

Refrigeration Cycle

The refrigerant compressor (1), driven by the engine, draws in the heated, vaporized, low-pressure refrigerant R 12 and forces it into the condenser (2) (Fig. 1). The outside air drawn in through the condenser, which is located in front of the radiator, cools the vaporized refrigerant (which has been changed to a high temperature, high-pressure state by the compression process) to the point where it becomes liquid. The liquid refrigerant now passes into the receiver (3). The filter-drier (dehydrator) installed in the receiver absorbs any remaining water in the liquid refrigerant to avoid icing of the expansion valve (4) (Fig. 2). The refrigerant level in the system can be checked at any time through a sight glass at the top of the receiver. When the system is switched on, the refrigerant should pass through without any

bubbles. From the receiver, the refrigerant passes to the expansion valve. The expansion valve, which is mounted on the evaporator changes the high-pressure liquid refrigerant to a low-pressure liquid and meters the liquid out to the evaporator, where it vaporizes. The heat required for this purpose is absorbed from the air passing through the evaporator: the air is cooled.

The vaporized refrigerant is drawn in by the compressor and compressed again. This completes the cycle.

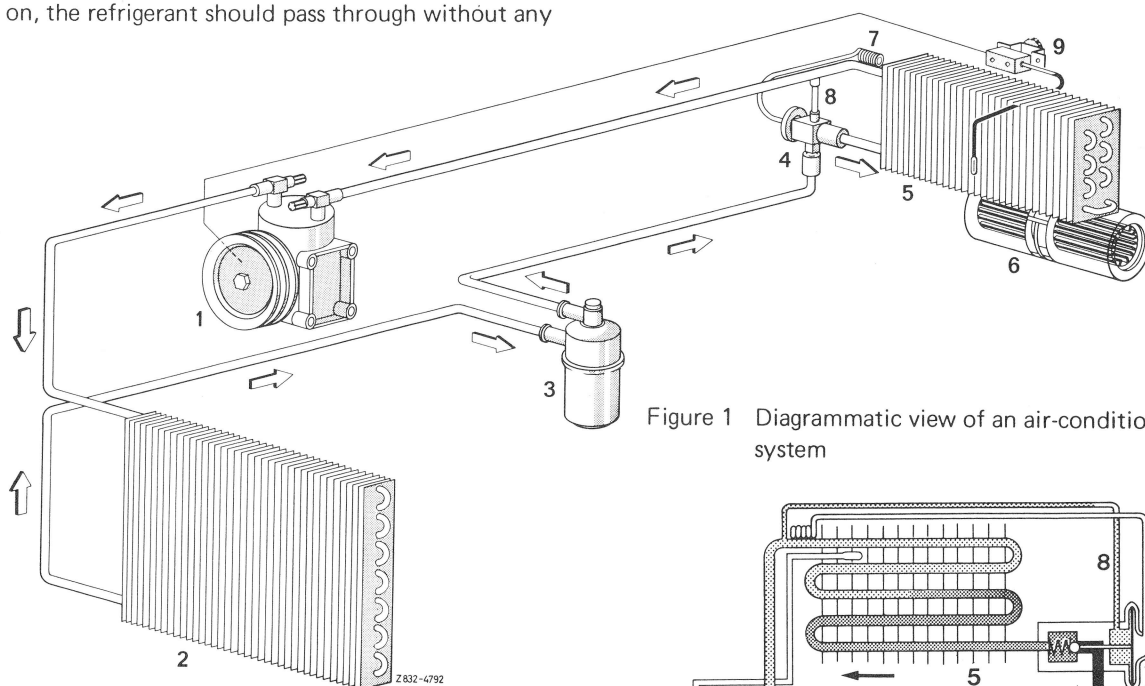






Figure 1 Diagrammatic view of an air-conditioning system

- 1 Refrigerant compressor with electromagnetic clutch
- 2 Condenser
- 3 Receiver with dehydrator and sight glass
- 4 Expansion valve
- 5 Evaporator
- 6 Blower
- 7 Capillary tube with temperature sensor
- 8 Compensating line
- 9 Temperature switch

-  Low pressure — vaporized
-  Low pressure — liquid
-  High pressure — liquid
-  High pressure — vaporized

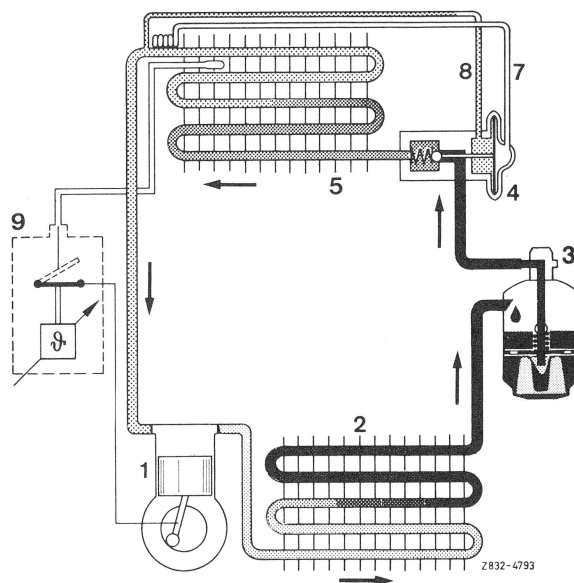


Figure 2 Refrigeration cycle