Link Product / Engine

Product	Market Product	Engine
T4.105, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx]	North America	F5DFL413L*A001
T4.105, less cab, with mechanical or power shuttle transmission [ZxJY5xxxx]	Europe	F5DFL413L*A001
T4.105, less cab, with mechanical or power shuttle transmission [ZxJY5xxxx]	International Region	F5DFL413L*A001
T4.105, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx]	Europe	F5DFL413L*A001
T4.105, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx]	International Region	F5DFL413L*A001
T4.105, with cab, with hi-lo transmission [ZxJY5xxxx]	Europe	F5DFL413L*A001
T4.105, with cab, with hi-lo transmission [ZxJY5xxxx]	International Region	F5DFL413L*A001
T4.85, less cab, with mechanical or power shuttle transmission [ZxJY5xxxx]	North America	F5DFL413J*A001
T4.85, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx]	North America	F5DFL413J*A001
T4.85, less cab, with mechanical or power shuttle transmission [ZxJY5xxxx]	International Region	F5DFL413J*A001

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Transmission control levers
Special tools Tool locking the main gear lever in the neutral position. 3
Special tools Tool locking the range selection lever in the neutral position. 4

FUNCTIONAL DATA

Transmission control levers
Detailed view range and gear engagement flexible tie-rod assembly diagram 5

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(a). Oil from the power steering pump to the pressure regulating valve.

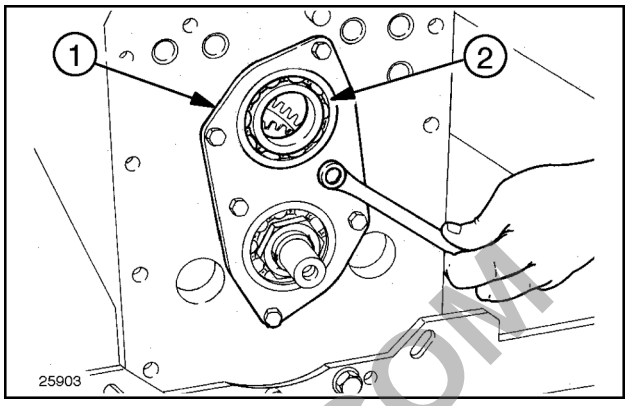
(b). Oil from the power steering pump to the pressure regulating valve.

(c). Discharge oil

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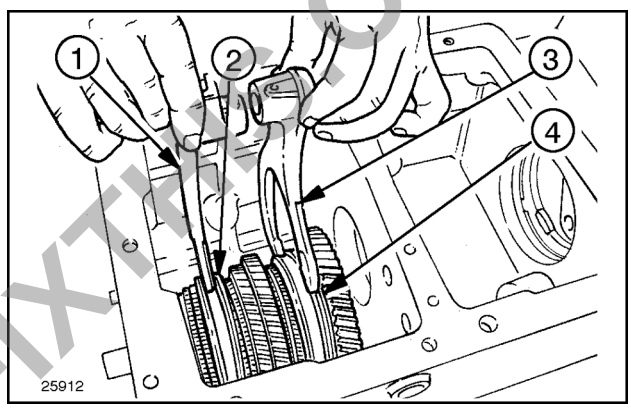
4. Fit the bearing **(2)** in its seat on the casing (front side) and lock it with the plate **(1)**.



SEZ27CAP1A-77 3

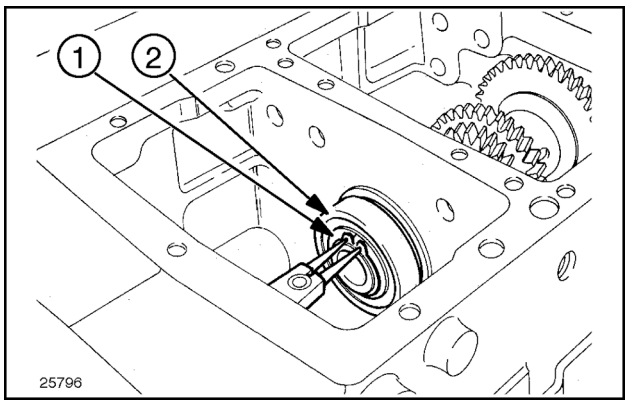
5. Insert the gear forks (**(1)** and **(3)**) on the synchronizer sliding rings (**(2)** and **(4)**).

6. Assemble the bevel pinion with all parts and carry out the adjustments described in **Bevel gear - Adjust (27.106)**.



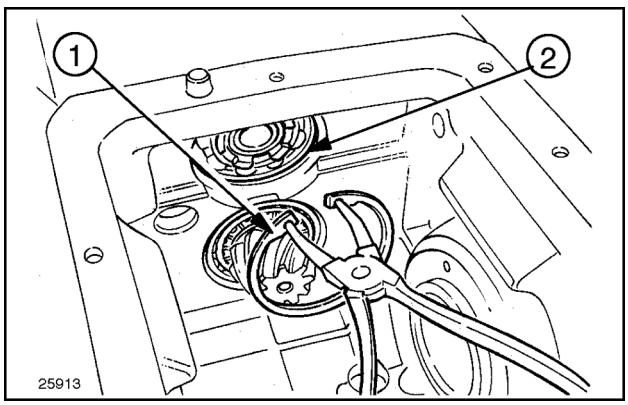
SEZ27CAP1A-78 4

7. Assemble the gearbox driving shaft, with all parts, and the adjusting shim (see adjustment in **Transmission shaft - Adjust (21.140)**), then position the bearing **(2)** and secure with the circlip **(1)**.



SEZ27CAP1A-79 5

8. Insert the final drive driving shaft, from the rear, fit the bearing **(2)** in the seat and secure with the circlip **(1)**.

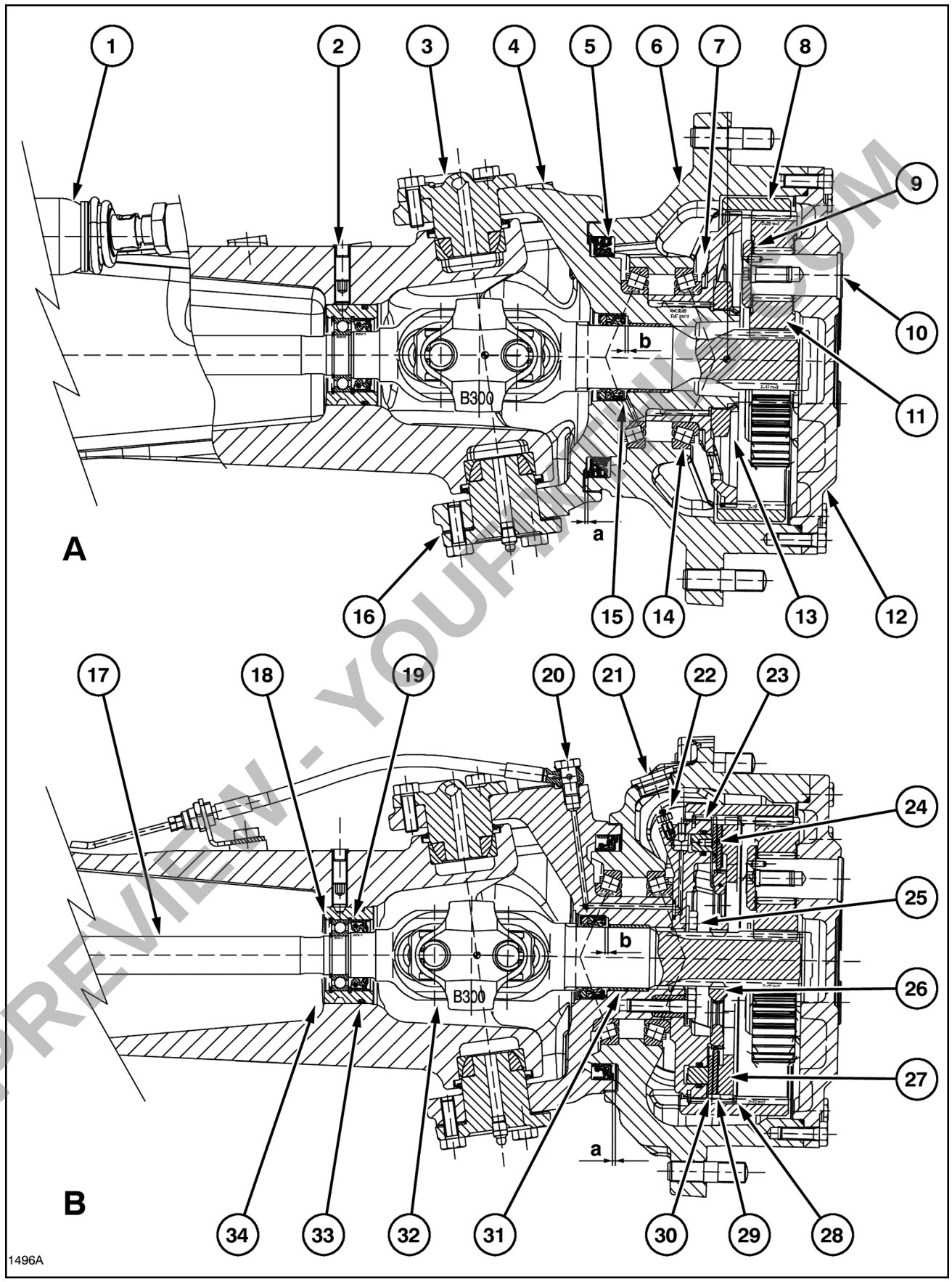


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Axle shaft - Sectional view



SEZ25CAP1H-3 1

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Rear electro-hydraulic control - Static description

DESCRIPTION AND OPERATION OF 540 RPM PTO WITH ELECTROHYDRAULIC ENGAGEMENT

NOTE: *(Standard equipment for all ISO and NORTH AMERICA version models, see* ***Power Take-Off (PTO) speed rate selector - Sectional view (31.104)****)*

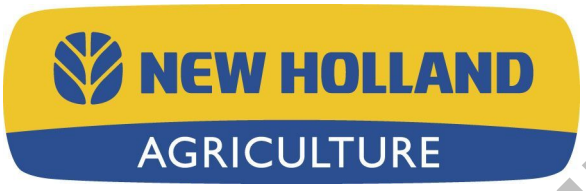
This version is driven by the flywheel via the shaft **(4)** and clutch **(5)**.
With regard to the description, operation and hydraulic diagrams, see **540-750-1000 RPM** PTO with electro-hydraulic engagement described in points (a, **Rear electro-hydraulic control - Static description (31.104)**) bearing in mind that, with this version, the speed cannot be selected by means of the lever as described.

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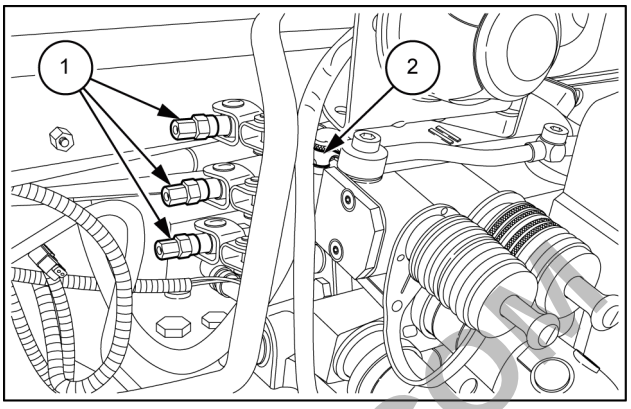
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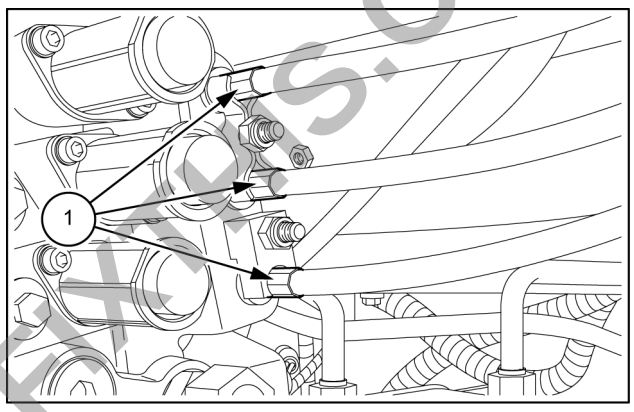
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5. Disconnect: the **(1)** remote valve control tie-rods and the remote valve blow-by **(2)** recovery pipes.



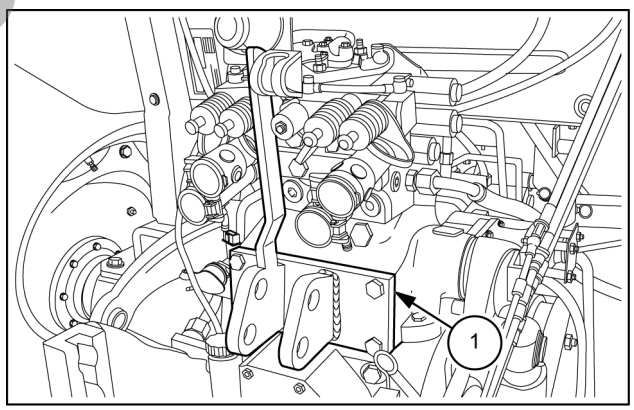
MOIL12TR00818AA 5

6. Unscrew the retaining bolts and detach the remote valve **(1)**control tie-rods



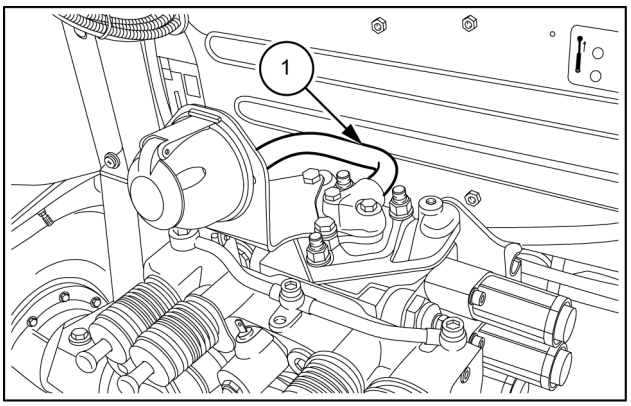
MOIL12TR00823AA 6

7. Unscrew the retaining bolts and remove the **(1)** top link support bracket.



MOIL12TR00819AA 7

8. Unscrew the relevant retaining bolts and remove the pressure pipe **(1)** .



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Power steering control valve - Install

- Position and secure the hydrostatic steering spool valve to the steering column.
- Connect the piping to the hydrostatic steering spool valve.
- Position and secure the rear guard of the steering column.
- Position and secure the ignition switch and connect the relevant electrical connections.
- Position and secure the control panel and connect the electrical connections.
- Position and secure the power shuttle control lever.
- Position and secure the grey shroud.
- Position and secure the black shroud.
- Position and secure the steering wheel, fit the cover with the logo on the steering wheel.
- Carry out operation Cab with platform unit, installation only (see **Cab and platform - Install (90.150)**).

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Electrical schematic frame 14 TRANSMISSION CONTROL 2 60
T4.85, with cab, with hi-lo transmission [ZxJY5xxxx], T4.95, with cab, with hi-lo transmission [ZxJY5xxxx], T4.105, with cab, with hi-lo transmission [ZxJY5xxxx]

Electrical schematic frame 15 ADIC 1 62
T4.85, with cab, with hi-lo transmission [ZxJY5xxxx], T4.95, with cab, with hi-lo transmission [ZxJY5xxxx], T4.105, with cab, with hi-lo transmission [ZxJY5xxxx]

Electrical schematic frame 16 ADIC 2 64
T4.85, with cab, with hi-lo transmission [ZxJY5xxxx], T4.95, with cab, with hi-lo transmission [ZxJY5xxxx], T4.105, with cab, with hi-lo transmission [ZxJY5xxxx]

Electrical schematic frame 17 ENGINE 2 66
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Electrical schematic frame 20 ROOF FUSES AND RELAYS 72
T4.85, with cab, with hi-lo transmission [ZxJY5xxxx], T4.95, with cab, with hi-lo transmission [ZxJY5xxxx], T4.105, with cab, with hi-lo transmission [ZxJY5xxxx]

Electrical schematic frame 21 FLASHER 74
T4.85, with cab, with hi-lo transmission [ZxJY5xxxx], T4.95, with cab, with hi-lo transmission [ZxJY5xxxx], T4.105, with cab, with hi-lo transmission [ZxJY5xxxx]

Electrical schematic frame 23 TRAILER BRAKE 76
T4.85, with cab, with hi-lo transmission [ZxJY5xxxx], T4.95, with cab, with hi-lo transmission [ZxJY5xxxx], T4.105, with cab, with hi-lo transmission [ZxJY5xxxx]

Electrical schematic frame 24 EFH 2 78
T4.85, with cab, with hi-lo transmission [ZxJY5xxxx], T4.95, with cab, with hi-lo transmission [ZxJY5xxxx], T4.105, with cab, with hi-lo transmission [ZxJY5xxxx]

Electrical schematic frame 01 BATTERY, ALTERNATOR, PDU 80
T4.85, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle, T4.95, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle, T4.105, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle

Electrical schematic frame 02 FUSES 82
T4.85, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle, T4.95, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle, T4.105, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle

Electrical schematic frame 03 EDC 84
T4.85, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle, T4.95, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle, T4.105, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle

Electrical schematic frame 04 PTO, 4WD, DIFFERENTIAL LOCK 86
T4.85, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle, T4.95, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle, T4.105, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle

Electrical schematic frame 05 AIR CONDITIONED 88
T4.85, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle, T4.95, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle, T4.105, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle

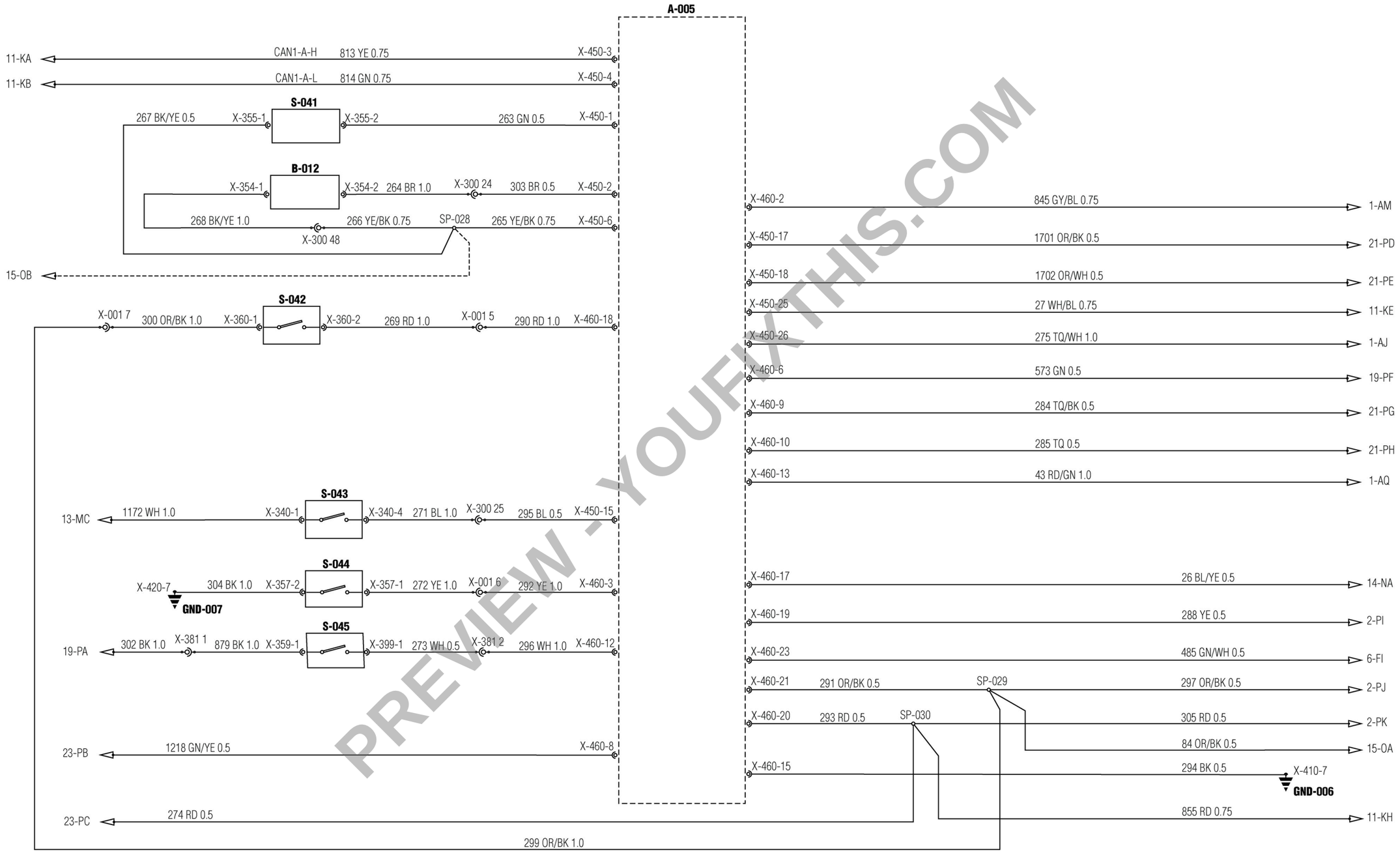
Electrical schematic frame 06 WORKLAMPS 90
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Electrical schematic frame 07 LIGHTING 92
T4.85, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle, T4.95, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle, T4.105, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle

Electrical schematic frame 08 WIPERS, BEACON 94

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Harnesses and connectors - Electrical schematic frame 16 ADIC 2

T4.85, less cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle, T4.95, less cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle, T4.105, less cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Power Shuttle

A-005	**ADIC** (advance digital instrument cluster)
B-012	Fuel level
GND-006	Ground
GND-007	Ground
S-055	Handbrake switch
S-041	Seat switch
S-042	Brake fluid level switch
S-043	Differential lock switch
S-044	Engine intake air filter switch
S-050	Park brake

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Harnesses and connectors - Electrical schematic frame 05 AIR CONDITIONED

T4.85, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Mechanical, T4.95, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Mechanical, T4.105, with cab, with mechanical or power shuttle transmission [ZxJY5xxxx] Transmission - Mechanical

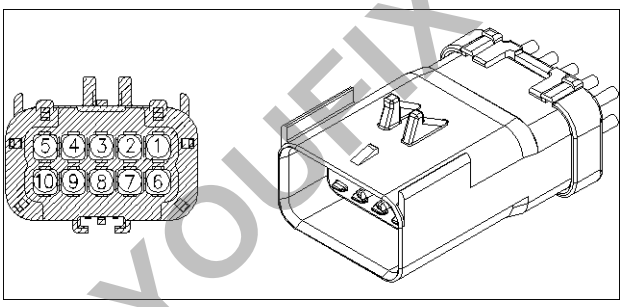
A-003	Fuse and relay panel
A-004	Pillar fuse and relay panel
A-010	**A/C** (air conditioned) control unit
B-006	Antifreeze thermostat
E-001	**A/C** (air conditioned) switch led
F-023	LH Fan 3rd speed, **15 A**
F-024	RH Fan 3rd speed, **15 A**
F-010	**A/C** (air conditioned) control unit fuse, **5 A**
F-037	LH Fan 4th speed, **20 A**
F-039	RH Fan 4th speed, **20 A**
F-031	**40 A** socket, **40 A**
GND-003	Ground
GND-005	Ground
GND-006	Ground
GND-007	Ground
K-004	LH Fan 3rd speed
K-006	RH Fan 3rd speed
K-025	**A/C** (air conditioned) compressor
K-007	LH Fan 4th speed
K-005	RH Fan 4th speed
M-002	LH Fan motor
M-003	RH Fan motor
M-004	**A/C** (air conditioned) Tap actuator
R-001	**A/C** (air conditioned) temp potentiometer
R-007	Electric fan speed LH
R-008	Electric fan speed RH
S-012	Fan switch
S-013	**A/C** (air conditioned) switch
S-014	**A/C** (air conditioned) filter pressure switch
Y-007	**A/C** (air conditioned) compressor

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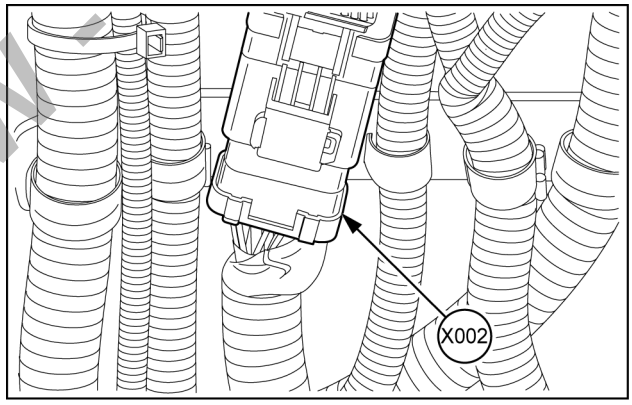
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CONNECTOR X-002 - PDU split

CONNECTOR X-002 - PDU split			
PIN NUMBER	**WIRE NUMBER**	**CIRCUIT REFERENCE**	**ELECTRICAL SCHEMATIC FRAME**
1	1 (BK)	X-056A X-024Roof cable connection	
2	27 (BL/YE)	X-001Engine Cab split X-002 PDU split	
3	28 (BK/WH)	X-937EDC17 CONNECTOR 2 X-002PDU split	
4	29 (RD/YE)	X-937EDC17 CONNECTOR 2 X-002PDU split	
5	30 (RD/YE)	X-937EDC17 CONNECTOR 2 X-002PDU split	
6	31 (RD/BK)	X-937EDC17 CONNECTOR 2 X-002PDU split	
7	33 (BL)	X-002PDU split X-001Engine Cab split	
8	41 (RD/YE)	X-002PDU split X-011STARTER MOTOR 50	
9	574 (GN/WH)	SP-064 X-002PDU split	
10	-	-	



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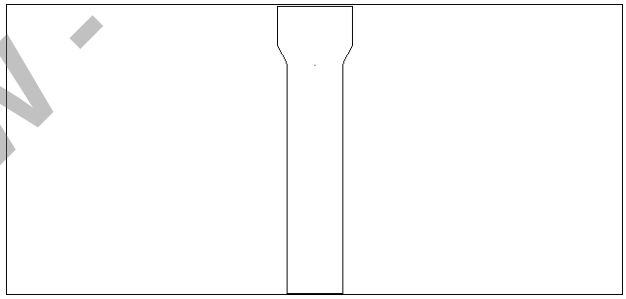
CONNECTOR X-120 - Modulo Relays R9-R16 + Fuses			
PIN NUMBER	**WIRE NUMBER**	**CIRCUIT REFERENCE**	**PANEL WIRING DIAGRAM**
R14_30	49 (RD/GN) 756 (BR/GY)	X-120Modulo Relays R9-R16 + Fuses SP-020 X-140Modulo Relays R17-R24 + Fuses SP-119	**Harnesses and connectors - Electrical schematic frame 02 (55.100)** **Harnesses and connectors - Electrical schematic frame 05 (55.100)** **Harnesses and connectors - Electrical schematic frame 10 (55.100)** **Harnesses and connectors - Electrical schematic frame 17 (55.100)** **Harnesses and connectors - Electrical schematic frame 19 (55.100)** **Harnesses and connectors - Electrical schematic frame 23 (55.100)**
R14_85	122 (BR) 760 (YE/GN)	SP-069 X-120Modulo Relays R9-R16 + Fuses X-140Modulo Relays R17-R24 + Fuses X-086Command 3° Distributor SW	
R14_86	124 (VT) 758 (BR/GY)	SP-021 X-120Modulo Relays R9-R16 + Fuses X-140Modulo Relays R17-R24 + Fuses SP-119	
R14_87	123 (VT) 177 (YE/BL)	X-120Modulo Relays R9-R16 + Fuses SP-021 X-090Flasher X-098Main/ 7 Pole Socket Extension	
R15_30	120 (GY/YE)	Y-001Ev. 3° distributor X-006Connection rear diverter/main harness	
R15_85	78 (BK)	X-120Modulo Relays R9-R16 + Fuses X-410Fuse Box Ground 1	
R15_86	121 (TQ/GN)	SP-006 X-120Modulo Relays R9-R16 + Fuses	
R15_87A	157 (GY/BL) 66 (GY/BL)	X-120Modulo Relays R9-R16 + Fuses X-450ADIC CN1 X-450ADIC CN1 X-120Modulo Relays R9-R16 + Fuses	
R16_30	145 (OR) 59 (OR) 705 (GN)	X-140Modulo Relays R17-R24 + Fuses SP-018 SP-018 X-120Modulo Relays R9-R16 + Fuses SP-067 X-120Modulo Relays R9-R16 + Fuses	
R16_85	116 (BK) 129 (BK) 57 (OR/WH)	X-120Modulo Relays R9-R16 + Fuses X-410Fuse Box Ground 1 X-120Modulo Relays R9-R16 + Fuses X-410Fuse Box Ground 1 X-093LH Stop X-120Modulo Relays R9-R16 + Fuses	

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CONNECTOR X-403 - Roof Ground 1

CONNECTOR X-403 - Roof Ground 1			
PIN NUMBER	**WIRE NUMBER**	**CIRCUIT REFERENCE**	**ELECTRICAL SCHEMATIC FRAME**
2	605 (BK)	X-035Front Wiper & Washer SW Lamp X-403Roof Ground 1	
3	604 (BK)	X-403Roof Ground 1 X-037Rear Washer SW Lamp	
5	596 (BK)	X-038Rear Wiper 1 X-403Roof Ground 1	
6	509 (BK)	X-022RH Position and Indicator Lamp X-410Fuse Box Ground 1	
7	520 (BK)	X-021LH Position and Indicator Lamp X-410Fuse Box Ground 1	
10	510 (BK)	X-403Roof Ground 1 X-060LH Front Roof OPT Worklamp	
12	477 (BK)	X-058LH Front Work lamp X-403Roof Ground 1	
13	476 (BK)	X-056LH Rear Work Lamp X-403Roof Ground 1	
16	762 (BK)	X-386LH Rear SMV X-403Roof Ground 1	
22	611 (BK)	X-400Steering Column Ground X-073LH Beacon	
25	475 (BK)	X-403Roof Ground 1 X-055RH Rear Work Lamp	
30	763 (BK)	X-387RH Rear SMV X-403Roof Ground 1	
31	776 (BK)	X-306RH Roof OPT Worklamp X-403Roof Ground 1	
32	777 (BK)	X-307LH Roof OPT Worklamp X-403Roof Ground 1	

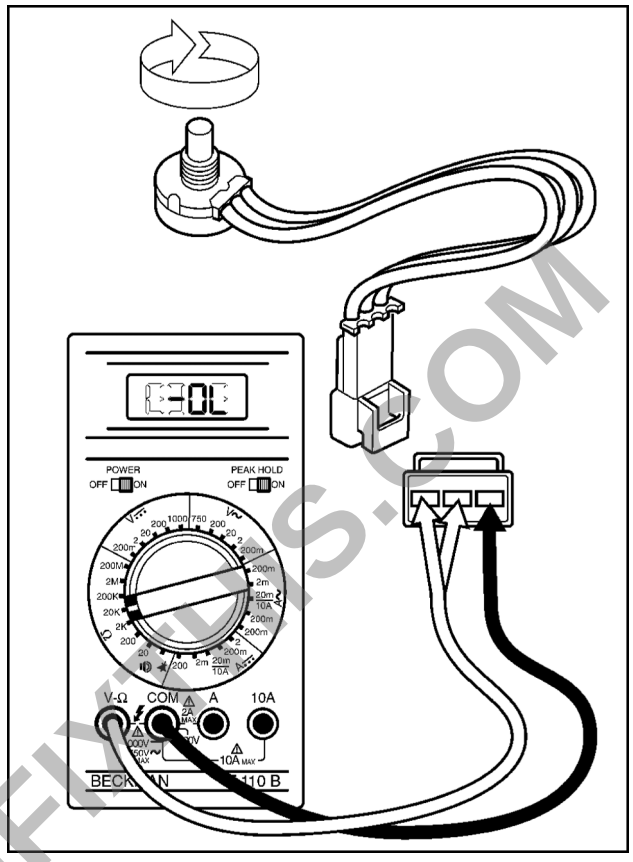


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1. Disconnect tractor part by unplugging electrical connectors to expose the part assembly connector for testing.
2. Set electrical meter to measure resistance or Ohms and insert test probes into connector terminals specified in procedure. When checking potentiometers, measure from wiper terminal to each of the other terminals while TURNING THE POT SHAFT. This will ensure no open spots escape detection. When checking rocker or rotary switches, actuate the switch while measuring for opens and shorts.
3. Compare measured values to values specified in the fault code procedures. Allow plus or minus **5 %** of range tolerance for all measurements.



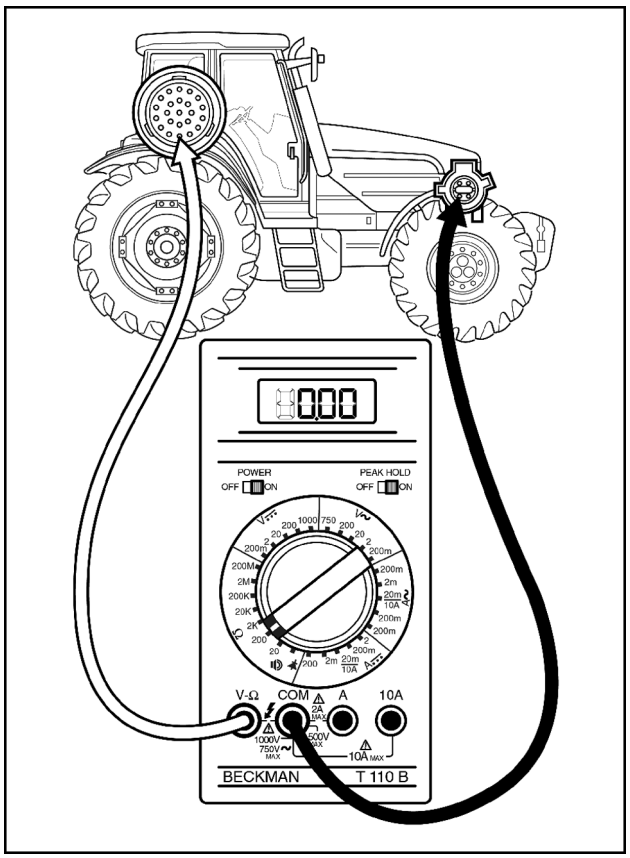
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ELECTRICAL TEST PROCEDURE 4: CONTINUITY TEST -- CHECK FOR OPEN CIRCUITS

CONDITIONS FOR PERFORMING CONTINUITY TESTS:

1.

1. Key switch OFF (sometimes disconnect battery or remove fuses).
2. Connectors at both ends of the circuit disconnected. All other connectors must be reconnected to perform test.
3. Set the meter to measure resistance (Ohms) and measure the resistance in the circuit as illustrated. Use the red meter lead to touch the connector pins, one pin at a time, and avoid contact with the case of metal connectors. Use black lead to make contact with the connector pin at the other end of the circuit. Avoid contact with other pins in the connector and the connector case, if it is metal.
4. Determine if measured resistance falls within guidelines specified in the procedure. If the resistance is no more than **3 - 4 Ω**, the circuit is continuous. More resistance usually indicates dirty or corroded terminals in connectors, and **100000 Ω** indicates an open circuit.



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[XCM (multi-function CM)] - 1013-Drop Rate Control Potentiometer Voltage Too High 549
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Temperature	Resistance Nominal Value	Resistance Min/Max. Range
115 °C (**239 °F**)	**125 ohms**	**121 - 129 ohms**
120 °C (**248 °F**)	**110 ohms**	**106 - 113 ohms**
125 °C (**257 °F**)	**97 ohms**	**93 - 100 ohms**
130 °C (**266 °F**)	**85 ohms**	**83 - 88 ohms**

A. If the resistance measurement does not approximately match the table, replace the sensor.

B. If the resistance measurement does approximately match the table, proceed to step **5**.

5. Check for ECU Voltages and Ground Continuity. Use product schematic. Place the ignition switch OFF. Remove connector **X-937** from the ECU. Place the ignition switch ON to check for voltage at the appropriate pins defined in the test table below. Place the ignition switch OFF to check for continuity at the appropriate pins defined in the test table below. Use the **0.4 mm** (**0.017 in**) diameter test probes from the Tier II (NEF) Diagnostic Repair Kit **380040185** when connecting the DMM to connector **X-937**. Make sure the DMM's test lead resistance is taken into account when making any continuity measurements.

   Important Note:
   Check and verify that the Vehicle Status is correct for each operation. Potential ECU damage could result when removing and replacing main ECU connectors if this is not followed.

Test Type	From	To	Expected Results
1. Voltage	**X-937** pin 1 wire 31 (RD/BK), pin 3 wire 30 (RD/YE), pin 5 wire 29 (RD/YE), pin 54 wire 341 (OR)	Ground (engine block)	Approx. **12 volts**
2. Continuity	**X-937** pin 2 wire 311(BK), pin 4 wire 312 (BK), pin 6 wire 313 (BK)	Ground (engine block)	Approx. **0 - 0.10 ohms**

A. If the voltages and ground paths are correct and the Boost Pressure sensor was not replaced on a prior diagnostic of this type, replace the sensor.

B. If the voltages and ground paths are correct and the Boost Pressure sensor was replaced on a prior diagnostic of this type, re-initialize the ECU as if it was blank (new) and load the appropriate data-set.

C. If the voltages and ground paths are correct and the ECU was re-initialized on a prior diagnostic of this type, replace the ECU.

D. If the voltages and ground paths are not correct, refer to schematic and determine root cause of power or continuity problem(s).

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3253-Analog digital converter (ADC) : Diagnostic fault check to report the error in voltage ratio in ADC monitoring

Control Module : ECU

Context:
The analog Digital Converter (ADC) of the engine control unit (ECU) is monitored for plausibility using redundantly read input (accelerator pedal) and test voltage inputs. If the ECU detects the ratio between **3.3 V** and **5.0 V** supply converted is not in range, this fault will occur. Try to flash the ECU correctly with the proper data set. If the error persists, replace the ECU.

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3673-Short circuit over load error for H-bridge

Control Module : ECU

Context:
The ECU had detected a short circuit in the ERG valve drive circuit.

Cause:
The ECU had detected a short circuit in the ERG valve drive circuit.

Possible failure modes:

1. Wiring shorted.
2. Faulty ECU

Solution:

1. Check for active fault codes.

   (1) Verify that the fault code is still active.
   Prior to clearing fault codes write down all fault codes, number of occurrences, and engine hours at last occurrence.

   (2) Use the Electronic Service Tool to clear all fault codes.

   (3) To check for fault codes: Start and operate machine.

   A. Fault code 3673 is not recorded again. OK to return the machine to service.

   B. Fault code 3673 is active and recorded again. Go to Step **2**.
2. Verify that the wiring and connectors are free of damage.

   (1) Inspect the **ECU** connector **X-939** and the EGR valve connector **X-964**. All connections should be secure, tight, free of corrosion, abrasion and damage.

   (2) Inspect the harness from the **ECU** connector **X-939** to the EGR valve connector **X-964**. Verify that the harness is free of damage, corrosion, abrasion and incorrect attachment.

   A. The connectors are secure and the harness is free of damage. Go to Step **3**.

   B. The connectors or the harness has damage. Repair or replace the harness or connectors as required. Return to Step **1** to confirm elimination of fault.
3. Measure the resistance of the harness to chassis ground.

   (1) Turn the key switch OFF.

   (2) Disconnect the EGR valve connector **X-964**. Disconnect the ECU connector **X-939**.

   (3) Measure the resistance between **ECU** connector **X-939** pin 50, wire 418 (GY) and **ECU** connector **X-939** pin 35, wire 408 (TQ). The resistance should be greater than **20,000 Ω** . Wiggle the harness during measurement to reveal an intermittent condition.

   A. The resistance is greater than **20,000 Ω**. Go to Step **4**.

   B. The resistance is less than **20,000 Ω**. There is a short circuit in the wiring harness. Repair or replace the harness as required. Return to Step **1** to confirm elimination of the fault.
4. Measure the resistance of the valve to chassis ground.

   (1) Turn the key switch OFF.

   (2) Disconnect the EGR valve connector **X-964**.

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3769-ECU internal: Diagnostic fault check to report 'ABE active' due to overvoltage detection

Control Module : ECU

Context:
Communication between CJ945 (power stage chips) and CY320 (power stage voltage supplier) is monitored. The engine control unit (ECU) has detected an active **ABE** wire due to overvoltage. Try to flash the ECU correctly with the proper data set. If the error persists, replace the ECU.

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INT / WE markets, power shuttle transmission with Hi-Lo, with cab
INT / WE markets, power shuttle transmission with Hi-Lo, with cab
Harnesses and connectors - Electrical schematic frame 03 (55.100-C.20.E.03)
INT / WE markets, power shuttle transmission with Hi-Lo, with cab
INT / WE markets, power shuttle transmission with Hi-Lo, with cab
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INT / WE markets, power shuttle transmission with Hi-Lo, with cab
Harnesses and connectors - Electrical schematic frame 14 (55.100-C.20.E.14)

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INT / WE markets, power shuttle transmission with Hi-Lo, with cab
Harnesses and connectors - Electrical schematic frame 14 (55.100-C.20.E.14)
INT / WE markets, power shuttle transmission, with cab
Harnesses and connectors - Electrical schematic frame 14 (55.100-C.20.E.14)
NA market, power shuttle transmission, with cab
Harnesses and connectors - Electrical schematic frame 14 (55.100-C.20.E.14)
INT / WE markets, power shuttle transmission, cabless
Harnesses and connectors - Electrical schematic frame 14 (55.100-C.20.E.14)
NA market, power shuttle transmission, cabless
Harnesses and connectors - Electrical schematic frame 14 (55.100-C.20.E.14)

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