United States
Environmental Protection
Agency

EPA430-F-93-009
June 1993

Office of Air And Radiation (6205J)

EPA

Auto Air Conditioners and the Ozone Layer: A Consumer Guide

This pamphlet was developed to help you - the owner of an air conditioned car or truck - understand how efforts to protect the ozone layer will affect you and your vehicle now and in the future.

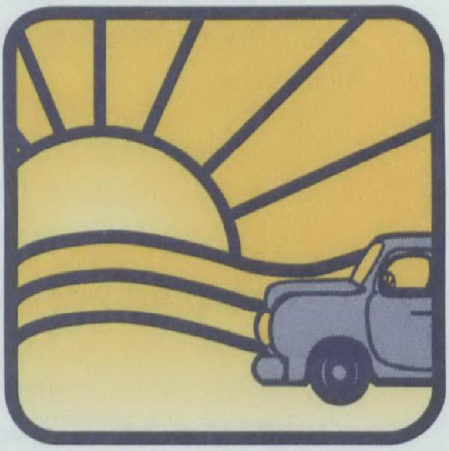
1. Our Threatened Ozone Layer

Scientists worldwide have concluded that chlorofluorocarbons (CFCs, also known by the trade name Freon) deplete the ozone layer. CFCs have been used in the manufacturing of many products, such as foam insulation, electronics equipment, refrigerators and air conditioners. When allowed to escape, these chemicals drift some 30 miles above the Earth to the stratospheric ozone layer - a layer of gas that screens us from the sun's powerful ultraviolet (UV-B) radiation. Once there, CFCs break apart - a process that releases chlorine, which then attacks ozone. A single chlorine atom can destroy more than 100 thousand ozone molecules.

The ozone layer is being depleted over Antarctica (the so-called Antarctic ozone hole), but also to a much lesser extent over North America, Europe, and other populated areas. A depleted ozone layer allows more UV-B radiation to reach Earth, harming human, animal, and plant life in many ways. Scientists around the world agree that increased UV-B radiation could over the long run cause a rise in cases of skin cancer and cataracts. Also, increased radiation could damage important food crops and marine ecosystems.

2. Protecting the Ozone Layer

The United States and over 110 countries are working together to protect the ozone layer by phasing out the production of ozone depleting substances in developed countries by the end of 1995. In addition, the Clean Air Act of 1990 contains requirements that ban the release of refrigerants during the service, maintenance, and disposal of air conditioning and refrigeration equipment and for labeling of products that are manufactured with or contain CFCs. Shops are required by law to use approved recover or recycling equipment when servicing air conditioning systems. Also, the technicians must be certified in the proper use of the equipment.



You can help save the ozone layer by getting professional vehicle service at a shop that uses recycling equipment and by having leaking systems repaired. Recycling and leak repair helps to conserve CFCs and limits the release of the chemicals to the environment.

All automakers are responding to the CFC production phaseout by beginning to produce vehicles with an alternative refrigerant called HFC-134a. This refrigerant does not deplete the ozone layer because it does not contain chlorine. By the end of 1994, virtually all new cars, trucks and vans will be equipped with HFC-134a air conditioning systems.

3. How does the CFC Phaseout affect your vehicle?

All but the newest designs of vehicle air conditioners use CFC-12 as a cooling agent. CFC-12 is one of the chemicals known to destroy the ozone layer - our planet's protection against harmful rays from the sun. The phaseout of the substance means that production will stop, but it does not mean that you have to stop using or having your air conditioner serviced with CFC-12. The first important step for all vehicle owners with CFC-12 air conditioners involves reducing unnecessary loss of refrigerant. Preventive maintenance, fixing leaks, and recycling at service are key actions to minimize the need for additional refrigerant after the phase-out of production at the end of 1995.

But many vehicles with CFC-12 air conditioners may require service past that date. What choices will these vehicle owners have? For vehicles under warranty, please consult your dealer. For vehicles not under warranty, you may have the choice to either continue to service your air conditioner with CFC-12 or to have the vehicle modified to use HFC-134a.

Despite the halt in production of CFC-12, government and industry are developing programs cooperatively to ensure that some supply of this refrigerant will be available after 1995. While the available supply will be limited and the costs will certainly rise in the future (in part due to a federal tax on CFCs), for many vehicle owners the option of continuing to use CFC-12 may be the most attractive one.

Other owners may decide that it makes more sense to have their air conditioning units modified to accept the alternative refrigerant. For example, if you are having major service performed on your CFC-12 air-conditioner, modifying the system to use HFC-134a may be appropriate.

The automobile manufacturers are working diligently to identify the required procedures for each of their models that would permit the use of HFC-134a while maintaining reliability and cooling performance. Make sure that your service center uses the manufacturer's recommended alternative refrigerant and follows their recommended procedures. Using substances that have not been thoroughly tested may cause performance and safety problems and void your warranty.

Since the complexity and the cost of modifying a CFC-12 system will vary by make and model of car, the decision to retrofit may make more sense for some vehicles than others. In many cases, retrofit of newer vehicles will require

fewer changes and cost less than retrofit of older vehicles. Actual costs of modifying a system to accept an alternative may vary widely.

If you are considering the purchase of a new or used vehicle, ask if the air conditioner uses HFC-134a, and if not, find out about any applicable warranties covering air conditioning service and repair. If you buy an extended warranty or service contract, make sure you find out whether it covers future air conditioning repairs or services.

EPA and the automotive industry are working together to make the transition away from ozone-depleting chemicals as smooth as possible, but we need your support and cooperation to make this effort a success.

This pamphlet was developed by EPA in cooperation with:

Federal Trade Commission (FTC)

American Automobile Manufacturers Association (AAMA) members: Chrysler Corporation; Ford Motor Company; General Motors Corporation.

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Office of New York State Attorney General Robert Abrams
Mobile Air Conditioning Society (MACS)
Society of Automotive Engineers (SAE)
Alliance for Responsible CFC Policy
National Automobile Dealers Association (NADA)
National Institute of Automotive Excellence (ASE)
International Mobile Air Conditioning Association (IMACA)

For Further information, please call the Stratospheric Ozone Information Hotline 1-800-296-1996. Hours: 10:00 a.m. - 4:00 p.m., Monday through Friday, except federal holidays.

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