



Cleaning of Heavy Duty Air Filters

Factors to consider before you decide if cleaning is right for your business...

Cummins Filtration and many other air filter manufacturers discourage the practice of cleaning air filters and do not warrant cleaned air filters. Nonetheless, some equipment owners and maintenance supervisors believe that cleaning and reusing heavy duty air filters can lower operating costs. Before you decide to clean your filters, please consider the following facts:

- Proper use of a quality air filter restriction gauge and adherence to OEM recommended air filter change guidelines will provide the maximum life out of the air filter element and the engine/equipment that the filter is protecting.
- Cleaning your air filter will reduce the dust holding capacity compared to a new air filter. Dust capacity can drop up to 25% after the first cleaning with additional capacity loss after each subsequent cleaning. Loss of dust capacity shortens the useable service interval of the filter leading to more frequent service - which in turn adds additional risk of mis-service and/or accidental dust ingestion.
- The air filter media can be weakened as a result of cleaning, which could cause ruptures. Even the smallest rupture will cause the filter to be less efficient and may allow enough dust into your engine/equipment to cause serious damage, downtime and rebuilds.
- On-highway air filters should not be cleaned since the contamination encountered over the road (fine particles and soot materials) is very difficult to remove from the air filter media. On-highway filters that have been cleaned generally display a dingy, dirty color due to the retained contaminant. Filters in this condition generally have marked reductions in dust capacity as compared to a new air filter. Cleaning to the point of yielding a "like new" appearance will most likely result in damage to the air filter media.
- Safety air filters should **never** be cleaned since the safety filter is the last barrier to contaminant before it reaches your engine/equipment. The useful life of a safety air filter is equivalent to three changes of the primary air filter or one year of continuous service, whichever occurs first.
- Extra handling of air filters could inadvertently cause damage. Proper inspection of cleaned elements is of vital importance for the proper operation of the air cleaner system.

- Generally the commercial air filter cleaning businesses do not want to clean air filters that have been used to the OEM recommended change point (20-30" H₂O or 4.9 – 7.4 kPa filter restriction). This fact encourages more frequent filter service and leads to the problems associated with too frequent opening and closing of the air filtration system. Utilizing the maximum life of the air filter is your best practice for gaining the maximum, cost-effective engine/equipment protection.

But, if you decide to clean your air filters...

Remember, there are several risks involved with the cleaning of air filters. It is important to know that any type of cleaning is only as good as the care and handling techniques used. Do-it-yourself cleaning techniques and improvised cleaning tools offer considerable risk to the integrity of the air filter and should be avoided. Commercially available air filter cleaning services are most likely better equipped and have more reliable techniques for cleaning air filters than most maintenance shops. However, just as you would research your own doctor or dentist, you should research an air filter cleaning business.

There are a variety of air filter cleaning businesses to choose from. These businesses may employ one or more of the techniques listed below to clean your air filter. One air filter cleaning business uses vibration plus low pressure air and vacuum to clean the air filters. Regardless of the method, the watch-outs still apply! Air filter cleaning is only as good as the people, handling, method, tools and inspections used in the process.

Select a reputable commercial cleaning service that uses cleaning and handling practices proven to be effective for your filters and applications. It is recommended that this business offer a warranty for that cleaned filter since Cummins Filtration and most other air filter manufacturers will not warranty a cleaned air filter.

Before any type of cleaning, a visual inspection of the filter is needed. If there is any damage to the filter body, gaskets or endplates, **do not** clean or reuse; the filter should be discarded. Always clean filters in a clean environment, observe strict inspection procedures and re-package filters immediately after the cleaning process with appropriate materials.

Observe proper safety precautions and dispose of waste materials in an environmentally-compliant manner.

Absolutely Do Not...

- Strike the element with a tool or hit the element against a hard surface to loosen the accumulated contaminant.
- Scrape the contaminant from the surface of the media.
- Disassemble the element to clean.

Some typical air filter cleaning techniques...

There are generally four methods used for cleaning air filter elements, some of which may be used in combination:

Cleaning Methods

Air under Pressure
Water under Pressure
Vacuum
Soak with non-sudsing detergent

Contaminants

Dust
Dust
Dust
Dust or light soot

Air under pressure with or without vacuum assist

Always use clean, dry air on a dry filter. The pressure should not exceed 60 PSI (400 kPa). Direct the compressed air through the filter from the clean side, running the nozzle up and down the filter pleats while directing the vacuum source opposite the air nozzle, pulling out dirt and collecting it with the vacuum. A variation of this method leaves out the vacuum process. Do not bring either nozzle in contact with the filter media as damage is likely to occur.

Note: It is virtually impossible to avoid the entry of dust into the clean side of the air filter unless the open end of the air filter is sealed. This precaution is highly desirable if attempting to clean an air filter but difficult to implement.

Water under pressure

Use normal outlet pressure (40 PSI or 275 kPa max) without a nozzle. Direct the water to the clean side of the filter first, running the water up and down the filter pleats. Repeat this process on the dirty side of the filter. Allow to air dry (160 °F or 70 °C max) thoroughly. This type of cleaning should be done no more than 6 times because of eventual damage to the filter media. This process will result in wavy pleats which are acceptable.

Vacuum

Use a standard shop-vacuum or central vacuum supply. Move the vacuum nozzle slowly up and down the pleats on the dirty side of the filter only. Do not bring the nozzle in contact with the filter media at any time.

Soak with non-Sudsing detergent

Filters should first be cleaned with air, vacuum or water. The filter should be placed open end up in a suitable tank filled with warm water (100-140 °F or 37-60 °C) and any commercial non-sudsing detergent. Allow to soak for 15-30 minutes, agitate the filter in the solution with a gentle swaying/rotating motion, and allow to soak an additional 10 minutes. Rinse the filter with clean water from the clean side until the water runs clear. Allow to air dry (160 °F or 70 °C max) thoroughly. This type of cleaning should be done no more than 6 times because of eventual damage to the filter media. This process will result in wavy pleats, which are acceptable. Do not fully immerse the filter in the cleaning solution. Care must be taken to avoid contact of the clean side of the filter with the contaminated wash water in the tank. The cleaning solution should not be reused.

After cleaning...

In a well-lighted area, inspect the gasket(s) for continuous adhesion and the absence of tears and cracks. In a darkened room, inspect the filter by placing a 60 watt light bulb inside the filter. Slowly rotate the filter while visually inspecting for weak spots or holes in the media identified by bright pin-holes of light. Discard if defects are detected.

After cleaning and inspecting, permanently mark the filter with the cleaning method, the number of cleanings and the date.

To prevent damage to the filter during storage and to keep the filter clean, wrap the filter element in a suitable poly-bag and place in a carton that is clearly marked with the element part number and application.



For more information, visit us at cumminsfiltration.com

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