SERVICE MANUAL

Vector
Tier 2 and Stage II
Engine

See the following page for engine model numbers

Part number 84586876
2nd edition English
November 2016
Replaces part number 84373244

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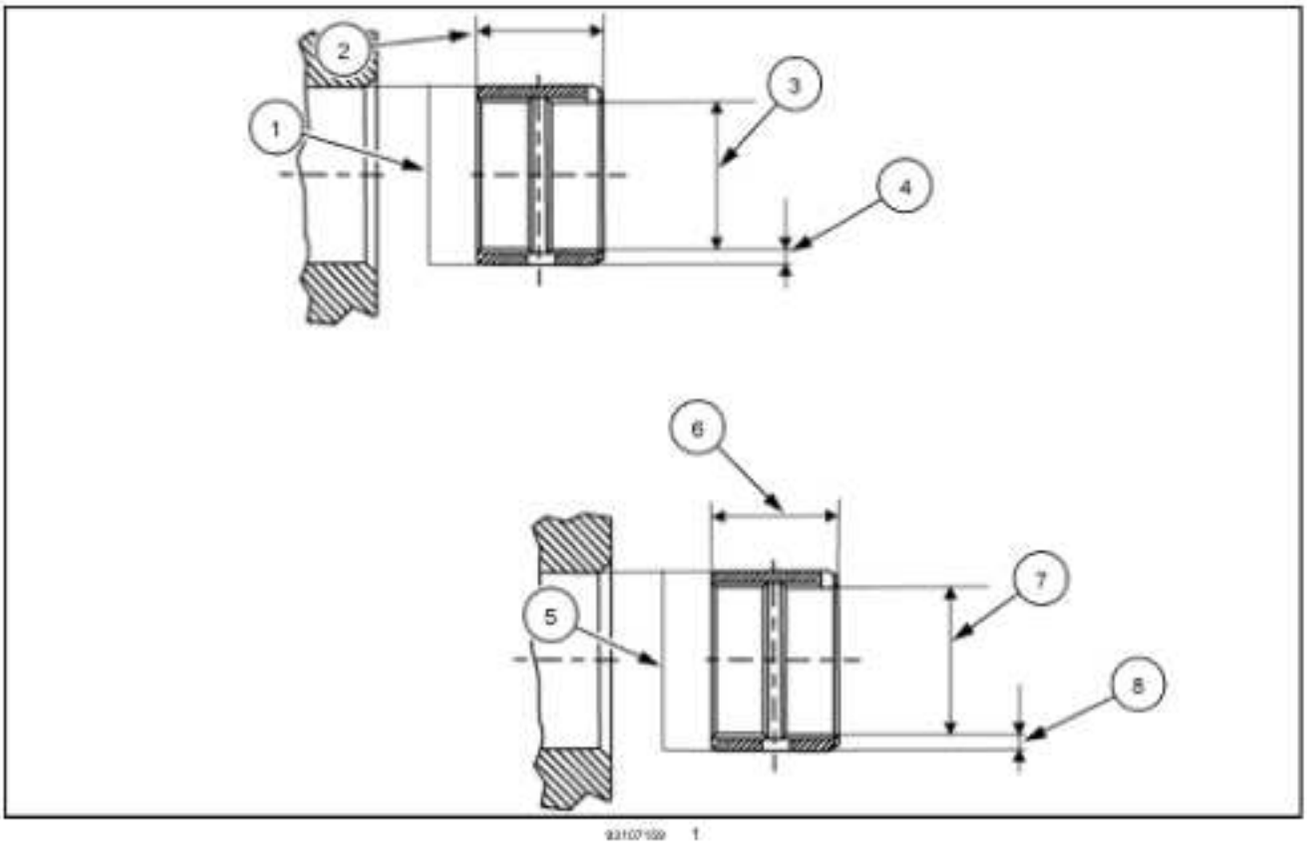
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Camshaft bushings - General specification



(1) 86.133 - 86.163 mm (3.3911 - 3.3922 in)
(2) 36.00 - 35.50 mm (1.417 - 1.398 in)
(3) 80.018 - 80.087 mm (3.1503 - 3.1530 in)
(4) Thickness will vary. Must not exceed **0.025 mm (0.001 in)**

(5) 86.133 - 86.163 mm (3.3911 - 3.3922 in)
(6) 45.50 - 45.00 mm (1.791 - 1.772 in)
(7) 80.018 - 80.087 mm (3.1503 - 3.1530 in)
(8) Thickness will vary. Must not exceed **0.025 mm (0.001 in)**

These bushings are forced into their seats. The internal surfaces must be smooth with no sign of seizure or wear.

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CONNECTOR X-9000 - A-9000 Engine Control Unit (ECU)			
PIN NUMBER	WIRE NUMBER	CIRCUIT REFERENCE	ELECTRICAL SCHEMATIC FRAME
3	EN - 1005 GY 0.5	Rail fuel pressure sensor – ECU ground	
4	-	Not used	
5	-	Not used	
6	-	Not used	
7	-	Not used	
8	-	Not used	
9	-	Not used	
10	-	Not used	
11	-	Not used	
12	-	Not used	
13	-	Not used	
14	EN - 0907 GY 0.5	Atmospheric pressure sensor – Sensor signal to the ECU	
15	-	Not used	
16	-	Not used	
17	-	Not used	
18	EN - 0906 GY 0.5	Atmospheric pressure sensor – ECU ground	
19	-	Not used	
20	EN - 0915 GY 0.5	Cylinder 2 injector solenoid (pin 1)	
21	EN - 0918 GY 0.5	Cylinder 4 injector solenoid (pin 1)	
22	-	Not used	
23	-	Not used	
24	EN - 1006 GY 0.5	Common rail fuel pressure sensor – Sensor signal to the ECU	
25	EN - 0910 GY 0.5	Oil pressure sensor – Sensor signal to the ECU	
26	-	Not used	
27	-	Not used	
28	EN - 0921 GY 0.5	Cylinder 6 injector solenoid (pin 1)	
29	EN - 1013 GY 0.5	Cylinder 8 injector solenoid (pin 1)	
30	-	Not used	
31	-	Not used	
32	EN - 0911 GY 0.5	Oil temperature sensor – Sensor signal to the ECU	
33	EN - 1002 GY 0.5	Coolant temperature sensor – Sensor signal to the ECU	
34	EN - 1003 GY 0.5	Fuel temperature sensor – Sensor signal to the ECU	
35	EN - 0912 GY 0.5	Intake air temperature – Sensor signal to the ECU	
36	EN - 0913 GY 0.5	Cylinder 1 and 2 injector solenoids – Common ECU ground (pin 2)	
37	EN - 0916 GY 0.5	Cylinder 3 and 4 injector solenoids – Common ECU ground (pin 2)	

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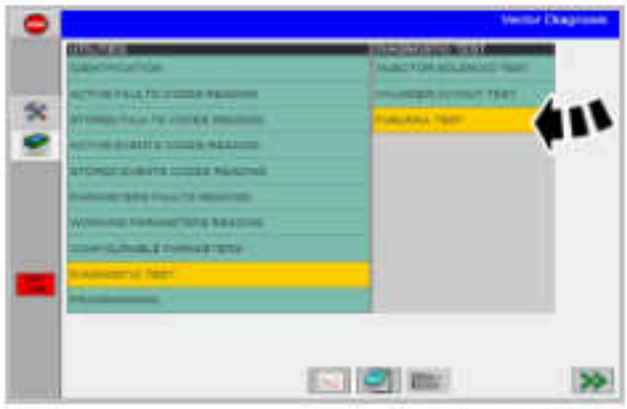
Diagnostic connector - Dynamic description Fault codes

NOTE: *Detailed troubleshooting is available in Section 55.640 of the service manual.*

E1538-01 (DTC 100)	Low engine oil pressure, shutdown - data is valid but below normal operational range
E1538-17 (DTC 100)	Low engine oil pressure, warning - data is valid but below normal operating level
E1544-00 (DTC 105)	High intake air (boost) temperature, shutdown - data is valid but above normal operational range
E1544-15 (DTC 105)	High intake air (boost) temperature, warning - data is valid but above normal operating level
E1544-16 (DTC 105)	High intake air (boost) temperature, derate - data is valid but above normal operating level
E1542-00 (DTC 110)	High engine coolant temperature, shutdown - data is valid but above normal operational range
E1542-15 (DTC 110)	High engine coolant temperature, warning - data is valid but above normal operating level
E1542-16 (DTC 110)	High engine coolant temperature, derate - data is valid but above normal operating level
E1543-01 (DTC 168)	Low system voltage, shutdown - data is valid but below normal operational range
E1543-04 (DTC 168)	Low system voltage - voltage below normal or shorted to low source
E1543-15 (DTC 168)	Low system voltage, warning - data is valid but above normal operating level
E1537-00 (DTC 157)	High fuel rail pressure, shutdown - data is valid but above normal operational range
E1537-01 (DTC 157)	Low fuel rail pressure, shutdown - data is valid but below normal operational range
E1537-15 (DTC 157)	High fuel rail pressure, warning - data is valid but above normal operating level
E1537-17 (DTC 157)	Low fuel rail pressure, warning - data is valid but below normal operating level
E1545-00 (DTC 174)	High fuel temperature, shutdown - data is valid but above normal operational range
E1545-15 (DTC 174)	High fuel temperature, warning - data is valid but above normal operating level
E1545-16 (DTC 174)	High fuel temperature, derate - data is valid but above normal operating level
E1567-00 (DTC 175)	High engine oil temperature, shutdown - data is valid but above normal operational range
E1567-15 (DTC 175)	High engine oil temperature, warning - data is valid but above normal operating level
E1567-16 (DTC 175)	High engine oil temperature, derate - data is valid but above normal operating level
E1567-18 (DTC 175)	Low engine oil temperature, derate - data is valid but below normal operating level
E1546-15 (DTC 190)	Engine overspeed, warning - data is valid but above normal operating level
E1539-16 (DTC 1127)	High boost pressure, derate - data is valid but above normal operating level

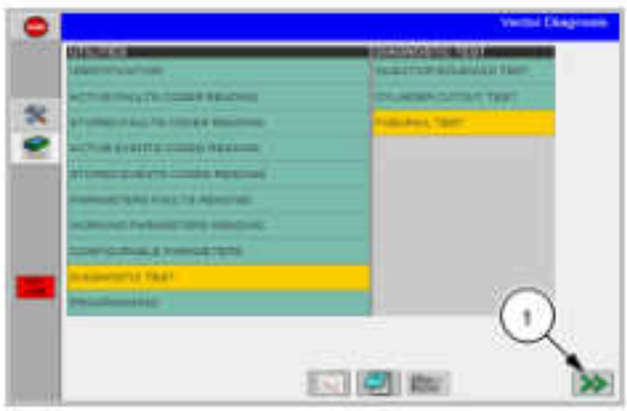
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6. Select the "Fuel Rail Test" botton.



NHPH12ENG0087AA 4

7. Click on the "Start" **(1)** (green double arrows).



NHPH12ENG0087AA 5

8. Click on the "Start" button **(1)** to start the test. This image shows normal engine running fuel pressure **(2)** at idle with no engine load.



NHPH12ENG0077AA 6

9. You will now be able to control the Fuel Metering Unit to "Step Down" **(1)** and "Step Up" **(2)** the commanded fuel pressure.

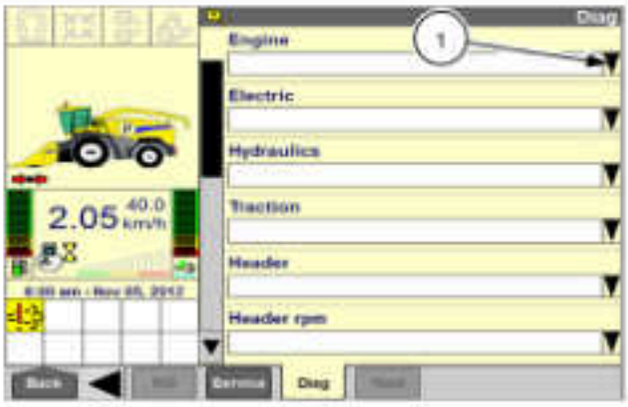


NHPH12ENG0077AA 7

NOTICE: *Do Not perform this test with the engine at high RPMs. Only perform this test at engine idle RPMs.*

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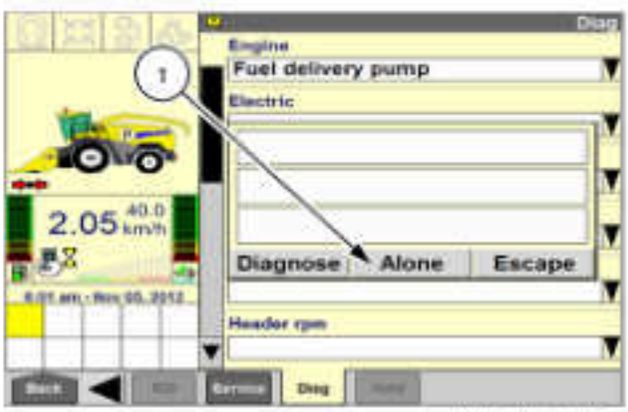
5. Press the drop down arrow for the engine group **(1)**.



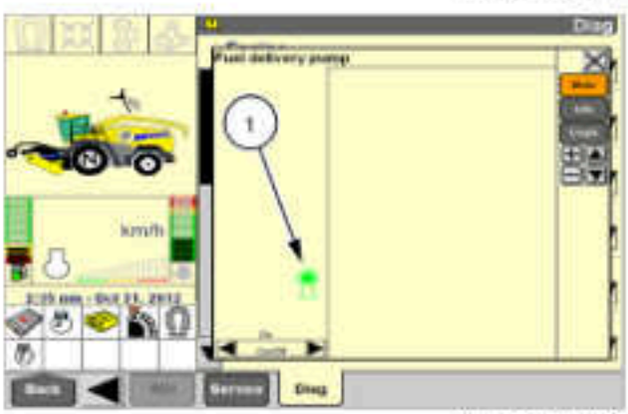
6. Press the "Fuel delivery pump" button **(1)**.



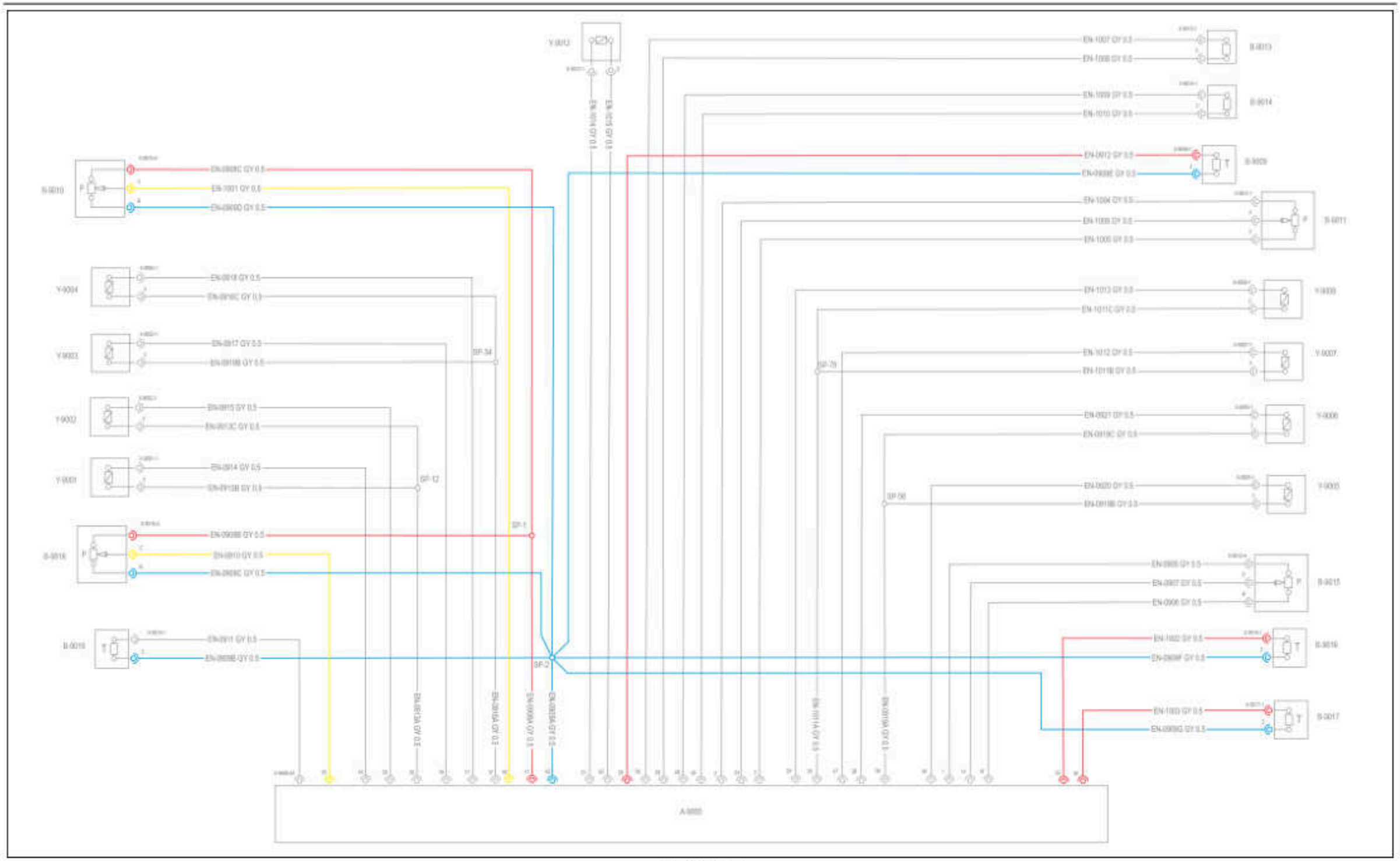
7. Press the "Alone" button **(1)**.



8. Press the toggle switch on the display **(1)**. The switch will turn to the color green when the electric pump is ON.



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