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Office of Air And Radiation (6202J)



Refrigerant Recycling in Motor Vehicle Air Conditioners

Guide for Professionals



Recycled/Recyclable
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On November 15, 1990, the Clean Air Act was amended to include a stratospheric ozone protection program. Under Title VI of the Act, motor vehicle air conditioning refrigerant must now be recycled. As a service professional, your business will be covered by the new regulations. This brochure will help you become familiar with this new law and address some of your concerns.

Our Threatened Ozone Layer

The stratospheric ozone layer shields the earth from harmful ultraviolet (UV) radiation. Scientists believe that synthetic chemicals such as chlorofluorocarbons (CFCs, also known by the trade name Freon) are rapidly destroying this layer of gas 10 to 30 miles above the earth's surface. Ozone loss of 3.5% globally has already been recorded and is greatest over Antarctica, where a seasonal ozone "hole" occurs. Recent data strongly suggests that substantial losses may also develop over the North Pole, exposing parts of the U.S. to increasing levels of UV radiation.

Ozone loss in the atmosphere is likely to lead to an increase in skin cancer and cataracts and could weaken the human immune system. Agriculture, as well as plant and animal life, may also be dramatically affected.

Impact of Motor Vehicle Air Conditioners

One of the single largest uses of CFCs in the U.S. is as a refrigerant in automobile air conditioners. CFC-12 in motor vehicles accounts for over 20% of all CFC use in this country.

Commonly released into the air when car or truck air conditioners are serviced, CFCs rise to the stratosphere where they can remain active for up to 120 years. The sun's rays break these molecules apart, releasing chlorine. A single chlorine atom can destroy several thousand ozone molecules.

Worldwide Action to Protect the Ozone Layer

The United States has joined 75 other countries in signing an international treaty to protect the ozone layer. In 1990, these countries agreed to phase out production of ozone-depleting substances, including CFC-12, by the year 2000. Recently, President Bush pledged to halt almost all U.S. production of CFCs by the end of 1995.

Clean Air Act Requirements

Section 609 of the Act gives the United States Environmental Protection Agency (EPA) the authority to establish requirements to prevent the release of refrigerants during the servicing of motor vehicle air conditioners. Recycling of CFCs can be done at minimal cost to service shops without

harming A/C systems. The following sections describe the requirements of the law and its potential impact on the service industry.

Approved Equipment

Technicians repairing or servicing motor vehicle air conditioners must use either refrigerant recover/recycle or recover-only equipment approved by EPA.

Recover/recycle equipment both *recovers* the refrigerant from the motor vehicle and *processes* it through an oil separator, a filter, and a dryer. Approved recover/recycle machines meet the technical specifications of SAE Standard J-1990 and must have the capacity to purify used refrigerant to SAE Standard J-1991 for safe and direct return to the air conditioner following repairs.

Recover-only equipment removes the refrigerant from the A/C unit as specified by SAE Standard J-2209 and transfers it into a holding tank. Technicians are then required by law to either recycle the used refrigerant on site or send it to an off-site reclamation facility to be restored to ARI Standard 700-88 before it can be used to recharge A/C equipment.

A list of both types of approved equipment is available from EPA at the address on the back of this brochure. Most certified equipment will be labeled as "design-certified to SAE standards."

Technician Training and Certification

Technicians who repair or service motor vehicle air conditioners must be trained and certified by an EPA-approved organization. Training programs must cover use of recycling equipment in compliance with SAE Standard J-1989, the regulatory requirements, the importance of refrigerant containment, and the effects of ozone depletion. To be certified, technicians must pass a test demonstrating their knowledge in these areas. A list of approved testing programs is available from EPA at the address on the back of this brochure.

Small Business Extension

To qualify for this extension, shops must send a signed statement that in 1990 they serviced fewer than 100 air conditioners to EPA at the address on the back of this brochure. EPA will accept these statements up until the effective date of the regulations. The Act allows small businesses until January 1, 1993 to purchase equipment and have technicians trained and certified. Small businesses are defined as those that performed under 100 service jobs involving refrigerant in 1990.

Small Container Restriction

The sale of containers of CFCs under 20 pounds to anyone other than certified technicians is prohibited after November 15, 1992. This provision is intended to discourage "do-it-yourselfers" who recharge their own air conditioners. Such individuals often release refrigerant because they typically do not have access to recycling equipment. EPA encourages "do-it-yourselfers" to bring their cars to certified technicians who can properly fix air conditioners using approved equipment. This avoids damage to A/C equipment by improper charging, benefits service shops, and helps protect the environment.

Recordkeeping Requirements

Service shops must certify to EPA that they own approved equipment (see example form) and that the technicians using the equipment are certified. If refrigerant is recovered and sent to a facility, the name and address of that facility must be retained.

Important Dates

January 1, 1992	The Act states that motor vehicle A/C service establishments must have approved equipment. Certified technicians must properly use the equipment.
July 14, 1992	EPA final regulations published.
August 13, 1992	Effective date of EPA regulations.
November 15, 1992	Small container sales restriction.
January 1, 1993	Small service establishments must have approved equipment and certified technicians. All shops must certify their equipment to EPA (see example form on page 5).

Impacts on A/C Service

Because of the planned CFC phaseout and a new tax on CFCs, shops that service air conditioners can expect the price of CFC-12 to increase and its availability to decrease. Refrigerant recycling could reduce the need for new CFC-12 and thus help keep costs down.

Refrigerant recycling is an important step towards the goal of eliminating CFC use. It means that car owners can have their air conditioners fixed until alternatives to CFC-12 are found. Several substitute refrigerants are being tested for use in motor vehicle air conditioners, and research is being done to see if cars can be retrofitted for these alternatives.

(Continues on page 7)

MVAC RECOVER/RECYCLE OR RECOVER EQUIPMENT CERTIFICATION FORM

1

Name of Establishment

Street

City, State, Zip Code

(Area Code) Telephone Number

2

Name of Equipment Manufacturer and Model Number

Serial Number(s)

Year

3

I certify that I have acquired approved recover/recycle or recover equipment under Section 609 of the Clean Air Act. I certify that only properly trained and certified technicians operate the equipment and that the information given above is true and correct.

Signature of Owner/Operator

Date

Name (Please Print)

Title

Send this form to:

**MVACs Recycling Program Manager
Stratospheric Ozone Protection Branch
(6202J)
U.S.E.P.A.
401 M Street, S.W.
Washington, D.C. 20460**

MVAC RECOVER/RECYCLE OR RECOVER EQUIPMENT CERTIFICATION FORM INSTRUCTIONS

Motor vehicle recover/recycle or recover only equipment must be acquired by January 1, 1992 and certified to EPA on or before January 1, 1993 under Section 609 of the Clean Air Act. To certify that you have purchased approved equipment and that the technicians using it are properly trained and certified, please complete this according to the following instructions and mail to EPA address on previous page.

- 1** *Please provide the name, address and telephone number of the establishment where the recover/recycle or recover only equipment is located*
- 2** *Please provide the make, model number, year, and serial number(s) of the recover/recycle or recover equipment acquired for use at the above establishment*
- 3** *The certification statement must be signed by the person who has acquired the recover/recycle or recover equipment (the person may be the owner of the establishment or another responsible officer). The person who signs is certifying that they have acquired the equipment, that each individual authorized to use the equipment is properly trained and certified, and that the information provided is true and correct*

Impacts on A/C Service (continued)

Possible replacements include HFC-134a (which will be used in some cars starting in model year 1992) and ternary blends of HCFCs. These substitutes cost more than CFC-12, making recycling more economical. Blends that include any CFCs or HCFCs are already subject to EPA's recovery and recycling requirements. By November 15, 1995, all other substitute refrigerants will also have to be recycled.

By complying with the new regulations, you will help preserve the ozone layer for future generations. To let vehicle owners know about the new regulations, EPA has produced a brochure called *Help Protect the Ozone Layer: Recycle The Refrigerant In Your Car's Air Conditioner* and will make copies available to service shops.

Support for Recycling

The current CFC recycling program has come about through the success of joint EPA-industry voluntary programs and support from a variety of organizations. These groups supported CFC recycling in motor vehicle air conditioners:

Stratospheric Ozone Protection Advisory Committee, Subcommittee for Servicing of Motor Vehicle Air Conditioning. Members include:

ATOCHEM North America; Automotive Service Association (ASA); E.I. duPont de Nemours & Company, Inc.; Environmental Defense Fund (EDF); Fairfax County Health Department; Florida Department of Environmental Regulations; General Motors; IG-LO; International Mobile Air Conditioning Association (IMACA); Mobile Air Conditioning Society (MACS); Motor Vehicle Manufacturers Association (MVMA); Murray Corporation; National Automobile Dealers Association; National Institute of Automotive Service Excellence (ASE); Natural Resources Defense Council (NRDC); Robinair; State and Territorial Air Pollution Prevention Council; Sun Test Engineering; Underwriters Laboratories (UL); Vermont Air Pollution Control Division; White Industries

Automobile Importers Association (AIA) Members
American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
Automotive Refrigeration Products Institute (ARPI)
ETL Testing Laboratories
Friends of the Earth (FOE)
Society of Automotive Engineers (SAE)

For further information, please contact:

**MVACs Recycling Program Manager
Stratospheric Ozone Protection Branch
(6202J)
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460**

or

**The Stratospheric Ozone Information Hotline:
1-800-296-1996 (10am - 4pm EST, Monday - Friday,
except federal holidays).**

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