CX470C
Tier 4
Crawler Excavator

SERVICE MANUAL

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October 2011

CASE CONSTRUCTION

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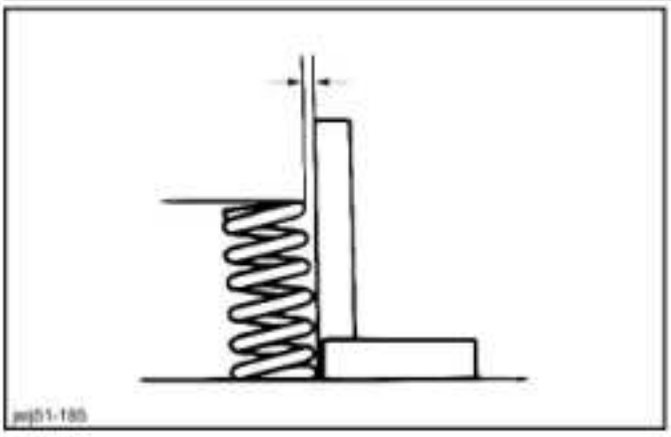
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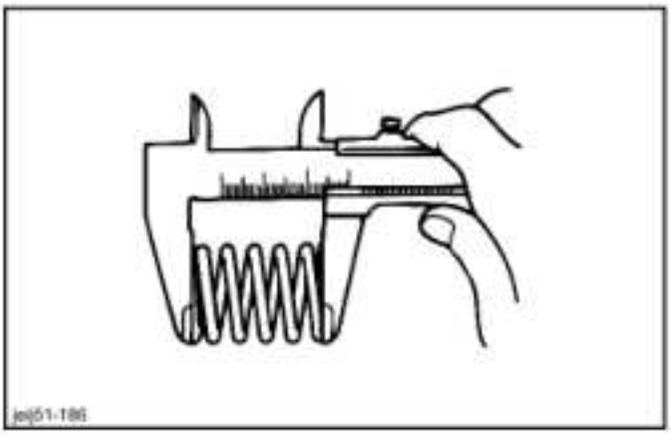
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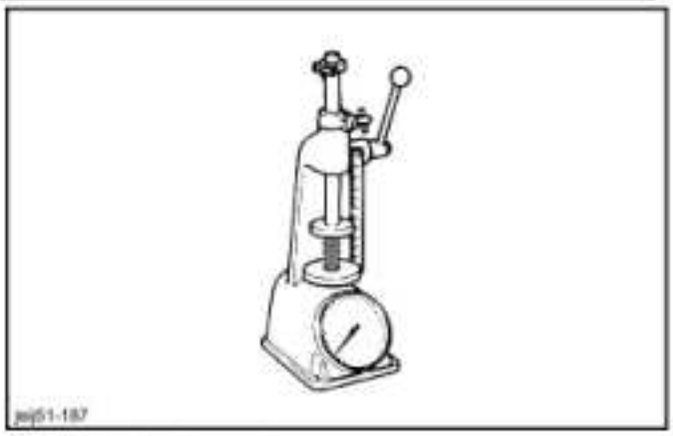
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Measurement of the valve spring free length			
Measuring instruments	Parts	Measured value	
Vernier caliper	Inlet side	Standard value	: 88.09 mm {3.4681 in}
		Limit	: 85.00 mm {3.3465 in}
	Exhaust side	Standard value	: 94.09 mm {3.7043 in}
		Limit	: 91.10 mm {3.5866 in}



Measurement of tension during the valve spring installation			
Measuring instruments	Parts	Value (s)	
Load test equipment	Both IN and EX	Specified value	: 64.5 mm {2.5394 in} Length of installed spring
	Inlet side	Load	: 392 N {40.0 kg / 88 lb}
		Limit	: 373 N {38.0 kg / 84 lb}
	Exhaust side	Load	: 588 N {60.0 kg / 132 lb}
		Limit	: 559 N {57.0 kg / 126 lb}

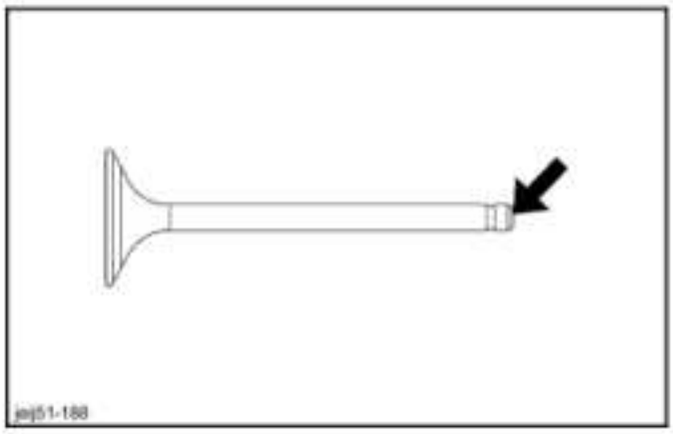


3. Inlet valve inspection

⚠ CAUTION

- **Refer to the following diagram and table to conduct inspection and measurement of the inlet valve.**

Stem end visual inspection		
Inspection locations	Detail	Supplement
Locations indicated by arrows in the diagram below	Stem end wear inspection	Repair minor wear using an oil stone



Measurement of the inlet valve stem outer diameter			
Measurement point	Measuring instruments	Measured value	
Three points indicated by arrows in the diagram below	Micrometer	Standard value	: 8.0 mm {0.3150 in}
		Limit	: 7.88 mm {0.3102 in}

⚠ CAUTION

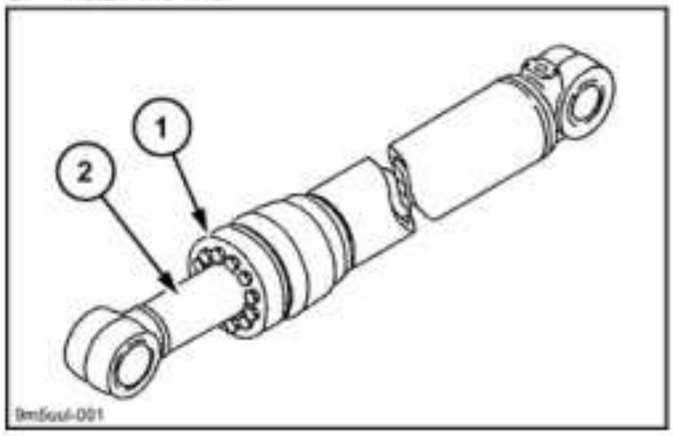
- **If the measured value exceeds the limit, replace it together with the valve guide.**

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8. Tighten the head assembly (1) with installation bolts.

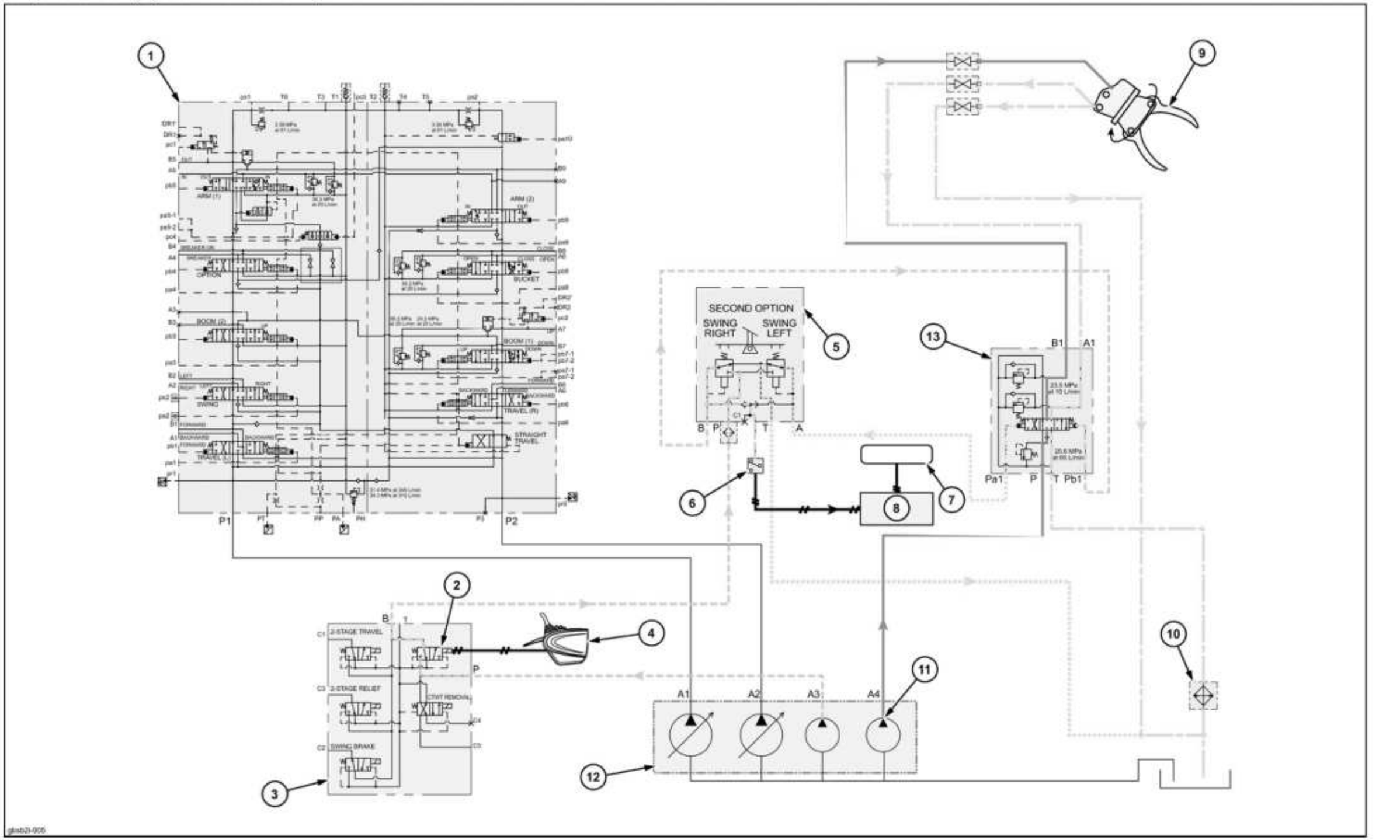
Installation bolt tightening torque	
Cylinder name	**Tightening torque**
Boom	451.2 - 608.2 N·m
Arm	755 - 1029 N·m
Bucket	451.2 - 608.2 N·m

9. Install the line.



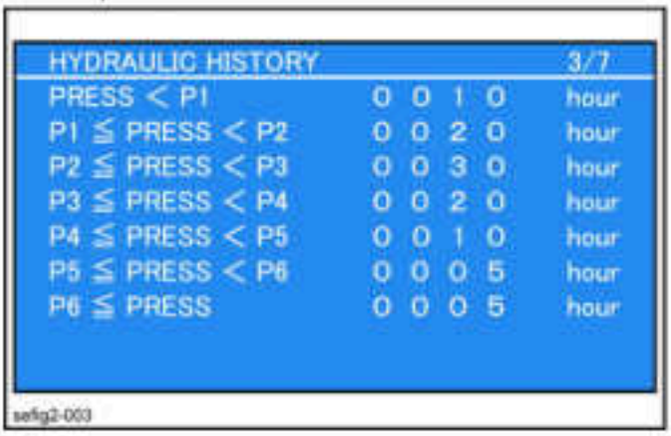
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2nd Option Circuit (hydraulic rotation fork)



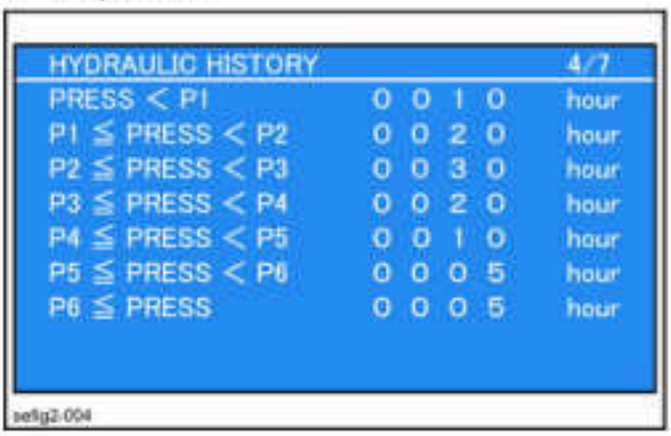
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3. N1 pressure



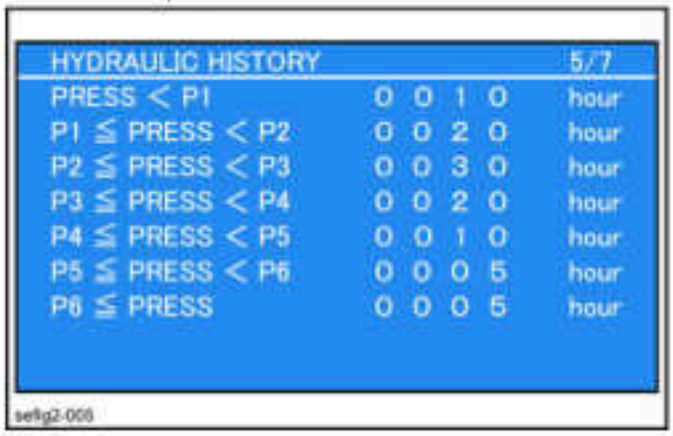
PRESS. < P1	hour	P < 1.0
P1 ≦ PRESS. < P2	hour	1.0 ≦ P < 1.5
P2 ≦ PRESS. < P3	hour	1.5 ≦ P < 2.0
P3 ≦ PRESS. < P4	hour	2.0 ≦ P < 2.5
P4 ≦ PRESS. < P5	hour	2.5 ≦ P < 3.0
P5 ≦ PRESS. < P6	hour	3.0 ≦ P < 3.5
P6 ≦ PRESS.	hour	3.5 ≦ P

4. N2 pressure



PRESS. < P1	hour	P < 1.0
P1 ≦ PRESS. < P2	hour	1.0 ≦ P < 1.5
P2 ≦ PRESS. < P3	hour	1.5 ≦ P < 2.0
P3 ≦ PRESS. < P4	hour	2.0 ≦ P < 2.5
P4 ≦ PRESS. < P5	hour	2.5 ≦ P < 3.0
P5 ≦ PRESS. < P6	hour	3.0 ≦ P < 3.5
P6 ≦ PRESS.	hour	3.5 ≦ P

5. P1 + P2 pressure



PRESS. < P1	hour	P < 20
P1 ≦ PRESS. < P2	hour	20 ≦ P < 30
P2 ≦ PRESS. < P3	hour	30 ≦ P < 40
P3 ≦ PRESS. < P4	hour	40 ≦ P < 50
P4 ≦ PRESS. < P5	hour	50 ≦ P < 60
P5 ≦ PRESS. < P6	hour	60 ≦ P < 70
P6 ≦ PRESS.	hour	70 ≦ P

6. Operation count



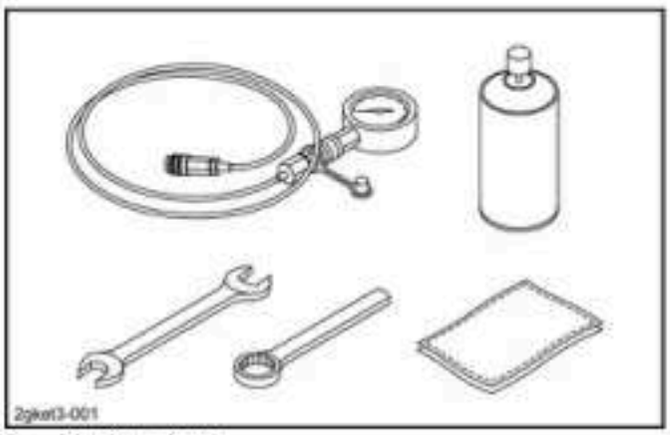
UPPER PILOT PRESS	1000 times	Upper operation count
SWING PILOT PRESS	1000 times	Swing operation count
TRAVEL PILOT PRESS	1000 times	Travel operation count
ARM-CLOSE PILOT PRESS.	1000 times	Arm-in operation count
OPT.LINE PRESS SW.	1000 times	1st option operation count
2ND OPT.LINE PRESS SW.	1000 times	2nd option operation count
POWER BOOST SOL.	1000 times	Pressure boost operation count
SWING BRAKE SOL.	1000 times	Swing operation count
POWER-SAVE TIME	1000 times	Power save operation count

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Pressure Measurement Preparations

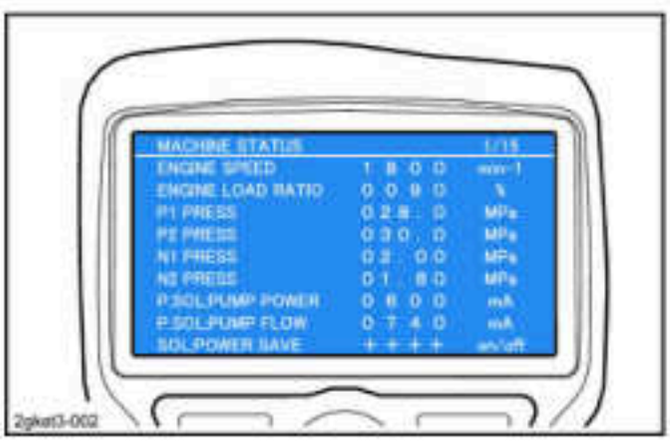
1. Items to prepare

1) Pressure gauge	For 10 MPa (for pilot and negative control pressure measurement) For 60 MPa (for main pressure measurement)
2) Tool	Wrench (closed wrench) 17 mm Hexagon wrench 6 mm
3) Others	Rag Cleaning fluid

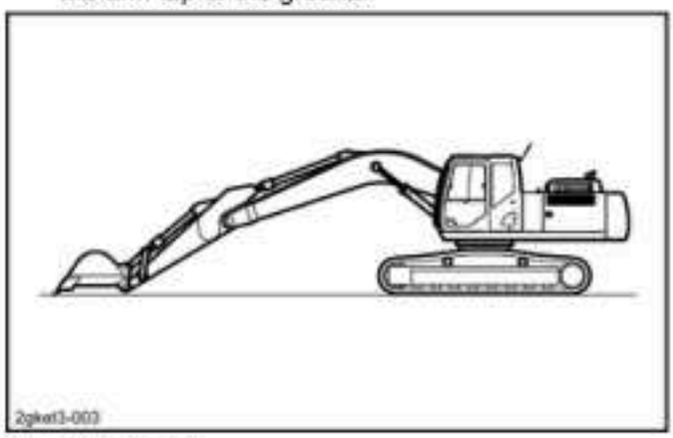


2. Monitor check
Use the service check to check the no-load engine maximum speed and the SP mode pump input milli-amp.

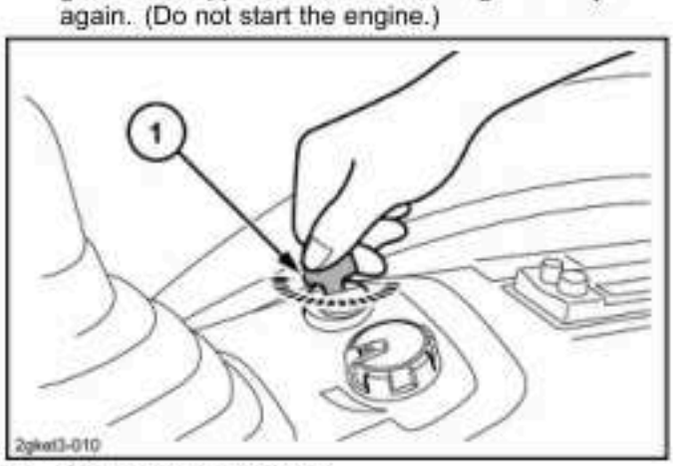
Engine max.	SP mode milli-amp
2000 min^{-1}	600 mA (during operation)



3. Main unit installation
Put the main unit on solid, level ground, put the bucket cylinder at its open stroke end, the arm cylinder at its out stroke end, lower the boom, and touch the arm top to the ground.



4. Ignition key
Switch OFF the ignition key (1), check that the engine has stopped, then switch the ignition key ON again. (Do not start the engine.)



5. Oil temperature check
Use the service check to check the hydraulic oil temperature.

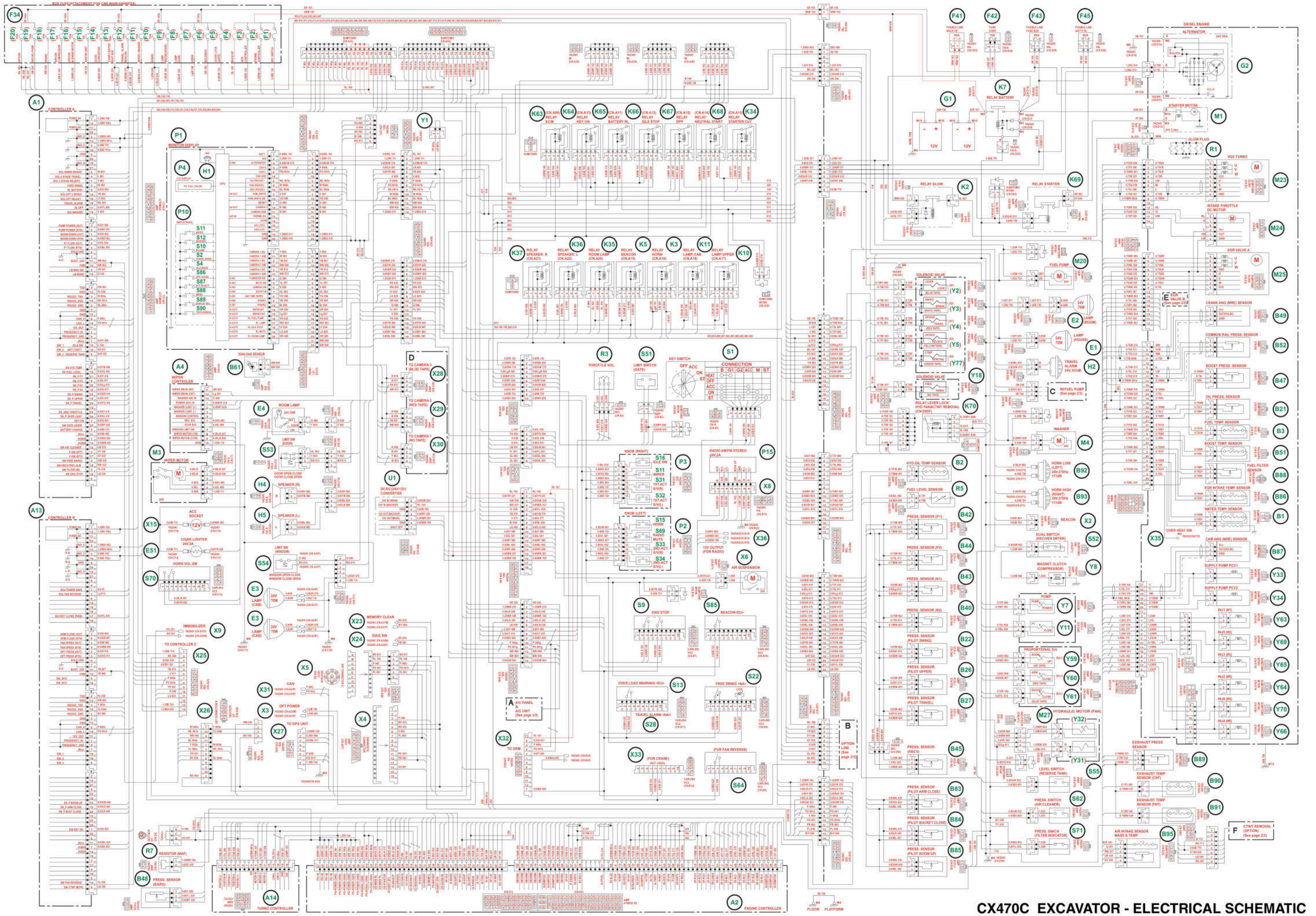
Oil temperature	45 - 55 °C

If the oil temperature is low, raise the oil temperature according to the warm-up operation procedure in the operator's manual.



6. Bleeding pressure from inside circuits

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