

# Heating & Air Conditioning Parts

**BUILT TO SURVIVE**

## THE DETAILS

R-134a is the new refrigerant that will be used in future heavy duty air conditioning systems. This new refrigerant is used in conjunction with polyalkylene glycol (PAG) synthetic oil, which is not compatible with the mineral oils used with R-12 systems. Therefore, R-134a is not a drop-in replacement refrigerant for existing systems. The different chemical and physical properties of R-134a cause higher discharge pressures, so some components must be changed or redesigned for compatibility with R-134a. The key component differences are:

**REFRIGERANT FITTINGS:** A new 134a refrigerant fitting crimp standard has been established by the SAE and embraced by the EPA. The "beadlock" and "EZ-Clip" style fittings meet this standard. See the 70R section of this catalog for more details.

**O-RINGS:** O-Ring material should be neoprene or HNBR.

**EXPANSION VALVE:** The expansion valve will be charged with R-134a refrigerant to react to the pressure differences and a new superheat setting. This new valve is compatible with R-134a and R-12 and will be labeled as such. Early in 1993 Red Dot made a running change on all "universal After Market air conditioning units" and started labeling these units with a GREEN "R-134a compatible" label on the box.

**RECEIVER DRIERS:** The PAG oils used with R-134a are not compatible with the existing desiccant in receiver driers so a new desiccant has been developed which is compatible with R-12 and R-134a. As of January 1, 1993, all the receiver driers have been manufactured with the new desiccant and are labeled "R-134a/R-12 compatible." This manufacturing process encompasses our entire receiver drier product line. This does not, however, mean that all receiver driers are suited for R-134a. Being that R-134a is more susceptible to moisture, more desiccant has been added to the canisters of a few select driers. Only HIGH CAPACITY receiver driers with 15 cubic inches of desiccant will be recommended for R-134a installations. The R-134a compatible receiver driers are noted in the parts catalog. In addition, R-134a with its oil is visibly cloudy in a normal sized sight glass, which makes the visual check difficult while charging. Therefore, Red Dot is offering a drier without sight glass and switch ports. This drier will be used in many of our general installation kits. Included in these kits is a moisture indicator with a larger sight glass and switch ports. The advantage of this is that when the drier is changed, the pressure switches do not have to be removed and the larger sight glass makes it easier to visually inspect the refrigerant charge.

**COMPRESSOR AND OIL:** CCI (York), Seltec and Sanden compressors which have the correct oil charges are available from Red Dot. It is important to note that the oils in these three compressors are different and are not compatible with R-12, therefore, the correct oil for the particular compressor being used must be purchased separately for additional oil requirements. The three oils are identified in the 79R section of this catalog.

**CONDENSER:** R-134a requires 25% more condensing capacity. Consult the unit ordering guide for compatible condensers for the particular evaporator being specified.

**REFRIGERANT HOSE:** Nylon barrier hose is suggested for use with R-134a. The Red Dot refrigeration hose is recommended.

## CHARGING WITH R-134a

To avoid cross contamination of R-12 refrigerant and R-134a refrigerant, new charge fittings have been developed for R-134a systems. These fittings require a special "quick disconnect" type adapter on the charging lines to function properly. The charge fittings are part of the R-134a installation kits in this catalog. Please note that existing R-12 systems cannot be charged with R-134a, this is referred to as a "dirty change-over" and will not allow the air conditioning system to function properly.

## LABELING REQUIREMENTS

Effective May 15, 1993 the EPA imposed a new labeling rule. This labeling rule was developed pursuant to the requirements of section 611 of the Clean Air Amendments of 1990. The labeling rule reads as follows:

Labeling will be required on:

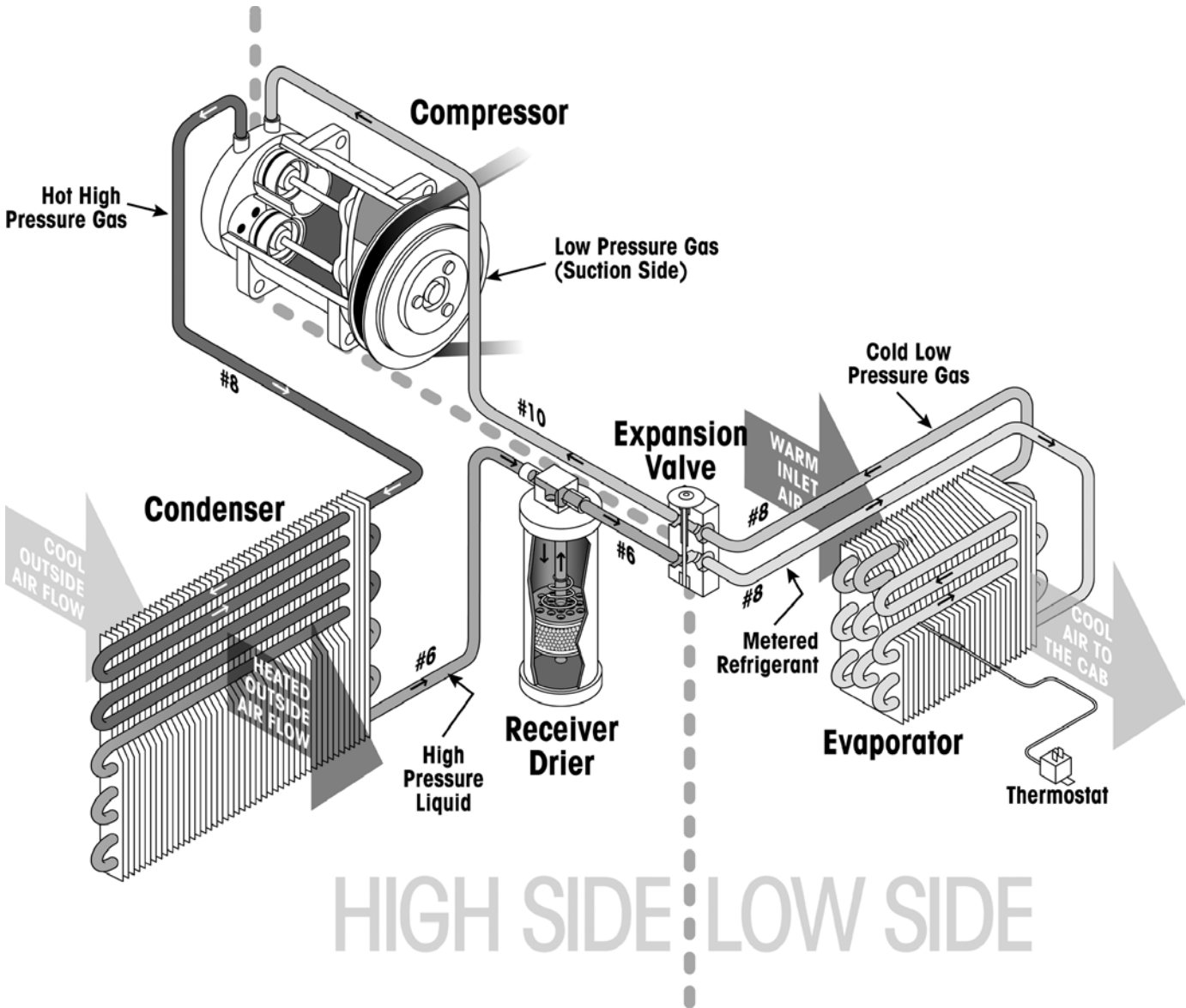
- containers of class I and class II substances
- products containing class I substances
- products manufactured with class I substances, unless no substitutes are available

"Manufactured with" class I substances includes:



- processes using controlled substances, including component parts
- products that do not contain controlled substances at point of sale
- products that have had physical contact with controlled substances
- controlled substances that are not transformed in process

These warning labels are included with all new air conditioning units. Red Dot includes refrigerant identification labels to be placed on the evaporator upon installation. This label is provided as courtesy to those technicians who will be servicing the systems making it easy to identify which refrigerant is in use.

## TYPICAL PLUMBING SCHEMATIC



Air Conditioner components are connected together to illustrate system operation. The components shown are not to scale. The refrigerant and refrigerant oil are clear in color and not visible in this drawing; however, we've attempted to suggest temperature variants through the use of values of gray in the pipeline. The small arrows inside the components and connecting hoses show the direction of refrigerant flow (refrigerant circuit).

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<b>71R SERIES-</b>	SWITCHES, THERMOSTATS & EXPANSION VALVES	
<b>72R SERIES-</b>	AIR CONTROLS - WATER VALVES, LOUVERS & DIFFUSERS	
<b>73R SERIES-</b>	BLOWER MOTORS, WHEELS & FANS	
<b>74R SERIES-</b>	RECEIVER DRIERS & ACCESSORIES	
<b>75R SERIES-</b>	CLUTCHES, COMPRESSORS & PARTS	
<b>76R SERIES-</b>	HEATER CORES & EVAPORATORS	
<b>77R SERIES-</b>	CONDENSERS	
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