Guidelines — SAFE WORKING ON LIFTS
Car top controls and lift pit access (LR 1)

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FOREWORD

In the past a number of serious and some fatal accidents have occurred to persons working on lifts. Many of these have been attributable to inadequate or lack of provision of controls for safe working and/or to unsafe working practices.

Throughout these recommendations the following colour coding is used to emphasise to the Competent Person (CP) the importance of relevant text as thus:

Warning (RED TEXT) e.g.:-

It is important to remember that safe working on the top of a lift car or in the lift pit are only two aspects of a safe system of work whilst working on lifts and that all other aspects should also be considered.

Correct operation (BLUE TEXT) e.g.:-

If the lift responds to the landing call then this has proved that the lift car will call back to the landing and it is now safe to proceed to the next test i.e. ‘car top stopping device’

Action involving use of a device mode e.g.: STOP RUN INSPECTION DOWN UP COMMON/RUN NORMAL

Note: It is the reader’s responsibility to check for the latest version/revision of publications
CAR TOP CONTROL AND LIFT PIT OPERATING BUTTONS AND SWITCHES

Figures 1 to 4 of this Guidance shows the current minimum requirements of the current BS EN81-1 & 2 series applicable until August 2017 (Figure 1), the proposed minimum requirements for the BS 7255 Safe working on lifts (Figure 2), the new BS EN81-20 (Figure 3) and lift pit stopping device (Figure 4)

FIGURE 1

Note: Whilst the layouts shown in figures 1 to 3 is fairly representative of the type of operating switches & buttons that may be encountered the exact colour of the switches & buttons may vary according to the manufacturer.
FIGURE 2

BS 7255 - Enhanced layout for car top controls
FIGURE 3

Note: In practice only the STOP button may be captioned.

FIGURE 4
Section 1  INTRODUCTION

These recommendations are primarily intended for all those responsible for providing a safe system of work for a competent person(s) working on lifts. They also recommend guidance to be given to owners of lifts on the provisions to be made for safe working on the top of a lift car and in the lift pit.

The aims of the recommendations are to provide consistency of advice given and enhance the safety of lifts to the benefit of all competent persons who need to access the top of a lift car or lift pit for the purposes of examination, maintenance or repair.

It is important that the principles of these recommendations should be followed and that the competent person has sole control of the lift before proceeding with any work.

It should be noted that the recommendations made in this document reflect the legal position pertaining at the time of publication.

The legal framework includes:

• The Health and Safety at Work Act (HSWA) - which already applies to all lifts.

• The Provision and Use of Work Equipment Regulations (PUWER) and The Lifting Operations and Lifting Equipment Regulations (LOLER) - which include requirements for controls and control systems and specific requirements for lifting equipment which are applicable to all work equipment.

• The Management of Health & Safety at Work Regulations - which requires employers and self-employed people to assess risks to health and safety from their undertaking. This includes risks from the use, repair and examination of lifts in their building, including the operation of the lift machinery. The risk assessment should identify what measures are needed to comply with health and safety requirements. The duty holder should then put in place the organisation and arrangements to ensure that those measures are properly implemented.

• Work At Height Regulations (WAHR) - The Regulations apply to all work at height where there is a risk of a fall liable to cause personal injury.
Section 2 **SCOPE**

These recommendations are applicable to all lifts, which, by design, allow competent persons to gain access to the top of a lift car or the lift pit for the purposes of carrying out examination, servicing or repairs.

Where the lift does not have other safety devices e.g. safety gear, rupture valves etc., a further risk assessment will be necessary to determine the requirements for additional safe working practices.

Where no safety gear or rupture valve is fitted, the competent person should not ride on the car top.

A risk assessment should be carried out to determine whether it is safe to stand on the static car top.

When entering a lift pit where no safety gear or rupture valve is fitted to the lift, then the competent person should carry out a risk assessment to determine what control measures are required to minimise risk.

**Note:** It is expected that the competent person would only access the top of the lift car or lift pit where the lift is of such dimensions that persons may enter it without difficulty. Advances in technology/new designs of lifts often prohibit access to the car top, in these instances, work is usually carried out from within the lift car via removable ceiling panels/trap doors.

Additional hazards may arise from e.g.:

- Unshrouded switches on car top controls or in the pit
- Absence of car top controls
- Unusual tripping/falling hazards
- Environmental risks
- Restricted lift well headroom
- Rotating parts
- Restricted pit depth
- Lift dimensions; access or movement issues.

The competent person should consider all such factors by undertaking a risk assessment in addition to the recommendations contained in this document. Reference should be made to the building owners’ site risk assessments, where available.

**It is important to remember that safe working on the top of a lift car or in the lift pit are only two aspects of a safe system of work whilst working on lifts and that all other aspects should also be considered.**
Section 3  SAFE WORKING PRACTICE - CAR TOP ACCESS

Prior to working on the top of a lift car, it is essential that the integrity of the car top control functions be proved.

Extra care should be taken when encountering lifts with anti-surfing devices, dispatcher systems, destination control systems and processors which will not allow these checks to be made in this way.

3.1 INITIAL CAR TOP RISK ASSESSMENTS

Before accessing the lift car top an assessment of the lift car top and lift well should be made to identify any hazards present e.g.:

- Vulnerable persons in the vicinity,
- Dangerous protrusions,
- Moving pulleys and rope / chain,
- Reduced headroom,
- Identify the refuge space,
- Check for any warning notices,
- Voids between the car top and the well walls,
- Adequate working space to stand and operate the lift safely.

In addition the location of safety switches (final over travel limit switch, roof trap door switch, door interlocks) should be noted as these could be used as an additional car top stopping devices in an emergency.

If there is more than one person on the lift car top, all movements of the lift should be clearly communicated to all persons present.

Malfunctions of the car top control system may occur even after the verification checks have been performed, therefore the person(s) on the car top should always have a high level of awareness at all times.

3.2 CAR TOP CONTROLS - PRE-TEST CHECKS

The following procedures are considered normally sufficient to identify any faults in the landing call and response functions before riding on the lift car top. This is not exhaustive and some lifts may travel to the floor selected or will do a re-set run when the stop is re-set and due caution should be taken and additional checks carried out to verify the functions.

3.2.1 LANDING CALLRESPONSE

To check that the lift will respond to a landing call, complete the following operations:

- Send the lift down and when the lift car top is at a position allowing safe access open the landing doors. If automatic doors are fitted, a brief delay - to allow the doors to open and close is advised before proceeding;
- Place the stopping device in the STOP position and then reset to the RUN position;
- Close the landing doors and attempt to call the lift to the landing.

If the lift responds to the landing call then this has proved that the lift car will call back to the landing and it is now safe to proceed to the next test i.e. ‘car top stopping device’.
Note: If the lift does not respond to the call at this test, then all future tests may not actually be testing the safety devices for function. If this is the case you may need to go to the floor below or the bottom terminal floor to insert a landing call in order to prove the function of the safety devices.

3.2.2 GROUP INSTALLATIONS

On group installations with bespoke dispatcher systems, zoning systems and destination control etc. it should be ensured that the procedures fully prove the integrity of the car top stopping device and the Inspection/Normal changeover switch.

3.2.3 POSSIBLE CAR TOP CONTROL FAULTS

- Some car top control systems have failed to reduce the rated speed of the lift to a safe speed,
- Trailing flexes have shorted during travel causing car top control fault,
- Sticking push button so lift travels on when push button is released,
- Car top controls wired incorrectly.

3.3 STOPPING DEVICE

A stop device should be located within 1 metre of the landing threshold/access point. To check the integrity of the car top stopping device complete the following operations:

- Send the lift down and when the lift car top is at the same position as 3.2.1 above allowing safe access open the landing doors. If automatic doors are fitted, care should be taken to allow the doors to open and close before proceeding;
- Place the stopping device in the STOP position;
- Close the landing doors and attempt to call the lift to the landing.

If the lift does not respond, the integrity of the stopping device is considered to be proved.

Note: Where more than one car top stopping device is fitted then each of these should be checked independently.

3.4 CAR TOP MOUNTED INSPECTION/NORMAL SWITCH

Having completed the tests in 3.2.1 to 3.3 to ensure the lift will respond to a landing call and that the stopping device on car top is functioning correctly, proceed to check the integrity of the inspection/normal switch mounted in the car top control unit. The car top stopping device should remain in the stop position and the landing doors should be closed.

- Open the landing doors and select INSPECTION mode on the Inspection/Normal changeover switch
- Return the stopping device to the RUN position
- Close the landing doors and attempt to call the lift to the landing.

If the lift does not respond, the integrity of the Inspection/Normal switch is considered to be proved.
To check the integrity of both switches operated together complete the following operations:

- Open the landing doors and place the stopping device in the **STOP** position with **INSPECTION** mode still selected on the Inspection/Normal changeover switch;
- Close the landing doors and attempt to call the lift to the landing.

**If the lift does not respond, the integrity of the stopping device together with the Inspection/Normal switch is considered to be proved.**

### 3.5 CONTROL PANEL MOUNTED INSPECTION/NORMAL SWITCH

Having completed the tests in 3.2.1 to 3.3 to ensure the lift will respond to a landing call and that the stopping device on car top is functioning correctly proceed to check the integrity of inspection/normal switch mounted in the control panel. The car top stopping device should remain in the stop position and the landing doors should be closed.

- From the lift machine room (or wherever located) move the Inspection/Normal changeover switch to the **INSPECTION** position.

**A warning notice should be placed in a prominent position adjacent to the inspection/normal changeover switch.**

- Return to the landing and open the landing doors,
- Reset the car top stopping device to the **RUN** position,
- Close the landing doors and attempt to call the lift to the landing.

**If the lift does not respond, the integrity of the Inspection/Normal switch is considered to be proved.**

To check the integrity of both switches operated together complete the following operations:

- Open the landing doors and place the stopping device in the **STOP** position with **INSPECTION** mode still selected on the Inspection/Normal changeover switch,
- Close the landing doors and attempt to call the lift to the landing.

**If the lift does not respond, the integrity of the stopping device together with the Inspection/Normal switch is considered to be proved.**

### 3.6 CAR TOP CONTROL - OPERATIONAL CHECKS

**Do not gain access to lift car top unless car top stopping device is in the STOP position.**

It should also be noted that the rated speed of some lifts may not be decreased when in **INSPECTION** mode; therefore if the risk cannot be reduced, especial care is to be taken when travelling on the car top.

All movement of the lift should ideally be in the down direction; when this is not possible the lift should be moved down to a safe distance from the top of the lift well before an attempt is made to move the lift in an up direction (**upward movement should be kept to a minimum**).

Each time the directional push buttons are released, the stopping device should be in the **STOP** position.
Under no circumstances shall the inspection/normal changeover switch be restored to ‘normal’ whilst persons are on top of the lift.

If there is more than one person on the lift car top, all movements of the lift should be clearly communicated to all persons present.

Malfunctions of the car top control system may occur even after the verification checks have been performed, therefore the person(s) on the car top should always have a high level of awareness at all times.

3.6.1 CAR TOP CONTROL MOVEMENT CHECKS - STOPPING DEVICE

Having gained access to the car top control carry out the following operation:

• The first movement of the lift should be of short duration and in the DOWN direction,
• During the descent, and while in INSPECTION mode, operate the stopping device.

If the lift stops, the operational integrity of the stopping device is considered to be proved.

3.6.2 CAR TOP CONTROL DOWN MOVEMENT CHECKS

• Move the lift again - for a short duration only - in the DOWN direction
• During the descent, and while in the INSPECTION mode, release the DOWN push button,
• Repeat this operation again, during descent, and while in the INSPECTION mode, release the COMMON/RUN push button (if fitted).

If the lift stops in both instances, this confirms correct operation.

3.6.3 CAR TOP CONTROL UP MOVEMENT CHECKS

• Move the lift again - for a short duration only - in the UP direction,
• During the ascent, and while in the INSPECTION mode, release the UP push button,
• Repeat this operation again, during ascent, and while in the INSPECTION mode, release the COMMON/RUN push button (if fitted).

If the lift stops in both instances, this confirms correct operation.

3.7 CAR TOP STOPPING DEVICE ONLY

For lifts that are fitted with a car top stopping device only, no persons shall travel on car top.

Where you do not have to travel on the lift car top to complete your work duties and where your risk assessment allows it, you can use the lift car top as a stationary work platform. You should make an assessment of all hazards such as:

• Falling,
• Slipping,
• Entrapment,
• Tripping.

and adopt a safe system of work.
If this applies to lifts you work on the need for the fitting of a car top control station may not always be necessary.

When working on top of lift cars which are not provided with a car top control station, but have a car top stopping device provided, the following procedures are recommended:

3.7.1 LANDING CALL RESPONSE

- Send the lift down and when the lift car top is at a position allowing safe access open the landing doors. If automatic doors are fitted, a brief delay - to allow the doors to open and close - is advised before proceeding,
- Place the stopping device in the STOP position and then reset to the RUN position,
- Close the landing doors and attempt to call the lift to the landing.

If the lift responds to the landing call then this has proved that the lift car will call back to the landing and it is now safe to proceed to the next test i.e. ‘car top stopping device’

Note: If the lift does not respond to the call at this test, then all future tests may not actually be testing the safety devices for function. If this is the case you may need to go to the floor below or the bottom terminal floor to insert a landing call in order to prove the function of the safety devices.

3.7.2 CAR TOP STOPPING DEVICE

- Send the lift down and when the lift car top is at same position as 3.7.1 above allowing safe access open the landing doors. If automatic doors are fitted, a brief delay - to allow the doors to open and close - is advised before proceeding:
- Place the stopping device in the STOP position,
- Close the landing doors and attempt to call the lift to the landing.

If the lift does not respond, the integrity of the stopping device is considered to be proved.

3.7.3 CAR TOP ACCESS

Do not gain access to lift car top unless car top stopping device is in the STOP position.

The car top can now be accessed and be used as a stationary work platform.

In addition the location of safety switches (final limit switch, car gate switch, door interlocks) should be noted as these could be used as an additional secondary means of isolation. However at all time the stopping device should be in the STOP position when using the car top as a stationary work platform.

3.8 NO CAR TOP STOPPING DEVICE

For lifts that are not fitted with a car top stopping device, no persons shall travel on the car top.

Access to the car top shall be made only after isolation of the lift power supply. If this is not practical and no other means of isolation is suitable, the car top should not be accessed.
Where you do not have to travel on the lift car top to complete your work duties and where your risk assessment allows it, you can use the lift car top as a stationary work platform. You should make an assessment of all hazards such as:

- Falling,
- Slipping,
- Entrapment,
- Tripping.

and adopt a safe system of work.

After the lift power supply has been isolated, the following check should be made before accessing the car top:

- With all doors closed, attempt to call the lift to a landing.

If the lift does not respond to the landing call, then this has proved that the lift is isolated.

3.9 LEAVING THE LIFT CAR TOP

When leaving the lift car top, if the car top control station is not accessible from the lift landing, a car top stopping device should be accessible from the lift landing; this will allow the controls to be re-set in a safe manner.

- Position the car top at a convenient level relative to the landing
- Ensure the car top stopping device is in the STOP position
- Open landing doors and ensure that they are prevented from closing,
- Exit the car top and assume a safe position on the lift landing where possible,
- If it is possible to switch the Inspection/Normal changeover switch back to NORMAL position from the lift landing this should be done this way,
- If the Inspection/Normal changeover switch has to be operated whilst on car top, then this should be the final operation carried out before exiting the car top,
- The last operation before closing the landing doors is to reset the stopping device on the car top to the RUN position - this should always be done from the lift landing,
- Close the landing doors in a controlled manner and attempt to call the lift to the landing.

Leave the lift car top with care since movement of any powered operated doors may occur and entrapment with the door operating gear may result.
Section 4  **SAFE WORKING PRACTICES – PIT ACCESS**

Prior to working in the lift pit, it is essential that the integrity of the pit stopping devices be proved.

*Extra care should be taken when encountering lifts fitted with landing door interlock monitoring which may not allow these checks to be made in this way.*

**Note:** At all times whilst working in the lift pit area, landing entrance protection should be used.

### 4.1 INITIAL PIT ACCESS RISK ASSESSMENTS

Before accessing the lift pit an assessment of the lift pit and lift well should be made to identify any hazards present e.g.:

- Vulnerable persons in the vicinity
- Dangerous protrusions
- Moving pulleys and rope / chain
- Reduced headroom
- Reduced pit depth
- Identify the refuge space
- Check for any warning notices
- Integrity of pit floor
- Adequate working space to stand and operate the lift safely
- Pit stopping devices should be accessible on opening the landing door to the pit and from the pit floor
- Suitable means of safe access i.e. fixed or removable ladder,
- Note the position of stopping devices.

In addition the location of safety switches e.g. final limit switch, buffer return switch, pit access door interlock etc. should be noted as these could be used as an additional pit stopping device in an emergency.

**Where it is necessary to move the lift car whilst persons are within the lift pit this shall only be done by use of the car top controls or a secondary inspection control station, if fitted. Any movement shall be at inspection speed and should be clearly communicated to all persons present.**

Malfunctions of the pit stopping device may occur even after the verification checks have been performed, therefore the person(s) in the lift pit should always have a high level of awareness at all times.

### 4.2 PIT ACCESS - LANDING CALL AND RESPONSE CHECKS

The following procedures are considered normally sufficient to identify any faults in the landing call and response functions before accessing the pit. This is not exhaustive and some lifts may travel to the floor selected or will do a re-set run when the stop is re-set and due caution should be taken and additional checks carried out to verify the functions.
4.2.1 DOOR INTERLOCK, STOPPING DEVICE AND LANDING CALL RESPONSE CHECK

To check that the lift will not run when the landing door is opened, stay stopped when the pit stopping device is operated and then respond to a landing call, complete the following operations:-

- Send the lift up and when the lift is at the next floor above open the landing doors. If automatic doors are fitted, a brief delay – to allow door to open and close is advised before proceeding to next step,
- With the landing door(s) open, attempt to call the lift back to the landing, it should not respond.

**If the lift does not respond to the landing call then this has proved that the lift car will not call back to the landing when the landing door interlock is broken.**

- Close the landing doors and attempt to call the lift to the landing, it should respond,
- Send the lift up to the same position as above and open the landing doors. If automatic doors are fitted, a brief delay – to allow door to open and close is advised before proceeding,
- Place the pit stopping devices in the STOP position; this should be easily accessible from the lowest landing,
- Close the landing doors and attempt to call the lift to the landing,
- Lift should NOT respond to the landing call.

**If the lift does not respond to the landing call then this has proved that the lift car will not call back to the landing when the pit stopping device is in the STOP position.**

- Open the landing doors and reset the pit stopping devices to the RUN position,
- Close the landing doors and attempt to call the lift to the landing,
- Lift should RESPOND and return to the lowest landing.

**Note 1:** If the lift does not respond to the call at this test, then all future tests may not actually be testing the safety devices for function. If this is the case you may need to go to another floor to insert a landing call in order to prove the function of the safety devices.

**Note 2:** You should never enter the lift pit until at least one pit stopping devices has been proven and activated in the STOP position.

4.2.2 ADDITIONAL PIT STOPPING DEVICES

Where additional pit stopping devices are fitted, then each of these should be proven independently by following the procedure in 4.2.1 above with the exception of the landing door interlock check.

**If the lift does not respond to the landing call check in each instance then this has proved the additional pit stopping devices.**

**Note:** It should be ensured that before carrying out checks on additional pit stopping devices the first pit stopping device proven is in the STOP position before entering the lift pit.
4.2.3 POSSIBLE PIT STOPPING DEVICES FAULTS

- Sticking contacts in toggle type switches,
- Displaced contact blocks on push button type,
- Pit stopping devices wired incorrectly.

4.3 SECONDARY INSPECTION CONTROL STATION

Modern lift designs may provide a secondary inspection control station in the lift pit where machinery is to be maintained or inspected from the pit and if this work requires movement of the car.

The integrity of this control station should be verified in a similar manner to the car top control station in section 3 of this document.

When a secondary inspection control station is provided in the pit a permanently installed device shall be provided to stop the car at up to rated load and rated speed to create a free distance of at least 2 metres from the pit floor to the lowest part of the car.

Note: Where there are two inspection control stations provided if INSPECTION mode is selected on both of these stations this will preclude any movement of the lift unless the same push buttons on each station are operated simultaneously.

4.4 NO PIT STOPPING DEVICE

Access to the pit shall be made only after isolation of the lift power supply. If this is not practical and no other means of isolation is suitable, the pit should not be accessed.

After the lift power supply has been isolated, the following check should be made before accessing the lift pit:

- With all doors closed, attempt to call the lift to a landing.

If the lift does not respond to the landing call, then this has proved that the lift is isolated.

4.5 LEAVING THE LIFT PIT

When leaving the lift pit, a pit stopping device should be accessible from the lift landing; this will allow safe egress from the lift pit.

- Position the car at a convenient level relative to the landing (if secondary inspection control used)
- Ensure that the pit stopping device accessible from the landing is in the STOP position
- Switch the Inspection/Normal changeover switch back to NORMAL position (if secondary inspection control used)
- Open landing doors and ensure that they are prevented from closing
- Exit the lift pit and assume a safe position on the lift landing where possible
- The last operation before closing the landing doors is to reset the pit stopping device to the RUN position - this should always be done from the lift landing
- Close the landing doors in a controlled manner and attempt to call the lift to the landing
Section 5  **REPORTING AND ADVICE TO LIFT OWNERS FOLLOWING THE THOROUGH EXAMINATION**

The following advice whilst aimed primarily at the CP carrying out the thorough examination should also be followed by other persons required to work on the lift.

### 5.1 UNSHROUDED TOGGLE TYPE SWITCHES

Where this type of switch, stopping device, inspection/normal switch or push button is provided in the car top control or for a pit stopping device, the report of thorough examination should contain a recommendation to the effect that:

- All unshrouded toggle type switches should be shrouded to prevent inadvertent operation,
- Replace with controls designed to guard against accidental operation,
- All stopping devices conform to the requirement with BS 7255: Annex B1.2.1 and B1.2.2.

### 5.2 CAR TOP AND PIT STOPPING DEVICE ACCESSIBILITY

If the car top or pit stopping device cannot be reached from the landing threshold/access point while the landing doors are open, a recommendation should be made on the report of thorough examination to the effect that:

- A car top stopping device should be provided within 1 metre of the landing threshold/access point
- A pit stopping device should be provided that can be operated from the lowest landing threshold/access while the landing door is open.

This comment should also be made where the car is provided with more than one car entrance, e.g.: "through car" accessible above lowest level served.

### 5.3 CAR TOP CONTROL STATION PROVIDED DOES NOT COMPLY WITH BS EN81-1 & 2 or BS EN81-20

Where the car top control station that is provided does not meet the minimum safety standard specified in BS EN 81-1 & 2 or BS EN81-20 and/or significant risks are present, a recommendation should be made on the report of thorough examination to the effect that:

- A conclusion from this thorough examination is that the lift installation can no longer be safely and satisfactorily examined as an inherently safe means of controlling the lift from the car top was not available. A compliant car top control should be provided which meets the requirements of BS EN 81-20 as a minimum (See Figure 3).

Where the car top control station that is provided does not meet the minimum safety standard specified in BS EN81-1 & 2 or BS EN81-20 but there is NO significant risk present, then a thorough examination may be carried out and a report issued, with a recommendation stating that a BS EN81-20 compliant car top control station should be fitted (See Figure 3).

### 5.4 NO CAR TOP CONTROL STATION PROVIDED ON THE LIFT CAR TOP

Where work duties cannot be performed using the lift car top as a stationary work platform, then under no circumstances is the work to be carried out. Provided the lift is fitted with a functioning safety gear then this should be reported as follows:
A compliant car top control should be provided which meets with the requirements of BSEN 81-20 as a minimum. (See Figure 3).

5.5 REFURBISHMENT/MODERNISATION

Where the lift installation is to be refurbished or modernised, it should be recommended that:
The car top control system should be upgraded to the build standard for new lifts BS EN81-20 as a minimum.
BIBLIOGRAPHY

1  The Health and Safety at Work Etc Act.
2  The Management of Health and Safety Regulations.
3  Provision and Use of Work Equipment Regulations.
4  Lifting Operations and Lifting Equipment Regulations.
5  Work At Height Regulations.
6  BS 7255 - Code of Practice for Safe Working on Lifts.
7  BS EN81-1 - Safety Rules for the Construction and Installation of Lifts - Electric Lifts.
8  BS EN81-2: - Safety Rules for the Construction and Installation of Lifts - Hydraulic Lifts.
9  BS EN81-20 - Safety Rules for the Construction and Installation of Lifts - Lifts for the Transport of Persons and Goods.
10 LEIA/SAFed Risk Assessment - Adequacy of Lift Car Top Controls.

Note: It is the reader’s responsibility to check for the latest version/revision of these publications.