



# EMPLOYEE'S GUIDE FOR USE OF A HAND JUMPER

Whenever work involves making or breaking electrical circuits of high amperage, there is danger of an arc or flash. A Hand Jumper (stinger) improperly used can cause such an arc or flash. The purpose of this folder is to explain the procedures for using a Hand Jumper.

## DESCRIPTION AND PURPOSE OF A HAND JUMPER

A Hand Jumper is made up of two four-foot long wooden handles, each having an eight-inch long metal contact rod at one end. The contact rods are connected by a length of heavily insulated flexible copper cable.

The Hand Jumper is used to supply 600 volt power, temporarily, when a car is stalled because (1) it is on a dead spot (no trolley shoes contacting the trolley rail) or (2) it is on a dead trolley rail. The power can be supplied directly to the stalled car or to the dead rail, depending on the circumstances. The source of power can be from a live trolley rail or from a live trolley shoe of another car.

## SAFETY PRECAUTIONS

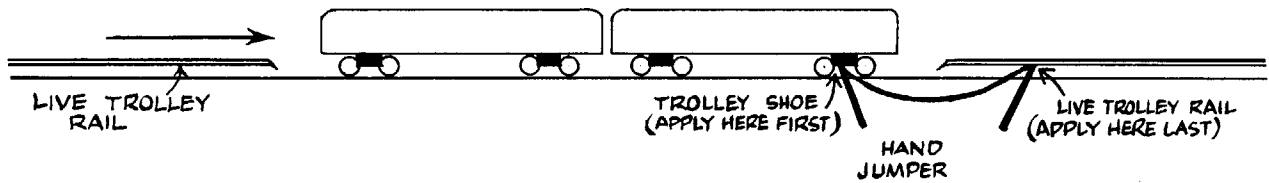
1. Check that the car is stalled because it is not receiving 600 volt power. (The Hand Jumper must not be used if the car is receiving power).  
If none of the trolley shoes on the car are touching a trolley rail, no further check is necessary.  
If any trolley shoe is contacting a trolley rail, check the car interior lights.
2. Take power from the power section into which the train will be moved.  
If power must be taken from a different power section, remove the Hand Jumper after the car starts and allow it to coast onto the live trolley rail; or stop the car before it reaches the live trolley rail and reapply the Hand Jumper, taking power from the proper power section.
3. When a train is to be moved from a dead trolley rail and the rail must remain dead, tie up trolley shoes so that (1) applied power will not feed through the shoes into the dead rail and (2) power will not bridge over to the dead rail when the cars pass to the live rail.

If at a location where power is supplied by both trolley rail and trolley wire, be sure that the trolley poles are down.

4. When feeding power into a dead rail, use one Hand Jumper for every four cars to be moved.  
If a train has more than four cars and only one Hand Jumper is available, uncouple the excess cars or prevent the excess cars from motoring by opening their motor control cut-out switches, tying up their trolley shoes, or cutting their shoe fuses.
5. Check that the Hand Jumper is in good condition.  
Stretch the Hand Jumper out to be sure that it is not knotted or kinked. Be sure the insulation has no cracks or bare spots and the wooden handles are not cracked or broken.
6. When a Hand Jumper is applied to a car, be certain that the car is moved no farther than the length of the Hand Jumper.  
If the Hand Jumper is too short for the move, stop the car before the Hand Jumper is pulled taut and reapply it; or remove the Hand Jumper after the car starts moving and allow the car to coast. Reapply if necessary.
7. Before applying a Hand Jumper, be certain that the cineston or controller on the car to be moved is in the "Off" position and the heat and interior light switches are turned off. While moving the car, use no more than the first power position or switching position.
8. When applying a Hand Jumper, always apply one end to the dead shoe or dead rail first; then apply the other end to the source of power. When contacting the source of power, make the contact quickly and firmly to prevent severe arcing. Keep both contact points tight and solid whether the Hand Jumper is being held or has been secured in place.
9. When removing a Hand Jumper, remove the end contacting the source of power first. Remove it quickly to prevent a severe arc. If both ends are contacting a source of power, remove them simultaneously. If this is not possible, remove either end first but be careful that the detached end does not contact any person or object.
10. Avoid contacting any source of power or ground with either end of the Hand Jumper while inspecting it, while preparing to apply it, and after removing it.
11. When applying or removing a Hand Jumper, turn your face away from the points of contact where arcing will occur. Make and break contacts quickly to minimize the arc.

# PROCEDURES FOR USE OF A HAND JUMPER

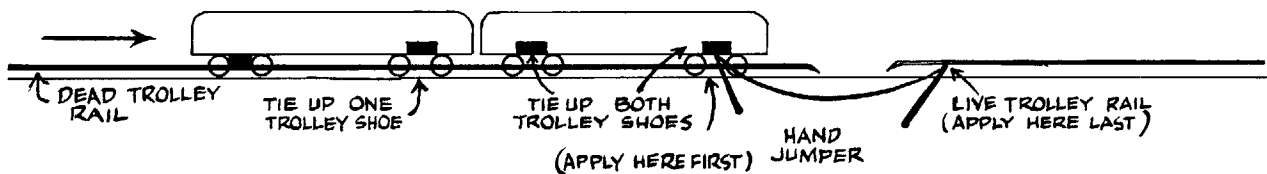
## MOVING A CAR OFF A DEAD SPOT



1. Have the cineston or controller in the "Off" position and turn off the heat and interior light switches.
2. Place one contact point of the Hand Jumper firmly against a trolley shoe of the stalled car.
3. Place the other contact point of the Hand Jumper quickly and firmly against a source of power.

4. Place the cineston or controller on the first power position for two seconds, then shut off and allow the car to coast. Repeat if necessary.
5. Remove both ends of the Hand Jumper quickly, simultaneously if possible.
6. Return the Hand Jumper to its storage place.

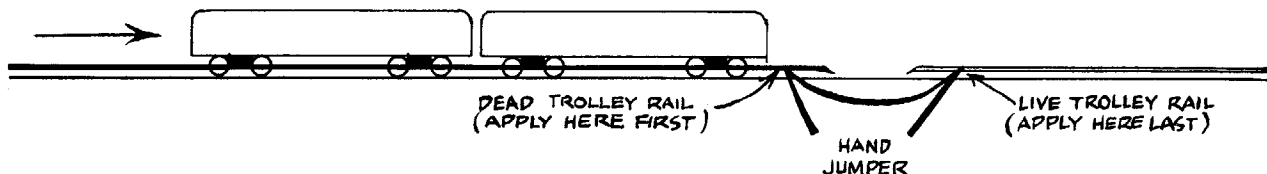
## MOVING A TRAIN WHEN THE TROLLEY RAIL IS DEAD AND MUST REMAIN DEAD



1. Have the cineston or controller in the "Off" position and turn off the heat and interior light switches.
2. Tie up the trolley shoes of the car to be operated. Also tie up one trolley shoe on the trolley rail side of each of the other cars of the train unless the gap between the live trolley rail and the dead trolley rail is more than 35 feet.
3. Place one contact point of the Hand Jumper firmly against a trolley shoe of the car to be operated.

4. Place the other contact point quickly and firmly against a source of power.
5. Place the cineston or controller on the first power position for two seconds, then shut off and allow the car to coast. Repeat if necessary.
6. Remove the end of the Hand Jumper contacting the source of power quickly; then remove the other end.
7. Return the Hand Jumper to its storage place.

## MOVING A TRAIN WHEN THE TROLLEY RAIL IS TO RECEIVE POWER THROUGH A HAND JUMPER



If the train to be moved has fewer than four cars, use one Hand Jumper.

If the train to be moved has more than four cars, use two Hand Jumpers.

If only one Hand Jumper is available, prevent the excess cars from motoring by uncoupling them, cutting out their motor control switches, or tying up their trolley shoes.

1. Have the cineston or controller in the "Off" position and turn off the heat and interior light switches.
2. Place one contact point of the Hand Jumper (or Jumpers) firmly against the dead trolley rail.
3. Place the other contact point of the Hand Jumper (or Jumpers) quickly and firmly against the source of power.

4. Place the cineston or controller on the first power position for five seconds, then shut off and allow the train to coast. Repeat if necessary.
5. Remove the end of the Hand Jumper (or Jumpers) contacting the source of power quickly; then remove the other end.
6. Return the Hand Jumper (or Jumpers) to the storage place.