THARO

cab

Transfer Printer

Apollo

Apollo 1 / Apollo 2 / Apollo 3

Operator's Manual

Apollo

Thermal Transfer Printer
Operator's Manual

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A General Guide to the Documentation

Operator's Manual

The present manual contains description and usage instructions for the printers of the **Apollo** line.

In particular, the **Apollo** line includes the following models :

- **Apollo 1/300RS**
- **Apollo 2/300, Apollo 2/300R**
- **Apollo 3/200M, Apollo 3/300M**

The first few chapters of this manual cover general information which is necessary for unpacking and operating the printer as well as information about accessibility to different components of the printer and on optional accessories. In the next chapters, the loading of media and ribbon, the self test of the printer, and the configuration in setup will be explained. In the appendices, you will find useful additional information, such as internal character sets of the printer, and cabling specifications. Furthermore, comments on possible error messages and printer maintenance are included.

Note the directions for use on recommended material and comments on maintenance in order to avoid damage and premature failure of your **Apollo**.

Every effort has been made in the creation of this manual to provide as much information as possible in an understandable manner.

We welcome your comments and suggestions regarding additions or corrections to improve future editions of this manual. Please, let us know if you have any questions.

Further Documentation

Further information on the programming of the **Apollo** with its own set of commands can be found in the "Programming Instructions - **Apollo**".

Detailed information about service and maintenance are included in the "Service Manuals" of the **Apollo 1**, **Apollo 2** and **Apollo 3**. (e.g. replacement of components, adjustment instructions, circuit diagrams, spare parts lists, etc.)

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Characteristics of the Thermal Printhead

CAUTION !

**The thermal printhead is the most sensitive part of your printer.
Pay special attention to the following guidelines :**

1) **The glass cover on the printhead must not be touched with the hand.
   Also, do not use sharp objects (knives, screwdrivers, etc) to clean the
   printhead.**

2) **Ensure that the printhead is properly adjusted at all times.**

3) **Use only high quality media. Make sure that there are no high spots
   or debris on your media to lodge on or damage the printhead. The
   label surface must be smooth. Lower grade direct thermal paper is
   very rough and will act like sandpaper on the head, reducing the
   head's lifetime. Do not use low grade stock.**

4) **Clean the head at each change of ribbon, or with each new roll of
   direct thermal media, with a special cleaning pen, or a cotton swab
   with isopropyl alcohol.**

5) **Print with the lowest possible head temperature to increase the life of
   the printhead.**

**Careful use will allow you to print approximately between 18 to 30 miles
(30 to 50 km) of print media before the printhead needs replacing.**

Improper usage can cause damage to the printhead.

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1 Product Description

General Information

The **Apollo** is an innovative printer which may be used in either direct thermal or thermal transfer mode. It offers a high resolution with a virtually unlimited variety of printout design.

With the Speedo™ and TrueType™ fonts, **Apollo** provides a wide range of different typefaces. The use of scaleable fonts and their flexibility in width and height allows exceptional flexibility in label design to suit any requirements. Additional printing features include reverse, italic, bold, underlined, and rotated characters.

The operation and usage of the **Apollo** is simple and comfortable. All printer settings can be carried out with only four function keys on the front panel of the printer. The double lined LCD display keeps the operator constantly informed about the current status of the printer. The setup menu allows easy configuration changes whenever desired.

The wide variety of options makes the **Apollo** adaptable to almost any requirements. Additional accessories are, for instance, external rewinders for large print jobs, a label cutter, or an easy-to-install tamp applicator for automatically applying labels.
The modular design of the **Apollo** guarantees efficient service.

Compliances

Apollo 1/2/3 complies with the following safety regulations :

CE :   **Apollo** complies with the following safety requirements:
- EC Low Voltage Directive (73/23/EEC)
- EC Machinery Directive (89/392/EEC)
- EC Electromagnetic Compatibility Directive (89/336/EEC/ foll. 93/31/EEC)

FCC :   **Apollo** complies with the requirements of the FCC regulations part 15 for class A computers. Under disadvantageous circumstances, the operation of these devices may cause interference with radio or TV reception, which has to be eliminated by the operator.

> **WARNING !**
>
> This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Technical Specifications

Type :   Direct thermal/ Thermal transfer printer

Printhead :   Thin-film transfer printhead

Resolution: Apollo 1/2 :   300 dpi = 11.8 dots/mm
                               Apollo 3/200M : 203 dpi = 8 dots/mm
                               Apollo 3/300M : 300 dpi = 11.8 dots/mm

Number of dots/line :   Apollo 1/2 :   1280
                               Apollo 3/200M :   832
                               Apollo 3/300M : 1248

Print width :   Apollo 1/2 :   4.25 in (108 mm)
                               Apollo 3/200M : 4.1 in   (104 mm)
                               Apollo 3/300M : 4.16 in (105.7 mm)

Print speed :   Apollo 1/2 :   2.6, 4, 5.2, 6.5, 8 ips   (66/100/133/166/200 mm/s)
                               Apollo 3/200M : 2, 3, 4, 5 ips (50/75/100/125 mm/s)
                               Apollo 3/300M : 1.3, 2, 2.5, 3, 3.4 ips (33/50/63/75/87 mm/s)

Available fonts :   5 Bitmap fonts incl. OCR-A and OCR-B, and
                               3 scaleable fonts (Speedo™) - internally;
                               Speedo™ and TrueType™ fonts - to load externally

Character sets :   Supports Windows '95
                               Windows 1252/1250, IBM Codepage 850/852,
                               ISO 8859-1, ISO 8859-8, EBCDIC, Macintosh,
                               Supports all Western and Eastern European Latin characters

Font size :   .035 to 5 in (.9-128 mm)
                               For scaleable fonts, width and height are individually changeable
                               For Bitmap fonts, the size is selectable up to a factor of 10

Font style :   Reverse, bold, italic, underlined, mirror-inverted, outlined, grey

Font rotation :   Bitmap fonts/ Bar codes : 0°, 90°, 180°, or 270°
                               Scaleable fonts : optional, texts in circular format

Bar codes :   Code 93, Code 39, Code 128, Codabar, EAN-8, EAN-13,
                               EAN-128, FIM, HIBC, Interleaved 2/5, Ident-/Leitcode der Deutschen
                               Post AG, JAN-8, JAN-13, UPS-Maxicode, MSI, Plessey, PDF417,
                               Postnet, UPC-A, UPC-E, UPC App 2, UPC App 5, UCC-128,
                               Bar code height, module width, and ratio are variable, with/without
                               check digit, human readable character, start/stop character

Graphic elements :   Line, box, circle, ellipse, fill-in segment, arrow

Graphic file type :   .PCX, .IMG, .BMP, .TIF, .GIF, and .MAC files

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Processor :	32 Bit, Motorola
Memory :	Internal memory 2 MB
Interface :	Serial : RS-232, RS-422, RS-485 8Bit 1200-57600 Baud Parallel : Centronics
Peripheral port :	15 pin SUB-D connector for cutter, present sensor, or applicator
Test features :	System test when switching on Self test with printout of firmware data and system parameters

Label material and continuous media :

Thermal paper, normal paper, plastic foil,
PE, PP, PVC, Polyamid

Adhesive labels :	60-160 g/sqm
Tag Stock :	up to 180 g/sqm
Label width	.5 to 4.6 in (12-116 mm)
Label length :	.2 to 21.5 in (5-546 mm) Apollo 1/2
	.2 to 36.8 in (5-934 mm) Apollo 3/200M
	.2 to 16.4 in (5-417 mm) Apollo 3/300M
Core diameter :	more than 1.6 in (40 mm)
Supply roll diameter :	up to 8 in (200 mm)
Label rewind :	inside and outside

Internal rewinder :

Core diameter :	1.6 in (40 mm)
Max. rewinding diameter :	5.7 in (145 mm)

In dispense mode, media rolls of up to 8 in (200 mm) diameter may
be used.

Material recognition :

Gap sensor ("see-through")
Bottom-reflective sensor
Top-reflective sensor (Apollo 1/2 only)
adjustable from .12 to 1.9 in (3-48 mm)

Transfer ribbon:

Length :	1,182 in (360 m)
Outer diameter :	3 in (74 mm)
Core diameter :	1 in (25 mm)
Inkside :	in or out

Ribbon Saver :
(Apollo 1 only)

The ribbon saver starts from an unprinted length of .5 in (12 mm).
Then, during label feed, the printhead will be lifted, and the transfer
ribbon will be paused from feeding.

Backfeed :

In order to always start from the front edge of the label, in dispense/
cut mode the label strip may be fed back after completion of the
previous print job.
To avoid smudging of the transfer ribbon onto the label material, the
printhead can be lifted during backfeed. (Apollo 1 only)

Control features :	Paper/ ribbon out
	Printhead locked : only Apollo 1

Control panel :	4 Function keys with LED display
	LCD can be set to display in 6 different languages
Dimensions :	Backlit LCD with 2 lines of text, 16 characters per line
	Size : 11 in (280 mm) H; 9.8 in (250 mm) W; 18 in (458 mm) D

Weight :	Apollo 1 :	36.4 lb. (16.5kg)
	Apollo 2 :	33.1 lb. (15kg)
	Apollo 3 :	28.7 lb. (13kg)

Operating voltage :	Switchable between 230V A.C/ 50Hz or 115V A.C/ 60Hz

Maximum	Apollo 1/2 :	1.5 A (at 230 V) or 3 A (at 115 V)
power input :	Apollo 3 :	800 mA (at 230 V) or 1.6 A (at 115 V)

Circuit protection :	Apollo 1/2 :	T 4 A (at 230 V) or T 6.3 A (at 115 V)
	Apollo 3 :	T 1.6 A (at 230 V) or T 3.15 A (at 115 V)

Environment :	Operation at 50° to 95°F (10°-35°C) at a humidity of 30 to 85%

Version	Apollo 1/300RS	Apollo 2/300	Apollo 2/300R	Apollo 3/200M	Apollo 3/300M
Internal Rewinder	●	-	●	○	○
Ribbon Saver	●	-	-	-	-
External Rewinder	○	○	○	○	○
Cutter	○	○	○	○	○
Rewind Guide Plate	○	-	○	○	○
Present Sensor	○	-	○	○	○
Memory Card	○	○	○	○	○
Keyboard Adapter	○	○	○	○	○
Applicator	○	-	-	-	-

● Standard   ○ Option

Table 1 a Overview of the equipment of the different Apollo's

Optional Features

External Media Rewinder

For rewinding large print jobs, an external rewinder is available to handle an entire label roll. Please note, that for an external rewinder, the maximum size of the supply roll is limited to 8 in (200 mm) with a core diameter of 3 in (75 mm), or a supply roll may be up to 7.5 in (190 mm) with a core diameter of 1.6 in (40 mm).

The external rewinder is mechanically linked to the **Apollo** by an adapter plate, but works independently through its own power supply. Consequently, the rewinder requires its own separate outlet for operation.

Cutter Assembly

With the optional cutter unit, labels or continuous media (up to 180 g/sqm) may be cut immediately after printing. You can choose whenever you want to cut, whether you cut off the individually, after a pre-selected quantity of labels have been printed, or only at the end of a print job.

The cutter is powered and controlled directly by the peripheral connector of the **Apollo**.

For cutter operation, the firmware of the **Apollo** will automatically backfeed the label, so that after cutting, the label roll will be repositioned for the print of the next label.

Internal Rewinder M

Apollo 3/200M and **Apollo 3/300M** are designed in that manner that an internal rewinder may be added by the operator if necessary. Using the internal rewinder and the rewind guide plate or the present sensor the printer may be operated in the rewind or peel-off mode.

Rewind Guide Plate (for Apollo with internal rewinder only)

The rewind guide plate for rewinding the silicon liner, offers to rewind small print jobs internally. The maximum rewind diameter greatly depends on the size of the remaining media roll and is also limited by the location of the ribbon supply roll as well as the ribbon take up.

Present sensor (for Apollo with internal rewinder only)

This option allows for on-demand labelling. The present sensor consists of the tear-off plate and the sensor itself. The sensor, which is attached to the **Apollo** by the peripheral connector, indicates the presence of a label, and pauses the printing process until the label is removed.

PC Memory Card

Apollo includes an option for using memory cards in order to permanently store graphics, fonts, databases or whole label formats.
The data can be downloaded via interface. Alternatively, the printer is able to read cards which was written on using PC card drives of computers, lap-tops, etc.
PCMCIA 2.1 conforming sRAM cards or Flash-EPROM cards are accepted.
The maximum capacity for **Apollo 1/2** is 4 MegaByte, for **Apollo 3** 16 MegaByte.
Using a memory card, the printer can be operated **without** being connected to a computer which represents a great advantage regarding the flexibility.

Keyboard Adapter

The keyboard adapter allows you to connect your **Apollo** to a MF-2 compatible PC keyboard using the serial interface. This will allow you to modify variable data stored on a memory card.

Applicator

Apollo 1 is specially designed for the installation of an applicator. This offers a low-cost opportunity for automatically applying printed labels onto products or parts.
The power supply and control of the applicator is realized via the peripheral port of the **Apollo 1**. In addition, only a compressed-air supply is required.

For further information, contact our sales offices in Karlsruhe/ Germany or Brunswick, Ohio/ U.S.A.

Label Design Software EASYLABEL for Windows

EASYLABEL is an intelligent and useful label design software which is easy to use in connection with your **Apollo**.
EASYLABEL can be run on all Microsoft Windows compatible computers.

For further information about EASYLABEL, contact your local **Apollo** reseller.

Print Media

The **Apollo** can be operated in direct thermal as well as thermal transfer mode.

For direct thermal mode, only use print material with a thermal-reactive coating. The print image is transferred by heating the material at the printhead, causing a reaction on the surface of the paper and, consequently, darkening the material.

In thermal transfer mode, not only standard paper labels are needed but also the thermal transfer ribbon with a color surface. The printout is created by heating the transfer ribbon, causing a transfer of color particles onto the label.

Apollo allows to regulate the heat level and also the print speed. Thus, the **Apollo** offers a wide range of opportunities for usage.

The **Apollo** is able to print on labels and continuous paper with a maximum supply roll diameter of 8 in (200 mm). The minimum core diameter is 1.5 in (40 mm).
The printer can also process fanfold label material.

The ability of label edge recognition, which guarantees the precise position of the printer output, is accomplished by a moveable photocell. This sensor is controlled by the processor of the **Apollo** and ensures recognition for different sorts of material. There is no need for additional electronic adjustment.

On the following pages, you will find detailed information and specifications concerning suitable materials.

If you have any questions, check with your local distributor as not every material can be used for direct thermal or thermal transfer printing.

If in doubt, we will perform test prints with your label material to find the best suitable transfer ribbon.

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Print Media for Direct Thermal Printing

The print material must correspond to several important specifications, in order to ensure high quality printing, and to avoid damage to the printhead or early wear.

Using labels which we have tested and which we recommend to our customers, will guarantee a gentle treatment of the printhead. If you want to use material by another supplier, please note the following requirements regarding the condition of thermal printer paper :

1. To avoid damage to the printhead, the surface coating must cover the thermal-reactive layer. If the coating is too thin, this may cause a "pitting" effect on the printhead, i.e. very small explosions during the chemical reaction of the thermal coating quickly resulting in damage to the printhead.

2. The surface of the labels should be very smooth to avoid a "sandpaper" effect on the printhead.

3. Always choose material which can be printed on with the lowest possible heat level. The greater the heat level, the shorter the life of the printhead. Moreover, with highest heat levels the phases of heating up and cooling down extend. This may have a negative effect on the print quality, especially if a high print speed is required.

Print Media for Thermal Transfer Printing

In thermal transfer mode, a wide range of different label materials may be used. (e.g. normal paper, tag stock, a variety of synthetic material such as polyester foil, etc.)

NOTICE !
The print quality greatly depends on the right combination of label material and transfer ribbon.
The surface of the labels determines which ribbon material may be used. Unsuitable ribbons may cause an extremely poor print image.

If in doubt, your local distributor will advise you on a good combination of suitable material, or carry out tests to find out which ribbon fits your label material best.

Label/ Tag Media Specifications

Label and tag media to be used for the **Apollo** can be found in the table below.
Note this information before ordering your labels.
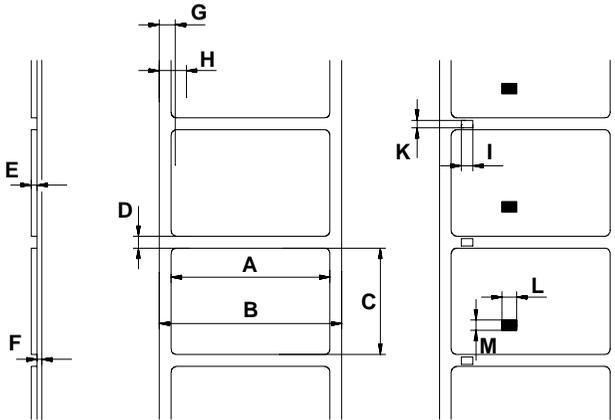
Fig. 1 Label formats

Item		MINIMUM	MAXIMUM
A	Label width	.5 (12)	4.6 (116)
B	Width of silicon liner	.5 (12)	4.6 (116)
C	Label length	.2 (5)	21.5 (546)*
D	Gap between labels	.08 (2)	21.5 (546)*
E	Label thickness	.0024 (.06)	.01 (.25)
F	Thickness of silicon liner	.0024 (.06)	.01 (.25)
G	Distance of the first printing position from the edge of the silicon liner	.08 (2)	
H	Distance of the label sensor from the edge of the silicon liner	.12 (3)	1.9 (48)
For special materials			
I	Width of punch hole	.2 (5)	-
K	Height of punch hole	.08 (2)	.2 (5)
L	Width of reflective mark	.2 (5)	-
M	Height of reflective mark	.08 (2)	.2 (5)

* for **Apollo 3/200M** : 36.8 (934), for **Apollo 3/300M** : 16.4 (417)

Table 1 b   Label formats in inches (figures in brackets are in mm)

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Transfer Ribbon

The choice of transfer ribbon plays an important role in the quality of print image that can be produced, and it also directly affects the longevity of the printhead.

CAUTION !
Poor quality transfer ribbon can lead to premature deterioration of the printhead !

The ribbon material must be as anti-static as possible. This is because the extremely thin surface coating on the printhead can be damaged by a build up of electrostatic charges. The temperature tolerance of the material must be extremely high in order to avoid the transfer ribbon melting directly onto the printhead. The temperature increase which results from the printing cycle must be dissipated over the label and the transfer ribbon. Poor quality transfer ribbon often has only a limited ability to dissipate the heat. This can contribute to overheating of the printhead, despite electronic protection against overheating

Poor quality transfer ribbon also tends to partially shed its ink coating, causing the printhead and sensors to accumulate dirt. In addition, with some transfer ribbons, the back coating can flake or smudge, leaving traces on the printhead. All of these effects contribute to lowering the print quality to below desired standards.

Numerous tests have been conducted with a very large number of different transfer ribbons and we recommend only ribbons supplied by reputable manufacturers. A variety of different transfer ribbons can sometimes be used for a particular type of label stock. The quality of print is determined by the correct combination of these materials.

NOTICE !
When choosing material, make sure the transfer ribbon is slightly wider than the width of the label backing.

The presence of transfer ribbon is sensed by the rotational movement control of the transfer ribbon unwinder, rather than with photocell sensors. As a result, ribbons that have a thinner coating or those with a colored coating can be used without problems.

The possiblity of printing labels up to the absolute end of the ribbon is restricted by the length of the uncoated "trailer", which attaches the end of the ribbon to the core.

NOTICE !
Make certain before purchasing transfer ribbon that the "trailer" (see above) is not more than 5.9" (150mm) long.

2 General Safety Instructions

CAUTION !

- The printers of the **Apollo** series are built exclusively to print labels and tags, continuous paper, etc. Do not use other materials than listed in Chapter 1.

- Connect the printer only to an outlet with the correct voltage ! The printer is configured for either 230V or 115V power supply, which can be switched using the input voltage selector at the back of the printer. Connect only to a power outlet with a **grounded** contact.

- The printer must only be connected to devices which have extra low voltage.

- Power must be OFF before plugging in any accessory or connecting the printer to a computer, etc. Also switch power off on all appliances before disconnecting.

- Do not expose the printer to any moisture, or use in damp or wet areas.

- The printer will operate with the cover open if necessary. This is not recommended, as moving or rotating parts become accessible. Keep long hair, jewelry, loose clothes away from the moving parts.

- During the print process the printhead will become hot. Use extra caution when touching the printhead.

3 Unpacking and Delivery Contents

Inspect the **Apollo's** packaging and contents immediately after receipt for possible damage caused by shipping.

The supplied equipment of the **Apollo** depends on the requested options. Compare the delivered accessories with your order.

NOTICE !
Please keep the original packaging in case the printer must be returned !

4 Printer Component Location
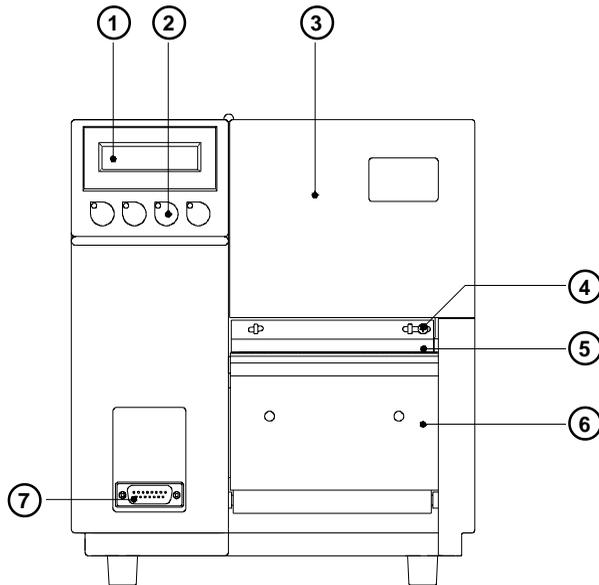
Fig. 4 a Front view

1 - Display
2 - Function keys with indicator LEDs
3 - Cover
4 - Ribbon shield screw
5 - Ribbon shield
6 - Dispense/ Tear-off plate
7 - Peripheral port
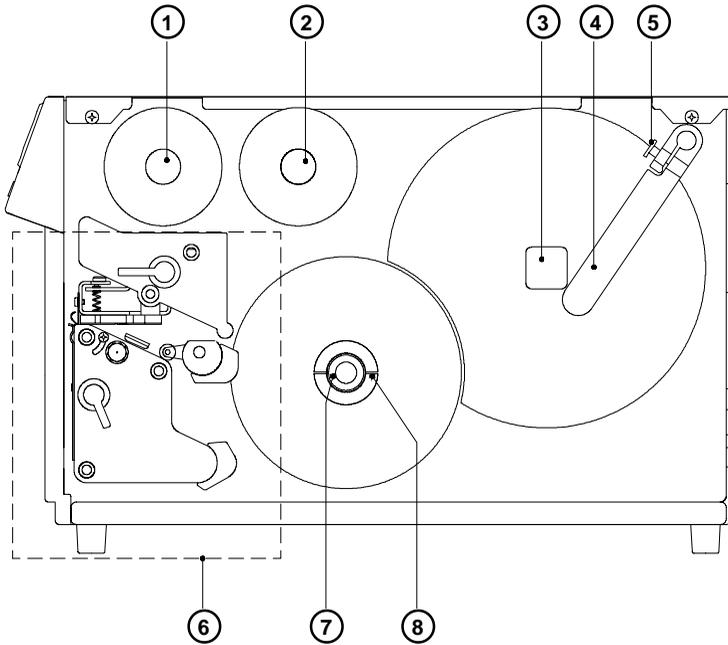
Fig. 4 b   Side view Apollo 1 (with cover open)

1 - Ribbon take up hub
2 - Ribbon supply hub
3 - Media hub
4 - Media retainer
5 - Media retainer knurled head screw
6 - Print mechanism (for details see Figure 4 c)
7 - Knurled knob
8 - Media rewind hub
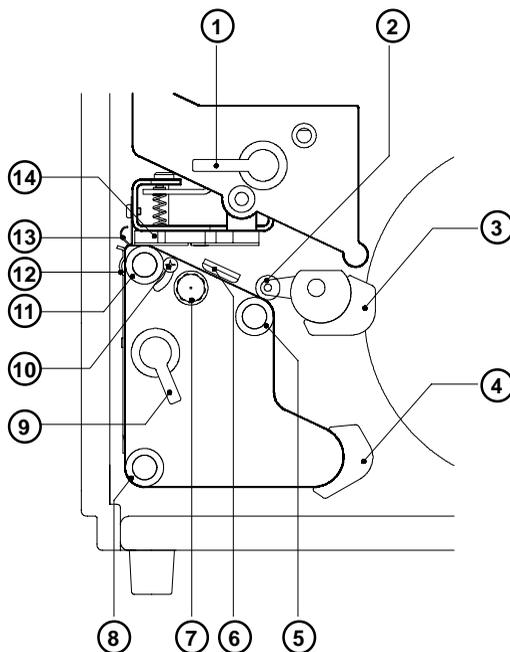
Fig. 4 c Detailed view of the print mechanism (Apollo 1)

1 - Printhead lever
2 - Upper pinch roller
3 - Media guide
4 - Rewind media guide
5 - Lower pinch roller
6 - Label edge sensor
7 - Label edge sensor adjustment knob
8 - Rewind assist roller
9 - Accessory lock/ release lever
10 - Printhead levelling adjustment screw
11 - Media feed roller
12 - Dispense/ Tear-off plate
13 - Ribbon shield
14 - Thermal printhead
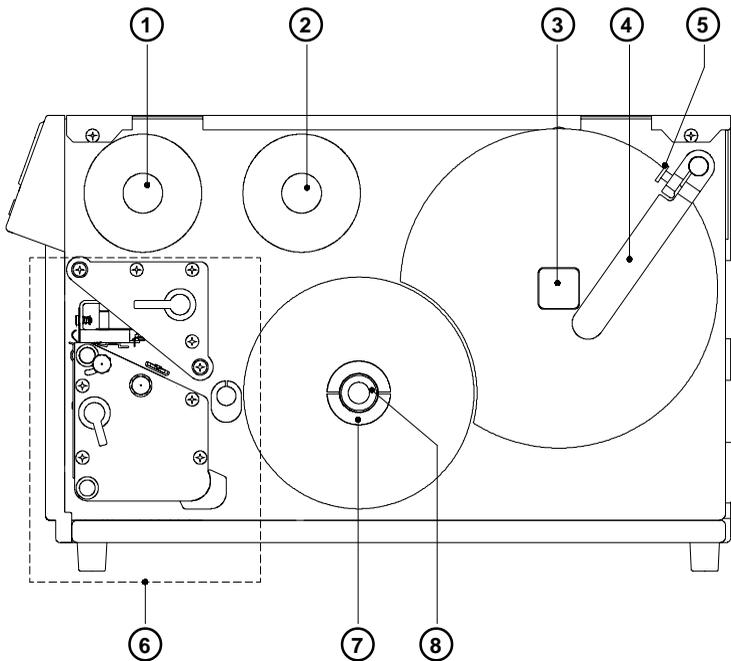
Fig. 4 d   Side view Apollo 2 (with cover open)

    1 - Ribbon take up hub
    2 - Ribbon supply hub
    3 - Media hub
    4 - Media retainer
    5 - Media retainer knurled head screw
    6 - Print mechanism (for details see Figure 4 e)

For **Apollo 2/300R** only

    7 - Media rewind hub
    8 - Knurled knob
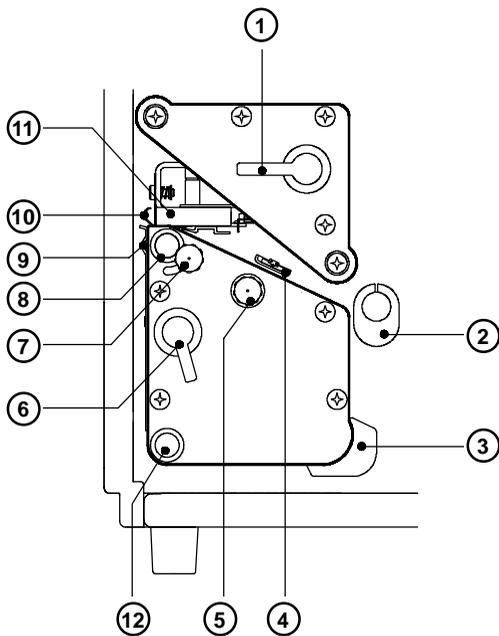
Fig. 4 e Detailed view of the print mechanism Apollo 2

  1 - Printhead lever
  2 - Media guide
  3 - Rewind media guide
  4 - Label edge sensor
  5 - Label edge sensor adjustment knob
  6 - Accessory lock/ release lever
  7 - Printhead levelling adjustment screw
  8 - Media feed roller
  9 - Dispense/ Tear-off plate
10 - Ribbon shield
11 - Thermal printhead

For **Apollo 2/300R** only

12 - Rewind assist roller
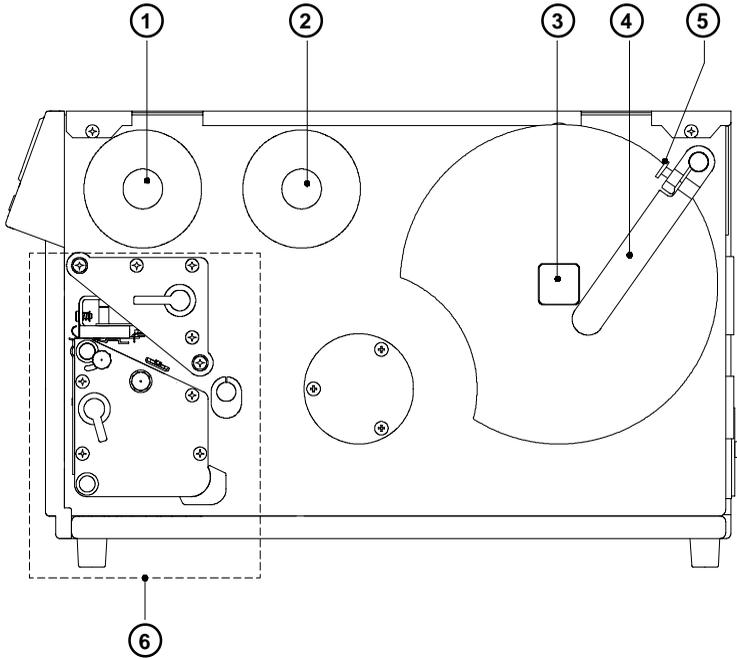
Fig. 4 f   Side view Apollo 3 (with cover open)

    1 - Ribbon take up hub
    2 - Ribbon supply hub
    3 - Media hub
    4 - Media retainer
    5 - Media retainer knurled head screw
    6 - Print mechanism (for details see Figure 4 g)
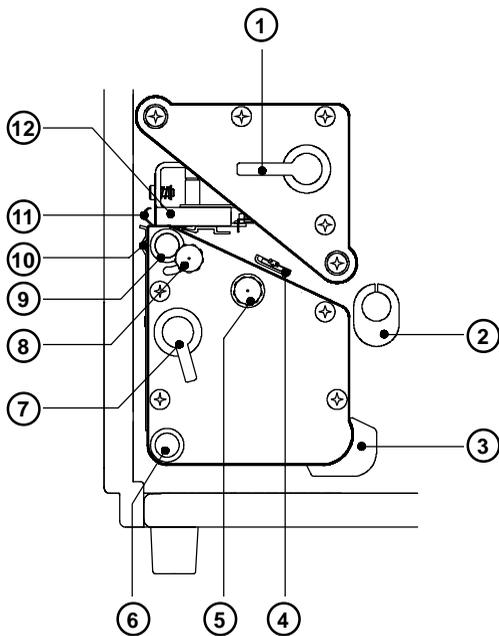
Fig. 4 g Detailed view of the print mechanism Apollo 3

 1 - Printhead lever
 2 - Media guide
 3 - Rewind media guide
 4 - Label edge sensor
 5 - Label edge sensor adjustment knob
 6 - Rewind assist roller
 7 - Accessory lock/ release lever
 8 - Printhead levelling adjustment screw
 9 - Media feed roller
10 - Dispense/ Tear-off plate
11 - Ribbon shield
12 - Thermal printhead
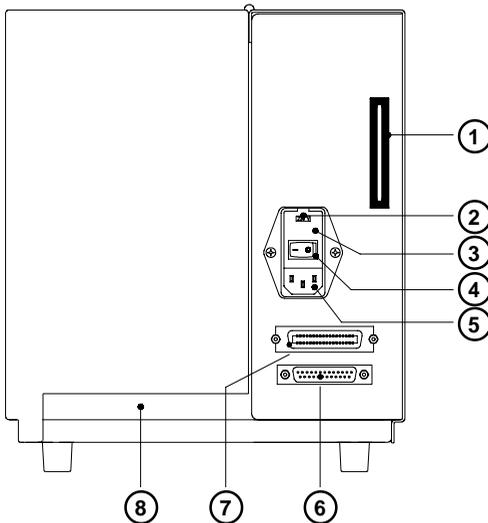
Fig. 4 h   Back view Apollo 1/2

1 - Memory card module slot
2 - Input voltage selector/ Fuse holder
3 - Input voltage selector cover
4 - Power switch
5 - Power supply connector
6 - Serial interface port
7 - Parallel interface port
8 - Slot for fanfold paper
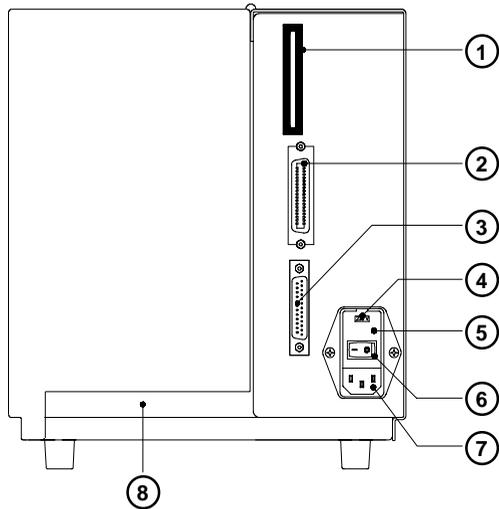
Fig. 4 i Back view of Apollo 3

1 - Memory card module slot
2 - Parallel interface port
3 - Serial interface port
4 - Input voltage selector/ Fuse holder
5 - Input voltage selector cover
6 - Power switch
7 - Power supply connector
8 - Slot for fanfold paper

5 Connecting the Printer

Connection to Power Supply

The **Apollo** is designed for use with 230V A.C/ 50Hz (standard) or 115V A.C/ 60Hz.

CAUTION !
Before connecting the printer to the power supply, make sure that the voltage selected on the power supply module of the printer is the same as your main power supply !

1 - Voltage selector
2 - Voltage selector cover
3 - Power switch
4 - Power supply connector

Apollo 1/2   Apollo 3
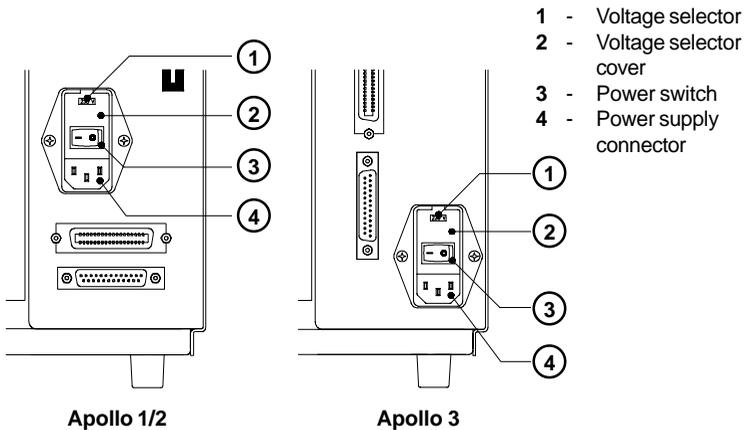
Fig. 5 a   Power supply module (detailed view/ rear of the printer)

To change the voltage setting, open the cover (**2**) and remove the voltage selector from the power unit.

CAUTION !
If you have changed the operating voltage of your printer the fuses need replacing as stated below !
Apollo 1/2 :   230V - 2 x T 4A   115V - 2 x T 6.3A
Apollo 3 :   230V - 2 x T 1.6A   115V - 2 x T 3.15A

When delivered, the correct fuses for the pre-selected operative voltage are installed. You will find the necessary fuses for the other voltage in the accessories package.
Slide the voltage selector back into the power supply module so that the correct voltage is visible in the lid window (**2**).
Connect the printer to a **grounded** outlet using the power cable supplied in the accessories package.

Connection to a Computer

The **Apollo** is equipped with three serial interfaces, these are RS-232, RS-422, and RS-485, all of them using the 25 pin interface connector (**2**) at the back.
In most cases, you can use the RS-232 interface for the connection to the computer. If your computer is located more than 50 ft (15m) away from the printer you should use the RS-422 interface.
The RS-485 interface is provided for using the **Apollo** as part of a networked system.

In addition to the serial port, the **Apollo** also provides a parallel (Centronics) interface which offers a faster transfer of data than the serial interfaces. Therefore, we recommend you use the parallel interface for those applications where a large number of loadable fonts or complex graphics have to be printed. For the Centronics interface use the 36 pin interface connector (**1**).

Select the required interface settings using the Setup procedure (see Chapter 9) and connect the printer to the computer by a suitable interface cable. You will find a list of typical cables as well as a description of the pin assignment of the interface connectors in Appendix B.

⚠️ **CAUTION !**
Make sure that all connected computers and their connecting cables are correctly grounded.

1 - Parallel interface port
2 - Serial interface port

Apollo 1/2   Apollo 3
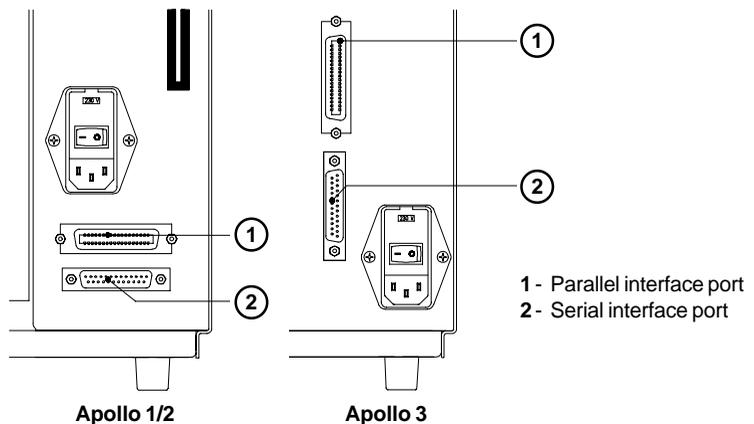
Fig. 5 b Interface ports (detailed view/ rear of the printer)

6 Media Loading

Loading Labels
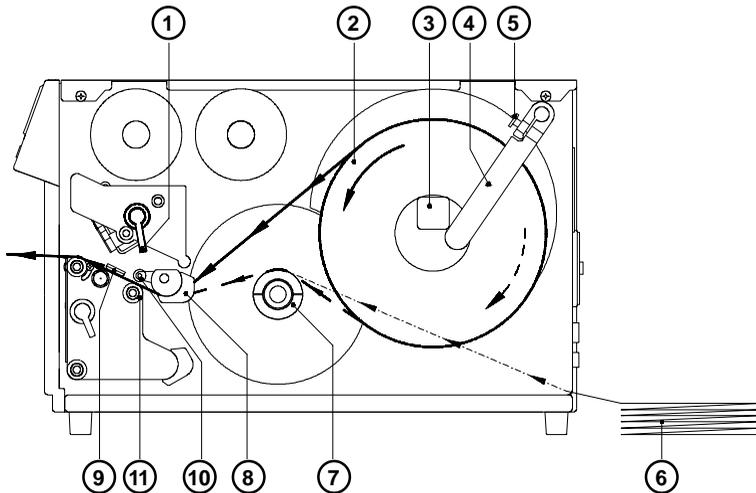
Fig. 6 a Media Loading Apollo 1

1. Lift the printhead by rotating the lever (**1**) clockwise until it stops.

NOTICE !
With Apollo 1, the printhead lever (1) has to be rotated by approximately 260°. Only if the swing movement has been completed will the upper pinch roller (10) be removed from the lower pinch roller (11), and the entire area is opened for loading the media.

2. Loosen the media retainer knurled screw (**5**) and swing the media retainer (**4**) upwards.

3. Place the label roll (**2**) onto the media hub (**3**).
    The solid line represents the feed path of outside-rolled labels, the broken line of inside-rolled labels. The broken-dotted line shows the media path of fanfold paper (**6**). For printers **with internal rewinder**, pay special attention that the media is properly fed above the internal rewind hub (**7**) when loading.
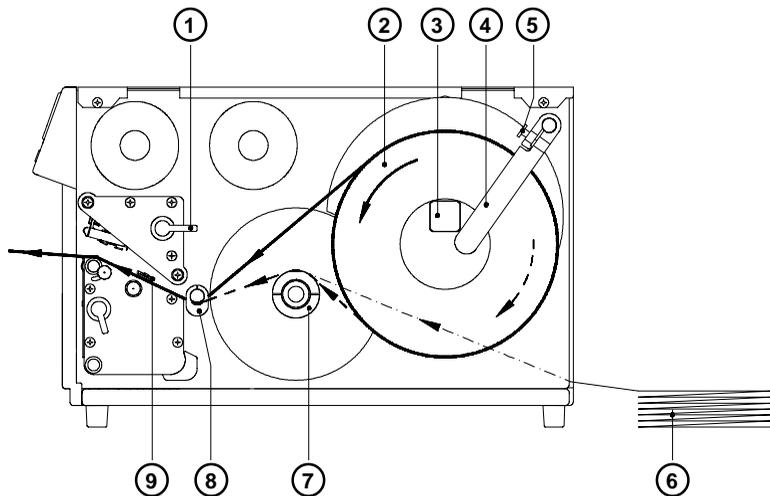
Fig. 6 b Media loading Apollo 2/3

4. Swing the media retainer (**4**) downwards to the media hub (**3**) and push it inwards until it rests against the side of the label roll.
    Tighten the knurled screw (**5**).

5. Slide the media guide (**8**) into its outermost position.

6. Unroll a length of label stock from the media roll and feed it through as shown in Figure 6 a/b.

NOTICE !
It is particularly important to ensure that the media strip slides properly between the fittings of the adjustable photocell assembly (9).

7. Slide the media strip right through the space between the print roller and the printhead until it comes out of the **Apollo**.

8. Slide the media guide (**8**) back towards the edge of the media strip.

9. Turn the lever (**1**) counter-clockwise until it stops and, thereby, lock the printhead.

NOTICE !
If you do not use the printer for an extended period of time, lift the printhead to avoid possible flattening of the print roller.

Loading Transfer Ribbon

Apollo 1   Apollo 2/3
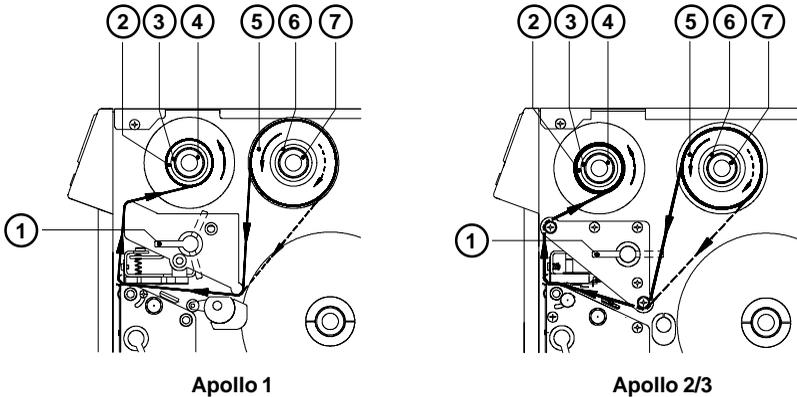
Fig. 6 c Loading thermal transfer ribbon

1. To lift the printhead, rotate the printhead lever (**1**) clockwise until it stops.

2. Slide the roll of transfer ribbon (**5**) onto the ribbon supply hub (**6**) as far as possible.

NOTICE !
Note which side of the transfer ribbon is coated with ink!   When the ribbon is inserted, the inked side must not be placed in contact with the printhead! In figure 6c the solid line represents ribbon with ink on the inner side, and the broken line represents ribbon with ink on the outer side.

3. Rotate the knurled knob (**7**) clockwise to clamp the roll of transfer ribbon (**5**) onto the ribbon supply hub (**6**).

4. Slide an empty cardboard core (**2**) onto the ribbon take up hub (**3**). Clamp the core by rotating the knurled knob (**4**) clockwise.

5. Feed the transfer ribbon along the path as shown in Figure 6 c, then attach it to the core (**2**) using adhesive tape or a label.

6. Turn take up hub (**3**) counter-clockwise until the ribbon in taut and without any wrinkles.
   For **Apollo 1**, first turn the lever (**1**) to a central position between the locked and unlocked positions.

7. To lock the printhead, rotate the lever (**1**) back counter-clockwise.

7 Adjustments Concerning the Labels

Adjustment of the Label Edge Sensor
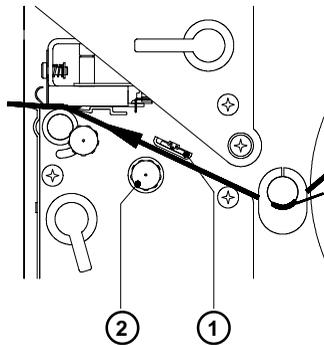
Fig. 7 a Adjustment of the label edge sensor

To accommodate a variety of print jobs, the position of the label edge sensor (**1**) can be adjusted at right angles to the path of the paper feed. This setting is particularly useful if the required labels are either narrow, or have punch holes or reflective markings, or deviate from the square or rectangular shape.

It is important to ensure that the sensor is positioned in a way that the gaps between the labels or the markings can be recognized by the photocell. (the position of the sensor is marked by a notch in the sensor holder)
If using labels with an unconventional shape (i.e. round or curved), the sensor should be positioned at the front edge of the label.

Adjust the sensor position using the knurled knob (**2**).
By turning the knob clockwise the sensor moves outwards, and by turning the knob counter-clockwise the sensor moves inwards.

Adjustment of the Printhead Support

Apollo 1   Apollo 2/3
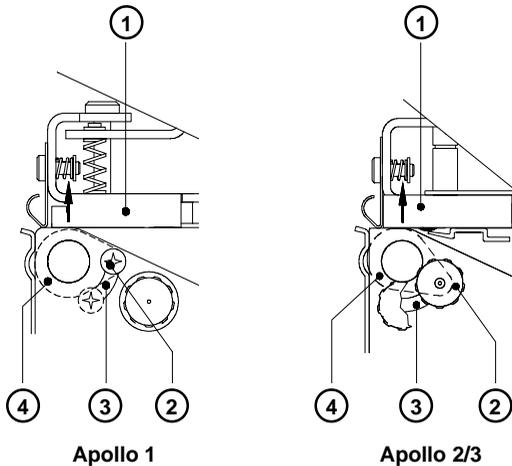
Fig. 7 b Adjustment of the printhead support

When printing narrow labels (width less than 2.5 in or 60 mm), it is possible that the printhead will come into direct contact with the drive roller. This will lead to premature wear on the printhead. In addition, the printhead will be at a slight angle to the label, thus, the uneven pressure may result in an inconsistent image density from one edge of the label to the other.

To correct this problem, the printhead support (**2**) may be adjusted.
Adjust printhead support as follows :

1. Loosen the locking screw (**2**). For **Apollo 1**, this screw is an oval-headed screw, whereas for **Apollo 2/3** it is a knurled screw.

2. Move the locking screw (**2**) as required within the adjustment slot (**3**). This will cause the cam shaped printhead support (**4**) to rotate, in effect, providing a higher or lower base on which the printhead mounting (**1**) rests. As the adjustment criterion, check the quality of the print image.

3. Tighten the locking screw (**2**).

NOTICE !
Incorrect adjustments of the printhead support may cause wrinkles in the transfer ribbon.

Adjustment of the Transfer Ribbon
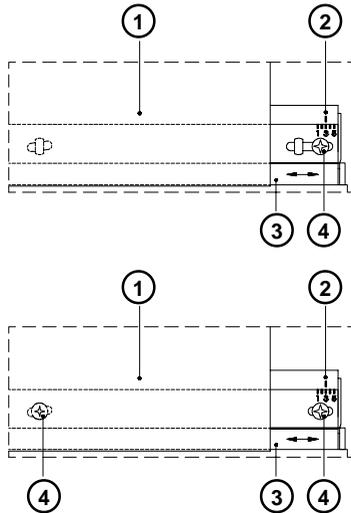
Apollo 1/2

Apollo 3

Fig. 7 c   Adjustment of the transfer ribbon

If creases, lines or black patches appear in the print image resulting in a poor print quality, this may be caused by wrinkles in the transfer ribbon (**1**). To remove the wrinkles, the tension of the ribbon should be made even from the left to the right by moving the ribbon shield (**3**) up or down.

1. Loosen the adjustment screws (**4**).

2. Shift the transfer ribbon shield (**3**) sideways into the direction of the wrinkle. Moving it to the left will increase the tension on the left.
   Use the scale (**2**) provided to monitor the adjustments made. If the screw is in position "1", the tension is highest on the outside, and if it is in position "5", the tension is highest on the inside.

3. After completing the adjustment, tighten the securing screw (**4**).

8 Control Panel

The front control panel of the Apollo is fitted with 4 function keys with indicator LEDs, and a 2x16 character digital LCD display.


```
ONLINE
08:50:22
```

ONL   FF   CAN   PSE
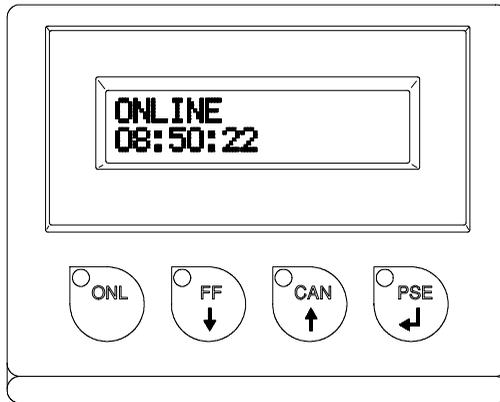
Fig. 8 Front control panel

The control panel display constantly provides the operator with the actual information concerning the current printer mode and label processing. The indicator LEDs support the information shown in the display by indicating which keys have to be pressed. (e.g. in the event of a fault)

On the following pages, you will find descriptions of the system modes of the **Apollo**, the related indications by the LCD display and the LEDs as well as a description of the function keys under differing conditions.

System Mode SYSTEM TEST

When switched on, the **Apollo** automatically performs an internal self test.
If the test is completed successfully, the Apollo proceeds to the ONLINE mode,
or otherwise the printer switches to system mode FAULT - IRRECOVERABLE.

Display

The top line of the display shows the version of the printer, for instance
" **** APOLLO 3 **** ".
The bottom line of the display shows the numbers "123456" one after the other
depending on the progress of the several test steps.

LED Display

All LEDs flash up once briefly.

Function keys

The function keys have no effect.

System Mode ONLINE

The printer is switched ON and ready to receive data.

Display

The top line of the display shows "ONLINE".
The bottom line of the display shows the time of day.
During the transfer of data, a rotating pointer appears in the right hand corner of the bottom line of the display.
When saving data on the PC card, a filled rectangle appears in the right hand corner of the bottom line of the display.

LED Display

LED ONL on.

Function Keys

ONL	ONL key	Switch into OFFLINE mode. (LED ONL off)
FF	FF key	Provides label feed. The leading edge of the next label to be printed is in print position.
CAN	CAN key	Deletes data of the previous print job in internal memory. Following that, "Pause reprint" is not available. (see PSE key)
PSE	PSE key	Repeats the print of the last label, after the previous print job has been completed. (only when setup parameter "Pause reprint" is on)
ONL + CAN	ONL key + CAN key	Pressing both keys together for at least 5 seconds will switch into the SETUP mode. (LED ONL off)

Table 8 a Key functions in ONLINE mode

System Mode OFFLINE

The printer is not ready to print or to receive data.
The status of the printer may be requested.

Display

The top line of the display shows "OFFLINE".
By repeatedly pressing the PSE key, the status of the printer will be shown.
(see also Chapter 11)

LED Display

The display is blank.

Function Keys

⃝ONL	ONL key	Switch into ONLINE mode. (LED ONL on)
⃝FF	FF key	Provides label feed. The leading edge of the next label to be printed is in print position.
⃝CAN	CAN key	Switch into LABEL FROM CARD mode. (only if memory card is installed and formats are stored on it)
⃝PSE	PSE key	Display shows current printer mode. ("Printer info"/ see also Chapter 11)

Table 8 b Function keys in OFFLINE mode

System Mode PRINT

The printer is in operation.
In this mode, the transfer of data is possible. New print jobs will be carried out immediately following the completion of the previous job.

Display

The top line of the display shows the message "Printing label".
The bottom line displays the current number of printed labels.
During the transfer of data, a rotating pointer appears in the right hand corner of the lower display line.

LED Display

LED ONL on.

Function Keys

	CAN key	Cancels the current print job. Switch into ONLINE mode. (LED ONL on)
	PSE key	Interrupts the current print job. Switch into PAUSE mode. (LED PSE on)

Table 8 c Function keys in PRINT mode

System Mode PAUSE

The printing process is temporarily interrupted by the operator.

Display

The top line of the display shows "PAUSE".

LED Display

LED ONL on, LED PSE on.

Function Keys

$\overset{\circ_{FF}}{\downarrow}$	FF key	Provides label feed. The leading edge of the next label to be printed is in print position.
$\overset{\circ_{CAN}}{\uparrow}$	CAN key	Cancels the current print job. Switch into ONLINE mode. (LED PSE off)
$\overset{\circ_{PSE}}{\downarrow}$	PSE key	Continues the current print job. Switch into PRINT mode. (LED PSE off)

Table 8 d Function keys in PAUSE mode

System Mode FAULT-CORRECTABLE

The printer has encountered a fault during printing which is easily correctable by the operator (e.g. "Out of paper"), following which the printing process may be continued.

Display

The top line of the display shows alternately the type of fault and the total of the remaining labels of the current print job.

LED Display

LED CAN on, LED PSE is flashing.
If an applicator is connected: LED FF is flashing.

Function Keys

$\overset{\circ}{\underset{\downarrow}{FF}}$	FF key	Only if an applicator is installed : Provides a label feed in order to synchronize the paper feed for the next print run.
$\overset{\circ}{\underset{\uparrow}{CAN}}$	CAN key	Cancels the current print job. Switch into ONLINE mode. (LED ONL on, LED CAN off, LED PSE off)
$\overset{\circ}{\underset{\leftarrow}{PSE}}$	PSE key	Continues current print job after error correction. Switch into PRINT mode. (LED ONL on, LED CAN off, LED PSE off)

Table 8 e Function keys in mode FAULT-CORRECTABLE

cab - Produkttechnik GmbH & Co KG / Tharo Systems, Inc.

System Mode FAULT-IRRECOVERABLE

While switching on the printer or during printing, a fault has occured which cannot be cleared by the operator without cancelling the current print run. (e.g. hardware fault)

Display

The display shows the type of fault.

LED Display

LED CAN is flashing.

Function Keys

	CAN key	Cancels the current print job. Switch into ONLINE mode. (LED ONL on, LED CAN off, LED PSE off) If ONLINE mode cannot be entered, switch printer on and off again. If the fault remains contact Technical Service.

Table 8 f   Function keys in mode FAULT - IRRECOVERABLE

System Mode SETUP

To enter the SETUP mode, use either one of the procedures described below :

either :   press both keys, the $\boxed{^{\circ}_{ONL}}$ key and the $\boxed{^{\circ}_{CAN}\uparrow}$ key

simultaneously when switching on the printer, and keep them pressed down, until the system test is completed;

or :   in ONLINE mode, press both keys, the $\boxed{^{\circ}_{ONL}}$ key and the $\boxed{^{\circ}_{CAN}\uparrow}$

key simultaneously for at least 5 seconds.

In SETUP mode, various printer parameters can be specified to suit the current print requirements. (for details see Chapter 9)

Display

Following the completion of the system test, the display briefly shows "SET-UP", followed by "Land" or "Country". Depending on the selection, all of the setup parameters and their settings will be shown.

LED Display

All LEDs off.

Function Keys

$\boxed{^{\circ}_{ONL}}$	ONL key	Stores the chosen settings of the setup parameters and completes the SETUP mode. (i.e. switch into ONLINE mode/ LED ONL on)
$\boxed{^{\circ}_{FF}\downarrow}$	FF key	Skips to next setup parameter. Reduces numerical setup values.
$\boxed{^{\circ}_{CAN}\uparrow}$	CAN key	Skips to previous setup parameter. Increases numerical setup values.
$\boxed{^{\circ}_{PSE}}$	PSE key	Confirms selected settings for parameters.

Table 8 g Function keys in SETUP mode

System Mode TEST PRINT

The TEST PRINT mode is entered by pressing the ⏻ONL key when switching

on the printer, and keeping it pressed down until the system test is completed.
Following, an internal test sample will be printed. (for details see Chapter 10)
Then, the system test will be repeated.

Display

Following the completion of the system test, the display shows "Test print".

LED Display

LED ONL on.

Function Keys

⏻CAN	CAN key	Cancels the test print. Switch into SYSTEMTEST mode.

Table 8 h Function keys in TEST PRINT mode

System Mode MONITOR MODE/ ASCII Dump Mode

The monitor mode/ ASCII Dump mode is entered by pressing the $\begin{pmatrix} \circ \\ FF \\ \downarrow \end{pmatrix}$ key

when switching on the printer, and keeping it pressed down until the system test is completed.
In this mode, the control codes received by the printer are directly printed as text corresponding to the set font, rather than being interpreted as defined by the programming.

Display

After the completion of the system test, the display shows "ASCII Dump Mode".

LED Display

LED ONL on.

Function Keys

ONL key	Switch into ONLINE mode.
FF key	Initiates a paper feed of about .8 in (21 mm).

Table 8 i Function keys in MONITOR MODE/ ASCII Dump mode

cab - Produkttechnik GmbH & Co KG / Tharo Systems, Inc.

System Mode LABEL FROM CARD

Provided that a memory card is installed and a label format is present, in

OFFLINE mode, press the $\begin{smallmatrix}\text{CAN}\end{smallmatrix}$ key to enter the LABEL FROM CARD mode.

In this mode, the labels stored on the card can be selected to print; for files with a variable number of labels the quantity of labels to be printed can be set.

Display

The top line of the display shows "Label from card". The bottom line of the display shows the file name of the first label file in the list stored on the card. After the requested label has been selected, for files without a fixed number of labels the display shows "No. of labels" in the top line and "00001" in the bottom line.

LED Display

All LED's off.

Function keys

ONL	ONL key	Switch into OFFLINE mode.
FF	FF key	For scrolling down within the file list stored on the card. Reduces the quantity of labels to be printed.
CAN	CAN key	For scrolling up within the file list of the card. Increases the quantity of labels to be printed.
PSE	PSE key	Confirms file selection. Moves the cursor to the right when setting the quantity of labels to print. Switch into PRINT mode.

Table 8 k Function keys in the LABEL FROM CARD mode

9 Setup

Using the setup mode, the configuration of the **Apollo** may be customized to suit specific requirements. Initial setup should be performed when operating the printer for the first time. Changes which become necessary to process different print jobs, e.g. when different materials are used, can mostly be accomplished by changing the software settings.

Start of Setup Mode

This mode is initiated by **either** simultaneously pressing the ⌾ONL key and the

⌾CAN key when switching on the printer and keep them pressed down until the system test is completed, **or** in ONLINE mode, press the same two keys down for at least 5 seconds.

Starting the setup mode, the display shows "SETUP" for about one second , followed by "Land" or "Country" which represents the first of the parameters to select from. Depending on the selection, the setup parameters and their settings will be shown. The list of parameters is brought up in a row and may be run through repeatedly.

Each time a parameter setting has been changed, there will be a request for confirmation. There will not be a general request before leaving the setup mode.

The setup mode can be left at any point by pressing the ⌾ONL key.

The confirmed parameters will be saved.

If an already confirmed setting is not desired any more, switch off the printer during the setup mode to cancel changes.

To return to the original factory default settings, press all three keys, the ⌾ONL

key, the ⌾FF key, and the ⌾PSE key simultaneously and keep them pressed

down until the display shows "--- RESTORE ---".

Note, that in some cases the printer may initially be set to certain parameters which may differ from the default settings. (e.g. "Country")
On the following pages, you will find details to change the setting of the parameters.

Overview of the Setup Parameters

Starting Setup

①	Country	(#)
②	Transfer print	#
③	Label sensor	#
④	Interface	
⑤	Cut position	#
⑥	Peel position	#
⑦	Printhead position	#
⑧	Heat level	#
⑨	Printer info	
⑩	Set date	#
⑪	Set time	#
⑫	Character set	
⑬	Format card	
⑭	Copy card	
⑮	Backfeed	(#)
⑯	Debug mode	
⑰	Tear-off position	#
⑱	Pause reprint	
①	Country	(#)
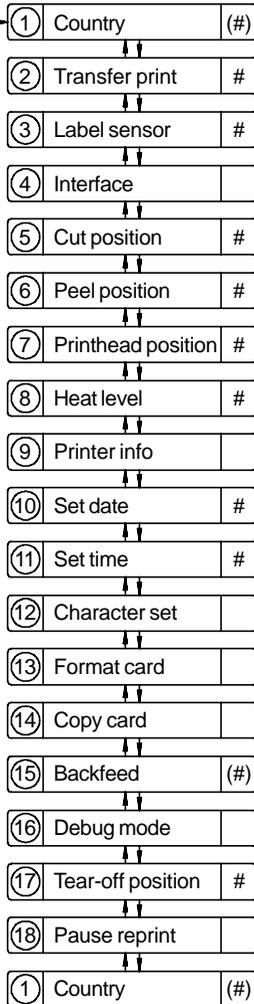
Scrolling up/down the parameters :

CAN ↑ ↓ FF ↓
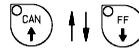
Definition of the list items :

No	Para	#

No .... Item number
Para ...... Name of the parameter
.... Parameter may be altered via software
(#) .... Parameter is limited changeable via software

Fig. 9 a Setup parameters

Country/Land

The Parameter "Country" (or "Land") allows the LCD display language to be set, which also dictates the format of date and time used for the printer display as well as for printing.

The formats of date and time used for the printout can be altered via software. The language that the prompts on the LCD are displayed in cannot be altered through software, only with the front panel.

Default Setting : USA
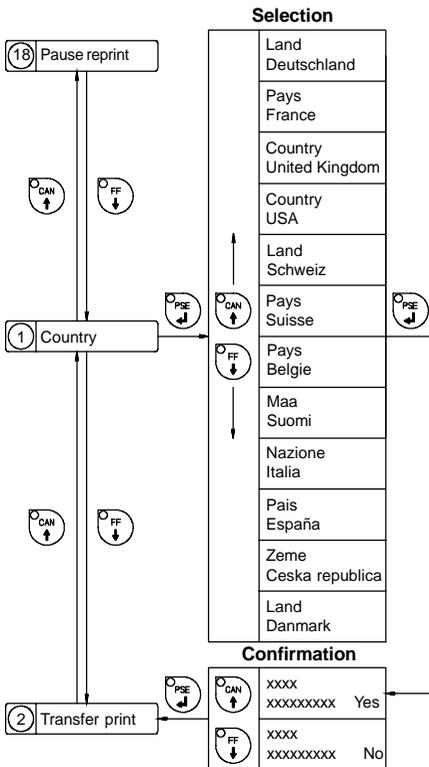
Fig. 9 b Set "Country" parameter

The following table shows the specific settings for the date format and the time format of all countries available.

	Date	Time
Land Deutschland	22.01.2001	14:15:56
Pays France	22.01.2001	14:15:56
Country United Kingdom	22/01/2001	14:15:56
Country USA	1-22-2001	02:15:56 pm
Land Schweiz	22.01.2001	14,15,56
Pays Suisse	22.01.2001	14,15,56
Pays Belgie	22/01/2001	14:15:56
Maa Suomi	22.01.2001	14:15:56
Nazione Italia	22-01-2001	14:15:56
Pais España	22-01-2001	14:15:56
Zeme Ceska republica	22.01.2001	14:15:56
Land Danmark	22/01/2001	14:15:56

Table 9   Specific format settings for date and time

Transfer Print

The parameter "Transfer print" is used to set the **Apollo** to the print mode, either direct thermal printing or thermal transfer printing.
This setting has an influence on two factors. On one hand, in thermal transfer mode the printer works at a lower heat level compared to the direct thermal printing mode. On the other hand, the ribbon sensor is only active in thermal transfer printing mode.

NOTICE !
This parameter can also be changed via software. For different print jobs it is recommended to make all changes in the <u>software</u>.

Default Setting : Transfer print ON
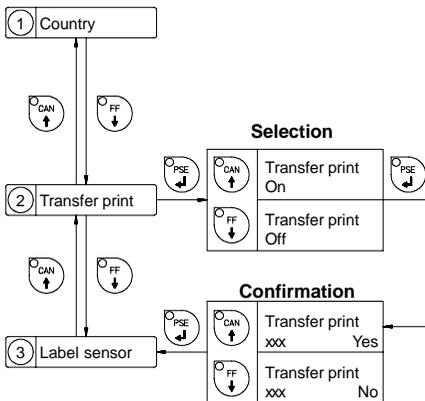
Fig. 9 c Set "Transfer print" parameter

Label Sensor

The printers of the **Apollo** series offer different methods for recognizing the front edge of the label.

In most cases, the label edge sensor photocell can be used in the see-through mode ("Gap sensor" mode), where the different transparency of the material is used to distinguish between the labels and the gaps.

In certain cases, for instance when pre-printed continuous paper is used, the label edge can also be recognized through reflective marks. (see also section about label formats; page 20) All versions of the **Apollo** offer the see-through mode and reflective mark recognition on the bottom side of the material. In addition, **Apollo 1** and **Apollo 2** are also able to recognize reflective marks on the top of the material.

NOTICE !
This parameter can also be changed via software. For different print jobs it is recommended to make all changes in the software.

Default Setting : Gap sensor
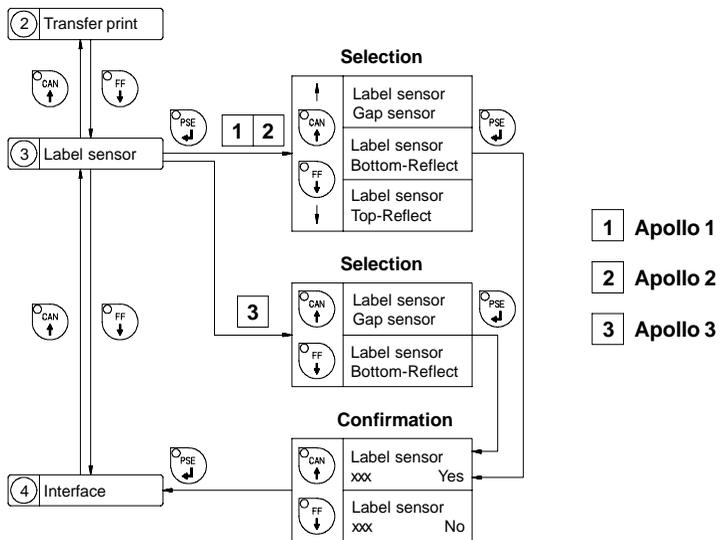
Fig. 9 d Set "Label sensor" parameter

Interface

The settings of this parameter determine the method of communication between printer and computer.
Therefore, the type of interface and, if necessary, the baud rate, and the protocol or network address can be specified.

Selectable Interfaces :

RS-232 :   Serial standard interface, available at each computer

RS-422 :   Serial interface for long distance transmissions,
                      special interface at the computer required

RS-485 :   Serial interface for network solutions
                      special interface at the computer required

Centronics :   Parallel interface, available at each computer

The parameter setting cannot be changed via software.

Default Setting :   Interface RS-232, baud rate 9600, protocol RTS/CTS
                      (network address A)
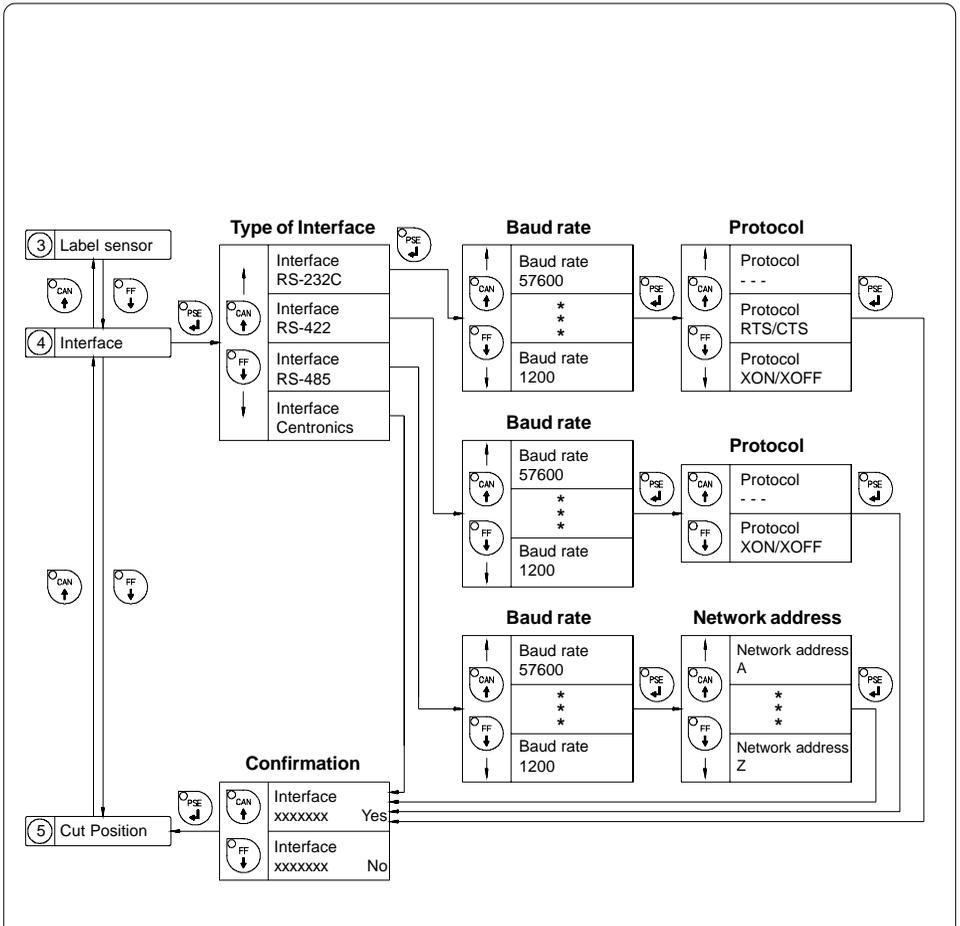
Fig. 9 e Set "Interface" parameter

Cut Position

Using the optional cutter, the "Cut position" parameter allows you to alter the distance between the cutting edge and the rear edge of the label. Normally, with the initial offset value of "0" the cutting edge is in the middle of the gap between two labels. Adjustments have to be carried out only once after a cutter has been installed. (range from -.33 to +.33 in or -8.4mm to +8.4mm) If the cut position value is positive, the media will be advanced before it is cut, that means there is a greater distance between the cutting edge and the rear edge of the label.

NOTICE !
It is recommended that you carry out changes for single print jobs in the software. (e.g. if the cut is not wanted in the middle of the gap)
The software provides a second value for individual adjustments.

You may also change this value using the software commands. Any front panel value and software command value are totaled together for printing.

The current field to be changed is flashing in the display.
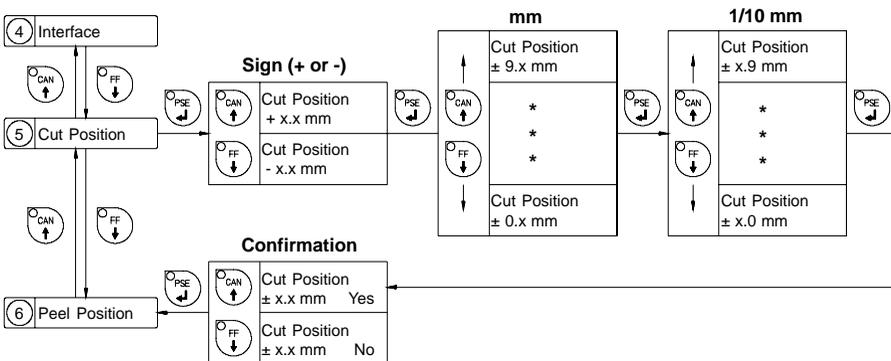
Fig. 9 f Set "Cut Position" parameter

Peel Position

Using the optional present sensor, the "Peel position" parameter allows you to alter the position of the dispensed label relative to the dispense edge. Normally, with the initial offset value of "0" the label is removed from the carrier ribbon until only a .08 in or 2 mm wide part of the label still sticks on the ribbon. Adjustments have to be carried out only once when a present sensor is being installed. (range from -.33 to +.33 in or -8.4 mm to +8.4 mm) If the peel position value is positive, the label will be removed further leaving a smaller strip sticking on the carrier ribbon.

NOTICE !
It is recommended that you alter the parameter for single print jobs via software (e.g. if an applicator is used and, therefore, the labels have to be removed completely). The software provides a second value for individual adjustments.

You may also change this value using the software commands. Any front panel value and software command value are totaled together for printing.

The current field to be changed is flashing in the display.
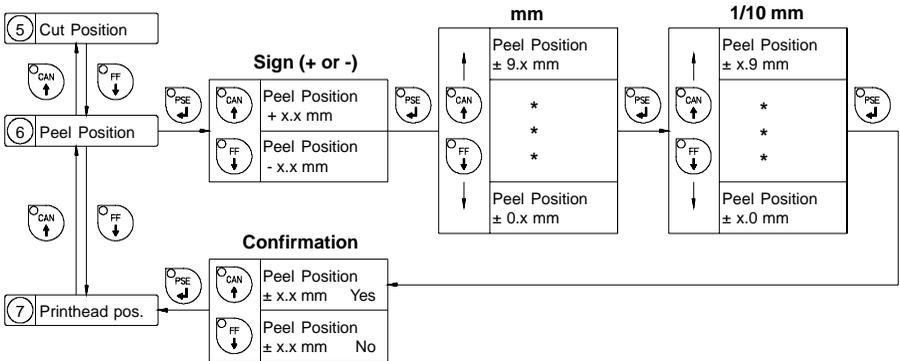
Fig. 9 g Set "Peel Position" parameter

Printhead Position

The "Printhead position" parameter defines the location of the print image on the label in x- and y-direction. The parameter should only be altered if you are using the same label formats on several printers, and you find the print image located differently on the labels when they were printed on another printer.

X-Offset

With this parameter the location of the print image can be shifted across to the label path. It is possible to set a shifting until .33 in (8.4 mm) outward in the Setup.

NOTICE !
The value of X-offset cannot be greater than the difference of the printhead width and the defined label width in software. A value greater than the difference will be ignored and the actual difference will be used in place.

The setting of a negative X-offset value (shifting the print image inward) is not possible.

Y-Offset

With this parameter the location of the print image can be shifted in the direction of the label path (range from -.39 to +.39 or -9.9 mm to +9.9 mm). When the offset values are positive the printing in the direction of the label path starts later.

NOTICE !
Changing the Y-offset also effects the peel position and cut position as well. It will be necessary to readjust the values for the peel and cut positions using the previous value +/- the printhead position value.

Adjustments for various print jobs may also be carried out via software which provides an additional offset value. There are additional offset values in x- and y-direction.

Any front panel value and software command value are totaled together for printing.

The current field to be changed is flashing.
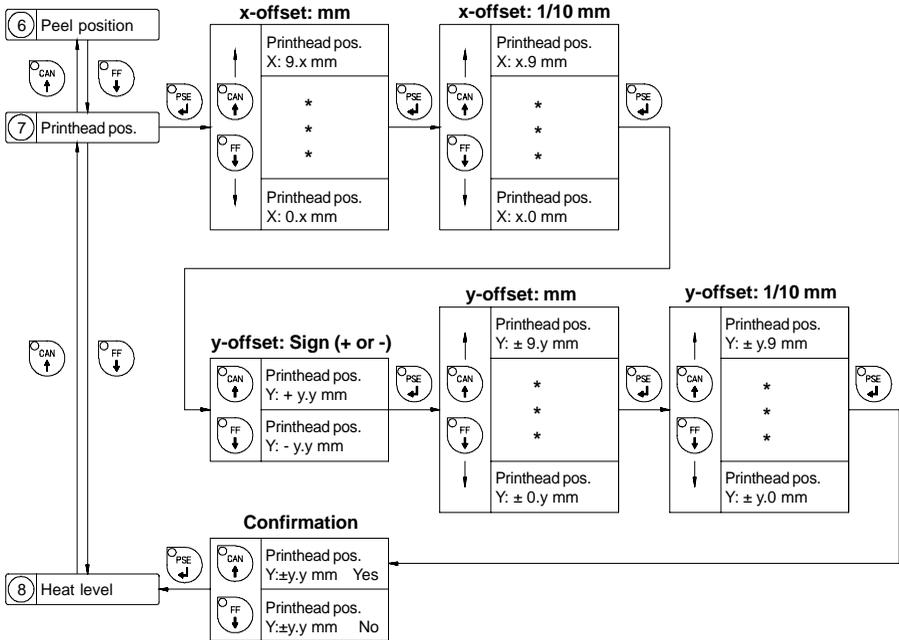
Fig. 9 h Set "Printhead Position" parameter

Heat Level

The parameter "Heat level" enables the printer to adapt to possible differences in the thermal properties of different printheads.
The parameter scale is from -9 to +9.
A previous adjustment has already been carried out in the factory.
In the event of replacing the printhead, the setting possibly has to be adjusted.

NOTICE !
To adjust the printer to current print jobs, it is recommended that you alter the heat level parameter via software. (e.g. for different material and speed)

Any front panel value and software command value are totaled together for printing.

The current field to be changed is flashing in the display.
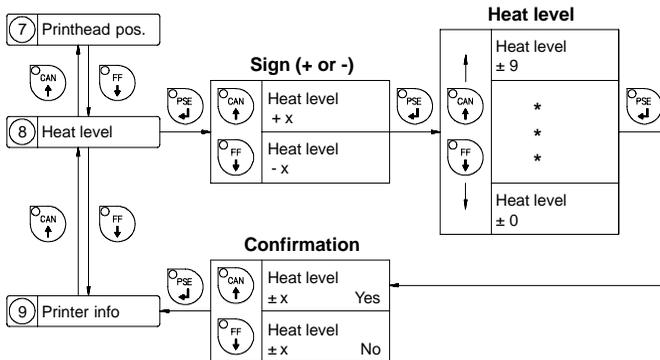
Fig. 9 i Set "Heat level" parameter

Printer Info

The "Printer info" parameter provides information about the firmware. Furthermore, information about the cumulative length of printed media as well as the number of operating hours are shown.
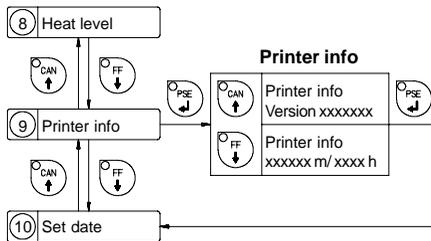
Fig. 9 k Printer info display

Set Date

The "Set date" parameter allows you to change the system date of the **Apollo**. The date format shown depends on the selected "Country" parameter. Regardless of the format, the order of data to be changed (day - month - year) always follows the same routine as shown below. (Figure 9 l)

The date range available is from January 1, 1970, to December 31, 2069.

If an invalid date entry is made, the display shows "Invalid input!"

After pressing the [PSE] key the parameter may be set again.

Date changes in the software will only influence the date on the printout but not affect the system date as stored in the setup.

The current field to be changed is flashing in the display.
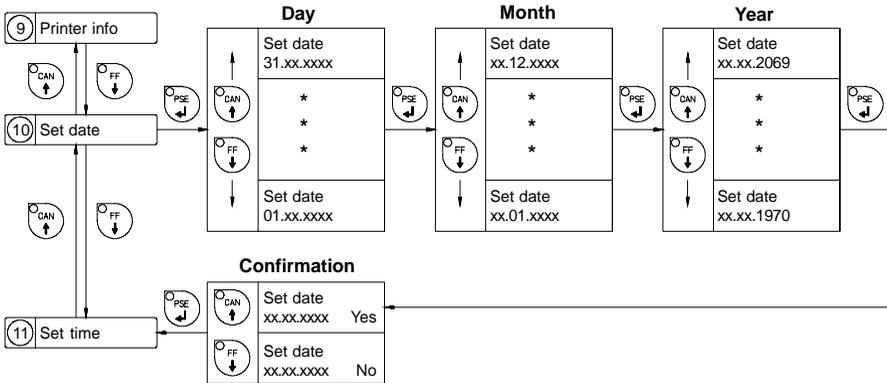
Fig. 9 l Set system date

Set Time

The "Set time" parameter allows you to change the system time of the **Apollo**. The time format shown in the display depends on the selected "Country" parameter.

Time changes in the software will only influence the printout but not affect the system time of the printer. The changed time will neither be shown in the display nor be stored in the printer setup.

The current field to be changed is flashing in the display.
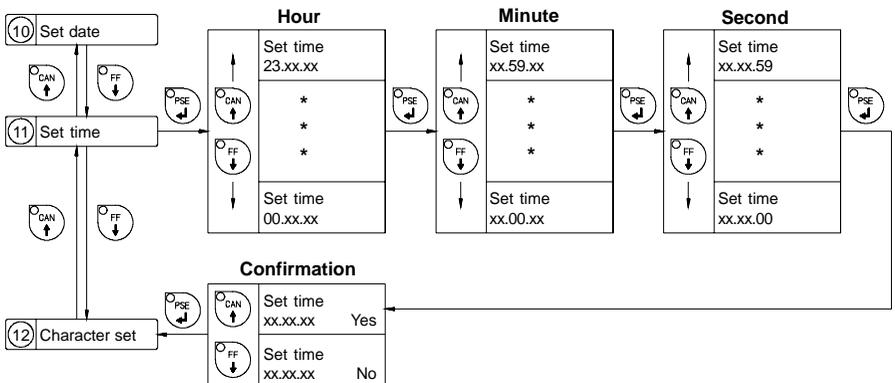
Fig. 9 m Set system time

Character Set

Before starting to operate the **Apollo**, the "Character set" of the printer should be adapted to the character set of the computer.

Adjustment via software is not possible, however, for characters which are not included in the selected fonts the Unicode character table can be used.

The character set tables are included in Appendix A.

Default Setting : Windows 1252

Selection

(11) Set time	Character set ISO 8859-1
	Character set Codepage 850
	Character set EBCDIC
(12) Character set	Character set Macintosh
	Character set Codepage 852
	Character set ISO 8859-8
	Character set Windows 1252
	Character set Windows 1250

Confirmation

(13) Format card	Character set xxxxxxx Yes
	Character set xxxxxxx No
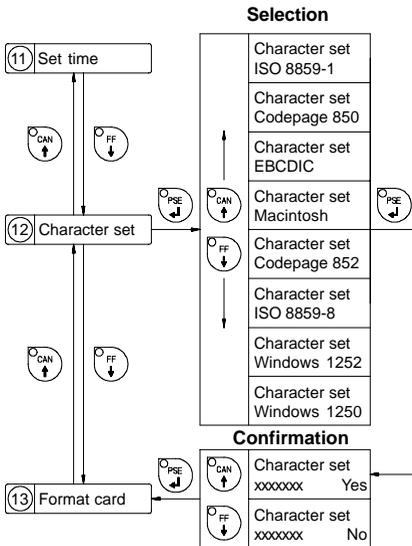
Fig. 9 n Set "Character set" parameter

Format Card

The "Format card" facility may be used to delete all stored data from a memory card, for instance PC card, PCMCIA card, etc. (optional)
The delete process will format the card. Therefore, this option may also be used to prepare new memory cards for operation.
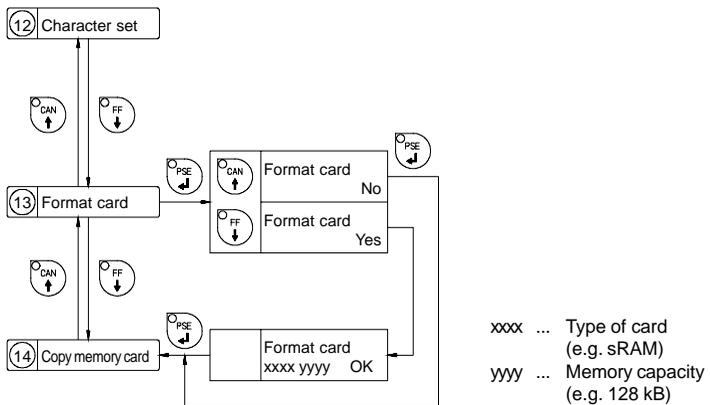
Fig. 9 o   Delete/Format a memory card

If the procedure has been started without having a card installed the display will show "No card".

Pressing the [PSE] key will skip to the following parameter.

Copy Memory Card

The "Copy memory card" facility may be used to copy information from one memory card, for instance PC card, PCMCIA card, etc., onto another one.

NOTICE !
Before starting the duplication, the source card has to be installed.
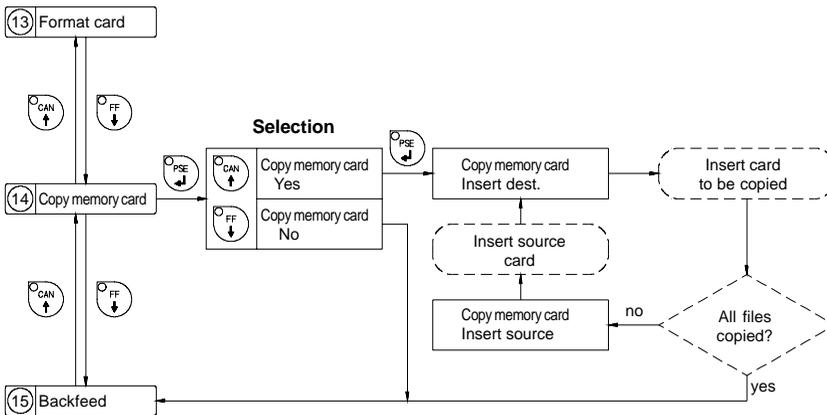
Fig. 9 p Copy memory card

The duplication is carried out file by file. This allows the usage of memory cards with different capacities.

When the duplicate card cannot store any more information the display shows "Card full".

If data with a capacity of more than 1Megabyte has to be copied, the duplication process will be divided into several cycles. Alternately, the printer display will ask to insert either the source card or the duplicate card.

Backfeed

In the cut and dispense mode, the material will be stopped in a position where the front edge of the following label has already been forwarded over the print line. The **Apollo** will carry out a backfeed of the label material from its cut/ dispense position to the print line. Thus, the next label can be printed all at once. The backfeed will be performed independent of the label design if the parameter is set on "always". If the setting is on "smart", the backfeed will only be performed if the front label is in its cut/ dispense position and the **Apollo** has not yet received all of the data for printing the following label. Otherwise, the print of the second label will be started, but only completed after the first one has been picked up. Smart backfeed can cause flaws in the printed image.

Besides, **Apollo 1** offers to select from two backfeed modes, either "head lift-off" or "head down". By selecting Head lift-off the printhead is raised with each backfeed of material. This prevents smudging of the label material by the ribbon. If the printhead is turned down the accuracy of positioning is more precise.

Default Setting : head lift-off (Apollo 1), smart

1 Apollo 1

2 Apollo 2

3 Apollo 3
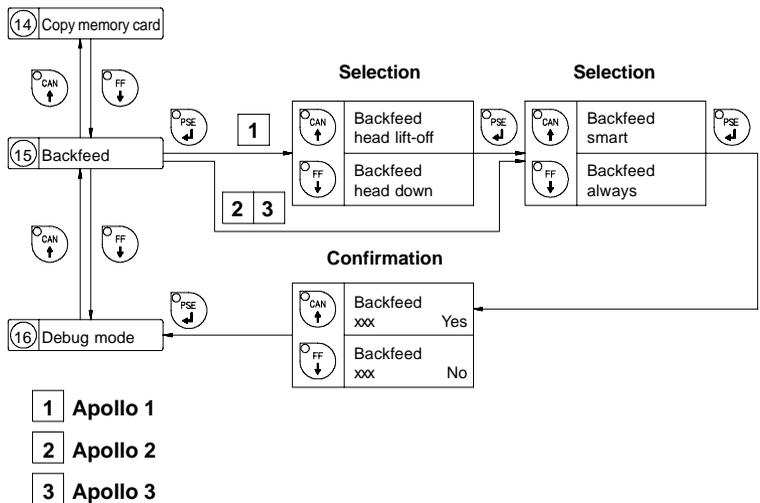
Fig. 9 q Set "Backfeed" parameter

Debug Mode

The "Debug mode" represents a tool for the firmware programmer.
It will help to recognize faults and their possible sources beyond standard error messages.

For standard use of the printer, the parameter should always be switched OFF.

Default Setting : Debug mode OFF
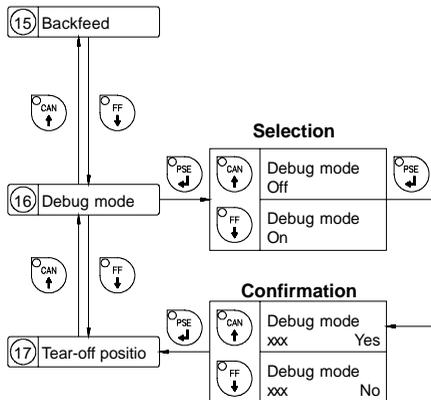
Fig. 9 r Set "Debug mode"

Tear-off Position

If the "Tear-off position" is active, an additional feed forwards will take place
after completion of the print job. This makes it possible to cut off the last label
at the tear-off plate. After starting a new print job, first the label material will be
fed back until the front edge of the first label is located at the print line.
If the parameter is OFF, the label dispense stops immediately after the last
label has completely passed the print line.

Default Setting : Tear-off position OFF
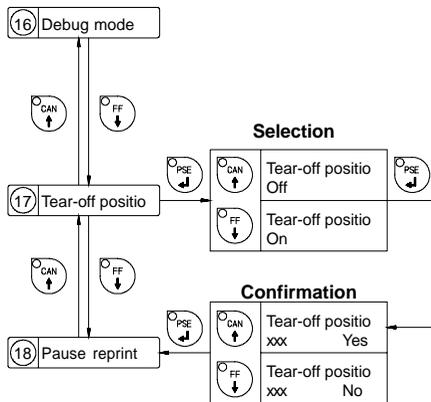
Fig. 9 s Set "Tear-off position" parameter

Pause Reprint

After completion of a print job, the print of the last label may be repeated by

pressing the $\begin{bmatrix} \circ_{\text{PSE}} \\ \downarrow \end{bmatrix}$ key.

This function may be switched ON or OFF in the "Pause reprint" parameter of the setup mode.

Default Setting : Pause Reprint ON
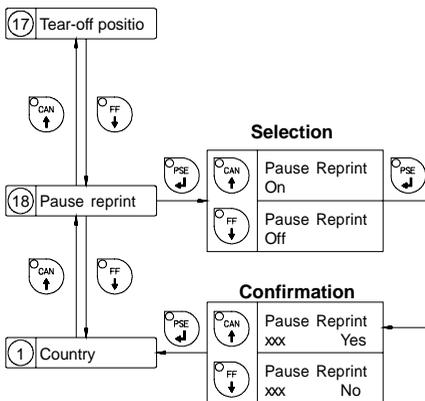
Fig. 9 t Set "Pause Reprint" parameter

10 Self Test / Test Print

Start of Test Print

To prepare a test print, load media (labels or continuous paper) which extends over the entire print width of the **Apollo**.

If you want to perform the test print in thermal transfer mode, also use transfer ribbon of the maximum width.

NOTICE !
During test print, the Apollo will not sense any label gaps. The length of the printout will be about 9 in (230 mm). Endless paper would suit best for test prints, otherwise, a normal sheet of A4 paper which is cut to a width of 4.6 in (116 mm) can be used in thermal transfer mode.

To initiate a self test printout, press the `⌀ONL` key when switching on the

printer and keep it pressed down until the system test is completed.
The display shows "Test print", and the **Apollo** will print an internal test sample which contains a variety of information about the configuration of the printer as well as the results of the internal test.

The test printout can also include a range of hardware errors which have occurred previously, even if they have disappeared again. This information is important for service purposes and can only be deleted by Technical Support.

The information in the printout is also useful for checking the print quality, such as differences in the blackness left/right, missing ink dots, etc. It is recommended you carry out a print test immediately after receiving the printer.

After completing the test print, the **Apollo** will run the system test once again. Then, the printer proceeds to ONLINE mode.

To cancel the test print press the `⌀CAN` key.

NOTICE !
The self test can also be carried out with the command "t" from the ONLINE mode (see Programming Manual Apollo).

Explanation of the Self Test Printout

① Firmware version

```
Apollo 1 - Version 2.64 (Jan 12 2001)
Country:             USA
Print mode:          Thermal transfer
Label sensor:        Gap Sensor
Interface:           RS-232C,9.600,RTS/CTS
Cut Position:        0.000"
Peel Position:       0.000"
Print head Position: X: 0.000", Y: 0.000"
Heat level:          0
Test results:        0000/C
Operative time:      0h 1 min
Number of labels:    10
Thermal transfer:    0.000"
Thermal direct:      9.016"
Date/Time:           1-22-2001 07:17:00 pm
Character set:       Windows 1252
Temperature:         76.5 °F
Heat voltage:        23.9V
Brightness:          29/32
Peripheral device:   None
Memory Card :        None
```

② Setup and status informationen

③ Bar code with test information

Fonts :

No.	Name	Type	Description
-1	_DEF1	Bitmap	Default Font 12x12 dots
-2	_DEF2	Bitmap	Default Font 16x16 dots
-3	_DEF3	Bitmap	Default Font 16x32 dots
-4	OCR_A_I	Bitmap	OCR-A Size I
-5	OCR_B	Bitmap	OCR-B
3	BX000003	Speedo	Swiss 721(TM)
5	BX000005	Speedo	Swiss 721 Bold(TM)
596	BX000596	Speedo	Monospace 821

④ Available fonts

⑤ Test pattern

Fig. 10 Self test printout

On the following pages you will find detailed information about the contents of the test printout.

1 Firmware Version

Type of device, part number, and date of the firmware version.

2 Setup and Status Information

Country	:	Setting of the "Country" parameter
Print mode	:	Setting of the "Transfer print" parameter
Label sensor	:	Setting of the "Label sensor" parameter
Interface	:	Setting of the "Interface" parameter
Cut Position	:	Setting of the "Cut position" parameter
Peel Position	:	Setting of the "Peel position" parameter
Printhead Pos.	:	Setting of the "Printhead position" parameter
Heat level	:	Setting of the "Heat level" parameter
Test result	:	Result of the system test. Any errors will be shown coded as four digit hexadecimal numbers. (see Table 10) (for fault correction see Appendix C) **/C** shows when the setup has been altered from the defaults. (**Apollo 1** and **Apollo 2** only) For **Apollo 3**, the letter behind the "/" sign indicates the state of modification of the hardware. (board)
Operative time	:	Cumulative operating time of the printer
Number of labels	:	Cumulative amount of printed labels
Thermal transfer	:	Cumulative length of printed material in thermal transfer mode
Thermal direct	:	Cumulative length of printed material in direct thermal mode
Date/Time	:	Setting of system date and system time
Character set	:	Setting of the "Character set" parameter
Temperature	:	Printhead temperature
Heat voltage	:	Current value of heat voltage (approx. 24V / **Apollo 3/300M** approx. 20 V)
Brightness	:	Service information on brightness used at gap sensor
Peripheral device	:	Type of device connected to peripheral port
Memory card	:	Type and capacity of memory card (PCMCIA/PC card)

Error code		Type of error
HEX	**DEC**	
0001	1	dRAM fault
0002	2	dRAM multiplexer fault
0004	4	A/D converter fault
0008	8	Ribbon saver fault
0010	16	sRAM fault
0020	32	LCD damaged
0040	64	Cutter fault
0080	128	ROM fault
0100	256	Voltage fault (**Apollo 3**)
0200	512	
0400	1024	
0800	2048	
1000	4096	
2000	8192	
4000	16384	Wrong board revision (**Apollo 3**)
8000	32768	Setup invalid

For the test result, the codes of occurred errors are added up to a four-digit hexadecimal number to determine the final test result.

For example : Ribbon saver fault + LCD damaged : Test result = 0028

Table 10 Self test - Test result error codes

③   **Bar Code with Test Information**

This special bar code is designed for use by Technical Service. It contains compressed information about the current configuration of the **Apollo** as well as previously occurred faults.

(4) Available Fonts

No.   :   Identification No. of the font for programming
                         (**command T**)

Name   :   Name of font used for internal storing
                         Name of command (query sequence) **q...CR**

Type   :   Method of generating the characters
                         (see programming of **command T**)

Description   :   Font description (size, type)

(5) Test Pattern

The test pattern field contains seven areas with different stroke patterns.
With these patterns a range of print faults can be analyzed. The printout shows
errors such as varying print intensity which indicates the printhead being
misadjusted or dirty, or missing ink dots causing vertical white lines.

11 Printer Info Display

Viewing the Printer Info Display

Apollo offers a convenient option for retrieving and viewing information about the printer configuration and occurred hardware problems without using setup mode or test print mode.

After switching on, or completing the system test or print jobs, the printer is in ONLINE mode. Pressing the $\overset{\circ}{(\text{ONL})}$ key will switch into OFFLINE mode where the display shows the status information on five different pages which are accessible by repeatedly pressing the $\overset{\circ}{(\text{PSE})}$ key.

The printer info display can be exited by pressing the $\overset{\circ}{(\text{ONL})}$ key. (back into ONLINE mode)

Definition of the Printer Info Display

```
Printer info
1: RS 232 / RTS/CTS
```

Fig. 11 a Printer info display 1

On the first page, the selected interface (RS-232, RS-422, RS-485, Centronics) and, in case of a serial interface, the handshake or protocol (RTS/ CTS or - - -) will be shown.

```
Printer info
2: 9.600
```

Fig. 11 b Printer info display 2

The second page contains information about the fixed baud rate of the serial interface. When the parallel interface has been selected (Centronics), the second page of the display is not applicable and shows three dashes.

```
Printer info
3: 2.64 / Jan    12       01
```

Fig. 11 c Printer info display 3

On the third page, the version and the date of the firmware are shown.
The example as shown in Figure 11c represents the firmware version No. 2.64 as at January 12, 2001.

```
Printer info
4: 0000 / 3 / 5 / C
```

Fig. 11 d Printer info display 4

The fourth page of the info display contains coded information on the
configuration of the printer and the internal test results in the format
 "xxxx / y / z / C".

xxxx   Result of the system test
        The four-digit hexadecimal number contains (coded) hardware faults.
        The figure is the same as in the printout of the self test.
        For fault encoding see code Table 10 in chapter 10 "Self Test".
        The example, as shown in Figure 11d, displays "0000" indicating that
        there have been no hardware faults.

y   Type of peripheral device
        0 : Cutter
        2 : Applicator
        3 : None fitted
        4 : External print start
        For example, Figure 11 d : "3" - No peripheral device connected.

z   Configuration setting Transfer print/ Label sensor
        The value of z results from adding the code numbers for selected
        settings.
        Transfer print   :   1 = ON
                                  0 = OFF
        Label sensor   :   8 = Bottom-Reflect
                                  4 = Gap sensor
                                  0 = Top-Reflect
        For example, Figure 11d : "5" - Transfer print ON (1) + Gap sensor (4).

C   Indicates that the setup configuration has been altered from the defaults,
        for **Apollo 1** and **Apollo 2** only. (no other messages)
        For **Apollo 3**, the letter behind the "/" sign represents the state of
        modification of the hardware. (board)

```
Printer info
5: WIndows 1252
```

Fig. 11 e Printer info display 5

The last of the info pages shows the name of the character set as selected in
setup.

12 Monitor Mode/ ASCII Dump Mode

If programming directly, the monitor mode provides a method to print control sequences which were received at the interface. The commands will be printed in text format depending on the selected character set. Error messages will be printed directly behind the fault, e.g. for unknown commands.
In monitor mode, the **Apollo** will not recognize gaps between labels nor control the ribbon feed.
NOTICE !
The font used for printouts in monitor mode is suitable to send by facsimile. For questions or future reference, print and retain one copy of the label format for each label printed.

Start of Monitor Mode/ ASCII Dump Mode

To start the monitor mode, press the $\begin{smallmatrix}O\;FF\\\downarrow\end{smallmatrix}$ key while switching on the printer, and keep it pressed down until the system test is completed.   The display shows "ASCII Dump Mode".

To cancel ASCII Dump mode, press the $\begin{smallmatrix}O\;ONL\end{smallmatrix}$ key.

In monitor mode, the print of data will be started after every four lines of data received. Therefore, in some cases, the last lines of the label have to be

retrieved by pressing the $\begin{smallmatrix}O\;FF\\\downarrow\end{smallmatrix}$ key.

Representation of the Control Characters

The control characters (ASCII Code 00 ... 31) as shown in monitor mode printouts are as follows.

Code DEC	HEX	Printout	Code DEC	HEX	Printout	Code DEC	HEX	Printout	Code DEC	HEX	Printout
00	00	N_{U_L}	08	08	B_S	16	10	D_{L_E}	24	18	C_{A_N}
01	01	S_{O_H}	09	09	H_T	17	11	D_{C_1}	25	19	E_M
02	02	S_{T_X}	10	0A	L_F	18	12	D_{C_2}	26	1A	S_{U_B}
03	03	E_{T_X}	11	0B	V_T	19	13	D_{C_3}	27	1B	E_{S_C}
04	04	E_{O_T}	12	0C	F_F	20	14	D_{C_4}	28	1C	F_S
05	05	E_{N_Q}	13	0D	C_R	21	15	N_{A_K}	29	1D	G_S
06	06	A_{C_K}	14	0E	S_O	22	16	S_{Y_N}	30	1E	R_S
07	07	B_{E_L}	15	0F	S_I	23	17	E_{T_B}	31	1F	U_S

Table 12 Representation of the control characters in monitor mode

Example of ASCII Dump Mode

The following figures show the "normal" appearance of a printed label, and the appearance of the same label when its commands are printed in ASCII Dump mode.

Freie Schriftdrehung

90 Grad
120 Grad
150 Grad
60 Grad
30 Grad

gedruckt mit Apollo

Fig. 12 a "Normal" label

```
J CL
  RF
H 100,4,D CL
          RF
S 11;0,0,68,71,108; CL
                    RF
T 20,10,0,596,pt18;Freie Schriftdr
ehung  CL
       RF
T 72,54,30,596,pt18;30 Grad CL
                            RF
T 65,46,60,596,pt18;60 Grad CL
                            RF
T 56,42,90,596,pt18;90 Grad CL
                            RF
T 46,44.5,120,596,pt18;120 Grad CL
                                RF
T 38,50.5,150,596,pt18;150 Grad CL
                                RF
T 39,60,0,596,pt8;gedruckt mit Apo
llo CL
    RF
A 1 CL CL
    RF RF
```
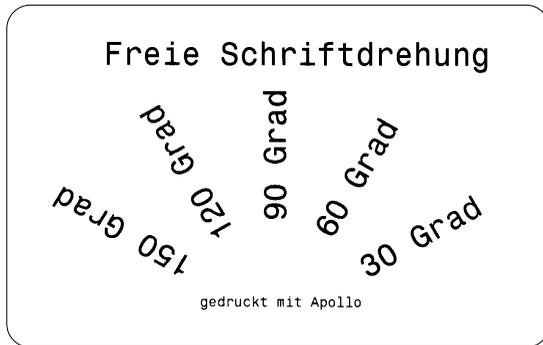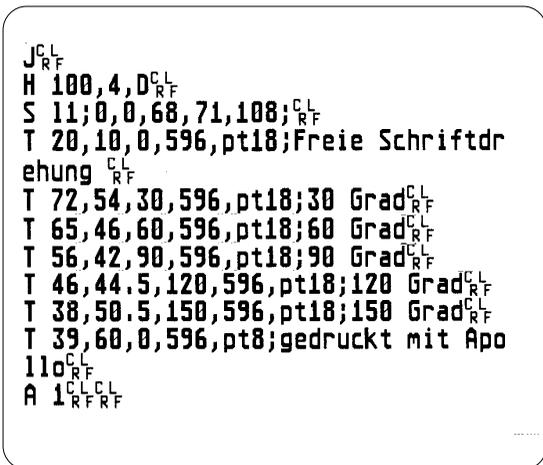
Fig. 12 b The same label as above printed in ASCII Dump mode

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13 Options

External Rewinder

To handle large print jobs, an external rewinder is available which allows you to rewind complete rolls of label material. The maximum size of the media supply roll is 8 in (200 mm) with a core diameter of 3 in (75 mm), or a roll of 7.5 in (190 mm) with a core of 1.5 in (40 mm).
The rewinder requires a separate power outlet for its operation.

Delivery Contents

The rewinder is packed separately from the printer.

NOTICE !
Please keep the original packaging in case the rewinder must be returned !

The following components are included in the package :
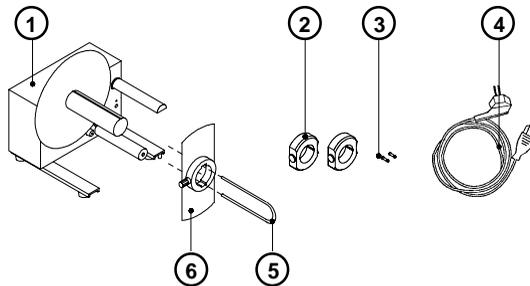
Fig. 13 a Package contents of the external rewinder

1 - Rewinder
2 - 2 Rewind axle adapters, with a diameter of 3 in or 75 mm
3 - 2 x 1A Fuses (for use at 115V)
4 - Power cable
5 - Clamp
6 - Flange

Safety Instructions

CAUTION !
The printer must be powered OFF before mounting the rewinder.
During operation, the rotating axle is openly accessible !
Therefore, keep long hair, loose clothes, and jewelry away from the
moving parts !
Before connecting the rewinder to the power supply, make sure the
voltage selected on the power module corresponds with the supply
voltage !

Selecting the Method of Rewinding

The external rewinder allows rewinding of labels in both ways, inside and outside winding.
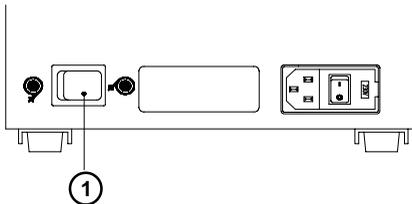
Fig. 13 b Selecting the method of rewinding

Set the switch (**1**) to the required method of rewinding :

- Rewind with labels on the inner side of the silicon liner

- Rewind with labels on the outer side of the silicon liner

Connecting the Rewinder to the Power Supply

The rewinder operates with a supply voltage of 230V/ 50Hz or 115V/ 60Hz.

⚠️ **CAUTION !**
Before connecting the rewinder to the power supply, make sure that the voltage selected on the power supply module is the same as your main power supply !

1 - Power supply connector
2 - Power switch
3 - Voltage selector cover
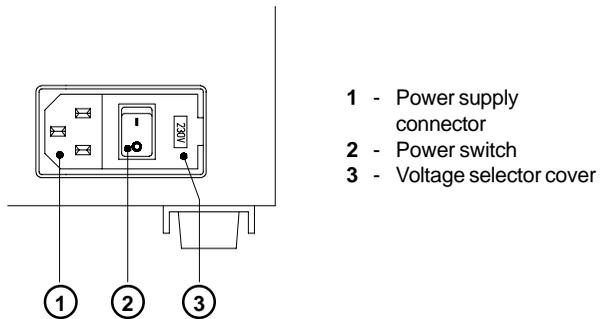
Fig. 13 c Power supply module of the external rewinder

The current voltage setting of the power module is visible in the lid window (**3**).

⚠️ **CAUTION !**
If you have switched the operating voltage of your rewinder you need to replace the fuses. For the standard setting of 230V, two fuses rated at 500mAT must be used. For operation at 115V, two fuses rated at 1AT must be used. (Both types of fuses are shipped with the rewinder, one of which is installed depending on the voltage setting.)

To alter the voltage, open the cover (**3**) and remove the voltage selector. Replace the fuses as explained above. Slide the voltage selector back into the power supply module so that the correct voltage is visible in the lid window.

Connect the rewinder to a **grounded** outlet using the power cable supplied in the accessories package.

Rewinding Directly onto the Rewind Axle
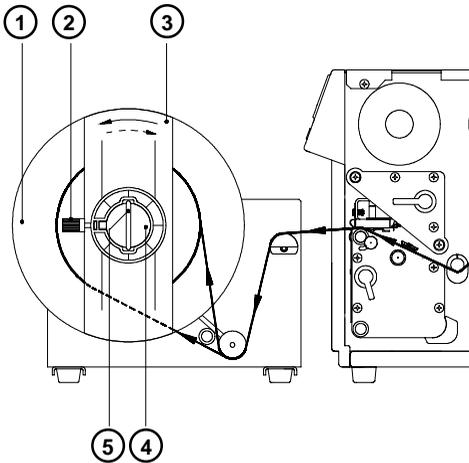
Fig. 13 d Rewinding directly onto the rewind axle

1. Position the rewinder in relation to the printer so that the label strip can run cleanly and without hindrance from the printer to the rewinder.
2. Feed the label strip over the guide bar and under the roller onto the rewinder axle (**4**) as shown in Figure 13 d.
3. Considering the required method of rewinding, attach the label strip appropriately to the rewinder axle (**4**) by sliding the clamp (**5**) over the label strip with the clamp set in the groove. (the broken line shows the path of inside rolled labels)
    Ensure that the label strip is even with the disc (**1**).
4. Slide the clamp (**5**) as far as possible towards the disc (**1**).
5. Slide the flange (**3**) onto the rewind axle (**4**) so that it slightly touches the label strip. The label strip must be able to move slightly between the disc and the flange.
6. Tighten knurled screw (**2**) in the flange (**3**).
7. Switch the rewinder ON.

CAUTION !
When switched ON, the rewinder immediately starts rotating !

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Rewinding on to 3 in (75 mm) Cardboard Rolls
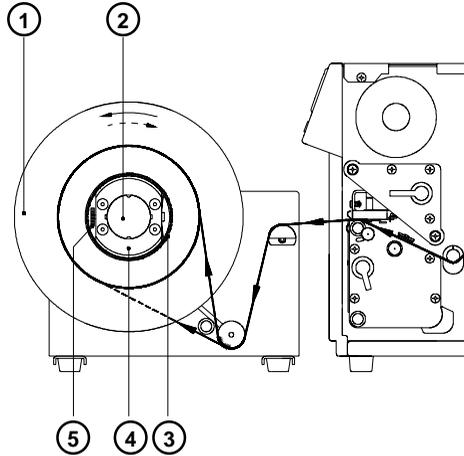
**Fig. 13 e   Rewinding onto 3 in (75 mm) cardboard cores
(view without flange)**

1. Use a cardboard roll (**3**) which is about .04 in (1 mm) wider than the label strip.
2. Position the rewinder in relation to the printer so that the label strip can run cleanly and without hindrance from the printer to the rewinder.
3. Mount the first axle adapter (**4**) onto the rewinder axle (**2**) and slide it up to the disc (**1**). Tighten knurled screw (**5**).
4. Mount the second adapter onto the rewinder axle (**2**). Slide it towards the first adapter until the clearance between the edge of the adapter and the disc (**1**) is a little less than the width of the cardboard roll (**3**). Tighten knurled screw (**5**).
5. Slide the cardboard roll (**3**) over the two adapters (**4**) until it is touching the disc (**1**).
6. Feed the label strip over the guide bar and under the roller as shown in Figure 13 e up to the cardboard roll (**3**).
7. Using adhesive tape or a label, affix the end of the label strip to the cardboard roll (**3**). (the broken line shows the path of inside rolled labels)
8. Slide flange onto the rewind axle (**2**) until it stops at the cardboard. Tighten knurled screw.
9. Switch the rewinder ON.

CAUTION !
When switched ON, the rewinder immediately begins rotating !

Cutter Assembly

With the optional **cutter assembly** installed, labels or endless media may be cut off immediately after being printed.
The cutter is controlled and powered by the peripheral port of the **Apollo**.
The firmware of the printer allows a backfeed of the label stock so that it is always possible to print the last label in its entirety before it is cut off.

The cutter assembly is delivered in a separate package.

NOTICE !
Please keep the original packaging in case the cutter must be returned !

Installing the Cutter

CAUTION !
The printer must be switched OFF before mounting the cutter !
The cutter may be used only when mounted onto the Apollo !
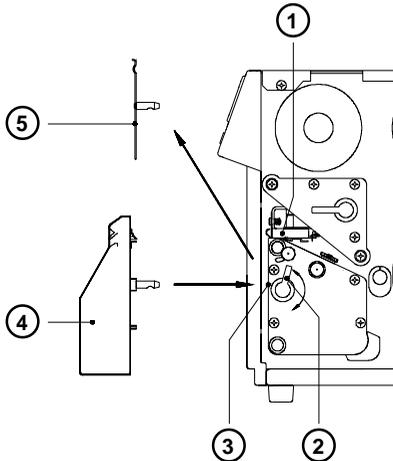
Fig. 13 f Mechanical mounting of the cutter

The **Apollo** is delivered with the tear-off plate (**5**) installed.
Before mounting the cutter, the tear-off plate has to be removed :

1. Switch the printer OFF.

2. Feed the label stock into the **Apollo** in such a way that the leading edge of the first label is protruding slightly beyond the printhead (**1**).

3. Turn the printhead lever (**2**) counter-clockwise until it stops.

4. Remove the tear-off plate (**5**) from the guide holes (**3**).

5. Slide the cutter (**4**) into the guide holes (**3**) .

6. Turn the lever (**2**) clockwise until it stops.
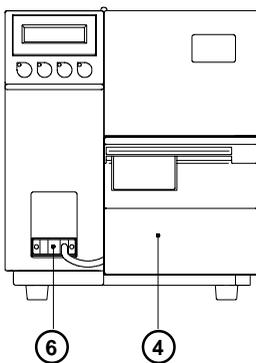
Fig. 13 g Electrical connection of the cutter

7. Connect the cutter cable (**6**) to the 15 pin peripheral port on the front of the **Apollo**.

8. Switch the printer ON. The cutter will perform a synchronized cutting cycle.

9. Press the ⎛⎝ FF ⎞⎠ key. The printer will feed one blank label forwards which will be cut off by the cutter. The label stock feed is now synchronized for the start of the printing process.

Internal Rewinder M

This option is available for **Apollo 3** only.
Apollo 3/200M and **Apollo 3/300M** are designed in that manner that the internal rewinder can be added by the operator in necessary.
Using the internal rewinder and the rewind guide plate or the present sensor the printer may be operated in the rewind or peel-off mode.

Safety Precaution

WARNING !
Unplug power cord before mounting the internal rewinder !

Preparing the printer
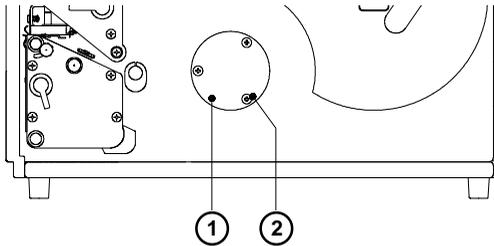
Fig. 13 h Dismounting the lid

• Loosen the screws (**2**) and remove the lid (**1**).

Mounting the internal rewinder

The internal rewinder will be fixed at the mounting plate of the printer with three screws.

1. Rotate the rewind hub (**9**) and the rewind plate (**8**) in relation to the flange (**7**), so that one of the holes in the flange is accessible.
2. Push the rewinder assembly into the opening (**5**). To make sure that the gearwheel (**6**) snaps into the gear (**4**) it is recommended to turn a little the rewinder during inserting. Push the assembly further into the printer until the flange (**7**) fits tightly the mounting plate.
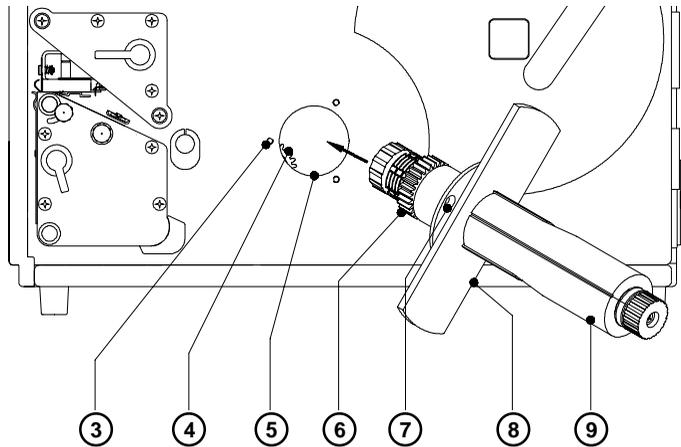
Fig. 13 i Mounting the internal rewinder (1)

3. Turn the whole assembly counterclockwise, so that the accessible hole in the flange (**7**) matches with the threaded hole (**3**) on the mounting plate.
4. Fix the rewinder at this point with on screw (**2**).
5. Turn the rewind plate (**8**), so that the two other holes (**11**,**12**) become accessible one after the other and insert screws at this two positions too.
6. Tighten all screws (**10**).
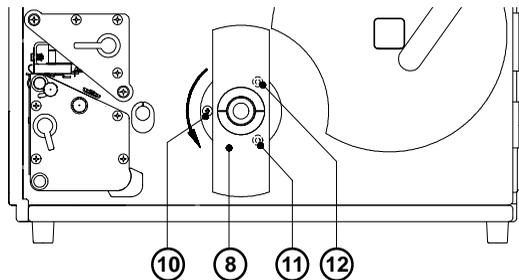
Fig. 13 k Mounting the internal rewinder (2)

Rewind Guide Plate

The **rewind guide plate** is delivered with **Apollo 1/300RS**, **Apollo 2/300R** or the **Internal Rewinder M**.
The rewind guide plate for printers with **internal rewinder** allows to rewind small print jobs inside the printer. The maximum rewind diameter depends on the remaining size of the media supply roll.
It is limited by the possible contact of both, the rewind roll and supply roll.

Mounting the Rewind Guide Plate
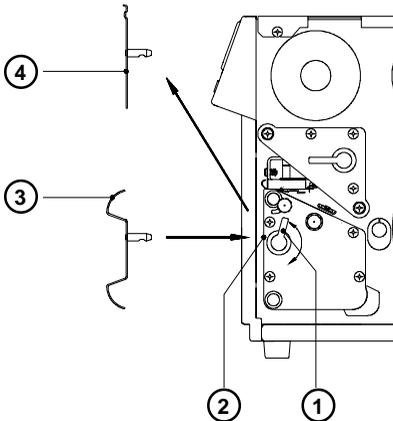
Fig. 13 I Mounting the rewind guide plate

The **Apollo** is delivered with a mounted tear-off plate (**4**).
For internal rewinding, the tear-off plate has to be replaced with the rewind guide plate (**3**) :

1. Turn the lever (**1**) counter-clockwise until it stops.

2. Remove the tear-off plate (**4**) from the mounting holes (**2**).

3. Slide the rewind guide plate (**3**) into the mounting holes (**2**).

4. Turn the lever (**1**) clockwise until it stops.

Inserting the Labels for Internal Rewind
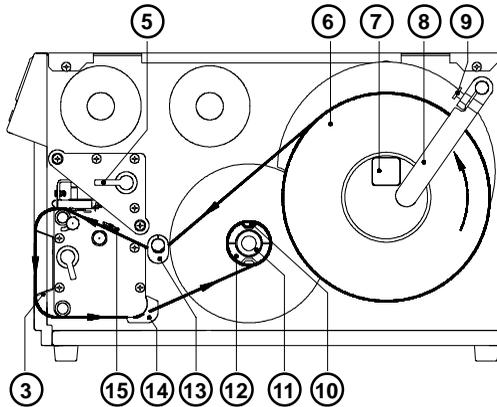
Fig. 13 m Inserting the labels

1. Lift printhead by turning the lever (**5**) clockwise until it stops.
2. Loosen knurled screw (**9**), then swing the media retainer (**8**) backwards.
3. Place the media roll (**6**) onto the media hub (**7**). Swing the media retainer (**8**) to the media hub and inwards until it rests against the side of the roll (roll will slightly be slowed down when unwound).
   Tighten knurled screw (**9**).
4. Slide the two media guides (**13/14**) outwards to their outermost position.
5. Unroll a length of stock from the media roll and feed along as shown in Figure 13 m.
   It is particularly important to ensure that the media strip slides properly between the fittings of the adjustable photocell assembly (**15**).
6. Feed the media strip between the print roller and the thermal printhead, and then over the rewind guide plate (**3**) to the internal rewinder (**12**).
7. The internal media rewind hub (**12**) is fitted with an expanding axle that contains clamps (**10**) for securing the media. Slide the media strip from underneath the rewinder clamps (**10**) to the disc. Fasten the media strip to the axle by holding the rewinder and rotating the knurled knob (**11**) clockwise until it stops. To tighten the media, rotate rewinder counter-clockwise.
8. Slide the media guides (**13/14**) towards the edge of the media strip.
9. Lock the printhead by turning the lever (**5**) counter-clockwise until it stops.

NOTICE !
If you do not use the printer for an extended period of time, lift the printhead to avoid possible flattening of the print roller.

Present Sensor

The optional **present sensor** in connection with printers with **internal rewinder** allows for on-demand label dispensing. That means, the labels are removed from the silicon liner immediately after printing, and then available in a dispense position ready for further processing.

The present sensor (**2**) consists of two components, the dispense edge (**19**) and the present sensor photocell (**6**). The presence of a label (**20**) in dispense position is observed by the photocell. Through its connection to the peripheral port of the **Apollo**, the signal pauses the print of the next label until the label in the dispense position is removed.

NOTICE !

When editing or creating labels in demand mode, make sure that the part of the label which lies directly underneath the photocell is only colored (black) to a maximum of 50%. Higher blackening/ density print may cause malfunctions of the sensor.

Mounting of the Present Sensor
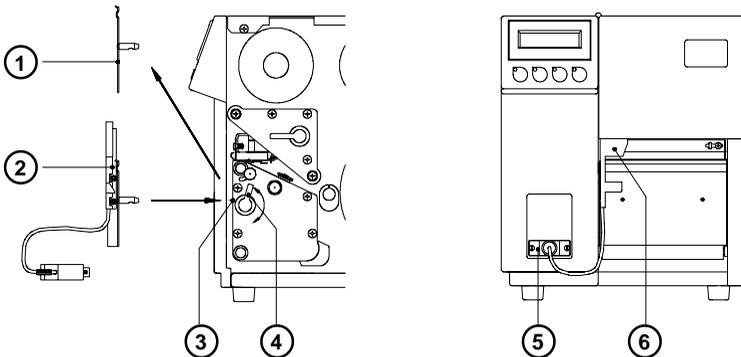
Fig. 13 n Mounting of the present sensor

The **Apollo** is generally shipped with the tear-off plate (**1**) mounted. When operating in dispense mode, the tear-off plate has to be replaced with the present sensor (**2**) :

1. Turn lever (**4**) counter-clockwise until it stops.
2. Remove the tear-off plate (**1**) from the mounting holes (**3**).
3. Slide the present sensor (**2**) into the mounting holes (**3**).
4. Turn lever (**4**) clockwise until it stops.
5. Connect the cable (**5**) of the present sensor (**6**) to the 15 pin peripheral port of the **Apollo**.

Inserting the Labels for Peel-off
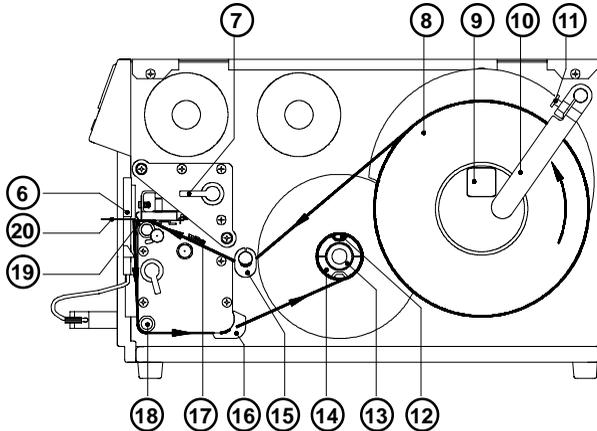
Fig. 13 o   Inserting the labels for peel-off

1. Lift the printhead by turning the lever (**7**) clockwise until it stops.
2. Loosen the knurled screw (**11**) and swing media retainer (**10**) backwards.
3. Place the media roll (**8**) onto the media hub (**9**). Swing the media retainer (**10**) to the media hub and inwards until it rests against the side of the roll. Tighten the knurled screw (**11**).
4. Slide the two media guides (**15/16**) to their outermost position.
5. Unroll a length of media stock and feed it through the **Apollo** as shown in Figure 13 o. It is particularly important to ensure that the media strip slides properly between the adjustable fittings of the photocell assembly (**17**).
6. Feed the media strip between the print roller and the thermal printhead, and then over the dispense edge (**19**) up to the internal rewinder (**14**).
7. Slide the media strip from underneath the rewinder clamps (**12**) to the disc. Fasten the media strip to the axle by holding the rewinder (**14**) and rotating the knurled knob (**13**) clockwise until it stops. To tighten the media, rotate rewinder counter-clockwise.
8. Slide the two media guides (**15/16**) against the edge of the media strip.
9. Lock the printhead by turning the lever (**7**) counter-clockwise until it stops.
10. Activate the peel-off function by selecting the peel-off mode in the software (in direct programming use the "P" command).

NOTICE !
If you do not use the printer for an extended period of time, lift the printhead to avoid possible flattening of the print roller.

Cut- / Peel-off Adapter

By using the cut/peel-off adapter it is possible, to operate the **Apollo** with cutter assembly or present sensor in a special mode, where the print of one label can be started by an external start signal.
In the peel-off mode, after removing a label from the peel-off position the use of the adapter avoids the immediate print of the next label.
In the cut mode the print job can be divided in single prints.
In both cases, a label will only be printed, if it is required (cut/peel-off on demand).

Connectors

Front side   **Back side**

1 - 15-pin SUB-D connector for cutter assembly or present sensor
2 - 9-pin SUB-D connector for an external release switch
3 - 15-pin SUB-D plug to connect the adapter to the peripheral port of the **Apollo**
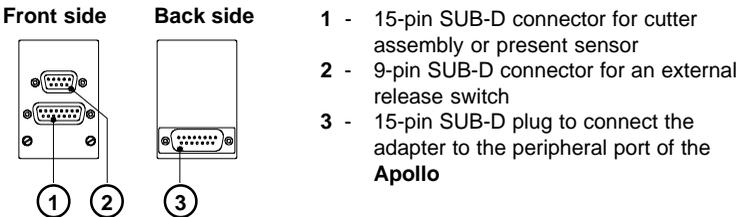
Fig. 13 p Connectors of the cut-/ peel-off adapter

Pin Assignment of the 9-pin SUB-D Connector

Pin 5   **Pin 1**

Pin 9   **Pin 6**
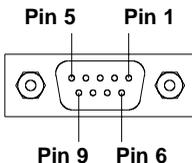
Fig. 13 q 9-pin SUB-D connector of the cut- /peel-off adapter

Pin 1/2 - Optocoupler inputs. A short impuls of 24V= at the pins (+ at Pin1, - at Pin2) releases the print of one label (external start signal).
The start impuls has to be shorter than the print time of the label. The current is internally limited to 10 mA.
with present sensor :   the print is released, if there is no label in the presentation position
with cutter assembly :   the print including the following cut is released

Pin 3/4 -   Transistor outputs of an optocoupler (Pin3 - collector, Pin4 - emitter). If the adapter is used with the present sensor, the state of the transistor shows the presence of a label in the peel-off position. If there is a label, the transistor is blocked so that no current can flow between the pins.

CAUTION !
The current at the pins 3 and 4 has to be limited externally to 10mA. Otherwise the output will be destroyed.

Pin 5/6 -   Pin 5 : Internal operating voltage +24V ;   Pin 6 : Ground
The operating voltage can be used to generate the external start signal with a switch.
The use of this voltage for other purposes is prohibited.

Pin 7/8/9 - not connected

Inputs and outputs are designed with optocouplers, i.e. they are potential free in relation to the Apollo. The isolation voltage is 500 V. The voltage at the outputs should not be higher than 30V.

Installation of the Cut- /Peel-off Adapter
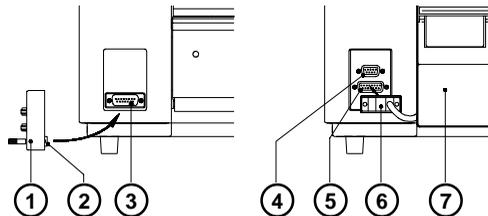
Fig. 13 r Installation of the Cut- /Peel-off Adapter

1. Switch OFF the printer.
2. Connect the 15-pin SUB-D plug (**2**) at the back side of the cut/peel-off adapter (**1**) to the peripheral port (**3**) of the **Apollo**.
3. Mount the cutter assembly (**7**) or the present sensor as described in the previous chapters contact the cable (**6**) to the 15-pin SUB-D connector (**5**) at the front side of the cut/peel-off adapter.
4. Plug the cable of the external release switch to the 9-pin SUB-D connector (**4**).
5. Insert labels and transfer ribbon.
6. Switch ON the printer.

NOTICE !
Make sure, that the external release switch is open (no voltage at Pin 1 of the 9-pin connector) when the printer is switched ON.

7. Start a print job in the cut or peel-off mode.
8. Release the print of single labels by actuating the external switch.

Memory Cards

The printers of the **Apollo** series provide an option for using memory cards to permanently save graphics, fonts, complete label formats, or database information. Data transfer may be performed via interface. Alternatively, the printer is able to read from cards which has been written on in PC card drives of lap-tops or other computers, etc.

The **Apollo** is able to read from PCMCIA version 2.1 compatible sRAM cards or Flash-EPROM cards. The maximum memory capacity for **Apollo 1/2** is 4 MegaByte, and for **Apollo 3** 16 MegaByte.

It is recommended that you make backup copies in case of malfunction of the original cards.

Preparing the Memory Card
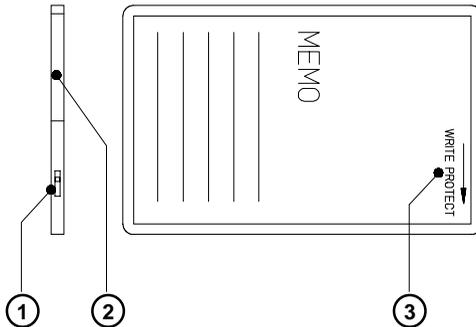
Fig. 13 s   Write protection/ Inserting the battery

The write protection of the card may be activated or deactivated by shifting the switch (**1**) located at the front side of the card. The interpretation of the setting may be read from an imprint (**3**) on the back of the card.
If you want to format the card or write on it, switch off the write protection.

In case the battery has to be replaced, it is usually found in a slot (**2**) above the switch (**1**).
For replacing or inserting the battery in sRAM cards refer to the instructions of the manufacturer.

Installation of the Memory Card
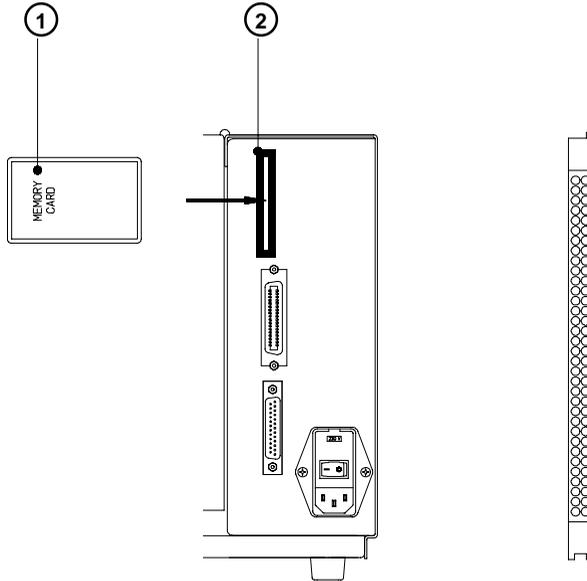
Fig. 13 t Installation of the memory card   Fig. 13 u Connecting side

NOTICE !
At the connecting side of the card there are different guides on the top and the bottom which make it impossible to insert the card incorrectly.

Insert the card (**1**) that way into the slot (**2**), that the one-rail guide is at the upper and the two-rail guide at the lower side of the card .

Formatting the Memory Card

For operation, the memory card first has to be structured internally in a certain way. Normally, memory cards are already pre-formatted in a suitable manner. If the card you are using is not formatted at all, the **Apollo** will bring up one of the messages "Unknown card" or "Structural err." Then, you may format the card using one of the following methods :

1. Formatting the card using the **Apollo** setup command "Format card". (see Chapter 9)
2. Formatting the card using the **Apollo**'s interface and the printer command "Mf;name CR".

Writing on the Memory Card

There are also different methods to write onto a memory card.
The easiest way is to copy label formats, graphics, or font files directly onto the card using a PC card drive of a lap-top or another computer and the DOS command "COPY".

Another way is to write on the card using the card drive of the **Apollo** and transfer the data via interface.

For saving a label, you need to put the label design commands into "brackets" consisting of "Ms"-commands :

```
Ms LBL;ABC                          Command to save a file called "ABC"
J                                   |
H 100,0,T                           |
S l1;0,0,68,71,108                  |           Contents of the file "ABC"
T 10,10,0,3,pt15;Memory card        |
A 1[NOPRINT]                        |
Ms LBL                              End of Save File command
```

After completing the commands the file "ABC" is stored on the card with all commands from "J" to "A" which describe the label format.
The parameter [NOPRINT] used within the command A line will suppress the print of the label while saving the file.
Whenever the file "ABC" is called up, exactly one label will be printed.
If you want to print the label in a variable quantity do not use the A command within the label description.

Printing from a Memory Card

NOTICE !
Using a memory card provides the opportunity to print without a connection of the Apollo to a computer.

Follow the instructions below, after the card has been installed and the printer has been switched ON :

1. Switch printer into OFFLINE mode by pressing the ⬡ONL key.

2. After pressing the ⬡CAN key, the file name of the first label saved on the card will be shown.

3. Using the ⬡FF key and the ⬡CAN key, you may scroll up and down the contents of the card. Confirm the selection by pressing the ⬡PSE key.

4. If you have chosen a label with a set number of labels to print, the **Apollo** will instantly start printing.

5. For labels with a variable number of labels, the top line of the display shows "Number of labels", the bottom line shows "00001" with the first figure flashing. (cursor)
   Using the ⬡FF key and the ⬡CAN key, the figure at the position of the cursor may be altered. By pressing the ⬡PSE key the cursor can be moved on to the next figure. After confirming of the last figure, the **Apollo** starts to print.

6. To pause the selection of a label or the input of the number of labels you may press the ⬡ONL key.

The data saved on the card is also accessible via interface and computer.

Keyboard Adapter

The **keyboard adapter** option offers to connect the **Apollo** to a standard PC keyboard or any other compatible input device (e.g. a bar code scanner) via its serial interface. Using the keyboard, print jobs of an internal PC card may be loaded and variable data may be altered. Input data requests as well as data received from the keyboard will be shown in the display of the **Apollo**.

The keyboard adapter is designed for use with all keyboards which fulfill the following requirements : MF-2 compatible, having a 5pin DIN plug, supporting code set 3, and also operating with a maximum of 15 kBaud.

⚠️ **CAUTION !**
The current consumption of the connected keyboard or scanner must not exceed <u>100 mA</u>.

Installation of the Keyboard Adapter
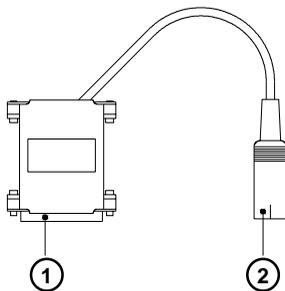
1 - 25 pin SUB-D plug
2 -   5 pin DIN connector

Fig. 13 v Keyboard adapter

1. Change the interface setting to "RS232C, 9600 Baud, RTS/CTS" and confirm.

2. Connect the 25 pin plug (**1**) of the keyboard adapter to the serial interface connector at the rear of the printer.
   Make sure that the printer is switched OFF !

3. Connect the keyboard to the 5 pin DIN connector (**2**) of the keyboard adapter.

Key Assignment

The **Apollo** can easily be adjusted to the keyboard configuration of the particular country by using the setup parameter "Country". For each of the available settings the **Apollo** has a different table of key assignment, which, generally, complies with the assignment under Microsoft DOS.

The [ALTGR] key has no function. Therefore, all signs which are located on the right hand side of the key opposite of the normal characters (e.g. { } [ ] \) can be generated by pressing the [ALT] key.
 A few of the other special signs (e.g. ¨ × ÷) may also be generated the same way. (see Appendix A Table A-3a)

Other special characters (e.g. ñ ç œ) can be generated by inserting two characters one after the other, where the second input is a combination with the [ALT] key. (see Appendix A Table A-3b)

Some of the special characters cannot be shown in the display of the printer. In that case, the **Apollo** will use a character which looks similar to the required character.

NOTICE !
When using a scanner, the character set of the scanner has to be the same as used by the Apollo.

Special Key Functions

[F1]	To enter the list of labels stored on the memory card.
[F2]	To repeat the print of the last label. (as command A 1 CR)
[F3]	To repeat the print of the last label including a new enquiry for variable data.
[Shift]+[F5]	To start the monitor mode/ASCII dump mode.
[Shift]+[F6]	To start the self test printout.
[F7]	Printer Info Display
[F8]	Form feed
[ENTER] or **[RETURN]**	Without a current print job : to switch between ONLINE and OFFLINE; While processing a print job : to confirm the data input.
[ESC]	To cancel the data input. (while printing same effect as CANCEL)
[SPACE]	While printing same effect as PAUSE.
[Shift]+[Del]	To delete the input line.
[↑],[↓]	To scroll up/down the list of labels on the memory card.

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Appendix A - Character Tables

Setup Selectable Character Tables

	0..	1..	2..	3..	4..	5..	6..	7..	8..	9..	A..	B..	C..	D..	E..	F..
..0				0	@	P	`	p	€			°	À	Ð	à	ð
..1			!	1	A	Q	a	q		'	¡	±	Á	Ñ	á	ñ
..2			"	2	B	R	b	r	‚	'	¢	²	Â	Ò	â	ò
..3			#	3	C	S	c	s	ƒ	"	£	³	Ã	Ó	ã	ó
..4			$	4	D	T	d	t	„	"	¤	´	Ä	Ô	ä	ô
..5			%	5	E	U	e	u	…	•	¥	µ	Å	Õ	å	õ
..6			&	6	F	V	f	v	†	–	¦	¶	Æ	Ö	æ	ö
..7			'	7	G	W	g	w	‡	—	§	·	Ç	×	ç	÷
..8			(	8	H	X	h	x	ˆ	˜	¨	¸	È	Ø	è	ø
..9			)	9	I	Y	i	y	‰	™	©	¹	É	Ù	é	ù
..A			*	:	J	Z	j	z	Š	š	ª	º	Ê	Ú	ê	ú
..B			+	;	K	[	k	{	‹	›	«	»	Ë	Û	ë	û
..C			,	<	L	\	l	|	Œ	œ	¬	¼	Ì	Ü	ì	ü
..D			-	=	M	]	m	}			-	½	Í	Ý	í	ý
..E			.	>	N	^	n	~			®	¾	Î	Þ	î	þ
..F			/	?	O	_	o	△		Ÿ	¯	¿	Ï	ß	ï	ÿ

Table A-1 a Character set "Windows 1252"

	0..	1..	2..	3..	4..	5..	6..	7..	8..	9..	A..	B..	C..	D..	E..	F..
..0				0	@	P	`	p	€			°		Ð		đ
..1			!	1	A	Q	a	q		'	ˇ	±	Á	Ń	á	ń
..2			"	2	B	R	b	r	‚	'	˘	˛	Â	Ň	â	ň
..3			#	3	C	S	c	s		"	Ł	ł	Ä	Ó	ă	ó
..4			$	4	D	T	d	t	„	"	¤	´	Ä	Ô	ä	ô
..5			%	5	E	U	e	u	…	•	Ą	µ	Ĺ	Ő	Í	ő
..6			&	6	F	V	f	v	†	–	¦	¶	Ć	Ö	ć	ö
..7			'	7	G	W	g	w	‡	—	§	·	Ç	×	ç	÷
..8			(	8	H	X	h	x			¨	¸	Č	Ř	č	ř
..9			)	9	I	Y	i	y	‰	™	©	ą	É	Ů	é	ů
..A			*	:	J	Z	j	z	Š	š	Ş	ş	Ę	Ú	ę	ú
..B			+	;	K	[	k	{	‹	›	«	»	Ë	Ű	ë	ű
..C			,	<	L	\	l	|	Ś	ś	¬	Ľ	Ě	Ü	ě	ü
..D			-	=	M	]	m	}	Ť	ť	-	˝	Í	Ý	í	ý
..E			.	>	N	^	n	~	Ž	ž	®	ľ	Î	Ţ	î	ţ
..F			/	?	O	_	o	△	Ź	ź	Ż	ż	Ď	ß	ď	˙

Table A-1 b Character set "Windows 1250"

	0..	1..	2..	3..	4..	5..	6..	7..	8..	9..	A..	B..	C..	D..	E..	F..
..0	□	□		0	@	P	`	p	□	□		°	À	Ð	à	ð
..1	□	□	!	1	A	Q	a	q	□	□	¡	±	Á	Ñ	á	ñ
..2	□	□	"	2	B	R	b	r	□	□	¢	²	Â	Ò	â	ò
..3	□	□	#	3	C	S	c	s	□	□	£	³	Ã	Ó	ã	ó
..4	□	□	$	4	D	T	d	t	□	□	¤	´	Ä	Ô	ä	ô
..5	□	□	%	5	E	U	e	u	□	□	¥	µ	Å	Õ	å	õ
..6	□	□	&	6	F	V	f	v	□	□	¦	¶	Æ	Ö	æ	ö
..7	□	□	'	7	G	W	g	w	□	□	§	·	Ç	×	ç	÷
..8	□	□	(	8	H	X	h	x	□	□	¨	¸	È	Ø	è	ø
..9	□	□	)	9	I	Y	i	y	□	□	©	¹	É	Ù	é	ù
..A	□	□	*	:	J	Z	j	z	□	□	ª	º	Ê	Ú	ê	ú
..B	□	□	+	;	K	[	k	{	□	□	«	»	Ë	Û	ë	û
..C	□	□	,	<	L	\	l	|	□	□	¬	¼	Ì	Ü	ì	ü
..D	□	□	-	=	M	]	m	}	□	□	-	½	Í	Ý	í	ý
..E	□	□	.	>	N	^	n	~	□	□	®	¾	Î	Þ	î	þ
..F	□	□	/	?	O	_	o	△	□	□	¯	¿	Ï	ß	ï	ÿ

Table A-1 c Character set "ISO 8859-1"

	0..	1..	2..	3..	4..	5..	6..	7..	8..	9..	A..	B..	C..	D..	E..	F..
..0	□	□		0	@	P	`	p	Ç	É	á	▓	└	ð	Ó	-
..1	□	□	!	1	A	Q	a	q	ü	æ	í	▒	┴	Ð	ß	±
..2	□	□	"	2	B	R	b	r	é	Æ	ó	░	┬	Ê	Ô	_
..3	□	□	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
..4	□	□	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
..5	□	□	%	5	E	U	e	u	à	ò	Ñ	Á	┼	ı	Õ	§
..6	□	□	&	6	F	V	f	v	å	û	ª	Â	ã	Í	µ	÷
..7	□	□	'	7	G	W	g	w	ç	ù	º	À	Ã	Î	þ	¸
..8	□	□	(	8	H	X	h	x	ê	ÿ	¿	©	└	Ï	Þ	°
..9	□	□	)	9	I	Y	i	y	ë	Ö	®	┤	┌	⌐	Ú	¨
..A	□	□	*	:	J	Z	j	z	è	Ü	¬	║	┴	┌	Û	·
..B	□	□	+	;	K	[	k	{	ï	ø	½	┐	┬	█	Ù	¹
..C	□	□	,	<	L	\	l	|	î	£	¼	┘	├	█	ý	³
..D	□	□	-	=	M	]	m	}	ì	Ø	¡	¢	=	¦	Ý	²
..E	□	□	.	>	N	^	n	~	Ä	×	«	¥	┼	Ì	¯	■
..F	□	□	/	?	O	_	o	△	Å	ƒ	»	¬	┐	▄	´	

Table A-1 d Character set "Codepage 850"

	0..	1..	2..	3..	4..	5..	6..	7..	8..	9..	A..	B..	C..	D..	E..	F..
..0	□	□	□	□		&	-	□	□	□	□	□	{	}	\	0
..1	□	□	□	□	□	□	/	□	a	j	~	□	A	J	□	1
..2	□	□	□	□	□	□	□	□	b	k	s	□	B	K	S	2
..3	□	□	□	□	□	□	□	□	c	l	t	□	C	L	T	3
..4	□	□	□	□	□	□	□	□	d	m	u	□	D	M	U	4
..5	□	□	□	□	□	□	□	□	e	n	v	□	E	N	V	5
..6	□	□	□	□	□	□	□	□	f	o	w	□	F	O	W	6
..7	△	□	□	□	□	□	□	□	g	p	x	□	G	P	X	7
..8	□	□	□	□	□	□	□	□	h	q	y	□	H	Q	Y	8
..9	□	□	□	□	□	□	□	□	i	r	z	□	I	R	Z	9
..A	□	□	□	□	¢	!	□	:	□	□	□	□	□	□	□	□
..B	□	□	□	□	.	$	,	#	□	□	□	□	□	□	□	□
..C	□	□	□	□	<	*	%	@	□	□	□	□	□	□	□	□
..D	□	□	□	□	(	)	_	'	□	□	□	□	□	□	□	□
..E	□	□	□	□	+	;	>	=	□	□	□	□	□	□	□	□
..F	□	□	□	□	|	¬	?	"	□	□	□	□	□	□	□	□

Table A-1 e Character set "EBCDIC"

	0..	1..	2..	3..	4..	5..	6..	7..	8..	9..	A..	B..	C..	D..	E..	F..
..0	□	□		0	@	P	`	p	Ä	ê	†	∞	¿	–	‡	
..1	□	□	!	1	A	Q	a	q	Å	ë	°	±	¡	—	·	Ò
..2	□	□	"	2	B	R	b	r	Ç	í	¢	≤	¬	“	‚	Ú
..3	□	□	#	3	C	S	c	s	É	ì	£	≥	√	”	„	Û
..4	□	□	$	4	D	T	d	t	Ñ	î	§	¥	ƒ	‘	‰	Ù
..5	□	□	%	5	E	U	e	u	Ö	ï	•	µ	≈	’	Â	ı
..6	□	□	&	6	F	V	f	v	Ü	ñ	¶		Δ	÷	Ê	ˆ
..7	□	□	'	7	G	W	g	w	á	ó	ß	Σ	«		Á	˜
..8	□	□	(	8	H	X	h	x	à	ò	®		»	ÿ	Ë	¯
..9	□	□	)	9	I	Y	i	y	â	ô	©	π	…	Ÿ	È	˘
..A	□	□	*	:	J	Z	j	z	ä	ö	™			⁄	Í	˙
..B	□	□	+	;	K	[	k	{	ã	õ	´	ª	Á	¤	Î	˚
..C	□	□	,	<	L	\	l	|	å	ú	¨	º	Ã	‹	Ï	¸
..D	□	□	-	=	M	]	m	}	ç	ù	≠	Ω	Õ	›	Ì	˝
..E	□	□	.	>	N	^	n	~	é	û	Æ	æ	Œ	ﬁ	Ó	˛
..F	□	□	/	?	O	_	o	△	è	ü	Ø	ø	œ	ﬂ	Ô	ˇ

Table A-1 f Character set "Macintosh"

	0..	1..	2..	3..	4..	5..	6..	7..	8..	9..	A..	B..	C..	D..	E..	F..
..0	□	□		0	@	P	`	p	Ç	É	á	▓	└	đ	Ó	-
..1	□	□	!	1	A	Q	a	q	ü	Ĺ	í	▒	┴	Đ	ß	″
..2	□	□	"	2	B	R	b	r	é	ĺ	ó	░	┬	Ď	Ô	˛
..3	□	□	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ń	ˇ
..4	□	□	$	4	D	T	d	t	ä	ö	Ą	┤	─	ď	ń	˘
..5	□	□	%	5	E	U	e	u	ů	Ľ	ą	Á	┼	Ň	ň	§
..6	□	□	&	6	F	V	f	v	ć	ľ	Ž	Â	Ă	Í	Š	÷
..7	□	□	'	7	G	W	g	w	ç	Ś	ž	Ě	ă	Î	š	¸
..8	□	□	(	8	H	X	h	x	ł	ś	Ę	Ş	└	ě		°
..9	□	□	)	9	I	Y	i	y	ë	Ö	ę	╣	┌		Ú	¨
..A	□	□	*	:	J	Z	j	z	Ő	Ü	¬	║	┴	┌		·
..B	□	□	+	;	K	[	k	{	ő	Ť	ź	┐	┬	█	Ű	ű
..C	□	□	,	<	L	\	l			î	ť	Č	┘	├		ý	Ř
..D	□	□	-	=	M	]	m	}	Ź	Ł	ş	Ż	═	Ţ	Ý	ř
..E	□	□	.	>	N	^	n	~	Ä	×	«	ż	┼	Ů	ţ	■
..F	□	□	/	?	O	_	o	△	Ć	č	»	┐		¤	▄	´

Table A-1 g Character set "Codepage 852"

	0..	1..	2..	3..	4..	5..	6..	7..	8..	9..	A..	B..	C..	D..	E..	F..
..0	□	□		0	@	P	`	p	□	□		°	□	□	א	נ
..1	□	□	!	1	A	Q	a	q	□	□	□	±	□	□	ב	ס
..2	□	□	"	2	B	R	b	r	□	□	¢	²	□	□	ג	ע
..3	□	□	#	3	C	S	c	s	□	□	£	³	□	□	ד	ף
..4	□	□	$	4	D	T	d	t	□	□	¤	´	□	□	ה	פ
..5	□	□	%	5	E	U	e	u	□	□	¥	µ	□	□	ו	ץ
..6	□	□	&	6	F	V	f	v	□	□	¦	¶	□	□	ז	צ
..7	□	□	'	7	G	W	g	w	□	□	§	·	□	□	ח	ק
..8	□	□	(	8	H	X	h	x	□	□	¨	¸	□	□	ט	ר
..9	□	□	)	9	I	Y	i	y	□	□	©	¹	□	□	י	ש
..A	□	□	*	:	J	Z	j	z	□	□	×	÷	□	□	ך	ת
..B	□	□	+	;	K	[	k	{	□	□	«	»	□	□	כ	□
..C	□	□	,	<	L	\	l			□	□	¬	¼	□	□	ל	□
..D	□	□	-	=	M	]	m	}	□	□	-	½	□	□	ם	□
..E	□	□	.	>	N	^	n	~	□	□	®	¾	□	□	מ	□
..F	□	□	/	?	O	_	o	△	□	□	‾	‾	□	□	ן	□

Table A-1 h Character set "ISO 8859-8"

Unicode Tables

	Control		ASCII						Control		Latin1					
	000	001	002	003	004	005	006	007	008	009	00A	00B	00C	00D	00E	00F
0	NUL	DLE	⎕	0	@	P	`	p	CTRL	CTRL	⎕	°	À	Ð	à	ð
1	SOH	DC1	!	1	A	Q	a	q	CTRL	CTRL	¡	±	Á	Ñ	á	ñ
2	STX	DC2	"	2	B	R	b	r	CTRL	CTRL	¢	²	Â	Ò	â	ò
3	ETX	DC3	#	3	C	S	c	s	CTRL	CTRL	£	³	Ã	Ó	ã	ó
4	EOT	DC4	$¦$	4	D	T	d	t	CTRL	CTRL	¤	´	Ä	Ô	ä	ô
5	ENQ	NAK	%	5	E	U	e	u	CTRL	CTRL	¥¦¥	µ	Å	Õ	å	õ
6	ACK	SYN	&	6	F	V	f	v	CTRL	CTRL	¦	¶	Æ	Ö	æ	ö
7	BEL	ETB	'	7	G	W	g	w	CTRL	CTRL	§	·	Ç	×	ç	÷
8	BS	CAN	(	8	H	X	h	x	CTRL	CTRL	¨	¸	È	Ø	è	ø
9	HT	EM	)	9	I	Y	i	y	CTRL	CTRL	©	¹	É	Ù	é	ù
A	LF	SUB	*	:	J	Z	j	z	CTRL	CTRL	ª	º	Ê	Ú	ê	ú
B	VT	ESC	+	;	K	[	k	{	CTRL	CTRL	«	»	Ë	Û	ë	û
C	FF	FS	,	<	L	\	l	¦	CTRL	CTRL	¬	¼	Ì	Ü	ì	ü
D	CR	GS	—	=	M	]	m	}	CTRL	CTRL		½	Í	Ý	í	ý
E	SO	RS	.	>	N	^	n	~	CTRL	CTRL	®	¾	Î	Þ	î	þ
F	SI	US	/	?	O	__	o	DEL	CTRL	CTRL	¯	¿	Ï	ß	ï	ÿ

Table A-2 a "Unicode" (0000 - 00FF)

European Latin   Extended Latin

	010	011	012	013	014	015	016	017	018	019	01A	01B	01C	01D	01E	01F
0	Ā	Đ	Ġ	İ	ŀ	Ő	Š	Ű	ƀ	Ɛ	Ơ	ư	ǀ/	ǐ	Ǟ	ǰ
1	ā	đ	ġ	ı	Ł	ő	š	ű	Ɓ	Ƒ	ơ	Ʊ	ǁ//	Ǒ	ã	
2	Ă	Ē	Ģ	Ĳ	ł	Œ	Ţ	Ų	Ƃ	ƒ	Ƣ	Ʋ	ǂ	ǒ	Æ	
3	ă	ē	ģ	ĳ	Ń	œ	ţ	ų	ƃ	Ɠ	ƣ	Ƴ	!	Ǔ	æ	
4	Ą	Ĕ	Ĥ	Ĵ	ń	Ŕ	Ť	Ŵ	Ƅ	Ɣ	Ƥ	ƴ	DŽ	ǔ	Ǥ	
5	ą	ĕ	ĥ	ĵ	Ņ	ŕ	ť	ŵ	ƅ	ƕ	ƥ	Ƶ	Dž	Ǖ	ǥ	
6	Ć	Ė	Ħ	Ķ	ņ	Ŗ	Ŧ	Ŷ	Ɔ	Ɩ	Ř	ƶ	dž	Ǘ	ǧ	
7	ć	ė	ħ	ķ	Ň	ŗ	ŧ	ŷ	Ƈ	Ɨ	ƨ	Ʒ	LJ	Ǚ	ǧ	
8	Ĉ	Ę	Ĩ	ĸ	ň	Ř	Ũ	Ÿ	ƈ	Ƙ	ƚ	ƹ	Lj	ǘ	Ǩ	
9	ĉ	ę	ĩ	Ĺ	ʼn	ř	ũ	Ź	Ɖ	ƙ	Ʃ	ƺ	lj	Ǚ	ǩ	
A	Ċ	Ě	Ī	ĺ	ŊN	Ś	Ū	ź	Ɗ	ƚ	ƛ	ƻ	NJ	ǚ	Ǫ	
B	ċ	ě	ī	Ļ	ŋ	ś	ū	Ż	Ƌ	ƛ	ƫ	Ƽ	Nj	Ǜ	ǫ	
C	Č	Ġ	Ĭ	ļ	Ō	Ŝ	Ŭ	ż	ƌ	Ɯ	Ƭ	ƽ	nj	ǜ	Ǭ	
D	č	ĝ	ĭ	ĽĿ	ō	ŝ	ŭ	Ž	ƍ	Ɲ	ƭ	ƽ	Ǎ	ə	ǭ	
E	ĎƉ	Ğ	Į	Ĳſ	Ŏ	ŞŜ	Ů	ž	Ǝ	ƞ	Ʈ	ƾ	ǎ	Ǟ	ǯ	
F	ďđ	ğ	į	Ŀ	ŏ	şſ	ů		Ə	Ɵ	Ʊ	ƿ	Ǐ	ǟ	ǯ	

Table A-2 b "Unicode" (0100 - 01FF)

General Punctuation | Sups & Subs | Currency | Diacritics

	200	201	202	203	204	205	206	207	208	209	20A	20B	20C	20D	20E	20F
0		Hyphen	†	‰	⁀			0	₀		₠			̀	⃠	
1		NB	‡	‱	⁁			1	₁		₡			̃	⃡	
2		Figure	•	′	⁂			2	₂		₢			⃗		
3		—	▶	″	▬			3	₃		₣			⃓		
4		—	·	‴	⁄			⁴	₄		₤			⃔		
5		—	‥	‵				⁵	₅		₥			⃕		
6		‖	…	‶				⁶	₆		₦			⃖		
7		‗	Hyphen	‷				⁷	₇		₧			⃗		
8		'		‸				⁸	₈		₨			⃘		
9		'		‹				⁹	₉		₩			⃙		
A		'		›				⁺	₊		₪			⃚		
B		'	※					⁻	₋		·			⃛		
C		"		‼				⁼	₌		€			⃜		
D		"		‽				⁽	₍					◯		
E		"		―				⁾	₎					□		
F		‟						ⁿ						◇		

Table A-2 c "Unicode" (2000 - 20FF)

Letterlike Symbols · Number Forms · Arrows

	210	211	212	213	214	215	216	217	218	219	21A	21B	21C	21D	21E	21F
0	℀	ℐ	℠	ℰ			Ⅰ	ⅰ	ↀ	←	↠	↰	⇀	⇐	⇠	
1	℁	ℑ	℡	ℱ			Ⅱ	ⅱ	ↁ	↑	↡	↱	⇁	⇑	⇡	
2	ℂ	ℒ	™	Ⅎ			Ⅲ	ⅲ	ↂ	→	↢	↲	⇂	⇒	⇢	
3	℃	ℓ	℣	ℳ		⅓	Ⅳ	ⅳ		↓	↣	↳	⇃	⇓	⇣	
4	℄	℔	ℤ	ℴ		⅔	Ⅴ	ⅴ		↔	↤	↴	⇄	⇔	⇤	
5	℅	ℕ	℥	ℵ		⅕	Ⅵ	ⅵ		↕	↥	↵	⇅	⇕	⇥	
6	℆	№	Ω	ℶ		⅖	Ⅶ	ⅶ		↖	↦	↶	⇆	⇖	⇦	
7	ℇ	℗	℧	ℷ		⅗	Ⅷ	ⅷ		↗	↧	↷	⇇	⇗	⇧	
8	℈	℘	ℨ	ℸ		⅘	Ⅸ	ⅸ		↘	↨	↸	⇈	⇘	⇨	
9	℉	ℙ	℩			⅙	Ⅹ	ⅹ		↙	↩	↹	⇉	⇙	⇩	
A	ℊ	ℚ	K			⅚	Ⅺ	ⅺ		↚	↪	↺	⇊	⇚	⇪	
B	ℋ	ℛ	Å			⅛	Ⅻ	ⅻ		↛	↫	↻	⇋	⇛		
C	ℌ	ℜ	ℬ			⅜	Ⅼ	ⅼ		↜	↬	↼	⇌	⇜		
D	ℍ	ℝ	ℭ			⅝	Ⅽ	ⅽ		↝	↭	↽	⇍	⇝		
E	ℎ	℞	℮			⅞	Ⅾ	ⅾ		↞	↮	↾	⇎	⇞		
F	ℏ	℟	ℯ			⅟	Ⅿ	ⅿ		↟	↯	↿	⇏	⇟		

Table A-2 d "Unicode" (2100 - 21FF)

Special Characters - Keyboard Adapter

Character	GR	FR	UK	US	SG	SF	BE	SU	IT	SP	DK	CZ
€	E	E	E	E	E	E	E	E	E	E	E	E
{	7	'			ä	à	ç	7	8	´	7	B
}	0	=			$	$	à	0	9	ç	0	N
[	8	(			ü	è	^	8	è		8	F
]	9	)			¨	¨	$	9	+	+	9	G
\	ß	_			<	<	<	+		°	<	Q
|	<	-	`		1	1	&	<		1		W
'								\	0			
´			,	`	,	,	ù					í
`		è					µ	´				ý
^		ç					§					š
ˇ	^	^	6	6	§	§	²	§	Ì	<	½	;
¨	.		.	.					.			=
~	+	é			^	^	=	¨	ù	4	¨	+
°			0	0				´	0	0		ř
²	2								2			
³	3								3			
#		"			3	3	"	à	3			X
$								4			4	ů
¢					8	8						
£								3			3	
¤		$										¨
@	q	à			2	2	é	2	ò	2	2	V
µ	m								m	m	m	
¬					6	6					6	
÷	/	/	/	/	/	/	/	/	/	/	/	/
×	*	*	*	*	*	*	*	*	*	*	*	*

Character	[ALT] + key
	č
˛	ž
¸	á
”	é
˛	´
÷	ú
×	)
đ	S
Đ	D
ł	K
Ł	L
ß	§
&	C
<	,
>	.
*	-
	CZ

Table A-3 a   Special characters as used by the keyboard adapter with reference to different country settings Use with the [ALT] key

| / |,| * | ...   Keys of the numeric keyboard

GR : Deutschland
FR : France
UK : United Kingdom
US : USA
SG : Schweiz
SF : Suisse

BE : Belgie
SU : Suomi
IT : Italia
SP : España
DK : Danmark
CZ : Ceska republika

ZZ	Z1	Z2	ZZ	Z1	Z2	ZZ	Z1	Z2	ZZ	Z1	Z2
À	`	A	Ò	`	O	å	°	a	ò	`	o
Á	´	A	Ó	´	O	æ	a	e	ó	´	o
Â	^	A	Ô	^	O	ª	_	a	ô	^	o
Ã	~	A	Õ	~	O	ç	,	c	õ	~	o
Ä	¨	A	Ö	¨	O	¢	|	c	ö	¨	o
Å	°	A	Ø	/	O	č	ˇ	c	ø	/	o
Æ	A	E	Œ	O	E	ď	'	d	œ	o	e
Ç	,	C	Ř	ˇ	R	è	`	e	º	_	o
Č	ˇ	C	Š	ˇ	S	é	´	e	ŕ	´	r
D'	'	D	Ù	`	U	ê	^	e	ř	ˇ	r
È	`	E	Ú	´	U	ë	¨	e	š	ˇ	s
É	´	E	Û	^	U	ě	ˇ	e	ß	s	s
Ê	^	E	Ü	¨	U	ì	`	i	ť	'	t
Ë	¨	E	Ý	´	Y	í	´	i	ù	`	u
Ì	`	I	¥	-	Y	î	^	i	ú	´	u
Í	´	I	Ž	ˇ	Z	ï	¨	i	û	^	u
Î	^	I	à	`	a	ij	i	j	ü	¨	u
Ï	¨	I	á	´	a	ľ	'	l	ů	°	u
IJ	I	J	â	^	a	ĺ	´	l	ý	´	y
£	-	L	ã	~	a	ñ	~	n	ÿ	¨	y
Ñ	~	N	ä	¨	a	ň	ˇ	n	ž	ˇ	z

Table A-3b   **Special characters as used by the keyboard adapter which may be generated by inserting two characters one after the other**

To generate the character **ZZ** : 1st character **[Z1]** - 2nd character **[ALT-Z2]**

For example : For "**ñ**" : 1st character **[~]** - 2nd character **[ALT-n]**

NOTICE !
For inserting the Z1 character, you may use the information as in Table A-3a.

Appendix B - Pin Assignment of the Interface Connectors

Pin Assignment of the Serial Interface Connectors

The **Apollo** provides a 25 pin SUB-D connector for the serial interfaces which are internally available, i.e. RS-232, RS-422 and RS-485.

Pin 13   **Pin 1**

Pin 25   **Pin 14**
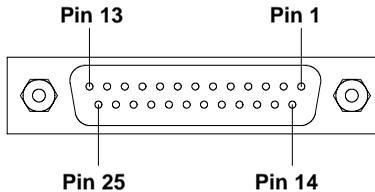
Fig. B-1 Connector of the serial interface (rear of the printer)

Pin	Signal	Function
1	CG	Protective grounding
2	TxD	Transmit data (RS-232)
3	RxD	Receive data (RS-232)
4	RTS	Request to send
5	CTS	Clear to send
7	GND	Logic grounding
9	TDATA+	Transmit data (RS-422, RS-485)
10	TDATA-	Transmit data (RS-422, RS-485)
18	RDATA+	Receive data (RS-422, RS-485)
19	RDATA-	Receive data (RS-422, RS-485)
20	DTR	Data terminal ready

Table B-1 Signals of the serial interface connector

Interface Cable for RS-232

The following chapter shows some typical RS-232 interface cable configurations. Note, that the pin assignment may vary for different computers. If you have any problems with the connections, contact the manufacturer of your computer on the pin assignment of the interface. Use the pin assignment of the printer as shown in Table B-1 to obtain a suitable cable.

PC   **Apollo**

PC	Apollo
1	1
2	3
3	2
5	20
7	7
6	4
8	5
20	

25 pin connector   25 pin plug

**Fig. B-2   Interface cable with 25 pin computer connector
for RS-232 with protocol " ---" or "XON/XOFF"**

PC   **Apollo**

PC	Apollo
2	2
3	3
5	7
8	20
1	4
4	5
6	

9 pin connector   25 pin plug

**Fig. B-3   Interface cable with 9 pin computer connector
for RS-232 with protocol " ---" or "XON/XOFF"**

PC   **Apollo**

1	—	1
2	—	3
3	—	2
4	—	5
5	—	4
7	—	7
6		
8		
20		

25 pin connector   25 pin plug

**Fig. B-4   Interface cable with 25 pin computer connector
                 for RS-232 with protocol " RTS/CTS" or "XON/XOFF"**

PC   **Apollo**

2	—	2
3	—	3
5	—	7
7	—	5
8	—	4
1		
4		
6		

9 pin connector   25 pin plug
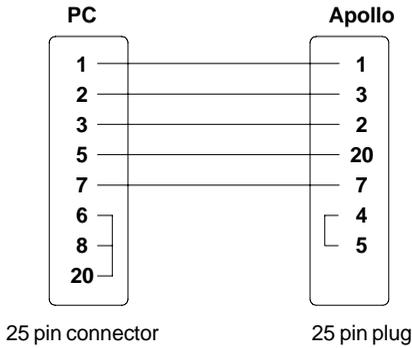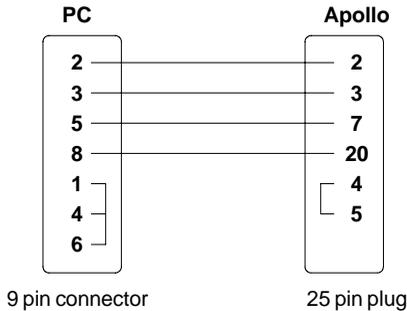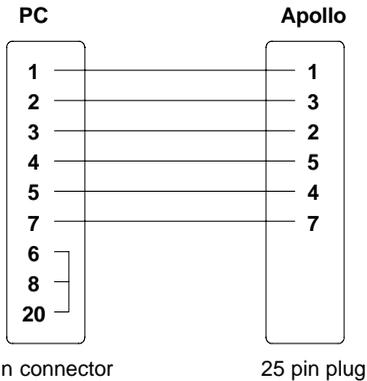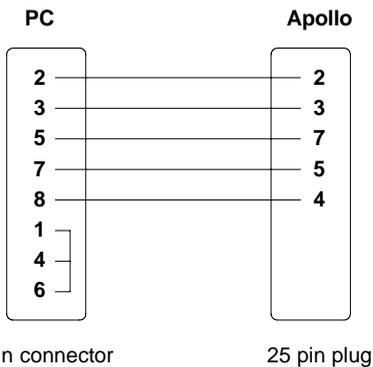
**Fig. B-5   Interface cable with 9 pin computer connector
                 for RS-232 with protocol "RTS/CTS" or "XON/XOFF"**

Interface Cable for RS-422/ RS-485

To control the **Apollo** by RS-422/ RS-485 interface, only the signals TDATA+, TDATA-, RDATA+, and RDATA- are necessary.
Check the pin assignment of the interface of your computer, and use the pin assignment of the printer as shown in Table B-1 to obtain a suitable cable.
The pins of TDATA+ and RDATA+ and the pins of TDATA- und RDATA- have to be connected with ea ch other. For long transmission distances it is recommanded to terminate the lines.

Pin Assignment of the Parallel Interface Connector

The **Apollo** provides a 36 pin connector for the parallel Centronics interface.

Pin 18   **Pin 1**

Pin 36   **Pin 19**
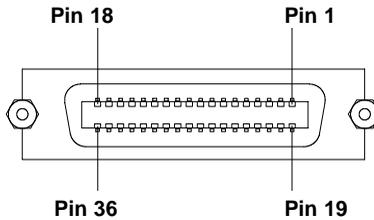
Fig. B-6 Centronics interface connector (rear of the printer)

Pin	Signal	Pin	Signal
1	/STROBE	19	GND
2	DATA 1	20	GND
3	DATA 2	21	GND
4	DATA 3	22	GND
5	DATA 4	23	GND
6	DATA 5	24	GND
7	DATA 6	25	GND
8	DATA 7	26	GND
9	DATA 8	27	GND
10	/ACKNLG	28	GND
11	BUSY	29	GND
12	PE	30	GND
13	SLCT	31	nc
14	nc	32	nc
15	nc	33	nc
16	GND	34	nc
17	nc	35	nc
18	nc	36	nc

Table B-2 Signals of the Centronics interface

Centronics Interface Cable

The cables used for Centronics interface connectors are standard cables, so that normally there are no problems with the external control of the **Apollo**.

In the event of any difficulties, consult the manufacturer of your computer on the pin assignment of the computer's interface. Use the pin assignment of the printer as shown in Table B-1 to obtain a suitable cable.

Pin Assignment of the Peripheral Port

To control different options the **Apollo** also provides a 15 pin SUB-D connector at the front of the printer.

Pin 8   **Pin 1**

Pin 15   **Pin 9**
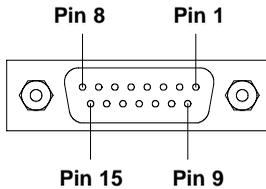
Fig. B-7 Peripheral port

Pin	Signal	Function
1	COD0	Code bit 0
2	PAI0	Sensor bit 0
3	PAO0	Control bit 0
4	PAO2	Control bit 2
5	GND	Logic grounding
6	+ 5V	Logic voltage I_{max}< 500 mA
7	PGND	Power grounding
8	+ 24V	Voltage for power level I_{max}< 1,2 A
9	COD1	Code bit 1
10	PAI1	Sensor bit 1
11	PAO1	Control bit 1
12	PAO3	Control bit 3
13	GND	Logic grounding
14	PGND	Power grounding
15	+ 24V	Voltage for power level I_{max}< 1,2 A

Table B-3 Pin assignment of the peripheral port

Appendix C - Error Messages/ Problem Solution

The following section describes possible errors and their suggested solutions.

The **Apollo** is equipped with a comprehensive self diagnostic system which will indicate errors in the display of the printer. Also, the operator will be informed by the LEDs whether the fault is correctable and will, therefore, allow to continue the current print job after corrections (e.g. "Out of paper"), or the fault may require you to cancel the current print job.

Correctable Errors

While processing a print job, an error has occured which may be corrected by the operator, and also allows you to continue the print job after fault correction.

Display

The top line of the display shows alternately the type of fault and the total of the remaining labels of the current print job.

LED Display

LED CAN on, LED PSE is flashing.
If an applicator is connected : LED FF is flashing.

Function Keys

FF	FF key	Only if an applicator is installed : Provides a label feed in order to synchronize the paper feed for the next print run.
CAN	CAN key	Cancels the current print job. Switch into ONLINE mode. (LED ONL on, LED CAN off, LED PSE off)
PSE	PSE key	Continues current print job after error correction. Switch into PRINT mode. (LED ONL on, LED CAN off, LED PSE off)

Table C-1 Function keys in mode FAULT-CORRECTABLE

Irrecoverable Errors

While switching on the printer or during printing, a fault has occured which cannot be cleared by the operator without cancelling the current print run. (e.g. hardware fault)

Display

The display shows the type of fault.

LED Display

LED CAN is flashing.

Function Keys

⊙CAN	CAN key	Cancels the current print job. Switch into ONLINE mode. (LED ONL on, LED CAN off, LED PSE off) If ONLINE mode cannot be entered, switch printer on and off again. If the fault remains again, contact Technical Service

Table C-2   Function keys in mode FAULT-IRRECOVERABLE

Error Messages

The following table contains an overview of possible error messages, their possible causes as well as solutions to the problems.
Correctable faults as defined above are marked with a " * ".
If the suggested solutions turn out unsuccessful, contact our Technical Service.

A list of errors, which are exclusively related to the applicator, is included in the manual of the applicator.

Error message	Possible cause	Solution
ADC malfunction	Hardware error	Switch printer off and then on. If error recurs → contact Service.
Battery low	PC card error	Replace battery inside the PC card.
Buffer overflow	The data receive buffer is full but the computer is still transmitting data	Use the protocol (preferably RTS/CTS) for data transmission.
Card full	Refers to the optional memory card; No more data can be stored on the card	Replace card.
Cutter blocked	Refers to the optional cutter; The cutter is unable to cut the labels due to the extreme thickness of the material; Cutter cannot return into its home position and stays in an undefined position	Switch printer off, remove material from the cutter, switch printer on. If then the error message "Cutter stuck" appears → contact Service. Otherwise, check the thickness of the label material and replace if necessary.
Cutter jammed *	Refers to the optional cutter; The cutter is unable to cut the labels due to the extreme thickness of the material but is able to return into its home position	Switch printer off, and check the material in the cutter area for possible double laying. Start test cut by pressing the PSE key. If error recurs, replace the label material.
Cutter stuck	Hardware error referring to the optional cutter	Switch printer off and then on. If error recurs → contact Service.
dRAM malfunction	Hardware error	Switch printer off and then on. If error recurs → contact Service.
Ext. I/O error	Refers to the peripheral connector; Caused by connected optional device	Switch printer off and then on. If error recurs check the connected device.

Table C-3 Error messages

Error message	Possible cause	Solution
File not found	Requested file is not on the card	Check the contents of the card.
FPGA malfunction	Hardware error	Switch printer off and then on. If error recurs → contact Service.
Head error	Hardware error	Switch printer off and then on. If error recurs → contact Service.
Head open *	Printhead is not properly locked (**Apollo 1** only)	Lock printhead.
Head too hot *	Printhead is overheated due to labels containing a lot of graphics, text, bar codes, etc.	After pausing to cool down the printhead, the print job will be continued automatically. If the fault recurs repeatedly, reduce the heat level or the print speed via the software.
Invalid data	Fault while downloading graphic data	Cancel current print job. Check data.
Invalid outline	Error with the selected font (download font)	Cancel current print job. Change font.
Invalid setup	Setup is invalid	Use RESTORE function to reset all settings back to factory settings. Configure setup. (see Chapter 9) If error recurs → contact Service.
LCD malfunction	Hardware error	Switch printer off and then on. If error recurs → contact Service.
Memory overflow	Current print job contains too much information (selected fonts, large graphics)	Cancel current print job. Reduce amount of information.

Table C-3 Error messages (continuation)

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Error message	Possible cause	Solution
No label found *	There are labels missing on the label material	Press ⟨PSE⟩ key repeatedly until printer recognizes the next label on the material.
	The label format as set in the software does not correspond with the real label format	Cancel current print job. Change the label format set in the software. Restart print job.
	Printer is loaded with continuous paper but the software is set on labels	Cancel current print job. Change either software setting or print media. Restart print job.
Out of paper *	Out of label material	Insert new supply roll.
	Label has not properly been loaded in the label sensor fittings	Check paper feed.
	The sensors of the label edge sensor are positioned outside of the path of the material	Adjust the label edge sensor. (see Chapter 7)
Out of ribbon *	Out of transfer ribbon	Load new supply roll of transfer ribbon.
	Ribbon melted during printing	Cancel the current print job. Change the heat level via software, **clean the printhead**, load transfer ribbon, restart print job.
	The printer is loaded with thermal labels for direct thermal mode (without transfer ribbon); but the software is set for transfer printing.	Cancel current print job. Set software to direct thermal mode. Restart print job.

Table C-3 Error messages (continuation)

Error message	Possible cause	Solution
Protocol error (*)	Printer has received an unknown or invalid command (display shows command abbreviated)	Depending on the type of fault, the command can be skipped by pressing the ⟨PSE⟩ key or the print job has to be cancelled by pressing the ⟨CAN⟩ key.
	The interfaces of computer and printer are set differently	Switch printer off. Correct the interface setting in the printer setup. (see Chapter 9)
Read error	Refers to the optional memory card; Read error when reading from the card	There is no solution. Check the battery. Reformat card. Copy backup files onto the card.
sRAM malfunction	Hardware error	Switch printer off and then on. If error recurs → contact Service.
Structural err.	Refers to the optional memory card; Fault in file list	Data access is uncertain. Format card.
Unknown card	Refers to the optional memory card; Card not formatted, or Card not supported by printer	Format card. Use different type of card.
Voltage error	Hardware error	Switch printer off and then on. If error recurs → contact Service.
Write error	Refers to the optional memory card; Hardware error	Repeat the write process or format the card.
Write protected	Refers to the optional memory card; Write protection is activated	Deactivate write protection.

Table C-3 Error messages (continuation)

Appendix D - Maintenance / Cleaning / Adjustment of the Printhead

The printers of the **Apollo** series require only a minimum of maintenance.

It is most important to clean the printhead on a regular basis. This will guarantee a permanent high quality of the print image. Moreover, it helps to prevent an early wear of the printhead.
Apart from that, the servicing only requires you to clean the outside of the printer occassionally.

WARNING !
Before starting any maintenance, switch the printer OFF and disconnect it from the power supply !

General Cleaning

While operating, dust accumulates especially within the printer mechanism. Remove dirt and dust regularly using a soft brush or a vacuum.

The cover of the **Apollo** may be cleaned using standard cleanser.

CAUTION !
Do not use abrasive cleaning powders or solvents !

Cleaning the Media Feed Rollers

Accumulations of dirt on the media feed rollers or the guides may impair the media transport and the print quality.

Clean the rollers as follows :

1. Lift the printhead.

2. Remove the label stock and transfer ribbon from the printer.

3. Remove all accumulations of dirt and dust with isopropyl alcohol and a soft cloth.

Cleaning the Printhead

While operating, dirt such as paper dust or particles of ink or back coating from the ribbon may accumulate on the thermal printhead.
This can cause a deterioriation of the print quality. (e.g. different contrasts on the label, appearance of light horizontal lines, etc.)
In that case, the printhead needs cleaning.

Recommended cleaning intervalls :

Direct Thermal Printing :   each time you change the label roll

Thermal Transfer Printing :   each time you change the ribbon

CAUTION !
Do not use any sharp objects for cleaning the printhead !
Do not touch the protective glass layer of the printhead !

Clean the printhead as follows :

1. Lift the printhead.

2. Remove label material and transfer ribbon from the printer.

3. Clean the printhead surface with a special cleaning pen, or use a cotton swab soaked with isopropyl alcohol.

4. Allow it to dry for about 2 to 3 minutes before restarting the printer.

Adjustment of the Printhead

For optimum print quality, the line of heating elements on the printhead must be parallel and aligned correctly to the print roller. This alignment has already been performed in the factory. Nevertheless, it may become necessary to adjust it.

A misaligned printhead causes a poor print quality which appears as described below :
- the print image looks generally light, spotted, and irregular; or
- the print image appears uneven from one side to the other.
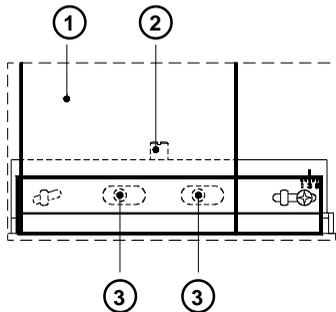
Fig. D Adjustment of the printhead

Adjust the printhead as follows :

1. You may leave the transfer ribbon (**1**) inside the printer, and simply poke through it with your hex wrench.

2. Loosen the locking screw (**2**) on the printhead by half a turn. This will allow for the required horizontal adjustment of the printhead.

3. By turning the two screws underneath (**3**) you may shift the printhead as follows :
   - The overall distance for adjusting is .1 in or 2.5 mm.
   - By turning the screws clockwise, the printhead will be shifted backwards. (about .02 in or .5 mm per turn)
   - Adjust in small steps ! (quarter turns only)
   - First, turn both screws constantly until at least one side of the print image is optimum.
     Following, adjust the screw which is located at the side of the label where the quality is still poor.

4. Note, that the printhead must be closed after every single adjustment step to make the change effective.

5. Tighten the locking screw (**2**).

6. Perform a test print, for instance a wide black line over the whole width of the label, and review the results.

7. Repeat steps 2 to 6 as necessary to complete the adjustment.

Appendix E - Firmware Updates

General Updates

The firmware of the **Apollo** printer series is subject to constant development, e.g. a growing variety of features available, easier fault correction, etc.
In **Apollo 1/2**, the firmware is stored in an EPROM which for up-dating purposes must completely be replaced with a new one. The replacement should only be performed by Technical Service. The instructions are included in the service manual.
In **Apollo 3**, the firmware is stored in a flash-EPROM, which represents a new technology. For updates, only a file containing the up-dated version needs to be copied via interface.
The file may be distributed on a disk or else is available on the Internet.
The **cab** and **THARO** Internet addresses are included in our latest brochures.

Firmware Updates Apollo 3

1. In Setup mode, set the serial interface of the **Apollo 3** on the highest possible speed that is supported by your computer, or else use the Centronics interface.

2. When switching the **Apollo 3** ON, press all of the four function keys at once.
   The display will show "SYSTEM UPDATE".

3. Transmit the data to the printer. Under DOS, use the following copy command: **COPY AP3_XXX.FMW COM2: /b**.

4. During processing, the printer display indicates the progress with a " . " after each block completed. (total number of blocks is 11)
   After completing the copy process the display shows "OK", and all LEDs are flashing. This also indicates the completion of the up-dating. Switch the printer OFF.

5. In the event of an error during the up-dating process, the error code will be shown in the display :

   'C' : Check sum error (possibly "/b" missing in COPY command or file faulty)
   'H' : Header fault (possibly "/b" missing in COPY command or file faulty)
   'E' : EPROM could not be deleted
   'V' : Programming voltage too low
   'P' : Programming fault

NOTICE !
If any one of the faults described above occurres, the previous firmware setting is invalid and the programming has to be started again.

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Gesellschaft für Computer-
und Automations-
Bausteine mbH
Wilhelm-Schickard-Str. 14
D-76131 Karlsruhe

EU - Conformity Declaration

We declare herewith that as a result of the manner in which the machine designated below
was designed, the type of construction and the machines which, as a result have been
brought on to the general market comply with the relevant fundamental regulations of the EU
Rules for Safety and Health. In the event of any alteration which has not been approved by
us being made to any machine as designated below, this statement shall thereby be made
invalid.

Description: Type:
Thermal Transfer Printer   **Apollo 1, Apollo 2, Apollo 3**

Applied EU Regulations and Norms:

- EC Machinery Regulations   **89/392/EEC,Appendix IIA**
- Machine Safety   EN 292 T1 & T2:1991-11

- EC Low Voltage Regulations   **73/23/EEC**
- Data and Office Machine Safety   EN60950:1992 & A1:1993
                                                                    EN 60950/A2:1993

- EC Electromagnetic Compatibility Regulations   **89/336/EEC**
- Threshold values for the Interference   EN 55022:1998
  of Data Machines
- Limits for harmonic current emission   EN 61000-3-2:1995+A1:1998
                                                                    +A2:1998+A14:1999:2000
- Limits of voltage fluctuation and flicker   EN 61000-3-3:1995
- Interference Resistance in both   EN 50082-1: 1992-12
  Industrial and Small Plants

Signed for, and on behalf of, the Manufacturer :

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99610 Sömmerda

Sömmerda, 08.01.01

Erwin Fascher
Managing Director

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Apollo Programming Guide

To request a copy of the Apollo Programmer's Manual complete this form in full and mail or fax to:

1. If your company is in Europe, Africa, or the Middle East your manual supplier is:

cab Produkttechnik
Wilhelm-Schickard-Straße 14
D-76131 Karlsruhe
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2. All others should forward their orders to :

THARO SYSTEMS, INC.
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