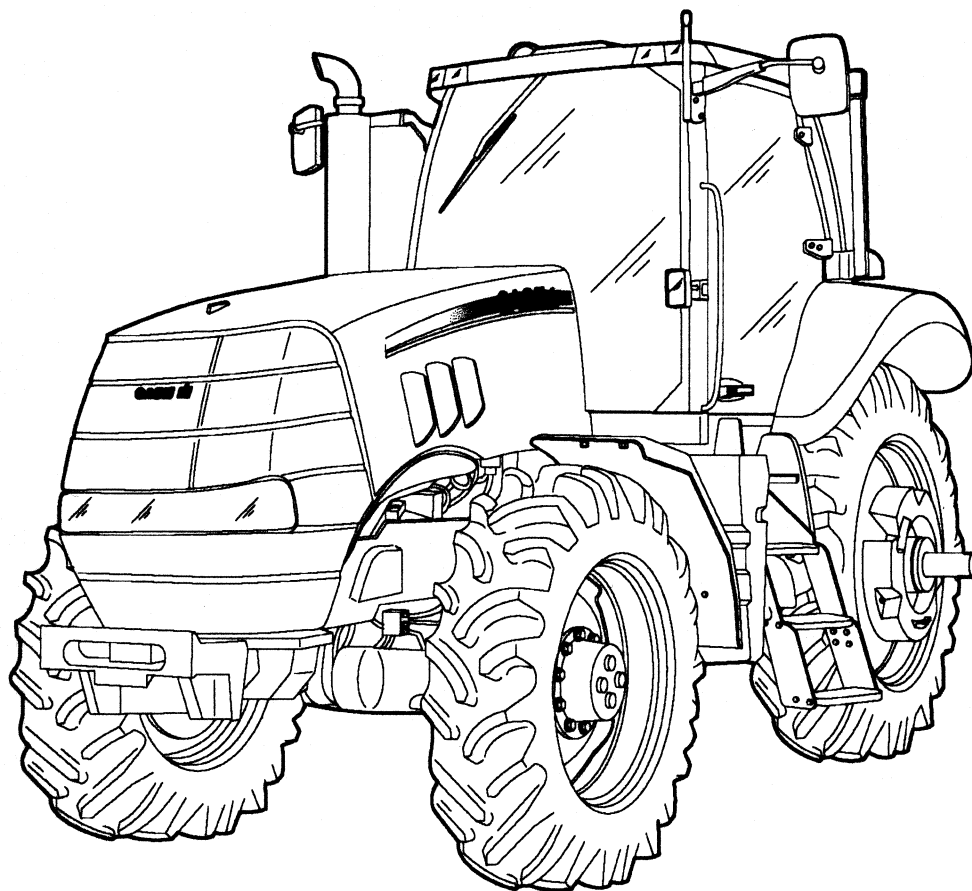




Magnum 180, 190, 210, 225 Series Tractors

Service Manual

84348230 5/2010
Replaces 84284016

CASE IH
AGRICULTURE

Contents

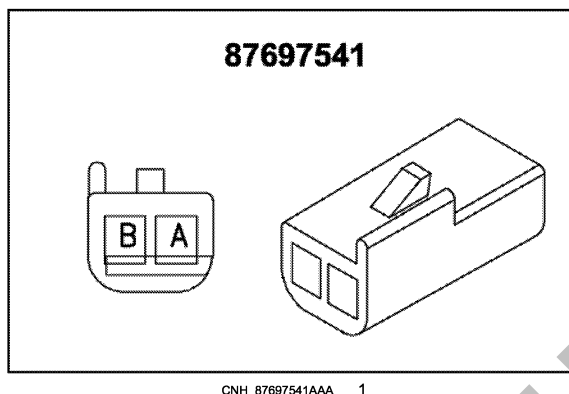
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Connector - Component diagram 05 – Connectors 50-59

Magnum 180 Full Powershift Transmission, Magnum 190 Full Powershift Transmission, Magnum 210 Full Powershift Transmission

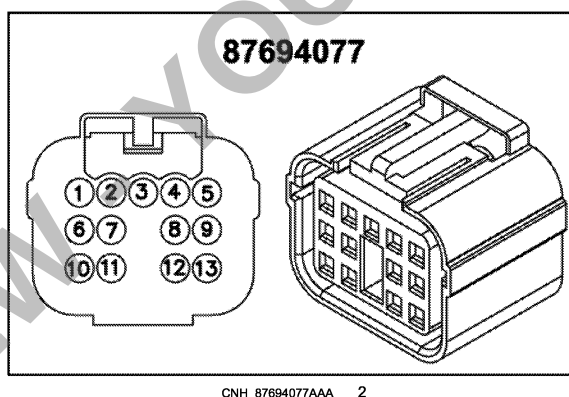
Connector 50M – Bottom of clutch switch



Schematic reference: Wiring harness - Electrical schematic frame 21 (A.30.A)

Pin/cavity number	Wire identification/color	Circuit reference
A	553B - R	FNRP SW B+ out
B	568A - T	Bottom of clutch

Connector 51M – FNR control



Schematic reference: Wiring harness - Electrical schematic frame 73 (A.30.A)

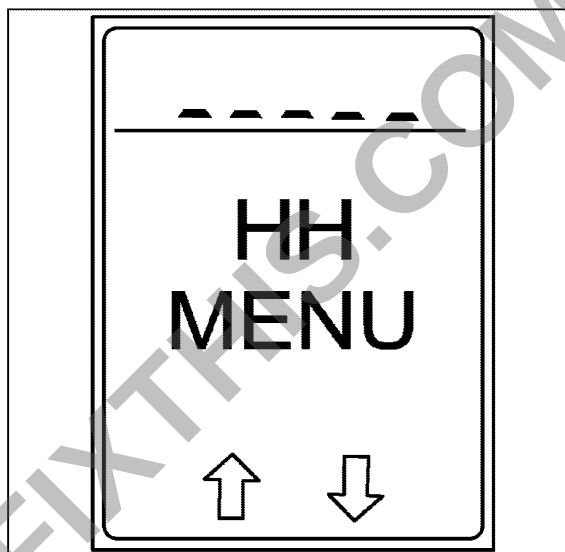
Pin/cavity number	Wire identification/color	Circuit reference
1	561B - R	FNRP 5V ref
2	551D - T	FNRP - F
3	552C - T	FNRP - R
4	313A - Y	LSD
5	314A - R	FNRP switched B+
6	315A - P	Forward or reverse
7	553F - T	FNRP SW B+ out
8	177BY - BK	Chassis ground
9	100SHM - BK	Not part
10	100SWB - R	Shuttle sw input
11	319A - Y	Neutral
12	429D - W	FNRP crank input

Control module - Dynamic description - View electronic park lock calibration values (H2)

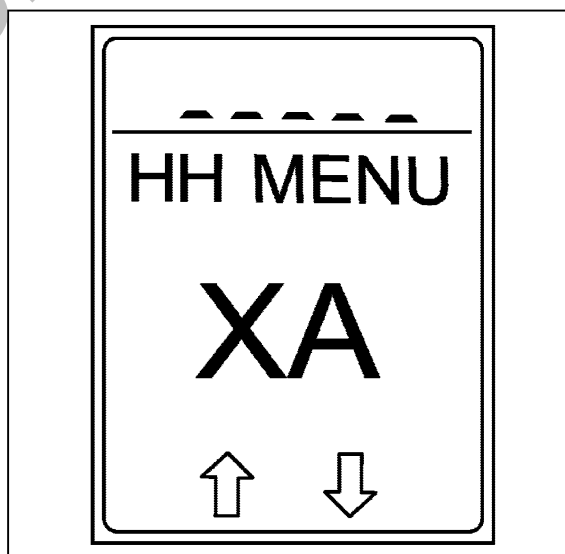
Magnum 180 Full Powershift Transmission, Magnum 190 Full Powershift Transmission, Magnum 210 Full Powershift Transmission

Use this menu to view the stored electronic park lock calibration values.

1. Press and hold the service key while starting the vehicle and then navigate to the appropriate screen with the key pad on the instrument cluster: XA module, H2 menu, electronic park lock system.
2. Press the program key  to enter the menus.



3. Use the up arrow  or down arrow  key to select the XA module. Press the program key to enter the menus.



10011-Front suspension rod pressure sensor out of range low

Magnum 180 Full Powershift Transmission, Magnum 190 Full Powershift Transmission, Magnum 210 Full Powershift Transmission

Cause:

Pressure sensor rod (DA) open circuit.

Possible failure modes:

1. Pressure sensor wiring has open circuit or wiring shorted to ground.
2. Pressure sensor failed.

Solution:

1. Visually inspect the wiring harness between the auxiliary control unit (RM) and the rod pressure sensor connector **704** for damage or loose connections.

A. No damage or loose connections found. Go to Step 6.

B. Damaged or loose connection is found. Repair or replace the problem. Clear all fault codes, and return unit to field operation.

2. Disconnect connector **704** from the rod pressure sensor. Disconnect connector **102** from the auxiliary control unit (RM).

Measure resistance between pin 2 of harness connector **705** and pin 1 of harness connector **102**.

Expected reading should be less than **1.0 Ω**.

A. Expected reading found. Go to Step 3

B. Expected reading not found. Locate and repair open circuit between the sensor and the auxiliary control unit (RM). Clear all fault codes, and return unit to field operation.

3. Measure resistance between pin 2 of harness connector **704** and chassis ground.

Expected reading is no continuity (infinite resistance or overload) .

A. Expected reading found. Go to Step 4.

B. Expected reading not found. Locate and repair short to ground between the sensor and the auxiliary control unit (RM). Clear all fault codes, and return unit to field operation.

4. Measure resistance between pin 1 of harness connector **704** and chassis ground.

Expected reading is no continuity (infinite resistance or overload) .

A. Expected reading found. Go to Step 5.

B. Expected reading not found. Locate and repair short to ground or open circuit between the sensor and splice ST-157 . Clear all fault codes, and return unit to field operation.

5. Measure resistance between pin 3 of harness connector **704** and chassis ground.

Expected reading is continuity.

A. Expected reading found. Go to Step 5.

B. Expected reading not found. Locate and repair open circuit between the sensor and splice ST-154. Clear all fault codes, and return unit to field operation.

6. Replace the rod side pressure sensor with a known good sensor.

A. Fault code re-displays. Reinstall the original sensor. Submit a concern to ASIST..

B. Fault code does not display. Return unit to field operation.

2009-Seat Switch Input - Voltage Too Low

Magnum 180, Magnum 190, Magnum 210

NOTE: When the cause of the error code has been rectified, clear the error code and test the system for normal operation.

Cause:

Possible failure modes:

1. Faulty connector
2. Faulty seat switch
3. Faulty harness
4. Faulty controller

Solution:

1. Check the seat switch in H5. Refer to controller configuration and calibration in this manual.
 - A. Turn the keystore ON. Sit in the seat, d10 should be displayed when seated. If the display changes to d10, continue to step 2
 - B. If the display does not change to d10, continue to step 3
2. Check the harness connectors in H5.
 - A. While still seated and in H5, wiggle the harness, the central control unit (RT) connectors **97** and **91** and the seat switch connector **133M**. to check for a circuit fault. If d10 is not displayed at any time an intermittent fault is present, repair or replace as required.
3. Check the seat switch.
 - A. Disconnect the seat switch connector **133M**. With the seat switch depressed, measure the resistance between the component side of connector **133M** pins 5 and 6. If the resistance indicated is not approximately **0.5K Ohms** and approximately **2.0K Ohms** with the switch released, remove and replace the seat switch.
 - B. If the seat switch is okay, continue to step 4
4. Check for +5 Volts
 - A. Turn the keystore ON. Measure the voltage between connector **133M** pin 5 (R) and ground. If the voltage indicated is not approximately **5 Volts**, repair or replace the harness as required.
 - B. If the voltage indicated is approximately **5 Volts**, continue to step 5
5. Check for an open circuit.
 - A. Turn the keystore OFF. Disconnect the controller connector **91**. Check between connector **133M** pin 5 and connector **91** pin 23. If an open circuit is indicated, repair or replace the harness as required.
 - B. If an open circuit is not indicated, continue to step 6
6. Check for an open circuit on Tan wire 303A..
 - A. Check between connector **133M** pin 6 and controller connector **97** pin 9 for continuity. If an open circuit is indicated, repair or replace the harness as required.
 - B. If the harness is okay, download the correct level of software. If the fault re-occurs, remove and replace the controller.

Wiring harness - Electrical schematic frame 20 (A.30.A.88 - C.20.E.20)

Wiring harness - Electrical schematic frame 23 (A.30.A.88 - C.20.E.23)

Wiring harness - Electrical schematic frame 51 (A.30.A.88 - C.20.E.51)

4100-Rear Remote No.1 No Control Message Received

Magnum 180 Full Powershift Transmission, Magnum 190 Full Powershift Transmission, Magnum 210 Full Powershift Transmission

NOTE: When the cause of the error code has been rectified, clear the error code and test the system for normal operation.

Cause:

Possible failure modes:

1. Faulty connector
2. Faulty harness
3. Faulty EHR valve

Solution:

1. Check the EHR valve connector **305**.
 - A. Ensure the connector is connected, not damaged, the pins are in the correct position and that the fit is tight. Repair or replace as required.
 - B. If the connector is okay, continue to step 2
2. Check for **12 Volts**.
 - A. Disconnect connector **305**. Turn the ignition switch ON. Measure the voltage between connector **305** pin 1 and ground. If the voltage indicated is not approximately **+12 Volts**, repair or replace the harness as required.
 - B. If the voltage indicated is approximately **+12 Volts**, continue to step 3
3. Check for an open circuit.
 - A. Turn the ignition switch OFF. Disconnect the bulkhead cab connector C010 **10F 10M**. Measure the resistance between connector:
305 pin 1 and C010 **10F 10M** pin 57
305 pin 2 and C010 **10F 10M** pin 25
305 pin 3 and C010 **10F 10M** pin 24
305 pin 4 and ground
If the resistance indicated is greater than **5 Ohms**, repair or replace the harness as required.
 - B. If the resistance indicated is less than **5 Ohms**, continue to step 4
4. Check for a short to ground.
 - A. Check between connector:
305 pin 1 and ground
305 pin 2 and ground
305 pin 3 and ground
If a short to ground is indicated, repair or replace the harness as required.
 - B. If the harness is okay, download the correct level of software into the EHR valve and configure the EHR valve. If the fault is still present remove, replace, and configure the EHR valve section.

Wiring harness - Electrical schematic frame 76 (A.30.A.88 - C.20.E.76)

Wiring harness - Electrical schematic frame 81 (A.30.A.88 - C.20.E.81)

Wiring harness - Electrical schematic frame 82 (A.30.A.88 - C.20.E.82)

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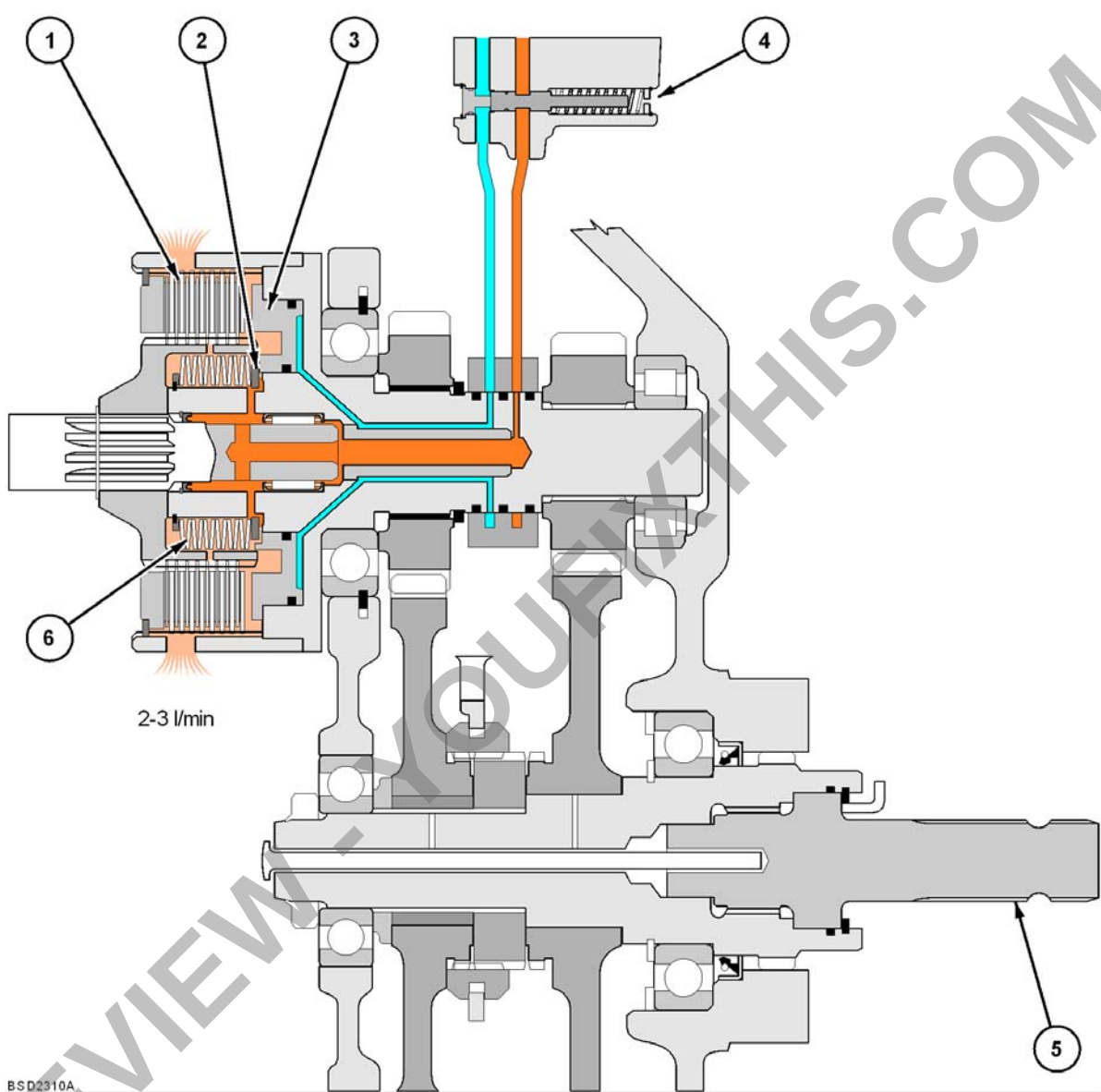
POWER TRAIN - C

TRANSMISSION Powershift - 20.E

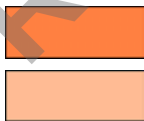
Magnum 180 Full Powershift Transmission
Magnum 190 Full Powershift Transmission
Magnum 210 Full Powershift Transmission

REAR PTO Hydraulic - Dynamic description

Magnum 180, Magnum 190, Magnum 210



PTO clutch disengaged



Lubrication circuit oil

Lubrication oil at reduced flow



Return to reservoir

- 1 Clutch plates
- 3 Piston
- 5 PTO output shaft

- 2 Washer
- 4 Lubrication valve
- 6 Belleville springs

PTO initial engagement

Engagement of the PTO is a two phase operation. When the PTO is operated, the engagement solenoid is energized and the brake solenoid disengaged. Low pressure hydraulic circuit oil flows from the solenoid and past the end of the

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AXLES, BRAKES AND STEERING - D

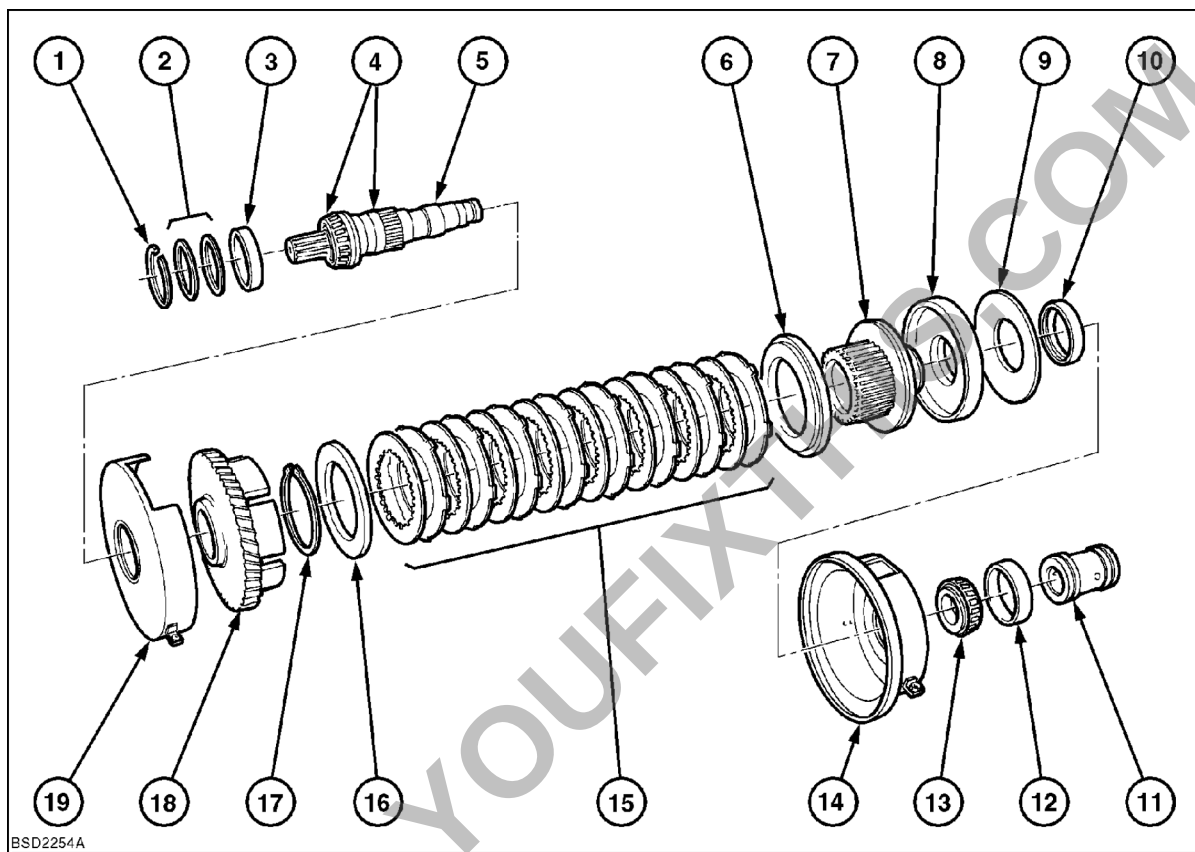
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MFD input shaft and clutch - Assemble - "M" clutch

Magnum 180, Magnum 190, Magnum 210

Prior operation:

MFD input shaft and clutch - Disassemble - "M" clutch (D.14.C)



BSD2254A 1
MFD clutch assembly

1. Snap ring	11. Sleeve (in transmission housing)
2. Shims	12. Bearing cup (in transmission housing)
3. Bearing cup	13. Bearing
4. Bearing	14. Cover
5. Output shaft	15. Clutch plates (10) and separator plates (9)
6. Spacer	16. Backing plate
7. Hub	17. Snap ring
8. Piston	18. Drive gear
9. Belleville washer	19. Cover
10. Ring nut	

USER CONTROLS AND SEAT Operator seat - Tilt

Magnum 180, Magnum 190, Magnum 210

Prior operation:

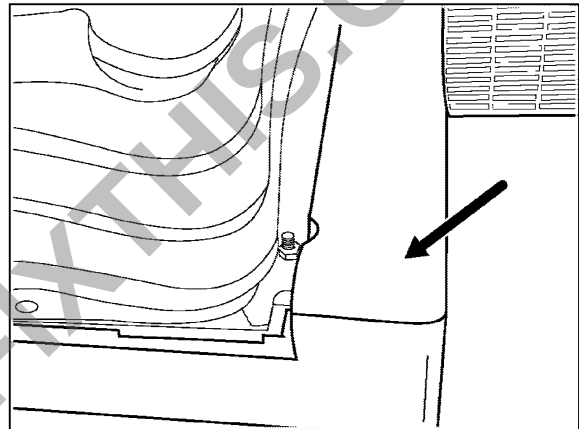
Remove the armrest console.

NOTE: This procedure applies to both the standard and automatic temperature control systems.

NOTE: The armrest console can be rested on the rear shelf or slid out the rear window and rested on the three-point hitch for better access to the HVAC box.

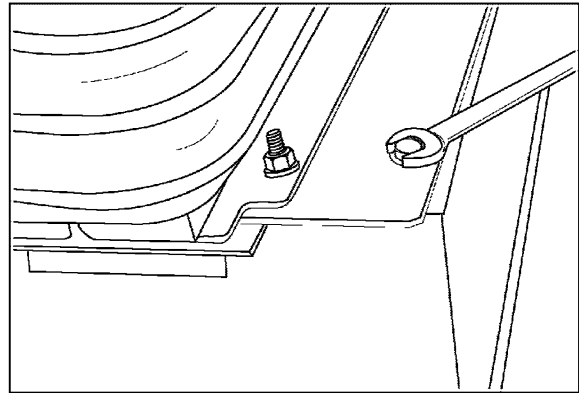
1. Tilt the steering wheel to the full upright position. Adjust the seat to the full upright and back position.
2. Remove the floor mat wrap which surrounds the seat base.

NOTE: If the return air filter covers are dislodged, be sure to reinstall later.



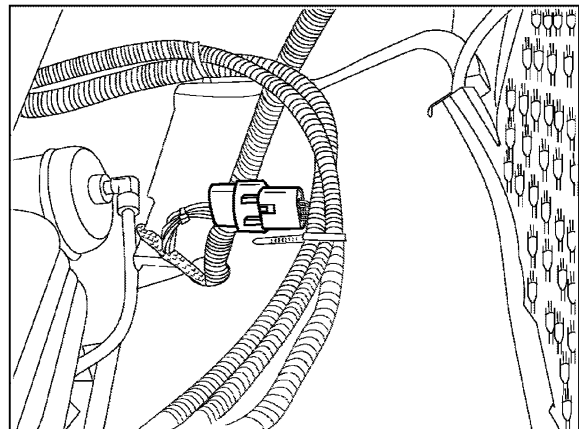
RCPH07CCH282ABC 1

3. Remove four bolts in the seat base corners.



RCPH07CCH391ABC 2

4. Disconnect the connector to the seat harness.



RCPH07CCH297ABC 3

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PREVIEW - YOUFIXTHIS.COM

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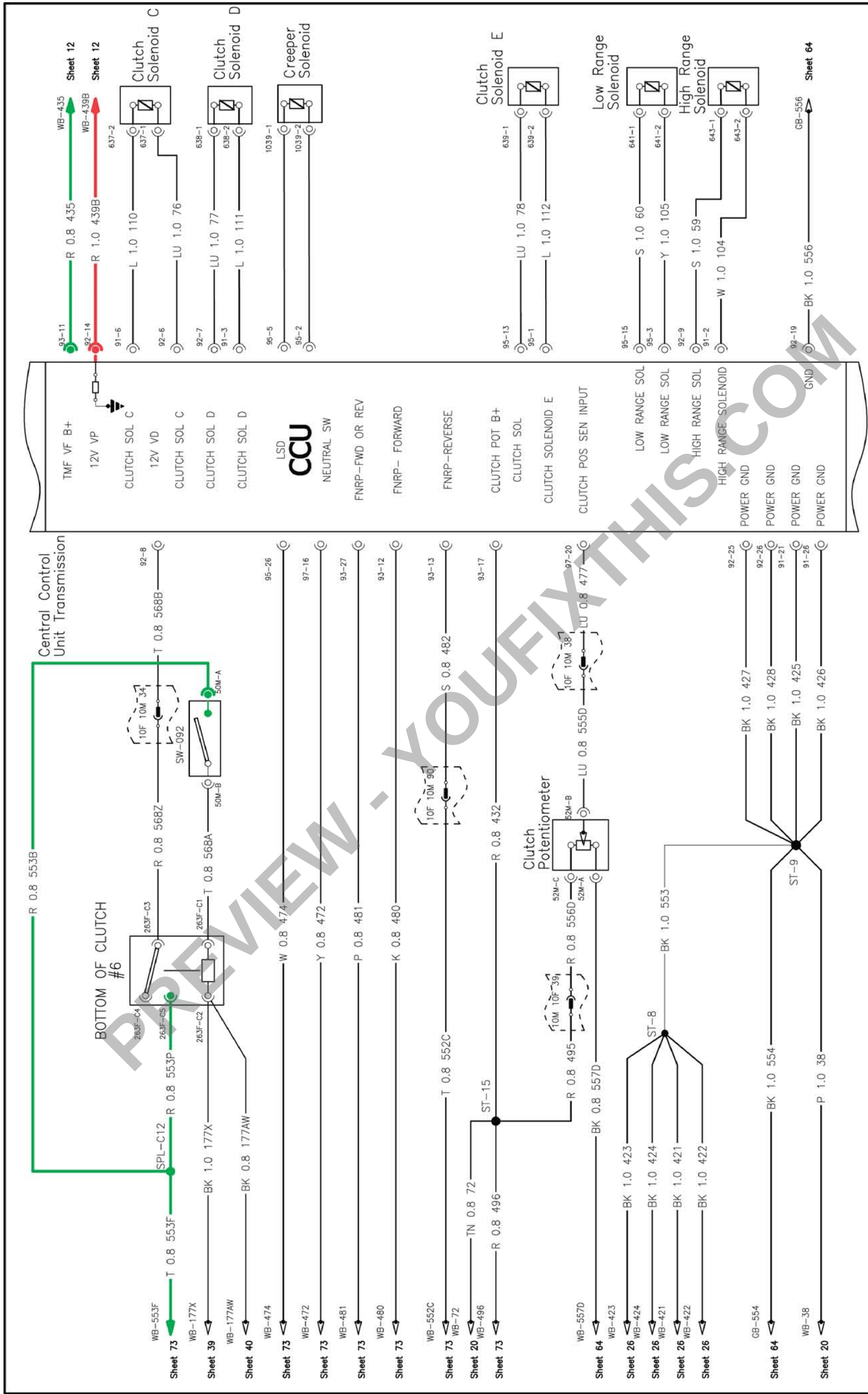
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Magnum 180 , Magnum 190 , Magnum 210 , Magnum 225 [Z9RH06000 -] CVT Transmission	

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RAC 84199552

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1054-5 Volt Reference Short To Ground

Magnum 180 Full Powershift Transmission, Magnum 190 Full Powershift Transmission, Magnum 210 Full Powershift Transmission

NOTE: When the cause of the error code has been rectified, clear the error code and test the system for normal operation.

Cause:

Possible failure modes:

1. Faulty connector
2. Faulty harness
3. Faulty controller

Solution:

1. Check for other error codes being displayed.
 - A. If any other error codes are being displayed, continue to these tests.
 - B. If no other error codes are being displayed, continue to step 2
2. Check the **+5 Volt** sensor supply reference in H9 Channel 5. Refer to electronic systems section in service manual.
 - A. If the value displayed is not approximately 48, continue to step 3
 - B. If the value displayed is approximately 48, while still in H9 Channel 5, wiggle the harness at the rockshaft potentiometer connector **267** and at central control unit (RT) connector **93** to check for an intermittent circuit. Channel 5 values will change if an intermittent circuit is detected, repair or replace as required.
3. Check for a short to ground.
 - A. Disconnect connector **93**. Check between connector **93** pin 16 and ground. If a short to ground is indicated, repair or replace the harness as required.
 - B. If the harness is okay, download the correct level of software. If the fault reoccurs, submit a concern to ASIST.

Wiring harness - Electrical schematic frame 22 (A.30.A.88 - C.20.E.22)

Wiring harness - Electrical schematic frame 23 (A.30.A.88 - C.20.E.23)

3108-Fuel metering unit short to ground

Magnum 180, Magnum 190, Magnum 210

NOTE: When the cause of the error code has been rectified, clear the error code and test the system for normal operation.

Cause:

Possible failure modes:

1. Faulty connector
2. Faulty fuel metering unit
3. Faulty harness
4. Faulty engine controller

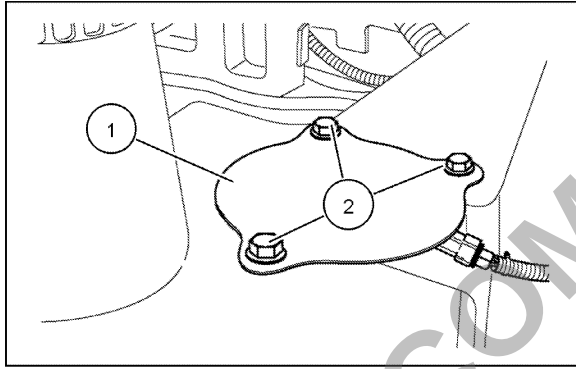
Solution:

1. Before proceeding clear the error code with the approved diagnostic equipment. Run the machine under normal conditions and retest.
 - A. If the error code is not indicated, check that the system is operating correctly.
 - B. If the error code is indicated, continue to step 2
2. Check the fuel metering unit connector **B12** and the engine controller connector **30A**.
 - A. Ensure the connectors are connected, not damaged, the pins are in the correct position and that the fit is tight. Repair or replace as required.
 - B. If the connectors are okay, continue to step 3
3. Check the fuel metering unit.
 - A. Disconnect connector **B12**. Measure the resistance between the component side of the connector **B12** pins 1 and 2. If the resistance indicated is not between **2.60 - 3.15 Ω** , remove and replace fuel metering unit.
 - B. If the fuel metering unit is okay, continue to step 4
4. Check for a short to ground.
 - A. Disconnect connector **30A**. Check between connector:
 - B12** pin 1 and ground
 - B12** pin 2 and ground
 If a short to ground is indicated, repair or replace the harness as required.
 - B. If a short to ground is not indicated, continue to step 5
5. Check for an open circuit.
 - A. Check between connector:
 - B12** pin 1 and **30A** pin 19
 - B12** pin 2 and **30A** pin 49
 If an open circuit is indicated, repair or replace the harness as required.
 - B. If an open circuit is not indicated, continue to step 6
6. Check for a short circuit.
 - A. Check between connector **B12** pin 1 and **B12** pin 2. If a short circuit is indicated, repair or replace the harness as required.
 - B. If the harness is okay, download the correct level of software. If the fault re-occurs, remove and replace the engine controller.

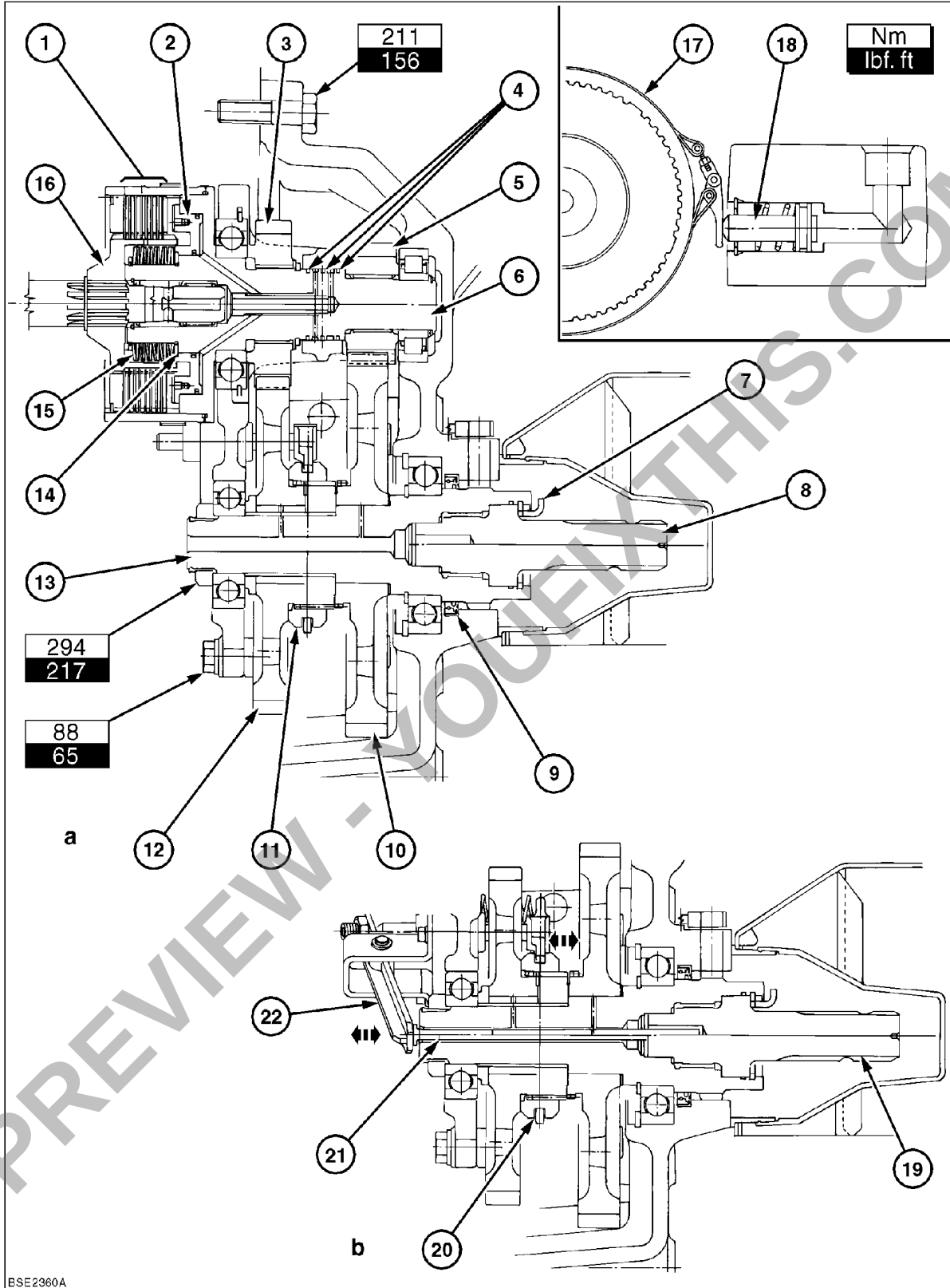
Wiring harness - Electrical schematic frame 18 (A.30.A.88 - C.20.E.18)

4. Reinstall the cover (1), and mounting bolts (2) that were removed earlier.

NOTE: Do not over tighten the mounting bolts (2). Over tightening may cause the threaded inserts in the tank to be damaged.



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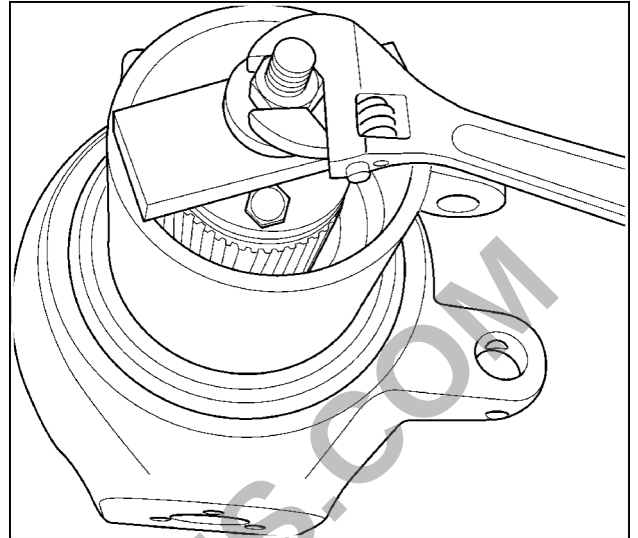


BSE2360A

BSE2360A 1

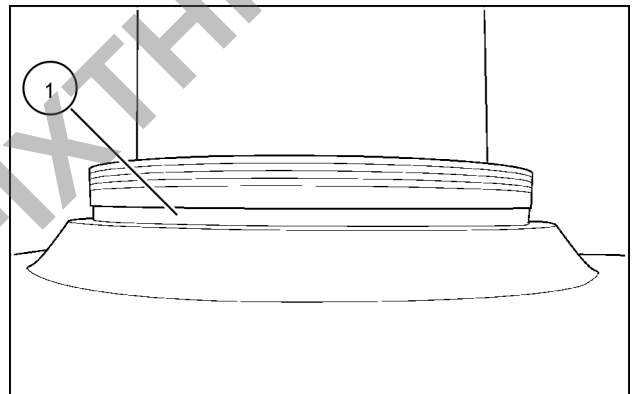
PTO sectional views and torques

28. Use a wrench to tighten the nut.



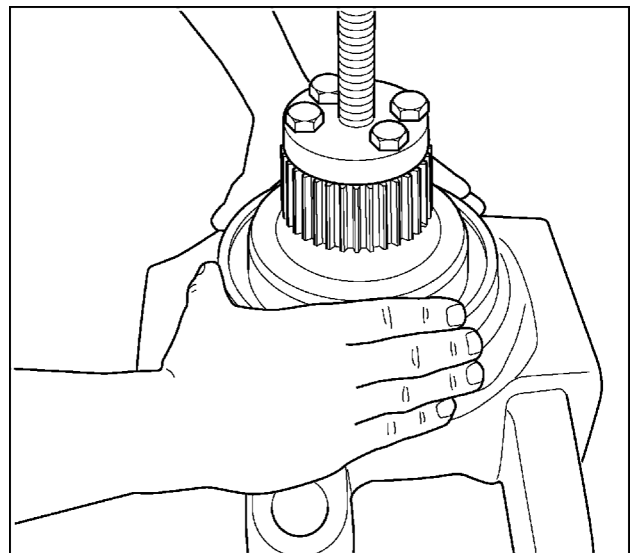
RCPH07CCH844BBC 28

29. When tightening the nut, make sure the seal remains squarely aligned on the spindle. Continue tightening the nut until a noticeable increase in torque occurs. There may be a very small gap (1) **0.025 - 0.5 mm (0.001 - 0.020 in)** between the seal and the spindle shoulder. This is normal.



RCPH07CCH845ABC 29

30. When the seal is seated, use both hands to rotate the outer portion of the seal. The seal should turn, but may require some effort.



RCPH07CCH846BBC 30

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