

**ANYTOWN FIRE DEPARTMENT**

**STANDARD OPERATING GUIDELINE NO. 15**

**FIREFIGHTER'S ELEVATOR KEY SWITCH  
(3502)**

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## SOG. # 15

### FIREFIGHTER'S ELEVATOR KEY SWITCH (3502) PURPOSE

This Standard Operating Guideline is intended to direct the members of this department in the proper operation of an elevator that has been equipped with Firefighter's Emergency Service (3502). It is not the purpose of this S.O.G. to describe the specific operational steps of each and every elevator; rather, to provide an understanding of the code along with its safe, effective application in conjunction with the ANYTOWN FIRE DEPARTMENT's high-rise procedure. Companies should familiarize themselves with the Firefighter's Emergency Service (3502) capabilities of elevators in the various buildings in their districts.

### DEFINITIONS

"3502" Key - The number assigned by the elevator industry to the key used to operate the firefighter's keyed switch.

Alternate Level - The level to which the elevator responds while on automatic recall when the fire alarm originates on the *designated level*. It is normally located two floors above the main floor.

Capture Station – The firefighter's keyed switch located on the wall at the designated level within sight of the elevators it controls. (See Fig. 1A-1) This is where the "3502" key is used to institute "RECALL" of the elevators, bringing them down to the *designated level*. The "RECALL" phase is also called PHASE 1.

Car Station – The firefighter's keyed switch located within the elevator car on or immediately adjacent to the operating panel of the car, for the purpose of placing the car on Firefighter's Emergency Service (3502). (PHASE II)

Designated Level – Also sometimes referred to as the main floor. The level used as the entrance point by the fire department. The level to which the elevators respond when recalled on automatic recall. Where the firefighter's keyed switch capture station is located.

High-rise Building – Any building seventy feet (70') or greater in height measured from the lowest point at ground level.

Manual Elevator Standby Power Selection Switch - Located in the fire control room of high-rise buildings. The device used to transfer emergency power from one elevator to another.

Position Indicator - A device that indicates the position of the elevator car in the hoistway. It is called a "hall position indicator" when placed in the hall or a "car position indicator" when placed in the car.

NOTE: All italicized words found in this document are defined in the DEFINITIONS section above.

## REGULATIONS

1A.1 Commonwealth of Massachusetts Regulations dictate that when on Firefighter's Emergency Service (3502), an elevator shall be **operated by** and be under the **sole control** of a member of the local fire department who shall **remain inside** the elevator car and maintain control of the elevator car throughout the fire emergency. For more complete information on Firefighter's Emergency Service (3502) regulations refer to 524 CMR and ASME/ANSI A17.1 – 2000.

## INTRODUCTION

1A.2 Firefighter's Emergency Service (3502) is provided on most automatic passenger elevators. This service provides a two-fold purpose:

1. It allows for the capture of elevators, taking control of the elevators away from the occupants of the building. This provides a secure environment for the passengers riding in the elevators, by returning the elevators to a *designated level* of the building, thereby not allowing the elevators to respond to a call on the fire floor. (Phase I)
2. It allows for the controlled operation of specific elevator cars by firefighters, to be used in gaining access to upper floors during a high-rise incident. (Phase II)

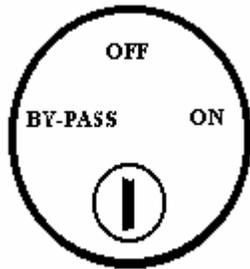
1A.3 Most modern *high-rise buildings* have several elevator banks. The activation of any single firefighter's keyed switch *capture station* will recall only the elevators in that bank. In order to recall all of the elevators in a building it may be necessary to activate several *capture stations*. Most *high-rise buildings* have remote *capture stations* located in the Fire Command Center. All elevators in the building may be recalled from this location.

1A.4 Under no circumstances shall an elevator be used if water is detected in the hoistway. The Incident Commander ( IC) shall be advised of this condition.

## AUTOMATIC RECALL

1A.5 In Anytown, only the activation of specific, strategically located smoke detectors (Elevator Lobby) will automatically recall elevators to the *designated level*. However, the activation of a fire alarm on the *designated level* will automatically send all elevators to an *alternate level*. While the *designated level* is usually the main floor of the building, the location of the *alternate level*, although decided on a case-by-case basis by the enforcing authority, is usually two floors above the *designated level*.

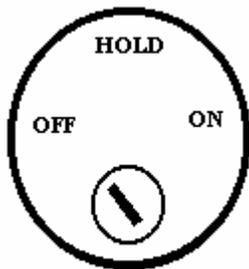
## PHASE I - RECALL



**Fig. 1A-1.** Firefighter's keyed switch for Phase I operation found on wall at the *designated level* within sight of the elevator bank it controls.

1A.8 When the key is placed in the "BY-PASS" position, the automatic recall feature is rendered inoperative. "BY-PASS" is also used to reset the elevators from Firefighter's Emergency Service (3502) operation. The key cannot be removed in this position.

## PHASE II



**Fig 1A-2.** Firefighter's keyed switch for Phase II operation found on panel in elevator car.

1A.6 When the three-position firefighter's keyed switch (*capture station*) is placed in the "ON" position, all elevator cars controlled by that switch shall return to the *designated level* (main floor). (See Fig. 1A-1.) The key is removable in the "ON" and "OFF" positions only. When elevators arrive at the *designated level*, their doors shall open and remain open. This completes Phase I. **NOTE:** If the elevators have been automatically called to the *alternate level*, activation of the *capture station* will call elevators to the *designated level*.

1A.7 With very few exceptions, automatic passenger elevators are equipped with Firefighter's Emergency Service (3502). Some elevators are equipped with Phase I **ONLY**. **NOTE:** In order to comply with the code, Phase II will be added as these systems are upgraded

1A.9 The three-position firefighter's keyed switch (*car station*) is installed in or immediately adjacent to the operating panel of the car. Normally found in the "OFF" position, turning the switch to the "ON" position by means of the "3502" key places that car only in Phase II. The key is removable in all three positions. Use of the "HOLD" position will be described later. When placed on Phase II, the car will respond only to commands entered at the car's operating panel. (See Fig. 1A-2.)

1A.10 Elevators are provided with a means to hold the elevator door in the open position when on Phase II. Most elevators are equipped with an automatic system that does not require the operation of a switch. When constant pressure is applied to the "DOOR OPEN" button and the door opens fully, the door will remain open. Another means of holding the door open is by placing the key switch in the "HOLD" position. NOTE: In order to operate the elevator on Firefighter's Emergency Service (3502), the Phase II key switch must be placed back in the "ON" position.

#### AUXILIARY GENERATORS FOR EMERGENCY POWER

**1A.11** An auxiliary generator shall be provided of sufficient capacity and proper rating to supply elevator circuits in conjunction with the firefighter's key switch installation in all elevators in high-rise buildings installed after 06/07/72. The auxiliary generator shall have sufficient power to operate **at least one elevator** at a time on Firefighter's Emergency Service (3502).

1A.12 Most *manual elevator standby power selection switches* are located on the *designated level* in the Fire Command Center or adjacent to or part of the elevator status panel.

1A.13 The IC shall see that elevators are recalled by means of the Firefighter's Emergency Service (3502). All elevators must be accounted for immediately upon arrival of the first due companies.

1A.14 The Evacuation Sector Chief shall determine that all elevators have been recalled. In the event of a power failure, the Evacuation Sector Chief shall utilize the emergency power generator, if provided, to effect recall of elevators, through operation of the *manual elevator standby power selection switch*. It is important to note that in such cases (especially when an emergency generator is capable of moving only one elevator at a time) Phase II operation of all elevators must be curtailed until all elevators have been recalled and/or accounted for. All elevator cars unaccounted for shall be presumed occupied. The IC shall be kept informed of the status of all elevator cars.

#### ELEVATOR OPERATOR

1A.15 The member assigned the position of elevator operator shall be equipped with SCBA and a portable radio and must remain with the elevator at all times. A member of the first due Company shall be assigned this duty. If additional elevators are put into firefighter's emergency service (3502), the IC shall assign a different operator for each elevator car. Under no circumstances shall the elevator operator leave the elevator unattended while on firefighter's emergency service (3502). **Elevators shall not be locked or shut down on upper floors.** This defeats the efficient operation of the system and potentially denies other incoming units access to upper floors. Prior to leaving the main floor for upper floors, all members shall open the valves on the cylinders to their SCBA and have the face/piece at the ready.

1A.16 The best means of moving an elevator on Phase II is to apply constant pressure to both the "DOOR CLOSE" button and the "FLOOR" button of the desired floor. Once the elevator car picks up speed, the buttons may be released.

1A.17 In every case, between calls, the member assigned as elevator operator shall stage the car at the *designated level* to await further orders from the IC or his/her designee.

1A.18 Elevator operators shall not take it upon themselves to respond to a request for an elevator on upper floors. All requests shall be made through the IC or his/her designee.

1A.19 If an elevator starts to operate erratically or if water enters the hoistway during operation, the car shall be landed at the next available landing. All members shall exit the elevator and notify the IC. The Phase II firefighter's key switch shall be placed in the "HOLD" position and the key shall be removed from the key switch placing the car out of service. Under no circumstances shall that car be put back in service for the duration of the incident. All members, including the operator shall proceed to the nearest stairwell to gain access to the floor desired. The operator shall remain with the crew.

1A.20 The maximum number of members allowed to ride in an elevator car is six. This should be strictly enforced. Overloading an elevator can cause the elevator safety to activate, potentially trapping firefighters. In every case where the car safety has activated, the elevator car will be lost for the duration of the incident.

1A.21 Elevators shall be taken to a floor at least two floors below the lowest floor in alarm. Elevators shall not be programmed to respond directly to the reported fire floor without authorization from the IC, after he/she has consulted via radio with the companies already on that floor and has been assured of that lobby's safety.

1A.22 The elevator operator shall test the conditions on the discharge floor by temporarily pushing the "DOOR OPEN" button while at the same time observing through the door opening for signs of smoke and/or fire. If smoke conditions exist, the elevator shall be brought down another two floors. This operation shall be repeated until a smoke free floor is found. Only then shall members leave the elevator.

1A.23 The floor on which members are discharged shall be called the "DISCHARGE FLOOR". This location will be relayed to the IC by the Company Commander. The location of the DISCHARGE FLOOR shall be broadcast by Fire Alarm for the information of all members working at the incident.

#### FIREFIGHTER'S CALL CANCEL

1A.24 In newer installations cars are provided with a button marked "CALL CANCEL", located in the same car operating panel as the Phase II operation. When pressed, all registered calls are canceled and a traveling car will stop at or before the next available landing. The car will remain stopped in the hoistway until another floor button is depressed on the car-operating panel.

NOTE: The "CALL CANCEL" button is only operational when the elevator car is on Firefighter's Emergency Service (3502) Phase II.

#### SAFETY CONSIDERATIONS

1A.25 Except in the case of occupant evacuation, only members of the department who are equipped with their protective ensemble and self-contained breathing apparatus shall be allowed to ride in elevators while operating on Firefighter's Emergency Service (3502). The Incident Commander must approve all exceptions to this section.

1A.26 In the event self-extrication from a stalled elevator becomes necessary, a halligan bar shall always be included as part of the high-rise equipment.

1A.27 Elevators are not to be utilized when the alarm is determined to be on **floor number 5 or below**. Under such circumstances, members shall use the stairwell after determining that all elevator cars have been accounted for and are free of passengers.

1A.28 Elevators operating on Firefighter's Emergency Service (3502) shall never be taken below the *designated level*.

#### EMERGENCY SELF-EXTRICATION FROM STALLED ELEVATORS

1A.29 In the unlikely event an elevator stalls while a team of firefighters is riding to or from an upper floor the following procedures shall be attempted.

- Check to see if the "CALL CANCEL" button has been pressed accidentally.
- Turn the Phase II key to the "OFF" position to attempt recapture of the car.
- Notify the IC that the elevator car has stalled and provide the IC with:
  - The number of members in the elevator.
  - The location of the elevator if known.
  - If smoke is entering the elevator.
  - If an emergency exists and self-extrication will be attempted.
- Before self-extrication is attempted, the Phase II key switch shall be placed in the "OFF" position and the key shall be removed from the tumbler.
- Mainline power must be disconnected and **lock out/tag** out performed to ensure firefighter safety. Fire companies must be assigned this task if fire conditions permit, before members exit that car into the elevator hoistway.
- If conditions allow, wait for assistance from the FAST Company.

1A.30 The IC shall assign the FAST Company the duty of locating and assisting the members from the stalled elevator under the command of the Evacuation Sector Chief. An additional FAST Company shall be ordered to the scene.

#### TERMINATION OF FIREFIGHTER'S EMERGENCY SERVICE (3502)

1A.31 Elevators shall be returned to automatic service only on the orders of the Incident Commander. No other member is authorized to remove the elevators from Firefighter's Emergency Service (3502). All problems encountered with the Firefighter's Emergency Service (3502) system shall be reported to the State Elevator Inspector on State Form FM3502.