Patriot® 4440
Tier 4B (final)
Sprayer

PIN YET040001 and above

SERVICE MANUAL

1st edition English
May 2014

CASE IH AGRICULTURE

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Capacities

Engine	
Oil type	CASE IH AKCELA UNITEK NO. 1™ SBL CJ-4
Oil exchange capacity with filter (approximate.)	23.7 l (25.0 US qt)
Cooling system	
Coolant	CASE IH AKCELA ACTIFULL OT® EXTENDED LIFE COOLANT
System coolant capacity	60 l (15.75 US gal)
Radiator capacity	30 l (7.9 US gal)
Hydraulic system	
Oil type	CASE IH AKCELA HY-TRAN® ULTRACTION
Tank capacity	110 l (29 US gal)
Hub lubricant	
Oil type	CASE IH AKCELA GEAR 135 H EP 85W-140
Hub capacity (each)	1.1 l (2.3 US pt)
Gear increaser	
Oil type	CASE IH AKCELA GEAR LUBE SSL 75W90
Capacity	2.84 l (3 US qt)
Air conditioning system	
Refrigerant type	R134A
Refrigerant capacity	1.65 kg (3.63 lb)

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Wire harnesses - Electrical schematic sheet 05 - Engine inputs/outputs (engine schematics)

Component ID	Description
A-9000	Engine Control Unit (ECU)
B-9000	Oil pressure sensor with oil temperature sensor
B-9001	Boost pressure sensor with air temperature sensor
B-9002	Fuel temperature sensor
B-9003	Coolant temperature sensor
B-9005	Exhaust gas absolute pressure sensor
B-9006	Fuel pre-filter clogging pressure sensor
B-9007	Crankshaft speed sensor
B-9008	Camshaft speed sensor
B-9009	Crankcase pressure sensor
B-9011	Water pump inlet pressure sensor
B-9012	High Pressure Intercooler (HPI) outlet temperature and pressure sensor
B-9015	Electronic Variable Geometry Turbocharger (EVGT) turbine speed sensor (Cursor 9 w/ EVGT only)
S-9000	Fuel filter clogging switch
Y-9000	Fuel metering unit

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129-High pressure switch cycling error (2 times in 1 minute)

NOTE: *If fault codes 125, 126, 127 or 128 are active with this code, follow the troubleshooting for that code.*

Cause:
The ATC controller has detected a cycling error (2 times in 1 minute).

Possible failure modes:

1. Incorrect charge on system.
2. Wiring issue or bad switch.

Solution:

1. Visually inspect the wiring harness and all connectors between high pressure switch and ATC controller for damage.

   A. Damage to connectors or wiring found. Repair or replace harness. Clear all fault codes, and return unit to field operation.

   B. No damage to connectors or wiring found. Go to Step **2**.

2. Check charge pressure on the air conditioning system. See the repair manual air conditioning troubleshooting.

   A. Charge was not correct. Recover R134A. Make repairs as required. Evacuate and recharge the system. Clear all fault codes, and return unit to field operation.

   B. Charge was correct. Go to Step **3**.

3. Check switch continuity.

   Disconnect connector C175 at the high pressure switch. Measure resistance between pins A and B of connector C175 at the switch. Expected reading is less than **1.0 Ω**.

   A. Expected reading found. Go to Step **4**.

   B. Expected reading not found. Replace high pressure switch. Clear all fault codes, and return unit to field operation.

4. Test for an open circuit between the ATC controller and the high pressure switch.

   Measure resistance between pin A of harness connector C175 and pin B of connector C055 to the HVAC box, and between pin Z of harness connector C175 and pin B of connector C055. Expected reading is less than **1.0 Ω**.

   A. Expected reading found. Go to Step **5**.

   B. Expected reading not found. Locate and repair open circuit, or replace the harness. Clear all fault codes, and return unit to field operation.

5. Replace the ATC controller.

   Clear all fault codes. Test operation of the HVAC.

   A. Fault code re-displays. Reinstall the original controller. Submit a concern to ASIST.

   B. Fault code does not re-display. Write the fault code on the failed controller. Return unit to field operation.

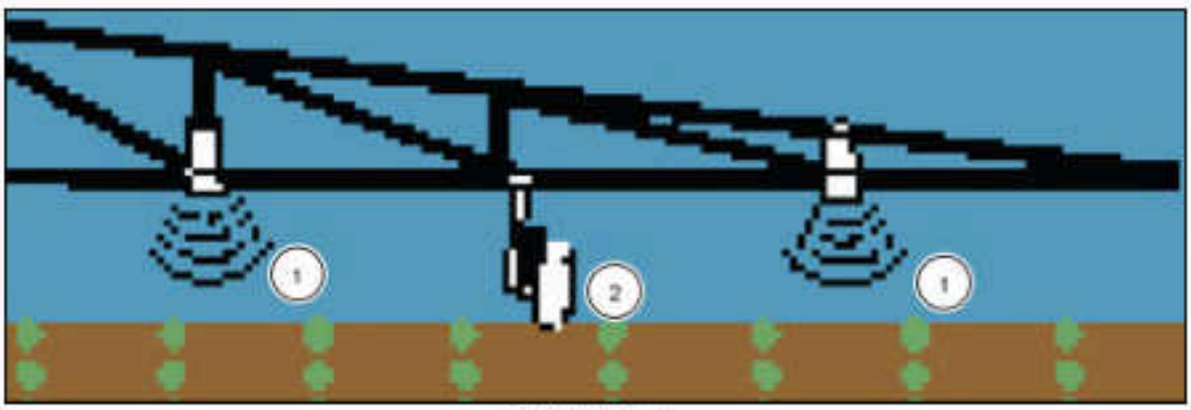
Wire harnesses - Electrical schematic sheet 23 (55.100.DP-C.20.E.23)

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Sprayer nozzle tips come in various physical sizes. At a given nozzle supply pressure, a certain nozzle size will allow a specific amount of product to flow through. Increasing or decreasing the supply pressure can change the flow through the nozzle tips. The flow (gpm/lpm) through a given size nozzle (orifice) is calculated at **276 kPa** (**40 psi**). This is true for all nozzle sizes. Typically, increasing the pressure at the nozzle by 4 times doubles the flow rate through the nozzle. Operating at higher pressures increases the nozzle orifice wear. Usable life of nozzles affects the construction material selection. Brass materials wear quickly. A brass nozzle can have a **10 - 15 %** increase in flow after **50 h** of use, depending on product being sprayed. Plastic material with either stainless steel or ceramic inserts last longer than brass. Stainless steel nozzles last longer than brass. Ceramic will last the longest. Do not mix nozzle types or construction materials on a boom. Always use identical nozzles.

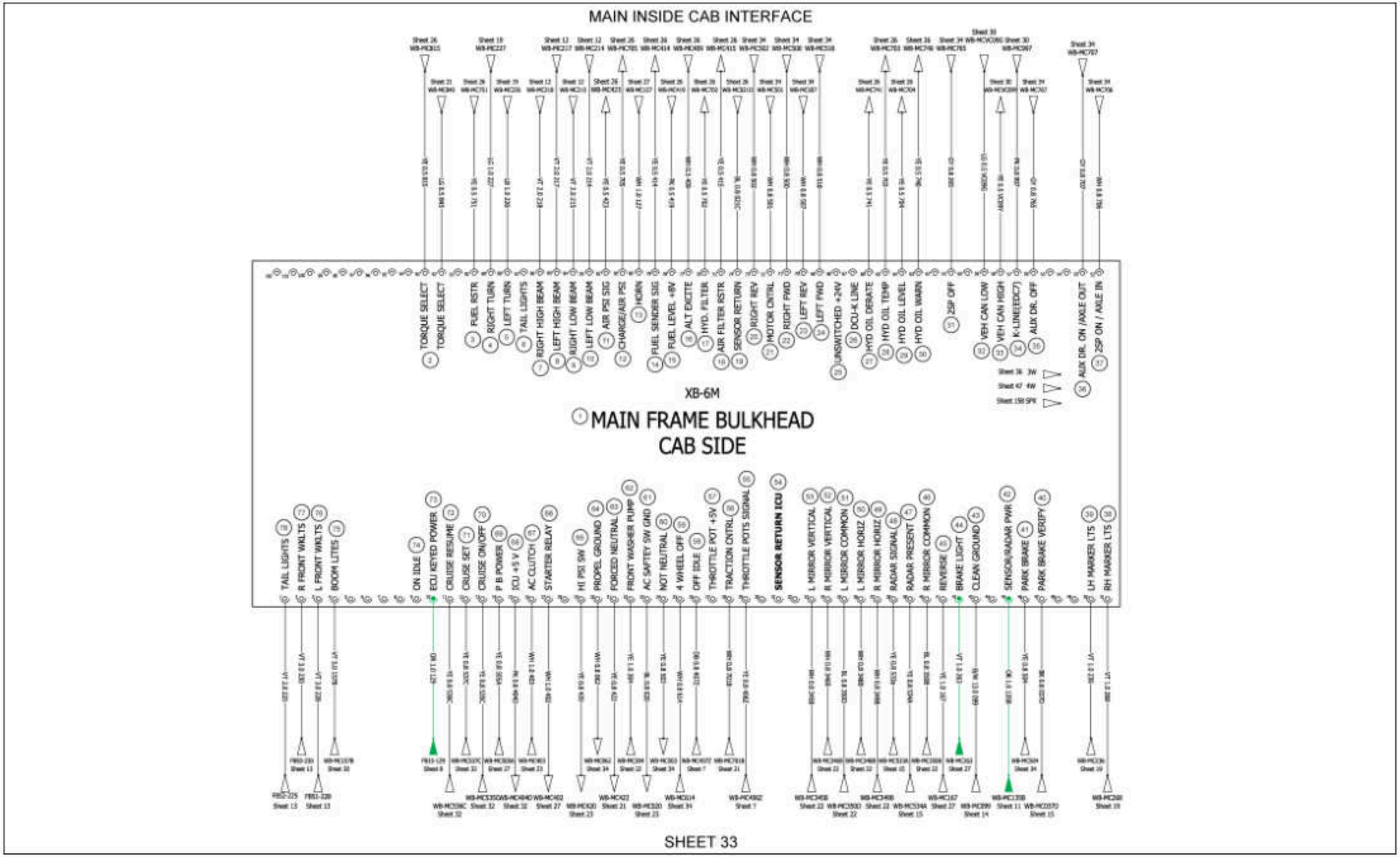
Autoboom boom height control

Another consideration in the "art" of spraying is the nozzle distance above the crop. The nozzle height needs to be controlled to maintain the proper spray pattern overlap resulting in a better and more consistent application rate. The boom height is manually controlled on a standard machine. As an option, the unit can be equipped with the AutoBoom feature. The AutoBoom automatic boom height control system uses ultrasonic sensors **(1)**, with or without gauge wheels **(2)**, to monitor the boom height above the target and makes the necessary height adjustments automatically. The application rate controller processes this information and then sends electrical commands to the boom height and level hydraulic control valves. With the AutoBoom feature, the boom life is also extended by eliminating ground strikes.



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