

# RECOMMENDED 7 STEP PROCEDURE TO RETROFIT YOUR VEHICLE'S R-12 A/C SYSTEM TO R-134a

The following procedures are general guidelines. Since A/C systems vary per model and vehicle manufacturer, please consult the vehicle manufacturer, appropriate S.A.E. document J1661, or a trained technician to ensure a successful and complete retrofit. Air conditioning mechanical skills and licensing may be required for installation or when handling refrigerants. Additional parts and equipment may be necessary. For additional guidance, consult a professional.

## **CAUTION:**

Failure to follow service procedures could result in serious personal injury and/or property damage.

1. Automotive refrigeration system under pressure. Do not attempt any service without protective eyewear.
2. Always be certain to work in a well ventilated area.
3. Do not pressurize R-134a equipment or air conditioning systems with compressed air. Some mixtures of air and R-134a have been shown to be combustible at elevated pressures.
4. Avoid contact with air conditioning refrigerant and lubricant vapor or mist. Exposure may irritate eyes, nose, throat, and/or skin. Insulated gloves are recommended when working with liquid refrigerants.

Please refer to warnings and cautions on charge cans included in this kit.

## **STEP 1: VISUAL INSPECTION**

- Make certain engine is **off**.
- Check for worn, broken or leaking A/C hoses or other obvious leakage points, broken or missing parts and note.
- If visual inspection is O.K., proceed to Step 2.

## **STEP 2: PERFORMANCE CHECK:**

- Make certain engine is **off**.
- It is recommended that the pressures be determined at the high side and low side ports (pressure gauge not included but available at most automotive retail stores)
- With engine running, operate A/C system on maximum setting and high blower speed.
- Make certain compressor clutch is engaged.
- Confirm that the high side and low side pressures are correct (consult vehicle manufacturer). Also confirm that the ducts are blowing cool air. If all is O.K., proceed to step 3.
- If the pressure gauge readings are not O.K. or if the system is blowing warm air, attempt to isolate the problem. Listed below are some common areas to check or have checked by a professional:
  - Warm air blowing from the duct or fast cycling might indicate low refrigerant, plugged orifice tube or plugged expansion valve.
  - Is the compressor belt tight?
  - Is condenser/radiator fan working? Is the fan clutch working?
  - Is compressor clutch engaged (air gap between pulley and hub face too wide)? Is clutch wire connected?
  - Check radiator coolant level.
  - Check the condenser (use air to blow out any insects, leaves, dirt or other debris that might restrict air flow).
  - Make certain blower fan is working.
  - Make certain heater control valve or blend door is in off position when maximum A/C is selected.

## **STEP 3: LEAK CHECK**

- With engine and A/C system **off**, check the system for leaks (electronic leak detector not included in kit). If the system has little or no refrigerant, it will be difficult to perform a proper leak check. Please consult a professional.
- If no system leaks are found, proceed to step 4.
- If leaks are found, take note for later repair and proceed to step 4.

## **STEP 4: RECOVER R-12 REFRIGERANT**

- It is unlawful to vent R-12 refrigerant into the atmosphere. Recover R-12 with a conventional recovery/recycling machine according to EPA regulations and S.A.E procedures. This should be done by a licensed professional.
- Once the A/C system has all the R-12 removed, repairs and service can be performed.

## **STEP 5: COMPONENT REPLACEMENT**

- It may be necessary to replace certain A/C system components that are not compatible with R-134a. These may include the compressor, lines, O-rings, filters, accumulators, driers, gaskets, and orifice tubes. Consult the vehicle manufacturer.

## STEP 6: CONVERT SERVICE PORTS

- Remove and discard plastic R-12 valve port caps.
- Thoroughly clean the external valve port threads with a wire brush or A/C port deburring tool.
- All three of the adapters included in our kit may not be required for your vehicle. (Consult with the vehicle manufacturer)
- Remove the schrader valves from both the low and high side ports.
- Carefully screw the new adapter onto the valve port being careful not to cross thread or over tighten the adapter. The pre-applied thread lock adhesive is activated when the threading action takes place. **DO NOT OVERTORQUE THE ADAPTERS ONTO THE VALVE PORTS.**
- Inspect the A/C system for any additional valve ports that are unused but need to be capped off. If found, use a disabler cap (not included) with thread lock adhesive of the corresponding port size and cap off.
- If possible, evacuate A/C system at 29" of vacuum for 30 minutes. If the system has been opened to perform repairs or to replace components, this step will be necessary to remove air from the system.

## STEP 7: CHARGE A/C SYSTEM

- Turn **off** your vehicle's engine and A/C system.
- Locate the yellow charging hose included with this kit. Turn the yellow charging hose's can tap valve handle counter clockwise until it stops. Screw the can tap valve end of the hose onto the threads of a *Castrol R-134a Oil Charge for Retrofit* can firmly.
- Pull back the sleeve on the other end of the yellow charging hose and attach to low side service port. Push the sleeve forward and make certain that the coupler fits tightly. **DO NOT** connect a pressurized can to the high pressure side of an A/C system as this can cause the can or hose connection to burst and result in injury. If uncertain of which port is the low side port, consult a trained technician. All charging should be done on the low side of the A/C system.
- Turn **on** the engine. Set the A/C system to maximum cool setting.
- Turn the can tap valve handle clockwise allowing the piercing needle to puncture the charge can .
- Holding the can upside down, turn the can tap valve handle counterclockwise to begin charging. **WARNING:** Wear gloves as the charge can can become very cold. Wear protective eyewear whenever working with pressurized containers.
- When charging is complete, close the valve by turning the handle clockwise until stopped. Turn off engine and the A/C system. Pull back the fitting sleeve and remove the hose from the low side port. Take precautions when removing the can tapper from the charge can as contents may still be under pressure.
- Depending on the amount of oil required for the A/C system being retrofitted, repeat Step 7 as needed for the remaining can of *Castrol R-134a Oil Charge for Retrofit*. Each can of *Castrol R-134a Oil Charge for Retrofit* contains 4 ounces of oil (and 8 ounces of R-134a) so consult with the vehicle manufacturer for the amount of oil to be added to the A/C system. Depending on the amount of refrigerant required for the A/C system being retrofitted, repeat Step 7 for the remaining 12 ounce can of Johnsen's R-134a refrigerant included in this kit. Consult with the vehicle manufacturer for the amount of refrigerant to be added to the A/C system. If possible, use pressure gauges to determine if the high and low side system pressures are optimal.
- Operate the A/C system to ensure proper operation. The *Castrol R-134a Oil Charge for Retrofit* includes a red leak detector dye that will assist you in determining if any leaks exist in your A/C system.
- Fill out the special blue label indicating that this vehicle has been retrofitted to R-134a (see below). Apply this label over any existing R-12 label (usually near radiator/condenser mounting frame). Remove any other existing label indicating R-12 system information.

## RETROFIT LABEL INSTRUCTIONS

Using a ball point pen, fill in the appropriate information in the blanks on the Retrofit Information Label. Where possible, this label should cover existing R-12 information, taking care not to mask any information not related to R-12. In any event, this label should be placed on a visually accessible part or surface not normally disturbed during service procedures. Any R-12 related information not covered by this label (e.g. refrigerant specification on compressor nameplate or other system components), must be made permanently unreadable (scratched out or removed). The removal of any reference to R-12 is important to ensure future servicing does not contaminate the system through introduction of non-compatible refrigerants or lubricants.

<b>NOTICE: RETROFITTED to R-134a</b>	
Retrofit procedure performed to SAE J1661	
<b>CAUTION: System to be serviced by qualified personnel only.</b>	
Retrofit Date: _____	
Name of company or individual performing retrofit: _____	
Address: _____	
City/State: _____	Zip: _____
Tel # _____	R-134a Charge _____
Lubricant Type _____	Lubricant Amount _____
Auxiliary Label Location: _____	