keycard Return Machine
KC 370i AUT2

Manual and operational description

SKIDATA™
access unlimited

Version December 2004

SKIDATA AG
Technical Documentation
Untersbergstrasse 40
A-5083 Gartenau
Telephone   +43 6246 888 - 0
Telefax   +43 6246 888 - 7
Internet   http://www.skidata.com
e-mail   docu@skidata.com

Copyright
© 2004 by SKIDATA AG. All rights reserved. All information in the following document is protected by copyright law. No part of this document may be reproduced without the written consent of SKIDATA AG. SKIDATA AG reserves the right to make any changes of specification and other information in this document without further notice.

Please note
During the compilation of this Technical Documentation, great care has been taken to ensure the accuracy of the information contained in it. However, despite our constant effort to ensure the highest degree of accuracy and comprehensiveness possible, the information provided cannot be guaranteed to be absolutely error-free.

Trademarks
This documentation may contain representations of registered product or service trademarks owned by SKIDATA AG or third parties, as well as references to proprietary know-how protected by copyright laws or other legal provisions. In any case the intellectual property rights remain exclusively with their respective owners.

Declaration of Conformity
The keycard-Return Machine KC 370i AUT2 has been developed, designed and manufactured in accordance with the following EU directive:

R&TTE (1999/5/EC)

$\mathsf{C}\,\mathsf{E}$ 0408

FCC 15.19:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause un-desired operation.

FCC 15.21:

IMPORTANT: Any changes to or modifications of keycard Return Machine unless expressly approved by SKIDATA™, may void the user's authority to operate this device.

Keycard Return Machine   1

Document Management – Version Table

Tab. 1: Document Version Table for Installation & Maintenance Instructions

Section	Document	Pages	Version	Date
1	Keycard Return Machine	4	1.0	2004-12-07

1 keycard Return Machine

48 Pages

1.1   Contents

Contents

1.2   Description

The keycard Return Machine verifies the keycard inserted by the guest and pays out the pre-defined deposit in coins or banknotes, depending on the machine version. Cash can be refilled by means of easy-to-change cashboxes.

The device is controlled through an integrated PC that stores all transactions and device status details. Peripherals such as a mouse, keyboard and swivel-out monitor are provided for easy servicing.

The software offers a multi-lingual graphical user interface for easy, efficient control.

Networking the keycard Return Machines via Ethernet or modem lines allows for remote maintenance and polling of counters and logs (transaction tracing). If a container needs replacing, the machine can automatically send a message to pre-defined devices (e.g., POS stations). The End-of-Day records are relayed to the DataCentral for inclusion in the overall statistical evaluation.

1.3   Operation

1.3.1   Returning keycards

The following screen message indicates that the keycard Return
Machine is fully operational and ready:

Fig. 1: Return procedure
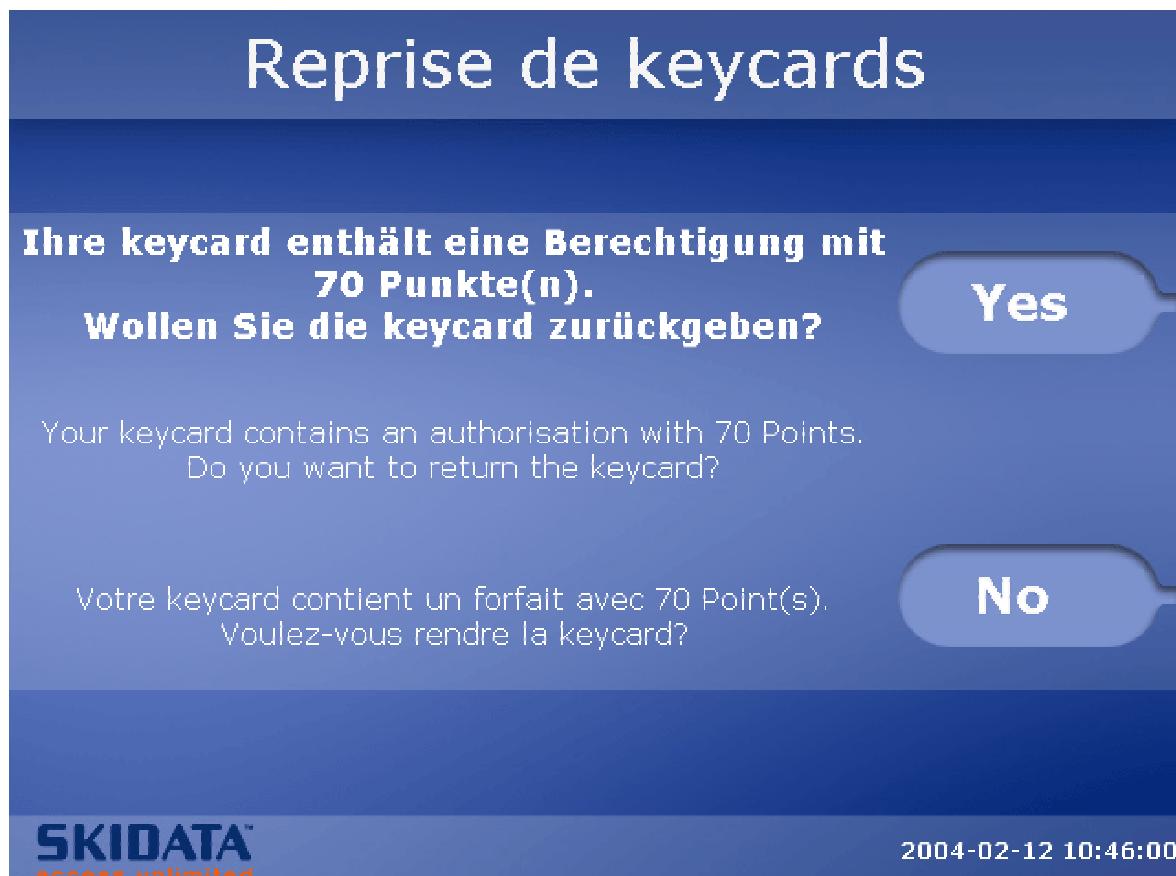
A keycard may now be inserted into the ticket slot. Once the card
has been verified and accepted, the deposit is paid out into the
change dish.

1.3.2   Returning keycards with remaining credits

When inserted into the front slot of the machine, the keycard is read and verified. Any remaining credits (points, hours, etc.) will be indicated on the screen:

Fig. 2: Remaining credits

The card holder may then decide whether or not to return the card anyway. Pressing the 'Yes' button will initiate the return procedure; pressing the 'No' button will abort the procedure and return the card to the holder.

1.4   Service functions

There are two basic ways of accessing the Service menu:

1.4.1   Login
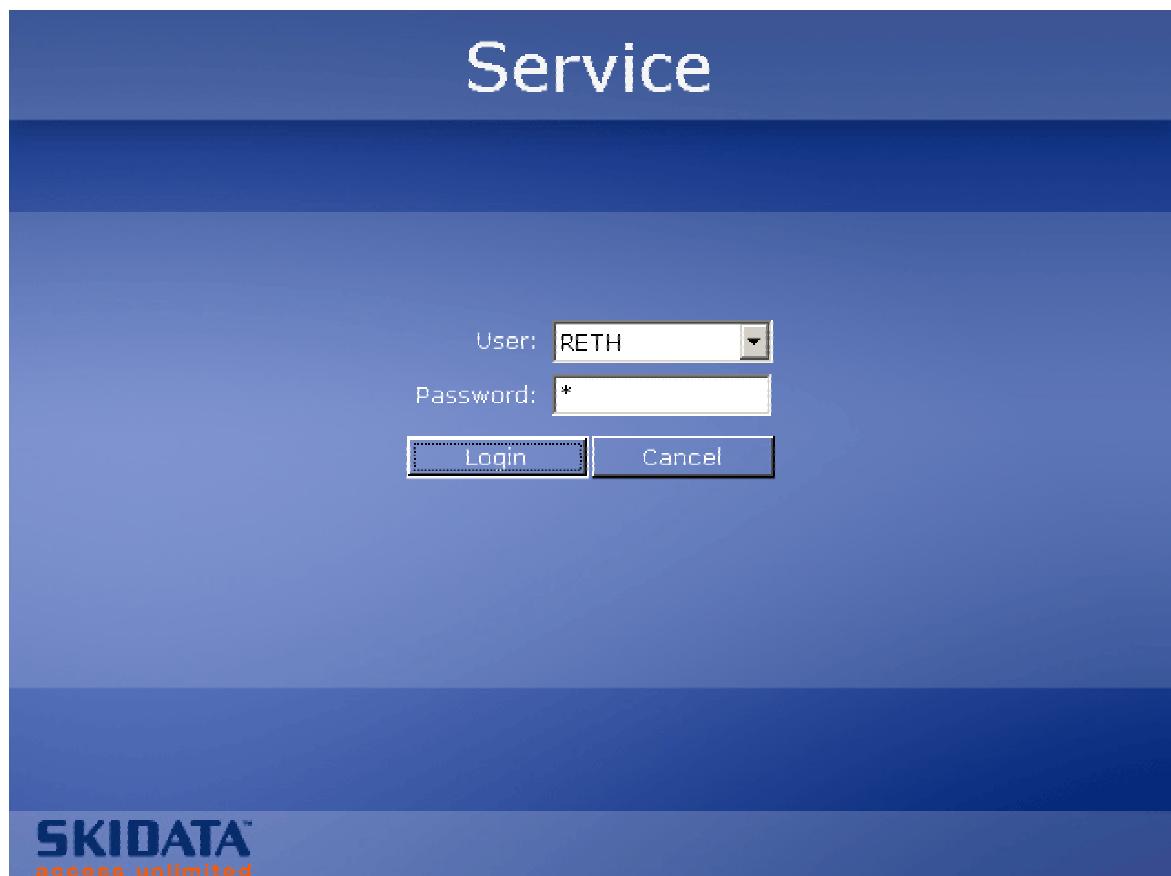
Logging on without keyboard
When performing simple maintenance tasks such as refilling dispensers or hoppers, it is possible to access the unit using a service card instead of entering a password with the keyboard. Insert the service card into the card slot to bring up the Service menu.

Logging on using the keyboard and mouse
Press the 'F10' function key on the keyboard. This will bring up the following Login dialogue on the screen:

Fig. 3: Service Logon
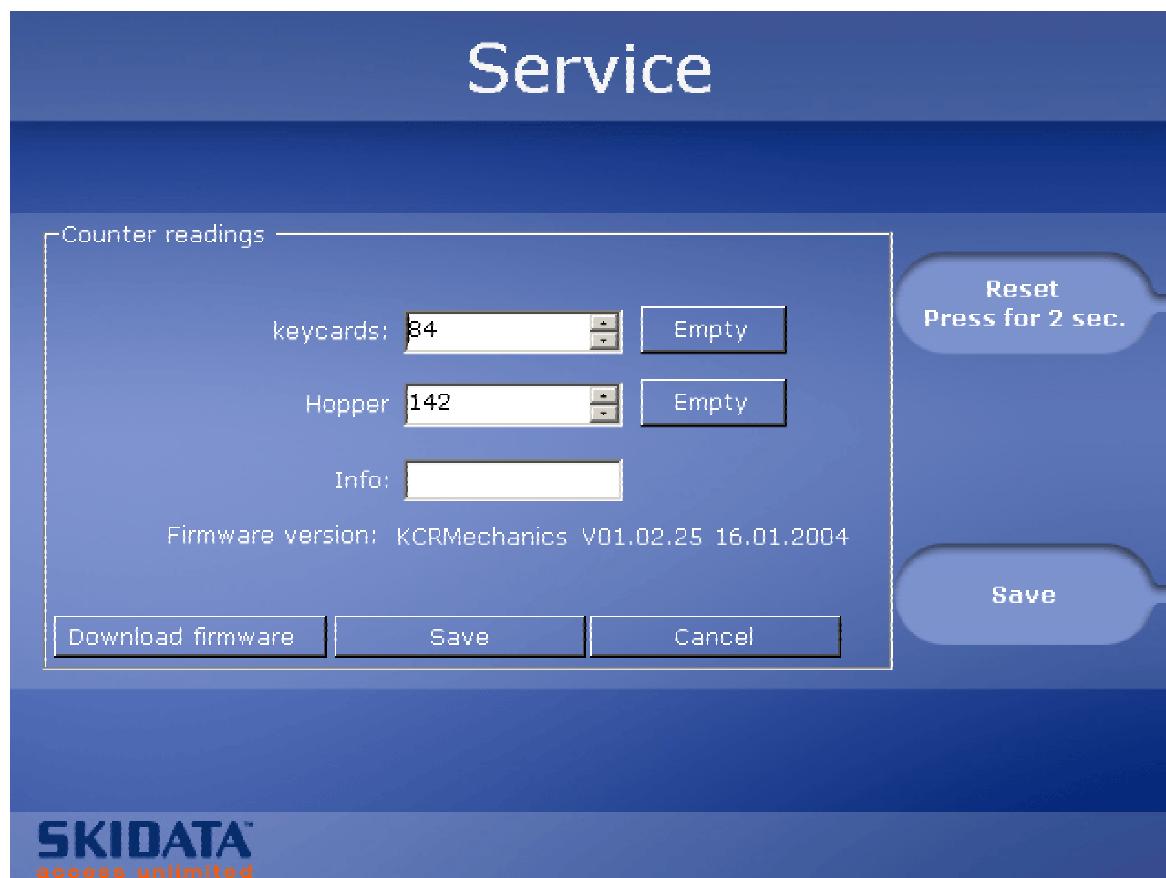
Enter a user name and password, then press the Tab key to shift the focus to the 'Login' button and press enter (alternatively, just click on the 'Login' button after entering the password).

1.4.2   Service menu

The Service menu shows the current status for the following items:

- keycard: Indicates the number of keycards in the return container Hitting the 'Empty' button will set the current keycard filling level back to zero.
- Dispenser or Hopper: Indicates the number of banknotes or coins, respectively. You may empty the hopper by clicking the 'Empty' button. This will cause all coins to be paid out and the coin filling level to be reset.
  The 'Empty' button is not available if a dispenser is used.
- Info: You may enter a brief descriptive remark here (e.g., name of the current user). When you click the 'Reset' button, the message "RESET BY EXTERNAL" will be shown in the Info box.

Fig. 4: Service menu

Counts may also be entered via keyboard or mouse.

1.4.2.1   Reset

Click the 'Reset...' button and hold it for two seconds.

- This will cause the keycard counter to be reset (i.e., cleared).
- The dispenser filling level is set to a value pre-defined in the personality firmware. 'Old' banknotes must then be taken out and replaced with a new stack.
- Also, the hopper level is increased by a value pre-defined in the personality firmware (e.g., by the number of coins in a standard roll). Refill the hopper with the pre-defined number of coins.

Click the 'Save' button (or the control button next to the 'Save' icon) to apply the new settings. This will also close the Service menu, and the device will return to its normal operating mode.

Hitting the 'Cancel' button (this requires use of the keyboard or mouse) you can abort the procedure without applying changed settings.

1.4.2.2   Download Firmware

This function, which is only accessible via the keyboard or mouse, lets you download a firmware update for the Return Machine. The current firmware version is indicated in the service window.
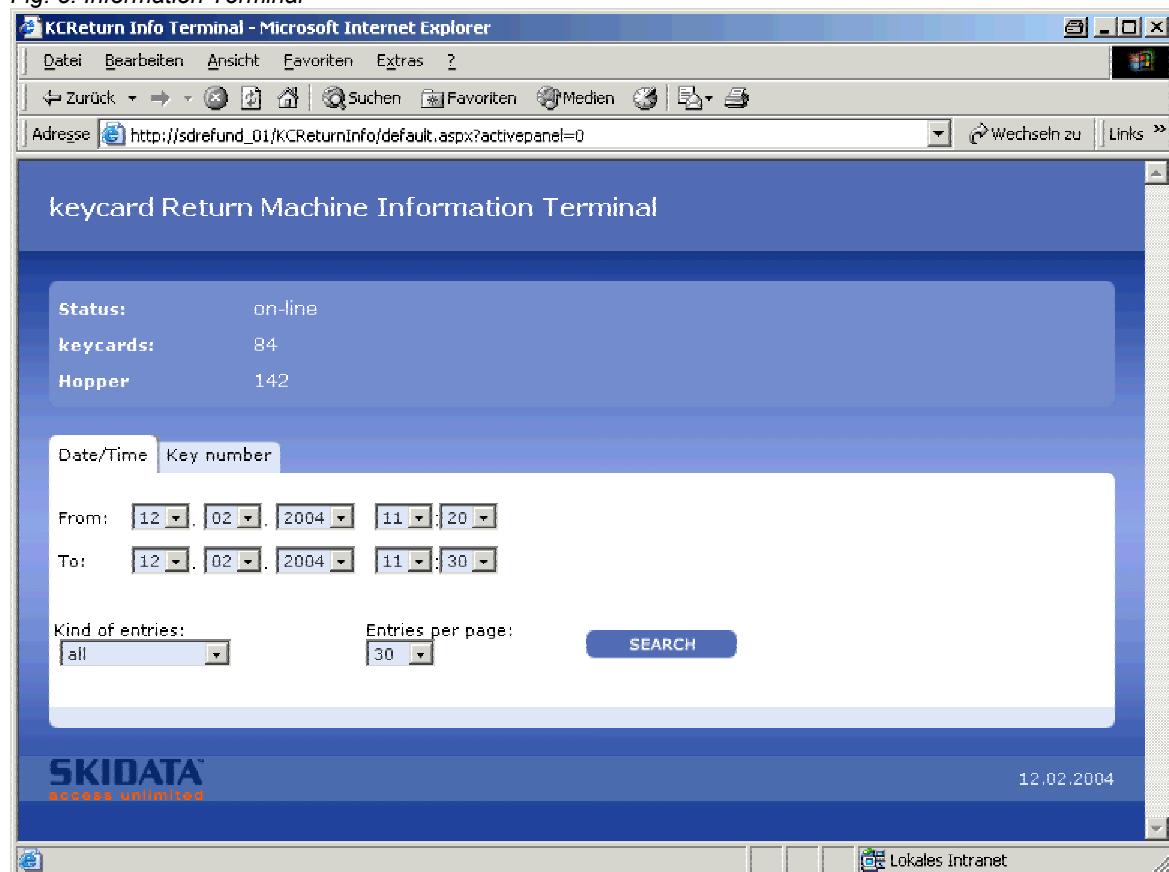
Selecting the 'Download Firmware' button will open a file selection dialogue. Select the file you wish to install. This will cause the file to be downloaded and installed. An indicator bar will show the dowload progress. When the download is finished, the machine will return to its ready state.

1.5 Info Terminal

This lets you monitor the current status and operating mode of the keycard Return Machine. This software can be run from any PC with a network connection at the resort.

When run, the program first opens a start window showing current system stats:

Fig. 5: Information Terminal

- Status: In Service / Out of Service
- keycards: Current keycard filling level
- Dispenser or hopper: Current banknote or coin filling level

1.5.1   Searching the event log

It is possible to restrict the list of log entries to a specific period by specifying dates and times.

From – Until
Enter a start and end time and date to narrow down the list of log entries.

Kind of entries:

- All: all journal entries
- Errors Only: Errors that occurred when returning cards (e.g., incorrect residual value, wrong keycard, etc.)
- Exception Errors: all servicve functions, error messages, Out of Service notifications, etc.

Entries per page:
Specifies the number of list entries to be displayed per screen page

Search
Hit the 'Search' button to apply the search filter; the list of matching log entries will be displayed on the screen.

Fig. 6: Log entries for a specified period

Column 1:
The first column contains the line number. The background colour indicates the type of entry.

- Green: normal operation; entry shows details of read and accepted keycards
- Orange: error messages
- Red: exception error messages

Columns 2 and 3
Show the date and time of events.

Column 4
Contains logged details of relevant system events. Every time a keycard is read or accepted, its serial number is logged.

1.5.2   Key Number

On the 'Key Number' tab, you can enter a key no. to search the log for matching entries.

Enter the number in the 'Key No.' input box and hit the 'Search' button.

Each matching entry will be displayed on a separate page. The number of search results therefore corresponds to the displayed number of pages. You can browse through the results; the list on each page includes the 15 entries preceding the matching entry, and the 15 entries following it. The matching entry is shown in bold lettering.

1.5 **Info** Terminal

*Fig. 7: Information Terminal*

1.6   Dimensions

*Fig. 1: keycard Return Machine – dimensions*

1.7 Front View & Description of Components
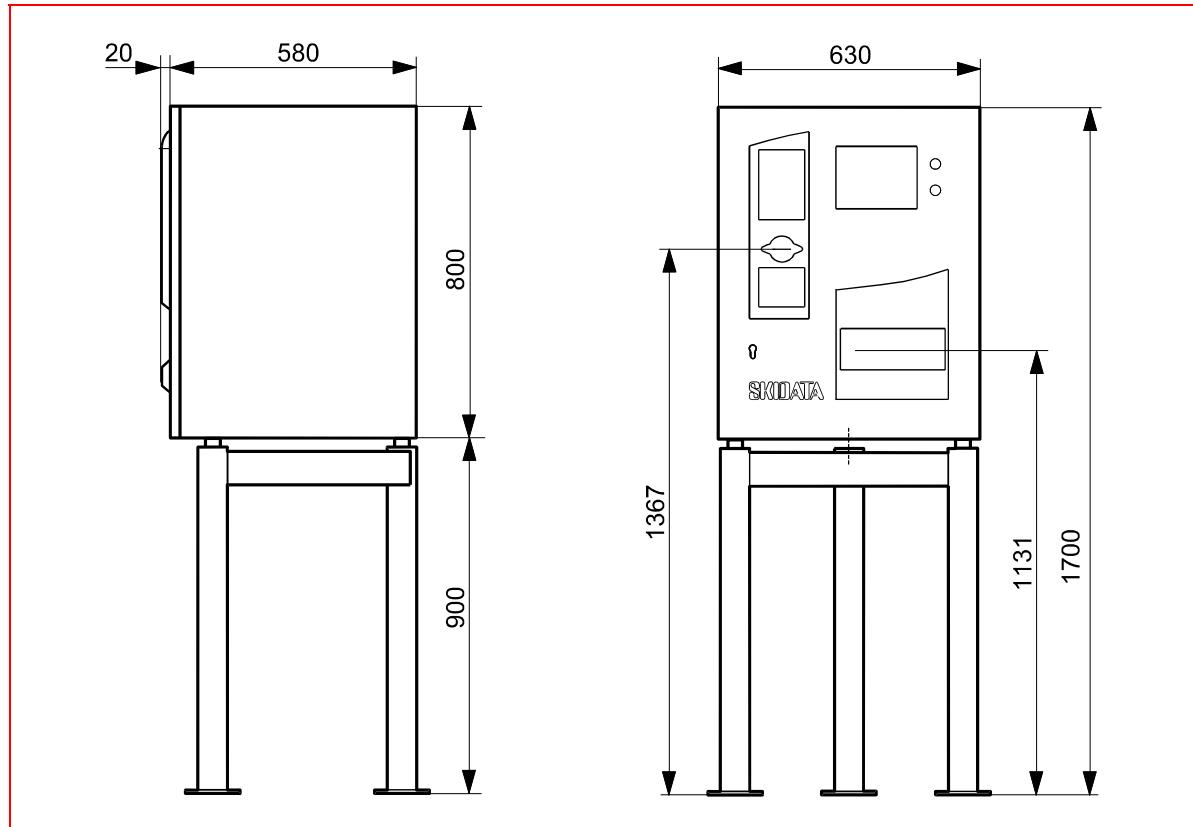
Fig. 2: Frint view

- 10,4" LCD monitor
- Softkeys
- Ticket slot (illuminated)
- Enclosure lock
- Change tray (illuminated)

1.7.1   Keycard Return Machine – dimensions

Fig. 3: keycard Return Machine – dimensions

1.7.2 Mounting

> **Important note**: The PCBs are equipped with integrated circuits that are sensitive to electrostatic discharges. When performing service or maintenance work on the device, be careful not to touch any of these ICs.
> Avoid any unnecessary touching of the PCBs. Before proceeding with the installation, check the machine for possible transport damage.
> Always disconnect the device from the mains supply before working on any of its electrical or mechanical parts.

Please note:
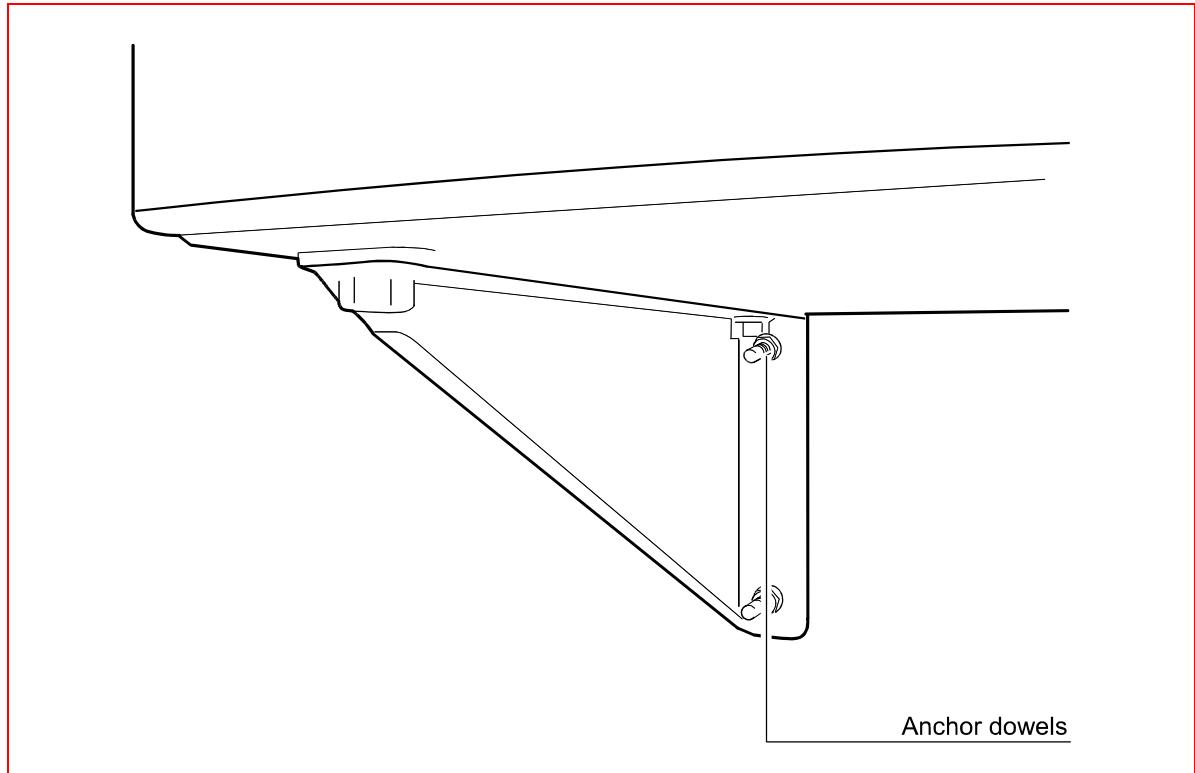
- When mounting the device in a recessed area, ensure a minimum wall clearance of 50 mm on both sides.
- The device must be protected against rain and snow (e.g., by means of protective roofing).
- The device must not be exposed to direct sunlight.
- Note the swivel radius of the door and make the necessary allowances when mounting the unit.
- Opening the device during rain or snowfalls may cause damage to the electronic components inside.

1.7.2.1 Mounting on wall mounting brackets
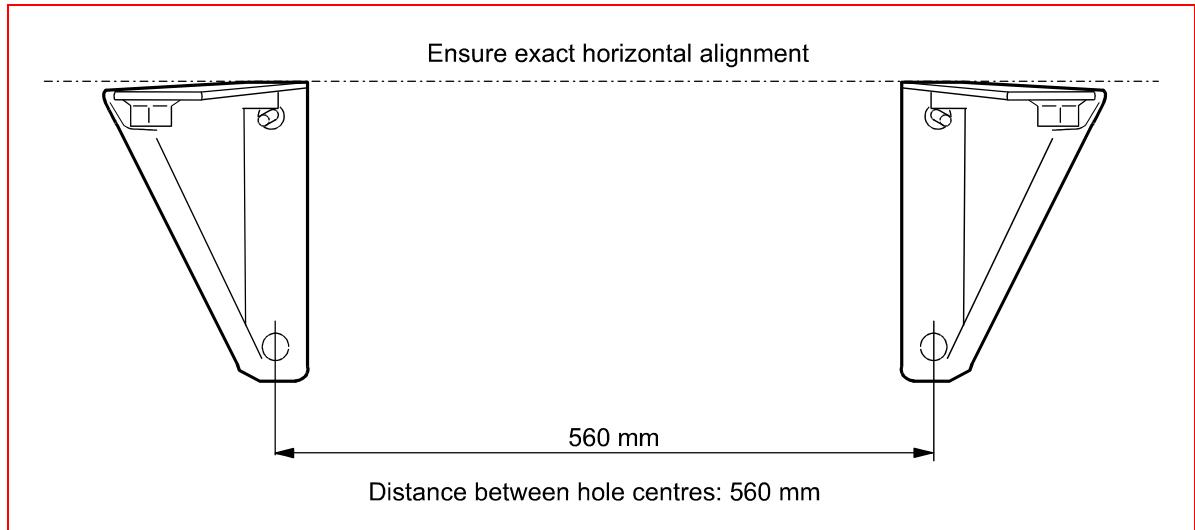
> **General notice for wall mounting:**
> The wall mounting brackets may only be mounted on concrete walls.

Fig. 4: Console

Anchor dowels

The distance between the two consoles (hole centres) is 560 mm.

Fig. 5: Console

Ensure exact horizontal alignment

560 mm

Distance between hole centres: 560 mm
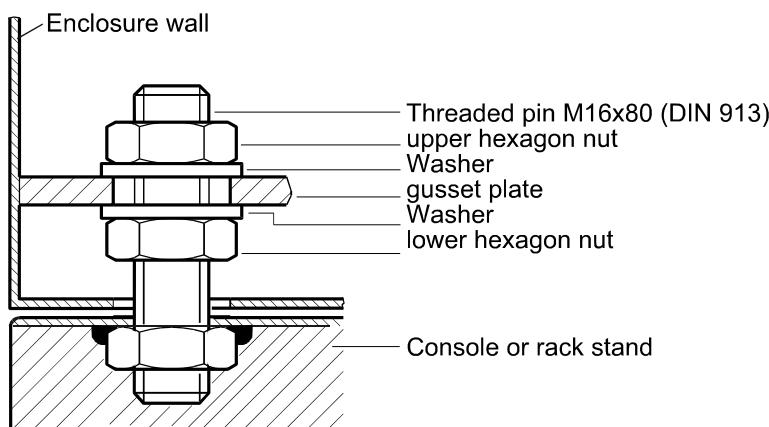
■ Insert 2 anchor dowels (recommended type: HILTI HST M12/50) into the concrete wall, in accordance with manufacturer's instructions.

- Attach the consoles to the anchor dowels and fasten them tightly with hexagon nuts and washers.
- Make sure that the consoled are mounted exactly horizontally.
- Using a fork lift or with the help of a sufficient number of people, lift the machine onto the consoles. (note that the device weighs approximately 100 kg!)
- Align the machine so that the mounting holes in its enclosure are concentric with the threaded holes in the consoles. When doing so, make sure that the device is properly secured to avoid personal injury or damage to the device.
- Screw the supplied four M 16 threaded pins into the consoles, with hexagon sockets facing up and hexagon nuts and washers attached on the other end, as illustrated above.
- Turn the lower hexagon nuts to adjust the enclosure until it aligns with the surrounding wall and floor surfaces.
- Place the four upper hexagon nuts and washers on the pins and fasten them.
- Check again for correct alignment of the enclosure.

Important:
Avoid drilling dust from getting inside the unit, as electrically conductive particles may cause damage to the components.
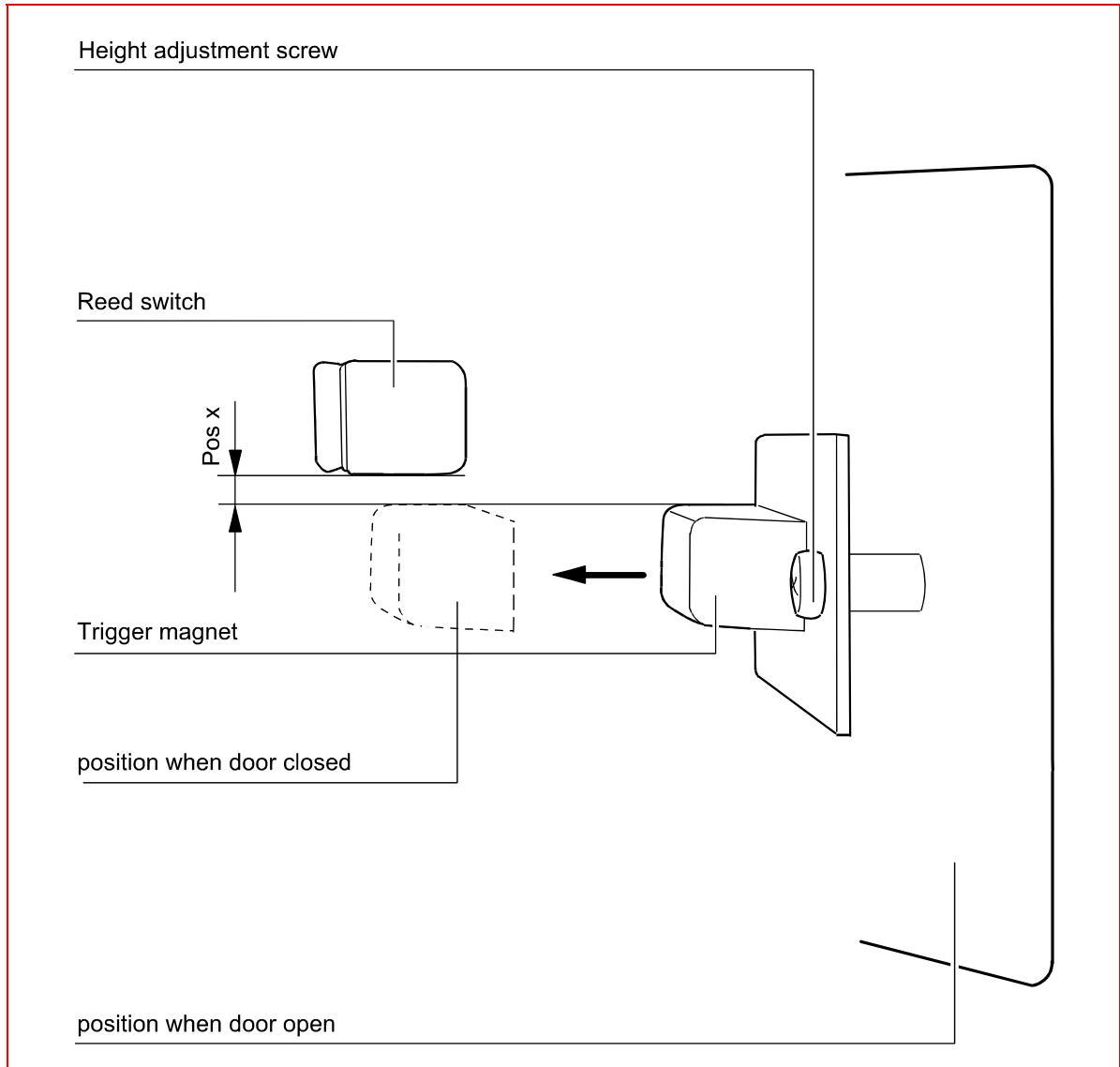
Fig. 6: Aligning the unit

Steps to be taken after mounting: Checking the Reed swich (Reed magnet)

Once you have installed the machine, verify that the Reed is func-tioning correctly when closing the door. In case the switch does not work properly, reset it to its correct position ('X') by shifting the trigger magnet.

Fig. 7: Reed swich

Height adjustment screw

Reed switch

Pos x

Trigger magnet

position when door closed

position when door open
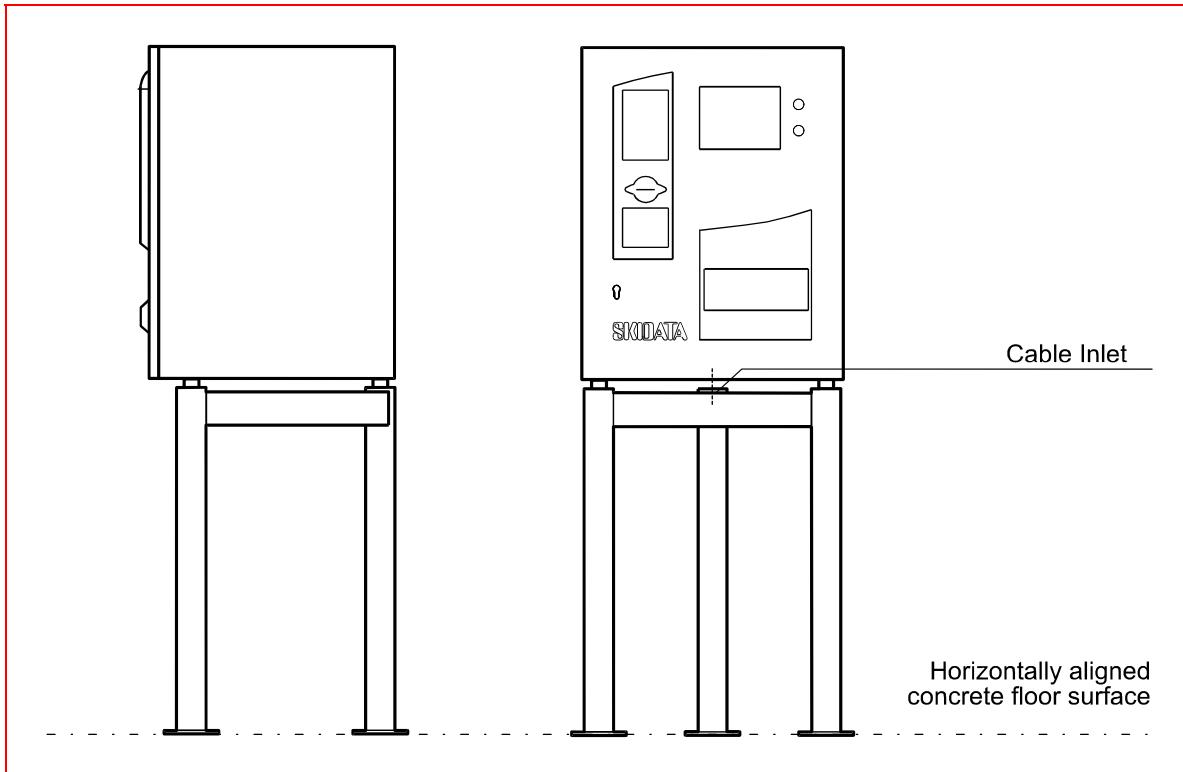
1.7.3   Mounting on rack stand

> **Warning notice:**
> The rack stand may only be installed on an appropriate horizontal concrete ground surface.

Fig. 8: Mounting on rack stand

Cable Inlet

Horizontally aligned
concrete floor surface

- Secure the rack stand to the concrete floor using anchor dowels. In case the flooring is made from other material, make sure that it is suitable for the weight and expected mechanical force exerted by the device.
- In case the ground surface is uneven, the rack stand should be mounted onto glue anchors inserted into the ground. Use washers to compensate for slants caused by the unevenness.
- Using a fork lift or with the help of a sufficient number of people, lift the machine onto the consoles (note that the device weighs around 100 kg!)
- Align the machine so that the mounting holes in its enclosure are concentric with the threaded holes in the consoles. When

doing so, make sure that the device is properly secured to avoid personal injury or damage to the device.

- Screw the supplied 4 threaded M 16 pins with hexagon sockets facing up and hexagon nuts and washers attached on the other end into the consoles (see Fig. 6: Aligning the unit).
- Turn the lower hexagon nuts to adjust the enclosure until it aligns with the surrounding wall and floor surfaces.
- Place the four upper hexagon nuts and washers on the pins and fasten them.
- Check again for correct alignment of the enclosure.

1.8   Power Connections

Power supply:
90 V – 264 V; 47 Hz – 63 Hz
Selector switch on power adaptor (version with banknote dispensing function only)
Wide-range voltage input (version with coin dispensing function only)

Power: 775 W max.

> **Important:**
> Electrical installation and maintenance work may only be carried out by qualified, licensed electricians. Power connections must be hard-wired. Ensure full compliance with all applicable national and international rules and directives regarding electric connections, and all applicable safety regulations.

Ensure the following before installing electrical connections:

- Check for correct supply voltage (120 or 230 VAC)
- Mains connections must comply with national standards and directives.
- When using flexible stranded wires, all filaments must be placed inside the terminal clamps; (use wire-end sleeves as necessary)
- The mains supply line must be fused in accordance with applicable standards.
- Check the insulation resistance of the cables to make sure it exceeds 0.5 MΩ
- Cables must be fastened to the mounting the plate by way of strain relief clamps and cable ties.
- Check the network cables to ensure the proper loop impedance.
- Measure the resistance of the earth conductor to make sure it is sufficiently low-ohmic.
- Check the earth wiring of the entire electrical assembly.

> **Important:**
> Always make sure that the unit is disconnected from the mains when working on electrical components.

Note:

The type and dimension of cables must comply with applicable national regulations in terms of the following:

– Mechanical strength

– Withstand strength

– Cross-section with regard to voltage drop

– Current load and short-circuit protection

– Heating

To connect the cables, you must remove the cover of sd412.

1.8.1   Connecting control board sd412

Fig. 9: Connecting sd412

Fig. 10: Correctly inserted wire
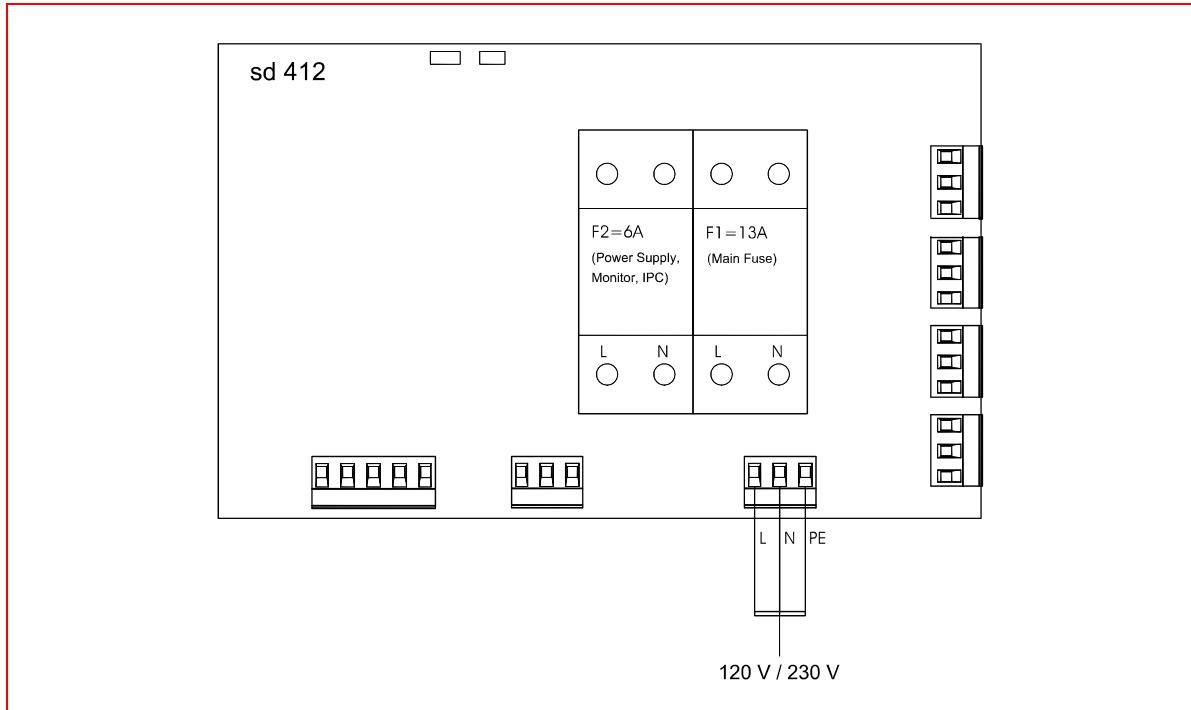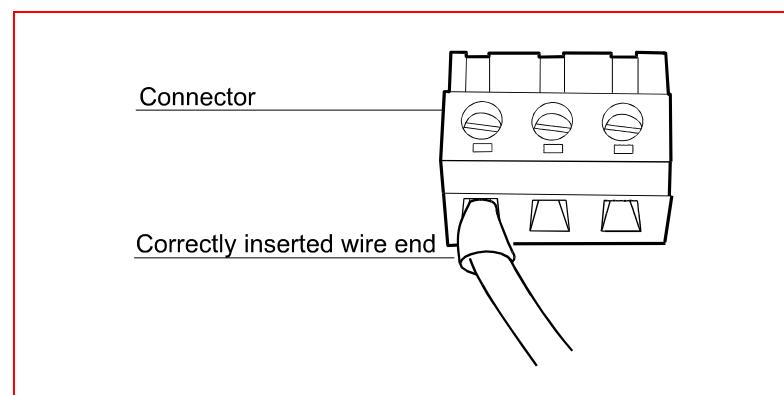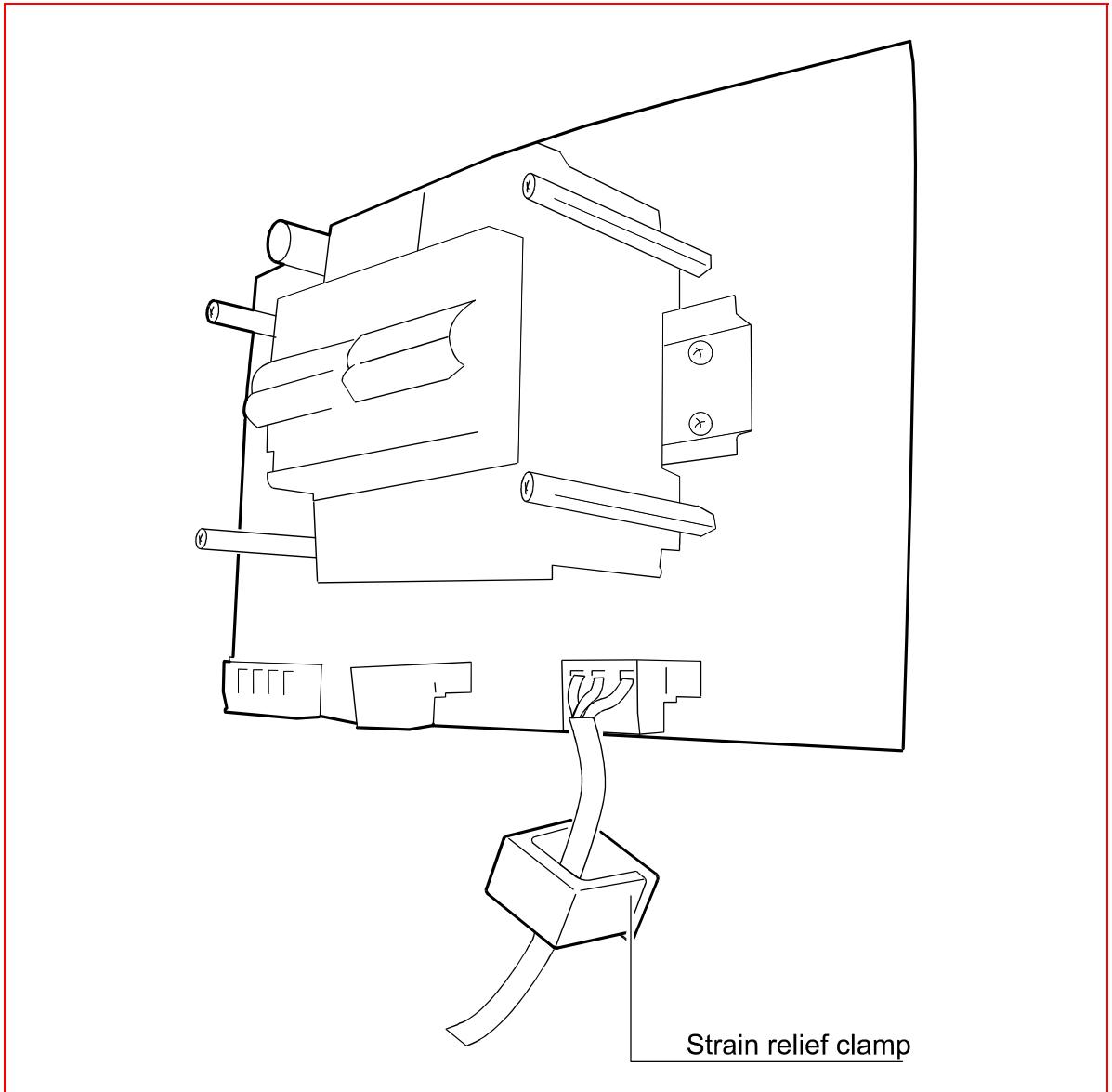
Connector

Correctly inserted wire end

1.8.2   Strain relief

Fig. 11: Strain relief

Strain relief clamp

Stripping connecting wires

To prevent short circuits between conductors or between conductors and chassis parts, wires should not be stripped by more than 6 mm (recommended amount).

When attaching connecting wires, ensure that the insulation covers the wire up to the metal clamp-in terminals.

Important:
After connecting the wires, check to make sure they are all correctly attached.

- Note that the torque applied to the terminals must not exceed 0.5 – 0.6 Nm
- Max. cross-sectional area of conductors: 2.5 mm² / AWG 12 (rigid or flexible)

1.8.3 Heater
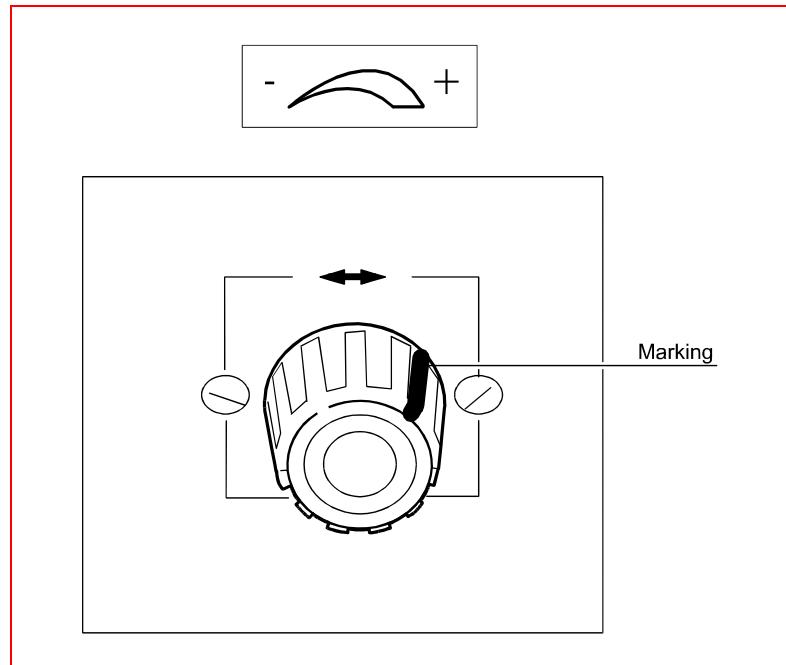
Important:
At ambient temperatures of 5 °C or less the front door must not remain open for longer than 5 minutes (at most).

Setting the thermostat
The factory setting of the thermostat allows for trouble-free operation under normal operating conditions, without any danger of overheating.
However, if it is necessary to adjust the thermostat (e.g., in case of extreme ambient conditions), it should be set so that the machine cannot overheat.
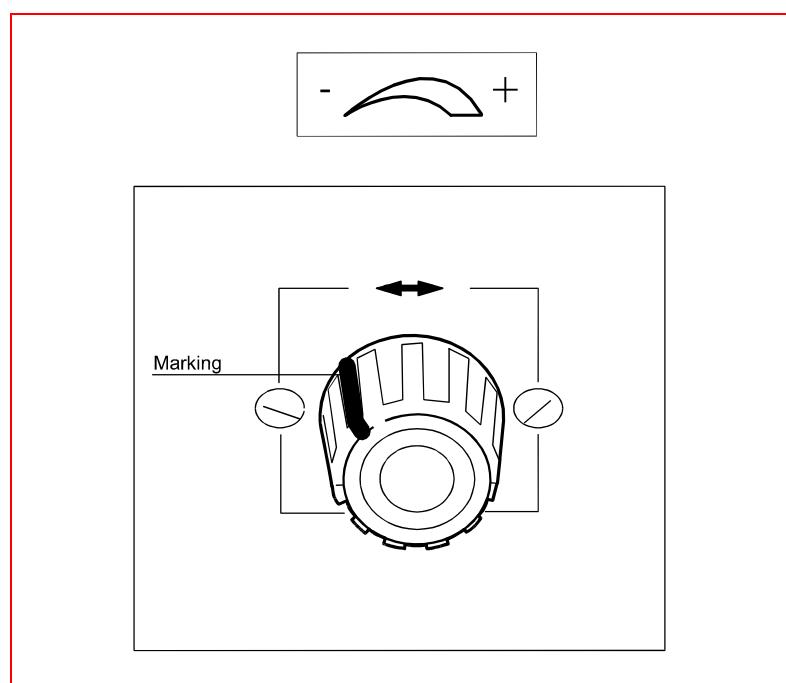
Fig. 12: Heater (outdoor installation)

Marking

Fig. 13:
Heater (indoor installation)

Marking

1.9 PC connections

1.9.1 Connectors

Fig. 14:
*Connectors: mechanism; softkey buttons, power supply*

Softkey-buttons

Power supply

Mechanism (COM 1)
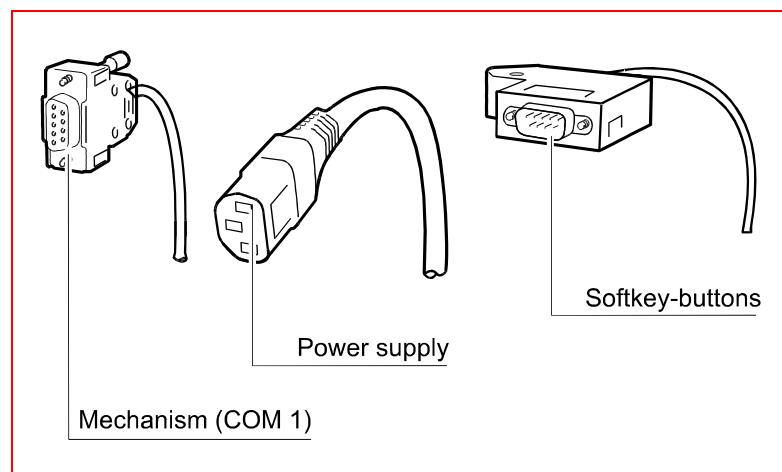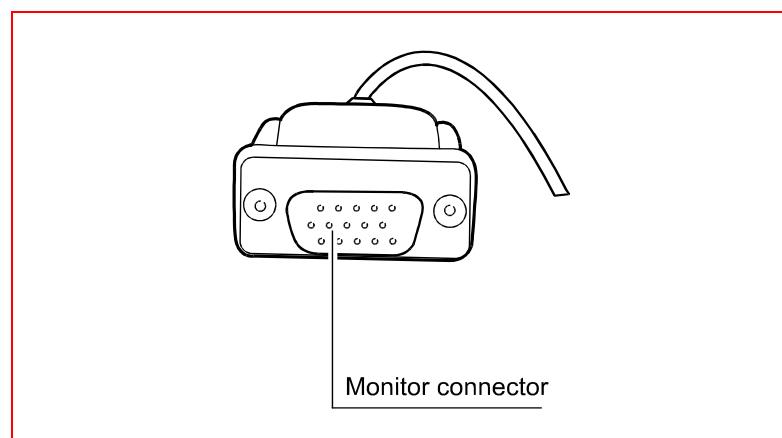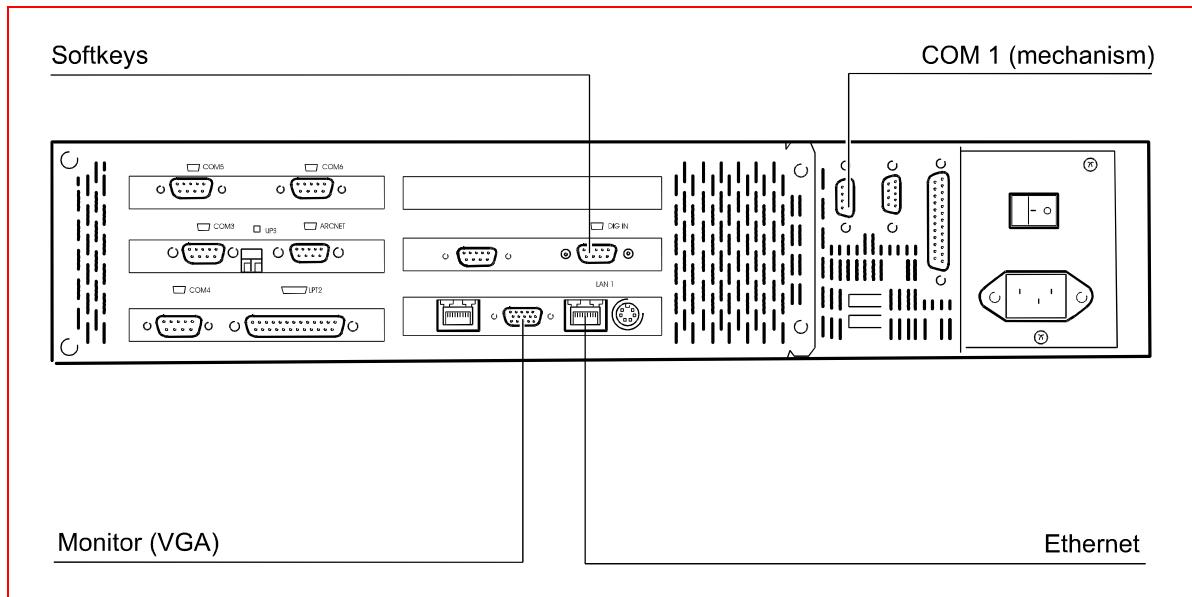
Fig. 15:
Monitor plug-in connector

Monitor connector

1.9.2 IPC connections (rear)

Fig. 16: IPC connections

1.10 Replacing the keycard Container
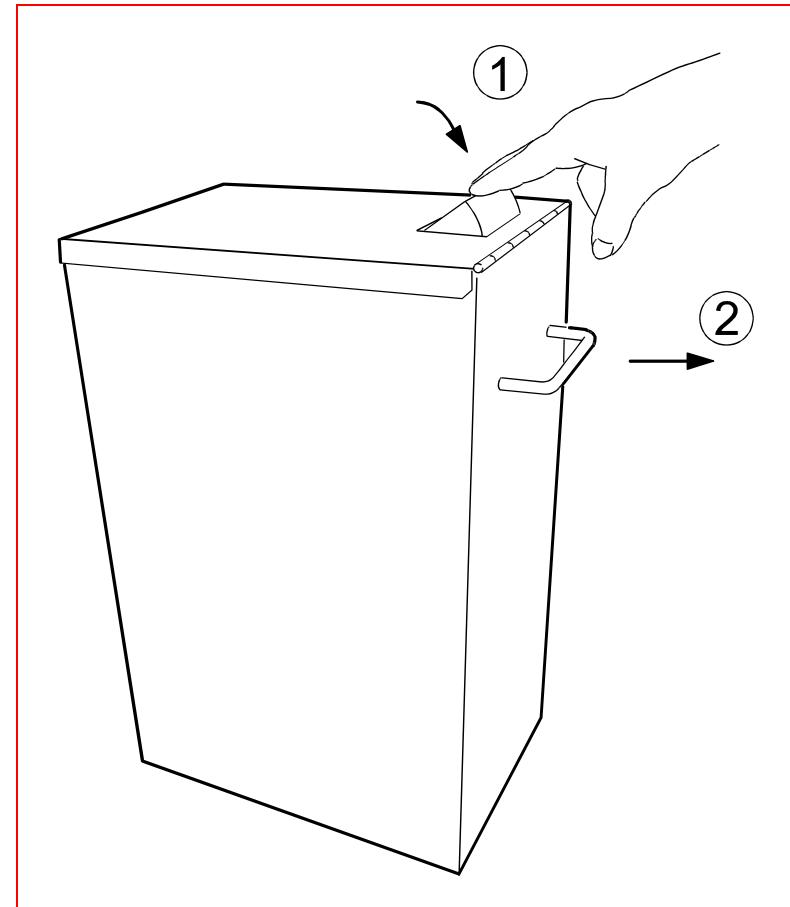
1.10.1 Removing the keycard container

Important:
The container can only be removed if the card insert channel is closed.
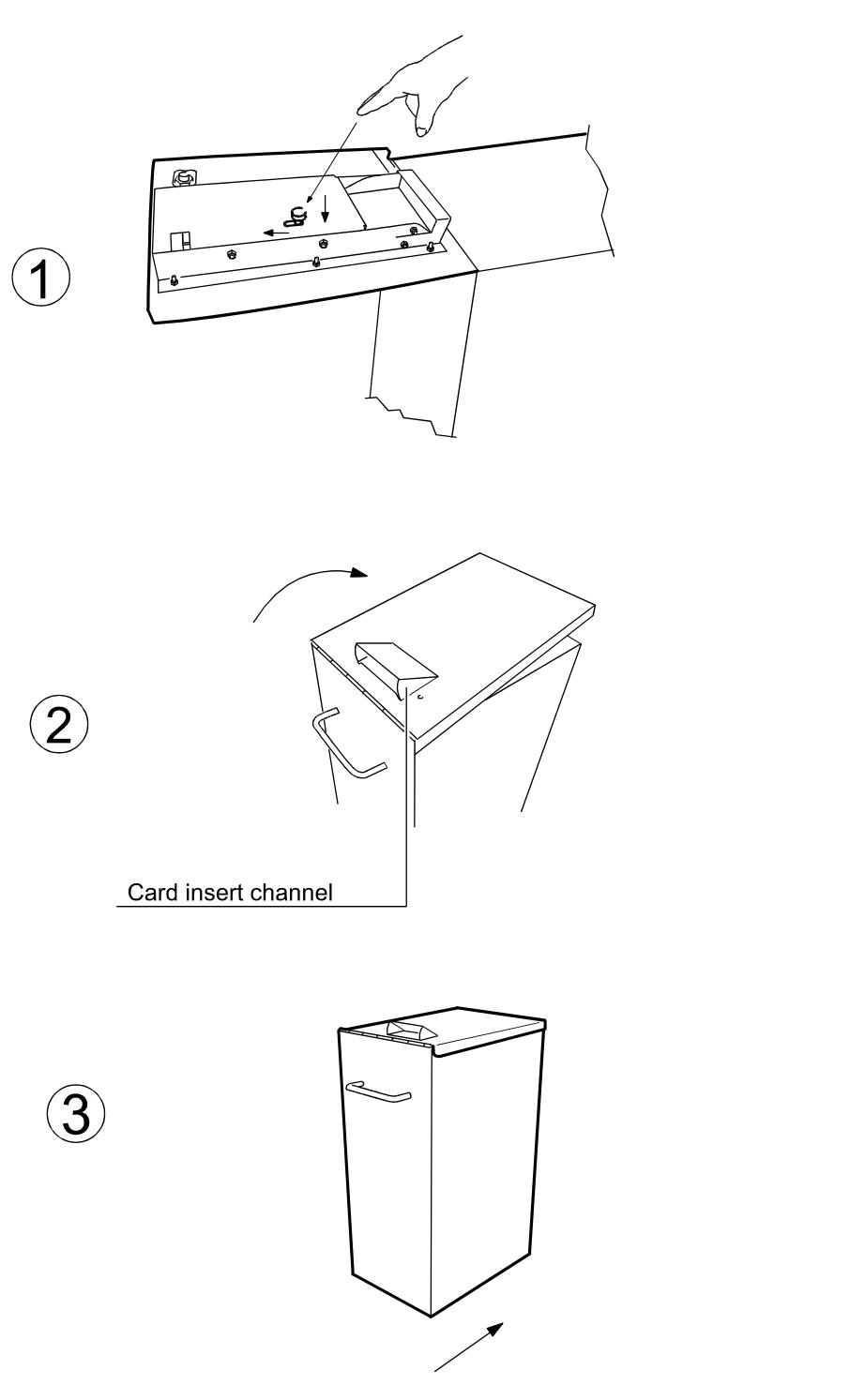
Fig. 17:
Removing the keycard container

- Push the card insert channel down (see illustration).
- Pull out the container.

Important:
When pulling out the container, remember that it may be quite heavy and may cause injury if not handled properly.
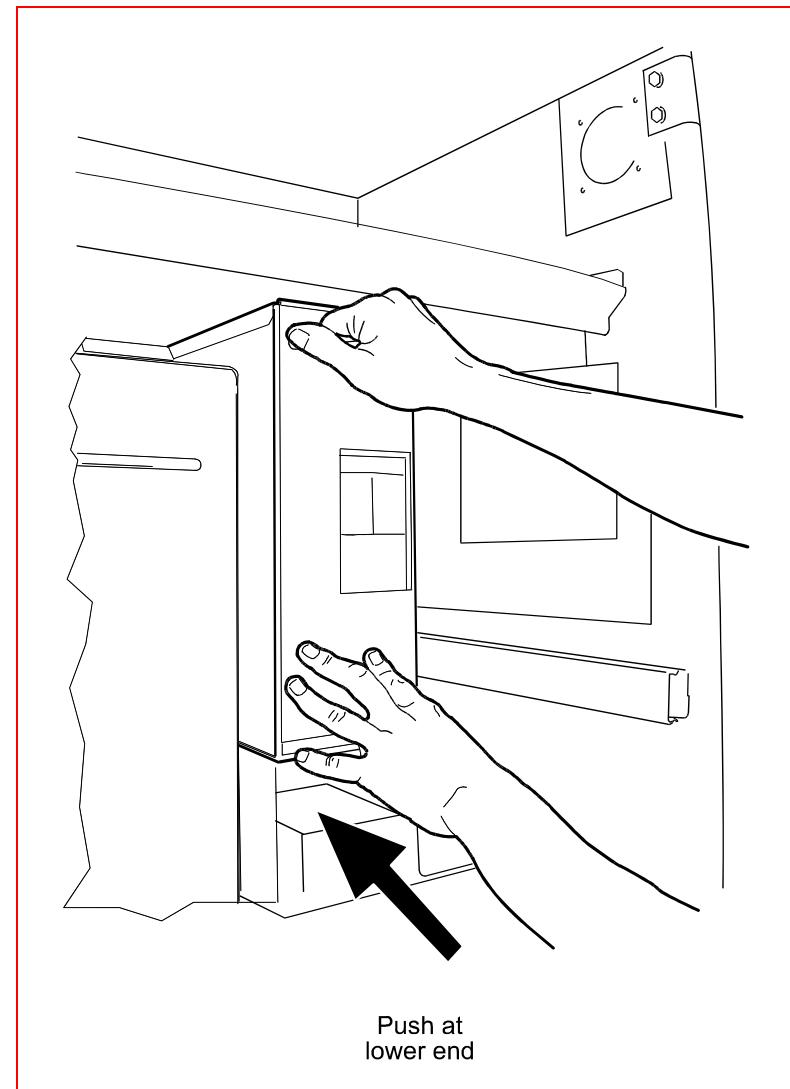
1.10.2   Inserting the keycard container

Fig. 18: Inserting the keycard container

Card insert channel

■ Press the push-button down and forward, as illustrated
   (arrows).
■ Close the cover and lock the container, making sure that the
   card insert channel is completely open and unobstructed.
■ Push the container in as far as it will go.

1.10.3   Inserting the coin cashbox

Important:
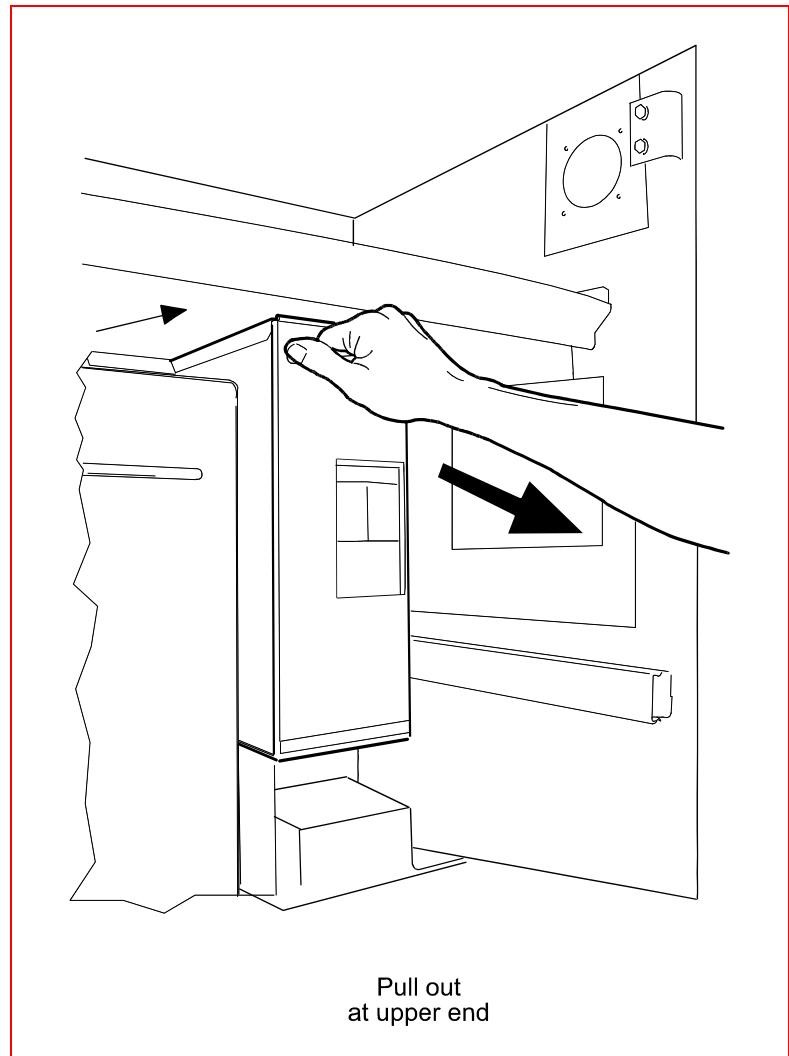
When pulling out the coin cashbox, remember that it may be quite heavy when full and may cause injury if not handled properly.

Fig. 19:
Coin cashbox

Push at
lower end

1.10.4   Removing the coin cashbox

Fig. 20:
Removing the coin
cashbox

Pull out
at upper end

1.11   Dispenser

Fig. 21:Removing the Dispenser
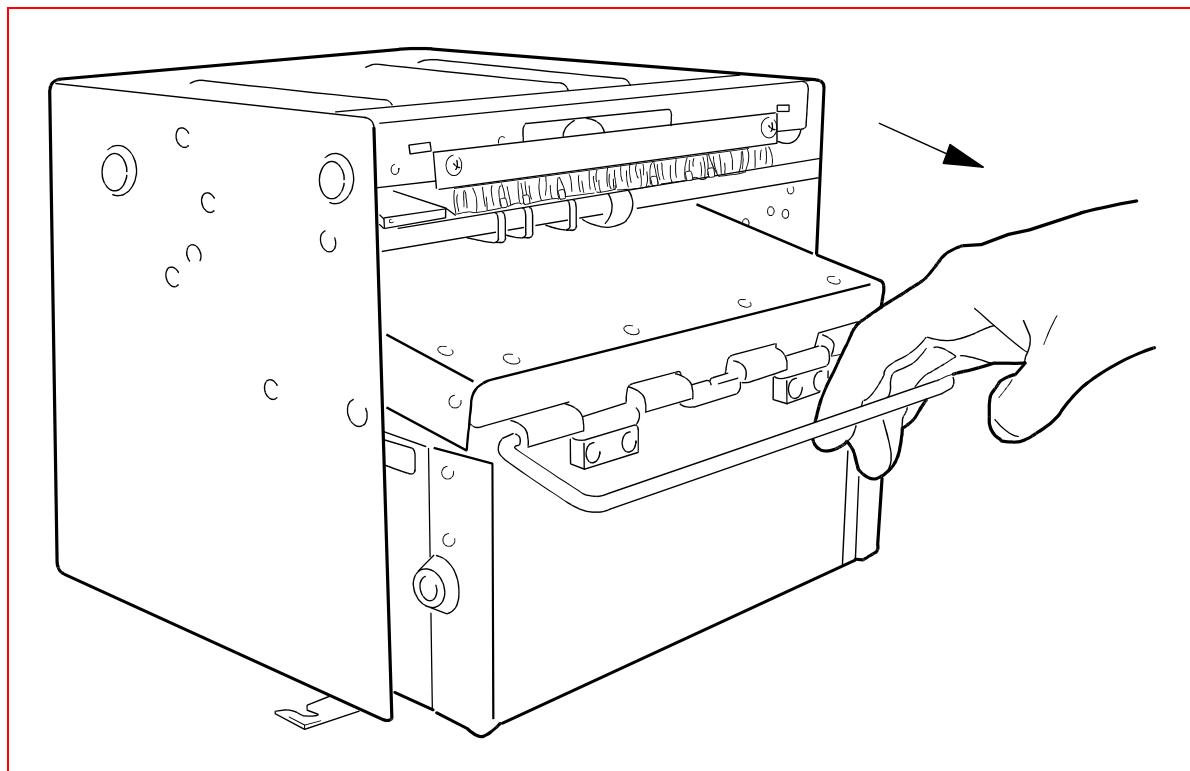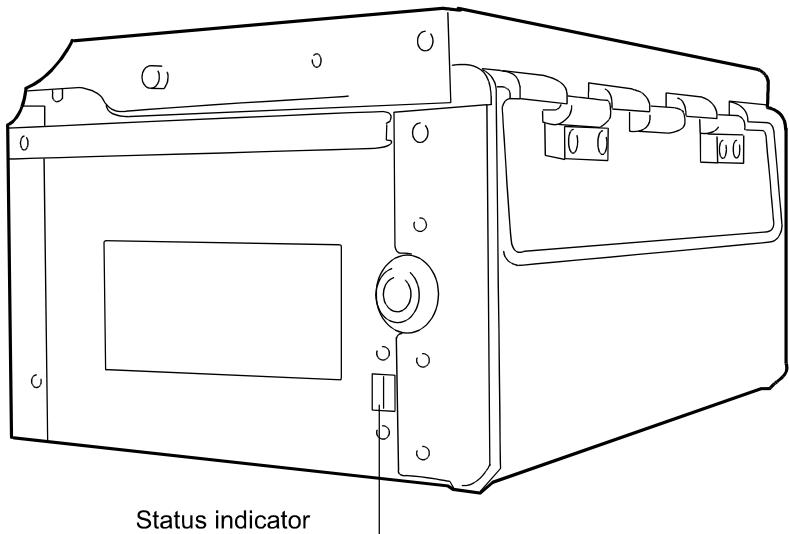
Fig. 22: Dispenser box

Status indicator

Status indicator

- After removal: RED
- Before inserting: GREEN

Opening the Dispenser box

- Place the box onto the unlockig rail.
- Push in the box as far as it will go.
- Open the box by turning the key.

*Fig. 23: Placing the Dispenser on the unlocking rail*

Marking red
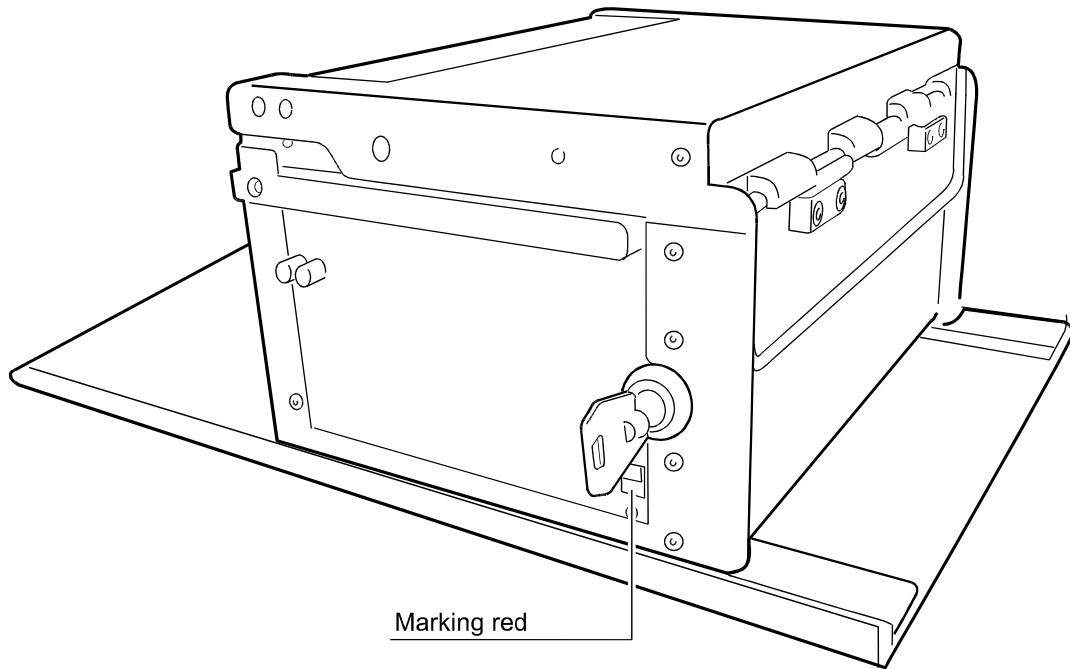
Fig. 24: Filling the Dispenser box with banknotes

Slider: pull backwards
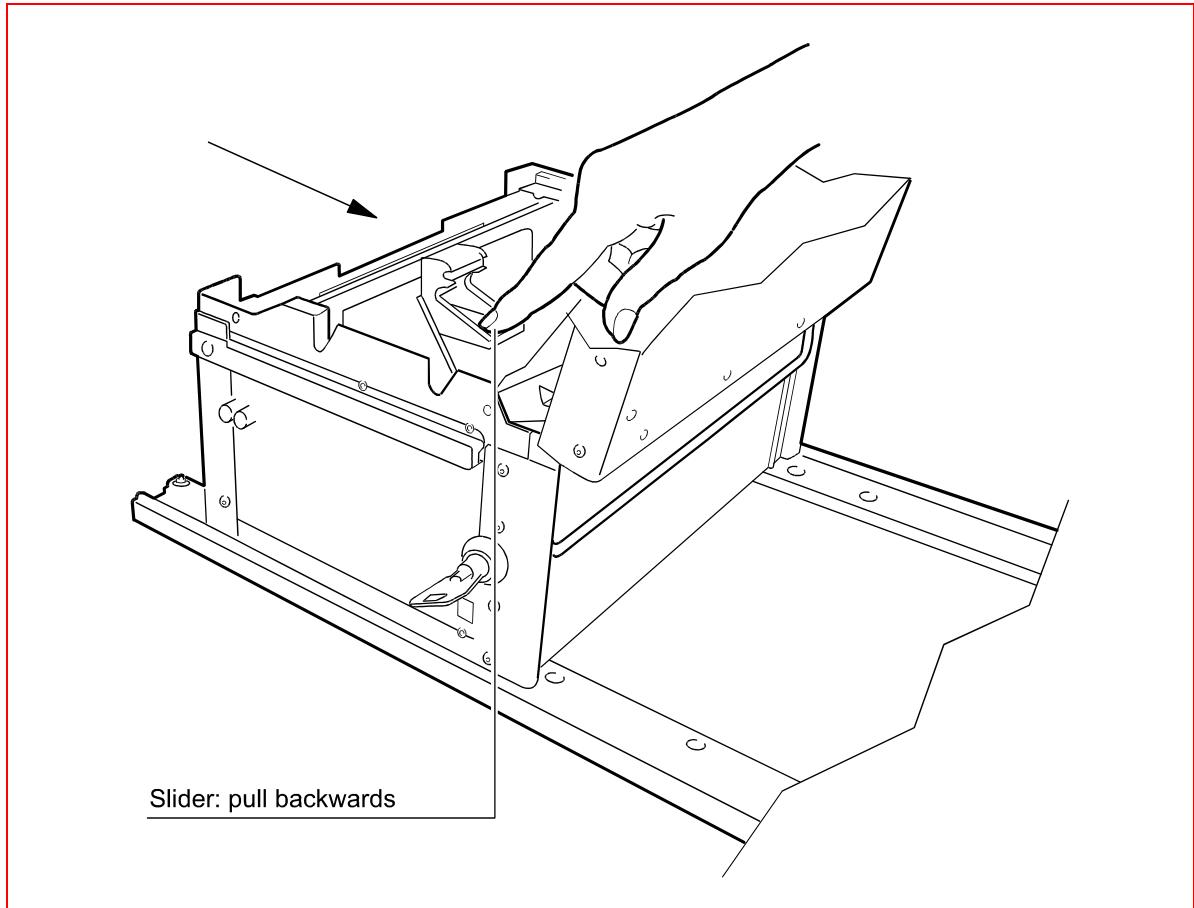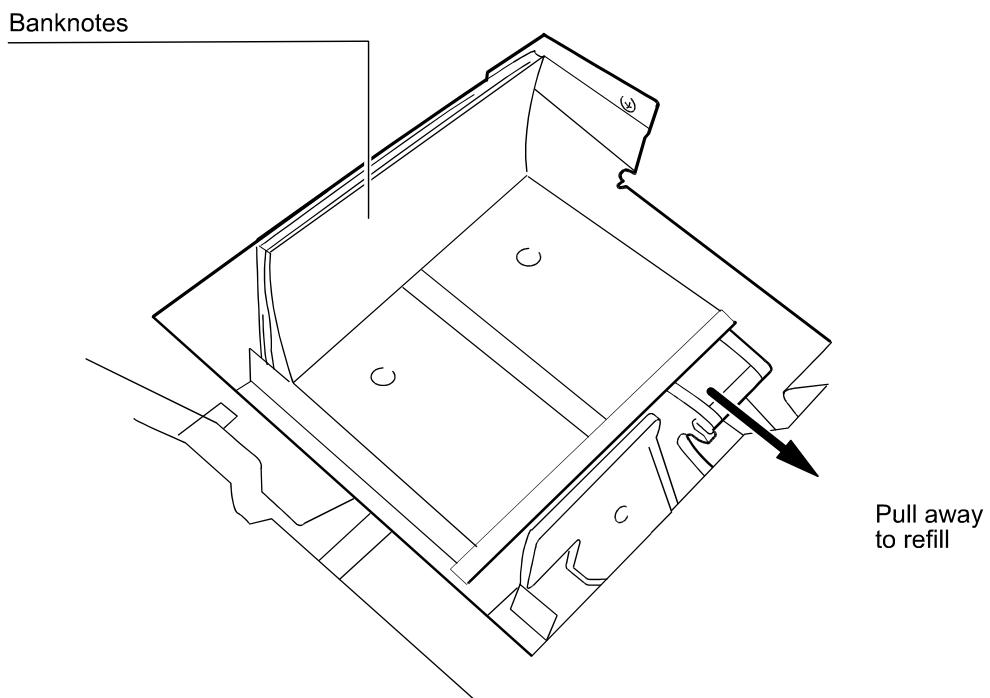
Fig. 25: Filling the Dispenser box with banknotes

- Close the cover.
- The status indicator must switch to GREEN.
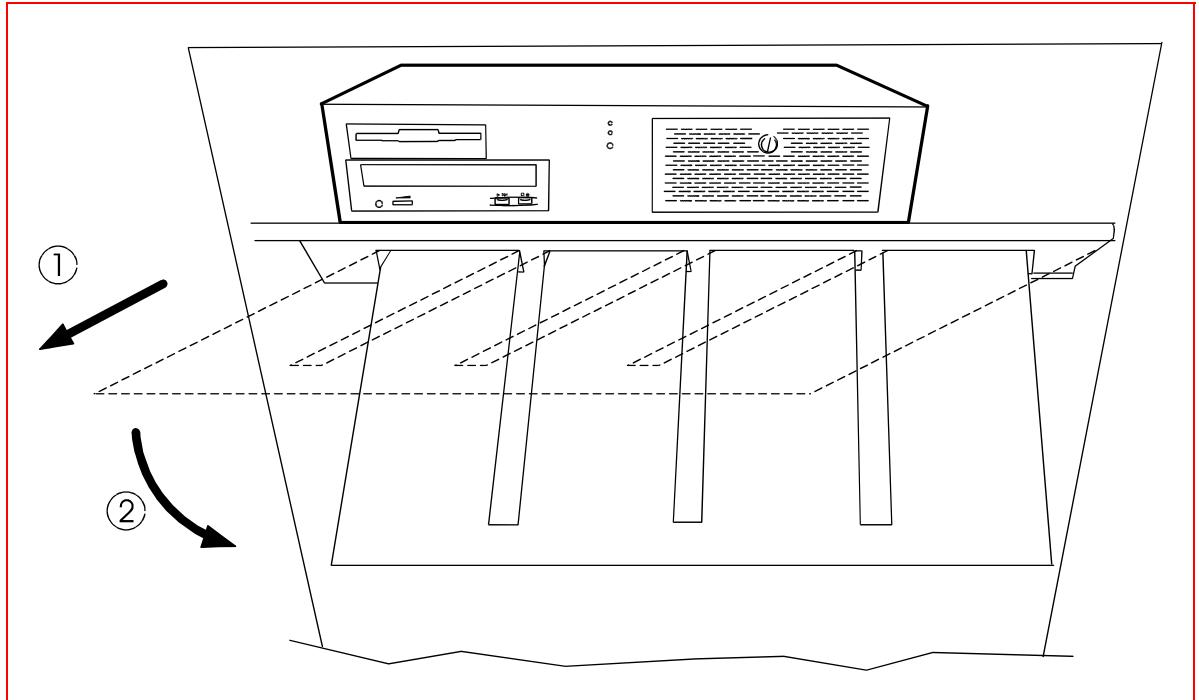
Important:
The Dispenser box can only be inserted when the status indicator shows GREEN.

1.12   Preparing IPC Settings

1.12.1   Keyboard rest
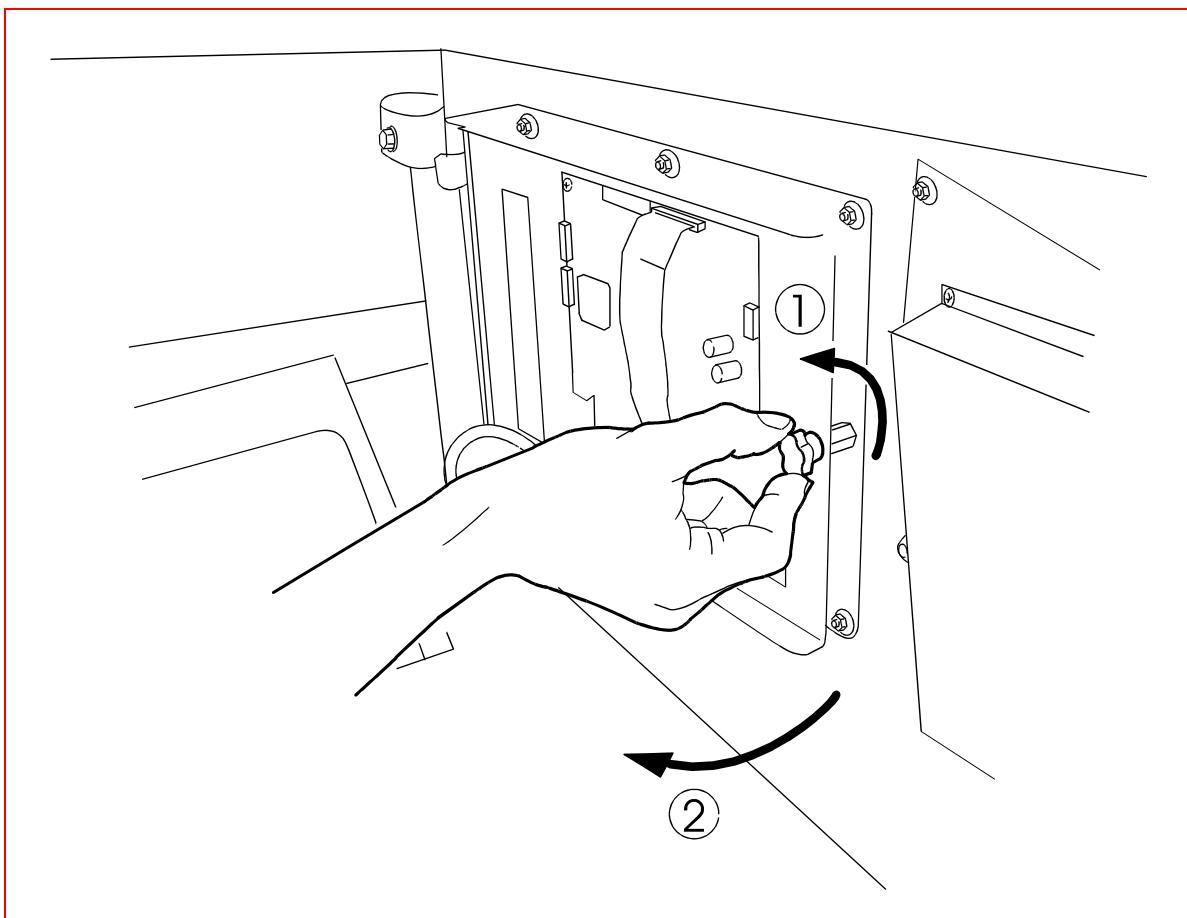
Fig. 26: Keyboard rest

- ■ Pull out the keyboard rest and fold it down.
- ■ Place the keyboard on the rest.

### 1.12.2   Swivelling the monitor

Fig. 27: Swivelling the monitor
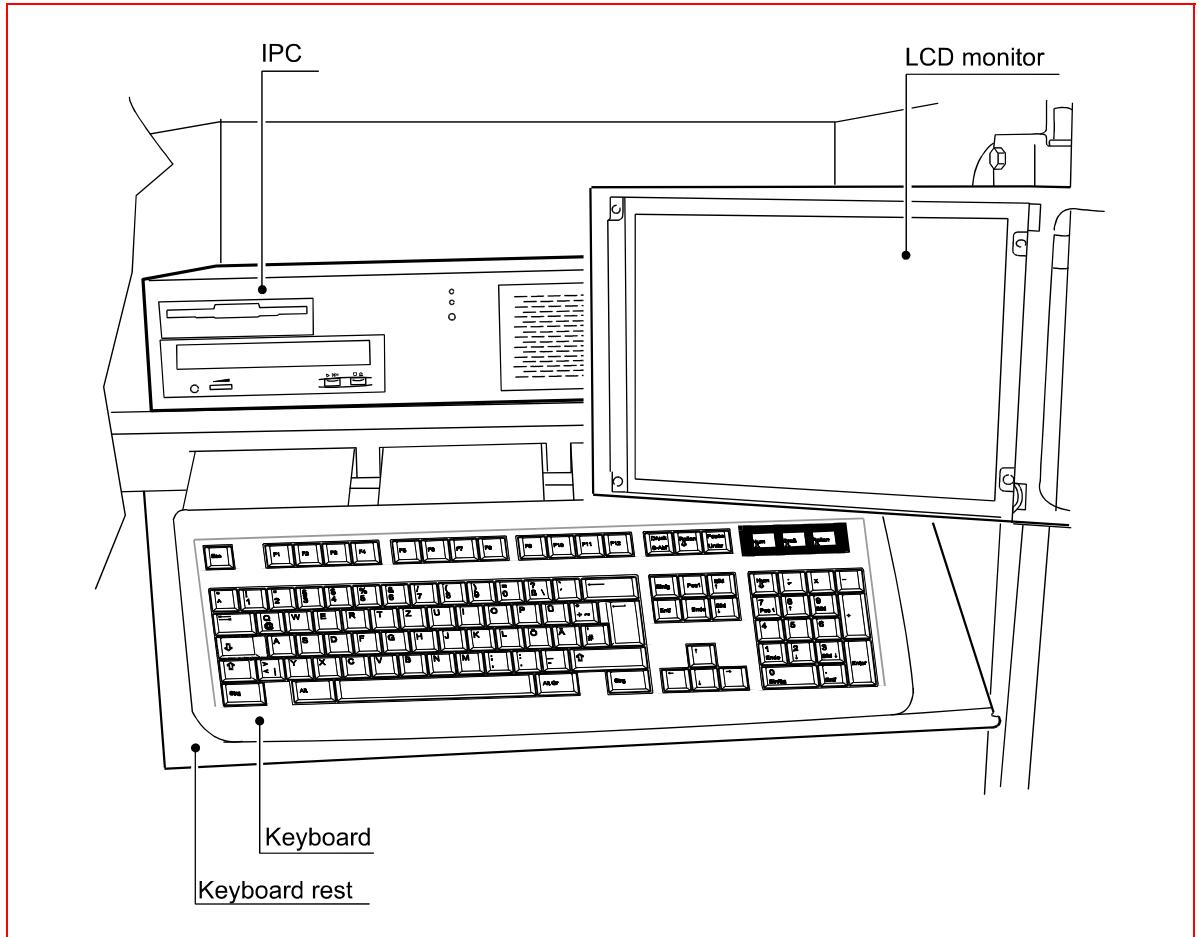
■ Loosen the screw by turning it counterclockwise (see item 1 in the illustration).
■ Swivel out the monitor as indicated (see item 2 in the illustration).

Important:
Avoid touching the screen surface of the LCD panel, as this may damage the display unit.
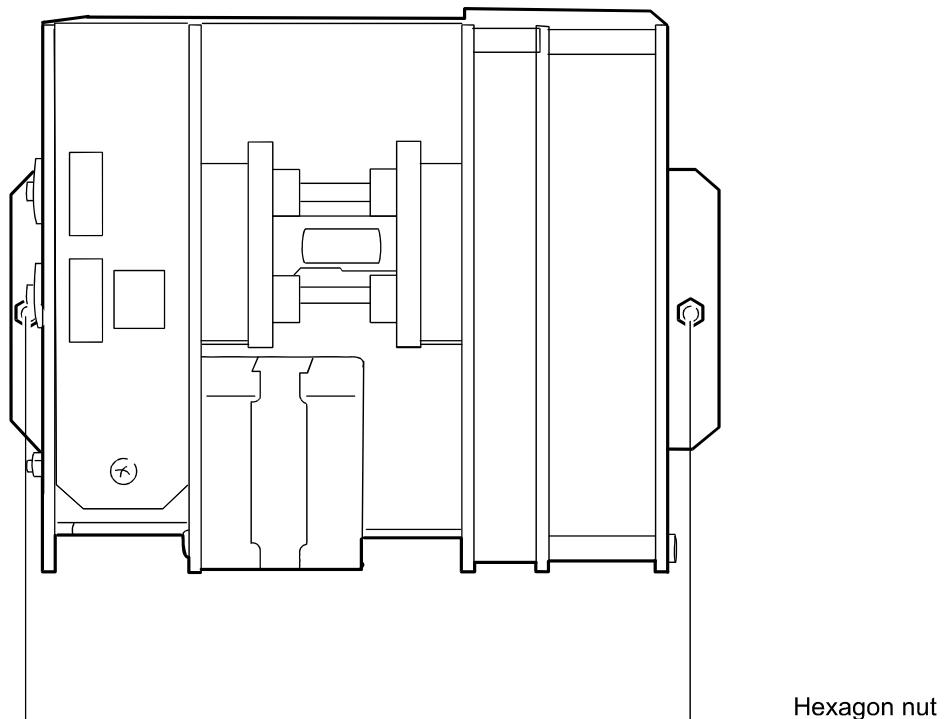
Fig. 28: Monitor, swivelled out

1.13 Replacing the Mechanism

| Important: |
|---|
| Switch off the device before replacing the mechanism. |
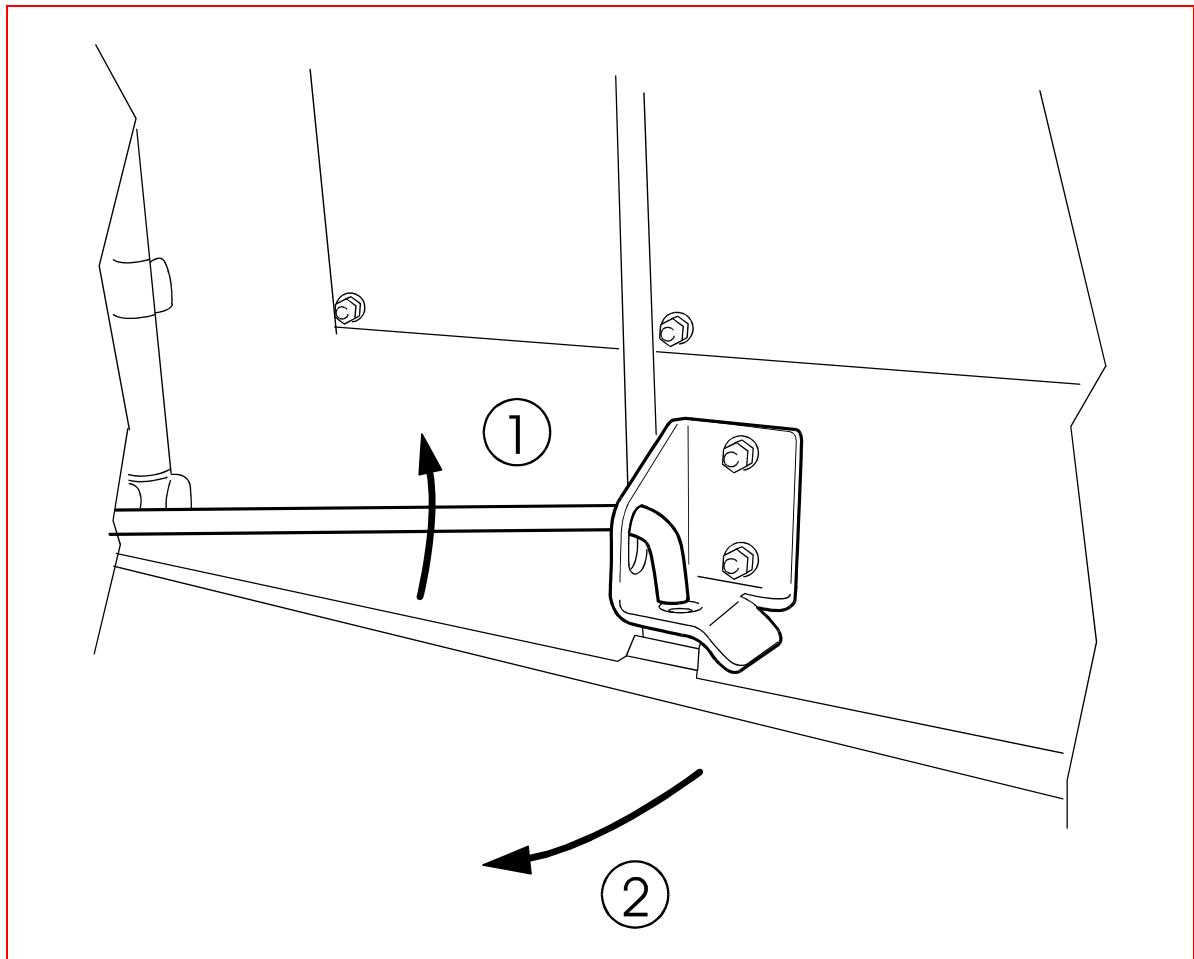
■ Remove the two hexagon nuts on the side panel of the mechanism.

Fig. 29: Replacing the mechanism

Hexagon nut

1.14 Closing the Bolted-open Door

Fig. 30: Unbolting the open door

■ To close the bolted-open door, lift the locking pin and close the door.

1.14 **Closing** the Bolted-open Door