Safety rules

Speedrower® 200 [YEG6XX001 -]	
Speedrower® 200	
Speedrower® 240 [YEG6XX001 -]	
Speedrower® 240	

⚠ General safety rules ⚠

Use caution when operating the machine on slopes. Raised equipment, full tanks and other loads will change the center of gravity of the machine. The machine can tip or roll over when near ditches and embankments or uneven surfaces.

- Only skilled operators who are familiar with all the controls and harvesting techniques should use the equipment. It is recommended to operate on cultivated land with slopes no greater than **26 %** (**15 °**) uphill and downhill.
- If necessary, when driving downhill change into a lower gear before starting the descent. Machine must be stopped to downshift into a lower gear.

Never permit anyone other than the operator to ride on the machine.

Never operate the machine under the influence of alcohol, drugs, or while otherwise impaired.

Pay attention to overhead power lines and hanging obstacles. High voltage lines may require significant clearance for safety.

Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin, causing serious injury or infection.

- DO NOT use your hand to check for leaks. Use a piece of cardboard or paper.
- Stop engine, remove key and relieve the pressure before connecting or disconnecting fluid lines.
- Make sure all components are in good condition and tighten all connections before starting the engine or pressurizing the system.
- If hydraulic fluid or diesel fuel penetrates the skin, seek medical attention immediately.
- Continuous long term contact with hydraulic fluid may cause skin cancer. Avoid long term contact and wash the skin promptly with soap and water.

Keep clear of moving parts. Loose clothing, jewelry, watches, long hair, and other loose or hanging items can become entangled in moving parts.

Wear protective equipment when appropriate.

DO NOT attempt to remove material from any part of the machine while it is being operated or components are in motion.

Make sure all guards and shields are in good condition and properly installed before operating the machine. Never operate the machine with shields removed. Always close access doors or panels before operating the machine.

Dirty or slippery steps, ladders, walkways, and platforms can cause falls. Make sure these surfaces remain clean and clear of debris.

A person or pet within the operating area of a machine can be struck or crushed by the machine or its equipment. DO NOT allow anyone to enter the work area.

Raised equipment and/or loads can fall unexpectedly and crush persons underneath. Never allow anyone to enter the area underneath raised equipment during operation.

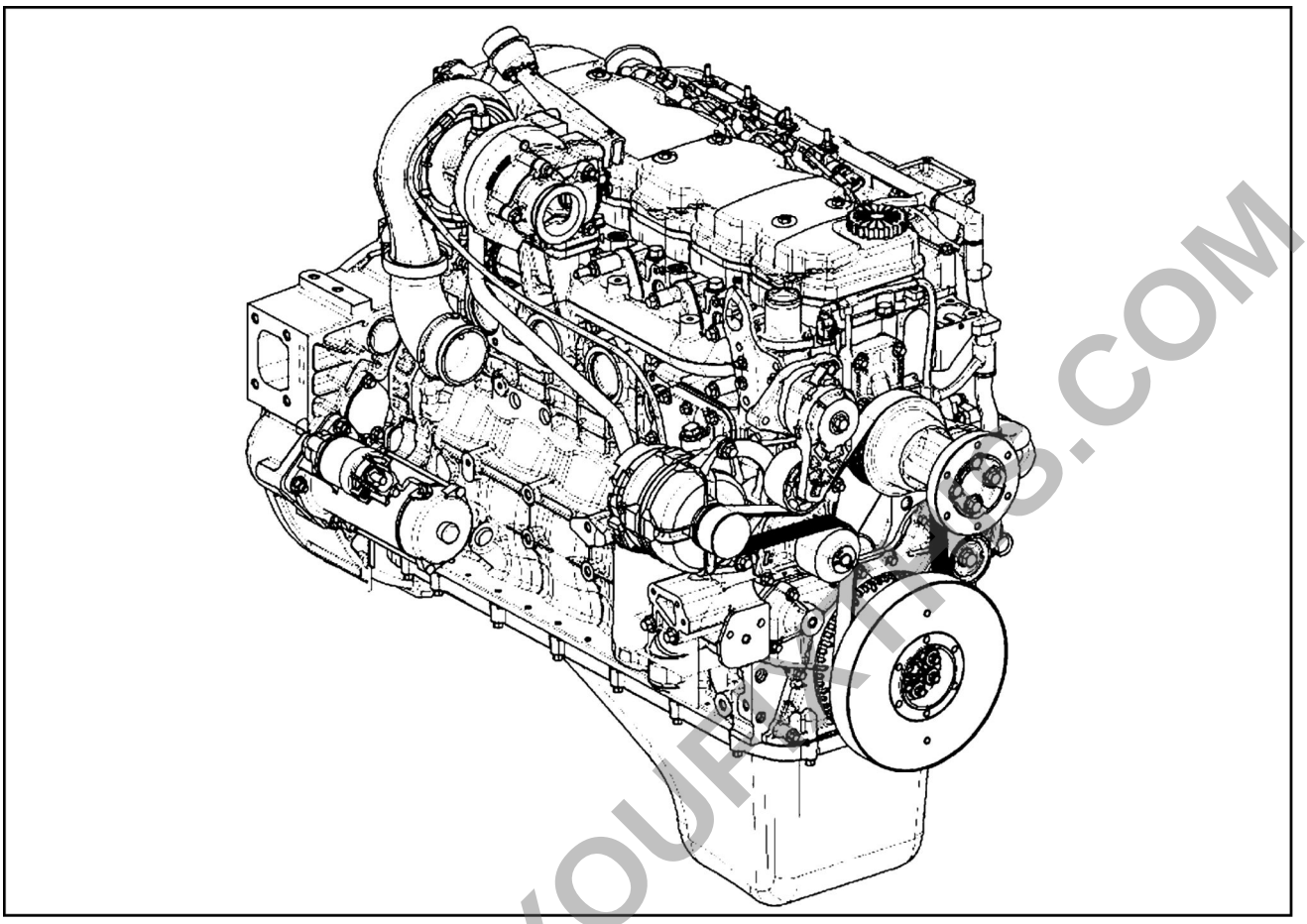
Never operate engine in enclosed spaces as harmful exhaust gases may build up.

Before starting the machine, be sure that all controls are in neutral or park lock position.

Start the engine only from the operator's seat. If the safety start switch is bypassed, the engine can start with the transmission in gear. Do not connect or short across terminals on the starter solenoid. Attach jumper cables as described in the manual. Starting in gear may cause death or serious injury.

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Engine and crankcase - Overview



76075199 1

The NEF Tier III engine is a 6–cylinder turbocharged and after cooled unit, having a bore of 104 mm (4.4 in) and a stroke of 132 mm (5.0 in) which generates a displacement of 410 in³.

The engine uses a electronically controlled hi-pressure injection pump and has been designed to meet current emission regulations and must only be serviced by an authorized service agent.

All engines fearure cross flow cylinder heads, with the inlet and exhaust manifolds on opposite sides of the cylinder head. The fuel and air combustion process, takes place in the specially designed bowl in the crown of the pistons.

NOTE: *The FRONT of the engine is the water pump end. The REAR of the engine is the flywheel end. In this section, right and left correspond to the above when standing at the rear of the engine looking at the flywheel end with the water pump end away from you.*

Cylinder block assembly

The cylinder block is an alloy cast iron with deep cylinder skirts, and water jackets for cooling the cylinders. The cylinder bores are machined integral with the cylinder block, during the manufacturing process.

Cylinders are in line and vertical and numbered 1 to 6 from the front (fan end) to the rear of the engine. They can be bored oversize for the fitment of sleeves, which are available in service.

In the following procedures and illustrations the engine is shown removed from the vehicle however there are certain operations that can be performed with the engine installed. Where it is necessary to remove the engine use a suitable hoist or overhead gantry and standard engineering procedures. Removal of the engine is described in Chapter 1 of Section 10 of this manual. Dismantle the engine following conventional techniques and by referring to the appropriate overhaul sections of this chapter. Always refer to the specification section as necessary.

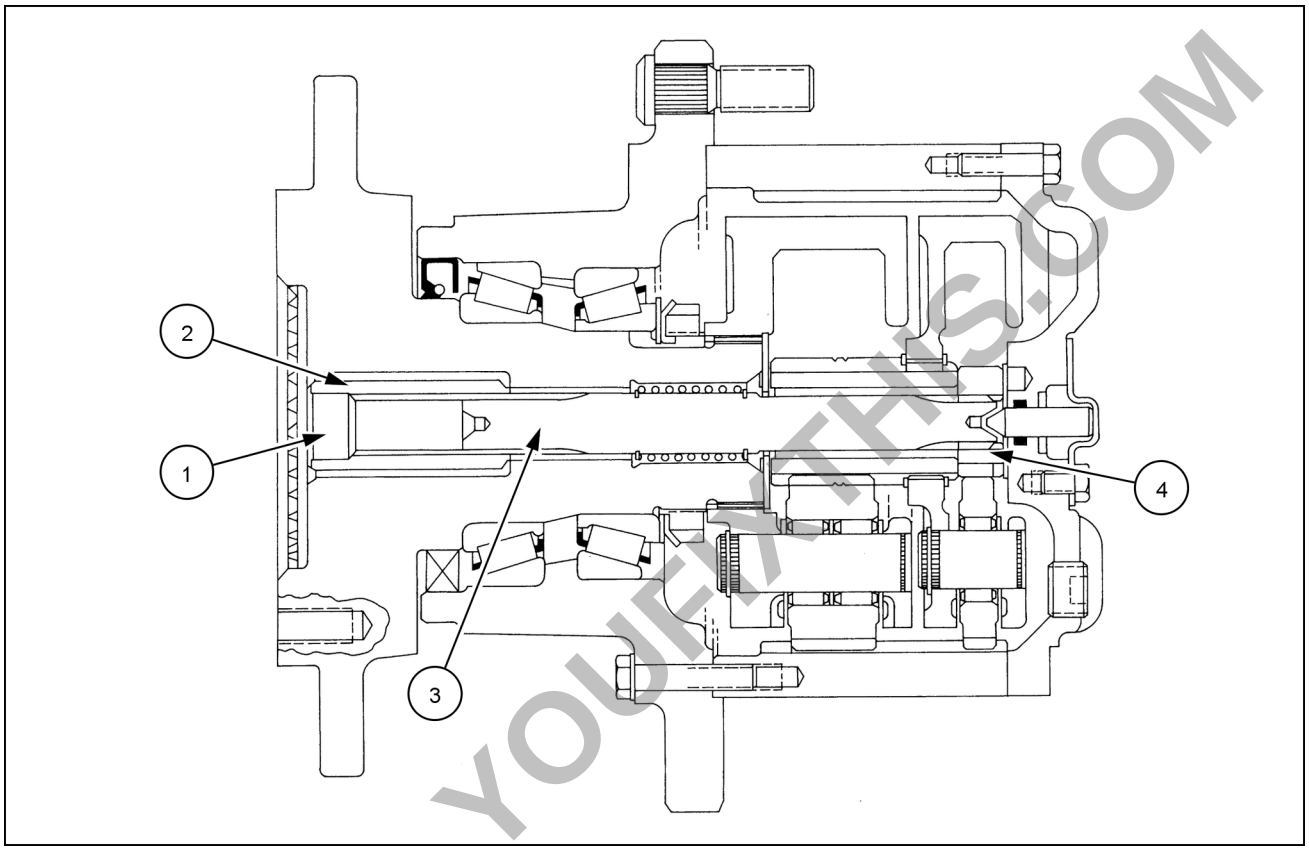
NOTE: *Where it is necessary to remove additional items to gain access to the components on the engine refer to Engine Removal.*

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Final drives - Dynamic description - Planetary Hubs

Two- and Three-Speed Planetary Hubs

The operation of the two- and three-speed planetary hubs is similar. The differences between the hubs are the input shaft, input sun gear and the input stage kit.



20105249N 1

Self-Propelled Windrowers have double reduction final drive hubs.

The hydraulic motor shaft **(1)** rotates as flow is applied from the pumps. A coupling **(2)** has internal splines and makes the connection from the motor shaft to the hub shaft **(3)**. The primary sun gear **(4)** is splined onto the end of the hub shaft.

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Non-powered rear axle - General specification

Rear Tires	14L x 16.1 (8 PR)	16.5L x 16.1 (10 PR)
Rating	8 ply rating	10 ply rating
Type	Grooved implement	Grooved implement
Size	37 x 14-16.1	16.5 x 16.1
Inflation pressure	**138 kPa** (**20 psi**)	**138 kPa** (**20 psi**)
Maximum inflation pressure		**250 kPa** (**38 psi**)

Rear Axle Clearance	
Height — Fixed or Suspended rear axle- either 14L or 16.5L tires	**1080 mm** (**42.5 in**)

Wheelbase	
w/forked support and 14L x 16.1 tires	**3659 mm** (**144.1 in**)
w/single arm support and 16.5L x 16.1 tires	**3627 mm** (**142.8 in**)

Tractor Weight	
SR200, SR240	**5092 kg** (**11,225 lb**)

Axle Spring Features	
Load range (isolator)	**635 - 3545 kg** (**1400 - 7815 lb**)
Design height range (isolator)	**203 - 254 mm** (**8 - 10 in**)
Usable stroke (actuator)	**274 mm** (**10.8 in**)
Assembly weight	**7.6 kg** (**16.8 lb**)
Temperature range	**-55 - 70 °C** (**-67 - 158 °F**)
Air spring relief valve relief pressure range (intended for use with compressed air)	**48 - 1380 kPa** (**7 - 200 psi**)
Air spring working pressure	**172 - 276 kPa** (**25 - 40 psi**)

Tightening Torques	
Axle extension bolts	**960 N·m** (**708 lb ft**)
Pivot pin bolts	**400 N·m** (**295 lb ft**)
Fork shaft bolt	**400 N·m** (**295 lb ft**)
Axle shaft bracket to fork	**108 N·m** (**80 lb ft**)
Wheel to wheel hub	**115 N·m** (**85 lb ft**)
Axle nut	**271 N·m** (**200 lb ft**)
Air fitting	**27 N·m** (**20 lb ft**)
Air spring retaining bolts (lower)	**67 N·m** (**49 lb ft**)
Center retaining nut	**104 N·m** (**77 lb ft**)
Air spring retaining nut	**34 N·m** (**25 lb ft**)
Air fitting stud	**67 N·m** (**49 lb ft**)

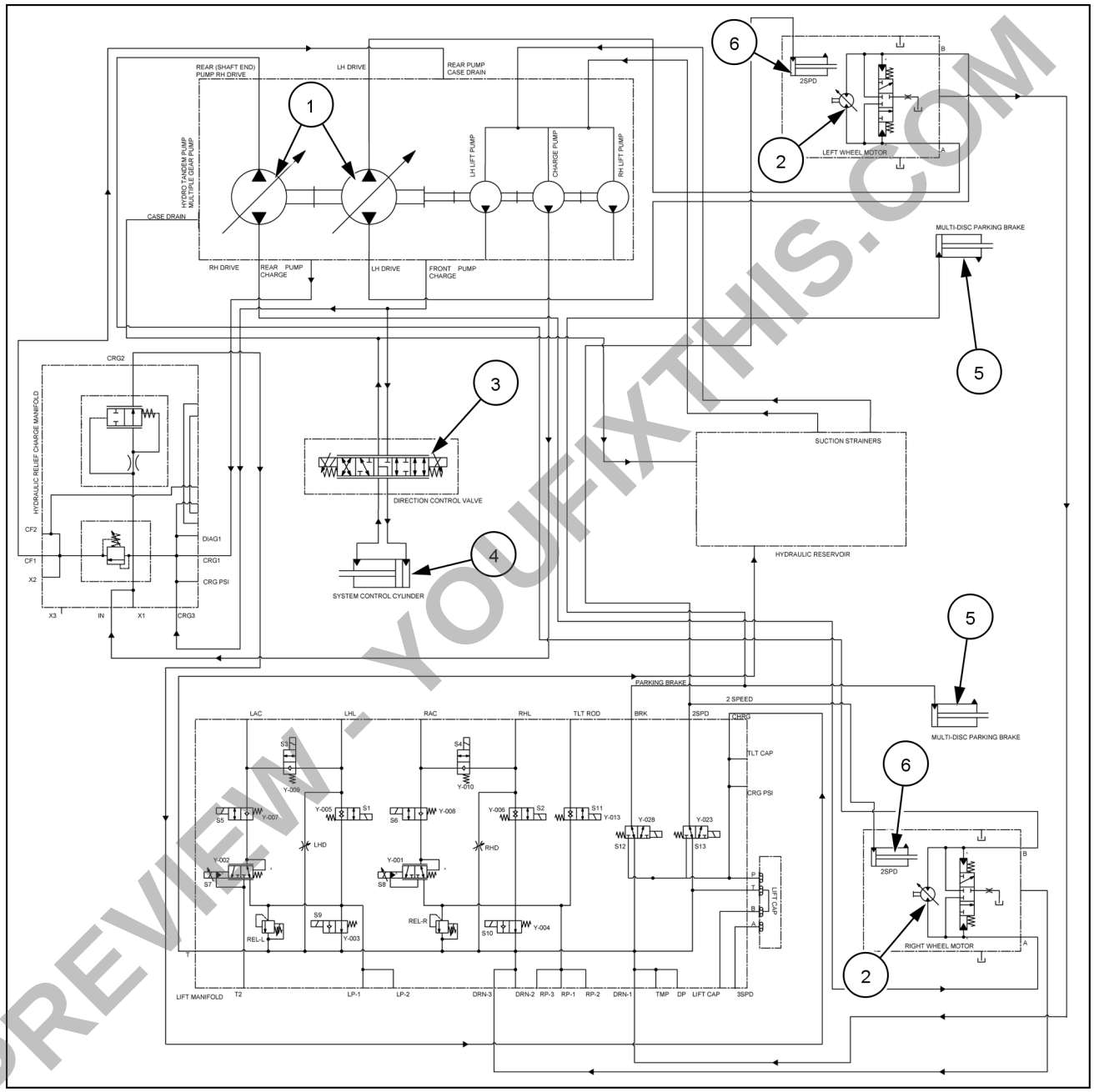
NOTE: *Use* ***LOCTITE® 277*** *on threads of all bolts and nuts in this section.*

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Transmission and steering hydrostatic control - Dynamic description - Two-speed hydrostatic system

Windrowers feature a hydrostatic transmission to infinitely vary the speed of the machine in both forward and reverse. The steering and directional control is a combined assembly used to mechanically control the flow of oil from the hydrostatic pumps to the motors. The motors drive the torque hubs and wheels to propel the machine.



NHIL14WR00154GB 1

Two-speed hydrostatic transmission and drive system

Ref.	Description
(1)	Ground drive hydraulic pumps (Hydro tandem pumps)
(2)	Ground drive motors
(3)	Direction control valve
(4)	System control cylinder
(5)	Multi-disc parking brake
(6)	Two-speed cylinder

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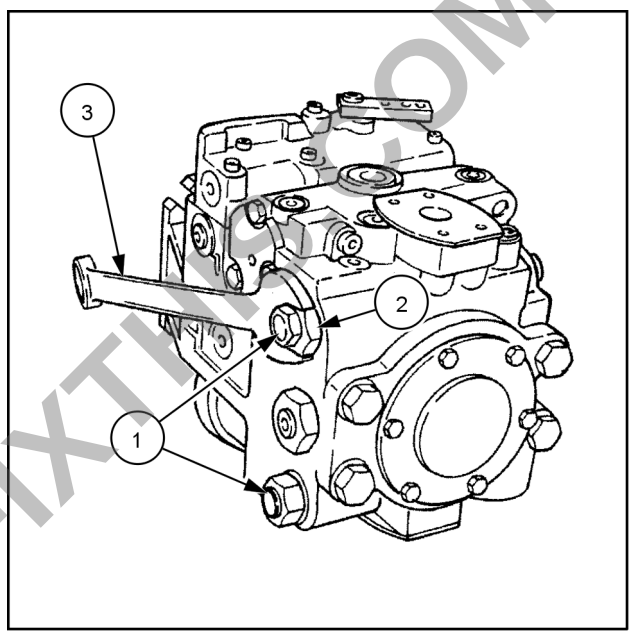
Hydraulic pump drive - Remove - Minor Repairs - Non-Draper

Speedrower® 200	Non draper ready - Not fitted for draper header
Speedrower® 240	Non draper ready - Not fitted for draper header

Multifunction Valve Cartridge Removal

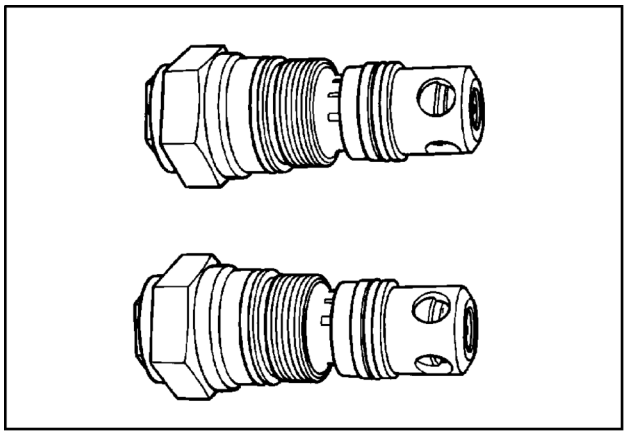
NOTE: *Do not attempt to adjust the existing multifunction valves. Unauthorized tampering with the multifunction valves will void the warranty. See an authorized Sauer-Danfoss service center for adjustments and repairs not covered in this manual.*

1. Remove the two multifunction valve cartridges **(1)** as an assembly by turning the largest hex **(2)** on the valve cartridge with a **1-1/4 in.** wrench **(3)**.



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2. With the valves removed from the pump inspect the cartridges for damage to parts and O rings.
3. Clean, repair and replace parts as necessary.



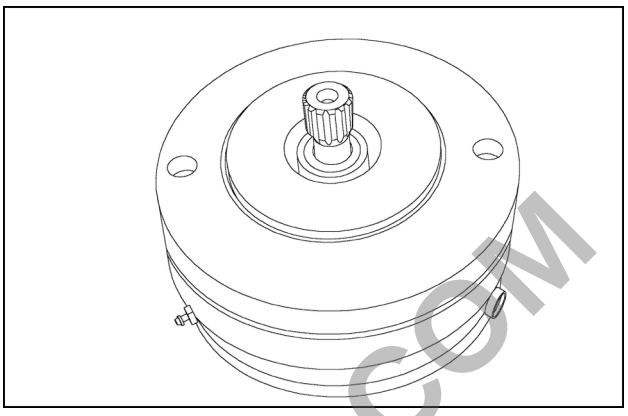
76116954 2

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Parking brake or parking lock - Dynamic description

The multi disc brake is a spring applied brake. Hydraulic pressure is required to release or "hold off" the brakes of the windrower. It is not used to stop the unit, but to hold in place.



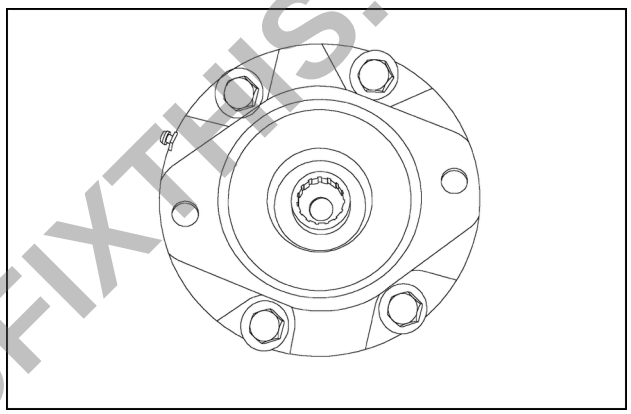
40045418N 1

⚠ WARNING

Pressurized hydraulic fluid can penetrate the skin and cause severe injuries.
To have the correct operation of brake unit, hydraulic pressure to the brake must fall to zero psi. Any residual back pressure applied to the brake will degrade the braking function. Failure to comply could result in death or serious injury.

W0994A

With the windrowers hydraulic system running the brake is pressurized in the released position during normal operation.



40045419N 2

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Hydraulic systems - Overview

The hydraulic distribution system on the self-propelled windrower (SPW) supplies hydraulic power to the header drive motors, lift cylinders, tilt cylinder, flotation trim functions and the windrower steering control circuit. The hydrostatic system supplies power to the ground drive motors on the front wheels and controls the relative speed and direction of the drive motors. Power for the hydraulic ground drive is provided by a tandem piston pump, mounted on the left-hand side of the front of the engine flywheel housing.

NOTE: *For more detailed information on the hydrostatic drive system, refer to* ***Transmission and steering hydrostatic control - Dynamic description - Two-speed hydrostatic system (29.100)*** *of this manual.*

All 6-cylinder windrowers use the tractor engine to supply power for both onboard and accessory hydraulic systems. A multiple gear pump consisting of two **6.6 cc/rev** lift pumps (left-hand and right-hand) and a **35.1 cc/rev** charge pump is mounted on the front end of the ground drive piston pump. The lift pumps supply hydraulic lift pressure to the lift manifold to operate the lift, tilt and float functions for the attached header. The pump provides charge pressure to the charge pressure relief manifold through an oil cooler and charge filter.

⚠ DANGER

Pressurized system!
Always remove all pressure before working on the hydraulic system. Follow the pressure BLEED program in the Configuration Mode to remove the pressure in the entire hydraulic system.
Failure to comply will result in death or serious injury.

D0035A

All of the hydraulic pumps draw their supply from the main hydraulic reservoir, mounted on the right-hand side of the chassis frame between the cab and the engine compartment. The hydraulic system is filtered by a 500-micron return-line filter, mounted on the right-hand, inboard side of the frame. The output of the charge pump flow through the oil cooler and the charge filter to the hydraulic relief charge manifold and supplies charge pressure to the ground drive motors, header drive motors, and the lift manifold.

Header drive pump (Non-Draper equipped)

Power for the hydraulic header drive is provided by a **105 cc/rev** variable-displacement piston pump, mounted on the right-hand side of the front of the engine flywheel housing. The pump is mechanically driven by a spur gear train, connected to the engine flywheel and contained in the splitter gear box (the front section of the engine flywheel housing).

Header drive pumps (Draper equipped)

Power for the hydraulic header drive is provided by **49 cc/rev** tandem piston pumps, mounted on the right-hand side of the front of the engine flywheel housing. Both piston pumps are mechanically driven by a spur gear train, connected to the engine flywheel and contained in the splitter gearbox (the front section of the engine flywheel housing).

Lift and charge multiple gear pump

All of the hydraulic header lift and ground drive functions (park brake, 2-speed or 3-speed) are controlled through the lift manifold, mounted under the right-hand deck plate. The lift and charge gear pump is a multiple gear pump consisting of two **6.6 cc/rev** lift pumps (left-hand and right-hand) and a **35.1 cc/rev** charge pump. The lift and charge pump is mounted on the front end of the ground drive piston pump. The lift pumps supply hydraulic lift pressure to the lift manifold to operate the lift, tilt and float functions for the attached header. The charge pump provides charge pressure to the charge pressure relief manifold through an oil cooler and charge filter.

Auxiliary drive kit

The **22.8 cc/rev** auxiliary pump is mounted on the rear of the right-hand side of the engine. Power supplied by the auxiliary pump is controlled through a dedicated auxiliary control valve (manifold), mounted on a bracket on the right-hand side of the engine compartment. The auxiliary drive pump supplies hydraulic operating pressure to the hydraulic reel drive or the crop merger.

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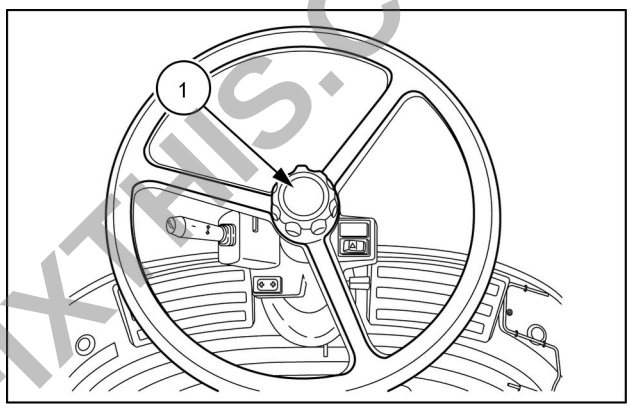
Power steering wheel - Remove - Steering wheel

⚠ WARNING

Avoid injury! Always do the following before lubricating, maintaining, or servicing the machine.
1. Disengage all drives.
2. Engage parking brake.
3. Lower all attachments to the ground, or raise and engage all safety locks.
4. Shut off engine.
5. Remove key from key switch.
6. Switch off battery key, if installed.
7. Wait for all machine movement to stop.
Failure to comply could result in death or serious injury.

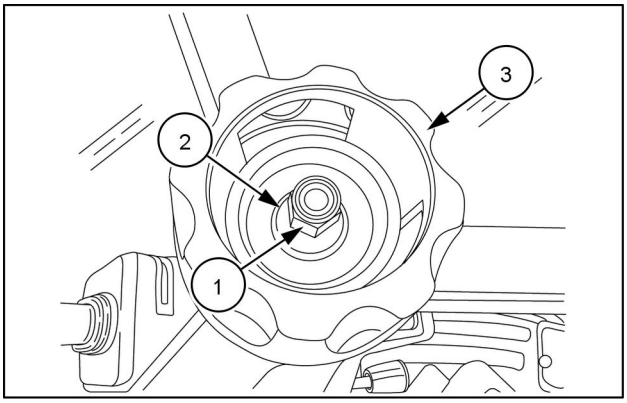
W0047A

1. Remove center cap **(1)** from steering wheel.



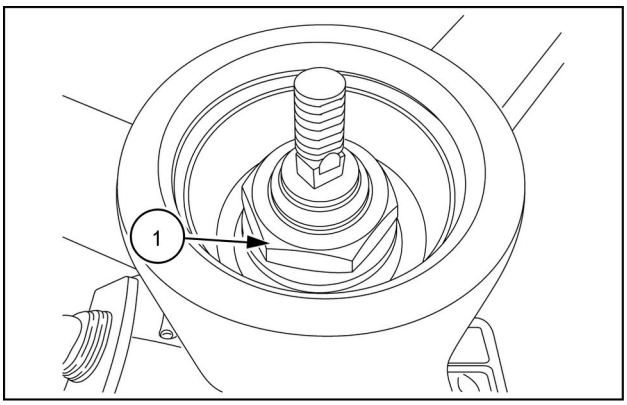
83112408 1

2. Remove the lock nut **(1)** and two washers **(2)** and remove the telescoping lock knob **(3)**.



83112409 2

3. Remove the large nut **(1)** retaining the steering wheel.



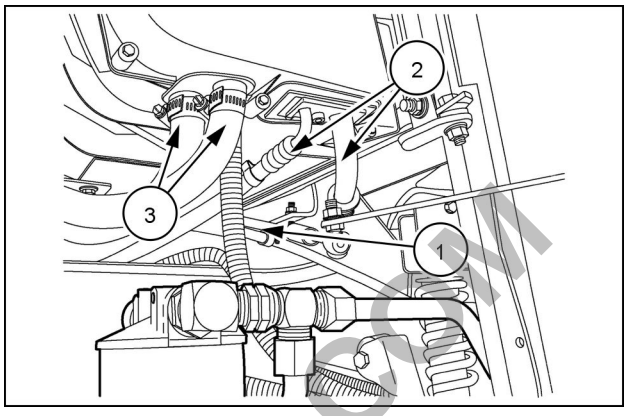
83112410 3

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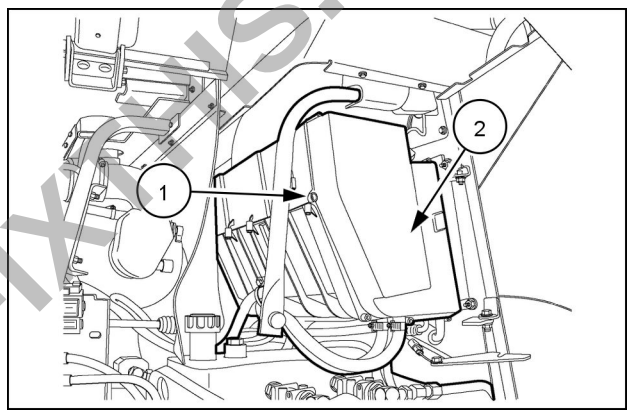
Cab heater - Remove

1. Remove the clamps **(1)** securing the evaporator lines.
2. Drain the engine coolant low enough to remove the heater core hoses **(3)**.



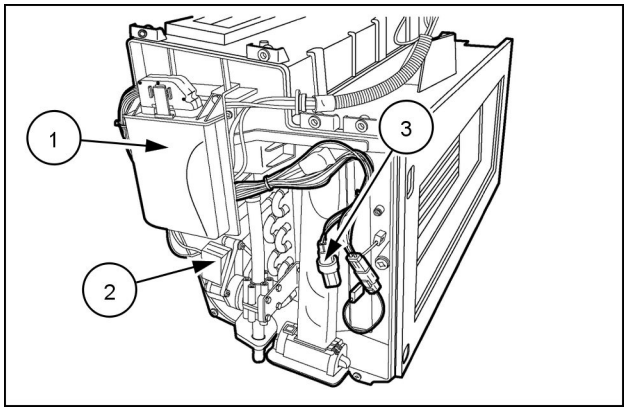
86085586N 1

3. Remove nine T30 Torx head screws **(1)** securing the cover **(2)** to the Heating, Ventilation and Air Conditioning (HVAC) box.



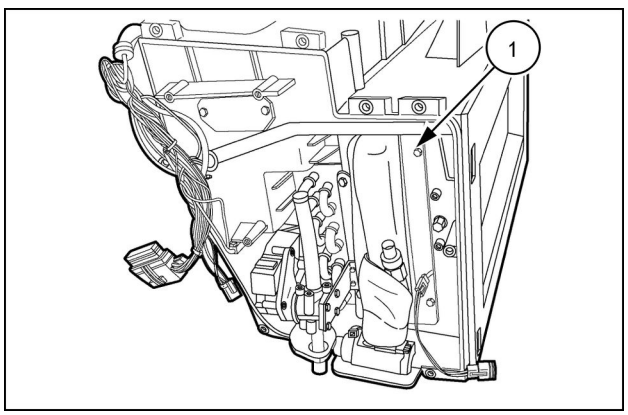
86085587N 2

4. Disconnect the harnesses from the following components:
   - HVAC controller **(1)** (If applicable).
   - Heater control valve **(2)**.
   - Low pressure switch **(3)**.
5. Remove the three screws securing the HVAC controller to the box.



86085588N 3

6. Remove the six screws **(1)** securing the heater and evaporator cores.



86085589N 4

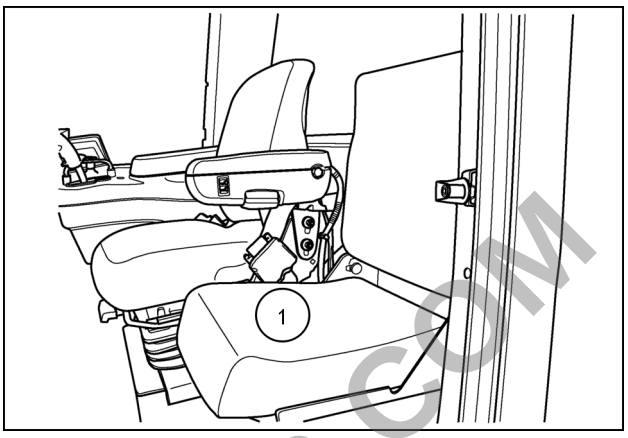
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Electrical system - Component localisation Main fuse/relay panel

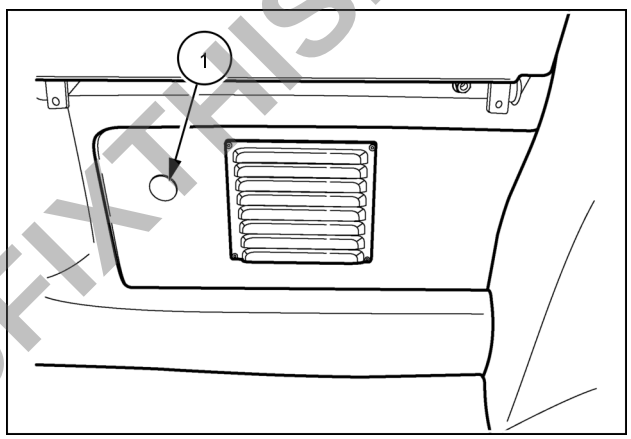
The fuses are located on the back wall of the windrower cab, to the left of the seat and below the instructional seat.

1. Fold the seat **(1)** up. Push the seat down to engage in the slots.



10041218 1

2. Remove the cap and use hole **(1)** to pull the cover off.

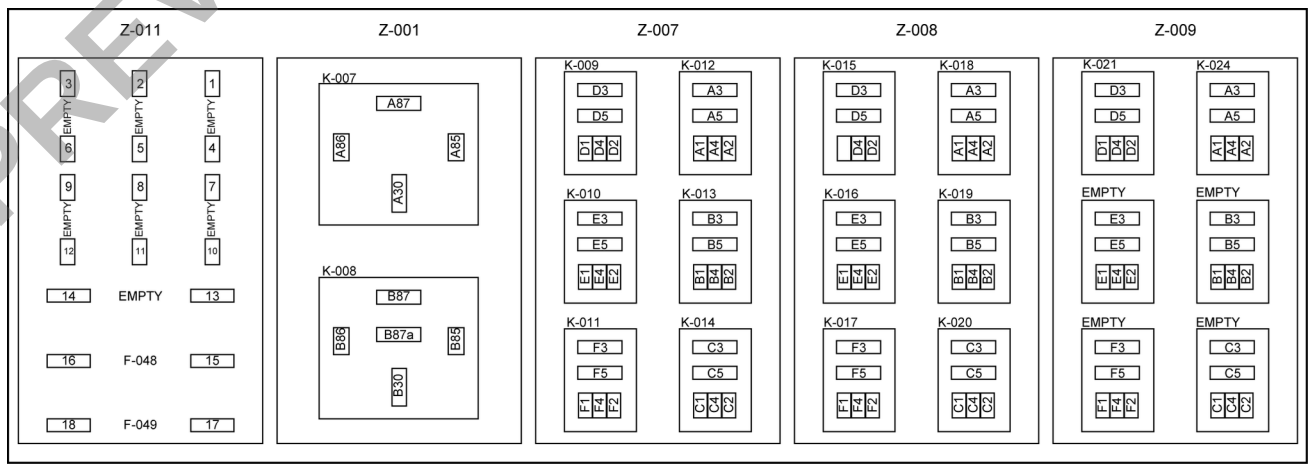


86080782 2

Make sure the key switch is in the off position when replacing a fuse.

Standard automotive-style fuses are used to protect circuits from overload. The amperage rating is marked on top of each fuse. Pull the fuse straight out of the fuse holder; pliers may be required.

NOTICE: *Always locate and correct the cause of a blown fuse. Do not replace a blown fuse with one of a different rating than specified.*



NHIL13WR00009EA 3

Upper fuse and relay panel

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Hydrostatic drive control system - Calibrate - Adjust Neutral

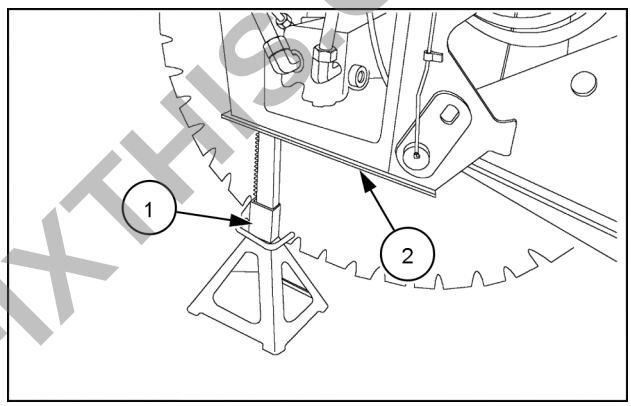
NOTE: *All references to right side, left side, front or rear are made as if sitting in the operator's seat.*

⚠ DANGER

Avoid injury!
This adjustment procedure must be done with no header attached and the lift arms locked in the raised position.
Failure to comply will result in death or serious injury.

D0069A

1. Park the windrower on a flat level surface and chock both rear wheels.
2. Place adequate jack stands **(1)** under the main frame **(2)** with the drive wheels safely clearing the ground/ floor.



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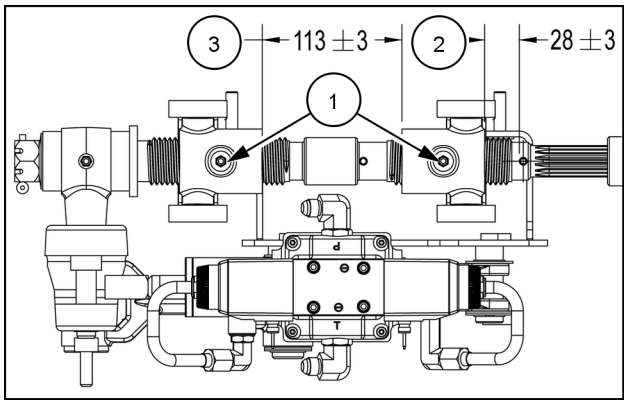
⚠ DANGER

Avoid injury!
Several inches of clearance are recommended between the tires and ground/floor as the tires may expand under rotation.
Failure to comply will result in death or serious injury.

D0070A

3. Be sure both grease fittings on the steering nuts **(1)** are facing down.
   A. Make dimension **(2) 28 mm** (**1.10 in**). Measure from the rear shoulder of the roll pin to the front edge of the steering nut.
   B. Dimension **(3)** should be **113 ± 3 mm** (**4.45 ± 0.12 in**). Measure from the back edge of the first steering nut to the front edge of the second steering nut.

NOTICE: *Use a non-permanent thread locking compound on the threads of the cap screws that attach the pintle arms to the steering nuts.*



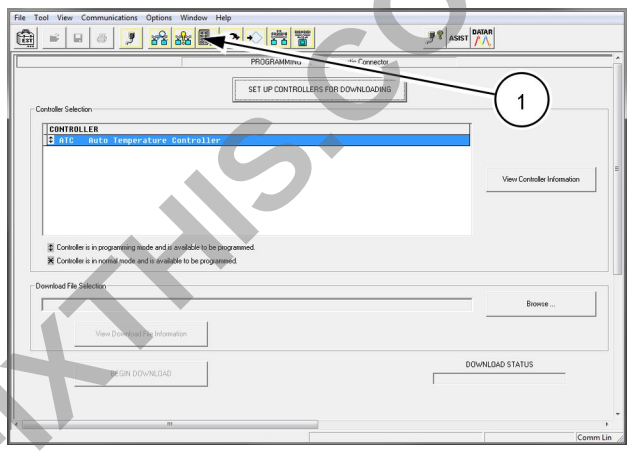
NHIL14WR00092AA 2

4. Start the engine and release the park brake.

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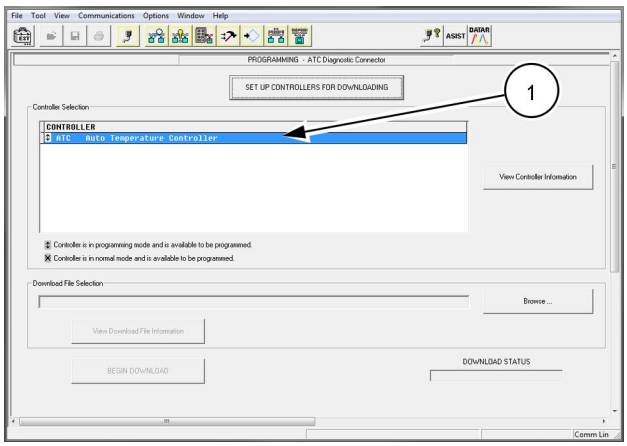
Heating, Ventilation, and Air-Conditioning (HVAC) control system - Program

1. Select the model from the electronic service tool (EST) equipment list.
2. Connect the special tool adaptor wiring harness **380002497** to the automatic temperature control (ATC) module.
3. Connect the protocol adaptor **380002884** connector to the wiring harness **380002497**.
4. Click on the “programming” icon **(1)**.



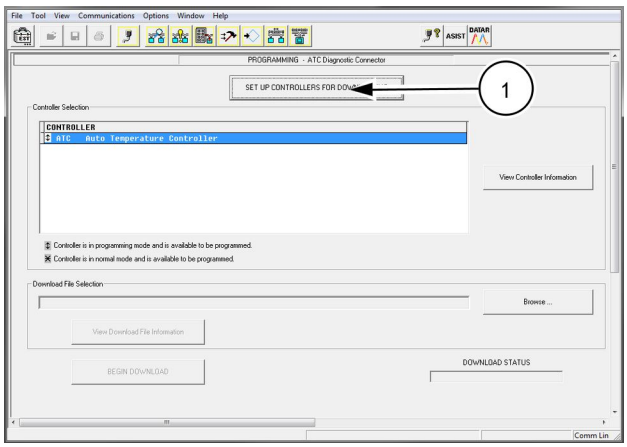
NHPH13WR00076FA 1

5. Highlight “Auto Temperature Controller” from the controller list **(1)**.



NHPH13WR00076FA 2

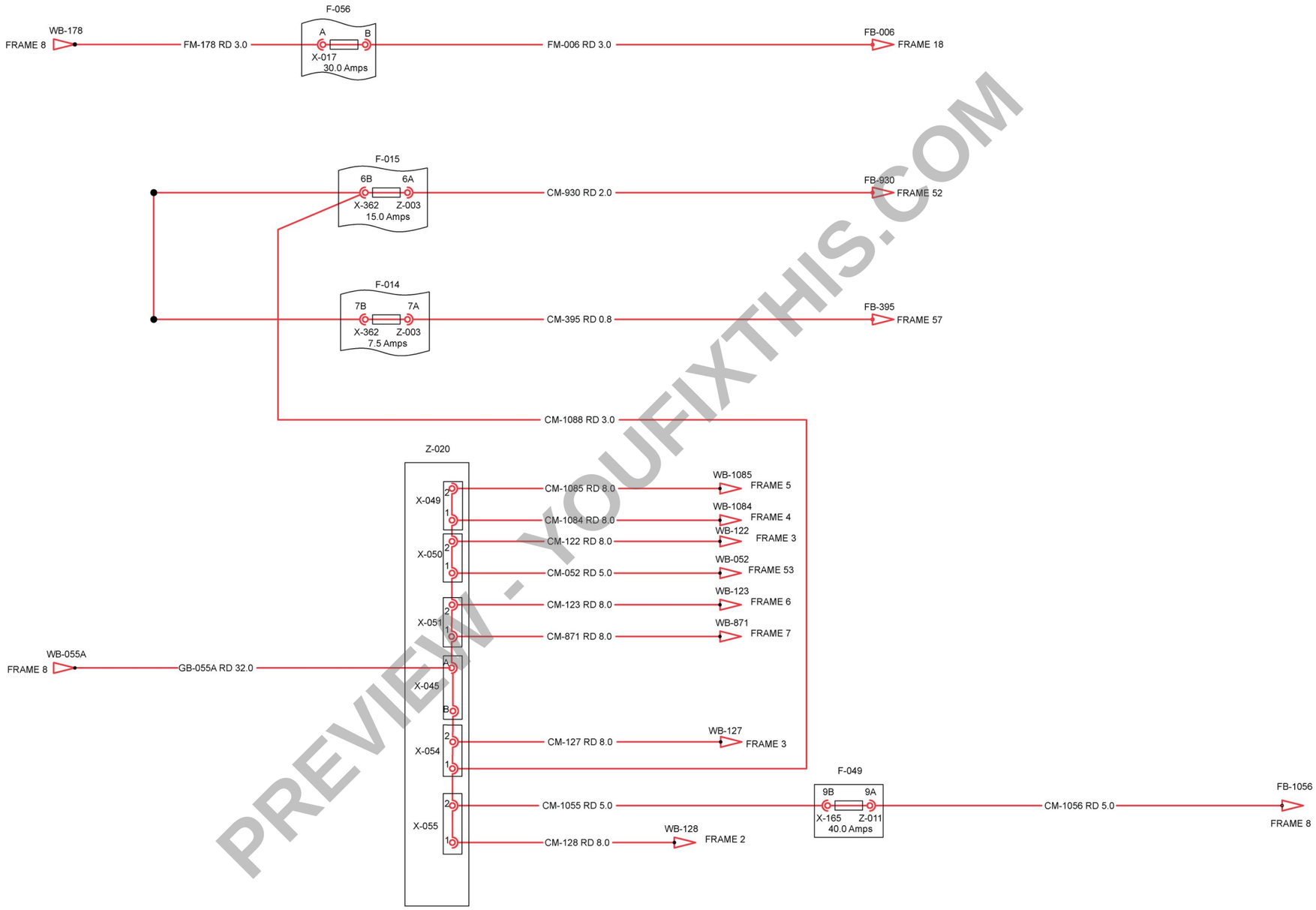
6. Click “SET UP CONTROLLERS FOR DOWNLOADING” **(1)**.



NHPH13WR00076FA 3

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FRAME 1 - POWER DISTRIBUTION

NHVE13WR00341JA 1

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Warning indicators, alarms, and instruments - Fault code index
Alarm codes

NOTE: *Alarm codes shown below cover all machines. Some codes shown may not appear on your machine due to specific build.*

IntelliView™ IV alarms		4-line display alarms		Priority	Explanation
ID	Text shown on display monitor	ID	Text shown on 4-line display		
A001	Engine Oil Pressure	W01	ENG OIL PRES LOW	3	The Engine Oil Pressure is too low.
A002	Engine Coolant Overheat	W02	ENGINE OVERHEAT	3	Engine Coolant temperature is too high. Check coolant level. Service engine cooling air intake system and/or heat exchangers.
A003	Hydraulic Charge Pressure Low	W03	HYD CHARGE PRES LOW	3	The Hydraulic charge pressure is too low
A003	Hydraulic Charge Pressure Low		CHK CHARGE PRESSURE	2	The Hydraulic charge pressure is too low
A004	Operator Out of Seat	W04	OUT OF SEAT	3	The operator is out of the seat. The PTO will disengage in 4 seconds.
A005	Air Filter Clogged		AIR FILTER CLOGGED	2	Intake air filter flow is restricted. Service engine air filter(s) at earliest convenience.
A006	Hydraulic Oil Overheat		HYD OIL OVERHEAT	2	Hydraulic oil temperature is high. Service engine cooling air intake system and/or heat exchangers.
A007	Hydraulic Oil Level Low		HYD OIL LEVEL LOW	2	Check oil level in hydraulic reservoir
A008	Set Park Brake		SET PARK BRAKE	1	Set park brake switch before starting
A009	Sit in Seat		SIT IN SEAT	2	Operator is out of seat.
A010	Cycle PTO Switch		CYCLE PTO SWITCH	2	A fault on the PTO switch occurred. Disengage PTO switch and reengage when ready.
A011	Increase Engine Rpm		INCREASE ENGINE RPM	2	Engine RPM is lower than threshold. Increase engine RPM.
A012	Header Removal Mode		HEADER REMOVAL MODE	1	Header removal mode is active
A014	Multi-Function Handle Out Of Neutral		MFH OUT OF NEUTRAL	2	Move the lever to neutral position.
A016	Header RPM Sensor		HEADER RPM SENSOR?	2	Check the installation and wiring of the header RPM sensor, refer to the operator manual.
A017	Cycle Merger Switch		CYCLE MERGER SWITCH	2	Recycle the merger switch.
A020	Merger Configuration Fault		MERGER CONFIG FAULT	2	Check the Toolbox > Options Tab to make sure the merger is installed and verify the merger has been calibrated.
A022	Custom Header Width Fault		CUST HDR WIDTH FLT	2	Check and / or reset the proper header cut width.
A025	Header Type Fault		HEADER TYPE FAULT	2	Check the Toolbox, Head Tab to verify the correct Header type is selected.
A026	Model Number Fault		MODEL NUMBER FAULT	2	Windrower Model number fault
A032	Engine Preheat Active		PLEASE WAIT … PREHEATING ENGINE	2	Please Wait… Preheating Engine!!!

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E0006-03- Alternator charge voltage - Shorted to high source

Speedrower® 200	Non draper ready - Not fitted for draper header
Speedrower® 240	Non draper ready - Not fitted for draper header

Control Module : UCM

Context:
The Universal Control Module (UCM) monitors the charge voltage signal. This fault will set when the voltage is either above the normal voltage range, or shorted to a high source.

Cause:
Alternator charge voltage signal is above normal or shorted to a high source, greater than **16.0 V**.

Possible failure modes:

1. Faulty alternator / regulator.
2. Faulty electrical wiring, shorted to high source.
3. Faulty module.

Solution:

1. Verify this fault is still present and in an active state.
   A. If the fault is still present and active, continue to Step **2**.
   B. If the fault is no longer present or inactive, the fault may intermittent and not currently active. Continue to Step **6**.
2. Verify the wiring harness and connectors are free of damage.
   Inspect the wiring harness from the alternator to the battery.
   Inspect the wiring harness from the alternator to the UCM.
   A. If the connectors are secure and the wiring harness is free of damage, continue with Step **3**.
   B. If damage is found, locate and repair faulty wiring or connections.
3. Check the supply circuit to the alternator.
   Place the key switch OFF.
   Use a multimeter to check for voltage from the alternator connector **X-226 pin B+** to chassis ground.
   There should be approximately **10 - 13 V**.
   A. If the voltage reading is correct, continue with Step **4**.
   B. If the voltage reading is incorrect, check the supply circuit to the alternator.
4. Check the alternator output.
   Place the key switch ON.
   Start the engine.
   Use a multimeter to check for voltage from the alternator connector **X-148 pin D+** to chassis ground.
   There should be approximately **12.6 - 15.5 V**.
   A. If the voltage reading is correct, continue with Step **5**.

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E0208-12- Cut Height Up Switch (MFH) - Bad intelligent device

Speedrower® 200	Draper ready - Factory-fitted to accept draper
Speedrower® 240	Draper ready - Factory-fitted to accept draper

Control Module : UCM

Context:
The Universal Control Module (UCM) monitors the Multi Function Handle (MFH) **S-049** switch signals at connector **X-001 pin 4** and **X-001 pin 21**.

Cause:
The UCM has detected a failure with the cut height up switch signal.

Possible failure modes:

1. Faulty wiring harness.
2. Faulty MFH handle.
3. Faulty controller.

Solution:

1. Verify this fault is still present and in an active state.
   A. If the fault is still present and active, continue with Step **2**.
   B. If the fault is no longer present or inactive, check for an intermittent fault. If no fault is found, return machine to proper operation.
2. Use the on-board diagnostic “Wiggle Test” or “Input test” to verify the UCM is receiving all MFH switch signals.
   A. If the UCM is receiving intermittent signals, continue with Step **3**.
   B. If the UCM cannot detect the cut height up switch, but it is sensing all other signals, the MFH handle has failed. Repair or replace as required.
3. Inspect the wiring harness from the MFH handle to the UCM.

   Check for loose connections, damaged wiring and/or connector pins.

   Make sure all connections are secure and tight after inspection.

   A. If no damage is found, continue with Step **4**.
   B. If damage is found, repair or replace faulty wiring harness or connections.
4. Check the wiring harness.

   Place the key switch OFF.

   Disconnect the wiring harness from the UCM at connector **X-001**.

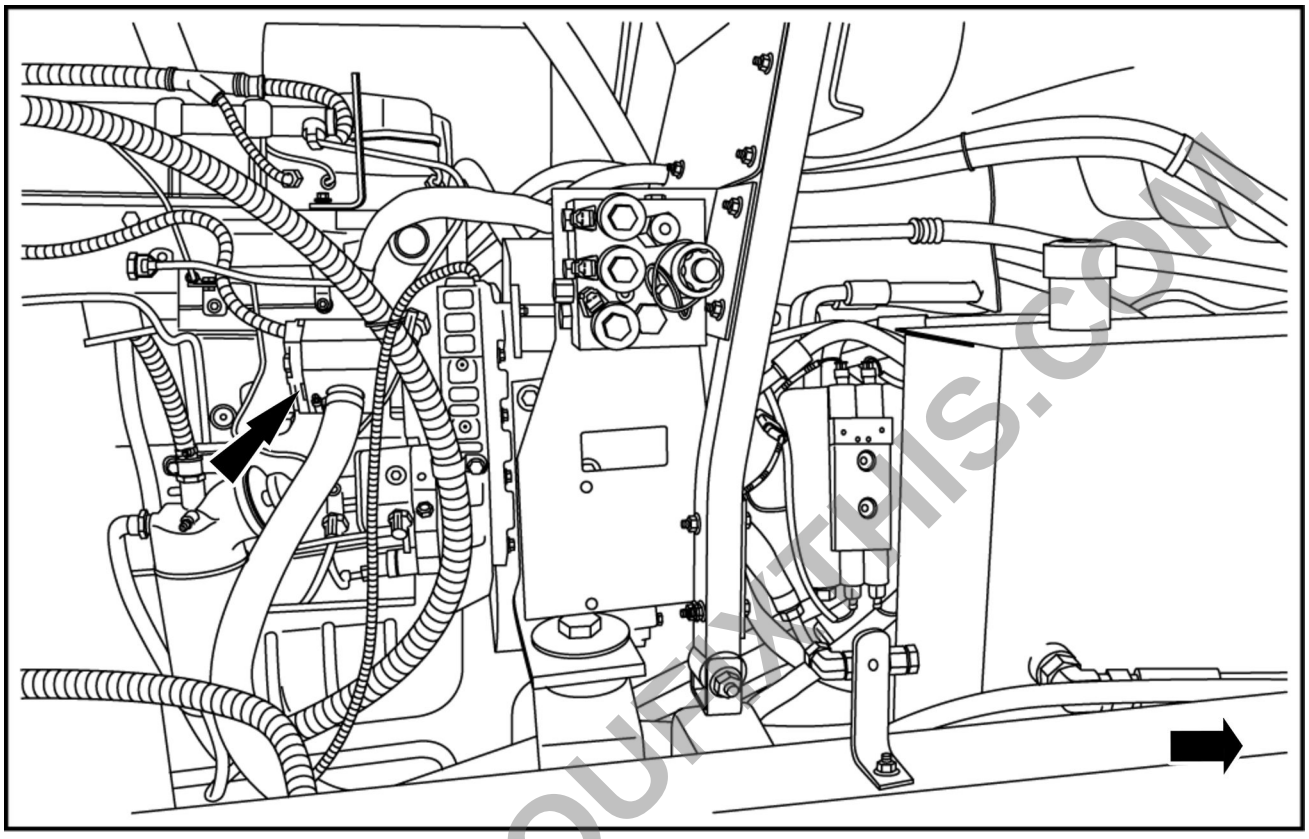
   Use a multimeter to check for continuity.

From	To	Result
Connector **X-066 pin 7**	Connector **X-001 pin 4**	There should be continuity.
Connector **X-066 pin 8**	Connector **X-001 pin 21**	There should be continuity.
Connector **X-001 pin 4**	Chassis ground	There should be no continuity.
Connector **X-001 pin 21**	Chassis ground	There should be no continuity.
Connector **X-001 pin 4**	Connector **X-001 pin 21**	There should be no continuity.

   A. If the wiring harness test passes, load the appropriate module software.

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Crop conveyor assembly - Technical Data - Engine-mounted auxiliary hydraulic pump



NHIL13WR00213AA 1

Engine-mounted auxiliary hydraulic pump

Engine-mounted auxiliary hydraulic pump specifications

Displacement	**22.8 cm³/rev (1.4 in³/rev)**		
Spline standard	16/32 Flat root side fit	**Number of teeth**	11
Shaft rotation	Counter-clockwise	**Mounting flange**	SAE J744 two bolt A
Rotational speed minimum	**800 RPM**	**Rotational speed maximum**	**3000 RPM**
Maximum pressure continuous	**210 bar (3045 psi)**	**Maximum pressure intermitent**	**230 bar (3335 psi)**
Operating temperature minimum	**-20.0 °C (-10.0 °F)**	**Operating temperature maximum**	**80 °C (220 °F)**
Inlet port	**1–1/16–12 in**	**Outlet port**	**7/8–14 in**

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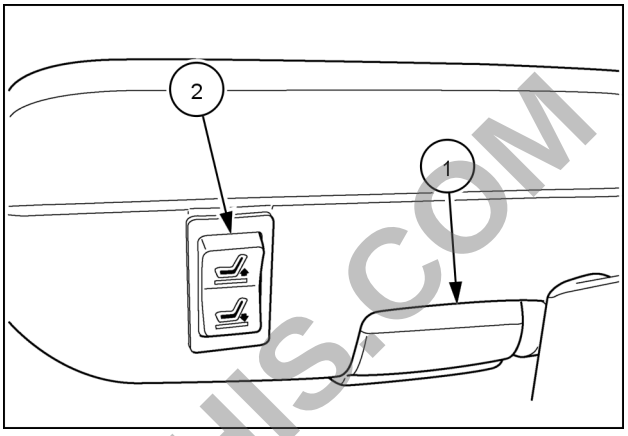
Pneumatically-adjusted operator seat - Dynamic description - Deluxe operator’s seat

Armrest Height

Rotate knob **(1)** up to raise armrest. Rotate knob **(1)** down to lower.

Height/Weight Adjustments

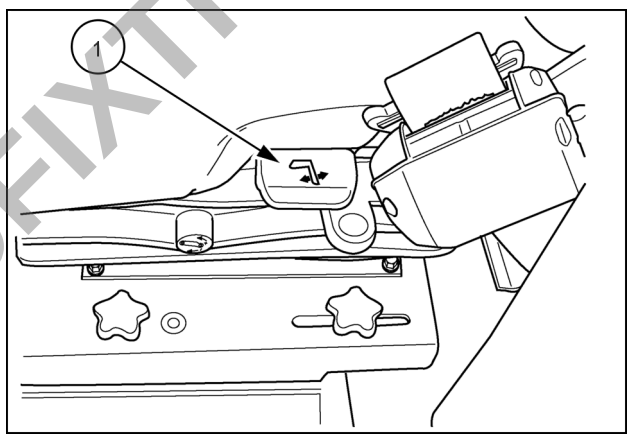
To adjust seat height, key switch (S-004) must be in the ON position.
Push the top of the height control switch (S-002) **(2)** to raise and release when desired height is reached.
Push bottom of height control switch (S-002) **(2)** to lower and release when desired height is reached.



10041215 1

Backrest Angle

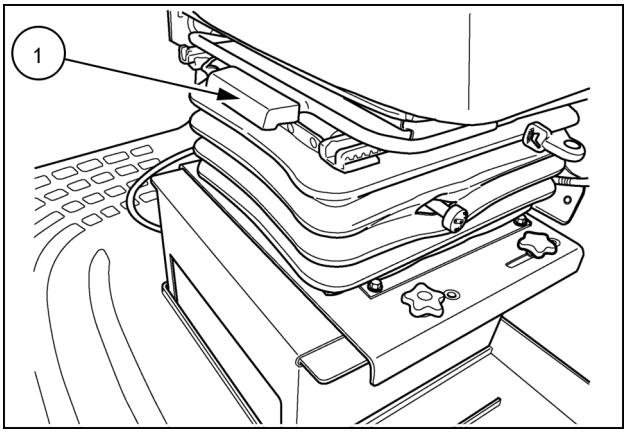
Lift lever **(1)** and tilt backrest until desired position is reached. Release lever **(1)** to lock backrest in position.



10041216 2

Fore/Aft Position

Pull up on handle **(1)** and move seat forward or backward to the desired position. Release the handle **(1)** to lock the seat in position.



10041214 3

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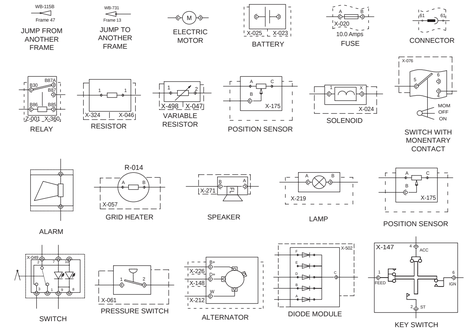
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SPEEDROWER 200® and SPEEDROWER 240®
NON-DRAPER EQUIPPED
SELF-PROPELLED WINDROWERS
47705560

ELECTRICAL SCHEMATIC, NORTH AMERICA
MODEL YEAR 2014 PRODUCTION
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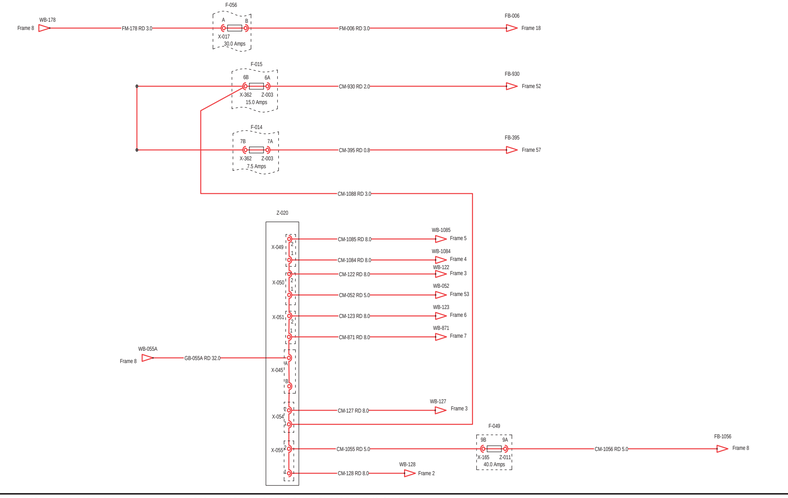


WIRING REFERENCES

Color	Color Code	Function
Black	BK	Ground, Chassis
Blue	BL	Printed Circuit Ground
White	WH	Increasing Actuation
Gray	GY	Decreasing Actuation
Orange	OR	Power After Ignition
Yellow	YE	Signal Wires
Red	RD	Battery Voltage
Violet	VT	Lighting
Pink	PK	Reference Voltage

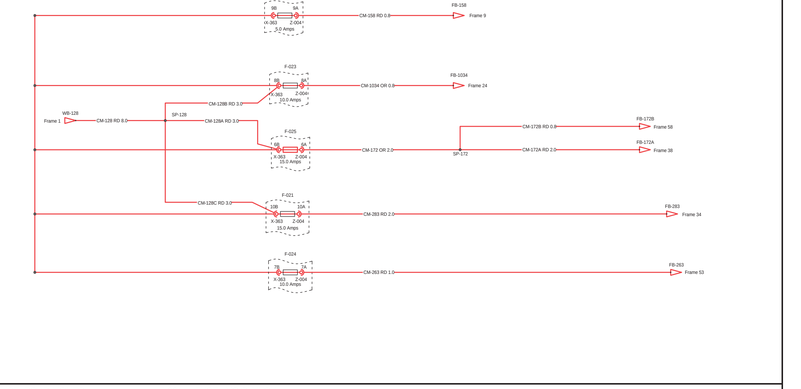
COMPONENT LEGEND

Label Prefix	Component Type
A	Electronics
B	Sensors
D	Diodes
E	Lights
F	Fuses
G	Generators
H	Audio
J	Outlets
K	Relays
M	Motors
Q	Circuit Breakers
R	Resistive
S	Switches
W	Splice Blocks
Y	Solenoids



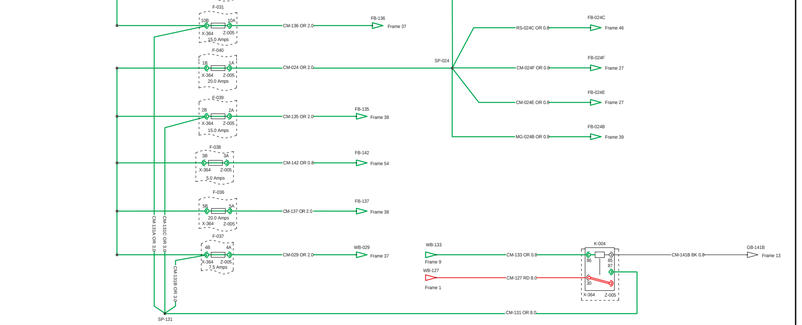
F-014 FUSE, FRED DISPLAY
F-015 FUSE, HVAC & PRESSURIZATION
F-049 FUSE
F-056 FUSE, ENGINE CONTROL MODULE (6 CYL)
Z-020 FRAME TO CAB POWER PASS THRU

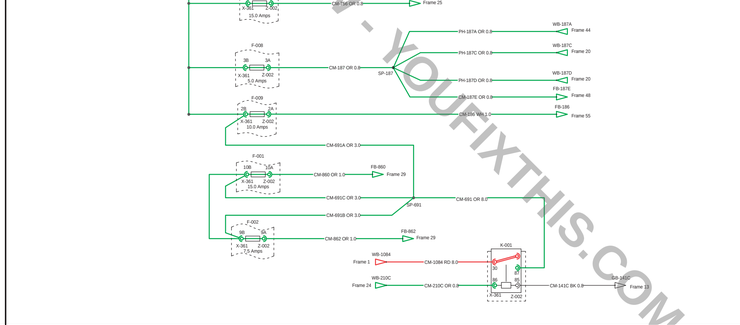
FRAME 1 - POWER DISTRIBUTION



F-021 FUSE, ROAD LIGHTS
F-022 FUSE, STARTER CIRCUIT
F-023 FUSE, BOOT UP
F-024 FUSE, A/C CLUTCH
F-025 FUSE, POWER OUTLET, DIAGNOSTIC

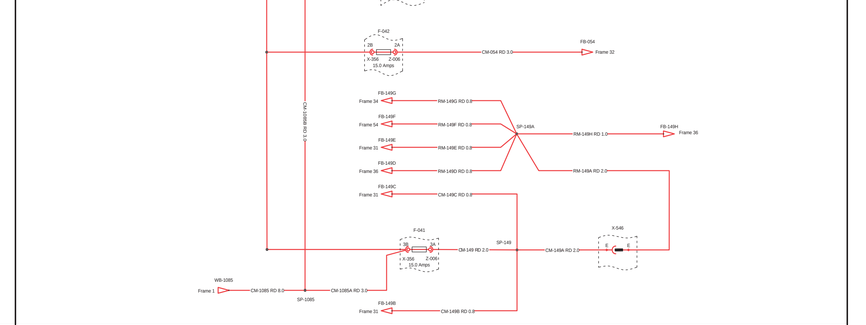
FRAME 2 - POWER DISTRIBUTION





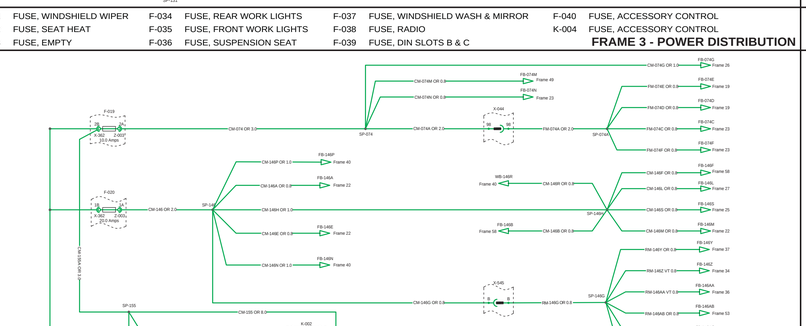
F-001 FUSE
F-002 FUSE
F-006 FUSE, UCM, RAIL 12VH
F-007 FUSE, PROPULSION
F-008 FUSE, PRE-HEAT & HEADER
F-009 FUSE, SCREEN CLEANER
K-001 RELAY, IGNITION CONTROL #3

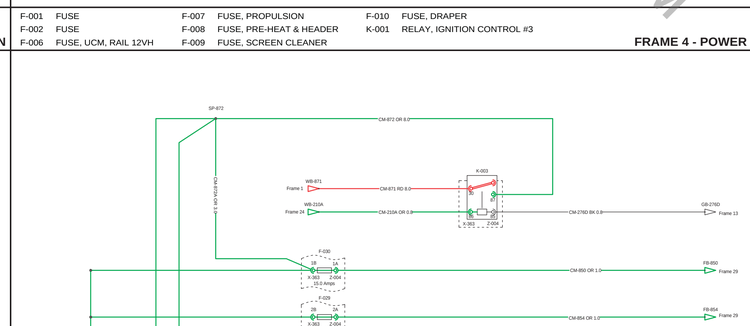
FRAME 4 - POWER DISTRIBUTION



F-041 FUSE, LIGHT CONTROL, RADIO MEMORY
F-042 FUSE, UCM RAIL 12VP
F-043 FUSE, HORN
F-044 FUSE, POWER JACKS
F-045 FUSE, FLASHING LIGHTS

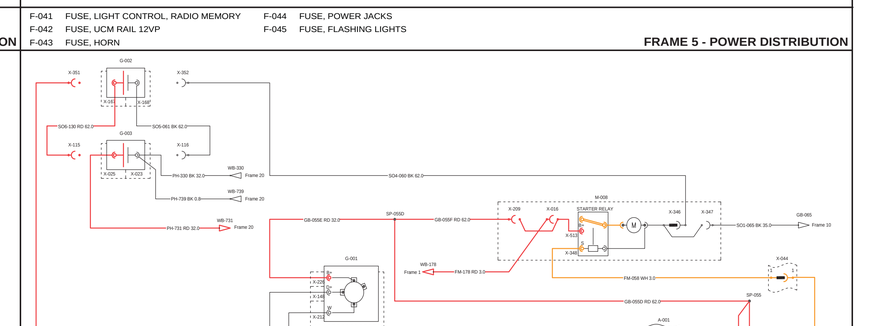
FRAME 5 - POWER DISTRIBUTION





F-026 FUSE
F-027 FUSE
F-028 FUSE
F-029 FUSE, UCM RAIL 12VT1
F-030 FUSE, UCM RAIL 12VF2
K-003 RELAY, IGNITION CONTROL #1

FRAME 7 - POWER DISTRIBUTION



A-001 MODULE, UCM
F-057 FUSE, ALTERNATOR "W" LINE
G-001 ALTERNATOR
G-002 BATTERY, LEFT
G-003 BATTERY, RIGHT
K-008 RELAY, STARTER
M-008 MOTOR, STARTER

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[90.151] Cab interior 90.3
[90.154] Cab doors and hatches 90.4

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N°	Test Point	Expected Result	Other Result (Possible Cause)
2	**Condition** Heater control valve malfunction. **Check** Heater valve test Section 55--3.	**Result** Malfunction **Action** Replace heater control valve.	**Action**

Air conditioning - Testing Noisy System

N°	Test Point	Expected Result	Other Result (Possible Cause)
1	**Condition** Run engine with A/C set to maximum cooling. **Check** Inspect compressor and clutch.	**Result** Faulty clutch. **Action** Overhaul compressor clutch (Y-027).	**Result** Clutch ok. **Action** Go to next step.
2	**Check** Inspect compressor and clutch.	**Result** Noise in compressor. **Action** Replace compressor.	**Result** Compressor ok. **Action** Go to next step.
3	**Check** Conduct “system performance test”.	**Result** Excessive refrigerant charge in system. **Action** Adjust charge.	**Result** **Action**
4	**Condition** Noise from blowers. **Check** Check blowers operation.	**Result** Not operating properly. **Action** Replace blower.	**Result** **Action**

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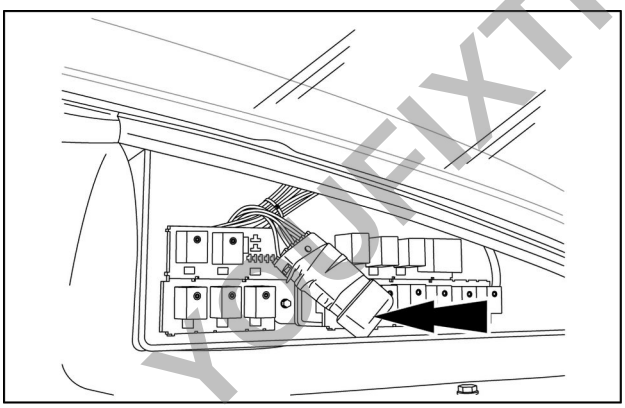
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Wire connectors - Component diagram 50 Connector X-500 to X-509

Speedrower® 200	Draper ready - Factory-fitted to accept draper
Speedrower® 240	Draper ready - Factory-fitted to accept draper

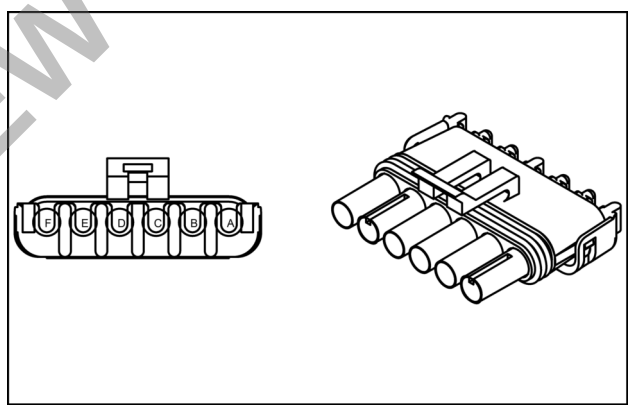
CONNECTOR X-502 - D-009 DIODE MODULE

CONNECTOR X-502 - D-009 DIODE MODULE			
PIN NUMBER	**WIRE NUMBER**	**CIRCUIT REFERENCE**	**ELECTRICAL SCHEMATIC FRAME**
A	CM-210D (OR)	Switched power from key switch **S-004**	**Wire harnesses - Electrical schematic sheet 24 - Boot up (55.100)**
B	CM-1209B (YE)	Switched power from hazard switch **S-042**	
C	CM-1031 (OR)	Switched power to boot up relay **K-017**	
D	CM-1200 (WH)	Input signal from **UCM** connector **X-008 pin 12**	
E	-	-	
F	CM-020B (VT)	Switched power from door switch relay **K-014**	



NHIL12WR00001AA 1

Connector X-502 is located inside the cab, by relay block.



87039236 2

Connector X-502.

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E0571-04- ECU Hardware: Shut Off During Initilization - Shorted to low source

Speedrower® 200	INT Draper ready - Factory-fitted to accept draper --- NA Draper ready - Factory-fitted to accept draper
Speedrower® 240	INT Draper ready - Factory-fitted to accept draper --- NA Draper ready - Factory-fitted to accept draper

Control Module : ECU

Context:
This engine fault code indicates that the Engine Control Module **A-003** has detected an internal watchdog error. This fault is detected if injection occurred although internal SOP of the watchdog was active. If the failure remains after Engine Control Module initialization, replace the Engine Control Module.

Cause:
The Engine Control Module comprises redundant shutoff paths (SOP) which deactivate all power stages relevant to injection if certain internal Engine Control Module errors are detected. The defects which trigger SOP are the watchdog, over voltage and under voltage errors. In order to test the correct functioning of the SOP procedure, every path is activated during Engine Control Module initialization and followed by activation of the fuel injection power stage. Since the SOP is active, no injection should occur as it is blocked if the SOP procedure functions properly. During a successful redundant SOP test an open circuit (no current flow) should be detected. The SOP test can only be carried out if no errors, such as short circuits of the injection power stage, have been detected previously.

Possible failure modes:

1. Engine Control Module **A-003**

Solution:

1. If the failure remains after Engine Control Module initialization, replace the Engine Control Module.

Wire harnesses - Electrical schematic sheet 16 (55.100.DP-C.20.E.16)
Wire harnesses - Electrical schematic sheet 17 (55.100.DP-C.20.E.17)
Wire harnesses - Electrical schematic sheet 18 (55.100.DP-C.20.E.18)
Wire harnesses - Electrical schematic sheet 19 (55.100.DP-C.20.E.19)
Wire harnesses - Electrical schematic sheet 53 (55.100.DP-C.20.E.53)
Wire harnesses - Electrical schematic sheet 58 (55.100.DP-C.20.E.58)

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E0262-05-Left & Right header raise solenoid - Open circuit

Speedrower® 200	Non draper ready - Not fitted for draper header
Speedrower® 240	Non draper ready - Not fitted for draper header

Control Module : UCM

Context:
The Universal Control Module (UCM) **A-001** supplies the voltage source to the left **Y-005** and right **Y-006** header raise valve solenoids. The UCM monitors the signal line for various faults. Fault Mode Indicator (FMI) -05 is active if the circuit is open, when one of the solenoids are active.

Cause:
Y-005 and/or **Y-006** circuit is open.

Possible failure modes:

1. Faulty **Y-005** and/or **Y-006**.
2. Faulty electrical wiring, open condition.
3. Faulty controller.

Solution:

1. Verify this fault is still present and in an active state.

   A. If the fault is still present and active, continue to step **2**.

   B. If the fault is no longer present or inactive, return the machine to service.
2. Verify **Y-005** and/or **Y-006** functions properly.

   Place the key switch OFF.

   Disconnect the wiring harness from both of the solenoids.

   Use a multimeter to measure the resistance of both solenoid coils.

From	To	Result
Solenoid pin 1	Solenoid pin 2	There should be **4 - 8 Ω**.

   A. If there is a nominal resistance value, leave the wiring harness disconnected. Continue to step **3**.

   B. If there is infinite resistance or **0 Ω**, the solenoid has failed. Replace the solenoid.
3. Check the ground circuit.

   Place the key switch OFF.

   Use a multimeter to check for continuity.

From	To	Result
Harness connector **X-096 pin 2**	Chassis ground	There should be continuity.
Harness connector **X-097 pin 2**	Chassis ground	There should be continuity.

   A. If there is continuity, leave the wiring harness disconnected. Continue with step **4**.

   B. If there is no continuity, locate and repair faulty wiring.
4. Check the signal circuit for an open condition.

   Place the key switch OFF.

   Disconnect the frame wiring harness from the cab wiring harness at connector **X-044** .

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