

ORDER

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
GREAT LAKES REGION**

GL 6970.9

27 Mar 73

SUBJ: INSTRUCTIONS FOR CLEANING AIR CONDITIONING EQUIPMENT

1. PURPOSE. This Order provides instructions to field personnel for cleaning air conditioning equipment.
2. DISTRIBUTION. This Order is distributed to the Airway Facilities Division, Branch level and above, and to all Airway Facilities field offices.
3. CANCELLATION. This Order cancels Order CE 6970.6.
4. BACKGROUND. Technical inspections of air conditioning systems continue to reveal many maintenance items that are being overlooked. One prominent problem is the accumulation of dirt and other foreign material on various system components such as evaporator and condensing coils.
5. GENERAL. Evaporator and condenser coils consist of multi-row offset fin tubes which can be difficult to clean, especially when dust, dirt, lint, etc. collect on an area of the coil which is normally hidden from view. Once accumulation begins, further accumulation is progressive and coil efficiency is reduced.

Current maintenance procedures require the measurement of air temperature across evaporator and condenser coils at periodic intervals. This procedure will show a buildup on the coils when normal temperature drops start to decrease. (Example: Cooling and condensing coils are rated by the temperature drop of air passing through the coil at a given cooling load. This assumes a clean coil. As the coil accumulates dirt, etc., its heat transfer ability decreases since the accumulated dirt acts as insulation on the coil.) Therefore, when the temperature drop across a coil decreases, it is an indication that cleaning may be necessary.

6. CLEANING MATERIALS. The following materials which can be purchased locally are recommended for use in cleaning air conditioning equipment.
 - a. Sprayer, 3-1/2 to 4 gallon portable garden type
 - b. Metal cleaning detergents

Distribution: RAF-3; FAF-0 (Normal)

Initiated By: AGL-445

- (1) Calclean, Calgon Co.
- (2) Virginia Metal Cleaning Detergent, Virginia Co.
- (3) Vapco, all purpose heavy duty cleaner, Vapco Product Co.
- (4) Metalene, all purpose cleaner.

7. COILS. A proven method of cleaning coils is as follows:

a. Evaporator Finned Tube Coil.

- (1) De-energize the compressor and allow the evaporator fan to operate until the coils are completely dry.
- (2) De-energize the evaporator fan and blow all loose foreign material from the coils in a direction opposite to the normal air flow. This can be done with compressed high pressure nitrogen or carbon dioxide. Proper caution must be exercised when using these high pressure gases. A vacuum cleaner may also be used to dislodge debris.
- (3) Use a pressure type sprayer and thoroughly saturate the coils with a metal cleaning detergent mixed to the manufacturer's instructions.

b. Air Cooled Condenser Finned Tube Coil.

- (1) Disconnect power to compressor and condenser fan.
- (2) Clean, using step 2 and 3 for evaporator coils.

8. BLOWER FAN BLADES.

- a. Fan blades can be cleaned with a spray on metal cleaning detergent similar to that used on coils. After allowing the detergent to soak for 20 minutes, thoroughly rinse with clean water. It may be necessary to provide a means to let water drain from the fan housing. A small hole drilled in the lowest point of the fan housing will usually be adequate. This hole should be plugged with caulking compound or any suitable putty-like material before the fan is returned to service.
- b. Most fans and blowers should be scheduled for annual cleaning. However, if periodic inspections indicate that more frequent cleanings are necessary, the period between cleanings should be adjusted accordingly.

9. AIR HANDLING UNIT CABINETS. Air handling unit cabinets should be cleaned with a good metal cleaning detergent whenever the need arises. After a thorough cleaning, cabinets which show signs of paint deterioration should be repainted to match the existing color and texture.

10. FILTERS.

- a. Disposable Filters. Filters should be inspected monthly or more frequently where severe local conditions require more frequent inspections. Throwaway filters should be replaced where they are dirty.

Where filter gages are available, they should be used to indicate filter replacement. This is especially true where high efficiency, bag type filters are used.

- b. Re-useable Filters. Re-useable filters also need to be inspected on a periodic basis. When inspection shows that these filters are clogged, they should be removed from the system and washed with hot water. After the filter has been washed and thoroughly dried, it should be re-coated with the adhesive recommended by the manufacturer. This is usually a light oil especially used for filters. Lubricating oil should not be used for coating filters.

Alan H. Glass

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Chief, Airway Facilities Division