CASE

PROFESSIONAL PARTNER

SERVICE MANUAL

CRAWLER EXCAVATOR

CX330 TIER III

87565293 NA

Issued 05-2006

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CX330 Tier 3 Crawler Excavators
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* *Consult the Engine Service Manual*

[redacted] *Sections to be distributed at a later date*

NOTE: CNH Company reserves the right to make changes in the specification and design of the machine without prior notice and without incurring any obligation to modify units previously sold.

The description of the models shown in this manual has been made in accordance with the technical specifications known as of the date of design of this document.

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Relief valve

Problems	Possible causes	Countermeasures
Pressure does not rise at all.	1.Main poppet, sleeve or pilot poppet sticks and keeps open, or seats in valve are blocked with dirt.	Replace relief valve.
Unstable relief pressure	1.Seats in pilot poppet are damaged.	
	2.Piston or main poppet sticks.	
Incorrect relief pressure	1.Wear in seats due to dirt	
	2.Looseness in lock nut and adjuster	Reset pressure and tighten lock nut to specified torque.
Oil leakage	1.Damage on relief valve seats	Replace relief valve.
	2.Each part sticks due to dirt.	
	3.Worn O-rings	Replace O-rings for adjuster or in mounting section.

Hydraulic system in general

Problems	Possible causes	Countermeasures
Hydraulic system malfunctions or does not operate at all.	1.Faulty pump	Check pressure or replace pump.
	2.Faulty relief valve	Replace relief valve.
	3.Faulty cylinder	Repair or replace it.
	4.High load pressure on pump	Check circuit pressure.
	5.Cracks on the valve	Replace valve as an assembly.
	6.Spool does not move with a complete stroke.	Check spool for its movement.
	7.Oil level in tank is too low.	Refill hydraulic oil.
	8.Filter blockage in circuit	Clean or change filter.
	9.Restricted circuit piping	Check piping.

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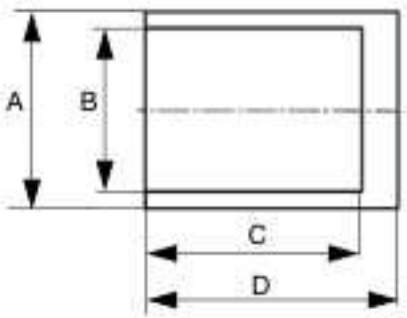
SPECIFICATIONS

See Section 1002.

TORQUE SETTINGS

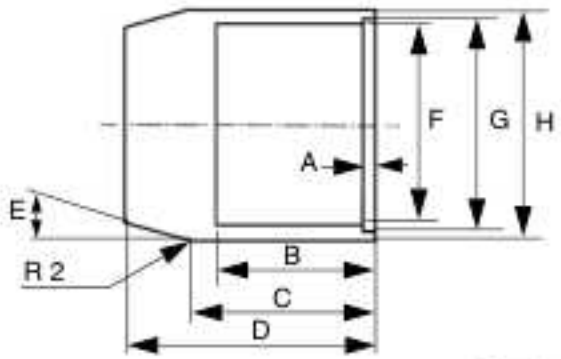
Bypass valve plug	78 Nm (57.5 lb-ft)
Non return check valve plug	137 Nm (101 lb-ft)
Cover screw	392 Nm (289 lb-ft)
Safety valve	137 Nm (101 lb-ft)

SPECIAL TOOLS



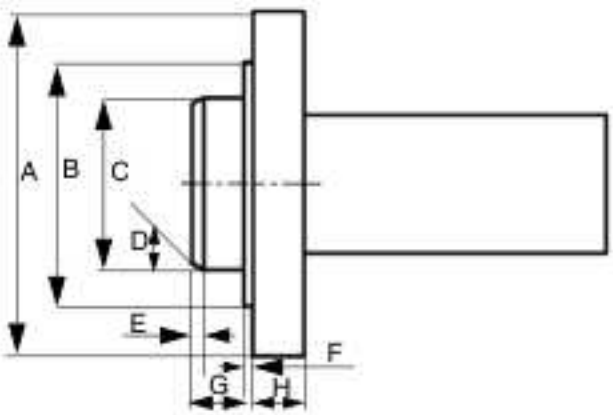
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Press fitting jig for inner ring (1) and taper roller bearing (4)			
A	Ø54.7 mm	C	60 mm
B	Ø45.1 to 45.3 mm	D	70 mm



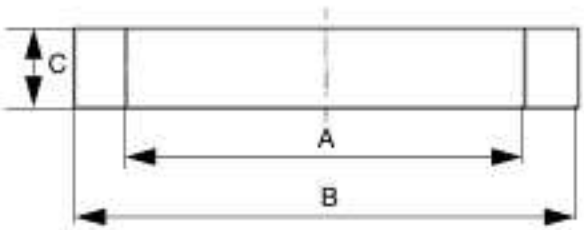
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Seal protector			
A	3 mm	E	15°
B	35 mm	F	43.9 to 44.1 mm
C	40 mm	G	45.9 to 46.1 mm
D	55 mm	H	49.85 to 50 mm



CRPH06C016A

Installation jig for oil seal (3)			
A	Ø100.7 mm	E	3 mm
B	Ø71 mm	F	2.3 to 2.4 mm
C	Ø49.9 to 50.1 mm	G	17.4 mm
D	30°	H	15 mm



CRPH06C017A

Installation jig for brake piston (12)			
A	Ø150 mm	C	30 mm
B	Ø190 mm		

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4. Operation of overload relief valve

Two pieces of overload valves are located at cross-over position in the counterbalance circuit of brake valve and have the following functions:

[1] When hydraulic motor starts, keep the driving pressure below predetermined value and while accelerating, bypasses surplus oil to return line.

[2] When stopping the motor, keep the brake pressure, that develops on the outlet side of motor, under the predetermined value to stop the inertial force.

[3] To accelerate sharply while starting, and to mitigate the braking shock while stopping. For these purposes, the developed pressure is kept comparatively low for a short period, then keep the line pressure as normal value. While the pressure is low, meshing of reduction gears, crawler and sprocket etc. can be smoothly done and the shock are absorbed.

When starting, "A" port pressure of overload valve increases, this pressure is applied to the effective diameter of valve (57-2) which seats on the valve seat (57-3) and, at the same time, is delivered, via small hole, to the connecting piston (57-4) located inside the valve (57-2) and the piston bore pressure increases up to "A" port pressure. The valve (57-2) opposes to adjusting spring (57-9) by the force of the pressure exerted on the area difference between valve seat's effective diameter and piston bore and keep the predetermined pressure.

When hydraulically braking, the piston (57-7) is at the left position by the driving pressure, and when "A" port pressure increases, the pressure is applied also to the piston (57-7) through the small hole in the valve (57-2) and connecting piston (57-4) moves rightward until it touches the cap (57-5). In this while, the valve (57-2) maintains "A" port pressure at comparatively low against the adjusting spring (57-9) force and exhaust oil to "B" port side. After the piston reached to the plug, the valve acts the same as at starting.

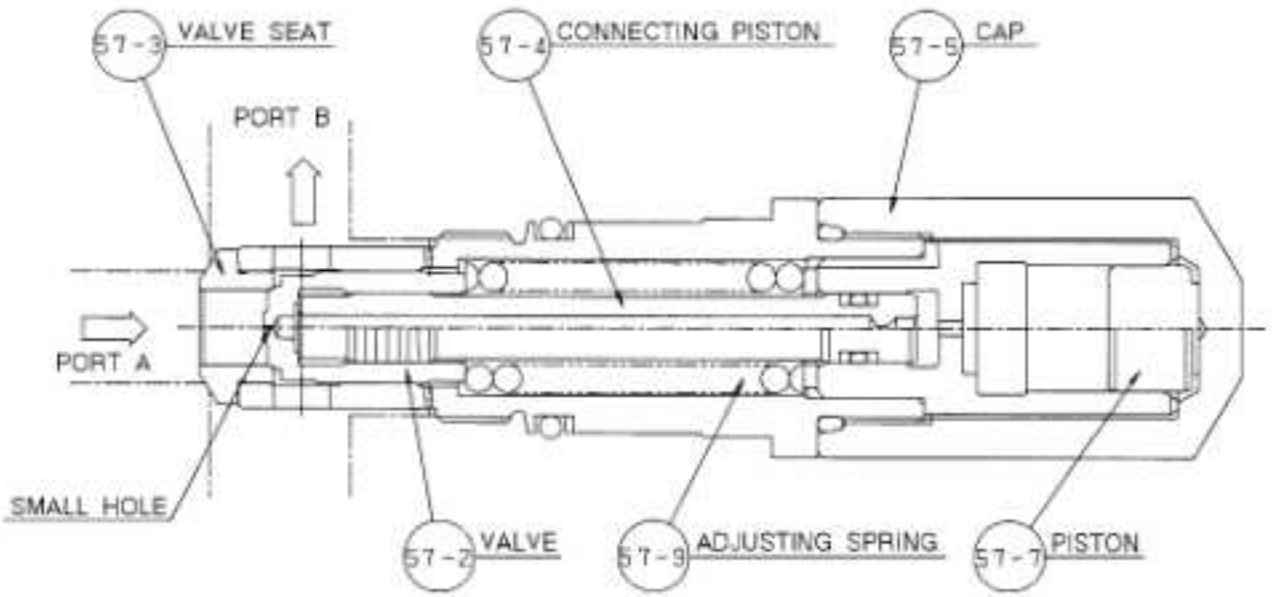
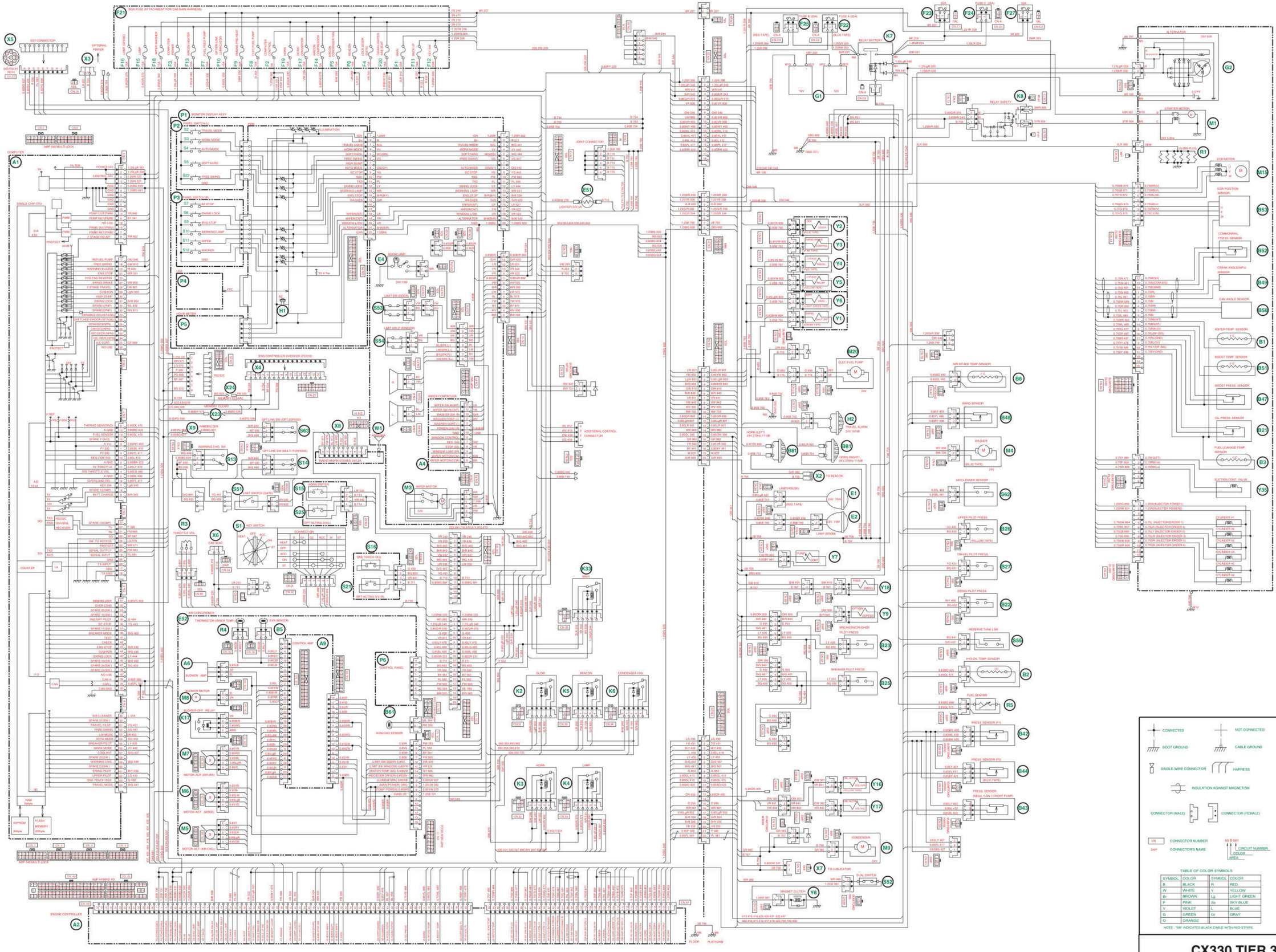


Figure 8. Operation of overload relief valve

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