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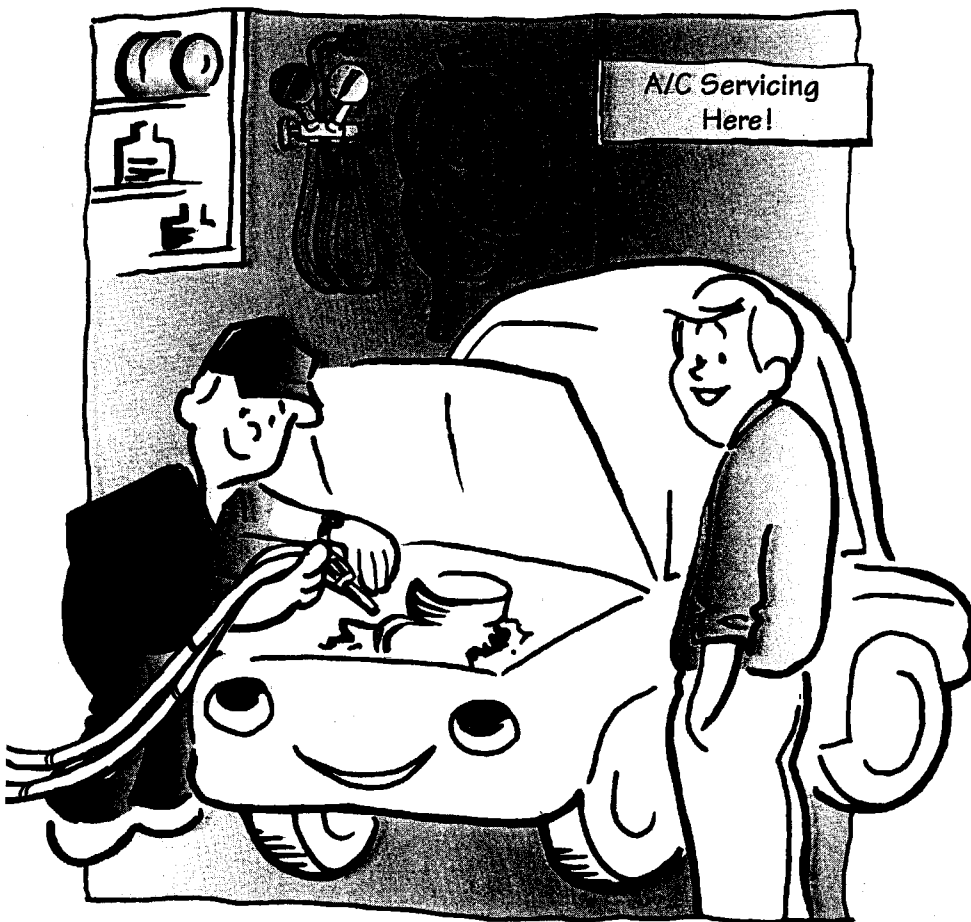
United States
Environmental Protection
Agency

Air and Radiation
6205J

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June 1995

Keeping Your Customers Cool

Servicing Vehicle Air-Conditioning Systems During the CFC Phaseout

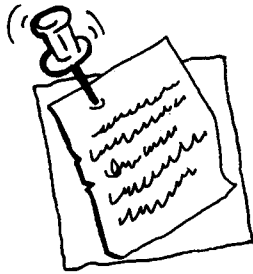


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NOTE TO SERVICE FACILITY OWNERS AND MANAGERS

Have your customers asked you about why the costs of CFC-12 and air-conditioner servicing have increased? Or, whether they should continue to use CFC-12 or switch to an alternative refrigerant? Have your technicians asked you about whether it's legal to "top off" air-conditioning systems? We hope this booklet will help you respond to these and other questions related to servicing vehicle air conditioning.

Make copies of part or all of the booklet or order more copies (while quantities last). Be prepared for customer questions by having supplies of information brochures on hand. Display posters or play videos to inform your customers. There is an order form at the back of this brochure for items available from EPA. Materials are also available from many of the organizations listed at the back of this booklet.

We appreciate your help in informing vehicle owners of the reasons behind the global ban on CFC-12 production and the options they have for servicing their vehicles.

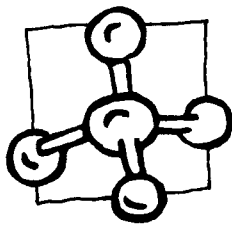
Mary D. Nichols
Assistant Administrator
Office of Air and Radiation



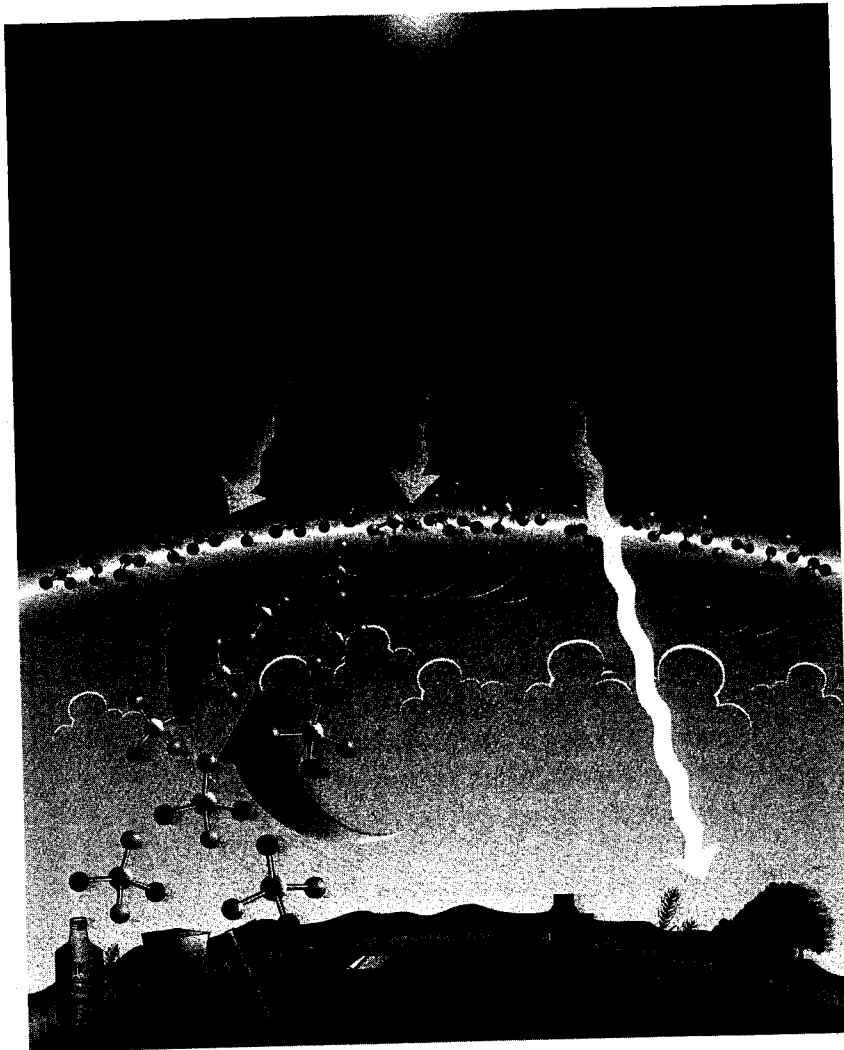
WHEN CUSTOMERS ASK

More and more customers are asking questions and seeking advice about the use of CFC-12 (Freon) in their air conditioners. Remember the following key points when responding to their questions:

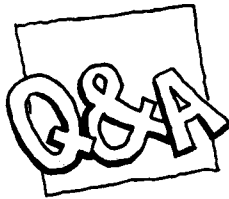
- ✍ Production of CFCs will be banned in industrialized countries after 1995.
- ✍ CFCs can be used after 1995, but the supply will diminish and price will increase over time as existing stocks are depleted.
- ✍ When vehicle air-conditioning systems are repaired, they must be serviced by EPA-certified technicians in facilities that use approved recycling equipment—it's the law!
- ✍ If major repairs are being made to the air-conditioning system (e.g., after a major system failure or a collision), vehicle owners should consider having the system retrofitted to use an alternative refrigerant.
- ✍ Alternative refrigerants that have not been listed as acceptable by EPA should not be used. Some are highly flammable.



HOW CFCs DEplete THE OZONE LAYER



CFCs drift high up into the stratosphere where the sun's rays break them apart, starting a chain reaction in which chlorine destroys ozone. As the level of protective ozone diminishes, larger amounts of ultraviolet (UV) radiation reach the Earth's surface. For people, overexposure to UV rays can lead to skin cancer, eye cataracts, and can weaken the immune system.



ABOUT OZONE AND CFCs

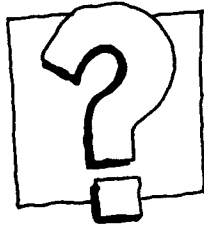
Q. Why should I care about ozone depletion?

A. The ozone layer protects life on Earth from the sun's harmful ultraviolet (UVB) rays. Depletion of the ozone layer can result in increased UVB radiation reaching the Earth's surface, which over time could lead to increases in skin cancer, cataracts, and weakened immune systems.

Q. Aren't volcanoes responsible for the chlorine that depletes ozone?

A. It is true that volcanoes and oceans release large amounts of chlorine. However, chlorine from these sources is easily dissolved in water. It washes out of the atmosphere in the rain without ever reaching the stratosphere.

In contrast, CFCs are not broken down in the lower atmosphere and do not dissolve in water. Measurements show that the increase in the amount of stratospheric chlorine since 1985 matches the amount of CFCs and other ozone-depleting substances released from manmade sources.



Q. CFCs are heavier than air, so how do they get to the stratosphere?

A. CFCs are transported into the stratosphere by winds. Thousands of measurements made from balloons, aircraft, and satellites confirm that CFCs and other ozone-depleting substances are present in the stratosphere.

Q. Why is the ozone hole over Antarctica if most CFCs are released in the Northern Hemisphere?

A Within a year or two, CFCs are mixed throughout the atmosphere regardless of where they are released. They rise to the stratosphere over the equator and then move to both poles. The unique seasonal climate over Antarctica creates the conditions that promote the formation of the seasonal "ozone hole."



HANDLING CFCs

Thanks to the efforts of the auto servicing industry, CFC recycling has quickly become the standard practice. Over 800,000 technicians have been certified and the industry has made a substantial investment in recycling equipment. As a result, the amount of CFCs needed for servicing has decreased by more than one half.

Technician Training/Certification.

Under the Clean Air Act, all technicians opening the refrigeration circuit in CFC-12 auto air-conditioning systems must be certified in refrigerant recovery. Certification can be obtained through several approved organizations.

Approved Equipment. Since January 1, 1993, any technician servicing, repairing, or opening a motor vehicle air-conditioning system must use either refrigerant recovery/recycling or recovery-only equipment approved by EPA.



ABOUT CFC-12 RECYCLING

Q. Does EPA require that all leaks in motor vehicle air conditioners be repaired?

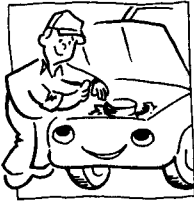
A. No. EPA does not require that leaks be repaired. Technicians should not say that leak repair is required under federal law. Making such a statement is a form of consumer fraud.

EPA does recommend that if a leak is identified, the customer should be presented with all the options for service. At that time, customers should be advised of the benefits of repairing leaks.

If the customer does not choose leak repair, the technician may refill the system if requested to do so by the customer (unless a state or local leak repair requirement forbids this).

Q. Is a technician required to recover and recycle any refrigerant added to a system for the purposes of leak detection?

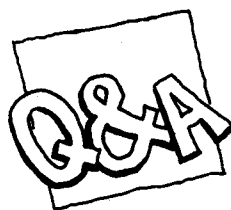
A. Yes. Refrigerant added to a system for the purpose of leak detection and then removed must be recovered and recycled. The leak detection charge may be left in the system at the request of the customer.



WHAT THE CFC PHASEOUT MEANS ON THE JOB

When you service vehicle air-conditioning systems that use CFC-12, you should:

- ✎ Follow accepted procedures for changing fittings and labeling refrigerants in vehicle air conditioners that have been retrofitted.
- ✎ Handle refrigerants with care to prevent mixing. It is critical that supplies of CFC-12 and R-134a be recycled separately to prevent cross-contamination.
- ✎ Stay informed about which alternative refrigerants have been accepted by EPA for use in vehicles and what vehicle manufacturers are saying about how alternatives perform in their autos and trucks. Use only an alternative that is listed as acceptable by EPA. At present R-134a is the only alternative listed as acceptable, which has also been fully tested and specified by the auto manufacturers in their retrofit guidelines.
- ✎ Beware of buying CFC-12 refrigerant that is substantially below the average market price. Such refrigerant is likely to be illegally imported. It may be contaminated and could damage vehicle air-conditioning systems.



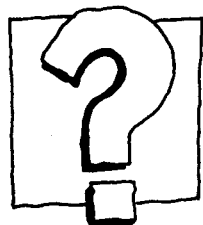
ABOUT NEW REFRIGERANTS

Q. I know that the old refrigerant, CFC-12, does not pose health risks when used properly. Is this also true of R-134a?

A. Based on extensive testing, R-134a is regarded as one of the safest refrigerants yet introduced. The acceptable worker exposure limit for R-134a is the same as for CFC-12. Because it is so safe, R-134a is also being proposed for use as a propellant in nasal inhalers.

Q. Is R-134a flammable?

A. R-134a is considered as safe or safer than CFC-12 in motor vehicle uses. R-134a is not flammable at outdoor air temperatures and atmospheric pressures. Some mixtures of air and R-134a have been shown to be combustible at elevated pressures. R-134a service equipment and vehicle air-conditioning systems should not be pressure tested or leak tested with compressed air.



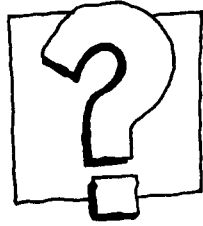
Q. Has EPA accepted refrigerants for use in auto air conditioners other than R-134a?

A. FRIGC, a blend of several refrigerants, has been designated as acceptable for motor vehicle use. FRIGC's manufacturer has informed EPA that FRIGC will initially be marketed for use in auto fleets only.

Q. What steps does EPA require when retrofitting air-conditioning systems to use alternative refrigerants?

A. During retrofitting, technicians must:

- Attach a unique fitting and label;
- Remove the CFC refrigerant before filling the system with an alternative;
- Use recycling or recovery equipment during refrigerant removal.



Q. Has EPA declared any alternatives to CFC-12 for use in vehicles to be unacceptable?

A. Yes. The Agency has determined that OZ-12 and HC-12a are unacceptable for use in motor vehicle air conditioners because of unanswered flammability concerns. It is illegal to use them as a refrigerant in vehicles.

Q. What does EPA acceptability mean?

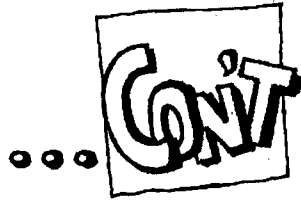
A. EPA reviews alternative refrigerants for their safety and environmental effects, especially flammability. EPA does not evaluate their performance in air-conditioning systems. For information about whether EPA has reviewed an alternative refrigerant, call the EPA hotline number at the back of this book.



IN SUMMARY

- ⌘ While production of new CFC-12 will be prohibited after 1995, its use will still be allowed. Vehicle manufacturers recommend that owners of cars with CFC-12 air-conditioning systems continue using CFC-12 as long as it is available.
- ⌘ It is good practice to recommend that leaky air conditioners be repaired, rather than just "topped off" with additional refrigerant. Such repairs prolong system life, reduce emissions, and conserve existing supplies of CFC-12. Leak repair is not required under federal law, but it is required in some areas (for example, Florida; Wisconsin; parts of California; Austin, Texas; Albuquerque, New Mexico; and possibly others).
- ⌘ At present, advise vehicle owners to have their cars retrofitted only when the air-conditioning systems need major work, such as
 - after a collision; or
 - when you are replacing major system components.

In the future, as supplies decrease and costs of CFC-12 increase, it is likely that retrofits will make economic sense in most cases. ➔



- ⌘ Consumers need to beware of false claims about alternative refrigerants. They should purchase only alternatives that have been listed as acceptable by EPA based on health and safety considerations. At present, R-134a is the only alternative refrigerant that has been fully tested and recommended by vehicle manufacturers. (R-134a contains no chlorine and therefore does not harm the ozone layer.)
- ⌘ And finally, service facility owners and managers can help by providing up-to-date information about the use of CFC-12 and alternative refrigerants. Displaying posters and videos and passing out brochures will help service facility owners, managers, and technicians educate consumers about their options.

U.S. Environmental Protection Agency
Office of Air and Radiation
Stratospheric Protection Division (6205J)
401 M Street, SW
Washington, DC 20460



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