FARMALL® 40B CVT
FARMALL® 45B CVT
FARMALL® 50B CVT

Compact Tractor

PIN ZCME21001 and above

SERVICE MANUAL

Part number 48080062

2nd edition English

November 2016

Replaces part number 47454114

CASE IH AGRICULTURE

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Link Product / Engine

Product	Market Product	Engine
Farmall® 40B CVT [ZDME21931 -]	North America	N844
Farmall® 45B CVT [ZDME21931 -]	North America	N844L
Farmall® 50B CVT [ZDME21931 -]	North America	N844L

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Contents

INTRODUCTION

Engine 10

[10.001] Engine and crankcase 10.1

[10.101] Cylinder heads 10.2

[10.102] Pan and covers 10.3

[10.103] Crankshaft and flywheel 10.4

[10.105] Connecting rods and pistons 10.5

[10.106] Valve drive and gears 10.6

[10.110] Balancer and damper 10.7

[10.114] Pump drives 10.8

[10.218] Fuel injection system 10.9

[10.254] Intake and exhaust manifolds and muffler 10.10

[10.304] Engine lubrication system 10.11

[10.400] Engine cooling system 10.12

[10.414] Fan and drive 10.13

Transmission 21

[21.504] Continuously Variable Transmission (CVT) 21.1

Four-Wheel Drive (4WD) system 23

[23.101] Mechanical control 23.1

Front axle system 25

[25.100] Powered front axle 25.1

[25.102] Front bevel gear set and differential 25.2

[25.310] Final drives 25.3

Rear axle system 27

[27.100] Powered rear axle 27.1

[27.106] Rear bevel gear set and differential 27.2

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Power Take-Off (PTO) 31
[31.104] Rear electro-hydraulic control 31.1
[31.110] One-speed rear Power Take-Off (PTO) 31.2
[31.120] Central Power Take-Off (PTO) 31.3
Brakes and controls 33
[33.110] Parking brake or parking lock 33.1
[33.120] Mechanical service brakes 33.2
Hydraulic systems 35
[35.000] Hydraulic systems 35.1
[35.104] Fixed displacement pump 35.2
[35.204] Remote control valves 35.3
[35.300] Reservoir, cooler, and filters 35.4
Steering 41
[41.200] Hydraulic control components 41.1
[41.206] Pump 41.2
[41.216] Cylinders 41.3
Cab climate control 50
[50.100] Heating 50.1
[50.104] Ventilation 50.2
[50.200] Air conditioning 50.3
Electrical systems 55
[55.000] Electrical system 55.1
[55.010] Fuel injection system 55.2
[55.100] Harnesses and connectors 55.3
[55.201] Engine starting system 55.4
[55.301] Alternator 55.5
[55.302] Battery 55.6
[55.404] External lighting 55.7

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Fuel injection system - General specification

Farmall® 40B CVT	NA
Farmall® 45B CVT	NA
Farmall® 50B CVT	NA

INJECTION PUMP	All models
Pump Manufacturer	BASC*
Type	In-Line
Timing (Before TDC)	**19 - 21 °C**
Timing (Piston Height at Injection: Start BTDC)	**2.854 - 3.554 mm (0.1124 - 0.1399 in)** **3.199 - 3.895 mm (0.1259 - 0.1533 in)** N844L
Injection Nozzle • Nozzle Type • Needle Valve Diameter • Pintle Diameter	 Throttle **0.4 mm (0.0157 in)** **1 mm (0.039 in)**
Injection Pressure	**14824 kPa (2150 psi)**
Spray Angle	4°
Service Adjustments • Idle Speed • Max. No-Load Speed	 **1000 - 1100 RPM** **2815 - 2855 RPM**

*BASC - Bosch Automotive Systems Corporation

Fuel injection system - Special tools

Farmall® 40B CVT	NA
Farmall® 45B CVT	NA
Farmall® 50B CVT	NA

Tool Description	Tool No.
Injector Tester	FNH01721
Injector Adapter Set	FNH01728

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Wiring harnesses - Electrical schematic sheet 35 (*) 70
Wiring harnesses - Electrical schematic sheet 36 (*) 72

(*) See content for specific models

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2072-Excessive Voltage on Shuttle Lever Reverse Switch Input

Farmall® 40B CVT	NA
Farmall® 45B CVT	NA
Farmall® 50B CVT	NA

Control Module : TCU

ATTENTION: *To be performed only by a qualified service technician: Access to the ADIC's "H_Menus", mentioned below are part of the onboard diagnostic providing configuration and diagnostic support through the resources (display, switches, controllers) available on the system. In general, those routines are not intended to be activated during normal functionality and should not be available to the end user. For this reason, to execute those routines a special tool* ***380000843*** *is required.*

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

Context:
There will be a short delay recognizing that forward has been selected

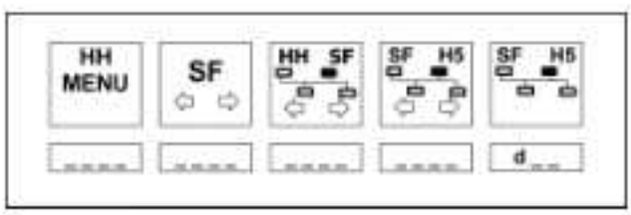
Cause:
There is excessive voltage detected on the reverse switch input, greater than **4.39 V**.

Possible failure modes:

1. Faulty connector
2. Faulty shuttle lever reverse switch
3. Faulty harness
4. Faulty controller

Solution:

1.



HH Menu	Product Code = SF		Menu H5	Value = d_ _

Check the shuttle lever forward switch in H5: Enter the mode using the service switch **380000843** and navigate the "H-tree" by using the switches on the instrument cluster, selecting product code "SF" and menu "H5". Turn the ignition switch to the ON position, and move the shuttle lever into reverse.

A. If the display does not change to "d16", continue to step **2**

B. If the display does change to "d16", while still in H5, wiggle the harness and the connectors to check for an intermittent circuit. The display will change if an intermittent circuit is detected, repair or replace as required.

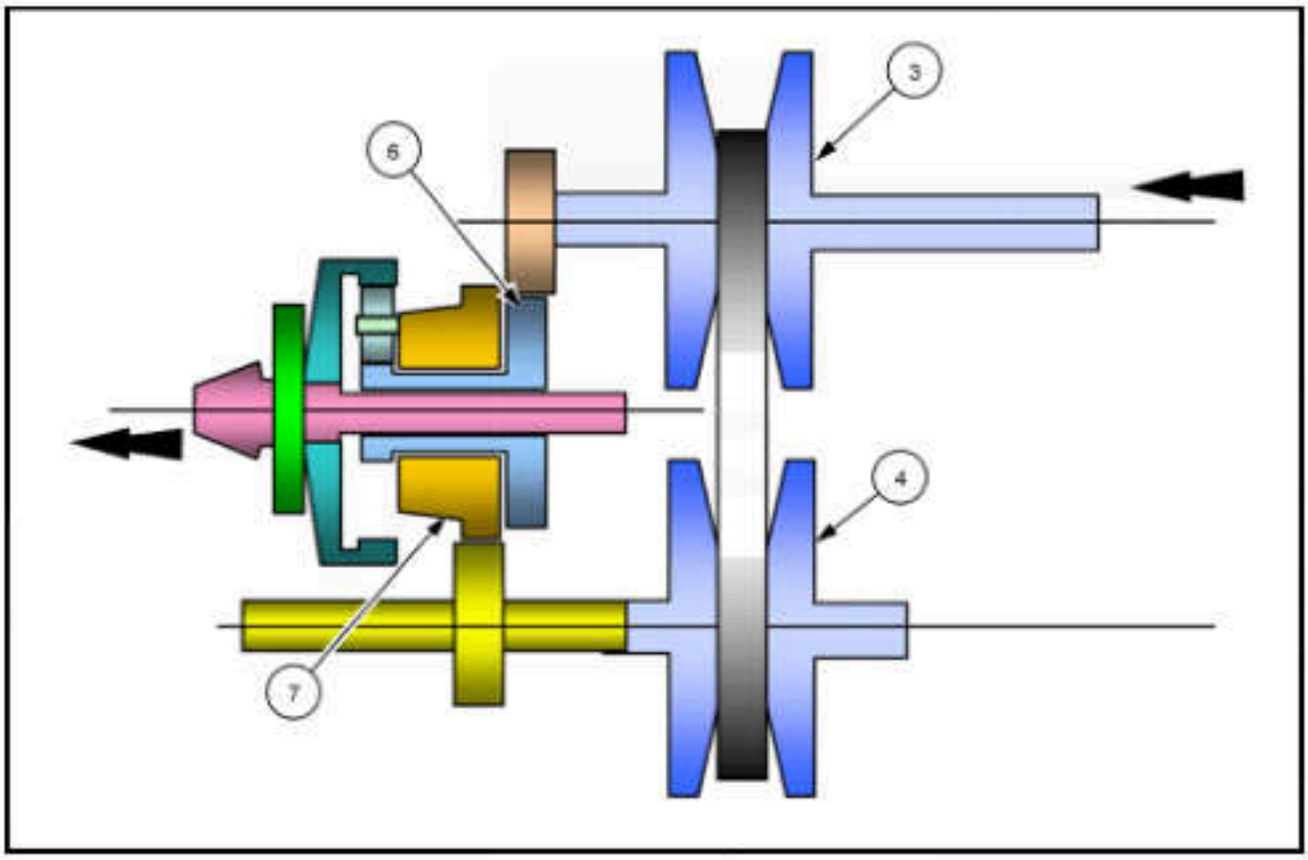
2. Check the shuttle lever reverse switch.

A. Disconnect the shuttle lever connector **C12**. Move the shuttle lever to reverse and measure the resistance between the component side of connector **C12** pin 1 (P) and **C12** pin 3 (V), if the resistance indicated is not approximately **2.56K Ohms**, and then in neutral approximately **0.56K Ohms**, remove and replace the shuttle lever reverse switch.

B. If the shuttle lever reverse switch is okay, continue to step **3**

3. Check for a short to **5 Volts** or **12 Volts**.

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NHL12CT30028FA 2

Variator Assembly

The variator assembly **(2)** is an electro-hydraulically controlled variable speed transmission. The variator assembly consists of a gerotor style fixed displacement hydraulic pump, input drive pulley, output driven pulley, drive chain and mechanical torque sensor. The fixed displacement gerotor pump produces the oil flow for the complete transmission system except for the Forward/Reverse clutch which oil is supplied by the power steering hydraulic pump. The throat of the input and output pulleys are adjusted simultaneously by the use of both hydraulic and spring pressure to set the desired speed of the transmission. The driven output pulley also incorporates a mechanical torque sensor that acts similar to a mechanical governor. As the torque sensor senses torque rise it adjusts and increases the pressure to the input (P1) **(3)** and the output (P2) **(4)** pulleys to compensate and apply more force to the variator assembly. If the torque load increase to the point where the variator cannot hold the chain assembly safely, the transmission logic will dump the Forward/Reverse clutches and the unit will lose drive pressure, similar to blowing a pressure relief valve in a hydrostatic transmission.

Planetary Reduction

The planetary reduction **(5)** uses the speed from the input pulley assemblies to control the sun gear **(6)** and carrier **(7)**. By controlling the speed at which the sun gear turns in comparison to the carrier, we can reduce the high speed revolutions of the variator assembly to a usable drive piniion ratio. The drive pinion is the direct out put of the planetary assembly.

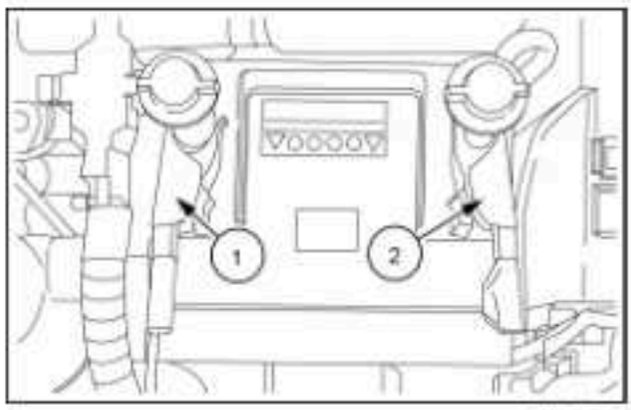
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Electrical system - Electrical test Relative compression test using DATAR

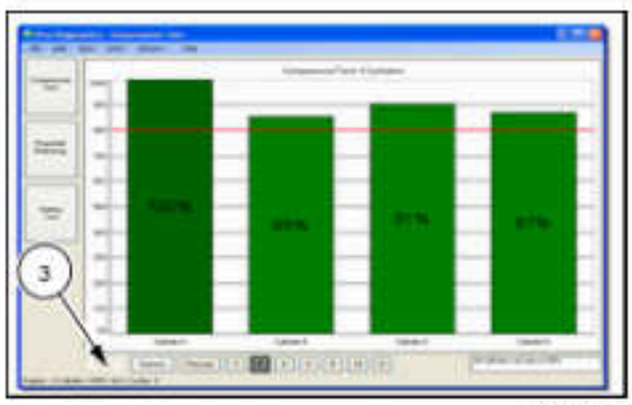
Farmall® 40B CVT	NA
Farmall® 45B CVT	NA
Farmall® 50B CVT	NA

The compression test is meant to be a first check. If the compression looks good, you can move on and investigate other components which might cause the fault. If the test detects a low cylinder, you should perform a manual compression test to verify the results.

1. Connect one end of the general BNC cables to channel A on the oscilloscope. On the other end, connect the large red alligator clip **(1)** to the red battery positive (+) cable, and the black clip **(2)** to the battery negative (-) cable.



2. Select the number of cylinders corresponding in the engine. To start the test, click the Start button **(3)** in the lower left corner. A new window with a progress indicator will appear. Wait until the message in the window is "Crank Engine". Crank the engine until the progress indicator reaches 100%.



NOTE: *In relative compression mode, the result is always scaled to show the highest cylinder at 100%. The bars are ordered according to the engine's firing order. The cylinders are names A, B, C and so on. With only a connection to the battery the software has no way of knowing which cylinder is number one. This may cause the result to be shifted if you run the test on the same engine more than once.*

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FARMALL 40B, 45B AND 50B COMPACT TRACTORS WITH CVT TRANSMISSION AND CAB

47431073

ELECTRICAL SCHEMATIC

2012 PRODUCTION

PAGE 1 OF 2

SCHEMATIC PAGE INDEX

CHARGING SYSTEM/GLOW PLUG SYSTEM	PAGE 8
STARTING SYSTEM	PAGE 9
FNR/STARTING SYSTEM	PAGE 10
ENGINE CONTROL	PAGE 11
MODE CONTROL	PAGE 12
PTO, SEAT, BRAKE SWITCHES	PAGE 13
TRANSMISSION CONTROL	PAGE 14
DIAGNOSTIC CONNECTOR	PAGE 15
TRANSMISSION CONTROLLER	PAGE 16
TRANSMISSION SOLENOIDS/TRANSMISSION SENSORS	PAGE 17
TRANSMISSION SENSORS	PAGE 18
POWER DISTRIBUTION	PAGE 20
INSTRUMENTATION SENSORS	PAGE 21
INSTRUMENTATION SENSORS	PAGE 22
INSTRUMENT PANEL	PAGE 23
PROGRAM SWITCHES	PAGE 24
LIGHTING SWITCHES	PAGE 25
LIGHTING RELAYS	PAGE 26
LIGHTING	PAGE 27
WARNING LIGHT CONTROL	PAGE 28
WARNING LIGHTS	PAGE 29
CAB POWER DISTRIBUTION	PAGE 30
HVAC SYSTEM	PAGE 31
RADIO/DOME LIGHT/AUXILLARY POWER SOCKET	PAGE 32
WIPER SYSTEM	PAGE 33
WORK LIGHTS	PAGE 34
GROUNDS	PAGE 35
GROUNDS	PAGE 36

Note: Page 19 is not shown.

COLOR ABBREVIATIONS

ABBREVIATION	COLOR
R	RED
T	TAN
W	WHITE
Y	YELLOW
K	BLACK
BR	BROWN
G	GREY
O	ORANGE
P	PINK
V	VIOLET (PURPLE)
DB	DARK BLUE
LB	LIGHT BLUE
DG	DARK GREEN
LG	LIGHT GREEN

NOTES:
1. FOR ELECTRICAL SYSTEM INSTRUCTIONS SEE ES-47084
2. DIAGRAM SHOWN WITH VEHICLE PARKED, POWER OFF, ALL CONTROLS IN NEUTRAL AND PARK BRAKE SET.

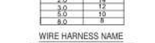
WIRE SIZE CHART

Square (mm)	AWG
0.5	20
0.8	18
1.0	16
2.0	14
3.0	12
5.0	10
8.0	8

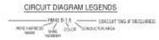
WIRE HARNESS NAME

ABBREVIATION	HARNESS
HM	MAIN
HC	CHASSIS
HP	PANEL
HH	HOOD
HB	BATTERY CABLE
HR	ROOF

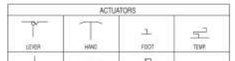
WIRING REFERENCES



CIRCUIT DIAGRAM LEGENDS



ACTUATORS



HOUSINGS

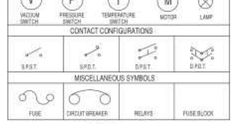


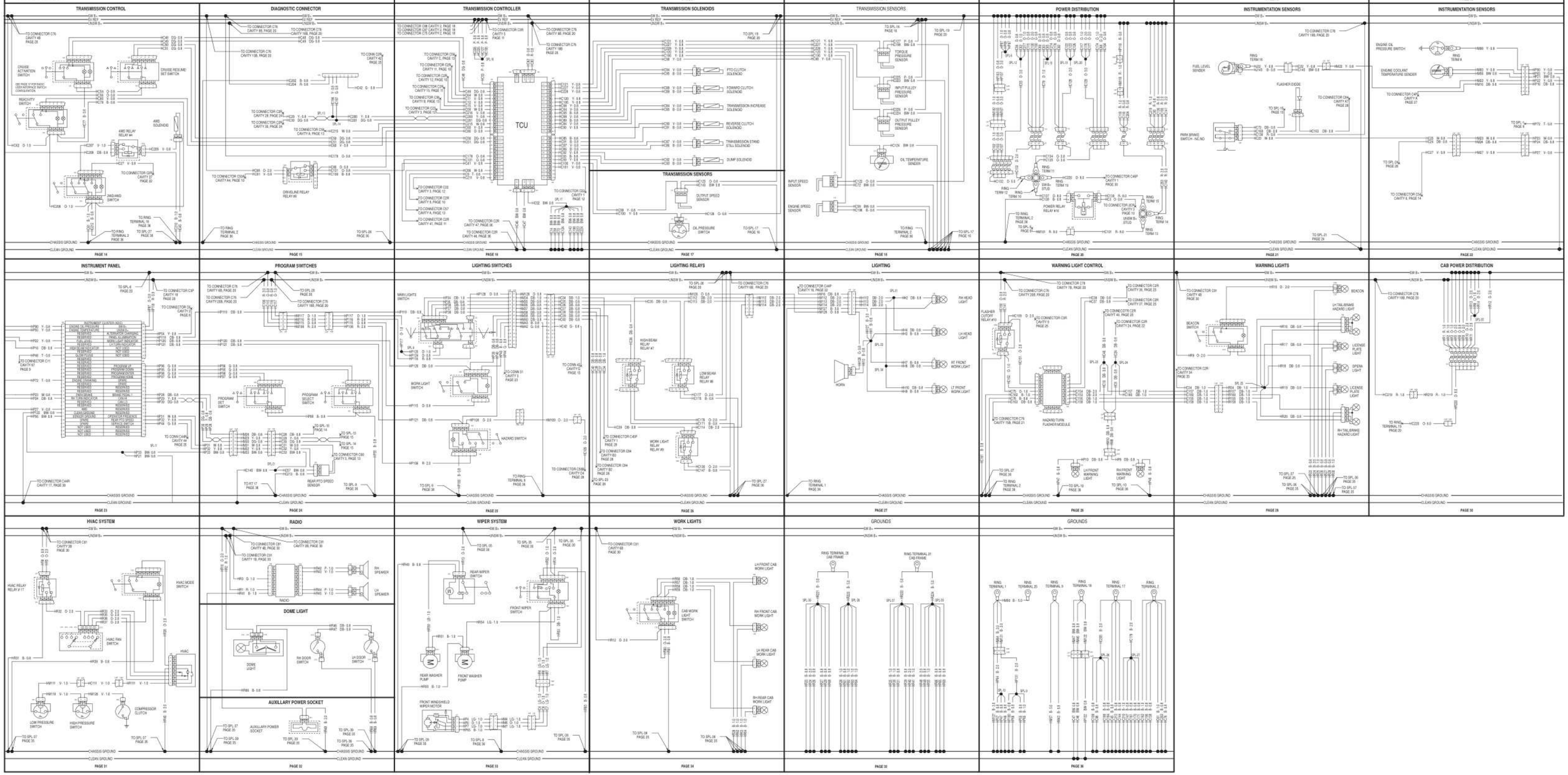
CONTACT CONFIGURATIONS



MISCELLANEOUS SYMBOLS







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