SERVICE MANUAL

Guardian™ SP.295F / Guardian™ SP.300F / Guardian™ SP.345F
Tier 4B (final)
Sprayer

PIN YFYM00909 and above

Part number 47828471
1st edition English
September 2015

NEW HOLLAND AGRICULTURE

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Hydraulic systems - Technical Data - SP.295F pressure settings

SP.295F
SP.300F
SP.345F

Component / System	Minimum	Nominal	Maximum
Priority pressure	2225 psi	2300 psi	2375 psi
Auxiliary pump - running (high)	2450 psi	2500 psi	2500 psi
Auxiliary pump - cranking (low)	175 psi	200 psi	225 psi
UltraFlo Auxiliary pump — running (high)	N / A	N / A	N / A
UltraFlo Auxiliary pump — cranking (low)	N / A	N / A	N / A
Charge pressure (charge pressures 1 and 2)	410 psi	435 psi	460 psi
High-pressure forward	6400 psi	6500 psi	6500 psi
High-pressure reverse	6400 psi	6500 psi	6500 psi
Charge pressure drop	70 psi	75 psi	80 psi
Air pressure	115 psi	120 psi	125 psi
Boom tilt accumulators **18.3 - 30.5 m** (**60.0 - 100.0 ft**)	1750 psi	1800 psi	1850 psi
Boom tilt accumulators **36.6 m** (**120.0 ft**)	N / A	N / A	N / A
Park brake accumulator	125 psi	150 psi	175 psi
Boom lift accumulator **27.4 m** (**90.0 ft**)	625 psi	650 psi	675 psi
Boom lift accumulator **36.6 m** (**120.0 ft**)	N / A	N / A	N / A
Suspension accumulators	225 psi	250 psi	250 psi
Brake accumulator	1375 psi	1400 psi	1425 psi
Shift accumulator	225 psi	250 psi	250 psi
Fan relief pressure	2900 psi	2950 psi	3000 psi
Fan speed	1400 RPM	1450 RPM	1500 RPM
Air conditioning charge R134a	—	6.0 lb	—

Hydraulic systems - Technical Data - SP.300F pressure settings

SP.295F
SP.300F
SP.345F

Component / System	Minimum	Nominal	Maximum
Priority pressure power steering	2225 psi	2300 psi	2375 psi
Auxiliary pump - running (high)	2450 psi	2500 psi	2500 psi
Auxiliary pump - cranking (low)	175 psi	200 psi	225 psi
UltraFlo Auxiliary pump — running (high)	2850 psi	2900 psi	2950 psi
UltraFlo Auxiliary pump — cranking (low)	175 psi	200 psi	225 psi
Charge pressure (charge pressure 1 and 2)	515 psi	540 psi	565 psi
Tandem pump relief pressure (charge pressure 3)	N / A	N / A	N / A
Brake relief pressure	N / A	N / A	N / A
High-pressure forward	6400 psi	6500 psi	6500 psi
High-pressure reverse	6400 psi	6500 psi	6500 psi
Charge pressure drop	85 psi	90 psi	95 psi
Air pressure	115 psi	120 psi	125 psi
Boom tilt accumulators **18.3 - 30.5 m** (**60.0 - 100.0 ft**)	1750 psi	1800 psi	1850 psi
Boom tilt accumulators **36.6 m** (**120.0 ft**)	2050 psi	2100 psi	2150 psi
Park brake accumulator	N / A	N / A	N / A
Boom lift accumulator **27.4 m** (**90.0 ft**)	625 psi	650 psi	675 psi
Boom lift accumulator **36.6 m** (**120.0 ft**)	1175 psi	1200 psi	1225 psi
Suspension accumulators	225 psi	250 psi	250 psi
Brake accumulator	1375 psi	1400 psi	1425 psi
Shift accumulator	N / A	N / A	N / A
Fan relief pressure	N / A	N / A	N / A
Fan speed	2900 RPM	2950 RPM	3000 RPM

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Additional Troubleshooting

The following table lists additional troubleshooting which can be performed for both the heating and cooling systems of the machine.

Symptom	Action
No display	Connect power to the Control Panel and verify that all display segments illuminate briefly.
	Verify that the Control Panel is plugged into the wire harness and press the PWR key.
	Check to see if wire harness is wired into the vehicle properly.
No fan	Turn up fan with the Fan UP key.
	Make sure fan is plugged into wire harness, verify all wiring connections.
	Verify that the circuit breakers or fuses are intact.
	If all other functions work properly, replace Electronic Control Unit (ECU).
No heat	Turn up heat with the Temperature UP key. Use the advanced diagnostics to verify that the water valve is commanded open.
	Inspect and verify all wiring connections.
	Verify that any coolant shut off valves on the engine are open
	Verify that warm coolant is flowing into the heater core by testing the heater hoses.
	Verify that the valve can shut off completely by setting the controls to the coldest temperature and checking the heater hoses.
	Inspect and replace the electronic water valve if necessary.
	Inspect and replace ECU if necessary.
No cooling	Turn down heat with the Temperature DOWN key and enable the defrost mode. Use the advanced diagnostics to verify that the A/C clutch is requested ON.
	Verify that the system is fully charged with refrigerant.
	Verify that voltage is present at the compressor clutch
	Verify that the correct voltage is present at the clutch relay on the wire harness.
	Inspect and verify all wiring connections.
	Inspect the expansion valve, evaporator probe and/or refrigerant pressure switch.
	Inspect compressor and clutch assembly and replace clutch if necessary.
	Inspect and replace the ECU if necessary.
The system is not controlling the cab temperature properly	Inspect the Cab and Duct Air Temperature sensors.
	Verify that the recirculation vent inlet is not obstructed.
	Inspect and replace recirculation vent air filter if necessary.
	Change the setpoint temperature in small increments.
	Verify that the water valve is working properly (see No Heat)
	Verify that the flow through the water valve is going in the correct direction.
	Verify that the compressor clutch is working properly (see No Cooling)
The evaporator core is icing up and restricting airflow	Inspect the Evaporator Temperature Probe.
	Verify that the probe is making good contact with the evaporator fins and is not loosely inserted.
	Reposition the probe and check the core temperature during operation using the advanced diagnostics.
	Replace the evaporator core if necessary.

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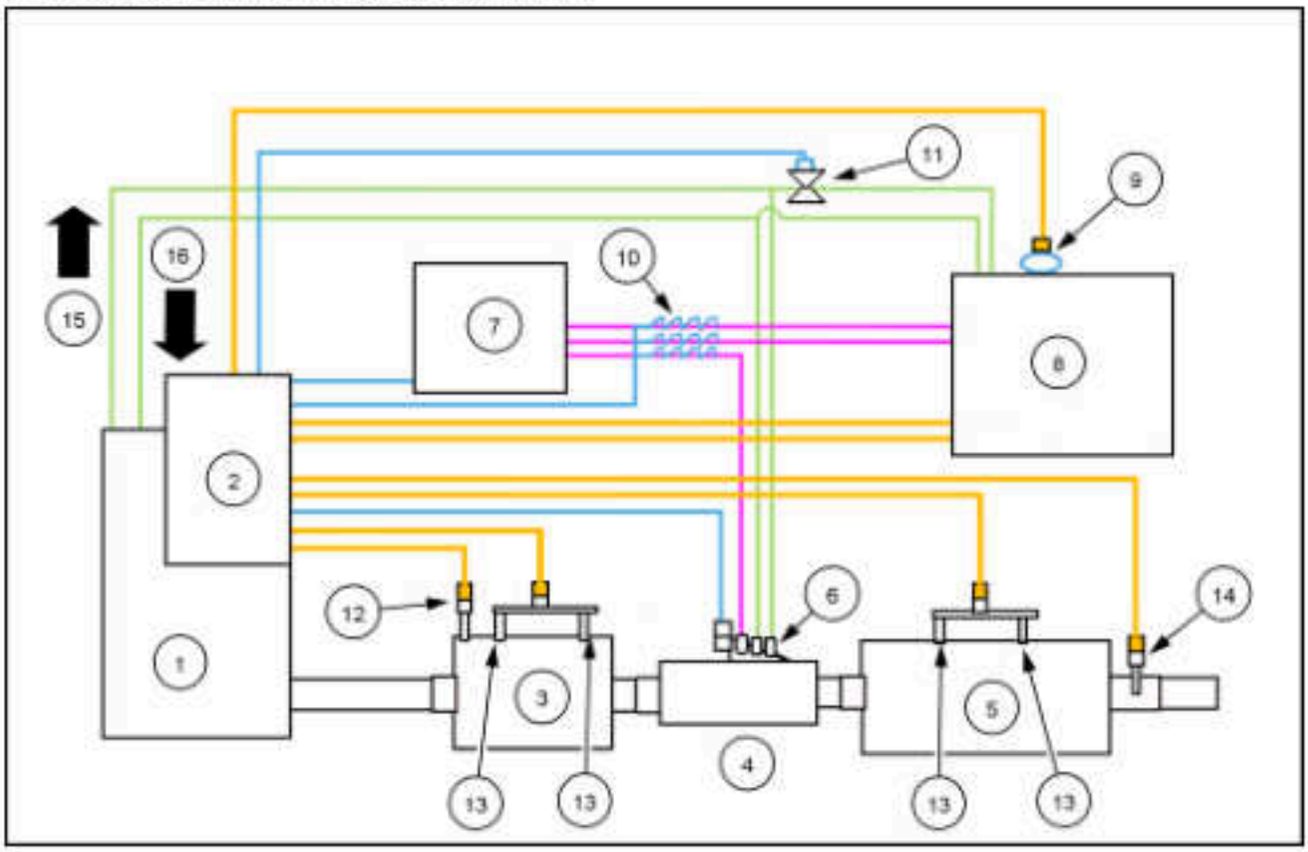
Electrical systems - 55

Harnesses and connectors - 100

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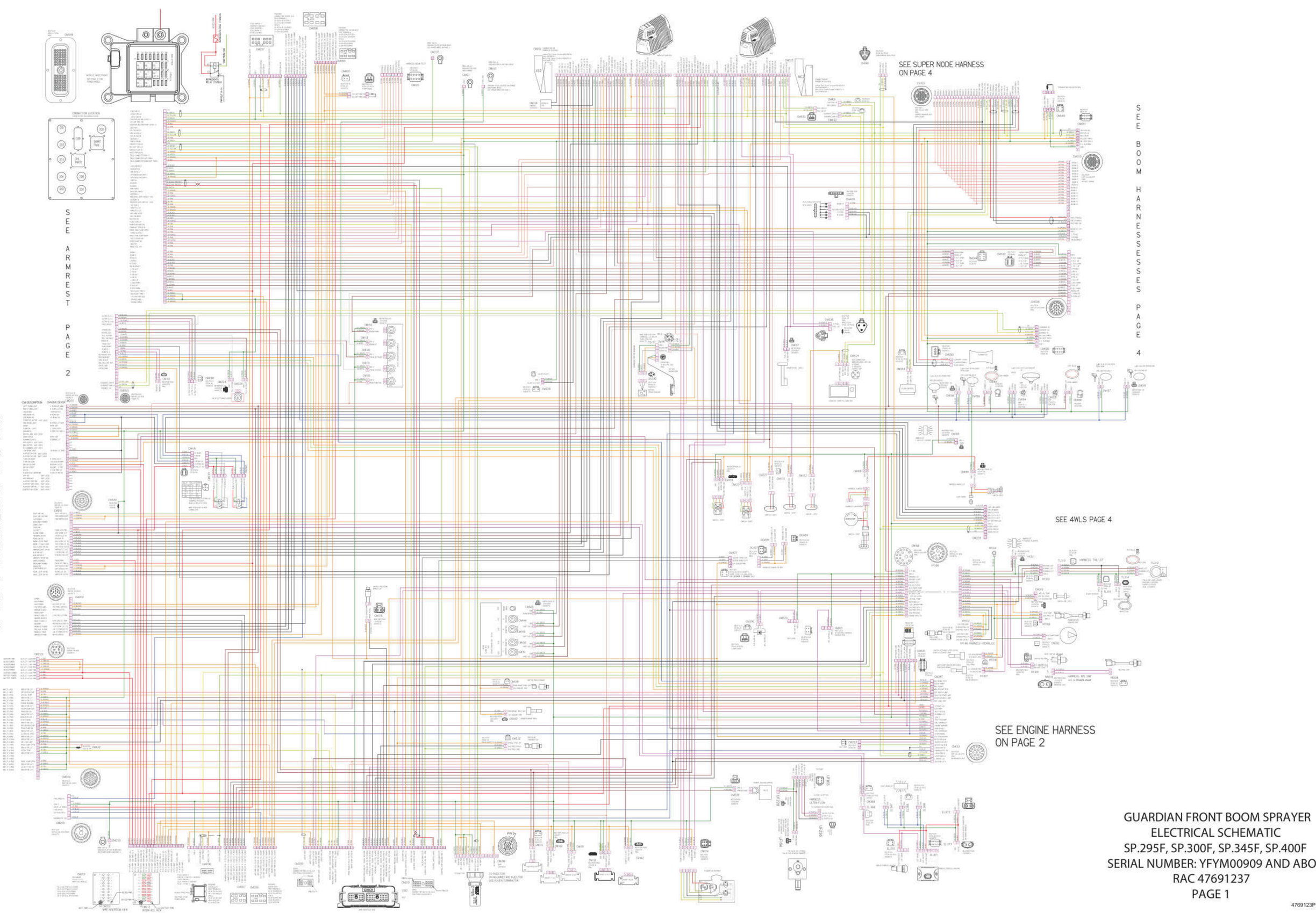
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During engine operation, the exhaust gasses from the engine enter the DOC where the exhaust gas hydrocarbons are oxidized to carbon dioxide. The exhaust gasses then travel through the DRT where Diesel Exhaust Fluid is sprayed into the chamber. The 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.



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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GUARDIAN FRONT BOOM SPRAYER
ELECTRICAL SCHEMATIC
SP.295F, SP.300F, SP.345F, SP.400F
SERIAL NUMBER: YFYM00909 AND ABOVE
RAC 47691237
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