SERVICE MANUAL

T8.320 / T8.350 / T8.380 / T8.410 / T8.435 Continuously Variable Transmission (CVT)

Tractor

PIN ZERE04800 and above

Part number 47685455
1st edition English
May 2014

MidWestTech | New Holland T8.320, T8.350, T8.380, T8.410, T8.435 CVT Tractor Service Manual | Publication 47685455

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

[10.202] Air cleaners and lines 10.3

[10.216] Fuel tanks 10.4

[10.218] Fuel injection system 10.5

[10.304] Engine lubrication system 10.6

[10.310] Aftercooler 10.7

[10.400] Engine cooling system 10.8

[10.414] Fan and drive 10.9

[10.500] Selective Catalytic Reduction (SCR) exhaust treatment 10.10

Power coupling 19

[19.100] Drive shaft 19.1

[19.110] Flywheel damper 19.2

[19.120] Drive shaft shield assembly 19.3

Transmission 21

[21.504] Continuously Variable Transmission (CVT) 21.1

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

[21.506] Continuously Variable Transmission (CVT) lubrication system 21.3

[21.507] Continuously Variable Transmission (CVT) internal components 21.4

[21.900] Hydraulic pump drive 21.5

Four-Wheel Drive (4WD) system 23

[23.202] Electro-hydraulic control 23.1

[23.314] Drive shaft 23.2

Front axle system 25

MidWestTech | New Holland T8.320, T8.350, T8.380, T8.410, T8.435 CVT Tractor Servi... Order the manual at mid-west-tech.com >

[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
[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

MidWestTech | New Holland T8.320, T8.350, T8.380, T8.410, T8.435 CVT Tractor Servi... Order the manual at mid-west-tech.com >

[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

[41.101] Steering control 41.1

[41.200] Hydraulic control components 41.2

[41.206] Pump 41.3

Wheels 44

[44.520] Rear wheels 44.1

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

[55.010] Fuel injection system 55.1

[55.012] Engine cooling system 55.2

[55.014] Engine intake and exhaust system 55.3

[55.024] Transmission control system 55.4

[55.045] Front axle control system 55.5

[55.046] Rear axle control system 55.6

[55.050] Heating, Ventilation, and Air-Conditioning (HVAC) control system 55.7

[55.051] Cab Heating, Ventilation, and Air-Conditioning (HVAC) controls 55.8

[55.100] Harnesses and connectors 55.9

[55.130] Rear three-point hitch electronic control system 55.10

[55.201] Engine starting system 55.11

[55.301] Alternator 55.12

[55.302] Battery 55.13

MidWestTech | New Holland T8.320, T8.350, T8.380, T8.410, T8.435 CVT Tractor Servi... Order the manual at mid-west-tech.com >

Wire harnesses - Electrical schematic sheet 18 - Autoguidance controller/Global positioning system (GPS)

Type	Component	Connector / Link	Description
ECU	A-002		TO PORT A
ECU	A-003		TO PORT B
ECU	A-004		TO RTK ANTENNA
ECU	A-010		AUTOGUIDANCE CONTROLLER
Sensor	B-061		AUTOGUIDANCE SENSOR
Relay	K-014		RIGHT STEER RELAY #29
Relay	K-015		LEFT STEER RELAY #28
Switch	S-022		MANUAL SWITCH
Connector	X-010	**X-010**	TO CAB HARNESS
Connector	X-1122	**X-1122**	AUTOGUIDANCE SENSOR
Connector	X-256	**X-256**	RELAY BLOCK
Connector	X-287A	**X-287A**	MANUAL SW
Connector	X-290	**X-290**	TO AUTOGUIDANCE HARNESS
Connector	X-295	**X-295**	TO PORT A
Connector	X-299	**X-299**	TO AUTOGUIDANCE HARNESS
Connector	X-386A	**X-386A**	TO GPS HARNESS
Connector	X-390	**X-390**	STEERING SOLENOID
Connector	X-391	**X-391**	TO RDL
Connector	X-407	**X-407**	AUTOGUIDANCE CONTROLLER
Connector	X-409A	**X-409A**	AUTOGUIDANCE CONTROLLER
Connector	X-433A	**X-433A**	TO PORT B
Connector	X-433B	**X-433B**	TO RTK ANTENNA
Connector	X-434	**X-434**	TO CAB HARNESS
Solenoid	Y-037		TO STEERING SOLENOID

MidWestTech | New Holland T8.320, T8.350, T8.380, T8.410, T8.435 CVT Tractor Service Manual | Publication 47685455

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

Selective Catalytic Reduction (SCR) temperature sensors - General specification

Grey wire	**5 V** supply
White wire	Ground
Operational current	**2.9 - 4.2 mA**
Pull-up voltage	**5 V**

Temperature	Straight sensor resistance	90 ° sensor resistance
-40 °C (-40 °F)	169.7 Ω	170.2 Ω
0 °C (32 °F)	200.5 Ω	201 Ω
25 °C (77 °F)	219.6 Ω	220.1 Ω
50 °C (122 °F)	238.5 Ω	239 Ω
100 °C (212 °F)	275.9 Ω	276.4 Ω
150 °C (302 °F)	312.7 Ω	313.2 Ω
200 °C (392 °F)	349 Ω	349.5 Ω
250 °C (482 °F)	384.6 Ω	385.1 Ω
300 °C (572 °F)	419.7 Ω	420.2 Ω
350 °C (662 °F)	454.2 Ω	454.7 Ω
400 °C (752 °F)	488.1 Ω	488.6 Ω
450 °C (842 °F)	521.4 Ω	521.9 Ω
500 °C (932 °F)	554.1 Ω	554.6 Ω
550 °C (1022 °F)	586.2 Ω	586.7 Ω
600 °C (1112 °F)	617.8 Ω	618.3 Ω
650 °C (1202 °F)	648.8 Ω	649.3 Ω
700 °C (1292 °F)	679.2 Ω	679.7 Ω
750 °C (1382 °F)	709 Ω	709.5 Ω

MidWestTech | New Holland T8.320, T8.350, T8.380, T8.410, T8.435 CVT Tractor Servi... Order the manual at mid-west-tech.com >

Check connector H9 for remote levers 3 and 4.

Check that the connector is not damaged, the pins are in the correct position and that the fit is tight.

Check the harness wires for damage.

A. Connection or damage problem found. Tighten, repair or replace as required. Return unit to field operation.

B. Connection or damage problem not found. Continue with step **4**.

4. Check the armrest controller configuration.

   Check the armrest controller has been configured correctly with the EST. The controller must be configured for the options installed on the tractor.

   A. Controller not configured correctly. Configure the armrest controller correctly. Return unit to field operation.

   B. Controller configured correctly. Continue to step **5**.

5. Check if other armrest related error codes are active.

   A. Other 18000 series fault codes are active. Replace the armrest controller. Configure the armrest controller. Return unit to field operation.

   B. Other 18000 series fault codes are not active. Continue with step **6**.

6. Replace the remote lever assembly.

   Test system operation.

   A. Fault code does not redisplay. Return unit to field operation.

   B. Fault code redisplays. Replace the armrest controller. Configure the armrest controller. Return unit to field operation.

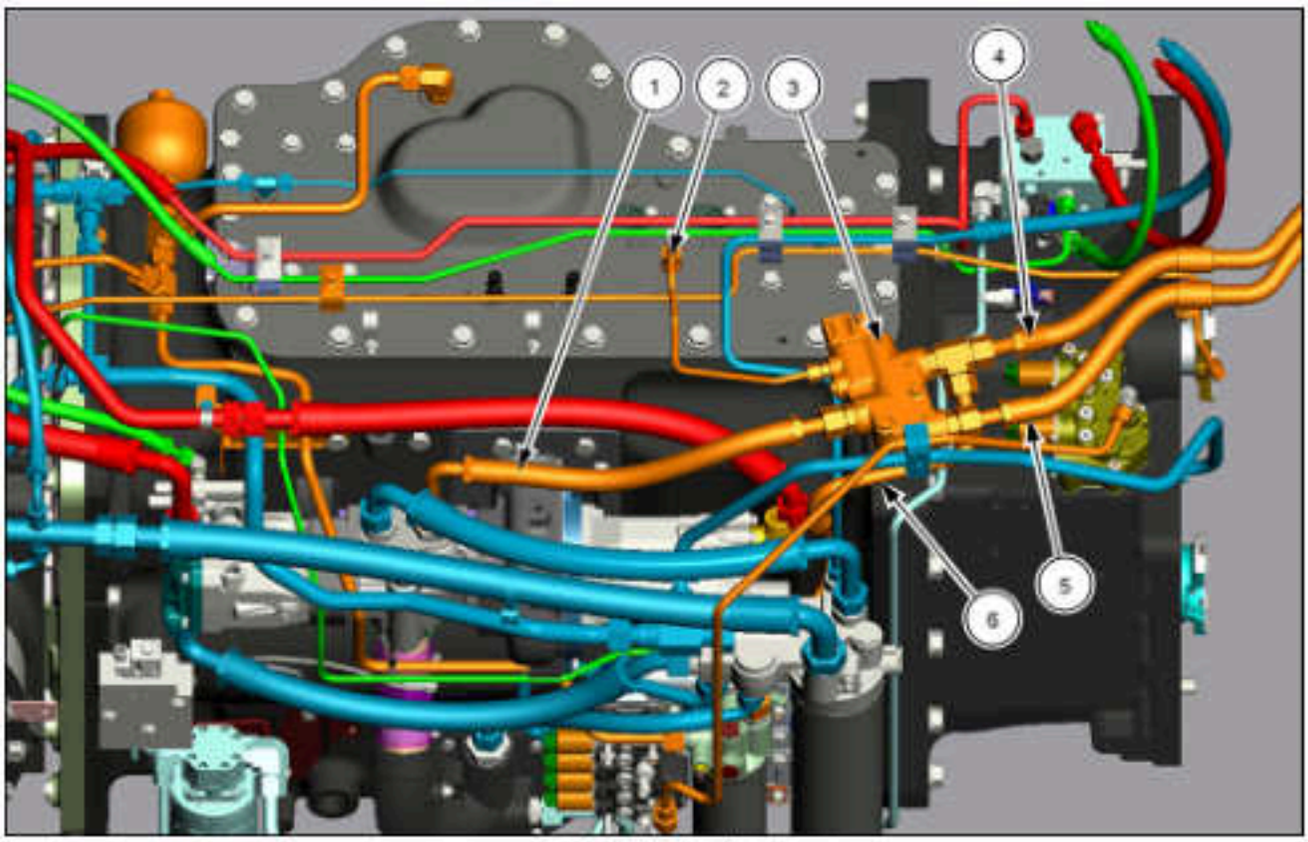
MidWestTech | New Holland T8.320, T8.350, T8.380, T8.410, T8.435 CVT Tractor Servi... Order the manual at mid-west-tech.com >

Oil cooler/Heat exchanger Bypass valve - Dynamic description

The cooler bypass valve is located on the top of the transmission housing, above the main filter assembly.

All regulated circuit pump flow is directed to the cooler bypass valve inlet. The Tractor Control Unit (TCU) controls the cooler bypass valve function based on transmission oil temperature.

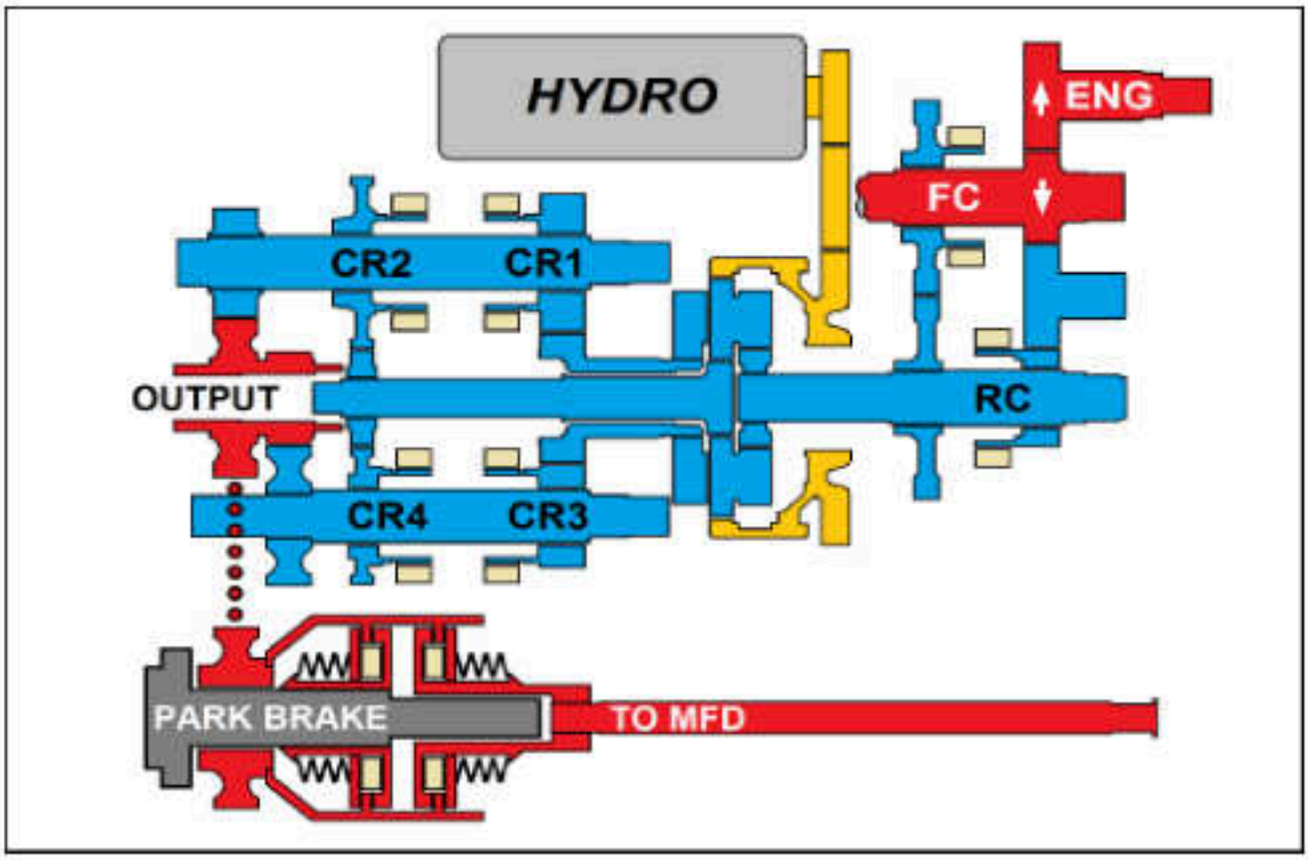
When the transmission oil temperature is below a preset limit, the cooler bypass solenoid valve will be energized. When energized most of the supply flow will bypass the cooler. When the oil temperature exceeds the preset limit, the cooler bypass solenoid will be de-energized by the tractor control unit (TCU), now all of the flow entering the bypass valve to be directed through the oil cooler.



RAIL13TR83774FA 1

1. Regulated supply to cooler bypass valve	4. Cooler return line
2. Cooler bypass drain	5. Cooler supply line
3. Cooler bypass valve	6. Cooler bypass to regulated filter assembly

MidWestTech | New Holland T8.320, T8.350, T8.380, T8.410, T8.435 CVT Tractor Servi... Order the manual at mid-west-tech.com >



RAIL1STR34088PA 7

Park position with Mechanical Front Drive (MFD) engaged

Torque transmitting/clutch pressurized	HSU driven
Non-torque transmitting	Clutch not pressurized

In park, no drive clutches are engaged, but the park brake is; and this locks the output shaft of the transmission. If the Mechanical Front Drive (MFD) clutch is not released, braking is also through the front axle.

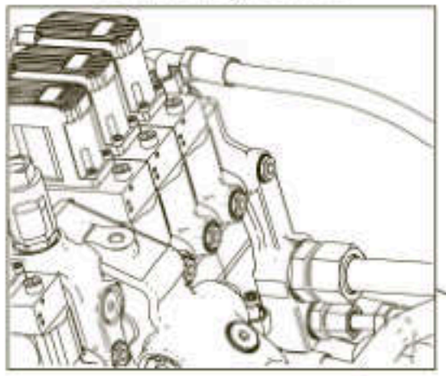
The HSU motor drives the large compound planetary ring gear. By varying the speed of the ring gear, the output speed of the planetary system is varied. The engine drives the input sun in the planetary system through the forward or reverse clutch.

The dual output planetary; one output from the planetary carrier, the other from the output sun gear shaft drives two range shafts containing the four range clutches.

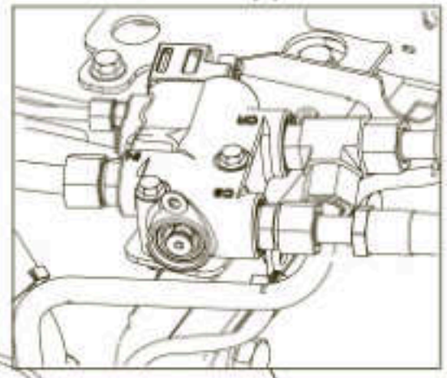
As the vehicle speed increases, the clutches alternate between the planetary outputs and range shafts to ensure seamless shifts and constant transmission output speed increase. The pump swashes back and forth as the clutches are shifted. The TCU calculates when the off-going and the on-coming clutches are speed matched so there is minimal slipping of the clutches during transition. One of the two range shafts then drives the transmission output shaft, depending on which clutch is selected.

MidWestTech | New Holland T8.320, T8.350, T8.380, T8.410, T8.435 CVT Tractor Servi... Order the manual at mid-west-tech.com >

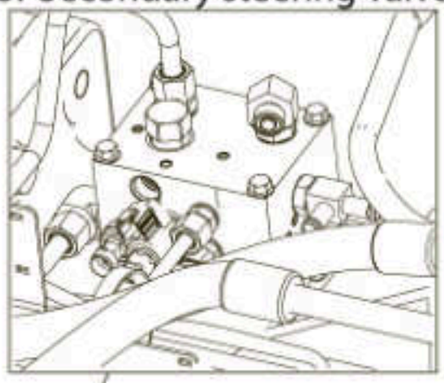
1. Priority valve



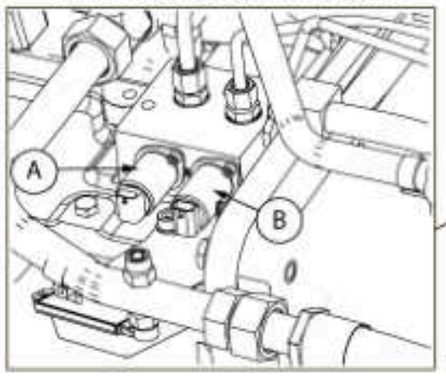
2. Oil cooler bypass valve

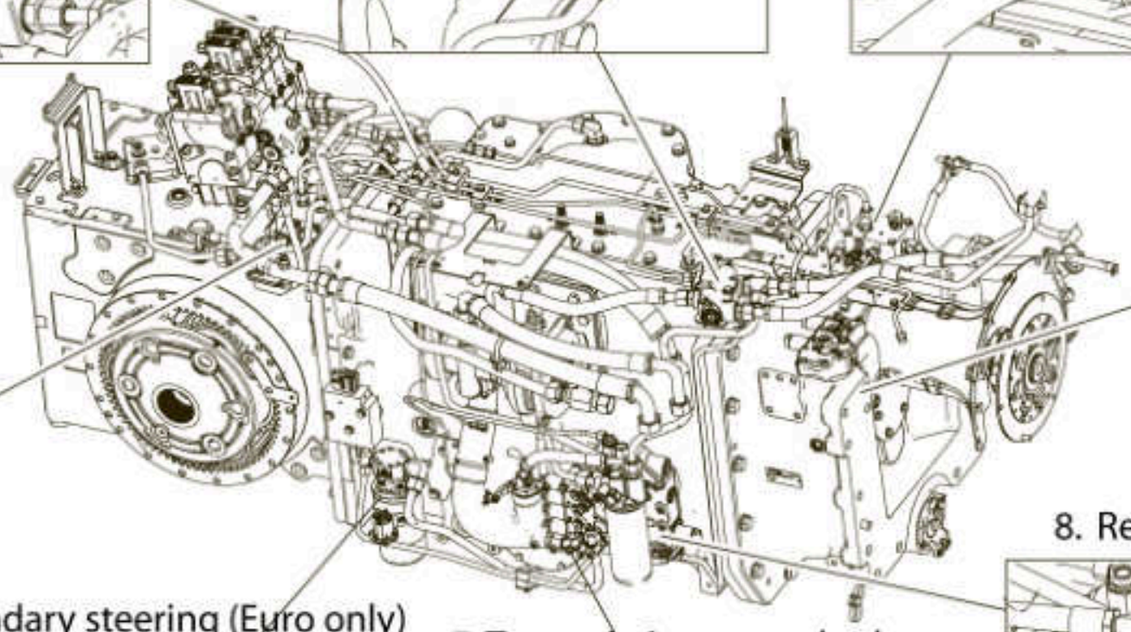


3. Secondary steering valve (Euro only)

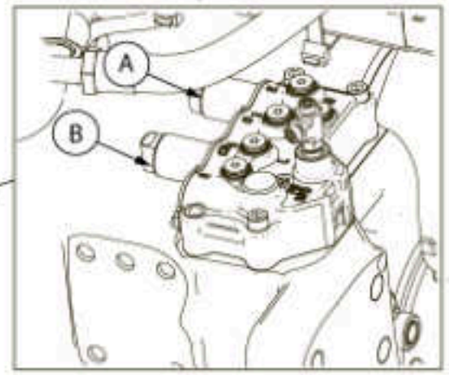


4. Rear PTO brake
MFD Differential lock

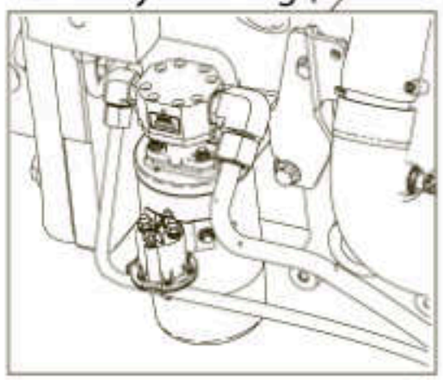




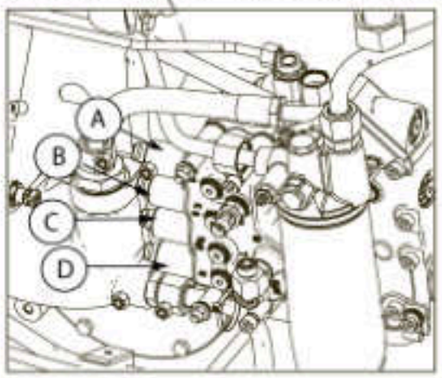
5. Forward/Reverse valve



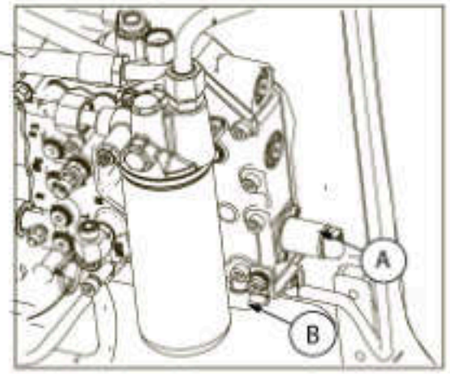
6. Secondary steering (Euro only)



7. Transmission control valve



8. Regulator valve



RAIL137R03382UA 1

MidWestTech | New Holland T8.320, T8.350, T8.380, T8.410, T8.435 CVT Tractor Service Manual | Publication 47685455
Order the manual at mid-west-tech.com >