SEN00169-18

Shop Manual

ENGINE

114E -3 SERIES

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Testing and adjusting tools list

Testing and adjusting item	Symbol		Part No.	Part name	Q'ty	Remarks
Testing air boost pressure	A		799-201-2202	Boost gauge kit	1	-100 – 200 kPa {-760 –1,500 mmHg}
			799-401-2220	Hose	1	I-coupler type (if necessary)
Adjusting valve clearance	C	1	795-799-1131	Gear	1	
		2	Commercially available	Clearance gauge	1	
Testing compression pressure	D	1	795-799-6700	Injector puller	1	
		2	795-502-1590	Compression gauge	1	
		3	795-790-6110	Adapter	1	
		4	6754-11-3130	Gasket	1	
Testing blow-by pressure	E		799-201-1504	Blow-by checker	1	0 – 5 kPa {0 – 500 mmH_2O}
Testing oil pressure	F	1	799-101-5002	Hydraulic tester	1	Pressure gauge: 2.5,6,40,60 MPa {25, 60, 400, 600 kg/cm^2}
		2	799-401-2320	Gauge	1	Pressure gauge: 1 MPa {10 kg/cm^2}
		3	6732-81-3170	Adapter	1	10 × 1.0 mm →R1/8
			6215-81-9710	O-ring	1	
Testing fuel pressure	G	1	799-101-5002	Hydraulic tester	1	Pressure gauge: 2.5,6,40,60 MPa {25, 60, 400, 600 kg/cm^2}
			790-261-1204	Digital hydraulic tester	1	Pressure gauge: 60 MPa {600 kg/cm^2}
		2	6732-81-3170	Adapter	1	10×1.0mm → R1/8
			6215-81-9710	O-ring	1	
		3	799-401-2320	Gauge	1	Pressure gauge: 1 MPa {10 kg/cm^2}
		4	795-790-6210	M10 computer check fitting	1	
		5	795-790-1500	Fuel vacuum gauge	1	Male: 7/8-14UNF – female: 7/8-14UNF
			799-201-1201		1	Male: 3/4-16UNF – female: 3/4-16UNF
Testing leakage from pressure limiter and return rate from injector	H	1	795-790-4800	Hose kit	1	
		2	795-790-6700	Adapter	1	
		3	Commercially available	Measuring cylinder	1	

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E-29 Code [352/CA352] Sensor Sup. 1 Volt. Low Error

Error code	Failure code	Trouble	Abnormally low level in sensor power supply 1 circuit
352	CA352		
Contents of trouble	• Low voltage is detected in sensor power supply 1 circuit.		
Action of controller	• Fixes atmospheric pressure and continues operation.		
Problem that appears on machine	• Engine output drops. • Starting performance is poor.		
Related information	• Method of reproducing failure code: Starting switch ON.		

	Causes		Standard value in normal state/Remarks on troubleshooting		
Possible causes and standard value in normal state			★ Disconnect connector with starting switch OFF, then turn starting switch ON and carry out troubleshooting.		
	1	Defective sensor or wiring harness	Disconnect devices at right in order. If mark E of failure code disappears after reproduction operation is conducted, that device or wiring harness has a defect in it.	Atmospheric pressure sensor	AMBAIR PRESSURE
				Engine wiring harness	J1
	2	Defective wiring harness connector	Connecting parts among atmospheric pressure sensor, engine wiring harness, and engine controller are suspected. Inspect them directly. • Loose connector, broken lock, broken seal • Corrosive, bent, broken, forced-in, or extended pin • Humidity in connector, entry of dirt or dust, poor insulation		
	3	Defective engine controller	If causes 1 and 2 are not detected, engine controller may be defective. (Since trouble is in system, troubleshooting cannot be carried out.)		

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Method of using troubleshooting charts

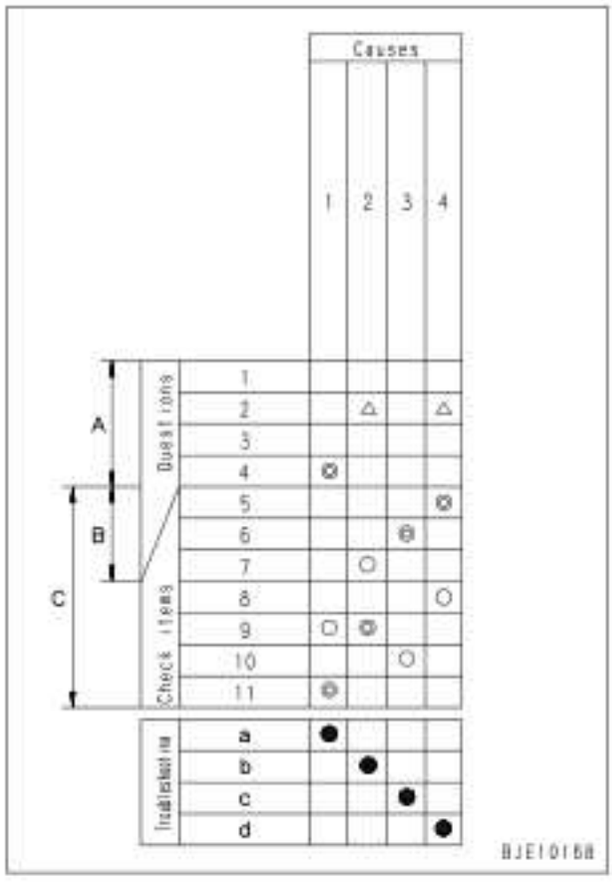
The troubleshooting chart consists of the "questions", "check items", "causes", and "troubleshooting" blocks.
The questions and check items are used to pinpoint high probability causes by simple inspection or from phenomena without using troubleshooting tools.
Next, troubleshooting tools or direct inspection are applied to check the narrowed causes in order from the most probable one to make final confirmation according to the troubleshooting procedure.

[Questions]:
Items to be drawn from the user or operator.
They correspond to A and B in the chart on the right.
The items in A are basic ones.
The items in B can be drawn from the user or operator, depending on their level.

[Check items]:
Items to be simply checked by the serviceman to narrow down causes.
They correspond to C in the chart on the right.

[Causes]:
Items to be narrowed from the questions and check items.
The serviceman narrows down the probable causes from A, B, and C.

[Troubleshooting]:
Items to finally verify whether the narrowed down causes are undoubtedly the real causes using the troubleshooting tools and direct inspections.



Items listed in the [Questions] and [Check items] and related to the [Causes] are marked with △, ○, or ◎.
△ : Causes to be referred to for questions and check items
○ : Causes related to questions and check items
◎ : Causes highly probable among ones marked with ○

★ When narrowing the "causes", apply the items marked with ◎ before those marked with ○.
When narrowing the causes, do not apply the items marked with △. (If no items have other marks and the causes cannot be narrowed, however, you may apply them.)

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