

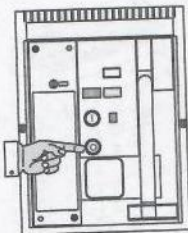
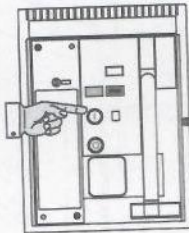
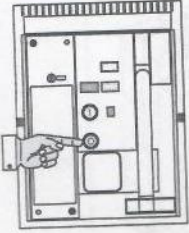
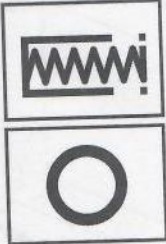
! DANGER

Hazardous voltage

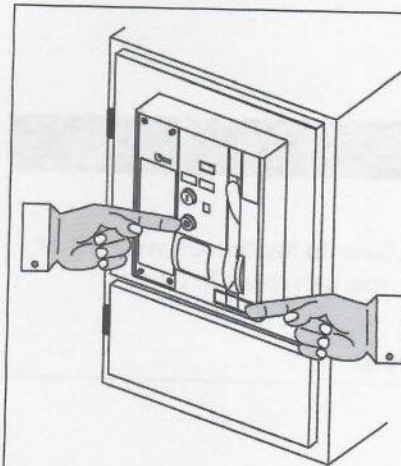
During operation, certain circuit-breaker components are subject to hazardous voltages or spring force. If you come into contact with live components, this can result in death or serious injury.

Maintenance must only be carried out by authorized personnel.

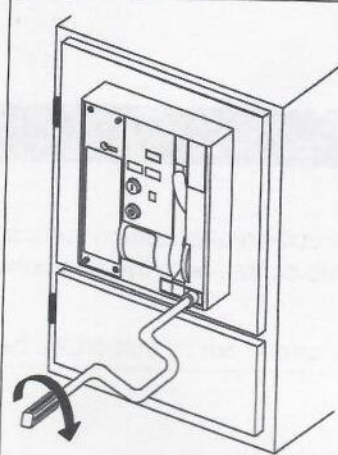
1. Disconnect the main/control circuits from the power supply and set the withdrawable circuit-breaker to the maintenance position.
2. Open the circuit-breaker mechanically (see table).

| | | | |
|--|--|---|--|
|  |  |  |  |
| Opening operation | Switch the breaker until the main spring status indicator shows "dis-charged" and the breaker status indicator shows "not ready to close". | Opening operation | Indicator |

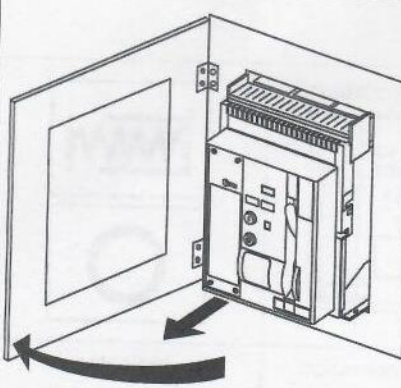
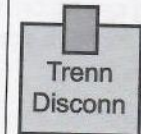
9.1 Removing the withdrawable circuit-breaker



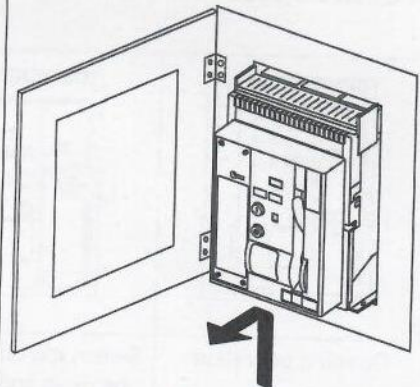
Press the OFF button while opening the slide switch.



Attach the racking handle and move the circuit-breaker into the disconnect position (position indicator).



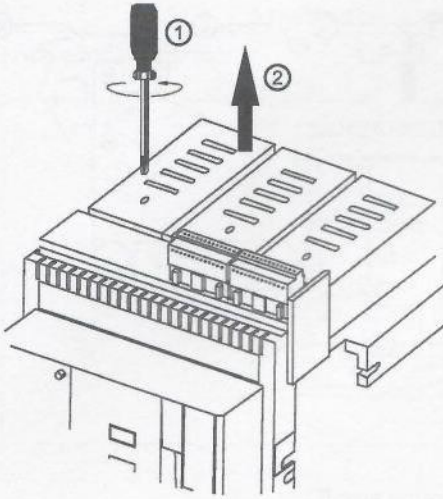
Set the circuit-breaker to the maintenance position.



Remove the circuit-breaker.

Checking the arc chutes

- Every 12 months or after 1000 switching operations
- After serious shutdowns



Remove the arc chutes.

If severe wear and tear is present (e.g. burns on the arc splitters), replace the arc chutes.

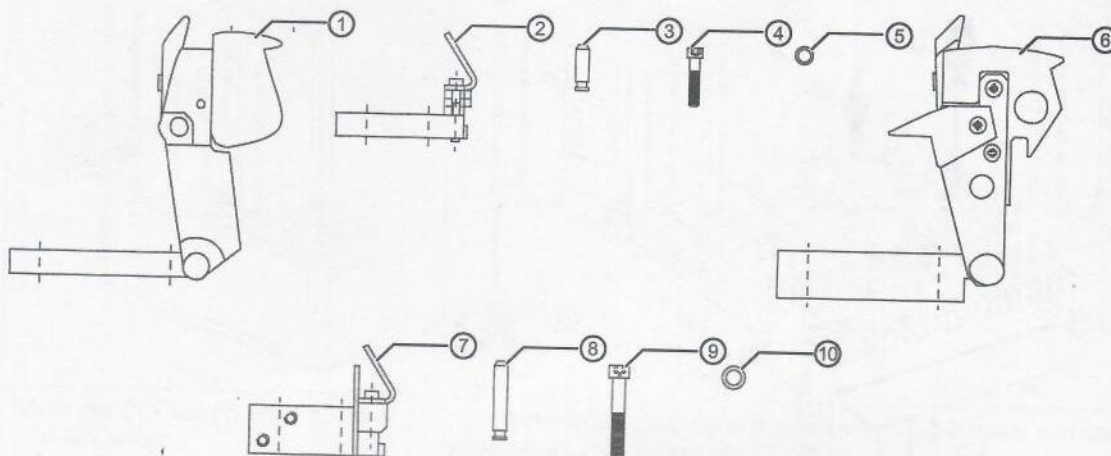
Checking the wear on the contacts

- Every 12 months or after 1000 switching operations
- After serious shutdowns

| | | |
|--------------------|-----------------------------------|--|
| | | |
| <p>arc chutes.</p> | <p>Close the circuit-breaker.</p> | <p>Carry out a visual check of the open circuit-breaker.</p> |

9.4 Replacing the conducting paths

Check the contents of the packaging



Frame size I

- ① Contact carrier, cpl.
- ② Conducting path, fixed
- ③ Coupling bolt
- ④ Cylinder-head screw M6 x 30 DIN 912
- ⑤ Strain washer 6 DIN 6796

1x
1x
1x
4x
4x

Frame size II

- ⑥ Contact carrier, cpl.
- ⑦ Conducting path, fixed
- ⑧ Coupling bolt
- ⑨ Cylinder-head screw M8 x 50 DIN 912
- ⑩ Strain washer 8 DIN 6796

1x
1x
1x
4x
4x

! DANGER

Hazardous voltage!

Hazardous stored-energy spring mechanism

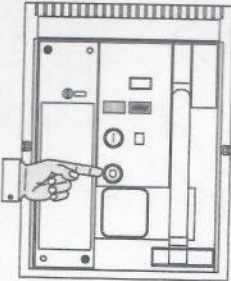
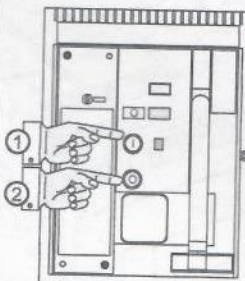
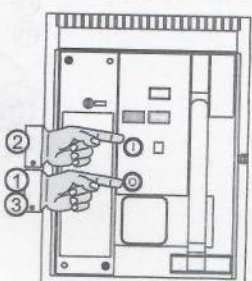
Before starting work, disconnect the device from the supply and ensure that it cannot be switched on. Only carry out work on the device when the circuit-breaker is open and the stored-energy spring mechanism is discharged (see page 3). Failure to do so can result in death, severe injury, or substantial material damage.

The devices must be installed and mounted by authorized personnel only.

Note:

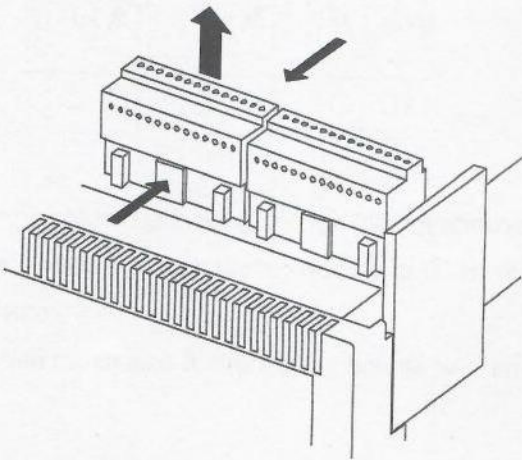
The shape of the connection bars on the contact carriers ① and ⑥ and on the conducting paths ② and ⑦ varies depending on the version you have ordered. The installation/mounting procedure is the same for all versions.

g the circuit-breaker / discharging the stored-energy spring mechanism

| | | | |
|---------------------|---|---|--|
| Possible status: | Circuit-breaker CLOSED | Open circuit-breaker | Circuit-breaker CLOSED |
| | Stored-energy spring mechanism discharged | Stored-energy spring mechanism charged | Stored-energy spring mechanism charged |
| Actuating sequence: | OPEN | CLOSED - OPEN | OPEN - CLOSED - OPEN |
| |  |  |  |

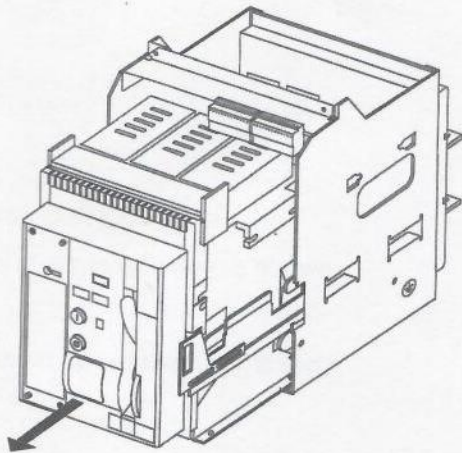
ory work

Fixed-mounted circuit-breaker



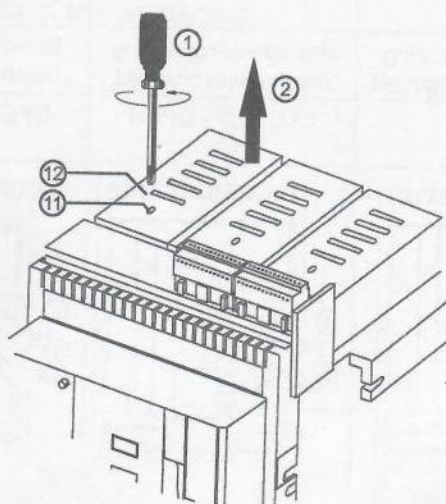
Remove the manual connector and take out the circuit-breaker.
To remove the manual connector(s), push them up. Make sure that the connected cables are not bent.

Withdrawable circuit-breaker



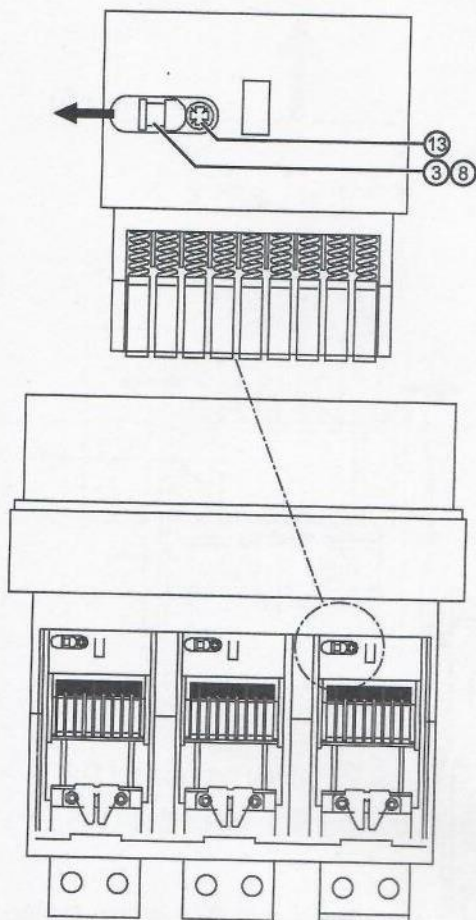
Set the circuit-breaker to the maintenance position and remove from the system.

Unscrew arc chutes



- Remove the fixing screws ⑪ for the arc chutes ⑫.
- Lift off the arc chutes.

Disconnecting the contact carriers (frame sizes I and II)



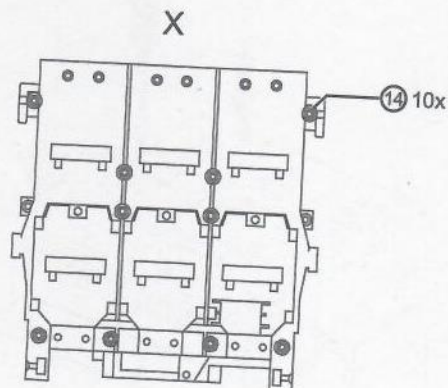
- Loosen the locking bolt ⑬ (do not remove completely).
- Press out the coupling bolt ③ or ⑧ by means of a screwdriver (as shown).

Note:

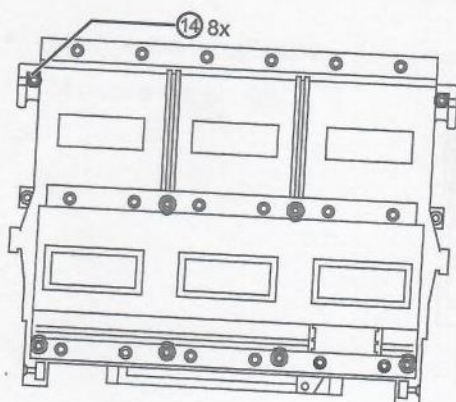
With frame size II, the locking bolt ⑬ with cover must be removed completely.

Removing the rear housing panel

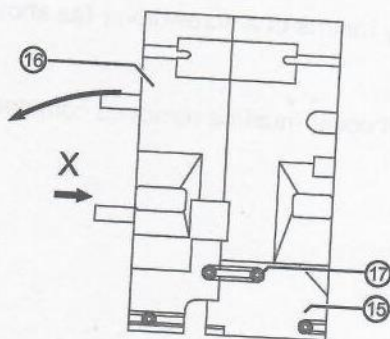
Frame size I



Frame size II

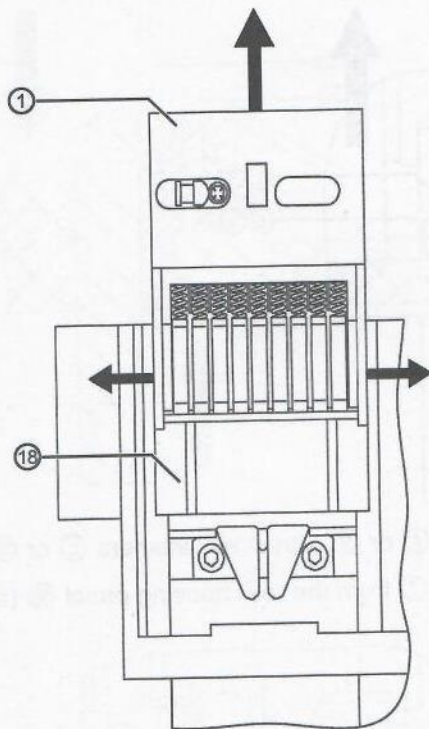


Frame sizes I and II



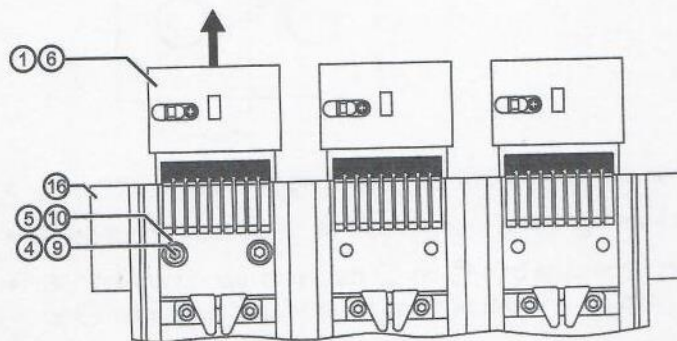
- Remove the cylinder-head screws (14).
- Unscrew the countersunk head screws (17) on the support bracket (15) of the rear panel (16).
- Loosen the countersunk head screws (17) of the support bracket (15) (do not remove completely).
- Open the rear panel of the circuit-breaker (16) (as shown).

Removing the insulation (frame size I)



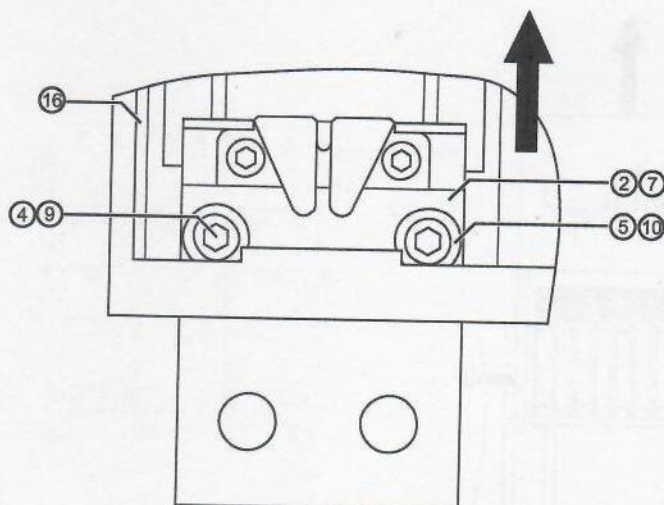
- Lift the contact carrier ① up.
- Pull the insulation ⑱ forward (push the side walls of the insulation ⑱ outward slightly).

Removing the contact carriers (frame sizes I and II)



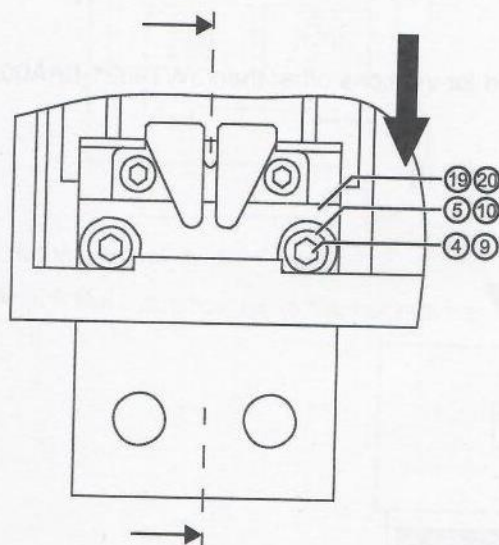
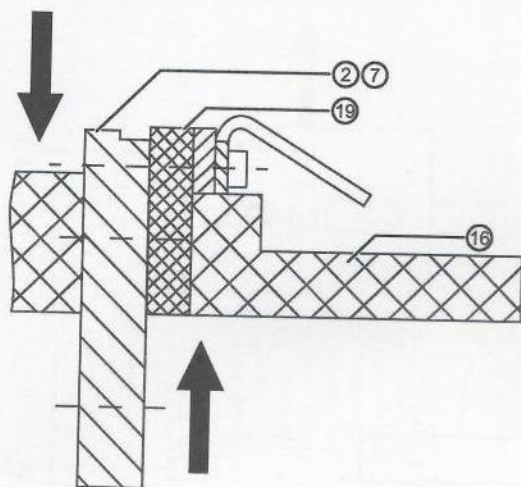
- Lift the contact carrier ① or ⑥ up.
- Unscrew the cylinder-head screw ④ or ⑨ with strain washer ⑤ or ⑩.
- Remove the contact carrier ① or ⑥ from the rear housing panel ⑱ (as shown).

Removing the conducting paths (frame sizes I and II)



- Unscrew the cylinder-head screws ④ or ⑨ with strain washers ⑤ or ⑩.
- Remove the conducting path ② or ⑦ from the rear housing panel ⑯ (as shown).

Installing the conducting path (frame sizes I and II)

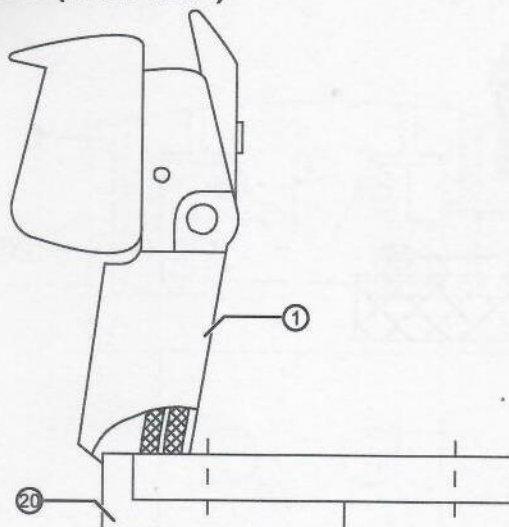


- Push the conducting path ② or ⑦ into the rear housing panel ⑯ from above.
- Push the spacer ⑲ or ⑳ into the rear housing panel ⑯ from below as far as it will go.
- Secure the conducting path ② or ⑦ and spacer ⑲ or ⑳ with cylinder-head screws ④ or ⑨ and strain washers ⑤ or ⑩ to the rear housing panel ⑯ (tighten by hand only).

Note:

The spacer (19 or 20) is not required for versions other than 3WT9821-0AA00.

Attaching the spacer (frame size I)

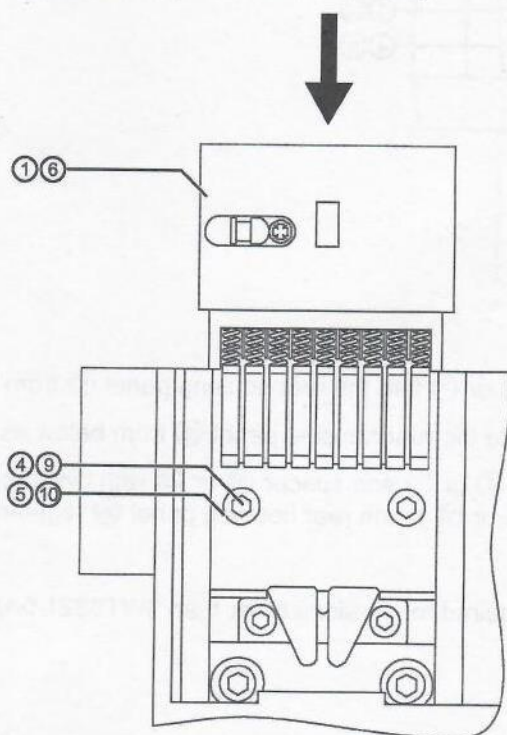


- Attach the spacer ②⑩ to the contact carrier ① (as shown).

Note:

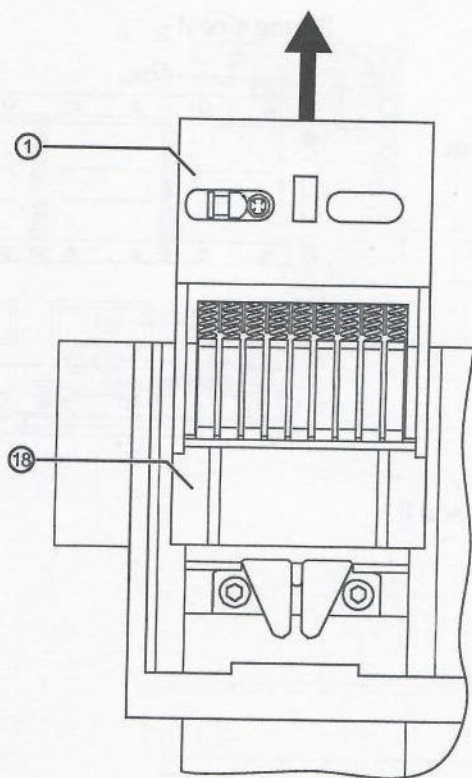
The spacer ②⑩ is not required for versions other than 3WT9821-0AA00.

Installing the contact carriers (frame sizes I and II)



- Insert the contact carrier ① or ⑥ (if necessary, with spacer ②⑩) into the rear housing panel ①⑥ and secure with cylinder-head screws ④ or ⑨ and strain washers ⑤ or ⑩ (tightening torque: 8 ± 1 Nm ④; 12 ± 1 Nm ⑨)

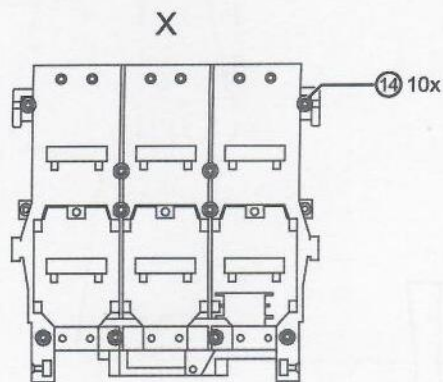
Installing the insulation (frame size I)



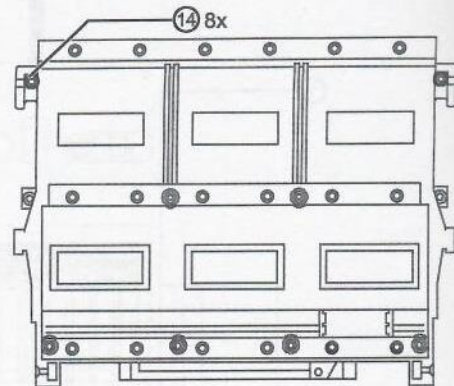
- Lift the contact carrier ① up.
- Attach the insulation ⑱ to the contact carrier ① (must audibly engage).

Removing the rear housing panel

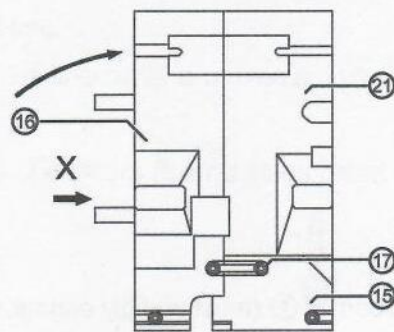
Frame size I



Frame size II

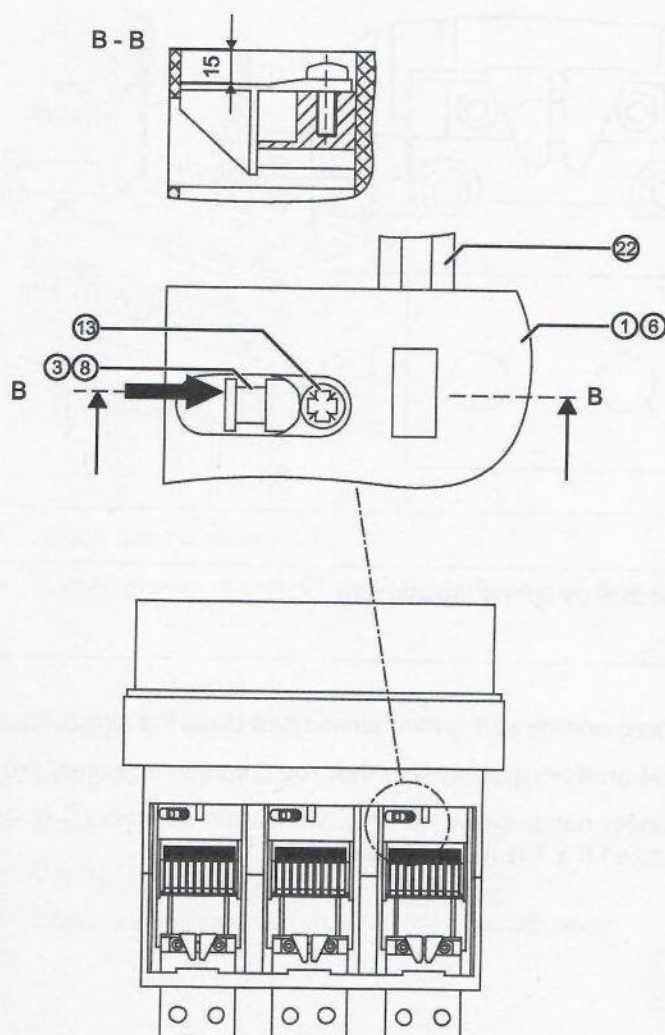


Rear housing panel: frame sizes I and II



- Place the rear housing panel 16 up against the housing. 21 When doing so, make sure that you do not trap any cables.
- Secure the support bracket 15 and housing 21 or rear housing panel 16 by means of countersunk head screws 17 (tightening torque: 6 ± 1 Nm).
- Secure the cylinder-head screws 14 (tightening torque: 10 ± 1 Nm).

Connecting the contact carriers (frame sizes I and II)

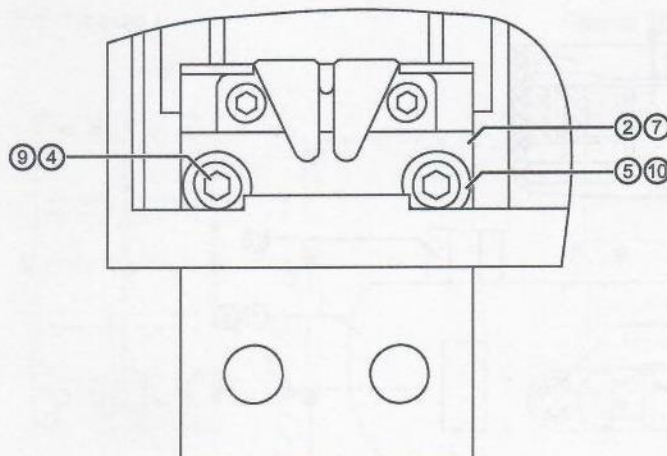


- Press the contact carrier ① or ⑥ toward the coupling clips ②② (as shown). When doing so, make sure that the coupling clips ②② fully accommodate the contact carrier ① or ⑥.
- Insert the coupling bolt as shown (③ or ⑧) by means of a screwdriver (to the right).
- Secure the coupling bolt ③ or ⑧ by means of a locking bolt ⑬ (tightening torque: 2 ± 0.3 Nm).

Note:

With frame size II as of 09/95, the locking bolt ⑬ (with cover) must be screwed in again (tightening torque: 2 ± 0.3 Nm).

Final installation of the conducting path (frame sizes I and II)

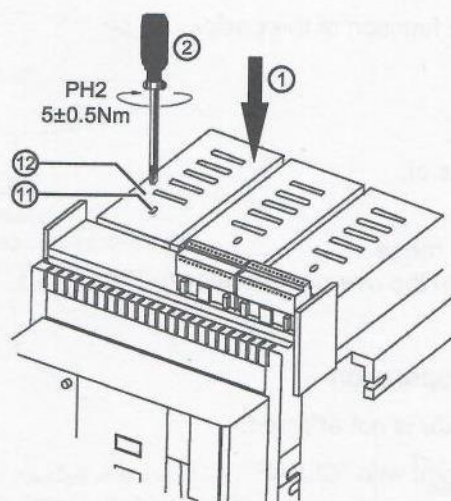


CAUTION

Hazardous stored-energy spring mechanism

- Charge the stored-energy spring mechanism and close the circuit-breaker.
- Close the circuit-breaker, making sure that you take the necessary precautions.
- Secure the cylinder-head screws ④ or ⑨ with strain washers ⑤ or ⑩ (tightening torque: frame size I 8 ± 1 Nm, frame size II 12 ± 1 Nm)

Attaching the arc chutes



- Attach the arc chutes ⑫.
- Secure the arc chutes ⑫ by means of fixing screws ⑪.

Functional test

Mechanical functional test

- Charge the stored-energy spring mechanism manually.
- Close.
- Open.
- Check the indicator for wear on the contacts again.

9.5 Internal self-test of the overcurrent release function

For commissioning and checking the function of the device.

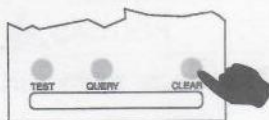
Requirements

- The release is activated by means of:
operational current
- The current is not in the overload range
→ for indicators, see (Indicators on the overcurrent release (Page 43))

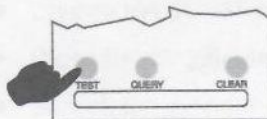
Internal self-test of circuit-breaker without tripping operation

Normal operation of the circuit-breaker is not affected.

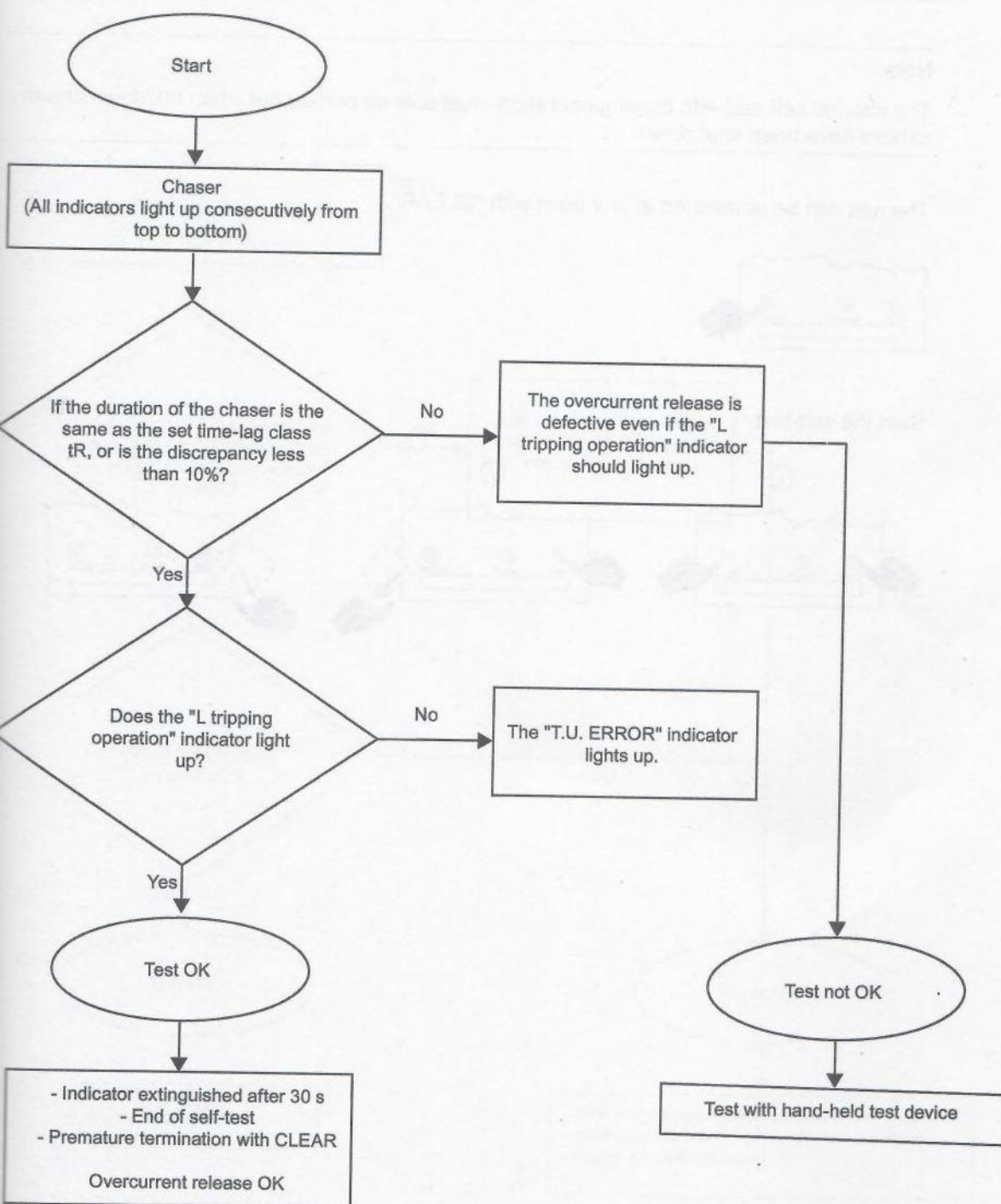
The test can be terminated at any point with "CLEAR".



Start the self-test.



Self-test procedure



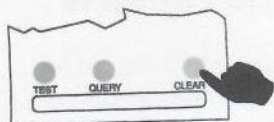
9.6

Internal self-test of circuit-breaker with tripping operation

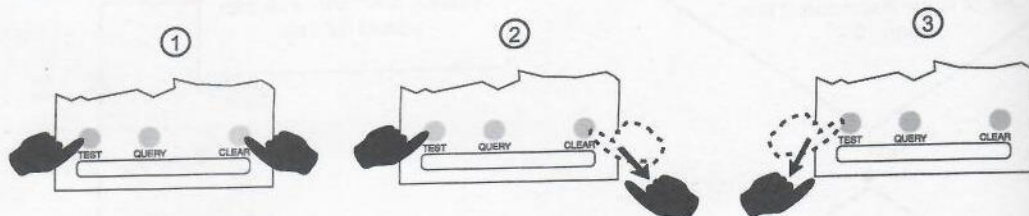
Note

The internal self-test with tripping operation must only be carried out when the downstream circuits have been shut down.

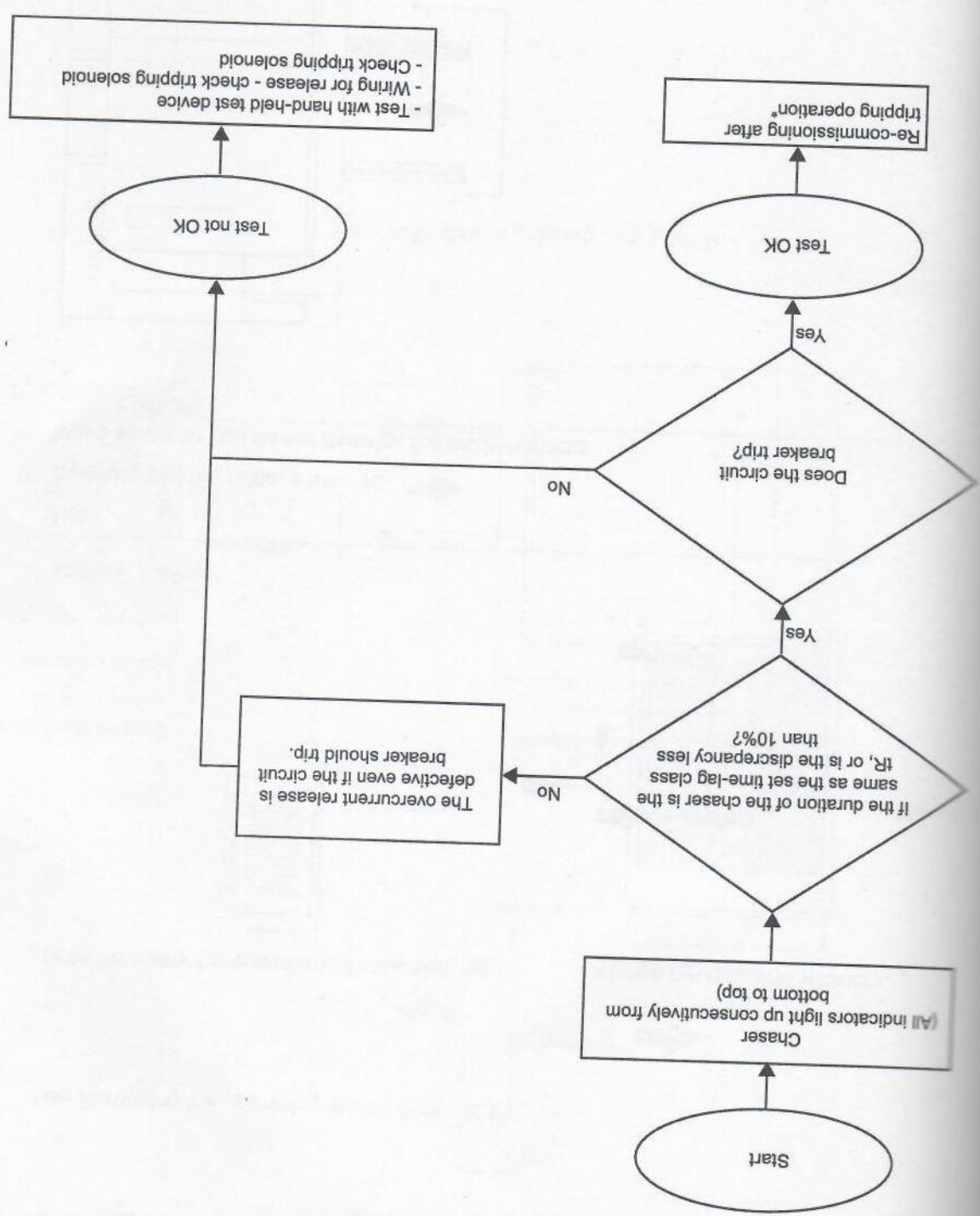
The test can be terminated at any point with "CLEAR".



Start the self-test.



Self-test procedure



See also

Recommissioning after opening operation by means of overcurrent release (Page 65)

9.7 Replacing the overcurrent release

Removal

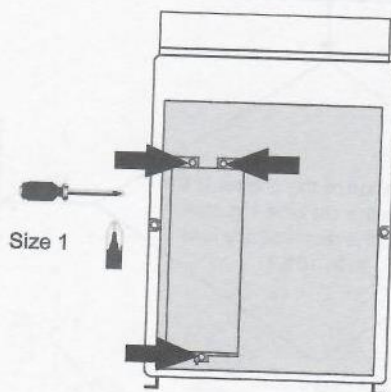
See Removing the operating device (Page 93)

Removal

Note the current overcurrent release settings.



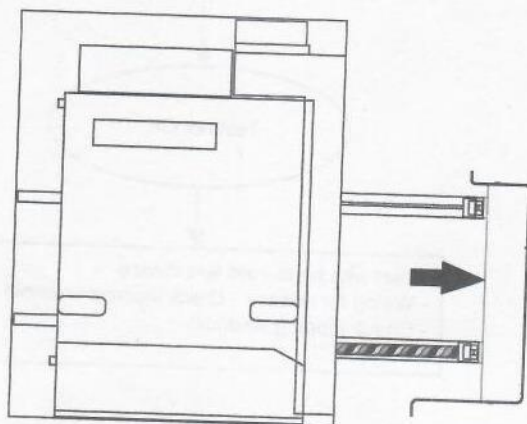
Remove the nuts and washers.



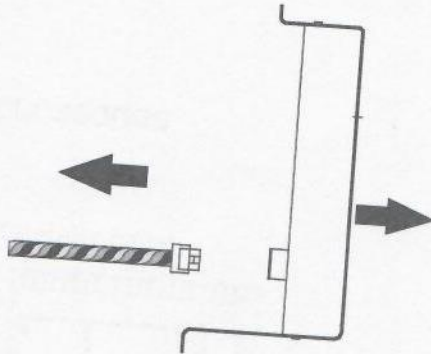
Note

Carefully pull the release forward.

Make sure that you do not damage the cable harness.

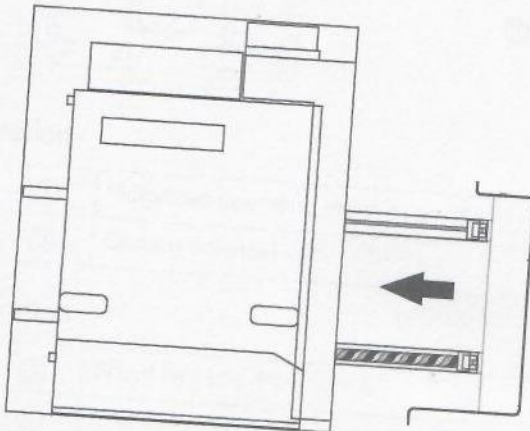


Remove the connector (press the release buttons).

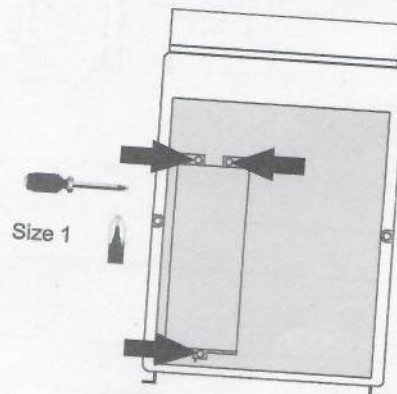


Installation

Remove the connector.



Secure the release.

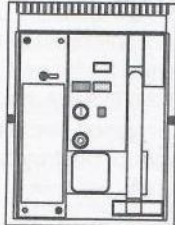
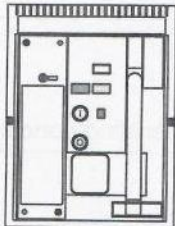


See Installing the operating device (Page 95)

Troubleshooting

11

Troubleshooting

| Fixed-mounted circuit-breaker | Withdrawable circuit-breakers | Fault | Cause | Remedy |
|-------------------------------|-------------------------------|---|--|---|
| ✓ | ✓ | The circuit-breaker cannot be closed mechanically and/or electrically. | The stored-energy spring mechanism has not been charged. | Charge the stored-energy spring mechanism. |
| ✓ | ✓ | (The circuit-breaker is not ready to close, ready-to-close indicator □) | The undervoltage release is not excited. | Connect the undervoltage release to the power supply. |
| ✓ | ✓ |  | Mechanical reclosing lockout active. | Rectify cause of overcurrent tripping and press RESET. |
| ✓ | ✓ | | Electrical closing lockout active. | Remove the control voltage of the closing lockout. *) |
| ✓ | ✓ | | Mechanical OFF pushbutton locked. | Enable the pushbutton. ² |
| ✓ | ✓ | | Block against closing. ¹ | Close the cabinet door. |
| ✓ | ✓ | | Mechanical circuit-breaker interlock active (accessories). | Open the interlocking circuit-breaker or rack it to disconnected position. ² |
| ✓ | ✓ | | Electronic overcurrent release not installed or installed incorrectly. | Install the electronic overcurrent release properly. |
| | ✓ | | The circuit-breaker is set to an intermediate position in the guide frame (note the position indicator). | Rack the circuit-breaker to the disconnected, test, or operating position. |
| | ✓ | | Shutter for racking handle opening not closed. | Close the shutter (to disconnected, test, or operating position). |
| ✓ | ✓ | | The circuit-breaker cannot be closed by electrical means. | The operating voltage of the closing solenoid is incorrect or has not been applied. |
| | ✓ | | (The circuit-breaker is ready to close, ready-to-close indicator OK) | Check that the voltage is correct or apply the voltage. |
| | |  | The circuit-breaker is in the disconnected position in the guide frame. | Rack the circuit-breaker to the test or operating position. |
| ✓ | | | The auxiliary supply connector has been unplugged. | Plug in the auxiliary supply connector. |

| Fixed-mounted circuit-breaker | Withdrawable circuit-breakers | Fault | Cause | Remedy |
|-------------------------------|--|---|--|---|
| | ✓ | The guide rails cannot be pulled out to install the circuit-breaker. | The shutter is locked with one or two padlocks. | Remove the padlocks. |
| | ✓ | The circuit-breaker cannot be switched from the maintenance position to the disconnected position. | The positioning mechanism of the circuit-breaker is not in the disconnected position (note the position indicator). | Rack the positioning mechanism to the disconnected position. |
| | ✓ | | You have attempted to insert the circuit-breaker in a guide frame with a different rated current. | Only use circuit-breakers with the same rated current as the guide frame. |
| | ✓ | | The circuit-breaker and guide frame are encoded differently. | |
| | ✓ | When the circuit-breaker is racked from the disconnected position to the test position, you encounter a high level of resistance as soon as you pass the disconnected position. | The circuit-breaker was not inserted as far as it will go and the side latches are not yet engaged (warning: danger of destroying the device). | Push the circuit-breaker to the disconnected position as far as it will go. The side latches must engage. |
| | ✓ | When you rack the circuit-breaker from the disconnected position to the test position, it does not move for the first eight rotations. | No fault, due to the function | Continue racking |
| | ✓ | The racking handle cannot be inserted. | The OFF button has not been pressed. | Press the OFF button and, at the same time, move the slide switch to the right. |
| | ✓ | | The cabinet door is not completely shut. | Close the cabinet door. |
| | ✓ | | Racking handle opening locked with padlock(s). | Remove the padlock(s). 1 |
| ✓ | | The cabinet door cannot be opened (door interlock as accessory). | When the circuit-breaker is closed, this interlocks the cabinet door. | Open circuit-breaker |
| | ✓ | | The circuit-breaker is in the operating position. | Rack the circuit-breaker to the test position or disconnected position. |
| 1 | Effective when the cabinet door is open (accessory). | | | |
| 2 | Note the following safety information: | | | |

Note

Protective device

Override only if permissible under normal operating conditions.