PART NO.

HITACHI

# Technical Manual

## Troubleshooting

EX

# EX1200-5

## Hydraulic Excavator

Service Manual consists of the following separate Part No.
Technical Manual (Operational Principle)
Technical Manual (Troubleshooting)
Workshop Manual

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SECTION 4

# OPERATIONAL PERFORMANCE TEST



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**Adjustment of Torque Control**

The torque control is performed by pump delivery pressure P. Therefore, the torque constant control is adjusted by changing the set-force of inner spring (2) and outer spring (1).

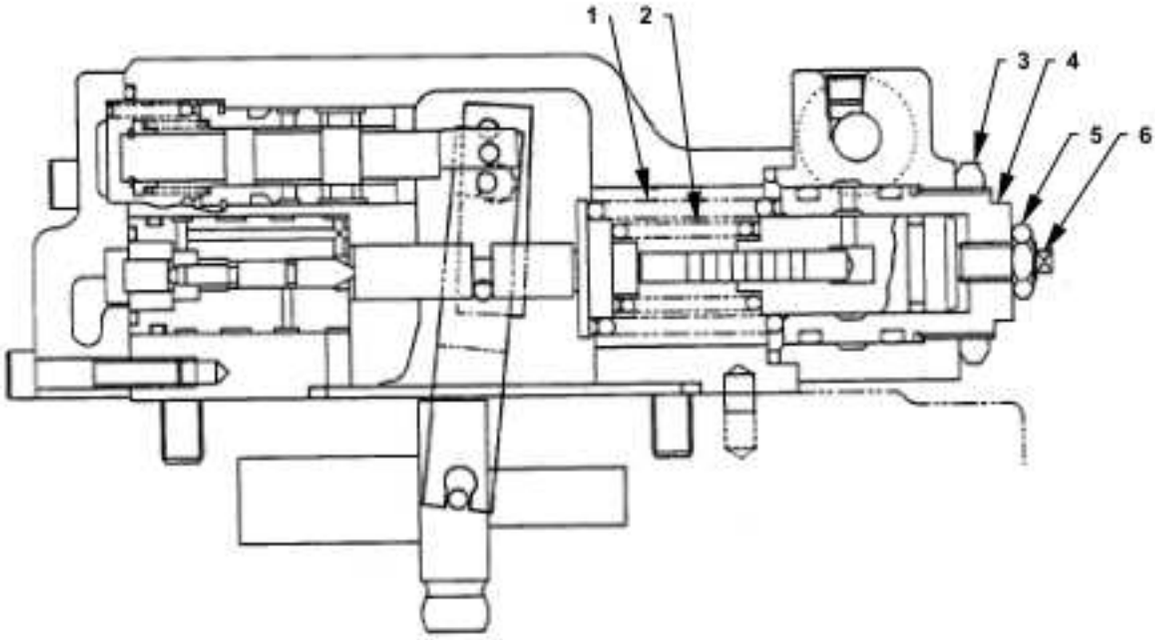
(Before adjust the screws (4) and (6), mark the end of the adjusting screw with a white marker for the record of the original position.)

When resetting inner spring (2), loosen nut (5) and adjust screw (6).

When resetting outer spring (1), loosen nut (3) and adjust screw (4).

*NOTE: When adjusting screw (4) is turned, inner spring (2) set-force varies. Therefore, when adjusting screw (4) is turned, turn adjusting screw (6) 2.17 times the turns of adjusting screw (4) in the opposite direction to keep inner spring (2) set-force unchanged.*

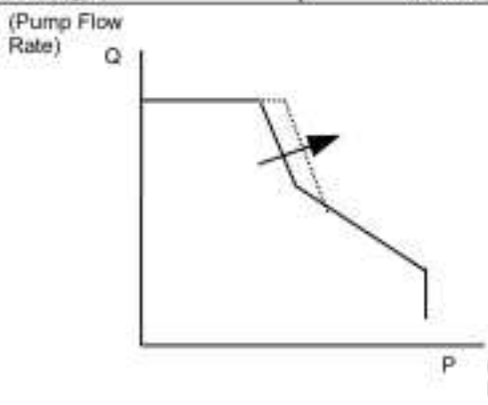
: 36 mm : Nut (3)
: 24 mm : Adjusting Screw (4)
: 13 mm : Nut (5)
: 4 mm : Adjusting Screw (6)




T117-05-04-005

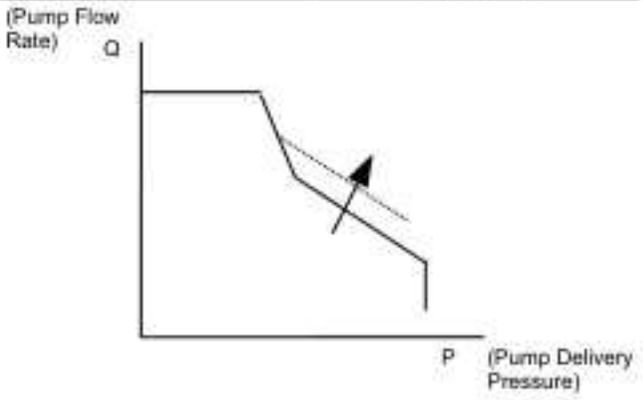
Outer Spring Adjustment Data

| Adjusting Screw Turn | 1/4 |
|---|---|
| Flow Rate Change | 40.9 L/min (10.8 US gal/min) |
| Pressure Change | 1.74 MPa (17.8 kgf/cm$^2$) (252 psi) |
| Engine Torque Change | 67.6 N·m (6.9 kgf·m) (50 lbf·ft) |




Inner Spring Adjustment Data

| Adjusting Screw Turn | 1/4 |
|---|---|
| Flow Rate Change | 18.9 L/min (5 US gal/min) |
| Pressure Change | 1.80 MPa (18.4 kgf/cm$^2$) (261 psi) |
| Engine Torque Change | 45.1 N·m (4.6 kgf·m) (33 lbf·ft) |






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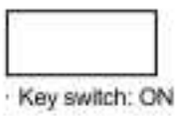
## TROUBLESHOOTING A PROCEDURE

Refer to troubleshooting A procedure in case any fault codes are displayed after diagnosing the main controller A and/or B using the built-in diagnosing system.

- How to Read Troubleshooting Flow Charts




After completing the checking and/or measuring procedures in box (1), select YES (OK) or NO (NOT OK) and proceed to box (2) or (3).



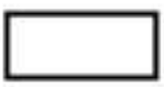

Instructions, reference, and/or inspection methods and/or measurements are occasionally described under the box. If incorrectly checked or measured, not only will troubleshooting be unsuccessful but also damage to the components may result.



Refer to "Electrical System Inspection" group (Group 8) for descriptions in the dotted-line box.

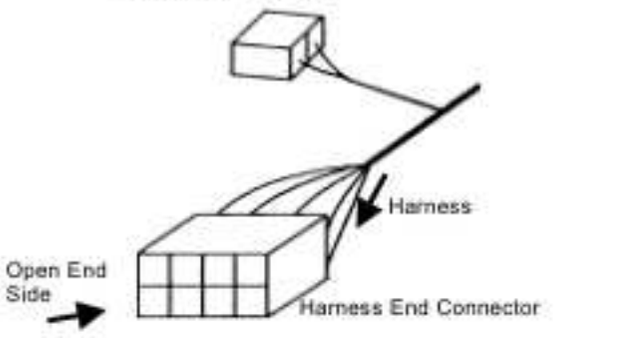


Use the built-in diagnosing system for descriptions in the double-line box.



Causes of machine problems are stated in the thick-line box. Scanning quickly through the thick-line boxes allows you to estimate the possible causes before actually following the flow chart.

*NOTE: All harness end connectors are seen from the open end side.*





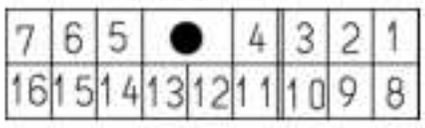

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**Inspection Method**

Referring to the trouble status shown in the table, check the harness between the ECM and each sensor for discontinuity and short circuit. When the harness is normal, either the corresponding sensor or the ECM may be faulty.

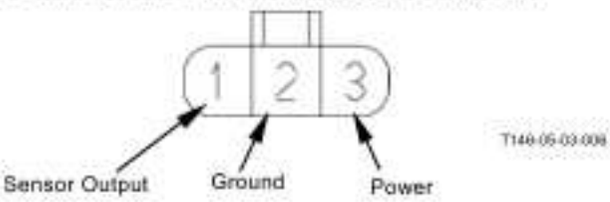
**Connector Terminal Layout of ECM and Sensors**

Switch Box



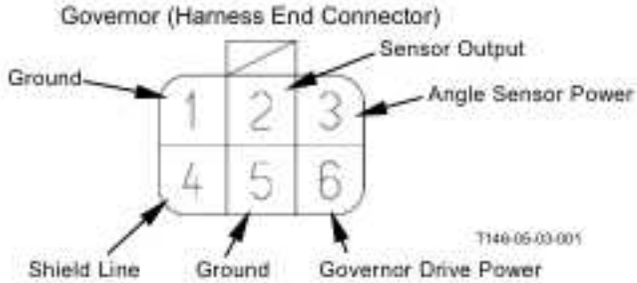

T183-05-04-004

Boost Pressure Sensor (Harness End Connector)



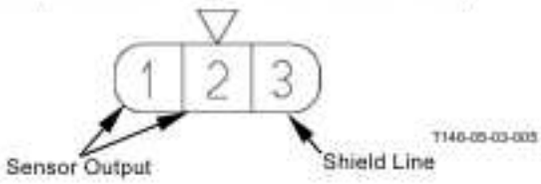

T149-05-03-009

Governor (Harness End Connector)



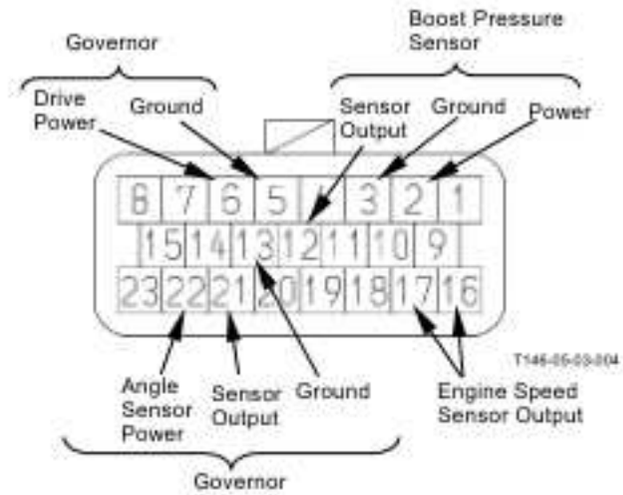

T149-05-03-001

Engine Speed Sensor 2 (Harness End Connector)



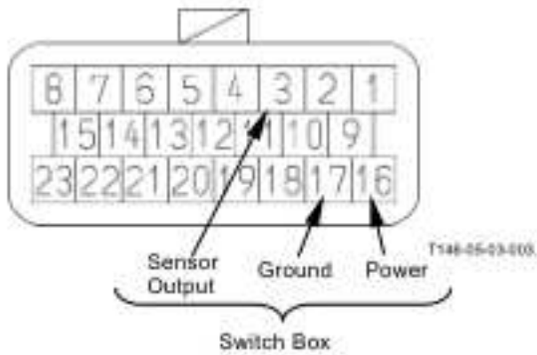

T149-05-03-003

ECM J1 Connector (Black) (Harness End Connector)




T149-05-03-004

ECM J2 Connector (White) (Harness End Connector)




T149-05-03-002



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Attach to Vol. No. :TT183E-01

# EX1200-5 ELECTRICAL CIRCUIT DIAGRAM

(From Machine Serial No. 1046 and After)

Authorised Hitachi Dealer Use Only
Parts numbers on the drawing are provided only for reference purpose.
To order parts on the drawing, be sure to consult the Parts Catalog.
IMPORTANT : The numbers (①) to (⑮) indicate the No. in the cross reference table.
Refer to the cross reference table in TS-2 group.

NOTE
1. Separate harness ground lines to 3 lines (Accessory, Control power, System control).
   Do not connect the lines each other, and fix them together.
2. GND line for connection of cab floor and cab should be 8mm² wire.
3. Wire should be 0.5mm² , unless otherwise specified.
4. 0.5 to 1.25mm² wires are CAVS wire, 2 to 5mm² wires are AVS, more than 8mm² wires are AV wire, unless otherwise specified for wires inside cab.
   0.5 to 1.25mm² wires are AVS wire, more than 2mm² wires are AV wire, unless otherwise specified for wires outside cab.
5. ○ marked wire is AEX wire.
6. ■ marked wire is CHAVX wire.

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