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ELECTRICAL CONTACT RELEASE TRAINING

Concise Version

**Leader's Guide, Fact Sheet
& Quiz**

Item Number: 5279

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This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation.

PREPARING FOR THE MEETING

Here are a few suggestions for using this program:

- a) Review the contents of the Fact Sheet that immediately follows this page to familiarize yourself with the program topic and the training points discussed in the program. The Fact Sheet also includes a list of Program Objectives that details the information that participants should learn from watching the program.
- b) If required by your organization, make an attendance record to be signed by each participant to document the training to be conducted.
- c) Prepare the area and equipment to be used for the training. Make sure the watching environment is comfortable and free from outside distractions. Also, ensure that participants can see and hear the TV screen or computer monitor without obstructions.
- d) Make copies of the Review Quiz included at the end of this Leader's Guide to be completed by participants at the conclusion of the presentation. Be aware that the page containing the answers to the quiz comes before the quiz itself, which is on the final page.

CONDUCTING THE PRESENTATION

- a) Begin the meeting by welcoming the participants. Introduce yourself and give each person an opportunity to become acquainted if there are new people joining the training session.
- b) Introduce the program by its title and explain to participants what they are expected to learn as stated in the Program Objectives of the Fact Sheet.
- c) Play the program without interruption. Upon completion, lead discussions about your organization's specific policies regarding the subject matter. Make sure to note any unique hazards associated with the program's topic that participants may encounter while performing their job duties at your facility.
- d) Hand out copies of the review quiz to all of the participants and make sure each one completes it before concluding the training session.

5279 ELECTRICAL CONTACT RELEASE TRAINING (Concise) FACT SHEET

LENGTH: 10 MINUTES

Production Year: 2021

PROGRAM SYNOPSIS:

People who receive an electric shock are unable to release themselves from contact with an energized conductor or circuit part. And without immediate assistance gaining release, these incidents likely prove fatal. It is important to be aware of your surroundings when around electrical parts and equally as important to try your best to not come in contact with live electrical parts.

PROGRAM OBJECTIVES:

After watching the program, the participant will be able to explain the following:

- The effect electrical currents have on the human body;
- The best way to recognize and assess a shock event;
- How to provide help for a victim of a shock event.

INSTRUCTIONAL CONTENT:

BACKGROUND

- An electrical worker contacts an energized conductor and can't let go. A construction worker grasps a damaged extension cord and is unable to release it. A shop worker inadvertently touches an exposed wire and her grip contracts involuntarily.
- In each of these instances, and in many similar incidents each year, people who receive an electric shock are unable to release themselves from contact with an energized conductor or circuit part. And without immediate assistance gaining release, incidents like these are likely to prove fatal.
- In this program, we will explain why this happens and examine the effects of electric current on the human body.
- Most importantly, we will teach how a victim of electric shock can safely be released from the grip of an energized circuit.

THE EFFECT OF ELECTRIC CURRENT ON THE HUMAN BODY

- When a person comes into contact with an energized conductor, the amount of electric current that flows through their body depends on the voltage present and the resistance of their body.
- Fatal levels of current flow can occur at very low voltages. And the current flow will increase as voltages increase; and/or the body's resistance decreases due to sweat, humidity, damaged or burnt skin or other variables.
- When a person receives an electric shock in the range of 10 to 25 milliamps, they may experience a loss of muscle control. This loss of muscle control can result in a sudden involuntary reaction that jerks or throws the person away from the energized source, which can lead to a variety of indirect injuries, such as falling off a ladder or coming in contact with other hazards.
- However, this same 10 to 25 milliamp shock may also cause the muscles to involuntarily contract, leaving the shock victim unable to free themselves from the energized circuit.
- When this occurs, shock victims are unable to release themselves from direct contact with the energized circuit without assistance. This creates a very dangerous situation because the shock victim is also energized and is now part of the electric circuit.
- While being shocked, the skin at the contact points may also become burned or damaged. When this occurs, the body's resistance is significantly reduced, allowing even more electrical current to flow.
- When current levels increase to the range of 30 to 50 milliamps, breathing becomes difficult or impossible and suffocation may occur. A 50-milliamp shock can easily occur at voltages of 50 volts.
- Current levels in the range of 75 to 100 milliamps are likely to result in ventricular fibrillation. Ventricular fibrillation occurs when the heartbeat becomes erratic and ineffective, leading to low blood pressure, loss of consciousness and death. A 120-milliamp shock can easily occur at voltages of 120 volts.
- When current levels reach 200 milliamps or more, the body's tissues begin to be burned and when current levels reach approximately 400 milliamps, the heart may stop completely.

- During a shock event, the length of time a shock victim remains in contact with an energized circuit has a direct impact on the amount of damage caused by the flow of electric current through the body and plays a large part in determining if the victim will survive the incident.

RECOGNIZING AND ASSESSING A SHOCK EVENT

- Electrical workers, their coworkers and potential first responders should be aware of the signs and symptoms of someone receiving an electrical shock.
- Many shock victims are unable to talk and are unable to respond to questions. Their face may be grimaced, or the jaw may be clamped shut. The victim may make guttural, unintelligible sounds.
- While actively being shocked, the victim's body may react in a variety of ways, anything from being frozen in an awkward, rigid position to flailing wildly.
- Once a suspected electrocution victim has been identified, it's critical to have someone summon emergency medical assistance right away.
- As a potential rescuer, you must understand that attempting to release a victim who is in contact with an energized circuit carries risk. A rescuer who touches an energized victim with an unprotected hand may also be shocked, which can quickly lead to the would-be rescuer becoming a second victim.
- The safest method to release a shock victim while also avoiding direct contact is to quickly disconnect the electrical supply to the energized source. This may mean unplugging the tool or machine if it is powered by a single cord. This may mean turning off the electrical disconnect feeding the equipment. It may mean turning off the light switch supplying the electrical fixture. Or this may mean turning off the power supply to the entire building or area.
- When it's not possible to quickly or safely disconnect the power source, then you should attempt to dislodge the victim from the energized parts with a nonconductive object, suitable for the expected voltage, while avoiding direct contact at all times.
- For voltages of 600 volts or less, practically any nearby, non-conductive, dry object will work. For example, when an electrical worker became a shock victim, his coworker responded. After quickly assessing the situation, she selected a dry 2x4 and safely released the victim from the energized equipment.
- Other non-conductive items such as PVC pipe or a dry, wooden broom handle could have also been used. The key is avoiding direct contact with the victim or any energized parts. Here's another scenario.
- When this service technician contacted a live wire and couldn't let go, a quick-thinking bystander, trained in contact release, pushed him clear using a rubber trash can. Again, any dry non-conductive object can be used to free someone being shocked as long as direct contact with the victim is avoided.
- But what if there is no nonconductive object nearby that can be used to PUSH the victim free? Then consider what might be available to safely PULL the victim free.
- As another example, when the service technician is being shocked, the same nearby worker uses a leather belt to pull him free. A leather belt can be turned into a non-conductive rescue device, making sure to avoid direct contact while placing it around the victim.
- An extension cord is another non-conductive object that is often on hand that can be used to pull a shock victim clear of an energized circuit. The rubber insulation of the cord is designed to be nonconductive.
- In some instances, a victim's own bodyweight may be enough to break contact. This can happen by accident, such as when a shock victim collapses, or on purpose if the victim is able to consciously relax their knees and sink to the ground.

FIRST AID AFTER THE RELEASE

- Once a shock victim has been safely released from the energized circuit, appropriate first aid must be provided until first responders arrive at the scene.
- Stay with the victim until help arrives and be sure to inform those who arrive to assist that an electrical hazard may still be present.
- Victims of electric shock should always seek medical attention, even if they are seemingly unhurt. Electric current can cause internal burns or other damage that may not be readily apparent.

CONCLUSION

- When a person is receiving an electric shock, the length of time they are in contact with the energized circuit, combined with the promptness with which they receive appropriate medical attention, plays a large factor in the victim's chances of survival. When electrical workers, their coworkers and potential responders are trained in electrical contact release and first aid, it greatly increases the odds of surviving an electric shock.

ELECTRICAL CONTACT RELEASE TRAINING (Concise)

ANSWERS TO THE REVIEW QUIZ

1. a

2. b

3. a

4. d

5. b

6. a

ELECTRICAL CONTACT RELEASE TRAINING (Concise)
REVIEW QUIZ

The following questions are provided to determine how well you understand the information presented in this program.

Name _____ Date _____

1. Without immediate assistance gaining release, shock victims could have a fatal outcome.
 - a. True
 - b. False

2. When a person comes into contact with an energized conductor, the amount of electric current that flows through their body depends only on the voltage present.
 - a. True
 - b. False

3. While being shocked, the skin at the contact points may also become burned or damaged.
 - a. True
 - b. False

4. When a person receives an electric shock in the range of _____ milliamps, they may experience a loss of muscle control.
 - a. 1 to 2
 - b. 7 to 9
 - c. 35 to 50
 - d. 10 to 25

5. During a shock event, the length of time a shock victim remains in contact with an energized circuit has no direct impact on the amount of damage caused.
 - a. True
 - b. False

6. An extension cord is a non-conductive object that can be used to pull a shock victim clear of an energized circuit.
 - a. True
 - b. False