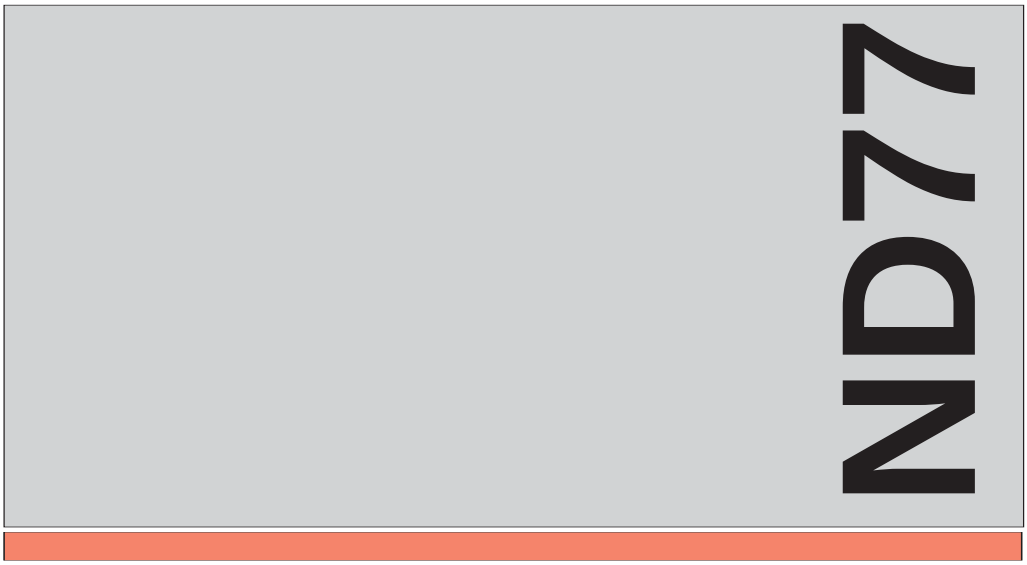
WINCOR NIXDORF



ND77

Modular POS Printer

User Guide

We would like to know
your opinion on this publication.

Please send us a copy of this page
if you have any constructive criticism on:
- the contents
- the layout
- the product.

We would like to thank you in advance
for your comments.
With kind regards,

Wincor Nixdorf International GmbH
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Fax: +49 30 3864 3075

Your opinion: (ND77)

ND77

Modular POS Printer

User Guide

Edition July 2002

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Manufacturer’s Certification

General Licence



The device complies with the requirements of the EEC directives 89/336/EEC with regard to “Electromagnetic compatibility” and 73/23/EEC “Low Voltage Directive”(in case the device has its own power connection). Therefore, you will find the CE mark on the device or packaging.

FCC-Class A Declaration

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Le présent appareil numérique ne génère pas de bruits radioélectriques dépassant les limites applicable aux appareils numériques de la “Class A” prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Tested Safety



The ND77 has been provided with the symbol for UL and cUL.

Important Notes

The accessory printer ND77 is for use with UL listed POS systems and/or UL listed computers. The printer complies with the relevant safety regulations for information technology equipment. Should you have any doubts about the permissibility of installation in a certain environment (e.g. *electricity systems, no use of PEN conductors!*), please contact the Wincor Nixdorf Customer Service.

- If the printer is brought into the room of operation from a cold environment, dewfall (condensation) can occur. Before turning on the printer, it must be completely dry; it is therefore necessary to observe an acclimatization period of at least two hours.
- When setting up the printer, ensure that there is easy access to the power socket on the printer and/or to the grounded-contact mains socket.
- Position the leads and cables so that no one steps on or trips over them.
- To disconnect the printer from the supply voltage, switch off the printer and disconnect the power supply plug.
- Make sure that no objects (for example, paper clips) or liquids get inside the printer. Electric shocks or short circuits can be caused in this way.

- Never plug or unplug data communication lines during thunderstorms.
- Protect the ND77 from vibrations, dust, moisture and heat.
- The printer should only be transported in its original packing and **protective material**. This protects the printer against damage from knocks and bumps.
- Turn off and unplug the printer immediately if an emergency occurs (for example, if the printer housing is damaged or any foreign substance gets into the printer). Call your Wincor Nixdorf Customer Service.
- Always dispose of used parts, such as printer ribbons, in an environmentally safe manner (see chapter "Recycling").



The printer may be repaired by authorized qualified personnel only. Repairs made by an unauthorized service provider could not only jeopardize the safety of the user, but also lead to cancellation of all warranty and liability agreements.

Introduction

The modular ND77 Pin Printer is a high-performance and economical POS system printer of receipts, journals and documents, which is easy to install (plug-in-system), easy to use, and which requires a minimum of space. The ND77 has no trouble even with documents; it can print documents of up to A5 in size - quickly and easily. Larger documents can be inserted.

The printer is equipped with connections for a customer display and a cash drawer, which means that the number of interfaces on the system unit of your POS can be reduced. Because the industrial standards have been employed - system interface V.24 - the investment you have made for your POS system is protected.
With its performance, the ND77 is an essential supplement to your entire point of sale system!

About this manual

This manual provides you with all the information you require to ensure that your ND77 Printer operates without a single hitch. It tells you everything you need to do before switching on the printer, how to connect additional devices, and which adjustments might be necessary from time to time to ensure that your ND77 operates reliably. We therefore ask you to read the appropriate sections of this manual before using your printer.

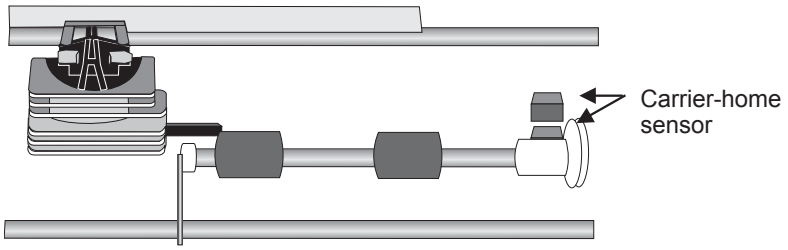
If you have an *ND77 without journal station or without bon station* please skip the according hints.

Care of the ND77

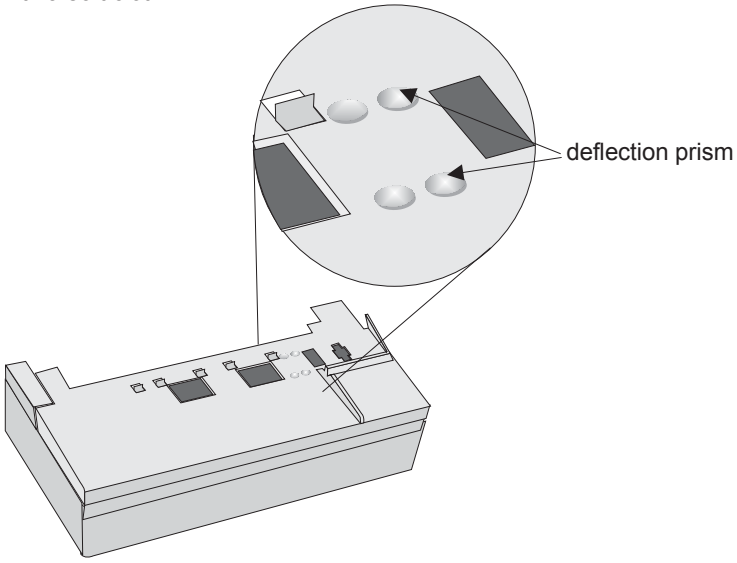
Clean your printer at regular intervals with a commercially available cleaner for sensitive surfaces. Never use acidic solvents.

Before cleaning make sure that the power is switched off, the power supply plug is disconnected and that no moisture gets into the printer.

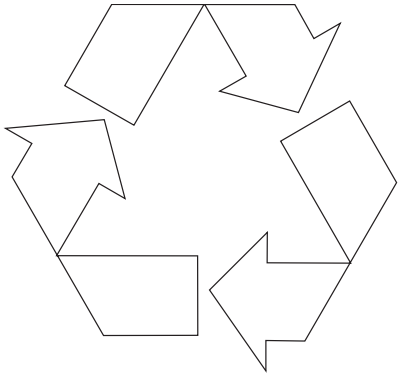
To clean the inner housing use a soft brush or a small vacuum cleaner. Please make sure that there is no remaining paper in the carrier area. Carefully clean the cutter area to remove paper dust. Make sure the ribbon is free of paper dust. Always keep the area of carrier-home sensors clean (see picture below).



Clean the deflection prism located on the document plate (see figure below) with a soft cloth.



Recycling the ND77 POS Printer



Environmental protection does not begin when it is time to dispose of the technical device; it begins during the manufacturing process.

Your ND77 Printer has been manufactured without the use of CFCs and CCHS, and produced mainly from reusable components and materials. The processed plastics can, for the most part, be recycled. Even the precious metals can be recovered, thus saving energy and valuable raw materials.

At present, there are still some parts that are not reusable. Wincor Nixdorf (WN) guarantees the environmentally safe disposal of these parts in a Recycling Center, which is certified according to ISO 9001.

So please do not just throw your ND77 on the scrap heap when it has served its time. Make use of our environmentally sound and up-to-date recycling methods!

The operation of your printer also generates waste material that should be disposed of in an ecologically sound manner. Wincor Nixdorf provides a recycling box that you can place on your company premises. The low price you pay for the box also includes collection and complete recycling of the ribbons. For more information, please contact the branch office responsible for your area.

Should you have any questions regarding Wincor Nixdorf and environmental protection please contact WN under the following fax number:
+49 (0) 5251 8-26709

Warranty

Wincor Nixdorf guarantees a limited warranty engagement for 12 months beginning with the date of delivery. This warranty engagement covers all those damages which occur despite a normal use of the product.

Damages because of

- improper or insufficient maintenance,
- improper use of the product or unauthorized modifications of the product,
- inadequate location or surroundings

will not be covered by the warranty.



All parts of the product which are subject to wear and tear such as the printhead or the ribbon cassettes are not included in the warranty engagement.

Please order spare parts at the Wincor Nixdorf customer service.

In case your ND77 works faulty and you are going to send it to the Wincor Nixdorf Customer Service, make sure to *remove the printhead* before. Our Service then will replace your printer with a faultless ND77 in which you only have to insert your printhead again. How to easily do this is described on the pages 35 and 36 in this manual.
Thus you ensure a quick and low-cost repair of the printer.

警告使用者

這是甲類的資訊產品, 在居住的環境使用時, 可能會造成射頻干擾, 在這種情況下, 使用者會被要求採取某些適當的對策.

Installation

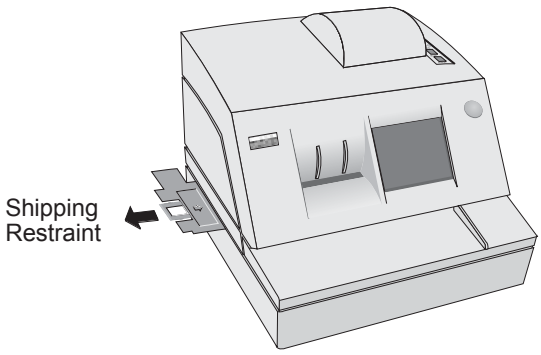
Before Switching On

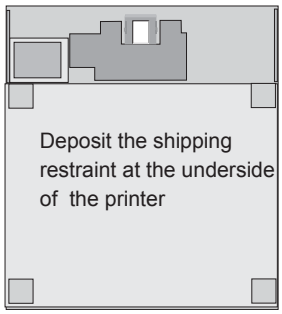
Unpacking and Checking the Printer

Unpack the printer and see if the contents of the box matches the particulars on the packing list.
If any damage has occurred in transit, or if there is any discrepancy between the package contents and the packing list, please inform your Wincor Nixdorf outlet immediately.
Keep the original packing and protective material in case you need to transport the printer in the future to protect against knocks and bumps.

Setting up the device

Set up the ND77 where it will not be exposed to extreme environmental conditions such as vibrations, dust, moisture, heat and strong magnetic fields. Put the printer on level area.
Pull out the shipping restraint and click it into the slots at the underside of your printer.





Cabling of the ND77

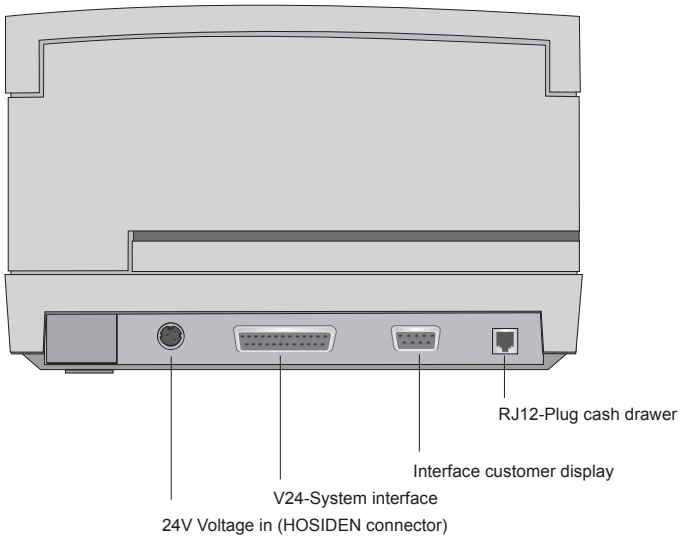
The printer should be installed in the following order:

- Plug in and secure the data communication cable.
- Plug in the power supply cable into the HOSIDEN power cord receptacle on the printer
- Plug in the other end of the cable into the power cord receptacle of the BEETLE system
  or
  plug in the power cable of an external power supply unit into the grounded-contact mains supply socket.

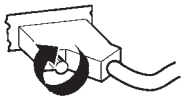
DIP switches

You can change the settings of your printer by using the DIP switches. For detailed information see the section on “DIP switches”.

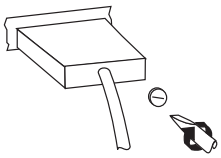
Interfaces



Securing the data communication cable



The interface connectors are secured manually turning the screws.



The interface connectors with screws made of metal can be secured with a screw driver. Screws made of plastic must be secured manually only.

Connecting to the mains power supply

You will find a 3pin HOSIDEN socket for the power supply at the back of the ND77 housing .



Connect the ND77 with the POS system via the power supply cable.

When using an external power supply unit connect the cable for power supply with the ND77 and plug in the power cable of the unit into a grounded-contact mains supply socket.

Disconnecting cables

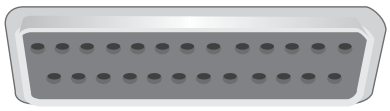
Never unplug a cable by pulling at the cable itself; always take hold of the actual plug body. Follow the procedure described below when disconnecting cables:

- Switch off all power and device switches.
- Unplug all data communication cables from the data networks.
- Unplug all power plugs from the grounded-contact mains power sockets.
- Unplug all cables from the devices.

Connection to the POS system

The accessory printer ND77 is for use with UL listed POS systems and/or UL listed computers!

The ND77 can be connected to the V.24 interface (serial interface) of the POS system.



Connecting peripherals

Cash drawer

The ND77 has a RJ12 jack for connecting a cash drawer. To prevent malfunctions, make sure that the connector is plugged firmly into the socket. Power is supplied to the cash drawer via this socket.

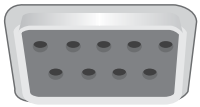
When connecting cash drawers, the construction level 1 (Release 4) for the KA16 or KA17 is absolutely necessary! The construction level is noted on a label on the bottom of the cash drawer.



Customer display

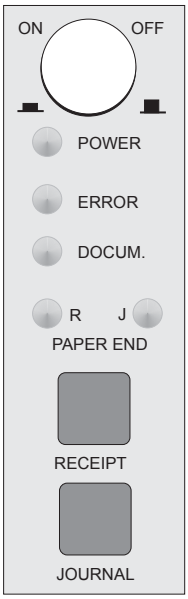
The customer display is connected to the serial interface. The interface connection on the ND77 is a 9pin D-sub connector.

To prevent possible malfunctions, make sure that the connector for the customer display is plugged firmly into the socket. The power is supplied via this jack.



The operator control panel

The components which make up the operator control panel include the power switch, LEDs and paper feed buttons. The operator control panel is located at the top of the printer. Access to the power switch is covered by the top cover of the printer.



Power ON/OFF

This button switches the power on or off. The button can be accessed only when the top cover of the printer is open. This prevents the printer being turned off by accident.

Receipt feed button

Press the receipt feed button once to advance receipt paper one line. The line spacing corresponds to the default value of 1.6". You can also hold down the button to feed receipt paper continuously.

With the cover open, this button is always enabled even if it is locked by the command ESC c5.

Journal feed button

Press the journal feed button once to advance journal paper one line. The line spacing corresponds to the default value of 1,6". You can also hold down the button to feed journal paper continuously.

With the cover open, this button is always enabled even if it is locked by the command ESC c5.

LEDs

Green LED “POWER”	The power light is on when the printer power is on.
Red LED “ERROR”	This LED is on when the printer cover is open. The LED is blinking if an error occurs (see page 49). In normal state the LED is off.
Yellow LED “DOCUMENT”	This LED blinks while the printer is waiting for document paper. It lights permanently when a document is inside the printer and blinks twice when the document paper is being ejected. The LED is off when the document station is not selected.
Red LEDs “PAPER END”	The LEDs are on if either the receipt station “R” or the journal station “J” recognized a paper end or if paper rolls are not installed. The LEDs are off if paper is available on the respective print stations.

Operation of the ND77 POS printer

The ND77 POS printer has 9dot matrix printing mechanism serving the three printing stations for receipt, journal and documents. Character resolution is 9 x 9 dot matrix or 7 x 9 dot matrix, depending on the character types you select from your application software.

The ND77 provides you with the possibility of controlling the line feed of the receipt and journal paper via two buttons on the operator control panel.

For reasons of safety, the printing and cutting devices are shut down as soon as the printer cover is opened.

The ND77 is supplied with a Flash EPROM to load in firmware updates without opening the printer.

An individual company logo can be created by means of a block print which is produced in graphic print quality. The logo is loaded into the printer memory through your application software. Your ND77 can print logos that were created up to a size of 25 856 dots.

An individual stamp (software) can be stored in the Flash EPROM of the ND77 permanently. It still remains after switching off the printer.

Additional printer features are efficient printing and simple operation.

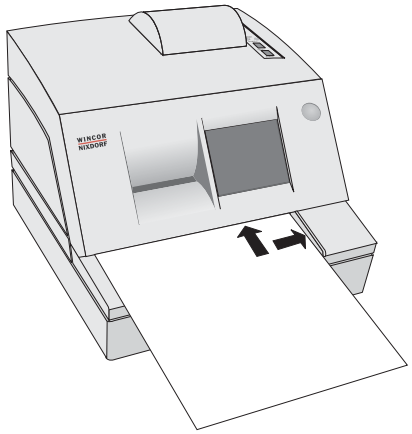
All consumables for the printer, such as receipt and journal paper or ribbon cassettes can be ordered from WN branch office.

For the sake of the environment, always dispose of used materials properly (see chapter on recycling).

Document processing

The ND77 prints documents up to a size of DIN A5. Consult the appendix for the print area and the paper specifications. Documents larger than DIN A5 can be inserted.

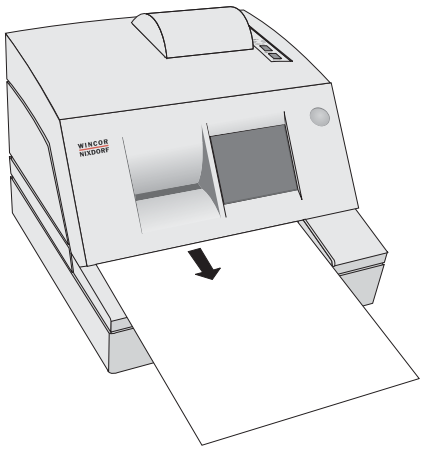
When printing a check, bold printing should be enabled.



When the yellow LED flashes, place the document to the right of the guide edge of the document plate.

This applies particularly to documents which are smaller than DIN A5 so that the documents sensors can recognize the paper and draw it in correctly. Push the document towards the document infeed as far as possible.

Always insert the paper in such a way that the side to be printed on is facing **downwards**. The side of the document that you place to the guide edge of the document plate must **not** be **perforated**!



After processing, the document will be ejected. The yellow LED flashes twice. Now you can remove the document.

If the document sensors recognize a document end during document processing, although print data still located in the print controller, this will lead to a print stop (only if print stop is enabled). The document will be ejected. When the print stop is enabled the printer will stop printing when the document sensors recognize the end of a document. This occurs even though print data remains in the print controller. To continue, or complete printing, take out the document and insert a second document when the yellow LED flashes.

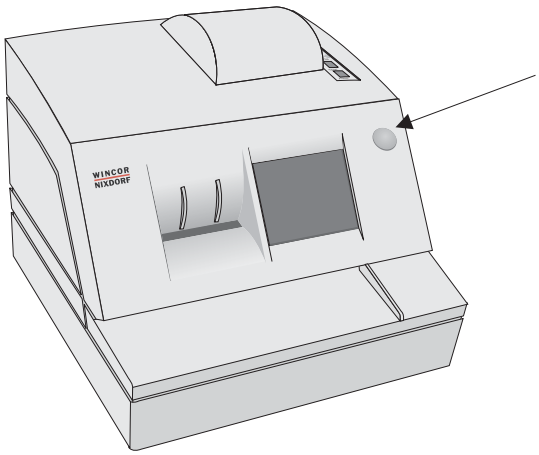
Changing the receipt and journal paper

This section provides a detailed description of how to change the receipt and journal paper rolls.

Changing the receipt roll

When a red stripe appears on the printed receipt, or the “paper end” LED lights up on the control panel, a new receipt roll should be inserted. Change the receipt roll as follows:

Removing remaining receipt paper



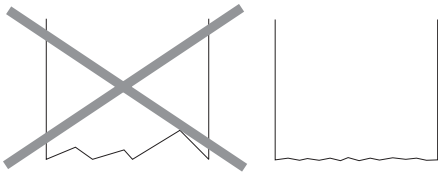
Press the release button (see arrow) and lift up the housing cover to gain access to the paper roll. You can remove the remaining paper by pressing the line feed button on the control panel.

Never forcefully pull out the paper caught in the print mechanism. Doing so will damage the transport rolls.

Take out the empty paper roll. If the end of the receipt roll is glued to the paper roll, cut the paper from the roll.

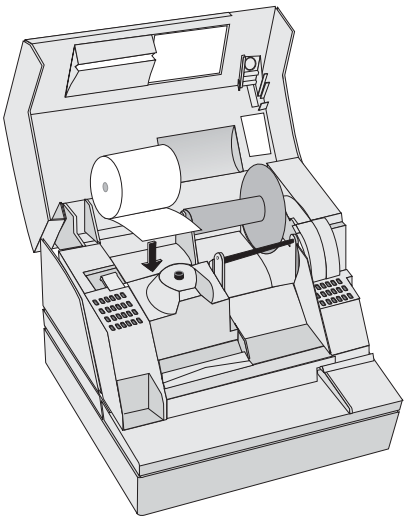
Inserting the receipt roll

Press the release button and lift up the housing cover.

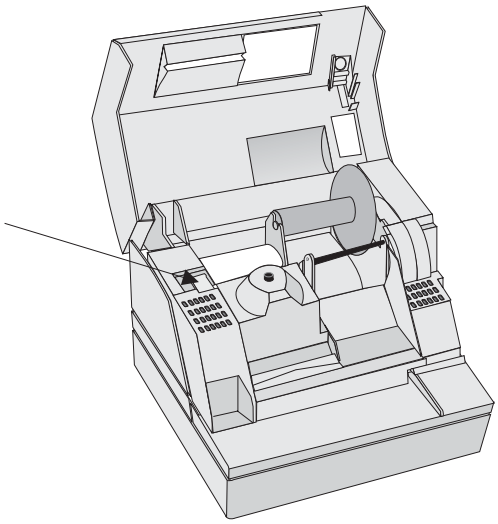


Make sure that the paper on the new paper roll is cut or torn evenly.

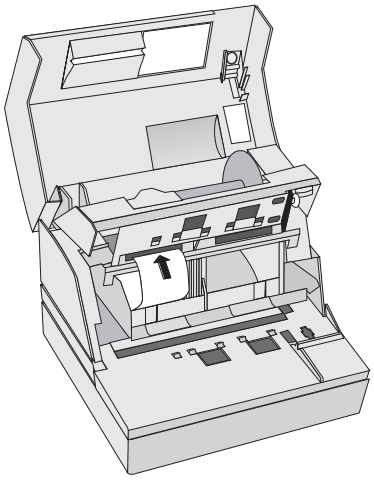
Insert the new paper roll into the paper compartment as shown in the illustration below.

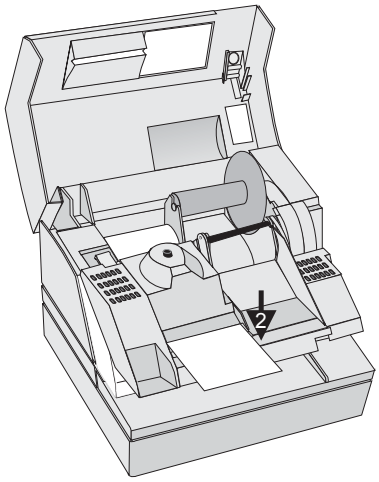


Press the button to the left of the receipt compartment (see arrow) and lift up the printing mechanism.

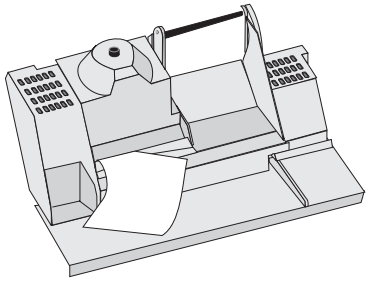


Next, guide the end of the paper from below into the receipt output. Push it until it is visible on top.





Check whether the paper is straight and close the printing mechanism by pressing on the spot marked with arrow **2** until the printing mechanism snaps into place.



Tear off the excess receipt paper by pulling downward at the tear-of edge of the receipt output.

Finally close the housing cover.

Changing the journal roll

When you see a red stripe on the journal paper or when the paper end LED “J” lights up, it is time to insert a new journal roll. Change the journal roll as follows:

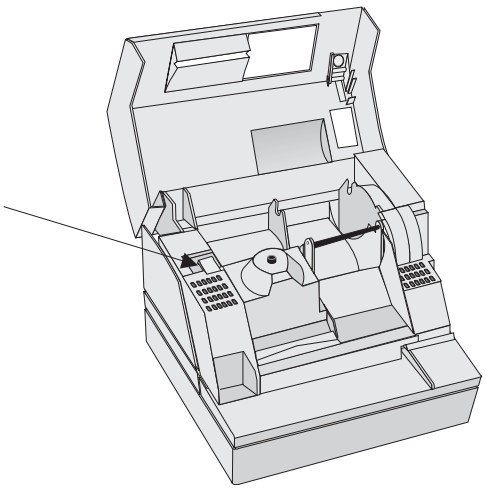
Removing the journal paper

When the paper end LED “J” on the control panel lights up, there are only a few centimetres of journal paper left in the paper compartment. Lift up the housing cover by pressing the release button.
Never forcefully pull out the journal paper when the print mechanism is closed. Doing so will damage the transport rolls.

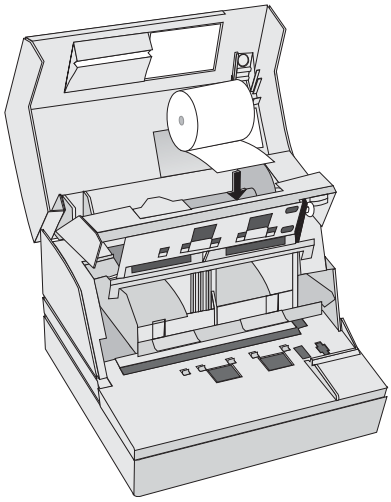
Tear through the journal paper and remove the journal paper from the take-up spool. Remove the empty paper roll from the journal compartment.

Inserting the journal paper

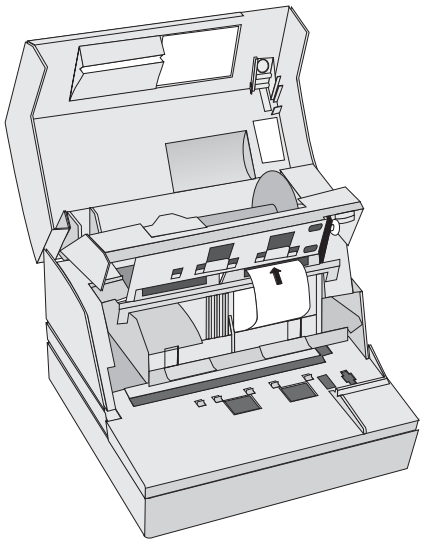
Press the release button and lift up the housing cover.
Make sure that the paper on the new paper roll is evenly cut.
Press the button to the left of the receipt compartment (see arrow) and lift up the printing mechanism.



Insert the new paper roll into the paper compartment as shown in the illustration below.

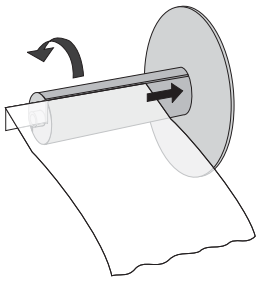


Next, push the end of the paper from below into the journal guide. Push it until it is visible on top.



Pull out enough paper from the journal opening (approx. 30 cm) to allow it to be threaded into the take-up spool.

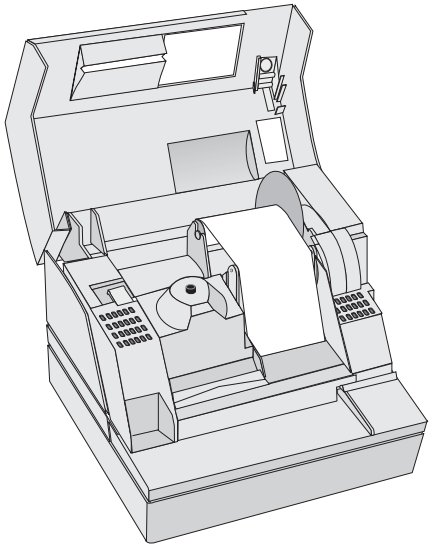
Check whether the paper is straight and close the printing mechanism.



Fold the paper over approx. 1cm and push it into the slot of the take-up spool.

Turn the spool several times to ensure a secure seating.

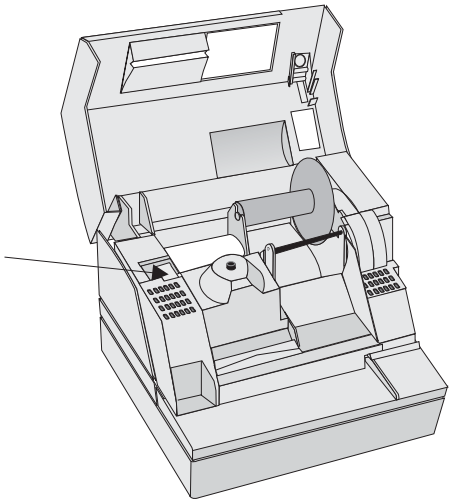
Lay the paper upon the guiding roll and place the spool into its reception slot.



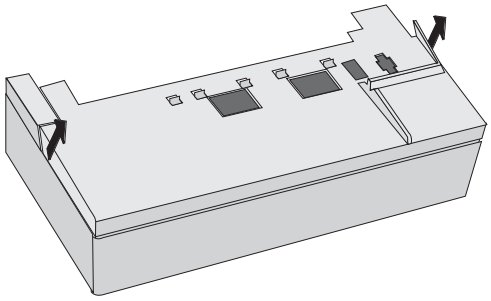
Now, close the housing cover.

Changing the ribbon cassette

Press the release button and lift up the housing cover. Press the button to the left of the receipt compartment (see arrow) and lift up the printing mechanism.



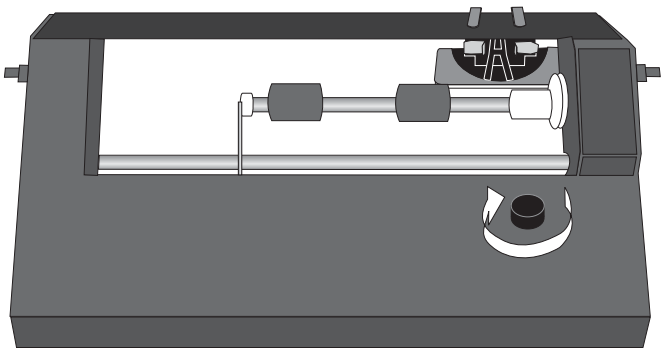
Lift the document plate forward. You see the ribbon cassette and you can remove it.



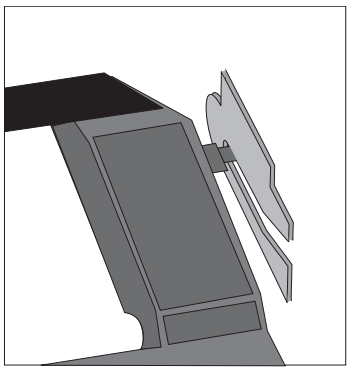
Be sure to dispose of the ribbon cassette properly.

Take the new ribbon cassette out of the pack.

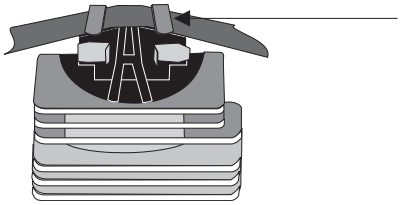
Before inserting the cassette into the printer housing, tighten the ribbon by turning the knob on the cassette.



Insert the cassette in a way that the guiding pins beside the cassette will slide into the recesses of the printer housing (see example in the magnified view).



Make sure that the ribbon will be threaded under the guiding pins of the print head (see illustration below).



Caution! The print head may be hot!

Tighten the ribbon again by turning the knob several times.

First close the document plate and then the printing mechanism. Finally close the housing cover.

Notes on the automatic document detection

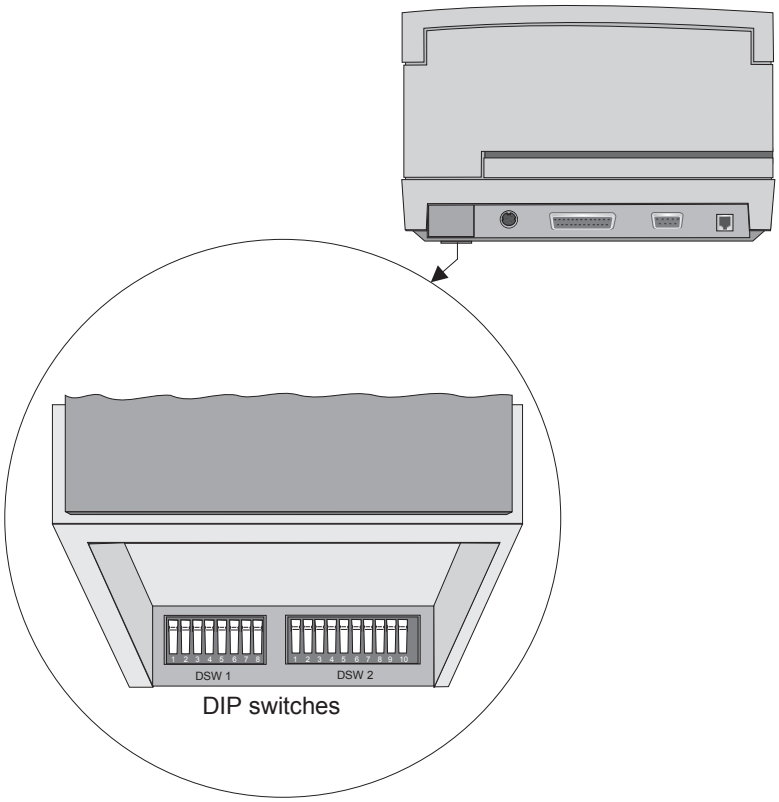
In order to guarantee a good readability for the automatic document detection the indicated lifetime of the colour ribbons is at a limit of 23% for the contrast.

You will find the exact limit for the automatic document detection in the description of your scanner. Depending on the type of device a considerable lower lifetime of the colour ribbon might occur.

With regard to the document detection you may increase the lifetime of the colour ribbon by printing the text on a bright background, by selecting the double print option and by using violet colour ribbons instead of black ones.

DIP Switches

The ND 77 has two banks of DIP switches that can change the printer settings. Please note, that the line parameters between the V.24 interface of the printer must correspond to those of the host system. Changing DIP switches will only get valid after a restart of the ND 77.
The DIP switches are located underneath the backside of the printer (see illustration below).

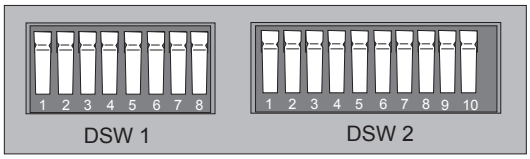


DIP switches

Turn off the printer to change the DIP switch settings.

Set the switches using a pointed tool, such as tweezers or a small screw driver.

The DIP switches are allocated as follows:



Each switch functions as follows:

Bank 1

DIP	Function	ON	OFF	Default
1	Cutter	Deactivated	Activated	OFF
2	Parity	Enabled	Disabled	OFF
3	Parity selection	Even	Odd	OFF
4	Transmission speed (see the table below)			OFF
5	Transmission speed (see the table below)			OFF
6	Connection of display module*	Connected	Not connected	OFF
7	Data receive error	Ignored	Prints ?	OFF
8	Handshaking	XON/XOFF	DTR/DSR	OFF

* Effective when a direct connection display module is connected to the printer`s display module connector.

Transmission speed (BPS)	DIP4	DIP5
9600	OFF	OFF
2400	OFF	ON
4800	ON	OFF
19200	ON	ON

Bank 2

DIP	Function	ON	OFF	Default
1	Auto line feed	Always enabled	Always disabled	OFF
2	Reserve			OFF
3	Font selection	9 x 9	7 x 9	OFF
4	Carriage speed	LOW	HIGH	OFF
5	Busy condition	Receive buffer full	Off-line or receive buffer full	OFF
6	Document Ejection	eject and not retain	eject and retain	OFF
7	I/F Pin6 Reset-Signal	Enabled	Disabled	OFF
8	I/F Pin25 Reset-Signal	Enabled	Disabled	OFF
9	Document inverse printing	Enabled	Disabled	OFF
10	Roll width	57,5 *****	69,5	OFF



When pin 6 of the interface connector is used for the reset signal, the printer is reset at MARK (signal level -5 to -15 V, logic “1") on the RS-232C level.
When pin 25 of the interface connector is used for the reset signal, the printer is reset at SPACE (signal level +5 to +15 V, logic ”0") on the RS-232C level or at HIGH on the TTL level.
If DIP switch 7 or 8 of the bank 2 is ON while the printer is turned on, the printer may be reset, depending on the signal state.

***** If you have mounted a spacer in order to use paper rolls with smaller roll width (see appendix) please set the DIP switch 10 at bank 2 to ON.

DIP switches must not be operated while the printer power is turned on.

Self Test

To start a printer self test proceed as follows:

- Press the release button and lift up the housing cover.
- Turn on the power with the power switch on the operator control panel.
- Close the housing cover quickly and press either the receipt or journal line feed button until the printout starts.

Depending on the pressed button the printout is done at the journal station or the receipt station

You will find a *sample* printout on the next page.

ND77
Self Test

Receipt-, Journal- and
Document-Printer

```
Printer ID      : 09

Serial Interface
  Baud rate     : 9600 bps
  Data bits     : 8 bits
  Parity        : odd
  Stop bit      : 1 bit or more
  Handshaking   : DTR/DSR
  Receive error : prints '?'
  Reset signal  : disabled

Handshaking Operation
  (busy condition)
  Off-line or receive buffer full

Auto Line Feed
  Always disabled

Font Selection
  Default Size  : 7x9
  Default Font  : PC437

Customer Display
  Not connected

Cutter
  Enabled

Carrier Speed Mode
  High

Document Direction
  Normal

Paper Width
  69.5 mm

Character/Line    7x9   9x9
  Receipt       : 40    30
  Journal       : 40    30
  Document      : 88    66

Cash Drawer     : closed

Power           : 24,0 V

Head Temperature : < 60 °C

PCB-Version     : 4

Firmware
  Version       : 01
  Subversion    : 00

Loader
  Version       : 01
  Subversion    : 00

Self Test
  Version       : 06
  Checksum      : ok

Character Set
  Version       : 01
  Checksum      : ok

Space Page
  Version       : 00
  Name          : Space_79

  Checksum      : ok

Stamp Checksum  : ok

  PC437  7x9

 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFG
HIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmno
pqrstuvwxyz{¦}~ ÇüéâäàåçêëèïîìÄÅÉæÆôöòûù
ÿÖÜ¢£¥₧ƒáíóúñÑªº¿⌐¬½¼¡«»░▒▓│┤╡╢╖╕╣║╗╝╜╛┐
└┴┬├─┼╞╟╚╔╩╦╠═╬╧╨╤╥╙╘╒╓╫╪┘┌▀▄▌▐▬αßΓπΣσµτΦΘΩδ∞øε∩≡±
≥≤⌠⌡÷≈°∙·√ⁿ²■

  PC437  9x9

 !"#$%&'()*+,-./0123456789:;<=
>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[
\]^_`abcdefghijklmnopqrstuvwxy
z{¦}~ ÇüéâäàåçêëèïîìÄÅÉæÆôöòûù
ÿÖÜ¢£¥₧ƒáíóúñÑªº¿⌐¬½¼¡«»░▒▓│┤╡╢╖╕╣
║╗╝╜╛┐└┴┬├─┼╞╟╚╔╩╦╠═╬╧╨╤╥╙╘╒╓╫╪┘┌▀▄▌▐▬
αßΓπΣσµτΦΘΩδ∞øε∩≡±≥≤⌠⌡÷≈°∙·√ⁿ²■

  Space Page I  7x9

 ßÐËÈèÍÎÏìÓßÔÒõÕµÞÚÛÙýÝ±‗.    !"#$%&'
()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO
PQRSTUVWXYZ[\]^_.abcdefghijklmnopqrstuvw
xyz{¦}~.

  Space Page I  9x9

  Space Page II  7x9

ÇüéâäàåçêëèïîìÄÅÉæÆôöòûùÿÖÜø£Ø×ƒáíóúñÑªº
¿.....¡.¤.....ÁÂÀ¡╣║╗¢¥.........ãÃ╚╩╦╠═╬¤.
HI    ..

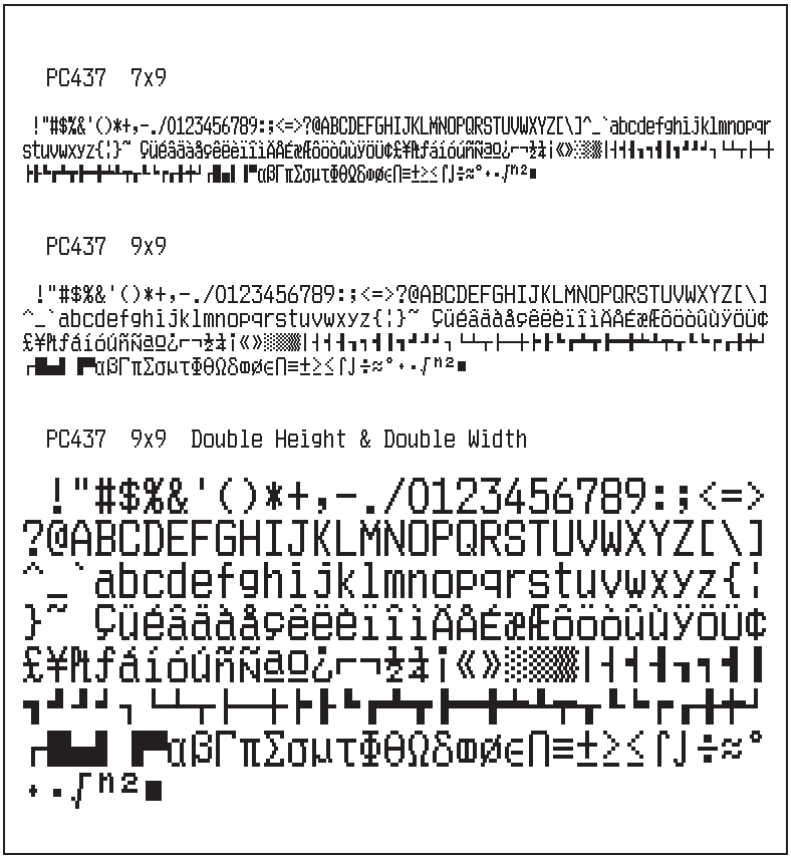
  Space Page II  9x9

Stamp
```

YOUR RECEIPT
Thank you
Call again

```
   *** completed ***
```

Insert a document as soon as the yellow LED is blinking.
The following will be printed:



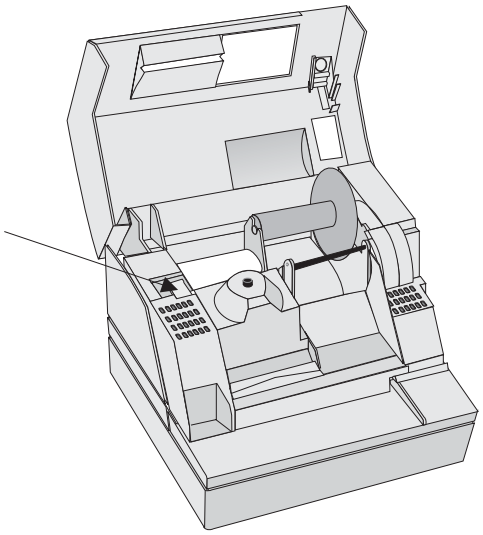
Fifteen seconds after the self test, the ND77 will reset and is ready to print.

Replacing the print head

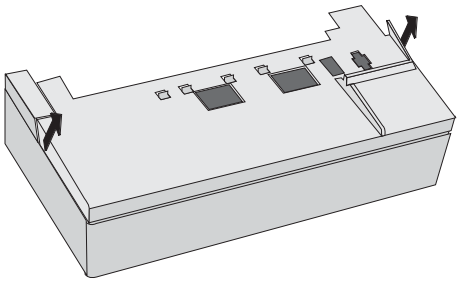
The print head can be replaced as follows:

Press the release button and lift up the housing cover. Turn off the power with the power switch at the operator control panel.

Press the button to the left of the receipt compartment (see the arrow) in order to raise the printing mechanism.

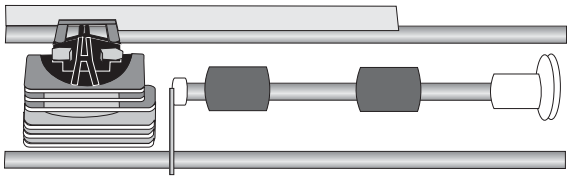


Lift the document plate forward and remove the ribbon casette.



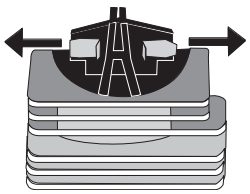
Caution! The print head may be hot! Allow the print head to cool before touching it.

Position the print head to the left hand side.



To remove the print head from its bracket, open the holding clips.

Press the clips to the left and to the right. The print head is now loose and can be removed easily.



Then unplug the flexible cable from the print head socket.

To insert the new print head, follow the same procedure in reverse order.

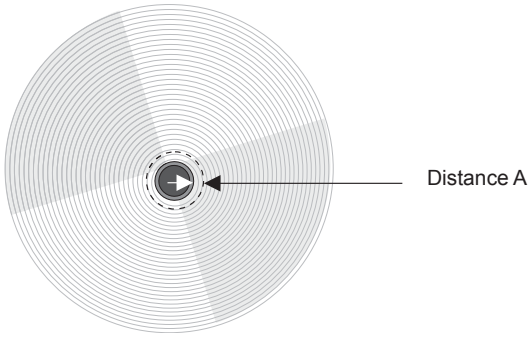
Should you send a faulty ND77 to the Wincor Nixdorf Customer Service, **remove the printhead** before. See also page 7 in this manual.

Adjusting the paper end detectors

The paper end detectors detect when the paper end is almost reached. Software programs can use the ESC c 4 command to enable or disable the paper end recognition.

If you want to change the amount of paper remaining when the printer stops printing, follow the steps below:

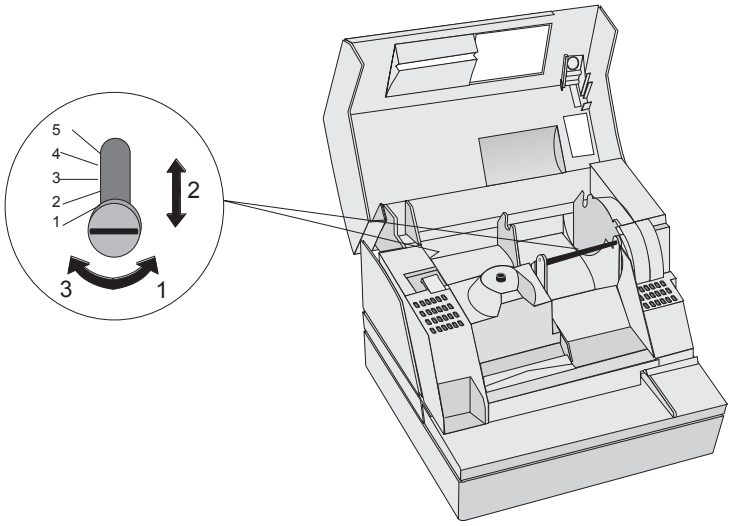
- Open the housing cover and remove the paper roll.
- Determine the point on the paper roll at which you want the paper roll end detection to be triggered. Then measure distance A as shown in the illustration.



Find the corresponding adjustment position number from the table below.

Distance A	Adjustment position number
10 mm	5
8 mm	4
6 mm	3
4 mm	2
2 mm	1

Locate the adjusting screws shown in the illustration below.



To change the adjustment position please proceed as follows:

- Loosen the appropriate adjusting screw with a coin or a screwdriver (1).
- Move the screw to the desired position (2).
- Tighten the adjusting screw (3).

There may be some difference between the measured distance A and the actual sensing position.

Printing with the ND77

The ND77 offers you three different possibilities to print on receipts, journals and documents:

- the software stamp printing
- the logo printing
- graphics printing

You can use the logo or graphics printing on all three stations (receipt, journal, document), whereas software stamp printing is designed for the receipt station only.

Software Stamp Printing

If you want to print text or graphics frequently or permanentely on a receipt e.g. your company name or trade-mark as header, we recommend to use software stamp printing.

Example: You design your trade-mark by means of a standard graphics software program. In doing so please make sure to create those (bitmap) files as black and white files and to save them later accordingly.

The maximum size of a stamp you can print with your ND77 is an area of 25 856 dots. The maximum width (W) is 180 pixel (= 61.2 mm) with a paper roll width of 69.5 mm. The height (H) of the stamp is variable, however, please mind that W x H $\leq$ 25 856. If you use paper rolls with a width of 57.5 mm the maximum stamp width is 144 pixel (= 49 mm).

Having created your bitmap stamp file (black and white!) you then should preferably save it as a black and white file in the same directory in which you already stored the special load software (Flash-ROM Loader Utility) for the stamp file.
With this loader utility you can load your file into the Flash EPROM of the ND77. Thus your software stamp remains permanently stored and will not get lost after the printer has been switched off.

The stamp will be printed on the receipt by sending the control sequence **ESC o**.

You will find details on the “Flash-ROM Loader Utility” and on printing a software stamp in the “ND77 Programmers Guide” (see also page 54 in this User Manual).

Logo printing

The logo print is recommendable for graphics or texts which are often modified and which need not be stored in the printer for a longer period of time.

Example: You define a logo which is supposed to appear on the receipt, journal or a document. When designing the logo you will have to adhere to the same parameters as described before when creating a software stamp. Subsequently, the maximum size of your logo is an area of 25 856 dots.

The print data will be loaded into the RAM of your ND77 by sending the control sequence **GS ***. By sending the **GS /** sequence these data can finally be printed.

For further information on the logo printing, please read also the “ND77 Programmers Guide”.

Graphics printing

In case that stamp and logo printing should not be sufficient, the single-line graphics printing offers another possibility to print frequently modifying data on the paper. In this case the graphics data will be transferred line by line and will not be stored in the printer. The graphics printing is activated by sending the control sequence **ESC ***.

For further information on graphics printing also refer to the “ND77 Programmers Manual”

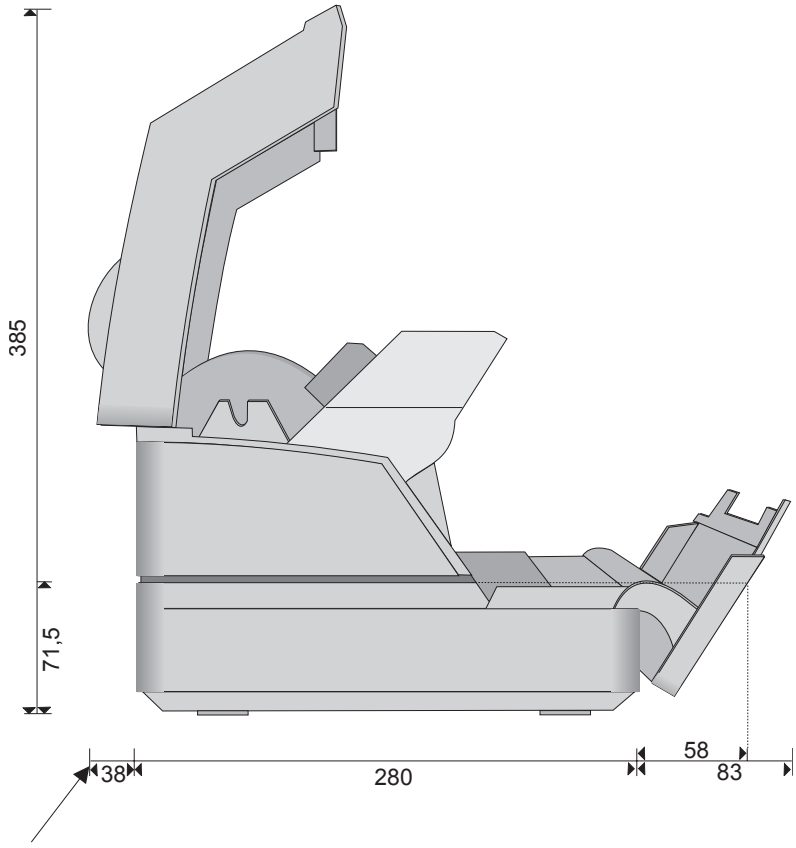
Appendix

Technical Data

Footprint:	
Height	215 mm
Width	251 mm
Depth	280 mm
Weight (w/o paper)	approx. 6kg
Climatic Category	IEC 721Class 3K3
Operating Temperature	+5 until +40°C
Power supply	External power supply unit 24V / 2.0 A or via BEETLE /L
Power	approx. 50 watts
Print method	9-pin, serial impact dot matrix 9x9 / 7x9
Print columns	Receipt/Journal max. 40 Document max. 88
Print speed:	
typ. receipt (10 char)	14 lines/sec
full print line (40 char)	6 lines/sec
Logo print	
(max. size 25 856 dots)	via graphic printing quality
Ribbon	violet or black
System interface	1x RS232c
Interfaces	1x cash drawers (RJ12) 1x WN customer display

Dimensions with covers open

The following values also refer to a build in printer (all dimensions in mm).



Increase this value up to 125 when you use DIN A4 documents.

Paper Specification

Receipt - and Journal paper (single ply)

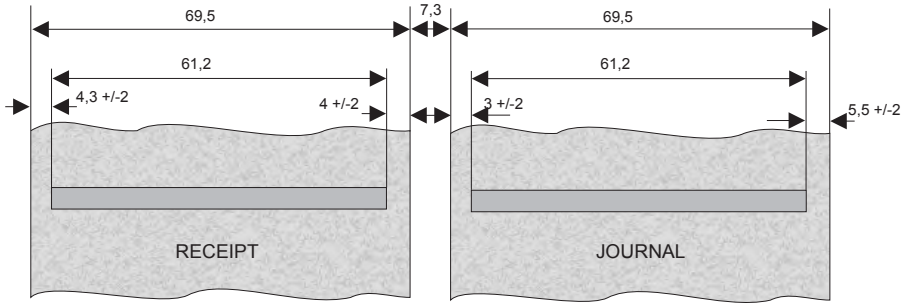
Roll diameter (outside)	max. 83 mm
Roll diameter (inside)	12 mm +0, -2 mm
Roll width Option	69,5 ±0,5 mm 57,5 ±0,5mm
Weight	60g/m² ±4%
Thickness of paper	max. 0,1 mm min. 0,06 mm
Useable length of paper	approx. 60 m. **-** Red stripes before end of roll. **-** Paper end not glued to core
Smooth (Bekk)	inside 14 - 56 sec. outside 14 - 40 sec.
Fibre-material class	z 100

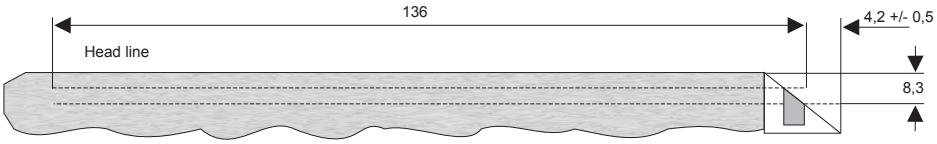
Document paper

Single ply paper		
Length	min. 70 mm	
Width	min. 70 mm	
Paper weight	max. 300 g/m²	
	min. 60 g/m²	
Paper thicknes	max. 0,5 mm	
	min. 0,08 mm	
Multi ply paper		
With carbon paper	1st sheet	50 - 80 g/m²
	2nd - 4th sheet	35 - 55 g/m²
Carbon paper		24 g/m²
Chem. Contact paper	1st sheet	50 - 80 g/m²
	2nd - 4th sheet	40 - 60 g/m²
Gluing	header, right, left	
Total thickness	max. 0,5 mm	

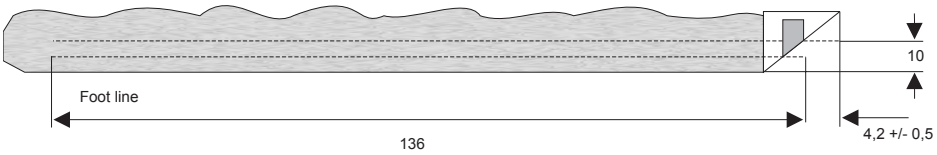
Print areas (Paper Roll Width 69.5 mm)

The following illustrations show the print area of the three print stations with a paper roll width of 69,5 mm and a document of DIN A5 format. The values are indicated in mm in relation to the home position of the print head (see also page 53).





DOCUMENT

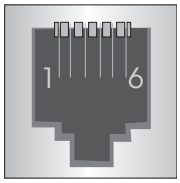


Interfaces

Cash drawer connector

RJ12 connector pin usage

PIN	Description
1	Frame Ground
2	Opening pulse for cash drawer 1
3	Status cash drawer 1 and 2
4	+24V DC
5	Opening pulse for cash drawer 2
6	Signal Ground



The Wincor Nixdorf cash drawers KA16, KA17 and KA18 can be connected by cash drawer cables ; cable lengths: 0.8m (CR KB - 0940); 1.5m (CR KB - 0930); 5.0m (CR KB - 0941).

Serial interface to the customer display

Pin assignment of the 9pin D-Sub connector

PIN	Assignment
1	P12V
2	RXD
3	TXD
4	NC
5	GND
6	NC
7	RTS
8	CTS
9	NC

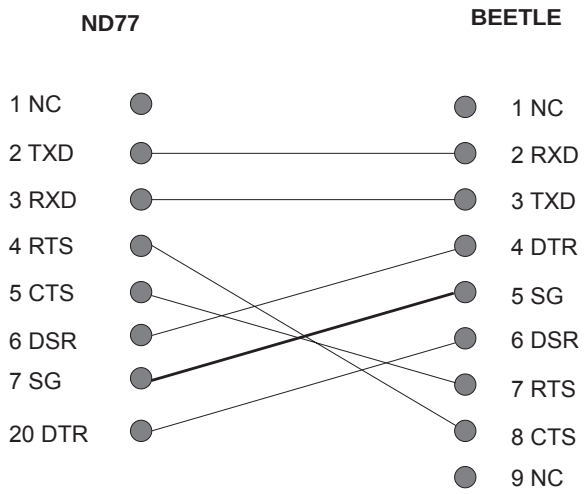
Serial system interface

A standard cable for connecting printers to the serial interface is used to connect the ND77 to a PC or a PC-compatible unit (e.g. BEETLE Systems).

This cable has a 25-pin D-sub connector on the end connecting to the printer. At the end connecting to the system it has a 9-pin D-sub connector male or female depending on the systems interface.

If you are connecting to a BEETLE system with voltage-supplied COM interface, your local branch office can supply you with the appropriate cable. *Gender-changers must not be used*.

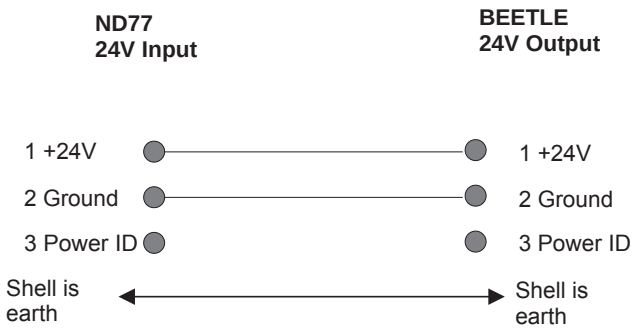
The following illustration shows the connector pin allocation and connection of the cable.



Cables must be shielded and connected to both connector housings.

Power supply cable

The illustration below shows the Pin assignment of the power supply cable between the ND77 and the BEETLE system.



Error messages via blink codes

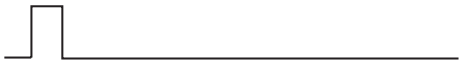
LED “ERROR”

As described in the chapter “Operator Control Panel”, blinking of the red LED “ERROR” indicates that an error has occured. The respective blink codes are shown graphically in the following section. The blinking cycle lasts about 2 sec.

Recoverable errors

The following errors can be recovered by DLE ENQ 1 or DLE ENQ 2 control command.

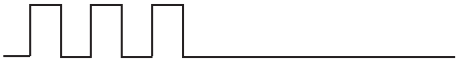
Automatic cutting error



Home position detection error



Carrier detection error



Should the errors mentioned above occur, check whether the ribbon is blocking or whether there is residual paper in the printer housing - if so, remove it.

Document ejection error



Remove possible paper jam and clean the deflection prism (see chapter “Care of the ND77")

Unrecoverable errors

You can not recover from the following errors. Should these errors occur, turn off the power immediately and contact your technical support.

Overheated print head



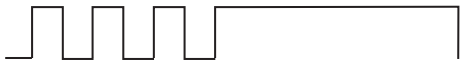
The print head is overheated.

High voltage error



The power supply voltage is extremely high.

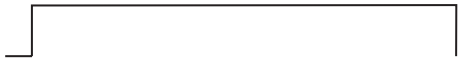
Low voltage error



The power supply voltage is extremely low.

In case of errors involving power supply voltage, the power supply unit must be changed.

Thermistor error



The termistor is malfunctioning or not installed. The foil cable of the print head is malfunctioning or not connected.

All LED

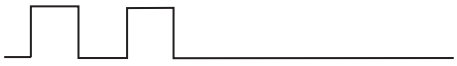
The following unrecoverable errors may occur when switching on the printer, all LEDs will be blinking in a cycle of approx. 4 sec:

Hardware error



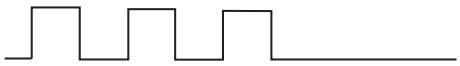
This error refers to RAM, ROM, microcontroller. The blink code will be repeated continuously. The controller has to be changed.

Loading error



With a loading error (wrong checksum), the blink code will be repeated continuously. The Flash EPROM has to be changed.

Firmware error



When a firmware error occurs (wrong checksum) the blink code will be repeated three times. Subsequently, the printer is in loading mode. The yellow LED “Document” is on. It is necessary to load the firmware again.

Checksum error



The blink code will appear once when a checksum error occurs after power up. A checksum error may occur at the self test, the character set, the software stamp or at the space page. You may find further information about the checksum error on the printout of the self-test.

Control Sequences

The control sequences of the printer controller are based on the ESC/POS standard. The following list shows all the available sequences of the ND77.

Code	Function
LF	Print and line feed
FF	Print and eject document paper
CR	Carriage Return
DLE EOT	Transmit real time status
DLE ENQ	Real time request to printer
RS	Journal Tab
ESC SP	Set right side character spacing
ESC !	Select print modes (all stations)
ESC $	Set absolute print position
ESC %	Select / cancel user-defined character set
ESC &	Define user-defined characters
ESC *	Select bit image mode
ESC -	Turn on / off underline mode
ESC 2	Set 1/6" line spacing
ESC 3	Set line spacing
ESC <	Return home
ESC =	Select peripheral device
ESC ?	Cancel user defined characters
ESC @	Initialize printer
ESC C	Select document eject length
ESC E	Turn on / off emphasized mode
ESC G	Turn on / off double strike mode
ESC J	Print and line feed
ESC K	Print and reverse line feed
ESC R	Select an international character set
ESC U	Turn on/off unidirectional printing mode
ESC \	Set relative print position
ESC a	Select justification
ESC c 0	Select print paper(s)
ESC c 1	Select paper(s) for setting line spacing
ESC c 4	Select paper sensor to stop printing
ESC c 5	Enable / disable all panel buttons
ESC d	Print and execute *n* line feeds

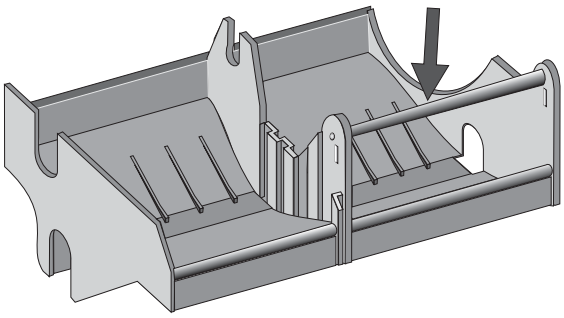
Code	Function
ESC e	Print and reverse feed *n* lines
ESC f	Set document paper waiting time
ESC i	Execute full cut
ESC m	Execute partial cut
ESC o	Print software stamp
ESC p	Generate pulse (for cash drawer)
ESC t	Select character code table
ESC u	Transmit peripheral device status
ESC v	Transmit paper detector status
ESC z	Turn on / off parallel printing mode for receipt and journal
ESC {	Turn on / off upside-down printing mode
GS ENQ	Transmit real time printer status
GS *	Define downloaded bit image
GS /	Print downloaded bit image
GS E	Select print speed and head energizing time
GS I	Transmit printer ID
GS P	Set vertical motion unit
GS a	Enable / disable automatic status back
GS r	Transmit status

For programming your printer, please find a detailed description of the control sequences, the document handling and character pages in the **“ND77 Programmers Guide”**.

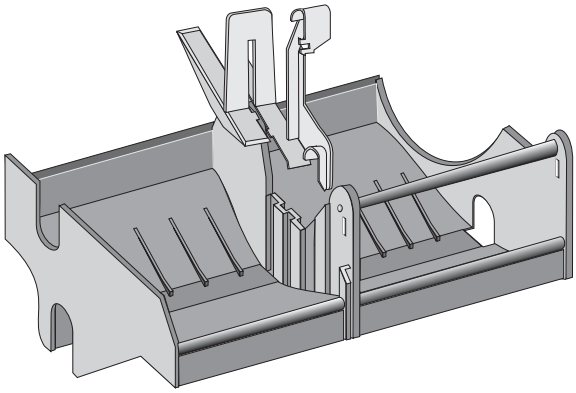
Mounting the spacer in the paper compartment of ND77

If you want your ND77 to print on paper rolls with a roll width of 57,5 mm (± 0,5 mm) you have to insert a spacer. Therefore, first press the release button and lift up the housing cover. You now have access to the paper compartment.

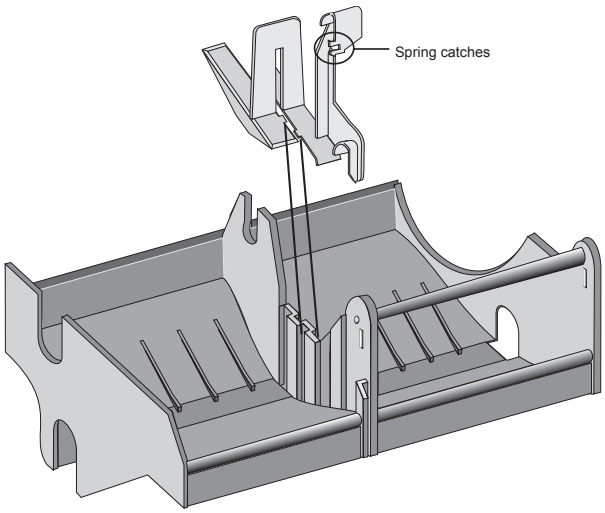
Please note that the deflection roller (see arrow) is tapering in your ND77 from right to left. Only then it is possible to insert the spacer. Otherwise the complete paper compartment has to be exchanged ! In this case please contact your local WN branch office or technical service.



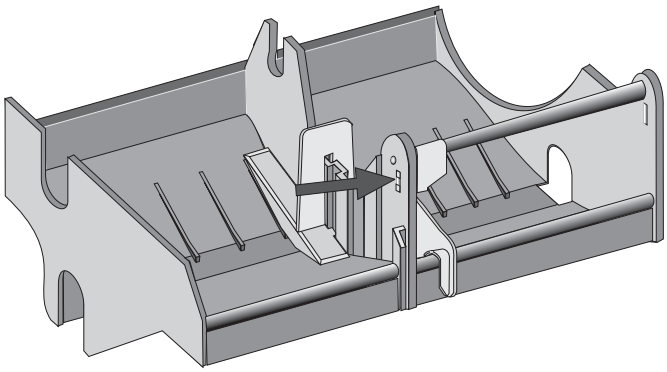
First bend the spacer as shown in the picture below and guide the lower catch underneath the deflection roller.



Now insert the spacer into the guidance (see picture) by pressing the spacer´s upper catch from above on to the deflection roller.



Finally press the two spring catches of the upper catch (see above) into the marked holes (see arrow) until you hear them click into place.



Please mind to set the DIP switch 10 on bank 2 to ON (see chapter “DIP switches”, page 27), the firmware then will adjust the print position.

Print areas (Paper Roll Width 57.5 mm)

The following illustration shows the print area of the print stations bon and journal with a paper roll width of 57.5 mm.

The values are indicated in mm in relation to the home position of the print head.

