CRAWLER EXCAVATOR

SERVICE MANUAL

R290LC-7A

HYUNDAI

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8. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Cummins QSB6.7
Type	4-cycle turbocharged diesel engine
Cooling method	Water cooling
Number of cylinders and arrangement	6 cylinders, in-line
Firing order	1-5-3-6-2-4
Combustion chamber type	Direct injection type
Cylinder bore × stroke	104 × 132(4.09" × 5.20")
Piston displacement	6700cc(409cu in)
Compression ratio	17.2 : 1
Rated gross horse power(SAE J1995)	227Hp at 1900rpm(169kW at 1900rpm)
Maximum torque	96.8kgf · m(700lbf · ft) at 1400rpm
Engine oil quantity	24 ℓ (6.3U.S. gal)
Dry weight	556kg(1226lb)
High idling speed	2050 ± 50rpm
Low idling speed	950 ± 100rpm
Rated fuel consumption	167g/Hp · hr at 1900rpm
Starting motor	Delco Remy 24V-4.5kW
Alternator	Delco Remy 24V-50A
Battery	2 × 12V × 160Ah

2) MAIN PUMP

Item	Specification
Type	Variable displacement tandem axis piston pumps
Capacity	2 × 140cc/rev
Maximum pressure	330kgf/cm² (4690psi)[360kgf/cm² (5120psi)]
Rated oil flow	2 × 252 ℓ/min (66.6U.S. gpm/ 55.4U.K. gpm)
Rated speed	1800rpm

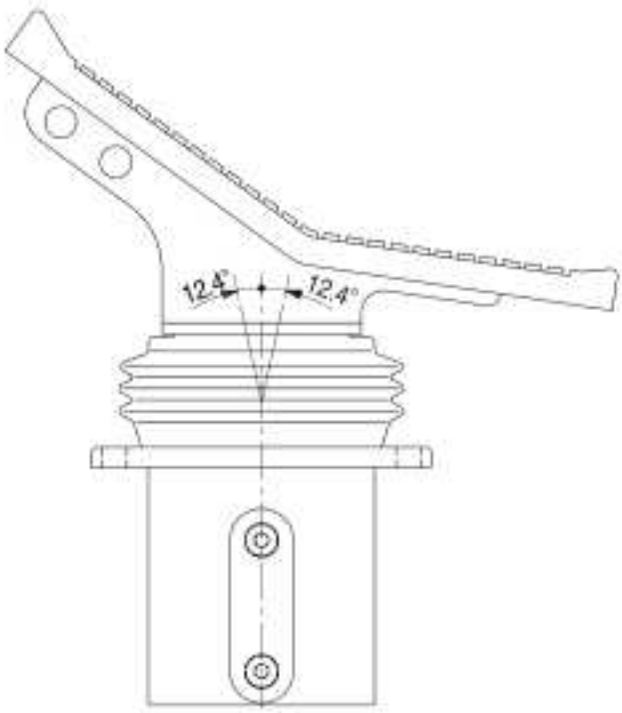
[ ]: Power boost

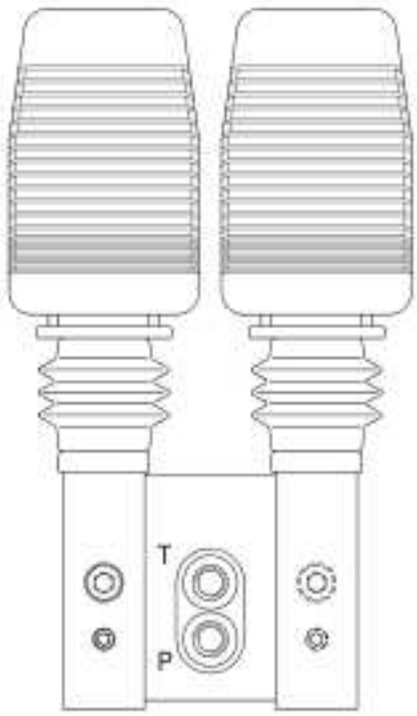
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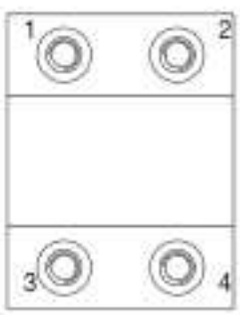
GROUP 6 RCV PEDAL

1. STRUCTURE

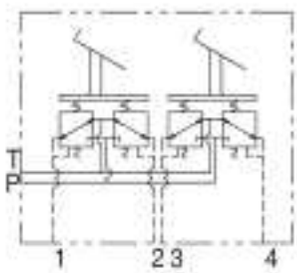
The casing(Spacer) has the oil inlet port P(Primary pressure), and the oil outlet port T(Tank). In addition the secondary pressure is taken out through ports 1, 2, 3 and 4 provided at the bottom face.







2-73



Hydraulic circuit

Port	Port	Port size
P	Pilot oil inlet port	PF 1/4
T	Pilot oil return port	
1	Travel(LH, Forward)	
2	Travel(LH, Backward)	
3	Travel(RH, Forward)	
4	Travel(RH, Backward)	

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6. ECM FAULT CODES DISPLAY

If any fault code is received from ECM, cluster turns ON the "Engine check warning lamp" and sound the buzzer.

The fault codes are displayed on the cluster as the same as current error display.

ex) CHECK Er : 143

7. ERROR CODES TABLE

Error code No.	Description
1	Short circuit in accel actuator system
2	Potentiometer circuit is shorted to Vcc(5V) or battery +
3	Short circuit in pump EPPR valve system
4	Short circuit in boom down EPPR valve system
5	Short circuit in travel speed solenoid system
6	Short circuit in power boost solenoid system
7	Short circuit in max flow solenoid system
10	Short circuit in hour-meter system
11	Accel dial circuit is shorted to Vcc(5V) or battery +
12	P1 pressure sensor circuit is shorted to power supply(24V) line
13	P2 pressure sensor circuit is shorted to power supply(24V) line
14	P3 pressure sensor circuit is shorted to power supply(24) line
15	Boom down pressure circuit is shorted to power supply(24V) line
16	Accel actuator circuit is open or shorted to ground
17	Potentiometer circuit is open or shorted to ground
18	Pump EPPR valve circuit is open or shorted to ground
19	Boom down EPPR valve circuit is open or shorted to ground
20	Travel speed solenoid circuit is open or shorted to ground
21	Power boost solenoid circuit is open or shorted to ground
22	Max flow solenoid circuit is open or shorted to ground
25	Hour-meter circuit is open or shorted to ground
26	Accel dial circuit is open or shorted to ground
27	P1 pressure sensor circuit is open or shorted to ground
28	P2 pressure sensor circuit is open or shorted to ground
29	P3 pressure sensor circuit is open or shorted to ground
30	Boom down pressure sensor circuit is open or shorted to ground
31	Engine preheater circuit is open or shorted to ground
32	Travel alarm buzzer circuit is open or shorted to ground
33	Alternator circuit is open or shorted to ground
34	Controller input voltage is below 18V

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(28)Assemble piston ring(30), piston ring 252(30) and 278(31) into brake piston(29).



(29)Assemble brake piston into shaft casing.

※ Be careful of the direction of assembling brake piston.



(30)Assemble brake spring(32).

※ Quantity : Spring-10pieces, Holes-11pieces

※ Do not assemble on the top of brake piston.



(31)Insert O-ring(69), after fastening orifice screw(4) with standard torque.

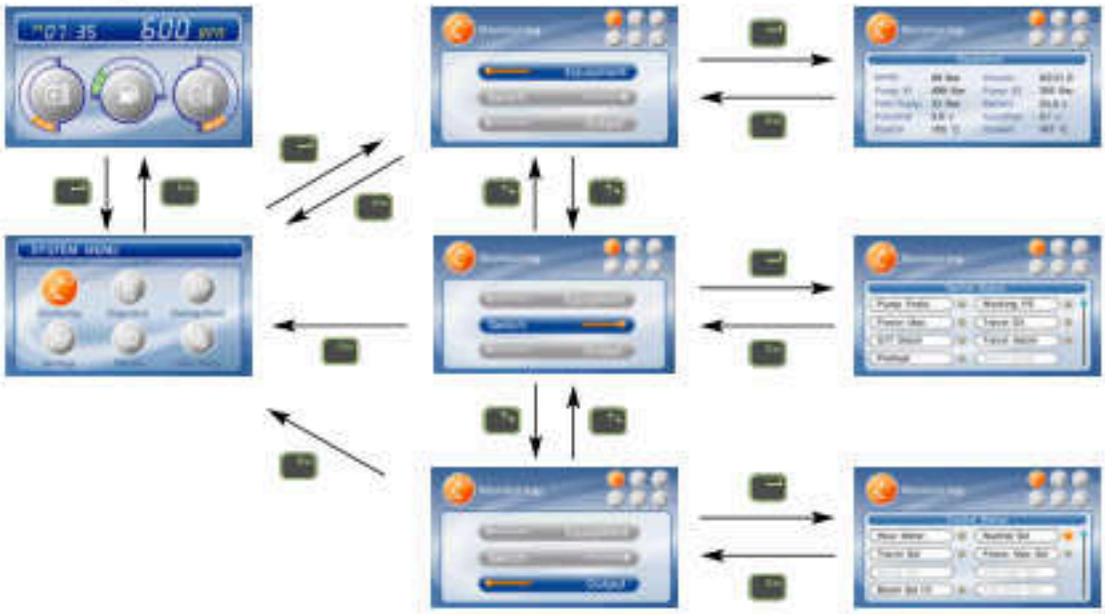
- Quantity and size : (4)2 pieces-ø 1.0
  (56)1pieces-ø 1.5
- Tightening torque : 7kgf · m (50.63lbf · ft)



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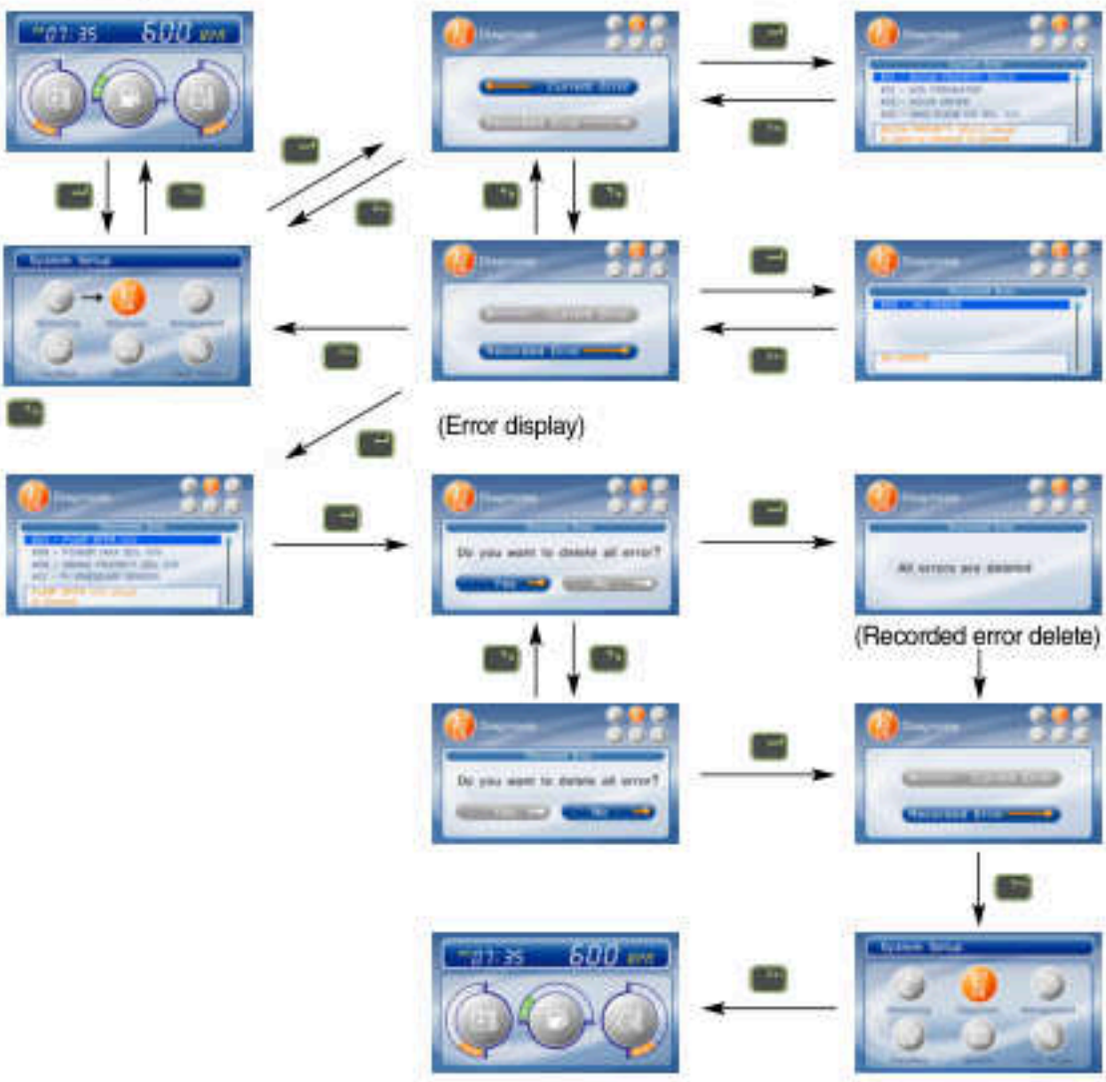
(2) Display map

① Monitoring



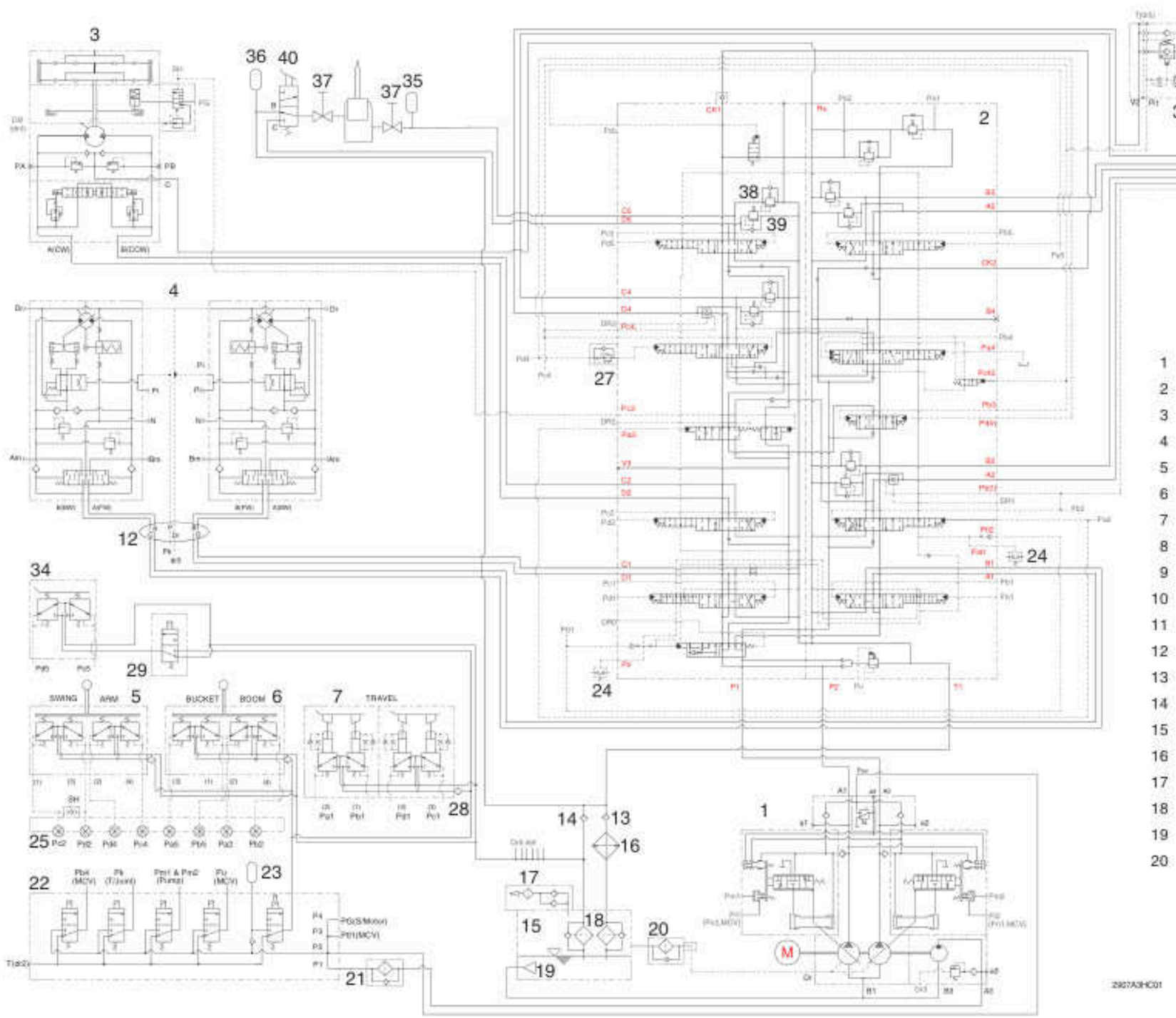
② Diagnosis

a. Protocol type 1



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GROUP 1 HYDRAULIC CIRCUIT



1	Main pump	21	Line filter
2	Main control valve	22	Solenoid valve
3	Swing motor	23	Accumulator
4	Travel motor	24	Pressure switch
5	RCV lever(LH)	25	Shuttle valve
6	RCV lever(RH)	27	Shockless valve
7	Rcv pedal	28	Last guard filter
8	Boom cylinder(LH)	29	Solenoid valve
9	Boom cylinder(RH)	30	Safety valve
10	Arm cylinder	31	Safety valve
11	Bucket cylinder	32	Press switch
12	Turning joint	33	Shut off valve
13	Check valve	34	Pedal
14	Check valve	35	Accumulator
15	Hydraulic tank	36	Accumulator
16	Oil cooler	37	Stop valve
17	Air breather	38	Port relief valve
18	Bypass valve	39	Port relief valve
19	Return element	40	Selector valve
20	Strainer		

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