SERVICE MANUAL

T8.320 / T8.350 / T8.380 / T8.410 / T8.380 SmartTrax™ / T8.410 SmartTrax™

Powershift Transmission (PST)

Tractor

PIN ZGRE05001 and above; PIN ZHRE01013 and above

Part number 48123737
1st edition English
April 2017

NEW HOLLAND AGRICULTURE

© 2017 CNH Industrial 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

[10.202] Air cleaners and lines 10.3

[10.206] Fuel filters 10.4

[10.216] Fuel tanks 10.5

[10.218] Fuel injection system 10.6

[10.254] Intake and exhaust manifolds and muffler 10.7

[10.304] Engine lubrication system 10.8

[10.310] Aftercooler 10.9

[10.400] Engine cooling system 10.10

[10.414] Fan and drive 10.11

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

[21.105] Powershift transmission hydraulic components 21.1

[21.113] Powershift transmission 21.2

[21.135] Powershift transmission external controls 21.3

[21.155] Powershift transmission internal components 21.4

[21.200] Dropbox 21.5

[21.900] Hydraulic pump drive 21.6

Four-Wheel Drive (4WD) system 23

[23.202] Electro-hydraulic control 23.1

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

[23.314] Drive shaft 23.2

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

[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

[27.610] Rear axle track yoke assembly 27.4

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

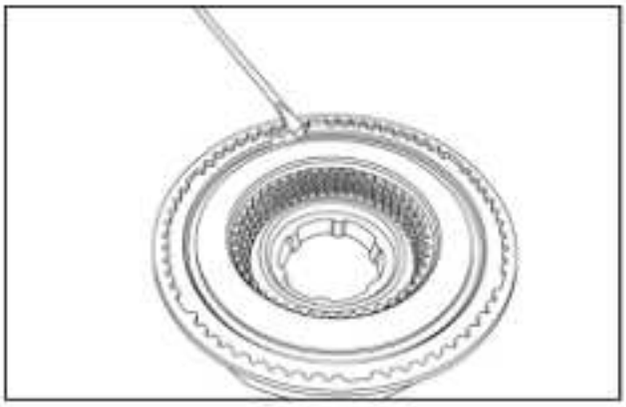
[35.204] Remote control valves 35.6

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

[35.300] Reservoir, cooler, and filters 35.7
[35.304] Combination pump units 35.8
Hitches, drawbars, and implement couplings 37
[37.110] Rear three-point hitch 37.1
[37.162] Front hitch 37.2
Frames and ballasting 39
[39.100] Frame 39.1
Steering 41
[41.101] Steering control 41.1
[41.200] Hydraulic control components 41.2
[41.206] Pump 41.3
[41.432] Autoguidance steering 41.4
Wheels 44
[44.520] Rear wheels 44.1
Tracks and track suspension 48
[48.100] Tracks 48.1
[48.130] Track frame and driving wheels 48.2
[48.134] Track tension units 48.3
[48.138] Track rollers 48.4
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
[55.000] Electrical system 55.1
[55.010] Fuel injection system 55.2
[55.012] Engine cooling system 55.3

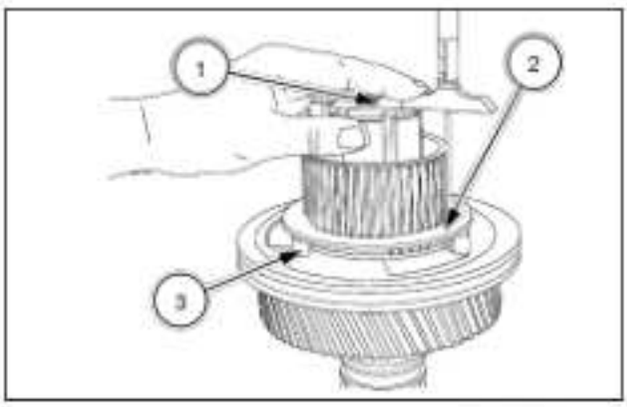
MidWestTech | New Holland T8.320, T8.350, T8.380, T8.410, T8.435 CVT Tractor Servi... Order the manual at mid-west-tech.com >

40. Install the snap ring.



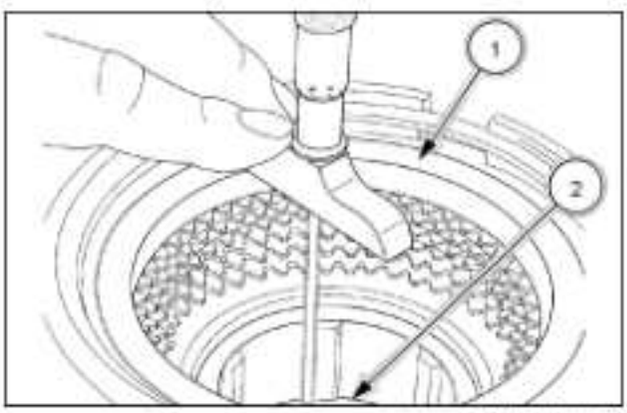
RAIL15TR00893AA 39

41. With a depth micrometer, measure the distance from the top of the hub **(1)** to the top of the pusher plate **(2)** at each pin **(3)**. Average the three measurements. Record this measurement as dimension "A."



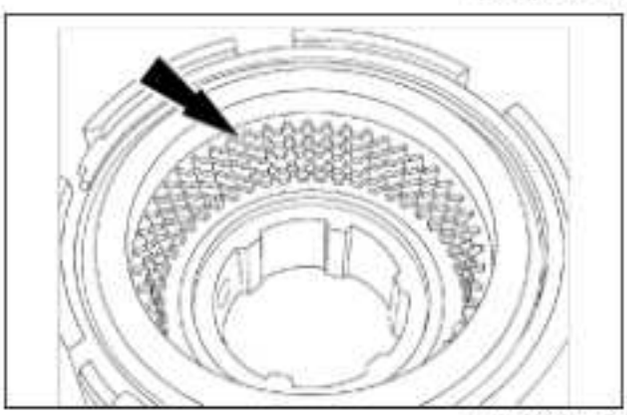
RAIL15TR00894AA 40

42. With a depth micrometer, measure the distance from the top surface of the backing plate **(1)** to the bottom of the can hub **(2)** at three locations. Average these three measurements. Record this measurement as dimension "B."
    - If dimension "A" minus dimension "B" is less than or equal to **11.235 mm** (**0.442 in**), proceed to the next step.
    - If dimension "A" minus dimension "B" is greater than **11.235 mm** (**0.442 in**), remove the **3.5 mm** (**0.138 in**) brake pusher plate installed in Step **33** and replace with **3 mm** (**0.118 in**) brake pusher plate 87366284.



RAIL15TR00895AA 41

43. Align the teeth of the friction plates as shown.



RAIL15TR00902AA 42

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

Wiring harnesses - Electrical schematic sheet 01 - Power and starting circuit

Component ID	Description
F-9100	Fuse, 5A
F-9101	Fuse, 30A
F-9102	Fuse, 5A
F-9103	Fuse, 5A
F-9104	Fuse, 10A
F-9105	Fuse, 5A
GND-9101	Ground
GND-9103	Ground
GND-9104	Ground
K-9102[1] [2] [3]	Main relay or shunt
K-9103	Relay
K-9104	Starter control relay
K-9105	Starter relay
K-9106[3]	Afterrun disconnection relay
M-9101	Starter motor
S-9100	Battery disconnect switch
S-9103	Key switch
V-9100[3]	Diode

[1]Early machines will have relay K-9102.
[2]Re-configuration of the electrical supply wiring to the ECU replaced K-9102 with a shunt on some machines.
[3]Later machines will not have K-9102, K-9106 or V-9100. ECU supply will be wired directly from F-9101 to ECU.

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

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

B. Error code redisplays. Continue to step **6**.

6. Swap the pilot head causing the error with another pilot head.

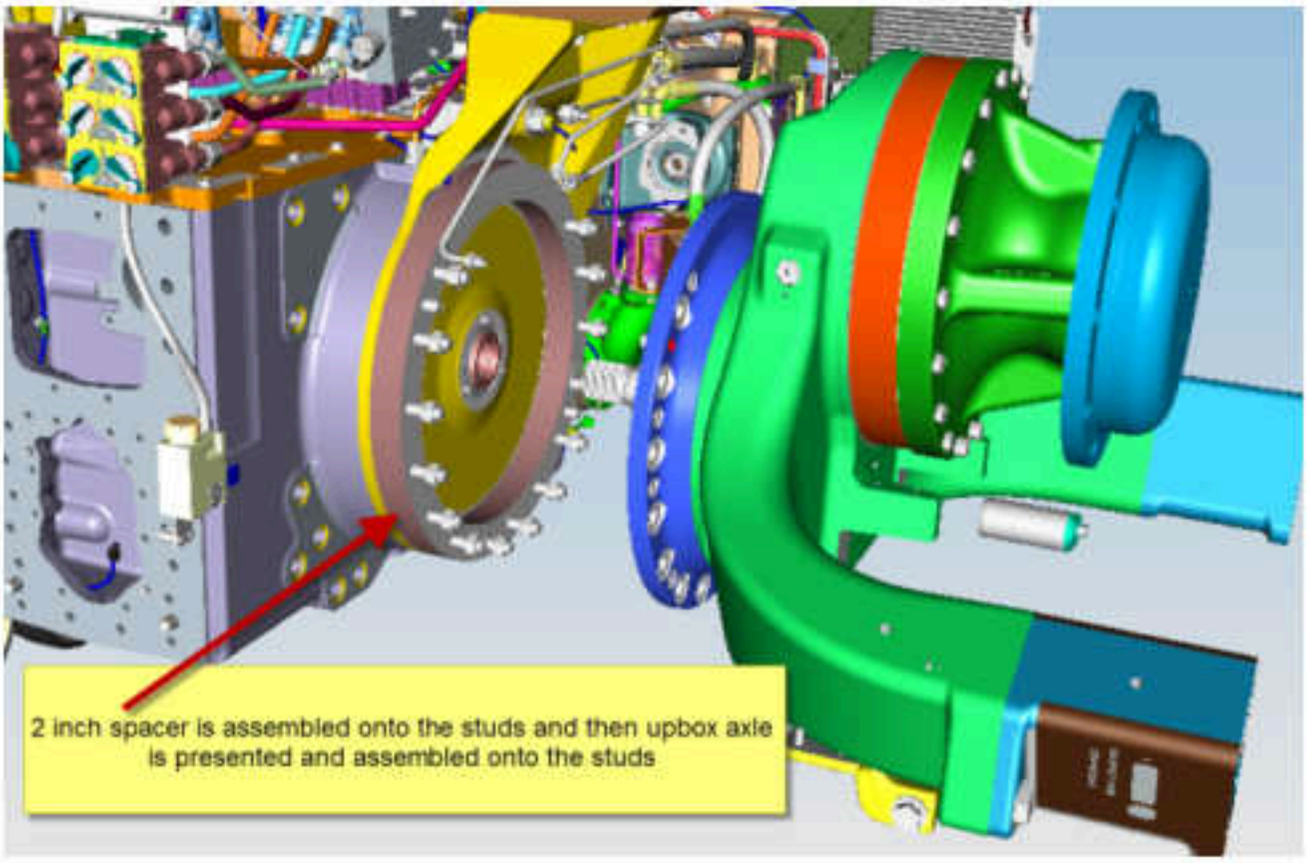
   Retest system operation.

   A. Error code follows the pilot head move. Replace the pilot head. Return unit to field operation.

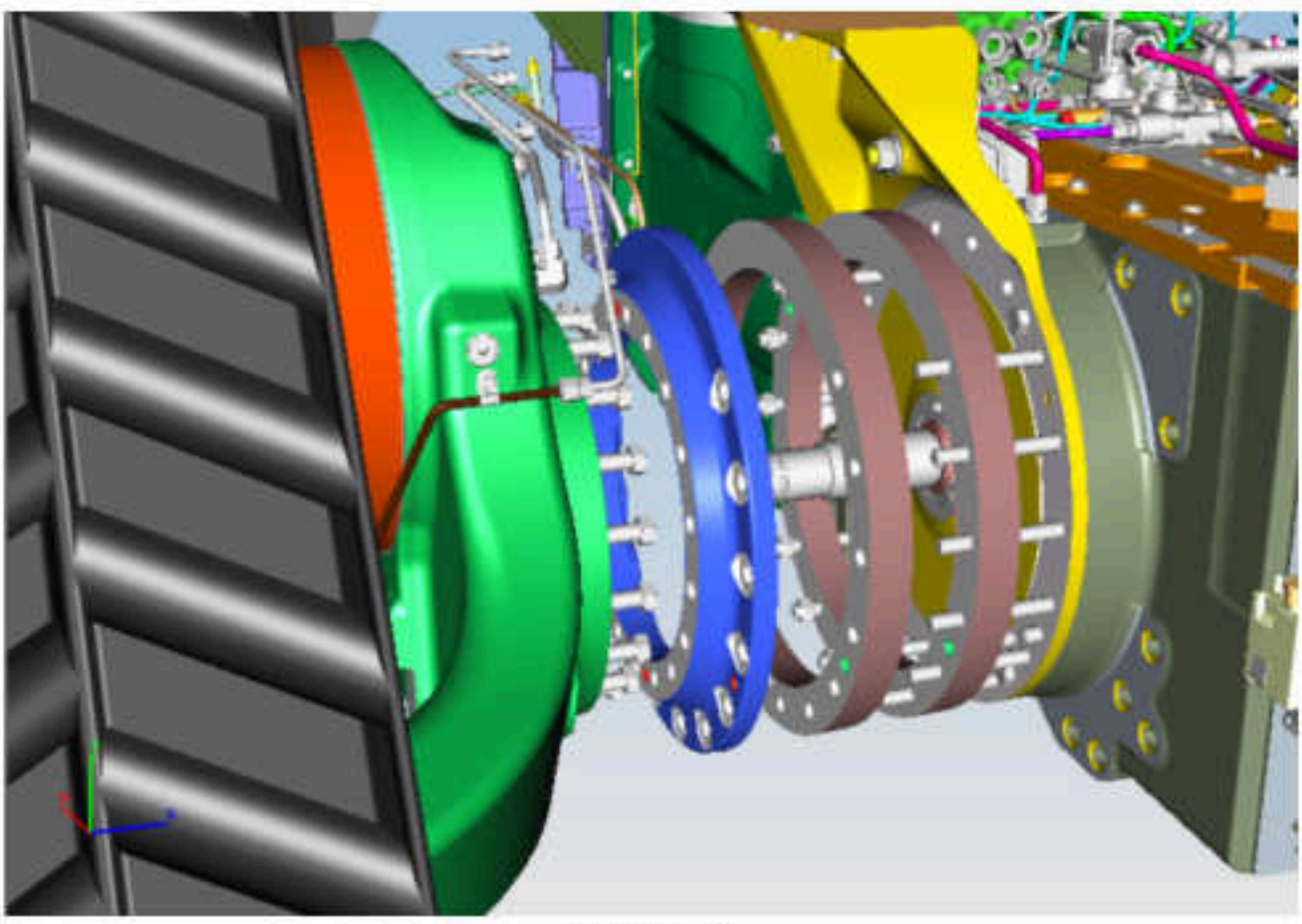
   B. Error code does not follow the pilot head move. Return the pilot heads to their original location and submit a concern to ASIST.

Wiring harnesses - Electrical schematic sheet 22 - Auxiliary remote valves (55.100.DP-C.20.E.22)
Wiring harnesses - Electrical schematic sheet 44 - Secondary CAN bus (55.100.DP-C.20.E.44)

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



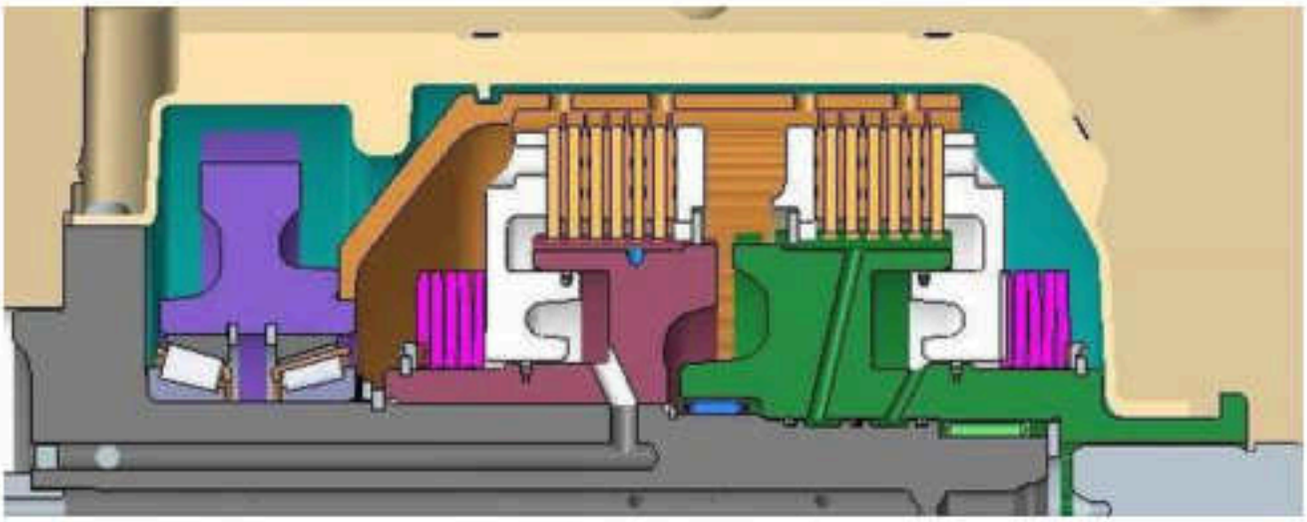
RAIL1STR01619UA 10



RAIL1STR01620UA 11

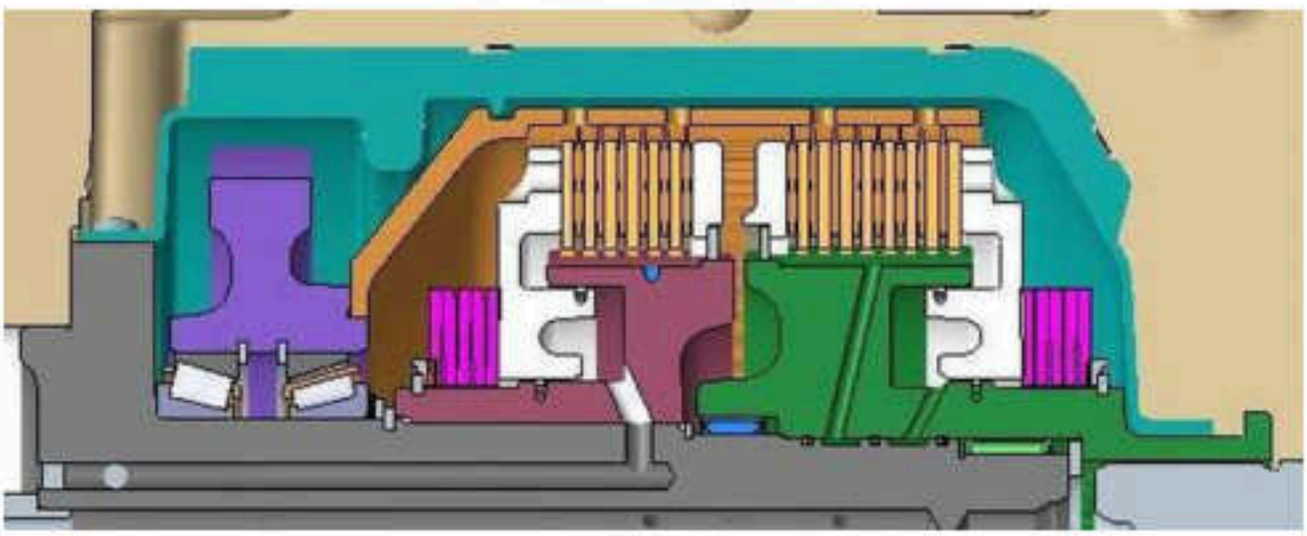
2032 mm (80 in) tread spacing

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



RAIL1STR01693TA 4

Park brake 12 bolt front axle



RAIL1STR01691TA 5

Park brake class 5.0 front axle

Model	T8.320	T8.350	T8.380	T8.410
PTO Hp	205	235	265	290
No. of friction plates	6			6
Friction plate	Standard			Heavy duty
Belleville spring	Standard			Standard
# of Belleville springs	5			5

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

Hydraulic schematic 47904542 — Sheet 2— PowershiftTransmission. Optional mega flow

	PFC PISTON PUMP
	REGULATED CIRCUIT PRESSURE
	CHARGE / LUBE PUMP FLOW
	RETURN TO TANK / SUMP
	OIL COOLER / FILTRATION AUX. CHARGE PUMP FLOW
	TWIN FLOW PUMP MEGA FLOW PUMP

1. REMOTE SECTION	33. INLET BRAKE VALVE
2. LOAD SENSE DIAGNOSTIC	34. PRIORITY REGULATOR VALVE T8.380 and T8.410 only See sheet 4 or 5 for other models.
3. PILOT / HITCH DRAIN	35. THERMAL BYPASS VALVE
4. PILOT SUPPLY	36. OIL COOLER
5. RETURN	37. LUBE REGULATOR
6. SUPPLY	38. PRESSURE AND FLOW COMPENSATED (PFC) PISTON PUMP
7. HITCH VALVE	39. FILTER
8. CATEGORY 4 HITCH	40. PTO CLUTCH LUBE
9. HITCH CYLINDERS	41. ODD / EVEN LUBE
10. RETURN	42. DROP BOX LUBE
11. SUPPLY	43. CREEP DRIVE LUBE
12. SIGNAL	44. MASTER CLUTCH LUBE
13. CASE DRAIN	45. RIGHT BRAKE / DIFFERENTIAL LUBE
14. POWER BEYOND MANIFOLD (OPTIONAL)	46. MFD / RANGE LUBE
15. PTO / DIFFERENTIAL LOCK VALVE	47. LEFT BRAKE / DIFFERENTIAL LUBE
16. PTO CLUTCH / BRAKE	48. TO PARK BRAKE VALVE SOLENOID
17. DIFFERENTIAL LOCK CLUTCH	49. SERVICE BRAKE
18. BEVEL PINION LUBE	50. MASTER CLUTCH
19. LUBE SUPPLY	51. INLET
20. MFD CLUTCH	52. MASTER CLUTCH INCHING VALVE
21. LOW CLUTCH	53. PARK / EMERGENCY BRAKE
22. MEDIUM CLUTCH	54. BRAKE RELEASE PUMP
23. HIGH CLUTCH	55. STEERING HAND PUMP
24. REVERSE CLUTCH	56. STEERING CYLINDERS
25. FIFTH CLUTCH	57. BYPASS VALVE
26. THIRD CLUTCH	58. BRAKE VALVE
27. FIRST CLUTCH	59. NOTE: SWITCH IS OPENED WHEN PEDAL REACHES FULL STROKE WHEN HYDRAULIC POWER IS LOST
28. EVEN CLUTCH	60. ACCUMULATOR
29. ODD CLUTCH	61. TWINFLOW PUMP MEGAFLOW PUMP
30. CREEPER CLUTCH	62. TWINFLOW MANIFOLD PLUGS MEGAFLOW MANIFOLD PLUGS
31. TRANSMISSION CONTROL VALVES	63. NOT USED
32. PARK CLUTCH	64. MARKER DRAIN

MidWestTech | New Holland T8.320, T8.350, T8.380, T8.410, T8.435 CVT Tractor Service Manual | Publication 48123737
Order the manual at mid-west-tech.com >