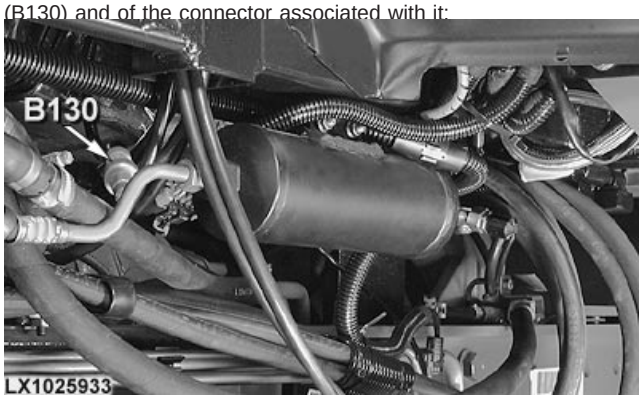
❷ **Checking the refrigerant pressure sending unit (B130)**	• Ignition ON. • Access address ATC017 or ATC044, or template ATC903 - Refrigerant pressure sending unit. • Make sure that the information displayed at addresses ATC 017 and ATC 044 complies with the following: **ATC017 - Refrigerant pressure sending unit (B130)—Specification** Display:—Pressure ..... 0—31.00 bar Fault in circuit or sending unit ..... Err Sensor not activated at address ATC 029 ..... nA Compressor's operating range:— Pressure ..... between 1.38 (+/- 0.35) and 27.6 (+/- 1.38) bar **ATC044 - Refrigerant pressure sending unit (B130), signal voltage—Specification** Display:—Signal voltage ..... 0.0 — 5.0 volts Fault in circuit or sending unit ..... Err Sensor not activated at address ATC 029 ..... nA • Start the engine. • Turn the airflow mode switch to its "de-icer/windshield" position. • Turn the fan speed control as far as it will go to the right. • Turn the temperature control as far as it will go to the left (Lo). • Actuate the air-conditioning ON/OFF switch (snowflake), thus switching on the compressor clutch. • Make sure that the value displayed at address ATC017 gradually rises as refrigerant pressure increases.	**OK:** GO TO 5. **NOT OK:** GO TO 3. – – –1/1

❸ **Initial component test**	At the receiver-drier, perform a visual inspection of refrigerant pressure sending unit (B130) and of the connector associated with it:  LX1025933 –UN–30SEP03 **B130—Refrigerant pressure sending unit** ❒ Check for signs of damage or dirt. ❒ Check the electrical connections for bad, loose, widened, slid-back or corroded contacts.	**OK:** If there are no signs of damage: GO TO 4. **NOT OK:** Recondition sub-assemblies, connectors or contacts as required and do an Operational Check for Refrigerant Pressure Sending Unit (B130), see 245-ATC. – – –1/1

ATC 001553.03 — Fan Speed Control, Shorted or Open Circuit

Diagnostic trouble code ATC 001553.03 is generated when the ClimaTrak™ controller measures over 5 volts at the signal input of the fan speed control. This indicates that the internal circuit of the controller is shorted to a supply lead or is open.
Alarm level: *Information*

ClimaTrak is a trademark of Deere & Company

LX12234,0000D05 –19–02SEP03–1/1

Diagnostics

Reaction of controller: Temperature control is restricted.
The ClimaTrak™ controller operates in its basic mode. Fan speed is set at 75% of its maximum output.

Additional references:

- Electrical information: Reference 210-15-001, General References - Summary.
- Reference 245-ATC-100, Theory of Operation.
- Reference 290-15-200, ClimaTrak™—Checks.
- Reference 290-20-200, Operation of the ATC (ClimaTrak™).

ClimaTrak is a trademark of Deere & Company

– – –1/1

❶ **Preliminary test**	*NOTE: Take note of the processing procedures of diagnostic trouble codes before starting the diagnosis, see Reference 245-05-002, Accessing the Addresses and Diagnostic Trouble Codes.*	**OK:** If the diagnostic trouble code is no longer generated: Diagnosis completed. **NOT OK:** If the diagnostic trouble code is active or is regenerated after it has been deleted and a functional test has been carried out: GO TO 2.

– – –1/1

❶ **Preliminary test**	*NOTE: Take note of the processing procedures of diagnostic trouble codes before starting the diagnosis, see Reference 245-05-002, Accessing Addresses and Diagnostic Trouble Codes.*	**OK:** Diagnostic trouble code is not active: Diagnosis completed. **NOT OK:** Diagnostic trouble code is active: GO TO 2. – – –1/1

❷ **Check differential lock switch**	Access address BCU 06 : **BCU 06 –– Status, Differential Lock Switch (S22) —Specification** Differential lock switch OFF:—Status ..... 0XXX Differential lock switch ON:—Status 1XXX	**OK:** • Diagnosis completed. • Type of error indicates a loose contact. GO TO: • Circuit/harness test for differential lock switch (S22). • Circuit/harness test for differential lock switch (S22) - SE tractors. Circuit/harness test for differential lock switch (S22) - open operator's station. **NOT OK:** GO TO: • Circuit/harness test for differential lock switch (S22). • Circuit/harness test for differential lock switch (S22) - SE tractors. Circuit/harness test for differential lock switch (S22) - open operator's station. – – –1/1

BCU 303055.03 — Position Sensor, Signal Voltage Too High

Diagnostic trouble code BCU 303055.03 is saved when the basic control unit measures a voltage over 4.75 volts at the signal input of the position sensor potentiometer. This indicates that the potentiometer's circuit is shorted.

LX16167,00000A4 –19–01SEP02–1/1

Diagnostics

NOTE: The following are possible causes:

- *Defective position sensor (B21).*
- *Defective line connection between the position sensor and the basic control unit (short circuit):*
  - *Positive lead (cable 873).*
  - *Signal lead (cable 878).*

Additional references:

- General hitch information: Reference 270-20-001, PFC Hydraulic System — Summary of References.
- Electrical information: Reference 210-15-001, General References - Summary.
- Reference 245-BCU-201, Operation of the Basic Control Unit (Hitch Control).

– – –1/1

❶ **Preliminary test**	*NOTE: Take note of the processing procedures of diagnostic trouble codes before starting the diagnosis, see Reference 245-05-002, Accessing Addresses and Diagnostic Trouble Codes.*	**OK:** Diagnostic trouble code is not active: Diagnosis completed. **NOT OK:** Diagnostic trouble code is active: GO TO 2.

– – –1/1

BIF 000168.18 — System Voltage Too Low (Engine Speed Up to 1500 rpm)

Diagnostic trouble code BIF 000168.18 is saved if the system voltage (battery voltage) is less than 11.2 volts at an engine speed between 512 rpm and 1500 rpm.

This diagnostic trouble code triggers the alarm level: "CAUTION".

LX16167,0000053 –19–01SEP02–1/1

Diagnostics

The following are possible causes:

- Broken or slipping V-belts.
- Defective alternator G02.
- Defective battery.
- High current requirements.
- Defective line connection between the BIF and the ELX relay/battery.

Additional references:

- Electrical information: Reference 210-15-001, General References - Summary.
- Reference 245-BIF-200, Basic Informator - Theory of Operation.

– – –1/1

❶ **Preliminary test**	**1.1** *NOTE: Take note of the processing procedures of diagnostic trouble codes before starting the diagnosis, see Reference 245-05-002, Accessing the Addresses and Diagnostic Trouble Codes.*	**OK:** Diagnostic trouble code is not active: Diagnosis completed. **NOT OK:** Diagnostic trouble code is active: GO TO 1.2
	1.2 Perform a visual inspection of the battery, the alternator and the drive belt. ❒ Check for visual signs of damage. ❒ Ensure that the belt tensioner and the belt are correctly installed, check for signs of slipping. ❒ Check the electrical connections for bad, loose, widened or corroded contacts. ❒ Check ground connections between battery/engine and cab. • Check mounting surfaces for corrosion / paint and loose mounting bolts.	**OK:** GO TO 2. **NOT OK:** Recondition as required and carry out an operational test.

– – –1/1

ECU 000097.16 — Water in Fuel Detected

Diagnostics

NOTE: Take note of the processing procedures of diagnostic trouble codes before starting the diagnosis, see Reference 245-05-002, Accessing the Addresses and Diagnostic Trouble Codes.

Diagnostics and additional references for Level 11 ECU with Denso HPCR:

See LEVEL 11 ECU - DTC SPN 97 FMI 16 - WATER IN FUEL DETECTED - DIAGNOSTIC PROCEDURE in Section 04, Group 160 in CTM220.

Electrical information: See Reference 210-15-001, General References—Summary.

For information on functional and diagnostic schematics, see:

- Reference 240-10-034, SE23B - Electronic Engine Control (PowrQuad Plus, AutoQuad and AutoPowr/IVT transmissions).

For component location and pin arrangement, see:

- Reference 240-26-501, Wiring Harnesses for Tractors with AutoQuad Transmission and Stage II Engine to 97/68/EC — Summary of References.

- Reference 240-26-502, Wiring Harnesses for Tractors with AutoPowr/IVT Transmission and Stage II Engine to 97/68/EC — Summary of References.

- Reference 240-26-702, Wiring Harnesses for 6320, 6420, 6420S, 6520, 6620, 6820, 6920 and 6920S Tractors with PowrQuad Plus or AutoQuad Plus Transmission from Serial No. 398791[1] — Summary of References.

[1] *With ECU Level 11 (DENSO HPCR)*

Continued on next page

ECU 000611.04 — Electronic Injector Wiring Shorted To Ground

Diagnostics

NOTE: Take note of the processing procedures of diagnostic trouble codes before starting the diagnosis, see Reference 245-05-002, Accessing the Addresses and Diagnostic Trouble Codes.

Diagnostics and additional references for Level 11 ECU with Denso HPCR:

See LEVEL 11 ECU - DTC SPN 611 FMI 4 - ELECTRONIC INJECTOR WIRING SHORTED TO GROUND - DIAGNOSTIC PROCEDURE in Section 04, Group 160 in CTM220.

Electrical information: See Reference 210-15-001, General References—Summary.

For information on functional and diagnostic schematics, see:

- Reference 240-10-034, SE23B - Electronic Engine Control (PowrQuad Plus, AutoQuad and AutoPowr/IVT transmissions).

For component location and pin arrangement, see:

- Reference 240-26-501, Wiring Harnesses for Tractors with AutoQuad Transmission and Stage II Engine to 97/68/EC — Summary of References.

- Reference 240-26-502, Wiring Harnesses for Tractors with AutoPowr/IVT Transmission and Stage II Engine to 97/68/EC — Summary of References.

- Reference 240-26-702, Wiring Harnesses for 6320, 6420, 6420S, 6520, 6620, 6820, 6920 and 6920S Tractors with PowrQuad Plus or AutoQuad Plus Transmission from Serial No. 398791[1] — Summary of References.

[1] *With ECU Level 11 (DENSO HPCR)*

Continued on next page

ECU 000656.05 — Cylinder No. 6 EI Circuit Open

Diagnostics

NOTE: Take note of the processing procedures of diagnostic trouble codes before starting the diagnosis, see Reference 245-05-002, Accessing the Addresses and Diagnostic Trouble Codes.

Diagnostics and additional references for Level 11 ECU with Denso HPCR:

See LEVEL 11 ECU - DTC SPN 656 FMI 5 - CYLINDER NO. 6 EI CIRCUIT OPEN - DIAGNOSTIC PROCEDURE in Section 04, Group 160 in CTM220.

Electrical information: See Reference 210-15-001, General References—Summary.

For information on functional and diagnostic schematics, see:

- Reference 240-10-034, SE23B - Electronic Engine Control (PowrQuad Plus, AutoQuad and AutoPowr/IVT transmissions).

For component location and pin arrangement, see:

- Reference 240-26-501, Wiring Harnesses for Tractors with AutoQuad Transmission and Stage II Engine to 97/68/EC — Summary of References.

- Reference 240-26-502, Wiring Harnesses for Tractors with AutoPowr/IVT Transmission and Stage II Engine to 97/68/EC — Summary of References.

- Reference 240-26-702, Wiring Harnesses for 6320, 6420, 6420S, 6520, 6620, 6820, 6920 and 6920S Tractors with PowrQuad Plus or AutoQuad Plus Transmission from Serial No. 398791[1] — Summary of References.

[1] *With ECU Level 11 (DENSO HPCR)*

Continued on next page

• Reference 240-26-702, Wiring Harnesses for 6320, 6420, 6420S, 6520, 6620, 6820, 6920 and 6920S Tractors with PowrQuad Plus or AutoQuad Plus Transmission from Serial No. 398791[1] — Summary of References.

• Reference 240-26-703, Wiring Harnesses for Tractors with AutoPowr/IVT Transmission from Serial No. 398791 — Summary of References.

Diagnostics and additional references for Level 12 ECU with Stanadyne DE10 pump:

See LEVEL 12 ECU - DTC SPN 1079 FMI 4 - SENSOR SUPPLY 1 VOLTAGE LOW - DIAGNOSTIC PROCEDURE in Section 04, Group 160 in CTM331.

Electrical information: See Reference 210-15-001, General References—Summary.

For information on functional and diagnostic schematics, see:

• Reference 240-10A-052, SE23A - Electronic Engine Control (PowrQuad Plus and AutoPowr transmissions), for tractors with cab.

• Reference 240-10A-021, SE23 - Electronic Engine Control, for tractors with open operator's station.

• Reference 240-10B-025, SE23 - Electronic Engine Control, for SE tractors.

For component location and pin arrangement, see:

• Reference 240-26-501, Wiring Harnesses for Tractors with PowrQuad Plus or AutoQuad Transmission and Stage II Engine to 97/68/EC — Summary of References.

• Reference 240-26-503, Wiring Harnesses for Tractors with Open Operator's Station and Stage II Engine to 97/68/EC - Summary of References.

• Reference 240-26-504, Wiring Harnesses for SE Tractors with Stage II Engine to 97/68/EC — Summary of References.

[1] With ECU Level 11 (DENSO HPCR)

Continued on next page

❸ Checking the pressure range of the enable pressure sending unit (B105)

NOTE: Diagnostic address EPC 13 shows the actual clutch charge pressure at the proportional enable solenoid valve (Y38). The clutch charge pressure is dependent on the position of the clutch pedal and the position of the reverse drive lever. There is only clutch charge pressure if the reverse drive lever is set to the forward or reverse position after a valid engine start (reverse drive lever in neutral) and if the clutch pedal is not actuated. The clutch charge pressure builds up slowly (modulating), depending on the engine speed, until the max. transmission system pressure has been reached.

Perform the test only while the engine is running and range-shift lever is in neutral.

Access address EPC013:

EPC013 — Pressure, enable pressure sender (B105)—Specification

Reverse drive lever in neutral position and clutch pedal not pressed:—Minimum pressure ..... approx. 0 kPa (display: XXXX0000)

Reverse drive lever in forward or reverse position and clutch pedal not pressed:—Maximum pressure ..... 1200 kPa (display: XXXX1200) on 6120 - 6320 tractors
1400 kPa (display: XXXX1400) on 6420 - 6820 tractors
1750 kPa (display: XXXX1750) on 6920 tractors

Slowly press clutch pedal to its maximum (clutch pressure decreases depending on the clutch pedal position):—Pressure range displayed ..... 1200 kPa - 0 kPa on 6120 - 6320 tractors
1400 kPa - 0 kPa on 6420 - 6820 tractors
1750 kPa - 0 kPa on 6920 tractors

Transmission system pressure		
6120 - 6320	6420 - 6820	6920
1200 kPa (12 bar; 174 psi)	1400 kPa (14 bar; 203 psi)	1750 kPa (17.5 bar; 254 psi)

OK: • Diagnosis completed.
• Type of error indicates a loose contact, GO TO: Circuit/harness test for enable pressure sending unit (B105); see Technical Manual, Section 245, Group EPC.

211 EPC 43

NOT OK: Check system pressure, GO TO 4.

– – –1/1

❹ Checking system pressure

Check system pressure. See Reference 255-15-004.

OK: GO TO 5.

NOT OK: Adjust system pressure. See Reference 255-15-014.

– – –1/1

❺ Checking the direction clutch/brake

Perform the pressure test at the direction clutch/brake with the engine running, the range shift lever in neutral and the reverse drive lever in the relevant direction (i.e. the direction to be checked).

For the test, see:
• Reference 255-15-008, PowrQuad Transmission—Checking Pressure at Forward Clutch.
• Reference 255-15-009, PowrQuad Transmission—Checking Pressure at Reverse Brake.

OK: Replace the enable pressure sending unit and carry out an operational test.

NOT OK: Recondition as required and carry out an operational test.

– – –1/1

JDL 298885.31 — Control Unit Memory Capacity Exceeded

Use the following diagnostic procedure for this JDL diagnostic trouble code: JDLink System Check

Additional References:

Operation: Reference 245-JDL-200 , JDLink - Theory of Operation.

Electrical information: Reference 210-15-001, General References - Summary.

For circuit diagram see: Reference 240-10-038, SE30-JDLink Control Unit

For component location and pin arrangement see:

Reference 240-26-411, W41 — JDLink Wiring Harness.

NOTE: Take note of the processing procedures of Diagnostic Trouble Codes before starting the diagnosis, see Reference 245-05-002, Accessing Addresses and Diagnostic Trouble Codes.

LX26156,000010B –19–02OCT02–1/1

❶ **Preliminary test**	*NOTE: Take note of the processing procedures of diagnostic trouble codes before starting the diagnosis, see Reference 245-05-002, Accessing the Addresses and Diagnostic Trouble Codes.*	**OK:** Diagnostic trouble code is not active: Diagnosis completed. **NOT OK:** Diagnostic trouble code is active (code is regenerated after it has been deleted and the ignition switched ON/OFF): Replace the control unit (SFA). – – –1/1

SFA 000639.13 — 29-bit CAN BUS, High Error Rate

Diagnostic trouble code SFA 000639.13 does not necessarily have any real meaning. It is often stored by accident when the main switch (ignition key) is switched on or off too quickly. Pay attention to this diagnostic trouble code only if the front axle and/or cab suspension is not operating properly. Diagnostic trouble code SFA 000639.13 is saved when the control unit for the suspension of the TLS front axle and the cab (SFA) recognizes a high error rate in the incoming CAN BUS messages. This diagnostic trouble code triggers the alarm level: “Information”.

LX25546,00003CC –19–01APR02–1/1

Diagnostics

The following are possible causes:

- A general 29-bit CAN BUS problem.
  - – If other diagnostic trouble codes from other control units are saved that indicate a problem in the 29-bit CAN BUS: Diagnostic trouble code BIF 000639.02 takes priority.
- Defective CAN BUS screen:
  - – Defective fuse F04/13 (voltage supply for 29-bit CAN BUS screen).
  - – Terminating resistors A14 and/or A15 defective.
  - – Defective screen lines (cable +930 and/or -932).
  - – Voltage supply line (cable 994 and 050) of the screen lines defective.
  - – Defective/bad voltage supply ground connection via ground point XGND4 to XGND43.
- Defective 29-bit CAN BUS connection to the SFA control unit (cable +934 and/or -935).
- 29-bit CAN BUS malfunction caused by strong electromagnetic influences.

Additional references:

- Electrical information: Reference 210-15-001, General References - Summary.

- Reference 245-20-001, Data BUS Systems — Summary of References.

– – –1/1

❷ **Checking the 5-volt power supply**	Access address SFA 10: **SFA 10 –– Voltage, 5-volt power supply for SFA components—Specification** 5-volt power supply:—Minimum voltage ..... 4.75 volts Maximum voltage ..... 5.25 volts	**OK:** • Diagnosis completed. • Type of error indicates a loose contact, GO TO: Circuit/harness test for cab position sensor (B110); see Section 245, Group SFA in the Technical Manual. **NOT OK:** GO TO: Circuit/harness test for cab position sensor (B110); see Section 245, Group SFA in the Technical Manual.

– – –1/1

SFA 324074.04 — Power Supply to Cab Position Sensor, Grounded or Open Circuit

Diagnostic trouble code SFA 324074.04 is saved when power supply to the cab position sensor is measured at the control unit as being below 4.75 volts. This indicates that the position sensor circuit is open or grounded. This diagnostic trouble code triggers the alarm level: “CAUTION”.

LX25546,00003ED –19–01APR02–1/1

Diagnostics

The following are possible causes:

- Defective control lever potentiometer 1 (S91).
- Defective signal lead (lead 751):
  – Open, shorted or grounded circuit.
- Defective power supply between the SIC and control lever 1 switch/potentiometer (S91):
  – Open or shorted circuit at the ground lead (cable 741).
  – Open circuit at positive lead (cable 733).

Additional references:

- Electrical information: Reference 210-15-001, General References - Summary.
- Reference 245-SIC-001, Calibration and Input Addresses for Selective Control Valves (E-SCV and E-ICV)
- Reference 245-SIC-200, Theory of Operation, E-SCV / E-ICV Controller
- “Electrical actuation of selective control valves (E-SCV)” (6120-6620)
- “Electrical actuation of selective control valves (E-SCV)” (6620-6920)

– – –1/1

❶ **Preliminary test**	*NOTE: Take note of the processing procedures of diagnostic trouble codes before starting the diagnosis, see Reference 245-05-002, Accessing the Addresses and Diagnostic Trouble Codes.*	**OK:** Diagnostic trouble code is not active: Diagnosis completed. **NOT OK:** Diagnostic trouble code is active: GO TO 2.

– – –1/1

❸ **Checking the charging system**	• Check alternator, refer to "Alternator Checks" Section 240, Group 15. • Check battery, refer to "Battery Checks", Section 240, Group 15.	**OK:** Check all relevant connectors of the system voltage circuit (SIC operating voltage) for bad, loose, widened or corroded contacts. **NOT OK:** Repair as needed and carry out an operational test.

– – –1/1

❹ **Checking power supply to E-SCV Nr.2 stepper motor**	See: Circuit/harness test for E-SCV no.2 stepper motor (M37), power supply.	**OK:** Replace the stepper motor and carry out an operational check. **NOT OK:** Repair as needed and carry out an operational test.

– – –1/1

SIC 334170.00 — E-SCV No.2, Stepper Motor, Power Supply Too High

Diagnostic trouble code SIC 334170.00 is saved if the system voltage (battery voltage) is more than 16 volts at the stepper motor of E-SCV no.2. The diagnostic trouble code triggers the alarm level: “Information”.

LX25546,0000444 –19–01SEP01–1/1

Diagnostics

NOTE: The following is a possible cause:

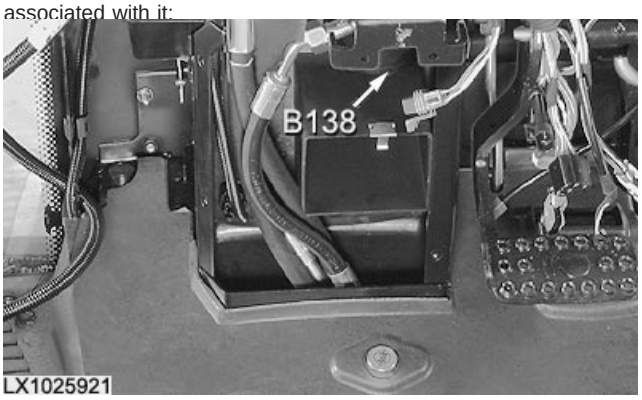
- *Defective regulator at the alternator.*

Additional references:

- Electrical information: Reference 210-15-001, General References - Summary.
- Reference 245-SIC-200, Theory of Operation, controller for E-SCVs and E-ICVs.

– – –1/1

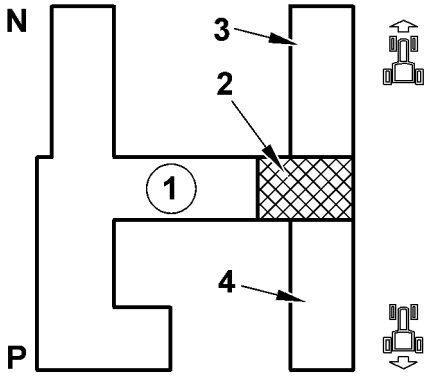
❷ **Checking the controller identification circuit (lead 728)**	Most wiring harness problems are caused by connector problems (contacts loose/bad/slid back) and/or bad ground connections. Before a detailed circuit check is performed and in the case of occasional circuit problems (loose contacts), all components of the respective circuit must be checked. For circuit diagram see: • Reference 240-10-030, SE21-Electronic Actuation of SCVs. For component location and pin arrangement see SIC wiring harness W16: • Reference 240-26-004, Wiring Harnesses for 6120, 6220, 6320, 6420 and 6520 Tractors with PowrQuad Plus Transmission and Stage I Engine to 97/68/EC — Summary of References. • Reference 240-26-005, Wiring Harnesses for 6320, 6420 and 6520 Tractors with AutoQuad Transmission and Stage I Engine to 97/68/EC — Summary of References. • Reference 240-26-002, Wiring Harnesses for 6420S, 6620, 6820, 6920 and 6920S Tractors with PowrQuad Plus or AutoQuad Transmissions and Stage I Engine to 97/68/EC — Summary of References. • Reference 240-26-003, Wiring Harnesses for Tractors with AutoPowr/IVT Transmission and Stage I Engine to 97/68/EC — Summary of References. • Reference 240-26-501, Wiring Harnesses for Tractors with PowrQuad Plus or AutoQuad Transmissions and Stage II Engine to 97/68/EC — Summary of References. • Reference 240-26-502, Wiring Harnesses for Tractors with AutoPowr/IVT Transmission and Stage II Engine to 97/68/EC — Summary of References	**OK:** Diagnosis completed. **NOT OK:** Repair as needed and carry out an operational test. – – –1/1

❸ **Initial component test**	Perform a visual inspection of steering input device SID 1 and of the connector associated with it:  LX1025921 –UN–07OCT03 *Steering input device (SID)* **B138—Steering input device (SID)** ❒ Check for signs of damage or dirt. ❒ Check the electrical connections for bad, loose, widened, slid-back or corroded contacts; also check the lines.	**OK:** If there are no visible signs of damage, GO TO 4. **NOT OK:** Recondition the circuit, sub-assemblies or contacts as required and do an Operational Check for Steering Input Device (B138), see 245-SSU. – – –1/1
❹ **Checking the circuit**	Do a Circuit/Harness Test for Steering Input Device (B138), see 245-SSU.	**OK:** GO TO 5. **NOT OK:** Recondition as required and do an Operational Check for Steering Input Device (B138), see 245-SSU. – – –1/1
❺ **Additional checks and assessment of intermittent faults**	Type of error indicates a loose contact: • Before doing a check of the connections, see summary of wiring layout in Circuit/Harness Test for Steering Input Device (B138) in 245-SSU. • For back-up, see also additional references for circuit checks: – Reference 245-SSU-100, Test Procedure in the Case of Occasional SSU Circuit Problems (SSU Beep Mode). – Reference 210-15-046, Troubleshooting Unsolved Problems.	**OK:** Diagnosis completed. **NOT OK:** Recondition as required and do an Operational Check for Steering Input Device (B138), see 245-SSU. – – –1/1

❷ Check the hydrostatic speed sender

CAUTION: During this test, do NOT move the reverse drive lever in the ranges for forward or reverse travel, as this will cause the tractor to move.

- Start the engine.
- Access addresses TCU010 and TCU 46, or template TCU906 - Hydrostatic speed sender (B62).
- Do this check with the engine running and the reverse drive lever in its position for power zero: The displayed hydrostatic speed (negative rotation) should be the same as the set engine speed:



LX1025965 –UN–30OCT03

Ranges of the reverse drive lever

1—Reverse drive lever
2—Power zero
3—Forward travel
4—Reverse travel

- Set engine speed at 1000 rpm:

TCU 46 –– Speed and direction of rotation, hydrostatic speed sending unit (B62)—Specification

Display showing an engine speed of
1000 rpm:—Speed ..... - 1000 rpm

- The display of channels 1 and 2 should alternate between “0” and “1”:

TCU 010 –– Status, hydrostatic speed sender (B62)—Specification

Signal from channel 1 present:—Status X1X
Signal from channel 2 present:—Status XX1

OK: • Diagnosis completed.

• Type of error indicates a loose contact, GO TO: Circuit/harness test for hydrostatic speed sender (B62); see Section 245, Group TCU in the Technical manual.

NOT OK: GO TO: Circuit/harness test for hydrostatic speed sender (B62); see Section 245, Group TCU in the Technical manual.

– – –1/1

Diagnostics

NOTE: The following are possible causes:

- *A defective solenoid valve (C1).*
- *A shorted circuit at the ground lead (cable 656).*

Additional references:

- Electrical information: Reference 210-15-001, General References - Summary.

- "AutoPowr/IVT Transmission, Input Housing — Reconditioning (Summary of References)" on 6420 and 6620 tractors (Repair Manual, Section 53, Group 10).

- "AutoPowr/IVT Transmission, Input Housing — Reconditioning (Summary of References)" on 6820 and 6920 tractors (Repair Manual, Section 53, Group 10).

- Reference 245-TCU-200, Theory of Operation (Transmission Control Unit).

- Reference 253-20-001, AutoPowr/IVT Transmission — Operation (Summary of References).

– – –1/1

❶ **Preliminary test**	*NOTE: Take note of the processing procedures of diagnostic trouble codes before starting the diagnosis, see Reference 245-05-002, Accessing Addresses and Diagnostic Trouble Codes.*	**OK:** Diagnostic trouble code is not active: Diagnosis completed. **NOT OK:** Diagnostic trouble code is active (tractor's function is impaired), GO TO: Circuit/harness test for C1 solenoid valve; see Section 245, Group TCU in the Technical manual.

– – –1/1

TCU 304114.03 — C2 Solenoid Valve, Shorted Circuit

Diagnostic trouble code TCU 304114.03 is stored if the transmission control unit registers resistance and voltage at the solenoid valve that does not correspond with the switch status of the C2 range clutch. This indicates a short to the power supply (battery voltage) in the solenoid's circuit. The diagnostic trouble code triggers the alarm level: "CAUTION".

LX12234,0000BDB –19–01APR02–1/1

❶ **Preliminary test**	*NOTE: Take note of the processing procedures of diagnostic trouble codes before starting the diagnosis, see Reference 245-05-002, Accessing Addresses and Diagnostic Trouble Codes.*	**OK:** Diagnostic trouble code is not active: Diagnosis completed. **NOT OK:** Diagnostic trouble code is active: GO TO 2. – – –1/1

❷ **Checking the filter by-pass valve (cold-weather starting)**	• Start the engine. • Access addresses TCU 05 and TCU 21 (oil temperature shown in °C) or template TCU 900 - Transmission Oil Circuit for AutoPowr/IVT Transmission. • Do this test while the engine is off and again when the engine is on (with speed set at 1800 rpm): **TCU 05 –– Status, switch at filter by-pass valve (cold-weather starting) (B87)—Specification** Engine off (switch is OPEN and under zero-pressure):—Status ..... 0XX Engine running (switch is OPEN):—Status when oil temperature is below +5 °C (41 °F) ..... 0XX Engine running (switch is CLOSED when pressurized):—Status when oil temperature is over +30 °C, 86° F..... 1XX	**OK:** • Diagnosis completed. • Type of error indicates a loose contact: GO TO 4. **NOT OK:** GO TO 3. – – –1/1
❸ **Checking system pressure**	• Access address TCU 05 or template TCU 900 - Transmission Oil Circuit for AutoPowr/IVT Transmission. • Do this test while the engine is running (with speed set at 1800 rpm): **TCU 05 –– Status, transmission oil pressure switch (S74)—Specification** Engine running (switch is CLOSED):—Status X0X	**OK:** GO TO 4. **NOT OK:** See procedure for diagnostic trouble code TCU 304177.01, Section 211, Group TCU. – – –1/1
❹ **Checking the circuit of the switch (B87) for the filter by-pass valve (cold-weather starting)**	See: Circuit/harness test for switch on filter by-pass valve (cold-weather starting) (B87); see Section 245, Group TCU in the Technical manual.	**OK:** GO TO 5. **NOT OK:** Repair as needed and carry out an operational test. – – –1/1

Diagnostics

The following are possible causes:

- A defect at the signal leads of channel 1 (cable 296) or channel 2 (cable 295).
  – A defective signal lead from channel 1 (cable 296) produces additional UIC diagnostic trouble codes (UIC 305032.04 or UIC 305033.03 takes priority).
- A defective accelerator pedal potentiometer (B79).

Additional references:

- Electrical information: Reference 210-15-001, General References - Summary.

- “Speed Control Linkage (Summary of References)” on 6420 and 6620 tractors (Repair Manual, Section 30, Group 05).

- “Speed Control Linkage (Summary of References)” on 6820 and 6920 tractors (Repair Manual, Section 30, Group 05).

- Reference 245-UIC-200, Theory of Operation (User Interface Controller).

- Reference 253-20-001, AutoPowr/IVT Transmission — Operation (Summary of References).

– – –1/1

❶ **Preliminary test**	**1.1** *NOTE: Take note of the processing procedures of diagnostic trouble codes before starting the diagnosis, see Reference 245-05-002, Accessing the Addresses and Diagnostic Trouble Codes.* **1.2** Priority diagnostic trouble codes must be processed first.	**OK:** Diagnostic trouble code is not active: Diagnosis completed. **NOT OK:** Diagnostic trouble code is active and no priority diagnostic codes exist: GO TO 2.

– – –1/1

UIC 305062.31 — Tractor in "Come Home" Mode - INFORMATION FOR OPERATOR: Release the Clutch Pedal

Diagnostic trouble code UIC 305062.31 is generated when the "Come-Home" mode is active (connector K201 plugged into the "COME HOME" position). The operator is informed that he should release the clutch pedal to gain access to the next stage of the come-home function. This diagnostic trouble code is not stored in the controller's error memory. It is intended only as information for the operator; it triggers the alarm level: "Information".

LX12234,0000B78 –19–01AUG01–1/1

UIC 305063.31 — Tractor in "Come Home" Mode - INFORMATION FOR OPERATOR: Move Reverse Drive Lever To Neutral or Park Position

Diagnostic trouble code UIC 305063.31 is generated when the "Come-Home" mode is active (connector K201 plugged into the "COME HOME" position). The operator is informed that he should move the revere drive lever to its neutral or park position to gain access to the next stage of the come-home function. This diagnostic trouble code is not stored in the controller's error memory. It is intended only as information for the operator; it triggers the alarm level: "Information".

LX12234,0000B79 –19–01AUG01–1/1

UIC 305064.31 — Tractor in "Come Home" Mode - INFORMATION FOR OPERATOR: Depress the Clutch Pedal Fully

Diagnostic trouble code UIC 305064.31 is generated when the "Come-Home" mode is active (connector K201 plugged into the "COME HOME" position). The operator is informed that he should depress the clutch pedal fully to gain access to the next stage of the come-home function. This diagnostic trouble code is not stored in the controller's error memory. It is intended only as information for the operator; it triggers the alarm level: "Information".

LX12234,0000B7A –19–01AUG01–1/1

UIC 305065.31 — Tractor in "Come Home" Mode - INFORMATION FOR OPERATOR: Select a Direction of Travel

Diagnostic trouble code UIC 305065.31 is generated when the "Come-Home" mode is active (connector K201 plugged into the "COME HOME" position). The operator is informed that he should select a direction of travel to gain access to the next stage of the come-home function. This diagnostic trouble code is not stored in the controller's error memory. It is intended only as information for the operator; it triggers the alarm level: "Information".

LX12234,0000B7B –19–01AUG01–1/1

UIC 305208.02 — Internal Transmission Power Supply (VPS), Shorted Circuit

Diagnostic trouble code UIC 305208.02 is generated if the UIC detects 12 volts at the monitor input of the internal transmission power supply (VPS1) during its initialization phase (self-check after ignition is switched on). This diagnostic trouble code is not stored in the controller's memory but it does trigger the alarm level: "Information".

LX12234,0000BA6 –19–01NOV03–1/1

Diagnostics

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❶ **Preliminary test**	*NOTE: Take note of the processing procedures of diagnostic trouble codes before starting the diagnosis, see Reference 245-05-002, Accessing the Addresses and Diagnostic Trouble Codes.*	**OK:** Diagnostic trouble code is not active: Diagnosis completed. **NOT OK:** Diagnostic trouble code is active (code is regenerated after it has been deleted and the ignition switched ON/OFF): GO TO 2.

– – –1/1

❷ **Checking internal transmission power supply (VPS)**	Engine OFF, ignition ON. • Access address UIC 11. **UIC 11 –– Status, power supply (cable 652) for transmission enable relay K02/1— Specification** Internal transmission power supply (VPS) present:—Status X1X	**OK:** GO TO 3. **NOT OK:** GO TO: Circuit/harness test for transmission enable signal from relay K02/1 and clutch pedal switch S72; see Technical Manual, Section 245, Group TCU.

– – –1/1

Problem with PowrQuad Transmission

Symptoms:

- Clutch problem.
- Problem with forward/reverse modulation.
- Problem with gear and/or range shift.
- Park lock does not engage/disengage.

LX12234,0000C63 –19–17APR02–1/1

Diagnostics

Additional references:

- Reference 255-20-001, PowrQuad, PowrQuad Plus and AutoQuad Transmission—Summary of References

- Reference 255-15-002, PowrQuad Transmission—Test Ports

For information on how to repair, see
• “PowrQuad Transmission Shift Unit—Reconditioning (Summary of References)” for 6120-6620 tractors. • Reference 55-10-001, PowrQuad, PowrQuad Plus and AutoQuad Transmissions—Summary of References for 6120-6620 tractors. • “PowrQuad Transmission Shift Units—Reconditioning (Summary of References)” for 6820-6920 tractors. • Reference 55-10-001, PowrQuad, PowrQuad Plus and AutoQuad Trasnmissions—Summary of References for 6820-6920 tractors.

– – –1/1

❶ **Accessing diagnostic trouble codes**	*NOTE: Diagnosing the trouble codes associated with this observable symptom may allow it to be rectified; for this reason, diagnose these codes first.* *NOTE: Take note of the processing procedures of diagnostic trouble codes before starting the diagnosis, see Reference 245-05-002, Accessing Addresses and Diagnostic Trouble Codes.*	**OK:** For information on how to process the relevant diagnostic trouble codes, see Section 211. **NOT OK:** If no diagnostic trouble code associated with the symptom is stored, GO TO 2.

– – –1/1

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