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(f) Never troubleshoot circuits when standing or kneeling on metal, wet surfaces or in water.

(g) When troubleshooting live circuits, take care to be safely isolated (i.e., rubber mats, isolated tools, EH rated shoes, etc.).

(h) To prevent shocks, take precautions to:
   (1) Keep metal objects from touching or being exposed to any LIVE parts, moving machine parts or connections.
   (2) Do not wear tool belts and do not carry tools in your pockets.

(i) Use only double-insulated rated tools when troubleshooting on circuits that may not be de-energized.

(j) While troubleshooting on MG Sets, elevator motors and solid-state motor drives, take extreme precaution, because the armature voltage present may be as high as 600 volts.

(k) Exercise caution (Be cognizant and prepared to test other circuits that may be “LIVE”) when troubleshooting on multi-car operations especially in group systems, which may have circuits that are LIVE. Even when the mainline disconnect switch is OFF, other circuits may be powered from other sources (group controls, cab lighting, etc.)

(l) **Always** use fuse pullers to remove and install fuses. Fuses and fuse holders should be marked for proper size and type. Never use a higher amperage fuse, a fuse of a different type or bridge a fuse.

(m) Use nonconductive flashlights.

(n) Temporary wiring can be hazardous. All temporary wiring shall comply with the NEC and OSHA 1910.305. But when temporary wiring is used, locate wiring in such a manner that no one can trip over it. **Take precautions to protect temporary wiring** from sharp edges and mechanical damage and do not support it with nails or wires.
Section 8
HOISTWAYS AND MACHINE ROOMS

8.1 Hoistway Access Safety
Prior to gaining access to the hoistway, determine whether power is needed to perform the required task. If not, the appropriate lockout/tagout procedure shall be used. (See Section 7.) Do not open the hoistway door more than 6 in. (152 mm) until you determine the car or car top is located in a safe position to access.

8.1.1 Top-of-Car Access/Egress Procedure

CAUTION: Besides examination, inspection, maintenance and adjustment work that must be done on the car top, there is a considerable amount of work in the hoistway which must be done from the top of the car and, at times with the car in motion. Examples of safe access/egress procedures are outlined below.

8.1.1.1 Accessing Top-of-Car
Prior to accessing the hoistway always verify that the elevator has arrived before stepping into or on the car.

(a) Hoistway Access Switch Provided:
• Capture the elevator, and take it to the top access landing.
• Activate the means to disable the operating devices, (in car inspection service) located in the COP. Verify that the elevator is not on automatic operation by attempting to register multiple car calls.
• Insert proper door wedge tool to mechanically hold the door(s) in the open position, stay clear from the entrance and lower the car to a safe height by using the hoistway access switch to run the car in the down direction. Note: Be aware of car door clearances.
• Remove key from hallway access switch.
• Reach into the hoistway and place the top-of-car stop switch in the “STOP” position and turn the car top work light “ON”.
• Insert key into the hall access switch and try to move elevator in both directions. It should not move. Remove key.
• Place the car top inspection switch in the “INSPECT” position and the car top STOP switch to “RUN”. Reinsert the access key switch and try to run the car in both directions. It should not move. Remove key.
• Before stepping onto the car top, activate STOP switch to “STOP”, locate a safe refuge area and access the car top.
• Remove door wedge tool and allow doors to close.
• Proceed with necessary tasks in hoistway ensuring car top station remains on INSPECT and stop switch is in the STOP position when work is being performed.

**CAUTION:** Be sure you have a surface to stand on that will support your weight. Don’t stand on the car top emergency exit or the fan unit and use special care where the car tops are curved or domed.

(b) **Without Hoistway Access Switch:**
• Capture the elevator, and take it to the top access landing.
• Establish down demand by activating 2 in-car car calls.
• Using an approved door unlocking device, stop the elevator in flight to verify the door interlock by opening the hoistway no more than 6 inches. Be sure to stop the elevator in a safe position to safely reach the car top inspection run box.
• Insert proper door wedge tool and place the top-of-car stop switch in the “STOP” position, remove your door wedge tool and allow the doors to close
• Wait ten seconds and open the hoistway door no more than 6 inches to verify the top-of-car stop switch is working. Car should not move.
• Insert proper door wedge tool and place the car top inspection switch in the “INSPECT” position and the car top STOP switch to “RUN”. Remove your door wedge tool and allow the doors to close.
• Wait ten seconds and open the hoistway door no more than 6 inches to verify the top-of-car inspection switch is working. Car should not move.
• Insert proper door wedge tool and activate car top STOP switch to “STOP” position.
• Locate a safe refuge area and access the car top. Remove door wedge tool and allow doors to close.
• Proceed with necessary tasks in hoistway ensuring car top station remains on INSPECT and stop switch is in the STOP position when work is being performed.

**CAUTION:** Be sure you have a surface to stand on that will support your weight. Don’t stand on the car top emergency exit or the fan unit and use special care where the car tops are curved or domed.

(c) When in a multiple hoistway, never place any part of your body in the runway of an adjacent operational elevator.

**NOTE:** On elevators without top-of-car inspection stations, use the proper procedures in Section 8.1.2 (j).

### 8.1.1.2 Exiting Top-of-Car

(a) Position top-of-car level with the egress landing. When a hoistway access switch is provided, position the top-of-car at the landing where the top access switch is located.

(b) Place the top-of-car stop switch in the “STOP” position.

(c) Check for tools, keys, rags or any other equipment.
8.2.2.1 Accessing Pits

(a) When the movement of the elevator is required, the following procedure shall be followed in lieu of the Lockout/Tagout procedure in Section 7.

(b) Lockout/Tagout procedures are required if movement of the elevator is not needed to complete the work being performed. (See Section 7.)

(c) Before entering the pit, notify the building manager/owner that you will be servicing the elevator. Tag the elevator out of service by placing a sign on the controller stating “ELEVATOR IS UNDER THE CONTROL OF A SERVICE PERSON - DO NOT OPERATE.”

(d) Install barricades if the hoistway door is going to be open more than 5 in. (125 mm) while performing your work. (See Section 4.4)

(e) When a hoistway access switch is provided capture the elevator at the lower access landing and activate the “Access-Enable” to disable operating devices located at the car-operating panel. Verify elevator is not on automatic by registering multiple car calls. With the hoistway door(s) held in the half-open position, activate hoistway access switch to run the car up until toe guard clears opening. Stay clear of moving car.

(f) When a hoistway access switch is not provided, capture the elevator and place two car calls to upper floors to establish an up demand. As the elevator moves away from the landing, open the hoistway door with a hoistway door unlocking device key to insure interlock stops the elevator. **CAUTION:** When using hoistway door unlocking device keys be aware of pinch hazard when the hoistway door opens under power.

(g) If hoistway access switches or hoistway door unlocking devices are not provided follow your company safety procedures for accessing the hoistway.
HAND HOISTING SIGNALS

HOIST.
With forearm vertical, forefinger pointing up move hand in small horizontal circle.

EMERGENCY STOP.
Arms extended palms down, move hands rapidly right and left.

MOVE SLOWLY.
Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal. (Hoist Slowly shown in example.)
HAND HOISTING SIGNALS

LOWER.
With arm extended downward, forefinger pointing down, move hand in small horizontal circles.

STOP.
Arm extended, palm down, move hand rapidly right and left.

DOG EVERYTHING.
Clasp hands in front of body.