SERVICE MANUAL

Speedrower® 200 / Speedrower® 240
Tier 3
Self-Propelled Windrower

PIN YEG675001 and above

Part number 47904536
1st edition English
July 2015

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Disconnect the wiring harness from the UCM at connector **X-004**.

Use a multimeter to check the wiring harness.

From	To	Result
Wiring harness connector **X-379 pin C**	UCM wiring harness connector **X-004 pin 29**	There should be continuity.
Wiring harness connector **X-379 pin C**	Wiring harness connector **X-379 pin A**	There should be no continuity.

A. If the wiring harness test passes, continue with Step **5**.

B. If the wiring harness test fails, locate and repair faulty wiring.

5. Check for a short to high source.

Place the key switch ON.

Use a multimeter to check for voltage.

From	To	Result
Wiring harness connector **X-379 pin C**	Chassis ground	There should be no voltage.
Wiring harness connector **X-379 pin A**	Chassis ground	There should be no voltage.

A. If the voltage reading is incorrect, locate and repair faulty wiring.

B. If the voltage reading is correct, the fault may be internal to the UCM. Load the appropriate module software.

6. Visually inspect the relevant harnesses and connectors for damage, bent or dislocated pins, corroded terminals, or broken wires. Verify that the connectors are fully installed. Flex the harnesses involved to reveal intermittent breaks or shorts in the wiring concerned. Operate the machine while you monitor the display.

A. If you find damage or the display indicates other than normal display readings, then repair the damage discovered during the inspection or locate and repair the other than normal display condition and verify that the error has been resolved.

B. If you do not find damage and the display indicates only normal readings, then erase the fault code and continue operation.

Wiring harnesses - Electrical schematic sheet 22 - Propulsion (55.100.DP-C.20.E.22)

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E0295-04-Boot up relay - Shorted to low source

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

Control Module : UCM

Context:
The Universal Control Module (UCM) A-001 supplies the voltage source to the boot up relay K-017. The UCM monitors the signal line for various faults. Fault Mode Indicator (FMI) -04 is active if the signal wire is shorted to a low source, when the boot up relay circuit is active.

Cause:
The UCM has detected the output signal to K-017 is shorted to a low source.

Possible failure modes:

1. Faulty relay K-017.
2. Faulty diode module D-009.
3. Faulty electrical wiring, shorted to a low source.
4. 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, check for an intermittent fault. If no fault is found, return machine to proper operation.
2. Check the circuit functionality.

   Remove relay K-017.

   Place the key switch ON.

   Monitor the diagnostic screen for fault code **E0295-11 - Boot up relay - Unidentified failure code**.

   A. If fault code **E0295-11 - Boot up relay - Unidentified failure code** is not present, leave the relay removed. Continue with Step **3**.

   B. If fault code **E0295-11 - Boot up relay - Unidentified failure code** is present, the circuit is functioning properly. The relay has failed, replace the relay.
3. Check the diode module D-009.

   Place the key switch OFF.

   Remove D-009.

   Place the multimeter to the diode function check.

From	To	Value
Diode connector **X-502 pin D**	Diode connector **X-502 pin C**	There should be **0.3 - 0.7 V**.
Diode connector **X-502 pin C**	Diode connector **X-502 pin D**	There should be infinite resistance.

   A. If the reading is correct, continue with Step **4**.

   B. If the reading is infinite or **0 Ω** during both checks, the diode has failed. Replace the diode module.
4. Check the signal line for a short to low source.

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Important Note:
Check and verify that the Vehicle Status is correct. Potential Engine Control Module damage could result when removing main Engine Control Module connectors if this is not followed.

Test Type	From	To	Expected Results
1. Continuity	Fuel Pressure and Temperature sensor B-008 connector **X-384 pin 3**	**X-035 pin 31**	Approx. **0 - 0.10 ohms**
2. Continuity	Fuel Pressure and Temperature sensor B-008 connector **X-384 pin 1**	**X-035 pin 17**	Approx. **0 - 0.10 ohms**
3. Short Circuit	**X-035 pin 35**	**X-035 pin 32**	Open Circuit
4. Short Circuit	**X-035 pin 35**	**X-035 pin 33**	Open Circuit

A. If continuity/shorts test is successful, go to step **4**.

B. If continuity/shorts test is unsuccessful, find and repair the damaged section(s) of the wiring harness.

4. Operation: Fuel Pressure and Temperature sensor B-008 Test
Vehicle Status: Key Off Engine Off.

Remove connector **X-384** from Fuel Pressure and Temperature sensor B-008 and test resistance of the sensor using the table of resistance vs. temp. below. Approximate the fuel temperature when performing test. Fuel Pressure and Temperature sensor B-008 failures are typically at the extreme ends of the table or off the table entirely. Use the test lead labeled "Coolant/Fuel Temp Sensor" from the Tier II (NEF) Diagnostic Repair Kit **380040185** to access the pins on the sensor.

Fuel Temperature	Resistance Value
-20 °C (-4 °F)	**10.5 kOhm**
0 °C (32 °F)	**7500 ohms**
20 °C (68 °F)	**4200 ohms**
40 °C (104 °F)	**980 ohms**
60 °C (140 °F)	**780 ohms**
80 °C (176 °F)	**500 ohms**
100 °C (212 °F)	**280 ohms**
120 °C (248 °F)	**97 ohms**

A. If the resistance measurement does not approximately match the table, replace the Fuel Pressure and Temperature sensor B-008.

B. If the resistance measurement does approximately match the table, proceed to step **5**.

5. Operation: Check for Engine Control Module Voltages and Ground Continuity.
Vehicle Status (when removing **X-034** connector): Key Off Engine Off.
Vehicle Status (when performing test): Key On Engine Off.
Vehicle Status (when replacing **X-034** connector): Key Off Engine Off.

Using schematics for a reference, remove **X-034** connector from the Engine Control Module and check for voltage and continuity at the appropriate pins defined in the test table below. Use the **0.4 mm** (**0.017 in**) diameter test probes from the Tier II (NEF) Diagnostic Repair Kit **380040185** when connecting the DMM to the **X-034** connector. Make sure the DMM's test lead resistance is taken into account when making any continuity measurements.

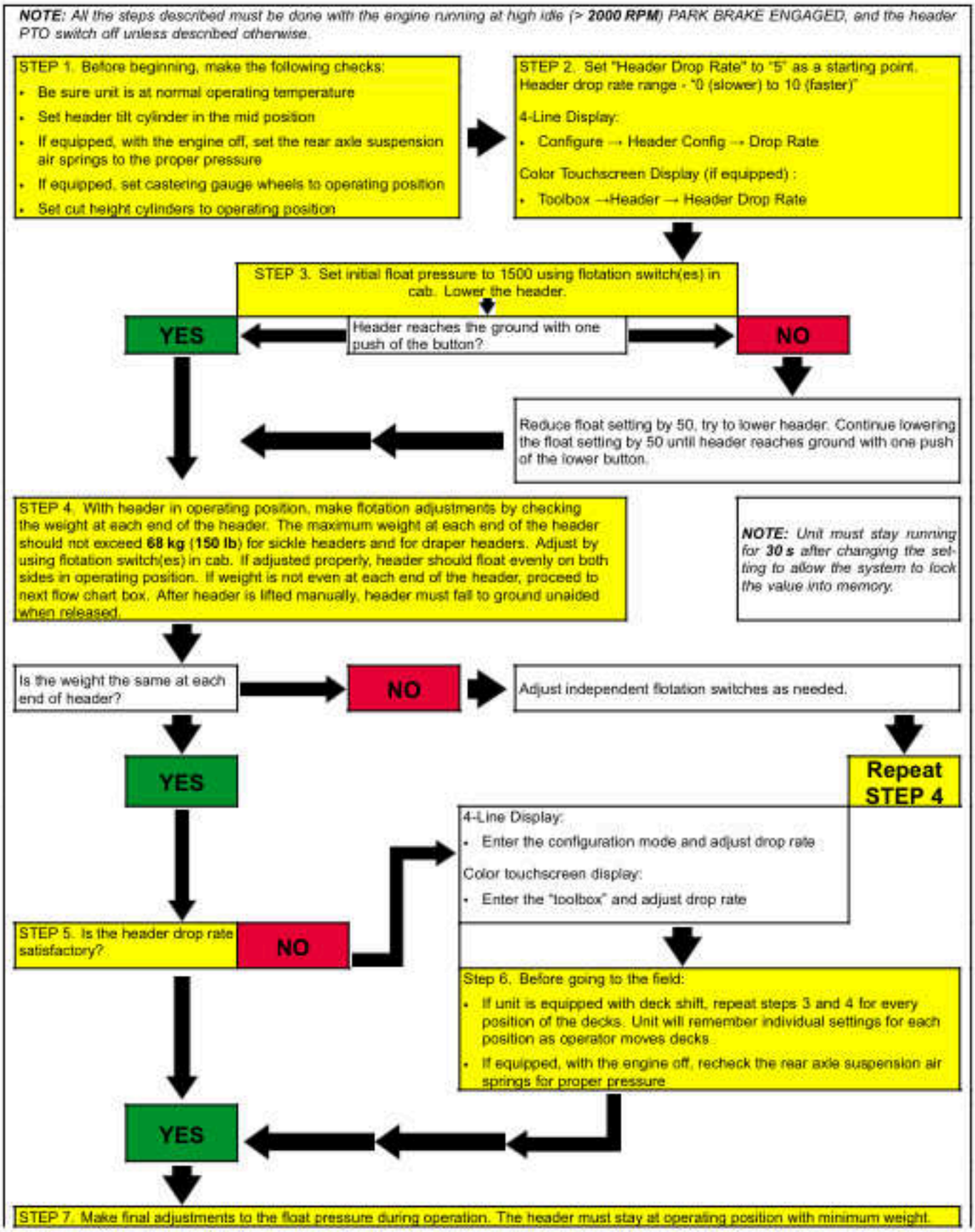
Important Note:
Check and verify that the Vehicle Status is correct for each operation. Potential Engine Control Module damage could result when removing and replacing main Engine Control Module connectors if this is not followed.

Test Type	From	To	Expected Results
1. Voltage	**X-034 pin 2**, **X-034 pin 3**, **X-034 pin 8**, **X-034 pin 9**, **X-034 pin 40**	Ground (engine block)	Approx. **12 volts**
2. Continuity	**X-034 pin 5**, **X-034 pin 6**, **X-034 pin 10**, **X-034 pin 11**	Ground (engine block)	Approx. **0 - 0.10 ohms**

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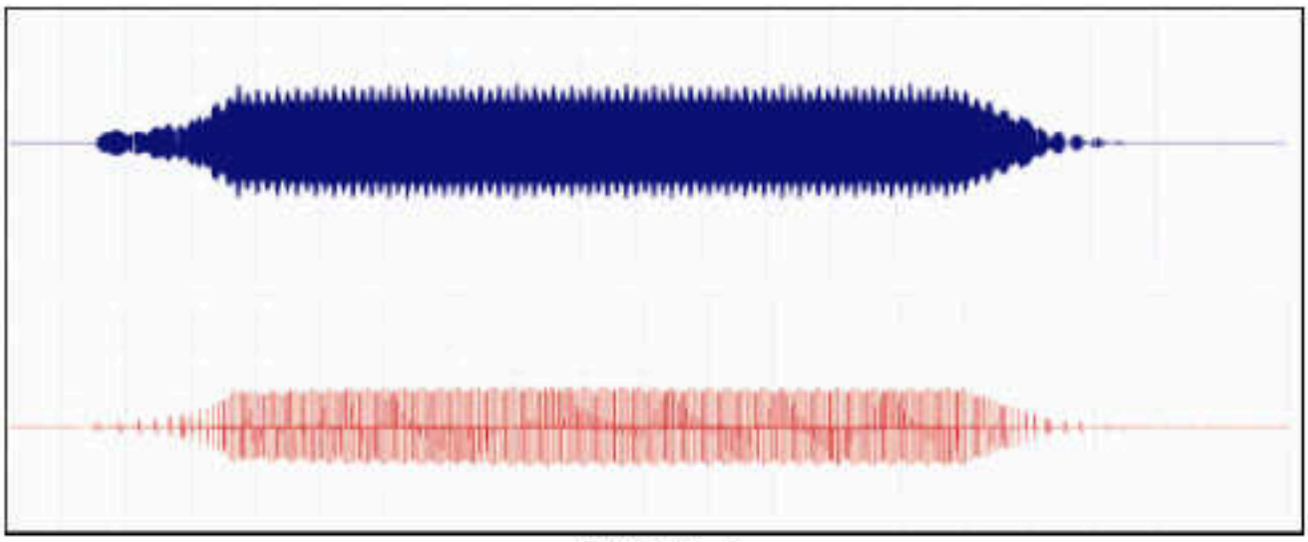
Hydraulic systems - Overview - Setting header flotation - Draper header only

Speedrower® 200 [YEG675001 -]	NA Draper ready - Factory-fitted to accept draper
Speedrower® 240 [YEG675001 -]	NA Draper ready - Factory-fitted to accept draper

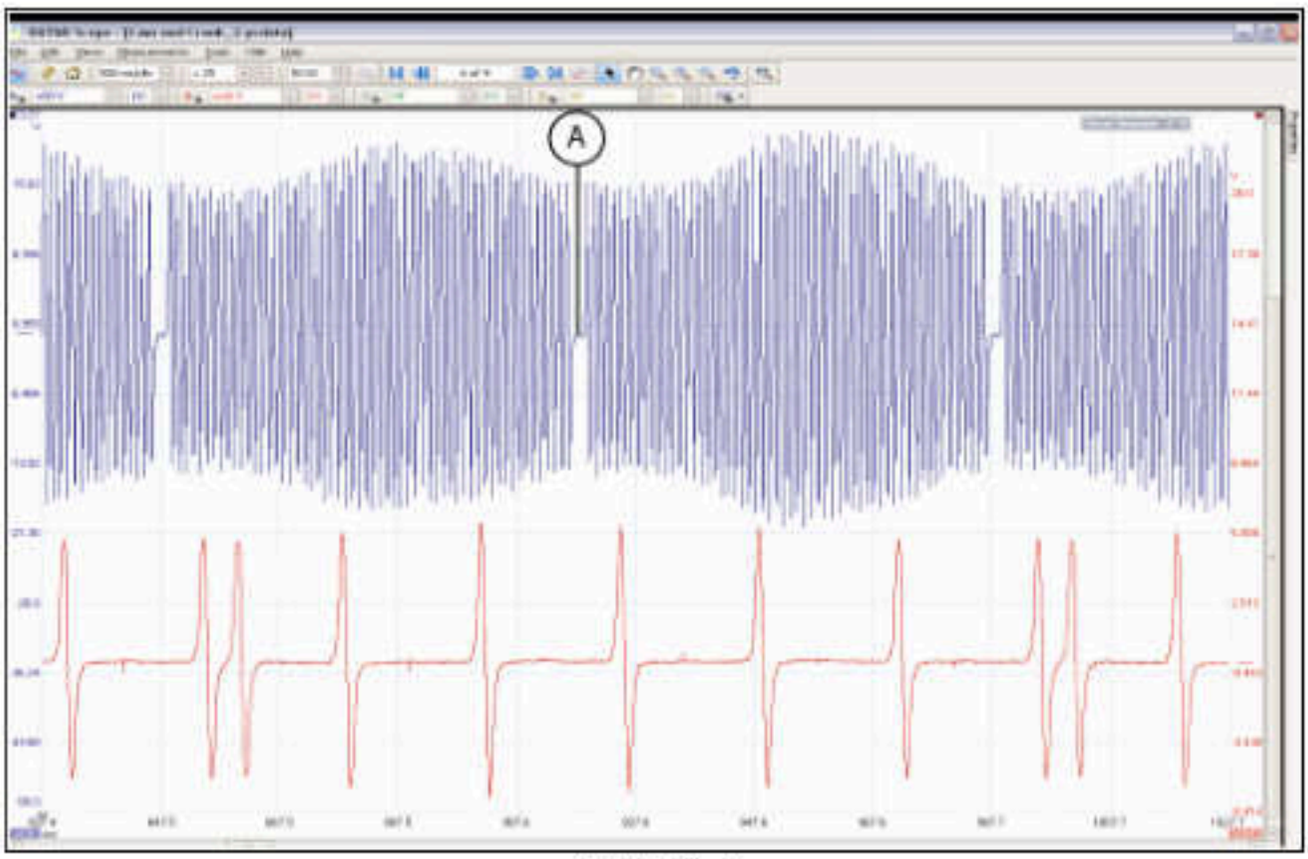


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Figure **5**
(A) = Ignition start up **(B)** = Engine begins to turn



5. Figure **6** shows the ideal full signal of the crank and cam position from the point of when the engine is turned on , and until it is turned off.



(A) = Sync Trigger

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STEER MOTOR
PN 47515826
DISP. 66 CC/REV

HYDRO TANDEM PUMP 49.2/49.2 15T
PN 84586637 [47364366]
MULTI GEAR PUMP 35.1/6.6/35.1/6.6 9T
PN 84586626 [47364395]

REAR (SHAFT END)
PUMP RH DRIVE

LH DRIVE

REAR PUMP
CASE FLUSH

LH LIFT PUMP
6.6 CC/REV

OIL COOLER
PUMP
35.1 CC/REV

RH LIFT PUMP
6.6 CC/REV

TRIPLE CHARGE LIFT GEAR PUMP

PUMP RH DRIVE

REAR PUMP
CHARGE

LH DRIVE

FRONT PUMP
CHARGE

LEFT WHEEL MOTOR
STD SPEED PN 47570419
DISP. 46 CC/REV
HIGH SPEED PN 84171196
DISP. 36/50/68 CC/REV

MULTI-DISC PARKING BRAKE
PN 87631994

LEFT LIFT CYLINDER
PN 84357187
DOUBLE ACTING
2.75 inch BORE
10.5 inch STROKE

TILT CYLINDER
PN 84274521
DOUBLE ACTING
2 inch BORE
4 inch STROKE

0.032"
ORIFICE

0.055" ORIFICE

CHARGE
PRESSURE

A
3SP
B
T

STEER VALVE
STD SPEED PN 47515829
DISP. 250 CC/REV
HIGH SPEED PN 47515830
DISP. 350/200 CC/REV

LEFT DRAPER HEIGHT CYLINDER
PN 47537384
DOUBLE ACTING
3.00 inch BORE
5.25 inch STROKE

REEL

REEL LIFT

PRESSURE
RETURN
DRAIN

DRAPER KNIFE DRIVE

PRESSURE
RETURN
DRAIN

DRAPER / REEL DRIVE

RIGHT DRAPER HEIGHT CYLINDER
PN 47537384
DOUBLE ACTING
3.00 inch BORE
5.25 inch STROKE

RIGHT LIFT CYLINDER
PN 84357187
DOUBLE ACTING
2.75 inch BORE
10.5 inch STROKE

HYDRAULIC RELIEF CHARGE MANIFOLD
PN 47404488 [47457378]

CRG2
B
A
CF2
CF1
X2
X3
IN
X1
CRG3
DIAG1
CRG1
CRG PSI

AUTOGUIDANCE VALVE (OPTION)
PN 47406063

C3
PUMP SHAFT END
LH DRIVE

DRAPER/REEL DRIVE

CASE DRAIN

HEADER PUMP
RH DRIVE

FOR 4 CYLINDER
HEADER 11 PISTON PUMP
49 CC/REV 14T
FOR 6 CYLINDER
TANDEM PISTON PUMP
49 CC/REV 14T

CHARGE PUMP
35.1 CC/REV

HEADER PUMP
LH DRIVE

RH DRIVE

15 PSI CRACK

SUCTION STAINERS

HYDRAULIC RESERVOIR
PN 84484106
CAPACITY 11 GAL
SUCTION STAINER 100 MESH
RESERVOIR LEVEL SENSOR

RIGHT ACCUMULATOR
1.0 GALLON DIAPHRAM TYPE
800 PSI PRE-CHARGE

LEFT ACCUMULATOR
1.0 GALLON DIAPHRAM TYPE
800 PSI PRE-CHARGE

DIRECTION CONTROL VALVE
PN 87043394

SYSTEM CONTROL CYLINDER
PN 47429670
BORE 1.5 INCH
STROKE 3.28 INCH

OIL COOLER
PN 84160114

CHECK VALVE
PN 47481633
125 PSI

CHARGE FILTER
PN 84487527
OPERATING PRESSURE 500 PSI
MAX. HARD PARTICLE SIZE 500 MICRON

RIGHT ACCUMULATOR
LEFT ACCUMULATOR
LEFT HEADER LIFT
RIGHT HEADER LIFT
PARKING BRAKE

LAC
LHL
RAC
RHL
TLT ROD
BRK
2SPD
CHRG
2 SPEED

S3
Y09
S4
Y10
S5
Y07
Y05
S1
S6
Y08
Y06
S2
S11
Y13
Y28
S12
Y23
S13
LHD
RHD
Y02
S7
Y01
S8
S9
Y03
S10
Y04
REL-L
REL-R

TLT CAP
CRG PSI
LIFT CAP

P
T
B
A

T
T2
LP-1
LP-2
DRN-3
DRN-2
RP-3
RP-1
RP-2
DRN-1
TMP
DP
LIFT CAP
3SPD

LIFT MANIFOLD
PN 84590998 [47420179]

3 SPEED

MULTI-DISC PARKING BRAKE
PN 87631994

RIGHT WHEEL MOTOR
STD SPEED PN 47570419
DISP. 46 CC/REV
HIGH SPEED PN 84171196
DISP. 36/50/68 CC/REV

LP-3
T2
Y36
Y33
RHD
LHD
Y37
Y38
REEL

HEIGHT MANIFOLD
PN 47358541 [47480350]

LEGEND

- PRIMARY CIRCUIT, SYSTEM PRESSURE
- CHARGE PRESSURE
- REDUCED PRESSURE VS. SYSTEM PRESSURE
- RETURN TO TANK / SUMP
- STEERING
- PROPULSION SYSTEM

DRAPER READY
4-CYLINDER / 6-CYLINDER
SPEEDROWER® SERIES
SELF-PROPELLED WINDROWER
47885981
HYDRAULIC SCHEMATIC
NORTH AMERICA MODELS, MODEL YEAR 2015
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