HINO

WORKSHOP MANUAL

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AIR COMPRESSOR

FLYWHEEL P.T.O.

HOW TO IDENTIFY VEHICLE TYPE

EN01F01ZZZ000102001002

F E 7J J M A
1 2 3 4 5 6

1	Vehicle model classification
	F: Cab Over Engine type truck
	S: Cab Over Engine type semi tractor
	Z: Special Purpose Cab Over Engine truck

2	Vehicle classsification and driving system	
	Driving system	GVMR or GCMR
	C : 4 × 2	C : Light
	D : 4 × 2	
	E : 4 × 2	
	F : 4 × 2	≀
	G : 4 × 2	
	H : 4 × 2	
	R : 6 × 2	
	S : 6 × 4	S : Heavy

3	Engine Model
	J07E - TI series

4	Wheel base (Unit : mm)
	E : 3250 ~ 3499
	G : 3750 ~ 3499
	J : 4250 ~ 4499
	K : 4500 ~ 4749
	L : 4750 ~ 4999
	P : 5500 ~ 5749

5	Steering wheel position
	M: Right Hand Drive

6	Vehicle Style
	A: Leaf suspension type semi tractor
	D: Dump Truck
	M: Mixer Truck
	G: Air suspension (Rear) type semi tractor

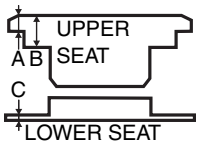
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VALVE SYSTEM

EN01F02115010701006005

STANDARD VALUE, LIMIT AND ACTION

Unit: mm {in.}

Inspection item			Standard value	Service limit	Action
Valve sink		Intake	0.55-0.85 {0.0217-0.0334}	1.1 {0.0433}	Replacement
		Exhaust	1.15-1.45 {0.0453-0.0570}	1.7 {0.0669}	Replacement
Valve seat		Intake	30°	30°-30°35'	Correction
		Exhaust	45°	45°-45°30'	Correction
Valve face		Intake	30°	29°30'-30°	Correction
		Exhaust	45°	44°30'-45°	Correction
Valve spring seat thickness 		A	3.2 {0.1260}	If the wear of A or B added to the wear of C exceeds 1 mm {0.0394 in.}.	Replacement
		B	5.5 {0.2165}		
		C	1.0 {0.0394}		
Squareness of valve spring		Inner	–	2.0 {0.0787}	Replacement
		Outer	–	2.0 {0.0787}	Replacement
Valve spring	Inner	Set length	44.8 {1.764}	–	Replacement
		Set load	128.5 N {13.1 kgf, 28.9 lbf}	118.2 N {12 kgf, 26.6 lbf}	Replacement
		Free length	(64.6 {2.543})	–	Replacement
	Outer	Set length	46.8 {1.843}	–	Replacement
		Set load	313.8 N {32 kgf, 70.5 lbf}	288.7 N {29.4 kgf, 64.9 lbf}	Replacement
		Free length	(75.7 {2.980})	–	Replacement
Valve stem outer diameter		Intake	7 {0.2756}	–	
		Exhaust	7 {0.2756}	–	
Valve guide inner diameter		Intake	7 {0.2756}	–	
		Exhaust	7 {0.2756}	–	
Oil clearance of valve stem and valve guide		Intake	0.023-0.058 {0.0010-0.0022}	–	Replacement
		Exhaust	0.050-0.083 {0.0020-0.0032}	–	Replacement
Dimension of tapping in the valve stem seal			22.5-23.0 {0.886-0.905}	–	Adjustment

INTAKE

INTAKE MANIFOLD AND INTAKE PIPE (INTAKE SIDE)

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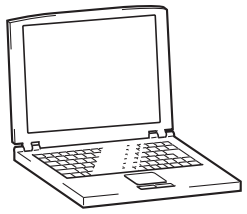
GREASE AND OTHERS

Name	Remarks
Liquid gasket (ThreeBond TB1207B: Black or equivalent)	Apply to the intake pipe contact surface.

DIESEL THROTTLE

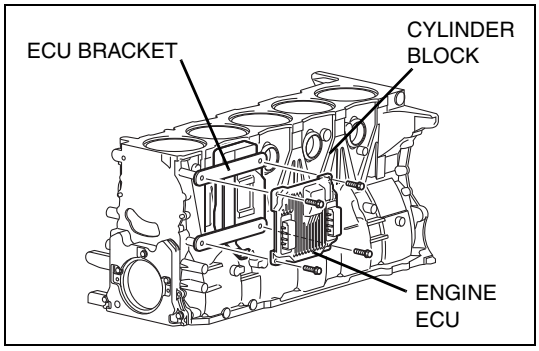
EN01F02115020702005002

SPECIAL TOOL

Illustration	Part number	Name	Remarks
	—	COMPUTER (DOS/V standard)	• Operating system (OS): Windows95, Windows98 (IE5.0 or later), Windows2000 (SP3, IE5.0 or later), WindowsXP (SP1a, IE6.0 or later) • CPU and memory: To guarantee proper operations of the operating systems listed above. • Display: 800 × 600, 256 colors or more
—	09993-E9070[*1] The main body and cables (for RS-232C and USB) Cable between vehicle and Hino-Bowie S0904-21220	Hino-Bowie (Interface box)	Computer interface
	Without Bluetooth® 95171-01020 With Bluetooth® 95171-01040	DENSO DST-i Set (without LCD)	
	Without Bluetooth® 95171-01030 With Bluetooth® 95171-01050	DENSO DST-i Set (with LCD)	

(*1): To use Hino-Bowie (the interface box) "S0912-11040 (09121-1040)", it is necessary to update the hardware. For details, see the Manual in the Hino-DX CD.
Also keep the firmware (Hino-Bowie internal software) updated by using the software in the Hino-DX CD. For details, see the Manual in the Hino-DX CD.

REMOVING THE ENGINE ECU



SHTS021150500011

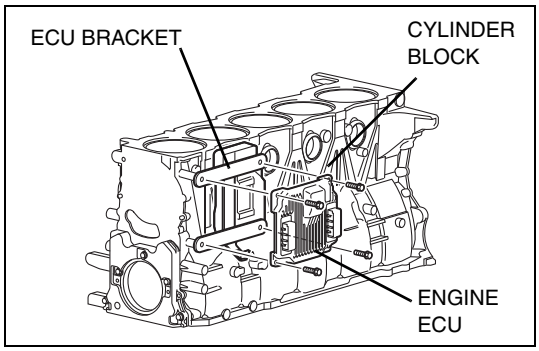
1. REMOVING THE ENGINE ECU

(1) Remove the bolts (4 pcs.) and detach the engine ECU and ECU bracket from the cylinder block.

NOTICE

- **Protect with plastic covers to avoid entry of dirt and foreign matter into the connectors of the engine ECU.**
- **Do not give shocks to the ECU.**
- **Do not use the engine ECU if dropped.**
- **Do not directly touch the connector terminals by hand.**
- **The engine ECU is nondisassemblable.**
- **Do not paint or apply grease or oil to the ECU surface and connector to maintain their functions and durability.**

MOUNTING THE ENGINE ECU



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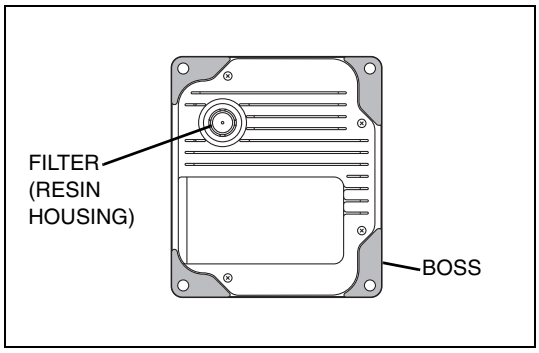
1. MOUNTING THE ENGINE ECU

(1) Using the bolts (4 pcs.), mount the engine ECU and ECU bracket to the cylinder block. For the tightening order, tighten them diagonally.

Tightening Torque:
28.5 N·m {291 kgf·cm, 21 lbf·ft}

NOTICE

- **Check that there are no dirt and foreign matter in the engine ECU connectors.**
- **Do not give shocks to the ECU.**
- **Do not use the engine ECU if dropped.**
- **Do not directly touch the connector terminals by hand.**
- **The engine ECU is nondisassemblable.**
- **Do not paint or apply grease or oil to the ECU surface and connector to maintain their functions and durability.**
- **Check that there is no dirt on the bosses (4 places) on the back of the engine ECU.**
- **Check that there are no grease and damage on the filter (resin housing) on the back of the engine ECU.**

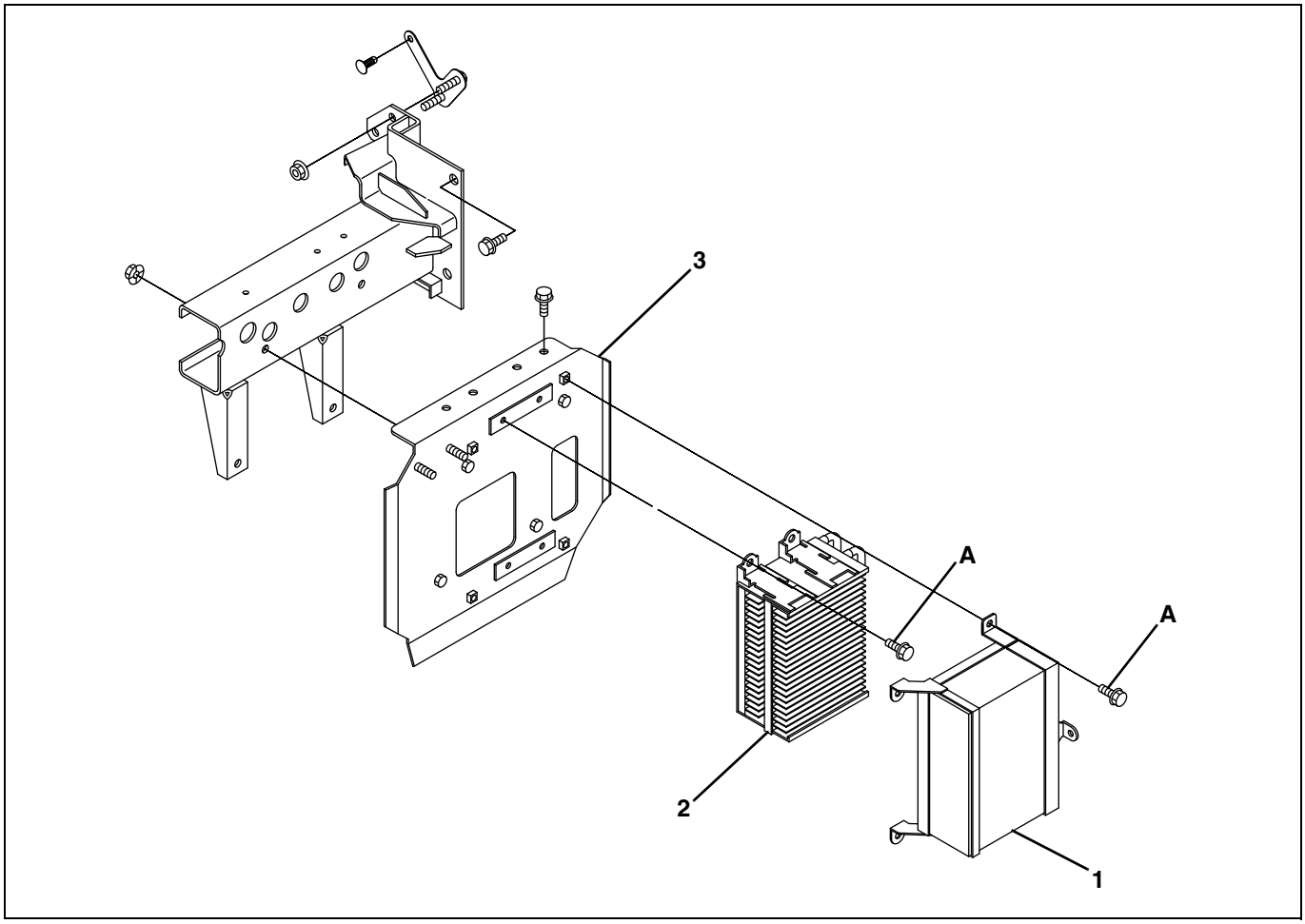


SHTS021150500013

FUEL COOLER

COMPONENT LOCATOR

EN01F02115060401018001



SHTS021150600131

1	Insulator	3	Fuel cooler bracket
2	Fuel cooler		

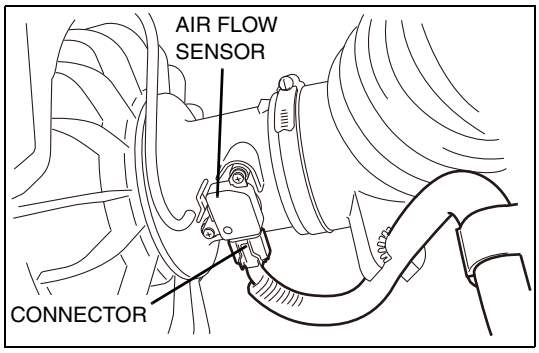
Tightening torque **Unit: N·m {kgf·cm, lbf·ft}**

A	18-26 {184-265, 14-19}		

REPLACEMENT

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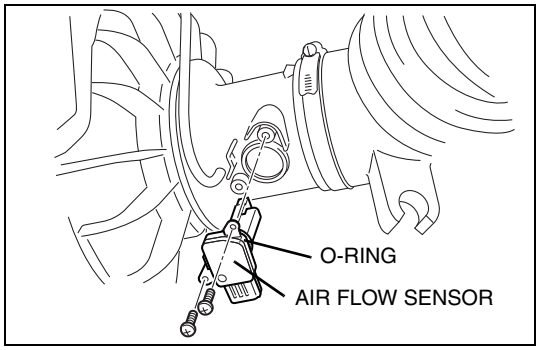
REMOVING THE AIR FLOW SENSOR



SHTS021150800087

1. DISCONNECTING THE HARNESS

(1) Disconnect the connector connected to the air flow sensor.

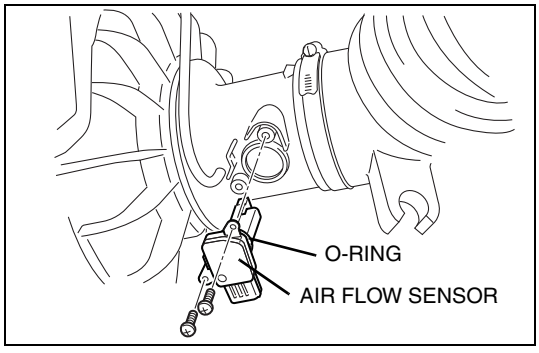


SHTS021150800088

2. REMOVING THE AIR FLOW SENSOR

(1) Unfasten the screws (2 pcs.) securing the air flow sensor, and remove it.

MOUNTING THE AIR FLOW SENSOR



SHTS021150800089

1. MOUNTING THE AIR FLOW SENSOR

(1) Make sure that the O-ring is attached to the air flow sensor, and mount the air flow sensor with screws (2 pcs.).

Tightening Torque:
1.68 N·m {17 kgf·cm, 1.2 lbf·ft}

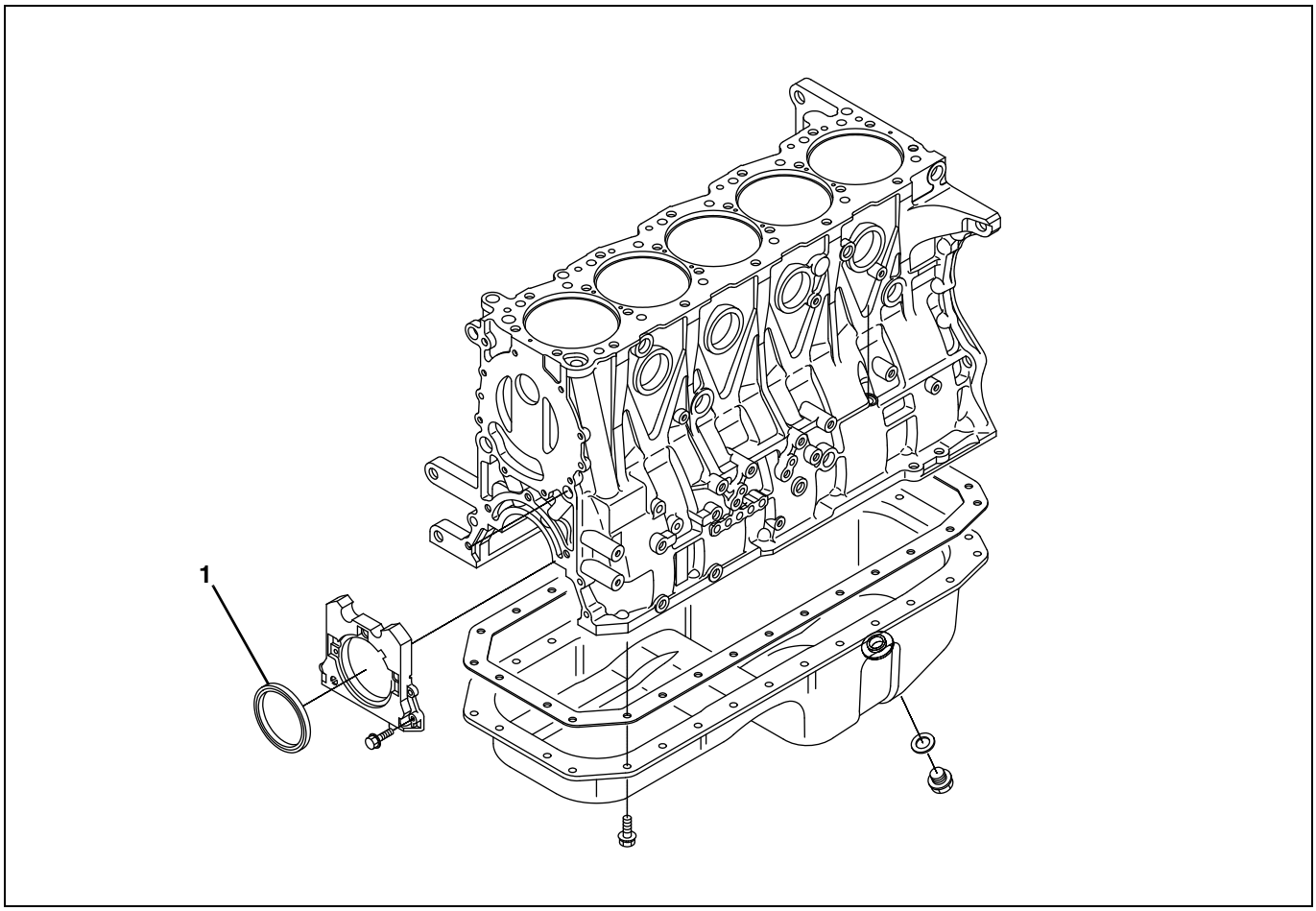
NOTICE

Do not apply excessive torque to the air flow sensor mounting screw (M4) when tightening it.

CRANKSHAFT FRONT OIL SEAL

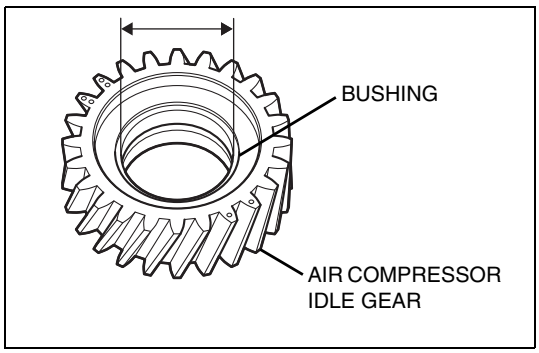
COMPONENT LOCATOR

EN01F02115090401008001



SHTS021150900119

1 Crankshaft front oil seal	



SHTS021150900194

(2) Use a cylinder gauge to measure the air compressor idle gear shaft inner diameter.

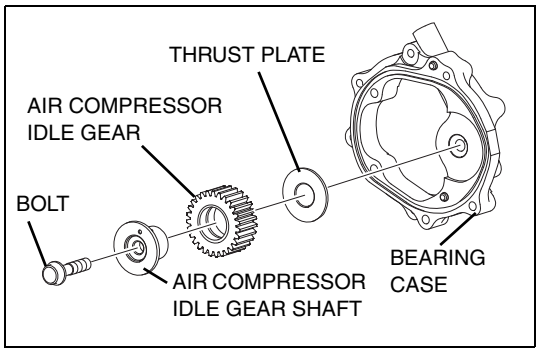
Standard value (mm {in.})	34 {1.339}

(3) Calculate a gap between the outer diameter of the air compressor idle gear shaft and the inner diameter of the air compressor idle gear bushing. If a calculated value exceeds the service limit, replace the air compressor idle gear shaft and the air compressor idle gear bushing.

Standard value (mm {in.})	Service limit (mm {in.})
0.025-0.057 {0.0010-0.0029}	0.10 {0.0039}

5. MOUNTING THE AIR COMPRESSOR IDLE GEAR

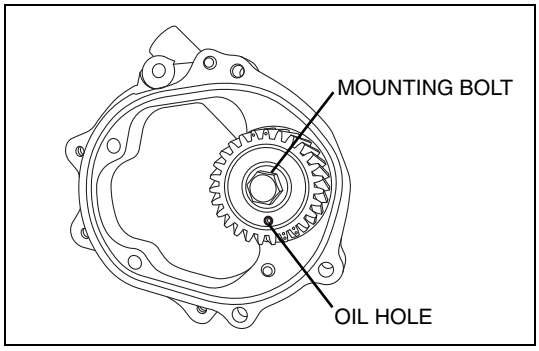
(1) Mount the thrust plate, air compressor idle gear and air compressor idle gear shaft to the bearing case.



SHTS021150900195

(2) Orient an oil hole in the air compressor idle gear shaft to the downward direction before installation to the bearing case.

(3) Use a vise to hold the bearing case and fasten the air compressor idle gear shaft mounting bolt to secure the air compressor idle gear on the bearing case.
Tightening Torque:
108 N·m {1,101 kgf·cm, 80 lbf·ft}

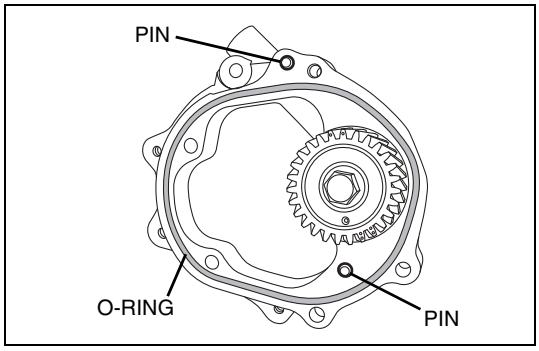


SHTS021150900196

6. INSTALLING THE BEARING CASE ASSEMBLY

(1) Replace with a new O-ring and align the pins (2 pcs.) in the bearing case assembly with concaves on the flywheel housing.

⚠ CAUTION
Use care not to drop the O-ring.

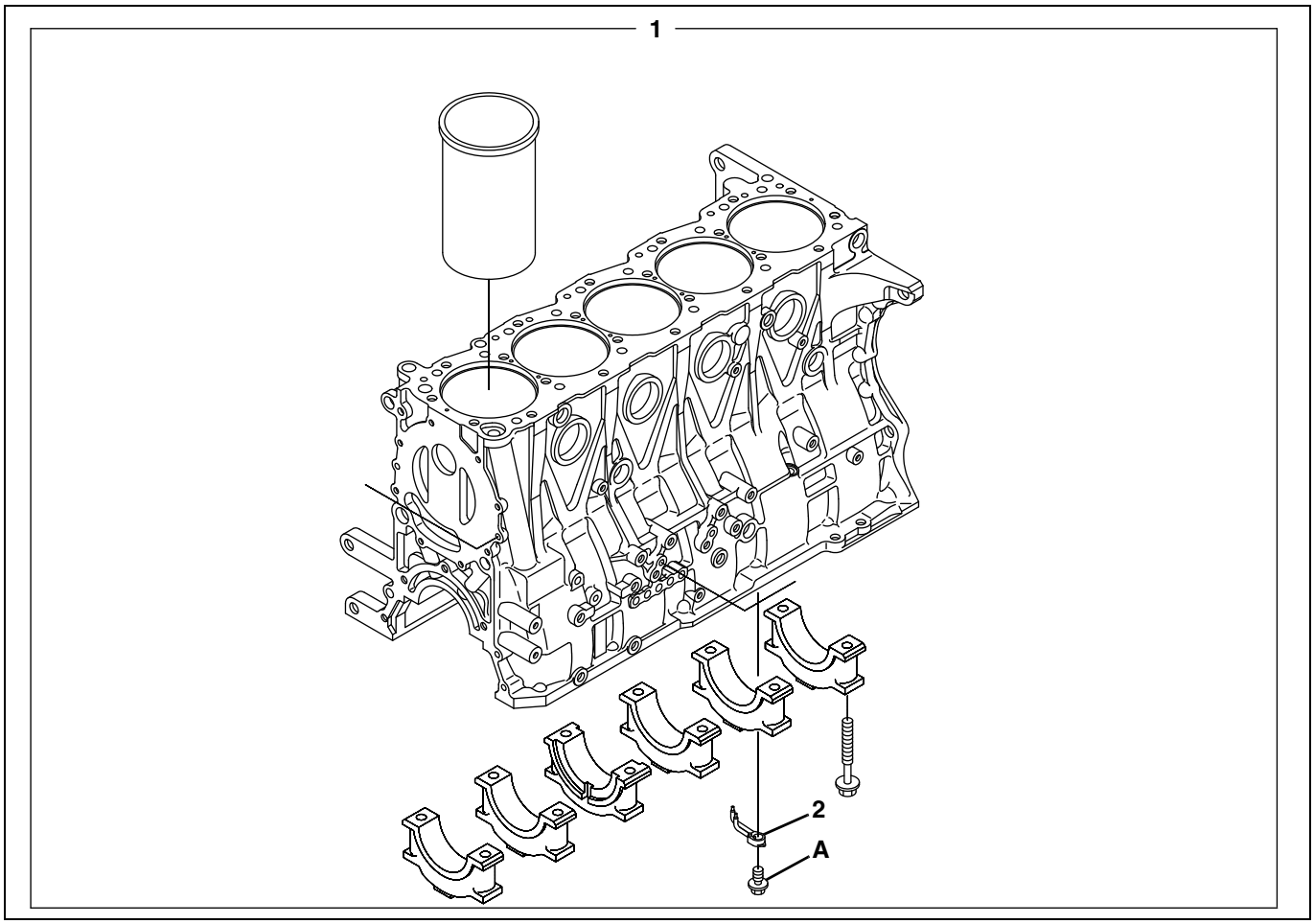


SHTS021150900197

CYLINDER BLOCK

COMPONENT LOCATOR

EN01F02115090401017001



SHTS021150900306

1 Cylinder block assembly	2 Cooling jet

Tightening torque **Unit: N·m {kgf·cm, lbf·ft}**

A 22 {224, 16}	

INSPECTION WITH HINO-DX

1. CHECKING DTC CODES AND DPR CONDITION

(1) Connect Hino-DX to view DTC codes of past malfunctions. If any past engine malfunctions are indicated, first inspect the engine.
(2) If past malfunction codes [*1] (refer to Page 11-28) are displayed, output and record them on the DX report.
(3) Select and run "DPR inspection" on the Hino-DX functional check screen and view the "View DPR condition."
(4) If the DPR system has past or present malfunctions and one or more "ON" parameters are indicated on the "View DPR condition" screen, perform an inspection in accordance with instructions provided under [FLOW OF INSPECTION REQUIRED WHEN "DPR INSPECTION" IS DISPLAYED] (refer to Page 11-30). If no past malfunctions are indicated and no "ON" parameters are found on the "View DPR condition" screen, proceed to basic engine inspection.

2. BASIC ENGINE INSPECTION

- As a damage in the engine may degrade DPR performance, first check condition of the engine body.
- Injection system inspection: Fuel injection quantity at idling speed and at idling-up speed
- Fuel system inspection: Clogging in the fuel filter
- Air intake system inspection: Clogging in the air filter element; air flow meter inspection
- EGR system inspection: Connect Hino-DX to run the forced driving mode and check opening followability.
- VNT inspection: Connect Hino-DX to run the forced driving mode and check nozzle opening followability.
- Exhaust brake operation check: Check a difference in injection rate between in ON mode and in OFF mode (standard value: refer to Page 11-29).

3. DPR MANUAL FORCED REGENERATION INSPECTION

- Check a temperature rise at the DPR filter and also burn and remove excessive soot deposited in the filter prior to DPR filter differential pressure inspection.

(1) Run the "Manual forced regeneration" under the Hino-DX manual forced regeneration screen.
(2) Make sure that no inflammable materials remain around the vehicle or exhaust pipe and then press the "Manual regeneration SW" on the vehicle DPR.

If manual regeneration needs to be aborted, lightly depress the accelerator pedal to clear regeneration. If regeneration needs to be aborted or repeated, set the idle volume to the maximum point and leave it for 20 minutes. Make sure to perform this process in order to remove unburned HC trapped in the EGR system to prevent clogging in the EGR system.

If it takes long before end of regeneration (30 minutes or longer) or P2458 (DPR manual regeneration failure) is triggered, inspect in accordance with [FLOW OF INSPECTION REQUIRED WHEN "DPR INSPECTION" IS DISPLAYED] (refer to Page 11-30).

4. DIFFERENTIAL PRESSURE INSPECTION

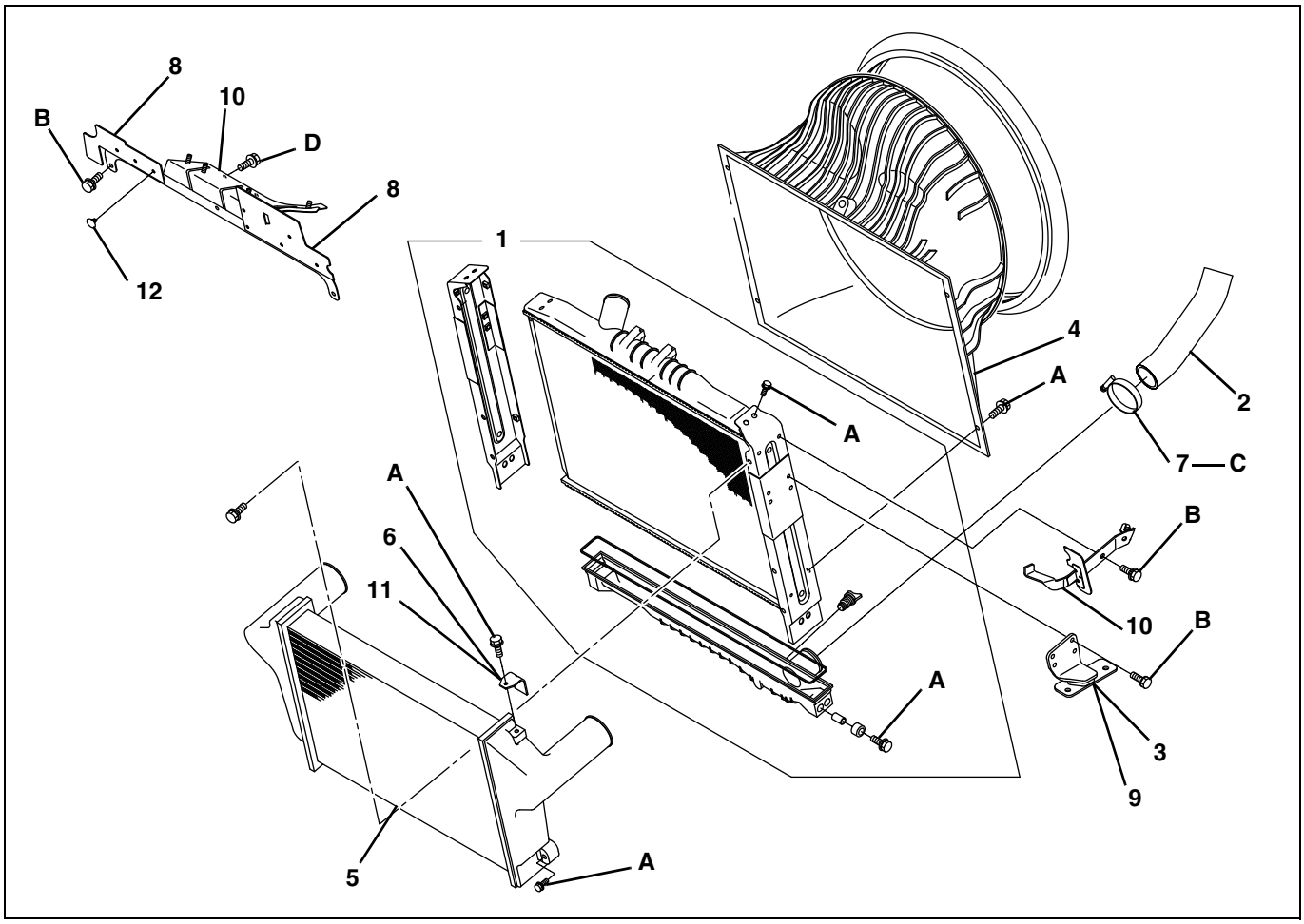
(1) Inspect DPR differential pressure after manual regeneration. A correct measurement cannot be taken if exhaust temperature is too high. Inspect DPR differential pressure at an exhaust temperature of approximately 200°C {392°F} or lower at the DPR inlet.
(2) Select and run "DPR inspection" on the Hino-DX functional check screen to check DPR differential pressure under the "View DPR condition" screen.
(3) Hino-DX will start running to increase engine speed. When a DPR differential pressure reading is displayed, record this reading and stop the DPR differential check as prompted by Hino-DX.
(4) If a recorded DPR differential pressure reading exceeds a standard value, replace a DPR filter.
(5) If there is no fluctuation in differential pressure, perform an inspection as instructed below.
    a. Check the differential pressure hose for puncture or crazing. If the hose is three years old or older, replace it with a new hose.
    b. Check hose clamps for disengagement or looseness.
    c. Check the differential pressure pipe for clogging. (Run compression air into the differential pressure pipe on the DPR cleaner side to check that air goes through the pipe.)
    d. Perform an electrical check on a differential pressure sensor. If a failure is found, replace the sensor.

RADIATOR

COMPONENT LOCATOR

EN01F02115110401002001

SHORT CAB



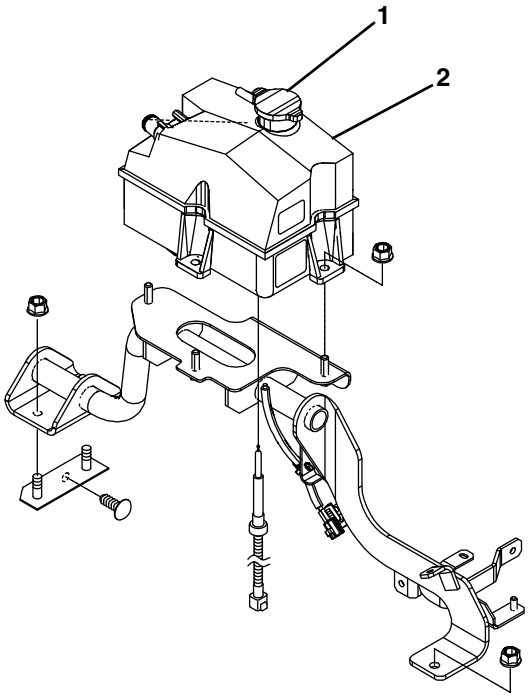
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1	Radiator	7	Clamp
2	Radiator hose (lower)	8	Baffle plate (rubber)
3	Radiator mounting bracket (right)	9	Radiator mounting bracket (left)
4	Fan shroud	10	Bracket
5	Intercooler	11	Intercooler bracket (left)
6	Intercooler bracket (right)	12	Retainer

Tightening torque **Unit: N·m {kgf·cm, lbf·ft}**

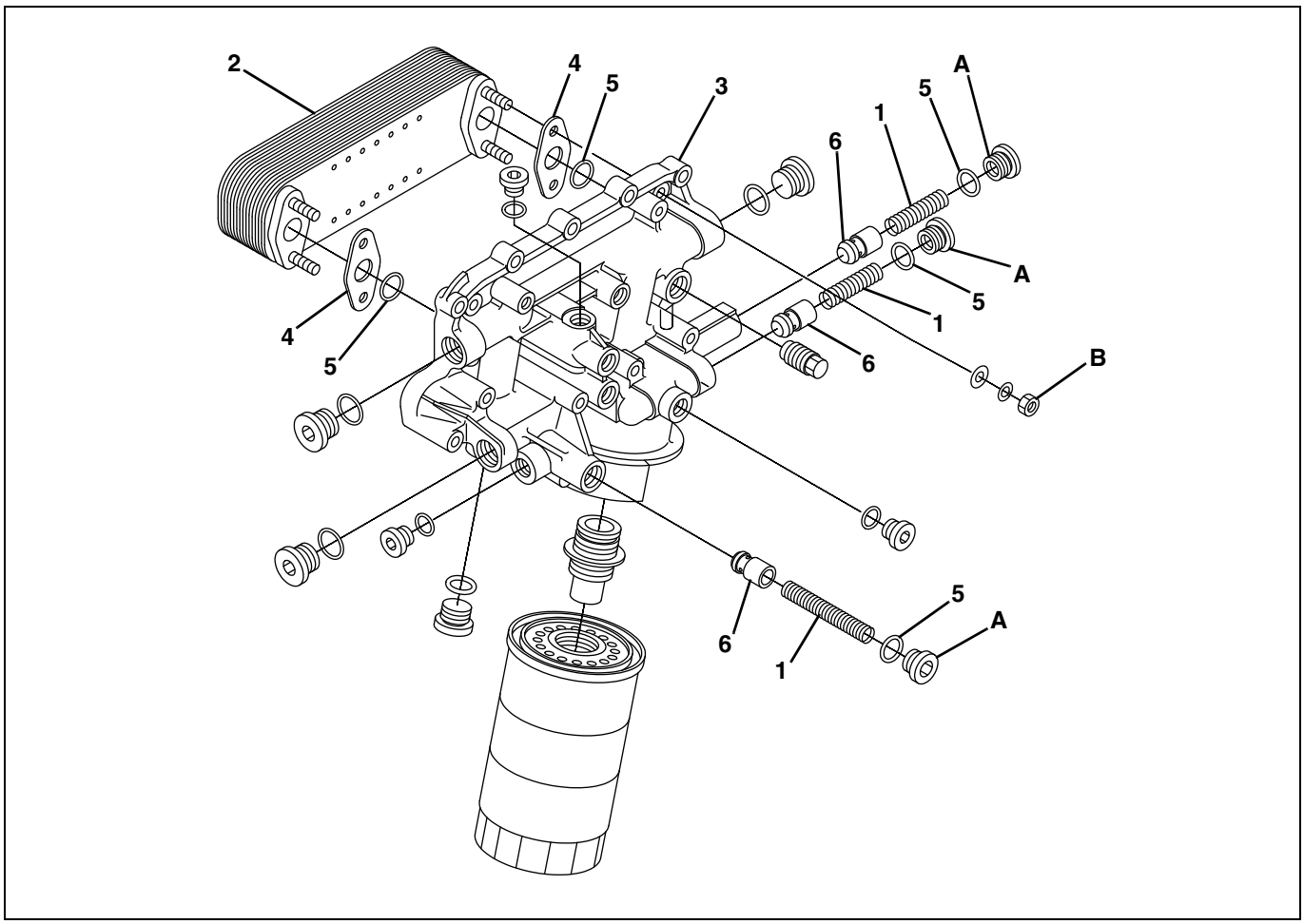
A	14-20 {143-203, 11-14}	C	4-5 {41-51, 3.0-3.7}
B	19-25 {194-254, 15-18}	D	8.0-11.2 {82-114, 5.9-8.0}

DOUBLE CAB



SHTS021151100081

1 Radiator cap	2 Header tank

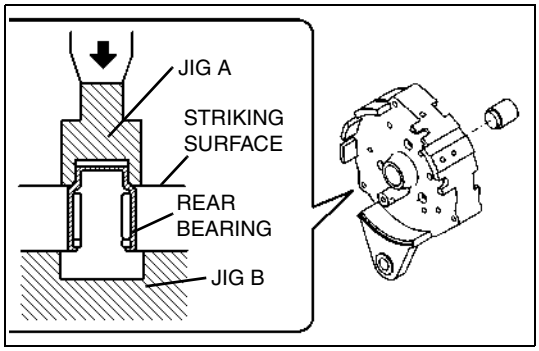


SHTS021151200008

1	Valve spring	4	Gasket
2	Oil cooler element	5	O-ring
3	Oil cooler case	6	Safety valve

Tightening torque **Unit: N·m {kgf·cm, lbf·ft}**

A	24.5-34.3 {250-349, 19-25}	B	19.6-29.4 {200-299, 15-21}



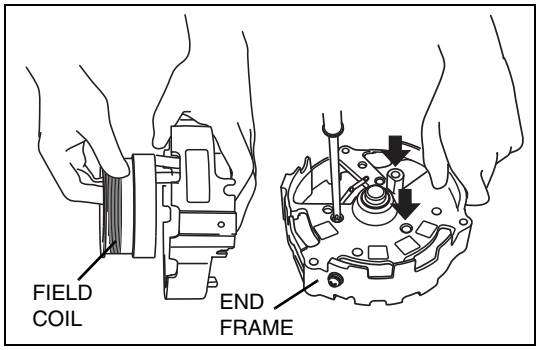
SHTS021151500121

2. ASSEMBLING THE END FRAME SIDE

(1) Using a press, jig A, and jig B, press-fit a new rear bearing into the end frame.

NOTICE

- **Press the jig A until it contacts the end frame.**
- **If the bearing case is deformed or damaged during press-fitting, the bearing case must not be reused.**

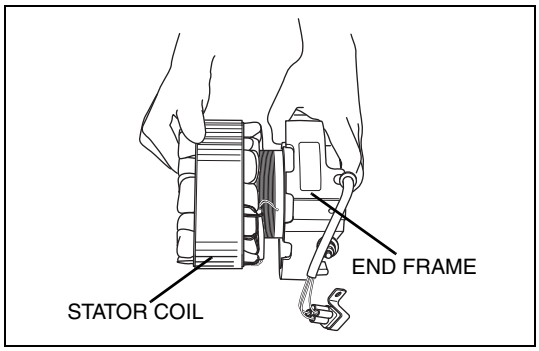


SHTS021151500122

(2) Mount the field coil to the end frame.

Tightening Torque:
2.9-3.9 N·m {30-39 kgf·cm, 2.2-2.8 lbf·ft}

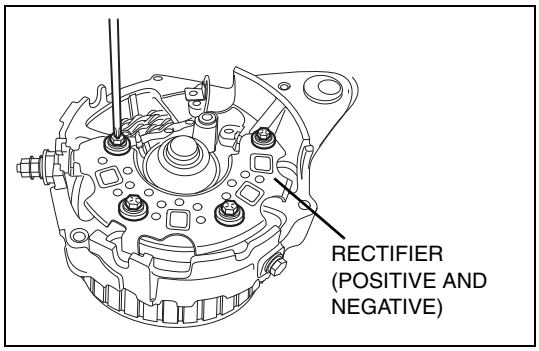
NOTICE
After tightening the bolts temporarily, tighten them fully and evenly.



SHTS021151500123

(3) Temporarily assemble the stator coil to the end frame.

NOTICE
Use care not to damage the stator coil.



SHTS021151500124

(4) Apply screw lock agent (ThreeBond TB1344 or equivalent) to the tips of the rectifier mounting bolts and mount the rectifier to the end frame with the bolts.

Tightening Torque:
1.9-2.5 N·m {19-25 kgf·cm, 1.5-1.8 lbf·ft}