Cleaning of Heavy Duty Air Filter Elements for Re-Use and Remanufacturing Elements

Cleaning of Heavy Duty Air Filters
Some vehicle owners and maintenance supervisors, concerned with lowering their operating costs, clean and reuse their heavy duty air filter elements. Here are some factors to consider before you decide whether cleaning or washing of heavy duty air filter elements is appropriate for your vehicle or fleet:

- HEAVY DUTY AIR FILTER ELEMENT MANUFACTURERS DO NOT RECOMMEND ANY TYPE OF CLEANING PROCESS BE USED ON THEIR PRODUCTS. FURTHER, THEY **DO NOT** WARRANT THEIR PRODUCT ONCE IT HAS BEEN CLEANED.

- Used heavy duty air filter elements, after the most thorough cleaning, usually have 60-80 percent of their original life; each subsequent cleaning yields progressively reduced dust capacity.

- Re-use of cleaned heavy duty air filter elements, because of their shortened service life; increase the likelihood of improper air cleaner servicing. Each time the air intake system is serviced, it is exposed to the chance of introducing contamination.

- Cleaning must be done with care to avoid damaging the heavy duty air filter element, which may cause dust leaks. Careful inspection of the cleaned filter is of crucial importance.

If you desire to clean your heavy duty air filter elements for re-use, here are two methods most commonly used:

1. It is best to use a commercial heavy duty air filter element washing service whose operators are trained in proper washing techniques and inspection precautions. Some commercial air filter element washing services do warrant the elements they wash; select a service that does, and make sure their warranty covers repair of engine damage resulting from a defective washed element. Always obtain a written copy of their warranty for your files.

2. If a commercial washing service is not available, the most effective cleaning method is to soak the element in water, which contains a non-

sudsing detergent. Prevent dirty water from making contact with clean side of filter. After soaking as previously described, rinse the element from the "clean" side to the "dirty" side to dislodge the dirt, with water pressure not exceeding 40 PSI (276 kPa) without a nozzle. A pressure nozzle must not be used, as it may damage the filter element.

After washing, the filter must be completely dry before it is placed back into service. It will dry by itself in one or two days' time, or less if special convection dryers are available for this purpose. Warm air must be circulated, with temperature less than 160 degrees F (71 degrees C). Do not use a light bulb to dry the element.

Inspection of the cleaned element is critically important. Inspect for holes and tears in the pleats by looking through the element toward a bright light. Any obvious damage will cause light to show through. Check for torn, loose, or partially-compressed gaskets, and for dented metal parts. If you install a replacement gasket, make sure it is of proper dimensions (cross section and diameter) and of proper durometer (resistance to compression).

Make sure the element identification part number is still visible. Mark the date of washing on the element end cover.

Filters that have passed final inspection should be placed in a sealed box and stored in a clean, dry place. For easy identification, mark the date the filter was cleaned and the filter part number on the outside of the storage box.

Remanufacturing of Elements

Some vehicle owners and maintenance supervisors, concerned with lowering their operating costs, purchase "remanufactured" heavy duty air filter elements. The remanufacturer usually reclaims the metal parts from used air filter elements, cleans them up, and reassembles the element using new filter media, adhesives, and gaskets. Because the expendable components are replaced with "new" ones, it would seem the "remanufactured" element is functionally equivalent to a new service element. Still, many users encounter serious difficulty with remanufactured elements. The following is a listing by air filter element component of potential pitfalls associated with remanufactured elements:

1. Filter Media

a. The rebuilder may purchase filter media which had been rejected by a major reputable filter company because it does not meet the manufacturer's quality specifications.

b. The "wrong" filter media may have been used. Major filter manufacturers utilize many different filter media, keyed to specific application requirements.

c. The media may be incorrectly installed in the element assembly, resulting in incorrect flow direction.

2. Liners

a. Liners may be cleaned up, but much of the corrosion resistance coating is gone because of abrasion and oxidation. They may also rust prematurely.
b. Burrs may exist on weld seam from disassembly/assembly procedure which may create leaks in pleat tips, or cut fingers.
c. Liner ends may be deformed, causing filter media tears during element assembly.

3. Endcaps

a. Endcaps may become deformed during disassembly. This may cause improper fit of the filter element in the air cleaner,
and result in improper gasket sealing.
b. Filter media is often burned out of original element, resulting in warped endcaps. Discoloration from burning is often
disguised by a coat of paint.
c. All adhesive compound must be removed. If not, this could cause adhesion problems and leakage.
d. An endcap with incorrect depth or hole diameter may have been used.

4. Gasket

a. Inferior material will affect seal, or reseal when the remanufactured element is cleaned or reused.
b. Adherence to the endcap may be insufficient.
c. Is gasket of proper diameter, proper cross-section and is it concentric to endcap?
d. Has a proper sized wing-nut gasket been included?

5. Adhesive Compound (in endcaps)

a. Material quality may be inferior. Adhesive may be improperly processed, cured, or may be insufficient in depth.
b. Adhesive may not be properly adhered to endcap, allowing the endcap to pull loose.

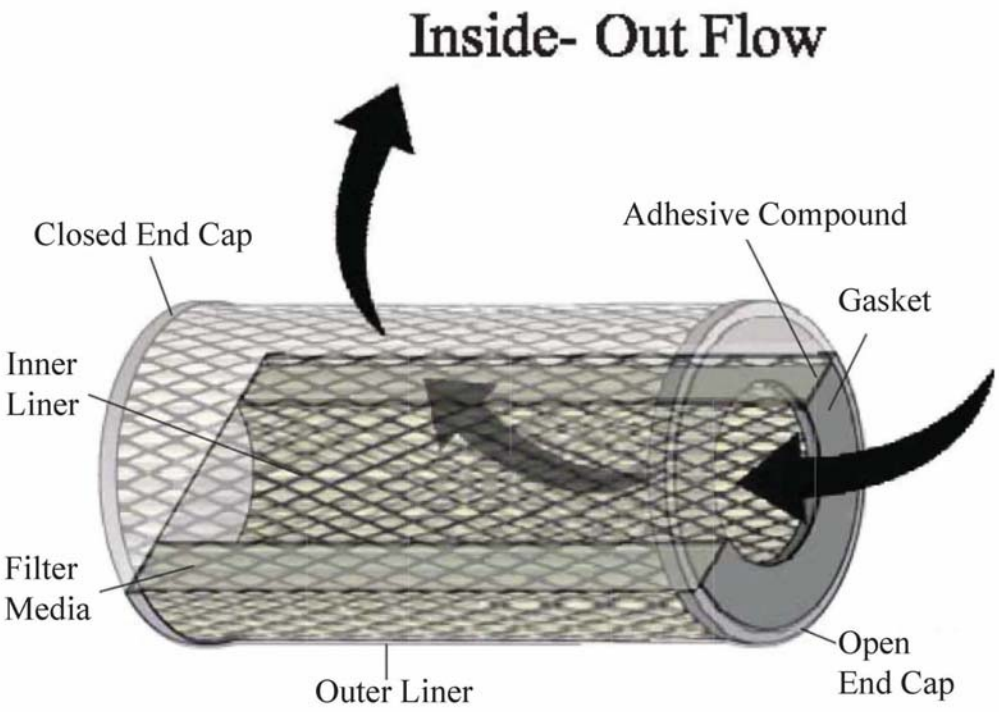
6. General

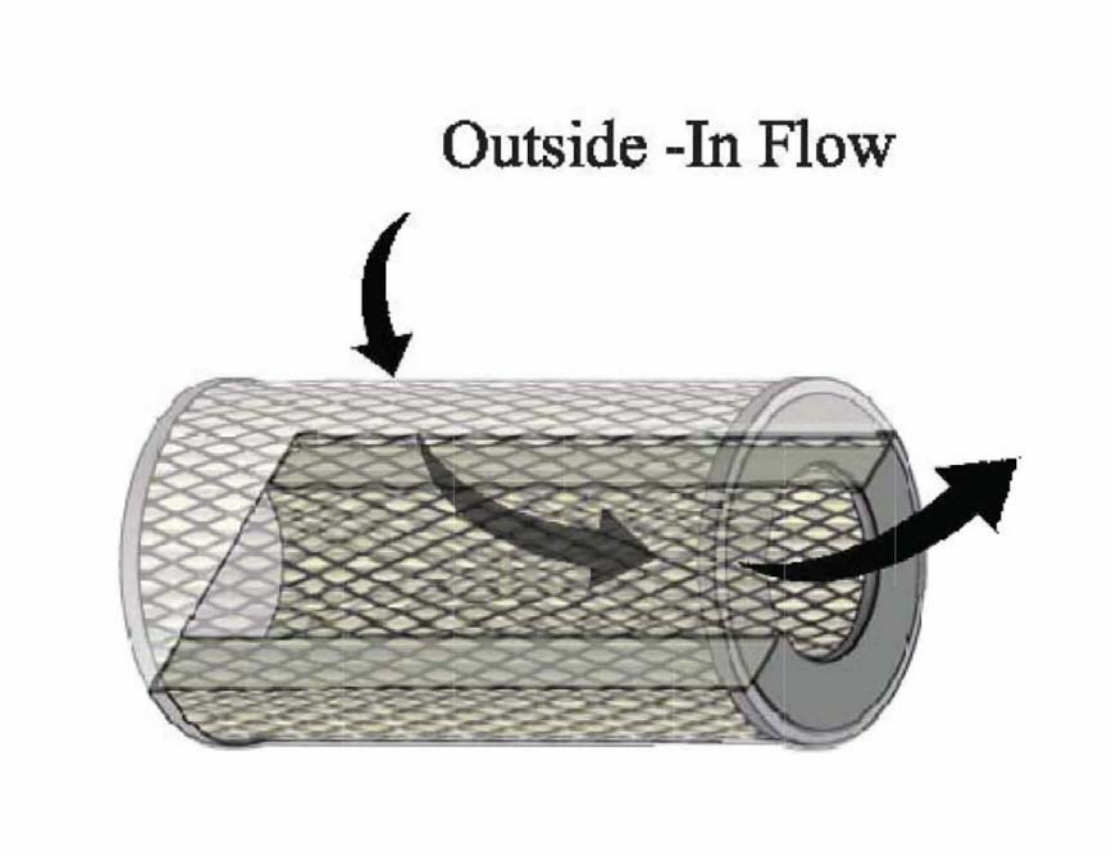
a. The assembled element height must be controlled and the endcaps parallel.
b. The correct part number should be shown. It still

should be legible when it comes time to replace the element.
c. Does remanufacturer warranty materials and workmanship, in the event of dust-caused engine damage?
d. Is the filter media washable?

The end user should carefully consider the potential pitfalls in using remanufactured filter elements.

Heavy duty air filter element manufacturers do not recommend any type of cleaning or remanufacturing process be used on their products. Further, they do not warrant their product once it has been cleaned or modified.





For additional information, contact:

Filter Manufacturers Council
P.O. Box 13966
Research Triangle Park, NC 27709-3966
Phone: 919/406-8817 Fax: 919/406-1306
www.filtercouncil.org
Administered by Motor & Equipment Manufacturers Association