Automotive Heating and Air Conditioning, 9th Edition

Chapter 15 Refrigerant Recovery, Recycling, and Recharging

NAME _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1. What safety precautions should be followed when working on air-conditioning systems?

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   _____
   _____
   _____
   _____
   _____

2. What is considered to be a non-condensable gas (NCG)?

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   _____

3. What are the steps to recover refrigerant?

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4. What are the criteria for recycled refrigerant?

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   _____

5. Why do A/C experts recommend using a micron meter to measure the vacuum in the system?

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   _____
   _____

Answer Key
Testname: AHAC9SHORT15

1. • Obtain, read, and understand the safety data sheet (SDS) information regarding the refrigerant being used.
   • Work in well-ventilated area
   • Wear safety goggles or safety glasses with side shields to guard against eye exposure to refrigerant.
   • Avoid breathing refrigerant or refrigerant oil vapor.
   • Avoid direct exposure to refrigerant because it can cause frostbite or difficulty breathing is if exposed to vapors.
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2. Noncondensable gas (NCG) is usually air.
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3. Step 1 - Identify the refrigerant in the system.
   Step 2 - Make sure the hoses have the proper shutoff valves and are compatible with the refrigerant in the system.
   Step 3 - Connect the recovery unit to the system or to the center hose of the manifold gauge set, following the directions of the manufacturer.
   Step 4 - Open the required valves and turn the machine on to start the recovery process, following the directions of the machine's manufacturer.
   Step 5 - Continue the recovery until the machine shuts off or the pressure reading has dropped into a vacuum.
   Step 6 - Verify completion of recovery by shutting off all valves and watching the system pressure. If pressure rises above 0 PSI within 5 minutes, repeat steps 4 and 5 to recover the remaining refrigerant.
   Step 7 - Drain, measure, and record the amount of oil removed from the system with the refrigerant and dispose of properly. this amount of new oil should be added during the recharging process.
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4. Recycled refrigerant must meet the same purity standards as new (virgin) refrigerant including:
   • less than 15 ppm moisture
   • less than 4000 ppm oil
   • less than 330 ppm air
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5. Many experts recommend using a vacuum gauge that measures the amount of air remaining in the system rather than just the vacuum.
   • A micron is one millionth of a meter and there are about 760,000 microns of air at atmospheric pressure.
   • The lower the pressure, the lower the number of microns of air.
   • A vacuum reading of 29.72 inch hg. is about 5,000 microns.
   • Many experts recommend that the micron level be 500 or less for best results.
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