

**WINCOR  
NIXDORF**

Self-Service  
Systems

**C CCDM**

Service Manual

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**CCDM**

**Service Manual**

**Edition November 2005**

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<b>Contents.....</b>	
<b>Introduction.....</b>	
<b>Device Integration.....</b>	
<b>Configuration Options.....</b>	
<b>Overview of Components.....</b>	
<b>Description of Components.....</b>	
<b>Function Description.....</b>	
<b>Function Test.....</b>	
<b>Faults.....</b>	
<b>Removal/Installation of Components...</b>	
<b>Maintenance and Service.....</b>	
<b>Appendix.....</b>	



---

# Contents

<b>Introduction .....</b>	<b>1-1</b>
Symbols used in this manual.....	1-1
Important safety precautions .....	1-1
General information.....	1-2
Structure of the manual .....	1-3
Outline.....	1-3
Supplementary documentation .....	1-3
Environmental protection.....	1-4
Disposing of used consumables .....	1-4
Labels on plastic case parts.....	1-4
Returning, recycling and disposing of used units and consumables .....	1-4
Further information.....	1-4
Abbreviations.....	1-5
<b>Device Integration .....</b>	<b>2-1</b>
General.....	2-1
Version 1 - Head module in the safe.....	2-2
Version 2 - Head module in the top part.....	2-3
<b>Configuration Options .....</b>	<b>3-1</b>
General.....	3-1
Head module .....	3-1
Cassette module .....	3-2
Standard cassette module (metal) (SK21.1).....	3-2
Cassette module for plastic cassettes (SK21.2) .....	3-2
Cassette module ProCash 3100 (SK31.0).....	3-2
Cassette module ProCash 3100(xe) (SK31.1).....	3-3
<b>Overview of the Components.....</b>	<b>4-1</b>
Components of the head module .....	4-2
Dispenser module .....	4-2
Dispenser module (01750047708) .....	4-2
Dispenser module (01750079779) .....	4-3
Rocking bar.....	4-4
Rocking bar (01750047726) .....	4-4
Rocking bar CCDM VM2 assembled (01750079781) .....	4-5
Metal detection (01750076812) .....	4-6
Cover for metal detection (01750080208) .....	4-7

Intermediate transport.....	4-8
Intermediate transport (01750064624).....	4-8
Intermediate transport (01750079797).....	4-9
Intermediate transport 2 (01750086849).....	4-10
Alignment station (01750065105).....	4-11
Magnetic ink character reader .....	4-12
Magnetic ink character reader (01750054847) .....	4-12
Magnetic ink character reader (01750097825) .....	4-13
Magnetic ink character reader dummy (01750058122).....	4-14
Magnetic ink character reader dummy (01750097826).....	4-15
Cheque / cash reader .....	4-16
Cheque / cash reader (01750064570) .....	4-16
Cash reader (01750068334) .....	4-17
Cheque reader .....	4-18
Escrow .....	4-19
Escrow (01750045965) .....	4-19
Escrow (01750079818) .....	4-20
Amplifier / controller boards .....	4-21
Amplifier / controller boards (01750066608)) .....	4-21
Amplifier / controller boards assy. (01750080807)).....	4-23
Reject transport unit (01750047165) .....	4-25
Printing station (01750055172).....	4-27
Snap-in panel for document guide (01750070381) .....	4-28
Chassis 2 CCDM assembly (01750079819).....	4-29
Back panel board (01750052539) .....	4-30
Dispenser board .....	4-31
Components of the cassette module.....	4-32
Cheque / cash transfer mechanism .....	4-32
Cheque / cash transfer mechanism (01750063208) (old version) ....	4-32
Cheque / cash transfer mechanism (01750077519) (new version)....	4-33
Cassettes for standard cassette module (metal) (SK21.1) .....	4-34
Cassette 1 (SK21.1).....	4-34
Cassette 2 (SK21.1).....	4-35
Retract cassette (SK21.1) (01750063500).....	4-36
Cassettes for cassette module for plastic cassettes (SK21.2).....	4-37
Media cassette (SK21.2) (01750078600).....	4-37
Media cassette (SK21.2 L) (01750078601).....	4-37
Retract cassette (SK21.2) (01750078602).....	4-38
Cassette lock (01750075987) .....	4-39
Cassettes for cassette module ProCash 3100 (SK31.0) .....	4-40
Cheque deposit box for ProCash 3100 (SK31.0).....	4-40
Cassettes for cassette module ProCash 3100(xe) (SK31.1).....	4-41

## Contents

---

Right cassette PC3100 (SK31.1).....	4-41
Left cassette PC3100 (SK31.1) .....	4-42
Separator transport .....	4-43
Separator transport (SK21.1) for standard cassette module (metal) .....	4-43
Separator transport (SK21.2) for cassette module for plastic cassettes .....	4-44
Separator transport (SK21.2 L) for cassette module for plastic cassettes .....	4-44
Separator transport (SK31.1) for cassette module ProCash 3100(xe) .....	4-45
Safety switch (01750065875) .....	4-46
CCDM storage board .....	4-47
Storage board for cassette module for ProCash 3100(xe) (SK31.1). 4-47	
Storage board for cassette module for plastic cassettes (SK21.2).... 4-47	
Storage board for standard cassette module (metal) (SK21.1) .....	4-48
Sensors and actuators .....	4-49
Function elements and controls .....	4-50
Block diagram.....	4-51
 <b>Description of Components .....</b>	<b>5-1</b>
Magnetic ink character reader.....	5-1
Structure .....	5-1
Function description.....	5-1
Device integration .....	5-2
Cheque / cash reader.....	5-2
Structure .....	5-2
Function description.....	5-3
Processing banknotes.....	5-3
Processing cheques.....	5-4
Device integration .....	5-4
Escrow unit.....	5-5
Structure .....	5-5
Function description.....	5-7
Device integration .....	5-10
Reject transport unit .....	5-11
Structure .....	5-11
Function description.....	5-12
Device integration .....	5-13
Alignment station.....	5-14
Structure .....	5-14
Function description.....	5-16

Dispenser module .....	5-18
Structure .....	5-18
Function description.....	5-19
<b>Function description.....</b>	<b>6-1</b>
Functions.....	6-1
How the CCDM works .....	6-2
Cheque processing .....	6-2
Banknote processing .....	6-3
LEDs .....	6-5
Function buttons.....	6-7
Description of transport paths .....	6-8
Version with standard cassette module (metal) (SK21.1).....	6-8
Transport from the input / output area to the escrow unit.....	6-8
Transport from the escrow unit to the cassette module .....	6-9
Transport from the escrow unit to the input / output area.....	6-10
Transport from the input / output area to the retract cassette in the cassette module .....	6-11
Transport path for a rejected medium .....	6-12
Version with cassette module for plastic cassettes (SK21.2) .....	6-13
Transport from the input / output area to the escrow unit.....	6-13
Transport from the escrow unit to the cassette module .....	6-14
Transport from the escrow unit to the input / output area.....	6-15
Transport from the input / output area to the retract cassette in the cassette module .....	6-16
Transport path for a rejected medium .....	6-17
Version with cassette module for ProCash 3100(xe) (SK31.1) .....	6-18
Transport from the input / output area to the escrow unit.....	6-18
Transport from the escrow unit to the cassette module .....	6-19
Transport from the escrow unit to the input / output area.....	6-20
Transport path for a rejected medium .....	6-21
<b>Function Test.....</b>	<b>7-1</b>
Test button .....	7-1
Calling the function codes .....	7-1
Calling the service function codes.....	7-3
<b>Faults.....</b>	<b>8-1</b>
Status messages.....	8-1
Status display .....	8-1
Localizing the cause of the error.....	8-2
Error codes / warning codes .....	8-3

## Contents

---

Error messages in the area of the head module .....	8-5
Error messages of photosensors.....	8-25
Error messages in the cassette module section.....	8-48
Sensors and actuators .....	8-53
Description of sensors / actuators.....	8-53
Structure of brief designations.....	8-53
Abbreviations for functional units or functions .....	8-53
Abbreviation for element types .....	8-54
Overview of sensors and actuators.....	8-54
CCDM head module.....	8-55
CCDM cassette module.....	8-59
Shutter .....	8-62
Dispenser module .....	8-62
Alignment station .....	8-64
Magnetic character reader .....	8-65
Cheque / cash reader .....	8-65
Sensor / deposit transport.....	8-65
Escrow unit .....	8-66
Printing station .....	8-67
Reject transport unit.....	8-67
Cassette module .....	8-68
 <b>Removal/Installation of Components .....</b>	 <b>9-1</b>
General.....	9-1
View of the CCDM.....	9-1
View of the standard cassette module (metal).....	9-2
View of the cassette module for plastic cassettes .....	9-3
View of cassette module ProCash 3100(xe).....	9-4
Power interrupt.....	9-5
Removing the cover plate.....	9-6
Removing / inserting cassettes .....	9-7
Standard cassette module (metal) .....	9-7
Removing / inserting the retract cassette .....	9-7
Removing / inserting cassette 2 .....	9-8
Removing / inserting cassette 1 .....	9-9
Cassette module for plastic cassettes .....	9-10
Removing / inserting the retract cassette .....	9-10
Removing / installing a media cassette .....	9-11
Cassette module ProCash 3100(xe).....	9-12
Removing / inserting left cassette.....	9-12
Removing / inserting right cassette .....	9-13
Opening / closing components .....	9-14

Pulling out / pushing in the dispenser .....	9-14
Opening / closing the intermediate transport .....	9-15
Opening / closing the alignment station .....	9-15
Head module .....	9-16
Dispenser module .....	9-16
Intermediate transport .....	9-18
Metal detection .....	9-19
Rocking bar in the dispenser module .....	9-21
Control panel .....	9-28
Frontload (control panel on the dispenser module) .....	9-28
Rearload (control panel on the escrow) .....	9-31
Alignment station .....	9-32
Magnetic ink character reader .....	9-33
Cheque / cash reader .....	9-34
Amplifier / controller boards .....	9-35
Escrow unit .....	9-37
Reject transport unit .....	9-39
Print station .....	9-41
Print head .....	9-45
Chassis .....	9-47
Safety switch head module .....	9-49
Cheque / cash transfer mechanism .....	9-50
Standard cassette module (metal) .....	9-51
Separator transport .....	9-51
Storage board .....	9-53
Cassette module for plastic cassettes .....	9-55
Safety switch cassette module .....	9-55
Separator transport .....	9-57
Storage board .....	9-58
Lock on media cassettes .....	9-59
Media cassette handle .....	9-59
Cassette module ProCash 3100(xe) .....	9-61
Safety switch cassette module .....	9-61
Storage board .....	9-62
<b>Maintenance and Service .....</b>	<b>10-1</b>
General .....	10-1
Dispenser module .....	10-1
Cheque / cash reader .....	10-1
Consumables .....	10-2
Orders .....	10-2
Notes on using cleaning materials .....	10-3

## Contents

---

Printer ribbon cartridge .....	10-3
Print head.....	10-3
Approved maintenance materials.....	10-4
 <b>Appendix .....</b>	 <b>11-1</b>
Technical data.....	11-1
General .....	11-1
Cassettes .....	11-3
Media .....	11-4
Pin assignments back panel.....	11-5
X1 (power supply unit) .....	11-5
X2 (LINE XSA Baumer sensor).....	11-6
X3 (MICR) .....	11-7
X4 (alignment station) .....	11-8
X5 (storage transport - motor).....	11-9
X6 (intermediate transport - motor).....	11-9
X7 (sensor transport - motors) .....	11-10
X8 (escrow - motor) .....	11-10
X9 (printing station - ribbon transport) .....	11-11
X10 (escrow - sensors) .....	11-12
X11 (reject transport - sensors / motors) .....	11-13
X12 (sensor transport - sensors) .....	11-14
X13 (printing station - print monitoring).....	11-15
X14 (dispenser print I).....	11-16
X15 (dispenser print II).....	11-17
X16 (controller) .....	11-18
X17 (amplifier I).....	11-21
X18 (amplifier II).....	11-24
X19 (printing station - pinhead) .....	11-26
X20 (safety switch).....	11-27
X21 (sensor transport - switch motor 2).....	11-28
X22 (sensor transport - switch motor 3).....	11-28
Pin assignment amplifier .....	11-29
X1 (amplifier - controller I).....	11-29
X2 (amplifier - controller II).....	11-30
X4 (back panel I) .....	11-31
X5 (shutter) .....	11-34
X6 (V.24 PC) .....	11-35
X7 (back panel II).....	11-36
Assignment controller.....	11-38
X4 (back panel I - dispenser logic).....	11-38
X2 (cassette module – storage board).....	11-41

X3 (amplifier) .....	11-43
X4 (amplifier) .....	11-44
X5 (system - control panel) .....	11-45
X7 .....	11-46
X8 (reserve) .....	11-47
X9 .....	11-48
X10 (USB) .....	11-50
Pin assignments storage board.....	11-51
X1 (storage cassette).....	11-51
X2 (sensors left).....	11-53
X3 (sensors right) .....	11-55
X4 (DC - Motor cassette 2) .....	11-56
X5 (DC - Motor cassette 1) .....	11-56
X6 (motor distributor transport).....	11-57
X7 (motor stacking wheel cash).....	11-57
X8 (motor stacking wheel cheque) .....	11-58
X9 (motor switch control) .....	11-58
X10 (safety switch) .....	11-59
Pin assignment dispenser board.....	11-60
X1 (back panel - dispenser print I).....	11-60
X2 (back panel - dispenser print II).....	11-61
X3 (sensors and motors to dispenser print).....	11-62
X4 (metal detection to dispenser print) .....	11-63
X5 (motor input / output transport).....	11-64
X6 (motor transport rollers drive) .....	11-64
X7 (motor counterrotation shaft) .....	11-65
X8 (motor cam disk).....	11-65
X9 (foreign body sensor) .....	11-66
X10 (photosensor - dispenser, magnet) .....	11-67
X11 (control panel) .....	11-68
X12 (ultrasound sensor) .....	11-68
X15 (distributor print) .....	11-69

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# Introduction

This service manual has been compiled for authorized service personnel only.



## Symbols used in this manual

- Text following a dash represents an item in a list.
  - " " Text in quotation marks refers to other chapters or sections in this document.
  - Text following this symbol describes actions to be performed in the specified order.
-  Text following this symbol should be given special attention in order to avoid damage and injury.
-  Text following this symbol contains general information to facilitate use of the device and help avoid operating errors.

## Important safety precautions



Before performing any work on the CCDM disconnect the device from power and unplug the power supply cable from the CCDM (see chapter "Removal / Installation of Components", section "Power interrupt"). Observe the safety precautions (refer to the service manual of the device).

## General information

The cheque / cash deposit module (or CCDM) is designed to be integrated in automated teller machines and full-function self-service terminals. It consists of the metal detection unit, dispensing station, input/output area, alignment station, magnetic character reader, cheque/cash reader, escrow unit, print station and cassette module.

The CCDM offers the following functions:

- Processing checks
- Processing banknotes,
- Depositing the media in the appropriate cassettes in the cassette module.

How to operate the CCDM is described in the operating manuals of the devices which are equipped with the CCDM.

# **Structure of the manual**

## **Outline**

The chapter "Introduction" describes the important safety precautions, notes concerning environmental protection and provides a list of abbreviations. It also gives an overview of the possible functions of the CCDM.

The chapter "Device Integration" gives an overview of the possible versions which may be used in the devices.

Views of the individual components of the CCDM, positions of the sensors, actuators, function elements and controls as well as a block diagram illustrating the integration of the individual units are shown in the chapter "Overview of Components".

In the chapter "Function and Integration" you will find a description of the functions of the components and a description of the transport paths.

CCDM testing is described in the chapter "Function test".

The next chapter lists possible malfunctions and provides information how to eliminate them.

The next chapter "Removal / Installation of Components" provides detailed information on how to remove and install the individual units.

The chapter "Maintenance and Service" contains information on required maintenance work.

The last chapter "Appendix" provides technical data and pin assignments.

## **Supplementary documentation**

For the operation and installation of the system, separate manuals are available in several languages. These manuals can be ordered from the publications office. They are also available in the intranet.

# Environmental protection

## Disposing of used consumables

Please dispose of consumables according to the applicable regulations of your country.

## Labels on plastic case parts

Please do not stick any labels on plastic case parts since that would make recycling more difficult.

## Returning, recycling and disposing of used units and consumables

Details regarding the return and recycling of used units and consumables can be obtained from your local branch office or from our Recycling Center in Paderborn:

Tel.: +49 (0) 52 51 8-1 80 10

Fax.: +49 (0) 52 51 8-1 80 15

## Further information

can be obtained from our Environmental Protection section (Referat Umweltschutz):

Tel.: +49 (0) 52 51 693-67 07

Fax.: +49 (0) 52 51 693-67 09

Email: [referat.umweltschutz@wincor-nixdorf.com](mailto:referat.umweltschutz@wincor-nixdorf.com)

## Abbreviations

CCDM	Cheque / Cash Deposit Module
CCE	Cheque/cash recognition module
DIN	German Institute for Standardization
EC	Extended Error Code
ECB	European Central Bank
ESD	Electrostatic Discharge
ISO	International Organization for Standardization
KDIAG	Components Diagnostics
LED	Light-Emitting Diode
MICR	Magnetic Ink Character Reader
UART	Universal Asynchronous Receiver Transmitter



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# **Device Integration**

## **General**

Due to different device designs there are two versions of the CCDM.

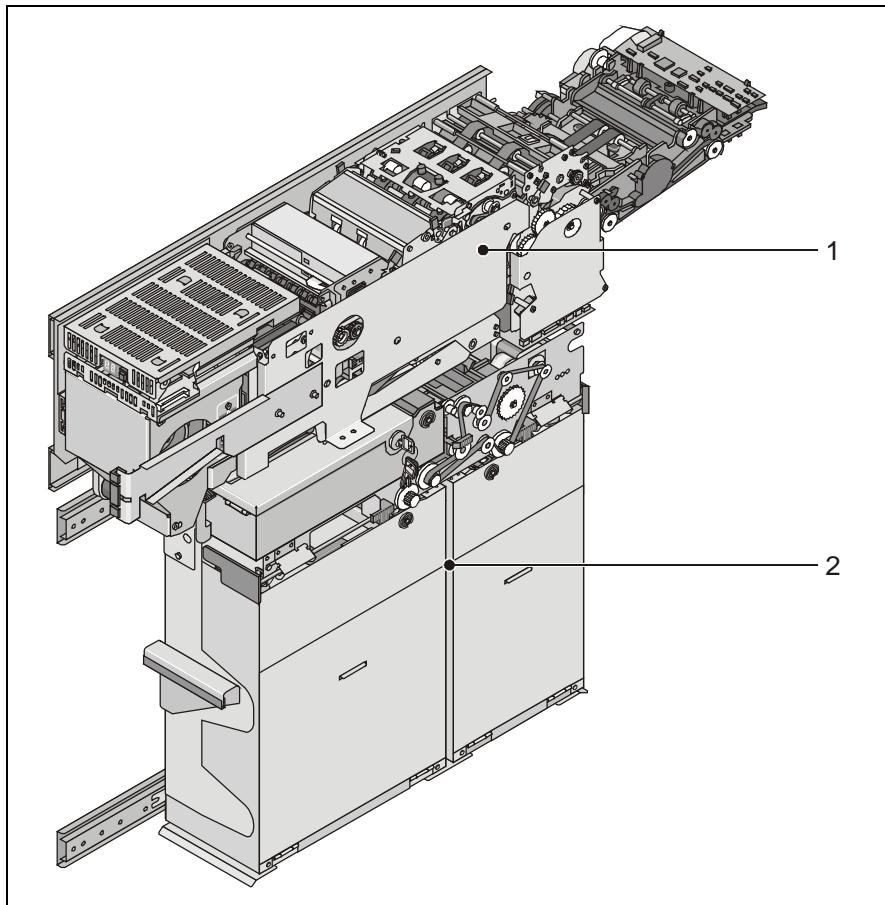
Version 1 has the cassette module as well as the head module in the safe.

In version 2 the cassette module is located in the safe and the head module is located in the top part of the device. The transition from the head module to the cassette module is implemented by means of a transfer transport.

Both versions can be used in frontload as well as rearload devices.

The following sections provide an overview of the two versions.

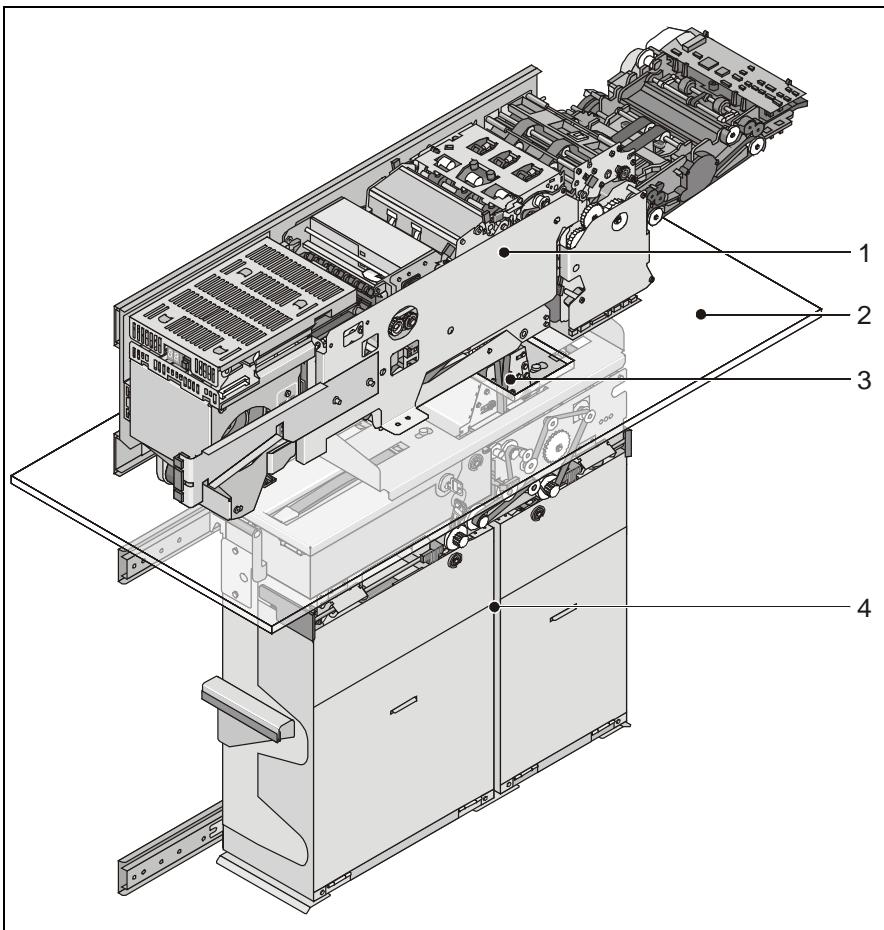
## Version 1 - Head module in the safe



1 Head module

2 Cassette module

## Version 2 - Head module in the top part



- 1 Head module in the top of the unit
- 2 Top of the safe
- 3 Cheque / cash transfer mechanism
- 4 Cassette module



---

# Configuration Options

## General

The following sections provide an overview of the various CCDM configuration options.

## Head module

Different reader modules can be integrated in the head module.

Component	Part number
Cheque/cash reader (Line XSA) in acc. with ECB art. 6.	01750064570
Cheque/cash reader (Line XSA)	01750068336
Cash reader (Line XSA) in acc. with ECB art. 6.	01750068335
Cash reader (Line XSA)	01750068334
Cheque reader	not yet released *
Magnetic ink character reader	01750054847 (revision level 4)
Magnetic ink character reader	01750097825 **
Dummy for magnetic ink character reader	01750058122 (revision level 4)
Dummy for magnetic ink character reader	01750097826 ***

- \* Cheque/cash reader 01750064570 is used in place of the cheque reader.
- \*\* replacing magnetic ink character reader 01750054847.
- \*\*\* replacing magnetic ink character reader dummy 01750058122.

## Cassette module

The cassette module can be configured in different ways.

### Standard cassette module (metal) (SK21.1)

Component	Part number:
Distributor transport (SK21.1)	01750063430
Retract cassette (SK21.1)	01750063500
Cassette 2 (SK21.1)	01750063550
Cassette 1 (SK21.1)	01750063660

### Cassette module for plastic cassettes (SK21.2)

Component	Part number:
Distributor transport (SK21.2)	01750083147
Distributor transport (SK21.2 L)	01750091784 *
Retract cassette (SK21.2)	01750078602
Media cassette (SK21.2)	01750078600
Media cassette (SK21.2 L)	01750078601 *

\* long version

### Cassette module ProCash 3100 (SK31.0)

Component	Part number:
Cheque storage box (SK31.0)	01750088213

**Cassette module ProCash 3100(xe) (SK31.1)**

<b>Component</b>	<b>Part number:</b>
Distributor transport (SK31.1)	01750078457
Left cassette PC3100 (SK31.1)	01750067657
Right cassette PC3100 (SK31.1)	01750078460



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## **Overview of the Components**

The following sections provide an overview of the individual components of the CCDM, positions of the sensors, actuators, function elements and controls as well as a block diagram illustrating the integration of the individual units.

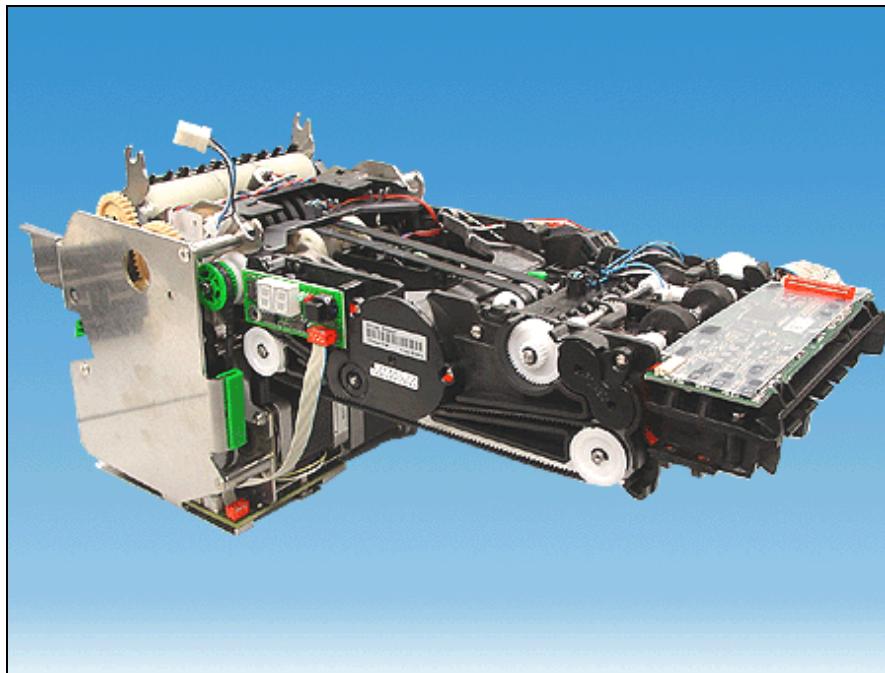


# Components of the head module

## Dispenser module

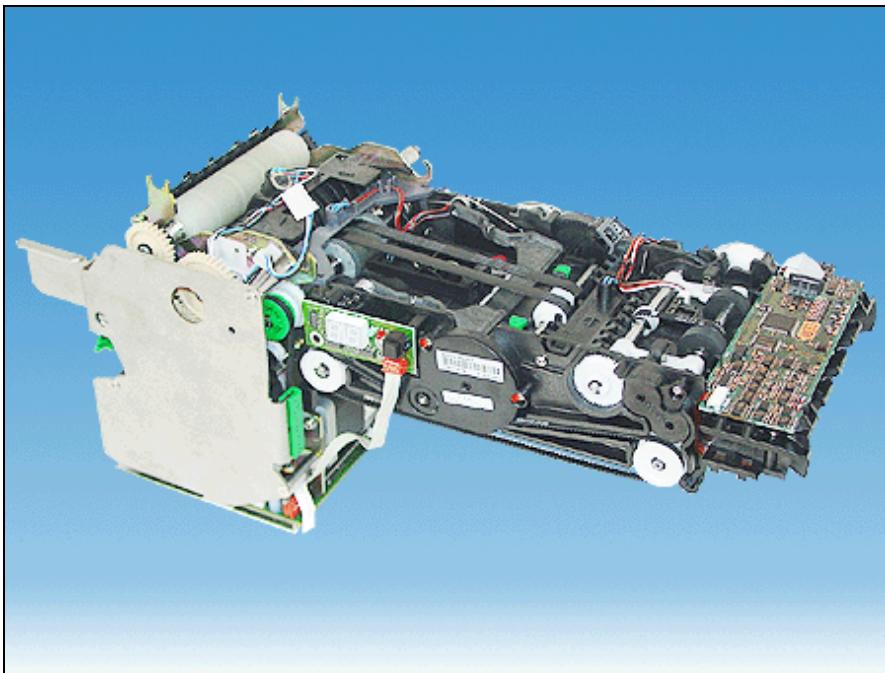
### Dispenser module (01750047708)

The figure shows the dispenser module with the rocker and the control panel.



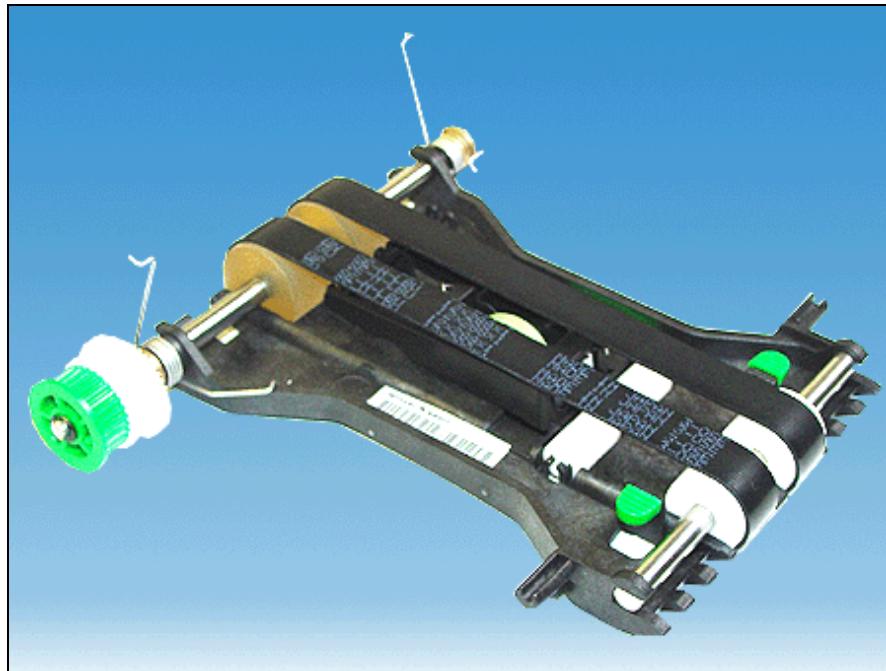
**Dispenser module (01750079779)**

The figure shows the dispenser module with the rocker and the control panel.

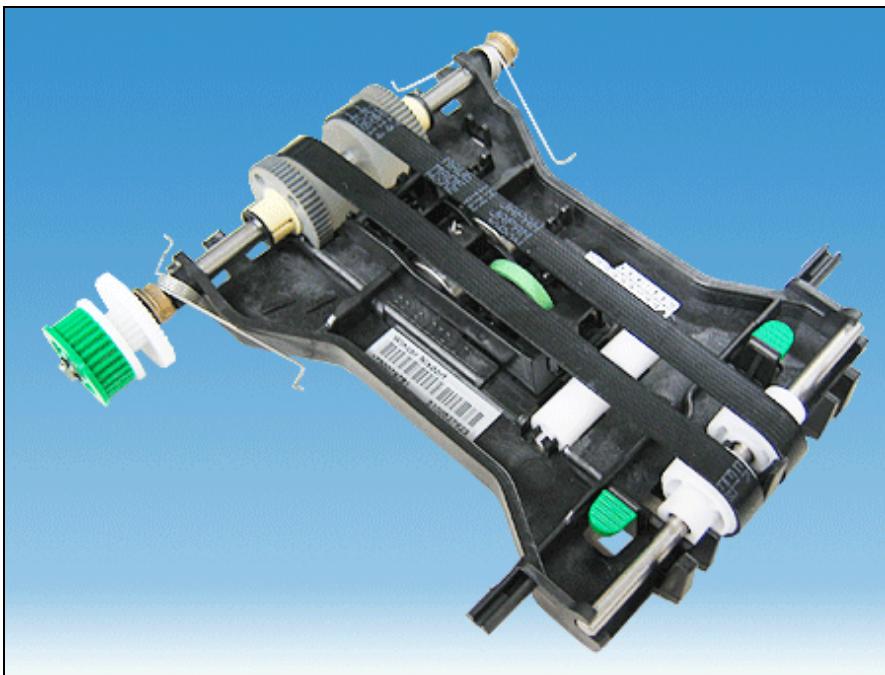


## Rocking bar

Rocking bar (01750047726)

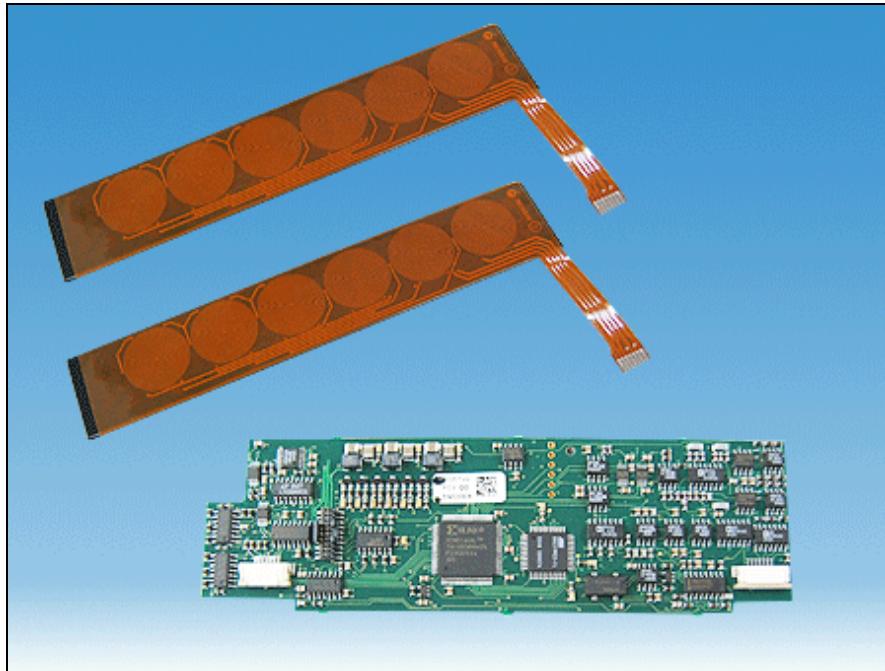


**Rocking bar CCDM VM2 assembled (01750079781)**

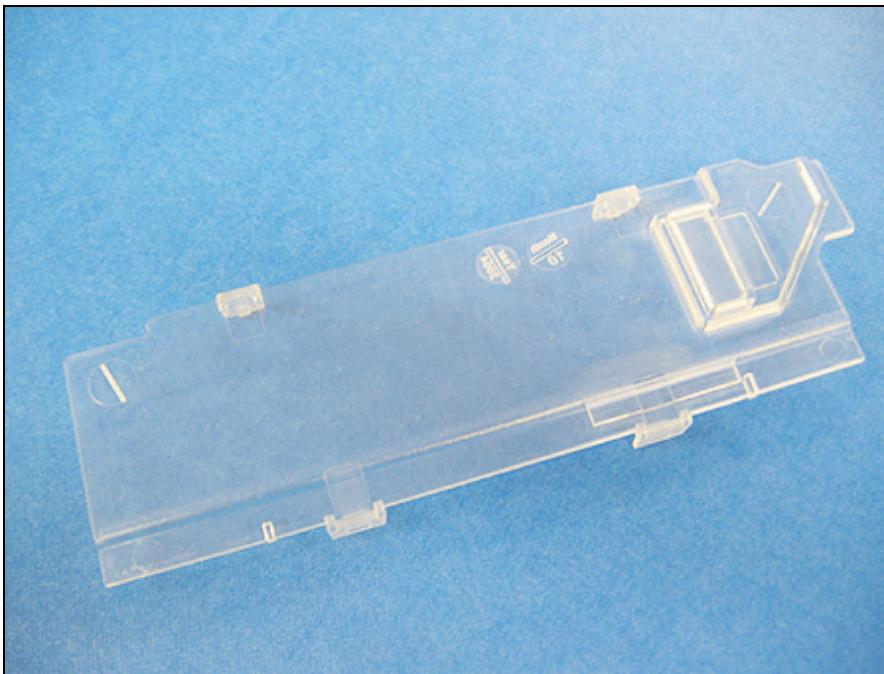


## Metal detection (01750076812)

The metal detection function consists of the board (01750074657) and the two metal sensor supports (01750047758).

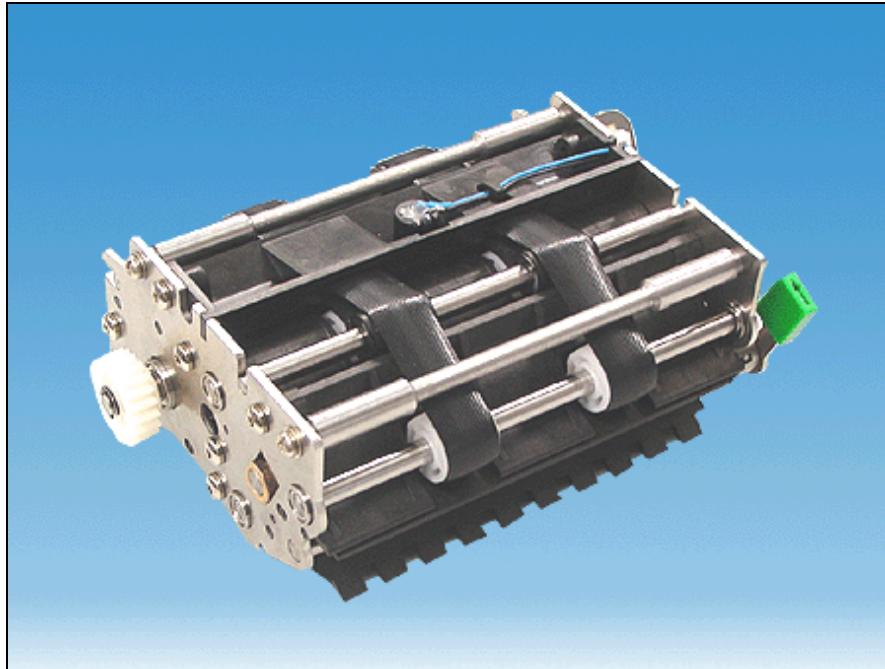


## Cover for metal detection (01750080208)

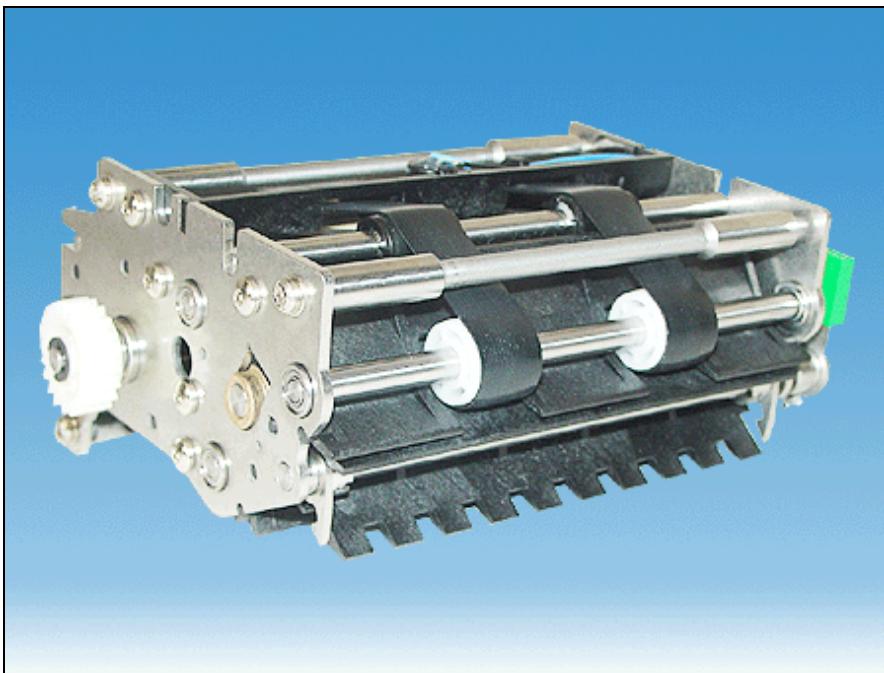


## Intermediate transport

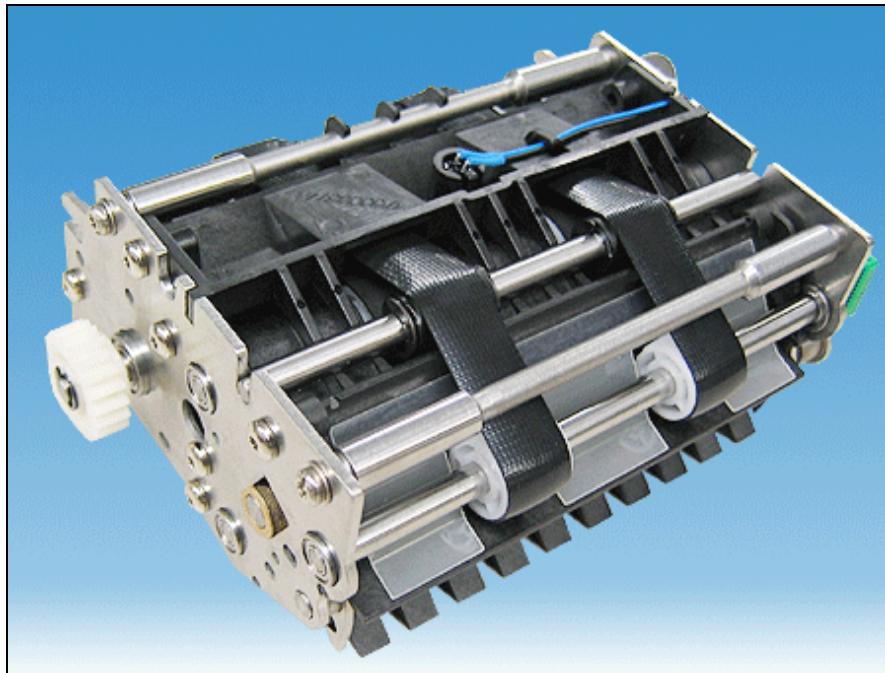
Intermediate transport (01750064624)



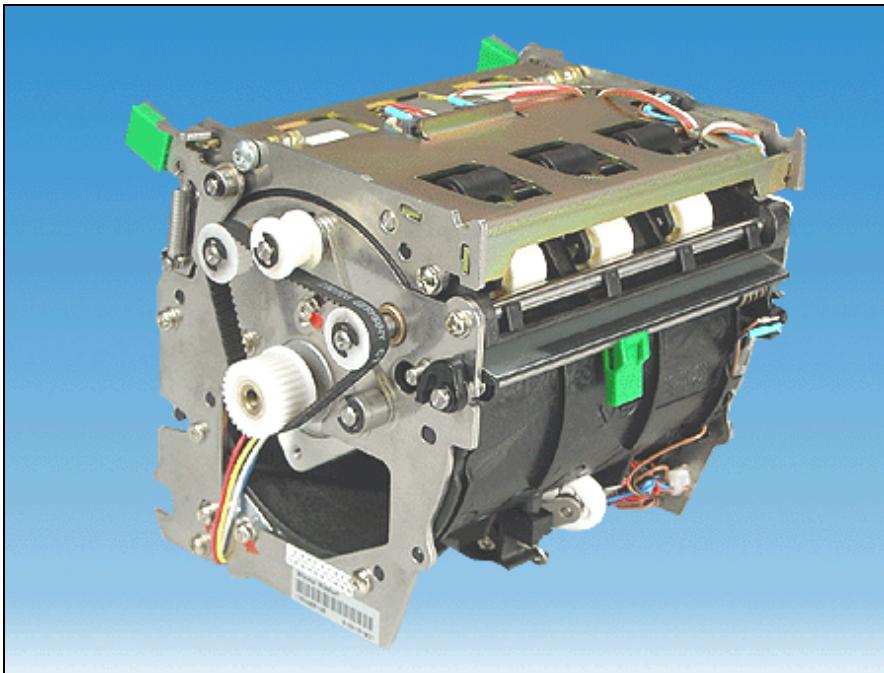
### **Intermediate transport (01750079797)**



### Intermediate transport 2 (01750086849)

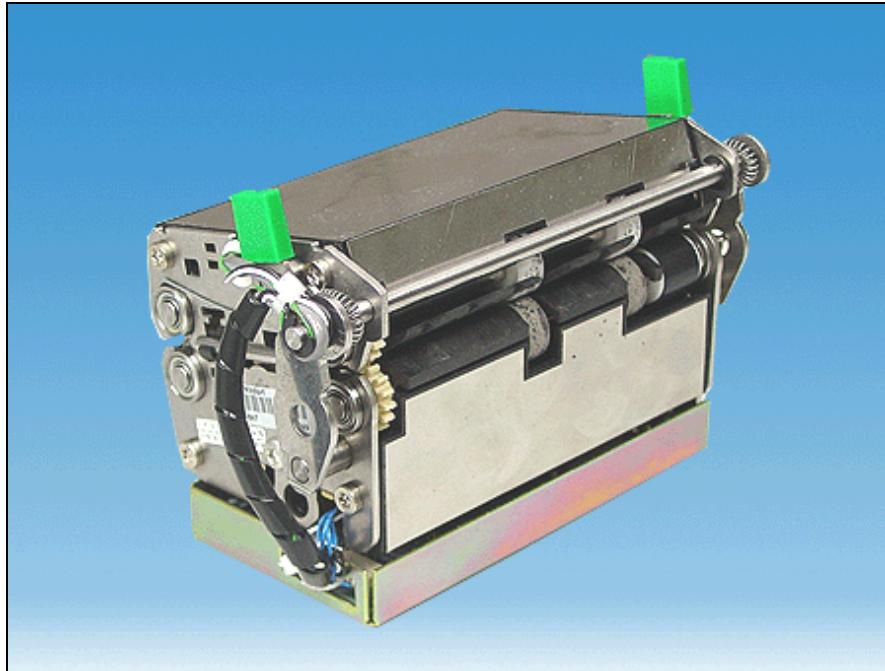


## **Alignment station (01750065105)**

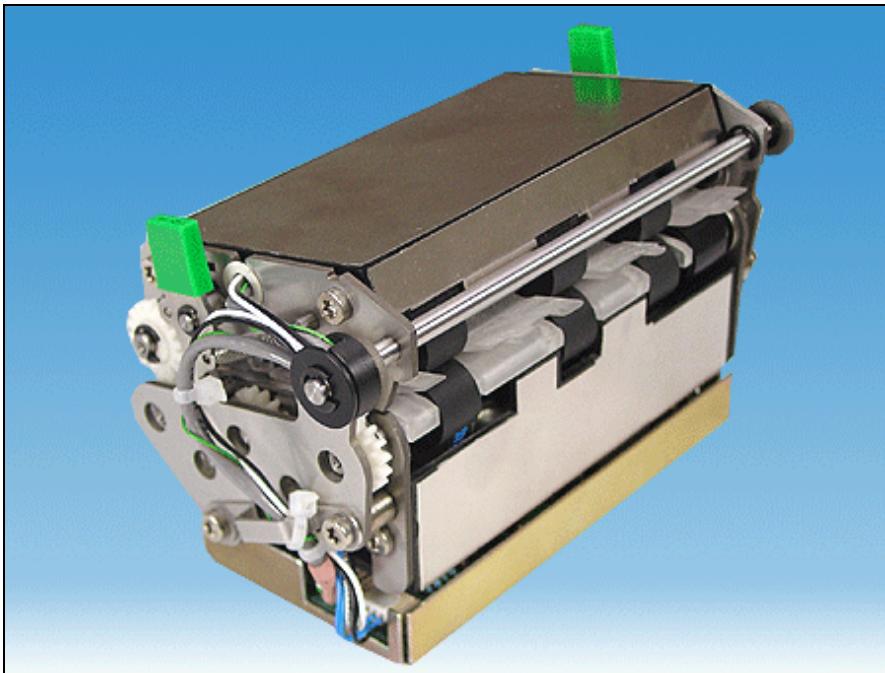


## Magnetic ink character reader

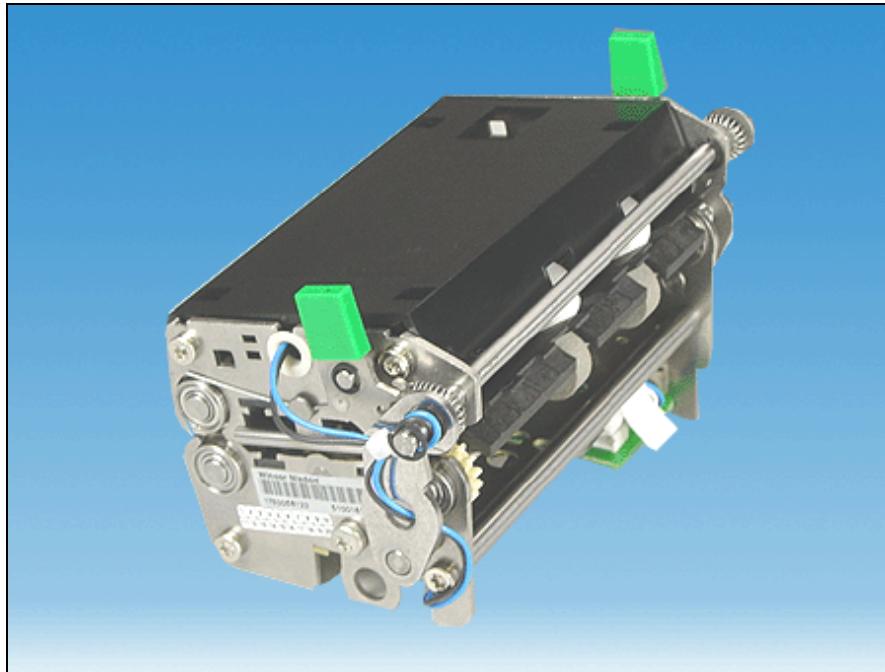
**Magnetic ink character reader (01750054847)**



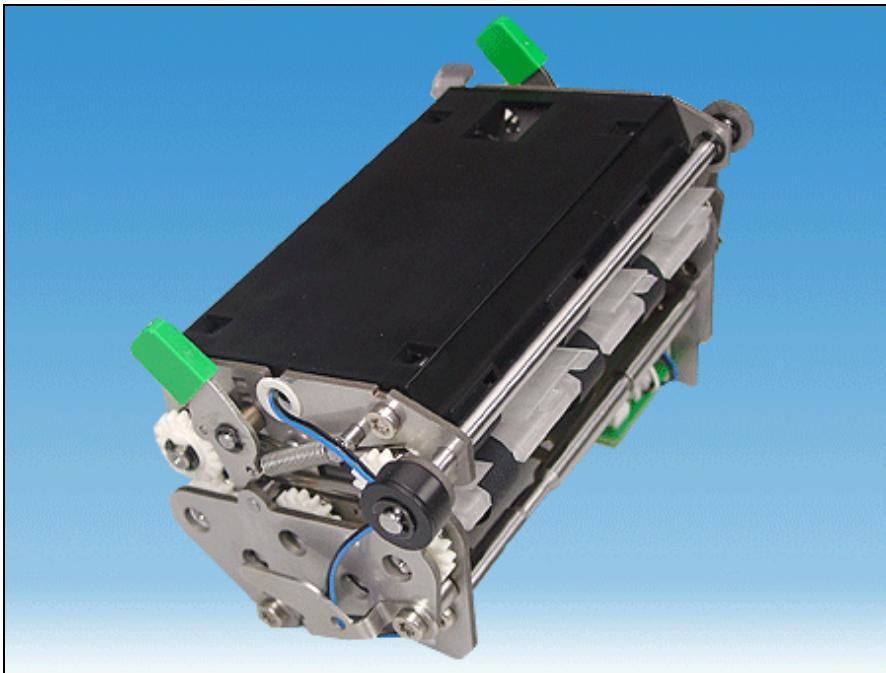
## Magnetic ink character reader (01750097825)



## Magnetic ink character reader dummy (01750058122)



## Magnetic ink character reader dummy (01750097826)



## Cheque / cash reader

Cheque / cash reader (01750064570)



**Cash reader (01750068334)**



## Cheque reader



The cheque reader is not yet released. In its place, cheque/cash reader 01750064570 can be used.



## Escrow

### Escrow (01750045965)



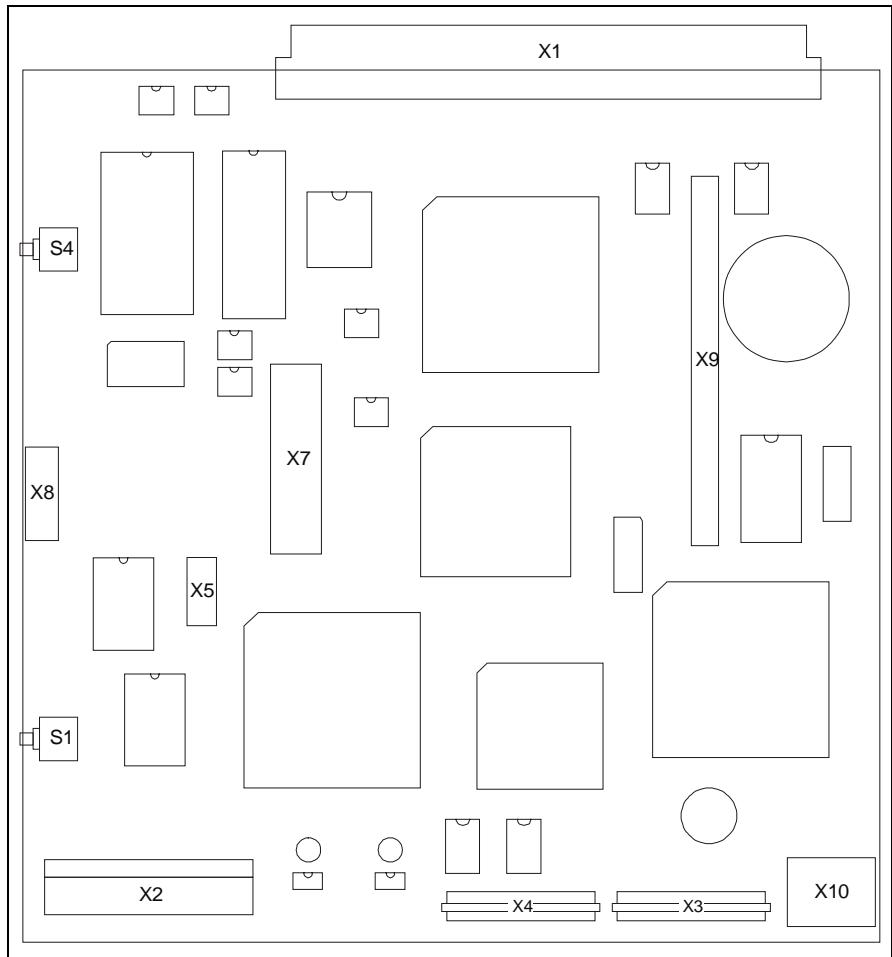
## Escrow (01750079818)



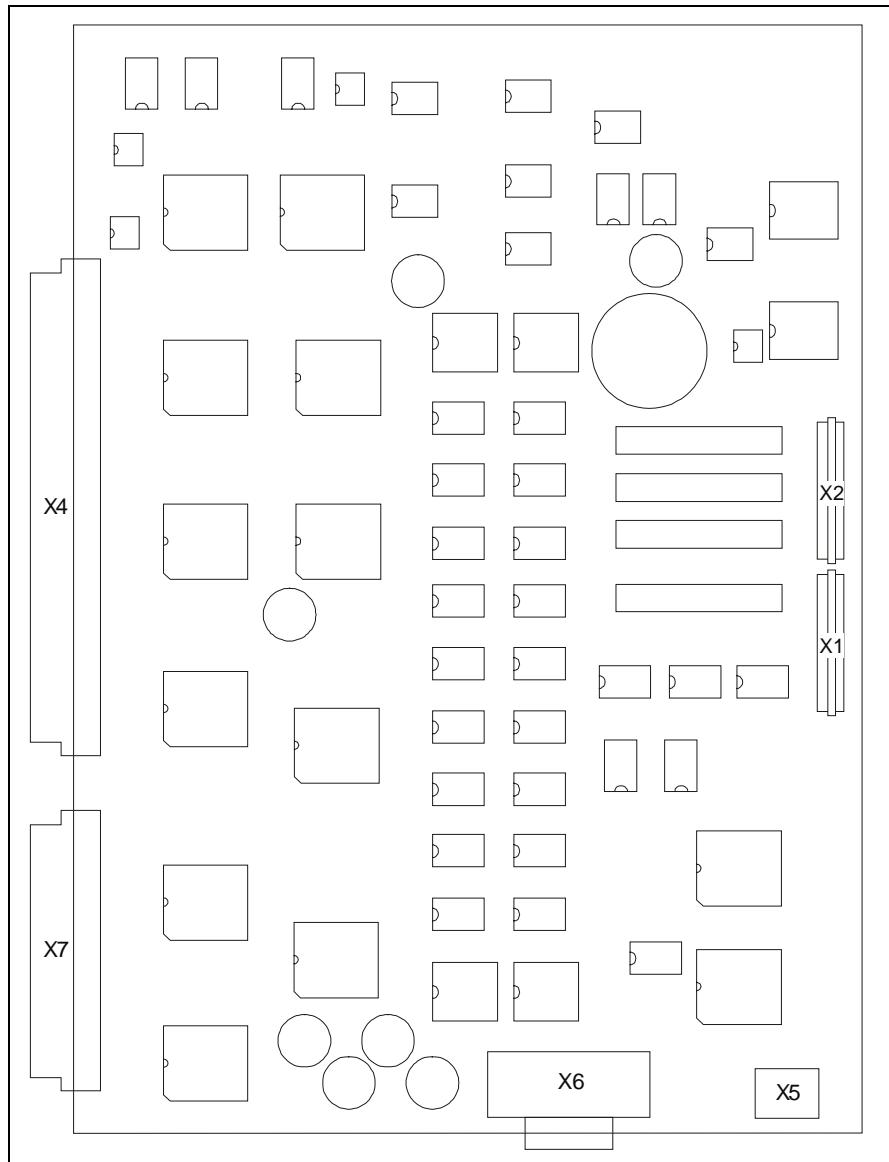
## **Amplifier / controller boards**

## **Amplifier / controller boards (01750066608))**

**Controller board (01750052532)**

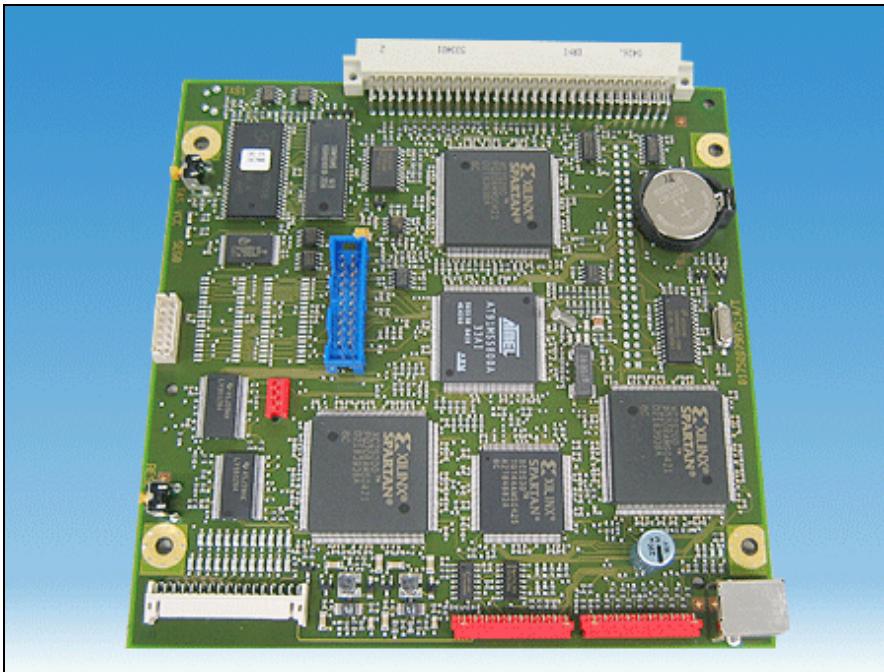


### Amplifier board (01750052535)

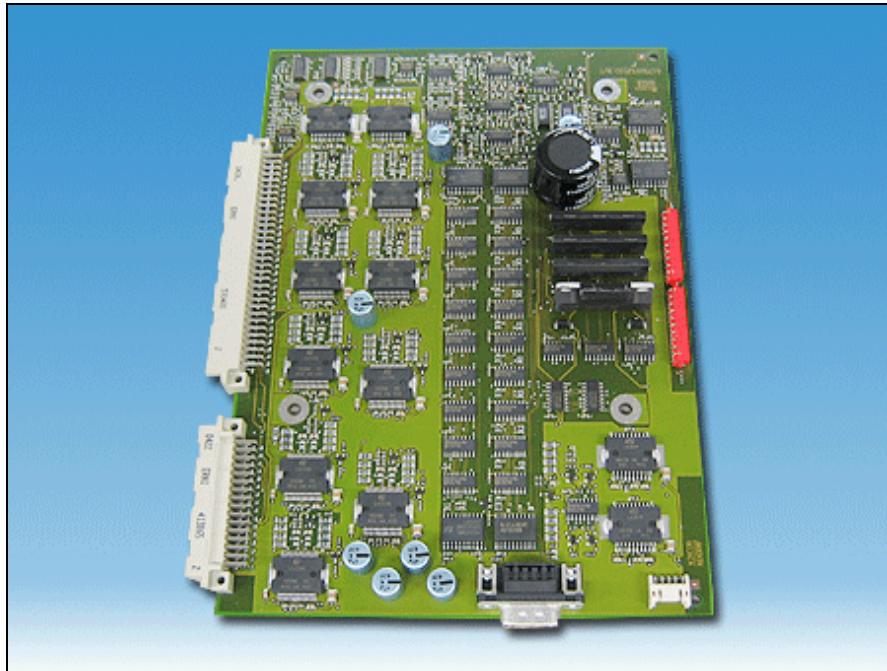


## Amplifier / controller boards assy. (01750080807)

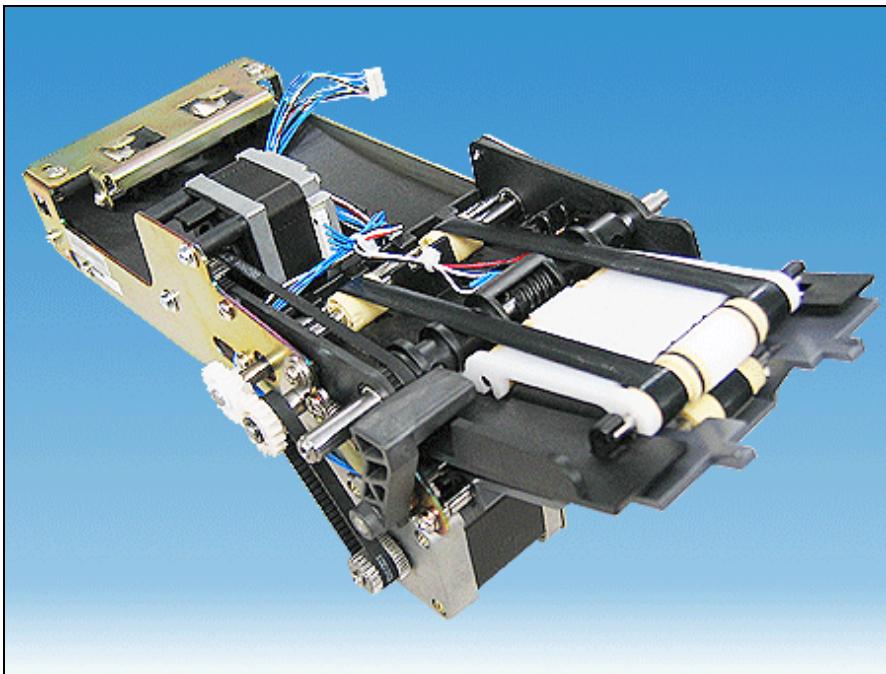
### Controller board 2 (01750079876)



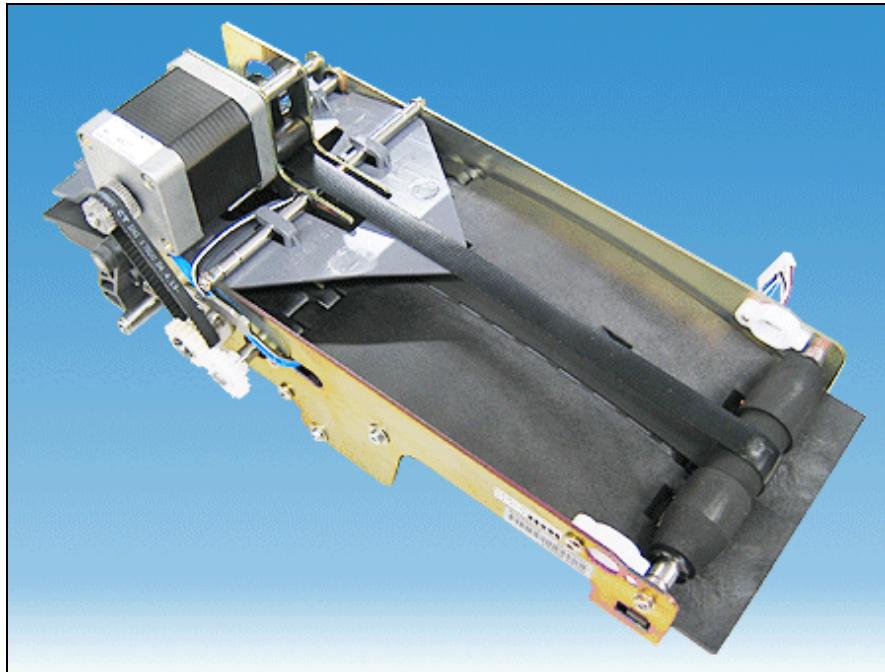
**Amplifier board (01750052535)**



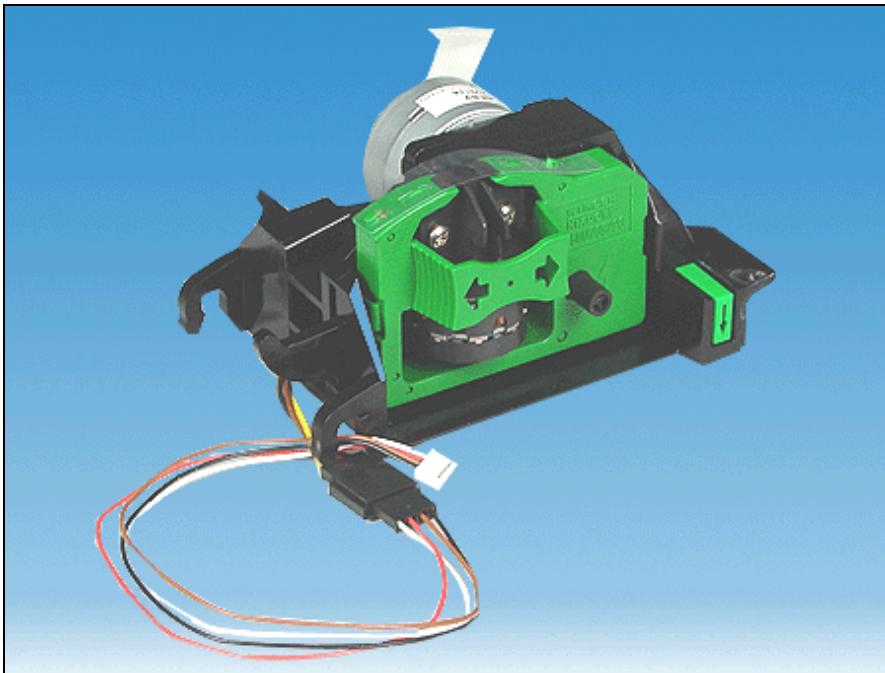
## Reject transport unit (01750047165)



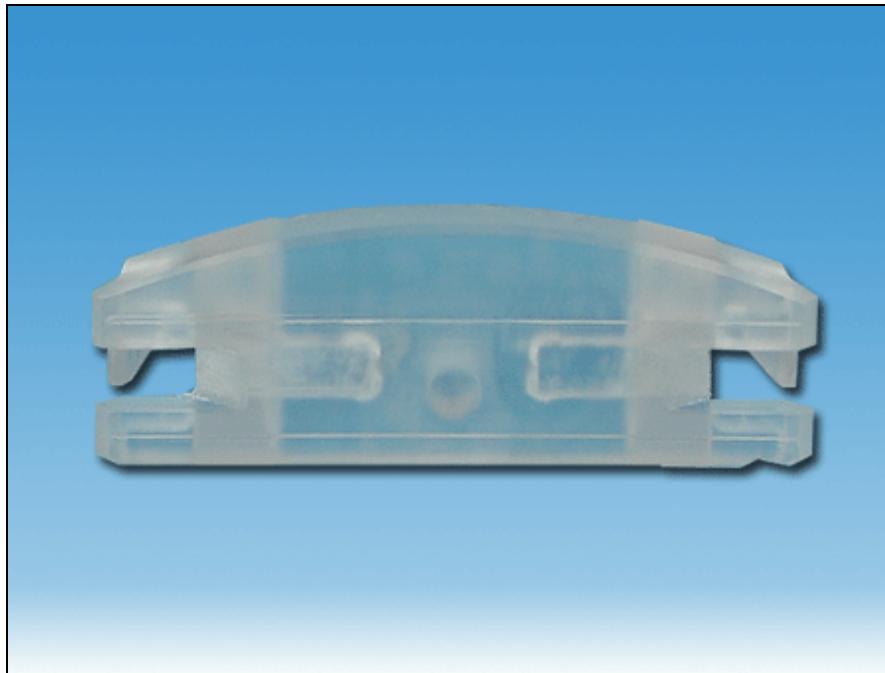
**Base of reject transport unit (01750047165) revision level 5**



## Printing station (01750055172)

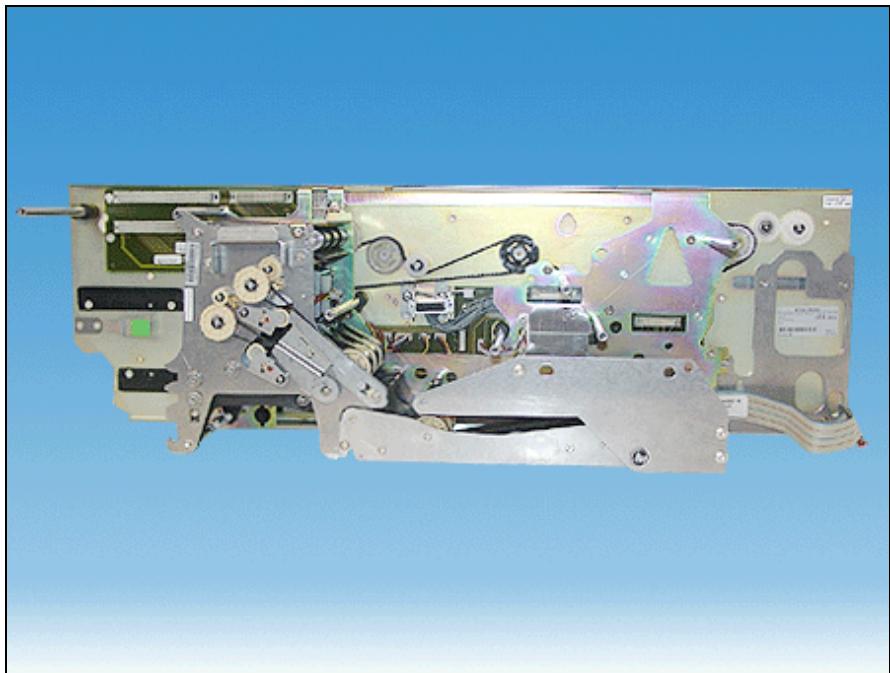


## Snap-in panel for document guide (01750070381)

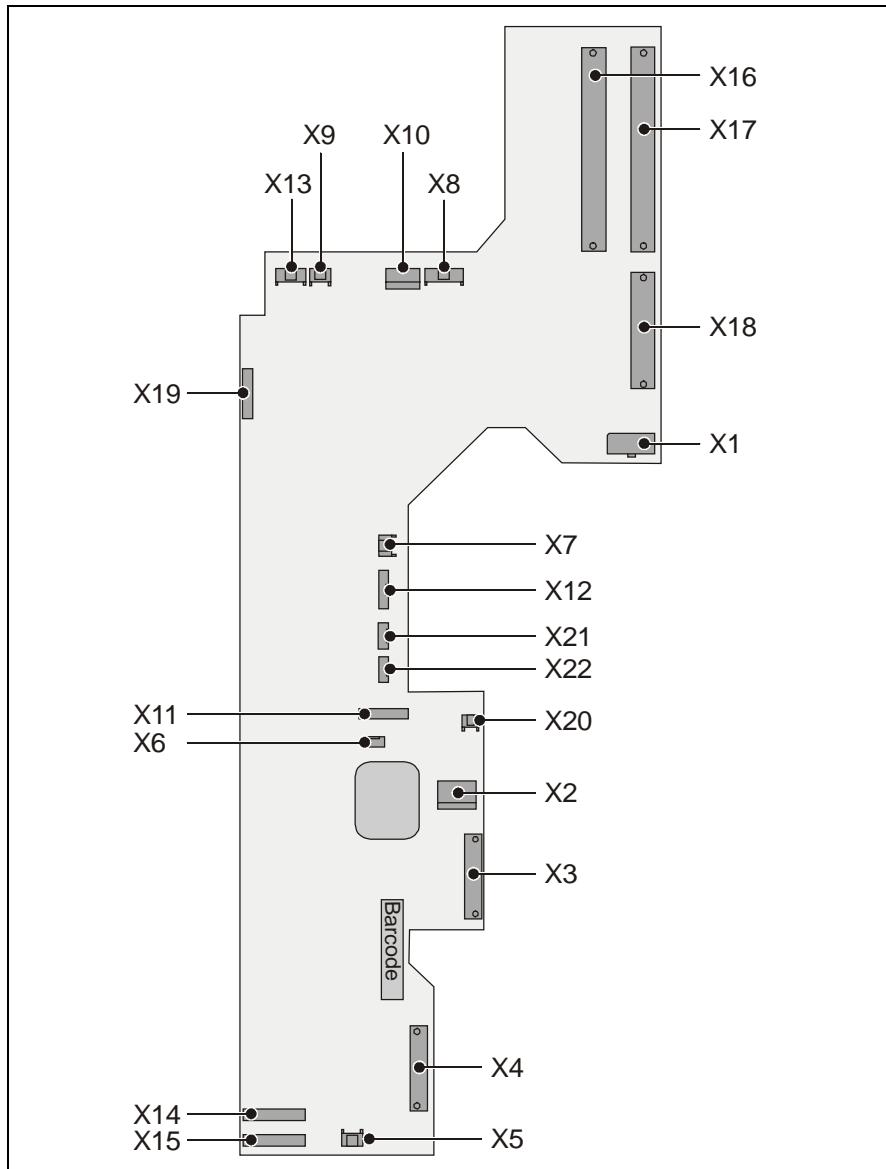


## Chassis 2 CCDM assembly (01750079819)

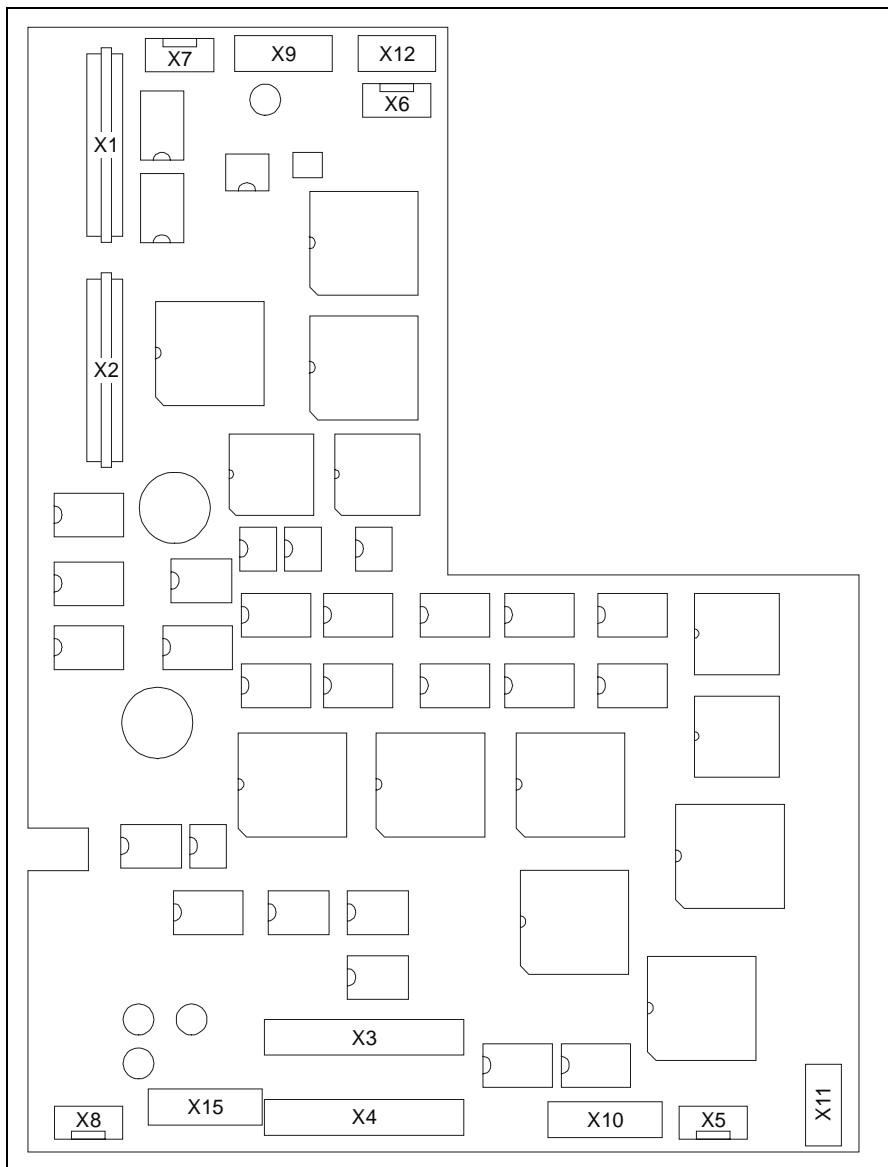
The back panel assembly consists mainly of the back panel board (01750052539) and the deposit transport (01750055175).



## Back panel board (01750052539)



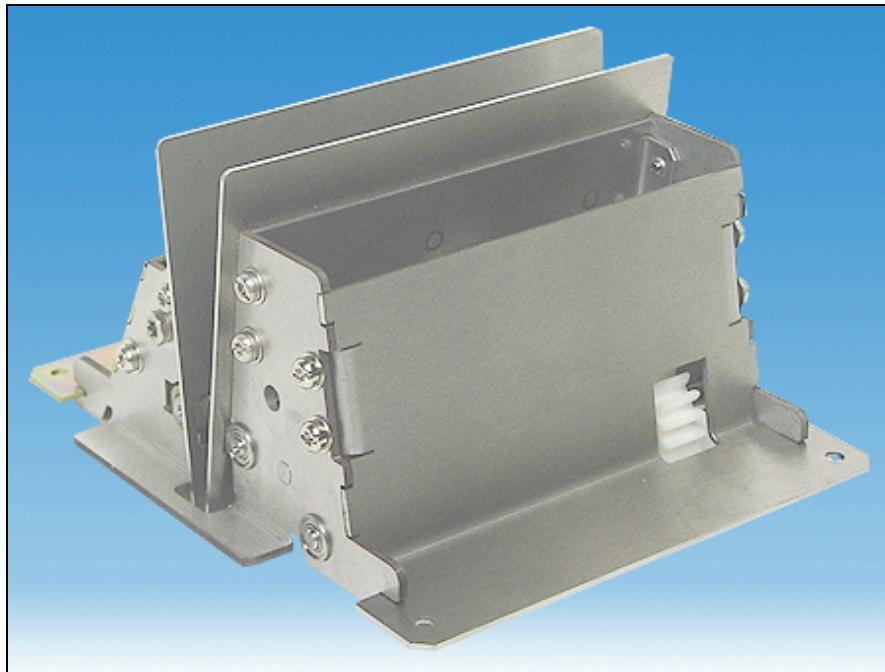
## Dispenser board



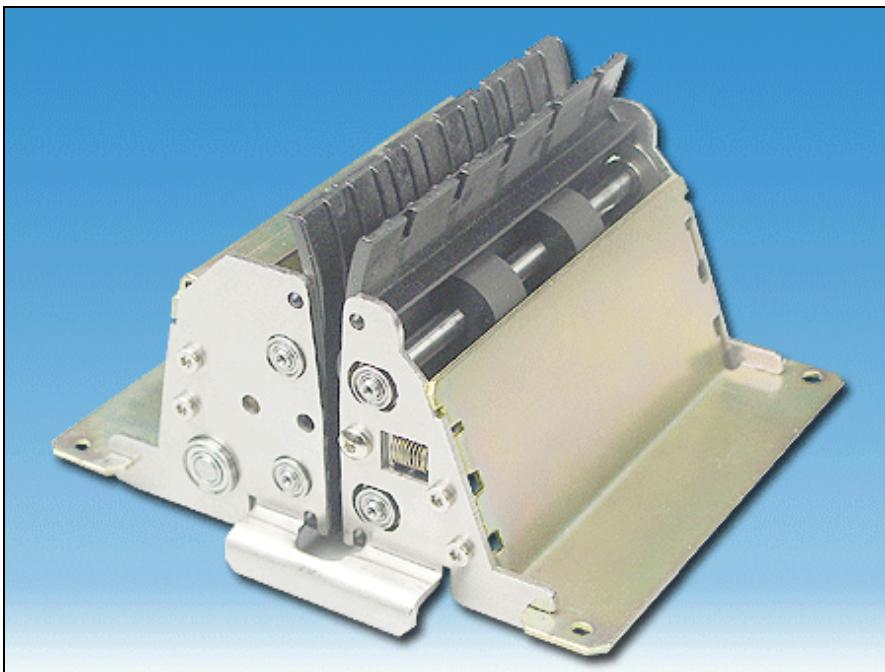
## Components of the cassette module

### Cheque / cash transfer mechanism

**Cheque / cash transfer mechanism (01750063208) (old version)**



**Cheque / cash transfer mechanism (01750077519) (new version)**



## Cassettes for standard cassette module (metal) (SK21.1)

### Cassette 1 (SK21.1)

Part number:	Cassette capacity
01750063660	Stack height 250 mm



**Cassette 2 (SK21.1)**

Part number:	Cassette capacity
01750063550	Stack height 250 mm



## Retract cassette (SK21.1) (01750063500)



## Cassettes for cassette module for plastic cassettes (SK21.2)

### Media cassette (SK21.2) (01750078600)



### Media cassette (SK21.2 L) (01750078601)

Long version of media cassette SK21.2.

## Retract cassette (SK21.2) (01750078602)



**Cassette lock (01750075987)**

The lock comprises the clamp and the cylinder lock.

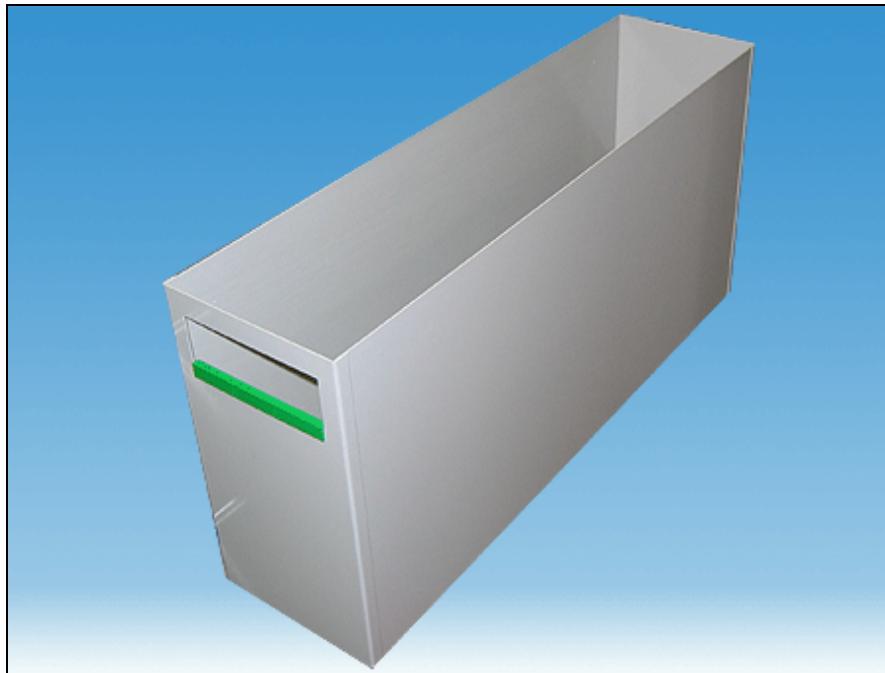
Key 01750001276 belongs to the lock.



## Cassettes for cassette module ProCash 3100 (SK31.0)

### Cheque deposit box for ProCash 3100 (SK31.0)

Part number: 01750088213



## Cassettes for cassette module ProCash 3100(xe) (SK31.1)

### Right cassette PC3100 (SK31.1)

Part number:	Cassette capacity
01750078460	approx. 1000 documents



**Left cassette PC3100 (SK31.1)**

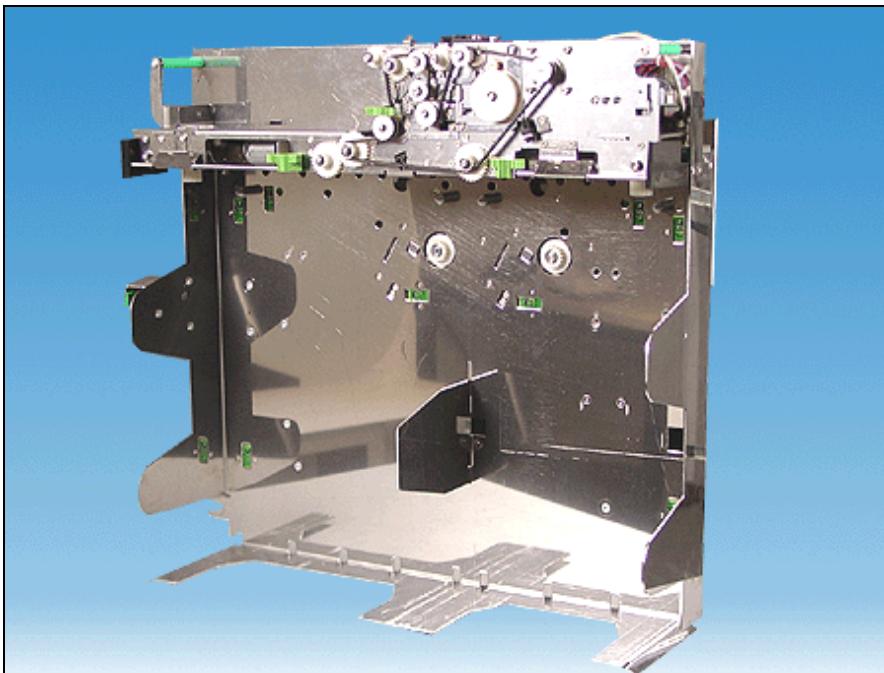
<b>Part number:</b>	<b>Cassette capacity</b>
01750067657	approx. 1000 documents



## Separator transport

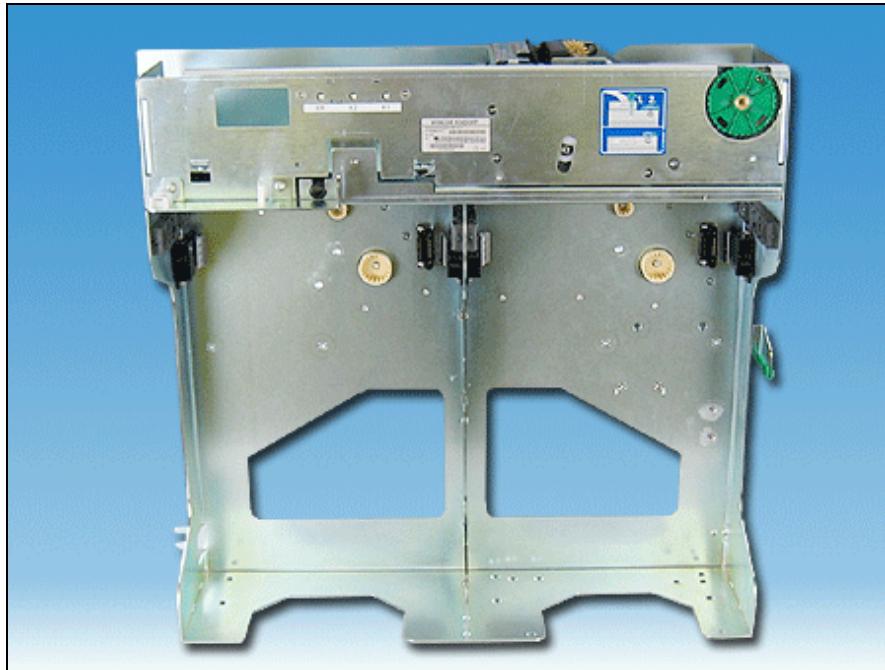
### Separator transport (SK21.1) for standard cassette module (metal)

Part number: 01750063430



## Separator transport (SK21.2) for cassette module for plastic cassettes

Part number: 01750083147



## Separator transport (SK21.2 L) for cassette module for plastic cassettes

Part number: 01750091784

Long version of separator transport SK21.2 (01750083147)

**Separator transport (SK31.1) for cassette module  
ProCash 3100(xe)**

Part number: 01750078457



## Safety switch (01750065875)

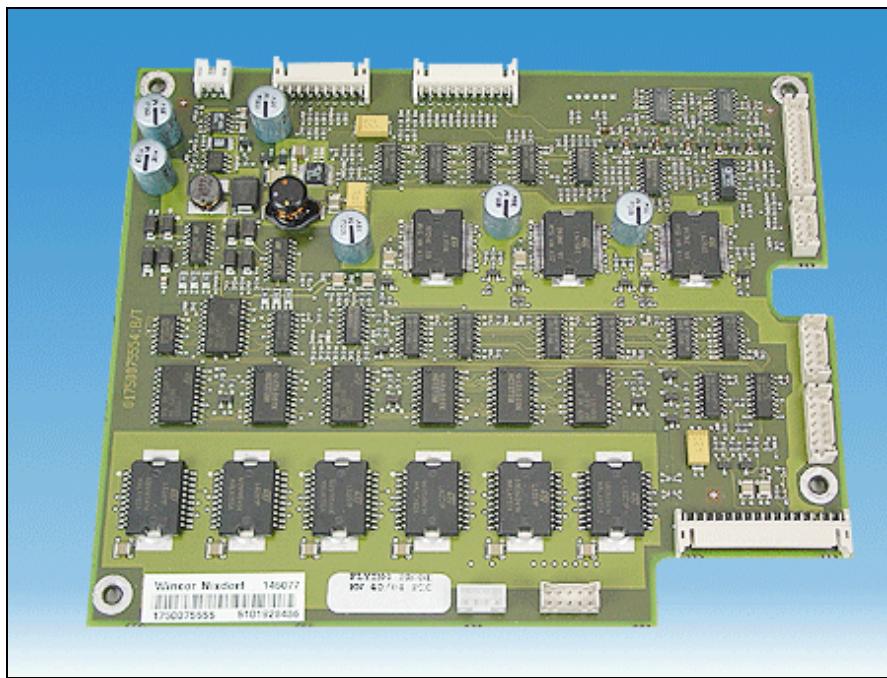


## CCDM storage board

**Storage board for cassette module for ProCash 3100(xe)  
(SK31.1)**

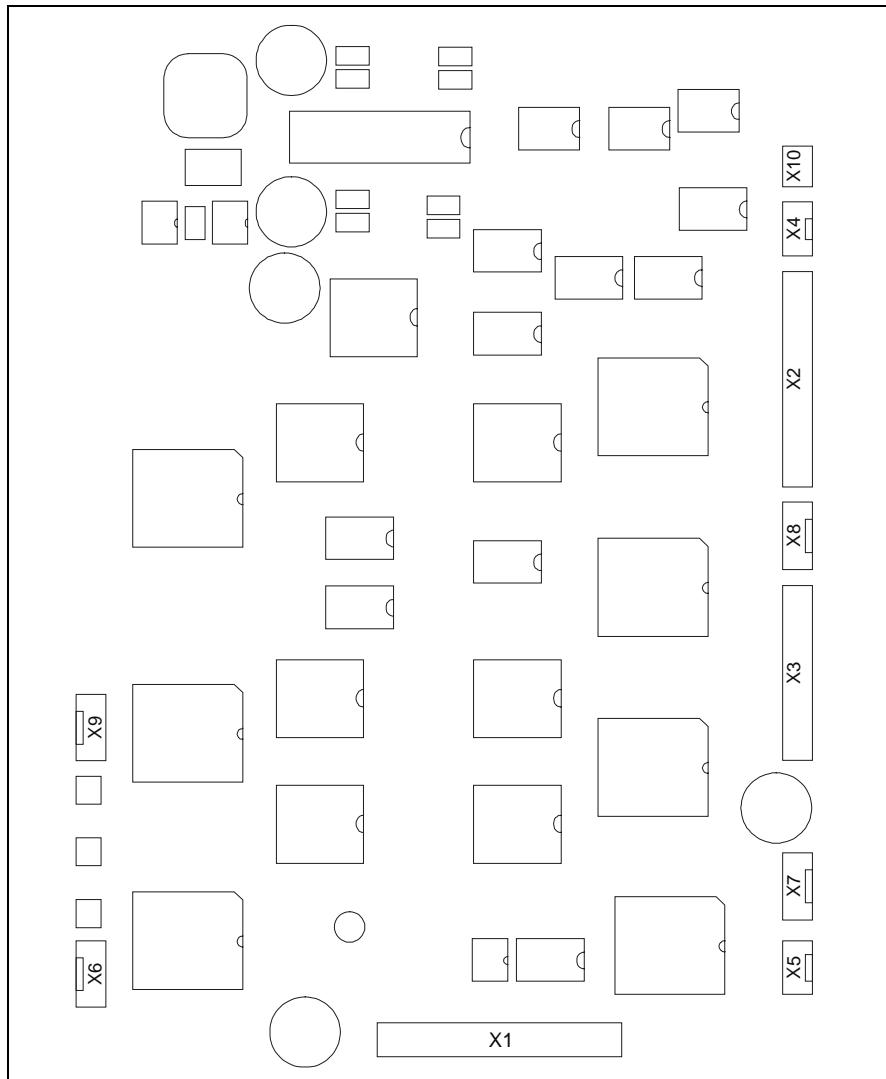
**Storage board for cassette module for plastic cassettes  
(SK21.2)**

Part number: 01750075555



**Storage board for standard cassette module (metal)  
(SK21.1)**

Part number: 01750052547



## **Sensors and actuators**

The position of the individual sensors and actuators is described in the chapter "Faults", in the section "Sensors and actuators".



# Function elements and controls

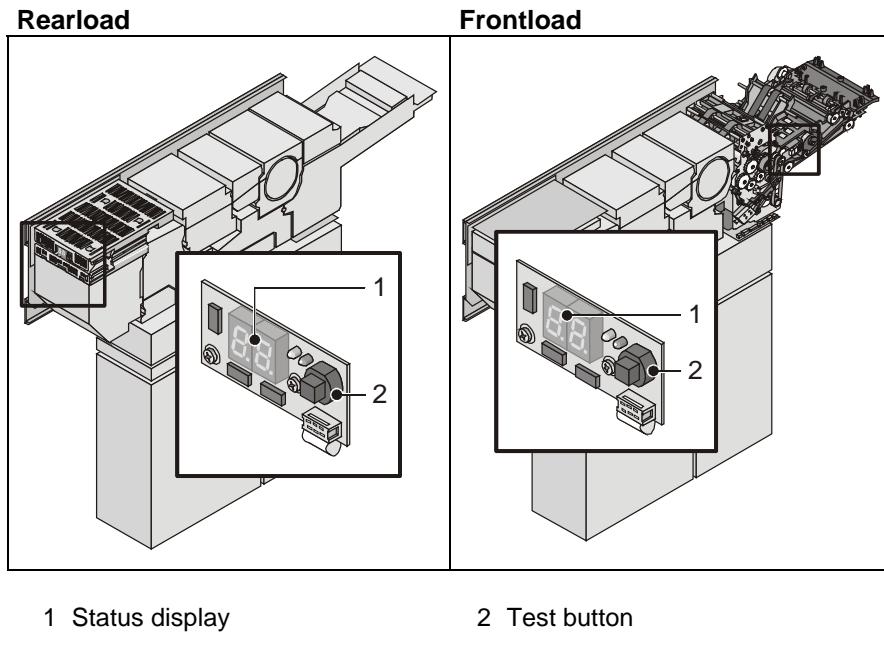
The CCDM features a status display and a test button.

The display indicates the status of the CCDM.

The test button is used to test the CCDM. A test can only be executed if the CCDM is pushed into the device.

The status display and the test button are located on the control panel of the CCDM.

The following illustration shows the position of the control panel depending on the device version.



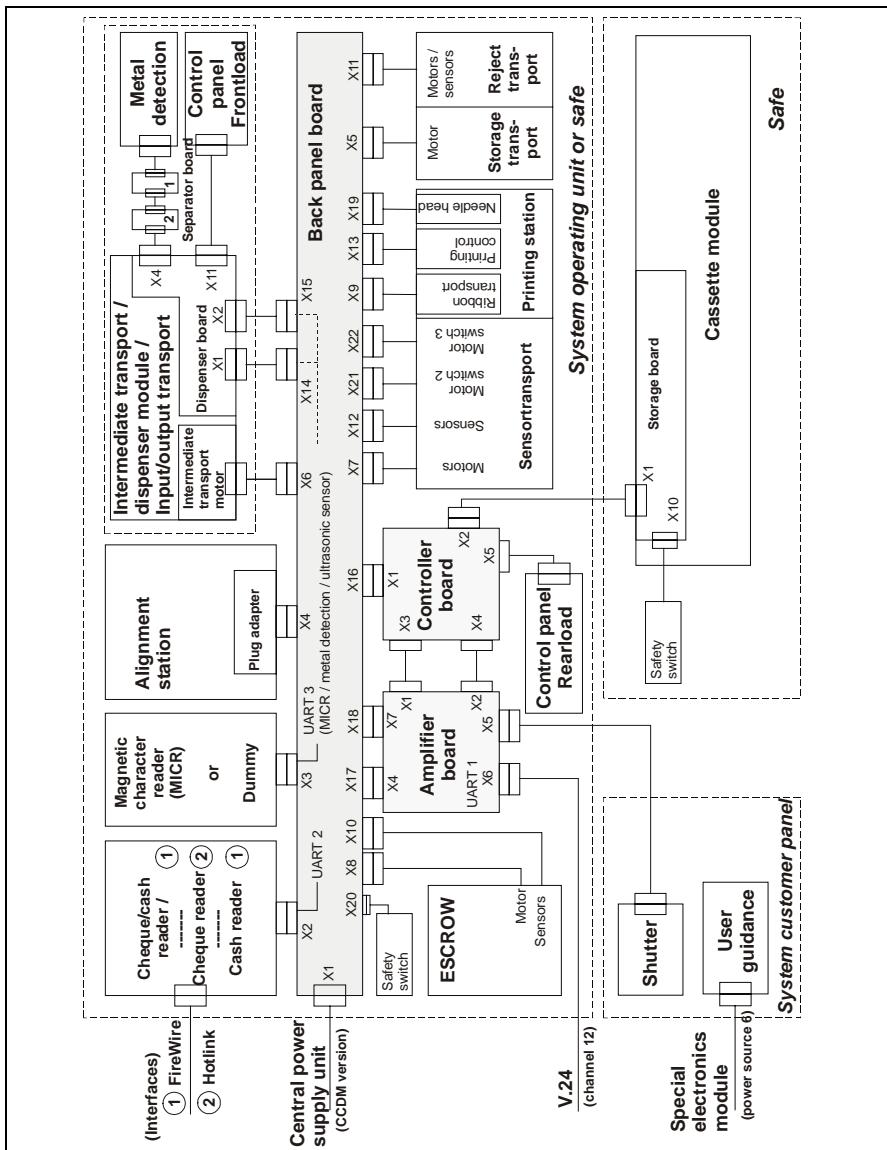
1 Status display

2 Test button

The status messages are described in the chapter "Faults", section "Status messages".

CCDM testing is described in the chapter "Function test".

# Block diagram





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# Description of Components

## Magnetic ink character reader

### Structure

This module basically consists of a lower part containing the decoder board and an upper part containing the premagnetization head and the head to read magnetic-ink characters.

The lower part also contains a mechanism to lift the magnetic heads. This mechanism is actuated by electric lifting magnet SMG1. The magnetic heads are lifted when banknotes pass through.

To simplify handling and maintenance the module has been split up into a lower part and an upper part that can be swung open.

The transport rollers in the lower part are operated from the outside by a belt drive that is powered by stepper motor SSM1 in the sensor transport. The transport rollers in the lower part and upper part (cover) are coupled via toothed wheels.

### Function description

When a cheque passes through the characters are first magnetized by the premagnetization head and then evaluated by the read head.

Reading is started and stopped with the SYNC signal. Scanning and transport of the medium are synchronized with the TAKT signal.

The information that has been read (identification number of the submitted document and other associated data) is passed to the CCE board of the cheque / cash reader via the RS232 interface (also see the "Cheque / cash reader" section).

## Device integration

The module is pushed onto a bar in the CCDM head module. An additional pilot bar ensures correct positioning.

A cover plate ensures that the magnetic-ink character reader sits properly.

Power and data are fed in automatically via the back panel connector.

## Cheque / cash reader

### Structure

This module basically consists of the lower and upper scanner arrays, the CCE board (cheque / cash recognition module) and the transport mechanism.

The two scanner arrays scan the front and back of a medium.

The CCE board is used to prepare and temporarily store data, and to exchange data with the CCDM controller.

To simplify handling and maintenance the module has been split up into a lower part and an upper part that can be swung open. Each part contains one scanner array and one transport drive.

The transport rollers in the base part are operated from the outside by a belt drive that is powered by stepper motor SSM1 in the sensor transport.

In the closed state, the drive of the transport rollers in the upper part is coupled via a toothed wheel.

## Function description

When a medium passes through, its front and rear are scanned simultaneously. In a transport operation, the images are captured with a different level of illumination (red and green in the visible spectrum and infrared) that depends on the job in question (banknote or cheque).

Scanning is started and stopped with the SYNC signal. Scanning and transport of the medium are synchronized with the TAKT signal.

The firmware can be loaded via the RS232 interface.

The following table provides an overview of the different firmware types and how they are used.

Firmware	Usage
Main firmware	Processing banknotes and / or cheques
Firewire firmware	Processing cheques
Currency data	Processing banknotes

## Processing banknotes

Banknotes are captured with red, green and infrared illumination, and identified and authenticated with the aid of the loaded banknote software.

The quality is checked on the basis of the following criteria at the same time:

- Missing or dog-eared corners
- Open tears
- Edge damage
- Dirt

The result of this quality check is shown a ten-level quality indicator.

Maculated banknotes are also detected.

The banknote identification data is sent to the system unit (PC) via the RS232 interface.

## Processing cheques

In the course of cheque processing the documents are captured with red and green illumination.

The identification number of the submitted cheque and other associated data are sent from the magnetic-ink character reader to the CCE board via the RS232 interface. On the CCE board this data and the image data are turned into a data packet that is sent to the system unit (PC) via the Firewire interface.

## Device integration

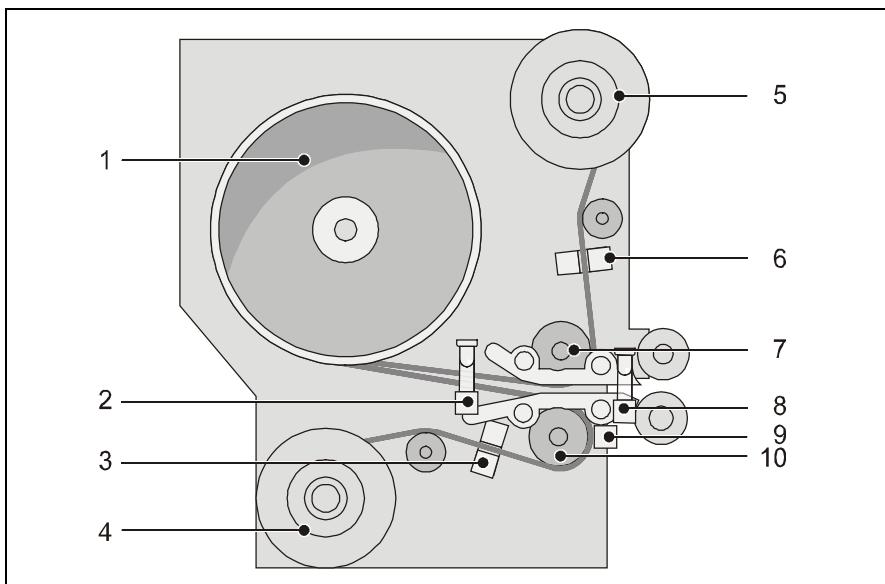
The module is pushed onto guide bolts in the CCDM head module. A cover plate ensures that the cheque / cash reader sits properly.

Power and data are fed in automatically via the back panel connector.

The scanned data is sent to the system unit via a Hotlink interface in the case of a cheque reader and via a Firewire interface in the case of a cheque / cash reader or cash reader.

## Escrow unit

### Structure



- |                                    |                                       |
|------------------------------------|---------------------------------------|
| 1 Drum with stepper<br>motor ESM 1 | 6 Sensor ELS 2                        |
| 2 Sensor ELS 5                     | 7 Deflecting roller                   |
| 3 Sensor ELS 3                     | 8 Sensor ELS 1                        |
| 4 Clutch 1 with tape winder        | 9 Sensor ELS 4                        |
| 5 Clutch 2 with tape winder        | 10 Deflecting roller with timing disk |

This module basically consists of the winding drum, two clutches with tape winders, two deflector rollers and the transport mechanism.

The transport of documents is monitored by sensors.

Sensor ELS 1 is a discrete photosensor. From beneath the medium, an emitter diode that is built into a transparent plastic part in the input/output opening

sends its light to one of the phototransistors located on a panel with a slot. The photosensor is the start and end sensor for incoming and outgoing media.

Stepper motor ESM 1 is located inside the winding drum. It bears the winding drum on one end of a shaft. A timing belt wheel is attached to the other end of the shaft. This wheel uses a timing belt to drive the two coupling shafts with the tape winders. The toothed belt wheels for the clutch shafts have a freewheeling mechanism inside. When the drum is rotating to the left (i.e. media are being unwound) the shaft is driven via the locked freewheeling mechanism. Now the tape spooling from the drum can be wound up by the tape reels.

The clutch connecting the clutch shaft to the tape winder is a permanent magnet clutch (hysteresis clutch) that cannot be switched. The principle of magnetic torque transfer makes it possible to transfer torque on the one hand and exert a braking effect on the other hand – and that without wear and tear. The system acts as a clutch or as a brake, depending on the direction of rotation (winding or unwinding), with slip compensation in both cases.

A deflector roller bears a timing disk which, in conjunction with timer ELS 4, is used to identify the speed of the tape because the transport speed of banknotes ( $v = 800 \text{ mm/s}$ ) differs from that of cheques ( $v = 480 \text{ mm/s}$ ). The tape speed has to be adjusted to the speed of the incoming medium. The circumferential speed at the winding drum is roughly constant (adjusted to cheques or banknotes), but the speed (frequency) of the stepper motor changes.

Both tapes are 12.7 mm (1/2") wide and are impervious to the infrared light of the photosensors in the range of about 850 nm. They have a transparent leader section on one side, or the opaque matt section has been removed there. Both tapes are attached congruently at the circumference of the winding drum. The first tape on the winding drum is attached there with its transparent section, and the one directly above is fastened with its opaque area.

The result of this is that the tape lying directly on the drum runs to the tape winder of clutch 2 and the tape on the outside to clutch 1. Consequently hybrid photosensor ELS 2 reports the end of the tape when there is a transition from 'covered' to 'not covered' – the tapes on the drum have been almost unwound completely. ELS 3 indicates the beginning of the tapes when there is a transition from 'covered' to 'not covered'.

Hybrid photosensors ELS 2 and ELS 3 also report tape tears.

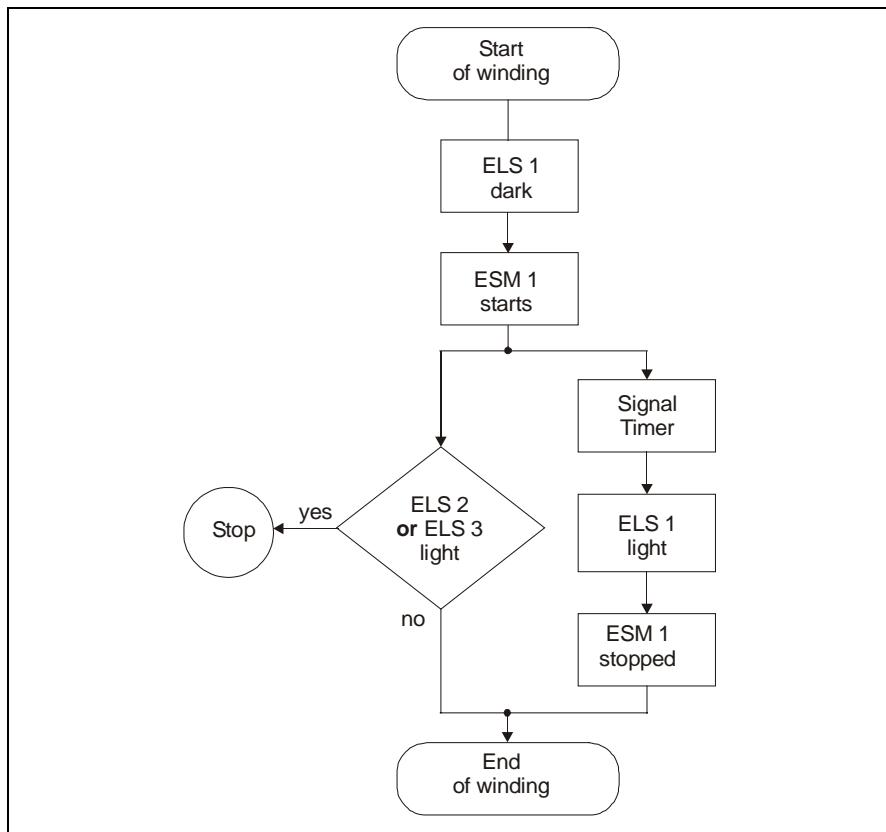
Photosensor ELS 5 is only needed while media are unwinding to avoid jams and the resultant tape damage. Photosensor ELS 5 indicates the passage of a

medium for photosensor ELS 1 which is positioned at a distance of 29 mm. If no medium appears at photosensor ELS 1 within a short time, stepper motor EMS1 is stopped immediately.

## **Function description**

The escrow is used for temporary storage of media (cheques or banknotes). It is a drum module in which the media are held on both sides by a tape and wound together on a drum with both tapes.

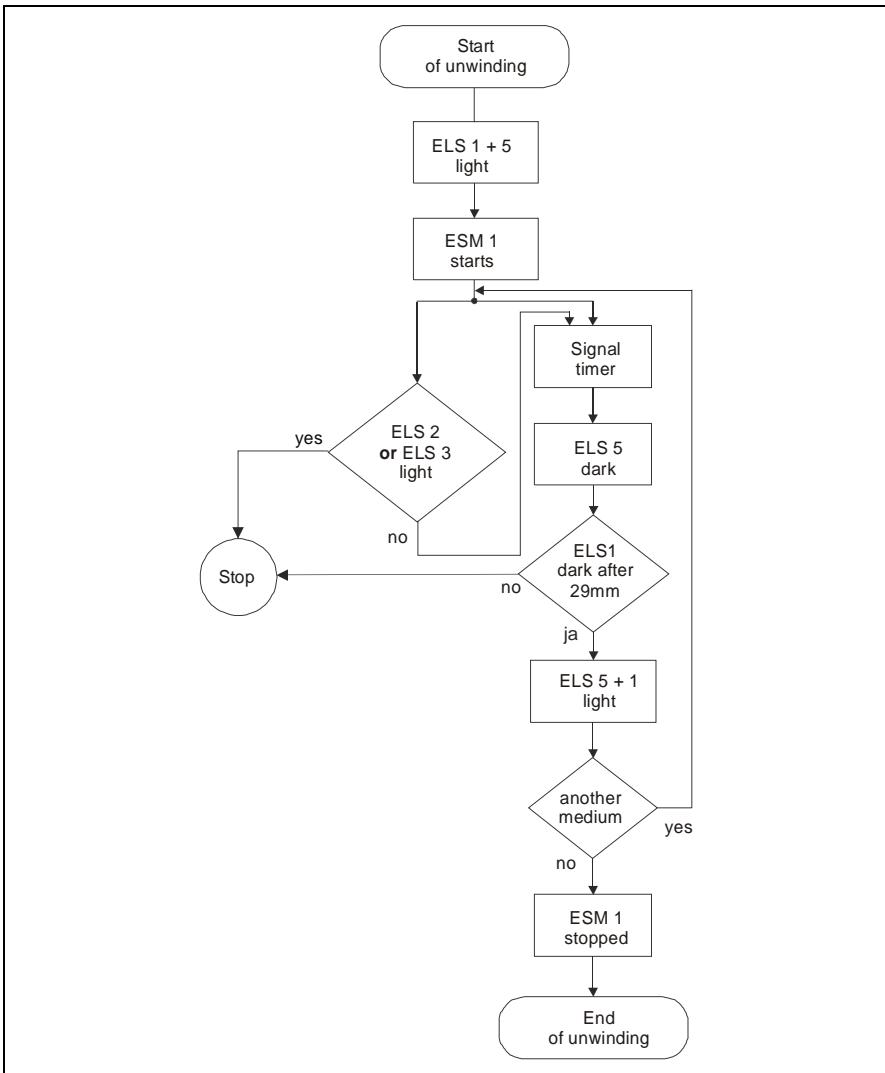
## Winding



The media are pushed by the upstream sensor transport into the input / output opening. In the course of this they pass photosensor ELS 1 and thus trigger the signal to start stepper motor ESM 1 which drives the winding drum.

The speed of the medium is measured with the aid of the timing disk and photosensor ELS 4 and, depending on the medium, is adjusted to the speed of the upstream sensor transport by controlling the speed of motor EMS 1.

The stepper motor stops when sensor ELS 1 does not recognize any further medium or when sensors ELS 2 or ELS 3, which monitor the tapes, recognize the tape end or a tape tear.

**Unwinding**

Stepper motor ESM 1 starts.

The speed of the medium is measured with the aid of the timing disk and photosensor ELS 4 and, depending on the medium, is adjusted to the speed ( $v = 800 \text{ mm/s}$ ) of the upstream sensor transport by controlling the speed of motor EMS 1.

The stepper motor stops when sensor ELS 1 does not recognize any other medium within a certain time. If a medium follows another in this time the motor will continue running.

The stepper motor also stops when sensors ELS 2 or ELS 3, which monitor the tapes, recognize the tape end or a tape tear.

## Device integration

The escrow is mounted on two rails along the back panel, connected to the back panel board with two connectors (X8 and X10), and locked with the sensor transport.



Technological developments have resulted in dependencies between the escrow and the chassis.

The following table lists the configuration options.

Escrow unit	Chassis	
	01750045607	01750079819
01750045965	compatible	not compatible
01750079818	not compatible	compatible

To eliminate jams, the locking lever can be released and the module can be moved as far as it will go.

When a jam occurs, the media must be unwound from the escrow.



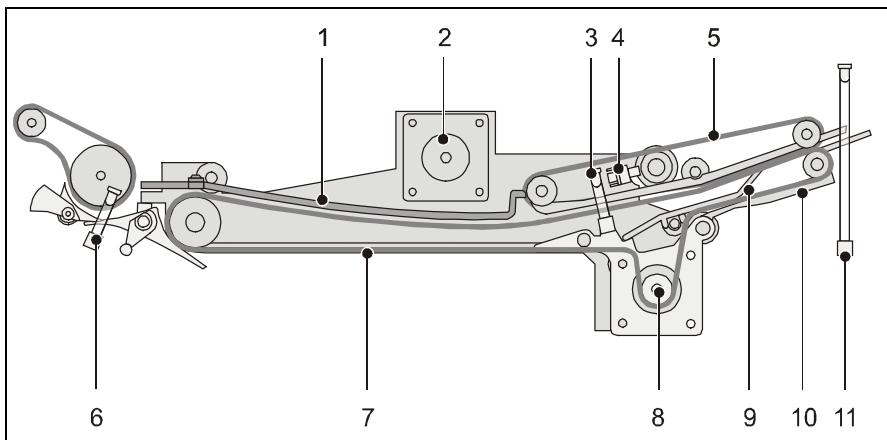
If necessary, the media can be removed manually in the direction of the sensor transport.

Make sure that the tapes are not displaced to one side.

On no account may the media be removed sideways from the escrow!

## Reject transport unit

### Structure



- |                        |                                 |
|------------------------|---------------------------------|
| 1 Slide element        | 7 Flat belt for collecting tray |
| 2 Control motor RSM 2  | 8 Transport motor RSM 1         |
| 3 Sensor RLS 2         | 9 Document stop                 |
| 4 Sensor RLS 3         | 10 Rocker                       |
| 5 Flat belt for output | 11 Sensor VLS 6                 |
| 6 Sensor RLS 1         |                                 |

This module basically consists of the slide element, control unit and transport mechanism.

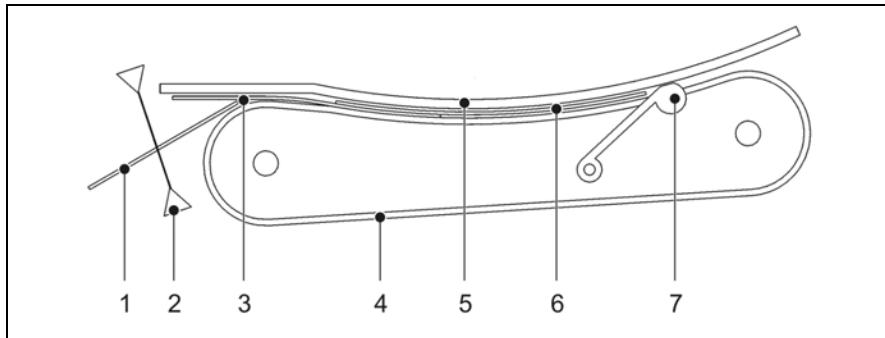
The flat belt for the collecting tray is driven by transport motor RSM 1.

Control motor RSM 2 controls the output of documents.

The transport of documents is monitored by sensors RLS 1, RLS 2, RLS 3 and VLS 6.

## Function description

### Collecting documents



- |                |                 |
|----------------|-----------------|
| 1 Document 3   | 5 Slide element |
| 2 Sensor RLS 1 | 6 Document 1    |
| 3 Document 2   | 7 Document stop |
| 4 Flat belt    |                 |

Up to 50 documents are collected in the reject transport and made available for output as a bundle with a common front edge.

In this process the documents are collected beneath a curved slide element by means of a centrally positioned flat belt. The documents are transferred on an overlapping basis, i.e. the end of the previous document extends beyond the beginning of the next document.

The first document is detected by sensor RLS 1 and transported forward 25 mm by the sensor transport.

When sensor RLS 1 detects the end of the document, the document is moved forward another 15 mm.

The second document is detected by sensor RLS 1 and is pushed 25 mm beneath the first document by the sensor transport.

When sensor RLS 1 detects the end of the second document, this document is moved forward another 15 mm until transfer of the third document.

Other documents are collected in the same way until the last one has arrived.

This document is moved forward until its front edge is up against the swivelable document stop. After collection, the documents lie one on top of another with a flush front edge.

### **Outputting documents**

The control motor causes the flat belt for the output and the document stop to be swung out, and the entire reject transport to be moved aside to compensate for lateral movements of the documents while being processed in the CCDM.

The lateral movement amounts to 4.5 mm for cheques with a width between 60 mm and 103 mm. When cheques are wider than 103 mm, the reject transport is only moved 3 mm to avoid problems in the output tray.

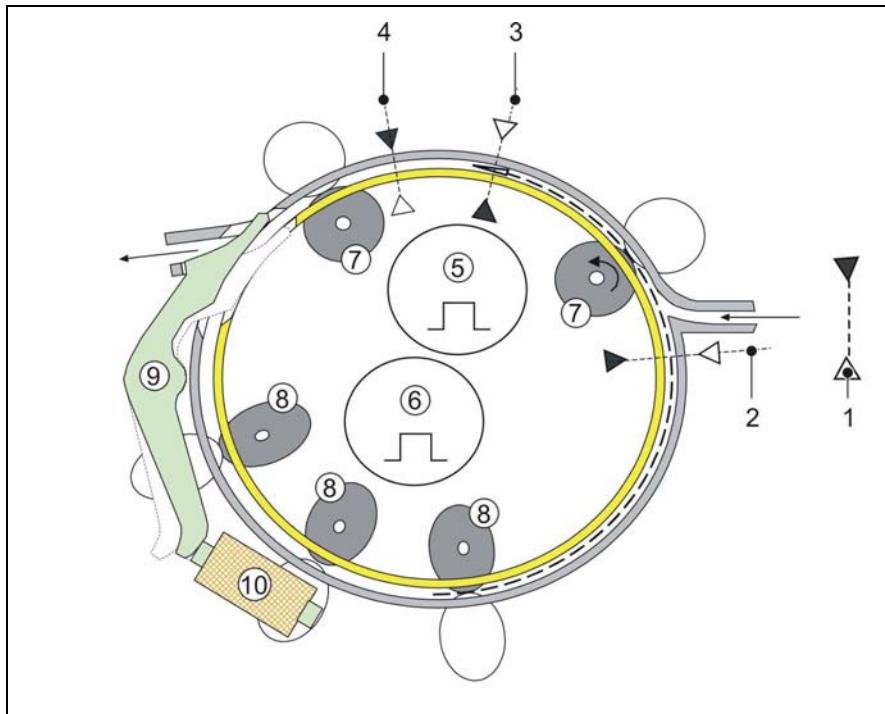
Then the documents are transported to the output.

## **Device integration**

Power and data are fed in through cables via the back panel board.

# Alignment station

## Structure



- |                              |  |
|------------------------------|--|
| 1 Photosensor VLS7           | 6 Motor ASM2                           |
| 2 Photosensor ALS2           | 7 Rollers axially parallel to the drum |
| 3 Photosensor ALS3           | 8 Rollers for side alignment           |
| 4 Photosensors ALS1 and ALS4 | 9 Deflector                            |
| 5 Motor ASM1                 | 10 Magnet AMG1                         |

The alignment station is built like a drum with an inner and outer shell.

Rollers (6) and (7) in the drum are driven by two identical stepper motors (ASM1 and ASM2). Pressure rollers that are held by springs and not driven are located opposite them.

Rollers (6) are driven by motor ASM1, and are arranged axially parallel to the drum.

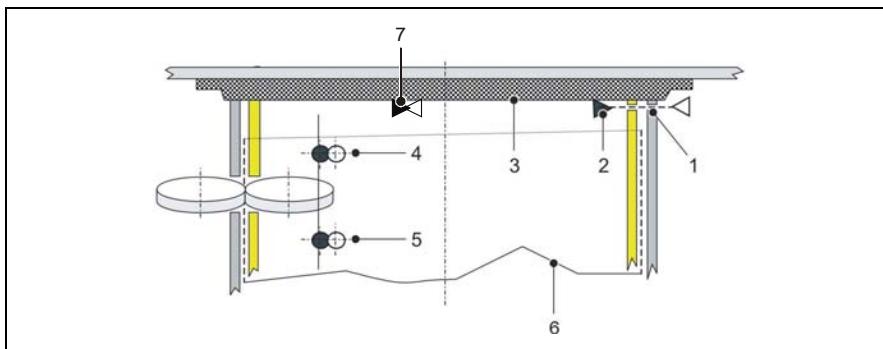
Rollers (7) are driven by motor ASM2 and are arranged in such a way that the friction force exerted on the medium at the circumference of the roller runs toward the contact surface. This makes sure that a medium can be moved forward and sideward simultaneously through the rollers.

The switch is actuated by an electric solenoid plunger (AMG1). When the magnet is energized the media are guided out of the drum.

Photosensor VLS7 is the intermediate transport's output sensor.

Photosensors ALS1 and ALS4 are positioned next to each other in parallel to the drum axis. This arrangement extends the path from detection of a medium by one of the two photosensors. When media have entered the alignment station askew, in particular, there is a longer path to the switch for the leading part.

The alignment station's photosensors ALS2 and ALS3 feature a panel with a slot (see the figure below). Its switching point is roughly 0.5 mm before the contact surface. Their distance apart in the direction of transport is less than the smallest medium length to be processed.

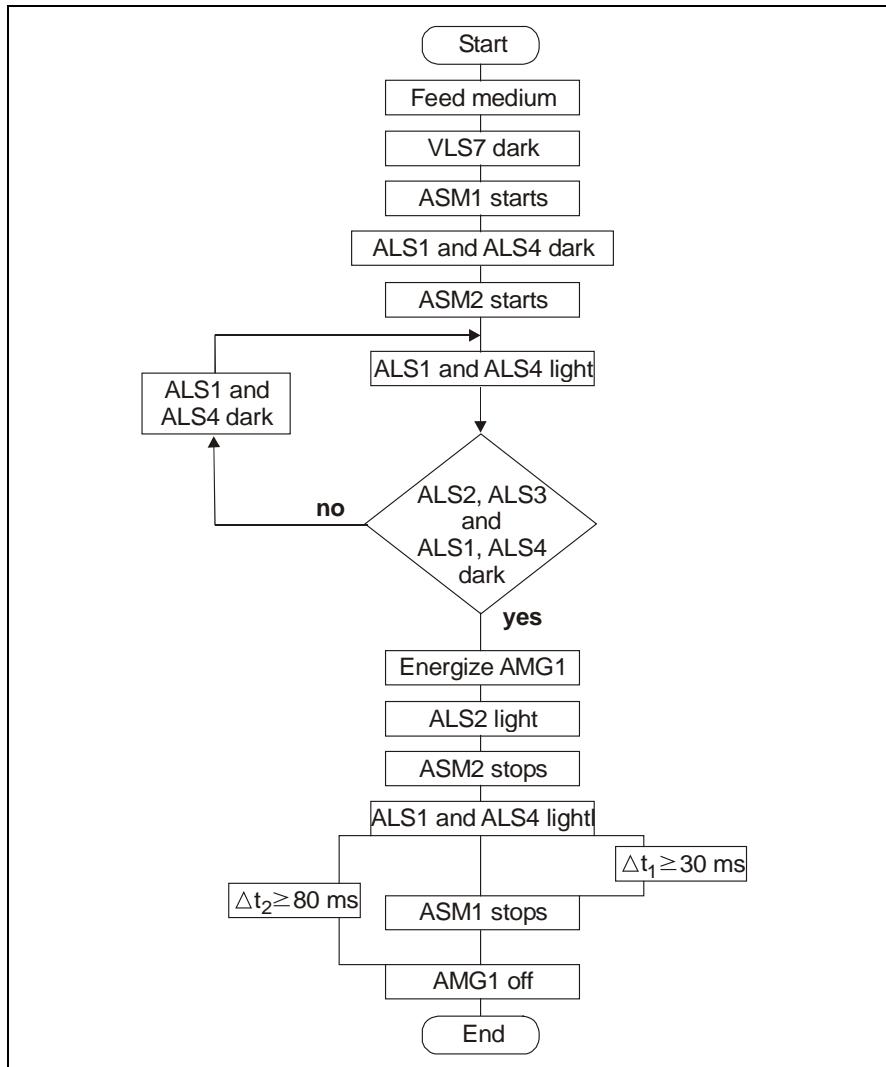


- 1 Panel with slot
- 2 Photosensor ALS2
- 3 Contact surface
- 4 Photosensor ALS1

- 5 Photosensor ALS4
- 6 Medium
- 7 Photosensor ALS 3

## Function description

The following figure shows the procedure for processing a medium that has to be aligned.



In the initial state, motors ASM1 and ASM2 are without energy and photosensors VLS7, ALS1, ALS3 and ALS4 are not covered.

Electromagnet ASM1 is without energy, i.e. the switch is in a position that keeps the media in the drum.

When photosensor VLS7 in the upstream intermediate transport detects a medium, motor ASM1 starts and moves the medium through the drum. The direction of rotation within the alignment drum is always to the left.

When photosensors ALS1 and ALS4 detect the medium ('covered' state), motor ASM2 starts and the medium is aligned with the contact surface.

The aligned medium passes through sensors ALS2 and ALS3.

If the medium is not recognized by both the photosensors ('not covered' state for ALS2 and/or ALS3), the medium is not up against the contact surface and therefore has to be realigned. The medium stays in the alignment drum and runs through the alignment process again.

The medium has been aligned when both photosensors detect it ('covered' state).

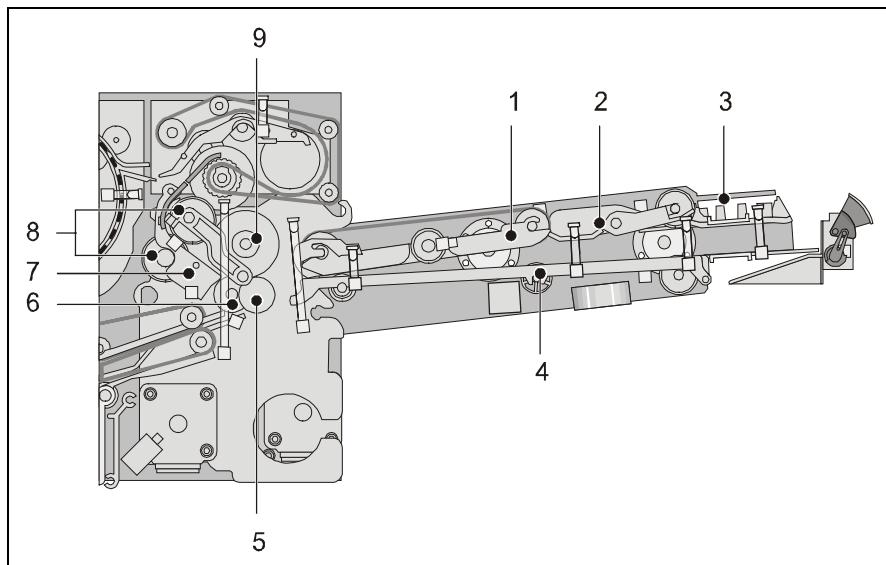
When photosensors ALS2 and ALS3 have detected that the medium has been aligned, magnet AMG1 is energized and the switch is positioned so that the medium can leave the alignment station.

Motor ASM2 stops when the medium passes photosensor ALS2 ('not covered' state).

When the medium has passed photosensors ALS1 and ALS4 ('not covered' state) motor ASM1 stops first and energization of magnet AMG1 stops shortly afterwards.

# Dispenser module

## Structure



- |                          |                          |
|--------------------------|--------------------------|
| 1 Swivel transport 2     | 6 Pressure roller shaft  |
| 2 Swivel transport 1     | 7 Double dispense sensor |
| 3 Metal detection        | 8 Foreign body sensor    |
| 4 Lower bundle transport | 9 Drive roller shaft     |
| 5 Counterrotation shaft  |                          |

The dispenser module basically consists of swivel transports 1 and 2, the lower bundle transport, the input / output transport, the metal detector and the bundle alignment margin setter.

## Function description

### Dispensing procedure

If a customer has selected the transaction 'Media input', the shutter opens and metal detection is activated.

Once the media are input, swivel transport 1, swivel transport 2 and the lower bundle transport move the bundle towards the separating rollers (pressure roller shaft, drive roller shaft and counterrotation shaft) and align them.

The top medium is then removed from the bundle and passed to the intermediate transport. On its way to the intermediate transport, the medium is checked for double dispenses and foreign objects.

From the intermediate transport, various function modules transport the medium to the escrow, where it is temporarily stored.

This separation process is repeated until all the notes in the bundle have been separated and have reached the drum module.



### Detecting multiple or double dispenses

If the double dispense sensor detects a multiple or double dispense, further efforts are made to separate these media. The procedure that is used is based on the type of multiple dispense detected.

If the media are successfully separated, each separate medium is transported to the escrow. The remaining media in the bundle are then separated.

If the media cannot be separated, first the remaining bundle and then the multiple or double dispense are returned to the customer.

Following this, the remaining bundle can be re-inserted and the separation process continued.

### Detecting foreign objects

If a foreign object is detected, first the remaining bundle and then the medium with the foreign object are returned to the customer.

Following this, the remaining bundle can be re-inserted and the separation process continued.



---

# Function Description

## Functions

The CCDM is designed to be integrated in automated teller machines and full-function self-service terminals. It enables round-the-clock cash deposit and automated check handling.

The modular design enables use in various device configurations. The CCDM can be deployed in both frontload and rearload units.

The CCDM may consist of the following components:

- Metal detection
- Dispenser module
- Intermediate transport
- Alignment station
- Magnetic character reader
- Cheque / cash reader
- Escrow unit
- Printing station
- Cassette module

Status and error codes are displayed on a control panel to indicate the status of the CCDM. The status messages help to locate and take care of the source of a fault (see section "LEDs and function buttons").

The input/output area is protected by a shutter built into the device. The application program installed on the unit enables the use of optical indicators on the customer panel for user guidance.

The entire handling process inside the CCDM is monitored with the help of sensors.

The CCDM can be configured in the following ways:

<b>Configuration</b>	<b>Function</b>
Cheque-in	CCDM processes cheques only
Cash-in*1	CCDM processes banknotes only
Cheque / Cash-in	CCDM processes cheques and banknotes

\*1 In cash-in mode the banknotes will only pass through without trouble when a ribbon cartridge is in the printer.

If there is no print station it is necessary to insert the document guide snap-in panel (01750070381) in the pressure plate to ensure trouble-free passage of banknotes (see the following figures).

## **How the CCDM works**

### **Cheque processing**

It is possible to deposit cheques in bundles of 50.

The deposited cheques are drawn in as a bundle.

The bundle is first aligned in the bundle alignment station and then separated. The individual cheques are then aligned again in the alignment station. This ensures that the code line (magnetic characters CMC7 or E13B) on the cheque can then be read magnetically.

During the following transport of the cheque through the cheque/cash reader, images (200 dpi) are recorded of the front and back of the cheque, using two different kinds of light (red and green). These images can be stored together with the information from the code line (magnetic characters) and additional transaction data from the device (system unit).

If the code line is not recognized (because it is not present, or because the cheque was entered backwards), the cheque is redirected to the reject compartment and returned to the customer with an appropriate message.

Following the recording of the images, the cheques are stored temporarily in an escrow unit.

The matrix printer station makes it possible to cancel the cheques by printing a line of information on the back of the cheques.

If the transaction is confirmed, the cheques are stored in a cassette provided for that purpose.

If the transaction is cancelled, all cheques are returned to the customer.

## Banknote processing

It is possible to deposit banknotes in bundles of 50.

The deposited banknotes are drawn in as a bundle, aligned as a bundle, and separated.

The verification of the banknotes takes place in the cheque/cash reader. Using loadable, country-specific currency data as a reference, the authenticity of the banknotes is checked here.

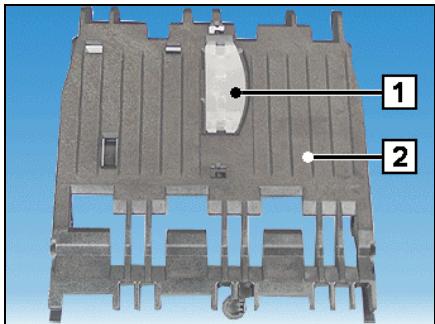
Following the check, counterfeit or suspicious banknotes are stored in the separate retract cassette.

Since those banknotes that are determined to be genuine are then stored temporarily in the escrow unit, it is possible to return the entire bundle if the deposit transaction is aborted.

If the transaction is confirmed, the banknotes are stored in a cassette provided for that purpose.



In cash-in mode in a cheque / cash-in configuration the banknotes will only pass through without trouble when a ribbon cartridge is in the printer. If there is no print station it is necessary to insert the document guide snap-in panel (01750070381) in the pressure plate to ensure trouble-free passage of banknotes (see the following figure).



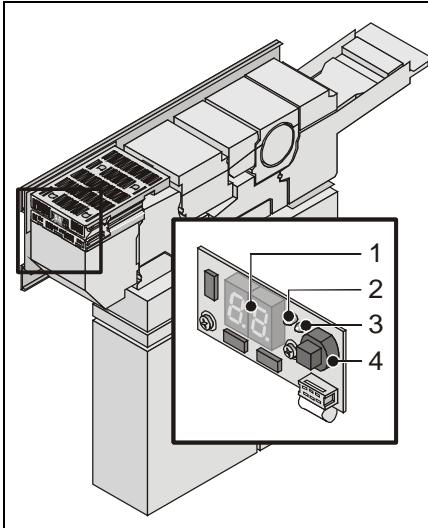
The illustration shows the pressure plate (2) with the document guide snap-in panel (1) in position.

## LEDs

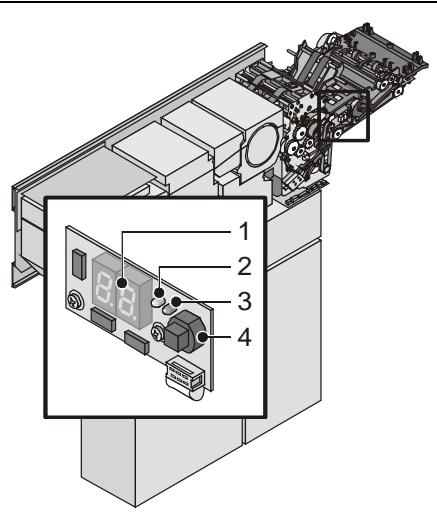
With the help of the LEDs, the status of the CCDM is displayed. The LEDs are located on the CCDM control panel.

The following illustration shows the position of the control panel depending on the device version.

**Rearload**



**Frontload**



1 Status display

2 Green LED

3 LED red

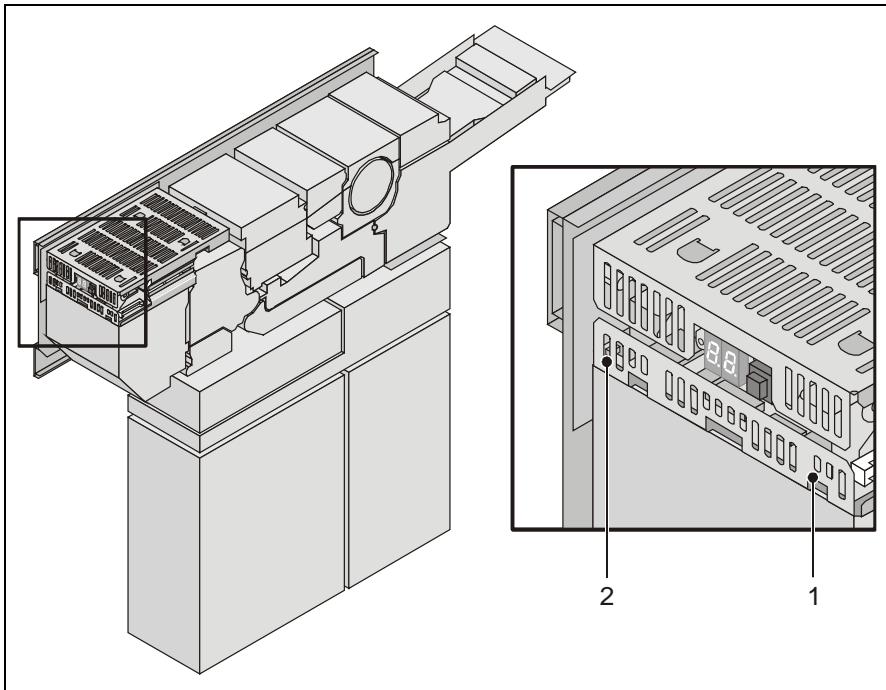
4 Test button

The following table explains the individual LEDs.

<b>LED green</b>	<b>LED red</b>	<b>Meaning</b>	<b>Measure to be taken (reaction)</b>
Off	Off	No power (CCDM not in operation)	
On	Off	CCDM ready for operation or warming up	
On	On	CCDM not in operation	
On	Blinking	CCDM not in operation	Eliminate the fault (see chapter "Faults").

## Function buttons

The function buttons are located on the controller board.



1 Button S1

2 Button S4

The following table explains the function buttons.

Button	Description
S1	RESETs the CCDM
S4	Reserved

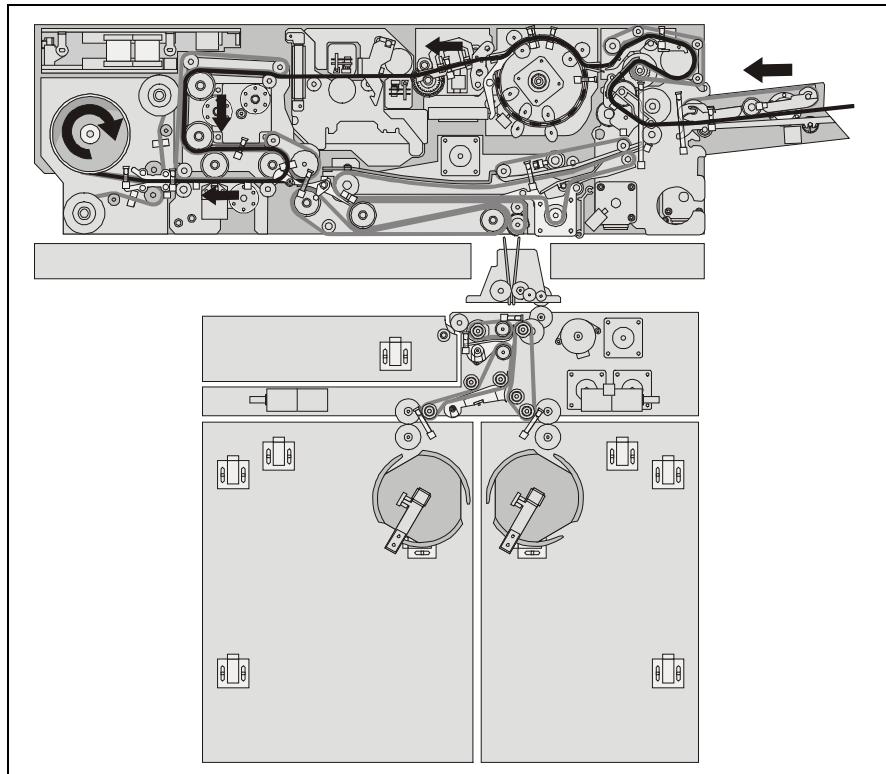
## Description of transport paths

This section presents the possible transport paths of banknotes and cheques.

### Version with standard cassette module (metal) (SK21.1)

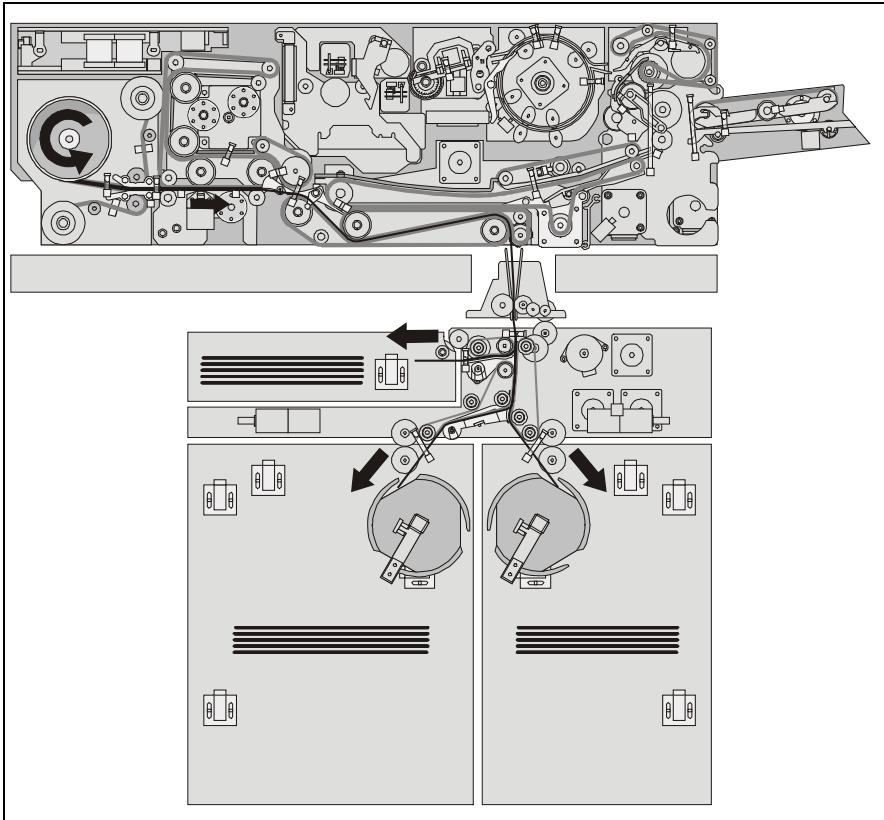
#### Transport from the input / output area to the escrow unit

The following illustration shows the transport path from the input / output area to the escrow unit.



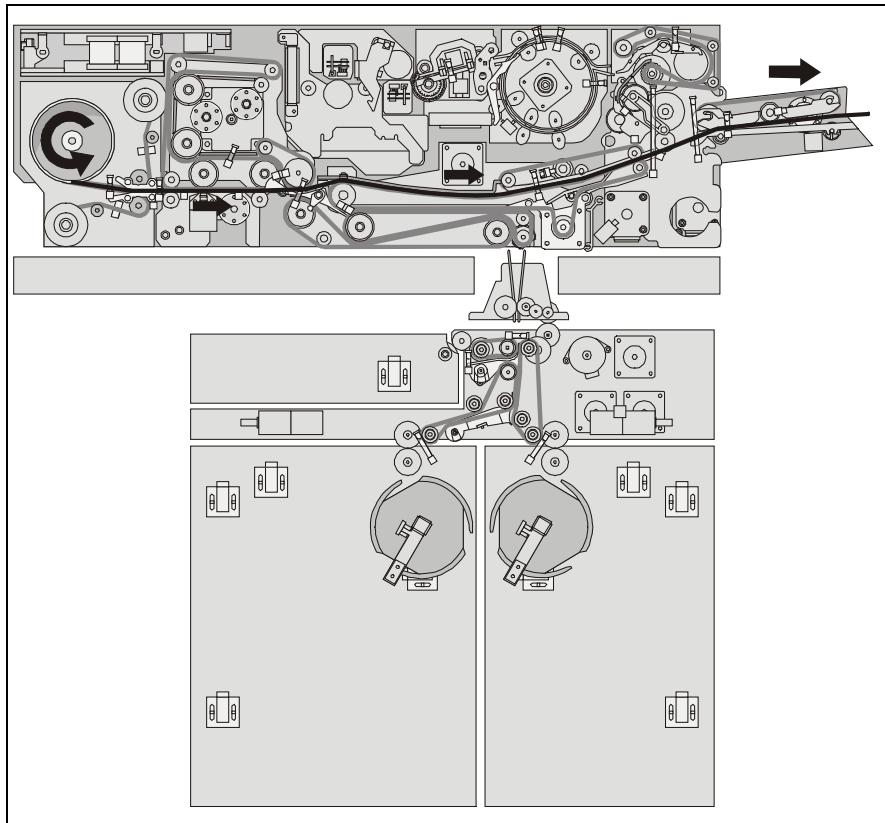
## Transport from the escrow unit to the cassette module

The following illustration shows the transport path from the escrow unit to the appropriate cassettes in the cassette module. Deflectors in the transport paths send the various media to the appropriate cassettes.



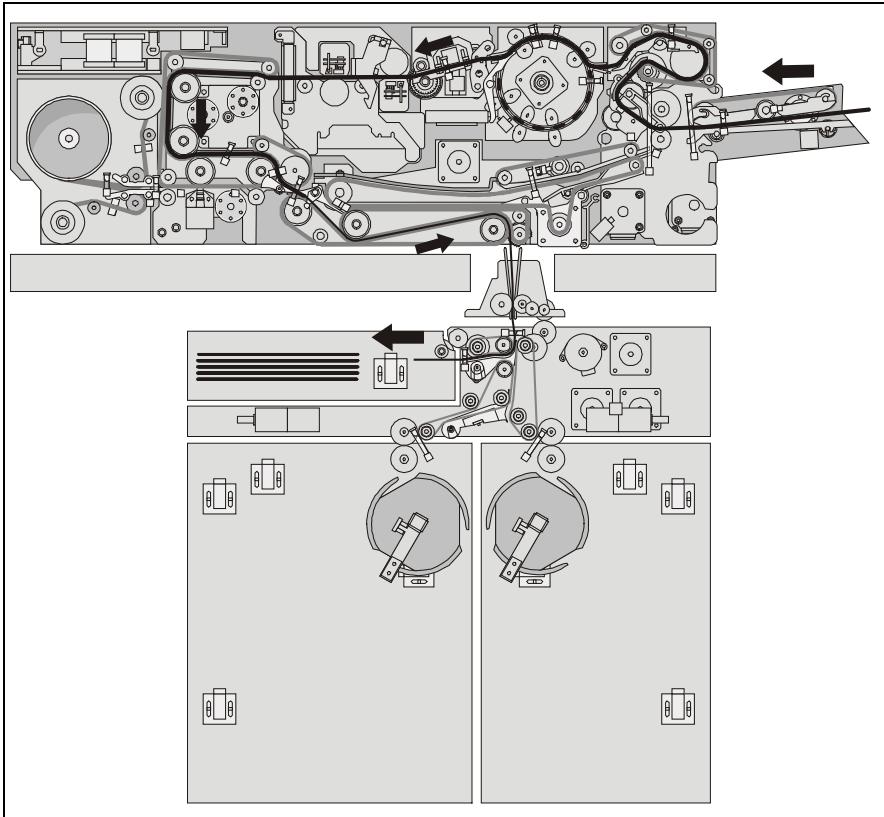
## Transport from the escrow unit to the input / output area

The following illustration shows the transport path from the escrow unit via the collection compartment in the reject transport facility to the input/output area.



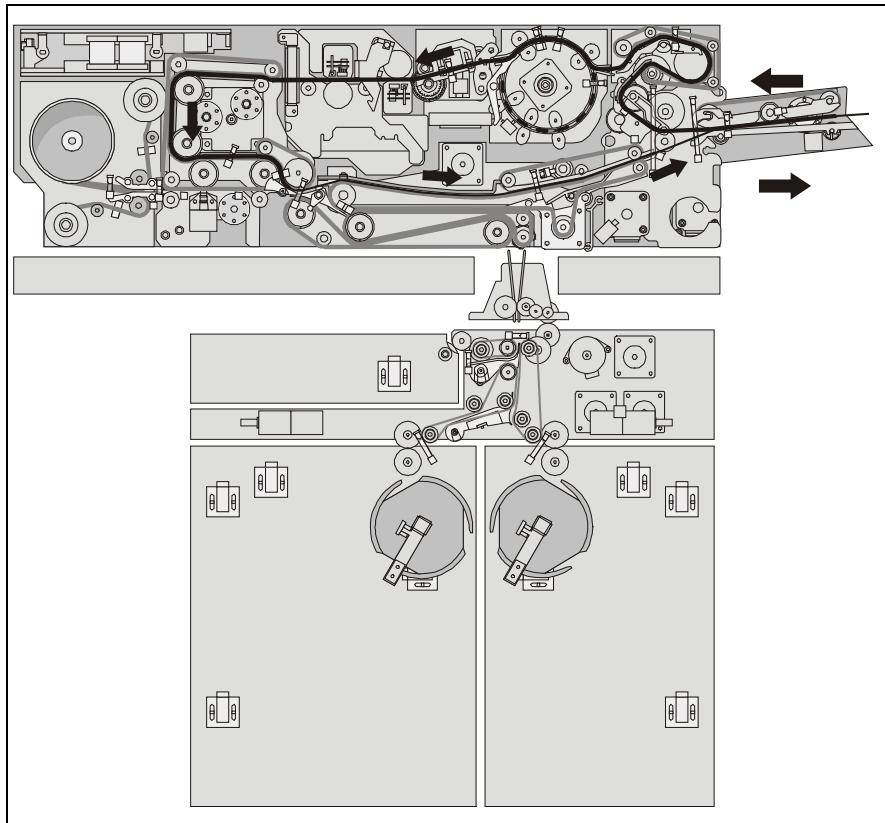
## Transport from the input / output area to the retract cassette in the cassette module

The following illustration shows the transport path from the input/output area to the retract cassette in the cassette module.



## Transport path for a rejected medium

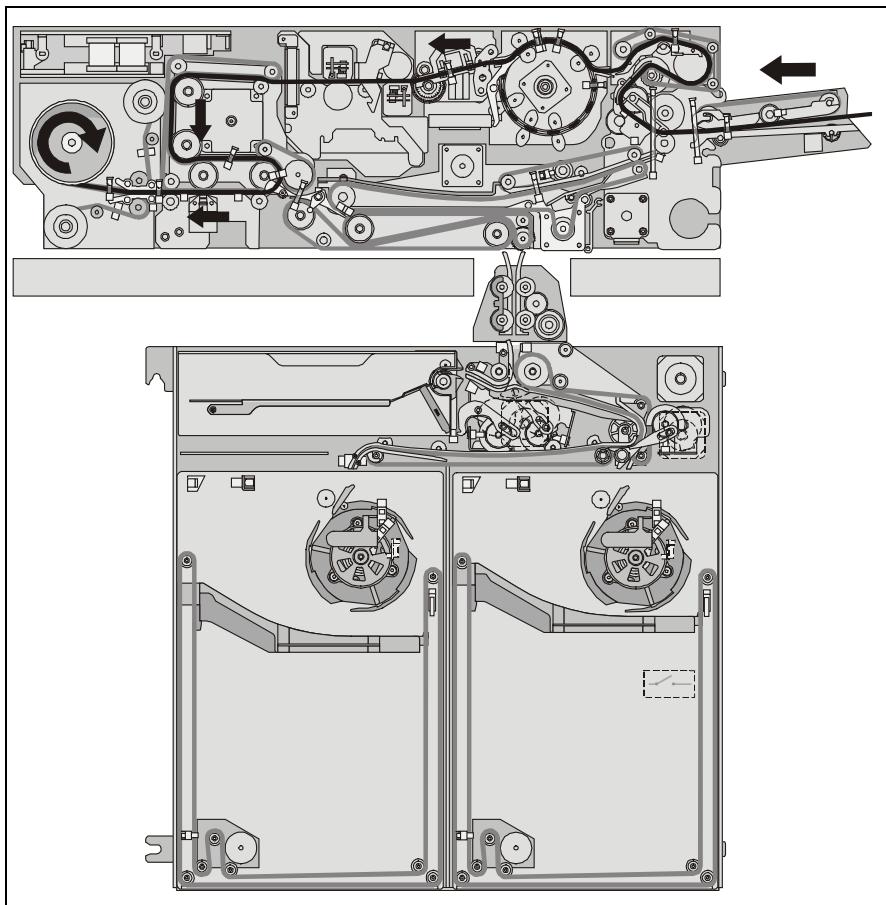
The following illustration shows the transport path taken by a single rejected medium.



## Version with cassette module for plastic cassettes (SK21.2)

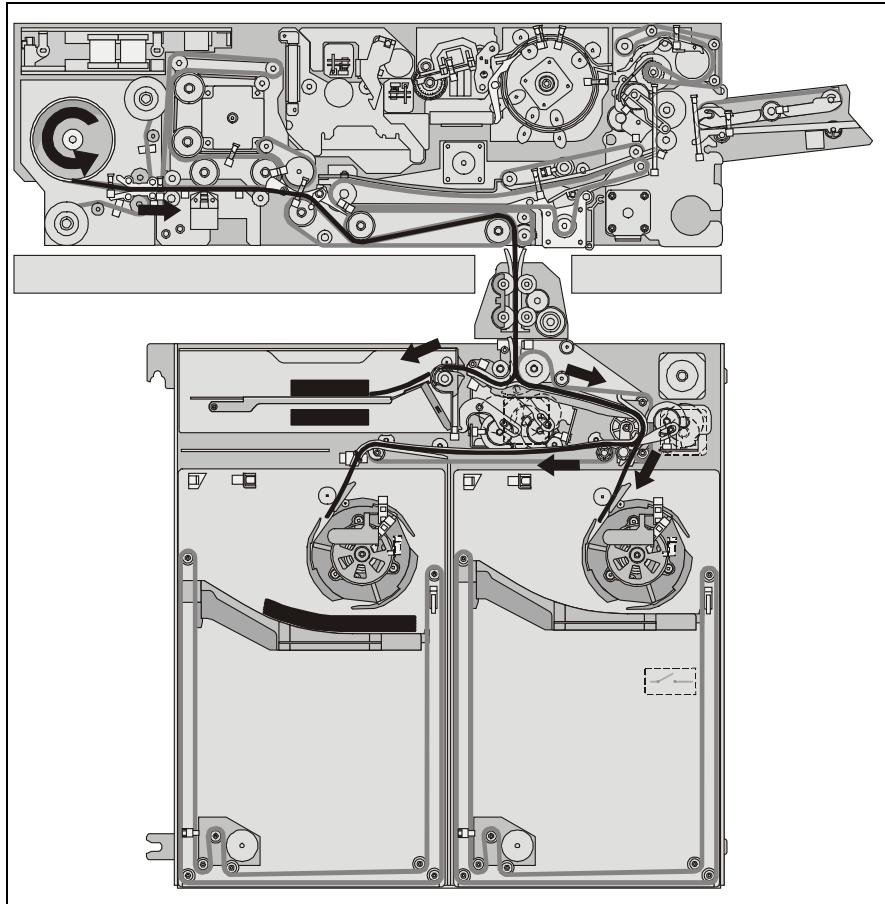
### Transport from the input / output area to the escrow unit

The following illustration shows the transport path from the input / output area to the escrow unit.



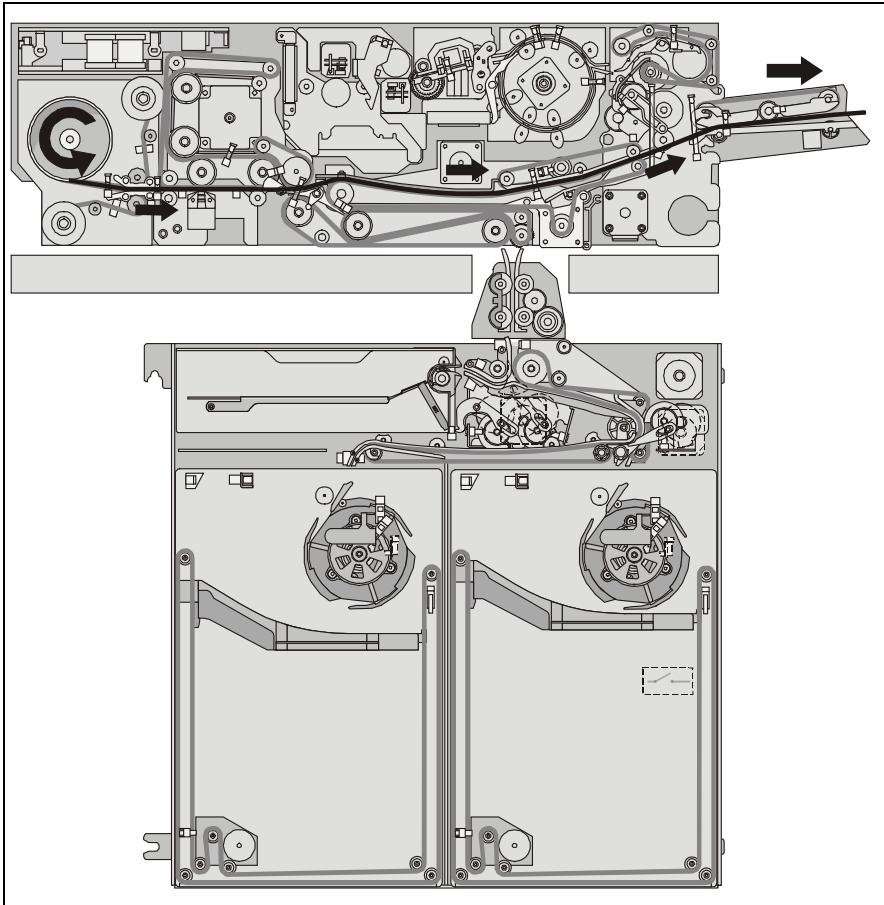
## Transport from the escrow unit to the cassette module

The following illustration shows the transport path from the escrow unit to the appropriate cassettes in the cassette module. Deflectors in the transport paths send the various media to the appropriate cassettes.



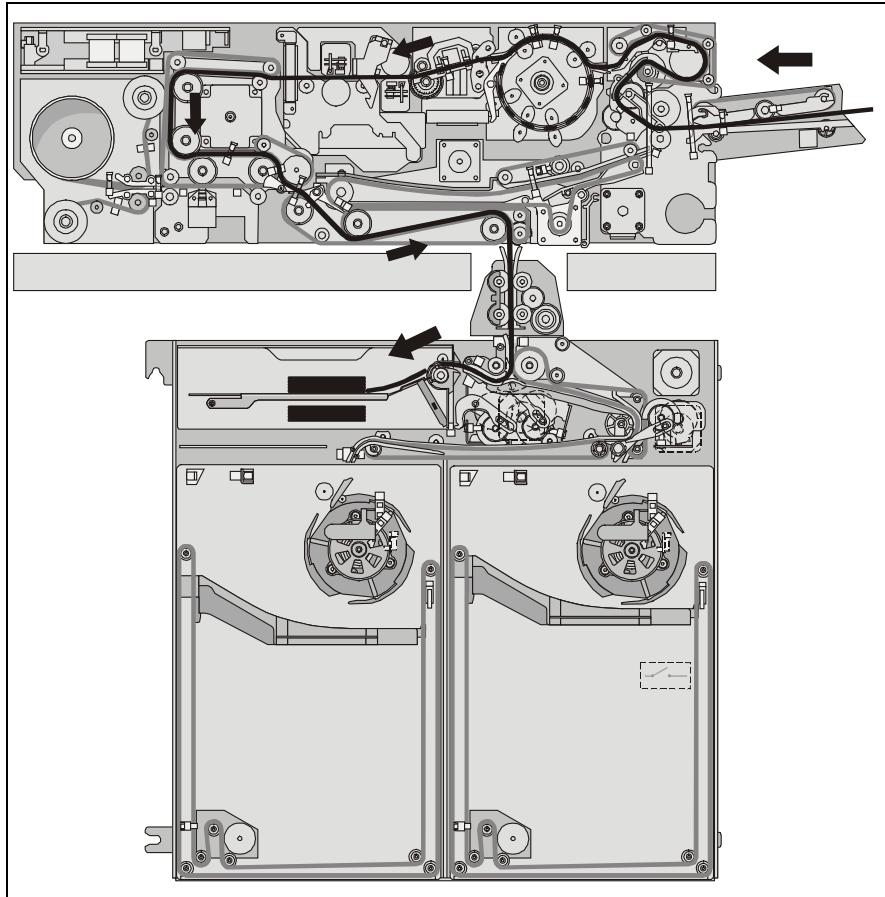
## Transport from the escrow unit to the input / output area

The following illustration shows the transport path from the escrow unit via the collection compartment in the reject transport facility to the input/output area.



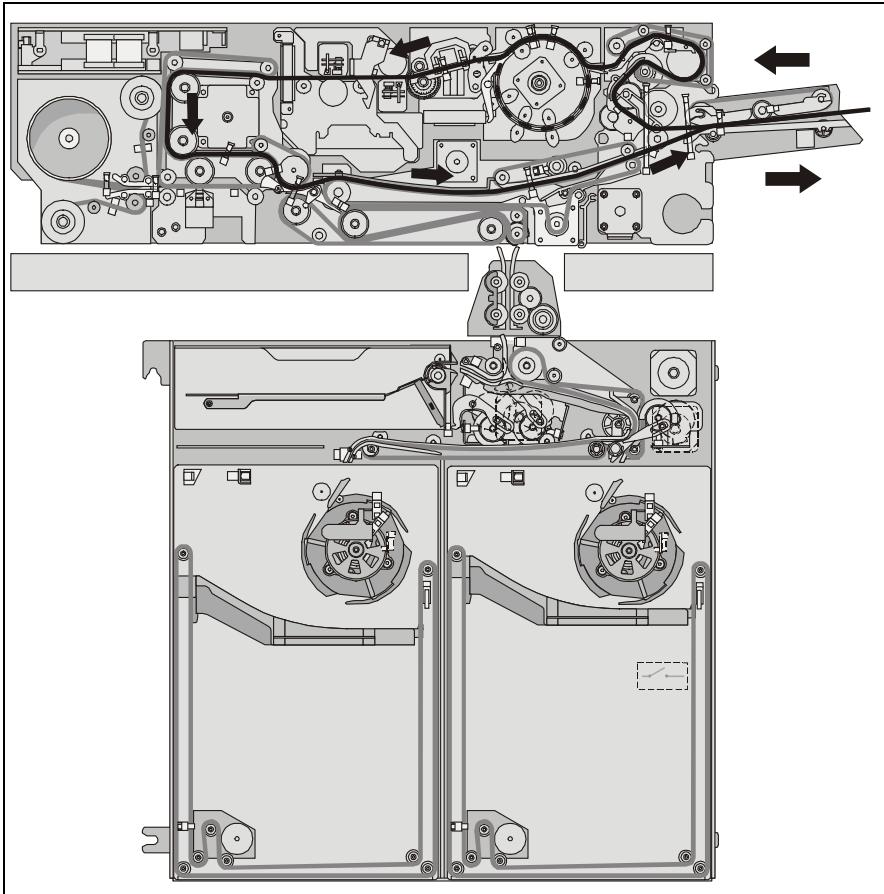
## Transport from the input / output area to the retract cassette in the cassette module

The following illustration shows the transport path from the input/output area to the retract cassette in the cassette module.



## Transport path for a rejected medium

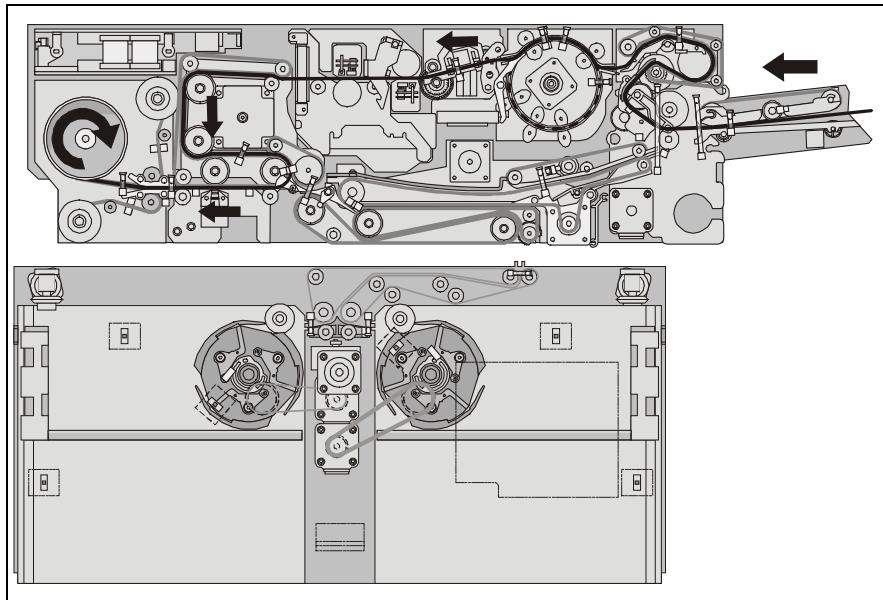
The following illustration shows the transport path taken by a single rejected medium.



## Version with cassette module for ProCash 3100(xe) (SK31.1)

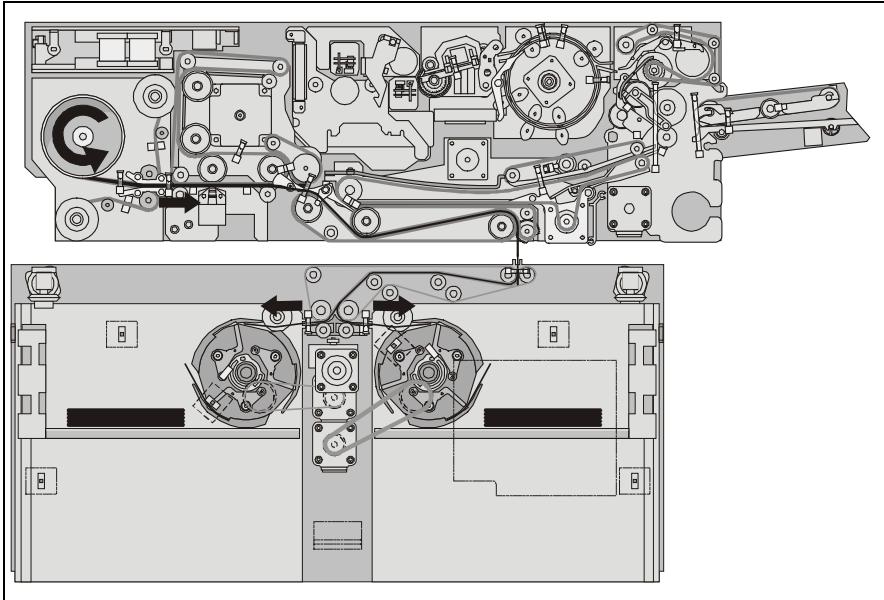
### Transport from the input / output area to the escrow unit

The following illustration shows the transport path from the input / output area to the escrow unit.



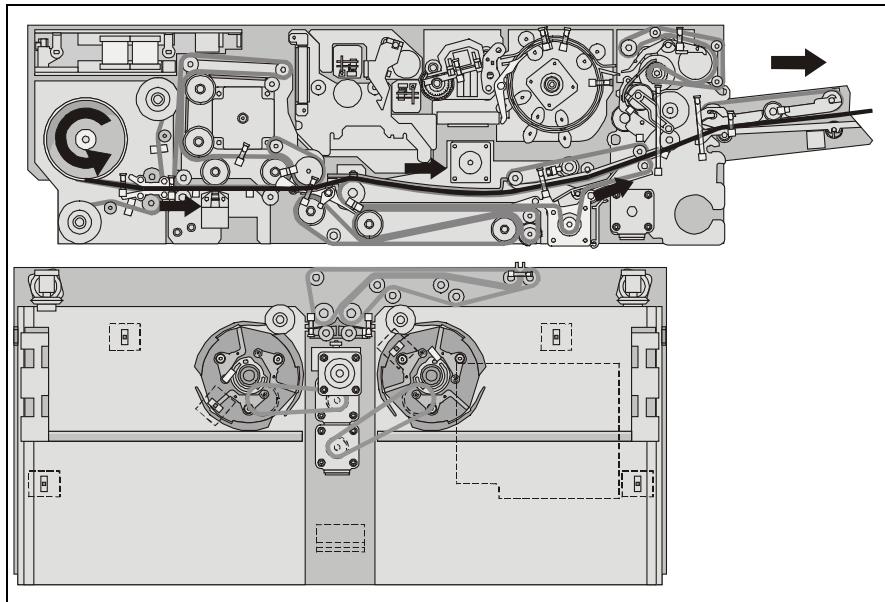
## Transport from the escrow unit to the cassette module

The following illustration shows the transport path from the escrow unit to the appropriate cassettes in the cassette module. Deflectors in the transport paths send the various media to the appropriate cassettes.



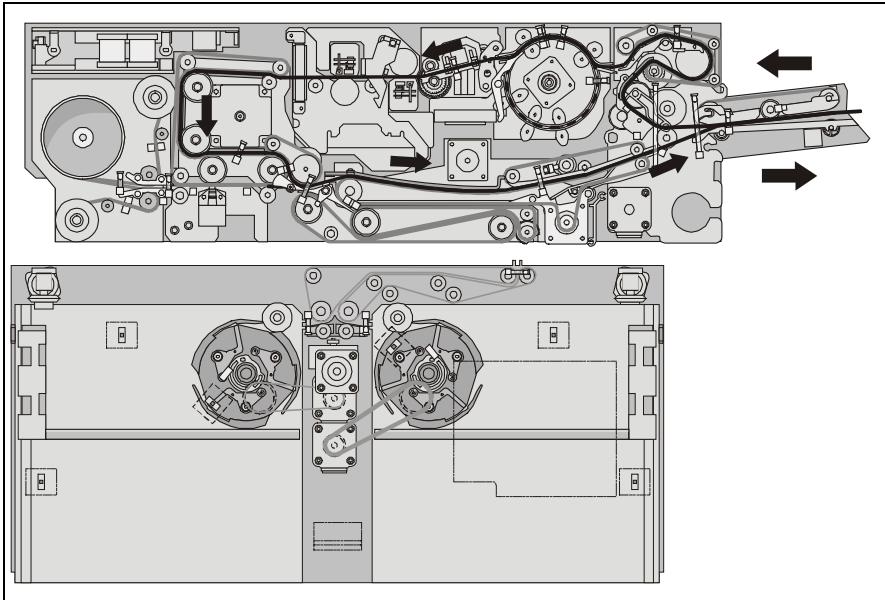
## Transport from the escrow unit to the input / output area

The following illustration shows the transport path from the escrow unit via the collection compartment in the reject transport facility to the input/output area.



## Transport path for a rejected medium

The following illustration shows the transport path taken by a single rejected medium.





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# Function Test

## Test button

Test runs can be started and the CCDM can be reset by pressing the Test button on the control panel.

- i A test function can always be triggered unless an error has occurred that prevents this (for example a defective CCDM controller).

## Calling the function codes

- i To call the function codes, the CCDM head module must be pushed into position (safety switch closed).

Pressing and holding the test button causes the status display to switch to the function code. Continuing to hold down the function button changes the display of the function code to '00', '01', '02' and '03' in turn. The meaning of the individual function codes is explained in the following table. To start a particular function, let go of the button when the status display shows the corresponding function code.

Function code	Function	
<b>00</b>	Extended error code	Upon display of the extended error code (if available) the status display changes to the current status of the device (normal operation or error condition). (See also the chapter "Faults", section "Error codes / warning codes".)
<b>01</b>	RESET (warm reset)	
<b>02</b>	Diagnostic test RESET	The mechanical components of the CCDM are moved, one after the other. A reset is performed if no error has occurred. If an error occurs, the diagnostic test is terminated and the error code is displayed. You can cancel the diagnostics test by pressing the test button briefly. A RESET is then performed.
<b>03</b>	Photosensor synchronization	The photosensors are synchronized automatically. Then the status display changes to the current status of the device (normal operation or error condition). If an error message is displayed following photosensor synchronization after replacing a component, you must first perform a 'factory synchronization' (see section "Calling the service function codes").
<b>04</b> to <b>09</b>	Reserved for new functions	

## Calling the service function codes

At present, photosensor synchronization (factory synchronization) and metal sensor synchronization are implemented.

While the shutter is open, the metal sensor synchronization identifies new points of operation for the metal detection. This synchronization is always required after components have been replaced, since the replacement might have caused a change in mechanical or electrical characteristics or in the coil position.



To call the service function codes, the CCDM head module must be pulled out (safety switch activated).

Pressing and holding the test button causes the status display to switch to the service function code.

To select photosensor synchronization and metal sensor synchronization, let go of the button when the status display shows the function code '--'.

The synchronizations are performed when the CCDM head module is pushed in again.

Function code	Function	
	Photosensor synchronization (factory synchronization) and metal sensor synchronization	<p>Prerequisite:</p> <ul style="list-style-type: none"><li>– All media must have been removed from the transport paths.</li><li>– All components must be in working position.</li></ul> <p>After pushing in the CCDM head module, the photosensors and the metal sensors synchronize automatically.</p> <p>Then the status display changes to the current status of the device (normal operation or error condition).</p>



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# Faults

## Status messages

### Status display

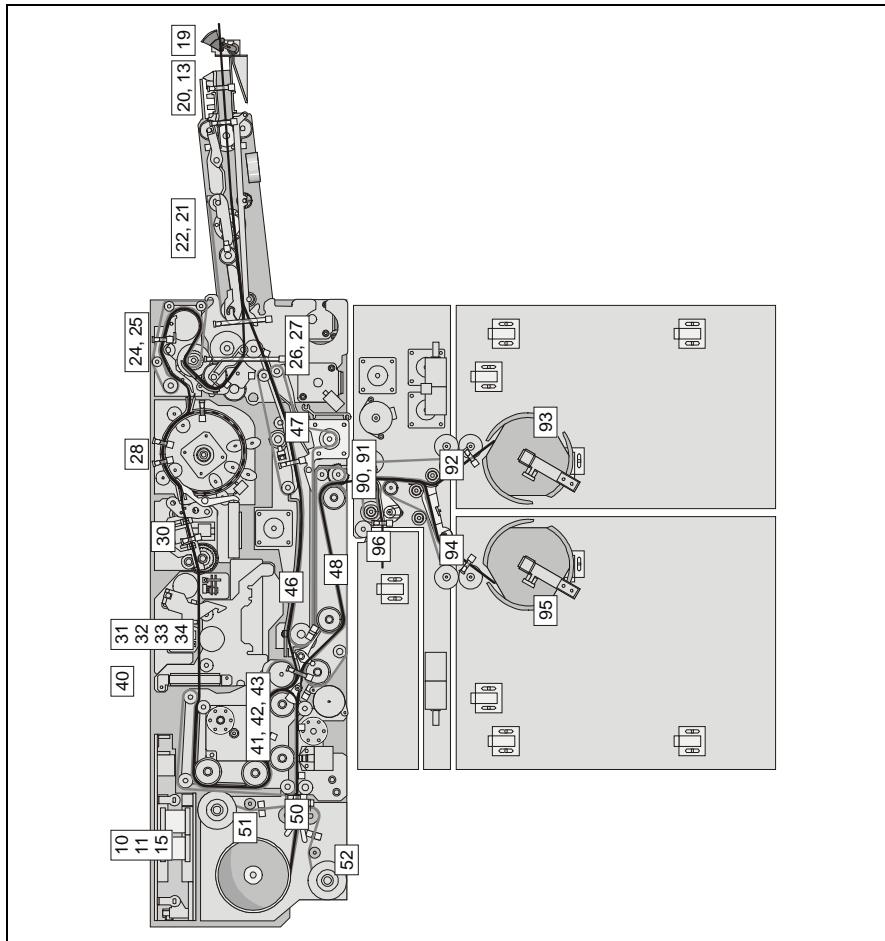
The current status of the CCDM, including any faults that may have occurred, is shown on the status display.

The status display shows the following messages, depending on the type of display:

Status display	Meaning
No display (Green LED on)	Normal operation; no fault / no warning
< 88 constant	Function code (see chapter "Function test")
> 88 blinking	Error code
> 88 permanent	Warning code

## Localizing the cause of the error

The numbers in the figure below represent the error and warning codes shown on the status display. The numbers are positioned on the diagram in such a way as to make it easier to locate the source of the error. The exact position of the photosensors and motors referred to in the code tables can be found in the section "Overview of sensors and actuators" in the appendix. The error codes of the photosensors (codes 60 to 89) are not included in this figure.



## Error codes / warning codes



Only check plug connections and only replace components when no voltage is being applied!



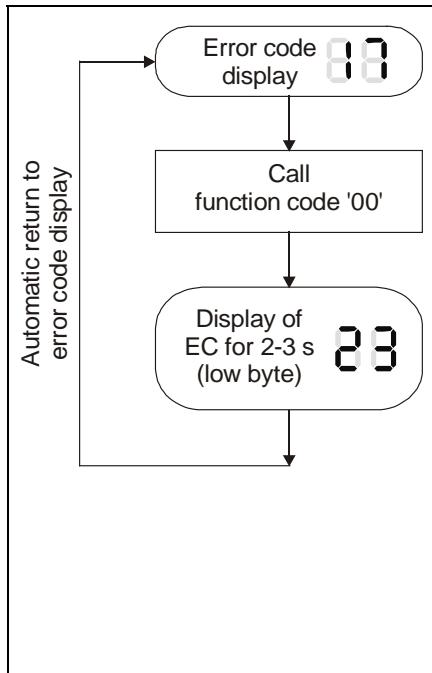
- If components need to be replaced to clear a fault, please refer to the relevant section in the chapter "Removal/Installation of Components".
- When a component has been replaced, always synchronize the photosensors.
- After clearing a media jam, always perform a reset.

### How to execute measures

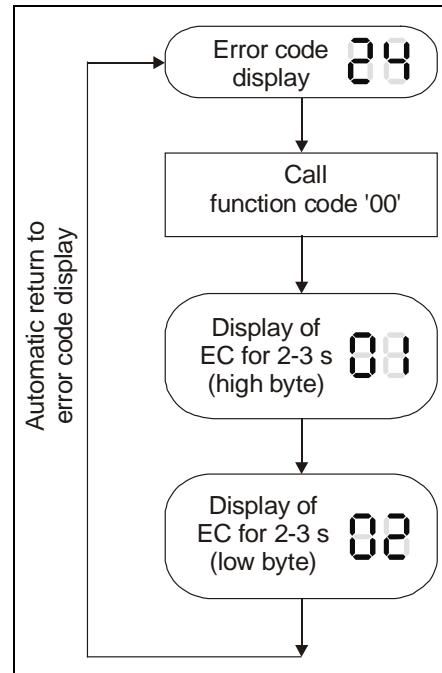
Remedy	Note
Synchronizing the photosensors	Press the test button and select the function code '03' (see chapter "Function Test").
Performing a RESET	Press the test button and select the function code '01' (see chapter "Function Test").
Restarting the system	Switch the device off and back on (for details see chapter "Basic Operation" in the operating manual).
Displaying the extended error code (EC)	Press the test button and select the function code '00' (see chapter "Function Test"). The extended error code is shown on the status display as follows: First high byte (2-3 seconds) (only in case of 4-digit error code), then low byte (2-3 seconds). For details refer to the examples on the following page. Next, the two-digit error code is displayed again.

**Examples of the extended error code display**

Error code '17' / EC '23' as an example of a 2-digit display of error code:



Error code '24' / EC '102' as an example of a 4-digit display of error code:



## Error messages in the area of the head module

Code	EC	Meaning	Remedy
PU		Boot up (electronic self-test)	Wait for the system to finish booting up.
BB	00	Boot up (after reset)	Wait for the system to finish booting up.
08	00	Operating system error, hardware error	<ul style="list-style-type: none"> <li>– Restart the CCDM.</li> <li>– If necessary re-load the firmware.</li> <li>– If the error reoccurs, replace the controller.</li> </ul>
02	20	Operating system error, internal firmware error	<ul style="list-style-type: none"> <li>– Restart the CCDM.</li> <li>– If the error persists, re-load the firmware.</li> <li>– If the error reoccurs replace the amplifier / controller board.</li> </ul>
05	01	No connection to dispenser module	<p>Permanent status display: Dispenser module 01750047708 is installed which may cause disturbances in the dispensing area. Replacement with an up-to-date dispenser module is recommended.</p> <p>Blinking status display:</p> <ul style="list-style-type: none"> <li>– Check the cable connection between the dispenser module and the back panel.</li> <li>– Restart the CCDM.</li> <li>– Replace the dispenser module.</li> <li>– If the error reoccurs, replace the chassis of the CCDM.</li> </ul>
06	02	No connection to amplifier board	<ul style="list-style-type: none"> <li>– Check the plug connections between amplifier and controller board.</li> <li>– If necessary re-load the firmware.</li> <li>– Restart the CCDM.</li> <li>– If the error reoccurs replace the amplifier / controller board.</li> </ul>

<b>Code</b>	<b>EC</b>	<b>Meaning</b>	<b>Remedy</b>
07	03	No connection to stacker board	<ul style="list-style-type: none"> <li>– Check the plug connection between amplifier board and controller board.</li> <li>– Check the configuration of the controller.</li> <li>– Re-load the firmware of the CCDM.</li> <li>– Restart the CCDM.</li> <li>– If the error reoccurs, replace the distributor transport.</li> </ul>
08	21	Battery on controller board empty	<ul style="list-style-type: none"> <li>– Restart the CCDM.</li> <li>– Delete the cassette counters and the CEX.</li> <li>– Perform a reset.</li> <li>– Restart the system</li> <li>– If the error reoccurs replace the amplifier / controller board.</li> </ul>
09	24	Device configuration of controller incorrect or missing	<ul style="list-style-type: none"> <li>– Restart the system</li> <li>– Load the appropriate configuration using the product-specific test software.</li> <li>– If the error reoccurs, reload the firmware.</li> <li>– If the error cannot be eliminated by means of the above steps, replace the amplifier / controller board.</li> </ul>
10	00	Error on controller	<ul style="list-style-type: none"> <li>– Restart the system</li> <li>– If necessary re-load the firmware.</li> <li>– If the error cannot be eliminated, replace the amplifier / controller board.</li> </ul>
11	00	No firmware	<ul style="list-style-type: none"> <li>– Restart the system</li> <li>– If the error persists, re-load the firmware.</li> </ul>

Code	EC	Meaning	Remedy
82	22	Safety switch is active	<ul style="list-style-type: none"> <li>– Check whether the CCDM (head module and cassette module) is pushed into the device correctly (locking mechanism!) and whether the safety switch is correctly bridged.</li> <li>– Check the connection cable between the safety switch and the back panel.</li> <li>– Restart the CCDM.</li> <li>– If the error reoccurs, replace the safety switch.</li> </ul>
			 After the LINE XSA module has been reconfigured, there is a waiting period of up to 270 seconds until the CCDM is ready for operation.
83	00	Retract documents are stored in the input/output area.	Remove the documents from the input/output area.
84	00	Minimum configuration is missing (at least 1 cash-in cassette + retract cassette)	Register the cassettes using the product-specific software (e.g. Service Operator Panel).
85	00	Operating system is loading new files on the CCDM controller	Wait for the system to finish loading the firmware.
86	23	Data transfer on RS232 interface	Wait for the data transfer to finish.

<b>Code</b>	<b>EC</b>	<b>Meaning</b>	<b>Remedy</b>
88	25	The application overloads the CCDM hardware (too many reset commands per time unit)	<ul style="list-style-type: none"> <li>– Power down the PC / the application.</li> <li>– Leave the CCDM switched on for five minutes.</li> <li>– Power up the PC / the application.</li> <li>– Perform a reset.</li> <li>– Inform the person who is responsible for software.</li> </ul>
89		Shutter blocked	<ul style="list-style-type: none"> <li>– Remove any foreign matter from the shutter area.</li> <li>– Make sure the plug of the shutter is plugged in at the controller.</li> <li>– Perform a reset.</li> <li>– If the error reoccurs, replace the shutter.</li> </ul>
	0144		<ul style="list-style-type: none"> <li>– <i>Mechanical blocking / foreign matter,</i></li> <li>– <i>Plug has not been plugged in,</i></li> <li>– <i>Shutter is defective.</i></li> </ul>
20		Error of the metal detection unit	<ul style="list-style-type: none"> <li>– Check the plug connection on the metal detection unit.</li> <li>– Check the plug connection on the dispenser's board.</li> <li>– Restart the CCDM.</li> <li>– If the error reoccurs, replace the metal detection.</li> <li>– If the error reoccurs, replace the dispenser module.</li> </ul>
	0145		<i>Module is defective or plug has not been plugged in.</i>

Code	EC	Meaning	Remedy
28		Error on swivel transport unit or in the area of the bundle alignment	<p>Swivel transport unit:</p> <ul style="list-style-type: none"> <li>– Check the home position of swivel transport units 1 and 2.</li> <li>– Inspect photosensors VLS3 and VLS4.</li> <li>– Inspect motors VSM5 and VSM6.</li> <li>– Replace the dispenser module, if necessary.</li> </ul> <p>Bundle alignment:</p> <ul style="list-style-type: none"> <li>– Check whether the bundle alignment is clear.</li> <li>– Inspect photosensors VLS8 and motor VSM7.</li> <li>– Replace the dispenser module, if necessary.</li> </ul>
0 120			<ul style="list-style-type: none"> <li>– <i>Swivel transport 1 / 2 is mechanically blocked.</i></li> <li>– <i>Home position photosensor is defective or soiled (VLS3 / VLS4).</i></li> <li>– <i>Transport error: motor does not run properly (VSM5 / VSM6).</i></li> </ul>
0 121			<ul style="list-style-type: none"> <li>– <i>Swivel transport is mechanically blocked.</i></li> <li>– <i>Home position photosensor is defective or soiled (VLS3).</i></li> <li>– <i>Transport error: motor does not run properly (VSM5).</i></li> </ul> <p><i>or</i></p> <p><i>diagnostic test triggered by operator: swivel transport 1 in dispenser module defective.</i></p>
0 122			<ul style="list-style-type: none"> <li>– <i>Swivel transport is mechanically blocked.</i></li> <li>– <i>Home position photosensor is defective or soiled (VLS4).</i></li> <li>– <i>Transport error: motor does not run properly (VSM6).</i></li> </ul> <p><i>or</i></p> <p><i>diagnostic test triggered by operator: swivel transport 2 in dispenser module defective.</i></p>

Code	EC	Meaning	Remedy
28	0130	<ul style="list-style-type: none"> <li>– Drive is mechanically blocked.</li> <li>– Home position photosensor is defective or soiled (VLS8).</li> <li>– Transport error: motor does not run properly (VSM7).</li> </ul> <p>or</p> <p><i>diagnostic test triggered by operator: bundle width setting in dispenser module defective.</i></p>	
28	0100	<p>Media jam in dispenser module (feed error detected prior to dispensing)</p>	<ul style="list-style-type: none"> <li>– Remove any jammed media from the dispenser module's paper path.</li> <li>– Perform a reset.</li> <li>– Check the cam disk position.</li> <li>– Check the dispenser module's motors.</li> <li>– Restart the CCDM.</li> <li>– Replace the dispenser module, if necessary.</li> </ul>
28	0100	<ul style="list-style-type: none"> <li>– Paper jam in I/O transport area.</li> <li>– Photosensor VLS2 or VLS5 is defective or soiled.</li> <li>– Semi-rotary actuator motor does not run properly (VSM1).</li> <li>– Swivel transport is not lowered due to blocking etc. (VSM6 / VLS4).</li> <li>– Stack table is not on top due to blocking or defect (VSM8 / VLS9).</li> </ul> <p>or</p> <p><i>diagnostic test triggered by operator: dispenser module defective.</i></p>	
28	0108	<ul style="list-style-type: none"> <li>– A paper jam has occurred in the dispensing / I/O area.</li> <li>– Photosensor VLS2 is defective or soiled.</li> <li>– Motors VSM1/2/3 do not run properly.</li> </ul>	
	0111	<b>See error code no. 0100 for details.</b>	

Code	EC	Meaning	Remedy
<b>22</b>	0112	<ul style="list-style-type: none"> <li>- Paper jam in I/O area -&gt; paper feed rollers.</li> <li>- Photosensor VLS2 is defective or soiled</li> <li>- Photosensor VLS6 is defective or soiled</li> <li>- Transport error: motors VSM1/2/3 do not run properly.</li> <li>- Swivel transport is not lowered due to blocking etc. (VSM6 / VLS4).</li> <li>- Stackertable is not on top due to blocking or defect (VSM8 / VLS9).</li> <li>- Swivel transport 2 is defective (VSM1).</li> <li>- Clock wheel in swivel transport VLS5 is defective or soiled.</li> <li>- Dispensing comb is blocked.</li> </ul>	
	0181	<ul style="list-style-type: none"> <li>- A paper jam has occurred in the paper path between stacker and I/O transport, or paper is too long.</li> <li>- Photosensor VLS2 is defective or soiled.</li> <li>- Transport errors: motors (RSM1 / VSM1 / VSM2) do not run properly.</li> <li>- Incorrect cam disk position caused by jam or defect: Transport rollers should plunge through stacker table I/O transport (VSM8 / VLS9).</li> <li>- Swivel transport 2 is not on top due to blocking etc. (VSM6 / VLS4).</li> </ul>	

Code	EC	Meaning	Remedy
24		Paper jam detected during separation process.	<ul style="list-style-type: none"> <li>– Check paper path in dispenser module.</li> <li>– Clean the photosensors in the dispensing area of the dispenser module.</li> <li>– Carry out a photosensor adjustment / initialization.</li> <li>– Reset the photosensors to the default values, if necessary.</li> <li>– Check the dispenser module's motors, if necessary.</li> <li>– Restart the system</li> <li>– Replace the dispenser module, if necessary.</li> </ul>
0:10:1			<ul style="list-style-type: none"> <li>– <i>Foreign objects or dirt detected at VLS6 or VLS7 prior to dispensing process.</i></li> </ul>
0:10:2			<ul style="list-style-type: none"> <li>– <i>A paper jam has occurred in the paper feed roller area, or paper is too long.</i></li> <li>– <i>Photosensor VLS6 is defective or soiled.</i></li> <li>– <i>Transport error: motors VSM2/3/4 do not run properly.</i></li> </ul>
0:10:3			<ul style="list-style-type: none"> <li>– <i>Paper jam in paper feed roller area -&gt; intermediate transport.</i></li> <li>– <i>Photosensor VLS7 is defective or soiled</i></li> <li>– <i>Transport error: motors VSM2/3/4 do not run properly.</i></li> </ul>
0:10:5			<ul style="list-style-type: none"> <li>– <i>A paper jam has occurred in the intermediate transport and possibly also in the alignment station.</i></li> <li>– <i>Photosensor VLS7 is defective or soiled.</i></li> <li>– <i>Motors VSM2/3/4 do not run properly.</i></li> <li>– <i>Motor ASM1 of alignment station does not run properly.</i></li> </ul>
0:10:6			<ul style="list-style-type: none"> <li>– <i>A paper jam has occurred in the dispensing area.</i></li> <li>– <i>Photosensor VLS6 is defective or soiled.</i></li> <li>– <i>Motors VSM1/2/3/4 do not run properly.</i></li> </ul>
0:11:0			See <b>error code no. 0105</b> for details.

<b>Code</b>	<b>EC</b>	<b>Meaning</b>	<b>Remedy</b>
<b>24</b>	0113	<ul style="list-style-type: none"> <li>– Paper jam in dispensing area or intermediate transport.</li> <li>– Paper too long.</li> <li>– Photosensor VLS6 is defective or soiled.</li> <li>– Motors VSM2/3/4 do not run properly.</li> </ul>	
	0114	See <b>error code no. 0103</b> for details.	
	0115	See <b>error code no. 0105</b> for details.	
	0201	Document jam in intermediate transport or at entrance to alignment station.	
<b>25</b>		Error of hall sensors	<ul style="list-style-type: none"> <li>– Check the plug connection on the dispenser's board (bottom of dispenser module).</li> <li>– Restart the system</li> <li>– Replace the dispenser module, if necessary.</li> </ul>
	0150	<ul style="list-style-type: none"> <li>– Hall sensor element 1 is defective or plug is not plugged in.</li> <li>– Soiled roller, or paper remaining in roller.</li> </ul>	
	0151	<ul style="list-style-type: none"> <li>– Hall sensor element 2 is defective or plug is not plugged in.</li> <li>– Soiled roller, or paper remaining in roller.</li> </ul>	

Code	EC	Meaning	Remedy
28		Media jam in reject transport area	<ul style="list-style-type: none"> <li>– Remove any jammed media between the reject transport and the dispenser module or in the reject transport.</li> <li>– Check whether the belt of the reject transport is laying on the center of the guiding rollers.</li> <li>– Restart the CCDM.</li> <li>– Replace the dispenser module and/or the reject transport.</li> </ul>
0116			<ul style="list-style-type: none"> <li>– <i>Paper jam in reject path.</i></li> <li>– <i>Mechanical initialization of cam disk not correct due to blocking. See error code no. 140 for details.</i></li> <li>– <i>Mechanical initialization of swivel transport 2 not correct. See error code no. 122 for details.</i></li> <li>– <i>Photosensor VLS6 / VLS2 is defective or soiled.</i></li> <li>– <i>Dispensing motors VSM2/3 do not run properly.</i></li> </ul>
0180			<ul style="list-style-type: none"> <li>– <i>A paper jam has occurred in the paper path between stacker and I/O transport.</i></li> <li>– <i>Photosensor VLS6 is defective or soiled.</i></li> <li>– <i>Transport errors: motors (RSM1 / VSM1) do not run properly.</i></li> <li>– <i>Incorrect cam disk position caused by jam or defect: I/O stacker should be lowered to ensure free reject path (VSM8 / VLS9).</i></li> <li>– <i>Swivel transport 2 is not on top due to blocking etc. (VSM6 / VLS4).</i></li> </ul>

Code	EC	Meaning	Remedy
28		Error of the cam disk	<ul style="list-style-type: none"><li>– Restart the CCDM.</li><li>– Check the cam disk position (release).</li><li>– Replace the dispenser module, if necessary.</li></ul>
	0140		<ul style="list-style-type: none"><li>– <i>Drive is mechanically blocked.</i></li><li>– <i>Home position photosensor is defective or soiled (VLS9).</i></li><li>– <i>Transport error: motor does not run properly (VSM8).</i> or <i>diagnostic test triggered by operator: cam disk in dispenser module defective.</i></li></ul>
	0141		<ul style="list-style-type: none"><li>– <i>Drive is mechanically blocked.</i></li><li>– <i>Home position photosensor is defective or soiled (VLS9).</i></li><li>– <i>Transport error: motor does not run properly (VSM8).</i></li></ul>

<b>Code</b>	<b>EC</b>	<b>Meaning</b>	<b>Remedy</b>
<b>28</b>		Media jam in front of or in the alignment station	<ul style="list-style-type: none"> <li>– Clear the media jam in the alignment station</li> <li>– Check the photosensors and the motors in the alignment station.</li> <li>– Carry out a photosensor adjustment / initialization.</li> <li>– Perform a reset</li> <li>– Replace the alignment station, if necessary.</li> </ul>
	0200	<p><i>Document in front of ASL1 or ALS1 is defective (keeps detecting document) -&gt; motor AMS1 possibly defective as a result of which document is not removed from position in front of ASL1.</i></p> <p><i>or diagnostic test triggered by operator: alignment station defective.</i></p>	
	0202	<i>Document jam between alignment station and sensor module or in AMG1 deflector.</i>	
	0203	<i>No document jam. However, document transport caused problems (too much slippage or too much friction). Check transport path 'Intermediate Transport Exit' – 'Alignment Station' – 'Sensor Transport Entrance'.</i>	
	0204	<i>Document jam in the alignment drum (document remains in drum).</i>	
	0205	<i>Document jam in front of ALS1 during transport of document in the alignment drum</i>	
	0206	<i>Document jam in front of ALS1 during transport of document from alignment drum -&gt; check transport path through drum.</i>	

<b>Code</b>	<b>EC</b>	<b>Meaning</b>	<b>Remedy</b>
<b>30</b>		Error on magnetic character reader	<ul style="list-style-type: none"> <li>– Check the plug connection with the magnetic character reader.</li> <li>– Restart the CCDM.</li> <li>– Replace the magnetic character reader, if necessary.</li> </ul>
	<b>30</b>	<i>ADDMASTER electronic is defective or not properly connected.</i>	
<b>38</b>		Error on cheque / cash reader	<ul style="list-style-type: none"> <li>– Restart the CCDM.</li> <li>– Restart the system</li> <li>– If necessary, reload cheque / cash reader firmware.</li> <li>– If necessary, reload Firewire firmware (for cheque &amp; cash configuration).</li> <li>– If the error reoccurs even after the above steps have been taken, replace the cheque / cash reader.</li> </ul>
	<b>40</b>	<i>Only relevant for cheque processing:</i>	<ul style="list-style-type: none"> <li>– Check if the firewire cable is connected to the PC and the LINE XSA module.</li> <li>– Check the PC's Firewire card.</li> </ul>
	<b>50</b>	<i>Baumer module is defective.</i>	
<b>32</b>		External light in cheque / cash reader	<ul style="list-style-type: none"> <li>– Check whether light is falling on the cheque / cash reader.</li> <li>– Clean the scanner lines of the cheque / cash reader.</li> <li>– Carry out a photosensor adjustment / initialization.</li> <li>– Restart the system</li> </ul>
	<b>45</b>	<ul style="list-style-type: none"> <li>– External light in cheque / cash reader</li> <li>– Banknote level detected (light level too high due to soiled roller or document remaining under the reader).</li> <li>– Transport pulse missing or outside of admissible tolerance.</li> </ul>	
	<b>53</b>	<ul style="list-style-type: none"> <li>– External light in cheque / cash reader</li> <li>– Banknote level detected (light level too high due to soiled roller or document remaining under the reader).</li> </ul>	

<b>Code</b>	<b>EC</b>	<b>Meaning</b>	<b>Remedy</b>
<b>33</b>		Communications problems with cheque / cash reader	<ul style="list-style-type: none"> <li>– Re-load the firmware of the cheque / cash reader.</li> <li>– Check and update the banknote table.</li> <li>– Re-load the currency data.</li> <li>– Re-load the firmware.</li> <li>– Restart the CCDM.</li> <li>– Restart the system</li> <li>– Replace the cheque / cash reader, if necessary.</li> </ul>
	<b>41</b>	<i>LINE XSA Firmware ERROR.</i>	
	<b>42</b>	<i>LINE XSA communication error -&gt; control logic RS232 data transfer problems.</i>	
	<b>43</b>	<i>LINE XSA data error -&gt; configuration data faulty / corrupt.</i>	
	<b>44</b>	<i>LINE XSA Note Table Configuration not OK.</i>	
	<b>51</b>	<i>LINE XSA Firmware ERROR.</i>	
	<b>52</b>	<i>LINE XSA syntax - context error -&gt; control logic RS232 data transfer problems.</i>	

<b>Code</b>	<b>EC</b>	<b>Meaning</b>	<b>Remedy</b>
34		Communication problems (RS232 interface) with cheque / cash reader	<ul style="list-style-type: none"> <li>- Re-load the cheque / cash reader's firmware, the CCDM's firmware and/or the Firewire firmware.</li> </ul>
47		No connection between RS232 interface and LINE XSA interface: <ul style="list-style-type: none"> <li>- Sensor transport not mounted or not properly connected.</li> <li>- 'Back panel board' connector has interrupted communication with sensor transport during operation.</li> <li>- Module does not reply within specified time limit.</li> </ul>	
48		Communication errors from LINE XSA to RS232 interface: LINE XSA module not mounted or not properly connected to back panel.	
49		LINE XSA firmware and CCDM firmware not compatible.	
54		LINE XSA module not mounted or not properly connected to back panel. Communication with sensor transport interrupted during operation. Module does not reply within specified time limit.	
55		LINE XSA module not mounted or not properly connected to back panel.	
56		LINE XSA firmware and CCDM firmware not compatible.	

<b>Code</b>	<b>EC</b>	<b>Meaning</b>	<b>Remedy</b>
<b>40</b>		Media jam in sensor transport	<ul style="list-style-type: none"> <li>– Clear the media jam in the area of the magnetic ink character reader and up to the entry of the sensor transport. If the error occurs frequently, replace the magnetic ink character reader.</li> </ul>
	0310	<i>Diagnostic test triggered by operator: sensor transport defective.</i>	
	0311	<ul style="list-style-type: none"> <li>– Document deflecting unit in alignment station is not functioning; blocked.</li> <li>– Photosensor SLS3 is defective or soiled</li> </ul>	
	0312	<i>The three-way deflector has returned a document to the alignment module during transport from escrow unit to cassettes or reject tray.</i>	
	0313	<i>Document jam in entrance area of sensor transport.</i>	
	0324	<i>Slippage during transport of documents from ALS1 alignment to LINE XSA sensor, or LINE XSA sensor document message issued at the wrong time, so that the document message can no longer be allocated to a specific document.</i>	
	0333	<i>Note could not be identified due to various reasons (event message from LINE XSA sensor during banknote processing).</i>	
	0501	<i>Deflector in wrong position.</i>	
	0502	<i>Jam between sensor transport (paper deflecting units) and in front of RLS1.</i>	
<b>48</b>		Media jam in sensor transport	<ul style="list-style-type: none"> <li>– Clear the media jam in the sensor transport In particular, check the area of the 3-way deflector.</li> <li>– Check functioning of deflectors in sensor transport unit.</li> <li>– Restart the CCDM.</li> <li>– If the deflectors cannot be addressed correctly, replace the back panel including deposit transport and sensor transport, if necessary (logic error).</li> </ul>

Code	EC	Meaning	Remedy
	0320	<i>Document jam between ALS1 and SLS1.</i>	
	0321	<i>Malfunction of three-way deflector (during transport from alignment station).</i>	
	0322	<i>Malfunction of three-way deflector (during transport from the escrow unit).</i>	
	0323	<i>Document jam in area SLS1-&gt; document deflecting units -&gt; escrow unit / reject transport.</i>	

Code	EC	Meaning	Remedy
42 & 43		Media jam in sensor transport	<ul style="list-style-type: none"> <li>– Clear the media jam between sensor and deposit transport.</li> <li>– Restart the CCDM.</li> <li>– Check functioning of deflectors and motors in sensor transport unit.</li> <li>– If the deflectors cannot be addressed correctly, replace the back panel including deposit transport and sensor transport, if necessary (logic error).</li> </ul>
	0301	<ul style="list-style-type: none"> <li>– Document / document jam in sensor transport unit at three-way deflector.</li> <li>– SSM2 motor defective / not connected.</li> <li>– SSM2 sensor defective / not connected.</li> </ul> <p>or</p> <p><i>diagnostic test triggered by operator: 3-way deflector (SSM2) in sensor transport defective.</i></p>	
	0302	<ul style="list-style-type: none"> <li>– Document / document jam in sensor transport unit at reject deflector.</li> <li>– SSM3 motor defective / not connected.</li> <li>– SLS4 sensor defective / not connected.</li> </ul> <p>or</p> <p><i>diagnostic test triggered by operator: reject deflector (SSM3) in sensor transport defective.</i></p>	

<b>Code</b>	<b>EC</b>	<b>Meaning</b>	<b>Remedy</b>
<b>46</b>		Document jam between sensor transport and reject transport	<ul style="list-style-type: none"> <li>– Clear the media jam between sensor and reject transport.</li> <li>– Perform a reset.</li> </ul>
	0332	<i>Document jam between sensor transport and cassettes / reject transport under RSL1 sensor.</i>	
	0503	<i>Document too short (smaller than 25mm).</i>	
	0504	<i>Jam between sensor transport (paper deflecting units) and behind RLS1.</i>	
<b>47</b>		Initialization error of reject transport	<ul style="list-style-type: none"> <li>– Check the reject transport's plug connection. To check it first remove the cheque / cash reader.</li> <li>– Check the basic position of shaft / axis and the screw in the reject transport unit.</li> <li>– Restart the CCDM.</li> <li>– Replace the reject transport, if necessary.</li> </ul>
	0170	<ul style="list-style-type: none"> <li>– <i>Drive is mechanically blocked.</i></li> <li>– <i>Home position photosensor is defective or soiled (RLS3).</i></li> <li>– <i>Transport error: motor does not run properly (RSM2).</i> <i>or</i></li> </ul> <p><i>Diagnostic test triggered by operator: reject transport defective.</i></p>	
<b>48</b>		Document jam between sensor transport and storage / reject transport	<ul style="list-style-type: none"> <li>– Clear the media jam between sensor and storage or reject transport.</li> <li>– Restart the CCDM.</li> </ul>
	0333	<i>Document jam between sensor transport and cassettes / reject transport under RSL1 sensor.</i>	
	0601	<i>Banknote does not quit RLS1 photosensor using specified path and tolerance.RLS1.</i>	
	0602	<i>After passing RLS1, the banknote does not reach KLS2 to cassette module using specified path and tolerance.</i>	

<b>Code</b>	<b>EC</b>	<b>Meaning</b>	<b>Remedy</b>
<b>50</b>		Document jam at the escrow unit	<ul style="list-style-type: none"> <li>– Perform a reset.</li> <li>– Clear the media jam in the escrow area.</li> <li>– Replace the escrow unit, if necessary.</li> </ul>
	0330	<i>Document jam at escrow unit ELS1. or Diagnostic test triggered by operator: escrow unit defective.</i>	
	0402	<i>Malfunction of deflector.</i>	
	0403	<i>Document has over 2 cm transport slippage / document is jammed under ELS1.</i>	
	0404	<i>During unwinding one document is missing due to external intervention.</i>	
	0405	<i>Jam during unwinding; distance is greater than twice the maximum length of banknotes.</i>	
	0406	<i>Drive blocked, ESM1 motor not connected, motor logic defective, ELS3 fails to detect beginning of tape.</i>	
	0600	<i>Banknote from escrow unit does not reach RLS1</i>	
<b>58 &amp; 52</b>		Escrow tape defective	<ul style="list-style-type: none"> <li>– Check the tape of the escrow unit.</li> <li>– Perform a reset.</li> <li>– Replace the escrow unit.</li> </ul>
	0400	<i>Torn band or full drum; tape no longer under ELS2.</i>	
	0401	<i>Band torn; tape no longer under ELS2.</i>	

## Error messages of photosensors



Photosensors VLS7, ALS1 and SLS3 can only be checked when the CCDM components are closed.

Code	EC	Meaning	Type of display	Remedy
<b>68</b>	<b>65</b>	Error at photosensor VLS10	blinking	<ul style="list-style-type: none"><li>- Carry out a photosensor adjustment / initialization.</li><li>- If possible, check the photosensor using the product-specific software (e.g. KDIAG).</li><li>- If the error persists, replace the dispenser module.</li></ul>
			constant	<ul style="list-style-type: none"><li>- If you can get to the photosensor, try to clean it.</li><li>- Check the photosensor using KDIAG.</li><li>- Synchronize the photosensors.</li><li>- If the error persists, replace the dispenser module.</li></ul>

Code	EC	Meaning	Type of display	Remedy
68	6.1	Error at photosensor VLS1	blinking	<ul style="list-style-type: none"><li>– Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>– If you can get to the photosensor, try to clean it.</li><li>– Check the photosensor using KDIAG.</li><li>– Synchronize the photosensors.</li><li>– If the error persists, replace the dispenser module.</li></ul>

Code	EC	Meaning	Type of display	Remedy
<b>62</b>	64	Error at photosensor VLS7	blinking	<ul style="list-style-type: none"><li>- Carry out a photosensor adjustment / initialization.</li><li>- If possible, check the photosensor using the product-specific software (e.g. KDIAG).</li><li>- If the error persists, replace the dispenser module.</li></ul>
			constant	<ul style="list-style-type: none"><li>- If you can get to the photosensor, try to clean it.</li><li>- Check the photosensor using KDIAG.</li><li>- Synchronize the photosensors.</li><li>- If the error persists, replace the dispenser module.</li></ul>

Code	EC	Meaning	Type of display	Remedy
63	62	Error at photosensor VLS2	blinking	<ul style="list-style-type: none"><li>– Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>– If you can get to the photosensor, try to clean it.</li><li>– Check the photosensor using KDIAG.</li><li>– Synchronize the photosensors.</li><li>– If the error persists, replace the dispenser module.</li></ul>

Code	EC	Meaning	Type of display	Remedy
63	00	Error at photosensor VLS12	blinking	<ul style="list-style-type: none"><li>- Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>- If you can get to the photosensor, try to clean it.</li><li>- Check the photosensor using KDIAG.</li><li>- Synchronize the photosensors.</li><li>- If the error persists, replace the dispenser module.</li></ul>

Code	EC	Meaning	Type of display	Remedy
<b>69</b>	63	Error at photosensor VLS6	blinking	<ul style="list-style-type: none"><li>– Carry out a photosensor adjustment / initialization.</li><li>– If possible, check the photosensor using the product-specific software (e.g. KDIAG).</li><li>– If the error persists, replace the dispenser module.</li></ul>
			constant	<ul style="list-style-type: none"><li>– If you can get to the photosensor, try to clean it.</li><li>– Check the photosensor using KDIAG.</li><li>– Synchronize the photosensors.</li><li>– If the error persists, replace the dispenser module.</li></ul>

Code	EC	Meaning	Type of display	Remedy
<b>65</b>	05	Error at photosensor VLS 11	blinking	<ul style="list-style-type: none"><li>- Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>- If you can get to the photosensor, try to clean it.</li><li>- Check the photosensor using KDIAG.</li><li>- Synchronize the photosensors.</li><li>- If the error persists, replace the dispenser module.</li></ul>

Code	EC	Meaning	Type of display	Remedy
66	68	Error at photosensor ALS3	blinking	<ul style="list-style-type: none"><li>– Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>– If you can get to the photosensor, try to clean it.</li><li>– Check the photosensor using KDIAG.</li><li>– Synchronize the photosensors.</li><li>– If the error persists, replace the alignment station.</li></ul>

Code	EC	Meaning	Type of display	Remedy
<b>68</b>	69	Error at photosensor ALS4	blinking	<ul style="list-style-type: none"><li>- Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>- If you can get to the photosensor, try to clean it.</li><li>- Check the photosensor using KDIAG.</li><li>- Synchronize the photosensors.</li><li>- If the error persists, replace the alignment station.</li></ul>

Code	EC	Meaning	Type of display	Remedy
68	67	Error at photosensor ALS2	blinking	<ul style="list-style-type: none"><li>– Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>– If you can get to the photosensor, try to clean it.</li><li>– Check the photosensor using KDIAG.</li><li>– Synchronize the photosensors.</li><li>– If the error persists, replace the alignment station.</li></ul>

Code	EC	Meaning	Type of display	Remedy
<b>69</b>	66	Error at photosensor ALS1	blinking	Cover of alignment station is not closed:        
			constant	<ul style="list-style-type: none"> <li>- First check whether the cover of the alignment station is closed properly.</li> <li>- If you can get to the photosensor, try to clean it.</li> <li>- Check the photosensor using KDIAG.</li> <li>- Synchronize the photosensors.</li> <li>- If the error persists, replace the alignment station.</li> </ul>

Code	EC	Meaning	Type of display	Remedy
88	00	Error at photosensor SLS3	blinking	Magnetic character reader not closed:  
			constant	<ul style="list-style-type: none"><li>– First check whether the magnetic character reader is closed properly.</li><li>– If you can get to the photosensor, try to clean it.</li><li>– Check the photosensor using KDIAG.</li><li>– Synchronize the photosensors.</li><li>– If the error persists, replace the magnetic character reader.</li></ul>

Code	EC	Meaning	Type of display	Remedy
88	00	Error at photosensor SLS1	blinking	<ul style="list-style-type: none"><li>- Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>- If you can get to the photosensor, try to clean it.</li><li>- Check the photosensor using KDIAG.</li><li>- Synchronize the photosensors.</li><li>- If the error persists replace the back panel incl. sensor and storage transport.</li></ul>

Code	EC	Meaning	Type of display	Remedy
82	02	Error at photosensor ELS1	blinking	<ul style="list-style-type: none"><li>– Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>– If you can get to the photosensor, try to clean it.</li><li>– Check the photosensor using KDIAG.</li><li>– Synchronize the photosensors.</li><li>– If the error persists, replace the escrow unit.</li></ul>

Code	EC	Meaning	Type of display	Remedy
83	06	Error at photosensor ELS5	blinking	<ul style="list-style-type: none"><li>- Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>- If you can get to the photosensor, try to clean it.</li><li>- Check the photosensor using KDIAG.</li><li>- Synchronize the photosensors.</li><li>- If the error persists, replace the escrow unit.</li></ul>

Code	EC	Meaning	Type of display	Remedy
89	03	Error at photosensor RLS1	blinking	<ul style="list-style-type: none"><li>– Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>– If you can get to the photosensor, try to clean it.</li><li>– Check the photosensor using KDIAG.</li><li>– Synchronize the photosensors.</li><li>– If the error persists replace the back panel incl. sensor and storage transport.</li></ul>

Code	EC	Meaning	Type of display	Remedy
85	04	Error at photosensor RLS2	blinking	<ul style="list-style-type: none"><li>- Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>- If you can get to the photosensor, try to clean it.</li><li>- Check the photosensor using KDIAG.</li><li>- Synchronize the photosensors.</li><li>- If the error persists, replace the reject transport.</li></ul>

Code	EC	Meaning	Type of display	Remedy
<b>80</b>	80	Error at photosensor KLS2	blinking	<ul style="list-style-type: none"><li>– Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>– If you can get to the photosensor, try to clean it.</li><li>– Check the photosensor using KDIAG.</li><li>– Synchronize the photosensors.</li><li>– If the error persists, replace the cassette module.</li></ul>

Code	EC	Meaning	Type of display	Remedy
88	80	Error at photosensor KLS3	blinking	<ul style="list-style-type: none"><li>- Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>- If you can get to the photosensor, try to clean it.</li><li>- Check the photosensor using KDIAG.</li><li>- Synchronize the photosensors.</li><li>- If the error persists, replace the cassette module.</li></ul>

Code	EC	Meaning	Type of display	Remedy
82	82	Error at photosensor KLS8	blinking	<ul style="list-style-type: none"><li>– Carry out a photosensor adjustment / initialization.</li></ul>
			constant	<ul style="list-style-type: none"><li>– If you can get to the photosensor, try to clean it.</li><li>– Check the photosensor using KDIAG.</li><li>– Synchronize the photosensors.</li><li>– If the error persists, replace the cassette module and/or cassette 2 (left cassette).</li></ul>

Code	EC	Meaning	Type of display	Remedy
83	83	Error at photosensor KLS11	blinking	<ul style="list-style-type: none"><li>- Carry out a photosensor adjustment / initialization,</li></ul>
			constant	<ul style="list-style-type: none"><li>- If you can get to the photosensor, try to clean it.</li><li>- Check the photosensor using KDIAG.</li><li>- Synchronize the photosensors.</li><li>- If the error persists, replace the cassette module and/or cassette 1 (right cassette).</li></ul>

Code	EC	Meaning	Type of display	Remedy
89	84	Error at photosensor KLS1_5	blinking	<ul style="list-style-type: none"><li>– Carry out a photosensor adjustment / initialization,</li></ul>
			constant	<ul style="list-style-type: none"><li>– If you can get to the photosensor, try to clean it.</li><li>– Check the photosensor using KDIAG.</li><li>– Synchronize the photosensors.</li><li>– If the error persists, replace the cassette module and/or cassette 1 (right cassette).</li></ul>

Code	EC	Meaning	Type of display	Remedy
85	85	Error at photosensor KLS2_5	blinking	<ul style="list-style-type: none"><li>- Carry out a photosensor adjustment / initialization,</li></ul>
			constant	<ul style="list-style-type: none"><li>- If you can get to the photosensor, try to clean it.</li><li>- Check the photosensor using KDIAG.</li><li>- Synchronize the photosensors.</li><li>- If the error persists, replace the cassette module and/or cassette 1 (right cassette).</li></ul>

## Error messages in the cassette module section

Code	EC	Meaning	Remedy
98		Deflector in sensor transport has wrong position.	<ul style="list-style-type: none"> <li>– Clear the media jam at the entry to the cassette module.</li> <li>– Remove the media jam in the cassette module – retract cassette / cassette 1 (right cassette) / cassette 2 (left cassette) (cassettes have to sign on again).</li> <li>– Restart the system</li> <li>– Replace the cassette module, if necessary.</li> </ul>
	0603	<p><i>Deflector in sensor transport has wrong position.</i></p> <p><i>or</i></p> <p><i>Diagnostic test triggered by operator: cassette module defective.</i></p>	
	0604	<i>Banknote does not quit KLS2 photosensor near module entrance using specified path + tolerance.</i>	
	0605	<i>Banknote detected near module entrance (KLS2) does not reach KLS3 to retract cassette using specified path + tolerance.</i>	
	0609	<i>Banknote detected near module entrance (KLS2) does not reach KLS8 to cassette 1 (right cassette) using specified path + tolerance.</i>	
	0612	<i>Banknote detected near module entrance (KLS2) does not reach KLS11 to cassette 2 (left cassette) using specified path + tolerance.</i>	

<b>Code</b>	<b>EC</b>	<b>Meaning</b>	<b>Remedy</b>
<b>98</b>		Incorrect position of deflector in cassette module	<ul style="list-style-type: none"> <li>– Check position of deflector in cassette module.</li> <li>– Check function of deflector in cassette module.</li> <li>– Perform a reset.</li> <li>– Restart the system</li> <li>– Replace the cassette module, if necessary.</li> </ul>
	<b>06 18</b>	<ul style="list-style-type: none"> <li>– <i>There is some paper left inside the deflector.</i></li> <li>– <i>Motor not connected.</i></li> <li>– <i>Hybrid photosensor before reset is defective.</i></li> </ul> <p><i>or</i></p> <p><i>diagnostic test triggered by operator:</i>  <i>deflector (KSM5) in cassette module defective.</i></p>	
	<b>06 18</b>	<p><i>Deflector (cassette 1 / cassette 2) is not functioning</i></p> <p><i>or</i></p> <p><i>diagnostic test triggered by operator:</i>  <i>deflector (KSMx) in cassette module defective.</i></p>	

Code	EC	Meaning	Remedy
<b>92</b>		Incorrect position of deflector in cassette module	<ul style="list-style-type: none"> <li>– Clear the media jam in the direction of cassette 1 (right cassette).</li> <li>– Restart the system</li> <li>– Replace the cassette module, if necessary.</li> </ul>
	0610	<i>Incorrect position of deflector in cassette module</i>	
	0610	<i>Banknote does not quit KLS8 photosensor near entrance to cassette 1 using specified path + tolerance.</i>	
<b>93</b>		Error in cassette 1	<p>Permanent status display:</p> <ul style="list-style-type: none"> <li>– Remove the cassette 1 and empty it.</li> </ul> <p>Blinking status display:</p> <ul style="list-style-type: none"> <li>– Check proper fit of cassette 1 (right cassette) and re-insert cassette 1 properly, if necessary.</li> <li>– Check the plug connection between the controller and the cassette module.</li> <li>– Restart the CCDM.</li> <li>– Replace cassette 1 (right cassette) or replace the entire cassette module, if necessary.</li> </ul>
	0615	<ul style="list-style-type: none"> <li>– <i>Stacker logic not connected (plug X1).</i></li> <li>– <i>Stacker wheel in cassette 1 / cassette 2 is blocked.</i></li> <li>– <i>Cassette 1 / cassette 2 not fully inserted (magnet on stacker wheel does not trigger Hall sensor).</i></li> <li>– <i>Belt between stepper motor and stacker wheel has come off / is torn.</i></li> <li>– <i>Home position magnet on stacker wheel is missing / has fallen off.</i></li> <li>– <i>Hall sensor is defective / not connected.</i></li> </ul>	

<b>Code</b>	<b>EC</b>	<b>Meaning</b>	<b>Remedy</b>
<b>94</b>		Incorrect position of deflector in cassette module	<ul style="list-style-type: none"> <li>– Clear the media jam in the direction of cassette 2 (left cassette).</li> <li>– Restart the system</li> <li>– Replace the cassette module, if necessary.</li> </ul>
	05 11	<i>Incorrect position of deflector in cassette module</i>	
	05 13	Banknote does not quit KLS11 photosensor near entrance to cassette 2 using specified path + tolerance.	
<b>95</b>		Error in cassette 2	<p>Permanent status display:</p> <ul style="list-style-type: none"> <li>– Remove the cassette 2 and empty it.</li> </ul> <p>Blinking status display:</p> <ul style="list-style-type: none"> <li>– Check proper fit of cassette 2 (left cassette) and re-insert cassette 2 properly, if necessary.</li> <li>– Check the plug connection between the controller and the cassette module.</li> <li>– Restart the system</li> <li>– Replace cassette 2 (left cassette) or replace the entire cassette module, if necessary.</li> </ul>
	05 16		

Code	EC	Meaning	Remedy	
98		Incorrect position of deflector in cassette module	<ul style="list-style-type: none"><li>– Check position of deflector in cassette module.</li><li>– Check function of deflector in cassette module.</li><li>– Perform a reset.</li><li>– Restart the system</li><li>– Replace the cassette module, if necessary.</li></ul>	
	0605	<i>Incorrect position of deflector in cassette module</i>		
	0607	<i>Banknote does not quit the photosensor near KLS33 entrance of retract cassette using the specified path + tolerance.</i>		
	0611	<i>Switching between retract cassettes is not functioning or diagnostic test triggered by operator: deflector (KSMx) in cassette module defective.</i>		

# Sensors and actuators

## Description of sensors / actuators

### Structure of brief designations

These elements are named in accordance with the following principle:

Position 1: Functional unit or function

Positions 2 to 3: Element type

Positions 4 to 5: Sequential number of the element

Example: KHS10 Designation of the 10th Hall sensor in the cassette module

#### Exception:

For the deflectors in the transport paths taken by the media, there is no encoding of functions or functional units. Instead, they are designated by a sequential number (e.g. W1).

### Abbreviations for functional units or functions

Abbreviation	Meaning
A	Alignment
D	Print
E	Escrow (storage on a drum)
K	Cassette module
R	Reject transport unit
S	Sensor
V	Dispenser module

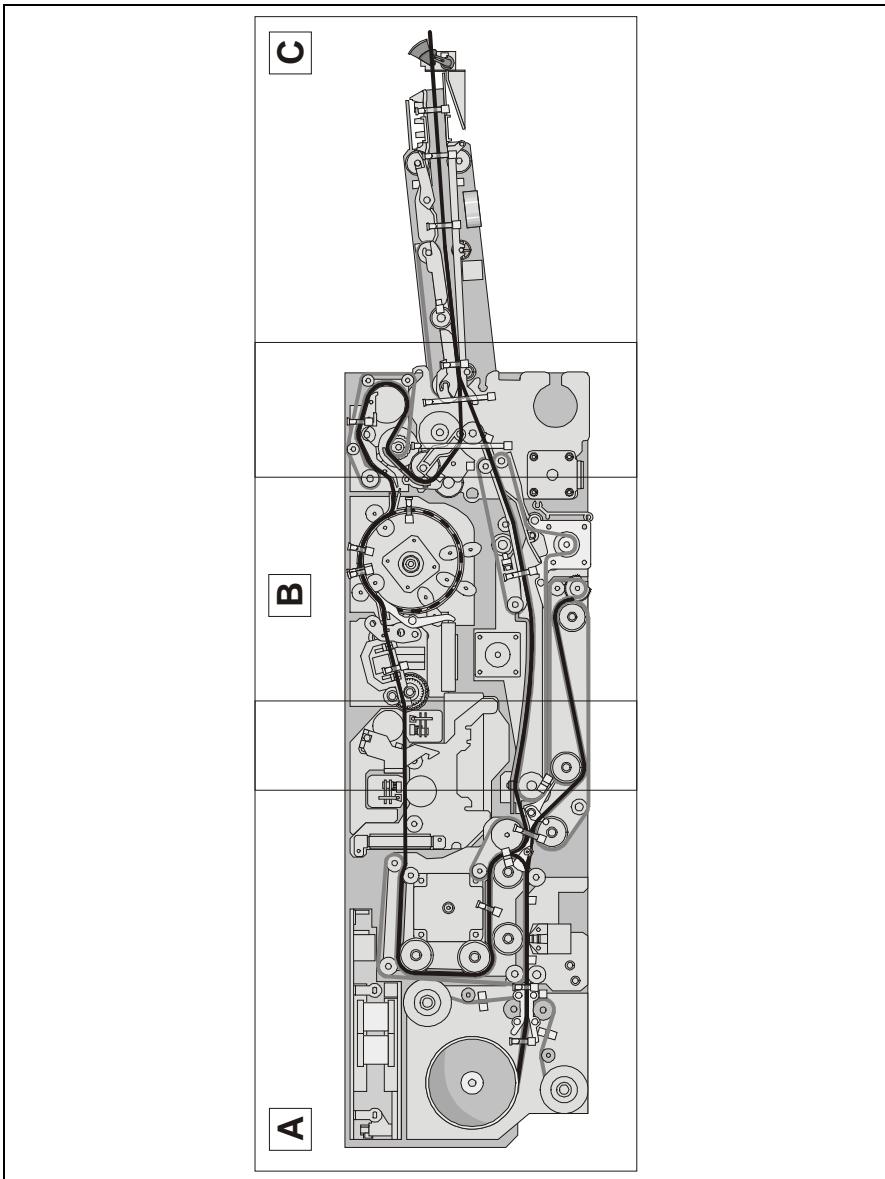
## Abbreviation for element types

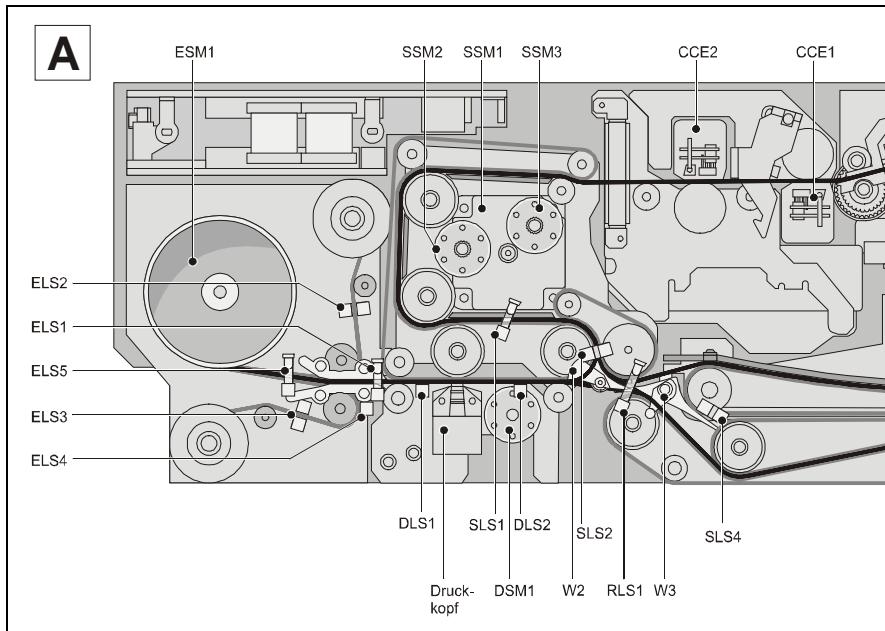
Abbreviation	Meaning
HS	Hall sensor
LS	Photosensor; The technical variant is not distinguished in the abbreviation, but it can precede the designation in text form. Example: Hybrid photosensor KLS8
MG	Electromagnet
SM	Stepper motor
W	Deflector

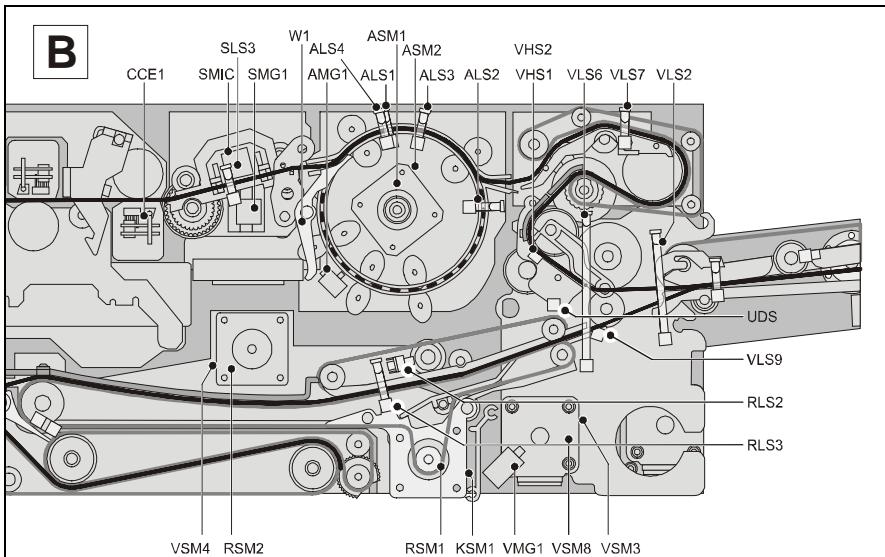
## Overview of sensors and actuators

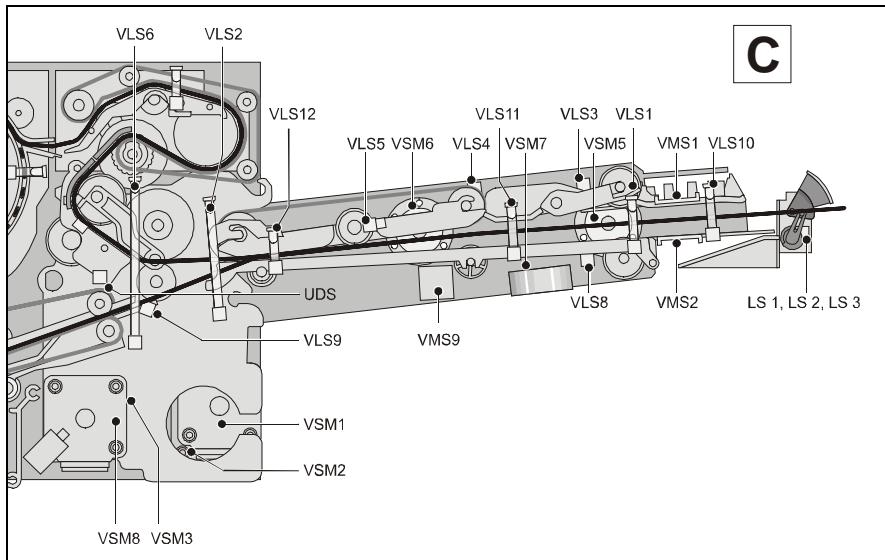
The following illustrations provide an overview of the CCDM sensor and actuator positions. The meaning of each of the sensors / actuators are described in the following sections.

## CCDM head module



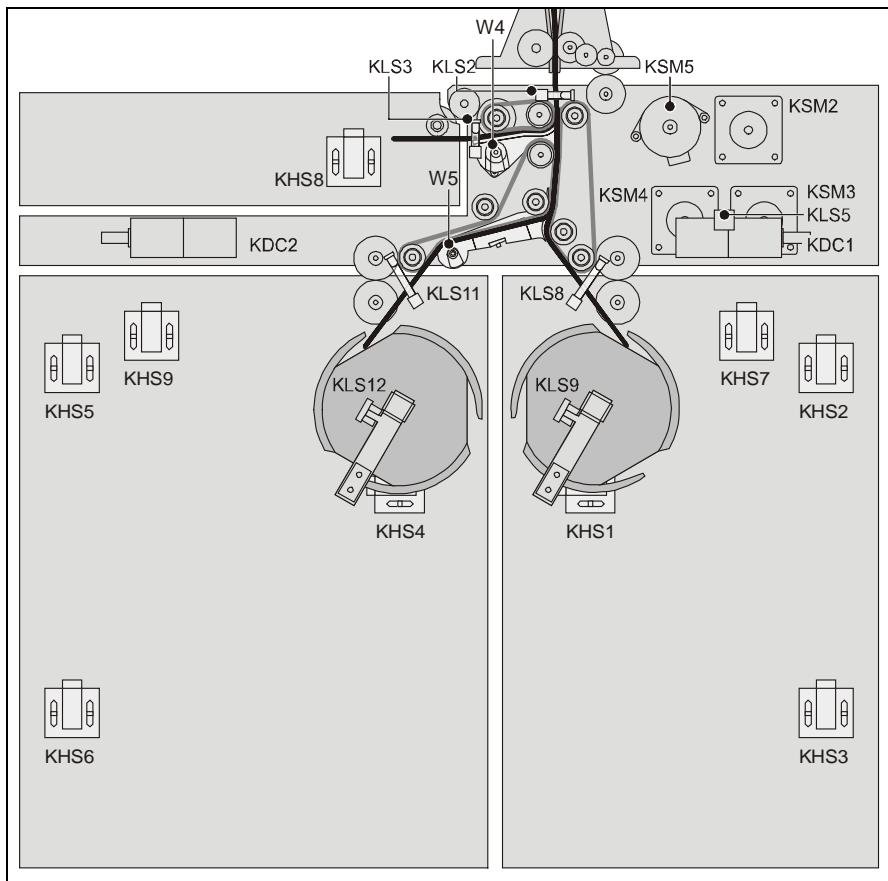


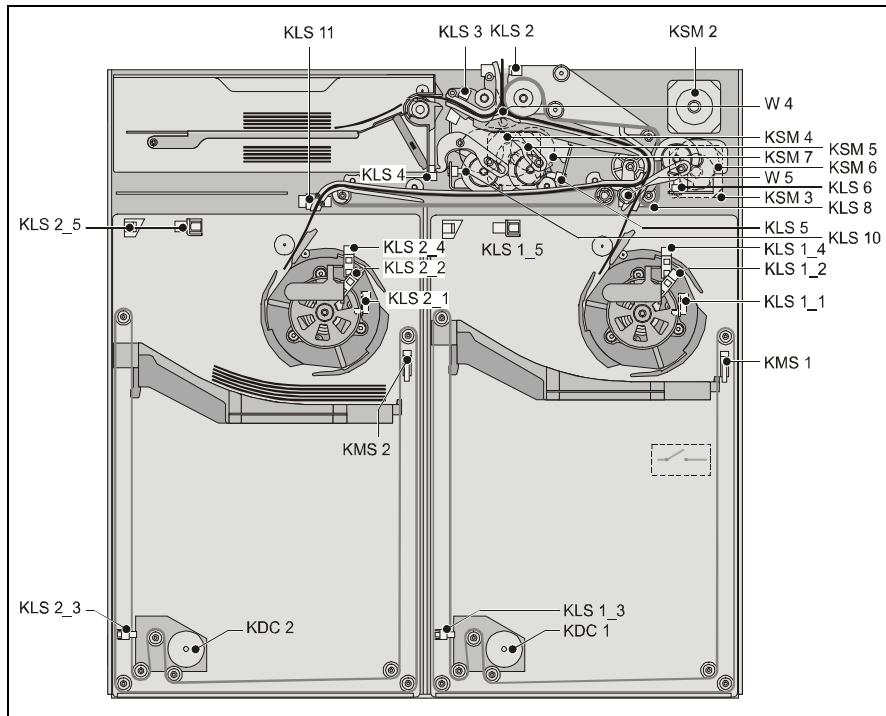


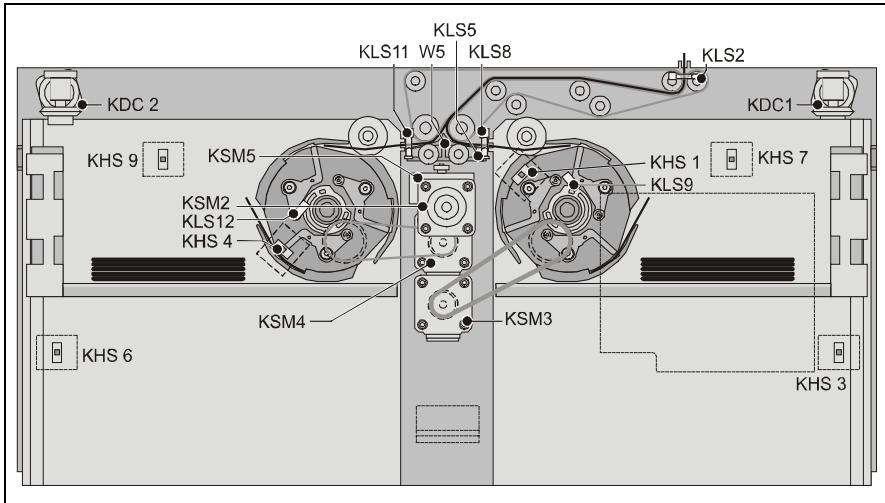


## CCDM cassette module

### Standard cassette module (metal)



**Cassette module for plastic cassettes**

**Cassette module ProCash 3100(xe)**

## Shutter

Sensor	Function
LS1,LS2	LS1 Shaft in the positions 'Open' and 'Closed'.
	LS2 Partly open and in combination with the hybrid photosensor LS1 it detects which of the two possible final positions has been reached.
LS3	Checks if flap is closed.

## Dispenser module

Actuator	Function
VMG1	Retaining shaft magnet; presses retaining shaft against the counterrotation shaft
VMS1	Sender coil for metal detection
VMS2	Receiver coil for metal detection
VSM1	Stepper motor input/output transport; drives the transport rollers in swivel transport unit 1 and the transport belt in swivel transport unit 2.
VSM2	Stepper motor for driving transport rollers; transport roller shaft / pressure shaft
VSM3	Stepper motor for driving the counterrotation shaft
VSM4	Stepper motor for driving the transport belts in the intermediate transport; the motor is located on the chassis behind the motor RSM2 of the reject transport unit.
VSM5	Stepper motor for lowering/raising the hinged drive unit 1
VSM6	Stepper motor for lowering/raising the hinged drive unit 2
VSM7	Stepper motor for width setting
VSM8	Stepper motor for driving the hinged mechanism of the counterrotation shaft and activating the pinch rollers for separation
VSM9	Stepper motor for the lower bundle transport unit

<b>Sensor</b>	<b>Function</b>
UDS	Ultrasound sensor for double document
VHS1	Hall sensor foreign object detector (operator side)
VHS2	Hall sensor foreign object detector (rear panel side)
VLS1	Photosensor bundle input/bundle output
VLS2	Photosensor between input/output transport for separator unit ('Detection of last medium')
VLS3	Hybrid photosensor for monitoring lowering of hinged drive unit 1; 'Home position sensor'
VLS4	Hybrid photosensor for monitoring lowering of hinged drive unit 2; 'Home position sensor'
VLS5	Hybrid photosensor for timing disk in hinged drive unit 2
VLS6	Photosensor, empty dispensing sensor (LAM)
VLS7	Photosensor 'medium in intermediate transport'
VLS8	Hybrid photosensor for width setting; 'Home position sensor'
VLS9	Hybrid photosensor at cam for the motion of the counterrotation shaft 'Home position sensor'
VLS10	Photosensor in input / output unit for controlling removal
VLS11	Photosensor in input / output unit for controlling insertion and removal
VLS12	Photosensor for monitoring documents in the input/output area

## Alignment station

<b>Actuator</b>	<b>Function</b>
AMG1	Electrical solenoid plunger for deflector 1
ASM1	Stepper motor for driving transport rollers
ASM2	Stepper motor for driving alignment rollers

<b>Sensor</b>	<b>Function</b>
ALS1	1st photosensor for recognizing a medium in the transport path
ALS2	1st photosensor with slit stop for monitoring the alignment of cheques on the surface of the drum
ALS3	2nd photosensor with slit stop for monitoring the alignment of cheques on the surface of the drum
ALS4	2nd photosensor for recognizing a medium in the transport path

<b>Deflector</b>	<b>Function</b>
W1	Deflector cheque alignment/further transport

## Magnetic character reader

Actuator	Function
SMG1	Electric lifting magnet for raising the magnetic head assembly when banknotes pass.

Sensor	Function
SMIC	Magnetic read head and permanent magnetic head for premagnetization
SLS3	Photosensor for magnetic read head

## Cheque / cash reader

Sensor	Function
CCE1	Scanner line for the bottom of the medium
CCE2	Scanner line for the top side of the medium

## Sensor / deposit transport

Actuator	Function
SSM1	Stepper motor for driving the transport rollers and belts in the magnetic character reader, cheque/cash reader and sensor transport
SSM2	Stepper motor for controlling deflector W2
SSM3	Stepper motor for controlling deflector W3
VSM4	Stepper motor for driving the transport belt in intermediate transport
KSM1	Stepper motor for driving the transport belt in deposit transport

<b>Sensor</b>	<b>Function</b>
SLS1	Photosensor for recognizing a medium in sensor transport
RLS1	Photosensor for recognizing a medium between the sensor transport and storage or reject transport; beginning and end detector for entering and exiting medium
SLS2	Hybrid photosensor for recognizing the position of deflector 2
SLS4	Hybrid photosensor for recognizing the position of deflector 3

<b>Deflector</b>	<b>Function</b>
W2	Redirection escrow unit / reject compartment or cassette storage
W3	Redirection reject compartment / cassette storage

## **Escrow unit**

<b>Actuator</b>	<b>Function</b>
ESM1	Drive motor escrow unit; Stepper motor inside the drum for driving the drum and the tape winding mechanism

<b>Sensor</b>	<b>Function</b>
ELS1	Beginning and end photosensor; photosensor, beginning and end detector for entering and exiting medium
ELS2	Hybrid photosensor for monitoring the upper tape; the photosensor serves to recognize the beginning and end of the tape or a rip in the tape.
ELS3	Hybrid photosensor for monitoring the lower tape; the photosensor serves to recognize the beginning and end of the tape or a rip in the tape.
ELS4	Hybrid photosensor for determining the tape speed
ELS5	Photosensor; prenotification for ELS1 when documents are unwound

## Printing station

Actuator	Function
DSM1	Stepper motor for ribbon transport
Print head	

Sensor	Function
DLS1	Reflective photosensor in front of the print head (as seen from the escrow unit)
DLS2	Reflective photosensor behind the print head for checking print function (before/after)

## Reject transport unit

Actuator	Function
RSM1	Stepper motor for driving the transport belt
RSM2	Stepper motor for bundling in reject compartment; for moving reject storage sideways, for lifting and lowering the belt drive and for moving the note stop.

Sensor	Function
RLS1	Photosensor recognizing beginning/end of medium; photosensor for recognizing a medium between the sensor transport and stacker or reject transport; photosensor, beginning and end detector for entering and exiting medium
RLS2	Photosensor collecting compartment
RLS3	Hybrid photosensor for camshaft; photosensor for controlling the rotation of the camshaft 'Detection of home position'

## Cassette module

Actuator	Function
KDC1	DC motor for adjusting the plate in the cassette 1 (right cassette)
KDC2	DC motor for adjusting the plate in the cassette 2 (left cassette)
KSM2	Stepper motor for driving the separator transport and driving the cheque/cash transfer mechanism
KSM3	Stepper motor for driving the stacking wheel in cassette 1 (right cassette)
KSM4	Stepper motor for driving the stacking wheel in cassette 2 (left cassette)
KSM5	Stepper motor for controlling the retract deflector and the media deflector
KSM6	Stepper motor for controlling the cassette 1 or cassette 2 deflector
KSM7	Stepper motor for activating the counterfeit notes compartment

Sensor	Function
KHS1	Hall sensor for stacking wheel position cassette 1 (right cassette) for monitoring the stacking wheel position (every 120°)
KHS2	Hall sensor cassette 1 'Plate up' for detecting position 'Plate up'
KHS3	Hall sensor cassette 1 'Plate down' for detecting position 'Plate down' (cassette full)
KHS4	Hall sensor for stacking wheel position cassette 2 (left cassette) for monitoring the stacking wheel position (every 120°)
KHS5	Hall sensor cassette 2 'Plate up' for detecting position 'Plate up'
KHS6	Hall sensor cassette 2 'Plate down' for detecting position 'Plate down' (cassette full)
KHS7	Hall sensor for cassette 1 (right cassette) present
KHS8	Hall sensor for retract cassette present
KHS9	Hall sensor for cassette 2 (left cassette) present

<b>Sensor</b>	<b>Function</b>
KLS2	Photosensor in transport path at start of cassette module
KLS3	Photosensor in transport path before retract cassette
KLS4	Hybrid photosensor for detecting the retract cassette
KLS5	Hybrid photosensor for recognizing the position of deflector W4 (and deflector W5)
KLS6	Hybrid photosensor for recognizing the position of deflector W5
KLS8	Photosensor in transport path before cassette 1 (right cassette)
KLS9	Photosensor for monitoring the touch activation force exerted by stack against stacking wheel 'Cash'
KLS10	Hybrid photosensor for recognizing the position of the counterfeit notes compartment
KLS11	Photosensor in transport path before cassette 2 (left cassette)
KLS12	Photosensor for monitoring the touch activation force exerted by stack against stacking wheel 'Cash'
KLS1_1	Hybrid photosensor for recognizing the stacking wheel position cassette 1 for monitoring the stacking wheel position (every 120°)
KLS1_2	Hybrid photosensor in cassette 1 for detecting 'Lifting plate up' for reporting 'Lifting plate up' position.
KLS1_3	Hybrid photosensor in cassette 1 for reporting 'Cassette 1 full'.
KLS1_4	Hybrid photosensor for detecting if there are any documents in cassette 1.
KLS1_5	Photosensor in the plastic cassette 1 for message 'Cassette full'
KLS2_1	Hybrid photosensor for recognizing the stacking wheel position cassette 2 for monitoring the stacking wheel position (every 120°)
KLS2_2	Hybrid photosensor in cassette 2 for detecting 'Lifting plate up' for reporting 'Lifting plate up' position.
KLS2_3	Hybrid photosensor in cassette 2 for reporting 'Cassette 2 full'.
KLS2_4	Hybrid photosensor for detecting if there are any documents in cassette 2.
KLS2_5	Photosensor in the plastic cassette 2 for message 'Cassette full'
KMS1	Microswitch for detecting cassette 1 (right cassette)

**Sensors and actuators****Faults**

<b>Sensor</b>	<b>Function</b>
KMS2	Microswitch for detecting cassette 2 (left cassette)

<b>Deflector</b>	<b>Function</b>
W4	Deflector for directing medium into the retract cassette or in cassettes 1 or 2
W5	Deflector for directing medium into cassette 1 or in cassette 2

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# Removal/Installation of Components

## General

This chapter only describes the removal and installation of the CCDM components.

For more information on the device please refer to the respective operating, installation and service manuals.



Before doing any work on the CCDM, disconnect it from the power supply and detach the plug of the power supply cable from the CCDM (see section "Power interrupt").

Please note the safety precautions (see chapter "Introduction" in the service manual of your device).



When working on and with electronic subassemblies and boards, be sure to observe the ESD rules and to use ESD protection devices.



Each time a component is replaced, the photosensors must be synchronized (function code '03') (see chapter "Function Test", section "Calling the function codes").

If an error message is displayed after photosensor synchronization, the photosensors and the metal sensors must be synchronized via factory synchronization (see chapter "Function Test", section "Calling the service function codes").



## View of the CCDM

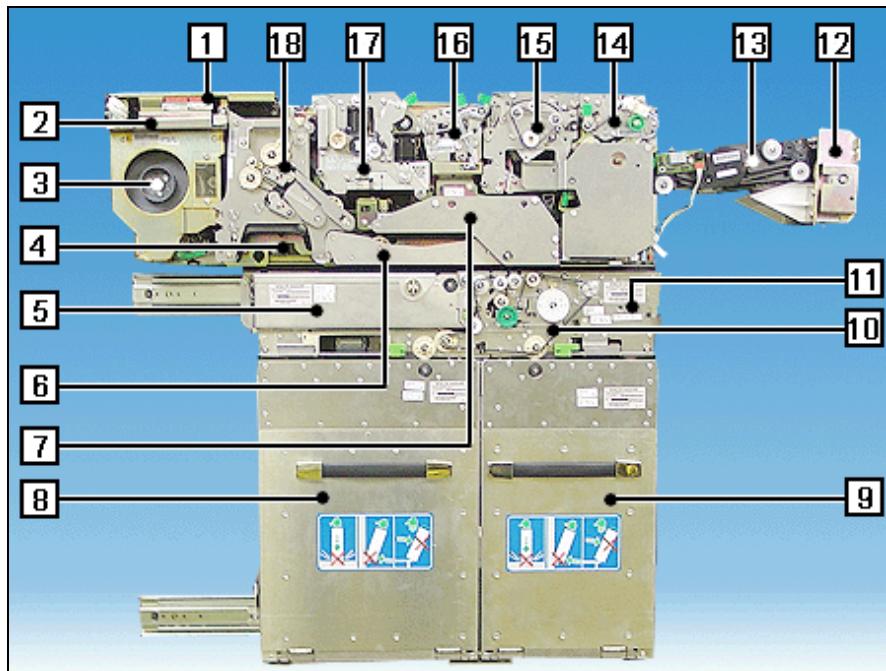


The following illustrations show device views for the different configuration options.

## View of the standard cassette module (metal)



In the device view the cover plate of the head module has been removed in order to show the individual components better.



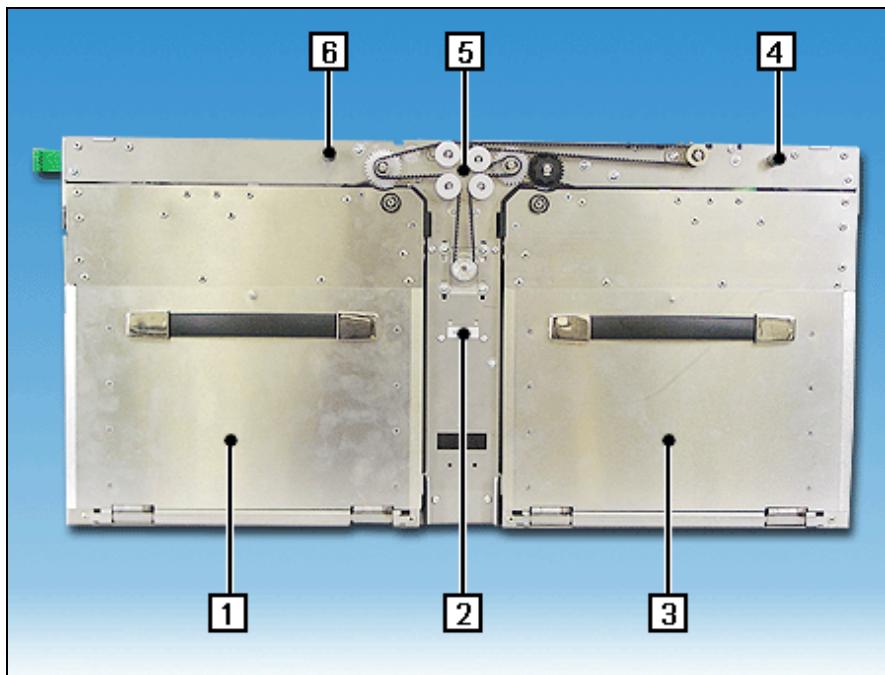
- |                                 |  |
|---------------------------------|--|
| 1 Amplifier board               | 11 LED indicator for cassette in position                                      |
| 2 Controller board              | 12 Shutter   |
| 3 Escrow unit                   | 13 Dispenser module with rocking bar   |
| 4 Print station with print head | 14 Intermediate transport  |
| 5 Retract cassette              | 15 Alignment station   |
| 6 Deposit transport             | 16 Magnetic ink character reader   |
| 7 Reject transport unit         | 17 Cheque / cash reader  |
| 8 Cassette 2 (SK21.1)           | 18 Chassis with sensor transport,<br>deposit transport and back panel<br>board |
| 9 Cassette 1 (SK21.1)           |  |
| 10 Separator transport (SK21.1) |  |

## View of the cassette module for plastic cassettes



- 1 Retract cassette (SK21.2)
- 2 LED indicator for cassette in position
- 3 Media cassette (SK21.2)
- 4 Media cassette (SK21.2)
- 5 Separator transport (SK21.2)

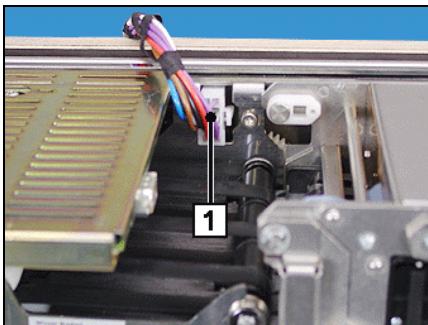
## View of cassette module ProCash 3100(xe)



- 1 Left cassette PC3100 (SK31.1)
- 2 LED indicator for cassette in position
- 3 Right cassette PC3100 (SK31.1)
- 4 Release lever for right cassette PC3100 (SK31.1)
- 5 Separator transport (SK31.1)
- 6 Release lever for left cassette PC3100 (SK31.1)

## Power interrupt

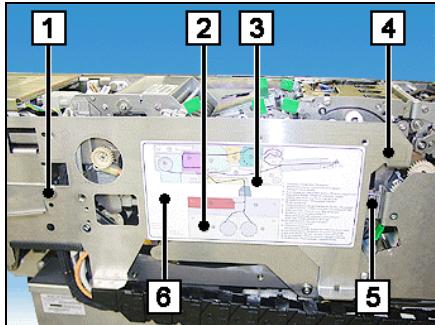
- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Power down the system.
- Switch the device off (see chapter "Basic Operation", section "Switching the device off" in the operating manual of the device).
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).



Detach the connector of the power supply cable (1).

## Removing the cover plate

- Open the device and pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).



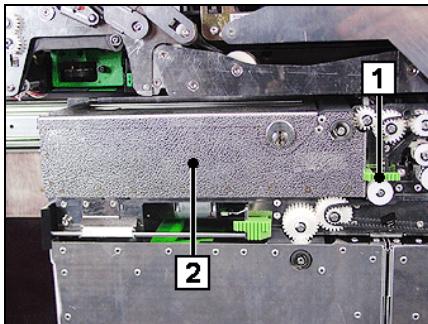
Remove screws (1) to (5) and remove the cover plate (6).

# Removing / inserting cassettes

## Standard cassette module (metal)

### Removing / inserting the retract cassette

- Open the device and pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).

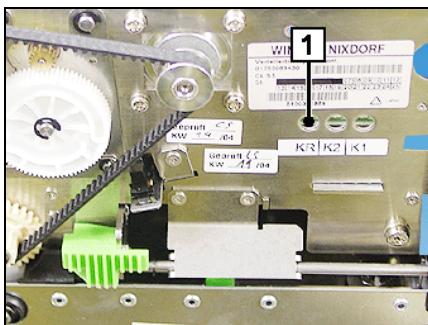


#### Removing it:

Press the green release lever (1) and pull the retract cassette (2) out of the cassette module.

#### Inserting it:

Insert the retract cassette. Take care that the retract cassette clicks properly into the cassette module.



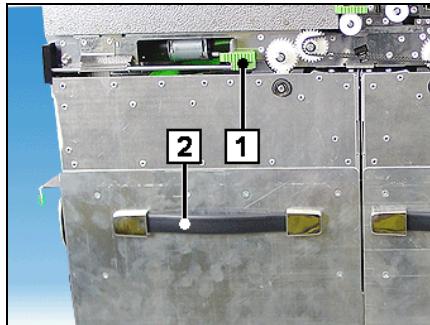
If the retract cassette is inserted correctly, the green LED (1) at the separator transport lights up.



When a new retract cassette is inserted it has to be registered via the product-specific software.

## Removing / inserting cassette 2

- Open the device and pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).

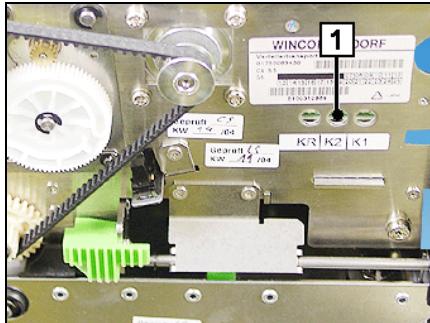


### Removing it:

Press the green release lever (1) and pull cassette (2) out of the cassette module.

### Inserting it:

Insert the cassette.  
Take care that the cassette clicks properly into the cassette module.



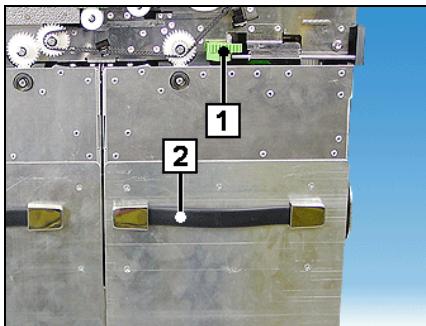
If cassette 2 is inserted correctly, the green LED (1) at the separator transport lights up.



When a new cassette 2 is inserted it has to be registered via the product-specific software.

## Removing / inserting cassette 1

- Open the device and pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).



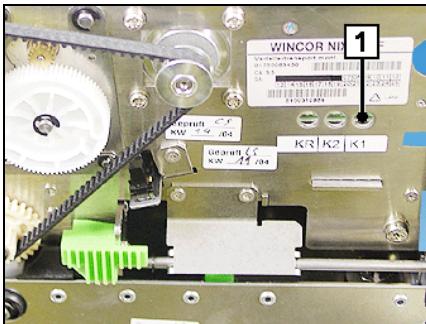
### Removing it:

Press the green release lever (1) and pull cassette (2) out of the cassette module.

### Inserting it:

Insert the cassette.

Take care that the cassette clicks properly into the cassette module.



If cassette 1 is inserted correctly, the green LED (1) at the separator transport lights up.

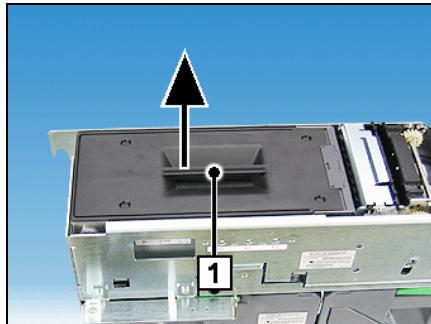


When a new cassette 1 is inserted it has to be registered via the product-specific software.

## Cassette module for plastic cassettes

### Removing / inserting the retract cassette

- Open the device and pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).

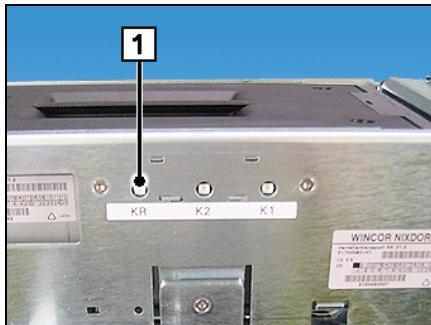


#### Removing it:

Remove the retract cassette upwards from the cassette module by the handle (1) (see arrow).

#### Inserting it:

Position the retract cassette in the cassette module from above. When doing so, make sure that the retract cassette is placed correctly in the cassette module.



If the retract cassette is inserted correctly, the green LED (1) at the separator transport lights up.

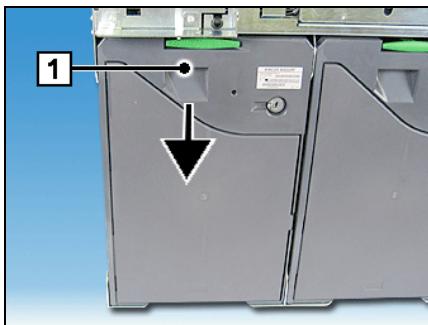


When a new retract cassette is inserted it has to be registered via the product-specific software.

## Removing / installing a media cassette

**i** The two media cassettes are removed and installed in the same way.

- Open the device and pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).



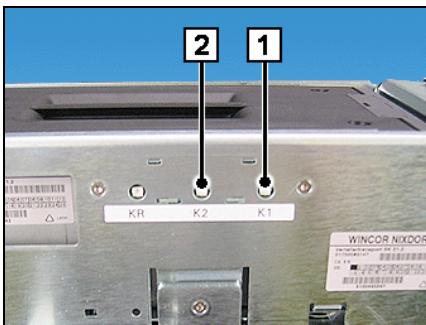
### Removing it:

Place two fingers in the recess (1) while pushing against the separator transport with the thumb of the same hand. Pull the cassette out of the cassette module (see arrow).

### Inserting it:

Insert the cassette.

Take care that the cassette clicks properly into the cassette module.



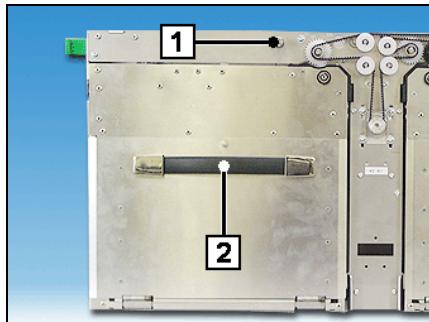
When the media cassette is correctly inserted, this is indicated on the separator transport by LED (1) lighting up green for the right media cassette or LED (2) lighting up green for the left media cassette.

**i** When a new media cassette is installed, it must be logged in with the product-specific software.

## Cassette module ProCash 3100(xe)

### Removing / inserting left cassette

- Open the device and pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).

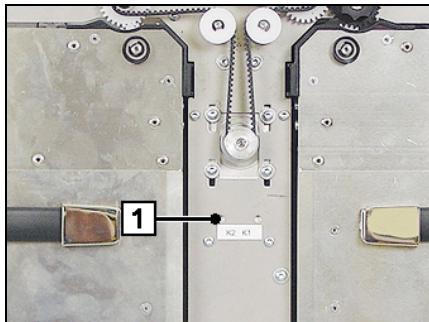


#### Removing it:

Press the green release bolts (1) and pull cassette (2) out of the cassette module.

#### Inserting it:

Insert the cassette. Take care that the cassette clicks properly into the cassette module.



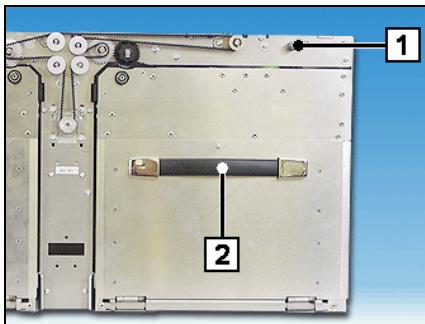
If the left cassette is inserted correctly, the green LED (1) at the separator transport lights up.



When a new left cassette is inserted it has to be registered via the product-specific software.

## Removing / inserting right cassette

- Open the device and pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).



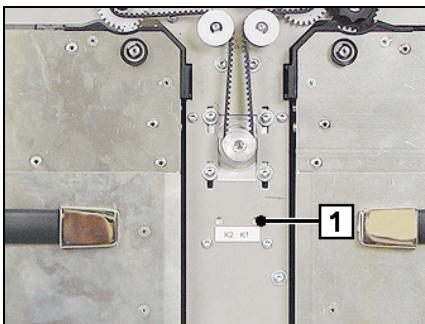
### Removing it:

Press the green release bolts (1) and pull cassette (2) out of the cassette module.

### Inserting it:

Insert the cassette.

Take care that the cassette clicks properly into the cassette module.



If the right cassette is inserted correctly, the green LED (1) at the separator transport lights up.

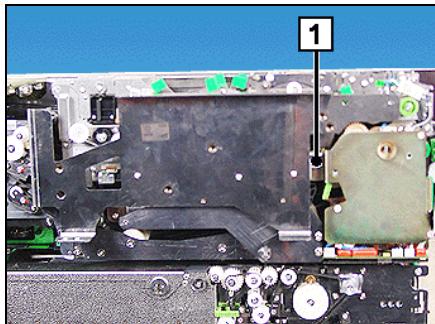


When a new right cassette is inserted it has to be registered via the product-specific software.

# Opening / closing components

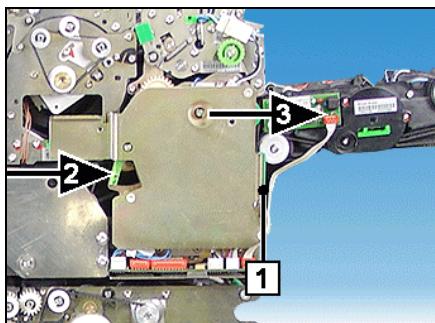
## Pulling out / pushing in the dispenser

- Open the device and pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).



### Pulling it out:

Remove the screw (1).



Take hold of the grip position (1) with the fingers of your right hand, press the release lever in the direction shown by the arrow with the thumb of your right hand (2).

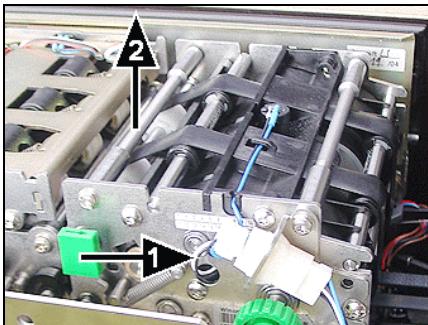
With your right hand, push the separator forwards as far as possible in the direction shown by the arrow (3).

### Pushing it in:

- Push the dispenser as far as possible in the direction of the alignment station. Take care that the separator clicks properly into place.
- Fasten the screw again.

## Opening / closing the intermediate transport

- Open the device and pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).



### Opening it:

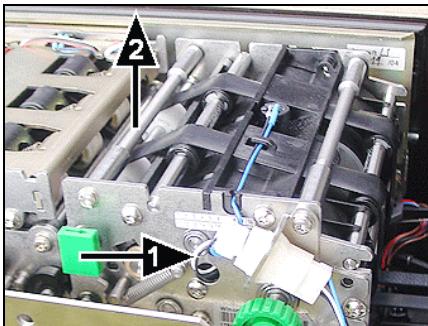
Turn the green locking lever in the direction of the arrow (1) and swing the intermediate transport up (2).

### Closing it:

Swing the intermediate transport down until it clicks audibly into place.

## Opening / closing the alignment station

- Open the intermediate transport (see section "Opening / closing the intermediate transport").



### Opening it:

Pull up the two release levers (1) and lift the cover of the alignment station (2).

### Closing it:

Lower the cover of the alignment station until it clicks audibly into place.

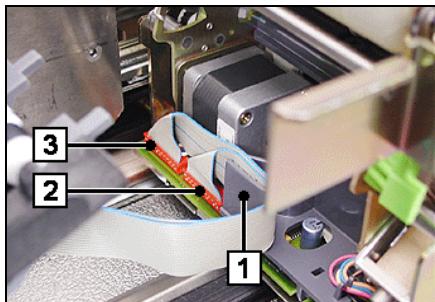
## Head module



The following sections describe how to remove and install components in the head module.

## Dispenser module

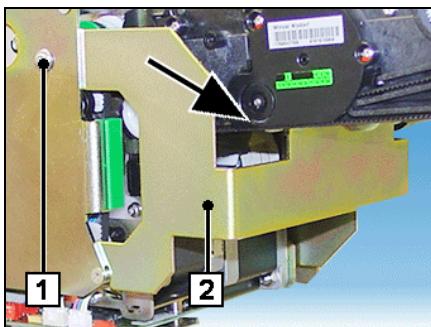
- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Pull out the dispenser (see section "Opening / closing the components").



Remove the cable from the cable holder (1) on the rear of the dispenser module.

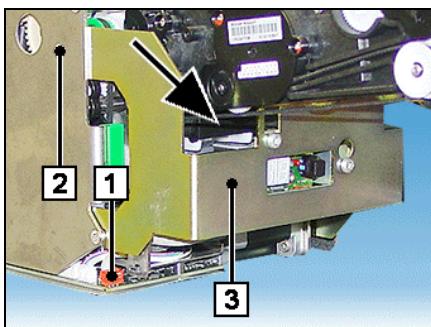
Detach connectors (2) and (3).

- Lift the dispenser approx. 1 cm and remove it.
- Remove the intermediate transport (see the "Intermediate transport" section).

**ProCash 3000 Frontload only**

Remove the securing screw (1) from the metal bracket (2).

Lower the metal bracket (2) slightly (see arrow) and remove it.

**ProCash 3100 Frontload only**

Detach connector (1).

Remove the securing screw (2) from the metal bracket (3).

Lower the metal bracket (3) slightly (see arrow) and remove it.

- **Frontload devices only:** Remove the customer panel (see section "Customer panel").

**i** You do not need to remove the control panel on ProCash 3100 Frontload.

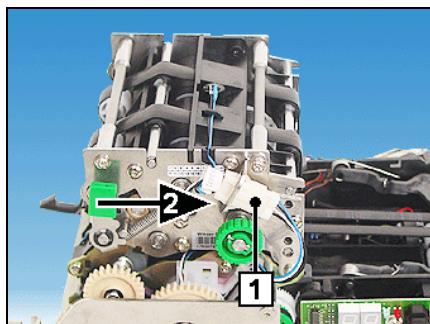
Reinstall it by following the same steps in reverse order.

**i** When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

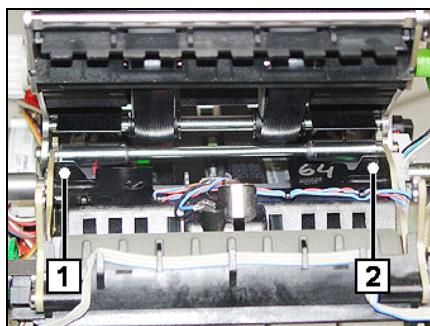
## Intermediate transport

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the dispenser (see section "Dispenser module").



Detach connector (1).

Turn the locking lever in the direction of the arrow (2) and swing the intermediate transport up by about 30°.



Press the plastic lugs (1) and (2) down and remove the intermediate transport.

Reinstall it by following the same steps in reverse order.

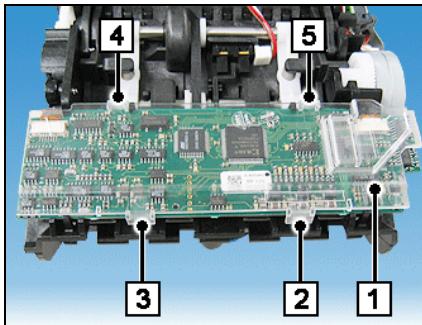


When you have completed installation, synchronize the sensors (see chapter "Function Test").

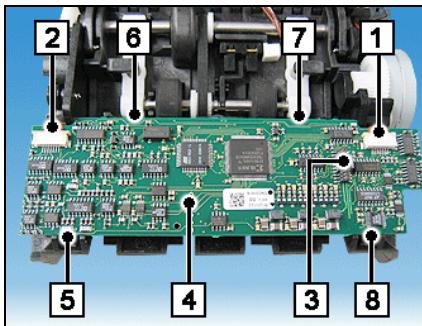
Check the function of the CCDM using the KDIAG testing program.

## Metal detection

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the dispenser (see section "Dispenser module").

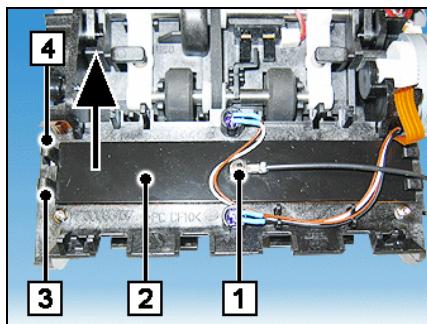


Unclip the cover (1) at positions (2) to (5) and remove it.



Detach connectors (1) to (3).

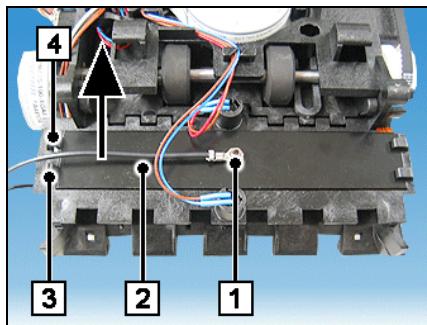
Unclip the board (1) at positions (4) to (8) and remove it.



Remove screw (1) and remove the ground connection.

Unclip the upper metal sensor support (2) at positions (3) and (4), lift it slightly at the side marked with the arrow and remove it upwards.

- Turn the dispenser.



Remove screw (1) and remove the ground connection.

Unclip the lower metal sensor support (2) at positions (3) and (4), lift it slightly at the side marked with the arrow and remove it upwards.

Reinstall it by following the same steps in reverse order.

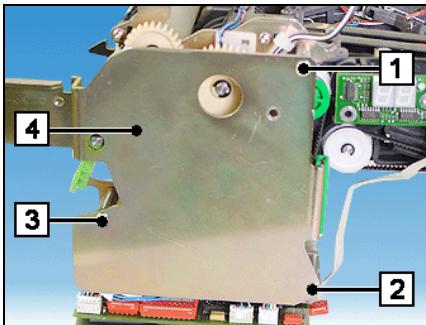


When you have completed installation, synchronize the metal sensors (see chapter "Function Test", section "Calling the service function codes").

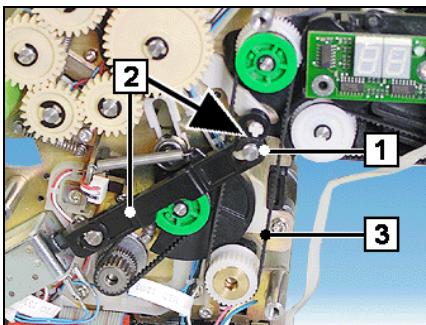
Check the function of the CCDM using the KDIAG testing program.

## Rocking bar in the dispenser module

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the dispenser (see section "Dispenser module").
- Remove the intermediate transport (see the "Intermediate transport" section).

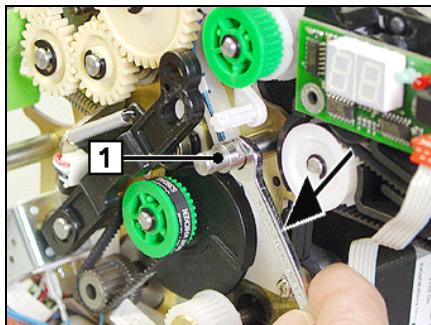


Remove screws (1) to (3) and remove the mounting plate (4).

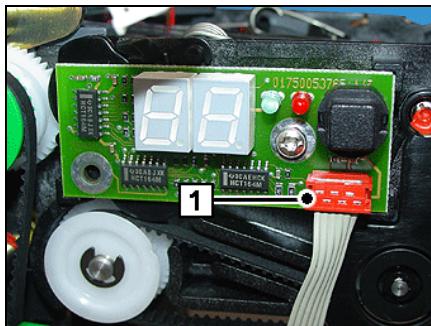


Remove the retaining ring (1) and detach the retaining shaft (2) see arrow).

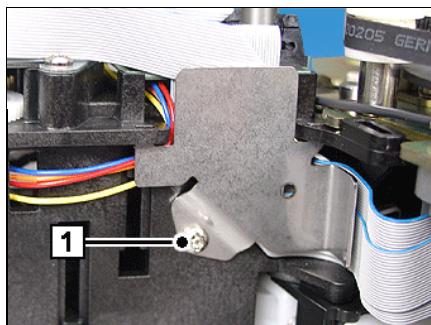
Detach the timing belt (3).



Loosen the connecting shaft (1) by turning it clockwise using an open-end wrench (see arrow).

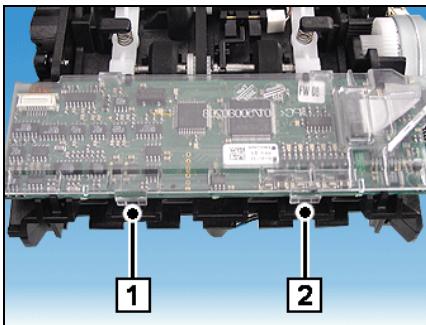


**Frontload only**  
Detach connector (1).

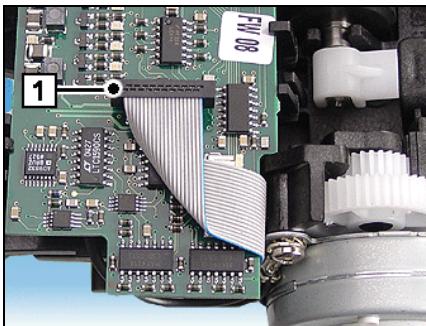


Remove screw (1) and remove the bracket.

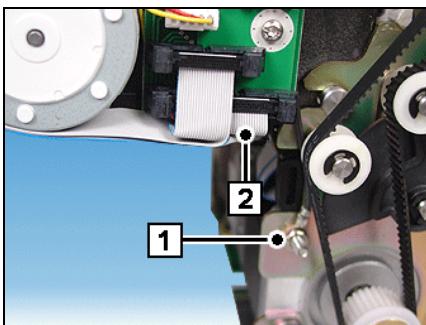
**i** During installation make sure that the bracket sits properly in the cutouts with its angles.



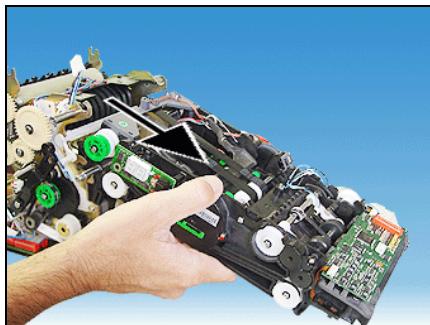
Release the two catches (1) and (2) and remove the cover.



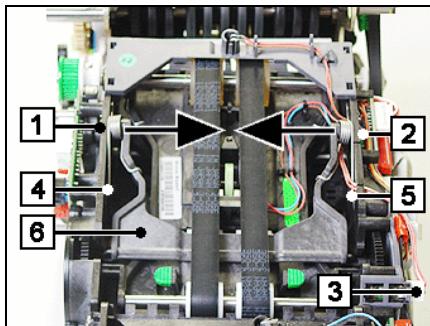
Detach connector (1).



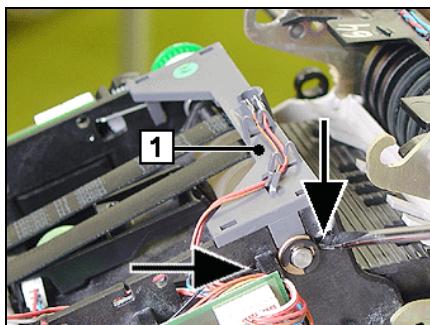
Remove the ground connection (1).  
Detach connector (2).



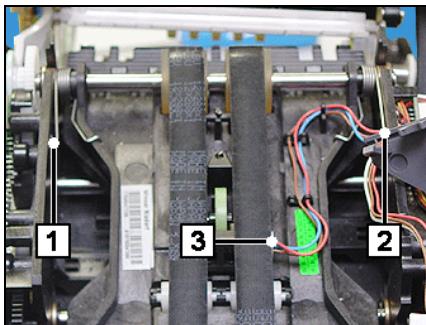
Pull the input / output tray slightly in the direction of the arrow and leave it folded down.



Remove retaining rings (1) and (2).  
Detach the connector (3) and lay the cable free.  
Unhook springs (4) and (5).  
Unhook the pressure arm (6) toward the middle of the device on both sides (see arrows) and detach the two springs.  
Remove the pressure arm (6).

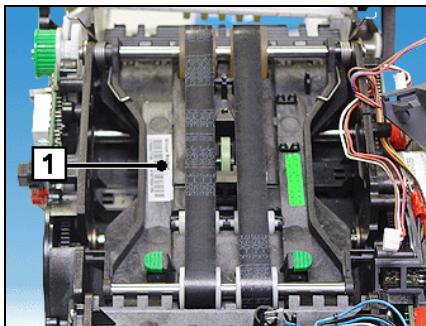


The crossbar (1) is fastened on each side with two catches.  
Unhook the two catches on one side of the crossbar (see arrows).  
Remove the crossbar and carefully put it aside.

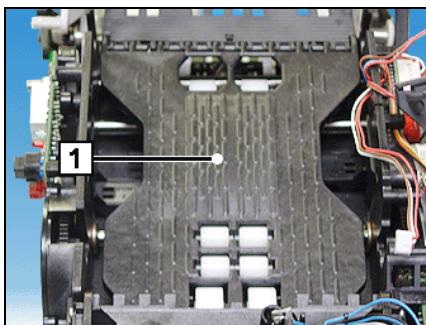


Unhook springs (1) and (2).

Detach the connector (3) and lay the cable free.



Carefully remove the rocker (1), lifting it up.



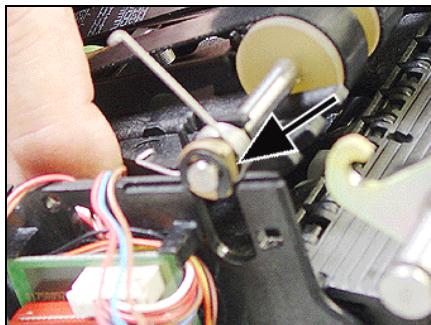
When removing the rocker make sure that the storage shelf (1) stays in position.

A pressure spring is located beneath the storage shelf.

Reinstall it by following the same steps in reverse order.

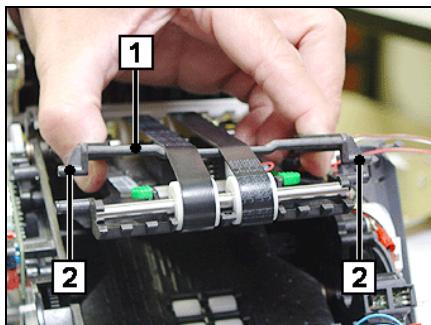


Note the following comments when installing the rocker.



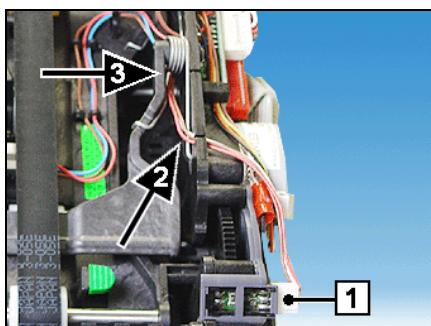
The rocker's porous bearings are flattened on one side (see arrow).

Make sure that the rocker is inserted properly.

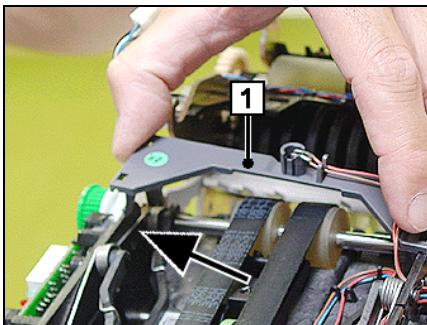


Insert the pressure arm (1), making sure it is the right way round.

The supports (2) must face down.



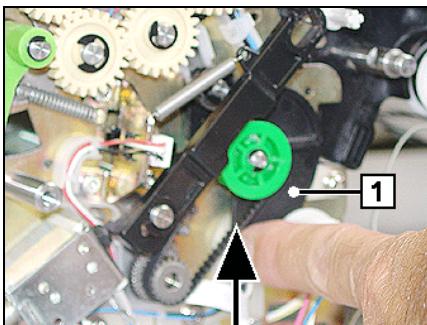
Run the cable of the connector (1) underneath the pressure arm (3) and in front of the spring (2).



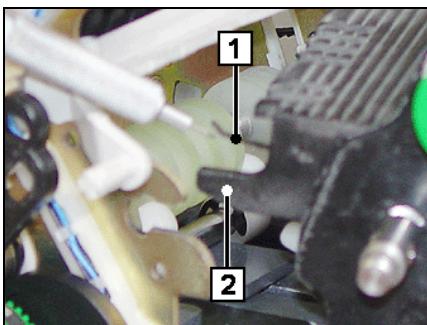
First insert the crossbar (1) on one side.

Make sure that the crossbar's catches go in front of the spring (see arrow).

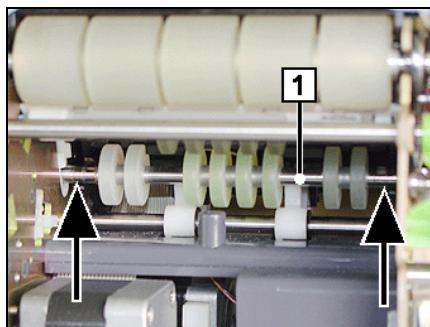
Check that the crossbar's catches have locked into place correctly.



Before inserting the input / output tray, turn the cam disk (1) until the recess is vertical (see arrow).



Then insert the input / output tray in such a way that, on both sides, the leaf spring (1) lies above and the plastic lugs lie below ...



...the shaft (1) (see arrows).

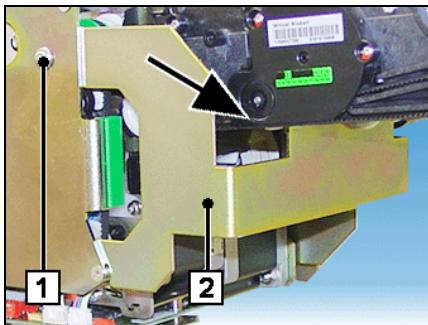
- i** When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

## Control panel

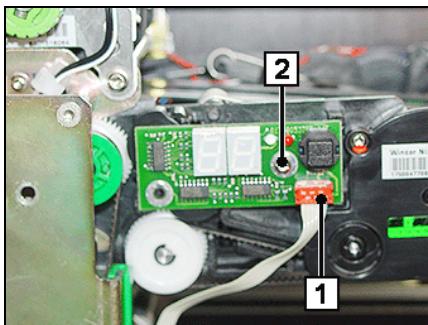
### Frontload (control panel on the dispenser module)

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).

**ProCash 3000 only**

Remove the securing screw (1) from the metal bracket (2).

Lower the metal bracket (2) slightly (see arrow) and remove it.



Detach connector (1).

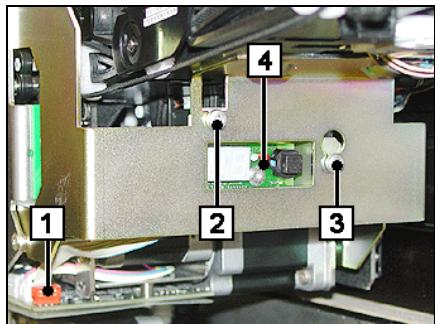
Remove screw (2) and remove the control panel.

Reinstall it by following the same steps in reverse order.



When you have completed installation, synchronize the sensors (see chapter "Function Test").

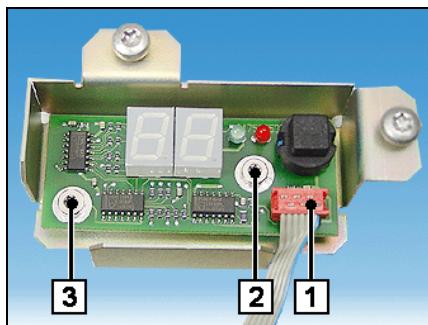
Check the function of the CCDM using the KDIAG testing program.

**ProCash 3100 only**

Detach connector (1).

Loosen screws (2) and (3).

Raise the control panel (4) a little and remove it.



Detach connector (1).

Remove screws (2) and (3) and remove the control panel.

Reinstall it by following the same steps in reverse order.

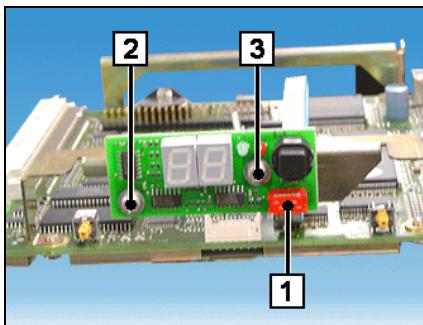


When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

## Rearload (control panel on the escrow)

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the amplifier / controller boards (see the "Amplifier / controller boards" section).
- Carefully separate the boards.



Detach connector (1).

Remove screws (2) and (3) and remove the control panel.

Reinstall it by following the same steps in reverse order.



When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

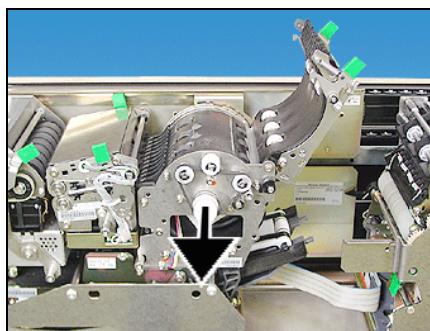
## Alignment station

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the cover plate (see section "Removing the cover plate").
- Pull out the dispenser (see section "Pulling out / pushing in the dispenser").



The alignment station has to be open before you can remove it.

- Open the alignment station (see section "Opening / closing the components").



Remove the alignment station.

Reinstall it by following the same steps in reverse order.



Make sure the new alignment station is open before you install it.



When you have completed installation, synchronize the sensors (see chapter "Function Test").

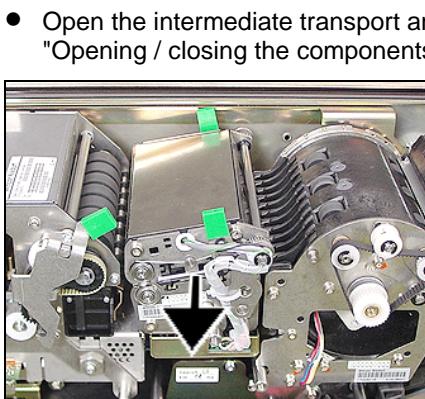
Check the function of the CCDM using the KDIAG testing program.

## Magnetic ink character reader

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the cover plate (see section "Removing the cover plate").



Before you remove the magnetic reader, the intermediate transport and the alignment station must be open.



Remove the magnetic ink character reader.

Reinstall it by following the same steps in reverse order.



Before you install the new magnetic reader, the intermediate transport and the alignment station must be open.



When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

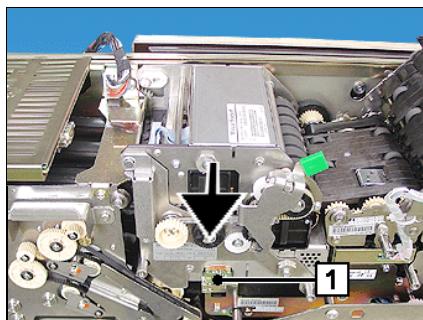
## Cheque / cash reader

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the cover plate (see section "Removing the cover plate").



Before you remove the cheque / cash reader, the intermediate transport, the alignment station and the magnetic reader must be open.

- Open the intermediate transport, the alignment station and the magnetic ink character reader (see section "Opening / closing the components").



Detach connector (1).

**i** The connector only exists in the event of a cheque / cash reader and of a cheque reader.

Detach the cheque / cash reader  
Reinstall it by following the same steps in reverse order.



Before you install the new cheque / cash reader, the intermediate transport, the alignment station and the magnetic reader must be open.

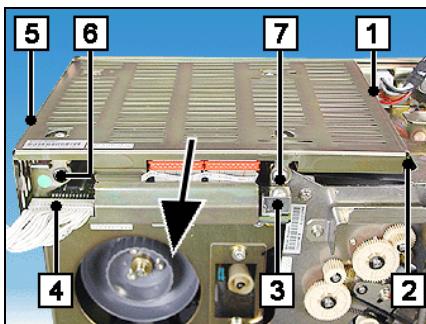


When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

## Amplifier / controller boards

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).



Disconnect the plugs (1) to (5). Remove screws (6) and (7).

Carefully detach the amplifier and controller boards in the direction of the arrow.

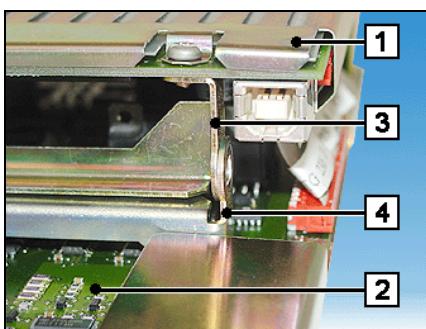
If necessary, slightly pull each board apart alternately until the two of them have come apart from the multiway connector.

- Remove the control panel if necessary (see the "Control panel" section).

Reinstall it by following the same steps in reverse order.



Note the following comments when installing the amplifier / controller boards.



When you assemble the amplifier board (1) and the controller board (2), make sure that the spacers (3) on each side of the amplifier board are positioned to match the spacers (4) on each side of the controller board, as shown in the illustration.

- Make new settings for the device configuration in KDIAG (see following table).



Before you can set the device configuration, the safety switch must be activated.

#### ATMTYPE (Basic system)

Configuration	Meaning
01 = 2100	ProCash 2100 with transfer transport Rev. A
02 = 2150/3000	ProCash 2150 / ProCash 3000
03 = 3100	ProCash 3100
04 = 2100	ProCash 2100 with transfer transport Rev. B (Rev. B = transfer transport III (01750063208) as of revision level 1)

#### CCDM type

Configuration	Meaning
01 = CCDM configuration 01	Configuration for standard cassettes
02 = CCDM configuration 02	Configuration for large cassettes
03 = CCDM configuration 99	Configuration without cassettes

#### Print station

Configuration	Meaning
M = Missing	No print station
V = Available	Print station is available



When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

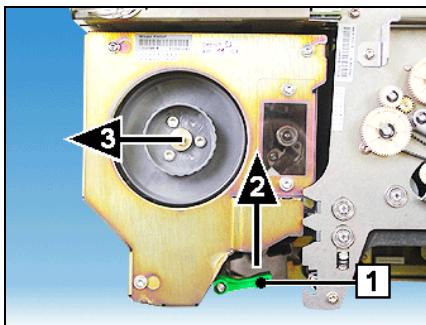
## Escrow unit



Escrow unit 01750079818 is not compatible with chassis 01750045607.

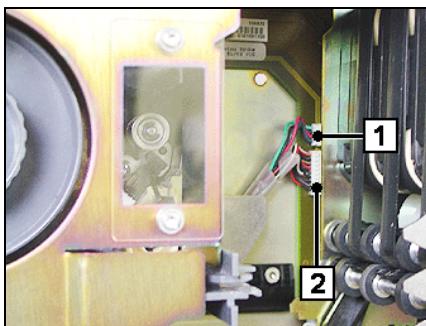
If you are installing this escrow, it may therefore be necessary to replace the chassis (see section "Chassis" and the chapter "Description of the Components", section "Escrow unit").

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).



Pull up (2) the green locking lever (1) and hold it in this position.

Pull out the escrow as far as possible(3).

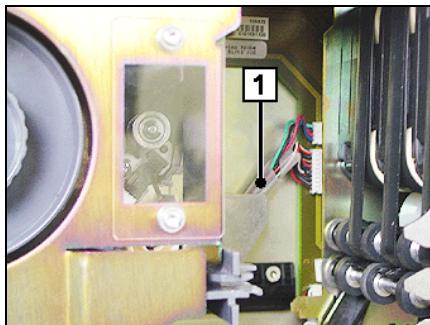


Detach connectors (1) and (2) from the back panel board.



Press the green locking/release lever (1) and remove the escrow unit to the rear in the direction shown by the arrow.

Reinstall it by following the same steps in reverse order.



Make sure that you do not jam the cable (1) when pushing the escrow in.

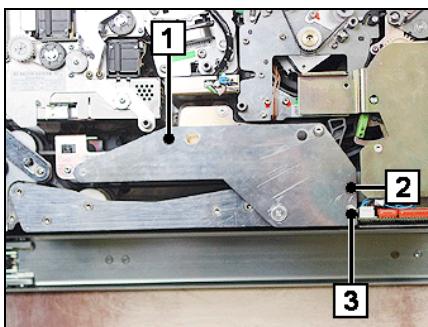


When you have completed installation, synchronize the sensors (see chapter "Function Test").

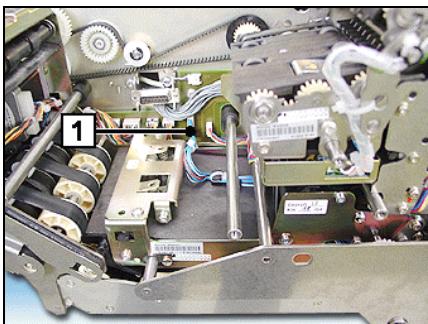
Check the function of the CCDM using the KDIAG testing program.

## Reject transport unit

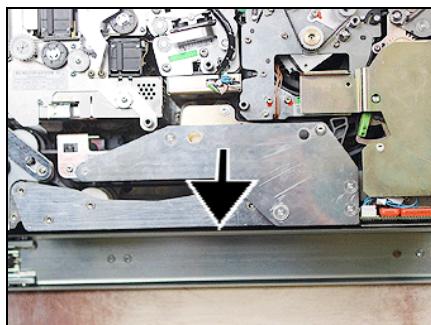
- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the cheque / cash reader (see section "Cheque / cash reader").
- Pull out the dispenser (see section "Pulling out / pushing in the dispenser").



Remove screws (1) to (3).

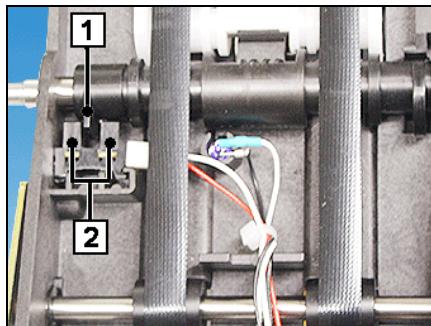


Detach connector (1).



Carefully pull out the reject transport.

Reinstall it by following the same steps in reverse order.



Make sure that the switching flap (1) sits in the fork (2) when installing the reject transport.

Turn the switching flap into the correct position if necessary.

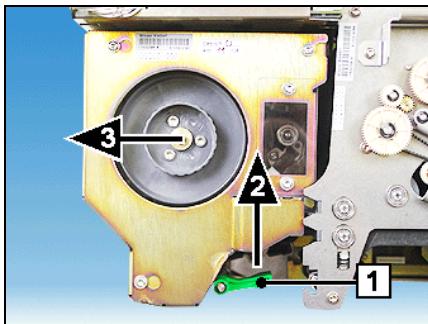


When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

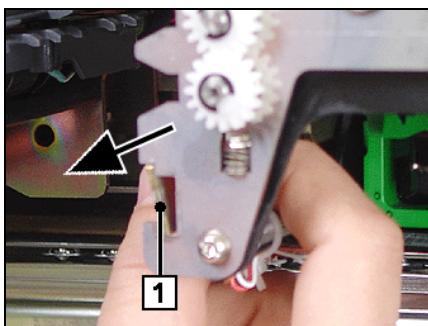
## Print station

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).

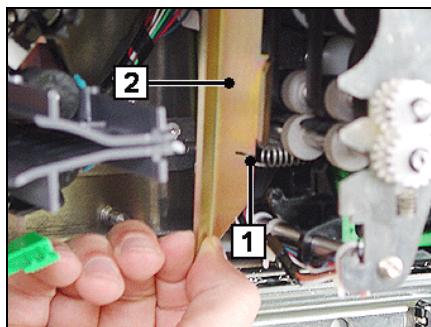


Pull up (2) the green locking lever (1) and hold it in this position.

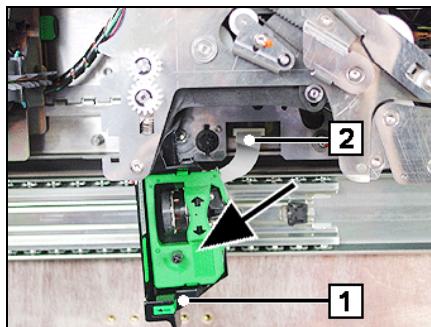
Pull out the escrow as far as possible(3).



Detach the steel crossbar (1) in the direction of the escrow as shown (see arrow).

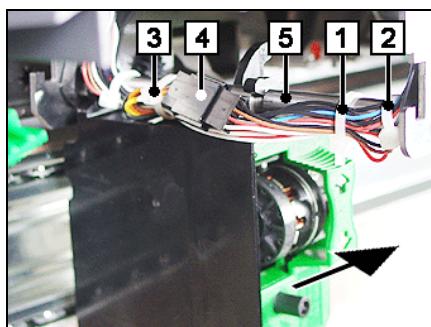


Unhook the springs (1) using a spring hook, and remove the crossbar (2).



Swing the print station (1) down by 90° (see arrow).

Disconnect the ribbon cable (2).



Remove cable ties (1) to (3) and separate the connection.

Unhook the print station and remove it.

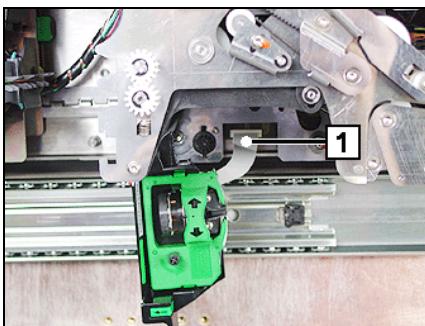
(The print station is attached to the shaft (5) with two snap locks.)

- Remove the ribbon cartridge from the print station (refer to the operating manual).

Reinstall it by following the same steps in reverse order.

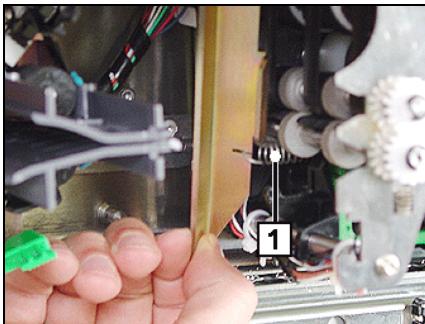


Note the following comments when installing the print station.

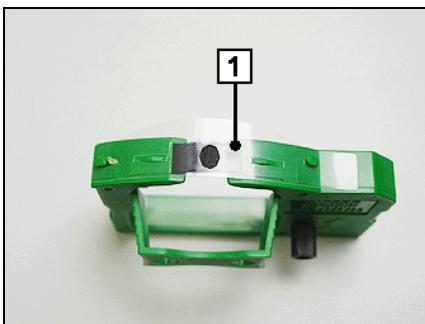


Insert the ribbon cable (1) with the contact surface facing down.

Position the ribbon cable in such a way that it is not jammed or damaged when the print station is moved up and down.



Make sure that the spring (1) is not overstretched when hooking it into the crossbar.

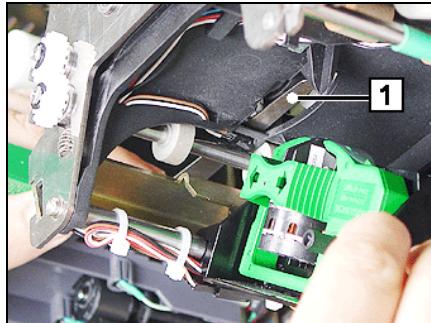


Make sure that the plastic film (1) is not damaged when inserting the ribbon cartridge in the print station.

The print station has to be adjusted when it has been installed successfully.

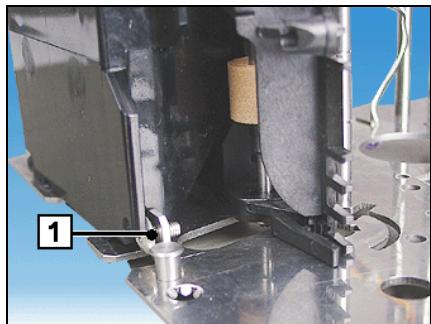


The gap between the print head and the print roller should be 0.50 mm to 0.55 mm.



Check the gap between the print head and the print roller using a feeler gauge.

To do this, with the print station swung down place the feeler gauge (1) between the print head and the print roller (see figure) from the escrow side.



If necessary, correct the gap between the print head and print roller by turning the screw (1).

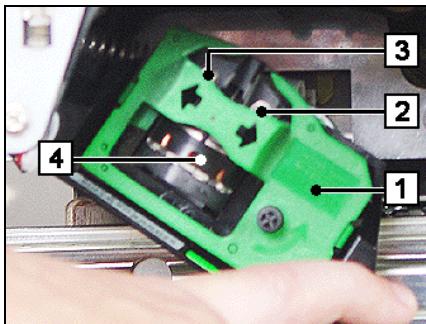


When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

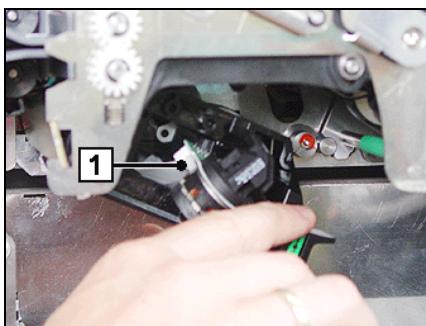
## Print head

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).



Swing the print station down and remove the ribbon cartridge (1) (refer to the operating manual).

Remove screws (2) and (3), and pull the print head out slightly.

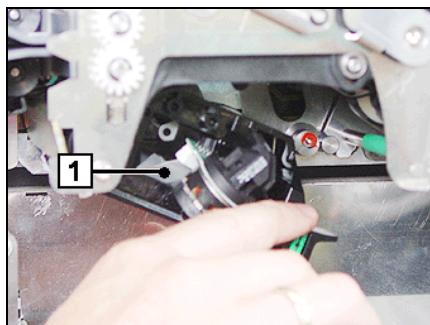


Disconnect the ribbon cable (1).

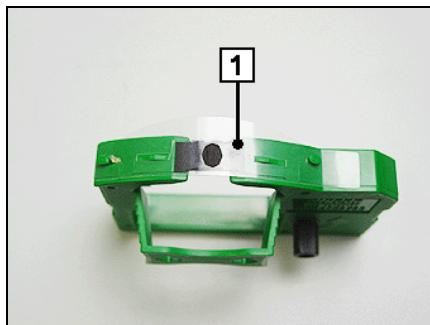
Reinstall it by following the same steps in reverse order.



Note the following comments when installing the print head.



Position the ribbon cable (1) in such a way that it is not jammed or damaged when the print station is moved up and down.

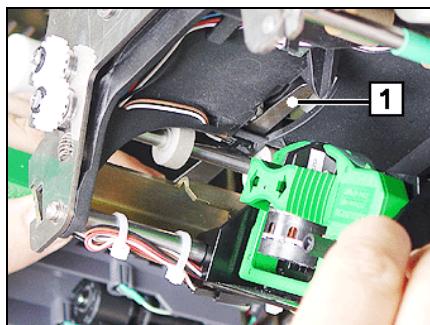


Make sure that the plastic film (1) is not damaged when inserting the ribbon cartridge in the print station.

The print station has to be adjusted when it has been installed successfully.

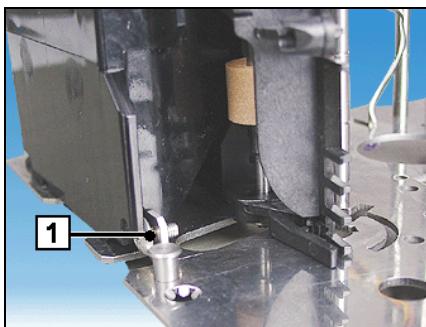


The gap between the print head and the print roller should be 0.50 mm to 0.55 mm.



Check the gap between the print head and the print roller using a feeler gauge.

To do this, with the print station swung down place the feeler gauge (1) between the print head and the print roller (see figure) from the escrow side.



If necessary, correct the gap between the print head and print roller by turning the screw (1).



When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

## Chassis



Chassis 01750079819 is not compatible with escrow unit 01750045965.

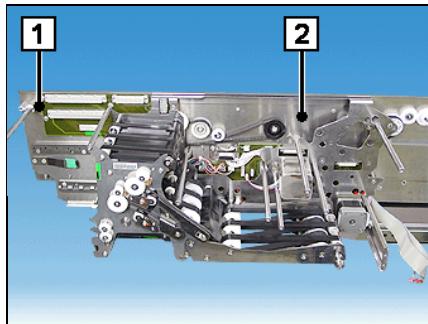
If you are installing this chassis, it may therefore be necessary to replace the escrow unit (see section "Escrow unit" and the chapter "Description of the Components", section "Escrow unit").



The chassis with the sensor transport and deposit transport and the back panel board are removed.

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the dispenser (see section "Dispenser module").

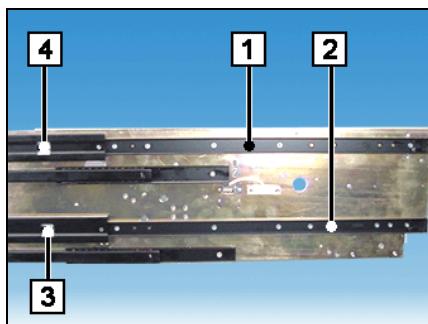
- Remove the alignment station (see section "Alignment station").
- Remove the magnetic ink character reader (see section "Magnetic ink character reader").
- Remove the cheque / cash reader (see section "Cheque / cash reader").
- Remove the amplifier board and the controller board (see section "Amplifier / controller board").
- Remove the escrow unit (see section "Escrow unit").
- Remove the reject transport (see section "Reject transport").



The chassis is fastened to the upper telescopic runner at positions (1) and (2).

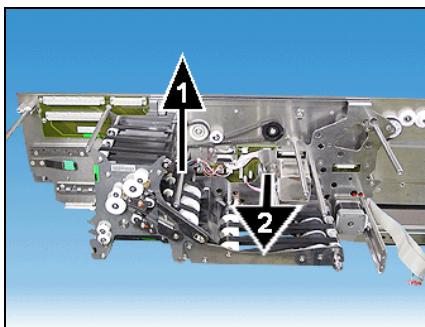
Loosen these two screws on the telescopic runner.

**i** The screws are not allowed to be removed.



Remove all the necessary screws from the upper and lower telescopic runners (1) and (2).

If necessary, move the telescopic runners to be able to access individual screws, e.g. those at positions (3) and (4).



Lift the chassis a little (1) and remove it in the direction of the arrow (2).

Reinstall it by following the same steps in reverse order.

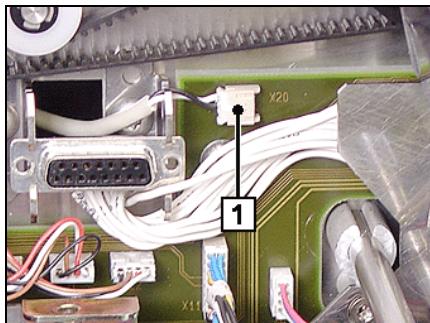


When you have completed installation, synchronize the sensors (see chapter "Function Test").

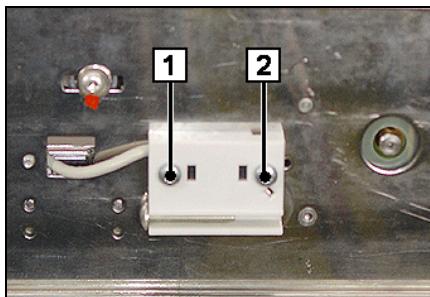
Check the function of the CCDM using the KDIAG testing program.

## Safety switch head module

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM head module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the cheque / cash reader (see section "Cheque / cash reader").



Detach connector (1).



Remove screws (1) and (2) and remove the safety switch.

Reinstall it by following the same steps in reverse order.

- i** When you have completed installation, synchronize the sensors (see chapter "Function Test").  
Check the function of the CCDM using the KDIAG testing program.

## Cheque / cash transfer mechanism

- i** The service manual for the specific system describes how to remove and install the cheque/cash transfer mechanism.

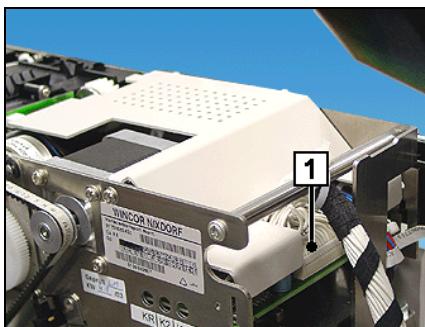
## Standard cassette module (metal)



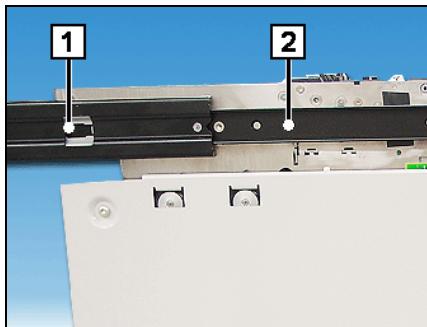
The following sections describe how to remove and install components in the standard cassette module (metal).

### Separator transport

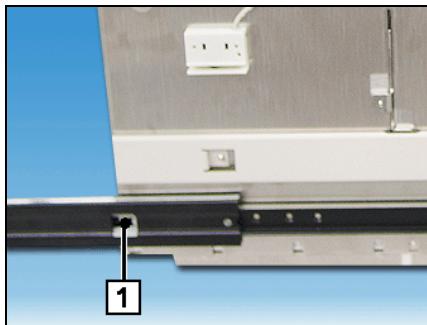
- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the retract cassette, cassette 1 and cassette 2 (see section "Removing / inserting cassettes").



Detach connector (1).



Remove screws (1) and (2) from the upper telescopic runner.



Remove the screw (1) from the lower telescopic runner.

Slightly raise the distributor transport and remove it.

Reinstall it by following the same steps in reverse order.

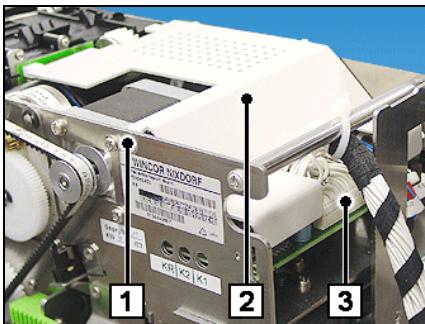


When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

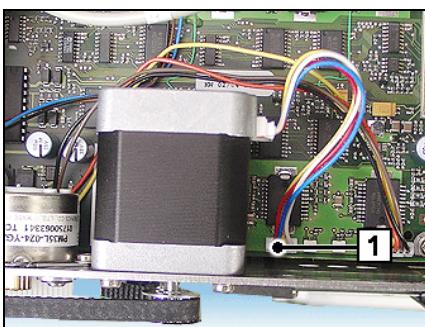
## Storage board

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).

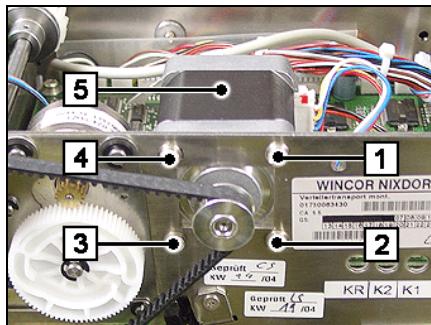


Loosen screw (1) and take off the cover (2).

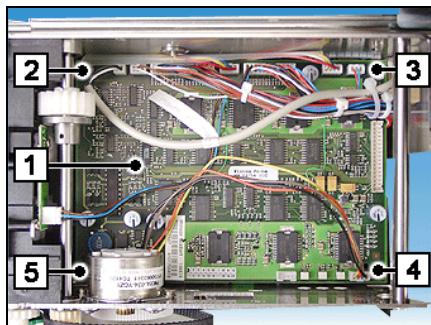
Detach connector (3).



Disconnect the plug (1) from the storage board.



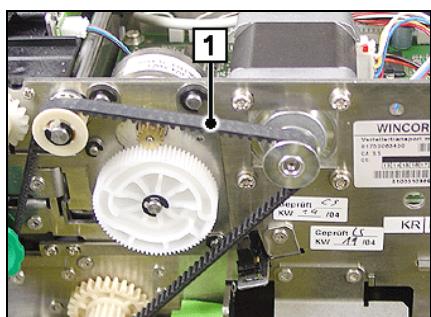
Remove the screws (1) to (4) and remove the motor (5).



Disconnect all plugs (1) from the storage board.

Remove screws (2) to (5) and take out the storage board.

Reinstall it by following the same steps in reverse order.



When you install it, make sure that the belt (1) is not too tight.



When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

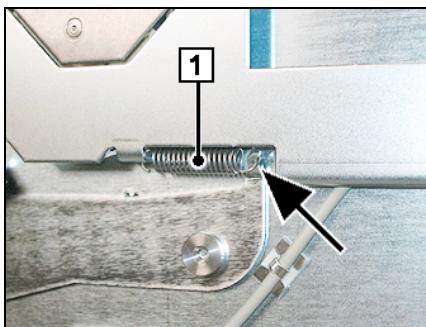
## Cassette module for plastic cassettes



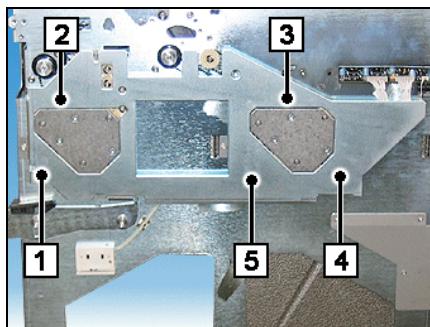
The following sections describe how to remove and install components in the cassette module for plastic cassettes.

### Safety switch cassette module

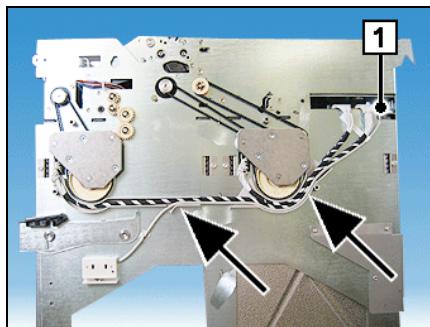
- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the right media cassette (see section "Removing / inserting cassettes").



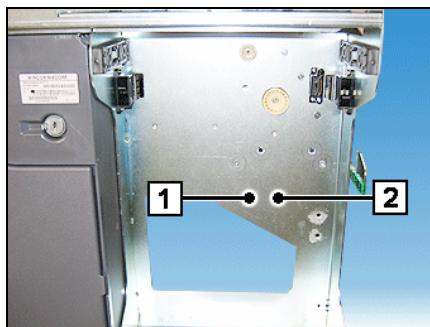
Detach the spring (1) at the position marked with the arrow on the rear of the cassette module.



Remove screws (1) to (4) and remove the cover (5).



Detach the connector (1) and free the cable along the cable channel (see arrows).



Remove screws (1) and (2) on the front of the cassette module and remove the safety switch.

Reinstall it by following the same steps in reverse order.

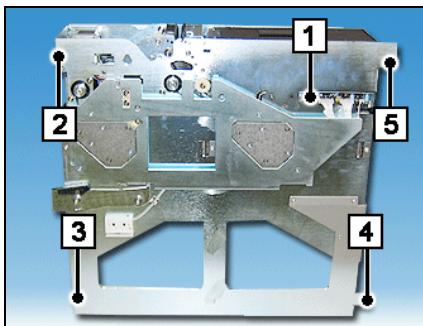


When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

## Separator transport

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the retract cassette and the two media cassettes (see section "Removing / inserting cassettes").



Disconnect all the necessary plugs from the storage board (1).

Remove or loosen the screws at positions (2) to (5) on the telescopic runners.

Raise the distributor transport slightly if necessary and remove it.

Reinstall it by following the same steps in reverse order.

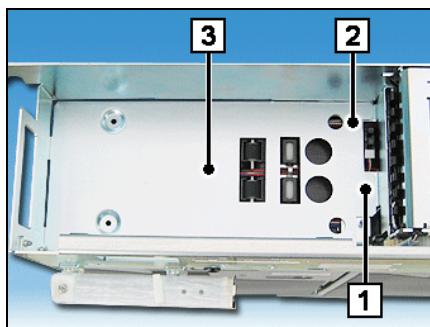


When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

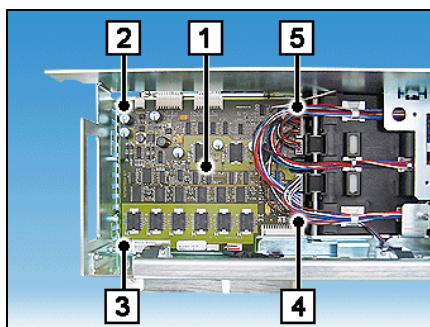
## Storage board

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the retract cassette (see section "Removing / inserting cassettes").



Loosen screws (1) and (2) and lift the cover (3) up and out.

The cover is only hooked into place at the back.



Disconnect all plugs (1) from the storage board.

Remove screws (2) to (5) and take out the storage board.

Reinstall it by following the same steps in reverse order.



When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

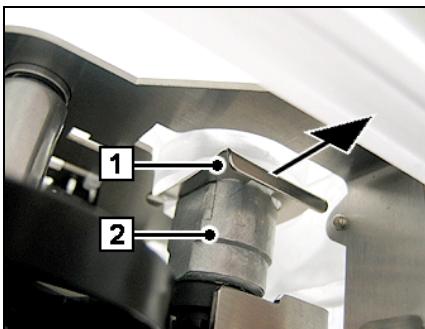
## Lock on media cassettes

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the media cassette (see section "Removing / inserting cassettes").



Insert the key in the lock (1) and turn it clockwise until it stops.

Open the cover in the direction shown by the arrow.



Remove the clip (1) in the direction of the arrow.

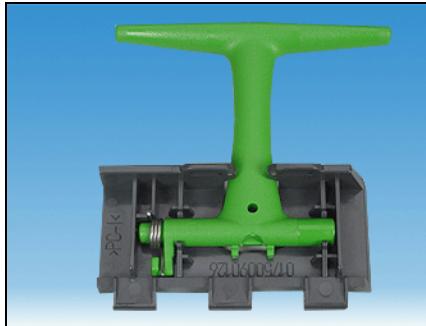
Remove the lock (2) upwards.

Reinstall it by following the same steps in reverse order.

## Media cassette handle

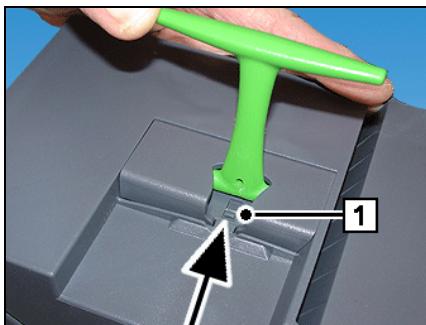
- Open the device (see chapter "Basic Operation" in the device's operating manual).

- Pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).
- Remove the media cassette (see section "Removing / inserting cassettes").

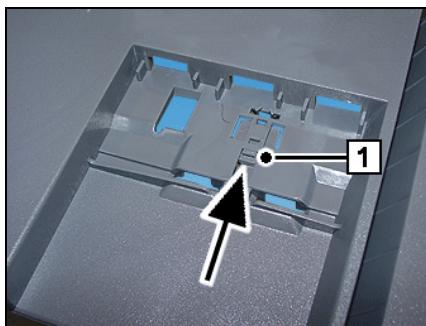


**Handle assy.**

Order number: 01750092917



Push the lock (1) in the direction of the arrow as far as possible and remove the handle.



### Notes for installation

Push the lock (1) as far as possible in the direction of the arrow.

Insert the handle.

Arrest the handle by pushing the lock back as far as possible.

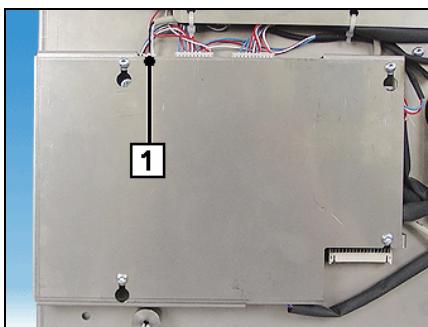
## Cassette module ProCash 3100(xe)



The following sections describe how to remove and install components in the cassette module for ProCash 3100(xe).

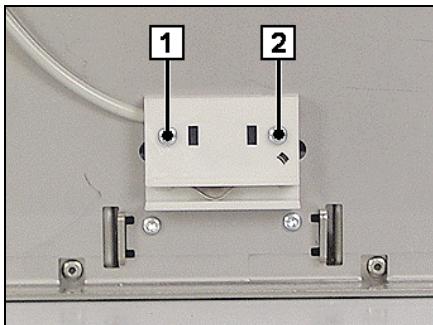
### Safety switch cassette module

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).



Disconnect the plug (1) from the storage board.

Remove all the necessary cable ties and free the cable.



Remove screws (1) and (2) and remove the safety switch.

Reinstall it by following the same steps in reverse order.

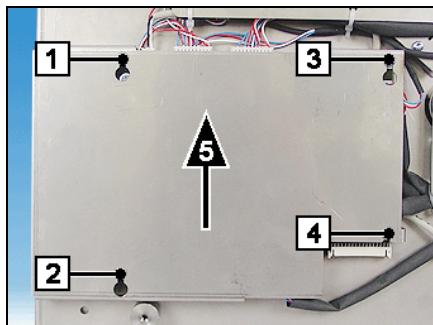


When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.

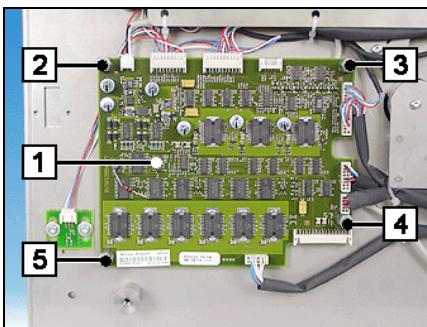
## Storage board

- Open the device (see chapter "Basic Operation" in the device's operating manual).
- Disconnect the device from the power supply (see section "Power interrupt").
- Pull out the CCDM cassette module as far as possible (see chapter "Basic Operation" in the device's operating manual).



Remove screws (1) to (4).

Raise the cover (5) a little and remove it.



Disconnect all plugs (1) from the storage board.

Remove threaded bolts (2) to (5) and take out the storage board.

Reinstall it by following the same steps in reverse order.



When you have completed installation, synchronize the sensors (see chapter "Function Test").

Check the function of the CCDM using the KDIAG testing program.



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# **Maintenance and Service**

## **General**

If a technician is called out to service the device, paper dust must be removed from it and, at the same time, the photosensors checked and, if necessary, cleaned. The photosensor positions are described in the chapter "Faults", section "Sensors and actuators".

The transport belts do not require cleaning. Cleaning fluids should not be used, as the different types of plastic will react differently to them.

The care and cleaning of the CCDM and the replacement of consumables are the customer's task, consumables being the ribbon cartridge and the print head. These are not covered by the maintenance contract.

## **Dispenser module**

The two flat belts should be replaced after four years. To do this it is necessary to replace the rocking bar (see the "Rocking bar" section in the "Removal / Installation of components" chapter)

## **Cheque / cash reader**

The glass panels of the two scanners should be cleaned with the specified cleanser whenever a technician calls in, or at least twice a year.

# **Consumables**

## **Orders**

Consumables for the system components can be ordered directly from Wincor Nixdorf.

### **International**

Fax: +49 (0) 5251 693 4888  
E-mail: [serviceslogistics@wincor-nixdorf.com](mailto:serviceslogistics@wincor-nixdorf.com)  
Internet: [www.wincor-nixdorf.com/mEDIASERVICE](http://www.wincor-nixdorf.com/mEDIASERVICE)

## **Notes on using cleaning materials**



Please note the manufacturer's specifications on the packaging and on the enclosed information sheet. The product may be damaged or soiled if materials are used that are not approved or if they are used improperly.

Please dispose of the packaging and empty containers according to the applicable regulations of your country.

## **Printer ribbon cartridge**

Use only the specified printer ribbon cartridge. Otherwise you run the risk of damaging the print head and the ribbon transport.

Printer ribbon cartridge

Part number: 01750064638

## **Print head**

Print head:

Part number: 01750062215

# Approved maintenance materials

The articles listed below can be ordered from us or from our service partners via electronic channels.

- Orders: <http://extranet.wincor-nixdorf.com>  
<http://www.wincor-nixdorf.com/mediaservice>
- E-mail for logistics questions: <mailto:serviceslogistic@wincor-nixdorf.com>
- E-Mail for technical questions: [mailto: servicessupport@wincor-nixdorf.com](mailto:servicessupport@wincor-nixdorf.com)

Commercial name / product name	Material number
Flat paintbrush 1"	01770005440
Universal cleaning cloth	01770005406
Screen cleansing agent ECS-260, 250 ml	01750035530

You will find a list of all the cleaning and maintenance materials approved by Wincor Nixdorf in the intranet or extranet.

-  Please note the manufacturer's specifications on the packaging and on the enclosed information sheet.  
The product may be damaged or soiled if materials are used that are not approved or if they are used improperly.  
Please dispose of the packaging and empty containers according to the applicable regulations of your country.

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# **Appendix**

## **Technical data**

### **General**

#### **Cheque processing**

Character recognition:  
CMC-7 (DIN 66226, ISO 2033, ISO 1004)  
E13-B (DIN 66226, ISO 2033)

Magnetic character line:  
ANSI X9

No. of characters:  
max. 80

Image recording:  
resolution: 200 dpi  
Front and back sides, using red and green light

#### **Printing function**

Print head:  
9 pins

Character height:  
3.2 mm

Fonts / coding:  
loadable character generators

Ribbon:  
black

#### **Data interfaces**

Controller:  
V.24 (RS 232) at 57600 Baud

Cash reader:  
V.24 (RS 232)

Cheque reader:  
V.24 (RS 232) and Hotlink

Cheque / cash reader:  
V.24 (RS 232) and Fire Wire 1394

#### **Power supply**

Vcc, - 12 V, + 12 V, + 24 V, + 36 V

**Head module (rectangular-solid method)**

Length: 930 mm  
Width: 168 mm  
Height: 210 mm  
Weight: 22 kg

**Cassette module (rectangular-solid method)****Standard cassette module (metal)**

Length: 535 mm  
Width: 170 mm  
Height: 510 mm  
Weight without cassettes: 10.5 kg

**Cassette module for plastic cassettes**

Length: 555 mm  
Width: 185 mm  
Height: 510 mm  
Weight without cassettes: 11.9 kg

**Cassettes for cassette module (long version)**

Length: 555 mm  
Width: 185 mm  
Height: 680 mm  
Weight without cassettes: 13.0 kg

**Cassette module ProCash 3100(xe)**

Length: 635 mm  
Width: 165 mm  
Height: 310 mm  
Weight without cassettes: 8.66 kg

**Input bundles**

No. of media per bundle: max. 50

## Cassettes

### Standard cassettes (metal)

#### Cassette 1 and cassette 2

Stack height: 250 mm  
No. of media: < 2000 \*1)

#### Retract cassette

No. of media: < 100

### Cassettes ProCash 3100(xe)

#### Left and right cassette

Stack height: 140 mm  
No. of media: < 1000 \*1)

### Plastic cassettes

#### Media cassettes

Stack height: 212 mm  
No. of media: < 2000 \*1)

#### Media cassettes (long version)

Stack height: 382 mm  
No. of media: < 3600 \*1)

#### Retract cassette

No. of media  
upper compartment: 70  
lower compartment: 30

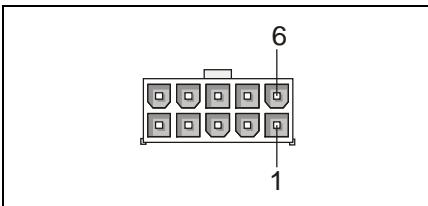
\*1) depending on the thickness and quality of the media

## Media

	Standard (metal)	PC 3100(xe)	Plastic
<b>Banknotes</b>			
Length	110 - 185 mm		110 - 185 mm
Width	60 - 98 mm		60 - 98 mm
Thickness	0.07 - 0.12 mm		0.07 - 0.12 mm
Grammage	65 - 125 g/m <sup>2</sup>		65 - 125 g/m <sup>2</sup>
<b>Cheques</b>			
Length	140 - 240 mm	140 - 240 mm	140 - 240 mm
Width	70 - 105 mm	70 - 105 mm	70 - 105 mm
Thickness	0.07 - 0.12 mm	0.07 - 0.12 mm	0.07 - 0.12 mm
Grammage	65 - 125 g/m <sup>2</sup>	65 - 125 g/m <sup>2</sup>	65 - 125 g/m <sup>2</sup>

## Pin assignments back panel

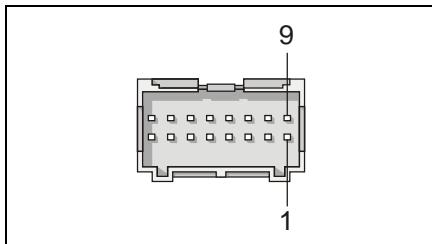
### X1 (power supply unit)



Type of connector:  
Molex-Mini-Fit Jr., 10M

Pin	Assignment	Remarks
1	Vcc	
2	Vcc	
3	- 12 V	
4	+ 12 V	
5	GND	
6	+ 24 V	
7	+ 36 V	
8	GND P	
9	GND PP	
10	NAN	

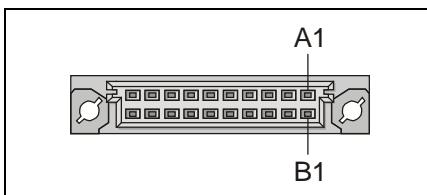
## X2 (LINE XSA Baumer sensor)



Type of connector:  
JST 16-pin, M

Pin	Assignment	Remarks
1	LESER_RESET	
2	LESER_TXD	
3	LESER_SYNC	
4	LESER_CTS	
5	GND	
6	GND	
7	Vcc	
8	- 12 V	
9	LESER_RXD	
10	GND	
11	LESER_RTS	
12	LESER_TAKT	
13	GND	
14	+ 12 V	
15	Vcc	
16	NC	

## X3 (MICR)

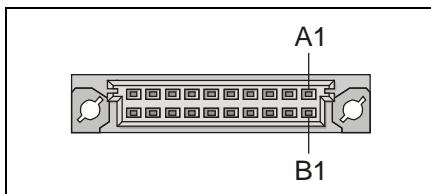


Type of connector:

48-pin DIN, F

Pin	Assignment	Remarks
A1	MICR_RESET	
A2	MICR_RXD	
A3	MICR_TXD	
A4	MICR_DTR	
A5	GND	
A6	NC	
A7	GND	
A8	I_SLS3	Transmit current - Photosensor MICR
A9	GND	
A10	OUT_SLS3	Output signal - Photosensor MICR
B1	MICR_DSR	
B2	MICR_RTS	
B3	MICR_CTS	
B4	GND	
B5	MICR_SYNC	
B6	Vcc	
B7	MAGSMG1H	Magnet SMG 1
B8	MAGSMG1L	
B9	GND	
B10	NC	

## X4 (alignment station)

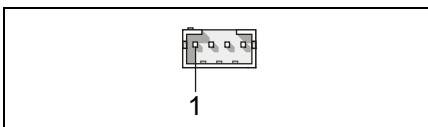


**Type of connector:**

48-pin DIN, F

Pin	Assignment	Remarks
A1	ASM1A	Motor phase 'A' Motor 1 of alignment station
A2	ASM1B	Motor phase 'B'
A3	ASM1C	Motor phase 'C'
A4	ASM1D	Motor phase 'D'
A5	MAG_AMG1H	Magnet for switch 1
A6	MAG_AMG1L	Magnet for switch 1
A7	ASM2A	Motor phase 'A' Motor 2 alignment station
A8	ASM2B	Motor phase 'B'
A9	ASM2C	Motor phase 'C'
A10	ASM2D	Motor phase 'D'
B1	GND	
B2	GND	
B3	I_ALS1	Transmit current - Photosensor (LS) in alignment station
B4	OUT_ALS1	Output signal - Photosensor in alignment station
B5	I_ALS2	Transmit current - Photosensor (LS) in alignment station
B6	OUT_ALS2	Output signal - Photosensor in alignment station
B7	I_ALS3	Transmit current - Photosensor (LS) in alignment station
B8	OUT_ALS3	Output signal - Photosensor in alignment station
B9	I_ALS4	Transmit current - Photosensor (LS) in alignment station
B10	OUT_ALS4	Output signal - Photosensor in alignment station

## X5 (storage transport - motor)

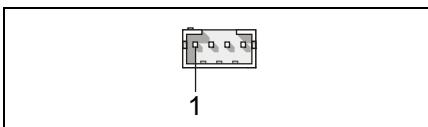


Type of connector:

JST PH 4-pin, M

Pin	Assignment	Remarks
1	KSM1A	Motor phase 'A' storage transport motor 3
2	KSM1B	Motor phase 'B'
3	KSM1C	Motor phase 'C'
4	KSM1D	Motor phase 'D'

## X6 (intermediate transport - motor)



Type of connector:

JST PH 4-pin, M

Pin	Assignment	Remarks
1	VSM4A	Motor phase 'A' intermediate transport motor
2	VSM4B	Motor phase 'B'
3	VSM4C	Motor phase 'C'
4	VSM4D	Motor phase 'D'

## X7 (sensor transport - motors)



Type of connector:  
JST PH 4-pin, M

Pin	Assignment	Remarks
1	SSM1A	Motor phase 'A' sensor transport motor
2	SSM1B	Motor phase 'B'
3	SSM1C	Motor phase 'C'
4	SSM1D	Motor phase 'D'

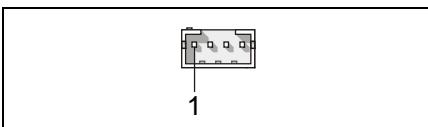
## X8 (escrow - motor)



Type of connector:  
JST PH 4-pin, M

Pin	Assignment	Remarks
1	ESM1A	Motor phase 'A' ESCROW motor
2	ESM1B	Motor phase 'B'
3	ESM1C	Motor phase 'C'
4	ESM1D	Motor phase 'D'

## X9 (printing station - ribbon transport)

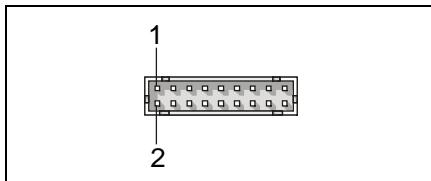


Type of connector:

JST PH 4-pin, M

Pin	Assignment	Remarks
1	DSM1A	Motor phase 'A' Motor for ribbon transport
2	DSM1B	Motor phase 'B'
3	DSM1C	Motor phase 'C'
4	DSM1D	Motor phase 'D'

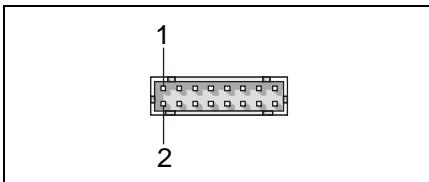
## X10 (escrow - sensors)



Type of connector:  
JST PHD 18-pin, M

Pin	Assignment	Remarks
1	Vcc	
2	ELS4	Timer tape speed
3	GND	
4	Vcc	
5	ELS2	Tear sensor 1
6	GND	
7	Vcc	
8	ELS3	Tear sensor 2
9	GND	
10	I_ELS1	Transmit current - photosensor print start cheque processing
11	GND	
12	OUT_ELS1	Output signal - photosensor print start cheque processing
13	GND	
14	I_ELS5	
15	GND	
16	OUT_ELS5	
17	GND	
18	NC	

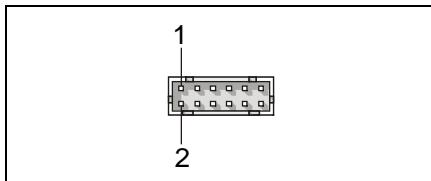
## X11 (reject transport - sensors / motors)



**Type of connector:**  
JST PHD 16-pin, M

Pin	Assignment	Remarks
1	Vcc	
2	RLS3	Photosensor bundling reject tray
3	GND	
4	Vcc	
5	I_RLS2	Transmit current - Photosensor - Paper start sensor at the shutter
6	GND	
7	OUT_RLS2	Output signal - Photosensor - Paper start sensor at the shutter
8	GND	
9	RSM2A	Motor phase 'A' Motor bundling reject tray
10	RSM2B	Motor phase 'B'
11	RSM2C	Motor phase 'C'
12	RSM2D	Motor phase 'D'
13	RSM1A	Motor phase 'A' reject transport motor
14	RSM1B	Motor phase 'B'
15	RSM1C	Motor phase 'C'
16	RSM1D	Motor phase 'D'

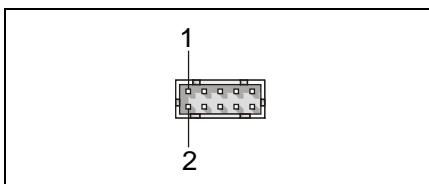
## X12 (sensor transport - sensors)



Type of connector:  
JST PHD 12-pin, M

Pin	Assignment	Remarks
1	Vcc	
2	SLS2	Photosensor - switch 2
3	GND	
4	Vcc	
5	SLS4	LS - switch 3
6	GND	
7	OUT_RLS1	Output signal photosensor reject transport
8	GND	
9	I_SLS1	Transmit current - Photosensor paper path monitoring switch 2
10	GND	
11	OUT_SLS1	Output signal - Photosensor paper path monitoring Switch 2
12	GND	

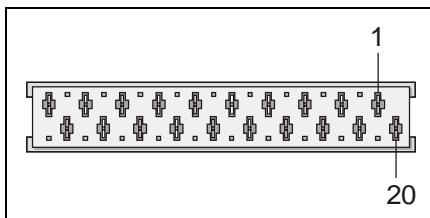
## X13 (printing station - print monitoring)



Type of connector:  
JST PHD 10-pin, M

Pin	Assignment	Remarks
1	I_DLS1	Transmit current reflective photosensor print monitoring DSL1
2	GND	
3	OUT_DLS1	Collector reflective photosensor print monitoring DSL1
4	I_DLS2	Transmit current reflective photosensor print monitoring DSL2
5	GND	
6	OUT_DLS2	Collector reflective photosensor print monitoring DSL2
7	I_RLS1	Transmit current photosensor reject transport
8	GND	
9	NC	
10	NC	

## X14 (dispenser print I)

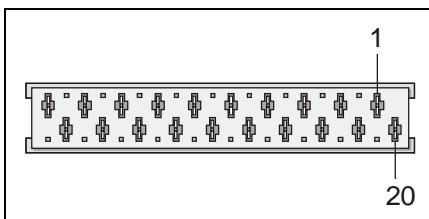


Type of connector:

Micromatch, 20-pin, F

Pin	Assignment	Remarks
1	VMOT_D0	Data bus to dispenser motors
2	VMOT_D1	
3	VMOT_D2	
4	VMOT_D3	
5	VMOT_D4	
6	VMOT_D5	
7	VMOT_D6	
8	VMOT_D7	
9	VMOT_D8	
10	VMOT_D9	
11	VMOT_D10	
12	VMOT_D11	
13	MOT_AD_1	Addresses for driving motors
14	MOT_AD_2	
15	MOT_AD_3	
16	GND	
17	GNDP	
18	+ 12 V	
19	+ 36 V	
20	+ 36 V	

## X15 (dispenser print II)

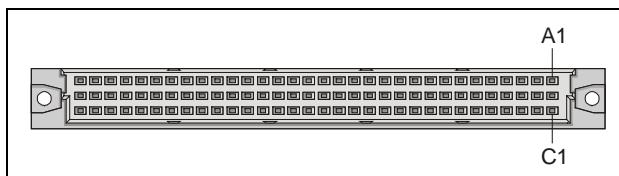


**Type of connector:**

Micromatch, 20-pin, F

Pin	Assignment	Remarks
1	E_AD	Enable A/D converter-dispenser (foreign body sensor)
2	D_AD1	Data A/D-converter-dispenser (foreign body sensor)
3	D_AD2	Data control panel
4	CLK_AD_DA	Data control panel
5	D_Bed	
6	STROBE_BED	
7	RESETN_V	
8	STROBE_IO	
9	GND	
10	STROBE_MOT	
11	E_DA_V	Enable A/D converter-dispenser (transmit current photosensors)
12	D_DA_V	Data D/A
13	LD_SHIFTV	Load - Shift register of sensors
14	CLK_SHIFTV	Clock - Shift register and A/D converter of sensors
15	D_SHIFTV	Data - Shift register of sensors
16	GNDP	
17	GNDP	
18	- 12 V	
19	+ 24 V	
20	+ 24 V	

## X16 (controller)

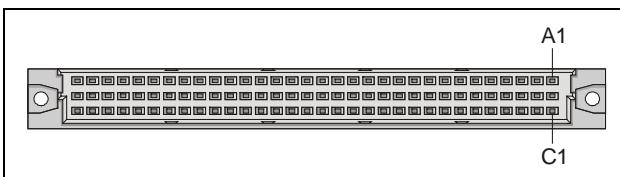


**Type of connector:**  
64-pin DIN, F

Pin	Assignment	Remarks
A1	GNDP	
A2	GNDP	
A3	GND	
A4	MOT_AD_3	Addresses for driving motors
A5	NC	
A6	VMOT_D10	Data bus to dispenser motors
A7	VMOT_D8	Data bus to dispenser motors
A8	VMOT_D6	Data bus to dispenser motors
A9	VMOT_D4	Data bus to dispenser motors
A10	VMOT_D2	Data bus to dispenser motors
A11	VMOT_D0	Data bus to dispenser motors
A12	D_AD1	Data A/D - Converter - Dispenser (foreign body sensor)
A13	D_Bed	Data control panel
A14	RESETN_V	
A15	STROBE_MOT	
A16	MOT_AD_1	Addresses for driving motors
A17	CLK_SHIFTV	Clock - Shift register and A/D converter of sensors
A18	D_DA_V	Data D/A
A19	SICH_SCHALT	Safety switch
A20	MICR_DTR	
A21	MICR_CTS	
A22	MICR_RXD	
A23	MICR_DSR	

<b>Pin</b>	<b>Assignment</b>	<b>Remarks</b>
A24	LESER_RESET	V 24 LINE XSA
A25	MICR_SYNC	
A26	LESER_CTS	
A27	LESER_RXD	
A28	LESER_RTS	
A29	NAN	
A30	Vcc	
A31	Vcc	
A32	GND	
C1	GNDP	
C2	GNDP	
C3	NC	
C4	MOT_AD_2	
C5	VMOT_D11	
C6	VMOT_D9	
C7	VMOT_D7	
C8	VMOT_D5	
C9	VMOT_D3	
C10	VMOT_D1	
C11	E_AD	Enable A/D - Converter - Dispenser (foreign body sensor)
C12	D_AD2	
C13	STROBE_IO	
C14	E_DA_V	Enable A/D - Converter - Dispenser (transmit current photosensors)
C15	D_SHIFTV	Data - Shift register of sensors
C16	LD_SHIFTV	Load - Shift register of sensors
C17	STROBE_BED	
C18	CLK_AD_DA	Data control panel
C19	MICR_RESET	V 24 MICR
C20	MICR_TXD	
C21	GND	
C22	MICR_RTS	
C23	GND	

<b>Pin</b>	<b>Assignment</b>	<b>Remarks</b>
C24	GND	
C25	LESER_TXD	
C26	GND	
C27	LESER_SYNC	
C28	LESER_TAKT	
C29	+ 12 V	
C30	- 12 V	
C31	GND	
C32	GND	

**X17 (amplifier I)**

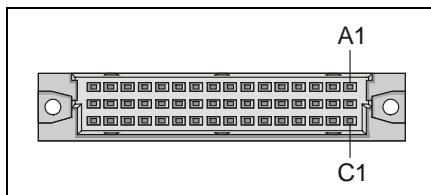
**Type of connector:**  
64-pin DIN, F

Pin	Assignment	Remarks
A1	ASM1B	Motor phase 'B'
A2	ASM1D	Motor phase 'D'
A3	OUT_RLS1	Output signal photosensor Reject transport unit
A4	SLS4	LS - switch 3
A5	NC	
A6	GND	
A7	OUT_SLS3	Output signal - Photosensor MICR
A8	OUT_ALS2	Output signal - Photosensor in alignment station
A9	MAGAMG1H	Magnet for switch 1
A10	ASM2C	Motor phase 'C'
A11	ASM2A	Motor phase 'A' Motor 2 alignment station
A12	ASM1C	Motor phase 'C'
A13	ASM1A	Motor phase 'A' Motor 1 of alignment station
A14	KSM1C	Motor phase 'C'
A15	KSM1A	Motor phase 'A' storage transport motor 3
A16	TEMP1	Pinhead
A17	NAD1	Pinhead
A18	NAD3	Pinhead
A19	NAD2	Pinhead
A20	NAD9	Pinhead
A21	NAD4	Pinhead
A22	I_RLS1	Transmit current photosensor reject transport
A23	I_DLS1	Transmit current reflective photosensor Print monitoring DSL1

<b>Pin</b>	<b>Assignment</b>	<b>Remarks</b>
A24	DSM1C	Motor phase 'C'
A25	DSM1A	Motor phase 'A' Motor for ribbon transport
A26	GND	
A27	GND	
A28	ELS4	Timer tape speed
A29	I_ELS1	Transmit current - Photosensor print start Cheque processing
A30	I_ELS5	
A31	ESM1B	Motor phase 'B'
A32	ESM1A	Motor phase 'A' ESCROW motor
C1	SLS2	Photosensor - switch 2
C2	OUT_SLS1	Output signal - Photosensor paper path monitoring Switch 2
C3	I_SLS1	Transmit current reflective photosensor Print monitoring DLS 1
C4	VSM4C	Motor phase 'C'
C5	VSM4A	Motor phase 'A' intermediate transport motor
C6	I_SLS3	Transmit current - Photosensor MICR
C7	OUT_ALS3	Output signal - Photosensor in alignment station
C8	I_ALS2	Transmit current - Photosensor (LS) in alignment station
C9	OUT_ALS1	Output signal - Photosensor in alignment station
C10	I_ALS1	Transmit current - Photosensor (LS) in alignment station Alignment station
C11	ASM2D	Motor phase 'D'
C12	ASM2B	Motor phase 'B'
C13	I_ALS3	Transmit current - Photosensor (LS) in alignment station
C14	MAGAMG1L	Magnet for switch 1
C15	KSM1B	Motor phase 'B'
C16	KSM1D	Motor phase 'D'
C17	NAD5	Pinhead

Pin	Assignment	Remarks
C18	NAD7	Pinhead
C19	NAD6	Pinhead
C20	NAD8	Pinhead
C21	DSM1D	Motor phase 'D'
C22	DSM1B	Motor phase 'B'
C23	OUT_DLS1	Collector reflective photosensor print monitoring DSL2
C24	I_DLS2	Transmit current reflective photosensor Print monitoring DSL2
C25	OUT_DLS2	Collector reflective photosensor print monitoring DSL2
C26	NC	
C27	ELS2	Tear sensor 1
C28	ELS3	Tear sensor 2
C29	OUT_ELS1	Output signal - Photosensor print start Cheque processing
C30	OUT_ELS5	
C31	ESM1D	Motor phase 'D'
C32	ESM1C	Motor phase 'C'

## X18 (amplifier II)



**Type of connector:**

48-pin DIN, F

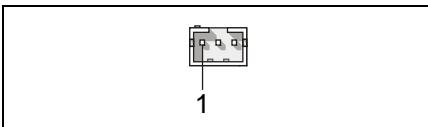
Pin	Assignment	Remarks
A1	+ 36 V	
A2	+ 24 V	
A3	GNDP	
A4	GNDP	
A5	I_ALS4	Transmit current - Photosensor (LS) in alignment station
A6	OUT_ALS4	Output signal - Photosensor in alignment station
A7	GND	
A8	GND	
A9	GND	
A10	GND	
A11	GND	
A12	RSM2C	Motor phase 'C'
A13	RSM2B	Motor phase 'B'
A14	RSM1B	Motor phase 'B'
A15	MAGSMG1H	Magnet SMG 1
A16	VSM4B	Motor phase 'B'
B1	+ 36 V	
B2	+ 24 V	
B3	GNDP	
B4	Vcc	
B5	- 12 V	
B6	SSM1D	Motor phase 'D'
B7	SSM1B	Motor phase 'B'
B8	SSM2A	Motor phase 'A' Switch motor 2

<b>Pin</b>	<b>Assignment</b>	<b>Remarks</b>
B9	SSM2C	Motor phase 'C'
B10	SSM3A	Motor phase 'A' Switch motor 3
B11	SSM3C	Motor phase 'C'
B12	RSM1C	Motor phase 'C'
B13	RLS3	Photosensor bundling reject tray
B14	OUT_RLS2	Output signal - Photosensor - Paper start sensor at the frame
B15	I_RLS2	Transmit current - Photosensor - Paper start sensor at the frame
B16	VSM4D	Motor phase 'D'
C1	+ 36 V	
C2	+ 24 V	
C3	GNDP	
C4	Vcc	
C5	+ 12 V	
C6	SSM1C	Motor phase 'C'
C7	SSM1A	Motor phase 'A' sensor transport motor
C8	SSM2B	Motor phase 'B'
C9	SSM2D	Motor phase 'D'
C10	SSM3B	Motor phase 'B'
C11	SSM3D	Motor phase 'D'
C12	RSM1A	Motor phase 'A' reject transport motor
C13	RSM2A	Motor phase 'A' Motor bundling reject tray
C14	RSM2D	Motor phase 'D'
C15	RSM1D	Motor phase 'D'
C16	MAGSMG1L	

## X19 (printing station - pinhead)

		Type of connector: 14-pin, tape
Pin	Assignment	Remarks
1	NAD7	
2	NAD1	
3	NAD5	
4	NAD3	
5	+ 24 V	
6	+ 24 V	
7	+ 24 V	
8	NAD2	
9	NAD9	
10	NAD4	
11	NAD8	
12	NAD6	

## X20 (safety switch)

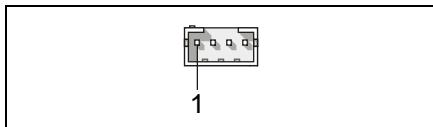


Type of connector:

JST PH 3-pin, M

Pin	Assignment	Remarks
1	GND	
2	SICH_SCHALT	Safety switch
3		

## X21 (sensor transport - switch motor 2)

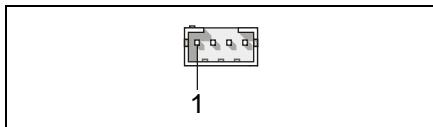


Type of connector:

JST PH 4-pin, M

Pin	Assignment	Remarks
1	SSM2A	Motor phase 'A' Switch motor 2
2	SSM2B	Motor phase 'B'
3	SSM2C	Motor phase 'C'
4	SSM2D	Motor phase 'D'

## X22 (sensor transport - switch motor 3)



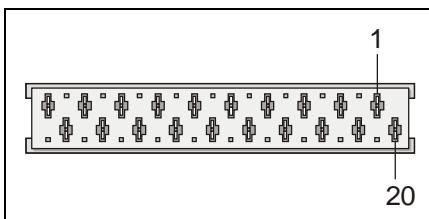
Type of connector:

JST PH 4-pin, M

Pin	Assignment	Remarks
1	SSM3A	Motor phase 'A' Switch motor 3
2	SSM3B	Motor phase 'B'
3	SSM3C	Motor phase 'C'
4	SSM3D	Motor phase 'D'

## Pin assignment amplifier

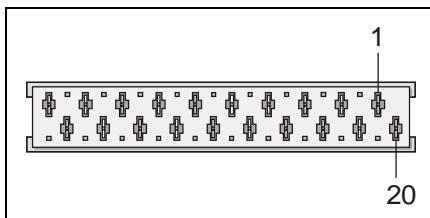
### X1 (amplifier - controller I)



Type of connector:  
Micromatch, 20-pin, F

Pin	Assignment	Remarks
1	MOT_D0	Data bus to amplifier motors
2	MOT_D1	
3	MOT_D2	
4	MOT_D3	
5	MOT_D4	
6	MOT_D5	
7	MOT_D6	
8	MOT_D7	
9	MOT_D8	
10	MOT_D9	
11	MOT_D10	
12	MOT_D11	
13	MOT_A0	Select signals for driving motors
14	MOT_A1	
15	MOT_A2	
16	MOT_A3	
17	RESETN	
18	STROBE_MOT	
19	STROBE_NA	
20	STROBE_IO	

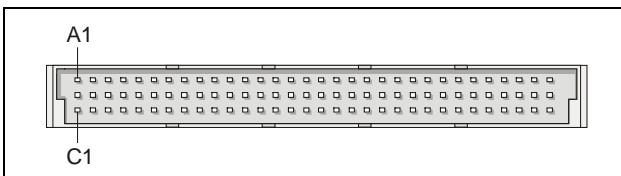
## X2 (amplifier - controller II)



**Type of connector:**

Micromatch, 20-pin, F

Pin	Assignment	Remarks
1	SNA	
2	NBZ	
3	E_DA_V1	Enable D/A - converter '1'- amplifier (transmit current photosensors)
4	E_DA_V2	Enable D/A - converter '2'- amplifier (transmit current photosensors)
5	CLK_DA	Clock D/A
6	D_DA	Data D/A
7	LD_SHIFTV	Load - Shift register of sensors
8	CLK_SHIFTV	Clock-Shift register of sensors
9	D_SHIFTV	Data - Shift register of sensors
10	PC_RXD	
11	PC_TXD	
12	PC_DTR	
13	PC_DSR	
14	PC_RTS	
15	PC_CTS	
16	+ 24 V	
17	+ 24 V	
18	GND	
19	DLS1_A	Print contrast signal 'Analog'
20	DLS2_A	Print contrast signal 'Analog'

**X4 (back panel I)**

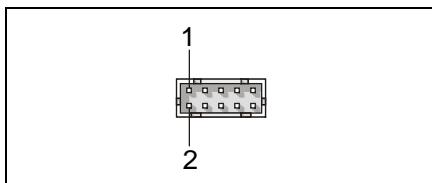
**Type of connector:**  
64-pin DIN, M

Pin	Assignment	Remarks
A1	ASM1B	Motor phase 'B'
A2	ASM1D	Motor phase 'D'
A3	OUT_RLS1	Output signal photosensor Reject transport unit
A4	SLS4	LS - switch 3
A5	NC	
A6	GND	
A7	OUT_SLS3	Output signal - Photosensor MICR
A8	OUT_ALS2	Output signal - Photosensor in alignment station
A9	MAGAMG1H	Magnet for switch 1
A10	ASM2C	Motor phase 'C'
A11	ASM2A	Motor phase 'A' Motor 2 alignment station
A12	ASM1C	Motor phase 'C'
A13	ASM1A	Motor phase 'A' Motor 1 of alignment station
A14	KSM1C	Motor phase 'C'
A15	KSM1A	Motor phase 'A' storage transport motor 3
A16	TEMP1	Pinhead
A17	NAD1	Pinhead
A18	NAD3	Pinhead
A19	NAD2	Pinhead
A20	NAD9	Pinhead
A21	NAD4	Pinhead
A22	I_RLS1	Transmit current photosensor reject transport
A23	I_DLS1	Transmit current reflective photosensor Print monitoring DSL1

<b>Pin</b>	<b>Assignment</b>	<b>Remarks</b>
A24	DSM1C	Motor phase 'C'
A25	DSM1A	Motor phase 'A' Motor for ribbon transport
A26	GND	
A27	GND	
A28	ELS4	Timer tape speed
A29	I_ELS1	Transmit current - Photosensor print start Cheque processing
A30	I_ELS5	
A31	ESM1B	Motor phase 'B'
A32	ESM1A	Motor phase 'A' ESCROW motor
C1	SLS2	Photosensor - switch 2
C2	OUT_SLS1	Output signal - Photosensor paper path monitoring Switch 2
C3	I_SLS1	Transmit current reflective photosensor Print monitoring DLS 1
C4	VSM4C	Motor phase 'C'
C5	VSM4A	Motor phase 'A' intermediate transport motor
C6	I_SLS3	Transmit current - Photosensor MICR
C7	OUT_ALS3	Output signal - Photosensor in alignment station
C8	I_ALS2	Transmit current - Photosensor (LS) in alignment station
C9	OUT_ALS1	Output signal - Photosensor in alignment station
C10	I_ALS1	Transmit current - Photosensor (LS) in alignment station Alignment station
C11	ASM2D	Motor phase 'D'
C12	ASM2B	Motor phase 'B'
C13	I_ALS3	Transmit current - Photosensor (LS) in alignment station
C14	MAGAMG1L	Magnet for switch 1
C15	KSM1B	Motor phase 'B'
C16	KSM1D	Motor phase 'D'
C17	NAD5	Pinhead

<b>Pin</b>	<b>Assignment</b>	<b>Remarks</b>
C18	NAD7	Pinhead
C19	NAD6	Pinhead
C20	NAD8	Pinhead
C21	DSM1D	Motor phase 'D'
C22	DSM1B	Motor phase 'B'
C23	OUT_DLS1	Collector reflective photosensor print monitoring DSL2
C24	I_DLS2	Transmit current reflective photosensor Print monitoring DSL2
C25	OUT_DLS2	Collector reflective photosensor print monitoring DSL2
C26	NC	
C27	ELS2	Tear sensor 1
C28	ELS3	Tear sensor 2
C29	OUT_ELS1	Output signal - photosensor print start cheque processing
C30	OUT_ELS5	
C31	ESM1D	Motor phase 'D'
C32	ESM1C	Motor phase 'C'

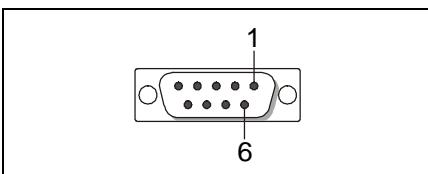
## X5 (shutter)



Type of connector:  
JST PHD 10-pin, M

Pin	Assignment	Remarks
1	SHUTTERH	Motor in shutter
2	SHUTTERL	Motor in shutter
3	GNDP	
4	+ 12 V	
5	GNDP	
6	LS_SHU_GL1	Hybrid photosensor in shutter
7	LS_SHU_GL2	Hybrid photosensor in shutter
8	LS_SHU_GL3	Hybrid photosensor in shutter
9	GND	
10	GND	

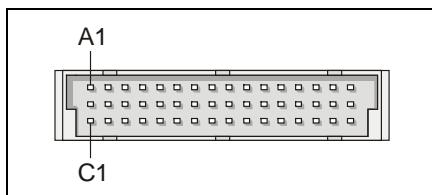
## X6 (V.24 PC)



Type of connector:

DSUB 9-pin

Pin	Assignment	Remarks
1	NC	
2	PC_RXD	
3	PC_TXD	
4	PC_DTR	
5	GND	
6	PC_DSR	
7	PC_RTS	
8	PC_CTS	
9	GND	

**X7 (back panel II)**

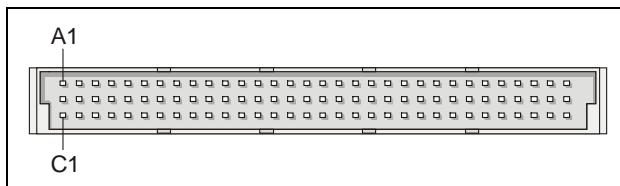
**Type of connector:**  
48-pin DIN, M

Pin	Assignment	Remarks
A1	+ 36 V	
A2	+ 24 V	
A3	GNDP	
A4	GNDP	
A5	I_ALS4	Transmit current - Photosensor (LS) in alignment station
A6	OUT_ALS4	Output signal - Photosensor in alignment station
A7	GND	
A8	GND	
A9	GND	
A10	GND	
A11	GND	
A12	RSM2C	Motor phase 'C'
A13	RSM2B	Motor phase 'B'
A14	RSM1B	Motor phase 'B'
A15	MAGSMG1H	Magnet SMG 1
A16	VSM4B	Motor phase 'B'
B1	+ 36 V	
B2	+ 24 V	
B3	GNDP	
B4	Vcc	
B5	- 12 V	
B6	SSM1D	Motor phase 'D'
B7	SSM1B	Motor phase 'B'
B8	SSM2A	Motor phase 'A' Switch motor 2

<b>Pin</b>	<b>Assignment</b>	<b>Remarks</b>
B9	SSM2C	Motor phase 'C'
B10	SSM3A	Motor phase 'A' Switch motor 3
B11	SSM3C	Motor phase 'C'
B12	RSM1C	Motor phase 'C'
B13	RLS3	Photosensor bundling reject tray
B14	OUT_RLS2	Output signal - photosensor - Paper start sensor at the frame
B15	I_RLS2	Transmit current - photosensor - Paper start sensor at the frame
B16	VSM4D	Motor phase 'D'
C1	+ 36 V	
C2	+ 24 V	
C3	GNDP	
C4	Vcc	
C5	+ 12 V	
C6	SSM1C	Motor phase 'C'
C7	SSM1A	Motor phase 'A' sensor transport motor
C8	SSM2B	Motor phase 'B'
C9	SSM2D	Motor phase 'D'
C10	SSM3B	Motor phase 'B'
C11	SSM3D	Motor phase 'D'
C12	RSM1A	Motor phase 'A' reject transport motor
C13	RSM2A	Motor phase 'A' Motor bundling reject tray
C14	RSM2D	Motor phase 'D'
C15	RSM1D	Motor phase 'D'
C16	MAGSMG1L	

# Assignment controller

## X4 (back panel I - dispenser logic)



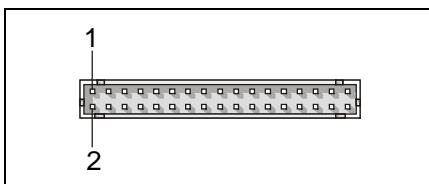
**Type of connector:**  
64-pin DIN, M

Pin	Assignment	Remarks
A1	GNDP	
A2	GNDP	
A3	GND	
A4	MOT_AD_3	Addresses for driving motors
A5	NC	
A6	VMOT_D10	Data bus to dispenser motors
A7	VMOT_D8	Data bus to dispenser motors
A8	VMOT_D6	Data bus to dispenser motors
A9	VMOT_D4	Data bus to dispenser motors
A10	VMOT_D2	Data bus to dispenser motors
A11	VMOT_D0	Data bus to dispenser motors
A12	D_AD1	Data A/D - Converter - Dispenser module (foreign body sensor)
A13	D_Bed	Data control panel
A14	RESETN_V	
A15	STROBE_MOT	
A16	MOT_AD_1	Addresses for driving motors
A17	CLK_SHIFTV	Clock - Shift register and A/D converter of sensors
A18	D_DA_V	Data D/A
A19	SICH_SCHALT	Safety switch
A20	MICR_DTR	

<b>Pin</b>	<b>Assignment</b>	<b>Remarks</b>
A21	MICR_CTS	
A22	MICR_RXD	
A23	MICR_DSR	
A24	LESER_RESET	V 24 LINE XSA
A25	MICR_SYNC	
A26	LESER_CTS	
A27	LESER_RXD	
A28	LESER_RTS	
A29	NAN	
A30	Vcc	
A31	Vcc	
A32	GND	
C1	GNDP	
C2	GNDP	
C3	NC	
C4	MOT_AD_2	
C5	VMOT_D11	
C6	VMOT_D9	
C7	VMOT_D7	
C8	VMOT_D5	
C9	VMOT_D3	
C10	VMOT_D1	
C11	E_AD	Enable A/D - converter - dispenser module (foreign body sensor)
C12	D_AD2	
C13	STROBE_IO	
C14	E_DA_V	Enable A/D - converter - dispenser module (transmit current photosensors)
C15	D_SHIFTV	Data - Shift register of sensors
C16	LD_SHIFTV	Load - Shift register of sensors
C17	STROBE_BED	
C18	CLK_AD_DA	Data control panel
C19	MICR_RESET	V 24 MICR
C20	MICR_TXD	

<b>Pin</b>	<b>Assignment</b>	<b>Remarks</b>
C21	GND	
C22	MICR_RTS	
C23	GND	
C24	GND	
C25	LESER_RXD	
C26	GND	
C27	LESER_SYNC	
C28	LESER_TAKT	
C29	+ 12 V	
C30	- 12 V	
C31	GND	
C32	GND	

## X2 (cassette module – storage board)

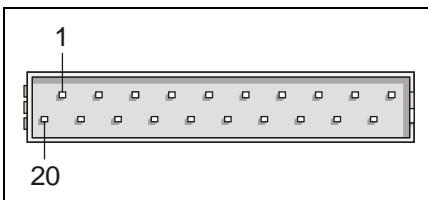


**Type of connector:**  
JST PHD 34-pin, M

Pin	Assignment	Remarks
1	CKMOT_D0	Motor data bus to cassette
2	CKMOT_D1	
3	CKMOT_D2	
4	CKMOT_D3	
5	CKMOT_D4	
6	CKMOT_D5	
7	CKMOT_D6	
8	CKMOT_D7	
9	CKMOT_D8	
10	CKMOT_D9	
11	CKMOT_D10	
12	CKMOT_D11	
13	CKMOT_ADR0	Motor address bus to cassette
14	CKMOT_ADR1	
15	CKMOT_ADR2	
16	GND	
17	CSTROBE_KMOT	
18	GND	
19	CWR_IO_K	
20	GND	
21	CE_DA_K	Enable A/D - converter - cassettes (transmit current photosensors)
22	CCLK_DA_K	Clock D/A
23	CD_DA_K	Data D/A
24	CCLK_SHIFZ_K	Clock-Shift register of sensors

<b>Pin</b>	<b>Assignment</b>	<b>Remarks</b>
25	CLD_SHIFT_K	Load - Shift register of sensors
26	CD_SHIFT_K	Data - Shift register of sensors
27	K_RESET	
28	SICH_SCHALT_A	
29	GNDP	
30	GNDP	
31	- 12 V	
32	+ 12 V	
33	+ 24 V	
34	+ 24 V	

## X3 (amplifier)

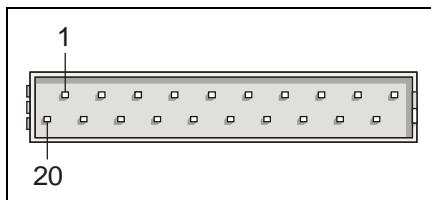


Type of connector:

Micromatch, 20-pin, M

Pin	Assignment	Remarks
1	MOT_D0	Data bus to amplifier motors
2	MOT_D1	
3	MOT_D2	
4	MOT_D3	
5	MOT_D4	
6	MOT_D5	
7	MOT_D6	
8	MOT_D7	
9	MOT_D8	
10	MOT_D9	
11	MOT_D10	
12	MOT_D11	
13	MOT_A0	Select signals for driving motors
14	MOT_A1	
15	MOT_A2	
16	MOT_A3	
17	RESETN	
18	STROBE_MOT	
19	STROBE_NA	
20	STROBE_IO	

## X4 (amplifier)

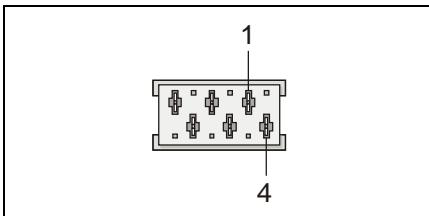


**Type of connector:**

Micromatch, 20-pin, M

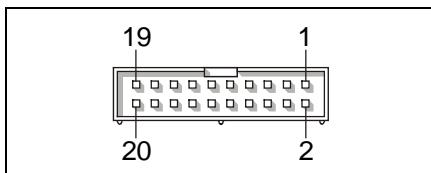
Pin	Assignment	Remarks
1	SNA	
2	NBZ	
3	E_DA_V1	Enable D/A - converter '1'- amplifier (transmit current photosensors)
4	E_DA_V2	Enable D/A - converter '2'- amplifier (transmit current photosensors)
5	CLK_DA	Clock D/A
6	D_DA	Data D/A
7	LD_SHIFTV	Load - Shift register of sensors
8	CLK_SHIFTV	Clock-Shift register of sensors
9	D_SHIFTV	Data - Shift register of sensors
10	PC_RXD	
11	PC_TXD	
12	PC_DTR	
13	PC_DSR	
14	PC_RTS	
15	PC_CTS	
16	+ 24 V	
17	+ 24 V	
18	GND	
19	DLS1_A	Print contrast signal 'Analog'
20	DLS2_A	Print contrast signal 'Analog'

## X5 (system - control panel)

**Type of connector:**

Micromatch, 6-pin, F

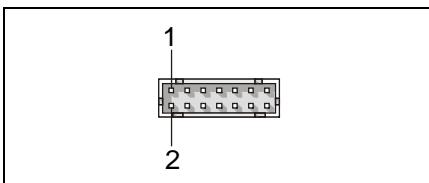
Pin	Assignment	Remarks
1	Vcc	
2	GND	
3	BED_DATA	Data control panel
4	BED_CLK	
5	BED_TAS_IN	
6	NC	

**X7****Type of connector:**

Print male connector 20-pin, M

Pin	Assignment	Remarks
1	Vcc	
2	Vcc	
3	NTRST	
4	GND	
5	TDI	
6	GND	
7	TMS	
8	GND	
9	TCK	
10	GND	
11	TCK	
12	GND	
13	TD0	Select signals for driving motors
14	GND	
15		
16	GND	
17	NC	
18	GND	
19	JTAG_SEL	
20	GND	

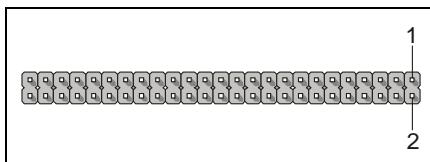
## X8 (reserve)



Type of connector:

JST PHD 14-pin, M

Pin	Assignment	Remarks
1	IN_RES0	
2	IN_RES1	
3	IN_RES2	
4	DA_RES0	
5	DA_RES1	
6	GND	
7	Vcc	
8	AD_RES0	
9	AD_RES3	
10	OUT_RES0	
11	OUT_RES1	
12	OUT_RES2	
13	OUT_RES3	
14	OUT_RES4	

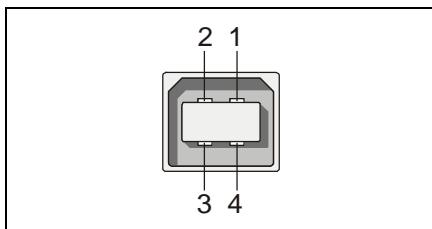
**X9**

**Type of connector:**  
Jumper strip 50-pin, M

Pin	Assignment	Remarks
1	E_LS4	
2	E_LS1	
3	R_LS1	
4	E_LS3	
5	R_LS2	
6	R_LS3	
7	E_LS2	
8	SNA	
9	SICH_SCHALT	
10	INT_MOT	
11	INT_TIMER	
12	INT_POS	
13	INT_LS	
14	FIQ	
15	SH_GL1	
16	SH_GL2	
17	SH_GL3	
18	S_LS1	
19	S_LS2	
20	S_LS3	
21	S_LS4	
22	A_LS1	
23	A_LS2	
24	A_LS3	
25	GND	
26	V_LS1	

<b>Pin</b>	<b>Assignment</b>	<b>Remarks</b>
27	V_LS2	
28	V_LS3	
29	IRQ4	
30	INT_USB	
31	V_LS4	
32	AD0TRIG	
33	RESETIN	
34	V_LS5	
35	V_LS6	
36	V_LS7	
37	V_LS8	
38	V_LS9	
39	V_LS10	
40	UDS1	
41	UDS2	
42	BED_TAS	
43	BED_DATA	
44	BED_CLK	
45	NLB	
46	NOE	
47	NWE	
48	NUB	
49	NWDOVF	
50	MCKO	

## X10 (USB)

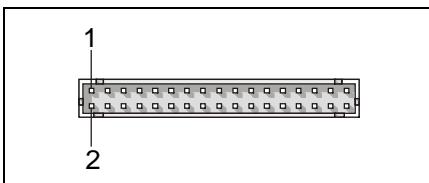


Type of connector:  
USB type B 4-pin M

Pin	Assignment	Remarks
1	USB 5 V	
2	D_P	
3	D_P	
4	GND	

# Pin assignments storage board

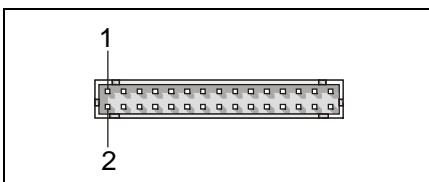
## X1 (storage cassette)



Type of connector:  
JST PHD 34-pin, M

Pin	Assignment	Remarks
1	CKMOT_D0	Motor data bus to cassette
2	CKMOT_D1	
3	CKMOT_D2	
4	CKMOT_D3	
5	CKMOT_D4	
6	CKMOT_D5	
7	CKMOT_D6	
8	CKMOT_D7	
9	CKMOT_D8	
10	CKMOT_D9	
11	CKMOT_D10	
12	CKMOT_D11	
13	KMOT_ADR0	Motor address bus to cassette
14	KMOT_ADR1	
15	KMOT_ADR2	
16	GND	
17	STROBE_MOT	
18	GND	
19	WR_IO_K	
20	GNDP	
21	E_DA_K	Enable A/D-converter 1-storage
22	CLK_DA_K	Clock D/A

<b>Pin</b>	<b>Assignment</b>	<b>Remarks</b>
23	D_DA_K	Data D/A
24	CLK_SHIFT_K	Clock-Shift register of sensors
25	LD_SHIFT_K	Load - Shift register of sensors
26	D_SHIFT_K	Data - Shift register of sensors
27	RESETN	
28		
29	GNDP	
30	GNDP	
31	- 12 V	
32	+ 12 V	
33	+ 24 V	
34	+ 24 V	

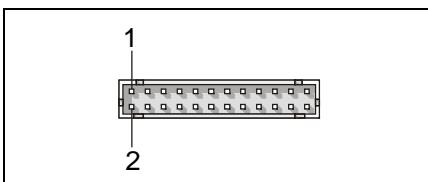
**X2 (sensors left)****Type of connector:**

JST PHD 30-pin, M

<b>Pin</b>	<b>Assignment</b>	<b>Remarks</b>
1	I_KLS3	Transmit current photosensor bundle recognition
2	OUT_KLS3	Output signal photosensor bundle recognition
3	GND	Transmit current photosensor last banknote
4	I_KLS1	Output signal photosensor last banknote
5	OUT_KLS11	
6	GND	
7	Vcc	
8	KHS4	
9	GND	
10	Vcc	
11	KHS5	
12	GND	
13	Vcc	
14	KLS6	
15	GND	
16	I_KLSRES	
17	OUT_KLSRES	
18	GND	
19	Vcc	
20	KHS6	
21	GND	
22	Vcc	
23	KHS8	
24	GND	

<b>Pin</b>	<b>Assignment</b>	<b>Remarks</b>
25	Vcc	
26	KHS9	
27	GND	
28	Vcc	
29	KLS12	
30	GND	

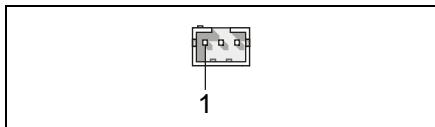
## X3 (sensors right)



**Type of connector:**  
JST PHD 24-pin, M

Pin	Assignment	Remarks
1	I_KLS2	Transmit current photosensor bundle recognition
2	OUT_KLS2	Output signal photosensor bundle recognition
3	GND	Transmit current photosensor last banknote
4	I_KLS8	Output signal photosensor last banknote
5	OUT_KLS8	
6	GND	
7	Vcc	
8	KHS1	
9	GND	
10	Vcc	
11	KHS2	
12	GND	
13	Vcc	
14	KHS3	
15	GND	
16	Vcc	
17	KHS7	
18	GND	
19	Vcc	
20	KLS5	
21	GND	
22	Vcc	
23	KLS9	
24	GND	

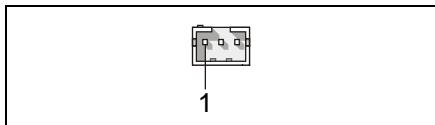
## X4 (DC - Motor cassette 2)



Type of connector:  
JST PH 3-pin, M

Pin	Assignment	Remarks
1	KDC2H	
2	KDC2L	
3	NC	

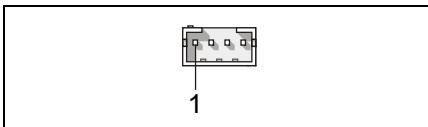
## X5 (DC - Motor cassette 1)



Type of connector:  
JST PH 3-pin, M

Pin	Assignment	Remarks
1	KDC1H	
2	KDC1L	
3	NC	

## X6 (motor distributor transport)

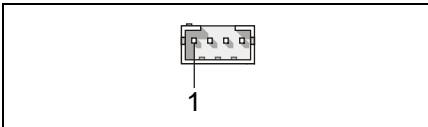


Type of connector:

JST PH 4-pin, M

Pin	Assignment	Remarks
1	KSM2A	Motor phase 'A' Motor distributor transport
2	KSM2B	Motor phase 'B'
3	KSM2C	Motor phase 'C'
4	KSM2D	Motor phase 'D'

## X7 (motor stacking wheel cash)

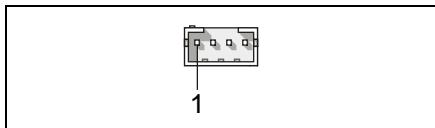


Type of connector:

JST PH 4-pin, M

Pin	Assignment	Remarks
1	KSM3A	Motor phase 'A' Motor stacking wheel cash
2	KSM3B	Motor phase 'B'
3	KSM3C	Motor phase 'C'
4	KSM3D	Motor phase 'D'

## X8 (motor stacking wheel cheque)

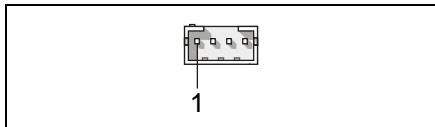


Type of connector:

JST PH 4-pin, M

Pin	Assignment	Remarks
1	KSM4A	Motor phase 'A' Motor stacking wheel cheque
2	KSM4B	Motor phase 'B'
3	KSM4C	Motor phase 'C'
4	KSM4D	Motor phase 'D'

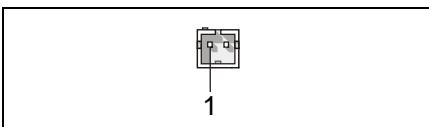
## X9 (motor switch control)



Type of connector:

JST PH 4-pin, M

Pin	Assignment	Remarks
1	KSM5A	Motor phase 'A' Motor switch position
2	KSM5B	Motor phase 'B'
3	KSM5C	Motor phase 'C'
4	KSM5D	Motor phase 'D'

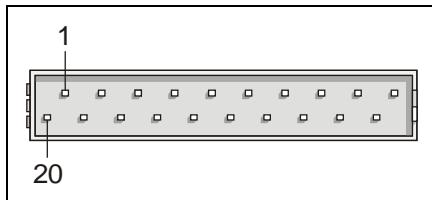
**X10 (safety switch)**

**Type of connector:**  
JST PH 2M

Pin	Assignment	Remarks
1	GND	
2	SICH_SCHALT	Safety switch

# Pin assignment dispenser board

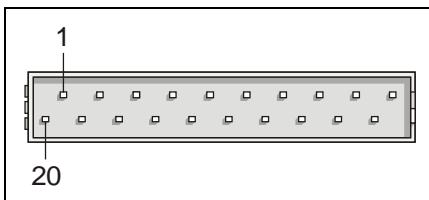
## X1 (back panel - dispenser print I)

**Type of connector:**

Micromatch, 20-pin, M

Pin	Assignment	Remarks
1	VMOT_D0	Data bus to dispenser motors
2	VMOT_D1	
3	VMOT_D2	
4	VMOT_D3	
5	VMOT_D4	
6	VMOT_D5	
7	VMOT_D6	
8	VMOT_D7	
9	VMOT_D8	
10	VMOT_D9	
11	VMOT_D10	
12	VMOT_D11	
13	MOT_AD_1	Addresses for driving motors
14	MOT_AD_2	
15	MOT_AD_3	
16	GND	
17	GNDP	
18	+ 12 V	
19	+ 36 V	
20	+ 36 V	

## X2 (back panel - dispenser print II)

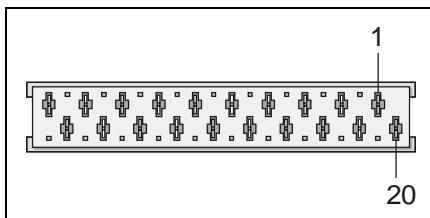


**Type of connector:**

Micromatch, 20-pin, M

Pin	Assignment	Remarks
1	E_AD	Enable A/D converter-dispenser (foreign body sensor)
2	D_AD1	Data A/D-converter-dispenser (foreign body sensor)
3	D_AD2	Data control panel
4	CLK_AD_DA	Data control panel
5	D_Bed	
6	STROBE_BED	
7	RESETN_V	
8	STROBE_IO	
9	GND	
10	STROBE_MOT	
11	E_DA_V	Enable A/D converter-dispenser (transmit current photosensors)
12	D_DA_V	Data D/A
13	LD_SHIFTV	Load - Shift register of sensors
14	CLK_SHIFTV	Clock - Shift register and A/D converter of sensors
15	D_SHIFTV	Data - Shift register of sensors
16	GNDP	
17	GNDP	
18	- 12 V	
19	+ 24 V	
20	+ 24 V	

## X3 (sensors and motors to dispenser print)

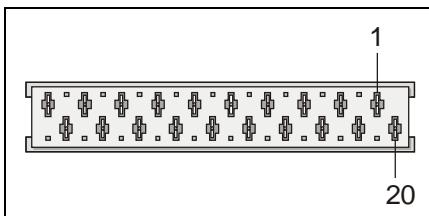


**Type of connector:**

Micromatch, 20-pin, F

Pin	Assignment	Remarks
1	VSM7A	Motor phase 'A' Motor width adjustment
2	VSM7B	Motor phase 'B'
3	VSM7C	Motor phase 'C'
4	VSM7D	Motor phase 'D'
5	VSM5A	Motor phase 'A' Motor hinged transport 1
6	VSM5B	Motor phase 'B'
7	VSM5C	Motor phase 'C'
8	VSM5D	Motor phase 'D'
9	VSM6A	Motor phase 'A' Motor hinged transport 2
10	VSM6B	Motor phase 'B'
11	VSM6C	Motor phase 'C'
12	VSM6D	Motor phase 'D'
13	GND	
14	GND	
15	VLS3	Home position sensor roller transport
16	VLS4	Home position sensor belt transport
17	VLS5	Timing wheel
18	VLS8	Width adjustment - bundle input
19	I_VLS1	Transmit current photosensor bundle recognition
20	OUT_VLS1	Output signal photosensor bundle recognition

## X4 (metal detection to dispenser print)

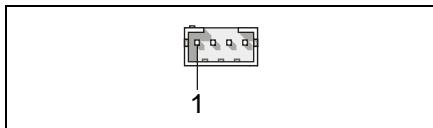


Type of connector:

Micromatch, 20-pin, F

Pin	Assignment	Remarks
1	MERK_READY	
2	MERK_METALL	
3	MERK_N_METALL	
4	MERK_WARN0	
5	MERK_WARN1	
6	MERK_WARN2	
7	MERK_MEAS	
8	MERK_KOM	
9	MERK_INIT	
10	MERK_QUIT	
11	MERK_CLOSE	
12	GND	
13	MERK_RESETN	
14	MERK_PSEN	
15	MERK_TXD	
16	MERK_RXD	
17	Vcc	
18	- 5 V	
19	GND	
20	+ 3.3 V	

## X5 (motor input / output transport)

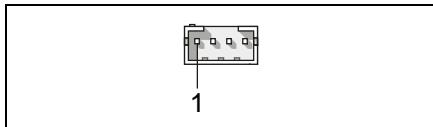


Type of connector:

JST PH 4-pin, M

Pin	Assignment	Remarks
1	VSM1A	Motor phase 'A' Motor input / output transport
2	VSM1B	Motor phase 'B'
3	VSM1C	Motor phase 'C'
4	VSM1D	Motor phase 'D'

## X6 (motor transport rollers drive)

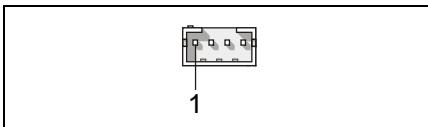


Type of connector:

JST PH 4-pin, M

Pin	Assignment	Remarks
1	VSM2A	Motor phase 'A' Motor transport rollers
2	VSM2B	Motor phase 'B'
3	VSM2C	Motor phase 'C'
4	VSM2D	Motor phase 'D'

## X7 (motor counterrotation shaft)

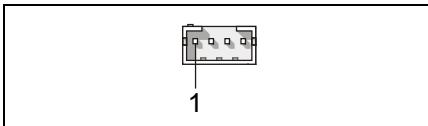


Type of connector:

JST PH 4-pin, M

Pin	Assignment	Remarks
1	VSM3A	Motor phase 'A' Motor counterrotation shaft
2	VSM3B	Motor phase 'B'
3	VSM3C	Motor phase 'C'
4	VSM3D	Motor phase 'D'

## X8 (motor cam disk)

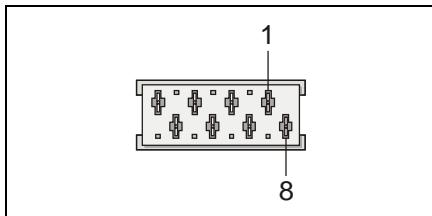


Type of connector:

JST PH 4-pin, M

Pin	Assignment	Remarks
1	VSM8A	Motor phase 'A' Motor cam disk
2	VSM8B	Motor phase 'B'
3	VSM8C	Motor phase 'C'
4	VSM8D	Motor phase 'D'

## X9 (foreign body sensor)

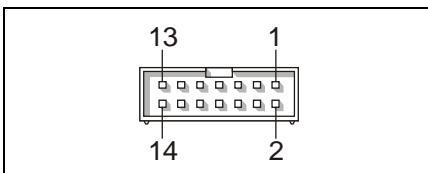


Type of connector:

Micromatch, 8-pin, F

Pin	Assignment	Remarks
1	5VREF	
2	GND	
3	HALL_VHS1	Foreign body sensor 1 (Hall sensor signal left)
4	5VREF	
5	GND	
6	HALL_VHS2	Foreign body sensor 2 (Hall sensor signal right)
7	NC	
8	NC	

## X10 (photosensor - dispenser, magnet)

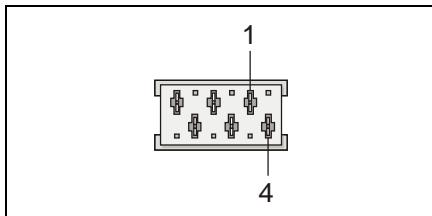


**Type of connector:**

Print male connector 14-pin, M

Pin	Assignment	Remarks
1	GND	
2	I_VLS7	Transmit current photosensor for monitoring the intermediate transport (pos. 15)
3	GND	
4	OUT_VLS7	Output signal photosensor for monitoring the intermediate transport (pos. 15)
5	GND	
6	I_VLS6	Transmit current photosensor empty dispensing sensor (pos. 12)
7	GND	
8	OUT_VLS6	Output signal photosensor empty dispensing sensor (pos. 12)
9	Vcc	
10	VLS9	Home position sensor cam disk motor (pos. 36)
11	GND	
12		
13	MAGRUECKH	Magnet retaining shaft (pos. 9)
14	MAGRUECKL	Magnet retaining shaft (pos. 9)

## X11 (control panel)

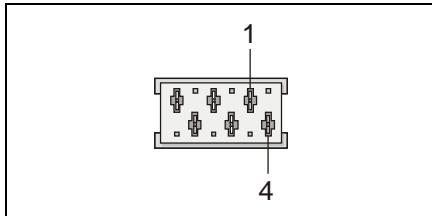


**Type of connector:**

Micromatch, 6-pin, F

Pin	Assignment	Remarks
1	Vcc	
2	GND	
3	D_Bed	Data control panel
4	STROBE_BED	
5	TAST	
6	NC	

## X12 (ultrasound sensor)

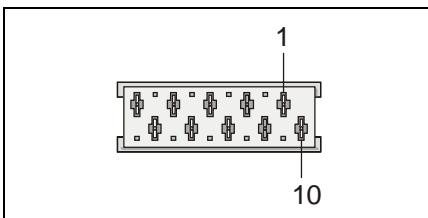


**Type of connector:**

Micromatch, 6-pin, F

Pin	Assignment	Remarks
1	P12V	
2	GND	
3	UDS_S1	
4	UDS_S2	
5	UDS_SYNC	
6	UDS_RESETN	

## X15 (distributor print)



Type of connector:

Micromatch, 10-pin, F

Pin	Assignment	Remarks
1	I_VLS10	
2	OUT_VLS10	
3	I_VLS2	Transmit current photosensor last banknote
4	OUT_VLS2	Output signal photosensor last banknote
5	I_VLS11	
6	OUT_VLS11	
7	I_VLS12	
8	GND	
9	OUT_VLS12	
10	GND	



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## **Notes**

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