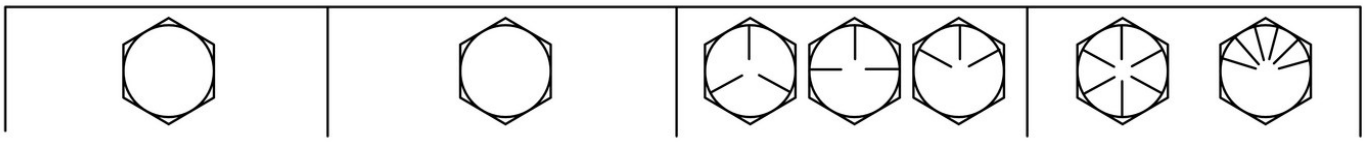
Group 05 - General Specifications

Unified Inch Bolt and Screw Torque Values



Unified Inch Bolt and Screw

Unified Inch Bolt and Screw Torque Values

Bolt or Screw Size	SAE Grade 1				SAE Grade 2 [Grade 2 applies for hex cap screws (not hex bolts) up to 6 in. (152 mm) long. Grade 1 applies for hex cap screws over 6 in. (152 mm) long, and for all other types of bolts and screws of any length.]				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Lubricated ["Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.]		Dry ["Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B, F13E or F13H zinc flake coating.]		Lubricated ["Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.]		Dry ["Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B, F13E or F13H zinc flake coating.]		Lubricated ["Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.]		Dry ["Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B, F13E or F13H zinc flake coating.]		Lubricated ["Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.]		Dry ["Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B, F13E or F13H zinc flake coating.]	
	N˙m	lb.-in.	N˙m	lb.-in.	N˙m	lb.-in.	N˙m	lb.-in.	N˙m	lb.-in.	N˙m	lb.-in.	N˙m	lb.-in.	N˙m	lb.-in.
1/4	3.7	33	4.7	42	6	53	7.5	66	9.5	84	12	106	13.5	120	17	150
													N˙m	lb.-ft.	N˙m	lb.-ft.
5/16	7.7	68	9.8	86	12	106	15.5	137	19.5	172	25	221	28	20.5	35	26
									N˙m	lb.-ft.	N˙m	lb.-ft.				
3/8	13.5	120	17.5	155	22	194	27	240	35	26	44	32.5	49	36	63	46
			N˙m	lb.-ft.	N˙m	lb.-ft.	N˙m	lb.-ft.								
7/16	22	194	28	20.5	35	26	44	32.5	56	41	70	52	80	59	100	74
	N˙m	lb.-ft.														
1/2	34	25	42	31	53	39	67	49	85	63	110	80	120	88	155	115
9/16	48	35.5	60	45	76	56	95	70	125	92	155	115	175	130	220	165
5/8	67	49	85	63	105	77	135	100	170	125	215	160	240	175	305	225
3/4	120	88	150	110	190	140	240	175	300	220	380	280	425	315	540	400
7/8	190	140	240	175	190	140	240	175	490	360	615	455	690	510	870	640
1	285	210	360	265	285	210	360	265	730	540	920	680	1030	760	1300	960
1-1/8	400	300	510	375	400	300	510	375	910	670	1150	850	1450	1075	1850	1350
1-1/4	570	420	725	535	570	420	725	535	1280	945	1630	1200	2050	1500	2600	1920
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2140	1580	2700	2000	3400	2500
1-1/2	990	730	1250	930	990	730	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For plastic insert or crimped steel type lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application. Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Replace fasteners with the same or higher grade. If higher grade fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 05 - Specifications

General Specifications

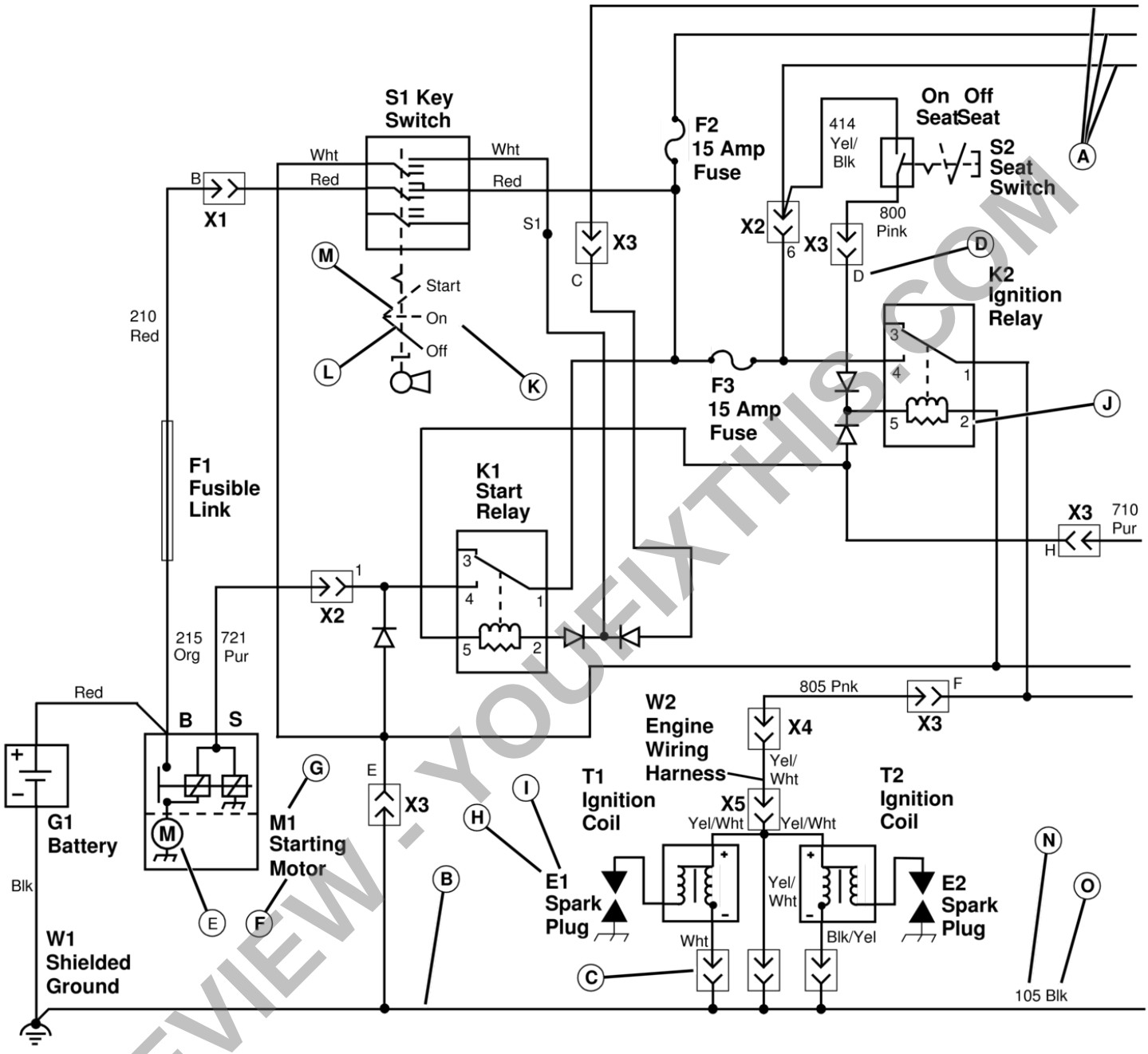
Item	Measurement	Specification
Model 3320		
Engine	Yanmar	3TNV88
4-Cycle Diesel	Torque (at rated speed) @ 2600 rpm	83.5 N·m
		(61.6 lb.-ft.)
	Torque (max) @ 1560 rpm	100.2 N·m
		(73.9 lb.-ft.)
Cylinders	Quantity	3
Bore	Diameter	88 mm
		(3.46 in.)
Stroke	Distance	90 mm
		(3.54 in.)
Size	Displacement	1.642 L
		(100.2 cu. in.)
Model 3520		
Engine	Yanmar	3TNV84T
4-Cycle Diesel	Torque (at rated speed) @ 2600 rpm	96.4 N·m
		(71.1 lb.-ft.)
	Torque (max) @ 1560 rpm	115.7 N·m
		(85.4 lb.-ft.)
Bore	Diameter	84 mm
		(3.31 in.)
Stroke	Distance	90 mm
		(3.54 in.)
Size	Displacement	1.496 L
		(91.3 cu. in.)
Model 3720		
Engine	Yanmar	3TNV84HT
4-Cycle Diesel	Torque (at rated speed) @ 2600 rpm	
		114.3 N·m
		(84.3 lb.-ft.)
	Torque (max) @ 1560 rpm	137.1 N·m
		(101.1 lb.-ft.)
Bore	Diameter	84 mm
		(3.31 in.)
Stroke	Distance	90 mm
		(3.54 in.)
Size	Displacement	1.496 L
		(91.3 cu. in.)
All Models		
Cylinders	Quantity	3
Firing Order (No. 1 Cylinder on Flywheel Side)	Sequence	1—3—2
Direction	Rotation	Counterclockwise (viewed from flywheel)
Combustion System	Type	Direct Injection
Cooling System (Liquid)	Capacity	5.3 L (Approximate)
		(5.6 qt.)
Oil (with Filter)	Capacity	4.3 L (Approximate)
		(4.5 qt.)
Governor	Type	Centrifugal

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 05 - General Information

Reading Electrical Schematics



Reading Electrical Schematics

LEGEND:

A	Power Wire
B	Ground Wire
C	Connector
D	Terminal Pin Location
E	Symbol
F	Name
G	Identification Code
H	Identifying Letter
I	Number
J	Terminal Designation
K	Switch Position
L	Solid Line
M	Dash Line
N	Circuit Number
O	Wire Color

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 05 - European Electrical Section

European Electrical Theory

The European road machines have the same electrical circuits as the North American machines with the addition of lighting circuits required to meet EEC Machinery Directives.

The main electrical wiring harness is specific to the European models, and is identical among all of the European 3000 Twenty series machines.

Lighting additions include the hazard lights switch, flasher relay, brake lights, position lights, and additional control panel indicator lights.

The European machine wiring harness contains the same wires (both color and number) as the North American machines, with additional wires required for the additional circuits.

There are variations between the North American and European main wiring harnesses in connector to wire pin locations and numbers. While some circuits such as the Cranking Circuit may be identical, other circuits contain differences that require using the diagnosis sections specific to either North American or European machines.

Common components (such as the key switch, fuel shutoff solenoid, or park brake switch) are cross referenced to the shared Electrical Tests and Adjustments section. (See Tests and Adjustments in Section 40, Group 35.) The tests and adjustments given in this section can be used by any North American or European service technician.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 05 - Specifications

General

Item	Measurement	Specification
Hydraulic Reservoir		
Hydraulic Reservoir	Capacity	25.7 L (6.8 gal) (27.2 qt)

Hydrostatic Pump

Item	Measurement	Specification
Hydrostatic Pump		
Manufacturer		Sauer-Danfoss
Type		Piston Pump
Model		JD LVA10837
Displacement (variable) (maximum/rev)	Displacement	51 cm^3 (3.11 cu. in./rev)
Pressure Relief Valve Setting	Pressure	38 500 kPa (385 bar) (5580 psi)
Charge Pressure	Pressure	1800 kPa (18 bar) (261 psi)

Hydrostatic Motor

Item	Measurement	Specification
Hydrostatic Motor		
Manufacturer		Sauer-Danfoss
Type		Fixed Displacement Axial Piston Motor
Displacement (fixed)	Displacement	43.5 cm^3 (2.65 cu. in./rev)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 05 - Specifications

General Specifications

Item	Measurement	Specification
Transaxle Oil:		
John Deere J20C		
Hydraulic Reservoir	Capacity	25.7 L (6.8 gal.)

Item	Measurement	Specification
PTO Speeds (at rated engine speed):		
Rear PTO	Speed	540 rpm
Mid PTO	Speed	2100 rpm

Item	Measurement	Specification
MFWD Oil:		
John Deere J20D	Capacity	5.0 L (5.3 qt.)

Repair Specifications

Item	Measurement	Specification
PTO Clutch/Brake Specifications:		
Clutch/Brake Plate (End Plate)	Thickness	3.18 mm (0.125 in.)
Minimum Clutch/Brake Plate (Friction Plates)	Thickness	1.4 mm (0.055 in.)
Clutch/Brake Plates (Steel)	Thickness	2.3 mm (0.091 in.)
Interlock Pin	Length	19.5 mm (0.768 in.)

Item	Measurement	Specification
Pinion and Ring Gear:		
Differential Ring Gear	Backlash	0.1—0.2 mm (0.004—0.008 in.)

Item	Measurement	Specification
Front Wheel Alignment:		
Toe In Measurement	Distance	0—3 mm (0.0—0.12 in.)
Inclination	Angle	13°
Swing	Angle	10°

Item	Measurement	Specification
Steering Angle:		
Inward	Angle	54°
Outward	Angle	62°

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 05 - Specifications

Hydraulic Specifications

Item	Measurement	Specification
Hydraulic Oil:		
Type		John Deere J20D
Hydraulic Oil	Capacity	25.7 L (6.8 gal.)
At Rated Engine rpm:		
Rated Engine Speed	Speed	2600 rpm
System Pressure	Pressure	17 240 kPa (172.4 bar) (2500 psi)
Steering Relief Pressure	Pressure	10 340 kPa (103.4 bar) (1500 psi)
Steering Pump	Capacity	20 L/min. (5.3 gpm)
Steering Pump	Displacement	9 cm^3 /rev (0.549 cu. in../rev)
Implement Pump	Capacity	32.5 L/min. (8.6 gpm)
Implement Pump Displacement	Displacement	14.6 cm^3 /rev (0.891 cu. in../rev)
Total Pump Flow	Volume	46.5 L/min. (13.9 gpm)
Pump	Type	Gear
System Regulated Pressure	Pressure	1800 kPa (18 bar) (261 psi)
Pump Size	Displacement	51 cm^3 /rev (3.1 cu. in../rev)
Motor Size	Displacement	43.5 cm^3 /rev (2.65 cu. in../rev)
Loop Pressure	Pressure	38 470 kPa (384.7 bar) (5580 psi)
Charge Pressure		1800 kPa (18 bar) (261 psi)
Charge Pressure variable with oil temperature (cold or hot)	Pressure	1515 / 2000 kPa (15.15 / 20.0 bar) (220 / 290 psi)
eHydro ™ Pump Type		PV Axial Piston
eHydro ™ Motor Type		MF Axial Piston
Rockshaft and Lift Arms:		
Lift Cycle Time	Time	2.5—3 seconds
Drop Cycle Time	Time	2.5—3 seconds
Lift Arm Drop in 5 minutes with Rate of Drop/Stop Valve Closed (maximum)	Distance	51 mm (2 in.)
Lift Arm Raise Angle	Angle	50°
Lift Arm Lower Angle	Angle	20°
Total Lift Arm Range	Angle	70°

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 05 - Specifications

Steering

Item	Measurement	Specification
Specifications:		
Steering Wheel Outer Diameter	Diameter	356 mm (14.0 in.)
Front Steering Angle: Maximum Inside	Angle	62°
Front Steering Angle: Maximum Outside	Angle	54°
Maximum Rotation of Steering Wheel—Steering at Maximum Right or Left and Constant Torque Applied to Steering Wheel	Rotation	5
Toe-In	Distance	0—3 mm (0—0.125 in.)
Steering Cylinder Retracted Length (Tie Rod End to Tie Rod End)	Length	522 mm (20.55 in.)
Steering System Pressure	Pressure	10 342 kPa ± 10% (103.42 bar ± 10%) (1500 psi ± 10%)

Item	Measurement	Specification
Lubrication Intervals:		
Tie Rod Ends, Front Axle Pivot Pin (Normal Conditions)		Every 50 hours
Tie Rod Ends, Front Axle Pivot Pin (Dusty Conditions)		Every 10 hours

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 05 - Specifications

Brakes

Item	Measurement	Specification
Specifications:		
Brake	Type	Wet Multiple Disc
Brake Pedal Travel	Distance	60 mm (2-3/8 in.)
Pedal Differential	Distance	2 mm (0.08 in.) or Less

Transaxle Oil

Item	Measurement	Specification
Specifications:		
Type		John Deere J20D
Capacity eHydro ™ Machines)		25.7 L (6.8 gal.)

Torque Specifications

Item	Measurement	Specification
Specifications:		
Rear Wheel Bolts	Torque	140 N·m (103 lb.-ft.)
Brake Assembly Cap Screw	Torque	28 N·m (21 lb.-ft.)
Park Brake Lever Cap Screw	Torque	55—80 N·m (41—60 lb.-ft.)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 05 - Specifications

Air Conditioner Specifications

Item	Measurement	Specification
Refrigerant:		
Type		R-134a
Capacity of System (approximate)		1.27 kg (2.8 lb.) (2 lb. 12 oz.)
Torque:		
Hub-to-Pulley Clearance	Clearance	0.35—0.65 mm (0.014—0.026 in.)
Clutch Hub Retaining Cap Screw	Torque	14 N·m (124 lb.-in.)
Condenser Outlet Line	Torque	14—20 N·m (124—177 lb.-in.)
Condenser Inlet Line	Torque	33—39 N·m (24—29 lb.-ft.)
Compressor Discharge Line	Torque	33—39 N·m (24—29 lb.-ft.)
Compressor Suction Line	Torque	35—42 N·m (25—31 lb.-ft.)
Compressor Relief Valve	Torque	12—16 N·m (106—142 lb.-in.)
Manifold Cap Screw	Torque	26 N·m (19 lb.-ft.)
Air Conditioning Receiver/Dryer Cap Screw	Torque	14—20 N·m (124—177 lb.-in.)
Receiver/Dryer Lines	Torque	14—20 N·m (124—177 lb.-in.)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 05 - Specifications

Cab Specifications

Item	Measurement	Specification
Specifications		
Cab Door Hinge Mounting Flange Nuts	Torque	28 N·m (20 lb.-ft.)
Inner Cab Roof Mounting Cap Screw	Torque	12 N·m (106 lb.-in.)
Cab A/C Lines	Torque	45 N·m (33 lb.-ft.)
Cable Sleeve	Torque	6—19 N·m (144—168 lb.-in.)
Cable Nut	Torque	16—19 N·m (144—168 lb.-in.)
Steering Wheel Nut	Torque	39—49 N·m (29—36 lb.-ft.)
Center Link Spring Holder	Torque	50 N·m (37 lb.-ft.)
Front Wheel Lug Bolts	Torque	140 N·m (103 lb.-ft.)
Rear Wheel Lug Bolts	Torque	140 N·m (103 lb.-ft.)
Seat Support Bolts	Torque	20 N·m (177 lb.-in.)
Cab Mounting Screws—M12	Torque	140 N·m (105 lb.-ft.)
Cab Mounting Screws—M16	Torque	310 N·m (229 lb.-ft.)
Cap Screw-to-Center Link Bracket	Torque	90 N·m (66 lb.-ft.)

Essential or Recommended Tools

→NOTE:

Order tools from the SERVICEGARD ™ Catalog.

ESSENTIAL TOOLS listed are required to perform the job correctly and are obtainable only from the SERVICEGARD ™ Catalog.

RECOMMENDED TOOLS, as noted, are suggested to perform the job correctly. Some tools may be available from local suppliers or may be fabricated.

Cab Lift Bar

JDG1580

Used to remove and install cab.

Cab Lifting Bracket Set

JDG2069

Used to remove and install cab.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 05 - Safety

Recognize Safety Information

Safety-alert symbol

This is a safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.

Understand Signal Words

Signal Words

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

Replace Safety Signs

PREVIEW: YOUFIXTHIS.COM

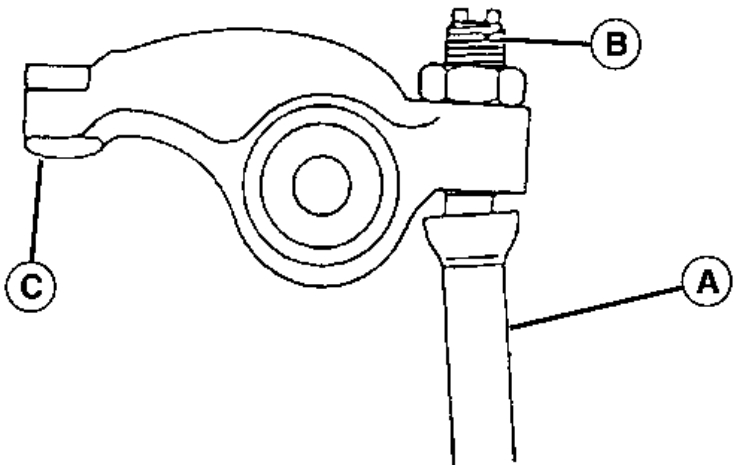
Download full manual at youfixthis.com

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Inspect Rocker Arm Contact Surfaces:

[1] -



LEGEND:

A	Push Rod
B	Adjusting Screw
C	Surface

Rocker Arm Contact Surface

Check the surface of the adjusting screw that contacts the push rod (A) for wear. Replace the adjusting screw (B) if it is worn or damaged.

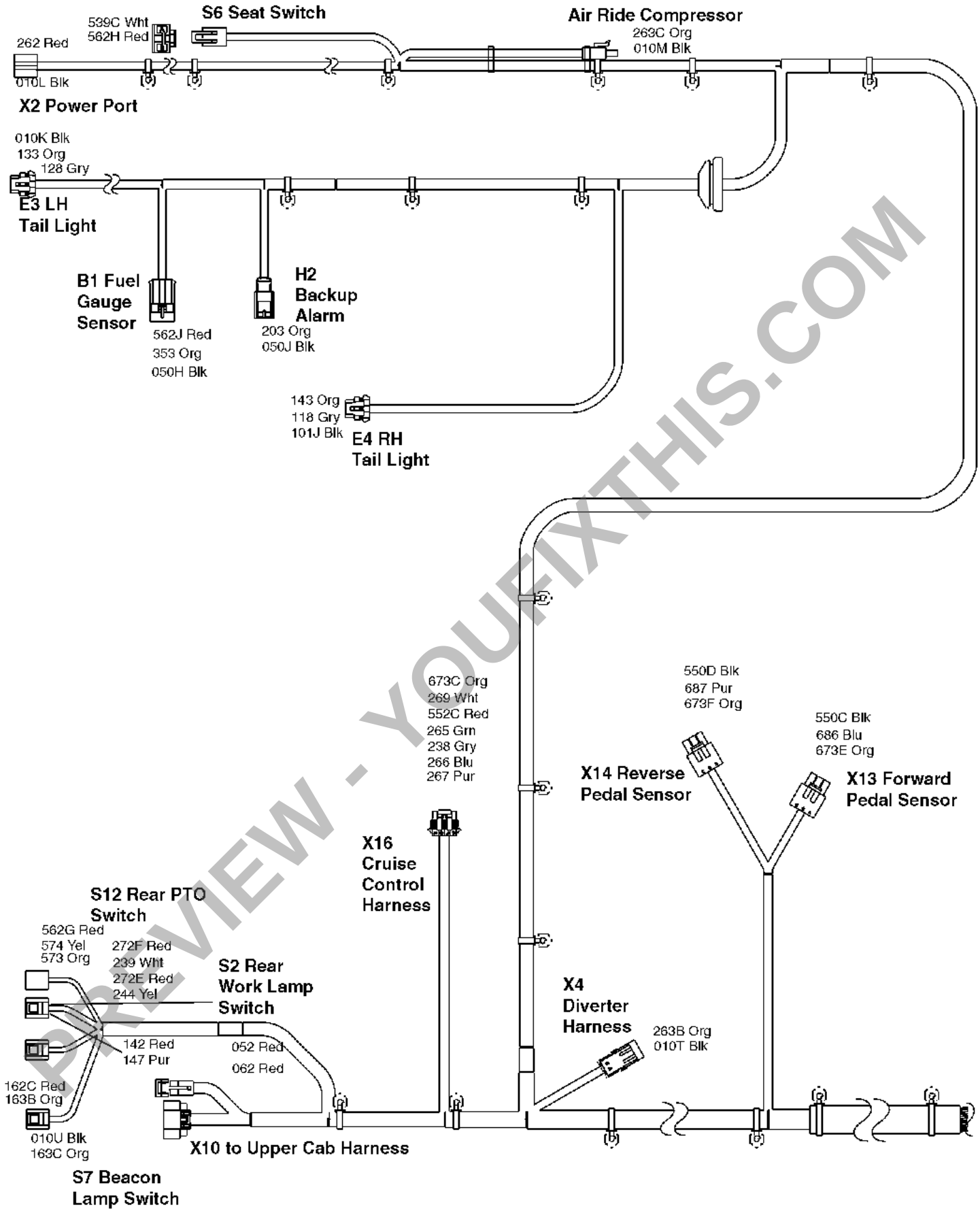
[2] - Check the surface (C) of the rocker arm that comes in contact with the valve cap for wear. Replace rocker arm if necessary.

[3] - Check the socket portion of the push rod where the valve clearance adjusting screw contacts the push rod. Replace the push rod if it is worn or damaged.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

W2 Lower Cab Wiring Harness



PREVIEW - YOUFIXTHIS.COM

W2 Lower Cab Wiring Harness (1 of 2)

LEGEND:

B1	Fuel Gauge Sensor
E3	Left-Hand Tail Light
E4	Right-Hand Tail Light

Download full manual at youfixthis.com

Ground Circuit Diagnosis

→NOTE:

Ground circuits may have identical circuit numbers between the various harnesses. These diagnostic procedures are divided into individual harnesses and their respective circuits. (SeeW1, W2, and W3 Ground Circuitsin Section 40, Group 20.)

Before beginning any ground tests, check that there is proper continuity and resistance on W2A ground strap. There should be no more than 0.2 Ohms resistance.

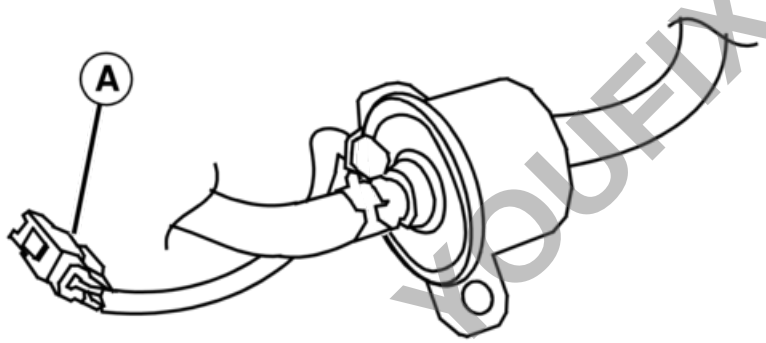
Test Conditions

- Key switch in OFF position.

W1 Ground Circuit

(1) Step 1

Action:



M5 Fuel Pump

LEGEND:

A	010B Blk Wire

Is there continuity between M5 fuel pump 010B Blk wire (A) and ground?

Result:

YES: Go to next step.

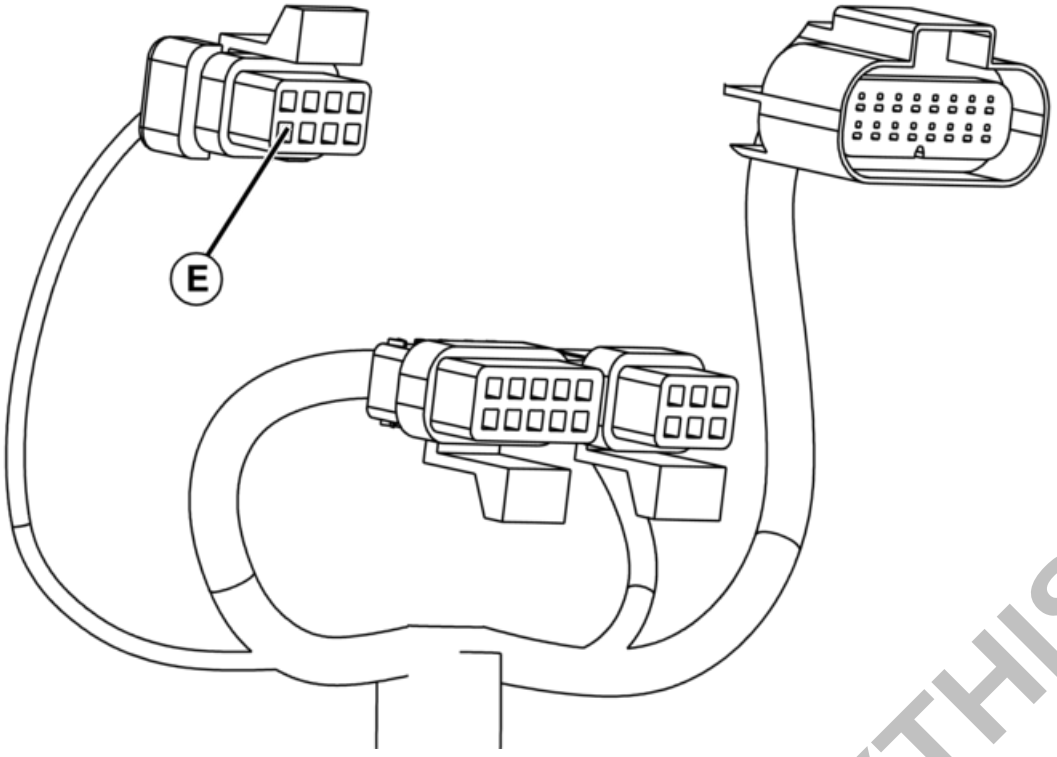
NO: Check 010B and 010A Blk wires and connections.

(2) Step 2

Action:

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



A1 Display Panel Connectors

LEGEND:

E	J3 Connector, 594 Yel Wire

Is battery voltage present at A1 display panel J3, 594 Yel wire (E)?

Result:

YES: Replace A1 display panel.

NO: Check 594 Yel wire and connections. If OK, replace S11 mid PTO sense switch.

MFWD Circuit Operation

Function:

To illuminate a light on the display panel to alert the operator that the MFWD is engaged.

Operating Conditions:

- Key switch in run position, and
- MFWD lever in the engaged position, MFWD engagement sensing switch on.

Theory of Operation:

The MFWD function is a mechanical system that uses a ball switch to turn a light on or off on the display panel to alert the operator that the MFWD is engaged.

With the key in start or run position, battery voltage is provided to the MFWD engagement sensing switch through the S1 key switch, 072 Red wire, F5 fuse and 562E, 562A, 562B and 562E Red wires to the S14 MFWD engagement sensing switch.

When the MFWD lever is pulled up to the engaged position, the ball of the switch is pushed in to close the contacts inside the switch. With the switch contacts closed, current flows across the MFWD engagement sensing switch to the 555 Grn wire and J4 connector of the A1 display panel to illuminate the MFWD indicator light.

A ground circuit path for the display panel is provided though the J4 connector 050E Blk wire and J3 connector 050D Blk wire,

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Wiper and Washer Circuit Diagnosis—MY13

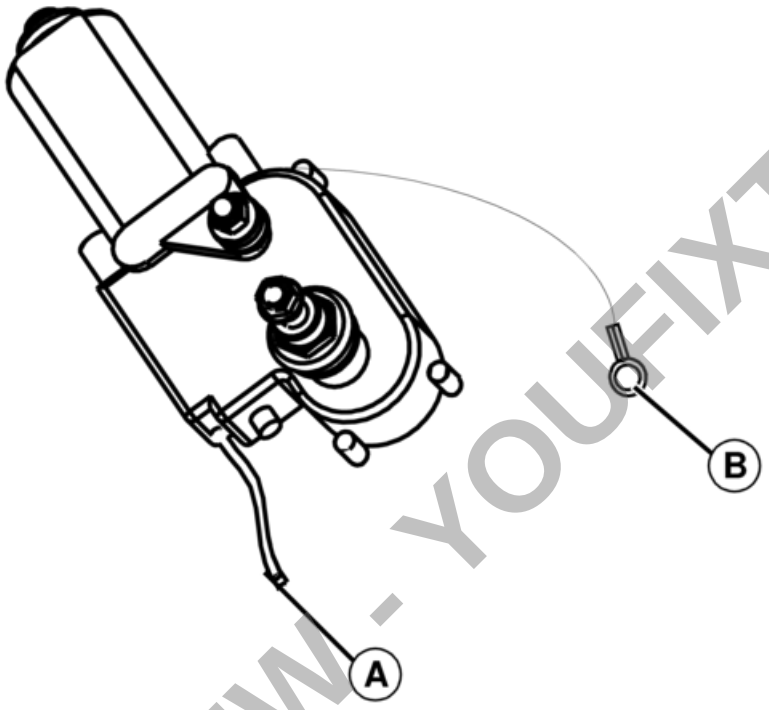
Test Conditions

- Park brake locked.
- Key switch in the run position, engine off.
- Function under test tuned on (switch closed).
- Ground circuits tested and OK. (SeeGround Circuit Diagnosis—MY13in Section 40, Group 30.)
- Power circuits tested an OK. (SeePower Circuit Diagnosis—MY13in Section 40, Group 30.)

Front Wiper Circuit

(1) Step 1

Action:



M2 Front Wiper Motor

LEGEND:	
A	226 Lt Blu Wire
B	010V Blk Wire

Is battery voltage present at M2 front wiper motor, 226 Lt Blu wire (A)?

Result:

YES: Go to next step.

NO: Check 226 Lt Blu wire and connections. If OK, test S10 front wiper switch. (SeeWiper/Washer Switch Testin Section 40, Group 35.)

(2) Step 2

Action:

Is there continuity between 010V Blk wire (B) at M2 front wiper motor and ground?

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Engine Oil Pressure Switch Test

Reason

To determine if engine oil pressure switch is functioning properly, to warn operator that oil pressure has dropped below minimum operating pressure.

Equipment

- Ohmmeter

Procedure

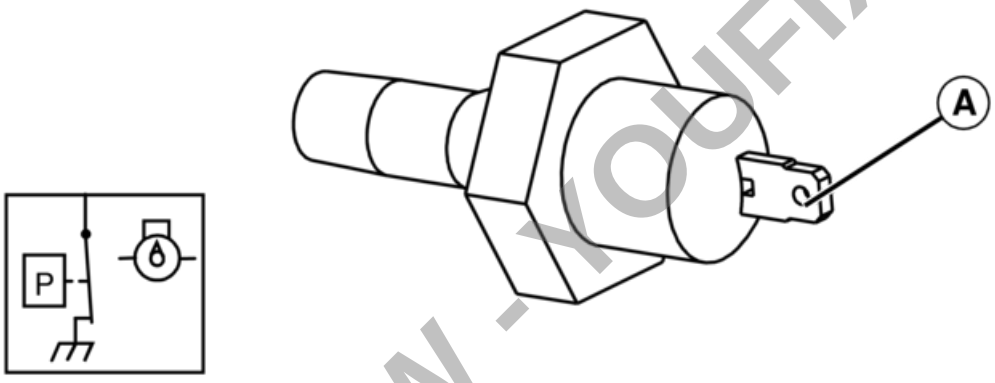
→NOTE:

Perform test with engine at room temperature.

[1] - Park machine safely in neutral with park brake locked.

[2] - Raise hood and secure with prop rod.

[3] -



Oil Pressure Switch

LEGEND:

A	Oil Pressure Switch

Disconnect 347A Pur wire from engine oil pressure switch (A).

[4] - Connect black lead of ohmmeter to engine block and red lead of ohmmeter to terminal of switch.

[5] - Measure resistance between terminal and engine block.

Results

- There should be continuity between terminal and ground.
- If there is no continuity between terminal and ground, replace the oil pressure switch.

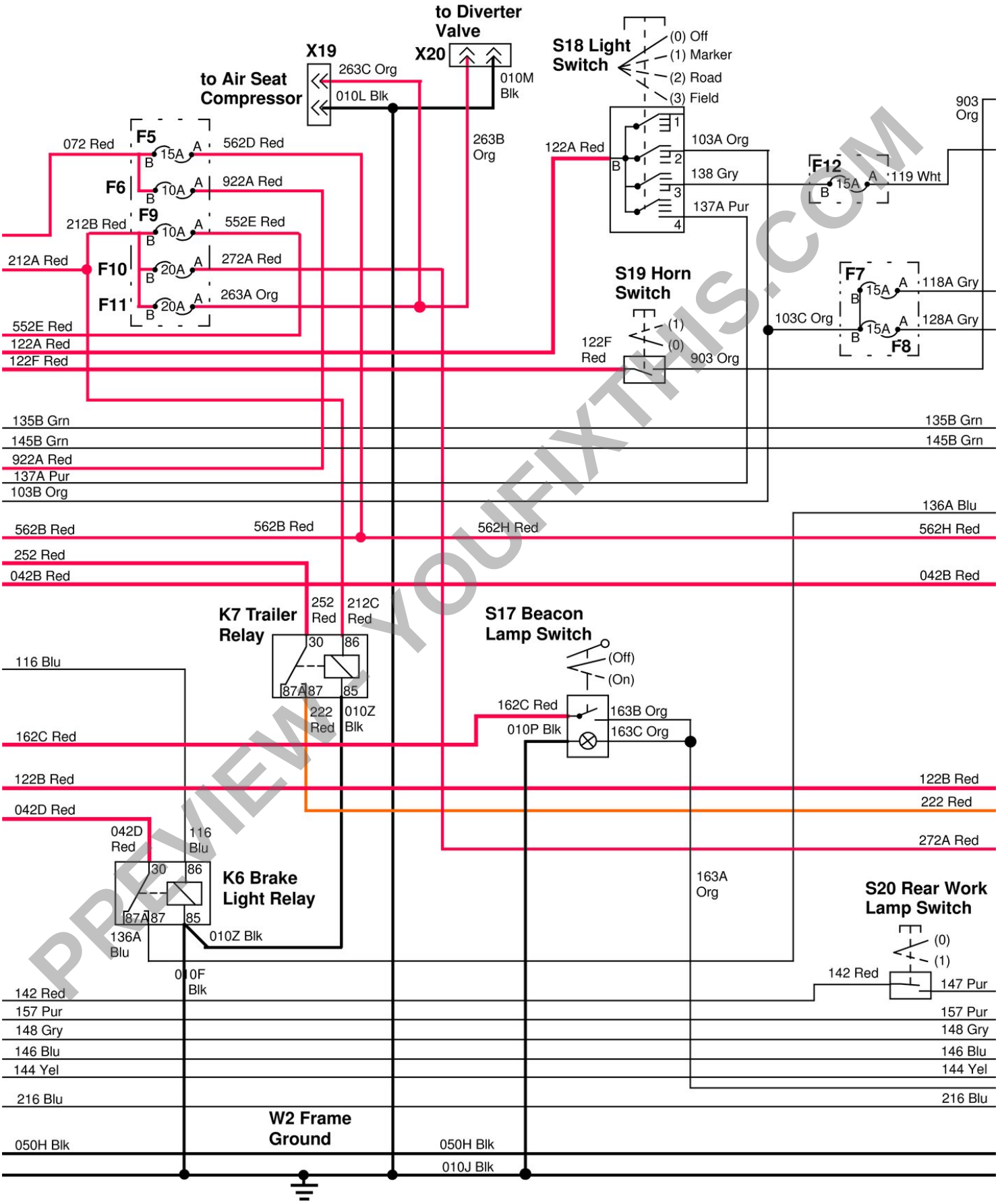
→NOTE:

Be sure to apply pipe sealant with TEFLON ™ to threads of switch anytime it is installed.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

R1	Manifold Heater
S15	Key Switch
S16	Brake Switch
W3	Upper Cab Wiring Harness
X17	Power Port
X18	Connector to Upper Cab Wiring Harness



Main Wiring Harness Schematic — Page 7 of 9

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Action:

Is continuity to ground present at terminal H, 050D Blk wire (ag)?

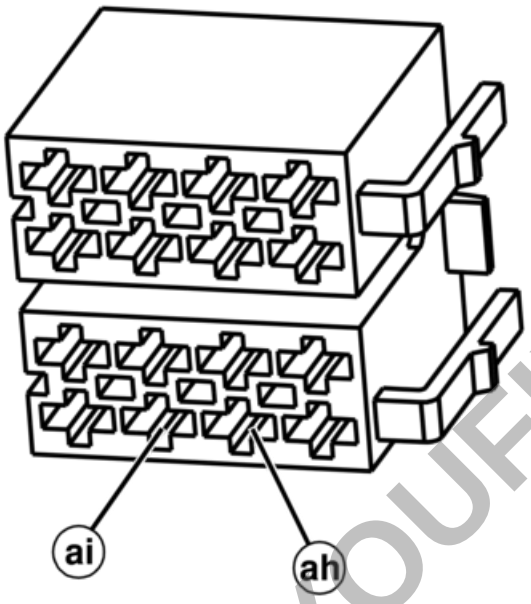
Result:

YES: Connect X13—J3 connector. Go to next step.

NO: Check 050D and Blk wires and connections to W1 ground.

(33) Step 33

Action:



A3 Radio Connector

LEGEND:	
ai	A3 Radio, 272C Pur Wire
ah	A3 Radio, 272D Pur Wire

Is battery voltage present at A3 radio, 272C (ah) and 272D (ai) Pur wires?

Result:

YES: Go to next step.

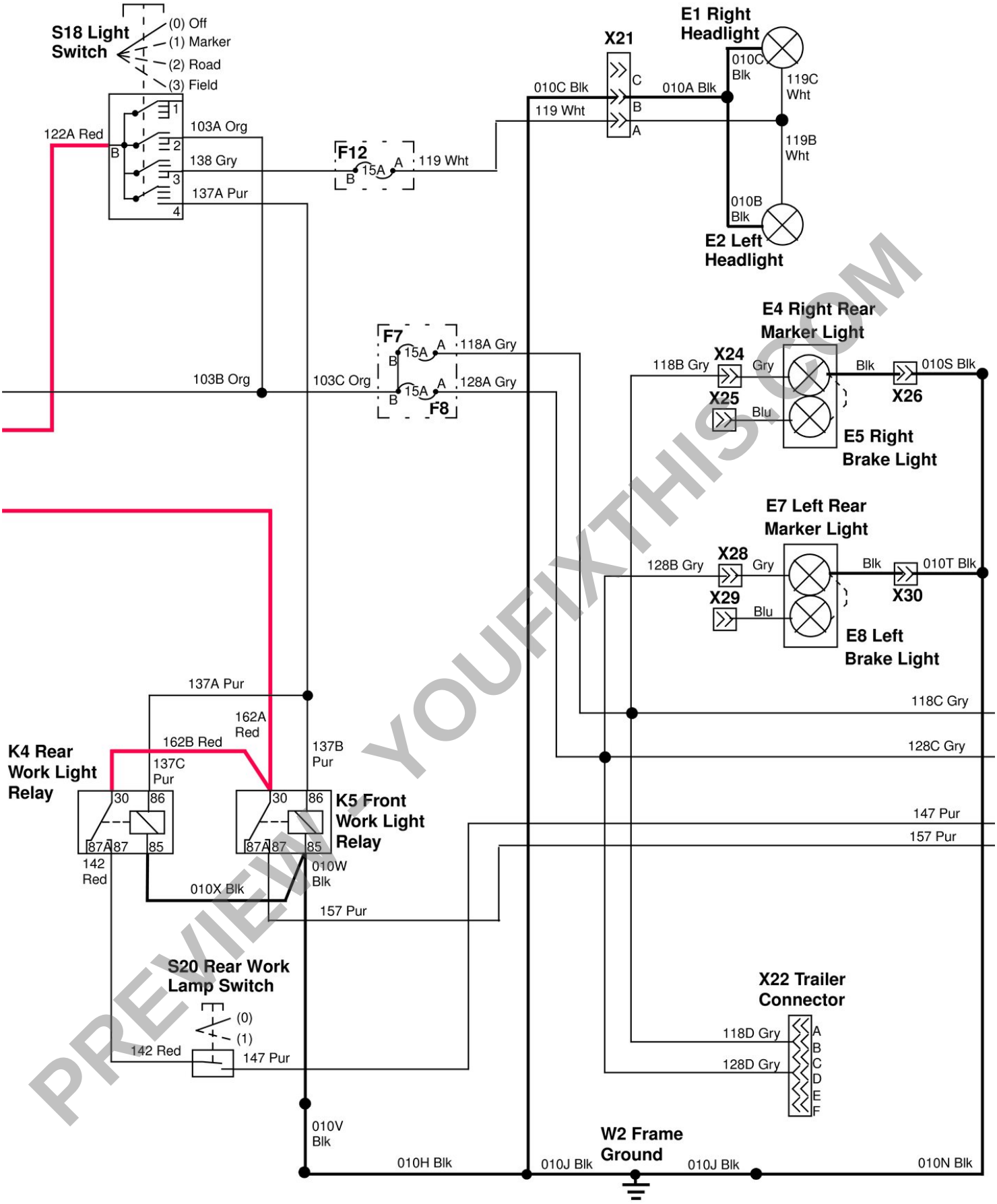
NO: Check 272A, 272C, and 272D Red wires, splice, and connections.

(34) Step 34

Action:

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



PREVIEW BY YOUFIXTHIS.COM

Lights Circuit Electrical Schematic — Page 2 of 3

LEGEND:

E1	Right Headlight
E2	Left Headlight
E4	Right Rear Marker Light
E5	Right Brake Light
E7	Left Rear Marker Light

Download full manual at youfixthis.com

Reverse Drive Circuit Operation—MY13

Function

The reverse drive circuit causes the electronic drive controller to propel the machine in a controlled reverse direction.

Additionally the electronic drive controller provides for setting the following functions during a reverse drive:

- Maximum travel speed.
- Motion match (pedal responsiveness) (optional).
- Load match.

Each of these additional functions has the ability to be turned on or off by the operator.

Operating Conditions

- Key switch in run position.
- Engine running.
- Operator on seat.
- Park brake unlocked.
- Reverse pedal depressed.

Theory of Operation

The A1 electronic drive controller (drive controller) is a pre-programmed electrical device that allows the operator to control the machine reverse drive function and speed via the electrical inputs from the reverse foot pedal. Under normal operating conditions, this creates an output to the reverse proportional solenoid in the transmission.

Current is supplied to the A1 drive controller from the switched power circuit.

With the key switch in the run or accessories position, current is supplied to the 212A Red wire, F9 fuse, 552K and 552N Red wires to the A3 terminal of the X8 connector and the drive controller energizing the drive controller. This power supply is turned off when the key switch is in the start position.

With the A1 drive controller energized, the secondary switched outputs from the drive controller are supplied to the 673 series of wires. The 673B Org wire splices to the 673A, 673G, 673E, and 673C Org wires. 673A Org wire supplies current to terminal 17 673 H Org on X4 connector. 673 H Org provide current from the lower wiring harness to 673K Org wire to the T1 throttle position sensor, 673J to the T2 MFWD speed sensor. Current is supplied to the T3 forward pedal sensor through 673C org wire. And to the T4 reverse pedal sensor through 673G Org wire, and the motion match switch (optional) through 673 Org.

When the reverse pedal is pressed, the T4 reverse pedal sensor rotates and sends pulses (frequency) back to the drive controller through the 687 Pur wire. The drive controller then counts and processes the number of pulses from this input command into an output command if the proper operating conditions exist. The output command (current) to the reverse proportional solenoid is proportional to the pedal position.

The proper conditions for a reverse function will be:

- 12.0 volt input on 552K Red wire, power on.
- 12.0 volt input on 539C Wht wire, operator on seat.
- 5.0 volt output on 673G Org wire, sensor power.
- Continuity to ground on 550D Blk wire, sensor ground.
- Continuity to ground on 050C Blk wire, HST controller ground.
- Frequency input on the 687 Pur wire, reverse pedal pressed.
- Engine speed will be received from the TCU (transmission control unit).
- Frequency input on the 499C Wht wire, throttle position sensor.
- Frequency input on the 502C Red wire, MFWD speed sensor.
- Frequency input on the 686 Blu wire, forward pedal not pressed.
- Current output up to 1.9 amps on 697 Pur wire, reverse proportional solenoid energized.
- No current output on 696 Blu wire, forward proportional solenoid not energized.

With the proper commands, the drive controller will ramp the output to the forward proportional solenoid to allow the machine to travel forward at a speed proportional to the position of the forward pedal, based upon the engine rpm and the range gear selected.

PREVIEW - YOUFIXTHIS.COM

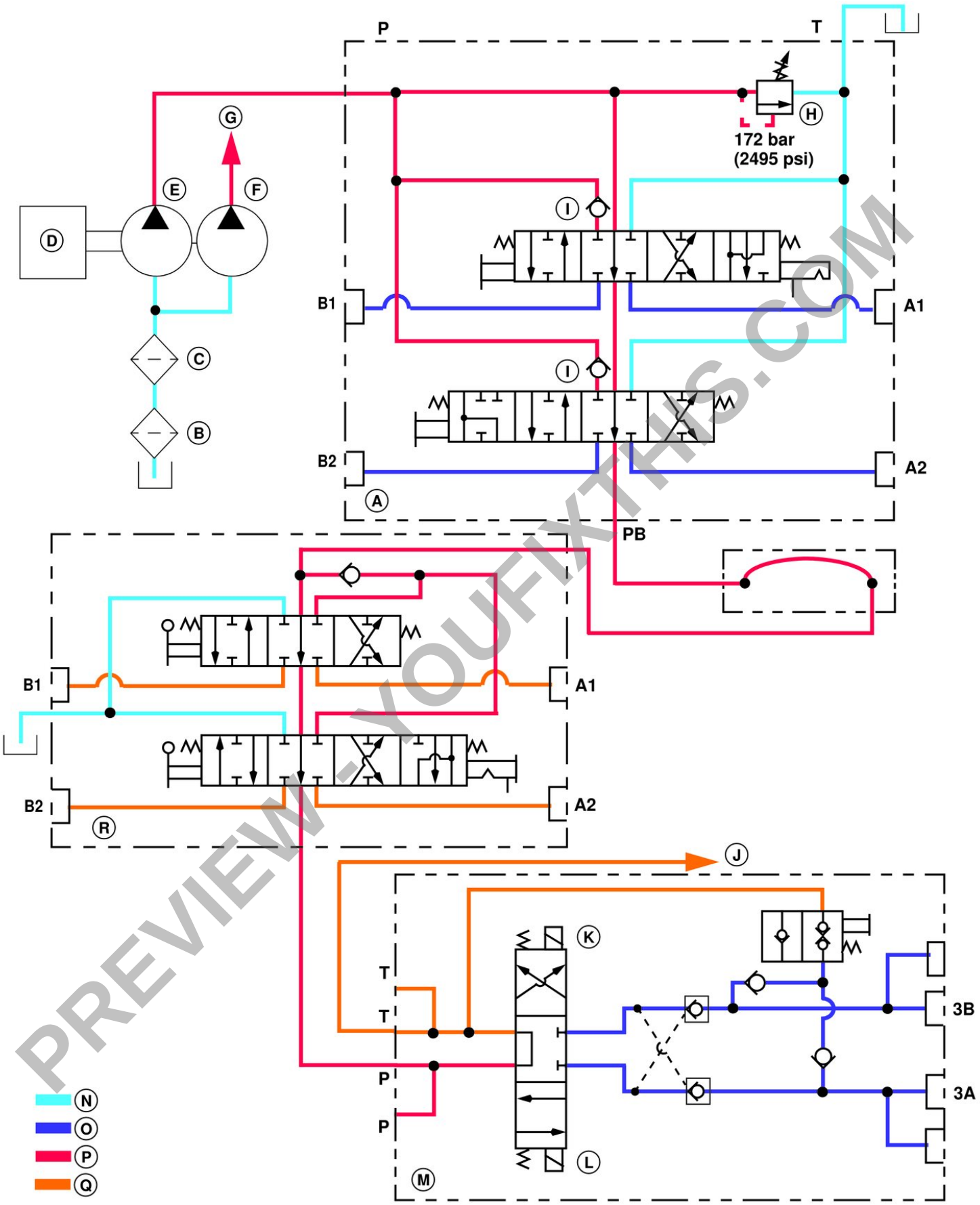
Download full manual at youfixthis.com

K	O-ring
L	Snap Ring
M	Bearing
N	Bearing Retainer
O	Cap Screw (4 used)
P	Ball, 1/4 in. (2 used)
Q	Spring
R	Shift Collar
S	Shift Shoe
T	Pin
U	Shifter
V	MFWD Drive Shaft

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

3rd, 4th, and 5th SCV Schematics (SN 740001—)



PREVIEW - YOUFIXTHIS.COM

3rd, 4th, and 5th SCV Schematics (SN 740001—)

LEGEND:

A	2 Spool Selective Control Valve (SCV)
B	Intake Filter (150 mesh)
C	Suction Filter

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 25 of 2101 pages

The full manual includes:

- All 2101 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

John Deere 3320, 3520, 3720 Technical Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual