SEN01966-16

# Shop Manual

ENGINE

# 95E -5 SERIES

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# Composition of shop manual

The contents of this shop manual are shown together with Form No. in a list.

Note 1: Always keep the latest version of this manual in accordance with this list and utilize accordingly.
The marks shown to the right of Form No. denote the following:
○: New issue (to be filed additionally) ●: Revision (to be replaced for each Form No.)

Note 2: This shop manual can be supplied for each Form No.

Note 3: To file this shop manual in the special binder for management, handle it as follows:
- Place a divider on the top of each section in the file after matching the Tub No. with No. indicated next to each Section Name shown in the table below:
- File overview and other materials in sections in the order shown below and utilize them accordingly.


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| Engine model | | | SAA4D95LE-5 |
|---|---|---|---|
| Machine models | | | D37EX-22<br>D37PX-22 |
| Number of cylinders – bore × stroke | | mm | 4 - 95 × 115 |
| Piston displacement | | ℓ {cc} | 3.260 {3,260} |
| Firing order | | — | 1-2-4-3 |
| Dimensions | Overall length | mm | 730 |
| | Overall width | mm | 650 |
| | Overall height (excluding exhaust pipe) | mm | — |
| | Overall height (including exhaust pipe) | mm | 1,157 |
| Performance | Rated horsepower | kW {HP}/min$^{-1}$(rpm) | 67.7 {91}/2,200 {2,200} (Gross) |
| | Max. torque | Nm {kgm}/min$^{-1}$(rpm) | 376 {38.3}/1,500 {1,500} (Gross) |
| | Max. speed with no load (high idle) | min$^{-1}$(rpm) | 2,400 ± 50 {2,400 ± 50} |
| | Min. speed with no load (low idle) | min$^{-1}$(rpm) | 975 ± 25 {975 ± 25} |
| | Fuel consumption rate at rated horsepower | g/kWh {g/HPh} | 234 {175} |
| Dry weight | | kg | 355 |
| Fuel injection system | | — | Bosch CP1H-OHW (HPCR) |
| Fuel injection system control | | — | Electronic control type |
| Lubricating oil amount (refill capacity) | | ℓ | 11 (12) |
| Coolant amount | | ℓ | (Engine only: 4.5) |
| Alternator | | — | 24 V, 35 A |
| Starting motor | | — | 24 V, 4.5 kW |
| Battery | | — | 12 V, 64 Ah × 2 |
| Turbocharger | | — | TD04L |
| Air compressor | | — | — |
| Others | | — | With air-cooled aftercooler |

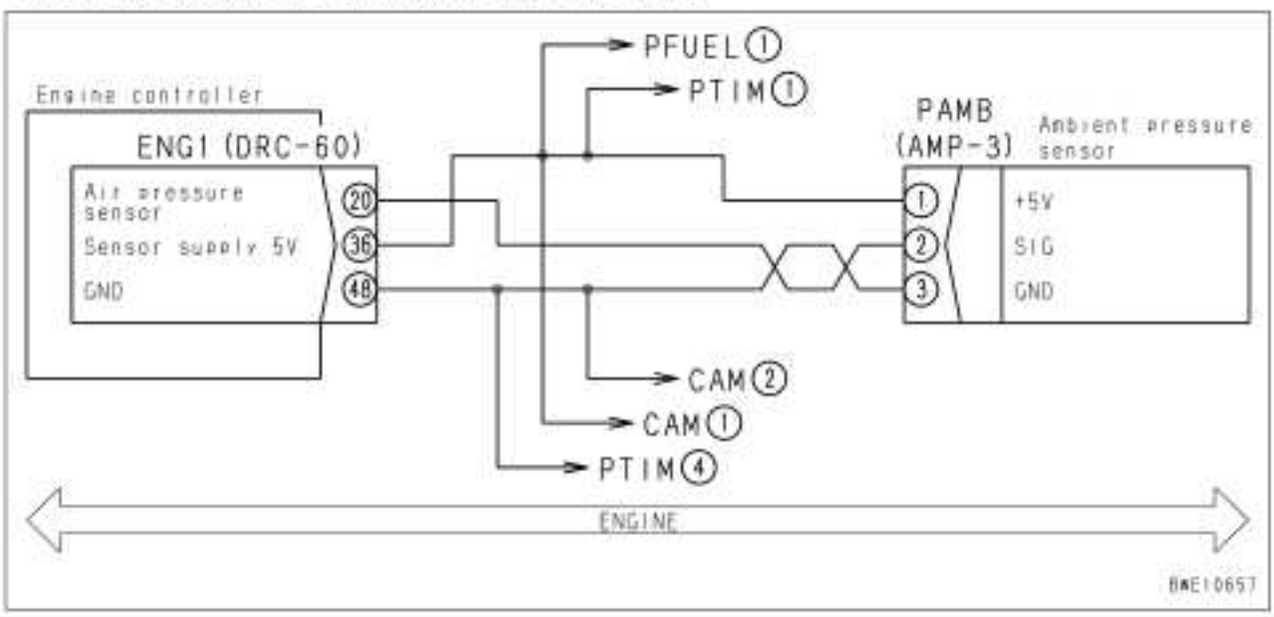
★ The dimensions may be changed exposed to modification etc.



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<table>
<tr><td rowspan="6">Possible causes and standard value in normal state</td><td colspan="2">Causes</td><td colspan="4">Standard value in normal state/Remarks on troubleshooting</td></tr>
<tr><td rowspan="3">5</td><td rowspan="3">Short circuit in wiring harness (With another wiring harness)</td><td colspan="4">★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.</td></tr>
<tr><td colspan="2">Wiring harness between ENG1 (female) (36) – PAMB (female) (1) and wiring harness between ENG1 (female) (20) – PAMB (female) (2)</td><td>Resistance</td><td>Min. 1 MΩ</td></tr>
<tr><td colspan="2">Wiring harness between ENG1 (female) (36) – PAMB (female) (1) and wiring harness between ENG1 (female) (48) – PAMB (female) (3)</td><td>Resistance</td><td>Min. 1 MΩ</td></tr>
<tr><td rowspan="3">6</td><td rowspan="3">Defective engine controller</td><td colspan="2">Wiring harness between ENG1 (female) (20) – PAMB (female) (2) and wiring harness between ENG1 (female) (48) – PAMB (female) (3)</td><td>Resistance</td><td>Min. 1 MΩ</td></tr>
<tr><td colspan="4">★ Prepare with starting switch OFF, then turn starting switch ON or start engine and carry out troubleshooting.</td></tr>
<tr><td colspan="2">ENG1</td><td colspan="2">Voltage</td></tr>
<tr><td colspan="2">Between (36) – (48)</td><td colspan="2">4.75 – 5.25 V</td></tr>
<tr><td colspan="2">Between (20) – (48)</td><td colspan="2">0.3 – 4.7 V</td></tr>
</table>

**Circuit diagram related to atmospheric pressure sensor**






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# E-34 Code [553/CA553] Rail Press. High Error

| Error code | Failure code | Trouble | Rail Press. High Error |
|---|---|---|---|
| **553** | **CA553** | | |
| Contents of trouble | • Common rail pressure sensor circuit detected abnormally high pressure (level 1). | | |
| Action of controller | • None in particular. | | |
| Problem that appears on machine | • Output drops. | | |
| Related information | | | |

| | | Causes | Standard value in normal state/Remarks on troubleshooting |
|---|---|---|---|
| Possible causes and standard value in normal state | 1 | Defective related system | If another failure code is indicated, carry out troubleshooting for it. |
| | 2 | Use of improper fuel | Check fuel used directly (for high viscosity). |
| | 3 | Defective electrical system of common rail pressure sensor | Common rail pressure sensor may have electric trouble. Carry out troubleshooting for code [**451**/**CA451**] (E-32). |
| | 4 | Defective mechanical system of common rail pressure sensor | Check mechanical system of common rail pressure sensor directly. |
| | 5 | Defective overflow valve | Check overflow valve directly for broken spring, worn seat, and stuck ball. |
| | 6 | Clogging of overflow piping | Check overflow piping directly for clogging. |
| | 7 | Defective pressure limiter | Check pressure limiter directly for mechanical defect. |



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