PART NO. TO18K-E-00

HITACHI

Technical Manual

Operational Principle

EX

1900-6

Hydraulic Excavator

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TO18K-E
Technical Manual (Troubleshooting)	: Vol. No.TT18K-E
Workshop Manual	: Vol. No.W18K-E

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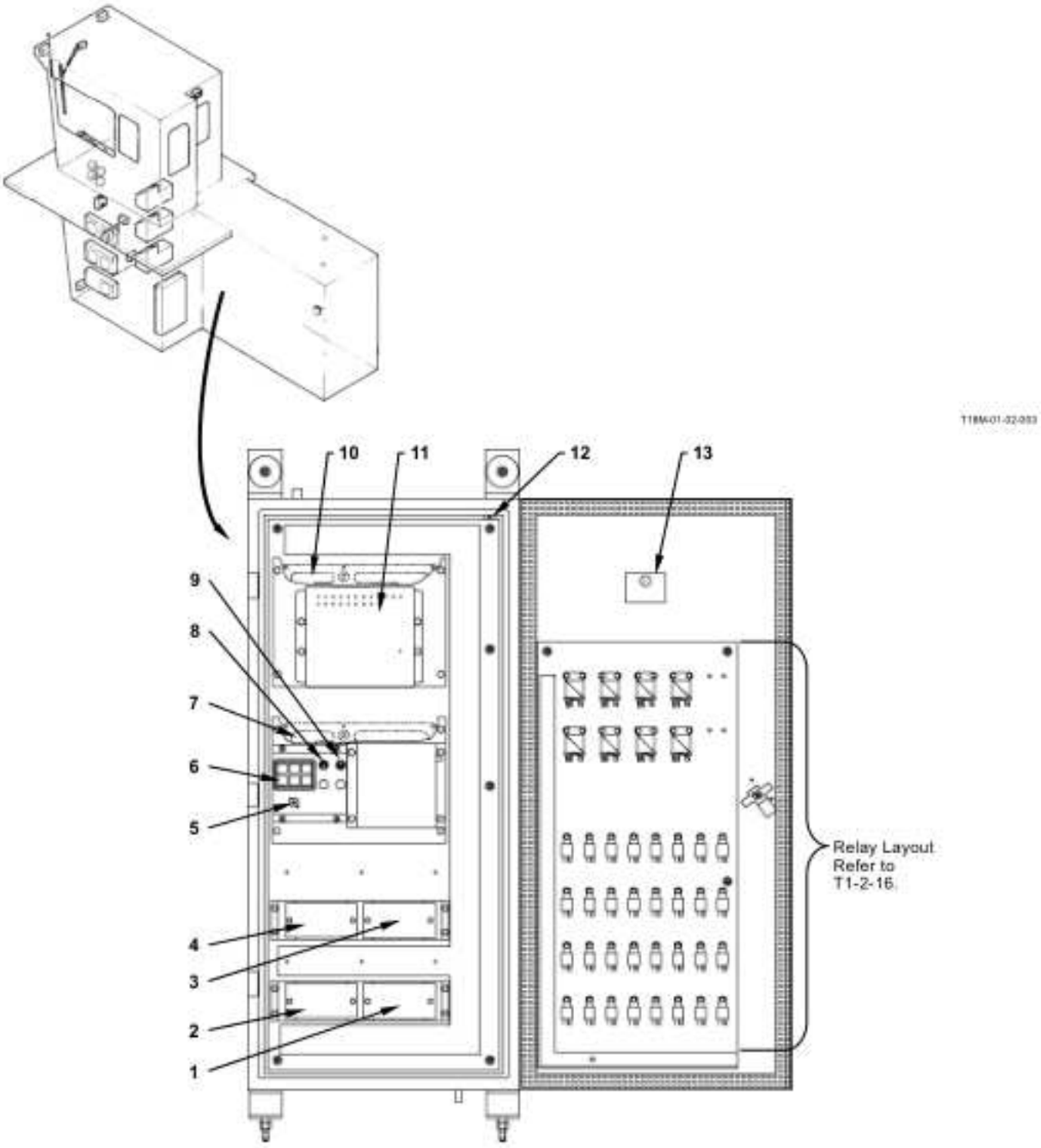
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Electrical Equipment Box



1 - Fuse Box 2
2 - Fuse Box 1
3 - Fuse Box 4
4 - Fuse Box 3
5 - Auto-Lubrication Interval Switch
6 - Engine Fault Code Display Lamp
7 - MC
8 - Engine Troubleshooting Switch
9 - Engine Fault Code Display Selection Switch
10 - HMU
11 - CSU (Contamination Sensing Unit)
12 - Limit Switch (Box Light Switch)
13 - Box Light

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OIL COOLER FAN MOTOR SPEED CONTROL

Purpose: To control the oil cooler fan motor speed at four steps in order to maintain the hydraulic oil temperature in the proper temperature range.

Operation:

1. The hydraulic oil temperature sensor sends the signals to MC in response to hydraulic oil temperature.
2. MC controls the oil cooler fan motor speed control solenoid valve (EHC valve) in response to hydraulic oil temperature and delivers pilot pressure oil to regulator (Pi) in the oil cooler fan motor drive pump. (Refer to the COMPONENT OPERATION/Pump Device group.)
3. Therefore, the delivery flow rate from the oil cooler fan motor drive pump is controlled and the oil cooler fan motor speed is changed.
4. The detection data from the hydraulic oil temperature sensor is sent to IDU by using CAN.

Oil Cooler Fan Motor Speed Vs. Hydraulic Oil Temperature

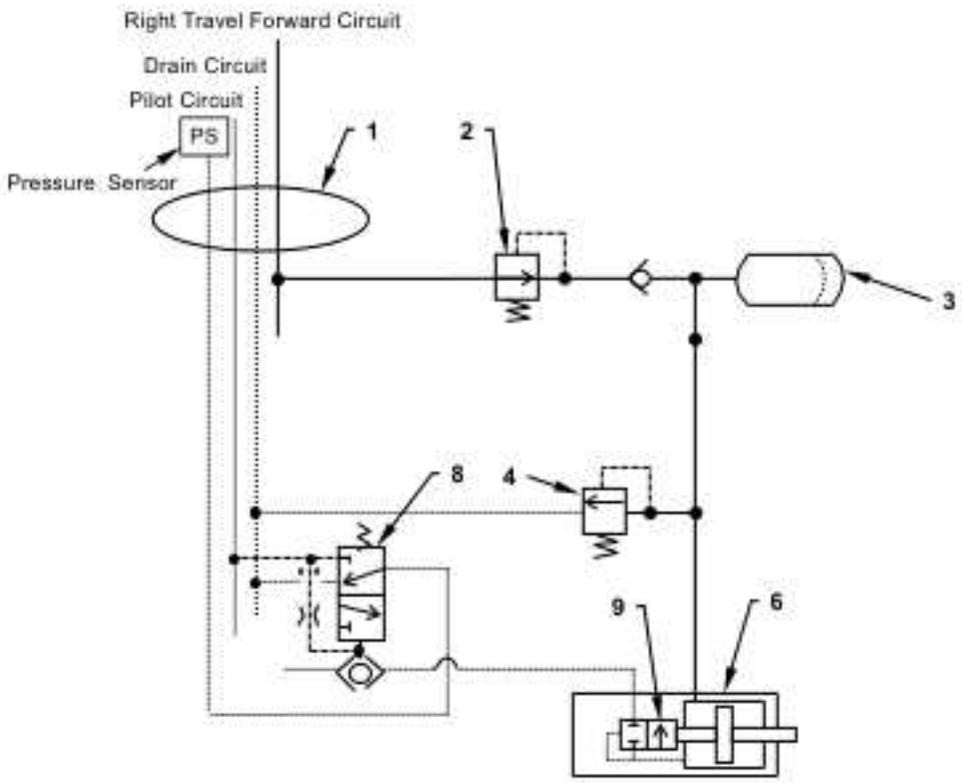
Hydraulic Oil Temperature (°C)	Pilot Pressure from Solenoid Valve (Current: From MC)	Oil Cooler Fan Motor Speed (min^{-1})
59 °C (138 °F) or Lower	0 MPa (0 kgf/cm^2) [50 mA]	200
60 to 69 °C (140 to 156 °F)	1.8 MPa (18.4 kgf/cm^2, 260 psi) [280 mA]	850
70 to 79 °C (158 to 174 °F)	2.22 MPa (22.6 kgf/cm^2, 320 psi) [310 mA]	1150
80 °C (176 °F) or Higher	3.51 MPa (35.8 kgf/cm^2, 510 psi) [400 mA]	1370

NOTE: The oil cooler fan motor speeds in the table above are those at the rated engine speed (1800 min^{-1}).

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Shock Absorbing / Travel Stop Operation

1. Main pressure from the right travel forward circuit is routed into accumulator (3) and both right and left cushion cylinders (6) after being reduced by pressure reducing valve (2).
2. When an external load is applied to the front idler, the cushion piston is pushed so that pressure oil in the piston chamber flows into accumulators (3).
3. The bladder in the accumulator contracts and absorbs the external load.
4. If the external load increases further, relief valve (4) relieves and the cushion piston is moved to the stroke end. Therefore, travel stop pilot valve (9) is shifted.
5. Pressure oil from travel stop pilot valve (9) shifts pilot pressure control valve (8).
   Pressure oil from pilot pressure control valve (8) is converted into electrical signals by the pressure sensor and sent to ELU.
6. ELU receives these signals and stops travel function. (Refer to SYSTEM / ELU System / Cushion Cylinder End Travel Restriction Control.)



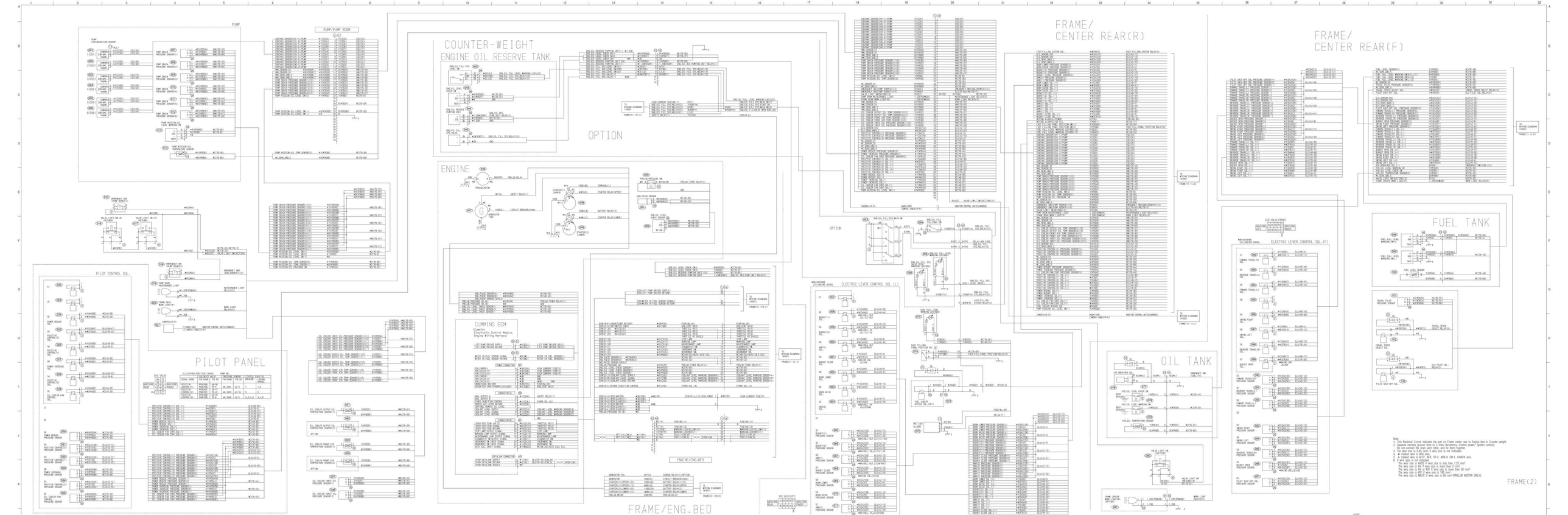
1 - Center Joint
2 - Pressure Reducing Valve
3 - Accumulator
4 - Relief Valve
5 - Stop Valve
6 - Cushion Cylinder
7 - Grease Fitting
8 - Pilot Pressure Control Valve
9 - Travel Stop Pilot Valve

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EX1900-6 ELECTRICAL CIRCUIT DIAGRAM 2/3

Authorized Hitachi Dealer Use Only.
Parts numbers on the drawing are provided only for reference.
To order parts on the drawing,be sure to consult the parts catalog.

IMPORTANT : The number ◇8to ◇@indicated the NO. in the cross reference table.
Refer to the cross reference table in TS-2 group.



Note:
1. This Electrical Circuit indicates the part on Frame center rear to Engine bed to Counter weight.
2. Separate harness ground lines to 3 lines (Accessory, Control power, System control).
3. The wire size to ALT. terminal B+ is 50 mm² (PRELUB MOTOR ONLY).
   The wire size to E2E (red) if wire size is not indicated.
4. ▼ marked wire is AEX wire.
5. ■ marked wire is AVSS, SF-2, ARX-5, CN-1, CHAVX wire.
6. If wire type is not indicated
   The wire size is AVSS if wire size is less than 1.25 mm²
   The wire size is AEX if wire size is more than 1.25 mm² less than 9 mm²
   The wire size is AV-4 if wire size is more than 30 mm²
   The wire size is AV-8 if wire size is 100 mm²
   The wire size is MLFC if wire size is 50 mm² (PRELUB MOTOR ONLY)

NOTE:
Diode No. : D20 to D43 (19-5)

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