521F
Tier 4
Wheel Loader

SERVICE MANUAL

1st edition English
January 2013

CASE CONSTRUCTION

MidWestTech | Case 521F Tier 4 Wheel Loader Service Manual | Publication 47499072

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Install 24
521F NA

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521F NA

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521F NA

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19579-CAN Receive Frame E2SCR Timeout

521F NA

Possible failure modes:

1. Controller communication error

Solution:

1. Check for other error codes being displayed. Are there other codes displayed referring to time out of communication link. Are there other can bus communication error issues.

   A. If any other error code is being displayed, continue to these tests.

   B. If no other error code is displayed, continue to step **2**

2. Ensure all connectors are secured properly on the denox module/supply module connector , the denox terminator connector (located on top right front fender) and engine control module connector . Check for damage, loose connections or broken can bus wires.

   A. A connector/wiring issue was located and corrected. Erase fault code and return unit to field operation.

   B. No connector/wiring issues were located. Continue with step**3**

3. Check the can bus terminators. Disconnect denox terminator connector . Check the terminators resistance from pin 1 to pin 2. The expected reading is **120 Ω**.

   A. Expected reading is not found. Replace denox terminator. Erase fault code and return unit to field operation.

   B. Reading is as expected. Continue with step**4**

4. Next, check the harness end resistance on the denox terminator connector from pin 1 to pin 2. This will be checking the engine control modules internal terminator. The expected reading is **120 Ω**.

   A. Expected reading not found. There may be a short to ground, or open wire between denox terminator and engine control module connector , or the engine control module terminator is faulty. Trouble shoot the wiring harness make repairs, or replace engine control module.

   B. Reading is as expected. Erase fault code. If the fault code reoccurs contact ASIST.

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3220-Bank 2 No Signal

521F NA

NOTICE: *When available use special tool 380040185 harness diagnostic/repair kit and 380040188 electro injector test fixture.*

NOTE: *See engine repair manual for electrical schematic information.*

Cause:

1. A general short circuit of the injector cable is detected over 4 camshaft revolutions.
2. Faulty reading from component.
3. Connectors not mated fully, pins not pushed into connector fully, bent pin or broken wire at rear of connector.
4. Wiring or circuits open.
5. Wiring or circuits shorted.

Solution:

1. Verify that the fault code is still active, refer to **0000 - Retrieving fault codes, Wheel Loaders**.
   Prior to clearing fault codes write down all fault codes, number of occurrences, and engine hours at last occurrence.

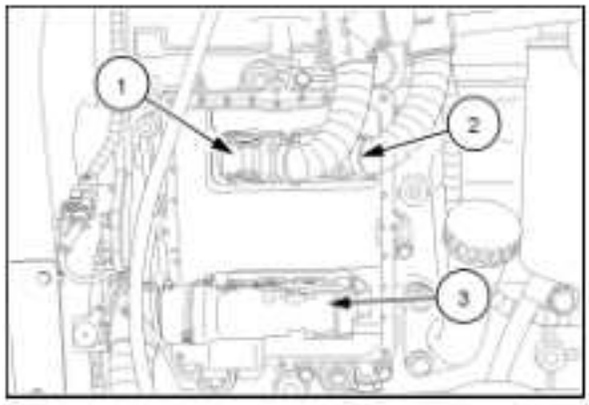
   (1) Turn ignition switch to RUN position.

   (2) Clear all fault codes.

   (3) To check for fault code: Start and operate machine.

   A. NOT OK – Fault code 3220 is recorded again. Go to Step **2**.

   B. OK – Fault is not recorded again. OK for return to service.
2. Check circuit.



(1)	Connector C
(2)	Connector A
(3)	Connector EDC7

(1) Disconnect EDC connector A from engine controller.

(2) Inspect all pins in EDC connector A and engine controller. Clean connections.

(3) Disconnect connector for cylinders 1 and 2.

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4133-Short circuit to battery voltage or open circuit at transmission sump temperature sensor input

521F NA

Cause:

1. Failed thermocouple.
2. Faulty reading from component.
3. Connectors not mated fully, pins not pushed into connector fully, bent pin or broken wire at rear of connector.
4. Wiring or circuits open.
5. Wiring or circuits shorted.

Solution:

1. Verify that the fault code is still active, refer to **0000 - Retrieving fault codes, Wheel Loaders**.
   Prior to clearing fault codes write down all fault codes, number of occurrences, and engine hours at last occurrence.

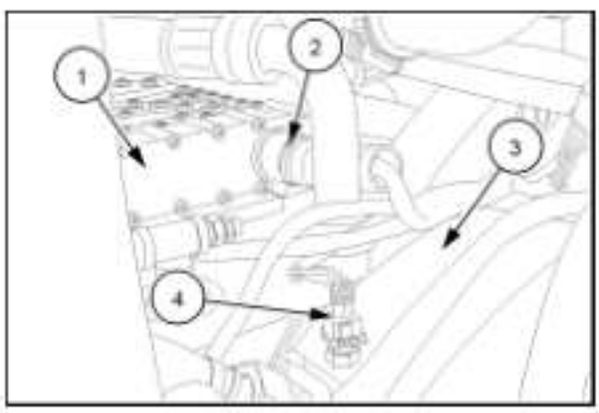
   (1) Turn ignition switch to RUN position.

   (2) Clear all fault codes.

   (3) To check for fault code: Start and operate machine.

   A. If fault code 4133 is recorded again, go to Step **2**.

   B. If the fault is not recorded again, return the unit to service.
2. Disconnect Connector TRC at the valve body.



BD67F017-01 1

(1)	Valve body
(2)	Connector TRC
(3)	Bell housing
(4)	Connector TCOT

(1) Take an Ohm reading at the valve body from pin 8 to pin 9, a reading of **988 Ω** at **27 °C** (**80.6 °F**) and **1.44 k Ω** at **80 °C** (**176.0 °F**) should be obtained.

A. If the Ohm reading is incorrect, replace the valve body, internal harness. Return to Step **1** to confirm elimination of fault.

B. If the Ohm reading is correct, go to Step .**3**.
3. Check circuit.

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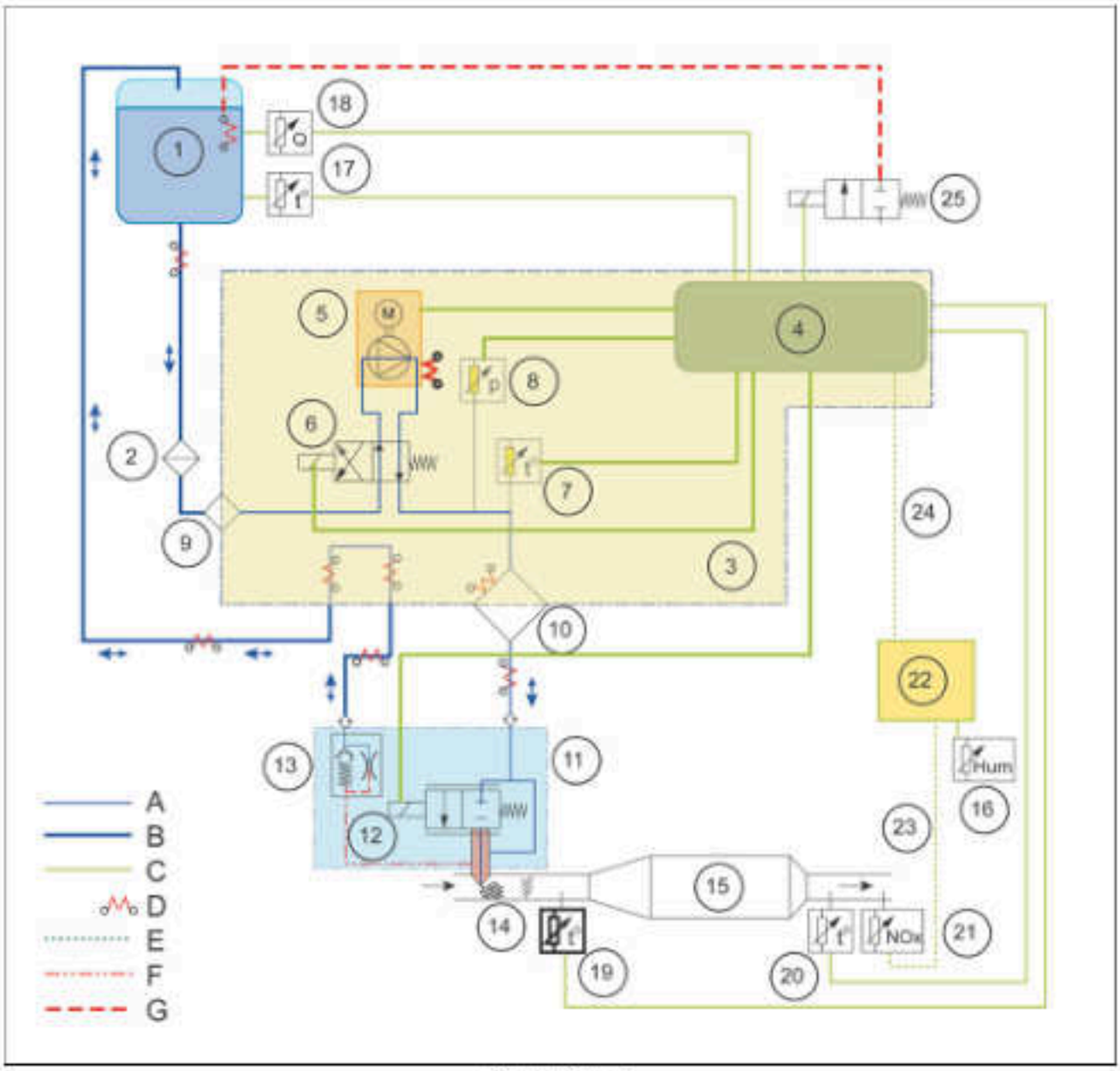
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shutdown. This after run draws the DEF fluid from the system and sends it back to tank. Do not turn the master disconnect off until the pump has stopped this after run cycle.

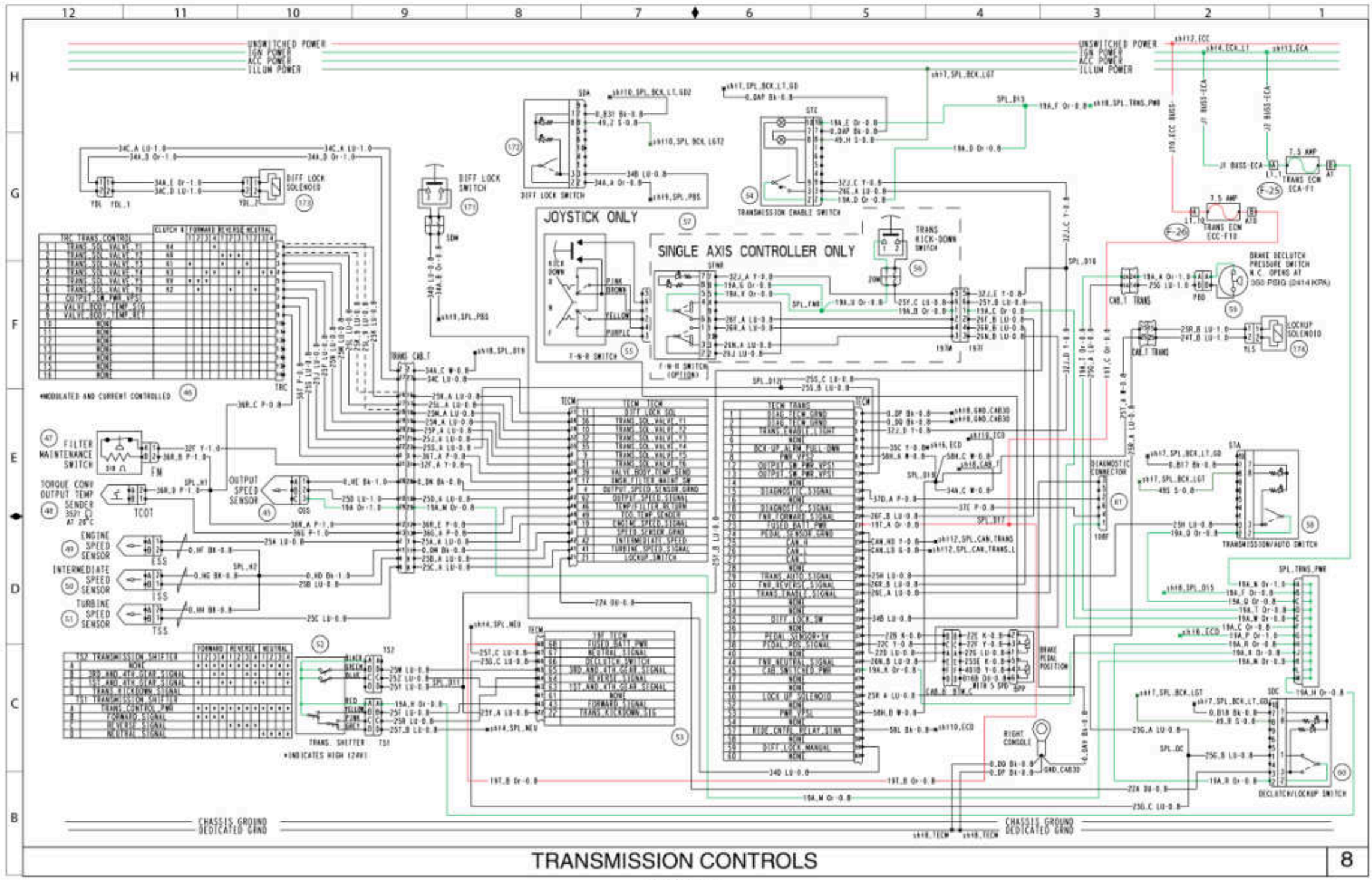


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SCR System Components

Graphic Legend	
A – DEF fluid passage	D – Heater
B – DEF fluid hose	E – CAN wire
C – Electrical wiring	F – Dosing module cooling
Components	
1 – Diesel Exhaust Fluid (DEF) tank	14 – Mixer
2 – Inline filter	15 – Catalyst
3 – Supply module	16 – Humidity sensor
4 – Denox Controller Unit (DCU)	17 – DEF tank temperature sensor
5 – Pump	18 – DEF tank level sensor
6 – Reversing valve	19 – Catalyst inlet temperature sensor
7 – DEF temperature sensor	20 – Catalyst outlet temperature sensor
8 – DEF pressure sensor	21 – NOx sensor
9 – Prefilter	22 – Engine Controller Unit (EDC7UC31)
10 – Filter	23 – CAN wire (from NOx sensor to ECU)
11 – Dosing module	24 – CAN wire (between DCU and ECU)
12 – Dosing valve	25 – DEF tank heater solenoid
13 – Return flow valve	

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TRANSMISSION CONTROLS

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