

Recommended Procedure for Cleaning and Recharging Air Filters

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Note – This Procedure do not purport to cover all details or variations in equipment, or to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the user's purposes, the matter should be referred to the local TECO-Westinghouse Motor Company representative. The contents of this instruction manual shall not become part of or modify any prior or existing agreement, commitment or relationship. The sales contract contains the entire obligation of TECO-Westinghouse Motor Company. The warranty contained in the contract between the parties is the sole warranty of TECO-Westinghouse Motor Company. Any statements contained herein do not create new warranties or modify the existing warranty.

TECO-Westinghouse machines are built in accordance with the latest applicable revision of the National Electric Code, NEMA (National Electrical Manufacturers Association), and IEEE Standards. These publications and this instruction manual should be thoroughly read and understood prior to beginning any work on this equipment.

The information contained within is intended to assist operating personnel by providing information on the general characteristics of the purchased equipment. It does not relieve the user of the responsibility of using accepted engineering practices in the installation, operation and maintenance of this equipment.

Should a conflict arise between the general information in this manual and the contents of the drawings and supplementary material, the latter shall take precedence.



Below is the TECO-Westinghouse Motor Company (TWMC) position on air filter maintenance:

⚠ CAUTION

A clean air filter is important for electric motor coolant system. This means that your air filter should be monitor and clean regularly. A dirty air filter can cause motor winding damage due to overheating.

I. Introduction:

1. TWMC previously used permanent viscous impingement Air Maze P-5 filters. They are no longer available and have been replaced by permanent viscous impingement filter such as Mist Eliminator type. The Mist Eliminator is highly effective in significantly reducing oil mist, water mist, fog or droplets from outside air or re-circulated air (See Figure 1). It is designed to operate at a face velocity of 500 FPM and not exceed 550 FPM. (See Figure 2).
2. Instruction books and/or outline drawings recommended recharging air filters with AirMaze® FilterKote or SAE 30-50 motor oil.

The AirMaze® FilterKote is no longer available and motor oil is no longer recommended due to EPA regulations. If motor oil is used, the cleaning water must be disposed of as hazardous waste.



Figure 1: Typical high velocity filter panel



Figure 2: Performance Chart

II. Recommendations for cleaning and charging:

1. Hand Clean all surfaces to remove loose dust and dirt.
2. Never brush the dirt off. This packs it into the mesh surface of the filter, making thorough cleaning more difficult.
3. Agitate the filter with fine mesh side down in hot bath or ultrasonic bath of a mild household detergent, such as dish soap or laundry detergent, for removal of old charging/adhesive compound. Never use caustic soda or other



strong alkali.

4. Rinse off the fine mesh side of air filter with hot low-pressure, tap water.
5. Allow gravity to flush dirt out of air filter by applying water to the clean side of the filter; up and down the length of the pleats.
6. If there are spots of dirt remaining on the filter, continue to rinse the filter until all traces of dust and dirt are gone. If the filter is extremely dirty it may be necessary to repeat steps 3 and 5.
7. Clean until cloudy areas are not present when viewing through the filter toward a bright light. Don't worry about discoloration of the wire mesh surface as this is normal.
8. After that, gently shake off excess water and allow filter to dry naturally by placing face down or on edge.
9. Do not proceed to the spraying step until the filter is completely dry.
10. Recharge the filters by spraying with a suitable filter adhesive such as SprayTack™ which is available from American Air Filter or TECO-Westinghouse renewal parts.
11. Follow all safety instructions on the adhesive bottle.
12. Spray a uniform coating of the adhesive onto both sides of the air filter until it completely saturates the pleated material but do not over wet.
13. Before reinstalling filter back into air cabinet, inspect it for damage.
14. Install air filters in air cabinet in correct orientation (arrow on filter in direction of air flow). (See Figure 3).



Figure 3: Arrow direction

III. Warning:

1. TWMC Service should be consulted when there is a doubt as to the best method of filter cleaning.
2. If the motor was not originally designed for air filters, adding them later may be risky and TWMC shall be consulted before doing so.
3. Avoid the temptation of replacing the permanent, impingement type filters that ship with the motors with disposable paper type filters. This action is not recommended as the paper filters may get sucked into the motor and cause winding damage due to overheating. (See Figure 4). In addition, we have seen instances where the wire mesh backing has been found embedded in the coil insulation, which may lead to insulation failures.



Figure 4: Dirty paper filter was sucked into motor



IV. Replacement:

1. The most reliable option to know that filters need cleaning is a pressure switch or manometer to sense the pressure drop across the filters. When the pressure drop reaches 0.25 to 0.40 inch of water, it's time for filter cleaning. Although a manometer can be supplied, it is not normally recommended because it is a passive device that must be manually read and recorded periodically.

CAUTION**MAINTENANCE**

The moving parts of these switches need no maintenance or lubrication. The only adjustment is that of the set point. Care should be taken to keep the switch reasonably clean. Periodically the vent drain plug should be rotated, and then returned to its original position. This will dislodge deposits which could accumulate in applications where there is excessive condensation within the switch.

2. The air temperature switch is another way to measure the quality of air filter. This switch is used on water cooled machines, machines with filters or tube cooled machines. Temperature changes are sensed by a bi-metal element to actuate one or two snap-acting switches. Time for filter cleaning varies from motor to motor based on temperature rise and ambient. The customer shall refer to the motor outline drawing or TWMC Service Department for the proper settings.
3. If such devices aren't equipped, check filter's condition frequently until a reasonable cleaning schedule can be established through experience.

