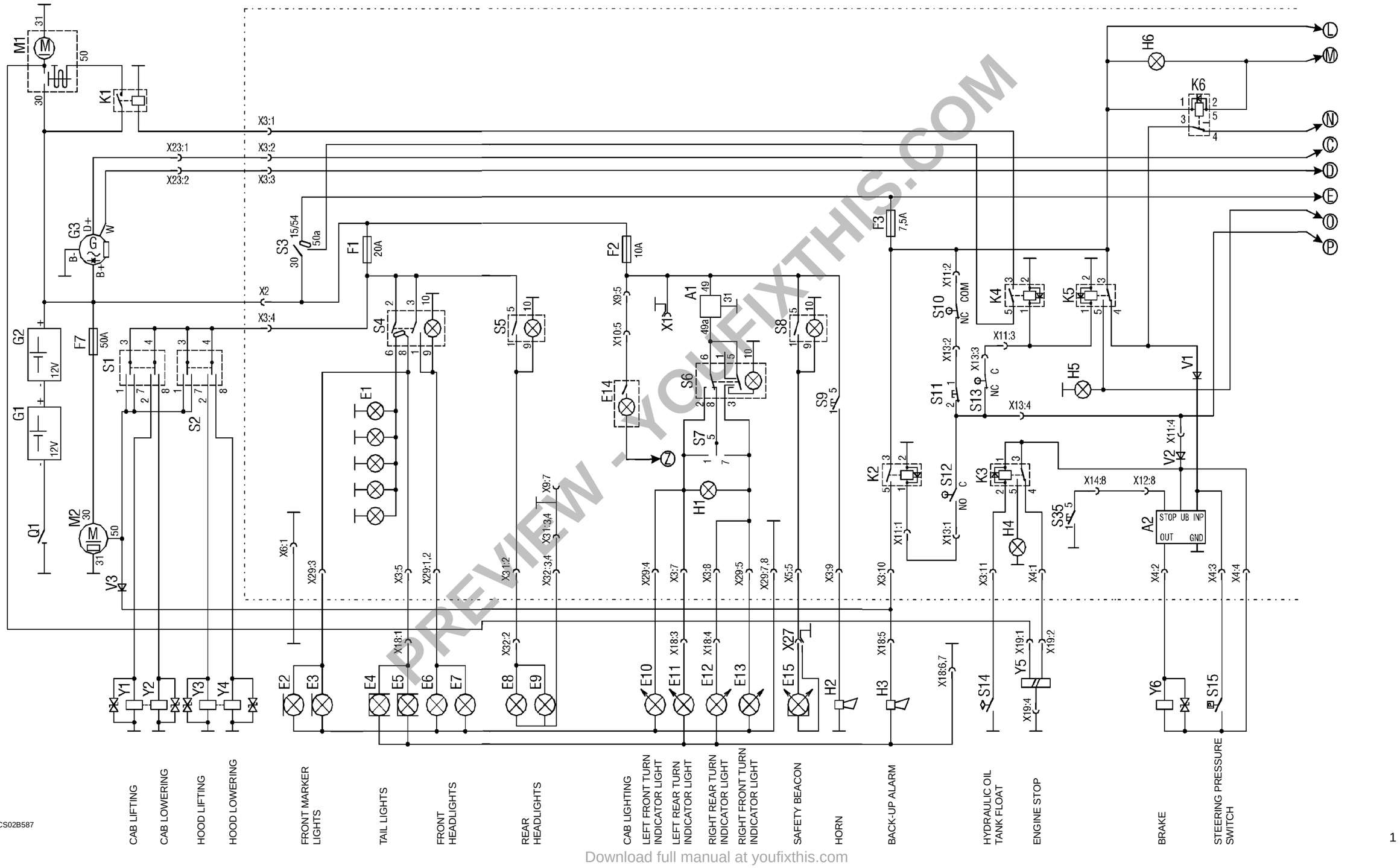
pre-selection

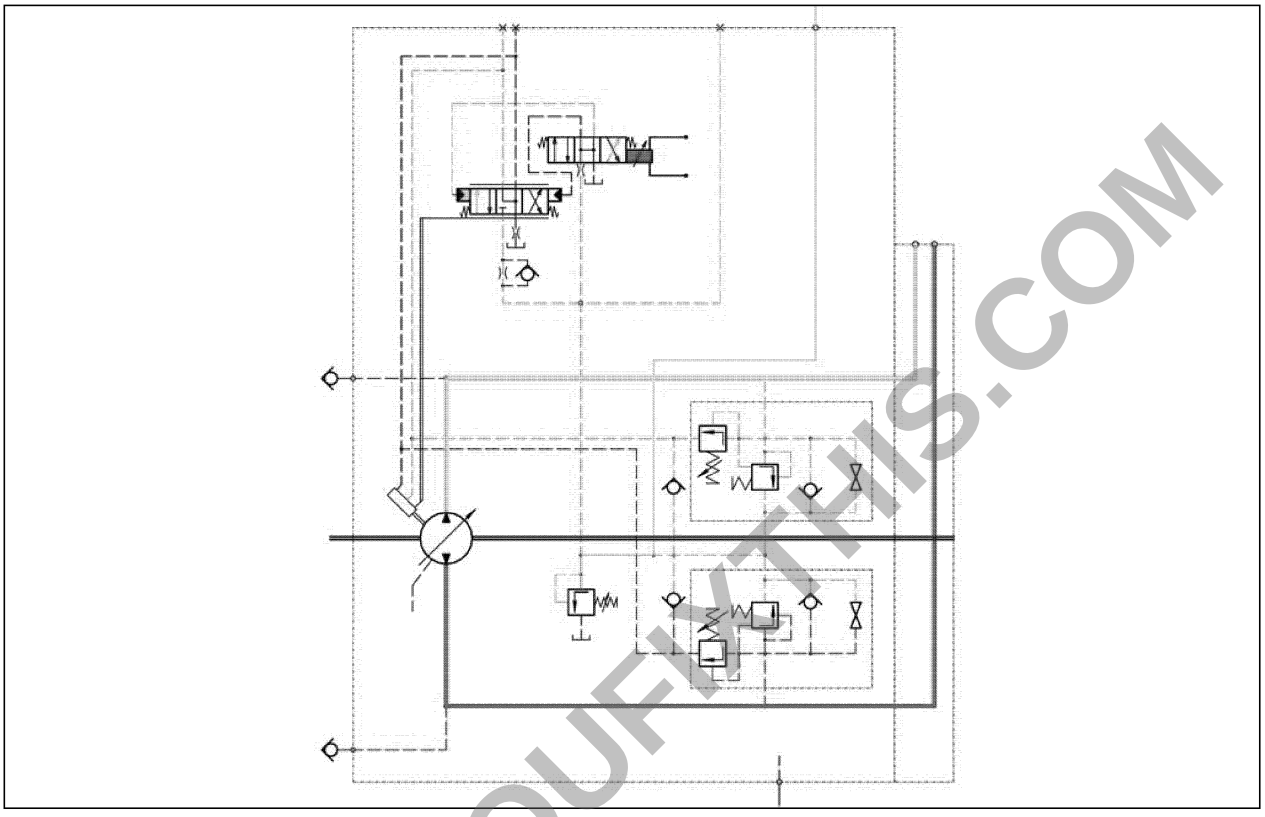


CS02B587

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THE MULTI-FUNCTION VALVE



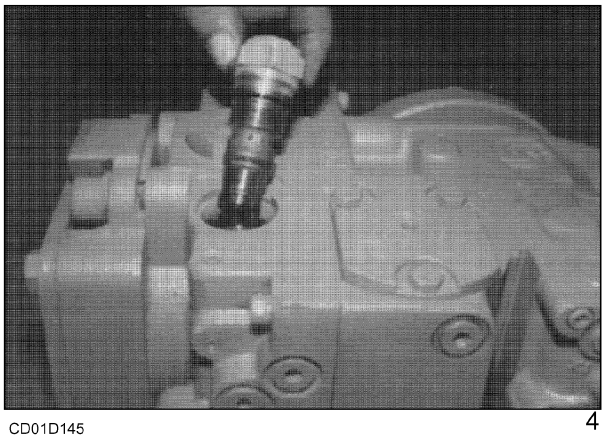
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The multi-function valve contains:

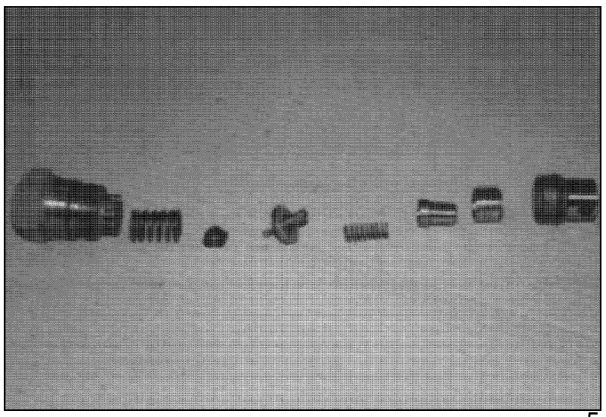
- Short-circuit valve position 1.

- One-way valve for supplying the closed circuit position 2.

- Safety valve consisting of a control and an excess-flow valve. The excess-flow valve allows for the flow of the superfluous fluid from the pressure circuit into the opposite circuit. The control valve controls the excess-flow valve and equalizes pressures in the pump power cylinder when the safety pressure has been reached, i.e., it returns the plate to zero position (relieves load on the engine).



CD01D145 4

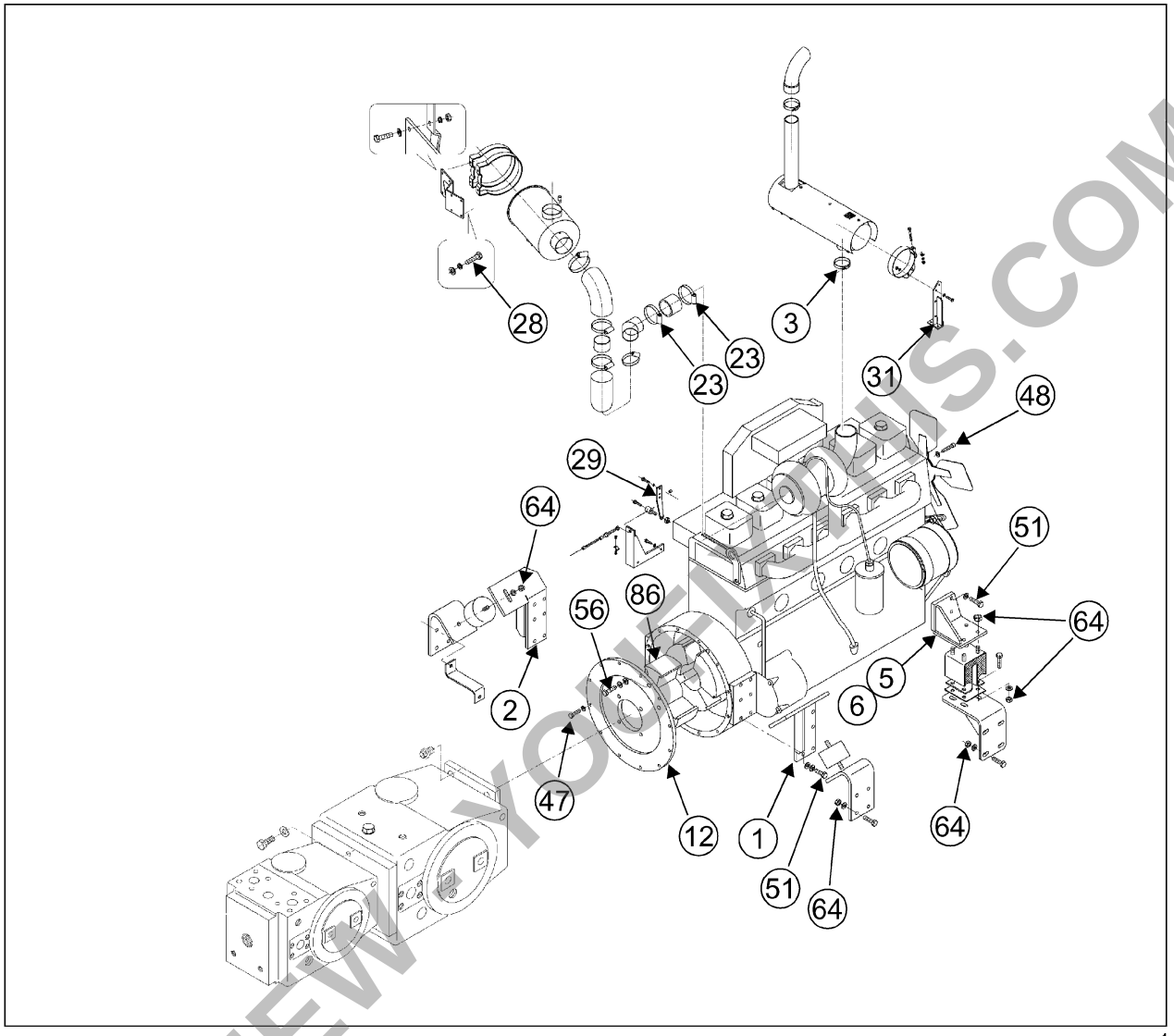


CD01D146 5

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DESCRIPTION



CS01D543 1

1. Bracket
2. Bracket
3. Clamp
5. Support
6. Support
12. Flange
23. Clamp
28. Screw
29. Throttle lever
31. Pipe support
47. Screw M10 x 35
48. Screw M10 x 80
51. Screw M12 x 35
56. Screw M16 x 20
64. Nut M12
86. Coupling

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TORQUE SPECIFICATIONS

FASTENING HARDWARE

Inspection and re-tightening

1. Regularly check that hardware is not loose.
2. Use torque limiting wrenches to tighten screws and nuts.

Screws with metric threads

Screw size	Torque					
	For screws 5.8 (5 S)		For screws 8.8 (8 G)		For screws 10.9 (10 K)	
	Nm	lb-ft	Nm	lb-ft	Nm	lb-ft
M4	2	1	3	2	4	3
M5	4	3	6	4	8	6
M6	7	5	10	7	14	10
M8	16	12	22.5	17	32.5	24
M10	31.5	23	44	32	62	46
M12	53	39	75	55	105	77
M14	79	58	118	87	165	122
M16	113	83	165	122	226	167
M18	172	127	245	181	343	253
M20	226	167	314	232	441	325
M22	284	209	392	289	559	412
M24	392	289	549	405	755	557

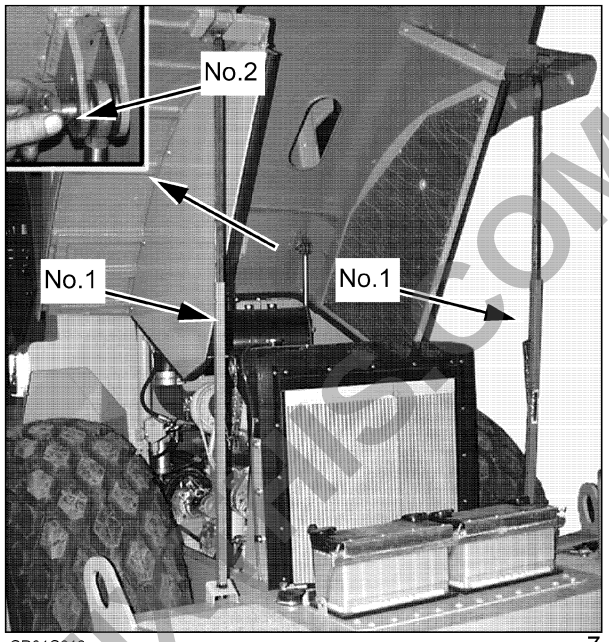
NOTE: *Lock nuts may be used a maximum of three times when approved.*

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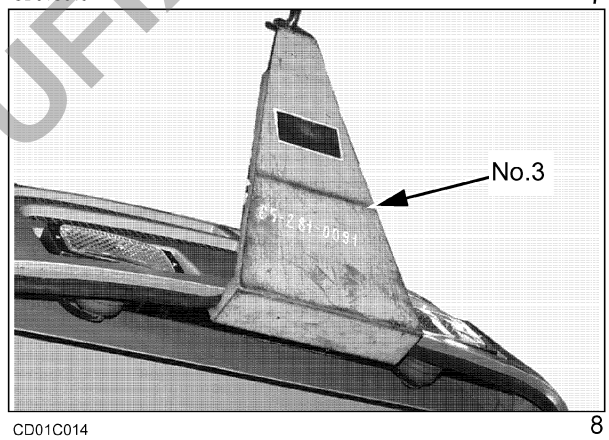
REMOVAL

1. Lift the hood and support it with the No.1 tools, in lifted position.
2. Disconnect the electrical wiring.
3. Remove the pins from ends of the hydraulic cylinders and secure with an appropriatesupport pin No.2.



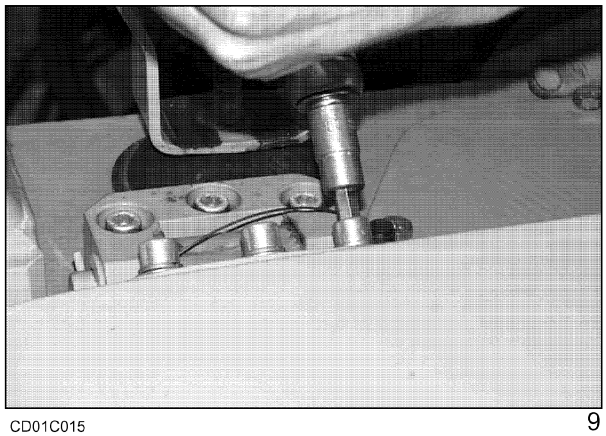
CD01C013 7

4. Install the No.3 tool support.



CD01C014 8

5. Remove the hinges.


CD01C015 9

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NOTE: *Items between brackets ( ) refer to the Wiring Diagram, Section 55, Chapter 1.*

TROUBLESHOOTING - ENGINE

Problem	Possible cause	Remedy
Engine stops suddenly while traveling	Fuel tank empty	Fill the fuel tank
	Fuel filter restriction	Change the filter
	Contaminants or water in fuel circuit	Empty the tank and decontaminate the circuit
	Air in fuel circuit	Check the fuel lines and connections (leaks). Bleed the circuit. See Operator's manual.
	Hydraulic oil gauge defective	Replace gauge (S14)
	Hydraulic oil reservoir level too low	Look for signs of leakage from the hydraulic circuit. Repair if necessary and fill the reservoir
	Emergency shutdown button pressed down	Release the emergency stop button
	RH safety arm contactor position	Lower the safety arm and check the contactor position
Starter motor runs but engine does not start	Fuel tank empty	Fill the tank
	Fuel filter restriction	Replace the filter
	Defective charge pump	Check the pump and replace it if necessary
	Contaminants or water in fuel circuit	Empty the fuel tank and decontaminate the system
	Air in fuel circuit	Check the fuel liner and connections (leaks). Bleed the circuit
	Incorrect injection pump timing	Check the injection pump timing
	Hydraulic oil reservoir level too low or hydraulic oil gauge defective	Look for signs of leakage from the hydraulic circuit. Repair if necessary and fill the reservoir. Replace the gauge if necessary
	Engine shutdown electro-valve activated	Check the electrical circuit between fuse (F3), relay (K3) and engine shutdown electro-valve (Y5)
Starter motor does not run and engine does not start	Starting up procedure not being followed	Make sure that: - The battery master switch is on and the travel control is in neutral - The emergency cut-out button is not pressed down - The (S10) safety arm is lowered
	Batteries dead	Check and charge the batteries. Replace them if necessary
	Corroded or loose battery terminals	Clean, inspect and tighten the terminal nuts. Replace the terminals if necessary
	Electrical circuit defective	Check continuity between switch (S3), fuse (F3), switches (S10), (S11) and (S13), relay (K4) and the starter motor. If continuity is good, check out each component
	Defective starter motor	Repair or replace the starter motor

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SPECIFICATIONS

ENGINE

	CV700	CV900	CV1100	CV1500	CV2000	CV2500
Make	Cummins					
Type	B3.9-C100		B5.9-C148		B5.9-C200	
Number of cylinders	4		6		6	
Power rating	75 kW (100 HP)		110 kW (148 HP)		149 kW (200 HP)	
Standard	ISO 3046/1 (DIN 6271)					
Rated speed	2200 rpm		2200 rpm		2500 rpm	

STEERING

	CV700	CV900	CV1100	CV1500	CV2000	CV2500
Oscillator angle	±12°		±10°		±10°	
Steering angle	-		±36°			
Turning radius:						
Inner (edge)	3090 mm (121.7 in)		3050 mm (120.1 in)		-	
Outer (contour) (without dozer blade)	-		5370 mm (211.4 in)	5395 mm (212.4 in)	3900 mm (153.5 in)	3950 mm (155.5 in)
Outer (contour) (with dozer blade)	-		5738 mm (225.9 in)	5738 mm (225.9 in)	6280 mm (247.2 in)	6315 mm (248.6 in)

CAPACITIES

	CV700	CV900	CV1100	CV1500	CV2000	CV2500
Fuel tank	275 litres (72.7 gal US)		410 litres (108.3 gal US)		405 litres (107 gal US)	
Engine oil	11.2 litres (2.96 gal US)		16.3 litres (4.3 gal US)		14.3 litres (3.78 gal US)	
Cooling system	19 litres (5 gal US)		25 litres (6.6 gal US)		30 litres (7.9 gal US)	
Hydraulic system	73 litres (19.3 gal US)		90 litres (23.8 gal US)		100 litres (26.4 gal US)	
Drum gearbox	2.5 litres (0.66 gal US)		4.2 litres (1.11 gal US)		7.7 litres (2 gal US)	
Vibrating drum	6.7 litres (1.77 gal US)		8 litres (2.1 gal US)		7.5 litres (1.98 gal US)	
Wheel gears	2 x 2.5 litres (2 x 0.66 gal US)		2 x 2.8 litres (2 x 0.74 gal US)		2 x 4.4 litres (2 x 1.2 gal US)	
Cooling system of the drum	-		-		185 litres (48.9 gal US)	

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SAFETY INSTRUCTIONS

GENERAL SAFETY INSTRUCTIONS

The following safety instructions must be observed by ALL personnel repairing the machine.

1. Repairs may be carried out by skilled, trained and experienced personnel only.
2. When performing repairs, always use our service manual. Special instructions for the assembly work are given in individual chapters of this manual.
3. Before putting the machine into operation familiarize yourselves with the machine controls as explained in the “Operator’s Manual” and make sure that you are completely familiar with the machine.
4. Do not use the machine if you do not fully understand all controls and until this know how the machine works.
5. Familiarize yourself with the area where you will work.
6. Do not carry out any redesign work or modifications on the machine because you could compromise the safety of the equipment.
7. Original parts and accessories have been designed especially for this machine.
8. Installation and use of spare parts not supplied by the manufacturer of the machine or not authorized by them can have negative effects on operational characteristics and safe operation of the machine.

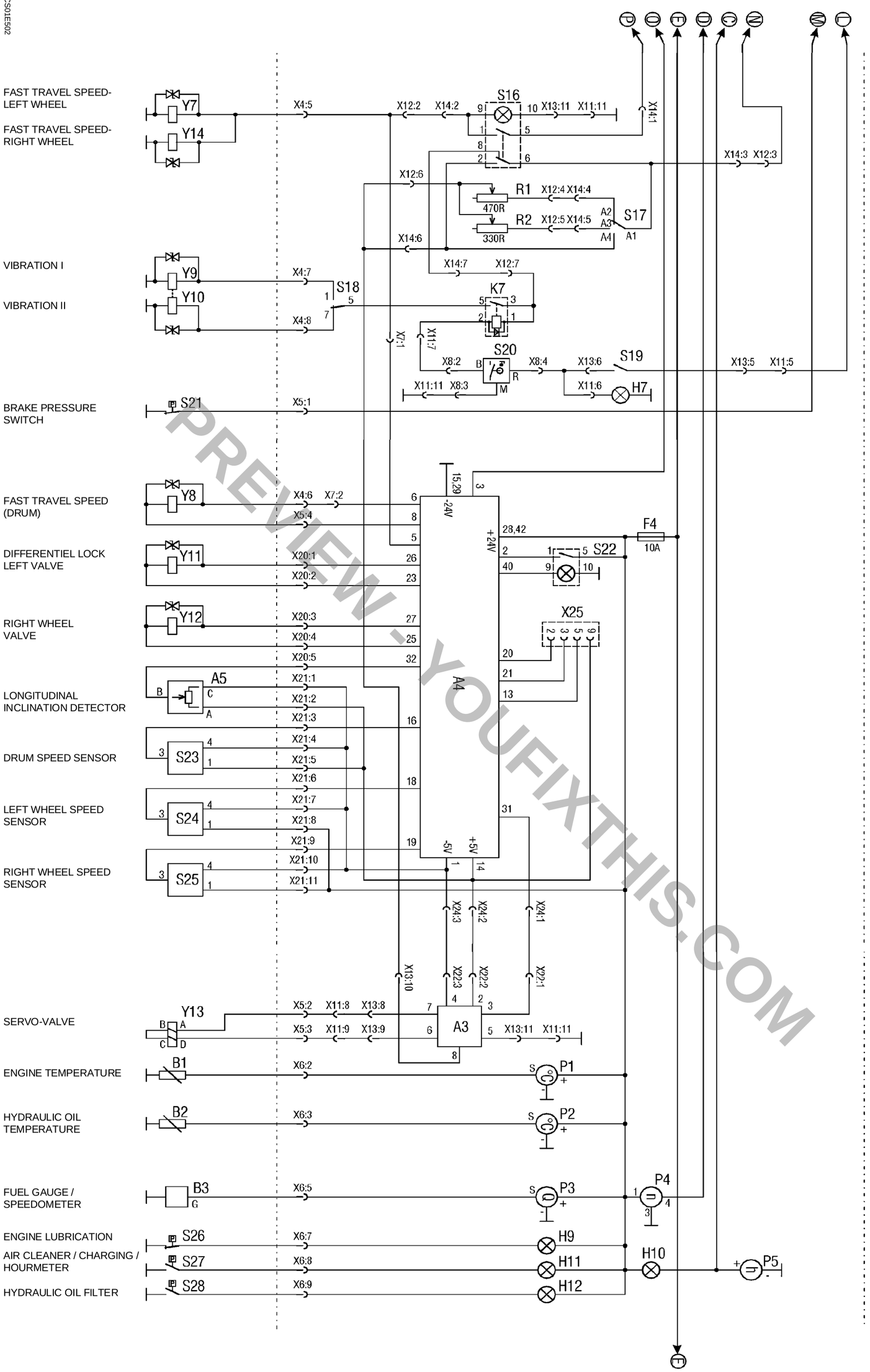
REPAIRING AND INSPECTING THE MACHINE

1. Wear working clothes and boots.
2. Use gloves when handling oils, fuel or coolant.
3. Protect your eyes with a full face shield when handling the battery.
4. Place the equipment on a flat and firm surface before starting repair. Secure the machine to prevent spontaneous movement.
5. Secure the frame of the machine and the drum to prevent rotation using a locking pin and a draw bar.
6. Before starting work remove the starter switch key, disconnect the batteries and let hot parts cool down.
7. Attach a "Do not operate" warning note to the steering wheel and leave it there for the duration of the service work.
8. Wash the equipment thoroughly. If you use steam, do not expose electrical components and insulation directly to the steam, otherwise cover them beforehand.
9. Keep all parts absolutely clean when dismantling, mounting, and servicing each assembly. Protect removed parts from getting soiled.
10. Clean the surface of dismantled parts and do the necessary to ensure adequately dust-free working conditions and a suitable storage area.
11. Be careful when handling cleaning agents. Do not use fuel or other easy inflammable materials for cleaning.
12. Dry the cleaned parts and immediately cover with anti-corrosive protective oil, never install corroded parts.
13. Tools, hoists, safety equipment on chains, and other additional items must be serviceable and in good condition.
14. Use hoists and fasteners (ropes, chains) that have sufficient lifting capacity and are in good condition.
15. Make sure that there is enough fresh air supply when starting up the equipment in an enclosed area.

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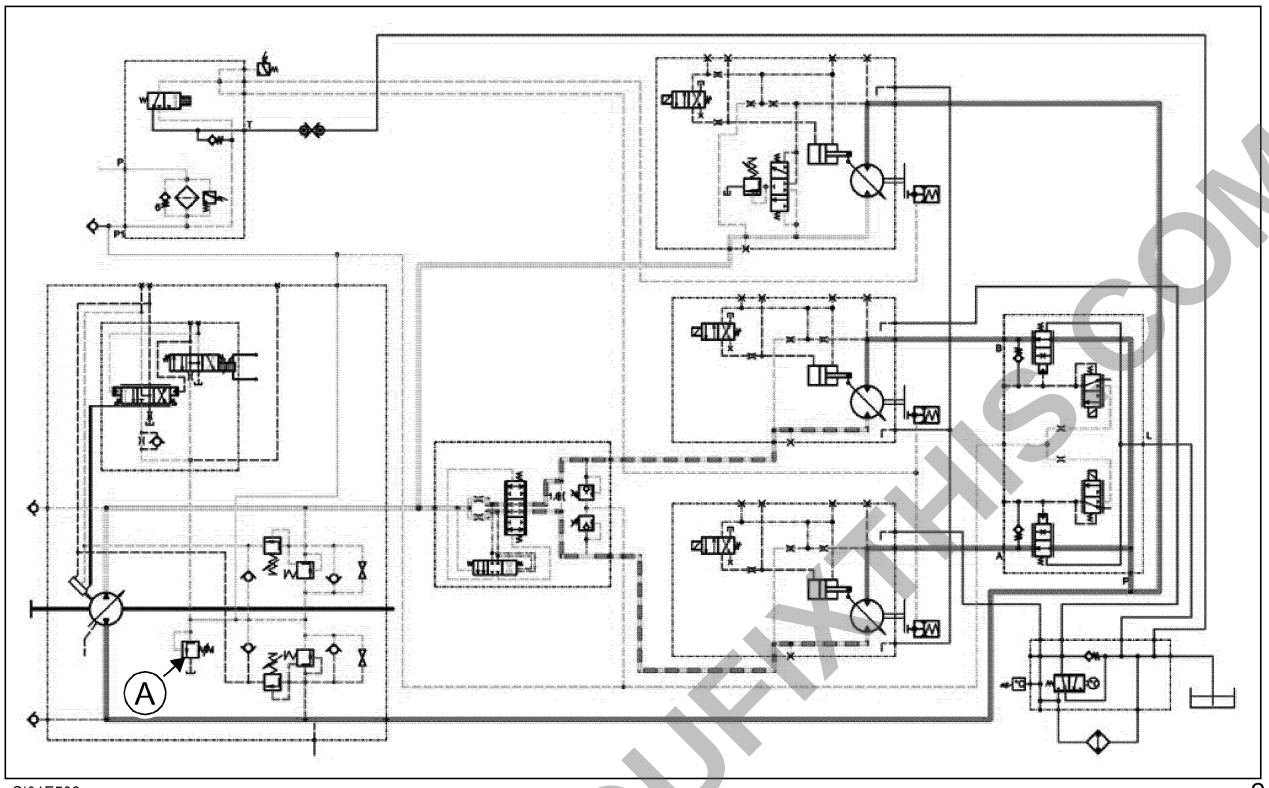
C501E502



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HOUSINGTRAVEL ACTIVATED, MOVING FORWARD



CI01E503 2

Oil flows through the steering filtration block to the travel pump. Part of the fluid goes via the 22 bar (319 psi) safety valve (A) into the pump housing, the other part flows through the safety valve spool in the closed circuit of the drum hydraulic motor into the drum hydraulic motor housing. From there the fluid goes into the housing on the hydraulic motors of the wheels and thereon into the hydraulic reservoir.

The fluid flows from the travel pump housing into the vibration pump housing.

The electro-valve control is activated, the power valve deflects the spool of the power cylinder control to its extreme position, and the cylinder tilts the plate of the travel pump.

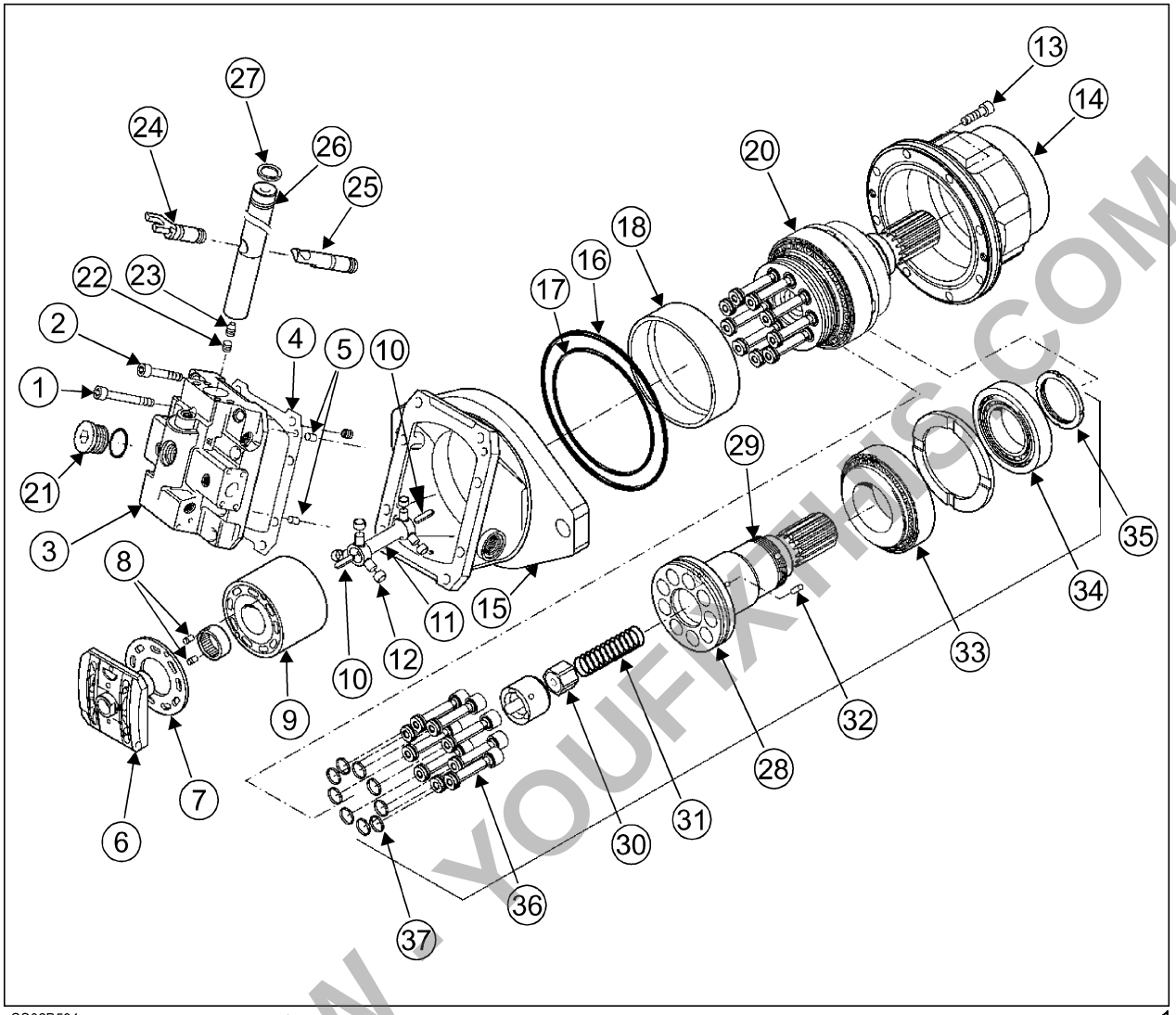
The brake control valve solenoids are activated and release pressurized oil into the brakes in the travel reduction gears. The brakes of the machine have been released.

The pressurized oil flows from the pump to the inputs of the travel hydraulic motors and moves the machine forward.

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SERVO-PISTONDESCRIPTION



CS02B591 1

1. Screw
2. Screw
3. End cover
4. Gasket
5. Pin
6. Valve segment
7. Distribution plate
8. Pin
9. Cylinder block
10. Support pin
11. Synchronizing shaft
12. Rollers
13. Screw
14. Bearing housing
15. Main housing
16. O-ring
17. O-ring
18. Spacer ring
20. Shaft assembly
21. Plug
22. Screw
23. Screw
24. Feedback fork
25. Setting lug
26. Servo-piston
27. Glide ring
28. Sensor ring
29. Shaft
30. Spring seat
31. Spring
32. Pin
33. Bearing
34. Bearing
35. Retaining nut
36. Piston
37. Piston ring

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SCREW TYPE HOSE CONNECTIONS

			Screw type connections with "O" Rings					
			Nm			lb-ft		
Wrench size	Thread	Hose	Nominal	Min	Max	Nominal	Min	Max
14	M12x1.5	6	20	15	25	15	11	18
17	M14x1.5	8	38	30	45	28	22	33
19	M16x1.5	8	45	38	52	33	28	38
		10						
22	M18x1.5	10	51	43	58	38	32	43
		12						
24	M20x1.5	12	58	50	65	43	37	48
27	M22x1.5	14	74	60	88	55	44	65
		15						
30	M24x1.5	16	74	60	88	55	44	65
32	M26x1.5	18	105	85	128	77	63	92
36	M30x2	20	135	115	155	100	85	114
		22						
41	36x2	25	166	140	192	122	103	142
46		28						
50	M42x2	30	240	210	270	177	155	199
50	M45x2	35	290	255	325	214	188	240
	M52x2	38	330	280	380	243	207	280
		42						

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