

SERVICE MANUAL



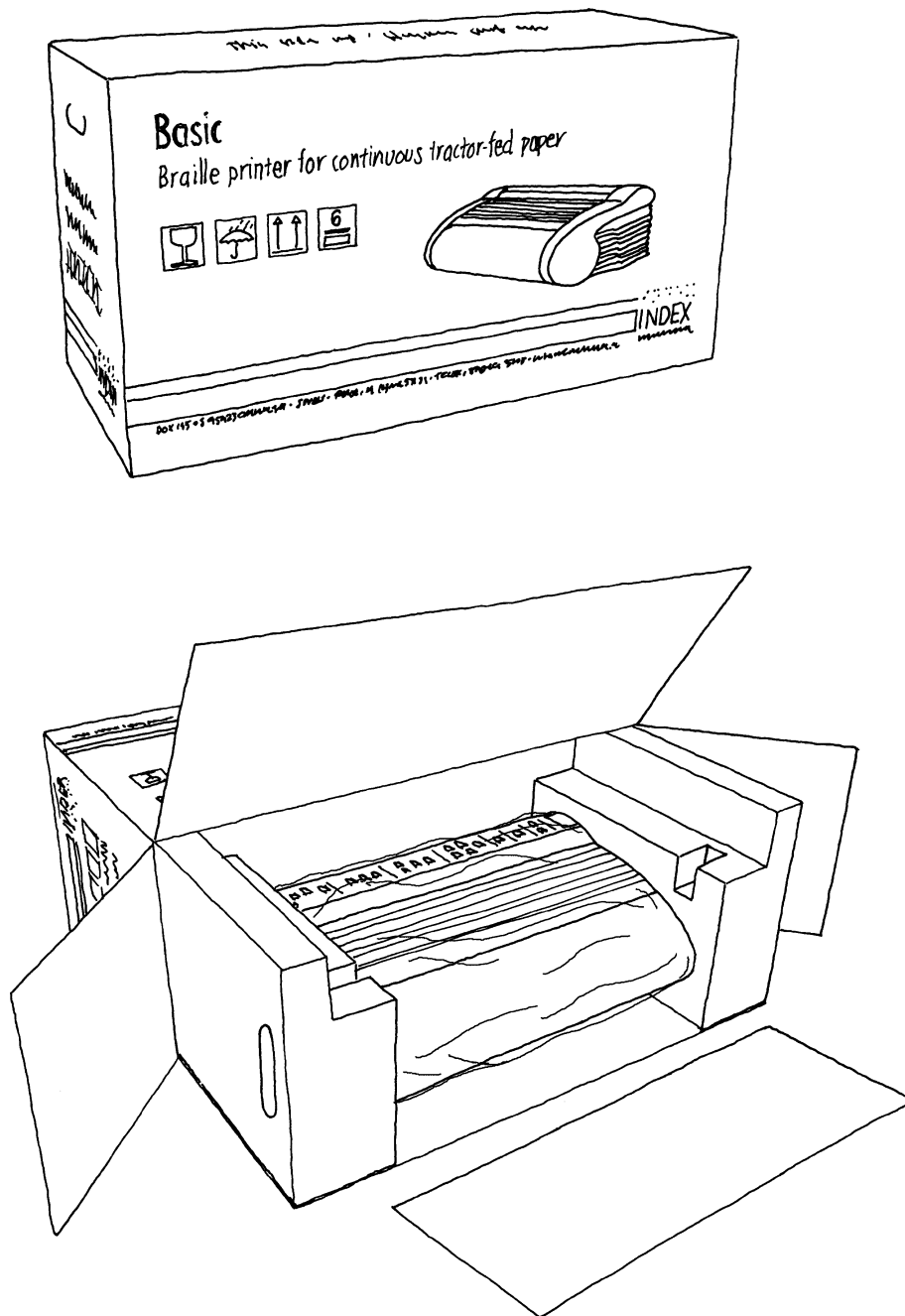
INDEX BASIC *Version 3.0*

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To receive current pricelist, please contact Index

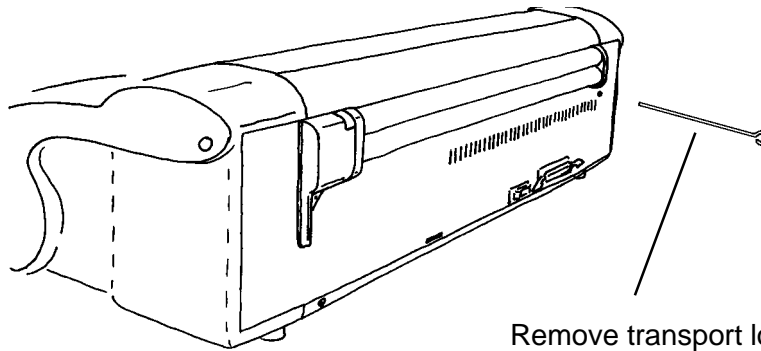
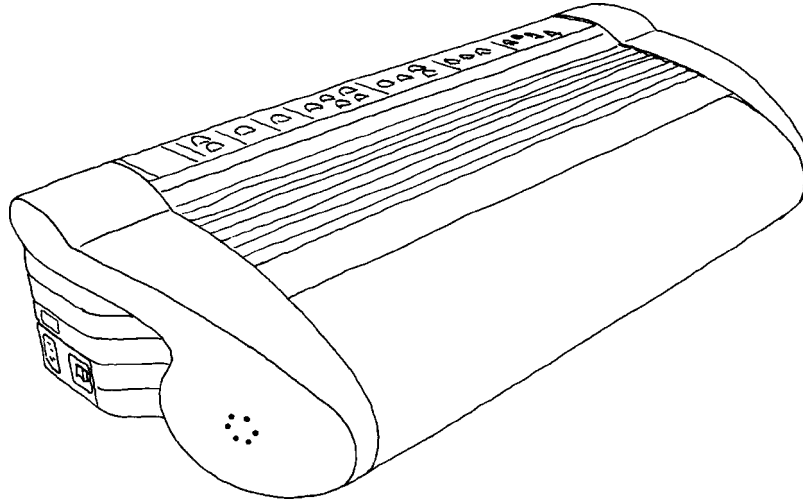
Unpacking



Save carton

Unit should only be shipped in original packing!

Unpacking



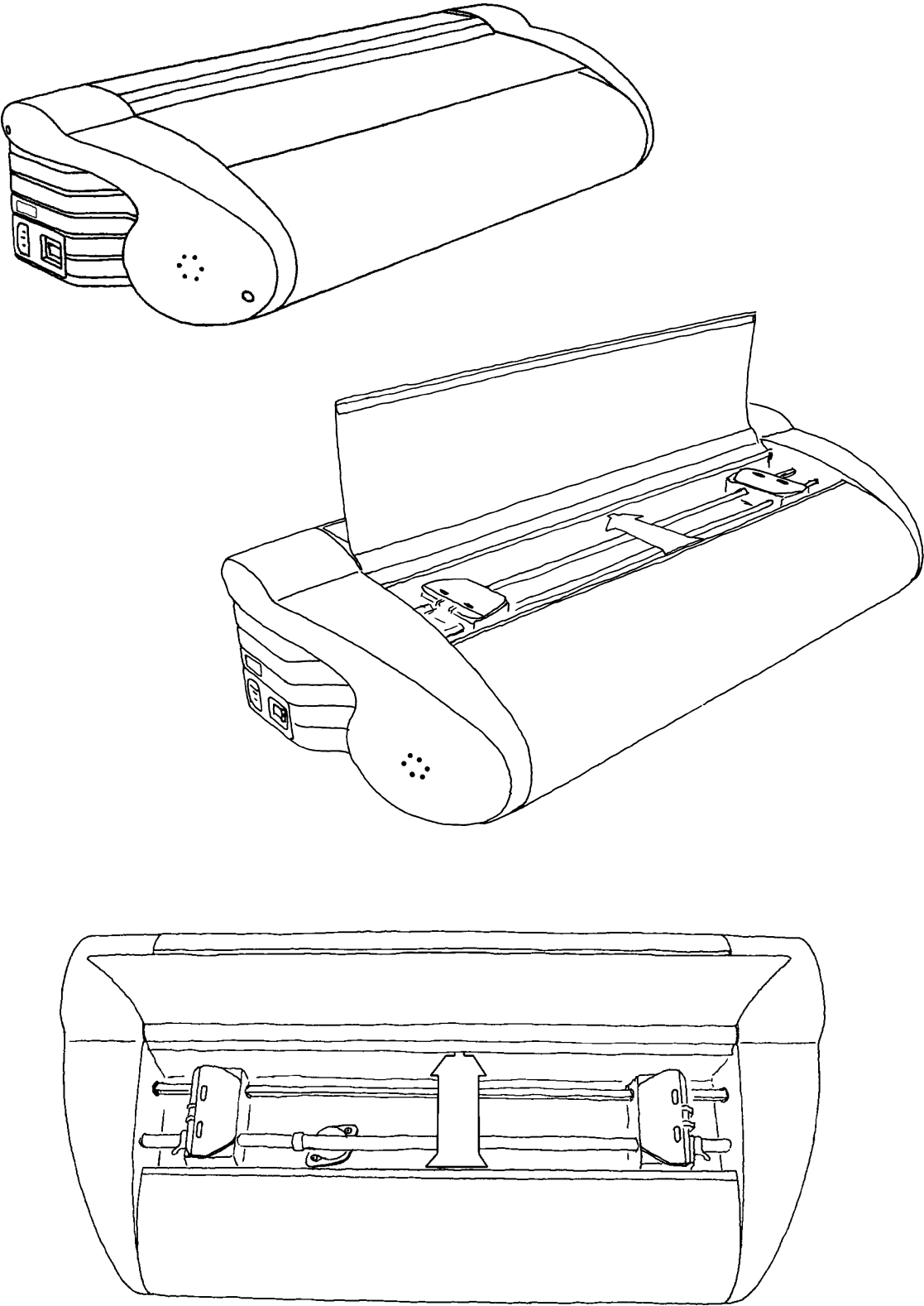
Remove transport locker



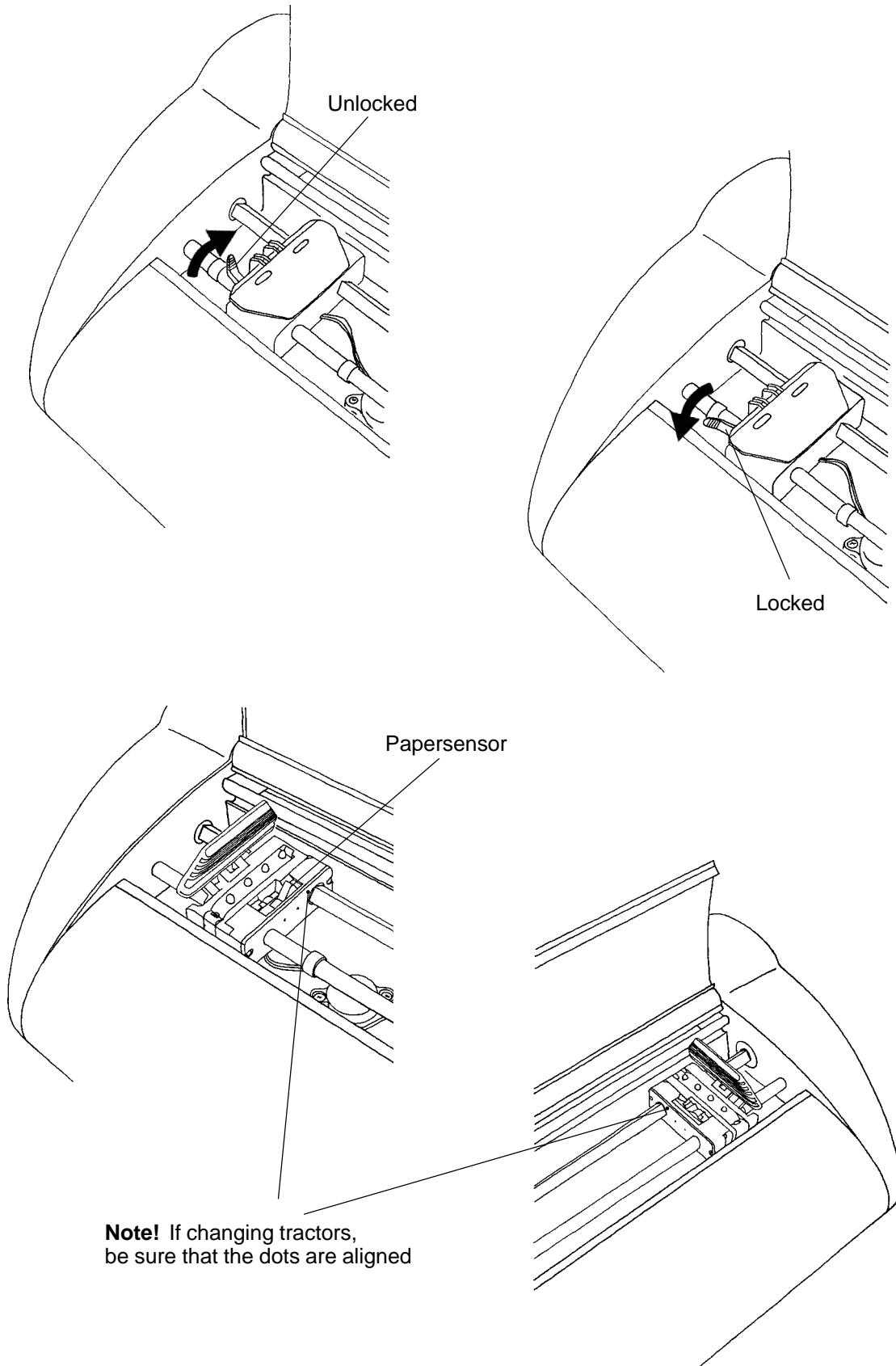
When shipping

Always remember to lock the printinghead!

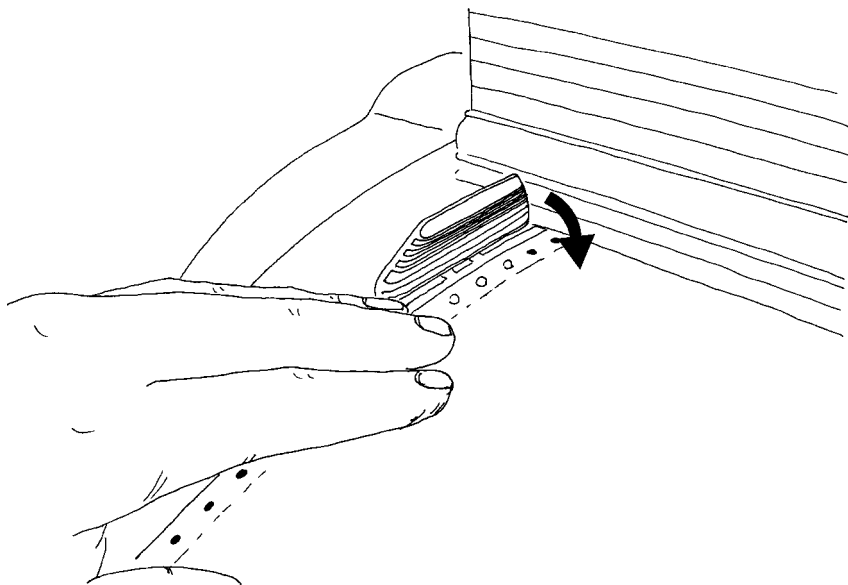
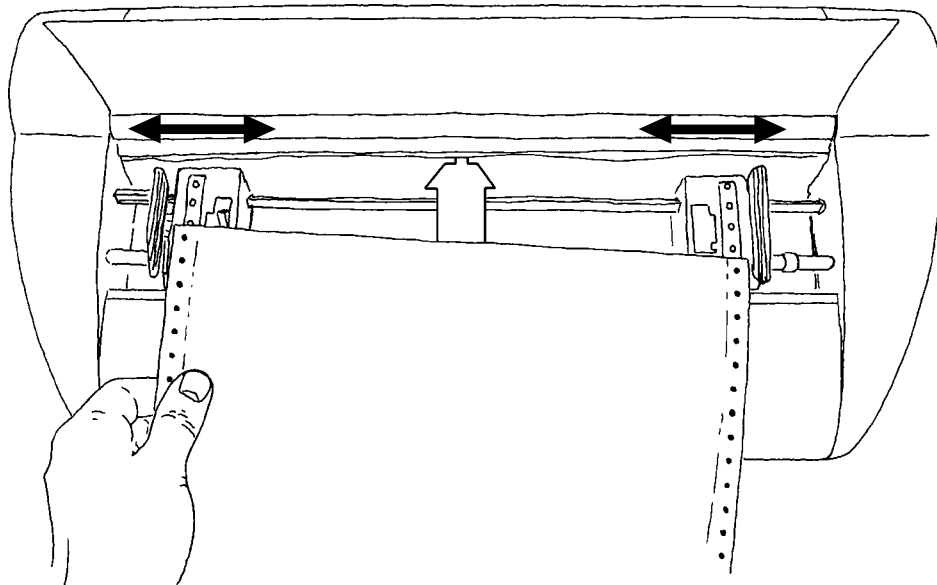
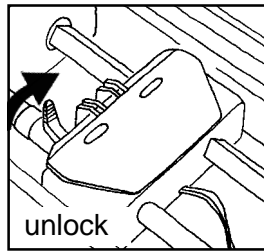
Paperhandling



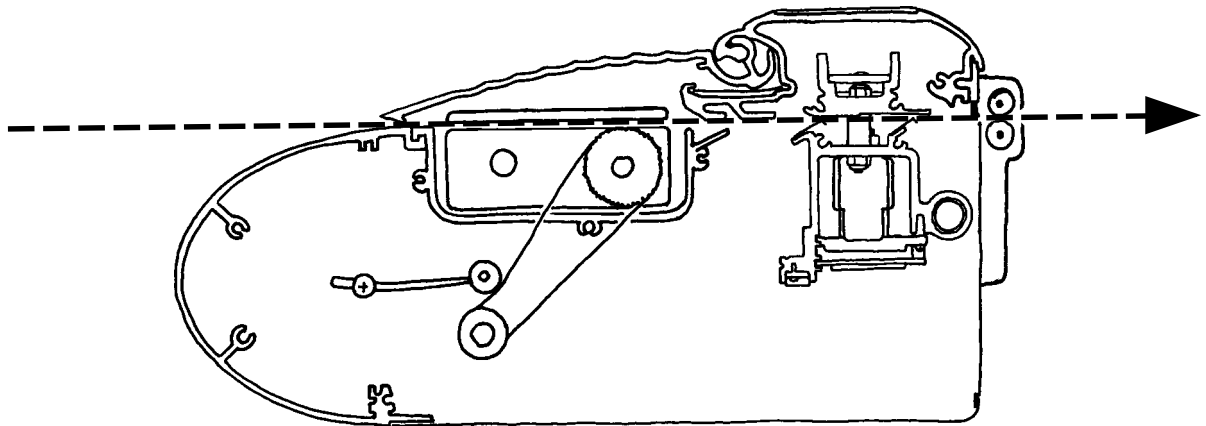
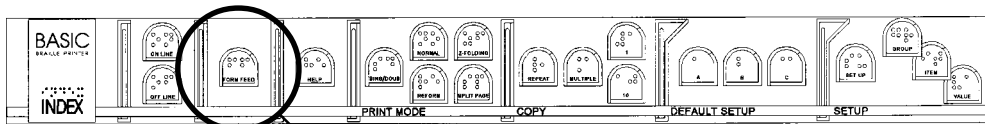
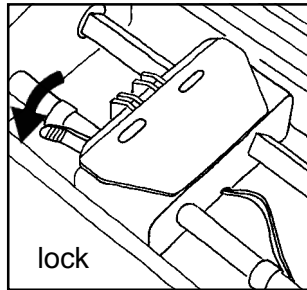
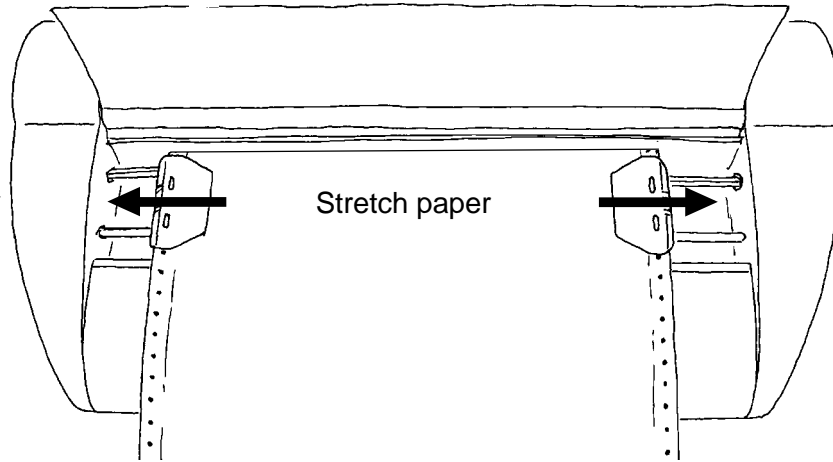
Paperhandling



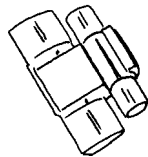
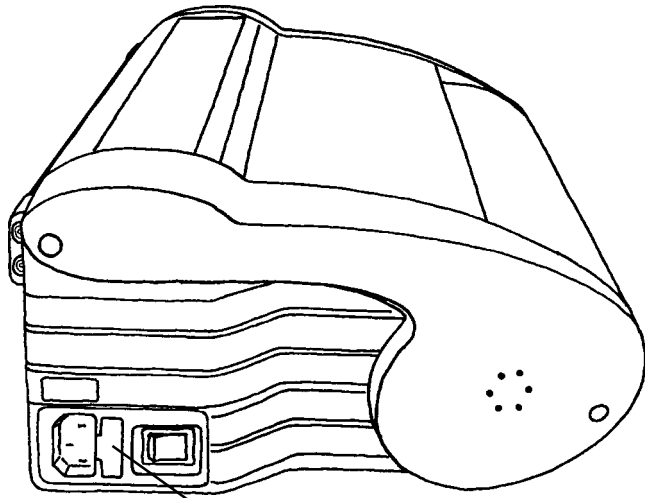
Paperhandling



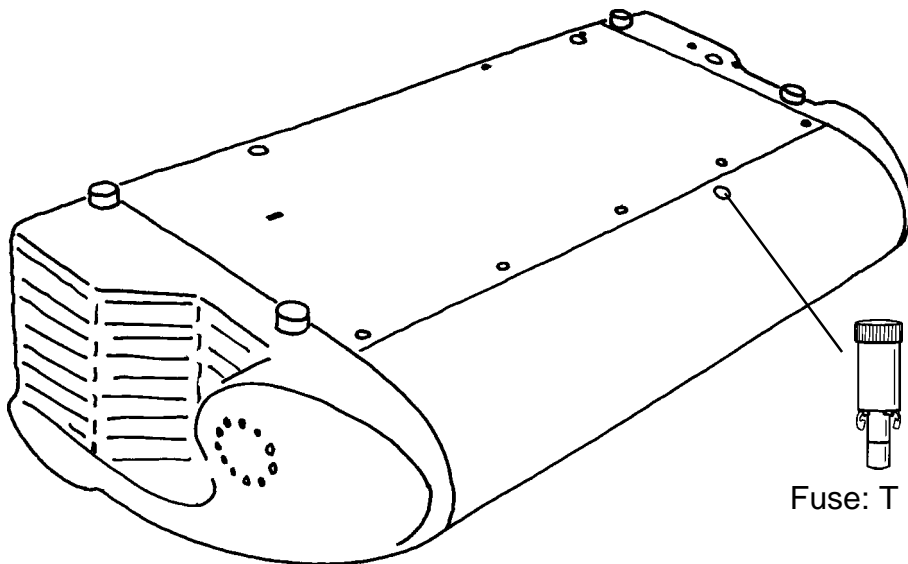
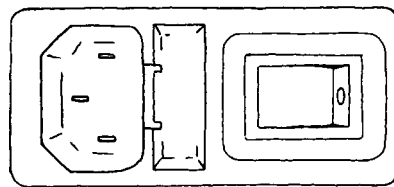
Paperhandling



Fuses

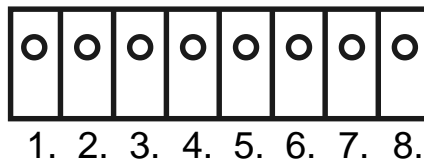
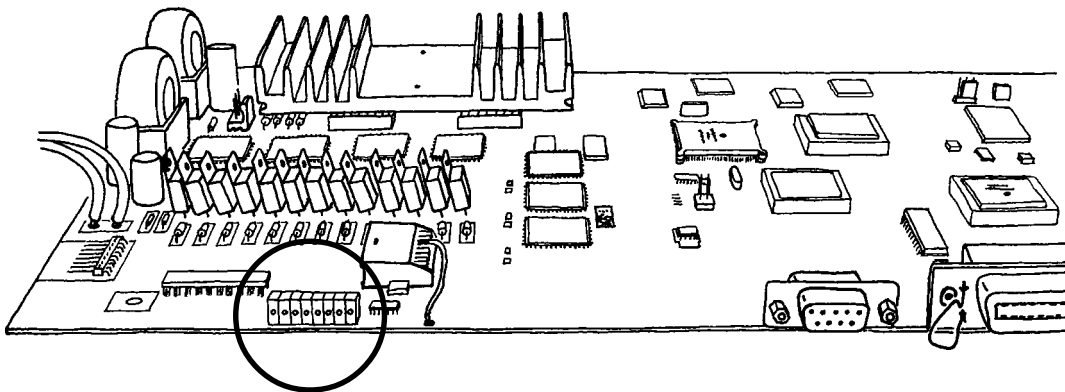
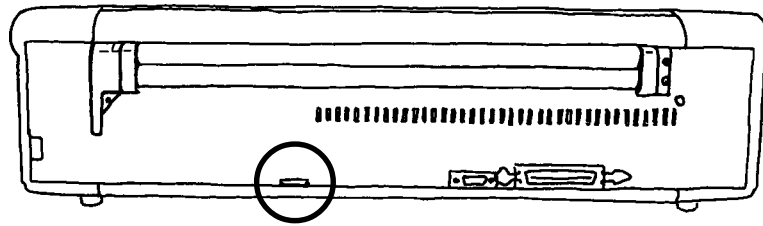


Fuse: T 4.0



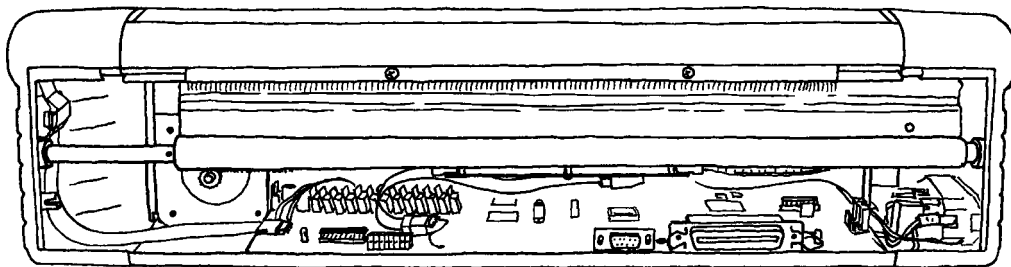
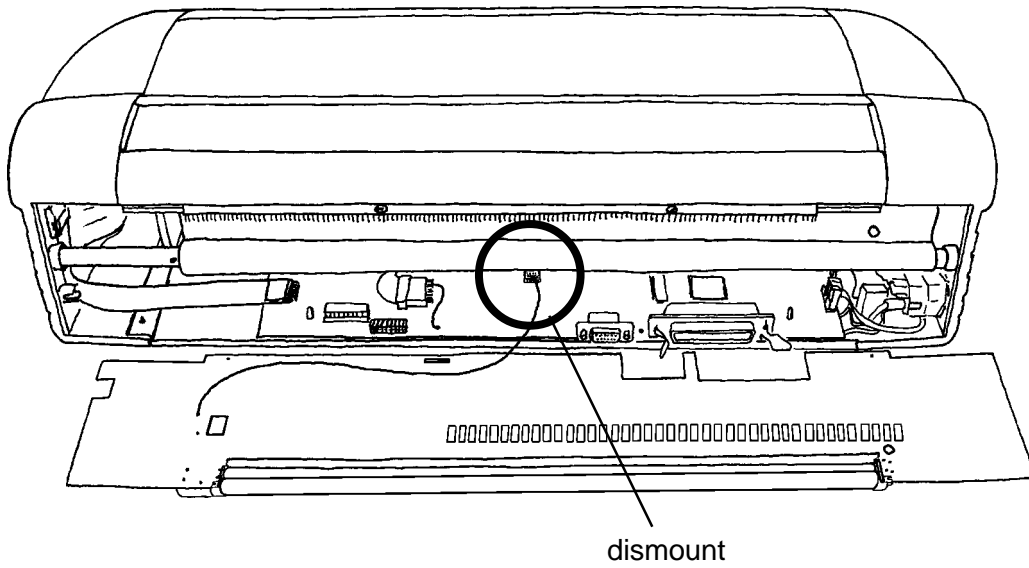
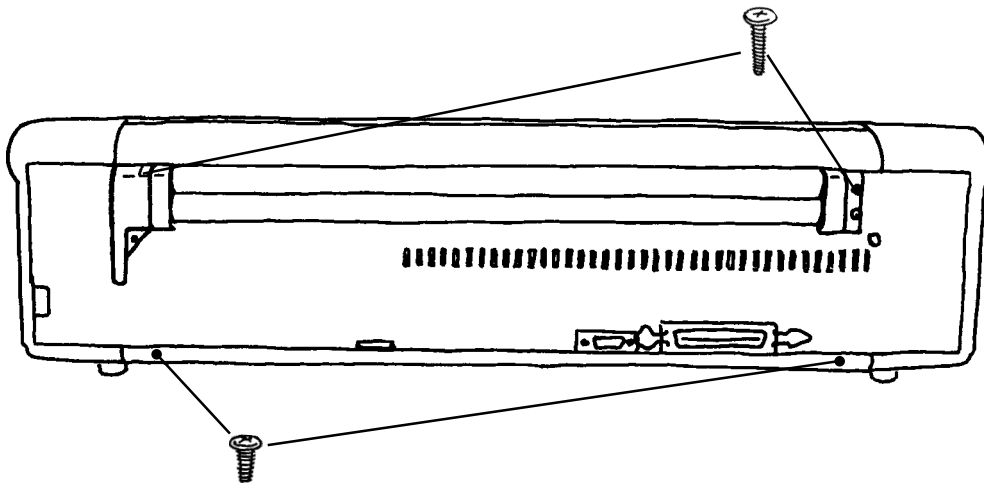
Fuse: T 6.3

LED indicator

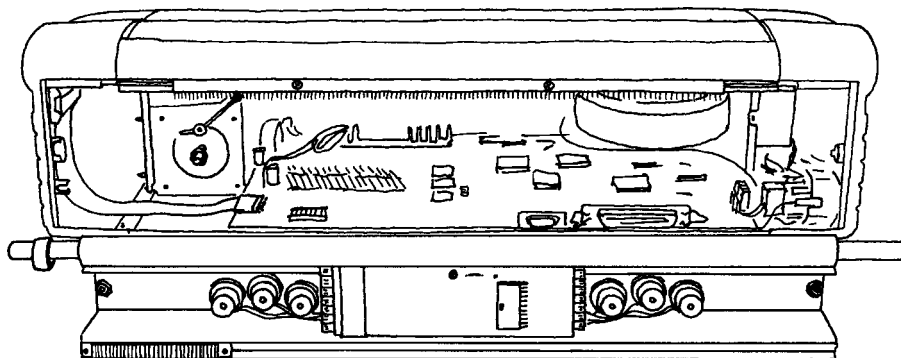
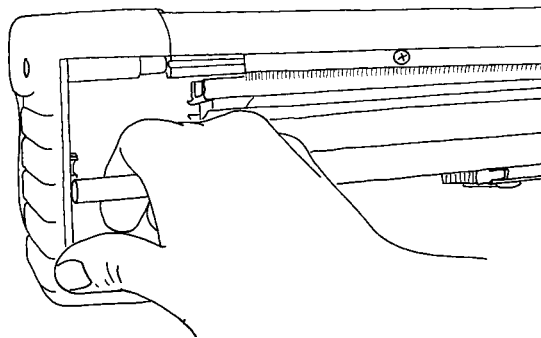
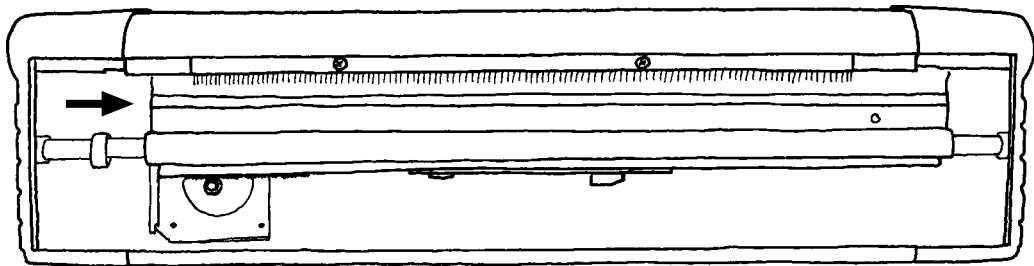
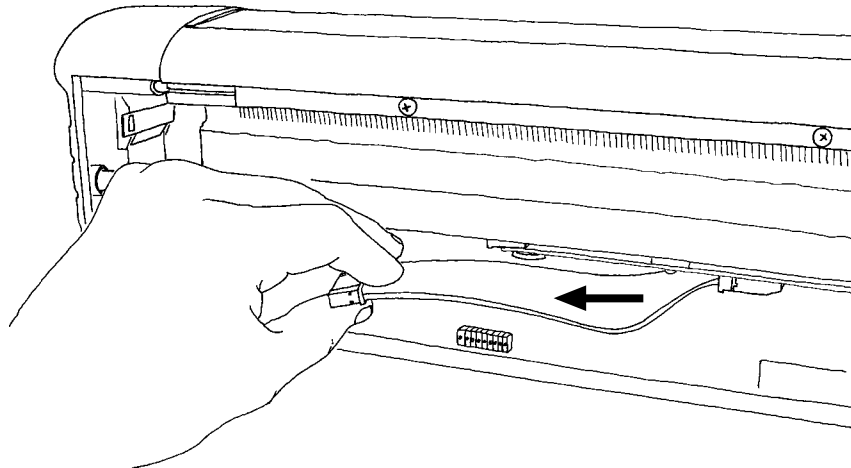


- | | |
|------------------------|------------------------|
| 1. 12 V | Light = 12V DC OK! |
| 2. 40 V | Light = 40V DC OK! |
| 3. 5 V | Light = 5V DC OK! |
| 4. - | - |
| 5. On line | Light = ON LINE |
| 6. - | - |
| 7. Paper moving sensor | On/off during printout |
| 8. Papersensor | Light = Paper IN |

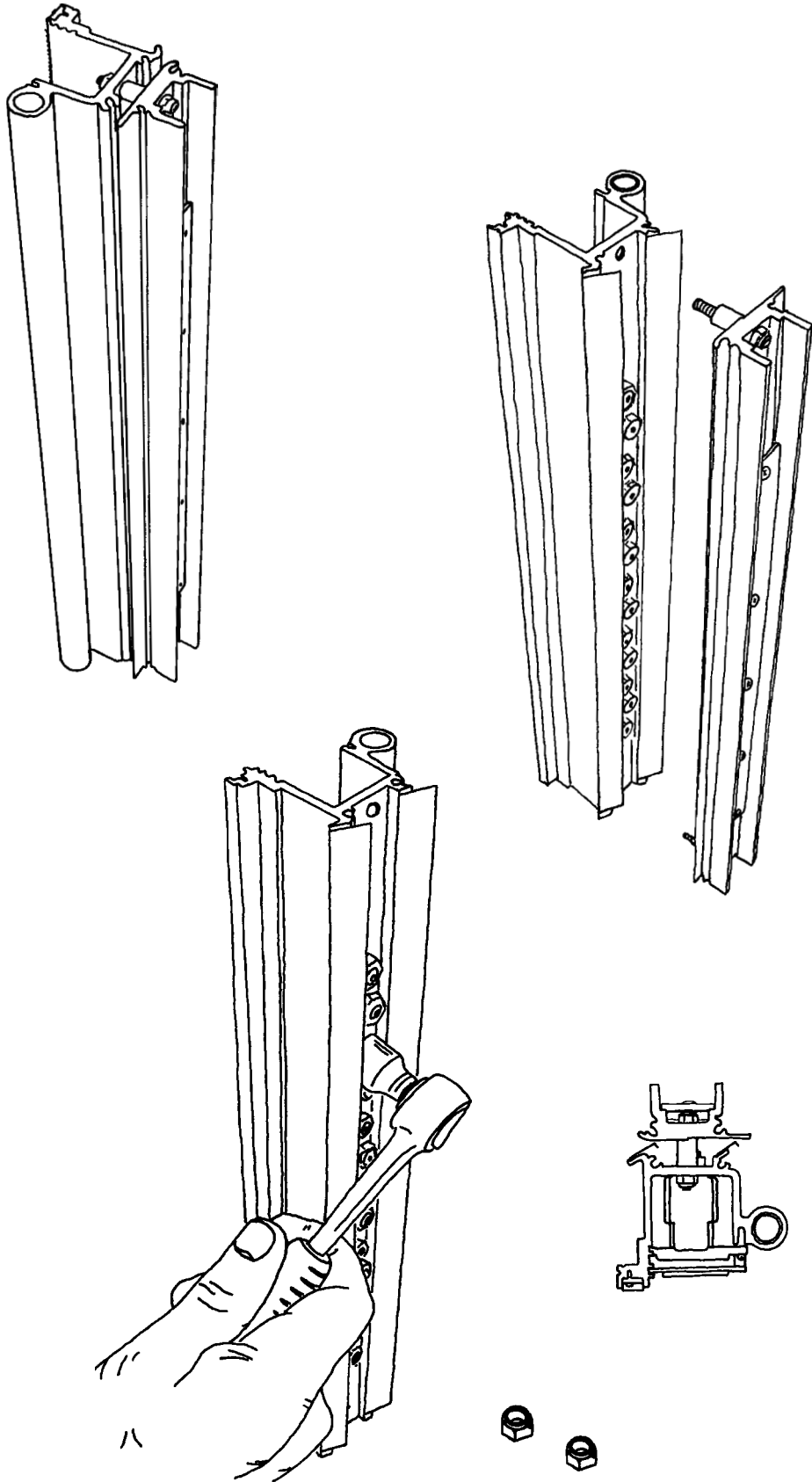
Removing the Printinghead



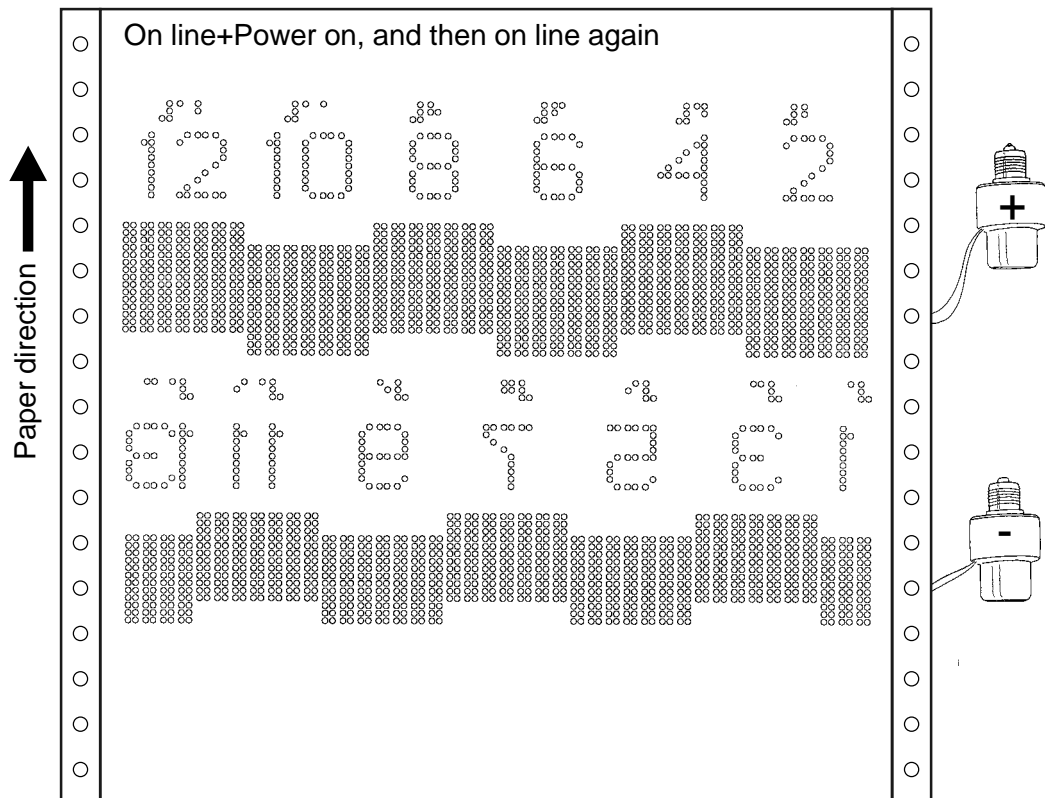
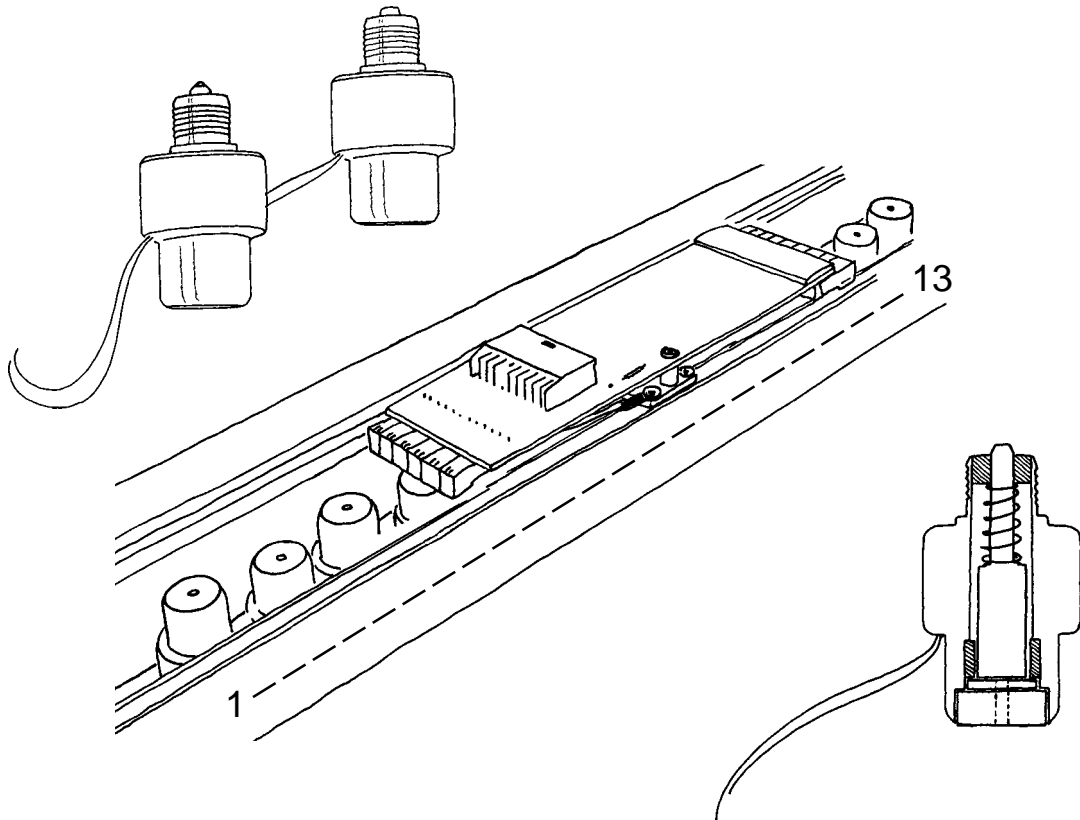
Removing the Printinghead



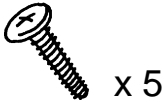
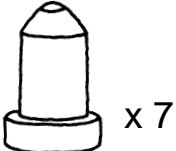
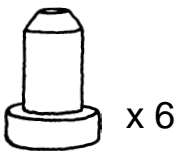
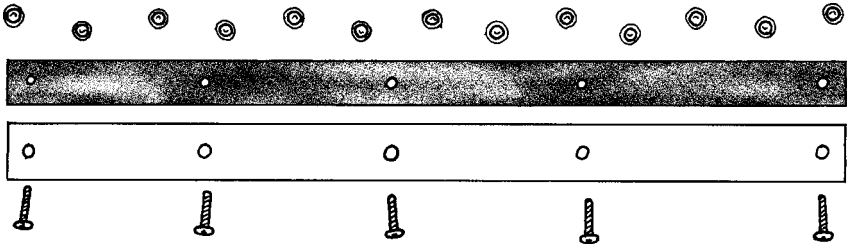
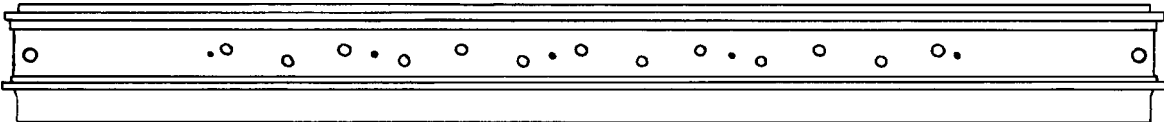
Printinghead



Printinghead

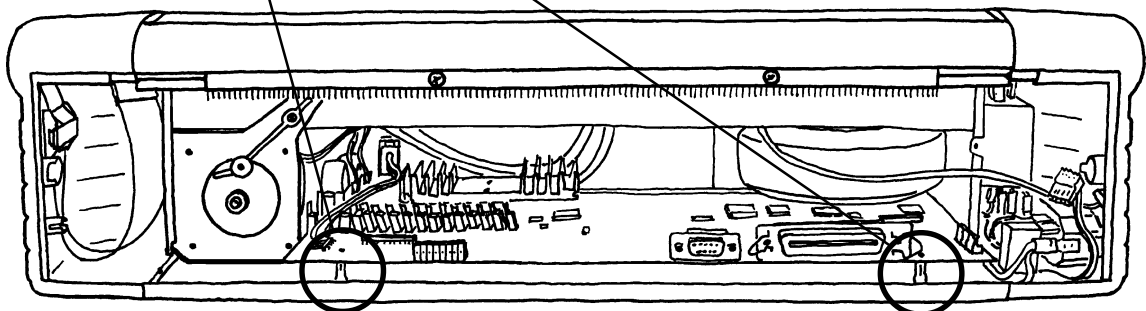
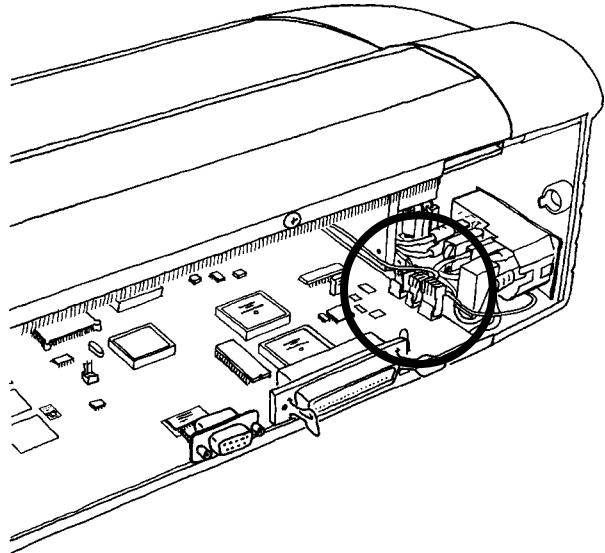
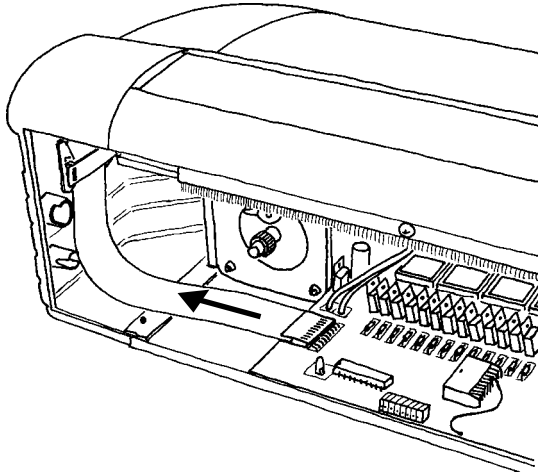


Printinghead

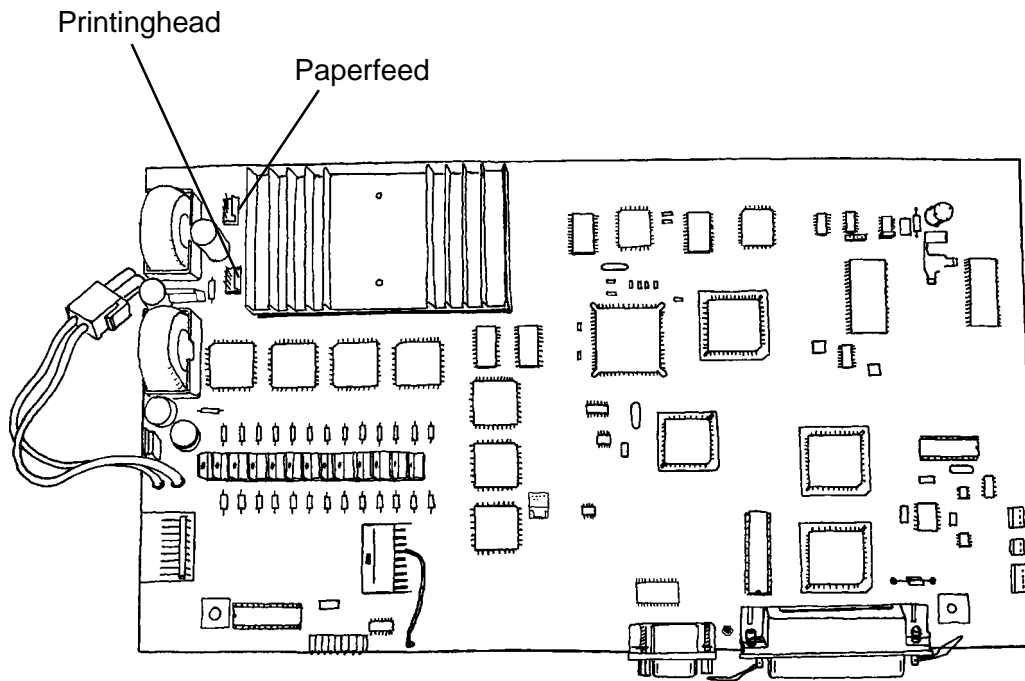
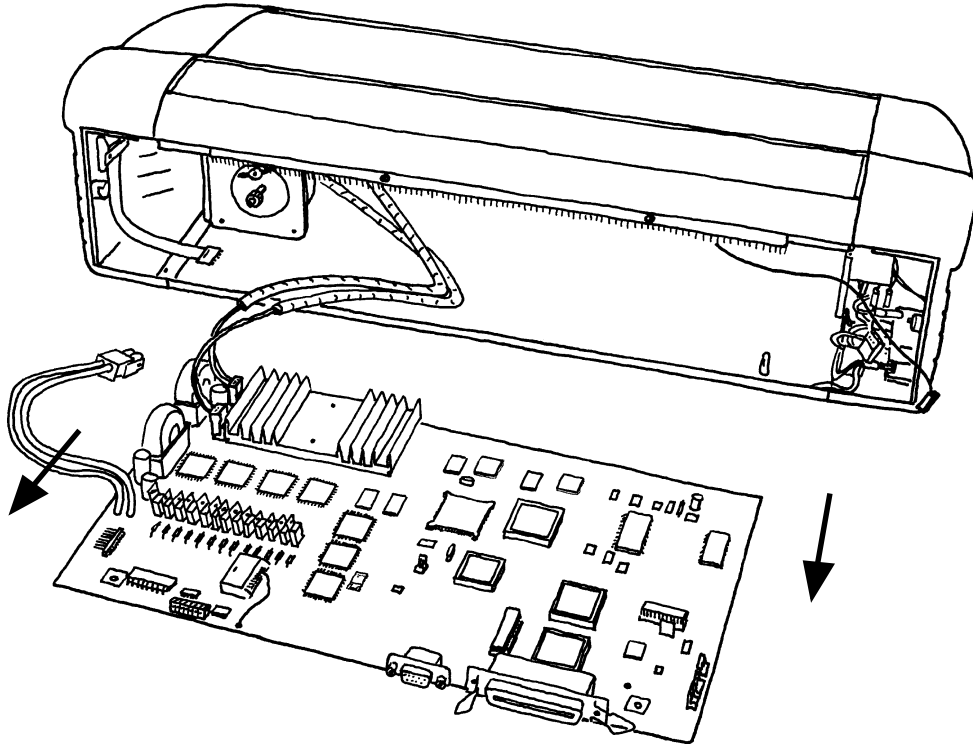


Removing the Mainboard

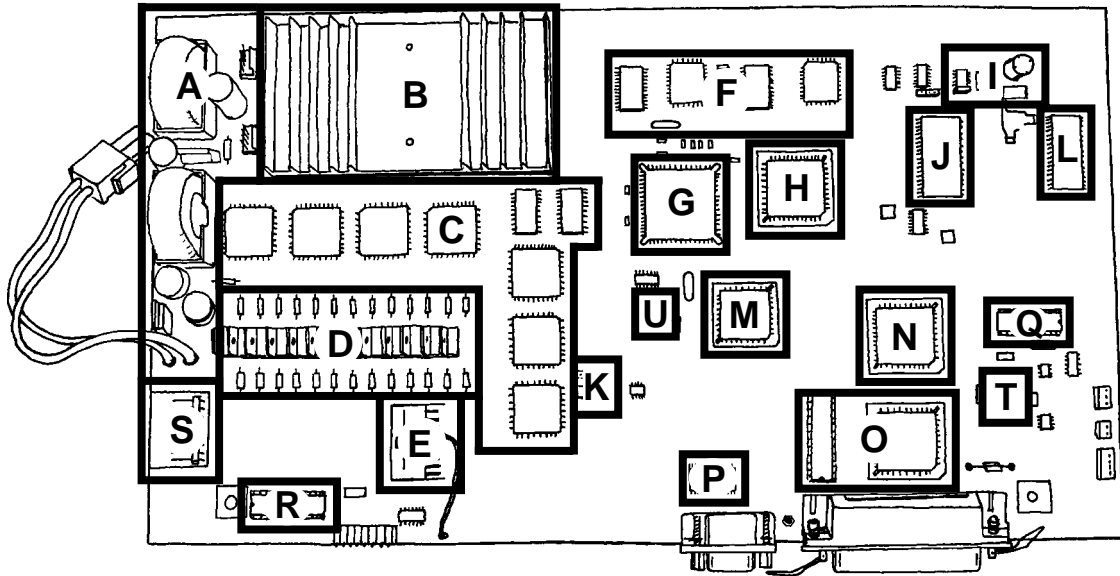
 **ATTENTION!**
Observe precautions for handling.
Electrostatic sensitive devices.



Removing the Mainboard

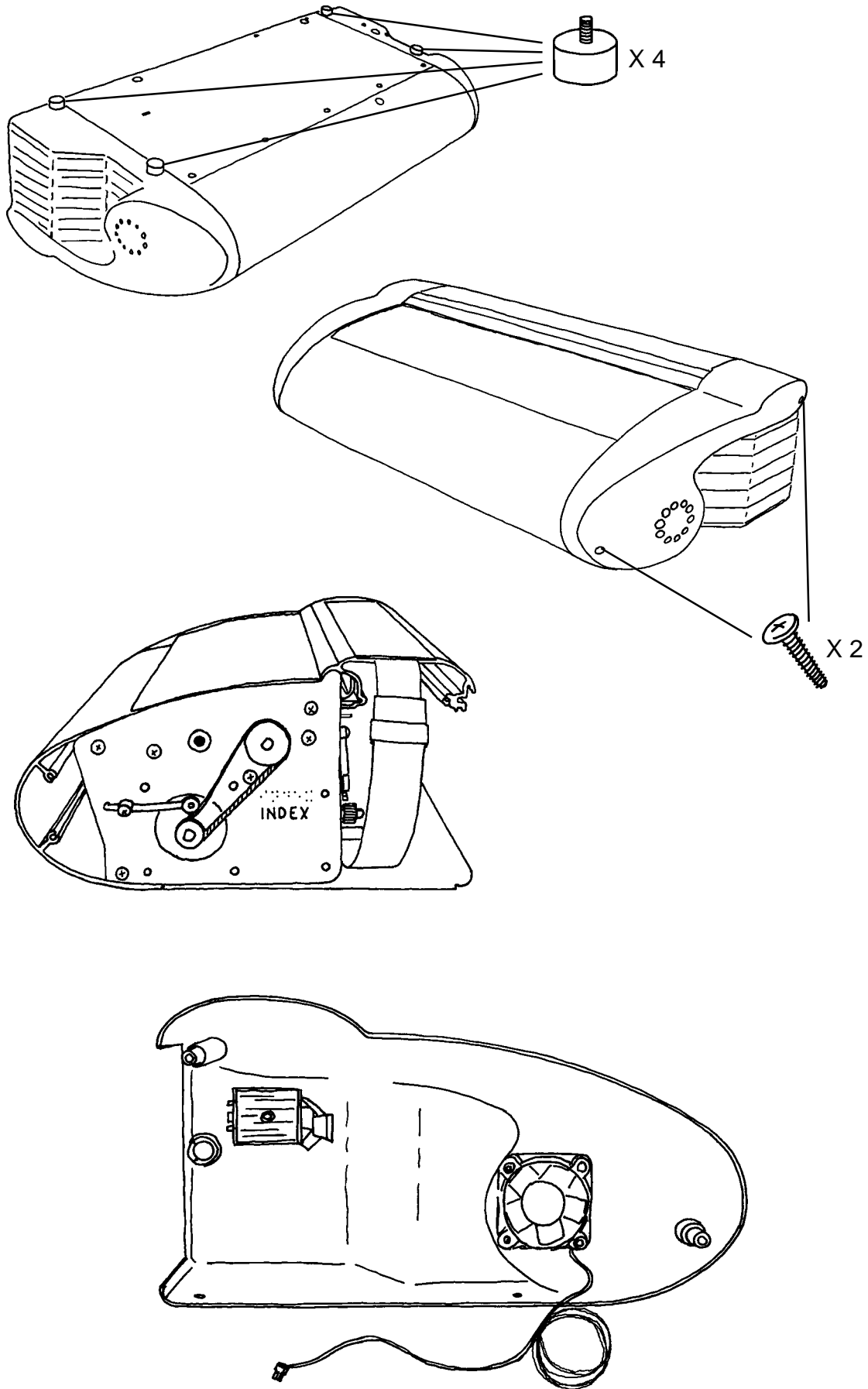


Mainboard

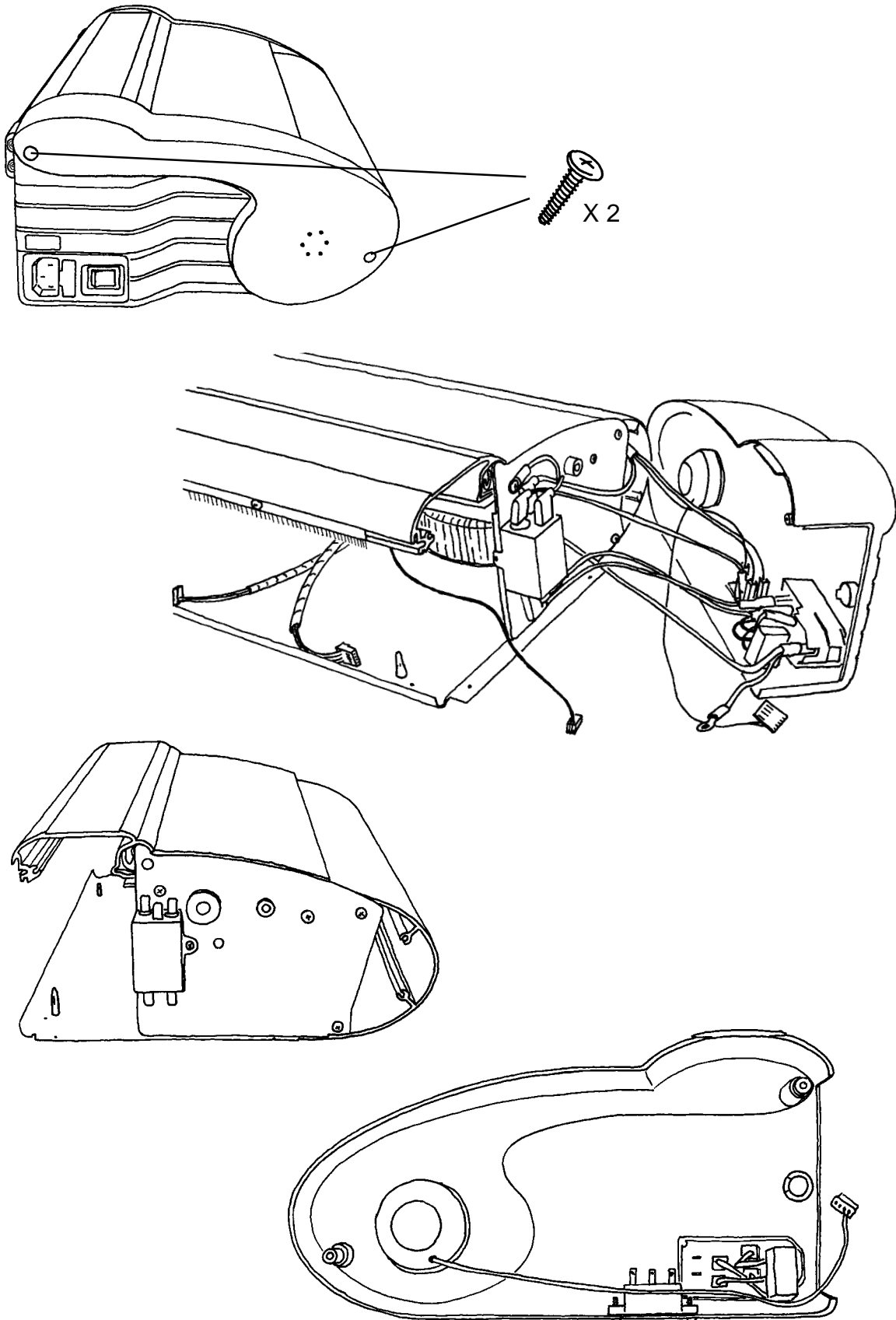


- A. Powerregulator for 5V + 12V.
- B. Stepmotor driver.
- C. Control circuite for powermodule (controlmodule).
- D. Powermodule for hammers (powermodule).
- E. Output connector for hammers.
- F. Fifo and buffer circuite for controlmodule.
- G. CPU, MC68230 FC 16.
- H. Controlcircuite for: stepmotor, fan, feeder, fifo clock and LED.
- I. Power for FLASH programming.
- J. FLASH memory.
- K. Paper moving sensor connector
- L. D-ram circuite.
- M. Mach circuite.
- N. Controlcircuite for: keyboard, speachcircuite and timerclock.
- O. Parallellport decoder.
- P. Serialport decoder
- Q. Speach circuite.
- R. Keyboard decoder.
- S. Keyboard connector.
- T. Digital volumecontrol circuite.
- U. Reset circuite.

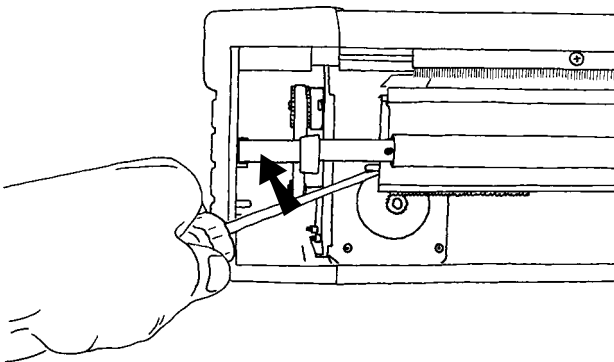
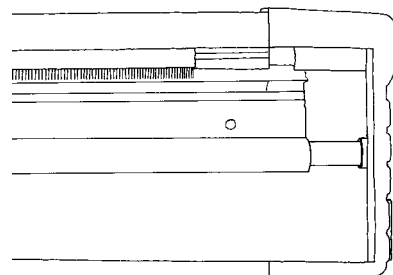
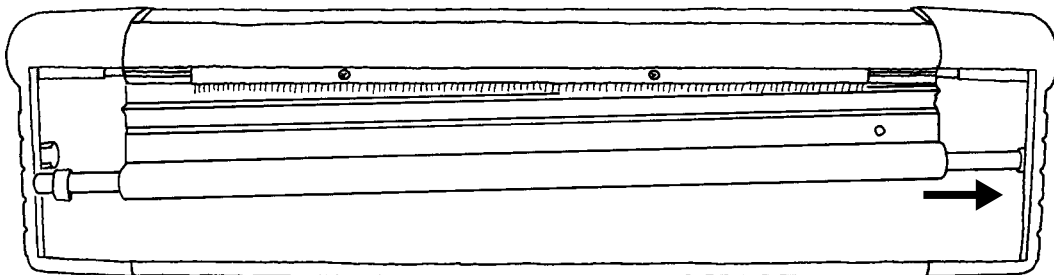
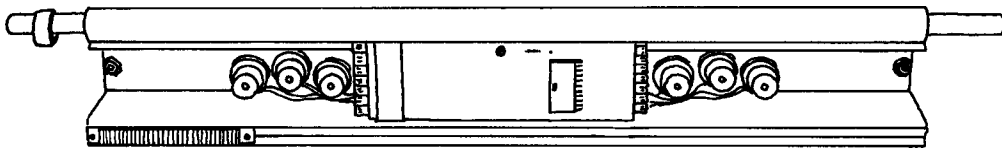
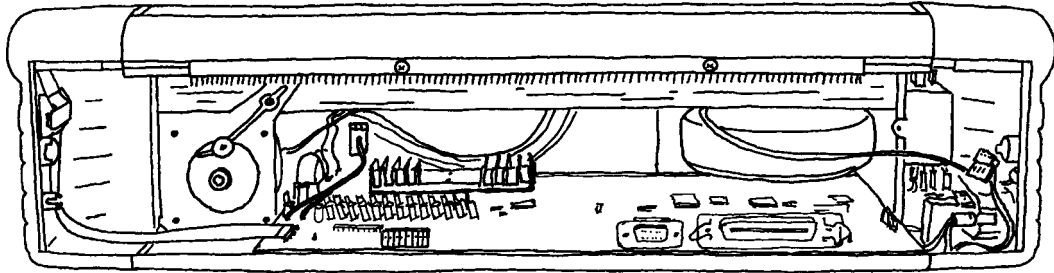
Opening the Sidecovers



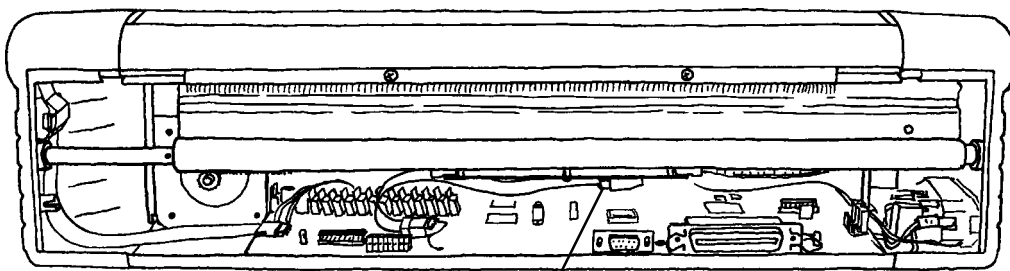
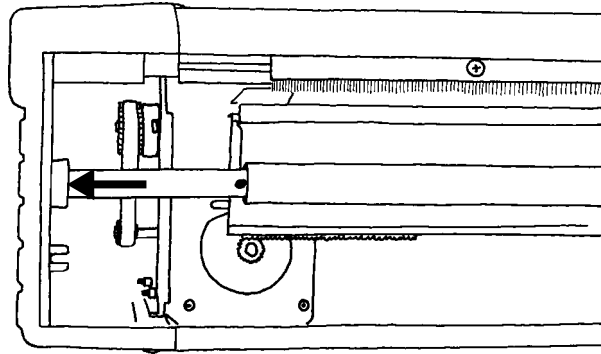
Opening the Sidecovers



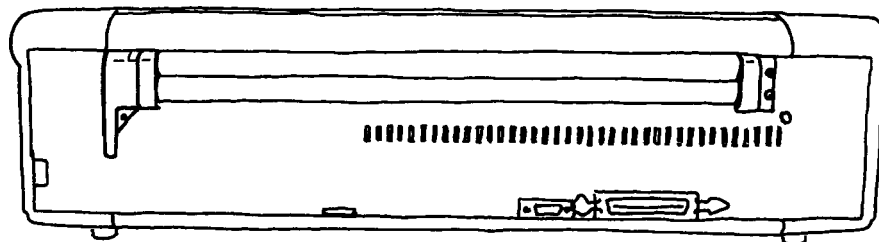
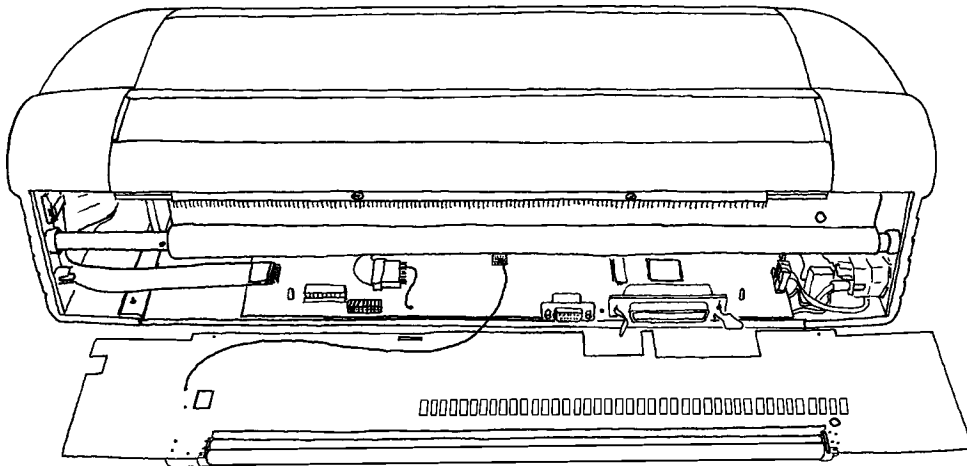
Mounting the Printinghead



Mounting the Printinghead



Connect the cable



Test Printinghead

Logic to test faulty hammer or driving electronic

Hammer

The forming hammers, 6 positive and 7 negative, are of similar type as used for daisy wheel printers. They have an expected life time of 200.000.000 strokes and the hammer tip is based hardened steel to ensure maximum life time. Voltage 40 V, Current 4-6 Amps, Resistans cold solenoid 1,9-2,0 Ohm, maximum temperature 130° Celcius, Plunger stroke 3.8 mm.

Driving electronics

The driving electronic of the Everest is of a very stable and ruff design. In most cases when electronic driving problem occurs, it is a result of a hammer with chort circuit (0 Ohm) or bad handling of the main board/cables.

Handle the Main Electronic Board of the Everest with the respect a six layer SMD CPU board with CMOS components require. Always use antistatics packing components and make sure that you and your work place is properly grounded.

The thirteen hammers and the stepper motor for the printing head are controlled by a pulse flow from a FIFO memory. The stepper motor pulses drives direct the two stepper motor driving circuit RIFA 3770. The puls flow used to drive hammers are created in the FIFO memory, passing a buffer step (74AC834) and controls the seven driving circuits (U35-41) for constant current regulation to the hammers via the power transistors T3-T15.

Test hammers and driving electronic

Make a test printout, POWER ON + ON LINE and ON LINE again = Normal impact. (Picture A)
Or: POWER ON + ON LINE and OFF LINE again = Light impact to evaluate hammers.
Evaluate the test printout and check which hammer that cause the problem. Make sure that the printer is set for 42 characters per line interpoint mode, standard on set-up C after system reset.

Evaluate if there is a hammer or a electronics fault.

If, for example, there is no print on block 6, (Picture B) test it in the following way;

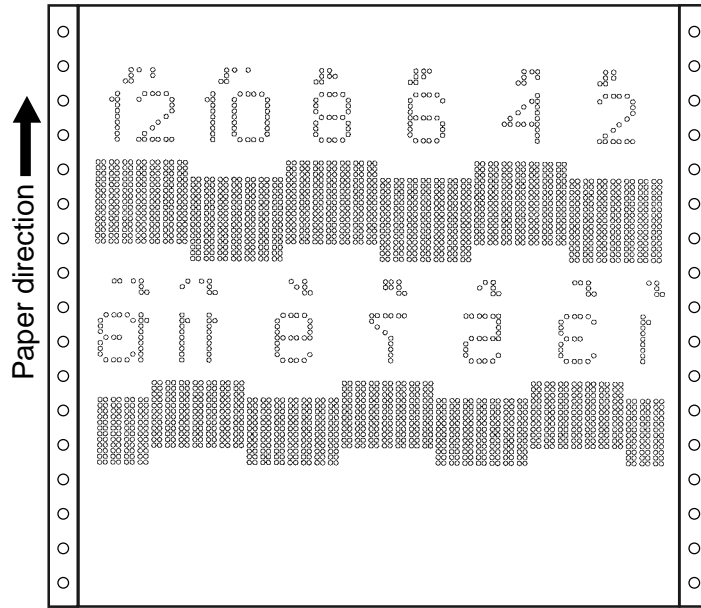
a) Open the front glass, take out the printing head and switch the connector cables between hammer 5 and 6. (Picture C) When you have the printing head separate check the resistance on each hammer. Shall be 1,9-2.0 Ohm, measure it on the printing head board.

b) Insert the printinghead again and make a new test printout, POWER ON + ON LINE and ON LINE again. (Picture A)

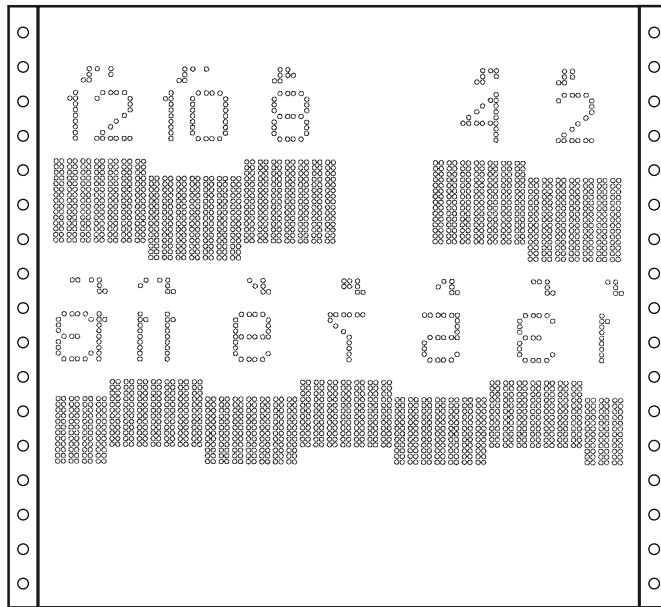
If the missed block (no 6) stays on the same side of the paper. It indicates that there is a mechanical problem on the hammer, no 6 in our example. If the missed block (no 6) moves to the other side of the paper, it is an electronic problem on main board or cable.

Note that the printout looks strange after switching hammers, so make sure that you understand the changed printout before starting to work with the printing head.

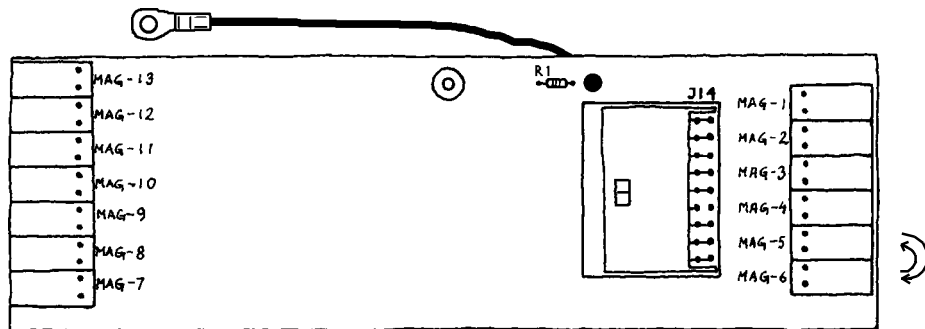
Test Printinghead



Picture A



Picture B

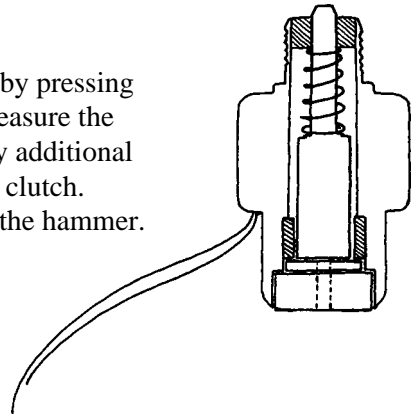


Picture C

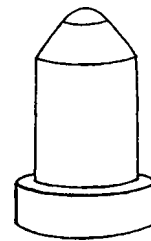
Test Printinghead

In case of a hammer problem.

Check that the hammer plunger moving smoothly without friction by pressing an axle from the back hole of the hammer, movement 3.8 mm. Measure the resistance of the hammer, it should be 1.9-2.0 Ohm. If there is any additional friction on the plunger, clean the plunger of the hammer with a soft cloth. If there still is additional friction it will be necessary to exchange the hammer.

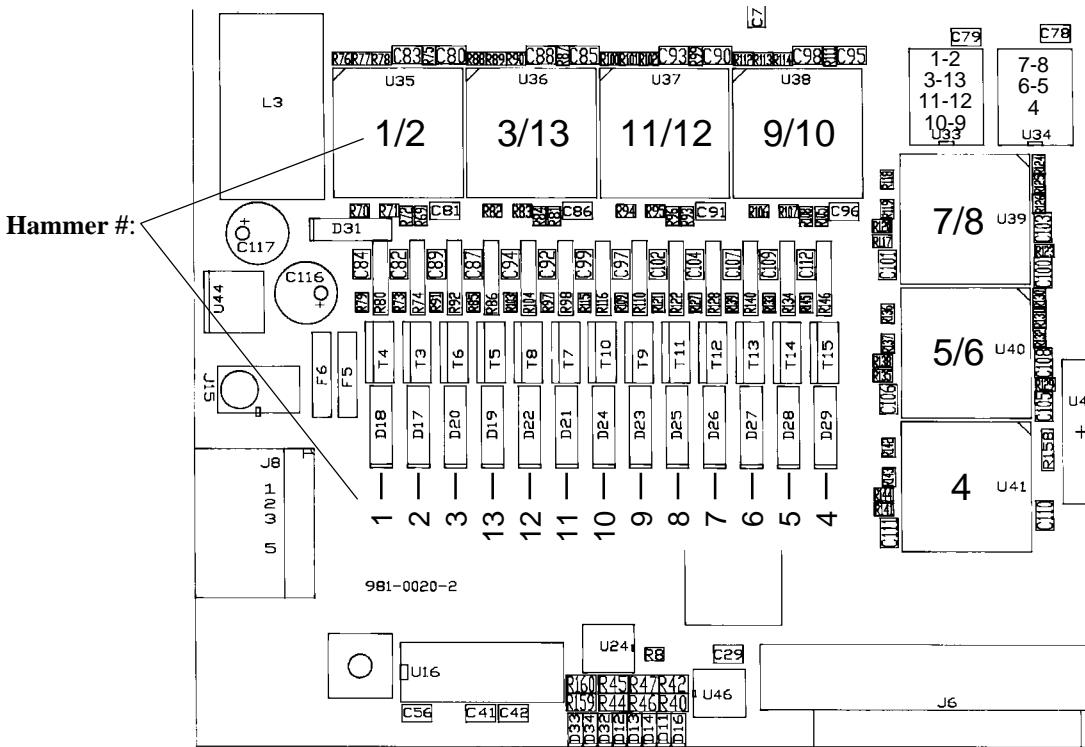


When the printing head is separated check that the tip of the anvil have a correct sphere form.



In case of a electronic problem.

- a) Check that the printhead cable is without damages.
- b) Check the resistance over the 13 power driving transistors (T3-T15 pin 1-3). The resistance shall be in the level 9-10 Kohm. A bad transistor normally indicates with a significant lower resistance. If this is the case exchange the transistor but be careful, it is a six layer board!



Test Printinghead

Our problem was on hammer six.

In below table you can see that it can be a result of driving circuit no U38.

NOTE!

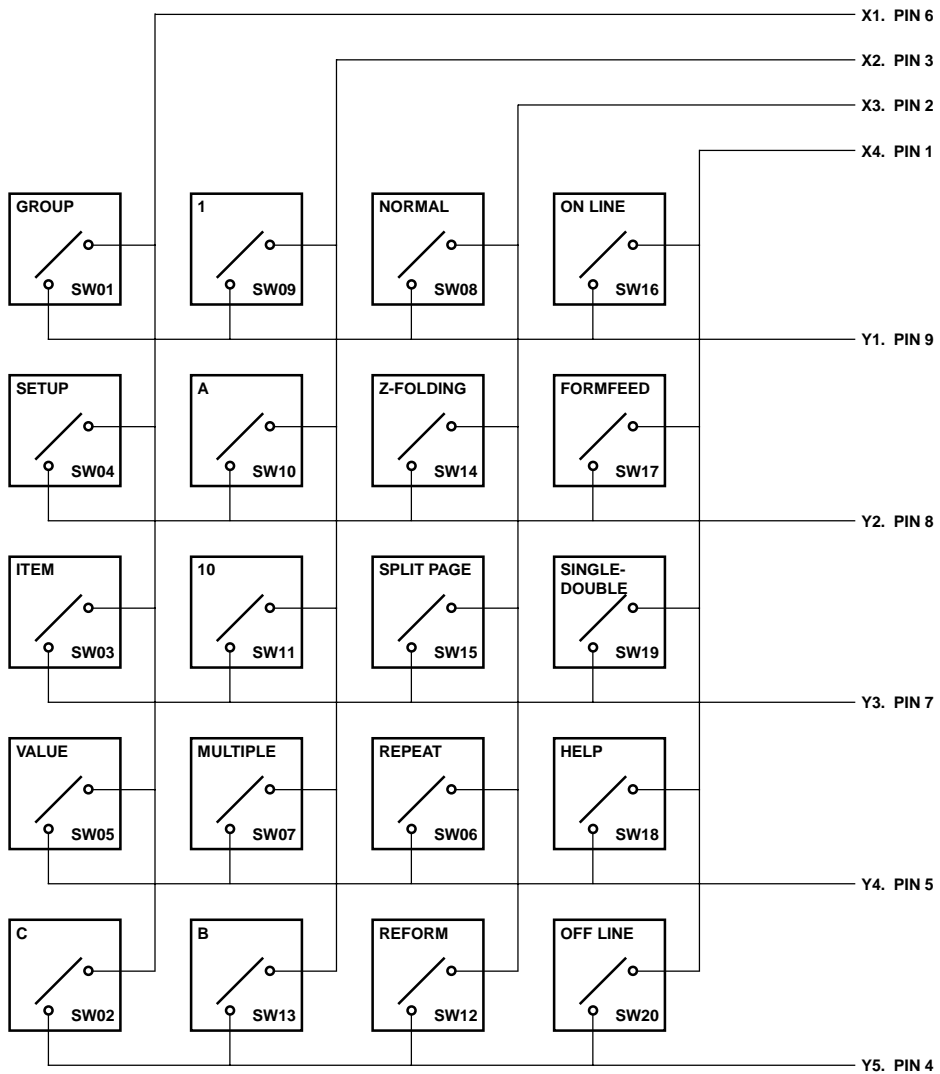
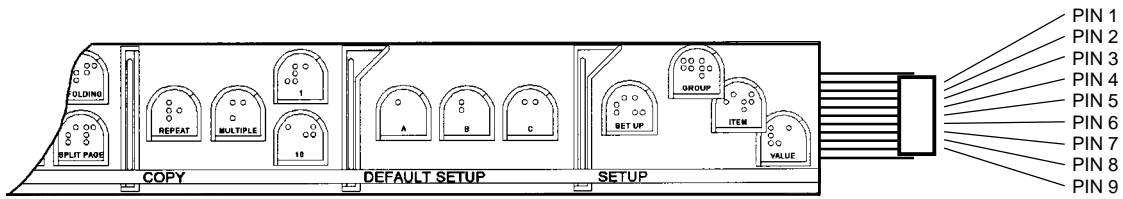
To go further and check it is necessary to have a good knowledge in computer hardware and a proper oscillochope with a probe available. Faulty handling on the board with power may damage the board and are not covered by warranty.

For a fault on hammer 6 (our example) check the in signal (pin 24+24) and out signal (18+23). These pins shall be on a logic 0, (below 1,8 V) after power on of the unit.

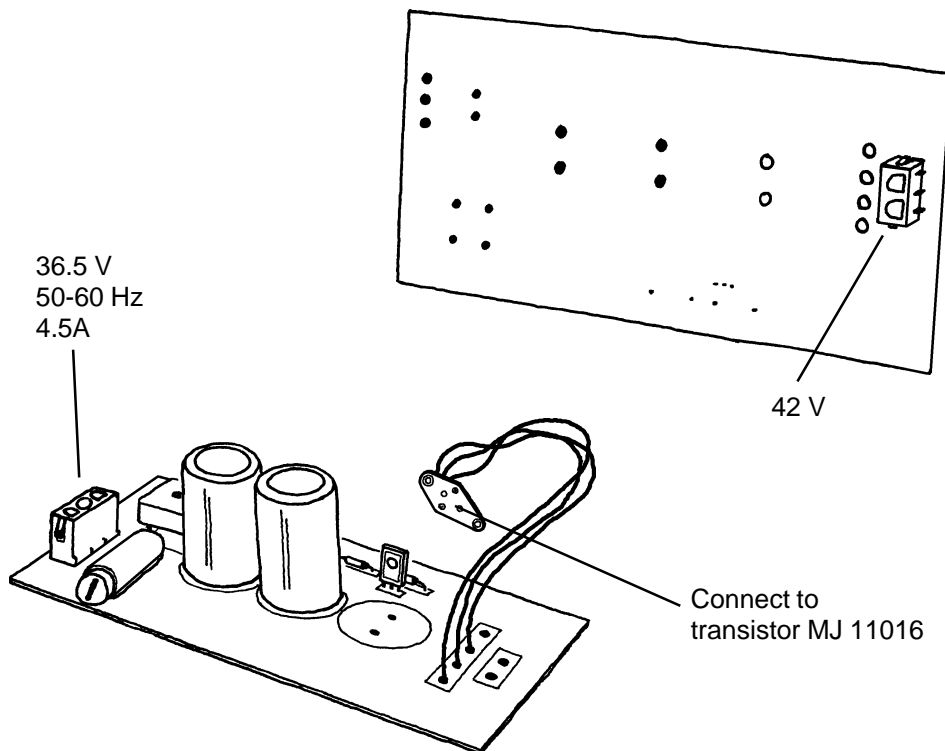
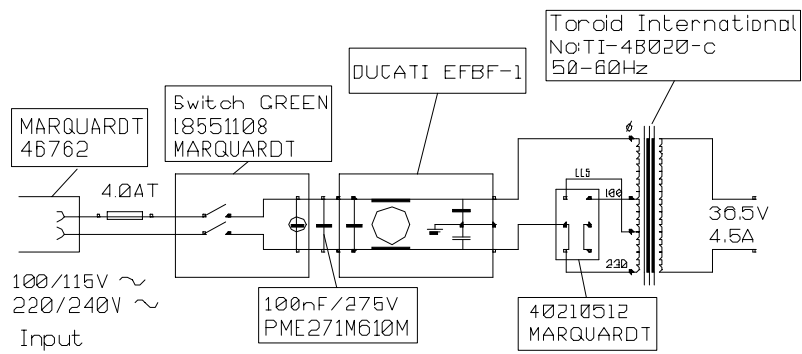
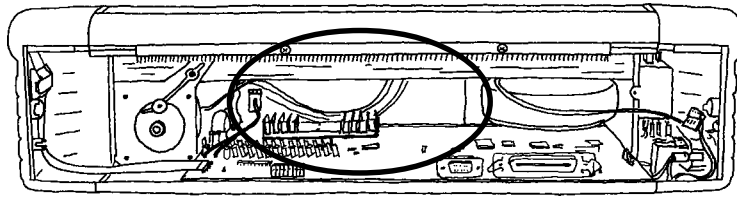
After repairing a printinghead run the self-test again, POWER ON+ON LINE and then ON LINE/OFF LINE. Check the printout and if necessary, adjust the impact level and the vertical alignment on the printer via the support software.

Hammer #, Type	Transistor MTP 3055E (x13)	Driving circuit UDN2916 (x7)	Name on Circuit diagram
No:1 Negative	T4	U35 in 1+44 out 3+6	Mag-B
No:2 Positive	T3	U35 in 24+25 out 18+23	Mag-A
No:3 Negative	T6	U36 in 1+44 out 3+6	Mag-D
No:4 Positive	T15	U41 in 24+25 out 18 +23	Mag-M
No:5 Negative	T14	U40 in 1+44 out 3+6	Mag-L
No:6 Positive	T13	U40 in 24+25 out 18+23	Mag-K
No:7 Negative	T12	U39 in 1+44 out 3+6	Mag-J
No:8 Positive	T11	U39 in 1+44 out 3+6	Mag-I
No:9 Negative	T9	U38 in 24+25 out 18+23	Mag-G
No:10 Positive	T10	U38 in 24+25 out 18+23	Mag-H
No:11 Negative	T7	U37 in 24+25 out 18+23	Mag-E
No:12 Positive	T8	U37 in 1+44 out 3+6	Mag-F
No:13 Negative	T5	U36 in 24+25 out 18+23	Mag-C

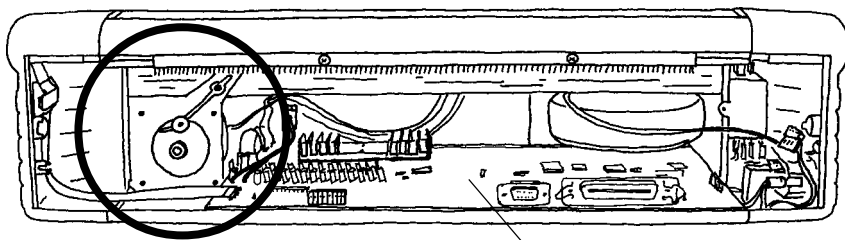
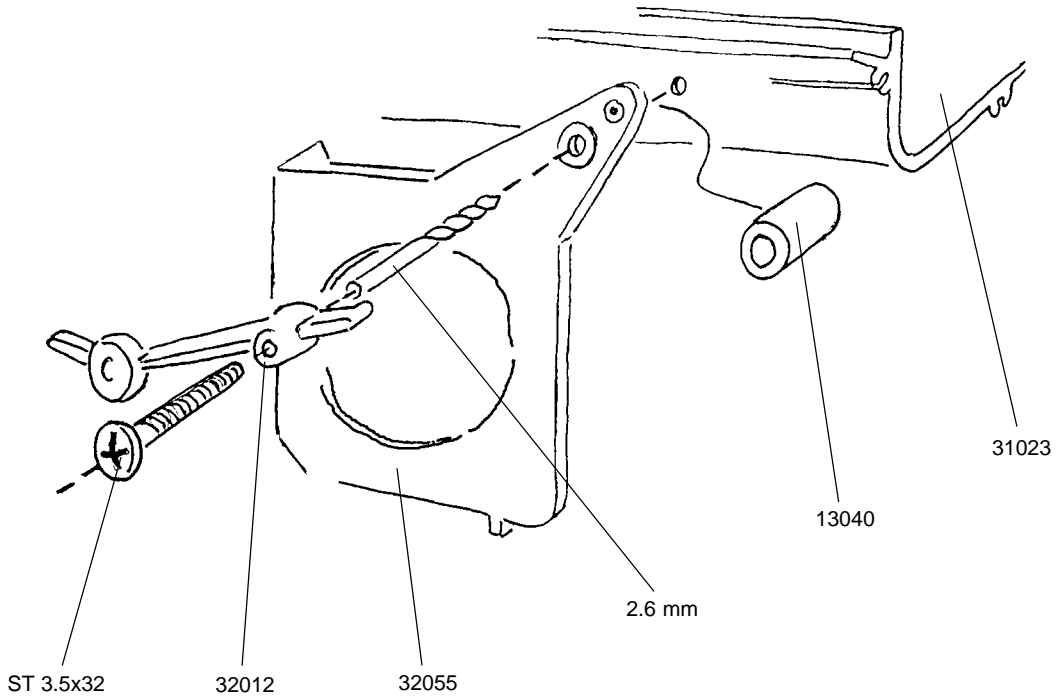
Front panel



Powersupply / voltage

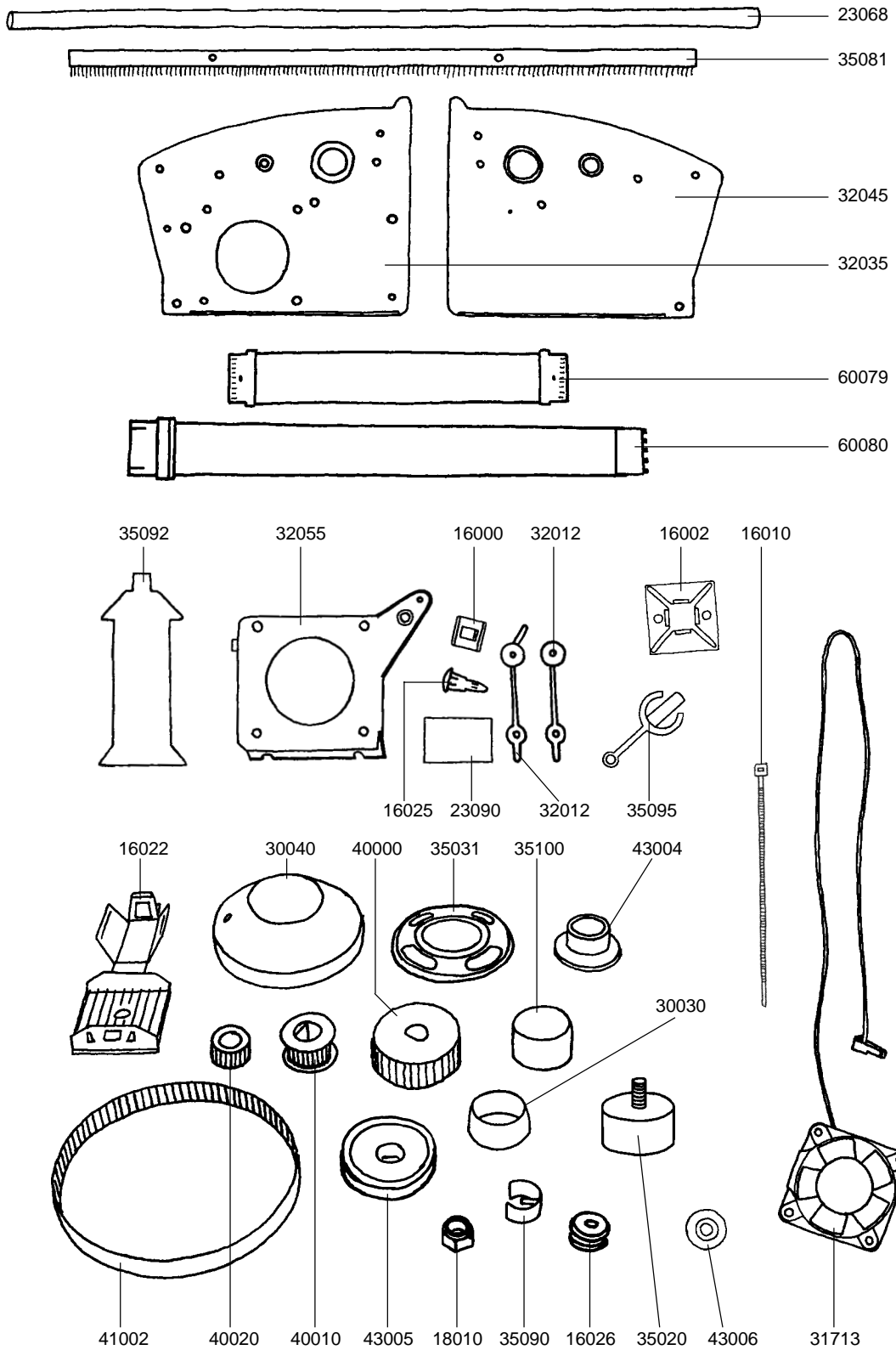


Stabilize the Printinghead motor (old Basic up to serialno: 21400, approx)

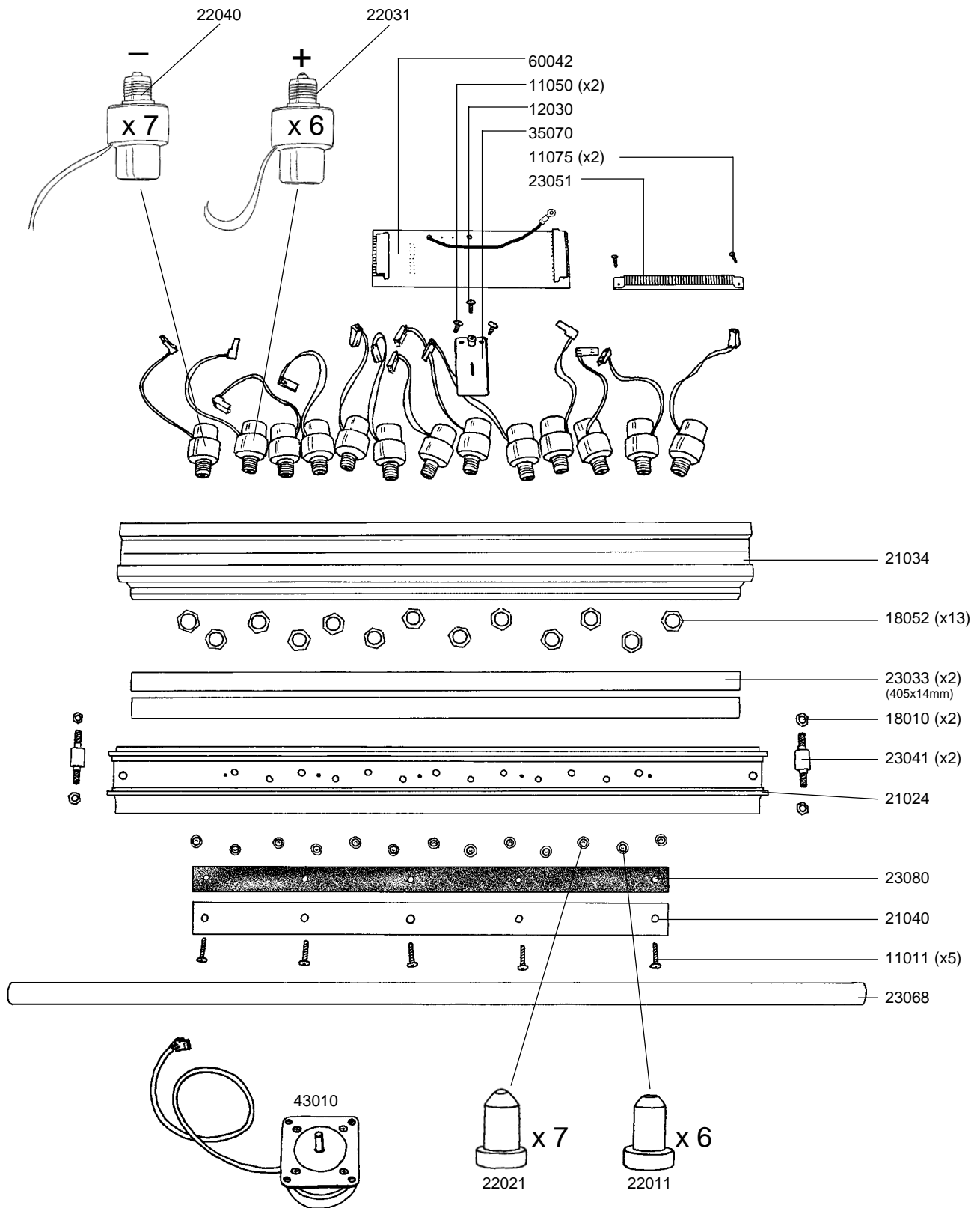


Note! Remove Mainboard before drilling the hole

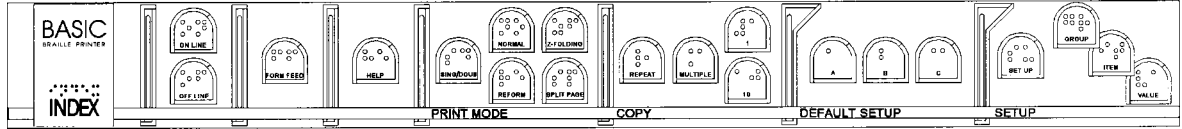
Sparepartlist



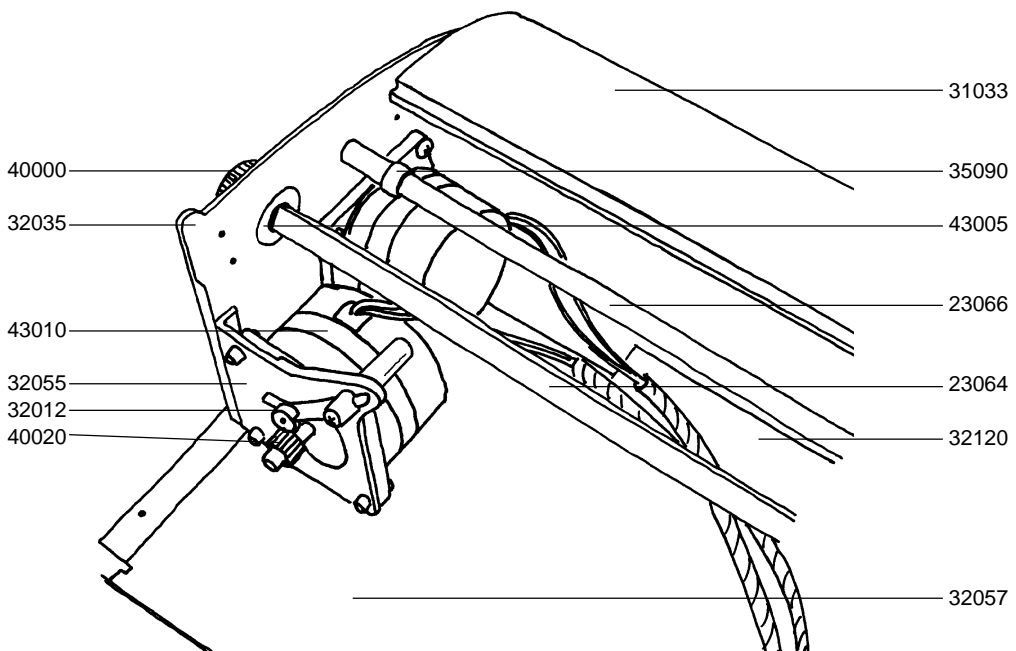
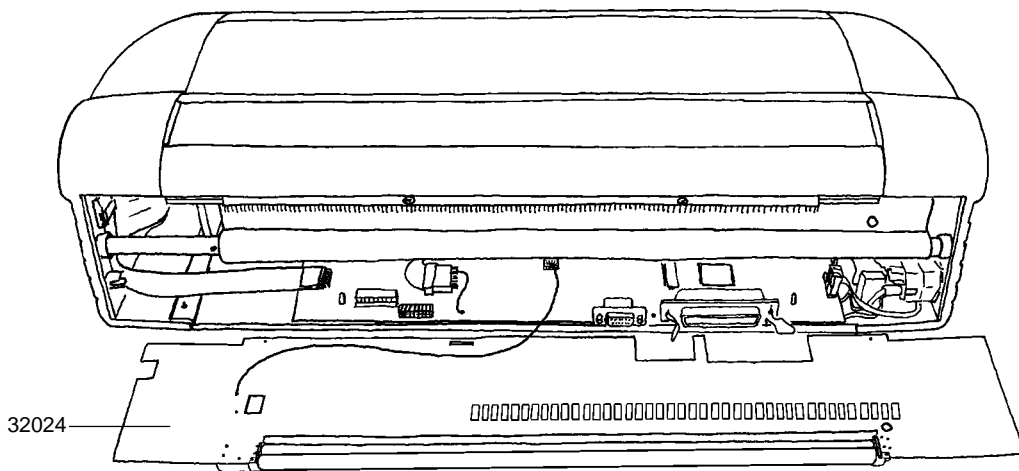
Sparepartlist



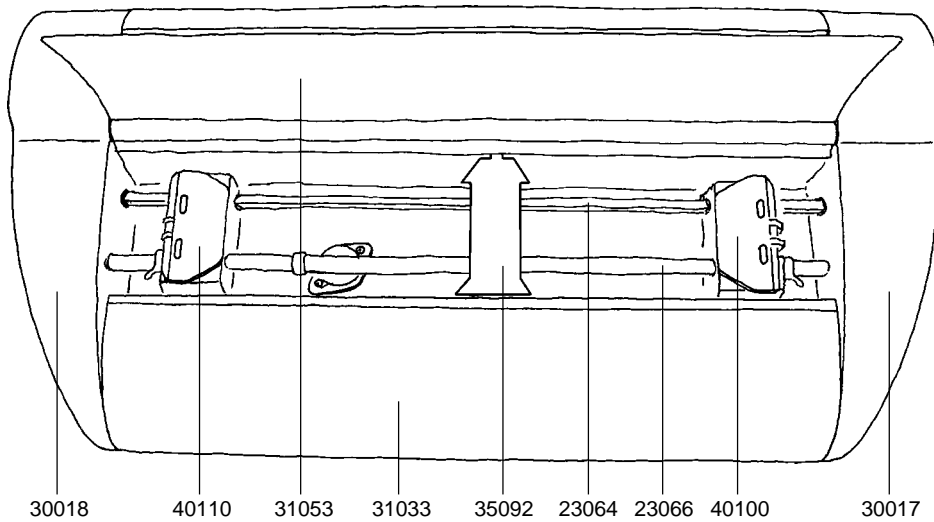
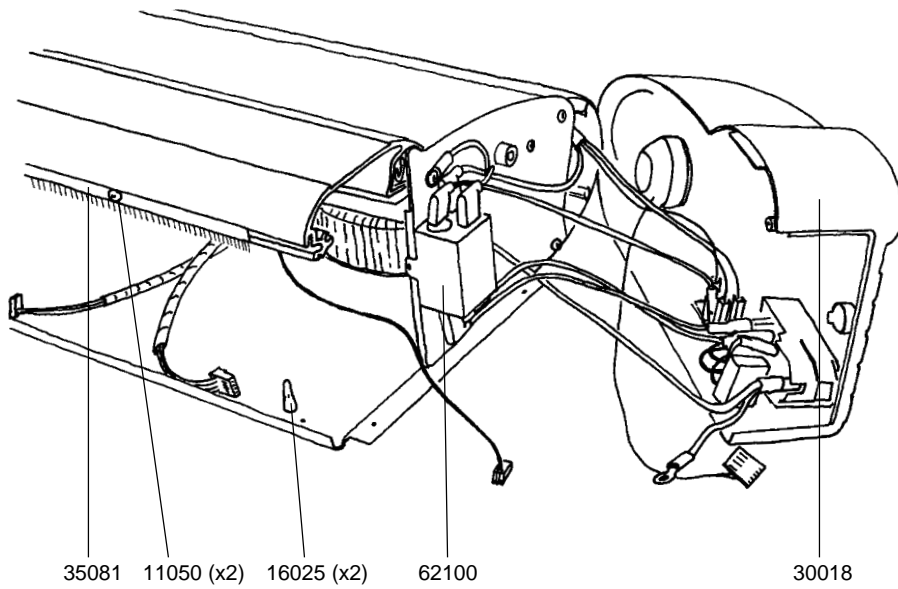
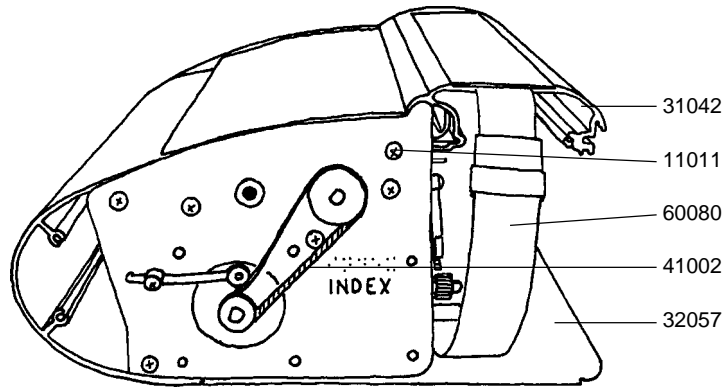
Sparepartlist



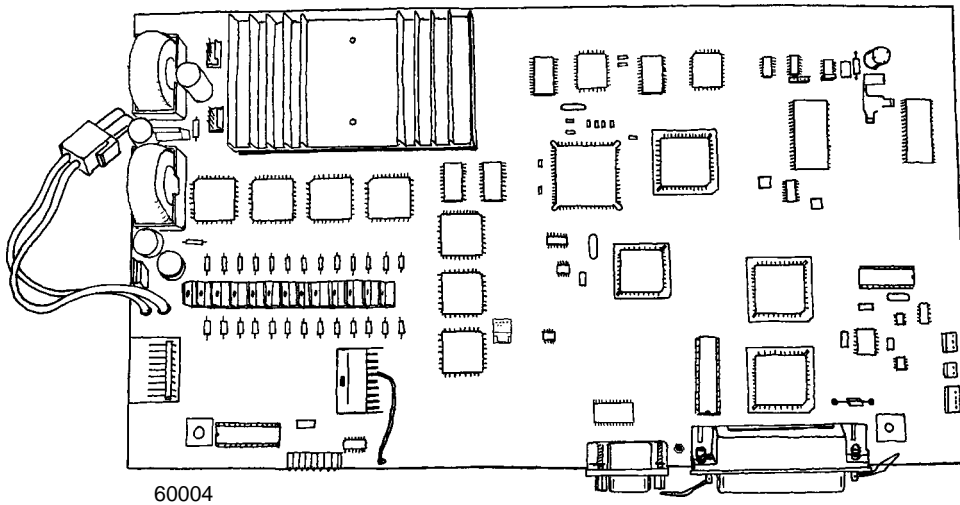
34030



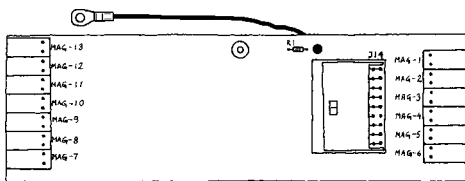
Sparepartlist



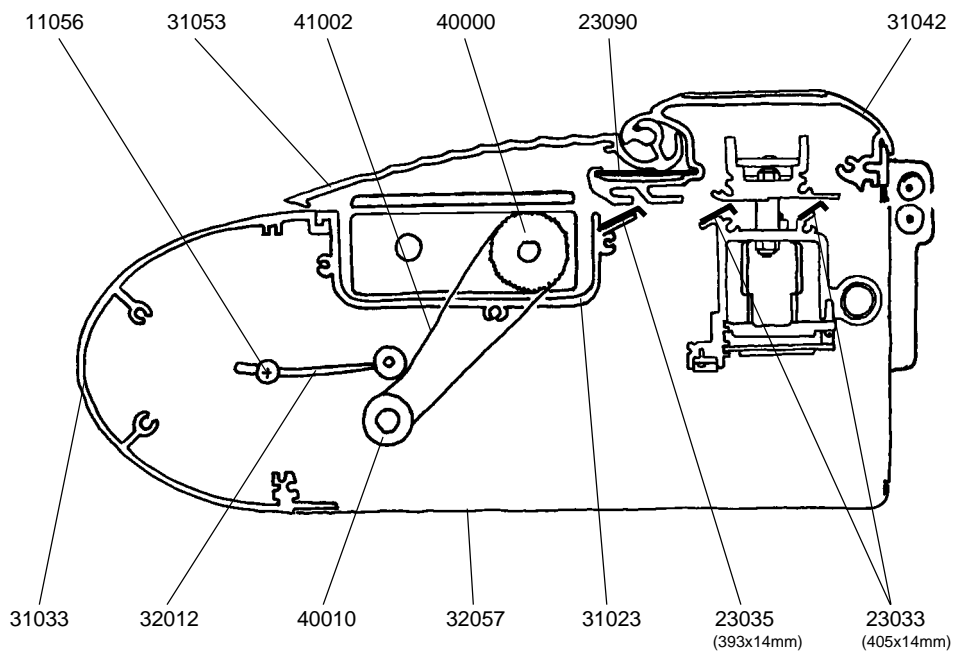
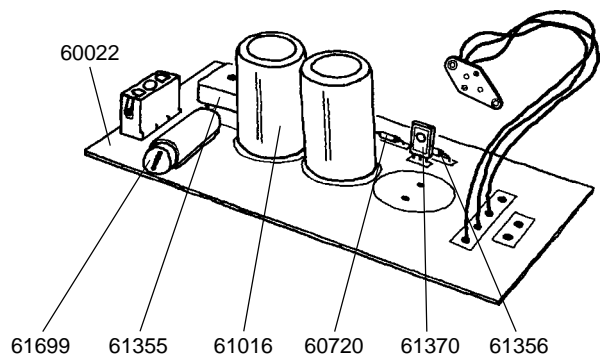
Sparepartlist



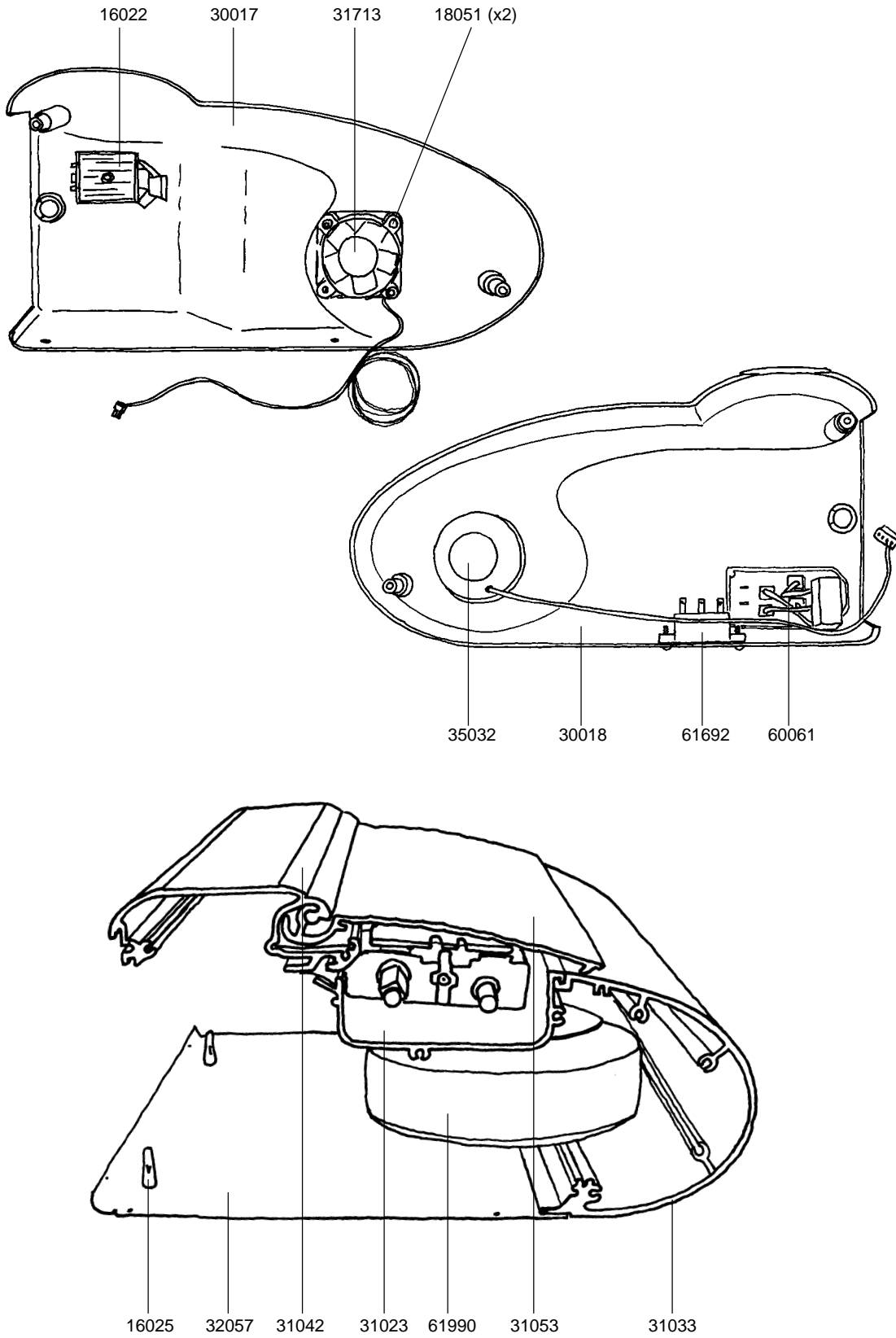
60004



60042



Sparepartlist



Fault detection

Fault	Possible explanation	Possible solution
Low dot quality	Not fixed anvils	Screws on anvils profile
	220 V printer on 110 V	Change to 100 Voltage. The printer set for 220 V will work on 110 but with very bad dot quality
	Negative hammer/ Anvils filled with paper	Clean anvils/hammer, check paper quality
	Anvils is worn out	Change anvils, normally the positive will worn out first.
	Hammers is worn out	Change hammers, normally the positive will worn out first.
	Hammers or power transistors is bad	Run the test specified on page 22
	Not good combination of hammers and anvils	Exchange to new anvils if the result is not acceptable, change also the hammers
	Faulty type of software is installed. 2.xx or higher on a version 1 board	If the mainboard is equipped with version 1 PAL and Boot circuit and 10 Kohm on driving transistors. Index can update the board to handle 2.xx and higher software.
No dots	Not connected or bad print head cable	Check cable
Bad vertical alignment	Gear wheel not fixed to the stepper motor	Clean the motor axle and gear wheel, than glue it with "Locktite 638"
	Worn out or smashed gear bar on printhead	Exchange the gearbar on the printing head
	Printer calculation resolution limitation maximum 0,3 mm.	Reduce the speed on option/print quality.
	Software bad adjusted	Run the hammer program
	Printinghead motor not fixed	See page 28
Squeezed first line or lines	Software 3.00 and 3.01 have reduced torque when starting motor	Install 3.03 or higher software
	The axle is dirty	Clean the axle with alcohol.
	Gearbar is wornout	Exchange the gearbar
Can not load own braille table	Different versions of the program in the printer and support program	Install the new version of the program in Basic. Then load the own tables into Basic. See: Transfer your own table to a new version of the support program.
Can not load a new program	Version 1 board	a) Load program 1.34 on V.1 board, (3.03 on V.2 board) b) Send the board to Index to be updated to a V.2 board
Keys have different functions	Everest software by mistake loaded on Basic	Install the Basic program with "install new". Press: Off line+Power on. Run restore program.
	Cable fault/twisted	Check cable see page 26
	Panel fault	Check panel see page 26
	Decoder circuit fault	Exchange decoder circuit, UXX

Fault detection

Fault	Possible explanation	Possible solution
My own tables is not on the new software	Load them from old software	a) copy "ownxx.s10" from old to new software b) copy "owntab.evp" from old to new software
Get latest software	Take it from our home page at: http://www.braille.se	a) click on the software you need and select if the name and position is OK. b) name BAXXXYYY.EXE where XXX is the language, YYY is the version no. c) Move the file (example baeng303.exe) to an empty temporary directory (c:\temp) d) Extract the file (example baeng303.exe) with the command "baeng303.exe -d". This will extract the files and directories on TEMP directory. e) Delete source file (example baeng303.exe) on the temp directory. f) Run "install.exe". This will install the software on directory c:\Basic\ba303 and start up the program to install on Basic. g) Next time you start the program run "basic" on c:\Basic\ba303 and follow the menu instruction.

Serial Number, dates & HW, SW and mechanical changes Basic D/S

From ser.no	Date	Type	SW	Change	Comments
20763	4/4 -97	ME SW	3.01	Mounting of Print head motor bracket in aluminium extrusion	Improved stability of motor.
20897	28/5-97	SW	3.02	Bug fix Bug fix	Japanese interline 2.2 mm Speech feedback for handshake Binding margin = 0 Letter graphic gave next printout in graphic mode. Increase torque on print head motor
20993	21/8-97	ME SW	3.10	Back plate with rubber rollers and sensor. Bug fix	Solved the problem of paper movement during printout, causing vertical misalignment. Japanese vertical alignment. Note! When installing >3.10 software set paper jam OFF if unit does not have the new back plate with sensor. Index recommend to update the unit with new backplate.
21038	12/9-97	ME SW	3.12	Bigger fan in side panel. New SW functions	Improved cooling. Automatic paper sensor at paper edge. Setup/option/formfeed = on/off gives an empty page before it start to emboss. Distance after file. 1 or 2. 1 is normal and 2 is the settings for the acoustic cabinet.
21077	22/8-97	ME SW	3.13	Bug fix New plastic spring (PH)	Print out nonsens on first line. Training mode removed. Improved connection to the ball bearing.
21281	14/2-98	ME		Rubber axles based on a steel axle	Improved printout quality
21506	29/5-98	SW	3.14 3.15	Test version for Japan Bug fix	Never released Centronics communication on some new laptops did not work.
21674	16/10-98	ME		Transport locking with a steel axle.	Improved locking security
21738	30/11-98	SW	3.16	Bug fix	Loading Braille codes failed with some computers – changed timing in the program
21790	11/2-99	SW	3.17	Windows drivers for Basic	
21917	29/3-99	SW	3.18	External ground for CPU Bug fix	Solved the problem with boards that didn't start up at all. A few units lost information in RAM.
21964	1/4 -99	SW	3.19		* Japanese pitch adjusted. * Position for transportation locking has been changed due to hardware changes. Units with older hardware must find the position manually. *Bug fix: in Split Page mode.
22230	1/9-99	SW	3.20	Bug fix	When downloading single sided software version 3.19, every second page disappeared in the printout. This bug is now corrected.

FAQ's

	Problem	Remedy
1	Everest prints outside the paper or nothing at all, or gives number of lines either zero or very high (e.g. 272) when pressin valule in stand by mode.	Paper sensor calibration.
2	Embosser does not start up	System reset Value power on (beep?) RESTORE CPU grounding must be improved if CPU number ends with an A
3	Installation Windows drivers – Word printout	Generic text only driver, Setup and install driver as default.
4	Vertical alignment old Everest and new Basic/Everest	Volt / Hammer software, Loose gear wheel
5	Windows/DOS Braille tables	Use BRLED to create user defined tables.
6	Problem to download new software to embosser	Shut down Win 95, Port setting to SPP, try RESTORE option.
7	Dots are not good on brand new Everest with new printinghead.	Springs are to weak. Problem selfadjusting after some time of printing.
8	Older Duxbury Braille translator does not display Index Basic D/S in the list of embosser settings.	Set the global settings for Index Everest
9	Upgrade limitations Everest	< version 6 = maximum 5.48 > version 6 = latest release on the web
10	NT drivers	Win-Braille
11	4x4 printinghead hits the margin of the paper	Press "Normal" + Power on & 1/10 keys

Support form

Use this form to send your support requests to Index Braille.

This form is also available at: www.indexbraille.com/suppreq.htm

Name	
Title	
Organisation	
Department	
Mailing address	
Shipping address	
City	
Zip Code	
State	
Country	
Phone	
Fax	
E-mail	
Type of embosser	
Serial number	
Software version	
Communication type	
Connected as	
Port	
Type of Computer	
Operating system	
Braille Editor	
Fault Description	

