CX145D SR

Crawler Excavator

SERVICE MANUAL

Part number 51458821

English

March 2018

CASE CONSTRUCTION

MidWestTech | Case CX145D SR Crawler Excavator Service Manual | Publication 51458821

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

Contents

INTRODUCTION

Engine 10

[10.001] Engine and crankcase 10.1

[10.102] Pan and covers 10.2

[10.106] Valve drive and gears 10.3

[10.101] Cylinder heads 10.4

[10.105] Connecting rods and pistons 10.5

[10.103] Crankshaft and flywheel 10.6

[10.216] Fuel tanks 10.7

[10.206] Fuel filters 10.8

[10.218] Fuel injection system 10.9

[10.202] Air cleaners and lines 10.10

[10.250] Turbocharger and lines 10.11

[10.254] Intake and exhaust manifolds and muffler 10.12

[10.500] Selective Catalytic Reduction (SCR) exhaust treatment 10.13

[10.501] Exhaust Gas Recirculation (EGR) exhaust treatment 10.14

[10.400] Engine cooling system 10.15

[10.414] Fan and drive 10.16

[10.310] Aftercooler 10.17

[10.304] Engine lubrication system 10.18

Hydraulic systems 35

[35.000] Hydraulic systems 35.1

[35.300] Reservoir, cooler, and filters 35.2

[35.106] Variable displacement pump 35.3

[35.102] Pump control valves 35.4

[35.359] Main control valve 35.5

[35.357] Pilot system 35.6

MidWestTech | Case CX145D SR Crawler Excavator Service Manual | Publication 514... Order the manual at mid-west-tech.com >

[35.355] Hydraulic hand control 35.7
[35.356] Hydraulic foot control 35.8
[35.352] Hydraulic swing system 35.9
[35.353] Hydraulic travel system 35.10
[35.354] Hydraulic central joint 35.11
[35.736] Boom hydraulic system 35.12
[35.737] Dipper hydraulic system 35.13
[35.738] Excavator and backhoe bucket hydraulic system 35.14
[35.360] Hammer and rotating bucket hydraulic system 35.15
[35.741] Dozer blade cylinders 35.16

Frames and ballasting 39

[39.140] Ballasts and supports 39.1

Tracks and track suspension 48

[48.130] Track frame and driving wheels 48.1
[48.100] Tracks 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

Electrical systems 55

[55.000] Electrical system 55.1
[55.100] Harnesses and connectors 55.2
[55.525] Cab engine controls 55.3
[55.015] Engine control system 55.4
[55.201] Engine starting system 55.5
[55.301] Alternator 55.6
[55.302] Battery 55.7

MidWestTech | Case CX145D SR Crawler Excavator Service Manual | Publication 514... Order the manual at mid-west-tech.com >

[55.202] Cold start aid 55.8
[55.011] Fuel tank system 55.9
[55.010] Fuel injection system 55.10
[55.014] Engine intake and exhaust system 55.11
[55.988] Selective Catalytic Reduction (SCR) electrical system 55.12
[55.989] Exhaust Gas Recirculation (EGR) electrical system 55.13
[55.012] Engine cooling system 55.14
[55.013] Engine oil system 55.15
[55.640] Electronic modules 55.16
[55.512] Cab controls 55.17
[55.036] Hydraulic system control 55.18
[55.051] Cab Heating, Ventilation, and Air-Conditioning (HVAC) controls 55.19
[55.050] Heating, Ventilation, and Air-Conditioning (HVAC) control system 55.20
[55.524] Cab controls (Lift arm, Boom, Dipper, Bucket) 55.21
[55.416] Swing control system 55.22
[55.417] Travel control system 55.23
[55.530] Camera 55.24
[55.518] Wiper and washer system 55.25
[55.404] External lighting 55.26
[55.514] Cab lighting 55.27
[55.408] Warning indicators, alarms, and instruments 55.28
[55.992] Anti-theft system 55.29
[55.DTC] FAULT CODES 55.30

Booms, dippers, and buckets 84

[84.910] Boom 84.1
[84.912] Dipper arm 84.2
[84.100] Bucket 84.3

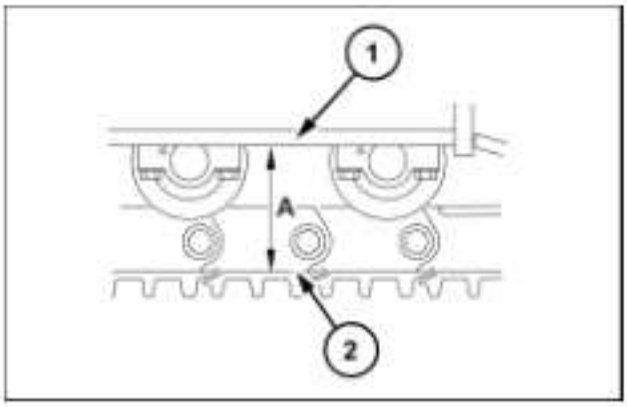
Dozer blade and arm 86

MidWestTech | Case CX145D SR Crawler Excavator Service Manual | Publication 514... Order the manual at mid-west-tech.com >

5. Adjust the tension so that the dimension A between the frame bottom **(1)** and the shoe plate top **(2)** hanging downmost may become as follows at the center of the lower side frame.
   - Iron shoe (STD): **220 – 240 mm** (**8.661 – 9.449 in**)
   - Iron shoe (LC): **260 – 280 mm** (**10.236 – 11.024 in**)
   - Link chain (STD): **200 – 220 mm** (**7.874 – 8.661 in**)
   - Link chain (LC): **240 – 260 mm** (**9.449 – 10.236 in**)

   On solid ground, it is best to allow a little more tension (a little less slack) as compared with the above values.

   On soft ground, sand, or ground with lots of gravel and cobbles, it is best to allow a little less tension (a little more slack) as compared with the above values.



SMLI5CEX7126AB 5

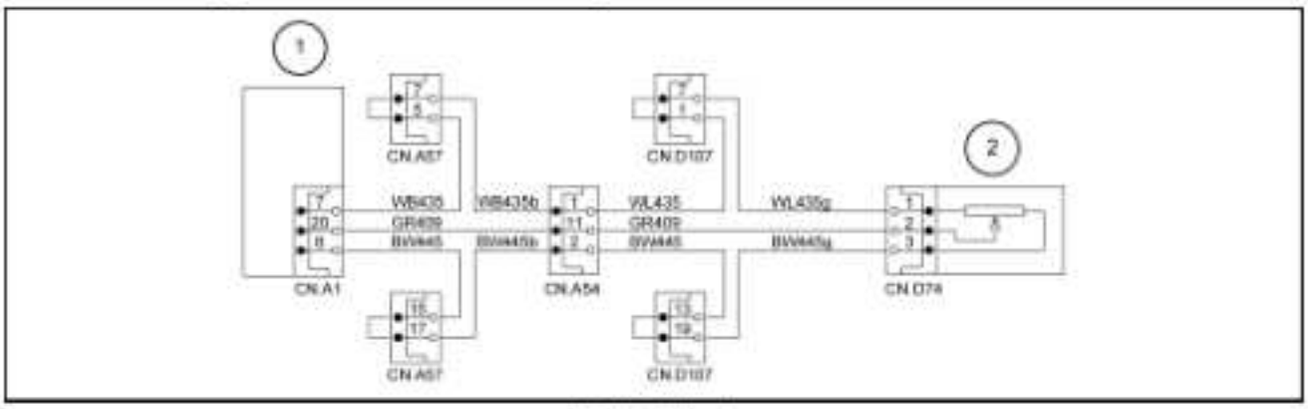
MidWestTech | Case CX145D SR Crawler Excavator Service Manual | Publication 514... Order the manual at mid-west-tech.com >

7070 - Pressure sensor bucket-open pilot abnormality

Control Module: MCM

Solution:

1. Use the below image for the fault code resolution process:



1. Main controller
2. Pressure sensor (bucket open)

Turn the key switch ON.

A. If diagnostic trouble code 7070 is displayed, proceed to Step **2**.

2. Turn the key switch OFF.

Inspect the connectivity of each connector for poor insertion and wiring terminal disconnection

Disconnect each connector, and check for any wiring terminal abnormality. If there is no abnormality, reconnect the connectors.

Turn the key switch ON.

A. If diagnostic trouble code 7070 is displayed, proceed to Step **3**.

3. Check the bucket open pilot pressure sensor **(2)** voltage on the service support screen.

A. If the voltage is more than or equal to **4.75 V**, proceed to Step **4**.

B. If the voltage is less than or equal to **0.25 V**, proceed to Step **7**.

4. Turn the key switch OFF and disconnect the bucket open pilot pressure sensor **(2)** connector **CN.D74**.

Turn the key switch ON.

Measure the voltage between the ground and terminal 1 of the bucket open pilot pressure sensor **(2) CN.D74** (harness side).

A. If the voltage is not about **5 V**, find and replace the short circuit on the wire ID WL435g, WL435, WB435b, and WB435.

B. If the voltage is about **5 V**, proceed to Step **5**.

5. Measure the voltage between the ground and terminal 2 of the bucket open pilot pressure sensor **(2) CN.D74** (harness side).

A. If the voltage is more than **4.75 V**, find and replace the short circuit on the wire ID GR409.

B. If the voltage is less than or equal to **4.75 V**, proceed to Step **6**.

MidWestTech | Case CX145D SR Crawler Excavator Service Manual | Publication 514... Order the manual at mid-west-tech.com >

B. If there are no problems, proceed to Step **6**.

6. Connect the harness connector **CN.D3** to the ECM.

   Turn ON the starter switch.

   Measure the voltage between the CAN-High terminal of the termination resistor harness connector and the GND.

   Measure the voltage between the CAN-Low terminal of the termination resistor harness connector and the GND.

   A. If the voltage is outside **1.5 – 3.5 V**, replace the ECM. (Refer to " **Engine Control Unit (ECU) - Remove (55.015)**" and " **Engine Control Unit (ECU) - Install (55.015)**")

   B. If the voltage is within **1.5 – 3.5 V**, proceed to Step **7**.

7. Set the Injector ID Code, fuel delivery rate and engine No. for the ECM.

   Use the device test on the service monitor to perform SCR purging. Refer to "Service Monitor - Device Test - SCR RE-GEN".

   Turn OFF the starter switch.

   Connect the harness connector **CN.D3** to the control unit of the machine.

   Turn ON the starter switch.

   Measure the voltage between the CAN-High terminal of the termination resistor harness connector **CN.D90-6** and the GND.

   Measure the voltage between the CAN-Low terminal of the termination resistor harness connector **CN.D90-6** and the GND.

   A. If the voltage is outside the **1.5 – 3.5 V**, replace the control unit of the machine.

   B. If the voltage is within the **1.5 – 3.5 V**, replace the termination resistor.

8. Confirm resolution:

   1. Clear the diagnostic trouble code using the trouble diagnosis scan tool.

   2. Turn OFF the starter switch for at least **60 s**.

   3. Start the engine.

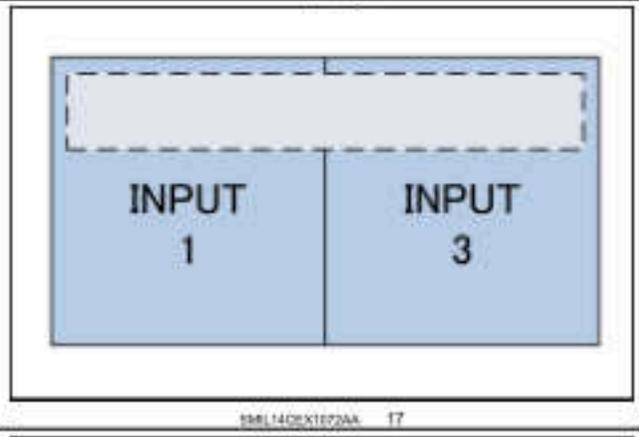
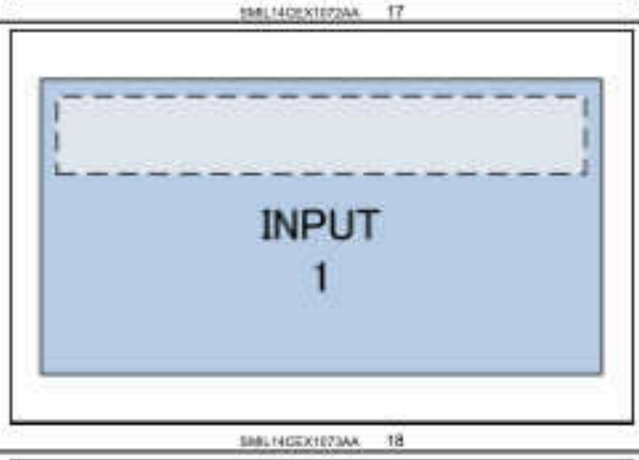
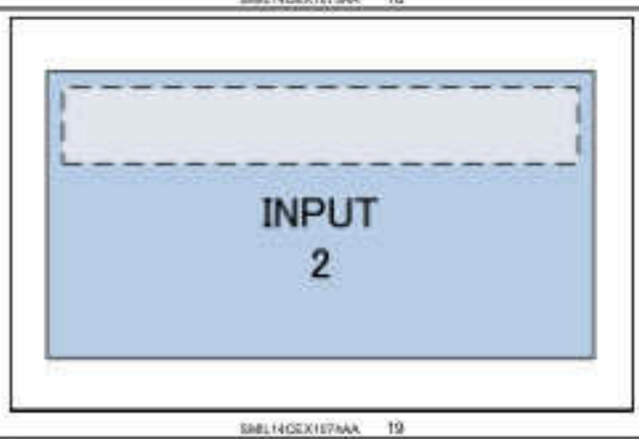
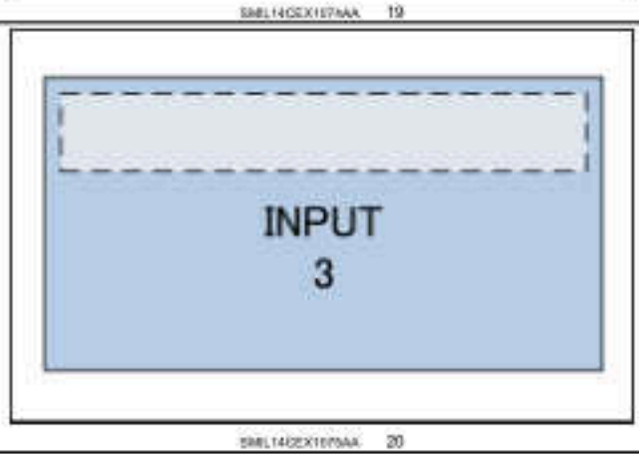
   4. Perform a test-run under the conditions for running the diagnostic trouble code.

      NOTE: *Conditions for setting engine run time or coolant temperature vary depending on the diagnostic trouble codes.*

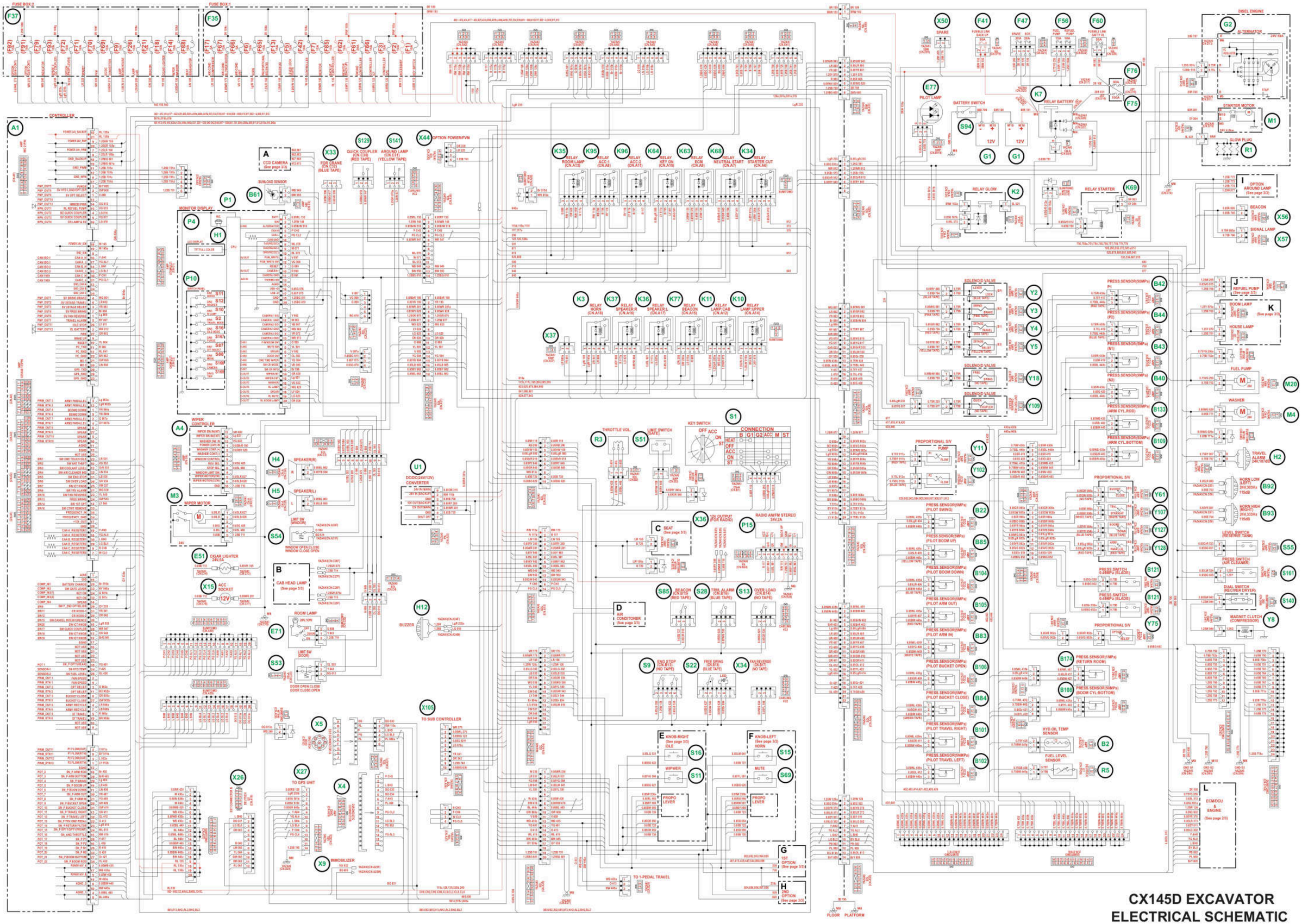
   5. Use the trouble diagnosis scan tool to confirm that a diagnostic trouble code has not been detected.

Wiring harnesses - Electrical schematic sheet 15 (55.100)
Wiring harnesses - Electrical schematic sheet 20 (55.100)
Wiring harnesses - Electrical schematic sheet 12 (55.100)

MidWestTech | Case CX145D SR Crawler Excavator Service Manual | Publication 514... Order the manual at mid-west-tech.com >

Type	Meter position	Camera input	Display
G	TOP	INPUT 1+3	
H	TOP	INPUT 1	
I	TOP	INPUT 2	
J	TOP	INPUT 3	

MidWestTech | Case CX145D SR Crawler Excavator Service Manual | Publication 514... Order the manual at mid-west-tech.com >



CX145D EXCAVATOR ELECTRICAL SCHEMATIC

51458652EN - 1/3

96646872-0

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