SERVICE MANUAL

E33C

Mini Excavator

Part number 48139694
English
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NEW HOLLAND CONSTRUCTION

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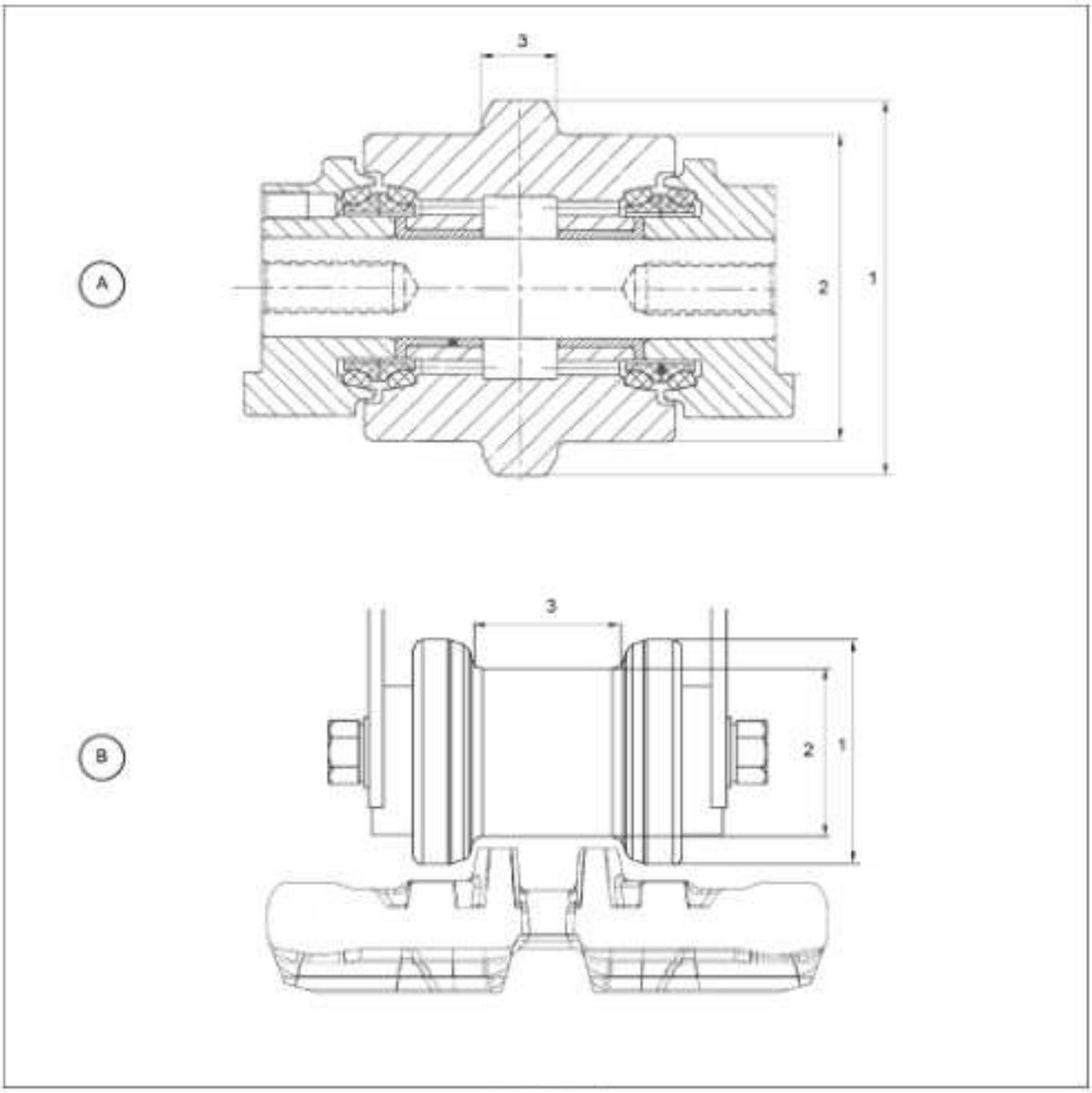
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Pump - Troubleshooting

Problem	Possible Cause	Correction
Overload to engine	Speed is higher than standard	Readjust it as standard
	Setting pressure is higher than specifications	Readjust it as specifications
	Damage of internal parts of pump	Repair or replace
Low pump flow or low pressure	Speed down of engine	Readjust of engine speed
	Wrong coupling	Repair or replace
	Damage of internal parts of pump	Repair or replace
Abnormal noise or abnormal vibration (cavitations)	The level of oil in the tank is low	Replenish the tank with oil
	Air in the oil	Check piping Bleed the air in the hydraulic circuit
	Water in the oil	Replace oil
	Clog of suction filter	Clean or replace
	High suction pressure	Correction
	Damage of piston shoe	Replace
	Installation condition is no good	Correction
	Wrong coupling	Replace
Oil leakage	Damage of O-ring or packing	Replace
	Loosened plug	Tight up
	Leaking from oil seal	Replace Replace of oil seal

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Track roller - Service limits



A. Steel track

B. Rubber track

Code	Part name		Standard value	Usage limits	Solution
1	Outside diameter of flange	Steel	∅ 131 mm (5.157 in)	-	Rebuild or replace
		Rubber	∅ 135 mm (5.315 in)	∅ 129 mm (5.079 in)	
2	Outside diameter of thread	Steel	∅ 107 mm (4.213 in)	∅ 101 mm (3.976 in)	
		Rubber	∅ 95 mm (3.740 in)	∅ 89 mm (3.504 in)	
3	Width of flange	Steel	26.2 mm (1.0 in)	20.2 mm (0.8 in)	
		Rubber	80 mm (3.150 in)	85 mm (3.346 in)	

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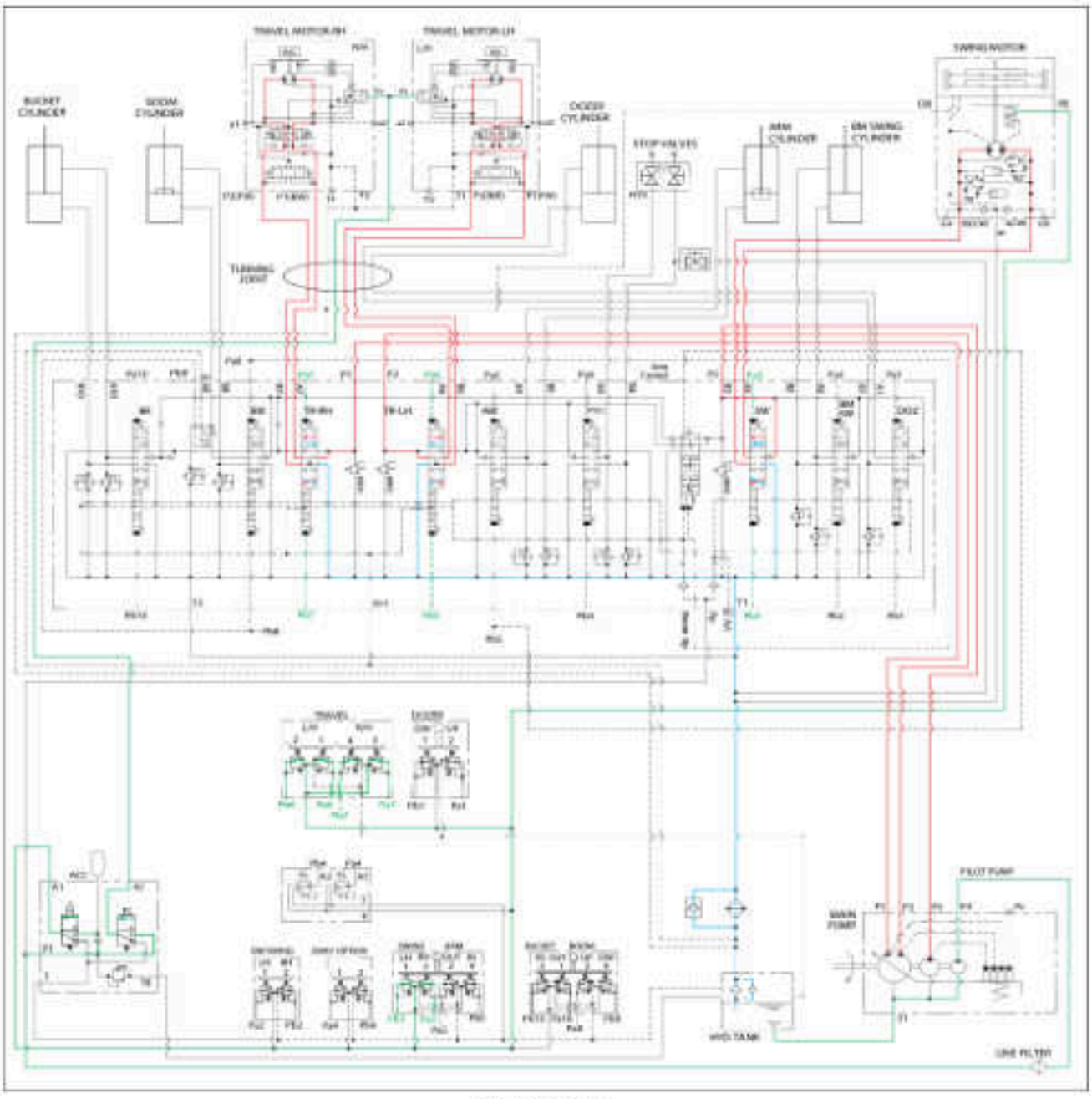
CONNECTOR CS-50: OVERLOAD SWITCH (Female)

Pin	From	Wire	Description	Color-Size	Frame
1	CS-50-P-9	18		BR/WH-0.85	**SHEET 08**
2	CN-1F-P-6	29		YE-1.25	**SHEET 13**
5	SP538-P-X	4E		GN-0.85	**SHEET 08**
6	CN-56-P-6	28		BL-0.5	**SHEET 12**
9	CS-50-P-1	18		BR/WH-0.85	**SHEET 08**
10	SP535-P-X	G26		BK-0.5	

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Combined swing and travel circuits

When the swing and travel functions are operated, simultaneously the swing spool and travel spools in the main control valve are moved to the functional position by the pilot oil pressure from the remote control valve and the travel levers.
The oil from the P3 pump flows into the swing motor through the swing spool.
The oil from the P1 pump flows into the travel motor through the right-hand travel spool.
The oil from the P2 pump flows into the travel motor through the left-hand travel spool.
The upper-structure swings and the machine travels straight



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Pressure line

Pilot pressure line

Tank line

Secondary pilot pressure line

Pilot tank line

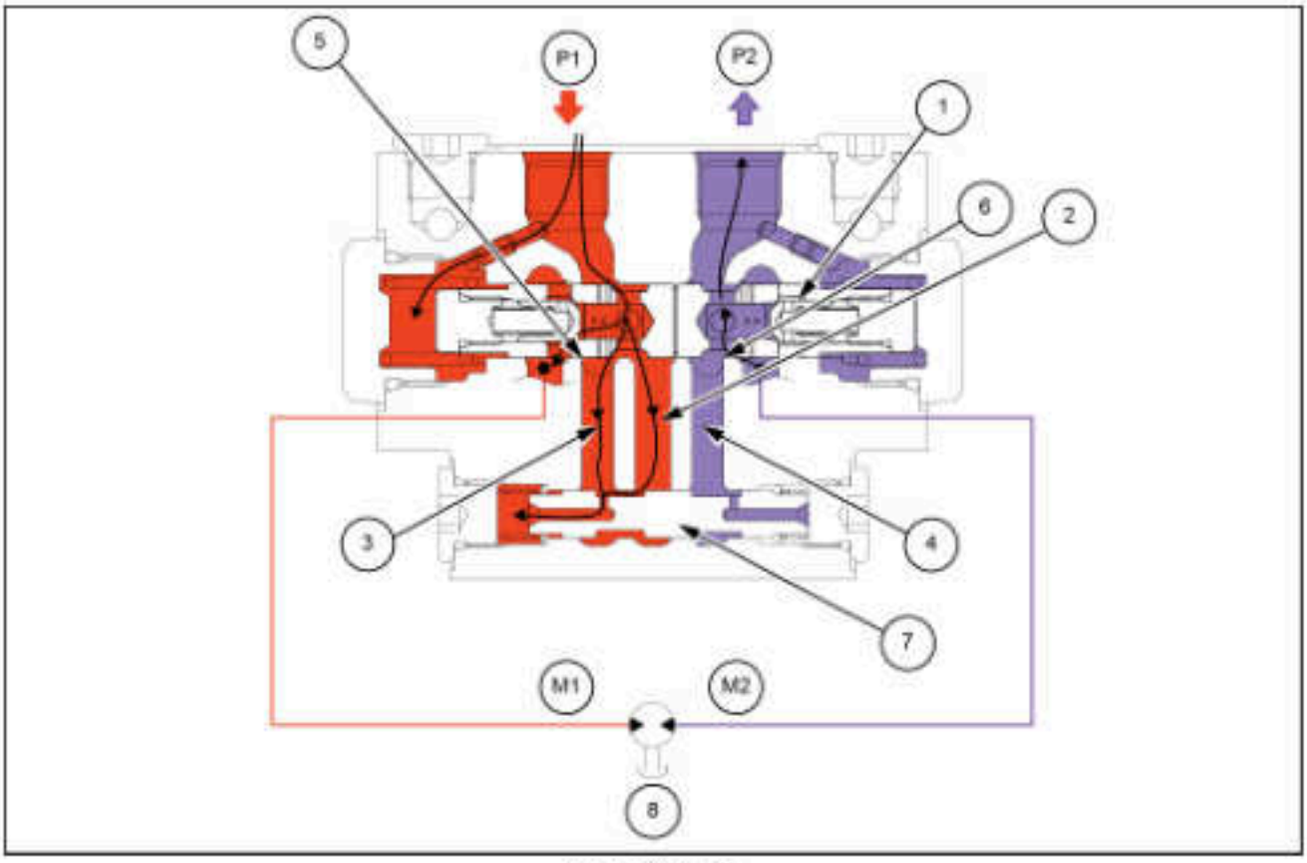
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1. From stopping to starting

   Counterbalance valve spool is moved to right position by the force of spring when port P1 is pressurized. According as the movement of spool, P1 connects to M1 and M2 connects to P2. Consequently the motor work. At the same time, oil passage A is selected high pressure, however, there is no oil flow to oil passage C because of the movement of spool.

2. Continuous rotating

   At continuous rotating, high pressure is similar selected at oil passage A. However, there is no oil flow to oil passage C. So, anti cavitation valve has no influence during motor operation.



1. Counterbalance valve spool
2. Oil passage "A"
3. Oil passage "B"
4. Oil passage "C"
5. Restriction "B"
6. Restriction "C"
7. Spool
8. Motor

P1. Inlet (high pressure)
P2. Outlet (low pressure)
M1. (high pressure)
M2. (low pressure)

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Cause	Symptoms and conditions of failures	Defective start					Engine stall after start			Defective rotation control						Insufficient engine output			Noise/vibration				Lubricant				Cooling water		Intake		Exhaust				Fuel			Electrics/electronics						Action	Reference
		Starter not rotate		Starter rotates			Exhaust fume				Without load				At work	Exhaust color														At work															
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	GG	HH	II	LL	M-M	NN	OO	PP	QQ		
UU	Fuel injection pump with injection timing excessively advanced																		x			x									x	x											Inspection and adjustment	See **Fuel injection system - Adjust (10.218)**
	Fuel injection pump with injection timing excessively retarded																x	x													x	x		x	x								Inspection and adjustment	See **Fuel injection system - Adjust (10.218)**
	Incorrect fuel															x	x	x		x											x	x				x	x							Usage of correct fuel	
	Water entered into fuel system			x	x				x					x	x		x			x											x												Drainage of fuel filter	See **Fuel-water separator filter - Replace (10.206)**
	Fuel filter clogged			x		x	x					x				x																											Cleaning or replacement	See **Fuel-water separator filter - Replace (10.206)**
	Air entered into fuel system			x	x		x							x	x	x																											Bleeding	See **Fuel-water separator filter - Replace (10.206)**
	Fuel pipe clogged, cracked			x			x									x																											Cleaning or replacement	
	Insufficient fuel feeding to fuel supply pump			x	x		x					x				x																											Check of fuel tank cock, fuel filter, fuel pipe, fuel feed pump	
	Uneven injection quantity of fuel injection pump													x	x		x	x		x		x									x	x		x										Inspection and adjustment	See **Fuel injectors - Test (10.218)**
	Fuel injection quantity too much																						x				x			x		x	x	x	x									Inspection and adjustment	See **Fuel injectors - Test (10.218)**
	Defective spray of fuel injection nozzle													x	x		x	x		x		x									x	x		x										Inspection and adjustment	See **Fuel injectors - Test (10.218)**
	Priming not available			x																																							Valve in priming pump pinched dust (disassembled cleaning)	See **Fuel injection system - Exploded view (10.218)**
	Strainer at feed pump inlet clogged					x						x				x																											Cleaning of strainer	
	Operation defect of CSD valve			x		x													x																									Replace the pump. Replace the CSD valve.	
	Sealing defect of fuel tank																																			x	x						Check of fuel tank and cap, as well as installation of genuine parts	
VV	Air filter clogged								x			x					x		x				x						x			x		x										Cleaning of air filter	See **Air cleaner - Cleaning (10.202)**
	Engine operation at high temperature or high land																x										x		x		x				x									Consideration of matching output reduction with load	
	Exhaust pipe clogged							x				x					x		x												x		x										Cleaning of exhaust pipe	
W-W	Fuse meltdown, disconnection	x	x				x																																x		x	Inspection and replacement of fuse. Repair or replacement of harness	For harness inspection method, see **Engine wiring harness - Static description (55.015)**
	Starter fault		x	x																																							Repair or replacement of starter	See **Engine starter - Remove (55.201)**
	Alternator fault			x																																		x					Repair or replacement of alternator	See **Alternator - Remove (55.301)**
	Wiring disconnection	x	x	x			x																																x	x	x	x		Repair or replacement of harness disconnection	
	Wiring short-circuit (insulator broken), electric power load of added device too big	x																																							x	Inspection, repair or replacement of harnesses Review of added devices	
	Battery voltage descent		x	x																																							Inspection and charging of battery	See **Battery - Check (55.302)**
	Key switch fault, disconnection	x					x																																					Repair or replacement of harness Key switch replacement	For harness inspection method, see **Engine wiring harness - Static description (55.015)**
	Instantaneous interruption of key switch				x		x																																					Key switch replacement	
	Failure, disconnection, short-circuit of starter relay		x																																								Repair or replacement of harness Replacement of starter relay	For harness inspection method, see **Engine wiring harness - Static description (55.015)**
	Main relay fault (Error other than contact sticking that ECU can't detect)	x																																										Repair or replacement of harness Replacement of main relay	For harness inspection method, see **Engine wiring harness - Static description (55.015)**

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