

Testing and Adjusting

E200B & EL200B EXCAVATORS HYDRAULIC AND ELECTRONIC SYSTEMS

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Electronic System Testing And Adjusting

SMCS - 5050

Tests And Adjustments After Replacement Of Components

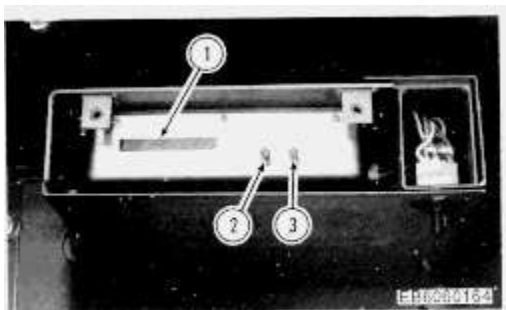
When any of the important components of the power unit control system are replaced, adjustments and/or tests are necessary.

- 1) Controller
- 2) Proportional reducing valve and
- 3) Engine speed sensor

- 4) AEC relay,
- 5) Power mode switch,
- 6) AEC switch and
- 7) AEC pressure switch.

Test Programs

The controller contains two test programs, 1 and 2, which are used to check whether replacement components are correctly adjusted and function.



Controller Assembly

(1) LED display. (2) Switch 2. (3) Switch 1.

Test Programs work while switches 1 (3) and/or 2 (2) are being depressed. Switch 1 is used for Test Program 1 and Switch 2 is for Test Program 2. Both switches are used at the same time to check the controller after replaced. The controller maintains the normal control mode when neither of the switches is depressed.

Test Program 1

Test Program 1 can test the five functions that follow.

1. Signal Current To Proportional Reducing Valve

This test checks whether the signal current from the controller sufficiently varies in the whole range needed for correct activation of the proportional reducing valve. At the same time, this test checks whether the proportional reducing valve processes the change from the signal current to the power shift pressure.

This test should be done after the controller and/or proportional reducing valve is replaced. Also, this test will help locate a cause when the engine tends to stall, or not enough operating force or speed is found.

2. Voltage To AEC Relay

This test can check whether the output circuit to the AEC relay is functioning correctly. In actual check of this circuit, however, it is preferable to use the display of Self-Diagnostic Function Displays code No.5 because of its easiness.

3. Operation Of Power Mode Switch

The signal input from the power mode switch to the controller can be checked which in turn gives an analysis of the power mode condition.

This test should be done after the power mode switch is replaced.

4. Operation Of AEC Switch.

The AEC switch can be checked whether it correctly turns ON/OFF. If no displays of Self-Diagnostic Function Displays code No.7 appear with the AEC switch in either position of ON or OFF, it indicates that the switch is in the normal condition. In this case, this test is not necessary.

5. Operation Of AEC Pressure Switch

The AEC pressure switch can be checked whether it correctly turns ON/OFF, when the machine is loaded or unloaded.

This test will help analyze the condition of the AEC pressure switch to locate the cause of Automatic Engine Control (AEC) malfunction.

Test Program 2

The actual characteristics of the proportional reducing valve may vary between reducing valves because reducing valve components such as solenoid, hydraulic valve, etc. are not perfectly the same. After replacement of a proportional reducing valve, the signal current from the controller as it was will not keep the power shift pressure as it was.

For this reason, a calibration to the controller memory must be done so that the power shift pressure at high idling could be adjusted to the specification. This is called "a calibration of standard power shift pressure".

As Test Program 2 is started, the controller outputs seven different values of signal current, which in turn allows the proportional reducing valve to vary the power shift pressure in seven different values. The controller compares and stores the current setting at the time one of the seven power shift pressure settings comes closest to the specification.