SERVICE MANUAL

Wheel Loader
W270C
W300C

Print No. 47357329

NEW HOLLAND CONSTRUCTION

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ERROR CODES

In case of possible errors in the system, an amber or red warning appears on the instrument panel, combined with a recorded error number. See section 4005 for error code retrieval procedures and definitions.

TRANSMISSION SHIFTER LOGIC INFORMATION

Function	Shifter	Shifter Wire Color	Shifter Tower Connector	Shifter Shroud Connector	Harness Wire #	Harness ped/cab #	Trans. ECM #
power	B+	black/red	A	A	19A_H	43	45
forward	V	yellow	-	B	25F	44	43
reverse	R	pink	-	C	25R	45	64
neutral	N	gray	-	D	25T_B	46	67
gear2(3-4)	B2	green	B	-	25W	48	65
gear1(1-2)	B1	blue	C	-	25Z	49	63
downshift	DS	purple	D	-	25Y	50	22

NOTE: *Power is supplied through the fuse A to the transmission shifter via 19A wire. This is 24 Volt. Within the shifter are limit switches to transfer the signal voltages to the outputs. In forward V is high. In reverse R is high. In neutral N is high. In first gear, B1 is high and B2 is low. In second gear, B1 and B2 are low. In third gear, B1 is low and B2 is high. In fourth gear, B1 and B2 are high. Downshift, DS, is activated when the end of the shifter is engaged.*

RELATIONSHIP BETWEEN TRANSMISSION ECM, VALVES, AND CLUTCHES

Transmission ECM Function	Transmission ECM Pin #	Transmission Valve	Clutch #	Transmission Valve Pin #	Wire #	Trans/Cab Pin #
A1P1	56	Y1	K4	1	25K	16
A1P2	10	Y2	KR	2	25L	17
A1P3	32	Y3	K1	3	25M	18
A1P4	55	Y4	K3	4	25N	19
A1P5	9	Y5	KV	5	25P	20
A1P6	51	Y6	K2	6	25J	21
VPSI	12,13	all Y	all K	7	25S	22
TEMP	39	TEMP	none	8	36T	5
TEMP	46	TEMP	none	9	36R	12

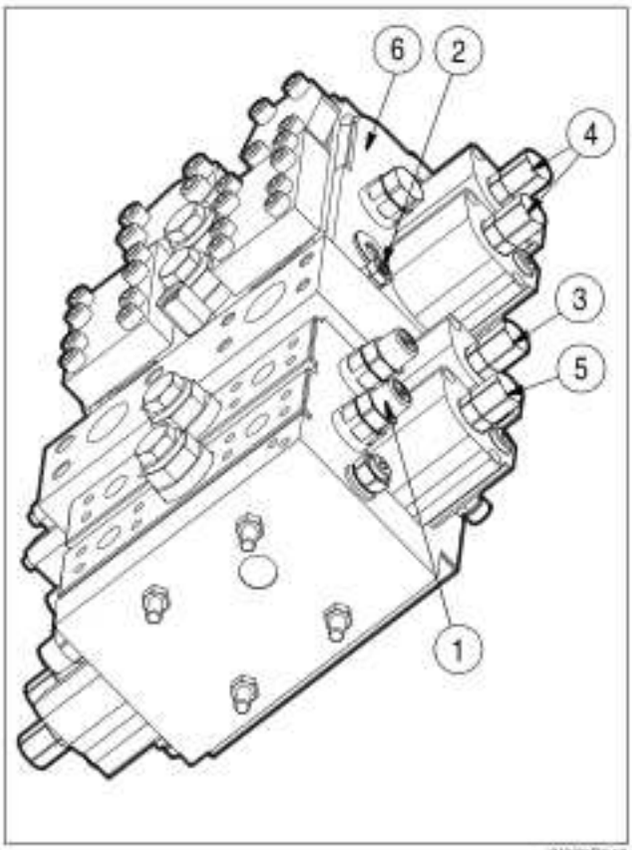
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TESTING AND ADJUSTING THE CIRCUIT RELIEF VALVES

Pressure Check

STEP 1

Circuit relief valves are located as shown below.



W270RD48

1. CIRCUIT RELIEF VALVES
2. PUMP LIMIT PRESSURE ADJUSTMENT
3. BUCKET SPOOL
4. LIFT SPOOL
5. AUXILIARY SPOOL
6. LOADER CONTROL VALVE

STEP 2

Raise the lift arms and install the safety link on the lift arm cylinder.

STEP 3

Loosen and remove the bolts and washers that fasten the access cover plate for the loader control valve. Remove the cover plate.

STEP 4

Remove the safety strut and lower the bucket to the floor. Shut off the engine. Find an easy place to disconnect the line for the circuit to be tested.

STEP 5

Connect the hand pump to the disconnected line that goes to the loader control valve.

STEP 6

Make sure that the hand pump is full of hydraulic oil and that the temperature of the oil is approximately 21°C (70°F).

STEP 7

Operate the handle of the hand pump and read the highest pressure. Repeat this step several times to be sure of the reading.

STEP 8

Compare the reading to the specifications on Page 3.

STEP 9

If the pressure is not correct, adjust the circuit relief valve.

Adjustment

STEP 1

Loosen the lock nut. Turn the adjustment screw clockwise to increase the pressure or counterclockwise to decrease the pressure.

NOTE: *One turn of the adjusting screw will change the pressure approximately 138 bar (2000 psi).*

STEP 2

Check the pressure again. Repeat the adjustment as necessary.

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Dissasembly

STEP 1
Remove ride control valve, refer to section 8001.

STEP 2
Remove plugs (1 and 8).

STEP 3
Remove the solenoid (9).

STEP 4
Remove the spool (7) from the valve block.

STEP 5
Remove cap screw (2), bushing (3), spring carrier (4), springs (5 & 6) from spool (7).

STEP 6
Remove orifice (10), poppet (11), and orifice (12).

STEP 7
Remove accumulator drain screw.

STEP 8
Remove the pressure relief valve.

Inspection

1. Discard all O-rings.
2. Clean all parts in cleaning solvent.
3. Check the spools and the spool bores for damage and wear.
4. Check the parts of the pressure relief valve.

If any of the parts are damaged, install new parts.

Assembly

STEP 1
Install new O-rings.

STEP 2
Install and torque pressure relief valve to 50 Nm (37 lb-ft).

STEP 3
Install and torque accumulator drain screw to 20 Nm (177 lb-in).

STEP 4
Install and torque orifice (12) to 15 Nm (11 lb-ft), install poppet (11), install and torque orifice (10) to 15 Nm (11 lb-ft).

STEP 5
Install and torque solenoid valve (9) to 12 Nm (106 lb-in).

STEP 6
Install springs (5 &6), spring carrier (4), bushing (3), cap screw (2) onto spool (7) and torque cap screw (2) to 23 Nm (203.5 lb-in).

STEP 7
Install spool (7) into valve block.

STEP 8
Install and torque plug (1) to 420 Nm (309.7 lb-ft).

STEP 9
Install plug (8) and torque to 330 Nm (243.3 lb-ft).

STEP 10
Install the ride control valve in the machine, see section 8001.

STEP 11
Test the ride control system, see section 8002.

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COMPONENT NUMBERS

#	SHT	COMPONENT	#	SHT	COMPONENT	#	SHT	COMPONENT	#	SHT	COMPONENT
1	4	STARTING RELAY	61	8	DIAGNOSTIC CONNECTOR	119	12	DIAGNOSTIC CONNECTOR	177	13	ARM POS
2	4	RESISTOR - 75 OHM	62	1	INSTRUMENT CLUSTER CONNECTOR 1	121	12	POWER CONVERTER - 24 TO 12 VOLT	178	13	FNR SWITCH (OPTION)
3	4	ALTERNATOR	63	9	WARNING BUZZER	122	12	12 VOLT POWER OUTLETS (OPTION)	179	13	FNR RELAY
4	4	CRANK CONTROL RELAY	64	9	PARKING BRAKE RELAY	123	12	RADIO	180	13	PILOT DUMP VALVE
5	4	BATTERIES	65	9	FUEL LEVEL SENDER	124	12	RIGHT SPEAKER	181	13	JSS VALVE
6	4	CRANK REQUEST RELAY	66	9	AIR FILTER RESTRICTION SWITCH	125	12	LEFT SPEAKER	182	13	LOAD SENSE PRESSURE SENSOR
8	4	MASTER DISCONNECT SWITCH	67	9	PARKING BRAKE SOLENOID	126	12	AIR SEAT	183	13	PILOT PRESSURE SWITCH
9	4	STARTER	68	9	RADIATOR COOLANT TEMPERATURE SENDER	127	12	CIGAR LIGHTER	184	13	JSS RELAY
10	4	IGNITION SWITCH	69	9	BRAKE PRESSURE WARNING SWITCH	128	12	AIR CONDITIONING CLUTCH RELAY	185	13	JOYSTICK STR SWITCH (OPTION)
11	4	NEUTRAL START RELAY	70	1	SWITCH PAD	129	12	AIR CONDITIONING HIGH-LOW PRESSURE SWITCH	186	13	JSS CONTROLLER
13	4	POWER RELAY MODULE A	71	1	INSTRUMENT CLUSTER CONNECTOR 2	130	12	AIR CONDITIONING COMPRESSOR CLUTCH			
14	4	POWER RELAY MODULE B	72	9	HYDRAULIC FILTER RESTRICTION SWITCH	131	NA	ELECTRONIC PANEL			
15	4	POWER RELAY MODULE C	73	9	HYDRAULIC OIL TEMPERATURE SENDER	132	NA	EXTERNAL AIR TEMPERATURE SENSOR			
16	4	GRID HEATER RELAY	74	9	PARK BRAKE SWITCH	133	NA	INTERNAL AIR TEMPERATURE SENSOR			
17	4	GRID HEATER	75	9	REDUNDANT BRAKE PRESSURE SWITCH 1	134	NA	SUN SENSOR			
18	4	POWER RELAY MODULE D	76	9	REDUNDANT BRAKE PRESSURE SWITCH 2	135	NA	BLOWER FAN RESISTOR			
20	4	WATER SEPARATOR HEATER	78	6	BACKUP ALARM RELAY	136	NA	BLOWER MOTORS			
21	4	FUEL FILTER HEATER	79	6	BACKUP ALARM DISABLE SWITCH	137	NA	THERMOCOUPLE SENSOR			
22	5	WATER IN FUEL SENSOR	80	7	WORK LAMPS SWITCH	138	NA	MIXED AIR SENSOR			
23	5	THROTTLE POTENTIOMETER	81	7	DOOR SWITCH	139	NA	COMPRESSOR RELAY			
24	5	ENGINE CONTROLLER	82	7	ROTATING BEACON (OPTIONAL)	140	NA	RECYCLING MOTOR			
25	10	RETURN TO TRAVEL FLOAT SWITCH	83	7	DOME LAMP	141	NA	ELECTRONIC WATER VALVE			
26	10	HEIGHT CONTROL SWITCH	84	7	ROTATING BEACON SWITCH (OPTIONAL)	142	NA	24 TO 12 VOLT CONVERTER			
27	10	ELECTROMAGNETIC DETENTS	85	7	LEFT HAND FRONT WORK LAMP	143	14	ACTUATOR			
28	10	RETURN TO DIG PROXIMITY SWITCH	86	7	RIGHT HAND FRONT WORK LAMP	144	14	DRIVER			
29	10	PILOT CONTROL RELAY ECD-K3	87	7	LEFT HAND REAR WORK LAMP	145	14	ELECTRONIC WATER VALVE			
30	10	HEIGHT CONTROL AND RETURN TO TRAVEL PROXIMITY SW	88	7	RIGHT HAND REAR WORK LAMP	146	14	BLOWER FAN RESISTOR			
31	10	RETURN TO DIG SWITCH	89	7	DIODES	147	14	BLOWER MOTOR			
32	10	PIN ENGAGE SWITCH (OPTION)	90	6	BRAKE LAMP SWITCH	148	14	THERMOSTAT			
33	10	PILOT PRESSURE SOLENOID	91	6	BRAKE LAMP RELAY	149	14	FAN SPEED SWITCH			
34	10	PIN ENGAGE SOLENOID (OPTION)	92	6	FLASHER MODULE	150	14	AIR CONDITIONING SWITCH			
35	10	RIDE CONTROL SWITCH (OPTION)	93	6	HAZARD SWITCH	151	14	CONTROL PANEL LAMPS			
36	10	RIDE CONTROL RELAY (OPTION)	94	6	TURN SIGNAL, HIGH-LOW BEAM, AND HORN SWITCH	152	14	WATER VALVE POTENTIOMETER			
37	10	FAN CONTROL SWITCH (OPTION)	95	6	DRIVING LAMPS SWITCH	153	14	AIR RECIRCULATING SWITCH			
38	10	FAN REVERSE RELAY (OPTION)	96	6	LEFT HAND FRONT COMBINATION LAMPS	154	11	HOOD UP RELAY			
39	10	PILOT CONTROL SWITCH	97	6	RIGHT HAND FRONT COMBINATION LAMPS	155	11	HOOD DOWN RELAY			
40	10	RIDE CONTROL SOLENOID (OPTION)	98	10	HORN RELAY	156	11	HOOD SWITCH			
41	10	ROLLBACK PRESSURE SW (XT WITH RIDE CONTROL ONLY)	99	10	HORN RELAY	157	11	HOOD MOTOR			
42	10	ROLLBACK JUMPER	100	6	RIGHT HAND REAR COMBINATION LAMPS	158	4	IGNITION POWER LATCH			
43	10	FAN PWM SOLENOID	101	6	LEFT HAND REAR COMBINATION LAMPS	159	4	IGNITION POWER CONTROL			
44	10	FAN REVERSE SOLENOID (OPTION)	102	6	LICENSE PLATE LAMP	160	4	START LOCKOUT			
45	8	OUTPUT SPEED SENSOR	103	6	BACKUP ALARM	161	5	NOX SENSOR			
46	8	TRANSMISSION SOLENOID VALVE AND TEMP SENDER	104	11	FRONT WIPER HIGH SPEED RELAY	162	5	HUMIDITY AND AMBIENT TEMPERATURE SENSOR			
47	8	FILTER MAINTENANCE SWITCH	105	11	WIPER CUTOUT RELAY	163	5	NOX SENSOR (NOXS)			
48	8	TORQUE CONVERTER OUTPUT TEMPERATURE SENDER	106	11	FRONT WIPER LOW SPEED RELAY	164	5	TANK HEATER CONTROL VALVE			
49	8	ENGINE SPEED SENSOR	107	11	REAR WIPER AND WASHER SWITCH	165	5	DEF LEVEL AND TANK TEMPERATURE			
50	8	INTERMEDIATE SPEED SENSOR	108	11	FRONT WIPER AND WASHER SWITCH	166	5	UPSTREAM TEMPERATURE SENSOR			
51	8	TURBINE SPEED SENSOR	109	11	FRONT WIPER MOTOR	167	5	DOWNSTREAM TEMPERATURE SENSOR			
52	8	TRANSMISSION SHIFTER	110	11	REAR WIPER MOTOR	168	5	DOSER METERING VALVE			
53	8	TRANSMISSION ELECTRONIC CONTROL MODULE	111	11	REAR WASHER MOTOR	169	5	DNOX CONTROLLER			
54	8	TRANSMISSION ENABLE SWITCH	112	11	FRONT WASHER MOTOR	170	7	REAR VIEW CAMERA/MONITOR			
55	8	FNR SWITCH FOR JOYSTICK CONTROLS	113	11	DIODES	171	8	DIFFERENTIAL LOCK SWITCH (MANUAL)			
56	8	TRANSMISSION KICK DOWN SWITCH	114	11	SECONDARY STEERING DIODES	172	8	DIFFERENTIAL LOCK SWITCH			
57	8	FNR SWITCH FOR SINGLE AXIS CONTROLS	115	11	SECONDARY STEERING SOLENOID	173	8	DIFFERENTIAL LOCK SOLENOID			
58	8	TRANSMISSION AUTO SWITCH	116	11	SECONDARY STEERING MODULE	174	8	LOCKUP SOLENOID			
59	8	BRAKE DECLUTCH PRESSURE SWITCH	117	11	SECONDARY STEERING MOTOR	175	13	JOYSTICK PVRES			
60	8	DECLUTCH SWITCH	118	11	SECONDARY STEERING PRESSURE SWITCH	176	13	TRANSMISSION KICK DOWN SWITCH			

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