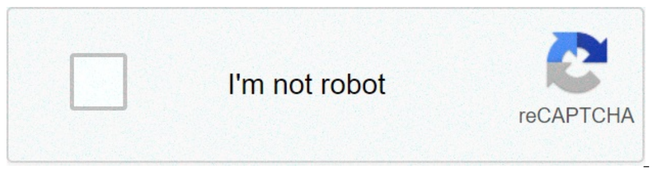

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Air distribution system in air conditioning pdf

Aside from knowing the cost of their energy bill, relatively few people think about what flows through the coils of their air conditioning unit's compressor and cooling department. But soon, air conditioning units may become top of mind for many Americans. That's because hydrochlorofluorocarbon (HCFC-22) or R-22, the cooling agent traditionally used in many air conditioners, is going away. R-22 is a principal component of the trademark-named refrigerant "Freon," but it would be inaccurate to say that Freon is going away. That's because Freon is not one single product. It is a brand of many products manufactured by the Chemours Co. Now that that's cleared up, let's talk about why R-22 is going away and how it affects you. R-22 Phase-Out: What You Need to Know A U.S. government ban on R-22 is set to take effect on January 1, 2020. The ban is part of a gradual phase-out initiated by the U.S. Environmental Protection Agency (EPA) to rid the United States of all ozone-depleting substances. In essence, R-22 is harmful to the environment. Whether you will need to eventually buy a new unit, retrofit your old unit or replace some component parts to comply with the EPA ban largely depends on a few things. But first, you may want to know whether your air conditioner (or your refrigerator) uses R-22 or not. How to Know What Kind of Refrigerant Your Unit Uses On an air conditioner, you should be able to find what type of refrigerant it uses at the following places: Owner's manual Manufacturers website (know your model number) Call your local hardware store and tell them your unit info and they should be able to tell you On your refrigerator, you can look for a refrigerant label in the following places: Manufacturer's data plate On a sticker atop or near the condenser Outside the unit, sometimes on or near the condenser If you know the year your system was manufactured, that could help you find out what type of refrigerant your unit uses. Typically, if it was manufactured before 2010, your unit likely uses R-22. If you bought your AC unit or refrigerator after 2010 — which is when the EPA told manufacturers to stop making R-22-friendly units — it likely runs on R-410A, the agency says. Let's talk about R-410A and other R-22 replacements… Best R-22 Replacements R-410A has become the dominant choice for many AC manufacturers. It has many brand names, such as Puron or Suva 410A, depending on the company. R-454B, or Opteon, is also an emerging alternative. For refrigerators, R-404A and R-507 are among the options, according to this EPA list. Now let's answer the big question: Will consumers be required to stop using their air conditioners and refrigerators due to the ban on R-22? The EPA answers the question quite clearly: "No. You will not have to stop using HCFC-22 [on January 1, 2020], and you will not have to replace existing equipment just to switch to a new refrigerant." In summary, despite the R-22 ban, the government wants you to know that your units won't become obsolete anytime soon. When your unit needs fixing, the EPA says, "After 2020, the servicing of systems with R-22 will rely on recycled or stockpiled quantities." More Clark.com Articles You May Like: Fueled by gas, electricity, or oil, a forced-air distribution system is just what the name implies. Air is forced from the furnace through ducts to registers in various rooms. Besides warming the air, the blower system that distributes the warmed air also returns the cold air to the furnace so it can be rewarmed and distributed to the rooms again.A forced-air system is also efficient for distributing cool air from a central air conditioner with the same ducts, registers, and blower. There is little that can go wrong with a forced-air system. The big problems typically include noise and blockage of airflow, usually caused by dirt or by furniture or draperies blocking the registers. Forced-air systems should be cleaned and maintained regularly.Floor registers are slip-fit into ducts or are held by retaining screws on the frame of the register. Wall and ceiling registers are also held in place by retaining screws on the frame of the register. Duct joints are usually slip-fit and held with sheet-metal screws or duct tape. The ducts are supported by wire or metal strap hangers nailed or screwed to wooden framing members such as studs and rafters. All of these parts are easy to disassemble. Lay them out in order as you work so you'll be able to reassemble them properly.A problem can arise with this type of system in which the temperature of different rooms varies widely. Find out how to solve this problem in the next section. This site is not available in your country Home air conditioning systems come in several types, ranging from large central systems driven by outdoor compressors to small plug-in units that stand on the floor or mount in a window. No matter what form they take, air conditioning systems have similar working components, including a refrigerant, a compressor, condenser coils, an expansion valve, and evaporator coils. All of these work together to transfer heat and moisture from the inside of your home to the outside. It's easier to understand the differences between the four main types of home air conditioners if you understand the basic principles by which they operate. Air conditioners work their magic by making use of the phase change principle, by which a liquid expanding into a gas becomes cooler, while a gas becomes hot as it is compressed back to its liquid state. In an air conditioner, the liquid used is a special chemical that boils at a relatively low temperature. As the refrigerant turns into a gas flowing past the expansion valve, it cools the indoor evaporator coils, and a fan blows that cool air past the coils into the room. The process also allows these coils to absorb some of the indoor room heat, and as the vaporous refrigerant continues on through the compressor and into condenser coils, it is compressed back into a liquid. This compression makes the refrigerant considerably hotter, and the heat of the now-liquid refrigerant is dissipated by a fan that blows over the condenser coils, located outside the house. When humid air passes over chilled evaporator coils, moisture naturally condenses on the coils. This means that the air conditioning process also naturally dehumidifies indoor air. How this condensed water is handled depends on the type of air conditioner. On and on this cycle goes, chilling the indoor air, then releasing the heat outdoors, until a thermostat stops the cycle when the indoor room temperature reaches the desired level. All air conditioners, from the smallest window AC units to the most elaborate central air conditioning systems, work on this same basic principle, though they have many other components that facilitate the process. A window air conditioner is technically called a "unitary" air conditioning system and consists of a self-contained air conditioning unit that is placed in a window or, less commonly, through a hole in an exterior wall. A window air conditioner contains all the refrigeration components in one compact box. It ejects heat out through condenser coils located on the outdoor side of the appliance and blows cooled air into the room on the indoor side where the evaporator coils are located. Room moisture that condenses on the evaporator coils generally simply drips to the ground from a tray located on the underside of the appliance. This is why it is important that a window air conditioner is installed so it tilts very slightly toward the outdoor side. Tilted the wrong way, some air conditioners may drip water onto the floor inside the house. Window air conditioners come in many sizes to cool any space from a single room up to an entire floor. A large window air conditioner may be able to cool an entire small home, especially if it's a single-story home. This system is another type of unitary air conditioning system. The portable air conditioner consists of a mobile, self-contained air conditioning unit that is placed on the floor inside a room and discharges exhaust heat using a hose vent through an exterior wall or window vent. Like a window air conditioner, both evaporator coils and condenser coils are located in the same box, which is one reason these units are a bit noisier than other types of AC systems. Portable air conditioners are typically used for rooms under 500 square feet. Many people use portable air conditioners for temporary space cooling or wherever it's not practical to install a window-mounted unit. Like the window air conditioner, the portable unitary system has all the refrigeration components in one compact box. Because the portable unit sits indoors, its evaporator fan runs fairly constantly in order to evaporate the condensed moisture that collects within the unit. Other units may have a reservoir to capture condensed water, which needs to be emptied periodically. This is quite different from a window-mounted unit, where condensed moisture simply drips onto the ground. The split system, also called ductless or "mini-split," is commonly found in homes as well as hotels and other multi-unit buildings. It has become an increasingly popular option for homes that are not served by a forced-air HVAC system, such as those with hot-water or steam radiator heating or electric heating. Most split air conditioners are also heat pumps and therefore offer heating as well as cooling functions. The split system breaks the air conditioning system into two packages, or terminal units: The condensing unit is located on the building's exterior and includes the compressor, condenser, and condenser fan. The evaporative unit is located on the interior and handles the air cooling and distribution. This is usually a rectangular box unit mounted high on an interior wall and contains a circulation fan, expansion valve, and evaporator coil. Refrigerant tubing passes through the wall between the condensing and evaporative units. A secondary tube running parallel to the refrigerant tubing drains away water that condenses from the indoor evaporator coils. A central air conditioning system is the largest type of conventional air conditioner. Like a split system, a central system is made up of two units—the condensing unit and the evaporative unit—that are connected to each other by refrigerant tubing. The condensing unit is a large, boxy outdoor unit that contains the compressor, condensing coils, and condensing fan. The evaporative unit typically sits in the plenum (the large central chamber between the furnace and the duct system) of your furnace. This means the air conditioning uses the same ductwork and blower fan as your heating system. Within the plenum, the evaporative unit consists of the evaporator coil and expansion valve. Condensed moisture on the evaporator coils is usually drained away through a tube running to a floor drain. Central air conditioners are typically the most effective type of air conditioner for cooling entire homes. When installing a new central system, the primary consideration is making sure the system is sized appropriately for your home. If a system is too large, it will not perform well and will not adequately dehumidify the interior air. If it's too small, it will not cool adequately. Proper maintenance of a central air conditioning system is also very important. In IEEE 802.11 terminology, a distribution system interconnects Basic Service Set (BSS) to build a premise-wide network that allows users of mobile equipment to roam and stay connected to the available network resources. Distribution systems can be wired, usually via Ethernet or wireless when using the radio device inside the access point.