

Introduction to Appliance Repair : Appliance Repair Basics

Lesson 1 Overview

In this lesson, you'll define appliance repair terminology, identify how to succeed as a technician, and learn the tools of the appliance repair trade.

You'll also determine how to use proper safety

precautions in appliance repair. Finally, you'll become familiar with resources to keep your appliance repair skills current so you're prepared to address your customer's issues safely and successfully.



1.1 Define appliance repair terminology and keys to success as a technician

Fundamentals of Appliance Repair

READING ASSIGNMENT

Repair technicians have been fixing appliances for over 100 years. A

century ago, people didn't throw anything away. Instead, they had everything repaired. Many communities had a number of repair shops within a short distance of each other, and customers would take their appliances to the repair shop. However, with the arrival of the automatic washer and dryer, everything changed. With these new washers and dryers came in-home repair service.

As with any industry, appliance repair has terminology unique to the industry that's used to communicate efficiently. Understanding these terms and their meanings is important to your success as an appliance repair technician. As an appliance repair technician, you may encounter common terminology that's specific to appliances as well as the terminology used for specific parts.

Appliance Terminology

The following terminology relates to the components you'll repair as an appliance repair technician. This terminology is a short-cut used to describe various appliances and their parts. Here are some of the products you'll encounter as an appliance repair technician:

Image of a stainless steel front-loading washer and gas dryer



*Front-Loading Washer and Gas
Dryer*

Wet Products

Wet products are appliances that use water, such as the following:

- Top-loading washers
- Front-loading washers
- Dishwashers
- Hot water dispensers
- Electric and *gas* (natural gas and liquid propane [LP]) water heaters

Drying Products

Drying products are appliances used to dry items, such as:

- Electric dryers
- Gas dryers
- Electric steam type dryers
- Condensation dryers
- Gas steam type dryers

Cold Products

An image of a stainless steel side-by-side refrigerator and freezer



*A Side-by-Side
Refrigerator and
Freezer*

Cold products are appliances that cook food, such as:

- Frost freezers, chest and upright
- Frost-free freezers, single door upright
- Frost-free refrigerator
- *Side-by-side (SXS) refrigerators* (refrigerators with doors on the

- left and right sides), sometimes called French door refrigerators
- *Top-mount refrigerators* (refrigerators with the freezer on top of the refrigerator)
 - *Bottom-mount refrigerators* (refrigerators with the freezer under the refrigerator)
 - 2 cubic foot under counter refrigerator
 - 1 cubic foot cube refrigerator

Cooking Products

An image of a stainless steel gas range



A Gas Range

Cooking products are appliances used to cook food, such as:

- Glass-top 30" electric range
- 30" electric range
- 30" gas range
- 40" electric range
- 38" gas range

- Electric counter cooktop
- Gas counter cooktop
- Electric and gas wall ovens
- Microwaves
- Hood-mounted microwaves (sometimes called over-the-range microwaves)

Portable Products

An image of a portable electric heater



An Electric Heater

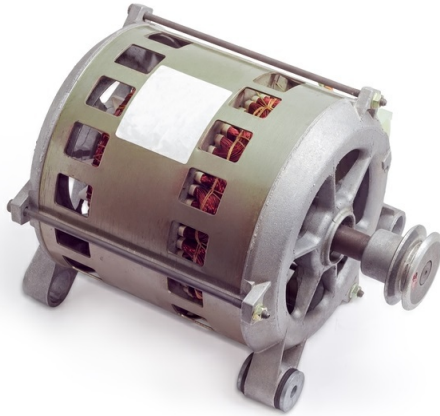
Portable products are appliances that can easily be moved around, such as:

- Small electric heaters
- Lamps

- Fans

Parts Terminology

An image of an appliance motor



An Electric Motor for a Household Appliance with Pulley for Belt Drive

Here are some parts you may encounter as an appliance repair technician:

Motor

The motor is generally the part that drives a system of a product such as a washer, dryer, refrigerator, or dishwasher.

An image of an inlet valve for a washing machine



A Water Inlet Valve for a Washing Machine

Pump

The pump is the part that removes water from an appliance such as a washer or dishwasher.

An image of an appliance belt



An Appliance Belt

Fill Valve

The *fill valve* allows water to flow into the washer, dryer, refrigerator, or dishwasher.

Belt

The *belt* is the part of the unit that drives the drum on a dryer. A belt also moves the transmission on a washer and the pump on dishwashers. There are four types of belts: multi V (sometimes called Poly-V), flat, round, and V.

Multi V or Poly-V belts are used in most clothes dryers and newer clothes washers, especially front-loading washers. Round belts are used mostly in older dryers and certain brands of dishwashers, including Maytag. Flat belts are used in many clothes dryers. V belts are used on many clothes washers.

Condenser Motor

A *condenser motor* cools the condenser coil to remove the heat from the refrigerant. The *condenser coil* is where the heat is removed from the refrigerant. The *refrigerant* is a substance used in a heat pump and refrigeration cycle. The gas refrigerant is heated in the compressor, and then it enters the condenser coil. The condenser motor then cools the condenser coil to remove the heat from the refrigerant, which cools and turns into a liquid.

Light Switches

Light switches allow the interior light to turn on and off in refrigerators, dryers, and microwaves. They are typically found near the door and complete the circuit to the motor that provides power to the Electronic Options Control (EOC).

Evaporator Motor

An *evaporator motor* is a motor found in the freezer. It moves cold air from the freezer to the refrigerator.

Adapted Defrost Control

The *adapted defrost control* is an electronic part that records the run time of a refrigerator and puts it into defrost mode for a certain time.

Refrigerator Defrost Timer

The mechanical refrigerator timer defrosts the refrigerator for 20 to 30 minutes every three hours of compressor run time.

Mechanical Timers

Mechanical timers are used on washers, dryers, and dishwashers. They control the appliance in relation to time, temperature, and motor speed, where applicable. Mechanical timers are still in use today, although electronic timer controls are being phased in on most appliances.

Job-Related Terminology

An image of a sample service ticket

Technicians use service tickets to summarize the details of the repair.

Service Ticket

A *service ticket*, sometimes called a service order or ticket, is used to document information about the service call.

Electric Voltage

Electric voltage is the amount of power an appliance uses. For instance, electric dryers run on 240 volts, while gas dryers use 120

volts. The correct voltage is critical. Too little voltage in a dryer will result in the drum not turning and the clothes not drying. Voltage is also known as volts, power, or draw.

Success Factors

You can do a number of things to succeed as an appliance repair technician:

- Success always begins with safety. Taking safety precautions is one of the most important things you can do to be successful. Always unplug appliances before you work on them.
- Use tools properly. Never use the wrong tool for the job. If you don't have the correct tool, you have two options: (1) get the correct tool, or (2) put the unit back together and forfeit the repair. If you don't have a specific tool but you know someone who may have it, you can attempt to explain to the customer that you need a special tool. The customer may be willing to let you come back and complete the job as soon as possible with the correct tool.
- Protect your customer's home. Every technician should have two furniture blankets: one to put on the floor for your tools and another for you to maneuver around as you work.
- Finally, always have new batteries in your toolbox for your meters. You don't want to forfeit a repair because you run out of battery power.

In addition to these items, it's important to remain flexible and to continuously learn about the industry. The service repair industry is

still growing and evolving. Our society is becoming more mobile, and everyone is busier than ever. In addition to in-home appliance repair, it may be necessary to be mobile to meet the demand of a changing customer base.

Always unplug appliances before you work on them.

There are always new products coming out on the market. It's important to familiarize yourself with these new makes and models. It's common for appliance manufacturers to change just one component of a particular appliance to improve the function or reduce the likelihood of a problem. It's critical to be aware of such changes so you know what differences to expect between particular models.

As an appliance repair technician, especially if you work independently or as a contractor, it's beneficial to join professional associations. Membership in an association can help you keep up with the new technology. Also, take time to visit local hardware stores to look at the appliances. Be sure to talk with the owner or manager and ask questions.

Locating used appliances to take apart and rebuild is another helpful way to build your confidence and skills. Doing this a number of times and with different types of appliances increases your knowledge of how they work. Remember, even a part of an appliance to practice on is better than none.

Key Points and Links

READING ASSIGNMENT

Key Points

- Recognize common terminology specific to appliances, including wet, drying, cold, cooking, and portable products.
- Recognize terminology used for specific parts, such as motors and pumps.
- Understand job-related terminology, including information about service tickets and electrical voltage.
- Understand the basic keys to success, including practicing safety, using tools accurately, protecting your customers' homes, remaining flexible, and continuously learning about the industry.

Discover More: Terminology

Fill in the blank.

1. A century ago, people didn't throw anything away. Instead, they had their appliances _____.
2. The _____ is generally the part that drives a system of the product you are working on, such as a washer, dryer, refrigerator, or dishwasher.
3. You should always _____ appliances before working on them.
4. The _____ removes water from a clothes washer or dishwasher.
5. A _____ motor cools the condenser coil to remove the heat

from the refrigerant.

6. You should always have new batteries in your toolkit for your _____.

Respond to the following based on your reading.

7. What are four appliances in the wet products category?
8. Light switches allow the interior light to turn on and off in which appliances?
9. What features are controlled by mechanical timers, depending on the type of appliance?
10. Why might it be necessary to be mobile?

Discover More Answer Key:

Discover More: Terminology

1. repaired
2. motor
3. unplug or disconnect
4. pump
5. condenser
6. meters
7. Washers (top- and front-loading), dishwashers, water heaters (electric and gas), and hot-water dispensers
8. Refrigerators, dryers, and microwaves
9. Time, temperature, and motor speed
10. To meet the demands of a changing customer base

1.2 Identify the tools of the appliance repair trade

Tools of the Trade

READING ASSIGNMENT

Every trade has its own tools, and appliance repair is no different. Having the proper tool for the task makes a successful repair possible and more efficient. The right tool also reduces the opportunity for damage to customer property and injury to the technician.

Common Tools

An image of an appliance technician repairing a refrigerator



Screwdrivers and socket and wrench sets are needed to work with the variety of nuts, bolts,

and screws an appliance technician encounters during a repair.

Appliance technicians require a basic set of common hand tools, regardless of their area of specialization. No toolbox is complete without screwdrivers, and a technician's toolbox is no exception. Screwdrivers are needed in both Phillips and flat-blade styles and in a variety of sizes. Since most appliances are housed in sheet metal enclosures, you'll also need an assortment of nut drivers and Allen wrenches to remove and reattach the enclosures. You'll find that frames, motors, and transmission systems are assembled using various nuts, bolts, and screws, so socket and wrench sets will be needed in both standard and metric sizes to work with these.

Finally, because appliance service often involves both electrical and plumbing connections, utility knives, slip joint pliers, and wire cutters and strippers are a must have in the appliance technician's toolbox.

Specialist Tools

An image of an appliance technician speaking with a customer while repairing a washing machine



A Technician Repairing a Washing Machine

A number of specialty tools set the appliance technician's toolbox apart from those of other trades. Many manufacturers' designs require custom tools to fit specific parts of their appliances. For example, most washing machine brands require a purpose-built spanner to remove the agitator and tub. Snap-ring pliers and spring removal tools aren't commonly found in a typical toolkit, but both are indispensable for the appliance technician. Stove burners may require special tools for damage-free removal, while belt drive systems, which are very common, also require unusual pulley removal tools. Many of the specialty tools are brand specific, so knowing the brands to be serviced will be important to building a properly outfitted toolkit.

Power Tools

Battery-operated drills and drivers are invaluable to the appliance service technician. They help speed the removal and replacement of many fasteners and allow for the occasional drilling of holes when necessary. However, a few other power tools are typically required.

A compact angle driver will be of great use in the often confined spaces inside many appliances. Fasteners used on appliances vary widely, and a single appliance can be built with several types of fasteners. Therefore, a bit set is crucial to ensure that the technician will be able to fit any fastener encountered. A well-stocked bit set should include common screwdriver tips, common Allen and Torx bit sizes, as well as specialty “anti-theft” bits.

A typical service call requires the use of several bits, so fitting a drill or driver with a quick-change chuck system will greatly speed up this process.

Test Equipment: Multimeters and CO Detectors

An image of a technician testing a washing machine with a multimeter.



A multimeter is an essential tool for the appliance service toolbox.

Whether testing operating parameters during maintenance service or

diagnosing system failures on service calls, having the proper test equipment on hand is vital. Which tools to choose will depend on the appliances being serviced. Almost all appliances are electric in some part, so a quality multimeter is essential.

Gas and carbon monoxide detectors are essential for Heating, Ventilation, and Air Conditioning (HVAC) service people, as are specialty refrigerant pressure meters. Technicians servicing stoves, ranges, and dryers also should have an infrared thermometer to safely and accurately check heating elements. Additionally, a borescope can be highly useful for inspections inside tight spaces.

TOOLKIT CHECKLIST

[10 Must-Have Tools for Appliance Repair](http://www.searspartsdirect.com/article/10-must-have-tools-for-appliance-repair.html) (www.searspartsdirect.com/article/10-must-have-tools-for-appliance-repair.html)

Key Points and Links

READING ASSIGNMENT

Key Points

- Know the common hand tools to maintain in your repair toolbox, such as screwdrivers, wrenches, nut drivers, utility knives, and so on.
- Know the specialty tools you may need in your toolbox, including brand-specific and other appliance repair tools, such as snap-ring pliers and spring-removal tools.

- Understand what common power tools you should keep on hand, such as battery-operated drills and drivers.
- Recognize common testing equipment you should have on hand, such as multimeters and carbon monoxide detectors.

Links

- [10 Must-Have Tools for Appliance Repair](http://www.searspartsdirect.com/article/10-must-have-tools-for-appliance-repair.html) (www.searspartsdirect.com/article/10-must-have-tools-for-appliance-repair.html)

Discover More: Tools of the Trade

Fill in the blank.

1. Because appliance servicing often involves electrical and plumbing _____, you should also carry utility knives, slip joint pliers, and wire cutters and strippers.
2. Snap-ring pliers and _____ removal tools are not commonly found in a typical tool kit, but both are indispensable.
3. Belt drive systems, which are very common, require unusual _____ removal tools.
4. Aside from _____, few other power tools are typically required.

Respond to the following based on your reading.

5. For what two reasons should you make sure you have testing equipment on hand?
6. Which appliances might require use of an infrared thermometer?

7. List two types of common tools you'll be required to carry.

Discover More Answer Key:

Discover More: Tools of the Trade

1. connections
2. spring
3. pulley
4. a set of battery-operated drills and drivers
5. To test operating parameters or diagnose system failures
6. Stoves, ranges, and dryers
7. Screwdrivers and socket and wrench sets

1.3 Determine how to use the proper safety precautions in appliance repair

Safety Precautions

READING ASSIGNMENT

Safety is everyone's concern, especially when working in a customer's home or business. Most appliances come with safety warnings in the user, installation, and repair manuals. However, a thorough knowledge base can ensure that the work is done safely and that the customer's appliances will pose no hazards after the service is completed.

Using Tools Safely

An image of a service technician checking the power to an appliance with a multimeter.



Always verify if power is present before starting any repair.

It's always desirable to disconnect electrical and water supplies before performing any service work, when possible. However, a technician always should be aware that even when unplugged or disconnected from power lines, many appliances have various capacitors that store electrical charges that pose a risk. Oftentimes, modern appliances cannot be diagnosed and serviced when disconnected from power and/or water, so care must always be exercised. Using a circuit tester, or multimeter, to verify if power is present and where it is present is important to protect the technician during service.

An image of a service technician repairing a printer.



Good lighting not only is necessary for safety but also can be a diagnostic tool, especially in tight areas.

Good lighting is a technician's first safety priority. Proper lighting in the work area helps to identify potential dangers before they are encountered. Fast-moving mechanisms, electrical connections, and heating elements may be impossible to see in poor lighting. Being able to see fluid leaks not only is important for safety but also can be a major diagnostic tool.

A technician's tools are an often-overlooked aspect of general safety procedures. Tools should have electrically insulated grips and handles to minimize the risk of shock. Maintaining tools in good condition also is important. Worn screwdriver tips can cause slipping and the potential for the tool to contact electrical, heating, or other dangerous elements. Dull knives are harder to use and control, adding to their inherent risk. Using the proper tool for a fastener reduces the chance of damage and hand injury from slipping. Belts and pulleys are potential pinch points and often require the proper tool to remove

safely.

Personal Safety Equipment

Personal eye protection must be worn at all times during service calls. Virtually all appliances use electricity, water, lubricants, or a combination of these. Sparks from electrical contacts and splashes from fluids are an ever-present hazard that can easily be mitigated with a good pair of safety glasses.

An image of a service technician cleaning a ceiling vent.



A dust mask will protect you while cleaning filters and vents.

Few appliances represent a noise hazard, but keeping inexpensive earplugs or other hearing protection in supply is a mark of an experienced technician. Dust masks should be kept on hand for cleaning filters or ductwork. Gloves may be needed for a variety of hazards, from cold refrigerants to hot surfaces to caustic chemicals, depending on the type of appliance being serviced. Knowing the

potential hazards allows for good safety preparation.

Don't overlook clothing. Sleeves should be able to be rolled up and out of the way or buttoned close to the wrist to prevent catching. Long hair should be secured out of the way, and no jewelry that could get caught in moving parts or come into contact with electrical contacts should be worn. Appliances will usually need to be moved for service and can be quite heavy. A back-support belt, or harness, can help prevent injury. Service work often involves bending, kneeling, and other positions that can injure feet and ankles, so footwear should be carefully chosen for support. They also should have no-slip soles to avoid accidents on wet floors.

Home Safety

An image of a service technician cleaning an air conditioning unit.



A technician should control the immediate work area.

Service calls will be done at customer homes or businesses. The

technician cannot entirely control the work environment but can and should control the immediate surroundings where he or she will be working. Spills should be contained and cleaned up as soon as possible to avoid slip and shock hazards. If needed, a drop cloth or another protective surface can be laid down to protect the technician and the customer's floors. If a customer's items are in the work area, ask that the items be removed, if possible. Tools should be set aside neatly between uses or returned to a toolbox to avoid trip hazards.

Appliances may be indoors or out, and in some cases in crawl spaces, attics, or other hard-to-reach areas. Having the proper sizes and types of ladders or staging protects against falls. Appliances may or may not be in climate-controlled locations. Have proper attire available for the season and conditions such as insulated coats, gloves, boots, rain gear, and hats. Check for proper ventilation of confined spaces and that attics are not too hot or cold for safe work.

Key Points and Links

READING ASSIGNMENT

Key Points

- Remember to unplug and disconnect appliances where possible before starting repairs, and use circuit testers or multimeters to identify if and where electricity is present.
- Use good lighting and appropriate tools, such as those fitted with electrically insulated grips and handles that are in good shape. Replace worn tools.

- Wear personal eye protection during all repairs, and use hearing and other protections, such as dust masks and gloves, where needed.
- Keep clothing and hair secured while working, and avoid wearing jewelry.
- Use back-support belts and other protective equipment when moving heavy appliances or working while seated or kneeling on the floor.
- Immediately clean up spills and keep tools out of the way to avoid trip hazards.
- Wear appropriate seasonal clothing and ensure work areas are properly ventilated.

Discover More: Safety First

Fill in the blank.

1. Even when _____ or disconnected from power lines, many appliances have various capacitors that store electrical charges that pose a risk even when disconnected.
2. Use a _____ to verify if and where power is present.
3. To minimize the risk of electric shock, tools should have electrically _____ grips or handles.
4. Sleeves should be able to be rolled up and out of the way or buttoned close to the wrist to prevent _____.
5. Having the proper sizes and types of _____ or staging protects

against falls.

Respond to the following based on your reading.

6. You can find safety warnings in what three manuals?
7. Good lighting is important because it can help you see what risks and diagnostic information?
8. For what types of hazards might you need to use gloves?

Discover More Answer Key:

Discover More: Safety First

1. unplugged
2. multimeter or circuit tester
3. insulated
4. catching
5. ladders
6. User, installation, and repair
7. Fast-moving mechanisms, electrical connections, heating elements, and fluid leaks
8. Cold refrigerants, hot surfaces, and caustic chemicals

1.4 Identify resources for keeping your appliance repair skills current

Keeping Your Skills Current

READING ASSIGNMENT

Keeping your skills current has become a difficult thing to do. Information from manufacturers isn't always readily available. Unlike authorized appliance dealers, independent repair technicians haven't formed relationships with manufacturers to be kept up to date with new information. Typically, the manufacturers would inform dealers holding service contracts with them about any news regarding models or updates. Technicians would then learn of these developments by word of mouth or from colleagues in the industry.

Networking

Networking with other repair technicians in your local area is beneficial to your career. By networking with other technicians, you're able to exchange information and tips and stay up to date with any current developments in your field. One of the best ways to network is to join a professional association.

Take time to research each association to find the one that best meets your needs. Some professional associations to consider membership in include:

- [HVAC Excellence](http://www.escogroup.org/hvac/) (www.escogroup.org/hvac/)
- [United Servicers Association](http://www.unitedservicers.com) (www.unitedservicers.com)
- [PSOC Organization for Repair Professionals](http://www.psoca.org) (www.psoca.org)
- [American Technical Education Association](http://www.ateasonline.org) (www.ateasonline.org)
- [ESCO Institute](http://www.escoinst.com) (www.escoinst.com)

- [Marcone Servicers Association](http://msaworld.com) (msaworld.com)

You may also want to pursue certification in combustion analysis as well as Section 609 of the Clean Air Act by an EPA-approved program, which pertains specifically to refrigeration and air conditioning.

Trends in Appliance Repair: Connected Appliances

Another way to keep your skills fresh is to follow new appliance trends. Stay familiar with the products and their changes. Check out the new offerings at your local stores. Is that new dryer larger or smaller? Is it gas or electric? Is it WiFi-connected? Check out the new refrigerator. Does it have any special, connected features? Is it larger than the old model? Does it roll into place? Can one person move it? At some point, you may be able to talk to a sales associate and ask them what trends they see in their store.

Additional Training

An image of a service technician writing on paper in front of a computer.



As a repair technician, it's important to keep your skill current.

In addition to this course, you will need to seek out additional training to keep your skills current. There are a few different ways to receive training. Some companies offer specialized skills training online, through CD/DVD, or in a classroom setting. Others may hold scheduled webinars, recorded webinars, or live training on a specific skill.

In addition, parts distributors sometimes host manufacturer demonstrations that can be very cost-effective considering the first-hand experience you receive. In fact, they may even be free.

Key Points and Links

READING ASSIGNMENT

Key Points

- It's important to keep your skills current, and networking with other appliance repair technicians can help you do this.

- Joining professional associations is a good way to network.
- You can also keep your skills fresh by remaining aware of trends in the appliance industry and talking to salespeople.
- It's important to pursue additional training through companies that offer training online, through CDs/DVDs, in classrooms, or through webinars.

Links

- [HVAC Excellence](http://www.escogroup.org/hvac/) (www.escogroup.org/hvac/)
- [United Servicers Association](http://www.unitedservicers.com) (www.unitedservicers.com)
- [PSOC Organization for Repair Professionals](http://www.psoca.org) (www.psoca.org)
- [American Technical Education Association](http://www.ateasonline.org) (www.ateasonline.org)
- [ESCO Institute](http://www.escoinst.com) (www.escoinst.com)
- [Marcone Servicers Association](http://msaworld.com) (msaworld.com)

Discover More: Keeping Your Skills Current

Fill in the blank.

1. It's beneficial for you to _____ with other repair technicians in your local area.
2. One way to keep your skills fresh is to follow new appliance _____.
3. Parts distributors sometimes host low-cost or free manufacturer _____.
4. Stay familiar with the products and their changes, such as new

- _____.
5. You should seek additional _____ to keep your skills up-to-date.

Respond to the following based on your reading.

6. Name four methods that companies use to offer training.
7. Name two groups that may offer training.

Discover More Answer Key:

Discover More: Keeping Your Skills Current

1. network
2. trends
3. demonstrations
4. controls
5. training
6. Online, through CD/DVD, in a classroom, scheduled webinars, recorded webinars, or live training
7. Manufacturing companies and parts distributors

Lesson 1 Review

Self-Check

1. Why is understanding the vocabulary for appliance repair

important?

- a. To maintain quality standards for manufacturers and distributors
- b. To make communication more efficient
- c. To ensure customers will not understand any mistakes made
- d. To help verify qualified technicians from amateurs

2. Where would you find an evaporator motor?

- a. In a microwave
- b. In a stovetop
- c. In a freezer
- d. In a dryer

3. What does the adapted defrost control do?

- a. Records the moisture level in a microwave and activates the defrost timer
- b. Records the refrigerator's run time and activates the defrost mechanism
- c. Records the temperature in a water heater and activates the defrost mechanism
- d. Records the washer's run time and activates the defrost mechanism

4. What is likely to happen if a dryer is run with insufficient voltage?

- a. The dryer will be irreparably damaged.
- b. The dryer's drum won't turn properly.
- c. The dryer will take longer to dry the clothes.
- d. The dryer's motor will short out.

5. What can happen when a manufacturer updates a product and introduces it to the marketplace?

- a. A knowledge gap may be created.
- b. Technicians may become overwhelmed with repairs since all manufacturers release new product on a quarterly schedule.
- c. Technicians may receive a quarterly update about the product.
- d. Skills may become obsolete.

6. What is the *best* way to practice your skills?

- a. Offer to make free repairs for friends and family members so that you can practice on their appliances.
- b. Look around for used appliances.
- c. Invest in new appliances for yourself and practice on your old equipment.
- d. Ask friends and family members if you can practice on their appliances.

7. Why is it important to know the brand of the appliance you'll be servicing?

- a. To ensure you are not taking a job outside your area of specialization
- b. To ensure you don't have to carry all your tools to every job
- c. To ensure you bring the correct tools
- d. To ensure you know how to bill the customer

8. What is the benefit of fitting a driver or drill with a quick-change chuck system?

- a. You can remove fasteners faster.
- b. You can remove belt drive systems faster.
- c. You can avoid using brand-specific tools.
- d. You can avoid having to drill new holes as needed.

9. Why is it considered essential to include a quality multimeter in your toolkit?

- a. Almost all appliances are electric in some part.
- b. Almost all appliances need an electric check as part of best practices for repairing them.
- c. Almost all appliances break because too much voltage is present.
- d. Almost all appliances generate electricity.

10. What is one reason to keep your tools in good working order?

- a. To make sure you can easily remove all fasteners
- b. To prevent losing a client because you don't have the right tool with you
- c. To prevent injuries
- d. To make sure you keep track of them

11. Why should you wear personal eye protection while servicing an appliance?

- a. To protect against loud noises
- b. To protect against sparks and splashes
- c. To protect against heat and cold
- d. To protect against UV rays

12. Why is it important to secure long hair and to avoid wearing jewelry when servicing appliances?

- a. To avoid creating a bad impression with customers
- b. To avoid leaving hair or jewelry behind in the customer's house
- c. To avoid catching
- d. To avoid creating static electricity

13. What is one reason it's more difficult to be an independent servicer than it is to be an authorized appliance dealer?

- a. Authorized appliance dealers have set territories.
- b. Independent servicers may have more customers.
- c. Independent servicers may have knowledge gaps.
- d. Authorized appliance dealers have more customers.

14. What is one useful way to network?

- a. Join a professional association in which you already know at least one other technician.
- b. Join one general professional association.
- c. Join a professional association that meets your needs.
- d. Join every professional association that relates to your specialization.

15. What's the *most* likely reason for being unable to disconnect an appliance from its electric or water supply?

- a. You need the connections to diagnose the problem.
- b. You did not leave yourself enough time to do the full repair job correctly.
- c. The connection is too old to disengage easily.
- d. Limited space around the appliance may make it impossible to disconnect without damaging the customer's home.

Self-Check Answer Key

1. To make communication more efficient

Explanation: Understanding appliance repair terminology is

important because it makes communication more efficient and is therefore a key to success.

Reference: Section 1.1

2. In a freezer

Explanation: You'll find an evaporator motor in a freezer, where it moves cold air from the freezer to the refrigerator.

Reference: Section 1.1

3. Records the refrigerator's run time and activates the defrost mechanism

Explanation: The adapted defrost control records the refrigerator's run time and puts it into defrost mode for a specified time.

Reference: Section 1.1

4. The dryer's drum won't turn properly.

Explanation: Without enough voltage, the dryer's drum won't turn properly, and the clothes won't dry.

Reference: Section 1.1

5. A knowledge gap may be created.

Explanation: The updated product may create a knowledge gap until technicians have the opportunity to learn more about the update so they can make repairs.

Reference: Section 1.1

6. Look around for used appliances.

Explanation: By acquiring used appliances, such as a dryer, you can practice and hone your skills with less risk than practicing on a customer's appliance.

Reference: Section 1.1

7. To ensure you bring the correct tools

Explanation: It's important to know the brand of the appliance you'll be servicing so you bring the correct tools; some repairs require brand-specific tools.

Reference: Section 1.2

8. You can remove fasteners faster.

Explanation: A quick-change chuck system makes it possible to speed up the process of removing fasteners on appliances.

Reference: Section 1.2

9. Almost all appliances are electric in some part.

Explanation: Almost all appliances are electric in some part, so a multimeter will help you measure if and where voltage is present.

Reference: Section 1.2

10. To prevent injuries

Explanation: Keeping your tools in good working order can help prevent injuries.

Reference: Section 1.3

11. To protect against sparks and splashes

Explanation: Virtually all appliances use electricity, water, lubricants, or a combination of these that create hazards. Eye protection helps mitigate injuries from these hazards.

Reference: Section 1.3

12. To avoid catching

Explanation: Long hair and jewelry can catch in moving parts or accidentally touch electrical contacts.

Reference: Section 1.3

13. Independent servicers may have knowledge gaps.

Explanation: Authorized dealers tend to have stronger manufacturer relationships, so they have more access to appliance information. Independent servicers may have knowledge gaps without this information.

Reference: Section 1.4

14. Join a professional association that meets your needs.

Explanation: One way to network is to join a professional association that you have researched and that meets your needs.

Reference: Section 1.4

15. You need the connections to diagnose the problem.

Explanation: Depending on the problem with the appliance, you may not be able to diagnose and service it without these connections.

Reference: Section 1.2

Flash Cards

1. Term: Wet Products

Definition: Appliances, such as clothes washers, dishwashers, and water heaters, that use water

2. Term: Drying Products

Definition: Appliances, such as electric and gas dryers, used to dry items

3. Term: Cold Products

Definition: Appliances, such as refrigerators and freezers, that keep items cold

4. Term: Cooking Products

Definition: Appliances, such as ranges, cooktops, and microwaves, that cook food

5. Term: Portable Products

Definition: Appliances that can easily be moved around

6. Term: Motor

Definition: A part within the system that drives the appliance's function

7. Term: Pump

Definition: A part that removes water from an appliance like a dishwasher

8. Term: Service Ticket

Definition: A document that provides information about the service call

9. Term: Furniture Blanket

Definition: A cloth used to protect customers' floors during repairs from tools and other potential damage

10. Term: Power Tools

Definition: Tools carried for removing and replacing fasteners, including battery-operated drills and drivers

11. Term: Specialist Tools

Definition: Tools carried that are often brand-specific to a manufacturer's product

12. Term: Infrared Thermometer

Definition: A tool used for checking heating elements in cooking

products appliance repair

13. Term: Borescope

Definition: A tool used for completing inspections in tight spaces

14. Term: Circuit Tester

Definition: A tool used for verifying if and where power is present

15. Term: Insulated Grips

Definition: Tools that have special, electrically insulated handles to minimize the risk of shock

16. Term: Dust Mask

Definition: A protective mask worn on the face to prevent inhalation of potentially damaging materials

17. Term: Back-Support Belt

Definition: A harness worn to help prevent back injuries

18. Term: Networking

Definition: Joining a professional organization or otherwise interacting with other technicians to exchange information

19. Term: Manufacturer Demonstration

Definition: An event hosted by parts distributors where technicians may gain low- or no-cost experience

20. Term: Webinars

Definition: Live or recorded online events for gaining skills training