

### A/C Retrofitting

1. How do I know if I need to retrofit before recharging with R-134a? (How do I know if I have an R-12 system or R-134a?)
2. Can't I just recharge with R-12 refrigerant?
3. Can I just add R-134a to an R-12 system without retrofitting?
4. How do I find the low-pressure port?
5. Do I need to have the R-12 vacuumed out or can I leave some R-12 in the system?
6. Do I have to use the high side fitting?
7. Can I mix R-134a with a little remaining R12 in my system?
8. Why use Ester Oil instead of PAG Oil?
9. Do I need to remove the oil that's in the system? Is the old oil compatible with the new oil?
10. Do I have to change A/C system components to retrofit?
11. What's different about "High Mileage" refrigerant?
12. Why did vehicle manufacturers change from R-12 A/C systems to R-134a ?
13. When installing the service port adapters, do I have to remove the valve core from the original service port?
14. How do you actually do the retrofit with the Interdynamics kit?
15. Can I use the Retrofit Kit if I am opening the system and replacing components?
16. Does a Retrofit Kit actually work?
17. Where did the Retrofit method come from?
18. How well does R-134a work in a retrofitted R-12 system?
19. How much R-134a do you use to fill a system?
20. Are there any restrictions on the sale of R-134a Refrigerant?
21. Don't you have to flush the system?
22. Doesn't R-134a need higher pressure to work? Won't that damage my R-12 system?
23. What direction should the can be when charging – right side up or upside down?
24. How long should it take to put a can of refrigerant into an air conditioning system?
25. What about some of these "drop-in" Replacement Refrigerants for R-12 that I have heard about? Are they any good?
1. How do I know if I need to retrofit before recharging with R-134a? (How do I know if I have an R-12 system or R-134a?)

If your car is a 1994 or earlier model, you probably have an R-12 system and need to retrofit before recharging with R-134a. Check under the hood for a label indicating whether the system is R-12 or R-134a.

2. Can't I just recharge with R-12 refrigerant?

Because environmental regulations have required vehicle manufacturers to stop using R-12 systems and to use only R-134a systems, R-12 has become scarce and therefore extremely expensive. Also, R-12 can only be obtained and used for recharge by a certified mechanic. Retrofitting and recharging with R-134a refrigerant is much less expensive than recharging with R-12.

### 3. Can I just add R-134a to an R-12 system without retrofitting?

No. Federal Law prohibits “topping off” an R-12 system with a different refrigerant. All R-12 refrigerant must be properly evacuated before any other type of refrigerant can be added. Most mechanics will remove your old R-12 for free because they can recycle it and sell it at a profit.

### 4. How do I find the low-pressure port?

The low-pressure port usually has a blue or black dust cap and is located on the larger diameter metal tubing that runs between the evaporator (in the dashboard) and the compressor. To locate the low-pressure port:

1. Find the compressor.
2. Find large diameter metal tubing that leads from the compressor back to the fire wall.
3. Find port on this tube. Our quick-connect coupler should fit onto this port. To be sure, compare with the port on the other tube (smaller tube) that leads from the compressor to the condenser near the radiator. This port is larger and is the High Side port. Our quick-connect coupler will NOT fit on the High Side port.
4. Do not attempt to connect to the high side port as this can cause a can of refrigerant to explode.
5. Sometimes the low side port is on-or-near the compressor, sometimes it's on an accumulator near the firewall...not on the large diameter metal tube.

#### Examples of Low-pressure (low-side) port locations

Buick LeSabre  
Pontiac Bonneville  
Olds 88/Regency  
Toyota Camry  
Ford Taurus  
Honda  
Saturn  
Mitsubishi Galant  
VW Passat

### 5. Do I need to have the R-12 vacuumed out or can I leave some R-12 in the system?

ALL the R-12 in the system must be recovered. This must be done without venting (releasing the gas into the atmosphere) by a certified mechanic using approved R-12 Recovery equipment. Many installers will do this without charge, because the R-12 they recover from your system is valuable.

### 6. Do I have to use the high side fitting?

When retrofitting, it is required by law to change the adapters on the high side and low side ports. Even though you will not use the high side port during any charging procedure. At some later date, if further servicing was needed, a professional may use this port for certain

procedures.

7. Can I mix R-134a with a little remaining R12 in my system?

No, the system must be evacuated first down to a vacuum measured at approx 29 inches of water.

8. Why does Interdynamics use Ester Oil instead of PAG Oil?

While both lubricants are used with R-134a, Ester is believed to be better for Retrofit systems because it is compatible with the residual mineral oil left after evacuating a R-12 system. In addition, Ester oil is a preferred top-off oil because it is compatible with ALL PAG Oils and is much less hygroscopic, which means that it does absorb as much water from the atmosphere as PAG Oils do. This moisture can create problems in a vehicle's A/C system.

Ester is also a truly Universal lubricant which has a Single Viscosity. PAG Oils come in a variety of viscosities which must be matched to the vehicle. GM vehicles use a high viscosity (150) PAG Oil, and non-GM vehicles use a low viscosity (46) PAG Oil. You cannot use a 100 viscosity PAG Oil as a "1 size fits all" universal lubricant. Ester Oil, however, is truly universal and will lubricate properly regardless of viscosity.

9. Do I need to remove the oil that's in the system? Is the old oil compatible with the new oil?

No. The residual mineral oil left behind after you evacuate a R-12 system will not mix with the new R-134a refrigerant. That is why we add Ester Oil, because it will mix with R-134a, lubricate the system components and is compatible with the residual Mineral oil.

The mineral oil just collects in a low place in the system (such as the accumulator), where it stays, until it is removed at some later date during future maintenance or repair. The mineral oil does no good, but it does no harm either. It's just there.

10. Do I have to change A/C system components to retrofit?

In the beginning, when retrofitting vehicle air conditioning systems first came up, it was assumed that major components of the system designed for use with R-12 would have to be changed to R-134a compatible components. As more research was done, and as vehicles were actually retrofitted, the industry learned more and more about the process, namely that much less had to be done than was originally thought.

If an R-12 system is functioning properly, components do not have to be changed, and the R-12 refrigerant can be replaced with R-134a without opening up the system. If, however, the system is not functioning and repairs must be made, then the defective parts should be replaced with R-134a compatible parts.

R-134a is a smaller molecule than R-12, so R-134a hoses are designed to contain it properly. In an R-12 system, the original hoses and O-rings absorbed some of the mineral oil in the system

and are coated internally with mineral oil forming a protective barrier. So, if they are not damaged, R-12 hoses and O-rings do not need to be replaced.

### 11. What's different about "High Mileage" refrigerant?

Interdynamics' "High Mileage" refrigerant contains a proprietary formulation of lubricant enhancers that helps your old compressor run easier. This will make the compressor last longer and run quieter.

It contains special anti-wear and lubricant additives to restore an older A/C systems performance.

### 12. Why did vehicle manufacturers change from R-12 A/C systems to R-134a ?

In the mid-1990s, environmental regulations required vehicle manufacturers to stop manufacturing A/C systems that use R-12 refrigerant, which is an ozone-depleting substance (called a "CFC"), and to change to A/C systems that use R-134a refrigerant, which is NOT an ozone-depleting substance.

### 13. When installing the service port adapters, do I have to remove the valve core from the original service port?

Usually not.

On very few older GM models this is necessary and this is for the high side adapter only.

If your original R-12 valve cores are leaking they should be replaced after you remove all the R-12 and before you actually pull the vacuum. You can test for leakage by placing some ester oil on top of the valve core and seeing if any bubbles occur.

All ID low side port adapters fit over the existing R-12 ports and do not require the removal of the existing schrader valve core.

Most cars have high side ports that accept the ID high side port adapter that fits over the port so again, in this case, the valve core does not have to be removed.

### 14. How do you actually do the retrofit?

1. EVACUATE the R-12, if there is any left in the system. This must be done without venting (releasing the gas into the atmosphere) by a certified mechanic using approved R-12 Recovery equipment. Many installers will do this without charge, because the R-12 they recover from your system is valuable.

2. Attach Adaptor to the low-pressure port: [photo]The low-pressure port usually has a blue or black dust cap and is located on the larger diameter tubing that runs between the evaporator (in the dashboard) and the compressor (see question above, "How do I find the low-pressure port?"). Remove the dust cap . Attach the adapter to the low-pressure port.

3. Charge the System: [photo]Assemble the hose and refrigerant can. Be sure the engine is

operating and the A/C is set to maximum cooling. Proceed to charge the system.

4. Check Pressure & Attach Label: Measure the system pressure at any time by closing the can valve. Refer to the pressure gauge chart for refrigerant level. Confirm proper pressure, disconnect charging hose, reattach blue dust cap and attach retrofit label.

15. Can I use the Retrofit Kit if I am opening the system and replacing components?

Yes, but with a couple of changes. First, if you are replacing any components of your A/C system, be sure that the replacement items are compatible with R-134a. Also check and see if flushing is recommended after installing the new component. In addition, as long as the system is open, this is a good time to remove the any remaining mineral oil.

When the system is open, you should use a POURABLE Ester Oil instead of the aerosol Oil Charge that comes with many of our kits. Pour it into the system and then, after closing the system, crank the compressor 25 times by hand to distribute the new lubricant, and then charge with R-134a to 80 to 85% of the original R-12 Capacity.

When replacing the compressor, make sure that the new compressor is compatible with R-134a, and use whatever oil the compressor recommends (PAG or Ester) in order to maintain the compressor warranty.

17. Where did the Retrofit method come from?

Described by the US Environmental Protection Agency (EPA) in a July 1996 document titled: "KEEPING YOUR CUSTOMER'S CAR COOL: SOME GUIDANCE IN RETROFITTING A/C SYSTEMS TO R-134A". The EPA refers to a "Least-Cost Aftermarket Retrofit" in which the system is not opened and there are no major component changes.

18. How well does R-134a work in a retrofitted R-12 system?

On most vehicles the air coming out the vent will be the same. On some vehicles the R-134a air will be a couple of degrees colder. On some other vehicles (rear wheel drive domestic vehicles) the duct temperature may be 2-4 degrees warmer. This is considered an insignificant amount, and based on our experience selling over 20 million retrofit kits since 1996, users are extremely satisfied with the results.

19. How much R-134a do you use to fill a system?

You fill a system with 80-85% of the original R-12 Volume. Since there are 3 oz. of R-134a used as a propellant in the Oil provided in the kit, three 12 oz. cans of R-134a should be sufficient. The amount of R-12 Refrigerant in the system can be found in the service manual or on a service plate located in the engine compartment of the vehicle.

We also provide accurate pressure gauges to make it easy to fill the system to the proper level.

20. Are there any restrictions on the sale of R-134a Refrigerant?

At the present time, there are NO FEDERAL RESTRICTIONS on the sale of R-134a Refrigerant, because it is not an Ozone Depleting Substance or "CFC". The sale of R-134a is restricted in the state of Wisconsin, where it can only be sold to certified technicians.

21. Don't you have to flush the system?

Since a functioning system is not "opened" with the Interdynamics Retrofit Kit, flushing is not necessary.

22. Doesn't R-134a need higher pressure to work? Won't that damage my R-12 system?

R-134a systems are designed to run at higher pressure than an R-12 system, which is why we use less R-134a than the amount of R-12 in the system (80-85%). This keeps the pressure at the appropriate level.

23. What direction should the can be when charging – right side up or upside down?

Plain refrigerant should be installed as a gas, with the can rightside up. If it's a can with refrigerant and oil or other additives, install as a gas by continually shaking the can during installation to prevent the other chemicals from settling to the bottom. Finish with the can upside down.

24. How long should it take to put a can of refrigerant into an air conditioning system?

It should only take a few minutes.

25. What about some of these "drop-in" Replacement Refrigerants for R-12 that I have heard about? Are they any good?

The EPA points out that only R-134a has been tested and approved by automakers for use in their vehicles, and it is also the only Replacement Refrigerant for R-12 that is widely available.

EPA adds that there is NO SUCH THING AS A "DROP-IN", since refrigerants CANNOT BE MIXED in an A/C System. In addition, ANY REPLACEMENT REFRIGERANT MUST HAVE:

- \* Unique Fittings for the Service Ports
- \* Unique Charging Devices
- \* Unique Label

In addition, any replacement refrigerant containing R-22 requires replacing system hoses with Barrier Hoses.

It should also be noted that some of the more talked about Replacement Refrigerants are made from up to 80% R-134a.