SERVICE MANUAL

T4040, T4050
Tractors



Print No. 87744428A

NEW HOLLAND
AGRICULTURE

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SECTION 10 – ENGINE

Chapter 1 – Engine

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GENERAL SPECIFICATIONS	
Engine, technical type:	
– Model T4040 type F4CE9484N*J601 (BOSCH pump)	
– Model T4050 – type F4CE9484M*J601 (BOSCH pump)	
Cycle	diesel, 4–stroke
Fuel injection	Direct
Number of cylinders in line	4
Piston diameter	104 mm
Piston stroke	132 mm
Total displacement	4485 cm^3
Compression ratio	16.5:1
Maximum Power Output:	
– Model T4040 – type F4CE9484N*J601	63 kW (86 Hp)
– Model T4050 – type F4CE0454C*D600/*D603	71 kW (97 Hp)
Maximum power speed	2300 rpm
– Maximum torque: Model T4040 – type F4CE9484N*J601	370 Nm
– Maximum torque: Model T4050 – type F4CE9484M*J601	418 Nm
Maximum torque speed	1300 rpm
Number of main bearings	5
Sump pan	structural, cast iron
Lube	forced, with lobe pump
Pump drive	from crankshaft
Engine speed/oil pump speed ratio	1:1
Oil filtration	mesh screen on oil pick–up and filter cartridge in delivery line
Normal oil pressure with motor warmed–up	
at slow idling	1.2 bar
at fast idling	3.9 bar

(continued)

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(overleaf)

GENERAL SPECIFICATIONS	
Cooling	coolant circulation
Radiator	4 lines of vertical pipes with copper fins
Fan, attached to the pulley	intake, in plastic with 11 blades
Coolant pump	centrifugal vane–type
Engine speed/coolant pump speed ratio	1:1.977
Coolant thermometer	coloured scale divided into three sections
Temperature ranges corresponding to each section:	
– Initial blue section	40° ÷ 60 °C
– Middle green section (normal working conditions)	60° ÷ 110 °C
– Final red section	110° ÷ 120 °C
Temperature Control	via thermostat valve
– initial opening	81 ± 2 °C
Valve Timing	overhead valves operated by tappets, rods and rocker arms via the camshaft located in the engine block; the camshaft is driven by the crankshaft using straight–tooth gears
Intake:	
– start: before T.D.C.	10° ± 30'
– end: after B.D.C.	10° ± 30'
Exhaust:	
– start: before B.D.C.	64°
– end: after T.D.C.	26°
Clearance between valves and rocker arms with engine cold:	
– intake	0.25 ± 0.05 mm
– exhaust	0.50 ± 0.05 mm
Power supply	
Air filtering	dual cartridge dry air filter, with clogged filter indicator with centrifugal pre–filter and automatic dust ejector
Fuel pump	with double diaphragm
Fuel filtration	through wire filter in fuel supply pump, and replaceable cartridge on delivery line to injection pump
Minimum fuel flow rate with pump shaft rotating at 1800 rpm	127.6 l/h
Cam operated	via engine timing

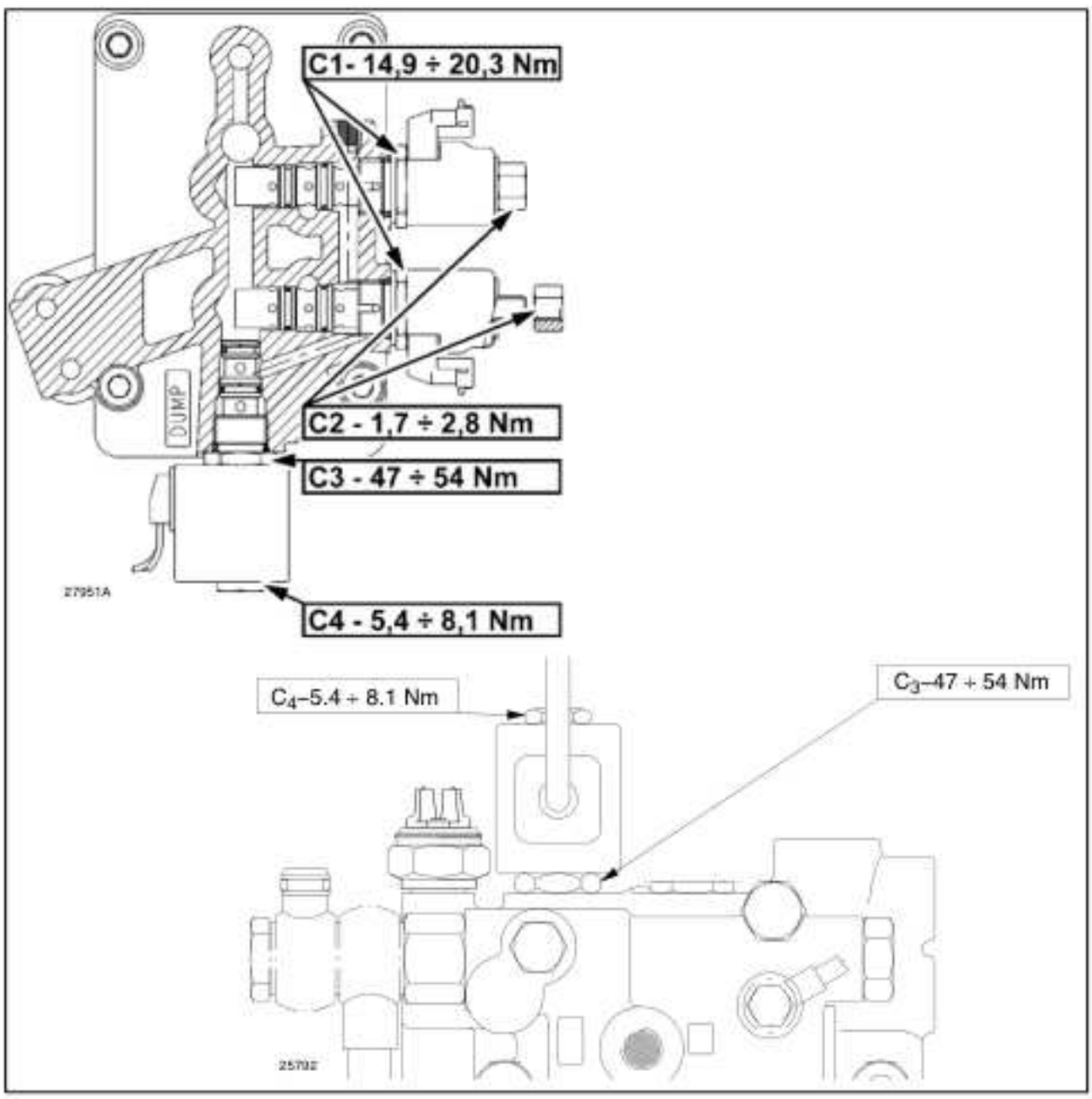
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TIGHTENING TORQUES

PARTS TO BE TIGHTENED	Thread	Tightening torque	
		Nm	kgm
For missing data see Chapter 1, page 2.			
Solenoid valve retaining nut (C_1) (•)	–	1.7 to 2.8	0.17 to 0.28
Solenoid valve spool retaining bolt (C_2)	–	14.9 to 20.3	1.52 to 2.07
Solenoid valve spool retaining bolts (C_3)	–	47 to 54	4.8 to 5.5
Solenoid valve retaining nut (C_4) (•)	–	5.4 to 8.1	0.55 to 0.83

(•) Apply 1 or 2 drops of LOCTITE 542 before tightening



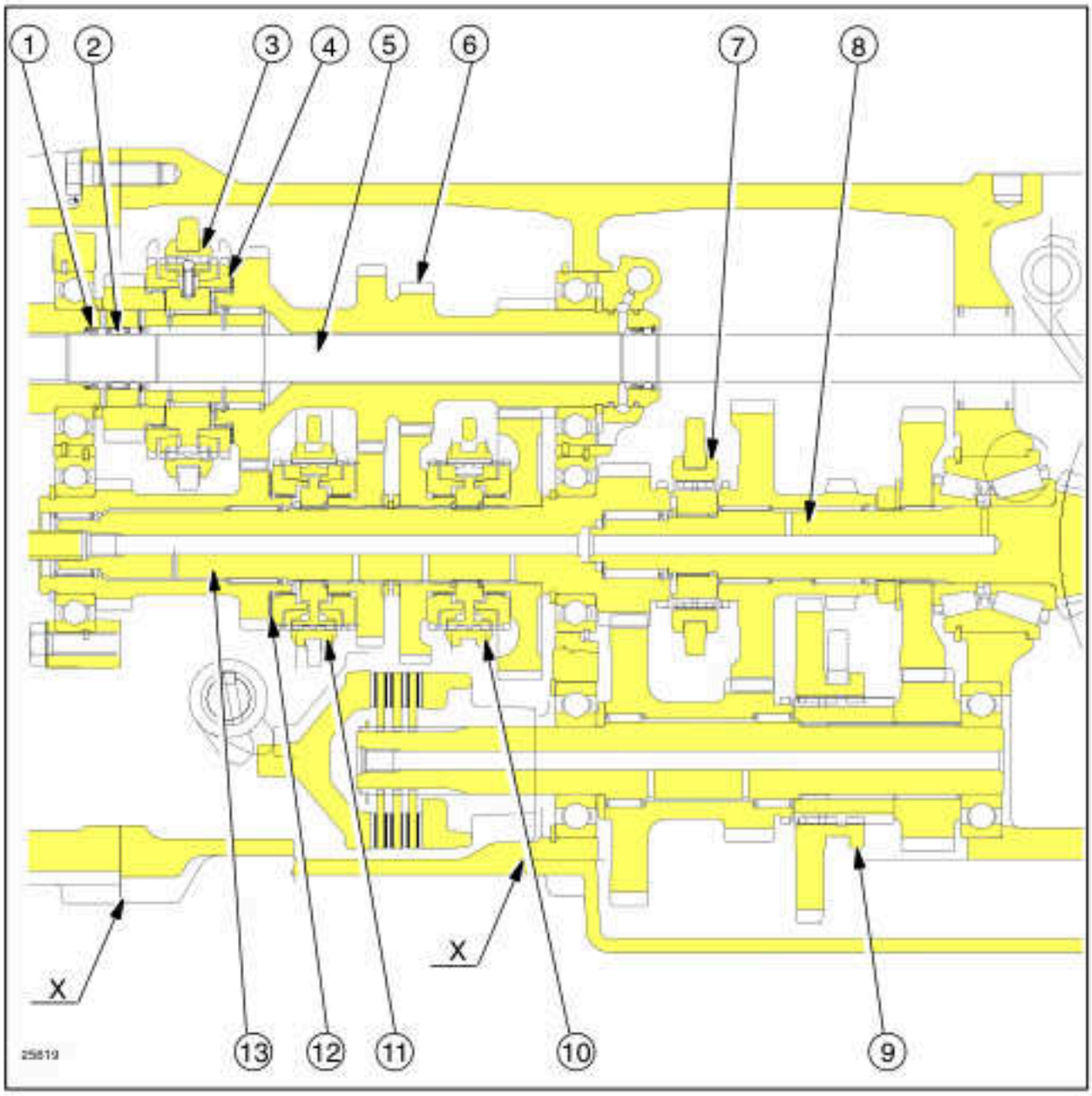
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ELECTRICAL CIRCUIT COMPONENTS (Continued)

50	Splitter switch.
51	PTO indicator switch.
52	Parking brake switch.
53	Fuel gauge switch.
54	RH tail light
55	8A power socket.
56	7–pole connection.
57	Work light.
58	Number plate light.
59	LH tail light.
60	Rear ground
61	Trailer brake solenoid valves.
62	Trailer brake safety pressure switch.
63	LH two–faced headlight
64	RH two–faced headlight
65	Seat switch
67	Brake lights relay
68	Transmission connection
69	Transmission connection
70	G1 gear switch
71	C1 gear switch
72	Transmission oil temperature sensor
73	Engine oil pressure switch
74	HIGH clutch control solenoid valve
75	LOW clutch control solenoid valve
76	Speed sensor
77	Dump solenoid valve
78	Trailer brake connection (4 PIN)
79	Front lights connection (6 PIN)
81	Operator safety circuit buzzer timer
83	4WD circuit connection
84	Connection for 7–pole connection
85	Power Shuttle control unit
86	Clutch pedal switch
87	Clutch pedal sensor
88	30A power socket (ISO)
89	Power Shuttle control unit troubleshooting connection
90	Power Shuttle control lever
91	Solenoid valve to cut out starting advance, depending on temperature
92	Starting advance thermometric cut–out switch
93	Left–hand front headlight (North America version)
94	Right–hand front headlight (North America version)
95	4WD circuit connection (12 PIN)
98	Inlet Grid Heater
99	Grid heater relay
100	Grid–heater control unit

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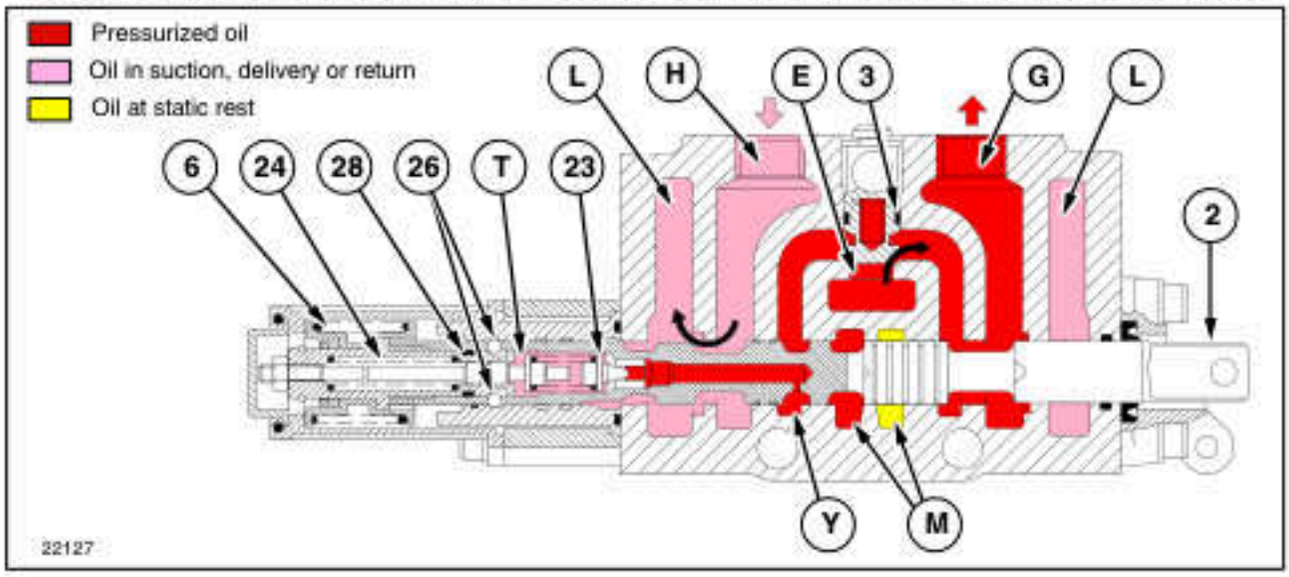
Longitudinal cross–sectional view of gearbox and gear range (16 + 16)

1. Seal.
2. Power take–off shaft support roller bearings.
3. Reverser control synchroniser.
4. Gearbox driving gear clearance adjusting thickness.
5. Power take–off shaft.
6. Gearbox driving gear.
7. Selector sleeve for high or medium–low speeds.
8. Bevel pinion shaft.
9. Selector sleeve for low or medium–high speeds.
10. Synchroniser for 1st and 2nd speed.
11. Synchroniser for 3rd and 4th speed.
12. Gearbox driven shaft gear clearance adjusting thickness.
13. Gearbox driven shaft.

NOTE: *On assembly apply a bead of sealing compound to the surfaces* ***X*** *as indicated on page 33.*

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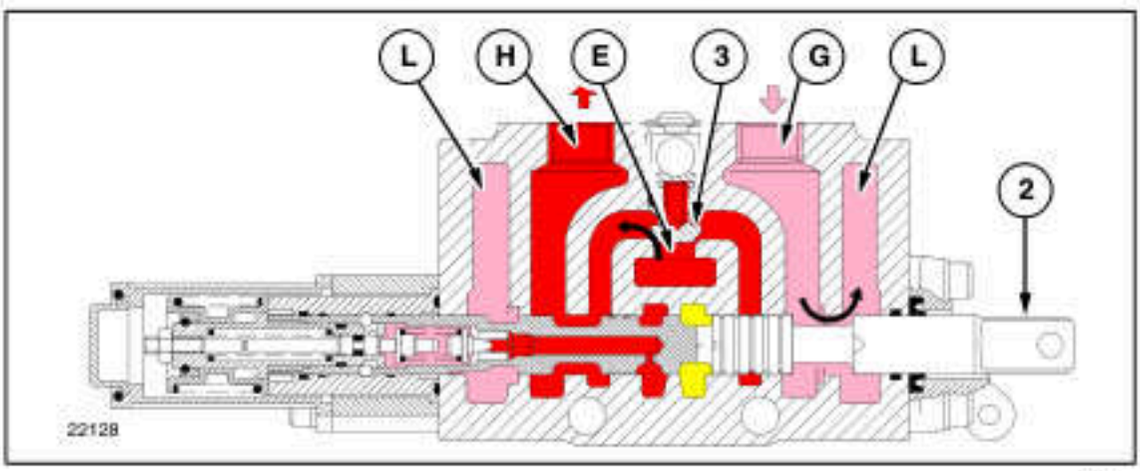
OPERATING STAGES OF AUXILIARY CONTROL VALVE FOR THE OPERATION OF A SINGLE/ DOUBLE–ACTING CYLINDER WITH AUTOMATIC DETENT RELEASE AND FLOAT POSITION



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LIFTING

On pulling back the control lever (located in the cab), the spool (2) shifts and the detent balls (26) engage the left hand groove, where they are held in place by the support (28) and spring (24). The movement of the spool (2) connects: delivery line (E) with the lower chamber of the cylinder, by way of the check valve (3) and the line (G), and also the upper cylinder chamber with the exhaust line (L) by way of line (H), intercepting the supply of oil to the hydraulic lift control valve. On completion of the lifting movement, the oil pressure increases to 2465 to 2537 psi (170 to 175 bar), acting through the port (V), it overcomes the resistance of the spring of the needle valve (23). Inside chamber (T) the oil pressure increases and, acting on the detent ball support (28), it overcomes the resistance of the spring, thus moving the support (28). In this condition the two detent balls (26) drop onto the support (28), releasing the stem (2) which, under the action of the spring (6), returns to the neutral position, and consequently the entire flow from the pump is conveyed to the lift control valve through lines (M).



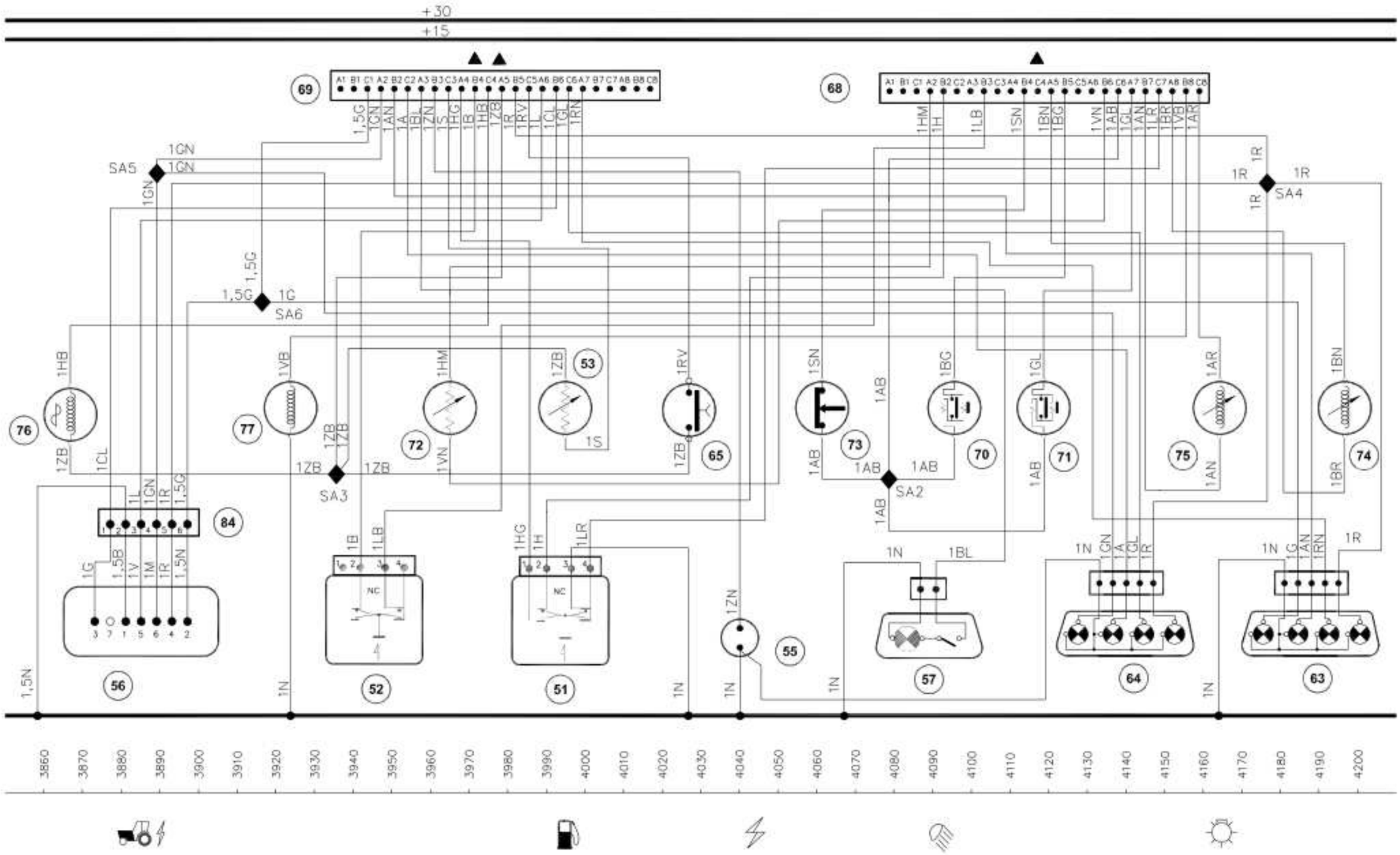
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LOWERING

To lower the implement, push forward the control lever (in the cab). The control valve spool (2) shifts and the detent balls (26) engage in the central groove where they are held in position by the support (28) and the spring (24). In this condition the oil contained in the lower chamber of the cylinder can flow to the exhaust (L) by way of line (G), while the upper chamber is connected with the delivery (E) by way of line (H) and check valve (3). On completion of the lowering operation, the detent will be automatically released in the manner described previously.

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TRANSMISSION CIRCUIT (North America version) – DIAGRAM M



MPM1105A

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