SERVICE MANUAL

T7.175 / T7.190 / T7.195 / T7.205

Tractor

Part number 47770506

English

December 2015

NEW HOLLAND AGRICULTURE

© 2015 CNH Industrial Latin America LTDA. All Rights Reserved.

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

Contents

INTRODUCTION

Engine 10

[10.001] Engine and crankcase 10.1

[10.103] Crankshaft and flywheel 10.2

[10.216] Fuel tanks 10.3

[10.250] Turbocharger and lines 10.4

[10.254] Intake and exhaust manifolds and muffler 10.5

[10.400] Engine cooling system 10.6

Clutch 18

[18.104] Clutch hydraulic release control 18.1

[18.110] Clutch and components 18.2

Transmission 21

[21.111] Semi-Powershift transmission 21.1

[21.133] Semi-Powershift transmission external controls 21.2

[21.152] Semi-Powershift transmission internal components 21.3

[21.160] Creeper 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

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

MidWestTech | New Holland T7.175, T7.190, T7.195, T7.205 Tractor Service Manual |... Order the manual at mid-west-tech.com >

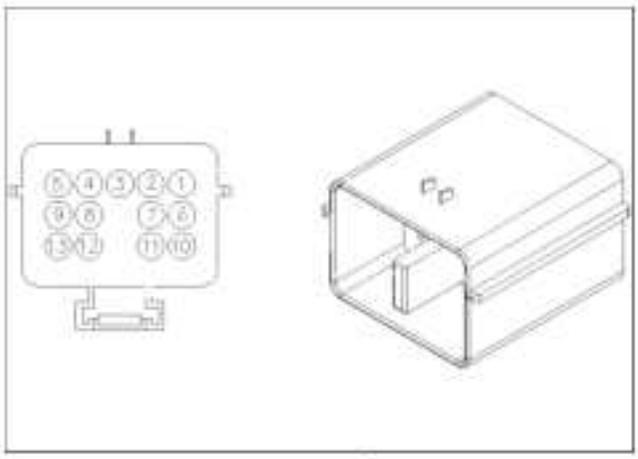
Power Take-Off (PTO) 31
[31.104] Rear electro-hydraulic control 31.1
[31.114] Two-speed rear Power Take-Off (PTO) 31.2
Brakes and controls 33
[33.202] Hydraulic service brakes 33.1
[33.300] Pneumatic service brakes 33.2
[33.110] Parking brake or parking lock 33.3
Hydraulic systems 35
[35.000] Hydraulic systems 35.1
[35.106] Variable displacement pump 35.2
[35.102] Pump control valves 35.3
[35.105] Charge pump 35.4
[35.204] Remote control valves 35.5
[35.114] Three-point hitch control valve 35.6
[35.116] Three-point hitch cylinder 35.7
Pneumatic system 36
[36.100] Pneumatic system 36.1
Hitches, drawbars, and implement couplings 37
[37.100] Drawbars and towing hitches 37.1
[37.110] Rear three-point hitch 37.2
Frames and ballasting 39
[39.100] Frame 39.1
[39.140] Ballasts and supports 39.2
Steering 41
[41.101] Steering control 41.1
[41.106] Tie rods 41.2
[41.200] Hydraulic control components 41.3

MidWestTech | New Holland T7.175, T7.190, T7.195, T7.205 Tractor Service Manual |... Order the manual at mid-west-tech.com >

[41.206] Pump 41.4
[41.216] Cylinders 41.5
Wheels 44
[44.511] Front wheels 44.1
[44.520] Rear wheels 44.2
Cab climate control 50
[50.100] Heating 50.1
[50.104] Ventilation 50.2
[50.200] Air conditioning 50.3
Electrical systems 55
[55.100] Harnesses and connectors 55.1
[55.302] Battery 55.2
[55.640] Electronic modules 55.3
[55.045] Front axle control system 55.4
[55.130] Rear three-point hitch electronic control system 55.5
[55.DTC] FAULT CODES 55.6
Platform, cab, bodywork, and decals 90
[90.150] Cab 90.1
[90.151] Cab interior 90.2
[90.100] Engine hood and panels 90.3
[90.102] Engine shields, hood latches, and trims 90.4

MidWestTech | New Holland T7.175, T7.190, T7.195, T7.205 Tractor Service Manual |... Order the manual at mid-west-tech.com >

X-615 - VT CONNECTOR 2 (Male)

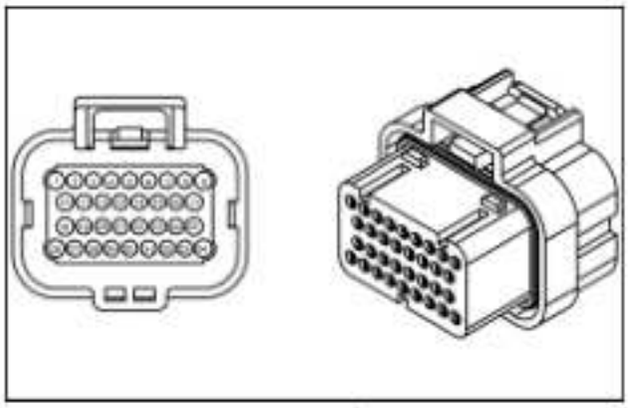


82863652 B

82863652

Pin	From	Wire	Description	Color-Size	Frame
1	SP-304B-P-X	CB-746	CB-746	GN - 0.75	**SHEET 55**
2	SP-304A-P-X	CB-747	CB-747	YE - 0.75	
3	SP-304C-P-X	CB-744	CB-744	RD - 0.75	
4	SP-304D-P-X	CB-745	CB-745	BK - 0.75	
6	SP-322A-P-X	CB-661	CB-661	RD - 0.75	**SHEET 52**
7	SP-322B-P-X	CB-663	CB-663	BL - 0.75	
8	SP-353-P-X	48	48	BL - 0.75	**SHEET 45**
11	**X-619 (Male) pin 11**	44	44	PRP - 0.75	
12	**X-619 (Male) pin 12**	14	14	RD - 0.75	
13	SP-328-P-X	56	56	BK - 0.75	

X-616 - ECU-CN1 (87410946) (Male)



87410946 B

87410946

Pin	From	Wire	Description	Color-Size	Frame
1	SP-311B-P-X	CB-465	CB-465	YE - 0.75	**SHEET 55**
2	SP-311A-P-X	CB-463	CB-463	GN - 0.75	
4	SP-324A-P-X	CB-182	CB-182	YE - 0.75	**SHEET 51**
5	SP-324B-P-X	CB-190	CB-190	GN - 0.75	
10	SP-068-P-X	CB-467	CB-467	VT - 0.75	**SHEET 49**
11	SP-075-P-X	CB-475	CB-475	BK - 1.0	**SHEET 16**
14	**X-613 (Male) pin 1** NON TECU POWER 1	CB-471	CB-471	BL - 0.75	**SHEET 49**
15	**X-613 (Male) pin 2** NON TECU POWER 1	CB-456	CB-456	OR - 0.75	
16	**X-613 (Male) pin 3** NON TECU POWER 1	CB-486	CB-486	BL - 0.75	
21	SP-067-P-X	CB-621	CB-621	BK/OR - 0.75	

MidWestTech | New Holland T7.175, T7.190, T7.195, T7.205 Tractor Service Manual |... Order the manual at mid-west-tech.com >

Battery - General specification

T7.175 With cab, 18X6, TIER 3 [HCCZ7175CECW21177 -]	LA
T7.190 With cab, 18X6, TIER 3 [HCCZ7190CECW21177 -]	LA
T7.195 With cab, 18X6, TIER 3 [HCCZ7195CECW21177 -]	LA
T7.205 With cab, 18X6, TIER 3 [HCCZ7205CECW21177 -]	LA

Temperature	Efficiency of a Fully Charged Battery
25.0 °C (77.0 °F)	**100 %.**
-4.5 °C (23.9 °F)	**82 %**
-24.0 °C (-11.2 °F)	**64 %**
-27.5 °C (-17.5 °F)	**58 %**
-31.0 °C (-23.8 °F)	**50 %**
-34.5 °C (-30.1 °F)	**40 %**
-37.5 °C (-35.5 °F)	**33 %**

	176 Ah (1300 cca)
Slow Charge Programs	**46 hrs** at **5 A**
	23 hrs at **10 A**
Fast charge Program (emergencies only)	**13 hrs** at **18 A.**

Use the following table to determine the state of charge

State of Charge	Corrected Specific Gravity @ **15 °C**	Corrected Specific Gravity @ **25 °C**	Average Battery Voltage
100 %	1.295	1.287	12.76
75 %	1.253	1.246	12.52
50 %	1.217	1.210	12.30
25 %	1.177	1.170	12.06
Discharged	1.137	1.130	11.84

Specific Gravity	Fast charge up to :
1.150 SG or less	**60 minutes**
1.151 - 1.175 SG	**45 minutes**
1.176 - 1.200 SG	**30 minutes**
1.201 - 1.225 SG	**15 minutes**
	(Slow charge only)

Description	Battery Specification
Capacity (Ampere hour at 20 hour rate)	176
Cold Cranking Ampere Rating	1300
Voltage	12
Cells	6
Ground Terminal	Negative

MidWestTech | New Holland T7.175, T7.190, T7.195, T7.205 Tractor Service Manual |... Order the manual at mid-west-tech.com >

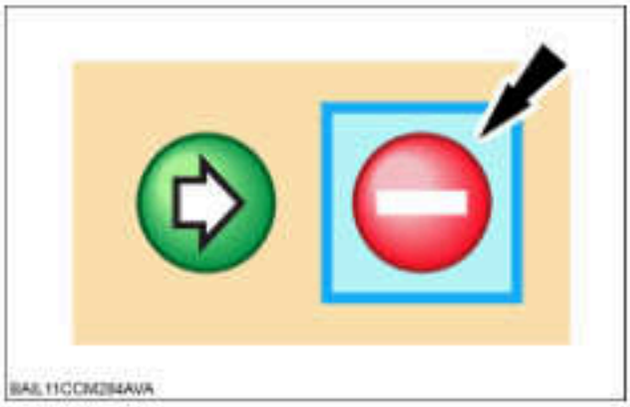
Fault code index

Message	Description	Controller
1002	Radar Disconnected	
1003	Speed Sensor Error	
1004	Wheel Speed Sensor Signal Too High	
1006	SLIP CONTROL VOLTAGE LOW (SHORT OR OPEN CIRCUIT)	
1007	SLIP CONTROL VOLTAGE HIGH (DAMAGED POTENTIOMETER OR SHORT TO +VE VOLTAGE)	
1008	RAISE/WORK SWITCH FAILURE	
1009	Both External Switches Operated At The Same Time	
1010	HEIGHT LIMIT CONTROL VOLTAGE LOW (SHORT OR OPEN CIRCUIT)	
1011	HEIGHT LIMIT CONTROL VOLTAGE HIGH (DAMAGED POTENTIOMETER OR SHORT TO +VE VOLTAGE)	
1012	DROP RATE CONTROL VOLTAGE LOW (SHORT OR OPEN CIRCUIT)	
1013	DROP RATE CONTROL VOLTAGE HIGH (DAMAGED POTENTIOMETER OR SHORT TO +VE VOLTAGE)	
1014	RIGHT HAND LOAD SENSING PIN SIGNAL TOO LOW	
1015	RIGHT HAND LOAD SENSING PIN SIGNAL TOO HIGH	
1017	LEFT HAND LOAD SENSING PIN SIGNAL TOO HIGH	
1018	BOTH LOAD SENSING PINS DISCONNECTED	
1019	Load Sensing Pin 8V Reference Voltage Too Low	
1020	Load Sensing Pin 8V Reference Voltage Too High	
1021	DRAFT SENSITIVITY CONTROL VOLTAGE LOW (SHORT OR OPEN CIRCUIT)	
1022	DRAFT SENSITIVITY CONTROL VOLTAGE HIGH (DAMAGED POTENTIOMETER OR SHORT TO +VE VOLTAGE)	
1023	Command Arm/Control Panel Disconnected	
1024	Perform The Hydraulic Lift Calibration	
1025	POSITION CONTROL POTENTIOMETER CONTROL VOLTAGE LOW (SHORT OR OPEN CIRCUIT)	
1026	POSITION CONTROL POTENTIOMETER CONTROL VOLTAGE HIGH (DAMAGED POTENTIOMETER OR SHORT TO +VE VOLTAGE)	
1027	Lift Arm Position Sensing Control Voltage Too Low	

MidWestTech | New Holland T7.175, T7.190, T7.195, T7.205 Tractor Service Manual |... Order the manual at mid-west-tech.com >

- In the **DATAR**, when the ramp test ends, press the SPACE bar to capture and keep the result line.
- Compare the **DATAR** line measured with the outcome line expected, indicated on the following Valve Test Wizard screen. (Don't forget about ALT-TAB to switch between programs)

NOTE: *During the step test, the machine software does two quick hitches of the clutch. With some clutches, you hear an audible signal.*



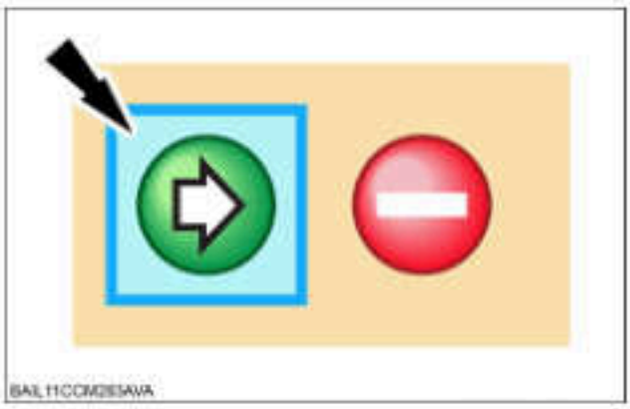
BAIL11CCM284AVA 6

NOTE: *The accumulator test can only be performed if "ACC" is selected in step 3 above. Only the downshift button (Down shift) is used in this test.*

Step 5c. Accumulator test procedure:

- In **DATAR**, in the lower left corner, make sure that the capture trigger is "ready" to start data capture. This is marked by a green ball illuminated in blue as shown in the figure on the right-hand side. If the screen is not ready, hit the SPACE bar on your keyboard to change the screen trigger status to ready.
- Press and hold the DOWN SHIFT button on the transmission shift lever to run the accumulator test. The machine display will count up from 1 to 10. When the test is complete, the display shows 'END'. This test takes about 15 seconds.

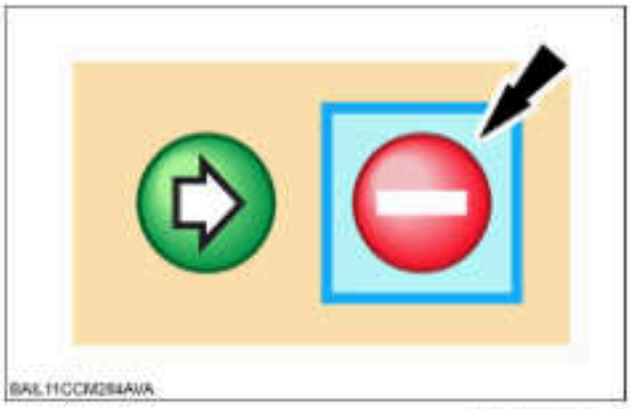
NOTE: *The accumulator test can only run if "ACC" is selected in step 3 above. Only the downshift button is used in this test.*



BAIL11CCM283AVA 7

- In the **DATAR**, when the ramp test ends, press the SPACE bar to capture and keep the result line.
- Compare the **DATAR** line measured with the outcome line expected, indicated on the following Valve Test Wizard screen. (Don't forget about ALT-TAB to switch between programs)

NOTE: *During the step test, the machine software does two quick hitches of the clutch. With some clutches, you hear an audible signal.*



BAIL11CCM284AVA 8

NOTE: *During the ACC test, the machine software does five quick hitches of clutches L, M, H.*

Step 6 . Store the waveform in **DATAR**:

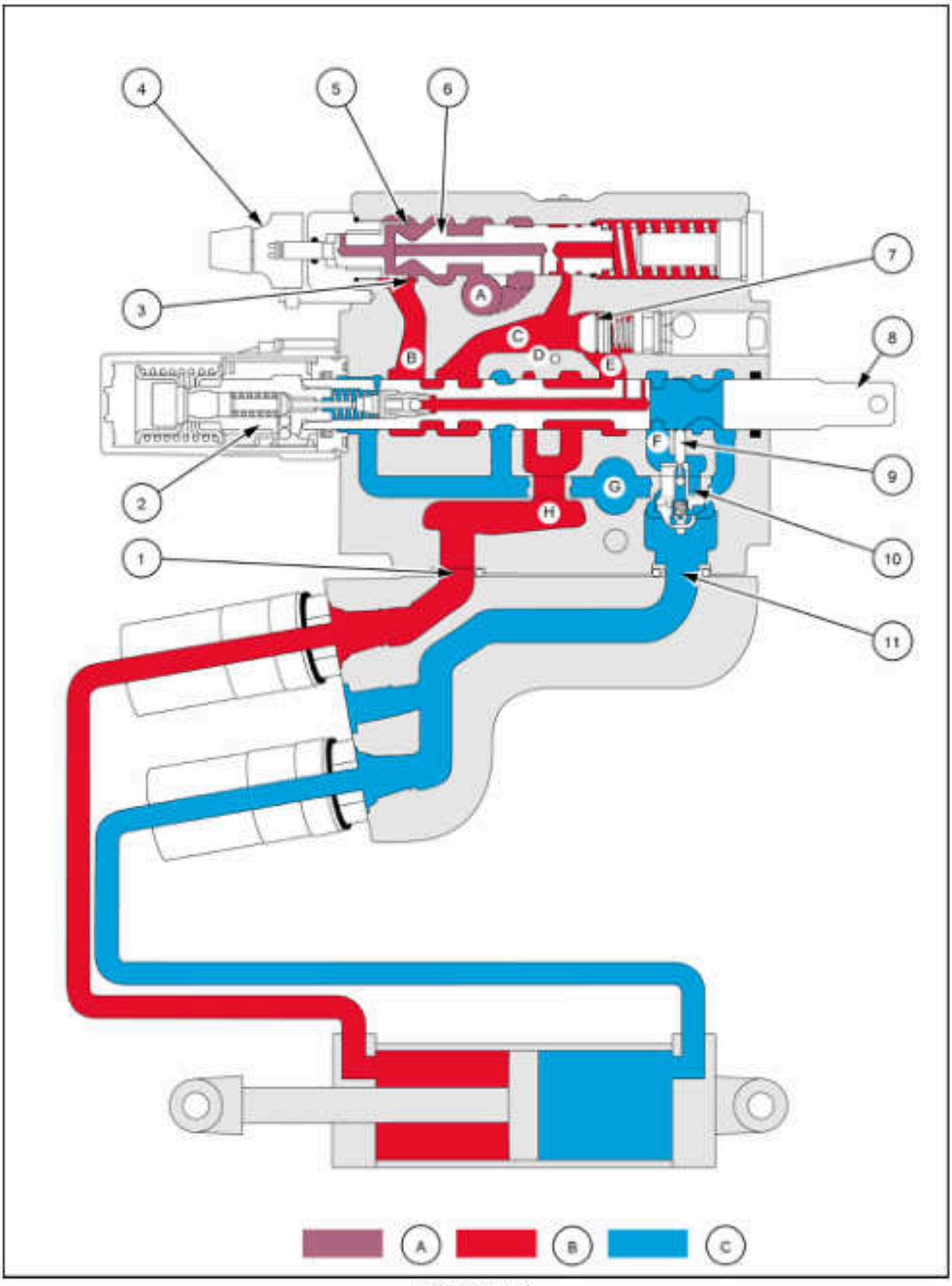
- In **DATAR**, go to the menu FILE and select one of the options SAVE to store the waveform on your PC (i.e. Save the Current Waveform).

NOTE: *The waveform should be saved so as to see these historical data in the future for this machine serial number.*

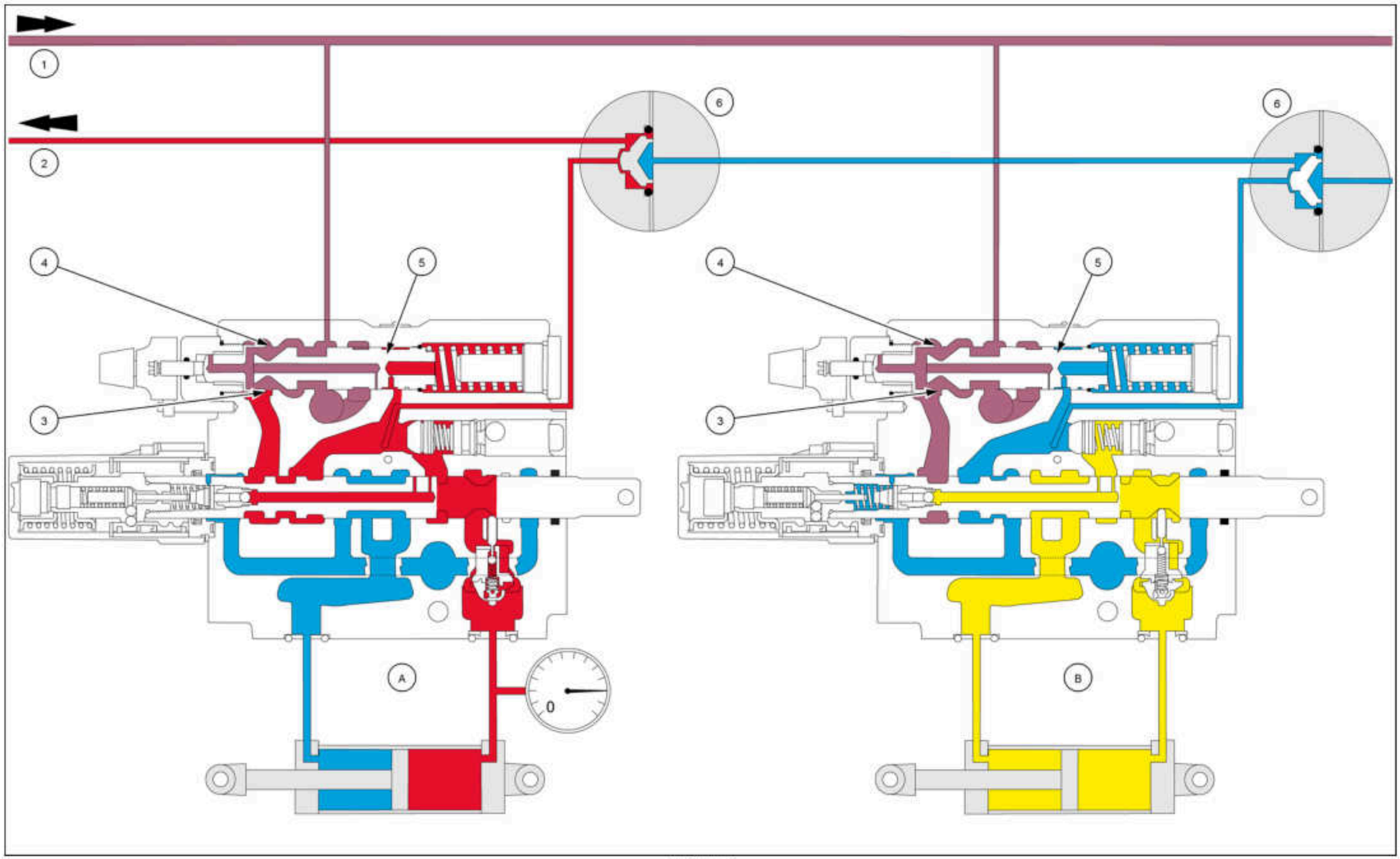
Unexpected Conditions

If the test conditions are not correct, the following error codes will be shown:

MidWestTech | New Holland T7.175, T7.190, T7.195, T7.205 Tractor Service Manual |... Order the manual at mid-west-tech.com >



MidWestTech | New Holland T7.175, T7.190, T7.195, T7.205 Tractor Service Manual |... Order the manual at mid-west-tech.com >



CUL1STR0048USA 1

MidWestTech | New Holland T7.175, T7.190, T7.195, T7.205 Tractor Service Manual | Publication 47770506
Order the manual at mid-west-tech.com >