

APPENDIX A

SPECIAL FEATURES DESCRIPTIONS

VERSION 07-1.2

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1. PHASE I EMERGENCY SERVICES OPERATION (SEE ARTICLE 2.27.3.1 AND 2.27.3.2 OF CAN/CSA/B44-07 ELEVATOR SAFETY CODE):

Phase I emergency sequence required equipment:

- A three-position key-operated switch shall be provided at the designated level (RESET-OFF-ON) (“RFP”, “TSTP” inputs). The key must be removable in positions ON and OFF.
- A two-position fire recall switch and a command key. It must be possible to remove the key in both positions ON-OFF (INPUT, TSTD).
- A fire alarm initiating device “FS input” shall be installed at each floor served by the elevator or freight.
- A fire alarm initiating device “ALT input” shall be installed at the designated level.
- A fire alarm initiating device “FRM input” shall return the car to the designated level.
- A fire alarm initiating device “FRA input” shall return the car to the alternate level.
- An audible and visual signal has to be provided in the car. A visual signal has to be provided for remote stations (“INC” and “BUZ” outputs).

The switch at the designated level must be at the “OFF” position and the additional switch must be at the “OFF” when the elevator is running normal operations.

On a general fire “FS” signal, if the elevator is traveling away from the designated level, the car will stop at the next floor and reverse its direction without opening the door. If the elevator is traveling in the right direction, the car will stop at the designated level.

When the phase I emergency recall sequence is activated the audible and visual signals are activated. The visual signal shall remain active until the car is restored to automatic operation. When the door is open, the audible signal shall remain active until the door closed. When the door is closed, the audible signal shall remain active for a minimum of 5 sec. The audible signal shall not be active when the car is at the recall level.

To stop the phase I emergency recall sequence, the elevator must be at the designated or alternate level. The fire alarm initiating devices (FS, ALT, FRM or FRA signals) need to be deactivated from the emergency panel or mechanical room. When the conditions are respected, put the key-operated switch (RFP input) and place it to the OFF position. The secondary key must be in the OFF position as well.

When the phase I emergency recall sequence is activated with the designated level fire alarm initiating device “ALT signal”, the elevator returns to the alternate floor. If one of the key switches is already ON, the elevator goes at the designated level, not at the alternate floor.

To stop the phase I emergency recall sequence, the elevator must be at the designated or alternate level. The fire alarm initiating devices (FS, ALT, FRM or FRA signals) need to be deactivated from the emergency panel or mechanical room. When the conditions are respected, put the key-operated switch (RFP input) and place it to the OFF position. The secondary key must be in the OFF position as well. If the two selectors are ON (TSTP, TSTD inputs), the elevator will return at the designated level and the door will remain opened.

In the occurrence of a fire machine room signal, regardless of the selector's position, the elevator will proceed the same sequence than a fire signal (FS signal) if the signal is connected to FRM terminal. If the mechanical room is at the designated level (signal is connected to FRA terminal), the elevator must go without stopping at the alternate level. When this signal occurs, the fire light blinks (INC output).

In the occurrence of a hoistway fire signal, regardless of the selector's position, the elevator will proceed the same sequence than a fire signal (FS signal) if the signal is connected to FRM terminal. If the fire detector in the hoistway is at the designated level (signal is connected to FRA terminal), the elevator must go without stopping at the alternate level. When this signal occurs, the fire light blinks (INC output).

To simulate a phase I fire recall sequence, turn the keys to the "ON" position to activate for a pulse the "TSTP" or "TSTD" signals

On phase I emergency service, hall and car calls and the in-car stop switch are inoperative when the doors are closed and the car is moving. It remains inoperative until the phase I sequence has ended. The in-car position indicator, at designated level and alarm position, must remain operative. The others must be inoperative.

Door reopening devices that are sensitive to smoke or flame shall be rendered inoperative without delay. Door reopening devices that are not sensitive to smoke or flames are permitted to remain operative. The door closure will be done at low speed.

The car door opening button of a car stopped at a level must be inoperative as the car leaves that level and must remain so until the car is in the recall hall.

If the elevator is in inspection mode, the phase I emergency recall sequence will not be initiated as long as the inspection mode is activated. Only the visual and audible signals system is activated.

No charge device must disrupt the elevator movement.

When the supply is back after a power failure, it does not end the PH1 emergency recall.

Note for appendix K New-York City Building Code

- The key-operated switch at the designated level has 2 positions instead of 3 positions (Normal-Fireman service).

2. PHASE II EMERGENCY IN-CAR OPERATION (SEE ARTICLE 2.27.3.3 OF THE CAN/CSA/B44-07 ELEVATOR SAFETY CODE):

Phase II emergency operation required equipment:

A three-position key-operated switch shall be provided in the car (OFF, HOLD, ON) “ARR” and “MAR” signals. The key must be removable in the “OFF” and “HOLD” positions.

To be able to switch the controller in phase II, the elevator must be in phase I and must be at the designated or alternative floor, doors opened. Turn the in-car key switch (OFF, HOLD, ON) to the “ON” position, so the elevator can only answer car calls. Place one or many car calls, they will be registered, but the elevator will not move. To activate the elevator, press the door close button (“K” or “RK” inputs) until the door is fully closed, or else it will reopen. Once the door is completely closed, the elevator will start and stop at the first car call reached according to the direction. To open the door, press the door open button (“FBDS” or “RBDS” inputs). The button needs to be pressed and maintained until door is completely opened. If the button is released during the door opening sequence, the door will close automatically. Once the door is completely opened, turn the key switch to the “HOLD” position, car calls will be cancelled and the door will remain opened. Repeat the same sequence to move the elevator to another floor.

The CANCEL CALL button (CCF) must be installed in the car. It allows to cancel the registered calls. A moving car will stop at the next available level.

To stop the in-car phase II operation, turn the key switch to the “OFF” position. The elevator closes its door and returns to the designated level or the alternate floor depending on which one is effective. Once the elevator stops at the recalled floor, the door opens and remains opened. The controller remains in phase I operation. However, if the fire key is selected on ON or HOLD before the doors are completely closed, they will reopen.

In phase II operation, the hall calls are inoperative. The in-car position indicator, designated floor and post central alarm must remain operative but the others must be deactivated.

The car calls must always be operational in phase II. The keys and card reader who block car calls must be bypassed.

No weighing device must prevent the elevator movement.

The occurrence of an accidental ground or short circuit in elevator electrical equipment located on the landing side of the hoistway enclosure, and in associated wiring, shall not disable Phase II Emergency In-Car Operation once it has been activated

When the supply is back after a power failure, it does not end the phase II emergency recall.

3. INDEPENDENT SERVICE (SI):

A two-position key-operated switch shall be provided in the car (ON-OFF) “SI” signal.

Turn the “INDEPENDENT SERVICE” key switch to the “ON” position to initiate the sequence.

If the independent service is activated while the car is moving, the elevator will stop at the next floor and the door will remain opened. All other car calls will be cancelled when the car will stop.

Hall calls are cancelled. Only car calls are operative.

To close the door, press and maintain the door close button (K signal) until the door is fully closed, or else it will reopen automatically. The elevator will answer the nearest registered car call.

When the car stops at the next landing, all car calls are cancelled.

To switch back the elevator in normal operation, turn the “INDEPENDENT SERVICE” key switch to the “OFF” position.

Hall lanterns should be extinguished and gongs should be disabled.

4. PRE-MAINTENANCE SERVICE (PRE-MNT):

The toggle switch is located in the elevator controller.

Toggle the switch to the “PRE-MAINTENANCE” position to activate this operation mode.

The elevator continues its normal operation except the elevator will not accept hall calls. In a two or multiple car group, hall calls are reassigned to other cars.

That service allows to empty the car. The maintenance person can switch in maintenance mode with nobody inside the car.

To bring back the elevator in normal operation, toggle the switch to the “NORMAL” position.

5. MAINTENANCE SERVICE (MNT):

The toggle switch is located in the elevator controller.

Toggle the switch to the “MAINTENANCE” position to activate this operation mode. If car calls are registered at that time, they will be cancelled at the next stop.

Hall calls are cancelled. Only the car calls are allowed.

The elevator will always stop at the first registered car call according to the direction and will not open its door. Door open button “FBDS” or “RBDS” signals are operative.

This maintenance mode deactivates the automatic door opening on car calls and the passing gong.

To bring back the elevator in normal operation, toggle the switch to the “NORMAL” position.

6. LANDING DOOR BYPASS SW1:

The elevator controller contains a landing door bypass switch “SW1”. For normal operation, that switch must be at the “OFF” position. At the “BYPASS” position, the elevator will be placed automatically in “INSPECTION” mode. The elevator can be moved from the car top in inspection mode with landing

doors opened, without any jumpers across door lock contacts. Also, the car door closing and opening relays will be deactivated.

7. CAR DOOR BYPASS SW2:

For normal operation, that switch must be at the “OFF” position. At the “BYPASS” position, the elevator will be placed automatically in “INSPECTION” mode. The elevator can be moved from the car top in inspection mode with only car doors opened without any jumpers across door lock contacts. Also, the car door closing and opening relays will be deactivated.

8. THE IN-CAR STOP PUSH BUTTON (SA):

A stop push button shall be provided in the car “SA” signal. For the elevator’s normal operation, the contact must be closed.

When the in-car stop button is pressed, the contact opens, car calls and hall calls are cancelled. The car leveling circuit is operative and if a door is opened, it will remain opened until the in-car stop button is brought back to normal.

9. TOP OF CAR INSPECTION SWITCH (ISR/INS):

Required equipment:

- A CSA approved top of car switch box has to be installed.

When the top of car inspection switch is placed at the “INSPECTION” position, the elevator can be moved by pressing RUN and UP or RUN and DOWN buttons at the same time.

10. HOISTWAY ACCESS SWITCH:

Required equipment:

- In-car switch
- In hall top and bottom switch

If the elevator system has a hoistway access switch, authorized people can access the pit or the top of car.

For elevator running faster than 150’/min., we must supply an access switch on top and bottom floor.

For elevator slower than 150’/min., we must supply an access switch on top floor if the distance between the car and the top floor exceeds 35”.

If the controller has a hoistway access switch, the authorized staff can have access to the hoistway

To operate hoistway access mode:

- Activate the in-car hoistway access switch.
- Activate the hall hoistway access switch to move up or down.

The car movement is made by constant pressure and when the hall switch is activated, the car and hall doors (top and bottom) are bypassed.

The car movement for the bottom hoistway access switch is limited in up direction by ACB limit switch or the car position if the elevator has a perforated tape or the governor encoder.

The car movement for the top hoistway access switch is limited in down direction by ACT limit switch or the car position if the elevator has a perforated tape or the governor encoder.

11. LOW OIL LEVEL CONTACT (BNH):

In an elevator normal operation, the low oil level contact is opened.

When the contact is closed; the car goes down to the bottom floor, opens its doors and closes them. Front and rear doors can be opened manually by pressing the in-car door open button (FBDS and RBDS signals).

The elevator is out of service and the controller must be shut down to reset.

12. LOW PRESSURE SWITCH OR MONOSTAT (LPS):

For normal position, the low pressure contact must be closed.

When the contact is opened, the processor will not allow automatic door opening and any movement in down direction. Only up direction movement is allowed. Front and rear doors can be opened manually by pressing the in-car door open button (FBDS and RBDS signals).

13. IN-CAR PASSING GONG (GP):

A processor output is used to indicate when the elevator car stops or passes to the next level (one pulse for each floor).

14. IN-CAR LANTERNS AND GONGS (GU AND GD):

The elevator car has a gong to indicate that the car stops at a floor to answer a car call or a hall call. Two outputs indicate the next ride direction. The gong will be turned on when the door opens and will be turned off when the door closes.

15. HALL LANTERNS AND GONGS (GBU TO GTD):

The elevator processor can control hall lanterns and gongs at each floor to indicate the car is stopping at a floor to answer a hall call. Two outputs at each floor indicate the next ride direction. The gong will be turned on when the deceleration is initiated or if the direction is reversed and will be turned off when the door closes.

16. DOOR NUDGING (NUD):

An audible signal “buzzer” is activated when the door nudging sequence is activated.

The nudging sequence is initiated when the front or rear photocell “PH” or “RPH” is cut for the time programmed in the (DM66) register. When nudging, the door closes at low speed and if the door cannot close completely after the time programmed in the (DM67) register, the door reopens completely. The processor will try to close the door again after the time programmed in (DM68) register.

17. CAR CALL ACCEPTANCE (CCA)

An audible signal “beep” can be programmed to indicate each new car call entry.

18. PHASE I AUDIBLE SIGNAL (BUZ):

When the phase I fire emergency recall is initiated, that audible signal turns on ½ sec. and off ½ sec. until the car is at the designated level and door opened.

19. EMERGENCY LOWERING UNIT FOR HYDRAULIC (RESCUPOWER):

The rescupower is an emergency power unit that generates the voltage to supply the hydraulic elevator controller on a main power shutdown. That unit operates with a 12 VDC battery and will generate enough power to bring down the elevator to an emergency exit floor. The rescupower unit does not include the required sequences to bring the car to the exit floor. The JRT’s hydraulic controller includes these sequences.

Operation:

On a power shutdown, the rescupower turns on and gives a signal to the elevator controller to initiate the emergency exit sequence and stays on for 2 minutes when the car is at the exit floor. After the 2 minutes off delay, the unit turns off but will turn back on as soon somebody presses the door open button (BDS or RBDS). The unit will be then turned on again for another 2 minutes.

20. EMERGENCY POWER GENERATOR OPERATION SEQUENCES:

Required equipment:

- Emergency power generator transfer switch signal (GEN1).
- Pre-transfer signal (GEN2).
- Emergency operation elevator selector (AUTO, UG1, UG2).
- Emergency power light (GEN1).

On a main power shutdown, all elevators are recalled at the designated level one by one according to a specific order programmed in the PLC. The recall sequence begins 5 seconds after the emergency power signal “GEN1” is received. Every elevator has an adjustable time delay to go to the designated level. After the delay, the sequence will switch automatically to another elevator. Once arrived at the designated level, the door opens and closes. There is a software option to keep door opened if required. The emergency power light will stay on as long as the “GEN1” signal is present.

After the global emergency recall sequence is completed, the emergency operation elevator selector is active. At the “AUTO” position, the processor selects one elevator to run normally on the emergency

power generator according to a specific order. If the elevator becomes in trouble, another elevator will automatically be selected to operate normally.

Each time, the elevator selector is turned to another position, a global emergency recall sequence is performed. When the selector is at “UG1, UG2 ...”, a specific elevator is chosen. That elevator will operate normally. If that elevator becomes in trouble, other elevators will not automatically be selected.

Emergency power pre-transfer signal (GEN2):

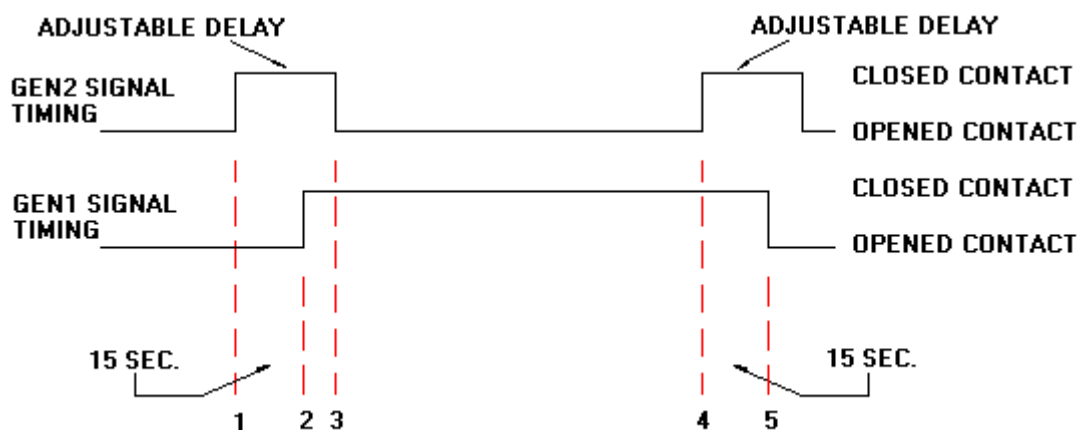
A pre-transfer signal has to be provided 20 seconds before the power transfer to the emergency power generator and will stay on up to 5 seconds after the transfer. When the normal power comes back, this pre-transfer signal has to be provided 20 seconds before the power transfer to the normal supply.

Operation sequence:

- From normal power to emergency power generator
- First, the “GEN2” contact must turn on 20 seconds before the transfer.
- Secondly, the “GEN1” contact turns on when the transfer is done (25 sec. after GEN2).
- From emergency power generator to normal power
- First, the “GEN2” contact must turn on 15 seconds before the transfer.
- Secondly, the GEN1 contact turns off when the transfer is done (20 sec. after GEN2).

The “GEN2” contact is very important. During that period, all elevators stop normally at the next available floor and wait for the power transfer. That protects drives against high current shot through.

“GEN1” and “GEN2” timing sequence:



- 1- Pre-transfer signal before switching to emergency power generator.
- 2- Transfer to emergency power generator. “GEN1” signal turns on.

- 3- "GEN2" turns off 1 sec. after the transfer.
- 4- Pre-transfer signal before switching to normal power.
- 5- Transfer to normal power. "GEN1" signal turns off.