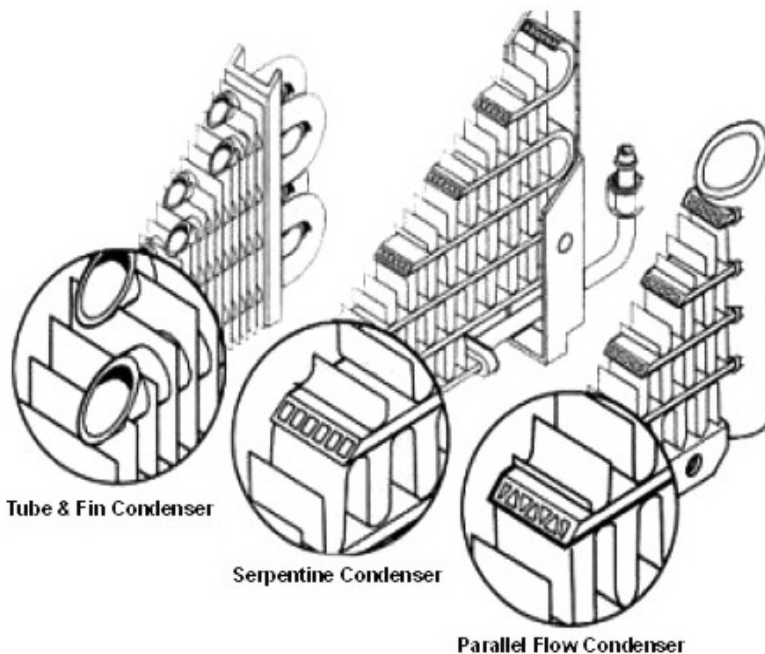


FAQ: CONDENSER DESIGNS?

CHARACTERISTICS AND ISSUES WITH CONDENSER DESIGNS



◀ “Tube & Fin” and even the small amount of parallel paths in a “Serpentine” design Condenser, in general, has not proven to be difficult to clean. One single pathway limits the ability for much debris to accumulate and flushing of these types of heat exchangers has, in general, been very successful. In automobiles, this design is mostly being abandoned for more compact and efficient Parallel Flow designs.

◀ The “Parallel Flow” Condenser (PFC) uses Multi-tube parallel flow plates attached at each end with common chambers that direct the flow through to the next set of plates, back and forth creating what are known by the number of direction changes to be a 2, 3, 4 pass, etc. Picture below shows refrigerant flow path.

“Black Death” is a phrase created from the high failure rates of a specific compressor. Burnt oils in the system (“Black”) caused by the overheating and eventual “Death” of the compressor (a.k.a. “Burnout”) can form a hard carbonized buildup primarily in the condenser blocking the refrigerant flow paths. Commercial A/C flushes will not breakdown this carbonized buildup.

Unfortunately, because so many “Black Death” failures occurred, it has convinced many technicians that Condensers, in general, cannot be flushed. With the exception of the small number of “Burnouts” that can still occur in any model,

THIS IS NOT TRUE!

The most common compressor failures today are fatigue failures, that will self destruct rapidly or instantly and a high debris load rather than “Burnout” becomes of most concern. If approached properly, this debris, waste oils, and the common “black soot” can be successfully flushed from the Condenser.

As new Condenser designs are becoming evident, it is most important that this industry overcomes the “Black Death” created phobia and understands when and how to complete a successful Condenser flush. A Condenser’s ease of replacement and minimal costs will go away as current (Toyota Prius) and future models will use a modular cooling unit combining the Condenser, Radiator, Transmission Oil Cooler, and Electronics cooling (ex. AC Inverter) all in one. \$\$\$\$

