UEN01892-04

# Shop Manual

KOMATSU

## PC160LC-7E0
## PC180LC-7E0
## PC180NLC-7E0

| | | | |
|---|---|---|---|
| SERIAL NUMBERS | PC160LC-7E0 | K45001 | and up |
| | PC180LC-7E0 | K45001 | |
| | PC180NLC-7E0 | K45001 | |

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# Tools for testing, adjusting, and troubleshooting

| Testing/Adjusting item | Symbol | | Part No. | Part name | Q'ty | Remarks |
|---|---|---|---|---|---|---|
| Measuring intake air pressure (boost pressure) | A | | 799-201-2202 | Boost gauge kit | 1 | –101 – 200 kPa {–760 – 1,500 mmHg} |
| Checking exhaust gas colour | B | 1 | 799-201-9001 | Handy smoke checker | 1 | Bosch index: 0 – 9 |
| | | 2 | Commercially available | Smoke meter | 1 | |
| Adjusting valve clearance | C | 1 | 795-799-1131 | Gear | 1 | |
| | | 2 | Commercially available | Clearance gauge | 1 | Intake: 0.25 mm, Exhaust: 0.51 mm |
| Measuring compression pressure | D | 1 | 795-502-1590 | Compression gauge | 1 | 0 – 6.9 MPa {0 – 70 kg/cm²} |
| | | 2 | 795-799-6700 | Puller | 1 | For 107E-1 engine |
| | | 3 | 795-790-4410 | Adapter | 1 | For 107E-1 engine |
| | | | 6754-11-3130 | Gasket | 1 | For 107E-1 engine |
| Measuring blow-by pressure | E | 1 | 799-201-1504 | Blow-by checker | 1 | 0 – 5 kPa {0 – 500 mmH₂O} |
| | | 2 | 795-790-3300 | Blow-by tool | 1 | For 107E-1 engine |
| Measuring engine oil pressure | F | 1 | 799-101-5002 | Hydraulic tester | 1 | Pressure gauge: 2.5, 5.9, 39.2, 58.8 MPa {25, 60, 400, 600 kg/cm²} |
| | | | 790-261-1204 | Digital hydraulic tester | 1 | Pressure gauge: 58.8 MPa {600 kg/cm²} |
| | | 2 | 799-401-2320 | Hydraulic tester | 1 | Pressure gauge: 0.98 MPa {10 kg/cm²} |
| Measuring fuel pressure | G | 1 | 799-101-5002 | Hydraulic tester | 1 | Pressure gauge: 2.5, 5.9, 39.2, 58.8 MPa {25, 60, 400, 600 kg/cm²} |
| | | | 790-261-1204 | Digital hydraulic tester | 1 | Pressure gauge: 58.8 MPa {600 kg/cm²} |
| | | 2 | 795-790-4430 | Adapter | 1 | 10 × 1.0 mm → R1/8 |
| | | | 6215-81-9710 | O-ring | 1 | |
| | | 3 | 795-790-5200 | Fuel pressure gauge adapter kit | 1 | Cu 4918462 |
| | | 4 | 799-401-2320 | Hydraulic tester | 1 | Pressure gauge: 0.98 MPa {10 kg/cm²} |
| Measuring fuel discharge, return rate and leakage | H | 1 | Commercially available | Hose | 1 | Internal dimensions ø14 mm |
| | | 2 | 795-790-4700 | Tester kit | 1 | |
| | | 3 | 795-790-6700 | Adapter | 1 | |
| | | 4 | 6754-71-5340 | Connector | 1 | |
| | | | 6754-71-5350 | Washer | 1 | |
| | | 5 | Commercially available | Measuring cylinder | 1 | |
| | | 6 | Commercially available | Stopwatch | 1 | |
| | | 7 | Commercially available | Hose | 1 | Internal dimensions ø12 mm |
| Measuring swing circle bearing clearance | J | | Commercially available | Dial gauge | 1 | |
| Measuring and adjusting oil pressure in work equipment, swing, and travel circuits | K | 1 | 799-101-5002 | Hydraulic tester | 1 | Pressure gauge: 2.5, 5.9, 39.2, 58.8 MPa {25, 60, 400, 600 kg/cm²} |
| | | | 790-261-1204 | Digital hydraulic tester | 1 | Pressure gauge: 58.8 MPa {600 kg/cm²} |
| | | 2 | 799-101-5220 | Nipple | 2 | Size: 10 × 1.25 mm |
| | | | 07002-11023 | O-ring | 2 | |



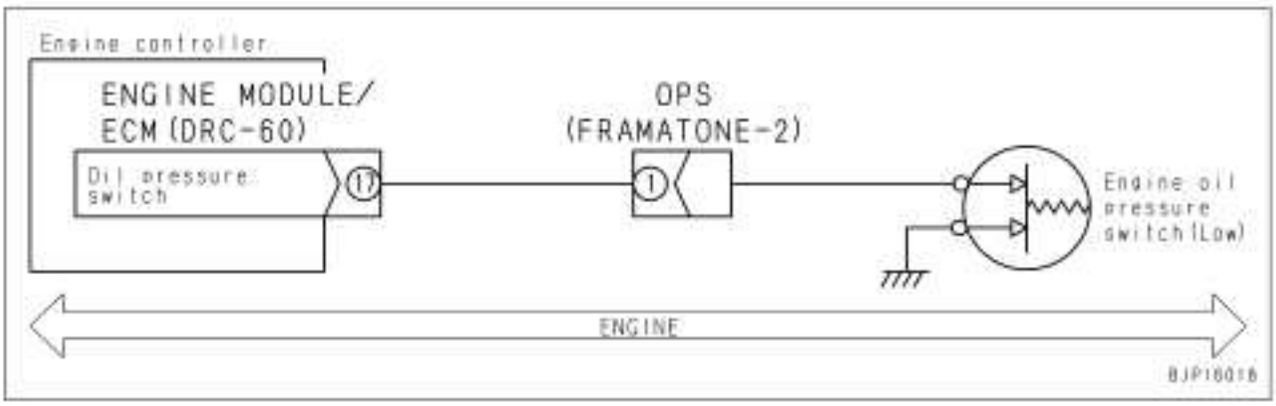
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# Failure code [CA435] Eng oil press sw error

| User code | Failure code | Trouble | Engine oil pressure switch error (Engine controller system) |
|---|---|---|---|
| E15 | CA435 | | |
| Contents of trouble | • There is error in signal circuit of engine oil pressure switch. | | |
| Action of controller | • None in particular. | | |
| Problem that appears on machine | • Engine protection function based on engine oil pressure does not work.<br>• Engine oil pressure monitor does not display normally | | |
| Related information | • Method of reproducing failure code: Turn starting switch ON or start engine. | | |

| | Cause | | Standard value in normal state/Remarks on troubleshooting | | |
|---|---|---|---|---|---|
| Possible causes and standard value in normal state | 1 | Defective engine oil pressure switch | ★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON. | | |
| | | | OPS (male) | Resistance | |
| | | | Between (1) – chassis ground | Max. 10 Ω | |
| | 2 | Disconnection in wiring harness (Disconnection in wiring or defective contact in connector) | ★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON. | | |
| | | | Wiring harness between ECM (female) (17) – OPS (female) (1) | Resistance | Max. 10 Ω |
| | 3 | Short circuit in wiring harness (With another wiring harness) | ★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON. | | |
| | | | Wiring harness between ECM (female) (17) – each of ECM (female) pins (With all wiring harness connectors disconnected) | Resistance | Min. 100 kΩ |
| | 4 | Defective wiring harness connector | Connecting parts between engine oil pressure switch – engine wiring harness – engine controller may be defective. Check them directly.<br>• Looseness of connector, breakage of lock, or breakage of seal<br>• Corrosion, bend, breakage, push-in, or expansion of pin<br>• Moisture or dirt in connector or defective insulation | | |
| | 5 | Defective engine controller | ★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON. | | |
| | | | ECM (female) | Resistance | |
| | | | Between (17) – chassis ground | Max. 10 Ω | |

**Circuit diagram related**






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# Failure code [DW45KA] Swing brake sol. disc.

| User code | Failure code | Trouble | Swing holding brake solenoid disconnection (Pump controller system) |
|---|---|---|---|
| **E03** | **DW45KA** | | |
| Contents of trouble | • No current flows at output to swing holding brake solenoid circuit. | | |
| Action of controller | • None in particular. (Since no current flows, solenoid does not operate.)<br>• If cause of failure disappears, system resets itself. | | |
| Problem that appears on machine | • Machine cannot swing. | | |
| Related information | • Operating condition of swing holding brake solenoid (ON/OFF) can be checked with monitoring function. (Code **02300**: Solenoid 1)<br>• If solenoid and wiring harness are normal, operator can swing machine by setting emergency swing brake release switch in release position (Swing holding brake does not work, however, when machine stops).<br>• Turn both of swing lock and emergency swing release switches OFF during troubleshooting.<br>• Solenoid detects disconnection when output is turned on. To confirm the reproduction after repair, be sure to turn output on. (For more information on how to turn output on/off, see troubleshooting for failure code [**DW45KB**].) | | |

| | Cause | | Standard value in normal state/Remarks on troubleshooting | | | |
|---|---|---|---|---|---|---|
| Possible causes and standard value in normal state | 1 | Defective swing holding brake solenoid (Internal disconnection) | ★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON. | | | |
| | | | V05 (male) | | Resistance | |
| | | | Between (1) – (2) | | 20 – 60 Ω | |
| | 2 | Defective swing lock switch (Internal disconnection) | ★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON. | | | |
| | | | S04 (female) | Switch | Resistance | |
| | | | Between (3) – (4) | OFF | Max. 1 Ω | |
| | | | | LOCK | Min. 1 MΩ | |
| | 3 | Defective assembled-type diode D01 (Internal disconnection) | ★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON. | | | |
| | | | D01 (male) | Digital circuit tester | Continuity | |
| | | | Between (7) – (3) | Diode mode | There is continuity | |
| | 4 | Disconnection in wiring harness (Disconnection in wiring or defective contact in connector) | ★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON. | | | |
| | | | Wiring harness between CP03 (female) (37) – D01 (female) (7) | | Resistance | Max. 1 Ω |
| | | | Wiring harness between D01 (female) (3) – J02 – H15 – S04 (male) (3) | | Resistance | Max. 1 Ω |
| | | | Wiring harness between S04 (male) (4) – H15 – J06 – A05 – V05 (female) (1) | | Resistance | Max. 1 Ω |
| | | | Wiring harness between V05 (female) (2) – CP03 (female) (3), (13), (23) | | Resistance | Max. 1 Ω |



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# Measuring and adjusting quick coupler control valve output pressure

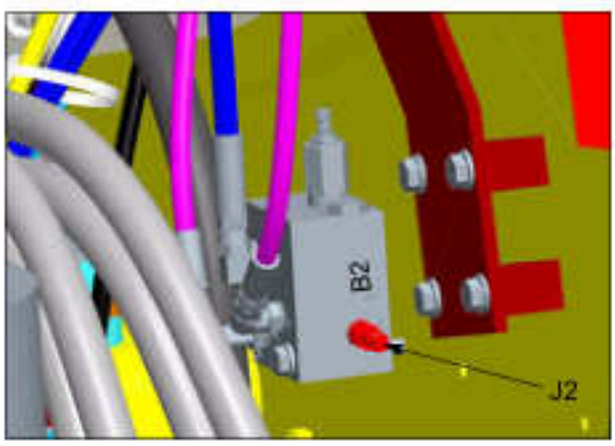
★ Measuring and adjusting tools for oil pressure in quick coupler circuit.

| Symbol | | Part No. | Part name |
|---|---|---|---|
| J | 1 | 799-101-5002 | Hydraulic tester |
| | | 790-261-1204 | Digital hydraulic tester |
| | 2 | 799-101-5220 | Nipple (10 × 1.25 mm) |
| | | 07002-11023 | O-ring |

⚠ **Stop the machine on a level ground and lower the work equipment to the ground. Then, release the residual pressure from the hydraulic circuit. For details, see "Releasing residual pressure from hydraulic circuit".**

**Measuring**

- Measure quick coupler control valve output pressure after checking that work equipment, swing and travel circuit pressures are normal.
- Fit nipple J2 to port B2 and connect it to oil pressure gauge of hydraulic tester.




- Use an oil pressure gauge with the capacity of 59MPa (600kg/cm²)
- Start the engine. In order to raise the pressure to the set pressure of the pressure regulating valve it will be necessary to operate one of the main control circuits (bucket, boom, arm or swing). If using swing circuit set the swing lock to ON.

NOTE: When delivered from the factory the regulated pressure is set to 4MPa (41kg/cm²).

**Adjustment**

If the regulated pressure is not suitable for the quick coupler to be installed adjust the pressure of the regulating valve as follows:

1. Loosen the locknut (1a). (using a 17mm spanner).



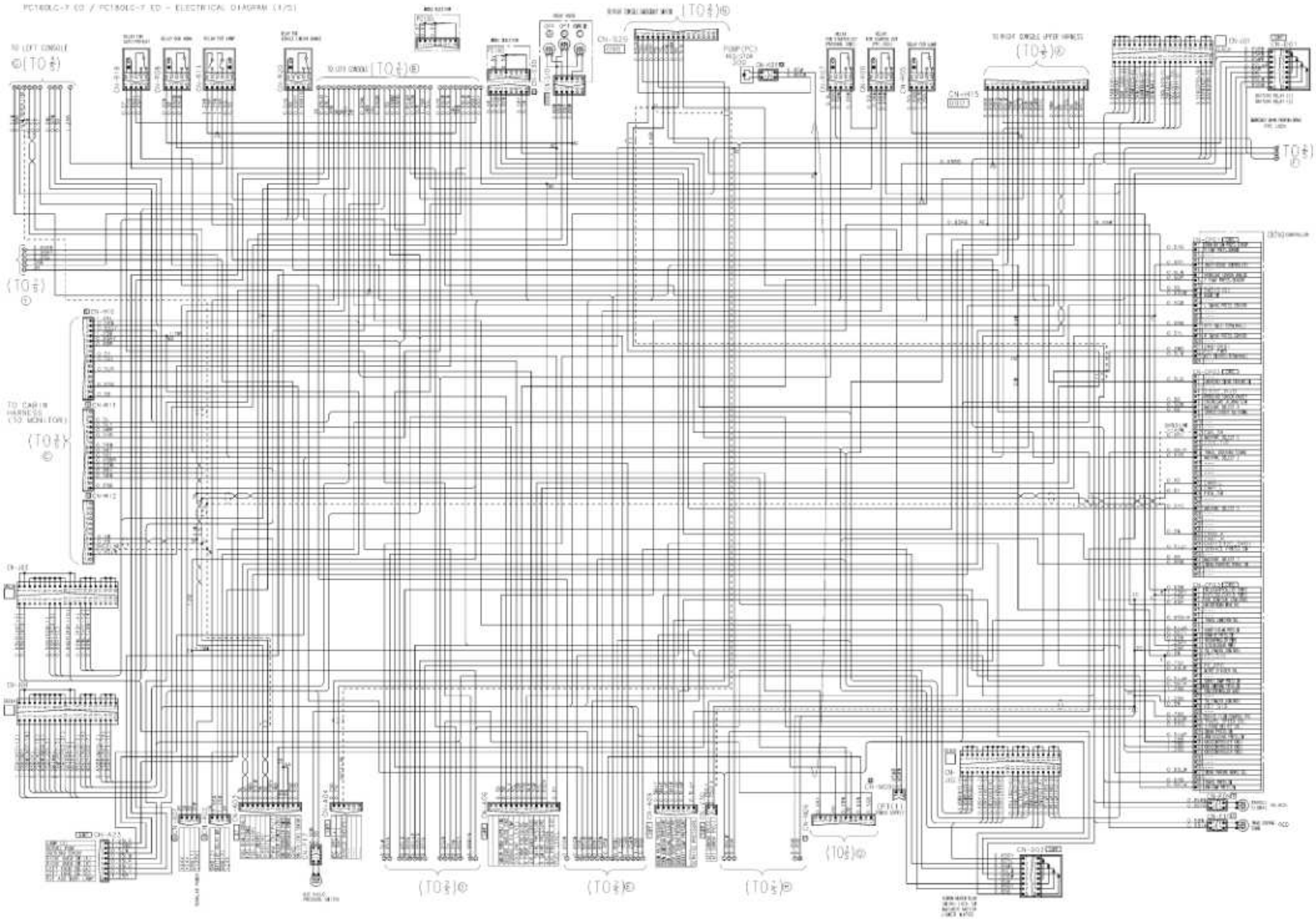

2. Turn the adjustment screw (1b) to adjust the pressure. (Using a 5mm hexagon key).
   - If the screw is turned to the right the pressure increases.
   - If the screw is turned to the left the pressure reduces.
   - Quantity of adjustment per turn of the screw: Approx 5.5MPa.




3. After required pressure is achieved, hold adjustment screw (1b) and tighten the lock nut (1a). (Torque of lock nut (1a) 12+/-2Nm)



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