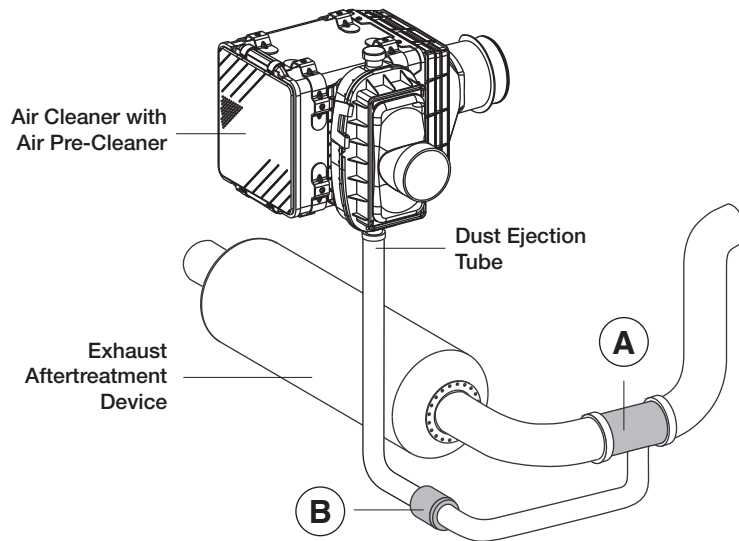




Air Filter Pre-Cleaner Exhaust Aspiration Hardware Installation Instructions



Note: System sketch for illustration purposes only. Sketch may not match the appearance and configuration of all air cleaner and exhaust aspiration systems or components.

Part	Description	Number Required	Part Number
A	Aspirator	1	See page 4
B	Check Valve	1	See page 4
C	Optional Exhaust Adapter (not shown)	1	See page 4

CAUTION: Installation of exhaust aspiration requires work on and around the equipment exhaust system. Allow the exhaust system to cool before beginning the installation of this hardware.

Additional Materials (Not Included)

Description
High Temperature Rubber or Silicon Hose
Hose Clamp
Mounting and Clamping Hardware
High Quality Exhaust Clamps

CAUTION: These instructions are intended for use by professional mechanics who are trained in the proper use of power and hand tools, using appropriate safety precautions (including eye protection).

Air Filter Pre-Cleaner and Exhaust Aspiration

The purpose of an exhaust aspiration system is to increase the efficiency of the air filter pre-cleaner, resulting in a higher total dust and contaminant holding capacity of the complete air intake system. The effect of exhaust aspiration on the air filter pre-cleaner allows a greater amount of dust/contaminant to be expelled through the pre-cleaner dust ejection tube before reaching the air filter element. By eliminating a greater portion of large dust/contaminant particles from reaching the air filter, the user will experience increased air filter service intervals and lower total cost of ownership. An exhaust aspirated pre-cleaner may be required to increase the dust/contaminant capacity of the air cleaner to meet OEM specifications for total dust holding capacity or to achieve the desired air filter service interval in a particular application.

An exhaust aspirated pre-cleaner system consists of an appropriate and/or OEM approved air cleaner for the engine flow rate, an exhaust aspirator sized for the exhaust flow rate, check valve, connecting tubing, and the appropriate mounting and clamping hardware. The Fleetguard® exhaust aspiration hardware is suitable for Fleetguard Direct Flow™ and OptiAir™ air intake systems and pre-cleaners as well as systems from many other manufacturers.

Please contact Cummins Filtration Application Engineering for assistance with any air intake system questions.

Installation Requirements

Adherence to OEM air intake system and exhaust system requirements must be preserved with the installation of exhaust aspiration hardware. Therefore, the installation must meet the following requirements. Exceptions to these requirements may require approval by the Cummins Filtration Application Engineering department:

1. Exhaust aspirators must be installed in the direction as indicated on the device.
2. Exhaust aspirators must be installed downstream of a muffler and/or exhaust aftertreatment device.
3. Flapper style check valves must be installed in the direction and orientation indicated on the device to ensure proper function.

4. The check valve must be located between the exhaust aspiration device and the air pre-cleaner of the air intake system. See Figure 1.

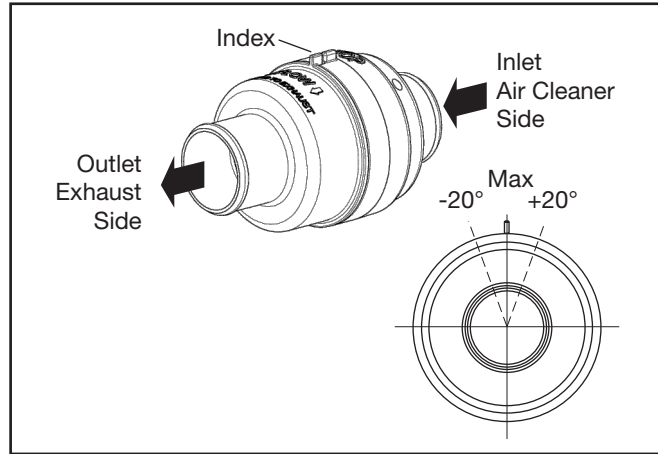


Figure 1 - Check Valve

5. The flow restriction through the aspirator hose/tubing from the air pre-cleaner to the exhaust aspirator should be kept low. The lower the restriction losses, the more aspirated flow that will result for a given amount of suction force. For a typical diesel engine air intake system, aspirator line velocities (assuming 10% aspirator flow rate) should be below 6000 ft/min (31 m/s) for short lines (less than 4' (1.2 m) with no more than two 90° bends), and less than 4000 ft/min (20 m/s) for longer lines. See Table 1 for recommended tubing size.

Note: Avoid excessive length for aspiration hoses and avoid kinks or sharp bends in the hose.

Table 1 - Recommended Tubing Size

Aspirator Tubing Diameter (Hose ID or Metal Tube OD)	Length > 4' (1.2 m)	Length ≤ 4' (1.2 m) with No More Than Two 90° Bends
1.5" (38.1 mm)	Air Intake < 491 CFM (13.9 m³/min)	Air Intake ≤ 736 CFM (20.8 m³/min)
2.0" (50.8 mm)	Air Intake < 873 CFM (24.7 m³/sec)	Air Intake ≤ 1309 CFM (37.1 m³/min)

7. Leakage should be kept to a minimum at all aspiration connections. It is good practice to use rubber hoses and clamps at all connection points. For the hose connection at the aspirator, a high temperature rubber or silicone hose material may be required. See hose manufacturer for recommended materials. See Table 2 for typical hose material temperature ranges.

Table 2 - Typical Hose Material
Temperature Ranges

Hose Type or Class	Temperature Range
Heater Hose Class D2	-40 °F to 200 °F (-40 °C to 93 °C)
Heavy Duty Coolant Hose Class B	-65 °F to 212 °F (-54 °C to 100 °C)
Silicone Coolant Hose	-67 °F to 347 °F (-55 °C to 175 °C)

Installation Instructions

1. Plan the installation of the exhaust aspiration hardware by ensuring all of the proper sized components for the engine and equipment have been chosen.
2. Plan to route the aspiration plumbing away from excessively hot surfaces or pinch points on the equipment.
3. Install the exhaust aspirator in a vertical or horizontal orientation downstream of the muffler and/or exhaust aftertreatment.
4. Ensure that the exhaust system is properly supported with clamps and brackets to avoid unnecessary structural loads on the engine turbocharger or other exhaust system components.
5. Mount the aspiration check valve according to the planned aspiration plumbing of step 2. Ensure that the check valve is oriented for the correct flow direction and for the proper check valve flapper operation.
6. Route the high temperature or silicon hose from the air filter pre-cleaner to the exhaust aspirator check valve, trim for length and secure hose ends. Also, ensure that adequate brackets and supports are utilized to avoid excessive structural loads upon the pre-cleaner or the check valve. NOTE: If so equipped, remove the dust ejector valve from the air pre-cleaner before installation of the aspirator hose and clamp.
7. Route the high temperature or silicon hose from the exhaust aspirator check valve to the exhaust aspirator, trim for length and secure hose ends. Also, ensure that adequate brackets and supports are utilized to avoid excessive structural loads upon the check valve or the exhaust aspirator.
8. Double check all installation hardware, collect all tools, secure all equipment access panels and doors that may have been removed or opened during the installation.
9. While observing all equipment operation safety precautions, start the engine and carefully operate any equipment implements that may be in the vicinity of the new exhaust aspiration hardware to check for possible interference. Correct any interference before using the equipment.

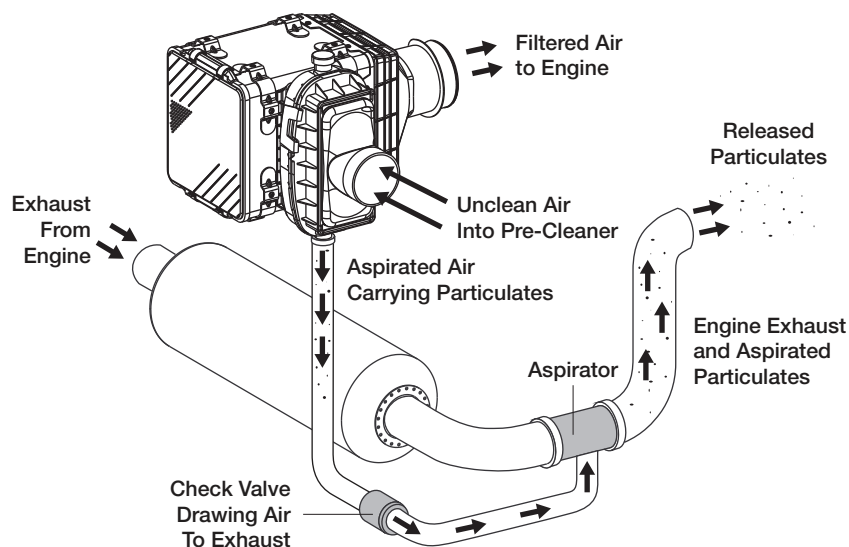


Figure 2 - System Connections

Ordering Information

Typical Engine Size Range	General Engine Description	Typical Engine Intake Air Flow CFM (m ³ /min)	Exhaust Aspirator Inlet Diameter in (mm)	Exhaust Aspirator Length in (mm)	Typical Exhaust Diameter in (mm)	Typical Engine Exhaust Flow CFM @ 900 °F (m ³ /min @ 482 °C)	Check Valve Diameter in (mm)	Fleetguard Part Number		
								A Aspirator	B Aspiration Check Valve	C Optional Exhaust Adapter
6L-7L	Mid-Range	500 (14.2)	5 (127)	22 (559)	4 (102)	1259 (36)	1.5 (38)	SP1267	SP1375	SP1281
		600 (17.0)	5 (127)	22 (559)	4 (102)	1511 (43)	1.5 (38)	SP1267	SP1375	SP1281
7L-10L	Mid-Range	500 (14.2)	5 (127)	22 (559)	4 (102)	1259 (36)	1.5 (38)	SP1267	SP1375	SP1281
		600 (17.0)	5 (127)	22 (559)	4 (102)	1511 (43)	1.5 (38)	SP1267	SP1375	SP1281
		700 (19.8)	5 (127)	22 (559)	4 (102)	1763 (50)	1.5 (38)	SP1267	SP1375	SP1281
10L-13L	Heavy Duty	600 (17.0)	5 (127)	22 (559)	5 (127)	1511 (43)	1.5 (38)	SP1267	SP1375	N/A
		700 (19.8)	5 (127)	22 (559)	5 (127)	1763 (50)	1.5 (38)	SP1267	SP1375	N/A
		800 (22.7)	5 (127)	22 (559)	5 (127)	2015 (57)	2 (51)	SP1266	SP1376	N/A
		900 (25.5)	5 (127)	22 (559)	5 (127)	2267 (64)	2 (51)	SP1266	SP1376	N/A
		1000 (28.3)	6 (152)	24 (610)	5 (127)	2519 (71)	2 (51)	SP1265	SP1376	SP1282
		1100 (31.2)	6 (152)	24 (610)	5 (127)	2770 (78)	2 (51)	SP1264	SP1376	SP1282
13L-15L	Heavy Duty	800 (22.7)	5 (127)	22 (559)	5 (127)	2015 (57)	2 (51)	SP1266	SP1376	N/A
		900 (25.5)	5 (127)	22 (559)	5 (127)	2267 (64)	2 (51)	SP1266	SP1376	N/A
		1000 (28.3)	6 (152)	24 (610)	5 (127)	2519 (71)	2 (51)	SP1265	SP1376	SP1282
		1100 (31.2)	6 (152)	24 (610)	5 (127)	2770 (78)	2 (51)	SP1265	SP1376	SP1282
		1200 (34.0)	6 (152)	24 (610)	5 (127)	3022 (86)	2 (51)	SP1264	SP1376	SP1282
		1300 (36.8)	6 (152)	24 (610)	5 (127)	3274 (93)	2 (51)	SP1264	SP1376	SP1282



Filtration

For more information, visit cumminsfiltration.com

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