3 MCZ and DSZ Continuity Check	**Key switch in OFF position.** Disconnect cab harness-to-main controller 26-pin connector E (X36). Disconnect monitor controller 28-pin connector A (X20). Check for continuity between: • Pin 15 on cab harness-to-main controller 26-pin connector E (X36) and pin 26 on monitor controller 28-pin connector A (X20). • Pin 24 on cab harness-to-main controller 26-pin connector E (X36) and pin 25 on monitor controller 28-pin connector A (X20). Is continuity indicated?	**YES:** Go to MCZ and BCZ Continuity Check. **NO:** Open circuit, repair or replace harness. See appropriate harness.

TZ24494,0000AD3 -19-15MAY13-5/37

4 MCZ and BCZ Continuity Check	**Key switch in OFF position.** Disconnect cab harness-to-main controller 26-pin connector E (X36). Disconnect machine controller 20-pin connector B (X11). Check for continuity between: • Pin 15 on cab harness-to-main controller 26-pin connector E (X36) and pin 1 on machine controller 20-pin connector B (X11). • Pin 24 on cab harness-to-main controller 26-pin connector E (X36) and pin 11 on machine controller 20-pin connector B (X11). Is continuity indicated?	**YES:** Go to MCZ and Radio Continuity Check. **NO:** Open circuit, repair or replace harness. See appropriate harness.

TZ24494,0000AD3 -19-15MAY13-6/37

5 MCZ and Radio Continuity Check	**Key switch in OFF position.** Disconnect cab harness-to-main controller 26-pin connector E (X36). Disconnect radio connector (A6). Check for continuity between: • Pin 15 on cab harness-to-main controller 26-pin connector E (X36) and pin 4 on radio connector (A6). • Pin 24 on cab harness-to-main controller 26-pin connector E (X36) and pin 12 on radio connector (A6). Is continuity indicated?	**YES:** Go to MCZ and ACF Continuity Check. **NO:** Open circuit, repair or replace harness. See appropriate harness.

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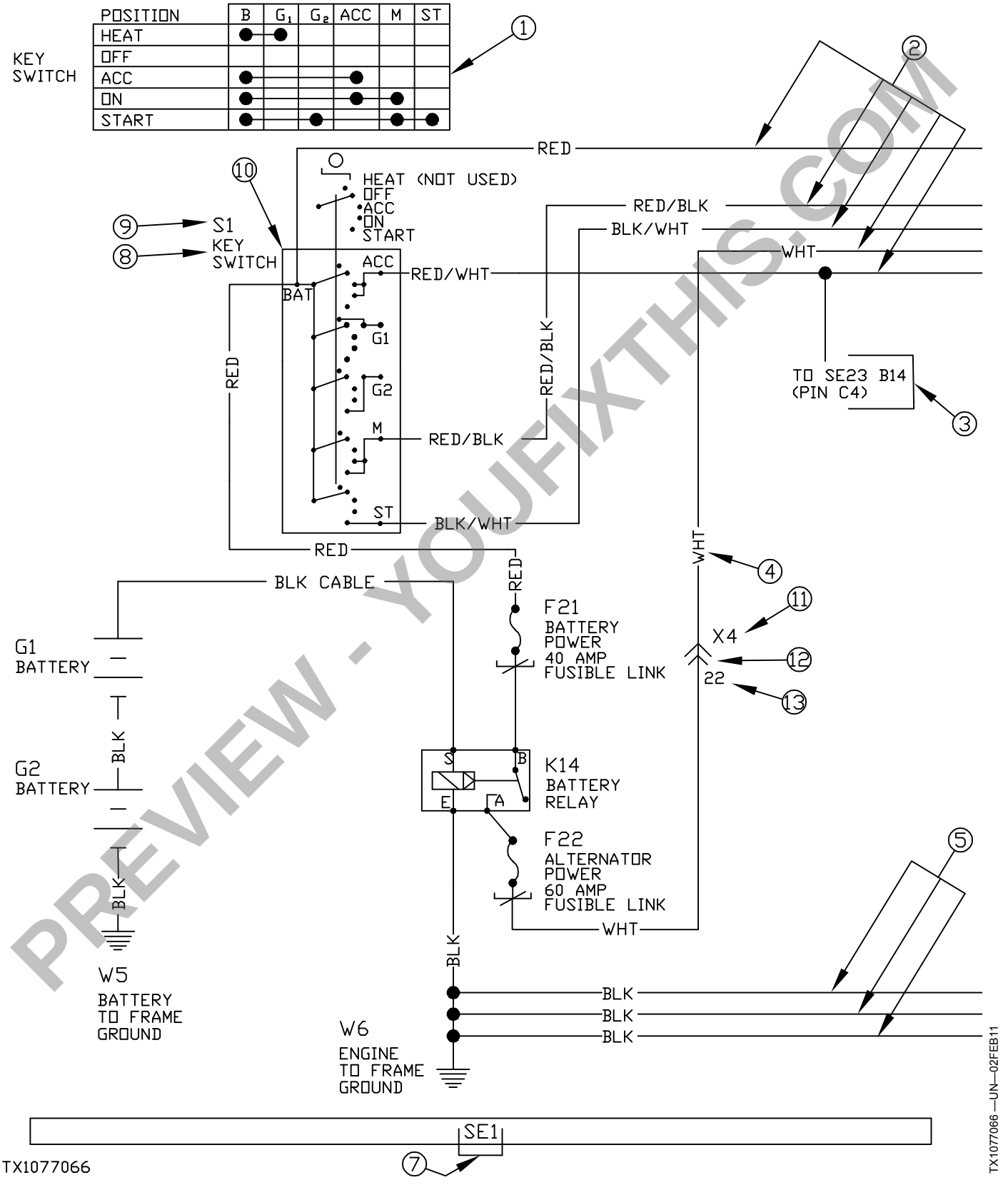
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Electrical Diagram Information

NOTE: All System Functional Schematics, Circuit Schematics, and Wiring Diagrams are shown with key switch in the OFF position.

Explanation of Wire Markings

System Functional Schematic Diagram

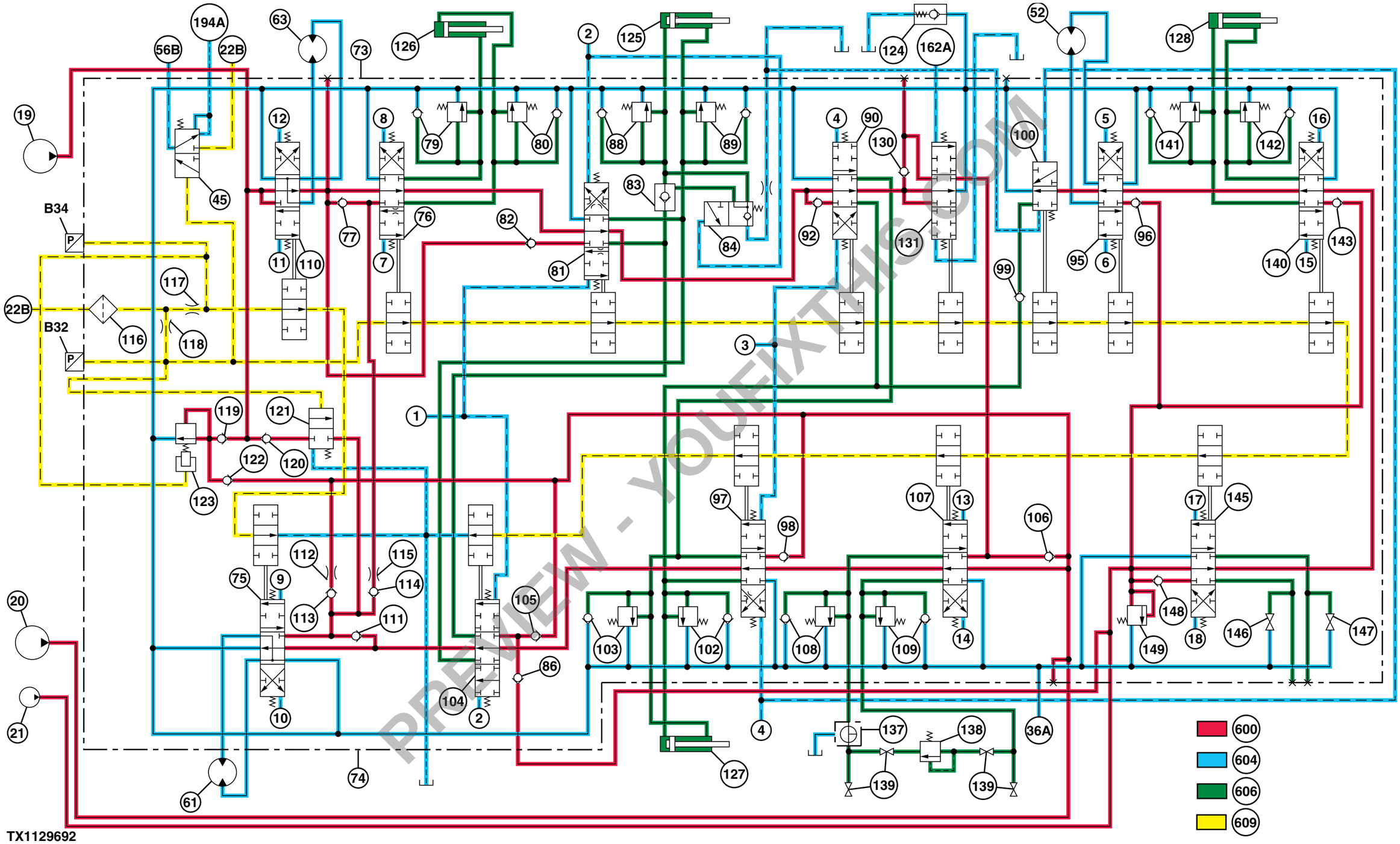


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TX1129692 —UN—18APR13



TX1129692

Control Valve Schematic

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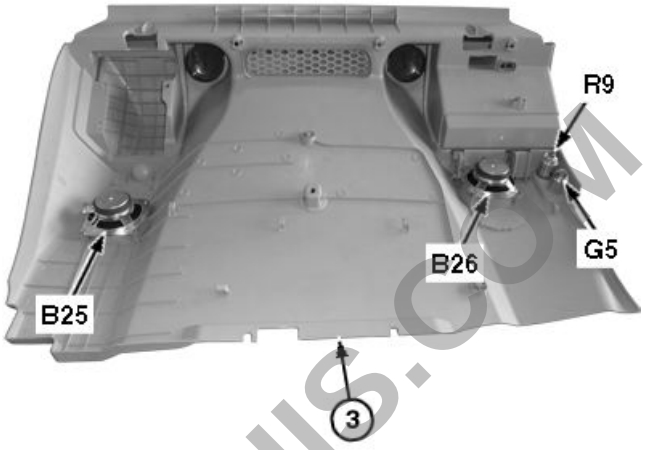
DF89619,00B52AD -19-17MAY13-5/22

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5. Install identification tags and disconnect lighter (R9), 12-volt power outlet (G5), right speaker (B25) and left speaker (B26) from cab harness.
6. Remove rear cover.
7. Repair or replace parts as necessary.
8. Install rear cover (3).
9. Connect lighter, 12-volt power outlet, and speakers to cab harness.
10. Tighten cap screws (2).
11. Install cap screws (1) and plugs.

3— Rear Cover
B25— Right Speaker
B26— Left Speaker
G5—12-Volt Power Outlet
R9—Lighter



TX1120487A —UN—08JAN13

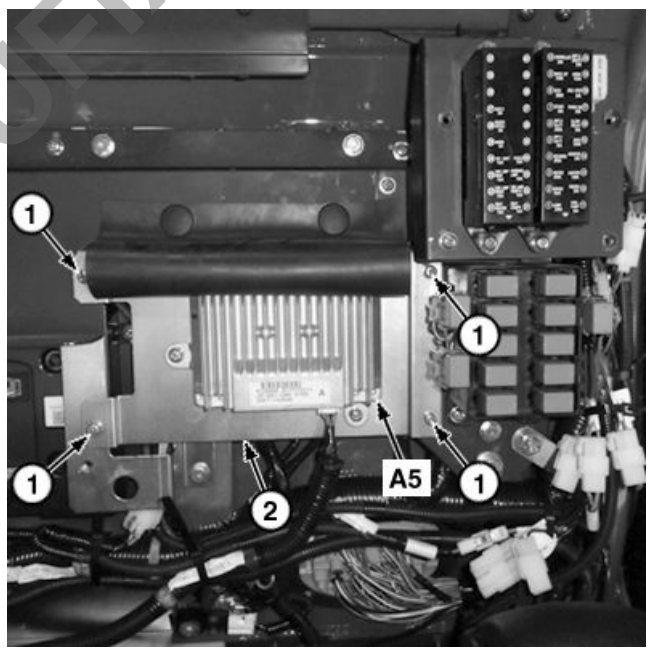
Speakers and Power Outlet

DV53278,00003F3 -19-21MAR13-2/2

Main Controller (MCZ) Remove and Install

1. Park and prepare machine for service safely. See Park and Prepare for Service Safely. (Group 9000-01.)
2. Disconnect negative (-) battery cable.
3. Remove rear cover. See Rear Cover Remove and Install. (Group 9015-20.)
4. Install identification tags and disconnect data converter (A5).
5. Remove cap screws (1) and data converter bracket (2), with data converter attached, and set aside.

1— Cap Screw (4 used)
2— Data Converter Bracket
A5—Data Converter Harness Connector



TX1132635A —UN—03APR13

Data Converter

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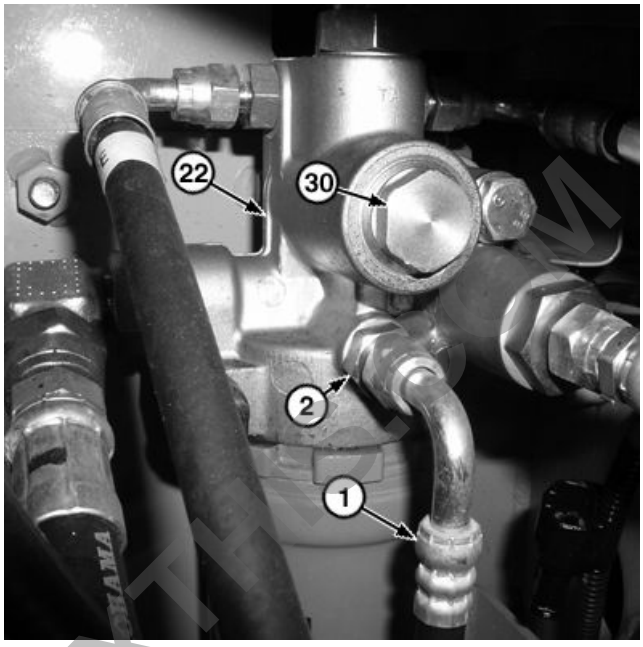
Pilot Pressure Regulating Valve Test and Adjustment

SPECIFICATIONS	
Hydraulic Oil Temperature	45—55°C 110—130°F
Engine Speed	Slow Idle and Fast Idle
Power Mode Switch Position	PWR Mode
Work Mode Switch Position	Dig Mode
Auto-Idle Switch Position	OFF
Pilot Pressure Regulating Valve (slow idle) Pressure (minimum)	3.0 MPa 3000 kPa 30 bar 435 psi
Pilot Pressure Regulating Valve (fast idle) Pressure	3.2—4.7 MPa 3200—4700 kPa 32—47 bar 464—682 psi
Pilot Pressure Regulating Valve 0.25 mm (0.010 in.) Shim Pressure Change (approximate)	0.078 MPa 78 kPa 0.78 bar 11 psi
Pilot Pressure Regulating Valve 0.50 mm (0.020 in.) Shim Pressure Change (approximate)	0.16 MPa 160 kPa 1.6 bar 23 psi
Pilot Pressure Regulating Valve 1.00 mm (0.040 in.) Shim Pressure Change (approximate)	0.31 MPa 310 kPa 3.1 bar 45 psi

SERVICE EQUIPMENT AND TOOLS
Tee (1/4 M BSPP ORB x 7/16-20 M 37°) Adapter
JT02156A Digital Pressure and Temperature Analyzer Kit Installation
JT02162 Transducer 35 000 kPa (350 bar) (5000 psi)
Gauge 7000 kPa (70 bar) (1000 psi)

Purpose of test is to ensure there is enough pilot pressure to operate all the pilot system functions and to adjust the pressure as necessary. The pilot pressure regulating valve is used to regulate the pilot system pressure.

1. Park and prepare machine for service. See Park and Prepare for Service Safely. (Group 9000-01.)
2. Release hydraulic oil tank pressure by pushing pressure release button at top of hydraulic oil tank. See Hydraulic Oil Tank Pressure Release Procedure. (Group 9025-25.)
3. Remove hydraulic hose (1) from port PF (2).
4. Install tee adapter to port PF.
5. Connect hydraulic hose to tee adapter.
6. Install JT02156A Digital Pressure and Temperature Analyzer and JT02162 Transducer or 7000 kPa (70 bar) (1000 psi) gauge. See JT02156A Digital Pressure and Temperature Analyzer Kit Installation. (Group 9025-25.)
7. Warm hydraulic oil to specification. See Hydraulic Oil Warm-Up Procedure. (Group 9025-25.)



TX1132856A —UN—12MAR13

Pilot Pressure Regulating Valve and Test Port

1— Hydraulic Hose
2— Port PF
22— Pilot Filter Housing
30— Pilot Pressure Regulating Valve

Specification

Hydraulic Oil—Temperature.....45—55°C
110—130°F

8. Run machine at specification.

Specification

Engine—Speed.....Slow Idle and Fast Idle
Power Mode Switch—Position.....PWR Mode
Work Mode Switch—Position.....Dig Mode
Auto-Idle Switch—Position.....OFF

9. Compare pressure readings to specification.

Specification

Pilot Pressure Regulating Valve (slow idle)—Pressure (minimum).....3.0 MPa
3000 kPa
30 bar
435 psi

Pilot Pressure Regulating Valve (fast idle)—Pressure.....3.2—4.7 MPa
3200—4700 kPa
32—47 bar
464—682 psi

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Recognize Safety Information

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

Follow the precautions and safe operating practices highlighted by this symbol.

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

On your machine, DANGER signs are red in color, WARNING signs are orange, and CAUTION signs are yellow. DANGER and WARNING signs are located near specific hazards. General precautions are on CAUTION labels.



T133555 —UN—15APR13

T133588 —19—28AUG00

TX,RECOGNIZE -19-28JUN10-1/1

Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Use this operator's manual for correct safety sign placement. Be sure that new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine could impair the function or safety and affect machine life.



TS201 —UN—15APR13

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.

TX,FOLLOW -19-20JAN11-1/1

Operate Only If Qualified

Do not operate this machine unless the operator's manual has been read carefully, and you have been qualified by supervised training and instruction.

Operator should be familiar with the job site and surroundings before operating. Try all controls and machine functions with the machine in an open area before starting to work.

Know and observe all safety rules that may apply to every work situation and work site.

TX,QUALIFIED -19-18JAN11-1/1

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General Information

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21 DSZ CAN High and Low Side Continuity Check	**Key switch in OFF position.**	
	Disconnect all connectors to main controller (MCZ), monitor controller (DSZ), engine control unit (ECU), and modular telematics gateway (MTG).	
	Check for continuity between pin 25 and pin 26 of monitor controller 28-pin connector A (X20).	**YES:** Open circuit, repair or replace harness. See appropriate harness.
	Is continuity indicated?	**NO:** Go to BCZ CAN High and Low Side Continuity Check.

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22 BCZ CAN High and Low Side Continuity Check	**Key switch in OFF position.**	
	Disconnect all connectors to main controller (MCZ), data converter, monitor controller (DSZ), machine controller (BCZ), radio, and air conditioner controller (ACF).	
	Check for continuity between pin 1 and pin 11 on machine controller 20-pin connector B (X11).	**YES:** Open circuit, repair or replace harness. See appropriate harness.
	Is continuity indicated?	**NO:** Go to Radio CAN High and Low Side Continuity Check.

TZ24494,0000AD3 -19-15MAY13-24/37

23 Radio CAN High and Low Side Continuity Check	**Key switch in OFF position.**	
	Disconnect all connectors to main controller (MCZ), data converter, monitor controller (DSZ), machine controller (BCZ), radio, and air conditioner controller (ACF).	
	Check for continuity between pin 5 and pin 11 on radio connector (A6).	**YES:** Open circuit, repair or replace harness. See appropriate harness.
	Is continuity indicated?	**NO:** Go to ACF CAN High and Low Side Continuity Check.

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24 ACF CAN High and Low Side Continuity Check	**Key switch in OFF position.**	
	Disconnect all connectors to main controller (MCZ), data converter, monitor controller (DSZ), machine controller (BCZ), radio, and air conditioner controller (ACF).	
	Check for continuity between pin 10 and pin 11 on air conditioner controller connector (A7).	**YES:** Open circuit, repair or replace harness. See appropriate harness.
	Is continuity indicated?	**NO:** Go to MCZ CAN Resistance Check.

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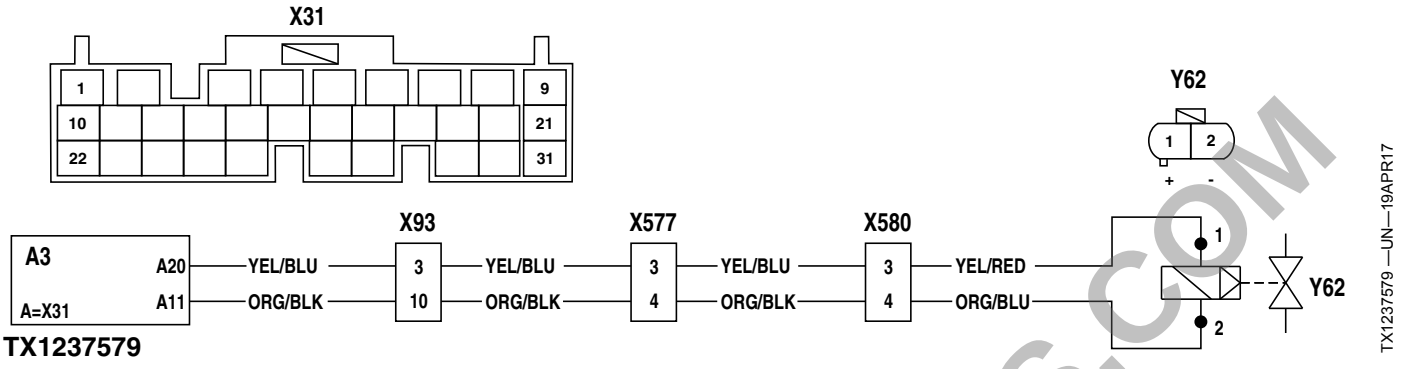
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011817.02 — OPT Solenoid 2 Feedback Abnormal

Auxiliary function lever (AFL) solenoid 2B (marked 2B) (Y62) current is above 920 mA or below 70 mA.



Auxiliary Function Lever (AFL) Solenoid 2B (Y62) Circuit Schematic

A3—Main Controller (MCZ)
X31— Cab Harness-to-Main Controller 31-Pin Connector A
X93— Auxiliary Function Lever (AFL) Connector
X577— Auxiliary Function Lever (AFL) Harness-to-Auxiliary Function Lever (AFL) Solenoid Jumper Harness Connector
X580— Auxiliary Function Lever (AFL) Solenoid Jumper Harness-to-Auxiliary Function Lever (AFL) Solenoid Harness Connector 2
Y62— Auxiliary Function Lever (AFL) Solenoid 2B (marked 2B)

Alarm Level:

- No Warning Indicator

DTC Induced Condition:

- Auxiliary function lever (AFL) functions disabled.

Circuit Information:

- See Main Controller (MCZ) Circuit Theory of Operation. (Group 9015-15.)

Component Location:

- See Cab Harness (W1) Component Location. (Group 9015-10.)
- See Auxiliary Function Lever (AFL) Harness (W75) Component Location. (Group 9015-10.)
- See Auxiliary Function Lever (AFL) Solenoid Harness (W76) Component Location. (Group 9015-10.)
- See Auxiliary Function Lever (AFL) Solenoid Jumper Harness (W80) Component Location. (Group 9015-10.)

Diagnostic Test Box Information:

- Not Applicable

Additional References:

- None

Possible Causes:

1. Circuit is shorted to ground.
2. Circuit is shorted to power.
3. Circuit is open.
4. Component malfunction. See Proportional Solenoid Test. (Group 9015-20.)

DF89619,00B6740 -19-11SEP18-1/1

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2 Sensor Check (oil restriction switch)	**Key switch in OFF position.** *NOTE: Machine hydraulic oil temperature must be more than 24°C (75°F) to close hydraulic oil temperature switch (S40) to diagnose this circuit.* Disconnect hydraulic oil filter restriction switch (B27). See Machine Harness (W2) Component Location. (Group 9015-10.) Clear codes using monitor. Turn key switch OFF for 15 seconds. **Turn key switch to ON position.** Check for active diagnostic trouble code 020105.02—Hydraulic Oil Filter Restriction Alarm. Is code active?	**YES:** Go to Sensor Check (oil temperature switch). **NO:** Hydraulic oil filter restriction switch (B27) malfunction. Replace switch.

TX04577,0000121 -19-15NOV16-4/6

3 Sensor Check (oil temperature switch)	**Key switch in OFF position.** Disconnect hydraulic oil temperature switch (S40). See Machine Harness (W2) Component Location. (Group 9015-10.) Clear codes using monitor. Turn key switch OFF for 15 seconds. **Turn key switch to ON position.** Check for active diagnostic trouble code 020105.02—Hydraulics code active? Oil Filter Restriction Alarm.	**YES:** Go to Circuit Check. **NO:** Hydraulic oil temperature switch (S40) malfunction. Replace switch.

TX04577,0000121 -19-15NOV16-5/6

4 Circuit Check	**Key switch in OFF position.** Disconnect monitor controller 36-pin connector B (X21) and hydraulic oil temperature switch (S40). Check for continuity between pin 13 on monitor controller 36-pin connector B (X21) and machine ground. Is continuity indicated?	**YES:** Short to ground. Repair or replace harness. See appropriate harness. **NO:** Monitor controller malfunction. Replace monitor controller. See Monitor Controller (DSZ) Remove and Install. (Group 9015-20.)

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020107.02 — Water Separator Alarm

The water-in-fuel sensor (B17) is on continuously for 10 seconds.

TX03742,000011F -19-23MAR18-1/5

Water Separator Alarm Diagnostic Procedure

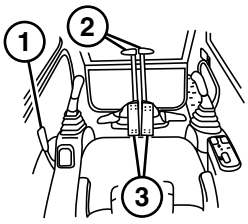
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Travel Alarm Circuit Check



TX1131992 —UN—28JUN13

Travel Alarm

1— Pilot Shutoff Lever
2— Travel Lever (2 used)
3— Travel Pedal (2 used)

CAUTION: Avoid possible injury. Machine will move during this check. Make sure area is clear and large enough to operate machine.

Place pilot shutoff lever (1) in unlocked (DOWN) position.

Push travel pedals (3) or travel levers (2) forward.

LISTEN: Does travel alarm sound?

YES: Go to next check.

NO: Check travel alarm 5 A fuse (F5) (marked OPT 1 ALT). See Fuse and Relay Specifications. (Group 9015-10.)

Push travel pedals (3) or travel levers (2) rearward.

LISTEN: Does travel alarm sound?

NO: Check wiring. See Travel Alarm Circuit Theory of Operation. (Group 9015-15.)

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DV53278,00003BE -19-22MAR18-27/50

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System Functional Schematic Example

1— Continuity Chart
2— Power Wires
3— Routing Location Information
4— Wire Identification
5— Ground Wires
7— Section Number
8— Component Name
9— Component Identification Number
10— Component Schematic Symbol
11— Connector Identification Number
12— Connector
13— Connector Pin Information
F21— Battery Power 40 Amp Fusible Link
F22— Alternator Power 60 Amp Fusible Link
G1—Battery
G2—Battery
K14— Battery Relay
S1— Key Switch
W5—Battery To Frame Ground
W6—Engine To Frame Ground

The System Functional Schematic is made up of equal sections to simplify searching the schematic. Each section of the System Functional Schematic is assigned a number (7). The System Functional Schematic is formatted with power supply wires (2) shown near the top of the drawing and ground wires (5) near the bottom. The schematic may contain some harness or connector information.

When connector information is shown, it will be displayed as a double chevron (12) with a component identification number (11) corresponding to the connector identification number. Connector pin information (13) will be displayed in a text size smaller than that of the connector identification number.

Each electrical component is shown by a schematic symbol (10), the component name (8), and a component identification number (9). A component identification number and name will remain the same throughout the Operation and Test Technical Manual. This will allow for easy cross-referencing of all electrical drawings (Schematics, Wiring Diagrams, and Component Location).

Routing location information (3) is presented to let the reader know when a wire is connected to a component in another section. TO and FROM statements identify when power is going “To” or coming “From” a component in a different location. The section and component identification number are given in the first line of information and any pin information for the component is given in parenthesis in the second line. In this example, power is going TO section 23, component B14 on pin C4.

Continued on next page

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A7—Air Conditioner Controller (ACF)
B20— Air Conditioner High/Low Pressure Switch
B21— Solar Sensor
B22— Ambient Air Temperature Sensor
B24— Horn
B41— Air Conditioner Freeze Control Switch
B55— Air Recirculation Sensor
E16— Rear Cab Light
F3— Air Conditioner and Heater 20 A Fuse (marked HEATER)
F19— Horn 10 A Fuse (marked HORN)
F23— Rear Cab Light 10 A Fuse
K10— Horn Relay
K15— Air Conditioner Compressor Off Relay
K17— Air Conditioner and Heater Blower Motor Relay
K25— Rear Cab Light Relay
M7—Air Conditioner and Heater Blower Motor
M9—Air Conditioner and Heater Internal and External Servomotor
M10— Air Conditioner and Heater Blower Port Change Servomotor
M11— Air Conditioner and Heater Mixer Servomotor
R16— Blower Motor Resistor and Thermofuse
S5—Horn Switch
S64— Rear Cab Light Switch
V8—Air Conditioner Clutch Diode
X52— Air Conditioner 10-Pin Connector
X57— Rear Cab Light Connector (marked CAB LAMP REAR)
X66— Rear Cab Light Relay Harness-to-Rear Cab Light Harness Connector (marked CAB LAMP REAR)
X68— Rear Cab Light Harness-to-Rear Cab Light Switch Harness Connector (marked CAB LAMP REAR)
X543— Auxiliary Function Lever (AFL) Horn Switch Connector
X584— Rear Cab Light Relay Harness-to-Rear Cab Light Jumper Harness Connector
Y11— Air Conditioner Compressor Clutch

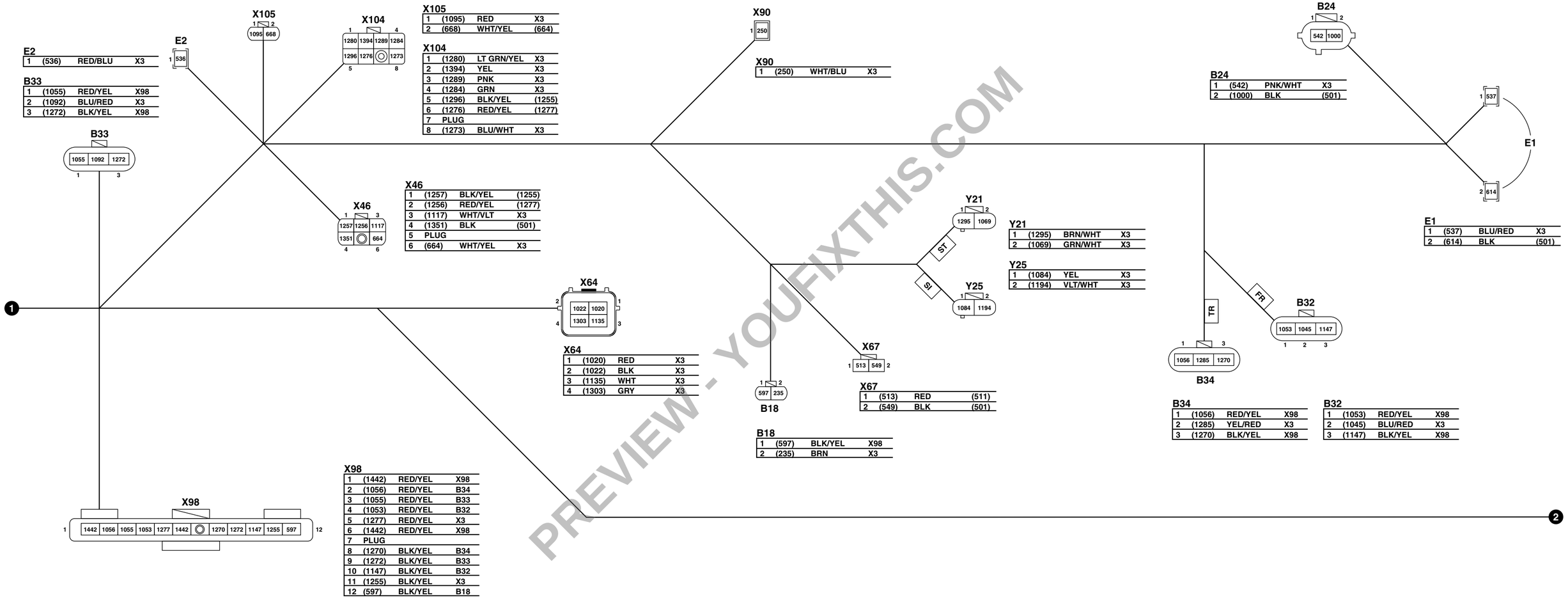
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DP27668,0000616 -19-07JAN19-14/18

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TX1226082 —UN—14OCT16



X105

1	(1095)	RED	X3
2	(668)	WHT/YEL	(664)

X104

1	(1280)	LT GRN/YEL	X3
2	(1394)	YEL	X3
3	(1289)	PNK	X3
4	(1284)	GRN	X3
5	(1296)	BLK/YEL	(1255)
6	(1276)	RED/YEL	(1277)
7	PLUG		
8	(1273)	BLU/WHT	X3

X90

1	(250)	WHT/BLU	X3

B24

1	(542)	PNK/WHT	X3
2	(1000)	BLK	(501)

E2

1	(536)	RED/BLU	X3

B33

1	(1055)	RED/YEL	X98
2	(1092)	BLU/RED	X3
3	(1272)	BLK/YEL	X98

X46

1	(1257)	BLK/YEL	(1255)
2	(1256)	RED/YEL	(1277)
3	(1117)	WHT/VLT	X3
4	(1351)	BLK	(501)
5	PLUG		
6	(664)	WHT/YEL	X3

E1

1	(537)	BLU/RED	X3
2	(614)	BLK	(501)

Y21

1	(1295)	BRN/WHT	X3
2	(1069)	GRN/WHT	X3

Y25

1	(1084)	YEL	X3
2	(1194)	VLT/WHT	X3

X64

1	(1020)	RED	X3
2	(1022)	BLK	X3
3	(1135)	WHT	X3
4	(1303)	GRY	X3

X67

1	(513)	RED	(511)
2	(549)	BLK	(501)

B18

1	(597)	BLK/YEL	X98
2	(235)	BRN	X3

B34

1	(1056)	RED/YEL	X98
2	(1285)	YEL/RED	X3
3	(1270)	BLK/YEL	X98

B32

1	(1053)	RED/YEL	X98
2	(1045)	BLU/RED	X3
3	(1147)	BLK/YEL	X98

X98

1	(1442)	RED/YEL	X98
2	(1056)	RED/YEL	B34
3	(1055)	RED/YEL	B33
4	(1053)	RED/YEL	B32
5	(1277)	RED/YEL	X3
6	(1442)	RED/YEL	X98
7	PLUG		
8	(1270)	BLK/YEL	B34
9	(1272)	BLK/YEL	B33
10	(1147)	BLK/YEL	B32
11	(1255)	BLK/YEL	X3
12	(597)	BLK/YEL	B18

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TX1226082

Continued on next page

Machine Harness (W2) Wiring Diagram (2 of 3) (S.N. 015406—)

(SHEET 2 OF 3)

DP27668,000060A -19-21MAR18-9/15

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K30— Right Solenoid Relay B
K31— Right Solenoid Relay A
K32— Left Solenoid Relay B
K33— Left Solenoid Relay A
S30— Right Pilot Control Lever Switch B (marked B)
S31— Right Pilot Control Lever Switch A (marked C)
S32— Left Pilot Control Lever Switch B (marked B)
S33— Left Pilot Control Lever Switch A (marked C)
X26— Optional Connector (2 used)
X81— Multi-Function Pilot Control Lever Harness-to-Auxiliary 3-Button Cancel Switch Harness Connector
X82— Multi-Function Pilot Control Lever Harness-to-Auxiliary 3-Button Cancel Switch Harness Connector
X534— Right Auxiliary Solenoid Connector (marked SR/H)
X535— Left Auxiliary Solenoid Connector (marked SL/H)

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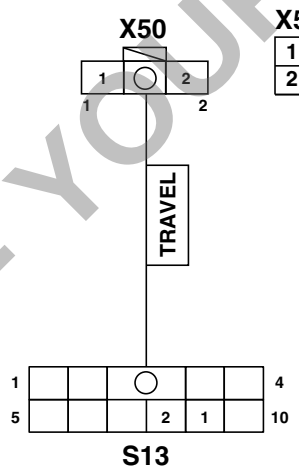
Travel Alarm Cancel Switch Harness (W16) Component Location

See Cab Harness (W1) Component Location. (Group 9015-10.)

DJ54098,0000337 -19-26FEB13-1/1

Travel Alarm Cancel Switch Harness (W16) Wiring Diagram

NUMBER	COLOR	END #1	END #2
1	GRN/BLK	X50	S13
2	BLK	X50	S13



X50

1	(1)	GRN/BLK	S13
2	(2)	BLK	S13

S13

1	—		
2	—		
3	—		
4	—		
5	—		
6	—		
7	—		
8	(2)	BLK	X50
9	(1)	GRN/BLK	X50
10	—		

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TX1116042

Travel Alarm Cancel Switch Harness (W16) Wiring Diagram

S13— Travel Alarm Cancel Switch
X50— Travel Sub Harness-to-Travel Alarm Cancel Switch Harness Connector

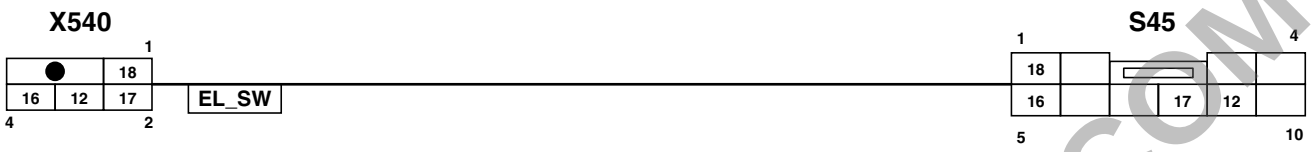
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Auxiliary Function Enable Switch Harness (W78) Wiring Diagram

NUMBER	COLOR	END #1	END #2
12	RED/BLU	X540	S45
16	BLK/GRN	X540	S45
17	BLK/GRN	X540	S45
18	WHT/YEL	X540	S45



X540

1	(18)	WHT/YEL	S45
2	(17)	BLK/GRN	S45
3	(12)	RED/BLU	S45
4	(16)	BLK/GRN	S45

S45

1	(18)	WHT/YEL	X540
2	—		
3	—		
4	—		
5	(16)	BLK/GRN	X540
6	—		
7	—		
8	(17)	BLK/GRN	X540
9	(12)	RED/BLU	X540
10	—		

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TX1207857

Auxiliary Function Enable Switch Harness (W78) Wiring Diagram

S45— Auxiliary Function Enable Switch

X540— Auxiliary Function Enable Switch Harness Connector (marked EL_SW)

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Auxiliary Function Lever (AFL) Solenoid Jumper Harness (W80) Component Location

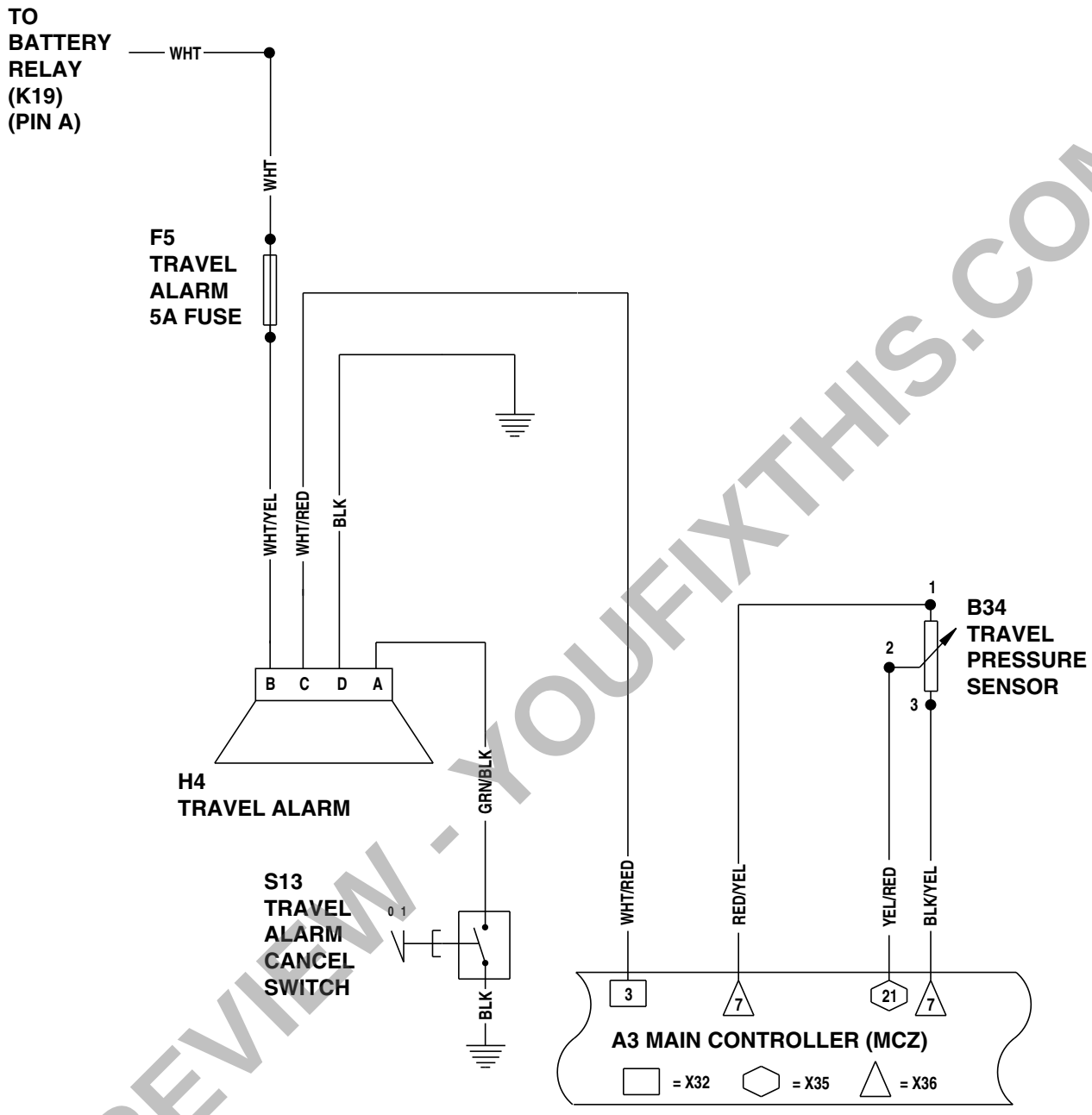
See Auxiliary Function Lever (AFL) Solenoid Harness (W76) Component Location. (Group 9015-10.)

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Travel Alarm Circuit Theory of Operation



Travel Alarm Circuit Schematic

A3—Main Controller (MCZ)
B34—Travel Pressure Sensor (marked TR)
F5—Travel Alarm 5 A Fuse (marked OPT. 1 ALT)
H4—Travel Alarm
S13—Travel Alarm Cancel Switch
X32—Cab Harness-to-Main Controller 24-Pin Connector B
X35—Cab Harness-to-Main Controller 24-Pin Connector D
X36—Cab Harness-to-Main Controller 26-Pin Connector E

The travel alarm circuit consists of:

- Main Controller (MCZ) (A3)
- Travel Pressure Sensor (marked TR) (B34)
- Travel Alarm (H4)
- Travel Alarm Cancel Switch (S13)

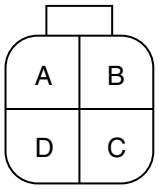
The circuit is designed to warn bystanders of machine movement, by signaling with an audible alarm, any time the travel levers are moved.

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Travel Alarm Check



T158291 —UN—08AUG02

Travel Alarm Harness Check

Disconnect travel alarm (H4). See Machine Harness (W2) Wiring Diagram. (Group 9015-10.)

Connect multimeter to travel alarm connector pin B and frame ground.

Turn key switch to ON position.

LOOK: Is battery voltage measured?

Connect multimeter to travel alarm connector pin D and frame ground.

YES: Travel alarm malfunctioned. Replace travel alarm. See Travel Alarm Remove and Install. (Group 9015-20.)

LOOK: Is continuity measured?

NO: If battery voltage is not measured, check travel alarm 5 A fuse. See Fuse and Relay Specifications. (Group 9015-10.)

Connect multimeter to travel alarm connector pin A and frame ground.

NO: Check travel alarm cancel switch. See Travel Alarm Cancel Switch Harness (W16) Wiring Diagram. (Group 9015-10.)

LOOK: Is continuity measured when the travel alarm cancel switch is pressed?

NO: Check the travel alarm cancel switch harness and machine harness. See Travel Alarm Cancel Switch Harness (W16) Wiring Diagram. (Group 9015-10.) See Machine Harness (W2) Wiring Diagram. (Group 9015-10.)

DV53278,00004F7 -19-22MAY13-8/10

Monitor Warning Alarm Check

Disconnect monitor warning alarm (H3). See Monitor Harness (W3) Component Location. (Group 9015-10.)

YES: Alarm is OK. Check power on 5 A fuse. See Fuse and Relay Specifications. (Group 9015-10.)

Connect 24 volts to terminal 1 and ground terminal 2.

YES: Check wiring harness. See Monitor Harness (W3) Wiring Diagram. (Group 9015-10.)

LISTEN: Does monitor warning alarm sound?

NO: Alarm malfunction. Replace monitor warning alarm. See Monitor Harness (W3) Component Location. (Group 9015-10.)

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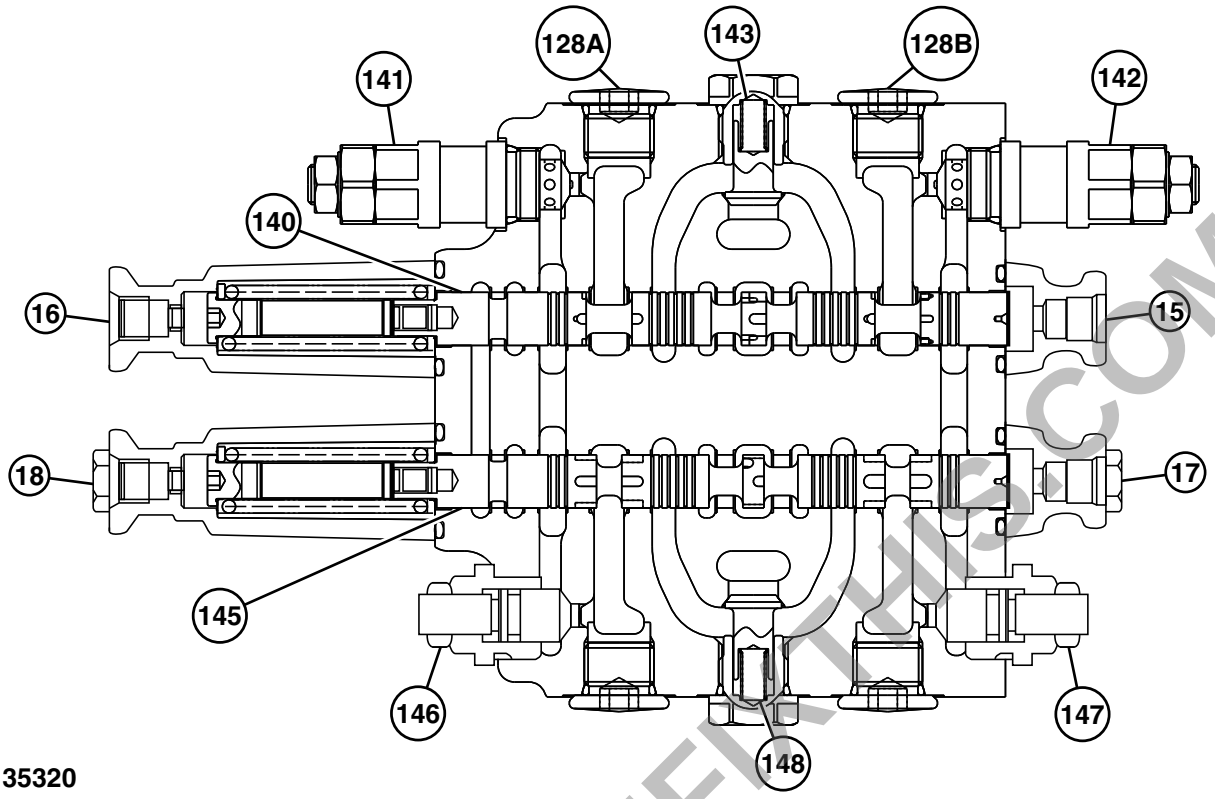
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General Hydraulic Oil Cleanup Procedure 9025-25-2
Hydraulic Component Failure Cleanup Procedure 9025-25-4
Hydraulic Oil Tank Pressure Release Procedure 9025-25-6
Hydraulic Oil Warm-Up Procedure 9025-25-7
Pilot Pressure Regulating Valve Test and Adjustment 9025-25-8
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Cylinder Drift Test—Boom, Arm, Bucket, and Blade 9025-25-40

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TX1135320

Blade and Auxiliary 2 Spool Section

15— Blade Down (pilot)
16— Blade Up (pilot)
17— Plug—Auxiliary 2
18— Plug—Auxiliary 2
128A— Blade Cylinder (head end)
128B— Blade Cylinder (rod end)
140— Blade Spool
141— Blade Up Circuit Relief and Anticavitation Valve
142— Blade Down Circuit Relief and Anticavition Valve
143— Check Valve (lift check)—Blade Power Passage
145— Auxiliary Spool 2
146— Plug
147— Plug
148— Check Valve (lift check)—Auxiliary 2 Neutral Passage

Blade and Auxiliary 2 Spool Section

The blade spool (140) and auxiliary 2 spool (145) are pilot-actuated, three-position, four-way, spool-type valves.

Pilot oil from blade pilot control valve flows to one side of blade spool depending on which function is activated. When blade spool is shifted by pilot oil, supply oil from pump 3 is routed through center joint to blade cylinder. Check valve (lift check)—blade power passage (143) prevents flow of oil into power passage from blade spool. Blade circuit relief and anticavitation valves (141 and 142) function to prevent cavitation of the blade cylinder during operation.

See the following for more information on the blade and boom swing valve section and components:

- See Hydraulic System Schematic. (Group 9025-15.)
- See Circuit Relief and Anticavitation Valve Operation. (Group 9025-05.)
- See Control Valve Check Valves Identification and Operation. (Group 9025-05.)

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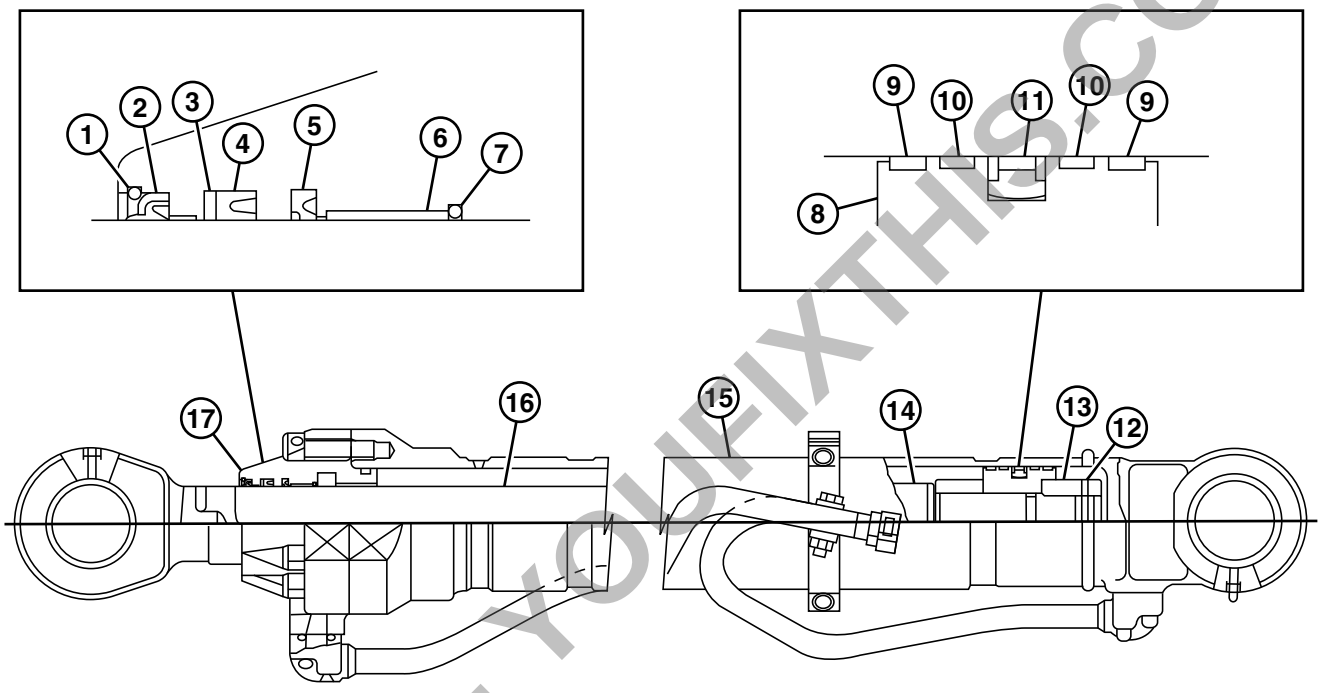
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When energized, the magnetic force shifts the spool against the spring. Pilot oil flows past flange (2) and out the valve function port as reduced pilot oil. Because flange (2) is larger than the flange (3), the spool is shifted against the magnetic force as the electrical signal to the solenoid increases. When reduced pilot oil pressure equals magnetic force (4), the spool is shifted, closing the passage. The reduced pilot oil to the travel speed change valve is trapped. The spool is moving constantly to maintain the reduced pilot oil pressure in response to the electrical signal to the solenoid.

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Cylinder Operation



TX1130582 —UN—06FEB13

TX1130582

Cylinder Operation (boom shown)

1— Snap Ring
2— Wiper Seal
3— Backup Ring
4— U-Cup Seal
5— Buffer Ring
6— Wear Ring
7— Snap Ring
8— Piston
9— Buffer Ring (2 used)
10— Wear Ring (2 used)
11— Cap Seal
12— Set Screw
13— Nut
14— Cushion
15— Barrel
16— Cylinder Rod
17— Rod Guide

Boom, Arm, and Bucket Cylinders

The boom, arm, and bucket cylinders are similar in design. The boom cylinder is illustrated. The rod guide (17) is fastened to the cylinder barrel with cap screws and is fitted with a wear ring (6) held in place by a snap ring (7). A buffer ring (5), U-cup seal (4), backup ring (3), and wiper seal (2) are used in the rod guide. A snap ring (1) is used to help hold wiper seal in place. The U-cup seal is protected against high pressure by the buffer ring and stops the small amount of oil that may pass by the buffer ring.

The piston (8) is a slip fit on the cylinder rod (16) and is retained with a nut (13). A set screw (12) and steel ball prevents loosening of the nut. The piston is fitted with a cap seal (11), wear rings (10), and buffer rings (9).

The boom cylinder has a cushion (14) in front of the piston to provide cushioning action in cylinder extension. As the cylinder nears the end of its stroke, the cushion enters a bore in the rod guide. The remaining return oil ahead of the piston must flow through a small clearance between the cushion and rod guide. Only the arm cylinder is cushioned in retraction. The end of the rod enters a bore in the head end of cylinder. The remaining return oil ahead of the piston and nut must flow through this small clearance as the cylinder bottoms out in this direction.

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22— To Pilot Filter Housing
39— Left Pilot Control Valve
40— Right Pilot Control Valve
73— Left Control Valve (8-spool)
74— Right Control Valve (5-spool)
151— Pilot Shutoff Valve
163— Bulkhead
194— Flow Regulator Valve
Y10— Pilot Shutoff Solenoid

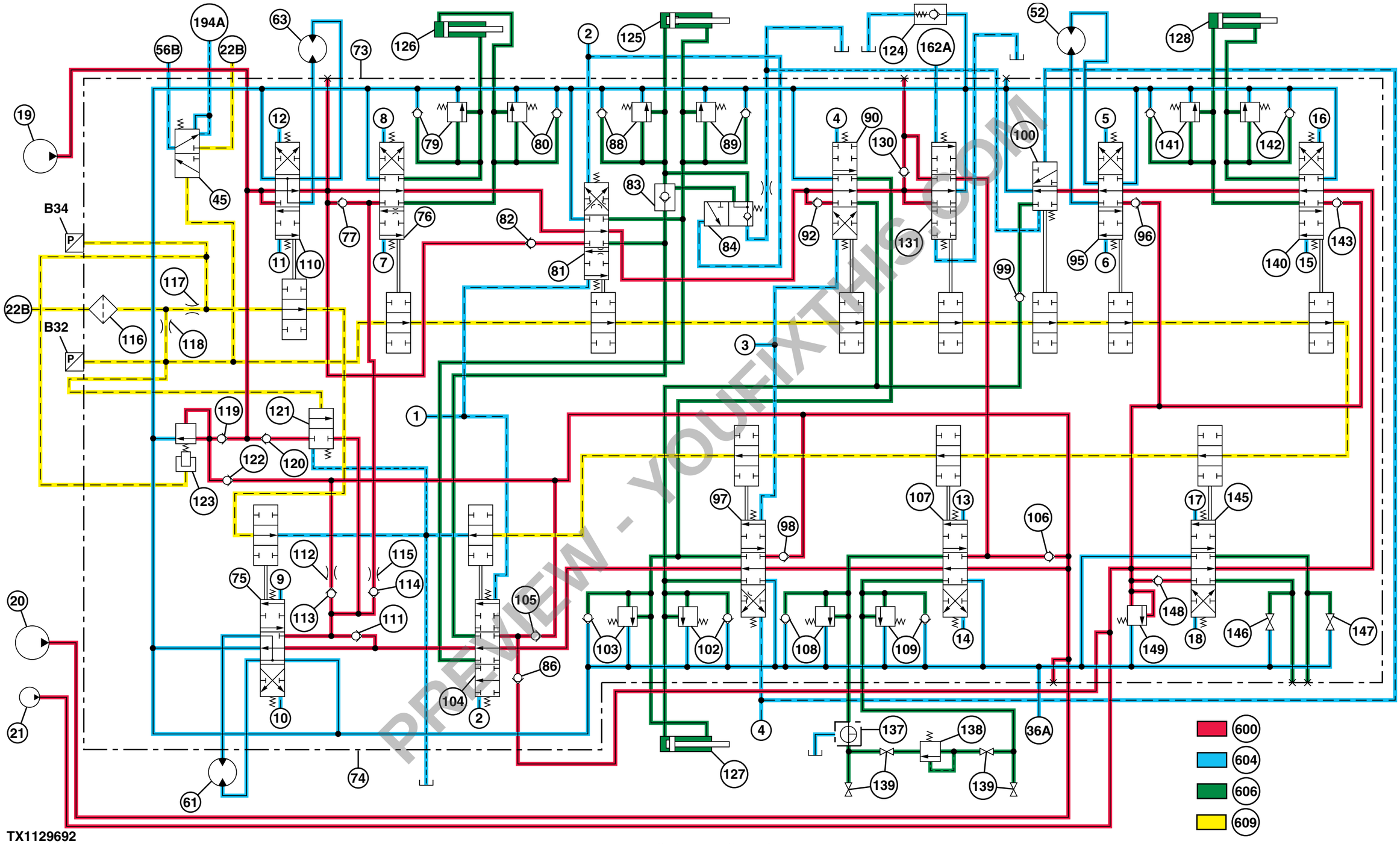
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TX1129692

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Control Valve Schematic

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Pump Flow Test

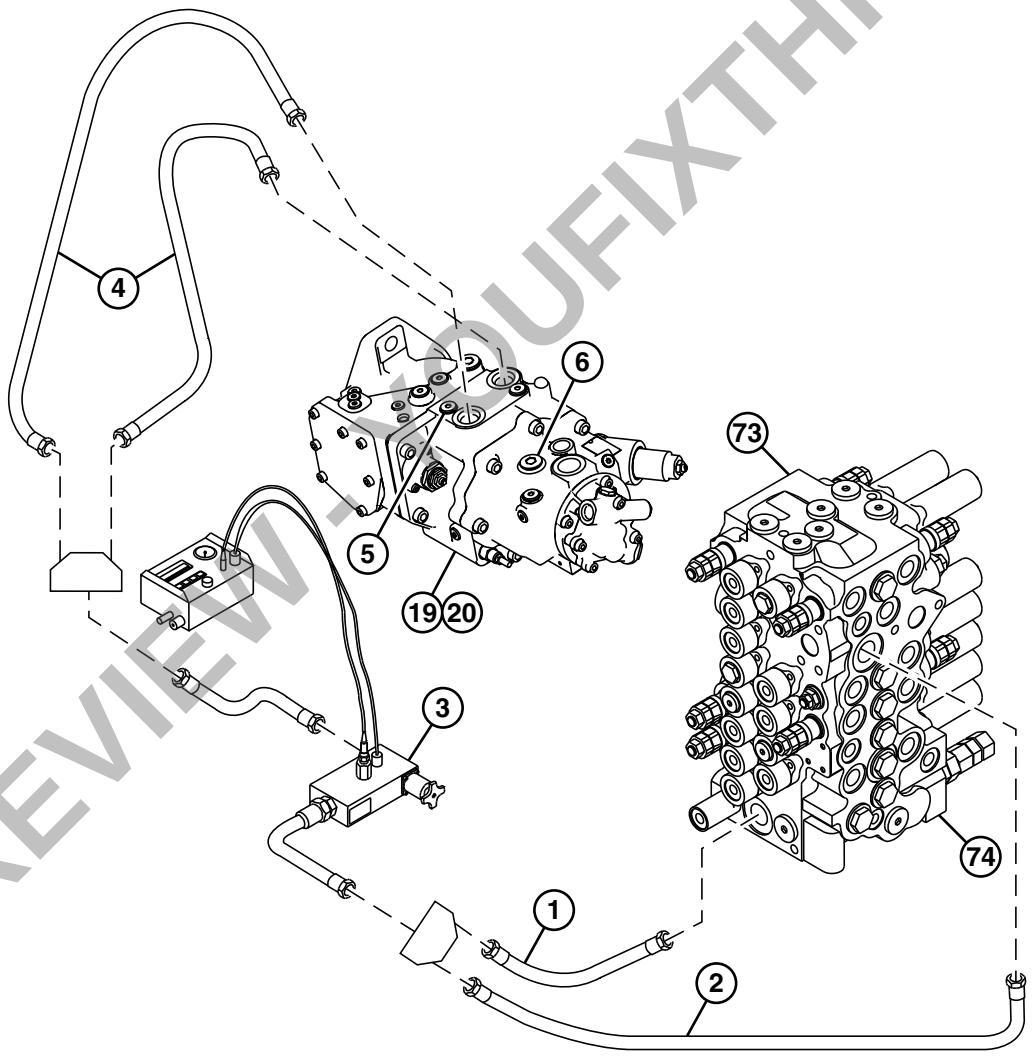
SPECIFICATIONS	
Hydraulic Oil Temperature	45—55°C 110—130°F
Engine Speed	Fast Idle
Work Mode Switch Position	Bucket Mode
Power Mode Switch Position	PWR Mode
Auto-Idle Switch Position	OFF
46 mm Nut Torque	165 N·m 122 lb·ft
17 mm Nut Torque	19 N·m 14 lb·ft
24 mm Nut Torque	130 N·m 96 lb·ft

SERVICE EQUIPMENT AND TOOLS
Vacuum Pump
Flowmeter
Test Hose (2 used)
JT05800 Digital Thermometer

Hydraulic Pump 1 and Pump 2 Flow Test

Purpose of test is to determine the pump condition. Test should only be performed after comparison of actual machine cycle times to specified cycle times.

1. Release hydraulic oil tank pressure by pushing pressure release button at top of hydraulic oil tank. See Hydraulic Oil Tank Pressure Release Procedure. (Group 9025-25.)
2. Connect vacuum pump to hydraulic oil tank to minimize oil loss.



TX1136199

TX1136199 —UN—10MAY13

Pump 1 and Pump 2 Flow Test Connections

1— Hydraulic Supply Hose (pump 1 to left control valve)
2— Hydraulic Supply Hose (pump 2 to right control valve)
3— Flowmeter
4— Test Hose (2 used)
5— Pump 2 Test Port
6— Air Bleed Plug
19— Pump 1
20— Pump 2
73— Left Control Valve (8-spool)
74— Right Control Valve (5-spool)

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