14 Indicator and operating elements

There are additional indicators and operating elements available for retrofitting.

	WARNING
	**Before working on the device be sure to switch off the switchboard and earth the device.**

With retrofitting:

→ Switch off and discharge the spring (page 24 – 2)

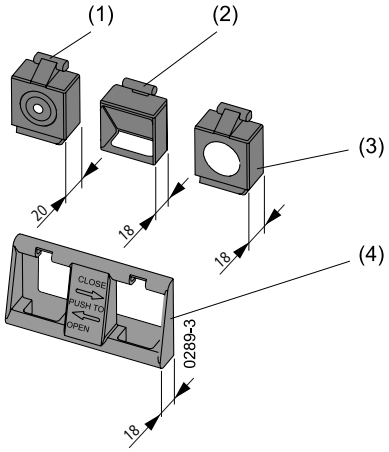
→ Remove front panel (page 24 – 6)

	Designation	**Part no.**
14.1	Locking set for mechanical ON and OFF	IZM-XVD
14.2	Emergency-Stop pushbutton	(+)IZM-XPV
14.3	Key operation for mechanical ON or OFF, including 1 off safety lock, manufacturer CES	(+)IZM-XVD-CES
14.4	Electrical ON pushbutton with key operation, including 1 off safety lock, manufacturer CES	(+)IZM-XEE-C
	Electrical ON pushbutton with sealing flap	(+)IZM-XEE-TP
14.5	Make-break operations counter	(+)IZM-XSZ
14.6	Motor cut-off switch	(+)IZM-XMS

Electrical ON and motor cut-off switch cannot be combined with one another.

14.1 Locking set

The locking set is necessary, if the operation of the mechanical ON and OFF have to be adapted by various accessories, to special operation requirements of the switchboard. (e.g. Emergency-Stop pushbuttons, safety locks, access blocks for tool operation, seals).



Scope of supply:

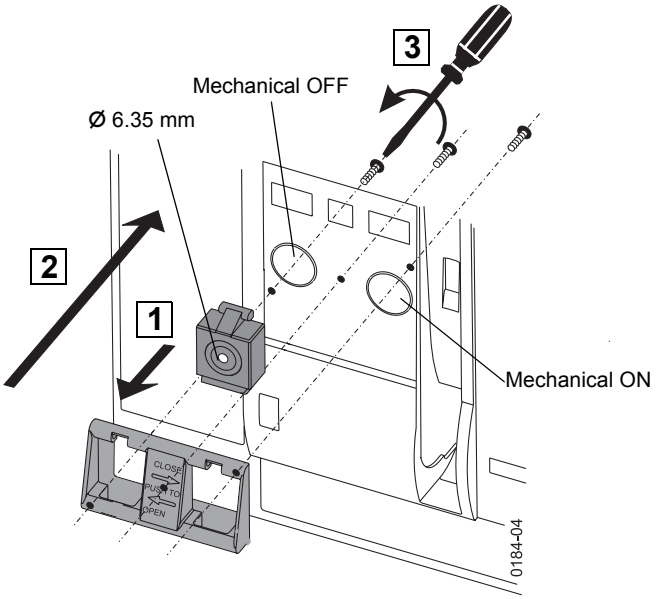
(1) 2 access blocks
(2) 2 off sealing caps for sealing or fitting a padlock
(3) 2 safety lock holders for key operation
(4) 1 baseplate

14.1.1 Retrofitting of access inhibiter over mechanical ON/OFF button

(for tool operation)

Contained in the IZM-XVD locking set.

CAUTION
Tighten self-tapping screws carefully!



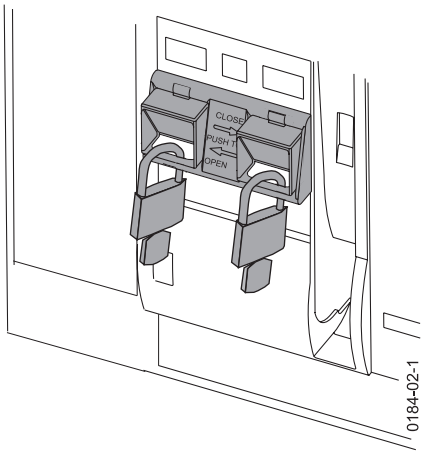
Then:

– Install front panel (→ page 24 – 13)

14.1.2 Locking device for Mechanical OFF/ON button

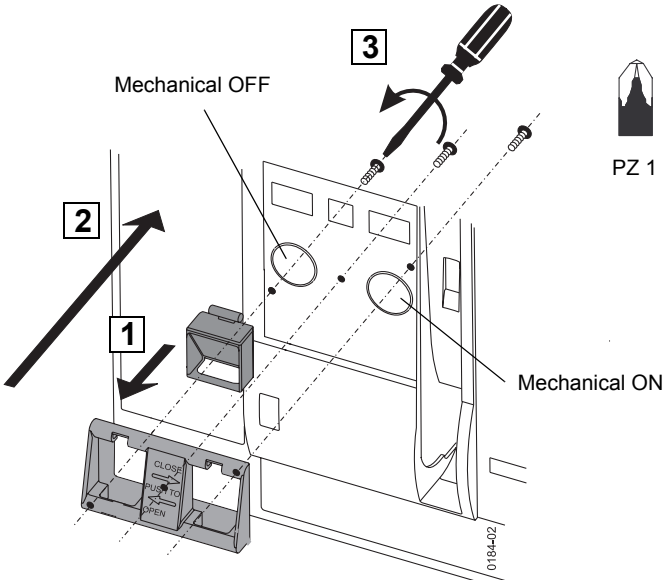
(Can be used for padlock or sealing wire)

Contained in the IZM-XVD locking set. Padlocks are not included.



Retrofitting sealing cap

CAUTION
Tighten self-tapping screws carefully!

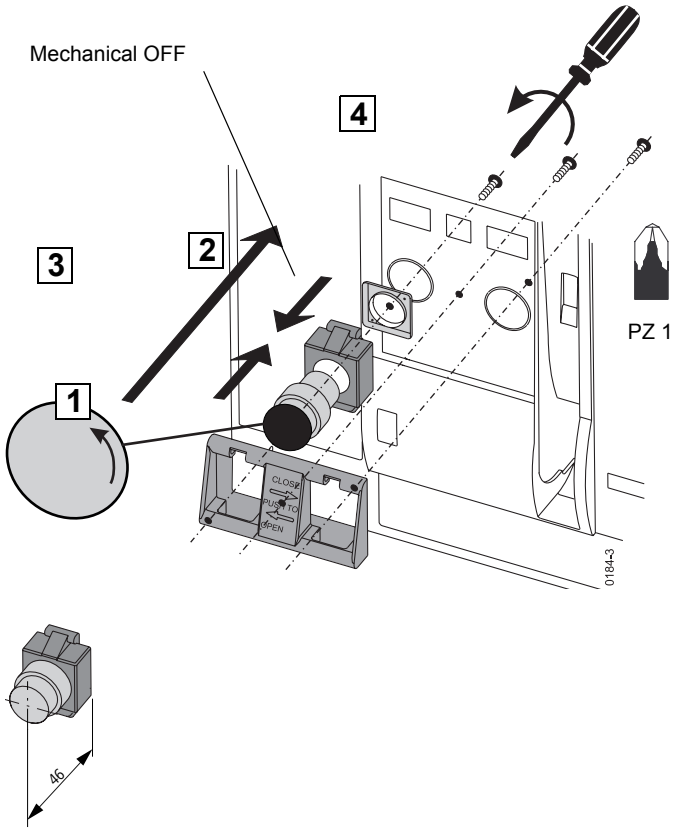


Then:

– Install front panel (→ page 24 – 13)

14.2 Emergency-Stop mushroom-headed pushbutton

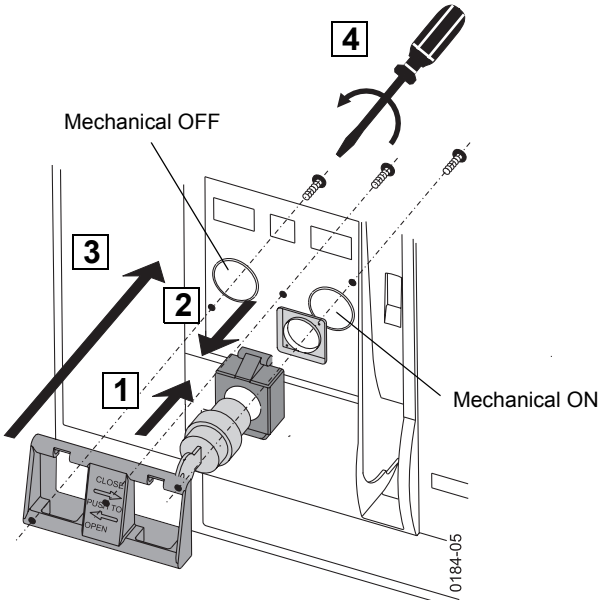
CAUTION
Tighten self-tapping screws carefully!



14.3 Retrofitting for key operation for mechanical ON or OFF

Supplied items: Locking set including padlock, 1 off, manufactured by CES for mechanical OFF or ON.

CAUTION
Tighten self-tapping screws carefully!



Then:

– Install front panel (→ page 24 – 13)

Additional information → page 15 – 1

14.4 Electrical ON pushbutton

– Retrofitting electrical ON (→ page 13 – 5)

– Lock-out device for electrical ON (→ chapter 15)

14.5 Mechanical operations counter

– (→ page 12 – 2)

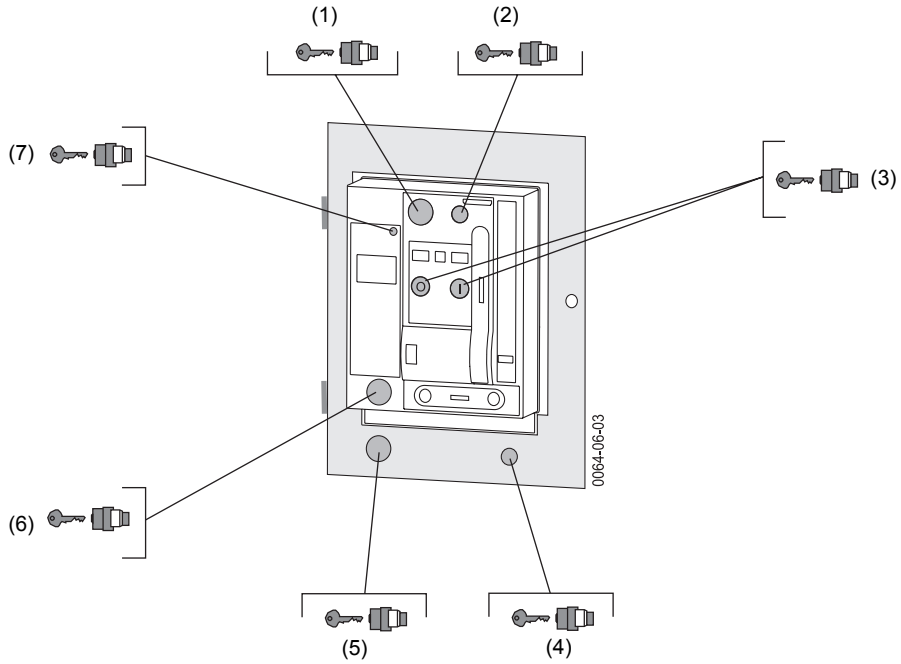
14.6 Motor cut-off switch

– (→ page 12 – 3)

15 Locking devices

15.1 Safety locks

→ Equipment for padlocks (page 15 – 14)



	Safety lock	Reaction	Part no.	Makes
1	Device for locking in OFF position (front panel)	This function prevents closing of the circuit-breaker and fulfils the disconnection conditions in the OFF position according to IEC 60947-2, EN 60947-2. This lock only functions on this circuit-breaker. After an exchange of circuit-breakers the switch-on is no longer prevented as long as the new circuit-breaker is not secured against unauthorised switch-on. To activate the lock, the circuit-breaker must be open. If the circuit-breaker is closed, the locking device is blocked. The block is only effective if the key is withdrawn. The safety key can only be removed in “OFF” position. (→ page 15 – 2)	(+)IZM-XVDM (+)IZM-XVDM-R (+)IZM-XVDME-C The CASTELL lock has to be ordered separately from the manufacturer.	CES RONIS Castell mounting kit
2	Electrical ON with locking device	The locking device prevents unauthorized closing on the front panel. Mechanical closing and remote closing are still possible. The block is only effective if the key is withdrawn.	(+)IZM-XEE-C (Electrical ON without lock-off device page 13 – 5)	CES
3	Key protected operation for Mechanical ON or for Mechanical OFF	Prevents unauthorized mechanical closing. The mechanical ON button can only be pressed if the key is inserted (key operation). Closing via “electrical ON” button and remote closing are still possible. The block is only effective if the key is withdrawn. (→ page 14 – 3) Prevents unauthorized mechanical tripping. The mechanical OFF button can only be pressed if the key is inserted (key operation). Remote tripping is still possible. The block is only effective if the key is withdrawn. (→ page 14 – 3)	(+)IZM-XVD-CES ≙ Locking set IZM-XVD + 1 off cylinder lock	CES
4	Locking device against moving from the disconnected position	Prevents the removal of the hand crank in the disconnected position with withdrawable units. Transmission of the blocking signal from the lock to the circuit-breaker through Bowden cables. Circuit-breaker replacement is possible. The block is only effective if the key is withdrawn. (→ page 15 – 5)	(+)IZM-XV-AV (+)IZM-XV-R-AV Cannot be combined with (+)IZM-XVV, (+)IZM-XVK-AV	CES RONIS

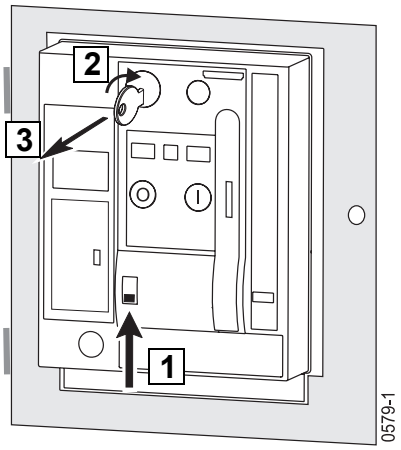
	Safety lock	Reaction	Part no.	Makes
5	Device for locking in OFF position (panel door)	This special function for withdrawable units prevents closing and fulfils the disconnecting condition in OFF position regardless of the circuit-breaker. Unauthorized closing is also not possible after circuit-breaker replacement. To activate the lock, the circuit-breaker must be open. If the circuit-breaker is closed, the locking device is blocked. The block is only effective if the key is withdrawn. The safety key can only be removed in “OFF” position. (→ page 15 – 10)	(+)IZM-XVZ-AV (+)IZM-XVZ-R-AV	CES RONIS
6	Locking device for racking handle	Prevents drawing out of the racking handle. The circuit-breaker is locked against moving. The block is only effective if the key is withdrawn. (→ page 15 – 11)	(+)IZM-XVK-AV Cannot be combined with (+)IZM-XVV, (+)IZM-XV-(R-)AV	CES
7	Locking device against reset trip indicator	A lockable cover prevents pressing the reset button after overcurrent tripping. (→ page 15 – 13)	Included in +IZM-XHB(G) “Cover for setting buttons” (→ page 9 – 45)	

15.1.1 Retrofitting the interlocking mechanism in the OFF position (operating panel) – safe OFF

When the key is removed the circuit-breaker is secure against reclosing.

Locking

To activate the lock the circuit-breaker must be switched off.



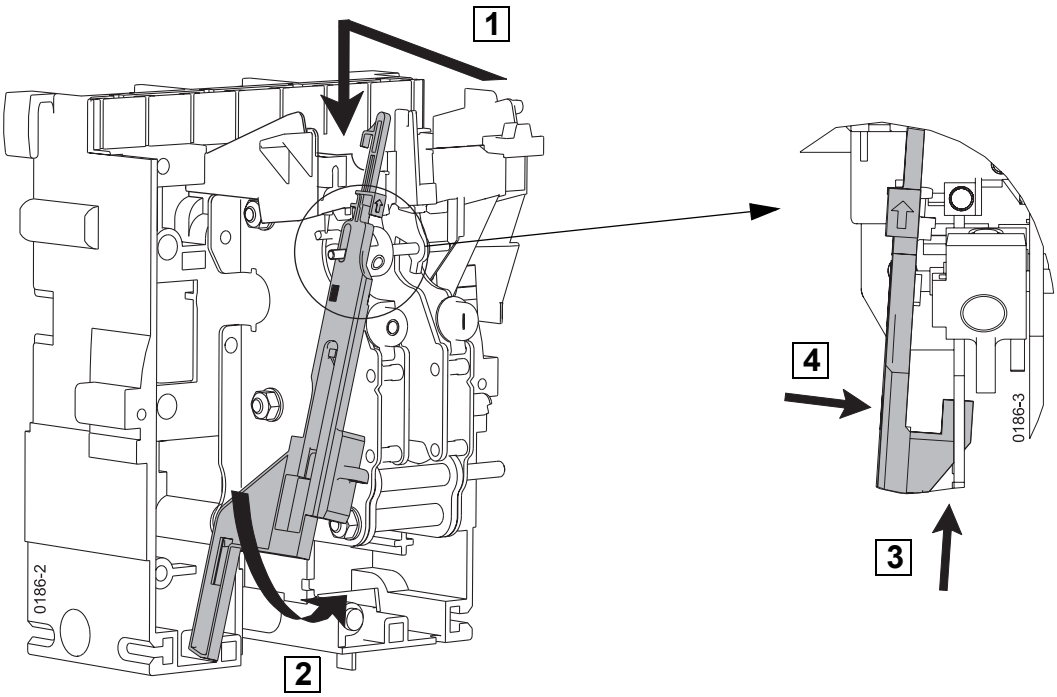
Retrofitting

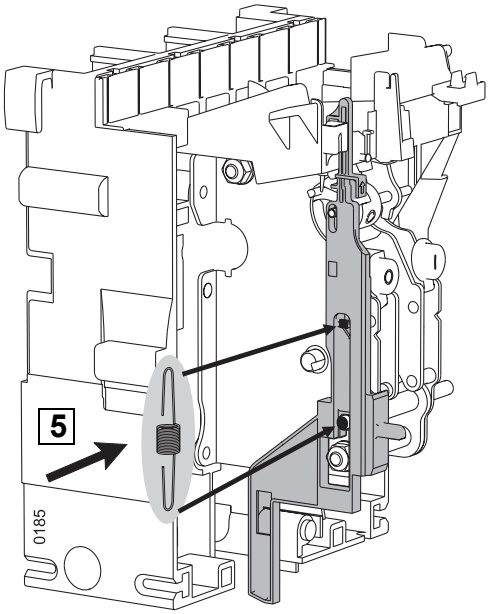
– Switching off and discharging the spring(→ page 24 – 2)
– Remove front panel (→ page 24 – 6)

Fitting control gate

(Already available for withdrawable circuit-breakers)

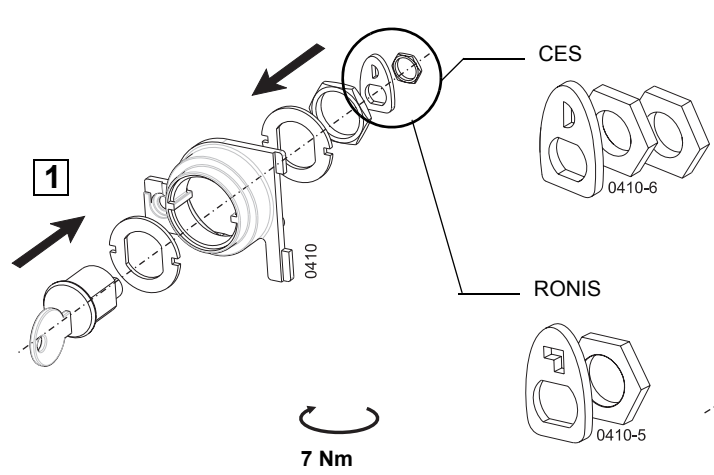
– Remove overcurrent release (→ page 9 – 39)

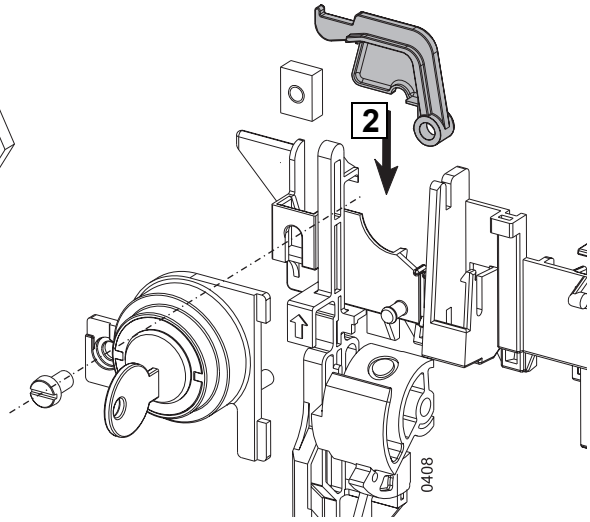


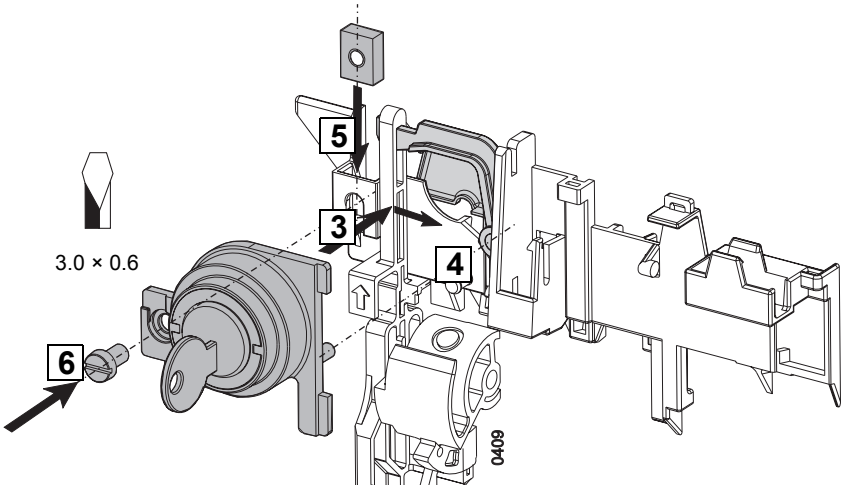


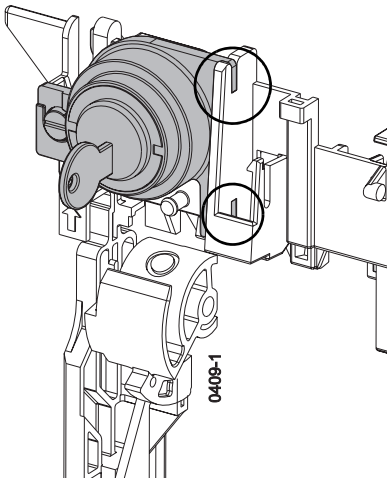
Installing safety lock

For safety lock types: RONIS, CES

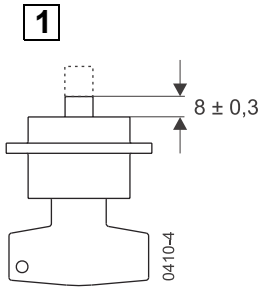


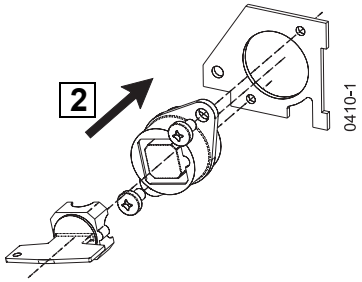


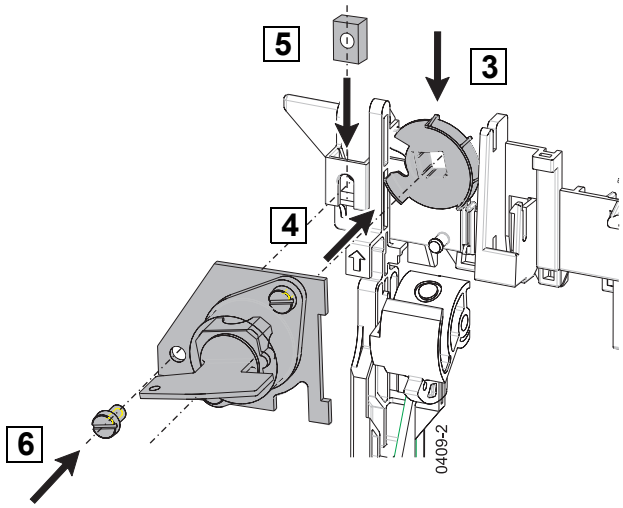




For safety lock type CASTELL



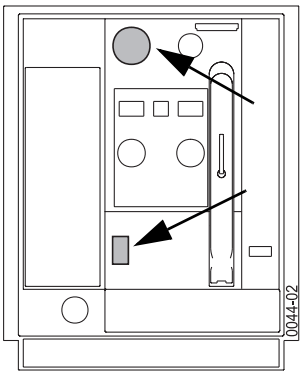


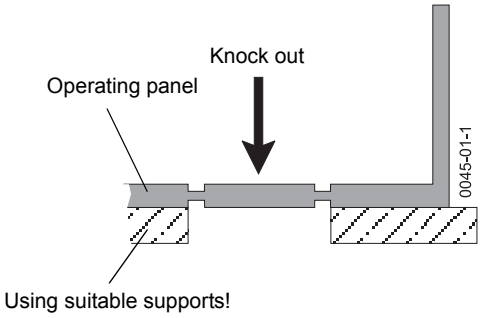


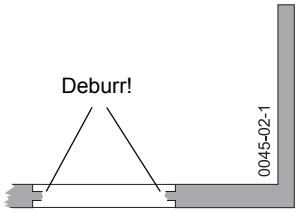
Specification CASTELL lock	
Lock type:	FS2
Symbols (up to 3):	Defined by costumer
Spigot:	Square 9.5 mm^2
Length:	8 mm

Specification CASTELL lock	
Rotation:	65° anticlockwise
Options, accessories, keys:	Defined by costumer

Knock out fields on the front panel







Then:

– Install overcurrent release (→ page 9 – 39)
– Install front panel (→ page 24 – 13)

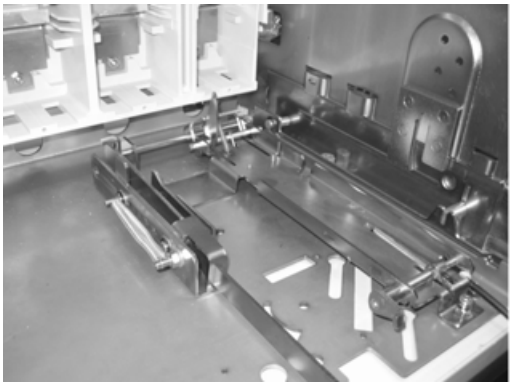
15.1.2 Retrofitting safety lock for electrical ON

– → Retrofitting Electrical ON (page 13 – 5)

15.1.3 Retrofitting for key operation for mechanical ON or OFF

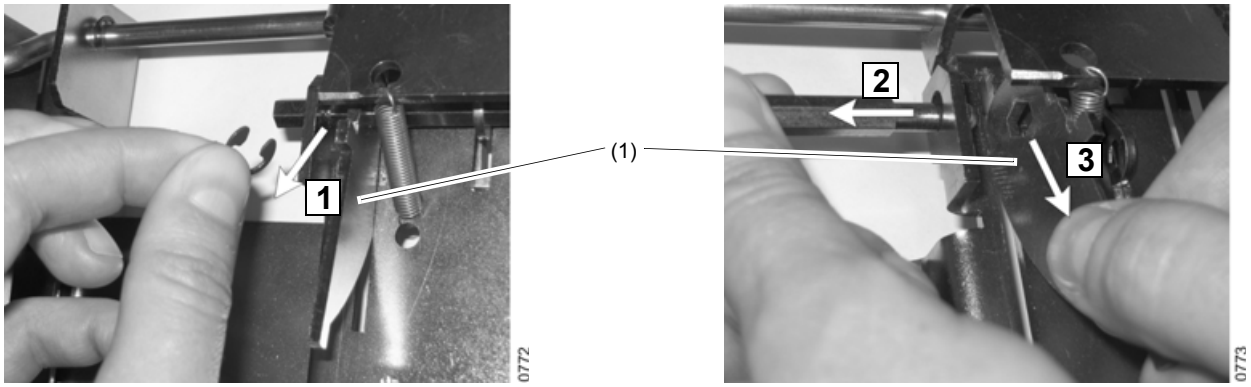
– (→ page 14 – 3)

15.1.4 Retrofitting locking device against moving from the disconnected position



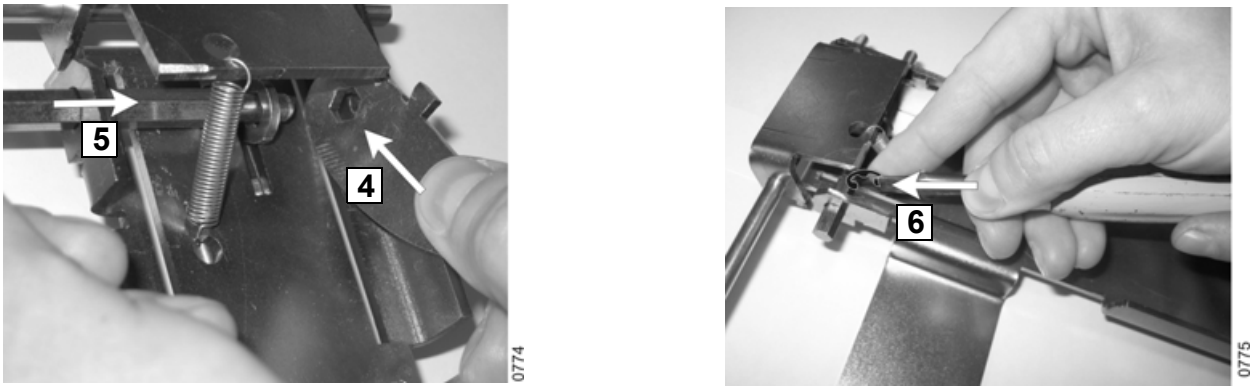
– Switching off and discharging the spring(→ page 24 – 2)
– Remove the circuit-breaker from the withdrawable unit (→ page 24 – 7)

Only for IZM(IN).3-... changing detection plate



(1) detection plate

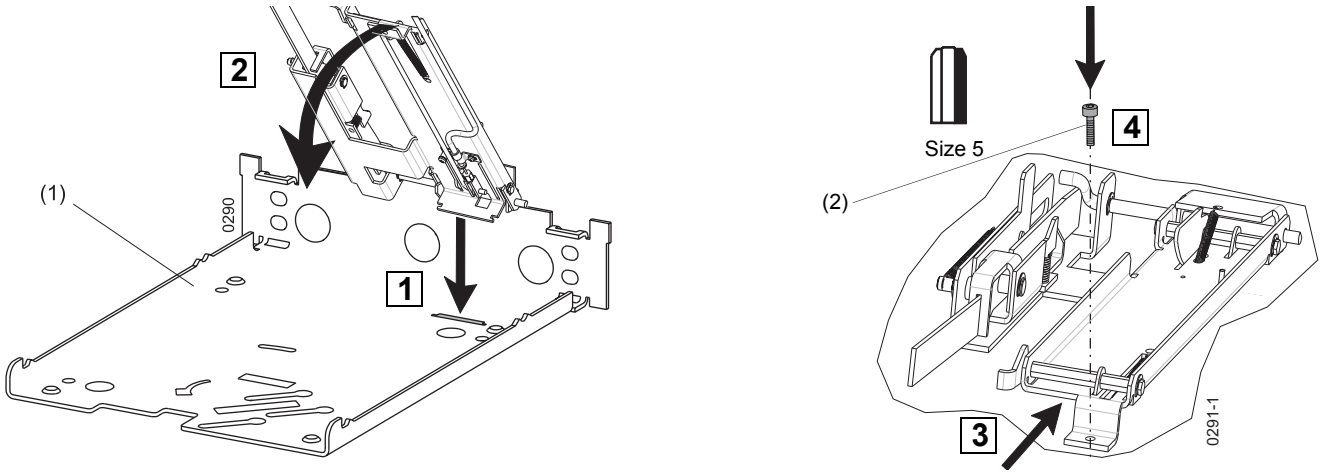
1 remove safety screw
2 pull out shaft
3 remove detection plate



4 place detection plate on the other side
5 push in shaft
6 replace safety screw

Fitting base plate with Bowden cables

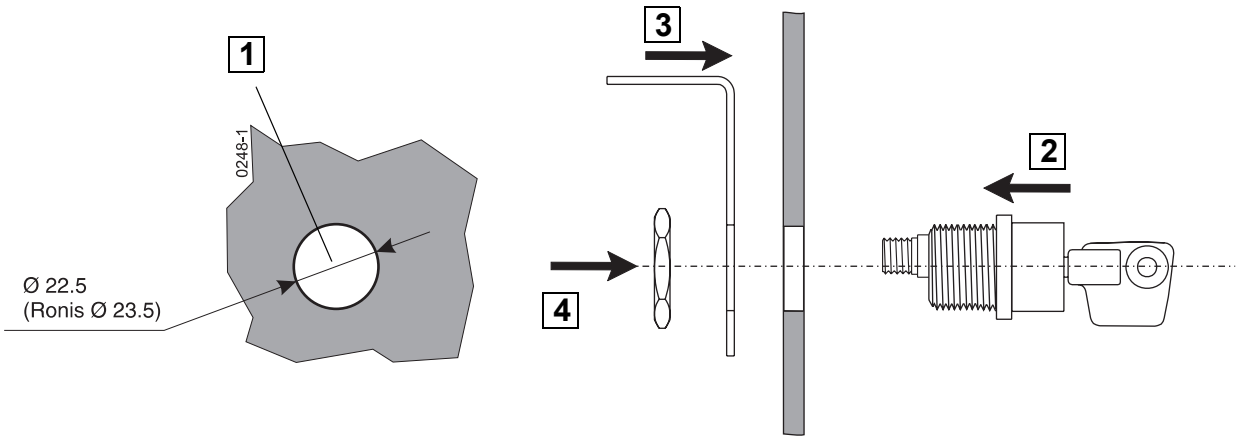
CAUTION
Tighten self-tapping screws carefully!



(1) Withdrawable unit base plate
(2) Self-tapping screw M6

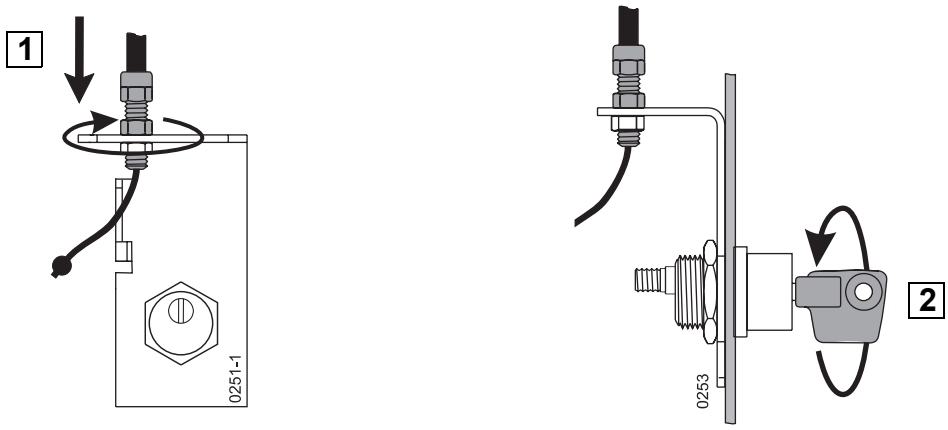
Installing safety lock

Select a suitable position on the switchboard for installation taking into account the length of the Bowden cable and the dimensions of the lock assembly.

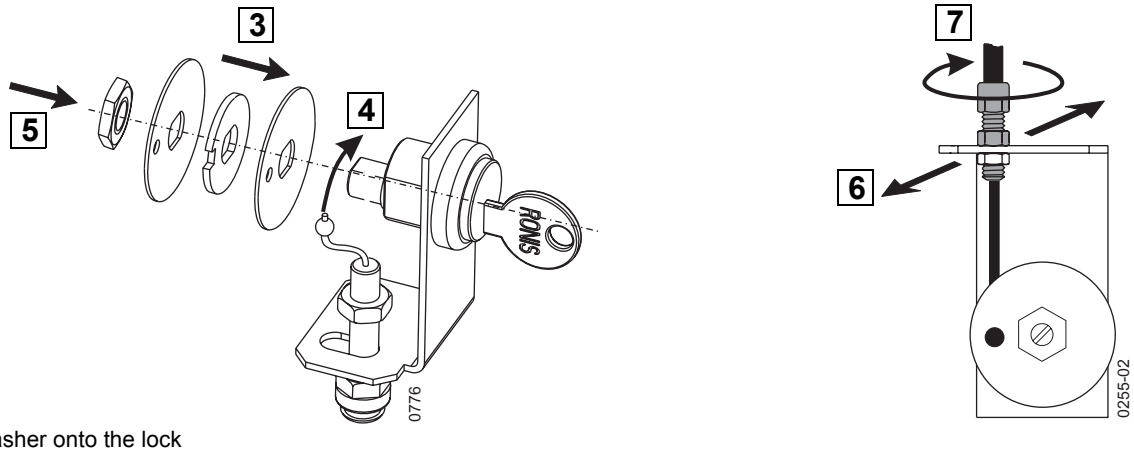


1 Drill hole into panel door
2 **… 4** mount lock assembly

Mount the Bowden cable

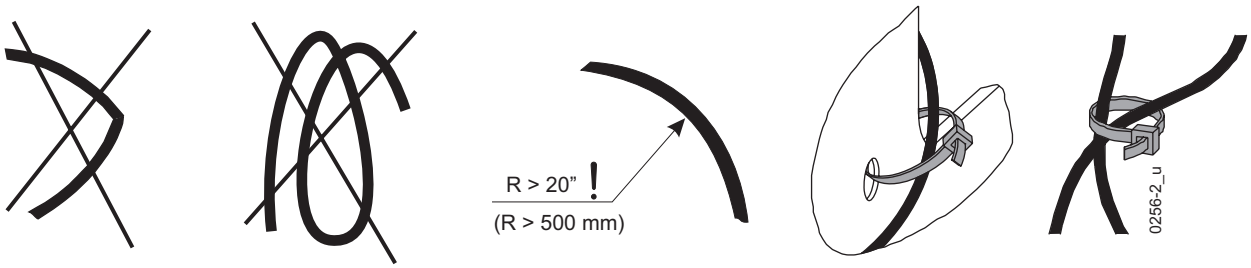


1 Fix the Bowden cable loosely on the bracket
2 Turn the key completely to the left



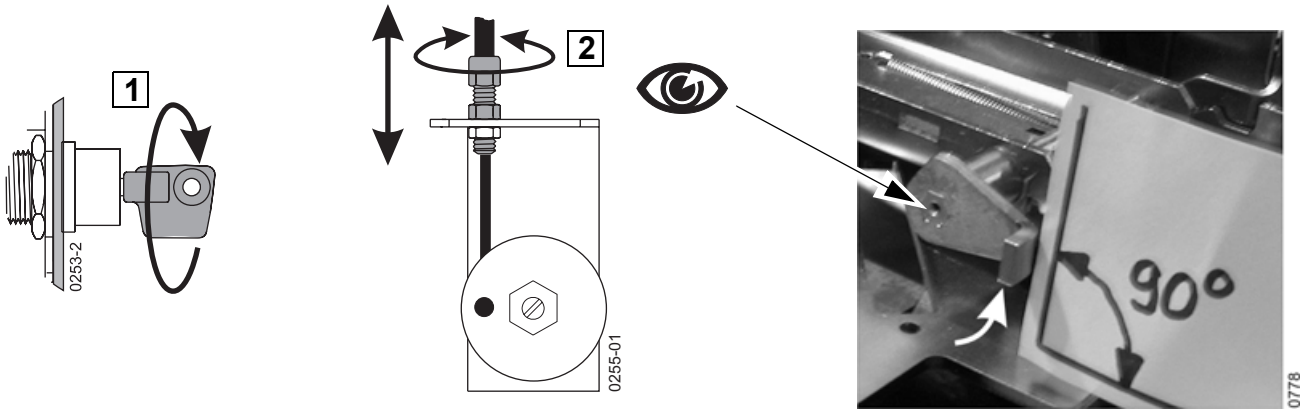
3 Place washer onto the lock
4 Place the ball of the Bowden cable between the washers into the cutout
5 Fix the washers with the nut
6 Arrange the Bowden cable so that the core can run smoothly between the washers.
7 Tighten the Bowden cable

Laying the Bowden cables



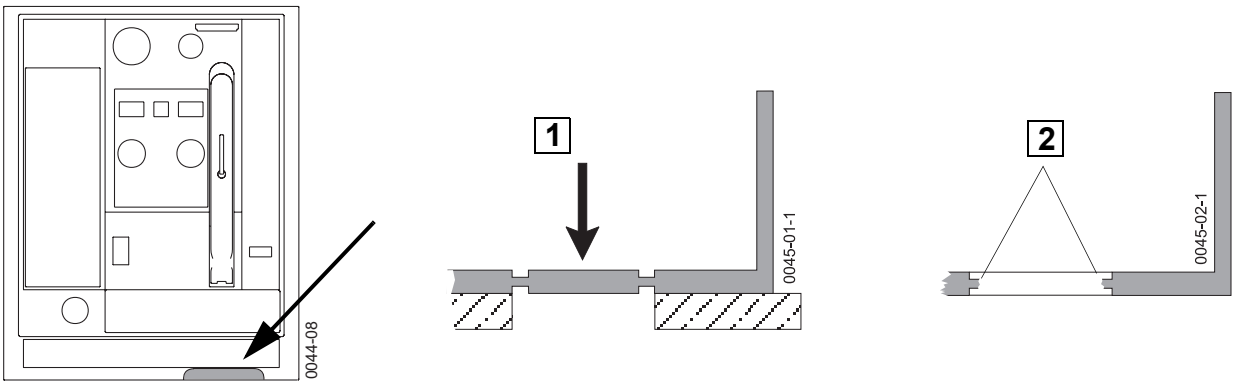
Adjusting the Bowden cables

To adjust, close switchboard door, or when are other routes for the Bowden cable!



1 Turn the key to the right (close)
2 Adjust the Bowden cable until the mechanism is in the vertical position shown

Knock out front panel



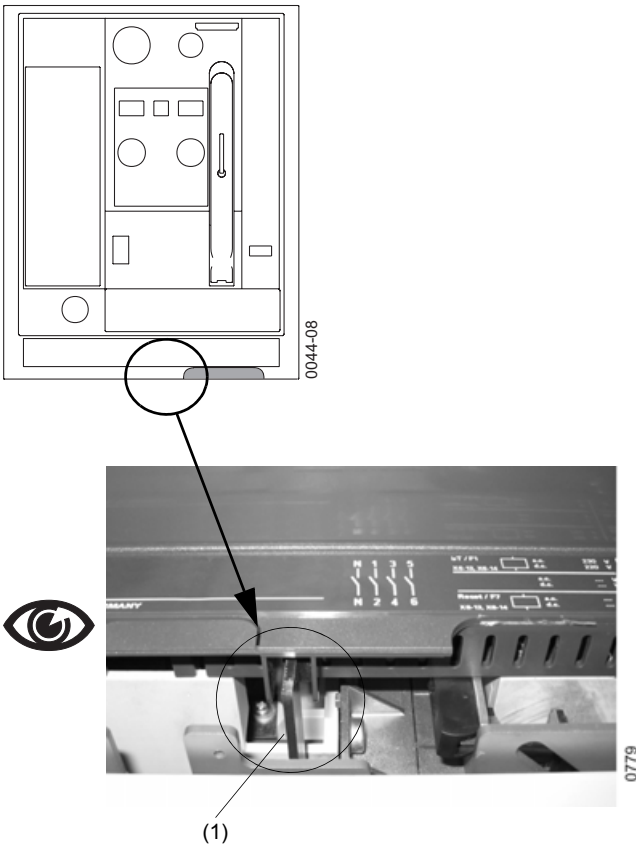
1 Knock-out section from operating panel; use suitable support
2 Deburr the edges

Then:

– Install front panel (→ page 24 – 13)

Final check

– Open interlock
– Place the circuit-breaker in the withdrawable unit and slide to the disconnected position (→ page 6 – 1)
– Check that the lever A is in the middle of the cutout on the operating panel and can move freely. If necessary remove the circuit-breaker and adjust the lever.



(1) Lever A

– Close the panel door
– Rack the circuit-breaker into connected position

Note

The closing interlock against racking from the disconnected position can **only** be activated in the disconnected position or with an empty withdrawable unit.

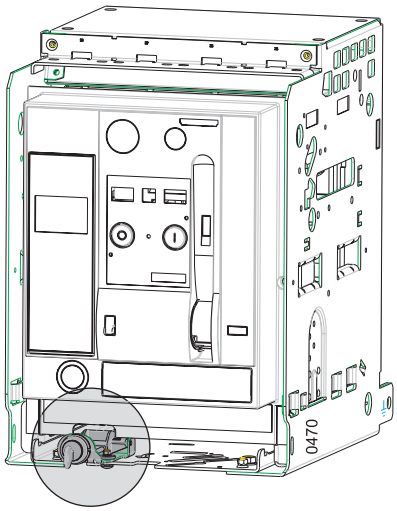
Activation is effected by turning the key clockwise and then withdrawing it.

The key cannot be turned and withdrawn in test or connected position.

When the closing interlock is activated the circuit-breaker cannot be racked or removed from the withdrawable unit. It is also not possible to place a circuit-breaker in the withdrawable unit.

To remove the racking handle block, move the key a little to the right first, so that the block in the lock is released all by itself.

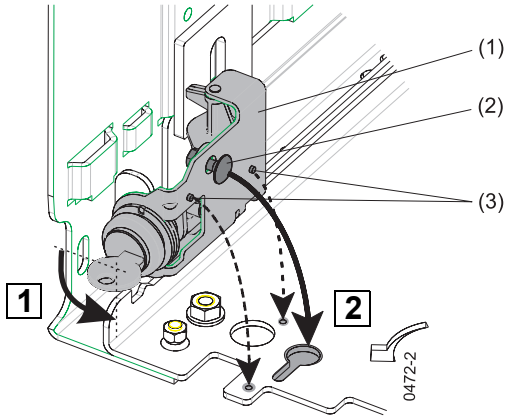
15.1.5 Retrofitting device for locking in the OFF-position (panel door)

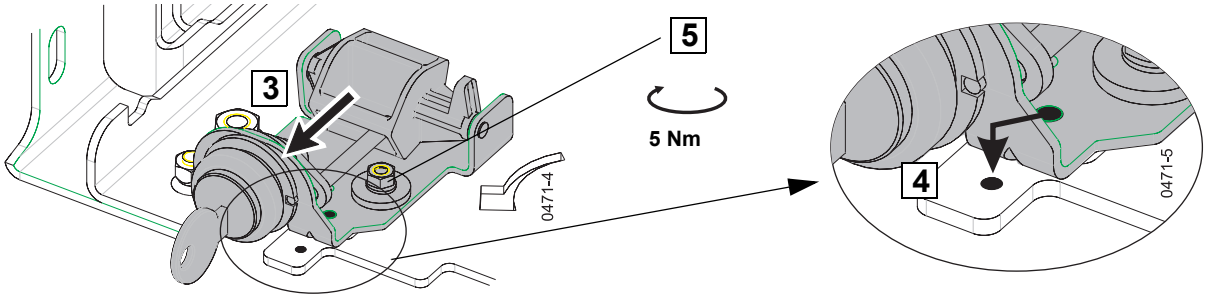


	WARNING
	Before working on the device be sure to switch off the switchboard and earth the device.

– Switching off and discharging the spring(→ page 24 – 2)
– Remove front panel (→ page 24 – 6)

Fitting locking unit



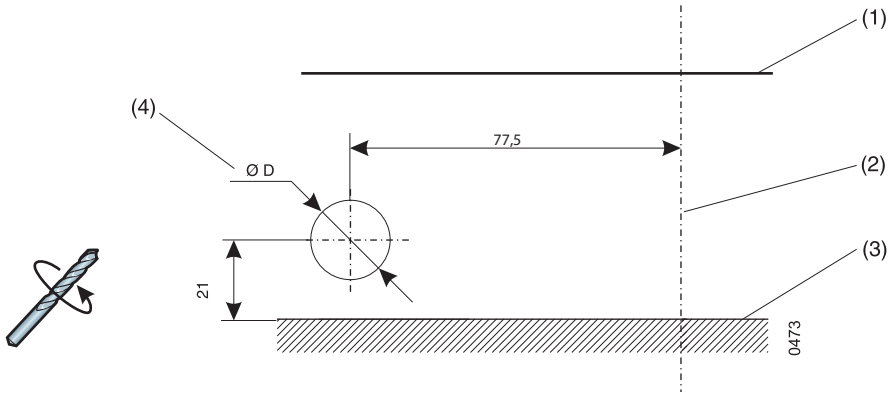


(1) Locking unit
(2) Coach bolt M5 with washer and screw
(3) 2 adjusters

Then:

– Install front panel (→ page 24 – 13)

Drill hole into panel door



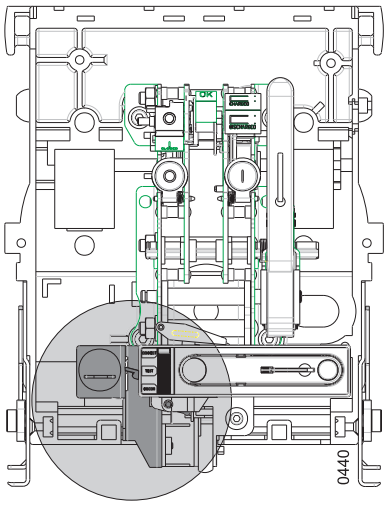
(1) Lower edge of door cut-out
(2) Centre of front panel
(3) Mounting surface of circuit-breaker or of withdrawable unit
(4) Hole diameter D according safety lock type +1 mm

Observe the information on Page 15-2! (mode of oeration)

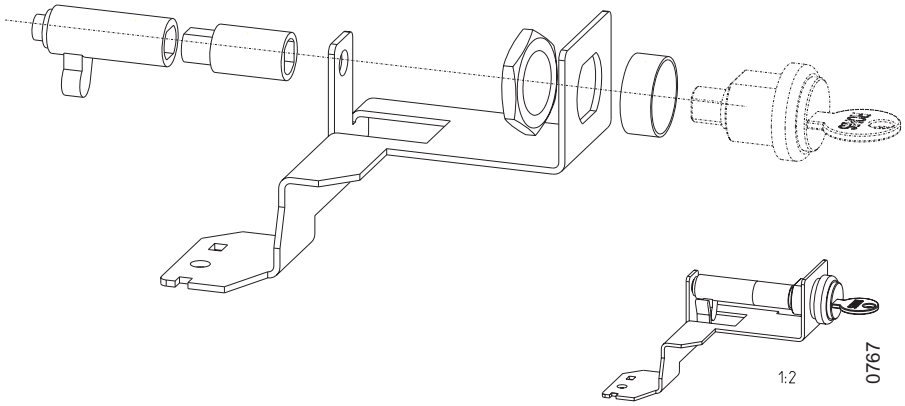
15.1.6 Retrofitting locking device for racking handle

	WARNING
	**Before working on the device be sure to switch off the switchboard and earth the device.**

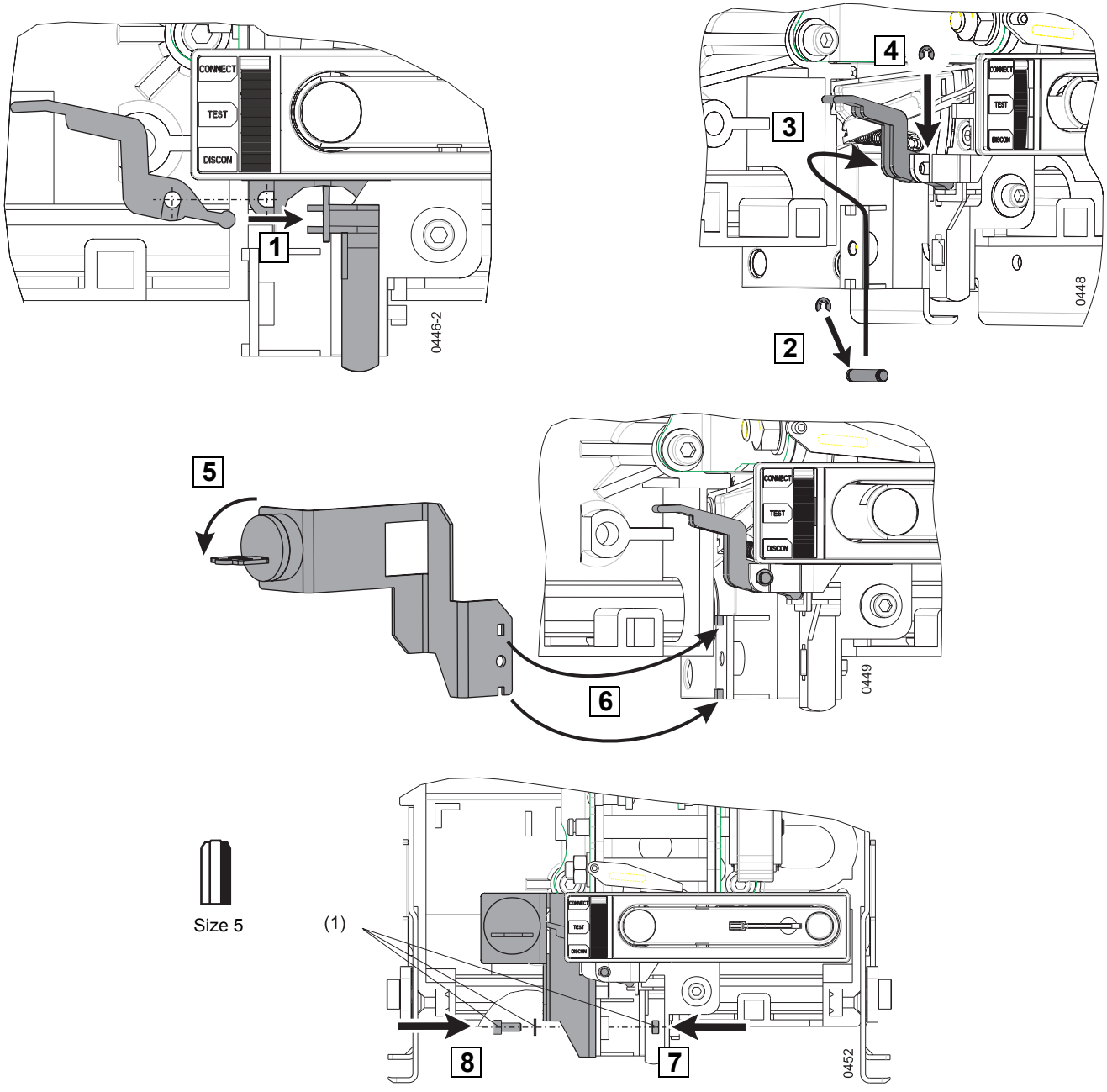
– Switching off and discharging the spring(→ page 24 – 2)
– Remove front panel (→ page 24 – 6)



Lock assembly pre-assembly

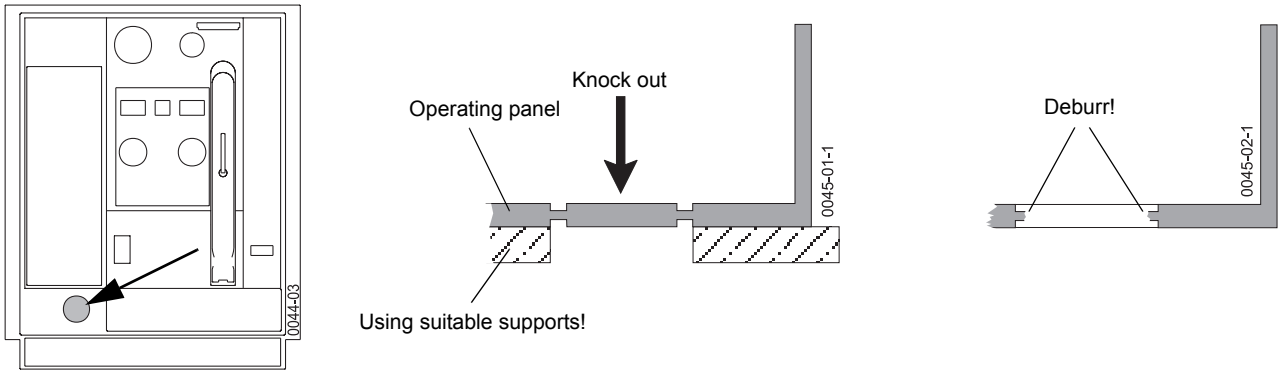


Fitting



(1) Hexagon socket screw M6 with washer and nut

Knock out field on the front panel

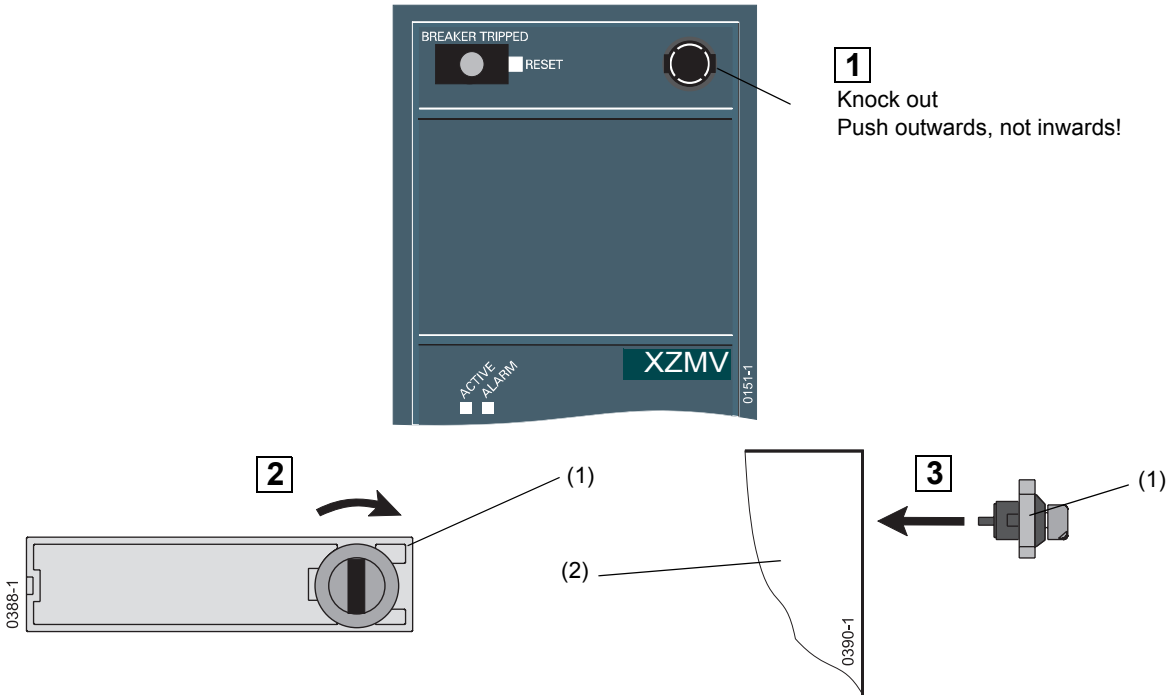


Then:

– Install front panel (→ page 24 – 13)

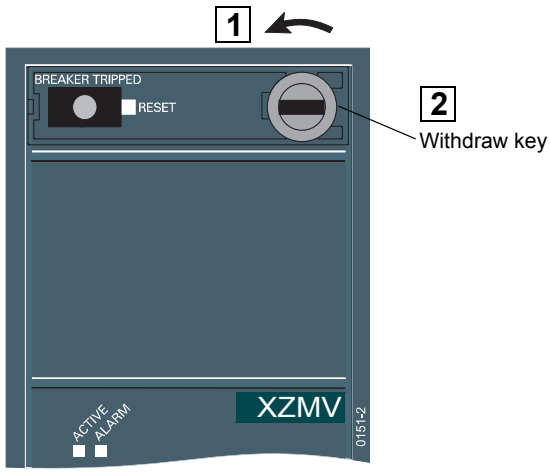
15.1.7 Retrofitting locking device for reset button

– Switching off and discharging the spring(→ page 24 – 2)



(1) Cover with lock
(2) Overcurrent release

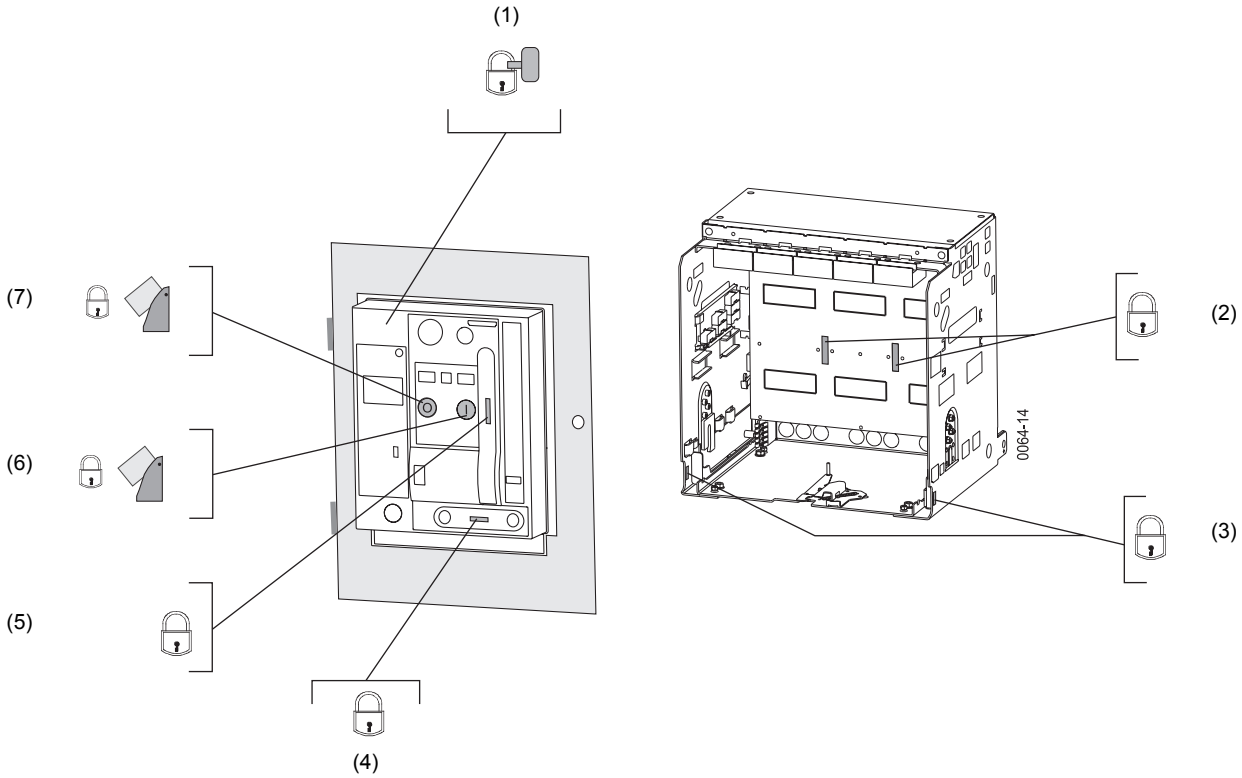
Locking



15.2 Equipment for padlocks

Padlocks are not included.

→ Safety locks (page 15 – 1)

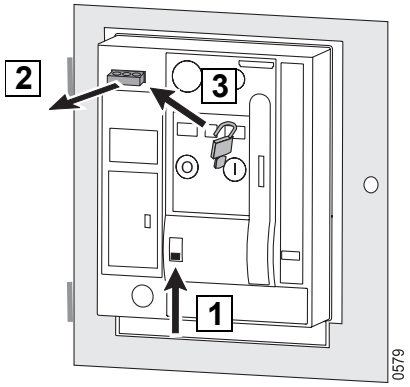


	Locking device	Reaction	Part no.
1	Locking bracket for “Safe OFF”	The locking bracket for “Safe OFF” can be locked with up to 4 padlocks Ø 6 mm. The circuit-breaker cannot be closed and the disconnecting condition in OFF position is fulfilled.	(+)IZM-XVDMV
2	Shutters	If the circuit-breaker has been taken out, the shutters can be padlocked in various positions. (→ page 15 – 16)	Standard
3	Guide rails	The guide rails can be locked with 2 padlocks so that they cannot be drawn out anymore. It is not possible to insert a circuit-breaker in the withdrawable unit. (→ page 15 – 17)	Standard with withdrawable units
4	Racking handle	Drawing out of the racking handle can be prevented by fitting a maximum of 3 padlocks. The circuit-breaker is locked against moving. (→ page 15 – 18)	Standard with withdrawable units
5	Spring charging lever	The spring charging lever can be padlocked. The storage spring then cannot be charged manually. (→ page 15 – 18)	IZM-XVS
6	Mechanical ON	Operation of the mechanical ON button can be prevented by locking the sealing cover with a maximum of 3 padlocks. Closing via “electrical ON” button and remote closing are still possible. (→ page 14 – 2)	This locking device is included in the (+)IZM-XVD locking set.
7	Mechanical OFF	Operation of the mechanical OFF button can be prevented by locking the sealing cover with a maximum of 3 padlocks. Remote tripping is still possible. (→ page 14 – 2)	This locking device is included in the (+)IZM-XVD locking set.

15.2.1 Locking bracket for “Safe OFF”

If the locking bracket is pulled out and the padlock is fitted, the circuit-breaker is secured against closing.

Locking

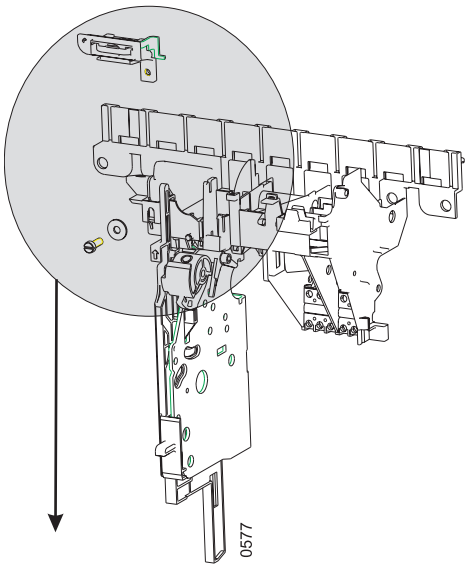


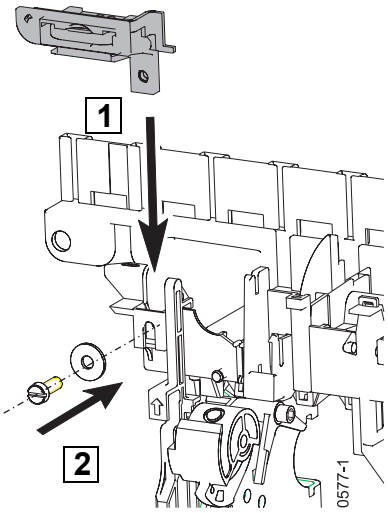
Retrofitting

	WARNING
	**Before working on the device be sure to switch off the switchboard and earth the device.**

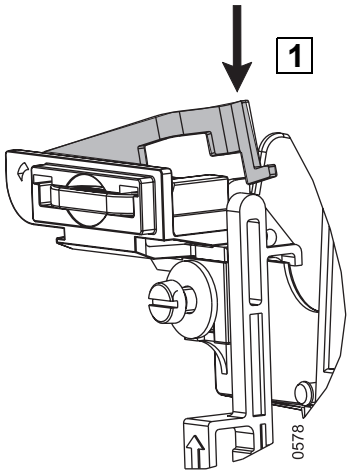
– Switching off and discharging the spring(→ page 24 – 2)
– Remove front panel (→ page 24 – 2)
– Install control gate if not available (→ page 15 – 3)

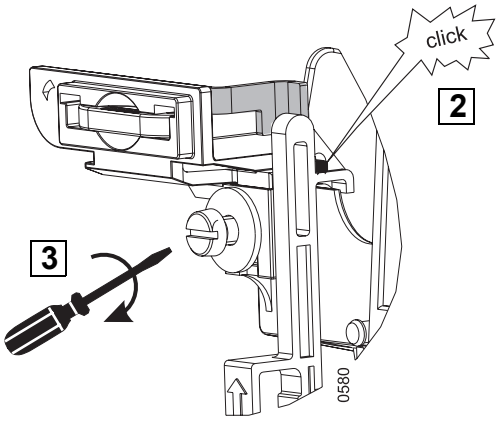
Fitting locking bracket



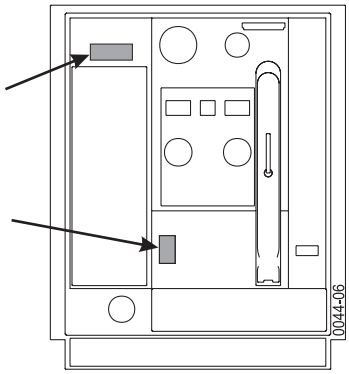


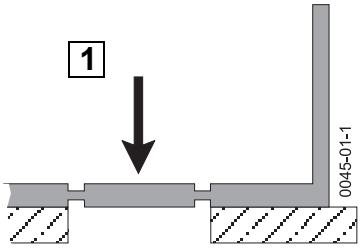
Latching plate in control gate

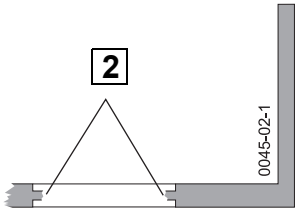




Knock out front panel







1 Knock-out section from operating panel; use suitable support
2 Deburr the edges

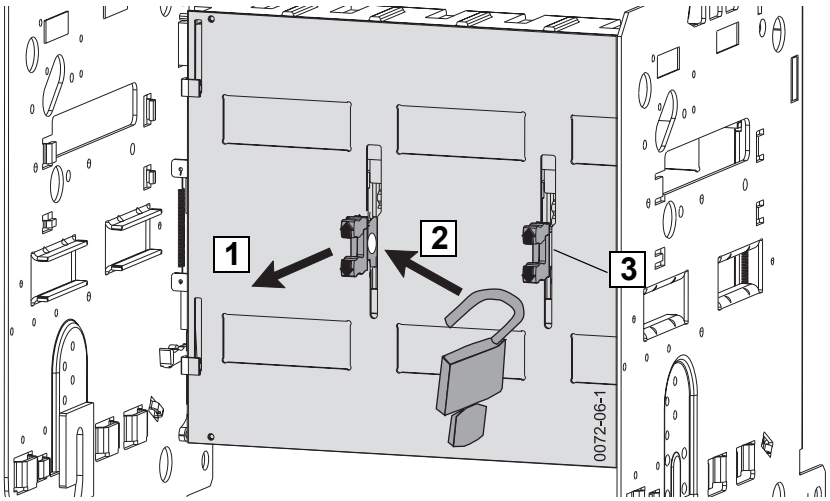
Then:

– Install front panel (→ page 24 – 13)

15.2.2 Locking device for shutters

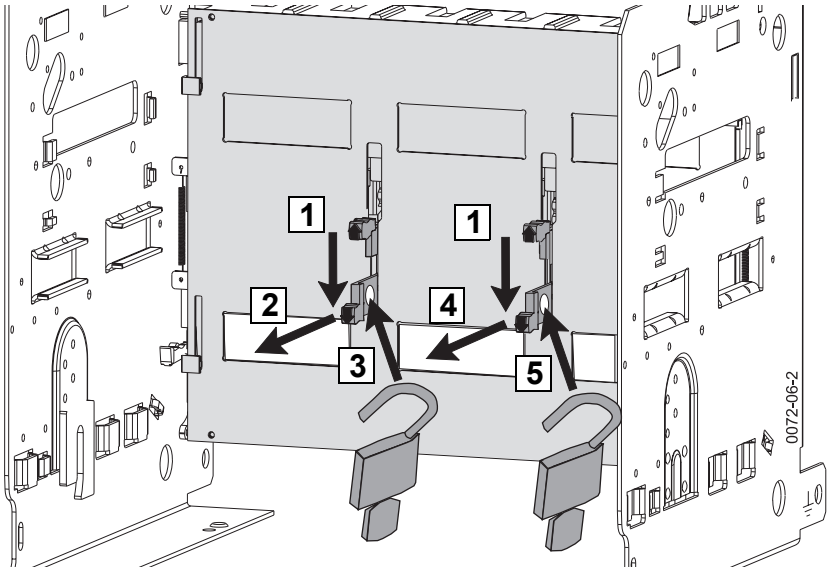
The shutters can be padlocked in various positions, e.g.:

Shutter totally closed



1 Pull both strip raisers to the front until the elongated hole is visible.
2 Fit padlock and lock
3 Proceed in the same way with the other two strip raisers

Shutter below opened

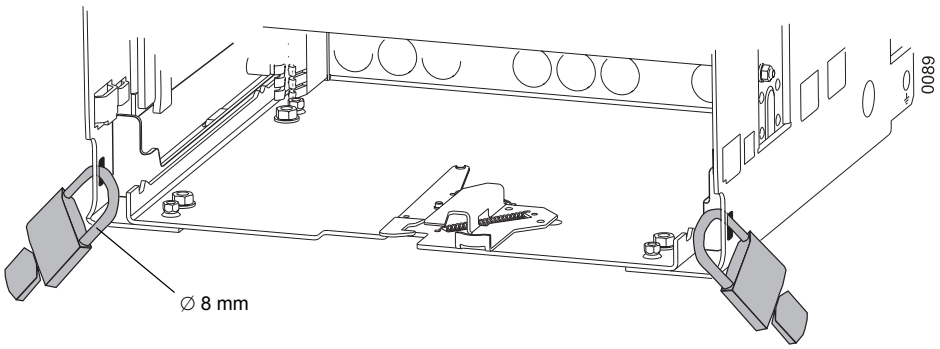


CAUTION
Remove the padlocks at the shutter before moving the circuit-breaker to the connected position!

→ Retrofitting shutters (page 19 – 1)

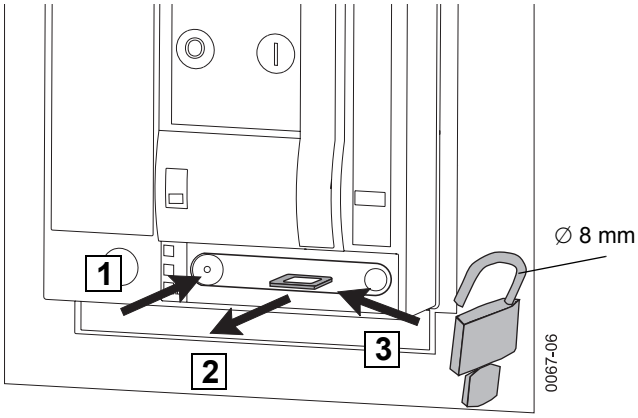
15.2.3 Locking device for guide rails

Available as standard.

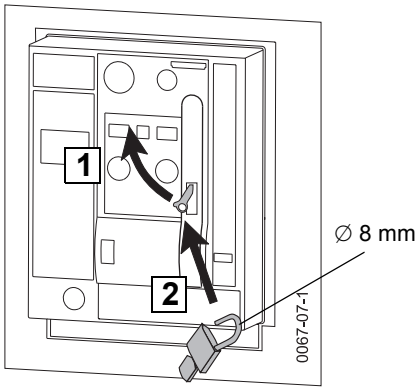


15.2.4 Locking device for racking handle

Available as standard.
Up to 3 padlocks possible.

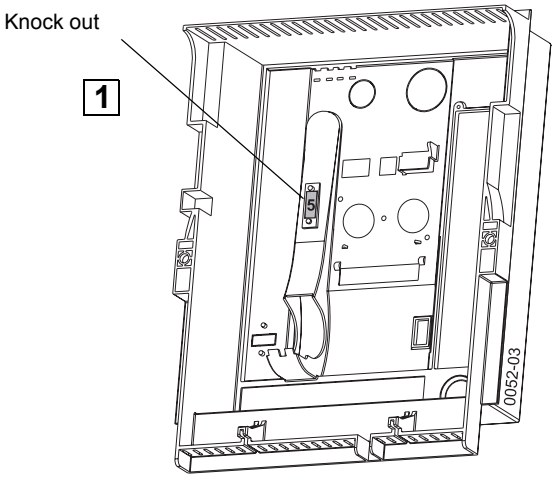


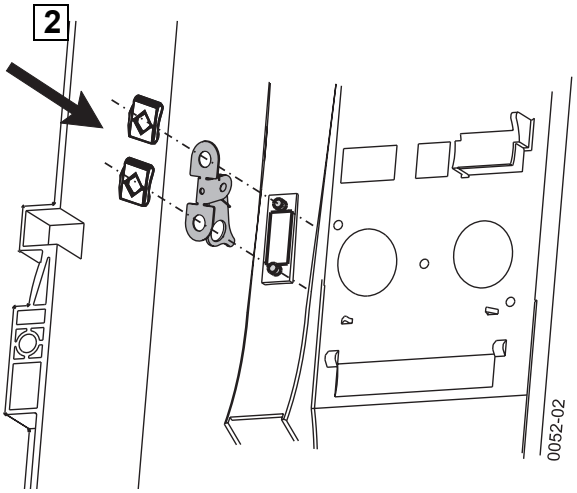
15.2.5 Locking device for spring charging lever



Retrofitting

– Switching off and discharging the spring(→ page 24 – 2)
– Remove front panel (→ page 24 – 6)





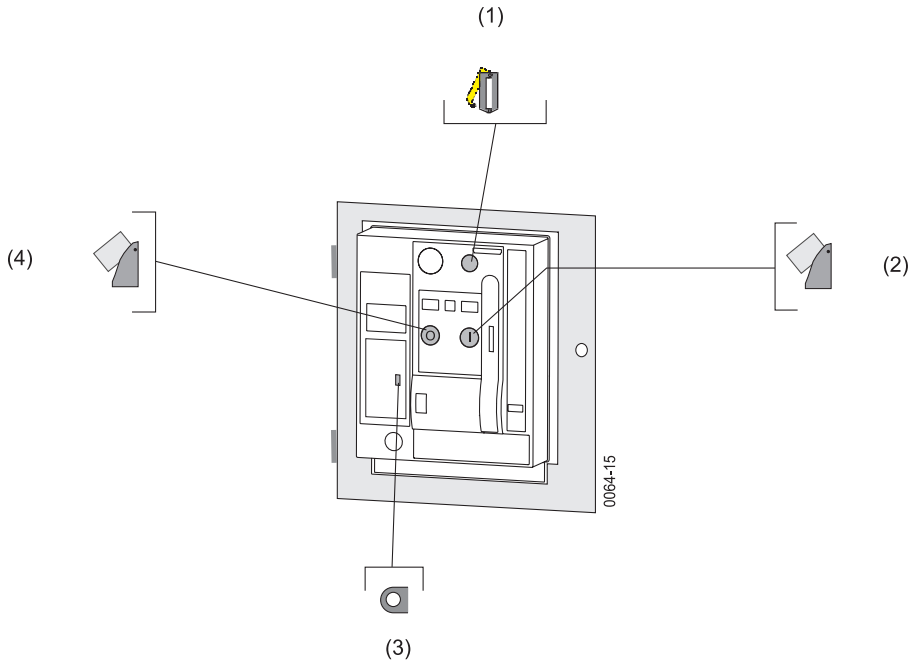
Then:

– Install front panel (→ page 24 – 13)

15.2.6 Locking device for Mechanical OFF/ON button

– (→ page 14 – 2)

16 Sealing fixtures



	Sealing device	Part no.
1	Sealing flap on electrical ON button	(+)IZM-XEE-TP
2	Sealing flap on mechanical ON button	Contained in the IZM-XVD locking set.
3	Overcurrent release without graphic display sealing device	(+)IZM-XHB
	Digital release with graphic display sealing device	(+)IZM-XHBG
4	Sealing flap on mechanical OFF button	Contained in the IZM-XVD locking set.

Sealing cap electrical ON

→ Retrofitting Electrical ON (page 13 – 5)

Sealing cover for Mechanical ON and OFF

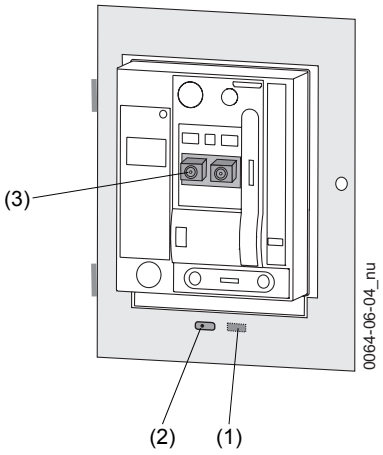
→ Retrofitting sealing cap (page 14 – 2)

Over current release sealing device

→ Sealing and locking equipment (page 9 – 45)

→ Retrofitting locking device for reset button (page 15 – 13)

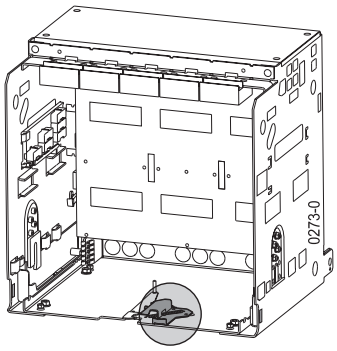
17 Locking devices



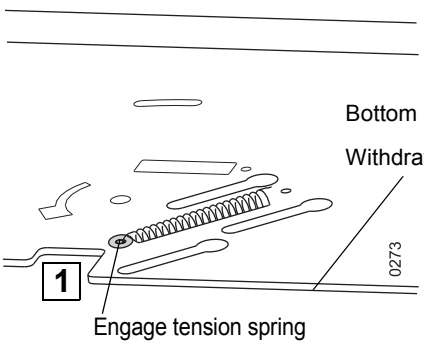
	Locking arrangement	Reaction	Part no.
1	Interlock to prevent motion with an open control panel door for withdrawable circuit-breakers	The racking handle is blocked if the panel door is open and it cannot be drawn out. The circuit-breaker cannot be moved. The interlock acts only on the inserted racking handle. (→ page 17 – 2)	(+)IZM-XVV cannot be combined with (+)IZM-XVK-AV (+)IZM-XV-(R-)AV
2	Panel door interlock	The panel door cannot be opened if the fixed-mounted circuit-breaker is closed (signal transmission through Bowden cables) or if the withdrawable circuit-breaker is in the operating position. (→ page 17 – 2)	(+)IZM-XVT for fixed mounting (+)IZM-XVT-AV for withdrawable units
3	Access block over mechanical ON and OFF button (locking set)	Mechanical ON and OFF buttons are covered with a cap that only allows operation with a tool. (→ page 14 – 2)	Access inhibiter is included in the IZM-XVD interlocking set

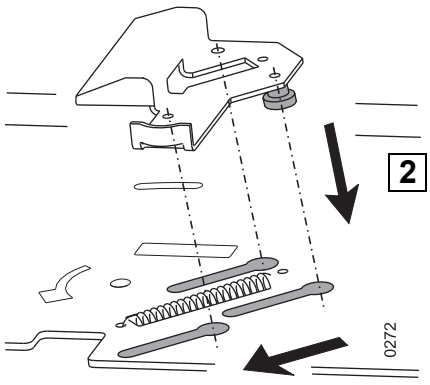
17.1 Locking device to prevent racking with panel door open

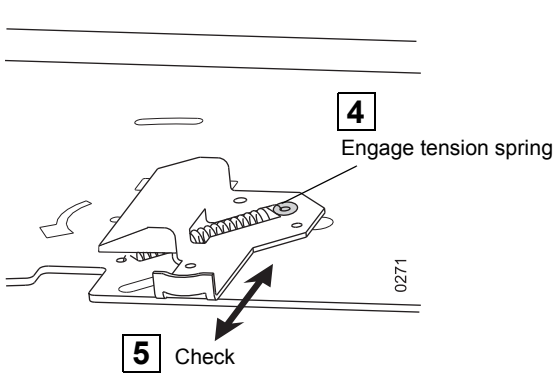
– Switching off and discharging the spring(→ page 24 – 2)
– Remove the circuit-breaker from the withdrawable unit (→ page 24 – 3)



Fitting interlocking





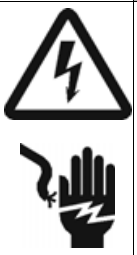


Check function

– Insert the circuit-breaker in the withdrawable unit and push into disconnected position (→ page 6 – 1)
– It must not be possible to draw out the racking handle

The interlock acts only on the inserted racking handle.

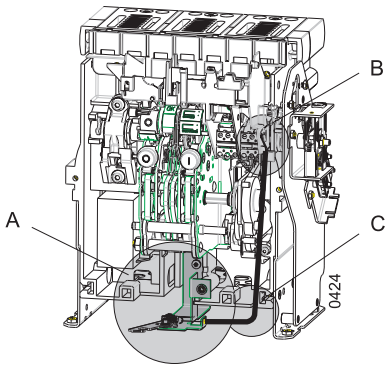
17.2 Panel door interlock

	Danger
	**Dangerous voltage.** **Can cause death or serious personal injury as well as damage to device and equipment.** Before working on the device be sure to switch off the switchboard and earth the device. Switch off circuit-breaker and remove from withdrawable unit.

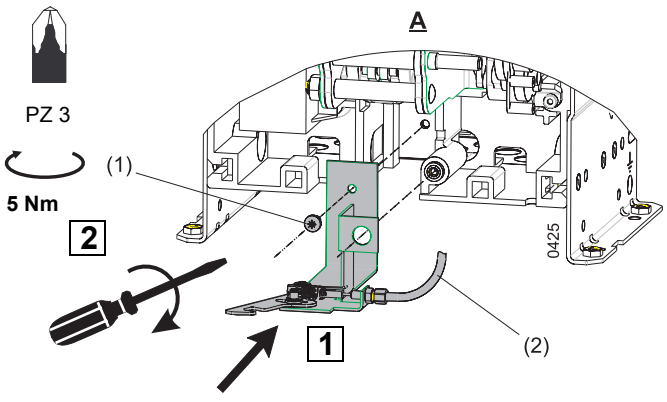
17.2.1 Fit bolt

Fixed-mounted circuit-breaker

– Switching off and discharging the spring (→ page 24 – 2)
– Remove front panel (→ page 24 – 6)

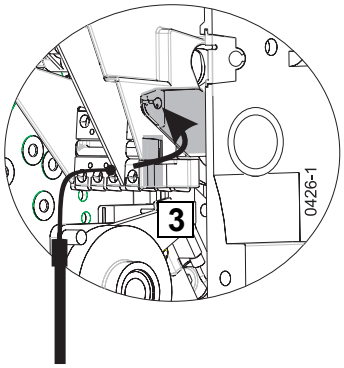


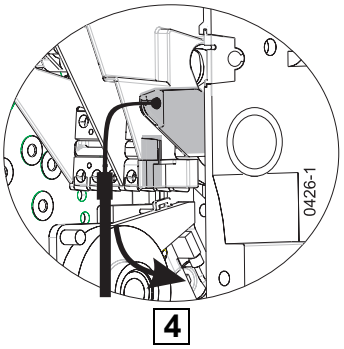
CAUTION
Tighten self-tapping screws carefully!

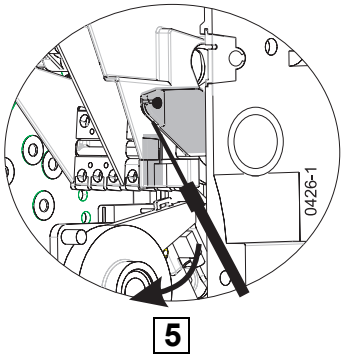


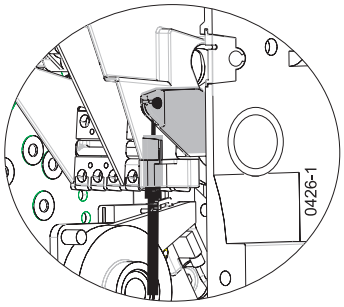
(1) Self-tapping screw
(2) Bowden cables

B

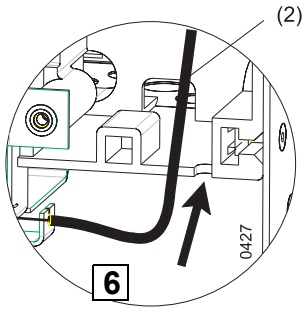


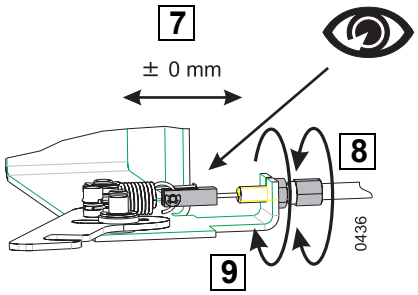




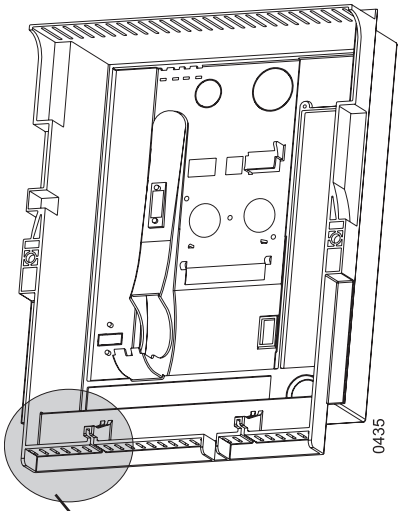


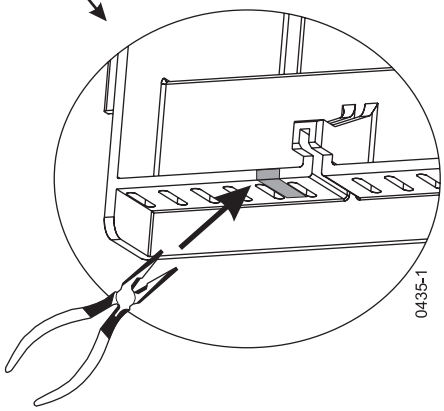
C





Knock out front panel



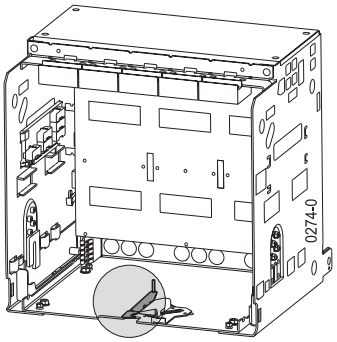


Then:

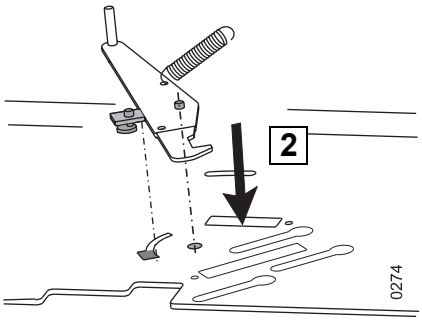
– Install front panel (→ page 24 – 13)

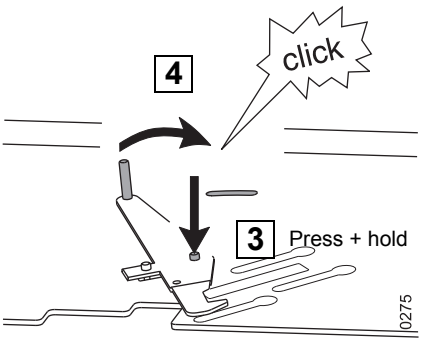
Withdrawable units

– Switching off and discharging the spring (→ page 24 – 2)
– Remove the circuit-breaker from the withdrawable unit (→ page 24 – 3)

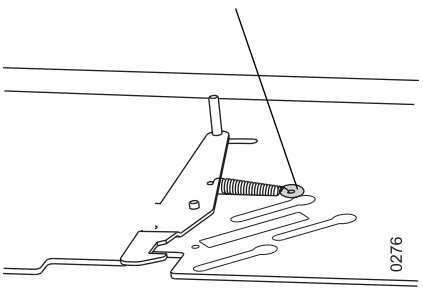


1 Engage tension spring





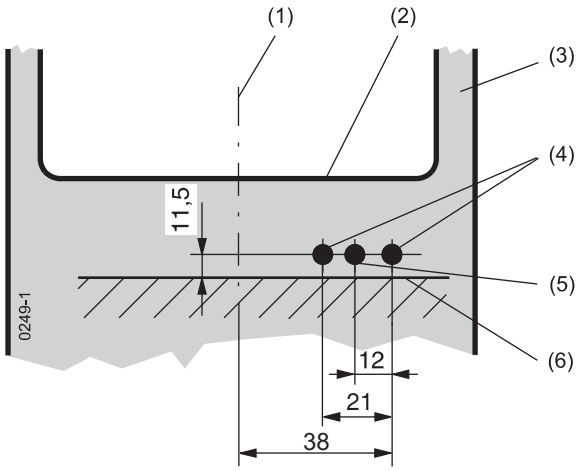
5 Engage tension spring



Then:

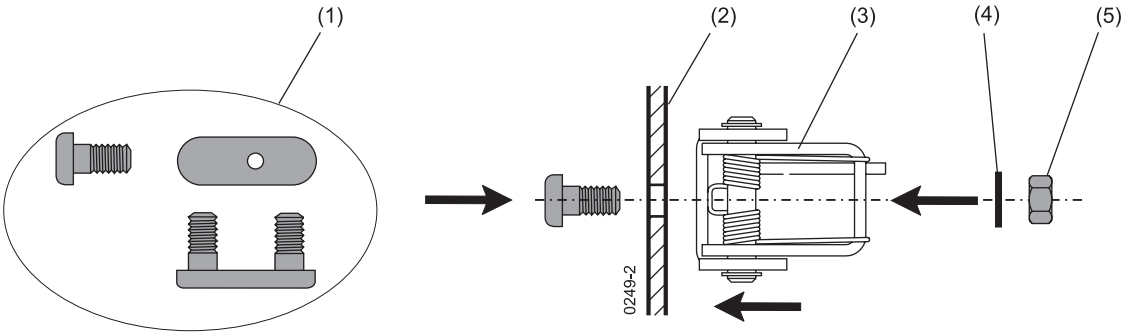
– Place circuit-breaker in the withdrawable unit and slide to disconnected position. (→ page 6 – 1)

17.2.2 Panel door interlock drill pattern



(1) Centre of front panel
(2) Door cutout for front panel
(3) Inside of panel door
(4) 2 mounting holes Ø 5.5 mm
(5) Hole to defeat Ø 5.5 mm
(6) Withdrawable unit installation level

17.2.3 Fitting catch on panel door



(1) Clip with hole to defeat
(2) Inside of panel door
(3) Catch
(4) 2 washers 5.3 (DIN 125)
(5) 2 hexagonal nuts M5 (DIN 934)

17.2.4 Function check

Fixed-mounted circuit-breaker:

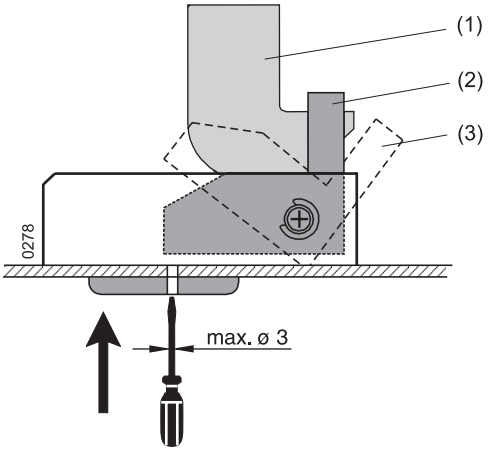
– Close the panel door
– Charging the storage spring
– Switch on

Withdrawable circuit-breaker:

– Rack the circuit-breaker into connected position
– Close the panel door

The door must be locked now.

Check for “defeat” possibility:



(1) Lock position with circuit-breaker closed or if draw-out breaker is in connected position
(2) Trap in normal position
(3) Trap in bypassed position

Then:

– Fixed-mounted circuit-breaker: Discharge the storage spring
(→ page 24 – 2)

17.3 Retrofitting access inhibiter over mechanical ON and OFF button

(Tool operation)

	WARNING
	**Before working on the device be sure to switch off the switchboard and earth the device.**

– (→ page 14 – 2)