

# How air pre-cleaners reduce your operating costs.

Dirt destroys engines. It's just that simple.

In order to lengthen your engine's life, extensive air filtering systems have been developed to keep the dirt from entering the engine. Most filters effectively remove all but the smallest particles of dirt from the air.

However, there **is** a weak link in any filter engine.

Filter elements become clogged with the dirt they remove from the air, and their replacement is time consuming **and expensive!**

Thus, you have been faced with these choices:

1. **Operate the engine longer than recommended between element changes.** Engine performance drops as air intake is reduced by dirty filter elements, resulting in higher operating costs for you.
2. **Clean filter elements instead of replacing them.** However, any tear, crack or other disfigurement to the filter element will result in dirt entering the 'un-filtered path', damaging your engine.

3. **Replace the filter element frequently as it becomes clogged.** While the most effective of the three choices, this also is the most expensive choice for you. Filter elements are expensive, and the more often they must be changed, the greater the operating cost for you.

However, you **do** have a practical fourth choice, use an air pre-cleaner to remove the dirt from the air **before** it gets to the filter element! With less dirt in the filter, the element lasts longer, and you can **drastically** cut your operating costs.

## Types of pre-cleaners available.

### Collector Bowl

Air, directed by vanes, swirls into the unit's hood and, through centrifugal force, the dirt drops into a collector bowl. The dirt is emptied by removing the bowl. This style must be mounted vertically.

*Problems encountered: The dirt is stored inside the pre-cleaner where it can be drawn into the filter element. Also, moisture entering the unit can turn the dirt to mud, clogging the bowl. Thus, the bowl must be emptied frequently.*

### Aspirated

The same centrifugal type of dirt separation from the air is utilized in this system, but the dirt is removed from the pre-cleaner hood section by suction. Tubing, attached to a venturi tube on either the muffler or exhaust pipe, carries the dirt from the pre-cleaner to the exhaust, where it is expelled with the exhaust.

*Problems encountered: Moisture mixes with the dirt and clogs the ports or vacuum tubing. The tubing also is subject to leaks and breaks. If the venturi burns out, exhaust gases can feed back through the tubing to ruin the filter elements. Restriction, caused by the venturi, can create back pressure, resulting in an engine running hotter and less efficient.*

### Atmosphere Discharge

The most efficient long range pre-cleaner. Dirt and moisture is expelled back into the atmosphere from the pre-cleaner by centrifugal force. There are no collector bowls, evacuator valves, piping, electrical connections, etc., since the entire pre-cleaner is self-contained.

*Problems encountered: Bottom discharge units must be mounted vertically to efficiently discharge dirt and moisture. (The side discharge unit can be mounted in any position.) Plastic models can crack or shatter. Carbon steel models rust out.*

Note: **Any** air pre-cleaner **cannot** remove the smallest and lightest particles of dirt. Consequently, the air pre-cleaner is meant to **augment** your engine's air filter system, **not** replace it.

