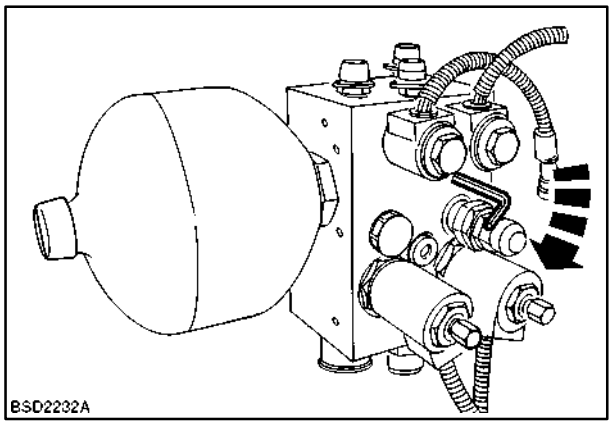
8. **Tractors installed with suspended front axle**

Depressurise the suspension system by rotating screw on top of the suspension load sense unload valve clockwise. When the tractor has lowered completely onto the front support stops rotate the screw counter clockwise to normal operating position.

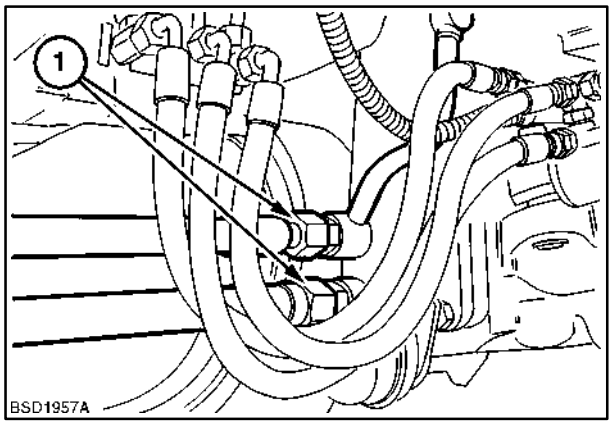


9

Disconnect the pipes to the front axle suspension cylinders.

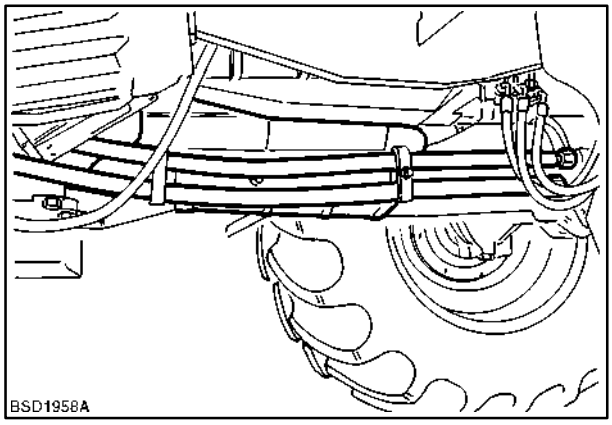
⚠ WARNING ⚠

On tractors with suspended front axle ensure suspension has been fully lowered as described above before disconnecting suspension cylinder hoses.



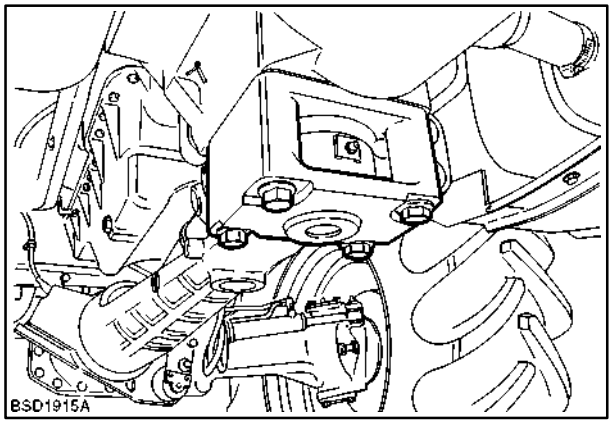
10

Remove suspension pipes and guard.



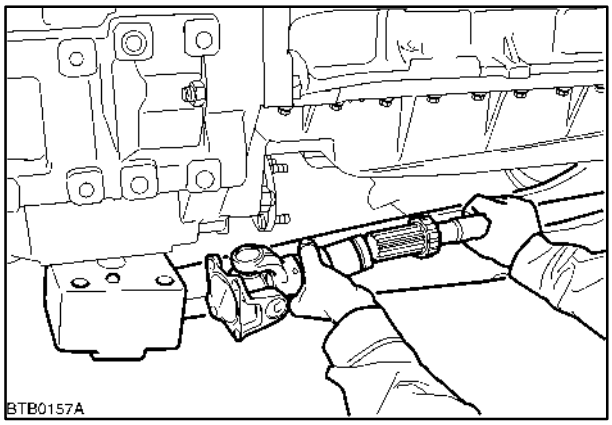
11

Remove the rear pivot block bolts.



12

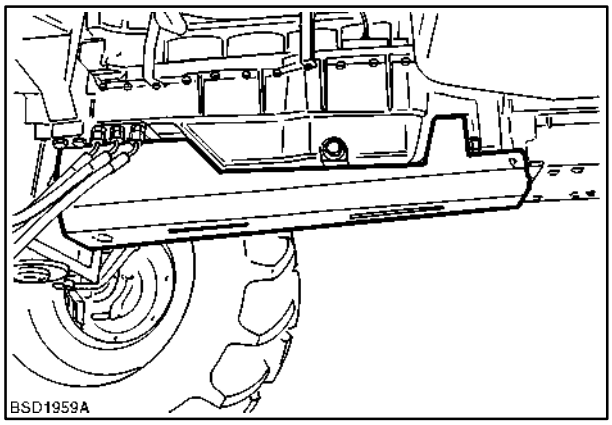
Disconnect and remove front wheel drive shaft universal joint.



50

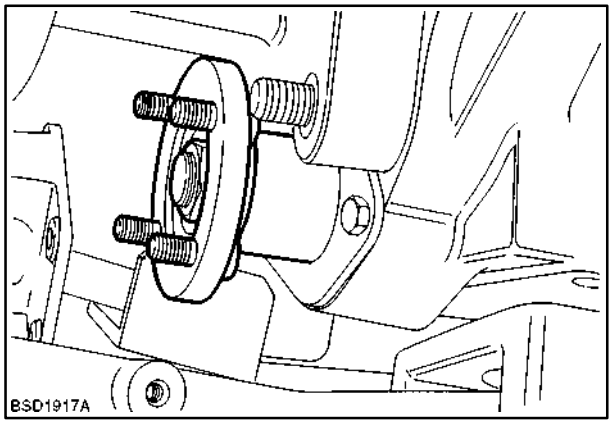
11. **Tractors with Standard Front Wheel Drive Axle**
Remove front wheel drive propshaft guard and propshaft

NOTE: *The type of driveshaft fitted is dependant on type of axle installed*



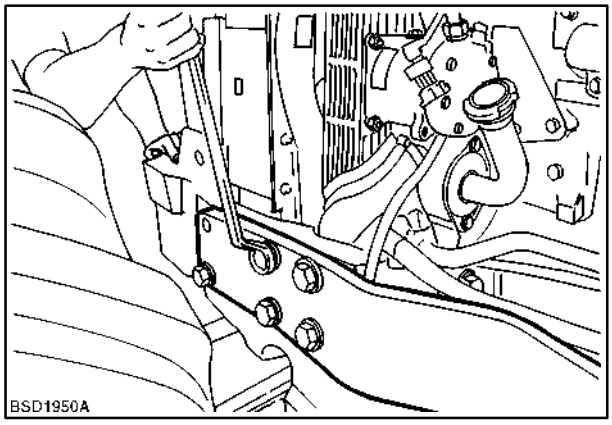
51

12. Remove driveshaft flange, where fitted.

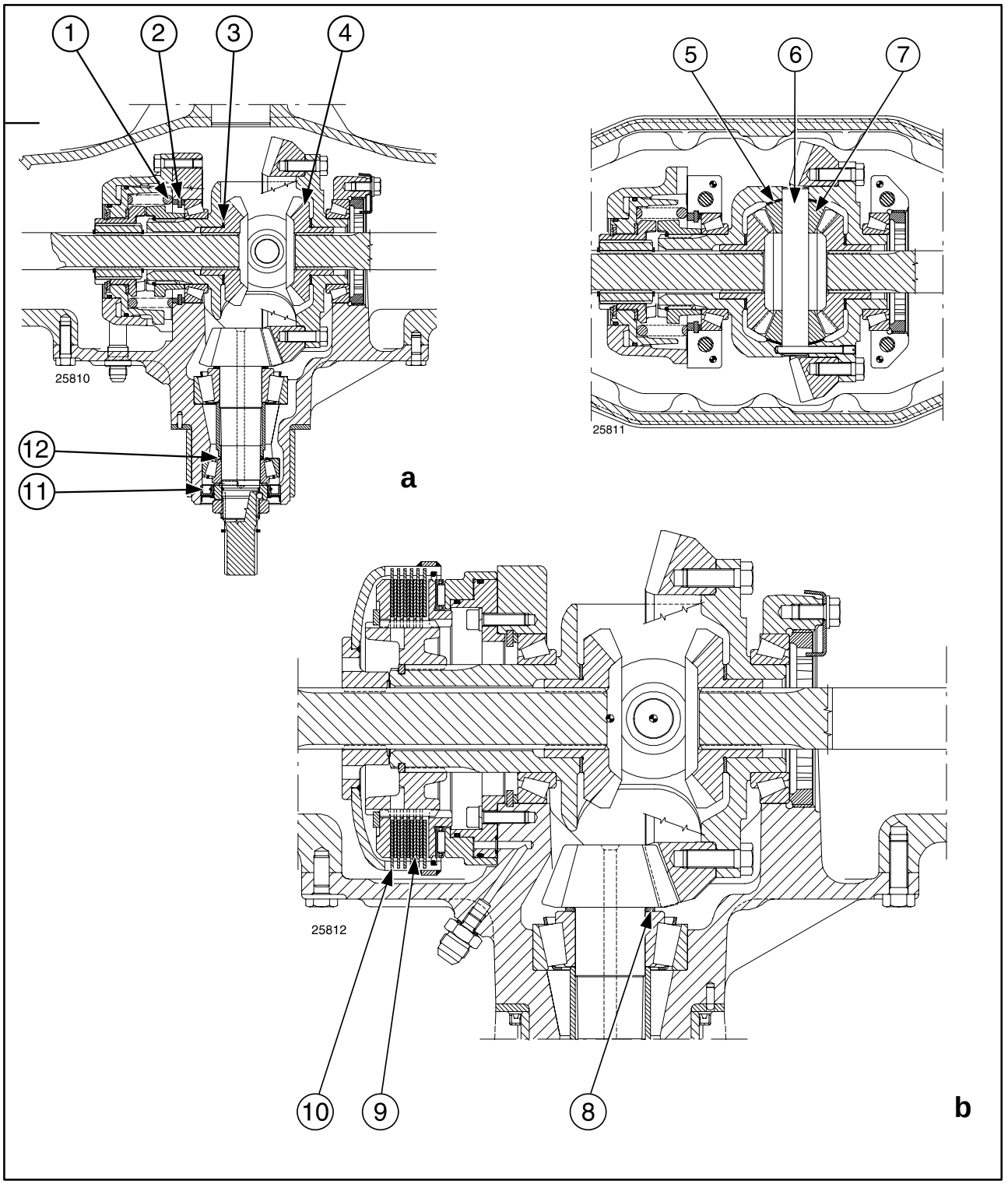


52

13. Remove engine side rails



53



8

Front Axle Cross–Sections

A. Dog Clutch Differential
B. Multi Wet Plate Clutch Differential
1. Spring
2. Crown wheel bearing adjustment shims
3. Side gear thrust washer shims
4. Side gears
5. Differential gear thrust washer shims
6. Differential gear pin
7. Differential gears
8. Pinion cone point adjustment shims
9. Clutch drive discs
10. Clutch driven discs
11. Seal
12. Pinion bearing adjustment shims

35 000 GENERAL FAULT FINDING

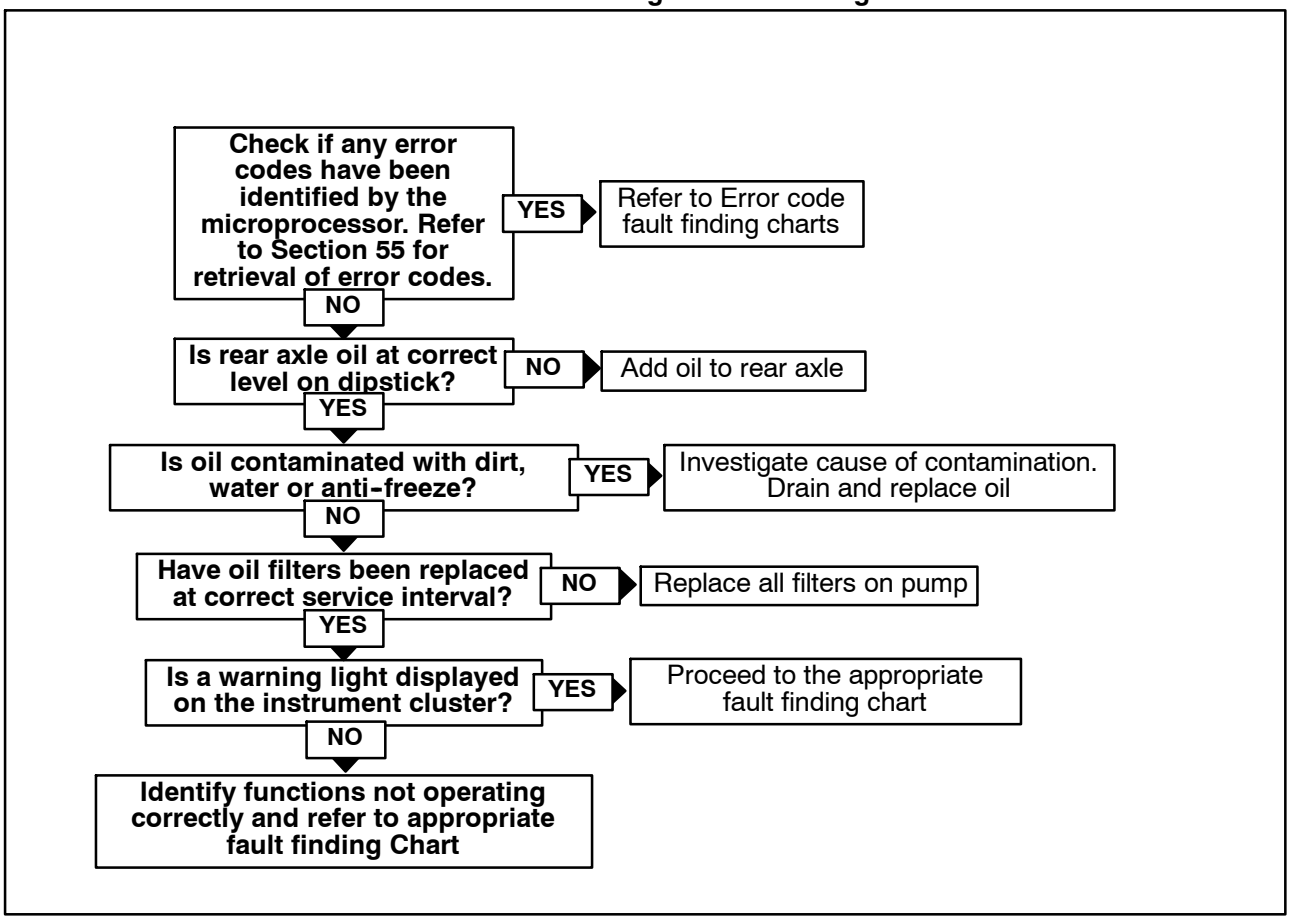
Before commencing fault finding refer to the initial check fault finding chart which may identify an obvious cause for the concern and prevent unnecessary component disassembly.

IMPORTANT: *If the steering is inoperative, there will be no lubrication to the transmission or PTO clutch and the tractor must not be run for more than 5 minutes at a maximum engine speed of 1000 rev/min.*

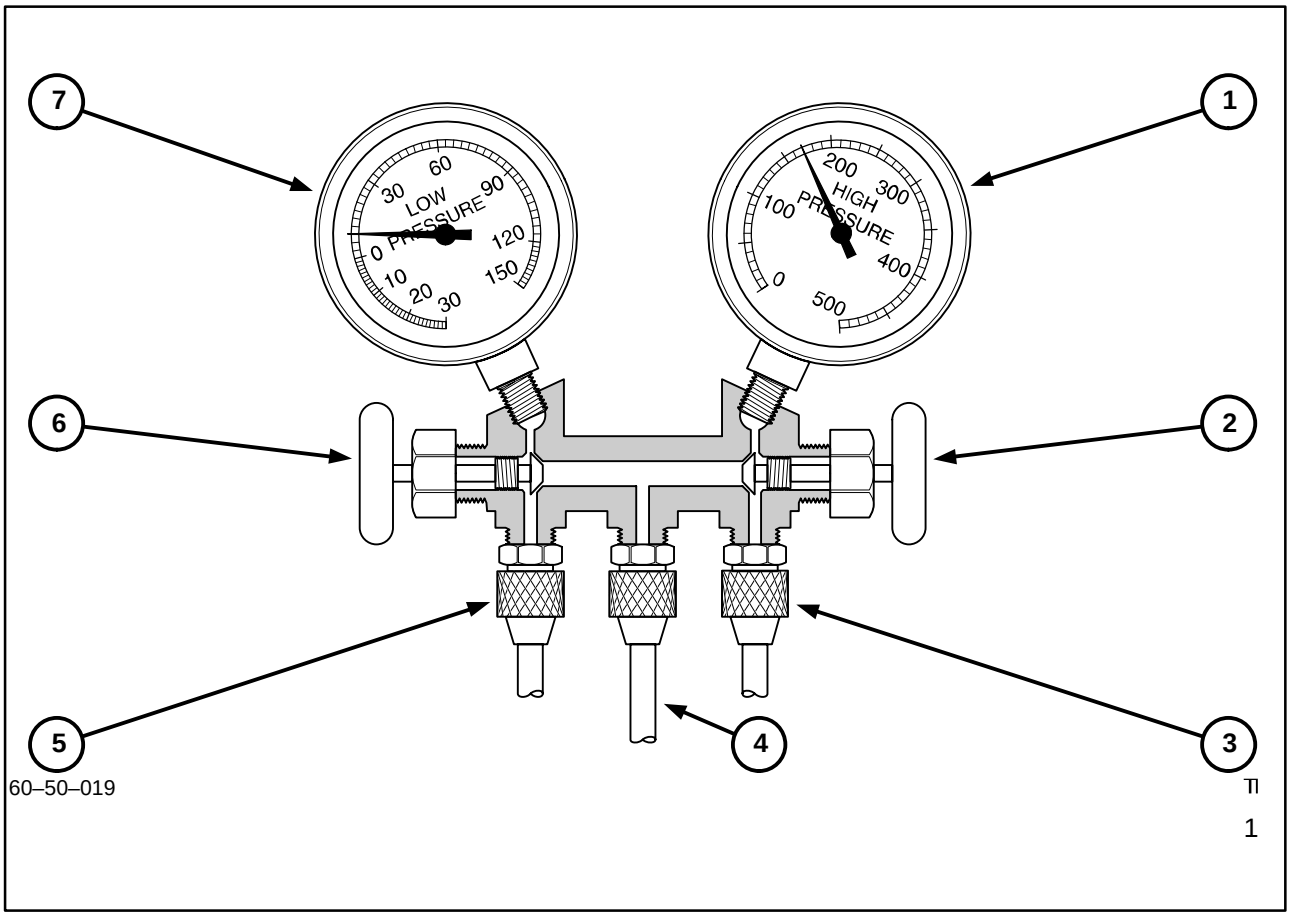
Fault finding charts listed in this Chapter are:-

- Initial Fault Finding Check
- Transmission Low Pressure Warning Light 'On'
- Charge Pressure Light Flashing
- Intake Filter Restriction Warning Light 'On'
- Power Steering not Working or Working Incorrectly
- Trailer Brakes not Working
- Hydraulic Lift not Working Correctly
- Remote Control Valves not Working

Initial Fault Finding Checks
To be Performed Before Proceeding to General Diagnostic Procedure



PERFORMANCE TEST EXAMPLE 1



21

Performance Test Example 1

1. High Side Low
2. High Side Hand Valve Closed
3. High Side Hose Connected to High Side Service Connector
4. Not Used
5. Low Side Hose Connected to Low Side Service Connector
6. Low Side Hand Valve Closed
7. Low Side Low

PROBLEM:

Little or no cooling.

CAUSE:

Refrigerant slightly low.

CONDITIONS*

Low side pressure too low.
Gauge should read 1–2 bar (15-30 lbf/in^2).

High side pressure too low.
Gauge should read 13.3–14.8 bar (194–215 lbf/in^2).

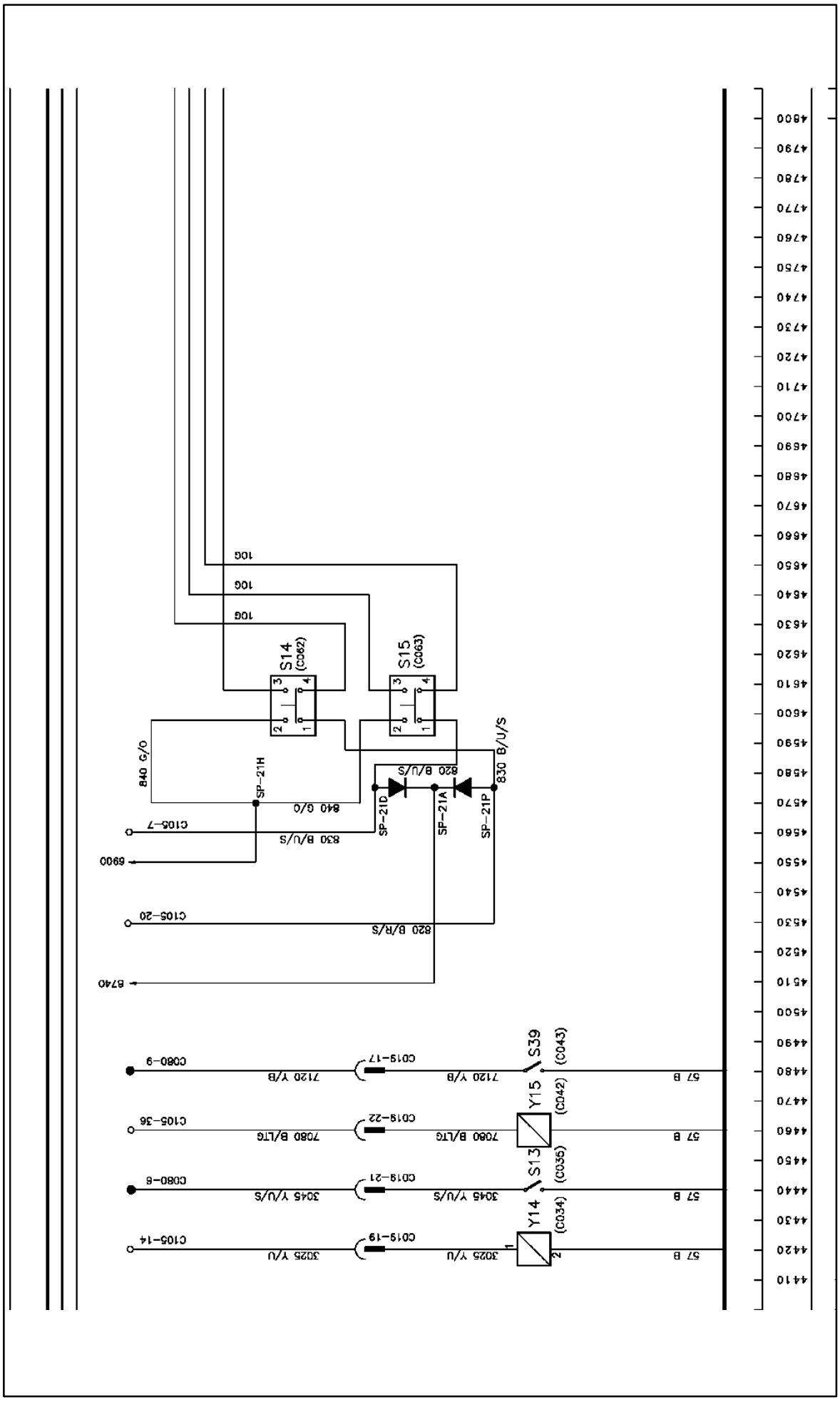
Evaporator air not cold.

CORRECTIVE PROCEDURES

1. Leak test the system.
2. Repair leaks. (Discharge and recover the refrigerant from the system; replace lines or components).
3. Check compressor oil to ensure no loss.
4. Evacuate the system.
5. Charge the system.
6. Performance test the system.

DIAGNOSIS: *System refrigerant is low. May be caused by a small leak.*

NOTE: *Test procedure based upon ambient temperature of 35°C (95° F). For proper high side gauge reading for other ambient temperatures, refer to the pressure temperature chart.*


4800
4790
4780
4770
4760
4750
4740
4730
4720
4710
4700
4690
4680
4670
4660
4650
4640
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4530
4520
4510
4500
4490
4480
4470
4460
4450
4440
4430
4420
4410
10G
10G
10G
S14 (C062)
S15 (C063)
840 G/O
SP-21H
840 G/O
820 B/U/S
830 B/U/S
SP-21D
SP-21A
SP-21P
C105-7
830 B/U/S
6900
C105-20
820 B/R/S
8740
S39 (C043)
C080-9
C019-17
7120 Y/B
7120 Y/B
57 B
Y15 (C042)
C105-36
C019-22
7080 B/LTG
7080 B/LTG
57 B
S13 (C035)
C080-8
C019-21
3045 Y/U/S
3045 Y/U/S
57 B
Y14 (C034)
C105-14
C019-19
3025 Y/U
3025 Y/U
57 B

ERROR CODE R27 – NO COMMUNICATION BETWEEN THE EHR VALVE 2 AND THE CENTRAL CONTROLLER (XCM)

Effects:

EHR valve disabled

Possible failure modes:

1. Faulty connector
2. Faulty CAN BUS terminating resistor
3. Faulty harness
4. Faulty EHR valve
5. Faulty central controller (XCM)

Solution:

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

1. Check the EHR valve connector **C280**, extension harness connector **C019**, central controller (XCM) connector **C329**, and the terminating resistor connector **C292**.

   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 2.

2. Check the CAN BUS.

   A. Measure the resistance between connector **C277** pin **1 (Y)** and **C277** pin **2 (G)**.

   If the resistance indicated is approximately 60 Ohms, continue to step 3.

   If the resistance indicated is less than approximately 5 Ohms, there is a short circuit in the CAN BUS wires, repair or replace as required.

   If an open circuit is indicated, there is an open circuit in the CAN BUS wires between the central controller (XCM) and the EHR terminating resistor, repair or replace as required.

   B. If the resistance indicated is approximately 120 Ohms, disconnect connector **C329**.

   If an open circuit is now indicated, the CAN BUS to the central controller (XCM) is okay, continue to step 5.

   If 120 Ohms is still indicated, the CAN BUS to the central controller (XCM) is not okay, continue to step 6.

3. Check for an open circuit.

   A. Disconnect **C280** and **C329**. Measure the resistance between connector:

   C280 pin **2 (G)** and **C329** pin **19 (G)**

   C280 pin **3 (Y)** and **C329** pin **13 (Y)**

   Wiggle the harness and the connectors to check for an intermittent circuit. 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. Disconnect all of the EHR valve connectors. Check between connector:

   C280 pin **2 (G)** and **ground**

   C280 pin **3 (Y)** and **ground**

   Wiggle the harness and the connectors to check for an intermittent circuit. If a short to ground is indicated, repair or replace the harness as required.

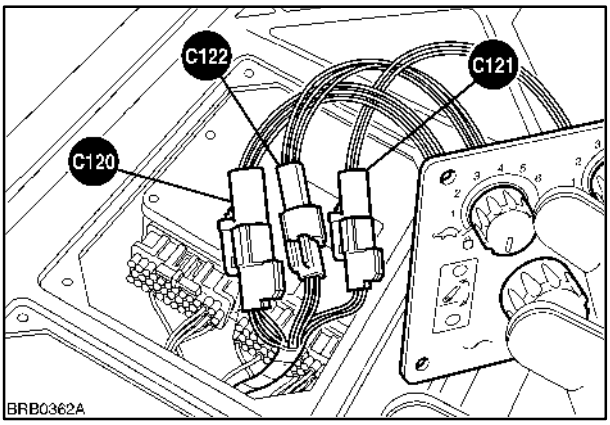
   B. If the harness is okay, remove, replace, and configure the EHR valve.

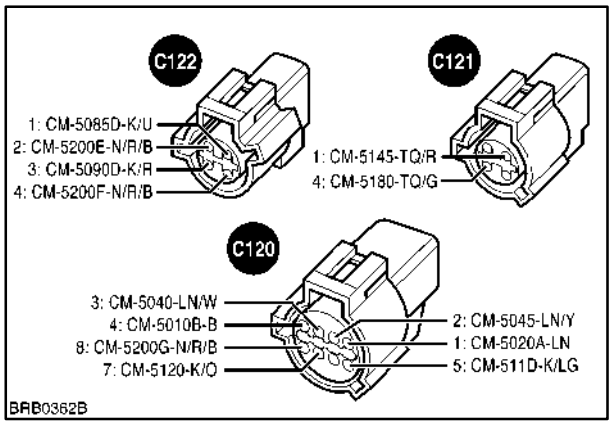
5. Check for an open circuit.

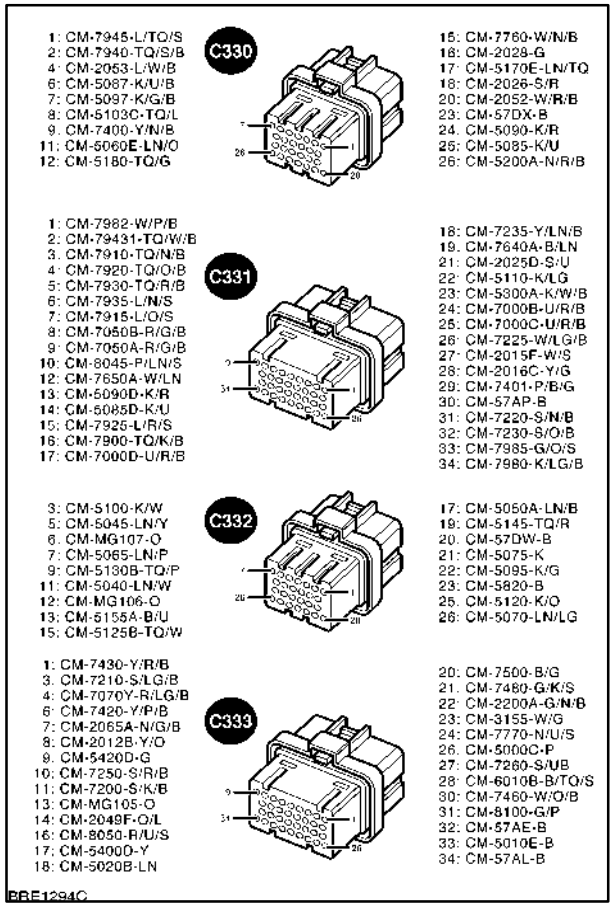
   A. Disconnect the EHR terminating resistor connector **C292**. Measure the resistance between connector:

   C277 pin **1 (Y)** and **C292** pin **1 (Y)**

   C277 pin **2 (G)** and **C292** pin **2 (G)**


C122
C121
C120
BRB0362A


C122
1: CM-5085D-K/U
2: CM-5200E-N/R/B
3: CM-5090D-K/R
4: CM-5200F-N/R/B
C121
1: CM-5145-TQ/R
4: CM-5180-TQ/G
C120
3: CM-5040-LN/W
4: CM-5010B-B
8: CM-5200G-N/R/B
7: CM-5120-K/O
2: CM-5045-LN/Y
1: CM-5020A-LN
5: CM-511D-K/LG
BRB0362B


1: CM-7945-L/TQ/S
2: CM-7940-TQ/S/B
4: CM-2053-L/W/B
6: CM-5087-K/U/B
7: CM-5097-K/G/B
8: CM-5103C-TQ/L
9: CM-7400-Y/N/B
11: CM-5060E-LN/O
12: CM-5180-TQ/G
C330
15: CM-7760-W/N/B
16: CM-2028-G
17: CM-5170E-LN/TQ
18: CM-2026-S/R
20: CM-2052-W/R/B
23: CM-57DX-B
24: CM-5090-K/R
25: CM-5085-K/U
26: CM-5200A-N/R/B
1: CM-7982-W/P/B
2: CM-79431-TQ/W/B
3: CM-7910-TQ/N/B
4: CM-7920-TQ/O/B
5: CM-7930-TQ/R/B
6: CM-7935-L/N/S
7: CM-7915-L/O/S
8: CM-7050B-R/G/B
9: CM-7050A-R/G/B
10: CM-8045-P/LN/S
12: CM-7650A-W/LN
13: CM-5090D-K/R
14: CM-5085D-K/U
15: CM-7925-L/R/S
16: CM-7900-TQ/K/B
17: CM-7000D-U/R/B
C331
18: CM-7235-Y/LN/B
19: CM-7640A-B/LN
21: CM-2025D-S/U
22: CM-5110-K/LG
23: CM-5300A-K/W/B
24: CM-7000B-U/R/B
25: CM-7000C-U/R/B
26: CM-7225-W/LG/B
27: CM-2015F-W/S
28: CM-2016C-Y/G
29: CM-7401-P/B/G
30: CM-57AP-B
31: CM-7220-S/N/B
32: CM-7230-S/O/B
33: CM-7985-G/O/S
34: CM-7980-K/LG/B
3: CM-5100-K/W
5: CM-5045-LN/Y
6: CM-MG107-O
7: CM-5065-LN/P
9: CM-5130B-TQ/P
11: CM-5040-LN/W
12: CM-MG106-O
13: CM-5155A-B/U
15: CM-5125B-TQ/W
C332
17: CM-5050A-LN/B
19: CM-5145-TQ/R
20: CM-57DW-B
21: CM-5075-K
22: CM-5095-K/G
23: CM-5820-B
25: CM-5120-K/O
26: CM-5070-LN/LG
1: CM-7430-Y/R/B
3: CM-7210-S/LG/B
4: CM-7070Y-R/LG/B
6: CM-7420-Y/P/B
7: CM-2065A-N/G/B
8: CM-2012B-Y/O
9: CM-5420D-G
10: CM-7250-S/R/B
11: CM-7200-S/K/B
13: CM-MG105-O
14: CM-2049F-O/L
16: CM-8050-R/U/S
17: CM-5400D-Y
18: CM-5020B-LN
C333
20: CM-7500-B/G
21: CM-7480-G/K/S
22: CM-2200A-G/N/B
23: CM-3155-W/G
24: CM-7770-N/U/S
26: CM-5000C-P
27: CM-7260-S/UB
28: CM-6010B-B/TQ/S
30: CM-7460-W/O/B
31: CM-8100-G/P
32: CM-57AE-B
33: CM-5010E-B
34: CM-57AL-B
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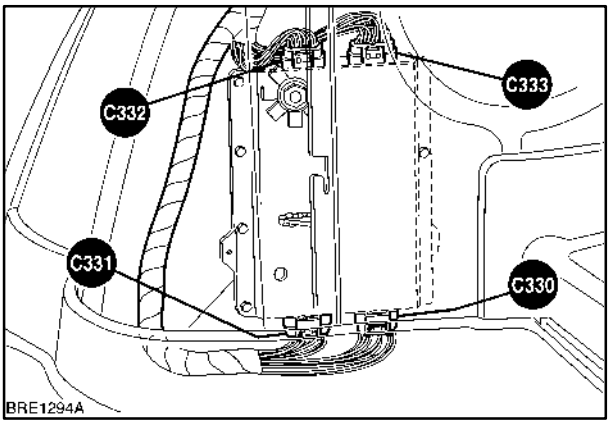
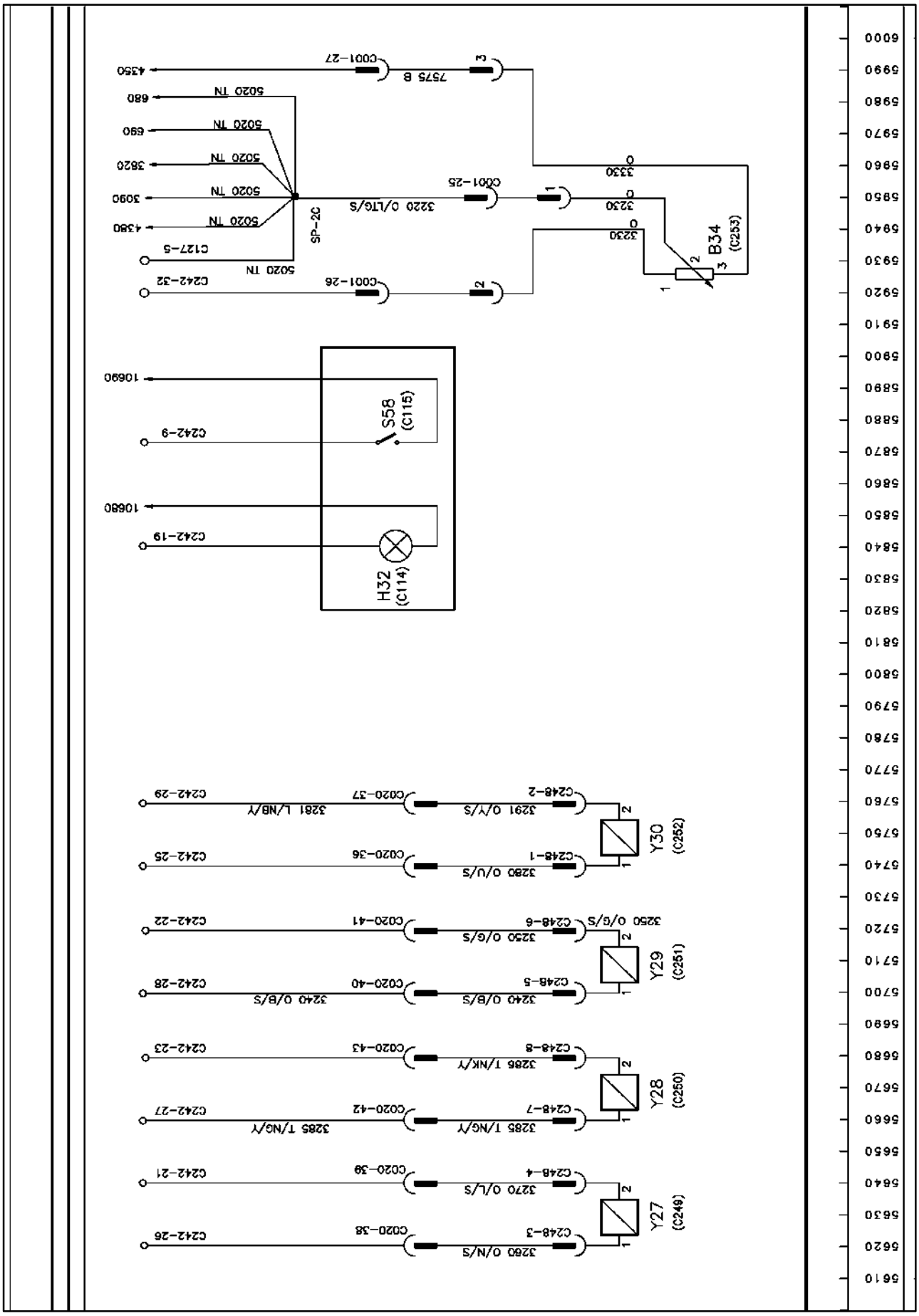

C332
C333
C331
C330
BRE1294A


4350
C001-27
7575 B
5020 TN
680
690
3820
3090
4380
C127-S
C242-32
C001-26
SP-2C
3220 O/LTG/S
C001-25
3330
3230
B34
(C253)
10690
C242-9
S58
(C115)
10680
C242-19
H32
(C114)
C242-29
C020-37
3281 L/NB/Y
C248-2
3291 O/Y/S
Y30
(C252)
C242-25
C020-36
C248-1
3280 O/U/S
C242-22
C020-41
C248-6
3250 O/G/S
3230 O/G/S
Y29
(C251)
C242-28
C020-40
C248-5
3240 O/B/S
C242-23
C020-43
C248-8
3286 T/NK/Y
Y28
(C250)
C242-27
C020-42
C248-7
3285 T/NG/Y
C242-21
C020-39
C248-4
3270 O/L/S
Y27
(C249)
C242-26
C020-38
C248-3
3260 O/N/S
6000
5990
5980
5970
5960
5950
5940
5930
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5910
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5690
5680
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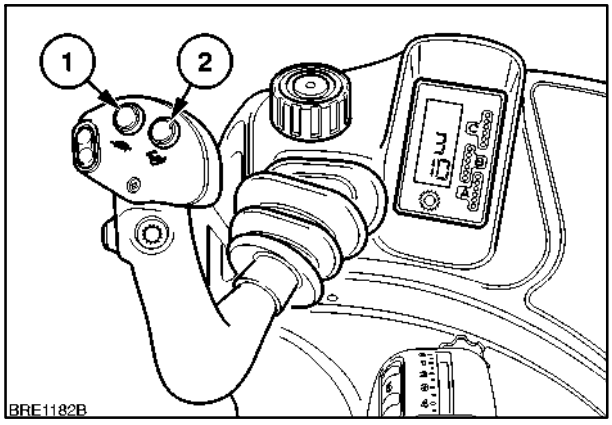
5640
5630
5620
5610

Hold the downshift button until the engine speed decreases by 50 RPM and the calibration number stops increasing.



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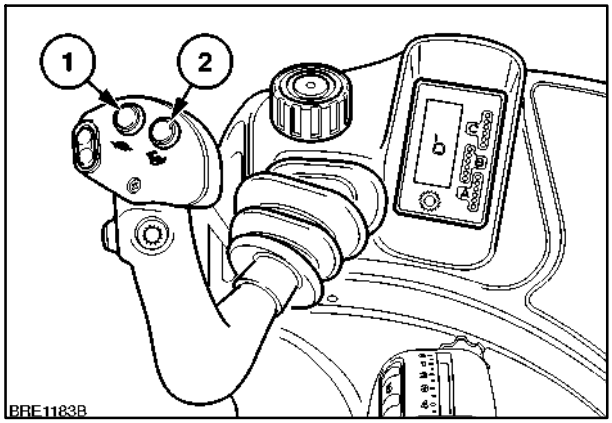
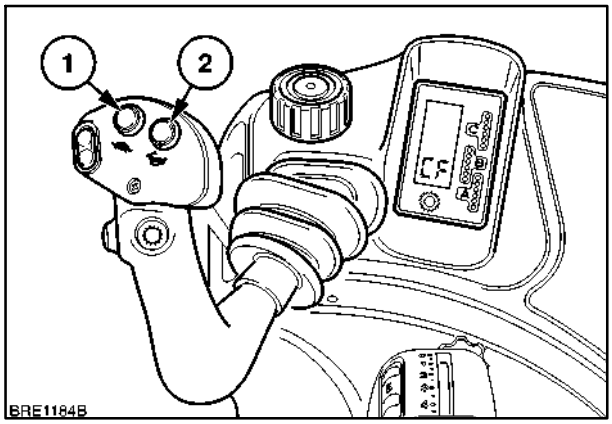
Release the downshift button (1) to progress to the next clutch.The display will change to “b”.
Follow the same procedure as clutch A to calibrate clutch B.
Then continue in the same manner for clutches C,D,E and F calibration.



19

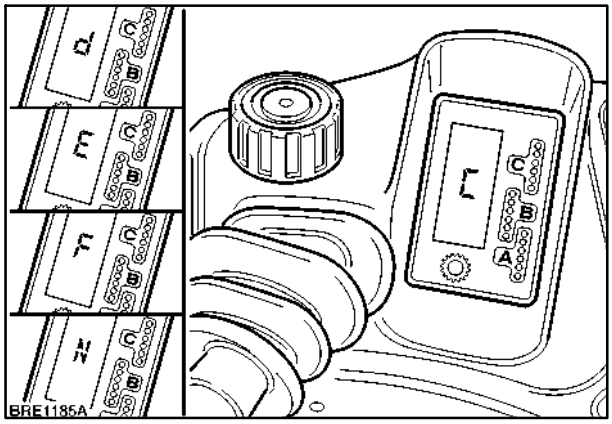
Calibration “F”, moves the two range synchronisers into the neutral position. If all is OK, “CF” will appear.
NOTE:
The two range potentiometers are automatically calibrated during the calibration of the five clutches



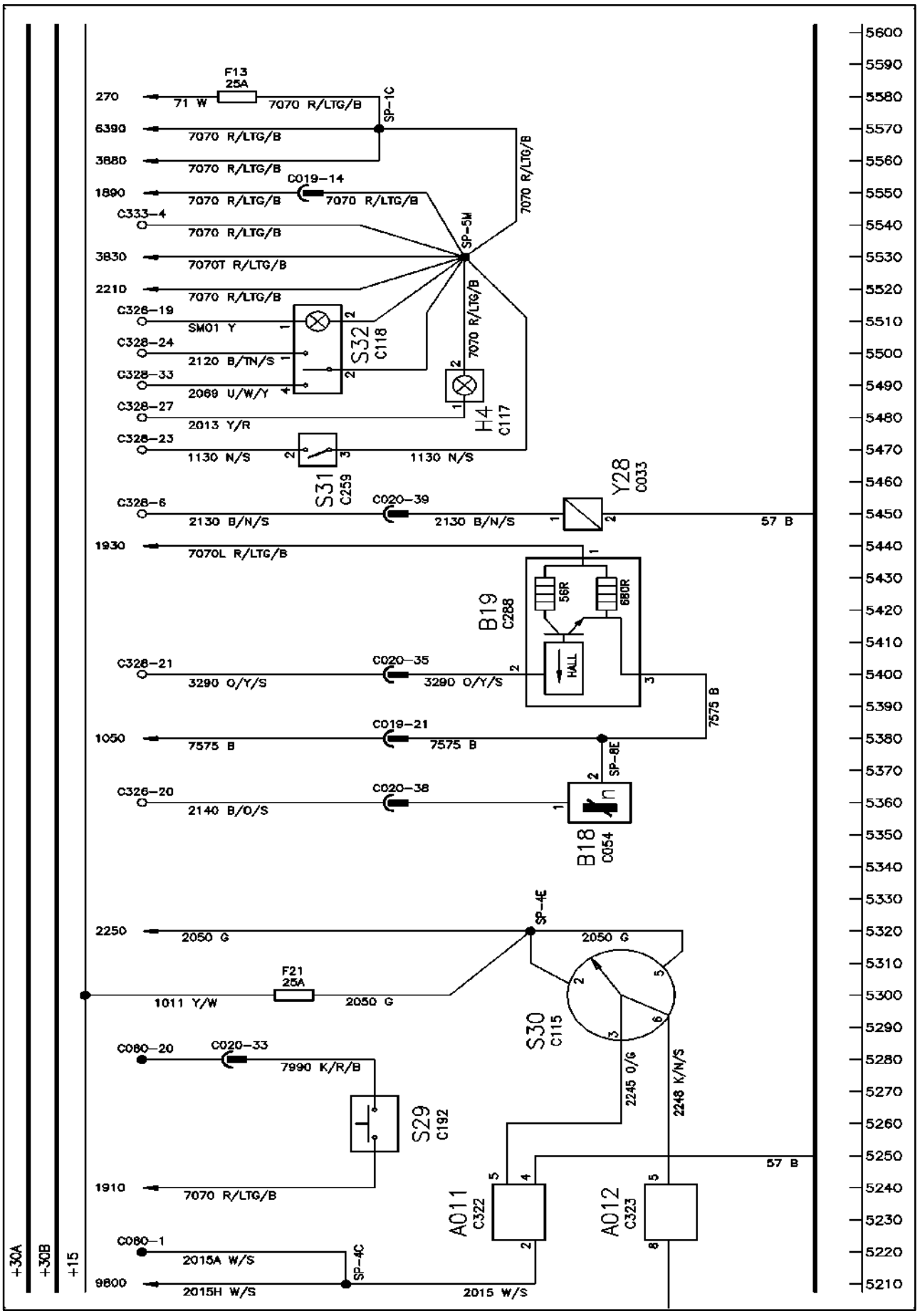
20

At this point, the calibration has been completed, and the Key start can be switched off to store the new calibration figures.

When in the calibration mode, it is possible to select any individual clutch for calibration by pressing the upshift button until the required clutch is displayed.



21


F13
25A
270
71 W
7070 R/LTG/B
SP-1C
6390
7070 R/LTG/B
3880
7070 R/LTG/B
C019-14
1890
7070 R/LTG/B
7070 R/LTG/B
C333-4
7070 R/LTG/B
SP-5M
3830
7070T R/LTG/B
2210
7070 R/LTG/B
C326-19
SM01 Y
C328-24
2120 B/TN/S
C328-33
2069 U/W/Y
S32
C118
C328-27
2013 Y/R
H4
C117
C328-23
1130 N/S
1130 N/S
S31
C259
C020-39
C328-6
2130 B/N/S
2130 B/N/S
Y28
C033
57 B
1930
7070L R/LTG/B
B19
C288
56R
680R
HALL
C328-21
3290 O/Y/S
C020-35
3290 O/Y/S
7575 B
C019-21
1050
7575 B
7575 B
SP-8E
C326-20
2140 B/O/S
C020-38
B18
C054
SP-4E
2250
2050 G
2050 G
F21
25A
1011 Y/W
2050 G
S30
C115
C080-20
C020-33
7990 K/R/B
S29
C192
2245 O/G
2248 K/N/S
57 B
1910
7070 R/LTG/B
A011
C322
A012
C323
C080-1
2015A W/S
SP-4C
9800
2015H W/S
2015 W/S
+30A
+30B
+15
5600
5590
5580
5570
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5390
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5370
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5320
5310
5300
5290
5280
5270
5260
5250
5240
5230
5220
5210

ERROR CODE FBD - CLUTCH D SOLENOID OVER VOLTAGE

Possible failure modes:

1. External power supply connected
2. Faulty charging system
3. Faulty solenoid
4. Faulty harness
5. Faulty secondary controller (CFPS)

Solution:

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

1. Check for other error codes being displayed.

   A. If any other error code is being displayed, continue to these tests.

   B. If no other error code is displayed, continue to step 2.

2. Check that the tractor battery power supply has not been connected to an external power supply.

   A. If an external power supply is connected to the tractor, disconnect and test the system for normal operation.

   B. If an external power supply is not connected to the tractor, continue to step 3.

3. Check the battery voltage on the instrument cluster.

   A. Start the engine and run at 2000 rev/min. If the voltage displayed is greater than approximately 15 Volts, continue to test for a fault in the charging system.

   B. If the battery voltage is okay, continue to step 4.

4. Check clutch A solenoid.

   A. Turn the keystart OFF. Disconnect clutch D solenoid connector **C025**. Measure the resistance between the solenoid terminal **A** and terminal **B**. If the resistance indicated is not between 8 Ohms – 11 Ohms, remove and replace clutch D solenoid.

   B. If clutch D solenoid is okay, continue to step 5.

5. Check for +Ve Voltage.

   A. Disconnect the secondary controller (CFPS) connector **C331**. Turn the keystart ON. Measure the voltage between connector:

   C331 pin **5 (L/N/S)** and **ground**

   C331 pin **6 (TQ/R/B)** and **ground**

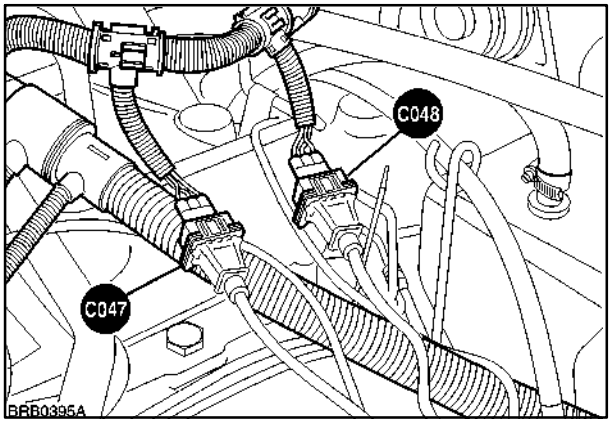
   If a voltage is indicated, repair or replace the harness as required.

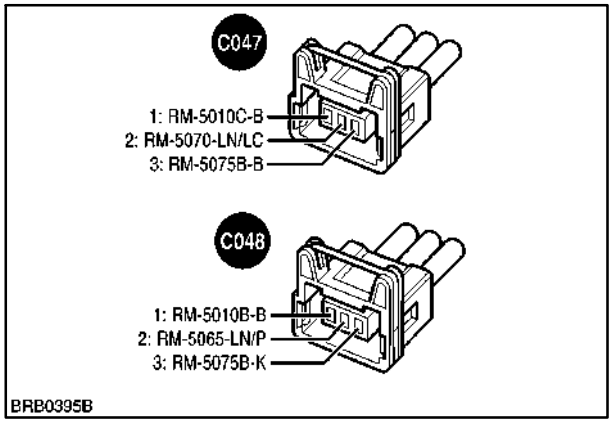
   B. If a voltage is not indicated, continue to step 6.

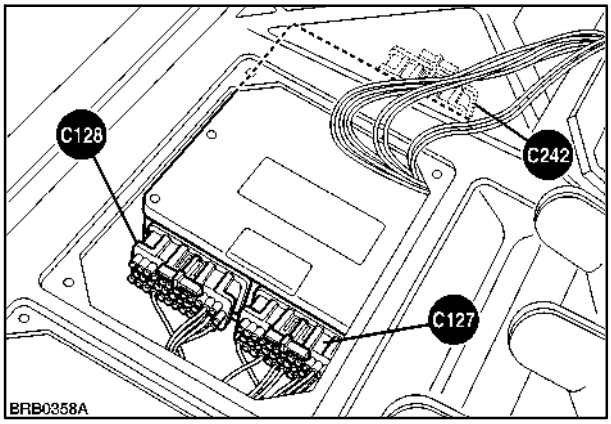
6. Check for a short circuit.

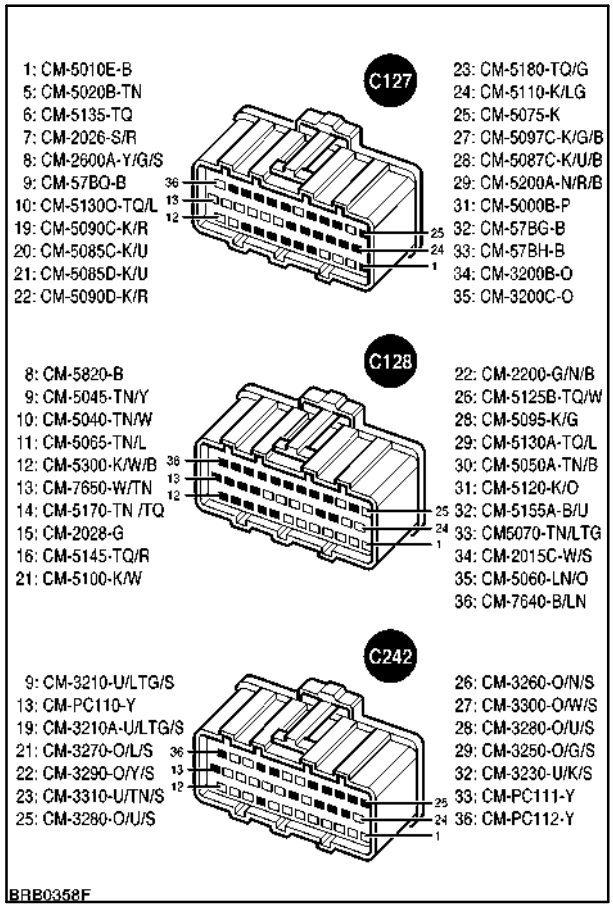
   A. Turn the keystart OFF. Check between connector **C331** pin **5 (L/N/S)** and **C331** pin **6 (TQ/R/B)**. If a short circuit is indicated, repair or replace the harness as required.

   B. If the harness is okay, download the correct level of software. If the fault re-occurs, remove and replace the secondary controller (CFPS).


C048
C047
BRB0395A


C047
1: RM-5010C-B
2: RM-5070-LN/LC
3: RM-5075B-B
C048
1: RM-5010B-B
2: RM-5065-LN/P
3: RM-5075B-K
BRB0395B


C128
C242
C127
BRB0358A


C127
1: CM-5010E-B
5: CM-5020B-TN
6: CM-5135-TQ
7: CM-2026-S/R
8: CM-2600A-Y/G/S
9: CM-57BQ-B
10: CM-5130C-TQ/L
19: CM-5090C-K/R
20: CM-5085C-K/U
21: CM-5085D-K/U
22: CM-5090D-K/R
23: CM-5180-TQ/G
24: CM-5110-K/LG
25: CM-5075-K
27: CM-5097C-K/G/B
28: CM-5087C-K/U/B
29: CM-5200A-N/R/B
31: CM-5000B-P
32: CM-57BG-B
33: CM-57BH-B
34: CM-3200B-O
35: CM-3200C-O
C128
8: CM-5820-B
9: CM-5045-TN/Y
10: CM-5040-TN/W
11: CM-5065-TN/L
12: CM-5300-K/W/B
13: CM-7650-W/TN
14: CM-5170-TN /TQ
15: CM-2028-G
16: CM-5145-TQ/R
21: CM-5100-K/W
22: CM-2200-G/N/B
26: CM-5125B-TQ/W
28: CM-5095-K/G
29: CM-5130A-TQ/L
30: CM-5050A-TN/B
31: CM-5120-K/O
32: CM-5155A-B/U
33: CM5070-TN/LTG
34: CM-2015C-W/S
35: CM-5060-LN/O
36: CM-7640-B/LN
C242
9: CM-3210-U/LTG/S
13: CM-PC110-Y
19: CM-3210A-U/LTG/S
21: CM-3270-O/L/S
22: CM-3290-O/Y/S
23: CM-3310-U/TN/S
25: CM-3280-O/U/S
26: CM-3260-O/N/S
27: CM-3300-O/W/S
28: CM-3280-O/U/S
29: CM-3250-O/G/S
32: CM-3230-U/K/S
33: CM-PC111-Y
36: CM-PC112-Y
BRB0358F

ERROR CODE 24 - PERFORM HYDRAULIC LIFT CALIBRATION

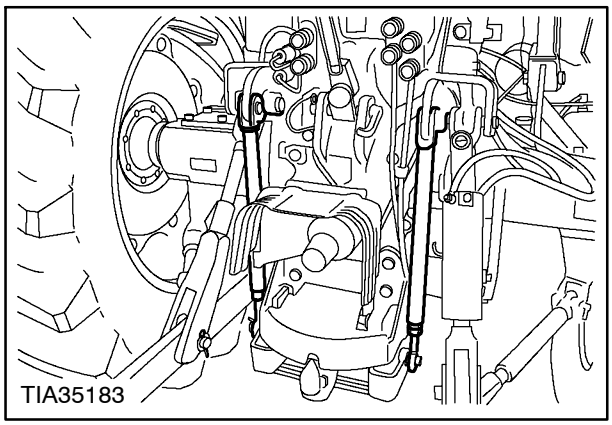
Calibration of Lift Arm Potentiometers and Lift Control Pod

This procedure is required whenever:-

The lift arm position sensing potentiometer, lift control pod or EDC valve have been replaced.

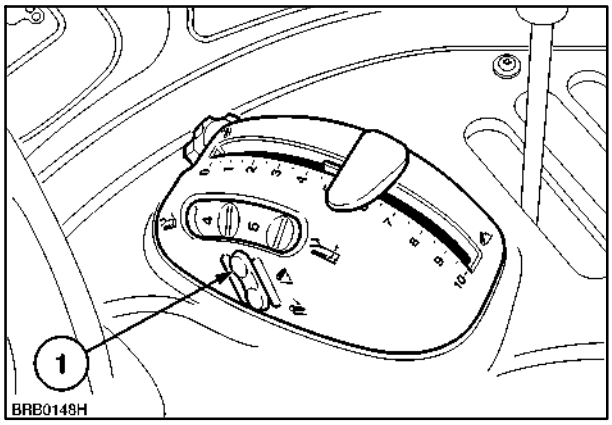
or

The microprocessor has been replaced or its memory has been reset using Diagnostic Menu **H8**.



137

1. Lower lift arms and disconnect vertical rods from hanger on automatic pick-up hitch (where fitted). This will allow the lift arms to raise to their maximum position.
2. Position raise/work switch to work position.



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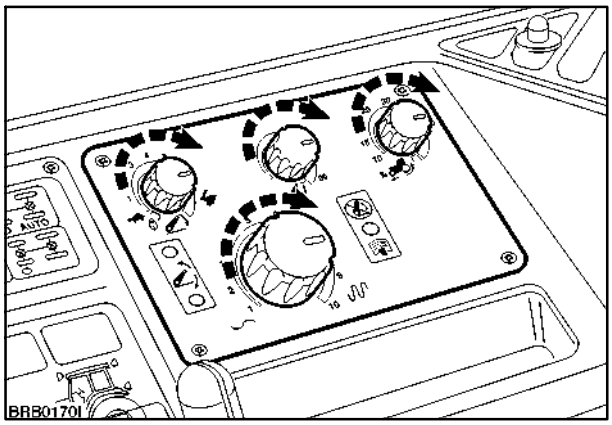
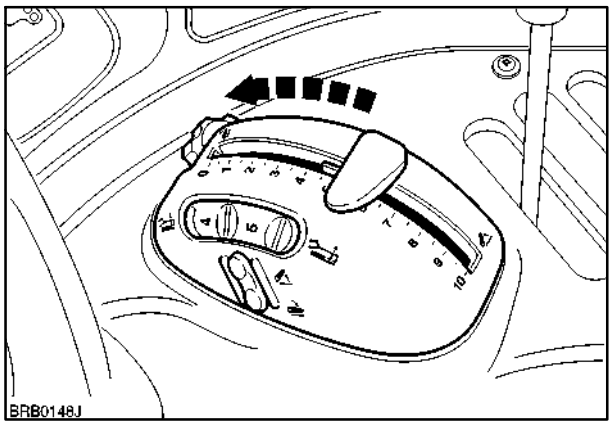
3. Turn all the EDC operator controls fully clockwise.

NOTE: *If the height limit control has not been turned fully clockwise to the maximum height position, the* ***Error Code HL*** *will be displayed.*

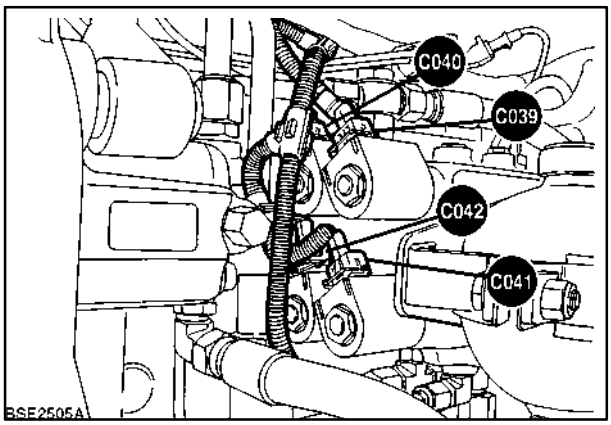


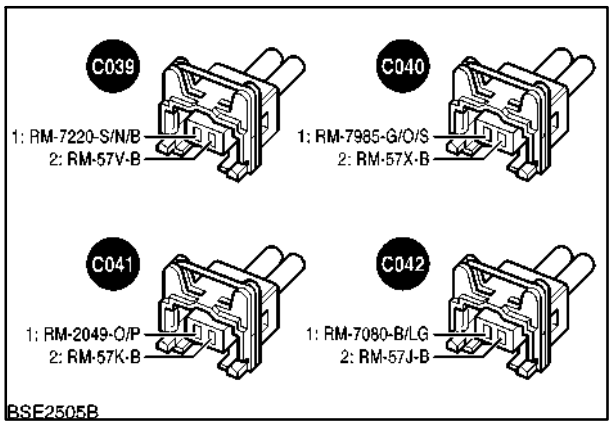
139

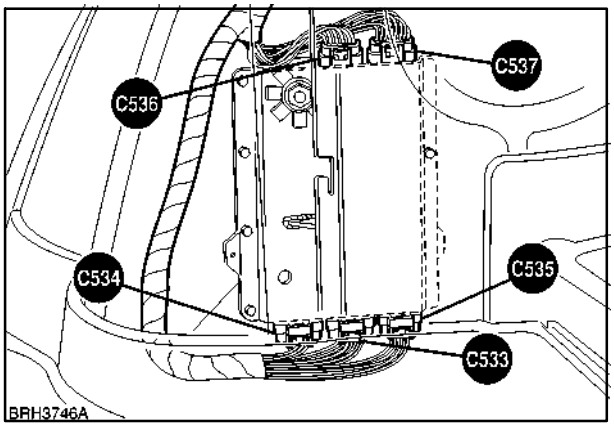
4. Start engine and set speed to 1100 rpm.
5. Move lift control lever forward and fully lower the lift.

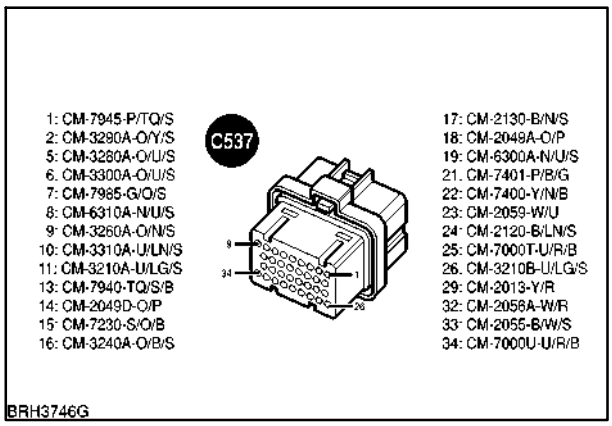


140


C040
C039
C042
C041
BSE2505A


C039
1: RM-7220-S/N/B
2: RM-57V-B
C040
1: RM-7985-G/O/S
2: RM-57X-B
C041
1: RM-2049-O/P
2: RM-57K-B
C042
1: RM-7080-B/LG
2: RM-57J-B
BSE2505B


C537
C536
C534
C535
C533
BRH3746A


1: CM-7945-P/TQ/S
2: CM-3280A-O/Y/S
5: CM-3280A-O/U/S
6: CM-3300A-O/U/S
7: CM-7985-G/O/S
8: CM-6310A-N/U/S
9: CM-3260A-O/N/S
10: CM-3310A-U/LN/S
11: CM-3210A-U/LG/S
13: CM-7940-TQ/S/B
14: CM-2049D-O/P
15: CM-7230-S/O/B
16: CM-3240A-O/B/S
C537
9
34
1
26
17: CM-2130-B/N/S
18: CM-2049A-O/P
19: CM-6300A-N/U/S
21: CM-7401-P/B/G
22: CM-7400-Y/N/B
23: CM-2059-W/U
24: CM-2120-B/LN/S
25: CM-7000T-U/R/B
26: CM-3210B-U/LG/S
29: CM-2013-Y/R
32: CM-2058A-W/R
33: CM-2055-B/W/S
34: CM-7000U-U/R/B
BRH3746G