

WDI 504
Tier 4B (final)
Self-Propelled Windrower
PIN YGG677501 and above

SERVICE MANUAL

Part number 48126552
1st edition English
April 2017



Link Product / Engine

Product	Market Product	Engine
WD1504 Tier 4b (final) [YGG677501 -]	North America	F4HFE413H*B001

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INTRODUCTION

Foreword - Important notice regarding equipment servicing

All repair and maintenance work listed in this manual must be carried out only by qualified dealership personnel, strictly complying with the instructions given, and using, whenever possible, the special tools.

Anyone who performs repair and maintenance operations without complying with the procedures provided herein shall be responsible for any subsequent damages.

The manufacturer and all the organizations of its distribution chain, including - without limitation - national, regional, or local dealers, reject any responsibility for damages caused by parts and/or components not approved by the manufacturer, including those used for the servicing or repair of the product manufactured or marketed by the manufacturer. In any case, no warranty is given or attributed on the product manufactured or marketed by the manufacturer in case of damages caused by parts and/or components not approved by the manufacturer.

The manufacturer reserves the right to make improvements in design and changes in specifications at any time without notice and without incurring any obligation to install them on units previously sold. Specifications, descriptions, and illustrative material herein are as accurate as known at time of publication but are subject to change without notice.

In case of questions, refer to your CASE IH Sales and Service Networks.

Safety rules

Personal safety



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

 DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

 WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

 CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

Machine safety

NOTICE: Notice indicates a situation that, if not avoided, could result in machine or property damage.

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

Information

NOTE: Note indicates additional information that clarifies steps, procedures, or other information in this manual.

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

Safety rules

General safety rules

Use caution when operating the machine on slopes. Raised equipment, full tanks and other loads will change the center of gravity of the machine. The machine can tip or roll over when near ditches and embankments or uneven surfaces.

- Only skilled operators who are familiar with all the controls and harvesting techniques should use the equipment. It is recommended to operate on cultivated land with slopes no greater than **26%** (**15°**) uphill and downhill.
- If necessary, when driving downhill change into a lower gear before starting the descent. Machine must be stopped to downshift into a lower gear.

Never permit anyone other than the operator to ride on the machine.

Never operate the machine under the influence of alcohol, drugs, or while otherwise impaired.

Pay attention to overhead power lines and hanging obstacles. High voltage lines may require significant clearance for safety.

Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin, causing serious injury or infection.

- DO NOT use your hand to check for leaks. Use a piece of cardboard or paper.
- Stop engine, remove key and relieve the pressure before connecting or disconnecting fluid lines.
- Make sure all components are in good condition and tighten all connections before starting the engine or pressurizing the system.
- If hydraulic fluid or diesel fuel penetrates the skin, seek medical attention immediately.
- Continuous long term contact with hydraulic fluid may cause skin cancer. Avoid long term contact and wash the skin promptly with soap and water.

Keep clear of moving parts. Loose clothing, jewelry, watches, long hair, and other loose or hanging items can become entangled in moving parts.

Wear protective equipment when appropriate.

DO NOT attempt to remove material from any part of the machine while it is being operated or components are in motion.

Make sure all guards and shields are in good condition and properly installed before operating the machine. Never operate the machine with shields removed. Always close access doors or panels before operating the machine.

Dirty or slippery steps, ladders, walkways, and platforms can cause falls. Make sure these surfaces remain clean and clear of debris.

A person or pet within the operating area of a machine can be struck or crushed by the machine or its equipment. DO NOT allow anyone to enter the work area.

Raised equipment and/or loads can fall unexpectedly and crush persons underneath. Never allow anyone to enter the area underneath raised equipment during operation.

Never operate engine in enclosed spaces as harmful exhaust gases may build up.

Before starting the machine, be sure that all controls are in neutral or park lock position.

Start the engine only from the operator's seat. If the safety start switch is bypassed, the engine can start with the transmission in gear. Do not connect or short across terminals on the starter solenoid. Attach jumper cables as described in the manual. Starting in gear may cause death or serious injury.

Always keep windows, mirrors, all lighting, and Slow Moving Vehicle (SMV) emblem clean to provide the best possible visibility while operating the machine.



SERVICE MANUAL

Engine

WD1504 Tier 4b (final) [YGG677501 -]

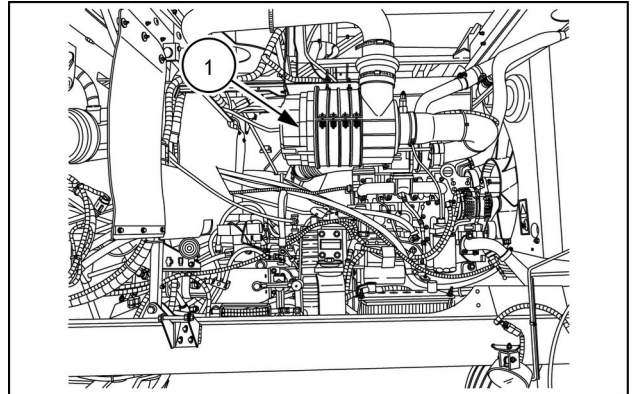
Replace primary (outer) air filter

The display will indicate when you must perform routine service for the air filter.

Replace both the outer and inner filters annually.

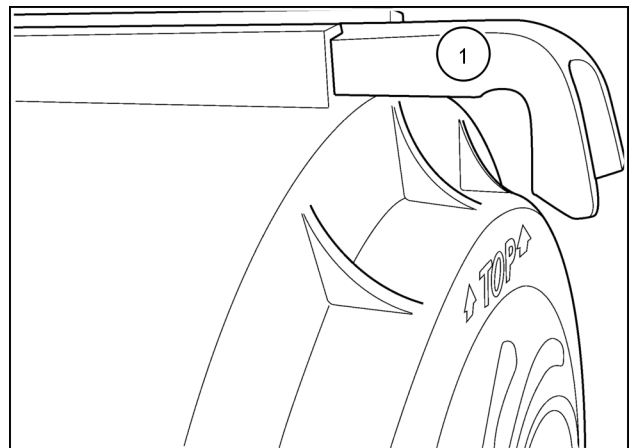
NOTICE: Do not clean the inner filter.

1. The air filter (1) is located under the left engine bay door.



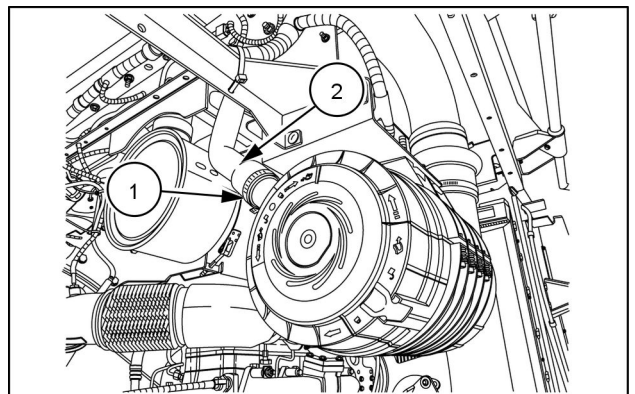
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2. To remove the element, pull the yellow latch (1) out.



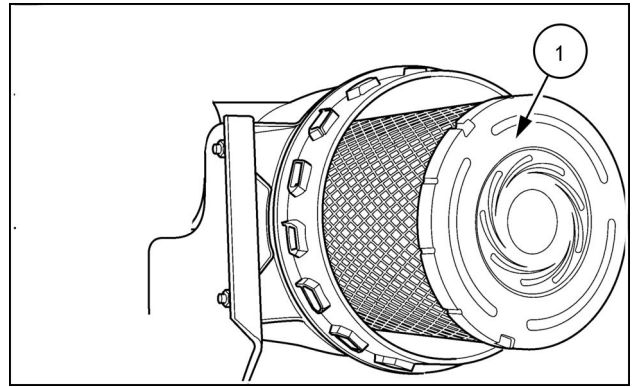
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3. Remove the hose clamp (1) on the bottom of the cover.
4. Remove the hose (2) from the cover.
5. Rotate the outer cover counter-clockwise.
6. Pull the cover off.



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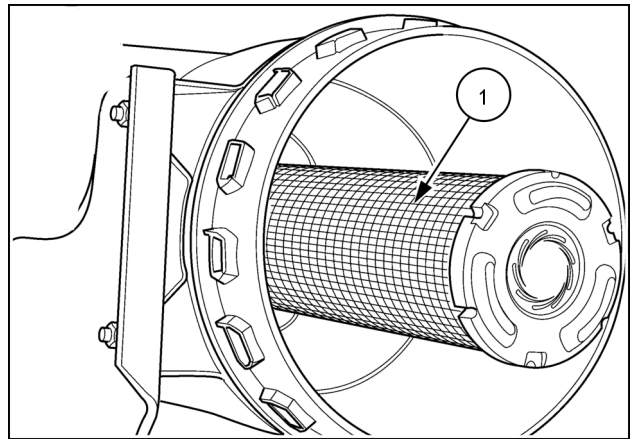
7. Pull the outer filter (1) out.



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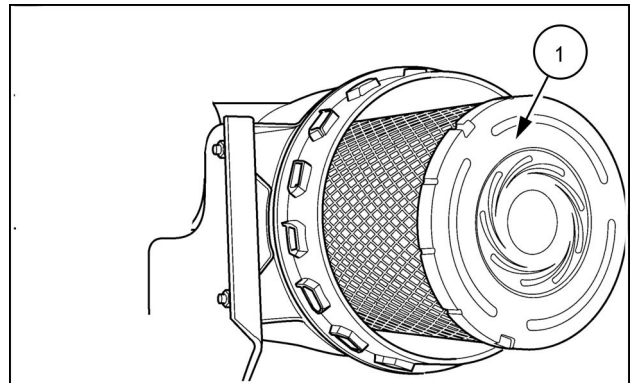
8. Clean the inside of the air cleaner housing and cover using a damp, lint-free cloth.

NOTICE: Do not remove or disturb the inner element (1). The inner element must be replaced if there is any sign of dirt on it. The inner element should not be cleaned, but only replaced.



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9. Install the outer element (1). Push the element in all the way.



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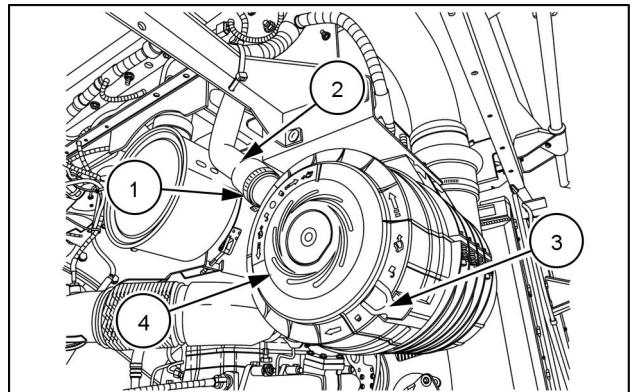
10. Install the cover (4) at the angle at which it was removed.

11. Rotate the cover clockwise.

12. Push in the yellow latch (3).

13. Install the hose (2) back onto the cover.

14. Secure the hose to the cover with hose clamp (1).



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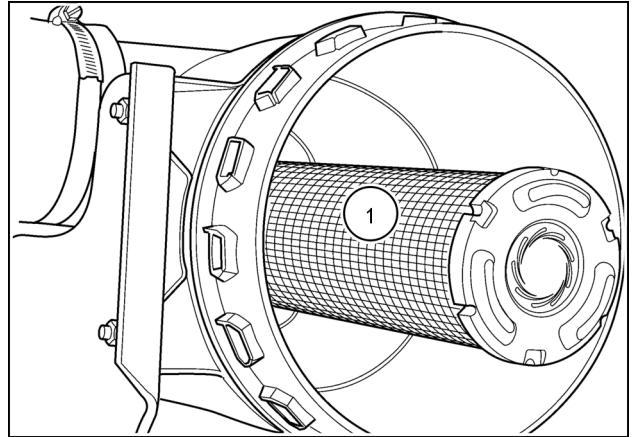
Replace secondary (inner) air filter

The display will indicate when you must perform routine service for the air filter.

Replace both the outer and inner filters annually.

NOTICE: Do not clean the inner filter.

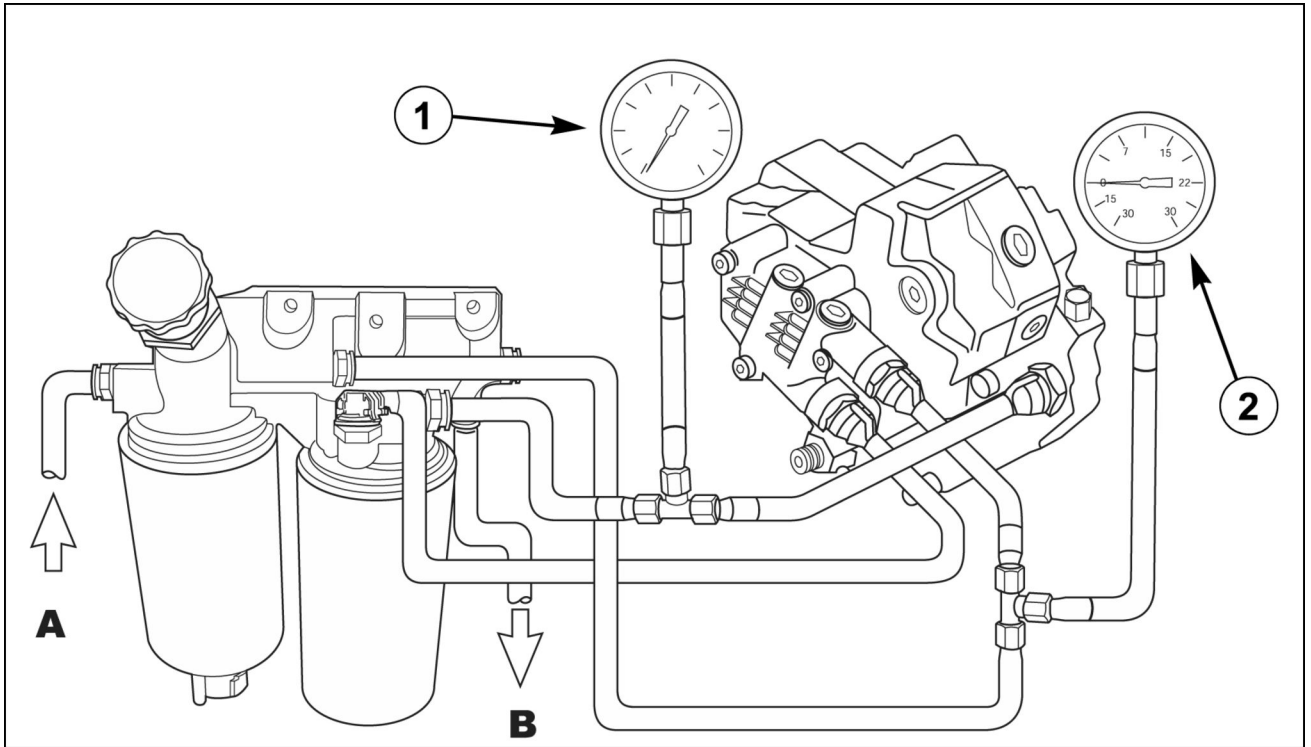
1. Remove the outer filter as described in **Replace primary (outer) air filter (10.202)**.
2. Pull the inner filter **(1)** out. Some wiggling may be necessary.
3. Clean the inside of the air cleaner housing and the cover with a damp, lint-free cloth.
4. Install the outer filter and close the housing as described in **Replace primary (outer) air filter (10.202)**.



10041167 1

Fuel injection system - Test

Fuel inlet restriction/air entering system



BAIL08CVT128ASA 1

- (1) 380100057 0 – 11 bar (0 – 160 psi) gauge and hose assembly
- (2) 380100056 0 – 100 kPa / 0 – 30 in / HG, 0 – 200 kPa / 0 – 30 in PSI Gauge Assembly
- (A) From fuel tank
- (B) Return to fuel tank

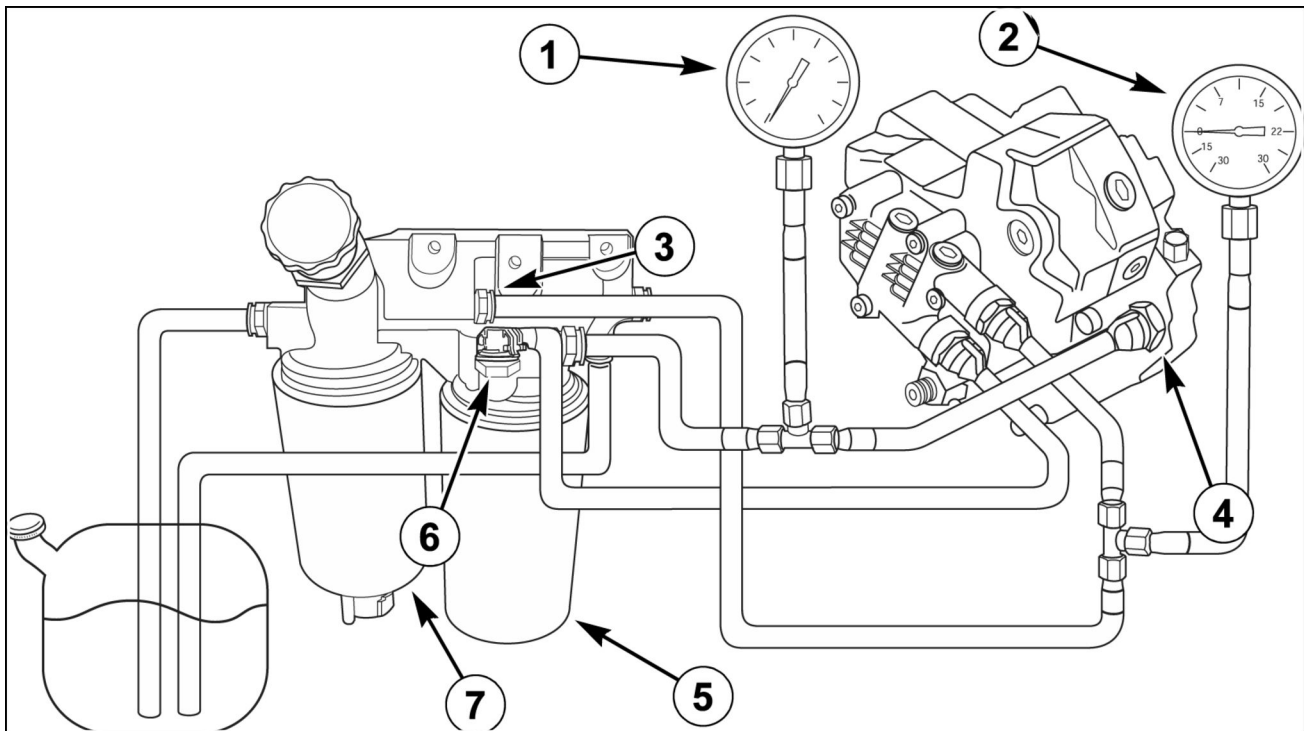
NOTE: Use the contents of special tool 380140055 for these tests.

1. Install 380100056 at the inlet of the low pressure pump (after the primary filter).
 - This test line contains a compound gauge 0 – 762 mm (0 – 30 in) of Hg vacuum and 0 – 2.07 bar (0 – 30 psi) positive pressure. This test line is constructed with clear tubing to allow observation for air in the system.
 - Operate the engine to purge air from the system which entered during gauge installation.
2. Install 380100057 between the outlet of the fuel filter and the inlet of the high pressure pump.
 - This test line contains a pressure gauge 0 – 11 bar (0 – 160 psi).

NOTE: The clear line could be left in place over night to check for a slow air ingress leak.

3. When air is no longer visible in the clear test line, measure and record the operating pressure, while continually observing for air in the fuel. Fuel Pressure Specification between Filter and High Pressure Pump: **5 bar (72 psi)** minimum. Conditions:

- _____ Gauge 1 _____ Gauge 2: Low idle; apply no load to the engine.
- _____ Gauge 1 _____ Gauge 2: **1500 RPM** apply no load to the engine.
- _____ Gauge 1 _____ Gauge 2: High idle; apply load to the engine using the hydraulics (over relief), hydrostatic stall, converter stall, or dynamometer. Load the engine to its rated rpm.

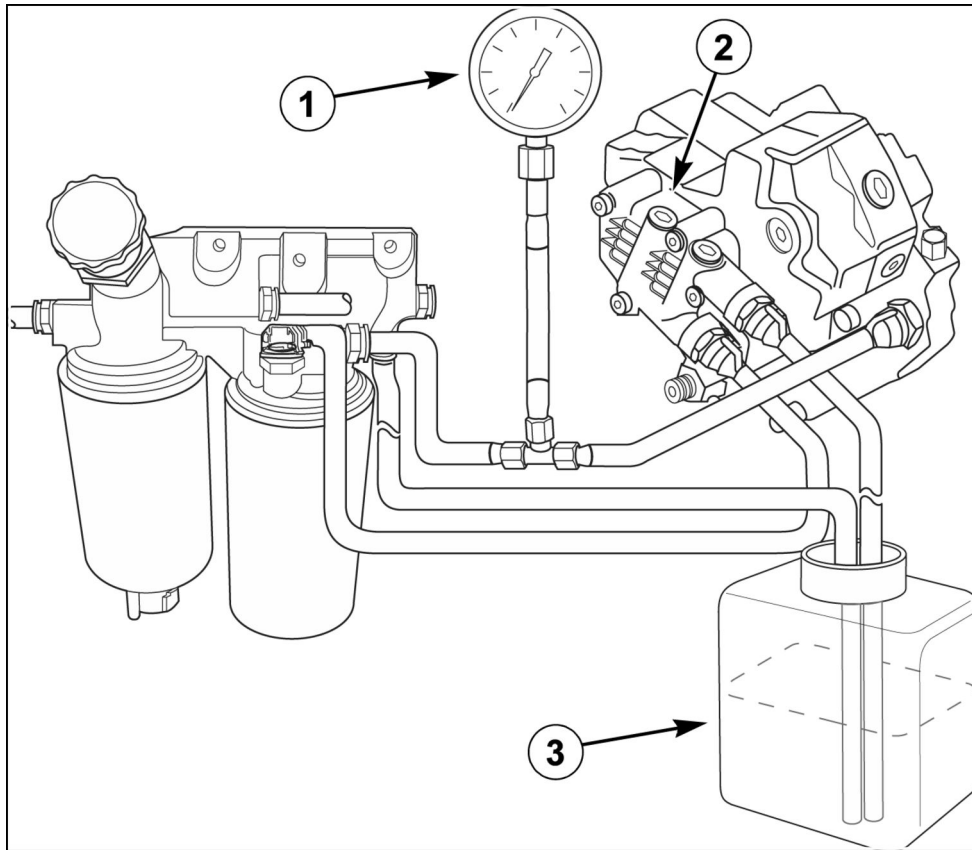


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- (1) 380100057 0 – 11 bar (0 – 160 psi) gauge and hose assembly
- (2) 380100056 0 – 100 kPa / 0 – 30 in / HG, 0 – 200 kPa / 0 – 30 in PSI Gauge Assembly
- (3) Primary Filter Outlet to Low Pressure Pump Inlet
- (4) High Pressure Pump Inlet from Fuel Filter Outlet
- (5) Secondary Fuel Filter (pressurized filter)
- (6) Secondary Fuel Filter Inlet (pressurized filter)
- (7) Primary Fuel Filter (suction filter)

4. If the fuel pressure at gauge **(1)** is below **5 bar (73 psi)** at any time during the test, check or replace the following as needed:
- Fuel Pre-filter (if equipped). Some applications do not use a fuel pre-filter.
 - Primary Fuel Filter
 - The lines and connections from the fuel supply pump inlet back to the fuel tank, checking for damaged lines (kinks create restriction; rub marks may allow air to enter) and leakage at the Voss o-ring fittings.
 - Fuel tank, clean as required.
 - The fuel pick-up tube in the fuel tank. Check for cracks, plugging, or contact with the bottom/side-walls of the tank.
 - The fuel tank cap. Be sure a vacuum is not being formed in the fuel tank. A vacuum at the tank would reduce the fuel supply pressure to the injection fuel pump inlet. Vacuum in the fuel tank might not be observable during short-term running.
 - Check the valve at the fuel tank outlet (if equipped). Ensure that fuel supplied to and from the valve assembly is properly connected.

Low pressure pump testing

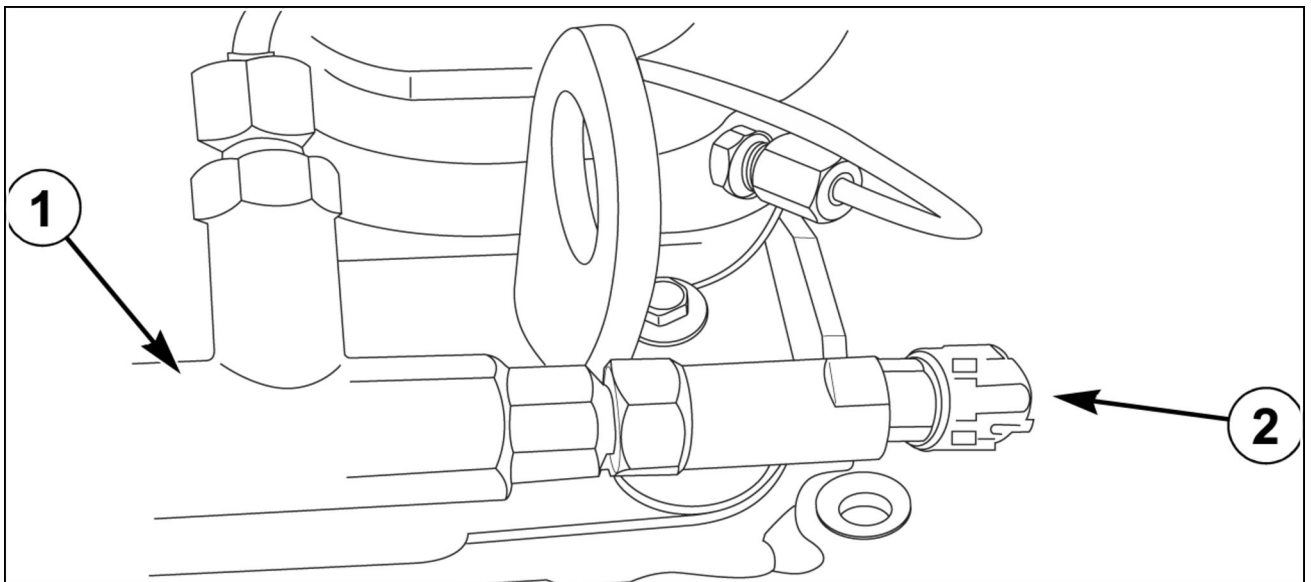


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- (1) 380100057 0 – 11 bar (0 – 160 psi) gauge and hose assembly
- (2) Low Pressure Pump
- (3) 380100058 Plastic 2.0 l (4.2 US pt) container located not more than 1 m (3.3 ft)

5. If the pressure is still below **5 bar (73 psi)** minimum, perform tests in steps **6** and **7**.
6. Supply fuel from an alternate fuel source (a separate container, 380100058), located not more than **1 m (3.3 ft)** below the engine with a known good supply line. This bypasses:
 - The Fuel Tank, Inlet Lines and Connections, and Pre-Filter (if equipped).
 - Connect a pressure gauge assembly **380100057** between the fuel filter outlet and the high pressure pump inlet.
7. The engine should start (at the first or second attempt) and then draw fuel from the external container. Check the fuel pressure at **1500 RPM**. The reading on the filter outlet pressure gauge should be higher than **5 bar (73 psi)**. If the pressure is lower than **5 bar (73 psi)**:
 - Replace the fuel filter(s).
 - Retest. If the pressure is still below **5 bar (73 psi)**, replace the low pressure pump.
 - Retest. If the pressure is still below **5 bar (73 psi)**, the pressure regulator (part of the high pressure pump assembly) could be responsible, replace the high pressure pump.

Pressure relief valve testing



BAIL08CVT131FSA 4

- **(1)** Fuel rail
- **(2)** Pressure Relief Valve Return Line Coupler



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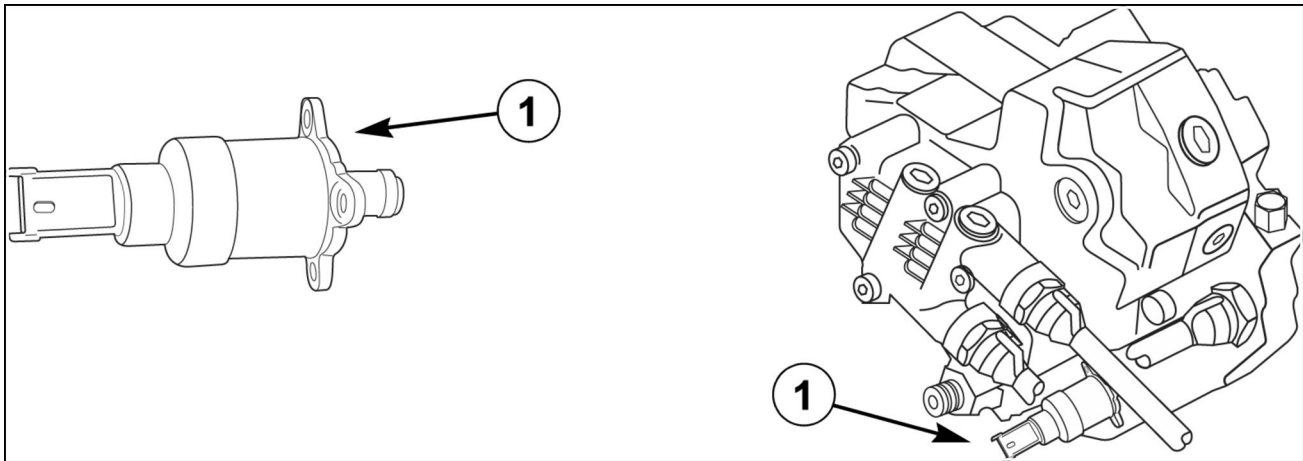
Thank you so much for reading

8. The Pressure Relief Valve is located at rear end of the fuel rail. This pressure relief valve protects the fuel system components from excessive pressure if:
 - The Rail Pressure Sensor fails to signal the correct pressure to the ECU (Engine Control Unit).
 - The High Pressure Flow Regulator, located at the pump, allows excessive pressure in the high pressure system.
Check the ECU for:
 - Fault codes related to over pressurization of the common rail, refer to: High Pressure Flow Regulator.
9. Disconnect the pressure relief valve return line and cap the line with **380100060** cap. Install **380100057** gauge and hose assembly on the relief valve to direct any leakage to container 380100062 if the relief valve is leaking.

NOTE: Under normal circumstances fuel should not come out of the relief valve.

10. If the diagnostic system does not indicate a fault code and fuel is leaking from the pressure relief valve, replace the pressure relief valve.

High pressure flow regulator



BAIL08CVT132FSA 5

- (1) High Pressure Flow Regulator (Resistance Specification is **3.2 Ω**)

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