Air Conditioning - Part 1 (AIR02e)

Video Scripts

I-CAR®

Version: 2.2

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Module 1 - System Operation

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Video: Refrigerant Flow - Accumulator

This animation will help you see how refrigerant flows through an air conditioning system that uses an accumulator.

Refrigerant flows out of the compressor and into the condenser as a high-pressure gas. Inside the condenser, it changes from a high-pressure gas to a high-pressure liquid as heat is released.

The high-pressure liquid flows out of the condenser and into a fixed orifice tube. As it passes through the fixed orifice tube, which creates a restriction, it is changed from a high-pressure liquid into a low-pressure vapor.

The refrigerant then flows into the evaporator. Inside the evaporator, the low-pressure vapor absorbs heat and is changed into low-pressure gas.

The low-pressure gas flows out of the evaporator and into the accumulator. Inside the accumulator moisture is removed.

The refrigerant leaves the accumulator as a low-pressure gas and enters the compressor. Inside the compressor, it changes from a low-pressure gas into a high-pressure gas and continues to cycle through the system.

Video: Refrigerant Flow - Receiver / Drier

This animation will help you see how refrigerant flows through an air conditioning system that uses a receiver / drier.

Refrigerant flows out of the compressor and into the condenser as a high-pressure gas. Inside the condenser it changes from a high-pressure gas to a high-pressure liquid as heat is released.

The high-pressure liquid flows out of the condenser and into a receiver / drier. Inside the receiver / drier, moisture is removed from the refrigerant.

The refrigerant flows out of the receiver / drier as a high-pressure liquid and into a variable metering valve. As it passes through the variable metering valve the refrigerant changes from a high-pressure liquid into a low-pressure vapor.

The refrigerant then flows into the evaporator. Inside the evaporator, the low-pressure vapor absorbs heat and is changed into low-pressure gas. The low-pressure gas flows out of the evaporator through the variable metering valve, or past a sensing bulb, and into the compressor.

Inside the compressor, it changes from a low-pressure gas into a high-pressure gas and continues to cycle through the system.

Video: Compressor Cutaway

This radial style compressor has been cut away so you can see the wobble plate and one of the three dual action pistons.

As the compressor pulley rotates, the wobble plate moves the piston upward and refrigerant is compressed in a chamber at the top of the compressor.

As the wobble plate continues to rotate, the piston is moved downward and refrigerant is compressed in a chamber at the bottom of the compressor.

This same action is repeated at all three pistons as the wobble plate continues to rotate.