SERVICE MANUAL

Guardian™ SP.300C
Tier 4B (final)
Sprayer

PIN YFYM00950 and above

Part number 47837280
1st edition English
October 2015

NEW HOLLAND AGRICULTURE

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16. If the proper refrigerant charge amount is not known, add **0.5 kg** (**1.0 lb**) to **0.9 kg** (**2 lb**) pounds of liquid refrigerant to the system through the high side port (red). The amount of refrigerant added depends on the estimated full charge amount. It is typically **50 %** to **75 %** of the estimated full charge. Close red valve on manifold gauge set. This type of refrigerant charging should be done at an ambient temperature of **32 °C** (**90 °F**) or greater with machine doors open to provide a load on the evaporator.
17. Turn refrigerant tank right side up on charging scale (vapor charge position).
18. Start machine engine and turn on AC system.
19. Record ambient temperature, evaporator inlet temperature, evaporator air outlet temperature, suction pressure, and discharge pressure.
20. If suction pressure is **5 psi** or less, keep engine speed at idle until additional refrigerant has been added and suction pressure exceeds **5 psi**.
21. Slowly open blue valve on manifold gauge set and bleed vapor refrigerant into low side of system in small increments (**0.1 lb ft** to **0.2 lb ft** at a time). Suction pressure should not exceed **50 psi** while charging vapor into the low side of the system or the compressor can be damaged.
22. Continue to add refrigerant in this manner in small increments until optimum AC performance is achieved.
23. Document total amount of refrigerant added to system and apply appropriate label near compressor stating refrigerant charge amount.

Alternate charging technique

24. Perform Steps 1–20 in the AC Charging procedure.
25. With an infrared thermometer, measure condenser tube temperatures from refrigerant inlet to refrigerant outlet (typically from top to bottom).
26. The temperature will be highest at the refrigerant inlet (superheated region). Then the temperature will decrease to the saturation temperature of the refrigerant at the operating discharge pressure (saturation or condensing temperature). Near the outlet of the condenser, the temperature should once again decrease by roughly **-12 - -10 °C** (**10 - 14 °F**) below the saturation temperature (sub-cooled region).
27. If the refrigerant at the out of the condenser is not sub-cooled by **-12 - -10 °C** (**10 - 14 °F**) below the saturation temperature, continue to add vapor refrigerant in small increments through the blue (low side) charge port.
28. When **-12 - -10 °C** (**10 - 14 °F**)of condenser outlet sub-cooling is reached, verify proper AC operation.
29. Document total refrigerant amount added to system and apply appropriate label near compressor stating refrigerant charge amount.

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Harnesses and connectors - Electrical schema - Frame 2

SP.300C Axle Tech 2WD [YFYM00950 -]	NA
SP.300C Axle Tech 4WD [YFYM00950 -]	NA

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Error messages

This section contains information regarding possible error messages displayed on the field computer and troubleshooting procedures.

Job error messages

Issue	Possible cause	Solution
AutoBoom node has gone off line	Refer to the Raven CANbus Network Installation Manual for detailed troubleshooting procedures and information.	
AccuBoom node has gone off line	Refer to the Raven CANbus Network Installation Manual for detailed troubleshooting procedures and information.	
Boom sense node has gone off line	Refer to the Raven CANbus Network Installation Manual for detailed troubleshooting procedures and information.	
No CAN nodes have been found	Refer to the Raven CANbus Network Installation Manual for detailed troubleshooting procedures and information.	

Issue	Possible cause	Solution
Guidance Not Available	Displays when starting a job without a GPS signal	Make sure a GPS receiver is connected to the field computer and that the receiver is powered up, then select Auto-Detect.
		Make sure the correct GPS Source is selected (Tools Menu>GPS menu>Source)
No Differential	Differential GPS has not been detected by the field computer	Check the GPS receiver to make sure that it has the differential correction function. Contact the manufacturer for additional information.
No GPS	Field computer does not detect a GPS signal	Make sure that the GPS receiver is turned on and receiving a signal.
		Make sure that the port setting for the field computer and the GPS receiver match.
		Make sure that the required NMEA messages are turned on in the GPS receiver.
High HDOP	Satellite constellation issue	There is no issue with the DGPS system or cabling. Wait for the constellation issue to resolve before continuing job.

CAN troubleshooting

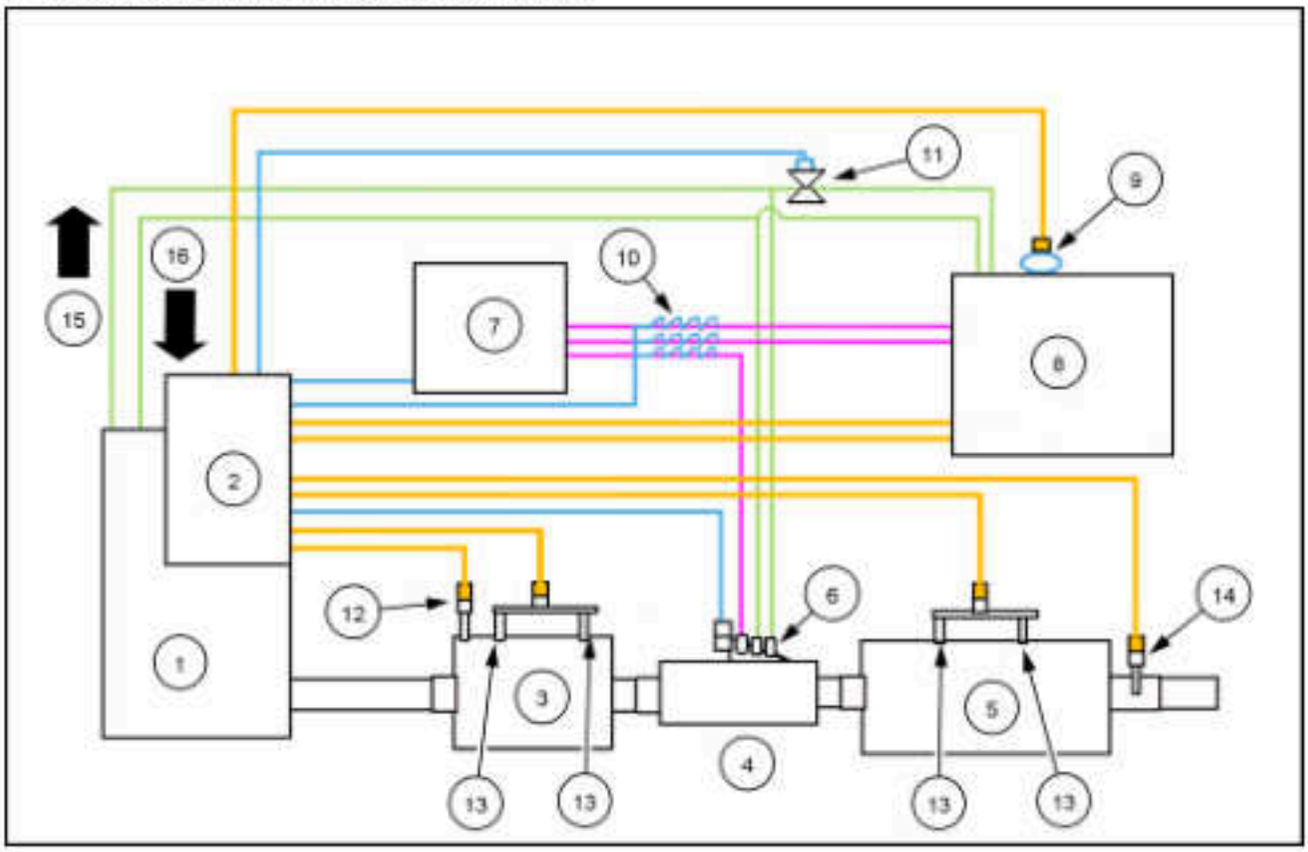
Although the control algorithm is located within the CAN node, all of the same troubleshooting techniques used in a traditional hard-wired system still apply to a CAN system. CAN allows for modularization of the control system, but the behavior of the system remains the same. Flow and speed sensors, as well as the control valve and boom valves, are used in the same fashion.
Refer to the Raven CANbus Network Installation Manual for detailed troubleshooting procedures and information.

Viper Pro Troubleshooting

The following tables contain information about possible issues and solutions for the Viper Pro system.

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During engine operation, the exhaust gasses from the engine enter the DOC where the exhaust gas hydrocarbons are oxidized to carbon dioxide. The exhaust gasses then travel through the DRT where Diesel Exhaust Fluid is sprayed into the chamber. The exhaust gasses and DEF mixture pass through a mixer plate and the mixture turns into an ammonia and iso-cyanic acid. This mixture then passes into the SCR chamber and through the SCR catalyst. The exhaust gasses then exit the exhaust pipe as nitrogen and water vapor.
The following figure shows the system components.



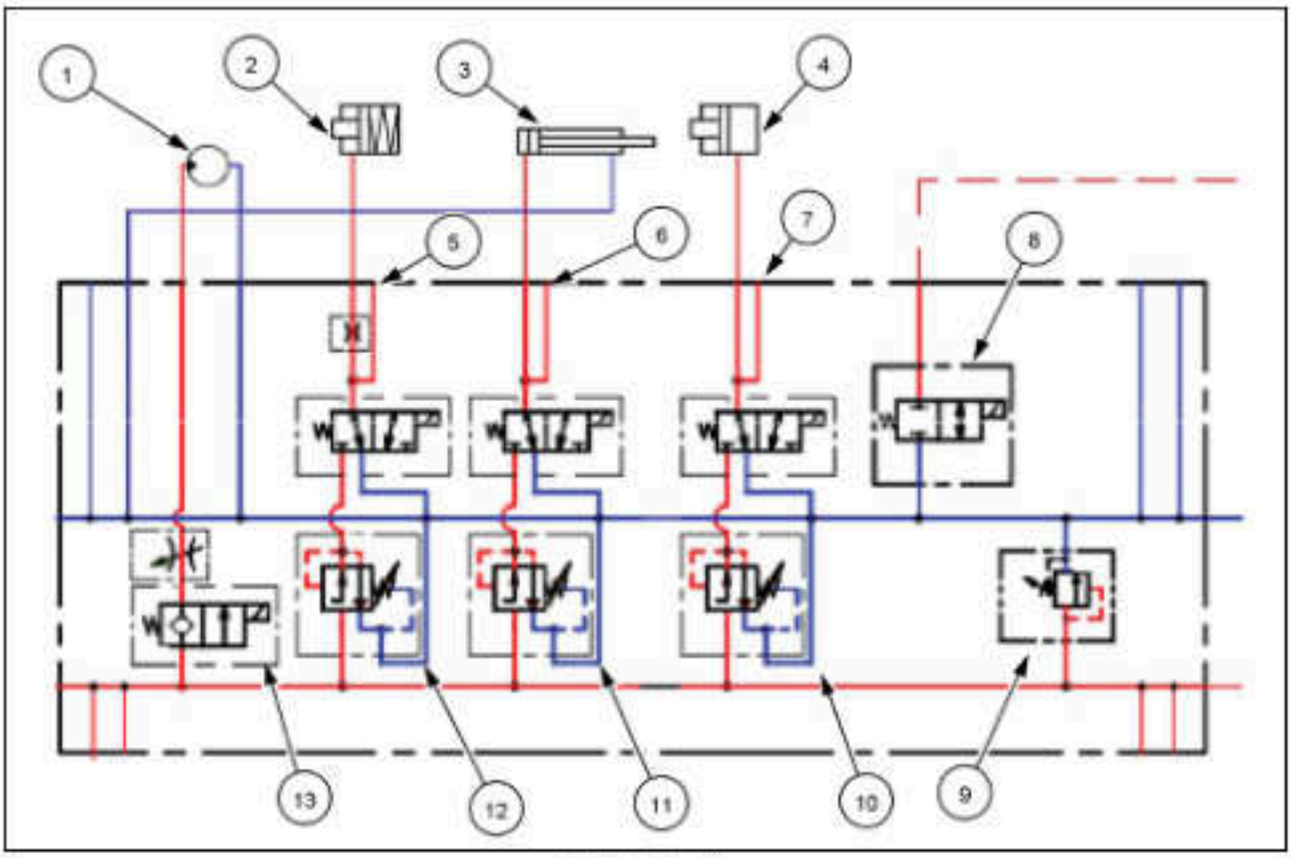
RAIL14SP01568PA 4

Item	Description
1	Engine
2	Engine control module
3	Diesel Oxidation Catalyst (DOC)
4	Decomposition Reactor Tube (DRT)
5	Selective Catalyst Reduction (SCR)
6	Diesel Exhaust Fluid (DEF) Dosing Module
7	DEF Supply Module
8	DEF Tank
9	DEF quality sensor
10	DEF line heaters
11	Coolant flow control valve
12	NOx Sensor — Engine exhaust gasses out
13	Temperature sensor
14	NOx Sensor — System exhaust gasses out
15	Engine coolant supply line
16	Engine coolant return line
	Analog signal/Wiring harness
	Diesel Exhaust Fluid (DEF) lines
	Analog signal/Wiring harness
	Engine coolant lines

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Item	Description
1	Product ON/OFF Flow Control
2	Product ON/OFF
3	Relief Valve
4	Park Brake Release Test Port
5	Park Brake Release
6	Park Brake Release Pressure Reducing Valve
7	Ladder Test Port
8	Ladder Raise Valve
9	Ladder Pressure Reducing Valve
10	Differential Lock Test Port
11	Differential Lock Valve
12	Differential Lock Pressure Reducing Valve
13	Pressure Compensator Dump Valve

The following illustration is the auxiliary main valve schematic showing the flow paths to the individual components of the hydraulic system. Input oil flow is represented with red flow lines, and return flow is represented with blue lines.



RAIL14SPE12EPA 14

Item	Description
1	Product Pump
2	Park Brake
3	Ladder
4	Differential
5	Park Brake Test Port
6	Ladder Test Port
7	Differential Lock Test Port
8	Pressure Compensator Dump Valve
9	Main Relief Valve
10	Differential Lock Pressure Reducing Valve
11	Ladder Pressure Reducing Valve
12	Park Brake Pressure Reducing Valve

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SEE ARMREST PAGE 2

SEE CAB HARNESSES PAGE 3

SEE FWA 44.25520 PAGE 4

PLUGS INTO HARNESS SUPER NODE COMBO #44.26208
SEE UPPER RIGHT HAND OF PAGE 4
NOTE: SHOWN PLUG INTO DRY BOX HARNESS #44.26207

HARNESS, COMBO LIQUID SYSTEM #44.26206
USE HARNESS #44.26207 WITH DRY BOX
SEE RIGHT HAND OF PAGE 4

SEE BOOM HARNESSES ON PAGE 2

SP.300R Transmission Harness
See page 2 for
SP.260R Transmission Harness

GUARDIAN REAR BOOM SPRAYER
GUARDIAN COMBO
SP.260R, PIN BREAK YFYM00925
SP.300R, PIN BREAK YFYM00925
SP.300C, PIN BREAK YFYM00950
ELECTRICAL SCHEMATIC
RAC 47932587
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