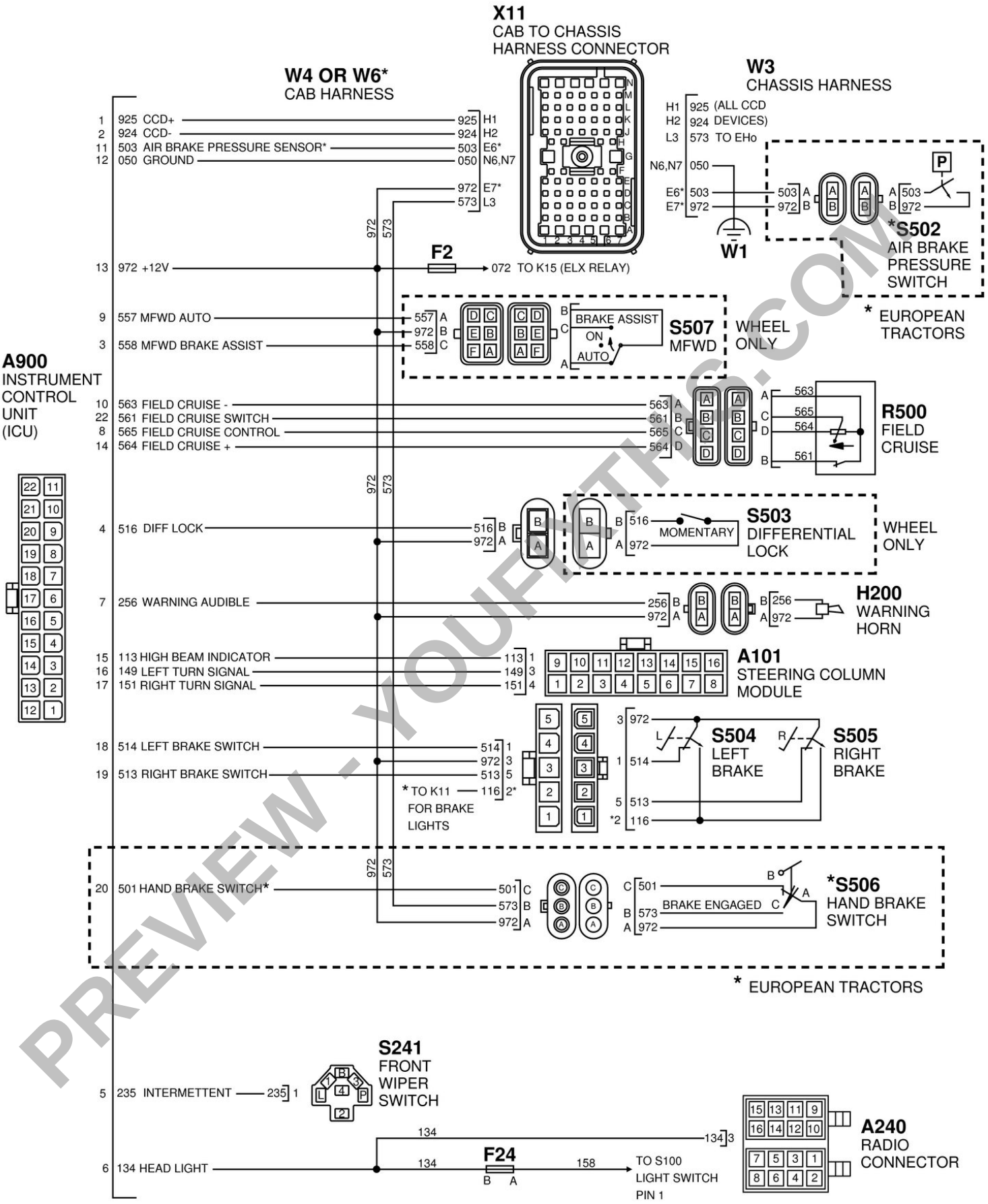
Reference 245-ICU-301, ICU Wiring Diagram (902001-)



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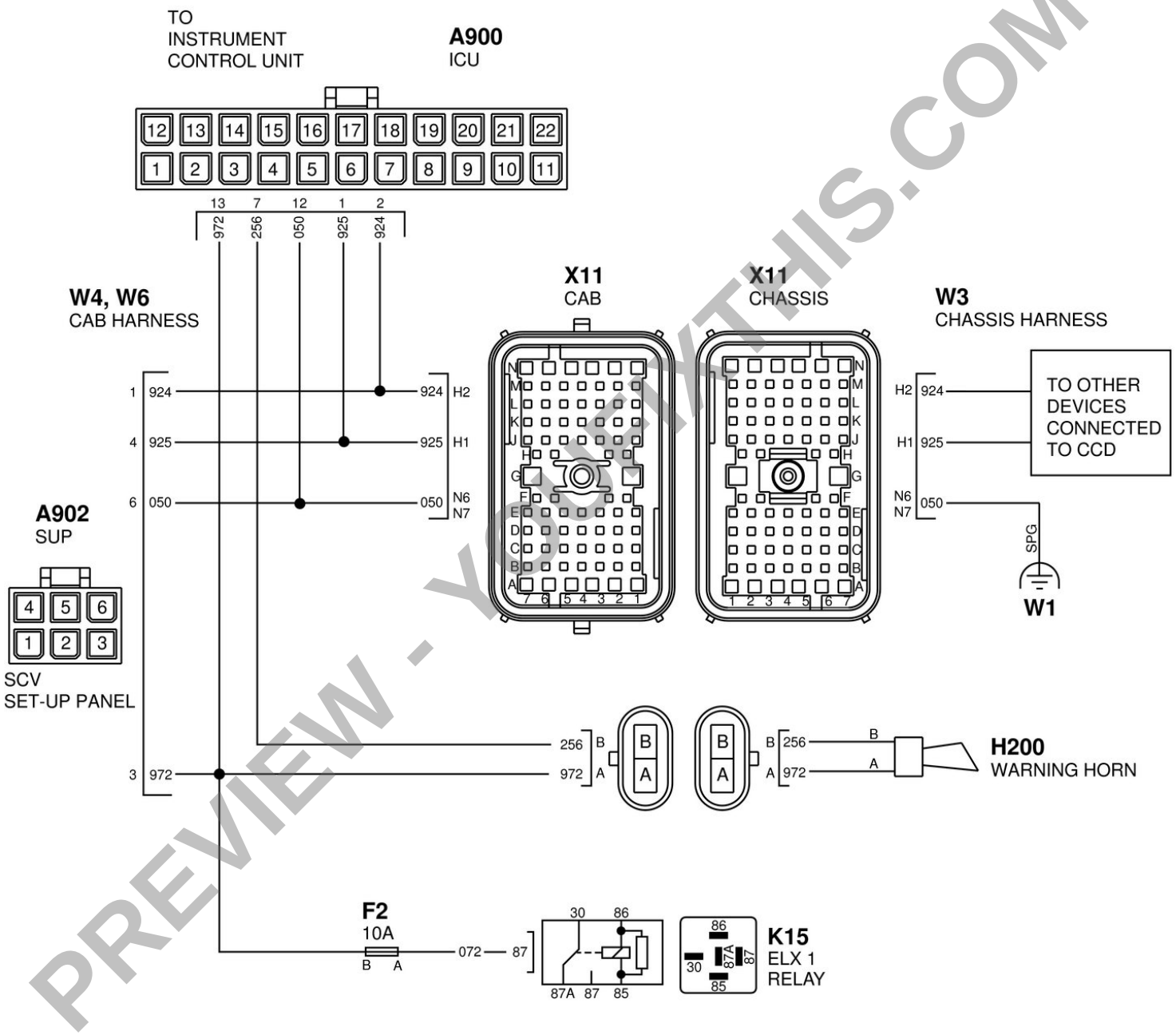
ICU Wiring Diagram

LEGEND:

A101 Steering Column Module
A240 Radio Connector
A900 Instrument Control Unit (ICU)

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Reference 245-SUP-300, SUP Wiring Diagram



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SUP Wiring Diagram

LEGEND:
A900 ICU
A902 SUP

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CCU 019- Hydraulic Oil Temperature Low

11

CCU 019 is stored if the throttle position commands an engine speed above 1550 rpm when the hydraulic oil temperature is -18°C (0°F) or colder. The Service Alert, Hydraulic System and Temperature Function indicators will flash and the warning horn (H200) will beep five times.

Service Code Diagnosis

→NOTE:

Additional References:

- **Hydraulic Oil Temperature Sensor Circuit Theory (See Reference 245-CCU-210 .)**
- **CCU Wiring Diagram (-902000) (See Reference 245-CCU-300 .)**
- **CCU Wiring Diagram (902001-) (See Reference 245-CCU-301 .)**
- **ICU Wiring Diagram (-902000)) (See Reference 245-ICU-300 .)**
- **ICU Wiring Diagram (902001-) (See Reference 245-ICU-301 .)**
- **ECU Wiring Diagram (-902000) (See Reference 245-ECU-300 .)**
- **ECU Wiring Diagram (902001-) (See Reference 245-ECU-301 .)**
- **General References List (See Reference 210-15-001 .)**

(1) Ambient Temperature Considerations

Action:

→NOTE:

Recall, Record and Clear Codes before proceeding. (See Reference 245-05-001 .)

If the ambient temperature is so low that a hydraulic oil temperature of -18°C (0°F) is a reasonable expectation, then the code is valid and the oil should be heated. If the ambient temperature is too high for a hydraulic oil temperature of -18°C (0°F), then a sensor / circuit problem is indicated.

Result:

YES: Ambient temperature is low enough for this code. GO TO **(2)** .

NO: Ambient temperature is too high for this code. GO TO **(3)** .

(2) Heating Hydraulic Oil

Action:

AccessCCU address 33 and perform Hydraulic Oil Temperature test to monitor oil temperature.

(See**CCU Addresses** , Reference 245-CCU-001 .)

(See Reference 245-05-002 , Access Control Unit Addresses.)

The reading is displayed in °C only, it cannot be changed to °F.

Perform**Heating Hydraulic Oil** Procedure. (See Reference 270-15-100 .)

Heat oil to at least 38°C (100°F).

Result:

YES: Hydraulic oil temperature is 38°C (100°F) or greater. Diagnosis complete.

(3) Hydraulic Oil Temperature Sensor / Circuit Check

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Action:

AccessPCU address 07 and perform Transmission Reverse Relay Status Test.

(See**PCU Addresses** , Reference 245-PCU-001 .)

(See Reference 245-05-002 , Access Control Unit Addresses.)

Item	Measurement	Specification
PCU Address 07		
Transmission Reverse Relay Status	Shift Lever In Reverse	XX1
	Shift Lever Not In Reverse	XX0

Result:

YES: Made necessary repairs. Diagnosis complete.

PCU 040- Forward Enable Circuit Fault

29

PCU 040 is stored when a FORWARD gear is commanded but the forward enable input is not active from the Forward Enable Relay (K21). The transmission controller will default to NEUTRAL and the corner post will display “N”. The operator must move the shift lever to NEUTRAL before attempting to go back into gear.

Service Code Diagnosis

→NOTE:

Additional References:

- **List of Powershift (PST) Drawings (See Reference 250-25-001 .)**
- **Powershift Transmission Theory of Operation Contents (See Reference 250-20-001 .)**
- **CCU Wiring Diagram (-902000) (See Reference 245-CCU-300 .)**
- **CCU Wiring Diagram (902001-) (See Reference 245-CCU-301 .)**
- **ACU Wiring Diagram (See Reference 245-ACU-300 .)**
- **General References List (See Reference 210-15-001 .)**

(1) Transmission Forward Relay Check

Action:

AccessPCU address 06 and perform Transmission Forward Relay Status Test.

(See**PCU Addresses** , Reference 245-PCU-001 .)

(See Reference 245-05-002 , Access Control Unit Addresses.)

Item	Measurement	Specification
PCU Address 06		
Transmission Forward Relay Status	Shift Lever In Forward	XX1
	Shift Lever Not In Forward	XX0

Result:

YES: Made necessary repairs. Diagnosis complete.

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Transmission System Diagnosis

Transmission System Diagnosis

→NOTE:

This procedure provides a transmission system diagnosis. Copy or print the Transmission Record Sheet noted in the Additional References below to record test results as you proceed.

Service Code diagnosis may resolve problem and should be performed first. Consult with customer for resolution of unrelated service codes.

Additional References:

- **Powershift Transmission Record Sheet (See Reference 250-15-200 .)**
- **Powershift Transmission Theory of Operation Contents (See Reference 250-20-001 .)**
- **Recall, Record, and Clear Codes (See Reference 245-05-001 .)**
- **Service Code Descriptions (See Reference 245-05-003 .)**
- **Control Unit Addresses (See Reference 245-05-004 .)**
- **General References List (See Reference 210-15-001 .)**

(1) Preliminary Check

Action:

Perform following checks with Engine OFF.

- Ask Operator:
  - How is machine performing?
  - When does it malfunction?
  - In what applications?
- Check maintenance records for:
  - Proper service intervals
  - Unusual, frequent or similar failures
- Check for:
  - Disconnected, broken or binding shift lever
  - Kinked or damaged oil lines
  - Other mechanical failures
- Check hydraulic oil condition for:
  - Oil reservoir level low
  - Oil has burned odor or discolored (overheated oil)
  - Oil is milky or dirty (water or dirt in oil)
  - Oil has metallic particles (mechanical failure)
- Check for external leaks
  - Broken pipes, hoses or loose connections
  - Leaking O-rings or seals
  - Cracked housing

Result:

YES: GO TO **(2)** .

NO: Make repairs as necessary. GO TO **(2)** .

(2) Recall, Record and Clear Codes

Action:

Service Code diagnosis may resolve problem and should be performed first. Consult with customer for resolution of unrelated codes.

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CAUTION:

Avoid bodily injury. NEVER use a jumper wire to bridge across Starter Relay or starter solenoid. Tractor could start in gear.

Tighten starting motor (M001) to starting motor mounts to ensure a good ground.

Disconnect positive battery cable circuit (BAT) from starting motor. Check circuit for 12 volts.

Disconnect circuit 309 from starting motor. Hold key switch (S001) in START position. Check circuit for 12 volts.

→NOTE:

(See Reference 240-25-002 , SE1- Starting, Power Supply and Charging Circuits.)

Result:

YES:12 volts indicated on both BAT circuit and circuit 309. Replace starting motor. GO TO **(2)** .

NO: No voltage indicated on BAT circuit. Repair as necessary. GO TO **(2)** .

NO: No voltage indicated from starter relay to starting motor on circuit 309. Repair as necessary. GO TO **(2)** .

(9) Fuse F18 Check

Action:

Remove and check fuse F18. Replace if bad. Check for 12 volts on pin (A) of fuse F18 Terminal.

Operate key switch (S001). If fuse (F18) fails again, there is a short downstream from key switch.

If fuse fails without operating the key switch, the short is between terminal (B) of fuse (F18) terminal and the key switch.

Result:

YES:12 volts on pin (A). Fuse does not fail. Repair circuit 012 as necessary. GO TO **(2)** .

NO: Fuse fails when key switch is operated. Check for short on circuits 309, 311, and 301. Repair as necessary. GO TO **(2)** .

NO: Fuse fails when replaced, without key switch operation. Check for short on circuit 012. Repair as necessary. GO TO **(2)** .

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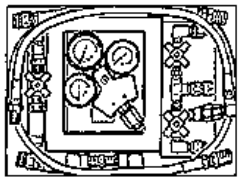
LEGEND:

JT05474	Gauge w/Quick Coupler, 0-2000 kPa (0-300 psi)
JT05497	Hose Assembly, 3048 mm (120") Long

Hydraulic Testing

Master Hydraulic Test Kit

JT07115



LEGEND:

JT03437	90° Coupler
JT07118	Two Valve Manifold
JT07119	Hoses

JT07115

Hydraulic Pressure/Flow Testing

Test Procedure

1. Open left valve on manifold and close the right valve.
2. Start tractor and set engine speed to 1000 rpm.
3. Place shift lever in PARK. Do NOT check “PS” system pressure with the park brake pressure applied to element. Hydraulic pressure is removed with shift lever in PARK.
4. Record “PS” system pressure.
5. Close valve on left side and open right side valve.
6. Record pressure from park brake hydraulic circuit.

Item	Measurement	Specification
Park Brake Pressure		
System vs. Park Brake Pressure	Maximum Pressure Differential	100 kPa (1.0 bar) (15 psi)

Return to diagnosis in progress.

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