SERVICE MANUAL

Boomer™ 46D CVT
Boomer™ 54D CVT
Tier 4B (final)
Compact Tractor

Part number 47851943
1st edition English
February 2016

NEW HOLLAND AGRICULTURE

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Mechanical service brakes - General specification

SPECIFICATIONS

Brake Discs	
No. of Brake Discs	3
Width of Brake Surface	**27 mm (1.06 in)**
Disc OD	**163.9 mm (6.45 in)**
Total Brake Surface Area per Side	**10837.53 m² (16.9 in²)**
Total Brake Disc Thickness	**4.75 mm (0.18 in)**
Friction Material Thickness per Side	**0.950 mm (0.037 in)**
Standard Lining Groove Depth	**0.45 mm (0.017 in)**
Allowable Limit (Minimal Groove Depth)	**0.112 mm (0.004 in)**
Stators	
No. of Stators	1
Stator Thickness	**2.65 mm (0.10 in)**
Brake Pedal Free-Play	**30 - 40 mm (1.18 - 1.57 in)**

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Use a multimeter to perform the following resistance check:

From	To	Value
X-9007 pin 1	**X-9007 pin 2**	There should be between **2.8 - 3.2 Ω** (**2.8 - 3.2 Ω**).

A. If the value is in the specified range, see **Fuel injection system - Troubleshooting (10.218)** to diagnose the fuel injection system.

B. If the value is not in the specified range, the Y-9000 has failed internally. Replace the Y-9000 then refer to **Pressure regulating valve - Configure (10.218)** if necessary, to perform the Replacement of the Rail Pressure Metering Unit - Reset ECU Data.

5. Visually inspect the relevant harnesses and connectors for damage, bent or dislocated pins, corroded terminals, or broken wires. Verify that the connectors are fully installed. Flex the harnesses involved to reveal intermittent breaks or shorts in the wiring concerned. Operate the machine while you monitor the display.

A. If you find damage or the display indicates other than normal display readings, then repair the damage discovered during the inspection or locate and repair the other than normal display condition and verify that the error has been resolved.

B. If you do not find damage and the display indicates only normal readings, then erase the fault code and continue operation.

Wiring harnesses - Electrical schematic sheet 03 (55.100)

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4. Determine the condition of the ECU A-9000 CAN circuit.

   With the key switch in the OFF position, use a multimeter to measure the resistance of the CAN connection on the vehicle (VE) harness side:

From	To	Value
X-9102 pin K24	**X-9102 pin K25**	There should be **120 Ω**.
X-9102 pin K24	chassis ground	There should be no continuity
X-9102 pin K25	chassis ground	There should be no continuity

   Use a multimeter to measure the resistance of the CAN termination resistor, internal to the ECU A-9000:

From	To	Value
X-9102 pin K24	**X-9102 pin K25**	There should be **120 Ω**.

   A. If the measured resistances are correct and neither conductor is grounded, check the ECU A-9000 for the appropriate software and re-flash, if necessary.

   B. If the measured resistances are not correct or one or both of the conductors is grounded, see the appropriate vehicle service manual and electrical schematics, if necessary, to locate and restore the termination resistance to the CAN circuit.

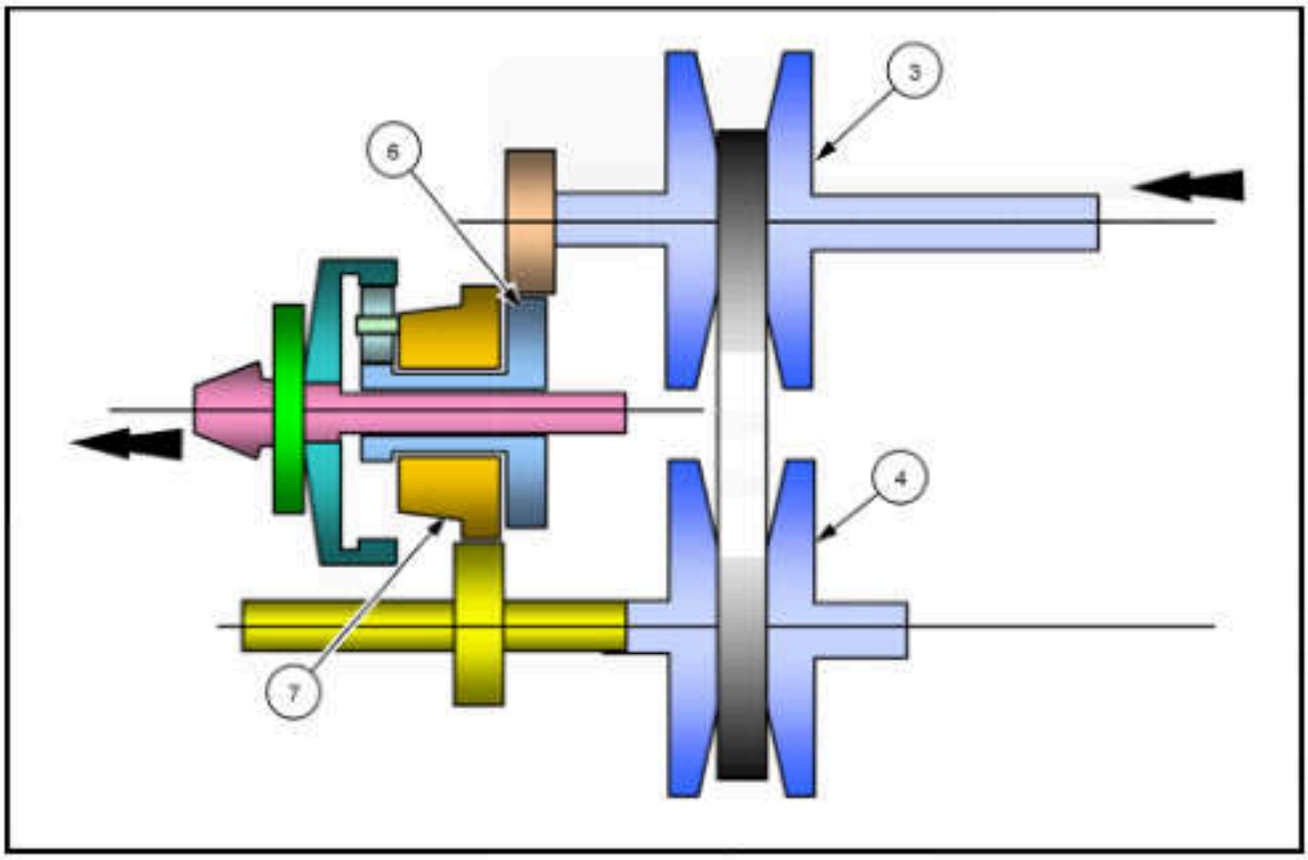
5. Visually inspect the relevant harnesses and connectors for damage, bent or dislocated pins, corroded terminals, or broken wires. Verify that the connectors are fully installed. Flex the harnesses involved to reveal intermittent breaks or shorts in the wiring concerned. Operate the machine while you monitor the display.

   A. If you find damage or the display indicates other than normal display readings, then repair the damage discovered during the inspection or locate and repair the other than normal display condition and verify that the error has been resolved.

   B. If you do not find damage and the display indicates only normal readings, then erase the fault code and continue operation.

Wiring harnesses - Electrical schematic sheet 02 – Engine Control Unit (ECU) power and after treatment system (engine schematics) (55.100.DP-C.20.E.02)

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NH(L12CT30G26FA 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.

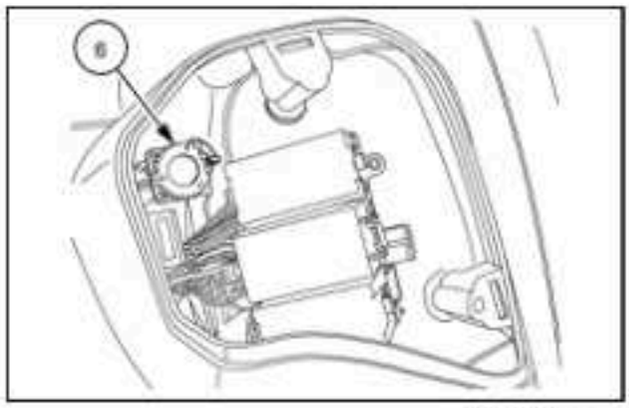
Planetary Reduction

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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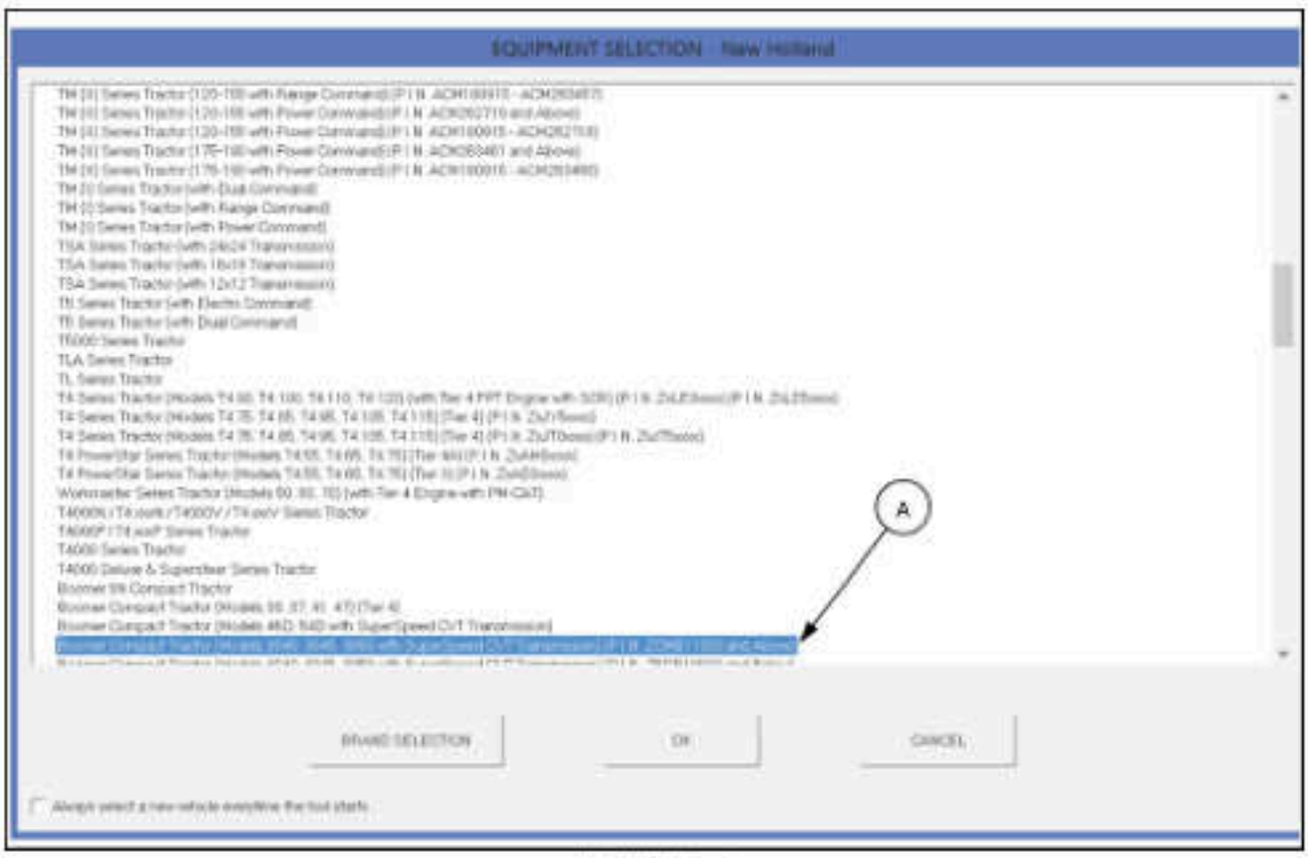
11. Install a **138 bar** (**2000 psi**) hydraulic gauge **(5)** with 1/4 hose onto the 1/4 JIC male **(E)** side of the "tee" fitting.

12. Connect the electronic service tool (EST) to the tractor diagnostic port **(6)**



NHIL1GCT0021SAA 5

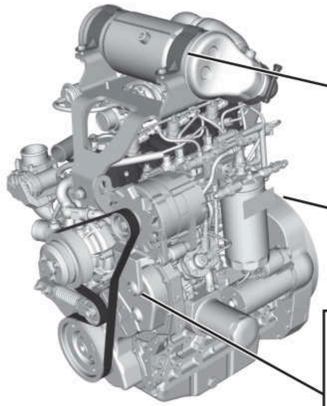
Select the following functions of the electronic service tool (EST) :

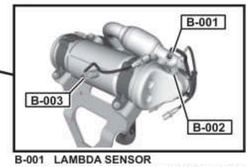


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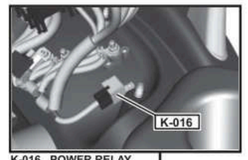
13. Select (Correct Model) **(A)**

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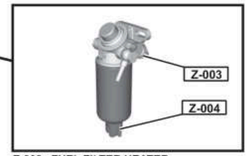




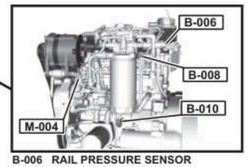
B-001 LAMBDA SENSOR
B-002 EXHAUST GAS TEMP DOC SENSOR
B-003 EXHAUST GAS TEMP POC SENSOR



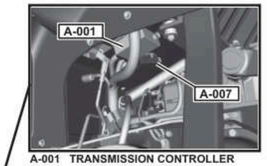
K-016 POWER RELAY



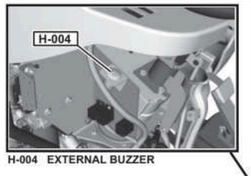
Z-003 FUEL FILTER HEATER
Z-004 WATER IN FUEL SENSOR



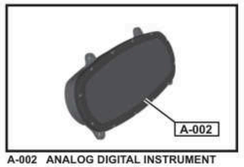
B-006 RAIL PRESSURE SENSOR
B-008 FUEL TEMPERATURE SENSOR
B-010 ENGINE OIL PRESSURE SWITCH
M-004 HIGH PRESSURE PUMP



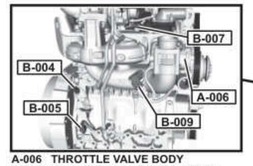
A-001 TRANSMISSION CONTROLLER
A-007 FLASHER MODULE



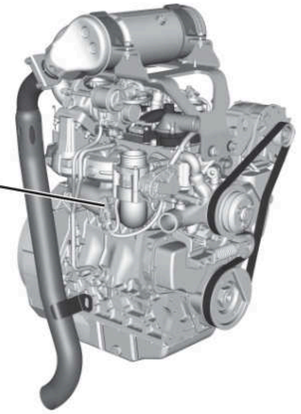
H-004 EXTERNAL BUZZER

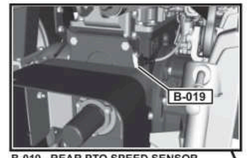


A-002 ANALOG DIGITAL INSTRUMENT CLUSTER (ADIC)

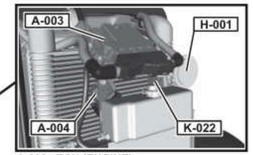


A-006 THROTTLE VALVE BODY
B-004 CRANKSHAFT SPEED SENSOR
B-005 CAMSHAFT PHASE SENSOR
B-007 ENGINE COOLANT TEMP SENSOR
B-009 BOOST PRESSURE AND TEMP SENSOR

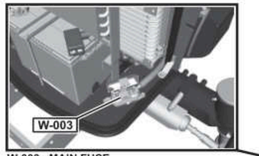




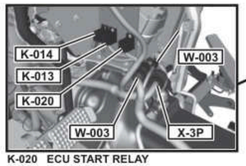
B-019 REAR PTO SPEED SENSOR



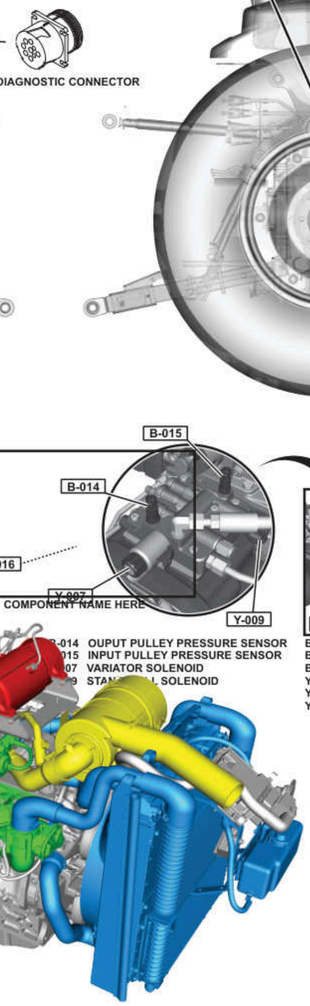
A-003 ECU (ENGINE)
A-004 GLOW PLUG CONTROL UNIT
K-022 MAIN ECU POWER REPLAY
H-001 HORN



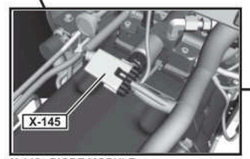
W-003 MAIN FUSE



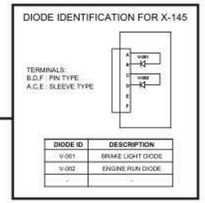
K-020 ECU START RELAY
K-013 CRANK RELAY
K-014 FUEL HEATER CUTOFF RELAY
X-2P MAIN - CHASSIS POWER
X-3P MAIN - CHASSIS SIGNAL
X-47R MAIN - ECU POWER RELAY



X-042 DIAGNOSTIC CONNECTOR



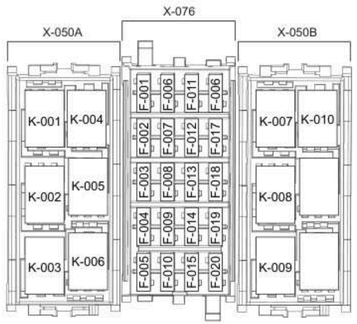
X-145 DIODE MODULE



FUSE AND RELAY INFORMATION

X-076 (FUSES)		
FUSE ID	DESCRIPTION	AMPERE RATING
F-001	ECU SW B+	10
F-002	ECU SW B+	15
F-003	SPARE	SPARE
F-004	ADIC/FNR/FOOT THROTTLE	20
F-005	TRANSMISSION CONTROL	10
F-006	WORK LIGHTS	25
F-007	FLASHER CUTOFF	10
F-008	SEAT/PTO SWITCHES	7.5
F-009	TRANSMISSION CONTROLLER	15
F-010	TRANSMISSION SENSORS	10

X-076 (FUSES)		
FUSE ID	DESCRIPTION	AMPERE RATING
F-011	POSITION/HEAD LIGHTS	20
F-012	FUEL FILTER HEATER	25
F-013	DRIVELIINE B+	15
F-014	BRAKE LIGHTS	10
F-015	SPARE	SPARE
F-016	ADIC/HORN/DIAGNOSTIC CONN.	10
F-017	SPARE	SPARE
F-018	TRANSMISSION CONTROLLER	10
F-019	PARK BRAKE	15
F-020	HAZARD LIGHTS	20



X-050A (RELAYS)	
RELAY ID	DESCRIPTION
K-001	NEUTRAL RELAY
K-002	MID PTO RELAY
K-003	ENGINE SHUT OFF RELAY
K-004	4WD RELAY
K-005	SPARE
K-006	DRIVE LINE RELAY
X-050B (RELAYS)	
K-007	HIGH BEAM RELAY
K-008	LOW BEAM RELAY
K-009	WORK LIGHT RELAY
K-010	FLASHER CUTOFF RELAY

S-016 COMPONENT NAME HERE
B-011 OIL PRESSURE SWITCH
B-012 INPUT SPEED SENSOR
B-017 OIL TEMPERATURE SENSOR
Y-005 FORWARD CLUTCH SOLEN
Y-006 REVERSE CLUTCH SOLEN
Y-008 DUMP SOLENOID

S-016 COMPONENT NAME HERE
-014 OUPUT PULLEY PRESSURE SENSOR
-015 INPUT PULLEY PRESSURE SENSOR
-007 VARIATOR SOLENOID
-009 STAN L SOLENOID

S-016 COMPONENT NAME HERE
B-012 INPUT SPEED SENSOR
B-013 OUTPUT SPEED SENSOR
B-016 TORQUE PRESSURE SENSOR
Y-004 4WD SOLENOID
Y-008 DUMP SOLENOID
Y-010 PTO CLUTCH SOLENOID

S-016 COMPONENT NAME HERE

S-016 COMPONENT NAME HERE

S-016 COMPONENT NAME HERE

BOOMER 46D CVT / BOOMER 54D CVT TRACTOR

47906738

ELECTRICAL SCHEMATIC

NORTH AMERICAN MODELS, MODEL YEAR 2015

ID	Name	ID	Name
A-001	TRANSMISSION CONTROLLER	H-001	HORN
A-002	ADIC	H-004	EXTERNAL BUZZER
A-003	ECU (ENGINE)	K-013	CRANK RELAY
A-006	THROTTLE VALVE BODY	K-014	FUEL HEATER CUTOFF RELAY
A-007	FLASHER MODULE	K-016	POWER REPLAY
A-007	GLOW PLUG CONTROL UNIT	K-020	ECU START RELAY
B-001	LAMBDA SENSOR	K-022	MAIN ECU POWER RELAY
B-002	EXHAUST GAS TEMPERATURE DOC SENSOR	M-004	HIGH PRESSURE PUMP
B-003	EXHAUST GAS TEMPERATURE POC SENSOR	V-001	BRAKE LIGHT DIODE
B-004	CRANKSHAFT SPEED SENSOR	V-002	ENGINE RUN DIODE
B-005	CAMSHAFT PHASE SENSOR	W-003	MAIN FUSE
B-006	RAIL PRESSURE SENSOR	X-145	DIODE MODULE
B-007	ENGINE COOLANT TEMPERATURE SENSOR	X-2P	MAIN - CHASSIS POWER
B-008	FUEL TEMPERATURE SENSOR	X-3P	MAIN - CHASSIS SIGNAL
B-009	BOOST PRESSURE AND TEMPERATURE SENSOR	X-47R	MAIN - ECU POWER RELAY
B-010	ENGINE OIL PRESSURE SWITCH	Y-004	4WD SOLENOID
B-011	OIL PRESSURE SWITCH	Y-005	FORWARD CLUTCH SOLENOID
B-012	INPUT SPEED SENSOR	Y-006	REVERSE CLUTCH SOLENOID
B-013	OUTPUT SPEED SENSOR	Y-007	VARIATOR SOLENOID
B-014	OUTPUT PULLEY PRESSURE SENSOR	Y-008	DUMP SOLENOID
B-015	INPUT PULLEY PRESSURE SENSOR	Y-009	STAND STILL SOLENOID
B-016	TORQUE PRESSURE SENSOR	Y-010	PTO CLUTCH SOLENOID
B-017	OIL TEMPERATURE SENSOR	Z-003	FUEL FILTER HEATER
B-019	REAR PTO SPEED SENSOR	Z-004	WATER IN FUEL SENSOR

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