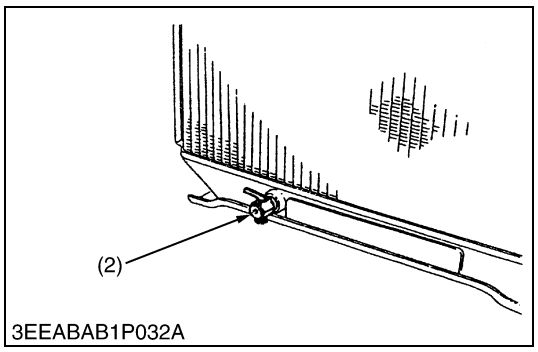
Deflection **(A)**	Factory spec.	10 to 12 mm / 98 N 0.40 to 0.47 in. / 98 N (10 kgf, 22 lbf)

(1) Fan Belt **(A) Deflection**

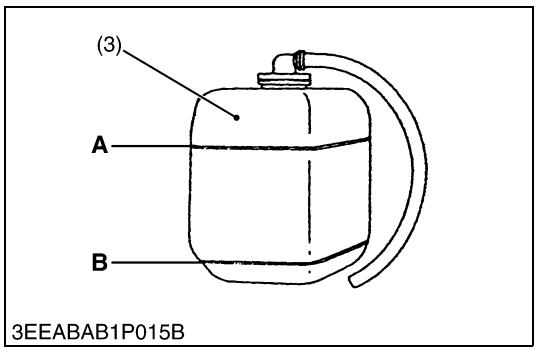
W1052220



3EEABAB1P014A



3EEABAB1P032A



3EEABAB1P015B

Cleaning Water Jacket and Radiator Interior

CAUTION

- **Do not remove the radiator cap when the engine is hot. Then loosen cap slightly to the stop to relieve any excess pressure before removing cap completely.**

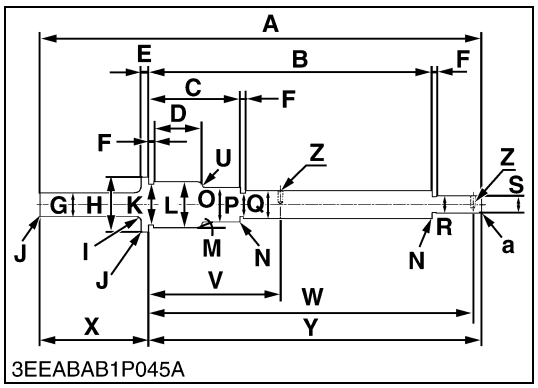
1. Stop the engine and let cool down.
2. To drain the coolant, open the radiator drain plug (2) and remove the radiator cap (1). Then radiator cap (1) must be removed to completely drain the coolant. And open the drain cock of engine body.
3. After all coolant is drained, close the drain plug.
4. Fill with clean water and cooling system cleaner.
5. Follow directions of the cleaner instruction.
6. After flushing, fill with clean water and anti-freeze until the coolant level is just below the port. Install the radiator cap (1) securely.
7. Fill with coolant up to “FULL” (**A**) mark on the recovery tank (3).
8. Start and operate the engine for few minutes.
9. Stop the engine and let cool. Check coolant level of radiator and recovery tank (3) and add coolant if necessary.

■ **IMPORTANT**

- **Do not start engine without coolant.**
- **Use clean, fresh, soft water and anti-freeze to fill the radiator and recovery tank.**
- **When the anti-freeze is mixed with fresh, soft water, the anti-freeze mixing ratio must be less than 50 %.**
- **Securely tighten radiator cap. If the cap is loose or improperly fitted, water may leak out and the engine could overheat.**

(1) Radiator Cap **A : Full**
(2) Drain Plug **B : Low**
(3) Recovery Tank

W1038102



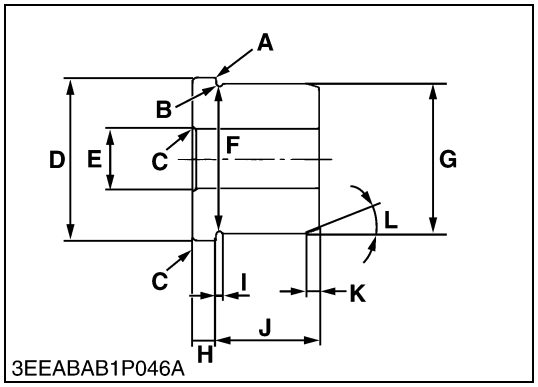
3EEABAB1P045A

Balancer Bushing Replacing Tool 1 Components Parts

1) Shaft

A	498 mm (19.6 in.)
B	318.80 to 319.20 mm (12.552 to 12.566 in.)
C	102.8 to 103.2 mm (4.048 to 4.062 in.)
D	60 mm (2.4 in.)
E	8 mm (0.3 in.)
F	5 mm (0.2 in.)
G	30 mm dia. (1.2 in. dia.)
H	65 mm dia. (2.6 in. dia.)
I	6 mm (0.2 in.)
J	Chamfer 1 mm (0.04 in.)
K	53 mm dia. (2.1 in. dia.)
L	54.7 to 54.9 mm dia. (2.154 to 2.161 in. dia.)
M	0.26 rad (15 °)
N	Chamfer 0.5 mm (0.02 in.)
O	41 mm dia. (1.6 in. dia.)
P	32 mm dia. (1.3 in. dia.)
Q	33.96 to 34.00 mm dia. (1.337 to 1.338 in. dia.)
R	18 mm dia. (0.71 in. dia.)
S	19.967 to 20.000 mm dia. (0.78611 to 0.78740 in. dia.)
U	3 mm (0.1 in.)
V	149.1 to 149.4 mm (5.870 to 5.882 in.)
W	365.10 to 365.40 mm (14.374 to 14.385 in.)
X	123 mm (4.84 in.)
Y	375 mm (14.8 in.)
Z	M6 × P1.0 depth 7 mm (0.3 in.)
a	Chamfer 2 mm (0.08 in.)

W1043162



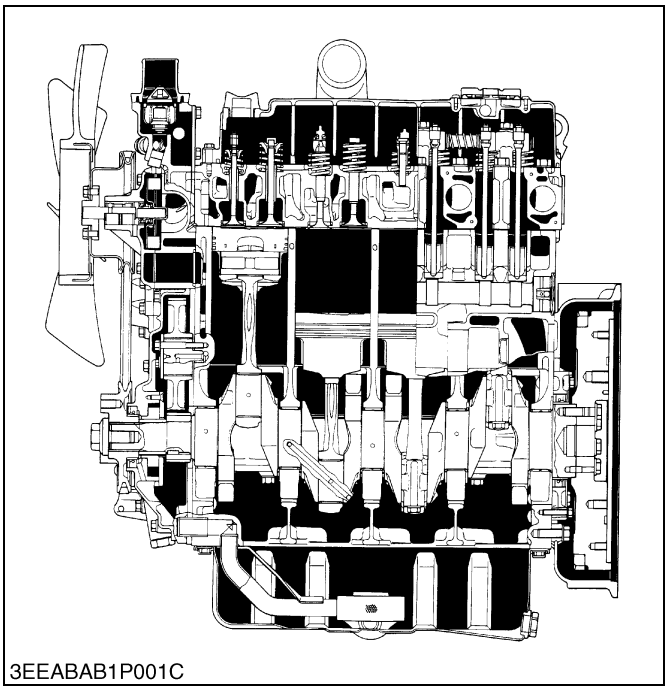
3EEABAB1P046A

2) Piece 1

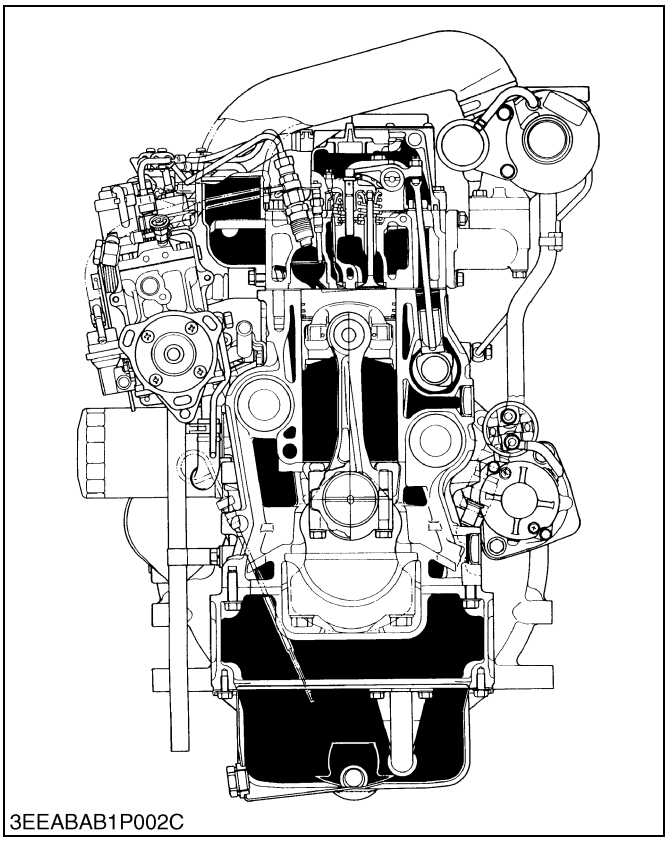
A	Chamfer 0.1 mm (0.004 in.)
B	1 mm (0.04 in.)
C	Chamfer 1 mm (0.04 in.)
D	53.80 to 53.90 mm dia. (2.119 to 2.122 in. dia.)
E	20.020 to 20.041 mm dia. (0.78819 to 0.78901 in. dia.)
F	48 mm dia. (1.9 in. dia.)
G	49.934 to 49.940 mm dia. (1.9659 to 1.9661 in. dia.)
H	8 mm (0.3 in.)
I	2 mm (0.08 in.)
J	35 mm dia. (1.4 in. dia.)
K	5 mm (0.20 in.)
L	0.26 rad (15 °)

W1044434

1. FEATURE



3EEABAB1P001C



3EEABAB1P002C

[V3600-E3B, V3600-T-E3B, V3600-E3CB, V3600-T-E3CB, V3300-E3BG, V3600-T-E3BG]

V3 series IDI engine is the vertical type 4-cycle diesel engine featuring the advanced performances shown below.

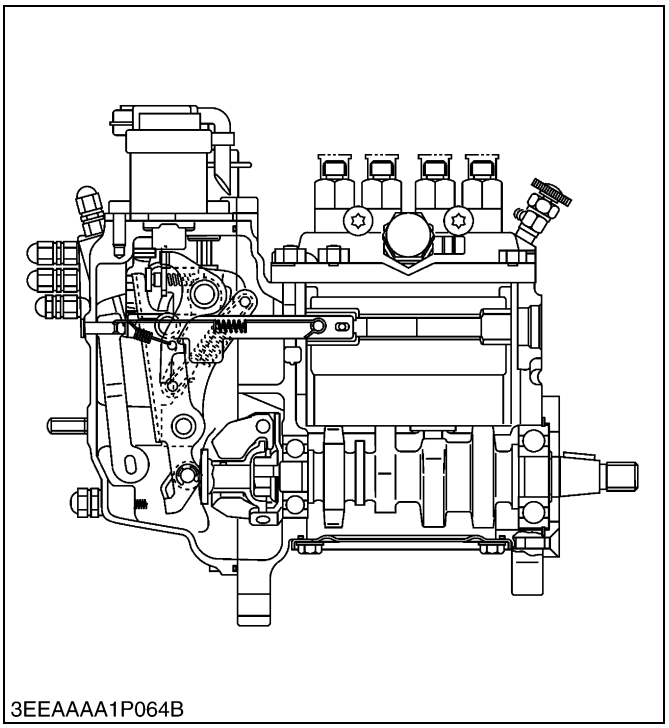
This is a small sized, high power and environment conscious engine, which employs the three valve system, two inlet valves with double ports, and one exhaust valve with the new E-TVCS VERSION-II. Thus, this engine achieves high combustion efficiency and complies with various regulations of exhaust gas.

Based upon the conventional model, Kubota developed a unique governor system and various new mechanisms which reduces exhaust emission, noise and vibration and realize durability and high torque.

W1013043

5. FUEL SYSTEM

[1] GOVERNOR (STANDARD MECHANICAL TYPE)



3EEAAAA1P064B

The engine employs the separated fuel injection pump in combination with Kubota's own small multi-function mechanical governor, which enable more dependability.

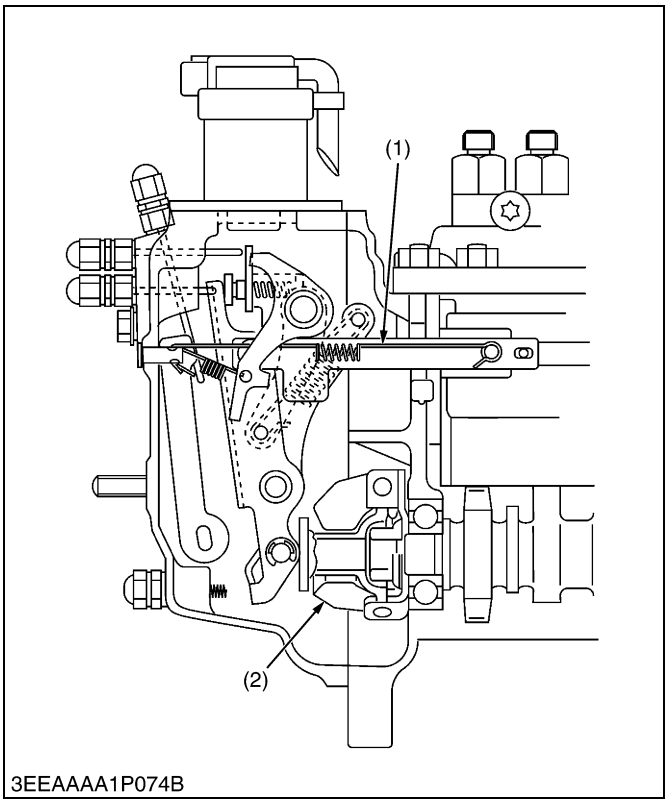
It also employs the torque limiting mechanism to control the maximum peak torque so that it complies with the regulations of exhaust gas.

This mechanism maintains engine speed at a constant level even under fluctuating loads, provides stable idling and regulates maximum engine speed by controlling the fuel injection rate.

This engine uses a mechanical governor that controls the fuel injection rate at all speed ranges (from idling to maximum speed) by utilizing the balance between the flyweight's centrifugal force and spring tension.

A governor shaft for monitoring engine speed is independent of the injection pump shaft and rotates at twice the speed of conventional types, providing better response to load fluctuation and delivering greater engine output.

W1013830



3EEAAAA1P074B

■ **At Start**

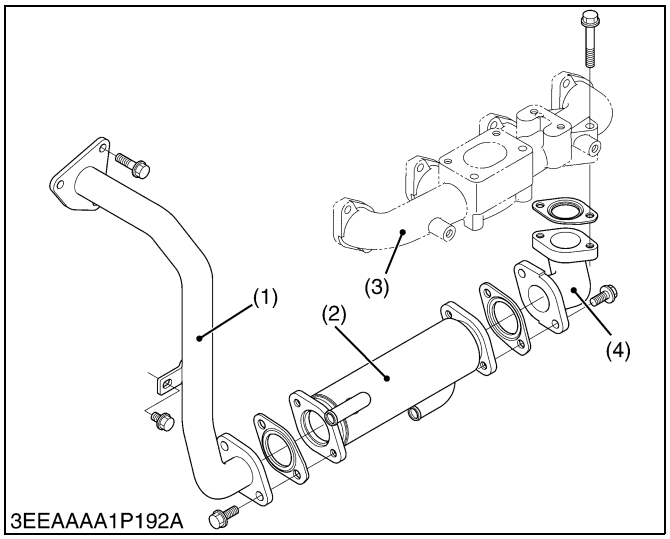
The stop solenoid (energized-to-run type) is powered to release the stop lever.

As no centrifugal force is applied to flyweight (2), low tension of start spring (1) permits control rack to move the starting position, supplying the amount of fuel required to start the engine.

(1) Start Spring (2) Flyweight

W1013967

(A) EGR Cooler



3EEAAAA1P192A

The EGR (Exhaust Gas Recirculation) cooler is used to lower combustion temperature and efficiently cool EGR gas, with the aim of reducing the NOx that is in the exhaust gas of diesel engine.

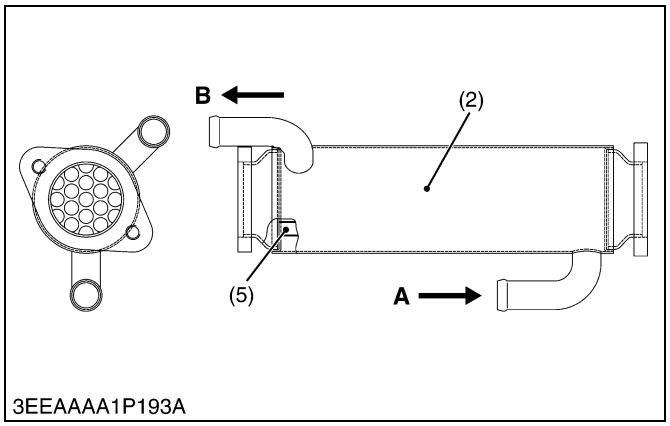
The EGR cooler is placed between the exhaust manifold and the intake manifold of the engine and returns the cooled exhaust gases to the engine suction side.

The EGR cooler has resistant to clogging up, compact and efficient tubes internally.

(1) Pipe
(2) EGR Cooler
(3) Exhaust Manifold
(4) Flange
(5) Tube

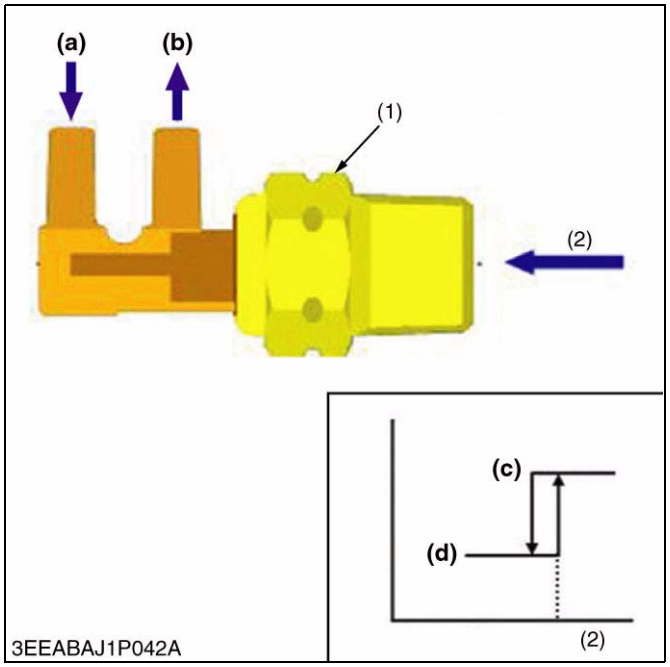
A Coolant Inlet Port
B Coolant Outlet Port

W1175338



3EEAAAA1P193A

(B) Thermo Valve



3EEABAJ1P042A

Thermo valve controls boost pressure “ON / OFF” for the EGR valve.

If the coolant temperature is low, thermo valve is closed, so that boost pressure does not reach to the EGR valve.

If the coolant temperature is high, thermo valve is open, so that boost pressure reaches to the EGR valve.

(1) Thermo Valve
(2) Coolant Temperature

(a) Boost Pressure From Intake Manifold
(b) Boost Pressure To EGR Valve
(c) Open
(d) Close

W1175753

[2] ELECTRONIC GOVERNOR (FACTORY OPTION FOR V3300-E3BG, V3600-T-E3BG / STANDARD FOR V3800DI-T-E3BG)

■ **IMPORTANT**

- **The engine trouble divides into an electronic governor, the main body of the engine, and the operating constancy.**

Engine will not start.

Cause	Corrections	Refer to Checking
Starter Operating but Not Starting the Engine	Check operation of the solenoid	Solenoid
	Check harness of the solenoid	Solenoid
	Check harness of the glow plug / Intake air heater	Glow plug / Intake air heater
Starter Does Not Operate	Check emergency stop switch	Emergency stop switch

W1039573

Engine stopped automatically. Engine can be started again and stops again 10 seconds later.

Cause	Corrections	Refer to Checking
Trouble in the electronic governor composition parts	Check blinking pattern of the glow lamp (1) 	Signal pattern sheet (1) Glow Lamp

W1041393

Engine speed cannot be controlled.

Cause	Corrections	Refer to Checking
Engine speed does not increase/ decrease	Check slow down switch	Slow down switch
	Check speed switch	Speed switch
	Check operation of the solenoid	Solenoid
	Check harness of speed sensor	Harness
Engine runs rough	Check operation of the solenoid	Solenoid
	Check harness of speed sensor	Harness

W1041483

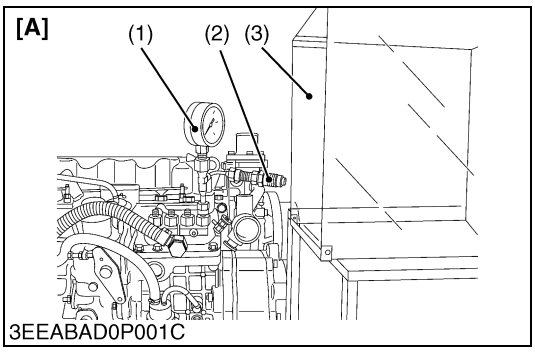
[2] TIGHTENING TORQUES FOR SPECIAL USE SCREWS, BOLTS AND NUTS

■ **NOTE**

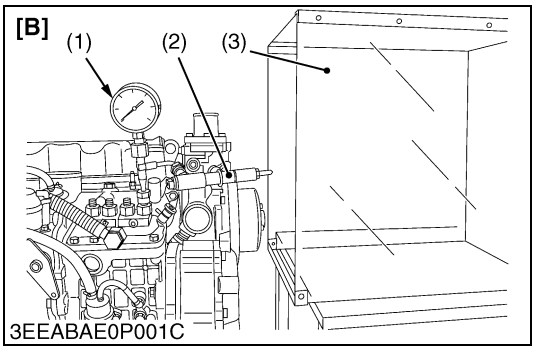
- **For "*" marked screws, bolts and nuts on the table, apply engine oil to their threads and seats before tightening.**
- **The letter "M" in Size x Pitch means that the screw, bolt or nut dimension stands for metric. The size is the nominal outside diameter in mm of the threads. The pitch is the nominal distance in mm between two threads.**

Item	Size x Pitch	N·m	kgf·m	lbf·ft
Cylinder head cover screw	–	6.9 to 11.2	0.70 to 1.15	5.1 to 8.31
*Cylinder head screw	M12 x 1.25	98.1 to 107	10.0 to 11.0	72.4 to 79.5
*Connecting rod screw	M10 x 1.25	79 to 83	8.0 to 8.5	58 to 61
*Flywheel screw	M12 x 1.25	98.1 to 107	10.0 to 11.0	72.4 to 79.5
*Crankshaft screw	M16 x 1.5	255 to 274	26.0 to 28.0	188 to 202
*Main bearing case screw	M14 x 1.5	138 to 147	14.0 to 15.0	102 to 108
Rocker arm bracket screw	M10 x 1.25	49 to 55	5.0 to 5.7	37 to 41
Nozzle holder assembly (V3600-E3B, V3600-T-E3B, V3600-E3CB, V3600-T-E3CB, V3300-E3BG, V3600-T-E3BG)	M20 x 1.5	49 to 68	5.0 to 7.0	37 to 50
Nozzle holder (V3600-E3B, V3600-T-E3B, V3600-E3CB, V3600-T-E3CB, V3300-E3BG, V3600-T-E3BG)	–	35 to 39	3.5 to 4.0	26 to 28
Nozzle holder clamp nut (V3800DI-T-E3B, V3800DI-T-E3CB, V3800DI-T-E3BG)	M8 x 1.25	18 to 20	1.8 to 2.1	13 to 15
Injection pipe retaining nut	M12 x 1.5	23 to 36	2.3 to 3.7	17 to 26
Overflow pipe assembly retaining nut (V3600-E3B, V3600-T-E3B, V3600-E3CB, V3600-T-E3CB, V3300-E3BG, V3600-T-E3BG)	M12 x 1.5	20 to 24	2.0 to 2.5	15 to 18
Overflow pipe assembly joint screw (V3800DI-T-E3B, V3800DI-T-E3CB, V3800DI-T-E3BG)	M6 x 1.0	9.8 to 11.2	1.0 to 1.15	7.24 to 8.31
Oil switch taper screw	R 1/8	15 to 19	1.5 to 2.0	11 to 14
Oil cooler joint screw	–	40 to 44	4.0 to 4.5	29 to 32
Oil pump cover screw	–	7.9 to 9.3	0.80 to 0.95	5.8 to 6.8
Glow plugs (V3600-E3B, V3600-T-E3B, V3600-E3CB, V3600-T-E3CB, V3300-E3BG, V3600-T-E3BG)	M10 x 1.25	20 to 24	2.0 to 2.5	15 to 18
Intake air heater terminal nut (V3800DI-T-E3B, V3800DI-T-E3CB, V3800DI-T-E3BG)	M6 x 1.0	3.5 to 5.3	0.35 to 0.55	2.6 to 3.9
Starter's terminal **B** mounting nut	M8 x 1.25	9.8 to 11	1.0 to 1.2	7.3 to 8.6

W1013236



3EEABAD0P001C



3EEABAE0P001C

Fuel Tightness of Delivery Valve

1. Remove the solenoid.
2. Remove the injection pipes.
3. Set a pressure tester to the fuel injection pump.
4. Install the injection nozzle (2) jetted with the proper injection pressure to the injection pump pressure tester (1).
5. Run the starter to increase the pressure.
6. Stop the starter when the fuel jets from the injection nozzle. After that, turn the flywheel by the hand and raise the pressure to (IDI : approx. 13.73 MPa (140.0 kgf/cm^2, 1991 psi)), (DI : approx.18.63 MPa (190.0 kgf/cm^2, 2702 psi)).
7. Now turn the flywheel back about half a turn (to keep the plunger free). Maintain the flywheel at this position and clock the time taken for the pressure to drop from (IDI : 13.73 to 12.75 MPa (from 140.0 to 130.0 kgf/cm^2, from 1991 to 1849 psi)), (DI : 18.63 to 17.65 MPa (190.0 to 180.0 kgf/cm^2, 2702 to 2560 psi)).
8. Measure the time needed to decrease the pressure from (IDI : 13.73 to 12.75 MPa (from 140.0 to 130.0 kgf/cm^2, from 1991 to 1849 psi)), (DI : 18.63 to 17.65 MPa, (190.0 to 180.0 kgf/cm^2, 2702 to 2560 psi)).
9. If the measurement is less than allowable limit, replace the pump with new one or repair at a Kubota-authorized pump service shop.

Fuel tightness of delivery valve	Factory spec.	V3600-E3B V3600-T-E3B, V3600-E3CB, V3600-T-E3CB, V3300-E3BG, V3600-T-E3BG	10 seconds 13.73 → 12.75 MPa 140.0 → 130.0 kgf/cm^2 1991 → 1849 psi
		V3800DI-T-E3B, V3800DI-T-E3CB, V3800DI-T-E3BG	10 seconds 18.63 → 17.65 MPa 190.0 → 180.0 kgf/cm^2 2702 → 2560 psi
	Allowable limit	V3600-E3B, V3600-T-E3B, V3600-E3CB, V3600-T-E3CB, V3300-E3BG, V3600-T-E3BG	5 seconds 13.73 → 12.75 MPa 140.0 → 130.0 kgf/cm^2 1991 → 1849 psi
		V3800DI-T-E3B, V3800DI-T-E3CB, V3800DI-T-E3BG	5 seconds 18.63 → 17.65 MPa 190.0 → 180.0 kgf/cm^2 2702 → 2560 psi

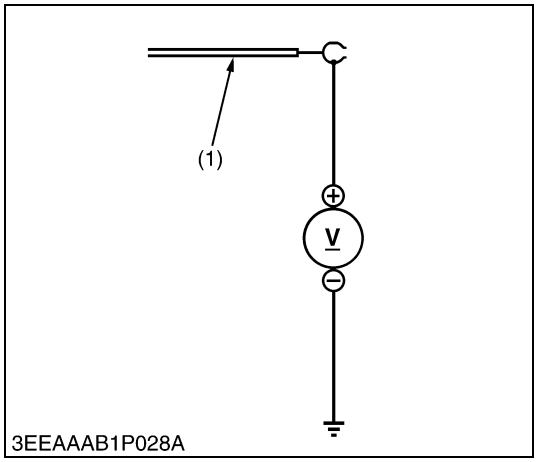
■ **NOTE**

- **Never try to disassemble the injection pump assembly. For repairs, you are strongly requested to contact a Kubota-authorized pump service shop.**

(1) Injection Pump Pressure Tester
(2) Injection Nozzle
(3) Protection Cover for Jetted Fuel

[A] V3600-E3B, V3600-T-E3B, V3600-E3CB, V3600-T-E3CB, V3300-E3BG, V3600-T-E3BG
[B] V3800DI-T-E3B, V3800DI-T-E3CB, V3800DI-T-E3BG

W1017786



3EEAAAB1P028A

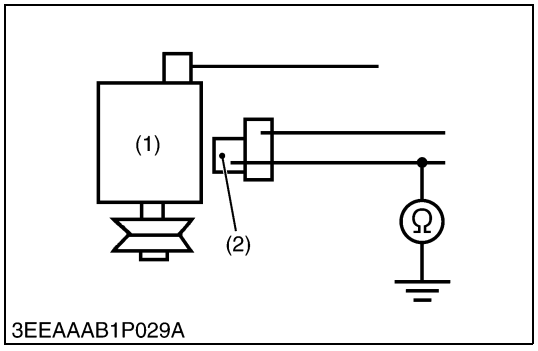
Glow Plug / Intake Air Heater Harness

1. Disconnect the glow plug / intake air heater terminal (1).
2. Check the state of the harness and if it is abnormal, please replace it.
3. Turn the key switch to the ACC position.
4. Measure the voltage between the glow plug / intake air heater terminal (1) of the connector (harness side) and chassis.
5. When the measurements are the below table value.
   The ECU is normal. Some of the glow plugs are failure, then please replace them.
6. When the measurements are out of the below table value.
   The ECU is failure, then please replace it.

Voltage	Terminal - Chassis	12 V

(1) Glow Plug / Intake Air Heater Terminal

W1061770



3EEAAAB1P029A

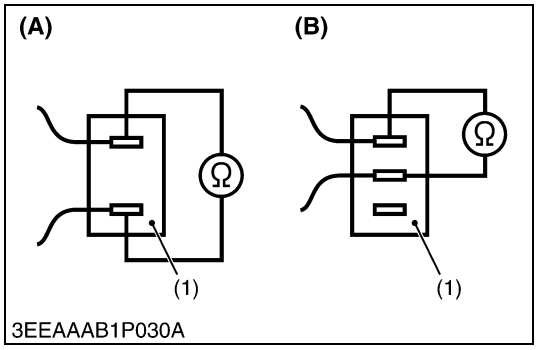
Alternator

1. Disconnect the terminal **L** (2) of the alternator (2P).
2. Check the state of the harness and if it is abnormal, please replace it.
3. Measure the resistance between the terminal **L** (2) of the connector (harness side) and chassis.
4. When the measurements are the below table value.
   The ECU is normal. The alternator is failure, then please replace it.
5. When the measurements are out of the below table value.
   The ECU is failure, then please replace it.

Resistance	Terminal **L** - Chassis	Infinity

(1) Alternator (2) Terminal **L** (Harness Side)

W1063000



3EEAAAB1P030A

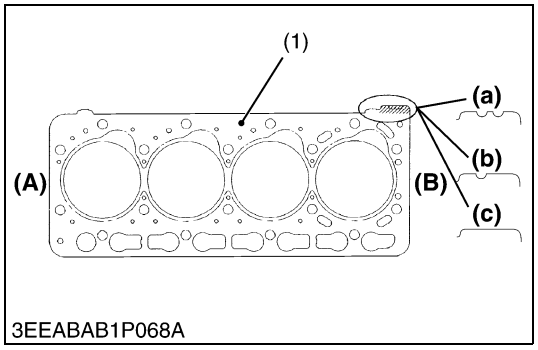
Speed Switch

1. Check the state of the harness and if it is abnormal, please replace it.
2. When the speed switch is turned **ON** and **OFF**, measure the resistance between the speed switch (terminal side) (1) of it each time.
3. When the measurements are the below table value.
   The speed switch is normal. The ECU is failure, then please replace it.
4. When the measurements are out of the below table value.
   The speed switch is failure, then please replace it.

Resistance	**ON**	0 Ω
	OFF	Infinity

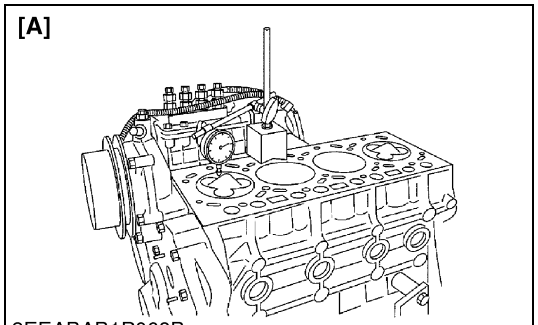
(1) Speed Switch (Terminal Side)
(A) Single Pole, Single Throw
(B) Single Pole, Double Throw

W1063856

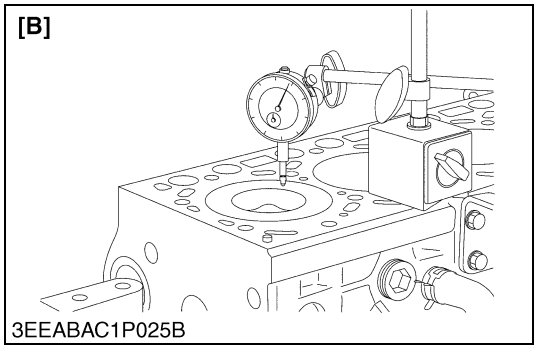


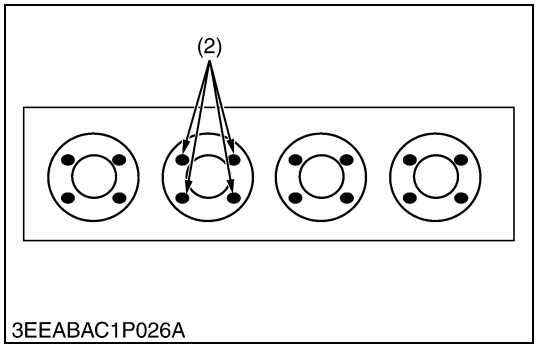
3EEABAB1P068A

[A]


3EEABAB1P069B

[B]


3EEABAC1P025B



3EEABAC1P026A

Selecting Cylinder Head Gasket

■ Replacing the Cylinder Head Gasket

1. Make sure the notch mark **(a)**, **(b)** or **(c)** of cylinder head gasket (1) in advance.
2. If you do not replace piston, piston pin bush, connecting rod, crankpin bearings, or crank journal bearings, replace the same notch mark **(a)**, **(b)** or **(c)** as the original cylinder head gasket (1).

■ Selecting the Cylinder Head Gasket

- Select the cylinder head gasket (1) thickness to meet with the top clearance if replacing the piston, piston pin bush, connecting rod, crankpin bearings, or crank journal bearings.

1. Measure the piston head's protrusion (+) recessing (-) from the crankcase cylinder face (4 spots per each piston and average of four pistons) using the dial gauge as shown in figure.
2. Select the suitable cylinder head gasket refer to the table below.

[V3600-E3B, V3600-T-E3B, V3600-E3CB, V3600-T-E3CB, V3600-T-E3BG]

Notch of Cylinder Head Gasket	Thickness of cylinder head gasket		Part Code	Piston Head's protrusion or recessing from the level of crankcase cylinder face. (average of 4 pistons)
	Before tightening	After tightening		
2 notches **(a)**	0.90 mm 0.035 in.	0.80 mm 0.031 in.	1C020-03310	-0.301 to -0.420 mm -0.0118 to -0.0165 in.
1 notch **(b)**	1.00 mm 0.0394 in.	0.90 mm 0.035 in.	1C020-03600	-0.201 to -0.300 mm -0.00791 to -0.0018 in.
Without notch **(c)**	1.05 mm 0.0413 in.	0.95 mm 0.037 in.	1C020-03610	-0.150 to -0.200 mm -0.00591 to -0.00787 in.

[V3800DI-T-E3B, V3800DI-T-E3CB, V3800DI-T-E3BG]

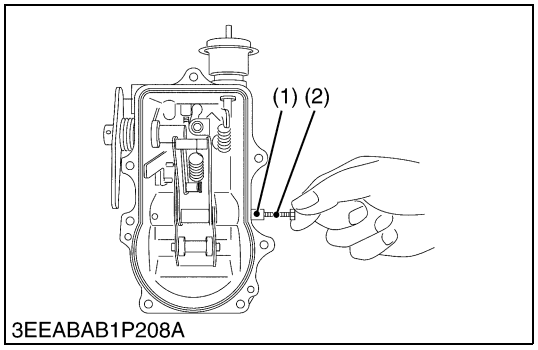
Notch of Cylinder Head Gasket	Thickness of cylinder head gasket		Part Code	Piston Head's protrusion or recessing from the level of crankcase cylinder face. (average of 4 pistons)
	Before tightening	After tightening		
2 notches **(a)**	0.90 mm 0.035 in.	0.80 mm 0.031 in.	1G514-03310	-0.07 to +0.049 mm -0.0028 to +0.0019 in.
1 notch **(b)**	1.00 mm 0.0394 in.	0.90 mm 0.035 in.	1G514-03600	+0.050 to +0.149 mm +0.0020 to +0.0058 in.
Without notch **(c)**	1.05 mm 0.0413 in.	0.95 mm 0.037 in.	1G514-03610	+0.150 to +0.20 mm +0.0059 to +0.0078 in.

[V3300-E3BG]

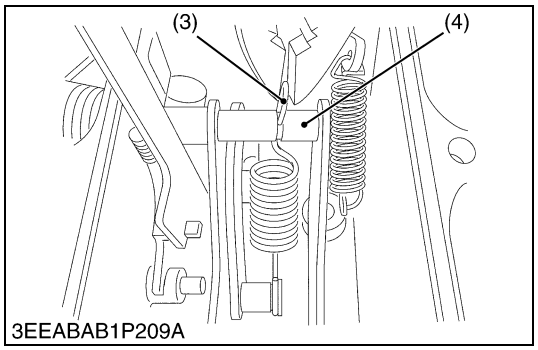
Notch Mark of Cylinder Head Gasket	Thickness of cylinder head gasket		Part Code	Piston Head's protrusion or recessing from the level of crankcase cylinder face. (average of 4 pistons)
	Before tightening	After tightening		
2 notches **(a)**	0.90 mm 0.035 in.	0.80 mm 0.031 in.	1C020-03310	-0.070 to +0.049 mm -0.0027 to +0.0019 in.
1 notch **(b)**	1.00 mm 0.0394 in.	0.90 mm 0.035 in.	1C020-03600	+0.0500 to +0.149 mm +0.00197 to +0.00586 in.
Without notch **(c)**	1.05 mm 0.0413 in.	0.95 mm 0.037 in.	1C020-03610	+0.150 to +0.200 mm +0.00591 to +0.00787 in.

(1) Cylinder Head Gasket
(2) Measuring Point
(A) Gear Case Side
(B) Flywheel Side
(a) 2 Notches
(b) 1 Notch
(c) Without Notch
[A] V3600-E3B, V3600-T-E3B, V3600-E3CB, V3600-T-E3CB, V3300-E3BG, V3600-T-E3BG
[B] V3800DI-T-E3B, V3800DI-T-E3CB, V3800DI-T-E3BG

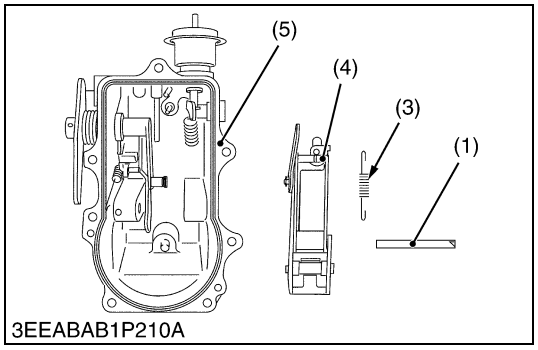
W1022965



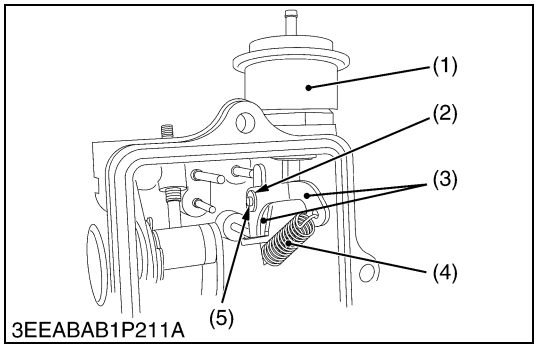
3EEABAB1P208A



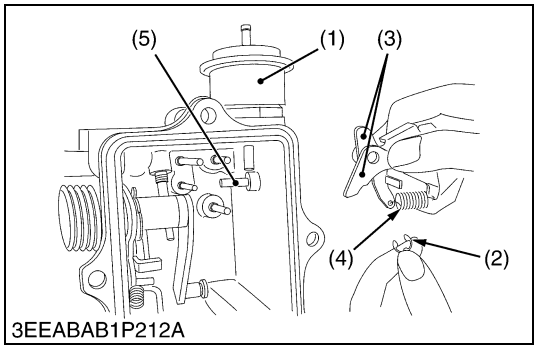
3EEABAB1P209A



3EEABAB1P210A



3EEABAB1P211A



3EEABAB1P212A

Governor Fork Lever Assembly

1. Pull out the governor fork lever shaft (1) with the M4 extra bolt (Dia : 4 mm, Pitch : 0.7 mm, Length : more than 25 mm) (2).
2. Unhook the governor spring (3) at the governor fork lever (4) side.
3. Remove the governor fork lever assembly from the governor housing (5).

(When reassembling)

- After reassembling the governor housing assembly, check the movement of the governor fork lever assembly, the speed control lever and the stop lever.

■ **NOTE**

- **When assembling the inside parts, put the oil on each inside part slightly.**
- **Be careful not to deform the start spring.**

(1) Governor Fork Lever Shaft
(2) M4 Extra Bolt (Dia : 4 mm, Pitch : 0.7 mm, Length : more than 25 mm)
(3) Governor Spring
(4) Governor Fork Lever
(5) Governor Housing

W1139749

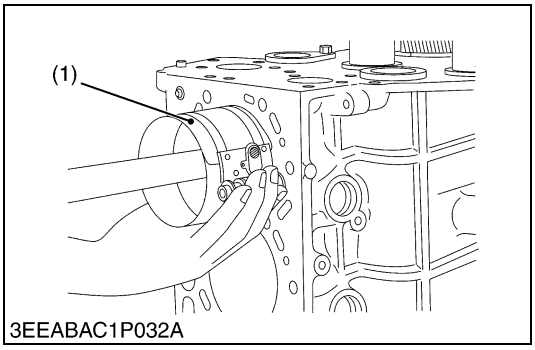
Boost Arms (If equipped Boost Compensator)

1. Remove the boost actuator (1).
2. Remove the cir-clip (2).
3. Remove the boost arms (3) and the boost spring (4) from the pin (5).

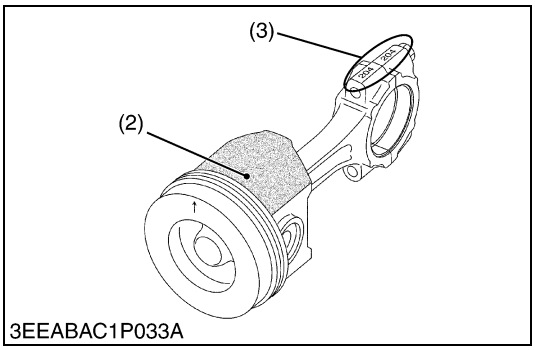
Tightening torque	Boost actuator	40 to 45 N·m 4.0 to 4.6 kgf·m 29 to 33 lbf·ft

(1) Boost Actuator
(2) Cir-clip
(3) Boost Arm
(4) Boost Spring
(5) Pin

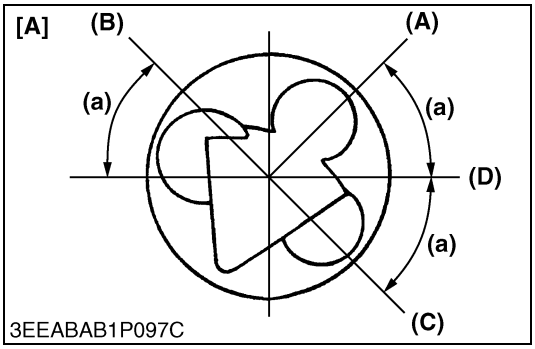
W1141511



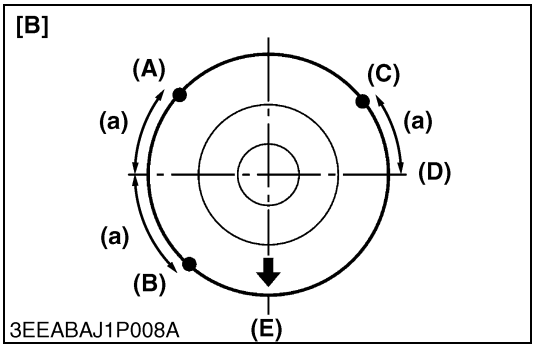
3EEABAC1P032A



3EEABAC1P033A



3EEABAB1P097C



3EEABAJ1P008A

Piston

1. Clean carbon in each cylinder completely.
2. Remove a connecting rod cap.
3. Turn the flywheel to set a piston at the top dead center.
4. Push a connecting rod from the bottom side of crankcase with grip of a hammer to remove a piston.
5. Do the same procedure (2. to 4.) for each piston.

(When reassembling)

- Before inserting the piston into the cylinder, apply enough engine oil to the cylinder.
- When inserting the piston into the cylinder, face the mark (3) on the connecting rod to the injection pump.

■ **IMPORTANT**

- **Do not change the combination of cylinder and piston. Make sure of the position of each piston by marking. For example, mark "1" on the No. 1 position.**
- **When inserting the piston into the cylinder, place the gap of each piston ring like the figure.**
- **Carefully insert the pistons using a piston ring compressor (1). Otherwise, their chrome-plated section of piston rings may be scratched, causing trouble inside the liner.**
- **When inserting the piston, be careful not to damage the molybdenum disulfide coating.**

Tightening torque	Connecting rod screw	79 to 83 N·m 8.0 to 8.5 kgf·m 58 to 61 lbf·ft

(1) Piston Ring Compressor
(2) Molybdenum Disulfide Coating in piston skirt
(3) Mark
(a) 0.79 rad (45 °)

(A) Top Ring Gap
(B) Second Ring Gap
(C) Oil Ring Gap
(D) Piston Pin Hole
(E) Injection Pump Side

[A] V3600-E3B, V3600-T-E3B, V3600-E3CB, V3600-T-E3CB, V3300-E3BG, V3600-T-E3BG
[B] V3800DI-T-E3B, V3800DI-T-E3CB, V3800DI-T-E3BG

W1058433