SERVICE MANUAL

T8.275 / T8.300 / T8.330 / T8.360 / T8.390 / T8.420 (CVT)

Tractor

PIN ZCRC02586 and above

Part number 47533595
English
May 2013

NEW HOLLAND AGRICULTURE

Copyright © 2013 CNH America LLC. All Rights Reserved.

Order the manual at mid-west-tech.com >

Contents

INTRODUCTION

Engine 10

[10.001] Engine and crankcase 10.1

[10.101] Cylinder heads 10.2

[10.114] Pump drives 10.3

[10.202] Air cleaners and lines 10.4

[10.216] Fuel tanks 10.5

[10.310] Aftercooler 10.6

[10.400] Engine cooling system 10.7

[10.414] Fan and drive 10.8

[10.500] Selective Catalytic Reduction (SCR) exhaust treatment 10.9

Power coupling 19

[19.100] Drive shaft 19.1

Transmission 21

[21.504] Continuously Variable Transmission (CVT) 21.1

[21.505] Continuously Variable Transmission (CVT) external controls 21.2

[21.507] Continuously Variable Transmission (CVT) internal components 21.3

[21.506] Continuously Variable Transmission (CVT) lubrication system 21.4

Four-Wheel Drive (4WD) system 23

[23.202] Electro-hydraulic control 23.1

Front axle system 25

[25.100] Powered front axle 25.1

[25.102] Front bevel gear set and differential 25.2

[25.108] Final drive hub, steering knuckles, and shafts 25.3

[25.122] Axle suspension control 25.4

Rear axle system 27

MidWestTech | New Holland T8.275, T8.300, T8.330, T8.360, T8.390, T8.420 CVT Trac... Order the manual at mid-west-tech.com >

[27.100] Powered rear axle 27.1
[27.106] Rear bevel gear set and differential 27.2
[27.120] Planetary and final drives 27.3
Power Take-Off (PTO) 31
[31.104] Rear electro-hydraulic control 31.1
[31.110] One-speed rear Power Take-Off (PTO) 31.2
[31.114] Two-speed rear Power Take-Off (PTO) 31.3
[31.146] Front Power Take-Off (PTO) 31.4
Brakes and controls 33
[33.110] Parking brake or parking lock 33.1
[33.202] Hydraulic service brakes 33.2
[33.220] Trailer brake hydraulic control 33.3
[33.224] Trailer brake pneumatic control 33.4
Hydraulic systems 35
[35.000] Hydraulic systems 35.1
[35.102] Pump control valves 35.2
[35.106] Variable displacement pump 35.3
[35.114] Three-point hitch control valve 35.4
[35.124] Three-point hitch hydraulic adjustment 35.5
[35.204] Remote control valves 35.6
[35.300] Reservoir, cooler, and filters 35.7
[35.304] Combination pump units 35.8
Pneumatic system 36
[36.100] Pneumatic system 36.1
Hitches, drawbars, and implement couplings 37
[37.110] Rear three-point hitch 37.1
[37.162] Front hitch 37.2
Steering 41

MidWestTech | New Holland T8.275, T8.300, T8.330, T8.360, T8.390, T8.420 CVT Trac... Order the manual at mid-west-tech.com >

[41.101] Steering control 41.1
[41.200] Hydraulic control components 41.2
[41.206] Pump 41.3
Cab climate control 50
[50.100] Heating 50.1
[50.200] Air conditioning 50.2
[50.300] Cab pressurizing system 50.3
Electrical systems 55
[55.012] Engine cooling system 55.1
[55.015] Engine control system 55.2
[55.024] Transmission control system 55.3
[55.045] Front axle control system 55.4
[55.046] Rear axle control system 55.5
[55.050] Heating, Ventilation, and Air-Conditioning (HVAC) control system 55.6
[55.051] Cab Heating, Ventilation, and Air-Conditioning (HVAC) controls 55.7
[55.100] Harnesses and connectors 55.8
[55.130] Rear three-point hitch electronic control system 55.9
[55.201] Engine starting system 55.10
[55.301] Alternator 55.11
[55.302] Battery 55.12
[55.404] External lighting 55.13
[55.405] External lighting switches and relays 55.14
[55.408] Warning indicators, alarms, and instruments 55.15
[55.512] Cab controls 55.16
[55.514] Cab lighting 55.17
[55.518] Wiper and washer system 55.18
[55.640] Electronic modules 55.19
[55.988] Selective Catalytic Reduction (SCR) electrical system 55.20
[55.DTC] FAULT CODES 55.21

MidWestTech | New Holland T8.275, T8.300, T8.330, T8.360, T8.390, T8.420 CVT Trac... Order the manual at mid-west-tech.com >

Hydraulic systems - Dynamic description - System pumps with CVT transmission

T8.275 [ZCRC02586 -] WE, T8.300 [ZCRC02586 -] WE, T8.330 [ZCRC02586 -] WE, T8.360 [ZCRC02586 -] WE, T8.390 [ZCRC02586 -] WE, T8.420 [ZCRC02586 -] WE

The tractor uses three hydraulic pumps which are driven through a drive housing on the right side of the transmission. The pump drive housing gears are driven by the Power Take-Off (PTO) drive line and all the pumps turn at approximately 1:33 times engine speed. A Pressure and Flow Compensating (PFC) piston pump is attached to the front of the pump drive housing, while the tandem gear pump is attached to the rear of the pump drive housing.

The front section of the tandem gear pump supplies the cooler bypass valve, the regulated circuit filter and on to supply the pressure regulator/Mechanical Front Drive (MFD)/park brake valve. The rear section supplies charge flow to the PFC pump(s). The PFC pump supplies flow to the steering priority valve, which directs flow first to the steering system and then to remote valves, three point hitch circuit and trailer brakes if equipped.

All hydraulic lines are equipped with O-ring face seals to ensure reliable, vibration-resistant connections.

Charge/lubrication pump

The charge/lubrication pump is the rear section of the tandem gear pump and it is used to supply the main PFC pump with a charged inlet condition to prevent cavitation. The pump also supplies lubrication requirements for the transmission.

The pump draws oil from the transmission housing through a 100 mesh suction screen. The pump flow is directed across the main filter assembly to provide clean charge and lubrication oil.

The pump flow rate at rated speed is **178.0 l/min** (**47.0 US gpm**).

Regulated circuit pump

The regulated circuit pump is the front section of the tandem gear pump. The pump draws oil from the system reservoir through a 100 mesh suction screen. The pump flow passes into the cooler bypass valve, the cooler bypass valve will send flow onto the oil cooler at temperatures above **82 °C** (**180 °F**). The cooler bypass valve will bypass the cooler at temperatures below **82 °C** (**180 °F**). Whether the regulated circuit pump flow bypasses oil cooler, or not all the flow passes through the regulated circuit filter.

After the regulated circuit filter, flow enters the pressure regulator/MFD/park brake valve. The pressure regulator portion of the valve maintains the regulated pressure circuits at **22.4 - 24.5 bar** (**325 - 355 psi**). All excess regulated circuit flow joins the charge/lube flow circuit.

The pump flow rate at rated speed is **102.0 l/min** (**27.0 US gpm**).

Pressure and flow compensated (PFC) piston pump

The axial piston pump has a variable flow output and can operate at variable pressures. The pump matches the hydraulic power output to the actual load requirements to ensure maximum efficiency and the minimum use of fuel.

The pump inlet is charged to prevent cavitation. The pump output flow is supplied to the steering priority valve. The steering priority valve gives top priority to the steering circuit. Once the steering system is satisfied the steering priority valve supplies pump flow to the trailer brakes (if equipped), remote auxiliary valves and the hitch valve.

The maximum pump flow rate for the standard pump at rated speed is **166.0 l/min** (**44.0 US gpm**).

NOTE: *The standard pump system delivers approximately* ***113.6 l/min*** *(**30.0 US gpm**) through a single remote section. This is due to resistance created by oil flowing through restrictive passage ways and long lengths of tubing or hose.*

Optional high flow PFC piston pump

An optional high flow PFC piston pump is available. The high flow rate maximum pump flow rate at rated speed is **224 l/min** (**59.0 US gpm**).

MidWestTech | New Holland T8.275, T8.300, T8.330, T8.360, T8.390, T8.420 CVT Trac... Order the manual at mid-west-tech.com >

Wire harnesses - Electrical schematic frame 31 – Roof work lights (EUR)

T8.275 [ZCRC02586 -] CVT Transmission, T8.300 [ZCRC02586 -] CVT Transmission, T8.330 [ZCRC02586 -] CVT Transmission, T8.360 [ZCRC02586 -] CVT Transmission, T8.390 [ZCRC02586 -] CVT Transmission, T8.420 [ZCRC02586 -] CVT Transmission

Connector **X-013**	Cab roof harness
Connector **X-023**	License plate light #2
Connector **X-024**	License plate light #1
Connector **X-147A**	7-pin trailer connector
Connector **X-147F**	To chassis harness
Connector **X-218**	Chassis ground
Connector **X-305**	Right hand position lights
Connector **X-306**	Left hand position lights
1	Magnum - Europe only
2	Magnum and T8. series - Europe only
3	Amber
4	White (Clear)

MidWestTech | New Holland T8.275, T8.300, T8.330, T8.360, T8.390, T8.420 CVT Tractor Service Manual | Publication 47533595

Order the manual at mid-west-tech.com >

19999-The Dosing Control Unit (DCU) engine fault not converted in CNH module. See the Engine Control Unit (ECU) fault codes with the EASY Tool.

T8.275 [ZCRC02586 -] CVT Transmission, T8.300 [ZCRC02586 -] CVT Transmission, T8.330 [ZCRC02586 -] CVT Transmission, T8.360 [ZCRC02586 -] CVT Transmission, T8.390 [ZCRC02586 -] CVT Transmission, T8.420 [ZCRC02586 -] CVT Transmission

Context:
This fault code has been logged by the Engine Control Unit (ECU) but cannot be converted by the machine module. Retrieve the fault code(s) using the EASY engine software.

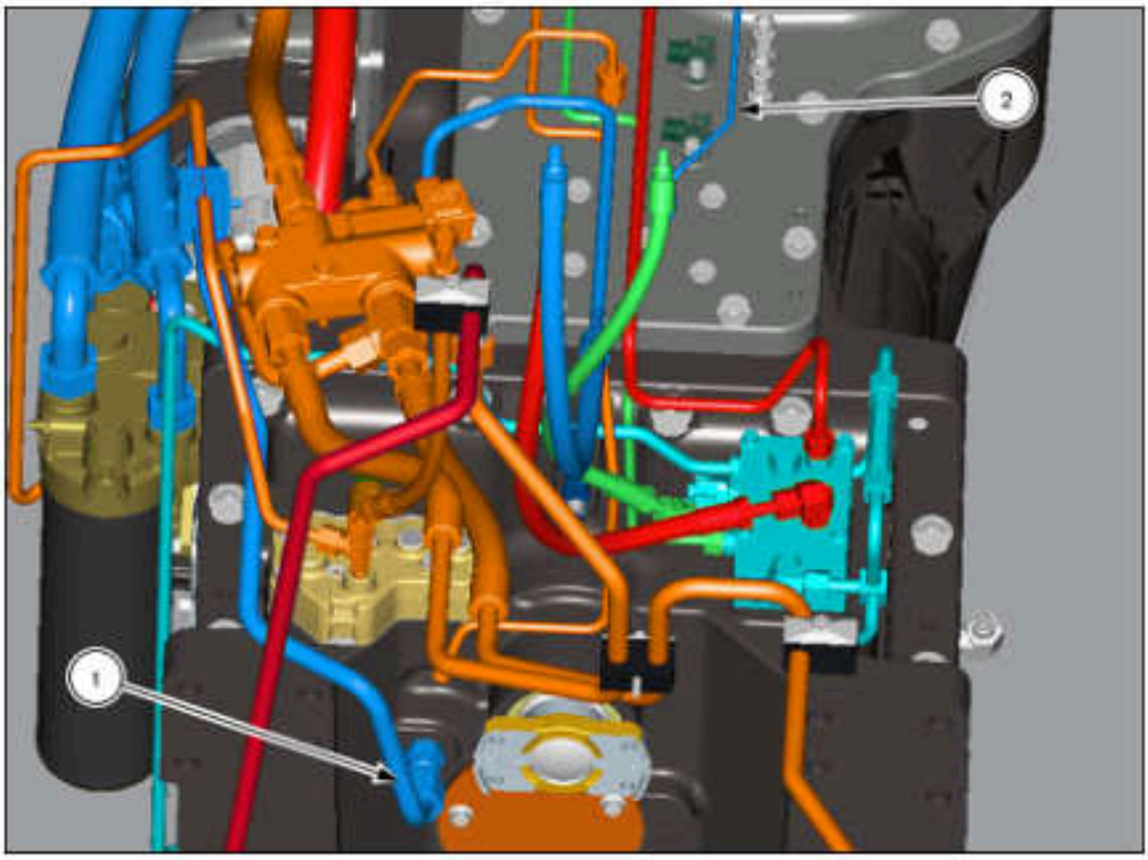
Solution:

1. Check for other Selective Catalytic Reduction (SCR) fault code(s)

   A. Other SCR related fault codes are present. Resolve the other fault codes.

   B. Other SCR related fault codes are not present. Use the EASY tool, and record all the data regarding the fault code. Submit a concern to ASIST for additional instructions.

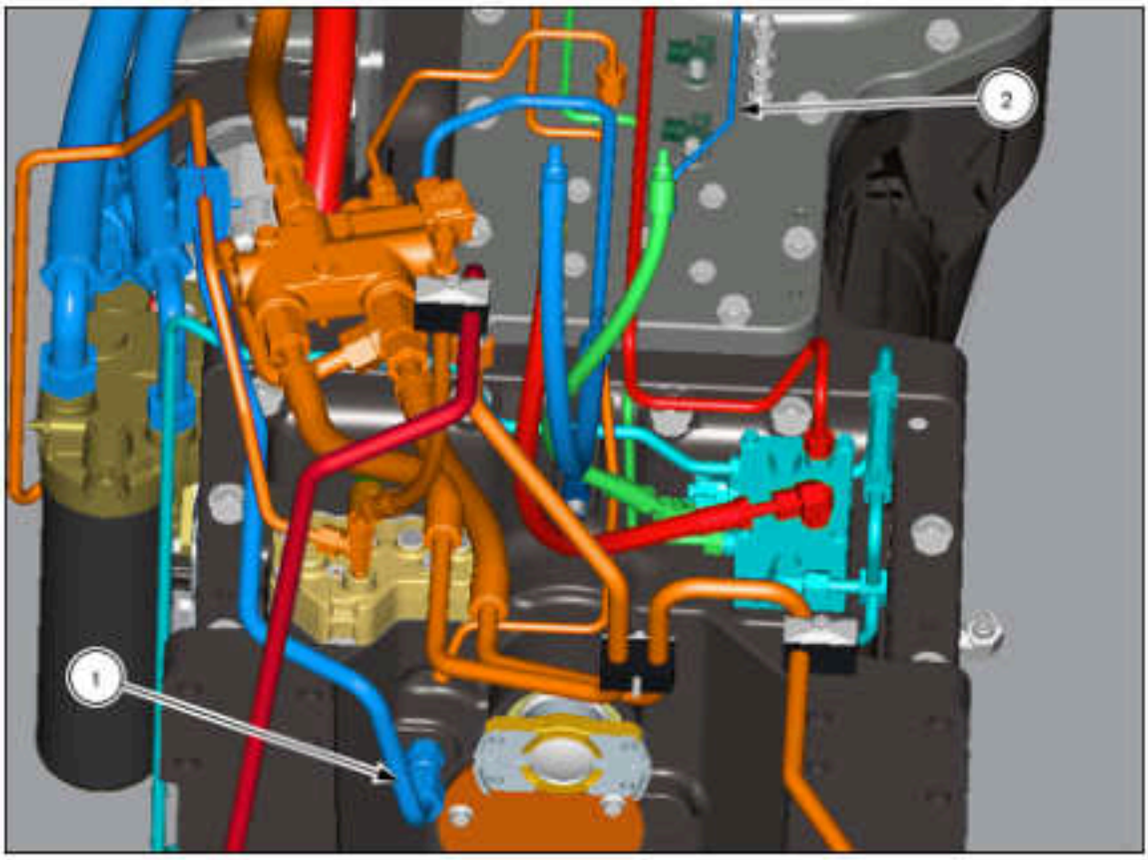
MidWestTech | New Holland T8.275, T8.300, T8.330, T8.360, T8.390, T8.420 CVT Trac... Order the manual at mid-west-tech.com >



RAIL13TR30668FA 2

1. Front cover lube line	2. Front CVT hydro bearing lube

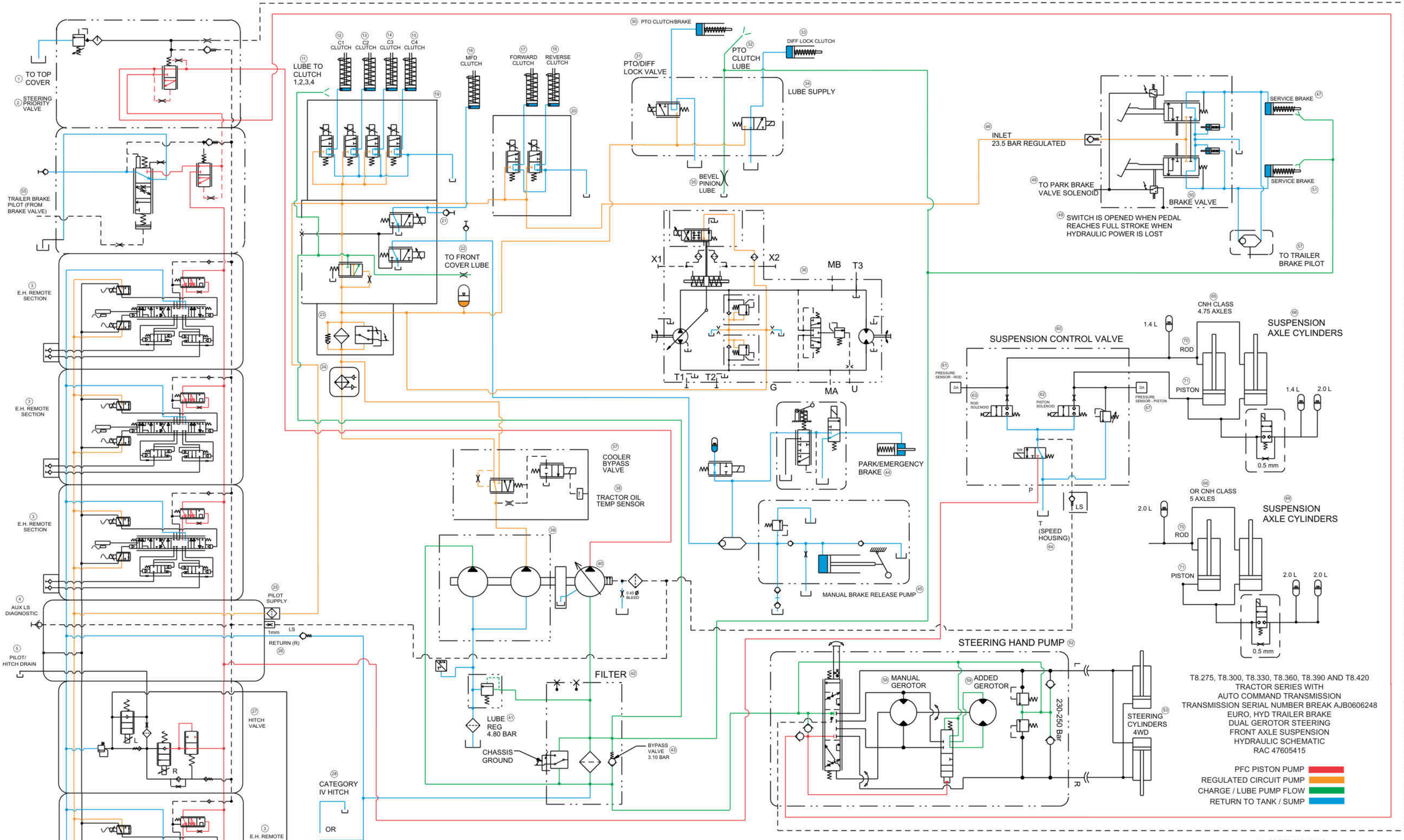
MidWestTech | New Holland T8.275, T8.300, T8.330, T8.360, T8.390, T8.420 CVT Trac... Order the manual at mid-west-tech.com >



RAIL13TR30668FA 2

1. Front cover lube line	2. Front CVT hydro bearing lube

MidWestTech | New Holland T8.275, T8.300, T8.330, T8.360, T8.390, T8.420 CVT Trac... Order the manual at mid-west-tech.com >



1. TO TOP COVER
2. STEERING PRIORITY VALVE
3. REMOTE SECTION
4. LOAD SENSE DIAGNOSTIC
5. PILOT/HITCH DRAIN
6. NOT USED
7. NOT USED
8. NOT USED
9. NOT USED
10. NOT USED
11. LUBE TO CLUTCHES
12. C1 CLUTCH
13. C2 CLUTCH
14. C3 CLUTCH
15. C4 CLUTCH
16. MFD CLUTCH
17. FORWARD CLUTCH
18. REVERSE CLUTCH
19. TRANSMISSION CONTROL VALVE
20. FORWARD/REVERSE CONTROL VALVE
21. PRESSURE REGULATOR/MFD/PARK BRAKE
22. TO FRONT COVER LUBE
23. REGULATED CIRCUIT FILTER
24. OIL COOLER
25. PILOT SUPPLY
26. RETURN
27. HITCH VALVE
28. CATEGORY IV HITCH
29. HITCH CYLINDERS
30. PTO CLUTCH/BRAKE
31. PTO/DIFF LOCK VALVE
32. PTO CLUTCH LUBE
33. DIFF LOCK CLUTCH
34. LUBE SUPPLY
35. BEVEL PINION LUBE
36. TRANSMISSION HYDRO UNIT
37. COOLER BYPASS VALVE
38. TRACTOR OIL TEMP SENSOR
39. TANDEM GEAR PUMP
40. PISTON PUMP
41. LUBE REGULATOR 4.80 BAR
42. FILTER
43. BYPASS VALVE 3.10 BAR
44. PARK/EMERGENCY BRAKE
45. MANUAL BRAKE RELEASE PUMP
46. INLET REGULATED
47. SERVICE BRAKE
48. TO PARK BRAKE VALVE SOLENOID
49. NOTE: SWITCH IS OPEN WHEN PEDAL REACHES FULL STROKE WHEN HYDRAULIC POWER IS LOST.
50. BRAKE VALVE
51. SERVICE BRAKE
52. STEERING HAND PUMP
53. STEERING CYLINDERS
54. NOT USED
55. TRAILER BRAKE PILOT (FROM BRAKE VALVE)
56. NOT USED
57. TO TRAILER BRAKE PILOT
58. MANUAL GEROTOR
59. ADDED GEROTOR
60. SUSPENSION CONTROL VALVE
61. PRESSURE SENSOR - ROD
62. PISTON SOLENOID
63. ROD SOLENOID
64. SPEED HOUSING
65. CNH CLASS 4.75 AXLES
66. SUSPENSION AXLE CYLINDERS
67. PRESSURE SENSOR - PISTON
68. OR CNH CLASS 5 AXLES
69. SUSPENSION AXLE CYLINDERS
70. ROD
71. PISTON

RAC47605415
SHEET 5 OF 6

Order the manual at mid-west-tech.com >