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Original Instructions. All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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A John Deere ILLUSTRUCTION ® Manual

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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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Section 9001
Diagnostics

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Diagnostic Trouble Codes

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Main Controller (MCZ) Diagnostic Trouble Codes

For additional information on the main controller circuit, see Main Controller (MCZ) Circuit Theory of Operation. (Group 9015-15.)

Main controller diagnostic trouble codes (DTCs) can be displayed on the monitor, by connection with Service ADVISOR™, or by connection with MPDr. See Reading Diagnostic Trouble Codes With Monitor Display. (Group 9015-20.) or See Reading Diagnostic Trouble Codes With Service ADVISOR™ Diagnostic Application. (Group 9015-20.)

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RH60123,0000EA0 -19-01AUG14-1/1

Controller Area Network 0 (CAN 0) Circuit Diagnostics

This diagnostic procedure is for the CAN 0 network. For more diagnostic information on other CAN networks, see the appropriate CAN circuit diagnostics.

- Controller Area Network 0 (CAN 0) Circuit Diagnostics. (Group 9001-10.)
- Controller Area Network 1 (CAN 1) Circuit Diagnostics. (Group 9001-10.)
- Interface Controller Area Network (N-CAN) Diagnostics. (Group 9001-10.)
- Engine Controller Area Network (Engine CAN) Diagnostics. (Group 9001-10.)
- Aftertreatment Controller Area Network (AT CAN) Diagnostics. (Group 9001-10.)

For more information, see Controller Area Network (CAN) Theory of Operation. (Group 9015-15.)

IMPORTANT: Avoid connector damage. Do not install connector with impact wrench or power tools. Over torquing will result in permanent damage to connector. Torque only to specification.

Specification	
100-Pin Connector (X3)—Torque	10 N·m 89 lb.-in.

DF89619,00B5874 -19-20JUN14-1/29

Controller Area Network (CAN 0) Diagnostics

DF89619,00B5874 -19-20JUN14-2/29

1 CAN 0 Connector Check	Check harness connections to the following controllers for damage, corrosion, or debris: • Main contoller (MCZ) (A3) and monitor controller (DSZ) (A4). See Cab Harness (W1) Component Location. (Group 9015-10.) • Engine control unit (ECU) (A1). See Machine Harness (W2) Component Location. (Group 9015-10.) Are connectors in good condition and free of corrosion and debris?	**YES:** Go to MCZ and DSZ Continuity Check. **NO:** Repair or replace connector. See appropriate harness.

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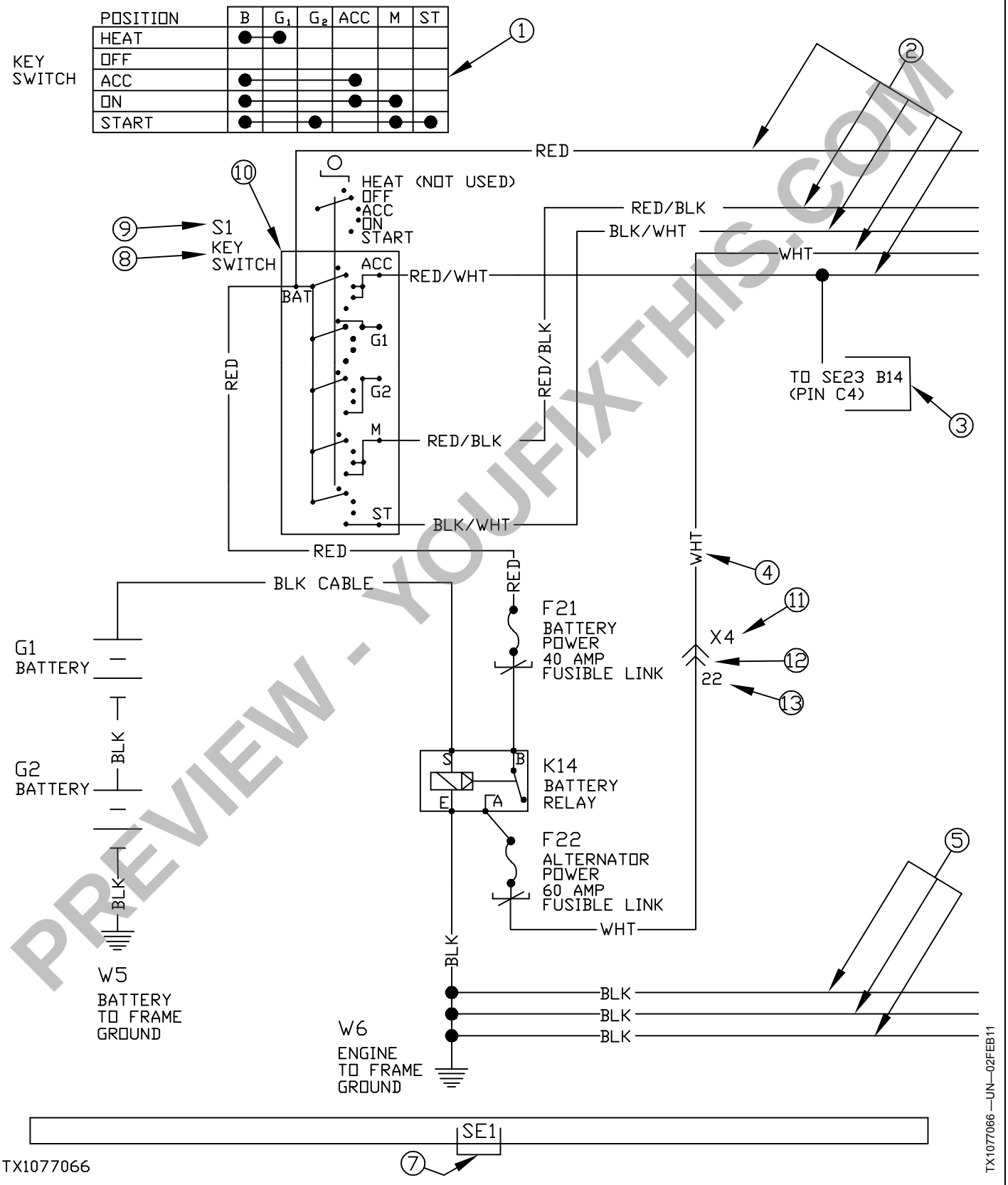
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Electrical Diagram Information

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

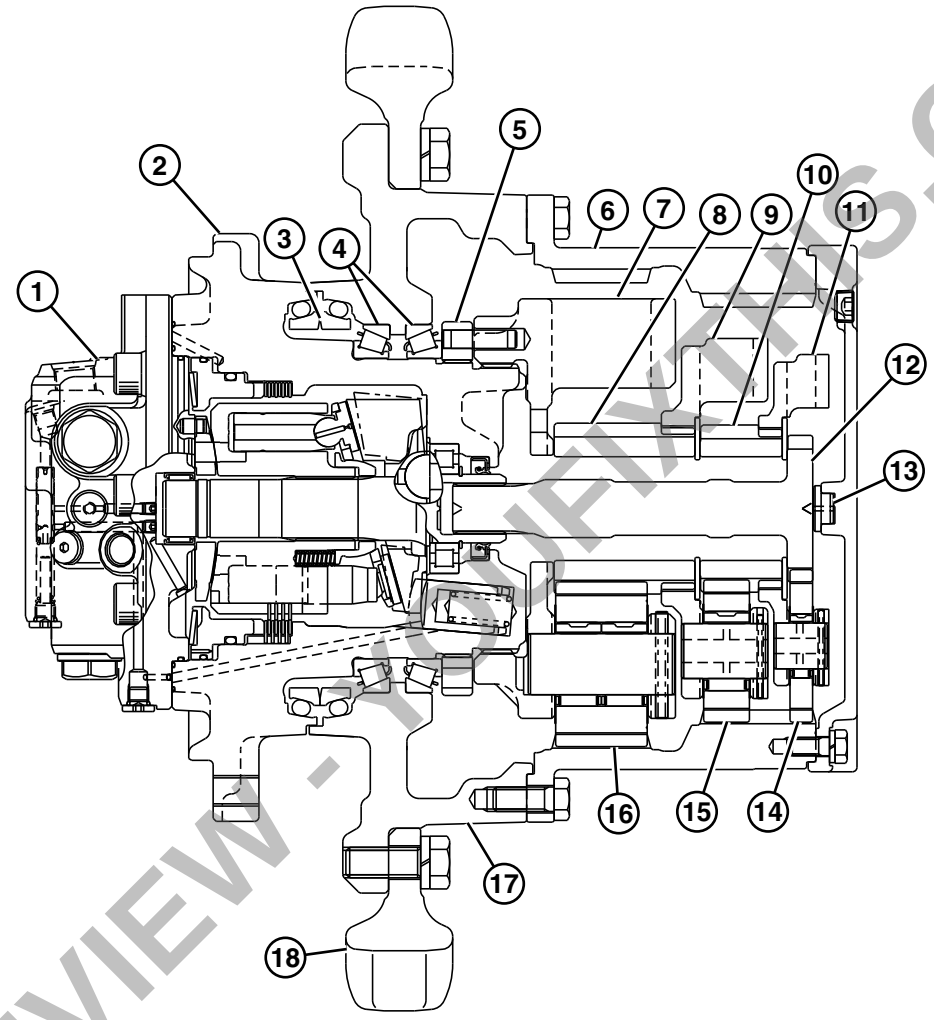


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DS35042,0000040 -19-04JAN11-1/8

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Travel Gear Case Operation



TX1001983 —UN—04JAN06

TX1001983

Travel Gear Case Operation

1— Travel Motor Valve Housing
2— Travel Motor Housing
3— Metal Face Seal
4— Bearing Cone and Cup (2 used)
5— Bearing Nut
6— Ring Gear
7— Third Stage Carrier
8— Third Stage Sun Gear
9— Second Stage Carrier
10— Second Stage Sun Gear
11— First Stage Carrier
12— First Stage Sun Gear (input shaft)
13— Thrust Pad
14— First Stage Planetary Gear
15— Second Stage Planetary Gear
16— Third Stage Planetary Gear
17— Drum
18— Sprocket

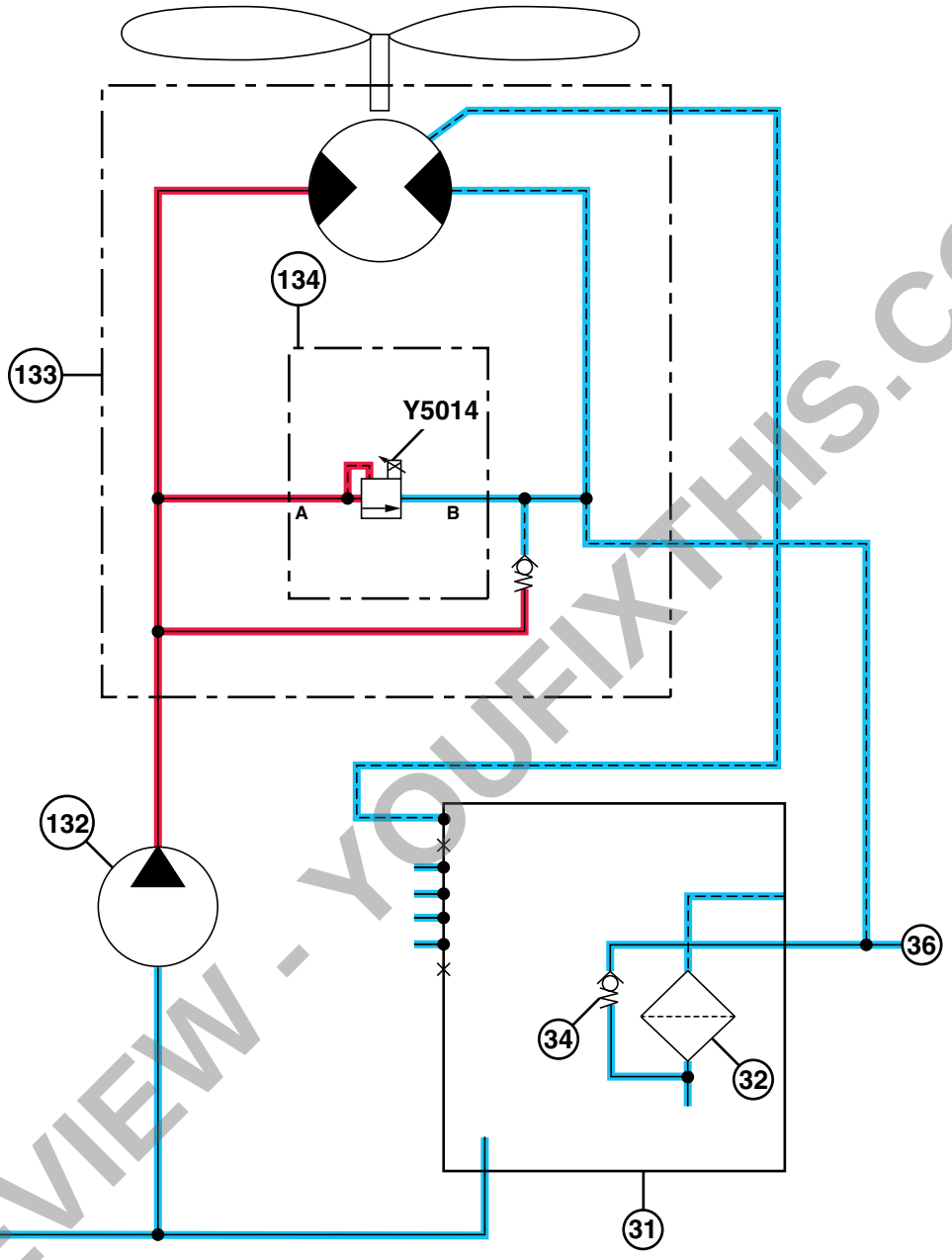
The travel gear case is a triple reduction gear system. It converts high speed, low torque from travel motor into low speed, high torque rotation. The gear case is interchangeable from right side to left side of machine. The travel gear case housing is fastened to the track frame.

Continued on next page

MM16284,0001652 -19-24FEB12-1/2

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Fan Drive Hydraulic System Operation



TX1156892

Fan Drive Hydraulic System Schematic

31— Hydraulic Oil Tank
32— Return Filter
34— Filter Bypass
36— From Hydraulic Oil Cooler
132— Fan Drive Pump
133— Fan Drive Motor
134— Fan Speed Control Valve
600— High-Pressure Oil
604— Return Oil
Y5014—Proportional Fan Speed Solenoid Valve

Continued on next page

DF89619,00B57C3 -19-19MAY14-1/3

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All Hydraulic Functions Slow

DF89619,00B579B -19-18AUG14-1/10

All Hydraulic Functions Slow Diagnostic Procedure

DF89619,00B579B -19-18AUG14-2/10

1 Machine Operation	Verify machine operation. See Cycle Times Check. (Group 9005-10.) Do cycle times meet specification?	**YES:** Checks complete. **NO:** Go to Low Pilot Oil Pressure.

DF89619,00B579B -19-18AUG14-3/10

2 Low Pilot Oil Pressure	Check pilot oil pressure. See Pilot Pressure Regulating Valve Test and Adjustment. (Group 9025-25.) Does pilot oil pressure meet specification?	**YES:** Go to Pump Control Pilot Pressure Signal Low. **NO:** Adjust, repair, or replace pilot pressure regulating valve. See Pilot Pressure Regulating Valve and Filter Remove and Install. (Group 3360.)

DF89619,00B579B -19-18AUG14-4/10

3 Pump Control Pilot Pressure Signal Low	Check pump control pilot pressure. Perform Pump Control Pilot Pressure Signal Test. (Group 9025-25.) Does pump control pilot pressure meet specification?	**YES:** Go to Pilot Circuit Obstruction. **NO:** Check pump 1 or pump 2 flow rate pilot valve. See Pilot Signal Manifold Disassemble and Assemble. (Group 3360.)

DF89619,00B579B -19-18AUG14-5/10

4 Pilot Circuit Obstruction	Check pilot circuit for obstructions. See Pilot System Operation. (Group 9025-05.) Are all lines and hoses straight and in good condition; not kinked, worn from rubbing, or weather checked?	**YES:** Go to Main Relief Valve Setting Too Low or Malfunctioning. **NO:** Repair or replace pilot circuit.

DF89619,00B579B -19-18AUG14-6/10

5 Main Relief Valve Setting Too Low or Malfunctioning	Verify proper main relief valve setting and operation. See Main Relief and Power Dig Valve Test and Adjustment. (Group 9025-25.) Does main relief valve settings meet specification?	**YES:** Go to Restricted Hydraulic Oil Tank Suction Screen. **NO:** Adjust, repair, or replace main relief valve. See Control Valve (5-Spool) Disassemble and Assemble. (Group 3360).

Continued on next page

DF89619,00B579B -19-18AUG14-7/10

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Pilot Pressure Regulating Valve Test and Adjustment

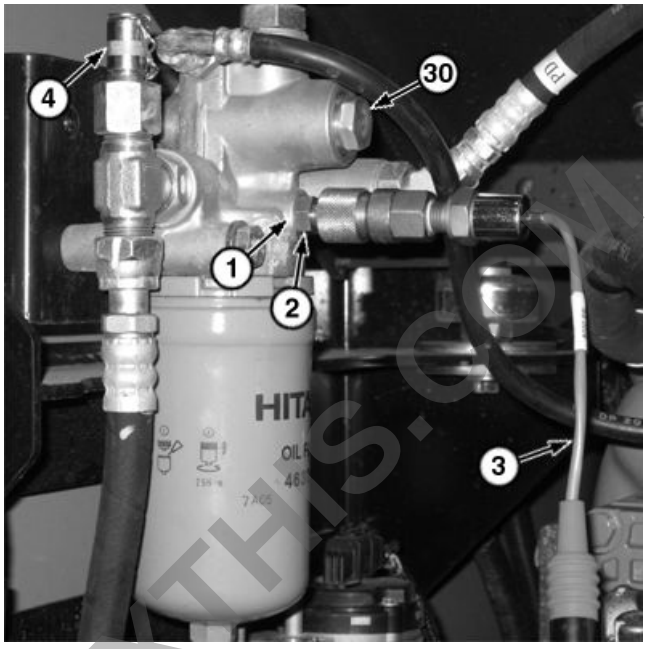
SPECIFICATIONS	
Hydraulic Oil Temperature	45—55°C 110—130°F
Engine Speed	Fast Idle and Slow Idle
Work Mode Switch Position	Bucket Mode
Power Mode Button Position	PWR (power) Mode
Auto-Idle Switch Position	OFF
Pilot System Pressure (slow idle)	3.8—4.8 MPa 3805—4805 kPa 39.0—49.0 bar 552—697 psi
Pilot System Pressure (fast idle)	3.5—5.0 MPa 3509—5012 kPa 36.0—51.0 bar 509—727 psi
Pilot Pressure Regulating Valve Shim (approximate per 0.25 mm (0.010 in.) shim)	0.078 MPa 78 kPa 0.78 bar 11 psi
Pilot Pressure Regulating Valve Shim (approximate per 0.50 mm (0.020 in.) shim)	0.160 MPa 160 kPa 1.6 bar 22 psi
Pilot Pressure Regulating Valve Shim (approximate per 1.00 mm (0.040 in.) shim)	0.31 MPa 304 kPa 3.1 bar 44 psi
Plug to Pilot Pressure Regulating Valve Housing Torque	25 N·m 220 lb-in.

SERVICE EQUIPMENT AND TOOLS
4200465 (1/4 M BSPP ORB x 7/16-20 M 37°) Adapter
JT02162 Transducer 35 000 kPa (350 bar) (5000 psi)
JT02156A Digital Pressure/Temperature Analyzer
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. Release hydraulic oil tank pressure by pressing pressure release button at top of hydraulic oil tank. See Hydraulic Oil Tank Pressure Release Procedure. (Group 9025-25.)
2. Remove plug from test port (1).
3. Install 4200465 Adapter (2).
4. Connect the JT02162 Transducer (3) and JT02156A Digital Pressure/Temperature Analyzer or 7000 kPa (70 bar) (1000 psi) gauge to adapter.

NOTE: The monitor can be used to make a quick check of the pilot system pressure using the arm in function. Monitor arm in pilot pressure with the engine at 1750—1850 rpm and then actuate arm in function over relief. The pressure reading displayed is from the arm in pressure sensor located in the pilot cap.



TX1089155A —UN—10MAR11

Pilot Pressure Regulating Valve and Test Port

1— Test Port
2— 4200465 Adapter
3— JT02162 Transducer
4— Oil Sample Port (if equipped)
30— Pilot Pressure Regulating Valve

Before making any adjustments, check the pilot pressure at the test port using a pressure gauge. For pilot filter and pressure regulating valve location See Hydraulic System Component Location. (Group 9025-15.)

Connect one of the following test equipment to monitor hydraulic oil temperature and actual engine speed.

- Monitor application. See Service Menu for instruction to actuate the service menu on monitor in cab. (Group 9015-16.)
  Select the following items from monitoring list:
  - Arm Roll-In Pilot Pressure
  - Hydraulic Oil Temperature
  - Actual Engine Speed
- Service ADVISOR™ application. See Service ADVISOR™ Connection Procedure for instruction. (Group 9015-20.)
  Select the following items from the menu:
  - Arm Roll-In Pilot Pressure
  - Hydraulic Oil Temperature
  - Actual Engine Speed
- MPDr application. See MPDr Application for instruction. (Group 9015-20.)
  Select the following items from the monitor display:
  - Arm Roll-In Pilot Pressure
  - Hydraulic Oil Temperature
  - Actual Engine Speed

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DF89619,00B58B8 -19-19JUN14-1/3

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The PIN identifies the producing factory, machine model number, machine option, year of manufacture, engine emission level, and machine serial number.

The following is an example for a machine that meets Final Tier 4 and Stage IV emission levels:

17-Character PIN Examples																
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
1	F	F	2	5	0	G	X	_	_	F	6	0	8	7	1	3

- **(1—3) World Code:** Identifies location where machine is manufactured.

1FF ..... **World Code** (manufacturing location)
1DW ..... Davenport Works
1T8 ..... Thibodaux Works
1T0 ..... Dubuque Works
1FF ..... Deere—Hitachi (Kernersville, NC, USA)
1F9 ..... Deere—Hitachi (Indaiatuba, São Paulo, Brazil)

- **(4—8) Machine Model Identifier:** Identifies model number.

250G ..... **Machine Model Identifier**

NOTE: Characters 7—8 identify series and major machine configuration options. These characters will change from one machine to another.

X ..... **Machine Option Code**
X ..... Base Machine
R ..... HYEX Military Excavators

- **(9) Check Letter:** This is a random character assigned by the factory. This is not used in machine identification.

– ..... **Check Letter** (variable)

- **(10) Manufacturing Year Code:** Identifies year of machine manufacture.

– ..... **Manufacturing Year Code** (variable)
D 2013
E 2014
F 2015
G 2016

- **(11) Engine Emission Code:** Represents engine emission certification.

F ..... **Engine Emission Code**
C ..... Tier 2 and Stage II
D ..... Tier 3 and Stage III A
E ..... Interim Tier 4 and Stage III B
F ..... Final Tier 4 and Stage IV

- **(12—17) Machine Serial Number:** Identifies machine serial number. This character will change from one machine to another.

608713 ..... **Machine Serial Number**

CN93077,0000236 -19-02APR14-2/2

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1 Diagnostic Trouble Code Check	Check for active diagnostic trouble codes (DTCs) using monitor, Service ADVISOR™, or MPDr. • See Reading Diagnostic Trouble Codes with Monitor Display. (Group 9015-25.) • See Reading Diagnostic Trouble Codes with Service ADVISOR™ Diagnostic Application. (Group 9015-25.) • See MPDr Application. (Group 9015-25.) Are any DTCs present?	**YES:** Diagnose DTC. See specific diagnostic procedure in Group 9001. **NO:** Go to AT CAN Harness Check.

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DF89619,00B5885 -19-18JUN14-3/12

2 AT CAN Harness Check	Key switch in OFF position. Check the following connectors for damage, corrosion, or debris: • Diesel exhaust fluid (DEF) quality sensor (if equipped) (B74). See Diesel Exhaust Fluid (DEF) Harness (W54) Component Location. (Group 9015-10.) • Selective catalytic reduction (SCR) inlet NOx sensor (B5502). See Exhaust Aftertreatment Harness (W53) Component Location. (Group 9015-10.) • Selective catalytic reduction (SCR) outlet NOx sensor (B5503). See Exhaust Aftertreatment Harness (W53) Component Location. (Group 9015-10.) • Aftertreatment CAN termination resistor (R5605). See Exhaust Aftertreatment Harness (W53) Component Location. (Group 9015-10.) • Engine interface harness-to-diesel exhaust fluid (DEF) harness connector 2 (X5038). See Engine Interface Harness (W5) Component Location. (Group 9015-10.) • Engine interface harness-to-exhaust aftertreatment harness connector (X5039). See Engine Interface Harness (W5) Component Location. (Group 9015-10.) • Engine control unit (ECU) connector 2 (X5502). See Engine Interface Harness (W5) Component Location. (Group 9015-10.) Are connectors in good condition and free of corrosion and debris?	**YES:** Go to AT CAN Circuit Resistance Check. **NO:** Repair or replace harness as necessary. See Engine Interface Harness (W5) Wiring Diagram. (Group 9015-10.) See Exhaust Aftertreatment Harness (W53) Wiring Diagram. (Group 9015-10.) See Diesel Exhaust Fluid (DEF) Harness (W54) Wiring Diagram. (Group 9015-10.)

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DF89619,00B5885 -19-18JUN14-4/12

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6 Solenoid Check	Key switch in OFF position. Power dig/travel speed solenoid (marked SG) (Y24) disconnected. Test power dig/travel speed solenoid (marked SG) (Y24) and compare to specification. See Electrical Component Specifications. (Group 9015-20.) Is power dig/travel speed solenoid (marked SG) (Y24) within specification?	**YES:** Checks complete. **NO:** Power dig/travel speed solenoid (marked SG) (Y24) malfunction. Replace solenoid.

DF89619,00B58AA -19-16JUN14-8/8

011407.03 — Power Dig/Travel Speed Solenoid Feedback Current High

Power dig/travel speed solenoid (marked SG) (Y24) current above 920 mA.

IMPORTANT: Avoid connector damage. Do not install connector with impact wrench or power tools.

Over torquing will result in permanent damage to connector. Torque only to specification.

Specification	
100-Pin Connector (X3)—Torque	10 N·m 89 lb.-in.

DF89619,00B58AB -19-16JUN14-1/7

Power Dig/Travel Speed Solenoid Feedback Current High Diagnostic Procedure

DF89619,00B58AB -19-16JUN14-2/7

1 Connector Check	Key switch in OFF position. Check the following connectors for damage, corrosion, or debris: • Power dig/travel speed solenoid (marked SG) (Y24) and cab harness-to-machine harness 100-pin connector (X3). See Machine Harness (W2) Component Location. (Group 9015-10.) • Cab harness-to-main controller 31-pin connector A (X31). See Cab Harness (W1) Component Location. (Group 9015-10.) Are connectors in good condition and free of corrosion and debris?	**YES:** Go to Component Check. **NO:** Repair or replace connectors. See appropriate harness.

DF89619,00B58AB -19-16JUN14-3/7

2 Component Check	Key switch in OFF position. Disconnect power dig/travel speed solenoid (marked SG) (Y24). Switch connectors of power dig/travel speed solenoid (marked SG) (Y24) with another solenoid in solenoid valve manifold. Clear MCZ diagnostic trouble codes. Operate machine. Check for active MCZ diagnostic trouble code 011407.03—Power Dig/Travel Speed Solenoid Feedback Current High. Is code active? Return connectors to appropriate solenoids after check is complete.	**YES:** Go to Continuity Check. **NO:** Power dig/travel speed solenoid (marked SG) (Y24) malfunction. Replace solenoid.

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DF89619,00B58AB -19-16JUN14-4/7

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	LOOK: Does fuel gauge (6) display correct fuel level?	**NO:** Check radio backup 10 A fuse (F9) (marked BACK UP). See Fuse and Relay Specifications. (Group 9015-10.)
	IMPORTANT: Avoid connector damage. Do not install connector with impact wrench or power tools. Over torquing will result in permanent damage to connector. Torque only to specification. **Specification** 100-Pin Connector (X3)—Torque.....10 N·m 89 lb.-in.	**NO:** Check wiring. See Cab Harness (W1) Wiring Diagram and see Monitor Harness (W3) Wiring Diagram. (Group 9015-10.)

DP27668,000080A -19-01OCT14-7/58

Operational Checks—Key Switch On, Engine Off Checks

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DP27668,000080A -19-01OCT14-8/58

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A1—Engine Control Unit (ECU)
A15— Flex Power Converter (FPC)
A6000—Modular Telematics Gateway (MTG) Controller
A6001—GPS/Cellular Antenna
A6002—Satellite (SAT) Module Control Unit (if equipped)
A6003—Satellite (SAT) Antenna
B5009—Engine Coolant Loss Level Sensor
B5010—Engine Coolant Service Level Sensor
B5303—Fan Speed Sensor
B5504—Engine Oil Level Sensor (if equipped)
B5505—Engine Oil Condition Sensor (if equipped)
E22— Battery Disconnect Indicator Light
F45— Starter In-Line 30 A Fuse
F46— Engine Light In-Line 7.5 A Fuse
F5002—Fuel Transfer Pump 10 A Fuse
F5004—Flex Power Converter (FPC) In-Line 10 A Fuse
F6000—JDLink™ Unswitched Power 7.5 A Fuse
F6002—JDLink™ Switched Power 7.5 A Fuse
K19— Battery Relay
K34— Starter Relay
M1—Starter Motor
R90— DPF Regen Active Lamp Resistor
R92— Service ADVISOR™ Remote (SAR) Switch Accept LED Resistor
R93— Service ADVISOR™ Remote (SAR) Switch Decline LED Resistor
R5601—CAN 0 Termination Resistor
V44— Starter Relay Diode
W5—Engine Interface Harness
W39—Engine Interface Harness Ground
W57—Fan Harness
W6003—Satellite (SAT) Harness
X175— Machine Harness-to-Engine Interface Harness Connector 1
X5015—Engine Interface Harness-to-Engine Harness Connector 1
X5016—Engine Interface Harness-to-Engine Harness Connector 2
X5018—Machine Harness-to-Engine Interface Harness Connector 2
X5019—Engine Interface Harness-to-Engine Harness Connector 3
X5023—Not Used
X5037—Engine Interface Harness-to-Diesel Exhaust Fluid (DEF) Harness Connector 1
X5038—Engine Interface Harness-to-Diesel Exhaust Fluid (DEF) Harness Connector 2
X5039—Engine Interface Harness-to-Exhaust Aftertreatment Harness Connector
X5040—Engine Interface Harness-to-Fan Harness Connector
X5041—Fan Harness-to-Engine Light Harness Connector
X5501—Engine Control Unit (ECU) Connector 1
X5502—Engine Control Unit (ECU) Connector 2
X5503—Engine Control Unit (ECU) Connector 3
X6014—Modular Telematics Gateway (MTG) Control Unit Connector
X6015—Satellite (SAT) Module Control Unit 48-Pin Connector
X6016—Engine Interface Harness-to-Satellite (SAT) Harness
Y5014—Variable Speed Fan Solenoid
Y5015—Reversing Fan Solenoid

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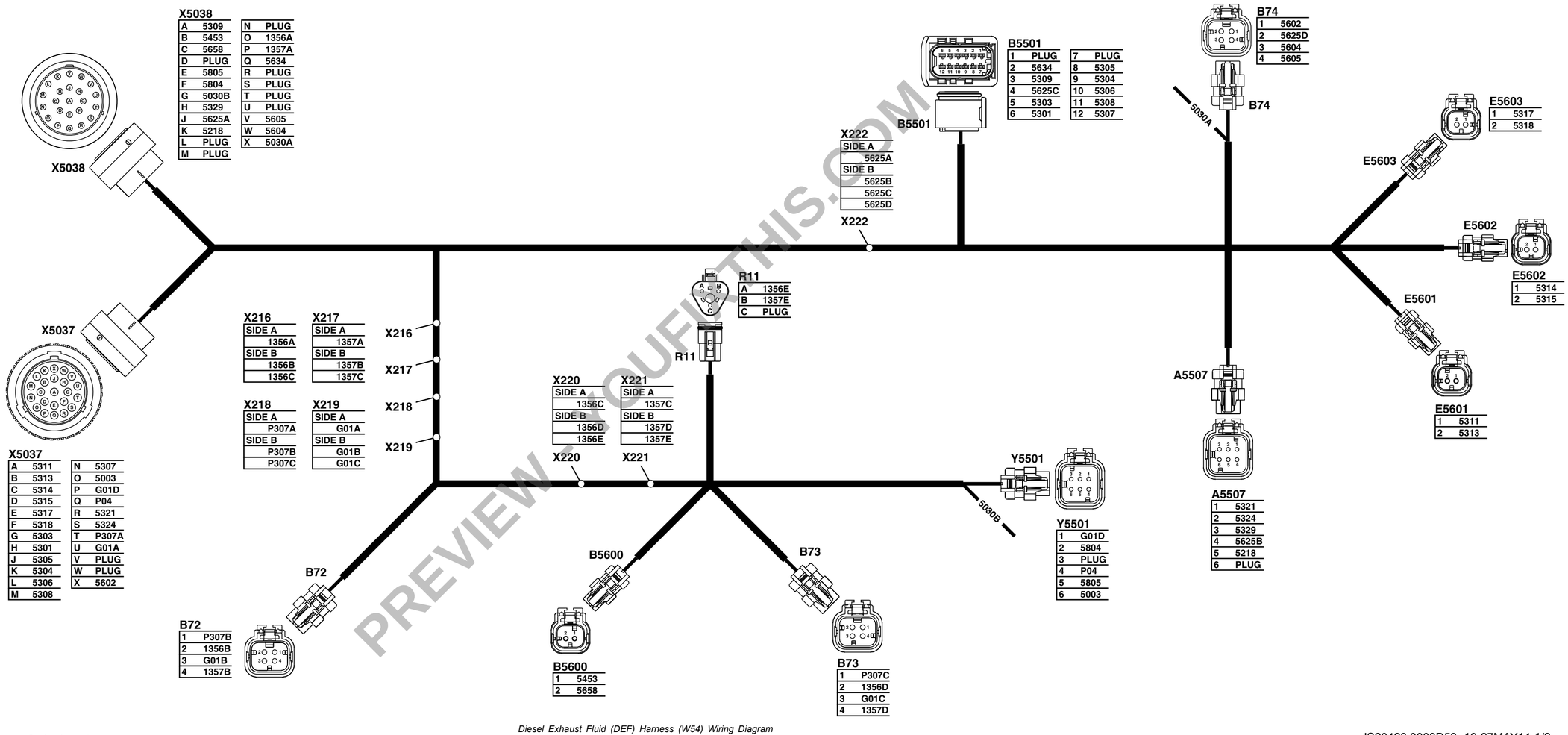
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Diesel Exhaust Fluid (DEF) Harness (W54) Wiring Diagram

TX1156630 —UN—08APR14

END #1	NUMBER	COLOR	END #2
X5038	1356A	YEL	X216
B72	1356B	YEL	X216
X221	1356C	YEL	X216
B73	1356D	YEL	X220
R11	1356E	YEL	X220
X5038	1357A	GRN	X217
B72	1357B	GRN	X217
X221	1357C	GRN	X217
B73	1357D	GRN	X221
R11	1357E	GRN	X221
X5037	5003	ORG	Y5501
X5038	5030A	SHIELD	B74
X5038	5030B	SHIELD	Y5501
X5038	5218	GRY	A5507
X5037	5301	BRN	B5501
X5037	5303	ORG	B5501
X5037	5304	YEL	B5501
X5037	5305	GRN	B5501
X5037	5306	BLU	B5501
X5037	5307	PUR	B5501
X5037	5308	GRY	B5501
X5038	5309	WHT	B5501
X5037	5311	BRN	E5601
X5037	5313	ORG	E5601
X5037	5314	YEL	E5602
X5037	5315	GRN	E5602
X5037	5317	PUR	E5603
X5037	5318	GRY	E5603
X5037	5321	BRN	A5507
X5037	5324	YEL	A5507
X5038	5329	WHT	A5507
X5038	5453	ORG	B5600
X5037	5602	RED	B74
X5038	5604	YEL	B74
X5038	5605	GRN	B74
X5038	5625A	GRN	X222
A5507	5625B	GRN	X222
B5501	5625C	GRN	X222
B74	5625D	GRN	X222
X5038	5634	YEL	B5501
X5038	5658	GRY	B5600
X5038	5804	YEL	Y5501
X5038	5805	GRN	Y5501
X5037	G01A	BLK	X219
B72	G01B	BLK	X219
B73	G01C	BLK	X219
X5037	G01D	BLK	Y5501
X5037	P04	RED	Y5501
X5037	P307A	RED	X218
B72	P307B	RED	X218
B73	P307C	RED	X218



TX1156630

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Diesel Exhaust Fluid (DEF) Harness (W54) Wiring Diagram

JS20420,0000D59 -19-27MAY14-1/2

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- B5201—Diesel oxidation catalyst (DOC) inlet temperature sensor is used to determine if the temperature is high enough for in-cylinder fuel dosing to occur.
- B5202—Diesel oxidation catalyst (DOC) outlet temperature sensor is used to provide regeneration and fuel dosing feedback to the ECU.
- B5203—Diesel particulate filter (DPF) outlet temperature sensor is used for exhaust filter protection and determines if the temperature is too high where the filter could crack.

The exhaust filter temperature module (B5204) receives supply voltage on pin 1 from pin 6 of engine control unit (ECU) connector 2 (X5502), ground on pin 2 from pin 24 of ECU connector 2, and signal on pin 4 from pin 38 of ECU connector 2. The exhaust filter temperature module uses pin 3 is for communication over the LIN bus to pin 28 of ECU connector 2.

- For component location, see Exhaust Aftertreatment Harness (W53) Component Location. (Group 9015-10.)
- For information on how temperature sensors operate, see Measuring Temperature. (CTM120019.)
- For information on engine protection and derate programs, see Engine Derate and Shutdown Protection. (CTM120019.)

Exhaust Filter Parked Cleaning Switch (S16)—The exhaust filter parked cleaning switch (S16) allows the operator to perform a parked exhaust filter cleaning.

For more information on the exhaust filter parked cleaning switch, see Engine Control Unit (ECU) Circuit Theory of Operation. (Group 9015-15.)

Intake Air Throttle (Y5401)—The intake air throttle (Y5401) is located upstream of the intake manifold and is normally open. An electric motor opens and closes a butterfly valve. To raise the exhaust gas temperature before and during exhaust filter cleaning, the ECU commands the intake air throttle valve to close. For more information on the intake air throttle, see Engine Control Unit (ECU) Circuit Theory of Operation. (Group 9015-15.)

Abort Conditions for Auto Cleaning—Exhaust aftertreatment abort conditions are monitored by the ECU. Auto cleaning is aborted when the ECU detects any of the following:

- DOC inlet or DOC outlet temperature is too low.
- DOC outlet or DPF outlet temperature is too high.
- Exhaust filter parked cleaning switch is depressed.
- Component malfunction.

Abort Conditions for Parked or Service Filter Cleaning—Exhaust aftertreatment abort conditions are monitored by the ECU. If the auto-shutdown feature is enabled, the machine will shut down if an abort is detected.

The ECU will abort the exhaust filter cleaning process and send an abort message to the DSZ if the following occur:

- DOC inlet or DOC outlet temperature is too low.
- DOC outlet or DPF outlet temperature is too high.
- Removal of safe state conditions.
  - Throttle movement.
  - Pilot shutoff lever movement.
- CAN communication lost from DSZ to ECU.
- ECU unable to maintain exhaust temperatures.
- Parked or service cleaning takes too long to either prepare the exhaust temperatures or clean the exhaust filter.
- Exhaust temperatures too high.
- Varying engine loads.
- Component malfunction.

For more information on the exhaust aftertreatment system, see Aftertreatment System Operation. (CTM120019.)

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Electrical Component Specifications

Item	Measurement	Specification
Sensor Specifications		
B18—Fuel Level Sensor	Resistance	6—10 ohms @ 100% Fill (full) 26 ohms @ 75% Fill 33—43 ohms @ 50% Fill 53 ohms @ 25% Fill 82—88 ohms @ Low Fuel Alarm 90—100 ohms @ 0% Fill (empty)
B22—Ambient Air Temperature Sensor	Resistance	9.9 kilo-ohms @ 0°C (32°F) 1.6 kilo-ohms @ 40°C (104°F)
B30—Boom Up Pressure Sensor	Resistance	5—15 kilo-ohms (Pins 1—2) 30—50 kilo-ohms (Pins 2—3)
B31—Arm In Pressure Sensor	Resistance	5—15 kilo-ohms (Pins 1—2) 30—50 kilo-ohms (Pins 2—3)
B32—Front Attachment Pressure Sensor	Resistance	5—15 kilo-ohms (Pins 1—2) 30—50 kilo-ohms (Pins 2—3)
B33—Swing Pressure Sensor	Resistance	5—15 kilo-ohms (Pins 1—2) 30—50 kilo-ohms (Pins 2—3)
B34—Travel Pressure Sensor	Resistance	5—15 kilo-ohms (Pins 1—2) 30—50 kilo-ohms (Pins 2—3)
B36—Pump 1 Control Pressure Sensor	Resistance	5—15 kilo-ohms (Pins 1—2) 30—50 kilo-ohms (Pins 2—3)
B38—Pump 2 Control Pressure Sensor	Resistance	5—15 kilo-ohms (Pins 1—2) 30—50 kilo-ohms (Pins 2—3)
B40—Hydraulic Oil Temperature Sensor	Resistance	13.8—16.3 kilo-ohms @ -20°C (-4°F) 5.7 kilo-ohms @ 0°C (32°F) 2.3—2.6 kilo-ohms @ 20°C (68°F) 1.2 kilo-ohms @ 40°C (104°F) 584 ohms @ 60°C (140°F) 310—326 ohms @ 80°C (176°F)
B55—Air Recirculation Sensor	Resistance	9.9 kilo-ohms @ 0°C (32°F) 1.6 kilo-ohms @ 40°C (104°F)
B5600—Water-in-Fuel (WIF) Sensor	Resistance	209—231 kilo-ohms
Resistor Specifications		
R10—Interface CAN Resistor 1	Resistance	110—130 ohms
R11—Interface CAN Resistor 2	Resistance	110—130 ohms
R5601—CAN 0 Termination Resistor	Resistance	110—130 ohms
R5603—Engine CAN Termination Resistor	Resistance	110—130 ohms
R5605—Aftertreatment CAN Termination Resistor	Resistance	110—130 ohms
ON/OFF Solenoid Specifications		
Y10—Pilot Shutoff Solenoid	Resistance	42—58 ohms

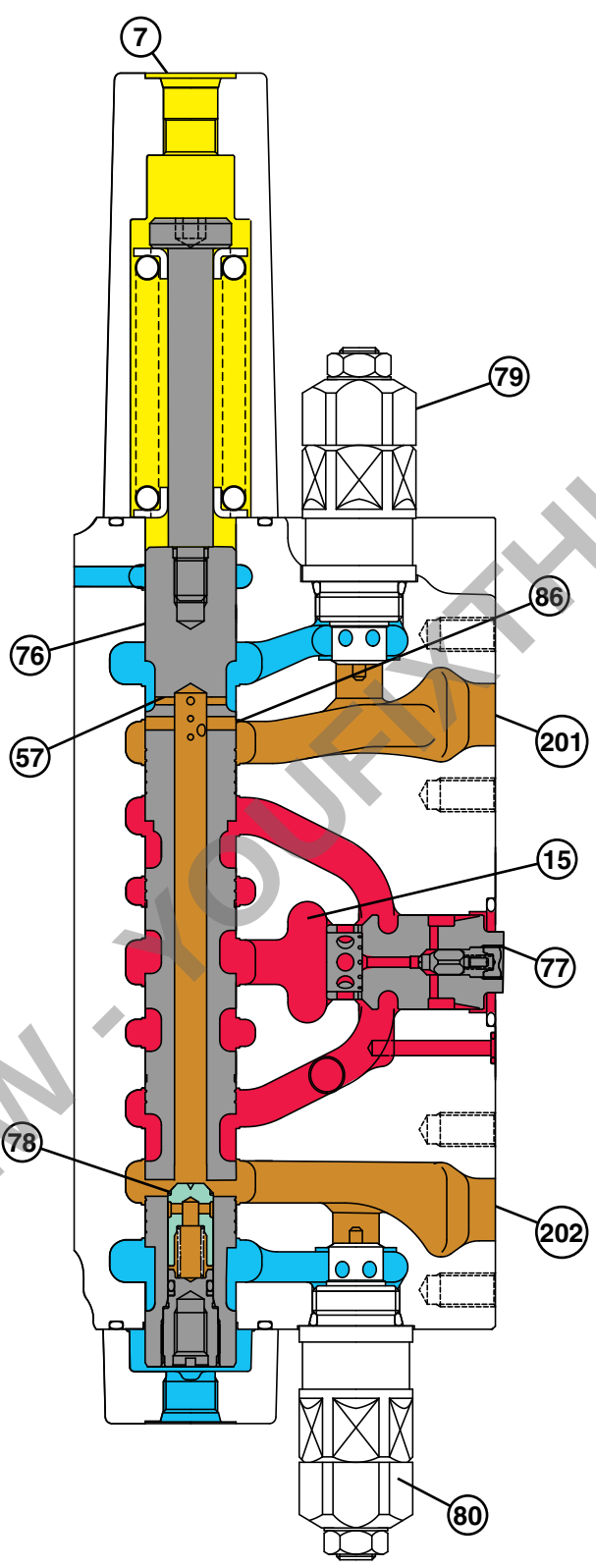
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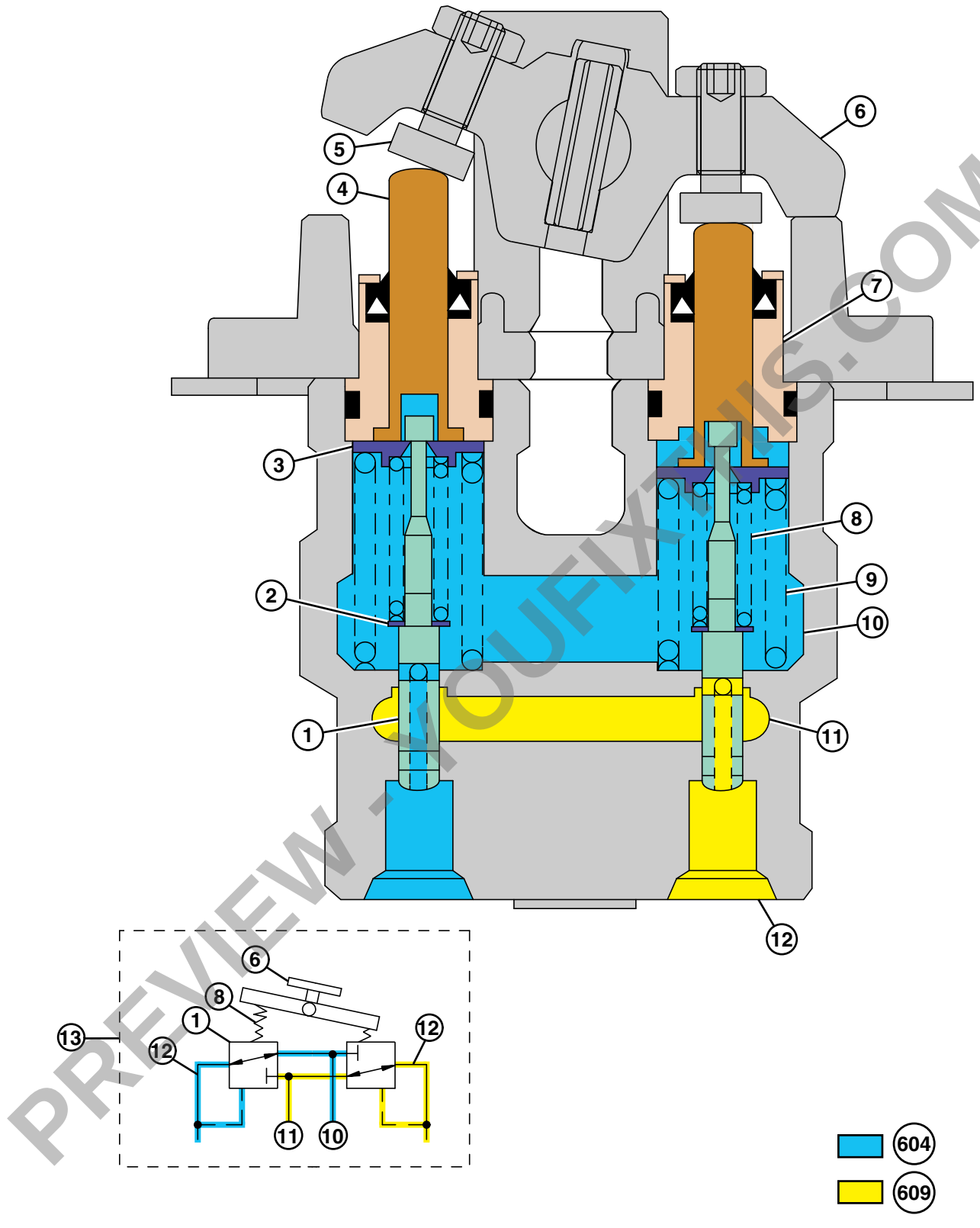
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Bucket Regenerative Valve Section

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TX1086424 —UN—07JAN11

TX1086424

Auxiliary Pilot Control Valve

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Machine Mistracks Left During Combined Travel and Dig Functions

DF89619,00B57E0 -19-01OCT14-1/4

Machine Mistracks Left During Combined Travel and Dig Functions Diagnostic Procedure

NOTE: During combined travel and dig functions, hydraulic functions will be slow, but machine should not mistrack.

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1 Travel Flow Combiner Pilot Valve Stuck	Measure pressure from travel flow combiner pilot valve (port SL) during combined travel and dig functions. • See Control Valve Spool Actuating Pilot Pressure Test for pressure specification. (Group 9025-25.) • See Control Valve Line Identification for port identification. (Group 9025-15.) • See Pilot Signal Manifold-to-Control Valve Line Connection for line identification. (Group 9025-15.) Does pilot pressure meet specification?	**YES:** Go to Travel Flow Combiner Valve and Check Valves Stuck. **NO:** Repair or replace travel flow combiner pilot valve. See Pilot Signal Manifold Disassemble and Assemble. (Group 3360.)

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2 Travel Flow Combiner Valve and Check Valves Stuck	Inspect travel flow combiner valve and check valves. See Control Valve (5-Spool) Disassemble and Assemble and see Control Valve (4-Spool) Disassemble and Assemble. (Group 3360.) Does travel flow combiner valve and check valves move freely?	**YES:** Checks complete. **NO:** Repair or replace control valve components.

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Machine Will Not Shift Into Fast (rabbit) Speed

DF89619,00B5889 -19-30SEP14-1/13

Machine Will Not Shift Into Fast (rabbit) Speed Diagnostic Procedure

For more information, see Travel Motor Speed Circuit Operation. (Group 9025-05.) Also see Main Controller (MCZ) Circuit Theory of Operation. (Group 9015-15.)

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Pump Regulator Test and Adjustment—Minimum Flow

SPECIFICATIONS	
Hydraulic Oil Temperature	45—55°C 110—130°F
Engine Speed	Fast Idle
Work Mode Switch Position	Bucket Mode
Power Mode Button Position	PWR (power) Mode
Auto-Idle Switch Position	OFF
Travel Speed Switch Position	Slow (turtle)
One Revolution of Raised Track Cycle Time (with pump regulator pilot line disconnected)	34.7—36.7 seconds

SERVICE EQUIPMENT AND TOOLS
7/16-20 M 37° (Parker No. 03CP-4) Plug (2 used)
Stop Watch
17 mm Combination Wrench
Flat Blade Screwdriver

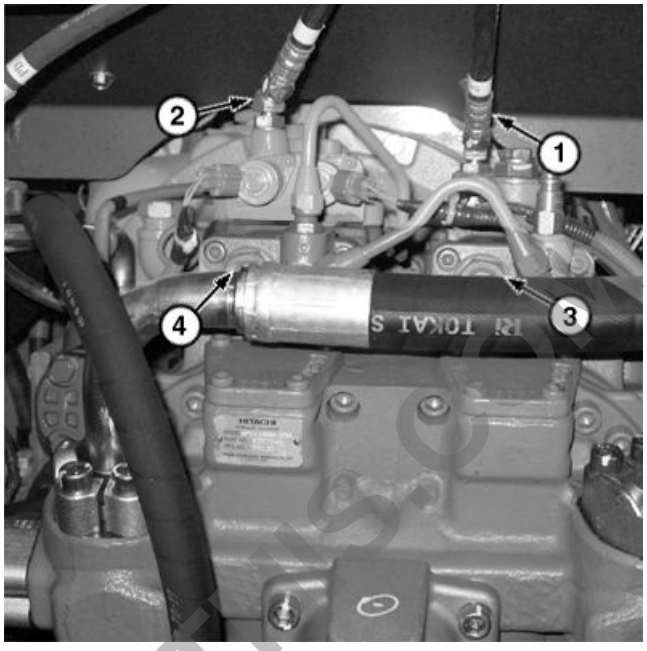
The purpose of test is to check and adjust the minimum flow rate of pump 1 and 2 using the cycle time for travel as an indicator of pump flow rate.

1. Check and adjust track sag. See Check and Adjust Track Sag. (Operator's Manual.)
2. Connect one of the following test equipment to monitor hydraulic oil temperature and actual engine speed.
   - Monitor application. See Service Menu for instruction to actuate the service menu on monitor in cab. (Group 9015-16.)
     Select the following items from monitoring list:
     - Hydraulic Oil Temperature
     - Actual Engine Speed
   - Service ADVISOR™ application. See Service ADVISOR™ Connection Procedure for instruction. (Group 9015-20.)
     Select the following items from the menu:
     - Hydraulic Oil Temperature
     - Actual Engine Speed
   - MPDr application. See MPDr Application for instruction. (Group 9015-20.)
     Select the following items from the monitor display:
     - Hydraulic Oil Temperature
     - Actual Engine Speed
3. Warm hydraulic oil to specification. See Hydraulic Oil Warm-Up Procedure. (Group 9025-25.)

Specification

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

4. Release hydraulic oil tank pressure by pressing pressure release button at top of hydraulic oil tank. See Hydraulic Oil Tank Pressure Release Procedure. (Group 9025-25.)
5. Disconnect pump regulator pilot lines (1 and 2) at pump regulators (3 and 4). Install plugs in lines. Leave the fittings on regulator open. Lay a shop towel over the fittings.



TX1089633A —UN—16MAR11

Hydraulic Pump Regulator Pilot Lines

1— Hydraulic Pump 1 Pilot Line
2— Hydraulic Pump 2 Pilot Line
3— Hydraulic Pump 1 Regulator
4— Hydraulic Pump 2 Regulator

6. Run machine at specifications:

Specification

Engine—Speed..... Fast Idle
Work Mode Switch—Position..... Bucket Mode
Power Mode Button—Position.....PWR (power) Mode
Auto-Idle Switch—Position..... OFF
Travel Speed Switch—Position..... Slow (turtle)

7. Raise the left track off ground for pump 2 or the right track for pump 1.
8. Actuate travel function to full speed. Record the cycle time for one revolution.

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