

motion and progress

The Tiger MK-II MRL System

Measures for safe operation

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0 The purpose of this document

This document details the measures that the lift builder and/or control-system builder must implement to ensure the safe operation of the TIGER MRL lift system.

Furthermore, all the requirements of EN 81-2 must be satisfied. In addition, be sure to comply with the country-specific standards; there are various different regulations and restrictions.

1 Ensuring the shelter height in the shaft pit



Danger

Danger to be crushed

The car support partly descending into the shelter zone can cause death or very serious injuries.

No car movements are permitted while any work is being carried out in the shaft pit.

It is only allowed to stay in the shaftpit with an empty car.

Important: Please note that the regulations in some countries do not permit the operation of a lift with reduced shaft pit.

TIGER requires a shaft pit depth of only 300 mm. TIGER allows for the placement of the lift machine inside the shaft. In order to guarantee sufficient shelter height during maintenance work on the lift machine, measures must be taken to prevent the car from descending into the shelter. These measures are:



- Use of an overspeed governor with an anti-creeping feature (included in the BUCHER supply if specified for reduced shaft pit)
- By guaranteeing the shelter height by means of a temporary mechanical end-stop (the strike plate - included in the BUCHER supply)

1.1 Anti-creeping feature

The anti-creeping feature on the overspeed governor releases the safety gear as soon as the coil on the anti-creeping device is de-energised. When specified for reduced shaft pit the coil for the anti-creeping device is included in the BUCHER supply.

Technical data for the coil:

General characteristics	Description, value, unit
Voltage/Current	12 [V]DC / 1.1 [A] or 24 [V]DC / 0.55 [A]

1.1.1 The lift builder and/or control-system builder must make provision for the following:

- The design must ensure that the coil of the anti-creeping feature can only be energised when the lift safety circuit is closed.
- The preparations for entering the shaft must include a check that there are no people and no loads in the car.
- The emergency door release (bistable) for the bottom landing doors must be monitored electrically. The lift safety circuit must open as soon as this emergency door release is operated. This switching state may only be reset by a manual reset operation at the controller.

- An interlock must be used to ensure that the access to the shaft pit remains open.

1.2 Temporary shelter zone

As soon as a person enters the shaft pit, the first step must be to create the temporary shelter zone. This is done by manually deploying the strike plate, which is equipped with electrical monitoring (included in the BUCHER supply).

The shelter zone for safe working on the lift drive is now ensured.

Important: The temporary shelter zone may be used for service/maintenance purposes only. If personnel needs to stay in the shaft pit in order to carry out a repair, the shelter must be secured by means of an independent steel gantry.

Important: The following notices must be clearly visible in the shaft pit:

- Press the emergency stop switch
- Danger to be crushed, extend the strike plate

1.2.1 The lift builder and/or control-system builder must make provision for the following:

- It must be possible to interrupt the lift safety circuit by means of an emergency stop switch, accessible from the access door and from the shaft pit.
- The extended strike plate must interrupt the lift safety circuit.

1.2.2 Restoring normal operation:

1. The strike plate must be manually retracted (electrical monitoring)
2. Check that there is no longer anyone in the shaft pit
3. Emergency stop switch must be set back
4. The access door to the shaft pit must be locked
5. Manual reset at the controller

2 Ensuring the shelter height in the shaft head

2.1 Protection

Important: Please note that the regulations in some countries do not permit the operation of a lift with reduced headroom.

2.1.1 The lift builder and/or control-system builder must make provision for the following:

- Before personnel go onto the car roof, preparations must include a check that there are no people and no loads in the car.
- For the landing doors that allow access to the car roof, either the emergency door release (bistable) must be monitored electrically or the car roof must be monitored by a pressure-sensitive mat. The lift safety circuit must open as soon as any of these devices is operated. Further car movements must not be possible. This switching state may only be reset by a manual reset operation at the controller. Travel at revision speed can be enabled by switching on the revision travel switch on the car roof.
- Travel distance in the upward direction must be limited by two separate limit switches: the upper switch (always included in the BUCHER supply) is the final limit switch at normal operation while the lower switch (included in the BUCHER supply if specified for reduced headroom) secures the shelter height in the shaft head.

2.1.2 Restoring normal operation:

1. The revision switch on the car roof must be switched off
2. Check that there is no longer anyone on the car roof
3. Manual reset at the controller.
 - ┆ This must only be possible after confirmation that there is no longer anyone on the car roof.

3 Emergency lowering

Emergency lowering is performed by pressing the emergency-lowering lever on the service unit.

3.1 The lift builder and/or control-system builder must make provision for the following:

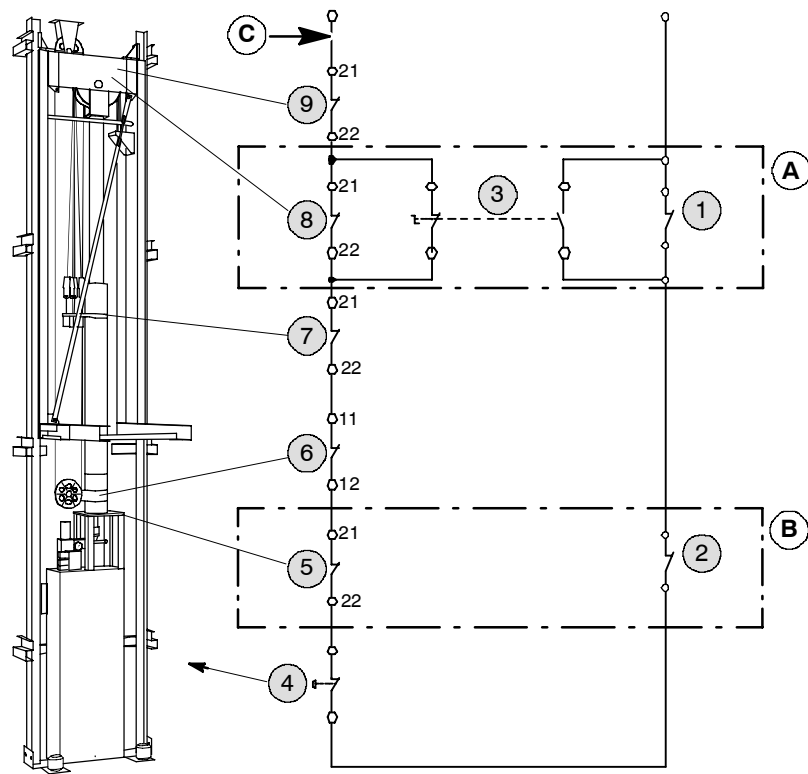
- For emergency lowering, ensure that the coil for the creep-preventer on the overspeed governor is energised. This energisation must also be possible during a failure of the mains power supply. There is no mandatory requirement to monitor the necessary battery, however.
- The service unit must be under lock and key (as a minimum, protected by a triangular lock).
- For service, a small area must be kept clear around the service unit.
- It must be possible to protect the area around the service unit with a service barrier (to be provided by the customer).
- The illumination in the vicinity of the service unit must be at least 200 Lux.

4 Car apron

4.1 The lift builder must make provision for the following:

- There must be a car apron (0.75 metres long) conforming to EN 81-2 (not included in the BUCHER supply). If the shaft depth is less than the length of the apron, the apron must have a folding mechanism.

5 Wiring the switches into the safety circuit



Tiger_Sicherheitskette

Legend	1	Monitoring contacts for emergency door release (all entrances to car roof) Important: the switching state may only be reset by manual reset operation at the controller
	2	The monitoring contact for emergency door release (access to shaft pit) Important: the switching state may only be reset by manual reset operation at the controller
	3	Inspection travel switch
	4	“Emergency stop in shaft pit” switch
	5	“Strike plate in home position” switch
	6	“Tension-weight” switch
	7	“Slack-rope” switch
	8	Final limit switch – inspection (secures shelter height in the shaft head)
	9	Final limit switch (normal operation)
	A	Only with reduced headroom in the shaft head
	B	Only with reduced shaft pit
	C	Loop the safety circuit through this path

Notes

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