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Precision Hoe 800

Precision Air Hoe Drill

SERVICE MANUAL

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CASE IH AGRICULTURE

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FRAME - Safety signs

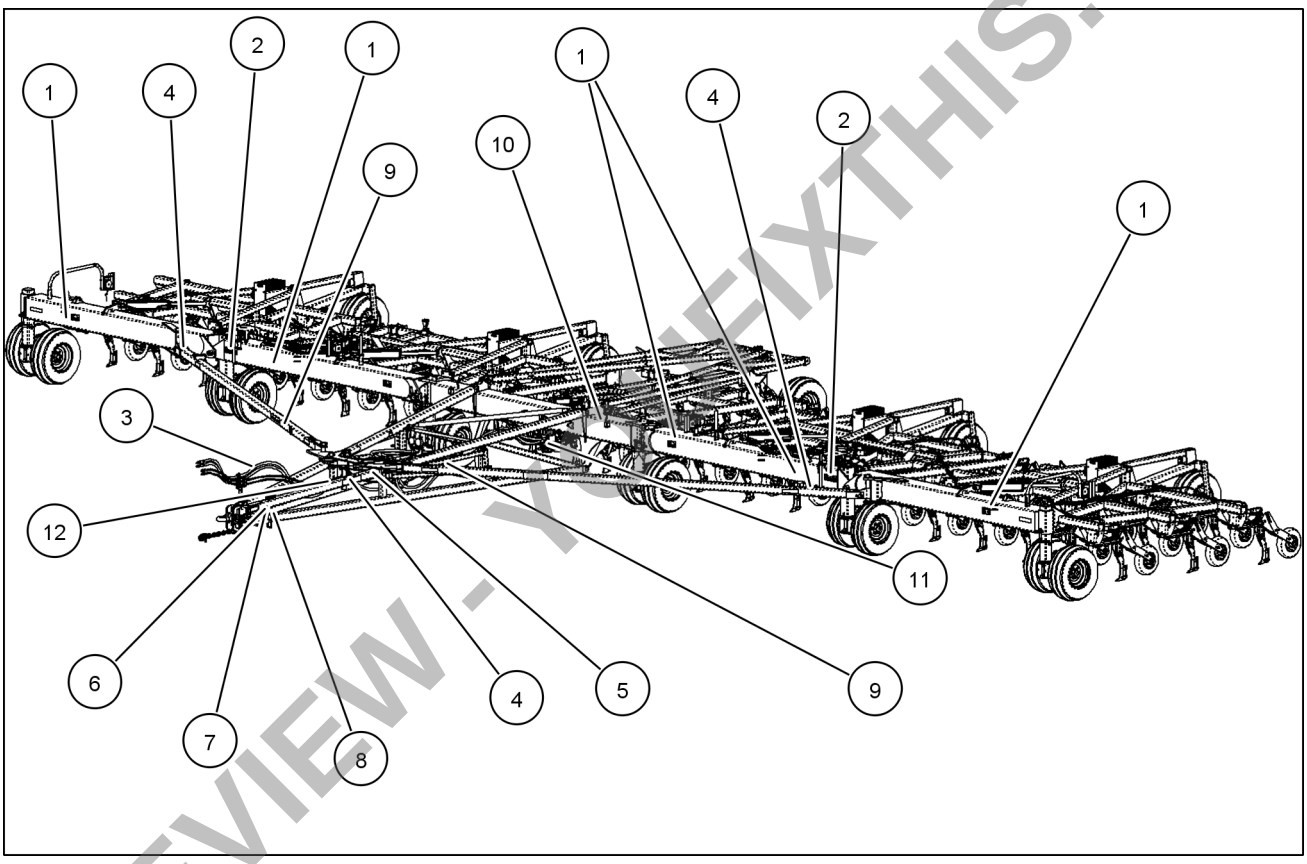
KEEP SAFETY DECALS CLEAN.

Wipe clean when necessary.

REPLACE missing or unreadable decals. New decals are available from your dealer.

To replace decals:

1. Remove old decal and clean area.
2. Remove the decal backing and carefully affix the decal to the implement.
3. Using a clean piece of paper or the backing itself, work the air bubbles out from under the decal.



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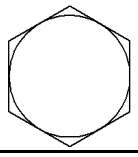
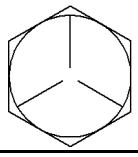
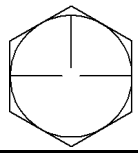
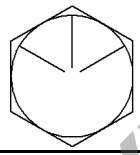
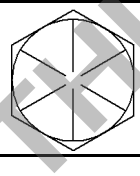
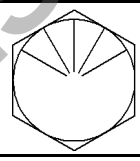
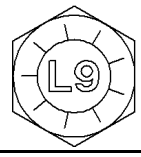
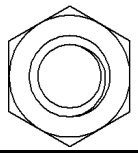
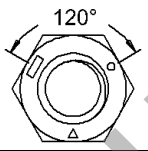
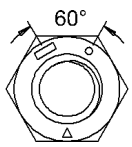
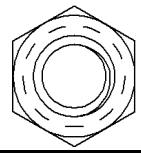
REF	Decal Description
(1)	DANGER- Keep clear of machine
(2)	WARNING - Drill may become unstable
(3)	Read your Operator's Manual
(4)	DANGER - Stay out of fold zone
(5)	DANGER - Rollover hazard
(6)	Do not ride.
(7)	CAUTION - Escaping fluid hazard
(8)	DANGER - Hitch upending hazard
(9)	IMPORTANT - Latches must be engaged
(10)	ATTENTION - To avoid unnecessary frame loading
(11)	CAUTION - Unauthorized removal of this decal will void warranty
(12)	WARNING - Hydraulic accumulator contains gas and oil under pressure.

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Torque

BOLT TORQUE INFORMATION

1. Fasteners should be replaced with the same or higher grade fasteners. If higher grade fasteners are used, these should only be tightened to the strength of the original.
2. Make sure the fastener's threads are clean and that thread engagement is started. This will prevent them from failing when being tightened.
3. Tighten plastic insert or crimped steel-type lock nuts to approximately **50 %** of the dry torque, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.
4. The L9 (Alloy) fasteners torque values are for a bolt, nut, and two washers. When using L9 (Alloy) fasteners, do not use the values in this table for tapped holes.

	GRADE						
	1 or 2	5	5.1	5.2	8	8.2	L9 (Alloy)
SAE Markings for Bolts and Cap Screws							
	2	5			8		L9 (Alloy)
SAE Markings for Hex Nuts							

	GRADE 2*		GRADE 5, 5.1 or 5.2		GRADE 8 or 8.2		GRADE L9 (Alloy)	
SIZE	Dry **	Lubricated **	Dry**	Lubricated **	Dry**	Lubricated **	Head	Nut
1/4 UNF	7.5 Nm	5.7 Nm	10.8 Nm	8.5 Nm	16.3 Nm	12.2 Nm	13.6 Nm	14.9 Nm
	5.5 lb ft	4.2 lb ft	8 lb ft	6.3 lb ft	12 lb ft	9 lb ft	10 lb ft	11 lb ft
1/4 UNC	8.5 Nm	6.4 Nm	13.6 Nm	9.8 Nm	19 Nm	13.6 Nm	16.3 Nm	17.6 Nm
	6.3 lb ft	4.7 lb ft	10 lb ft	7.2 lb ft	14 lb ft	10 lb ft	12 lb ft	13 lb ft
5/16 UNF	15 Nm	11 Nm	23 Nm	18 Nm	33 Nm	24 Nm	26 Nm	28 28 Nm
	11 lb ft	8 lb ft	17 lb ft	13 lb ft	24 lb ft	18 lb ft	19 lb ft	21 lb ft
5/16 UNC	16 Nm	12 Nm	26 Nm	19 Nm	37 Nm	27 Nm	27 Nm	31 Nm
	12 lb ft	9 lb ft	19 lb ft	14 lb ft	27 lb ft	20 lb ft	20 lb ft	23 lb ft
3/8 UNF	27 Nm	20 Nm	41 Nm	31 Nm	61 Nm	47 Nm	41 Nm	45 Nm
	20 lb ft	15 lb ft	30 lb ft	23 lb ft	45 lb ft	35 lb ft	30 lb ft	33 lb ft
3/8 UNC	31 Nm	23 Nm	47 Nm	34 Nm	68 Nm	47 Nm	47 Nm	52 Nm
	23 lb ft	17 lb ft	35 lb ft	25 lb ft	50 lb ft	35 lb ft	35 lb ft	38 lb ft
7/16 UNF	43 Nm	33 Nm	68 Nm	47 Nm	95 Nm	68 Nm	75 Nm	81 Nm
	32 lb ft	24 lb ft	50 lb ft	35 lb ft	70 lb ft	50 lb ft	55 lb ft	60 lb ft
7/16 UNC	49 Nm	37 Nm	75 Nm	54 Nm	108 Nm	81 Nm	81 Nm	88 Nm
	36 lb ft	27 lb ft	55 lb ft	40 lb ft	80 lb ft	60 lb ft	60 lb ft	65 lb ft
1/2 UNF	68 Nm	47 Nm	102 Nm	75 Nm	149 Nm	108 Nm	115 Nm	129 Nm
	50 lb ft	35 lb ft	75 lb ft	55 lb ft	110 lb ft	80 lb ft	85 lb ft	95 lb ft
1/2 UNC	75 Nm	54 Nm	115 Nm	88 Nm	163 Nm	122 Nm	129 Nm	142 Nm
	55 lb ft	40 lb ft	85 lb ft	65 lb ft	120 lb ft	90 lb ft	95 lb ft	105 lb ft
9/16 UNF	95 Nm	75 Nm	149 Nm	108 Nm	203 Nm	149 Nm	163 Nm	190 Nm
	70 lb ft	55 lb ft	110 lb ft	80 lb ft	150 lb ft	110 lb ft	120 lb ft	140 lb ft
9/16 UNC	108 Nm	81 Nm	163 Nm	122 Nm	231 Nm	176 Nm	183 Nm	203 Nm
	80 lb ft	60 lb ft	120 lb ft	90 lb ft	170 lb ft	130 lb ft	135 lb ft	150 lb ft
5/8 UNF	136 Nm	102 Nm	203 Nm	149 Nm	285 Nm	217 Nm	231 Nm	251 Nm
	100 lb ft	75 lb ft	150 lb ft	110 lb ft	210 lb ft	160 lb ft	170 lb ft	185 lb ft
5/8 UNC	149 Nm	115 Nm	231 Nm	176 Nm	325 Nm	244 Nm	258 Nm	278 Nm
	110 lb ft	85 lb ft	170 lb ft	130 lb ft	240 lb ft	180 lb ft	190 lb ft	205 lb ft

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Air Drill Dimensions

Metric Dimensions (meters)

	25.4 cm Spacing		30 cm Spacing	
BASE MACHINE	**# of Openers**	**Width of Cut**	**# of Oeners**	**Width of Cut**
15.3 m	60	**15.3 m**	50	**15.3 m**
18.3 m	72	**18.3 m**	60	**18.3 m**
21.3 m	84	**21.3 m**	70	**21.3 m**

BASE MACHINE	Transport Height (1)	Transport Width (2)	Air Drill Length (3) *
15.3 m	**5.03 m**	**5.60 m**	**12.2 m**
18.3 m	**5.03 m**	**5.60 m**	**13.7 m**
21.3 m	**5.03 m**	**5.60 m**	**15.1 m**

*Length is the machine length without any field hitches in transport position.

Dimensions (feet)

	10 in Spacing		12 in Spacing	
BASE MACHINE	**# of Openers**	**Width of Cut**	**# of Openers**	**Width of Cut**
50 ft	60	**50 ft**	50	**50 ft**
60 ft	72	**60 ft**	60	**60 ft**
70 ft	84	**70 ft**	70	**70 ft**

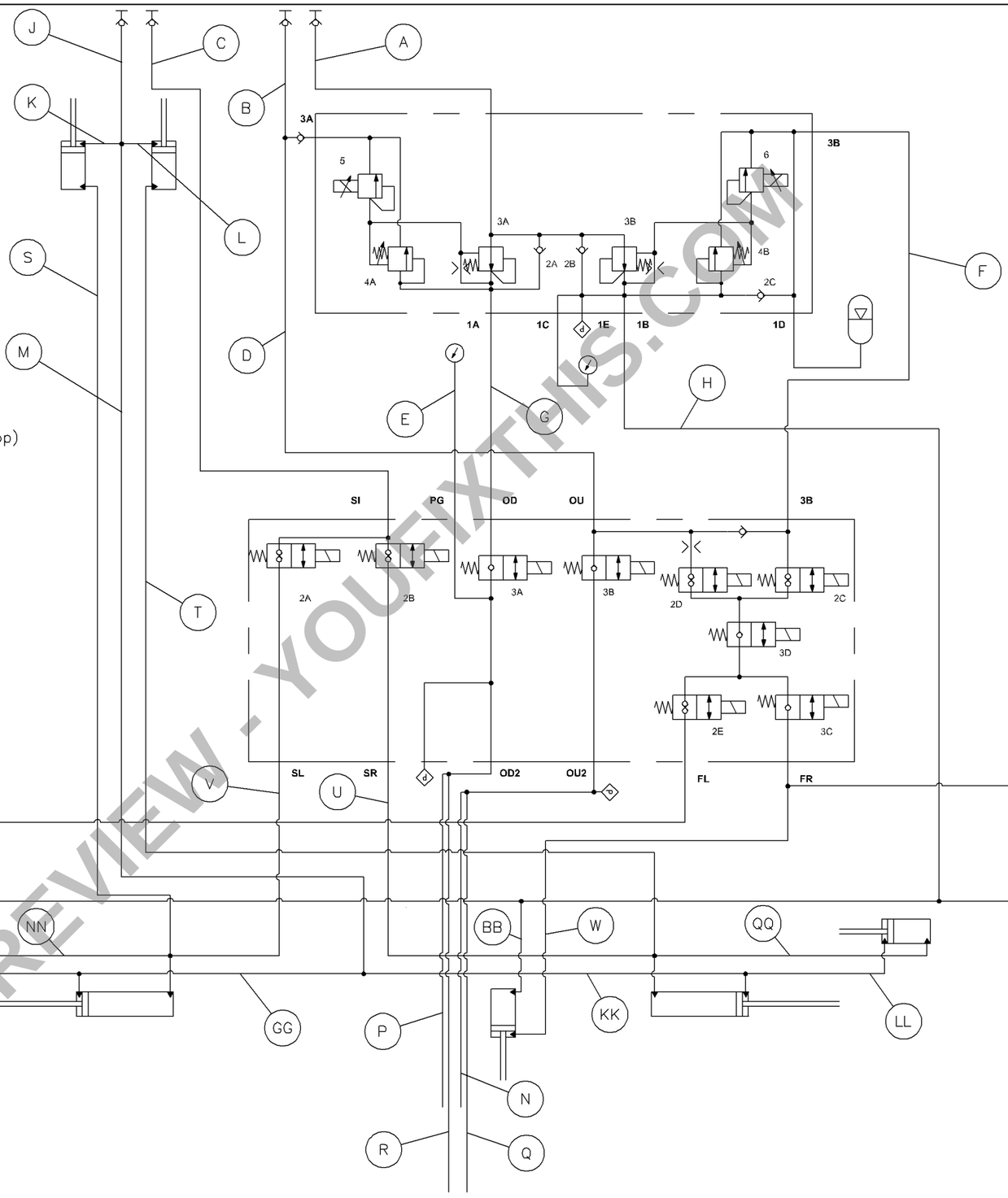
BASE MACHINE	Transport Height (1)	Transport Width (2)	Air Drill Length (3) *
50 ft	**16 ft 6 in**	**18 ft 4 in**	**40 ft 2 in**
60 ft	**16 ft 6 in**	**18 ft 4 in**	**45 ft 1 in**
70 ft	**16 ft 6 in**	**18 ft 4 in**	**49 ft 5 in**

*Length is the machine length without any field hitches in transport position.

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50FT PRECISION AIR HOE DRILL



NOTE:

P — Center Boom to Inner/Outer Toolbar T Fitting (2nd from Top)
To openers hydraulic lower/extend circuit (Base End)

R — To Center Section Toolbar
Opener lower/extend hydraulic circuit (Base End)

N — Center Boom to Inner/Outer Toolbar T Fitting (Top)
To openers hydraulic lift/retract circuit (Rod End)

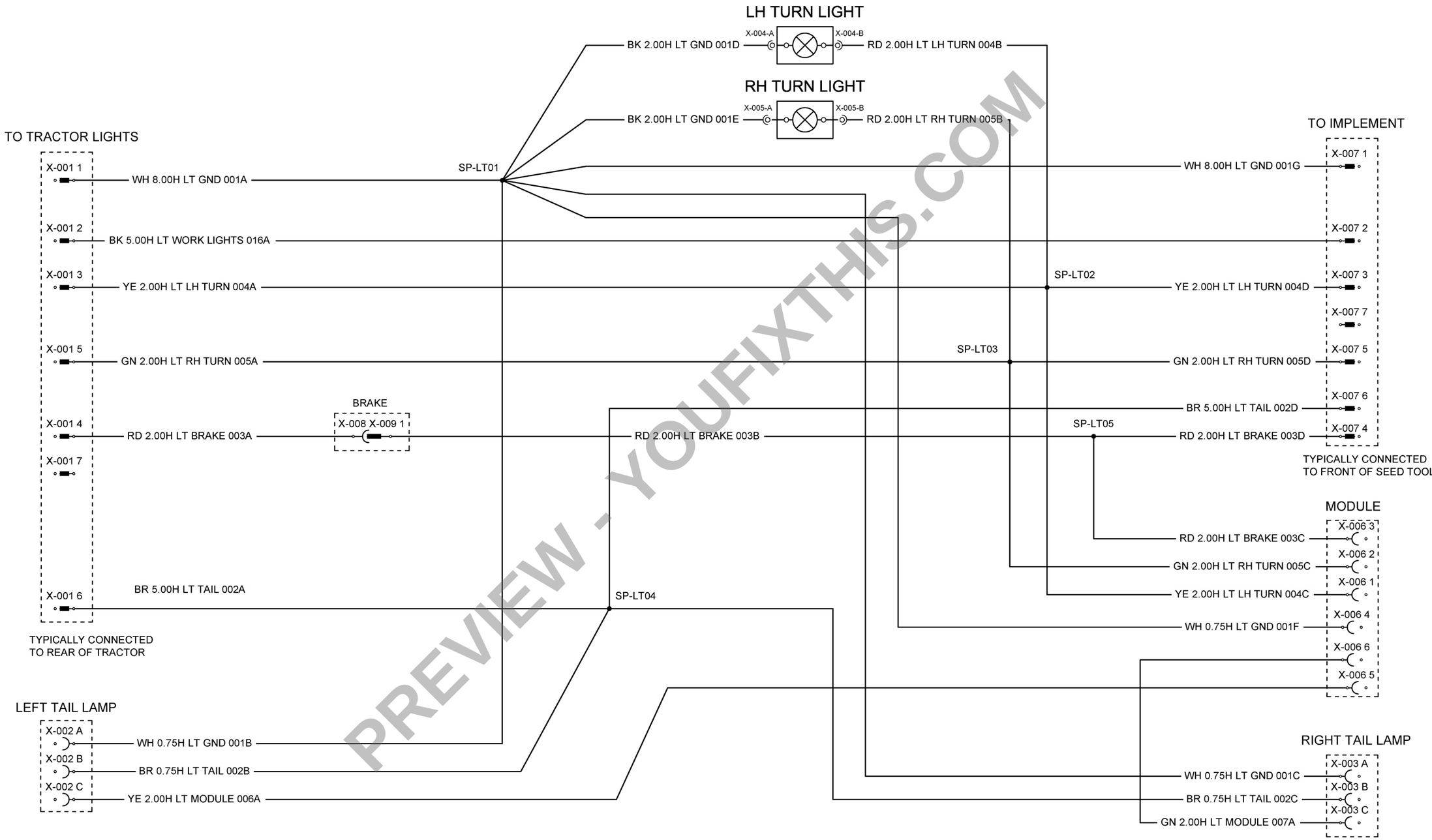
Q — To Center Section Toolbar
Opener lift/retract hydraulic circuit (Rod End)

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LIGHTING



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FRAME 6

210024C 1

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DIAGNOSTIC

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[Precision Hoe Drill Rate ECU] - 520193-04-ECU_PWR, Voltage below normal, or shorted to low source 10

[Precision Hoe Drill Rate ECU] - 520194-03-Sensor Pwr, Voltage above normal, or shorted to high source 12

[Precision Hoe Drill Rate ECU] - 520194-04-Sensor Pwr, Voltage below normal, or shorted to low source 14

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[Precision Hoe Drill Rate ECU] - 520201-04-Ground Difference, Voltage below normal, or shorted to low source 34

[Precision Hoe Drill Rate ECU] - 520202-03-Implement CAN_H, Voltage above normal, or shorted to high source 36

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NOTE: *Before starting the disassembly procedure, be sure to have a clean table or surface on which to place all components.*

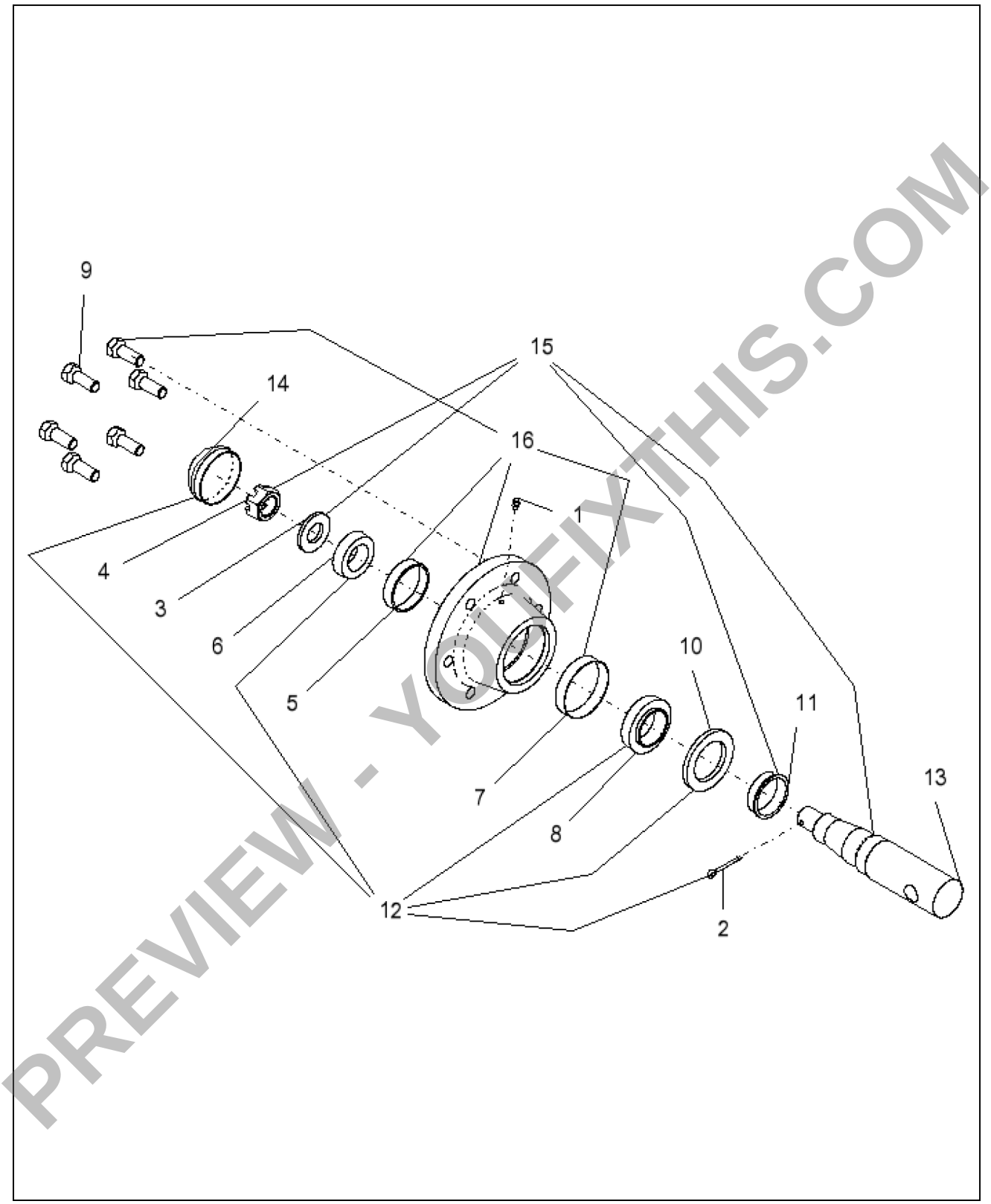
1. Securely block the wheel off the ground and remove the wheel.
2. Remove dust cap **(14)**, cotterpin **(2)**, and spindle nut **(4)**.
3. Pull hub off spindle **(13)** and remove washer **(3)** and outer bearing **(6)**.
4. Remove seal **(11)** and inner bearing **(9)**.
5. Inspect seal and bearings for damage. Replace as needed.

Next operation:
Go to the Hub Assembly section: **Hub - Assemble (D.10.A)**.

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Hub - Disassemble



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Hub Components

NOTICE: *Lubricating anti-friction bearings for the life of the bearing is essential. The r wheel bearings should be re-packed every 100 hours of use. Generally, anti-friction bearings do not wear out, but fail because of fatigue due to flexing, loads, and heat. A lubricant must do three jobs: reduce friction between balls or rollers and the separators, maintain a film between all elements of the bearing to reduce rubbing, and prevent components from rusting.*

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SEEDING Mechanical system - Troubleshooting

Problem	Possible Cause	Correction
Uneven working depth across machine.	Caster tire pressure not correct.	Check the tire pressure. Refer to the specifications section for correct tire pressures (page **WHEELS AND TRACKS Wheels - Tire pressure (D.50.C)**).
	Air hoe drill frame is not level.	Make sure the drill has been correctly levelled.
	Center caster tires running in tire tracks.	Check levelling in field conditions.
	Weight transfer due to draft loads.	Check levelling in field conditions.
	Soil conditions allowing caster wheels to sink into ground abnormally.	Check levelling in field conditions.
	Smaller wing caster wheels sinking into ground more than center caster wheels.	Check levelling in field conditions.
	Packer tire pressure is uneven.	Check packer tire pressure and adjust as required.
	Openers set to varying depth	Check that the openers are adjusted to the same working depth.
	Air flow too high.	Check air velocity using the Open Hose test method. Refer to your air cart operator's manual.
	Knife opener worn.	Replace worn knifes.
	Mud sticking to packer wheel.	Reduce packer wheel pressure to promote mud shedding, (minimum **70 kPa** (**10 psi**)). Order mudscraper attachments.
	Wet field conditions.	Wait for field to dry.
	Frames not level.	Rear rank of frames running higher than the front rank.
	Knives not penetrating the ground due to insufficient opener pressure.	Increase opener pressure to force knives into the ground.
Openers not cutting deep enough behind tractor, drill or air cart tires.	Soil has been compressed due to pressure from the tractor, drill or air cart tires.	Lower the affected openers using the opener depth adjustment.
Frames not running parallel with the terrain front to back.	Frames not level front to back.	Refer to levelling page in the Operator's manual.
	Draft load lifting rear of drill.	Increase frame weight transfer pressure.
	Too much weight transfer in soft seeding conditions.	Decrease frame weight transfer pressure.
Packer tires going flat.	Air pressure in packer tires is too low.	Increase the air pressure in the packer tires.
Openers will not lower after unfold.	The unfold sequence is not complete.	Press "NEXT" after unfolding the drill to complete the unfold sequence.
Pressure out of range error for opener	Error set too small.	Adjust error to **25 %**.
	Rocky conditions causing many openers to trip at once.	Increase opener pressure by **50 - 100 psi** AND increase the error range to **35 %**.
Openers will not lower at the end of the unfold procedure.	Burned out alternator fuse on a tow between air cart configuration.	Replace fuse. Install **40 A** fuse kit for air cart if required. Contact your dealer.
Pressure control using auto-optimization is unstable.	The controller cannot control the pressures.	Decrease the controller Tune. If control is still unstable, disable auto-optimization. Set the opener and frame pressures individually as required by field conditions.
Openers will not raise or lower.	Burned out alternator fuse on a tow between air cart configuration.	Replace fuse. Install **40 A** fuse kit for air cart if required. Contact your dealer.
	Back pressure in hydraulic lines.	Relieve pressure from lines.

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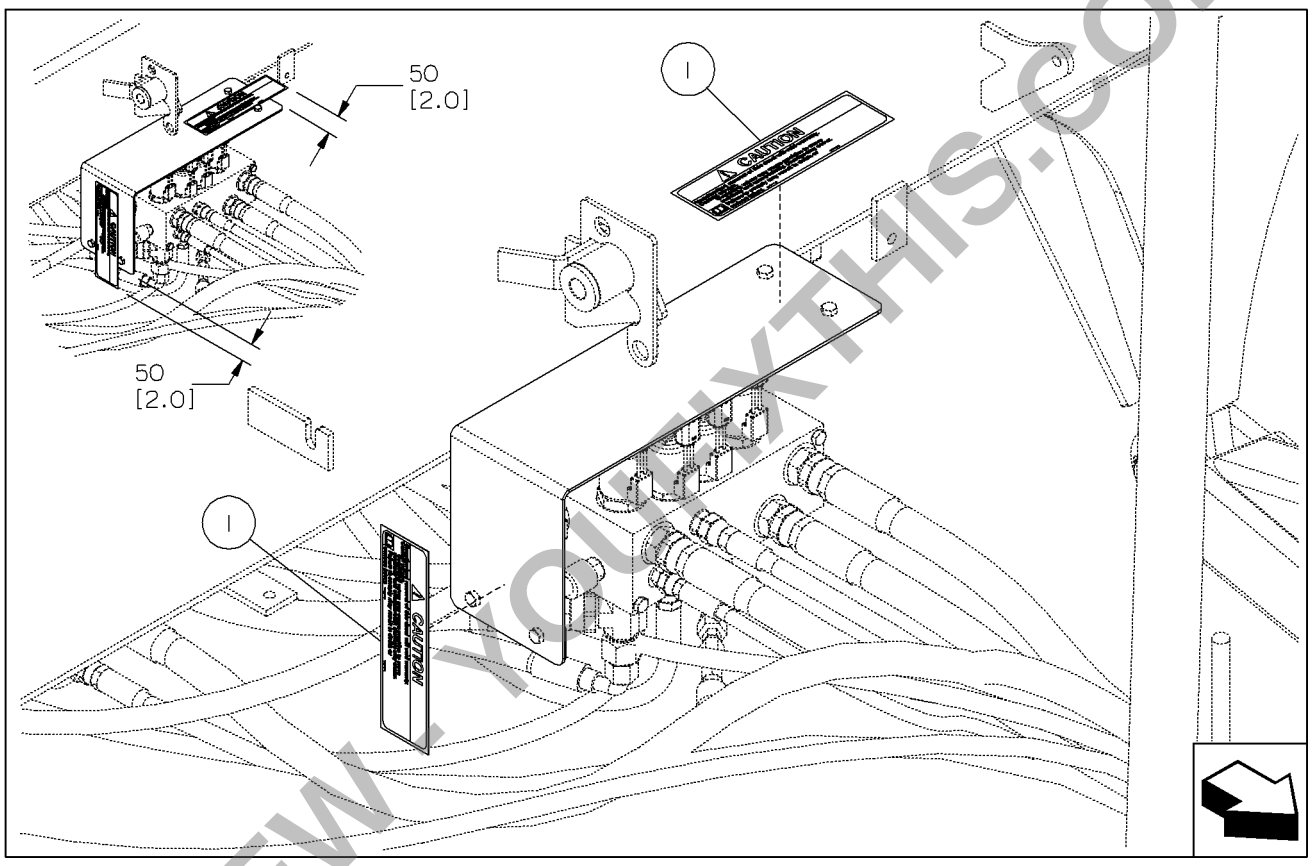
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INSTALL THE VALVE BLOCK WARRANTY DECAL

2. Install the decal **(1)** as shown. Ensure that there is a **50 mm** (**2.0 in**) over hang when applying the decal. Wrap the decal around to the other side of the plate over the bracket and ensure that it adheres properly.

NOTE: *The purpose of the decal is to ensure that the valve block assembly is not tampered with once the run in sequence has been completed.*

REF	DESCRIPTION
1	DECAL, CAUTION WARRANTY VOID

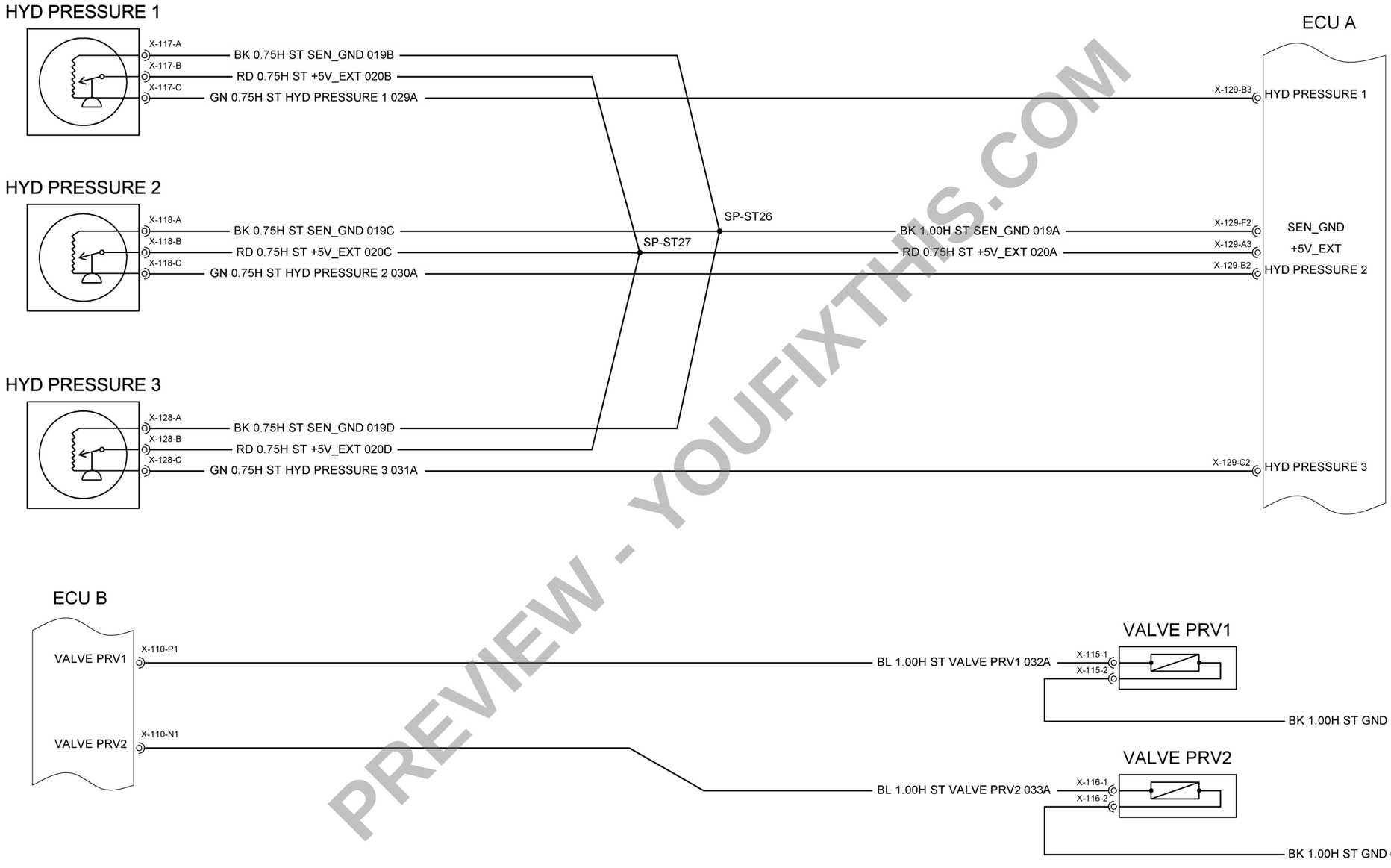


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PRESSURE SENSORS / PRESSURE VALVES



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FRAME 9

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X-110
X-132 (TBT only)

If measuring the ECU_PWR circuit voltage at a connector with multiple ECU_PWR and ECU_GND contacts, measure the voltage between all pair combinations of ECU_PWR and ECU_GND.
Locate and repair any shorts to a voltage greater than **16 V**. Cycle system power or reset the PHD Rate ECU.

A. Fault 520193-3 is active. Go to Step **4**.

B. Fault 520193-3 is inactive. Continue operation.

4. Replace PHD Rate ECU.

Turn system power off.
Remove and replace the PHD Rate ECU.

Turn system power on.

A. Fault 520193-3 is active. Reinstall the original PHD Rate ECU. Submit a concern through ASIST.

B. Fault 520193-3 is inactive. Write the fault code on the failed PHD Rate ECU. Continue operation.

ELECTRONIC SYSTEM - Electrical schematic frame 05 (A.50.A-C.20.E.05)
ELECTRONIC SYSTEM - Electrical schematic frame 07 (A.50.A-C.20.E.07)
ELECTRONIC SYSTEM - Electrical schematic frame 08 (A.50.A-C.20.E.08)
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ELECTRONIC SYSTEM - Electrical schematic frame 11 (A.50.A-C.20.E.11)

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Disconnect any other electronic systems connected to the implement bus. Only disconnect any systems that will still allow the PHD Rate ECU to communicate with the VT; e.g., do not disconnect the air cart if the seeding configuration is TBT.

A. Fault 520203-4 is active. Go to Step **3**.

B. Fault 520203-4 is inactive. Connect one bus segment/node at a time. When fault 520203-4 occurs, follow the troubleshooting for the segment/node that was just connected.

3. Check if the CAN_L circuit in the PHD implement harness is open or intermittent, shorted to ground or shorted to a voltage less than **0.1 V**.

   Measure the CAN_L circuit voltage with respect to ECU_GND within the PHD implement harness(es). The CAN_L circuit is located at the following connectors:

   X-101
   X-107
   X-111
   X-129
   X-132 (TBH only)

   Inspect the connectors listed above and ensure:
   All contacts are clean and free of dirt and corrosion.
   Contacts are not bent.
   All contacts are properly seated in their connector housing.
   The housings of each connector pair are securely mated and locked together.

   Locate and repair any open circuit, intermittent connection, short to ground or short to a voltage less than **0.1 V**.
   Cycle system power or reset the PHD Rate ECU.

   A. Fault 520203-4 is active. Go to Step **4**.

   B. Fault 520203-4 is inactive. Continue operation.

4. Replace terminator at rear of implement bus.

   Turn system power off.

   Replace terminator at rear of implement bus.

   The terminator is connected at **X-112** for a TBT seeding configuration.

   Refer to air cart documentation to determine terminator location for a TBH seeding configuration.
   Turn system power on.

   A. Fault 520203-4 is active. Go to Step **5**.

   B. Fault 520203-4 is inactive. Continue operation.

5. Replace terminator at front of implement bus.

   Turn system power off.

   Replace terminator at front of implement bus, typically located in the tractor. Refer to tractor documentation to determine terminator location.

   Turn system power on.

   A. Fault 520203-4 is active. Go to Step **6**.

   B. Fault 520203-4 is inactive. Continue operation.

6. Replace PHD Rate ECU.

   Turn system power off.

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520237-05-Valve Solenoid 2E Current below normal, or open circuit

Control Module : Precision Hoe Drill Rate ECU

Context:
The PHD Rate ECU monitors both voltage and current for some outputs, and voltage only for some outputs. Voltage and current faults operate independently.

A single problem e.g., PHD Rate ECU output shorted to ground, may produce both a voltage fault and a current fault, or only a voltage fault or only a current fault.

When a PHD Rate ECU output is open circuit (nothing connected) the voltage will be pulled to approximately **75 %** of the PWR voltage.

Cause:
(See above)

Possible failure modes:

1. Faulty Valve Solenoid 2E circuit.
   - Valve Solenoid 2E circuit is open or has an intermittent connection.
   - Valve Solenoid 2E circuit is shorted to a high voltage.
2. Faulty valve solenoid.
3. Faulty Rate ECU.

Solution:

1. Determine if the fault code is still active:

   Cycle system power or reset the PHD Rate ECU.

   Select UTIL > FAULT and check both ACTIVE and INACTIVE faults. Refer to **SEEDING Electronic system - Check Faults (L.10.C)**.
   Review: Fault Count, First Time, Last Time

   Also view the Valve Solenoid 2E current as measured by the PHD Rate ECU.
   Select DIAGN > MONTR and choose Valve Solenoid 2E. Refer to **SEEDING Electronic system - Check Diagnostics - Monitor (L.10.C)**.

   A. Fault 520237-5 is active. Go to Step **2**.

   B. Fault 520237-5 is inactive. Continue operation and monitor for recurring fault.
2. Check if the Valve Solenoid 2E circuit in the PHD implement harness is open or has an intermittent connection or is shorted to a high voltage:

   Measure the Valve Solenoid 2E circuit voltage with respect to GND within the PHD implement harness(es).

   The Valve Solenoid 2E circuit is located at connectors: **X-110** and **X-123**.

   Inspect the connectors listed above and ensure:
   All contacts are clean and free of dirt and corrosion.
   Contacts are not bent.
   All contacts are properly seated in their connector housing.
   The housings of each connector pair are securely mated and locked together.

   Locate and repair any open, intermittent connection or short to a high voltage in the Valve Solenoid 2E circuit.

   Cycle system power or reset the PHD Rate ECU.

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520302-03-Right Drawtube Latch Voltage above normal, or shorted to high source

Control Module : Precision Hoe Drill Rate ECU

Context:
The Right Drawtube Latch sensor is an inductive proximity sensor. It is a two wire sensor with the sensor power supply circuit and the sensor signal circuit combined.

When a PHD Rate ECU digital sensor input is open circuit (nothing connected) the voltage will be pulled to approximately **95.5 %** of the Internal 8V voltage.

Cause:
(See above)

Possible failure modes:

1. Right Drawtube Latch circuit is shorted to a high voltage.
2. Faulty Rate ECU.

Solution:

1. Determine if the fault code is still active:

   Cycle system power or reset the PHD Rate ECU.

   Select UTIL > FAULT and check both ACTIVE and INACTIVE faults. Refer to **SEEDING Electronic system - Check Faults (L.10.C)**.
   Review: Fault Count, First Time, Last Time

   A. Fault 520302-3 is active. Go to Step **2**.

   B. Fault is inactive. Continue operation and monitor for recurring fault.
2. Determine if the Right Drawtube Latch circuit in the PHD implement harness contains a short to a high voltage:

   Disconnect the Right Drawtube Latch sensor.

   Measure the Right Drawtube Latch (RH DRAWTUBE LATCH) circuit voltage with respect to ECU_GND within the PHD implement harness.

   The Right Drawtube Latch circuit is located at connector **X-103** and **X-129**.

   With the Right Drawtube Latch sensor disconnected and the PHD implement harness connected to the PHD Rate ECU, the Right Drawtube Latch circuit voltage should be **94 - 97 %** of Internal 8V.

   Determine Internal 8V voltage by selecting DIAGN > MONTR and choose Internal 8V.

   Locate and repair any shorts between the Right Drawtube Latch circuit and a high voltage.

   Reconnect the Right Drawtube Latch sensor.

   Cycle system power or reset the PHD Rate ECU.

   A. Fault 520302-3 is active. Go to Step **3**.

   B. Fault 520302-3 is inactive. Continue operation.
3. Replace PHD Rate ECU.

   Turn system power off.

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520312-03-Hyd Pres 3 Voltage above normal, or shorted to high source

Control Module : Precision Hoe Drill Rate ECU

Context:
The pressure sensor is a three-wire sensor with a **5 V** power supply line from the Rate ECU and a separate signal wire. When a PHD Rate ECU analog sensor input (pressure sensor signal line) is open circuit (nothing connected) the voltage will be pulled to **0 V**.

Cause:
(See above)

Possible failure modes:

1. Hyd Pres 3 circuit is shorted to a voltage greater than **5.1 V**.
2. Faulty Hyd Pres 3 sensor.
3. Faulty Rate ECU.

Solution:

1. Find out if the fault is still active.

   Cycle the power or reset the ECU..

   Select UTIL > FAULT and check both ACTIVE and INACTIVE faults. Refer to **SEEDING Electronic system - Check Faults (L.10.C)**.
   Review: Fault Count, First Time, Last Time

   View the voltage as measured by the Rate ECU.
   Select DIAGN>MONTR and choose Hyd Pres 3. Refer to **SEEDING Electronic system - Check Diagnostics - Monitor (L.10.C)**.

   Cycle the power.

   A. If fault 520312-3 reoccurs, go to Step **2**.

   B. If fault 520312-3 does not recur (remains inactive), continue operation and monitor for recurring fault.
2. Check Hyd Pres 3 circuit for a short to a voltage greater than **5.1 V**.

   The Hyd Pres 3 circuit is between **X-110** and **X-128**.

   Locate and repair any shorts.

   Cycle the power.

   A. If fault 520312-3 reoccurs, go to Step **3**.

   B. If fault 520312-3 does not reoccur (remains inactive), continue operation.
3. Replace the Hyd Pres 3 sensor.

   Cycle power.

   A. If fault 520312-3 reoccurs, replace the original Hyd Pres 3 sensor and go to Step **4**.

   B. If fault 520312-3 does not reoccur (remains inactive), continue operation.
4. Replace PHD Rate ECU.

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TOOLBAR REAR WHEEL ASSEMBLY (3.0 m (10 ft) FRAMES ONLY)

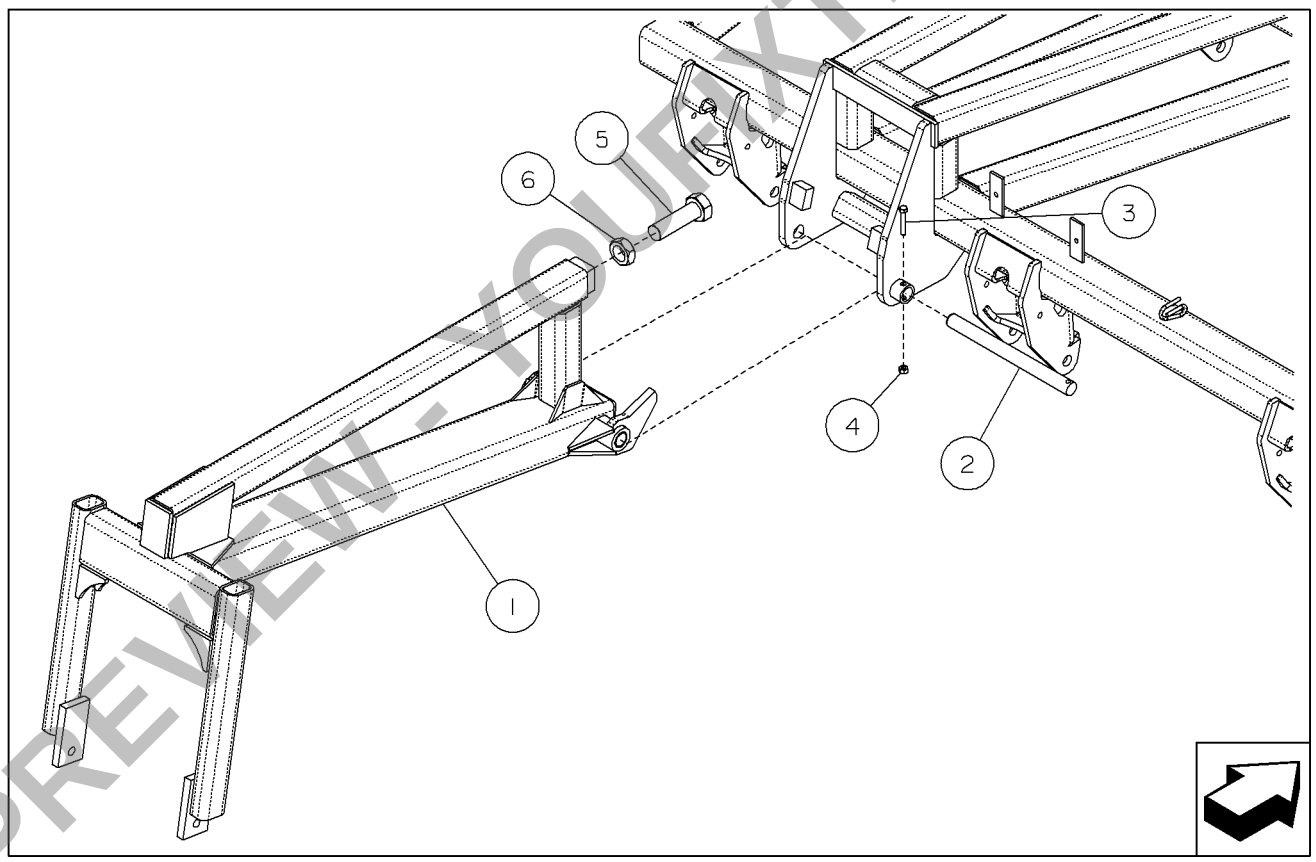
NOTE: *These instructions are for the **3.0 m** (**10 ft**) frames used on the **18.3 m** (**60 ft**) outer and the **15.2 m** (**50 ft**) inner and outer toolbar frames ONLY.*

6. Install the trailing wheel frame **(1)** to the wing toolbar frame as shown. Secure the frame with one pin **(2)**, one **7/16 in** x **2-1/2 in** bolt **(3)**, and one **7/16 in** locknut **(4)**.

7. Install one **1-1/2 in** x **5 in** bolt **(5)** and one **1-1/2 in** jam nut **(6)** to the trail wheel frame as shown.

NOTE: *Adjust the **1-1/2 in** x **5 in** bolt **(5)** so that the top of the rear wheel frame is approximately level to the top of the toolbar, Secure the **1-1/2 in** jamnut **(6)**.*

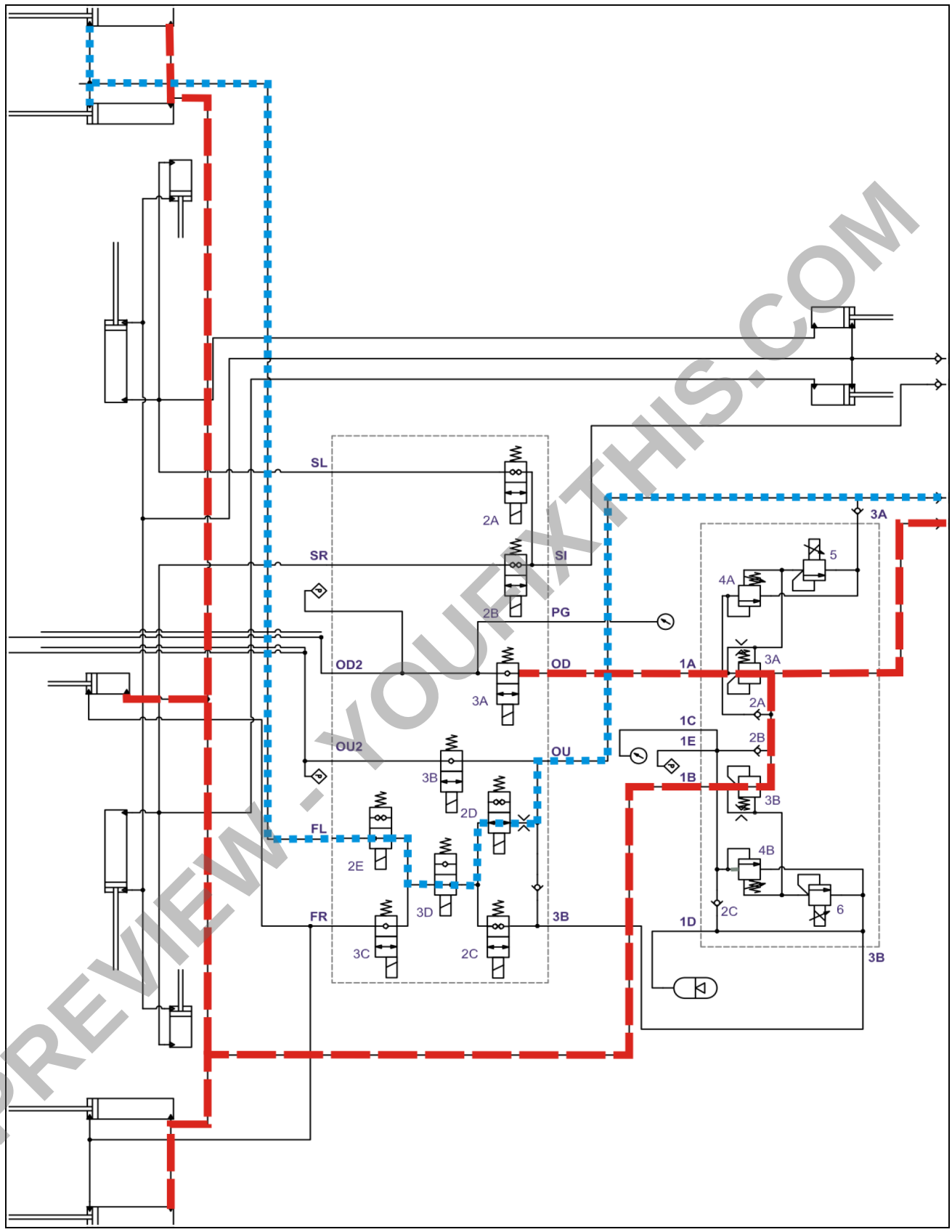
REF	DESCRIPTION
1	FRAME/W TRAIL WHEEL
2	PIN, 31.75 X 463 UL CHROME
3	BOLT .438 X 2.5 UNC GR5 ZND
4	LOCKNUT .438 UNC GR B YZD
5	BOLT, 1-1/2 X 5 FULL GRD 5 ZND
6	NUT JAM 1.5 UNC GR2 YZD



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210077C 9

Lower Left Frame

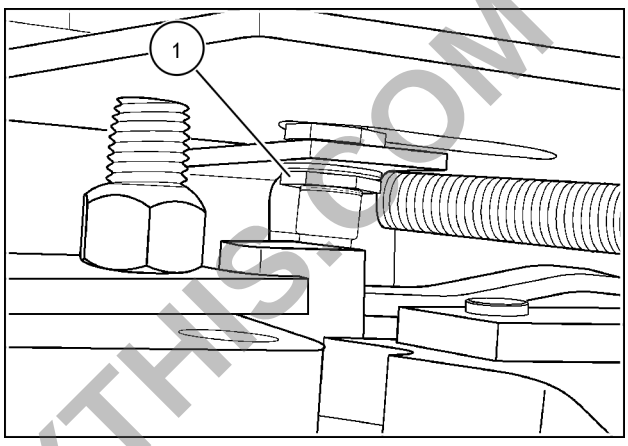
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Sensing system - Adjust

NOTICE: *Frame position sensors must be mounted so that the distance between the sensor face and the target never exceeds the maximum sensing distance when the sensor is expected (is in position) to sense the target. Sensors must be mounted so the target never contacts the sensor. Be sure to consider the full range of motion of target and/or sensor mounting bracket when mounting and/or adjusting the sensor.*

Caster trap sensors

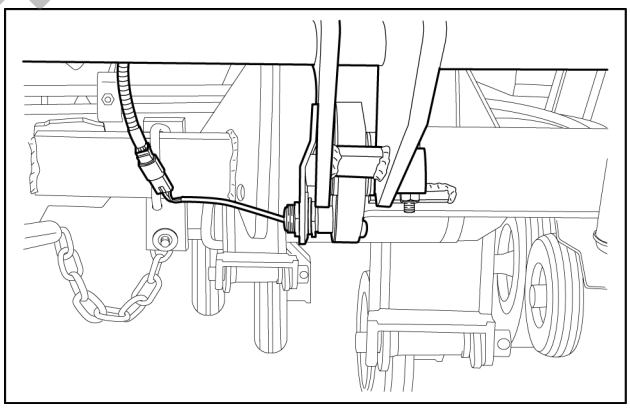
1. The left and right caster trap sensors have a diameter of **18 mm** (**0.71 in**). Check and adjust these sensors with the seed tool frame in transport position. The nominal sensor-to-target distance is **4 mm** (**0.16 in**), and the maximum allowable distance is **8 mm** (**0.31 in**).



206156S 1

Right hand frame sensor

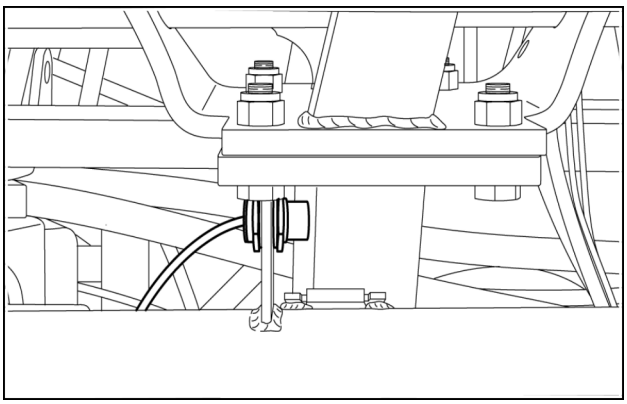
2. The right hand frame sensor has a diameter of **30 mm** (**1.18 in**). Check and adjust this sensor with the seed tool frame in field position. The nominal sensor-to-target distance is **6 mm** (**0.20 in**), and the maximum allowable distance is **12 mm** (**0.47 in**).



209505S 2

Left hand frame sensor

3. The left hand frame sensor has a diameter of **30 mm** (**1.18 in**). Check and adjust this sensor with the seed tool frame in transport position. The nominal sensor-to-target distance is **6 mm** (**0.20 in**), and the maximum allowable distance is **12 mm** (**0.47 in**).



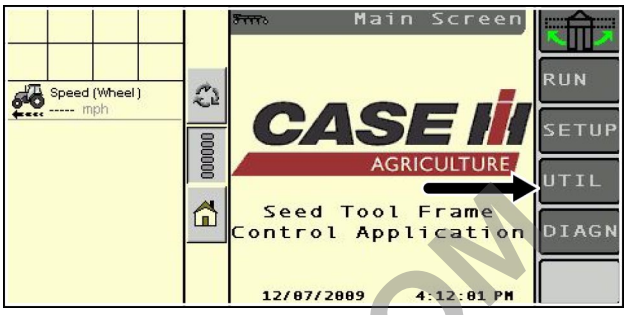
209523S 3

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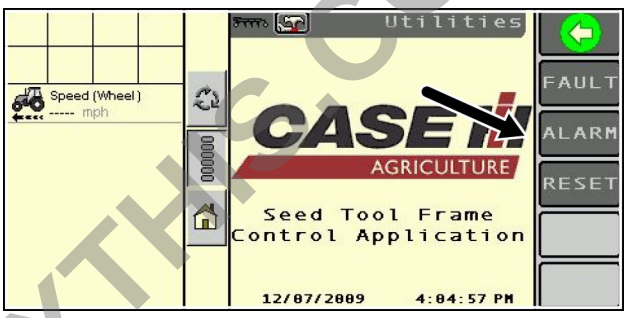
SEEDING Electronic system - Check Alarms

1. From the Main Screen select UTIL.



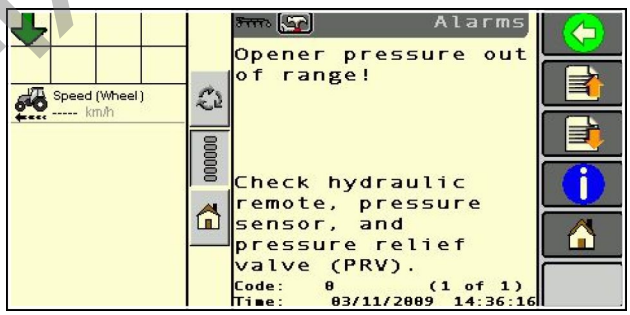
209420S 1

2. Select ALARM.



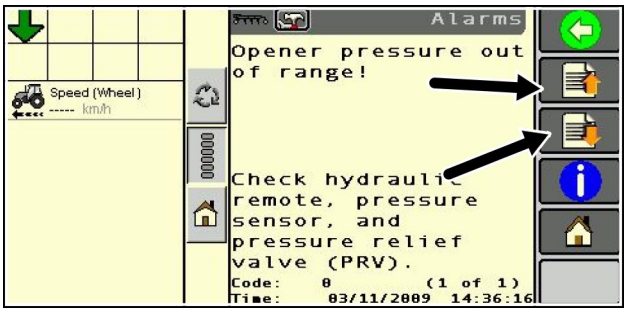
209388S 2

3. Each alarm is shown with a suggested solution to the underlying cause of the alarm.



209443S 3

4. Use Page Up or Page Down to scroll through the list of alarms.



209443S 4

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